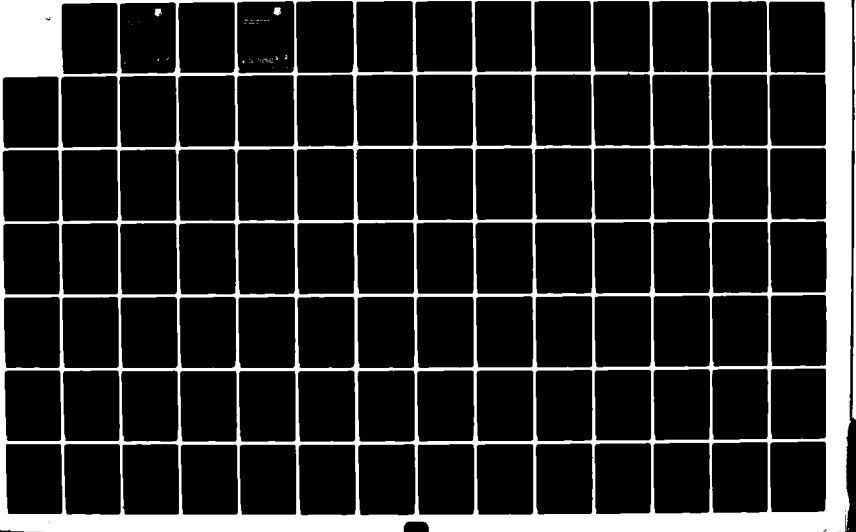
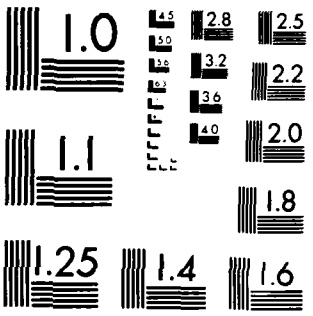
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RADC-TR-83-314, Vol II (of two)
Final Technical Report
February 1984

AD-A141 632

SREM EVALUATION Specifications and Technical Data

Martin Marietta Denver Aerospace

A. Stone, D. Hartschuh and B. Castor

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APPROVED: William E. Rzepka

WILLIAM E. RZEPKA
Project Engineer

APPROVED: Raymond P. Urtz Jr.

RAYMOND P. URTZ, JR.
Acting Technical Director
Command and Control Division

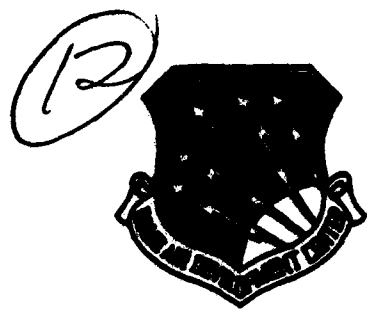
FOR THE COMMANDER: John A. Ritz

JOHN A. RITZ
Acting Chief, Plans Office

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER RADC-TR-83-314, Vol II (of two)	2. GOVT ACCESSION NO. AD-A141 632	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) SREM EVALUATION Specifications and Technical Data		5. TYPE OF REPORT & PERIOD COVERED Final Technical Report 1 Oct 80 - 15 Nov 83 6. PERFORMING ORG. REPORT NUMBER MCR-83-553-
7. AUTHOR(s) A. Stone D. Hartschuh B. Castor		8. CONTRACT OR GRANT NUMBER(s) F30602-80-C-0272
9. PERFORMING ORGANIZATION NAME AND ADDRESS Martin Marietta Denver Aerospace P.O. Box 179 Denver CO 80201		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 62702F 55812203
11. CONTROLLING OFFICE NAME AND ADDRESS Rome Air Development Center (COEE) Griffiss AFB NY 13441		12. REPORT DATE February 1984 13. NUMBER OF PAGES 576
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office) Same		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION DOWNGRADING SCHEDULE N/A

16. DISTRIBUTION STATEMENT (of this Report)

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17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

Same

18. SUPPLEMENTARY NOTES

RADC Project Engineer: William E. Rzepka (COEE)

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Requirements Engineering
Specification Languages
Software Tools

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

In the fall of 1980, the Rome Air Development Center contracted Martin Marietta Denver Aerospace to perform a comprehensive evaluation of the Software Requirements Engineering Methodology (SREM). The objectives of the evaluation were to assess the capabilities of SREM for specifying the software requirements of large, embedded computer systems and to recommend improvements which would enhance its effectiveness. Specific evaluation criteria were developed to judge the effectiveness of the methodology,

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support tools and user training.

The approach included attending a SREM training course and using SREM to specify the software requirements for two Air Force systems. One of these was a large distributed computer system whose 515 page, English language system description resulted in 35,550 lines of formal requirements specification with over 3000 data base elements. The relatively small number of errors uncovered indicates the effectiveness of disciplined requirements analysis techniques and the capabilities of SREM for exposing subtle problems.

In general, it was found that the SREM was an effective vehicle for specifying and analyzing the software requirements of large embedded computer systems, especially descriptions of real world objects, data requirements and message processing. However, deficiencies were noted in the specification language, particularly in describing parallel and distributed processing requirements, in the "friendliness" of the user interfaces to the analysis (consistency/completeness) and simulation tools, in the performance of these tools and in the effectiveness of the training. Appropriate improvements to all of the functional deficiencies are recommended.

Foreword to Volume II

These appendices to the SREM Evaluation Final Technical Report contain several classes of data from which the discussion, results, and conclusions of the project were, in part, derived. The intent is to provide examples of the types of information that were available or developed rather than provide an exhaustive compendium of all the data involved.

The sequence of the appendices roughly follows the time line approach undertaken in the project which is also analogous to a standard life-cycle development sequence. The SREM RSL description of the NELS system in Appendix A is followed by graphic design charts (Nassi-Schneiderman diagrams + module hierarchy descriptions) in Appendix B. This appendix contains both versions of the NELS design, one derived directly from the SREM data and one derived in conventional fashion directly from the NELS specification.

Appendix C shows the results of performing SREM analyses on an ASSM using the REVS program. Two types of analysis are shown, data element and data flow. These were used to validate the NELS definition. REVS can also be used to generate information for a MIL-STD 490 type B5 specification. This is provided in Appendix D.

In evaluating the simulator portion of SREM, only selected subsystems of the NELS were used. Appendix E contains the simulator generation for one of these, also named N-E-L-S, beginning with the Pascal code for the Simulator Definition File (SDF) and followed by the REVS-generated simulator program.

Appendixes F and G provide supplementary information concerning the VAX-based SREM software and its installation, and the design quality measures that were used to compare the effectiveness of alternative design schemes in assessing the effectiveness of the SREM technique.

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APPENDIX A

NELS ASSM

```
      DATA:  D←081←A←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
      DATA:  D←082←A←NELS←EMITTER←VEL←X←DATA
      DATA:  D←083←A←NELS←EMITTER←VEL←Y←DATA
      DATA:  D←084←A←NELS←EMITTER←VEL←Z←DATA
      DATA:  D←085←A←NELS←EMITTER←X←DATA
      DATA:  D←086←A←NELS←EMITTER←Y←DATA
      DATA:  D←087←A←NELS←EMITTER←Z←DATA
      DATA:  D←117←PLATFORM←MOD←X←DATA
      DATA:  D←118←PLATFORM←MOD←Y←DATA
      DATA:  D←119←PLATFORM←MOD←Z←DATA
      DATA:  D←130←A←SCENARIO←GEN←ID←NUM←DATA
      DATA:  D←133←SECOND←CMDRS←REC←UPDATE←DATA
      DATA:  D←139←TASK←QUE←ID←DATA
      DATA:  D←143←X←LOC←FEASIBLE←DATA
      DATA:  D←145←Y←LOC←FEASIBLE←DATA.


[RADX COMMAND=
LIST ALL.
----------

   ALPHA:  A←01←DME←INS←NOISE←GENERATION←ALPHA.
        BETA:
        "BEGIN
     D←018←ASP←PITCH←DATA := D←018←ASP←PITCH←DATA + 0.01
     ;D←019←ASP←ROLL←DATA := D←019←ASP←ROLL←DATA - 0.01
     ;D←025←ASP←YAW←DATA := D←025←ASP←YAW←DATA + 0.01
     ;D←010←ASP←ALTITUDE←DATA := D←010←ASP←ALTITUDE←DATA - 0.01
     ;D←012←ASP←LATITUDE←DATA := D←012←ASP←LATITUDE←DATA + 0.01
     ;D←017←ASP←LONGITUDE←DATA := D←017←ASP←LONGITUDE←DATA - 0.01
     ;D←014←ASP←LOC←X←DATA := D←014←ASP←LOC←X←DATA + 0.01
     ;D←015←ASP←LOC←Y←DATA := D←015←ASP←LOC←Y←DATA - 0.01
     ;D←016←ASP←LOC←Z←DATA := D←016←ASP←LOC←Z←DATA + 0.01
     ;D←021←ASP←TIME←DATA := D←021←ASP←TIME←DATA - 0.01
     ;D←022←ASP←VEL←X←DATA := D←022←ASP←VEL←X←DATA + 0.01
     ;D←023←ASP←VEL←Y←DATA := D←023←ASP←VEL←Y←DATA - 0.01
     ;D←024←ASP←VEL←Z←DATA := D←024←ASP←VEL←Z←DATA + 0.01
   END;".
        DATE←ENTERED: 11182.
        DESCRIPTION:
                "MODELS SENSOR PLATFORM ACTIVITY BY ASSUMING THAT DME
      ERRORS ARE GAUSSIAN DISTRIBUTED WITH A CONSTANT MEAN, AND INS
      ERRORS ARE ZERO MEAN GAUSSIAN DISTRIBUTED".
        ENTERED←BY: "JJF-NELS".
        GAMMA:
          "VAR SSRAND : REAL
       ;FUNCTION SSRANDU : REAL
         ;BEGIN
           SSRAND := 29.0 * SSRAND + 357.0
           ;SSRAND := SSRAND - TRUNC(SSRAND)
           ;SSRANDU := SSRAND
          END
       ;FUNCTION SSSIGN : REAL
         ;BEGIN
           IF SSRANDU < 0.5 THEN SSSIGN := -1.0
           ELSE SSSIGN := 1.0
          END
```

```
        ;BEGIN
           SSRAND := 0.801463
          ;D←018←ASP←PITCH←DATA :=
             D←018←ASP←PITCH←DATA + SSSIGN * SSRANDU
          ;D←019←ASP←ROLL←DATA :=
             D←019←ASP←ROLL←DATA + SSSIGN * SSRANDU
          ;D←025←ASP←YAW←DATA :=
             D←025←ASP←YAW←DATA + SSSIGN * SSRANDU
          ;D←010←ASP←ALTITUDE←DATA :=
             D←010←ASP←ALTITUDE←DATA + SSSIGN * SSRANDU
          ;D←012←ASP←LATITUDE←DATA :=
             D←012←ASP←LATITUDE←DATA + SSSIGN * SSRANDU
          ;D←017←ASP←LONGITUDE←DATA :=
             D←017←ASP←LONGITUDE←DATA + SSSIGN * SSRANDU
          ;D←014←ASP←LOC←X←DATA :=
             D←014←ASP←LOC←X←DATA + SSSIGN * SSRANDU
          ;D←015←ASP←LOC←Y←DATA :=
             D←015←ASP←LOC←Y←DATA + SSSIGN * SSRANDU
          ;D←016←ASP←LOC←Z←DATA :=
             D←016←ASP←LOC←Z←DATA + SSSIGN * SSRANDU
          ;D←022←ASP←VEL←X←DATA :=
             D←022←ASP←VEL←X←DATA + SSSIGN * SSRANDU
          ;D←023←ASP←VEL←Y←DATA :=
             D←023←ASP←VEL←Y←DATA + SSSIGN * SSRANDU
          ;D←024←ASP←VEL←Z←DATA :=
             D←024←ASP←VEL←Z←DATA + SSSIGN * SSRANDU
        END;".
        INPUTS:
             DATA:  D←011←ASP←ATTITUDE←DATA
             DATA:  D←013←ASP←LOCATION←DATA
             DATA:  D←020←ASP←STATE←VECTOR←DATA.
        OUTPUTS:
             DATA:  D←011←ASP←ATTITUDE←DATA
             DATA:  D←013←ASP←LOCATION←DATA
             DATA:  D←020←ASP←STATE←VECTOR←DATA.
        TRACED FROM:
             ORIGINATING←REQUIREMENT:  ORIG←REQ←GENERATE←NOISE.
        REFERRED BY:
             SUBNET:  S←4←MODEL←NELS←PLATFORM←SUB.

     ALPHA:  A←02←GENERATE←DME←ALPHA.
          BETA:
               "BEGIN
       D←021←ASP←TIME←DATA := D←141←TIME←DATA
       ;SELECT FIRST RECORD FROM
               F←06←FLIGHT←PROFILE←FILE
       ;D←014←ASP←LOC←X←DATA := D←041←FLIGHT←WAYPOINT←X←DATA
       ;D←015←ASP←LOC←Y←DATA := D←042←FLIGHT←WAYPOINT←Y←DATA
       ;D←016←ASP←LOC←Z←DATA := D←043←FLIGHT←WAYPOINT←Z←DATA
       ;D←022←ASP←VEL←X←DATA := 0.0
       ;D←023←ASP←VEL←Y←DATA := 0.0
       ;D←024←ASP←VEL←Z←DATA := 0.0
     END;".
          DATE←ENTERED: 11182.
          DESCRIPTION:
          "GENERATES ASP (AIRBORNE SENSOR PLATFORM) STATE VECTOR".
          ENTERED←BY: "JJF-NELS".
          GAMMA:
```

```
        "VAR
         SSFIRST : BOOLEAN;
      BEGIN
      IF SSFIRST THEN BEGIN
        SELECT FIRST RECORD FROM
              F←06←FLIGHT←PROFILE←FILE
      END
      ELSE BEGIN
        SELECT NEXT RECORD FROM
              F←06←FLIGHT←PROFILE←FILE
      END
      ;SELECT FIRST RECORD FROM
            F←27←PLATFORM←CONTROL←FILE
      ;WHILE (D←041←FLIGHT←WAYPOINT←X←DATA <> D←014←ASP←LOC←X←DATA)
        AND (D←042←FLIGHT←WAYPOINT←Y←DATA <> D←015←ASP←LOC←Y←DATA)
        AND (D←043←FLIGHT←WAYPOINT←Z←DATA <> D←016←ASP←LOC←Z←DATA) DO
        BEGIN
          SELECT NEXT RECORD FROM
                F←27←PLATFORM←CONTROL←FILE
        END (*WHILE*)
        ;(* ASSIGN VALUES TO ASP STATE VECTOR DATA *)
        D←014←ASP←LOC←X←DATA := D←041←FLIGHT←WAYPOINT←X←DATA
        ;D←015←ASP←LOC←Y←DATA := D←042←FLIGHT←WAYPOINT←Y←DATA
        ;D←016←ASP←LOC←Z←DATA := D←043←FLIGHT←WAYPOINT←Z←DATA
        ;D←021←ASP←TIME←DATA := CLOCK←TIME
        ;D←022←ASP←VEL←X←DATA := D←022←ASP←VEL←X←DATA
        ;D←023←ASP←VEL←Y←DATA := D←023←ASP←VEL←Y←DATA
        ;D←024←ASP←VEL←Z←DATA := D←024←ASP←VEL←Z←DATA
      END;".
        INPUTS:
              DATA:  D←003←ASET←MSG←ID←DATA
              DATA:  D←141←TIME←DATA
              FILE:  F←06←FLIGHT←PROFILE←FILE
              (* USED TO GENERATE DME *)
              FILE:  F←27←PLATFORM←CONTROL←FILE.
        OUTPUTS:
              DATA:  D←003←ASET←MSG←ID←DATA
              DATA:  D←020←ASP←STATE←VECTOR←DATA.
        TRACED FROM:
              ORIGINATING←REQUIPEMENT:  ORIG←REQ←GENERATE←DME
              ORIGINATING←REQUIPEMENT:
              ORIG←REQ←GENERATE←PLATFORM←MEASUREMENTS.
        REFERRED BY:
              SUBNET:  S←4←MODEL←NELS←PLATFORM←SUB.

    ALPHA:  A←03←GENERATE←INS←ALPHA.
        BETA:
        "BEGIN
      D←018←ASP←PITCH←DATA := 0.0
      ;D←019←ASP←ROLL←DATA := 0.0
      ;D←025←ASP←YAW←DATA := 0.0
      ;D←010←ASP←ALTITUDE←DATA := D←014←ASP←LOC←X←DATA
      ;D←012←ASP←LATITUDE←DATA := D←015←ASP←LOC←Y←DATA
      ;D←017←ASP←LONGITUDE←DATA := D←016←ASP←LOC←Z←DATA
    END;".
        DATE←ENTERED: 11182.
        DESCRIPTION:
                "GENERATES INS (INERTIAL NAVIGATION SYSTEM)
```

```
        MEASUREMENTS".
          ENTERED←BY: "JJF-NELS".
          GAMMA:
            "CONST CENTLAT = 45.0
                  ;CENTLONG = 20.0
            ;VAR SSRAND : REAL
          ;FUNCTION SSRANDU : REAL
            ;BEGIN
              SSRAND :≡ 29.0 * SSRAND + 357.0
              ;SSRAND :≡ SSRAND - TRUNC(SSRAND)
              ;SSRANDU :≡ SSRAND
            END
            ;FUNCTION SSSIGN : REAL
              ;BEGIN
                IF SSRANDU < 0.5 THEN SSSIGN :≡ -1.0
                ELSE SSSIGN :≡ 1.0
              END
            ;BEGIN
              SSRAND :≡ 0.63904
              ;D←010←ASP←ALTITUDE←DATA :≡ D←016←ASP←LOC←Z←DATA
              ;D←012←ASP←LATITUDE←DATA :≡
                 D←015←ASP←LOC←Y←DATA / 60.0 + CENTLAT
              ;D←017←ASP←LONGITUDE←DATA :≡
                 D←014←ASP←LOC←X←DATA / 60.0 + CENTLONG
              ;D←018←ASP←PITCH←DATA :≡ + SSSIGN * SSRANDU
              ;D←019←ASP←ROLL←DATA :≡ + SSSIGN * SSRANDU
              ;D←025←ASP←YAW←DATA :≡ + SSSIGN * SSRANDU
          END;".
          INPUTS:
               DATA:  D←013←ASP←LOCATION←DATA
               DATA:  D←020←ASP←STATE←VECTOR←DATA.
          OUTPUTS:
               DATA:  D←011←ASP←ATTITUDE←DATA
               DATA:  D←013←ASP←LOCATION←DATA.
          TRACED FROM:
               ORIGINATING←REQUIREMENT:  ORIG←REQ←GENERATE←INS.
          REFERRED BY:
               SUBNET:  S←4←MODEL←NELS←PLATFORM←SUR.

      ALPHA:  A←04←INITIALIZE←NELS←ALPHA.
           BETA:
                "BEGIN
          FOR EACH F←16←NELS←EMITTER←FILE RECORD DO BEGIN
            CREATE F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE RECORD
            ;D←063←B←NELS←EMISSION←START←TIME←DATA :≡
                D←063←A←NELS←EMISSION←START←TIME←DATA ;
              D←064←NELS←EMISSION←STOP←TIME←DATA :≡
                D←064←A←NELS←EMISSION←STOP←TIME←DATA;
             D←082←NELS←EMITTER←VEL←X←DATA :≡
                D←082←A←NELS←EMITTER←VEL←X←DATA;
             D←083←NELS←EMITTER←VEL←Y←DATA :≡
                D←083←A←NELS←EMITTER←VEL←Y←DATA;
             D←084←NELS←EMITTER←VEL←Z←DATA :≡
                D←084←A←NELS←EMITTER←VEL←Z←DATA;
              D←073←B←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA :≡
                D←073←A←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA;
              D←075←B←NELS←EMITTER←ID←DATA :≡
                D←075←A←NELS←EMITTER←ID←DATA;
```

```
        D+085+B+NELS+EMITTER+X+DATA :=
          D+085+A+NELS+EMITTER+X+DATA;
        D+086+B+NELS+EMITTER+Y+DATA :=
          D+086+A+NELS+EMITTER+Y+DATA ;
        D+087+B+NELS+EMITTER+Z+DATA :=
          D+087+A+NELS+EMITTER+Z+DATA ;
        D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
          D+081+A+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA ;
        D+130+B+SCENARIO+GEN+ID+NUM+DATA :=
          D+130+A+SCENARIO+GEN+ID+NUM+DATA
    END ENDFOREACH
    ;CREATE F+06+FLIGHT+PROFILE+FILE RECORD
      ;D+041+FLIGHT+WAYPOINT+X+DATA := 0.0
      ;D+042+FLIGHT+WAYPOINT+Y+DATA := 0.0
      ;D+043+FLIGHT+WAYPOINT+Z+DATA := 0.0
    ;CREATE F+27+PLATFORM+CONTROL+FILE RECORD
      ;D+010+ASP+ALTITUDE+DATA := 0.0
      ;D+014+ASP+LOC+X+DATA := 0.0
      ;D+015+ASP+LOC+Y+DATA := 0.0
      ;D+016+ASP+LOC+Z+DATA := 0.0
      ;D+022+ASP+VEL+X+DATA := 0.0
      ;D+023+ASP+VEL+Y+DATA := 0.0
      ;D+024+ASP+VEL+Z+DATA := 0.0
    ;CREATE F+19+NELS+FREQUENCY+SCAN+FILE RECORD
      ;D+092+NELS+FREQ+SCAN+LOWER+FREQ+DATA := 0.0
      ;D+093+NELS+FREQ+SCAN+UPPER+FREQ+DATA := 0.0
    ;CREATE F+20+NELS+PRE+BRIEFED+AOI+FILE RECORD
      ;D+095+NELS+PRE+BRIEFED+AOI+FILTERING+CRITERIA+DATA :=
       WITHIN+AREA
      ;D+097+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+X+DATA := 0.0
      ;D+098+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+Y+DATA := 0.0
      ;D+100+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+X+DATA := 0.0
      ;D+101+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+Y+DATA := 0.0
    ;CREATE F+21+NELS+PRE+BRIEFED+SOI+FILE RECORD
      ;D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA := 0.0
      ;D+104+NELS+PRE+BRIEFED+SOI+FREQ+DATA := 0.0
      ;D+105+NELS+PRE+BRIEFED+SOI+MODULATION+TYPE+DATA := MODULATED
      ;D+106+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA := 0.0
    ;CREATE F+15+NELS+EMITTER+CHARACTERISTICS+FILE RECORD
      ;D+067+NELS+EMITTER+BANDWIDTH+DATA := 0.0
      ;D+077+A+NELS+EMITTER+MODULATION+TYPE+DATA := MODULATED
      ;D+078+A+NELS+EMITTER+POWER+LEVEL+DATA := 0.0
    ;CREATE F+26+NELS+WEATHER+CONDITIONS+FILE RECORD
      ;D+144+X+WEATHER+LOC+DATA := 0.0
      ;D+146+Y+WEATHER+LOC+DATA := 0.0
      ;D+039+ELEVATION+WEATHER+DATA := 0.0
      ;D+120+PRECIPITATION+DATA := NONE
      ;D+037+CLOUD+COVER+DATA := CLEAR
END;",
   DATE+ENTERED: 11182,
   DESCRIPTION: "MAKES TARGET AND WEATHER INFORMATION AVAILABLE",
   ENTERED+BY: "JJF+NELS",
   GAMMA:
    "BEGIN
(* COPY NELS+EMITTER+FILE INTO NELS+EMITTER+ACTIVITY+GROUND *)
(* +TRUTH+FILE *)
FOR EACH F+16+NELS+EMITTER+FILE RECORD DO BEGIN
  CREATE F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE RECORD
```

```
        ;D←066←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←DATA :=
          D←071←NELS←EMITTER←DATA END  ENDFOREACH
      END;".
        CREATES:
             ENTITY←CLASS:  EC←1←NELS←DETECTABLE←EMISSION←BREAKOUT←EC
             ENTITY←CLASS:  EC←2←NELS←SCENARIO←EC
             ENTITY←CLASS:  EC←3←NELS←TASKS←EC
             ENTITY←CLASS:  EC←4←NELS←THREAT←EC
             ENTITY←CLASS:  EC←5←NELS←VEHICLE←CHARACTERISTICS←EC
             ENTITY←CLASS:  EC←6←DETECTED←EMISSIONS←INFO←EC.
        INPUTS:
             FILE:  F←16←NELS←EMITTER←FILE.
        OUTPUTS:
             FILE:  F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE
             FILE:  F←15←NELS←EMITTER←CHARACTERISTICS←FILE.
        TRACED FROM:
             ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.
        REFERRED BY:
             R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET.

    ALPHA:  A←05←NELS←AREA←OF←INTEREST←FILTER←ALPHA.
        BETA:
              "VAR DREAL : REAL  (* DUMMY REAL ITEM. *)
      ;BEGIN
        FOR EACH F←10←NELS←CANDIDATE←TARGETS←FILE RECORD DO BEGIN
         ;D←061←NELS←EMISSION←DURATION←DATA :=
            D←061←NELS←EMISSION←DURATION←DATA
          ;D←062←NELS←EMISSION←SIGNAL←STRENGTH←DATA :=
            D←062←NELS←EMISSION←SIGNAL←STRENGTH←DATA
          ;D←063←NELS←EMISSION←START←TIME←DATA :=
            D←063←NELS←EMISSION←START←TIME←DATA
          ;D←073←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA :=
            D←073←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA
          ;D←075←NELS←EMITTER←ID←DATA := D←075←NELS←EMITTER←ID←DATA
           ;D←085←NELS←EMITTER←X←DATA :=
              D←085←NELS←EMITTER←X←DATA;
            D←086←NELS←EMITTER←Y←DATA :=
              D←086←NELS←EMITTER←Y←DATA ;
            D←087←NELS←EMITTER←Z←DATA :=
              D←087←NELS←EMITTER←Z←DATA ;
          D←081←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA :=
            D←081←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
          ;D←130←SCENARIO←GEN←ID←NUM←DATA :=
            D←130←SCENARIO←GEN←ID←NUM←DATA
        END ENDFOREACH
        ;FOR EACH F←20←NELS←PRE←BRIEFED←AOI←FILE RECORD DO
          DREAL := D←097←NELS←PRE←BRIEFED←AOI←LOWER←LEFT←X←DATA
        ENDFOREACH
        ;DREAL := D←014←ASP←LOC←X←DATA
        ;DREAL := D←010←ASP←ALTITUDE←DATA
        ;DREAL := D←018←ASP←PITCH←DATA
    END;".
          DATE←ENTERED: 11182.
          DESCRIPTION:
                 "THE AOI FILTER REMOVES FROM THE CANDIDATE TARGET LIST
        THOSE EMISSIONS WHICH ARE LOCATED OUTSIDE OF THE ASE PRE-BRIEFED
        AREA OF INTEREST".
          ENTERED←BY: "JJF-NELS".
```

```
        GAMMA:
          "VAR SSTEMPR : REAL
               ;SSFILTER : BOOLEAN
       ;BEGIN
          SSTEMPR := D-018-ASP-PITCH-DATA
         ;SSTEMPR := D-010-ASP-ALTITUDE-DATA
         ;SSTEMPR := D-014-ASP-LOC-X-DATA
         ;FOR EACH F-10-NELS-CANDIDATE-TARGETS-FILE RECORD DO BEGIN
           SSFILTER := FALSE
           ;SELECT FIRST RECORD FROM
                  F-20-NELS-PRE-BRIEFED-AOI-FILE
           ;WHILE FOUND AND NOT SSFILTER DO BEGIN
             IF (D-097-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-X-DATA <=
               D-085-NELS-EMITTER-X-DATA) AND
               (D-100-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-X-DATA >=
               D-085-NELS-EMITTER-X-DATA) AND
               (D-098-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-Y-DATA <=
               D-086-NELS-EMITTER-Y-DATA) AND
               (D-101-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-Y-DATA >=
               D-086-NELS-EMITTER-Y-DATA) THEN SSFILTER := TRUE
             ;SELECT NEXT RECORD FROM
                    F-20-NELS-PRE-BRIEFED-AOI-FILE
           END; (* WHILE *)
           IF SSFILTER THEN BEGIN
             DESTROY F-10-NELS-CANDIDATE-TARGETS-FILE RECORD
           END
         END ENDFOREACH
       END;".
         INPUTS:
              DATA:  D-011-ASP-ATTITUDE-DATA
              DATA:  D-013-ASP-LOCATION-DATA
              DATA:  D-020-ASP-STATE-VECTOR-DATA
              FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
              FILE:  F-20-NELS-PRE-BRIEFED-AOI-FILE.
         OUTPUTS:
              FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
         TRACED FROM:
              ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.
         REFERRED BY:
              SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.

      ALPHA:  A-06-NELS-COARSE-LOCATION-ALPHA.
         BETA:
               "VAR DREAL : REAL
        ;BEGIN
          SELECT FIRST RECORD FROM
                F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
          ;FOR EACH F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE RECORD DO
           BEGIN
          CREATE F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE RECORD
          ;D-157-NELS-EMISSION-DURATION-DATA :=
              D-157-NELS-EMISSION-DURATION-DATA
            ;D-158-NELS-EMISSION-START-TIME-DATA :=
              D-158-NELS-EMISSION-START-TIME-DATA
            ;D-068-NELS-EMITTER-CEP-DATA := 0.5
            ;D-160-NELS-EMITTER-ID-DATA := D-160-NELS-EMITTER-ID-DATA;
              D-162-NELS-EMITTER-X-DATA :=
                D-162-NELS-EMITTER-X-DATA;
```

```
          D←163←NELS←EMITTER←Y←DATA :=
           D←163←NELS←EMITTER←Y←DATA;
          D←164←NELS←EMITTER←Z←DATA :=
           D←164←NELS←EMITTER←Z←DATA;
        D←165←SCENARIO←GEN←ID←NUM←DATA :=
          D←165←SCENARIO←GEN←ID←NUM←DATA
        ;DREAL := D←058←NELS←DD←1←2←DATA
        ;DREAL := D←018←ASP←PITCH←DATA
        ;DREAL := D←010←ASP←ALTITUDE←DATA
        ;DREAL := D←014←ASP←LOC←X←DATA
     END ENDFOREACH
  END;".
     DATE←ENTERED: 11282.
     DESCRIPTION:
              "EMITTER LOCATION ACCURACY WILL BE MODELLED AS A
   FUNCTION OF EMITTER FREQUENCY, BANDWIDTH, S/N, HARDWARE ERRORS,
   NAVIGATIONAL ERRORS, SENSOR PLATFORM GEOMETRY, PHASE NOISE AND
   CO-CHANNEL INTERFERENCE, AND CORRELATION DWELL TIMES;
 THE COARSE LOCATION FUNCTION DETERMINES THE APPROXIMATE
   LOCATION OF THE ACTIVE NARROWBAND EMITTERS IN THE TUNED FREQUENCY
   BAND IN THE GEOGRAPHICAL AOI;
 AN (X,Y) LOCATION ERROR COVARIANCE MATRIX IS CALCULATED
   AND USED TO GENERATE RANDOM (X,Y) ERRORS IN COARSE LOCATION,
   WHICH IN TURN ARE USED TO GENERATE AN ESTIMATE OF THE CIRCULAR
   ERROR PROBABLE (CEP)".
     ENTERED←BY: "JJF-NELS".
     GAMMA:
       "VAR SSTEMPR : REAL
   ;BEGIN
      SSTEMPR := D←018←ASP←PITCH←DATA
      ;SSTEMPR := D←010←ASP←ALTITUDE←DATA
      ;SSTEMPR := D←014←ASP←LOC←X←DATA
      ;SELECT FIRST RECORD FROM
              F←24←NELS←TDOA←DD←FILE
      ;SSTEMPR := D←058←NELS←DD←1←2←DATA
      ;SELECT FIRST RECORD FROM
              F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
      ;SELECT FIRST RECORD FROM
              F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
      ;WHILE FOUND DO BEGIN
        CREATE F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE RECORD
        ;SSTEMPR := D←159←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA
        ;D←157←NELS←EMISSION←DURATION←DATA :=
           D←157←NELS←EMISSION←DURATION←DATA
        ;D←158←NELS←EMISSION←START←TIME←DATA :=
           D←158←NELS←EMISSION←START←TIME←DATA
        ;D←068←NELS←EMITTER←CEP←DATA := 0.0
        ;D←160←NELS←EMITTER←ID←DATA :=
           D←160←NELS←EMITTER←ID←DATA;
        D←162←NELS←EMITTER←X←DATA :=
          D←162←NELS←EMITTER←X←DATA;
        D←163←NELS←EMITTER←Y←DATA :=
         D←163←NELS←EMITTER←Y←DATA;
        D←164←NELS←EMITTER←Z←DATA :=
         D←164←NELS←EMITTER←Z←DATA
        ;D←165←SCENARIO←GEN←ID←NUM←DATA :=
           D←165←SCENARIO←GEN←ID←NUM←DATA
        ;SELECT NEXT RECORD FROM
```

```
            F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
          ;SELECT NEXT RECORD FROM
            F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
        END (* WHILE *)
      END;",
       INPUTS:
            FILE:  F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
            FILE:  F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
            FILE:  F←24←NELS←TDOA←DD←FILE.
       OUTPUTS:
            FILE:  F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE.
       TRACED FROM:
            ORIGINATING←REQUIREMENT:
            ORIG←REQ←EMITTER←LOCATION←ACCURACY
            ORIGINATING←REQUIREMENT:
            ORIG←REQ←NELS←COARSE←AND←FINE←LOCATION.
       REFERRED BY:
            SUBNET:  S←3←MODEL←NELS←GPS←PROCESSING←SUB.

ALPHA:  A←07←NELS←FINE←LOCATION←ALPHA.
     BETA:
            "VAR DREAL : REAL
  ;BEGIN
    FOR EACH F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE RECORD DO
    BEGIN
      CREATE F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE RECORD
    ;D←159←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA:=
        D←159←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA;
      D←077←NELS←EMITTER←MODULATION←TYPE←DATA :=
        D←077←NELS←EMITTER←MODULATION←TYPE←DATA ;
      D←078←NELS←EMITTER←POWER←LEVEL←DATA :=
        D←078←NELS←EMITTER←POWER←LEVEL←DATA ;
      D←161←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA :=
        D←161←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
      END ENDFOREACH
      ;DREAL := D←018←ASP←PITCH←DATA
      ;DREAL := D←010←ASP←ALTITUDE←DATA
      ;DREAL := D←014←ASP←LOC←X←DATA
      ;FOR EACH F←13←NELS←EMISSION←THREAT←TABLE←FILE RECORD DO
        DREAL := D←067←NELS←EMITTER←BANDWIDTH←DATA ENDFOREACH
      ;FOR EACH F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE RECORD DO
      BEGIN
        CREATE F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE RECORD
        ;D←157←NELS←EMISSION←DURATION←DATA :=
            D←157←NELS←EMISSION←DURATION←DATA
          ;D←158←NELS←EMISSION←START←TIME←DATA :=
            D←158←NELS←EMISSION←START←TIME←DATA
          ;D←068←NELS←EMITTER←CEP←DATA :=
            D←068←NELS←EMITTER←CEP←DATA
          ;D←070←NELS←EMITTER←COV←DATA := 0.5
          ;D←160←NELS←EMITTER←ID←DATA :=
            D←160←NELS←EMITTER←ID←DATA
       ;D←162←NELS←EMITTER←X←DATA :=
          D←162←NELS←EMITTER←X←DATA;
        D←163←NELS←EMITTER←Y←DATA :=
          D←163←NELS←EMITTER←Y←DATA ;
        D←164←NELS←EMITTER←Z←DATA :=
          D←164←NELS←EMITTER←Z←DATA ;
```

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          D←165←SCENARIO←GEN←ID←NUM←DATA :=
            D←165←SCENARIO←GEN←ID←NUM←DATA
     END ENDFOREACH
  END;".
    DATE←ENTERED: 11282.
    DESCRIPTION:
          "THE FINE LOCATION FUNCTION IS AN ITERATIVE PROCESS
  IN WHICH THE CORRELATION TIME IS INCREMENTED UNTIL THE
  RESULTING CEP LOCATION ESTIMATE IS BELOW A SET THRESHOLD, OR
  UNTIL THE TRANSMISSION ENDS, WHICHEVER COMES FIRST".
    ENTERED←BY: "JJF-NELS".
    GAMMA:
      "VAR SSTEMPR : REAL
  ;BEGIN
    SSTEMPR := D←018←ASP←PITCH←DATA
    ;SSTEMPR := D←010←ASP←ALTITUDE←DATA
    ;SSTEMPR := D←014←ASP←LOC←X←DATA
    ;SELECT FIRST RECORD FROM
          F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
    ;SELECT FIRST RECORD FROM
          F←13←NELS←EMISSION←THREAT←TABLE←FILE
    ;SELECT FIRST RECORD
          F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
    ;WHILE FOUND DO BEGIN
      CREATE F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE RECORD;
     D←159←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA:=
        D←159←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA;
      D←077←NELS←EMITTER←MODULATION←TYPE←DATA :=
        D←077←NELS←EMITTER←MODULATION←TYPE←DATA ;
      D←078←NELS←EMITTER←POWER←LEVEL←DATA :=
        D←078←NELS←EMITTER←POWER←LEVEL←DATA ;
      D←161←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA :=
        D←161←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
      ;CREATE F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE RECORD
      ;D←157←NELS←EMISSION←DURATION←DATA :=
        D←157←NELS←EMISSION←DURATION←DATA
      ;D←158←NELS←EMISSION←START←TIME←DATA :=
        D←158←NELS←EMISSION←START←TIME←DATA
      ;D←068←NELS←EMITTER←CEP←DATA :=
        D←068←NELS←EMITTER←CEP←DATA
      ;D←070←NELS←EMITTER←COV←DATA := 0.0
      ;D←160←NELS←EMITTER←ID←DATA :=
        D←160←NELS←EMITTER←ID←DATA
      ;D←162←NELS←EMITTER←X←DATA :=
        D←162←NELS←EMITTER←X←DATA;
       D←163←NELS←EMITTER←Y←DATA :=
        D←163←NELS←EMITTER←Y←DATA ;
       D←164←NELS←EMITTER←Z←DATA :=
        D←164←NELS←EMITTER←Z←DATA
      ;D←165←SCENARIO←GEN←ID←NUM←DATA :=
        D←165←SCENARIO←GEN←ID←NUM←DATA
      ;SSTEMPR :=D←079←NELS←EMITTER←TIME←OF←LOCATION←DATA
    END (* WHILE *)
    END;".
    INPUTS:
          DATA:  D←011←ASP←ATTITUDE←DATA
          DATA:  D←013←ASP←LOCATION←DATA
          DATA:  D←020←ASP←STATE←VECTOR←DATA
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            FILE:  F←13←NELS←EMISSION←THREAT←TABLE←FILE
            FILE:  F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
            FILE:  F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE.
       OUTPUTS:
            FILE:  F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
            FILE:  F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE.
       TRACED FROM:
            ORIGINATING←REQUIREMENT:
            ORIG←REQ←EMITTER←LOCATION←ACCURACY
            ORIGINATING←REQUIREMENT:
            ORIG←REQ←NELS←COARSE←AND←FINE←LOCATION.
       REFERRED BY:
            SUBNET:  S←3←MODEL←NELS←GPS←PROCESSING←SUB.

ALPHA:  A←08←NELS←FREQUENCY←SCAN←OPTIMIZATION←ALPHA.
       BETA:
        "BEGIN
        FOR EACH F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE RECORD DO
          D←091←NELS←FREQUENCY←SCAN←DATA :=
            D←161←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
        ENDFOREACH
     END;".
       DATE←ENTERED: 11282.
       DESCRIPTION:
              "FREQUENCY SCAN STRATEGY WILL BE AUTOMATICALLY
      OPTIMIZED BASED UPON THE DETECTION OF HIGH PRIORITY THREAT
      EMITTERS;  THE DETECTION OF AN EMITTER WHICH EXHIBITS A
      SPECIFIC TRAFFIC TYPE COULD CAUSE THE FREQUENCY SCAN
      STARTEGY TO BE UPDATED, SO THAT THE FREQUENCY AT WHICH THE
      EMITTER IS OPERATING ON WOULD BE SCANNED MORE OFTEN".
       ENTERED←BY: "JJF←NELS".
       GAMMA:
          "BEGIN
       D←091←NELS←FREQUENCY←SCAN←DATA :≡ D←091←NELS←FREQUENCY←SCAN←DATA
       ;FOR EACH F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE RECORD DO
         D←091←NELS←FREQUENCY←SCAN←DATA :=
         D←161←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
       ENDFOREACH
     END;".
       INPUTS:
            DATA:  D←091←NELS←FREQUENCY←SCAN←DATA
            FILE:  F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE.
       OUTPUTS:
            DATA:  D←091←NELS←FREQUENCY←SCAN←DATA.
       TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←SCAN←OPTIMIZATION.
       REFERRED BY:
            SUBNET:  S←3←MODEL←NELS←GPS←PROCESSING←SUB.

ALPHA:  A←09←NELS←MAKE←SENSOR←REQUESTS←ALPHA.
       BETA:
       "BEGIN
       D←005←ASET←MSG←SOURCE←DATA :≡ NELS
      ;D←004←ASET←MSG←NAME←DATA :≡ MN←10←NELS←SENSOR←REQUESTS
      ;D←002←ASET←MSG←DEST←DATA :≡ ASE
      ;D←125←REQ←DESTINATION←SENSOR←ID←DATA :≡ GPS←NELS←1
      ;D←126←REQ←REPORT←INFORMATION←TYPE←DATA :≡ FE6UNKNWNVAL
      ;D←127←REQ←SENSOR←TARGET←ID←OF←INTEREST←DATA :≡ EF6UNKNWNVAL
```

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      ;D←135←SENSOR←ID←DATA := NELS←GPS←1
    END;".
        DATE←ENTERED: 11482.
        DESCRIPTION: "REQUEST TO ASE FOR TASKS".
        ENTERED←BY: "JJF-NELS".
        GAMMA:
         "BEGIN
    D←005←ASET←MSG←SOURCE←DATA := NELS
    ;D←004←ASET←MSG←NAME←DATA := MN←10←NELS←SENSOR←REQUESTS
    ;D←002←ASET←MSG←DEST←DATA := ASE
    ;D←125←REQ←DESTINATION←SENSOR←ID←DATA := GPS←NELS←1
    ;D←126←REQ←REPORT←INFORMATION←TYPE←DATA := EE6UNKNWNVAL
    ;D←127←REQ←SENSOR←TARGET←ID←OF←INTEREST←DATA := EE6UNKNWNVAL
    ;D←135←SENSOR←ID←DATA := NELS←GPS←1
  END;".
        FORMS:
            MESSAGE:  M←10←NELS←SENSOR←REQUESTS←MSG←OUT.
        OUTPUTS:
            DATA:  D←003←ASET←MSG←ID←DATA
            DATA:  D←125←REQ←DESTINATION←SENSOR←ID←DATA
            DATA:  D←126←REQ←REPORT←INFORMATION←TYPE←DATA
            DATA:  D←127←REQ←SENSOR←TARGET←ID←OF←INTEREST←DATA
            DATA:  D←135←SENSOR←ID←DATA.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.
        REFERRED BY:
            R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET.

   ALPHA:  A←10←NELS←MODIFY←ORBIT←ALPHA.
        BETA:
             "VAR DREAL : REAL
     ;BEGIN
       IF D←135←SENSOR←ID←DATA IN
         [NELS←GPS←1,NELS←GPS←2,NELS←GPS←3] THEN BEGIN
         FOR EACH F←06←FLIGHT←PROFILE←FILE RECORD DO
           DREAL := D←041←FLIGHT←WAYPOINT←X←DATA ENDFOREACH
         ;FOR EACH F←32←SENSOR←ORBIT←MODS←FILE RECORD DO BEGIN
           CREATE F←06←FLIGHT←PROFILE←FILE RECORD
            ;D←041←FLIGHT←WAYPOINT←X←DATA :=
              D←117←PLATFORM←MOD←X←DATA
             ;D←042←FLIGHT←WAYPOINT←Y←DATA :=
              D←118←PLATFORM←MOD←Y←DATA
             ;D←043←FLIGHT←WAYPOINT←Z←DATA :=
              D←119←PLATFORM←MOD←Z←DATA
         END ENDFOREACH
       END
     END;".
        DATE←ENTERED: 11482.
        DESCRIPTION: "MODIFICATIONS TO FLIGHT PROFILE".
        ENTERED←BY: "JJF-NELS".
        GAMMA:
           "VAR SSTEMP : EE0D←135←SENSOR←ID←DATA
       ;BEGIN
         SSTEMP := D←135←SENSOR←ID←DATA
         ;FOR EACH F←32←SENSOR←ORBIT←MODS←FILE RECORD DO BEGIN
           CREATE F←06←FLIGHT←PROFILE←FILE RECORD
           ;D←041←FLIGHT←WAYPOINT←X←DATA := D←117←PLATFORM←MOD←X←DATA
           ;D←042←FLIGHT←WAYPOINT←Y←DATA := D←11A←PLATFORM←MOD←Y←DATA
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          ;D←043←FLIGHT←WAYPOINT←Z←DATA := D←119←PLATFORM←MOD←Z←DATA
        END ENDFOREACH
      END;".
       INPUTS:
            DATA:  D←135←SENSOR←ID←DATA
            FILE:  F←06←FLIGHT←PROFILE←FILE
            FILE:  F←32←SENSOR←ORBIT←MODS←FILE.
       OUTPUTS:
            FILE:  F←06←FLIGHT←PROFILE←FILE.
       TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.
       REFERRED BY:
            R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET.

  ALPHA:  A←11←NELS←MODIFY←TASK←ALPHA.
       BETA:
       "VAR I : INTEGER
          ;DREAL : REAL
   ;BEGIN
     IF D←056←NEEDED←FEASIBLE←DATA IN [SOI,AOI,BOTH] THEN BEGIN
       D←139←TASK←QUE←ID←DATA := D←139←TASK←QUE←ID←DATA
       ;D←141←TIME←DATA := D←141←TIME←DATA
       ;D←138←TASKING←RESPONSE←DATA := CAN←DO
       ;D←005←ASET←MSG←SOURCE←DATA := NELS
       ;D←004←ASET←MSG←NAME←DATA := MN←13←NELS←TASKING←RESPONSES
       ;D←002←ASET←MSG←DEST←DATA := ASE
       ;FOR EACH F←06←FLIGHT←PROFILE←FILE RECORD DO
         DREAL := D←041←FLIGHT←WAYPOINT←X←DATA ENDFOREACH
       ;CREATE F←06←FLIGHT←PROFILE←FILE RECORD
         ;D←041←FLIGHT←WAYPOINT←X←DATA := D←143←X←LOC←FEASIBLE←DATA
         ;D←042←FLIGHT←WAYPOINT←Y←DATA := D←145←Y←LOC←FEASIBLE←DATA
         ;D←043←FLIGHT←WAYPOINT←Z←DATA := 0.0
       END
     END;".
       DATE←ENTERED: 11482.
       DESCRIPTION:
              "MODIFIES FLIGHT PROFILE TO ALLOW, IF POSSIBLE,
     CHANGES IN CURRENT OPERATIONS/LOCATION; WHATEVER THE
     DECISION, A RESPONSE IS SENT TO ASF VIA T&C".
       ENTERED←BY: "JJF←NELS".
       GAMMA:
          "VAR SSTEMP : EE0D←056←NEEDED←FEASIBLE←DATA
      ;BEGIN
        SSTEMP := D←056←NEEDED←FEASIBLE←DATA
        ;D←139←TASK←QUE←ID←DATA := D←139←TASK←QUE←ID←DATA
        ;D←141←TIME←DATA := D←141←TIME←DATA
        ;D←138←TASKING←RESPONSE←DATA := CAN←DO
        ;FOR EACH F←05←FEASIBLE←ACTIVITY←AREA←FILE RECORD DO BEGIN
          SELECT NEXT RECORD FROM
                 F←06←FLIGHT←PROFILE←FILE
          ;IF RECORD←FOUND THEN BEGIN
            IF SQRT(SQR(D←041←FLIGHT←WAYPOINT←X←DATA -
                        D←143←X←LOC←FEASIBLE←DATA) +
                    SQR(D←042←FLIGHT←WAYPOINT←Y←DATA -
                        D←145←Y←LOC←FEASIBLE←DATA))
                   <= 3.2E4 THEN BEGIN
              D←041←FLIGHT←WAYPOINT←X←DATA :=
                D←143←X←LOC←FEASIBLE←DATA
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            ;D←042←FLIGHT←WAYPOINT←Y←DATA :=
              D←145←Y←LOC←FEASIBLE←DATA
            ;D←043←FLIGHT←WAYPOINT←Z←DATA := 0.0
          END
          ELSE D←138←TASKING←RESPONSE←DATA := CANT←DO
        END
        ELSE (* NO RECORD FOUND *) BEGIN
          CREATE F←06←FLIGHT←PROFILE←FILE RECORD
          ;D←041←FLIGHT←WAYPOINT←X←DATA :=
            D←143←X←LOC←FEASIBLE←DATA
          ;D←042←FLIGHT←WAYPOINT←Y←DATA :=
            D←145←Y←LOC←FEASIBLE←DATA
          ;D←043←FLIGHT←WAYPOINT←Z←DATA := 0.0
        END
      END ENDFOREACH
      ;D←005←ASET←MSG←SOURCE←DATA := NELS
      ;D←004←ASET←MSG←NAME←DATA := MN←13←NELS←TASKING←RESPONSES
      ;D←002←ASET←MSG←DEST←DATA := ASE
    END;".
    FORMS:
        MESSAGE:  M←13←NELS←TASKING←RESPONSES←MSG←OUT.
    INPUTS:
        DATA:  D←056←NEEDED←FEASIBLE←DATA
        DATA:  D←139←TASK←QUE←ID←DATA
        DATA:  D←141←TIME←DATA
        FILE:  F←05←FEASIBLE←ACTIVITY←AREA←FILE
        FILE:  F←06←FLIGHT←PROFILE←FILE.
    OUTPUTS:
        DATA:  D←003←ASET←MSG←ID←DATA
        DATA:  D←138←TASKING←RESPONSE←DATA
        DATA:  D←139←TASK←QUE←ID←DATA
        DATA:  D←141←TIME←DATA
        FILE:  F←06←FLIGHT←PROFILE←FILE.
    TRACED FROM:
        ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.
    REFERRED BY:
        R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET.

ALPHA:  A←12←NELS←PERFORM←SIGNATURE←ANALYSIS←ALPHA.
    BETA:
          "BEGIN
    SELECT FIRST RECORD FROM
          F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
    ;SELECT FIRST RECORD FROM
          F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
    ;CREATE F←25←NELS←TYPED←EMITTER←REPORT←FILE RECORD
      ;D←176←NELS←EMITTER←BANDWIDTH←DATA :=
        D←159←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA
      ;D←177←NELS←EMITTER←CEP←DATA := D←068←NELS←EMITTER←CEP←DATA
      ;D←070←NELS←EMITTER←COV←DATA := D←070←NELS←EMITTER←COV←DATA
      ;D←074←NELS←EMITTER←FREQUENCY←DATA :=
        D←161←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
      ;D←166←NELS←EMITTER←ID←DATA := D←160←NELS←EMITTER←ID←DATA
      ;D←167←NELS←EMITTER←X←DATA :=
         D←162←NELS←EMITTER←Y←DATA;
       D←168←NELS←EMITTER←Y←DATA :=
         D←163←NELS←EMITTER←Y←DATA ;
       D←169←NELS←EMITTER←Z←DATA :=
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        D+164+NELS+EMITTER+Z+DATA ;
      D+178+NELS+EMITTER+MODULATION+TYPE+DATA :=
        D+077+NELS+EMITTER+MODULATION+TYPE+DATA
      ;D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA :=
        D+063+NELS+EMISSION+START+TIME+DATA
      ;D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA := POTENTIAL+THREAT
      ;D+170+SCENARIO+GEN+ID+NUM+DATA :=
        D+165+SCENARIO+GEN+ID+NUM+DATA
    END;".
    DATE+ENTERED: 11282.
    DESCRIPTION:
          "A TRAFFIC TYPE CODE WILL BE GIVEN TO EACH
NARROWBAND EMISSION BASED ON ITS SIGNAL CHARACTERISTICS:
FREQUENCY, BANDWIDTH, MODULATION, AND EFFECTIVE RADIATED
POWER".
    ENTERED+BY: "JJF+NELS".
    GAMMA:
       "VAR SSRAND : REAL
   ;FUNCTION SSRANDU : REAL
     ;BEGIN
       SSRAND := 29.0 * SSRAND + 357.0
       ;SSRAND := SSRAND - TRUNC(SSRAND)
       ;SSRANDU := SSRAND
     END
   ;BEGIN
     SSRAND := 0.65832
     ;SELECT FIRST RECORD FROM
             F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
     ;SELECT FIRST RECORD FROM
             F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE
     ;WHILE FOUND DO BEGIN
       CREATE F+25+NELS+TYPED+EMITTER+REPORT+FILE RECORD
       ;D+176+NELS+EMITTER+BANDWIDTH+DATA :=
         D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
       ;D+177+NELS+EMITTER+CEP+DATA :=
         D+068+NELS+EMITTER+CEP+DATA
       ;D+070+NELS+EMITTER+COV+DATA :=
         D+070+NELS+EMITTER+COV+DATA
       ;D+074+NELS+EMITTER+FREQUENCY+DATA :=
         D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
       ;D+166+NELS+EMITTER+ID+DATA :=
         D+160+NELS+EMITTER+ID+DATA
       ;D+167+NELS+EMITTER+X+DATA :=
          D+162+NELS+EMITTER+X+DATA;
        D+168+NELS+EMITTER+Y+DATA :=
          D+163+NELS+EMITTER+Y+DATA ;
        D+169+NELS+EMITTER+Z+DATA :=
          D+164+NELS+EMITTER+Z+DATA ;
        D+178+NELS+EMITTER+MODULATION+TYPE+DATA :=
         D+077+NELS+EMITTER+MODULATION+TYPE+DATA
       ;D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA :=
         D+063+NELS+EMISSION+START+TIME+DATA
       ;D+170+SCENARIO+GEN+ID+NUM+DATA :=
         D+165+SCENARIO+GEN+ID+NUM+DATA
       ;SSRAND := SSRANDU
       ;IF SSRAND <= 1.0 /3.0 THEN
         D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA := PASSIVE
       ELSE IF SSRAND >= 2.0 / 3.0 THEN
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            D←180←NELS←EMITTER←TRAFFIC←TYPE←DATA :=
              POTENTIAL←THREAT
          ELSE D←180←NELS←EMITTER←TRAFFIC←TYPE←DATA := THREAT
          ;SELECT NEXT RECORD FROM
                F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
          ;SELECT NEXT RECORD FROM
                F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
          END (* WHILE *)
        END;".
      INPUTS:
           FILE:  F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
           FILE:  F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE.
      OUTPUTS:
           FILE:  F←25←NELS←TYPED←EMITTER←REPORT←FILE.
      TRACED FROM:
           ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←SIGNATURE←ANALYSIS.
      REFERRED BY:
           SUBNET:  S←3←MODEL←NELS←GPS←PROCESSING←SUB.

ALPHA:  A←13←NELS←PLATFORM←LOCATION←MSG←ALPHA.
      BETA:
      "VAR OREAL : REAL
    ;BEGIN
      CREATE F←33←SENSOR←PLATFORM←LOCATION←FILE RECORD
        ;D←114←PLATFORM←LOCATION←X←DATA := D←014←ASP←LOC←X←DATA
        ;D←115←PLATFORM←LOCATION←Y←DATA := D←015←ASP←LOC←Y←DATA
        ;D←116←PLATFORM←LOCATION←Z←DATA := D←016←ASP←LOC←Z←DATA
        ;D←005←ASET←MSG←SOURCE←DATA := NELS
        ;D←004←ASET←MSG←NAME←DATA :=
          MN←07←NELS←PLATFORM←LOCATION←REPORTS
        ;D←002←ASET←MSG←DEST←DATA := ASE
    END;".
      DATE←ENTERED: 11882.
      DESCRIPTION: "TO INFORM THE ASE ELEMENT OF SENSOR LOCATION".
      ENTERED←BY: "JJF-NELS".
      GAMMA:
       "BEGIN
    D←005←ASET←MSG←SOURCE←DATA := NELS
    ;D←004←ASET←MSG←NAME←DATA := MN←07←NELS←PLATFORM←LOCATION←REPORTS
    ;D←002←ASET←MSG←DEST←DATA := ASE
    ;CREATE F←33←SENSOR←PLATFORM←LOCATION←FILE RECORD
    ;D←114←PLATFORM←LOCATION←X←DATA := D←014←ASP←LOC←Y←DATA
    ;D←115←PLATFORM←LOCATION←Y←DATA := D←015←ASP←LOC←Y←DATA
    ;D←116←PLATFORM←LOCATION←Z←DATA := D←016←ASP←LOC←Z←DATA
  END;".
      FORMS:
           MESSAGE:  M←07←NELS←PLATFORM←LOCATION←REPORTS←MSG←OUT.
      INPUTS:
           DATA:  D←020←ASP←STATE←VECTOR←DATA.
      OUTPUTS:
           DATA:  D←003←ASET←MSG←ID←DATA
           FILE:  F←33←SENSOR←PLATFORM←LOCATION←FILE.
      TRACED FROM:
           ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.
      REFERRED BY:
           SUBNET:  S←2←OU←NELS←OPERATIONAL←CONTROL←SUB.

ALPHA:  A←14←NELS←PROCESS←COMMANDERS←REQUIREMENTS←ALPHA.
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      BETA:
            "VAR DREAL : REAL
    ;BEGIN
      IF (D←040←FIRST←CMDRS←REQ←UPDATE←DATA = IN←AREA) OR
         (D←040←FIRST←CMDRS←REQ←UPDATE←DATA = OUTSIDE←AREA) OR
         (D←133←SECOND←CMDRS←REQ←UPDATE←DATA = IS←MODULATED) OR
         (D←133←SECOND←CMDRS←REQ←UPDATE←DATA = IS←NOT←MODULATED)
         THEN DREAL := 0.0
      ;FOR EACH F←20←NELS←PRE←BRIEFED←AOI←FILE RECORD DO
        D←097←NELS←PRE←BRIEFED←AOI←LOWER←LEFT←X←DATA :=
          D←097←NELS←PRE←BRIEFED←AOI←LOWER←LEFT←X←DATA ENDFOREACH
      ;FOR EACH F←21←NELS←PRE←BRIEFED←SOI←FILE RECORD DO
        D←103←NELS←PRE←BRIEFED←SOI←END←FREQ←DATA :=
          D←103←NELS←PRE←BRIEFED←SOI←END←FREQ←DATA ENDFOREACH
    END;".
      DATE←ENTERED: 11482.
      DESCRIPTION:
            "UPDATES PLANNING INFORMATION TO DIRECT NELS
     OPERATIONS (PLATFORM MISSION OBJECTIVES, INITIAL SOI/AOI
     REQUIREMENTS, AND PROCESSING PRIORITIES)".
      ENTERED←BY: "JJF-NELS".
      GAMMA:
       "VAR SSTEMP040 : EE0D←040←FIRST←CMDRS←REQ←UPDATE←DATA
            ;SSTEMP133 : EF0D←133←SECOND←CMDRS←REQ←UPDATE←DATA
    ;BEGIN
      FOR EACH F←04←CMDRS←DATA←TO←UPDATE←FILE RECORD DO BEGIN
        SSTEMP040 := D←040←FIRST←CMDRS←REQ←UPDATE←DATA
        ;SSTEMP133 := D←133←SECOND←CMDRS←REQ←UPDATE←DATA
      END ENDFOREACH
      ;FOR EACH F←20←NELS←PRE←BRIEFED←AOI←FILE RECORD DO
        D←094←NELS←PRE←BRIEFED←AOI←DATA :=
          D←094←NELS←PRE←BRIEFED←AOI←DATA  ENDFOREACH
      ;FOR EACH F←21←NELS←PRE←BRIEFED←SOI←FILE RECORD DO
        D←102←NELS←PRE←BRIEFED←SOI←DATA :=
          D←102←NELS←PRE←BRIEFED←SOI←DATA ENDFOREACH
    END;".
      INPUTS:
           FILE:  F←04←CMDRS←DATA←TO←UPDATE←FILE
           FILE:  F←20←NELS←PRE←BRIEFED←AOI←FILE
           FILE:  F←21←NELS←PRE←BRIEFED←SOI←FILE.
      OUTPUTS:
           FILE:  F←20←NELS←PRE←BRIEFED←AOI←FILE
           FILE:  F←21←NELS←PRE←BRIEFED←SOI←FILE.
      TRACED FROM:
           ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.
      REFERRED BY:
           R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET.

ALPHA:  A←15←NELS←PROCESS←PRIORITIZED←SENSOR←DIRECTIONS←ALPHA.
      BETA:
            "VAR I :INTEGER
          ;DREAL : REAL
    ;BEGIN
      IF ((D←056←NEEDED←FEASIBLE←DATA = SOI) OR
          (D←056←NEEDED←FEASIBLE←DATA = AOI) OR
          (D←056←NEEDED←FEASIBLE←DATA = BOTH)) AND
         ((D←135←SENSOR←ID←DATA = NELS←GPS←1) OR
          (D←135←SENSOR←ID←DATA = NELS←GPS←3) OR
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            (D←135←SENSOR←ID←DATA = NELS←GPS←3))
            THEN DREAL := 0.0
        ;I := D←137←SENSOR←PRIORITY←DATA
        ;SELECT FIRST RECORD FROM
                F←05←FEASIBLE←ACTIVITY←AREA←FILE
        ;DREAL := D←143←X←LOC←FEASIBLE←DATA
        ;FOR EACH F←19←NELS←FREQUENCY←SCAN←FILE RECORD DO BEGIN
          D←092←NELS←FREQ←SCAN←LOWER←FREQ←DATA :=
            D←092←NELS←FREQ←SCAN←LOWER←FREQ←DATA;
          D←093←NELS←FREQ←SCAN←UPPER←FREQ←DATA :=
            D←093←NELS←FREQ←SCAN←UPPER←FREQ←DATA END ENDFOREACH
      END;".
         DATE←ENTERED: 11482.
         DESCRIPTION: "UPDATES SENSOR PRIORITIES".
         ENTERED←BY: "JJF-NELS".
         GAMMA:
          "VAR SSTEMPI : INTEGER
               ;SSTEMPR : REAL
               ;SSTEMP056 : EF0D←056←NEEDED←FEASIBLE←DATA
               ;SSTEMP135 : EF0D←135←SENSOR←ID←DATA
      ;BEGIN
        SSTEMP056 := D←056←NEEDED←FEASIBLE←DATA
        ;SSTEMP135 := D←135←SENSOR←ID←DATA
        ;SSTEMPI := D←137←SENSOR←PRIORITY←DATA
        ;FOR EACH F←05←FEASIBLE←ACTIVITY←AREA←FILE RECORD DO BEGIN
          SSTEMPR := D←143←X←LOC←FEASIBLE←DATA
          ;SSTEMPR := D←145←Y←LOC←FEASIBLE←DATA
         END ENDFOREACH
        ;FOR EACH F←19←NELS←FREQUENCY←SCAN←FILE RECORD DO BEGIN
          D←092←NELS←FREQ←SCAN←LOWER←FREQ←DATA :=
            D←092←NELS←FREQ←SCAN←LOWER←FREQ←DATA
          ;D←093←NELS←FREQ←SCAN←UPPER←FREQ←DATA :=
            D←093←NELS←FREQ←SCAN←UPPER←FREQ←DATA
        END ENDFOREACH
      END;".
         INPUTS:
              DATA:  D←056←NEEDED←FEASIBLE←DATA
              DATA:  D←135←SENSOR←ID←DATA
              DATA:  D←137←SENSOR←PRIORITY←DATA
              FILE:  F←05←FEASIBLE←ACTIVITY←AREA←FILE
              FILE:  F←19←NELS←FREQUENCY←SCAN←FILE.
         OUTPUTS:
              FILE:  F←19←NELS←FREQUENCY←SCAN←FILE.
         TRACED FROM:
              ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.
         REFERRED BY:
              R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET.

    ALPHA:  A←16←NELS←PROCESS←REQUESTED←DATA←ALPHA.
         BETA:
          "VAR DREAL : REAL
        ;BEGIN
          IF D←045←GPS←ID←DATA IN [GPS←1←NELS,GPS←2←NELS,GPS←3←NELS]
          THEN DREAL := 0.0
          ;FOR EACH F←07←GROUP←TARGET←LOCS←FILE RECORD DO
            DREAL := D←048←GROUND←TARGET←LOC←X←DATA ENDFOREACH
          ;FOR EACH F←06←FLIGHT←PROFILE←FILE RECORD DO
            D←041←FLIGHT←WAYPOINT←X←DATA :=
```

```
        D←041←FLIGHT←WAYPOINT←X←DATA ENDFOREACH
    END;".
      DATE←ENTERED: 11482.
      DESCRIPTION:
            "UPDATES FLIGHT PROFILE FILE WHEN TARGET LOCATIONS
     ARE SENT FROM ASE (INFORMATION REQUESTED BY SENSOR)".
      ENTERED←BY: "JJF-NELS".
      GAMMA:
        "LABEL 1
         ;VAR SSTEMP045 : EE0D←045←GPS←ID←DATA
              ;SSCLOSE : BOOLEAN (* ARE THE TWO POINTS CLOSE? *)
       ;BEGIN
         SSTEMP045 := D←045←GPS←ID←DATA
         ;SELECT FIRST RECORD FROM
              F←07←GROUP←TARGET←LOCS←FILE
         ;SSCLOSE := FALSE
         ;WHILE FOUND DO BEGIN
           (* CHECK IF POINT IN F07 IS CLOSE TO ANYTHING IN F06 *)
           ;SELECT FIRST RECORD FROM
                  F←06←FLIGHT←PROFILE←FILE
           ;WHILE FOUND DO BEGIN
             IF SQRT(SQR(D←041←FLIGHT←WAYPOINT←X←DATA -
                         D←048←GROUND←TARGET←LOC←X←DATA) +
                    SQR(D←042←FLIGHT←WAYPOINT←Y←DATA -
                         D←049←GROUND←TARGET←LOC←Y←DATA))
                <= 1.6E4 (* 10 MILES *) THEN SSCLOSE := TRUE
             ;IF SSCLOSE THEN GOTO 1
             ELSE SELECT NEXT RECORD FROM
                         F←06←FLIGHT←PROFILE←FILE
           END (* WHILE *)
           ;1:IF SSCLOSE THEN BEGIN
             SELECT NEXT RECORD FROM
                    F←07←GROUP←TARGET←LOCS←FILE
           END
           ELSE BEGIN
             CREATE F←06←FLIGHT←PROFILE←FILE RECORD
             ;D←041←FLIGHT←WAYPOINT←X←DATA :=
               D←048←GROUND←TARGET←LOC←X←DATA
             ;D←042←FLIGHT←WAYPOINT←Y←DATA :=
               D←049←GROUND←TARGET←LOC←Y←DATA
             ;D←043←FLIGHT←WAYPOINT←Z←DATA := 0.0
             ;SELECT NEXT RECORD FROM
                    F←07←GROUP←TARGET←LOCS←FILE
           END
         END (* WHILE *)
       END;".
       INPUTS:
            DATA:  D←045←GPS←ID←DATA
            FILE:  F←06←FLIGHT←PROFILE←FILE
            FILE:  F←07←GROUP←TARGET←LOCS←FILE.
       OUTPUTS:
            FILE:  F←06←FLIGHT←PROFILE←FILE.
       TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.
       REFERRED BY:
            R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET.

  ALPHA:  A←17←NELS←SENSOR←STATUS←ALPHA.
```

```
    BETA:
          "VAR DREAL : REAL
  ;BEGIN
    DREAL := D-014-ASP-LOC-X-DATA
    ;D-091-NELS-FREQUENCY-SCAN-DATA :=
      D-091-NELS-FREQUENCY-SCAN-DATA
    ;FOR EACH F-06-FLIGHT-PROFILE-FILE RECORD DO
      DREAL := D-041-FLIGHT-WAYPOINT-X-DATA ENDFOREACH
    ;FOR EACH F-20-NELS-PRE-BRIEFED-AOI-FILE RECORD DO
      DREAL := D-097-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-X-DATA
    ENDFOREACH
    ;FOR EACH F-21-NELS-PRE-BRIEFED-SOI-FILE RECORD DO
      DREAL :=D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA
    ENDFOREACH
    ;CREATE F-34-SENSOR-STATUS-FILE RECORD
     ;D-044-FREQUENCY-SCAN-PARAMETER-DATA := 0.0
      ;D-136-SENSOR-MODE-OF-OPERATION-DATA := SOI-SEARCH
      ;D-135-SENSOR-ID-DATA := NELS-GPS-1
      ;D-005-ASET-MSG-SOURCE-DATA := NELS
      ;D-004-ASET-MSG-NAME-DATA := MN-11-NELS-SENSOR-SYSTEM-STATUS
      ;D-002-ASET-MSG-DEST-DATA := ASE
  END;".
    DATE-ENTERED: 11882.
    DESCRIPTION:
          "DETERMINES IF THERE IS ANYTHING FOR THE NELS
 PLATFORMS TO DO".
    ENTERED-BY: "JJF-NELS".
    GAMMA:
      "VAR SSTEMPR : REAL
 ;BEGIN
    SSTEMPR := D-014-ASP-LOC-X-DATA
    ;SELECT FIRST RECORD FROM
          F-06-FLIGHT-PROFILE-FILE
    ;SSTEMPR := D-041-FLIGHT-WAYPOINT-X-DATA
    ;SELECT FIRST RECORD FROM
          F-20-NELS-PRE-BRIEFED-AOI-FILE
    ;IF FOUND THEN SSTEMPR :=
      D-097-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-X-DATA
    ;SELECT FIRST RECORD FROM
          F-21-NELS-PRE-BRIEFED-SOI-FILE
    ;IF FOUND THEN SSTEMPR :=
      D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA
    ;CREATE F-34-SENSOR-STATUS-FILE RECORD
    ;D-044-FREQUENCY-SCAN-PARAMETER-DATA :=
      D-091-NELS-FREQUENCY-SCAN-DATA
    ;D-135-SENSOR-ID-DATA := NELS-GPS-1
    ;D-005-ASET-MSG-SOURCE-DATA := NELS
    ;D-004-ASET-MSG-NAME-DATA := MN-11-NELS-SENSOR-SYSTEM-STATUS
    ;D-002-ASET-MSG-DEST-DATA := ASE
    ;D-091-NELS-FREQUENCY-SCAN-DATA :=
      D-091-NELS-FREQUENCY-SCAN-DATA
    ;IF EOF(STAT) THEN D-136-SENSOR-MODE-OF-OPERATION-DATA := IDLE
    ELSE READLN(MSGS,D-136-SENSOR-MODE-OF-OPERATION-DATA)
  END;".
    FORMS:
         MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT.
    INPUTS:
         DATA:  D-003-ASET-MSG-ID-DATA
```

```
            DATA:  D+020+ASP+STATE+VECTOR+DATA
            DATA:  D+091+NELS+FREQUENCY+SCAN+DATA
            DATA:  D+135+SENSOR+ID+DATA
            FILE:  F+06+FLIGHT+PROFILE+FILE
            FILE:  F+20+NELS+PRE+BRIEFED+AOI+FILE
            FILE:  F+21+NELS+PRE+BRIEFED+SOI+FILE.
        OUTPUTS:
            DATA:  D+003+ASET+MSG+ID+DATA
            DATA:  D+091+NELS+FREQUENCY+SCAN+DATA
            DATA:  D+135+SENSOR+ID+DATA
            FILE:  F+34+SENSOR+STATUS+FILE.
        TRACED FROM:
            ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+EXTERNAL+INTERFACE.
        REFERRED BY:
            SUBNET:  S+1+CHECK+NELS+SENSOR+STATUS+SUB.

    ALPHA:  A+18+NELS+SIGNAL+OF+INTEREST+FILTER+ALPHA.
        BETA:
                "VAR DREAL : REAL
            ;BEGIN
              DREAL := D+018+ASP+PITCH+DATA
              ;DREAL := D+010+ASP+ALTITUDE+DATA
              ;DREAL := D+014+ASP+LOC+X+DATA
              ;DREAL := D+091+NELS+FREQUENCY+SCAN+DATA
              ;FOR EACH F+21+NELS+PRE+BRIEFED+SOI+FILE RECORD DO
                DREAL := D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA
              ENDFOREACH
              ;CREATE F+10+NELS+CANDIDATE+TARGETS+FILE RECORD
              ;SELECT FIRST RECORD FROM
                      F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE
              ;SELECT FIRST RECORD FROM
                      F+15+NELS+EMITTER+CHARACTERISTICS+FILE
                ;D+061+NELS+EMISSION+DURATION+DATA :=
                  D+064+NELS+EMISSION+STOP+TIME+DATA -
                  D+063+B+NELS+EMISSION+START+TIME+DATA
                ;D+062+NELS+EMISSION+SIGNAL+STRENGTH+DATA :=
                  D+078+A+NELS+EMITTER+POWER+LEVEL+DATA
                ;D+063+NELS+EMISSION+START+TIME+DATA :=
                  D+063+B+NELS+EMISSION+START+TIME+DATA
                ;D+073+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
                  D+073+B+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
                ;D+075+NELS+EMITTER+ID+DATA := D+075+B+NELS+EMITTER+ID+DATA
                ;D+085+NELS+EMITTER+X+DATA :=
                  D+085+B+NELS+EMITTER+X+DATA;
                 D+086+NELS+EMITTER+Y+DATA :=
                  D+086+B+NELS+EMITTER+Y+DATA ;
                 D+087+NELS+EMITTER+Z+DATA :=
                  D+087+B+NELS+EMITTER+Z+DATA ;
                D+081+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
                  D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
                ;D+130+SCENARIO+GEN+ID+NUM+DATA :=
                  D+130+B+SCENARIO+GEN+ID+NUM+DATA
            END;".
              DATE+ENTERED: 11182.
              DESCRIPTION:
                      "THE NELS GPS WILL DIRECT THE NELS AIRBORNE SENSORS
            TO TUNE TO A SPECIFIC FREQUENCY BAND;  THE NARROWBAND EMITTER
            GROUND TRUTH DATA BASE IS SEARCHED FOR ALL EMITTERS TRANSMITTING
```

```
        ON A FREQUENCY WITHIN THE BAND TO WHICH THE SENSOR RECEIVERS
        HAVE BEEN TUNED".
          ENTERED←BY: "JJF-NELS".
          GAMMA:
             "VAR SSTEMPR : REAL
                  ;SSFILTER : BOOLEAN
         ;BEGIN
           SSTEMPR := D←018←ASP←PITCH←DATA
           ;SSTEMPR := D←010←ASP←ALTITUDE←DATA
           ;FOR EACH F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE RECORD
           DO BEGIN
             IF (D←063←B←NELS←EMISSION←START←TIME←DATA <=
                 D←021←ASP←TIME←DATA) AND
                (D←064←NELS←EMISSION←STOP←TIME←DATA >=
                 D←021←ASP←TIME←DATA) THEN BEGIN
               (* MEETS TIME,CLOCK SOI. *)
               SELECT FIRST RECORD FROM
                      F←21←NELS←PRE←BRIEFED←SOI←END←FREQ←DATA
               ;SSFILTER := FALSE
               ;WHILE FOUND AND NOT SSFILTER DO BEGIN
                 IF NOT(((D←103←NELS←PRE←BRIEFED←SOI←END←FREQ←DATA>=
                          D←081←B←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA)
                        AND
                         (D←106←NELS←PRE←BRIEFED←SOI←START←FREQ←DATA<=
                          D←081←B←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA))
                        OR
                         (D←104←NELS←PRE←BRIEFED←SOI←FREQ←DATA =
                          D←081←B←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA)
                        OR
                         (D←091←NELS←FREQUENCY←SCAN←DATA =
                          D←081←B←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA))
                       THEN SSFILTER := TRUE
                 ;SELECT NEXT RECORD FROM
                         F←21←NELS←PRE←BRIEFED←SOI←FILE
               END (* WHILE *)
               ;IF NOT SSFILTER THEN BEGIN
                 (* ADD TO CANDIDATE TARGET LIST *)
                 CREATE F←10←NELS←CANDIDATE←TARGETS←FILE RECORD
                 ;D←061←NELS←EMISSION←DURATION←DATA :=
                   D←064←NELS←EMISSION←STOP←TIME←DATA -
                   D←063←B←NELS←EMISSION←START←TIME←DATA
                 ;D←063←NELS←EMISSION←START←TIME←DATA :=
                   D←063←B←NELS←EMISSION←START←TIME←DATA
                 ;D←075←NELS←EMITTER←ID←DATA :=
                   D←075←B←NELS←EMITTER←ID←DATA
                 ;D←085←NELS←EMITTER←X←DATA :=
                   D←085←B←NELS←EMITTER←X←DATA
                 ;D←086←NELS←EMITTER←Y←DATA :=
                   D←086←B←NELS←EMITTER←Y←DATA
                 ;D←087←NELS←EMITTER←Z←DATA :=
                   D←087←B←NELS←EMITTER←Z←DATA
                 ;D←081←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA :=
                   D←081←B←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
                 ;D←130←SCENARIO←GEN←ID←NUM←DATA :=
                   D←130←B←SCENARIO←GEN←ID←NUM←DATA
                 ;SELECT FIRST RECORD FROM
                         F←15←NELS←EMITTER←CHARACTERISTICS←FILE
                 ;WHILE D←075←NELS←EMITTER←ID←DATA <>
```

```
                    D←075←NELS←EMITTER←ID←DATA DO BEGIN
                  SELECT NEXT RECORD FROM
                         F←15←NELS←EMITTER←CHARACTERISTICS←FILE
                END (* WHILE *)
                ;D←062←NELS←EMISSION←SIGNAL←STRENGTH←DATA :=
                  D←078←A←NELS←EMITTER←POWER←LEVEL←DATA
                ;D←073←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA :=
                  D←067←NELS←EMITTER←BANDWIDTH←DATA
              END
            END
          END ENDFOREACH
        END;".
        INPUTS:
             DATA:  D←011←ASP←ATTITUDE←DATA
             DATA:  D←013←ASP←LOCATION←DATA
             DATA:  D←020←ASP←STATE←VECTOR←DATA
             DATA:  D←091←NELS←FREQUENCY←SCAN←DATA
             FILE:  F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE
             (* USED BUT NOT UPDATED *)
             FILE:  F←15←NELS←EMITTER←CHARACTERISTICS←FILE
             (* USED BUT NOT UPDATED *)
             FILE:  F←21←NELS←PRE←BRIEFED←SOI←FILE.
        OUTPUTS:
             FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE.
        TRACED FROM:
             ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EMITTER←DEFAULT
             ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←SIGNAL←OF←INTEREST.
        REFERRED BY:
             SUBNET:  S←5←MODEL←NELS←SENSOR←SUB.

ALPHA:  A←19←NELS←SIGNAL←TO←NOISE←DETECTABILITY←ALPHA.
        BETA:
              "VAR DREAL : REAL
      ;BEGIN
        DREAL := D←018←ASP←PITCH←DATA
        ;DREAL := D←010←ASP←ALTITUDE←DATA
        ;DREAL := D←014←ASP←LOC←X←DATA
        ;FOR EACH F←10←NELS←CANDIDATE←TARGETS←FILE RECORD DO BEGIN
          D←061←NELS←EMISSION←DURATION←DATA :=
            D←061←NELS←EMISSION←DURATION←DATA
          ;D←062←NELS←EMISSION←SIGNAL←STRENGTH←DATA :=
            D←062←NELS←EMISSION←SIGNAL←STRENGTH←DATA
          ;D←063←NELS←EMISSION←START←TIME←DATA :=
            D←063←NELS←EMISSION←START←TIME←DATA
          ;D←073←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA :=
            D←073←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA
          ;D←075←NELS←EMITTER←ID←DATA := D←075←NELS←EMITTER←ID←DATA
          ;D←085←NELS←EMITTER←X←DATA :=
             D←085←NELS←EMITTER←X←DATA;
           D←086←NELS←EMITTER←Y←DATA :=
            D←086←NELS←EMITTER←Y←DATA ;
           D←087←NELS←EMITTER←Z←DATA :=
            D←087←NELS←EMITTER←Z←DATA ;
          D←081←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA :=
            D←081←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
          ;D←130←SCENARIO←GEN←ID←NUM←DATA :=
            D←130←SCENARIO←GEN←ID←NUM←DATA
        END ENDFOREACH
```

```
    ;FOR EACH F←26←NELS←WEATHER←CONDITIONS←FILE RECORD DO
      DREAL := D←144←X←WEATHER←LOC←DATA    ENDFOREACH
  END;",
    DATE←ENTERED: 11182.
    DESCRIPTION:
          "THE S/N AT EACH AIRBORNE SENSOR RECEIVER IS COMPUTED
   FOR EACH EMITTER WITHIN THE CANDIDATE TARGET LIST;  IF THE S/N
   DOES NOT EXCEED A PRESET THRESHOLD FOR AT LEAST TWO OF THE NELS
   SENSOR RECEIVERS, THE EMITTER IS REMOVED FROM THE CANDIDATE
   TARGET LIST".
    ENTERED←BY: "JJF←NELS".
    GAMMA:
     "VAR SSTEMPR : REAL
          ;SSTRANSMISSION : REAL
          ;SSTHRESHOLD : REAL
  ;BEGIN
    SSTEMPR := D←018←ASP←PITCH←DATA
    ;SSTEMPR := D←010←ASP←ALTITUDE←DATA
    ;SSTHRESHOLD := 1.2
    ;FOR EACH F←10←NELS←CANDIDATE←TARGETS←FILE RECORD DO BEGIN
      SELECT FIRST RECORD FROM
             F←26←NELS←WEATHER←CONDITIONS←FILE
      ;WHILE SQRT(SQR(D←085←NELS←EMITTER←X←DATA -
                      D←144←X←WEATHER←LOC←DATA) +
                  SQR(D←086←NELS←EMITTER←Y←DATA -
                      D←146←Y←WEATHER←LOC←DATA)) > SQRT(2.0)
      DO BEGIN
        SELECT NEXT RECORD FROM
               F←26←NELS←WEATHER←CONDITIONS←FILE
      END (* WHILE *)
      ;CASE D←120←PRECIPITATION←DATA OF
        NONE : SSTRANSMISSION := 1.5
        ;DRIZZLE : SSTRANSMISSION := 1.4
        ;RAIN : SSTRANSMISSION := 1.3
        ;SNOW : SSTRANSMISSION := 1.3
        ;SLEET : SSTRANSMISSION := 1.2
        ;HAIL : SSTRANSMISSION := 1.1
        ;RIME : SSTRANSMISSION := 1.4
      END (* CASE *)
      ;IF SSTRANSMISSION < SSTHRESHOLD THEN BEGIN
        DESTROY F←10←NELS←CANDIDATE←TARGETS←FILE RECORD
      END
    END ENDFOREACH
  END;",
    INPUTS:
         DATA:  D←011←ASP←ATTITUDE←DATA
         DATA:  D←013←ASP←LOCATION←DATA
         DATA:  D←020←ASP←STATE←VECTOR←DATA
         FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE
         FILE:  F←26←NELS←WEATHER←CONDITIONS←FILE
         (* USED BUT NOT UPDATED *),
    OUTPUTS:
         FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE.
    TRACED FROM:
         ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←SIGNAL←TO←NOISE.
    REFERRED BY:
         SUBNET:  S←5←MODEL←NELS←SENSOR←SUB.
```

```
    ALPHA:  A←20←NELS←SURVEILLANCE←AND←TRACK←MSGS←ALPHA,
          BETA:
            "BEGIN
           D←005←ASET←MSG←SOURCE←DATA := NELS
           ;D←004←ASET←MSG←NAME←DATA := MN←14←NELS←TRACK←MESSAGE
           ;D←002←ASET←MSG←DEST←DATA := ASE
           ;D←029←CARTO←SECTION←NUM←DATA := 1
           ;D←047←GROUND←TARGET←LENGTH←DATA := 0.0
           ;D←050←GROUND←TARGET←VELOCITY←DATA := 0.0
           ;D←142←TRACK←MESSAGE←DATA := TRACKING
           ;FOR EACH F←25←NELS←TYPED←EMITTER←REPORT←FILE RECORD DO BEGIN
             D←045←GPS←ID←DATA := GPS←1←NELS
             ;D←046←GROUND←TARGET←FREQUENCY←DATA :=
               D←074←NELS←EMITTER←FREQUENCY←DATA
             ;D←135←SENSOR←ID←DATA := NELS←GPS←1
             ;CREATE F←07←GROUP←TARGET←LOCS←FILE RECORD
             ;D←048←GROUND←TARGET←LOC←X←DATA := D←167←NELS←EMITTER←X←DATA
             ;D←049←GROUND←TARGET←LOC←Y←DATA := D←168←NELS←EMITTER←Y←DATA
           END ENDFOREACH
         END;",
           DATE←ENTERED: 11882,
           DESCRIPTION:
                  "TO INFORM ASE OF TARGETS CURRENTLY UNDER SURVEILLANCE,
          THOSE ABOUT TO BE LOST, AND THOSE NOT CURRENTLY UNDER
          SURVEILLANCE WHICH COULD OR SHOULD BE",
           ENTERED←BY: "JJF←NELS",
           GAMMA:
               "PROCEDURE SS20MAKE
                  ;BEGIN
                    CASE D←080←NELS←EMITTER←TRAFFIC←TYPE←DATA OF
                      PASSIVE : BEGIN
                        D←005←ASET←MSG←SOURCE←DATA := NELS
                        ;D←004←ASET←MSG←NAME←DATA :=
                        ;MN←05←NELS←NON←SURVEILLANCE←TARGET←REPORTS
                        ;D←002←ASET←MSG←DEST←DATA := ASE
                        ;D←045←GPS←ID←DATA := GPS←1←NELS
                        ;D←046←GROUND←TARGET←FREQUENCY←DATA :=
                          D←074←NELS←EMITTER←FREQUENCY←DATA
                        ;D←047←GROUND←TARGET←LENGTH←DATA := 0.0
                        ;D←050←GROUND←TARGET←VELOCITY←DATA := 0.0
                        ;CREATE F←07←GROUP←TARGET←LOCS←FILE RECORD
                        ;D←048←GROUND←TARGET←LOC←X←DATA :=
                          D←167←NELS←EMITTER←X←DATA
                        ;D←049←GROUND←TARGET←LOC←Y←DATA :=
                          D←168←NELS←EMITTER←Y←DATA
                        ;PERFORM
                        (M←05←NELS←NON←SURVEILLANCE←TARGET←REPORTS←MSG←OUT)
                      END
                      ;POTENTIAL←THREAT : BEGIN
                        D←005←ASET←MSG←SOURCE←DATA := NELS
                        ;D←004←ASET←MSG←NAME←DATA :=
                          MN←12←NELS←SURVEILLANCE←TARGET←REPORTS
                        ;D←002←ASET←MSG←DEST←DATA := ASE
                        ;D←045←GPS←ID←DATA := GPS←1←NELS
                        ;D←046←GROUND←TARGET←FREQUENCY←DATA :=
                          D←074←NELS←EMITTER←FREQUENCY←DATA
                        ;D←047←GROUND←TARGET←LENGTH←DATA := 0.0
                        ;D←050←GROUND←TARGET←VELOCITY←DATA := 0.0
```

```
                    ;CREATE F←07←GROUP←TARGET←LOCS←FILE RECORD
                    ;D←048←GROUND←TARGET←LOC←X←DATA :=
                      D←167←NELS←EMITTER←X←DATA
                    ;D←049←GROUND←TARGET←LOC←Y←DATA :=
                      D←168←NELS←EMITTER←Y←DATA
                    ;EE8FORM
                    (M←12←NELS←SURVEILLANCE←TARGET←REPORT←MSG←OUT)
                  END
                  ;THREAT : BEGIN
                    D←005←ASET←MSG←SOURCE←DATA := NELS
                    ;D←004←ASET←MSG←NAME←DATA :=
                     MN←14←NELS←TRACK←MESSAGE
                    ;D←002←ASET←MSG←DEST←DATA := ASE
                    ;D←029←CARTO←SECTION←NUM←DATA := 1
                    ;D←135←SENSOR←ID←DATA := NELS←GPS←1
                    ;D←142←TRACK←MESSAGE←DATA := CAN←TRACK
                    ;EE8FORM (M←14←NELS←TRACK←MESSAGE←MSG←OUT)
                  END
              END (* CASE *)
            END (* SS20MAKE *)
          ;BEGIN
            SELECT FIRST RECORD FROM
                   F←25←NELS←TYPED←EMITTER←REPORT←FILE
            ;IF FOUND THEN BEGIN
              SS20MAKE
              ;SELECT NEXT RECORD FROM
                      F←25←NELS←TYPED←EMITTER←REPORT←FILE
              ;WHILE FOUND DO BEGIN
                SS20MAKE
                ;SELECT NEXT RECORD FROM
                        F←25←NELS←TYPED←EMITTER←REPORT←FILE
              END (* WHILE *)
            END
          END
          ;PROCEDURE SS20DUMMY
            ;BEGIN (* DUMMY HEADER FOR PROCEDURE THAT IS NEVER CALLED. *)
            (* INTENDED TO DECEIVE REVS SO THAT THE THREE PERFORM CALLS*)
            (* WILL NEVER BE EXECUTED.  IN GENERAL, ALL THREE MESSAGES *)
            (* MAY NOT BE FORMED EVERY TIME THE ALPHA IS EXECUTED. *)
            END;".
          FORMS:
               MESSAGE:  M←05←NELS←NON←SURVEILLANCE←TARGET←REPORTS←MSG←OUT
               MESSAGE:  M←12←NELS←SURVEILLANCE←TARGET←REPORTS←MSG←OUT
               MESSAGE:  M←14←NELS←TRACK←MESSAGE←MSG←OUT.
          INPUTS:
               FILE:  F←25←NELS←TYPED←EMITTER←REPORT←FILE.
          OUTPUTS:
               DATA:  D←003←ASET←MSG←ID←DATA
               DATA:  D←045←GPS←ID←DATA
               DATA:  D←046←GROUND←TARGET←FREQUENCY←DATA
               DATA:  D←047←GROUND←TARGET←LENGTH←DATA
               DATA:  D←050←GROUND←TARGET←VELOCITY←DATA
               DATA:  D←135←SENSOR←ID←DATA
               DATA:  D←142←TRACK←MESSAGE←DATA
               FILE:  F←02←CARTO←UPDATE←FILE
               FILE:  F←07←GROUP←TARGET←LOCS←FILE.
          TRACED FROM:
               ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.
```

```
        REFERRED BY:
             SUBNET:  S←2←DO←NELS←OPERATIONAL←CONTROL←SUB.

    ALPHA:  A←21←NELS←TARGET←ACQUISITION←ALPHA.
        BETA:
                "VAR DREAL : REAL;
      BEGIN
        DREAL := D←018←ASP←PITCH←DATA
        ;DREAL := D←010←ASP←ALTITUDE←DATA
        ;DREAL := D←014←ASP←LOC←X←DATA
        ;FOR EACH F←12←DETECTED←CANDIDATE←TARGETS←FILE RECORD DO BEGIN
          CREATE F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE RECORD
          ;D←159←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA :=
              D←150←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA
            ;D←077←NELS←EMITTER←MODULATION←TYPE←DATA := MODULATED
            ;D←078←NELS←EMITTER←POWER←LEVEL←DATA := 0.0
            ;D←161←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA :=
              D←152←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
          ;CREATE F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE RECORD
            ;D←157←NELS←EMISSION←DURATION←DATA :=
              D←147←NELS←EMISSION←DURATION←DATA
            ;D←160←NELS←EMITTER←ID←DATA := D←151←NELS←EMITTER←ID←DATA
          ;D←162←NELS←EMITTER←X←DATA :=
             D←153←NELS←EMITTER←X←DATA;
           D←163←NELS←EMITTER←Y←DATA :=
             D←154←NELS←EMITTER←Y←DATA ;
           D←164←NELS←EMITTER←Z←DATA :=
             D←155←NELS←EMITTER←Z←DATA
          ;D←162←NELS←EMITTER←X←DATA :=
             D←153←NELS←EMITTER←X←DATA
          ;D←163←NELS←EMITTER←Y←DATA :=
             D←154←NELS←EMITTER←Y←DATA
          ;D←164←NELS←EMITTER←Z←DATA :=
             D←155←NELS←EMITTER←Z←DATA
          ;D←165←SCENARIO←GEN←ID←NUM←DATA :=
             D←156←SCENARIO←GEN←ID←NUM←DATA
          ;CREATE F←24←NELS←TDOA←DD←FILE RECORD
            ;D←058←NELS←DD←1←2←DATA := 0.0
            ;D←059←NELS←DD←1←3←DATA := 0.0
            ;D←060←NELS←DD←2←3←DATA := 0.0
            ;D←109←NELS←TDOA←1←2←DATA := 0.0
            ;D←110←NELS←TDOA←1←3←DATA := 0.0
            ;D←111←NELS←TDOA←2←3←DATA := 0.0
        END ENDFOREACH
      END;".
        DATE←ENTERED: 11282.
        DESCRIPTION:
              "THE TARGET ACQUISITION MODULE ESTIMATES EMITTER SIGNAL
      CHARACTERISTICS SUCH AS FREQUENCY, BANDWIDTH, EFFECTIVE RADIATED
      POWER, AND MODULATION TYPE;  IT ALSO ESTIMATES EMITTER TIME
      DIFFERENCE OF ARRIVAL (TDOA) AND DIFERENTIAL DOPPLER (DD)
      INFORMATION FOR EACH DETECTABLE EMISSION RELATIVE TO EACH SENSOR
      PLATFORM".
        ENTERED←BY: "JJF-NELS".
        GAMMA:
          "VAR SSTEMPR : REAL
      ;BEGIN
        SSTEMPR := D←018←ASP←PITCH←DATA
```

```
        ;SSTEMPR := D-010-ASP-ALTITUDE-DATA
        ;SSTEMPR := D-014-ASP-LOC-X-DATA
        ;FOR EACH F-12-DETECTED-CANDIDATE-TARGETS-FILE RECORD DO BEGIN
          CREATE F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE RECORD
          ;D-159-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA :=
            D-150-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
          ;D-077-NELS-EMITTER-MODULATION-TYPE-DATA := MODULATED
          ;D-078-NELS-EMITTER-POWER-LEVEL-DATA :=
            D-062-NELS-EMISSION-SIGNAL-STRENGTH-DATA
          ;D-161-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA :=
            D-152-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
          ;CREATE F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE RECORD
          ;D-157-NELS-EMISSION-DURATION-DATA :=
            D-147-NELS-EMISSION-DURATION-DATA
          ;D-158-NELS-EMISSION-START-TIME-DATA :=
            D-149-NELS-EMISSION-START-TIME-DATA
          ;D-160-NELS-EMITTER-ID-DATA := D-151-NELS-EMITTER-ID-DATA
           ;D-162-NELS-EMITTER-X-DATA :=
            D-153-NELS-EMITTER-X-DATA
          ;D-163-NELS-EMITTER-Y-DATA :=
            D-154-NELS-EMITTER-Y-DATA
          ;D-164-NELS-EMITTER-Z-DATA :=
            D-155-NELS-EMITTER-Z-DATA
          ;D-165-SCENARIO-GEN-ID-NUM-DATA :=
            D-156-SCENARIO-GEN-ID-NUM-DATA
        END ENDFOREACH
        ;CREATE F-24-NELS-TDOA-DD-FILE RECORD
        ;D-058-NELS-DD-1-2-DATA := 0.0
        ;D-059-NELS-DD-1-3-DATA := 0.0
        ;D-060-NELS-DD-2-3-DATA := 0.0
        ;D-109-NELS-TDOA-1-2-DATA := 0.0
        ;D-110-NELS-TDOA-1-3-DATA := 0.0
        ;D-111-NELS-TDOA-2-3-DATA := 0.0
      END;".
        INPUTS:
             DATA:  D-011-ASP-ATTITUDE-DATA
             DATA:  D-013-ASP-LOCATION-DATA
             DATA:  D-020-ASP-STATE-VECTOR-DATA
             FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
        OUTPUTS:
             FILE:  F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
             FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
             FILE:  F-24-NELS-TDOA-DD-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.
        REFERRED BY:
             SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB.

    ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA.
        BETA:
              "VAR DREAL : REAL;
        BEGIN
          DREAL := D-018-ASP-PITCH-DATA
          ;DREAL := D-010-ASP-ALTITUDE-DATA
          ;DREAL := D-014-ASP-LOC-X-DATA
          ;FOR EACH F-08-HYPSO-DATA-FILE RECORD DO
            DREAL := D-051-HYPSO-ELEV-DATA ENDFOREACH
          ;FOR EACH F-10-NELS-CANDIDATE-TARGETS-FILE RECORD DO BEGIN
```

```
      CREATE F←12←DETECTED←CANDIDATE←TARGETS←FILE RECORD
        ;D←147←NELS←EMISSION←DURATION←DATA :=
          D←061←NELS←EMISSION←DURATION←DATA
        ;D←148←NELS←EMISSION←SIGNAL←STRENGTH←DATA :=
          D←062←NELS←EMISSION←SIGNAL←STRENGTH←DATA
        ;D←149←NELS←EMISSION←START←TIME←DATA :=
          D←063←NELS←EMISSION←START←TIME←DATA
        ;D←150←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA :=
          D←073←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA
        ;D←151←NELS←EMITTER←ID←DATA := D←075←NELS←EMITTER←ID←DATA
      ;D←153←NELS←EMITTER←X←DATA :=
         D←085←NELS←EMITTER←X←DATA;
       D←154←NELS←EMITTER←Y←DATA :=
         D←086←NELS←EMITTER←Y←DATA ;
       D←155←NELS←EMITTER←Z←DATA :=
         D←087←NELS←EMITTER←Z←DATA ;
        D←152←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA :=
          D←081←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
        ;D←156←SCENARIO←GEN←ID←NUM←DATA :=
          D←130←SCENARIO←GEN←ID←NUM←DATA
    END ENDFOREACH
  END;",
    DATE←ENTERED: 11182.
    DESCRIPTION:
            "THE FINAL PROCESS IN MODELLING EMITTER DETECTABILITY
  IS TO ELIMINATE ANY EMITTERS WITHIN THE CANDIDATE TARGET LIST
  WHICH CANNOT BE DETECTED BY THE NELS AIRBORNE SENSOR RECEIVERS
  DUE TO TERRAIN SHADOWING;  THE TERRAIN SHADOWING ALGORITHM SCANS
  THE HYPSOGRAPHIC DATA ALONG A LINE-OF-SIGHT VECTOR CONNECTING THE
  SENSOR AND THE EMITTER;  IN ORDER TO PERFORM A LOCATION ESTIMATE
  ON THE EMITTER, THE EMITTER MUST BE DETECTABLE BY AT LEAST TWO OF
  THE AIRBORNE SENSOR PLATFORMS".
    ENTERED←BY: "JJF-NELS".
    GAMMA:
       "VAR SSTEMPR : REAL
            ;SSFILTER : BOOLEAN
            ;SSRAND : REAL
   ;FUNCTION SSRANDU : REAL
     ;BEGIN
       SSRAND := 29.0 * SSRAND + 357.0
       ;SSRAND := SSRAND - TRUNC(SSRAND)
       ;SSRANDU := SSRAND
     END
   ;BEGIN
     SSTEMPR := D←018←ASP←PITCH←DATA
     ;SSTEMPR := D←010←ASP←ALTITUDE←DATA
     ;SSTEMPR := D←014←ASP←LOC←X←DATA
     ;SELECT FIRST RECORD FROM
              F←08←HYPSO←DATA←FILE
     ;SSTEMPR := D←051←HYPSO←ELEV←DATA
     (* SINCE IT IS IMPRACTICAL TO MODEL THIS PROCESS WITHOUT *)
     (* DIRECT ACCESS FILES,A RANDOM NUMBER GENERATOR WILL BE *)
     (* EMPLOYED. *)
     ;SSRAND := 0.450192
     ;FOR EACH F←10←NELS←CANDIDATE←TARGETS←FILE RECORD DO BEGIN
       IF SSRANDU >= 0.5 THEN BEGIN
         CREATE F←12←DETECTED←CANDIDATE←TARGETS←FILE RECORD
         ;D←147←NELS←EMISSION←DURATION←DATA :=
```

```
              D+061+NELS+EMISSION+DURATION+DATA
             ;D+148+NELS+EMISSION+SIGNAL+STRENGTH+DATA :=
              D+062+NELS+EMISSION+SIGNAL+STRENGTH+DATA
             ;D+149+NELS+EMISSION+START+TIME+DATA :=
              D+063+NELS+EMISSION+START+TIME+DATA
             ;D+150+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
              D+073+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
             ;D+151+NELS+EMITTER+ID+DATA :=
              D+075+NELS+EMITTER+ID+DATA
             ;D+153+NELS+EMITTER+X+DATA :=
              D+085+NELS+EMITTER+X+DATA
             ;D+154+NELS+EMITTER+Y+DATA :=
              D+086+NELS+EMITTER+Y+DATA
             ;D+155+NELS+EMITTER+Z+DATA :=
              D+087+NELS+EMITTER+Z+DATA
             ;D+152+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
              D+091+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
             ;D+156+SCENARIO+GEN+ID+NUM+DATA :=
              D+130+SCENARIO+GEN+ID+NUM+DATA
          END
        END ENDFOREACH
      END;".
       INPUTS:
            DATA:  D+011+ASP+ATTITUDE+DATA
            DATA:  D+013+ASP+LOCATION+DATA
            DATA:  D+020+ASP+STATE+VECTOR+DATA
            FILE:  F+08+HYPSO+DATA+FILE
            (* USED BUT NOT UPDATED *)
            FILE:  F+10+NELS+CANDIDATE+TARGETS+FILE.
       OUTPUTS:
            FILE:  F+12+DETECTED+CANDIDATE+TARGETS+FILE.
       TRACED FROM:
            ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+TERRAIN+SHADOWING.
       REFERRED BY:
            SUBNET:  S+S+MODEL+NELS+SENSOR+SUP.

  ALPHA:  A+23+NELS+THREAT+TABLE+UPDATE+ALPHA.
       BETA:
             *BEGIN
          FOR EACH F+25+NELS+TYPED+EMITTER+REPORT+FILE RECORD DO BEGIN
            CREATE F+13+NELS+EMISSION+THREAT+TABLE+FILE RECORD
             ;D+182+NELS+EMITTER+BANDWIDTH+DATA :=
                D+176+NELS+EMITTER+BANDWIDTH+DATA
              ;D+183+NELS+EMITTER+CEP+DATA := D+177+NELS+EMITTER+CEP+DATA
              ;D+171+NELS+EMITTER+ID+DATA := D+166+NELS+EMITTER+ID+DATA
             ;D+173+NELS+EMITTER+X+DATA :=
                D+167+NELS+EMITTER+X+DATA;
              D+174+NELS+EMITTER+Y+DATA :=
                D+168+NELS+EMITTER+Y+DATA ;
              D+175+NELS+EMITTER+Z+DATA :=
                D+169+NELS+EMITTER+Z+DATA ;
              D+181+NELS+EMITTER+MODULATION+TYPE+DATA :=
                D+178+NELS+EMITTER+MODULATION+TYPE+DATA
             ;D+079+NELS+EMITTER+TIME+OF+LOCATOIN+DATA :=
                D+179+NELS+EMITTER+TIME+OF+LOCATOIN+DATA
             ;D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA :=
                D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA
             ;D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
```

```
        D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
      END
      ENDFOREACH
      END;",
  DATE+ENTERED: 11282,
  DESCRIPTION: "MAINTAINS THE NELS TARGET THREAT TABLE",
  ENTERED+BY: "JJF-NELS",
  GAMMA:
      "BEGIN
SELECT FIRST RECORD FROM
              F+25+NELS+TYPED+EMITTER+REPORT+FILE
;IF FOUND THEN BEGIN (* IS THERE ANYTHING ON UPDATE LIST. *)
  SELECT FIRST RECORD FROM
         F+13+NELS+EMISSION+THREAT+TABLE+FILE
  ;IF FOUND THEN BEGIN (* UPDATE EXISTING TABLE. ELSE BUILD *)
                       (* TABLE. *)
    (* IF IT'S IN THE TABLE,UPDATE IT,ELSE ADD A NEW RECORD.*)
    ;WHILE FOUND DO BEGIN
   IF (D+171+NELS+EMITTER+ID+DATA = D+166+NELS+EMITTER+ID+DATA)
   AND
      (SQRT(
      SQR(D+173+NELS+EMITTER+X+DATA - D+167+NELS+EMITTER+X+DATA)
      +
      SQR(D+168+NELS+EMITTER+Y+DATA - D+174+NELS+EMITTER+Y+DATA)
      ) <= 1000.0)
      THEN BEGIN
     ;D+173+NELS+EMITTER+X+DATA :=
       D+167+NELS+EMITTER+X+DATA;
      D+174+NELS+EMITTER+Y+DATA :=
        D+168+NELS+EMITTER+Y+DATA ;
      D+175+NELS+EMITTER+Z+DATA :=
        D+169+NELS+EMITTER+Z+DATA ;
        D+183+NELS+EMITTER+CEP+DATA :=
          D+177+NELS+EMITTER+CEP+DATA
        ;SELECT FIRST RECORD FROM
                F+13+NELS+EMISSION+THREAT+TABLE+FILE
        ;SELECT FIRST RECORD FROM
                F+25+NELS+TYPED+EMITTER+REPORT+FILE
      END
      ELSE BEGIN
        SELECT NEXT RECORD FROM
               F+13+NELS+EMISSION+THREAT+TABLE+FILE
      END
    END (* WHILE *)
  END
  ELSE BEGIN
    CREATE F+13+NELS+EMISSION+THREAT+TABLE+FILE RECORD
    ;D+182+NELS+EMITTER+BANDWIDTH+DATA :=
      D+176+NELS+EMITTER+BANDWIDTH+DATA
    ;D+183+NELS+EMITTER+CEP+DATA := D+177+NELS+EMITTER+CEP+DATA
    ;D+171+NELS+EMITTER+ID+DATA := D+166+NELS+EMITTER+ID+DATA
    ;D+173+NELS+EMITTER+X+DATA :=
      D+167+NELS+EMITTER+X+DATA;
     D+174+NELS+EMITTER+Y+DATA :=
      D+168+NELS+EMITTER+Y+DATA ;
     D+175+NELS+EMITTER+Z+DATA :=
      D+169+NELS+EMITTER+Z+DATA
    ;D+181+NELS+EMITTER+MODULATION+TYPE+DATA :=
```

```
        D←172←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
      END
      ENDFOREACH
      END;",
 DATE←ENTERED: 11282,
 DESCRIPTION: "MAINTAINS THE NELS TARGET THREAT TABLE",
 ENTERED←BY: "JJF-NELS",
 GAMMA:
     "BEGIN
SELECT FIRST RECORD FROM
              F←25←NELS←TYPED←EMITTER←REPORT←FILE
;IF FOUND THEN BEGIN (* IS THERE ANYTHING ON UPDATE LIST, *)
  SELECT FIRST RECORD FROM
         F←13←NELS←EMISSION←THREAT←TABLE←FILE
  ;IF FOUND THEN BEGIN (* UPDATE EXISTING TABLE, ELSE BUILD *)
                       (* TABLE, *)
    (* IF IT'S IN THE TABLE,UPDATE IT,ELSE ADD A NEW RECORD,*)
    ;WHILE FOUND DO BEGIN
   IF (D←171←NELS←EMITTER←ID←DATA = D←166←NELS←EMITTER←ID←DATA)
   AND
      (SQRT(
      SQR(D←173←NELS←EMITTER←X←DATA - D←167←NELS←EMITTER←X←DATA)
      +
      SQR(D←168←NELS←EMITTER←Y←DATA - D←174←NELS←EMITTER←Y←DATA)
      ) <= 1000.0)
      THEN BEGIN
     ;D←173←NELS←EMITTER←X←DATA :=
       D←167←NELS←EMITTER←X←DATA;
      D←174←NELS←EMITTER←Y←DATA :=
        D←168←NELS←EMITTER←Y←DATA ;
      D←175←NELS←EMITTER←Z←DATA :=
        D←169←NELS←EMITTER←Z←DATA ;
        D←183←NELS←EMITTER←CEP←DATA :=
          D←177←NELS←EMITTER←CEP←DATA
        ;SELECT FIRST RECORD FROM
                F←13←NELS←EMISSION←THREAT←TABLE←FILE
        ;SELECT FIRST RECORD FROM
                F←25←NELS←TYPED←EMITTER←REPORT←FILE
      END
      ELSE BEGIN
        SELECT NEXT RECORD FROM
               F←13←NELS←EMISSION←THREAT←TABLE←FILE
      END
    END (* WHILE *)
  END
  ELSE BEGIN
    CREATE F←13←NELS←EMISSION←THREAT←TABLE←FILE RECORD
    ;D←182←NELS←EMITTER←BANDWIDTH←DATA :=
      D←176←NELS←EMITTER←BANDWIDTH←DATA
    ;D←183←NELS←EMITTER←CEP←DATA := D←177←NELS←EMITTER←CEP←DATA
    ;D←171←NELS←EMITTER←ID←DATA := D←166←NELS←EMITTER←ID←DATA
    ;D←173←NELS←EMITTER←X←DATA :=
      D←167←NELS←EMITTER←X←DATA;
     D←174←NELS←EMITTER←Y←DATA :=
      D←168←NELS←EMITTER←Y←DATA ;
     D←175←NELS←EMITTER←Z←DATA :=
      D←169←NELS←EMITTER←Z←DATA
    ;D←181←NELS←EMITTER←MODULATION←TYPE←DATA :=
```

```
            D+178+NELS+EMITTER+MODULATION+TYPE+DATA
          ;D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA :=
            D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA
          ;D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA :=
            D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA
          ;D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
            D+074+NELS+EMITTER+FREQUENCY+DATA
        END
      END
    END;".
      INPUTS:
          FILE:  F+13+NELS+EMISSION+THREAT+TABLE+FILE
          FILE:  F+25+NELS+TYPED+EMITTER+REPORT+FILE.
      OUTPUTS:
          FILE:  F+13+NELS+EMISSION+THREAT+TABLE+FILE.
      TRACED FROM:
          ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+THREAT+TABLE+UPDATE
          .
      REFERRED BY:
          SUBNET:  S+3+MODEL+NELS+GPS+PROCESSING+SUB.

ALPHA:  A+24+RESET+NELS+ALPHA.
      BETA: "BEGIN END;".
      DATE+ENTERED: 11182.
      DESCRIPTION:
            "REMOVES TARGET AND WEATHER INFORMATION FROM BEING
   AVAILABLE".
      ENTERED+BY: "JJF-NELS".
      GAMMA:
       "BEGIN
        END;".
      DESTROYS:
          ENTITY+CLASS:  EC+2+NELS+SCENARIO+EC
          ENTITY+CLASS:  EC+3+NELS+TASKS+EC
          ENTITY+CLASS:  EC+4+NELS+THREAT+EC
          ENTITY+CLASS:  EC+5+NELS+VEHICLE+CHARACTERISTICS+EC
          ENTITY+CLASS:  EC+6+DETECTED+EMISSIONS+INFO+EC.
      TRACED FROM:
          ORIGINATING+REQUIREMENT:  ORIG+REQ+TC+CYCLE+START.
      REFERRED BY:
          R+NET:  R+2+MODEL+NELS+SENSOR+SYSTEM+R+NET.

ALPHA:  A+25+UPDATE+CARTO+ALPHA.
      BETA:
           "VAR DREAL : REAL;
  BEGIN
    FOR EACH F+02+CARTO+UPDATE+FILE RECORD DO
      DREAL := D+033+CARTO+UPDATE+X+DATA ENDFOREACH
    ;D+028+CARTO+MAP+SECT+NUM+DATA :=
     D+028+CARTO+MAP+SECT+NUM+DATA
    ;FOR EACH F+01+BRIDGE+LOCATIONS+FILE RECORD DO
      DREAL := D+026+BRIDGE+LOC+X+DATA ENDFOREACH
    ;FOR EACH F+03+CITY+LOCATIONS+FILE RECORD DO
      DREAL := D+035+CITY+LOC+X+DATA ENDFOREACH
    ;FOR EACH F+08+HYPSO+DATA+FILE RECORD DO
      DREAL := D+051+HYPSO+ELEV+DATA ENDFOREACH
    ;FOR EACH F+09+MARSHALLING+AREAS+FILE RECORD DO
      DREAL := D+054+MARSHALLING+X+DATA ENDFOREACH
```

```
      ;FOR EACH F+28+PRIMARY+ROADS+FILE RECORD DO
        DREAL := D+121+PRIMARY+RJADS+X+DATA ENDFOREACH
      ;FOR EACH F+29+RAILROAD+LOCATIONS+FILE RECORD DO
        DREAL := D+123+RAILROAD+LOC+X+DATA ENDFOREACH
      ;FOR EACH F+30+RIVER+LOCATIONS+FILE RECORD DO
        DREAL := D+128+RIVER+LOC+X+DATA ENDFOREACH
      ;FOR EACH F+31+SECONDARY+ROADS+FILE RECORD DO
        DREAL := D+131+SECONDARY+ROAD+X+DATA ENDFOREACH
    END;".
      DATE+ENTERED: 11482.
      DESCRIPTION: "UPDATES CARTO FILE(S) WITH REVISED DATA FROM ASE".
      ENTERED+BY: "JJF-NELS".
      GAMMA:
        "VAR SSTEMPI : INTEGER
             ;SSUPDATE : BOOLEAN
             ;SSTEST : BOOLEAN
             ;SS030TEMP : BE00+030+CARTO+UPDATE+1+DATA
     ;BEGIN
        FOR EACH F+02+CARTO+UPDATE+FILE RECORD DO BEGIN
          SS030TEMP := D+030+CARTO+UPDATE+1+DATA
          ;SS030TEMP := D+031+CARTO+UPDATE+2+DATA
          ;SSTEMPI := D+028+CARTO+MAP+SECT+NUM DATA
          ;SSTEMPI := D+029+CARTO+SECTION+NUM+DATA
          ;CASE D+032+CARTO+UPDATE+3+DATA OF
            BRIDGE : BEGIN
              SELECT FIRST RECORD FROM
                     F+01+BRIDGE+LOCATIONS+FILE
              ;SSUPDATE := FALSE
              ;SSTEST := FOUND
              ;WHILE SSTEST DO BEGIN
                IF (D+033+CARTO+UPDATE+X+DATA =
                    D+026+BRIDGE+LOC+X+DATA) AND
                   (D+034+CARTO+UPDATE+Y+DATA =
                    D+027+BRIDGE+LOC+Y+DATA) THEN BEGIN
                  D+026+BRIDGE+LOC+X+DATA :=
                    D+033+CARTO+UPDATE+X+DATA
                  ;D+027+BRIDGE+LOC+Y+DATA :=
                    D+034+CARTO+UPDATE+Y+DATA
                  ;SSTEST := FALSE
                  ;SSUPDATE := TRUE
                END
                ELSE BEGIN
                  SELECT NEXT RECORD FROM
                         F+01+BRIDGE+LOCATIONS+FILE
                  ;SSTEST := FOUND
                END
              END (* WHILE *)
              ;IF NOT SSUPDATE THEN BEGIN
                CREATE F+01+BRIDGE+LOCATIONS+FILE RECORD
                ;D+026+BRIDGE+LOC+X+DATA :=
                  D+033+CARTO+UPDATE+X+DATA
                ;D+027+BRIDGE+LOC+Y+DATA :=
                  D+034+CARTO+UPDATE+Y+DATA
              END
            END
            ;CITY : BEGIN
              SELECT FIRST RECORD FROM
                     F+03+CITY+LOCATIONS+FILE
```

```
;SSUPDATE := FALSE
;SSTEST := FOUND
;WHILE SSTEST DO BEGIN
  IF (D←033←CARTO←UPDATE←X←DATA =
      D←035←CITY←LOC←X←DATA) AND
     (D←034←CARTO←UPDATE←Y←DATA =
      D←036←CITY←LOC←Y←DATA) THEN BEGIN
      D←035←CITY←LOC←X←DATA :=
      D←033←CARTO←UPDATE←X←DATA
    ;D←036←CITY←LOC←Y←DATA :=
      D←034←CARTO←UPDATE←Y←DATA
    ;SSTEST := FALSE
    ;SSUPDATE := TRUE
```

```
      END
      ELSE BEGIN
        SELECT NEXT RECORD FROM
               F+03+CITY+LOCATIONS+FILE
        ;SSTEST := FOUND
      END
    END (* WHILE *)
    ;IF NOT SSUPDATE THEN BEGIN
      CREATE F+03+CITY+LOCATIONS+FILE RECORD
      ;D+035+CITY+LOC+X+DATA := D+033+CARTO+UPDATE+X+DATA
      ;D+036+CITY+LOC+Y+DATA := D+034+CARTO+UPDATE+Y+DATA
    END
  END
  ;P+ROAD : BEGIN
    SELECT FIRST RECORD FROM
           F+28+PRIMARY+ROADS+FILE
    ;SSUPDATE := FALSE
    ;SSTEST := FOUND
    ;WHILE SSTEST DO BEGIN
      IF (D+033+CARTO+UPDATE+X+DATA =
          D+121+PRIMARY+ROADS+X+DATA) AND
         (D+034+CARTO+UPDATE+Y+DATA =
          D+122+PRIMARY+ROADS+Y+DATA) THEN BEGIN
        D+121+PRIMARY+ROADS+X+DATA :=
          D+033+CARTO+UPDATE+X+DATA
        ;D+122+PRIMARY+ROADS+Y+DATA :=
          D+034+CARTO+UPDATE+Y+DATA
      END
      ELSE BEGIN
        SELECT NEXT RECORD FROM
               F+028+PRIMARY+ROADS+FILE
        ;SSTEST := FOUND
      END
    END (* WHILE *)
    ;IF NOT SSUPDATE THEN BEGIN
      CREATE F+28+PRIMARY+ROADS+FILE RECORD
      ;D+121+PRIMARY+ROADS+X+DATA :=
        D+033+CARTO+UPDATE+X+DATA
      ;D+122+PRIMARY+ROADS+Y+DATA :=
        D+034+CARTO+UPDATE+Y+DATA
    END
  END
  ;RAILROAD : BEGIN
    SELECT FIRST RECORD FROM
```

```
            F←29←RAILROAD←LOCATIONS←FILE
        ;SSUPDATE := FALSE
        ;SSTEST := FOUND
        ;WHILE SSTEST DO BEGIN
          IF (D←033←CARTO←UPDATE←X←DATA =
              D←123←RAILROAD←LOC←X←DATA) AND
             (D←034←CARTO←UPDATE←Y←DATA =
              D←124←RAILROAD←LOC←Y←DATA) THEN BEGIN
            D←123←RAILROAD←LOC←X←DATA :=
              D←033←CARTO←UPDATE←X←DATA
            ;D←124←RAILROAD←LOC←Y←DATA :=
              D←034←CARTO←UPDATE←Y←DATA
            ;SSTEST := FALSE
            ;SSUPDATE := TRUE
          END
          ELSE BEGIN
            SELECT NEXT RECORD FROM
                   F←29←RAILROAD←LOCATIONS←FILE
            ;SSTEST := FOUND
          END
        END (* WHILE *)
        ;IF NOT SSUPDATE THEN BEGIN
          CREATE F←29←RAILROAD←LOCATIONS←FILE RECORD
          ;D←123←RAILROAD←LOC←X←DATA :=
            D←033←CARTO←UPDATE←X←DATA
          ;D←124←RAILROAD←LOC←Y←DATA :=
            D←124←RAILROAD←LOC←Y←DATA
        END
      END
      ;S←ROAD : BEGIN
        SELECT FIRST RECORD FROM
               F←31←SECONDARY←ROADS←FILE
        ;SSUPDATE := FALSE
        ;SSTEST := FOUND
        ;WHILE SSTEST DO BEGIN
          IF (D←033←CARTO←UPDATE←X←DATA =
              D←131←SECONDARY←ROAD←X←DATA) AND
             (D←034←CARTO←UPDATE←Y←DATA =
              D←132←SECONDARY←ROAD←Y←DATA) THEN BEGIN
            D←131←SECONDARY←ROAD←X←DATA :=
              D←033←CARTO←UPDATE←X←DATA
            ;D←132←SECONDARY←ROAD←Y←DATA :=
              D←034←CARTO←UPDATE←Y←DATA
            ;SSUPDATE := TRUE
            ;SSTEST := FALSE
          END
          ELSE BEGIN
            SELECT NEXT RECORD FROM
                   F←31←SECONDARY←ROADS←FILE
            ;SSTEST := FOUND
          END
        END (* WHILE *)
        ;IF NOT SSUPDATE THEN BEGIN
          CREATE F←31←SECONDARY←ROADS←FILE RECORD
          ;D←131←SECONDARY←ROAD←X←DATA :=
            D←033←CARTO←UPDATE←X←DATA
          ;D←132←SECONDARY←ROAD←Y←DATA :=
            D←034←CARTO←UPDATE←Y←DATA
```

```
    END
  END
 ;MARSHALLING : BEGIN
   SELECT FIRST RECORD FROM
          F←09←MARSHALLING←AREAS←FILE
   ;SSUPDATE := FALSE
   ;SSTEST := FOUND
   ;WHILE SSTEST DO BEGIN
     IF (D←033←CARTO←UPDATE←X←DATA =
         D←054←MARSHALLING←X←DATA) AND
        (D←034←CARTO←UPDATE←Y←DATA =
         D←055←MARSHALLING←Y←DATA) THEN BEGIN
       D←054←MARSHALLING←X←DATA :=
         D←033←CARTO←UPDATE←X←DATA
       ;D←055←MARSHALLING←Y←DATA :=
```

```
        D←034←CARTO←UPDATE←Y←DATA
      ;SSUPDATE := TRUE
      ;SSTEST := FALSE
    END
    ELSE BEGIN
      SELECT NEXT RECORD FROM
            F←09←MARSHALLING←AREAS←FILE
      ;SSTEST := FOUND
    END
  END (* WHILE *)
  ;IF NOT SSUPDATE THEN BEGIN
    CREATE F←09←MARSHALLING←AREAS←FILE RECORD
    ;D←054←MARSHALLING←X←DATA :=
      D←033←CARTO←UPDATE←X←DATA
    ;D←055←MARSHALLING←Y←DATA :=
      D←034←CARTO←UPDATE←Y←DATA
  END
END
;RIVER : BEGIN
  SELECT FIRST RECORD FROM
        F←30←RIVER←LOCATIONS←FILE
  ;SSUPDATE := FALSE
  ;SSTEST := FOUND
  ;WHILE SSTEST DO BEGIN
    IF (D←033←CARTO←UPDATE←X←DATA = D←128←RIVER←LOC←X←DATA)
       AND
       (D←034←CARTO←UPDATE←Y←DATA = D←129←RIVER←LOC←Y←DATA)
       THEN BEGIN
      D←128←RIVER←LOC←X←DATA := D←033←CARTO←UPDATE←X←DATA
      ;D←129←RIVER←LOC←Y←DATA := D←034←CARTO←UPDATE←Y←DATA
      ;SSUPDATE := TRUE
      ;SSTEST := FALSE
    END
    ELSE BEGIN
      SELECT NEXT RECORD FROM
            F←30←RIVER←LOCATIONS←FILE
      ;SSTEST := FOUND
    END
  END (* WHILE *)
  ;IF NOT SSUPDATE THEN BEGIN
    CREATE F←30←RIVER←LOCATIONS←FILE RECORD
    ;D←128←RIVER←LOC←X←DATA := D←033←CARTO←UPDATE←X←DATA
```

```
            ;D←129←RIVER←LOC←Y←DATA := D←034←CARTO←UPDATE←Y←DATA
          END
        END
        ;HYPSO : BEGIN
          SELECT FIRST RECORD FROM
                 F←08←HYPSO←DATA←FILE
          ;SSUPDATE := FALSE
          ;SSTEST := FOUND
          ;WHILE SSTEST DO BEGIN
            IF (D←033←CARTO←UPDATE←X←DATA = D←052←HYPSO←LOC←X←DATA)
               AND
               (D←034←CARTO←UPDATE←Y←DATA = D←053←HYPSO←LOC←Y←DATA)
               THEN BEGIN
              D←052←HYPSO←LOC←X←DATA := D←033←CARTO←UPDATE←X←DATA
              ;D←053←HYPSO←LOC←Y←DATA := D←034←CARTO←UPDATE←Y←DATA
              ;D←051←HYPSO←ELEV←DATA := 0.0
              ;SSUPDATE := TRUE
              ;SSTEST := FALSE
            END
            ELSE BEGIN
              SELECT NEXT RECORD FROM
                     F←08←HYPSO←DATA←FILE
              ;SSTEST := FALSE
            END
          END (* WHILE *)
          ;IF NOT SSUPDATE THEN BEGIN
            CREATE F←08←HYPSO←DATA←FILE RECORD
            ;D←052←HYPSO←LOC←X←DATA := D←033←CARTO←UPDATE←X←DATA
            ;D←053←HYPSO←LOC←Y←DATA := D←034←CARTO←UPDATE←Y←DATA
            ;D←051←HYPSO←ELEV←DATA := 0.0
          END
        END
      END (* CASE *)
    END ENDFOREACH
  END;".
    INPUTS:
        DATA:  D←028←CARTO←MAP←SECT←NUM←DATA
        FILE:  F←01←BRIDGE←LOCATIONS←FILE
        FILE:  F←02←CARTO←UPDATE←FILE
        FILE:  F←03←CITY←LOCATIONS←FILE
        FILE:  F←08←HYPSO←DATA←FILE
        FILE:  F←09←MARSHALLING←AREAS←FILE
        FILE:  F←28←PRIMARY←ROADS←FILE
        FILE:  F←29←RAILROAD←LOCATIONS←FILE
        FILE:  F←30←RIVER←LOCATIONS←FILE
        FILE:  F←31←SECONDARY←ROADS←FILE.
    OUTPUTS:
        DATA:  D←028←CARTO←MAP←SECT←NUM←DATA
        (* ANY NUMBER OF CARTO FILES MAY BE UPDATED *)
        FILE:  F←01←BRIDGE←LOCATIONS←FILE
        FILE:  F←03←CITY←LOCATIONS←FILE
        FILE:  F←08←HYPSO←DATA←FILE
        FILE:  F←09←MARSHALLING←AREAS←FILE
        FILE:  F←28←PRIMARY←ROADS←FILE
        FILE:  F←29←RAILROAD←LOCATIONS←FILE
        FILE:  F←30←RIVER←LOCATIONS←FILE
        FILE:  F←31←SECONDARY←ROADS←FILE.
    TRACED FROM:
```

```
            ORIGINATING-REQUIREMENT:  [illegible]G-REQ-NELS-EXTERNAL-INTERFACE.
        REFERRED BY:
            R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.

    DATA:  CLOCK-TIME.
        DESCRIPTION:
                "A PREDEFINED DATA ITEM WHICH IS INCREMENTED AT
                THE SAME RATE AS ENGAGEMENT TIME.  EXCEPT FOR ITS
                INITIAL-VALUE WHICH IS ARBITRARY, CLOCK-TIME MAY BE
                REGARDED AS ENGAGEMENT TIME.  IT HAS NO CLOCK
                ERROR.".
        LOCALITY: GLOBAL.
        TYPE: REAL.
        UNITS: SECONDS.
        USE: BOTH.

    DATA:  D-001-ALTITUDE-WEATHER-LOC-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "WEATHER INFORMATION AT VARIOUS ELEVATIONS".
        ENTERED-BY: "JJF-NELS".
        INCLUDES:
            DATA:  D-038-CONDITIONS-AT-ELEVATION-WEATHER-DATA
            DATA:  D-039-ELEVATION-WEATHER-DATA.
        CONTAINED IN:
            FILE:  F-26-NELS-WEATHER-CONDITIONS-FILE.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  URIG-REQ-NELS-SIGNAL-TO-NOISE.

    DATA:  D-002-ASET-MSG-DEST-DATA.
        DATE-ENTERED: 90481.
        DESCRIPTION: "DESTINATION OF MESSAGE".
        ENTERED-BY: "JJF-TC".
        RANGE: "TC,ES,ASE,MTT,C3I,NELS,WELS,IS,TC-OPERATOR".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D-003-ASET-MSG-ID-DATA.
        TRACED FROM:
            DECISION:  DECISION-MESSAGE-ROUTING-METHOD.

    DATA:  D-003-ASET-MSG-ID-DATA.
        DATE-ENTERED: 92481.
        DESCRIPTION: "CONTAINS MESSAGE IDENTIFICATIONS".
        ENTERED-BY: "JJF-TC".
        RANGE:
       "MN-01-ES-NELS-UNIT-AND-ENVIRONMENT-DATA,
        MN-02-NELS-CARTO-UPDATES,
        MN-03-NELS-COMMANDERS-REQUIREMENTS,
        MN-04-NELS-MODIFIED-TASK,
        MN-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS,
        MN-06-NELS-ORBIT-MODIFICATIONS,
        MN-07-NELS-PLATFORM-LOCATION-REPORTS,
        MN-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS,
        MN-09-NELS-REQUESTED-SENSOR-DATA,
        MN-10-NELS-SENSOR-REQUESTS,
        MN-11-NELS-SENSOR-SYSTEM-STATUS,
        MN-12-NELS-SURVEILLANCE-TARGET-REPORTS,
        MN-13-NELS-TASKING-RESPONSES,
```

```
        MN←14←NELS←TRACK←MESSAGE,
        MN←15←T←AND←C←STOP←NELS".
        TYPE: ENUMERATION,
        INCLUDES:
             DATA:  D←002←ASET←MSG←DEST←DATA
             DATA:  D←004←ASET←MSG←NAME←DATA
             DATA:  D←005←ASET←MSG←SOURCE←DATA.
        MAKES:
             MESSAGE:  M←01←ES←NELS←UNIT←AND←ENVIRONMENT←DATA←MSG←IN
             MESSAGE:  M←02←NELS←CARTO←UPDATES←MSG←IN
             MESSAGE:  M←03←NELS←COMMANDERS←REQUIREMENTS←MSG←IN
             MESSAGE:  M←04←NELS←MODIFIED←TASK←MSG←IN
             MESSAGE:  M←05←NELS←NON←SURVEILLANCE←TARGET←REPORTS←MSG←OUT
             MESSAGE:  M←06←NELS←ORBIT←MODIFICATIONS←MSG←IN
             MESSAGE:  M←07←NELS←PLATFORM←LOCATION←REPORTS←MSG←OUT
             MESSAGE:  M←08←NELS←PRIORITIZED←SENSOR←DIRECTIONS←MSG←IN
             MESSAGE:  M←09←NELS←REQUESTED←SENSOR←DATA←MSG←IN
             MESSAGE:  M←10←NELS←SENSOR←REQUESTS←MSG←OUT
             MESSAGE:  M←11←NELS←SENSOR←SYSTEM←STATUS←MSG←OUT
             MESSAGE:  M←12←NELS←SURVEILLANCE←TARGET←REPORTS←MSG←OUT
             MESSAGE:  M←13←NELS←TASKING←RESPONSES←MSG←OUT
             MESSAGE:  M←14←NELS←TRACK←MESSAGE←MSG←OUT
             MESSAGE:  M←15←T←AND←C←STOP←NELS←MSG←IN.
        INPUT TO:
             ALPHA:  A←02←GENERATE←DME←ALPHA
             ALPHA:  A←17←NELS←SENSOR←STATUS←ALPHA.
        OUTPUT FROM:
             ALPHA:  A←02←GENERATE←DME←ALPHA
             ALPHA:  A←09←NELS←MAKE←SENSOR←REQUESTS←ALPHA
             ALPHA:  A←11←NELS←MODIFY←TASK←ALPHA
             ALPHA:  A←13←NELS←PLATFORM←LOCATION←MSG←ALPHA
             ALPHA:  A←17←NELS←SENSOR←STATUS←ALPHA
             ALPHA:  A←20←NELS←SURVEILLANCE←AND←TRACK←MSGS←ALPHA.
        TRACED FROM:
             DECISION:  DECISION←MESSAGE←ROUTING←METHOD.

   DATA:  D←004←ASET←MSG←NAME←DATA.
        DATE←ENTERED: 90481,
        DESCRIPTION: "NAME OF MESSAGE".
        ENTERED←BY: "JJF-TC",
        RANGE:
    "MN←01←ES←NELS←UNIT←AND←ENVIRONMENT←DATA,
     MN←02←NELS←CARTO←UPDATES,
     MN←03←NELS←COMMANDERS←REQUIREMENTS,
     MN←04←NELS←MODIFIED←TASK,
     MN←05←NELS←NON←SURVEILLANCE←TARGET←REPORTS,
     MN←06←NELS←ORBIT←MODIFICATIONS,
     MN←07←NELS←PLATFORM←LOCATION←REPORTS,
     MN←08←NELS←PRIORITIZED←SENSOR←DIRECTIONS,
     MN←09←NELS←REQUESTED←SENSOR←DATA,
     MN←10←NELS←SENSOR←REQUESTS,
     MN←11←NELS←SENSOR←SYSTEM←STATUS,
     MN←12←NELS←SURVEILLANCE←TARGET←REPORTS,
     MN←13←NELS←TASKING←RESPONSES,
     MN←14←NELS←TRACK←MESSAGE,
     MN←15←T←AND←C←STOP←NELS".
        TYPE: ENUMERATION,
        USE: BOTH.
```

```
          INCLUDED IN:
               DATA:  D-003-ASET-MSG-ID-DATA.
          TRACED FROM:
               DECISION:  DECISION-MESSAGE-ROUTING-METHOD
               DECISION:  HIGHLY-SUSPECT-ITEM.
          REFERRED BY:
               R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.

     DATA:  D-005-ASET-MSG-SOURCE-DATA.
          DATE-ENTERED: 90481.
          DESCRIPTION: "SOURCE OF MESSAGE".
          ENTERED-BY: "JJF-TC".
          RANGE: "TC,ES,ASE,MTI,C3I,NELS,WELS,IS,TC-OPERATOR".
          TYPE: ENUMERATION.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-003-ASET-MSG-ID-DATA.
          TRACED FROM:
               DECISION:  DECISION-MESSAGE-ROUTING-METHOD.

     DATA:  D-006-ASP-ACCELERATION-DATA.
          DATE-ENTERED: 11182.
          DESCRIPTION: "ASP ACCELERATION VECTOR".
          ENTERED-BY: "JJF-NELS".
          INCLUDES:
               DATA:  D-007-ASP-ACC-X-DATA
               DATA:  D-008-ASP-ACC-Y-DATA
               DATA:  D-009-ASP-ACC-Z-DATA.
          INCLUDED IN:
               DATA:  D-020-ASP-STATE-VECTOR-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:
               ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

     DATA:  D-007-ASP-ACC-X-DATA.
          DATE-ENTERED: 11182.
          DESCRIPTION: "X ACCELERATION".
          ENTERED-BY: "JJF-NELS".
          TYPE: REAL.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-006-ASP-ACCELERATION-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:
               ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

     DATA:  D-008-ASP-ACC-Y-DATA.
          DATE-ENTERED: 11182.
          DESCRIPTION: "Y ACCELERATION".
          ENTERED-BY: "JJF-NELS".
          TYPE: REAL.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-006-ASP-ACCELERATION-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:
               ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.
```

```
DATA:  D-009-ASP-ACCEL-Z-DATA.
       DATE-ENTERED: 11182.
       DESCRIPTION: "Z ACCELERATION".
       ENTERED-BY: "JJF-NELS".
       TYPE: REAL.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-006-ASP-ACCELERATION-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

DATA:  D-010-ASP-ALTITUDE-DATA.
       DATE-ENTERED: 11182.
       DESCRIPTION: "ALTITUDE OF ASP".
       ENTERED-BY: "JJF-NELS".
       TYPE: REAL.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-013-ASP-LOCATION-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

DATA:  D-011-ASP-ATTITUDE-DATA.
       DATE-ENTERED: 11182.
       DESCRIPTION: "ATTITUDE OF ASP".
       ENTERED-BY: "JJF-NELS".
       INCLUDES:
            DATA:  D-018-ASP-PITCH-DATA
            DATA:  D-019-ASP-ROLL-DATA
            DATA:  D-025-ASP-YAW-DATA.
       INPUT TO:
            ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
            ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
            ALPHA:  A-21-NELS-TARGET-ACQUISITION-ALPHA
            ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA.
       OUTPUT FROM:
            ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
            ALPHA:  A-03-GENERATE-INS-ALPHA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

DATA:  D-012-ASP-LATITUDE-DATA.
       DATE-ENTERED: 11182.
       DESCRIPTION: "LATITUDE OF ASP".
       ENTERED-BY: "JJF-NELS".
       TYPE: REAL.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-013-ASP-LOCATION-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

DATA:  D-013-ASP-ATTITUDE-DATA.
```

```
DATA:  D-013-ASP-LOCATION-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "GEOGRAPHIC LOCATION OF ASP".
     ENTERED-BY: "JJF-NELS".
     INCLUDES:
          DATA:  D-010-ASP-ALTITUDE-DATA
          DATA:  D-012-ASP-LATITUDE-DATA
          DATA:  D-017-ASP-LONGITUDE-DATA.
     CONTAINED IN:
          FILE:  F-27-PLATFORM-CONTROL-FILE.
     INPUT TO:
          ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
          ALPHA:  A-03-GENERATE-INS-ALPHA
          ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
          ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
          ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
          ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
          ALPHA:  A-21-NELS-TARGET-ACQUISITION-ALPHA
          ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA.
     OUTPUT FROM:
          ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
          ALPHA:  A-03-GENERATE-INS-ALPHA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

DATA:  D-014-ASP-LOC-X-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "X POSITION OF ASP".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-27-PLATFORM-CONTROL-FILE.
     INCLUDED IN:
          DATA:  D-020-ASP-STATE-VECTOR-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

DATA:  D-015-ASP-LOC-Y-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "Y POSITION OF ASP".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-27-PLATFORM-CONTROL-FILE.
     INCLUDED IN:
          DATA:  D-020-ASP-STATE-VECTOR-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

DATA:  D-016-ASP-LOC-Z-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "Z POSITION OF ASP".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
```

```
          FILE:  F-27-PLATFORM-CONTROL-FILE.
     INCLUDED IN:
          DATA:  D-020-ASP-STATE-VECTOR-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

DATA:  D-017-ASP-LONGITUDE-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "LONGITUDE OF ASP".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-013-ASP-LOCATION-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

DATA:  D-018-ASP-PITCH-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "PITCH OF ASP".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-011-ASP-ATTITUDE-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

DATA:  D-019-ASP-ROLL-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "ROLL OF ASP".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-011-ASP-ATTITUDE-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

DATA:  D-020-ASP-STATE-VECTOR-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "TIME POSITION AND VELOCITY OF AN ASP".
     ENTERED-BY: "JJF-NELS".
     INCLUDES:
          DATA:  D-006-ASP-ACCELERATION-DATA
          DATA:  D-014-ASP-LOC-X-DATA
          DATA:  D-015-ASP-LOC-Y-DATA
          DATA:  D-016-ASP-LOC-Z-DATA
          DATA:  D-021-ASP-TIME-DATA
          DATA:  D-022-ASP-VEL-X-DATA
          DATA:  D-023-ASP-VEL-Y-DATA
          DATA:  D-024-ASP-VEL-Z-DATA.
     INPUT TO:
          ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
          ALPHA:  A-03-GENERATE-INS-ALPHA
          ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
          ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
          ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA
```

```
            ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
            ALPHA:  A-21-NELS-TARGET-ACQUISITION-ALPHA
            ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA.
      OUTPUT FROM:
            ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
            ALPHA:  A-02-GENERATE-DME-ALPHA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

DATA:  D-021-ASP-TIME-DATA.
      -ENTERED: 11182.
      DESCRIPTION: "TIME POSITION READING IS MADE".
      ENTERED-BY: "JJF-NELS".
      TYPE: REAL.
      USE: BOTH.
      INCLUDED IN:
            DATA:  D-020-ASP-STATE-VECTOR-DATA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

DATA:  D-022-ASP-VEL-X-DATA.
      DATE-ENTERED: 11182.
      DESCRIPTION: "X VELOCITY OF ASP".
      ENTERED-BY: "JJF-NELS".
      TYPE: REAL.
      USE: BOTH.
      CONTAINED IN:
            FILE:  F-27-PLATFORM-CONTROL-FILE.
      INCLUDED IN:
            DATA:  D-020-ASP-STATE-VECTOR-DATA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

DATA:  D-023-ASP-VEL-Y-DATA.
      DATE-ENTERED: 11182.
      DESCRIPTION: "Y VELOCITY OF ASP".
      ENTERED-BY: "JJF-NELS".
      TYPE: REAL.
      USE: BOTH.
      CONTAINED IN:
            FILE:  F-27-PLATFORM-CONTROL-FILE.
      INCLUDED IN:
            DATA:  D-020-ASP-STATE-VECTOR-DATA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

DATA:  D-024-ASP-VEL-Z-DATA.
      DATE-ENTERED: 11182.
      DESCRIPTION: "Z VELOCITY OF ASP".
      ENTERED-BY: "JJF-NELS".
      TYPE: REAL.
      USE: BOTH.
      CONTAINED IN:
            FILE:  F-27-PLATFORM-CONTROL-FILE.
      INCLUDED IN:
            DATA:  D-020-ASP-STATE-VECTOR-DATA.
```

```
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

     DATA:  D-025-ASP-YAW-DATA.
          DATE-ENTERED: 11182.
          DESCRIPTION: "YAW OF ASP".
          ENTERED-BY: "JJF-NELS".
          TYPE: REAL.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-011-ASP-ATTITUDE-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

     DATA:  D-026-BRIDGE-LOC-X-DATA.
          TYPE: REAL.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-01-BRIDGE-LOCATIONS-FILE.

     DATA:  D-027-BRIDGE-LOC-Y-DATA.
          TYPE: REAL.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-01-BRIDGE-LOCATIONS-FILE.

     DATA:  D-028-CARTO-MAP-SECT-NUM-DATA.
          TYPE: INTEGER.
          USE: BOTH.
          INPUT TO:
               ALPHA:  A-25-UPDATE-CARTO-ALPHA.
          OUTPUT FROM:
               ALPHA:  A-25-UPDATE-CARTO-ALPHA
               (* ANY NUMBER OF CARTO FILES MAY BE UPDATED *).

     DATA:  D-029-CARTO-SECTION-NUM-DATA.
          DATE-ENTERED: 10882.
          DESCRIPTION: "CARTOGRAPHIC SECTION NUMBER".
          ENTERED-BY: "JJF-NELS".
          TYPE: INTEGER.
          USE: BOTH.
          ORDERS:
               FILE:  F-02-CARTO-UPDATE-FILE.
          CONTAINED IN:
               FILE:  F-02-CARTO-UPDATE-FILE.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

     DATA:  D-030-CARTO-UPDATE-1-DATA.
          DATE-ENTERED: 10882.
          DESCRIPTION: "PRESENTLY UNKNOWN UPDATE ITEM".
          ENTERED-BY: "JJF-NELS".
          RANGE:
"BRIDGE,RAILROAD,P-ROAD,S-ROAD,CITY,RIVER,MARSHALLING,HYPSO".
          TYPE: ENUMERATION.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-02-CARTO-UPDATE-FILE.
```

```
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

     DATA:  D-031-CARTO-UPDATE-2-DATA.
          DATE-ENTERED: 10862.
          DESCRIPTION: "PRESENTLY UNKNOWN UPDATE ITEM".
          ENTERED-BY: "JJF-NELS".
          RANGE:
 "BRIDGE,RAILROAD,P-ROAD,S-ROAD,CITY,RIVER,MARSHALLING,HYPSO".
          TYPE: ENUMERATION.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-02-CARTO-UPDATE-FILE.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

     DATA:  D-032-CARTO-UPDATE-3-DATA.
          DATE-ENTERED: 10862.
          DESCRIPTION: "PRESENTLY UNKNOWN UPDATE ITEM".
          ENTERED-BY: "JJF-NELS".
          RANGE:
 "BRIDGE,RAILROAD,P-ROAD,S-ROAD,CITY,RIVER,MARSHALLING,HYPSO".
          TYPE: ENUMERATION.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-02-CARTO-UPDATE-FILE.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

     DATA:  D-033-CARTO-UPDATE-X-DATA.
          DATE-ENTERED: 10862.
          DESCRIPTION: "X COORDINATE OF CARTOGRAPHIC FEATURE".
          ENTERED-BY: "JJF-NELS".
          TYPE: REAL.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-02-CARTO-UPDATE-FILE.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

     DATA:  D-034-CARTO-UPDATE-Y-DATA.
          DATE-ENTERED: 10862.
          DESCRIPTION: "Y COORDINATE OF CARTOGRAPHIC FEATURE".
          ENTERED-BY: "JJF-NELS".
          TYPE: REAL.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-02-CARTO-UPDATE-FILE.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

     DATA:  D-035-CITY-LOC-X-DATA.
          TYPE: REAL.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-03-CITY-LOCATIONS-FILE.

     DATA:  D-036-CITY-LOC-Y-DATA.
```

```
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-03-CITY-LOCATIONS-FILE.

    DATA:  D-037-CLOUD-COVER-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "CLOUD COVER".
        ENTERED-BY: "JJF-NELS".
        RANGE:
"CLEAR,PARTLY-CLOUDY,MOSTLY-CLOUDY,OVERCAST,FOGGY,SMOG,DUST".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-038-CONDITIONS-AT-ELEVATION-WEATHER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

    DATA:  D-038-CONDITIONS-AT-ELEVATION-WEATHER-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION:
                "CLOUD COVER AND PRECIPITATION DATA AT A SPECIFIC
       ALTITUDE".
        ENTERED-BY: "JJF-NELS".
        INCLUDES:
             DATA:  D-037-CLOUD-COVER-DATA
             DATA:  D-120-PRECIPITATION-DATA.
        INCLUDED IN:
             DATA:  D-001-ALTITUDE-WEATHER-LOC-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

    DATA:  D-039-ELEVATION-WEATHER-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "ELEVATION".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-001-ALTITUDE-WEATHER-LOC-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

    DATA:  D-040-FIRST-CMDRS-REQ-UPDATE-DATA.
        DATE-ENTERED: 91581.
        DESCRIPTION: "A COMMANDERS REQUIREMENT UPDATE MESSAGE LOCATION".
        ENTERED-BY: "D  HARTSCHUH".
        RANGE: "IN-AREA,OUTSIDE-AREA".
        TYPE: ENUMERATION.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-04-CMDRS-DATA-TO-UPDATE-FILE.
        TRACED FROM:
             DECISION:  CONTENTS-OF-MESSAGE.

    DATA:  D-041-FLIGHT-WAYPOINT-X-DATA.
        DATE-ENTERED: 11182.
```

```
        DESCRIPTION: "EAST-WEST DISTANCE".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE: F-06-FLIGHT-PROFILE-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:
             ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

    DATA: D-042-FLIGHT-WAYPOINT-Y-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "NORTH/SOUTH DISTANCE".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE: F-06-FLIGHT-PROFILE-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:
             ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

    DATA: D-043-FLIGHT-WAYPOINT-Z-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "ELEVATION".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        CONTAINED IN:
             FILE: F-06-FLIGHT-PROFILE-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:
             ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

    DATA: D-044-FREQUENCY-SCAN-PARAMETER-DATA.
        DATE-ENTERED: 91581.
        DESCRIPTION: "SCANING PARAMETER FOR A FREQUENCY".
        ENTERED-BY: "D  HARTSCHUH".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE: F-34-SENSOR-STATUS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-ACTIVITY-ELEMENTS
             .

    DATA: D-045-GPS-ID-DATA.
        RANGE: "GPS-1-NELS,GPS-2-NELS,GPS-3-NELS".
        TYPE: ENUMERATION.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-05-NELS-SCA-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
             MESSAGE:  M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN
             MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT.
        INPUT TO:
             ALPHA:  A-15-NELS-PROCESS-REQUESTED-DATA-ALPHA.
        OUTPUT FROM:
             ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
```

```
DATA:  D←046←GROUND←TARGET←FREQUENCY←DATA.
     DATE←ENTERED: 11182.
     DESCRIPTION:
          "(NELS, WELS ONLY) FREQUENCY OF EMISSION OF GROUND
   TARGET".
     ENTERED←BY: "JJF-NELS".
     TYPE: REAL.
     UNITS: HERTZ.
     USE: BOTH.
     MAKES:
          MESSAGE:  M←05←NELS←NON←SURVEILLANCE←TARGET←REPORTS←MSG←OUT
          MESSAGE:  M←12←NELS←SURVEILLANCE←TARGET←REPORTS←MSG←OUT.
     OUTPUT FROM:
          ALPHA:  A←20←NELS←SURVEILLANCE←AND←TRACK←MSGS←ALPHA.
     TRACED FROM:
          ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.

DATA:  D←047←GROUND←TARGET←LENGTH←DATA.
     DATE←ENTERED: 11182.
     DESCRIPTION: "(IS ONLY) LINEAR EXTENT OF GROUND TARGET".
     ENTERED←BY: "JJF-NELS".
     TYPE: REAL.
     UNITS: METERS.
     USE: BOTH.
     MAKES:
          MESSAGE:  M←05←NELS←NON←SURVEILLANCE←TARGET←REPORTS←MSG←OUT
          MESSAGE:  M←12←NELS←SURVEILLANCE←TARGET←REPORTS←MSG←OUT.
     OUTPUT FROM:
          ALPHA:  A←20←NELS←SURVEILLANCE←AND←TRACK←MSGS←ALPHA.
     TRACED FROM:
          ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.

DATA:  D←048←GROUND←TARGET←LOC←X←DATA.
     DATE←ENTERED: 11182.
     DESCRIPTION: "X COORDINATE OF GROUND TARGET".
     ENTERED←BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F←07←GROUP←TARGET←LOCS←FILE.
     TRACED FROM:
          ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.

DATA:  D←049←GROUND←TARGET←LOC←Y←DATA.
     DATE←ENTERED: 11182.
     DESCRIPTION: "Y COORDINATE OF GROUND TARGET".
     ENTERED←BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F←07←GROUP←TARGET←LOCS←FILE.
     TRACED FROM:
          ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.

DATA:  D←050←GROUND←TARGET←VELOCITY←DATA.
     DATE←ENTERED: 11182.
     DESCRIPTION: "(MTI ONLY) VELOCITY OF GROUND TARGET".
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        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        UNITS: KPH.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-05-NELS-NCN-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
             MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT.
        OUTPUT FROM:
             ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA:  D-051-HYPSO-ELEV-DATA.
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-08-HYPSO-DATA-FILE.

   DATA:  D-052-HYPSO-LOC-X-DATA.
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-08-HYPSO-DATA-FILE.

   DATA:  D-053-HYPSO-LOC-Y-DATA.
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-08-HYPSO-DATA-FILE.

   DATA:  D-054-MARSHALLING-X-DATA.
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-09-MARSHALLING-AREAS-FILE.

   DATA:  D-055-MARSHALLING-Y-DATA.
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-09-MARSHALLING-AREAS-FILE.

   DATA:  D-056-NEEDED-FEASIBLE-DATA.
        DATE-ENTERED: 100581.
        DESCRIPTION: "INFORMATION CONCERNING A FEASIBLE TARGET".
        ENTERED-BY: "D  HARTSCHUH".
        RANGE: "SOI,AOI,BOTH".
        TYPE: ENUMERATION.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN
             MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN.
        INPUT TO:
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA
             ALPHA:
             A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA.
        TRACED FROM:
             DECISION:  CONTENTS-OF-MESSAGE.
```

```
DATA:  D-058-NELS-DD-1-2-DATA.
       DATE-ENTERED: 11282.
       DESCRIPTION:
       "DIFFERENTIAL DOPPLER BETWEEN NELS PLATFORMS 1 AND 2".
       ENTERED-BY: "JJF-NELS".
       TYPE: REAL.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-112-NELS-TDOA-DD-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

DATA:  D-059-NELS-DD-1-3-DATA.
       DATE-ENTERED: 11282.
       DESCRIPTION:
       "DIFFERENTIAL DOPPLER BETWEEN NELS PLATFORMS 1 AND 3".
       ENTERED-BY: "JJF-NELS".
       TYPE: REAL.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-112-NELS-TDOA-DD-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

DATA:  D-060-NELS-DD-2-3-DATA.
       DATE-ENTERED: 11282.
       DESCRIPTION:
       "DIFFERENTIAL DOPPLER BETWEEN NELS PLATFORMS 2 AND 3".
       ENTERED-BY: "JJF-NELS".
       TYPE: REAL.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-112-NELS-TDOA-DD-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

DATA:  D-061-NELS-EMISSION-DURATION-DATA.
       DATE-ENTERED: 11182.
       DESCRIPTION:
            "TIME THAT EMITTER IS EMITTING AND BEING LISTENED TO
     BY NELS".
       ENTERED-BY: "JJF-NELS".
       TYPE: REAL.
       USE: BOTH.
       CONTAINED IN:
            FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

DATA:  D-062-NELS-EMISSION-SIGNAL-STRENGTH-DATA.
       DATE-ENTERED: 11182.
       DESCRIPTION:
            "S/N STRENGTH OF SIGNAL FOR A SINGLE SENSOR;  STRENGTH
     DATA FROM AT LEAST TWO SENSORS IS REQUIRED BEFORE A DETECTION CAN
     BE CONFIRMED".
       ENTERED-BY: "JJF-NELS".
       TYPE: REAL.
```

```
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-ADI.

     DATA:  D-063-A-NELS-EMISSION-START-TIME-DATA.
          DATE-ENTERED: 30283.
          DESCRIPTION: " TIME EMISSION STARTS (INITIALIZED DATA)".
          ENTERED-BY: "JOUBBS".
          TYPE: REAL.
          UNITS: HRS-MIN-SEC.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-071-NELS-EMITTER-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

     DATA:  D-063-B-NELS-EMISSION-START-TIME-DATA.
          DATE-ENTERED: 30283.
          DESCRIPTION: " TIME EMISSION STARTS (BEFORE SOT)".
          ENTERED-BY: "JOUBBS".
          TYPE: REAL.
          UNITS: HRS-MIN-SEC.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-064-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

     DATA:  D-063-NELS-EMISSION-START-TIME-DATA.
          DATE-ENTERED: 102781.
          DESCRIPTION: "TIME EMISSION STARTS".
          ENTERED-BY: "JJF-ES".
          TYPE: REAL.
          UNITS: HRS-MIN-SEC.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

     DATA:  D-064-A-NELS-EMISSION-STOP-TIME-DATA.
          DATE-ENTERED: 30283.
          DESCRIPTION: "TIME EMISSION STOPS (INITIALIZED DATA)".
          ENTERED-BY: "JOUBBS".
          TYPE: REAL.
          UNITS: HRS-MIN-SEC.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-071-NELS-EMITTER-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

     DATA:  D-064-NELS-EMISSION-STOP-TIME-DATA.
          DATE-ENTERED: 102781.
          DESCRIPTION: "TIME EMISSION STOPS (BEFORE SOT)".
          ENTERED-BY: "JJF-ES".
```

```
        TYPE: REAL.
        UNITS: HRS+MIN+SEC.
        USE: BOTH.
        INCLUDED IN:
             DATA: D+066+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+DATA.
        TRACED FROM:
             ORIGINATING+REQUIREMENT: ORIG+REQ+SCENARIO+TIMING.

   DATA: D+065+NELS+EMISSION+THREAT+TABLE+DATA.
        DATE+ENTERED: 11282.
        DESCRIPTION: "A RECORD DESCRIBING A SINGLE EMITTER".
        ENTERED+BY: "JJF+NELS".
        INCLUDES:
             DATA: D+070+NELS+EMITTER+TIME+OF+LOCATION+DATA
             DATA: D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA
             DATA: D+171+NELS+EMITTER+ID+DATA
             DATA: D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
             DATA: D+173+NELS+EMITTER+X+DATA
             DATA: D+174+NELS+EMITTER+Y+DATA
             DATA: D+175+NELS+EMITTER+Z+DATA
             DATA: D+181+NELS+EMITTER+MODULATION+TYPE+DATA
             DATA: D+182+NELS+EMITTER+BANDWIDTH+DATA
             DATA: D+183+NELS+EMITTER+CEP+DATA.
        CONTAINED IN:
             FILE: F+13+NELS+EMISSION+THREAT+TABLE+FILE.
        TRACED FROM:
             ORIGINATING+REQUIREMENT: ORIG+REQ+NELS+THREAT+TABLE+UPDATE
             .

   DATA: D+066+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+DATA.
        DATE+ENTERED: 30283.
        DESCRIPTION:
        "A SINGLE RECORD OF NELS SCENARIO FILE (BEFORE SOI)".
        ENTERED+BY: "JDURMS".
        INCLUDES:
             DATA: D+063+B+NELS+EMISSION+START+TIME+DATA
             DATA: D+064+B+NELS+EMISSION+STOP+TIME+DATA
             DATA: D+073+B+NELS+EMITTER+FREQUENCY+BAND+WIDTH+DATA
             DATA: D+075+B+NELS+EMITTER+ID+DATA
             DATA: D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
             DATA: D+082+B+NELS+EMITTER+VEL+X+DATA
             DATA: D+083+B+NELS+EMITTER+VEL+Y+DATA
             DATA: D+084+B+NELS+EMITTER+VEL+Z+DATA
             DATA: D+085+B+NELS+EMITTER+X+DATA
             DATA: D+086+B+NELS+EMITTER+Y+DATA
             DATA: D+087+B+NELS+EMITTER+Z+DATA
             DATA: D+150+B+SCENARIO+GEN+ID+NUM+DATA.
        CONTAINED IN:
             FILE: F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE.
        TRACED FROM:
             ORIGINATING+REQUIREMENT: ORIG+REQ+NELS+EXTERNAL+INTERFACE.

   DATA: D+067+NELS+EMITTER+BANDWIDTH+DATA.
        DATE+ENTERED: 11182.
        DESCRIPTION: "BANDWIDTH OF EMISSION(S) EMITTER EMITS".
        ENTERED+BY: "JJF+NELS".
        TYPE: REAL.
        UNITS: HERTZ.
```

```
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-069-NELS-EMITTER-CHARACTERISTICS-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

     DATA:  D-068-NELS-EMITTER-CEP-DATA.
          DATE-ENTERED: 11282.
          DESCRIPTION:
                  "CIRCULAR ERROR PROBABLE ESTIMATE FOR A NELS
        DETECTABLE EMITTER".
          ENTERED-BY: "JJF-NELS".
          TYPE: REAL.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
               .

     DATA:  D-069-NELS-EMITTER-CHARACTERISTICS-DATA.
          DATE-ENTERED: 11182.
          DESCRIPTION:
                  "A SINGLE RECORD OF EMITTER-ID AND EMITTER
        CHARACTERISTICS".
          ENTERED-BY: "JJF-NELS".
          INCLUDES:
               DATA:  D-067-NELS-EMITTER-BANDWIDTH-DATA
               DATA:  D-077-A-NELS-EMITTER-MODULATION-TYPE-DATA
               DATA:  D-078-A-NELS-EMITTER-POWER-LEVEL-DATA.
          CONTAINED IN:
               FILE:  F-15-NELS-EMITTER-CHARACTERISTICS-FILE.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

     DATA:  D-070-NELS-EMITTER-COV-DATA.
          DATE-ENTERED: 11282.
          DESCRIPTION: "COVARIANCE BETWEEN X AND Y LOCATION ESTIMATES".
          ENTERED-BY: "JJF-NELS".
          TYPE: REAL.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:
               ORIG-REQ-NELS-COARSE-AND-FINE-LOCATION.

     DATA:  D-071-NELS-EMITTER-DATA.
          DATE-ENTERED: 30283.
          DESCRIPTION: "RECORD OF NELS EMITTER FILE ( INITIALIZED)".
          ENTERED-BY: "JDUBBS".
          INCLUDES:
               DATA:  D-063-A-NELS-EMISSION-START-TIME-DATA
               DATA:  D-064-A-NELS-EMISSION-STOP-TIME-DATA
               DATA:  D-073-A-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
               DATA:  D-075-A-NELS-EMITTER-ID-DATA
               DATA:  D-081-A-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
               DATA:  D-082-A-NELS-EMITTER-VEL-X-DATA
```

```
            DATA:  D-083-A-NELS-EMITTER-VEL-Y-DATA
            DATA:  D-084-A-NELS-EMITTER-VEL-Z-DATA
            DATA:  D-085-A-NELS-EMITTER-X-DATA
            DATA:  D-086-A-NELS-EMITTER-Y-DATA
            DATA:  D-087-A-NELS-EMITTER-Z-DATA
            DATA:  D-130-A-SCENARIO-GEN-ID-NUM-DATA.
      CONTAINED IN:
            FILE:  F-16-NELS-EMITTER-FILE.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

DATA:  D-072-NELS-EMITTER-DYNAMICS-DATA.
      DATE-ENTERED: 102781.
      DESCRIPTION: "3D VELOCITY VECTOR OF EMITTER".
      ENTERED-BY: "JJF-ES".
      INCLUDES:
            DATA:  D-082-NELS-EMITTER-VEL-X-DATA
            DATA:  D-083-NELS-EMITTER-VEL-Y-DATA
            DATA:  D-084-NELS-EMITTER-VEL-Z-DATA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-073-A-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA.
      DATE-ENTERED: 30283.
      DESCRIPTION:
      "BANDWIDTH OF NARROWBAND EMISSION (INITIALIZED DATA)".
      ENTERED-BY: "JDUBBS".
      TYPE: REAL.
      UNITS: HERTZ.
      USE: BOTH.
      INCLUDED IN:
            DATA:  D-071-NELS-EMITTER-DATA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-073-B-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA.
      DATE-ENTERED: 30283.
      DESCRIPTION: "BANDWIDTH OF NARROWBAND EMISSION (RECORD SOI)".
      ENTERED-BY: "JDUBBS".
      TYPE: REAL.
      UNITS: HERTZ.
      USE: BOTH.
      INCLUDED IN:
            DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-073-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA.
      DATE-ENTERED: 102781.
      DESCRIPTION: "BANDWIDTH OF NARROWBAND EMISSION".
      ENTERED-BY: "JJF-ES".
      TYPE: REAL.
      UNITS: HERTZ.
      USE: BOTH.
      CONTAINED IN:
            FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.
```

```
DATA:  D-074-NELS-EMITTER-FREQUENCY-DATA.
     DATE-ENTERED: 31082.
     DESCRIPTION: "FREQUENCY OF EMISSION OF NELS-DETECTABLE EMITTER".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     UNITS: HERTZ.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.

DATA:  D-075-A-NELS-EMITTER-ID-DATA.
     DATE-ENTERED: 30283.
     DESCRIPTION: "IDENTIFIER OF EMITTER (INITIALIZED DATA)".
     ENTERED-BY: "JDURBS".
     RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
     TYPE: ENUMERATION.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-071-NELS-EMITTER-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-075-B-NELS-EMITTER-ID-DATA.
     DATE-ENTERED: 30283.
     DESCRIPTION: "IDENTIFIER OF EMITTER (BEFORE SOI)".
     ENTERED-BY: "JDURBS".
     RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
     TYPE: ENUMERATION.
     USE: BOTH.
     ORDERS:
          FILE:  F-14-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-FILE.
     INCLUDED IN:
          DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-075-NELS-EMITTER-ID-DATA.
     DATE-ENTERED: 102781.
     DESCRIPTION: "IDENTIFICATION OF EMITTER".
     ENTERED-BY: "JJF-ES".
     RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
     TYPE: ENUMERATION.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-076-NELS-EMITTER-LOCATION-DATA.
     DATE-ENTERED: 102781.
     DESCRIPTION: "POSITION OF NELS-DETECTABLE EMITTER".
     ENTERED-BY: "JJF-ES".
     INCLUDES:
          DATA:  D-085-NELS-EMITTER-X-DATA
          DATA:  D-086-NELS-EMITTER-Y-DATA
          DATA:  D-087-NELS-EMITTER-Z-DATA.
     CONTAINED IN:
```

```
        FILE: F-10-NELS-CANDIDATE-TARGETS-FILE.
    TRACED FROM:
        ORIGINATING-REQUIREMENT: ORIG-REQ-PRODUCE-SCENARIO.

DATA: D-077-A-NELS-EMITTER-MODULATION-TYPE-DATA.
    DATE-ENTERED: 30783.
    DESCRIPTION:
    "TYPE OF MODULATION EXHIBITED BY EMITTER (BEFORE SOI)".
    ENTERED-BY: "JDUBBS".
    RANGE: "MODULATED,NOT-MODULATED".
    TYPE: ENUMERATION.
    USE: BOTH.
    INCLUDED IN:
        DATA: D-069-NELS-EMITTER-CHARACTERISTICS-DATA.
    TRACED FROM:
        ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-EXTERNAL-INTERFACE.

DATA: D-077-NELS-EMITTER-MODULATION-TYPE-DATA.
    DATE-ENTERED: 11182.
    DESCRIPTION: "TYPE OF MODULATION EXHIBITED BY EMITTER".
    ENTERED-BY: "JJF-NELS".
    RANGE: "MODULATED,NOT-MODULATED".
    TYPE: ENUMERATION.
    USE: BOTH.
    INCLUDED IN:
        DATA: D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA.
    TRACED FROM:
        ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-EXTERNAL-INTERFACE.

DATA: D-078-A-NELS-EMITTER-POWER-LEVEL-DATA.
    DATE-ENTERED: 30783.
    DESCRIPTION: "POWER LEVEL OF EMITTER (BEFORE SOI)".
    ENTERED-BY: "JDUBBS".
    TYPE: REAL.
    UNITS: WATTS.
    USE: BOTH.
    INCLUDED IN:
        DATA: D-069-NELS-EMITTER-CHARACTERISTICS-DATA.
    TRACED FROM:
        ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-EXTERNAL-INTERFACE.

DATA: D-078-NELS-EMITTER-POWER-LEVEL-DATA.
    DATE-ENTERED: 11182.
    DESCRIPTION: "POWER LEVEL OF EMITTER".
    ENTERED-BY: "JJF-NELS".
    TYPE: REAL.
    UNITS: WATTS.
    USE: BOTH.
    INCLUDED IN:
        DATA: D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA.
    TRACED FROM:
        ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-EXTERNAL-INTERFACE.

DATA: D-079-NELS-EMITTER-TIME-OF-LOCATION-DATA.
    DATE-ENTERED: 11282.
    DESCRIPTION: "TIME AT WHICH THE EMITTER WAS LOCATED".
    ENTERED-BY: "JJF-NELS".
    TYPE: REAL.
```

```
        USE: BOTH.
        ORDERS:
             FILE:  F-13-NELS-EMISSION-THREAT-TABLE-FILE.
        INCLUDED IN:
             DATA:  D-065-NELS-EMISSION-THREAT-TABLE-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
             .

   DATA:  D-080-NELS-EMITTER-TRAFFIC-TYPE-DATA.
        DATE-ENTERED: 11282.
        DESCRIPTION: "TRAFFIC TYPE CODE FOR A NELS EMITTER".
        ENTERED-BY: "JJF-NELS".
        RANGE: "PASSIVE,POTENTIAL-THREAT,THREAT".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-065-NELS-EMISSION-THREAT-TABLE-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
             .

   DATA:  D-081-A-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION:
        " TRANSMISSION FREQUENCY OF EMITTER (INITIALIZED DATA)".
        ENTERED-BY: "JDOBBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-071-NELS-EMITTER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-081-B-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: " TRANSMISSION FREQUENCY OF EMITTER (BEFORE SOI)".
        ENTERED-BY: "JDOBBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-067-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-081-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA.
        DATE-ENTERED: 102791.
        DESCRIPTION: "TRANSMISSION FREQUENCY OF EMITTER".
        ENTERED-BY: "JJF-ES".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.
```

```
DATA:  D-082-A-NELS-EMITTER-VEL-X-DATA,
       DATE-ENTERED: 20283,
       DESCRIPTION:
       "EAST/WEST COMPONENT OF VELOCITY (INITIALIZED DATA)",
       ENTERED-BY: "JDURBS",
       TYPE: REAL,
       UNITS: KPH,
       USE: BOTH,
       INCLUDED IN:
            DATA:  D-071-NELS-EMITTER-DATA,
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO,

DATA:  D-082-NELS-EMITTER-VEL-X-DATA,
       DATE-ENTERED: 102781,
       DESCRIPTION: "EAST/WEST COMPONENT OF VELOCITY (BEFORE SOI)",
       ENTERED-BY: "JJF-ES",
       TYPE: REAL,
       UNITS: KPH,
       USE: BOTH,
       INCLUDED IN:
            DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA
            DATA:  D-072-NELS-EMITTER-DYNAMICS-DATA,
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO,

DATA:  D-083-A-NELS-EMITTER-VEL-Y-DATA,
       DATE-ENTERED: 20283,
       DESCRIPTION:
       "NORTH/SOUTH COMPONENT OF VELOCITY (INITIALIZED DATA)",
       ENTERED-BY: "JDURBS",
       TYPE: REAL,
       UNITS: KPH,
       USE: BOTH,
       INCLUDED IN:
            DATA:  D-071-NELS-EMITTER-DATA,
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO,

DATA:  D-083-NELS-EMITTER-VEL-Y-DATA,
       DATE-ENTERED: 102781,
       DESCRIPTION: "NORTH/SOUTH COMPONENT OF VELOCITY (BEFORE SOI)",
       ENTERED-BY: "JJF-ES",
       TYPE: REAL,
       UNITS: KPH,
       USE: BOTH,
       INCLUDED IN:
            DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA
            DATA:  D-072-NELS-EMITTER-DYNAMICS-DATA,
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO,

DATA:  D-084-A-NELS-EMITTER-VEL-Z-DATA,
       DATE-ENTERED: 20283,
       DESCRIPTION: "UP/DOWN COMPONENT OF VELOCITY (INITIALIZED DATA)",
       ENTERED-BY: "JDURBS",
       TYPE: REAL,
```

```
        UNITS: KPH.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-071-NELS-EMITTER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-084-NELS-EMITTER-VEL-Z-DATA.
        DATE-ENTERED: 102781.
        DESCRIPTION: "UP/DOWN COMPONENT OF VELOCITY (BEFORE SOI)".
        ENTERED-BY: "JJF-ES".
        TYPE: REAL.
        UNITS: MPS.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA
             DATA:  D-072-NELS-EMITTER-DYNAMICS-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-085-A-NELS-EMITTER-X-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: "DISTANCE EAST/WEST (INITIALIZED DATA)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-071-NELS-EMITTER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-085-E-NELS-EMITTER-X-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: "DISTANCE EAST/WEST (BEFORE SOI)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-085-NELS-EMITTER-X-DATA.
        DATE-ENTERED: 102781.
        DESCRIPTION: "DISTANCE EAST/WEST".
        ENTERED-BY: "JJF-ES".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-076-NELS-EMITTER-LOCATION-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-086-A-NELS-EMITTER-Y-DATA.
        DATE-ENTERED: 30283.
```

```
        DESCRIPTION: "DISTANCE NORTH/SOUTH (INITIALIZED DATA)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-071-NELS-EMITTER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-086-B-NELS-EMITTER-Y-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: "DISTANCE NORTH/SOUTH (BEFORE SOI)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-086-NELS-EMITTER-Y-DATA.
        DATE-ENTERED: 102781.
        DESCRIPTION: "DISTANCE NORTH/SOUTH".
        ENTERED-BY: "JJF-ES".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-076-NELS-EMITTER-LOCATION-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-087-A-NELS-EMITTER-Z-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: "ALTITUDE/ELEVATION (INITIALIZED DATA)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-071-NELS-EMITTER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-087-B-NELS-EMITTER-Z-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: "ALTITUDE/ELEVATION (BEFORE SOI)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.
```

```
DATA: D-087-NELS-EMITTER-Z-DATA.
      DATE-ENTERED: 102781.
      DESCRIPTION: "ALTITUDE/ELEVATION".
      ENTERED-BY: "JJF-ES".
      TYPE: REAL.
      UNITS: METERS.
      USE: BOTH.
      INCLUDED IN:
           DATA: D-076-NELS-EMITTER-LOCATION-DATA.
      TRACED FROM:
           ORIGINATING-REQUIREMENT: ORIG-REQ-PRODUCE-SCENARIO.

DATA: D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA.
      DATE-ENTERED: 11282.
      DESCRIPTION: "PARAMETERS ESTIMATED BY TARGET ACQUISITION".
      ENTERED-BY: "JJF-NELS".
      INCLUDES:
           DATA: D-077-NELS-EMITTER-MODULATION-TYPE-DATA
           DATA: D-078-NELS-EMITTER-POWER-LEVEL-DATA
           DATA: D-159-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
           DATA: D-161-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA.
      CONTAINED IN:
           FILE: F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE.
      TRACED FROM:
           ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-TARGET-ACQUISITION.

DATA: D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
      DATE-ENTERED: 11282.
      DESCRIPTION:
            "A RECORD OF ESTIMATED GROUND LOCATIONS FOR ONE
   EMITTER".
      ENTERED-BY: "JJF-NELS".
      INCLUDES:
           DATA: D-086-NELS-EMITTER-CEP-DATA
           DATA: D-157-NELS-EMISSION-DURATION-DATA
           DATA: D-158-NELS-EMISSION-START-TIME-DATA
           DATA: D-160-NELS-EMITTER-ID-DATA
           DATA: D-162-NELS-EMITTER-X-DATA
           DATA: D-163-NELS-EMITTER-Y-DATA
           DATA: D-164-NELS-EMITTER-Z-DATA
           DATA: D-165-SCENARIO-GEN-ID-NUM-DATA.
      CONTAINED IN:
           FILE: F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE.
      TRACED FROM:
           ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-TARGET-ACQUISITION.

DATA: D-090-NELS-FREQUENCY-SCAN-BAND-DATA.
      DATE-ENTERED: 11182.
      DESCRIPTION: "A RANGE OF FREQUENCIES TO SCAN".
      ENTERED-BY: "JJF-NELS".
      INCLUDES:
           DATA: D-092-NELS-FREQ-SCAN-LOWER-FREQ-DATA
           DATA: D-093-NELS-FREQ-SCAN-UPPER-FREQ-DATA.
      CONTAINED IN:
           FILE: F-19-NELS-FREQUENCY-SCAN-FILE.
      TRACED FROM:
           ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-SIGNAL-OF-INTEREST.
```

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DATA:  D-091-NELS-FREQUENCY-SCAN-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION:
     "FREQUENCY TO WHICH THE NELS SENSORS ARE TO BE TUNED".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     UNITS: HERTZ.
     USE: BOTH.
     INPUT TO:
          ALPHA:  A-08-NELS-FREQUENCY-SCAN-OPTIMIZATION-ALPHA
          ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
          ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA.
     OUTPUT FROM:
          ALPHA:  A-08-NELS-FREQUENCY-SCAN-OPTIMIZATION-ALPHA
          ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SENSOR-DIRECTOR.

DATA:  D-092-NELS-FREQ-SCAN-LOWER-FREQ-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "LOWER FREQUENCY OF A SINGLE FREQUENCY BAND".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     UNITS: HERTZ.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-090-NELS-FREQUENCY-SCAN-BAND-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

DATA:  D-093-NELS-FREQ-SCAN-UPPER-FREQ-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "UPPER FREQUENCY OF A SINGLE FREQUENCY BAND".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     UNITS: HERTZ.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-090-NELS-FREQUENCY-SCAN-BAND-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

DATA:  D-094-NELS-PRE-BRIEFED-AOI-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "NELS FILTERING CRITERIA FOR EACH SEARCH AREA".
     ENTERED-BY: "JJF-NELS".
     INCLUDES:
          DATA:  D-095-NELS-PRE-BRIEFED-AOI-FILTERING-CRITERIA-DATA
          DATA:  D-096-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-DATA
          DATA:  D-099-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-DATA.
     CONTAINED IN:
          FILE:  F-20-NELS-PRE-BRIEFED-AOI-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

DATA:  D-095-NELS-PRE-BRIEFED-AOI-FILTERING-CRITERIA-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION:
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                "FILTERING CRITERIA FOR A SPECIFIC GEOGRAPHIC
        SEARCH AREA".
          ENTERED-BY: "JJF-NELS".
          RANGE: "WITHIN-AREA,WITHOUT-AREA".
          TYPE: ENUMERATION.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-098-NELS-PRE-BRIEFED-AOI-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

     DATA:  D-096-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-DATA.
          DATE-ENTERED: 11182.
          DESCRIPTION:
          "LOWER LEFT COORDINATES OF A GEOGRAPHIC SEARCH AREA".
          ENTERED-BY: "JJF-NELS".
          INCLUDES:
               DATA:  D-097-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-X-DATA
               DATA:  D-098-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-Y-DATA.
          INCLUDED IN:
               DATA:  D-094-NELS-PRE-BRIEFED-AOI-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

     DATA:  D-097-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-X-DATA.
          DATE-ENTERED: 11182.
          DESCRIPTION:
                "X COORDINATE OF LOWER LEFT CORNER OF A GEOGRAPHIC
        SEARCH AREA".
          ENTERED-BY: "JJF-NELS".
          TYPE: REAL.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-096-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

     DATA:  D-098-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-Y-DATA.
          DATE-ENTERED: 11182.
          DESCRIPTION:
                "Y COORDINATE OF LOWER LEFT CORNER OF A GEOGRAPHIC
        SEARCH AREA".
          ENTERED-BY: "JJF-NELS".
          TYPE: REAL.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-096-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

     DATA:  D-099-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-DATA.
          DATE-ENTERED: 11182.
          DESCRIPTION:
                "COORDINATES OF UPPER RIGHT CORNER OF A GEOGRAPHICAL
        SEARCH AREA".
          ENTERED-BY: "JJF-NELS".
          INCLUDES:
               DATA:  D-100-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-X-DATA
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            DATA:  D-101-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-Y-DATA.
        INCLUDED IN:
            DATA:  D-098-NELS-PRE-BRIEFED-AOI-DATA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

    DATA:  D-100-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-X-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION:
                "X COORDINATE OF UPPER RIGHT CORNER OF A GEOGRAPHIC
       SEARCH AREA".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D-099-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-DATA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

    DATA:  D-101-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-Y-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION:
                "X COORDINATE OF UPPER RIGHT CORNER OF A GEOGRAPHIC
       SEARCH AREA".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D-099-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-DATA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

    DATA:  D-102-NELS-PRE-BRIEFED-SOI-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "A RECORD OF FREQUENCY RANGES OF INTEREST".
        ENTERED-BY: "JJF-NELS".
        INCLUDES:
            DATA:  D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA
            DATA:  D-104-NELS-PRE-BRIEFED-SOI-FREQ-DATA
            DATA:  D-105-NELS-PRE-BRIEFED-SOI-MODULATION-TYPE-DATA
            DATA:  D-106-NELS-PRE-BRIEFED-SOI-START-FREQ-DATA.
        CONTAINED IN:
            FILE:  F-21-NELS-PRE-BRIEFED-SOI-FILE.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

    DATA:  D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "END FREQUENCY OF A FREQUENCY BAND".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D-102-NELS-PRE-BRIEFED-SOI-DATA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.
```

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DATA:  D-104-NELS-PRE-BRIEFED-SOI-FREQ-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "PRIMARY EMISSION FREQUENCY TO TUNE TO".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     UNITS: HERTZ.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-102-NELS-PRE-BRIEFED-SOI-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

DATA:  D-105-NELS-PRE-BRIEFED-SOI-MODULATION-TYPE-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "MODULATION TYPE TO SEARCH FOR".
     ENTERED-BY: "JJF-NELS".
     RANGE: "MODULATED,NOT-MODULATED".
     TYPE: ENUMERATION.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-102-NELS-PRE-BRIEFED-SOI-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

DATA:  D-106-NELS-PRE-BRIEFED-SOI-START-FREQ-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "START FREQUENCY OF A FREQUENCY BAND".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     UNITS: HERTZ.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-102-NELS-PRE-BRIEFED-SOI-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

DATA:  D-109-NELS-TDOA-1-2-DATA.
     DATE-ENTERED: 11282.
     DESCRIPTION: "TDOA BETWEEN NELS PLATFORMS 1 AND 2".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-112-NELS-TDOA-DD-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

DATA:  D-110-NELS-TDOA-1-3-DATA.
     DATE-ENTERED: 11282.
     DESCRIPTION: "TDOA BETWEEN NELS PLATFORMS 1 AND 3".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-112-NELS-TDOA-DD-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.
```

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DATA:  D-111-NELS-TDOA-2-3-DATA.
     DATE-ENTERED: 11282.
     DESCRIPTION: "TDOA BETWEEN NELS PLATFORMS 2 AND 3".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-112-NELS-TDOA-DD-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

DATA:  D-112-NELS-TDOA-DD-DATA.
     DATE-ENTERED: 11282.
     DESCRIPTION:
          "A RECORD OF TDOA AND DD MEASUREMENTS FOR A PARTICULAR
   EMISSION".
     ENTERED-BY: "JJF-NELS".
     INCLUDES:
          DATA:  D-058-NELS-DD-1-2-DATA
          DATA:  D-059-NELS-DD-1-3-DATA
          DATA:  D-060-NELS-DD-2-3-DATA
          DATA:  D-109-NELS-TDOA-1-2-DATA
          DATA:  D-110-NELS-TDOA-1-3-DATA
          DATA:  D-111-NELS-TDOA-2-3-DATA.
     CONTAINED IN:
          FILE:  F-24-NELS-TDOA-DD-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
     DATE-ENTERED: 11282.
     DESCRIPTION:
          "CONTENTS OF A TYPED EMITTER REPORT OUTPUT BY
   THE SIGNATURE ANALYSIS ALPHA".
     ENTERED-BY: "JJF-NELS".
     INCLUDES:
          DATA:  D-070-NELS-EMITTER-COV-DATA
          DATA:  D-074-NELS-EMITTER-FREQUENCY-DATA
          DATA:  D-166-NELS-EMITTER-ID-DATA
          DATA:  D-167-NELS-EMITTER-X-DATA
          DATA:  D-168-NELS-EMITTER-Y-DATA
          DATA:  D-169-NELS-EMITTER-Z-DATA
          DATA:  D-170-SCENARIO-GEN-ID-NUM-DATA
          DATA:  D-176-NELS-EMITTER-BANDWIDTH-DATA
          DATA:  D-177-NELS-EMITTER-CEP-DATA
          DATA:  D-178-NELS-EMITTER-MODULATION-TYPE-DATA
          DATA:  D-179-NELS-EMITTER-TIME-OF-LOCATION-DATA
          DATA:  D-180-NELS-EMITTER-TRAFFIC-TYPE-DATA.
     CONTAINED IN:
          FILE:  F-25-NELS-TYPED-EMITTER-REPORT-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNATURE-ANALYSIS.

DATA:  D-114-PLATFORM-LOCATION-X-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "X COORDINATE OF A PLATFORM".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
```

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        USE: BOTH.
        CONTAINED IN:
             FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    DATA:  D-115-PLATFORM-LOCATION-Y-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "Y COORDINATE OF A PLATFORM".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    DATA:  D-116-PLATFORM-LOCATION-Z-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "Z COORDINATE OF A PLATFORM".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    DATA:  D-117-PLATFORM-MOD-X-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "DESIRED X COORDINATE FOR SENSOR POSITION".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-32-SENSOR-ORBIT-MODS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-ACTIVITY-ELEMENTS
             .

    DATA:  D-118-PLATFORM-MOD-Y-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "DESIRED Y COORDINATE FOR SENSOR POSITION".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-32-SENSOR-ORBIT-MODS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-ACTIVITY-ELEMENTS
             .

    DATA:  D-119-PLATFORM-MOD-Z-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "DESIRED Z COORDINATE FOR SENSOR POSITION".
        ENTERED-BY: "JJF-NELS".
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          TYPE: REAL.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-32-SENSOR-ORBIT-MODS-FILE.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE
               ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-ACTIVITY-ELEMENTS
               .

     DATA:  D-120-PRECIPITATION-DATA.
          DATE-ENTERED: 11182.
          DESCRIPTION: "PRECIPITATION DATA".
          ENTERED-BY: "JJF-NELS".
          RANGE: "NONE,DRIZZLE,RAIN,SNOW,SLEET,HAIL,RIME".
          TYPE: ENUMERATION.
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-038-CONDITIONS-AT-ELEVATION-WEATHER-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

     DATA:  D-121-PRIMARY-ROADS-Y-DATA.
          TYPE: REAL.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-28-PRIMARY-ROADS-FILE.

     DATA:  D-122-PRIMARY-ROADS-Y-DATA.
          TYPE: REAL.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-28-PRIMARY-ROADS-FILE.

     DATA:  D-123-RAILROAD-LOC-X-DATA.
          TYPE: REAL.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-29-RAILROAD-LOCATIONS-FILE.

     DATA:  D-124-RAILROAD-LOC-Y-DATA.
          TYPE: REAL.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-29-RAILROAD-LOCATIONS-FILE.

     DATA:  D-125-REQ-DESTINATION-SENSOR-ID-DATA.
          DATE-ENTERED: 92481.
          DESCRIPTION: "IDENTIFICATION OF REQUESTED DESTINATION SENSOR".
          ENTERED-BY: "D  HARTSCHUH".
          RANGE: "GPS-NELS-1,GPS-NELS-2,GPS-NELS-3".
          TYPE: ENUMERATION.
          USE: BOTH.
          MAKES:
               MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT.
          OUTPUT FROM:
               ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA.
          TRACED FROM:
               DECISION:  CONTENTS-OF-MESSAGE.
```

```
DATA:  D-126-REQ-REPORT-INFORMATION-TYPE-DATA.
     DATE-ENTERED: 92481.
     DESCRIPTION: "REQUESTED REPORT INFORMATION TYPE".
     ENTERED-BY: "D  HARTSCHUH".
     USE: BOTH.
     MAKES:
          MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT.
     OUTPUT FROM:
          ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA.
     TRACED FROM:
          DECISION:  CONTENTS-OF-MESSAGE.

DATA:  D-127-REQ-SENSOR-TARGET-ID-OF-INTEREST-DATA.
     DATE-ENTERED: 92481.
     DESCRIPTION: "IDENTIFICATION OF REQUESTED SENSOR TARGET".
     ENTERED-BY: "D  HARTSCHUH".
     USE: BOTH.
     MAKES:
          MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT.
     OUTPUT FROM:
          ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA.
     TRACED FROM:
          DECISION:  CONTENTS-OF-MESSAGE.

DATA:  D-128-RIVER-LOC-Y-DATA.
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-30-RIVER-LOCATIONS-FILE.

DATA:  D-129-RIVER-LOC-Y-DATA.
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-30-RIVER-LOCATIONS-FILE.

DATA:  D-130-A-SCENARIO-GEN-ID-NUM-DATA.
     DATE-ENTERED: 30283.
     DESCRIPTION:
         "SCENARIO GENERATOR IDENTIFICATION NUMBER
         (INITIALIZED DATA)".
     ENTERED-BY: "JDURBS".
     TYPE: INTEGER.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-071-NELS-EMITTER-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-GENERATION.

DATA:  D-130-R-SCENARIO-GEN-ID-NUM-DATA.
     DATE-ENTERED: 30283.
     DESCRIPTION:
         "SCENARIO GENERATOR IDENTIFICATION NUMBER
         (BEFORE SOT)".
     ENTERED-BY: "JDURBS".
     TYPE: INTEGER.
     USE: BOTH.
```

```
        INCLUDED IN:
             DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-GENERATION.

   DATA:  D-130-SCENARIO-GEN-ID-NUM-DATA.
        DATE-ENTERED: 10278 1.
        DESCRIPTION: "SCENARIO GENERATOR IDENTIFICATION NUMBER".
        ENTERED-BY: "JJF-ES".
        TYPE: INTEGER.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-GENERATION.

   DATA:  D-131-SECONDARY-ROAD-X-DATA.
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-31-SECONDARY-ROADS-FILE.

   DATA:  D-132-SECONDARY-ROAD-Y-DATA.
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-31-SECONDARY-ROADS-FILE.

   DATA:  D-133-SECOND-CMDRS-REQ-UPDATE-DATA.
        DATE-ENTERED: 91581.
        DESCRIPTION: "A COMMANDERS REQUIREMENT UPD TE MESSAGE LOCATION".
        ENTERED-BY: "D  HARTSCHUH".
        RANGE: "IS-MODULATED,IS-NOT-MODULATED".
        TYPE: ENUMERATION.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-04-CMDRS-DATA-TO-UPDATE-FILE.
        TRACED FROM:
             DECISION:  CONTENTS-OF-MESSAGE.

   DATA:  D-135-SENSOR-ID-DATA.
        DATE-ENTERED: 91581.
        DESCRIPTION: "IDENTIFICATION FOR A SENSOR".
        ENTERED-BY: "D  HARTSCHUH".
        RANGE: "NELS-GPS-1,NELS-GPS-2,NELS-GPS-3".
        TYPE: ENUMERATION.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-06-NELS-ORBIT-MODIFICATIONS-MSG-IN
             MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN
             MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT
             MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT
             MESSAGE:  M-14-NELS-TRACK-MESSAGE-MSG-OUT.
        INPUT TO:
             ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA
             ALPHA:
             A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA
             ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA.
```

```
        OUTPUT FROM:
             ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA
             ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
             ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:
             ORIG-REQ-TARGET-ID-CROSS-REFERENCE.

    DATA:  D-136-SENSOR-MODE-OF-OPERATION-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "MODE OF OPERATION OF SENSOR PLATFORM".
        ENTERED-BY: "JJF-NELS".
        RANGE:
          "SOI-SURVEILLANCE,SOI-SEARCH,AOI-SURVEILLANCE,AOI-SEARCH,
       IDLE".
        TYPE: ENUMERATION.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-34-SENSOR-STATUS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        REFERRED BY:
             SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB.

    DATA:  D-137-SENSOR-PRIORITY-DATA.
        DATE-ENTERED: 10058 1.
        DESCRIPTION: "PRIORITY GIVEN TO A TASK".
        ENTERED-BY: "D  HARTSCHUH".
        TYPE: INTEGER.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-OP-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN.
        INPUT TO:
             ALPHA:
             A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA.
        TRACED FROM:
             DECISION:  CONTENTS-OF-MESSAGE.

    DATA:  D-138-TASKING-RESPONSE-DATA.
        DATE-ENTERED: 91581.
        DESCRIPTION: "RESPONSE TO A TASK".
        ENTERED-BY: "D  HARTSCHUH".
        RANGE: "CAN-DO,CANT-DO".
        TYPE: ENUMERATION.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT.
        OUTPUT FROM:
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        TRACED FROM:
             DECISION:  CONTENTS-OF-MESSAGE.

    DATA:  D-139-TASK-QUE-ID-DATA.
        DATE-ENTERED: 91581.
        DESCRIPTION:
                  "IDENTIFICATION OF ELEMENT WITHIN THE TASKING
      QUEUE".
        ENTERED-BY: "D  HARTSCHUH".
```

```
        TYPE: INTEGER.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN
             MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT.
        INPUT TO:
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        OUTPUT FROM:
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        TRACED FROM:
             DECISION:  CONTENTS-OF-MESSAGE.

   DATA:  D-140-TRD-DATA.
        DATE-ENTERED: 80481.
        DESCRIPTION: "PRESENTLY UNKNOWN ENTITY SELECTION CRITERION".
        ENTERED-BY: "JJF-TC".
        INITIAL-VALUE: TRUE.
        TYPE: BOOLEAN.
        USE: BOTH.
        ASSOCIATED WITH:
             ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
             ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
             ENTITY-CLASS:  EC-3-NELS-TASKS-EC
             ENTITY-CLASS:  EC-4-NELS-THREAT-EC
             ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:
             ORIG-REQ-TC-MESSAGES-TO-CONTROL-AND-DISPLAY
             ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-OPERATOR.
        REFERRED BY:
             R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET
             SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
             SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB
             SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
             SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.

   DATA:  D-141-TIME-DATA.
        DATE-ENTERED: 80481.
        DESCRIPTION:
             "TIME ELAPSED BASED ON A 24 HOUR CLOCK:
      A CURRENT PLANS PERIOD LASTS 24 HOURS".
        ENTERED-BY: "JJF-TC".
        TYPE: REAL.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT.
        INPUT TO:
             ALPHA:  A-02-GENERATE-DME-ALPHA
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        OUTPUT FROM:
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-CYCLE-START
             ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-SYNC.

   DATA:  D-142-TRACK-MESSAGE-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "INFORMATION DESCRIBING A TARGET TRACK".
```

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        ENTERED-BY: "JJF-NELS".
        RANGE: "TRACKING,CAN-TRACK,WILL-LOSE-TRACK".
        TYPE: ENUMERATION.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-14-NELS-TRACK-MESSAGE-MSG-OUT.
        OUTPUT FROM:
             ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA:  D-143-X-LOC-FEASIBLE-DATA.
        DATE-ENTERED: 100581.
        DESCRIPTION: "X-AXIS LOCATION OF A FEASIBLE TARGET".
        ENTERED-BY: "D  HARTSCHUH".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-FEASIBILITY.

   DATA:  D-144-X-WEATHER-LOC-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "X LOCATION OF WEATHER ALTITUDE DATA".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-26-NELS-WEATHER-CONDITIONS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

   DATA:  D-145-Y-LOC-FEASIBLE-DATA.
        DATE-ENTERED: 100581.
        DESCRIPTION: "Y-AXIS LOCATION OF A FEASIBLE TARGET".
        ENTERED-BY: "D  HARTSCHUH".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-FEASIBILITY.

   DATA:  D-146-Y-WEATHER-LOC-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "Y LOCATION OF WEATHER ALTITUDE DATA".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-26-NELS-WEATHER-CONDITIONS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

   DATA:  D-147-NELS-EMISSION-DURATION-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION:
```

```
"TIME THAT EMITTER IS EMITTING AND BEING LISTENED
TO BY NELS.(DETECTED EMISSION)".
     ENTERED-BY: "JDURBS".
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

DATA:  D-148-NELS-EMISSION-SIGNAL-STRENGTH-DATA.
     DATE-ENTERED: 22483.
     DESCRIPTION:
"S/N STRENGTH OF SIGNAL FOR A SINGLE SENSOR; STRENGTH
DATA FROM AT LEAST TWO SENSORS IS REQUIRED BEFORE A DETECTION CAN
BE CONFIRMED (DETECTED EMISSION)".
     ENTERED-BY: "JDURBS".
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

DATA:  D-149-NELS-EMISSION-START-TIME-DATA.
     DATE-ENTERED: 22483.
     DESCRIPTION: " TIME EMISSION STARTS (DETECTED EMISSIONS)".
     ENTERED-BY: "JDURBS".
     TYPE: REAL.
     UNITS: HRS-MIN-SEC.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

DATA:  D-150-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA.
     DATE-ENTERED: 22483.
     DESCRIPTION:
     "BANDWIDTH OF NARROWBAND EMISSION (DETECTED EMISSION)".
     ENTERED-BY: "JDURBS".
     TYPE: REAL.
     UNITS: HERTZ.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-151-NELS-EMITTER-ID-DATA.
     DATE-ENTERED: 22483.
     DESCRIPTION: "IDENTIFIER OF EMITTER (DETECTED EMISSION)".
     ENTERED-BY: "JDURBS".
     RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
     TYPE: ENUMERATION.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
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        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-152-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION:
        " TRANSMISSION FREQUENCY OF EMITTER (DETECTED EMISSION)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-153-NELS-EMITTER-X-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "DISTANCE EAST/WEST (DETECTED EMISSION)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-154-NELS-EMITTER-Y-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "DISTANCE NORTH/SOUTH (DETECTED EMISSION)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-155-NELS-EMITTER-Z-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "ALTITUDE/ELEVATION (DETECTED EMISSION)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-156-SCENARIO-GEN-ID-NUM-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION:
            "SCENARIO GENERATOR IDENTIFICATION NUMBER
            (DETECTED EMISSION)".
        ENTERED-BY: "JDURBS".
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        TYPE: INTEGER.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-GENERATION.

   DATA:  D-157-NELS-EMISSION-DURATION-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION:
   "TIME THAT EMITTER IS EMITTING AND BEING LISTENED
   TO BY NELS.(TDOA DD)".
        ENTERED-BY: "JOURBS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-ADI.

   DATA:  D-158-NELS-EMISSION-START-TIME-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: " TIME EMISSION STARTS (TDOA DD)".
        ENTERED-BY: "JOURBS".
        TYPE: REAL.
        UNITS: HRS-MIN-SEC.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

   DATA:  D-159-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "BANDWIDTH OF NARROWBAND EMISSION (TDOA DD)".
        ENTERED-BY: "JOURBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-160-NELS-EMITTER-ID-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "IDENTIFIER OF EMITTER (TDOA DD)".
        ENTERED-BY: "JOURBS".
        RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-161-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA.
        DATE-ENTERED: 22483.
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        DESCRIPTION: " TRANSMISSION FREQUENCY OF EMITTER (TDOA DD)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-162-NELS-EMITTER-X-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "DISTANCE EAST/WEST (TDOA DD)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-163-NELS-EMITTER-Y-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "DISTANCE NORTH/SOUTH (TDOA DD)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-164-NELS-EMITTER-Z-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "ALTITUDE/ELEVATION (TDOA DD)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-165-SCENARIO-GEN-ID-NUM-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION:
            "SCENARIO GENERATOR IDENTIFICATION NUMBER
            (TDOA DD)".
        ENTERED-BY: "JDURBS".
        TYPE: INTEGER.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-GENERATION.
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DATA:  D-166-NELS-EMITTER-ID-DATA.
       DATE-ENTERED: 22483.
       DESCRIPTION: "IDENTIFIER OF EMITTER (REPORT DATA)".
       ENTERED-BY: "JDUBBS".
       RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
       TYPE: ENUMERATION.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-167-NELS-EMITTER-X-DATA.
       DATE-ENTERED: 22483.
       DESCRIPTION: "DISTANCE EAST/WEST (REPORT DATA)".
       ENTERED-BY: "JDUBBS".
       TYPE: REAL.
       UNITS: KM.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-168-NELS-EMITTER-Y-DATA.
       DATE-ENTERED: 22483.
       DESCRIPTION: "DISTANCE NORTH/SOUTH (REPORT DATA)".
       ENTERED-BY: "JDUBBS".
       TYPE: REAL.
       UNITS: KM.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-169-NELS-EMITTER-Z-DATA.
       DATE-ENTERED: 22483.
       DESCRIPTION: "ALTITUDE/ELEVATION (REPORT DATA)".
       ENTERED-BY: "JDUBBS".
       TYPE: REAL.
       UNITS: METERS.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-170-SCENARIO-GEN-ID-NUM-DATA.
       DATE-ENTERED: 22483.
       DESCRIPTION:
           "SCENARIO GENERATOR IDENTIFICATION NUMBER
           (REPORT DATA)".
       ENTERED-BY: "JDUBBS".
       TYPE: INTEGER.
       USE: BOTH.
       INCLUDED IN:
```

```
            DATA:  D+113+NELS+TYPED+EMITTER+REPORT+DATA.
        TRACED FROM:
            ORIGINATING+REQUIREMENT:  ORIG+REQ+SCENARIO+GENERATION.

    DATA:  D+171+NELS+EMITTER+ID+DATA.
        DATE+ENTERED: 22483.
        DESCRIPTION: "IDENTIFIER OF EMITTER (TDOA DD)".
        ENTERED+BY: "JDURBS".
        RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D+065+NELS+EMISSION+THREAT+TABLE+DATA.
        TRACED FROM:
            ORIGINATING+REQUIREMENT:  ORIG+REQ+PRODUCE+SCENARIO.

    DATA:  D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA.
        DATE+ENTERED: 22483.
        DESCRIPTION: " TRANSMISSION FREQUENCY OF EMITTER (TDOA DD)".
        ENTERED+BY: "JDURBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D+065+NELS+EMISSION+THREAT+TABLE+DATA.
        TRACED FROM:
            ORIGINATING+REQUIREMENT:  ORIG+REQ+PRODUCE+SCENARIO.

    DATA:  D+173+NELS+EMITTER+X+DATA.
        DATE+ENTERED: 22483.
        DESCRIPTION: "DISTANCE EAST/WEST (TDOA DD)".
        ENTERED+BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D+065+NELS+EMISSION+THREAT+TABLE+DATA.
        TRACED FROM:
            ORIGINATING+REQUIREMENT:  ORIG+REQ+PRODUCE+SCENARIO.

    DATA:  D+174+NELS+EMITTER+Y+DATA.
        DATE+ENTERED: 22483.
        DESCRIPTION: "DISTANCE NORTH/SOUTH (TDOA DD)".
        ENTERED+BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D+065+NELS+EMISSION+THREAT+TABLE+DATA.
        TRACED FROM:
            ORIGINATING+REQUIREMENT:  ORIG+REQ+PRODUCE+SCENARIO.

    DATA:  D+175+NELS+EMITTER+Z+DATA.
        DATE+ENTERED: 22483.
        DESCRIPTION: "ALTITUDE/ELEVATION (TDOA DD)".
        ENTERED+BY: "JDURBS".
        TYPE: REAL.
        UNITS: METERS.
```

```
        USE: BOTH.
        INCLUDED IN:
             DATA:  D+065+NELS+EMISSION+THREAT+TABLE+DATA.
        TRACED FROM:
             ORIGINATING+REQUIREMENT:  ORIG+REQ+PRODUCE+SCENARIO.

   DATA:  D+176+NELS+EMITTER+BANDWIDTH+DATA.
        DATE+ENTERED: 30383.
        DESCRIPTION: " BANDWIDTH OF EMISSION(S) EMITTER EMITS (REPORT)".
        ENTERED+BY: "JDURBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D+113+NELS+TYPED+EMITTER+REPORT+DATA.
        TRACED FROM:
             ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+EXTERNAL+INTERFACE.

   DATA:  D+177+NELS+EMITTER+CEP+DATA.
        DATE+ENTERED: 30383.
        DESCRIPTION:
   " CIRCULAR ERROR PROBABLE ESTIMATE FOR A NELS
   DETECTABLE EMITTER (REPORT)".
        ENTERED+BY: "JDURBS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D+113+NELS+TYPED+EMITTER+REPORT+DATA.
        TRACED FROM:
             ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+THREAT+TABLE+UPDATE
             .

   DATA:  D+178+NELS+EMITTER+MODULATION+TYPE+DATA.
        DATE+ENTERED: 30383.
        DESCRIPTION: "TYPE OF MODULATION EXHIBITED BY EMITTER (REPORT)".
        ENTERED+BY: "JDURBS".
        RANGE: "MODULATED,NOT+MODULATED".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D+113+NELS+TYPED+EMITTER+REPORT+DATA.
        TRACED FROM:
             ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+EXTERNAL+INTERFACE.

   DATA:  D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA.
        DATE+ENTERED: 30383.
        DESCRIPTION: "TIME AT WHICH THE EMITTER WAS LOCATED (REPORT)".
        ENTERED+BY: "JDURBS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D+113+NELS+TYPED+EMITTER+REPORT+DATA.
        TRACED FROM:
             ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+THREAT+TABLE+UPDATE
             .

   DATA:  D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA.
        DATE+ENTERED: 30383.
```

```
        DESCRIPTION: " TRAFFIC TYPE CODE FOR A NELS EMITTER (REPORT)".
        ENTERED-BY: "JDURBS".
        RANGE: "PASSIVE,POTENTIAL-THREAT,THREAT".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-113-NELS-TYPED-EMITTER-REPORT-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-THREAT-TABLE-UPDATE
             .

    DATA: D-181-NELS-EMITTER-MODULATION-TYPE-DATA.
        DATE-ENTERED: 30383.
        DESCRIPTION: "TYPE OF MODULATION EXHIBITED BY EMITTER (TABLE)".
        ENTERED-BY: "JDURBS".
        RANGE: "MODULATED,NOT-MODULATED".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-065-NELS-EMISSION-THREAT-TABLE-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    DATA: D-182-NELS-EMITTER-BANDWIDTH-DATA.
        DATE-ENTERED: 30383.
        DESCRIPTION: " BANDWIDTH OF EMISSION(S) EMITTER EMITS (TABLE)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-065-NELS-EMISSION-THREAT-TABLE-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    DATA: D-183-NELS-EMITTER-CEP-DATA.
        DATE-ENTERED: 30363.
        DESCRIPTION:
    " CIRCULAR ERROR PROBABLE ESTIMATE FOR A NELS
    DETECTABLE EMITTER (TABLE)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-065-NELS-EMISSION-THREAT-TABLE-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-THREAT-TABLE-UPDATE
             .

    DATA: FOUND.
        DESCRIPTION:
                  "A PREDEFINED DATA ITEM WHICH IS SET TO EITHER
                  TRUE OR FALSE AFTER EACH SELECT ON AN ENTITY-TYPE
                  OR ENTITY-CLASS. FOUND IS SET TO TRUE IF AN
                  INSTANCE SATISFYING THE SELECTION CRITERION IS
                  LOCATED; OTHERWISE, FOUND IS ASSIGNED THE VALUE
                  FALSE.".
        INITIAL-VALUE: FALSE.
```

```
        LOCALITY: LOCAL.
        TYPE: BOOLEAN.
        USE: BOTH.

    DATA: RECORD-FOUND.
        DESCRIPTION:
                "A PREDEFINED DATA ITEM WHICH IS SET TO EITHER TRUE
                OR FALSE AFTER EACH SELECT ON A FILE IN A BETA OR
                GAMMA.  RECORD-FOUND IS SET TO TRUE IF A RECORD
                SATISFYING THE SELECTION CRITERION IS LOCATED;
                OTHERWISE, RECORD-FOUND IS ASSIGNED THE VALUE
                FALSE.".
        INITIAL-VALUE: FALSE.
        LOCALITY: LOCAL.
        TYPE: BOOLEAN.
        USE: BOTH.

    DECISION: CONTENTS-OF-MESSAGE.
        ALTERNATIVES:
                "DOES THE MINIMUM REQUIREMENTS FOR A MESSAGE ALLOW
THE MESSAGE TO PERFORM SPECIFIC FUNCTIONS OR NOT".
        CHOICE:
                "THE MINIMUM REQUIREMENTS DO NOT ALLOW THE MESSAGE TO
PERFORM ITS SPECIFIC TASK".
        DESCRIPTION:
                "THE MINIMUM REQUIREMENTS ARE INCLUDED IN A MESSAGE
IN ORDER TO PERFORM ANY NECESSARY FUNCTIONS.  THE RELIEVED
MINIMUM MAY NOT ACTUALLY BE SUFFICIENT HOWEVER".
        PROBLEM:
                "SPECIFICATIONS MANUAL DOES NOT INDICATE THE CONTENTS OF
SOME MESSAGES AND IS INDECISIVE FOR OTHERS".
        TRACES TO:
                DATA: D-040-FIRST-CMDRS-REG-UPDATE-DATA
                DATA: D-056-NEEDED-FEASIBLE-DATA
                DATA: D-125-FED-DESTINATION-SENSOR-ID-DATA
                DATA: D-126-FED-REPORT-INFORMATION-TYPE-DATA
                DATA: D-127-FED-SENSOR-TARGET-ID-OF-INTEREST-DATA
                DATA: D-133-SECOND-CMDRS-REG-UPDATE-DATA
                DATA: D-137-SENSOR-PRIORITY-DATA
                DATA: D-138-TASKING-RESPONSE-DATA
                DATA: D-139-TASK-TYPE-ID-DATA.

    DECISION: DECISION-MESSAGE-ROUTING-METHOD.
        ALTERNATIVES:
                "LET THE ROUTING CODE CONSIST OF NOTHING OR GIVE IT
A FORM".
        CHOICE:
                "ROUTING CODE CONSISTS OF A MESSAGE NAME, THE MESSAGE
SOURCE, AND THE MESSAGE DEFINITION".
        DESCRIPTION:
                "THE MESSAGE ROUTING CODE IS USED TO DETERMINE
MESSAGE TYPE AND THEREFORE THE PROPER ACTIONS TO BE PERFORMED.
THE CODE CONSISTS OF A MESSAGE NAME, THE MESSAGE SOURCE, AND
THE MESSAGE DEFINITION".
        PROBLEM:
                "SPECIFICATION MANUAL REFERS TO A ROUTING CODE WHICH IS
SPECIFIC FOR EACH TYPER OF MESSAGE OR REPORT, BUT THERE IS NO
INDICATION AS TO WHAT THAT CODE CONSISTS OF".
```

```
          TRACES TO:
               DATA:  D-002-ASET-MSG-DEST-DATA
               DATA:  D-003-ASET-MSG-ID-DATA
               DATA:  D-004-ASET-MSG-NAME-DATA
               DATA:  D-005-ASET-MSG-SOURCE-DATA.

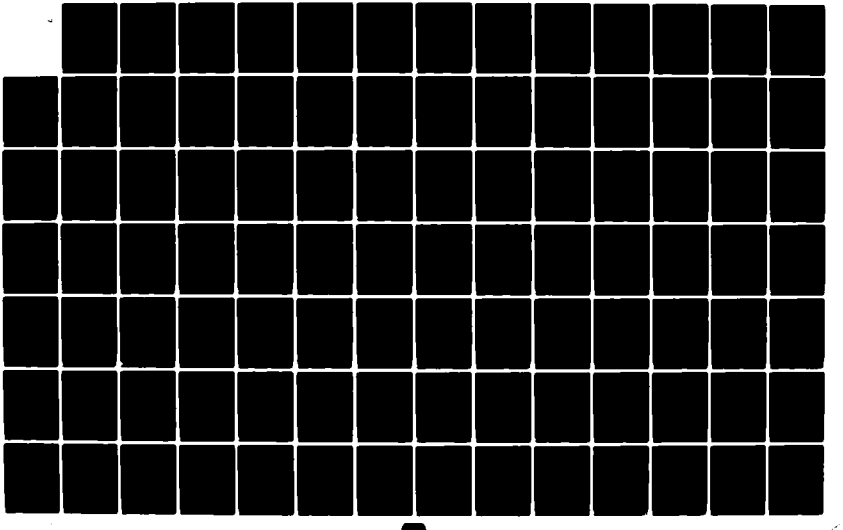
     DECISION:  HIGHLY-SUSPECT-ITEM.
          DESCRIPTION:
                    "AN ITEM WITHIN THE CREATED STRUCTURES THAT MAY BE
     TOTALLY WRONG DUE TO A MISINTERPRETATION BY A SREMER".
          PROBLEM:
                    "THERE ARE MANY AREAS IN THE ASE SPECIFICATION WHERE THE
     REQUIREMENT IS STATED BUT LITTLE OR NO INFORMATION IS GIVEN AS TO
     HOW THE ITEM IS TO BE REPRESENTED".
          TRACES TO:
               DATA:  D-004-ASET-MSG-NAME-DATA.

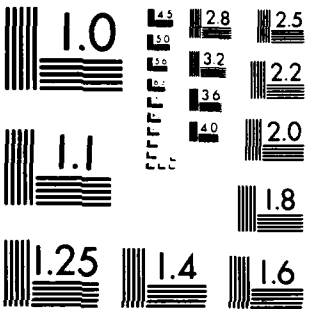
     ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC.
          DATE-ENTERED: 20382.
          DESCRIPTION:
     "THIS CLASS IS COMPOSED OF THE CANDIDATE TARGETS AS
      THEY PASS EACH TEST".
          ENTERED-BY: "JJF-NELS".
          ASSOCIATES:
               DATA:  D-140-TBD-DATA.
          COMPOSED OF:
               ENTITY-TYPE:  ET-10-GROUND-SHADOWING-CANDIDATE-TARGETS-ET
               ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
               ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET
               ENTITY-TYPE:  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET.
          CREATED BY:
               ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

     ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC.
          DATE-ENTERED: 20382.
          DESCRIPTION: "INFORMATION PERTAINING TO THE NELS SCENARIO".
          ENTERED-BY: "JJF-NELS".
          ASSOCIATES:
               DATA:  D-140-TBD-DATA.
          COMPOSED OF:
               ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET
               ENTITY-TYPE:  ET-7-NELS-WEATHER-ET.
          CREATED BY:
               ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
          DESTROYED BY:
               ALPHA:  A-24-RESET-NELS-ALPHA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

     ENTITY-CLASS:  EC-3-NELS-TASKS-EC.
          DATE-ENTERED: 20382.
          DESCRIPTION: "TASK RELATED INFORMATION".
          ENTERED-BY: "JJF-NELS".
          ASSOCIATES:
```

AD-A141 632 SREM (SOFTWARE REQUIREMENTS ENGINEERING METHODOLOGY) EVALUATION VOLUME 2..(U) MARTIN MARIETTA DENVER AEROSPACE CO A STONE ET AL. FEB 84 MCR-83-553-VOL-2 UNCLASSIFIED RADC-TR-83-314-VOL-2 F30602-80-C-0272 F/G 9/2 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

```
            DATA:  D-140-TBD-DATA.
        COMPOSED OF:
            ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
            ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET.
        CREATED BY:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
        DESTROYED BY:
            ALPHA:  A-24-RESET-NELS-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-ADI
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

    ENTITY-CLASS:  EC-4-NELS-THREAT-EC.
        DATE-ENTERED: 20382.
        DESCRIPTION:
                "POTENTIAL NELS-DETECTABLE THREATENING
       TARGETS".
        ENTERED-BY: "JJF-NELS".
        ASSOCIATES:
            DATA:  D-140-TBD-DATA.
        COMPOSED OF:
            ENTITY-TYPE:  ET-1-NELS-EMISSION-THREAT-ET.
        CREATED BY:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
        DESTROYED BY:
            ALPHA:  A-24-RESET-NELS-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
            .

    ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
        DATE-ENTERED: 20382.
        DESCRIPTION: "VEHICLE CHARACTERISTICS".
        ENTERED-BY: "JJF-NELS".
        ASSOCIATES:
            DATA:  D-140-TBD-DATA.
        COMPOSED OF:
            ENTITY-TYPE:  ET-6-NELS-VEHICLE-CHARACTERISTICS-ET.
        CREATED BY:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
        DESTROYED BY:
            ALPHA:  A-24-RESET-NELS-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    ENTITY-CLASS:  EC-6-DETECTED-EMISSIONS-INFO-EC.
        DATE-ENTERED: 20383.
        DESCRIPTION:
    "THIS CLASS WILL CONSOLIDATE THE DETECTED EMISSIONS
    INFORMATION AS IT GETS PASSED THROUGH THE
    TDOA, DD PROCESS, AND THE COARSE AND FINE LOCATION PROCESSES".
        ENTERED-BY: "JDURHS".
        COMPOSED OF:
            ENTITY-TYPE:  ET-11-DETECTED-EMISSIONS-DD-TDOA-ET
            ENTITY-TYPE:  ET-12-DETECTED-EMISSIONS-COARSE-ET
            ENTITY-TYPE:  ET-13-DETECTED-EMISSIONS-FINE-ET.
```

```
          CREATED BY:
               ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
          DESTROYED BY:
               ALPHA:  A-24-RESET-NELS-ALPHA.

     ENTITY-TYPE:  ET-10-GROUND-SHADOWING-CANDIDATE-TARGETS-ET.
          DATE-ENTERED: 22283.
          DESCRIPTION:
   "CARRIES THOSE TARGETS WHICH PASS THE GROUND SHADOWING TEST".
          ENTERED-BY: "JDUBBS".
          ASSOCIATES:
               FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
               FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
          COMPOSES:
               ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EMITTER-DEFAULT.

     ENTITY-TYPE:  ET-11-DETECTED-EMISSIONS-DD-TDOA-ET.
          DATE-ENTERED: 22283.
          DESCRIPTION:
     "HOLDS EMITTER DATA THAT HAS GONE THROUGH TDOA, AND
     DD PROCESSING".
          ENTERED-BY: "JDUBBS".
          ASSOCIATES:
               FILE:  F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
               FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE.
          COMPOSES:
               ENTITY-CLASS:  EC-6-DETECTED-EMISSIONS-INFO-EC.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

     ENTITY-TYPE:  ET-12-DETECTED-EMISSIONS-COARSE-ET.
          DATE-ENTERED: 22383.
          DESCRIPTION:
     "HOLDS EMITTER DATA THAT HAS GONE THROUGH
     THE COARSE LOCATING FUNCTION".
          ENTERED-BY: "JDUBBS".
          ASSOCIATES:
               FILE:  F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
               FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE.
          COMPOSES:
               ENTITY-CLASS:  EC-6-DETECTED-EMISSIONS-INFO-EC.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:
               ORIG-REQ-NELS-COARSE-AND-FINE-LOCATION.

     ENTITY-TYPE:  ET-13-DETECTED-EMISSIONS-FINE-ET.
          DATE-ENTERED: 22383.
          DESCRIPTION:
     "HOLDS EMITTER DATA THAT HAS GONE THROUGH
     THE FINE LOCATING FUNCTION".
          ENTERED-BY: "JDUBBS".
          ASSOCIATES:
               FILE:  F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
               FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE.
          COMPOSES:
               ENTITY-CLASS:  EC-6-DETECTED-EMISSIONS-INFO-EC.
```

```
          TRACED FROM:
               ORIGINATING-REQUIREMENT:
               ORIG-REQ-NELS-COARSE-AND-FINE-LOCATION.

     ENTITY-TYPE:  ET-1-NELS-EMISSION-THREAT-ET.
          DATE-ENTERED: 20382.
          DESCRIPTION: "NELS-DETECTED THREATS".
          ENTERED-BY: "JJF-NELS".
          ASSOCIATES:
               FILE:  F-13-NELS-EMISSION-THREAT-TABLE-FILE.
          COMPOSES:
               ENTITY-CLASS:  EC-4-NELS-THREAT-EC.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
               .
          REFERRED BY:
               SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB.

     ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET.
          DATE-ENTERED: 20382.
          DESCRIPTION: "NELS EMITTER GROUND ACTIVITY".
          ENTERED-BY: "JJF-NELS".
          ASSOCIATES:
               FILE:  F-14-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-FILE.
          COMPOSES:
               ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
          REFERRED BY:
               SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.

     ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET.
          DATE-ENTERED: 20382.
          DESCRIPTION: "FLIGHT WAYPOINTS".
          ENTERED-BY: "JJF-NELS".
          ASSOCIATES:
               FILE:  F-06-FLIGHT-PROFILE-FILE
               FILE:  F-27-PLATFORM-CONTROL-FILE.
          COMPOSES:
               ENTITY-CLASS:  EC-3-NELS-TASKS-EC.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:
               ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.
          REFERRED BY:
               R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET
               SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
               SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB.

     ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET.
          DATE-ENTERED: 20382.
          DESCRIPTION: "FREQUENCY TO TUNE NELS TRIAD TO".
          ENTERED-BY: "JJF-NELS".
          ASSOCIATES:
               FILE:  F-19-NELS-FREQUENCY-SCAN-FILE.
          COMPOSES:
               ENTITY-CLASS:  EC-3-NELS-TASKS-EC.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.
```

```
        REFERRED BY:
            R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.

    ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET.
        DATE-ENTERED: 20382.
        DESCRIPTION:
    "CARRIES NELS SOI DATA TO SOI ALPHA AND HOLDS THOSE
    TARGETS WHICH PASS THE SOI TEST".
        ENTERED-BY: "JJF-NELS".
        ASSOCIATES:
            FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
            FILE:  F-21-NELS-PRE-BRIEFED-SOI-FILE.
        COMPOSES:
            ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.
        REFERRED BY:
            R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET
            SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
            SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.

    ENTITY-TYPE:  ET-6-NELS-VEHICLE-CHARACTERISTICS-ET.
        DATE-ENTERED: 20382.
        DESCRIPTION: "VEHICLE EMISSION CHARACTERISTICS".
        ENTERED-BY: "JJF-NELS".
        ASSOCIATES:
            FILE:  F-15-NELS-EMITTER-CHARACTERISTICS-FILE.
        COMPOSES:
            ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        REFERRED BY:
            SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.

    ENTITY-TYPE:  ET-7-NELS-WEATHER-ET.
        DATE-ENTERED: 20382.
        DESCRIPTION: "WEATHER INFORMATION".
        ENTERED-BY: "JJF-NELS".
        ASSOCIATES:
            FILE:  F-26-NELS-WEATHER-CONDITIONS-FILE.
        COMPOSES:
            ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.
        REFERRED BY:
            SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.

    ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET.
        DATE-ENTERED: 22283.
        DESCRIPTION:
    "CARRIES NELS AOI DATA TO AOI ALPHA AND HOLDS THOSE
     TARGETS WHICH PASS THE AOI TEST".
        ENTERED-BY: "JDUBBS".
        ASSOCIATES:
            FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
            FILE:  F-20-NELS-PRE-BRIEFED-AOI-FILE.
        COMPOSES:
            ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC.
```

```
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-ADI.
          REFERRED BY:
               R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET
               SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
               SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.

     ENTITY-TYPE:  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET.
          DATE-ENTERED: 22283.
          DESCRIPTION: "CARRIES THOSE TARGETS WHICH PASS THE S/N TEST".
          ENTERED-BY: "JDURBS".
          ASSOCIATES:
               FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
          COMPOSES:
               ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EMITTER-DEFAULT.
          REFERRED BY:
               SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.

     EVENT:  E-1-ACTIVATE-SENSOR-EVENT.
          DATE-ENTERED: 12082.
          DESCRIPTION: "ACTIVATES NELS SENSOR PROCESSING AND CONTROL".
          ENTERED-BY: "JJF-NELS".
          ENABLES:
               R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
          REFERRED BY:
               SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB.

     EXTENSION:  X-ABBREVIATES.
          DATE-ENTERED: 52181.
          ENTERED-BY: "B  DEMOOY".
          EXTENSION-DATE: 50881.
          EXTENSION-TYPE: NEW.
          JUSTIFICATION:
                    " THIS RELATIONSHIP IS IMPLEMENTED TO PROVIDE A
                      TRACE BETWEEN A WORD AND ITS ABBREVIATION ".

     EXTENSION:  X-ABBREVIATION.
          DATE-ENTERED: 52181.
          ENTERED-BY: "B  DEMOOY".
          EXAMPLE:
               " ABBREVIATION VAL
                    ABBREVIATES
                      WORD VALIDATE    ".
          EXTENSION-DATE: 50881.
          EXTENSION-TYPE: NEW.
          JUSTIFICATION:
                    " THIS PROVIDES THE CAPABILITIES TO MAINTAIN A LIST
                      OF ABBREVIATIONS CURRENTLY BEING USED ".

     EXTENSION:  X-ASET-MSG.
          DATE-ENTERED: 52181.
          ENTERED-BY: "B  DEMOOY".
          EXAMPLE:
               " ASET-MSG SENSOR-POSITION
```

```
                SAME←AS
                  MESSAGE SENSOR←ONE←POSITION ".
        EXTENSION←DATE: 50881.
        EXTENSION←TYPE: NEW.
        JUSTIFICATION:
                  " IT IS NECESSARY TO ESTABLISH A SEPARATION
                    BETWEEN MESSAGES IN A PACKET AND MESSAGES
                    IDENTIFIED AS SINGLE ".

    EXTENSION:  X←DATE←ENTERED.
        DATE←ENTERED: 52281.
        ENTERED←BY: "B  DEMOOY".
        EXTENSION←DATE: 50881.
        EXTENSION←TYPE: NEW.
        JUSTIFICATION:
                  " A TIME SEPARATOR WHICH WILL ALLOW THE GENERATION OF
                    REPORTS BY DATE FOR TIME STUDIES AS WELL AS OTHER
                    MANAGERIAL REPORTS ".

    EXTENSION:  X←EXAMPLE.
        DATE←ENTERED: 52181.
        ENTERED←BY: "B  DEMOOY".
        EXTENSION←DATE: 50881.
        EXTENSION←TYPE: NEW.
        JUSTIFICATION:
                  " ALLOWS AN AREA WHICH INDICATES THE PROPER USE OF
                    THE LANGUAGE EXTENSION ".

    EXTENSION:  X←EXTENSION.
        DATE←ENTERED: 52181.
        ENTERED←BY: "B  DEMOOY".
        EXTENSION←DATE: 50881.
        EXTENSION←TYPE: NEW.
        JUSTIFICATION:
                  " THIS CONCPT WAS DEVELOPED TO MAINTAIN THE
                    DOCUMENTATION ON LANGUAGE EXTENSIONS ".

    EXTENSION:  X←EXTENSION←DATE.
        DATE←ENTERED: 52181.
        ENTERED←BY: "B  DEMOOY".
        EXTENSION←DATE: 50881.
        EXTENSION←TYPE: NEW.
        JUSTIFICATION:
                  " TO DOCUMENT THE DATE ON WHICH AN EXTENSION TO THE
                    LANGUAGE WAS PERFORMED ".

    EXTENSION:  X←EXTENSION←TYPE.
        DATE←ENTERED: 52181.
        ENTERED←BY: "B  DEMOOY".
        EXTENSION←DATE: 50881.
        EXTENSION←TYPE: NEW.
        JUSTIFICATION:
                  " TO INDICATE WHETHER A PARTICULAR LANGUAGE EXTENSION
                    IS A NEW DEFINITION OR A MODIFICATION ".

    EXTENSION:  X←FORMS.
        DATE←ENTERED: 52181.
        ENTERED←BY: "B  DEMOOY".
```

```
        EXAMPLE:
             " ALPHA PROCESS←SENSORS
               FORMS
                 MSG←PACKET SENSOR←INFO  ".
        EXTENSION←DATE: 50881.
        EXTENSION←TYPE: REPLACEMENT.
        JUSTIFICATION:
                  " IT IS NECESSARY TO ALLOW ALPHAS TO FORM MESSAGE
                    PACKETS AS WELL AS MESSAGES ".

    EXTENSION:  X←JUSTIFICATION.
        DATE←ENTERED: 52181.
        ENTERED←BY: "B  DEMOOY".
        EXTENSION←DATE: 50881.
        EXTENSION←TYPE: NEW.
        JUSTIFICATION:
                  " TO CREATE AN AREA IN WHI   A JUSTIFICATION OF THE
                    EXTENSION CAN BE DOCUMEN. ) ".

    EXTENSION:  X←MAKES.
        DATE←ENTERED: 52181.
        ENTERED←BY: "B  DEMOOY".
        EXAMPLE:
             " MSG←PACKET SENSOR←PCKT
               MADE←BY
                 ASET←MSG SENSOR←STATUS
                 ASET←MSG SENSOR←POSITION   ".
        EXTENSION←DATE: 50881.
        EXTENSION←TYPE: REPLACEMENT.
        JUSTIFICATION:
                  " FOR THE PURPOSES OF TRACEABILITY BETWEEN A MESSAGE
                    PACKET AND ITS MESSAGES, IT IS NECESSARY TO HAVE A
                    RELATIONSHIP IN WHICH A GROUP OF MESSAGES MAKE A
                    PACKET ".

    EXTENSION:  X←MSG←PACKET.
        DATE←ENTERED: 52181.
        ENTERED←BY: "B  DEMOOY".
        EXAMPLE:
             " MSG←PACKET SENSOR←PCKT
               MADE BY
                 ASET←MSG SENSOR←POSITION
                 ASET←MSG SENSOR←STATUS   ".
        EXTENSION←DATE: 50881.
        EXTENSION←TYPE: NEW.
        JUSTIFICATION:
                  " REQUIREMENTS DOCUMENT INDICATES MESSAGE PACKETS
                    ARE SENT BETWEEN PROCESSES ".

    EXTENSION:  X←NAMING←CONVENTION.
        DATE←ENTERED: 52281.
        ENTERED←BY: "B  DEMOOY".
        EXTENSION←DATE: 50881.
        EXTENSION←TYPE: NEW.
        JUSTIFICATION:
                  " INDICATES THE APPROPRIATE ABBREVIATION OR
                    IDENTIFICATION FOR AN ELEMENT NAME ".
```

```
EXTENSION:  X-PASSES.
     DATE-ENTERED: 52181.
     ENTERED-BY: "B  DEMOOY".
     EXAMPLE:
          " OUTPUT-INTERFACE TO-SENSORS
              PASSES
                MSG-PACKET SENSOR-INFO-TO-ASE  ".
     EXTENSION-DATE: 50881.
     EXTENSION-TYPE: REPLACEMENT.
     JUSTIFICATION:
                " IT IS NECESSARY TO ALLOW INTERFACES TO PASS MESSAGE
                  PACKETS AS WELL AS MESSAGES ".

EXTENSION:  X-RESTRICTION.
     DATE-ENTERED: 52281.
     ENTERED-BY: "B  DEMOOY".
     EXTENSION-DATE: 50881.
     EXTENSION-TYPE: NEW.
     JUSTIFICATION:
                " IDENTIFIES ANY RESTRICTIONS PLACED ON AN
                  ELEMENT TYPE ".

EXTENSION:  X-RSL-STANDARD.
     DATE-ENTERED: 52181.
     ENTERED-BY: "B  DEMOOY".
     EXAMPLE:
          " RSL-STANDARD S-OUTPUT-MESSAGE
              NAMING-CONVENTION  SUFFIX : MSG-OUT    ".
     EXTENSION-DATE: 50881.
     EXTENSION-TYPE: NEW.
     JUSTIFICATION:
                " DUE TO THE RESTRICTION OF UNIQUENESS WITHIN THE
                  FIRST SEVEN CHARACTERS IT IS NECESSARY TO DEVELOP
                  STANDARDS THAT CONFORM TO THE RESTRICTION ".

EXTENSION:  X-SAME-AS.
     DATE-ENTERED: 52181.
     ENTERED-BY: "B  DEMOOY".
     EXTENSION-DATE: 50881.
     EXTENSION-TYPE: NEW.
     JUSTIFICATION:
                " IT IS NECESSARY TO PROVIDE TRACEABILITY BETWEEN
                  MESSAGES FROM A PACKET AND THOSE MESSAGES WHICH
                  HAVE BEEN DERIVED FROM THE PACKET MESSAGE ".

EXTENSION:  X-WORD.
     DATE-ENTERED: 52181.
     ENTERED-BY: "B  DEMOOY".
     EXAMPLE:
          " WORD VALIDATE
              ABBREVIATED BY
                ABBREVIATION VAL  ".
     EXTENSION-DATE: 50881.
     EXTENSION-TYPE: NEW.
     JUSTIFICATION:
                " THIS TYPE IS USED TO IDENTIFY A WORD THAT HAS
                  BEEN ABBREVIATED ".
```

```
FILE:  F-01-BRIDGE-LOCATIONS-FILE.
       DESCRIPTION:
       "FURTHER DETAILS AVAILABLE IN ASE DATA BASE LISTING".
       CONTAINS:
            DATA:  D-026-BRIDGE-LOC-X-DATA
            DATA:  D-027-BRIDGE-LOC-Y-DATA.
       INPUT TO:
            ALPHA:  A-25-UPDATE-CARTO-ALPHA.
       OUTPUT FROM:
            ALPHA:  A-25-UPDATE-CARTO-ALPHA.

FILE:  F-02-CARTO-UPDATE-FILE.
       DATE-ENTERED: 10882.
       DESCRIPTION: "FILE OF CARTOGRAPHIC UPDATES".
       ENTERED-BY: "JJF-NELS".
       CONTAINS:
            DATA:  D-029-CARTO-SECTION-NUM-DATA
            DATA:  D-030-CARTO-UPDATE-1-DATA
            DATA:  D-031-CARTO-UPDATE-2-DATA
            DATA:  D-032-CARTO-UPDATE-3-DATA
            DATA:  D-033-CARTO-UPDATE-X-DATA
            DATA:  D-034-CARTO-UPDATE-Y-DATA.
       MAKES:
            MESSAGE:  M-02-NELS-CARTO-UPDATES-MSG-IN
            MESSAGE:  M-14-NELS-TRACK-MESSAGE-MSG-OUT.
       INPUT TO:
            ALPHA:  A-25-UPDATE-CARTO-ALPHA.
       ORDERED BY:
            DATA:  D-029-CARTO-SECTION-NUM-DATA.
       OUTPUT FROM:
            ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

FILE:  F-03-CITY-LOCATIONS-FILE.
       DESCRIPTION:
       "FURTHER DETAILS AVAILABLE IN ASE DATA BASE LISTING".
       CONTAINS:
            DATA:  D-035-CITY-LOC-X-DATA
            DATA:  D-036-CITY-LOC-Y-DATA.
       INPUT TO:
            ALPHA:  A-25-UPDATE-CARTO-ALPHA.
       OUTPUT FROM:
            ALPHA:  A-25-UPDATE-CARTO-ALPHA.

FILE:  F-04-CMDRS-DATA-TO-UPDATE-FILE.
       DATE-ENTERED: 11182.
       DESCRIPTION: "COMMANDERS REQUIREMENTS".
       ENTERED-BY: "JJF-NELS".
       CONTAINS:
            DATA:  D-040-FIRST-CMDRS-REQ-UPDATE-DATA
            DATA:  D-133-SECOND-CMDRS-REQ-UPDATE-DATA.
       MAKES:
            MESSAGE:  M-03-NELS-COMMANDERS-REQUIREMENTS-MSG-IN.
       INPUT TO:
            ALPHA:  A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
```

```
FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE.
     DATE-ENTERED: 100581.
     DESCRIPTION: "CONTAINS X,Y-AXIS LOCATIONS OF FEASIBLE TARGETS".
     ENTERED-BY: "D  HARTSCHUH".
     CONTAINS:
          DATA:  D-143-X-LOC-FEASIBLE-DATA
          DATA:  D-145-Y-LOC-FEASIBLE-DATA.
     MAKES:
          MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN
          MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN.
     INPUT TO:
          ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA
          ALPHA:
          A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-FEASIBLE-CHECK
          ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-FEASIBILITY.

FILE:  F-06-FLIGHT-PROFILE-FILE.
     DATE-ENTERED: 11182.
     DESCRIPTION: "FLIGHT WAYPOINTS FILE".
     ENTERED-BY: "JJF-NELS".
     CONTAINS:
          DATA:  D-041-FLIGHT-WAYPOINT-X-DATA
          DATA:  D-042-FLIGHT-WAYPOINT-Y-DATA
          DATA:  D-043-FLIGHT-WAYPOINT-Z-DATA.
     ASSOCIATED WITH:
          ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET.
     INPUT TO:
          ALPHA:  A-02-GENERATE-DME-ALPHA
          (* USED TO GENERATE DME *)
          ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA
          ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA
          ALPHA:  A-16-NELS-PROCESS-REQUESTED-DATA-ALPHA
          ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA.
     OUTPUT FROM:
          ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA
          ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA
          ALPHA:  A-16-NELS-PROCESS-REQUESTED-DATA-ALPHA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:
          ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

FILE:  F-07-GROUP-TARGET-LOCS-FILE.
     DATE-ENTERED: 11182.
     DESCRIPTION: "POSITION OF KNOWN GROUND TARGET(S)".
     ENTERED-BY: "JJF-NELS".
     CONTAINS:
          DATA:  D-048-GROUND-TARGET-LOC-X-DATA
          DATA:  D-049-GROUND-TARGET-LOC-Y-DATA.
     MAKES:
          MESSAGE:  M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
          MESSAGE:  M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN
          MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT.
     INPUT TO:
          ALPHA:  A-16-NELS-PROCESS-REQUESTED-DATA-ALPHA.
     OUTPUT FROM:
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            ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

FILE:  F-08-HYPSO-DATA-FILE.
      DESCRIPTION:
      "FURTHER DETAILS AVAILABLE IN ASE DATA BASE LISTING".
      CONTAINS:
            DATA:  D-051-HYPSO-ELEV-DATA
            DATA:  D-052-HYPSO-LOC-X-DATA
            DATA:  D-053-HYPSO-LOC-Y-DATA.
      INPUT TO:
            ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA
            (* USED BUT NOT UPDATED *)
            ALPHA:  A-25-UPDATE-CARTO-ALPHA.
      OUTPUT FROM:
            ALPHA:  A-25-UPDATE-CARTO-ALPHA.

FILE:  F-09-MARSHALLING-AREAS-FILE.
      DESCRIPTION:
      "FURTHER DETAILS AVAILABLE IN ASE DATA BASE LISTING".
      CONTAINS:
            DATA:  D-054-MARSHALLING-X-DATA
            DATA:  D-055-MARSHALLING-Y-DATA.
      INPUT TO:
            ALPHA:  A-25-UPDATE-CARTO-ALPHA.
      OUTPUT FROM:
            ALPHA:  A-25-UPDATE-CARTO-ALPHA.

FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
      DATE-ENTERED: 11182.
      DESCRIPTION:
"NELS CANDIDATE TARGETS OUTPUT FROM THE SOI FILTER,
AOI FILTER, AND S/N.  THIS SAME INFO IS FURTHER TESTED
IN THE TERRAIN/FOLIAGE SHADOWING PROCESS BUT IS THEN
PUT IN A DIFFERENT FILE".
      ENTERED-BY: "JJF-NELS".
      CONTAINS:
            DATA:  D-061-NELS-EMISSION-DURATION-DATA
            DATA:  D-062-NELS-EMISSION-SIGNAL-STRENGTH-DATA
            DATA:  D-063-NELS-EMISSION-START-TIME-DATA
            DATA:  D-073-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
            DATA:  D-075-NELS-EMITTER-ID-DATA
            DATA:  D-076-NELS-EMITTER-LOCATION-DATA
            DATA:  D-081-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
            DATA:  D-130-SCENARIO-GEN-ID-NUM-DATA.
      ASSOCIATED WITH:
            ENTITY-TYPE:  ET-10-GROUND-SHADOWING-CANDIDATE-TARGETS-ET
            ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
            ENTITY-TYPE:  ET-6-NELS-PRE-BRIEFED-AOI-ET
            ENTITY-TYPE:  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET.
      INPUT TO:
            ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
            ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA.
      OUTPUT FROM:
            ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
```

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            ALPHA:  A←19←NELS←SIGNAL←TO←NOISE←DETECTABILITY←ALPHA.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←AOI
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←THREAT←TABLE←UPDATE
            .

    FILE:  F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        DATE←ENTERED: 22283.
        DESCRIPTION:
    "THIS FILE CONTAINS THAT INFORMATION OF AN EMISSION
     WHICH HAS PASSED THE FOLLOWING TESTS: SOI, AOI,
     S/N, AND GROUND SHADOWING.  THIS FILE WAS
     CREATED FOR A MORE READABLE FORM".
        ENTERED←BY: "JDUBBS".
        CONTAINS:
            DATA:  D←147←NELS←EMISSION←DURATION←DATA
            DATA:  D←148←NELS←EMISSION←SIGNAL←STRENGTH←DATA
            DATA:  D←149←NELS←EMISSION←START←TIME←DATA
            DATA:  D←150←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA
            DATA:  D←151←NELS←EMITTER←ID←DATA
            DATA:  D←152←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
            DATA:  D←153←NELS←EMITTER←X←DATA
            DATA:  D←154←NELS←EMITTER←Y←DATA
            DATA:  D←155←NELS←EMITTER←Z←DATA
            DATA:  D←156←SCENARIO←GEN←ID←NUM←DATA.
        ASSOCIATED WITH:
            ENTITY←TYPE:  ET←10←GROUND←SHADOWING←CANDIDATE←TARGETS←ET.
        INPUT TO:
            ALPHA:  A←21←NELS←TARGET←ACQUISITION←ALPHA.
        OUTPUT FROM:
            ALPHA:  A←22←NELS←TERRAIN←FOLIAGE←SHADOWING←ALPHA.

    FILE:  F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        DATE←ENTERED: 11282.
        DESCRIPTION: "FILE OF DETECTED EMITTERS ".
        ENTERED←BY: "JJF-NELS".
        CONTAINS:
            DATA:  D←065←NELS←EMISSION←THREAT←TABLE←DATA.
        ASSOCIATED WITH:
            ENTITY←TYPE:  ET←1←NELS←EMISSION←THREAT←ET.
        INPUT TO:
            ALPHA:  A←07←NELS←FINE←LOCATION←ALPHA
            ALPHA:  A←23←NELS←THREAT←TABLE←UPDATE←ALPHA.
        ORDERED BY:
            DATA:  D←079←NELS←EMITTER←TIME←OF←LOCATION←DATA.
        OUTPUT FROM:
            ALPHA:  A←23←NELS←THREAT←TABLE←UPDATE←ALPHA.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←THREAT←TABLE←UPDATE
            .

    FILE:  F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE.
        DATE←ENTERED: 11182.
        DESCRIPTION: "NELS SCENARIO DATA".
        ENTERED←BY: "JJF-NELS".
        CONTAINS:
            DATA:  D←066←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←DATA.
        ASSOCIATED WITH:
```

```
            ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET.
        INPUT TO:
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            (* USED BUT NOT UPDATED *).
        ORDERED BY:
            DATA:  D-075-8-NELS-EMITTER-ID-DATA.
        OUTPUT FROM:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    FILE:  F-15-NELS-EMITTER-CHARACTERISTICS-FILE.
        DATE-ENTERED: 11182.
        DESCRIPTION: "NELS EMITTER CHARACTERISTICS TABLE".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
            DATA:  D-069-NELS-EMITTER-CHARACTERISTICS-DATA.
        ASSOCIATED WITH:
            ENTITY-TYPE:  ET-6-NELS-VEHICLE-CHARACTERISTICS-ET.
        INPUT TO:
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            (* USED BUT NOT UPDATED *).
        OUTPUT FROM:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    FILE:  F-16-NELS-EMITTER-FILE.
        DATE-ENTERED: 10278 1.
        DESCRIPTION: "FILE OF NELS-DETECTABLE EMITTERS".
        ENTERED-BY: "JJF-ES".
        CONTAINS:
            DATA:  D-071-NELS-EMITTER-DATA.
        MAKES:
            MESSAGE:  M-01-ES-NELS-UNIT-AND-ENVIRONMENT-DATA-MSG-IN.
        INPUT TO:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

    FILE:  F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE.
        DATE-ENTERED: 11282.
        DESCRIPTION:
        "FILE OF PARAMETERS ESTIMATED BY TARGET ACQUISITION".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
            DATA:  D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA.
        ASSOCIATED WITH:
            ENTITY-TYPE:  ET-11-DETECTED-EMISSIONS-OD-TDOA-ET
            ENTITY-TYPE:  ET-12-DETECTED-EMISSIONS-COARSE-ET
            ENTITY-TYPE:  ET-13-DETECTED-EMISSIONS-FINE-ET.
        INPUT TO:
            ALPHA:  A-06-NELS-COARSE-LOCATION-ALPHA
            ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
            ALPHA:  A-08-NELS-FREQUENCY-SCAN-OPTIMIZATION-ALPHA
            ALPHA:  A-12-NELS-PERFORM-SIGNATURE-ANALYSIS-ALPHA.
        OUTPUT FROM:
            ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
```

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            ALPHA:  A-21-NELS-TARGET-ACQUISITION-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

    FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE.
        DATE-ENTERED: 11282.
        DESCRIPTION:
            "FILE OF ESTIMATED GROUND LOCATIONS OF NELS
       DETECTABLE EMITTERS".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
            DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        ASSOCIATED WITH:
            ENTITY-TYPE:  ET-11-DETECTED-EMISSIONS-DD-TDOA-ET
            ENTITY-TYPE:  ET-12-DETECTED-EMISSIONS-COARSE-ET
            ENTITY-TYPE:  ET-13-DETECTED-EMISSIONS-FINE-ET.
        INPUT TO:
            ALPHA:  A-06-NELS-COARSE-LOCATION-ALPHA
            ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
            ALPHA:  A-12-NELS-PERFORM-SIGNATURE-ANALYSIS-ALPHA.
        OUTPUT FROM:
            ALPHA:  A-06-NELS-COARSE-LOCATION-ALPHA
            ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
            ALPHA:  A-21-NELS-TARGET-ACQUISITION-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

    FILE:  F-19-NELS-FREQUENCY-SCAN-FILE.
        DATE-ENTERED: 11182.
        DESCRIPTION:
            "THE SET OF FREQUENCY SCAN RANGES TO BE SEARCHED
       BY THE NELS".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
            DATA:  D-090-NELS-FREQUENCY-SCAN-BAND-DATA.
        ASSOCIATED WITH:
            ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET.
        INPUT TO:
            ALPHA:
            A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA.
        OUTPUT FROM:
            ALPHA:
            A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

    FILE:  F-20-NELS-PRE-BRIEFED-ADI-FILE.
        DATE-ENTERED: 11182.
        DESCRIPTION:
        "CONTAINS NELS FILTERING CRITERIA FOR EACH SEARCH AREA".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
            DATA:  D-094-NELS-PRE-BRIEFED-ADI-DATA.
        ASSOCIATED WITH:
            ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-ADI-ET.
        INPUT TO:
            ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA
```

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            ALPHA:  A←17←NELS←SENSOR←STATUS←ALPHA.
        OUTPUT FROM:
            ALPHA:  A←14←NELS←PROCESS←COMMANDERS←REQUIREMENTS←ALPHA.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←AOI.

    FILE:  F←21←NELS←PRE←BRIEFED←SOI←FILE.
        DATE←ENTERED: 11182.
        DESCRIPTION: "FILE OF RANGES OF FREQUENCIES OF INTEREST".
        ENTERED←BY: "JJF-NELS".
        CONTAINS:
            DATA:  D←102←NELS←PRE←BRIEFED←SOI←DATA.
        ASSOCIATED WITH:
            ENTITY←TYPE:  ET←5←NELS←PRE←BRIEFED←SOI←ET.
        INPUT TO:
            ALPHA:  A←14←NELS←PROCESS←COMMANDERS←REQUIREMENTS←ALPHA
            ALPHA:  A←17←NELS←SENSOR←STATUS←ALPHA
            ALPHA:  A←18←NELS←SIGNAL←OF←INTEREST←FILTER←ALPHA.
        OUTPUT FROM:
            ALPHA:  A←14←NELS←PROCESS←COMMANDERS←REQUIREMENTS←ALPHA.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←SIGNAL←OF←INTEREST.

    FILE:  F←24←NELS←TDOA←DD←FILE.
        DATE←ENTERED: 11282.
        DESCRIPTION:
                "FILE OF TIME DIFFERENCE OF ARRIVAL (TDOA) AND
       DIFFERENTIAL DOPPLER (DD) MEASUREMENTS RELATIVE TO EACH
       NELS SENSOR PLATFORM".
        ENTERED←BY: "JJF-NELS".
        CONTAINS:
            DATA:  D←112←NELS←TDOA←DD←DATA.
        INPUT TO:
            ALPHA:  A←06←NELS←COARSE←LOCATION←ALPHA.
        OUTPUT FROM:
            ALPHA:  A←21←NELS←TARGET←ACQUISITION←ALPHA.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←TARGET←ACQUISITION.

    FILE:  F←25←NELS←TYPED←EMITTER←REPORT←FILE.
        DATE←ENTERED: 11282.
        DESCRIPTION: "FILE OF TYPED EMITTER REPORTS".
        ENTERED←BY: "JJF-NELS".
        CONTAINS:
            DATA:  D←113←NELS←TYPED←EMITTER←REPORT←DATA.
        INPUT TO:
            ALPHA:  A←20←NELS←SURVEILLANCE←AND←TRACK←MSGS←ALPHA
            ALPHA:  A←23←NELS←THREAT←TABLE←UPDATE←ALPHA.
        OUTPUT FROM:
            ALPHA:  A←12←NELS←PERFORM←SIGNATURE←ANALYSIS←ALPHA.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←SIGNATURE←ANALYSIS.

    FILE:  F←26←NELS←WEATHER←CONDITIONS←FILE.
        DATE←ENTERED: 11182.
        DESCRIPTION: "X-Y-ALTITUDE ORDERED WEATHER DATA".
        ENTERED←BY: "JJF-NELS".
        CONTAINS:
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            DATA:  D←001←ALTITUDE←WEATHER←LOC←DATA
            DATA:  D←144←X←WEATHER←LOC←DATA
            DATA:  D←146←Y←WEATHER←LOC←DATA.
      ASSOCIATED WITH:
            ENTITY←TYPE:  ET←7←NELS←WEATHER←ET.
      INPUT TO:
            ALPHA:  A←19←NELS←SIGNAL←TO←NOISE←DETECTABILITY←ALPHA
            (* USED BUT NOT UPDATED *).
      TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←SIGNAL←TO←NOISE.

FILE:  F←27←PLATFORM←CONTROL←FILE.
      DATE←ENTERED: 11182.
      DESCRIPTION:
            "LOCATION AND DYNAMICS AT VARIOUS POINT ALONG THE
   MISSION PATH PROFILE".
      ENTERED←BY: "JJF-NELS".
      CONTAINS:
            DATA:  D←013←ASP←LOCATION←DATA
            DATA:  D←014←ASP←LOC←X←DATA
            DATA:  D←015←ASP←LOC←Y←DATA
            DATA:  D←016←ASP←LOC←Z←DATA
            DATA:  D←022←ASP←VEL←X←DATA
            DATA:  D←023←ASP←VEL←Y←DATA
            DATA:  D←024←ASP←VEL←Z←DATA.
      ASSOCIATED WITH:
            ENTITY←TYPE:  ET←3←NELS←FLIGHT←ET.
      INPUT TO:
            ALPHA:  A←02←GENERATE←DME←ALPHA.
      TRACED FROM:
            ORIGINATING←REQUIREMENT:
            ORIG←REQ←GENERATE←PLATFORM←MEASUREMENTS.

FILE:  F←28←PRIMARY←ROADS←FILE.
      DESCRIPTION:
      "FURTHER DETAILS AVAILABLE IN ASF DATA BASE LISTING".
      CONTAINS:
            DATA:  D←121←PRIMARY←ROADS←X←DATA
            DATA:  D←122←PRIMARY←ROADS←Y←DATA.
      INPUT TO:
            ALPHA:  A←25←UPDATE←CARTO←ALPHA.
      OUTPUT FROM:
            ALPHA:  A←25←UPDATE←CARTO←ALPHA.

FILE:  F←29←RAILROAD←LOCATIONS←FILE.
      DESCRIPTION:
      "FURTHER DETAILS AVAILABLE IN ASF DATA BASE LISTING".
      CONTAINS:
            DATA:  D←123←RAILROAD←LOC←X←DATA
            DATA:  D←124←RAILROAD←LOC←Y←DATA.
      INPUT TO:
            ALPHA:  A←25←UPDATE←CARTO←ALPHA.
      OUTPUT FROM:
            ALPHA:  A←25←UPDATE←CARTO←ALPHA.

FILE:  F←30←RIVER←LOCATIONS←FILE.
      DESCRIPTION:
      "FURTHER DETAILS AVAILABLE IN ASF DATA BASE LISTING".
```

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        CONTAINS:
             DATA:  D+128+RIVER+LOC+X+DATA
             DATA:  D+129+RIVER+LOC+Y+DATA.
        INPUT TO:
             ALPHA:  A+25+UPDATE+CARTO+ALPHA.
        OUTPUT FROM:
             ALPHA:  A+25+UPDATE+CARTO+ALPHA.

    FILE:  F+31+SECONDARY+ROADS+FILE.
        DESCRIPTION:
        "FURTHER DETAILS AVAILABLE IN ASE DATA BASE LISTING".
        CONTAINS:
             DATA:  D+131+SECONDARY+ROAD+X+DATA
             DATA:  D+132+SECONDARY+ROAD+Y+DATA.
        INPUT TO:
             ALPHA:  A+25+UPDATE+CARTO+ALPHA.
        OUTPUT FROM:
             ALPHA:  A+25+UPDATE+CARTO+ALPHA.

    FILE:  F+32+SENSOR+ORBIT+MODS+FILE.
        DATE+ENTERED: 10882.
        DESCRIPTION: "DESIRED OBSERVATION POSITION(S) FOR SENSORS".
        ENTERED+BY: "JJF+NELS".
        CONTAINS:
             DATA:  D+117+PLATFORM+MOD+X+DATA
             DATA:  D+118+PLATFORM+MOD+Y+DATA
             DATA:  D+119+PLATFORM+MOD+Z+DATA.
        MAKES:
             MESSAGE:  M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN.
        INPUT TO:
             ALPHA:  A+10+NELS+MODIFY+ORBIT+ALPHA.
        TRACED FROM:
             ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+EXTERNAL+INTERFACE
             ORIGINATING+REQUIREMENT:  ORIG+REQ+SENSOR+ACTIVITY+ELEMENTS
             .

    FILE:  F+33+SENSOR+PLATFORM+LOCATION+FILE.
        DATE+ENTERED: 11182.
        DESCRIPTION: "LOCATION OF EACH SENSOR PLATFORM".
        ENTERED+BY: "JJF+NELS".
        CONTAINS:
             DATA:  D+114+PLATFORM+LOCATION+X+DATA
             DATA:  D+115+PLATFORM+LOCATION+Y+DATA
             DATA:  D+116+PLATFORM+LOCATION+Z+DATA.
        MAKES:
             MESSAGE:  M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT.
        OUTPUT FROM:
             ALPHA:  A+13+NELS+PLATFORM+LOCATION+MSG+ALPHA.
        TRACED FROM:
             ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+EXTERNAL+INTERFACE.

    FILE:  F+34+SENSOR+STATUS+FILE.
        DATE+ENTERED: 11182.
        DESCRIPTION: "SENSOR STATUS".
        ENTERED+BY: "JJF+NELS".
        CONTAINS:
             DATA:  D+040+FREQUENCY+SCAN+PARAMETER+DATA
             DATA:  D+136+SENSOR+MODE+OF+OPERATION+DATA.
```

```
        MAKES:
             MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT.
        OUTPUT FROM:
             ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   INPUT-INTERFACE:  INTO-NELS-SENSOR.
        DATE-ENTERED: 110681.
        DESCRIPTION:
             "RECEIVES MESSAGES FOR NARROWBAND EMITTER
      LOCATOR SYSTEM".
        ENTERED-BY: "JJF-NELS".
        CONNECTS TO:
             SUBSYSTEM:  SS-1-REST-OF-ASE.
        PASSES:
             MESSAGE:  M-01-ES-NELS-UNIT-AND-ENVIRONMENT-DATA-MSG-IN
             MESSAGE:  M-02-NELS-CARTO-UPDATES-MSG-IN
             MESSAGE:  M-03-NELS-COMMANDERS-REQUIREMENTS-MSG-IN
             MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN
             MESSAGE:  M-06-NELS-ORBIT-MODIFICATIONS-MSG-IN
             MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN
             MESSAGE:  M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN
             MESSAGE:  M-15-T-AND-C-STOP-NELS-MSG-IN.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        REFERRED BY:
             R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-P-NET.

   MESSAGE:  M-01-ES-NELS-UNIT-AND-ENVIRONMENT-DATA-MSG-IN.
        DATE-ENTERED: 110281.
        DESCRIPTION: "NELS SCENARIO".
        ENTERED-BY: "JJF-NELS".
        MADE BY:
             DATA:  D-003-ASET-MSG-ID-DATA
             FILE:  F-16-NELS-EMITTER-FILE.
        PASSED THROUGH:
             INPUT-INTERFACE:  INTO-NELS-SENSOR.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   MESSAGE:  M-02-NELS-CARTO-UPDATES-MSG-IN.
        DATE-ENTERED: 110281.
        DESCRIPTION: "UPDATES TO CARTOGRAPHIC FILE".
        ENTERED-BY: "JJF-NELS".
        MADE BY:
             DATA:  D-003-ASET-MSG-ID-DATA
             FILE:  F-02-CARTO-UPDATE-FILE.
        PASSED THROUGH:
             INPUT-INTERFACE:  INTO-NELS-SENSOR.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   MESSAGE:  M-03-NELS-COMMANDERS-REQUIREMENTS-MSG-IN.
        DATE-ENTERED: 110281.
        DESCRIPTION: "COMMANDERS REQUIREMENTS FOR SENSORS".
        ENTERED-BY: "JJF-NELS".
        MADE BY:
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            DATA:  D←003←ASET←MSG←ID←DATA
            FILE:  F←04←CMDRS←DATA←TO←UPDATE←FILE.
        PASSED THROUGH:
            INPUT←INTERFACE:  INTO←NELS←SENSOR.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.

    MESSAGE:  M←04←NELS←MODIFIED←TASK←MSG←IN.
        DATE←ENTERED: 110281.
        DESCRIPTION: "MODIFICATIONS TO SENSOR TASKS".
        ENTERED←BY: "JJF-NELS".
        MADE BY:
            DATA:  D←003←ASET←MSG←ID←DATA
            DATA:  D←056←NEEDED←FEASIBLE←DATA
            DATA:  D←139←TASK←QUE←ID←DATA
            FILE:  F←05←FEASIBLE←ACTIVITY←AREA←FILE.
        PASSED THROUGH:
            INPUT←INTERFACE:  INTO←NELS←SENSOR.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.

    MESSAGE:  M←05←NELS←NON←SURVEILLANCE←TARGET←REPORTS←MSG←OUT.
        DATE←ENTERED: 110281.
        DESCRIPTION:
              "TARGETS NO LONGER UNDER SURVEILLANCE BY THE
       NELS SENSORS. (NOTE: THE FOLLOWING ITEMS ARE
       APPLICABLE TO SENSOR TYPES AS SHOWN BELOW:
       GROUND←TARGET←FREQUENCY←DATA    NELS,NELS ONLY
       GROUND←TARGET←LENGTH←DATA       IS ONLY
       GROUND←TARGET←VELOCITY←DATA     MTI ONLY) ".
        ENTERED←BY: "JJF-NELS".
        FORMED BY:
            ALPHA:  A←20←NELS←SURVEILLANCE←AND←TRACK←MSGS←ALPHA.
        MADE BY:
            DATA:  D←003←ASET←MSG←ID←DATA
            DATA:  D←045←GPS←ID←DATA
            DATA:  D←046←GROUND←TARGET←FREQUENCY←DATA
            DATA:  D←047←GROUND←TARGET←LENGTH←DATA
            DATA:  D←050←GROUND←TARGET←VELOCITY←DATA
            FILE:  F←07←GROUP←TARGET←LOCS←FILE.
        PASSED THROUGH:
            OUTPUT←INTERFACE:  TO←TIMING←AND←CONTROL←FROM←NELS.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.

    MESSAGE:  M←06←NELS←ORBIT←MODIFICATIONS←MSG←IN.
        DATE←ENTERED: 110281.
        DESCRIPTION: "SENSOR PLATFORM ORBIT MODIFICATIONS".
        ENTERED←BY: "JJF-NELS".
        MADE BY:
            DATA:  D←003←ASET←MSG←ID←DATA
            DATA:  D←135←SENSOR←ID←DATA
            FILE:  F←32←SENSOR←ORBIT←MODS←FILE.
        PASSED THROUGH:
            INPUT←INTERFACE:  INTO←NELS←SENSOR.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE
            ORIGINATING←REQUIREMENT:  ORIG←REQ←SENSOR←ACTIVITY←ELEMENTS
```

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MESSAGE:  M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT.
     DATE-ENTERED: 110281.
     DESCRIPTION: "LOCATIONS OF NELS PLATFORMS".
     ENTERED-BY: "JJF-NELS".
     FORMED BY:
          ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA.
     MADE BY:
          DATA:  D-003-ASET-MSG-ID-DATA
          FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE.
     PASSED THROUGH:
          OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN.
     DATE-ENTERED: 110281.
     DESCRIPTION: "SENSOR PRIORITIES".
     ENTERED-BY: "JJF-NELS".
     MADE BY:
          DATA:  D-003-ASET-MSG-ID-DATA
          DATA:  D-056-NEEDED-FEASIBLE-DATA
          DATA:  D-135-SENSOR-ID-DATA
          DATA:  D-137-SENSOR-PRIORITY-DATA
          FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE.
     PASSED THROUGH:
          INPUT-INTERFACE:  INTO-NELS-SENSOR.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

MESSAGE:  M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN.
     DATE-ENTERED: 110281.
     DESCRIPTION: "ASE REQUESTS FOR DATA FROM SENSORS".
     ENTERED-BY: "JJF-NELS".
     MADE BY:
          DATA:  D-003-ASET-MSG-ID-DATA
          DATA:  D-045-GPS-ID-DATA
          FILE:  F-07-GROUP-TARGET-LOCS-FILE.
     PASSED THROUGH:
          INPUT-INTERFACE:  INTO-NELS-SENSOR.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT.
     DATE-ENTERED: 110281.
     DESCRIPTION:
          "IDLE SENSORS REQUEST TO ASE FOR SOMETHING TO
  DO".
     ENTERED-BY: "JJF-NELS".
     FORMED BY:
          ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA.
     MADE BY:
          DATA:  D-003-ASET-MSG-ID-DATA
          DATA:  D-125-REQ-DESTINATION-SENSOR-ID-DATA
          DATA:  D-126-REQ-REPORT-INFORMATION-TYPE-DATA
          DATA:  D-127-REQ-SENSOR-TARGET-TD-OF-INTEREST-DATA
          DATA:  D-135-SENSOR-ID-DATA.
```

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        PASSED THROUGH:
             OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT.
        DATE-ENTERED: 110281.
        DESCRIPTION: "STATUS OF NELS PLATFORMS".
        ENTERED-BY: "JJF-NELS".
        FORMED BY:
             ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA.
        MADE BY:
             DATA:  D-003-ASET-MSG-ID-DATA
             DATA:  D-135-SENSOR-ID-DATA
             FILE:  F-34-SENSOR-STATUS-FILE.
        PASSED THROUGH:
             OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT.
        DATE-ENTERED: 110281.
        DESCRIPTION:
             "TARGETS CURRENTLY UNDER SURVEILLANCE BY
          THE NELS SENSORS.  (NOTE:  THE FOLLOWING ITEMS
          ARE APPLICABLE TO SENSOR TYPES AS SHOWN BELOW:
          GROUND-TARGET-FREQUENCY-DATA    WELS, NELS ONLY
          GROUND-TARGET-LENGTH-DATA       IS ONLY
          GROUND-TARGET-VELOCITY-DATA     MTI ONLY) ".
        ENTERED-BY: "JJF-NELS".
        FORMED BY:
             ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
        MADE BY:
             DATA:  D-003-ASET-MSG-ID-DATA
             DATA:  D-045-GPS-ID-DATA
             DATA:  D-046-GROUND-TARGET-FREQUENCY-DATA
             DATA:  D-047-GROUND-TARGET-LENGTH-DATA
             DATA:  D-050-GROUND-TARGET-VELOCITY-DATA
             FILE:  F-07-GROUP-TARGET-LOCS-FILE.
        PASSED THROUGH:
             OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT.
        DATE-ENTERED: 110281.
        DESCRIPTION: "RESPONSES TO ASE TASKS".
        ENTERED-BY: "JJF-NELS".
        FORMED BY:
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        MADE BY:
             DATA:  D-003-ASET-MSG-ID-DATA
             DATA:  D-138-TASKING-RESPONSE-DATA
             DATA:  D-139-TASK-QUE-ID-DATA
             DATA:  D-141-TIME-DATA.
        PASSED THROUGH:
             OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
        TRACED FROM:
```

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          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

     MESSAGE:  M-14-NELS-TRACK-MESSAGE-MSG-OUT.
          DATE-ENTERED: 110281.
          DESCRIPTION: "TARGET TRACK MESSAGES".
          ENTERED-BY: "JJF-NELS".
          FORMED BY:
               ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
          MADE BY:
               DATA:  D-003-ASET-MSG-ID-DATA
               DATA:  D-135-SENSOR-ID-DATA
               DATA:  D-142-TRACK-MESSAGE-DATA
               FILE:  F-02-CARTO-UPDATE-FILE.
          PASSED THROUGH:
               OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

     MESSAGE:  M-15-T-AND-C-STOP-NELS-MSG-IN.
          DATE-ENTERED: 110281.
          DESCRIPTION: "SIGNAL TO STOP NARROWBAND SENSORS".
          ENTERED-BY: "JJF-NELS".
          MADE BY:
               DATA:  D-003-ASET-MSG-ID-DATA.
          PASSED THROUGH:
               INPUT-INTERFACE:  INTO-NELS-SENSOR.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-CYCLE-START.

     ORIGINATING-REQUIREMENT:  ORIG-REQ-ALTER-SCENARIO-DEFAULTS.
          DATE-ENTERED: 72481.
          DESCRIPTION:
                    "DURING SCENARIO INITIALIZATION THERE SHALL BE THE
          ABILITY TO MODIFY DEFAULT VALUES OF DATA STRUCTURES
          SET UP DURING MODEL CONSTRUCTION".
          ENTERED-BY: "SGM".
          DOCUMENTED BY:
               SOURCE:  ASE-PP-6-2-1-2.

     ORIGINATING-REQUIREMENT:  ORIG-REQ-ASE-TASK-PRIORITY.
          DATE-ENTERED: 72481.
          DESCRIPTION:
                    "COMMANDERS REQUIREMENTS WILL BE USED TO DESIGNATE AN
          PRIORITY FOR THOSE TASKS KNOWN TO BE FEASIBLE, AND
          THE OVERALL SITUATION (CURRENT MISSION, CORRELATED
          REPORTS, AND CARTOGRAPHY FILE) WILL BE USED TO
          DETERMINE A PRIORITY FOR A DIFFICULT DECISION IN
          PRIORITIZING".
          ENTERED-BY: "SGM".
          DOCUMENTED BY:
               SOURCE:  ASE-PP-6-1-6.

     ORIGINATING-REQUIREMENT:  ORIG-REQ-AUTOMATED-TARGET-REPORTS.
          DATE-ENTERED: 72781.
          DESCRIPTION:
                    "USE VEHICLE GROUND TRUTH DATA TO TYPE
          EACH CLUSTER FOR EACH ID".
          ENTERED-BY: "SGM".
```

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        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-4-1.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-BUILD-AUXILIARY-FILES.
        DATE-ENTERED: 72361.
        DESCRIPTION:
                  "AUXILIARY FILES (USED BUT NOT UPDATED BY ASE
        ELEMENT) WILL BE BUILT AS DATA COMES INTO ASE ELEMENT.
        AUXILIARY FILES ARE MADE UP OF CARTO INFORMATION,
        CURRENT MISSIONS, COMMANDERS REQUIREMENTS, AND SENSOR
        ACTIVITY".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-4.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-ASE-MSG-GENERATOR.
        DATE-ENTERED: 72781.
        DESCRIPTION:
                  "THERE SHALL BE THE ABILITY TO FORMAT MESSAGES
        TO THE ASE BY PLACING MESSAGE TYPE, SOURCE CODE,
        DESTINATION CODE, AND PSUEDO AND REAL-TIME TIMING
        TAGS.  THE MESSAGE WILL THEN BE TRANSMITTED TO THE
        ASE VIA TIMING AND CONTROL".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-4-1.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-CURRENT-PLANS.
        DATE-ENTERED: 72781.
        DESCRIPTION:
                  "THERE SHALL BE THE ABILITY TO SIMULATE
        CURRENT PLANS OPERATIONS REQUIRED IN THE ASET SYSTEM".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-4-3.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-DATA-MANAGER.
        DATE-ENTERED: 72781.
        DESCRIPTION:
                  "THERE SHALL BE THE ABILITY TO ADD, DELETE,
        AND ACESS DATA FROM THE LOCAL C3I DYOB DATA BASE".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-4-1.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-DATA-REQUESTS-FOR-ASE.
        DATE-ENTERED: 72761.
        DESCRIPTION:
                  "THERE SHALL BE THE ABILITY TO GENERATE
        STANDING REQUESTS (VIA CONSOLE OPERATOR) FOR A SUBSET
        OF THE DATA BASE TO BE TRANSMITTED TO THE C3I DYOB AND
        TO BE AUTOMATICALLY UPDATED BY THE ASE ELEMENT OR TO
        FORMULATE REQUESTS FOR SPECIFIC DATA (VIA OPERATOR OR
        AUTOMATICALLY) FROM ASE DATA BASE".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-4-2.
```

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ORIGINATING-REQUIREMENT: ORIG-REQ-C3I-DISPLAY-REQUESTED-DATA,
     DATE-ENTERED: 72781,
     DESCRIPTION:
          "DATA FROM CURRENT OPERATIONS OR CURRENT
     PLANS SHALL BE DISPLAYED BASED ON INTELLIGENCE DATA
     REQUESTS.  THE REQUESTORS ID WILL BE DISPLAYED TO THE
     C3I OPERATOR",
     ENTERED-BY: "SGM",
     DOCUMENTED BY:
          SOURCE:  ASE-PP-6-4-2.

ORIGINATING-REQUIREMENT: ORIG-REQ-C3I-ENVIRON-MSG-GENERATOR,
     DATE-ENTERED: 72781,
     DESCRIPTION:
          "SAME AS C3I-ASE-MSG-GENERATOR,BUT
     MESSAGES ARE TRANSMITTED TO THE ENVIRONMENT SIMULATOR",
     ENTERED-BY: "SGM",
     DOCUMENTED BY:
          SOURCE:  ASE-PP-6-4-1.

ORIGINATING-REQUIREMENT: ORIG-REQ-C3I-EXECUTE-STRIKE,
     DATE-ENTERED: 72781,
     DESCRIPTION:
          "INVOKED BY ELIMINATE THREAT FUNCTION
     OR BY CURRENT PLANS OPERATOR, THE EXECUTE STRIKE FUNCTION
     SHALL PROVIDE A MEANS FOR ELIMINATING EITHER SENSED
     TARGETS OR CARTO FEATURES FROM SCENARIO.  TARGETS SHALL
     BE DEFINED BY TARGET ID OR TARGET POSITION",
     ENTERED-BY: "SGM",
     DOCUMENTED BY:
          SOURCE:  ASE-PP-6-4-4.

ORIGINATING-REQUIREMENT: ORIG-REQ-C3I-MODIFY-MISSIONS,
     DATE-ENTERED: 72781,
     DESCRIPTION:
          "CALLED BY EITHER THE ELIMINATE THREAT
     FUNCTION, MODIFY MISSIONS FUNCTION, OR THE CURRENT PLANS
     OPERATOR, SHALL PROVIDE A MEANS FOR ALTERING CURRENT
     MISSIONS",
     ENTERED-BY: "SGM",
     DOCUMENTED BY:
          SOURCE:  ASE-PP-6-4-4.

ORIGINATING-REQUIREMENT: ORIG-REQ-C3I-REQUEST-ASE-DATA,
     DATE-ENTERED: 72781,
     DESCRIPTION:
          "QUERY CAPABILITY SHALL PROVIDE ACCESS
     TO THE ASE DATA BASE TO HELP EVALUATE INITIALIZATION
     DATA",
     ENTERED-BY: "SGM",
     DOCUMENTED BY:
          SOURCE:  ASE-PP-6-4-3.

ORIGINATING-REQUIREMENT: ORIG-REQ-C3I-REVIEW-INTELL-DATA,
     DATE-ENTERED: 72781,
     DESCRIPTION:
          "THERE SHALL BE THE ABILITY TO REVIEW
     AND EDIT INITIALIZATION DATA AT THE CURRENT PLANS
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     TERMINAL".
     ENTERED-BY: "SGM".
     DOCUMENTED BY:
          SOURCE:  ASE-PP-6-4-3.

ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-ROUTE-AND-FILTER.
     DATE-ENTERED: 72781.
     DESCRIPTION:
               "EACH ASET MESSAGE ID SHALL BE EXAMINED
     AND THE MESSAGE ROUTED TO THE CORECT RECEIVING TASK".
     ENTERED-BY: "SGM".
     DOCUMENTED BY:
          SOURCE:  ASE-PP-6-4-1.

ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-THREAT-ELIMINATION.
     DATE-ENTERED: 72781.
     DESCRIPTION:
               "THE CURRENT OPERATIONS CONSOLE OPERATOR
     SHALL HAVE THE ABILITY TO ALTER MISSIONS, TO AVOID A
     THREAT, OR ELIMINATE A THREAT BY THE EXECUTION OF A STRIKE".
     ENTERED-BY: "SGM".
     DOCUMENTED BY:
          SOURCE:  ASE-PP-6-4-4.

ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-THREAT-EVALUATOR.
     DATE-ENTERED: 72781.
     DESCRIPTION:
               "THE C3I THREAT EVALUATION FUNCTION
     SHALL BE INVOKED BY A POTENTIAL THREAT MESSAGE (FROM
     ASE ELEMENT) WHEN ACTIVITY BEYOND A CERTAIN LEVEL IS
     DETECTED BY TAWDS".
     ENTERED-BY: "SGM".
     DOCUMENTED BY:
          SOURCE:  ASE-PP-6-4-4.

ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-THREAT-EVAL-REACTION.
     DATE-ENTERED: 72781.
     DESCRIPTION:
               "THE CURRENT OPERATIONS CONSOLE OPERATOR
     SHALL USE THE THREAT EVALUATION FUNCTION TO ALTER PLAT-
     FORM ORBIT IF IT IS DETERMINED BY THREAT EVALUATION THAT
     THE OPTIMIZATION OF THE ORBIT NEED TO BE RE-EVALUATED
     CONSIDERING THE NEW LEVELS OF ACTIVITY".
     ENTERED-BY: "SGM".
     DOCUMENTED BY:
          SOURCE:  ASE-PP-6-4-4.

ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-UPDATE-CMDRS-REQUIREMENTS.
     DATE-ENTERED: 72781.
     DESCRIPTION:
               "THERE SHALL BE THE ABILITY FOR
     THE CURRENT OPERATIONS CONSOLE OPERATOR TO CHANGE
     COMMANDER'S REQUIREMENTS".
     ENTERED-BY: "SGM".
     DOCUMENTED BY:
          SOURCE:  ASE-PP-6-4-4.

ORIGINATING-REQUIREMENT:  ORIG-REQ-CANCELLED-TASK.
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        DATE-ENTERED: 72481,
        DESCRIPTION:
                "A MODIFIED TASK MESSAGE WILL BE SENT TO THE
        APPROPRIATE GPS (TASKING QUE AND CUEING FILTER UPDATED
        FOR HIGH PRIORITY TASKS) WHEN A TASK IS CANCELLED BY AN
        ASE FUNCTION",
        ENTERED-BY: "SGM",
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-6.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-CONSTRUCT-CUEING-FILTER,
        DATE-ENTERED: 72381,
        DESCRIPTION:
                "EXTERNAL REQUEST HANDLER SHALL CONSTRUCT THE
        CUEING FILTER BY ACCESSING THE THREAT TARGET ID CROSS-
        REFERENCE TABLE IN RESPONSE TO SENSOR REQUESTS FOR
        OTHER SENSOR REPORTS",
        ENTERED-BY: "SGM",
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-4.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-CONSTRUCT-WORLD-MODEL,
        DATE-ENTERED: 72481,
        DESCRIPTION:
                "AS PART OF THE SCENARIO GENERATION FUNCTION,
        THERE SHALL BE THE ABILITY TO CONSTRUCT A 'WORLD MODEL'
        (AN EXECUTED FORM OF THE BATTLEFIELD ENVIRONMENT AND THE
        UNITS IN IT) BASED ON USER SUPPLIED DESCRIPTIONS OF THE
        UNITS IN THE ENVIRONMENT AND THE REACTIONS OF THOSE UNITS
        TO USER DEFINED CHANGE IN THE ENVIRONMENT (CALLED 'DATA
        STRUCTURES' AND 'EVENT PROCEDURES', RESPECTIVELY)",
        ENTERED-BY: "SGM",
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-2-1.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-CORRELATED-REPORT-ELEMENTS,
        DATE-ENTERED: 121481,
        DESCRIPTION:
             "SENSOR TARGET REPORTS AND SUMMARY INFORMATION
(GROUP ATTRIBUTES, GROUP CENTROID POSITIONS, AND VELOCITY DATA",
        ENTERED-BY: "D  HARTSCHUH",
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-7.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-CORRELATION-CENTER-UPDATE-HANDLER,
        DATE-ENTERED: 72381,
        DESCRIPTION:
                "STORE UPDATES TO CORRELATION CENTER AND SEND
        OUT ANY DATA REQUESTED BY C3I AND ASE ON A STANDING BASIS",
        ENTERED-BY: "SGM",
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-4.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-CORRELATION-UPDATE,
        DATE-ENTERED: 72381,
        DESCRIPTION:
                "CORRELATED FILE IS TO UPDATE GROUP POSITIONS
        AT THE TIME OF THE REPORT",
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        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-3.

    ORIGINATING-REQUIREMENT:
    ORIG-REQ-CUEING-FILTER-AGAINST-SURVEILL-REPORTS.
        DATE-ENTERED: 82981.
        DESCRIPTION:
                  "NON-SURVEILLANCE TARGET REPORTS WILL BE CHECKED AGAIN
        THE CUEING FILTER TO DETERMINE WHICH REPORTS ARE
        TO BE SENT TO ANOTHER SENSOR".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-DIRECTING-SENSORS.
        DATE-ENTERED: 72381.
        DESCRIPTION:
                  "DIRECT SENSORS TO CHECK FREQUENCIES AND AREAS
        FOR MISSING ELEMENTS BASED ON KNOWLEDGE OF RED MILITARY
        DOCTRINE".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-3.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-DISTRIBUTED-REPORTS.
        DATE-ENTERED: 72381.
        DESCRIPTION:
                  "REPORTS ARE TO BE DISTRIBUTED TO THE
        APPROPRIATE SENSOR GPS AND TO CORRELATION".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-2.

    ORIGINATING-REQUIREMENT:
    ORIG-REQ-DYNAMIC-SITUATION-PRIORITY-ASSESSMENT.
        DATE-ENTERED: 72381.
        DESCRIPTION:
                  "IDENTIFY HIGH PRIORITY TARGETS USING INPUTS
        FROM SPECIAL TARGET ANALYSIS, AUTO THREAT ANALYSIS,
        AND COMMANDERS REQUIREMENTS".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-5.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-EMITTER-CHARACTERISTICS-UPDATE.
        DATE-ENTERED: 72381.
        DESCRIPTION:
                  "THE EMITTER CHARACTERISTRICS FILE SHALL BE
        UPDATED USING IDENTIFIED NETWORKS".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-5.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-EMITTER-LOCATION-ACCURACY.
        DATE-ENTERED: 72781.
        DESCRIPTION:
             "TO BE MODELLED AS A FUNCTION OF EMITTER
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FREQUENCY, BANDWIDTH, S/N, HARDWARE ERRORS, NAV. ERRORS,
SENSOR PLATFORM GEOMETRY, PHASE NOISE AND CO-CHANNEL
INTERFERENCE, AND CORRELATION DWELL TIME".
        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA:  A-06-NELS-COARSE-LOCATION-ALPHA
             ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-2-3.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-ENEMY-FORCE-BUILD.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                  "CALCULATIONS OF BUILD UPS IN ENEMY FORCE
        CONCENTRATIONS WILL BE DONE USING SURVEILLANCE AND
        TIME COMPRESSED CORRELATED SENSOR REPORTS, AND ISSUE
        POTENTIAL THREAT REPORTS TO THE C3I".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-5.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-ES-DATA-INPUT.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                  "A DISPLAY TERMINAL WILL PROVIDE THE
        DATA FROM THE SCENARIO GROUND TRUTH, WHICH WILL ALLOW
        THE IS OPERATOR TO SELECT INFORMATION REQUIRED BY THE
        EXPERIMENT DESIGN.  THIS INFORMATION SHALL BE
        AUTOMATICALLY FORMATTED INTO PHOTOINT, HUMANINT, AND
        SIGNINT REPORTS AND FORWARDED TO THE APPROPRIATE ASE
        ELEMENT FOR INCLUSION INTO THE OVOR".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-2-2.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-EXPERIMENT-INITIALIZATION.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                  "THE EXPERIMENT INITIALIZATION FUNCTION
        (TO INCLUDE COMMANDERS REQUIREMENTS, SENSOR ACTIVITY,
        AND CURRENT MISSIONS) SHALL BE PERFORMED WHEN
        INDICATED BY TIMING AND CONTROL".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-2-3.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-EXTERNAL-REQUEST-REFORMATTING.
        DATE-ENTERED: 72381.
        DESCRIPTION:
                  "CORRELATION CENTER RESPONDS TO C3I REQUEST
        DATA BY REFORMATTING INFORMATION INTO A REPORT AND
        FORWARDING THE REPORT TO THE C3I".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-4.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-FEASIBLE-CHECK.
        DATE-ENTERED: 72481.
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        DESCRIPTION:
                "WITH A FEASIBLE TASK A CHECK IS MADE TO
        DETERMINE IF THE SENSOR HAS RESPONDED TO A SIMILAR
        REQUEST.  IF NO SIMILAR REQUEST THEN TASK IS TO BE
        PRIORITIZED".
        ENTERED-BY: "SGM".
        TRACES TO:
             FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-6.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                "THE SENSOR PLATFORM LOCATION(X,Y,Z,)
        AND DYNAMICS (SPEED & ACCELERATION) WILL BE GIVEN AT
        KEY POINTS ALONG THE MISSION FLIGHT PATH".
        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA:  A-02-GENERATE-DME-ALPHA
             DATA:  D-014-ASP-LOC-X-DATA
             DATA:  D-015-ASP-LOC-Y-DATA
             DATA:  D-016-ASP-LOC-Z-DATA
             DATA:  D-020-ASP-STATE-VECTOR-DATA
             DATA:  D-021-ASP-TIME-DATA
             DATA:  D-022-ASP-VEL-X-DATA
             DATA:  D-023-ASP-VEL-Y-DATA
             DATA:  D-024-ASP-VEL-Z-DATA
             SUBNET:  S-4-MODELS-PLATFORM-SUB.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-1-1.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.
        DATE-ENTERED: 72461.
        DESCRIPTION:
                "CARTESIAN-TO-GEOGRAPHICAL CONVERSION
        IS TO BE APPLIED TO THE LME VALUES TO OBTAIN THE
        X,Y,Z, OF THE PLATFORM; WITH ROLL, PITCH, AND YAW
        MODELLED USING VECTOR RESULTANTS OF CENTRIPETAL AND
        GRAVITATIONAL FORCES".
        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA:  A-03-GENERATE-INS-ALPHA
             DATA:  D-010-ASP-ALTITUDE-DATA
             DATA:  D-011-ASP-ATTITUDE-DATA
             DATA:  D-012-ASP-LATITUDE-DATA
             DATA:  D-013-ASP-LOCATION-DATA
             DATA:  D-017-ASP-LONGITUDE-DATA
             DATA:  D-018-ASP-PITCH-DATA
             DATA:  D-019-ASP-ROLL-DATA
             DATA:  D-025-ASP-YAW-DATA
             SUBNET:  S-4-MODELS-PLATFORM-SUB.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-1-1.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INTELL-REPORTS.
        DATE-ENTERED: 72481.
        DESCRIPTION:
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            "INTELLIGENCE REPORTS SHALL BE AUTOMATICALLY
      GENERATED ACCORDING TO A PRE-SELECTED SCHEDULE BASED
      UPON EVENTS OCCURING WITHIN THE SCENARIO".
      ENTERED-BY: "SGM".
      DOCUMENTED BY:
           SOURCE:  ASE-PP-6-2-2.

ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-NOISE.
      DATE-ENTERED: 72481.
      DESCRIPTION:
            "ERRORS IN THE SENSOR PLATFORM DME
      IS ASSUMEND TO BE GAUSSIAN DISTRIBUTED WITH A MEAN
      CONSTANT, AND THE INS MEASUREMENTS ARE ASSUMED TO BE
      ZERO MEAN GAUSSIAN DISTRIBUTED".
      ENTERED-BY: "SGM".
      TRACES TO:
           ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
           SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB.
      DOCUMENTED BY:
           SOURCE:  ASE-PP-6-3-1-1.

ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.
      TRACES TO:
           ALPHA:  A-02-GENERATE-DME-ALPHA
           DATA:  D-006-ASP-ACCELERATION-DATA
           DATA:  D-007-ASP-ACC-X-DATA
           DATA:  D-008-ASP-ACC-Y-DATA
           DATA:  D-009-ASP-ACC-Z-DATA
           DATA:  D-041-FLIGHT-WAYPOINT-X-DATA
           DATA:  D-042-FLIGHT-WAYPOINT-Y-DATA
           DATA:  D-043-FLIGHT-WAYPOINT-Z-DATA
           ENTITY-CLASS:  EC-3-NELS-TASKS-EC
           ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
           FILE:  F-06-FLIGHT-PROFILE-FILE
           FILE:  F-27-PLATFORM-CONTROL-FILE
           SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB.

ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-SUB-IMAGE-STATS.
      DATE-ENTERED: 72781.
      DESCRIPTION:
            "GENERATES SUB-IMAGE PARAMETERS FROM POTENTIAL
      DETECTIONS, AREA(S) OF CHANGE, AND DATA FROM THE
      REFLECTIVITY AND TARGET FILES.  THESE SUB-IMAGE
      PARAMETERS CONTAIN THE INFORMATION NEEDED TO GENERATE
      STATISTICALLY REPRESENTATIVE IMAGE(S) OF THE GROUND
      AREA(S) OF CHANGE".
      ENTERED-BY: "SGM".
      DOCUMENTED BY:
           SOURCE:  ASE-PP-6-5-2.

ORIGINATING-REQUIREMENT:  ORIG-REQ-INFEASIBLE-TASK-NOTIFICATION.
      DATE-ENTERED: 72481.
      DESCRIPTION:
            "IN THE EVENT A TASK IS INFEASIBLE, THE SENSOR
      AVAILABILITY FUNCTION NOTIFIES THE TASKING RESPONSE
      HANDLER".
      ENTERED-BY: "SGM".
      DOCUMENTED BY:
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            SOURCE:  ASE-PP-6-1-6.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-INTERACTIVE-TARGET-REPORTS.
         DATE-ENTERED: 72781.
         DESCRIPTION:
                   "USE SUB-IMAGE PARAMETERS TO GENERATE AN
         IMAGE OF THE AREA; THE ANALYST CLASSIFIES THE CLUSTER
         ACCORDING TO THE TARGET TYPE".
         ENTERED-BY: "SGM".
         DOCUMENTED BY:
              SOURCE:  ASE-PP-6-3-4-3.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-IS-CHANGE-DETECTION-ACTIVITY.
         DATE-ENTERED: 72781.
         DESCRIPTION:
                   "USE SUB-IMAGE PARAMETERS TO DETERMINE IF
         ANY CHANGE DETECTION(CD) REPORTS ARE TO BE ISSUED
         (BACKGROUND-TO-NOISE RATIO AND TARGET-TO-BACKGROUND
         RATIOS ARE USED TO DETERMINE PIXEL CHANGE EVENTS)".
         ENTERED-BY: "SGM".
         DOCUMENTED BY:
              SOURCE:  ASE-PP-6-3-4-3.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-IS-CLUSTERING-ACTIVITY.
         DATE-ENTERED: 72781.
         DESCRIPTION:
                   "CLUSTER CHANGE DETECTION PIXELS AND MTI
         DETECTIONS, CALCULATE CENTER OF EACH CLUSTER, AND ISSUE
         CHANGE DETECTION REPORTS ON EACH CLUSTER.  CHANGE DETECTION
         REPORTS INCLUDES NUMBER OF PIXELS IN A CLUSTER, CLUSTER
         LOCATION CENTER, AND TIME OF EVENT.  USED TO UPDATE IS
         GROUND ORDER OF BATTLE FILE".
         ENTERED-BY: "SGM".
         DOCUMENTED BY:
              SOURCE:  ASE-PP-6-3-4-3.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-IS-RANDOM-NOISE.
         DATE-ENTERED: 72781.
         DESCRIPTION:
                   "GENERATE NOISE PARAMETER FOR
         EACH SCENE".
         ENTERED-BY: "SGM".
         DOCUMENTED BY:
              SOURCE:  ASE-PP-6-3-4-2-3.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-IS-SENSOR-CONTROL.
         DATE-ENTERED: 72781.
         DESCRIPTION:
                   "SENSOR TASKS FROM THE ASE ELEMENT AND THE
         C3I REQUIREMENTS FOR SENSORS ARE TRANSFORMED INTO PLAT-
         FORM CONTROL AND SENSOR CONTROL.  CARTO UPDATES ARE
         STORED IN  THE CARTO FILE AND SCENARIO DATA IS STORED
         IN THE VEHICLE GROUND TRUTH FILE".
         ENTERED-BY: "SGM".
         DOCUMENTED BY:
              SOURCE:  ASE-PP-6-3-4-3.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-IS-THREAT-TARGET.
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        DATE-ENTERED: 72781.
        DESCRIPTION:
                "ANALYZE SUB-IMAGES CENTERED ABOUT CD CLUSTER
        CENTERS TO IDENTIFY TARGETS FOR THREAT TARGET REPORTS;
        THESE REPORTS (# OF TARGETS, CENTROID LOCATION SIZE OF
        GROUP, TARGET CLASSIFICATION, PATTERN OF FORMATION,
        AND TIME OF EVENT) CAN BE GENERATED AUTOMATICALLY OR
        INTERACTIVELY".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-4-3.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-LIMITING-LOCATOR-REPORTS.
        DATE-ENTERED: 72381.
        DESCRIPTION:
                "THE NUMBER OF EMITTER LOCATOR REPORTS CAN BE
        LIMITED BY REQUESTING ONLY THOSE REPORTS WITHIN A
        CERTAIN GEOGRAPHICAL AREA".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-5.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-MODIFIED-MISSION-COMPARISON.
        DATE-ENTERED: 72381.
        DESCRIPTION:
                "COMPARE ALL MISSION MODIFICATIONS AGAINST ALL
        KNOWN ADU'S FOR POSSIBLE MISSION THREAT REPORTS".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-5.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-MOVING-ADU-CHECK.
        DATE-ENTERED: 72381.
        DESCRIPTION:
                "LOCATION CHECK OF ALL KNOWN MOVING ADU'S WILL
        BE DONE AT SET TIME INTERVALS (WHETHER OR NOT THEY ARE
        ISSUING EMITTER REPORTS".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-5.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-MTI-RADAR-BEAM-COVERAGE.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                "INTERPRET RADAR BEAM STEERING COMMANDS
        AND DETERMINE GROUND AREA OF COVERAGE; WHICH CAN BE
        DONE FOR EITHER AN INDIVIDUAL BEAM OR A RADAR SECTOR
        SCAN".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-1-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-MTI-RECEIVER-DETECTION.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                "TARGET WHOSE S/N EXCEEDS THE MINIMUM S/N
        CONSTANT WILL BE CONSIDERED FOR DETECTION; WITH THE
        PROBABILITY OF DETECTION CALCULATED (THE GREATER THE
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        S/N, THE HIGHER THE PROBABILITY THAT THE TARGET IS
        DETECTED".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-1-2
             SOURCE:  ASE-PP-6-3-1-3
             SOURCE:  ASE-PP-6-3-1-4
             SOURCE:  ASE-PP-6-3-1-5
             SOURCE:  ASE-PP-6-3-2-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-MTI-RECEIVER-S.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                  "COMPUTE SIGNAL-TO-NOISE RATIO (WHICH INCLUDE
        VELOCITY INTERFERENCE DUE TO JAMMING, WEATHER EFFECTS,
        PEPETITION FREQUENCY, RECEIVER NOISE BANDWIDTH, BLIND
        SPEEDS, AND SYSTEM LOSS) FOR EACH VEHICLE IN THE
        CANDIDATE LIST".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-1-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-MTI-SHADOWED-TARGET-REMOVAL.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                  "ALL TARGETS WITHIN THE CANDIDATE LIST
        DETERMINED TO BE SHADOWED ARE TO BE REMOVED FROM THE
        CANDIDATE LIST".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-1-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-MTI-TERRAIN-OR-FOLIAGE-SHADOWING.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                  "DETERMINE WHICH TARGETS IN THE MTI CANDIDATE
        LIST ARE SHADOWED (TERRAIN/FOLIAGE) FROM THE SENSOR
        PLATFORM BY THE USE OF A LINE-OF-SIGHT VECTOR FOR EACH
        TARGET".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-1-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-MTI-VELOCITY-SHADOW-REMOVAL.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                  "REMOVE FROM THE CANDIDATE LIST ALL TARGETS
        WHOSE RADIAL VELOCITY COMPONENT IS LESS THAN CAN BE
        DETECTED BY THE MTI RADAR".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-1-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.
        DATE-ENTERED: 72781.
        DESCRIPTION:
             "THE EMISSIONS WHICH MEET AOI DETECTION
CRITERIA ARE PLACED ON A NELS CANDIDATE TARGET LIST;
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THE AOI FILTER REMOVES FROM THAT LIST THOSE EMISSIONS
WHICH ARE LOCATED OUTSIDE OFTHE ASE PRE-BRIEFED AREA
OF INTEREST".
        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
             DATA:  D-061-NELS-EMISSION-DURATION-DATA
             DATA:  D-062-NELS-EMISSION-SIGNAL-STRENGTH-DATA
             DATA:  D-094-NELS-PRE-BRIEFED-AOI-DATA
             DATA:  D-095-NELS-PRE-BRIEFED-AOI-FILTERING-CRITERIA-DATA
             DATA:  D-096-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-DATA
             DATA:  D-097-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-X-DATA
             DATA:  D-098-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-Y-DATA
             DATA:  D-099-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-DATA
             DATA:  D-100-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-X-DATA
             DATA:  D-101-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-Y-DATA
             DATA:  D-147-NELS-EMISSION-DURATION-DATA
             DATA:  D-148-NELS-EMISSION-SIGNAL-STRENGTH-DATA
             DATA:  D-157-NELS-EMISSION-DURATION-DATA
             ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
             ENTITY-CLASS:  EC-3-NELS-TASKS-EC
             ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET
             FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
             FILE:  F-20-NELS-PRE-BRIEFED-AOI-FILE
             SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-2-2.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-COARSE-AND-FINE-LOCATION.
        DATE-ENTERED: 72761.
        DESCRIPTION:
             "BY USE OF TDOA AND DF MEASUREMENTS THE COARSE
LOCATION FUNCTION DETERMINES THE APPROXIMATE LOCATION
OF ACTIVE NARROWBAND EMITTERS, AND THE FINE LOCATION
FUNCTION CLACULATES LOCATION BY USING THE CEP THRESHOLD
OR UNTIL THE TRANSMISSION ENDS".
        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA:  A-06-NELS-COARSE-LOCATION-ALPHA
             ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
             DATA:  D-070-NELS-EMITTER-COV-DATA
             ENTITY-TYPE:  ET-12-DETECTED-EMISSIONS-COARSE-ET
             ENTITY-TYPE:  ET-13-DETECTED-EMISSIONS-FINE-ET
             SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-2-3.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EMITTER-CONTROL.
        DATE-ENTERED: 72761.
        DESCRIPTION:
                  "GENERATE PARAMETERS CONTAINING REFLECTIVITY
        INFORMATION FOR TARGETS WITHIN EACH AREA OF CHANGE.  THE
        PARAMETERS CAN BE CONVERTED TO INTENSITRY VALUES THAT
        DESCRIBE THE TARGET IMAGE.  THE PARAMETERS ARE OBTAINED
        BY CHECKING THE LIST OF POTENTIAL DETECTIONS AGAINST THE
       VEHICLE GROUND TRUTH TO FIND OUT WHAT TYPES OF TARGETS
       ARE INVOLVED.  THESE TARGET TYPES ARE THEN CHECKED AGAINST
       THE TARGET FILE TO DETERMINE THE REFLECTIVITY FOR A GIVEN
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        TARGET TYPE".
         ENTERED-BY: "SGM".
         DOCUMENTED BY:
              SOURCE:  ASE-PP-6-3-4-2-3.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EMITTER-DEFAULT.
         DATE-ENTERED: 72781.
         DESCRIPTION:
              "WHEN NO PRE-BRIEFED SIGNAL OF INTEREST
IS AVAILABLE TO THE NELS FROM THE ASE ELEMENT, THEN ALL
EMITTERS TRANSMITTING ON A FREQUENCY WITHIN THE RECEIVER
PASSBAND ARE FORWARDED TO THE AREA OF INTEREST FILTER".
         ENTERED-BY: "SGM".
         TRACES TO:
              ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
              ENTITY-TYPE:  ET-10-GROUND-SHADOWING-CANDIDATE-TARGETS-ET
              ENTITY-TYPE:  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET
              SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.
         DOCUMENTED BY:
              SOURCE:  ASE-PP-6-3-2-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
         DATE-ENTERED: 72781.
         DESCRIPTION:
              "INTERFACES WITH SCENARIO GENERATION
SUBSYSTEM AND THE ASE ELEMENT AND SENSOR TASKING AND
CUES; CONTROLS SENSOR PLATFORM MANAGEMENT, FREQUENCY
SCAN ALLOCATION, TARGET ACQUISITION EMITTER LOCATION,
ACTIVITY INFORMATION, AND SENSOR STATUS ARE FORWARDED
TO THE ASE ELEMENT VIA AN EXTERNAL INTERFACE".
         ENTERED-BY: "SGM".
         TRACES TO:
              ALPHA:  A-04-INITIALIZE-NELS-ALPHA
              ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA
              ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA
              ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA
              ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA
              ALPHA:  A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA
              ALPHA:
              A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA
              ALPHA:  A-16-NELS-PROCESS-REQUESTED-DATA-ALPHA
              ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
              ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA
              ALPHA:  A-25-UPDATE-CARTO-ALPHA
              DATA:  D-029-CARTO-SECTION-NUM-DATA
              DATA:  D-030-CARTO-UPDATE-1-DATA
              DATA:  D-031-CARTO-UPDATE-2-DATA
              DATA:  D-032-CARTO-UPDATE-3-DATA
              DATA:  D-033-CARTO-UPDATE-X-DATA
              DATA:  D-034-CARTO-UPDATE-Y-DATA
              DATA:  D-046-GROUND-TARGET-FREQUENCY-DATA
              DATA:  D-047-GROUND-TARGET-LENGTH-DATA
              DATA:  D-048-GROUND-TARGET-LOC-X-DATA
              DATA:  D-049-GROUND-TARGET-LOC-Y-DATA
              DATA:  D-050-GROUND-TARGET-VELOCITY-DATA
              DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA
              DATA:  D-067-NELS-EMITTER-BAND-TRUTH-DATA
              DATA:  D-069-NELS-EMITTER-CHARACTERISTICS-DATA
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                DATA:  D+077+A+NELS+EMITTER+MODULATION+TYPE+DATA
                DATA:  D+077+NELS+EMITTER+MODULATION+TYPE+DATA
                DATA:  D+078+A+NELS+EMITTER+POWER+LEVEL+DATA
                DATA:  D+078+NELS+EMITTER+POWER+LEVEL+DATA
                DATA:  D+114+PLATFORM+LOCATION+X+DATA
                DATA:  D+115+PLATFORM+LOCATION+Y+DATA
                DATA:  D+116+PLATFORM+LOCATION+Z+DATA
                DATA:  D+117+PLATFORM+MOD+X+DATA
                DATA:  D+118+PLATFORM+MOD+Y+DATA
                DATA:  D+119+PLATFORM+MOD+Z+DATA
                DATA:  D+136+SENSOR+MODE+OF+OPERATION+DATA
                DATA:  D+142+TRACK+MESSAGE+DATA
                DATA:  D+176+NELS+EMITTER+BANDWIDTH+DATA
                DATA:  D+178+NELS+EMITTER+MODULATION+TYPE+DATA
                DATA:  D+181+NELS+EMITTER+MODULATION+TYPE+DATA
                DATA:  D+182+NELS+EMITTER+BANDWIDTH+DATA
                ENTITY+CLASS:  EC+2+NELS+SCENARIO+EC
                ENTITY+CLASS:  EC+5+NELS+VEHICLE+CHARACTERISTICS+EC
                ENTITY+TYPE:  ET+2+NELS+EMITTER+GROUND+TRUTH+ET
                ENTITY+TYPE:  ET+6+NELS+VEHICLE+CHARACTERISTICS+ET
                EVENT:  E+1+ACTIVATE+SENSOR+EVENT
                FILE:  F+02+CARTO+UPDATE+FILE
                FILE:  F+04+CMDRS+DATA+TO+UPDATE+FILE
                FILE:  F+07+GROUP+TARGET+LOCS+FILE
                FILE:  F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE
                FILE:  F+15+NELS+EMITTER+CHARACTERISTICS+FILE
                FILE:  F+32+SENSOR+ORBIT+MODS+FILE
                FILE:  F+33+SENSOR+PLATFORM+LOCATION+FILE
                FILE:  F+34+SENSOR+STATUS+FILE
                INPUT+INTERFACE:  INTO+NELS+SENSOR
                MESSAGE:  M+01+FS+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN
                MESSAGE:  M+02+NELS+CARTO+UPDATES+MSG+IN
                MESSAGE:  M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN
                MESSAGE:  M+04+NELS+MODIFIED+TASK+MSG+IN
                MESSAGE:  M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT
                MESSAGE:  M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN
                MESSAGE:  M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT
                MESSAGE:  M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN
                MESSAGE:  M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN
                MESSAGE:  M+10+NELS+SENSOR+REQUESTS+MSG+OUT
                MESSAGE:  M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT
                MESSAGE:  M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT
                MESSAGE:  M+13+NELS+TASKING+RESPONSES+MSG+OUT
                MESSAGE:  M+14+NELS+TRACK+MESSAGE+MSG+OUT
                OUTPUT+INTERFACE:  TO+TIMING+AND+CONTROL+FROM+NELS
                R+NET:  R+1+HANDLE+NELS+SENSOR+AND+GPS+PROCESSING+R+NET
                R+NET:  R+2+MODEL+NELS+SENSOR+SYSTEM+R+NET
                SUBNET:  S+1+CHECK+NELS+SENSOR+STATUS+SUB
                SUBNET:  S+2+DO+NELS+OPERATIONAL+CONTROL+SUB.
        DOCUMENTED BY:
                SOURCE:  ASE+PP+6+5+2+3.

    ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+SCAN+OPTIMIZATION.
        DATE+ENTERED: 72781.
        DESCRIPTION:
                "AUTOMATICALLY OPTIMIZES FREQUENCY
SCAN STRATEGY BASED ON THE DETECTION OF HIGH PRIORITY
THREAT EMITTERS".
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        ENTERED-BY: "SGM",
        TRACES TO:
             ALPHA:  A-08-NELS-FREQUENCY-SCAN-OPTIMIZATION-ALPHA
             SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-2-3.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SENSOR-DIRECTOR.
        DATE-ENTERED: 72481.
        DESCRIPTION:
             "THE NELS GPS WILL DIRECT THE NELS AIRBORNE
SENSOR RECEIVERS TO TUNE TO A SPECIFIC FREQUENCY BAND".
        ENTERED-BY: "SGM".
        TRACES TO:
             DATA:  D-091-NELS-FREQUENCY-SCAN-DATA.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-2-2.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.
        DATE-ENTERED: 72481.
        DESCRIPTION:
             "A SET OF FREQUENCY-SCAN RANGE DESCRIPTORS
ARE TO BE STORED IN THE NELS GPS, WITH EACH DESCRIPTOR
DEFINING A BEGINNING AND END OF A FREQUENCY BAND TO BE
SCANNED".
        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
             DATA:  D-090-NELS-FREQUENCY-SCAN-BAND-DATA
             DATA:  D-092-NELS-FREQ-SCAN-LOWER-FREQ-DATA
             DATA:  D-093-NELS-FREQ-SCAN-UPPER-FREQ-DATA
             DATA:  D-102-NELS-PRE-BRIEFED-SOI-DATA
             DATA:  D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA
             DATA:  D-104-NELS-PRE-BRIEFED-SOI-FREQ-DATA
             DATA:  D-105-NELS-PRE-BRIEFED-SOI-MODULATION-TYPE-DATA
             DATA:  D-106-NELS-PRE-BRIEFED-SOI-START-FREQ-DATA
             ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
             ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET
             ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
             FILE:  F-19-NELS-FREQUENCY-SCAN-FILE
             FILE:  F-21-NELS-PRE-BRIEFED-SOI-FILE
             SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-2-2.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.
        DATE-ENTERED: 72781.
        DESCRIPTION:
             "REMOVE FROM NELS AOI CANDIDATE LIST ANY
EMITTER WHOSE S/N DOES NOT EXCEED A PRE-SET THRESHOLD
FOR AT LEAST TWO NELS SENSOR RECEIVERS".
        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
             DATA:  D-001-ALTITUDE-WEATHER-LOC-DATA
             DATA:  D-037-CLOUD-COVER-DATA
             DATA:  D-038-CONDITIONS-AT-ELEVATION-WEATHER-DATA
             DATA:  D-039-ELEVATION-WEATHER-DATA
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            DATA:  D←120←PRECIPITATION←DATA
            DATA:  D←144←X←WEATHER←LOC←DATA
            DATA:  D←146←Y←WEATHER←LOC←DATA
            ENTITY←CLASS:  EC←2←NELS←SCENARIO←EC
            ENTITY←CLASS:  EC←3←NELS←TASKS←EC
            ENTITY←TYPE:  ET←7←NELS←WEATHER←ET
            FILE:  F←26←NELS←WEATHER←CONDITIONS←FILE
            SUBNET:  S←5←MODEL←NELS←SENSOR←SUP.
      DOCUMENTED BY:
            SOURCE:  ASE←PP←6←3←2←2.

   ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←SIGNATURE←ANALYSIS.
      DATE←ENTERED: 72781.
      DESCRIPTION:
            "TRANSFORMS LOCATION AND PARAMETER ESTIMATES
INTO TYPED EMITTER REPORTS, EMITTER PARAMETER ESTIMATES,
AND TYPED EMITTER TARGET REPORTS;  A TRAFFIC TYPE CODE
IS GIVEN TO EACH EMISSION BASED ON ITS SIGNAL CHARS".
      ENTERED←BY: "SGM".
      TRACES TO:
            ALPHA:  A←12←NELS←PERFORM←SIGNATURE←ANALYSIS←ALPHA
            DATA:  D←113←NELS←TYPED←EMITTER←REPORT←DATA
            FILE:  F←25←NELS←TYPED←EMITTER←REPORT←FILE
            SUBNET:  S←3←MODEL←NELS←GPS←PROCESSING←SUP.
      DOCUMENTED BY:
            SOURCE:  ASE←PP←6←3←2←3.

   ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←TARGET←ACQUISITION.
      DATE←ENTERED: 72781.
      DESCRIPTION:
            "ESTIMATE EMITTER SIGNAL CHARACTERISTICS,
TIME DIFFERENCE OF ARRIVAL, AND DIFFERENTIAL DOPPLER
INFORMATION FOR EACH DETECTABLE EMISSION".
      ENTERED←BY: "SGM".
      TRACES TO:
            ALPHA:  A←21←NELS←TARGET←ACQUISITION←ALPHA
            DATA:  D←058←NELS←OD←1←2←DATA
            DATA:  D←059←NELS←OD←1←3←DATA
            DATA:  D←060←NELS←OD←2←3←DATA
            DATA:  D←088←NELS←ESTIMATED←EMITTER←PARAMETERS←DATA
            DATA:  D←089←NELS←ESTIMATED←GROUND←TRUTH←DATA
            DATA:  D←109←NELS←TDOA←1←2←DATA
            DATA:  D←110←NELS←TDOA←1←3←DATA
            DATA:  D←111←NELS←TDOA←2←3←DATA
            DATA:  D←112←NELS←TDOA←OD←DATA
            ENTITY←TYPE:  ET←11←DETECTED←EMISSIONS←OD←TDOA←ET
            FILE:  F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
            FILE:  F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
            FILE:  F←24←NELS←TDOA←OD←FILE
            SUBNET:  S←3←MODEL←NELS←GPS←PROCESSING←SUP.
      DOCUMENTED BY:
            SOURCE:  ASE←PP←6←3←2←3.

   ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←TERRAIN←SHADOWING.
      DATE←ENTERED: 72781.
      DESCRIPTION:
            "ELIMINATE EMITTERS WITHIN NELS AOI CANDIDATE
LIST WHICH CANNOT BE DETECTED BY THE SENSOR DUE TO
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TERRAIN OR FOLIAGE SHADOWING (SHADOWING DETERMINED BY
AT LEAST TWO NELS PLATFORMS);  INPUT TO THE SHADOWING
ALGORITHM IS TO BE NELS PLATFORM LOCATION, EMITTER
TARGET LOCATION, AND HYPSOGRAPHIC DATA BASE".
        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA
             SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.
        DOCUMENTED BY:
             SOURCE:  ASF-PP-6-3-2-2.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE.
        DATE-ENTERED: 72781.
        DESCRIPTION:
             "MAINTAIN A TABLE SEGMENTED AND ORDERED BY
LOCATION, FREQUENCY, AND TIME OF LOCATION;  EACH ENTRY
WILL CONSIST OF THE DATA TYPES:  EMITTER ID, FREQUENCY,
LOCATION, TOC, CPP, BANDWIDTH, MODULATION, AND TRAFFIC
TYPE".
        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA:  A-23-NELS-THREAT-TABLE-UPDATE-ALPHA
             DATA:  D-065-NELS-EMISSION-THREAT-TABLE-DATA
             DATA:  D-068-NELS-EMITTER-CPP-DATA
             DATA:  D-079-NELS-EMITTER-TIME-OF-LOCATION-DATA
             DATA:  D-080-NELS-EMITTER-TRAFFIC-TYPE-DATA
             DATA:  D-177-NELS-EMITTER-CPP-DATA
             DATA:  D-179-NELS-EMITTER-TIME-OF-LOCATION-DATA
             DATA:  D-180-NELS-EMITTER-TRAFFIC-TYPE-DATA
             DATA:  D-183-NELS-EMITTER-CPP-DATA
             ENTITY-CLASS:  EC-6-NELS-THREAT-EC
             ENTITY-TYPE:  ET-1-NELS-EMISSION-THREAT-ET
             FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
             FILE:  F-15-NELS-EMISSION-THREAT-TABLE-FILE
             SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB.
        DOCUMENTED BY:
             SOURCE:  ASF-PP-6-3-2-5.

   ORIGINATING-REQUIREMENT:  ORIG-SEQ-NELS-SENSOR-TASK-INITIATION.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                "INITIATION OF SENSOR TASKS AND RECOMMENDATIONS TO TAW
        SENSOR WILL BE ACCOMPLISHED VIA REVIEW OF SENSOR ACTIVITY,
        ENEMY GROUND ACTIVITY, AND CURRENT MISSIONS".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASF-PP-6-1-5.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-OPERATOR-GENERATED-ORDERS.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                "SIMULATION OPERATOR SHALL BE ABLE TO INSERT
        ORDERS INTO THE SCENARIO SCHEDULE DURING SCENARIO
        EXECUTION".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASF-PP-6-2-1.
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ORIGINATING-REQUIREMENT: ORIG-REQ-PERFORM-EXPERIMENT-INITIALIZATION.
     DATE-ENTERED: 72481.
     DESCRIPTION:
          "ASET SUBSYSTEMS SHALL BE INITIALIZED FOR EACH
     EXPERIMENT BY THE EXPERIMENT INITIALIZATION FUNCTION BY
     FORMATTING AND FORWARDING PRE-EXPERIMENTATION DATA FILES
     TO THE APPROPRIATE ASET SUBSYSTEMS".
     ENTERED-BY: "SGM".
     DOCUMENTED BY:
          SOURCE: ASE-PP-6-2-3.

ORIGINATING-REQUIREMENT: ORIG-REQ-PLANNED-MISSION-COMPARISON.
     DATE-ENTERED: 72381.
     DESCRIPTION:
          "COMPARE ALL PLANNED MISSIONS TO POSITIONS
     OF ALL KNOWN ADU'S FOR POSSIBLE MISSION THREAT REPORT".
     ENTERED-BY: "SGM".
     DOCUMENTED BY:
          SOURCE: ASE-PP-6-1-5.

ORIGINATING-REQUIREMENT: ORIG-REQ-PRIORITY-DECISION-MADE.
     DATE-ENTERED: 72481.
     DESCRIPTION:
          "PRIORITIZING TASK FUNCTION WILL UPDATE TASKING QUEUE
     TASKING REQUEST, NOMINATE SENSOR TASK, AND UPDATE THE
     CUEING FILTER FOR HIGH PRIORITY TARGETS".
     ENTERED-BY: "SGM".
     DOCUMENTED BY:
          SOURCE: ASE-PP-6-1-5.

ORIGINATING-REQUIREMENT: ORIG-REQ-PRODUCE-SCENARIO.
     DATE-ENTERED: 72481.
     DESCRIPTION:
          "SCENARIOS SHALL BE INITIALIZED PRIOR TO
     EXECUTION FOR FILLING IN THE DATA STRUCTURES OF THE
     WORLD MODEL AND CREATING A SET OF INITIAL ORDERS
     SPECIFYING EVENT PROCEDURES TO BE EXECUTED DURING THE
     SCENARIO".
     ENTERED-BY: "SGM".
     TRACES TO:
          DATA: D-072-NELS-EMITTER-DYNAMICS-DATA
          DATA: D-073-A-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
          DATA: D-073-P-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
          DATA: D-073-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
          DATA: D-075-A-NELS-EMITTER-ID-DATA
          DATA: D-075-P-NELS-EMITTER-ID-DATA
          DATA: D-075-NELS-EMITTER-ID-DATA
          DATA: D-076-NELS-EMITTER-LOCATION-DATA
          DATA: D-081-A-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
          DATA: D-081-P-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
          DATA: D-081-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
          DATA: D-082-A-NELS-EMITTER-VEL-X-DATA
          DATA: D-082-NELS-EMITTER-VEL-X-DATA
          DATA: D-083-A-NELS-EMITTER-VEL-Y-DATA
          DATA: D-083-NELS-EMITTER-VEL-Y-DATA
          DATA: D-084-A-NELS-EMITTER-VEL-Z-DATA
          DATA: D-084-NELS-EMITTER-VEL-Z-DATA
          DATA: D-085-A-NELS-EMITTER-X-DATA
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            DATA:  D-085-B-NELS-EMITTER-X-DATA
            DATA:  D-085-NELS-EMITTER-X-DATA
            DATA:  D-086-A-NELS-EMITTER-Y-DATA
            DATA:  D-086-B-NELS-EMITTER-Y-DATA
            DATA:  D-086-NELS-EMITTER-Y-DATA
            DATA:  D-087-A-NELS-EMITTER-Z-DATA
            DATA:  D-087-B-NELS-EMITTER-Z-DATA
            DATA:  D-087-NELS-EMITTER-Z-DATA
            DATA:  D-150-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
            DATA:  D-151-NELS-EMITTER-ID-DATA
            DATA:  D-152-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
            DATA:  D-153-NELS-EMITTER-X-DATA
            DATA:  D-154-NELS-EMITTER-Y-DATA
            DATA:  D-155-NELS-EMITTER-Z-DATA
            DATA:  D-159-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
            DATA:  D-160-NELS-EMITTER-ID-DATA
            DATA:  D-161-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
            DATA:  D-162-NELS-EMITTER-X-DATA
            DATA:  D-163-NELS-EMITTER-Y-DATA
            DATA:  D-164-NELS-EMITTER-Z-DATA
            DATA:  D-166-NELS-EMITTER-ID-DATA
            DATA:  D-167-NELS-EMITTER-X-DATA
            DATA:  D-168-NELS-EMITTER-Y-DATA
            DATA:  D-169-NELS-EMITTER-Z-DATA
            DATA:  D-171-NELS-EMITTER-ID-DATA
            DATA:  D-172-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
            DATA:  D-173-NELS-EMITTER-X-DATA
            DATA:  D-174-NELS-EMITTER-Y-DATA
            DATA:  D-175-NELS-EMITTER-Z-DATA.
      DOCUMENTED BY:
            SOURCE:  ASE-PP-6-2-1.

ORIGINATING-REQUIREMENT:  ORIG-REQ-PURGE-CORRELATION-CENTER.
      DATE-ENTERED: 72381.
      DESCRIPTION:
            "PURGE FALSE REPORTS FROM CORRELATION CENTER
      DATA BASE FILES (FALSE REPORTS BEING REPORTS USED TO
      START GROUPS AND HAVING RECEIVED NO UPDATES WITHIN A
      CERTAIN TIME PERIOD".
      ENTERED-BY: "SGM".
      DOCUMENTED BY:
            SOURCE:  ASE-PP-6-1-3.

ORIGINATING-REQUIREMENT:  ORIG-REQ-REPORTS-WITH-DETECTED-ERRORS.
      DATE-ENTERED: 62981.
      DESCRIPTION:
            "ALL SURVEILLANCE REPORTS WILL BE COMPARED
      TO THE EXISTING DATA IN THE SURVEILLANCE FILE. IF THE ACTIVITY
      LEVEL OF AN AREA EXCEEDS THE THRESHOLD SPECIFIED IN THE
      COMMANDERS REQUIREMENTS, THE REPORT WILL BE FLAGGED AS
      A POTENTIAL THREAT AREA".
      ENTERED-BY: "SGM".
      DOCUMENTED BY:
            SOURCE:  ASE-PP-6-1-2
            SOURCE:  ASE-PP-6-1-5.

ORIGINATING-REQUIREMENT:  ORIG-REQ-REVIEW-COLLATERAL-INTELLIGENCE.
      DATE-ENTERED: 72781.
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        DESCRIPTION:
                "DATA SHALL BE RECEIVED FROM THE INTELLIGENCE
        CENTER IN THE ENVIRONMENT SIMULATOR AND DISPLAYED TO
        THE CONSOLE OPERATOR; TO BE EITHER REJECTED OR FORWARDED
        TO THE ASE ELEMENT".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-4-2.

     ORIGINATING-REQUIREMENT:  ORIG-REQ-ROUTE-MESSAGE.
        DATE-ENTERED: 72381.
        DESCRIPTION:
                "ROUTE MESSAGE TO THE APPROPRIATE FUNCTION OR
        ANALYST".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-2.

     ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-GENERATION.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                "THERE SHALL BE THE ABILITY TO SIMULATE BATTLE
       FIELD CONDITIONS (IN THE FORM OF SCENARIOS) BASED UPON
       INITIAL ORDERS, INITIAL CONDITIONS FOR THE ENVIRONMENT,
       AND SETS OF COMMANDS DEFINING REALISTIC UNIT REACTIONS".
        ENTERED-BY: "SGM".
        TRACES TO:
             DATA:  D-130-A-SCENARIO-GEN-ID-NUM-DATA
             DATA:  D-130-B-SCENARIO-GEN-ID-NUM-DATA
             DATA:  D-130-SCENARIO-GEN-ID-NUM-DATA
             DATA:  D-156-SCENARIO-GEN-ID-NUM-DATA
             DATA:  D-165-SCENARIO-GEN-ID-NUM-DATA
             DATA:  D-170-SCENARIO-GEN-ID-NUM-DATA.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-2-1.

     ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                "ALL INITIAL ORDERS FOR THE SCENARIOS SHALL
        HAVE AN ASSOCIATED TIME FOR EXECUTION TO ALLOW THEM TO
        BE INSERTED INTO A TIME-ORDERED SCHEDULE".
        ENTERED-BY: "SGM".
        TRACES TO:
             DATA:  D-063-A-NELS-EMISSION-START-TIME-DATA
             DATA:  D-063-B-NELS-EMISSION-START-TIME-DATA
             DATA:  D-063-NELS-EMISSION-START-TIME-DATA
             DATA:  D-064-A-NELS-EMISSION-STOP-TIME-DATA
             DATA:  D-064-NELS-EMISSION-STOP-TIME-DATA
             DATA:  D-071-NELS-EMITTER-DATA
             DATA:  D-149-NELS-EMISSION-START-TIME-DATA
             DATA:  D-158-NELS-EMISSION-START-TIME-DATA
             FILE:  F-16-NELS-EMITTER-FILE.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-2-1.

     ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-ACTIVITY-ELEMENTS.
        TRACES TO:
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            DATA:  D+044+FREQUENCY+SCAN+PARAMETER+DATA
            DATA:  D+117+PLATFORM+MOD+X+DATA
            DATA:  D+118+PLATFORM+MOD+Y+DATA
            DATA:  D+119+PLATFORM+MOD+Z+DATA
            FILE:  F+32+SENSOR+ORBIT+MODS+FILE
            MESSAGE:  M+04+MELS+ORBIT+MODIFICATIONS+MSG+IN.

ORIGINATING+REQUIREMENT:  ORIG+REQ+SENSOR+FEASIBILITY.
     DATE+ENTERED: 72481.
     DESCRIPTION:
            "DETERMINE THE FEASIBILITY OF SENSOR RESPONDING
     TO A TASK VIA THE SENSOR ACTIVITY FILE, TERRAIN
     SHADOWING INFORMATION, SENSOR FIELD OF VIEW, AND
     POSSIBLE SENSOR SCANNING FREQUENCIES".
     ENTERED+BY: "SGM".
     TRACES TO:
          DATA:  D+143+X+LOC+FEASIBLE+DATA
          DATA:  D+145+Y+LOC+FEASIBLE+DATA
          FILE:  F+05+FEASIBLE+ACTIVITY+AREA+FILE.
     DOCUMENTED BY:
          SOURCE:  ASE+PP+6+1+6.

ORIGINATING+REQUIREMENT:  ORIG+REQ+SPECIAL+TARGET+ID.
     DATE+ENTERED: 72381.
     DESCRIPTION:
            "SPECIAL TARGETS (COMMANDERS VEHICLE, ADU'S)
     WILL BE IDENTIFIED BY NETWORK ANALYSIS AND SENT TO
     THE DYNAMIC SITUATION ASSESMENT FUNCTION".
     ENTERED+BY: "SGM".
     DOCUMENTED BY:
          SOURCE:  ASE+PP+6+1+5.

ORIGINATING+REQUIREMENT:  ORIG+REQ+SPECIAL+TARGET+IDENTIFICATION.
     DATE+ENTERED: 72381.
     DESCRIPTION:
            "IDENTIFICATION OF COMMUNICATION NETWORKS IS
     TO BE DONE USING WIDE+BAND AND NARROW+BAND EMITTER
     REPORTS".
     ENTERED+BY: "SGM".
     DOCUMENTED BY:
          SOURCE:  ASE+PP+6+1+5.

ORIGINATING+REQUIREMENT:  ORIG+REQ+SPECIAL+TARGET+STANDING+REQUESTS.
     DATE+ENTERED: 72381.
     DESCRIPTION:
            "STANDING REQUESTS WILL BE ISSUED BY THE
     SPECIAL TARGET ANALYZER IN ORDER TO RECEIVE EMITTER
     LOCATOR REPORTS".
     ENTERED+BY: "SGM".
     DOCUMENTED BY:
          SOURCE:  ASE+PP+6+1+5.

ORIGINATING+REQUIREMENT:  ORIG+REQ+SPECIAL+TARGET+TASKING.
     DATE+ENTERED: 72381.
     DESCRIPTION:
            "THE STA WILL BE ABLE TO PREDICT EMITTER
     LOCATIONS IN THE NETWORK OF EMITTER FREQUENCIES, AND
     THEN ISSUE AN AREA OF INTEREST OR SIGNAL OF INTEREST
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        CANDIDATE SENSOR TASK".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-5.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-TARGETS-WITHIN-BEAM-COVERAGE.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                  "EXTRACT TARGETS WITHIN THE VEHICLE GROUND
        TRUTH DATA BASE WHICH FALL WITHIN RADAR COVERAGE AREA,
        AND ENTER THEM IN AN MTI CANDIDATE TARGET LIST".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-1-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-TARGET-ID-CROSS-REFERENCE.
        TRACES TO:
             DATA:  D-135-SENSOR-ID-DATA.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-TARGET-OBSERVATION-CONTINUITY.
        DATE-ENTERED: 72381.
        DESCRIPTION:
                  "ENSURE CONTINUITY OF OBSERVATION OF TARGETS BY
        PREDICTING WHERE A SENSOR MIGHT LOSE TRACK, AND
        ISSUING APPROPRIATE SENSOR TASKS TO AVOID TRACK LOSS".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-5.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-TASKING-RESPONSE-FORWARDING.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                  "TASKING RESPONSE HANDLER WILL RECEIVE ALL
        SENSOR TASKING RESPONSES AND INFEASIBLE TASKS AND
        FORWARD THEM TO THE PARTICULAR FUNCTION WHICH REQUESTED
        THE SENSOR TASK, AND UPDATE THE TASKING QUEUE AS TO THE
        STATUS OF THE REQUEST".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-6.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-TASK-TIME-LIMIT.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                  "A TASK WHICH HAS EXCEEDED THE MAXIMUM TIME
        LIMIT WILL BE PURGED FROM THE TASKING QUEUE".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-1-4.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-CYCLE-START.
        DATE-ENTERED: 72781.
        DESCRIPTION:
                  "THE T & C CYCLE SHALL START NEXT CYCLE
        AFTER RECEIVING MESSAGES FROM ALL PROCESSORS THAT THE
        SIMULATION IS COMPLETE FOR THAT CYCLE.  IF THE T & C
        CLOCK RUNS OUT BEFORE ALL PROCESSING IS COMPLETE, THE
        T & C SHALL HAVE THE OPTION OF SENDING A STOP CYCLE
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          MESSAGE TO THE ASE".
          ENTERED-BY: "SGM".
          TRACES TO:
               ALPHA:  A-24-RESET-NELS-ALPHA
               DATA:  D-141-TIME-DATA
               MESSAGE:  M-15-T-AND-C-STOP-NELS-MSG-IN.
          DOCUMENTED BY:
               SOURCE:  ASE-PP-6-5-2.

     ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-DISPLAY-AND-CONTROL.
          DATE-ENTERED: 72781.
          DESCRIPTION:
                    "THE DISPLAY AND CONTROL FUNCTION SHALL
          PROVIDE FOR OPERATOR INTERACTION WITH THE T & C DURING
          EXPERIMENT RUN TIME".
          ENTERED-BY: "SGM".
          DOCUMENTED BY:
               SOURCE:  ASE-PP-6-5-1.

     ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-MESSAGES-TO-CONTROL-AND-DISPLAY
     .
          DATE-ENTERED: 72781.
          DESCRIPTION:
                    "THE MESSAGE FILTER FUNCTION SHALL SEND A
          COPY OF ALL MESSAGES THAT MEET SPECIFIED CRITERION (AS
          YET UNDEFINED) TO THE CONTROL AND DISPLAY FUNCTION".
          ENTERED-BY: "SGM".
          TRACES TO:
               DATA:  D-140-TBD-DATA.
          DOCUMENTED BY:
               SOURCE:  ASE-PP-6-5-1.

     ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-MESSAGE-CHECK.
          DATE-ENTERED: 72781.
          DESCRIPTION:
                    "THE MESSAGE FILTER FUNCTION SHALL CHECK EACH
           MESSAGE BEFORE IT IS SENT TO THE APPROPRIATE ASET
           SUBSYSTEM IF IT IS A TARGET MESSAGE, THE SCENARIO
           GENERATOR ID NUMBER FOR THE TARGET IS STRIPPED OFF
           BEFORE THE MESSAGE IS RELAYED TO THE ASE ELEMENT".
          ENTERED-BY: "SGM".
          DOCUMENTED BY:
               SOURCE:  ASE-PP-6-5-1.

     ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-MESSAGE-FILTER.
          DATE-ENTERED: 72781.
          DESCRIPTION:
                    "THE MESSAGE FILTER SHALL COLLECT ON-LINE
          STATISTICS, STORE THEM AND PASS THEM TO THE T & C DISPLAY
          AND CONTROL FUNCTION".
          ENTERED-BY: "SGM".
          DOCUMENTED BY:
               SOURCE:  ASE-PP-6-5-1.

     ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-MESSAGE-SEPARATOR.
          DATE-ENTERED: 72781.
          DESCRIPTION:
                    "THE T & C MESSAGE FILTER FUNCTION SHALL SEPARATE
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        SIMULATION CONTROL MESSAGES AND SEND THEM TO TIMING
        AND SYNCHRONIZATION LOGIC.  ALL REMAINING MESSAGES
        SHALL BE RECORDED IN AN ARCHIVE FILE".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-5-1.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-MESSAGE-START.
        DATE-ENTERED: 72781.
        DESCRIPTION:
                  "THE ASE ELEMENT SHALL HAVE THE OPTION OF
        STARTING THE NEXT SIMULATION CYCLE VIA A MESSAGE TO
        T & C".
        ENTERED-BY: "SGM".
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-5-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-OPERATOR.
        DATE-ENTERED: 72781.
        DESCRIPTION:
                  "THE T & C OPERATOR SHALL BE ABLE TO START
        ALL ASET PROCESSORS BY THE EXECUTION OF A SINGLE
        COMMAND".
        ENTERED-BY: "SGM".
        TRACES TO:
             DATA:  D-140-TBD-DATA.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-5-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-SYNC.
        DATE-ENTERED: 72781.
        DESCRIPTION:
                  "THE T & C SYNCHRONIZATION PROCESS
        SHALL ISSUE A MESSAGE TO EACH FUNCTIONAL PROCESSOR
        GIVING IT THE CURRENT PSEUDO-TIME (FROM COMMON SYSTEM
        CLOCK) AND AN INDICATION TO START PROCESSING A SIMULATION
        CYCLE.   IT WILL ALSO START ITS OWN CLOCK COUNTING LENGHT
        OF REAL-TIME FOR A SIMULATION CYCLE".
        ENTERED-BY: "SGM".
        TRACES TO:
             DATA:  D-141-TIME-DATA.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-5-2.

    OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
        DATE-ENTERED: 110681.
        DESCRIPTION: "PASSES MESSAGES BOUND FOR ASE VIA T&C".
        ENTERED-BY: "JJF-NELS".
        CONNECTS TO:
             SUBSYSTEM:  SS-1-REST-OF-ASE.
        PASSES:
             MESSAGE:  M-05-NELS-NCN-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
             MESSAGE:  M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT
             MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT
             MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT
             MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
             MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT
             MESSAGE:  M-14-NELS-TRACK-MESSAGE-MSG-OUT.
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        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        REFERRED BY:
             R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET
             SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
             SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB.

    RSL-STANDARD:  S-ALPHA.
        DATE-ENTERED: 52281.
        ENTERED-BY: "B  DEMONY".
        NAMING-CONVENTION: "SUFFIX : -ALPHA ".

    RSL-STANDARD:  S-DATA.
        DATE-ENTERED: 52281.
        ENTERED-BY: "B  DEMONY".
        NAMING-CONVENTION: "SUFFIX : -DATA ".

    RSL-STANDARD:  S-DECISION.
        DATE-ENTERED: 52281.
        ENTERED-BY: "B  DEMONY".
        NAMING-CONVENTION: "PREFIX : DECISION- ".

    RSL-STANDARD:  S-ENTITY-CLASS.
        DATE-ENTERED: 52281.
        ENTERED-BY: "B  DEMONY".
        NAMING-CONVENTION: "SUFFIX : -EC ".

    RSL-STANDARD:  S-ENTITY-TYPE.
        DATE-ENTERED: 52281.
        ENTERED-BY: "B  DEMONY".
        NAMING-CONVENTION: "SUFFIX : -ET ".

    RSL-STANDARD:  S-EVENT.
        DATE-ENTERED: 52281.
        ENTERED-BY: "B  DEMONY".
        NAMING-CONVENTION: "SUFFIX : -EVENT ".

    RSL-STANDARD:  S-EXTENSION.
        DATE-ENTERED: 52281.
        ENTERED-BY: "B  DEMONY".
        NAMING-CONVENTION: "PREFIX : X- ".

    RSL-STANDARD:  S-INPUT-INTERFACE.
        DATE-ENTERED: 52281.
        ENTERED-BY: "B  DEMONY".
        NAMING-CONVENTION: "PREFIX : INTO- ".

    RSL-STANDARD:  S-INPUT-MESSAGE.
        DATE-ENTERED: 52281.
        ENTERED-BY: "B  DEMONY".
        NAMING-CONVENTION: "SUFFIX : -MSG-IN ".

    RSL-STANDARD:  S-ORIGINATING-REQUIREMENT.
        DATE-ENTERED: 52281.
        ENTERED-BY: "B  DEMONY".
        NAMING-CONVENTION: "PREFIX : ORIG-REQ- ".

    RSL-STANDARD:  S-OUTPUT-INTERFACE.
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        DATE←ENTERED: 52281,
        ENTERED←BY: "B  DEMOOY",
        NAMING←CONVENTION: "PREFIX : TO← ".

    RSL←STANDARD:  S←OUTPUT←MESSAGE,
        DATE←ENTERED: 52281,
        ENTERED←BY: "B  DEMOOY",
        NAMING←CONVENTION: "SUFFIX : ←MSG←OUT ".

    RSL←STANDARD:  S←PERFORMANCE←REQUIREMENT,
        DATE←ENTERED: 52281,
        ENTERED←BY: "B  DEMOOY",
        NAMING←CONVENTION: "PREFIX : PERF←REQ← ".

    RSL←STANDARD:  S←RSL←STANDARD,
        DATE←ENTERED: 52281,
        ENTERED←BY: "B  DEMOOY",
        NAMING←CONVENTION: "PREFIX : S← ".

    RSL←STANDARD:  S←R←NET,
        DATE←ENTERED: 52281,
        ENTERED←BY: "B  DEMOOY",
        NAMING←CONVENTION: "SUFFIX : ←R←NET ".

    RSL←STANDARD:  S←SOURCE,
        DATE←ENTERED: 52281,
        ENTERED←BY: "B  DEMOOY",
        NAMING←CONVENTION: "PREFIX : SOURCE← ".

    RSL←STANDARD:  S←SUBNET,
        DATE←ENTERED: 52281,
        ENTERED←BY: "B  DEMOOY",
        NAMING←CONVENTION: "SUFFIX : ←SUB ".

    RSL←STANDARD:  S←SUBSYSTEM,
        DATE←ENTERED: 52281,
        ENTERED←BY: "B  DEMOOY",
        NAMING←CONVENTION: "PREFIX : SS← ".

    RSL←STANDARD:  S←UNSTRUCTURED←REQUIREMENT,
        DATE←ENTERED: 52281,
        ENTERED←BY: "B  DEMOOY",
        NAMING←CONVENTION: "PREFIX : UNSTRUC←REQ← ".

    RSL←STANDARD:  S←VALIDATION←PATH,
        DATE←ENTERED: 52281,
        ENTERED←BY: "B  DEMOOY",
        NAMING←CONVENTION: "SUFFIX : ←VAL←PATH ".

    RSL←STANDARD:  S←VALIDATION←POINT,
        DATE←ENTERED: 52281,
        ENTERED←BY: "B  DEMOOY",
        NAMING←CONVENTION: "SUFFIX : ←VAL←POINT ".

    RSL←STANDARD:  S←VERSION,
        DATE←ENTERED: 52281,
        ENTERED←BY: "B  DEMOOY",
        NAMING←CONVENTION: "PREFIX : VERSION← ".
```

```
R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET.
     DATE-ENTERED: 12082.
     DESCRIPTION:
          "CONTROLS NELS SENSOR; IF TASKS ARE WAITING TO BE
   DONE, IT INVOKES THE SENSOR TO PERFORM THE NEXT TASK".
     ENTERED-BY: "JJF-NELS".
     REFERS TO:
          SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
          SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB.
     ENABLED BY:
          EVENT:  E-1-ACTIVATE-SENSOR-EVENT.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
     STRUCTURE:
        SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB
        SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
        TERMINATE
     END.


R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.
     DATE-ENTERED: 11082.
     DESCRIPTION: "PROCESSING FLOW WITHIN NELS SENSOR SYSTEM".
     ENTERED-BY: "JJF-NELS".
     REFERS TO:
          ALPHA:  A-04-INITIALIZE-NELS-ALPHA
          ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA
          ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA
          ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA
          ALPHA:  A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA
          ALPHA:
          A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA
          ALPHA:  A-16-NELS-PROCESS-REQUESTED-DATA-ALPHA
          ALPHA:  A-24-RESET-NELS-ALPHA
          ALPHA:  A-25-UPDATE-CARTO-ALPHA
          DATA:  D-004-ASET-MSG-NAME-DATA
          DATA:  D-140-TBD-DATA
          ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
          ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET
          ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
          ENTITY-TYPE:  ET-6-NELS-PRE-BRIEFED-AOI-ET
          INPUT-INTERFACE:  INTO-NELS-SENSOR
          OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS
          SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
     STRUCTURE:
        INPUT-INTERFACE:  INTO-NELS-SENSOR
        CONSIDER  DATA:  D-004-ASET-MSG-NAME-DATA
        IF  (MN-05-NELS-NOM-SURVEILLANCE-TARGET-REPORTS OR
              MN-07-NELS-PLATFORM-LOCATION-REPORTS OR
              MN-10-NELS-SENSOR-REQUESTS OR
              MN-11-NELS-SENSOR-SYSTEM-STATUS OR
              MN-12-NELS-SURVEILLANCE-TARGET-REPORTS OR
              MN-13-NELS-TASKING-RESPONSES OR
              MN-14-NELSTRACK-MESSAGE)
          TERMINATE
```

```
        OR (MN=01=ES=NELS=UNIT=AND=ENVIRONMENT=DATA)
           ALPHA:  A=04=INITIALIZE=NELS=ALPHA
           ALPHA:  A=09=NELS=MAKE=SENSOR=REQUESTS=ALPHA
           OUTPUT=INTERFACE:  TO=TIMING=AND=CONTROL=FROM=NELS
        OR (MN=15=T=AND=C=STOP=NELS)
           ALPHA:  A=24=RESET=NELS=ALPHA
           TERMINATE
        OR (MN=02=NELS=CARTO=UPDATES OR
            MN=03=NELS=COMMANDERS=REQUIREMENTS OR
            MN=04=NELS=MODIFIED=TASK OR
            MN=06=NELS=ORBIT=MODIFICATIONS OR
            MN=08=NELS=PRIORITIZED=SENSOR=DIRECTIONS OR
            MN=09=NELS=REQUESTED=SENSOR=DATA)
           DO
              SUBNET:  S=1=CHECK=NELS=SENSOR=STATUS=SUB
              TERMINATE
           AND
              CONSIDER  DATA:  D=004=ASET=MSG=NAME=DATA
              IF (MN=01=ES=NELS=UNIT=AND=ENVIRONMENT=DATA OR
                        MN=05=NELS=NON=SURVEILLANCE=TARGET=REPORTS OR
                        MN=07=NELS=PLATFORM=LOCATION=REPORTS OR
                        MN=10=NELS=SENSOR=REQUESTS OR
                        MN=11=NELS=SENSOR=SYSTEM=STATUS OR
                        MN=12=NELS=SURVEILLANCE=TARGET=REPORTS OR
                        MN=13=NELS=TASKING=RESPONSES OR
                        MN=14=NELS=TRACK=MESSAGE OR
                        MN=15=T=AND=C=STOP=NELS)
                 TERMINATE
              OR (MN=02=NELS=CARTO=UPDATES)
                 ALPHA:  A=25=UPDATE=CARTO=ALPHA
                 TERMINATE
              OR (MN=03=NELS=COMMANDERS=REQUIREMENTS)
                 SELECT ENTITY=TYPE:  ET=5=NELS=PRE=BRIEFED=SOI=ET
                 SUCH THAT (D=140=TRD=DATA = TRUE)
                 SELECT ENTITY=TYPE:  ET=8=NELS=PRE=BRIEFED=ADI=ET
                 SUCH THAT (D=140=TRD=DATA = TRUE)
                 ALPHA:
                 A=14=NELS=PROCESS=COMMANDERS=REQUIREMENTS=ALPHA
                 TERMINATE
              OR (MN=08=NELS=PRIORITIZED=SENSOR=DIRECTIONS)
                 SELECT ENTITY=TYPE:  ET=4=NELS=FREQUENCY=SCAN=ET
                 SUCH THAT (D=140=TRD=DATA = TRUE)
                 ALPHA:
                A=15=NELS=PROCESS=PRIORITIZED=SENSOR=DIRECTIONS=ALPHA
                 TERMINATE
              OR (MN=04=NELS=MODIFIED=TASK)
                 SELECT ENTITY=TYPE:  ET=3=NELS=FLIGHT=ET SUCH THAT
                 (D=140=TRD=DATA = TRUE)
                 ALPHA:  A=11=NELS=MODIFY=TASK=ALPHA
                 OUTPUT=INTERFACE:  TO=TIMING=AND=CONTROL=FROM=NELS
              OR (MN=06=NELS=ORBIT=MODIFICATIONS)
                 SELECT ENTITY=TYPE:  ET=3=NELS=FLIGHT=ET SUCH THAT
                 (D=140=TRD=DATA = TRUE)
                 ALPHA:  A=10=NELS=MODIFY=ORBIT=ALPHA
                 TERMINATE
              OR (MN=09=NELS=REQUESTED=SENSOR=DATA)
                 SELECT ENTITY=TYPE:  ET=3=NELS=FLIGHT=ET SUCH THAT
                 (D=140=TRD=DATA = TRUE)
```

```
                    ALPHA:  A←16←NELS←PROCESS←REQUESTED←DATA←ALPHA
                    TERMINATE
                END
            END
        END
    END.


SOURCE:  ASE←PP←6←1←2.
    DATE←ENTERED: 62981.
    DESCRIPTION: "ROUTE AND FILTER INCOMING DATA".
    ENTERED←BY: "SGM".
    DOCUMENTS:
        ORIGINATING←REQUIREMENT:
        ORIG←REQ←CUEING←FILTER←AGAINST←SURVEILL←REPORTS
        ORIGINATING←REQUIREMENT:  ORIG←REQ←DISTRIBUTED←REPORTS
        ORIGINATING←REQUIREMENT:
        ORIG←REQ←REPORTS←WITH←DETECTED←ERRORS
        ORIGINATING←REQUIREMENT:  ORIG←REQ←ROUTE←MESSAGE.

SOURCE:  ASE←PP←6←1←3.
    DATE←ENTERED: 62981.
    DESCRIPTION: "BUILD ASE ELEMENT DATA BASE".
    ENTERED←BY: "SGM".
    DOCUMENTS:
        ORIGINATING←REQUIREMENT:  ORIG←REQ←CORRELATION←UPDATE
        ORIGINATING←REQUIREMENT:  ORIG←REQ←DIRECTING←SENSORS
        ORIGINATING←REQUIREMENT:
        ORIG←REQ←REPORTS←WITH←DETECTED←ERRORS.

SOURCE:  ASE←PP←6←1←4.
    DATE←ENTERED: 62981.
    DESCRIPTION: "MANAGE ASE ELEMENT DATA BASE".
    ENTERED←BY: "SGM".
    DOCUMENTS:
        ORIGINATING←REQUIREMENT:  ORIG←REQ←BUILD←AUXILIARY←FILES
        ORIGINATING←REQUIREMENT:  ORIG←REQ←CONSTRUCT←CUEING←FILTER
        ORIGINATING←REQUIREMENT:
        ORIG←REQ←CORRELATION←CENTER←UPDATE←HANDLER
        ORIGINATING←REQUIREMENT:
        ORIG←REQ←EXTERNAL←REQUEST←REFORMATTING
        ORIGINATING←REQUIREMENT:  ORIG←REQ←PURGE←CORRELATION←CENTER
        .

SOURCE:  ASE←PP←6←1←5.
    DATE←ENTERED: 62981.
    DESCRIPTION: "EXPLOIT ASE ELEMENT DATA BASE".
    ENTERED←BY: "SGM".
    DOCUMENTS:
        ORIGINATING←REQUIREMENT:
        ORIG←REQ←DYNAMIC←SITUATION←PRIORITY←ASSESSMENT
        ORIGINATING←REQUIREMENT:
        ORIG←REQ←EMITTER←CHARACTERISTICS←UPDATE
        ORIGINATING←REQUIREMENT:  ORIG←REQ←ENEMY←FORCE←BUILD
        ORIGINATING←REQUIREMENT:  ORIG←REQ←LIMITING←LOCATOR←REPORTS
        ORIGINATING←REQUIREMENT:
        ORIG←REQ←MODIFIED←MISSION←COMPARISON
        ORIGINATING←REQUIREMENT:  ORIG←REQ←MOVING←ADU←CHECK
```

```
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-NEW-SENSOR-TASK-INITIATION
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-PLANNED-MISSION-COMPARISON
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SPECIAL-TARGET-ID
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-SPECIAL-TARGET-IDENTIFICATION
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-SPECIAL-TARGET-STANDING-REQUESTS
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SPECIAL-TARGET-TASKING
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-TARGET-OBSERVATION-CONTINUITY.

    SOURCE:  ASE-PP-6-1-6.
         DATE-ENTERED: 62981.
         DESCRIPTION: "MANAGE SENSORS".
         ENTERED-BY: "SGM".
         DOCUMENTS:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-ASE-TASK-PRIORITY
            ORIGINATING-REQUIREMENT:  ORIG-REQ-CANCELLED-TASK
            ORIGINATING-REQUIREMENT:  ORIG-REQ-FEASIBLE-CHECK
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-INFEASIBLE-TASK-NOTIFICATION
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRIORITY-DECISION-MADE
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-FEASIBILITY
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-TASKING-RESPONSE-FORWARDING
            ORIGINATING-REQUIREMENT:  ORIG-REQ-TASK-TIME-LIMIT.

    SOURCE:  ASE-PP-6-1-7.
         DOCUMENTS:
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-CORRELATED-REPORT-ELEMENTS.

    SOURCE:  ASE-PP-6-2-1.
         DATE-ENTERED: 72181.
         DESCRIPTION: "SCENARIO GENERATOR".
         ENTERED-BY: "SGM".
         DOCUMENTS:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-CONSTRUCT-WORLD-MODEL
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-OPERATOR-GENERATED-ORDERS
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-GENERATION
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

    SOURCE:  ASE-PP-6-2-1-2.
         DOCUMENTS:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-ALTER-SCENARIO-DEFAULTS.

    SOURCE:  ASE-PP-6-2-2.
         DATE-ENTERED: 72181.
         DESCRIPTION: "INTELLIGENCE SIMULATOR".
         ENTERED-BY: "SGM".
         DOCUMENTS:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-ES-DATA-INPUT
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INTELL-REPORTS.
```

```
SOURCE:  ASE←PP←6←2←3,
     DATE←ENTERED: 72181,
     DESCRIPTION: "EXPERIMENT INITIALIZATION",
     ENTERED←BY: "SGM",
     DOCUMENTS:
          ORIGINATING←REQUIREMENT:
          ORIG←REQ←EXPERIMENT←INITIALIZATION
          ORIGINATING←REQUIREMENT:
          ORIG←REQ←PERFORM←EXPERIMENT←INITIALIZATION,

SOURCE:  ASE←PP←6←3←1,
     DATE←ENTERED: 72181,
     DESCRIPTION:
               "SIMULATE MOVING TARGET INDICATOR (MTI)
     SENSOR SYSTEM",
     ENTERED←BY: "SGM",

SOURCE:  ASE←PP←6←3←1←1,
     DATE←ENTERED: 72181,
     DESCRIPTION: "MODEL MTI PLATFORM(S)",
     ENTERED←BY: "SGM",
     DOCUMENTS:
          ORIGINATING←REQUIREMENT:  ORIG←REQ←GENERATE←DME
          ORIGINATING←REQUIREMENT:  ORIG←REQ←GENERATE←INS
          ORIGINATING←REQUIREMENT:  ORIG←REQ←GENERATE←NOISE,

SOURCE:  ASE←PP←6←3←1←2,
     DATE←ENTERED: 72181,
     DESCRIPTION: "MODEL MTI SENSORS",
     ENTERED←BY: "SGM",
     DOCUMENTS:
          ORIGINATING←REQUIREMENT:  ORIG←REQ←MTI←RADAR←BEAM←COVERAGE
          ORIGINATING←REQUIREMENT:  ORIG←REQ←MTI←RECEIVER←DETECTION
          ORIGINATING←REQUIREMENT:  ORIG←REQ←MTI←RECEIVER←S
          ORIGINATING←REQUIREMENT:
          ORIG←REQ←MTI←SHADOWED←TARGET←REMOVAL
          ORIGINATING←REQUIREMENT:
          ORIG←REQ←MTI←TERRAIN←OR←FOLIAGE←SHADOWING
          ORIGINATING←REQUIREMENT:
          ORIG←REQ←MTI←VELOCITY←SHADOW←REMOVAL
          ORIGINATING←REQUIREMENT:
          ORIG←REQ←TARGETS←WITHIN←BEAM←COVERAGE,

SOURCE:  ASE←PP←6←3←1←3,
     DATE←ENTERED: 72181,
     DESCRIPTION: "MODEL MTI GPS",
     ENTERED←BY: "SGM",
     DOCUMENTS:
          ORIGINATING←REQUIREMENT:  ORIG←REQ←MTI←RECEIVER←DETECTION,

SOURCE:  ASE←PP←6←3←1←4,
     DATE←ENTERED: 72181,
     DESCRIPTION: "MTI FUNCTIONAL PROCESSING",
     ENTERED←BY: "SGM",
     DOCUMENTS:
          ORIGINATING←REQUIREMENT:  ORIG←REQ←MTI←RECEIVER←DETECTION,

SOURCE:  ASE←PP←6←3←1←5,
```

```
          DATE-ENTERED: 72981,
          DESCRIPTION: "MTI DISPLAY PROCESSING",
          ENTERED-BY: "SGM",
          DOCUMENTS:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-MTI-RECEIVER-DETECTION.

     SOURCE:  ASE-PP-6-3-2-1,
          DATE-ENTERED: 72181,
          DESCRIPTION: "MODEL NELS PLATFORM(S)",
          ENTERED-BY: "SGM",

     SOURCE:  ASE-PP-6-3-2-2,
          DATE-ENTERED: 72181,
          DESCRIPTION: "MODEL NELS SENSOR",
          ENTERED-BY: "SGM",
          DOCUMENTS:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-MTI-RECEIVER-DETECTION
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EMITTER-DEFAULT
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SENSOR-DIRECTOR
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TERRAIN-SHADOWING,

     SOURCE:  ASE-PP-6-3-2-3,
          DATE-ENTERED: 72181,
          DESCRIPTION: "MODEL NELS GPS",
          ENTERED-BY: "SGM",
          DOCUMENTS:
               ORIGINATING-REQUIREMENT:
               ORIG-REQ-EMITTER-LOCATION-ACCURACY
               ORIGINATING-REQUIREMENT:
               ORIG-REQ-NELS-COARSE-AND-FINE-LOCATION
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SCAN-OPTIMIZATION
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNATURE-ANALYSIS
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
               .

     SOURCE:  ASE-PP-6-3-3-1,
          DATE-ENTERED: 72181,
          DESCRIPTION: "MODEL NELS PLATFORM(S)",
          ENTERED-BY: "SGM",

     SOURCE:  ASE-PP-6-3-3-2,
          DATE-ENTERED: 72181,
          DESCRIPTION: "MODEL NELS SENSOR",
          ENTERED-BY: "SGM",

     SOURCE:  ASE-PP-6-3-3-3,
          DATE-ENTERED: 72181,
          DESCRIPTION: "MODEL NELS GPS",
          ENTERED-BY: "SGM",

     SOURCE:  ASE-PP-6-3-4-1,
          DATE-ENTERED: 72181,
          DESCRIPTION: "MODEL IMAGING SENSOR PLATFORM ACTIVITY",
```

```
        ENTERED-BY: "SGM".

    SOURCE:  ASE-PP-6-3-4-2.
        DATE-ENTERED: 72181.
        DESCRIPTION: "MODEL IMAGING SENSOR".
        ENTERED-BY: "SGM".

    SOURCE:  ASE-PP-6-3-4-2-1.
        DATE-ENTERED: 72181.
        DESCRIPTION: "DETERMINE BEAM COVERAGE".
        ENTERED-BY: "SGM".

    SOURCE:  ASE-PP-6-3-4-2-2.
        DATE-ENTERED: 72181.
        DESCRIPTION: "DETERMINE POSSIBLE DETECTIONS".
        ENTERED-BY: "SGM".

    SOURCE:  ASE-PP-6-3-4-2-3.
        DATE-ENTERED: 72181.
        DESCRIPTION: "GENERATE SUB-IMAGE STATISTICS".
        ENTERED-BY: "SGM".
        DOCUMENTS:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-IS-RANDOM-NOISE
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EMITTER-CONTROL.

    SOURCE:  ASE-PP-6-3-4-3.
        DATE-ENTERED: 72181.
        DESCRIPTION: "MODEL IMAGING GPS".
        ENTERED-BY: "SGM".
        DOCUMENTS:
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-INTERACTIVE-TARGET-REPORTS
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-IS-CHANGE-DETECTION-ACTIVITY
            ORIGINATING-REQUIREMENT:  ORIG-REQ-IS-CLUSTERING-ACTIVITY
            ORIGINATING-REQUIREMENT:  ORIG-REQ-IS-SENSOR-CONTROL
            ORIGINATING-REQUIREMENT:  ORIG-REQ-IS-THREAT-TARGET.

    SOURCE:  ASE-PP-6-4-1.
        DATE-ENTERED: 72181.
        DESCRIPTION: "C3I SIMULATOR".
        ENTERED-BY: "SGM".
        DOCUMENTS:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-AUTOMATED-TARGET-REPORTS
            ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-ASE-MSG-GENERATOR
            ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-DATA-MANAGER
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-C3I-ENVIRON-MSG-GENERATOR
            ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-ROUTE-AND-FILTER.

    SOURCE:  ASE-PP-6-4-2.
        DATE-ENTERED: 72181.
        DESCRIPTION: "INTELLIGENCE CENTER".
        ENTERED-BY: "SGM".
        DOCUMENTS:
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-C3I-DATA-REQUESTS-FOR-ASE
            ORIGINATING-REQUIREMENT:
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            ORIG-REQ-C3I-DISPLAY-REQUESTED-DATA
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-REVIEW-COLLATERAL-INTELLIGENCE.

    SOURCE:  ASE-PP-6-4-3.
         DATE-ENTERED: 72181.
         DESCRIPTION: "CURRENT PLANS".
         ENTERED-BY: "SGM".
         DOCUMENTS:
              ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-CURRENT-PLANS
              ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-REQUEST-ASE-DATA
              ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-REVIEW-INTELL-DATA.

    SOURCE:  ASE-PP-6-4-4.
         DATE-ENTERED: 72181.
         DESCRIPTION: "CURRENT OPERATIONS".
         ENTERED-BY: "SGM".
         DOCUMENTS:
              ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-EXECUTE-STRIKE
              ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-MODIFY-MISSIONS
              ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-THREAT-ELIMINATION
              ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-THREAT-EVALUATOR
              ORIGINATING-REQUIREMENT:  ORIG-REQ-C3I-THREAT-EVAL-REACTION
              ORIGINATING-REQUIREMENT:
              ORIG-REQ-C3I-UPDATE-CMDRS-REQUIREMENTS.

    SOURCE:  ASE-PP-6-5-1.
         DATE-ENTERED: 72181.
         DESCRIPTION:
                 "TIMING, CONTROL, AND PERFORMANCE DATA
         COLLECTION".
         ENTERED-BY: "SGM".
         DOCUMENTS:
              ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-DISPLAY-AND-CONTROL
              ORIGINATING-REQUIREMENT:
              ORIG-REQ-TC-MESSAGES-TO-CONTROL-AND-DISPLAY
              ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-MESSAGE-CHECK
              ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-MESSAGE-FILTER
              ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-MESSAGE-SEPARATOR.

    SOURCE:  ASE-PP-6-5-2.
         DATE-ENTERED: 72881.
         DOCUMENTS:
              ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-SUB-IMAGE-STATS
              ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-CYCLE-START
              ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-MESSAGE-START
              ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-OPERATOR
              ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-SYNC.

    SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB.
         DATE-ENTERED: 12082.
         DESCRIPTION:
                 "ACTIVATES OPERATION OF NELS SENSOR AND HANDLES
       DETERMINATION OF SENSOR STATUS".
         ENTERED-BY: "JJF-NELS".
         REFERS TO:
              ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
              DATA:  D-136-SENSOR-MODE-OF-OPERATION-DATA
```

```
            DATA:  D-140-TBD-DATA
            ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
            ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
            ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET
            EVENT:  E-1-ACTIVATE-SENSOR-EVENT
            OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
         TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
         REFERRED BY:
            R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET
            R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.
         STRUCTURE:
            SELECT ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET SUCH THAT
            (D-140-TBD-DATA = TRUE)
            SELECT ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET SUCH THAT
            (D-140-TBD-DATA = TRUE)
            SELECT ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET SUCH THAT
            (D-140-TBD-DATA = TRUE)
            ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
            DO
               OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS
            AND
               CONSIDER  DATA:  D-136-SENSOR-MODE-OF-OPERATION-DATA
               IF (IDLE)
               OR (SOI-SURVEILLANCE OR SOI-SEARCH OR AOI-SURVEILLANCE
                                                   OR AOI-SEARCH)
                  EVENT:  E-1-ACTIVATE-SENSOR-EVENT
               END
               TERMINATE
            AND
               RETURN
            END
         END.


      SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB.
         DATE-ENTERED: 11382.
         DESCRIPTION: "CONTROL OF GPS, SENSOR AND PLATFORM PROCESSING".
         ENTERED-BY: "JJF-NELS".
         REFERS TO:
            ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA
            ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA
            OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS
            SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB
            SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
            SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.
         TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
         REFERRED BY:
            R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET.
         STRUCTURE:
            SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
            DO
               RETURN
            AND
               ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA
               OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS
            AND
```

```
            SUBNET:  S<5<MODEL<NELS<SENSOR<SUB
            SUBNET:  S<3<MODEL<NELS<GPS<PROCESSING<SUB
            ALPHA:  A<20<NELS<SURVEILLANCE<AND<TRACK<MSGS<ALPHA
            OUTPUT<INTERFACE:  TC<TIMING<AND<CONTROL<FROM<NELS
         END
      END.


SUBNET:  S<3<MODEL<NELS<GPS<PROCESSING<SUB.
      DATE<ENTERED: 11862.
      DESCRIPTION: "NELS GROUND PROCESSING STATION (GPS) PROCESSING".
      ENTERED<BY: "JJF<NELS".
      REFERS TO:
            ALPHA:  A<06<NELS<COARSE<LOCATION<ALPHA
            ALPHA:  A<07<NELS<FINE<LOCATION<ALPHA
            ALPHA:  A<08<NELS<FREQUENCY<SCAN<OPTIMIZATION<ALPHA
            ALPHA:  A<12<NELS<PERFORM<SIGNATURE<ANALYSIS<ALPHA
            ALPHA:  A<21<NELS<TARGET<ACQUISITION<ALPHA
            ALPHA:  A<23<NELS<THREAT<TABLE<UPDATE<ALPHA
            DATA:  D<140<TRD<DATA
            ENTITY<TYPE:  ET<1<NELS<EMISSION<THREAT<ET.
      TRACED FROM:
            ORIGINATING<REQUIREMENT:
            ORIG<REQ<NELS<COARSE<AND<FINE<LOCATION
            ORIGINATING<REQUIREMENT:  ORIG<REQ<NELS<SCAN<OPTIMIZATION
            ORIGINATING<REQUIREMENT:  ORIG<REQ<NELS<SIGNATURE<ANALYSIS
            ORIGINATING<REQUIREMENT:  ORIG<REQ<NELS<TARGET<ACQUISITION
            ORIGINATING<REQUIREMENT:  ORIG<REQ<NELS<THREAT<TABLE<UPDATE
            .
      REFERRED BY:
            SUBNET:  S<2<CU<NELS<OPERATIONAL<CONTROL<SUB.
      STRUCTURE:
         ALPHA:  A<21<NELS<TARGET<ACQUISITION<ALPHA
         ALPHA:  A<06<NELS<COARSE<LOCATION<ALPHA
         ALPHA:  A<07<NELS<FINE<LOCATION<ALPHA
         ALPHA:  A<12<NELS<PERFORM<SIGNATURE<ANALYSIS<ALPHA
         DO
            SELECT ENTITY<TYPE:  ET<1<NELS<EMISSION<THREAT<ET
            SUCH THAT (D<140<TRD<DATA = TRUE)
            ALPHA:  A<23<NELS<THREAT<TABLE<UPDATE<ALPHA
         AND
            ALPHA:  A<08<NELS<FREQUENCY<SCAN<OPTIMIZATION<ALPHA
         END
         RETURN
      END.


SUBNET:  S<4<MODEL<NELS<PLATFORM<SUB.
      DATE<ENTERED: 11982.
      DESCRIPTION: "NELS PLATFORM OPERATIONS".
      ENTERED<BY: "JJF<NELS".
      REFERS TO:
            ALPHA:  A<01<DME<INSIGHT<GENERATION<ALPHA
            ALPHA:  A<02<GENERATE<DME<ALPHA
            ALPHA:  A<03<GENERATE<INS<ALPHA
            DATA:  D<140<TRD<DATA
            ENTITY<TYPE:  ET<3<NELS<FLIGHT<ET.
      TRACED FROM:
```

```
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-NOISE
            ORIGINATING-REQUIREMENT;
            ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.
         REFERRED BY:
            SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB.
         STRUCTURE:
            SELECT ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET SUCH THAT
            (D-140-TBD-DATA = TRUE)
            ALPHA:  A-02-GENERATE-DME-ALPHA
            ALPHA:  A-03-GENERATE-INS-ALPHA
            ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
            RETURN
         END.


      SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.
         DATE-ENTERED: 11882.
         DESCRIPTION: "NELS SENSOR ACTIVITIES".
         ENTERED-BY: "JJF-NELS".
         REFERS TO:
            ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
            ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA
            DATA:  D-140-TBD-DATA
            ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET
            ENTITY-TYPE:  ET-5-NELS-PRE-PRIFED-SOI-ET
            ENTITY-TYPE:  ET-6-NELS-VEHICLE-CHARACTERISTICS-ET
            ENTITY-TYPE:  ET-7-NELS-WEATHER-ET
            ENTITY-TYPE:  ET-8-NELS-PRE-PRIFED-AOI-ET
            ENTITY-TYPE:  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET.
         TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EMITTER-DEFAULT
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TERRAIN-SHADOWING.
         REFERRED BY:
            SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB.
         STRUCTURE:
            SELECT ENTITY-TYPE:  ET-6-NELS-VEHICLE-CHARACTERISTICS-ET
            SUCH THAT (D-140-TBD-DATA = TRUE)
            SELECT ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET
            SUCH THAT (D-140-TBD-DATA = TRUE)
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            SELECT ENTITY-TYPE:  ET-5-NELS-PRE-PRIFED-SOI-ET SUCH THAT
            (D-140-TBD-DATA = TRUE)
            ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
            SELECT ENTITY-TYPE:  ET-8-NELS-PRE-PRIFED-AOI-ET SUCH THAT
            (D-140-TBD-DATA = TRUE)
            SELECT ENTITY-TYPE:  ET-7-NELS-WEATHER-ET SUCH THAT
            (D-140-TBD-DATA = TRUE)
            ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
            SELECT ENTITY-TYPE:  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET
            SUCH THAT (D-140-TBD-DATA = TRUE)
            ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA
```

```
          RETURN
        END.


    SUBSYSTEM:  SS-1-REST-OF-ASE.
        DESCRIPTION: "DUMMY MODEL OF ASET SYSTEM".
        CONNECTED TO:
            INPUT-INTERFACE:  INTO-NELS-SENSOR
            OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.

 [RADX COMMAND=
  END RADX
 --------------
)XX 002  FUNCTION RADX      COMPLETED.  ************************************
        STOP.
)XX 007  REVS COMPLETED: NORMAL TERMINATION.
)XX 007  YOUR NEW DATA BASE IS ON TAPE2.DAT.....

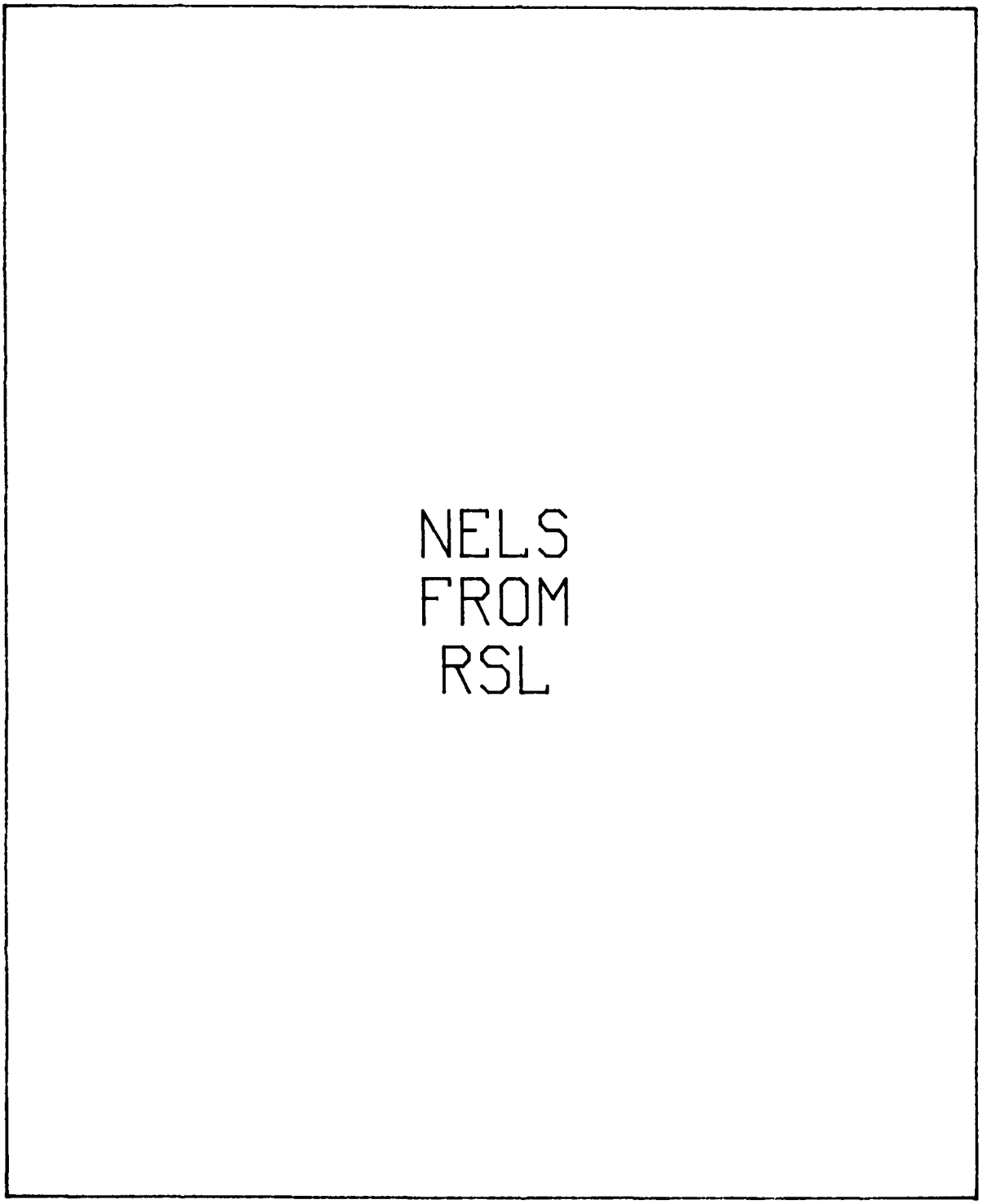
$DELETE-W-FILNOTDEL, error deleting DISK$USER1:[REVS.RSLNAME.*;*
-RMS-E-FNF, file not found
  REVS          Job terminated at 24-MAR-1983 18:14:29.41

  Accounting information:
  Buffered I/O count:           198       Peak working set size:    512
  Direct I/O count:            1671       Peak page file size:     4595
  Page faults:              1190490       Mounted volumes:            0
  Elapsed CPU time:      0 01:58:29.37    Elapsed time:      0 05:27:17.19
```

APPENDIX B

DESIGN OF
THE NELS SUBSYSTEM

NELS DESIGN

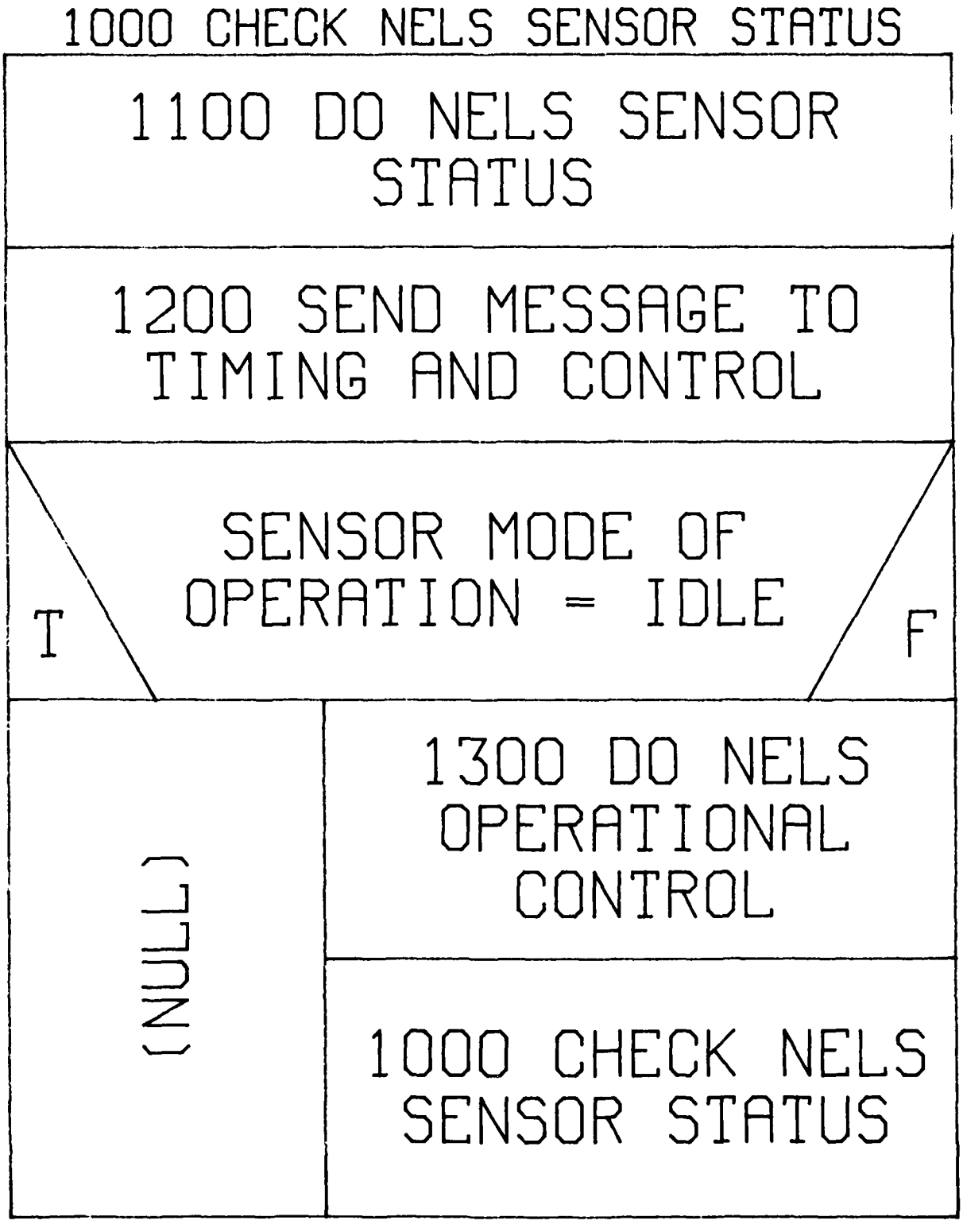


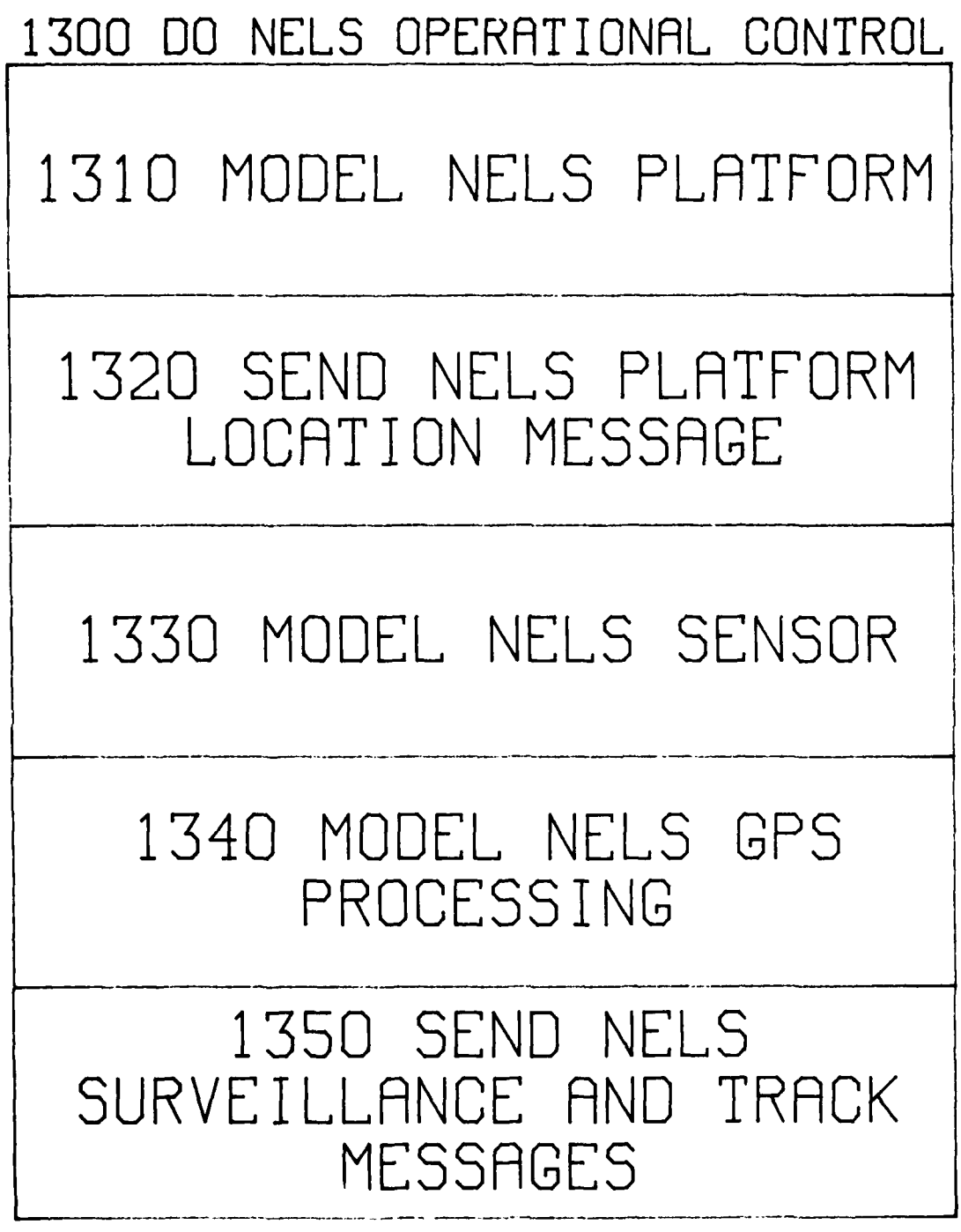
ASSUMPTIONS

RSL is a complete and accurate description of NELS requirements.

The SELECTion of appropriate information is incorporated in the process blocks since there is in every case only one ENTITY which meets the selection criteria.

0000 MODEL NELS SENSOR SYSTEM
DOCASE ASET MSG NAME
STOP
UNIT AND ENVIRONMENT
3000 RESET NELS
2000 INITIALIZE NELS
4000 MAKE SENSOR REQUESTS
1000 CHECK NELS SENSOR STATUS
DOCASE ASET MSG NAME
5000 UPDATE CARTO
CARTO UPDATES
6000 PROCESS NELS COMMANDER'S REQUIREMENTS
COMMANDER'S REQUIREMENTS
7000 PROCESS NELS PRIORITIZED SENSOR DIRECTIONS
PRIORITIZED SENSOR DIRECTIONS
8000 MODIFY NELS TASK
MODIFIED TASK
9000 MODIFY NELS ORBIT
ORBIT MODIFICATIONS
4100 PROCESS NELS REQUESTED DATA


1000 CHECK NELS SENSOR STATUS
1100 DO NELS SENSOR STATUS
1200 SEND MESSAGE TO TIMING AND CONTROL
SENSOR MODE OF OPERATION = IDLE
T
F
(NULL)
1300 DO NELS OPERATIONAL CONTROL
1000 CHECK NELS SENSOR STATUS


1300 DO NELS OPERATIONAL CONTROL
1310 MODEL NELS PLATFORM
1320 SEND NELS PLATFORM LOCATION MESSAGE
1330 MODEL NELS SENSOR
1340 MODEL NELS GPS PROCESSING
1350 SEND NELS SURVEILLANCE AND TRACK MESSAGES

1310 MODEL NELS PLATFORM

1311 GENERATE DME

1312 GENERATE INS

1313 GENERATE DME AND INS NOISE

1330 MODEL NELS SENSOR

1331 FILTER NELS SIGNAL OF INTEREST

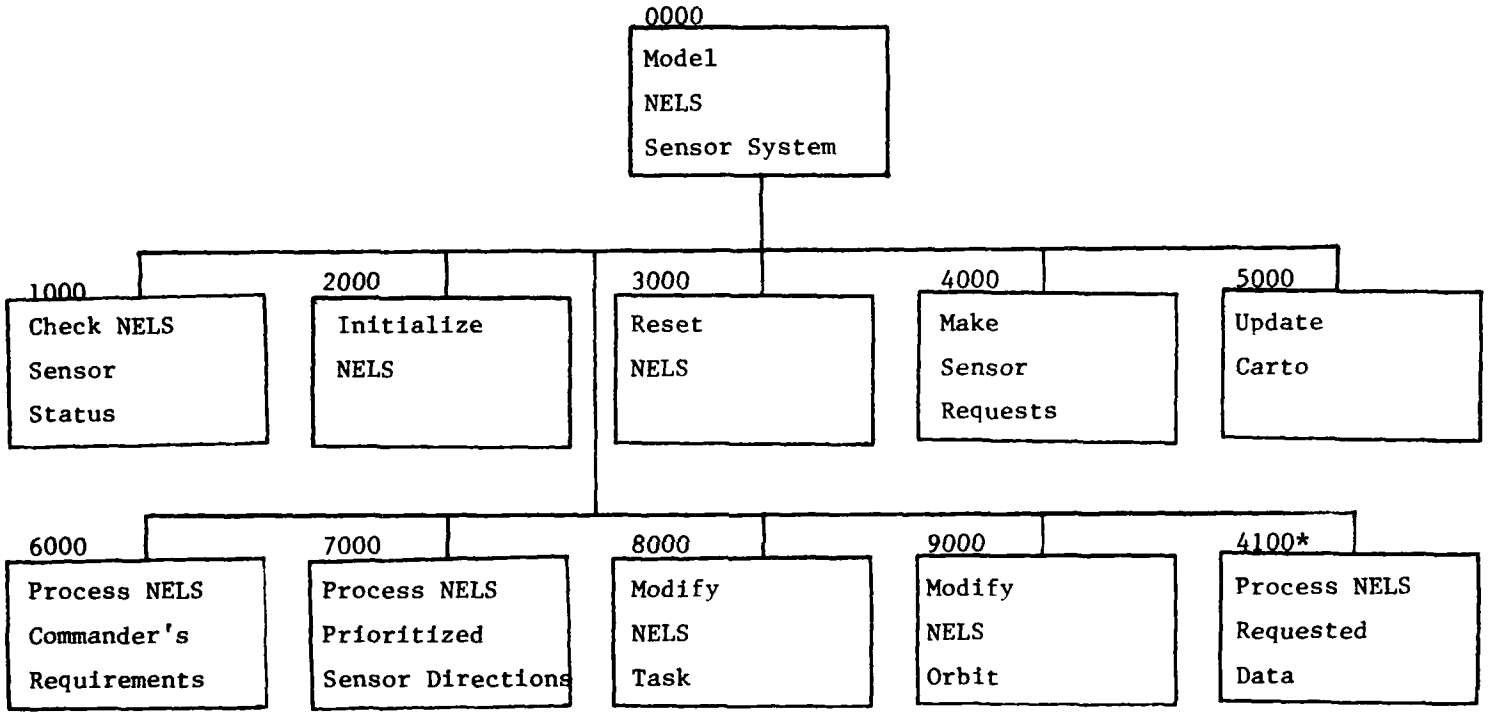
1332 FILTER NELS AERA OF INTEREST

1333 CHECK NELS SIGNAL TO NOISE DETECTABILITY

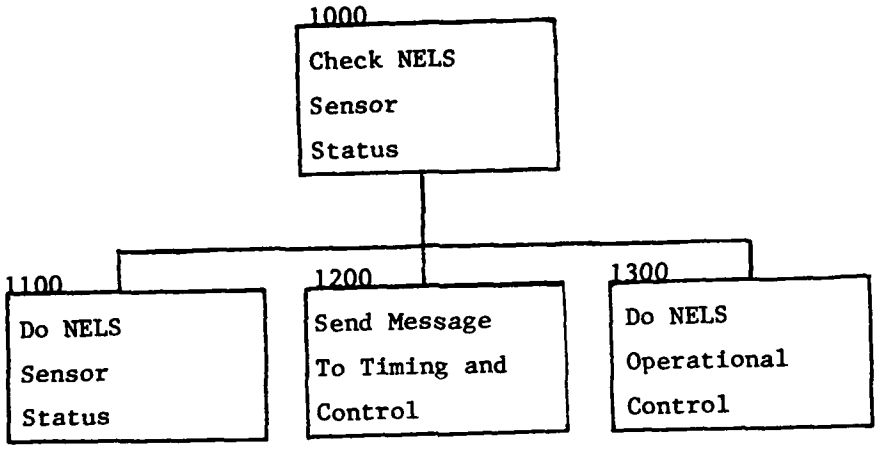
1334 CHECK NELS TERRAIN FOLIAGE SHADOWING

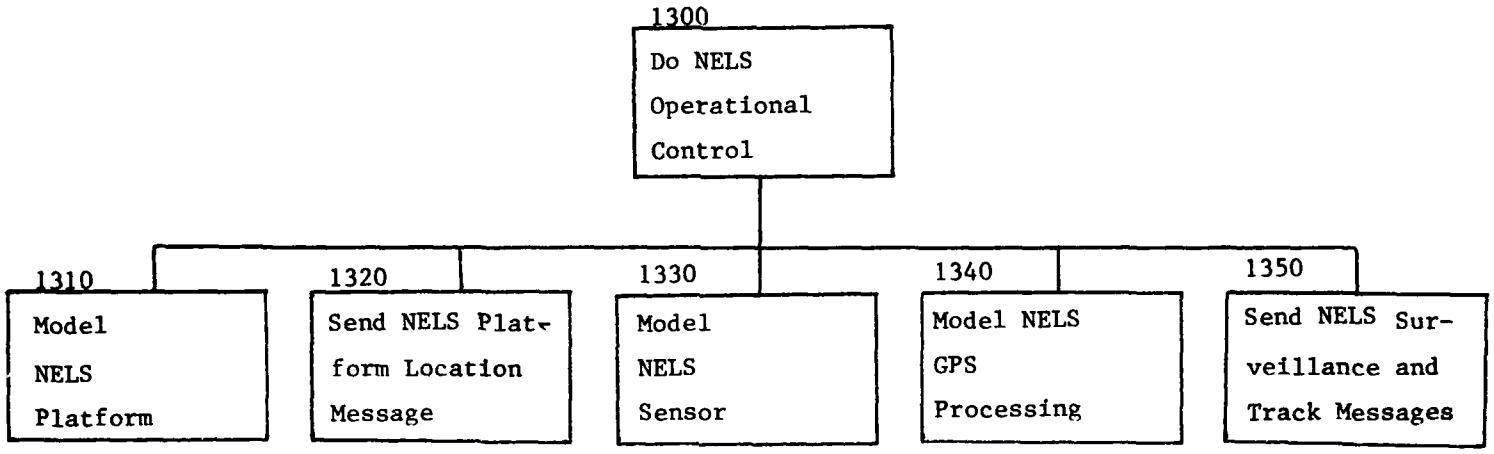
1340 MODEL NELS GPS PROCESSING

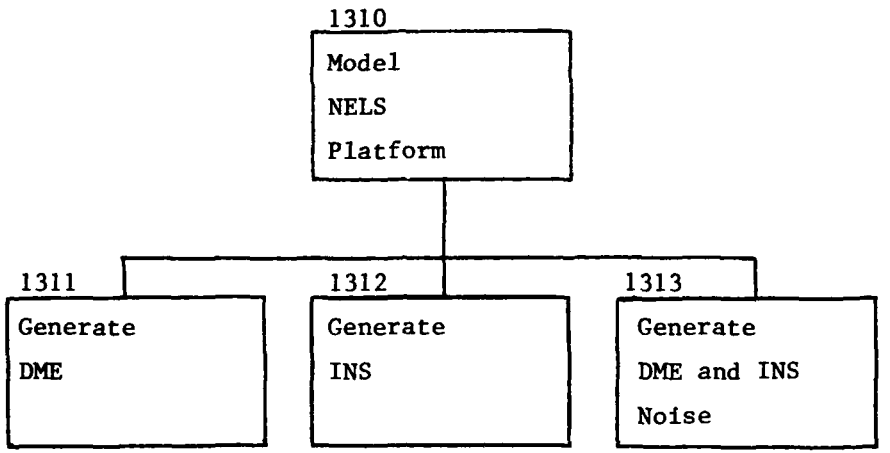
1341 DO TARGET ACQUISITION
1342 DO COARSE LOCATION
1343 DO FINE LOCATION
1344 PERFORM SIGNATURE ANALYSIS
1345 UPDATE THREAT TABLE
1346 OPTIMIZE FREQUENCY SCAN

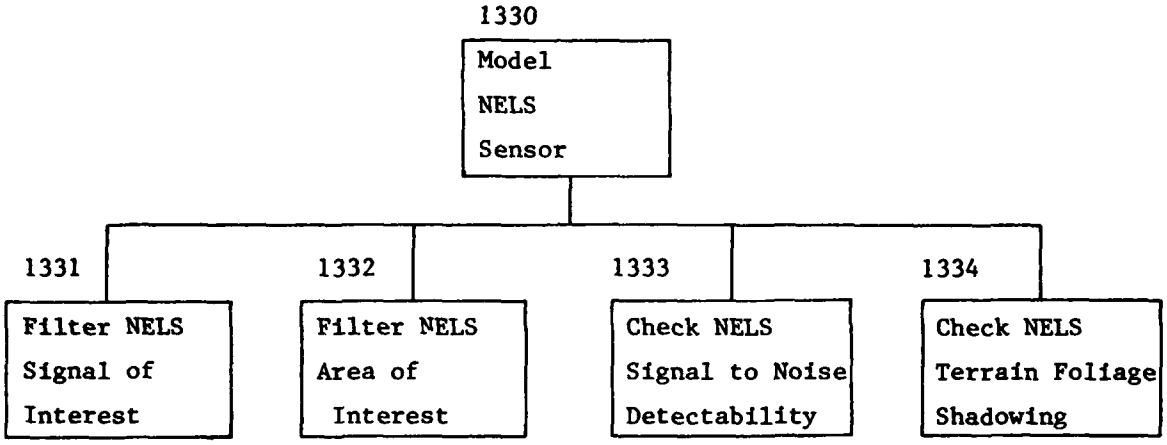


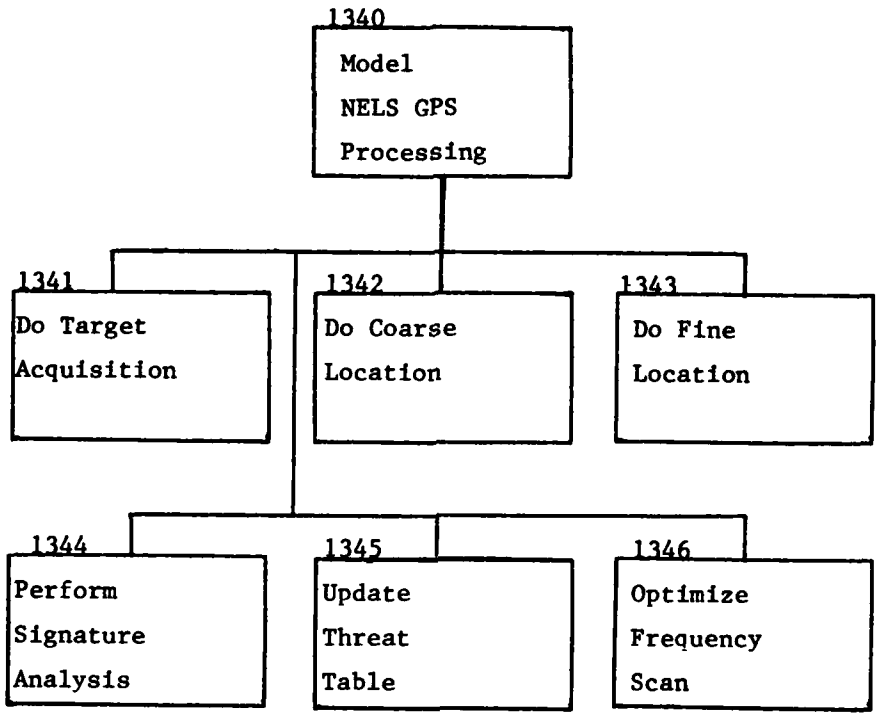
* This module is numbered 4100 because there are more modules required by RSL than the numbering convention allows. It is related to module 4000 but is <u>not</u> a sub-function of 4000.


1000
Check NELS
Sensor
Status
1100
Do NELS
Sensor
Status
1200
Send Message
To Timing and
Control
1300
Do NELS
Operational
Control


1300
Do NELS Operational Control
1310
Model NELS Platform
1320
Send NELS Platform Location Message
1330
Model NELS Sensor
1340
Model NELS GPS Processing
1350
Send NELS Surveillance and Track Messages


1310
Model
NELS
Platform
1311
Generate
DME
1312
Generate
INS
1313
Generate
DME and INS
Noise


1330
Model
NELS
Sensor
1331
Filter NELS
Signal of
Interest
1332
Filter NELS
Area of
Interest
1333
Check NELS
Signal to Noise
Detectability
1334
Check NELS
Terrain Foliage
Shadowing


1340
Model
NELS GPS
Processing
1341
Do Target
Acquisition
1342
Do Coarse
Location
1343
Do Fine
Location
1344
Perform
Signature
Analysis
1345
Update
Threat
Table
1346
Optimize
Frequency
Scan

DATA NAME	VALUES	I	R	X	MEANING
ASET Msg Name	Stop		0000*		Name (Route Code) of incoming message
	Unit and Environment				
	Carto Updates				
	Commander's Requirements				
	Prioritized Sensor Directions				
	Modified Task				
	Orbit Modifications				
	Requested Sensor Data				
Sensor Mode of Operation	Idle Not Idle	1100	1000*	1100	Mode of operation of sensor platform

* VCLR

NELS DESIGN

NELS
FROM
SPEC

ASSUMPTIONS

Emitter characteristics table is already there. Contains: bandwidth, power level, modulation type of simulated emitter.

Weather grid is already there. Contains: weather conditions of geographic area.

On page 18 Terrain Foliage Shadowing requires that at least two sensors receive a transmission. In the previous process block (S/N detectability, 1330) there is the same requirement, the test is performed in 1330. If the test is false the emitter is dropped, therefore, it should not go to the terrain foliage block. Hence a test in this block would be redundant.

0000 NELS INTERFACE HANDLER

DO WHILE SIMULATION EXECUTING

DOCASE MESSAGE NAME

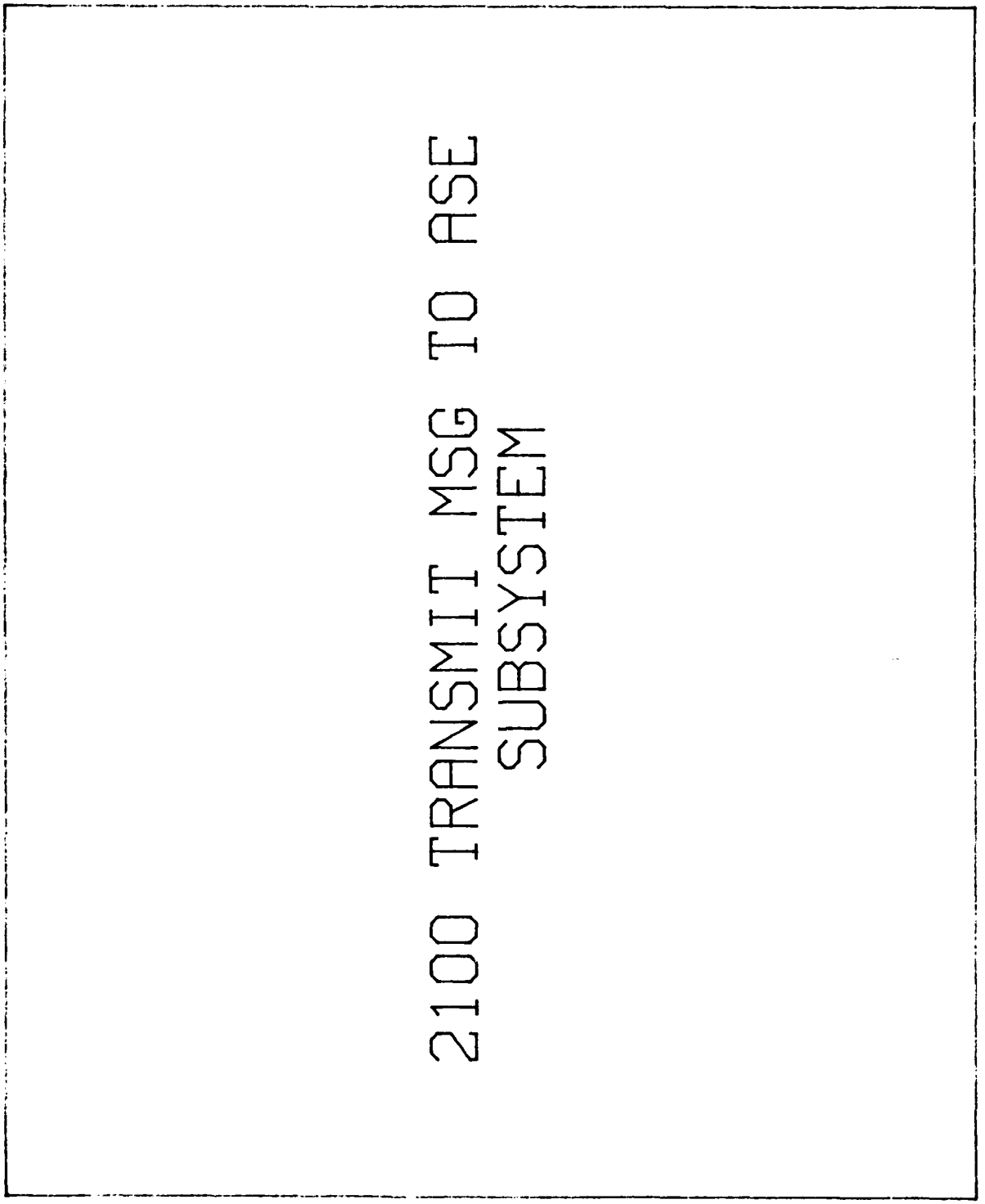
998 UPDATE DATA BASE	SCENARIO MSG
1000 INTERNAL INTERFACE HANDLER	PLATFORM CONTROL MSG
1000 INTERNAL INTERFACE HANDLER	PLATFORM ACTIVITY MSG
1000 INTERNAL INTERFACE HANDLER	DETECTABLE EMISSIONS MSG
998 UPDATE DATA BASE	REQUESTED SENSOR DATA MSG
998 UPDATE DATA BASE	SENSOR TASKS MSG
998 UPDATE DATA BASE	C3I REQUIREMENTS FOR SENSOR MSG
998 UPDATE DATA BASE	CARTO UPDATE MSG
998 UPDATE DATA BASE	2000 EXTERNAL INTERFACE HANDLER TYPED EMITTER REPORT MSG
998 UPDATE DATA BASE	2000 EXTERNAL INTERFACE HANDLER FREQUENCY SCAN UPDATE MSG
2000 EXTERNAL INTERFACE HANDLER	TASKING RESPONSE MSG
2000 EXTERNAL INTERFACE HANDLER	SENSOR REQUESTS MSG
2000 EXTERNAL INTERFACE HANDLER	SENSOR SYSTEM STATUS MSG
999 ERROR HANDLER	

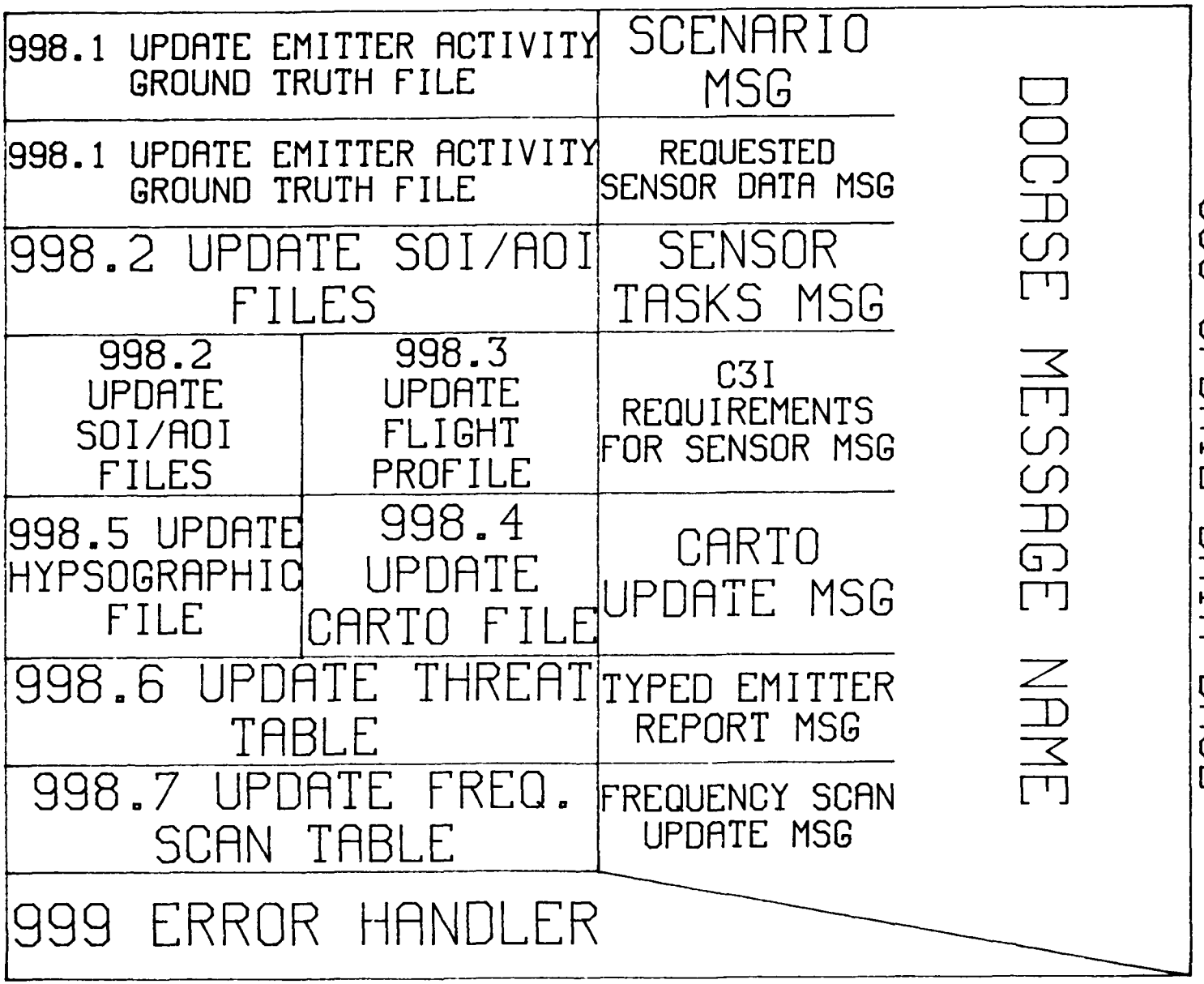
1000 INTERNAL INTERFACE HANDLER

DOCASE MESSAGE NAME

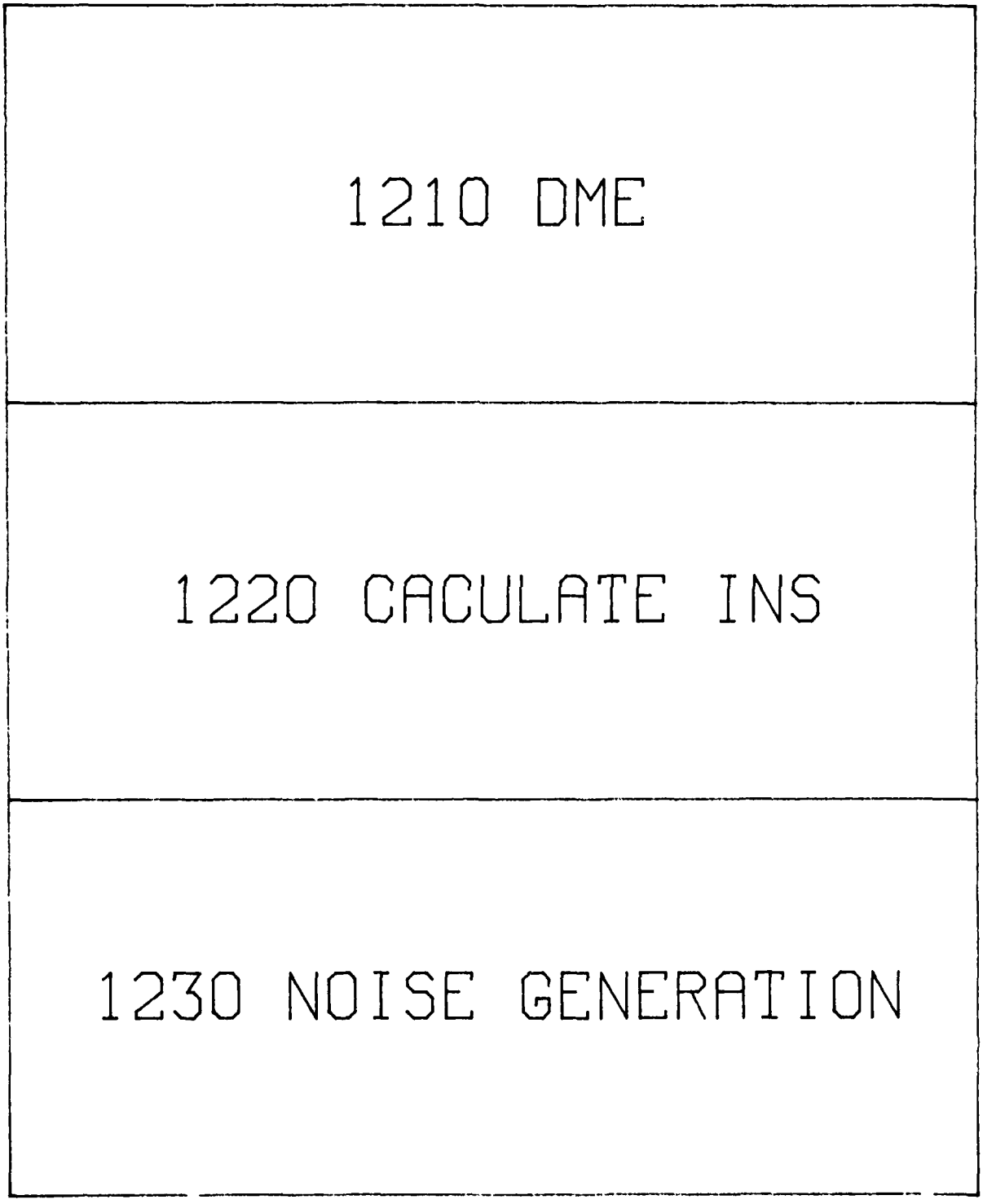
PLATFORM CONTROL MSG	PLATFORM ACTIVITY MSG	DETECTABLE EMISSIONS MSG	
1200 MODEL NELS PLATFORM	1300 MODEL NELS SENSORS	1400 NELS GPS	999 ERROR HANDLER

2000 EXTERNAL INTERFACE HANDLER




998 UPDATE DATA BASE
DOCASE MESSAGE NAME
998.1 UPDATE EMITTER ACTIVITY GROUND TRUTH FILE
SCENARIO MSG
998.1 UPDATE EMITTER ACTIVITY GROUND TRUTH FILE
REQUESTED SENSOR DATA MSG
998.2 UPDATE SOI/AOI FILES
SENSOR TASKS MSG
998.2 UPDATE SOI/AOI FILES
998.3 UPDATE FLIGHT PROFILE
C3I REQUIREMENTS FOR SENSOR MSG
998.5 UPDATE HYPSOGRAPHIC FILE
998.4 UPDATE CARTO FILE
CARTO UPDATE MSG
998.6 UPDATE THREAT TABLE
TYPED EMITTER REPORT MSG
998.7 UPDATE FREQ. SCAN TABLE
FREQUENCY SCAN UPDATE MSG
999 ERROR HANDLER

1200 MODEL NELS PLATFORM

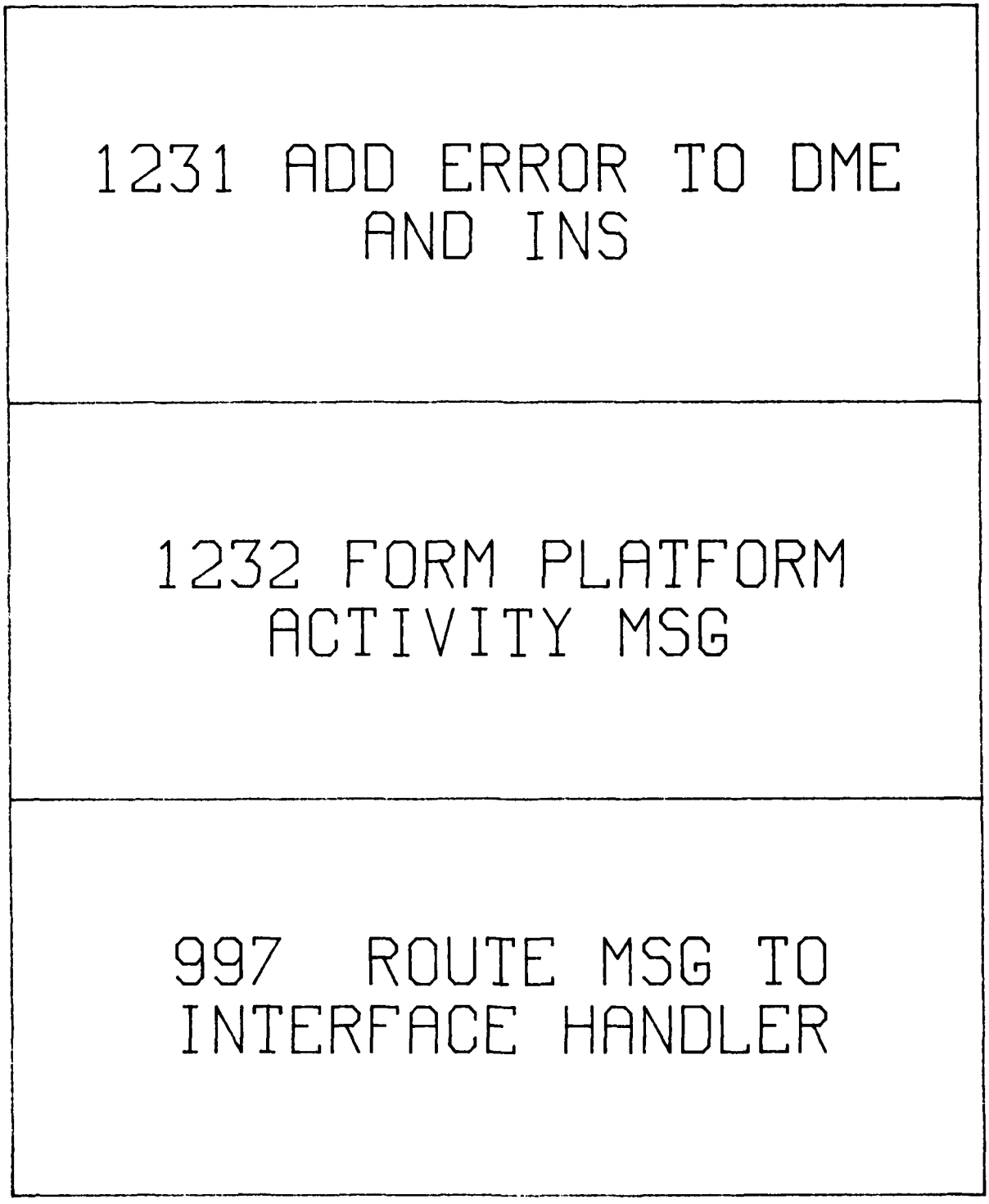


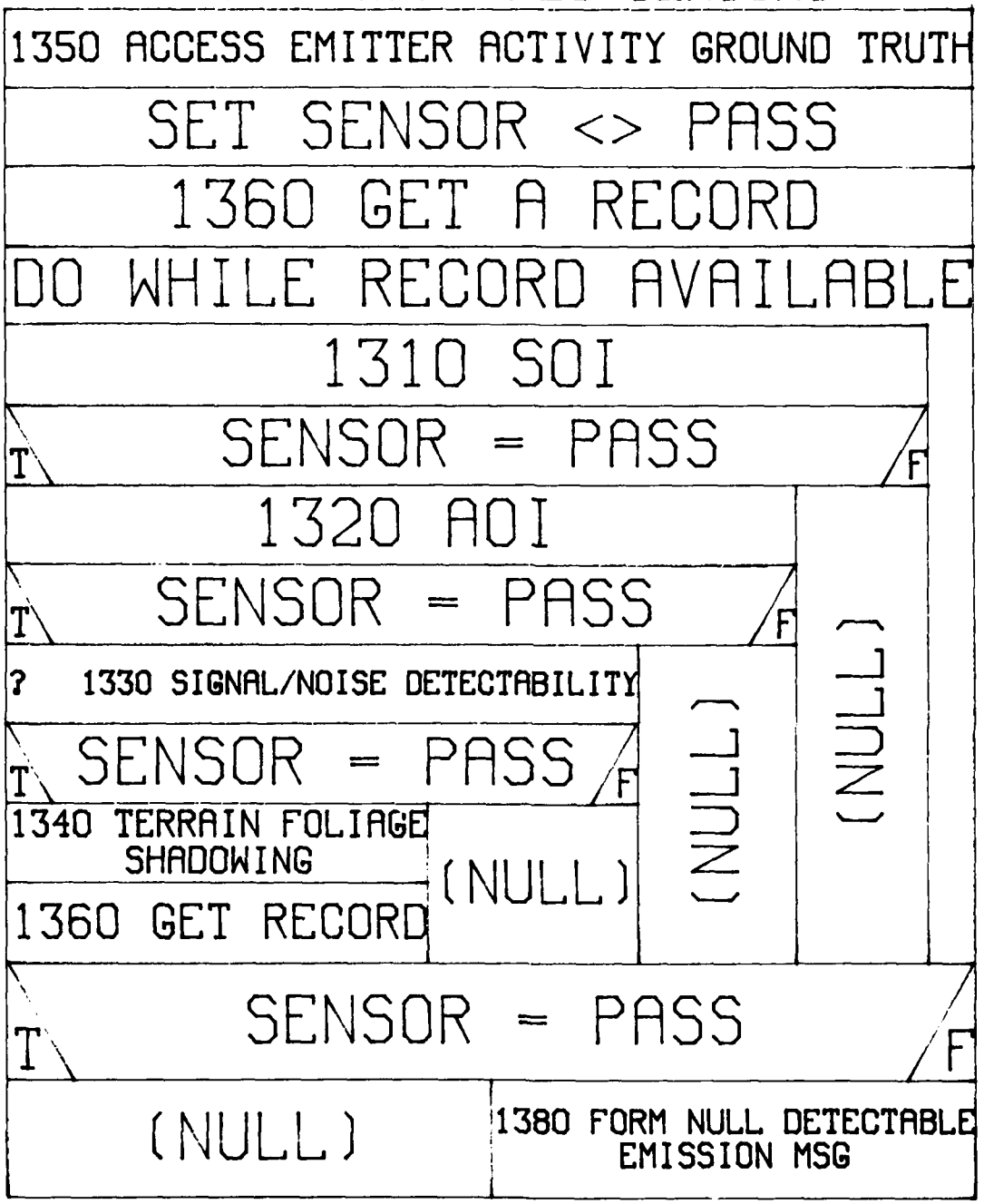
1210 DME

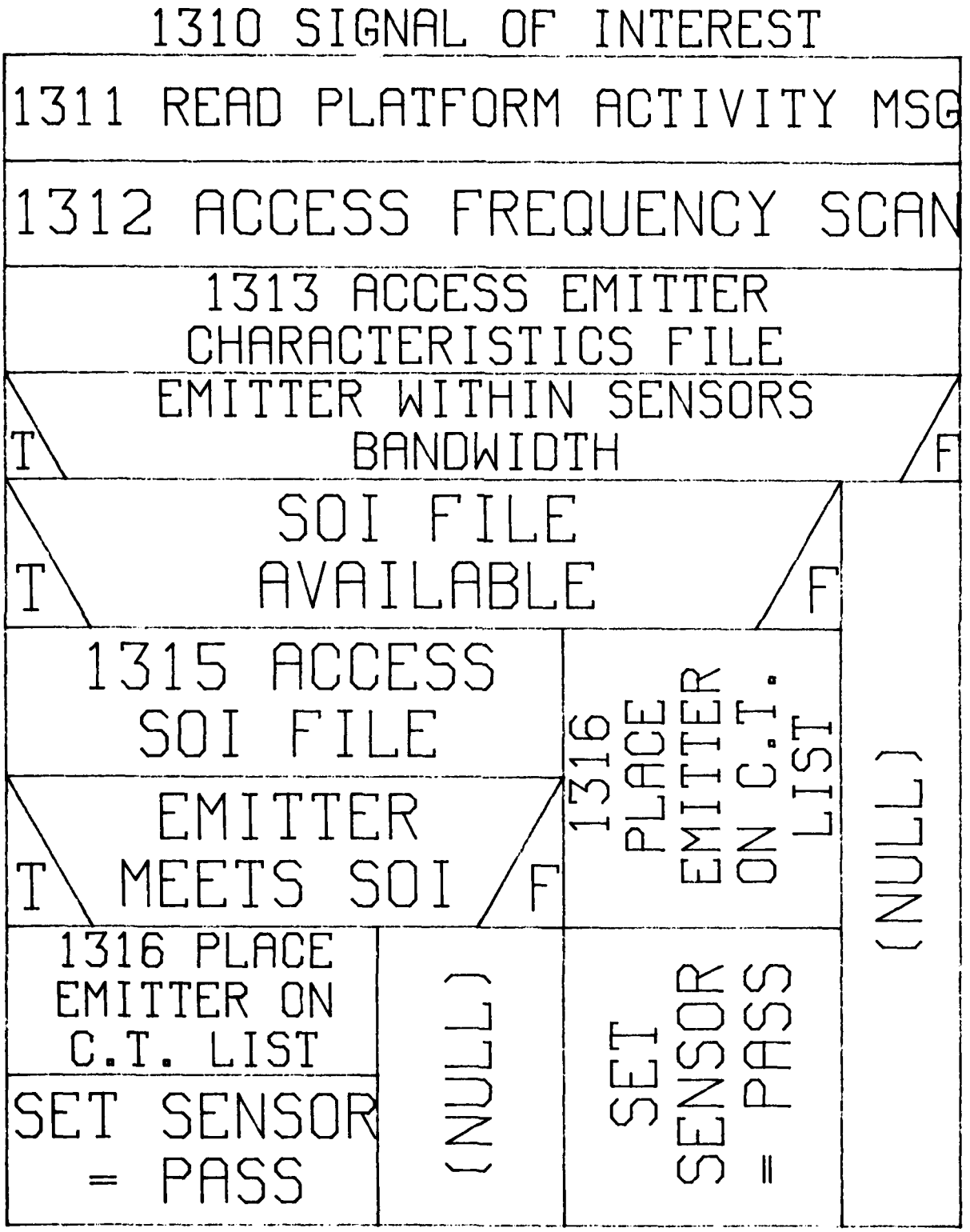
1211 READ PLATFORM CONTROL MSG

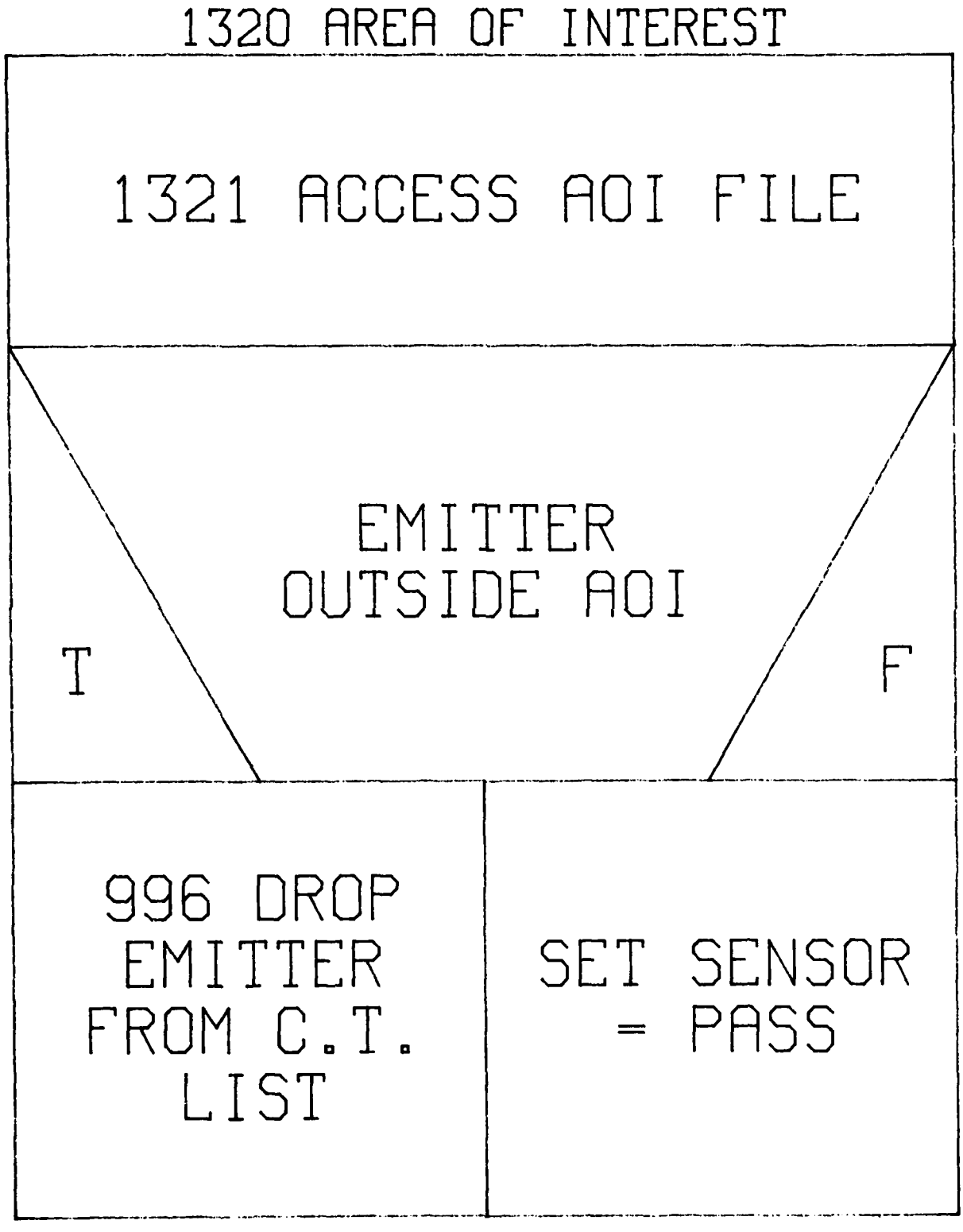
1212 ACCESS FLIGHT PROFILE FILE

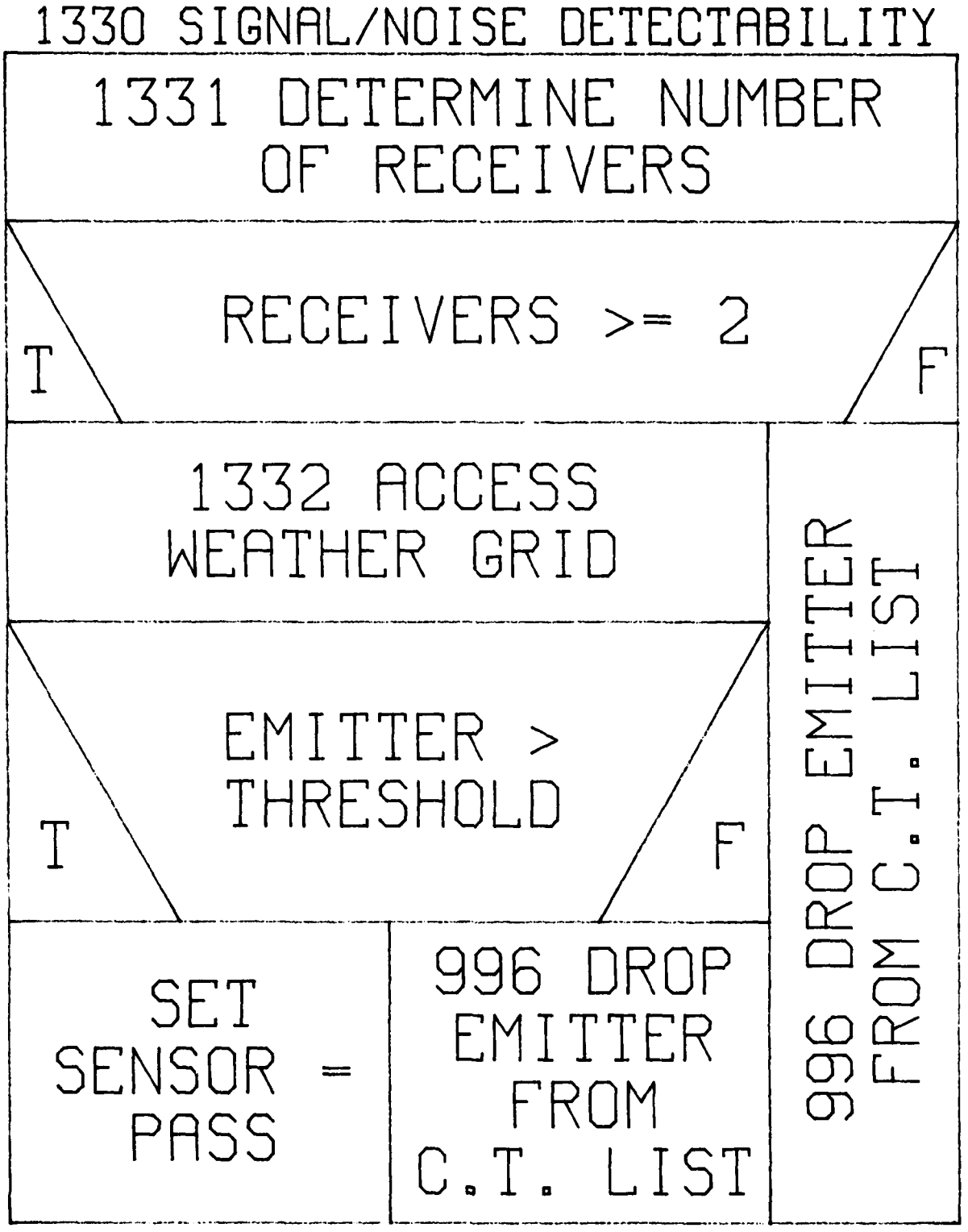
1213 CACULATE DME

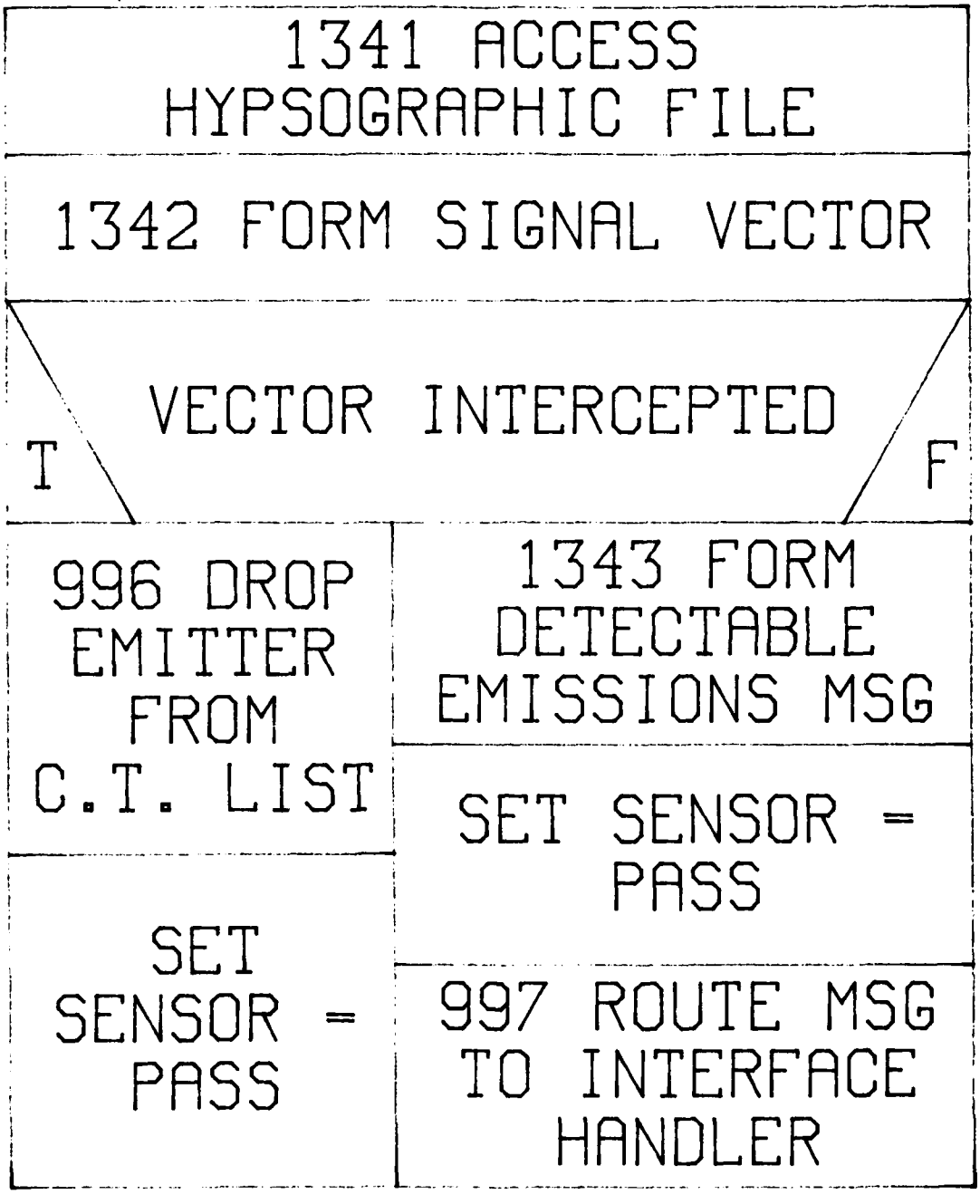

1230 NOISE GENERATION
1231 ADD ERROR TO DME AND INS
1232 FORM PLATFORM ACTIVITY MSG
997 ROUTE MSG TO INTERFACE HANDLER

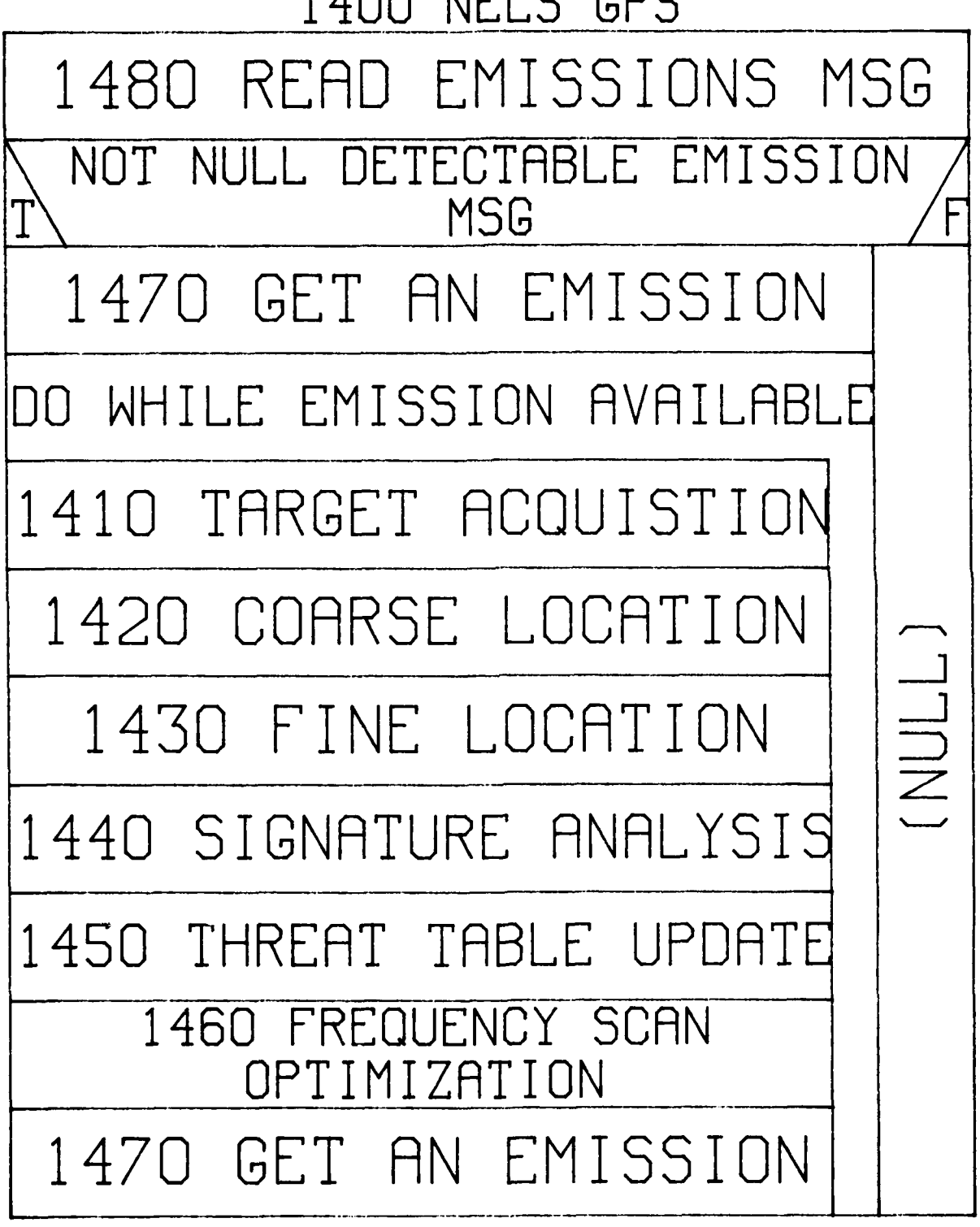

1300 MODEL NELS SENSORS
1350 ACCESS EMITTER ACTIVITY GROUND TRUTH
SET SENSOR <> PASS
1360 GET A RECORD
DO WHILE RECORD AVAILABLE
1310 SOI
T
SENSOR = PASS
F
1320 AOI
T
SENSOR = PASS
F
?
1330 SIGNAL/NOISE DETECTABILITY
T
SENSOR = PASS
F
1340 TERRAIN FOLIAGE SHADOWING
1360 GET RECORD
(NULL)
(NULL)
(NULL)
T
SENSOR = PASS
F
(NULL)
1380 FORM NULL DETECTABLE EMISSION MSG

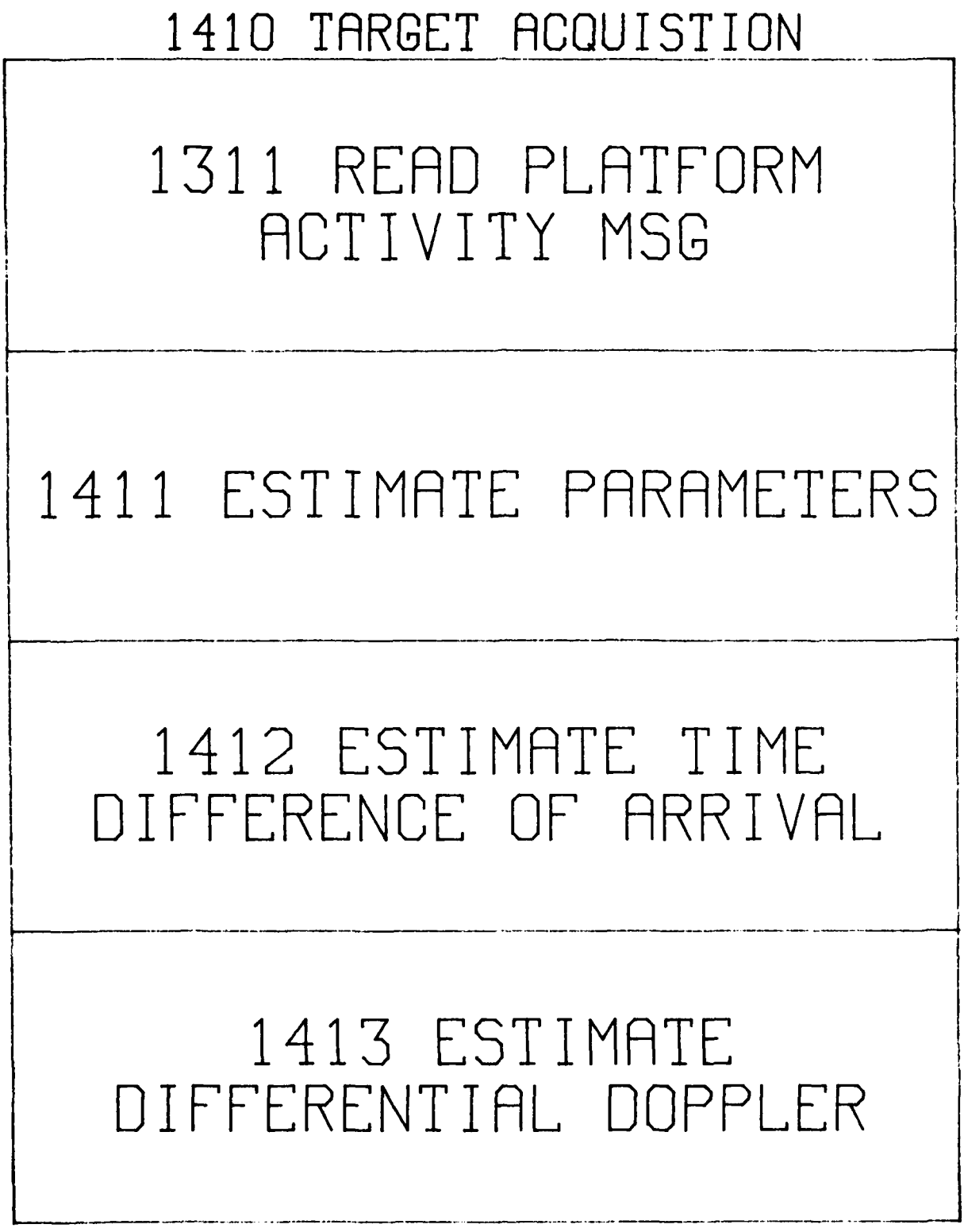

1310 SIGNAL OF INTEREST
1311 READ PLATFORM ACTIVITY MSG
1312 ACCESS FREQUENCY SCAN
1313 ACCESS EMITTER CHARACTERISTICS FILE
EMITTER WITHIN SENSORS BANDWIDTH
T
F
SOI FILE AVAILABLE
T
F
1315 ACCESS SOI FILE
EMITTER MEETS SOI
T
F
1316 PLACE EMITER ON C.T. LIST
(NULL)
1316 PLACE EMITTER ON C.T. LIST
SET SENSOR = PASS
(NULL)
SET SENSOR = PASS


1320 AREA OF INTEREST
1321 ACCESS AOI FILE
EMITTER
OUTSIDE AOI
T
F
996 DROP
EMITTER
FROM C.T.
LIST
SET SENSOR
= PASS


1330 SIGNAL/NOISE DETECTABILITY
1331 DETERMINE NUMBER OF RECEIVERS
RECEIVERS >= 2
T
F
1332 ACCESS WEATHER GRID
EMITTER > THRESHOLD
T
F
SET SENSOR = PASS
996 DROP EMITTER FROM C.T. LIST
996 DROP EMITTER FROM C.T. LIST


1340 TERRAIN FOLIAGE SHADOWING
1341 ACCESS HYPSOGRAPHIC FILE
1342 FORM SIGNAL VECTOR
VECTOR INTERCEPTED
T
F
996 DROP EMITTER FROM C.T. LIST
1343 FORM DETECTABLE EMISSIONS MSG
SET SENSOR = PASS
SET SENSOR = PASS
997 ROUTE MSG TO INTERFACE HANDLER

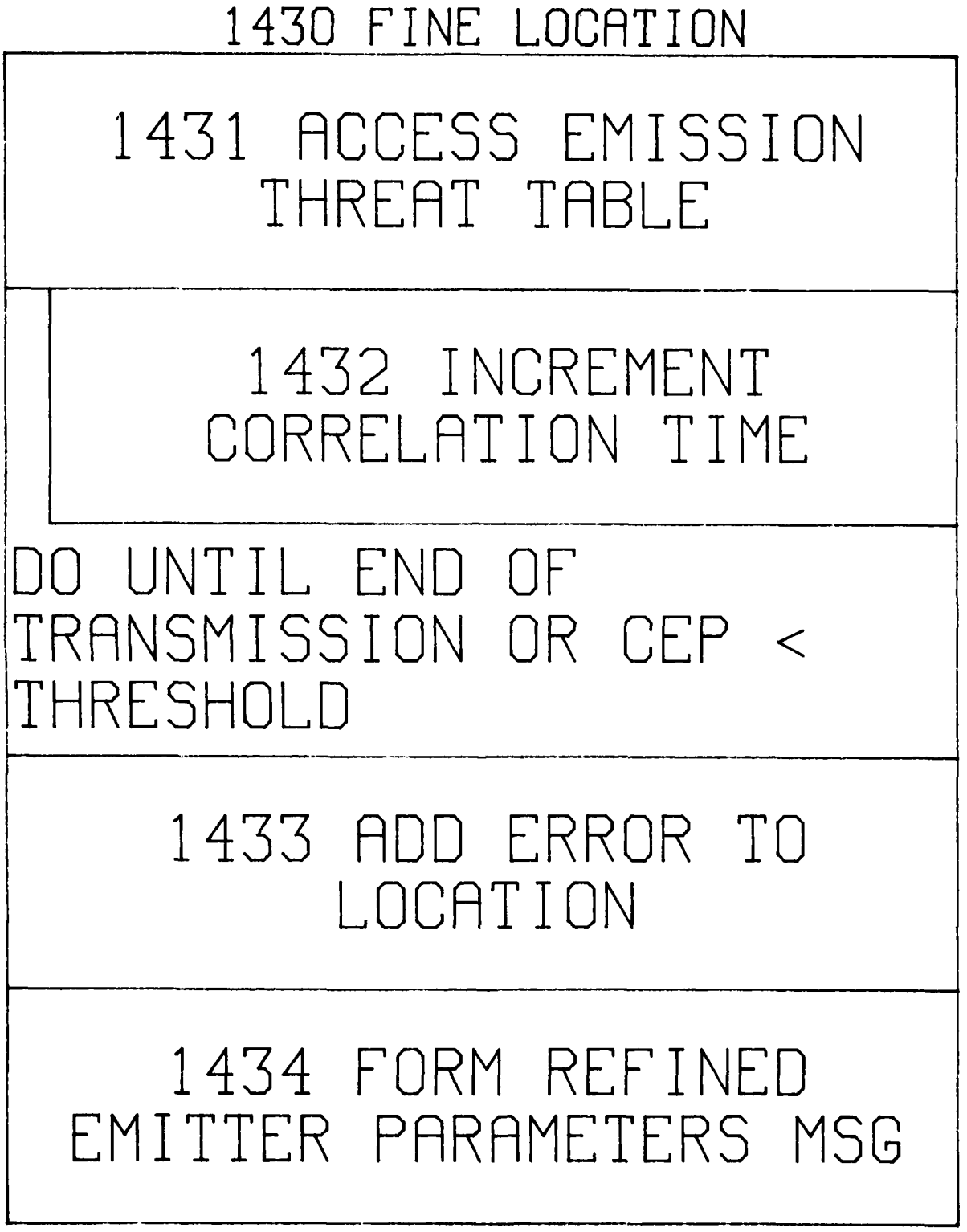

1400 NELS GPS
1480 READ EMISSIONS MSG
NOT NULL DETECTABLE EMISSION MSG
T
F
1470 GET AN EMISSION
DO WHILE EMISSION AVAILABLE
1410 TARGET ACQUISTION
1420 COARSE LOCATION
1430 FINE LOCATION
1440 SIGNATURE ANALYSIS
1450 THREAT TABLE UPDATE
1460 FREQUENCY SCAN OPTIMIZATION
1470 GET AN EMISSION
(NULL)


1410 TARGET ACQUISTION
1311 READ PLATFORM ACTIVITY MSG
1411 ESTIMATE PARAMETERS
1412 ESTIMATE TIME DIFFERENCE OF ARRIVAL
1413 ESTIMATE DIFFERENTIAL DOPPLER

1420 COARSE LOCATION

1421 DETERMINE APPROXIMATE EMITTER LOCATION

1422 CACULATE ERROR


1430 FINE LOCATION
1431 ACCESS EMISSION THREAT TABLE
1432 INCREMENT CORRELATION TIME
DO UNTIL END OF TRANSMISSION OR CEP < THRESHOLD
1433 ADD ERROR TO LOCATION
1434 FORM REFINED EMITTER PARAMETERS MSG

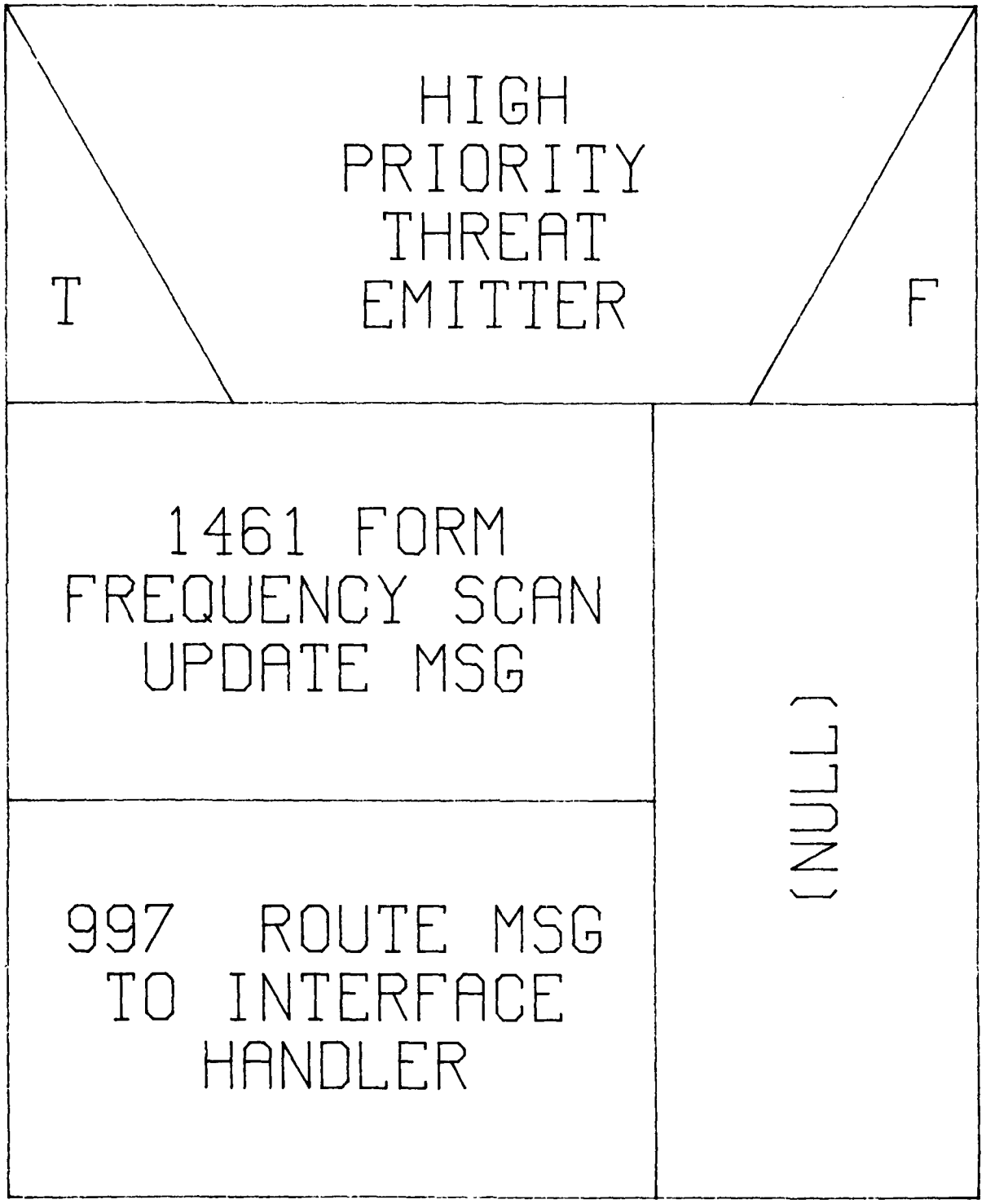
1440 SIGNATURE ANALYSIS

1441 TAG ON TRAFFIC TYPE CODE

1442 FORM TYPED EMITTER REPORT MSG

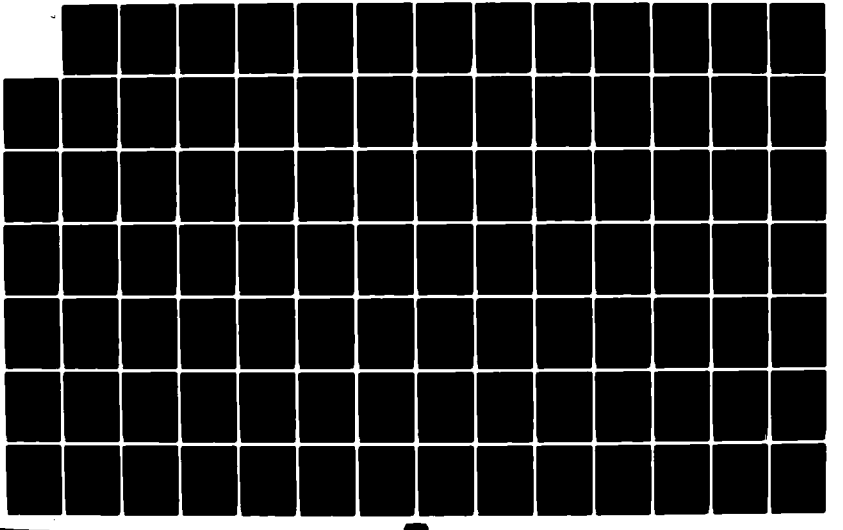
997 ROUTE MSG TO INTERFACE HANDLER

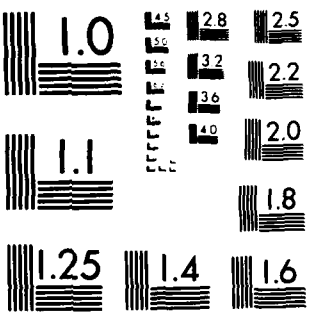
1460 FREQUENCY SCAN OPTIMIZATION



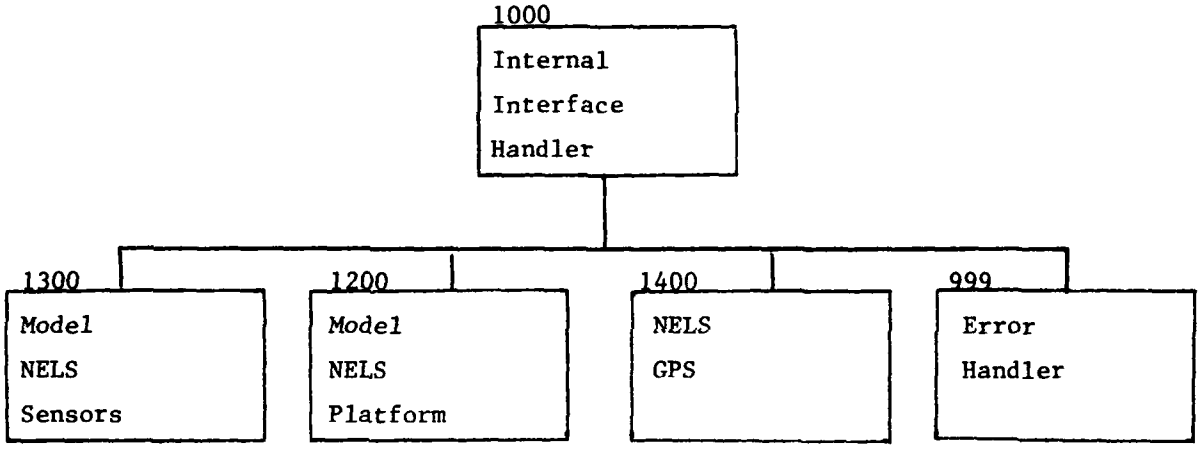
AD-A141 632 SREM (SOFTWARE REQUIREMENTS ENGINEERING METHODOLOGY) EVALUATION VOLUME 2..(U) MARTIN MARIETTA DENVER AEROSPACE CO A STONE ET AL. FEB 84 MCR-83-553-VOL-2 UNCLASSIFIED RADC-TR-83-314-VOL-2 F30602-80-C-0272 F/G 9/2 NL

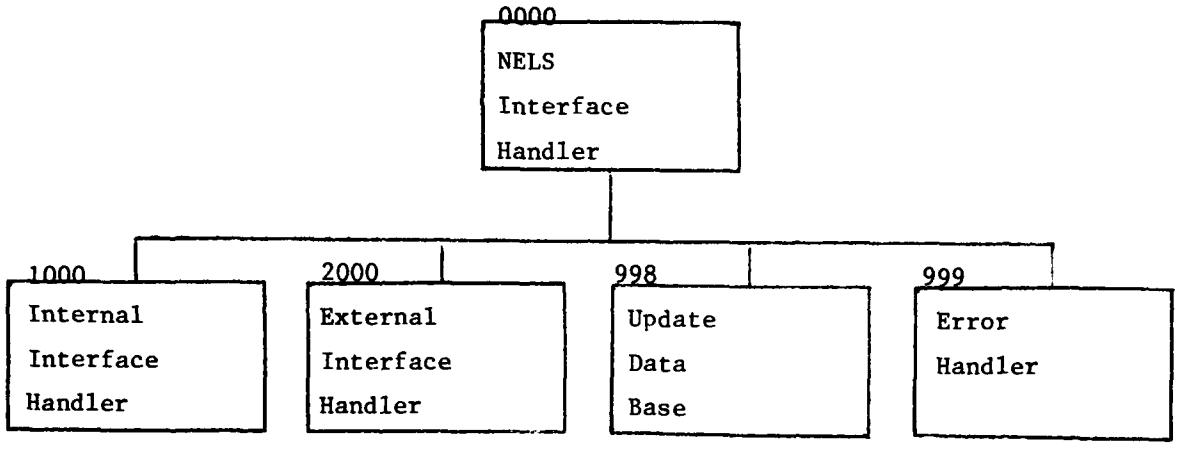
3/6

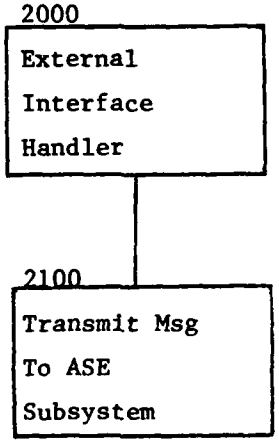


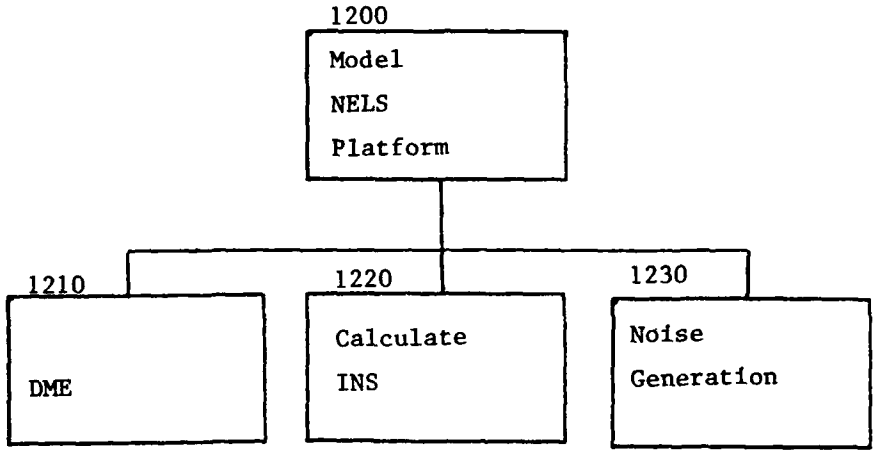


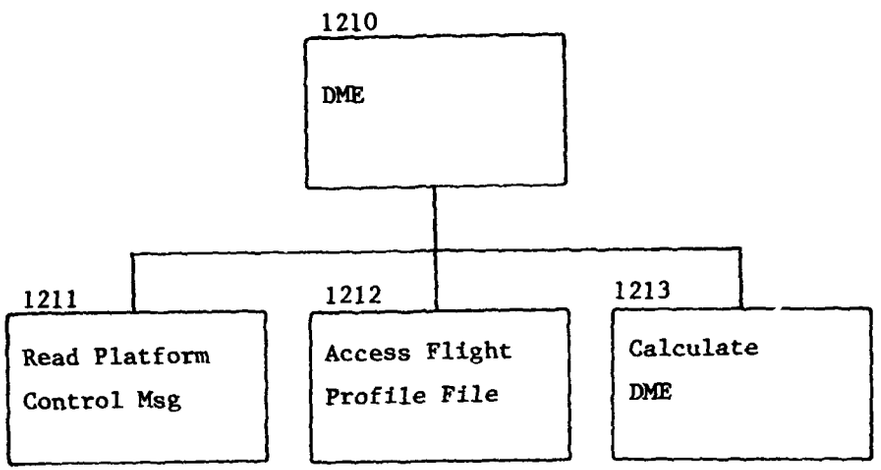
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

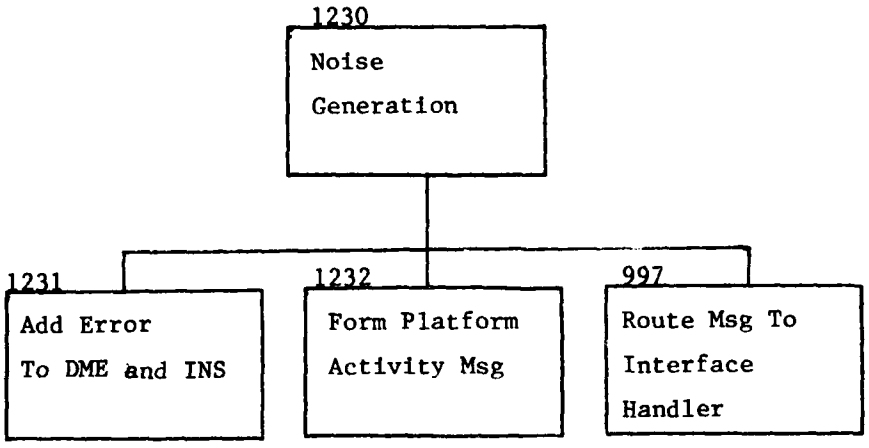

1000
Internal
Interface
Handler
1300
Model
NELS
Sensors
1200
Model
NELS
Platform
1400
NELS
GPS
999
Error
Handler

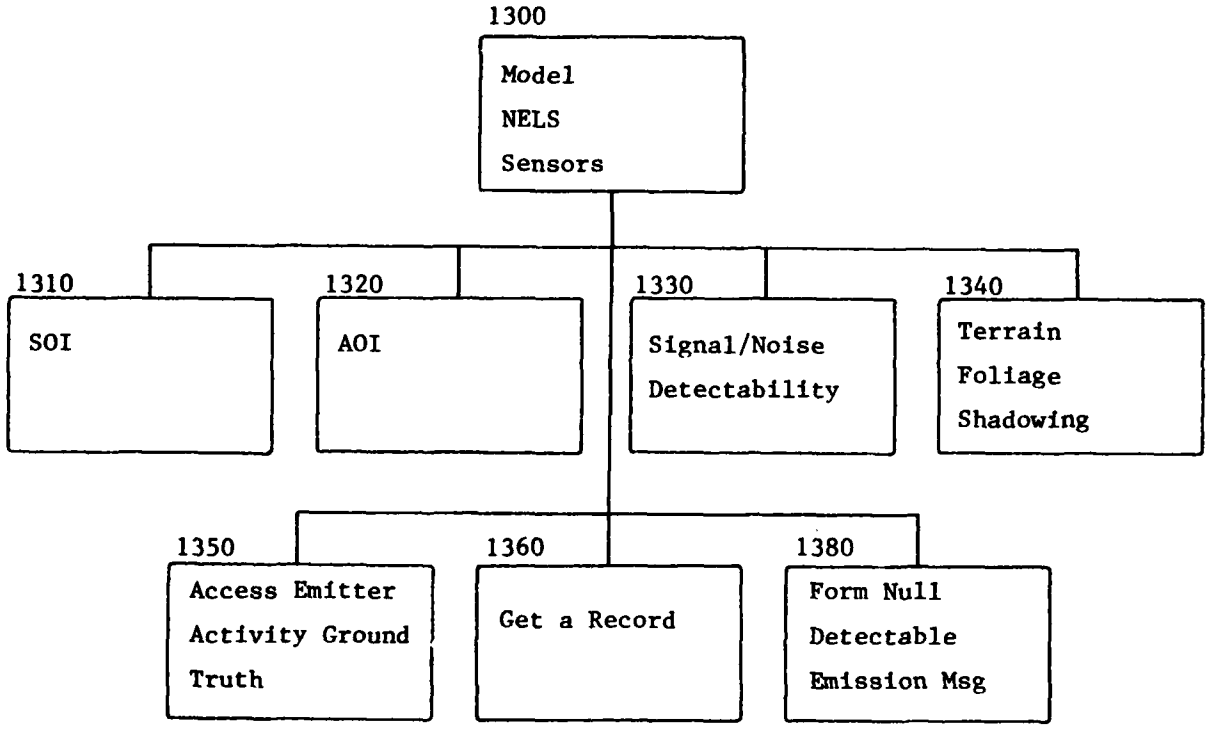

0000
NELS
Interface
Handler
1000
Internal
Interface
Handler
2000
External
Interface
Handler
998
Update
Data
Base
999
Error
Handler

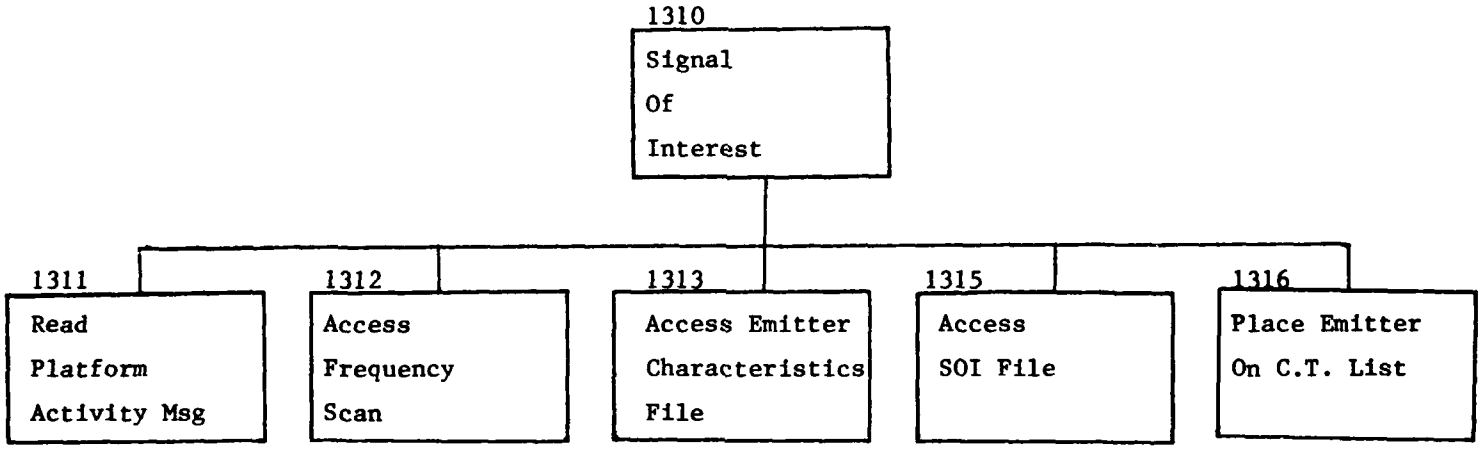

2000
External
Interface
Handler
2100
Transmit Msg
To ASE
Subsystem

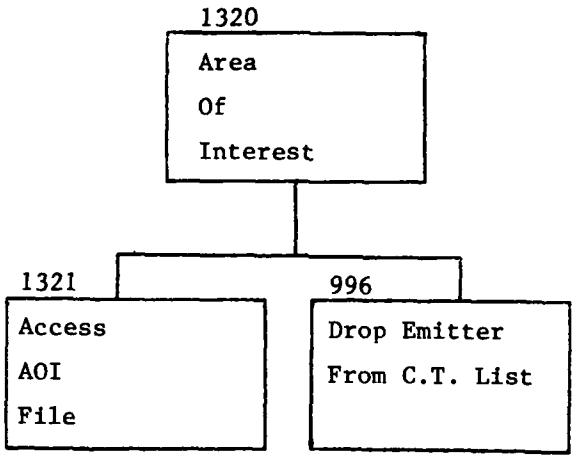

1200
Model
NELS
Platform
1210
DME
1220
Calculate
INS
1230
Noise
Generation

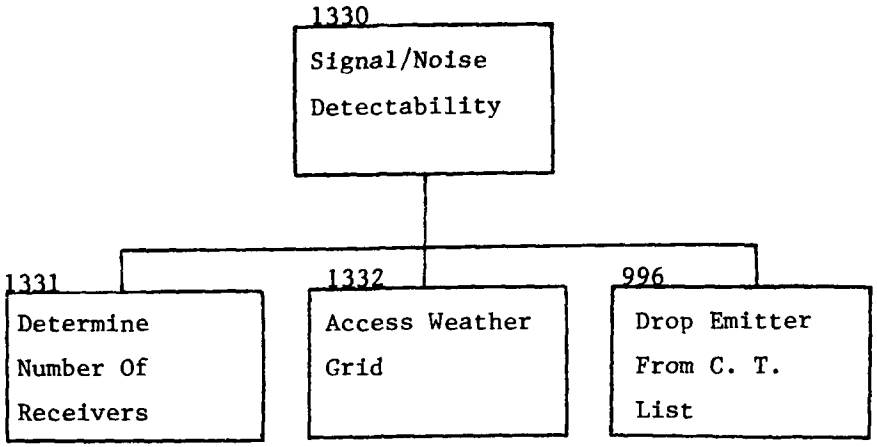

1210
DME
1211
Read Platform
Control Msg
1212
Access Flight
Profile File
1213
Calculate
DME

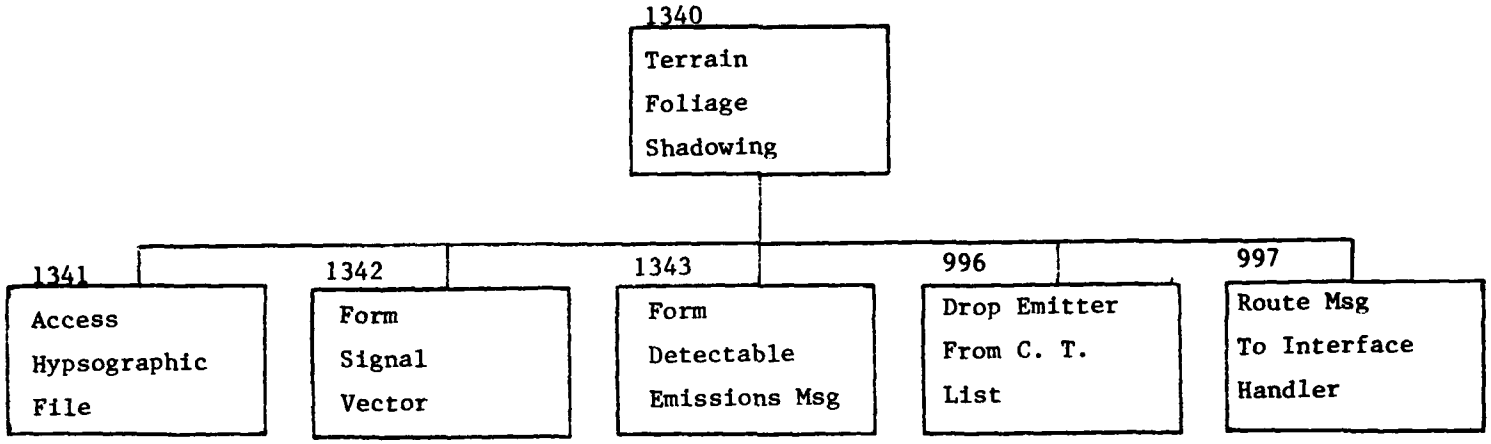

1230
Noise
Generation
1231
Add Error
To DME and INS
1232
Form Platform
Activity Msg
997
Route Msg To
Interface
Handler

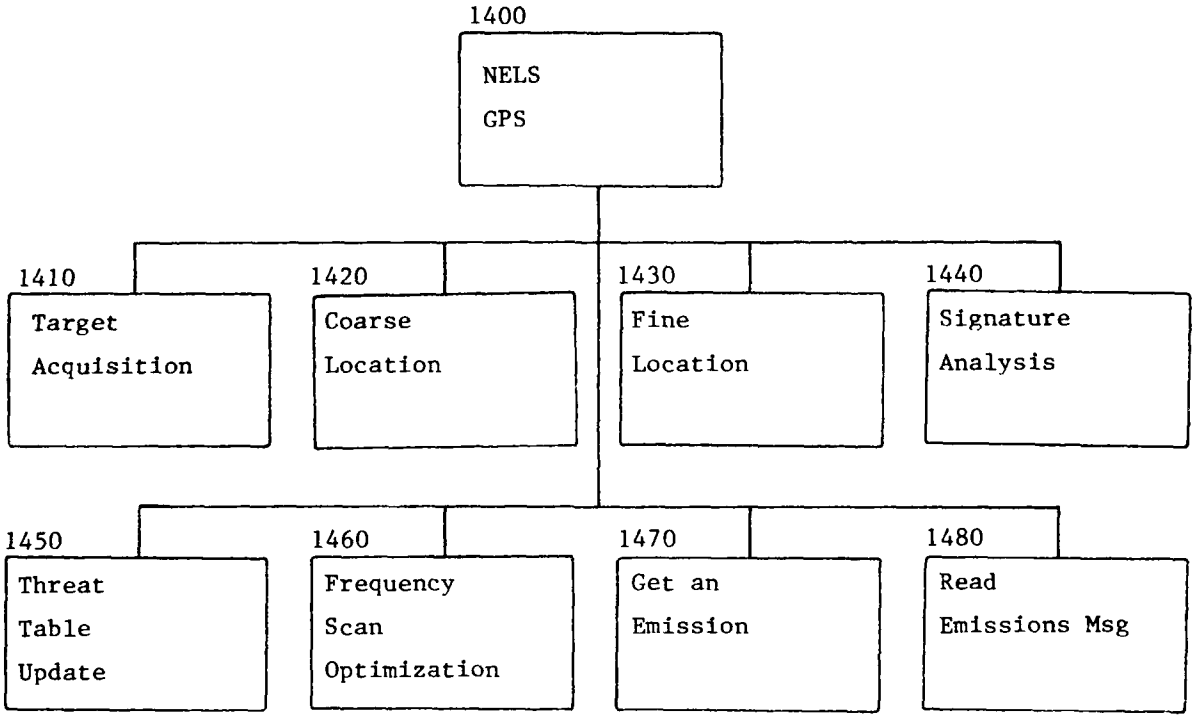

1300
Model
NELS
Sensors
1310
SOI
1320
AOI
1330
Signal/Noise
Detectability
1340
Terrain
Foliage
Shadowing
1350
Access Emitter
Activity Ground
Truth
1360
Get a Record
1380
Form Null
Detectable
Emission Msg

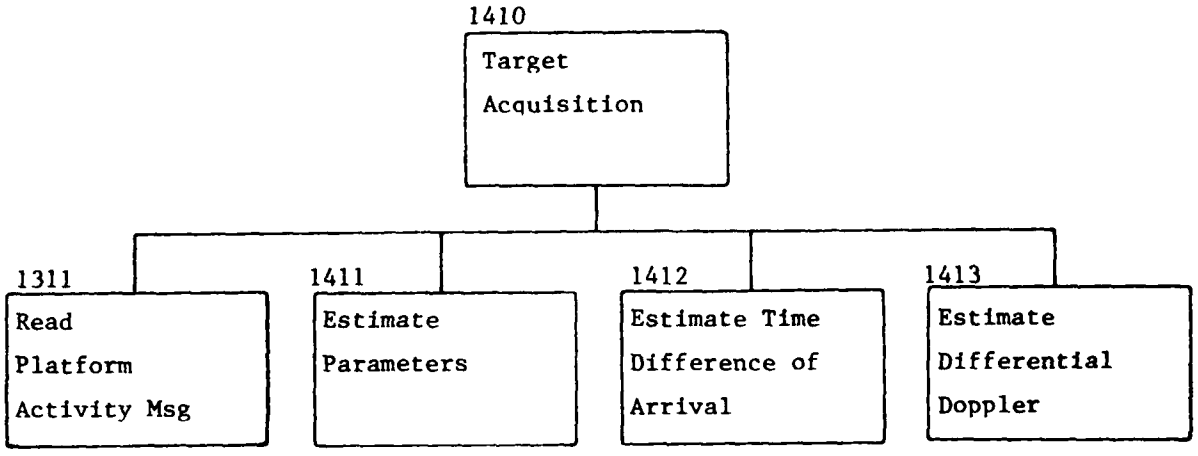

1310
Signal
Of
Interest
1311
Read
Platform
Activity Msg
1312
Access
Frequency
Scan
1313
Access Emitter
Characteristics
File
1315
Access
SOI File
1316
Place Emitter
On C.T. List

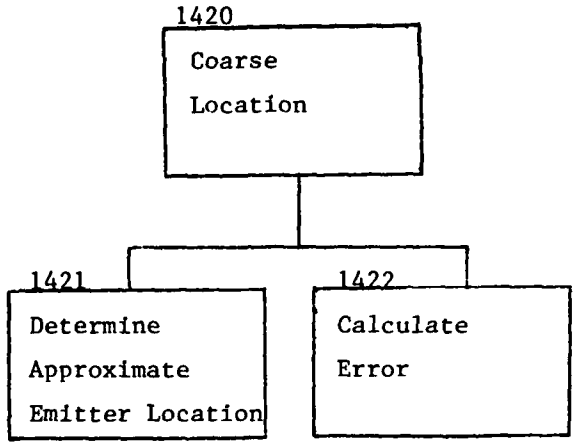

1320
Area
Of
Interest
1321
Access
AOI
File
996
Drop Emitter
From C.T. List

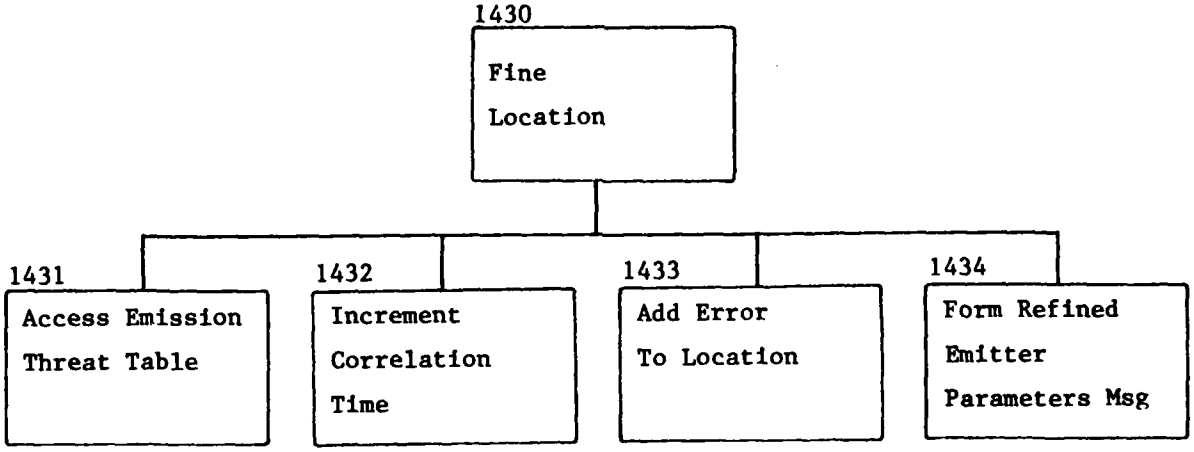

1330
Signal/Noise
Detectability
1331
Determine
Number Of
Receivers
1332
Access Weather
Grid
996
Drop Emitter
From C. T.
List

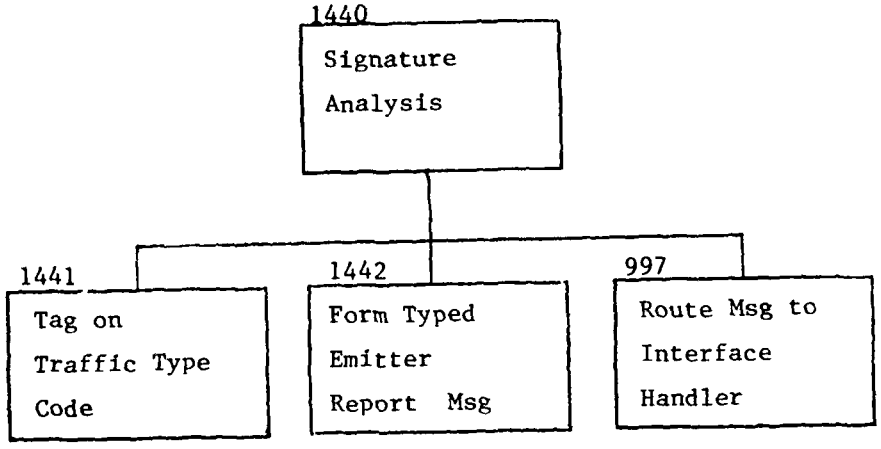

1340
Terrain
Foliage
Shadowing
1341
Access
Hypsographic
File
1342
Form
Signal
Vector
1343
Form
Detectable
Emissions Msg
996
Drop Emitter
From C. T.
List
997
Route Msg
To Interface
Handler

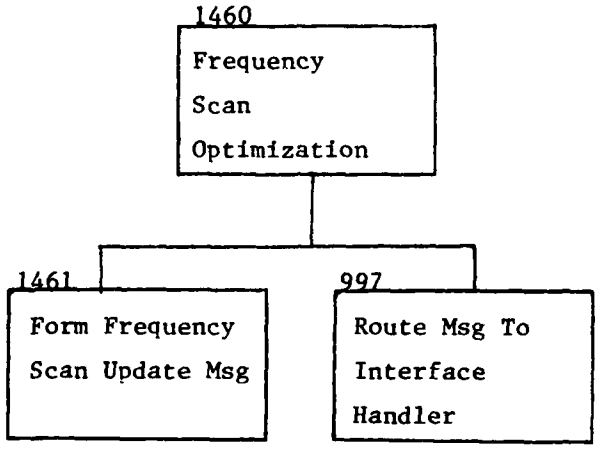

1400
NELS
GPS
1410
Target
Acquisition
1420
Coarse
Location
1430
Fine
Location
1440
Signature
Analysis
1450
Threat
Table
Update
1460
Frequency
Scan
Optimization
1470
Get an
Emission
1480
Read
Emissions Msg

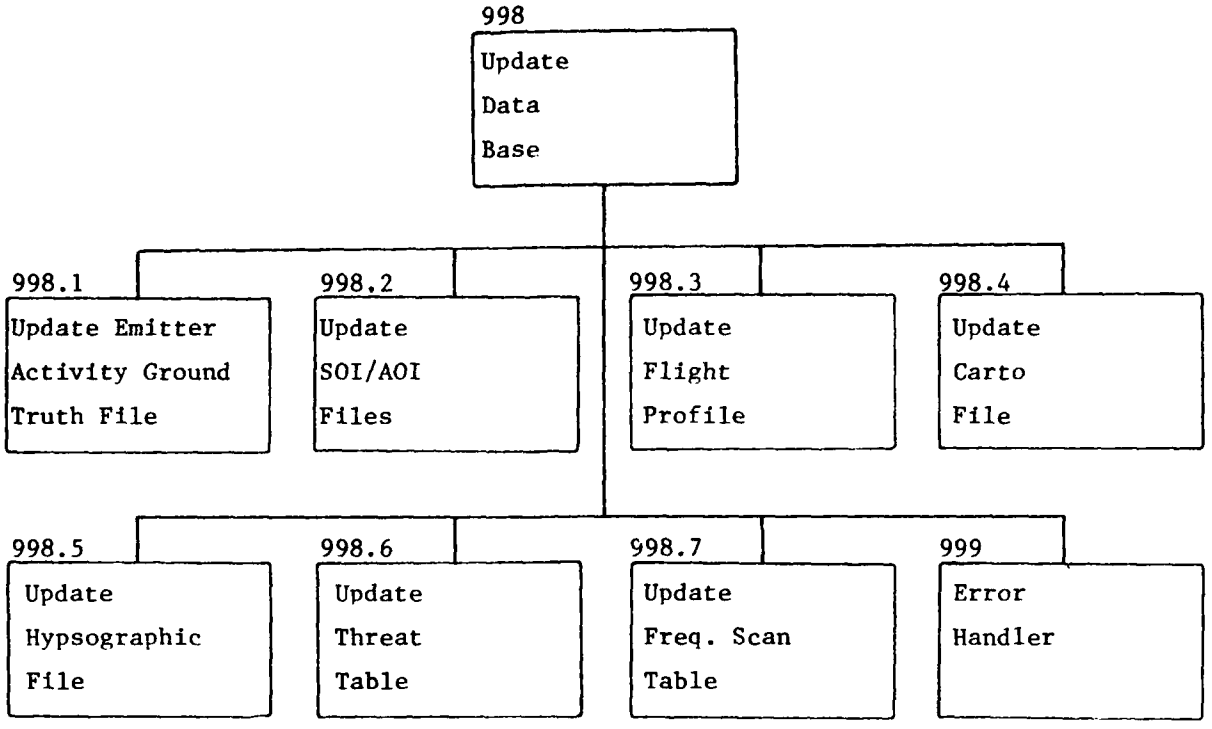

1410
Target
Acquisition
1311
Read
Platform
Activity Msg
1411
Estimate
Parameters
1412
Estimate Time
Difference of
Arrival
1413
Estimate
Differential
Doppler


1420
Coarse
Location
1421
Determine
Approximate
Emitter Location
1422
Calculate
Error


1430
Fine
Location
1431
Access Emission
Threat Table
1432
Increment
Correlation
Time
1433
Add Error
To Location
1434
Form Refined
Emitter
Parameters Msg


1440
Signature
Analysis
1441
Tag on
Traffic Type
Code
1442
Form Typed
Emitter
Report Msg
997
Route Msg to
Interface
Handler


1460
Frequency
Scan
Optimization
1461
Form Frequency
Scan Update Msg
997
Route Msg To
Interface
Handler


998
Update
Data
Base
998.1
Update Emitter
Activity Ground
Truth File
998.2
Update
SOI/AOI
Files
998.3
Update
Flight
Profile
998.4
Update
Carto
File
998.5
Update
Hypsographic
File
998.6
Update
Threat
Table
998.7
Update
Freq. Scan
Table
999
Error
Handler

DATA NAME	VALUES	I	R	X	MEANING
Emitter > Threshold	True False		1330*	1332	Emitter exceeds weather threshold
Emitter Meets SOI	True False		1310*	1315	Emitter meets signal of interest
Emitter Outside AOI	True False		1320*	1321	Emitter is out of the area of interest
Emitter within Sensors Band-width	True False		1310*	1313	
Emission Available	True False		1400*	1470	Continue process while there is a detectable emission on list
End of Trans-mission	False True		1430*	1431	End of the emitter transmission
High Priority Threat Emitter	True False		1460*		
SOI File Available	True False		1310*		Signal of interest file available
Receivers	Integer		1330*	1331	Number of emitter receivers
Record Available	True False		1300*	1360	Filter sensors while an emission is available
Simulation Executing	True False		0000*		Process executes while there is a simulation
Null Detectable Emission Msg	True False		1400*	1480	
Vector Intercepted	True False		1340*	1342	

*VCLR Available

DATA NAME	VALUES	I	R	X	MEANING
Message Name	Typed Emitter Report Msg		0000*		
			998*		
	Carto Update Msg		0000*		
			998*		
	C3I Requirements For Sensor Msg		0000*		
			998*		
	Detectable Emissions Msg		0000*		
			1000*		
	Frequency Scan Update Msg		0000*		
			998*		
	Platform Activity Msg		0000*		
			1000*		
	Platform Control Msg		0000*		
			1000*		
	Requested Sensor Data Msg		0000*		
			998*		
	Scenario Msg		0000*		
			998*		
	Sensor Requests Msg		0000*		
	Sensor System Status Msg		0000*		
	Sensor Tasks Msg		0000*		
			998*		
	Tasking Response Msg		0000*		
CEP <Threshold	False		1430*		Emitter is below
	True			1431	Threat Threshold
Sensor	Pass		1300*	1300*	Has the sensor been
	No Pass			1310*	successfully filtered
				1320*	
				1330*	
				1340*	

* VCLR Available

APPENDIX C

NELS

RADX ANALYSIS

NELS DATA ANALYSIS

```
    24MAR-83
M   12:47:55                XX 000  REVS   BASELINE VERSION = 14.1, (DATE=24MAR-83,
 X  12:50:08  REVSIN                RADX.
M   12:50:08                XX 001  FUNCTION RADX     INITIATED.
 X  18:13:51  REVSIN                END.
M   18:13:51                XX 001  NUMBER OF ERROR MESSAGES ISSUED BY RADX = 66
M   18:13:51                XX 002  FUNCTION RADX     COMPLETED.
 X  18:13:52  REVSIN                STOP.
M   18:13:53                XX 007  REVS COMPLETED: NORMAL TERMINATION.
M   18:13:53                XX 007  YOUR NEW DATA BASE IS ON TAPE2.DAT......


 XX 000  REVS   BASELINE VERSION = 14.1, (DATE=24MAR-83,  TIME=12:47:55)
         RADX.
0XX 001  FUNCTION RADX     INITIATED.  ************************************
  *-*-* ENTER RADX,  DATE = 24MAR-83,  TIME = 12:51:45 *-*-*
 (RADX COMMAND=
 SET A = R+NET.
 ---------------
 SET COUNT = 2

 (RADX COMMAND=
 ANALYZE A USING BETA.
 ---------------------
    R+NET:  R+1+HANDLE+NELS+SENSOR+AND+GPS+PROCESSING+R+NET
       REFERS TO
          SUBNET:  S+1+CHECK+NELS+SENSOR+STATUS+SUB
             REFERS TO
                ALPHA:  A+17+NELS+SENSOR+STATUS+ALPHA
                   INPUTS
                      FILE:  F+2+FLIGHT+PROFILE+FILE
                         CONTAINS
                            DATA:  D+041+FLIGHT+WAYPOINT+X+DATA
                            DATA:  D+042+FLIGHT+WAYPOINT+Y+DATA
                            DATA:  D+043+FLIGHT+WAYPOINT+Z+DATA
                      FILE:  F+20+NELS+PRE+BRIEFED+ADT+FILE
                         CONTAINS
                                  DATA:
                          D+098+NELS+PRE+BRIEFED+ADI+FILTERING+CRITERIA+DATA
                                  DATA:
                               D+097+NELS+PRE+BRIEFED+ADI+LOWER+LEFT+X+DATA
                                  DATA:
                               D+099+NELS+PRE+BRIEFED+ADI+LOWER+LEFT+Y+DATA
                                  DATA:
                              D+100+NELS+PRE+BRIEFED+ADT+UPPER+RIGHT+X+DATA
                                  DATA:
                              D+101+NELS+PRE+BRIEFED+ADT+UPPER+RIGHT+Y+DATA
                      FILE:  F+21+NELS+PRE+BRIEFED+SOT+FILE
                         CONTAINS
                                  DATA:
                              D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA
                                  DATA:
                              D+104+NELS+PRE+BRIEFED+SOT+FREQ+DATA
                                  DATA:
                           D+105+NELS+PRE+BRIEFED+SOT+MODULATION+TYPE+DATA
                                  DATA:
                              D+10+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA
                   OUTPUTS
                      FILE:  F+30+SENSOR+STATUS+FILE
```

```
                CONTAINS
                    DATA:  D←044←FREQUENCY←SCAN←PARAMETER←DATA
                    DATA:  D←136←SENSOR←MODE←OF←OPERATION←DATA
            INPUTS
                    DATA:  D←002←ASET←MSG←DEST←DATA
                    DATA:  D←004←ASET←MSG←NAME←DATA
                    DATA:  D←005←ASET←MSG←SOURCE←DATA
                           DATA:  D←007←ASP←ACC←X←DATA
                           DATA:  D←008←ASP←ACC←Y←DATA
                           DATA:  D←009←ASP←ACC←Z←DATA
```

```
                    DATA:  D-014-ASP-LOC-X-DATA
                    DATA:  D-015-ASP-LOC-Y-DATA
                    DATA:  D-016-ASP-LOC-Z-DATA
                    DATA:  D-021-ASP-TIME-DATA
                    DATA:  D-022-ASP-VEL-X-DATA
                    DATA:  D-023-ASP-VEL-Y-DATA
                    DATA:  D-024-ASP-VEL-Z-DATA
                DATA:  D-091-NELS-FREQUENCY-SCAN-DATA
                DATA:  D-135-SENSOR-ID-DATA
            OUTPUTS
                    DATA:  D-002-ASET-MSG-DEST-DATA
                    DATA:  D-004-ASET-MSG-NAME-DATA
                    DATA:  D-005-ASET-MSG-SOURCE-DATA
                DATA:  D-091-NELS-FREQUENCY-SCAN-DATA
                DATA:  D-135-SENSOR-ID-DATA
            FORMS
                MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT
                    MADE BY
                        FILE:  F-34-SENSOR-STATUS-FILE (*)
                    MADE BY
                            DATA:  D-002-ASET-MSG-DEST-DATA
                            DATA:  D-004-ASET-MSG-NAME-DATA
                            DATA:  D-005-ASET-MSG-SOURCE-DATA
                        DATA:  D-135-SENSOR-ID-DATA
        DATA:  D-136-SENSOR-MODE-OF-OPERATION-DATA
        DATA:  D-140-TOD-DATA
        ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
            ASSOCIATES
                FILE:  F-06-FLIGHT-PROFILE-FILE (*)
                FILE:  F-27-PLATFORM-CONTROL-FILE
                    CONTAINS
                            DATA:  D-010-ASP-ALTITUDE-DATA
                            DATA:  D-012-ASP-LATITUDE-DATA
                            DATA:  D-017-ASP-LONGITUDE-DATA
                        DATA:  D-014-ASP-LOC-X-DATA
                        DATA:  D-015-ASP-LOC-Y-DATA
                        DATA:  D-016-ASP-LOC-Z-DATA
                        DATA:  D-022-ASP-VEL-X-DATA
                        DATA:  D-023-ASP-VEL-Y-DATA
                        DATA:  D-024-ASP-VEL-Z-DATA
        ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
            ASSOCIATES
                FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
                    CONTAINS
                        DATA:  D-061-NELS-EMISSION-DURATION-DATA
                        DATA:
                        D-062-NELS-EMISSION-SIGNAL-STRENGTH-DATA
                        DATA:  D-063-NELS-EMISSION-START-TIME-DATA
                        DATA:
                        D-073-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
                        DATA:  D-075-NELS-EMITTER-ID-DATA
                                DATA:  D-085-NELS-EMITTER-X-DATA
                                DATA:  D-086-NELS-EMITTER-Y-DATA
                                DATA:  D-087-NELS-EMITTER-Z-DATA
                        DATA:
                       D-081-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
                        DATA:  D-130-SCENARIO-GEN-ID-NUM-DATA
                FILE:  F-21-NELS-PRE-BRIEFED-SOI-FILE (*)
```

```
ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET
   ASSOCIATES
      FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE (*)
      FILE:  F-20-NELS-PRE-BRIEFED-AOI-FILE (*)
EVENT:  E-1-ACTIVATE-SENSOR-EVENT
OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS
   PASSES
      MESSAGE:
      M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
         MADE BY
            FILE:  F-07-GROUP-TARGET-LOCS-FILE
               CONTAINS
                  DATA:  D-048-GROUND-TARGET-LOC-X-DATA
                  DATA:  D-049-GROUND-TARGET-LOC-Y-DATA
         MADE BY
                  DATA:  D-002-ASET-MSG-DEST-DATA
                  DATA:  D-004-ASET-MSG-NAME-DATA
                  DATA:  D-005-ASET-MSG-SOURCE-DATA
            DATA:  D-045-GPS-ID-DATA
            DATA:  D-046-GROUND-TARGET-FREQUENCY-DATA
            DATA:  D-047-GROUND-TARGET-LENGTH-DATA
            DATA:  D-050-GROUND-TARGET-VELOCITY-DATA
      MESSAGE:
      M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT
         MADE BY
            FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE
               CONTAINS
                  DATA:  D-114-PLATFORM-LOCATION-X-DATA
                  DATA:  D-115-PLATFORM-LOCATION-Y-DATA
                  DATA:  D-116-PLATFORM-LOCATION-Z-DATA
         MADE BY
                  DATA:  D-002-ASET-MSG-DEST-DATA
                  DATA:  D-004-ASET-MSG-NAME-DATA
                  DATA:  D-005-ASET-MSG-SOURCE-DATA
      MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT
         MADE BY
                  DATA:  D-002-ASET-MSG-DEST-DATA
                  DATA:  D-004-ASET-MSG-NAME-DATA
                  DATA:  D-005-ASET-MSG-SOURCE-DATA
            DATA:  D-125-REQ-DESTINATION-SENSOR-ID-DATA
            DATA:  D-126-REQ-REPORT-INFORMATION-TYPE-DATA
            DATA:
            D-127-REQ-SENSOR-TARGET-ID-OF-INTEREST-DATA
            DATA:  D-135-SENSOR-ID-DATA
      MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT
       (*)
      MESSAGE:
      M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
         MADE BY
            FILE:  F-07-GROUP-TARGET-LOCS-FILE (*)
         MADE BY
                  DATA:  D-002-ASET-MSG-DEST-DATA
                  DATA:  D-004-ASET-MSG-NAME-DATA
                  DATA:  D-005-ASET-MSG-SOURCE-DATA
            DATA:  D-045-GPS-ID-DATA
            DATA:  D-046-GROUND-TARGET-FREQUENCY-DATA
            DATA:  D-047-GROUND-TARGET-LENGTH-DATA
            DATA:  D-050-GROUND-TARGET-VELOCITY-DATA
```

```
                    MESSAGE:  M=13=NELS=TASKING=RESPONSES=MSG=OUT
                       MADE BY
                                DATA:  D=002=ASET=MSG=DEST=DATA
                                DATA:  D=004=ASET=MSG=NAME=DATA
                                DATA:  D=005=ASET=MSG=SOURCE=DATA
                             DATA:  D=138=TASKING=RESPONSE=DATA
                             DATA:  D=139=TASK=QUE=ID=DATA
                             DATA:  D=141=TIME=DATA
                    MESSAGE:  M=14=NELS=TRACK=MESSAGE=MSG=OUT
                       MADE BY
                          FILE:  F=02=CARTO=UPDATE=FILE
                             CONTAINS
                                DATA:  D=029=CARTO=SECTION=NUM=DATA
                                DATA:  D=030=CARTO=UPDATE=1=DATA
                                DATA:  D=031=CARTO=UPDATE=2=DATA
                                DATA:  D=032=CARTO=UPDATE=3=DATA
                                DATA:  D=033=CARTO=UPDATE=X=DATA
                                DATA:  D=034=CARTO=UPDATE=Y=DATA
                             ORDERED BY
                                DATA:  D=029=CARTO=SECTION=NUM=DATA
                       MADE BY
                                DATA:  D=002=ASET=MSG=DEST=DATA
                                DATA:  D=004=ASET=MSG=NAME=DATA
                                DATA:  D=005=ASET=MSG=SOURCE=DATA
                             DATA:  D=135=SENSOR=ID=DATA
                             DATA:  D=142=TRACK=MESSAGE=DATA
SUBNET:  S=2=DO=NELS=OPERATIONAL=CONTROL=SUB
   REFERS TO
      ALPHA:  A=13=NELS=PLATFORM=LOCATION=MSG=ALPHA
         OUTPUTS
            FILE:  F=33=SENSOR=PLATFORM=LOCATION=FILE (*)
         INPUTS
                                DATA:  D=007=ASP=ACC=X=DATA
                                DATA:  D=008=ASP=ACC=Y=DATA
                                DATA:  D=009=ASP=ACC=Z=DATA
                             DATA:  D=014=ASP=LOC=X=DATA
                             DATA:  D=015=ASP=LOC=Y=DATA
                             DATA:  D=016=ASP=LOC=Z=DATA
                             DATA:  D=021=ASP=TIME=DATA
                             DATA:  D=022=ASP=VEL=X=DATA
                             DATA:  D=023=ASP=VEL=Y=DATA
                             DATA:  D=024=ASP=VEL=Z=DATA
         OUTPUTS
                             DATA:  D=002=ASET=MSG=DEST=DATA
                             DATA:  D=004=ASET=MSG=NAME=DATA
                             DATA:  D=005=ASET=MSG=SOURCE=DATA
         FORMS
            MESSAGE:
            M=07=NELS=PLATFORM=LOCATION=REPORTS=MSG=OUT
              (*)
      ALPHA:  A=20=NELS=SURVEILLANCE=AND=TRACK=MSGS=ALPHA
         INPUTS
            FILE:  F=25=NELS=TYPED=EMITTER=REPORT=FILE
               CONTAINS
                                DATA:  D=070=NELS=EMITTER=COV=DATA
                                DATA:
                                D=074=NELS=EMITTER=FREQUENCY=DATA
                                DATA:  D=166=NELS=EMITTER=ID=DATA
```

```
                    DATA:  D-167-NELS-EMITTER-X-DATA
                    DATA:  D-168-NELS-EMITTER-Y-DATA
                    DATA:  D-169-NELS-EMITTER-Z-DATA
                    DATA:  D-170-SCENARIO-GEN-ID-NUM-DATA
                    DATA:
                    D-176-NELS-EMITTER-BANDWIDTH-DATA
                    DATA:  D-177-NELS-EMITTER-CEP-DATA
                    DATA:
                    D-178-NELS-EMITTER-MODULATION-TYPE-DATA
                    DATA:
                   D-179-NELS-EMITTER-TIME-OF-LOCATION-DATA
                    DATA:
                    D-180-NELS-EMITTER-TRAFFIC-TYPE-DATA
          OUTPUTS
             FILE:  F-02-CARTO-UPDATE-FILE (*)
             FILE:  F-07-GROUP-TARGET-LOCS-FILE (*)
          OUTPUTS
                   DATA:  D-002-ASET-MSG-DEST-DATA
                   DATA:  D-000-ASET-MSG-NAME-DATA
                   DATA:  D-005-ASET-MSG-SOURCE-DATA
             DATA:  D-045-GPS-ID-DATA
             DATA:  D-046-GROUND-TARGET-FREQUENCY-DATA
             DATA:  D-047-GROUND-TARGET-LENGTH-DATA
             DATA:  D-050-GROUND-TARGET-VELOCITY-DATA
             DATA:  D-135-SENSOR-ID-DATA
             DATA:  D-182-TRACK-MESSAGE-DATA
          FORMS
             MESSAGE:
             M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
              (*)
             MESSAGE:
             M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
              (*)
             MESSAGE:  M-14-NELS-TRACK-MESSAGE-MSG-OUT (*)
       OUTPUT-INTERFACE:  TC-TIMING-AND-CONTROL-FROM-NELS
        (*)
       SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB
          REFERS TO
             ALPHA:  A-06-NELS-COARSE-LOCATION-ALPHA
                INPUTS
                   FILE:
                   F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
                      CONTAINS
                            DATA:
                         D-077-NELS-EMITTER-MODULATION-TYPE-DATA
                            DATA:
                        D-078-NELS-EMITTER-POWER-LEVEL-DATA
                            DATA:
                      D-159-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
                            DATA:
                    D-161-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
                     FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
                      CONTAINS
                            DATA:
                            D-068-NELS-EMITTER-CEP-DATA
                            DATA:
                            D-157-NELS-EMISSION-DURATION-DATA
                            DATA:
```

```
                    D+158+NELS+EMISSION+START+TIME+DATA
                      DATA:  D+160+NELS+EMITTER+ID+DATA
                      DATA:  D+162+NELS+EMITTER+X+DATA
                      DATA:  D+163+NELS+EMITTER+Y+DATA
                      DATA:  D+164+NELS+EMITTER+Z+DATA
                      DATA:
                      D+165+SCENARIO+GEN+ID+NUM+DATA
               FILE:  F+24+NELS+TDOA+DD+FILE
                  CONTAINS
                      DATA:  D+058+NELS+DD+1+2+DATA
                      DATA:  D+059+NELS+DD+1+3+DATA
                      DATA:  D+060+NELS+DD+2+3+DATA
                      DATA:  D+109+NELS+TDOA+1+2+DATA
                      DATA:  D+110+NELS+TDOA+1+3+DATA
                      DATA:  D+111+NELS+TDOA+2+3+DATA
            OUTPUTS
               FILE:  F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE
                (*)
         ALPHA:  A+07+NELS+FINE+LOCATION+ALPHA
            INPUTS
               FILE:  F+13+NELS+EMISSION+THREAT+TABLE+FILE
                  CONTAINS
                      DATA:
                    D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA
                      DATA:
                   D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA
                      DATA:  D+171+NELS+EMITTER+ID+DATA
                      DATA:
                D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
                      DATA:  D+173+NELS+EMITTER+X+DATA
                      DATA:  D+174+NELS+EMITTER+Y+DATA
                      DATA:  D+175+NELS+EMITTER+Z+DATA
                      DATA:
                   D+181+NELS+EMITTER+MODULATION+TYPE+DATA
                      DATA:
                      D+182+NELS+EMITTER+BANDWIDTH+DATA
                      DATA:
                      D+183+NELS+EMITTER+CEP+DATA
                  ORDERED BY
                     DATA:
                    D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA
               FILE:
               F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
                (*)
               FILE:  F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE
                (*)
            OUTPUTS
               FILE:
               F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
                (*)
               FILE:  F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE
                (*)
            INPUTS
                     DATA:  D+018+ASP+PITCH+DATA
                     DATA:  D+019+ASP+ROLL+DATA
                     DATA:  D+025+ASP+YAW+DATA
                     DATA:  D+010+ASP+ALTITUDE+DATA
                     DATA:  D+012+ASP+LATITUDE+DATA
```

```
                    DATA:  D-017-ASP-LONGITUDE-DATA
                           DATA:  D-007-ASP-ACC-X-DATA
                           DATA:  D-008-ASP-ACC-Y-DATA
                           DATA:  D-009-ASP-ACC-Z-DATA
                    DATA:  D-014-ASP-LOC-X-DATA
                    DATA:  D-015-ASP-LOC-Y-DATA
                    DATA:  D-016-ASP-LOC-Z-DATA
                    DATA:  D-021-ASP-TIME-DATA
                    DATA:  D-022-ASP-VEL-X-DATA
                    DATA:  D-023-ASP-VEL-Y-DATA
                    DATA:  D-024-ASP-VEL-Z-DATA
ALPHA:  A-08-NELS-FREQUENCY-SCAN-OPTIMIZATION-ALPHA
   INPUTS
      FILE:
      F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
       (*)
   INPUTS
      DATA:  C-091-NELS-FREQUENCY-SCAN-DATA
   OUTPUTS
      DATA:  C-091-NELS-FREQUENCY-SCAN-DATA
ALPHA:  A-12-NELS-PERFORM-SIGNATURE-ANALYSIS-ALPHA
   INPUTS
      FILE:
      F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
       (*)
      FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
       (*)
   OUTPUTS
      FILE:  F-25-NELS-TYPED-EMITTER-REPORT-FILE
       (*)
ALPHA:  A-21-NELS-TARGET-ACQUISITION-ALPHA
   INPUTS
      FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE
        CONTAINS
           DATA:
           D-147-NELS-EMISSION-DURATION-DATA
           DATA:
          D-148-NELS-EMISSION-SIGNAL-STRENGTH-DATA
           DATA:
           D-149-NELS-EMISSION-START-TIME-DATA
           DATA:
        D-150-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
           DATA:  D-151-NELS-EMITTER-ID-DATA
           DATA:
    D-152-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
           DATA:  D-153-NELS-EMITTER-X-DATA
           DATA:  D-154-NELS-EMITTER-Y-DATA
           DATA:  D-155-NELS-EMITTER-Z-DATA
           DATA:  D-156-SCENARIO-GEN-ID-NUM-DATA
   OUTPUTS
      FILE:
      F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
       (*)
      FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
       (*)
      FILE:  F-24-NELS-TDOA-DD-FILE (*)
   INPUTS
           DATA:  D-018-ASP-PITCH-DATA
```

```
                    DATA:  D+019+ASP+ROLL+DATA
                    DATA:  D+025+ASP+YAW+DATA
                    DATA:  D+010+ASP+ALTITUDE+DATA
                    DATA:  D+012+ASP+LATITUDE+DATA
                    DATA:  D+017+ASP+LONGITUDE+DATA
                           DATA:  D+007+ASP+ACC+X+DATA
                           DATA:  D+008+ASP+ACC+Y+DATA
                           DATA:  D+009+ASP+ACC+Z+DATA
                    DATA:  D+014+ASP+LOC+X+DATA
                    DATA:  D+015+ASP+LOC+Y+DATA
                    DATA:  D+016+ASP+LOC+Z+DATA
                    DATA:  D+021+ASP+TIME+DATA
                    DATA:  D+022+ASP+VEL+X+DATA
                    DATA:  D+023+ASP+VEL+Y+DATA
                    DATA:  D+024+ASP+VEL+Z+DATA
          ALPHA:  A+23+NELS+THREAT+TABLE+UPDATE+ALPHA
             INPUTS
                FILE:  F+13+NELS+EMISSION+THREAT+TABLE+FILE
                 (*)
                FILE:  F+25+NELS+TYPED+EMITTER+REPORT+FILE
                 (*)
             OUTPUTS
                FILE:  F+13+NELS+EMISSION+THREAT+TABLE+FILE
                 (*)
          DATA:  D+140+TBD+DATA
          ENTITY+TYPE:  ET+1+NELS+EMISSION+THREAT+ET
             ASSOCIATES
                FILE:  F+13+NELS+EMISSION+THREAT+TABLE+FILE
                 (*)
       SUBNET:  S+4+MODEL+NELS+PLATFORM+SUB
          REFERS TO
             ALPHA:  A+01+DME+INS+NOISE+GENERATION+ALPHA
                INPUTS
                    DATA:  D+018+ASP+PITCH+DATA
                    DATA:  D+019+ASP+ROLL+DATA
                    DATA:  D+025+ASP+YAW+DATA
                    DATA:  D+010+ASP+ALTITUDE+DATA
                    DATA:  D+012+ASP+LATITUDE+DATA
                    DATA:  D+017+ASP+LONGITUDE+DATA
                           DATA:  D+007+ASP+ACC+X+DATA
                           DATA:  D+008+ASP+ACC+Y+DATA
                           DATA:  D+009+ASP+ACC+Z+DATA
                    DATA:  D+014+ASP+LOC+X+DATA
                    DATA:  D+015+ASP+LOC+Y+DATA
                    DATA:  D+016+ASP+LOC+Z+DATA
                    DATA:  D+021+ASP+TIME+DATA
                    DATA:  D+022+ASP+VEL+X+DATA
                    DATA:  D+023+ASP+VEL+Y+DATA
                    DATA:  D+024+ASP+VEL+Z+DATA
                OUTPUTS
                    DATA:  D+018+ASP+PITCH+DATA
                    DATA:  D+019+ASP+ROLL+DATA
                    DATA:  D+025+ASP+YAW+DATA
                    DATA:  D+010+ASP+ALTITUDE+DATA
                    DATA:  D+012+ASP+LATITUDE+DATA
                    DATA:  D+017+ASP+LONGITUDE+DATA
                           DATA:  D+007+ASP+ACC+X+DATA
                           DATA:  D+008+ASP+ACC+Y+DATA
```

```
                                    DATA:  D←009←ASP←ACC←Z←DATA
                              DATA:  D←014←ASP←LOC←X←DATA
                              DATA:  D←015←ASP←LOC←Y←DATA
                              DATA:  D←016←ASP←LOC←Z←DATA
                              DATA:  D←021←ASP←TIME←DATA
                              DATA:  D←022←ASP←VEL←X←DATA
                              DATA:  D←023←ASP←VEL←Y←DATA
                              DATA:  D←024←ASP←VEL←Z←DATA
                        ALPHA:  A←02←GENERATE←DME←ALPHA
                           INPUTS
                              FILE:  F←06←FLIGHT←PROFILE←FILE (*)
                              FILE:  F←27←PLATFORM←CONTROL←FILE (*)
                           INPUTS
                                    DATA:  D←002←ASET←MSG←DEST←DATA
                                    DATA:  D←004←ASET←MSG←NAME←DATA
                                    DATA:  D←005←ASET←MSG←SOURCE←DATA
                              DATA:  D←141←TIME←DATA
                           OUTPUTS
                                    DATA:  D←002←ASET←MSG←DEST←DATA
                                    DATA:  D←004←ASET←MSG←NAME←DATA
                                    DATA:  D←005←ASET←MSG←SOURCE←DATA
                                          DATA:  D←007←ASP←ACC←X←DATA
                                          DATA:  D←008←ASP←ACC←Y←DATA
                                          DATA:  D←009←ASP←ACC←Z←DATA
                                    DATA:  D←014←ASP←LOC←X←DATA
                                    DATA:  D←015←ASP←LOC←Y←DATA
                                    DATA:  D←016←ASP←LOC←Z←DATA
                                    DATA:  D←021←ASP←TIME←DATA
                                    DATA:  D←022←ASP←VEL←X←DATA
                                    DATA:  D←023←ASP←VEL←Y←DATA
                                    DATA:  D←024←ASP←VEL←Z←DATA
                        ALPHA:  A←03←GENERATE←INS←ALPHA
                           INPUTS
                                    DATA:  D←010←ASP←ALTITUDE←DATA
                                    DATA:  D←012←ASP←LATITUDE←DATA
                                    DATA:  D←017←ASP←LONGITUDE←DATA
                                          DATA:  D←007←ASP←ACC←X←DATA
                                          DATA:  D←008←ASP←ACC←Y←DATA
                                          DATA:  D←009←ASP←ACC←Z←DATA
                                    DATA:  D←014←ASP←LOC←X←DATA
                                    DATA:  D←015←ASP←LOC←Y←DATA
                                    DATA:  D←016←ASP←LOC←Z←DATA
                                    DATA:  D←021←ASP←TIME←DATA
                                    DATA:  D←022←ASP←VEL←X←DATA
                                    DATA:  D←023←ASP←VEL←Y←DATA
                                    DATA:  D←024←ASP←VEL←Z←DATA
                           OUTPUTS
                                    DATA:  D←018←ASP←PITCH←DATA
                                    DATA:  D←019←ASP←ROLL←DATA
                                    DATA:  D←025←ASP←YAW←DATA
                                    DATA:  D←010←ASP←ALTITUDE←DATA
                                    DATA:  D←012←ASP←LATITUDE←DATA
                                    DATA:  D←017←ASP←LONGITUDE←DATA
                        DATA:  D←140←TOD←DATA
                        ENTITY←TYPE:  FT←3←NELS←FLIGHT←FT (*)
                  SUBNET:  S←5←MODEL←NELS←SENSOR←SUB
                     REFERS TO
                        ALPHA:  A←05←NELS←AREA←OF←INTEREST←FILTER←ALPHA
```

```
                INPUTS
                   FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
                    (*)
                   FILE:  F-20-NELS-PRE-BRIEFED-AOI-FILE
                    (*)
                OUTPUTS
                   FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
                    (*)
                INPUTS
                          DATA:  D-018-ASP-PITCH-DATA
                          DATA:  D-019-ASP-ROLL-DATA
                          DATA:  D-025-ASP-YAW-DATA
                          DATA:  D-010-ASP-ALTITUDE-DATA
                          DATA:  D-012-ASP-LATITUDE-DATA
                          DATA:  D-017-ASP-LONGITUDE-DATA
                                 DATA:  D-007-ASP-ACC-X-DATA
                                 DATA:  D-008-ASP-ACC-Y-DATA
                                 DATA:  D-009-ASP-ACC-Z-DATA
                          DATA:  D-014-ASP-LOC-X-DATA
                          DATA:  D-015-ASP-LOC-Y-DATA
                          DATA:  D-016-ASP-LOC-Z-DATA
                          DATA:  D-021-ASP-TIME-DATA
                          DATA:  D-022-ASP-VEL-X-DATA
                          DATA:  D-023-ASP-VEL-Y-DATA
                          DATA:  D-024-ASP-VEL-Z-DATA
             ALPHA:  A-1P-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
                INPUTS
                   FILE:
                   F-14-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-FILE
                      CONTAINS
                                DATA:
                          D-063-R-NELS-EMISSION-START-TIME-DATA
                                DATA:
                          D-064-NELS-EMISSION-STOP-TIME-DATA
                                DATA:
                   D-075-R-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
                                DATA:
                                D-075-R-NELS-EMITTER-ID-DATA
                                DATA:
                D-081-R-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
                                DATA:
                                D-082-NELS-EMITTER-VEL-X-DATA
                                DATA:
                                D-083-NELS-EMITTER-VEL-Y-DATA
                                DATA:
                                D-084-NELS-EMITTER-VEL-Z-DATA
                                DATA:
                                D-085-R-NELS-EMITTER-X-DATA
                                DATA:
                                D-086-R-NELS-EMITTER-Y-DATA
                                DATA:
                                D-087-R-NELS-EMITTER-Z-DATA
                                DATA:
                                D-130-R-SCENARIO-GEN-ID-NUM-DATA
                      ORDERED BY
                          DATA:  D-075-R-NELS-EMITTER-ID-DATA
                   FILE:  F-15-NELS-EMITTER-CHARACTERISTICS-FILE
                      CONTAINS
```

```
                    DATA:
                    D-067-NELS-EMITTER-BANDWIDTH-DATA
                    DATA:
                D-077-A-NELS-EMITTER-MODULATION-TYPE-DATA
                    DATA:
                D-078-A-NELS-EMITTER-POWER-LEVEL-DATA
        FILE:  F-21-NELS-PREFERRED-SOI-FILE
          (*)
      OUTPUTS
        FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
          (*)
      INPUTS
              DATA:  D-018-ASP-PITCH-DATA
              DATA:  D-019-ASP-ROLL-DATA
              DATA:  D-025-ASP-YAW-DATA
              DATA:  D-010-ASP-ALTITUDE-DATA
              DATA:  D-012-ASP-LATITUDE-DATA
              DATA:  D-017-ASP-LONGITUDE-DATA
                    DATA:  D-007-ASP-ACC-X-DATA
                    DATA:  D-008-ASP-ACC-Y-DATA
                    DATA:  D-009-ASP-ACC-Z-DATA
              DATA:  D-014-ASP-LOC-X-DATA
              DATA:  D-015-ASP-LOC-Y-DATA
              DATA:  D-016-ASP-LOC-Z-DATA
              DATA:  D-021-ASP-TIME-DATA
              DATA:  D-022-ASP-VEL-X-DATA
              DATA:  D-023-ASP-VEL-Y-DATA
              DATA:  D-024-ASP-VEL-Z-DATA
        DATA:  D-091-NELS-FREQUENCY-SCAN-DATA
ALPHA:
A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
    INPUTS
        FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
          (*)
        FILE:  F-26-NELS-WEATHER-CONDITIONS-FILE
          CONTAINS
                        DATA:
                        D-037-CLOUD-COVER-DATA
                        DATA:
                        D-120-PRECIPITATION-DATA
                    DATA:
                    D-039-ELEVATION-WEATHER-DATA
              DATA:  D-144-X-WEATHER-LOC-DATA
              DATA:  D-146-Y-WEATHER-LOC-DATA
    OUTPUTS
        FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
          (*)
    INPUTS
              DATA:  D-018-ASP-PITCH-DATA
              DATA:  D-019-ASP-ROLL-DATA
              DATA:  D-025-ASP-YAW-DATA
              DATA:  D-010-ASP-ALTITUDE-DATA
              DATA:  D-012-ASP-LATITUDE-DATA
              DATA:  D-017-ASP-LONGITUDE-DATA
                    DATA:  D-007-ASP-ACC-X-DATA
                    DATA:  D-008-ASP-ACC-Y-DATA
                    DATA:  D-009-ASP-ACC-Z-DATA
              DATA:  D-014-ASP-LOC-X-DATA
```

```
                DATA:  D←015←ASP←LOC←Y←DATA
                DATA:  D←016←ASP←LOC←Z←DATA
                DATA:  D←021←ASP←TIME←DATA
                DATA:  D←022←ASP←VEL←X←DATA
                DATA:  D←023←ASP←VEL←Y←DATA
                DATA:  D←024←ASP←VEL←Z←DATA
ALPHA:  A←22←NELS←TERRAIN←FOLIAGE←SHADOWING←ALPHA
   INPUTS
      FILE:  F←08←HYPSO←DATA←FILE
         CONTAINS
            DATA:  D←051←HYPSO←ELEV←DATA
            DATA:  D←052←HYPSO←LOC←X←DATA
            DATA:  D←053←HYPSO←LOC←Y←DATA
      FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE
        (*)
   OUTPUTS
      FILE:  F←12←DETECTED←CANDIDATE←TARGETS←FILE
        (*)
   INPUTS
            DATA:  D←018←ASP←PITCH←DATA
            DATA:  D←019←ASP←ROLL←DATA
            DATA:  D←025←ASP←YAW←DATA
            DATA:  D←010←ASP←ALTITUDE←DATA
            DATA:  D←012←ASP←LATITUDE←DATA
            DATA:  D←017←ASP←LONGITUDE←DATA
                  DATA:  D←007←ASP←ACC←X←DATA
                  DATA:  D←008←ASP←ACC←Y←DATA
                  DATA:  D←009←ASP←ACC←Z←DATA
            DATA:  D←014←ASP←LOC←X←DATA
            DATA:  D←015←ASP←LOC←Y←DATA
            DATA:  D←016←ASP←LOC←Z←DATA
            DATA:  D←021←ASP←TIME←DATA
            DATA:  D←022←ASP←VEL←X←DATA
            DATA:  D←023←ASP←VEL←Y←DATA
            DATA:  D←024←ASP←VEL←Z←DATA
DATA:  D←140←TBD←DATA
ENTITY←TYPE:  ET←2←NELS←EMITTER←GROUND←TRUTH←ET
   ASSOCIATES
      FILE:
      F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE
        (*)
ENTITY←TYPE:  ET←5←NELS←PRE←BRIEFED←SOI←ET
  (*)
ENTITY←TYPE:  ET←6←NELS←VEHICLE←CHARACTERISTICS←ET
   ASSOCIATES
      FILE:  F←15←NELS←EMITTER←CHARACTERISTICS←FILE
        (*)
ENTITY←TYPE:  ET←7←NELS←WEATHER←ET
   ASSOCIATES
      FILE:  F←26←NELS←WEATHER←CONDITIONS←FILE
        (*)
ENTITY←TYPE:  ET←8←NELS←PRE←BRIEFED←AOI←ET
  (*)
ENTITY←TYPE:
ET←9←SIGNAL←NOISE←CANDIDATE←TARGETS←ET
   ASSOCIATES
      FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE
        (*)
```

```
R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET
   REFERS TO
      ALPHA:  A-04-INITIALIZE-NELS-ALPHA
         INPUTS
            FILE:  F-16-NELS-EMITTER-FILE
               CONTAINS
                        DATA:  D-063-A-NELS-EMISSION-START-TIME-DATA
                        DATA:  D-064-A-NELS-EMISSION-STOP-TIME-DATA
                        DATA:
                        D-073-A-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
                        DATA:  D-075-A-NELS-EMITTER-ID-DATA
                        DATA:
                     D-081-A-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
                        DATA:  D-082-A-NELS-EMITTER-VEL-X-DATA
                        DATA:  D-083-A-NELS-EMITTER-VEL-Y-DATA
                        DATA:  D-084-A-NELS-EMITTER-VEL-Z-DATA
                        DATA:  D-085-A-NELS-EMITTER-X-DATA
                        DATA:  D-086-A-NELS-EMITTER-Y-DATA
                        DATA:  D-087-A-NELS-EMITTER-Z-DATA
                        DATA:  D-130-A-SCENARIO-GEN-ID-NUM-DATA
         OUTPUTS
            FILE:  F-14-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-FILE
             (*)
            FILE:  F-15-NELS-EMITTER-CHARACTERISTICS-FILE (*)
         CREATES
            ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
               COMPOSED OF
                  ENTITY-TYPE:
                  ET-10-GROUND-SHADOWING-CANDIDATE-TARGETS-ET
                     ASSOCIATES
                        FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
                         (*)
                        FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE
                         (*)
                  ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
                   (*)
                  ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET
                   (*)
                  ENTITY-TYPE:
                  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET (*)
               ASSOCIATES
                  DATA:  D-140-TBD-DATA
            ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
               COMPOSED OF
                  ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET
                   (*)
                  ENTITY-TYPE:  ET-7-NELS-WEATHER-ET (*)
               ASSOCIATES
                  DATA:  D-140-TBD-DATA
            ENTITY-CLASS:  EC-3-NELS-TASKS-EC
               COMPOSED OF
                  ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET (*)
                  ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET
                     ASSOCIATES
                        FILE:  F-19-NELS-FREQUENCY-SCAN-FILE
                           CONTAINS
                                 DATA:
                              D-092-NELS-FREQ-SCAN-LOWER-FREQ-DATA
```

```
                                        DATA:
                                      D-093-NELS-FREQ-SCAN-UPPER-FREQ-DATA
                ASSOCIATES
                   DATA:  D-140-TBD-DATA
             ENTITY-CLASS:  EC-4-NELS-THREAT-EC
                COMPOSED OF
                   ENTITY-TYPE:  ET-1-NELS-EMISSION-THREAT-ET
                    (*)
                ASSOCIATES
                   DATA:  D-140-TBD-DATA
             ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC
                COMPOSED OF
                   ENTITY-TYPE:  ET-6-NELS-VEHICLE-CHARACTERISTICS-ET
                    (*)
                ASSOCIATES
                   DATA:  D-140-TBD-DATA
             ENTITY-CLASS:  EC-6-DETECTED-EMISSIONS-INFO-EC
                COMPOSED OF
                   ENTITY-TYPE:  ET-11-DETECTED-EMISSIONS-DD-TDOA-ET
                      ASSOCIATES
                         FILE:
                         F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
                          (*)
                         FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
                          (*)
                   ENTITY-TYPE:  ET-12-DETECTED-EMISSIONS-COARSE-ET
                      ASSOCIATES
                         FILE:
                         F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
                          (*)
                         FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
                          (*)
                   ENTITY-TYPE:  ET-13-DETECTED-EMISSIONS-FINE-ET
                      ASSOCIATES
                         FILE:
                         F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
                          (*)
                         FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
                          (*)
          ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA
             OUTPUTS
                      DATA:  D-002-ASET-MSG-DEST-DATA
                      DATA:  D-004-ASET-MSG-NAME-DATA
                      DATA:  D-005-ASET-MSG-SOURCE-DATA
                DATA:  D-125-REQ-DESTINATION-SENSOR-ID-DATA
                DATA:  D-126-REQ-REPORT-INFORMATION-TYPE-DATA
                DATA:  D-127-REQ-SENSOR-TARGET-ID-OF-INTEREST-DATA
                DATA:  D-135-SENSOR-ID-DATA
             FORMS
                MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT (*)
          ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA
             INPUTS
                FILE:  F-06-FLIGHT-PROFILE-FILE (*)
                FILE:  F-32-SENSOR-ORBIT-MODS-FILE
                   CONTAINS
                      DATA:  D-117-PLATFORM-MOD-X-DATA
                      DATA:  D-118-PLATFORM-MOD-Y-DATA
                      DATA:  D-119-PLATFORM-MOD-Z-DATA
```

```
      OUTPUTS
         FILE:  F←06←FLIGHT←PROFILE←FILE (*)
      INPUTS
         DATA:  D←135←SENSOR←ID←DATA
   ALPHA:  A←11←NELS←MODIFY←TASK←ALPHA
      INPUTS
         FILE:  F←05←FEASIBLE←ACTIVITY←AREA←FILE
            CONTAINS
               DATA:  D←143←X←LOC←FEASIBLE←DATA
               DATA:  D←145←Y←LOC←FEASIBLE←DATA
         FILE:  F←06←FLIGHT←PROFILE←FILE (*)
      OUTPUTS
         FILE:  F←06←FLIGHT←PROFILE←FILE (*)
      INPUTS
         DATA:  D←056←NEEDED←FEASIBLE←DATA
         DATA:  D←159←TASK←QUE←ID←DATA
         DATA:  D←141←TIME←DATA
      OUTPUTS
               DATA:  D←002←ASET←MSG←DEST←DATA
               DATA:  D←004←ASET←MSG←NAME←DATA
               DATA:  D←005←ASET←MSG←SOURCE←DATA
         DATA:  D←138←TASKING←RESPONSE←DATA
         DATA:  D←139←TASK←QUE←ID←DATA
         DATA:  D←141←TIME←DATA
      FORMS
         MESSAGE:  M←13←NELS←TASKING←RESPONSES←MSG←OUT (*)
   ALPHA:  A←14←NELS←PROCESS←COMMANDERS←REQUIREMENTS←ALPHA
      INPUTS
         FILE:  F←04←CMDRS←DATA←TO←UPDATE←FILE
            CONTAINS
               DATA:  D←040←FIRST←CMDRS←REC←UPDATE←DATA
               DATA:  D←133←SECOND←CMDRS←REC←UPDATE←DATA
         FILE:  F←20←NELS←PRE←BRIEFED←AOI←FILE (*)
         FILE:  F←21←NELS←PRE←BRIEFED←SOI←FILE (*)
      OUTPUTS
         FILE:  F←20←NELS←PRE←BRIEFED←AOI←FILE (*)
         FILE:  F←21←NELS←PRE←BRIEFED←SOI←FILE (*)
   ALPHA:  A←15←NELS←PROCESS←PRIORITIZED←SENSOR←DIRECTIONS←ALPHA
      INPUTS
         FILE:  F←05←FEASIBLE←ACTIVITY←AREA←FILE (*)
         FILE:  F←19←NELS←FREQUENCY←SCAN←FILE (*)
      OUTPUTS
         FILE:  F←19←NELS←FREQUENCY←SCAN←FILE (*)
      INPUTS
         DATA:  D←056←NEEDED←FEASIBLE←DATA
         DATA:  D←135←SENSOR←ID←DATA
         DATA:  D←137←SENSOR←PRIORITY←DATA
   ALPHA:  A←16←NELS←PROCESS←REQUESTED←DATA←ALPHA
      INPUTS
         FILE:  F←08←FLIGHT←PROFILE←FILE (*)
         FILE:  F←07←GROUP←TARGET←LOCS←FILE (*)
      OUTPUTS
         FILE:  F←06←FLIGHT←PROFILE←FILE (*)
      INPUTS
         DATA:  D←045←GPS←ID←DATA
   ALPHA:  A←24←RESET←NELS←ALPHA
      DESTROYS
         ENTITY←CLASS:  EC←2←NELS←SCENARIO←EC (*)
```

```
            ENTITY-CLASS:  EC-3-NELS-TASKS-EC (*)
            ENTITY-CLASS:  EC-4-NELS-THREAT-EC (*)
            ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC
             (*)
            ENTITY-CLASS:  EC-6-DETECTED-EMISSIONS-INFO-EC (*)
         ALPHA:  A-25-UPDATE-CARTO-ALPHA
            INPUTS
               FILE:  F-01-BRIDGE-LOCATIONS-FILE
                  CONTAINS
                     DATA:  D-026-BRIDGE-LOC-X-DATA
                     DATA:  D-027-BRIDGE-LOC-Y-DATA
               FILE:  F-02-CARTO-UPDATE-FILE (*)
               FILE:  F-03-CITY-LOCATIONS-FILE
                  CONTAINS
                     DATA:  D-035-CITY-LOC-X-DATA
                     DATA:  D-036-CITY-LOC-Y-DATA
               FILE:  F-08-HYPSO-DATA-FILE (*)
               FILE:  F-09-MARSHALLING-AREAS-FILE
                  CONTAINS
                     DATA:  D-054-MARSHALLING-X-DATA
                     DATA:  D-055-MARSHALLING-Y-DATA
               FILE:  F-28-PRIMARY-ROADS-FILE
                  CONTAINS
                     DATA:  D-121-PRIMARY-ROADS-X-DATA
                     DATA:  D-122-PRIMARY-ROADS-Y-DATA
               FILE:  F-29-RAILROAD-LOCATIONS-FILE
                  CONTAINS
                     DATA:  D-123-RAILROAD-LOC-X-DATA
                     DATA:  D-124-RAILROAD-LOC-Y-DATA
               FILE:  F-30-RIVER-LOCATIONS-FILE
                  CONTAINS
                     DATA:  D-128-RIVER-LOC-X-DATA
                     DATA:  D-129-RIVER-LOC-Y-DATA
               FILE:  F-31-SECONDARY-ROADS-FILE
                  CONTAINS
                     DATA:  D-131-SECONDARY-ROAD-X-DATA
                     DATA:  D-132-SECONDARY-ROAD-Y-DATA
            OUTPUTS
               FILE:  F-01-BRIDGE-LOCATIONS-FILE (*)
               FILE:  F-03-CITY-LOCATIONS-FILE (*)
               FILE:  F-08-HYPSO-DATA-FILE (*)
               FILE:  F-09-MARSHALLING-AREAS-FILE (*)
               FILE:  F-28-PRIMARY-ROADS-FILE (*)
               FILE:  F-29-RAILROAD-LOCATIONS-FILE (*)
               FILE:  F-30-RIVER-LOCATIONS-FILE (*)
               FILE:  F-31-SECONDARY-ROADS-FILE (*)
            INPUTS
               DATA:  D-028-CARTO-MAP-SECT-NUM-DATA
            OUTPUTS
               DATA:  D-028-CARTO-MAP-SECT-NUM-DATA
         DATA:  D-004-ASET-MSG-NAME-DATA
         DATA:  D-140-TBD-DATA
         ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET (*)
         ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET (*)
         ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET (*)
         ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET (*)
         INPUT-INTERFACE:  INTO-NELS-SENSOR
            PASSES
```

```
MESSAGE:  M-01-FS-NELS-UNIT-AND-ENVIRONMENT-DATA-MSG-IN
   MADE BY
      FILE:  F-16-NELS-EMITTER-FILE (*)
   MADE BY
            DATA:  D-002-ASET-MSG-DEST-DATA
            DATA:  D-004-ASET-MSG-NAME-DATA
            DATA:  D-005-ASET-MSG-SOURCE-DATA
MESSAGE:  M-02-NELS-CARTO-UPDATES-MSG-IN
   MADE BY
      FILE:  F-02-CARTO-UPDATE-FILE (*)
   MADE BY
            DATA:  D-002-ASET-MSG-DEST-DATA
            DATA:  D-004-ASET-MSG-NAME-DATA
            DATA:  D-005-ASET-MSG-SOURCE-DATA
MESSAGE:  M-03-NELS-COMMANDERS-REQUIREMENTS-MSG-IN
   MADE BY
      FILE:  F-04-CMDRS-DATA-TO-UPDATE-FILE (*)
   MADE BY
            DATA:  D-002-ASET-MSG-DEST-DATA
            DATA:  D-004-ASET-MSG-NAME-DATA
            DATA:  D-005-ASET-MSG-SOURCE-DATA
MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN
   MADE BY
      FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE (*)
   MADE BY
            DATA:  D-002-ASET-MSG-DEST-DATA
            DATA:  D-004-ASET-MSG-NAME-DATA
            DATA:  D-005-ASET-MSG-SOURCE-DATA
      DATA:  D-056-NEEDED-FEASIBLE-DATA
      DATA:  D-139-TASK-QUE-ID-DATA
MESSAGE:  M-06-NELS-ORBIT-MODIFICATIONS-MSG-IN
   MADE BY
      FILE:  F-32-SENSOR-ORBIT-MODS-FILE (*)
   MADE BY
            DATA:  D-002-ASET-MSG-DEST-DATA
            DATA:  D-004-ASET-MSG-NAME-DATA
            DATA:  D-005-ASET-MSG-SOURCE-DATA
      DATA:  D-135-SENSOR-ID-DATA
MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN
   MADE BY
      FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE (*)
   MADE BY
            DATA:  D-002-ASET-MSG-DEST-DATA
            DATA:  D-004-ASET-MSG-NAME-DATA
            DATA:  D-005-ASET-MSG-SOURCE-DATA
      DATA:  D-056-NEEDED-FEASIBLE-DATA
      DATA:  D-135-SENSOR-ID-DATA
      DATA:  D-137-SENSOR-PRIORITY-DATA
MESSAGE:  M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN
   MADE BY
      FILE:  F-07-GROUP-TARGET-LOCS-FILE (*)
   MADE BY
            DATA:  D-002-ASET-MSG-DEST-DATA
            DATA:  D-004-ASET-MSG-NAME-DATA
            DATA:  D-005-ASET-MSG-SOURCE-DATA
      DATA:  D-045-GPS-ID-DATA
MESSAGE:  M-15-T-AND-C-STOP-NELS-MSG-IN
   MADE BY
```

```
                                DATA:  D=002=ASET=MSG=DEST=DATA
                                DATA:  D=004=ASET=MSG=NAME=DATA
                                DATA:  D=005=ASET=MSG=SOURCE=DATA
          OUTPUT=INTERFACE:  TU=TIMING=AND=CONTROL=FROM=NELS (*)
          SUBNET:  S=1=CHECK=NELS=SENSOR=STATUS=SUB (*)
 *ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
     RDS1= ENTITY=CLASS:  EC=1=NELS=DETECTABLE=EMISSION=BREAKOUT=EC
     RDS2= ENTITY=CLASS:  EC=2=NELS=SCENARIO=EC
     COMMON MEMBERS=
           DATA:  D=140=TBD=DATA

 *ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
     RDS1= ENTITY=CLASS:  EC=1=NELS=DETECTABLE=EMISSION=BREAKOUT=EC
     RDS2= ENTITY=CLASS:  EC=3=NELS=TASKS=EC
     COMMON MEMBERS=
           DATA:  D=140=TBD=DATA

 *ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
     RDS1= ENTITY=CLASS:  EC=1=NELS=DETECTABLE=EMISSION=BREAKOUT=EC
     RDS2= ENTITY=CLASS:  EC=4=NELS=THREAT=EC
     COMMON MEMBERS=
           DATA:  D=140=TBD=DATA

 *ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
     RDS1= ENTITY=CLASS:  EC=1=NELS=DETECTABLE=EMISSION=BREAKOUT=EC
     RDS2= ENTITY=CLASS:  EC=5=NELS=VEHICLE=CHARACTERISTICS=EC
     COMMON MEMBERS=
           DATA:  D=140=TBD=DATA

 *ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
     RDS1= ENTITY=CLASS:  EC=2=NELS=SCENARIO=EC
     RDS2= ENTITY=CLASS:  EC=3=NELS=TASKS=EC
     COMMON MEMBERS=
           DATA:  D=140=TBD=DATA

 *ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
     RDS1= ENTITY=CLASS:  EC=2=NELS=SCENARIO=EC
     RDS2= ENTITY=CLASS:  EC=4=NELS=THREAT=EC
     COMMON MEMBERS=
           DATA:  D=140=TBD=DATA

 *ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
     RDS1= ENTITY=CLASS:  EC=2=NELS=SCENARIO=EC
     RDS2= ENTITY=CLASS:  EC=5=NELS=VEHICLE=CHARACTERISTICS=EC
     COMMON MEMBERS=
           DATA:  D=140=TBD=DATA

 *ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
     RDS1= ENTITY=CLASS:  EC=3=NELS=TASKS=EC
     RDS2= ENTITY=CLASS:  EC=4=NELS=THREAT=EC
     COMMON MEMBERS=
           DATA:  D=140=TBD=DATA

 *ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
     RDS1= ENTITY=CLASS:  EC=3=NELS=TASKS=EC
     RDS2= ENTITY=CLASS:  EC=5=NELS=VEHICLE=CHARACTERISTICS=EC
     COMMON MEMBERS=
           DATA:  D=140=TBD=DATA
```

```
*ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
    RDS1= ENTITY*CLASS:  EC*4*NELS*THREAT*EC
    RDS2= ENTITY*CLASS:  EC*5*NELS*VEHICLE*CHARACTERISTICS*EC
    COMMON MEMBERS=
          DATA:  D*140*TRD*DATA


[RADX COMMAND=
ANALYZE DATA*FLOW A USING BETA.
-------------------------------
   R*NET:  R*1*HANDLE*NELS*SENSOR*AND*GPS*PROCESSING*R*NET
      REFERS TO
         SUBNET:  S*1*CHECK*NELS*SENSOR*STATUS*SUB
            REFERS TO
               ALPHA:  A*17*NELS*SENSOR*STATUS*ALPHA
                  INPUTS
                     FILE:  F*06*FLIGHT*PROFILE*FILE
                        CONTAINS
                           DATA:  D*041*FLIGHT*WAYPOINT*Y*DATA
                           DATA:  D*042*FLIGHT*WAYPOINT*Y*DATA
                           DATA:  D*043*FLIGHT*WAYPOINT*Z*DATA
                     FILE:  F*20*NELS*PRE*BRIEFED*AOI*FILE
                        CONTAINS
                                 DATA:
                        D*095*NELS*PRE*BRIEFED*AOI*FILTERING*CRITERIA*DATA
                                 DATA:
                           D*097*NELS*PRE*BRIEFED*AOI*LOWER*LEFT*X*DATA
                                 DATA:
                           D*098*NELS*PRE*BRIEFED*AOI*LOWER*LEFT*Y*DATA
                                 DATA:
                           D*100*NELS*PRE*BRIEFED*AOI*UPPER*RIGHT*X*DATA
                                 DATA:
                           D*101*NELS*PRE*BRIEFED*AOI*UPPER*RIGHT*Y*DATA
                     FILE:  F*21*NELS*PRE*BRIEFED*SOI*FILE
                        CONTAINS
                                 DATA:
                              D*103*NELS*PRE*BRIEFED*SOI*END*FREQ*DATA
                                 DATA:
                              D*104*NELS*PRE*BRIEFED*SOI*FREQ*DATA
                                 DATA:
                           D*105*NELS*PRE*BRIEFED*SOI*MODULATION*TYPE*DATA
                                 DATA:
                              D*106*NELS*PRE*BRIEFED*SOI*START*FREQ*DATA
                  OUTPUTS
                     FILE:  F*34*SENSOR*STATUS*FILE
                        CONTAINS
                           DATA:  D*040*FREQUENCY*SCAN*PARAMETER*DATA
                           DATA:  D*136*SENSOR*MODE*OF*OPERATION*DATA
                  INPUTS
                           DATA:  D*002*ASET*MSG*DEST*DATA
                           DATA:  D*004*ASET*MSG*NAME*DATA
                           DATA:  D*005*ASET*MSG*SOURCE*DATA
                                 DATA:  D*007*ASP*ACC*X*DATA
                                 DATA:  D*008*ASP*ACC*Y*DATA
                                 DATA:  D*009*ASP*ACC*Z*DATA
                           DATA:  D*014*ASP*LOC*X*DATA
                           DATA:  D*015*ASP*LOC*Y*DATA
```

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                    DATA:  D-016-ASP-LOC-Z-DATA
                    DATA:  D-021-ASP-TIME-DATA
                    DATA:  D-022-ASP-VEL-X-DATA
                    DATA:  D-023-ASP-VEL-Y-DATA
                    DATA:  D-024-ASP-VEL-Z-DATA
                DATA:  D-091-NELS-FREQUENCY-SCAN-DATA
                DATA:  D-135-SENSOR-ID-DATA
            OUTPUTS
                    DATA:  D-002-ASET-MSG-DEST-DATA
                    DATA:  D-004-ASET-MSG-NAME-DATA
                    DATA:  D-005-ASET-MSG-SOURCE-DATA
                DATA:  D-091-NELS-FREQUENCY-SCAN-DATA
                DATA:  D-135-SENSOR-ID-DATA
            FORMS
                MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT
                    MADE BY
                        FILE:  F-34-SENSOR-STATUS-FILE (*)
                    MADE BY
                            DATA:  D-002-ASET-MSG-DEST-DATA
                            DATA:  D-004-ASET-MSG-NAME-DATA
                            DATA:  D-005-ASET-MSG-SOURCE-DATA
                        DATA:  D-135-SENSOR-ID-DATA
        DATA:  D-136-SENSOR-MODE-OF-OPERATION-DATA
        DATA:  D-140-TBD-DATA
        ENTITY-TYPE:  ET-3-NELS-FLIGHT-FT
            ASSOCIATES
                FILE:  F-06-FLIGHT-PROFILE-FILE (*)
                FILE:  F-27-PLATFORM-CONTROL-FILE
                    CONTAINS
                            DATA:  D-010-ASP-ALTITUDE-DATA
                            DATA:  D-012-ASP-LATITUDE-DATA
                            DATA:  D-017-ASP-LONGITUDE-DATA
                        DATA:  D-014-ASP-LOC-X-DATA
                        DATA:  D-015-ASP-LOC-Y-DATA
                        DATA:  D-016-ASP-LOC-Z-DATA
                        DATA:  D-022-ASP-VEL-X-DATA
                        DATA:  D-023-ASP-VEL-Y-DATA
                        DATA:  D-024-ASP-VEL-Z-DATA
        ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
            ASSOCIATES
                FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
                    CONTAINS
                        DATA:  D-061-NELS-EMISSION-DURATION-DATA
                        DATA:
                        D-062-NELS-EMISSION-SIGNAL-STRENGTH-DATA
                        DATA:  D-063-NELS-EMISSION-START-TIME-DATA
                        DATA:
                        D-073-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
                        DATA:  D-075-NELS-EMITTER-ID-DATA
                            DATA:  D-085-NELS-EMITTER-X-DATA
                            DATA:  D-086-NELS-EMITTER-Y-DATA
                            DATA:  D-087-NELS-EMITTER-Z-DATA
                        DATA:
                       D-081-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
                        DATA:  D-130-SCENARIO-GEN-ID-NUM-DATA
                FILE:  F-21-NELS-PRE-BRIEFED-SOI-FILE (*)
        ENTITY-TYPE:  ET-P-NELS-PRE-BRIEFED-AOI-ET
            ASSOCIATES
```

```
        FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE (*)
        FILE:  F-20-NELS-PRE-BRIEFED-AOI-FILE (*)
EVENT:  E-1-ACTIVATE-SENSOR-EVENT
OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS
   PASSES
      MESSAGE:
      M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
         MADE BY
            FILE:  F-07-GROUP-TARGET-LOCS-FILE
               CONTAINS
                  DATA:  D-048-GROUND-TARGET-LOC-X-DATA
                  DATA:  D-049-GROUND-TARGET-LOC-Y-DATA
         MADE BY
                  DATA:  D-002-ASET-MSG-DEST-DATA
                  DATA:  D-004-ASET-MSG-NAME-DATA
                  DATA:  D-005-ASET-MSG-SOURCE-DATA
            DATA:  D-045-GPS-TD-DATA
            DATA:  D-046-GROUND-TARGET-FREQUENCY-DATA
            DATA:  D-047-GROUND-TARGET-LENGTH-DATA
            DATA:  D-050-GROUND-TARGET-VELOCITY-DATA
      MESSAGE:
      M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT
         MADE BY
            FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE
               CONTAINS
                  DATA:  D-114-PLATFORM-LOCATION-X-DATA
                  DATA:  D-115-PLATFORM-LOCATION-Y-DATA
                  DATA:  D-116-PLATFORM-LOCATION-Z-DATA
         MADE BY
                  DATA:  D-002-ASET-MSG-DEST-DATA
                  DATA:  D-004-ASET-MSG-NAME-DATA
                  DATA:  D-005-ASET-MSG-SOURCE-DATA
      MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT
         MADE BY
                  DATA:  D-002-ASET-MSG-DEST-DATA
                  DATA:  D-004-ASET-MSG-NAME-DATA
                  DATA:  D-005-ASET-MSG-SOURCE-DATA
            DATA:  D-125-REQ-DESTINATION-SENSOR-ID-DATA
            DATA:  D-126-REQ-REPORT-INFORMATION-TYPE-DATA
            DATA:
            D-127-REQ-SENSOR-TARGET-ID-OF-INTEREST-DATA
            DATA:  D-135-SENSOR-ID-DATA
      MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT
       (*)
      MESSAGE:
      M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
         MADE BY
            FILE:  F-07-GROUP-TARGET-LOCS-FILE (*)
         MADE BY
                  DATA:  D-002-ASET-MSG-DEST-DATA
                  DATA:  D-004-ASET-MSG-NAME-DATA
                  DATA:  D-005-ASET-MSG-SOURCE-DATA
            DATA:  D-045-GPS-ID-DATA
            DATA:  D-046-GROUND-TARGET-FREQUENCY-DATA
            DATA:  D-047-GROUND-TARGET-LENGTH-DATA
            DATA:  D-050-GROUND-TARGET-VELOCITY-DATA
      MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT
         MADE BY
```

```
                                DATA:  D+002+ASET+MSG+DEST+DATA
                                DATA:  D+004+ASET+MSG+NAME+DATA
                                DATA:  D+005+ASET+MSG+SOURCE+DATA
                            DATA:  D+138+TASKING+RESPONSE+DATA
                            DATA:  D+139+TASK+QUE+ID+DATA
                            DATA:  D+141+TIME+DATA
                        MESSAGE:  M+14+NELS+TRACK+MESSAGE+MSG+OUT
                            MADE BY
                                FILE:  F+02+CARTO+UPDATE+FILE
                                    CONTAINS
                                        DATA:  D+029+CARTO+SECTION+NUM+DATA
                                        DATA:  D+030+CARTO+UPDATE+1+DATA
                                        DATA:  D+031+CARTO+UPDATE+2+DATA
                                        DATA:  D+032+CARTO+UPDATE+3+DATA
                                        DATA:  D+033+CARTO+UPDATE+X+DATA
                                        DATA:  D+034+CARTO+UPDATE+Y+DATA
                                    ORDERED BY
                                        DATA:  D+029+CARTO+SECTION+NUM+DATA
                            MADE BY
                                        DATA:  D+002+ASET+MSG+DEST+DATA
                                        DATA:  D+004+ASET+MSG+NAME+DATA
                                        DATA:  D+005+ASET+MSG+SOURCE+DATA
                                DATA:  D+135+SENSOR+ID+DATA
                                DATA:  D+142+TRACK+MESSAGE+DATA
    SUBNET:  S+2+DO+NELS+OPERATIONAL+CONTROL+SUB
        REFERS TO
            ALPHA:  A+13+NELS+PLATFORM+LOCATION+MSG+ALPHA
                OUTPUTS
                    FILE:  F+33+SENSOR+PLATFORM+LOCATION+FILE (*)
                INPUTS
                                        DATA:  D+007+ASP+ACC+X+DATA
                                        DATA:  D+008+ASP+ACC+Y+DATA
                                        DATA:  D+009+ASP+ACC+Z+DATA
                                DATA:  D+014+ASP+LOC+X+DATA
                                DATA:  D+015+ASP+LOC+Y+DATA
                                DATA:  D+016+ASP+LOC+Z+DATA
                                DATA:  D+021+ASP+TIME+DATA
                                DATA:  D+022+ASP+VEL+X+DATA
                                DATA:  D+023+ASP+VEL+Y+DATA
                                DATA:  D+024+ASP+VEL+Z+DATA
                OUTPUTS
                                DATA:  D+002+ASET+MSG+DEST+DATA
                                DATA:  D+004+ASET+MSG+NAME+DATA
                                DATA:  D+005+ASET+MSG+SOURCE+DATA
                FORMS
                    MESSAGE:
                    M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT
                     (*)
            ALPHA:  A+20+NELS+SURVEILLANCE+AND+TRACK+MSGS+ALPHA
                INPUTS
                    FILE:  F+25+NELS+TYPED+EMITTER+REPORT+FILE
                        CONTAINS
                                        DATA:  D+070+NELS+EMITTER+COV+DATA
                                        DATA:
                                        D+074+NELS+EMITTER+FREQUENCY+DATA
                                        DATA:  D+166+NELS+EMITTER+ID+DATA
                                        DATA:  D+167+NELS+EMITTER+X+DATA
                                        DATA:  D+168+NELS+EMITTER+Y+DATA
```

```
                    DATA:  D+169+NELS+EMITTER+Z+DATA
                    DATA:  D+170+SCENARIO+GEN+ID+NUM+DATA
                    DATA:
                    D+176+NELS+EMITTER+BANDWIDTH+DATA
                    DATA:  D+177+NELS+EMITTER+CEP+DATA
                    DATA:
                    D+178+NELS+EMITTER+MODULATION+TYPE+DATA
                    DATA:
                   D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA
                    DATA:
                    D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA
          OUTPUTS
             FILE:  F+02+CARTO+UPDATE+FILE (*)
             FILE:  F+07+GROUP+TARGET+LOCS+FILE (*)
          OUTPUTS
                   DATA:  D+002+ASET+MSG+DEST+DATA
                   DATA:  D+004+ASET+MSG+NAME+DATA
                   DATA:  D+005+ASET+MSG+SOURCE+DATA
             DATA:  D+045+GPS+TD+DATA
             DATA:  D+046+GROUND+TARGET+FREQUENCY+DATA
             DATA:  D+047+GROUND+TARGET+LENGTH+DATA
             DATA:  D+050+GROUND+TARGET+VELOCITY+DATA
             DATA:  D+135+SENSOR+ID+DATA
             DATA:  D+142+TRACK+MESSAGE+DATA
          FORMS
             MESSAGE:
             M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT
              (*)
             MESSAGE:
             M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT
              (*)
             MESSAGE:  M+14+NELS+TRACK+MESSAGE+MSG+OUT (*)
       OUTPUT+INTERFACE:  TO+TIMING+AND+CONTROL+FROM+NELS
        (*)
       SUBNET:  S+3+MODEL+NELS+GPS+PROCESSING+SUB
          REFERS TO
             ALPHA:  A+06+NELS+COARSE+LOCATION+ALPHA
                INPUTS
                   FILE:
                   F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
                      CONTAINS
                            DATA:
                         D+077+NELS+EMITTER+MODULATION+TYPE+DATA
                            DATA:
                        D+078+NELS+EMITTER+POWER+LEVEL+DATA
                            DATA:
                      D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
                            DATA:
                    D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
                    FILE:  F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE
                      CONTAINS
                            DATA:
                            D+068+NELS+EMITTER+CEP+DATA
                            DATA:
                            D+157+NELS+EMISSION+DURATION+DATA
                            DATA:
                           D+158+NELS+EMISSION+START+TIME+DATA
                            DATA:  D+160+NELS+EMITTER+ID+DATA
```

```
                    DATA:  D←162←NELS←EMITTER←X←DATA
                    DATA:  D←163←NELS←EMITTER←Y←DATA
                    DATA:  D←164←NELS←EMITTER←Z←DATA
                    DATA:
                    D←165←SCENARIO←GEN←ID←NUM←DATA
          FILE:  F←24←NELS←TDOA←DD←FILE
             CONTAINS
                    DATA:  D←058←NELS←DD←1←2←DATA
                    DATA:  D←059←NELS←DD←1←3←DATA
                    DATA:  D←060←NELS←DD←2←3←DATA
                    DATA:  D←109←NELS←TDOA←1←2←DATA
                    DATA:  D←110←NELS←TDOA←1←3←DATA
                    DATA:  D←111←NELS←TDOA←2←3←DATA
       OUTPUTS
          FILE:  F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
           (*)
    ALPHA:  A←07←NELS←FINE←LOCATION←ALPHA
       INPUTS
          FILE:  F←13←NELS←EMISSION←THREAT←TABLE←FILE
             CONTAINS
                    DATA:
              D←079←NELS←EMITTER←TIME←OF←LOCATION←DATA
                    DATA:
                 D←080←NELS←EMITTER←TRAFFIC←TYPE←DATA
                    DATA:  D←171←NELS←EMITTER←ID←DATA
                    DATA:
        D←172←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
                    DATA:  D←173←NELS←EMITTER←X←DATA
                    DATA:  D←174←NELS←EMITTER←Y←DATA
                    DATA:  D←175←NELS←EMITTER←Z←DATA
                    DATA:
               D←181←NELS←EMITTER←MODULATION←TYPE←DATA
                    DATA:
                    D←182←NELS←EMITTER←BANDWIDTH←DATA
                    DATA:
                    D←183←NELS←EMITTER←CEP←DATA
             ORDERED BY
                DATA:
              D←079←NELS←EMITTER←TIME←OF←LOCATION←DATA
          FILE:
          F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
           (*)
          FILE:  F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
           (*)
       OUTPUTS
          FILE:
          F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
           (*)
          FILE:  F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
           (*)
       INPUTS
                DATA:  D←018←ASP←PITCH←DATA
                DATA:  D←019←ASP←ROLL←DATA
                DATA:  D←025←ASP←YAW←DATA
                DATA:  D←010←ASP←ALTITUDE←DATA
                DATA:  D←012←ASP←LATITUDE←DATA
                DATA:  D←017←ASP←LONGITUDE←DATA
                       DATA:  D←007←ASP←ACC←X←DATA
```

```
                    DATA:  D←008←ASP←ACC←Y←DATA
                    DATA:  D←009←ASP←ACC←Z←DATA
                DATA:  D←014←ASP←LOC←X←DATA
                DATA:  D←015←ASP←LOC←Y←DATA
                DATA:  D←016←ASP←LOC←Z←DATA
                DATA:  D←021←ASP←TIME←DATA
                DATA:  D←022←ASP←VEL←X←DATA
                DATA:  D←023←ASP←VEL←Y←DATA
                DATA:  D←024←ASP←VEL←Z←DATA
ALPHA:  A←08←NELS←FREQUENCY←SCAN←OPTIMIZATION←ALPHA
   INPUTS
      FILE:
      F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
       (*)
   INPUTS
      DATA:  D←091←NELS←FREQUENCY←SCAN←DATA
   OUTPUTS
      DATA:  D←091←NELS←FREQUENCY←SCAN←DATA
ALPHA:  A←12←NELS←PERFORM←SIGNATURE←ANALYSIS←ALPHA
   INPUTS
      FILE:
      F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
       (*)
      FILE:  F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
       (*)
   OUTPUTS
      FILE:  F←25←NELS←TYPED←EMITTER←REPORT←FILE
       (*)
ALPHA:  A←21←NELS←TARGET←ACQUISITION←ALPHA
   INPUTS
      FILE:  F←12←DETECTED←CANDIDATE←TARGETS←FILE
         CONTAINS
            DATA:
            D←147←NELS←EMISSION←DURATION←DATA
            DATA:
           D←148←NELS←EMISSION←SIGNAL←STRENGTH←DATA
            DATA:
            D←149←NELS←EMISSION←START←TIME←DATA
            DATA:
        D←150←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA
            DATA:  D←151←NELS←EMITTER←ID←DATA
            DATA:
     D←152←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
            DATA:  D←153←NELS←EMITTER←X←DATA
            DATA:  D←154←NELS←EMITTER←Y←DATA
            DATA:  D←155←NELS←EMITTER←Z←DATA
            DATA:  D←156←SCENARIO←GEN←ID←NUM←DATA
   OUTPUTS
      FILE:
      F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE
       (*)
      FILE:  F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
       (*)
      FILE:  F←24←NELS←TDOA←DP←FILE (*)
   INPUTS
            DATA:  D←018←ASP←PITCH←DATA
            DATA:  D←019←ASP←ROLL←DATA
            DATA:  D←025←ASP←YAW←DATA
```

```
                    DATA:  D←010←ASP←ALTITUDE←DATA
                    DATA:  D←012←ASP←LATITUDE←DATA
                    DATA:  D←017←ASP←LONGITUDE←DATA
                           DATA:  D←007←ASP←ACC←X←DATA
                           DATA:  D←008←ASP←ACC←Y←DATA
                           DATA:  D←009←ASP←ACC←Z←DATA
                    DATA:  D←014←ASP←LOC←X←DATA
                    DATA:  D←015←ASP←LOC←Y←DATA
                    DATA:  D←016←ASP←LOC←Z←DATA
                    DATA:  D←021←ASP←TIME←DATA
                    DATA:  D←022←ASP←VEL←X←DATA
                    DATA:  D←023←ASP←VEL←Y←DATA
                    DATA:  D←024←ASP←VEL←Z←DATA
          ALPHA:  A←23←NELS←THREAT←TABLE←UPDATE←ALPHA
             INPUTS
                FILE:  F←13←NELS←EMISSION←THREAT←TABLE←FILE
                 (*)
                FILE:  F←25←NELS←TYPED←EMITTER←REPORT←FILE
                 (*)
             OUTPUTS
                FILE:  F←13←NELS←EMISSION←THREAT←TABLE←FILE
                 (*)
          DATA:  D←140←TRD←DATA
          ENTITY←TYPE:  ET←1←NELS←EMISSION←THREAT←ET
             ASSOCIATES
                FILE:  F←13←NELS←EMISSION←THREAT←TABLE←FILE
                 (*)
SUBNET:  S←4←MODEL←NELS←PLATFORM←SUB
   REFERS TO
          ALPHA:  A←01←DME←INS←NOISE←GENERATION←ALPHA
             INPUTS
                    DATA:  D←018←ASP←PITCH←DATA
                    DATA:  D←019←ASP←ROLL←DATA
                    DATA:  D←025←ASP←YAW←DATA
                    DATA:  D←010←ASP←ALTITUDE←DATA
                    DATA:  D←012←ASP←LATITUDE←DATA
                    DATA:  D←017←ASP←LONGITUDE←DATA
                           DATA:  D←007←ASP←ACC←X←DATA
                           DATA:  D←008←ASP←ACC←Y←DATA
                           DATA:  D←009←ASP←ACC←Z←DATA
                    DATA:  D←014←ASP←LOC←X←DATA
                    DATA:  D←015←ASP←LOC←Y←DATA
                    DATA:  D←016←ASP←LOC←Z←DATA
                    DATA:  D←021←ASP←TIME←DATA
                    DATA:  D←022←ASP←VEL←X←DATA
                    DATA:  D←023←ASP←VEL←Y←DATA
                    DATA:  D←024←ASP←VEL←Z←DATA
             OUTPUTS
                    DATA:  D←018←ASP←PITCH←DATA
                    DATA:  D←019←ASP←ROLL←DATA
                    DATA:  D←025←ASP←YAW←DATA
                    DATA:  D←010←ASP←ALTITUDE←DATA
                    DATA:  D←012←ASP←LATITUDE←DATA
                    DATA:  D←017←ASP←LONGITUDE←DATA
                           DATA:  D←007←ASP←ACC←X←DATA
                           DATA:  D←008←ASP←ACC←Y←DATA
                           DATA:  D←009←ASP←ACC←Z←DATA
                    DATA:  D←014←ASP←LOC←X←DATA
```

```
                    DATA:  D←015←ASP←LOC←Y←DATA
                    DATA:  D←016←ASP←LOC←Z←DATA
                    DATA:  D←021←ASP←TIME←DATA
                    DATA:  D←022←ASP←VEL←X←DATA
                    DATA:  D←023←ASP←VEL←Y←DATA
                    DATA:  D←024←ASP←VEL←Z←DATA
            ALPHA:  A←02←GENERATE←DME←ALPHA
               INPUTS
                  FILE:  F←06←FLIGHT←PROFILE←FILE (*)
                  FILE:  F←27←PLATFORM←CONTROL←FILE (*)
               INPUTS
                    DATA:  D←002←ASET←MSG←DEST←DATA
                    DATA:  D←004←ASET←MSG←NAME←DATA
                    DATA:  D←005←ASET←MSG←SOURCE←DATA
                  DATA:  D←141←TIME←DATA
               OUTPUTS
                    DATA:  D←002←ASET←MSG←DEST←DATA
                    DATA:  D←004←ASET←MSG←NAME←DATA
                    DATA:  D←005←ASET←MSG←SOURCE←DATA
                           DATA:  D←007←ASP←ACC←X←DATA
                           DATA:  D←008←ASP←ACC←Y←DATA
                           DATA:  D←009←ASP←ACC←Z←DATA
                    DATA:  D←014←ASP←LOC←X←DATA
                    DATA:  D←015←ASP←LOC←Y←DATA
                    DATA:  D←016←ASP←LOC←Z←DATA
                    DATA:  D←021←ASP←TIME←DATA
                    DATA:  D←022←ASP←VEL←X←DATA
                    DATA:  D←023←ASP←VEL←Y←DATA
                    DATA:  D←024←ASP←VEL←Z←DATA
            ALPHA:  A←03←GENERATE←INS←ALPHA
               INPUTS
                    DATA:  D←010←ASP←ALTITUDE←DATA
                    DATA:  D←012←ASP←LATITUDE←DATA
                    DATA:  D←017←ASP←LONGITUDE←DATA
                           DATA:  D←007←ASP←ACC←X←DATA
                           DATA:  D←008←ASP←ACC←Y←DATA
                           DATA:  D←009←ASP←ACC←Z←DATA
                    DATA:  D←014←ASP←LOC←X←DATA
                    DATA:  D←015←ASP←LOC←Y←DATA
                    DATA:  D←016←ASP←LOC←Z←DATA
                    DATA:  D←021←ASP←TIME←DATA
                    DATA:  D←022←ASP←VEL←X←DATA
                    DATA:  D←023←ASP←VEL←Y←DATA
                    DATA:  D←024←ASP←VEL←Z←DATA
               OUTPUTS
                    DATA:  D←018←ASP←PITCH←DATA
                    DATA:  D←019←ASP←ROLL←DATA
                    DATA:  D←025←ASP←YAW←DATA
                    DATA:  D←010←ASP←ALTITUDE←DATA
                    DATA:  D←012←ASP←LATITUDE←DATA
                    DATA:  D←017←ASP←LONGITUDE←DATA
            DATA:  D←140←TBD←DATA
            ENTITY←TYPE:  ET←3←NELS←FLIGHT←ET (*)
         SUBNET:  S←5←MODEL←NELS←SENSOR←SUB
            REFERS TO
               ALPHA:  A←05←NELS←AREA←OF←INTEREST←FILTER←ALPHA
                  INPUTS
                     FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE
```

```
        (*)
      FILE:  F-20-NELS-PREFERRED-AOI-FILE
        (*)
    OUTPUTS
      FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
        (*)
    INPUTS
            DATA:  D-018-ASP-PITCH-DATA
            DATA:  D-019-ASP-ROLL-DATA
            DATA:  D-025-ASP-YAW-DATA
            DATA:  D-010-ASP-ALTITUDE-DATA
            DATA:  D-012-ASP-LATITUDE-DATA
            DATA:  D-017-ASP-LONGITUDE-DATA
                DATA:  D-007-ASP-ACC-X-DATA
                DATA:  D-008-ASP-ACC-Y-DATA
                DATA:  D-009-ASP-ACC-Z-DATA
            DATA:  D-014-ASP-LOC-X-DATA
            DATA:  D-015-ASP-LOC-Y-DATA
            DATA:  D-016-ASP-LOC-Z-DATA
            DATA:  D-021-ASP-TIME-DATA
            DATA:  D-022-ASP-VEL-X-DATA
            DATA:  D-023-ASP-VEL-Y-DATA
            DATA:  D-024-ASP-VEL-Z-DATA
ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
    INPUTS
      FILE:
      F-14-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-FILE
        CONTAINS
                DATA:
            D-063-B-NELS-EMISSION-START-TIME-DATA
                DATA:
            D-064-NELS-EMISSION-STOP-TIME-DATA
                DATA:
      D-073-B-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
                DATA:
                D-075-B-NELS-EMITTER-ID-DATA
                DATA:
    D-081-B-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
                DATA:
                D-082-NELS-EMITTER-VEL-X-DATA
                DATA:
                D-083-NELS-EMITTER-VEL-Y-DATA
                DATA:
                D-084-NELS-EMITTER-VEL-Z-DATA
                DATA:
                D-085-B-NELS-EMITTER-X-DATA
                DATA:
                D-086-B-NELS-EMITTER-Y-DATA
                DATA:
                D-087-B-NELS-EMITTER-Z-DATA
                DATA:
                D-130-B-SCENARIO-GEN-ID-NUM-DATA
        ORDERED BY
            DATA:  D-075-B-NELS-EMITTER-ID-DATA
      FILE:  F-15-NELS-EMITTER-CHARACTERISTICS-FILE
        CONTAINS
                DATA:
                D-067-NELS-EMITTER-BANDWIDTH-DATA
```

```
                    DATA:
                D-077-A-NELS-EMITTER-MODULATION-TYPE-DATA
                    DATA:
                 D-078-A-NELS-EMITTER-POWER-LEVEL-DATA
          FILE:  F-21-NELS-PRE-PRIEFED-SOI-FILE
           (*)
       OUTPUTS
          FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
           (*)
       INPUTS
                DATA:  D-018-ASP-PITCH-DATA
                DATA:  D-019-ASP-ROLL-DATA
                DATA:  D-025-ASP-YAW-DATA
                DATA:  D-010-ASP-ALTITUDE-DATA
                DATA:  D-012-ASP-LATITUDE-DATA
                DATA:  D-017-ASP-LONGITUDE-DATA
                      DATA:  D-007-ASP-ACC-X-DATA
                      DATA:  D-008-ASP-ACC-Y-DATA
                      DATA:  D-009-ASP-ACC-Z-DATA
                DATA:  D-014-ASP-LOC-X-DATA
                DATA:  D-015-ASP-LOC-Y-DATA
                DATA:  D-016-ASP-LOC-Z-DATA
                DATA:  D-021-ASP-TIME-DATA
                DATA:  D-022-ASP-VEL-X-DATA
                DATA:  D-023-ASP-VEL-Y-DATA
                DATA:  D-024-ASP-VEL-Z-DATA
          DATA:  D-091-NELS-FREQUENCY-SCAN-DATA
ALPHA:
A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
    INPUTS
       FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
        (*)
       FILE:  F-26-NELS-WEATHER-CONDITIONS-FILE
          CONTAINS
                      DATA:
                      D-037-CLOUD-COVER-DATA
                      DATA:
                      D-120-PRECIPITATION-DATA
                DATA:
                D-039-ELEVATION-WEATHER-DATA
             DATA:  D-144-X-WEATHER-LOC-DATA
             DATA:  D-146-Y-WEATHER-LOC-DATA
    OUTPUTS
       FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
        (*)
    INPUTS
             DATA:  D-018-ASP-PITCH-DATA
             DATA:  D-019-ASP-ROLL-DATA
             DATA:  D-025-ASP-YAW-DATA
             DATA:  D-010-ASP-ALTITUDE-DATA
             DATA:  D-012-ASP-LATITUDE-DATA
             DATA:  D-017-ASP-LONGITUDE-DATA
                   DATA:  D-007-ASP-ACC-X-DATA
                   DATA:  D-008-ASP-ACC-Y-DATA
                   DATA:  D-009-ASP-ACC-Z-DATA
             DATA:  D-014-ASP-LOC-X-DATA
             DATA:  D-015-ASP-LOC-Y-DATA
             DATA:  D-016-ASP-LOC-Z-DATA
```

```
                        DATA:  D←021←ASP←TIME←DATA
                        DATA:  D←022←ASP←VEL←X←DATA
                        DATA:  D←023←ASP←VEL←Y←DATA
                        DATA:  D←024←ASP←VEL←Z←DATA
                ALPHA:  A←22←NELS←TERRAIN←FOLIAGE←SHADOWING←ALPHA
                   INPUTS
                      FILE:  F←08←HYPSO←DATA←FILE
                         CONTAINS
                            DATA:  D←051←HYPSO←ELEV←DATA
                            DATA:  D←052←HYPSO←LOC←X←DATA
                            DATA:  D←053←HYPSO←LOC←Y←DATA
                      FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE
                        (*)
                   OUTPUTS
                      FILE:  F←12←DETECTED←CANDIDATE←TARGETS←FILE
                        (*)
                   INPUTS
                            DATA:  D←018←ASP←PITCH←DATA
                            DATA:  D←019←ASP←ROLL←DATA
                            DATA:  D←025←ASP←YAW←DATA
                            DATA:  D←010←ASP←ALTITUDE←DATA
                            DATA:  D←012←ASP←LATITUDE←DATA
                            DATA:  D←017←ASP←LONGITUDE←DATA
                                   DATA:  D←007←ASP←ACC←X←DATA
                                   DATA:  D←008←ASP←ACC←Y←DATA
                                   DATA:  D←009←ASP←ACC←Z←DATA
                            DATA:  D←014←ASP←LOC←X←DATA
                            DATA:  D←015←ASP←LOC←Y←DATA
                            DATA:  D←016←ASP←LOC←Z←DATA
                            DATA:  D←021←ASP←TIME←DATA
                            DATA:  D←022←ASP←VEL←X←DATA
                            DATA:  D←023←ASP←VEL←Y←DATA
                            DATA:  D←024←ASP←VEL←Z←DATA
                DATA:  D←140←TBD←DATA
                ENTITY←TYPE:  ET←2←NELS←EMITTER←GROUND←TRUTH←ET
                   ASSOCIATES
                      FILE:
                      F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE
                        (*)
                ENTITY←TYPE:  ET←5←NELS←PRE←BRIEFED←SOI←ET
                  (*)
                ENTITY←TYPE:  ET←6←NELS←VEHICLE←CHARACTERISTICS←ET
                   ASSOCIATES
                      FILE:  F←15←NELS←EMITTER←CHARACTERISTICS←FILE
                        (*)
                ENTITY←TYPE:  ET←7←NELS←WEATHER←ET
                   ASSOCIATES
                      FILE:  F←26←NELS←WEATHER←CONDITIONS←FILE
                        (*)
                ENTITY←TYPE:  ET←8←NELS←PRE←BRIEFED←ADI←ET
                  (*)
                ENTITY←TYPE:
                ET←9←SIGNAL←NOISE←CANDIDATE←TARGETS←ET
                   ASSOCIATES
                      FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE
                        (*)
R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET
   REFERS TO
```

```
ALPHA:  A-04-INITIALIZE-NELS-ALPHA
   INPUTS
      FILE:  F-16-NELS-EMITTER-FILE
         CONTAINS
                  DATA:  D-063-A-NELS-EMISSION-START-TIME-DATA
                  DATA:  D-064-A-NELS-EMISSION-STOP-TIME-DATA
                  DATA:
                  D-073-A-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
                  DATA:  D-075-A-NELS-EMITTER-ID-DATA
                  DATA:
                 D-081-A-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
                  DATA:  D-082-A-NELS-EMITTER-VEL-X-DATA
                  DATA:  D-083-A-NELS-EMITTER-VEL-Y-DATA
                  DATA:  D-084-A-NELS-EMITTER-VEL-Z-DATA
                  DATA:  D-085-A-NELS-EMITTER-X-DATA
                  DATA:  D-086-A-NELS-EMITTER-Y-DATA
                  DATA:  D-087-A-NELS-EMITTER-Z-DATA
                  DATA:  D-130-A-SCENARIO-GEN-ID-NUM-DATA
   OUTPUTS
      FILE:  F-14-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-FILE
       (*)
      FILE:  F-15-NELS-EMITTER-CHARACTERISTICS-FILE (*)
   CREATES
      ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
         COMPOSED OF
            ENTITY-TYPE:
            ET-10-GROUND-SHADOWING-CANDIDATE-TARGETS-ET
               ASSOCIATES
                  FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
                   (*)
                  FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE
                   (*)
            ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
             (*)
            ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET
             (*)
            ENTITY-TYPE:
            ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET (*)
         ASSOCIATES
            DATA:  D-140-THD-DATA
      ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
         COMPOSED OF
            ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET
             (*)
            ENTITY-TYPE:  ET-7-NELS-WEATHER-ET (*)
         ASSOCIATES
            DATA:  D-140-THD-DATA
      ENTITY-CLASS:  EC-3-NELS-TASKS-EC
         COMPOSED OF
            ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET (*)
            ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET
               ASSOCIATES
                  FILE:  F-19-NELS-FREQUENCY-SCAN-FILE
                     CONTAINS
                           DATA:
                        D-092-NELS-FREQ-SCAN-LOWER-FREQ-DATA
                           DATA:
                        D-093-NELS-FREQ-SCAN-UPPER-FREQ-DATA
```

```
            ASSOCIATES
               DATA:  D-140-TBD-DATA
         ENTITY-CLASS:  EC-4-NELS-THREAT-EC
            COMPOSED OF
               ENTITY-TYPE:  ET-1-NELS-EMISSION-THREAT-ET
                (*)
            ASSOCIATES
               DATA:  D-140-TBD-DATA
         ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC
            COMPOSED OF
               ENTITY-TYPE:  ET-6-NELS-VEHICLE-CHARACTERISTICS-ET
                (*)
            ASSOCIATES
               DATA:  D-140-TBD-DATA
         ENTITY-CLASS:  EC-6-DETECTED-EMISSIONS-INFO-EC
            COMPOSED OF
               ENTITY-TYPE:  ET-11-DETECTED-EMISSIONS-DD-TDOA-ET
                  ASSOCIATES
                     FILE:
                     F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
                      (*)
                     FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
                      (*)
               ENTITY-TYPE:  ET-12-DETECTED-EMISSIONS-COARSE-ET
                  ASSOCIATES
                     FILE:
                     F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
                      (*)
                     FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
                      (*)
               ENTITY-TYPE:  ET-13-DETECTED-EMISSIONS-FINE-ET
                  ASSOCIATES
                     FILE:
                     F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
                      (*)
                     FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
                      (*)
      ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA
         OUTPUTS
                  DATA:  D-002-ASET-MSG-DEST-DATA
                  DATA:  D-004-ASET-MSG-NAME-DATA
                  DATA:  D-005-ASET-MSG-SOURCE-DATA
            DATA:  D-125-REQ-DESTINATION-SENSOR-ID-DATA
            DATA:  D-126-REQ-REPORT-INFORMATION-TYPE-DATA
            DATA:  D-127-REQ-SENSOR-TARGET-ID-OF-INTEREST-DATA
            DATA:  D-135-SENSOR-ID-DATA
         FORMS
            MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT (*)
      ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA
         INPUTS
            FILE:  F-06-FLIGHT-PROFILE-FILE (*)
            FILE:  F-32-SENSOR-ORBIT-MODS-FILE
               CONTAINS
                  DATA:  D-117-PLATFORM-MOD-X-DATA
                  DATA:  D-118-PLATFORM-MOD-Y-DATA
                  DATA:  D-119-PLATFORM-MOD-Z-DATA
         OUTPUTS
            FILE:  F-06-FLIGHT-PROFILE-FILE (*)
```

```
      INPUTS
         DATA:  D<135<SENSOR<ID<DATA
   ALPHA:  A<11<NELS<MODIFY<TASK<ALPHA
      INPUTS
         FILE:  F<05<FEASIBLE<ACTIVITY<AREA<FILE
            CONTAINS
               DATA:  D<143<X<LOC<FEASIBLE<DATA
               DATA:  D<145<Y<LOC<FEASIBLE<DATA
         FILE:  F<06<FLIGHT<PROFILE<FILE (*)
      OUTPUTS
         FILE:  F<06<FLIGHT<PROFILE<FILE (*)
      INPUTS
         DATA:  D<056<NEEDED<FEASIBLE<DATA
         DATA:  D<139<TASK<QUE<ID<DATA
         DATA:  D<141<TIME<DATA
      OUTPUTS
               DATA:  D<002<ASET<MSG<DEST<DATA
               DATA:  D<004<ASET<MSG<NAME<DATA
               DATA:  D<005<ASET<MSG<SOURCE<DATA
         DATA:  D<138<TASKING<RESPONSE<DATA
         DATA:  D<139<TASK<QUE<ID<DATA
         DATA:  D<141<TIME<DATA
      FORMS
         MESSAGE:  M<13<NELS<TASKING<RESPONSES<MSG<OUT (*)
   ALPHA:  A<14<NELS<PROCESS<COMMANDERS<REQUIREMENTS<ALPHA
      INPUTS
         FILE:  F<04<CMDRS<DATA<TO<UPDATE<FILE
            CONTAINS
               DATA:  D<040<FIRST<CMDRS<REQ<UPDATE<DATA
               DATA:  D<133<SECOND<CMDRS<REQ<UPDATE<DATA
         FILE:  F<20<NELS<PRE<BRIEFED<AOI<FILE (*)
         FILE:  F<21<NELS<PRE<BRIEFED<SOI<FILE (*)
      OUTPUTS
         FILE:  F<20<NELS<PRE<BRIEFED<AOI<FILE (*)
         FILE:  F<21<NELS<PRE<BRIEFED<SOI<FILE (*)
   ALPHA:  A<15<NELS<PROCESS<PRIORITIZED<SENSOR<DIRECTIONS<ALPHA
      INPUTS
         FILE:  F<05<FEASIBLE<ACTIVITY<AREA<FILE (*)
         FILE:  F<19<NELS<FREQUENCY<SCAN<FILE (*)
      OUTPUTS
         FILE:  F<19<NELS<FREQUENCY<SCAN<FILE (*)
      INPUTS
         DATA:  D<054<NEEDED<FEASIBLE<DATA
         DATA:  D<135<SENSOR<ID<DATA
         DATA:  D<137<SENSOR<PRIORITY<DATA
   ALPHA:  A<16<NELS<PROCESS<REQUESTED<DATA<ALPHA
      INPUTS
         FILE:  F<06<FLIGHT<PROFILE<FILE (*)
         FILE:  F<07<GROUP<TARGET<LOCS<FILE (*)
      OUTPUTS
         FILE:  F<06<FLIGHT<PROFILE<FILE (*)
      INPUTS
         DATA:  D<045<GPS<ID<DATA
   ALPHA:  A<24<RESET<NELS<ALPHA
      DESTROYS
         ENTITY<CLASS:  EC<2<NELS<SCENARIO<EC (*)
         ENTITY<CLASS:  EC<3<NELS<TASKS<EC (*)
         ENTITY<CLASS:  EC<4<NELS<THREAT<EC (*)
```

```
        ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC
         (*)
        ENTITY-CLASS:  EC-6-DETECTED-EMISSIONS-INFO-EC (*)
    ALPHA:  A-25-UPDATE-CARTO-ALPHA
       INPUTS
          FILE:  F-01-BRIDGE-LOCATIONS-FILE
             CONTAINS
                DATA:  D-026-BRIDGE-LOC-X-DATA
                DATA:  D-027-BRIDGE-LOC-Y-DATA
          FILE:  F-02-CARTO-UPDATE-FILE (*)
          FILE:  F-03-CITY-LOCATIONS-FILE
             CONTAINS
                DATA:  D-035-CITY-LOC-X-DATA
                DATA:  D-036-CITY-LOC-Y-DATA
          FILE:  F-08-HYPSO-DATA-FILE (*)
          FILE:  F-09-MARSHALLING-AREAS-FILE
             CONTAINS
                DATA:  D-054-MARSHALLING-X-DATA
                DATA:  D-055-MARSHALLING-Y-DATA
          FILE:  F-28-PRIMARY-ROADS-FILE
             CONTAINS
                DATA:  D-121-PRIMARY-ROADS-X-DATA
                DATA:  D-122-PRIMARY-ROADS-Y-DATA
          FILE:  F-29-RAILROAD-LOCATIONS-FILE
             CONTAINS
                DATA:  D-123-RAILROAD-LOC-X-DATA
                DATA:  D-124-RAILROAD-LOC-Y-DATA
          FILE:  F-30-RIVER-LOCATIONS-FILE
             CONTAINS
                DATA:  D-128-RIVER-LOC-X-DATA
                DATA:  D-129-RIVER-LOC-Y-DATA
          FILE:  F-31-SECONDARY-ROADS-FILE
             CONTAINS
                DATA:  D-131-SECONDARY-ROAD-X-DATA
                DATA:  D-132-SECONDARY-ROAD-Y-DATA
       OUTPUTS
          FILE:  F-01-BRIDGE-LOCATIONS-FILE (*)
          FILE:  F-03-CITY-LOCATIONS-FILE (*)
          FILE:  F-08-HYPSO-DATA-FILE (*)
          FILE:  F-09-MARSHALLING-AREAS-FILE (*)
          FILE:  F-28-PRIMARY-ROADS-FILE (*)
          FILE:  F-29-RAILROAD-LOCATIONS-FILE (*)
          FILE:  F-30-RIVER-LOCATIONS-FILE (*)
          FILE:  F-31-SECONDARY-ROADS-FILE (*)
       INPUTS
          DATA:  D-028-CARTO-MAP-SECT-NUM-DATA
       OUTPUTS
          DATA:  D-028-CARTO-MAP-SECT-NUM-DATA
    DATA:  D-004-ASFT-ASG-NAME-DATA
    DATA:  D-140-THD-DATA
    ENTITY-TYPE:  ET-3-NELS-FLIGHT-FT (*)
    ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-FT (*)
    ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET (*)
    ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET (*)
    INPUT-INTERFACE:  INTO-NELS-SENSOR
       PASSES
          MESSAGE:  M-01-FS-NELS-UNIT-AND-ENVIRONMENT-DATA-MSG-IN
           MADE BY
```

```
        FILE:  F-16-NELS-EMITTER-FILE (*)
    MADE BY
                DATA:  D-002-ASET-MSG-DEST-DATA
                DATA:  D-004-ASET-MSG-NAME-DATA
                DATA:  D-005-ASET-MSG-SOURCE-DATA
MESSAGE:  M-02-NELS-CARTO-UPDATES-MSG-IN
    MADE BY
        FILE:  F-02-CARTO-UPDATE-FILE (*)
    MADE BY
                DATA:  D-002-ASET-MSG-DEST-DATA
                DATA:  D-004-ASET-MSG-NAME-DATA
                DATA:  D-005-ASET-MSG-SOURCE-DATA
MESSAGE:  M-03-NELS-COMMANDERS-REQUIREMENTS-MSG-IN
    MADE BY
        FILE:  F-04-CMDRS-DATA-TO-UPDATE-FILE (*)
    MADE BY
                DATA:  D-002-ASET-MSG-DEST-DATA
                DATA:  D-004-ASET-MSG-NAME-DATA
                DATA:  D-005-ASET-MSG-SOURCE-DATA
MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN
    MADE BY
        FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE (*)
    MADE BY
                DATA:  D-002-ASET-MSG-DEST-DATA
                DATA:  D-004-ASET-MSG-NAME-DATA
                DATA:  D-005-ASET-MSG-SOURCE-DATA
        DATA:  D-056-NEEDED-FEASIBLE-DATA
        DATA:  D-139-TASK-QUE-ID-DATA
MESSAGE:  M-0A-NELS-ORBIT-MODIFICATIONS-MSG-IN
    MADE BY
        FILE:  F-32-SENSOR-ORBIT-MODS-FILE (*)
    MADE BY
                DATA:  D-002-ASET-MSG-DEST-DATA
                DATA:  D-004-ASET-MSG-NAME-DATA
                DATA:  D-005-ASET-MSG-SOURCE-DATA
        DATA:  D-135-SENSOR-ID-DATA
MESSAGE:  M-0B-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN
    MADE BY
        FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE (*)
    MADE BY
                DATA:  D-002-ASET-MSG-DEST-DATA
                DATA:  D-004-ASET-MSG-NAME-DATA
                DATA:  D-005-ASET-MSG-SOURCE-DATA
        DATA:  D-056-NEEDED-FEASIBLE-DATA
        DATA:  D-135-SENSOR-ID-DATA
        DATA:  D-137-SENSOR-PRIORITY-DATA
MESSAGE:  M-0C-NELS-REQUESTED-SENSOR-DATA-MSG-IN
    MADE BY
        FILE:  F-07-GROUP-TARGET-LOCS-FILE (*)
    MADE BY
                DATA:  D-002-ASET-MSG-DEST-DATA
                DATA:  D-004-ASET-MSG-NAME-DATA
                DATA:  D-005-ASET-MSG-SOURCE-DATA
        DATA:  D-045-GPS-ID-DATA
MESSAGE:  M-1S-T-AND-C-STOP-NELS-MSG-IN
    MADE BY
                DATA:  D-002-ASET-MSG-DEST-DATA
                DATA:  D-004-ASET-MSG-NAME-DATA
```

```
                        DATA:  D+005+ASET+MSG+SOURCE+DATA
      OUTPUT+INTERFACE:  TO+TIMING+AND+CONTROL+FROM+NELS (*)
      SUBNET:  S+1+CHECK+NELS+SENSOR+STATUS+SUB (*)
*ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
    RDS1= ENTITY+CLASS:  EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC
    RDS2= ENTITY+CLASS:  EC+2+NELS+SCENARIO+EC
    COMMON MEMBERS=
          DATA:  D+140+TRD+DATA

*ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
    RDS1= ENTITY+CLASS:  EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC
    RDS2= ENTITY+CLASS:  EC+3+NELS+TASKS+EC
    COMMON MEMBERS=
          DATA:  D+140+TRD+DATA

*ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
    RDS1= ENTITY+CLASS:  EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC
    RDS2= ENTITY+CLASS:  EC+4+NELS+THREAT+EC
    COMMON MEMBERS=
          DATA:  D+140+TRD+DATA

*ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
    RDS1= ENTITY+CLASS:  EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC
    RDS2= ENTITY+CLASS:  EC+5+NELS+VEHICLE+CHARACTERISTICS+EC
    COMMON MEMBERS=
          DATA:  D+140+TRD+DATA

*ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
    RDS1= ENTITY+CLASS:  EC+2+NELS+SCENARIO+EC
    RDS2= ENTITY+CLASS:  EC+3+NELS+TASKS+EC
    COMMON MEMBERS=
          DATA:  D+140+TRD+DATA

*ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
    RDS1= ENTITY+CLASS:  EC+2+NELS+SCENARIO+EC
    RDS2= ENTITY+CLASS:  EC+4+NELS+THREAT+EC
    COMMON MEMBERS=
          DATA:  D+140+TRD+DATA

*ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
    RDS1= ENTITY+CLASS:  EC+2+NELS+SCENARIO+EC
    RDS2= ENTITY+CLASS:  EC+5+NELS+VEHICLE+CHARACTERISTICS+EC
    COMMON MEMBERS=
          DATA:  D+140+TRD+DATA

*ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
    RDS1= ENTITY+CLASS:  EC+3+NELS+TASKS+EC
    RDS2= ENTITY+CLASS:  EC+4+NELS+THREAT+EC
    COMMON MEMBERS=
          DATA:  D+140+TRD+DATA

*ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
    RDS1= ENTITY+CLASS:  EC+3+NELS+TASKS+EC
    RDS2= ENTITY+CLASS:  EC+5+NELS+VEHICLE+CHARACTERISTICS+EC
    COMMON MEMBERS=
          DATA:  D+140+TRD+DATA

*ERROR 2460 REPETITIVE DATA SETS(RDS) CONTAIN COMMON MEMBERS
```

NELS DATA FLOW ANALYSIS

```
     RDS1= ENTITY-CLASS:  EC-4-NELS-THREAT-EC
     RDS2= ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC
     COMMON MEMBERS=
           DATA:  D-140-TRD-DATA

 *-*-*-* ANALYZE DATA FLOW FOR R-NET:
 R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET
 *ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
       ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
       ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
       ENTITY-CLASS:  EC-4-NELS-THREAT-EC
       ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
    * ERROR DETECTED AT SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
    * PRECEDED BY SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
    * PRECEDED BY SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB
    * PRECEDED BY R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET


 *ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
       DATA:  D-002-ASET-MSG-DEST-DATA
       DATA:  D-004-ASET-MSG-NAME-DATA
       DATA:  D-005-ASET-MSG-SOURCE-DATA
       DATA:  D-141-TIME-DATA.
    * ERROR DETECTED AT ALPHA:  A-02-GENERATE-DME-ALPHA
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
    * PRECEDED BY SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
    * PRECEDED BY SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB
    * PRECEDED BY R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET


 *ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
       ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
       ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
       ENTITY-CLASS:  EC-4-NELS-THREAT-EC
       ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
    * ERROR DETECTED AT SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
    * PRECEDED BY SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
    * PRECEDED BY RETURN
    * PRECEDED BY AND-NODE
    * PRECEDED BY RETURN
    * PRECEDED BY ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
    * PRECEDED BY ALPHA:  A-03-GENERATE-INS-ALPHA
    * PRECEDED BY ALPHA:  A-02-GENERATE-DME-ALPHA
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
    * PRECEDED BY SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
    * PRECEDED BY SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB
    * PRECEDED BY R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET


 *ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
       ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
       ENTITY-CLASS:  EC-4-NELS-THREAT-EC
       ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
    * ERROR DETECTED AT SELECT-NODE ENTITY-TYPE:
    ET-5-NELS-PRE-PRIFFER-SOI-ET
```

```
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
    * PRECEDED BY SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
    * PRECEDED BY RETURN
    * PRECEDED BY AND-NODE
    * PRECEDED BY RETURN
    * PRECEDED BY ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
    * PRECEDED BY ALPHA:  A-03-GENERATE-INS-ALPHA
    * PRECEDED BY ALPHA:  A-02-GENERATE-DME-ALPHA
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
    * PRECEDED BY SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
    * PRECEDED BY SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB
    * PRECEDED BY R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
      ENTITY-CLASS:  EC-4-NELS-THREAT-EC
      ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
   * ERROR DETECTED AT SELECT-NODE ENTITY-TYPE:
   ET-8-NELS-PRE-BRIEFED-ADI-ET
   * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
   * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
   * PRECEDED BY SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
   * PRECEDED BY RETURN
   * PRECEDED BY AND-NODE
   * PRECEDED BY RETURN
   * PRECEDED BY ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
   * PRECEDED BY ALPHA:  A-03-GENERATE-INS-ALPHA
   * PRECEDED BY ALPHA:  A-02-GENERATE-DME-ALPHA
   * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
   * PRECEDED BY SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
   * PRECEDED BY SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB
   * PRECEDED BY R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      DATA:  D-135-SENSOR-ID-DATA.
   * ERROR DETECTED AT ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
   * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-ADI-ET
   * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
   * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
   * PRECEDED BY SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
   * PRECEDED BY RETURN
   * PRECEDED BY AND-NODE
   * PRECEDED BY RETURN
   * PRECEDED BY ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
   * PRECEDED BY ALPHA:  A-03-GENERATE-INS-ALPHA
   * PRECEDED BY ALPHA:  A-02-GENERATE-DME-ALPHA
   * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
   * PRECEDED BY SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
   * PRECEDED BY SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB
   * PRECEDED BY R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET


*ERROR 2661 INFORMATION ALWAYS REASSIGNED BEFORE USED.
```

```
      DATA:  D+002+ASET+MSG+DEST+DATA
      DATA:  D+004+ASET+MSG+NAME+DATA
      DATA:  D+005+ASET+MSG+SOURCE+DATA.
   * ERROR DETECTED AT ALPHA:  A+13+NELS+PLATFORM+LOCATION+MSG+ALPHA
   * PRECEDED BY AND-NODE
   * PRECEDED BY RETURN
   * PRECEDED BY ALPHA:  A+01+DME+INS+NOISE+GENERATION+ALPHA
   * PRECEDED BY ALPHA:  A+03+GENERATE+INS+ALPHA
   * PRECEDED BY ALPHA:  A+02+GENERATE+DME+ALPHA
   * PRECEDED BY SELECT-NODE ENTITY+TYPE:  ET+3+NELS+FLIGHT+ET
   * PRECEDED BY SUBNET:  S+4+MODEL+NELS+PLATFORM+SUB
   * PRECEDED BY SUBNET:  S+2+DO+NELS+OPERATIONAL+CONTROL+SUB
   * PRECEDED BY R+NET:  R+1+HANDLE+NELS+SENSOR+AND+GPS+PROCESSING+R+NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY+CLASS:  EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC
      ENTITY+CLASS:  EC+2+NELS+SCENARIO+EC
      ENTITY+CLASS:  EC+4+NELS+THREAT+EC.
   * ERROR DETECTED AT SELECT-NODE ENTITY+TYPE:
   ET+6+NELS+VEHICLE+CHARACTERISTICS+ET
   * PRECEDED BY SUBNET:  S+5+MODEL+NELS+SENSOR+SUB
   * PRECEDED BY AND-NODE
   * PRECEDED BY RETURN
   * PRECEDED BY ALPHA:  A+01+DME+INS+NOISE+GENERATION+ALPHA
   * PRECEDED BY ALPHA:  A+03+GENERATE+INS+ALPHA
   * PRECEDED BY ALPHA:  A+02+GENERATE+DME+ALPHA
   * PRECEDED BY SELECT-NODE ENTITY+TYPE:  ET+3+NELS+FLIGHT+ET
   * PRECEDED BY SUBNET:  S+4+MODEL+NELS+PLATFORM+SUB
   * PRECEDED BY SUBNET:  S+2+DO+NELS+OPERATIONAL+CONTROL+SUB
   * PRECEDED BY R+NET:  R+1+HANDLE+NELS+SENSOR+AND+GPS+PROCESSING+R+NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY+CLASS:  EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC
      ENTITY+CLASS:  EC+4+NELS+THREAT+EC.
   * ERROR DETECTED AT SELECT-NODE ENTITY+TYPE:
   ET+2+NELS+EMITTER+GROUND+TRUTH+ET
   * PRECEDED BY SELECT-NODE ENTITY+TYPE:
   ET+6+NELS+VEHICLE+CHARACTERISTICS+ET
   * PRECEDED BY SUBNET:  S+5+MODEL+NELS+SENSOR+SUB
   * PRECEDED BY AND-NODE
   * PRECEDED BY RETURN
   * PRECEDED BY ALPHA:  A+01+DME+INS+NOISE+GENERATION+ALPHA
   * PRECEDED BY ALPHA:  A+03+GENERATE+INS+ALPHA
   * PRECEDED BY ALPHA:  A+02+GENERATE+DME+ALPHA
   * PRECEDED BY SELECT-NODE ENTITY+TYPE:  ET+3+NELS+FLIGHT+ET
   * PRECEDED BY SUBNET:  S+4+MODEL+NELS+PLATFORM+SUB
   * PRECEDED BY SUBNET:  S+2+DO+NELS+OPERATIONAL+CONTROL+SUB
   * PRECEDED BY R+NET:  R+1+HANDLE+NELS+SENSOR+AND+GPS+PROCESSING+R+NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY+CLASS:  EC+4+NELS+THREAT+EC.
   * ERROR DETECTED AT SELECT-NODE ENTITY+TYPE:
```

```
    ET+5+NELS+PRE+BRIEFED+SOI+ET
    * PRECEDED BY ALPHA:  A+18+NELS+SIGNAL+OF+INTEREST+FILTER+ALPHA
    * PRECEDED BY SELECT-NODE ENTITY+TYPE:
    ET+2+NELS+EMITTER+GROUND+TRUTH+ET
    * PRECEDED BY SELECT-NODE ENTITY+TYPE:
    ET+6+NELS+VEHICLE+CHARACTERISTICS+ET
    * PRECEDED BY SUBNET:  S+5+MODEL+NELS+SENSOR+SUB
    * PRECEDED BY AND-NODE
    * PRECEDED BY RETURN
    * PRECEDED BY ALPHA:  A+01+DME+INS+NOISE+GENERATION+ALPHA
    * PRECEDED BY ALPHA:  A+03+GENERATE+INS+ALPHA
    * PRECEDED BY ALPHA:  A+02+GENERATE+DME+ALPHA
    * PRECEDED BY SELECT-NODE ENTITY+TYPE:  ET+3+NELS+FLIGHT+ET
    * PRECEDED BY SUBNET:  S+4+MODEL+NELS+PLATFORM+SUB
    * PRECEDED BY SUBNET:  S+2+DO+NELS+OPERATIONAL+CONTROL+SUB
    * PRECEDED BY R+NET:  R+1+HANDLE+NELS+SENSOR+AND+GPS+PROCESSING+R+NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY+CLASS:  EC+4+NELS+THREAT+EC.
    * ERROR DETECTED AT SELECT-NODE ENTITY+TYPE:
    ET+8+NELS+PPE+BRIEFED+AOI+ET
    * PRECEDED BY ALPHA:  A+05+NELS+AREA+OF+INTEREST+FILTER+ALPHA
    * PRECEDED BY SELECT-NODE ENTITY+TYPE:  ET+5+NELS+PRE+BRIEFED+SOI+ET
    * PRECEDED BY ALPHA:  A+18+NELS+SIGNAL+OF+INTEREST+FILTER+ALPHA
    * PRECEDED BY SELECT-NODE ENTITY+TYPE:
    ET+2+NELS+EMITTER+GROUND+TRUTH+ET
    * PRECEDED BY SELECT-NODE ENTITY+TYPE:
    ET+6+NELS+VEHICLE+CHARACTERISTICS+ET
    * PRECEDED BY SUBNET:  S+5+MODEL+NELS+SENSOR+SUB
    * PRECEDED BY AND-NODE
    * PRECEDED BY RETURN
    * PRECEDED BY ALPHA:  A+01+DME+INS+NOISE+GENERATION+ALPHA
    * PRECEDED BY ALPHA:  A+03+GENERATE+INS+ALPHA
    * PRECEDED BY ALPHA:  A+02+GENERATE+DME+ALPHA
    * PRECEDED BY SELECT-NODE ENTITY+TYPE:  ET+3+NELS+FLIGHT+ET
    * PRECEDED BY SUBNET:  S+4+MODEL+NELS+PLATFORM+SUB
    * PRECEDED BY SUBNET:  S+2+DO+NELS+OPERATIONAL+CONTROL+SUB
    * PRECEDED BY R+NET:  R+1+HANDLE+NELS+SENSOR+AND+GPS+PROCESSING+R+NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY+CLASS:  EC+4+NELS+THREAT+EC.
    * ERROR DETECTED AT SELECT-NODE ENTITY+TYPE:  ET+7+NELS+WEATHER+ET
    * PRECEDED BY SELECT-NODE ENTITY+TYPE:  ET+8+NELS+PPE+BRIEFED+AOI+ET
    * PRECEDED BY ALPHA:  A+05+NELS+AREA+OF+INTEREST+FILTER+ALPHA
    * PRECEDED BY SELECT-NODE ENTITY+TYPE:  ET+5+NELS+PPE+BRIEFED+SOI+ET
    * PRECEDED BY ALPHA:  A+18+NELS+SIGNAL+OF+INTEREST+FILTER+ALPHA
    * PRECEDED BY SELECT-NODE ENTITY+TYPE:
    ET+2+NELS+EMITTER+GROUND+TRUTH+ET
    * PRECEDED BY SELECT-NODE ENTITY+TYPE:
    ET+6+NELS+VEHICLE+CHARACTERISTICS+ET
    * PRECEDED BY SUBNET:  S+5+MODEL+NELS+SENSOR+SUB
    * PRECEDED BY AND-NODE
    * PRECEDED BY RETURN
    * PRECEDED BY ALPHA:  A+01+DME+INS+NOISE+GENERATION+ALPHA
```

```
    * PRECEDED BY ALPHA:  A←03←GENERATE←INS←ALPHA
    * PRECEDED BY ALPHA:  A←02←GENERATE←DME←ALPHA
    * PRECEDED BY SELECT-NODE ENTITY←TYPE:  ET←3←NELS←FLIGHT←ET
    * PRECEDED BY SUBNET:  S←4←MODEL←NELS←PLATFORM←SUB
    * PRECEDED BY SUBNET:  S←2←DO←NELS←OPERATIONAL←CONTROL←SUB
    * PRECEDED BY R←NET:  R←1←HANDLE←NELS←SENSOR←AND←GPS←PROCESSING←R←NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY←CLASS:  EC←4←NELS←THREAT←EC.
   * ERROR DETECTED AT SELECT-NODE ENTITY←TYPE:
   ET←9←SIGNAL←NOISE←CANDIDATE←TARGETS←ET
   * PRECEDED BY ALPHA:  A←19←NELS←SIGNAL←TO←NOISE←DETECTABILITY←ALPHA
   * PRECEDED BY SELECT-NODE ENTITY←TYPE:  ET←7←NELS←WEATHER←ET
   * PRECEDED BY SELECT-NODE ENTITY←TYPE:  ET←8←NELS←PRE←BRIEFED←AOI←ET
   * PRECEDED BY ALPHA:  A←05←NELS←AREA←OF←INTEREST←FILTER←ALPHA
   * PRECEDED BY SELECT-NODE ENTITY←TYPE:  ET←5←NELS←PRE←BRIEFED←SOI←ET
   * PRECEDED BY ALPHA:  A←1P←NELS←SIGNAL←OF←INTEREST←FILTER←ALPHA
   * PRECEDED BY SELECT-NODE ENTITY←TYPE:
   ET←2←NELS←EMITTER←GROUND←TRUTH←ET
   * PRECEDED BY SELECT-NODE ENTITY←TYPE:
   ET←6←NELS←VEHICLE←CHARACTERISTICS←ET
   * PRECEDED BY SUBNET:  S←5←MODEL←NELS←SENSOR←SUB
   * PRECEDED BY AND-NODE
   * PRECEDED BY RETURN
   * PRECEDED BY ALPHA:  A←01←DME←INS←NOISE←GENERATION←ALPHA
   * PRECEDED BY ALPHA:  A←03←GENERATE←INS←ALPHA
   * PRECEDED BY ALPHA:  A←02←GENERATE←DME←ALPHA
   * PRECEDED BY SELECT-NODE ENTITY←TYPE:  ET←3←NELS←FLIGHT←ET
   * PRECEDED BY SUBNET:  S←4←MODEL←NELS←PLATFORM←SUB
   * PRECEDED BY SUBNET:  S←2←DO←NELS←OPERATIONAL←CONTROL←SUB
   * PRECEDED BY R←NET:  R←1←HANDLE←NELS←SENSOR←AND←GPS←PROCESSING←R←NET


*ERROR 2740 ALPHA FORMS MORE THAN ONE MESSAGE THAT PASSES SAME INTERFACE
*ALPHA:  A←20←NELS←SURVEILLANCE←AND←TRACK←MSGS←ALPHA
*ERROR 2740 ALPHA FORMS MORE THAN ONE MESSAGE THAT PASSES SAME INTERFACE
*ALPHA:  A←20←NELS←SURVEILLANCE←AND←TRACK←MSGS←ALPHA
*ERROR 2661 INFORMATION ALWAYS REASSIGNED BEFORE USED.
      DATA:  D←002←ASET←MSG←DEST←DATA
      DATA:  D←004←ASET←MSG←NAME←DATA
      DATA:  D←005←ASET←MSG←SOURCE←DATA.
   * ERROR DETECTED AT ALPHA:
   A←20←NELS←SURVEILLANCE←AND←TRACK←MSGS←ALPHA
   * PRECEDED BY RETURN
   * PRECEDED BY AND-NODE
   * PRECEDED BY ALPHA:  A←12←NELS←PERFORM←SIGNATURE←ANALYSIS←ALPHA
   * PRECEDED BY ALPHA:  A←07←NELS←FINE←LOCATION←ALPHA
   * PRECEDED BY ALPHA:  A←06←NELS←COARSE←LOCATION←ALPHA
   * PRECEDED BY ALPHA:  A←21←NELS←TARGET←ACQUISITION←ALPHA
   * PRECEDED BY SUBNET:  S←3←MODEL←NELS←GPS←PROCESSING←SUB
   * PRECEDED BY RETURN
   * PRECEDED BY ALPHA:  A←22←NELS←TERRAIN←FOLIAGE←SHADOWING←ALPHA
   * PRECEDED BY SELECT-NODE ENTITY←TYPE:
   ET←9←SIGNAL←NOISE←CANDIDATE←TARGETS←ET
   * PRECEDED BY ALPHA:  A←19←NELS←SIGNAL←TO←NOISE←DETECTABILITY←ALPHA
```

```
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-7-NELS-WEATHER-ET
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-8-NELS-PRE-BRIFFED-AOI-ET
    * PRECEDED BY ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
    * PRECEDED BY ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:
    ET-2-NELS-EMITTER-GROUND-TRUTH-ET
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:
    ET-6-NELS-VEHICLE-CHARACTERISTICS-ET
    * PRECEDED BY SUBNET:  S-5-MODEL-NELS-SENSOR-SUB
    * PRECEDED BY AND-NODE
    * PRECEDED BY RETURN
    * PRECEDED BY ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
    * PRECEDED BY ALPHA:  A-03-GENERATE-INS-ALPHA
    * PRECEDED BY ALPHA:  A-02-GENERATE-DME-ALPHA
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
    * PRECEDED BY SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
    * PRECEDED BY SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB
    * PRECEDED BY R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET


*ERROR 2667 USE AND ASSIGNMENT FROM DIFFERENT PARALLEL PATHS.
      DATA:  D-010-ASP-ALTITUDE-DATA
      DATA:  D-012-ASP-LATITUDE-DATA
      DATA:  D-014-ASP-LOC-X-DATA
      DATA:  D-015-ASP-LOC-Y-DATA
      DATA:  D-016-ASP-LOC-Z-DATA
      DATA:  D-017-ASP-LONGITUDE-DATA
      DATA:  D-022-ASP-VEL-X-DATA
      DATA:  D-023-ASP-VEL-Y-DATA
      DATA:  D-024-ASP-VEL-Z-DATA
      DATA:  D-091-NELS-FREQUENCY-SCAN-DATA
      ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
      ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
      ENTITY-CLASS:  EC-3-NELS-TASKS-EC
      ENTITY-CLASS:  EC-4-NELS-THREAT-EC
      ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC
      ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
      FILE:  F-20-NELS-PRE-BRIFFED-AOI-FILE
      FILE:  F-27-PLATFORM-CONTROL-FILE.
    * ERROR DETECTED AT AND-NODE
    * PRECEDED BY RETURN
    * PRECEDED BY ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
    * PRECEDED BY ALPHA:  A-03-GENERATE-INS-ALPHA
    * PRECEDED BY ALPHA:  A-02-GENERATE-DME-ALPHA
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
    * PRECEDED BY SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
    * PRECEDED BY SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB
    * PRECEDED BY R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET


*ERROR 2668 ASSIGNMENT FROM MORE THAN ONE PARALLEL PATH.
      DATA:  D-091-NELS-FREQUENCY-SCAN-DATA.
    * ERROR DETECTED AT AND-NODE
    * PRECEDED BY RETURN
    * PRECEDED BY ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
```

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    * PRECEDED BY ALPHA:  A+03+GENERATE+INS+ALPHA
    * PRECEDED BY ALPHA:  A+02+GENERATE+DME+ALPHA
    * PRECEDED BY SELECT+NODE ENTITY+TYPE:  ET+3+NELS+FLIGHT+ET
    * PRECEDED BY SUBNET:  S+4+MODEL+NELS+PLATFORM+SUB
    * PRECEDED BY SUBNET:  S+2+00+NELS+OPERATIONAL+CONTROL+SUB
    * PRECEDED BY R+NET:  R+1+HANDLE+NELS+SENSOR+AND+GPS+PROCESSING+R+NET


*ERROR 2669 INFORMATIN ASSIGNED BUT NOT USED.
      DATA:  D+002+ASET+MSG+DEST+DATA
      DATA:  D+004+ASET+MSG+NAME+DATA
      DATA:  D+005+ASET+MSG+SOURCE+DATA
      DATA:  D+135+SENSOR+ID+DATA.


*+*+*+* ANALYZE DATA FLOW FOR R+NET:  R+2+MODEL+NELS+SENSOR+SYSTEM+R+NET
*ERROR 264A BRANCH ITEM NOT CONTAINED IN RANGE LIST ON CONSIDER OR
      DATA:  D+004+ASET+MSG+NAME+DATA
   * ERROR DETECTED AT OR+NODE   DATA:  D+004+ASET+MSG+NAME+DATA
   * PRECEDED BY INPUT+INTERFACE:  INTO+NELS+SENSOR
   * PRECEDED BY R+NET:  R+2+MODEL+NELS+SENSOR+SYSTEM+R+NET


*ERROR 264A BRANCH ITEM NOT CONTAINED IN RANGE LIST ON CONSIDER OR
      DATA:  D+004+ASET+MSG+NAME+DATA
   * ERROR DETECTED AT OR+NODE   DATA:  D+004+ASET+MSG+NAME+DATA
   * PRECEDED BY INPUT+INTERFACE:  INTO+NELS+SENSOR
   * PRECEDED BY R+NET:  R+2+MODEL+NELS+SENSOR+SYSTEM+R+NET


*ERROR 2649 ALL ITEMS IN RANGE LIST NOT ENCOUNTERED ON BRANCHES
      DATA:  D+004+ASET+MSG+NAME+DATA
   * ERROR DETECTED AT OR+NODE   DATA:  D+004+ASET+MSG+NAME+DATA
   * PRECEDED BY INPUT+INTERFACE:  INTO+NELS+SENSOR
   * PRECEDED BY R+NET:  R+2+MODEL+NELS+SENSOR+SYSTEM+R+NET


*ERROR 2661 INFORMATION ALWAYS REASSIGNED BEFORE USED.
      DATA:  D+002+ASET+MSG+DEST+DATA
      DATA:  D+005+ASET+MSG+SOURCE+DATA
      DATA:  D+135+SENSOR+ID+DATA.
   * ERROR DETECTED AT ALPHA:  A+09+NELS+MAKE+SENSOR+REQUESTS+ALPHA
   * PRECEDED BY ALPHA:  A+04+INITIALIZE+NELS+ALPHA
   * PRECEDED BY OR+NODE   DATA:  D+004+ASET+MSG+NAME+DATA
   * PRECEDED BY INPUT+INTERFACE:  INTO+NELS+SENSOR
   * PRECEDED BY R+NET:  R+2+MODEL+NELS+SENSOR+SYSTEM+R+NET


*ERROR 2673 DESTROY ENTITY+CLASS THAT IS NOT SELECTED.
      ENTITY+CLASS:  EC+2+NELS+SCENARIO+EC.
   * ERROR DETECTED AT ALPHA:  A+24+RESET+NELS+ALPHA
   * PRECEDED BY OR+NODE   DATA:  D+004+ASET+MSG+NAME+DATA
   * PRECEDED BY INPUT+INTERFACE:  INTO+NELS+SENSOR
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    * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2673 DESTROY ENTITY-CLASS THAT IS NOT SELECTED.
      ENTITY-CLASS:  EC-3-NELS-TASKS-EC.
   * ERROR DETECTED AT ALPHA:  A-24-RESET-NELS-ALPHA
   * PRECEDED BY OR-NODE   DATA:  D-004-ASET-MSG-NAME-DATA
   * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
   * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2673 DESTROY ENTITY-CLASS THAT IS NOT SELECTED.
      ENTITY-CLASS:  EC-4-NELS-THREAT-EC.
   * ERROR DETECTED AT ALPHA:  A-24-RESET-NELS-ALPHA
   * PRECEDED BY OR-NODE   DATA:  D-004-ASET-MSG-NAME-DATA
   * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
   * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2673 DESTROY ENTITY-CLASS THAT IS NOT SELECTED.
      ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
   * ERROR DETECTED AT ALPHA:  A-24-RESET-NELS-ALPHA
   * PRECEDED BY OR-NODE   DATA:  D-004-ASET-MSG-NAME-DATA
   * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
   * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2673 DESTROY ENTITY-CLASS THAT IS NOT SELECTED.
      ENTITY-CLASS:  EC-6-DETECTED-EMISSIONS-INFO-EC.
   * ERROR DETECTED AT ALPHA:  A-24-RESET-NELS-ALPHA
   * PRECEDED BY OR-NODE   DATA:  D-004-ASET-MSG-NAME-DATA
   * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
   * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
      ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
      ENTITY-CLASS:  EC-4-NELS-THREAT-EC
      ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
   * ERROR DETECTED AT SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-FT
   * PRECEDED BY SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
   * PRECEDED BY AND-NODE
   * PRECEDED BY OR-NODE   DATA:  D-004-ASET-MSG-NAME-DATA
   * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
   * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
      ENTITY-CLASS:  EC-4-NELS-THREAT-EC
      ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
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    * ERROR DETECTED AT SELECT-NODE ENTITY-TYPE:
    ET-5-NELS-PRE-BRIEFED-SOI-ET
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
    * PRECEDED BY SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
    * PRECEDED BY AND-NODE
    * PRECEDED BY OR-NODE   DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
    * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
      ENTITY-CLASS:  EC-4-NELS-THREAT-EC
      ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
    * ERROR DETECTED AT SELECT-NODE ENTITY-TYPE:
    ET-8-NELS-PRE-BRIEFED-AOI-ET
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
    * PRECEDED BY SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
    * PRECEDED BY AND-NODE
    * PRECEDED BY OR-NODE   DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
    * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2675 DISJOINT INPUT MESSAGES REQUIRED AT THE SAME TIME.
      MESSAGE:  M-02-NELS-CARTO-UPDATES-MSG-IN.
    * ERROR DETECTED AT ALPHA:  A-25-UPDATE-CARTO-ALPHA
    * PRECEDED BY OR-NODE   DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY AND-NODE
    * PRECEDED BY OR-NODE   DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
    * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
      ENTITY-CLASS:  EC-3-NELS-TASKS-EC
      ENTITY-CLASS:  EC-4-NELS-THREAT-EC
      ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
    * ERROR DETECTED AT SELECT-NODE ENTITY-TYPE:
    ET-5-NELS-PRE-BRIEFED-SOI-ET
    * PRECEDED BY OR-NODE   DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY AND-NODE
    * PRECEDED BY OR-NODE   DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
    * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
      ENTITY-CLASS:  EC-3-NELS-TASKS-EC
      ENTITY-CLASS:  EC-4-NELS-THREAT-EC
      ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
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    * ERROR DETECTED AT SELECT-NODE ENTITY-TYPE:
    ET-8-NELS-PRE-BRIEFED-AOI-ET
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
    * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY AND-NODE
    * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
    * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2675 DISJOINT INPUT MESSAGES REQUIRED AT THE SAME TIME.
       MESSAGE:  M-03-NELS-COMMANDERS-REQUIREMENTS-MSG-IN.
    * ERROR DETECTED AT ALPHA:
    A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET
    * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
    * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY AND-NODE
    * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
    * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
       ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
       ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
       ENTITY-CLASS:  EC-4-NELS-THREAT-EC
       ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
    * ERROR DETECTED AT SELECT-NODE ENTITY-TYPE:
    ET-4-NELS-FREQUENCY-SCAN-ET
    * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY AND-NODE
    * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
    * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
       ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
       ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
       ENTITY-CLASS:  EC-4-NELS-THREAT-EC
       ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
    * ERROR DETECTED AT SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
    * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY AND-NODE
    * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
    * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
    * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2675 DISJOINT INPUT MESSAGES REQUIRED AT THE SAME TIME.
       MESSAGE:  M-01-ES-NELS-UNIT-AND-ENVIRONMENT-DATA-MSG-IN
       MESSAGE:  M-02-NELS-CARTO-UPDATES-MSG-IN
       MESSAGE:  M-03-NELS-COMMANDERS-REQUIREMENTS-MSG-IN
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      MESSAGE:  M←04←NELS←MODIFIED←TASK←MSG←IN
      MESSAGE:  M←06←NELS←ORBIT←MODIFICATIONS←MSG←IN
      MESSAGE:  M←08←NELS←PRIORITIZED←SENSOR←DIRECTIONS←MSG←IN
      MESSAGE:  M←09←NELS←REQUESTED←SENSOR←DATA←MSG←IN
      MESSAGE:  M←15←T←AND←C←STOP←NELS←MSG←IN.
   * ERROR DETECTED AT ALPHA:  A←11←NELS←MODIFY←TASK←ALPHA
   * PRECEDED BY SELECT-NODE ENTITY←TYPE:  ET←3←NELS←FLIGHT←ET
   * PRECEDED BY OR-NODE   DATA:  D←004←ASET←MSG←NAME←DATA
   * PRECEDED BY AND-NODE
   * PRECEDED BY OR-NODE   DATA:  D←004←ASET←MSG←NAME←DATA
   * PRECEDED BY INPUT←INTERFACE:  INTO←NELS←SENSOR
   * PRECEDED BY R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET


*ERROR 2661 INFORMATION ALWAYS REASSIGNED BEFORE USED.
      DATA:  D←002←ASET←MSG←DEST←DATA
      DATA:  D←005←ASET←MSG←SOURCE←DATA.
   * ERROR DETECTED AT ALPHA:  A←11←NELS←MODIFY←TASK←ALPHA
   * PRECEDED BY SELECT-NODE ENTITY←TYPE:  ET←3←NELS←FLIGHT←ET
   * PRECEDED BY OR-NODE   DATA:  D←004←ASET←MSG←NAME←DATA
   * PRECEDED BY AND-NODE
   * PRECEDED BY OR-NODE   DATA:  D←004←ASET←MSG←NAME←DATA
   * PRECEDED BY INPUT←INTERFACE:  INTO←NELS←SENSOR
   * PRECEDED BY R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      DATA:  D←141←TIME←DATA.
   * ERROR DETECTED AT ALPHA:  A←11←NELS←MODIFY←TASK←ALPHA
   * PRECEDED BY SELECT-NODE ENTITY←TYPE:  ET←3←NELS←FLIGHT←ET
   * PRECEDED BY OR-NODE   DATA:  D←004←ASET←MSG←NAME←DATA
   * PRECEDED BY AND-NODE
   * PRECEDED BY OR-NODE   DATA:  D←004←ASET←MSG←NAME←DATA
   * PRECEDED BY INPUT←INTERFACE:  INTO←NELS←SENSOR
   * PRECEDED BY R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY←CLASS:  EC←1←NELS←DETECTABLE←EMISSION←BREAKOUT←EC
      ENTITY←CLASS:  EC←2←NELS←SCENARIO←EC
      ENTITY←CLASS:  EC←4←NELS←THREAT←EC
      ENTITY←CLASS:  EC←5←NELS←VEHICLE←CHARACTERISTICS←EC.
   * ERROR DETECTED AT SELECT-NODE ENTITY←TYPE:  ET←3←NELS←FLIGHT←ET
   * PRECEDED BY OR-NODE   DATA:  D←004←ASET←MSG←NAME←DATA
   * PRECEDED BY AND-NODE
   * PRECEDED BY OR-NODE   DATA:  D←004←ASET←MSG←NAME←DATA
   * PRECEDED BY INPUT←INTERFACE:  INTO←NELS←SENSOR
   * PRECEDED BY R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET


*ERROR 2664 INFORMATION ALWAYS USED BEFORE ASSIGNED.
      ENTITY←CLASS:  EC←1←NELS←DETECTABLE←EMISSION←BREAKOUT←EC
      ENTITY←CLASS:  EC←2←NELS←SCENARIO←EC
      ENTITY←CLASS:  EC←4←NELS←THREAT←EC
```

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      ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
   * ERROR DETECTED AT SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
   * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
   * PRECEDED BY AND-NODE
   * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
   * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
   * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2675 DISJOINT INPUT MESSAGES REQUIRED AT THE SAME TIME.
      MESSAGE:  M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN.
   * ERROR DETECTED AT ALPHA:  A-16-NELS-PROCESS-REQUESTED-DATA-ALPHA
   * PRECEDED BY SELECT-NODE ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
   * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
   * PRECEDED BY AND-NODE
   * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
   * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
   * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2665 POSSIBLE USE AND ASSIGNMENT FROM DIFFERENT PARALLEL PATHS.
      DATA:  D-135-SENSOR-ID-DATA
      ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
      ENTITY-CLASS:  EC-3-NELS-TASKS-EC.
   * ERROR DETECTED AT AND-NODE
   * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
   * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
   * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2667 USE AND ASSIGNMENT FROM DIFFERENT PARALLEL PATHS.
      DATA:  D-004-ASET-MSG-NAME-DATA.
   * ERROR DETECTED AT AND-NODE
   * PRECEDED BY OR-NODE    DATA:  D-004-ASET-MSG-NAME-DATA
   * PRECEDED BY INPUT-INTERFACE:  INTO-NELS-SENSOR
   * PRECEDED BY R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET


*ERROR 2820 INFORMATION PASSING INPUT-INTERFACE NOT USED.
      DATA:  D-002-ASET-MSG-DEST-DATA
      DATA:  D-005-ASET-MSG-SOURCE-DATA
      DATA:  D-029-CARTO-SECTION-NUM-DATA
      DATA:  D-030-CARTO-UPDATE-1-DATA
      DATA:  D-031-CARTO-UPDATE-2-DATA
      DATA:  D-032-CARTO-UPDATE-3-DATA
      DATA:  D-033-CARTO-UPDATE-X-DATA
      DATA:  D-034-CARTO-UPDATE-Y-DATA
      DATA:  D-040-FIRST-CMDRS-REQ-UPDATE-DATA
      DATA:  D-048-GROUND-TARGET-LOC-X-DATA
      DATA:  D-049-GROUND-TARGET-LOC-Y-DATA
      DATA:  D-063-A-NELS-EMISSION-START-TIME-DATA
      DATA:  D-064-A-NELS-EMISSION-STOP-TIME-DATA
      DATA:  D-073-A-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
      DATA:  D-075-A-NELS-EMITTER-ID-DATA
```

APPENDIX D

REVS-PRODUCED
B-5 SPECIFICATION DOCUMENT

```
    21MAR-83
 M  13:36:48              XX 000  REVS   BASELINE VERSION = 14.1, (DATE=21MAR-83,
  X 15:54:38  REVSIN              RADX.
 M  15:54:39              XX 001  FUNCTION RADX     INITIATED.
  X 17:14:09  REVSIN              FENC.
 M  17:14:10              XX 002  FUNCTION RADX     COMPLETED.
  X 17:14:10  REVSIN              STOP. (GENERATED STATEMENT)
 M  17:14:15              XX 007  REVS COMPLETED; NORMAL TERMINATION.
 M  17:14:15              XX 007  YOUR NEW DATA BASE IS ON TAPE2.DAT.....


 XX 000  REVS   BASELINE VERSION = 14.1, (DATE=21MAR-83,  TIME=13:36:48)
         RADX.
0XX 001  FUNCTION RADX     INITIATED.  ************************************
  *-*-* ENTER RADX,  DATE = 21MAR-83,  TIME = 15:56:20 *-*-*
 [RADX COMMAND=
 SET THE-INPUT-INTERFACES = INPUT-INTERFACE WITH TRACED.
 ------------------------------------------------------
 SET COUNT = 1

 [RADX COMMAND=
 SET THE-OUTPUT-INTERFACES = OUTPUT-INTERFACE WITH TRACED.
 -------------------------------------------------------
 SET COUNT = 1

 [RADX COMMAND=
 SET THE-INTERFACES = THE-INPUT-INTERFACES OR
                      THE-OUTPUT-INTERFACES.
 ------------------------------------------
 SET COUNT = 2

 [RADX COMMAND=
 SET THE-ORIGINATING-REQUIREMENTS = ORIGINATING-REQUIREMENT
                                    WITH TRACES.
 ------------------------------------------------------------
 SET COUNT = 28

 [RADX COMMAND=
 SET THE-DECISIONS = DECISION WITH TRACES.
 ----------------------------------------
 SET COUNT = 3

 [RADX COMMAND=
 SET THE-MESSAGES = MESSAGE WITH TRACED.
 --------------------------------------
 SET COUNT = 15

 [RADX COMMAND=
 SET THE-DATA = DATA WITH TRACED.
 -------------------------------
 SET COUNT = 181

 [RADX COMMAND=
 SET THE-FILES = FILE WITH TRACED.
 --------------------------------
 SET COUNT = 22

 [RADX COMMAND=
 SET THE-ALPHAS = ALPHA WITH TRACED.
```

```
SET COUNT = 25

[RADX COMMAND]
SET THE-ENTITY-CLASSES = ENTITY-CLASS WITH TRACED.
SET COUNT = 5

[RADX COMMAND]
```

```
SET THE-ENTITY-TYPES = ENTITY-TYPE WITH TRACED.
-----------------------------------------------
SET COUNT = 13

[RADX COMMAND=
SET THE-R-NETS = R-NET WITH TRACED.
-----------------------------------
SET COUNT = 2

[RADX COMMAND=
SET THE-SUBNETS = SUBNET WITH TRACED.
-------------------------------------
SET COUNT = 5

[RADX COMMAND=
(*    SECTION 1  SCOPE
      SECTION 2  APPLICABLE DOCUMENTS
                    The Advanced Sensor Exploitation (ASE)
                       Analysis/Design Report
                     RADC-TR-80-168, Vol 1
      SECTION 3  REQUIREMENTS
              3.0  GENERAL REQUIREMENTS
                      This paragraph contains all relevent
                   requirements and decisions                *)
                   LIST THE-ORIGINATING-REQUIREMENTS.
-------------------------------------------------------------

   ORIGINATING-REQUIREMENT: ORIG-REQ-EMITTER-LOCATION-ACCURACY.
        DATE-ENTERED: 72781.
        DESCRIPTION:
             "TO BE MODELLED AS A FUNCTION OF EMITTER
FREQUENCY, BANDWIDTH, S/N, HARDWARE ERRORS, NAV. ERRORS,
SENSOR PLATFORM GEOMETRY, PHASE NOISE AND CO-CHANNEL
INTERFERENCE, AND CORRELATION DWELL TIME".
        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA: A-06-NELS-COARSE-LOCATION-ALPHA
             ALPHA: A-07-NELS-FINE-LOCATION-ALPHA.
        DOCUMENTED BY:
             SOURCE: ASE-PP-6-3-2-3.

   ORIGINATING-REQUIREMENT: ORIG-REQ-FEASIBLE-CHECK.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                  "WITH A FEASIBLE TASK A CHECK IS MADE TO
        DETERMINE IF THE SENSOR HAS RESPONDED TO A SIMILAR
        REQUEST.  IF NO SIMILAR REQUEST THEN TASK IS TO BE
        PRIORITIZED".
        ENTERED-BY: "SGM".
        TRACES TO:
             FILE: F-05-FEASIBLE-ACTIVITY-AREA-FILE.
        DOCUMENTED BY:
             SOURCE: ASE-PP-6-1-6.

   ORIGINATING-REQUIREMENT: ORIG-REQ-GENERATE-DME.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                  "THE SENSOR PLATFORM LOCATION(X,Y,Z,)
```

```
        AND DYNAMICS (SPEED & ACCELERATION) WILL BE GIVEN AT
        KEY POINTS ALONG THE MISSION FLIGHT PATH",
        ENTERED-BY: "SGM",
        TRACES TO:
             ALPHA:  A-02-GENERATE-DME-ALPHA
             DATA:  D-014-ASP-LOC-X-DATA
             DATA:  D-015-ASP-LOC-Y-DATA
             DATA:  D-016-ASP-LOC-Z-DATA
             DATA:  D-020-ASP-STATE-VECTOR-DATA
             DATA:  D-021-ASP-TIME-DATA
             DATA:  D-022-ASP-VEL-X-DATA
             DATA:  D-023-ASP-VEL-Y-DATA
             DATA:  D-024-ASP-VEL-Z-DATA
             SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB,
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-1-1,

    ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS,
        DATE-ENTERED: 72481,
        DESCRIPTION:
                "CARTESIAN-TO-GEOGRAPHICAL CONVERSION
        IS TO BE APPLIED TO THE DME VALUES TO OBTAIN THE
        X,Y,Z, OF THE PLATFORM; WITH ROLL, PITCH, AND YAW
        MODELLED USING VECTOR RESULTANTS OF CENTRIPETAL AND
        GRAVITATIONAL FORCES",
        ENTERED-BY: "SGM",
        TRACES TO:
             ALPHA:  A-03-GENERATE-INS-ALPHA
             DATA:  D-010-ASP-ALTITUDE-DATA
             DATA:  D-011-ASP-ATTITUDE-DATA
             DATA:  D-012-ASP-LATITUDE-DATA
             DATA:  D-013-ASP-LOCATION-DATA
             DATA:  D-017-ASP-LONGITUDE-DATA
             DATA:  D-018-ASP-PITCH-DATA
             DATA:  D-019-ASP-ROLL-DATA
             DATA:  D-025-ASP-YAW-DATA
             SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB,
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-1-1,

    ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-NOISE,
        DATE-ENTERED: 72481,
        DESCRIPTION:
                "ERRORS IN THE SENSOR PLATFORM DME
        IS ASSUMEND TO BE GAUSSIAN DISTRIBUTED WITH A MEAN
        CONSTANT, AND THE INS MEASUREMENTS ARE ASSUMED TO BE
        ZERO MEAN GAUSSIAN DISTRIBUTED",
        ENTERED-BY: "SGM",
        TRACES TO:
             ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
             SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB,
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-1-1,

    ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS,
        TRACES TO:
             ALPHA:  A-02-GENERATE-DME-ALPHA
             DATA:  D-006-ASP-ACCELERATION-DATA
```

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              DATA:  D-007-ASP-ACC-X-DATA
              DATA:  D-008-ASP-ACC-Y-DATA
              DATA:  D-009-ASP-ACC-Z-DATA
              DATA:  D-041-FLIGHT-WAYPOINT-X-DATA
              DATA:  D-042-FLIGHT-WAYPOINT-Y-DATA
              DATA:  D-043-FLIGHT-WAYPOINT-Z-DATA
              ENTITY-CLASS:  EC-3-NELS-TASKS-EC
              ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
              FILE:  F-06-FLIGHT-PROFILE-FILE
              FILE:  F-27-PLATFORM-CONTROL-FILE
              SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.
        DATE-ENTERED: 72781.
        DESCRIPTION:
             "THE EMISSIONS WHICH MEET AOI DETECTION
CRITERIA ARE PLACED ON A NELS CANDIDATE TARGET LIST;
THE AOI FILTER REMOVES FROM THAT LIST THOSE EMISSIONS
WHICH ARE LOCATED OUTSIDE OFTHE ASE PRE-BRIEFED AREA
OF INTEREST".
        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
             DATA:  D-061-NELS-EMISSION-DURATION-DATA
             DATA:  D-062-NELS-EMISSION-SIGNAL-STRENGTH-DATA
             DATA:  D-094-NELS-PRE-BRIEFED-AOI-DATA
             DATA:  D-095-NELS-PRE-BRIEFED-AOI-FILTERING-CRITERIA-DATA
             DATA:  D-096-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-DATA
             DATA:  D-097-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-X-DATA
             DATA:  D-098-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-Y-DATA
             DATA:  D-099-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-DATA
             DATA:  D-100-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-X-DATA
             DATA:  D-101-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-Y-DATA
             DATA:  D-147-NELS-EMISSION-DURATION-DATA
             DATA:  D-148-NELS-EMISSION-SIGNAL-STRENGTH-DATA
             DATA:  D-157-NELS-EMISSION-DURATION-DATA
             ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
             ENTITY-CLASS:  EC-3-NELS-TASKS-EC
             ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET
             FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
             FILE:  F-20-NELS-PRF-BRIEFED-AOI-FILE
             SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-2-2.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-COARSE-AND-FINE-LOCATION.
        DATE-ENTERED: 72781.
        DESCRIPTION:
             "BY USE OF TDOA AND DC MEASUREMENTS THE COARSE
LOCATION FUNCTION DETERMINES THE APPROXIMATE LOCATION
OF ACTIVE NARROWBAND EMITTERS, AND THE FINE LOCATION
FUNCTION CLACULATES LOCATION BY USING THE CEP THRESHOLD
OR UNTIL THE TRANSMISSION ENDS".
        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA:  A-06-NELS-COARSE-LOCATION-ALPHA
             ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
             DATA:  D-070-NELS-EMITTER-COV-DATA
```

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            ENTITY-TYPE:  ET-12-DETECTED-EMISSIONS-COARSE-ET
            ENTITY-TYPE:  ET-13-DETECTED-EMISSIONS-FINE-ET
            SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB,
        DOCUMENTED BY:
            SOURCE:  ASE-PP-6-3-2-3,

    ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EMITTER-DEFAULT,
        DATE-ENTERED: 72781,
        DESCRIPTION:
            "WHEN NO PRE-BRIEFED SIGNAL OF INTEREST
IS AVAILABLE TO THE NELS FROM THE ASE ELEMENT, THEN ALL
EMITTERS TRANSMITTING ON A FREQUENCY WITHIN THE RECEIVER
PASSBAND ARE FORWARDED TO THE AREA OF INTEREST FILTER",
        ENTERED-BY: "SGM",
        TRACES TO:
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            ENTITY-TYPE:  ET-10-GROUND-SHADOWING-CANDIDATE-TARGETS-ET
            ENTITY-TYPE:  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET
            SUBNET:  S-5-MODEL-NELS-SENSOR-SUB,
        DOCUMENTED BY:
            SOURCE:  ASE-PP-6-3-2-2,

    ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE,
        DATE-ENTERED: 72781,
        DESCRIPTION:
            "INTERFACES WITH SCENARIO GENERATION
SUBSYSTEM AND THE ASE ELEMENT AND SENSOR TASKING AND
CUES; CONTROLS SENSOR PLATFORM MANAGEMENT, FREQUENCY
SCAN ALLOCATION, TARGET ACQUISITION EMITTER LOCATION,
ACTIVITY INFORMATION, AND SENSOR STATUS ARE FORWARDED
TO THE ASE ELEMENT VIA AN EXTERNAL INTERFACE",
        ENTERED-BY: "SGM",
        TRACES TO:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA
            ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA
            ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA
            ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA
            ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA
            ALPHA:  A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA
            ALPHA:
            A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA
            ALPHA:  A-16-NELS-PROCESS-REQUESTED-DATA-ALPHA
            ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
            ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA
            ALPHA:  A-25-UPDATE-CARTO-ALPHA
            DATA:  D-029-CARTO-SECTION-NUM-DATA
            DATA:  D-030-CARTO-UPDATE-1-DATA
            DATA:  D-031-CARTO-UPDATE-2-DATA
            DATA:  D-032-CARTO-UPDATE-3-DATA
            DATA:  D-033-CARTO-UPDATE-X-DATA
            DATA:  D-034-CARTO-UPDATE-Y-DATA
            DATA:  D-046-GROUND-TARGET-FREQUENCY-DATA
            DATA:  D-047-GROUND-TARGET-LENGTH-DATA
            DATA:  D-048-GROUND-TARGET-LOC-X-DATA
            DATA:  D-049-GROUND-TARGET-LOC-Y-DATA
            DATA:  D-050-GROUND-TARGET-VELOCITY-DATA
            DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA
            DATA:  D-067-NELS-EMITTER-BANDWIDTH-DATA
```

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                DATA:  D-069-NELS-EMITTER-CHARACTERISTICS-DATA
                DATA:  D-077-A-NELS-EMITTER-MODULATION-TYPE-DATA
                DATA:  D-077-NELS-EMITTER-MODULATION-TYPE-DATA
                DATA:  D-078-A-NELS-EMITTER-POWER-LEVEL-DATA
                DATA:  D-078-NELS-EMITTER-POWER-LEVEL-DATA
                DATA:  D-114-PLATFORM-LOCATION-X-DATA
                DATA:  D-115-PLATFORM-LOCATION-Y-DATA
                DATA:  D-116-PLATFORM-LOCATION-Z-DATA
                DATA:  D-117-PLATFORM-MOD-X-DATA
                DATA:  D-118-PLATFORM-MOD-Y-DATA
                DATA:  D-119-PLATFORM-MOD-Z-DATA
                DATA:  D-136-SENSOR-MODE-OF-OPERATION-DATA
                DATA:  D-142-TRACK-MESSAGE-DATA
                DATA:  D-176-NELS-EMITTER-BANDWIDTH-DATA
                DATA:  D-178-NELS-EMITTER-MODULATION-TYPE-DATA
                DATA:  D-181-NELS-EMITTER-MODULATION-TYPE-DATA
                DATA:  D-182-NELS-EMITTER-BANDWIDTH-DATA
                ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
                ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC
                ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET
                ENTITY-TYPE:  ET-6-NELS-VEHICLE-CHARACTERISTICS-ET
                EVENT:  E-1-ACTIVATE-SENSOR-EVENT
                FILE:  F-02-CARTO-UPDATE-FILE
                FILE:  F-04-CMDRS-DATA-TO-UPDATE-FILE
                FILE:  F-07-GROUP-TARGET-LOCS-FILE
                FILE:  F-14-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-FILE
                FILE:  F-15-NELS-EMITTER-CHARACTERISTICS-FILE
                FILE:  F-32-SENSOR-ORBIT-MODS-FILE
                FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE
                FILE:  F-34-SENSOR-STATUS-FILE
                INPUT-INTERFACE:  INTO-NELS-SENSOR
                MESSAGE:  M-01-ES-NELS-UNIT-AND-ENVIRONMENT-DATA-MSG-IN
                MESSAGE:  M-02-NELS-CARTO-UPDATES-MSG-IN
                MESSAGE:  M-03-NELS-COMMANDERS-REQUIREMENTS-MSG-IN
                MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN
                MESSAGE:  M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
                MESSAGE:  M-06-NELS-ORBIT-MODIFICATIONS-MSG-IN
                MESSAGE:  M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT
                MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN
                MESSAGE:  M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN
                MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT
                MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT
                MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
                MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT
                MESSAGE:  M-14-NELS-TRACK-MESSAGE-MSG-OUT
                OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS
                R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET
                R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET
                SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
                SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB.
           DOCUMENTED BY:
                SOURCE:  ASE-PP-6-3-2-3.

      ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SCAN-OPTIMIZATION.
           DATE-ENTERED: 72781.
           DESCRIPTION:
                "AUTOMATICALLY OPTIMIZES FREQUENCY
    SCAN STRATEGY BASED ON THE DETECTION OF HIGH PRIORITY
```

```
 THREAT EMITTERS".
         ENTERED-BY: "SGM".
         TRACES TO:
              ALPHA:  A-OR-NELS-FREQUENCY-SCAN-OPTIMIZATION-ALPHA
              SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB.
         DOCUMENTED BY:
              SOURCE:  ASE-PP-6-3-2-3.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SENSOR-DIRECTOR.
         DATE-ENTERED: 72481.
         DESCRIPTION:
              "THE NELS GPS WILL DIRECT THE NELS AIRBORNE
 SENSOR RECEIVERS TO TUNE TO A SPECIFIC FREQUENCY BAND".
         ENTERED-BY: "SGM".
         TRACES TO:
              DATA:  D-091-NELS-FREQUENCY-SCAN-DATA.
         DOCUMENTED BY:
              SOURCE:  ASE-PP-6-3-2-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.
         DATE-ENTERED: 72481.
         DESCRIPTION:
              "A SET OF FREQUENCY-SCAN RANGE DESCRIPTORS
 ARE TO BE STORED IN THE NELS GPS, EITH EACH DESCRIPTOR
 DEFINING A BEGINNING AND END OF A FREQUENCY BAND TO BE
 SCANNED".
         ENTERED-BY: "SGM".
         TRACES TO:
              ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
              DATA:  D-090-NELS-FREQUENCY-SCAN-BAND-DATA
              DATA:  D-092-NELS-FREQ-SCAN-LOWER-FREQ-DATA
              DATA:  D-093-NELS-FREQ-SCAN-UPPER-FREQ-DATA
              DATA:  D-102-NELS-PRE-BRIEFED-SOI-DATA
              DATA:  D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA
              DATA:  D-104-NELS-PRE-BRIEFED-SOI-FREQ-DATA
              DATA:  D-105-NELS-PRE-BRIEFED-SOI-MODULATION-TYPE-DATA
              DATA:  D-106-NELS-PRE-BRIEFED-SOI-START-FREQ-DATA
              ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
              ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET
              ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
              FILE:  F-19-NELS-FREQUENCY-SCAN-FILE
              FILE:  F-21-NELS-PRE-BRIEFED-SOI-FILE
              SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.
         DOCUMENTED BY:
              SOURCE:  ASE-PP-6-3-2-2.

   ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.
         DATE-ENTERED: 72781.
         DESCRIPTION:
              "REMOVE FROM NELS AOI CANDIDATE LIST ANY
 EMITTER WHOSE S/N DOES NOT EXCEED A PRE-SET THRESHOLD
 FOR AT LEAST TWO NELS SENSOR RECEIVERS".
         ENTERED-BY: "SGM".
         TRACES TO:
              ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
              DATA:  D-001-ALTITUDE-WEATHER-LOC-DATA
              DATA:  D-037-CLOUD-COVER-DATA
              DATA:  D-038-CONDITIONS-AT-ELEVATION-WEATHER-DATA
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            DATA:  D-039-ELEVATION-WEATHER-DATA
            DATA:  D-120-PRECIPITATION-DATA
            DATA:  D-144-X-WEATHER-LOC-DATA
            DATA:  D-146-Y-WEATHER-LOC-DATA
            ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
            ENTITY-CLASS:  EC-3-NELS-TASKS-EC
            ENTITY-TYPE:  ET-7-NELS-WEATHER-ET
            FILE:  F-26-NELS-WEATHER-CONDITIONS-FILE
            SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.
        DOCUMENTED BY:
            SOURCE:  ASE-PP-6-3-2-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNATURE-ANALYSIS.
        DATE-ENTERED: 72781.
        DESCRIPTION:
            "TRANSFORMS LOCATION AND PARAMETER ESTIMATES
INTO TYPED EMITTER REPORTS, EMITTER PARAMETER ESTIMATES,
AND TYPED EMITTER TARGET REPORTS;  A TRAFFIC TYPE CODE
IS GIVEN TO EACH EMISSION BASED ON ITS SIGNAL CHARS".
        ENTERED-BY: "SGM".
        TRACES TO:
            ALPHA:  A-12-NELS-PERFORM-SIGNATURE-ANALYSIS-ALPHA
            DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA
            FILE:  F-25-NELS-TYPED-EMITTER-REPORT-FILE
            SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB.
        DOCUMENTED BY:
            SOURCE:  ASE-PP-6-3-2-3.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.
        DATE-ENTERED: 72781.
        DESCRIPTION:
            "ESTIMATE EMITTER SIGNAL CHARACTERISTICS,
TIME DIFFERENCE OF ARRIVAL, AND DIFFERENTIAL DOPPLER
INFORMATION FOR EACH DETECTABLE EMISSION".
        ENTERED-BY: "SGM".
        TRACES TO:
            ALPHA:  A-21-NELS-TARGET-ACQUISITION-ALPHA
            DATA:  D-058-NELS-DD-1-2-DATA
            DATA:  D-059-NELS-DD-1-3-DATA
            DATA:  D-060-NELS-DD-2-3-DATA
            DATA:  D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA
            DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA
            DATA:  D-109-NELS-TDOA-1-2-DATA
            DATA:  D-110-NELS-TDOA-1-3-DATA
            DATA:  D-111-NELS-TDOA-2-3-DATA
            DATA:  D-112-NELS-TDOA-DD-DATA
            ENTITY-TYPE:  ET-11-DETECTED-EMISSIONS-DD-TDOA-ET
            FILE:  F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
            FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
            FILE:  F-24-NELS-TDOA-DD-FILE
            SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB.
        DOCUMENTED BY:
            SOURCE:  ASE-PP-6-3-2-3.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TERRAIN-SHADOWING.
        DATE-ENTERED: 72781.
        DESCRIPTION:
            "ELIMINATE EMITERS WITHIN NELS AOI CANDIDATE
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LIST WHICH CANNOT BE DETECTED BY THE SENSOR DUE TO
TERRAIN OR FOLIAGE SHADOWING (SHADOWING DETERMINED BY
AT LEAST TWO NELS PLATFORMS);  INPUT TO THE SHADOWING
ALGORITHM IS TO BE NELS PLATFORM LOCATION, EMITTER
TARGET LOCATION, AND HYPSOGRAPHIC DATA BASE".
        ENTERED-BY: "SGM",
        TRACES TO:
             ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA
             SUBNET:  S-5-MODEL-NELS-SENSOR-SUB,
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-2-2,

   ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE,
        DATE-ENTERED: 72781,
        DESCRIPTION:
             "MAINTAIN A TABLE SEGMENTED AND ORDERED BY
LOCATION, FREQUENCY, AND TIME OF LOCATION;  EACH ENTRY
WILL CONSIST OF THE DATA TYPES:  EMITTER ID, FREQUENCY,
LOCATION, TOC, CEP, BANDWIDTH, MODULATION, AND TRAFFIC
TYPE",
        ENTERED-BY: "SGM",
        TRACES TO:
             ALPHA:  A-23-NELS-THREAT-TABLE-UPDATE-ALPHA
             DATA:  D-065-NELS-EMISSION-THREAT-TABLE-DATA
             DATA:  D-068-NELS-EMITTER-CEP-DATA
             DATA:  D-079-NELS-EMITTER-TIME-OF-LOCATION-DATA
             DATA:  D-080-NELS-EMITTER-TRAFFIC-TYPE-DATA
             DATA:  D-177-NELS-EMITTER-CEP-DATA
             DATA:  D-179-NELS-EMITTER-TIME-OF-LOCATION-DATA
             DATA:  D-180-NELS-EMITTER-TRAFFIC-TYPE-DATA
             DATA:  D-183-NELS-EMITTER-CEP-DATA
             ENTITY-CLASS:  EC-4-NELS-THREAT-EC
             ENTITY-TYPE:  ET-1-NELS-EMISSION-THREAT-ET
             FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
             FILE:  F-13-NELS-EMISSION-THREAT-TABLE-FILE
             SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB,
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-3-2-3,

   ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO,
        DATE-ENTERED: 72481,
        DESCRIPTION:
                "SCENARIOS SHALL BE INITIALIZED PRIOR TO
        EXECUTION FOR FILLING IN THE DATA STRUCTURES OF THE
        WORLD MODEL AND CREATING A SET OF INITIAL ORDERS
        SPECIFYING EVENT PROCEDURES TO BE EXECUTED DURING THE
        SCENARIO",
        ENTERED-BY: "SGM",
        TRACES TO:
             DATA:  D-072-NELS-EMITTER-DYNAMICS-DATA
             DATA:  D-073-A-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
             DATA:  D-073-B-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
             DATA:  D-073-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
             DATA:  D-075-A-NELS-EMITTER-ID-DATA
             DATA:  D-075-B-NELS-EMITTER-ID-DATA
             DATA:  D-075-NELS-EMITTER-ID-DATA
             DATA:  D-076-NELS-EMITTER-LOCATION-DATA
             DATA:  D-081-A-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
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                DATA:  D-081-B-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
                DATA:  D-081-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
                DATA:  D-082-A-NELS-EMITTER-VEL-X-DATA
                DATA:  D-082-NELS-EMITTER-VEL-X-DATA
                DATA:  D-083-A-NELS-EMITTER-VEL-Y-DATA
                DATA:  D-083-NELS-EMITTER-VEL-Y-DATA
                DATA:  D-084-A-NELS-EMITTER-VEL-Z-DATA
                DATA:  D-084-NELS-EMITTER-VEL-Z-DATA
                DATA:  D-085-A-NELS-EMITTER-X-DATA
                DATA:  D-085-B-NELS-EMITTER-X-DATA
                DATA:  D-085-NELS-EMITTER-X-DATA
                DATA:  D-086-A-NELS-EMITTER-Y-DATA
                DATA:  D-086-B-NELS-EMITTER-Y-DATA
                DATA:  D-086-NELS-EMITTER-Y-DATA
                DATA:  D-087-A-NELS-EMITTER-Z-DATA
                DATA:  D-087-B-NELS-EMITTER-Z-DATA
                DATA:  D-087-NELS-EMITTER-Z-DATA
                DATA:  D-150-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
                DATA:  D-151-NELS-EMITTER-ID-DATA
                DATA:  D-152-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
                DATA:  D-153-NELS-EMITTER-X-DATA
                DATA:  D-154-NELS-EMITTER-Y-DATA
                DATA:  D-155-NELS-EMITTER-Z-DATA
                DATA:  D-159-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
                DATA:  D-160-NELS-EMITTER-ID-DATA
                DATA:  D-161-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
                DATA:  D-162-NELS-EMITTER-X-DATA
                DATA:  D-163-NELS-EMITTER-Y-DATA
                DATA:  D-164-NELS-EMITTER-Z-DATA
                DATA:  D-166-NELS-EMITTER-ID-DATA
                DATA:  D-167-NELS-EMITTER-X-DATA
                DATA:  D-168-NELS-EMITTER-Y-DATA
                DATA:  D-169-NELS-EMITTER-Z-DATA
                DATA:  D-171-NELS-EMITTER-ID-DATA
                DATA:  D-172-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
                DATA:  D-173-NELS-EMITTER-X-DATA
                DATA:  D-174-NELS-EMITTER-Y-DATA
                DATA:  D-175-NELS-EMITTER-Z-DATA.
        DOCUMENTED BY:
                SOURCE:  ASE-PP-6-2-1.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-GENERATION.
        DATE-ENTERED: 72481.
        DESCRIPTION:
                "THERE SHALL BE THE ABILITY TO SIMULATE BATTLE
            FIELD CONDITIONS (IN THE FORM OF SCENARIOS) BASED UPON
            INITIAL ORDERS, INITIAL CONDITIONS FOR THE ENVIRONMENT,
            AND SETS OF COMMANDS DEFINING REALISTIC UNIT REACTIONS".
        ENTERED-BY: "SGM".
        TRACES TO:
                DATA:  D-130-A-SCENARIO-GEN-ID-NUM-DATA
                DATA:  D-130-B-SCENARIO-GEN-ID-NUM-DATA
                DATA:  D-130-SCENARIO-GEN-ID-NUM-DATA
                DATA:  D-156-SCENARIO-GEN-ID-NUM-DATA
                DATA:  D-165-SCENARIO-GEN-ID-NUM-DATA
                DATA:  D-170-SCENARIO-GEN-ID-NUM-DATA.
        DOCUMENTED BY:
                SOURCE:  ASE-PP-6-2-1.
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ORIGINATING-REQUIREMENT: ORIG-REQ-SCENARIO-TIMING.
     DATE-ENTERED: 72481.
     DESCRIPTION:
               "ALL INITIAL ORDERS FOR THE SCENARIOS SHALL
     HAVE AN ASSOCIATED TIME FOR EXECUTION TO ALLOW THEM TO
     BE INSERTED INTO A TIME-ORDERED SCHEDULE".
     ENTERED-BY: "SGM".
     TRACES TO:
          DATA: D-063-A-NELS-EMISSION-START-TIME-DATA
          DATA: D-063-B-NELS-EMISSION-START-TIME-DATA
          DATA: D-063-NELS-EMISSION-START-TIME-DATA
          DATA: D-064-A-NELS-EMISSION-STOP-TIME-DATA
          DATA: D-064-NELS-EMISSION-STOP-TIME-DATA
          DATA: D-071-NELS-EMITTER-DATA
          DATA: D-149-NELS-EMISSION-START-TIME-DATA
          DATA: D-158-NELS-EMISSION-START-TIME-DATA
          FILE: F-16-NELS-EMITTER-FILE.
     DOCUMENTED BY:
          SOURCE: ASE-PP-6-2-1.

ORIGINATING-REQUIREMENT: ORIG-REQ-SENSOR-ACTIVITY-ELEMENTS.
     TRACES TO:
          DATA: D-044-FREQUENCY-SCAN-PARAMETER-DATA
          DATA: D-117-PLATFORM-MOD-X-DATA
          DATA: D-118-PLATFORM-MOD-Y-DATA
          DATA: D-119-PLATFORM-MOD-Z-DATA
          FILE: F-32-SENSOR-ORBIT-MODS-FILE
          MESSAGE: M-06-NELS-ORBIT-MODIFICATIONS-MSG-IN.

ORIGINATING-REQUIREMENT: ORIG-REQ-SENSOR-FEASIBILITY.
     DATE-ENTERED: 72481.
     DESCRIPTION:
               "DETERMINE THE FEASIBILITY OF SENSOR RESPONDING
     TO A TASK VIA THE SENSOR ACTIVITY FILE, TERRAIN
     SHADOWING INFORMATION, SENSOR FIELD OF VIEW, AND
     POSSIBLE SENSOR SCANNING FREQUENCIES".
     ENTERED-BY: "SGM".
     TRACES TO:
          DATA: D-143-X-LOC-FEASIBLE-DATA
          DATA: D-145-Y-LOC-FEASIBLE-DATA
          FILE: F-05-FEASIBLE-ACTIVITY-AREA-FILE.
     DOCUMENTED BY:
          SOURCE: ASE-PP-6-1-6.

ORIGINATING-REQUIREMENT: ORIG-REQ-TARGET-ID-CROSS-REFERENCE.
     TRACES TO:
          DATA: D-135-SENSOR-ID-DATA.

ORIGINATING-REQUIREMENT: ORIG-REQ-TC-CYCLE-START.
     DATE-ENTERED: 72781.
     DESCRIPTION:
               "THE T & C CYCLE SHALL START NEXT CYCLE
     AFTER RECEIVING MESSAGES FROM ALL PROCESSORS THAT THE
     SIMULATION IS COMPLETE FOR THAT CYCLE.  IF THE T & C
     CLOCK RUNS OUT BEFORE ALL PROCESSING IS COMPLETE, THE
     T & C SHALL HAVE THE OPTION OF SENDING A STOP CYCLE
     MESSAGE TO THE ASE".
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        ENTERED-BY: "SGM".
        TRACES TO:
             ALPHA:  A-24-RESET-NELS-ALPHA
             DATA:  D-141-TIME-DATA
             MESSAGE:  M-15-T-AND-C-STOP-NELS-MSG-IN.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-5-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-MESSAGES-TO-CONTROL-AND-DISPLAY
    .
        DATE-ENTERED: 72781.
        DESCRIPTION:
                  "THE MESSAGE FILTER FUNCTION SHALL SEND A
        COPY OF ALL MESSAGES THAT MEET SPECIFIED CRITERION (AS
        YET UNDEFINED) TO THE CONTROL AND DISPLAY FUNCTION".
        ENTERED-BY: "SGM".
        TRACES TO:
             DATA:  D-140-TBD-DATA.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-5-1.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-OPERATOR.
        DATE-ENTERED: 72781.
        DESCRIPTION:
                  "THE T & C OPERATOR SHALL BE ABLE TO START
        ALL ASET PROCESSORS BY THE EXECUTION OF A SINGLE
        COMMAND".
        ENTERED-BY: "SGM".
        TRACES TO:
             DATA:  D-140-TBD-DATA.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-5-2.

    ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-SYNC.
        DATE-ENTERED: 72781.
        DESCRIPTION:
                  "THE T & C SYNCHRONIZATION PROCESS
        SHALL ISSUE A MESSAGE TO EACH FUNCTIONAL PROCESSOR
        GIVING IT THE CURRENT PSEUDO-TIME (FROM COMMON SYSTEM
        CLOCK) AND AN INDICATION TO START PROCESSING A SIMULATION
        CYCLE.  IT WILL ALSO START ITS OWN CLOCK COUNTING LENGHT
        OF REAL-TIME FOR A SIMULATION CYCLE".
        ENTERED-BY: "SGM".
        TRACES TO:
             DATA:  D-141-TIME-DATA.
        DOCUMENTED BY:
             SOURCE:  ASE-PP-6-5-2.

[RADX COMMAND=
                  LIST THE-DECISIONS.
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    DECISION:  CONTENTS-OF-MESSAGE.
        ALTERNATIVES:
                  "DOES THE MINIMUM REQUIREMENTS FOR A MESSAGE ALLOW
THE MESSAGE TO PERFORM SPECIFIC FUNCTIONS OR NOT".
        CHOICE:
              "THE MINIMUM REQUIREMENTS DO NOT ALLOW THE MESSAGE TO
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PERFORM ITS SPECIFIC TASK".
        DESCRIPTION:
                    "THE MINIMUM REQUIREMENTS ARE INCLUDED IN A MESSAGE
IN ORDER TO PERFORM ANY NECESSARY FUNCTIONS.  THE RELIEVED
MINIMUM MAY NOT ACTUALLY BE SUFFICIENT HOWEVER".
        PROBLEM:
                 "SPECIFICATIONS MANUAL DOES NOT INDICATE THE CONTENTS OF
SOME MESSAGES AND IN INDECISIVE FOR OTHERS".
        TRACES TO:
             DATA:  D-040-FIRST-CMDRS-REQ-UPDATE-DATA
             DATA:  D-056-NEEDED-FEASIBLE-DATA
             DATA:  D-125-REQ-DESTINATION-SENSOR-ID-DATA
             DATA:  D-126-REQ-REPORT-INFORMATION-TYPE-DATA
             DATA:  D-127-REQ-SENSOR-TARGET-ID-OF-INTEREST-DATA
             DATA:  D-133-SECOND-CMDRS-RFQ-UPDATE-DATA
             DATA:  D-137-SENSOR-PRIORITY-DATA
             DATA:  D-138-TASKING-RESPONSE-DATA
             DATA:  D-139-TASK-QUE-ID-DATA.

   DECISION:  DECISION-MESSAGE-ROUTING-METHOD.
        ALTERNATIVES:
                    "LET THE ROUTING CODE CONSIST OF NOTHING OR GIVE IT
A FORM".
        CHOICE:
                 "ROUTING CODE CONSISTS OF A MESSAGE NAME, THE MESSAGE
SOURCE, AND THE MESSAGE DEFINITION".
        DESCRIPTION:
                    "THE MESSAGE ROUTING CODE IS USED TO DETERMINE
MESSAGE TYPE AND THEREFORE THE PROPER ACTIONS TO BE PERFORMED.
THE CODE CONSISTS OF A MESSAGE NAME, THE MESSAGE SOURCE, AND
THE MESSAGE DEFINITION".
        PROBLEM:
                 "SPECIFICATION MANUAL REFERS TO A ROUTING CODE WHICH IS
SPECIFIC FOR EACH TYPER OF MESSAGE OR REPORT, BUT THERE IS NO
INDICATION AS TO WHAT THAT CODE CONSISTS OF".
        TRACES TO:
             DATA:  D-002-ASET-MSG-DEST-DATA
             DATA:  D-003-ASET-MSG-ID-DATA
             DATA:  D-004-ASET-MSG-NAME-DATA
             DATA:  D-005-ASET-MSG-SOURCE-DATA.

   DECISION:  HIGHLY-SUSPECT-ITEM.
        DESCRIPTION:
                    "AN ITEM WITHIN THE CREATED STRUCTURES THAT MAY BE
TOTALLY WRONG DUE TO A MISINTERPRETATION BY A SREMER".
        PROBLEM:
                 "THERE ARE MANY AREAS IN THE ASE SPECIFICATION WHERE THE
REQUIREMENT IS STATED BUT LITTLE OR NO INFORMATION IS GIVEN AS TO
HOW THE ITEM IS TO BE REPRESENTED".
        TRACES TO:
             DATA:  D-004-ASET-MSG-NAME-DATA.

(RADX COMMAND=
(*          3.1  PROGRAM DEFINITIONS
                    This paragraph contains input/output
                 interfaces, the messages that cross them
                 and an overview of the system          *)
                 LIST THE-INTERFACES.
```

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   INPUT-INTERFACE:  INTO-NELS-SENSOR.
        DATE-ENTERED: 110681.
        DESCRIPTION:
              "RECEIVES MESSAGES FOR NARROWBAND EMITTER
         LOCATOR SYSTEM".
        ENTERED-BY: "JJF-NELS".
        CONNECTS TO:
             SUBSYSTEM:  SS-1-REST-OF-ASE.
        PASSES:
             MESSAGE:  M-01-ES-NELS-UNIT-AND-ENVIRONMENT-DATA-MSG-IN
             MESSAGE:  M-02-NELS-CARTO-UPDATES-MSG-IN
             MESSAGE:  M-03-NELS-COMMANDERS-REQUIREMENTS-MSG-IN
             MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN
             MESSAGE:  M-06-NELS-ORBIT-MODIFICATIONS-MSG-IN
             MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN
             MESSAGE:  M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN
             MESSAGE:  M-15-T-AND-C-STOP-NELS-MSG-IN.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        REFERRED BY:
             R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.

   OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
        DATE-ENTERED: 110681.
        DESCRIPTION: "PASSES MESSAGES BOUND FOR ASE VIA T&C".
        ENTERED-BY: "JJF-NELS".
        CONNECTS TO:
             SUBSYSTEM:  SS-1-REST-OF-ASE.
        PASSES:
             MESSAGE:  M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
             MESSAGE:  M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT
             MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT
             MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT
             MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
             MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT
             MESSAGE:  M-14-NELS-TRACK-MESSAGE-MSG-OUT.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        REFERRED BY:
             R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET
             SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
             SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB.

[RADX COMMAND=
                  LIST THE-MESSAGES.
----------------------------------------

   MESSAGE:  M-01-ES-NELS-UNIT-AND-ENVIRONMENT-DATA-MSG-IN.
        DATE-ENTERED: 110281.
        DESCRIPTION: "NELS SCENARIO".
        ENTERED-BY: "JJF-NELS".
        MADE BY:
             DATA:  D-003-ASET-MSG-ID-DATA
             FILE:  F-16-NELS-EMITTER-FILE.
        PASSED THROUGH:
             INPUT-INTERFACE:  INTO-NELS-SENSOR.
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        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-02-NELS-CARTO-UPDATES-MSG-IN.
        DATE-ENTERED: 110281.
        DESCRIPTION: "UPDATES TO CARTOGRAPHIC FILE".
        ENTERED-BY: "JJF-NELS".
        MADE BY:
             DATA:  D-003-ASET-MSG-ID-DATA
             FILE:  F-02-CARTO-UPDATE-FILE.
        PASSED THROUGH:
             INPUT-INTERFACE:  INTC-NELS-SENSOR.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-03-NELS-COMMANDERS-REQUIREMENTS-MSG-IN.
        DATE-ENTERED: 110281.
        DESCRIPTION: "COMMANDERS REQUIREMENTS FOR SENSORS".
        ENTERED-BY: "JJF-NELS".
        MADE BY:
             DATA:  D-003-ASET-MSG-ID-DATA
             FILE:  F-04-CMDRS-DATA-TO-UPDATE-FILE.
        PASSED THROUGH:
             INPUT-INTERFACE:  INTC-NELS-SENSOR.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN.
        DATE-ENTERED: 110281.
        DESCRIPTION: "MODIFICATIONS TO SENSOR TASKS".
        ENTERED-BY: "JJF-NELS".
        MADE BY:
             DATA:  D-003-ASET-MSG-ID-DATA
             DATA:  D-056-NEEDED-FEASIBLE-DATA
             DATA:  D-139-TASK-QUE-ID-DATA
             FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE.
        PASSED THROUGH:
             INPUT-INTERFACE:  INTC-NELS-SENSOR.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT.
        DATE-ENTERED: 110281.
        DESCRIPTION:
             "TARGETS NO LONGER UNDER SURVEILLANCE BY THE
       NELS SENSORS. (NOTE: THE FOLLOWING ITEMS ARE
       APPLICABLE TO SENSOR TYPES AS SHOWN BELOW:
       GROUND-TARGET-FREQUENCY-DATA    WELS,NELS ONLY
       GROUND-TARGET-LENGTH-DATA       IS ONLY
       GROUND-TARGET-VELOCITY-DATA     MTI ONLY) ".
        ENTERED-BY: "JJF-NELS".
        FORMED BY:
             ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
        MADE BY:
             DATA:  D-003-ASET-MSG-ID-DATA
             DATA:  D-045-GPS-TD-DATA
             DATA:  D-046-GROUND-TARGET-FREQUENCY-DATA
             DATA:  D-047-GROUND-TARGET-LENGTH-DATA
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            DATA:  D-050-GROUND-TARGET-VELOCITY-DATA
            FILE:  F-07-GROUP-TARGET-LOCS-FILE.
      PASSED THROUGH:
            OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

MESSAGE:  M-06-NELS-ORBIT-MODIFICATIONS-MSG-IN.
      DATE-ENTERED: 110281.
      DESCRIPTION: "SENSOR PLATFORM ORBIT MODIFICATIONS".
      ENTERED-BY: "JJF-NELS".
      MADE BY:
            DATA:  D-003-ASET-MSG-ID-DATA
            DATA:  D-135-SENSOR-ID-DATA
            FILE:  F-32-SENSOR-ORBIT-MODS-FILE.
      PASSED THROUGH:
            INPUT-INTERFACE:  INTO-NELS-SENSOR.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-ACTIVITY-ELEMENTS
            .

MESSAGE:  M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT.
      DATE-ENTERED: 110281.
      DESCRIPTION: "LOCATIONS OF NELS PLATFORMS".
      ENTERED-BY: "JJF-NELS".
      FORMED BY:
            ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA.
      MADE BY:
            DATA:  D-003-ASET-MSG-ID-DATA
            FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE.
      PASSED THROUGH:
            OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN.
      DATE-ENTERED: 110281.
      DESCRIPTION: "SENSOR PRIORITIES".
      ENTERED-BY: "JJF-NELS".
      MADE BY:
            DATA:  D-003-ASET-MSG-ID-DATA
            DATA:  D-056-NEEDED-FEASIBLE-DATA
            DATA:  D-135-SENSOR-ID-DATA
            DATA:  D-137-SENSOR-PRIORITY-DATA
            FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE.
      PASSED THROUGH:
            INPUT-INTERFACE:  INTO-NELS-SENSOR.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

MESSAGE:  M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN.
      DATE-ENTERED: 110281.
      DESCRIPTION: "ASF REQUESTS FOR DATA FROM SENSORS".
      ENTERED-BY: "JJF-NELS".
      MADE BY:
            DATA:  D-003-ASET-MSG-ID-DATA
            DATA:  D-045-GPS-ID-DATA
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            FILE:  F-07-GROUP-TARGET-LOCS-FILE.
        PASSED THROUGH:
            INPUT-INTERFACE:  INTO-NELS-SENSOR.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT.
        DATE-ENTERED: 110281.
        DESCRIPTION:
                "IDLE SENSORS REQUEST TO ASE FOR SOMETHING TO
      DO".
        ENTERED-BY: "JJF-NELS".
        FORMED BY:
            ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA.
        MADE BY:
            DATA:  D-003-ASFT-MSG-ID-DATA
            DATA:  D-125-REQ-DESTINATION-SENSOR-ID-DATA
            DATA:  D-126-REQ-REPORT-INFORMATION-TYPE-DATA
            DATA:  D-127-REQ-SENSOR-TARGET-ID-OF-INTEREST-DATA
            DATA:  D-135-SENSOR-ID-DATA.
        PASSED THROUGH:
            OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT.
        DATE-ENTERED: 110281.
        DESCRIPTION: "STATUS OF NELS PLATFORMS".
        ENTERED-BY: "JJF-NELS".
        FORMED BY:
            ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA.
        MADE BY:
            DATA:  D-003-ASFT-MSG-ID-DATA
            DATA:  D-135-SENSOR-ID-DATA
            FILE:  F-34-SENSOR-STATUS-FILE.
        PASSED THROUGH:
            OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT.
        DATE-ENTERED: 110281.
        DESCRIPTION:
                "TARGETS CURRENTLY UNDER SURVEILLANCE BY
      THE NELS SENSORS.  (NOTE:  THE FOLLOWING ITEMS
      ARE APPLICABLE TO SENSOR TYPES AS SHOWN BELOW:
      GROUND-TARGET-FREQUENCY-DATA    WELS,NELS ONLY
      GROUND-TARGET-LENGTH-DATA       IS ONLY
      GROUND-TARGET-VELOCITY-DATA     MTI ONLY) ".
        ENTERED-BY: "JJF-NELS".
        FORMED BY:
            ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
        MADE BY:
            DATA:  D-003-ASFT-MSG-ID-DATA
            DATA:  D-045-GPS-ID-DATA
            DATA:  D-046-GROUND-TARGET-FREQUENCY-DATA
            DATA:  D-047-GROUND-TARGET-LENGTH-DATA
            DATA:  D-050-GROUND-TARGET-VELOCITY-DATA
```

```
            FILE:  F-07-GROUP-TARGET-LOCS-FILE.
        PASSED THROUGH:
            OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT.
        DATE-ENTERED: 110281.
        DESCRIPTION: "RESPONSES TO ASE TASKS".
        ENTERED-BY: "JJF-NELS".
        FORMED BY:
            ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        MADE BY:
            DATA:  D-003-ASET-MSG-ID-DATA
            DATA:  D-138-TASKING-RESPONSE-DATA
            DATA:  D-139-TASK-QUE-ID-DATA
            DATA:  D-141-TIME-DATA.
        PASSED THROUGH:
            OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-14-NELS-TRACK-MESSAGE-MSG-OUT.
        DATE-ENTERED: 110281.
        DESCRIPTION: "TARGET TRACK MESSAGES".
        ENTERED-BY: "JJF-NELS".
        FORMED BY:
            ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
        MADE BY:
            DATA:  D-003-ASET-MSG-ID-DATA
            DATA:  D-135-SENSOR-ID-DATA
            DATA:  D-142-TRACK-MESSAGE-DATA
            FILE:  F-02-CARTO-UPDATE-FILE.
        PASSED THROUGH:
            OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    MESSAGE:  M-15-T-AND-C-STOP-NELS-MSG-IN.
        DATE-ENTERED: 110281.
        DESCRIPTION: "SIGNAL TO STOP NARROWBAND SENSORS".
        ENTERED-BY: "JJF-NELS".
        MADE BY:
            DATA:  D-003-ASET-MSG-ID-DATA.
        PASSED THROUGH:
            INPUT-INTERFACE:  INTO-NELS-SENSOR.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-CYCLE-START.

[RADX COMMAND=
                    LIST THE-R-NETS.
-----------------------------------

    R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET.
        DATE-ENTERED: 12082.
        DESCRIPTION:
                "CONTROLS NELS SENSOR; IF TASKS ARE WAITING TO BE
        DONE, IT INVOKES THE SENSOR TO PERFORM THE NEXT TASK".
```

```
        ENTERED-BY: "JJF-NELS".
        REFERS TO:
             SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
             SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB.
        ENABLED BY:
             EVENT:  E-1-ACTIVATE-SENSOR-EVENT.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        STRUCTURE:
           SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB
           SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
           TERMINATE
        END.


   R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.
        DATE-ENTERED: 11882.
        DESCRIPTION: "PROCESSING FLOW WITHIN NELS SENSOR SYSTEM".
        ENTERED-BY: "JJF-NELS".
        REFERS TO:
             ALPHA:  A-04-INITIALIZE-NELS-ALPHA
             ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA
             ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA
             ALPHA:  A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA
             ALPHA:
             A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA
             ALPHA:  A-16-NELS-PROCESS-REQUESTED-DATA-ALPHA
             ALPHA:  A-24-RESET-NELS-ALPHA
             ALPHA:  A-25-UPDATE-CARTO-ALPHA
             DATA:  D-004-ASET-MSG-NAME-DATA
             DATA:  D-140-TBD-DATA
             ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
             ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET
             ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
             ENTITY-TYPE:  ET-8-NELS-PPE-BRIEFED-AOI-ET
             INPUT-INTERFACE:  INTO-NELS-SENSOR
             OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS
             SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        STRUCTURE:
           INPUT-INTERFACE:  INTO-NELS-SENSOR
           CONSIDER  DATA:  D-004-ASET-MSG-NAME-DATA
           IF (MN-01-ES-NELS-UNIT-AND-ENVIRONMENT-DATA)
              ALPHA:  A-04-INITIALIZE-NELS-ALPHA
              ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA
              OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS
           OR (MN-15-T-AND-C-STOP-NELS)
              ALPHA:  A-24-RESET-NELS-ALPHA
              TERMINATE
           OR (MN-02-NELS-CARTO-UPDATES OR
                                    MN-03-NELS-COMMANDERS-REQUIREMENTS OR
                                    MN-04-NELS-MODIFIED-TASK OR
                                    MN-06-NELS-ORBIT-MODIFICATIONS OR
                               MN-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS OR
                               MN-09-NELS-REQUESTED-SENSOR-DATA)
              DO
```

```
                SUBNET:  S+1+CHECK+NELS+SENSOR+STATUS+SUB
                TERMINATE
             AND
                CONSIDER  DATA:  D+004+ASET+MSG+NAME+DATA
                IF (MN+02+NELS+CARTO+UPDATES)
                   ALPHA:  A+25+UPDATE+CARTO+ALPHA
                   TERMINATE
                OR (MN+03+NELS+COMMANDERS+REQUIREMENTS)
                   SELECT ENTITY+TYPE:  ET+5+NELS+PRE+BRIEFED+SOI+ET
                   SUCH THAT (D+140+TBD+DATA = TRUE)
                   SELECT ENTITY+TYPE:  ET+8+NELS+PRE+BRIEFED+ADI+ET
                   SUCH THAT (D+140+TBD+DATA = TRUE)
                   ALPHA:
                   A+14+NELS+PROCESS+COMMANDERS+REQUIREMENTS+ALPHA
                   TERMINATE
                OR (MN+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS)
                   SELECT ENTITY+TYPE:  ET+4+NELS+FREQUENCY+SCAN+ET
                   SUCH THAT (D+140+TBD+DATA = TRUE)
                   ALPHA:
                  A+15+NELS+PROCESS+PRIORITIZED+SENSOR+DIRECTIONS+ALPHA
                   TERMINATE
                OR (MN+04+NELS+MODIFIED+TASK)
                   SELECT ENTITY+TYPE:  ET+3+NELS+FLIGHT+ET SUCH THAT
                   (D+140+TBD+DATA = TRUE)
                   ALPHA:  A+11+NELS+MODIFY+TASK+ALPHA
                   OUTPUT+INTERFACE:  TO+TIMING+AND+CONTROL+FROM+NELS
                OR (MN+06+NELS+ORBIT+MODIFICATIONS)
                   SELECT ENTITY+TYPE:  ET+3+NELS+FLIGHT+ET SUCH THAT
                   (D+140+TBD+DATA = TRUE)
                   ALPHA:  A+10+NELS+MODIFY+ORBIT+ALPHA
                   TERMINATE
                OR (MN+09+NELS+REQUESTED+SENSOR+DATA)
                   SELECT ENTITY+TYPE:  ET+3+NELS+FLIGHT+ET SUCH THAT
                   (D+140+TBD+DATA = TRUE)
                   ALPHA:  A+16+NELS+PROCESS+REQUESTED+DATA+ALPHA
                   TERMINATE
                END
             END
          END
       END.


[RADX COMMAND=
(*            3.2  FUNCTIONAL REQUIREMENTS
                      This paragraph contains the breakdown
                   of all necessary processing requirements *)
                   LIST THE+SUBNETS.
-------------------------------------------------------------

   SUBNET:  S+1+CHECK+NELS+SENSOR+STATUS+SUB.
        DATE+ENTERED: 12082.
        DESCRIPTION:
                "ACTIVATES OPERATION OF NELS SENSOR AND HANDLES
      DETERMINATION OF SENSOR STATUS".
        ENTERED+BY: "JJF+NELS".
        REFERS TO:
             ALPHA:  A+17+NELS+SENSOR+STATUS+ALPHA
             DATA:  D+136+SENSOR+MODE+OF+OPERATION+DATA
```

```
          DATA:  D-140-TBD-DATA
          ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
          ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
          ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET
          EVENT:  E-1-ACTIVATE-SENSOR-EVENT
          OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
     REFERRED BY:
          R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET
          R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.
     STRUCTURE:
        SELECT ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET SUCH THAT
        (D-140-TBD-DATA = TRUE)
        SELECT ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET SUCH THAT
        (D-140-TBD-DATA = TRUE)
        SELECT ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET SUCH THAT
        (D-140-TBD-DATA = TRUE)
        ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
        DO
           OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS
        AND
           CONSIDER  DATA:  D-136-SENSOR-MODE-OF-OPERATION-DATA
           IF (IDLE)
           OR (SOI-SURVEILLANCE OR SOI-SEARCH OR AOI-SURVEILLANCE
                                              OR AOI-SEARCH)
              EVENT:  E-1-ACTIVATE-SENSOR-EVENT
           END
           TERMINATE
        AND
           RETURN
        END
     END.

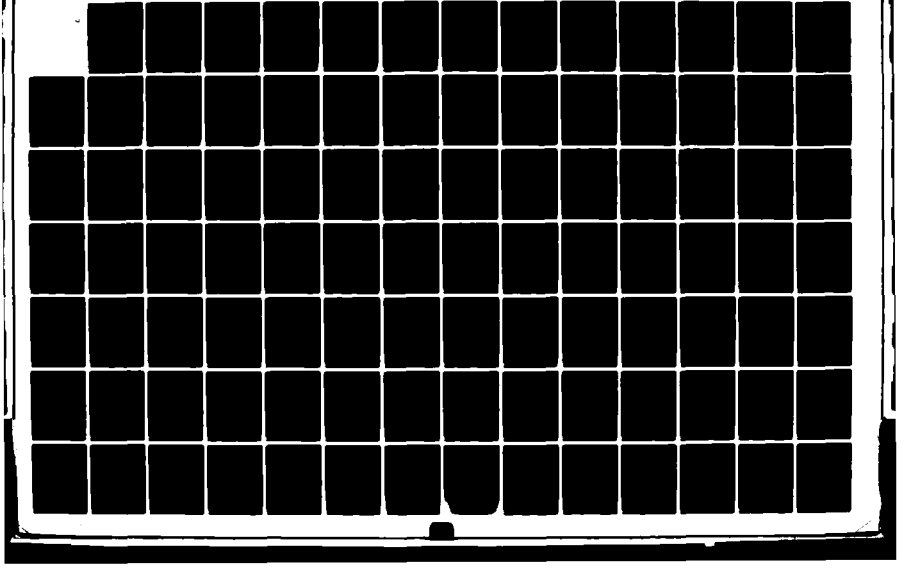

SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB.
     DATE-ENTERED: 11882.
     DESCRIPTION: "CONTROL OF GPS, SENSOR AND PLATFORM PROCESSING".
     ENTERED-BY: "JJF-NELS".
     REFERS TO:
          ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA
          ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA
          OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS
          SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB
          SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
          SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
     REFERRED BY:
          R-NET:  R-1-HANDLE-NELS-SENSOR-AND-GPS-PROCESSING-R-NET.
     STRUCTURE:
        SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
        DO
           RETURN
        AND
           ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA
           OUTPUT-INTERFACE:  TO-TIMING-AND-CONTROL-FROM-NELS
        AND
```

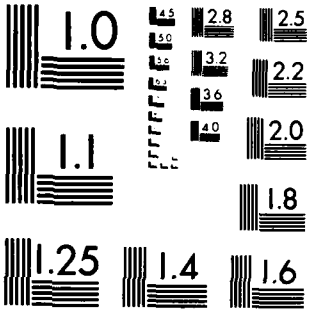
```
            SUBNET:  S←5←MODEL←NELS←SENSOR←SUB
            SUBNET:  S←3←MODEL←NELS←GPS←PROCESSING←SUB
            ALPHA:  A←20←NELS←SURVEILLANCE←AND←TRACK←MSGS←ALPHA
            OUTPUT←INTERFACE:  TC←TIMING←AND←CONTROL←FROM←NELS
         END
      END.


SUBNET:  S←3←MODEL←NELS←GPS←PROCESSING←SUB.
      DATE←ENTERED: 11882.
      DESCRIPTION: "NELS GROUND PROCESSING STATION (GPS) PROCESSING".
      ENTERED←BY: "JJF←NELS".
      REFERS TO:
            ALPHA:  A←06←NELS←COARSE←LOCATION←ALPHA
            ALPHA:  A←07←NELS←FINE←LOCATION←ALPHA
            ALPHA:  A←08←NELS←FREQUENCY←SCAN←OPTIMIZATION←ALPHA
            ALPHA:  A←12←NELS←PERFORM←SIGNATURE←ANALYSIS←ALPHA
            ALPHA:  A←21←NELS←TARGET←ACQUISITION←ALPHA
            ALPHA:  A←23←NELS←THREAT←TABLE←UPDATE←ALPHA
            DATA:  D←140←TBD←DATA
            ENTITY←TYPE:  ET←1←NELS←EMISSION←THREAT←ET.
      TRACED FROM:
            ORIGINATING←REQUIPEMENT:
            ORIG←REQ←NELS←COARSE←AND←FINE←LOCATION
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←SCAN←OPTIMIZATION
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←SIGNATURE←ANALYSIS
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←TARGET←ACQUISITION
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←THREAT←TABLE←UPDATE
            .
      REFERRED BY:
            SUBNET:  S←2←DO←NELS←OPERATIONAL←CONTROL←SUB.
      STRUCTURE:
         ALPHA:  A←21←NELS←TARGET←ACQUISITION←ALPHA
         ALPHA:  A←06←NELS←COARSE←LOCATION←ALPHA
         ALPHA:  A←07←NELS←FINE←LOCATION←ALPHA
         ALPHA:  A←12←NELS←PERFORM←SIGNATURE←ANALYSIS←ALPHA
         DO
            SELECT ENTITY←TYPE:  ET←1←NELS←EMISSION←THREAT←ET
            SUCH THAT (D←140←TBD←DATA = TRUE)
            ALPHA:  A←23←NELS←THREAT←TABLE←UPDATE←ALPHA
         AND
            ALPHA:  A←08←NELS←FREQUENCY←SCAN←OPTIMIZATION←ALPHA
         END
         RETURN
      END.


SUBNET:  S←4←MODEL←NELS←PLATFORM←SUB.
      DATE←ENTERED: 11882.
      DESCRIPTION: "NELS PLATFORM OPERATIONS".
      ENTERED←BY: "JJF←NELS".
      REFERS TO:
            ALPHA:  A←01←DME←INS←NOISE←GENERATION←ALPHA
            ALPHA:  A←02←GENERATE←DME←ALPHA
            ALPHA:  A←03←GENERATE←INS←ALPHA
            DATA:  D←140←TBD←DATA
            ENTITY←TYPE:  ET←3←NELS←FLIGHT←ET.
      TRACED FROM:
```

AD-A141 632 SREM (SOFTWARE REQUIREMENTS ENGINEERING METHODOLOGY) 4/6
EVALUATION VOLUME 2..(U) MARTIN MARIETTA DENVER
AEROSPACE CO A STONE ET AL. FEB 84 MCR-83-553-VOL-2
UNCLASSIFIED RADC-TR-83-314-VOL-2 F30602-80-C-0272 F/G 9/2 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

```
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-NOISE
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.
      REFERRED BY:
            SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUR.
      STRUCTURE:
         SELECT ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET SUCH THAT
         (D-140-TBD-DATA = TRUE)
         ALPHA:  A-02-GENERATE-DME-ALPHA
         ALPHA:  A-03-GENERATE-INS-ALPHA
         ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
         RETURN
      END.


SUBNET:  S-5-MODEL-NELS-SENSOR-SUR.
      DATE-ENTERED: 11882.
      DESCRIPTION: "NELS SENSOR ACTIVITIES".
      ENTERED-BY: "JJF-NELS".
      REFERS TO:
            ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
            ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA
            DATA:  D-140-TBD-DATA
            ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET
            ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
            ENTITY-TYPE:  ET-6-NELS-VEHICLE-CHARACTERISTICS-ET
            ENTITY-TYPE:  ET-7-NELS-WEATHER-ET
            ENTITY-TYPE:  ET-8-NELS-PRE-BRIFFED-AOI-ET
            ENTITY-TYPE:  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EMITTER-DEFAULT
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TERRAIN-SHADOWING.
      REFERRED BY:
            SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUR.
      STRUCTURE:
         SELECT ENTITY-TYPE:  ET-6-NELS-VEHICLE-CHARACTERISTICS-ET
         SUCH THAT (D-140-TBD-DATA = TRUE)
         SELECT ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET
         SUCH THAT (D-140-TBD-DATA = TRUE)
         ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
         SELECT ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET SUCH THAT
         (D-140-TBD-DATA = TRUE)
         ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
         SELECT ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET SUCH THAT
         (D-140-TBD-DATA = TRUE)
         SELECT ENTITY-TYPE:  ET-7-NELS-WEATHER-ET SUCH THAT
         (D-140-TBD-DATA = TRUE)
         ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
         SELECT ENTITY-TYPE:  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET
         SUCH THAT (D-140-TBD-DATA = TRUE)
         ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA
```

```
        RETURN
      END.


[RADX COMMAND=
                  LIST THE←ALPHAS.
-----------------------------------

   ALPHA:  A←01←DME←INS←NOISE←GENERATION←ALPHA.
        BETA:
        "BEGIN
      D←018←ASP←PITCH←DATA := D←018←ASP←PITCH←DATA + 0.01
      ;D←019←ASP←ROLL←DATA := D←019←ASP←ROLL←DATA - 0.01
      ;D←025←ASP←YAW←DATA := D←025←ASP←YAW←DATA + 0.01
      ;D←010←ASP←ALTITUDE←DATA := D←010←ASP←ALTITUDE←DATA - 0.01
      ;D←012←ASP←LATITUDE←DATA := D←012←ASP←LATITUDE←DATA + 0.01
      ;D←017←ASP←LONGITUDE←DATA := D←017←ASP←LONGITUDE←DATA - 0.01
      ;D←014←ASP←LOC←X←DATA := D←014←ASP←LOC←X←DATA + 0.01
      ;D←015←ASP←LOC←Y←DATA := D←015←ASP←LOC←Y←DATA - 0.01
      ;D←016←ASP←LOC←Z←DATA := D←016←ASP←LOC←Z←DATA + 0.01
      ;D←021←ASP←TIME←DATA := D←021←ASP←TIME←DATA - 0.01
      ;D←022←ASP←VEL←X←DATA := D←022←ASP←VEL←X←DATA + 0.01
      ;D←023←ASP←VEL←Y←DATA := D←023←ASP←VEL←Y←DATA - 0.01
      ;D←024←ASP←VEL←Z←DATA := D←024←ASP←VEL←Z←DATA + 0.01
   END;".
        DATE←ENTERED: 11182.
        DESCRIPTION:
                "MODELS SENSOR PLATFORM ACTIVITY BY ASSUMING THAT DME
     ERRORS ARE GAUSSIAN DISTRIBUTED WITH A CONSTANT MEAN, AND INS
     ERRORS ARE ZERO MEAN GAUSSIAN DISTRIBUTED".
        ENTERED←BY: "JJF-NELS".
        GAMMA:
          "VAR SSRAND : REAL
        ;FUNCTION SSRANDU : REAL
          ;BEGIN
            SSRAND := 29.0 * SSRAND + 357.0
            ;SSRAND := SSRAND - TRUNC(SSRAND)
            ;SSRANDU := SSRAND
           END
        ;FUNCTION SSSIGN : REAL
          ;BEGIN
            IF SSRANDU < 0.5 THEN SSSIGN := -1.0
            ELSE SSSIGN := 1.0
           END
        ;BEGIN
           SSRAND := 0.801463
          ;D←018←ASP←PITCH←DATA :=
             D←018←ASP←PITCH←DATA + SSSIGN * SSRANDU
          ;D←019←ASP←ROLL←DATA :=
             D←019←ASP←ROLL←DATA + SSSIGN * SSRANDU
          ;D←025←ASP←YAW←DATA :=
             D←025←ASP←YAW←DATA + SSSIGN * SSRANDU
          ;D←010←ASP←ALTITUDE←DATA :=
             D←010←ASP←ALTITUDE←DATA + SSSIGN * SSRANDU
          ;D←012←ASP←LATITUDE←DATA :=
             D←012←ASP←LATITUDE←DATA + SSSIGN * SSRANDU
          ;D←017←ASP←LONGITUDE←DATA :=
             D←017←ASP←LONGITUDE←DATA + SSSIGN * SSRANDU
```

```
        ;D←014←ASP←LOC←X←DATA :=
           D←014←ASP←LOC←X←DATA + SSSIGN * SSRANDU
        ;D←015←ASP←LOC←Y←DATA :=
           D←015←ASP←LOC←Y←DATA + SSSIGN * SSRANDU
        ;D←016←ASP←LOC←Z←DATA :=
           D←016←ASP←LOC←Z←DATA + SSSIGN * SSRANDU
        ;D←022←ASP←VEL←X←DATA :=
           D←022←ASP←VEL←X←DATA + SSSIGN * SSRANDU
        ;D←023←ASP←VEL←Y←DATA :=
           D←023←ASP←VEL←Y←DATA + SSSIGN * SSRANDU
        ;D←024←ASP←VEL←Z←DATA :=
           D←024←ASP←VEL←Z←DATA + SSSIGN * SSRANDU
      END;".
      INPUTS:
           DATA:  D←011←ASP←ATTITUDE←DATA
           DATA:  D←013←ASP←LOCATION←DATA
           DATA:  D←020←ASP←STATE←VECTOR←DATA.
      OUTPUTS:
           DATA:  D←011←ASP←ATTITUDE←DATA
           DATA:  D←013←ASP←LOCATION←DATA
           DATA:  D←020←ASP←STATE←VECTOR←DATA.
      TRACED FROM:
           ORIGINATING←REQUIREMENT:  ORIG←REQ←GENERATE←NOISE.
      PEFERRED BY:
           SUBNET:  S←4←MODEL←NELS←PLATFORM←SUB.

ALPHA:  A←02←GENERATE←DME←ALPHA.
      BETA:
           "BEGIN
  D←021←ASP←TIME←DATA := D←141←TIME←DATA
  ;SELECT FIRST RECORD FROM
           F←06←FLIGHT←PROFILE←FILE
  ;D←014←ASP←LOC←X←DATA := D←041←FLIGHT←WAYPOINT←X←DATA
  ;D←015←ASP←LOC←Y←DATA := D←042←FLIGHT←WAYPOINT←Y←DATA
  ;D←016←ASP←LOC←Z←DATA := D←043←FLIGHT←WAYPOINT←Z←DATA
  ;D←022←ASP←VEL←X←DATA := 0.0
  ;D←023←ASP←VEL←Y←DATA := 0.0
  ;D←024←ASP←VEL←Z←DATA := 0.0
END;".
      DATE←ENTERED: 11182.
      DESCRIPTION:
      "GENERATES ASP (AIRBORNE SENSOR PLATFORM) STATE VECTOR".
      ENTERED←BY: "JJF-NELS".
      GAMMA:
        "VAR
         SSFIRST : BOOLEAN;
    BEGIN
    IF SSFIRST THEN BEGIN
      SELECT FIRST RECORD FROM
             F←06←FLIGHT←PROFILE←FILE
    END
    ELSE BEGIN
      SELECT NEXT RECORD FROM
             F←06←FLIGHT←PROFILE←FILE
    END
    ;SELECT FIRST RECORD FROM
           F←27←PLATFORM←CONTROL←FILE
    ;WHILE (D←041←FLIGHT←WAYPOINT←X←DATA <> D←014←ASP←LOC←X←DATA)
```

```
        AND (D←042←FLIGHT←WAYPOINT←Y←DATA <> D←015←ASP←LOC←Y←DATA)
        AND (D←043←FLIGHT←WAYPOINT←Z←DATA <> D←016←ASP←LOC←Z←DATA) DO
        BEGIN
          SELECT NEXT RECORD FROM
                 F←27←PLATFORM←CONTROL←FILE
        END (*WHILE*)
        ;(* ASSIGN VALUES TO ASP STATE VECTOR DATA *)
        D←014←ASP←LOC←X←DATA := D←041←FLIGHT←WAYPOINT←X←DATA
        ;D←015←ASP←LOC←Y←DATA := D←042←FLIGHT←WAYPOINT←Y←DATA
        ;D←016←ASP←LOC←Z←DATA := D←043←FLIGHT←WAYPOINT←Z←DATA
        ;D←021←ASP←TIME←DATA := CLOCK←TIME
        ;D←022←ASP←VEL←X←DATA := D←022←ASP←VEL←X←DATA
        ;D←023←ASP←VEL←Y←DATA := D←023←ASP←VEL←Y←DATA
        ;D←024←ASP←VEL←Z←DATA := D←024←ASP←VEL←Z←DATA
      END;".
        INPUTS:
             DATA:  D←141←TIME←DATA
             FILE:  F←06←FLIGHT←PROFILE←FILE
             (* USED TO GENERATE DME *)
             FILE:  F←27←PLATFORM←CONTROL←FILE.
        OUTPUTS:
             DATA:  D←020←ASP←STATE←VECTOR←DATA.
        TRACED FROM:
             ORIGINATING←REQUIREMENT:  ORIG←REQ←GENERATE←DME
             ORIGINATING←REQUIREMENT:
             ORIG←REQ←GENERATE←PLATFORM←MEASUREMENTS.
        REFERRED BY:
             SUBNET:  S←4←MODEL←NELS←PLATFORM←SUB.

    ALPHA:  A←03←GENERATE←INS←ALPHA.
        BETA:
        "BEGIN
      D←018←ASP←PITCH←DATA := 0.0
      ;D←019←ASP←ROLL←DATA := 0.0
      ;D←025←ASP←YAW←DATA := 0.0
      ;D←010←ASP←ALTITUDE←DATA := D←014←ASP←LOC←X←DATA
      ;D←012←ASP←LATITUDE←DATA := D←015←ASP←LOC←Y←DATA
      ;D←017←ASP←LONGITUDE←DATA := D←016←ASP←LOC←Z←DATA
    END;".
        DATE←ENTERED: 11182.
        DESCRIPTION:
                "GENERATES INS (INERTIAL NAVIGATION SYSTEM)
       MEASUREMENTS".
        ENTERED←BY: "JJF-NELS".
        GAMMA:
          "CONST CENTLAT = 45.0
                ;CENTLONG = 20.0
          ;VAR SSRAND : REAL
         ;FUNCTION SSRANDU : REAL
           ;BEGIN
             SSRAND := 29.0 * SSRAND + 357.0
             ;SSRAND := SSRAND - TRUNC(SSRAND)
             ;SSRANDU := SSRAND
           END
           ;FUNCTION SSSIGN : REAL
             ;BEGIN
               IF SSRANDU < 0.5 THEN SSSIGN := -1.0
               ELSE SSSIGN := 1.0
```

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            END
          ;BEGIN
            SSRAND := 0.63904
            ;D+010+ASP+ALTITUDE+DATA := D+016+ASP+LOC+Z+DATA
            ;D+012+ASP+LATITUDE+DATA :=
               D+015+ASP+LOC+Y+DATA / 60.0 + CENTLAT
            ;D+017+ASP+LONGITUDE+DATA :=
               D+014+ASP+LOC+X+DATA / 60.0 + CENTLONG
            ;D+018+ASP+PITCH+DATA := + SSSIGN * SSRANDU
            ;D+019+ASP+ROLL+DATA := + SSSIGN * SSRANDU
            ;D+025+ASP+YAW+DATA := + SSSIGN * SSRANDU
        END;".
        INPUTS:
             DATA:  D+020+ASP+STATE+VECTOR+DATA.
        OUTPUTS:
             DATA:  D+011+ASP+ATTITUDE+DATA
             DATA:  D+013+ASP+LOCATION+DATA.
        TRACED FROM:
             ORIGINATING+REQUIREMENT:  ORIG+REQ+GENERATE+INS.
        REFERRED BY:
             SUBNET:  S+4+MODEL+NELS+PLATFORM+SUB.

ALPHA:  A+04+INITIALIZE+NELS+ALPHA.
        BETA:
              "BEGIN
          FOR EACH F+16+NELS+EMITTER+FILE RECORD DO BEGIN
            CREATE F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE RECORD
            ;D+063+B+NELS+EMISSION+START+TIME+DATA :=
                D+063+A+NELS+EMISSION+START+TIME+DATA ;
              D+064+NELS+EMISSION+STOP+TIME+DATA :=
                D+064+A+NELS+EMISSION+STOP+TIME+DATA;
             D+082+NELS+EMITTER+VEL+X+DATA :=
                D+082+A+NELS+EMITTER+VEL+X+DATA;
             D+083+NELS+EMITTER+VEL+Y+DATA :=
                D+083+A+NELS+EMITTER+VEL+Y+DATA;
             D+084+NELS+EMITTER+VEL+Z+DATA :=
                D+084+A+NELS+EMITTER+VEL+Z+DATA;
              D+073+B+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
                D+073+A+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;
             D+075+B+NELS+EMITTER+ID+DATA :=
                D+075+A+NELS+EMITTER+ID+DATA;
             D+085+B+NELS+EMITTER+X+DATA :=
                D+085+A+NELS+EMITTER+X+DATA;
             D+086+B+NELS+EMITTER+Y+DATA :=
                D+086+A+NELS+EMITTER+Y+DATA ;
             D+087+B+NELS+EMITTER+Z+DATA :=
                D+087+A+NELS+EMITTER+Z+DATA ;
             D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
                D+081+A+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA ;
             D+130+B+SCENARIO+GEN+ID+NUM+DATA :=
                D+130+A+SCENARIO+GEN+ID+NUM+DATA
          END ENDFOREACH
          ;CREATE F+06+FLIGHT+PROFILE+FILE RECORD
            ;D+041+FLIGHT+WAYPOINT+X+DATA := 0.0
            ;D+042+FLIGHT+WAYPOINT+Y+DATA := 0.0
            ;D+043+FLIGHT+WAYPOINT+Z+DATA := 0.0
          ;CREATE F+27+PLATFORM+CONTROL+FILE RECORD
            ;D+010+ASP+ALTITUDE+DATA := 0.0
```

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        ;D←014←ASP←LOC←X←DATA :≡ 0.0
        ;D←015←ASP←LOC←Y←DATA :≡ 0.0
        ;D←016←ASP←LOC←Z←DATA :≡ 0.0
        ;D←022←ASP←VEL←X←DATA :≡ 0.0
        ;D←023←ASP←VEL←Y←DATA :≡ 0.0
        ;D←024←ASP←VEL←Z←DATA :≡ 0.0
      ;CREATE F←19←NELS←FREQUENCY←SCAN←FILE RECORD
        ;D←092←NELS←FREQ←SCAN←LOWER←FREQ←DATA :≡ 0.0
        ;D←093←NELS←FREQ←SCAN←UPPER←FREQ←DATA :≡ 0.0
      ;CREATE F←20←NELS←PRE←BRIEFED←ACI←FILE RECORD
        ;D←095←NELS←PRE←BRIEFED←ACI←FILTERING←CRITERIA←DATA :≡
         WITHIN←AREA
        ;D←097←NELS←PRE←BRIEFED←ACI←LOWER←LEFT←X←DATA :≡ 0.0
        ;D←098←NELS←PRE←BRIEFED←ACI←LOWER←LEFT←Y←DATA :≡ 0.0
        ;D←100←NELS←PRE←BRIEFED←ACI←UPPER←RIGHT←X←DATA :≡ 0.0
        ;D←101←NELS←PRE←BRIEFED←ACI←UPPER←RIGHT←Y←DATA :≡ 0.0
      ;CREATE F←21←NELS←PRE←BRIEFED←SOI←FILE RECORD
        ;D←103←NELS←PRE←BRIEFED←SOI←END←FREQ←DATA :≡ 0.0
        ;D←104←NELS←PRE←BRIEFED←SCI←FREQ←DATA :≡ 0.0
        ;D←105←NELS←PRE←BRIEFED←SOI←MODULATION←TYPE←DATA :≡ MODULATED
        ;D←106←NELS←PRE←BRIEFED←SOI←START←FREQ←DATA :≡ 0.0
      ;CREATE F←15←NELS←EMITTER←CHARACTERISTICS←FILE RECORD
        ;D←067←NELS←EMITTER←BANDWIDTH←DATA :≡ 0.0
        ;D←077←A←NELS←EMITTER←MODULATION←TYPE←DATA :≡ MODULATED
        ;D←078←A←NELS←EMITTER←POWER←LEVEL←DATA :≡ 0.0
      ;CREATE F←26←NELS←WEATHER←CONDITIONS←FILE RECORD
        ;D←144←X←WEATHER←LOC←DATA :≡ 0.0
        ;D←146←Y←WEATHER←LOC←DATA :≡ 0.0
        ;D←039←ELEVATION←WEATHER←DATA :≡ 0.0
        ;D←120←PRECIPITATION←DATA :≡ NONE
        ;D←037←CLOUD←COVER←DATA :≡ CLEAR
    END;",
      DATE←ENTERED: 11182,
      DESCRIPTION: "MAKES TARGET AND WEATHER INFORMATION AVAILABLE",
      ENTERED←BY: "JJF-NELS",
      GAMMA:
       "BEGIN
    (* COPY NELS←EMITTER←FILE INTO NELS←EMITTER←ACTIVITY←GROUND *)
    (* ←TRUTH←FILE *)
    FOR EACH F←16←NELS←EMITTER←FILE RECORD DO BEGIN
      CREATE F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE RECORD
      ;D←066←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←DATA :≡
       D←071←NELS←EMITTER←DATA END  ENDFOREACH
    END;",
      CREATES:
           ENTITY←CLASS:  EC←1←NELS←DETECTABLE←EMISSION←BREAKOUT←EC
           ENTITY←CLASS:  EC←2←NELS←SCENARIO←EC
           ENTITY←CLASS:  EC←3←NELS←TASKS←EC
           ENTITY←CLASS:  EC←4←NELS←THREAT←EC
           ENTITY←CLASS:  EC←5←NELS←VEHICLE←CHARACTERISTICS←EC
           ENTITY←CLASS:  EC←6←DETECTED←EMISSIONS←INFO←EC,
      INPUTS:
           FILE:  F←16←NELS←EMITTER←FILE,
      OUTPUTS:
           FILE:  F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE
           FILE:  F←15←NELS←EMITTER←CHARACTERISTICS←FILE,
      TRACED FROM:
           ORIGINATING←REQUIPEMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE,
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        REFERRED BY:
             R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET.

    ALPHA:  A←05←NELS←AREA←OF←INTEREST←FILTER←ALPHA.
        BETA:
               "VAR DREAL : REAL  (* DUMMY REAL ITEM. *)
     ;BEGIN
       FOR EACH F←10←NELS←CANDIDATE←TARGETS←FILE RECORD DO BEGIN
        ;D←061←NELS←EMISSION←DURATION←DATA :=
           D←061←NELS←EMISSION←DURATION←DATA
         ;D←062←NELS←EMISSION←SIGNAL←STRENGTH←DATA :=
           D←062←NELS←EMISSION←SIGNAL←STRENGTH←DATA
         ;D←063←NELS←EMISSION←START←TIME←DATA :=
           D←063←NELS←EMISSION←START←TIME←DATA
         ;D←073←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA :=
           D←073←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA
         ;D←075←NELS←EMITTER←ID←DATA := D←075←NELS←EMITTER←ID←DATA
          ;D←085←NELS←EMITTER←X←DATA :=
             D←085←NELS←EMITTER←X←DATA;
           D←086←NELS←EMITTER←Y←DATA :=
             D←086←NELS←EMITTER←Y←DATA ;
           D←087←NELS←EMITTER←Z←DATA :=
             D←087←NELS←EMITTER←Z←DATA ;
          D←081←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA :=
           D←081←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
         ;D←130←SCENARIO←GEN←ID←NUM←DATA :=
           D←130←SCENARIO←GEN←ID←NUM←DATA
       END ENDFOREACH
       ;FOR EACH F←20←NELS←PRE←BRIEFED←AOI←FILE RECORD DO
         DREAL := D←097←NELS←PRE←BRIEFED←AOI←LOWER←LEFT←X←DATA
       ENDFOREACH
       ;DREAL := D←014←ASP←LOC←X←DATA
       ;DREAL := D←010←ASP←ALTITUDE←DATA
       ;DREAL := D←018←ASP←PITCH←DATA
    END;".
         DATE←ENTERED: 11182.
         DESCRIPTION:
                 "THE AOI FILTER REMOVES FROM THE CANDIDATE TARGET LIST
       THOSE EMISSIONS WHICH ARE LOCATED OUTSIDE OF THE ASE PRE-BRIEFED
       AREA OF INTEREST".
         ENTERED←BY: "JJF-NELS".
         GAMMA:
           "VAR SSTEMPR : REAL
                ;SSFILTER : BOOLEAN
       ;BEGIN
          SSTEMPR := D←018←ASP←PITCH←DATA
         ;SSTEMPR := D←010←ASP←ALTITUDE←DATA
         ;SSTEMPR := D←014←ASP←LOC←X←DATA
         ;FOR EACH F←10←NELS←CANDIDATE←TARGETS←FILE RECORD DO BEGIN
           SSFILTER := FALSE
           ;SELECT FIRST RECORD FROM
                    F←20←NELS←PRE←BRIEFED←AOI←FILE
           ;WHILE FOUND AND NOT SSFILTER DO BEGIN
             IF (D←097←NELS←PRE←BRIEFED←AOI←LOWER←LEFT←X←DATA <=
               D←085←NELS←EMITTER←X←DATA) AND
               (D←100←NELS←PRE←BRIEFED←AOI←UPPER←RIGHT←X←DATA >=
               D←085←NELS←EMITTER←X←DATA) AND
               (D←098←NELS←PRE←BRIEFED←AOI←LOWER←LEFT←Y←DATA <=
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            D←086←NELS←EMITTER←Y←DATA) AND
            (D←101←NELS←PRE←BRIEFED←AOI←UPPER←RIGHT←Y←DATA >=
            D←086←NELS←EMITTER←Y←DATA) THEN SSFILTER := TRUE
          ;SELECT NEXT RECORD FROM
                F←20←NELS←PRE←BRIEFED←AOI←FILE
        END; (* WHILE *)
        IF SSFILTER THEN BEGIN
          DESTROY F←10←NELS←CANDIDATE←TARGETS←FILE RECORD
        END
      END ENDFOREACH
    END;".
      INPUTS:
          DATA:  D←011←ASP←ATTITUDE←DATA
          DATA:  D←013←ASP←LOCATION←DATA
          DATA:  D←020←ASP←STATE←VECTOR←DATA
          FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE
          FILE:  F←20←NELS←PRE←BRIEFED←AOI←FILE.
      OUTPUTS:
          FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE.
      TRACED FROM:
          ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←AOI.
      REFERRED BY:
          SUBNET:  S←5←MODEL←NELS←SENSOR←SUP.

ALPHA:  A←06←NELS←COARSE←LOCATION←ALPHA.
      BETA:
            "VAR DREAL : REAL
  ;BEGIN
    SELECT FIRST RECORD FROM
          F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE
    ;FOR EACH F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE RECORD DO
     BEGIN
    CREATE F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE RECORD
    ;D←157←NELS←EMISSION←DURATION←DATA :=
        D←157←NELS←EMISSION←DURATION←DATA
      ;D←158←NELS←EMISSION←START←TIME←DATA :=
        D←158←NELS←EMISSION←START←TIME←DATA
      ;D←068←NELS←EMITTER←CEP←DATA := 0.5
      ;D←160←NELS←EMITTER←ID←DATA := D←160←NELS←EMITTER←ID←DATA;
        D←162←NELS←EMITTER←X←DATA :=
          D←162←NELS←EMITTER←X←DATA;
        D←163←NELS←EMITTER←Y←DATA :=
          D←163←NELS←EMITTER←Y←DATA;
        D←164←NELS←EMITTER←Z←DATA :=
          D←164←NELS←EMITTER←Z←DATA;
      D←165←SCENARIO←GEN←ID←NUM←DATA :=
        D←165←SCENARIO←GEN←ID←NUM←DATA
      ;DREAL := D←058←NELS←DD←1←2←DATA
      ;DREAL := D←018←ASP←PITCH←DATA
      ;DREAL := D←010←ASP←ALTITUDE←DATA
      ;DREAL := D←014←ASP←LOC←X←DATA
    END ENDFOREACH
  END;".
      DATE←ENTERED: 11282.
      DESCRIPTION:
            "EMITTER LOCATION ACCURACY WILL BE MODELLED AS A
  FUNCTION OF EMITTER FREQUENCY, BANDWIDTH, S/N, HARDWARE ERRORS,
  NAVIGATIONAL ERRORS, SENSOR PLATFORM GEOMETRY, PHASE NOISE AND
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    CO-CHANNEL INTERFERENCE, AND CORRELATION DWELL TIMES;
  THE COARSE LOCATION FUNCTION DETERMINES THE APPROXIMATE
    LOCATION OF THE ACTIVE NARROWBAND EMITTERS IN THE TUNED FREQUENCY
    BAND IN THE GEOGRAPHICAL AOI;
  AN (X,Y) LOCATION ERROR COVARIANCE MATRIX IS CALCULATED
    AND USED TO GENERATE RANDOM (X,Y) ERRORS IN COARSE LOCATION,
    WHICH IN TURN ARE USED TO GENERATE AN ESTIMATE OF THE CIRCULAR
    ERROR PROBABLE (CEP)".
      ENTERED-BY: "JJF-NELS".
      GAMMA:
        "VAR SSTEMPR : REAL
      ;BEGIN
         SSTEMPR := D-018-ASP-PITCH-DATA
         ;SSTEMPR := D-010-ASP-ALTITUDE-DATA
         ;SSTEMPR := D-014-ASP-LOC-X-DATA
         ;SELECT FIRST RECORD FROM
                 F-24-NELS-TDOA-DD-FILE
         ;SSTEMPR := D-058-NELS-DD-1-2-DATA
         ;SELECT FIRST RECORD FROM
                 F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
         ;SELECT FIRST RECORD FROM
                 F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
         ;WHILE FOUND DO BEGIN
           CREATE F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE RECORD
           ;SSTEMPR := D-159-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
           ;D-157-NELS-EMISSION-DURATION-DATA :=
              D-157-NELS-EMISSION-DURATION-DATA
           ;D-158-NELS-EMISSION-START-TIME-DATA :=
              D-158-NELS-EMISSION-START-TIME-DATA
           ;D-068-NELS-EMITTER-CEP-DATA := 0.0
           ;D-160-NELS-EMITTER-ID-DATA :=
              D-160-NELS-EMITTER-ID-DATA;
           D-162-NELS-EMITTER-X-DATA :=
             D-162-NELS-EMITTER-X-DATA;
           D-163-NELS-EMITTER-Y-DATA :=
            D-163-NELS-EMITTER-Y-DATA;
           D-164-NELS-EMITTER-Z-DATA :=
            D-164-NELS-EMITTER-Z-DATA
           ;D-165-SCENARIO-GEN-ID-NUM-DATA :=
              D-165-SCENARIO-GEN-ID-NUM-DATA
           ;SELECT NEXT RECORD FROM
              F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
           ;SELECT NEXT RECORD FROM
              F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
         END (* WHILE *)
       END;".
        INPUTS:
             FILE:  F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
             FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
             FILE:  F-24-NELS-TDOA-DD-FILE.
        OUTPUTS:
             FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:
             ORIG-REQ-EMITTER-LOCATION-ACCURACY
             ORIGINATING-REQUIREMENT:
             ORIG-REQ-NELS-COARSE-AND-FINE-LOCATION.
        REFERRED BY:
```

```
            SUBNET:  S←3←MODEL←NELS←GPS←PROCESSING←SUB.

ALPHA:  A←07←NELS←FINE←LOCATION←ALPHA.
     BETA:
            "VAR DREAL : REAL
  ;BEGIN
    FOR EACH F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE RECORD DO
    BEGIN
      CREATE F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE RECORD
    ;D←159←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA:=
        D←159←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA;
       D←077←NELS←EMITTER←MODULATION←TYPE←DATA :=
         D←077←NELS←EMITTER←MODULATION←TYPE←DATA ;
       D←078←NELS←EMITTER←POWER←LEVEL←DATA :=
         D←078←NELS←EMITTER←POWER←LEVEL←DATA ;
       D←161←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA :=
         D←161←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
      END ENDFOREACH
      ;DREAL := D←018←ASP←PITCH←DATA
      ;DREAL := D←010←ASP←ALTITUDE←DATA
      ;DREAL := D←014←ASP←LOC←X←DATA
      ;FOR EACH F←13←NELS←EMISSION←THREAT←TABLE←FILE RECORD DO
       DREAL := D←067←NELS←EMITTER←BANDWIDTH←DATA ENDFOREACH
      ;FOR EACH F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE RECORD DO
      BEGIN
        CREATE F←18←NELS←ESTIMATED←GROUND←TRUTH←FILE RECORD
        ;D←157←NELS←EMISSION←DURATION←DATA :=
            D←157←NELS←EMISSION←DURATION←DATA
          ;D←158←NELS←EMISSION←START←TIME←DATA :=
            D←158←NELS←EMISSION←START←TIME←DATA
          ;D←068←NELS←EMITTER←CEP←DATA :=
            D←068←NELS←EMITTER←CEP←DATA
          ;D←070←NELS←EMITTER←CCV←DATA := 0.5
          ;D←160←NELS←EMITTER←ID←DATA :=
            D←160←NELS←EMITTER←ID←DATA
       ;D←162←NELS←EMITTER←X←DATA :=
          D←162←NELS←EMITTER←X←DATA;
        D←163←NELS←EMITTER←Y←DATA :=
          D←163←NELS←EMITTER←Y←DATA ;
        D←164←NELS←EMITTER←Z←DATA :=
          D←164←NELS←EMITTER←Z←DATA ;
          D←165←SCENARIO←GEN←ID←NUM←DATA :=
            D←165←SCENARIO←GEN←ID←NUM←DATA
      END ENDFOREACH
  END;".
    DATE←ENTERED: 11282.
    DESCRIPTION:
            "THE FINE LOCATION FUNCTION IS AN ITERATIVE PROCESS
  IN WHICH THE CORRELATION TIME IS INCREMENTED UNTIL THE
  RESULTING CEP LOCATION ESTIMATE IS BELOW A SET THRESHOLD, OR
  UNTIL THE TRANSMISSION ENDS, WHICHEVER COMES FIRST".
    ENTERED←BY: "JJF-NELS".
    GAMMA:
      "VAR SSTEMPR : REAL
  ;BEGIN
    SSTEMPR := D←018←ASP←PITCH←DATA
    ;SSTEMPR := D←010←ASP←ALTITUDE←DATA
    ;SSTEMPR := D←014←ASP←LOC←X←DATA
```

```
        ;SELECT FIRST RECORD FROM
                F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE
        ;SELECT FIRST RECORD FROM
                F+13+NELS+EMISSION+THREAT+TABLE+FILE
        ;SELECT FIRST RECORD
                F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
        ;WHILE FOUND DO BEGIN
          CREATE F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE RECORD;
         D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA:=
            D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;
          D+077+NELS+EMITTER+MODULATION+TYPE+DATA :=
            D+077+NELS+EMITTER+MODULATION+TYPE+DATA ;
          D+078+NELS+EMITTER+POWER+LEVEL+DATA :=
            D+078+NELS+EMITTER+POWER+LEVEL+DATA ;
          D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
            D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
          ;CREATE F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE RECORD
          ;D+157+NELS+EMISSION+DURATION+DATA :=
            D+157+NELS+EMISSION+DURATION+DATA
          ;D+158+NELS+EMISSION+START+TIME+DATA :=
            D+158+NELS+EMISSION+START+TIME+DATA
          ;D+068+NELS+EMITTER+CEP+DATA :=
            D+068+NELS+EMITTER+CEP+DATA
          ;D+070+NELS+EMITTER+COV+DATA := 0.0
          ;D+160+NELS+EMITTER+ID+DATA :=
            D+160+NELS+EMITTER+ID+DATA
          ;D+162+NELS+EMITTER+X+DATA :=
            D+162+NELS+EMITTER+X+DATA;
           D+163+NELS+EMITTER+Y+DATA :=
            D+163+NELS+EMITTER+Y+DATA ;
           D+164+NELS+EMITTER+Z+DATA :=
            D+164+NELS+EMITTER+Z+DATA
          ;D+165+SCENARIO+GEN+ID+NUM+DATA :=
            D+165+SCENARIO+GEN+ID+NUM+DATA
          ;SSTEMPR :=D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA
        END (* WHILE *)
        END;".
        INPUTS:
              DATA:  D+011+ASP+ATTITUDE+DATA
              DATA:  D+013+ASP+LOCATION+DATA
              DATA:  D+020+ASP+STATE+VECTOR+DATA
              FILE:  F+13+NELS+EMISSION+THREAT+TABLE+FILE
              FILE:  F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
              FILE:  F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE.
        OUTPUTS:
              FILE:  F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
              FILE:  F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE.
        TRACED FROM:
              ORIGINATING+REQUIREMENT:
              ORIG+REQ+EMITTER+LOCATION+ACCURACY
              ORIGINATING+REQUIREMENT:
              ORIG+REQ+NELS+COARSE+AND+FINE+LOCATION.
        REFERRED BY:
              SUBNET:  S+3+MODEL+NELS+GPS+PROCESSING+SUB.

    ALPHA:  A+OR+NELS+FREQUENCY+SCAN+OPTIMIZATION+ALPHA.
          BETA:
           "BEGIN
```

```
        FOR EACH F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE RECORD DO
          D←091←NELS←FREQUENCY←SCAN←DATA :=
            D←161←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
        ENDFOREACH
    END;".
       DATE←ENTERED: 11282.
       DESCRIPTION:
            "FREQUENCY SCAN STRATEGY WILL BE AUTOMATICALLY
     OPTIMIZED BASED UPON THE DETECTION OF HIGH PRIORITY THREAT
     EMITTERS;  THE DETECTION OF AN EMITTER WHICH EXHIBITS A
     SPECIFIC TRAFFIC TYPE COULD CAUSE THE FREQUENCY SCAN
     STARTEGY TO BE UPDATED, SO THAT THE FREQUENCY AT WHICH THE
     EMITTER IS OPERATING ON WOULD BE SCANNED MORE OFTEN".
       ENTERED←BY: "JJF←NELS".
       GAMMA:
          "BEGIN
      D←091←NELS←FREQUENCY←SCAN←DATA :≠ D←091←NELS←FREQUENCY←SCAN←DATA
      ;FOR EACH F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE RECORD DO
        D←091←NELS←FREQUENCY←SCAN←DATA :=
        D←161←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
      ENDFOREACH
    END;".
       INPUTS:
            DATA:  D←091←NELS←FREQUENCY←SCAN←DATA
            FILE:  F←17←NELS←ESTIMATED←EMITTER←PARAMETERS←FILE.
       OUTPUTS:
            DATA:  D←091←NELS←FREQUENCY←SCAN←DATA.
       TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←SCAN←OPTIMIZATION.
       REFERRED BY:
            SUBNET:  S←3←MODEL←NELS←GPS←PROCESSING←SUB.

  ALPHA:  A←09←NELS←MAKE←SENSOR←REQUESTS←ALPHA.
       BETA:
       "BEGIN
       D←005←ASET←MSG←SOURCE←DATA := NELS
      ;D←004←ASET←MSG←NAME←DATA := MN←10←NELS←SENSOR←REQUESTS
      ;D←002←ASET←MSG←DEST←DATA := ASE
      ;D←125←REQ←DESTINATION←SENSOR←ID←DATA := GPS←NELS←1
      ;D←126←REQ←REPORT←INFORMATION←TYPE←DATA := EE&UNKNWNVAL
      ;D←127←REQ←SENSOR←TARGET←ID←OF←INTEREST←DATA := EE&UNKNWNVAL
      ;D←135←SENSOR←ID←DATA := NELS←GPS←1
    END;".
       DATE←ENTERED: 11482.
       DESCRIPTION: "REQUEST TO ASE FOR TASKS".
       ENTERED←BY: "JJF←NELS".
       GAMMA:
        "BEGIN
    D←005←ASET←MSG←SOURCE←DATA :≠ NELS
    ;D←004←ASET←MSG←NAME←DATA := MN←10←NELS←SENSOR←REQUESTS
    ;D←002←ASET←MSG←DEST←DATA := ASE
    ;D←125←REQ←DESTINATION←SENSOR←ID←DATA := GPS←NELS←1
    ;D←126←REQ←REPORT←INFORMATION←TYPE←DATA := EE&UNKNWNVAL
    ;D←127←REQ←SENSOR←TARGET←ID←OF←INTEREST←DATA := EE&UNKNWNVAL
    ;D←135←SENSOR←ID←DATA := NELS←GPS←1
END;".
       FORMS:
            MESSAGE:  M←10←NELS←SENSOR←REQUESTS←MSG←OUT.
```

```
        OUTPUTS:
             DATA:  D-003-ASFT-MSG-ID-DATA
             DATA:  D-125-REQ-DESTINATION-SENSOR-ID-DATA
             DATA:  D-126-REQ-REPORT-INFORMATION-TYPE-DATA
             DATA:  D-127-REQ-SENSOR-TARGET-ID-OF-INTEREST-DATA
             DATA:  D-135-SENSOR-ID-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        REFERRED BY:
             R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.

   ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA.
        BETA:
             "VAR OREAL : REAL
     ;BEGIN
       IF D-135-SENSOR-ID-DATA IN
         [NELS-GPS-1,NELS-GPS-2,NELS-GPS-3] THEN BEGIN
         FOR EACH F-06-FLIGHT-PROFILE-FILE RECORD DO
           OREAL := D-041-FLIGHT-WAYPOINT-X-DATA ENDFOREACH
         ;FOR EACH F-32-SENSOR-ORBIT-MODS-FILE RECORD DO BEGIN
           CREATE F-06-FLIGHT-PROFILE-FILE RECORD
            ;D-041-FLIGHT-WAYPOINT-X-DATA :=
               D-117-PLATFORM-MOD-X-DATA
             ;D-042-FLIGHT-WAYPOINT-Y-DATA :=
               D-118-PLATFORM-MOD-Y-DATA
             ;D-043-FLIGHT-WAYPOINT-Z-DATA :=
               D-119-PLATFORM-MOD-Z-DATA
         END ENDFOREACH
       END
     END;".
        DATE-ENTERED: 11AR2.
        DESCRIPTION: "MODIFICATIONS TO FLIGHT PROFILE".
        ENTERED-BY: "JJF-NELS".
        GAMMA:
           "VAR SSTEMP : EFOD-135-SENSOR-ID-DATA
       ;BEGIN
         SSTEMP := D-135-SENSOR-ID-DATA
         ;FOR EACH F-32-SENSOR-ORBIT-MODS-FILE RECORD DO BEGIN
           CREATE F-06-FLIGHT-PROFILE-FILE RECORD
           ;D-041-FLIGHT-WAYPOINT-X-DATA := D-117-PLATFORM-MOD-X-DATA
           ;D-042-FLIGHT-WAYPOINT-Y-DATA := D-118-PLATFORM-MOD-Y-DATA
           ;D-043-FLIGHT-WAYPOINT-Z-DATA := D-119-PLATFORM-MOD-Z-DATA
         END ENDFOREACH
       END;".
        INPUTS:
             DATA:  D-135-SENSOR-ID-DATA
             FILE:  F-06-FLIGHT-PROFILE-FILE
             FILE:  F-32-SENSOR-ORBIT-MODS-FILE.
        OUTPUTS:
             FILE:  F-06-FLIGHT-PROFILE-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        REFERRED BY:
             R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.

   ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        BETA:
        "VAR I : INTEGER
```

```
          ;DREAL : REAL
      ;BEGIN
        IF D←056←NEEDED←FEASIBLE←DATA IN [SOI,AOI,BOTH] THEN BEGIN
          D←139←TASK←QUE←ID←DATA := D←139←TASK←QUE←ID←DATA
          ;D←141←TIME←DATA := D←141←TIME←DATA
          ;D←138←TASKING←RESPONSE←DATA := CAN←DO
          ;D←005←ASET←MSG←SOURCE←DATA := NELS
          ;D←004←ASET←MSG←NAME←DATA := MN←13←NELS←TASKING←RESPONSES
          ;D←002←ASET←MSG←DEST←DATA := ASE
          ;FOR EACH F←06←FLIGHT←PROFILE←FILE RECORD DO
            DREAL := D←041←FLIGHT←WAYPOINT←X←DATA ENDFOREACH
          ;CREATE F←06←FLIGHT←PROFILE←FILE RECORD
            ;D←041←FLIGHT←WAYPOINT←X←DATA := D←143←X←LOC←FEASIBLE←DATA
            ;D←042←FLIGHT←WAYPOINT←Y←DATA := D←145←Y←LOC←FEASIBLE←DATA
            ;D←043←FLIGHT←WAYPOINT←Z←DATA := 0.0
          END
        END;".
          DATE←ENTERED: 11482.
          DESCRIPTION:
                "MODIFIES FLIGHT PROFILE TO ALLOW, IF POSSIBLE,
        CHANGES IN CURRENT OPERATIONS/LOCATION; WHATEVER THE
        DECISION, A RESPONSE IS SENT TO ASE VIA T&C".
          ENTERED←BY: "JJF-NELS".
          GAMMA:
             "VAR SSTEMP : EE0D←056←NEEDED←FEASIBLE←DATA
           ;BEGIN
            SSTEMP := D←056←NEEDED←FEASIBLE←DATA
            ;D←139←TASK←QUE←ID←DATA := D←139←TASK←QUE←ID←DATA
            ;D←141←TIME←DATA := D←141←TIME←DATA
            ;D←138←TASKING←RESPONSE←DATA := CAN←DO
            ;FOR EACH F←05←FEASIBLE←ACTIVITY←AREA←FILE RECORD DO BEGI.
              SELECT NEXT RECORD FROM
                    F←06←FLIGHT←PROFILE←FILE
              ;IF RECORD←FOUND THEN BEGIN
                IF SQRT(SQR(D←041←FLIGHT←WAYPOINT←X←DATA -
                            D←143←X←LOC←FEASIBLE←DATA) +
                        SQR(D←042←FLIGHT←WAYPOINT←Y←DATA -
                            D←145←Y←LOC←FEASIBLE←DATA))
                       <= 3.2E4 THEN BEGIN
                  D←041←FLIGHT←WAYPOINT←X←DATA :=
                    D←143←X←LOC←FEASIBLE←DATA
                  ;D←042←FLIGHT←WAYPOINT←Y←DATA :=
                    D←145←Y←LOC←FEASIBLE←DATA
                  ;D←043←FLIGHT←WAYPOINT←Z←DATA := 0.0
                END
                ELSE D←138←TASKING←RESPONSE←DATA := CANT←DO
              END
              ELSE (* NO RECORD FOUND *) BEGIN
                CREATE F←06←FLIGHT←PROFILE←FILE RECORD
                ;D←041←FLIGHT←WAYPOINT←X←DATA :=
                  D←143←X←LOC←FEASIBLE←DATA
                ;D←042←FLIGHT←WAYPOINT←Y←DATA :=
                  D←145←Y←LOC←FEASIBLE←DATA
                ;D←043←FLIGHT←WAYPOINT←Z←DATA := 0.0
              END
            END ENDFOREACH
            ;D←005←ASET←MSG←SOURCE←DATA := NELS
            ;D←004←ASET←MSG←NAME←DATA := MN←13←NELS←TASKING←RESPONSES
```

```
        ;D-002-ASET-MSG-DEST-DATA := ASE
      END;".
        FORMS:
             MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT.
        INPUTS:
             DATA:  D-056-NEFDFD-FEASIBLE-DATA
             DATA:  D-139-TASK-QUE-ID-DATA
             DATA:  D-141-TIME-DATA
             FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE
             FILE:  F-06-FLIGHT-PROFILE-FILE.
        OUTPUTS:
             DATA:  D-003-ASET-MSG-ID-DATA
             DATA:  D-138-TASKING-RESPONSE-DATA
             DATA:  D-139-TASK-QUE-ID-DATA
             DATA:  D-141-TIME-DATA
             FILE:  F-06-FLIGHT-PROFILE-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        REFERRED BY:
             R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.

   ALPHA:  A-12-NELS-PERFORM-SIGNATURE-ANALYSIS-ALPHA.
        BETA:
              "BEGIN
        SELECT FIRST RECORD FROM
             F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
        ;SELECT FIRST RECORD FROM
              F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
        ;CREATE F-25-NELS-TYPED-EMITTER-REPORT-FILE RECORD
          ;D-176-NELS-EMITTER-BANDWIDTH-DATA :=
            D-159-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
          ;D-177-NELS-EMITTER-CEP-DATA := D-068-NELS-EMITTER-CEP-DATA
          ;D-070-NELS-EMITTER-COV-DATA := D-070-NELS-EMITTER-COV-DATA
          ;D-074-NELS-EMITTER-FREQUENCY-DATA :=
            D-161-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
          ;D-166-NELS-EMITTER-ID-DATA := D-160-NELS-EMITTER-ID-DATA
          ;D-167-NELS-EMITTER-X-DATA :=
             D-162-NELS-EMITTER-X-DATA;
           D-168-NELS-EMITTER-Y-DATA :=
             D-163-NELS-EMITTER-Y-DATA ;
           D-169-NELS-EMITTER-Z-DATA :=
             D-164-NELS-EMITTER-Z-DATA ;
          D-178-NELS-EMITTER-MODULATION-TYPE-DATA :=
            D-077-NELS-EMITTER-MODULATION-TYPE-DATA
          ;D-179-NELS-EMITTER-TIME-OF-LOCATION-DATA :=
            D-063-NELS-EMISSION-START-TIME-DATA
          ;D-180-NELS-EMITTER-TRAFFIC-TYPE-DATA := POTENTIAL-THREAT
          ;D-170-SCENARIO-GEN-ID-NUM-DATA :=
            D-165-SCENARIO-GEN-ID-NUM-DATA
        END;".
        DATE-ENTERED: 11282.
        DESCRIPTION:
              "A TRAFFIC TYPE CODE WILL BE GIVEN TO EACH
      NARROWBAND EMISSION BASED ON ITS SIGNAL CHARACTERISTICS:
      FREQUENCY, BANDWIDTH, MODULATION, AND EFFECTIVE RADIATED
      POWER".
        ENTERED-BY: "JJF-NELS".
        GAMMA:
```

```
      "VAR SSRAND : REAL
    ;FUNCTION SSRANDU : REAL
      ;BEGIN
        SSRAND := 29.0 * SSRAND + 357.0
        ;SSRAND := SSRAND - TRUNC(SSRAND)
        ;SSRANDU := SSRAND
      END
    ;BEGIN
      SSRAND := 0.65832
      ;SELECT FIRST RECORD FROM
            F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
      ;SELECT FIRST RECORD FROM
            F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE
      ;WHILE FOUND DO BEGIN
        CREATE F+25+NELS+TYPED+EMITTER+REPORT+FILE RECORD
        ;D+176+NELS+EMITTER+BANDWIDTH+DATA :=
          D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
        ;D+177+NELS+EMITTER+CEP+DATA :=
          D+068+NELS+EMITTER+CEP+DATA
        ;D+070+NELS+EMITTER+COV+DATA :=
          D+070+NELS+EMITTER+COV+DATA
        ;D+074+NELS+EMITTER+FREQUENCY+DATA :=
          D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        ;D+166+NELS+EMITTER+ID+DATA :=
          D+160+NELS+EMITTER+ID+DATA
        ;D+167+NELS+EMITTER+X+DATA :=
           D+162+NELS+EMITTER+X+DATA;
         D+168+NELS+EMITTER+Y+DATA :=
           D+163+NELS+EMITTER+Y+DATA ;
         D+169+NELS+EMITTER+Z+DATA :=
           D+164+NELS+EMITTER+Z+DATA ;
         D+178+NELS+EMITTER+MODULATION+TYPE+DATA :=
          D+077+NELS+EMITTER+MODULATION+TYPE+DATA
        ;D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA :=
          D+063+NELS+EMISSION+START+TIME+DATA
        ;D+170+SCENARIO+GEN+ID+NUM+DATA :=
          D+165+SCENARIO+GEN+ID+NUM+DATA
        ;SSRAND := SSRANDU
        ;IF SSRAND <= 1.0 /3.0 THEN
          D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA := PASSIVE
        ELSE IF SSRAND >= 2.0 / 3.0 THEN
          D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA :=
            POTENTIAL+THREAT
        ELSE D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA := THREAT
        ;SELECT NEXT RECORD FROM
                F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
        ;SELECT NEXT RECORD FROM
                F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE
        END (* WHILE *)
      END;".
    INPUTS:
         FILE:  F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
         FILE:  F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE.
    OUTPUTS:
         FILE:  F+25+NELS+TYPED+EMITTER+REPORT+FILE.
    TRACED FROM:
         ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+SIGNATURE+ANALYSIS.
    REFERRED BY:
```

```
            SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB.

    ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA.
         BETA:
         "VAR DREAL : REAL
      ;BEGIN
        CREATE F-33-SENSOR-PLATFORM-LOCATION-FILE RECORD
          ;D-114-PLATFORM-LOCATION-X-DATA := D-014-ASP-LOC-X-DATA
          ;D-115-PLATFORM-LOCATION-Y-DATA := D-015-ASP-LOC-Y-DATA
          ;D-116-PLATFORM-LOCATION-Z-DATA := D-016-ASP-LOC-Z-DATA
          ;D-005-ASET-MSG-SOURCE-DATA := NELS
          ;D-004-ASET-MSG-NAME-DATA :=
            MN-07-NELS-PLATFORM-LOCATION-REPORTS
          ;D-002-ASET-MSG-DEST-DATA := ASE
      END;".
         DATE-ENTERED: 11882.
         DESCRIPTION: "TO INFORM THE ASE ELEMENT OF SENSOR LOCATION".
         ENTERED-BY: "JJF-NELS".
         GAMMA:
          "BEGIN
      D-005-ASET-MSG-SOURCE-DATA := NELS
      ;D-004-ASET-MSG-NAME-DATA := MN-07-NELS-PLATFORM-LOCATION-REPORTS
      ;D-002-ASET-MSG-DEST-DATA := ASE
      ;CREATE F-33-SENSOR-PLATFORM-LOCATION-FILE RECORD
      ;D-114-PLATFORM-LOCATION-X-DATA := D-014-ASP-LOC-X-DATA
      ;D-115-PLATFORM-LOCATION-Y-DATA := D-015-ASP-LOC-Y-DATA
      ;D-116-PLATFORM-LOCATION-Z-DATA := D-016-ASP-LOC-Z-DATA
    END;".
         FORMS:
              MESSAGE:  M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT.
         INPUTS:
              DATA:  D-020-ASP-STATE-VECTOR-DATA.
         OUTPUTS:
              DATA:  D-003-ASET-MSG-ID-DATA
              FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE.
         TRACED FROM:
              ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
         REFERRED BY:
              SUBNET:  S-2-DO-NELS-OPERATIONAL-CONTROL-SUB.

    ALPHA:  A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA.
         BETA:
              "VAR DREAL : REAL
      ;BEGIN
        IF (D-040-FIRST-CMDRS-REQ-UPDATE-DATA = IN-AREA) OR
           (D-040-FIRST-CMDRS-REQ-UPDATE-DATA = OUTSIDE-AREA) OR
           (D-133-SECOND-CMDRS-REQ-UPDATE-DATA = IS-MODULATED) OR
           (D-133-SECOND-CMDRS-REQ-UPDATE-DATA = IS-NOT-MODULATED)
           THEN DREAL := 0.0
        ;FOR EACH F-20-NELS-PRE-BRIEFED-AOI-FILE RECORD DO
          D-097-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-X-DATA :=
            D-097-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-X-DATA ENDFOREACH
        ;FOR EACH F-21-NELS-PRE-BRIEFED-SOI-FILE RECORD DO
          D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA :=
            D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA ENDFOREACH
      END;".
         DATE-ENTERED: 11882.
         DESCRIPTION:
```

```
            "UPDATES PLANNING INFORMATION TO DIRECT NELS
     OPERATIONS (PLATFORM MISSION OBJECTIVES, INITIAL SOI/AOI
     REQUIREMENTS, AND PROCESSING PRIORITIES)".
       ENTERED-BY: "JJF-NELS".
       GAMMA:
        "VAR SSTEMP040 : EE0D-040-FIRST-CMDRS-REQ-UPDATE-DATA
             ;SSTEMP133 : EE0D-133-SECOND-CMDRS-REQ-UPDATE-DATA
   ;BEGIN
     FOR EACH F-04-CMDRS-DATA-TO-UPDATE-FILE RECORD DO BEGIN
       .STEMP040 := D-040-FIRST-CMDRS-REQ-UPDATE-DATA
       ;SSTEMP133 := D-133-SECOND-CMDRS-REQ-UPDATE-DATA
     END ENDFOREACH
     ;FOR EACH F-20-NELS-PRE-BRIEFED-AOI-FILE RECORD DO
       D-094-NELS-PRE-BRIEFED-AOI-DATA :=
         D-094-NELS-PRE-BRIEFED-AOI-DATA  ENDFOREACH
     ;FOR EACH F-21-NELS-PRE-BRIEFED-SOI-FILE RECORD DO
       D-102-NELS-PRE-BRIEFED-SOI-DATA :=
         D-102-NELS-PRE-BRIEFED-SOI-DATA ENDFOREACH
   END;".
       INPUTS:
            FILE:  F-04-CMDRS-DATA-TO-UPDATE-FILE
            FILE:  F-20-NELS-PRE-BRIEFED-AOI-FILE
            FILE:  F-21-NELS-PRE-BRIEFED-SUI-FILE.
       OUTPUTS:
            FILE:  F-20-NELS-PRE-BRIEFED-AOI-FILE
            FILE:  F-21-NELS-PRE-BRIEFED-SOI-FILE.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
       REFERRED BY:
            R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.

ALPHA:  A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA.
       BETA:
             "VAR I :INTEGER
            ;DREAL : REAL
     ;BEGIN
       IF ((D-056-NEEDED-FEASIBLE-DATA = SOI) OR
           (D-056-NEEDED-FEASIBLE-DATA = AOI) OR
           (D-056-NEEDED-FEASIBLE-DATA = BOTH)) AND
          ((D-135-SENSOR-ID-DATA = NELS-GPS-1) OR
           (D-135-SENSOR-ID-DATA = NELS-GPS-3) OR
           (D-135-SENSOR-ID-DATA = NELS-GPS-3))
           THEN DREAL := 0.0
       ;I := D-137-SENSOR-PRIORITY-DATA
       ;SELECT FIRST RECORD FROM
              F-05-FEASIBLE-ACTIVITY-AREA-FILE
       ;DREAL := D-143-X-LOC-FEASIBLE-DATA
       ;FOR EACH F-19-NELS-FREQUENCY-SCAN-FILE RECORD DO BEGIN
         D-092-NELS-FREQ-SCAN-LOWER-FREQ-DATA :=
           D-092-NELS-FREQ-SCAN-LOWER-FREQ-DATA;
         D-093-NELS-FREQ-SCAN-UPPER-FREQ-DATA :=
           D-093-NELS-FREQ-SCAN-UPPER-FREQ-DATA END ENDFOREACH
     END;".
       DATE-ENTERED: 11482.
       DESCRIPTION: "UPDATES SENSOR PRIORITIES".
       ENTERED-BY: "JJF-NELS".
       GAMMA:
        "VAR SSTEMPI : INTEGER
```

```
                ;SSTEMPR : REAL
                ;SSTEMP056 : EEOD*056*NEEDED*FEASIBLE*DATA
                ;SSTEMP135 : EEOD*135*SENSOR*ID*DATA
        ;BEGIN
          SSTEMP056 := D*056*NEEDED*FEASIBLE*DATA
          ;SSTEMP135 := D*135*SENSOR*ID*DATA
          ;SSTEMPI := D*137*SENSOR*PRIORITY*DATA
          ;FOR EACH F*05*FEASIBLE*ACTIVITY*AREA*FILE RECORD DO BEGIN
            SSTEMPR := D*143*X*LOC*FEASIBLE*DATA
            ;SSTEMPR := D*145*Y*LOC*FEASIBLE*DATA
           END ENDFOREACH
          ;FOR EACH F*19*NELS*FREQUENCY*SCAN*FILE RECORD DO BEGIN
            D*092*NELS*FREQ*SCAN*LOWER*FREQ*DATA :=
              D*092*NELS*FREQ*SCAN*LOWER*FREQ*DATA
            ;D*093*NELS*FREQ*SCAN*UPPER*FREQ*DATA :=
              D*093*NELS*FREQ*SCAN*UPPER*FREQ*DATA
          END ENDFOREACH
        END;",
          INPUTS:
                DATA:  D*056*NEEDED*FEASIBLE*DATA
                DATA:  D*135*SENSOR*ID*DATA
                DATA:  D*137*SENSOR*PRIORITY*DATA
                FILE:  F*05*FEASIBLE*ACTIVITY*AREA*FILE
                FILE:  F*19*NELS*FREQUENCY*SCAN*FILE.
          OUTPUTS:
                FILE:  F*19*NELS*FREQUENCY*SCAN*FILE.
          TRACED FROM:
                ORIGINATING*REQUIREMENT:  ORIG*REQ*NELS*EXTERNAL*INTERFACE.
          REFERRED BY:
                R*NET:  R*2*MODEL*NELS*SENSOR*SYSTEM*R*NET.

      ALPHA:  A*16*NELS*PROCESS*REQUESTED*DATA*ALPHA.
          BETA:
          "VAR DREAL : REAL
        ;BEGIN
          IF D*045*GPS*ID*DATA IN [GPS*1*NELS,GPS*2*NELS,GPS*3*NELS]
          THEN DREAL := 0.0
          ;FOR EACH F*07*GROUP*TARGET*LOCS*FILE RECORD DO
            DREAL := D*048*GROUND*TARGET*LOC*X*DATA ENDFOREACH
          ;FOR EACH F*06*FLIGHT*PROFILE*FILE RECORD DO
            D*041*FLIGHT*WAYPOINT*X*DATA :=
              D*041*FLIGHT*WAYPOINT*X*DATA ENDFOREACH
        END;",
          DATE*ENTERED: 11482.
          DESCRIPTION:
                "UPDATES FLIGHT PROFILE FILE WHEN TARGET LOCATIONS
         ARE SENT FROM ASE (INFORMATION REQUESTED BY SENSOR)".
          ENTERED*BY: "JJF-NELS".
          GAMMA:
             "LABEL 1
              ;VAR SSTEMP045 : EFOD*045*GPS*ID*DATA
                   ;SSCLOSE : BOOLEAN (* ARE THE TWO POINTS CLOSE? *)
            ;BEGIN
              SSTEMP045 := D*045*GPS*ID*DATA
              ;SELECT FIRST RECORD FROM
                   F*07*GROUP*TARGET*LOCS*FILE
              ;SSCLOSE := FALSE
              ;WHILE FOUND DO BEGIN
```

```
            (* CHECK IF POINT IN F07 IS CLOSE TO ANYTHING IN F06 *)
            ;SELECT FIRST RECORD FROM
                    F-06-FLIGHT-PROFILE-FILE
            ;WHILE FOUND DO BEGIN
              IF SQRT(SQR(D-041-FLIGHT-WAYPOINT-X-DATA -
                          D-048-GROUND-TARGET-LOC-X-DATA) +
                      SQR(D-042-FLIGHT-WAYPOINT-Y-DATA -
                          D-049-GROUND-TARGET-LOC-Y-DATA))
                 <= 1.6E4 (* 10 MILES *) THEN SSCLOSE := TRUE
              ;IF SSCLOSE THEN GOTO 1
              ELSE SELECT NEXT RECORD FROM
                          F-06-FLIGHT-PROFILE-FILE
            END (* WHILE *)
            ;1:IF SSCLOSE THEN BEGIN
              SELECT NEXT RECORD FROM
                     F-07-GROUP-TARGET-LOCS-FILE
            END
            ELSE BEGIN
              CREATE F-06-FLIGHT-PROFILE-FILE RECORD
              ;D-041-FLIGHT-WAYPOINT-X-DATA :=
                D-048-GROUND-TARGET-LOC-X-DATA
              ;D-042-FLIGHT-WAYPOINT-Y-DATA :=
                D-049-GROUND-TARGET-LOC-Y-DATA
              ;D-043-FLIGHT-WAYPOINT-Z-DATA := 0.0
              ;SELECT NEXT RECORD FROM
                     F-07-GROUP-TARGET-LOCS-FILE
            END
          END (* WHILE *)
        END;",
        INPUTS:
            DATA:  D-045-GPS-ID-DATA
            FILE:  F-06-FLIGHT-PROFILE-FILE
            FILE:  F-07-GROUP-TARGET-LOCS-FILE.
        OUTPUTS:
            FILE:  F-06-FLIGHT-PROFILE-FILE.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        PEFERRED BY:
            R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.

    ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA.
        BETA:
              "VAR DREAL : REAL
      ;BEGIN
        DREAL := D-014-ASP-LOC-X-DATA
        ;D-091-NELS-FREQUENCY-SCAN-DATA :=
          D-091-NELS-FREQUENCY-SCAN-DATA
        ;FOR EACH F-06-FLIGHT-PROFILE-FILE RECORD DO
          DREAL := D-041-FLIGHT-WAYPOINT-X-DATA ENDFOREACH
        ;FOR EACH F-20-NELS-PRE-BRIEFED-AOI-FILE RECORD DO
          DREAL := D-097-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-X-DATA
        ENDFOREACH
        ;FOR EACH F-21-NELS-PRE-BRIEFED-SOI-FILE RECORD DO
          DREAL :=D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA
        ENDFOREACH
        ;CREATE F-34-SENSOR-STATUS-FILE RECORD
         ;D-044-FREQUENCY-SCAN-PARAMETER-DATA := 0.0
          ;D-136-SENSOR-MODE-OF-OPERATION-DATA := SOI-SEARCH
```

```
        ;D←135←SENSOR←ID←DATA := NELS←GPS←1
        ;D←005←ASET←MSG←SOURCE←DATA := NELS
        ;D←004←ASET←MSG←NAME←DATA := MN←11←NELS←SENSOR←SYSTEM←STATUS
        ;D←002←ASET←MSG←DEST←DATA := ASE
      END;",
      DATE←ENTERED: 11882.
      DESCRIPTION:
            "DETERMINES IF THERE IS ANYTHING FOR THE NELS
     PLATFORMS TO DO".
      ENTERED←BY: "JJF-NELS".
      GAMMA:
        "VAR SSTEMPR : REAL
      ;BEGIN
        SSTEMPR := D←014←ASP←LOC←X←DATA
        ;SELECT FIRST RECORD FROM
            F←06←FLIGHT←PROFILE←FILE
        ;SSTEMPR := D←041←FLIGHT←WAYPOINT←X←DATA
        ;SELECT FIRST RECORD FROM
            F←20←NELS←PRE←BRIEFED←AOI←FILE
        ;IF FOUND THEN SSTEMPR :=
          D←097←NELS←PRE←BRIEFED←AOI←LOWER←LEFT←X←DATA
        ;SELECT FIRST RECORD FROM
            F←21←NELS←PRE←BRIEFED←SOI←FILE
        ;IF FOUND THEN SSTEMPR :=
          D←103←NELS←PRE←BRIEFED←SOI←END←FREQ←DATA
        ;CREATE F←34←SENSOR←STATUS←FILE RECORD
        ;D←044←FREQUENCY←SCAN←PARAMETER←DATA :=
          D←091←NELS←FREQUENCY←SCAN←DATA
        ;D←135←SENSOR←ID←DATA := NELS←GPS←1
        ;D←005←ASET←MSG←SOURCE←DATA := NELS
        ;D←004←ASET←MSG←NAME←DATA := MN←11←NELS←SENSOR←SYSTEM←STATUS
        ;D←002←ASET←MSG←DEST←DATA := ASE
        ;D←091←NELS←FREQUENCY←SCAN←DATA :=
          D←091←NELS←FREQUENCY←SCAN←DATA
        ;IF EOF(STAT) THEN D←136←SENSOR←MODE←OF←OPERATION←DATA := IDLE
        ELSE READLN(MSGS,D←136←SENSOR←MODE←OF←OPERATION←DATA)
      END;".
        FORMS:
            MESSAGE:  M←11←NELS←SENSOR←SYSTEM←STATUS←MSG←OUT.
        INPUTS:
            DATA:  D←020←ASP←STATE←VECTOR←DATA
            DATA:  D←091←NELS←FREQUENCY←SCAN←DATA
            FILE:  F←06←FLIGHT←PROFILE←FILE
            FILE:  F←20←NELS←PRE←BRIEFED←AOI←FILE
            FILE:  F←21←NELS←PRE←BRIEFED←SOI←FILE.
        OUTPUTS:
            DATA:  D←003←ASET←MSG←ID←DATA
            DATA:  D←091←NELS←FREQUENCY←SCAN←DATA
            DATA:  D←135←SENSOR←ID←DATA
            FILE:  F←34←SENSOR←STATUS←FILE.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.
        REFERRED BY:
            SUBNET:  S←1←CHECK←NELS←SENSOR←STATUS←SUB.

    ALPHA:  A←1←NELS←SIGNAL←OF←INTEREST←FILTER←ALPHA.
        BETA:
            "VAR DREAL : REAL
```

```
;BEGIN
  DREAL := D+018+ASP+PITCH+DATA
  ;DREAL := D+010+ASP+ALTITUDE+DATA
  ;DREAL := D+014+ASP+LOC+X+DATA
  ;DREAL := D+091+NELS+FREQUENCY+SCAN+DATA
  ;FOR EACH F+21+NELS+PRE+PRIEFED+SOI+FILE RECORD DO
    DREAL := D+103+NELS+PRE+PRIEFED+SOI+END+FREQ+DATA
  ENDFOREACH
  ;CREATE F+10+NELS+CANDIDATE+TARGETS+FILE RECORD
  ;SELECT FIRST RECORD FROM
          F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE
  ;SELECT FIRST RECORD FROM
          F+15+NELS+EMITTER+CHARACTERISTICS+FILE
    ;D+061+NELS+EMISSION+DURATION+DATA :=
      D+064+NELS+EMISSION+STOP+TIME+DATA -
      D+063+B+NELS+EMISSION+START+TIME+DATA
    ;D+062+NELS+EMISSION+SIGNAL+STRENGTH+DATA :=
      D+078+A+NELS+EMITTER+POWER+LEVEL+DATA
    ;D+063+NELS+EMISSION+START+TIME+DATA :=
      D+063+B+NELS+EMISSION+START+TIME+DATA
    ;D+073+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
      D+073+B+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
    ;D+075+NELS+EMITTER+ID+DATA := D+075+B+NELS+EMITTER+ID+DATA
    ;D+085+NELS+EMITTER+X+DATA :=
       D+085+B+NELS+EMITTER+X+DATA;
     D+086+NELS+EMITTER+Y+DATA :=
       D+086+B+NELS+EMITTER+Y+DATA ;
     D+087+NELS+EMITTER+Z+DATA :=
       D+087+B+NELS+EMITTER+Z+DATA ;
    D+081+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
      D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
    ;D+130+SCENARIO+GEN+ID+NUM+DATA :=
      D+130+B+SCENARIO+GEN+ID+NUM+DATA
END;",
  DATE+ENTERED: 11182,
  DESCRIPTION:
          "THE NELS GPS WILL DIRECT THE NELS AIRBORNE SENSORS
TO TUNE TO A SPECIFIC FREQUENCY BAND;  THE NARROWBAND EMITTER
GROUND TRUTH DATA BASE IS SEARCHED FOR ALL EMITTERS TRANSMITTING
ON A FREQUENCY WITHIN THE BAND TO WHICH THE SENSOR RECEIVERS
HAVE BEEN TUNED",
  ENTERED+BY: "JJF-NELS",
  GAMMA:
     "VAR SSTEMPR : REAL
          ;SSFILTER : BOOLEAN
 ;BEGIN
   SSTEMPR := D+018+ASP+PITCH+DATA
   ;SSTEMPR := D+010+ASP+ALTITUDE+DATA
   ;FOR EACH F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE RECORD
   DO BEGIN
     IF (D+063+B+NELS+EMISSION+START+TIME+DATA <=
         D+021+ASP+TIME+DATA) AND
        (D+064+NELS+EMISSION+STOP+TIME+DATA >=
         D+021+ASP+TIME+DATA) THEN BEGIN
       (* MEETS TIME,CLOCK SOI. *)
       SELECT FIRST RECORD FROM
              F+21+NELS+PRE+PRIEFED+SOI+END+FREQ+DATA
       ;SSFILTER := FALSE
```

```
        ;WHILE FOUND AND NOT SSFILTER DO BEGIN
          IF NOT(((D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA>=
                 D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA)
               AND
                (D+106+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA<=
                 D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA))
               OR
                (D+104+NELS+PRE+BRIEFED+SOI+FREQ+DATA =
                 D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA)
               OR
                (D+091+NELS+FREQUENCY+SCAN+DATA =
                 D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA))
               THEN SSFILTER := TRUE
          ;SELECT NEXT RECORD FROM
                  F+21+NELS+PRE+BRIEFED+SOI+FILE
        END (* WHILE *)
        ;IF NOT SSFILTER THEN BEGIN
          (* ADD TO CANDIDATE TARGET LIST *)
          CREATE F+10+NELS+CANDIDATE+TARGETS+FILE RECORD
          ;D+061+NELS+EMISSION+DURATION+DATA :=
            D+064+NELS+EMISSION+STOP+TIME+DATA -
            D+063+B+NELS+EMISSION+START+TIME+DATA
          ;D+063+NELS+EMISSION+START+TIME+DATA :=
            D+063+B+NELS+EMISSION+START+TIME+DATA
          ;D+075+NELS+EMITTER+ID+DATA :=
            D+075+B+NELS+EMITTER+ID+DATA
          ;D+085+NELS+EMITTER+X+DATA :=
            D+085+B+NELS+EMITTER+X+DATA
          ;D+086+NELS+EMITTER+Y+DATA :=
            D+086+B+NELS+EMITTER+Y+DATA
          ;D+087+NELS+EMITTER+Z+DATA :=
            D+087+B+NELS+EMITTER+Z+DATA
          ;D+081+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
            D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
          ;D+130+SCENARIO+GEN+ID+NUM+DATA :=
            D+130+B+SCENARIO+GEN+ID+NUM+DATA
          ;SELECT FIRST RECORD FROM
                  F+15+NELS+EMITTER+CHARACTERISTICS+FILE
          ;WHILE D+075+NELS+EMITTER+ID+DATA <>
                 D+075+NELS+EMITTER+ID+DATA DO BEGIN
            SELECT NEXT RECORD FROM
                  F+15+NELS+EMITTER+CHARACTERISTICS+FILE
          END (* WHILE *)
          ;D+062+NELS+EMISSION+SIGNAL+STRENGTH+DATA :=
            D+078+A+NELS+EMITTER+POWER+LEVEL+DATA
          ;D+075+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
            D+067+NELS+EMITTER+BANDWIDTH+DATA
        END
      END
    END ENDFOREACH
  END;*.
   INPUTS:
        DATA:  D+011+ASP+ATTITUDE+DATA
        DATA:  D+013+ASP+LOCATION+DATA
        DATA:  D+020+ASP+STATE+VECTOR+DATA
        DATA:  D+091+NELS+FREQUENCY+SCAN+DATA
        FILE:  F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE
        (* USED BUT NOT UPDATED *)
```

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            FILE: F-15-NELS-EMITTER-CHARACTERISTICS-FILE
            (* USED BUT NOT UPDATED *)
            FILE: F-21-NELS-PREFERRED-SOI-FILE.
        OUTPUTS:
            FILE: F-10-NELS-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
            ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-EMITTER-DEFAULT
            ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-SIGNAL-OF-INTEREST.
        REFERRED BY:
            SUBNET: S-5-MODEL-NELS-SENSOR-SUB.

    ALPHA: A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA.
        BETA:
            "VAR DREAL : REAL
      ;BEGIN
        DREAL := D-018-ASP-PITCH-DATA
        ;DREAL := D-010-ASP-ALTITUDE-DATA
        ;DREAL := D-014-ASP-LOC-X-DATA
        ;FOR EACH F-10-NELS-CANDIDATE-TARGETS-FILE RECORD DO BEGIN
          D-061-NELS-EMISSION-DURATION-DATA :=
            D-061-NELS-EMISSION-DURATION-DATA
          ;D-062-NELS-EMISSION-SIGNAL-STRENGTH-DATA :=
            D-062-NELS-EMISSION-SIGNAL-STRENGTH-DATA
          ;D-063-NELS-EMISSION-START-TIME-DATA :=
            D-063-NELS-EMISSION-START-TIME-DATA
          ;D-073-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA :=
            D-073-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
          ;D-075-NELS-EMITTER-ID-DATA := D-075-NELS-EMITTER-ID-DATA
          ;D-085-NELS-EMITTER-X-DATA :=
            D-085-NELS-EMITTER-X-DATA;
           D-086-NELS-EMITTER-Y-DATA :=
            D-086-NELS-EMITTER-Y-DATA ;
           D-087-NELS-EMITTER-Z-DATA :=
            D-087-NELS-EMITTER-Z-DATA ;
          D-081-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA :=
            D-081-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
          ;D-130-SCENARIO-GEN-ID-NUM-DATA :=
            D-130-SCENARIO-GEN-ID-NUM-DATA
        END ENDFOREACH
        ;FOR EACH F-26-NELS-WEATHER-CONDITIONS-FILE RECORD DO
          DREAL := D-144-X-WEATHER-LOC-DATA    ENDFOREACH
      END;".
         DATE-ENTERED: 11182.
         DESCRIPTION:
                "THE S/N AT EACH AIRBORNE SENSOR RECEIVER IS COMPUTED
       FOR EACH EMITTER WITHIN THE CANDIDATE TARGET LIST;  IF THE S/N
       DOES NOT EXCEED A PRESET THRESHOLD FOR AT LEAST TWO OF THE NELS
       SENSOR RECEIVERS, THE EMITTER IS REMOVED FROM THE CANDIDATE
       TARGET LIST".
         ENTERED-BY: "JJF-NELS".
         GAMMA:
          "VAR SSTEMPR : REAL
               ;SSTRANSMISSION : REAL
               ;SSTHRESHOLD : REAL
      ;BEGIN
        SSTEMPR := D-018-ASP-PITCH-DATA
        ;SSTEMPR := D-010-ASP-ALTITUDE-DATA
        ;SSTHRESHOLD := 1.2
```

```
      ;FOR EACH F←10←NELS←CANDIDATE←TARGETS←FILE RECORD DO BEGIN
        SELECT FIRST RECORD FROM
               F←26←NELS←WEATHER←CONDITIONS←FILE
        ;WHILE SQRT(SQR(D←085←NELS←EMITTER←X←DATA -
                        D←144←X←WEATHER←LOC←DATA) +
                   SQR(D←086←NELS←EMITTER←Y←DATA -
                        D←146←Y←WEATHER←LOC←DATA)) > SQRT(2.0)
        DO BEGIN
          SELECT NEXT RECORD FROM
                 F←26←NELS←WEATHER←CONDITIONS←FILE
        END (* WHILE *)
        ;CASE D←120←PRECIPITATION←DATA OF
          NONE : SSTRANSMISSION := 1.5
          ;DRIZZLE : SSTRANSMISSION := 1.4
          ;RAIN : SSTRANSMISSION := 1.3
          ;SNOW : SSTRANSMISSION := 1.3
          ;SLEET : SSTRANSMISSION := 1.2
          ;HAIL : SSTRANSMISSION := 1.1
          ;RIME : SSTRANSMISSION := 1.4
        END (* CASE *)
        ;IF SSTRANSMISSION < SSTHRESHOLD THEN BEGIN
          DESTROY F←10←NELS←CANDIDATE←TARGETS←FILE RECORD
        END
      END ENDFOREACH
    END;".
      INPUTS:
           DATA:  D←011←ASP←ATTITUDE←DATA
           DATA:  D←013←ASP←LOCATION←DATA
           DATA:  D←020←ASP←STATE←VECTOR←DATA
           FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE
           FILE:  F←26←NELS←WEATHER←CONDITIONS←FILE
           (* USED BUT NOT UPDATED *).
      OUTPUTS:
           FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE.
      TRACED FROM:
           ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←SIGNAL←TO←NOISE.
      REFERRED BY:
           SUBNET:  S←5←MODEL←NELS←SENSOR←SUR.

ALPHA:  A←20←NELS←SURVEILLANCE←AND←TRACK←MSGS←ALPHA.
      BETA:
        "BEGIN
      D←005←ASET←MSG←SOURCE←DATA := NELS
      ;D←004←ASET←MSG←NAME←DATA := MN←14←NELS←TRACK←MESSAGE
      ;D←002←ASET←MSG←DEST←DATA := ASE
      ;D←029←CARTO←SECTION←NUM←DATA := 1
      ;D←047←GROUND←TARGET←LENGTH←DATA := 0.0
      ;D←050←GROUND←TARGET←VELOCITY←DATA := 0.0
      ;D←142←TRACK←MESSAGE←DATA := TRACKING
      ;FOR EACH F←25←NELS←TYPED←EMITTER←REPORT←FILE RECORD DO BEGIN
        D←045←GPS←ID←DATA := GPS←1←NELS
        ;D←046←GROUND←TARGET←FREQUENCY←DATA :=
          D←074←NELS←EMITTER←FREQUENCY←DATA
        ;D←135←SENSOR←ID←DATA := NELS←GPS←1
        ;CREATE F←07←GROUP←TARGET←LOCS←FILE RECORD
        ;D←048←GROUND←TARGET←LOC←X←DATA := D←167←NELS←EMITTER←X←DATA
        ;D←049←GROUND←TARGET←LOC←Y←DATA := D←168←NELS←EMITTER←Y←DATA
      END ENDFOREACH
```

```
END;",
   DATE←ENTERED: 11882.
   DESCRIPTION:
            "TO INFORM ASE OF TARGETS CURRENTLY UNDER SURVEILLANCE,
 THOSE ABOUT TO BE LOST, AND THOSE NOT CURRENTLY UNDER
 SURVEILLANCE WHICH COULD OR SHOULD BE".
   ENTERED←BY: "JJF-NELS".
   GAMMA:
       "PROCEDURE SS20MAKE
          ;BEGIN
            CASE D←080←NELS←EMITTER←TRAFFIC←TYPE←DATA OF
              PASSIVE : BEGIN
                D←005←ASET←MSG←SOURCE←DATA := NELS
                ;D←004←ASET←MSG←NAME←DATA :=
                ;MN←05←NELS←NON←SURVEILLANCE←TARGET←REPORTS
                ;D←002←ASET←MSG←DEST←DATA := ASE
                ;D←045←GPS←ID←DATA := GPS←1←NELS
                ;D←046←GROUND←TARGET←FREQUENCY←DATA :=
                  D←074←NELS←EMITTER←FREQUENCY←DATA
                ;D←047←GROUND←TARGET←LENGTH←DATA := 0.0
                ;D←050←GROUND←TARGET←VELOCITY←DATA := 0.0
                ;CREATE F←07←GROUP←TARGET←LOCS←FILE RECORD
                ;D←048←GROUND←TARGET←LOC←X←DATA :=
                  D←167←NELS←EMITTER←X←DATA
                ;D←049←GROUND←TARGET←LOC←Y←DATA :=
                  D←168←NELS←EMITTER←Y←DATA
                ;PERFORM
                (M←05←NELS←NON←SURVEILLANCE←TARGET←REPORTS←MSG←OUT)
              END
              ;POTENTIAL←THREAT : BEGIN
                D←005←ASET←MSG←SOURCE←DATA := NELS
                ;D←004←ASET←MSG←NAME←DATA :=
                  MN←12←NELS←SURVEILLANCE←TARGET←REPORTS
                ;D←002←ASET←MSG←DEST←DATA := ASE
                ;D←045←GPS←ID←DATA := GPS←1←NELS
                ;D←046←GROUND←TARGET←FREQUENCY←DATA :=
                  D←074←NELS←EMITTER←FREQUENCY←DATA
                ;D←047←GROUND←TARGET←LENGTH←DATA := 0.0
                ;D←050←GROUND←TARGET←VELOCITY←DATA := 0.0
                ;CREATE F←07←GROUP←TARGET←LOCS←FILE RECORD
                ;D←048←GROUND←TARGET←LOC←X←DATA :=
                  D←167←NELS←EMITTER←X←DATA
                ;D←049←GROUND←TARGET←LOC←Y←DATA :=
                  D←168←NELS←EMITTER←Y←DATA
                ;PERFORM
                (M←12←NELS←SURVEILLANCE←TARGET←REPORT←MSG←OUT)
              END
              ;THREAT : BEGIN
                D←005←ASET←MSG←SOURCE←DATA := NELS
                ;D←004←ASET←MSG←NAME←DATA :=
                 MN←14←NELS←TRACK←MESSAGE
                ;D←002←ASET←MSG←DEST←DATA := ASE
                ;D←029←CARTO←SECTION←NUM←DATA := 1
                ;D←135←SENSOR←ID←DATA := NELS←GPS←1
                ;D←142←TRACK←MESSAGE←DATA := CAN←TRACK
                ;PERFORM (M←14←NELS←TRACK←MESSAGE←MSG←OUT)
              END
            END (* CASE *)
```

```
        END (* SS20MAKE *)
    ;BEGIN
      SELECT FIRST RECORD FROM
            F+25+NELS+TYPED+EMITTER+REPORT+FILE
      ;IF FOUND THEN BEGIN
        SS20MAKE
        ;SELECT NEXT RECORD FROM
              F+25+NELS+TYPED+EMITTER+REPORT+FILE
        ;WHILE FOUND DO BEGIN
          SS20MAKE
          ;SELECT NEXT RECORD FROM
                F+25+NELS+TYPED+EMITTER+REPORT+FILE
        END (* WHILE *)
      END
    END
    ;PROCEDURE SS20DUMMY
      ;BEGIN (* DUMMY HEADER FOR PROCEDURE THAT IS NEVER CALLED. *)
      (* INTENDED TO DECEIVE REVS SO THAT THE THREE PERFORM CALLS*)
      (* WILL NEVER BE EXECUTED.  IN GENERAL, ALL THREE MESSAGES *)
      (* MAY NOT BE FORMED EVERY TIME THE ALPHA IS EXECUTED. *)
      END;".
    FORMS:
        MESSAGE:  M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT
        MESSAGE:  M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT
        MESSAGE:  M+14+NELS+TRACK+MESSAGE+MSG+OUT.
    INPUTS:
        FILE:  F+25+NELS+TYPED+EMITTER+REPORT+FILE.
    OUTPUTS:
        DATA:  D+003+ASET+MSG+ID+DATA
        DATA:  D+045+GPS+TOD+DATA
        DATA:  D+046+GROUND+TARGET+FREQUENCY+DATA
        DATA:  D+047+GROUND+TARGET+LENGTH+DATA
        DATA:  D+050+GROUND+TARGET+VELOCITY+DATA
        DATA:  D+135+SENSOR+ID+DATA
        DATA:  D+142+TRACK+MESSAGE+DATA
        FILE:  F+02+CARTO+UPDATE+FILE
        FILE:  F+07+GROUP+TARGET+LOCS+FILE.
    TRACED FROM:
        ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+EXTERNAL+INTERFACE.
    REFERRED BY:
        SUBNET:  S+2+00+NELS+OPERATIONAL+CONTROL+SUB.

ALPHA:  A+21+NELS+TARGET+ACQUISITION+ALPHA.
    BETA:
          "VAR DREAL : REAL;
  BEGIN
    DREAL := D+018+ASP+PITCH+DATA
    ;DREAL := D+010+ASP+ALTITUDE+DATA
    ;DREAL := D+014+ASP+LOC+X+DATA
    ;FOR EACH F+12+DETECTED+CANDIDATE+TARGETS+FILE RECORD DO BEGIN
      CREATE F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE RECORD
      ;D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
          D+150+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
        ;D+077+NELS+EMITTER+MODULATION+TYPE+DATA := MODULATED
        ;D+078+NELS+EMITTER+POWER+LEVEL+DATA := 0.0
        ;D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
          D+152+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
      ;CREATE F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE RECORD
```

```
        ;D+157+NELS+EMISSION+DURATION+DATA :=
          D+147+NELS+EMISSION+DURATION+DATA
        ;D+160+NELS+EMITTER+ID+DATA := D+151+NELS+EMITTER+ID+DATA
      ;D+162+NELS+EMITTER+X+DATA :=
        D+153+NELS+EMITTER+X+DATA;
       D+163+NELS+EMITTER+Y+DATA :=
        D+154+NELS+EMITTER+Y+DATA ;
       D+164+NELS+EMITTER+Z+DATA :=
        D+155+NELS+EMITTER+Z+DATA
       ;D+162+NELS+EMITTER+X+DATA :=
        D+153+NELS+EMITTER+X+DATA
       ;D+163+NELS+EMITTER+Y+DATA :=
        D+154+NELS+EMITTER+Y+DATA
       ;D+164+NELS+EMITTER+Z+DATA :=
        D+155+NELS+EMITTER+Z+DATA
       ;D+165+SCENARIO+GEN+ID+NUM+DATA :=
        D+156+SCENARIO+GEN+ID+NUM+DATA
      ;CREATE F+24+NELS+TDOA+DD+FILE RECORD
        ;D+058+NELS+DD+1+2+DATA := 0.0
        ;D+059+NELS+DD+1+3+DATA := 0.0
        ;D+060+NELS+DD+2+3+DATA := 0.0
        ;D+109+NELS+TDOA+1+2+DATA := 0.0
        ;D+110+NELS+TDOA+1+3+DATA := 0.0
        ;D+111+NELS+TDOA+2+3+DATA := 0.0
  END ENDFOREACH
END;".
  DATE+ENTERED: 11282.
  DESCRIPTION:
          "THE TARGET ACQUISITION MODULE ESTIMATES EMITTER SIGNAL
CHARACTERISTICS SUCH AS FREQUENCY, BANDWIDTH, EFFECTIVE RADIATED
POWER, AND MODULATION TYPE;  IT ALSO ESTIMATES EMITTER TIME
DIFFERENCE OF ARRIVAL (TDOA) AND DIFFERENTIAL DOPPLER (DD)
INFORMATION FOR EACH DETECTABLE EMISSION RELATIVE TO EACH SENSOR
PLATFORM".
  ENTERED+BY: "JJF+NELS",
  GAMMA:
    "VAR SSTEMPR : REAL
;BEGIN
  SSTEMPR := D+018+ASP+PITCH+DATA
  ;SSTEMPR := D+010+ASP+ALTITUDE+DATA
  ;SSTEMPR := D+014+ASP+LOC+X+DATA
  ;FOR EACH F+12+DETECTED+CANDIDATE+TARGETS+FILE RECORD DO BEGIN
    CREATE F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE RECORD
    ;D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
      D+150+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
    ;D+077+NELS+EMITTER+MODULATION+TYPE+DATA := MODULATED
    ;D+078+NELS+EMITTER+POWER+LEVEL+DATA :=
      D+062+NELS+EMISSION+SIGNAL+STRENGTH+DATA
    ;D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
      D+152+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
    ;CREATE F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE RECORD
    ;D+157+NELS+EMISSION+DURATION+DATA :=
      D+147+NELS+EMISSION+DURATION+DATA
    ;D+158+NELS+EMISSION+START+TIME+DATA :=
      D+149+NELS+EMISSION+START+TIME+DATA
    ;D+160+NELS+EMITTER+ID+DATA := D+151+NELS+EMITTER+ID+DATA
     ;D+162+NELS+EMITTER+X+DATA :=
      D+153+NELS+EMITTER+X+DATA
```

```
        ;D-163-NELS-EMITTER-Y-DATA :=
          D-154-NELS-EMITTER-Y-DATA
        ;D-164-NELS-EMITTER-Z-DATA :=
          D-155-NELS-EMITTER-Z-DATA
        ;D-165-SCENARIO-GEN-ID-NUM-DATA :=
          D-156-SCENARIO-GEN-ID-NUM-DATA
      END ENDFOREACH
      ;CREATE F-24-NELS-TDOA-DD-FILE RECORD
      ;D-058-NELS-DD-1-2-DATA := 0.0
      ;D-059-NELS-DD-1-3-DATA := 0.0
      ;D-060-NELS-DD-2-3-DATA := 0.0
      ;D-109-NELS-TDOA-1-2-DATA := 0.0
      ;D-110-NELS-TDOA-1-3-DATA := 0.0
      ;D-111-NELS-TDOA-2-3-DATA := 0.0
    END;".
      INPUTS:
           DATA:  D-011-ASP-ATTITUDE-DATA
           DATA:  D-013-ASP-LOCATION-DATA
           DATA:  D-020-ASP-STATE-VECTOR-DATA
           FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
      OUTPUTS:
           FILE:  F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
           FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE
           FILE:  F-24-NELS-TDOA-DD-FILE.
      TRACED FROM:
           ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.
      REFERRED BY:
           SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB.

ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA.
      BETA:
            "VAR DREAL : REAL;
    BEGIN
      DREAL := D-018-ASP-PITCH-DATA
      ;DREAL := D-010-ASP-ALTITUDE-DATA
      ;DREAL := D-014-ASP-LOC-X-DATA
      ;FOR EACH F-08-HYPSO-DATA-FILE RECORD DO
        DREAL := D-051-HYPSO-ELEV-DATA ENDFOREACH
      ;FOR EACH F-10-NELS-CANDIDATE-TARGETS-FILE RECORD DO BEGIN
        CREATE F-12-DETECTED-CANDIDATE-TARGETS-FILE RECORD
          ;D-147-NELS-EMISSION-DURATION-DATA :=
            D-061-NELS-EMISSION-DURATION-DATA
          ;D-148-NELS-EMISSION-SIGNAL-STRENGTH-DATA :=
            D-062-NELS-EMISSION-SIGNAL-STRENGTH-DATA
          ;D-149-NELS-EMISSION-START-TIME-DATA :=
            D-063-NELS-EMISSION-START-TIME-DATA
          ;D-150-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA :=
            D-073-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
          ;D-151-NELS-EMITTER-ID-DATA := D-075-NELS-EMITTER-ID-DATA
        ;D-153-NELS-EMITTER-X-DATA :=
           D-085-NELS-EMITTER-X-DATA;
         D-154-NELS-EMITTER-Y-DATA :=
           D-086-NELS-EMITTER-Y-DATA ;
         D-155-NELS-EMITTER-Z-DATA :=
           D-087-NELS-EMITTER-Z-DATA ;
         D-152-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA :=
           D-081-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
          ;D-156-SCENARIO-GEN-ID-NUM-DATA :=
```

```
        D+130+SCENARIO+GEN+ID+NUM+DATA
    END ENDFOREACH
END;".
  DATE+ENTERED: 11182.
  DESCRIPTION:
        "THE FINAL PROCESS IN MODELLING EMITTER DETECTABILITY
IS TO ELIMINATE ANY EMITTERS WITHIN THE CANDIDATE TARGET LIST
WHICH CANNOT BE DETECTED BY THE NELS AIRBORNE SENSOR RECEIVERS
DUE TO TERRAIN SHADOWING;  THE TERRAIN SHADOWING ALGORITHM SCANS
THE HYPSOGRAPHIC DATA ALONG A LINE-OF-SIGHT VECTOR CONNECTING THE
SENSOR AND THE EMITTER;  IN ORDER TO PERFORM A LOCATION ESTIMATE
ON THE EMITTER, THE EMITTER MUST BE DETECTABLE BY AT LEAST TWO OF
THE AIRBORNE SENSOR PLATFORMS".
  ENTERED+BY: "JJF-NELS".
  GAMMA:
     "VAR SSTEMPR : REAL
          ;SSFILTER : BOOLEAN
          ;SSRAND : REAL
  ;FUNCTION SSRANDU : REAL
    ;BEGIN
      SSRAND := 29.0 * SSRAND + 357.0
      ;SSRAND := SSRAND - TRUNC(SSRAND)
      ;SSRANDU := SSRAND
    END
  ;BEGIN
    SSTEMPR := D+018+ASP+PITCH+DATA
    ;SSTEMPR := D+010+ASP+ALTITUDE+DATA
    ;SSTEMPR := D+014+ASP+LOC+X+DATA
    ;SELECT FIRST RECORD FROM
          F+08+HYPSO+DATA+FILE
    ;SSTEMPR := D+051+HYPSO+ELEV+DATA
    (* SINCE IT IS IMPRACTICAL TO MODEL THIS PROCESS WITHOUT *)
    (* DIRECT ACCESS FILES,A RANDOM NUMBER GENERATOR WILL BE *)
    (* EMPLOYED. *)
    ;SSRAND := 0.450192
    ;FOR EACH F+10+NELS+CANDIDATE+TARGETS+FILE RECORD DO BEGIN
      IF SSRANDU >= 0.5 THEN BEGIN
        CREATE F+12+DETECTED+CANDIDATE+TARGETS+FILE RECORD
        ;D+147+NELS+EMISSION+DURATION+DATA :=
          D+061+NELS+EMISSION+DURATION+DATA
        ;D+148+NELS+EMISSION+SIGNAL+STRENGTH+DATA :=
          D+062+NELS+EMISSION+SIGNAL+STRENGTH+DATA
        ;D+149+NELS+EMISSION+START+TIME+DATA :=
          D+063+NELS+EMISSION+START+TIME+DATA
        ;D+150+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
          D+073+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
        ;D+151+NELS+EMITTER+ID+DATA :=
          D+075+NELS+EMITTER+ID+DATA
        ;D+153+NELS+EMITTER+X+DATA :=
          D+085+NELS+EMITTER+X+DATA
        ;D+154+NELS+EMITTER+Y+DATA :=
          D+086+NELS+EMITTER+Y+DATA
        ;D+155+NELS+EMITTER+Z+DATA :=
          D+087+NELS+EMITTER+Z+DATA
        ;D+152+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
          D+081+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        ;D+156+SCENARIO+GEN+ID+NUM+DATA :=
          D+130+SCENARIO+GEN+ID+NUM+DATA
```

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          END
        END ENDFOREACH
      END;",
       INPUTS:
            DATA:  D+011+ASP+ATTITUDE+DATA
            DATA:  D+013+ASP+LOCATION+DATA
            DATA:  D+020+ASP+STATE+VECTOR+DATA
            FILE:  F+08+HYPSU+DATA+FILE
            (* USED BUT NOT UPDATED *)
            FILE:  F+10+NELS+CANDIDATE+TARGETS+FILE.
       OUTPUTS:
            FILE:  F+12+DETECTED+CANDIDATE+TARGETS+FILE.
       TRACED FROM:
            ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+TERRAIN+SHADOWING.
       REFERRED BY:
            SUBNET:  S+5+MODEL+NELS+SENSOR+SUB.

  ALPHA:  A+23+NELS+THREAT+TABLE+UPDATE+ALPHA.
       BETA:
            "BEGIN
          FOR EACH F+25+NELS+TYPED+EMITTER+REPORT+FILE RECORD DO BEGIN
            CREATE F+13+NELS+EMISSION+THREAT+TABLE+FILE RECORD
             ;D+182+NELS+EMITTER+BANDWIDTH+DATA :=
                D+176+NELS+EMITTER+BANDWIDTH+DATA
              ;D+183+NELS+EMITTER+CEP+DATA := D+177+NELS+EMITTER+CEP+DATA
              ;D+171+NELS+EMITTER+ID+DATA := D+166+NELS+EMITTER+ID+DATA
             ;D+173+NELS+EMITTER+X+DATA :=
                D+167+NELS+EMITTER+X+DATA;
              D+174+NELS+EMITTER+Y+DATA :=
                D+168+NELS+EMITTER+Y+DATA ;
              D+175+NELS+EMITTER+Z+DATA :=
                D+169+NELS+EMITTER+Z+DATA ;
              D+181+NELS+EMITTER+MODULATION+TYPE+DATA :=
                D+178+NELS+EMITTER+MODULATION+TYPE+DATA
              ;D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA :=
                D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA
              ;D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA :=
                D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA
              ;D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
                D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
               END
               ENDFOREACH
               END;",
       DATE+ENTERED: 11282.
       DESCRIPTION: "MAINTAINS THE NELS TARGET THREAT TABLE",
       ENTERED+BY: "JJF+NELS",
       GAMMA:
            "BEGIN
          SELECT FIRST RECORD FROM
                      F+25+NELS+TYPED+EMITTER+REPORT+FILE
          ;IF FOUND THEN BEGIN (* IS THERE ANYTHING ON UPDATE LIST. *)
            SELECT FIRST RECORD FROM
                   F+13+NELS+EMISSION+THREAT+TABLE+FILE
            ;IF FOUND THEN BEGIN (* UPDATE EXISTING TABLE. ELSE BUILD *)
                                 (* TABLE. *)
              (* IF IT'S IN THE TABLE,UPDATE IT,ELSE ADD A NEW RECORD.*)
              ;WHILE FOUND DO BEGIN
              IF (D+171+NELS+EMITTER+ID+DATA = D+166+NELS+EMITTER+ID+DATA)
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        AND
           (SQRT(
           SQR(D+173+NELS+EMITTER+X+DATA - D+167+NELS+EMITTER+Y+DATA)
           +
           SQR(D+168+NELS+EMITTER+Y+DATA - D+174+NELS+EMITTER+Y+DATA)
           ) <= 1000.0)
           THEN BEGIN
          ;D+173+NELS+EMITTER+X+DATA :=
            D+167+NELS+EMITTER+Y+DATA;
           D+174+NELS+EMITTER+Y+DATA :=
            D+168+NELS+EMITTER+Y+DATA ;
           D+175+NELS+EMITTER+Z+DATA :=
            D+169+NELS+EMITTER+Z+DATA ;
            D+183+NELS+EMITTER+CEP+DATA :=
              D+177+NELS+EMITTER+CEP+DATA
            ;SELECT FIRST RECORD FROM
                    F+13+NELS+EMISSION+THREAT+TABLE+FILE
            ;SELECT FIRST RECORD FROM
                    F+25+NELS+TYPED+EMITTER+REPORT+FILE
           END
           ELSE BEGIN
             SELECT NEXT RECORD FROM
                    F+13+NELS+EMISSION+THREAT+TABLE+FILE
           END
         END (* WHILE *)
       END
       ELSE BEGIN
         CREATE F+13+NELS+EMISSION+THREAT+TABLE+FILE RECORD
         ;D+182+NELS+EMITTER+BANDWIDTH+DATA :=
           D+176+NELS+EMITTER+BANDWIDTH+DATA
         ;D+183+NELS+EMITTER+CEP+DATA := D+177+NELS+EMITTER+CEP+DATA
         ;D+171+NELS+EMITTER+ID+DATA := D+166+NELS+EMITTER+ID+DATA
         ;D+173+NELS+EMITTER+X+DATA :=
           D+167+NELS+EMITTER+Y+DATA;
          D+174+NELS+EMITTER+Y+DATA :=
           D+168+NELS+EMITTER+Y+DATA ;
          D+175+NELS+EMITTER+Z+DATA :=
           D+169+NELS+EMITTER+Z+DATA
         ;D+181+NELS+EMITTER+MODULATION+TYPE+DATA :=
           D+178+NELS+EMITTER+MODULATION+TYPE+DATA
         ;D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA :=
           D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA
         ;D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA :=
           D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA
         ;D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
           D+074+NELS+EMITTER+FREQUENCY+DATA
       END
     END
END;*.
   INPUTS:
        FILE:  F+13+NELS+EMISSION+THREAT+TABLE+FILE
        FILE:  F+25+NELS+TYPED+EMITTER+REPORT+FILE.
   OUTPUTS:
        FILE:  F+13+NELS+EMISSION+THREAT+TABLE+FILE.
   TRACED FROM:
        ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+THREAT+TABLE+UPDATE
        .
   REFERRED BY:
```

```
            SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB.

    ALPHA:  A-24-RESET-NELS-ALPHA.
          BETA: "BEGIN END;".
          DATE-ENTERED: 11182.
          DESCRIPTION:
                "REMOVES TARGET AND WEATHER INFORMATION FROM BEING
       AVAILABLE".
          ENTERED-BY: "JJF-NELS".
          GAMMA:
           "BEGIN
            END;".
          DESTROYS:
               ENTITY-CLASS:  FC-2-NELS-SCENARIO-EC
               ENTITY-CLASS:  FC-3-NELS-TASKS-EC
               ENTITY-CLASS:  FC-4-NELS-THREAT-EC
               ENTITY-CLASS:  FC-5-NELS-VEHICLE-CHARACTERISTICS-EC
               ENTITY-CLASS:  FC-6-DETECTED-EMISSIONS-INFO-EC.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-CYCLE-START.
          REFERRED BY:
               R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.

    ALPHA:  A-25-UPDATE-CARTO-ALPHA.
          BETA:
                "VAR DREAL : REAL;
      BEGIN
        FOR EACH F-02-CARTO-UPDATE-FILE RECORD DO
          DREAL := D-033-CARTO-UPDATE-X-DATA ENDFOREACH
        ;D-028-CARTO-MAP-SECT-NUM-DATA :=
         D-028-CARTO-MAP-SECT-NUM-DATA
        ;FOR EACH F-01-BRIDGE-LOCATIONS-FILE RECORD DO
          DREAL := D-024-BRIDGE-LOC-X-DATA ENDFOREACH
        ;FOR EACH F-03-CITY-LOCATIONS-FILE RECORD DO
          DREAL := D-035-CITY-LOC-X-DATA ENDFOREACH
        ;FOR EACH F-09-HYPSO-DATA-FILE RECORD DO
          DREAL := D-051-HYPSO-ELEV-DATA ENDFOREACH
        ;FOR EACH F-09-MARSHALLING-AREAS-FILE RECORD DO
          DREAL := D-054-MARSHALLING-X-DATA ENDFOREACH
        ;FOR EACH F-28-PRIMARY-ROADS-FILE RECORD DO
          DREAL := D-121-PRIMARY-ROADS-X-DATA ENDFOREACH
        ;FOR EACH F-29-RAILROAD-LOCATIONS-FILE RECORD DO
          DREAL := D-123-RAILROAD-LOC-X-DATA ENDFOREACH
        ;FOR EACH F-30-RIVER-LOCATIONS-FILE RECORD DO
          DREAL := D-128-RIVER-LOC-X-DATA ENDFOREACH
        ;FOR EACH F-31-SECONDARY-ROADS-FILE RECORD DO
          DREAL := D-131-SECONDARY-ROAD-X-DATA ENDFOREACH
       END;".
          DATE-ENTERED: 11482.
          DESCRIPTION: "UPDATES CARTO FILE(S) WITH REVISED DATA FROM ASE".
          ENTERED-BY: "JJF-NELS".
          GAMMA:
            "VAR SSTEMPI : INTEGER
                 ;SSUPDATE : BOOLEAN
                 ;SSTEST : BOOLEAN
                 ;SS030TEMP : RE00-030-CARTO-UPDATE-1-DATA
         ;BEGIN
           FOR EACH F-02-CARTO-UPDATE-FILE RECORD DO BEGIN
```

```
SS030TEMP := D+030+CARTO+UPDATE+1+DATA
;SS030TEMP := D+031+CARTO+UPDATE+2+DATA
;SSTEMPI := D+028+CARTO+MAP+SECT+NUM+DATA
;SSTEMPI := D+029+CARTO+SECTION+NUM+DATA
;CASE D+032+CARTO+UPDATE+3+DATA OF
  BRIDGE : BEGIN
    SELECT FIRST RECORD FROM
           F+01+BRIDGE+LOCATIONS+FILE
    ;SSUPDATE := FALSE
    ;SSTEST := FOUND
    ;WHILE SSTEST DO BEGIN
      IF (D+033+CARTO+UPDATE+X+DATA =
          D+026+BRIDGE+LOC+X+DATA) AND
         (D+034+CARTO+UPDATE+Y+DATA =
          D+027+BRIDGE+LOC+Y+DATA) THEN BEGIN
        D+026+BRIDGE+LOC+X+DATA :=
          D+033+CARTO+UPDATE+X+DATA
        ;D+027+BRIDGE+LOC+Y+DATA :=
          D+034+CARTO+UPDATE+Y+DATA
        ;SSTEST := FALSE
        ;SSUPDATE := TRUE
      END
      ELSE BEGIN
        SELECT NEXT RECORD FROM
               F+01+BRIDGE+LOCATIONS+FILE
        ;SSTEST := FOUND
      END
    END (* WHILE *)
    ;IF NOT SSUPDATE THEN BEGIN
      CREATE F+01+BRIDGE+LOCATIONS+FILE RECORD
      ;D+026+BRIDGE+LOC+X+DATA :=
        D+033+CARTO+UPDATE+X+DATA
      ;D+027+BRIDGE+LOC+Y+DATA :=
        D+034+CARTO+UPDATE+Y+DATA
    END
  END
  ;CITY : BEGIN
    SELECT FIRST RECORD FROM
           F+03+CITY+LOCATIONS+FILE
    ;SSUPDATE := FALSE
    ;SSTEST := FOUND
    ;WHILE SSTEST DO BEGIN
      IF (D+033+CARTO+UPDATE+X+DATA =
          D+035+CITY+LOC+X+DATA) AND
         (D+034+CARTO+UPDATE+Y+DATA =
          D+036+CITY+LOC+Y+DATA) THEN BEGIN
          D+035+CITY+LOC+X+DATA :=
          D+033+CARTO+UPDATE+X+DATA
        ;D+036+CITY+LOC+Y+DATA :=
          D+034+CARTO+UPDATE+Y+DATA
        ;SSTEST := FALSE
        ;SSUPDATE := TRUE
```

```
END
ELSE BEGIN
  SELECT NEXT RECORD FROM
         F←03←CITY←LOCATIONS←FILE
  !SSTEST := FOUND
```

```
    END
  END (* WHILE *)
  ;IF NOT SSUPDATE THEN BEGIN
    CREATE F+03+CITY+LOCATIONS+FILE RECORD
    ;D+035+CITY+LOC+X+DATA := D+033+CARTO+UPDATE+X+DATA
    ;D+036+CITY+LOC+Y+DATA := D+034+CARTO+UPDATE+Y+DATA
  END
END
;P+ROAD : BEGIN
  SELECT FIRST RECORD FROM
         F+28+PRIMARY+ROADS+FILE
  ;SSUPDATE := FALSE
  ;SSTEST := FOUND
  ;WHILE SSTEST DO BEGIN
    IF (D+033+CARTO+UPDATE+X+DATA =
        D+121+PRIMARY+ROADS+X+DATA) AND
       (D+034+CARTO+UPDATE+Y+DATA =
        D+122+PRIMARY+ROADS+Y+DATA) THEN BEGIN
      D+121+PRIMARY+ROADS+X+DATA :=
        D+033+CARTO+UPDATE+X+DATA
      ;D+122+PRIMARY+ROADS+Y+DATA :=
        D+034+CARTO+UPDATE+Y+DATA
    END
    ELSE BEGIN
      SELECT NEXT RECORD FROM
             F+028+PRIMARY+ROADS+FILE
      ;SSTEST := FOUND
    END
  END (* WHILE *)
  ;IF NOT SSUPDATE THEN BEGIN
    CREATE F+28+PRIMARY+ROADS+FILE RECORD
    ;D+121+PRIMARY+ROADS+X+DATA :=
      D+033+CARTO+UPDATE+X+DATA
    ;D+122+PRIMARY+ROADS+Y+DATA :=
      D+034+CARTO+UPDATE+Y+DATA
  END
END
;RAILROAD : BEGIN
  SELECT FIRST RECORD FROM
         F+29+RAILROAD+LOCATIONS+FILE
  ;SSUPDATE := FALSE
  ;SSTEST := FOUND
  ;WHILE SSTEST DO BEGIN
    IF (D+033+CARTO+UPDATE+X+DATA =
        D+123+RAILROAD+LOC+X+DATA) AND
       (D+034+CARTO+UPDATE+Y+DATA =
        D+124+RAILROAD+LOC+Y+DATA) THEN BEGIN
      D+123+RAILROAD+LOC+X+DATA :=
        D+033+CARTO+UPDATE+X+DATA
      ;D+124+RAILROAD+LOC+Y+DATA :=
        D+034+CARTO+UPDATE+Y+DATA
      ;SSTEST := FALSE
      ;SSUPDATE := TRUE
    END
    ELSE BEGIN
      SELECT NEXT RECORD FROM
             F+29+RAILROAD+LOCATIONS+FILE
      ;SSTEST := FOUND
```

```
      END
    END (* WHILE *)
    ;IF NOT SSUPDATE THEN BEGIN
      CREATE F+29+RAILROAD+LOCATIONS+FILE RECORD
      ;D+123+RAILROAD+LOC+X+DATA :=
        D+033+CARTO+UPDATE+X+DATA
      ;D+124+RAILROAD+LOC+Y+DATA :=
        D+124+RAILROAD+LOC+Y+DATA
    END
  END
  ;S+ROAD : BEGIN
    SELECT FIRST RECORD FROM
          F+31+SECONDARY+ROADS+FILE
    ;SSUPDATE := FALSE
    ;SSTEST := FOUND
    ;WHILE SSTEST DO BEGIN
      IF (D+033+CARTO+UPDATE+X+DATA =
          D+131+SECONDARY+ROAD+X+DATA) AND
         (D+034+CARTO+UPDATE+Y+DATA =
          D+132+SECONDARY+ROAD+Y+DATA) THEN BEGIN
        D+131+SECONDARY+ROAD+X+DATA :=
          D+033+CARTO+UPDATE+X+DATA
        ;D+132+SECONDARY+ROAD+Y+DATA :=
          D+034+CARTO+UPDATE+Y+DATA
        ;SSUPDATE := TRUE
        ;SSTEST := FALSE
      END
      ELSE BEGIN
        SELECT NEXT RECORD FROM
              F+31+SECONDARY+ROADS+FILE
        ;SSTEST := FOUND
      END
    END (* WHILE *)
    ;IF NOT SSUPDATE THEN BEGIN
      CREATE F+31+SECONDARY+ROADS+FILE RECORD
      ;D+131+SECONDARY+ROAD+X+DATA :=
        D+033+CARTO+UPDATE+X+DATA
      ;D+132+SECONDARY+ROAD+Y+DATA :=
        D+034+CARTO+UPDATE+Y+DATA
    END
  END
  ;MARSHALLING : BEGIN
    SELECT FIRST RECORD FROM
          F+09+MARSHALLING+AREAS+FILE
    ;SSUPDATE := FALSE
    ;SSTEST := FOUND
    ;WHILE SSTEST DO BEGIN
      IF (D+033+CARTO+UPDATE+Y+DATA =
          D+054+MARSHALLING+X+DATA) AND
         (D+034+CARTO+UPDATE+Y+DATA =
          D+055+MARSHALLING+Y+DATA) THEN BEGIN
        D+054+MARSHALLING+X+DATA :=
          D+033+CARTO+UPDATE+X+DATA
        ;D+055+MARSHALLING+Y+DATA :=
```

```
  D←034←CARTO←UPDATE←Y←DATA
;SSUPDATE := TRUE
;SSTEST := FALSE
```

```
      END
      ELSE BEGIN
        SELECT NEXT RECORD FROM
               F$09$MARSHALLING$AREAS$FILE
        ;SSTEST := FOUND
      END
    END (* WHILE *)
    ;IF NOT SSUPDATE THEN BEGIN
      CREATE F$09$MARSHALLING$AREAS$FILE RECORD
      ;D$054$MARSHALLING$X$DATA :=
        D$033$CARTO$UPDATE$X$DATA
      ;D$055$MARSHALLING$Y$DATA :=
        D$034$CARTO$UPDATE$Y$DATA
    END
  END
  ;RIVER : BEGIN
    SELECT FIRST RECORD FROM
           F$30$RIVER$LOCATIONS$FILE
    ;SSUPDATE := FALSE
    ;SSTEST := FOUND
    ;WHILE SSTEST DO BEGIN
      IF (D$033$CARTO$UPDATE$X$DATA = D$128$RIVER$LOC$X$DATA)
         AND
         (D$034$CARTO$UPDATE$Y$DATA = D$129$RIVER$LOC$Y$DATA)
         THEN BEGIN
        D$128$RIVER$LOC$X$DATA := D$033$CARTO$UPDATE$Y$DATA
        ;D$129$RIVER$LOC$Y$DATA := D$034$CARTO$UPDATE$Y$DATA
        ;SSUPDATE := TRUE
        ;SSTEST := FALSE
      END
      ELSE BEGIN
        SELECT NEXT RECORD FROM
               F$30$RIVER$LOCATIONS$FILE
        ;SSTEST := FOUND
      END
    END (* WHILE *)
    ;IF NOT SSUPDATE THEN BEGIN
      CREATE F$30$RIVER$LOCATIONS$FILE RECORD
      ;D$128$RIVER$LOC$X$DATA := D$033$CARTO$UPDATE$X$DATA
      ;D$129$RIVER$LOC$Y$DATA := D$034$CARTO$UPDATE$Y$DATA
    END
  END
  ;HYPSO : BEGIN
    SELECT FIRST RECORD FROM
           F$08$HYPSO$DATA$FILE
    ;SSUPDATE := FALSE
    ;SSTEST := FOUND
    ;WHILE SSTEST DO BEGIN
      IF (D$033$CARTO$UPDATE$X$DATA = D$052$HYPSO$LOC$X$DATA)
         AND
         (D$034$CARTO$UPDATE$Y$DATA = D$053$HYPSO$LOC$Y$DATA)
         THEN BEGIN
        D$052$HYPSO$LOC$X$DATA := D$033$CARTO$UPDATE$Y$DATA
        ;D$053$HYPSO$LOC$Y$DATA := D$034$CARTO$UPDATE$Y$DATA
        ;D$051$HYPSO$ELEV$DATA := 0.0
        ;SSUPDATE := TRUE
        ;SSTEST := FALSE
      END
```

```
                ELSE BEGIN
                  SELECT NEXT RECORD FROM
                         F←08←HYPSO←DATA←FILE
                  ;SSTEST := FALSE
                END
              END (* WHILE *)
              ;IF NOT SSUPDATE THEN BEGIN
                CREATE F←08←HYPSO←DATA←FILE RECORD
                ;D←052←HYPSO←LOC←X←DATA := D←033←CARTO←UPDATE←X←DATA
                ;D←053←HYPSO←LOC←Y←DATA := D←034←CARTO←UPDATE←Y←DATA
                ;D←051←HYPSO←ELEV←DATA := 0.0
              END
            END
          END (* CASE *)
        END ENDFOREACH
      END;".
          INPUTS:
               DATA:  D←028←CARTO←MAP←SECT←NUM←DATA
               FILE:  F←01←BRIDGE←LOCATIONS←FILE
               FILE:  F←02←CARTO←UPDATE←FILE
               FILE:  F←03←CITY←LOCATIONS←FILE
               FILE:  F←08←HYPSO←DATA←FILE
               FILE:  F←09←MARSHALLING←AREAS←FILE
               FILE:  F←28←PRIMARY←ROADS←FILE
               FILE:  F←29←RAILROAD←LOCATIONS←FILE
               FILE:  F←30←RIVER←LOCATIONS←FILE
               FILE:  F←31←SECONDARY←ROADS←FILE.
          OUTPUTS:
               DATA:  D←028←CARTO←MAP←SECT←NUM←DATA
               (* ANY NUMBER OF CARTO FILES MAY BE UPDATED *)
               FILE:  F←01←BRIDGE←LOCATIONS←FILE
               FILE:  F←03←CITY←LOCATIONS←FILE
               FILE:  F←08←HYPSO←DATA←FILE
               FILE:  F←09←MARSHALLING←AREAS←FILE
               FILE:  F←28←PRIMARY←ROADS←FILE
               FILE:  F←29←RAILROAD←LOCATIONS←FILE
               FILE:  F←30←RIVER←LOCATIONS←FILE
               FILE:  F←31←SECONDARY←ROADS←FILE.
          TRACED FROM:
               ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←EXTERNAL←INTERFACE.
          REFERRED BY:
               R←NET:  R←2←MODEL←NELS←SENSOR←SYSTEM←R←NET.

[RADX COMMAND=
(*             3.3  DATA ADAPTATION
                       This paragraph elaborates upon the
                    processing by detailing the data items by
                    environment,operational function and usage *)
                    LIST THE←ENTITY←CLASSES.
-------------------------------------------------------------

   ENTITY←CLASS:  EC←1←NELS←DETECTABLE←EMISSION←BREAKOUT←EC.
          DATE←ENTERED: 20382.
          DESCRIPTION:
   "THIS CLASS IS COMPOSED OF THE CANDIDATE TARGETS AS
    THEY PASS EACH TEST".
          ENTERED←BY: "JJF←NELS".
          ASSOCIATES:
```

```
            DATA:  D-140-TBD-DATA.
        COMPOSED OF:
            ENTITY-TYPE:  ET-10-GROUND-SHADOWING-CANDIDATE-TARGETS-ET
            ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
            ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET
            ENTITY-TYPE:  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET.
        CREATED BY:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

    ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC.
        DATE-ENTERED: 20382.
        DESCRIPTION: "INFORMATION PERTAINING TO THE NELS SCENARIO".
        ENTERED-BY: "JJF-NELS".
        ASSOCIATES:
            DATA:  D-140-TBD-DATA.
        COMPOSED OF:
            ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET
            ENTITY-TYPE:  ET-7-NELS-WEATHER-ET.
        CREATED BY:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
        DESTROYED BY:
            ALPHA:  A-24-RESET-NELS-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

    ENTITY-CLASS:  EC-3-NELS-TASKS-EC.
        DATE-ENTERED: 20382.
        DESCRIPTION: "TASK RELATED INFORMATION".
        ENTERED-BY: "JJF-NELS".
        ASSOCIATES:
            DATA:  D-140-TBD-DATA.
        COMPOSED OF:
            ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET
            ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET.
        CREATED BY:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
        DESTROYED BY:
            ALPHA:  A-24-RESET-NELS-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

    ENTITY-CLASS:  EC-4-NELS-THREAT-EC.
        DATE-ENTERED: 20382.
        DESCRIPTION:
                "POTENTIAL NELS-DETECTABLE THREATENING
       TARGETS".
        ENTERED-BY: "JJF-NELS".
        ASSOCIATES:
            DATA:  D-140-TBD-DATA.
        COMPOSED OF:
            ENTITY-TYPE:  ET-1-NELS-EMISSION-THREAT-ET.
```

```
          CREATED BY:
               ALPHA:  A+04+INITIALIZE+NELS+ALPHA.
          DESTROYED BY:
               ALPHA:  A+24+RESET+NELS+ALPHA.
          TRACED FROM:
               ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+THREAT+TABLE+UPDATE
               .

     ENTITY+CLASS:  EC+5+NELS+VEHICLE+CHARACTERISTICS+EC.
          DATE+ENTERED: 20382.
          DESCRIPTION: "VEHICLE CHARACTERISTICS".
          ENTERED+BY: "JJF-NELS".
          ASSOCIATES:
               DATA:  D+140+THD+DATA.
          COMPOSED OF:
               ENTITY+TYPE:  ET+6+NELS+VEHICLE+CHARACTERISTICS+ET.
          CREATED BY:
               ALPHA:  A+04+INITIALIZE+NELS+ALPHA.
          DESTROYED BY:
               ALPHA:  A+24+RESET+NELS+ALPHA.
          TRACED FROM:
               ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+EXTERNAL+INTERFACE.

TRADX COMMAND=
                    LIST THE+ENTITY+TYPES.
-----------------------------------------

     ENTITY+TYPE:  ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET.
          DATE+ENTERED: 22283.
          DESCRIPTION:
"CARRIES THOSE TARGETS WHICH PASS THE GROUND SHADOWING TEST".
          ENTERED+BY: "JDUBBS".
          ASSOCIATES:
               FILE:  F+10+NELS+CANDIDATE+TARGETS+FILE
               FILE:  F+12+DETECTED+CANDIDATE+TARGETS+FILE.
          COMPOSES:
               ENTITY+CLASS:  EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC.
          TRACED FROM:
               ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+EMITTER+DEFAULT.

     ENTITY+TYPE:  ET+11+DETECTED+EMISSIONS+DUE+TDOA+ET.
          DATE+ENTERED: 22283.
          DESCRIPTION:
     "HOLDS EMITTER DATA THAT HAS GONE THROUGH TDOA, AND
     DD PROCESSING".
          ENTERED+BY: "JDUBBS".
          ASSOCIATES:
               FILE:  F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
               FILE:  F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE.
          COMPOSES:
               ENTITY+CLASS:  EC+6+DETECTED+EMISSIONS+INFO+EC.
          TRACED FROM:
               ORIGINATING+REQUIREMENT:  ORIG+REQ+NELS+TARGET+ACQUISITION.

     ENTITY+TYPE:  ET+12+DETECTED+EMISSIONS+COARSE+ET.
          DATE+ENTERED: 22383.
          DESCRIPTION:
     "HOLDS EMITTER DATA THAT HAS GONE THROUGH
```

```
     THE COARSE LOCATING FUNCTION",
          ENTERED-BY: "JDUBBS",
          ASSOCIATES:
               FILE:  F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
               FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE,
          COMPOSES:
               ENTITY-CLASS:  EC-6-DETECTED-EMISSIONS-INFO-EC,
          TRACED FROM:
               ORIGINATING-REQUIREMENT:
               ORIG-REQ-NELS-COARSE-AND-FINE-LOCATION,

     ENTITY-TYPE:  ET-13-DETECTED-EMISSIONS-FINE-ET,
          DATE-ENTERED: 22383,
          DESCRIPTION:
     "HOLDS EMITTER DATA THAT HAS GONE THROUGH
     THE FINE LOCATING FUNCTION",
          ENTERED-BY: "JDUBBS",
          ASSOCIATES:
               FILE:  F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE
               FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE,
          COMPOSES:
               ENTITY-CLASS:  EC-6-DETECTED-EMISSIONS-INFO-EC,
          TRACED FROM:
               ORIGINATING-REQUIREMENT:
               ORIG-REQ-NELS-COARSE-AND-FINE-LOCATION,

     ENTITY-TYPE:  ET-1-NELS-EMISSION-THREAT-ET,
          DATE-ENTERED: 20382,
          DESCRIPTION: "NELS-DETECTED THREATS",
          ENTERED-BY: "JJF-NELS",
          ASSOCIATES:
               FILE:  F-13-NELS-EMISSION-THREAT-TABLE-FILE,
          COMPOSES:
               ENTITY-CLASS:  EC-4-NELS-THREAT-EC,
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
               ,
          REFERRED BY:
               SUBNET:  S-5-MODEL-NELS-GPS-PROCESSING-SUB,

     ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET,
          DATE-ENTERED: 20382,
          DESCRIPTION: "NELS EMITTER GROUND ACTIVITY",
          ENTERED-BY: "JJF-NELS",
          ASSOCIATES:
               FILE:  F-14-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-FILE,
          COMPOSES:
               ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC,
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE,
          REFERRED BY:
               SUBNET:  S-5-MODEL-NELS-SENSOR-SUB,

     ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET,
          DATE-ENTERED: 20382,
          DESCRIPTION: "FLIGHT WAYPOINTS",
          ENTERED-BY: "JJF-NELS",
          ASSOCIATES:
```

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            FILE:  F-06-FLIGHT-PROFILE-FILE
            FILE:  F-27-PLATFORM-CONTROL-FILE.
      COMPOSES:
            ENTITY-CLASS:  FC-3-NELS-TASKS-EC.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:
            ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.
      REFERRED BY:
            R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET
            SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
            SUBNET:  S-4-MODEL-NELS-PLATFORM-SUR.

ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET.
      DATE-ENTERED: 20382.
      DESCRIPTION: "FREQUENCY TO TUNE NELS TRIAD TO".
      ENTERED-BY: "JJF-NELS".
      ASSOCIATES:
            FILE:  F-19-NELS-FREQUENCY-SCAN-FILE.
      COMPOSES:
            ENTITY-CLASS:  FC-3-NELS-TASKS-EC.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.
      REFERRED BY:
            R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET.

ENTITY-TYPE:  ET-5-NELS-PREFERRED-SOI-ET.
      DATE-ENTERED: 20382.
      DESCRIPTION:
"CARRIES NELS SOI DATA TO SOI ALPHA AND HOLDS THOSE
TARGETS WHICH PASS THE SOI TEST".
      ENTERED-BY: "JJF-NELS".
      ASSOCIATES:
            FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
            FILE:  F-21-NELS-PREFERRED-SOI-FILE.
      COMPOSES:
            ENTITY-CLASS:  FC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.
      REFERRED BY:
            R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET
            SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
            SUBNET:  S-5-MODEL-NELS-SENSOR-SUR.

ENTITY-TYPE:  ET-6-NELS-VEHICLE-CHARACTERISTICS-ET.
      DATE-ENTERED: 20382.
      DESCRIPTION: "VEHICLE EMISSION CHARACTERISTICS".
      ENTERED-BY: "JJF-NELS".
      ASSOCIATES:
            FILE:  F-15-NELS-EMITTER-CHARACTERISTICS-FILE.
      COMPOSES:
            ENTITY-CLASS:  FC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
      REFERRED BY:
            SUBNET:  S-5-MODEL-NELS-SENSOR-SUR.

ENTITY-TYPE:  ET-7-NELS-WEATHER-ET.
      DATE-ENTERED: 20382.
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        DESCRIPTION: "WEATHER INFORMATION".
        ENTERED-BY: "JJF-NELS".
        ASSOCIATES:
             FILE:  F-26-NELS-WEATHER-CONDITIONS-FILE.
        COMPOSES:
             ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.
        REFERRED BY:
             SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.

   ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-ADI-ET.
        DATE-ENTERED: 22283.
        DESCRIPTION:
   "CARRIES NELS ADI DATA TO ADI ALPHA AND HOLDS THOSE
    TARGETS WHICH PASS THE ADI TEST".
        ENTERED-BY: "JDUBBS".
        ASSOCIATES:
             FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE
             FILE:  F-20-NELS-PRE-BRIEFED-ADI-FILE.
        COMPOSES:
             ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-ADI.
        REFERRED BY:
             R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET
             SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
             SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.

   ENTITY-TYPE:  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET.
        DATE-ENTERED: 22283.
        DESCRIPTION: "CARRIES THOSE TARGETS WHICH PASS THE S/N TEST".
        ENTERED-BY: "JDUBBS".
        ASSOCIATES:
             FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
        COMPOSES:
             ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EMITTER-DEFAULT.
        REFERRED BY:
             SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.

[RADY COMMAND=
                    LIST THE-DATA.
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   DATA:  D-001-ALTITUDE-WEATHER-LOC-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "WEATHER INFORMATION AT VARIOUS ELEVATIONS".
        ENTERED-BY: "JJF-NELS".
        INCLUDES:
             DATA:  D-038-CONDITIONS-AT-ELEVATION-WEATHER-DATA
             DATA:  D-039-ELEVATION-WEATHER-DATA.
        CONTAINED IN:
             FILE:  F-26-NELS-WEATHER-CONDITIONS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.
```

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DATA:  D-002-ASET-MSG-DEST-DATA,
     DATE-ENTERED: 90481,
     DESCRIPTION: "DESTINATION OF MESSAGE",
     ENTERED-BY: "JJF-TC",
     RANGE: "TC,ES,ASE,MTT,C3I,NELS,WELS,IS,TC-OPERATOR",
     TYPE: ENUMERATION,
     USE: BOTH,
     INCLUDED IN:
          DATA:  D-003-ASET-MSG-ID-DATA,
     TRACED FROM:
          DECISION:  DECISION-MESSAGE-ROUTING-METHOD,

DATA:  D-003-ASET-MSG-ID-DATA,
     DATE-ENTERED: 92451,
     DESCRIPTION: "CONTAINS MESSAGE IDENTIFICATIONS",
     ENTERED-BY: "JJF-TC",
     RANGE:
    "MN-01-ES-NELS-UNIT-AND-ENVIRONMENT-DATA,
     MN-02-NELS-CARTO-UPDATES,
     MN-03-NELS-COMMANDERS-REQUIREMENTS,
     MN-04-NELS-MODIFIED-TASK,
     MN-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS,
     MN-06-NELS-ORBIT-MODIFICATIONS,
     MN-07-NELS-PLATFORM-LOCATION-REPORTS,
     MN-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS,
     MN-09-NELS-REQUESTED-SENSOR-DATA,
     MN-10-NELS-SENSOR-REQUESTS,
     MN-11-NELS-SENSOR-SYSTEM-STATUS,
     MN-12-NELS-SURVEILLANCE-TARGET-REPORTS,
     MN-13-NELS-TASKING-RESPONSES,
     MN-14-NELS-TRACK-MESSAGE,
     MN-15-T-AND-C-STOP-NELS",
     TYPE: ENUMERATION,
     INCLUDES:
          DATA:  D-002-ASET-MSG-DEST-DATA
          DATA:  D-004-ASET-MSG-NAME-DATA
          DATA:  D-005-ASET-MSG-SOURCE-DATA,
     MAKES:
          MESSAGE:  M-01-ES-NELS-UNIT-AND-ENVIRONMENT-DATA-MSG-IN
          MESSAGE:  M-02-NELS-CARTO-UPDATES-MSG-IN
          MESSAGE:  M-03-NELS-COMMANDERS-REQUIREMENTS-MSG-IN
          MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN
          MESSAGE:  M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
          MESSAGE:  M-06-NELS-ORBIT-MODIFICATIONS-MSG-IN
          MESSAGE:  M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT
          MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN
          MESSAGE:  M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN
          MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT
          MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT
          MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
          MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT
          MESSAGE:  M-14-NELS-TRACK-MESSAGE-MSG-OUT
          MESSAGE:  M-15-T-AND-C-STOP-NELS-MSG-IN,
     OUTPUT FROM:
          ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA
          ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA
          ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA
          ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
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            ALPHA:  A*20*NEIS*SURVEILLANCE*AND*TRACK*MSGS*ALPHA.
        TRACED FROM:
            DECISION:  DECISION*MESSAGE*ROUTING*METHOD.

    DATA:  D*004*ASET*MSG*NAME*DATA.
        DATE*ENTERED: 80481.
        DESCRIPTION: "NAME OF MESSAGE".
        ENTERED*BY: "JJF-TC".
        RANGE:
     "MN*01*ES*NELS*UNIT*AND*ENVIRONMENT*DATA,
      MN*02*NELS*CARTO*UPDATES,
      MN*03*NELS*COMMANDERS*REQUIREMENTS,
      MN*04*NELS*MODIFIED*TASK,
      MN*05*NELS*NON*SURVEILLANCE*TARGET*REPORTS,
      MN*06*NELS*ORBIT*MODIFICATIONS,
      MN*07*NELS*PLATFORM*LOCATION*REPORTS,
      MN*08*NELS*PRIORITIZED*SENSOR*DIRECTIONS,
      MN*09*NELS*REQUESTED*SENSOR*DATA,
      MN*10*NELS*SENSOR*REQUESTS,
      MN*11*NELS*SENSOR*SYSTEM*STATUS,
      MN*12*NELS*SURVEILLANCE*TARGET*REPORTS,
      MN*13*NELS*TASKING*RESPONSES,
      MN*14*NELS*TRACK*MESSAGE,
      MN*15*T*AND*C*STOP*NELS".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D*003*ASET*MSG*ID*DATA.
        TRACED FROM:
            DECISION:  DECISION*MESSAGE*ROUTING*METHOD
            DECISION:  HIGHLY*SUSPECT*ITEM.
        REFERRED BY:
            R*NET:  R*2*MODEL*NELS*SENSOR*SYSTEM*P*NET.

    DATA:  D*005*ASET*MSG*SOURCE*DATA.
        DATE*ENTERED: 80481.
        DESCRIPTION: "SOURCE OF MESSAGE".
        ENTERED*BY: "JJF-TC".
        RANGE: "TC,ES,ASF,UTT,CSI,NELS,NFLS,TS,TC*OPERATOR".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D*003*ASET*MSG*ID*DATA.
        TRACED FROM:
            DECISION:  DECISION*MESSAGE*ROUTING*METHOD.

    DATA:  D*006*ASP*ACCELERATION*DATA.
        DATE*ENTERED: 11182.
        DESCRIPTION: "ASP ACCELERATION VECTOR".
        ENTERED*BY: "JJF-NELS".
        INCLUDES:
            DATA:  D*007*ASP*ACC*X*DATA
            DATA:  D*008*ASP*ACC*Y*DATA
            DATA:  D*009*ASP*ACC*Z*DATA.
        INCLUDED IN:
            DATA:  D*020*ASP*STATE*VECTOR*DATA.
        TRACED FROM:
            ORIGINATING*REQUIREMENT:
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            ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

    DATA:  D-007-ASP-ACC-X-DATA.
         DATE-ENTERED: 11182.
         DESCRIPTION: "X ACCELERATION".
         ENTERED-BY: "JJF-NELS".
         TYPE: REAL.
         USE: BOTH.
         INCLUDED IN:
              DATA:  D-006-ASP-ACCELERATION-DATA.
         TRACED FROM:
              ORIGINATING-REQUIREMENT:
              ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

    DATA:  D-008-ASP-ACC-Y-DATA.
         DATE-ENTERED: 11182.
         DESCRIPTION: "Y ACCELERATION".
         ENTERED-BY: "JJF-NELS".
         TYPE: REAL.
         USE: BOTH.
         INCLUDED IN:
              DATA:  D-006-ASP-ACCELERATION-DATA.
         TRACED FROM:
              ORIGINATING-REQUIREMENT:
              ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

    DATA:  D-009-ASP-ACC-Z-DATA.
         DATE-ENTERED: 11182.
         DESCRIPTION: "Z ACCELERATION".
         ENTERED-BY: "JJF-NELS".
         TYPE: REAL.
         USE: BOTH.
         INCLUDED IN:
              DATA:  D-006-ASP-ACCELERATION-DATA.
         TRACED FROM:
              ORIGINATING-REQUIREMENT:
              ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

    DATA:  D-010-ASP-ALTITUDE-DATA.
         DATE-ENTERED: 11182.
         DESCRIPTION: "ALTITUDE OF ASP".
         ENTERED-BY: "JJF-NELS".
         TYPE: REAL.
         USE: BOTH.
         CONTAINED IN:
              FILE:  F-27-PLATFORM-CONTROL-FILE.
         INCLUDED IN:
              DATA:  D-013-ASP-LOCATION-DATA.
         TRACED FROM:
              ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

    DATA:  D-011-ASP-ATTITUDE-DATA.
         DATE-ENTERED: 11182.
         DESCRIPTION: "ATTITUDE OF ASP".
         ENTERED-BY: "JJF-NELS".
         INCLUDES:
              DATA:  D-012-ASP-PITCH-DATA
              DATA:  D-013-ASP-ROLL-DATA
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            DATA:  D-025-ASP-YAW-DATA.
      INPUT TO:
            ALPHA:  A-01-OME-INS-NOISE-GENERATION-ALPHA
            ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
            ALPHA:  A-21-NELS-TARGET-ACQUISITION-ALPHA
            ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA.
      OUTPUT FROM:
            ALPHA:  A-01-OME-INS-NOISE-GENERATION-ALPHA
            ALPHA:  A-03-GENERATE-INS-ALPHA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

DATA:  D-012-ASP-LATITUDE-DATA.
      DATE-ENTERED: 11182.
      DESCRIPTION: "LATITUDE OF ASP".
      ENTERED-BY: "JJF-NELS".
      TYPE: REAL.
      USE: BOTH.
      INCLUDED IN:
            DATA:  D-013-ASP-LOCATION-DATA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

DATA:  D-013-ASP-LOCATION-DATA.
      DATE-ENTERED: 11182.
      DESCRIPTION: "GEOGRAPHIC LOCATION OF ASP".
      ENTERED-BY: "JJF-NELS".
      INCLUDES:
            DATA:  D-010-ASP-ALTITUDE-DATA
            DATA:  D-012-ASP-LATITUDE-DATA
            DATA:  D-017-ASP-LONGITUDE-DATA.
      INPUT TO:
            ALPHA:  A-01-OME-INS-NOISE-GENERATION-ALPHA
            ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
            ALPHA:  A-21-NELS-TARGET-ACQUISITION-ALPHA
            ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA.
      OUTPUT FROM:
            ALPHA:  A-01-OME-INS-NOISE-GENERATION-ALPHA
            ALPHA:  A-03-GENERATE-INS-ALPHA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

DATA:  D-014-ASP-LOC-X-DATA.
      DATE-ENTERED: 11182.
      DESCRIPTION: "X POSITION OF ASP".
      ENTERED-BY: "JJF-NELS".
      TYPE: REAL.
      USE: BOTH.
      CONTAINED IN:
            FILE:  F-27-PLATFORM-CONTROL-FILE.
      INCLUDED IN:
            DATA:  D-020-ASP-STATE-VECTOR-DATA.
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        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

    DATA:  D-015-ASP-LOC-Y-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "Y POSITION OF ASP".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-27-PLATFORM-CONTROL-FILE.
        INCLUDED IN:
             DATA:  D-020-ASP-STATE-VECTOR-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

    DATA:  D-016-ASP-LOC-Z-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "Z POSITION OF ASP".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-27-PLATFORM-CONTROL-FILE.
        INCLUDED IN:
             DATA:  D-020-ASP-STATE-VECTOR-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

    DATA:  D-017-ASP-LONGITUDE-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "LONGITUDE OF ASP".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-013-ASP-LOCATION-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

    DATA:  D-018-ASP-PITCH-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "PITCH OF ASP".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-011-ASP-ATTITUDE-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

    DATA:  D-019-ASP-ROLL-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "ROLL OF ASP".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
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          DATA:  D-011-ASP-ATTITUDE-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

DATA:  D-020-ASP-STATE-VECTOR-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "TIME POSITION AND VELOCITY OF AN ASP".
     ENTERED-BY: "JJF-NELS".
     INCLUDES:
          DATA:  D-006-ASP-ACCELERATION-DATA
          DATA:  D-014-ASP-LOC-X-DATA
          DATA:  D-015-ASP-LOC-Y-DATA
          DATA:  D-016-ASP-LOC-Z-DATA
          DATA:  D-021-ASP-TIME-DATA
          DATA:  D-022-ASP-VEL-X-DATA
          DATA:  D-023-ASP-VEL-Y-DATA
          DATA:  D-024-ASP-VEL-Z-DATA.
     INPUT TO:
          ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
          ALPHA:  A-03-GENERATE-INS-ALPHA
          ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
          ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
          ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA
          ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
          ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
          ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
          ALPHA:  A-21-NELS-TARGET-ACQUISITION-ALPHA
          ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA.
     OUTPUT FROM:
          ALPHA:  A-01-DME-INS-NOISE-GENERATION-ALPHA
          ALPHA:  A-02-GENERATE-DME-ALPHA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

DATA:  D-021-ASP-TIME-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "TIME POSITION READING IS MADE".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     INCLUDED IN:
          DATA:  D-020-ASP-STATE-VECTOR-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

DATA:  D-022-ASP-VEL-X-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "X VELOCITY OF ASP".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-27-PLATFORM-CONTROL-FILE.
     INCLUDED IN:
          DATA:  D-020-ASP-STATE-VECTOR-DATA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.
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    DATA:  D-023-ASP-VEL-Y-DATA.
           DATE-ENTERED: 11182.
           DESCRIPTION: "Y VELOCITY OF ASP".
           ENTERED-BY: "JJF-NELS".
           TYPE: REAL.
           USE: BOTH.
           CONTAINED IN:
                FILE:  F-27-PLATFORM-CONTROL-FILE.
           INCLUDED IN:
                DATA:  D-020-ASP-STATE-VECTOR-DATA.
           TRACED FROM:
                ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

    DATA:  D-024-ASP-VEL-Z-DATA.
           DATE-ENTERED: 11182.
           DESCRIPTION: "Z VELOCITY OF ASP".
           ENTERED-BY: "JJF-NELS".
           TYPE: REAL.
           USE: BOTH.
           CONTAINED IN:
                FILE:  F-27-PLATFORM-CONTROL-FILE.
           INCLUDED IN:
                DATA:  D-020-ASP-STATE-VECTOR-DATA.
           TRACED FROM:
                ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-DME.

    DATA:  D-025-ASP-YAW-DATA.
           DATE-ENTERED: 11182.
           DESCRIPTION: "YAW OF ASP".
           ENTERED-BY: "JJF-NELS".
           TYPE: REAL.
           USE: BOTH.
           INCLUDED IN:
                DATA:  D-011-ASP-ATTITUDE-DATA.
           TRACED FROM:
                ORIGINATING-REQUIREMENT:  ORIG-REQ-GENERATE-INS.

    DATA:  D-029-CARTO-SECTION-NUM-DATA.
           DATE-ENTERED: 10882.
           DESCRIPTION: "CARTOGRAPHIC SECTION NUMBER".
           ENTERED-BY: "JJF-NELS".
           TYPE: INTEGER.
           USE: BOTH.
           ORDERS:
                FILE:  F-02-CARTO-UPDATE-FILE.
           CONTAINED IN:
                FILE:  F-02-CARTO-UPDATE-FILE.
           TRACED FROM:
                ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    DATA:  D-030-CARTO-UPDATE-1-DATA.
           DATE-ENTERED: 10982.
           DESCRIPTION: "PRESENTLY UNKNOWN UPDATE ITEM".
           ENTERED-BY: "JJF-NELS".
           RANGE:
"BRIDGE,RAILROAD,P-ROAD,S-ROAD,CITY,RIVER,MARSHALLING,HYDRO".
           TYPE: ENUMERATION.
           USE: BOTH.
```

```
        CONTAINED IN:
             FILE:  F-02-CARTO-UPDATE-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA:  D-031-CARTO-UPDATE-2-DATA.
        DATE-ENTERED: 10882.
        DESCRIPTION: "PRESENTLY UNKNOWN UPDATE ITEM".
        ENTERED-BY: "JJF-NELS".
        RANGE:
"BRIDGE,RAILROAD,P-ROAD,S-ROAD,CITY,RIVER,MARSHALLING,HYPSO".
        TYPE: ENUMERATION.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-02-CARTO-UPDATE-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA:  D-032-CARTO-UPDATE-3-DATA.
        DATE-ENTERED: 10882.
        DESCRIPTION: "PRESENTLY UNKNOWN UPDATE ITEM".
        ENTERED-BY: "JJF-NELS".
        RANGE:
"BRIDGE,RAILROAD,P-ROAD,S-ROAD,CITY,RIVER,MARSHALLING,HYPSO".
        TYPE: ENUMERATION.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-02-CARTO-UPDATE-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA:  D-033-CARTO-UPDATE-X-DATA.
        DATE-ENTERED: 10882.
        DESCRIPTION: "X COORDINATE OF CARTOGRAPHIC FEATURE".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-02-CARTO-UPDATE-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA:  D-034-CARTO-UPDATE-Y-DATA.
        DATE-ENTERED: 10882.
        DESCRIPTION: "Y COORDINATE OF CARTOGRAPHIC FEATURE".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-02-CARTO-UPDATE-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA:  D-037-CLOUD-COVER-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "CLOUD COVER".
        ENTERED-BY: "JJF-NELS".
        RANGE:
```

```
"CLEAR,PARTLY-CLOUDY,MOSTLY-CLOUDY,OVERCAST,FOGGY,SMOG,DUST".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-038-CONDITIONS-AT-ELEVATION-WEATHER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

   DATA:  D-038-CONDITIONS-AT-ELEVATION-WEATHER-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION:
              "CLOUD COVER AND PRECIPITATION DATA AT A SPECIFIC
      ALTITUDE".
        ENTERED-BY: "JJF-NELS".
        INCLUDES:
             DATA:  D-037-CLOUD-COVER-DATA
             DATA:  D-120-PRECIPITATION-DATA.
        INCLUDED IN:
             DATA:  D-001-ALTITUDE-WEATHER-LOC-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

   DATA:  D-039-ELEVATION-WEATHER-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "ELEVATION".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-001-ALTITUDE-WEATHER-LOC-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

   DATA:  D-040-FIRST-CMDRS-REQ-UPDATE-DATA.
        DATE-ENTERED: 91581.
        DESCRIPTION: "A COMMANDERS REQUIREMENY UPDATE MESSAGE LOCATION".
        ENTERED-BY: "D  HARTSCHUH".
        RANGE: "IN-AREA,OUTSIDE-AREA".
        TYPE: ENUMERATION.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-04-CMDRS-DATA-TO-UPDATE-FILE.
        TRACED FROM:
             DECISION:  CONTENTS-OF-MESSAGE.

   DATA:  D-041-FLIGHT-WAYPOINT-X-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "EAST-WEST DISTANCE".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-06-FLIGHT-PROFILE-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:
             ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.
```

```
DATA:  D-042-FLIGHT-WAYPOINT-Y-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "NORTH/SOUTH DISTANCE".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-06-FLIGHT-PROFILE-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:
          ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

DATA:  D-043-FLIGHT-WAYPOINT-Z-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "ELEVATION".
     TYPE: REAL.
     UNITS: METERS.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-06-FLIGHT-PROFILE-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:
          ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

DATA:  D-044-FREQUENCY-SCAN-PARAMETER-DATA.
     DATE-ENTERED: 81581.
     DESCRIPTION: "SCANING PARAMETER FOR A FREQUENCY".
     ENTERED-BY: "D  HARTSCHUH".
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-34-SENSOR-STATUS-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-ACTIVITY-ELEMENTS
          .

DATA:  D-046-GROUND-TARGET-FREQUENCY-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION:
          "[NELS, AELS ONLY] FREQUENCY OF EMISSION OF GROUND
   TARGET".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
     UNITS: HERTZ.
     USE: BOTH.
     MAKES:
          MESSAGE:  M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
          MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT.
     OUTPUT FROM:
          ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

DATA:  D-047-GROUND-TARGET-LENGTH-DATA.
     DATE-ENTERED: 11182.
     DESCRIPTION: "[IS ONLY] LINEAR EXTENT OF GROUND TARGET".
     ENTERED-BY: "JJF-NELS".
     TYPE: REAL.
```

```
        UNITS: METERS.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-05-NELS-NCN-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
             MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT.
        OUTPUT FROM:
             ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA:  D-048-GROUND-TARGET-LOC-X-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "X COORDINATE OF GROUND TARGET".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-07-GROUP-TARGET-LOCS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA:  D-049-GROUND-TARGET-LOC-Y-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "Y COORDINATE OF GROUND TARGET".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-07-GROUP-TARGET-LOCS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA:  D-050-GROUND-TARGET-VELOCITY-DATA.
        DATE-ENTERED: 11162.
        DESCRIPTION: "[MTI ONLY] VELOCITY OF GROUND TARGET".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        UNITS: KPH.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-05-NELS-NCN-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
             MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT.
        OUTPUT FROM:
             ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA:  D-056-NEEDED-FEASIBLE-DATA.
        DATE-ENTERED: 10058 1.
        DESCRIPTION: "INFORMATION CONCERNING A FEASIBLE TARGET".
        ENTERED-BY: "D  HARTSCHUH".
        RANGE: "SOI,AOT,BOTH".
        TYPE: ENUMERATION.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN
             MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN.
        INPUT TO:
```

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            ALPHA:  A←11←NELS←MODIFY←TASK←ALPHA
            ALPHA:
            A←15←NELS←PROCESS←PRIORITIZED←SENSOR←DIRECTIONS←ALPHA.
        TRACED FROM:
            DECISION:  CONTENTS←OF←MESSAGE.

    DATA:  D←058←NELS←DD←1←2←DATA.
        DATE←ENTERED: 11282.
        DESCRIPTION:
        "DIFFERENTIAL DOPPLER BETWEEN NELS PLATFORMS 1 AND 2".
        ENTERED←BY: "JIF←NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D←112←NELS←TDOA←DD←DATA.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←TARGET←ACQUISITION.

    DATA:  D←059←NELS←DD←1←3←DATA.
        DATE←ENTERED: 11282.
        DESCRIPTION:
        "DIFFERENTIAL DOPPLER BETWEEN NELS PLATFORMS 1 AND 3".
        ENTERED←BY: "JIF←NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D←112←NELS←TDOA←DD←DATA.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←TARGET←ACQUISITION.

    DATA:  D←060←NELS←DD←2←3←DATA.
        DATE←ENTERED: 11282.
        DESCRIPTION:
        "DIFFERENTIAL DOPPLER BETWEEN NELS PLATFORMS 2 AND 3".
        ENTERED←BY: "JIF←NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D←112←NELS←TDOA←DD←DATA.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←TARGET←ACQUISITION.

    DATA:  D←061←NELS←EMISSION←DURATION←DATA.
        DATE←ENTERED: 11182.
        DESCRIPTION:
                "TIME THAT EMITTER IS EMITTING AND BEING LISTENED TO
       BY NELS".
        ENTERED←BY: "JIF←NELS".
        TYPE: REAL.
        USE: BOTH.
        CONTAINED IN:
            FILE:  F←10←NELS←CANDIDATE←TARGETS←FILE.
        TRACED FROM:
            ORIGINATING←REQUIREMENT:  ORIG←REQ←NELS←ACI.

    DATA:  D←062←NELS←EMISSION←SIGNAL←STRENGTH←DATA.
        DATE←ENTERED: 11182.
        DESCRIPTION:
```

"S/N STRENGTH OF SIGNAL FOR A SINGLE SENSOR; STRENGTH DATA FROM AT LEAST TWO SENSORS IS REQUIRED BEFORE A DETECTION CAN BE CONFIRMED".
ENTERED-BY: "JJF-NELS".
TYPE: REAL.
USE: BOTH.
CONTAINED IN:
FILE: F-10-NELS-CANDIDATE-TARGETS-FILE.
TRACED FROM:
ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-ADI.

DATA: D-063-A-NELS-EMISSION-START-TIME-DATA.
DATE-ENTERED: 30283.
DESCRIPTION: " TIME EMISSION STARTS (INITIALIZED DATA)".
ENTERED-BY: "JDURBS".
TYPE: REAL.
UNITS: HRS-MIN-SEC.
USE: BOTH.
INCLUDED IN:
DATA: D-071-NELS-EMITTER-DATA.
TRACED FROM:
ORIGINATING-REQUIREMENT: ORIG-REQ-SCENARIO-TIMING.

DATA: D-063-B-NELS-EMISSION-START-TIME-DATA.
DATE-ENTERED: 30283.
DESCRIPTION: " TIME EMISSION STARTS (BEFORE SOI)".
ENTERED-BY: "JDURBS".
TYPE: REAL.
UNITS: HRS-MIN-SEC.
USE: BOTH.
INCLUDED IN:
DATA: D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
TRACED FROM:
ORIGINATING-REQUIREMENT: ORIG-REQ-SCENARIO-TIMING.

DATA: D-063-NELS-EMISSION-START-TIME-DATA.
DATE-ENTERED: 102781.
DESCRIPTION: "TIME EMISSION STARTS".
ENTERED-BY: "JJF-ES".
TYPE: REAL.
UNITS: HRS-MIN-SEC.
USE: BOTH.
CONTAINED IN:
FILE: F-10-NELS-CANDIDATE-TARGETS-FILE.
TRACED FROM:
ORIGINATING-REQUIREMENT: ORIG-REQ-SCENARIO-TIMING.

DATA: D-064-A-NELS-EMISSION-STOP-TIME-DATA.
DATE-ENTERED: 30283.
DESCRIPTION: "TIME EMISSION STOPS (INITIALIZED DATA)".
ENTERED-BY: "JDURBS".
TYPE: REAL.
UNITS: HRS-MIN-SEC.
USE: BOTH.
INCLUDED IN:
DATA: D-071-NELS-EMITTER-DATA.
TRACED FROM:
ORIGINATING-REQUIREMENT: ORIG-REQ-SCENARIO-TIMING.

```
DATA:  D-064-NELS-EMISSION-STOP-TIME-DATA,
     DATE-ENTERED: 10278 1,
     DESCRIPTION: "TIME EMISSION STOPS (BEFORE SOI)",
     ENTERED-BY: "JJF-ES",
     TYPE: REAL,
     UNITS: HRS-MIN-SEC,
     USE: BOTH,
     INCLUDED IN:
          DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA,
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING,

DATA:  D-065-NELS-EMISSION-THREAT-TABLE-DATA,
     DATE-ENTERED: 11282,
     DESCRIPTION: "A RECORD DESCRIBING A SINGLE EMITTER",
     ENTERED-BY: "JJF-NELS",
     INCLUDES:
          DATA:  D-079-NELS-EMITTER-TIME-OF-LOCATION-DATA
          DATA:  D-080-NELS-EMITTER-TRAFFIC-TYPE-DATA
          DATA:  D-171-NELS-EMITTER-ID-DATA
          DATA:  D-172-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
          DATA:  D-173-NELS-EMITTER-X-DATA
          DATA:  D-174-NELS-EMITTER-Y-DATA
          DATA:  D-175-NELS-EMITTER-Z-DATA
          DATA:  D-181-NELS-EMITTER-MODULATION-TYPE-DATA
          DATA:  D-182-NELS-EMITTER-BANDWIDTH-DATA
          DATA:  D-183-NELS-EMITTER-CEP-DATA,
     CONTAINED IN:
          FILE:  F-13-NELS-EMISSION-THREAT-TABLE-FILE,
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
          .

DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA,
     DATE-ENTERED: 30283,
     DESCRIPTION:
     "A SINGLE RECORD OF NELS SCENARIO FILE (BEFORE SOI)",
     ENTERED-BY: "JDUBBS",
     INCLUDES:
          DATA:  D-063-R-NELS-EMISSION-START-TIME-DATA
          DATA:  D-064-NELS-EMISSION-STOP-TIME-DATA
          DATA:  D-073-R-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
          DATA:  D-075-R-NELS-EMITTER-ID-DATA
          DATA:  D-081-R-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
          DATA:  D-082-NELS-EMITTER-VEL-X-DATA
          DATA:  D-083-NELS-EMITTER-VEL-Y-DATA
          DATA:  D-084-NELS-EMITTER-VEL-Z-DATA
          DATA:  D-085-R-NELS-EMITTER-X-DATA
          DATA:  D-086-R-NELS-EMITTER-Y-DATA
          DATA:  D-087-R-NELS-EMITTER-Z-DATA
          DATA:  D-130-R-SCENARIO-GEN-ID-NUM-DATA,
     CONTAINED IN:
          FILE:  F-14-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-FILE,
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE,

DATA:  D-067-NELS-EMITTER-BANDWIDTH-DATA,
```

```
        DATE-ENTERED: 11182.
        DESCRIPTION: "BANDWIDTH OF EMISSION(S) EMITTER EMITS".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-069-NELS-EMITTER-CHARACTERISTICS-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA:  D-068-NELS-EMITTER-CEP-DATA.
        DATE-ENTERED: 11282.
        DESCRIPTION:
                "CIRCULAR ERROR PROBABLE ESTIMATE FOR A NELS
      DETECTABLE EMITTER".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
             .

   DATA:  D-069-NELS-EMITTER-CHARACTERISTICS-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION:
                "A SINGLE RECORD OF EMITTER-ID AND EMITTER
      CHARACTERISTICS".
        ENTERED-BY: "JJF-NELS".
        INCLUDES:
             DATA:  D-067-NELS-EMITTER-BANDWIDTH-DATA
             DATA:  D-077-A-NELS-EMITTER-MODULATION-TYPE-DATA
             DATA:  D-078-A-NELS-EMITTER-POWER-LEVEL-DATA.
        CONTAINED IN:
             FILE:  F-15-NELS-EMITTER-CHARACTERISTICS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-E TERNAL-INTERFACE.

   DATA:  D-070-NELS-EMITTER-COV-DATA.
        DATE-ENTERED: 11282.
        DESCRIPTION: "COVARIANCE BETWEEN X AND Y LOCATION ESTIMATES".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:
             ORIG-REQ-NELS-COARSE-AND-FINE-LOCATION.

   DATA:  D-071-NELS-EMITTER-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: "RECORD OF NELS EMITTER FILE ( INITIALIZED)".
        ENTERED-BY: "JOURBS".
        INCLUDES:
             DATA:  D-063-A-NELS-EMISSION-START-TIME-DATA
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            DATA:  D-064-A-NELS-EMISSION-STOP-TIME-DATA
            DATA:  D-073-A-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
            DATA:  D-075-A-NELS-EMITTER-ID-DATA
            DATA:  D-081-A-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
            DATA:  D-082-A-NELS-EMITTER-VEL-X-DATA
            DATA:  D-083-A-NELS-EMITTER-VEL-Y-DATA
            DATA:  D-084-A-NELS-EMITTER-VEL-Z-DATA
            DATA:  D-085-A-NELS-EMITTER-X-DATA
            DATA:  D-086-A-NELS-EMITTER-Y-DATA
            DATA:  D-087-A-NELS-EMITTER-Z-DATA
            DATA:  D-130-A-SCENARIO-GEN-ID-NUM-DATA.
      CONTAINED IN:
            FILE:  F-16-NELS-EMITTER-FILE.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

DATA:  D-072-NELS-EMITTER-DYNAMICS-DATA.
      DATE-ENTERED: 102781.
      DESCRIPTION: "3D VELOCITY VECTOR OF EMITTER".
      ENTERED-BY: "JJF-ES".
      INCLUDES:
            DATA:  D-082-NELS-EMITTER-VEL-X-DATA
            DATA:  D-083-NELS-EMITTER-VEL-Y-DATA
            DATA:  D-084-NELS-EMITTER-VEL-Z-DATA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-073-A-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA.
      DATE-ENTERED: 30283.
      DESCRIPTION:
      "BANDWIDTH OF NARROWBAND EMISSION (INITIALIZED DATA)".
      ENTERED-BY: "JDURBS".
      TYPE: REAL.
      UNITS: HERTZ.
      USE: BOTH.
      INCLUDED IN:
            DATA:  D-071-NELS-EMITTER-DATA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-073-B-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA.
      DATE-ENTERED: 30283.
      DESCRIPTION: "BANDWIDTH OF NARROWBAND EMISSION (BEFORE SOI)".
      ENTERED-BY: "JDURBS".
      TYPE: REAL.
      UNITS: HERTZ.
      USE: BOTH.
      INCLUDED IN:
            DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-073-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA.
      DATE-ENTERED: 102781.
      DESCRIPTION: "BANDWIDTH OF NARROWBAND EMISSION".
      ENTERED-BY: "JJF-ES".
      TYPE: REAL.
      UNITS: HERTZ.
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        USE: BOTH.
        CONTAINED IN:
             FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-075-A-NELS-EMITTER-ID-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: "IDENTIFIER OF EMITTER (INITIALIZED DATA)".
        ENTERED-BY: "JDURBS".
        RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-071-NELS-EMITTER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-075-B-NELS-EMITTER-ID-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: "IDENTIFIER OF EMITTER (BEFORE SUT)".
        ENTERED-BY: "JDURBS".
        RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
        TYPE: ENUMERATION.
        USE: BOTH.
        ORDERS:
             FILE:  F-14-NELS-EMITTED-ACTIVITY-GROUND-TRUTH-FILE.
        INCLUDED IN:
             DATA:  D-086-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-075-NELS-EMITTER-ID-DATA.
        DATE-ENTERED: 10279.
        DESCRIPTION: "IDENTIFICATION OF EMITTER".
        ENTERED-BY: "JJF-ES".
        RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
        TYPE: ENUMERATION.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-076-NELS-EMITTER-LOCATION-DATA.
        DATE-ENTERED: 10279.
        DESCRIPTION: "POSITION OF NELS-DETECTABLE EMITTER".
        ENTERED-BY: "JJF-ES".
        INCLUDES:
             DATA:  D-085-NELS-EMITTER-X-DATA
             DATA:  D-086-NELS-EMITTER-Y-DATA
             DATA:  D-087-NELS-EMITTER-Z-DATA.
        CONTAINED IN:
             FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-077-A-NELS-EMITTER-MODULATION-TYPE-DATA.
```

```
        DATE-ENTERED: 30783.
        DESCRIPTION:
        "TYPE OF MODULATION EXHIBITED BY EMITTER (BEFORE SOI)".
        ENTERED-BY: "JDURBS".
        RANGE: "MODULATED,NOT-MODULATED".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-069-NELS-EMITTER-CHARACTERISTICS-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA: D-077-NELS-EMITTER-MODULATION-TYPE-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "TYPE OF MODULATION EXHIBITED BY EMITTER".
        ENTERED-BY: "JJF-NELS".
        RANGE: "MODULATED,NOT-MODULATED".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA: D-078-A-NELS-EMITTER-POWER-LEVEL-DATA.
        DATE-ENTERED: 30783.
        DESCRIPTION: "POWER LEVEL OF EMITTER (BEFORE SOI)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: WATTS.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-069-NELS-EMITTER-CHARACTERISTICS-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA: D-078-NELS-EMITTER-POWER-LEVEL-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "POWER LEVEL OF EMITTER".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        UNITS: WATTS.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   DATA: D-079-NELS-EMITTER-TIME-OF-LOCATION-DATA.
        DATE-ENTERED: 11282.
        DESCRIPTION: "TIME AT WHICH THE EMITTER WAS LOCATED".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        ORDERS:
             FILE: F-13-NELS-EMISSION-THREAT-TABLE-FILE.
        INCLUDED IN:
             DATA: D-065-NELS-EMISSION-THREAT-TABLE-DATA.
```

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        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
             .

   DATA:  D-080-NELS-EMITTER-TRAFFIC-TYPE-DATA.
        DATE-ENTERED: 11282.
        DESCRIPTION: "TRAFFIC TYPE CODE FOR A NELS EMITTER".
        ENTERED-BY: "JJF-NELS".
        RANGE: "PASSIVE,POTENTIAL-THREAT,THREAT".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-065-NELS-EMISSION-THREAT-TABLE-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
             .

   DATA:  D-081-A-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION:
        " TRANSMISSION FREQUENCY OF EMITTER (INITIALIZED DATA)".
        ENTERED-BY: "JDUBBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-071-NELS-EMITTER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-081-B-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: " TRANSMISSION FREQUENCY OF EMITTER (BEFORE SOI)".
        ENTERED-BY: "JDUBBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-081-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA.
        DATE-ENTERED: 102781.
        DESCRIPTION: "TRANSMISSION FREQUENCY OF EMITTER".
        ENTERED-BY: "JJF-ES".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-082-A-NELS-EMITTER-VEL-X-DATA.
        DATE-ENTERED: 20283.
        DESCRIPTION:
        "EAST/WEST COMPONENT OF VELOCITY (INITIALIZED DATA)".
```

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        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KPH.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-071-NELS-EMITTER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-082-NELS-EMITTER-VEL-X-DATA.
        DATE-ENTERED: 102781.
        DESCRIPTION: "EAST/WEST COMPONENT OF VELOCITY (BEFORE SOI)".
        ENTERED-BY: "JJF-ES".
        TYPE: REAL.
        UNITS: KPH.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA
             DATA:  D-072-NELS-EMITTER-DYNAMICS-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-083-A-NELS-EMITTER-VEL-Y-DATA.
        DATE-ENTERED: 20283.
        DESCRIPTION:
        "NORTH/SOUTH COMPONENT OF VELOCITY (INITIALIZED DATA)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KPH.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-071-NELS-EMITTER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-083-NELS-EMITTER-VEL-Y-DATA.
        DATE-ENTERED: 102781.
        DESCRIPTION: "NORTH/SOUTH COMPONENT OF VELOCITY (BEFORE SOI)".
        ENTERED-BY: "JJF-ES".
        TYPE: REAL.
        UNITS: KPH.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA
             DATA:  D-072-NELS-EMITTER-DYNAMICS-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-084-A-NELS-EMITTER-VEL-Z-DATA.
        DATE-ENTERED: 20283.
        DESCRIPTION: "UP/DOWN COMPONENT OF VELOCITY (INITIALIZED DATA)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KPH.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-071-NELS-EMITTER-DATA.
        TRACED FROM:
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            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-084-NELS-EMITTER-VEL-Z-DATA.
           DATE-ENTERED: 102781.
           DESCRIPTION: "UP/DOWN COMPONENT OF VELOCITY (BEFORE SOI)".
           ENTERED-BY: "JJF-ES".
           TYPE: REAL.
           UNITS: MPS.
           USE: BOTH.
           INCLUDED IN:
                DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA
                DATA:  D-072-NELS-EMITTER-DYNAMICS-DATA.
           TRACED FROM:
                ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-085-A-NELS-EMITTER-X-DATA.
           DATE-ENTERED: 30283.
           DESCRIPTION: "DISTANCE EAST/WEST (INITIALIZED DATA)".
           ENTERED-BY: "JDURBS".
           TYPE: REAL.
           UNITS: KM.
           USE: BOTH.
           INCLUDED IN:
                DATA:  D-071-NELS-EMITTER-DATA.
           TRACED FROM:
                ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-085-B-NELS-EMITTER-X-DATA.
           DATE-ENTERED: 30283.
           DESCRIPTION: "DISTANCE EAST/WEST (BEFORE SOI)".
           ENTERED-BY: "JDURBS".
           TYPE: REAL.
           UNITS: KM.
           USE: BOTH.
           INCLUDED IN:
                DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
           TRACED FROM:
                ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-085-NELS-EMITTER-X-DATA.
           DATE-ENTERED: 102781.
           DESCRIPTION: "DISTANCE EAST/WEST".
           ENTERED-BY: "JJF-ES".
           TYPE: REAL.
           UNITS: KM.
           USE: BOTH.
           INCLUDED IN:
                DATA:  D-074-NELS-EMITTER-LOCATION-DATA.
           TRACED FROM:
                ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-086-A-NELS-EMITTER-Y-DATA.
           DATE-ENTERED: 30283.
           DESCRIPTION: "DISTANCE NORTH/SOUTH (INITIALIZED DATA)".
           ENTERED-BY: "JDURBS".
           TYPE: REAL.
           UNITS: KM.
           USE: BOTH.
```

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        INCLUDED IN:
             DATA:  D-071-NELS-EMITTER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-086-R-NELS-EMITTER-Y-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: "DISTANCE NORTH/SOUTH (BEFORE SOI)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-086-NELS-EMITTER-Y-DATA.
        DATE-ENTERED: 102781.
        DESCRIPTION: "DISTANCE NORTH/SOUTH".
        ENTERED-BY: "JJF-ES".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-076-NELS-EMITTER-LOCATION-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-087-A-NELS-EMITTER-Z-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: "ALTITUDE/ELEVATION (INITIALIZED DATA)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-071-NELS-EMITTER-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-087-R-NELS-EMITTER-Z-DATA.
        DATE-ENTERED: 30283.
        DESCRIPTION: "ALTITUDE/ELEVATION (BEFORE SOI)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-087-NELS-EMITTER-Z-DATA.
        DATE-ENTERED: 102781.
        DESCRIPTION: "ALTITUDE/ELEVATION".
        ENTERED-BY: "JJF-ES".
        TYPE: REAL.
```

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        UNITS: METERS.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-076-NELS-EMITTER-LOCATION-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA.
        DATE-ENTERED: 11282.
        DESCRIPTION: "PARAMETERS ESTIMATED BY TARGET ACQUISITION".
        ENTERED-BY: "JJF-NELS".
        INCLUDES:
             DATA:  D-077-NELS-EMITTER-MODULATION-TYPE-DATA
             DATA:  D-079-NELS-EMITTER-POWER-LEVEL-DATA
             DATA:  D-159-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
             DATA:  D-161-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA.
        CONTAINED IN:
             FILE:  F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

    DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        DATE-ENTERED: 11282.
        DESCRIPTION:
                "A RECORD OF ESTIMATED GROUND LOCATIONS FOR ONE
       EMITTER".
        ENTERED-BY: "JJF-NELS".
        INCLUDES:
             DATA:  D-069-NELS-EMITTER-CEP-DATA
             DATA:  D-157-NELS-EMISSION-DURATION-DATA
             DATA:  D-158-NELS-EMISSION-START-TIME-DATA
             DATA:  D-160-NELS-EMITTER-ID-DATA
             DATA:  D-162-NELS-EMITTER-X-DATA
             DATA:  D-163-NELS-EMITTER-Y-DATA
             DATA:  D-164-NELS-EMITTER-Z-DATA
             DATA:  D-165-SCENARIO-GEN-ID-NUM-DATA.
        CONTAINED IN:
             FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

    DATA:  D-090-NELS-FREQUENCY-SCAN-BAND-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "A RANGE OF FREQUENCIES TO SCAN".
        ENTERED-BY: "JJF-NELS".
        INCLUDES:
             DATA:  D-092-NELS-FREQ-SCAN-LOWER-FREQ-DATA
             DATA:  D-093-NELS-FREQ-SCAN-UPPER-FREQ-DATA.
        CONTAINED IN:
             FILE:  F-19-NELS-FREQUENCY-SCAN-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

    DATA:  D-091-NELS-FREQUENCY-SCAN-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION:
        "FREQUENCY TO WHICH THE NELS SENSORS ARE TO BE TUNED".
        ENTERED-BY: "JJF-NELS".
```

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        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INPUT TO:
             ALPHA:  A-08-NELS-FREQUENCY-SCAN-OPTIMIZATION-ALPHA
             ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
             ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA.
        OUTPUT FROM:
             ALPHA:  A-08-NELS-FREQUENCY-SCAN-OPTIMIZATION-ALPHA
             ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SENSOR-DIRECTOR.

   DATA:  D-092-NELS-FREQ-SCAN-LOWER-FREQ-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "LOWER FREQUENCY OF A SINGLE FREQUENCY BAND".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-090-NELS-FREQUENCY-SCAN-BAND-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

   DATA:  D-093-NELS-FREQ-SCAN-UPPER-FREQ-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "UPPER FREQUENCY OF A SINGLE FREQUENCY BAND".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-09C-NELS-FREQUENCY-SCAN-BAND-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

   DATA:  D-094-NELS-PRE-BRIEFED-AOI-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "NELS FILTERING CRITERIA FOR EACH SEARCH AREA".
        ENTERED-BY: "JJF-NELS".
        INCLUDES:
             DATA:  D-095-NELS-PRE-BRIEFED-AOI-FILTERING-CRITERIA-DATA
             DATA:  D-096-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-DATA
             DATA:  D-099-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-DATA.
        CONTAINED IN:
             FILE:  F-20-NELS-PRF-BRIEFED-AOI-FILE.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

   DATA:  D-095-NELS-PRE-BRIEFED-AOI-FILTERING-CRITERIA-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION:
                "FILTERING CRITERIA FOR A SPECIFIC GEOGRAPHIC
      SEARCH AREA".
        ENTERED-BY: "JJF-NELS".
        RANGE: "WITHIN-AREA,WITHOUT-AREA".
        TYPE: ENUMERATION.
```

```
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-094-NELS-PRE-BRIEFED-AOI-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

    DATA:  D-096-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION:
        "LOWER LEFT COORDINATES OF A GEOGRAPHIC SEARCH AREA".
        ENTERED-BY: "JJF-NELS".
        INCLUDES:
             DATA:  D-097-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-X-DATA
             DATA:  D-098-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-Y-DATA.
        INCLUDED IN:
             DATA:  D-094-NELS-PRE-BRIEFED-AOI-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

    DATA:  D-097-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-X-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION:
             "X COORDINATE OF LOWER LEFT CORNER OF A GEOGRAPHIC
       SEARCH AREA".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-096-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

    DATA:  D-098-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-Y-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION:
             "Y COORDINATE OF LOWER LEFT CORNER OF A GEOGRAPHIC
       SEARCH AREA".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-096-NELS-PRE-BRIEFED-AOI-LOWER-LEFT-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

    DATA:  D-099-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION:
             "COORDINATES OF UPPER RIGHT CORNER OF A GEOGRAPHILAL
       SEARCH AREA".
        ENTERED-BY: "JJF-NELS".
        INCLUDES:
             DATA:  D-100-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-X-DATA
             DATA:  D-101-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-Y-DATA.
        INCLUDED IN:
             DATA:  D-094-NELS-PRE-BRIEFED-AOI-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.
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```
DATA:  D-100-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-X-DATA.
       DATE-ENTERED: 11182.
       DESCRIPTION:
            "X COORDINATE OF UPPER RIGHT CORNER OF A GEOGRAPHIC
     SEARCH AREA".
       ENTERED-BY: "JJF-NELS".
       TYPE: REAL.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-099-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

DATA:  D-101-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-Y-DATA.
       DATE-ENTERED: 11182.
       DESCRIPTION:
            "X COORDINATE OF UPPER RIGHT CORNER OF A GEOGRAPHIC
     SEARCH AREA".
       ENTERED-BY: "JJF-NELS".
       TYPE: REAL.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-099-NELS-PRE-BRIEFED-AOI-UPPER-RIGHT-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

DATA:  D-102-NELS-PRE-BRIEFED-SOI-DATA.
       DATE-ENTERED: 11182.
       DESCRIPTION: "A RECORD OF FREQUENCY RANGES OF INTEREST".
       ENTERED-BY: "JJF-NELS".
       INCLUDES:
            DATA:  D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA
            DATA:  D-104-NELS-PRE-BRIEFED-SOI-FREQ-DATA
            DATA:  D-105-NELS-PRE-BRIEFED-SOI-MODULATION-TYPE-DATA
            DATA:  D-106-NELS-PRE-BRIEFED-SOI-START-FREQ-DATA.
       CONTAINED IN:
            FILE:  F-21-NELS-PRE-BRIEFED-SOI-FILE.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

DATA:  D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA.
       DATE-ENTERED: 11182.
       DESCRIPTION: "END FREQUENCY OF A FREQUENCY BAND".
       ENTERED-BY: "JJF-NELS".
       TYPE: REAL.
       UNITS: HERTZ.
       USE: BOTH.
       INCLUDED IN:
            DATA:  D-102-NELS-PRE-BRIEFED-SOI-DATA.
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

DATA:  D-104-NELS-PRE-BRIEFED-SOI-FREQ-DATA.
       DATE-ENTERED: 11182.
       DESCRIPTION: "PRIMARY EMISSION FREQUENCY TO TUNE TO".
       ENTERED-BY: "JJF-NELS".
       TYPE: REAL.
```

```
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-102-NELS-PRE-BRIEFED-SOI-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

    DATA: D-105-NELS-PRE-BRIEFED-SOI-MODULATION-TYPE-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "MODULATION TYPE TO SEARCH FOR".
        ENTERED-BY: "JJF-NELS".
        RANGE: "MODULATED,NOT-MODULATED".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-102-NELS-PRE-BRIEFED-SOI-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

    DATA: D-106-NELS-PRE-BRIEFED-SOI-START-FREQ-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "START FREQUENCY OF A FREQUENCY BAND".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-102-NELS-PRE-BRIEFED-SOI-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

    DATA: D-109-NELS-TDOA-1-2-DATA.
        DATE-ENTERED: 11282.
        DESCRIPTION: "TDOA BETWEEN NELS PLATFORMS 1 AND 2".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-112-NELS-TDOA-DD-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-TARGET-ACQUISITION.

    DATA: D-110-NELS-TDOA-1-3-DATA.
        DATE-ENTERED: 11282.
        DESCRIPTION: "TDOA BETWEEN NELS PLATFORMS 1 AND 3".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA: D-112-NELS-TDOA-DD-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-NELS-TARGET-ACQUISITION.

    DATA: D-111-NELS-TDOA-2-3-DATA.
        DATE-ENTERED: 11282.
        DESCRIPTION: "TDOA BETWEEN NELS PLATFORMS 2 AND 3".
        ENTERED-BY: "JJF-NELS".
        TYPE: REAL.
```

```
          USE: BOTH.
          INCLUDED IN:
               DATA:  D-112-NELS-TDOA-DD-DATA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

     DATA:  D-112-NELS-TDOA-DD-DATA.
          DATE-ENTERED: 11282.
          DESCRIPTION:
                  "A RECORD OF TDOA AND DD MEASUREMENTS FOR A PARTICULAR
        EMISSION".
          ENTERED-BY: "JJF-NELS".
          INCLUDES:
               DATA:  D-058-NELS-DD-1-2-DATA
               DATA:  D-059-NELS-DD-1-3-DATA
               DATA:  D-060-NELS-DD-2-3-DATA
               DATA:  D-109-NELS-TDOA-1-2-DATA
               DATA:  D-110-NELS-TDOA-1-3-DATA
               DATA:  D-111-NELS-TDOA-2-3-DATA.
          CONTAINED IN:
               FILE:  F-24-NELS-TDOA-DD-FILE.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

     DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
          DATE-ENTERED: 11282.
          DESCRIPTION:
                  "CONTENTS OF A TYPED EMITTER REPORT OUTPUT BY
        THE SIGNATURE ANALYSTS ALPHA".
          ENTERED-BY: "JJF-NELS".
          INCLUDES:
               DATA:  D-070-NELS-EMITTER-COV-DATA
               DATA:  D-074-NELS-EMITTER-FREQUENCY-DATA
               DATA:  D-166-NELS-EMITTER-ID-DATA
               DATA:  D-167-NELS-EMITTER-X-DATA
               DATA:  D-168-NELS-EMITTER-Y-DATA
               DATA:  D-169-NELS-EMITTER-Z-DATA
               DATA:  D-170-SCENARIO-GEN-ID-NUM-DATA
               DATA:  D-176-NELS-EMITTER-BANDWIDTH-DATA
               DATA:  D-177-NELS-EMITTER-CEP-DATA
               DATA:  D-178-NELS-EMITTER-MODULATION-TYPE-DATA
               DATA:  D-179-NELS-EMITTER-TIME-OF-LOCATION-DATA
               DATA:  D-180-NELS-EMITTER-TRAFFIC-TYPE-DATA.
          CONTAINED IN:
               FILE:  F-25-NELS-TYPED-EMITTER-REPORT-FILE.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNATURE-ANALYSIS.

     DATA:  D-114-PLATFORM-LOCATION-X-DATA.
          DATE-ENTERED: 11182.
          DESCRIPTION: "X COORDINATE OF A PLATFORM".
          ENTERED-BY: "JJF-NELS".
          TYPE: REAL.
          USE: BOTH.
          CONTAINED IN:
               FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
```

```
DATA:  D-115-PLATFORM-LOCATION-Y-DATA,
     DATE-ENTERED: 11182,
     DESCRIPTION: "Y COORDINATE OF A PLATFORM",
     ENTERED-BY: "JJF-NELS",
     TYPE: REAL,
     USE: BOTH,
     CONTAINED IN:
          FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE,
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE,

DATA:  D-116-PLATFORM-LOCATION-Z-DATA,
     DATE-ENTERED: 11182,
     DESCRIPTION: "Z COORDINATE OF A PLATFORM",
     ENTERED-BY: "JJF-NELS",
     TYPE: REAL,
     USE: BOTH,
     CONTAINED IN:
          FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE,
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE,

DATA:  D-117-PLATFORM-MOD-X-DATA,
     DATE-ENTERED: 11182,
     DESCRIPTION: "DESIRED X COORDINATE FOR SENSOR POSITION",
     ENTERED-BY: "JJF-NELS",
     TYPE: REAL,
     USE: BOTH,
     CONTAINED IN:
          FILE:  F-32-SENSOR-ORBIT-MODS-FILE,
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE
          ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-ACTIVITY-ELEMENTS
          .

DATA:  D-118-PLATFORM-MOD-Y-DATA,
     DATE-ENTERED: 11182,
     DESCRIPTION: "DESIRED Y COORDINATE FOR SENSOR POSITION",
     ENTERED-BY: "JJF-NELS",
     TYPE: REAL,
     USE: BOTH,
     CONTAINED IN:
          FILE:  F-32-SENSOR-ORBIT-MODS-FILE,
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE
          ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-ACTIVITY-ELEMENTS
          .

DATA:  D-119-PLATFORM-MOD-Z-DATA,
     DATE-ENTERED: 11182,
     DESCRIPTION: "DESIRED Z COORDINATE FOR SENSOR POSITION",
     ENTERED-BY: "JJF-NELS",
     TYPE: REAL,
     USE: BOTH,
     CONTAINED IN:
          FILE:  F-32-SENSOR-ORBIT-MODS-FILE,
     TRACED FROM:
```

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            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-ACTIVITY-ELEMENTS
            .

    DATA:  D-120-PRECIPITATION-DATA.
           DATE-ENTERED: 11182.
           DESCRIPTION: "PRECIPITATION DATA".
           ENTERED-BY: "JJF-NELS".
           RANGE: "NONE,DRIZZLE,RAIN,SNOW,SLEET,HAIL,RIME".
           TYPE: ENUMERATION.
           USE: BOTH.
           INCLUDED IN:
                DATA:  D-038-CONDITIONS-AT-ELEVATION-WEATHER-DATA.
           TRACED FROM:
                ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

    DATA:  D-125-REQ-DESTINATION-SENSOR-ID-DATA.
           DATE-ENTERED: 82481.
           DESCRIPTION: "IDENTIFICATION OF REQUESTED DESTINATION SENSOR".
           ENTERED-BY: "D  HARTSCHUH".
           RANGE: "GPS-NELS-1,GPS-NELS-2,GPS-NELS-3".
           TYPE: ENUMERATION.
           USE: BOTH.
           MAKES:
                MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT.
           OUTPUT FROM:
                ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA.
           TRACED FROM:
                DECISION:  CONTENTS-OF-MESSAGE.

    DATA:  D-126-REQ-REPORT-INFORMATION-TYPE-DATA.
           DATE-ENTERED: 82481.
           DESCRIPTION: "REQUESTED REPORT INFORMATION TYPE".
           ENTERED-BY: "D  HARTSCHUH".
           USE: BOTH.
           MAKES:
                MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT.
           OUTPUT FROM:
                ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA.
           TRACED FROM:
                DECISION:  CONTENTS-OF-MESSAGE.

    DATA:  D-127-REQ-SENSOR-TARGET-ID-OF-INTEREST-DATA.
           DATE-ENTERED: 82481.
           DESCRIPTION: "IDENTIFICATION OF REQUESTED SENSOR TARGET".
           ENTERED-BY: "D  HARTSCHUH".
           USE: BOTH.
           MAKES:
                MESSAGE:  M-10-NELS-SENSOR-REQUESTS-MSG-OUT.
           OUTPUT FROM:
                ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA.
           TRACED FROM:
                DECISION:  CONTENTS-OF-MESSAGE.

    DATA:  D-130-A-SCENARIO-GEN-ID-NUM-DATA.
           DATE-ENTERED: 30283.
           DESCRIPTION:
               "SCENARIO GENERATOR IDENTIFICATION NUMBER
```

```
        (INITIALIZED DATA)".
    ENTERED-BY: "JDURBS".
    TYPE: INTEGER.
    USE: BOTH.
    INCLUDED IN:
        DATA: D-071-NELS-EMITTER-DATA.
    TRACED FROM:
        ORIGINATING-REQUIREMENT: ORIG-REQ-SCENARIO-GENERATION.

DATA: D-130-B-SCENARIO-GEN-ID-NUM-DATA.
    DATE-ENTERED: 30283.
    DESCRIPTION:
        "SCENARIO GENERATOR IDENTIFICATION NUMBER
        (BEFORE SOI)".
    ENTERED-BY: "JDURBS".
    TYPE: INTEGER.
    USE: BOTH.
    INCLUDED IN:
        DATA: D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
    TRACED FROM:
        ORIGINATING-REQUIREMENT: ORIG-REQ-SCENARIO-GENERATION.

DATA: D-130-SCENARIO-GEN-ID-NUM-DATA.
    DATE-ENTERED: 102781.
    DESCRIPTION: "SCENARIO GENERATOR IDENTIFICATION NUMBER".
    ENTERED-BY: "JJF-ES".
    TYPE: INTEGER.
    USE: BOTH.
    CONTAINED IN:
        FILE: F-10-NELS-CANDIDATE-TARGETS-FILE.
    TRACED FROM:
        ORIGINATING-REQUIREMENT: ORIG-REQ-SCENARIO-GENERATION.

DATA: D-133-SECOND-CMDRS-REQ-UPDATE-DATA.
    DATE-ENTERED: 91581.
    DESCRIPTION: "A COMMANDERS REQUIREMENT UPDATE MESSAGE LOCATION".
    ENTERED-BY: "D  HARTSCHUH".
    RANGE: "IS-MODULATED,IS-NOT-MODULATED".
    TYPE: ENUMERATION.
    USE: BOTH.
    CONTAINED IN:
        FILE: F-04-CMDRS-DATA-TO-UPDATE-FILE.
    TRACED FROM:
        DECISION: CONTENTS-OF-MESSAGE.

DATA: D-135-SENSOR-ID-DATA.
    DATE-ENTERED: 91581.
    DESCRIPTION: "IDENTIFICATION FOR A SENSOR".
    ENTERED-BY: "D  HARTSCHUH".
    RANGE: "NELS-GPS-1,NELS-GPS-2,NELS-GPS-3".
    TYPE: ENUMERATION.
    USE: BOTH.
    MAKES:
        MESSAGE: M-06-NELS-ORBIT-MODIFICATIONS-MSG-IN
        MESSAGE: M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN
        MESSAGE: M-10-NELS-SENSOR-REQUESTS-MSG-OUT
        MESSAGE: M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT
        MESSAGE: M-14-NELS-TRACK-MESSAGE-MSG-OUT.
```

```
        INPUT TO:
              ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA
              ALPHA:
              A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA.
        OUTPUT FROM:
              ALPHA:  A-09-NELS-MAKE-SENSOR-REQUESTS-ALPHA
              ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
              ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
        TRACED FROM:
              ORIGINATING-REQUIREMENT:
              ORIG-REQ-TARGET-ID-CROSS-REFERENCE.

  DATA:  D-136-SENSOR-MODE-OF-OPERATION-DATA.
        DATE-ENTERED: 11182.
        DESCRIPTION: "MODE OF OPERATION OF SENSOR PLATFORM".
        ENTERED-BY: "JJF-NELS".
        RANGE:
          "SOI-SURVEILLANCE,SOT-SEARCH,AOI-SURVEILLANCE,AOT-SEARCH,
       IDLE".
        TYPE: ENUMERATION.
        USE: BOTH.
        CONTAINED IN:
              FILE:  F-34-SENSOR-STATUS-FILE.
        TRACED FROM:
              ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.
        REFERRED BY:
              SUBSET:  S-1-CHECK-NELS-SENSOR-STATUS-S IN.

  DATA:  D-137-SENSOR-PRIORITY-DATA.
        DATE-ENTERED: 100581.
        DESCRIPTION: "PRIORITY GIVEN TO A TASK".
        ENTERED-BY: "D  HARTSCHUH".
        TYPE: INTEGER.
        USE: BOTH.
        MAKES:
              MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN.
        INPUT TO:
              ALPHA:
              A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA.
        TRACED FROM:
              DECISION:  CONTENTS-OF-MESSAGE.

  DATA:  D-138-TASKING-RESPONSE-DATA.
        DATE-ENTERED: 91581.
        DESCRIPTION: "RESPONSE TO A TASK".
        ENTERED-BY: "D  HARTSCHUH".
        RANGE: "CAN-DO,CANT-DO".
        TYPE: ENUMERATION.
        USE: BOTH.
        MAKES:
              MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT.
        OUTPUT FROM:
              ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        TRACED FROM:
              DECISION:  CONTENTS-OF-MESSAGE.

  DATA:  D-139-TASK-QUE-ID-DATA.
        DATE-ENTERED: 91581.
```

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        DESCRIPTION:
                "IDENTIFICATION OF ELEMENT WITHIN THE TASKING
      QUEUE".
        ENTERED-BY: "D  HARTSCHUH".
        TYPE: INTEGER.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN
             MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT.
        INPUT TO:
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        OUTPUT FROM:
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        TRACED FROM:
             DECISION:  CONTENTS-OF-MESSAGE.

    DATA:  D-140-TBD-DATA.
        DATE-ENTERED: 90481.
        DESCRIPTION: "PRESENTLY UNKNOWN ENTITY SELECTION CRITERION".
        ENTERED-BY: "JJF-TC".
        INITIAL-VALUE: TRUE.
        TYPE: BOOLEAN.
        USE: BOTH.
        ASSOCIATED WITH:
             ENTITY-CLASS:  EC-1-NELS-DETECTABLE-EMISSION-BREAKOUT-EC
             ENTITY-CLASS:  EC-2-NELS-SCENARIO-EC
             ENTITY-CLASS:  EC-3-NELS-TASKS-EC
             ENTITY-CLASS:  EC-4-NELS-THREAT-EC
             ENTITY-CLASS:  EC-5-NELS-VEHICLE-CHARACTERISTICS-EC.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:
             ORIG-REQ-TC-MESSAGES-TO-CONTROL-AND-DISPLAY
             ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-OPERATOR.
        REFERRED BY:
             R-NET:  R-2-MODEL-NELS-SENSOR-SYSTEM-R-NET
             SUBNET:  S-1-CHECK-NELS-SENSOR-STATUS-SUB
             SUBNET:  S-3-MODEL-NELS-GPS-PROCESSING-SUB
             SUBNET:  S-4-MODEL-NELS-PLATFORM-SUB
             SUBNET:  S-5-MODEL-NELS-SENSOR-SUB.

    DATA:  D-141-TIME-DATA.
        DATE-ENTERED: 90481.
        DESCRIPTION:
                "TIME ELAPSED BASED ON A 24 HOUR CLOCK;
      A CURRENT PLANS PERIOD LASTS 24 HOURS".
        ENTERED-BY: "JJF-TC".
        TYPE: REAL.
        USE: BOTH.
        MAKES:
             MESSAGE:  M-13-NELS-TASKING-RESPONSES-MSG-OUT.
        INPUT TO:
             ALPHA:  A-02-GENERATE-DME-ALPHA
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        OUTPUT FROM:
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-CYCLE-START
             ORIGINATING-REQUIREMENT:  ORIG-REQ-TC-SYNC.
```

```
DATA:  D-142-TRACK-MESSAGE-DATA,
       DATE-ENTERED: 11182,
       DESCRIPTION: "INFORMATION DESCRIBING A TARGET TRACK",
       ENTERED-BY: "JJF-NELS",
       RANGE: "TRACKING,CAN-TRACK,WILL-LOSE-TRACK",
       TYPE: ENUMERATION,
       USE: BOTH,
       MAKES:
            MESSAGE:  M-14-NELS-TRACK-MESSAGE-MSG-OUT,
       OUTPUT FROM:
            ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA,
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE,

DATA:  D-143-X-LOC-FEASIBLE-DATA,
       DATE-ENTERED: 100581,
       DESCRIPTION: "X-AXIS LOCATION OF A FEASIBLE TARGET",
       ENTERED-BY: "D  HARTSCHUH",
       TYPE: REAL,
       USE: BOTH,
       CONTAINED IN:
            FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE,
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-FEASIBILITY,

DATA:  D-144-X-WEATHER-LOC-DATA,
       DATE-ENTERED: 11182,
       DESCRIPTION: "X LOCATION OF WEATHER ALTITUDE DATA",
       ENTERED-BY: "JJF-NELS",
       TYPE: REAL,
       USE: BOTH,
       CONTAINED IN:
            FILE:  F-26-NELS-WEATHER-CONDITIONS-FILE,
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE,

DATA:  D-145-Y-LOC-FEASIBLE-DATA,
       DATE-ENTERED: 100581,
       DESCRIPTION: "Y-AXIS LOCATION OF A FEASIBLE TARGET",
       ENTERED-BY: "D  HARTSCHUH",
       TYPE: REAL,
       USE: BOTH,
       CONTAINED IN:
            FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE,
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-FEASIBILITY,

DATA:  D-146-Y-WEATHER-LOC-DATA,
       DATE-ENTERED: 11182,
       DESCRIPTION: "Y LOCATION OF WEATHER ALTITUDE DATA",
       ENTERED-BY: "JJF-NELS",
       TYPE: REAL,
       USE: BOTH,
       CONTAINED IN:
            FILE:  F-26-NELS-WEATHER-CONDITIONS-FILE,
       TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE,
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DATA:  D-147-NELS-EMISSION-DURATION-DATA.
     DATE-ENTERED: 22483.
     DESCRIPTION:
"TIME THAT EMITTER IS EMITTING AND BEING LISTENED
TO BY NELS.(DETECTED EMISSION)".
     ENTERED-BY: "JDUBBS".
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-ADI.

DATA:  D-148-NELS-EMISSION-SIGNAL-STRENGTH-DATA.
     DATE-ENTERED: 22483.
     DESCRIPTION:
"S/N STRENGTH OF SIGNAL FOR A SINGLE SENSOR; STRENGTH
DATA FROM AT LEAST TWO SENSORS IS REQUIRED BEFORE A DETECTION CAN
BE CONFIRMED (DETECTED EMISSION)".
     ENTERED-BY: "JDUBBS".
     TYPE: REAL.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-ADI.

DATA:  D-149-NELS-EMISSION-START-TIME-DATA.
     DATE-ENTERED: 22483.
     DESCRIPTION: " TIME EMISSION STARTS (DETECTED EMISSIONS)".
     ENTERED-BY: "JDUBBS".
     TYPE: REAL.
     UNITS: HRS-MIN-SEC.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

DATA:  D-150-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA.
     DATE-ENTERED: 22483.
     DESCRIPTION:
     "BANDWIDTH OF NARROWBAND EMISSION (DETECTED EMISSION)".
     ENTERED-BY: "JDUBBS".
     TYPE: REAL.
     UNITS: HERTZ.
     USE: BOTH.
     CONTAINED IN:
          FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
     TRACED FROM:
          ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

DATA:  D-151-NELS-EMITTER-ID-DATA.
     DATE-ENTERED: 22483.
     DESCRIPTION: "IDENTIFIER OF EMITTER (DETECTED EMISSION)".
     ENTERED-BY: "JDUBBS".
     RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
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        TYPE: ENUMERATION.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F:12:DETECTED:CANDIDATE:TARGETS:FILE.
        TRACED FROM:
             ORIGINATING:REQUIREMENT:  ORIG:REQ:PRODUCE:SCENARIO.

   DATA:  D:152:NELS:EMITTER:TRANSMISSION:FREQUENCY:DATA.
        DATE:ENTERED: 22483.
        DESCRIPTION:
        " TRANSMISSION FREQUENCY OF EMITTER (DETECTED EMISSION)".
        ENTERED:BY: "JDURBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F:12:DETECTED:CANDIDATE:TARGETS:FILE.
        TRACED FROM:
             ORIGINATING:REQUIREMENT:  ORIG:REQ:PRODUCE:SCENARIO.

   DATA:  D:153:NELS:EMITTER:X:DATA.
        DATE:ENTERED: 22483.
        DESCRIPTION: "DISTANCE EAST/WEST (DETECTED EMISSION)".
        ENTERED:BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F:12:DETECTED:CANDIDATE:TARGETS:FILE.
        TRACED FROM:
             ORIGINATING:REQUIREMENT:  ORIG:REQ:PRODUCE:SCENARIO.

   DATA:  D:154:NELS:EMITTER:Y:DATA.
        DATE:ENTERED: 22483.
        DESCRIPTION: "DISTANCE NORTH/SOUTH (DETECTED EMISSION)".
        ENTERED:BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F:12:DETECTED:CANDIDATE:TARGETS:FILE.
        TRACED FROM:
             ORIGINATING:REQUIREMENT:  ORIG:REQ:PRODUCE:SCENARIO.

   DATA:  D:155:NELS:EMITTER:Z:DATA.
        DATE:ENTERED: 22483.
        DESCRIPTION: "ALTITUDE/ELEVATION (DETECTED EMISSION)".
        ENTERED:BY: "JDURBS".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        CONTAINED IN:
             FILE:  F:12:DETECTED:CANDIDATE:TARGETS:FILE.
        TRACED FROM:
             ORIGINATING:REQUIREMENT:  ORIG:REQ:PRODUCE:SCENARIO.

   DATA:  D:156:SCENARIO:GEN:ID:NUM:DATA.
        DATE:ENTERED: 22483.
```

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        DESCRIPTION:
            "SCENARIO GENERATOR IDENTIFICATION NUMBER
            (DETECTED EMISSION)".
        ENTERED-BY: "JDURBS".
        TYPE: INTEGER.
        USE: BOTH.
        CONTAINED IN:
            FILE:  F-12-DETECTED-CANDIDATE-TARGETS-FILE.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-GENERATION.

    DATA:  D-157-NELS-EMISSION-DURATION-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION:
    "TIME THAT EMITTER IS EMITTING AND BEING LISTENED
    TO BY NELS.(TDOA DD)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-ADI.

    DATA:  D-158-NELS-EMISSION-START-TIME-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: " TIME EMISSION STARTS (TDOA DD)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: HRS-MIN-SEC.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

    DATA:  D-159-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "BANDWIDTH OF NARROWBAND EMISSION (TDOA DD)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-160-NELS-EMITTER-ID-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "IDENTIFIER OF EMITTER (TDOA DD)".
        ENTERED-BY: "JDURBS".
        RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
```

```
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-161-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: " TRANSMISSION FREQUENCY OF EMITTER (TDOA DD)".
        ENTERED-BY: "JDUBBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-162-NELS-EMITTER-X-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "DISTANCE EAST/WEST (TDOA DD)".
        ENTERED-BY: "JDUBBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-163-NELS-EMITTER-Y-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "DISTANCE NORTH/SOUTH (TDOA DD)".
        ENTERED-BY: "JDUBBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-164-NELS-EMITTER-Z-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "ALTITUDE/ELEVATION (TDOA DD)".
        ENTERED-BY: "JDUBBS".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        INCLUDED IN:
            DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-165-SCENARIO-GEN-ID-NUM-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION:
            "SCENARIO GENERATOR IDENTIFICATION NUMBER
            (TDOA DD)".
        ENTERED-BY: "JDUBBS".
        TYPE: INTEGER.
        USE: BOTH.
```

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        INCLUDED IN:
             DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-GENERATION.

   DATA:  D-166-NELS-EMITTER-ID-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "IDENTIFIER OF EMITTER (REPORT DATA)".
        ENTERED-BY: "JDURBS".
        RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-167-NELS-EMITTER-X-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "DISTANCE EAST/WEST (REPORT DATA)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-168-NELS-EMITTER-Y-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "DISTANCE NORTH/SOUTH (REPORT DATA)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: KM.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-169-NELS-EMITTER-Z-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION: "ALTITUDE/ELEVATION (REPORT DATA)".
        ENTERED-BY: "JDURBS".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

   DATA:  D-170-SCENARIO-GEN-ID-NUM-DATA.
        DATE-ENTERED: 22483.
        DESCRIPTION:
             "SCENARIO GENERATOR IDENTIFICATION NUMBER
             (REPORT DATA)".
```

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        ENTERED-BY: "JDURBS",
        TYPE: INTEGER,
        USE: BOTH,
        INCLUDED IN:
             DATA: D-113-NELS-TYPED-EMITTER-REPORT-DATA,
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-SCENARIO-GENERATION,

   DATA: D-171-NELS-EMITTER-ID-DATA,
        DATE-ENTERED: 22483,
        DESCRIPTION: "IDENTIFIER OF EMITTER (TDOA DD)",
        ENTERED-BY: "JDURBS",
        RANGE: "RADIO,TANK,TRUCK,PLANE,SHIP,SUB,MISSILE,UNKNOWN",
        TYPE: ENUMERATION,
        USE: BOTH,
        INCLUDED IN:
             DATA: D-065-NELS-EMISSION-THREAT-TABLE-DATA,
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-PRODUCE-SCENARIO,

   DATA: D-172-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA,
        DATE-ENTERED: 22483,
        DESCRIPTION: " TRANSMISSION FREQUENCY OF EMITTER (TDOA DD)",
        ENTERED-BY: "JDURBS",
        TYPE: REAL,
        UNITS: HERTZ,
        USE: BOTH,
        INCLUDED IN:
             DATA: D-065-NELS-EMISSION-THREAT-TABLE-DATA,
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-PRODUCE-SCENARIO,

   DATA: D-173-NELS-EMITTER-X-DATA,
        DATE-ENTERED: 22483,
        DESCRIPTION: "DISTANCE EAST/WEST (TDOA DD)",
        ENTERED-BY: "JDURBS",
        TYPE: REAL,
        UNITS: KM,
        USE: BOTH,
        INCLUDED IN:
             DATA: D-065-NELS-EMISSION-THREAT-TABLE-DATA,
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-PRODUCE-SCENARIO,

   DATA: D-174-NELS-EMITTER-Y-DATA,
        DATE-ENTERED: 22483,
        DESCRIPTION: "DISTANCE NORTH/SOUTH (TDOA DD)",
        ENTERED-BY: "JDURBS",
        TYPE: REAL,
        UNITS: KM,
        USE: BOTH,
        INCLUDED IN:
             DATA: D-065-NELS-EMISSION-THREAT-TABLE-DATA,
        TRACED FROM:
             ORIGINATING-REQUIREMENT: ORIG-REQ-PRODUCE-SCENARIO,

   DATA: D-175-NELS-EMITTER-Z-DATA,
        DATE-ENTERED: 22483,
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        DESCRIPTION: "ALTITUDE/ELEVATION (TDOA OD)".
        ENTERED-BY: "JDUBBS".
        TYPE: REAL.
        UNITS: METERS.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-065-NELS-EMISSION-THREAT-TABLE-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-PRODUCE-SCENARIO.

    DATA:  D-176-NELS-EMITTER-BANDWIDTH-DATA.
        DATE-ENTERED: 30383.
        DESCRIPTION: " BANDWIDTH OF EMISSION(S) EMITTER EMITS (REPORT)".
        ENTERED-BY: "JDUBBS".
        TYPE: REAL.
        UNITS: HERTZ.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    DATA:  D-177-NELS-EMITTER-CEP-DATA.
        DATE-ENTERED: 30383.
        DESCRIPTION:
    " CIRCULAR ERROR PROBABLE ESTIMATE FOR A NELS
    DETECTABLE EMITTER (REPORT)".
        ENTERED-BY: "JDUBBS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
             .

    DATA:  D-178-NELS-EMITTER-MODULATION-TYPE-DATA.
        DATE-ENTERED: 30383.
        DESCRIPTION: "TYPE OF MODULATION EXHIBITED BY EMITTER (REPORT)".
        ENTERED-BY: "JDUBBS".
        RANGE: "MODULATED,NOT-MODULATED".
        TYPE: ENUMERATION.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

    DATA:  D-179-NELS-EMITTER-TIME-OF-LOCATION-DATA.
        DATE-ENTERED: 30383.
        DESCRIPTION: "TIME AT WHICH THE EMITTER WAS LOCATED (REPORT)".
        ENTERED-BY: "JDUBBS".
        TYPE: REAL.
        USE: BOTH.
        INCLUDED IN:
             DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
```

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                .

    DATA:  D-180-NELS-EMITTER-TRAFFIC-TYPE-DATA,
          DATE-ENTERED: 30383,
          DESCRIPTION: " TRAFFIC TYPE CODE FOR A NELS EMITTER (REPORT)",
          ENTERED-BY: "JDURBS",
          RANGE: "PASSIVE,POTENTIAL-THREAT,THREAT",
          TYPE: ENUMERATION,
          USE: BOTH,
          INCLUDED IN:
               DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA,
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
                .

    DATA:  D-181-NELS-EMITTER-MODULATION-TYPE-DATA,
          DATE-ENTERED: 30383,
          DESCRIPTION: "TYPE OF MODULATION EXHIBITED BY EMITTER (TABLE)",
          ENTERED-BY: "JDURBS",
          RANGE: "MODULATED,NOT-MODULATED",
          TYPE: ENUMERATION,
          USE: BOTH,
          INCLUDED IN:
               DATA:  D-065-NELS-EMISSION-THREAT-TABLE-DATA,
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE,

    DATA:  D-182-NELS-EMITTER-BANDWIDTH-DATA,
          DATE-ENTERED: 30383,
          DESCRIPTION: " BANDWIDTH OF EMISSION(S) EMITTER EMITS (TABLE)",
          ENTERED-BY: "JDURBS",
          TYPE: REAL,
          UNITS: HERTZ,
          USE: BOTH,
          INCLUDED IN:
               DATA:  D-065-NELS-EMISSION-THREAT-TABLE-DATA,
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE,

    DATA:  D-183-NELS-EMITTER-CEP-DATA,
          DATE-ENTERED: 30383,
          DESCRIPTION:
    " CIRCULAR ERROR PROBABLE ESTIMATE FOR A NELS
    DETECTABLE EMITTER (TABLE)",
          ENTERED-BY: "JDURBS",
          TYPE: REAL,
          USE: BOTH,
          INCLUDED IN:
               DATA:  D-065-NELS-EMISSION-THREAT-TABLE-DATA,
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
                .

[RADX COMMAND=
                    LIST THE-FILES,
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    FILE:  F-02-CARTO-UPDATE-FILE,
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        DATE-ENTERED: 10882.
        DESCRIPTION: "FILE OF CARTOGRAPHIC UPDATES".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
             DATA:  D-029-CARTO-SECTION-NUM-DATA
             DATA:  D-030-CARTO-UPDATE-1-DATA
             DATA:  D-031-CARTO-UPDATE-2-DATA
             DATA:  D-032-CARTO-UPDATE-3-DATA
             DATA:  D-033-CARTO-UPDATE-X-DATA
             DATA:  D-034-CARTO-UPDATE-Y-DATA.
        MAKES:
             MESSAGE:  M-02-NELS-CARTO-UPDATES-MSG-IN
             MESSAGE:  M-14-NELS-TRACK-MESSAGE-MSG-OUT.
        INPUT TO:
             ALPHA:  A-25-UPDATE-CARTO-ALPHA.
        ORDERED BY:
             DATA:  D-029-CARTO-SECTION-NUM-DATA.
        OUTPUT FROM:
             ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   FILE:  F-04-CMDRS-DATA-TO-UPDATE-FILE.
        DATE-ENTERED: 11182.
        DESCRIPTION: "COMMANDERS REQUIREMENTS".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
             DATA:  D-040-FIRST-CMDRS-REQ-UPDATE-DATA
             DATA:  D-133-SECOND-CMDRS-REQ-UPDATE-DATA.
        MAKES:
             MESSAGE:  M-03-NELS-COMMANDERS-REQUIREMENTS-MSG-IN.
        INPUT TO:
             ALPHA:  A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   FILE:  F-05-FEASIBLE-ACTIVITY-AREA-FILE.
        DATE-ENTERED: 10581.
        DESCRIPTION: "CONTAINS X,Y-AXIS LOCATIONS OF FEASIBLE TARGETS".
        ENTERED-BY: "D  HARTSCHUH".
        CONTAINS:
             DATA:  D-143-X-LOC-FEASIBLE-DATA
             DATA:  D-145-Y-LOC-FEASIBLE-DATA.
        MAKES:
             MESSAGE:  M-04-NELS-MODIFIED-TASK-MSG-IN
             MESSAGE:  M-08-NELS-PRIORITIZED-SENSOR-DIRECTIONS-MSG-IN.
        INPUT TO:
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA
             ALPHA:
             A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-FEASIBLE-CHECK
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-FEASIBILITY.

   FILE:  F-06-FLIGHT-PROFILE-FILE.
        DATE-ENTERED: 11182.
        DESCRIPTION: "FLIGHT WAYPOINTS FILE".
        ENTERED-BY: "JJF-NELS".
```

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        CONTAINS:
             DATA:  D-041-FLIGHT-WAYPOINT-X-DATA
             DATA:  D-042-FLIGHT-WAYPOINT-Y-DATA
             DATA:  D-043-FLIGHT-WAYPOINT-Z-DATA.
        ASSOCIATED WITH:
             ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET.
        INPUT TO:
             ALPHA:  A-02-GENERATE-DME-ALPHA
             (* USED TO GENERATE DME *)
             ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA
             ALPHA:  A-16-NELS-PROCESS-REQUESTED-DATA-ALPHA
             ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA.
        OUTPUT FROM:
             ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA
             ALPHA:  A-11-NELS-MODIFY-TASK-ALPHA
             ALPHA:  A-16-NELS-PROCESS-REQUESTED-DATA-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:
             ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

   FILE:  F-07-GROUP-TARGET-LOCS-FILE.
        DATE-ENTERED: 11182.
        DESCRIPTION: "POSITION OF KNOWN GROUND TARGET(S)".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
             DATA:  D-048-GROUND-TARGET-LOC-X-DATA
             DATA:  D-049-GROUND-TARGET-LOC-Y-DATA.
        MAKES:
             MESSAGE:  M-05-NELS-NCN-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
             MESSAGE:  M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN
             MESSAGE:  M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT.
        INPUT TO:
             ALPHA:  A-16-NELS-PROCESS-REQUESTED-DATA-ALPHA.
        OUTPUT FROM:
             ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   FILE:  F-10-NELS-CANDIDATE-TARGETS-FILE.
        DATE-ENTERED: 11182.
        DESCRIPTION:
   "NELS CANDIDATE TARGETS OUTPUT FROM THE SOI FILTER,
   AOI FILTER, AND S/N.  THIS SAME INFO IS FURTHER TESTED
   IN THE TERRAIN/FOLIAGE SHADOWING PROCESS BUT IS THEN
   PUT IN A DIFFERENT FILE".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
             DATA:  D-061-NELS-EMISSION-DURATION-DATA
             DATA:  D-062-NELS-EMISSION-SIGNAL-STRENGTH-DATA
             DATA:  D-063-NELS-EMISSION-START-TIME-DATA
             DATA:  D-073-NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA
             DATA:  D-075-NELS-EMITTER-ID-DATA
             DATA:  D-076-NELS-EMITTER-LOCATION-DATA
             DATA:  D-081-NELS-EMITTER-TRANSMISSION-FREQUENCY-DATA
             DATA:  D-130-SCENARIO-GEN-ID-NUM-DATA.
        ASSOCIATED WITH:
             ENTITY-TYPE:  ET-10-GROUND-SHADOWING-CANDIDATE-TARGETS-ET
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            ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET
            ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET
            ENTITY-TYPE:  ET-9-SIGNAL-NOISE-CANDIDATE-TARGETS-ET.
      INPUT TO:
            ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
            ALPHA:  A-22-NELS-TERRAIN-FOLIAGE-SHADOWING-ALPHA.
      OUTPUT FROM:
            ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
            .

FILE:  F-13-NELS-EMISSION-THREAT-TABLE-FILE.
      DATE-ENTERED: 11282.
      DESCRIPTION: "FILE OF DETECTED EMITTERS ".
      ENTERED-BY: "JJF-NELS".
      CONTAINS:
            DATA:  D-065-NELS-EMISSION-THREAT-TABLE-DATA.
      ASSOCIATED WITH:
            ENTITY-TYPE:  ET-1-NELS-EMISSION-THREAT-ET.
      INPUT TO:
            ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
            ALPHA:  A-23-NELS-THREAT-TABLE-UPDATE-ALPHA.
      ORDERED BY:
            DATA:  D-079-NELS-EMITTER-TIME-OF-LOCATION-DATA.
      OUTPUT FROM:
            ALPHA:  A-23-NELS-THREAT-TABLE-UPDATE-ALPHA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-THREAT-TABLE-UPDATE
            .

FILE:  F-14-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-FILE.
      DATE-ENTERED: 11182.
      DESCRIPTION: "NELS SCENARIO DATA".
      ENTERED-BY: "JJF-NELS".
      CONTAINS:
            DATA:  D-066-NELS-EMITTER-ACTIVITY-GROUND-TRUTH-DATA.
      ASSOCIATED WITH:
            ENTITY-TYPE:  ET-2-NELS-EMITTER-GROUND-TRUTH-ET.
      INPUT TO:
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            (* USED BUT NOT UPDATED *).
      ORDERED BY:
            DATA:  D-075-R-NELS-EMITTER-ID-DATA.
      OUTPUT FROM:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

FILE:  F-15-NELS-EMITTER-CHARACTERISTICS-FILE.
      DATE-ENTERED: 11182.
      DESCRIPTION: "NELS EMITTER CHARACTERISTICS TABLE".
      ENTERED-BY: "JJF-NELS".
      CONTAINS:
```

```
            DATA:  D-069-NELS-EMITTER-CHARACTERISTICS-DATA.
      ASSOCIATED WITH:
            ENTITY-TYPE:  ET-6-NELS-VEHICLE-CHARACTERISTICS-ET.
      INPUT TO:
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA
            (* USED BUT NOT UPDATED *).
      OUTPUT FROM:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

FILE:  F-16-NELS-EMITTER-FILE.
      DATE-ENTERED: 102781.
      DESCRIPTION: "FILE OF NELS-DETECTABLE EMITTERS".
      ENTERED-BY: "JJF-ES".
      CONTAINS:
            DATA:  D-071-NELS-EMITTER-DATA.
      MAKES:
            MESSAGE:  M-01-ES-NELS-UNIT-AND-ENVIRONMENT-DATA-MSG-IN.
      INPUT TO:
            ALPHA:  A-04-INITIALIZE-NELS-ALPHA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-SCENARIO-TIMING.

FILE:  F-17-NELS-ESTIMATED-EMITTER-PARAMETERS-FILE.
      DATE-ENTERED: 11282.
      DESCRIPTION:
      "FILE OF PARAMETERS ESTIMATED BY TARGET ACQUISITION".
      ENTERED-BY: "JJF-NELS".
      CONTAINS:
            DATA:  D-088-NELS-ESTIMATED-EMITTER-PARAMETERS-DATA.
      ASSOCIATED WITH:
            ENTITY-TYPE:  ET-11-DETECTED-EMISSIONS-DD-TDOA-ET
            ENTITY-TYPE:  ET-12-DETECTED-EMISSIONS-COARSE-ET
            ENTITY-TYPE:  ET-13-DETECTED-EMISSIONS-FINE-ET.
      INPUT TO:
            ALPHA:  A-06-NELS-COARSE-LOCATION-ALPHA
            ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
            ALPHA:  A-08-NELS-FREQUENCY-SCAN-OPTIMIZATION-ALPHA
            ALPHA:  A-12-NELS-PERFORM-SIGNATURE-ANALYSIS-ALPHA.
      OUTPUT FROM:
            ALPHA:  A-07-NELS-FINE-LOCATION-ALPHA
            ALPHA:  A-21-NELS-TARGET-ACQUISITION-ALPHA.
      TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

FILE:  F-18-NELS-ESTIMATED-GROUND-TRUTH-FILE.
      DATE-ENTERED: 11282.
      DESCRIPTION:
            "FILE OF ESTIMATED GROUND LOCATIONS OF NELS
   DETECTABLE EMITTERS".
      ENTERED-BY: "JJF-NELS".
      CONTAINS:
            DATA:  D-089-NELS-ESTIMATED-GROUND-TRUTH-DATA.
      ASSOCIATED WITH:
            ENTITY-TYPE:  ET-11-DETECTED-EMISSIONS-DD-TDOA-ET
            ENTITY-TYPE:  ET-12-DETECTED-EMISSIONS-COARSE-ET
            ENTITY-TYPE:  ET-13-DETECTED-EMISSIONS-FINE-ET.
```

```
          INPUT TO:
               ALPHA:   A-06-NELS-COARSE-LOCATION-ALPHA
               ALPHA:   A-07-NELS-FINE-LOCATION-ALPHA
               ALPHA:   A-12-NELS-PERFORM-SIGNATURE-ANALYSIS-ALPHA.
          OUTPUT FROM:
               ALPHA:   A-06-NELS-COARSE-LOCATION-ALPHA
               ALPHA:   A-07-NELS-FINE-LOCATION-ALPHA
               ALPHA:   A-21-NELS-TARGET-ACQUISITION-ALPHA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

     FILE:  F-19-NELS-FREQUENCY-SCAN-FILE.
          DATE-ENTERED: 11182.
          DESCRIPTION:
                    "THE SET OF FREQUENCY SCAN RANGES TO BE SEARCHED
        BY THE NELS".
          ENTERED-BY: "JJF-NELS".
          CONTAINS:
               DATA:  D-090-NELS-FREQUENCY-SCAN-BAND-DATA.
          ASSOCIATED WITH:
               ENTITY-TYPE:  ET-4-NELS-FREQUENCY-SCAN-ET.
          INPUT TO:
               ALPHA:
               A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA.
          OUTPUT FROM:
               ALPHA:
               A-15-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

     FILE:  F-20-NELS-PRE-BRIEFED-AOI-FILE.
          DATE-ENTERED: 11182.
          DESCRIPTION:
          "CONTAINS NELS FILTERING CRITERIA FOR EACH SEARCH AREA".
          ENTERED-BY: "JJF-NELS".
          CONTAINS:
               DATA:  D-094-NELS-PRE-BRIEFED-AOI-DATA.
          ASSOCIATED WITH:
               ENTITY-TYPE:  ET-8-NELS-PRE-BRIEFED-AOI-ET.
          INPUT TO:
               ALPHA:  A-05-NELS-AREA-OF-INTEREST-FILTER-ALPHA
               ALPHA:  A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA
               ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA.
          OUTPUT FROM:
               ALPHA:  A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-AOI.

     FILE:  F-21-NELS-PRE-BRIEFED-SOI-FILE.
          DATE-ENTERED: 11182.
          DESCRIPTION: "FILE OF RANGES OF FREQUENCIES OF INTEREST".
          ENTERED-BY: "JJF-NELS".
          CONTAINS:
               DATA:  D-102-NELS-PRE-BRIEFED-SOI-DATA.
          ASSOCIATED WITH:
               ENTITY-TYPE:  ET-5-NELS-PRE-BRIEFED-SOI-ET.
          INPUT TO:
               ALPHA:  A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA
```

```
            ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA
            ALPHA:  A-18-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA.
        OUTPUT FROM:
            ALPHA:  A-14-NELS-PROCESS-COMMANDERS-REQUIREMENTS-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-OF-INTEREST.

    FILE:  F-24-NELS-TDOA-DD-FILE.
        DATE-ENTERED: 11282.
        DESCRIPTION:
                "FILE OF TIME DIFFERENCE OF ARRIVAL (TDOA) AND
       DIFFERENTIAL DOPPLER (DD) MEASUREMENTS RELATIVE TO EACH
       NELS SENSOR PLATFORM".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
            DATA:  D-112-NELS-TDOA-DD-DATA.
        INPUT TO:
            ALPHA:  A-06-NELS-COARSE-LOCATION-ALPHA.
        OUTPUT FROM:
            ALPHA:  A-21-NELS-TARGET-ACQUISITION-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-TARGET-ACQUISITION.

    FILE:  F-25-NELS-TYPED-EMITTER-REPORT-FILE.
        DATE-ENTERED: 11282.
        DESCRIPTION: "FILE OF TYPED EMITTER REPORTS".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
            DATA:  D-113-NELS-TYPED-EMITTER-REPORT-DATA.
        INPUT TO:
            ALPHA:  A-20-NELS-SURVEILLANCE-AND-TRACK-MSGS-ALPHA
            ALPHA:  A-23-NELS-THREAT-TABLE-UPDATE-ALPHA.
        OUTPUT FROM:
            ALPHA:  A-12-NELS-PERFORM-SIGNATURE-ANALYSIS-ALPHA.
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNATURE-ANALYSIS.

    FILE:  F-26-NELS-WEATHER-CONDITIONS-FILE.
        DATE-ENTERED: 11182.
        DESCRIPTION: "X-Y-ALTITUDE ORDERED WEATHER DATA".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
            DATA:  D-001-ALTITUDE-WEATHER-LOC-DATA
            DATA:  D-144-X-WEATHER-LOC-DATA
            DATA:  D-146-Y-WEATHER-LOC-DATA.
        ASSOCIATED WITH:
            ENTITY-TYPE:  ET-7-NELS-WEATHER-ET.
        INPUT TO:
            ALPHA:  A-19-NELS-SIGNAL-TO-NOISE-DETECTABILITY-ALPHA
            (* USED BUT NOT UPDATED *).
        TRACED FROM:
            ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-SIGNAL-TO-NOISE.

    FILE:  F-27-PLATFORM-CONTROL-FILE.
        DATE-ENTERED: 11182.
        DESCRIPTION:
                "LOCATION AND DYNAMICS AT VARIOUS POINT ALONG THE
       MISSION PATH PROFILE".
```

```
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
             DATA:  D-010-ASP-ALTITUDE-DATA
             DATA:  D-014-ASP-LOC-X-DATA
             DATA:  D-015-ASP-LOC-Y-DATA
             DATA:  D-016-ASP-LOC-Z-DATA
             DATA:  D-022-ASP-VEL-X-DATA
             DATA:  D-023-ASP-VEL-Y-DATA
             DATA:  D-024-ASP-VEL-Z-DATA.
        ASSOCIATED WITH:
             ENTITY-TYPE:  ET-3-NELS-FLIGHT-ET.
        INPUT TO:
             ALPHA:  A-02-GENERATE-DME-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:
             ORIG-REQ-GENERATE-PLATFORM-MEASUREMENTS.

   FILE:  F-32-SENSOR-ORBIT-MODS-FILE.
        DATE-ENTERED: 10882.
        DESCRIPTION: "DESIRED OBSERVATION POSITION(S) FOR SENSORS".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
             DATA:  D-117-PLATFORM-MOD-X-DATA
             DATA:  D-118-PLATFORM-MOD-Y-DATA
             DATA:  D-119-PLATFORM-MOD-Z-DATA.
        MAKES:
             MESSAGE:  M-06-NELS-ORBIT-MODIFICATIONS-MSG-IN.
        INPUT TO:
             ALPHA:  A-10-NELS-MODIFY-ORBIT-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE
             ORIGINATING-REQUIREMENT:  ORIG-REQ-SENSOR-ACTIVITY-ELEMENTS
             .

   FILE:  F-33-SENSOR-PLATFORM-LOCATION-FILE.
        DATE-ENTERED: 11182.
        DESCRIPTION: "LOCATION OF EACH SENSOR PLATFORM".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
             DATA:  D-114-PLATFORM-LOCATION-X-DATA
             DATA:  D-115-PLATFORM-LOCATION-Y-DATA
             DATA:  D-116-PLATFORM-LOCATION-Z-DATA.
        MAKES:
             MESSAGE:  M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT.
        OUTPUT FROM:
             ALPHA:  A-13-NELS-PLATFORM-LOCATION-MSG-ALPHA.
        TRACED FROM:
             ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

   FILE:  F-34-SENSOR-STATUS-FILE.
        DATE-ENTERED: 11182.
        DESCRIPTION: "SENSOR STATUS".
        ENTERED-BY: "JJF-NELS".
        CONTAINS:
             DATA:  D-040-FREQUENCY-SCAN-PARAMETER-DATA
             DATA:  D-134-SENSOR-MODE-OF-OPERATION-DATA.
        MAKES:
             MESSAGE:  M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT.
```

```
          OUTPUT FROM:
               ALPHA:  A-17-NELS-SENSOR-STATUS-ALPHA.
          TRACED FROM:
               ORIGINATING-REQUIREMENT:  ORIG-REQ-NELS-EXTERNAL-INTERFACE.

 [RADX COMMAND]
 (*   SECTION 4  QUALITY ASSURANCE PROVISION                    *)
                  LIST VALIDATION-PATH.
 ------------------------------------------------------------

 [RADX COMMAND]
  END RADX
 --------------
0XX 002  FUNCTION RADX      COMPLETED.  ************************************
         STOP. (GENERATED STATEMENT)
0XX 007  REVS COMPLETED: NORMAL TERMINATION.
0XX 007  YOUR NEW DATA BASE IS ON TAPE2.DAT......

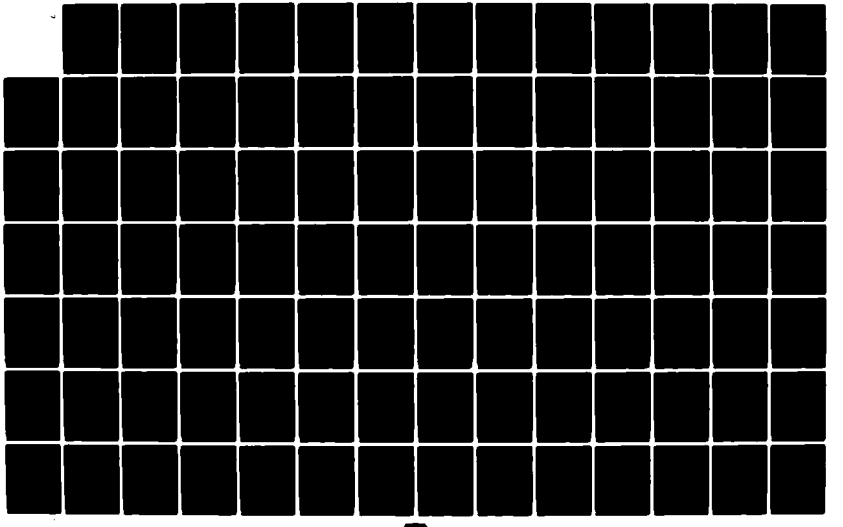
%DELETE-W-FILNOTDEL, error deleting DISK$USER1:[REVS.RSLNAME.*;*
-RMS-E-FNF, file not found
  REVS          job terminated at 21-MAR-1983 17:14:56.01

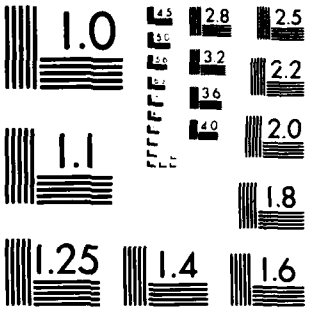
  Accounting information:
  Buffered I/O count:           188       Peak working set size:    512
  Direct I/O count:            1138       Peak page file size:     4572
  Page faults:               255024       Mounted volumes:            0
  Elapsed CPU time:     0 00:15:13.75     Elapsed time:     0 03:54:40.50
```

APPENDIX E

SIMULATION OF THE NELS SUBSYSTEM

AD-A141 632 SREM (SOFTWARE REQUIREMENTS ENGINEERING METHODOLOGY) 5/6
EVALUATION VOLUME 2..(U) MARTIN MARIETTA DENVER
AEROSPACE CO A STONE ET AL. FEB 84 MCR-83-553-VOL-2
UNCLASSIFIED RADC-TR-83-314-VOL-2 F30602-80-C-0272 F/G 9/2 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

USER-CREATED

SDF FILE

FOR SIMULATION GENERATION

```
MSGS,STAT,POST
$
SSEXOGSTR =
'SSEXOG
$
$
   STAT,MSGS,POST : TEXT
  ;SSPOSTINGTIME  : REAL
  ;SS←MSG←SOURCE  : EE0D←002←ASET←MSG←DEST←DATA
  ;SS←MSG←NAME    : EE0D←004←ASET←MSG←NAME←DATA
  ;SS←MSG←DEST    : EE0D←002←ASET←MSG←DEST←DATA
  ;
$
PROCEDURE SSEXOG (* EXOGENOUS STIMULI *)
  ;BEGIN
    (* NO EXOGENOUS STIMULI ARE USED IN THIS SIMULATION *)
  END (* SSEXOG *);

PROCEDURE SSSTARTUP (* STARTUP OF SIMULATION *)

  (* POST THE FIRST MESSAGE TO THE SUBSYSTEM AT *)
  (* THE DESIRED SIMULATION START TIME *)

  ;BEGIN
    OPEN(MSGS,'NELSMSGS.DAT',OLD)
    ;RESET(MSGS)
    ;OPEN(STAT,'NELSSTAT.DAT',OLD)
    ;RESET(STAT)
    ;READ(MSGS,SS←MSG←SOURCE
              ,SS←MSG←NAME
              ,SS←MSG←DEST)

      ;D←005←ASET←MSG←SOURCE←DATA:=SS←MSG←SOURCE
      ;D←004←ASET←MSG←NAME←DATA:=SS←MSG←NAME
      ;D←002←ASET←MSG←DEST←DATA:=SS←MSG←DEST

    ;EEPLDREC(F←16←NELS←EMITTER←FILE)
    ;READLN(MSGS,D←063←A←NELS←EMISSION←START←TIME←DATA,
         D←064←A←NELS←EMISSION←STOP←TIME←DATA,
         D←082←A←NELS←EMITTER←VEL←X←DATA,
         D←083←A←NELS←EMITTER←VEL←Y←DATA,
         D←084←A←NELS←EMITTER←VEL←Z←DATA,
         D←073←A←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA,
         D←075←A←NELS←EMITTER←ID←DATA,
         D←085←A←NELS←EMITTER←X←DATA,
         D←086←A←NELS←EMITTER←Y←DATA,
         D←087←A←NELS←EMITTER←Z←DATA,
         D←081←A←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA,
         D←130←A←SCENARIO←GEN←ID←NUM←DATA)
    ;EESAVREC(F←16←NELS←EMITTER←FILE)
    ;OPEN(POST,'POSTSET.DAT',OLD)
    ;RESET(POST)
    ;READLN(POST,SSPOSTINGTIME)
    ;EEPSTMFS(M←01←ES←NELS←UNIT←AND←ENVIRONMENT←DATA←MSG←IN,SSPOSTINGTIME)
  END (* SSSTARTUP *);

PROCEDURE SS←1←REST←OF←ASE (* DUMMY MODEL OF ASET SYSTEM *)

  ;BEGIN

    (* SINCE THIS SIMULATION MODEL POSTS MESSAGES FROM A PRESET *)
```

```
(* FILE, IT DOES NOT NEED TO EXAMINE CONTENTS OF OUTPUT MSGS *)

(* WHILE HEADERS AND FORM MESSAGES UNTIL END OF MSGS FILE *)

WHILE NOT EOF(MSGS) DO BEGIN
;READ(MSGS,SS←MSG←SOURCE
          ,SS←MSG←NAME
          ,SS←MSG←DEST)
;READLN(POST,SSPOSTINGTIME)
    ;D←005←ASET←MSG←SOURCE←DATA:=SS←MSG←SOURCE
    ;D←004←ASET←MSG←NAME←DATA:=SS←MSG←NAME
    ;D←002←ASET←MSG←DEST←DATA:=SS←MSG←DEST
;CASE D←004←ASET←MSG←NAME←DATA OF
    MN←02←NELS←CARTO←UPDATES:BEGIN
      EEBLDREC(F←02←CARTO←UPDATE←FILE)
      ;READLN(MSGS,D←029←CARTO←SECTION←NUM←DATA,
               D←030←CARTO←UPDATE←1←DATA,
               D←031←CARTO←UPDATE←2←DATA,
               D←032←CARTO←UPDATE←3←DATA,
               D←033←CARTO←UPDATE←X←DATA,
               D←034←CARTO←UPDATE←Y←DATA)
      ;EESAVREC(F←02←CARTO←UPDATE←FILE)
      ;EEPSTMES(M←02←NELS←CARTO←UPDATES←MSG←IN,SSPOSTINGTIME)
    END
    ;MN←03←NELS←COMMANDERS←REQUIREMENTS : BEGIN
      EEBLDREC(F←04←CMDRS←DATA←TO←UPDATE←FILE)
      ;READLN(MSGS,D←040←FIRST←CMDRS←REQ←UPDATE←DATA,
               D←133←SECOND←CMDRS←REQ←UPDATE←DATA)
      ;EESAVREC(F←04←CMDRS←DATA←TO←UPDATE←FILE)
      ;EEPSTMES(M←03←NELS←COMMANDERS←REQUIREMENTS←MSG←IN,SSPOSTINGTIME)
    END
    ;MN←04←NELS←MODIFIED←TASK : BEGIN
      READ(MSGS,D←056←NEEDED←FEASIBLE←DATA,
           D←139←TASK←QUE←ID←DATA)
      ;EEBLDREC(F←05←FEASIBLE←ACTIVITY←AREA←FILE)
      ;READLN(MSGS,D←143←X←LOC←FEASIBLE←DATA,
               D←145←Y←LOC←FEASIBLE←DATA)
      ;EESAVREC(F←05←FEASIBLE←ACTIVITY←AREA←FILE)
      ;EEPSTMES(M←04←NELS←MODIFIED←TASK←MSG←IN,SSPOSTINGTIME)
    END
    ;MN←06←NELS←ORBIT←MODIFICATIONS : BEGIN
      READ(MSGS,D←135←SENSOR←ID←DATA)
      ;EEBLDREC(F←32←SENSOR←ORBIT←MODS←FILE)
      ;READLN(MSGS,D←117←PLATFORM←MOD←X←DATA,
               D←118←PLATFORM←MOD←Y←DATA,
               D←119←PLATFORM←MOD←Z←DATA)
      ;EESAVREC(F←32←SENSOR←ORBIT←MODS←FILE)
      ;EEPSTMES(M←06←NELS←ORBIT←MODIFICATIONS←MSG←IN,SSPOSTINGTIME)
    END
    ;MN←08←NELS←PRIORITIZED←SENSOR←DIRECTIONS : BEGIN
      READ(MSGS,D←056←NEEDED←FEASIBLE←DATA,
           D←135←SENSOR←ID←DATA,
           D←137←SENSOR←PRIORITY←DATA)
      ;EEBLDREC(F←05←FEASIBLE←ACTIVITY←AREA←FILE)
      ;READLN(MSGS,D←143←X←LOC←FEASIBLE←DATA,
               D←145←Y←LOC←FEASIBLE←DATA)
      ;EESAVREC(F←05←FEASIBLE←ACTIVITY←AREA←FILE)
      ;EEPSTMES(M←08←NELS←PRIORITIZED←SENSOR←DIRECTIONS←MSG←IN,
                SSPOSTINGTIME)
    END
    ;MN←09←NELS←REQUESTED←SENSOR←DATA : BEGIN
```

```
        READ(MSGS,D+045+GPS+ID+DATA)
        ;EEBLDREC(F+07+GROUP+TARGET+LOCS+FILE)
        ;READLN(MSGS,D+048+GROUND+TARGET+LOC+X+DATA,
                D+049+GROUND+TARGET+LOC+Y+DATA)
        ;EESAVREC(F+07+GROUP+TARGET+LOCS+FILE)
        ;EEPSTMES(M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,SSPOSTINGTIME)
      END
      ;MN+15+T+AND+C+STOP+NELS : BEGIN
        EEPSTMES(M+15+T+AND+C+STOP+NELS+MSG+IN,SSPOSTINGTIME)
      END
    END; (* CASE *)
  END
  ;WRITELN('End of message file - End of simulation.')
  ;CLOSE(MSGS)
  ;CLOSE(STAT)
END (* SS+1+REST+OF+ASE *);
```

REVS-CREATED
CF FILE
FOR SIMULATION GENERATION

```
(*$U+       COLUMN 1-72 ONLY  *)
(*$A+       MAKE ALL FILES EXTERNAL      *)
(*$G+       DONT ABORT ON COMPILE ERROR  *)
(*$D0+,D1+,D3+,D4+      RUN TIME CONDITIONS  *)
(*$XREF(PROCS)*)
(*$DEBUG*)
(*                                                                    *)
(*  NEVS GENERATED SIMULATION PROGRAM                                 *)
(*  TRW DEFENSE AND SPACE SYSTEMS GROUP, HUNTSVILLE, ALABAMA          *)
(*                                                                    *)
(*----------RISF CODE FOLLOWS-----------------------------------------*)
PROGRAM EEPROGRAM(OUTPUT,EEDF,EESUIF,EE9VPRFL
,MSGS,STAT,PUST
);
LABEL
  9999;
CONST
  AASTRLEN = 60;
  EESSINITTIME = -1.0E4;
(*----------END OF RISF CODE BLOCK-------------------------------------*)
(* CONST DECLARATIONS FOR SETS PROCEDURES FROM SDF *)
SSEXOGSTR =
'SSEXOG                                                              ';
(* REQ DEPENDENT CONSTANT DECLARATIONS  *)
EEVMAX= 6;
EEMAXDEP= 7;
(*REQ IND TYPE DECLARATIONS FROM RISF*)
(*----------RISF CODE FOLLOWS-----------------------------------------*)
TYPE
  ALFA = PACKED ARRAY [1..11] OF CHAR;
  EESTR = PACKED ARRAY [1..AASTRLEN] OF CHAR;
  AASTRING = RECORD
               AALEN: 0..AASTRLEN;
               AASTR: EESTR
             END;
 EEVTPTR = ^EEVTREC;
 EEVTREC = RECORD
             EEVENT: INTEGER;
             EETIME : REAL;
             EENEXTE:EEVTPTR
           END;
  EEDFRECTYP = (EEVNTREC,EELISTREC);
  EELISTCODE = (EELALPHA,EELSUBNET,EELRNET,EELEVENT,EELVALPOINT,
                EELINPUTINT,EELOUTPUTINT,EELENTCLASS,EELFILE,
                EELPERFREQ,EELSIMID,EELSIMDATE,EELSIMTIME);
 EEDEF = RECORD
         CASE EERT : EEDFRECTYP OF
         EEVNTREC : (
          EEVTNUM: 0..EEVMAX;
          EEVTNAM: AASTRING;
          EEVTTYP: (EEIMMED,EEDELAY,EEINFACE,EEOUTFACE);
          EEDELNAM: AASTRING;
          EEDEPPTR1: 1..EEMAXDEP;
          EEDEPPTR2: 1..EEMAXDEP
         );
         EELISTREC : (EENAMECODE : EELISTCODE;
                      EENAMESTR : AASTRING )
```

```
        END;
(*-----------END OF RISE CODE BLOCK-----------------------------------*)
(* REQUIREMENTS DEPENDENT TYPE DECLARATIONS  TDSF  *)
    FE7DSLST = ( EE1NODS,F+01+BRIDGE+LOCATIONS+FILE,
          F+02+CARTO+UPDATE+FILE,F+03+CITY+LOCATIONS+FILE,
          F+04+CMDRS+DATA+TO+UPDATE+FILE,
          F+05+FEASIBLE+ACTIVITY+AREA+FILE,F+06+FLIGHT+PROFILE+FILE,
          F+07+GROUP+TARGET+LOCS+FILE,F+08+HYPSO+DATA+FILE,
          F+09+MARSHALLING+AREAS+FILE,F+10+NELS+CANDIDATE+TARGETS+FILE,
          F+12+DETECTED+CANDIDATE+TARGETS+FILE,
          F+13+NELS+EMISSION+THREAT+TABLE+FILE,
          F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
          F+15+NELS+EMITTER+CHARACTERISTICS+FILE,F+16+NELS+EMITTER+FILE,
          F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
          F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
          F+19+NELS+FREQUENCY+SCAN+FILE,F+20+NELS+PRE+BRIEFED+AOI+FILE,
          F+21+NELS+PRE+BRIEFED+SOI+FILE,F+24+NELS+TDOA+DD+FILE,
          F+25+NELS+TYPED+EMITTER+REPORT+FILE,
          F+26+NELS+WEATHER+CONDITIONS+FILE,F+27+PLATFORM+CONTROL+FILE,
          F+28+PRIMARY+ROADS+FILE,F+29+RAILROAD+LOCATIONS+FILE,
          F+30+RIVER+LOCATIONS+FILE,F+31+SECONDARY+ROADS+FILE,
          F+32+SENSOR+ORBIT+MODS+FILE,F+33+SENSOR+PLATFORM+LOCATION+FILE
          ,F+34+SENSOR+STATUS+FILE,EE1FILCL,INTO+NELS+SENSOR,
          TO+TIMING+AND+CONTROL+FROM+NELS,EE1INTCL,
          ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET,
          ET+5+NELS+PRE+BRIEFED+SOI+ET,ET+8+NELS+PRE+BRIEFED+AOI+ET,
          ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET,
          EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC,
          ET+2+NELS+EMITTER+GROUND+TRUTH+ET,ET+7+NELS+WEATHER+ET,
          EC+2+NELS+SCENARIO+EC,ET+3+NELS+FLIGHT+ET,
          ET+4+NELS+FREQUENCY+SCAN+ET,EC+3+NELS+TASKS+EC,
          ET+1+NELS+EMISSION+THREAT+ET,EC+4+NELS+THREAT+EC,
          ET+6+NELS+VEHICLE+CHARACTERISTICS+ET,
          EC+5+NELS+VEHICLE+CHARACTERISTICS+EC,
          ET+11+DETECTED+EMISSIONS+DD+TDOA+ET,
          ET+12+DETECTED+EMISSIONS+COARSE+ET,
          ET+13+DETECTED+EMISSIONS+FINE+ET,
          EC+6+DETECTED+EMISSIONS+INFO+EC );
    EE7INLST = ( EE1NOIN,EE0F+01+BRIDGE+LOCATIONS+FILE,
          EE0F+02+CARTO+UPDATE+FILE,EE0F+03+CITY+LOCATIONS+FILE,
          EE0F+04+CMDRS+DATA+TO+UPDATE+FILE,
          EE0F+05+FEASIBLE+ACTIVITY+AREA+FILE,
          EE0F+06+FLIGHT+PROFILE+FILE,EE0F+07+GROUP+TARGET+LOCS+FILE,
          EE0F+08+HYPSO+DATA+FILE,EE0F+09+MARSHALLING+AREAS+FILE,
          EE0F+10+NELS+CANDIDATE+TARGETS+FILE,
          EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE,
          EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
          EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
          EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE,
          EE0F+16+NELS+EMITTER+FILE,
          EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
          EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
          EE0F+19+NELS+FREQUENCY+SCAN+FILE,
          EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
          EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,EE0F+24+NELS+TDOA+DD+FILE,
          EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
          EE0F+26+NELS+WEATHER+CONDITIONS+FILE,
```

```
      FEOF=27=PLATFORM=CONTROL=FILE,EFOF=28=PRIMARY=ROADS=FILE,
      EFOF=29=RAILROAD=LOCATIONS=FILE,EFOF=30=RIVER=LOCATIONS=FILE,
      EFOF=31=SECONDARY=ROADS=FILE,FEOF=32=SENSOR=ORBIT=MODS=FILE,
      EFOF=33=SENSOR=PLATFORM=LOCATION=FILE,
      EFOF=34=SENSOR=STATUS=FILE,
      =01=FLS=NELS=UNIT=AND=ENVIRONMENT=DATA=MSG=IN,
      =02=ELS=CANTGO=UPDATES=MSG=IN,
      =03=NELS=COMMANDERS=REQUIREMENTS=MSG=IN,
      =04=ELS=MODIFIED=TASK=MSG=IN,
      =05=NELS=ORBIT=MODIFICATIONS=MSG=IN,
      =06=NELS=PRIORITIZED=SENSOR=DIRECTIONS=MSG=IN,
      =07=ELS=REQUESTED=SENSOR=DATA=MSG=IN,
      =08=T=A=C=STOP=ELS=MSG=IN,
      =09=ELS=NON=SURVEILLANCE=TARGET=REPORTS=MSG=OUT,
      =10=ELS=PLATFORM=LOCATION=REPORTS=MSG=OUT,
      =11=ELS=SENSOR=REQUESTS=MSG=OUT,
      =12=ELS=SENSOR=SYSTEM=STATUS=MSG=OUT,
      =13=ELS=SURVEILLANCE=TARGET=REPORTS=MSG=OUT,
      =14=ELS=TASKING=RESPONSES=MSG=OUT,
      =15=NELS=TRACK=MESSAGE=MSG=OUT,
      FEOET=16=GROUPED=SHADOWING=CANDIDATE=TARGETS=ET,
      FEOET=17=FLS=PREFERRED=SOI=ET,
      FEOET=18=NELS=PREFERRED=ADT=ET,
      FEOET=19=SIG=AL=NOISE=CANDIDATE=TARGETS=ET,
      FEOET=20=FLS=FITTED=GROUP=TRUTH=ET,FEOET=21=NELS=WEATHER=ET,
      FEOET=22=FLS=FLIGHT=ET,FEOET=23=NELS=FREQUENCY=SCAN=ET,
      FEOET=24=FLS=EMISSION=TIMEBAT=ET,
      FEOET=25=FLS=VEHICLE=CHARACTERISTICS=ET,
      FEOET=26=FLS=IDENTIFIED=EMISSIONS=UNDATED=ET,
      FEOET=27=FLS=IDENTIFIED=EMISSIONS=COARSE=ET,
      FEOET=28=FLS=IDENTIFIED=EMISSIONS=FINE=ET );
FEOU=29=TRACK=MESSAGE=DATA=(TRACKING,CAN=TRACK,WILL=LOSE=TRACK);
FEOU=30=TASKING=RESPONSE=DATA=(CAN=DO,CANT=DO);
FEOU=31=ESTIMATION=SENSOR=TYPE=DATA=(GPS=NELS=1,GPS=NELS=2,
      GPS=NELS=3);
FEOU=32=GPS=NELS=DATA=(GPS=1=NELS,GPS=2=NELS,GPS=3=NELS);
FEOU=33=SENSOR=TYPE=DATA=(NELS=GPS=1,NELS=GPS=2,NELS=GPS=3);
FEOU=34=FREQ=ERASABLE=DATA=(SOI,ADI,BOTH);
FEOU=35=ASET=MSG=NAME=DATA=(
      =01=FLS=NELS=UNIT=AND=ENVIRONMENT=DATA,
      =02=FLS=CANTGO=UPDATES,=03=NELS=COMMANDERS=REQUIREMENTS,
      =04=FLS=MODIFIED=TASK,
      =05=NELS=ORBIT=MODIFICATIONS,
      =06=NELS=PRIORITIZED=SENSOR=DIRECTIONS,
      =07=FLS=PLATFORM=LOCATION=REPORTS,
      =08=NELS=PRIORITIZED=SENSOR=DIRECTIONS,
      =09=FLS=REQUESTED=SENSOR=DATA,=10=NELS=SENSOR=REQUESTS,
      =11=FLS=SENSOR=SYSTEM=STATUS,
      =12=FLS=SURVEILLANCE=TARGET=REPORTS,
      =13=NELS=TASKING=RESPONSES,=14=NELS=TRACK=MESSAGE,
      =15=T=A=C=STOP=NELS);
FEOU=36=ASET=MSG=TEST=DATA=(IC,FS,ASE,NTI,C3I,NELS,NELS,IS,
      TC=OPERATION);
FEOU=37=SENSOR=TYPE=OPERATION=DATA=(SOI=SURVEILLANCE,SOI=SEARCH
      ,SOI=SURVEILLANCE,ADI=SEARCH,TOLE);
FEOU=38=PRECIPITATION=DATA=(NONE,DRIZZLE,RAIN,SNOW,SLEET,HAIL,RIME
      );
```

```
FE00+037+CLOUD+COVER+DATA=(CLEAR,PARTLY+CLOUDY,MOSTLY+CLOUDY,
     OVERCAST,FOGGY,SMOG,DUST);
FE00+095+NFLS+PRF+BRIEFED+AOI+FILTERING+CRITERIA+DATA=(WITHIN+AREA,
     WITHOUT+AREA);
FE00+1A1+NFLS+EMITTER+MODULATION+TYPE+DATA=(MODULATED,NOT+MODULATED
     );
FE00+0??+NFLS+EMITTER+TRAFFIC+TYPE+DATA=(PASSIVE,POTENTIAL+THREAT,
     THREAT);
FE00+075+NFLS+EMITTER+ID+DATA=(RADIO,TANK,TRUCK,PLANE,SHIP,SUB,
     MISSILE,UNKNOWN);
FE00+135+SECOND+CMDRS+REQ+UPDATE+DATA=(IS+MODULATED,
     IS+NOT+MODULATED);
FE00+000+FIRST+CMDRS+REQ+UPDATE+DATA=(IN+AREA,OUTSIDE+AREA);
FE00+030+CARTO+UPDATE+1+DATA=(BRIDGE,RAILROAD,P+ROAD,S+ROAD,CITY,
     RIVER,MARSHALLING,HYPSO);
FE7INSTT = (FE6NULL,EE6NEW,EE6OLD);
EE7CMPP  = (FE6LTN,EF6GTN,EE6EQL,EF6UNO);
FE7DSKTND= (FE6DATASET,EF6CLASS);
FE7DSKTYP = (FE6UNKNOWN);
EE7INPTR = ↑EE7INTYP;
FE7DSPTR = ↑FE7DSTYP;
FE7DSTR  = PACKED ARRAY [1..65] OF  CHAR;
EE7SVTYP = RECORD CDS: EF7DSLST;
                  CIN: EE7INPTR
                  END;
EE7DSTYP = RECORD
     DSKIND : FE7DSKTND;
     DSTYP  : FE7DSLST;
     CASE EE7DSKIND OF
          FE6DATASET : (
               COI,EOI,CIN : EE7INPTR;
               INCNT       :INTEGER;
               SKIPS       : EE7DSPTR;
               EELCT          : INTEGER;
               INSTI       : FE7INSTT;
               INTYP       : EE7INLST;
               CLASS       : EF7DSLST
                         );
          FE6CLASS    : (
               BOC,EOC,CDS : EE7DSLST;
               NES         : BOOLEAN;
                         )
     END;
EE7INTYP  =  RECORD
     BLNK, FLNK      : EE7INPTR;
     DSLNK           : EE7DSPTR;
     INTYP           : EE7INLST;
     LSTYP           : EE7DSLST;
     CNTR            : INTEGER;
     SCND            : BOOLEAN;
     CASE EE7INLST OF
          FEINCIN:();
          EEOF+01+BRIDGE+LOCATIONS+FILE:(
               EEOF+01+BRIDGE+LOCATIONS+FILE : RECORD
               0+026+BRIDGE+LOC+Y+DATA:REAL;
               0+027+BRIDGE+LOC+Y+DATA:REAL
               END) ;
```

```
FEOF←02←CARTO←UPDATE←FILE:(FEOF←02←CARTO←UPDATE←FILE
      : RECORD
      D←029←CARTO←SECTION←NUM←DATA:INTEGER;
      D←030←CARTO←UPDATE←1←DATA;
      EOD←030←CARTO←UPDATE←1←DATA;
      D←031←CARTO←UPDATE←2←DATA;
      EOD←030←CARTO←UPDATE←1←DATA;
      D←032←CARTO←UPDATE←3←DATA;
      EOD←030←CARTO←UPDATE←1←DATA;
      D←033←CARTO←UPDATE←X←DATA:REAL;
      D←034←CARTO←UPDATE←Y←DATA:REAL
      END) ;
FEOF←03←CITY←LOCATIONS←FILE:(EOF←03←CITY←LOCATIONS←FILE
      : RECORD
      D←035←CITY←LOC←X←DATA:REAL;
      D←036←CITY←LOC←Y←DATA:REAL
      END) ;
FEOF←04←CMDRS←DATA←TO←UPDATE←FILE:(
      EOF←04←CMDRS←DATA←TO←UPDATE←FILE : RECORD
      D←040←FIRST←CMDRS←REG←UPDATE←DATA;
      EOD←040←FIRST←CMDRS←REG←UPDATE←DATA;
      D←133←SECOND←CMDRS←REG←UPDATE←DATA;
      EOD←133←SECOND←CMDRS←REG←UPDATE←DATA
      END) ;
FEOF←05←FEASIBLE←ACTIVITY←AREA←FILE:(
      EOF←05←FEASIBLE←ACTIVITY←AREA←FILE : RECORD
      D←145←X←LOC←FEASIBLE←DATA:REAL;
      D←145←Y←LOC←FEASIBLE←DATA:REAL
      END) ;
FEOF←06←FLIGHT←PROFILE←FILE:(EOF←06←FLIGHT←PROFILE←FILE
      : RECORD
      D←041←FLIGHT←WAYPOINT←X←DATA:REAL;
      D←042←FLIGHT←WAYPOINT←Y←DATA:REAL;
      D←043←FLIGHT←WAYPOINT←Z←DATA:REAL
      END) ;
FEOF←07←GROUP←TARGET←LOCS←FILE:(
      EOF←07←GROUP←TARGET←LOCS←FILE : RECORD
      D←048←GROUND←TARGET←LOC←X←DATA:REAL;
      D←049←GROUND←TARGET←LOC←Y←DATA:REAL
      END) ;
FEOF←08←HYPSO←DATA←FILE:(EOF←08←HYPSO←DATA←FILE
      : RECORD
      D←051←HYPSO←ELEV←DATA:REAL;
      D←052←HYPSO←LOC←X←DATA:REAL;
      D←053←HYPSO←LOC←Y←DATA:REAL
      END) ;
FEOF←09←MARSHALLING←AREAS←FILE:(
      EOF←09←MARSHALLING←AREAS←FILE : RECORD
      D←054←MARSHALLING←X←DATA:REAL;
      D←055←MARSHALLING←Y←DATA:REAL
      END) ;
FEOF←10←NELS←CANDIDATE←TARGETS←FILE:(
      EOF←10←NELS←CANDIDATE←TARGETS←FILE : RECORD
      D←061←NELS←EMISSION←DURATION←DATA:REAL;
      D←062←NELS←EMISSION←SIGNAL←STRENGTH←DATA:REAL;
      D←063←NELS←EMISSION←START←TIME←DATA:REAL;
      D←073←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA:REAL;
```

```
      D+075+NELS+EMITTER+ID+DATA;
      EFOD+075+NELS+EMITTER+ID+DATA;
      D+081+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA:REAL;
      D+085+NELS+EMITTER+X+DATA:REAL;
      D+086+NELS+EMITTER+Y+DATA:REAL;
      D+087+NELS+EMITTER+Z+DATA:REAL;
      D+130+SCENARIO+GEN+ID+NUM+DATA:INTEGER
      END) ;
EFOF+12+DETECTED+CANDIDATE+TARGETS+FILE:(
      EFOF+12+DETECTED+CANDIDATE+TARGETS+FILE : RECORD
      D+147+NELS+EMISSION+DURATION+DATA:REAL;
      D+148+NELS+EMISSION+SIGNAL+STRENGTH+DATA:REAL;
      D+149+NELS+EMISSION+START+TIME+DATA:REAL;
      D+150+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA:REAL;
      D+151+NELS+EMITTER+ID+DATA;
      EFOD+075+NELS+EMITTER+ID+DATA;
      D+152+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA:REAL;
      D+153+NELS+EMITTER+X+DATA:REAL;
      D+154+NELS+EMITTER+Y+DATA:REAL;
      D+155+NELS+EMITTER+Z+DATA:REAL;
      D+156+SCENARIO+GEN+ID+NUM+DATA:INTEGER
      END) ;
EFOF+13+NELS+EMISSION+THREAT+TABLE+FILE:(
      EFOF+13+NELS+EMISSION+THREAT+TABLE+FILE : RECORD
      D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA:REAL;
      D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA;
      EFOD+080+NELS+EMITTER+TRAFFIC+TYPE+DATA;
      D+171+NELS+EMITTER+ID+DATA;
      EFOD+075+NELS+EMITTER+ID+DATA;
      D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA:REAL;
      D+173+NELS+EMITTER+X+DATA:REAL;
      D+174+NELS+EMITTER+Y+DATA:REAL;
      D+175+NELS+EMITTER+Z+DATA:REAL;
      D+181+NELS+EMITTER+MODULATION+TYPE+DATA;
      EFOD+181+NELS+EMITTER+MODULATION+TYPE+DATA;
      D+182+NELS+EMITTER+BANDWIDTH+DATA:REAL;
      D+183+NELS+EMITTER+CEP+DATA:REAL
      END) ;
EFOF+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE:(
      EFOF+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE
       : RECORD
      D+063+B+NELS+EMISSION+START+TIME+DATA:REAL;
      D+064+NELS+EMISSION+STOP+TIME+DATA:REAL;
      D+073+B+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA:REAL;
      D+075+B+NELS+EMITTER+ID+DATA;
      EFOD+075+NELS+EMITTER+ID+DATA;
      D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA:
      REAL;
      D+082+NELS+EMITTER+VEL+X+DATA:REAL;
      D+083+NELS+EMITTER+VEL+Y+DATA:REAL;
      D+084+NELS+EMITTER+VEL+Z+DATA:REAL;
      D+085+B+NELS+EMITTER+X+DATA:REAL;
      D+086+B+NELS+EMITTER+Y+DATA:REAL;
      D+087+B+NELS+EMITTER+Z+DATA:REAL;
      D+130+B+SCENARIO+GEN+ID+NUM+DATA:INTEGER
      END) ;
EFOF+15+NELS+EMITTER+CHARACTERISTICS+FILE:(
```

```
        EE0E+15◆NELS◆EMITTER◆CHARACTERISTICS◆FILE : RECORD
        0◆0047◆NELS◆EMITTER◆BANDWIDTH◆DATA:REAL;
        0◆0077◆A◆NELS◆EMITTER◆MODULATION◆TYPE◆DATA:
        EE0D◆181◆NELS◆EMITTER◆MODULATION◆TYPE◆DATA;
        0◆007B◆A◆NELS◆EMITTER◆POWER◆LEVEL◆DATA:REAL
        END) ;
EE0F◆14◆ELS◆EMITTER◆FILE:(EE0F◆16◆NELS◆EMITTER◆FILE
        : RECORD
        0◆0043◆A◆NELS◆EMISSION◆START◆TIME◆DATA:REAL;
        0◆004B◆A◆NELS◆EMISSION◆STOP◆TIME◆DATA:REAL;
        0◆0073◆A◆NELS◆EMITTER◆FREQUENCY◆BANDWIDTH◆DATA:REAL;
        0◆0075◆A◆NELS◆EMITTER◆ID◆DATA:
        EE0D◆0075◆NELS◆EMITTER◆ID◆DATA:
        0◆0081◆A◆NELS◆EMITTER◆TRANSMISSION◆FREQUENCY◆DATA:
        REAL;
        0◆0082◆A◆NELS◆EMITTER◆VEL◆X◆DATA:REAL;
        0◆0083◆A◆NELS◆EMITTER◆VEL◆Y◆DATA:REAL;
        0◆0084◆A◆NELS◆EMITTER◆VEL◆Z◆DATA:REAL;
        0◆0085◆A◆NELS◆EMITTER◆X◆DATA:REAL;
        0◆0086◆A◆NELS◆EMITTER◆Y◆DATA:REAL;
        0◆0087◆A◆NELS◆EMITTER◆Z◆DATA:REAL;
        0◆130◆A◆SCENARIO◆GEN◆ID◆NUM◆DATA:INTEGER
        END) ;
EE0F◆17◆ELS◆ESTIMATED◆EMITTER◆PARAMETERS◆FILE:(
        EE0F◆17◆NELS◆ESTIMATED◆EMITTER◆PARAMETERS◆FILE
        : RECORD
        0◆0077◆NELS◆EMITTER◆MODULATION◆TYPE◆DATA:
        EE0D◆181◆NELS◆EMITTER◆MODULATION◆TYPE◆DATA;
        0◆007A◆NELS◆EMITTER◆POWER◆LEVEL◆DATA:REAL;
        0◆152◆NELS◆EMITTER◆FREQUENCY◆BANDWIDTH◆DATA:REAL;
        0◆1514◆NELS◆EMITTER◆TRANSMISSION◆FREQUENCY◆DATA:REAL
        END) ;
EE0F◆19◆ELS◆ESTIMATED◆GROUND◆TRUTH◆FILE:(
        EE0F◆19◆NELS◆ESTIMATED◆GROUND◆TRUTH◆FILE : RECORD
        0◆0043◆NELS◆EMITTER◆EED◆DATA:REAL;
        0◆157◆NELS◆EMISSION◆DURATION◆DATA:REAL;
        0◆154◆NELS◆EMISSION◆START◆TIME◆DATA:REAL;
        0◆15A◆NELS◆EMITTER◆ID◆DATA:
        EE0D◆0075◆NELS◆EMITTER◆ID◆DATA;
        0◆1582◆NELS◆EMITTER◆X◆DATA:REAL;
        0◆1583◆NELS◆EMITTER◆Y◆DATA:REAL;
        0◆1584◆NELS◆EMITTER◆Z◆DATA:REAL;
        0◆155◆SCENARIO◆GEN◆ID◆NUM◆DATA:INTEGER
        END) ;
EE0F◆1B◆ELS◆FREQUENCY◆SCAN◆FILE:(
        EE0F◆1B◆NELS◆FREQUENCY◆SCAN◆FILE : RECORD
        0◆0072◆NELS◆FREQ◆SCAN◆LOWER◆FREQ◆DATA:REAL;
        0◆0073◆NELS◆FREQ◆SCAN◆UPPER◆FREQ◆DATA:REAL
        END) ;
EE0F◆1D◆ELS◆PREDICTED◆AOI◆FILE:(
        EE0F◆1D◆NELS◆PREDICTED◆AOI◆FILE : RECORD
        0◆0095◆NELS◆PREDICTED◆AOI◆FILTERING◆CRITERIA◆DATA:
        EE0D◆0095◆NELS◆PREDICTED◆AOI◆FILTERING◆CRITERIA◆DATA
        ;
        0◆0097◆NELS◆PREDICTED◆AOI◆LOWER◆LEFT◆X◆DATA:REAL;
        0◆0098◆NELS◆PREDICTED◆AOI◆LOWER◆LEFT◆Y◆DATA:REAL;
        0◆1A0◆NELS◆PREDICTED◆AOI◆UPPER◆RIGHT◆X◆DATA:REAL;
```

```
      D+101+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+Y+DATA:REAL
      END) ;
FEOF+21+NELS+PRE+BRIEFED+SOI+FILE:(
      EEOF+21+NELS+PRE+BRIEFED+SOI+FILE : RECORD
      D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA:REAL;
      D+104+NELS+PRE+BRIEFED+SOI+FREQ+DATA:REAL;
      D+105+NELS+PRE+BRIEFED+SOI+MODULATION+TYPE+DATA:
      EEOD+181+NELS+EMITTER+MODULATION+TYPE+DATA;
      D+106+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA:REAL
      END) ;
FEOF+24+NELS+TOOA+OD+FILE:(EEOF+24+NELS+TOOA+OD+FILE
      : RECORD
      D+058+NELS+OD+1+2+DATA:REAL;
      D+059+NELS+OD+1+3+DATA:REAL;
      D+060+NELS+OD+2+3+DATA:REAL;
      D+109+NELS+TOOA+1+2+DATA:REAL;
      D+110+NELS+TOOA+1+3+DATA:REAL;
      D+111+NELS+TOOA+2+3+DATA:REAL
      END) ;
FEOF+25+NELS+TYPED+EMITTER+REPORT+FILE:(
      EEOF+25+NELS+TYPED+EMITTER+REPORT+FILE : RECORD
      D+070+NELS+EMITTER+CLV+DATA:REAL;
      D+074+NELS+EMITTER+FREQUENCY+DATA:REAL;
      D+150+NELS+EMITTER+ID+DATA:
      EEOD+075+NELS+EMITTER+ID+DATA;
      D+167+NELS+EMITTER+X+DATA:REAL;
      D+168+NELS+EMITTER+Y+DATA:REAL;
      D+169+NELS+EMITTER+Z+DATA:REAL;
      D+170+SCENARIO+GEN+ID+NUM+DATA:INTEGER;
      D+176+NELS+EMITTER+BANDWIDTH+DATA:REAL;
      D+177+NELS+EMITTER+CEP+DATA:REAL;
      D+178+NELS+EMITTER+MODULATION+TYPE+DATA:
      EEOF+181+NELS+EMITTER+MODULATION+TYPE+DATA;
      D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA:REAL;
      D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA:
      EEOF+080+NELS+EMITTER+TRAFFIC+TYPE+DATA
      END) ;
EEOF+26+NELS+WEATHER+CONDITIONS+FILE:(
      EEOF+26+NELS+WEATHER+CONDITIONS+FILE : RECORD
      D+037+CLOUD+COVER+DATA:EEOD+037+CLOUD+COVER+DATA;
      D+039+ELEVATION+WEATHER+DATA:REAL;
      D+120+PRECIPITATION+DATA:EEOD+120+PRECIPITATION+DATA
      :
      D+184+X+WEATHER+LOC+DATA:REAL;
      D+186+Y+WEATHER+LOC+DATA:REAL
      END) ;
EEOF+27+PLATFORM+CONTROL+FILE:(
      EEOF+27+PLATFORM+CONTROL+FILE : RECORD
      D+010+ASP+ALTITUDE+DATA:REAL;
      D+014+ASP+LOC+X+DATA:REAL;
      D+015+ASP+LOC+Y+DATA:REAL;
      D+016+ASP+LOC+Z+DATA:REAL;
      D+022+ASP+VEL+X+DATA:REAL;
      D+023+ASP+VEL+Y+DATA:REAL;
      D+024+ASP+VEL+Z+DATA:REAL
      END) ;
EEOF+28+PRIMARY+ROADS+FILE:(EEOF+28+PRIMARY+ROADS+FILE
```

```
      : RECORD
      D+121+PRIMARY+ROADS+X+DATA:REAL;
      D+122+PRIMARY+ROADS+Y+DATA:REAL
      END) ;
FEDF+29+RAILROAD+LOCATIONS+FILE:(
      FEOF+29+RAILROAD+LOCATIONS+FILE : RECORD
      D+123+RAILROAD+LOC+X+DATA:REAL;
      D+124+RAILROAD+LOC+Y+DATA:REAL
      END) ;
FEOF+30+RIVER+LOCATIONS+FILE:(
      FEOF+30+RIVER+LOCATIONS+FILE : RECORD
      D+128+RIVER+LOC+X+DATA:REAL;
      D+129+RIVER+LOC+Y+DATA:REAL
      END) ;
FEOF+31+SECONDARY+ROADS+FILE:(
      FEOF+31+SECONDARY+ROADS+FILE : RECORD
      D+131+SECONDARY+ROAD+X+DATA:REAL;
      D+132+SECONDARY+ROAD+Y+DATA:REAL
      END) ;
FEOF+32+SENSOR+ORBIT+MODS+FILE:(
      FEOF+32+SENSOR+ORBIT+MODS+FILE : RECORD
      D+117+PLATFORM+MOD+X+DATA:REAL;
      D+118+PLATFORM+MOD+Y+DATA:REAL;
      D+119+PLATFORM+MOD+Z+DATA:REAL
      END) ;
FEOF+33+SENSOR+PLATFORM+LOCATION+FILE:(
      FEOF+33+SENSOR+PLATFORM+LOCATION+FILE : RECORD
      D+114+PLATFORM+LOCATION+X+DATA:REAL;
      D+115+PLATFORM+LOCATION+Y+DATA:REAL;
      D+116+PLATFORM+LOCATION+Z+DATA:REAL
      END) ;
FEOF+34+SENSOR+STATUS+FILE:(FEOF+34+SENSOR+STATUS+FILE
      : RECORD
      D+0134+FREQUENCY+SCAN+PARAMETER+DATA:REAL;
      D+136+SENSOR+MODE+OF+OPERATION+DATA:
      FEOF+134+SENSOR+MODE+OF+OPERATION+DATA
      END) ;
"+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN:(
      +01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN
      : RECORD
      D+002+ASET+MSG+DEST+DATA:FEOD+002+ASET+MSG+DEST+DATA
      ;
      D+004+ASET+MSG+NAME+DATA:FEOD+004+ASET+MSG+NAME+DATA
      ;
      D+015+ASET+MSG+SOURCE+DATA;
      FEOD+002+ASET+MSG+DEST+DATA;
      EFITIME:REAL
      END) ;
"+12+NELS+CARTO+UPDATES+MSG+IN:(
      +02+NELS+CARTO+UPDATES+MSG+IN : RECORD
      D+002+ASET+MSG+DEST+DATA:FEOD+002+ASET+MSG+DEST+DATA
      ;
      D+004+ASET+MSG+NAME+DATA:FEOD+004+ASET+MSG+NAME+DATA
      ;
      D+005+ASET+MSG+SOURCE+DATA;
      FEOD+002+ASET+MSG+DEST+DATA;
      EFITIME:REAL
```

```
    END) ;
M◆03◆NELS◆COMMANDERS◆REQUIREMENTS◆MSG◆IN:(
    M◆03◆NELS◆COMMANDERS◆REQUIREMENTS◆MSG◆IN : RECORD
    D◆002◆ASET◆MSG◆DEST◆DATA:EE0D◆002◆ASET◆MSG◆DEST◆DATA
    ;
    D◆004◆ASET◆MSG◆NAME◆DATA:EE0D◆004◆ASET◆MSG◆NAME◆DATA
    ;
    D◆005◆ASET◆MSG◆SOURCE◆DATA;
    EE0D◆002◆ASET◆MSG◆DEST◆DATA;
    EE1TIME:REAL
    END) ;
M◆04◆NELS◆MODIFIED◆TASK◆MSG◆IN:(
    M◆04◆NELS◆MODIFIED◆TASK◆MSG◆IN : RECORD
    D◆002◆ASET◆MSG◆DEST◆DATA:EE0D◆002◆ASET◆MSG◆DEST◆DATA
    ;
    D◆004◆ASET◆MSG◆NAME◆DATA:EE0D◆004◆ASET◆MSG◆NAME◆DATA
    ;
    D◆005◆ASET◆MSG◆SOURCE◆DATA;
    EE0D◆002◆ASET◆MSG◆DEST◆DATA;
    D◆056◆NEEDED◆FEASIBLE◆DATA;
    EE0D◆056◆NEEDED◆FEASIBLE◆DATA;
    D◆139◆TASK◆QUE◆ID◆DATA:INTEGER;
    EE1TIME:REAL
    END) ;
M◆06◆NELS◆ORBIT◆MODIFICATIONS◆MSG◆IN:(
    M◆06◆NELS◆ORBIT◆MODIFICATIONS◆MSG◆IN : RECORD
    D◆002◆ASET◆MSG◆DEST◆DATA:EE0D◆002◆ASET◆MSG◆DEST◆DATA
    ;
    D◆004◆ASET◆MSG◆NAME◆DATA:EE0D◆004◆ASET◆MSG◆NAME◆DATA
    ;
    D◆005◆ASET◆MSG◆SOURCE◆DATA;
    EE0D◆002◆ASET◆MSG◆DEST◆DATA;
    D◆135◆SENSOR◆ID◆DATA:EE0D◆135◆SENSOR◆ID◆DATA;
    EE1TIME:REAL
    END) ;
M◆08◆NELS◆PRIORITIZED◆SENSOR◆DIRECTIONS◆MSG◆IN:(
    M◆08◆NELS◆PRIORITIZED◆SENSOR◆DIRECTIONS◆MSG◆IN
      : RECORD
    D◆002◆ASET◆MSG◆DEST◆DATA:EE0D◆002◆ASET◆MSG◆DEST◆DATA
    ;
    D◆004◆ASET◆MSG◆NAME◆DATA:EE0D◆004◆ASET◆MSG◆NAME◆DATA
    ;
    D◆005◆ASET◆MSG◆SOURCE◆DATA;
    EE0D◆002◆ASET◆MSG◆DEST◆DATA;
    D◆056◆NEEDED◆FEASIBLE◆DATA;
    EE0D◆056◆NEEDED◆FEASIBLE◆DATA;
    D◆135◆SENSOR◆ID◆DATA:EE0D◆135◆SENSOR◆ID◆DATA;
    D◆137◆SENSOR◆PRIORITY◆DATA:INTEGER;
    EE1TIME:REAL
    END) ;
M◆09◆NELS◆REQUESTED◆SENSOR◆DATA◆MSG◆IN:(
    M◆09◆NELS◆REQUESTED◆SENSOR◆DATA◆MSG◆IN : RECORD
    D◆002◆ASET◆MSG◆DEST◆DATA:EE0D◆002◆ASET◆MSG◆DEST◆DATA
    ;
    D◆004◆ASET◆MSG◆NAME◆DATA:EE0D◆004◆ASET◆MSG◆NAME◆DATA
    ;
    D◆005◆ASET◆MSG◆SOURCE◆DATA;
```

```
        EE0D-002-ASET-MSG-DEST-DATA;
        D-045-GPS-ID-DATA:EE0D-045-GPS-ID-DATA;
        EE1TIME:REAL
        END) ;
M-15-T-AND-C-STOP-NELS-MSG-IN:(
        M-15-T-AND-C-STOP-NELS-MSG-IN : RECORD
        D-002-ASET-MSG-DEST-DATA:EE0D-002-ASET-MSG-DEST-DATA
        ;
        D-004-ASET-MSG-NAME-DATA:EE0D-004-ASET-MSG-NAME-DATA
        ;
        D-005-ASET-MSG-SOURCE-DATA;
        EE0D-002-ASET-MSG-DEST-DATA;
        EE1TIME:REAL
        END) ;
M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT:(
        M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT
        : RECORD
        D-002-ASET-MSG-DEST-DATA:EE0D-002-ASET-MSG-DEST-DATA
        ;
        D-004-ASET-MSG-NAME-DATA:EE0D-004-ASET-MSG-NAME-DATA
        ;
        D-005-ASET-MSG-SOURCE-DATA;
        EE0D-002-ASET-MSG-DEST-DATA;
        D-045-GPS-ID-DATA:EE0D-045-GPS-ID-DATA;
        D-046-GROUND-TARGET-FREQUENCY-DATA:REAL;
        D-047-GROUND-TARGET-LENGTH-DATA:REAL;
        D-050-GROUND-TARGET-VELOCITY-DATA:REAL;
        EE1TIME:REAL
        END) ;
M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT:(
        M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT
        : RECORD
        D-002-ASET-MSG-DEST-DATA:EE0D-002-ASET-MSG-DEST-DATA
        ;
        D-004-ASET-MSG-NAME-DATA:EE0D-004-ASET-MSG-NAME-DATA
        ;
        D-005-ASET-MSG-SOURCE-DATA;
        EE0D-002-ASET-MSG-DEST-DATA;
        EE1TIME:REAL
        END) ;
M-10-NELS-SENSOR-REQUESTS-MSG-OUT:(
        M-10-NELS-SENSOR-REQUESTS-MSG-OUT : RECORD
        D-002-ASET-MSG-DEST-DATA:EE0D-002-ASET-MSG-DEST-DATA
        ;
        D-004-ASET-MSG-NAME-DATA:EE0D-004-ASET-MSG-NAME-DATA
        ;
        D-005-ASET-MSG-SOURCE-DATA;
        EE0D-002-ASET-MSG-DEST-DATA;
        D-125-REQ-DESTINATION-SENSOR-ID-DATA;
        EE0D-125-REQ-DESTINATION-SENSOR-ID-DATA;
        D-126-REQ-REPORT-INFORMATION-TYPE-DATA:EE7UNKNWNTYP;
        D-127-REQ-SENSOR-TARGET-ID-OF-INTEREST-DATA;
        EE7UNKNWNTYP;
        D-135-SENSOR-ID-DATA:EE0D-135-SENSOR-ID-DATA;
        EE1TIME:REAL
        END) ;
M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT:(
```

```
        M=11=NELS=SENSOR=SYSTEM=STATUS=MSG=OUT : RECORD
        D=002=ASET=MSG=DEST=DATA:EE0D=002=ASET=MSG=DEST=DATA
        ;
        D=004=ASET=MSG=NAME=DATA:EE0D=004=ASET=MSG=NAME=DATA
        ;
        D=005=ASET=MSG=SOURCE=DATA;
        EE0D=002=ASET=MSG=DEST=DATA;
        D=135=SENSOR=ID=DATA:EE0D=135=SENSOR=ID=DATA;
        EE1TIME:REAL
        END) ;
    M=12=NELS=SURVEILLANCE=TARGET=REPORTS=MSG=OUT:(
        =12=NELS=SURVEILLANCE=TARGET=REPORTS=MSG=OUT
         : RECORD
        D=002=ASET=MSG=DEST=DATA:EE0D=002=ASET=MSG=DEST=DATA
        ;
        D=004=ASET=MSG=NAME=DATA:EE0D=004=ASET=MSG=NAME=DATA
        ;
        D=005=ASET=MSG=SOURCE=DATA;
        EE0D=002=ASET=MSG=DEST=DATA;
        D=045=GPS=ID=DATA:EE0D=045=GPS=ID=DATA;
        D=046=GROUND=TARGET=FREQUENCY=DATA:REAL;
        D=047=GROUND=TARGET=LENGTH=DATA:REAL;
        D=050=GROUND=TARGET=VELOCITY=DATA:REAL;
        EE1TIME:REAL
        END) ;
    M=13=NELS=TASKING=RESPONSES=MSG=OUT:(
        M=13=NELS=TASKING=RESPONSES=MSG=OUT : RECORD
        D=002=ASET=MSG=DEST=DATA:EE0D=002=ASET=MSG=DEST=DATA
        ;
        D=004=ASET=MSG=NAME=DATA:EE0D=004=ASET=MSG=NAME=DATA
        ;
        D=005=ASET=MSG=SOURCE=DATA;
        EE0D=002=ASET=MSG=DEST=DATA;
        D=138=TASKING=RESPONSE=DATA;
        EE0D=138=TASKING=RESPONSE=DATA;
        D=139=TASK=OUE=ID=DATA:INTEGER;
        D=141=TIME=DATA:REAL;
        EE1TIME:REAL
        END) ;
    M=14=NELS=TRACK=MESSAGE=MSG=OUT:(
        M=14=NELS=TRACK=MESSAGE=MSG=OUT : RECORD
        D=002=ASET=MSG=DEST=DATA:EE0D=002=ASET=MSG=DEST=DATA
        ;
        D=004=ASET=MSG=NAME=DATA:EE0D=004=ASET=MSG=NAME=DATA
        ;
        D=005=ASET=MSG=SOURCE=DATA;
        EE0D=002=ASET=MSG=DEST=DATA;
        D=135=SENSOR=ID=DATA:EE0D=135=SENSOR=ID=DATA;
        D=142=TRACK=MESSAGE=DATA:EE0D=142=TRACK=MESSAGE=DATA
        ;
        EE1TIME:REAL
        END) ;
EESET=10=GROUND=SHADOWING=CANDIDATE=TARGETS=ET:(
        EESET=10=GROUND=SHADOWING=CANDIDATE=TARGETS=ET
         : RECORD
        D=149=TRD=DATA:BOOLEAN
        END) ;
```

```
                FEDET+5+NELS+PRE+DRIFFED+SOI+ET:(
                     EFDET+5+NELS+PRE+DRIEFED+SOI+ET : RECORD
                     D+140+TRD+DATA:BOOLEAN
                     END) ;
                FEDET+8+NELS+PRE+DRIEFED+ADI+ET:(
                     EFDET+8+NELS+PRE+DRIEFED+ADI+ET : RECORD
                     D+140+TRD+DATA:BOOLEAN
                     END) ;
                FEDET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET:(
                     EFDET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET : RECORD
                     D+140+TRD+DATA:BOOLEAN
                     END) ;
                FEDET+2+NELS+EMITTER+GROUND+TRUTH+ET:(
                     EFDET+2+NELS+EMITTER+GROUND+TRUTH+ET : RECORD
                     D+140+TRD+DATA:BOOLEAN
                     END) ;
                FEDET+7+NELS+WEATHER+ET:(EFDET+7+NELS+WEATHER+ET
                      : RECORD
                     D+140+TRD+DATA:BOOLEAN
                     END) ;
                FEDET+3+NELS+FLIGHT+ET:(FEDET+3+NELS+FLIGHT+ET : RECORD
                     D+140+TRD+DATA:BOOLEAN
                     END) ;
                FEDET+4+NELS+FREQUENCY+SCAN+ET:(
                     EFDET+4+NELS+FREQUENCY+SCAN+ET : RECORD
                     D+140+TRD+DATA:BOOLEAN
                     END) ;
                FEDET+1+NELS+EMISSION+THREAT+ET:(
                     EFDET+1+NELS+EMISSION+THREAT+ET : RECORD
                     D+140+TRD+DATA:BOOLEAN
                     END) ;
                FEDET+6+NELS+VEHICLE+CHARACTERISTICS+ET:(
                     EFDET+6+NELS+VEHICLE+CHARACTERISTICS+ET : RECORD
                     D+140+TRD+DATA:BOOLEAN
                     END) ;
                FEDET+11+DETECTED+EMISSIONS+DD+TRD+ET:(
                     );
                FEDET+12+DETECTED+EMISSIONS+COARSE+ET:(
                     );
                FEDET+13+DETECTED+EMISSIONS+FINE+ET:(
                     )
           END;
           EF7+ESIMD+4=+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN,,
           D+1+NELS+TRACK+MESSAGE+MSG+OUT;
(* SETS TYPE DECLARATIONS FROM SDF *)
(*REC IND VAR DECLARATIONS FROM MISF*)
(*----------MISF CODE FOLLOWS----------------------------------------*)
VAR
EF7SAV01, EF7SAV02, EF7SAV03, EF7SAV04, EF7SAV05, EF7SAV06,
EF7SAV07, EF7SAV08, EF7SAV09, EF7SAV10 : EF7SVTYP;
EFSTARTTIME,EFSTOPTIME:REAL;
  EFLEVT,FEFEVT: FEVTDIN;
  EECLVT       : INTEGER;
  EFCLOCK      : REAL;
  EFTERM       : BOOLEAN;
  FEVLIST      : ARRAY[0.. FEVMAX ] OF FEDEF;
  FEOF         : FILE OF FEDEF;
```

```
  EEDEPLST     :ARRAY[1..EEMAXDEP] OF BOOLEAN;
EENDFLAG:BOOLEAN;
EFDIBUG:BOOLEAN;
  EFVALDAT : TEXT;
  EESUIF : TEXT;
  EESUIFERR : BOOLEAN;
  EFDEFSIANT,FEDEFEND: BOOLEAN;
  EFMECTYPE : INTEGER;
  (* EE9VPREL : FILE OF INTEGER;  *)
(*----------END OF PISF CODE BLOCK-------------------------------------*)
(*  SETS VARIABLE DECLARATIONS FROM SDF    *)
   STAT,MSGS,POST : TEXT
  ;SSPOSTTARGTTPE  : REAL
  ;SS+MSG+SOURCE   : EE0D+002+ASET+MSG+DEST+DATA
  ;SS+MSG+NAME     : EE0D+004+ASET+MSG+NAME+DATA
  ;SS+MSG+DEST     : EE0D+002+ASET+MSG+DEST+DATA
  ;
(* REQUIREMENTS DEPENDENT VARIABLE DECLARATIONS VDSF *)

        EE&DATE, EE&TIME, EESIMID, FEXDATE, EEXTIME, EERUNID:AASTRING;
        EE9VPF : BOOLEAN;
      EE0DS      : ARRAY [EE7DSLST] OF EE7DSTYP;
      EEFOUND    : BOOLEAN;
      EE9VPREL     :  FILE OF INTEGER;
      D+130+TMP+DATA:BOOLEAN;
      D+142+TRACK+MESSAGE+DATA:EE0D+142+TRACK+MESSAGE+DATA;
      D+141+TIME+DATA:REAL;
      D+138+TASKING+RESPONSE+DATA:EE0D+138+TASKING+RESPONSE+DATA;
      D+127+RED+SENSOR+TARGET+ID+OF+INTEREST+DATA:EE7UNKNWNTYP;
      D+125+EC+PERDET+INFORMATION+TYPE+DATA:EE7UNKNWNTYP;
      D+125+RED+DESTINATION+SENSOR+ID+DATA:
      EE0D+125+RED+DESTINATION+SENSOR+ID+DATA;
      D+050+GROUND+TARGET+VELOCITY+DATA:REAL;
      D+047+GROUND+TARGET+LENGTH+DATA:REAL;
      D+046+GROUND+TARGET+FREQUENCY+DATA:REAL;
      D+045+GPS+ID+DATA:EE0D+045+GPS+ID+DATA;
      D+137+SENSOR+PRIORITY+DATA:INTEGER;
      D+135+SENSOR+ID+DATA:EE0D+135+SENSOR+ID+DATA;
      D+139+TASK+GUE+ID+DATA:INTEGER;
      D+056+NEEDED+FEASIBLE+DATA:EE0D+056+NEEDED+FEASIBLE+DATA;
      D+005+ASET+MSG+SOURCE+DATA:EE0D+002+ASET+MSG+DEST+DATA;
      D+004+ASET+MSG+NAME+DATA:EE0D+004+ASET+MSG+NAME+DATA;
      D+002+ASET+MSG+DEST+DATA:EE0D+002+ASET+MSG+DEST+DATA;
      D+136+SENSOR+MODE+OF+OPERATION+DATA;
      EE0D+136+SENSOR+MODE+OF+OPERATION+DATA;
      D+044+FREQUENCY+SCAN+PARAMETER+DATA:REAL;
      D+116+PLATFORM+LOCATION+Z+DATA:REAL;
      D+115+PLATFORM+LOCATION+Y+DATA:REAL;
      D+114+PLATFORM+LOCATION+X+DATA:REAL;
      D+113+PLATFORM+VEL+Z+DATA:REAL;
      D+112+PLATFORM+VEL+Y+DATA:REAL;
      D+117+PLATFORM+VEL+X+DATA:REAL;
      D+132+SECONDARY+BEAD+Y+DATA:REAL;
      D+131+SECONDARY+BEAD+X+DATA:REAL;
      D+129+RIVER+LOC+Y+DATA:REAL;
      D+123+RIVER+LOC+X+DATA:REAL;
      D+120+RAILROAD+LOC+Y+DATA:REAL;
```

```
D+123+RAILROAD+LOC+X+DATA;REAL;
D+122+PRIMARY+ROADS+Y+DATA;REAL;
D+121+PRIMARY+ROADS+X+DATA;REAL;
D+024+ASP+VEL+Z+DATA;REAL;
D+023+ASP+VEL+Y+DATA;REAL;
D+022+ASP+VEL+X+DATA;REAL;
D+016+ASP+LOC+Z+DATA;REAL;
D+015+ASP+LOC+Y+DATA;REAL;
D+014+ASP+LOC+X+DATA;REAL;
D+010+ASP+ALTITUDE+DATA;REAL;
D+146+Y+WEATHER+LOC+DATA;REAL;
D+144+X+WEATHER+LOC+DATA;REAL;
D+120+PRECIPITATION+DATA;EE0D+120+PRECIPITATION+DATA;
D+039+ELEVATION+WEATHER+DATA;REAL;
D+037+CLOUD+COVER+DATA;EE0D+037+CLOUD+COVER+DATA;
D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA;
EE0D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA;
D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA;REAL;
D+178+NELS+EMITTER+MODULATION+TYPE+DATA;
EE0D+181+NELS+EMITTER+MODULATION+TYPE+DATA;
D+177+NELS+EMITTER+CEP+DATA;REAL;
D+176+NELS+EMITTER+BANDWIDTH+DATA;REAL;
D+170+SCENARIO+GEN+ID+NUM+DATA;INTEGER;
D+169+NELS+EMITTER+Z+DATA;REAL;
D+168+NELS+EMITTER+Y+DATA;REAL;
D+167+NELS+EMITTER+X+DATA;REAL;
D+166+NELS+EMITTER+ID+DATA;EE0D+175+NELS+EMITTER+ID+DATA;
D+074+NELS+EMITTER+FREQUENCY+DATA;REAL;
D+070+NELS+EMITTER+COV+DATA;REAL;
D+111+NELS+TDOA+2+3+DATA;REAL;
D+110+NELS+TDOA+1+3+DATA;REAL;
D+109+NELS+TDOA+1+2+DATA;REAL;
D+060+NELS+DF+2+3+DATA;REAL;
D+059+NELS+DF+1+3+DATA;REAL;
D+058+NELS+DF+1+2+DATA;REAL;
D+104+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA;REAL;
D+105+NELS+PRE+BRIEFED+SOI+MODULATION+TYPE+DATA;
EE0D+181+NELS+EMITTER+MODULATION+TYPE+DATA;
D+101+NELS+PRE+BRIEFED+SOI+FREQ+DATA;REAL;
D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA;REAL;
D+101+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+Y+DATA;REAL;
D+100+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+X+DATA;REAL;
D+099+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+Y+DATA;REAL;
D+097+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+X+DATA;REAL;
D+095+NELS+PRE+BRIEFED+AOI+FILTERING+CRITERIA+DATA;
EE0D+095+NELS+PRE+BRIEFED+AOI+FILTERING+CRITERIA+DATA;
D+093+NELS+FREQ+SCAN+UPPER+FREQ+DATA;REAL;
D+092+NELS+FREQ+SCAN+LOWER+FREQ+DATA;REAL;
D+165+SCENARIO+GEN+ID+NUM+DATA;INTEGER;
D+164+NELS+EMITTER+Z+DATA;REAL;
D+163+NELS+EMITTER+Y+DATA;REAL;
D+162+NELS+EMITTER+X+DATA;REAL;
D+160+NELS+EMITTER+ID+DATA;EE0D+175+NELS+EMITTER+ID+DATA;
D+158+NELS+EMISSION+START+TIME+DATA;REAL;
D+157+NELS+EMISSION+DURATION+DATA;REAL;
D+068+NELS+EMITTER+CEP+DATA;REAL;
D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;REAL;
```

```
D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;REAL;
D+078+NELS+EMITTER+POWER+LEVEL+DATA;REAL;
D+077+NELS+EMITTER+MODULATION+TYPE+DATA;
EE0D+181+NELS+EMITTER+MODULATION+TYPE+DATA;
D+130+A+SCENARIO+GEN+ID+NUM+DATA;INTEGER;
D+087+A+NELS+EMITTER+Z+DATA;REAL;
D+086+A+NELS+EMITTER+Y+DATA;REAL;
D+085+A+NELS+EMITTER+X+DATA;REAL;
D+084+A+NELS+EMITTER+VEL+Z+DATA;REAL;
D+083+A+NELS+EMITTER+VEL+Y+DATA;REAL;
D+082+A+NELS+EMITTER+VEL+X+DATA;REAL;
D+081+A+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;REAL;
D+075+A+NELS+EMITTER+ID+DATA;EE0D+075+NELS+EMITTER+ID+DATA;
D+073+A+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;REAL;
D+064+A+NELS+EMISSION+STOP+TIME+DATA;REAL;
D+063+A+NELS+EMISSION+START+TIME+DATA;REAL;
D+078+A+NELS+EMITTER+POWER+LEVEL+DATA;REAL;
D+077+A+NELS+EMITTER+MODULATION+TYPE+DATA;
EE0D+181+NELS+EMITTER+MODULATION+TYPE+DATA;
D+067+NELS+EMITTER+BANDWIDTH+DATA;REAL;
D+130+B+SCENARIO+GEN+ID+NUM+DATA;INTEGER;
D+087+B+NELS+EMITTER+Z+DATA;REAL;
D+086+B+NELS+EMITTER+Y+DATA;REAL;
D+085+B+NELS+EMITTER+X+DATA;REAL;
D+084+NELS+EMITTER+VEL+Z+DATA;REAL;
D+083+NELS+EMITTER+VEL+Y+DATA;REAL;
D+082+NELS+EMITTER+VEL+X+DATA;REAL;
D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;REAL;
D+075+B+NELS+EMITTER+ID+DATA;EE0D+075+NELS+EMITTER+ID+DATA;
D+073+B+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;REAL;
D+064+NELS+EMISSION+STOP+TIME+DATA;REAL;
D+063+B+NELS+EMISSION+START+TIME+DATA;REAL;
D+183+NELS+EMITTER+CEP+DATA;REAL;
D+182+NELS+EMITTER+BANDWIDTH+DATA;REAL;
D+181+NELS+EMITTER+MODULATION+TYPE+DATA;
EE0D+181+NELS+EMITTER+MODULATION+TYPE+DATA;
D+175+NELS+EMITTER+Z+DATA;REAL;
D+174+NELS+EMITTER+Y+DATA;REAL;
D+173+NELS+EMITTER+X+DATA;REAL;
D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;REAL;
D+171+NELS+EMITTER+ID+DATA;EE0D+075+NELS+EMITTER+ID+DATA;
D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA;
EE0D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA;
D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA;REAL;
D+156+SCENARIO+GEN+ID+NUM+DATA;INTEGER;
D+155+NELS+EMITTER+Z+DATA;REAL;
D+154+NELS+EMITTER+Y+DATA;REAL;
D+153+NELS+EMITTER+X+DATA;REAL;
D+152+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;REAL;
D+151+NELS+EMITTER+ID+DATA;EE0D+075+NELS+EMITTER+ID+DATA;
D+150+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;REAL;
D+149+NELS+EMISSION+START+TIME+DATA;REAL;
D+148+NELS+EMISSION+SIGNAL+STRENGTH+DATA;REAL;
D+147+NELS+EMISSION+DURATION+DATA;REAL;
D+130+SCENARIO+GEN+ID+NUM+DATA;INTEGER;
D+087+NELS+EMITTER+Z+DATA;REAL;
D+086+NELS+EMITTER+Y+DATA;REAL;
```

```
D+0085+NELS+EMITTER+X+DATA;REAL;
D+0081+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;REAL;
D+0075+NELS+EMITTER+ID+DATA;EE0D+075+NELS+EMITTER+ID+DATA;
D+0073+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;REAL;
D+0063+NELS+EMISSION+START+TIME+DATA;REAL;
D+0062+NELS+EMISSION+SIGNAL+STRENGTH+DATA;REAL;
D+0061+NELS+EMISSION+DURATION+DATA;REAL;
D+0055+MARSHALLING+Y+DATA;REAL;
D+0054+MARSHALLING+X+DATA;REAL;
D+0053+YPSO+LOC+Y+DATA;REAL;
D+0052+YPSO+LOC+X+DATA;REAL;
D+0051+YPSO+ELEV+DATA;REAL;
D+004D+GROUND+TARGET+LOC+Y+DATA;REAL;
D+004C+GROUND+TARGET+LOC+X+DATA;REAL;
D+0043+FLIGHT+WAYPOINT+Z+DATA;REAL;
D+0042+FLIGHT+WAYPOINT+Y+DATA;REAL;
D+0041+FLIGHT+WAYPOINT+X+DATA;REAL;
D+0145+Y+LOC+FEASIBLE+DATA;REAL;
D+0143+X+LOC+FEASIBLE+DATA;REAL;
D+0133+SECOND+CMDRS+REQ+UPDATE+DATA;
EE0D+0133+SECOND+CMDRS+REQ+UPDATE+DATA;
D+0130+FIRST+CMDRS+REQ+UPDATE+DATA;
EE0D+0130+FIRST+CMDRS+REQ+UPDATE+DATA;
D+0136+CITY+LOC+Y+DATA;REAL;
D+0135+CITY+LOC+X+DATA;REAL;
D+0134+CARTO+UPDATE+Y+DATA;REAL;
D+0133+CARTO+UPDATE+X+DATA;REAL;
D+0132+CARTO+UPDATE+3+DATA;EE0D+030+CARTO+UPDATE+1+DATA;
D+0131+CARTO+UPDATE+2+DATA;EE0D+030+CARTO+UPDATE+1+DATA;
D+0130+CARTO+UPDATE+1+DATA;EE0D+030+CARTO+UPDATE+1+DATA;
D+012D+CARTO+SECTION+NUM+DATA;INTEGER;
D+0127+CRTORE+LOC+Y+DATA;REAL;
D+0126+CRTORE+LOC+X+DATA;REAL;
EE0D+FOUND;BOOLEAN;
FOUND;BOOLEAN;
D+021+NELS+FREQUENCY+SCAN+DATA;REAL;
D+020+CARTO+MAP+SECT+NUM+DATA;INTEGER;
D+025+ASP+YAW+DATA;REAL;
D+021+ASP+TIME+DATA;REAL;
D+019+ASP+ROLL+DATA;REAL;
D+018+ASP+PITCH+DATA;REAL;
D+017+ASP+LONGITUDE+DATA;REAL;
D+016+ASP+LATITUDE+DATA;REAL;
D+004+ASP+ACC+Z+DATA;REAL;
D+003+ASP+ACC+Y+DATA;REAL;
D+002+ASP+ACC+X+DATA;REAL;
CLOCK+TIME;REAL;
ATTACK;REAL;
EE0D1 AA : ARRAY [EE7MESINDX] OF AASTRING;
    EE0I2THEC : ARRAY [EE7MESINDX] OF EE7DSLST;
DATA MANAGEMENT SUBMODULE PROCEDURES/HEADERS   POSF *)
(*-----------------------------------------------------------*)
FUNCTION EE0VPOS(DS1:EE7DSLST):BOOLEAN; FORWARD;
(*-----------------------------------------------------------*)
PROCEDURE EE0ASSIGN(VAR DS:EE7DSTYP);FORWARD;
(*-----------------------------------------------------------*)
PROCEDURE EE0CMDRS(VAR DS1:EE7DSTYP;VAR DS2:EE7DSTYP);FORWARD;
```

```
(*-------------------------------------------------------------*)
PROCEDURE EE8DCSH(INP:EE7INPTR);FORWARD;
(*-------------------------------------------------------------*)
PROCEDURE EE8INDS(VAR DS:EE7DSTYP);FORWARD;
(*-------------------------------------------------------------*)
PROCEDURE EE8UPDATE(DSI:EE7DSLST);FORWARD;
(*-------------------------------------------------------------*)
PROCEDURE EE8XIO(EE9INP:EE7INPTR);
     BEGIN
     CASE EE9INPT.INTYP OF
          EE1NCIN:  ;
          EE0F+01+BRIDGE+LOCATIONS+FILE:
               BEGIN
               EE9INPT,EE0F+01+BRIDGE+LOCATIONS+FILE.
               D+026+BRIDGE+LOC+X+DATA :=  D+026+BRIDGE+LOC+X+DATA;
               EE9INPT,EE0F+01+BRIDGE+LOCATIONS+FILE.
               D+027+BRIDGE+LOC+Y+DATA :=  D+027+BRIDGE+LOC+Y+DATA
               END;
          EE0F+02+CARTO+UPDATE+FILE:
               BEGIN
               EE9INPT,EE0F+02+CARTO+UPDATE+FILE.
               D+029+CARTO+SECTION+NUM+DATA :=
               D+029+CARTO+SECTION+NUM+DATA;
               EE9INPT,EE0F+02+CARTO+UPDATE+FILE.
               D+030+CARTO+UPDATE+1+DATA :=
               D+030+CARTO+UPDATE+1+DATA;
               EE9INPT,EE0F+02+CARTO+UPDATE+FILE.
               D+031+CARTO+UPDATE+2+DATA :=
               D+031+CARTO+UPDATE+2+DATA;
               EE9INPT,EE0F+02+CARTO+UPDATE+FILE.
               D+032+CARTO+UPDATE+3+DATA :=
               D+032+CARTO+UPDATE+3+DATA;
               EE9INPT,EE0F+02+CARTO+UPDATE+FILE.
               D+033+CARTO+UPDATE+X+DATA :=
               D+033+CARTO+UPDATE+X+DATA;
               EE9INPT,EE0F+02+CARTO+UPDATE+FILE.
               D+034+CARTO+UPDATE+Y+DATA :=
               D+034+CARTO+UPDATE+Y+DATA
               END;
          EE0F+03+CITY+LOCATIONS+FILE:
               BEGIN
               EE9INPT,EE0F+03+CITY+LOCATIONS+FILE.
               D+035+CITY+LOC+X+DATA :=  D+035+CITY+LOC+X+DATA;
               EE9INPT,EE0F+03+CITY+LOCATIONS+FILE.
               D+036+CITY+LOC+Y+DATA :=  D+036+CITY+LOC+Y+DATA
               END;
          EE0F+04+CMDRS+DATA+TO+UPDATE+FILE:
               BEGIN
               EE9INPT,EE0F+04+CMDRS+DATA+TO+UPDATE+FILE.
               D+040+FIRST+CMDRS+REQ+UPDATE+DATA :=
               D+040+FIRST+CMDRS+REQ+UPDATE+DATA;
               EE9INPT,EE0F+04+CMDRS+DATA+TO+UPDATE+FILE.
               D+133+SECOND+CMDRS+REQ+UPDATE+DATA :=
               D+133+SECOND+CMDRS+REQ+UPDATE+DATA
               END;
          EE0F+05+FEASIBLE+ACTIVITY+AREA+FILE:
               BEGIN
```

```
        EF9INPT,EF0F=05=FEASIBLE=ACTIVITY=AREA=FILE,
        D=143=X=LOC=FEASIBLE=DATA :=
        D=143=X=LOC=FEASIBLE=DATA;
        EF9INPT,EE0F=05=FEASIBLE=ACTIVITY=AREA=FILE,
        D=145=Y=LOC=FEASIBLE=DATA :=
        D=145=Y=LOC=FEASIBLE=DATA
        END;
FE0F=06=FLIGHT=PROFILE=FILE;
        BEGIN
        EE9INPT,EF0F=06=FLIGHT=PROFILE=FILE,
        D=041=FLIGHT=WAYPOINT=X=DATA :=
        D=041=FLIGHT=WAYPOINT=X=DATA;
        EF9INPT,EE0F=06=FLIGHT=PROFILE=FILE,
        D=042=FLIGHT=WAYPOINT=Y=DATA :=
        D=042=FLIGHT=WAYPOINT=Y=DATA;
        EF9INPT,EE0F=06=FLIGHT=PROFILE=FILE,
        D=043=FLIGHT=WAYPOINT=Z=DATA :=
        D=043=FLIGHT=WAYPOINT=Z=DATA
        END;
FE0F=07=GROUP=TARGET=LOCS=FILE;
        BEGIN
        EE9INPT,EE0F=07=GROUP=TARGET=LOCS=FILE,
        D=048=GROUND=TARGET=LOC=X=DATA :=
        D=048=GROUND=TARGET=LOC=X=DATA;
        EF9INPT,EE0F=07=GROUP=TARGET=LOCS=FILE,
        D=049=GROUND=TARGET=LOC=Y=DATA :=
        D=049=GROUND=TARGET=LOC=Y=DATA
        END;
FE0F=08=HYPSO=DATA=FILE;
        BEGIN
        EE9INPT,EF0F=08=HYPSO=DATA=FILE,
        D=051=HYPSO=ELEV=DATA :=  D=051=HYPSO=ELEV=DATA;
        EE9INPT,EF0F=08=HYPSO=DATA=FILE,
        D=052=HYPSO=LOC=X=DATA :=  D=052=HYPSO=LOC=X=DATA;
        EE9INPT,EE0F=08=HYPSO=DATA=FILE,
        D=053=HYPSO=LOC=Y=DATA :=  D=053=HYPSO=LOC=Y=DATA
        END;
FE0F=09=MARSHALLING=AREAS=FILE;
        BEGIN
        EF9INPT,EE0F=09=MARSHALLING=AREAS=FILE,
        D=054=MARSHALLING=X=DATA :=
        D=054=MARSHALLING=X=DATA;
        EF9INPT,EE0F=09=MARSHALLING=AREAS=FILE,
        D=055=MARSHALLING=Y=DATA :=
        D=055=MARSHALLING=Y=DATA
        END;
FE0F=10=NELS=CANDIDATE=TARGETS=FILE;
        BEGIN
        EF9INPT,EF0F=10=NELS=CANDIDATE=TARGETS=FILE,
        D=061=NELS=EMISSION=DURATION=DATA :=
        D=061=NELS=EMISSION=DURATION=DATA;
        EF9INPT,EE0F=10=NELS=CANDIDATE=TARGETS=FILE,
        D=062=NELS=EMISSION=SIGNAL=STRENGTH=DATA :=
        D=062=NELS=EMISSION=SIGNAL=STRENGTH=DATA;
        EF9INPT,EE0F=10=NELS=CANDIDATE=TARGETS=FILE,
        D=063=NELS=EMISSION=START=TIME=DATA :=
        D=063=NELS=EMISSION=START=TIME=DATA;
```

```
      EF9INPT,EF0F=10=NELS=CANDIDATE=TARGETS=FILE,
      D=073=NELS=EMITTER=FREQUENCY=BANDWIDTH=DATA :=
      D=073=NELS=EMITTER=FREQUENCY=BANDWIDTH=DATA;
      EE9INPT,EE0F=10=NELS=CANDIDATE=TARGETS=FILE,
      D=075=NELS=EMITTER=ID=DATA :=
      D=075=NELS=EMITTER=ID=DATA;
      EF9INPT,EF0F=10=NELS=CANDIDATE=TARGETS=FILE,
      D=081=NELS=EMITTER=TRANSMISSION=FREQUENCY=DATA :=
      D=081=NELS=EMITTER=TRANSMISSION=FREQUENCY=DATA;
      EE9INPT,EE0F=10=NELS=CANDIDATE=TARGETS=FILE,
      D=085=NELS=EMITTER=X=DATA :=
      D=085=NELS=EMITTER=X=DATA;
      EF9INPT,EE0F=10=NELS=CANDIDATE=TARGETS=FILE,
      D=086=NELS=EMITTER=Y=DATA :=
      D=086=NELS=EMITTER=Y=DATA;
      EE9INPT,EE0F=10=NELS=CANDIDATE=TARGETS=FILE,
      D=087=NELS=EMITTER=Z=DATA :=
      D=087=NELS=EMITTER=Z=DATA;
      EF9INPT,EF0F=10=NELS=CANDIDATE=TARGETS=FILE,
      D=130=SCENARIO=GEN=ID=NUM=DATA :=
      D=130=SCENARIO=GEN=ID=NUM=DATA
      END;
EE0F=12=DETECTED=CANDIDATE=TARGETS=FILE;
      BEGIN
      EF9INPT,EF0F=12=DETECTED=CANDIDATE=TARGETS=FILE,
      D=147=NELS=EMISSION=DURATION=DATA :=
      D=147=NELS=EMISSION=DURATION=DATA;
      EE9INPT,EF0F=12=DETECTED=CANDIDATE=TARGETS=FILE,
      D=148=NELS=EMISSION=SIGNAL=STRENGTH=DATA :=
      D=148=NELS=EMISSION=SIGNAL=STRENGTH=DATA;
      EF9INPT,EF0F=12=DETECTED=CANDIDATE=TARGETS=FILE,
      D=149=NELS=EMISSION=START=TIME=DATA :=
      D=149=NELS=EMISSION=START=TIME=DATA;
      EF9INPT,EE0F=12=DETECTED=CANDIDATE=TARGETS=FILE,
      D=150=NELS=EMITTER=FREQUENCY=BANDWIDTH=DATA :=
      D=150=NELS=EMITTER=FREQUENCY=BANDWIDTH=DATA;
      EF9INPT,EF0F=12=DETECTED=CANDIDATE=TARGETS=FILE,
      D=151=NELS=EMITTER=ID=DATA :=
      D=151=NELS=EMITTER=ID=DATA;
      EF9INPT,EE0F=12=DETECTED=CANDIDATE=TARGETS=FILE,
      D=152=NELS=EMITTER=TRANSMISSION=FREQUENCY=DATA :=
      D=152=NELS=EMITTER=TRANSMISSION=FREQUENCY=DATA;
      EF9INPT,EF0F=12=DETECTED=CANDIDATE=TARGETS=FILE,
      D=153=NELS=EMITTER=X=DATA :=
      D=153=NELS=EMITTER=X=DATA;
      EF9INPT,EE0F=12=DETECTED=CANDIDATE=TARGETS=FILE,
      D=154=NELS=EMITTER=Y=DATA :=
      D=154=NELS=EMITTER=Y=DATA;
      EE9INPT,EE0F=12=DETECTED=CANDIDATE=TARGETS=FILE,
      D=155=NELS=EMITTER=Z=DATA :=
      D=155=NELS=EMITTER=Z=DATA;
      EF9INPT,EF0F=12=DETECTED=CANDIDATE=TARGETS=FILE,
      D=156=SCENARIO=GEN=ID=NUM=DATA :=
      D=156=SCENARIO=GEN=ID=NUM=DATA
      END;
EE0F=13=NELS=EMISSION=THREAT=TABLE=FILE;
      BEGIN
```

```
        EF9INPT,EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
        D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA :=
        D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA;
        EF9INPT,EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
        D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA :=
        D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA;
        EF9INPT,EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
        D+171+NELS+EMITTER+ID+DATA :=
        D+171+NELS+EMITTER+ID+DATA;
        EF9INPT,EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
        D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
        D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;
        EF9INPT,EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
        D+173+NELS+EMITTER+X+DATA :=
        D+173+NELS+EMITTER+X+DATA;
        EF9INPT,EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
        D+174+NELS+EMITTER+Y+DATA :=
        D+174+NELS+EMITTER+Y+DATA;
        EF9INPT,EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
        D+175+NELS+EMITTER+Z+DATA :=
        D+175+NELS+EMITTER+Z+DATA;
        EF9INPT,EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
        D+181+NELS+EMITTER+MODULATION+TYPE+DATA :=
        D+181+NELS+EMITTER+MODULATION+TYPE+DATA;
        EF9INPT,EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
        D+182+NELS+EMITTER+BANDWIDTH+DATA :=
        D+182+NELS+EMITTER+BANDWIDTH+DATA;
        EF9INPT,EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
        D+183+NELS+EMITTER+CEP+DATA :=
        D+183+NELS+EMITTER+CEP+DATA
        END;
EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE;
        BEGIN
        EF9INPT,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+063+8+NELS+EMISSION+START+TIME+DATA :=
        D+063+8+NELS+EMISSION+START+TIME+DATA;
        EF9INPT,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+064+NELS+EMISSION+STOP+TIME+DATA :=
        D+064+NELS+EMISSION+STOP+TIME+DATA;
        EF9INPT,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+073+8+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
        D+073+8+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;
        EF9INPT,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+075+8+NELS+EMITTER+ID+DATA :=
        D+075+8+NELS+EMITTER+ID+DATA;
        EF9INPT,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+081+8+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        :=
        D+081+8+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;
        EF9INPT,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+082+NELS+EMITTER+VEL+X+DATA :=
```

```
        D+082+NELS+EMITTER+VEL+Y+DATA;
        EE9INPT,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+083+NELS+EMITTER+VEL+Y+DATA :=
        D+083+NELS+EMITTER+VEL+Y+DATA;
        EE9INPT,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+084+NELS+EMITTER+VEL+Z+DATA :=
        D+084+NELS+EMITTER+VEL+Z+DATA;
        EE9INPT,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+085+8+NELS+EMITTER+X+DATA :=
        D+085+8+NELS+EMITTER+X+DATA;
        EE9INPT,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+086+8+NELS+EMITTER+Y+DATA :=
        D+086+8+NELS+EMITTER+Y+DATA;
        EE9INPT,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+087+8+NELS+EMITTER+Z+DATA :=
        D+087+8+NELS+EMITTER+Z+DATA;
        EE9INPT,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+130+8+SCENARIO+GEN+ID+NUM+DATA :=
        D+130+8+SCENARIO+GEN+ID+NUM+DATA
        END;
EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE;
        BEGIN
        EE9INPT,EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE,
        D+067+NELS+EMITTER+BANDWIDTH+DATA :=
        D+067+NELS+EMITTER+BANDWIDTH+DATA;
        EE9INPT,EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE,
        D+077+A+NELS+EMITTER+MODULATION+TYPE+DATA :=
        D+077+A+NELS+EMITTER+MODULATION+TYPE+DATA;
        EE9INPT,EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE,
        D+078+A+NELS+EMITTER+POWER+LEVEL+DATA :=
        D+078+A+NELS+EMITTER+POWER+LEVEL+DATA
        END;
EE0F+16+NELS+EMITTER+FILE;
        BEGIN
        EE9INPT,EE0F+16+NELS+EMITTER+FILE,
        D+063+A+NELS+EMISSION+START+TIME+DATA :=
        D+063+A+NELS+EMISSION+START+TIME+DATA;
        EE9INPT,EE0F+16+NELS+EMITTER+FILE,
        D+064+A+NELS+EMISSION+STOP+TIME+DATA :=
        D+064+A+NELS+EMISSION+STOP+TIME+DATA;
        EE9INPT,EE0F+16+NELS+EMITTER+FILE,
        D+073+A+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
        D+073+A+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;
        EE9INPT,EE0F+16+NELS+EMITTER+FILE,
        D+075+A+NELS+EMITTER+ID+DATA :=
        D+075+A+NELS+EMITTER+ID+DATA;
        EE9INPT,EE0F+16+NELS+EMITTER+FILE,
        D+081+A+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
         :=
        D+081+A+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;
        EE9INPT,EE0F+16+NELS+EMITTER+FILE,
```

```
        D+082+A+NELS+EMITTER+VEL+X+DATA :=
        D+082+A+NELS+EMITTER+VEL+X+DATA;
        EF9INPT,EF0F+16+NFLS+EMITTER+FILE,
        D+083+A+NELS+EMITTER+VEL+Y+DATA :=
        D+083+A+NELS+EMITTER+VEL+Y+DATA;
        EF9INPT,EF0F+16+NFLS+EMITTER+FILE,
        D+084+A+NELS+EMITTER+VEL+Z+DATA :=
        D+084+A+NELS+EMITTER+VEL+Z+DATA;
        EF9INPT,EF0F+16+NFLS+EMITTER+FILE,
        D+085+A+NELS+EMITTER+X+DATA :=
        D+085+A+NELS+EMITTER+X+DATA;
        EF9INPT,EF0F+16+NFLS+EMITTER+FILE,
        D+086+A+NELS+EMITTER+Y+DATA :=
        D+086+A+NELS+EMITTER+Y+DATA;
        EF9INPT,EF0F+16+NFLS+EMITTER+FILE,
        D+087+A+NELS+EMITTER+Z+DATA :=
        D+087+A+NELS+EMITTER+Z+DATA;
        EF9INPT,EF0F+16+NFLS+EMITTER+FILE,
        D+130+A+SCENARIO+GEN+ID+NUM+DATA :=
        D+130+A+SCENARIO+GEN+ID+NUM+DATA
        END;
FF0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE;
        BEGIN
        EF9INPT,
        EF0F+17+NFLS+ESTIMATED+EMITTER+PARAMETERS+FILE,
        D+077+NFLS+EMITTER+MODULATION+TYPE+DATA :=
        D+077+NFLS+EMITTER+MODULATION+TYPE+DATA;
        EF9INPT,
        EF0F+17+NFLS+ESTIMATED+EMITTER+PARAMETERS+FILE,
        D+078+NFLS+EMITTER+POWER+LEVEL+DATA :=
        D+078+NFLS+EMITTER+POWER+LEVEL+DATA;
        EF9INPT,
        EF0F+17+NFLS+ESTIMATED+EMITTER+PARAMETERS+FILE,
        D+159+NFLS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
        D+159+NFLS+EMITTER+FREQUENCY+BANDWIDTH+DATA;
        EF9INPT,
        EF0F+17+NFLS+ESTIMATED+EMITTER+PARAMETERS+FILE,
        D+161+NFLS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
        D+161+NFLS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        END;
FF0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE;
        BEGIN
        EF9INPT,EF0F+18+NFLS+ESTIMATED+GROUND+TRUTH+FILE,
        D+068+NFLS+EMITTER+CEP+DATA :=
        D+068+NFLS+EMITTER+CEP+DATA;
        EF9INPT,EF0F+18+NFLS+ESTIMATED+GROUND+TRUTH+FILE,
        D+157+NFLS+EMISSION+DURATION+DATA :=
        D+157+NFLS+EMISSION+DURATION+DATA;
        EF9INPT,EF0F+18+NFLS+ESTIMATED+GROUND+TRUTH+FILE,
        D+158+NFLS+EMISSION+START+TIME+DATA :=
        D+158+NFLS+EMISSION+START+TIME+DATA;
        EF9INPT,EF0F+18+NFLS+ESTIMATED+GROUND+TRUTH+FILE,
        D+160+NFLS+EMITTER+ID+DATA :=
        D+160+NFLS+EMITTER+ID+DATA;
        EF9INPT,EF0F+18+NFLS+ESTIMATED+GROUND+TRUTH+FILE,
        D+162+NFLS+EMITTER+Y+DATA :=
        D+162+NFLS+EMITTER+Y+DATA;
```

```
        EE9INPT,EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
        D+163+NELS+EMITTER+Y+DATA :=
        D+163+NELS+EMITTER+Y+DATA;
        EE9INPT,EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
        D+164+NELS+EMITTER+Z+DATA :=
        D+164+NELS+EMITTER+Z+DATA;
        EE9INPT,EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
        D+165+SCENARIO+GEN+ID+NUM+DATA :=
        D+165+SCENARIO+GEN+ID+NUM+DATA
        END;
EE0F+19+NELS+FREQUENCY+SCAN+FILE;
        BEGIN
        EE9INPT,EE0F+19+NELS+FREQUENCY+SCAN+FILE,
        D+092+NELS+FREQ+SCAN+LOWER+FREQ+DATA :=
        D+092+NELS+FREQ+SCAN+LOWER+FREQ+DATA;
        EE9INPT,EE0F+19+NELS+FREQUENCY+SCAN+FILE,
        D+093+NELS+FREQ+SCAN+UPPER+FREQ+DATA :=
        D+093+NELS+FREQ+SCAN+UPPER+FREQ+DATA
        END;
EE0F+20+NELS+PRE+BRIEFED+AOI+FILE;
        BEGIN
        EE9INPT,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
        D+095+NELS+PRE+BRIEFED+AOI+FILTERING+CRITERIA+DATA
         :=
        D+095+NELS+PRE+BRIEFED+AOI+FILTERING+CRITERIA+DATA;
        EE9INPT,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
        D+097+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+X+DATA :=
        D+097+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+X+DATA;
        EE9INPT,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
        D+098+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+Y+DATA :=
        D+098+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+Y+DATA;
        EE9INPT,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
        D+100+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+X+DATA :=
        D+100+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+X+DATA;
        EE9INPT,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
        D+101+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+Y+DATA :=
        D+101+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+Y+DATA
        END;
EE0F+21+NELS+PRE+BRIEFED+SOI+FILE;
        BEGIN
        EE9INPT,EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
        D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA :=
        D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA;
        EE9INPT,EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
        D+104+NELS+PRE+BRIEFED+SOI+FREQ+DATA :=
        D+104+NELS+PRE+BRIEFED+SOI+FREQ+DATA;
        EE9INPT,EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
        D+105+NELS+PRE+BRIEFED+SOI+MODULATION+TYPE+DATA :=
        D+105+NELS+PRE+BRIEFED+SOI+MODULATION+TYPE+DATA;
        EE9INPT,EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
        D+106+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA :=
        D+106+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA
        END;
EE0F+24+NELS+TDOA+DD+FILE;
        BEGIN
        EE9INPT,EE0F+24+NELS+TDOA+DD+FILE,
        D+058+NELS+DD+1+2+DATA :=  D+058+NELS+DD+1+2+DATA;
```

```
        EE9INPT,EE0F+24+NELS+TDOA+DD+FILE,
        D+059+NELS+DD+1+3+DATA :=  D+059+NELS+DD+1+3+DATA;
        EE9INPT,EE0F+24+NELS+TDOA+DD+FILE,
        D+060+NELS+DD+2+3+DATA :=  D+060+NELS+DD+2+3+DATA;
        EE9INPT,EE0F+24+NELS+TDOA+DD+FILE,
        D+109+NELS+TDOA+1+2+DATA :=
        D+109+NELS+TDOA+1+2+DATA;
        EE9INPT,EE0F+24+NELS+TDOA+DD+FILE,
        D+110+NELS+TDOA+1+3+DATA :=
        D+110+NELS+TDOA+1+3+DATA;
        EE9INPT,EE0F+24+NELS+TDOA+DD+FILE,
        D+111+NELS+TDOA+2+3+DATA :=
        D+111+NELS+TDOA+2+3+DATA
        END;
EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE;
        BEGIN
        EE9INPT,EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
        D+070+NELS+EMITTER+COV+DATA :=
        D+070+NELS+EMITTER+COV+DATA;
        EE9INPT,EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
        D+074+NELS+EMITTER+FREQUENCY+DATA :=
        D+074+NELS+EMITTER+FREQUENCY+DATA;
        EE9INPT,EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
        D+166+NELS+EMITTER+ID+DATA :=
        D+166+NELS+EMITTER+ID+DATA;
        EE9INPT,EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
        D+167+NELS+EMITTER+X+DATA :=
        D+167+NELS+EMITTER+X+DATA;
        EE9INPT,EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
        D+168+NELS+EMITTER+Y+DATA :=
        D+168+NELS+EMITTER+Y+DATA;
        EE9INPT,EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
        D+169+NELS+EMITTER+Z+DATA :=
        D+169+NELS+EMITTER+Z+DATA;
        EE9INPT,EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
        D+170+SCENARIO+GEN+ID+NUM+DATA :=
        D+170+SCENARIO+GEN+ID+NUM+DATA;
        EE9INPT,EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
        D+176+NELS+EMITTER+BANDWIDTH+DATA :=
        D+176+NELS+EMITTER+BANDWIDTH+DATA;
        EE9INPT,EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
        D+177+NELS+EMITTER+CEP+DATA :=
        D+177+NELS+EMITTER+CEP+DATA;
        EE9INPT,EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
        D+178+NELS+EMITTER+MODULATION+TYPE+DATA :=
        D+178+NELS+EMITTER+MODULATION+TYPE+DATA;
        EE9INPT,EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
        D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA :=
        D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA;
        EE9INPT,EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
        D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA :=
        D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA
        END;
EE0F+26+NELS+WEATHER+CONDITIONS+FILE;
        BEGIN
        EE9INPT,EE0F+26+NELS+WEATHER+CONDITIONS+FILE,
        D+037+CLOUD+COVER+DATA :=  D+037+CLOUD+COVER+DATA;
```

```
        EE9INPT,EE0F+26+NFLS+WEATHER+CONDITIONS+FILE,
        D+039+ELEVATION+WEATHER+DATA :=
        D+039+ELEVATION+WEATHER+DATA;
        EE9INPT,EE0F+26+NFLS+WEATHER+CONDITIONS+FILE,
        D+120+PRECIPITATION+DATA :=
        D+120+PRECIPITATION+DATA;
        EE9INPT,EE0F+26+NFLS+WEATHER+CONDITIONS+FILE,
        D+144+X+WEATHER+LOC+DATA :=
        D+144+X+WEATHER+LOC+DATA;
        EE9INPT,EE0F+26+NFLS+WEATHER+CONDITIONS+FILE,
        D+146+Y+WEATHER+LOC+DATA :=
        D+146+Y+WEATHER+LOC+DATA
        END;
EE0F+27+PLATFORM+CONTROL+FILE:
        BEGIN
        EE9INPT,EE0F+27+PLATFORM+CONTROL+FILE,
        D+010+ASP+ALTITUDE+DATA :=  D+010+ASP+ALTITUDE+DATA;
        EE9INPT,EE0F+27+PLATFORM+CONTROL+FILE,
        D+014+ASP+LOC+X+DATA :=  D+014+ASP+LOC+X+DATA;
        EE9INPT,EE0F+27+PLATFORM+CONTROL+FILE,
        D+015+ASP+LOC+Y+DATA :=  D+015+ASP+LOC+Y+DATA;
        EE9INPT,EE0F+27+PLATFORM+CONTROL+FILE,
        D+016+ASP+LOC+Z+DATA :=  D+016+ASP+LOC+Z+DATA;
        EE9INPT,EE0F+27+PLATFORM+CONTROL+FILE,
        D+022+ASP+VEL+X+DATA :=  D+022+ASP+VEL+X+DATA;
        EE9INPT,EE0F+27+PLATFORM+CONTROL+FILE,
        D+023+ASP+VEL+Y+DATA :=  D+023+ASP+VEL+Y+DATA;
        EE9INPT,EE0F+27+PLATFORM+CONTROL+FILE,
        D+024+ASP+VEL+Z+DATA :=  D+024+ASP+VEL+Z+DATA
        END;
EE0F+28+PRIMARY+ROADS+FILE:
        BEGIN
        EE9INPT,EE0F+28+PRIMARY+ROADS+FILE,
        D+121+PRIMARY+ROADS+X+DATA :=
        D+121+PRIMARY+ROADS+X+DATA;
        EE9INPT,EE0F+28+PRIMARY+ROADS+FILE,
        D+122+PRIMARY+ROADS+Y+DATA :=
        D+122+PRIMARY+ROADS+Y+DATA
        END;
EE0F+29+RAILROAD+LOCATIONS+FILE:
        BEGIN
        EE9INPT,EE0F+29+RAILROAD+LOCATIONS+FILE,
        D+123+RAILROAD+LOC+X+DATA :=
        D+123+RAILROAD+LOC+X+DATA;
        EE9INPT,EE0F+29+RAILROAD+LOCATIONS+FILE,
        D+124+RAILROAD+LOC+Y+DATA :=
        D+124+RAILROAD+LOC+Y+DATA
        END;
EE0F+30+RIVER+LOCATIONS+FILE:
        BEGIN
        EE9INPT,EE0F+30+RIVER+LOCATIONS+FILE,
        D+128+RIVER+LOC+X+DATA :=  D+128+RIVER+LOC+X+DATA;
        EE9INPT,EE0F+30+RIVER+LOCATIONS+FILE,
        D+129+RIVER+LOC+Y+DATA :=  D+129+RIVER+LOC+Y+DATA
        END;
EE0F+31+SECONDARY+ROADS+FILE:
        BEGIN
```

```
        EE9INPT,EE0E+31+SECONDARY+ROADS+FILE,
        D+151+SECONDARY+ROAD+X+DATA :=
        D+131+SECONDARY+ROAD+X+DATA;
        EE9INPT,EE0E+31+SECONDARY+ROADS+FILE,
        D+132+SECONDARY+ROAD+Y+DATA :=
        D+132+SECONDARY+ROAD+Y+DATA
        END;
EE0E+32+SENSOR+ORBIT+MODS+FILE;
        BEGIN
        EE9INPT,EE0E+32+SENSOR+ORBIT+MODS+FILE,
        D+117+PLATFORM+MOD+X+DATA :=
        D+117+PLATFORM+MOD+Y+DATA;
        EE9INPT,EE0E+32+SENSOR+ORBIT+MODS+FILE,
        D+118+PLATFORM+MOD+Y+DATA :=
        D+118+PLATFORM+MOD+Y+DATA;
        EE9INPT,EE0E+32+SENSOR+ORBIT+MODS+FILE,
        D+119+PLATFORM+MOD+Z+DATA :=
        D+119+PLATFORM+MOD+Z+DATA
        END;
EE0E+33+SENSOR+PLATFORM+LOCATION+FILE;
        BEGIN
        EE9INPT,EE0E+33+SENSOR+PLATFORM+LOCATION+FILE,
        D+114+PLATFORM+LOCATION+X+DATA :=
        D+114+PLATFORM+LOCATION+X+DATA;
        EE9INPT,EE0E+33+SENSOR+PLATFORM+LOCATION+FILE,
        D+115+PLATFORM+LOCATION+Y+DATA :=
        D+115+PLATFORM+LOCATION+Y+DATA;
        EE9INPT,EE0E+33+SENSOR+PLATFORM+LOCATION+FILE,
        D+116+PLATFORM+LOCATION+Z+DATA :=
        D+116+PLATFORM+LOCATION+Z+DATA
        END;
EE0E+34+SENSOR+STATUS+FILE;
        BEGIN
        EE9INPT,EE0E+34+SENSOR+STATUS+FILE,
        D+044+FREQUENCY+SCAN+PARAMETER+DATA :=
        D+044+FREQUENCY+SCAN+PARAMETER+DATA;
        EE9INPT,EE0E+34+SENSOR+STATUS+FILE,
        D+136+SENSOR+MODE+OF+OPERATION+DATA :=
        D+136+SENSOR+MODE+OF+OPERATION+DATA
        END;
M+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN;
        BEGIN
        EE9INPT,
        M+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN,
        D+002+ASET+MSG+DEST+DATA :=
        D+002+ASET+MSG+DEST+DATA;
        EE9INPT,
        M+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN,
        D+004+ASET+MSG+NAME+DATA :=
        D+004+ASET+MSG+NAME+DATA;
        EE9INPT,
        M+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN,
        D+005+ASET+MSG+SOURCE+DATA :=
        D+005+ASET+MSG+SOURCE+DATA;
        EE9INPT,
        M+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN,
        EETIME := EETIME
```

```
    END;
M+02+NELS+CARTO+UPDATES+MSG+IN;
    BEGIN
    EF9INPT,M+02+NELS+CARTO+UPDATES+MSG+IN,
    D+002+ASET+MSG+DEST+DATA :=
    D+002+ASET+MSG+DEST+DATA;
    EF9INPT,M+02+NELS+CARTO+UPDATES+MSG+IN,
    D+004+ASET+MSG+NAME+DATA :=
    D+004+ASET+MSG+NAME+DATA;
    EF9INPT,M+02+NELS+CARTO+UPDATES+MSG+IN,
    D+005+ASET+MSG+SOURCE+DATA :=
    D+005+ASET+MSG+SOURCE+DATA;
    EF9INPT,M+02+NELS+CARTO+UPDATES+MSG+IN,EE1TIME :=
    EF1TIME
    END;
M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN;
    BEGIN
    EF9INPT,M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN,
    D+002+ASET+MSG+DEST+DATA :=
    D+002+ASET+MSG+DEST+DATA;
    EF9INPT,M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN,
    D+004+ASET+MSG+NAME+DATA :=
    D+004+ASET+MSG+NAME+DATA;
    EF9INPT,M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN,
    D+005+ASET+MSG+SOURCE+DATA :=
    D+005+ASET+MSG+SOURCE+DATA;
    EF9INPT,M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN,
    EE1TIME :=  EF1TIME
    END;
M+04+NELS+MODIFIED+TASK+MSG+IN;
    BEGIN
    EF9INPT,M+04+NELS+MODIFIED+TASK+MSG+IN,
    D+002+ASET+MSG+DEST+DATA :=
    D+002+ASET+MSG+DEST+DATA;
    EF9INPT,M+04+NELS+MODIFIED+TASK+MSG+IN,
    D+004+ASET+MSG+NAME+DATA :=
    D+004+ASET+MSG+NAME+DATA;
    EF9INPT,M+04+NELS+MODIFIED+TASK+MSG+IN,
    D+005+ASET+MSG+SOURCE+DATA :=
    D+005+ASET+MSG+SOURCE+DATA;
    EF9INPT,M+04+NELS+MODIFIED+TASK+MSG+IN,
    D+056+NEEDED+FEASIBLE+DATA :=
    D+056+NEEDED+FEASIBLE+DATA;
    EF9INPT,M+04+NELS+MODIFIED+TASK+MSG+IN,
    D+139+TASK+QUE+ID+DATA :=  D+139+TASK+QUE+ID+DATA;
    EF9INPT,M+04+NELS+MODIFIED+TASK+MSG+IN,EE1TIME :=
    EF1TIME
    END;
M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN;
    BEGIN
    EF9INPT,M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN,
    D+002+ASET+MSG+DEST+DATA :=
    D+002+ASET+MSG+DEST+DATA;
    EF9INPT,M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN,
    D+004+ASET+MSG+NAME+DATA :=
    D+004+ASET+MSG+NAME+DATA;
    EF9INPT,M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN,
```

```
     D+005+ASET+MSG+SOURCE+DATA :=
     D+005+ASET+MSG+SOURCE+DATA;
     EF9INPT,M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN,
     D+135+SENSOR+ID+DATA :=  D+135+SENSOR+ID+DATA;
     EF9INPT,M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN,EE1TIME
      :=  EE1TTME
     END;
M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN;
     BEGIN
     EF9INPT,
     M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
     D+002+ASET+MSG+DEST+DATA :=
     D+002+ASET+MSG+DEST+DATA;
     EF9INPT,
     M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
     D+004+ASET+MSG+NAME+DATA :=
     D+004+ASET+MSG+NAME+DATA;
     EF9INPT,
     M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
     D+005+ASET+MSG+SOURCE+DATA :=
     D+005+ASET+MSG+SOURCE+DATA;
     EF9INPT,
     M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
     D+056+NEEDED+FEASIBLE+DATA :=
     D+056+NEEDED+FEASIBLE+DATA;
     EF9INPT,
     M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
     D+135+SENSOR+ID+DATA :=  D+135+SENSOR+ID+DATA;
     EF9INPT,
     M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
     D+137+SENSOR+PRIORITY+DATA :=
     D+137+SENSOR+PRIORITY+DATA;
     EF9INPT,
     M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
     EF1TIME :=  EF1TIME
     END;
M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN;
     BEGIN
     EF9INPT,M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,
     D+002+ASET+MSG+DEST+DATA :=
     D+002+ASET+MSG+DEST+DATA;
     EF9INPT,M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,
     D+004+ASET+MSG+NAME+DATA :=
     D+004+ASET+MSG+NAME+DATA;
     EF9INPT,M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,
     D+005+ASET+MSG+SOURCE+DATA :=
     D+005+ASET+MSG+SOURCE+DATA;
     EF9INPT,M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,
     D+045+GPS+ID+DATA :=  D+045+GPS+ID+DATA;
     EF9INPT,M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,
     EF1TIME :=  EF1TIME
     END;
M+15+T+AND+C+STOP+NELS+MSG+IN;
     BEGIN
     EF9INPT,M+15+T+AND+C+STOP+NELS+MSG+IN,
     D+002+ASET+MSG+DEST+DATA :=
     D+002+ASET+MSG+DEST+DATA;
```

```
      EF9INPT,M+15+T+AND+C+STOP+NELS+MSG+IN,
      D+004+ASET+MSG+NAME+DATA :=
      D+004+ASET+MSG+NAME+DATA;
      EE9INPT,M+15+T+AND+C+STOP+NELS+MSG+IN,
      D+005+ASET+MSG+SOURCE+DATA :=
      D+005+ASET+MSG+SOURCE+DATA;
      EF9INPT,M+15+T+AND+C+STOP+NELS+MSG+IN,EE1TIME :=
      EE1TIME
      END;
M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT;
      BEGIN
      EF9INPT,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      D+002+ASET+MSG+DEST+DATA :=
      D+002+ASET+MSG+DEST+DATA;
      EE9INPT,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      D+004+ASET+MSG+NAME+DATA :=
      D+004+ASET+MSG+NAME+DATA;
      EF9INPT,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      D+005+ASET+MSG+SOURCE+DATA :=
      D+005+ASET+MSG+SOURCE+DATA;
      EF9INPT,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      D+045+GPS+ID+DATA :=  D+045+GPS+ID+DATA;
      EF9INPT,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      D+046+GROUND+TARGET+FREQUENCY+DATA :=
      D+046+GROUND+TARGET+FREQUENCY+DATA;
      EF9INPT,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      D+047+GROUND+TARGET+LENGTH+DATA :=
      D+047+GROUND+TARGET+LENGTH+DATA;
      EF9INPT,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      D+050+GROUND+TARGET+VELOCITY+DATA :=
      D+050+GROUND+TARGET+VELOCITY+DATA;
      EF9INPT,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      EE1TIME :=  EE1TIME
      END;
M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT;
      BEGIN
      EF9INPT,M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT,
      D+002+ASET+MSG+DEST+DATA :=
      D+002+ASET+MSG+DEST+DATA;
      EE9INPT,M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT,
      D+004+ASET+MSG+NAME+DATA :=
      D+004+ASET+MSG+NAME+DATA;
      EF9INPT,M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT,
      D+005+ASET+MSG+SOURCE+DATA :=
      D+005+ASET+MSG+SOURCE+DATA;
      EF9INPT,M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT,
      EE1TIME :=  EE1TIME
      END;
M+10+NELS+SENSOR+REQUESTS+MSG+OUT;
```

```
        BEGIN
        EE9INPT,M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+002+ASET+MSG+DEST+DATA :=
        D+002+ASET+MSG+DEST+DATA;
        EE9INPT,M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+004+ASET+MSG+NAME+DATA :=
        D+004+ASET+MSG+NAME+DATA;
        EE9INPT,M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+005+ASET+MSG+SOURCE+DATA :=
        D+005+ASET+MSG+SOURCE+DATA;
        EE9INPT,M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+125+REQ+DESTINATION+SENSOR+ID+DATA :=
        D+125+REQ+DESTINATION+SENSOR+ID+DATA;
        EE9INPT,M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+126+REQ+REPORT+INFORMATION+TYPE+DATA :=
        D+126+REQ+REPORT+INFORMATION+TYPE+DATA;
        EE9INPT,M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+127+REQ+SENSOR+TARGET+ID+OF+INTEREST+DATA :=
        D+127+REQ+SENSOR+TARGET+ID+OF+INTEREST+DATA;
        EE9INPT,M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+135+SENSOR+ID+DATA :=  D+135+SENSOR+ID+DATA;
        EE9INPT,M+10+NELS+SENSOR+REQUESTS+MSG+OUT,EE1TIME
          := EE1TIME
        END;
M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT;
        BEGIN
        EE9INPT,M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT,
        D+002+ASET+MSG+DEST+DATA :=
        D+002+ASET+MSG+DEST+DATA;
        EE9INPT,M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT,
        D+004+ASET+MSG+NAME+DATA :=
        D+004+ASET+MSG+NAME+DATA;
        EE9INPT,M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT,
        D+005+ASET+MSG+SOURCE+DATA :=
        D+005+ASET+MSG+SOURCE+DATA;
        EE9INPT,M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT,
        D+135+SENSOR+ID+DATA :=  D+135+SENSOR+ID+DATA;
        EE9INPT,M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT,
        EE1TIME :=  EE1TIME
        END;
M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT;
        BEGIN
        EE9INPT,
        M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
        D+002+ASET+MSG+DEST+DATA :=
        D+002+ASET+MSG+DEST+DATA;
        EE9INPT,
        M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
        D+004+ASET+MSG+NAME+DATA :=
        D+004+ASET+MSG+NAME+DATA;
        EE9INPT,
        M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
        D+005+ASET+MSG+SOURCE+DATA :=
        D+005+ASET+MSG+SOURCE+DATA;
        EE9INPT,
        M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
        D+045+GPS+ID+DATA :=  D+045+GPS+ID+DATA;
```

```
        EE9INPT,
        M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
        D+046+GROUND+TARGET+FREQUENCY+DATA :=
        D+046+GROUND+TARGET+FREQUENCY+DATA;
        EE9INPT,
        M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
        D+047+GROUND+TARGET+LENGTH+DATA :=
        D+047+GROUND+TARGET+LENGTH+DATA;
        EE9INPT,
        M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
        D+050+GROUND+TARGET+VELOCITY+DATA :=
        D+050+GROUND+TARGET+VELOCITY+DATA;
        EE9INPT,
        M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
        EE1TIME :=  EE1TIME
        END;
M+13+NELS+TASKING+RESPONSES+MSG+OUT;
        BEGIN
        EE9INPT,M+13+NELS+TASKING+RESPONSES+MSG+OUT,
        D+002+ASET+MSG+DEST+DATA :=
        D+002+ASET+MSG+DEST+DATA;
        EE9INPT,M+13+NELS+TASKING+RESPONSES+MSG+OUT,
        D+004+ASET+MSG+NAME+DATA :=
        D+004+ASET+MSG+NAME+DATA;
        EE9INPT,M+13+NELS+TASKING+RESPONSES+MSG+OUT,
        D+005+ASET+MSG+SOURCE+DATA :=
        D+005+ASET+MSG+SOURCE+DATA;
        EE9INPT,M+13+NELS+TASKING+RESPONSES+MSG+OUT,
        D+138+TASKING+RESPONSE+DATA :=
        D+138+TASKING+RESPONSE+DATA;
        EE9INPT,M+13+NELS+TASKING+RESPONSES+MSG+OUT,
        D+139+TASK+QUE+ID+DATA := D+139+TASK+QUE+ID+DATA;
        EE9INPT,M+13+NELS+TASKING+RESPONSES+MSG+OUT,
        D+141+TIME+DATA :=  D+141+TIME+DATA;
        EE9INPT,M+13+NELS+TASKING+RESPONSES+MSG+OUT,EE1TIME
         :=  EE1TIME
        END;
M+14+NELS+TRACK+MESSAGE+MSG+OUT;
        BEGIN
        EE9INPT,M+14+NELS+TRACK+MESSAGE+MSG+OUT,
        D+002+ASET+MSG+DEST+DATA :=
        D+002+ASET+MSG+DEST+DATA;
        EE9INPT,M+14+NELS+TRACK+MESSAGE+MSG+OUT,
        D+004+ASET+MSG+NAME+DATA :=
        D+004+ASET+MSG+NAME+DATA;
        EE9INPT,M+14+NELS+TRACK+MESSAGE+MSG+OUT,
        D+005+ASET+MSG+SOURCE+DATA :=
        D+005+ASET+MSG+SOURCE+DATA;
        EE9INPT,M+14+NELS+TRACK+MESSAGE+MSG+OUT,
        D+135+SENSOR+ID+DATA := D+135+SENSOR+ID+DATA;
        EE9INPT,M+14+NELS+TRACK+MESSAGE+MSG+OUT,
        D+142+TRACK+MESSAGE+DATA :=
        D+142+TRACK+MESSAGE+DATA;
        EE9INPT,M+14+NELS+TRACK+MESSAGE+MSG+OUT,EE1TIME :=
        EE1TIME
        END;
EE9ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET;
```

```
        BEGIN
        EE9INPT,
        EE0ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET,
        D+140+TBD+DATA :=  D+140+TBD+DATA
        END;
    EE0ET+5+NELS+PRE+BRIEFED+SOI+ET;
        BEGIN
        EE9INPT,EE0ET+5+NELS+PRE+BRIEFED+SOI+ET,
        D+140+TBD+DATA :=  D+140+TBD+DATA
        END;
    EE0ET+8+NELS+PRE+BRIEFED+AOI+ET;
        BEGIN
        EE9INPT,EE0ET+8+NELS+PRE+BRIEFED+AOI+ET,
        D+140+TBD+DATA :=  D+140+TBD+DATA
        END;
    EE0ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET;
        BEGIN
        EE9INPT,EE0ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET,
        D+140+TBD+DATA :=  D+140+TBD+DATA
        END;
    EE0ET+2+NELS+EMITTER+GROUND+TRUTH+ET;
        BEGIN
        EE9INPT,EE0ET+2+NELS+EMITTER+GROUND+TRUTH+ET,
        D+140+TBD+DATA :=  D+140+TBD+DATA
        END;
    EE0ET+7+NELS+WEATHER+ET;
        BEGIN
        EE9INPT,EE0ET+7+NELS+WEATHER+ET,D+140+TBD+DATA :=
        D+140+TBD+DATA
        END;
    EE0ET+3+NELS+FLIGHT+ET;
        BEGIN
        EE9INPT,EE0ET+3+NELS+FLIGHT+ET,D+140+TBD+DATA :=
        D+140+TBD+DATA
        END;
    EE0ET+4+NELS+FREQUENCY+SCAN+ET;
        BEGIN
        EE9INPT,EE0ET+4+NELS+FREQUENCY+SCAN+ET,
        D+140+TBD+DATA :=  D+140+TBD+DATA
        END;
    EE0ET+1+NELS+EMISSION+THREAT+ET;
        BEGIN
        EE9INPT,EE0ET+1+NELS+EMISSION+THREAT+ET,
        D+140+TBD+DATA :=  D+140+TBD+DATA
        END;
    EE0ET+6+NELS+VEHICLE+CHARACTERISTICS+ET;
        BEGIN
        EE9INPT,EE0ET+6+NELS+VEHICLE+CHARACTERISTICS+ET,
        D+140+TBD+DATA :=  D+140+TBD+DATA
        END;
    EE0ET+11+DETECTED+EMISSIONS+DD+TDOA+ET;
        BEGIN
        END;
    EE0ET+12+DETECTED+EMISSIONS+COARSE+ET;
        BEGIN
        END;
    EE0ET+13+DETECTED+EMISSIONS+FINE+ET;
```

```
            BEGIN
            END
        END
    END (*  EE8XIO  *);
(*-----------------------------------------------------------------*)
PROCEDURE EE8XII(EE9INP:EE7INPTR);
    BEGIN
    CASE EE9INP↑.INTYP OF
        EE1NOIN:  ;
        EE0F+01+BRIDGE+LOCATIONS+FILE:
            BEGIN
            D+026+BRIDGE+LOC+X+DATA:=EE9INP↑.
            EE0F+01+BRIDGE+LOCATIONS+FILE.
            D+026+BRIDGE+LOC+X+DATA;
            D+027+BRIDGE+LOC+Y+DATA:=EE9INP↑.
            EE0F+01+BRIDGE+LOCATIONS+FILE.
            D+027+BRIDGE+LOC+Y+DATA
            END;
        EE0F+02+CARTO+UPDATE+FILE:
            BEGIN
            D+029+CARTO+SECTION+NUM+DATA:=EE9INP↑.
            EE0F+02+CARTO+UPDATE+FILE.
            D+029+CARTO+SECTION+NUM+DATA;
            D+030+CARTO+UPDATE+1+DATA:=EE9INP↑.
            EE0F+02+CARTO+UPDATE+FILE.D+030+CARTO+UPDATE+1+DATA;
            D+031+CARTO+UPDATE+2+DATA:=EE9INP↑.
            EE0F+02+CARTO+UPDATE+FILE.D+031+CARTO+UPDATE+2+DATA;
            D+032+CARTO+UPDATE+3+DATA:=EE9INP↑.
            EE0F+02+CARTO+UPDATE+FILE.D+032+CARTO+UPDATE+3+DATA;
            D+033+CARTO+UPDATE+X+DATA:=EE9INP↑.
            EE0F+02+CARTO+UPDATE+FILE.D+033+CARTO+UPDATE+X+DATA;
            D+034+CARTO+UPDATE+Y+DATA:=EE9INP↑.
            EE0F+02+CARTO+UPDATE+FILE.D+034+CARTO+UPDATE+Y+DATA
            END;
        EE0F+03+CITY+LOCATIONS+FILE:
            BEGIN
            D+035+CITY+LOC+X+DATA:=EE9INP↑.
            EE0F+03+CITY+LOCATIONS+FILE.D+035+CITY+LOC+X+DATA;
            D+036+CITY+LOC+Y+DATA:=EE9INP↑.
            EE0F+03+CITY+LOCATIONS+FILE.D+036+CITY+LOC+Y+DATA
            END;
        EE0F+04+CMDRS+DATA+TO+UPDATE+FILE:
            BEGIN
            D+040+FIRST+CMDRS+REQ+UPDATE+DATA:=EE9INP↑.
            EE0F+04+CMDRS+DATA+TO+UPDATE+FILE.
            D+040+FIRST+CMDRS+REQ+UPDATE+DATA;
            D+133+SECOND+CMDRS+REQ+UPDATE+DATA:=EE9INP↑.
            EE0F+04+CMDRS+DATA+TO+UPDATE+FILE.
            D+133+SECOND+CMDRS+REQ+UPDATE+DATA
            END;
        EE0F+05+FEASIBLE+ACTIVITY+AREA+FILE:
            BEGIN
            D+143+X+LOC+FEASIBLE+DATA:=EE9INP↑.
            EE0F+05+FEASIBLE+ACTIVITY+AREA+FILE.
            D+143+X+LOC+FEASIBLE+DATA;
            D+145+Y+LOC+FEASIBLE+DATA:=EE9INP↑.
            EE0F+05+FEASIBLE+ACTIVITY+AREA+FILE.
```

```
        D↑145↑Y↑LOC↑FEASIBLE↑DATA
        END;
EE0F↑06↑FLIGHT↑PROFILE↑FILE;
        BEGIN
        D↑041↑FLIGHT↑WAYPOINT↑X↑DATA;=EE9INP↑,
        EE0F↑06↑FLIGHT↑PROFILE↑FILE,
        D↑041↑FLIGHT↑WAYPOINT↑X↑DATA;
        D↑042↑FLIGHT↑WAYPOINT↑Y↑DATA;=EE9INP↑,
        EE0F↑06↑FLIGHT↑PROFILE↑FILE,
        D↑042↑FLIGHT↑WAYPOINT↑Y↑DATA;
        D↑043↑FLIGHT↑WAYPOINT↑Z↑DATA;=EE9INP↑,
        EE0F↑06↑FLIGHT↑PROFILE↑FILE,
        D↑043↑FLIGHT↑WAYPOINT↑Z↑DATA
        END;
EE0F↑07↑GROUP↑TARGET↑LOCS↑FILE;
        BEGIN
        D↑048↑GROUND↑TARGET↑LOC↑X↑DATA;=EE9INP↑,
        EE0F↑07↑GROUP↑TARGET↑LOCS↑FILE,
        D↑048↑GROUND↑TARGET↑LOC↑X↑DATA;
        D↑049↑GROUND↑TARGET↑LOC↑Y↑DATA;=EE9INP↑,
        EE0F↑07↑GROUP↑TARGET↑LOCS↑FILE,
        D↑049↑GROUND↑TARGET↑LOC↑Y↑DATA
        END;
EE0F↑08↑HYPSO↑DATA↑FILE;
        BEGIN
        D↑051↑HYPSO↑ELEV↑DATA;=EE9INP↑,
        EE0F↑08↑HYPSO↑DATA↑FILE,D↑051↑HYPSO↑ELEV↑DATA;
        D↑052↑HYPSO↑LOC↑X↑DATA;=EE9INP↑,
        EE0F↑08↑HYPSO↑DATA↑FILE,D↑052↑HYPSO↑LOC↑X↑DATA;
        D↑053↑HYPSO↑LOC↑Y↑DATA;=EE9INP↑,
        EE0F↑08↑HYPSO↑DATA↑FILE,D↑053↑HYPSO↑LOC↑Y↑DATA
        END;
EE0F↑09↑MARSHALLING↑AREAS↑FILE;
        BEGIN
        D↑054↑MARSHALLING↑X↑DATA;=EE9INP↑,
        EE0F↑09↑MARSHALLING↑AREAS↑FILE,
        D↑054↑MARSHALLING↑X↑DATA;
        D↑055↑MARSHALLING↑Y↑DATA;=EE9INP↑,
        EE0F↑09↑MARSHALLING↑AREAS↑FILE,
        D↑055↑MARSHALLING↑Y↑DATA
        END;
EE0F↑10↑NELS↑CANDIDATE↑TARGETS↑FILE;
        BEGIN
        D↑061↑NELS↑EMISSION↑DURATION↑DATA;=EE9INP↑,
        EE0F↑10↑NELS↑CANDIDATE↑TARGETS↑FILE,
        D↑061↑NELS↑EMISSION↑DURATION↑DATA;
        D↑062↑NELS↑EMISSION↑SIGNAL↑STRENGTH↑DATA;=EE9INP↑,
        EE0F↑10↑NELS↑CANDIDATE↑TARGETS↑FILE,
        D↑062↑NELS↑EMISSION↑SIGNAL↑STRENGTH↑DATA;
        D↑063↑NELS↑EMISSION↑START↑TIME↑DATA;=EE9INP↑,
        EE0F↑10↑NELS↑CANDIDATE↑TARGETS↑FILE,
        D↑063↑NELS↑EMISSION↑START↑TIME↑DATA;
        D↑073↑NELS↑EMITTER↑FREQUENCY↑BANDWIDTH↑DATA
        ;=EE9INP↑,EE0F↑10↑NELS↑CANDIDATE↑TARGETS↑FILE,
        D↑073↑NELS↑EMITTER↑FREQUENCY↑BANDWIDTH↑DATA;
        D↑075↑NELS↑EMITTER↑IL↑DATA;=EE9INP↑,
        EE0F↑10↑NELS↑CANDIDATE↑TARGETS↑FILE,
```

```
        D+075+NELS+EMITTER+ID+DATA;
        D+081+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        :=EE9INP↑,EE0F+10+NELS+CANDIDATE+TARGETS+FILE,
        D+081+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;
        D+085+NELS+EMITTER+X+DATA:=EE9INP↑,
        EE0F+10+NELS+CANDIDATE+TARGETS+FILE,
        D+085+NELS+EMITTER+X+DATA;
        D+086+NELS+EMITTER+Y+DATA:=EE9INP↑,
        EE0F+10+NELS+CANDIDATE+TARGETS+FILE,
        D+086+NELS+EMITTER+Y+DATA;
        D+087+NELS+EMITTER+Z+DATA:=EE9INP↑,
        EE0F+10+NELS+CANDIDATE+TARGETS+FILE,
        D+087+NELS+EMITTER+Z+DATA;
        D+130+SCENARIO+GEN+ID+NUM+DATA:=EE9INP↑,
        EE0F+10+NELS+CANDIDATE+TARGETS+FILE,
        D+130+SCENARIO+GEN+ID+NUM+DATA
        END;
EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE;
        BEGIN
        D+147+NELS+EMISSION+DURATION+DATA:=EE9INP↑,
        EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE,
        D+147+NELS+EMISSION+DURATION+DATA;
        D+148+NELS+EMISSION+SIGNAL+STRENGTH+DATA:=EE9INP↑,
        EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE,
        D+148+NELS+EMISSION+SIGNAL+STRENGTH+DATA;
        D+149+NELS+EMISSION+START+TIME+DATA:=EE9INP↑,
        EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE,
        D+149+NELS+EMISSION+START+TIME+DATA;
        D+150+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
        :=EE9INP↑,EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE,
        D+150+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;
        D+151+NELS+EMITTER+ID+DATA:=EE9INP↑,
        EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE,
        D+151+NELS+EMITTER+ID+DATA;
        D+152+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        :=EE9INP↑,EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE,
        D+152+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;
        D+153+NELS+EMITTER+X+DATA:=EE9INP↑,
        EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE,
        D+153+NELS+EMITTER+X+DATA;
        D+154+NELS+EMITTER+Y+DATA:=EE9INP↑,
        EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE,
        D+154+NELS+EMITTER+Y+DATA;
        D+155+NELS+EMITTER+Z+DATA:=EE9INP↑,
        EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE,
        D+155+NELS+EMITTER+Z+DATA;
        D+156+SCENARIO+GEN+ID+NUM+DATA:=EE9INP↑,
        EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE,
        D+156+SCENARIO+GEN+ID+NUM+DATA
        END;
EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE;
        BEGIN
        D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA:=EE9INP↑,
        EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
        D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA;
        D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA:=EE9INP↑,
        EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE,
```

```
        0+080+NELS+EMITTER+TRAFFIC+TYPE+DATA;
        0+171+NELS+EMITTER+ID+DATA;=EE9INP†,
        EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE.
        0+171+NELS+EMITTER+ID+DATA;
        0+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        :=EE9INP†,EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE.
        0+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;
        0+173+NELS+EMITTER+X+DATA;=EE9INP†,
        EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE.
        0+173+NELS+EMITTER+X+DATA;
        0+174+NELS+EMITTER+Y+DATA;=EE9INP†,
        EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE.
        0+174+NELS+EMITTER+Y+DATA;
        0+175+NELS+EMITTER+Z+DATA;=EE9INP†,
        EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE.
        0+175+NELS+EMITTER+Z+DATA;
        0+181+NELS+EMITTER+MODULATION+TYPE+DATA;=EE9INP†,
        EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE.
        0+181+NELS+EMITTER+MODULATION+TYPE+DATA;
        0+182+NELS+EMITTER+BANDWIDTH+DATA;=EE9INP†,
        EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE.
        0+182+NELS+EMITTER+BANDWIDTH+DATA;
        0+183+NELS+EMITTER+CEP+DATA;=EE9INP†,
        EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE.
        0+183+NELS+EMITTER+CEP+DATA
        END;
EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE;
        BEGIN
        0+063+R+NELS+EMISSION+START+TIME+DATA;=EE9INP†,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE.
        0+063+R+NELS+EMISSION+START+TIME+DATA;
        0+064+NELS+EMISSION+STOP+TIME+DATA;=EE9INP†,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE.
        0+064+NELS+EMISSION+STOP+TIME+DATA;
        0+073+R+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
        :=EE9INP†,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE.
        0+073+R+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;
        0+075+R+NELS+EMITTER+ID+DATA;=EE9INP†,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE.
        0+075+R+NELS+EMITTER+ID+DATA;
        0+081+R+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        :=EE9INP†,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE.
        0+081+R+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA;
        0+082+NELS+EMITTER+VEL+X+DATA;=EE9INP†,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE.
        0+082+NELS+EMITTER+VEL+X+DATA;
        0+083+NELS+EMITTER+VEL+Y+DATA;=EE9INP†,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE.
        0+083+NELS+EMITTER+VEL+Y+DATA;
        0+084+NELS+EMITTER+VEL+Z+DATA;=EE9INP†,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE.
        0+084+NELS+EMITTER+VEL+Z+DATA;
        0+085+R+NELS+EMITTER+X+DATA;=EE9INP†,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE.
        0+085+R+NELS+EMITTER+Y+DATA;
```

```
      D+0R6+B+NELS+EMITTER+Y+DATA:=FE9INP†,
      EE0F+14+NFLS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
      D+0R6+B+NELS+EMITTER+Y+DATA;
      D+0R7+B+NELS+EMITTER+Z+DATA:=EE9INP†,
      EF0F+14+NFLS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
      D+0R7+B+NELS+EMITTER+Z+DATA;
      L+130+B+SCENARIO+GEN+ID+NUM+DATA:=EE9INP†,
      EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
      D+130+B+SCENARIO+GEN+ID+NUM+DATA
      END;
FE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE;
      BEGIN
      L+067+NELS+EMITTER+BANDWIDTH+DATA:=EE9INP†,
      EF0F+15+NFLS+EMITTER+CHARACTERISTICS+FILE,
      L+067+NFLS+EMITTER+BANDWIDTH+DATA;
      D+077+A+NELS+EMITTER+MODULATION+TYPE+DATA:=FE9INP†,
      EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE,
      L+077+A+NFLS+EMITTER+MODULATION+TYPE+DATA;
      D+078+A+NFLS+EMITTER+POWER+LEVEL+DATA:=EE9INP†,
      EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE,
      D+078+A+NELS+EMITTER+POWER+LEVEL+DATA
      END;
FE0F+16+NELS+EMITTER+FILE;
      BEGIN
      L+063+A+NFLS+EMISSION+START+TIME+DATA:=FE9INP†,
      EE0F+16+NFLS+EMITTER+FILE,
      D+063+A+NFLS+EMISSION+START+TIME+DATA;
      D+064+A+NFLS+EMISSION+STOP+TIME+DATA:=EE9INP†,
      EF0F+16+NFLS+EMITTER+FILE,
      D+064+A+NFLS+EMISSION+STOP+TIME+DATA;
      L+073+A+NFLS+EMITTER+FREQUENCY+BANDWIDTH+DATA
      :=EE9INP†,EE0F+16+NFLS+EMITTER+FILE,
      D+073+A+NFLS+EMITTER+FREQUENCY+BANDWIDTH+DATA;
      D+075+A+NFLS+EMITTER+ID+DATA:=EE9INP†,
      EE0F+16+NELS+EMITTER+FILE,
      L+075+A+NFLS+EMITTER+ID+DATA;
      D+081+A+NFLS+EMITTER+TRANSMISSION+FREQUENCY+DATA
      :=EE9INP†,EE0F+16+NFLS+EMITTER+FILE,
      D+081+A+NFLS+EMITTER+TRANSMISSION+FREQUENCY+DATA;
      D+082+A+NFLS+EMITTER+VEL+X+DATA:=EE9INP†,
      EE0F+16+NFLS+EMITTER+FILE,
      L+082+A+NFLS+EMITTER+VEL+X+DATA;
      D+083+A+NFLS+EMITTER+VEL+Y+DATA:=EE9INP†,
      EE0F+16+NELS+EMITTER+FILE,
      D+083+A+NFLS+EMITTER+VEL+Y+DATA;
      D+084+A+NFLS+EMITTER+VEL+Z+DATA:=EE9INP†,
      EE0F+16+NELS+EMITTER+FILE,
      L+084+A+NFLS+EMITTER+VEL+Z+DATA;
      D+085+A+NFLS+EMITTER+X+DATA:=FE9INP†,
      EE0F+16+NELS+EMITTER+FILE,
      D+085+A+NFLS+EMITTER+X+DATA;
      D+086+A+NFLS+EMITTER+Y+DATA:=EE9INP†,
      EE0F+16+NELS+EMITTER+FILE,
      D+086+A+NFLS+EMITTER+Y+DATA;
      L+087+A+NFLS+EMITTER+Z+DATA:=FE9INP†,
      EE0F+16+NFLS+EMITTER+FILE,
      D+087+A+NFLS+EMITTER+Z+DATA;
```

```
        D+130+A+SCENARIO+GEN+ID+NUM+DATA:=EE9INP↑,
        EE0F+16+NELS+EMITTER+FILE,
        D+130+A+SCENARIO+GEN+ID+NUM+DATA
        END;
    EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE:
        BEGIN
        D+077+NELS+EMITTER+MODULATION+TYPE+DATA:=EE9INP↑,
        EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
        D+077+NELS+EMITTER+MODULATION+TYPE+DATA;
        D+078+NELS+EMITTER+POWER+LEVEL+DATA:=EE9INP↑,
        EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
        D+078+NELS+EMITTER+POWER+LEVEL+DATA;
        D+159+NELS+EMITTER+FREQUENCY+BAND+WIDTH+DATA
        :=EE9INP↑,
        EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
        D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;
        D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        :=EE9INP↑,
        EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
        D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        END;
    EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE:
        BEGIN
        D+056+NELS+EMITTER+CEP+DATA:=EE9INP↑,
        EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
        D+056+NELS+EMITTER+CEP+DATA;
        D+157+NELS+EMISSION+DURATION+DATA:=EE9INP↑,
        EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
        D+157+NELS+EMISSION+DURATION+DATA;
        D+158+NELS+EMISSION+START+TIME+DATA:=EE9INP↑,
        EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
        D+158+NELS+EMISSION+START+TIME+DATA;
        D+160+NELS+EMITTER+ID+DATA:=EE9INP↑,
        EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
        D+160+NELS+EMITTER+ID+DATA;
        D+162+NELS+EMITTER+X+DATA:=EE9INP↑,
        EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
        D+162+NELS+EMITTER+X+DATA;
        D+163+NELS+EMITTER+Y+DATA:=EE9INP↑,
        EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
        D+163+NELS+EMITTER+Y+DATA;
        D+164+NELS+EMITTER+Z+DATA:=EE9INP↑,
        EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
        D+164+NELS+EMITTER+Z+DATA;
        D+165+SCENARIO+GEN+ID+NUM+DATA:=EE9INP↑,
        EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
        D+165+SCENARIO+GEN+ID+NUM+DATA
        END;
    EE0F+19+NELS+FREQUENCY+SCAN+FILE:
        BEGIN
        D+032+NELS+FREQ+SCAN+LOWER+FREQ+DATA:=EE9INP↑,
        EE0F+19+NELS+FREQUENCY+SCAN+FILE,
        D+032+NELS+FREQ+SCAN+LOWER+FREQ+DATA;
        D+033+NELS+FREQ+SCAN+UPPER+FREQ+DATA:=EE9INP↑,
        EE0F+19+NELS+FREQUENCY+SCAN+FILE,
        D+033+NELS+FREQ+SCAN+UPPER+FREQ+DATA
        END;
```

```
EE0F+20+NELS+PRE+BRIEFED+AOI+FILE;
      BEGIN
      D+095+NELS+PRE+BRIEFED+AOI+FILTERING+CRITERIA+DATA
      :=EE9INP↑,EE0F+20+NFLS+PRE+BRIEFED+AOI+FILE,
      D+095+NELS+PRE+BRIEFED+AOI+FILTERING+CRITERIA+DATA;
      D+097+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+X+DATA
      :=EE9INP↑,EE0F+20+NFLS+PRE+BRIEFED+AOI+FILE,
      D+097+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+X+DATA;
      D+098+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+Y+DATA
      :=EE9INP↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
      D+098+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+Y+DATA;
      D+100+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+X+DATA
      :=EE9INP↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
      D+100+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+X+DATA;
      D+101+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+Y+DATA
      :=EE9INP↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
      D+101+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+Y+DATA
      END;
EE0F+21+NELS+PRE+BRIEFED+SOI+FILE;
      BEGIN
      D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA:=EE9INP↑,
      EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
      D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA;
      D+104+NELS+PRE+BRIEFED+SOI+FREQ+DATA:=EE9INP↑,
      EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
      D+104+NELS+PRE+BRIEFED+SOI+FREQ+DATA;
      D+105+NELS+PRE+BRIEFED+SOI+MODULATION+TYPE+DATA
      :=EE9INP↑,EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
      D+105+NELS+PRE+BRIEFED+SOI+MODULATION+TYPE+DATA;
      D+106+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA:=EE9INP↑,
      EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
      D+106+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA
      END;
EE0F+24+NELS+TDOA+DD+FILE;
      BEGIN
      D+058+NELS+DD+1+2+DATA:=EE9INP↑,
      EE0F+24+NELS+TDOA+DD+FILE,D+058+NELS+DD+1+2+DATA;
      D+059+NELS+DD+1+3+DATA:=EE9INP↑,
      EE0F+24+NELS+TDOA+DD+FILE,D+059+NELS+DD+1+3+DATA;
      D+060+NELS+DD+2+3+DATA:=EE9INP↑,
      EE0F+24+NELS+TDOA+DD+FILE,D+060+NELS+DD+2+3+DATA;
      D+109+NELS+TDOA+1+2+DATA:=EE9INP↑,
      EE0F+24+NELS+TDOA+DD+FILE,D+109+NELS+TDOA+1+2+DATA;
      D+110+NELS+TDOA+1+3+DATA:=EE9INP↑,
      EE0F+24+NELS+TDOA+DD+FILE,D+110+NELS+TDOA+1+3+DATA;
      D+111+NELS+TDOA+2+3+DATA:=EE9INP↑,
      EE0F+24+NELS+TDOA+DD+FILE,D+111+NELS+TDOA+2+3+DATA
      END;
EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE;
      BEGIN
      D+070+NELS+EMITTER+COV+DATA:=EE9INP↑,
      EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
      D+070+NELS+EMITTER+COV+DATA;
      D+074+NELS+EMITTER+FREQUENCY+DATA:=EE9INP↑,
      EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE,
      D+074+NELS+EMITTER+FREQUENCY+DATA;
      D+155+NELS+EMITTER+ID+DATA:=EE9INP↑,
```

```
        EE0F=25=NELS=TYPED=EMITTER=REPORT=FILE.
        D=166=NELS=EMITTER=ID=DATA;
        D=167=NELS=EMITTER=X=DATA:=EE9INP↑.
        EE0F=25=NELS=TYPED=EMITTER=REPORT=FILE.
        D=167=NELS=EMITTER=X=DATA;
        D=168=NELS=EMITTER=Y=DATA:=EE9INP↑.
        EE0F=25=NELS=TYPED=EMITTER=REPORT=FILE.
        D=168=NELS=EMITTER=Y=DATA;
        D=169=NELS=EMITTER=Z=DATA:=EE9INP↑.
        EE0F=25=NELS=TYPED=EMITTER=REPORT=FILE.
        D=169=NELS=EMITTER=Z=DATA;
        D=170=SCENARIO=GEN=ID=NUM=DATA:=EE9INP↑.
        EE0F=25=NELS=TYPED=EMITTER=REPORT=FILE.
        D=170=SCENARIO=GEN=ID=NUM=DATA;
        D=176=NELS=EMITTER=BANDWIDTH=DATA:=EE9INP↑.
        EE0F=25=NELS=TYPED=EMITTER=REPORT=FILE.
        D=176=NELS=EMITTER=BANDWIDTH=DATA;
        D=177=NELS=EMITTER=CEP=DATA:=EE9INP↑.
        EE0F=25=NELS=TYPED=EMITTER=REPORT=FILE.
        D=177=NELS=EMITTER=CEP=DATA;
        D=178=NELS=EMITTER=MODULATION=TYPE=DATA:=EE9INP↑.
        EE0F=25=NELS=TYPED=EMITTER=REPORT=FILE.
        D=178=NELS=EMITTER=MODULATION=TYPE=DATA;
        D=179=NELS=EMITTER=TIME=OF=LOCATION=DATA:=EE9INP↑.
        EE0F=25=NELS=TYPED=EMITTER=REPORT=FILE.
        D=179=NELS=EMITTER=TIME=OF=LOCATION=DATA;
        D=180=NELS=EMITTER=TRAFFIC=TYPE=DATA:=EE9INP↑.
        EE0F=25=NELS=TYPED=EMITTER=REPORT=FILE.
        D=180=NELS=EMITTER=TRAFFIC=TYPE=DATA
        END;
EE0F=26=NELS=WEATHER=CONDITIONS=FILE:
        BEGIN
        D=037=CLOUD=COVER=DATA:=EE9INP↑.
        EE0F=26=NELS=WEATHER=CONDITIONS=FILE.
        D=037=CLOUD=COVER=DATA;
        D=039=ELEVATION=WEATHER=DATA:=EE9INP↑.
        EE0F=26=NELS=WEATHER=CONDITIONS=FILE.
        D=039=ELEVATION=WEATHER=DATA;
        D=120=PRECIPITATION=DATA:=EE9INP↑.
        EE0F=26=NELS=WEATHER=CONDITIONS=FILE.
        D=120=PRECIPITATION=DATA;
        D=144=X=WEATHER=LOC=DATA:=EE9INP↑.
        EE0F=26=NELS=WEATHER=CONDITIONS=FILE.
        D=144=X=WEATHER=LOC=DATA;
        D=146=Y=WEATHER=LOC=DATA:=EE9INP↑.
        EE0F=26=NELS=WEATHER=CONDITIONS=FILE.
        D=146=Y=WEATHER=LOC=DATA
        END;
EE0F=27=PLATFORM=CONTROL=FILE:
        BEGIN
        D=010=ASP=ALTITUDE=DATA:=EE9INP↑.
        EE0F=27=PLATFORM=CONTROL=FILE.
        D=010=ASP=ALTITUDE=DATA;
        D=014=ASP=LOC=X=DATA:=EE9INP↑.
        EE0F=27=PLATFORM=CONTROL=FILE.D=014=ASP=LOC=X=DATA;
        D=015=ASP=LOC=Y=DATA:=EE9INP↑.
        EE0F=27=PLATFORM=CONTROL=FILE.D=015=ASP=LOC=Y=DATA;
```

```
      D+016+ASP+LOC+Z+DATA:=EE9INP↑,
      EE0F+27+PLATFORM+CONTROL+FILE,D+016+ASP+LOC+Z+DATA;
      D+022+ASP+VEL+X+DATA:=EE9INP↑,
      EE0F+27+PLATFORM+CONTROL+FILE,D+022+ASP+VEL+X+DATA;
      D+023+ASP+VEL+Y+DATA:=EE9INP↑,
      EE0F+27+PLATFORM+CONTROL+FILE,D+023+ASP+VEL+Y+DATA;
      D+024+ASP+VEL+Z+DATA:=EE9INP↑,
      EE0F+27+PLATFORM+CONTROL+FILE,D+024+ASP+VEL+Z+DATA
      END;
EE0F+28+PRIMARY+ROADS+FILE:
      BEGIN
      D+121+PRIMARY+ROADS+X+DATA:=EE9INP↑,
      EE0F+28+PRIMARY+ROADS+FILE,
      D+121+PRIMARY+ROADS+X+DATA;
      D+122+PRIMARY+ROADS+Y+DATA:=EE9INP↑,
      EE0F+28+PRIMARY+ROADS+FILE,
      D+122+PRIMARY+ROADS+Y+DATA
      END;
EE0F+29+RAILROAD+LOCATIONS+FILE:
      BEGIN
      D+123+RAILROAD+LOC+Y+DATA:=EE9INP↑,
      EE0F+29+RAILROAD+LOCATIONS+FILE,
      D+123+RAILROAD+LOC+Y+DATA;
      D+124+RAILROAD+LOC+Y+DATA:=EE9INP↑,
      EE0F+29+RAILROAD+LOCATIONS+FILE,
      D+124+RAILROAD+LOC+Y+DATA
      END;
EE0F+30+RIVER+LOCATIONS+FILE:
      BEGIN
      D+128+RIVER+LOC+X+DATA:=EE9INP↑,
      EE0F+30+RIVER+LOCATIONS+FILE,D+128+RIVER+LOC+X+DATA;
      D+129+RIVER+LOC+Y+DATA:=EE9INP↑,
      EE0F+30+RIVER+LOCATIONS+FILE,D+129+RIVER+LOC+Y+DATA
      END;
EE0F+31+SECONDARY+ROADS+FILE:
      BEGIN
      D+131+SECONDARY+ROAD+Y+DATA:=EE9INP↑,
      EE0F+31+SECONDARY+ROADS+FILE,
      D+131+SECONDARY+ROAD+X+DATA;
      D+132+SECONDARY+ROAD+Y+DATA:=EE9INP↑,
      EE0F+31+SECONDARY+ROADS+FILE,
      D+132+SECONDARY+ROAD+Y+DATA
      END;
EE0F+32+SENSOR+ORBIT+MODS+FILE:
      BEGIN
      D+117+PLATFORM+MOD+X+DATA:=EE9INP↑,
      EE0F+32+SENSOR+ORBIT+MODS+FILE,
      D+117+PLATFORM+MOD+X+DATA;
      D+118+PLATFORM+MOD+Y+DATA:=EE9INP↑,
      EE0F+32+SENSOR+ORBIT+MODS+FILE,
      D+118+PLATFORM+MOD+Y+DATA;
      D+119+PLATFORM+MOD+Z+DATA:=EE9INP↑,
      EE0F+32+SENSOR+ORBIT+MODS+FILE,
      D+119+PLATFORM+MOD+Z+DATA
      END;
EE0F+33+SENSOR+PLATFORM+LOCATION+FILE:
      BEGIN
```

```
      D+114+PLATFORM+LOCATION+X+DATA:=EE9INP+.
      EF0F+33+SENSOR+PLATFORM+LOCATION+FILE.
      D+114+PLATFORM+LOCATION+X+DATA;
      D+115+PLATFORM+LOCATION+Y+DATA:=EE9INP+.
      EF0F+33+SENSOR+PLATFORM+LOCATION+FILE.
      D+115+PLATFORM+LOCATION+Y+DATA;
      D+116+PLATFORM+LOCATION+Z+DATA:=EE9INP+.
      EF0F+33+SENSOR+PLATFORM+LOCATION+FILE.
      D+116+PLATFORM+LOCATION+Z+DATA
      END;
FE0F+34+SENSOR+STATUS+FILE:
      BEGIN
      D+044+FREQUENCY+SCAN+PARAMETER+DATA:=EE9INP+.
      EF0F+34+SENSOR+STATUS+FILE.
      D+044+FREQUENCY+SCAN+PARAMETER+DATA;
      D+130+SENSOR+MODE+OF+OPERATION+DATA:=EE9INP+.
      EF0F+34+SENSOR+STATUS+FILE.
      D+130+SENSOR+MODE+OF+OPERATION+DATA
      END;
+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN;
      BEGIN
      D+002+ASET+MSG+DEST+DATA:=EE9INP+.
      +01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN.
      D+002+ASET+MSG+DEST+DATA;
      D+004+ASET+MSG+NAME+DATA:=EE9INP+.
      +01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN.
      D+004+ASET+MSG+NAME+DATA;
      D+005+ASET+MSG+SOURCE+DATA:=EE9INP+.
      +01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN.
      D+005+ASET+MSG+SOURCE+DATA;
      EFITIME:=FE9INP+.
      +01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN.
      EFITIME
      END;
+02+NELS+CARTO+UPDATES+MSG+IN;
      BEGIN
      D+002+ASET+MSG+DEST+DATA:=EE9INP+.
      +02+NELS+CARTO+UPDATES+MSG+IN.
      D+002+ASET+MSG+DEST+DATA;
      D+004+ASET+MSG+NAME+DATA:=EE9INP+.
      +02+NELS+CARTO+UPDATES+MSG+IN.
      D+004+ASET+MSG+NAME+DATA;
      D+005+ASET+MSG+SOURCE+DATA:=EE9INP+.
      +02+NELS+CARTO+UPDATES+MSG+IN.
      D+005+ASET+MSG+SOURCE+DATA;
      EFITIME:=FE9INP+.+02+NELS+CARTO+UPDATES+MSG+IN.
      EFITIME
      END;
+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN;
      BEGIN
      D+002+ASET+MSG+DEST+DATA:=EE9INP+.
      +03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN.
      D+002+ASET+MSG+DEST+DATA;
      D+004+ASET+MSG+NAME+DATA:=EE9INP+.
      +03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN.
      D+004+ASET+MSG+NAME+DATA;
      D+005+ASET+MSG+SOURCE+DATA:=EE9INP+.
```

```
        M←03←NELS←COMMANDERS←REQUIREMENTS←MSG←IN,
        D←005←ASET←MSG←SOURCE←DATA;
        EE1TIME:=EE9INP↑,
        M←03←NELS←COMMANDERS←REQUIREMENTS←MSG←IN,EE1TIME
        END;
    M←04←NELS←MODIFIED←TASK←MSG←IN:
        BEGIN
        D←002←ASET←MSG←DEST←DATA:=EE9INP↑,
        M←04←NELS←MODIFIED←TASK←MSG←IN,
        D←002←ASET←MSG←DEST←DATA;
        D←004←ASET←MSG←NAME←DATA:=EE9INP↑,
        M←04←NELS←MODIFIED←TASK←MSG←IN,
        D←004←ASET←MSG←NAME←DATA;
        D←005←ASET←MSG←SOURCE←DATA:=EE9INP↑,
        M←04←NELS←MODIFIED←TASK←MSG←IN,
        D←005←ASET←MSG←SOURCE←DATA;
        D←056←NEEDED←FEASIBLE←DATA:=EE9INP↑,
        M←04←NELS←MODIFIED←TASK←MSG←IN,
        D←056←NEEDED←FEASIBLE←DATA;
        D←139←TASK←QUE←ID←DATA:=EE9INP↑,
        M←04←NELS←MODIFIED←TASK←MSG←IN,
        D←139←TASK←QUE←ID←DATA;
        EE1TIME:=EE9INP↑,M←04←NELS←MODIFIED←TASK←MSG←IN,
        EE1TIME
        END;
    M←06←NELS←ORBIT←MODIFICATIONS←MSG←IN:
        BEGIN
        D←002←ASET←MSG←DEST←DATA:=EE9INP↑,
        M←06←NELS←ORBIT←MODIFICATIONS←MSG←IN,
        D←002←ASET←MSG←DEST←DATA;
        D←004←ASET←MSG←NAME←DATA:=EE9INP↑,
        M←06←NELS←ORBIT←MODIFICATIONS←MSG←IN,
        D←004←ASET←MSG←NAME←DATA;
        D←005←ASET←MSG←SOURCE←DATA:=EE9INP↑,
        M←06←NELS←ORBIT←MODIFICATIONS←MSG←IN,
        D←005←ASET←MSG←SOURCE←DATA;
        D←135←SENSOR←ID←DATA:=EE9INP↑,
        M←06←NELS←ORBIT←MODIFICATIONS←MSG←IN,
        D←135←SENSOR←ID←DATA;
        EE1TIME:=EE9INP↑,
        M←06←NELS←ORBIT←MODIFICATIONS←MSG←IN,EE1TIME
        END;
    M←09←NELS←PRIORITIZED←SENSOR←DIRECTIONS←MSG←IN:
        BEGIN
        D←002←ASET←MSG←DEST←DATA:=EE9INP↑,
        M←09←NELS←PRIORITIZED←SENSOR←DIRECTIONS←MSG←IN,
        D←002←ASET←MSG←DEST←DATA;
        D←004←ASET←MSG←NAME←DATA:=EE9INP↑,
        M←09←NELS←PRIORITIZED←SENSOR←DIRECTIONS←MSG←IN,
        D←004←ASET←MSG←NAME←DATA;
        D←005←ASET←MSG←SOURCE←DATA:=EE9INP↑,
        M←09←NELS←PRIORITIZED←SENSOR←DIRECTIONS←MSG←IN,
        D←005←ASET←MSG←SOURCE←DATA;
        D←056←NEEDED←FEASIBLE←DATA:=EE9INP↑,
        M←09←NELS←PRIORITIZED←SENSOR←DIRECTIONS←MSG←IN,
        D←056←NEEDED←FEASIBLE←DATA;
        D←135←SENSOR←ID←DATA:=EE9INP↑,
```

```
      M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
      D+135+SENSOR+ID+DATA;
      D+137+SENSOR+PRIORITY+DATA:=EE9INP↑,
      M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
      D+137+SENSOR+PRIORITY+DATA;
      EE1TIME:=EE9INP↑,
      M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
      EE1TIME
      END;
M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN;
      BEGIN
      D+002+ASET+MSG+DEST+DATA:=EE9INP↑,
      M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,
      D+002+ASET+MSG+DEST+DATA;
      D+004+ASET+MSG+NAME+DATA:=EE9INP↑,
      M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,
      D+004+ASET+MSG+NAME+DATA;
      D+005+ASET+MSG+SOURCE+DATA:=EE9INP↑,
      M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,
      D+005+ASET+MSG+SOURCE+DATA;
      D+045+GPS+ID+DATA:=EE9INP↑,
      M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,
      D+045+GPS+ID+DATA;
      EE1TIME:=EE9INP↑,
      M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,EE1TIME
      END;
M+15+T+AND+C+STOP+NELS+MSG+IN;
      BEGIN
      D+002+ASET+MSG+DEST+DATA:=EE9INP↑,
      M+15+T+AND+C+STOP+NELS+MSG+IN,
      D+002+ASET+MSG+DEST+DATA;
      D+004+ASET+MSG+NAME+DATA:=EE9INP↑,
      M+15+T+AND+C+STOP+NELS+MSG+IN,
      D+004+ASET+MSG+NAME+DATA;
      D+005+ASET+MSG+SOURCE+DATA:=EE9INP↑,
      M+15+T+AND+C+STOP+NELS+MSG+IN,
      D+005+ASET+MSG+SOURCE+DATA;
      EE1TIME:=EE9INP↑,M+15+T+AND+C+STOP+NELS+MSG+IN,
      EE1TIME
      END;
M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT;
      BEGIN
      D+002+ASET+MSG+DEST+DATA:=EE9INP↑,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      D+002+ASET+MSG+DEST+DATA;
      D+004+ASET+MSG+NAME+DATA:=EE9INP↑,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      D+004+ASET+MSG+NAME+DATA;
      D+005+ASET+MSG+SOURCE+DATA:=EE9INP↑,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      D+005+ASET+MSG+SOURCE+DATA;
      D+045+GPS+ID+DATA:=EE9INP↑,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      D+045+GPS+ID+DATA;
      D+046+GROUND+TARGET+FREQUENCY+DATA:=EE9INP↑,
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
      D+046+GROUND+TARGET+FREQUENCY+DATA;
```

```
        D+047+GROUND+TARGET+LENGTH+DATA:=EE9INP↑,
        M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
        D+047+GROUND+TARGET+LENGTH+DATA;
        D+050+GROUND+TARGET+VELOCITY+DATA:=EE9INP↑,
        M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
        D+050+GROUND+TARGET+VELOCITY+DATA;
        EE1TIME:=EE9INP↑,
        M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT,
        EE1TIME
        END;
    M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT;
        BEGIN
        D+002+ASET+MSG+DEST+DATA:=EE9INP↑,
        M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT,
        D+002+ASET+MSG+DEST+DATA;
        D+004+ASET+MSG+NAME+DATA:=EE9INP↑,
        M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT,
        D+004+ASET+MSG+NAME+DATA;
        D+005+ASET+MSG+SOURCE+DATA:=EE9INP↑,
        M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT,
        D+005+ASET+MSG+SOURCE+DATA;
        EE1TIME:=EE9INP↑,
        M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT,EE1TIME
        END;
    M+10+NELS+SENSOR+REQUESTS+MSG+OUT;
        BEGIN
        D+002+ASET+MSG+DEST+DATA:=EE9INP↑,
        M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+002+ASET+MSG+DEST+DATA;
        D+004+ASET+MSG+NAME+DATA:=EE9INP↑,
        M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+004+ASET+MSG+NAME+DATA;
        D+005+ASET+MSG+SOURCE+DATA:=EE9INP↑,
        M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+005+ASET+MSG+SOURCE+DATA;
        D+125+REQ+DESTINATION+SENSOR+ID+DATA:=EE9INP↑,
        M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+125+REQ+DESTINATION+SENSOR+ID+DATA;
        D+126+REQ+REPORT+INFORMATION+TYPE+DATA:=EE9INP↑,
        M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+126+REQ+REPORT+INFORMATION+TYPE+DATA;
        D+127+REQ+SENSOR+TARGET+ID+OF+INTEREST+DATA
        :=EE9INP↑,M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+127+REQ+SENSOR+TARGET+ID+OF+INTEREST+DATA;
        D+135+SENSOR+ID+DATA:=EE9INP↑,
        M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        D+135+SENSOR+ID+DATA;
        EE1TIME:=EE9INP↑,M+10+NELS+SENSOR+REQUESTS+MSG+OUT,
        EE1TIME
        END;
    M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT;
        BEGIN
        D+002+ASET+MSG+DEST+DATA:=EE9INP↑,
        M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT,
        D+002+ASET+MSG+DEST+DATA;
        D+004+ASET+MSG+NAME+DATA:=EE9INP↑,
        M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT,
```

```
D◆004◆ASET◆MSG◆NAME◆DATA;
D◆005◆ASET◆MSG◆SOURCE◆DATA:=EE9INP↑.
M◆11◆NELS◆SENSOR◆SYSTEM◆STATUS◆MSG◆OUT.
D◆005◆ASET◆MSG◆SOURCE◆DATA;
D◆135◆SENSOR◆ID◆DATA:=EE9INP↑.
M◆11◆NELS◆SENSOR◆SYSTEM◆STATUS◆MSG◆OUT.
D◆135◆SENSOR◆ID◆DATA;
EE1TIME:=EE9INP↑.
M◆11◆NELS◆SENSOR◆SYSTEM◆STATUS◆MSG◆OUT.EE1TIME
END;
M◆12◆NELS◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT;
BEGIN
D◆002◆ASET◆MSG◆DEST◆DATA:=EE9INP↑.
M◆12◆NELS◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT.
D◆002◆ASET◆MSG◆DEST◆DATA;
D◆004◆ASET◆MSG◆NAME◆DATA:=EE9INP↑.
M◆12◆NELS◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT.
D◆004◆ASET◆MSG◆NAME◆DATA;
D◆005◆ASET◆MSG◆SOURCE◆DATA:=EE9INP↑.
M◆12◆NELS◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT.
D◆005◆ASET◆MSG◆SOURCE◆DATA;
D◆045◆GPS◆ID◆DATA:=EE9INP↑.
M◆12◆NELS◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT.
D◆045◆GPS◆ID◆DATA;
D◆046◆GROUND◆TARGET◆FREQUENCY◆DATA:=EE9INP↑.
M◆12◆NELS◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT.
D◆046◆GROUND◆TARGET◆FREQUENCY◆DATA;
D◆047◆GROUND◆TARGET◆LENGTH◆DATA:=EE9INP↑.
M◆12◆NELS◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT.
D◆047◆GROUND◆TARGET◆LENGTH◆DATA;
D◆050◆GROUND◆TARGET◆VELOCITY◆DATA:=EE9INP↑.
M◆12◆NELS◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT.
D◆050◆GROUND◆TARGET◆VELOCITY◆DATA;
EE1TIME:=EE9INP↑.
M◆12◆NELS◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT.
EE1TIME
END;
M◆13◆NELS◆TASKING◆RESPONSES◆MSG◆OUT;
BEGIN
D◆002◆ASET◆MSG◆DEST◆DATA:=EE9INP↑.
M◆13◆NELS◆TASKING◆RESPONSES◆MSG◆OUT.
D◆002◆ASET◆MSG◆DEST◆DATA;
D◆004◆ASET◆MSG◆NAME◆DATA:=EE9INP↑.
M◆13◆NELS◆TASKING◆RESPONSES◆MSG◆OUT.
D◆004◆ASET◆MSG◆NAME◆DATA;
D◆005◆ASET◆MSG◆SOURCE◆DATA:=EE9INP↑.
M◆13◆NELS◆TASKING◆RESPONSES◆MSG◆OUT.
D◆005◆ASET◆MSG◆SOURCE◆DATA;
D◆138◆TASKING◆RESPONSE◆DATA:=EE9INP↑.
M◆13◆NELS◆TASKING◆RESPONSES◆MSG◆OUT.
D◆138◆TASKING◆RESPONSE◆DATA:
D◆139◆TASK◆QUE◆ID◆DATA:=EE9INP↑.
M◆13◆NELS◆TASKING◆RESPONSES◆MSG◆OUT.
D◆139◆TASK◆QUE◆ID◆DATA;
D◆141◆TIME◆DATA:=EE9INP↑.
M◆13◆NELS◆TASKING◆RESPONSES◆MSG◆OUT.D◆141◆TIME◆DATA;
EE1TIME:=EE9INP↑.M◆13◆NELS◆TASKING◆RESPONSES◆MSG◆OUT
```

```
      .EE1TIME
      END;
"+14+NELS+TRACK+MESSAGE+MSG+OUT;
      BEGIN
      D+002+ASET+MSG+DEST+DATA;=EF9INP↑,
      M+14+NELS+TRACK+MESSAGE+MSG+OUT,
      D+002+ASET+MSG+DEST+DATA;
      D+004+ASET+MSG+NAME+DATA;=EF9INP↑,
      M+14+NELS+TRACK+MESSAGE+MSG+OUT,
      D+004+ASET+MSG+NAME+DATA;
      D+005+ASET+MSG+SOURCE+DATA;=EF9INP↑,
      M+14+NELS+TRACK+MESSAGE+MSG+OUT,
      D+005+ASET+MSG+SOURCE+DATA;
      D+135+SENSOR+ID+DATA;=EF9INP↑,
      M+14+NELS+TRACK+MESSAGE+MSG+OUT,D+135+SENSOR+ID+DATA
      ;
      D+142+TRACK+MESSAGE+DATA;=EF9INP↑,
      M+14+NELS+TRACK+MESSAGE+MSG+OUT,
      D+142+TRACK+MESSAGE+DATA;
      EE1TIME;=EF9INP↑,M+14+NELS+TRACK+MESSAGE+MSG+OUT,
      EE1TIME
      END;
EE0ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET;
      BEGIN
      D+140+TBD+DATA;=EF9INP↑,
      EE0ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET,
      D+140+TBD+DATA
      END;
EE0ET+5+NELS+PRE+BRIEFED+SOI+ET;
      BEGIN
      D+140+TBD+DATA;=EF9INP↑,
      EE0ET+5+NELS+PRE+BRIEFED+SOI+ET,D+140+TBD+DATA
      END;
EE0ET+5+NELS+PRE+BRIEFED+AOI+ET;
      BEGIN
      D+140+TBD+DATA;=EF9INP↑,
      EE0ET+5+NELS+PRE+BRIEFED+AOI+ET,D+140+TBD+DATA
      END;
EE0ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET;
      BEGIN
      D+140+TBD+DATA;=EF9INP↑,
      EE0ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET,
      D+140+TBD+DATA
      END;
EE0ET+2+NELS+EMITTER+GROUND+TRUTH+ET;
      BEGIN
      D+140+TBD+DATA;=EF9INP↑,
      EE0ET+2+NELS+EMITTER+GROUND+TRUTH+ET,D+140+TBD+DATA
      END;
EE0ET+7+NELS+WEATHER+ET;
      BEGIN
      D+140+TBD+DATA;=EF9INP↑,EE0ET+7+NELS+WEATHER+ET,
      D+140+TBD+DATA
      END;
EE0ET+3+NELS+FLIGHT+ET;
      BEGIN
      D+140+TBD+DATA;=EF9INP↑,EE0ET+3+NELS+FLIGHT+ET,
```

```
            D←140←TBD←DATA
            END;
        FE0ET←4←NELS←FREQUENCY←SCAN←ET:
            BEGIN
            D←140←TBD←DATA:=EF9INP↑.
            EE0ET←4←NELS←FREQUENCY←SCAN←ET.D←140←TBD←DATA
            END;
        FE0ET←1←NELS←EMISSION←THREAT←ET:
            BEGIN
            D←140←TBD←DATA:=EF9INP↑.
            EE0ET←1←NELS←EMISSION←THREAT←ET.D←140←TBD←DATA
            END;
        FE0ET←6←NELS←VEHICLE←CHARACTERISTICS←ET:
            BEGIN
            D←140←TBD←DATA:=EE9INP↑.
            EE0ET←6←NELS←VEHICLE←CHARACTERISTICS←ET.
            D←140←TBD←DATA
            END;
        FE0ET←11←DETECTED←EMISSIONS←DD←TDOA←ET:
            BEGIN
            END;
        FE0ET←12←DETECTED←EMISSIONS←COARSE←ET:
            BEGIN
            END;
        FE0ET←13←DETECTED←EMISSIONS←FINE←ET:
            BEGIN
            END
        END
    END (*  EE9XII  *);
(*-------------------------------------------------------------*)
PROCEDURE EE9ININ(EE9INS:EE7INLST);
    BEGIN
    CASE EE9INS OF
        EE1NCIN:  ;
        FE0E←01←BRIDGE←LOCATIONS←FILE:
            BEGIN
            D←026←BRIDGE←LOC←X←DATA :=  0.0;
            D←027←BRIDGE←LOC←Y←DATA :=  0.0
            END;
        FE0E←02←CARTO←UPDATE←FILE:
            BEGIN
            D←029←CARTO←SECTION←NUM←DATA :=  0;
            D←030←CARTO←UPDATE←1←DATA :=  BRIDGE;
            D←031←CARTO←UPDATE←2←DATA :=  BRIDGE;
            D←032←CARTO←UPDATE←3←DATA :=  BRIDGE;
            D←033←CARTO←UPDATE←X←DATA :=  0.0;
            D←034←CARTO←UPDATE←Y←DATA :=  0.0
            END;
        FE0E←03←CITY←LOCATIONS←FILE:
            BEGIN
            D←035←CITY←LOC←X←DATA :=  0.0;
            D←036←CITY←LOC←Y←DATA :=  0.0
            END;
        FE0E←04←CMDRS←DATA←TO←UPDATE←FILE:
            BEGIN
            D←040←FIRST←CMDRS←REQ←UPDATE←DATA :=  IN←AREA;
            D←133←SECOND←CMDRS←REQ←UPDATE←DATA :=  IS←MODULATED
```

```
        END;
FEOF+05+FEASIBLE+ACTIVITY+AREA+FILE;
        BEGIN
        D+143+X+LOC+FEASIBLE+DATA := 0.0;
        D+145+Y+LOC+FEASIBLE+DATA := 0.0
        END;
FEOF+06+FLIGHT+PROFILE+FILE;
        BEGIN
        D+041+FLIGHT+WAYPOINT+X+DATA := 0.0;
        D+042+FLIGHT+WAYPOINT+Y+DATA := 0.0;
        D+043+FLIGHT+WAYPOINT+Z+DATA := 0.0
        END;
FEOF+07+GROUP+TARGET+LOCS+FILE;
        BEGIN
        D+048+GROUND+TARGET+LOC+X+DATA := 0.0;
        D+049+GROUND+TARGET+LOC+Y+DATA := 0.0
        END;
FEOF+08+HYPSO+DATA+FILE;
        BEGIN
        D+051+HYPSO+ELEV+DATA := 0.0;
        D+052+HYPSO+LOC+X+DATA := 0.0;
        D+053+HYPSO+LOC+Y+DATA := 0.0
        END;
FEOF+09+MARSHALLING+AREAS+FILE;
        BEGIN
        D+054+MARSHALLING+X+DATA := 0.0;
        D+055+MARSHALLING+Y+DATA := 0.0
        END;
FEOF+10+NELS+CANDIDATE+TARGETS+FILE;
        BEGIN
        D+061+NELS+EMISSION+DURATION+DATA := 0.0;
        D+062+NELS+EMISSION+SIGNAL+STRENGTH+DATA := 0.0;
        D+063+NELS+EMISSION+START+TIME+DATA := 0.0;
        D+073+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA := 0.0;
        D+075+NELS+EMITTER+ID+DATA := RADIO;
        D+081+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
        0.0;
        D+085+NELS+EMITTER+Y+DATA := 0.0;
        D+086+NELS+EMITTER+Y+DATA := 0.0;
        D+087+NELS+EMITTER+Z+DATA := 0.0;
        D+130+SCENARIO+GEN+ID+NUM+DATA := 0
        END;
FEOF+12+DETECTED+CANDIDATE+TARGETS+FILE;
        BEGIN
        D+147+NELS+EMISSION+DURATION+DATA := 0.0;
        D+148+NELS+EMISSION+SIGNAL+STRENGTH+DATA := 0.0;
        D+149+NELS+EMISSION+START+TIME+DATA := 0.0;
        D+150+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA := 0.0;
        D+151+NELS+EMITTER+ID+DATA := RADIO;
        D+152+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
        0.0;
        D+153+NELS+EMITTER+Y+DATA := 0.0;
        D+154+NELS+EMITTER+Y+DATA := 0.0;
        D+155+NELS+EMITTER+Z+DATA := 0.0;
        D+156+SCENARIO+GEN+ID+NUM+DATA := 0
        END;
FEOF+13+NELS+EMISSION+THREAT+TABLE+FILE;
```

```
        BEGIN
        D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA := 0.0;
        D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA := PASSIVE;
        D+171+NELS+EMITTER+ID+DATA := RADIO;
        D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
        0.0;
        D+173+NELS+EMITTER+X+DATA := 0.0;
        D+174+NELS+EMITTER+Y+DATA := 0.0;
        D+175+NELS+EMITTER+Z+DATA := 0.0;
        D+181+NELS+EMITTER+MODULATION+TYPE+DATA :=
        MODULATED;
        D+182+NELS+EMITTER+BANDWIDTH+DATA := 0.0;
        D+183+NELS+EMITTER+CEP+DATA := 0.0
        END;
FEOF+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE:
        BEGIN
        D+063+B+NELS+EMISSION+START+TIME+DATA := 0.0;
        D+064+NELS+EMISSION+STOP+TIME+DATA := 0.0;
        D+073+B+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
        0.0;
        D+075+B+NELS+EMITTER+ID+DATA := RADIO;
        D+081+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        := 0.0;
        D+082+NELS+EMITTER+VEL+X+DATA := 0.0;
        D+083+NELS+EMITTER+VEL+Y+DATA := 0.0;
        D+084+NELS+EMITTER+VEL+Z+DATA := 0.0;
        D+085+B+NELS+EMITTER+X+DATA := 0.0;
        D+086+B+NELS+EMITTER+Y+DATA := 0.0;
        D+087+B+NELS+EMITTER+Z+DATA := 0.0;
        D+130+B+SCENARIO+GEN+ID+NUM+DATA := 0
        END;
FEOF+15+NELS+EMITTER+CHARACTERISTICS+FILE:
        BEGIN
        D+067+NELS+EMITTER+BANDWIDTH+DATA := 0.0;
        D+077+A+NELS+EMITTER+MODULATION+TYPE+DATA :=
        MODULATED;
        D+078+A+NELS+EMITTER+POWER+LEVEL+DATA := 0.0
        END;
FEOF+16+NELS+EMITTER+FILE:
        BEGIN
        D+063+A+NELS+EMISSION+START+TIME+DATA := 0.0;
        D+064+A+NELS+EMISSION+STOP+TIME+DATA := 0.0;
        D+073+A+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
        0.0;
        D+075+A+NELS+EMITTER+ID+DATA := RADIO;
        D+081+A+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        := 0.0;
        D+082+A+NELS+EMITTER+VEL+X+DATA := 0.0;
        D+083+A+NELS+EMITTER+VEL+Y+DATA := 0.0;
        D+084+A+NELS+EMITTER+VEL+Z+DATA := 0.0;
        D+085+A+NELS+EMITTER+X+DATA := 0.0;
        D+086+A+NELS+EMITTER+Y+DATA := 0.0;
        D+087+A+NELS+EMITTER+Z+DATA := 0.0;
        D+130+A+SCENARIO+GEN+ID+NUM+DATA := 0
        END;
FEOF+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE:
        BEGIN
```

```
        D+077+NELS+EMITTER+MODULATION+TYPE+DATA :=
        MODULATED;
        D+078+NELS+EMITTER+POWER+LEVEL+DATA :=  0.0;
        D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=  0.0;
        D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
        0.0
        END;
FEDF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE:
        BEGIN
        D+068+NELS+EMITTER+CEP+DATA :=  0.0;
        D+157+NELS+EMISSION+DURATION+DATA :=  0.0;
        D+158+NELS+EMISSION+START+TIME+DATA :=  0.0;
        D+160+NELS+EMITTER+ID+DATA :=  RADIO;
        D+162+NELS+EMITTER+X+DATA :=  0.0;
        D+163+NELS+EMITTER+Y+DATA :=  0.0;
        D+164+NELS+EMITTER+Z+DATA :=  0.0;
        D+165+SCENARIO+GEN+ID+NUM+DATA :=  0
        END;
FEDF+19+NELS+FREQUENCY+SCAN+FILE:
        BEGIN
        D+092+NELS+FREQ+SCAN+LOWER+FREQ+DATA :=  0.0;
        D+093+NELS+FREQ+SCAN+UPPER+FREQ+DATA :=  0.0
        END;
FEDF+20+NELS+PRE+BRIEFED+AOI+FILE:
        BEGIN
        D+095+NELS+PRE+BRIEFED+AOI+FILTERING+CRITERIA+DATA
         :=  WITHIN+AREA;
        D+097+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+X+DATA :=  0.0
        ;
        D+098+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+Y+DATA :=  0.0
        ;
        D+100+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+X+DATA :=
        0.0;
        D+101+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+Y+DATA :=
        0.0
        END;
FEDF+21+NELS+PRE+BRIEFED+SOI+FILE:
        BEGIN
        D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA :=  0.0;
        D+104+NELS+PRE+BRIEFED+SOI+FREQ+DATA :=  0.0;
        D+105+NELS+PRE+BRIEFED+SOI+MODULATION+TYPE+DATA :=
        MODULATED;
        D+106+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA :=  0.0
        END;
FEDF+24+NELS+TDOA+DD+FILE:
        BEGIN
        D+058+NELS+DD+1+2+DATA :=  0.0;
        D+059+NELS+DD+1+3+DATA :=  0.0;
        D+060+NELS+DD+2+3+DATA :=  0.0;
        D+109+NELS+TDOA+1+2+DATA :=  0.0;
        D+110+NELS+TDOA+1+3+DATA :=  0.0;
        D+111+NELS+TDOA+2+3+DATA :=  0.0
        END;
FEDF+25+NELS+TYPED+EMITTER+REPORT+FILE:
        BEGIN
        D+070+NELS+EMITTER+COV+DATA :=  0.0;
        D+074+NELS+EMITTER+FREQUENCY+DATA :=  0.0;
```

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        D←166←NELS←EMITTER←ID←DATA :=  RADIO;
        D←167←NELS←EMITTER←X←DATA :=  0.0;
        D←168←NELS←EMITTER←Y←DATA :=  0.0;
        D←169←NELS←EMITTER←Z←DATA :=  0.0;
        D←170←SCENARIO←GEN←ID←NUM←DATA :=  0;
        D←176←NELS←EMITTER←BANDWIDTH←DATA :=  0.0;
        D←177←NELS←EMITTER←CEP←DATA :=  0.0;
        D←178←NELS←EMITTER←MODULATION←TYPE←DATA :=
        MODULATED;
        D←179←NELS←EMITTER←TIME←OF←LOCATION←DATA :=  0.0;
        D←180←NELS←EMITTER←TRAFFIC←TYPE←DATA :=  PASSIVE
        END;
FEOF←25←NELS←WEATHER←CONDITIONS←FILE:
        BEGIN
        D←037←CLOUD←COVER←DATA :=  CLEAR;
        D←039←ELEVATION←WEATHER←DATA :=  0.0;
        D←120←PRECIPITATION←DATA :=  NONE;
        D←144←X←WEATHER←LOC←DATA :=  0.0;
        D←145←Y←WEATHER←LOC←DATA :=  0.0
        END;
FEOF←27←PLATFORM←CONTROL←FILE:
        BEGIN
        D←010←ASP←ALTITUDE←DATA :=  0.0;
        D←014←ASP←LOC←X←DATA :=  0.0;
        D←015←ASP←LOC←Y←DATA :=  0.0;
        D←016←ASP←LOC←Z←DATA :=  0.0;
        D←022←ASP←VEL←X←DATA :=  0.0;
        D←023←ASP←VEL←Y←DATA :=  0.0;
        D←024←ASP←VEL←Z←DATA :=  0.0
        END;
FEOF←28←PRIMARY←ROADS←FILE:
        BEGIN
        D←121←PRIMARY←ROADS←X←DATA :=  0.0;
        D←122←PRIMARY←ROADS←Y←DATA :=  0.0
        END;
FEOF←29←RAILROAD←LOCATIONS←FILE:
        BEGIN
        D←123←RAILROAD←LOC←X←DATA :=  0.0;
        D←124←RAILROAD←LOC←Y←DATA :=  0.0
        END;
FEOF←30←RIVER←LOCATIONS←FILE:
        BEGIN
        D←128←RIVER←LOC←X←DATA :=  0.0;
        D←129←RIVER←LOC←Y←DATA :=  0.0
        END;
FEOF←31←SECONDARY←ROADS←FILE:
        BEGIN
        D←131←SECONDARY←ROAD←X←DATA :=  0.0;
        D←132←SECONDARY←ROAD←Y←DATA :=  0.0
        END;
FEOF←32←SENSOR←ORBIT←MODS←FILE:
        BEGIN
        D←117←PLATFORM←MOD←X←DATA :=  0.0;
        D←118←PLATFORM←MOD←Y←DATA :=  0.0;
        D←119←PLATFORM←MOD←Z←DATA :=  0.0
        END;
FEOF←33←SENSOR←PLATFORM←LOCATION←FILE:
```

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        BEGIN
        D←114←PLATFORM←LOCATION←X←DATA :=  0.0;
        D←115←PLATFORM←LOCATION←Y←DATA :=  0.0;
        D←116←PLATFORM←LOCATION←Z←DATA :=  0.0
        END;
EE0F←34←SENSOR←STATUS←FILE:
        BEGIN
        D←044←FREQUENCY←SCAN←PARAMETER←DATA :=  0.0;
        D←136←SENSOR←MODE←OF←OPERATION←DATA :=
        SOI←SURVEILLANCE
        END;
M←01←ES←NELS←UNIT←AND←ENVIRONMENT←DATA←MSG←IN:
        BEGIN
        D←002←ASET←MSG←DEST←DATA :=  TC;
        D←004←ASET←MSG←NAME←DATA :=
        MN←01←ES←NELS←UNIT←AND←ENVIRONMENT←DATA;
        D←005←ASET←MSG←SOURCE←DATA :=  TC;
        EE8DDSIN(EE9DS(F←16←NELS←EMITTER←FILE));
        EE8ININ(EE0F←16←NELS←EMITTER←FILE)
        END;
M←02←NELS←CARTO←UPDATES←MSG←IN:
        BEGIN
        D←002←ASET←MSG←DEST←DATA :=  TC;
        D←004←ASET←MSG←NAME←DATA :=
        MN←01←ES←NELS←UNIT←AND←ENVIRONMENT←DATA;
        D←005←ASET←MSG←SOURCE←DATA :=  TC;
        EE8DDSIN(EE9DS(F←02←CARTO←UPDATE←FILE));
        EE8ININ(EE0F←02←CARTO←UPDATE←FILE)
        END;
M←03←NELS←COMMANDERS←REQUIREMENTS←MSG←IN:
        BEGIN
        D←002←ASET←MSG←DEST←DATA :=  TC;
        D←004←ASET←MSG←NAME←DATA :=
        MN←01←ES←NELS←UNIT←AND←ENVIRONMENT←DATA;
        D←005←ASET←MSG←SOURCE←DATA :=  TC;
        EE8DDSIN(EE9DS(F←04←CMDRS←DATA←TO←UPDATE←FILE));
        EE8ININ(EE0F←04←CMDRS←DATA←TO←UPDATE←FILE)
        END;
M←04←NELS←MODIFIED←TASK←MSG←IN:
        BEGIN
        D←002←ASET←MSG←DEST←DATA :=  TC;
        D←004←ASET←MSG←NAME←DATA :=
        MN←01←ES←NELS←UNIT←AND←ENVIRONMENT←DATA;
        D←005←ASET←MSG←SOURCE←DATA :=  TC;
        D←056←NEEDED←FEASIBLE←DATA :=  SOI;
        D←139←TASK←QUE←ID←DATA :=  0;
        EE8DDSIN(EE9DS(F←05←FEASIBLE←ACTIVITY←AREA←FILE));
        EE8ININ(EE0F←05←FEASIBLE←ACTIVITY←AREA←FILE)
        END;
M←06←NELS←ORBIT←MODIFICATIONS←MSG←IN:
        BEGIN
        D←002←ASET←MSG←DEST←DATA :=  TC;
        D←004←ASET←MSG←NAME←DATA :=
        MN←01←ES←NELS←UNIT←AND←ENVIRONMENT←DATA;
        D←005←ASET←MSG←SOURCE←DATA :=  TC;
        D←135←SENSOR←ID←DATA :=  NELS←GPS←1;
        EE8DDSIN(EE9DS(F←32←SENSOR←ORBIT←MODS←FILE));
```

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        EE8ININ(EE0F+32+SENSOR+ORBIT+MODS+FILE)
        END;
M+08+NFLS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN;
        BEGIN
        D+002+ASET+MSG+DEST+DATA := TC;
        D+004+ASET+MSG+NAME+DATA :=
        MN+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA;
        D+005+ASET+MSG+SOURCE+DATA := TC;
        D+056+NEEDED+FEASIBLE+DATA := SOI;
        D+135+SENSOR+ID+DATA := NELS+GPS+1;
        D+137+SENSOR+PRIORITY+DATA := 0;
        EE8DDSIN(EE9DS(F+05+FEASIBLE+ACTIVITY+AREA+FILE));
        EE8ININ(EE0F+05+FEASIBLE+ACTIVITY+AREA+FILE)
        E+0;
M+09+NFLS+REQUESTED+SENSOR+DATA+MSG+IN;
        BEGIN
        D+002+ASET+MSG+DEST+DATA := TC;
        D+004+ASET+MSG+NAME+DATA :=
        MN+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA;
        D+005+ASET+MSG+SOURCE+DATA := TC;
        D+045+GPS+ID+DATA := GPS+1+NELS;
        EE8DDSIN(EE9DS(F+07+GROUP+TARGET+LOCS+FILE));
        EE8ININ(EE0F+07+GROUP+TARGET+LOCS+FILE)
        END;
M+15+T+AND+C+STOP+NELS+MSG+IN;
        BEGIN
        D+002+ASET+MSG+DEST+DATA := TC;
        D+004+ASET+MSG+NAME+DATA :=
        MN+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA;
        D+005+ASET+MSG+SOURCE+DATA := TC
        END;
M+05+NFLS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT;
        BEGIN
        D+002+ASET+MSG+DEST+DATA := TC;
        D+004+ASET+MSG+NAME+DATA :=
        MN+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA;
        D+005+ASET+MSG+SOURCE+DATA := TC;
        D+045+GPS+ID+DATA := GPS+1+NFLS;
        D+046+GROUND+TARGET+FREQUENCY+DATA := 0.0;
        D+047+GROUND+TARGET+LENGTH+DATA := 0.0;
        D+050+GROUND+TARGET+VELOCITY+DATA := 0.0;
        EE8DDSIN(EE9DS(F+07+GROUP+TARGET+LOCS+FILE));
        EE8ININ(EE0F+07+GROUP+TARGET+LOCS+FILE)
        END;
M+07+NFLS+PLATFORM+LOCATION+REPORTS+MSG+OUT;
        BEGIN
        D+002+ASET+MSG+DEST+DATA := TC;
        D+004+ASET+MSG+NAME+DATA :=
        MN+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA;
        D+005+ASET+MSG+SOURCE+DATA := TC;
        EE8DDSIN(EE9DS(F+33+SENSOR+PLATFORM+LOCATION+FILE)
        );
        EE8ININ(EE0F+33+SENSOR+PLATFORM+LOCATION+FILE)
        END;
M+10+NFLS+SENSOR+REQUESTS+MSG+OUT;
        BEGIN
        D+002+ASET+MSG+DEST+DATA := TC;
```

```
      D+004+ASET+MSG+NAME+DATA :=
     MN+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA;
      D+005+ASET+MSG+SOURCE+DATA :=  TC;
      D+125+REQ+DESTINATION+SENSOR+ID+DATA :=  GPS+NELS+1;
     D+126+REQ+REPORT+INFORMATION+TYPE+DATA :=
      EF6UNKNWNVAL;
      D+127+REQ+SENSOR+TARGET+ID+OF+INTEREST+DATA :=
     EF6UNKNWNVAL;
      D+135+SENSOR+ID+DATA :=  NELS+GPS+1
      END;
M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT;
      BEGIN
      D+002+ASET+MSG+DEST+DATA :=  TC;
      D+004+ASET+MSG+NAME+DATA :=
      MN+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA;
      D+005+ASET+MSG+SOURCE+DATA :=  TC;
      D+135+SENSOR+ID+DATA :=  NELS+GPS+1;
      EE8ODSIN(EE9DS(F+34+SENSOR+STATUS+FILE));
      EE8ININ(EE0F+34+SENSOR+STATUS+FILE)
      END;
M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT;
      BEGIN
      D+002+ASET+MSG+DEST+DATA :=  TC;
      D+004+ASET+MSG+NAME+DATA :=
      MN+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA;
      D+005+ASET+MSG+SOURCE+DATA :=  TC;
      D+045+GPS+ID+DATA :=  GPS+1+NELS;
      D+046+GROUND+TARGET+FREQUENCY+DATA :=  0.0;
      D+047+GROUND+TARGET+LENGTH+DATA :=  0.0;
      D+050+GROUND+TARGET+VELOCITY+DATA :=  0.0;
      EE8ODSIN(EE9DS(F+07+GROUP+TARGET+LOCS+FILE));
      EE8ININ(EE0F+07+GROUP+TARGET+LOCS+FILE)
      END;
M+13+NELS+TASKING+RESPONSES+MSG+OUT;
      BEGIN
      D+002+ASET+MSG+DEST+DATA :=  TC;
      D+004+ASET+MSG+NAME+DATA :=
      MN+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA;
      D+005+ASET+MSG+SOURCE+DATA :=  TC;
      D+138+TASKING+RESPONSE+DATA :=  CAN+DO;
      D+139+TASK+QUE+ID+DATA :=  0;
      L+141+TIME+DATA :=  0.0
      END;
M+14+NELS+TRACK+MESSAGE+MSG+OUT;
      BEGIN
      D+002+ASET+MSG+DEST+DATA :=  TC;
      D+004+ASET+MSG+NAME+DATA :=
      MN+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA;
      D+005+ASET+MSG+SOURCE+DATA :=  TC;
      D+135+SENSOR+ID+DATA :=  NELS+GPS+1;
      D+142+TRACK+MESSAGE+DATA :=  TRACKING;
      EE8ODSIN(EE9DS(F+02+CARTO+UPDATE+FILE));
      EE8ININ(EE0F+02+CARTO+UPDATE+FILE)
      END;
EE9ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET;
      BEGIN
      EE8ODSIN(EE9DS(F+10+NELS+CANDIDATE+TARGETS+FILE));
```

```
        EE8ININ(EE0F+10+NELS+CANDIDATE+TARGETS+FILE);
        EE8DDSIN(EE9DS(F+12+DETECTED+CANDIDATE+TARGETS+FILE)
        );
        EE8ININ(EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE)
        END;
    EE0ET+5+NELS+PRE+BRIEFED+SOI+ET;
        BEGIN
        EE8DDSIN(EE9DS(F+10+NELS+CANDIDATE+TARGETS+FILE));
        EE8ININ(EE0F+10+NELS+CANDIDATE+TARGETS+FILE);
        EE8DDSIN(EE9DS(F+21+NELS+PRE+BRIEFED+SOI+FILE));
        EE8ININ(EE0F+21+NELS+PRE+BRIEFED+SOI+FILE)
        END;
    EE0ET+6+NELS+PRE+BRIEFED+AOI+ET;
        BEGIN
        EE8DDSIN(EE9DS(F+10+NELS+CANDIDATE+TARGETS+FILE));
        EE8ININ(EE0F+10+NELS+CANDIDATE+TARGETS+FILE);
        EE8DDSIN(EE9DS(F+20+NELS+PRE+BRIEFED+AOI+FILE));
        EE8ININ(EE0F+20+NELS+PRE+BRIEFED+AOI+FILE)
        END;
    EE0ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET;
        BEGIN
        EE8DDSIN(EE9DS(F+10+NELS+CANDIDATE+TARGETS+FILE));
        EE8ININ(EE0F+10+NELS+CANDIDATE+TARGETS+FILE)
        END;
    EE0ET+2+NELS+EMITTER+GROUND+TRUTH+ET;
        BEGIN
        EE8DDSIN(EE9DS(
        F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE));
        EE8ININ(
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE)
        END;
    EE0ET+7+NELS+WEATHER+ET;
        BEGIN
        EE8DDSIN(EE9DS(F+26+NELS+WEATHER+CONDITIONS+FILE));
        EE8ININ(EE0F+26+NELS+WEATHER+CONDITIONS+FILE)
        END;
    EE0ET+3+NELS+FLIGHT+ET;
        BEGIN
        EE8DDSIN(EE9DS(F+06+FLIGHT+PROFILE+FILE));
        EE8ININ(EE0F+06+FLIGHT+PROFILE+FILE);
        EE8DDSIN(EE9DS(F+27+PLATFORM+CONTROL+FILE));
        EE8ININ(EE0F+27+PLATFORM+CONTROL+FILE)
        END;
    EE0ET+4+NELS+FREQUENCY+SCAN+ET;
        BEGIN
        EE8DDSIN(EE9DS(F+19+NELS+FREQUENCY+SCAN+FILE));
        EE8ININ(EE0F+19+NELS+FREQUENCY+SCAN+FILE)
        END;
    EE0ET+10+NELS+EMISSION+THREAT+ET;
        BEGIN
        EE8DDSIN(EE9DS(F+13+NELS+EMISSION+THREAT+TABLE+FILE)
        );
        EE8ININ(EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE)
        END;
    EE0ET+8+NELS+VEHICLE+CHARACTERISTICS+ET;
        BEGIN
        EE8DDSIN(EE9DS(
```

```
                F+15+NELS+EMITTER+CHARACTERISTICS+FILE));
                EE8ININ(EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE)
                END;
            EE0ET+11+DETECTED+EMISSIONS+DD+TDOA+ET;
                BEGIN
                EE8DDSIN(EE9DS(
                F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE));
                EE8ININ(
                EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
                EE8DDSIN(EE9DS(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE
                ));
                EE8ININ(EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE)
                END;
            EE0ET+12+DETECTED+EMISSIONS+COARSE+ET;
                BEGIN
                EE8DDSIN(EE9DS(
                F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE));
                EE8ININ(
                EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
                EE8DDSIN(EE9DS(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE
                ));
                EE8ININ(EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE)
                END;
            EE0ET+13+DETECTED+EMISSIONS+FINE+ET;
                BEGIN
                EE8DDSIN(EE9DS(
                F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE));
                EE8ININ(
                EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
                EE8DDSIN(EE9DS(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE
                ));
                EE8ININ(EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE)
                END
            END
        END (* EE8ININ *);
(*-------------------------------------------------------------------*)
PROCEDURE EE8SETUP;
    VAR EE9I:EE7DSLST;
    EE9A,EE9B: ALFA; EE9C,EE9D: INTEGER;
    BEGIN
    DATE(EE9A); IF EE9A[1] = ' ' THEN EE9D := 1 ELSE EE9D := 0;
    FOR EE9C:= 1 TO 8 DO EEXDATE.AASTR[EE9C]:= EE9A[EE9C+EE9D];
    EEXDATE.AALEN:=8; TIME(EE9A); FOR EE9C:=1 TO 8 DO EEXTIME.AASTR[
    EE9C]:=EE9A[EE9C+EE9D]; EEXTIME.AALEN:=8; EERUNID.AASTR:=
    'SIMULATOR+EXECUTION+DEFAULT+ID                                  ';
    EERUNID.AALEN:=30;        EE9VPF:=TRUE;
      EEGDATE    .AASTR :=
    '17-MAR-83                                                       ';
      EEGDATE    .AALEN := 09;
      EEGTIME    .AASTR :=
    '15:48:08                                                        ';
      EEGTIME    .AALEN := 08;
      EESIMID    .AASTR :=
    'SIMULATOR/TEST+DEFAULT+ID                                       ';
      EESIMID    .AALEN := 25;
      EE9DS(EE1'OUTPUT.DSKIMG:=EEADAT'SET;
      CLOCK+TIME := 0.0;
```

```
D+007+ASP+ACC+X+DATA :=  0.0;
D+008+ASP+ACC+Y+DATA :=  0.0;
D+009+ASP+ACC+Z+DATA :=  0.0;
D+012+ASP+LATITUDE+DATA :=  0.0;
D+017+ASP+LONGITUDE+DATA :=  0.0;
D+015+ASP+PITCH+DATA :=  0.0;
D+019+ASP+ROLL+DATA :=  0.0;
D+021+ASP+TIME+DATA :=  0.0;
D+025+ASP+YAW+DATA :=  0.0;
D+028+CARTO+MAP+SECT+NUM+DATA :=  0;
D+031+NFLS+FREQUENCY+SCAN+DATA :=  0.0;
EE9DS[F+01+BRIDGE+LOCATIONS+FILE],DSKIND:=EE6DATASET;
EE9DS[F+01+BRIDGE+LOCATIONS+FILE],CLASS:=EE1FILCL;
EE9DS[F+01+BRIDGE+LOCATIONS+FILE],DSTYP:=
F+01+BRIDGE+LOCATIONS+FILE;
EE9DS[F+01+BRIDGE+LOCATIONS+FILE],INTYP:=
EE0F+01+BRIDGE+LOCATIONS+FILE;
EE9DS[F+02+CARTO+UPDATE+FILE],DSKIND:=EE6DATASET;
EE9DS[F+02+CARTO+UPDATE+FILE],CLASS:=EE1FILCL;
EE9DS[F+02+CARTO+UPDATE+FILE],DSTYP:=F+02+CARTO+UPDATE+FILE;
EE9DS[F+02+CARTO+UPDATE+FILE],INTYP:=EE0F+02+CARTO+UPDATE+FILE
;
EE9DS[F+03+CITY+LOCATIONS+FILE],DSKIND:=EE6DATASET;
EE9DS[F+03+CITY+LOCATIONS+FILE],CLASS:=EE1FILCL;
EE9DS[F+03+CITY+LOCATIONS+FILE],DSTYP:=
F+03+CITY+LOCATIONS+FILE;
EE9DS[F+03+CITY+LOCATIONS+FILE],INTYP:=
EE0F+03+CITY+LOCATIONS+FILE;
EE9DS[F+04+CROPS+DATA+TO+UPDATE+FILE],DSKIND:=EE6DATASET;
EE9DS[F+04+CROPS+DATA+TO+UPDATE+FILE],CLASS:=EE1FILCL;
EE9DS[F+04+CROPS+DATA+TO+UPDATE+FILE],DSTYP:=
F+04+CROPS+DATA+TO+UPDATE+FILE;
EE9DS[F+04+CROPS+DATA+TO+UPDATE+FILE],INTYP:=
EE0F+04+CROPS+DATA+TO+UPDATE+FILE;
EE9DS[F+05+FEASIBLE+ACTIVITY+AREA+FILE],DSKIND:=EE6DATASET;
EE9DS[F+05+FEASIBLE+ACTIVITY+AREA+FILE],CLASS:=EE1FILCL;
EE9DS[F+05+FEASIBLE+ACTIVITY+AREA+FILE],DSTYP:=
F+05+FEASIBLE+ACTIVITY+AREA+FILE;
EE9DS[F+05+FEASIBLE+ACTIVITY+AREA+FILE],INTYP:=
EE0F+05+FEASIBLE+ACTIVITY+AREA+FILE;
EE9DS[F+06+FLIGHT+PROFILE+FILE],DSKIND:=EE6DATASET;
EE9DS[F+06+FLIGHT+PROFILE+FILE],CLASS:=EE1FILCL;
EE9DS[F+06+FLIGHT+PROFILE+FILE],DSTYP:=
F+06+FLIGHT+PROFILE+FILE;
EE9DS[F+06+FLIGHT+PROFILE+FILE],INTYP:=
EE0F+06+FLIGHT+PROFILE+FILE;
EE9DS[F+07+GROUP+TARGET+LOCS+FILE],DSKIND:=EE6DATASET;
EE9DS[F+07+GROUP+TARGET+LOCS+FILE],CLASS:=EE1FILCL;
EE9DS[F+07+GROUP+TARGET+LOCS+FILE],DSTYP:=
F+07+GROUP+TARGET+LOCS+FILE;
EE9DS[F+07+GROUP+TARGET+LOCS+FILE],INTYP:=
EE0F+07+GROUP+TARGET+LOCS+FILE;
EE9DS[F+08+HYPSO+DATA+FILE],DSKIND:=EE6DATASET;
EE9DS[F+08+HYPSO+DATA+FILE],CLASS:=EE1FILCL;
EE9DS[F+08+HYPSO+DATA+FILE],DSTYP:=F+08+HYPSO+DATA+FILE;
EE9DS[F+08+HYPSO+DATA+FILE],INTYP:=EE0F+08+HYPSO+DATA+FILE;
EE9DS[F+09+MARSHALLING+AREAS+FILE],DSKIND:=EE6DATASET;
```

```
EE9DS(F+09+MARSHALLING+AREAS+FILE),CLASS:=EE1FILCL;
EE9DS(F+09+MARSHALLING+AREAS+FILE),DSTYP:=
F+09+MARSHALLING+AREAS+FILE;
EE9DS(F+09+MARSHALLING+AREAS+FILE),INTYP:=
EE0F+09+MARSHALLING+AREAS+FILE;
EE9DS(F+10+NELS+CANDIDATE+TARGETS+FILE),DSKIND:=EE6DATASET;
EE9DS(F+10+NELS+CANDIDATE+TARGETS+FILE),CLASS:=EE1FILCL;
EE9DS(F+10+NELS+CANDIDATE+TARGETS+FILE),DSTYP:=
F+10+NELS+CANDIDATE+TARGETS+FILE;
EE9DS(F+10+NELS+CANDIDATE+TARGETS+FILE),INTYP:=
EE0F+10+NELS+CANDIDATE+TARGETS+FILE;
EE9DS(F+12+DETECTED+CANDIDATE+TARGETS+FILE),DSKIND:=EE6DATASET
;
EE9DS(F+12+DETECTED+CANDIDATE+TARGETS+FILE),CLASS:=EE1FILCL;
EE9DS(F+12+DETECTED+CANDIDATE+TARGETS+FILE),DSTYP:=
F+12+DETECTED+CANDIDATE+TARGETS+FILE;
EE9DS(F+12+DETECTED+CANDIDATE+TARGETS+FILE),INTYP:=
EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE;
EE9DS(F+13+NELS+EMISSION+THREAT+TABLE+FILE),DSKIND:=EE6DATASET
;
EE9DS(F+13+NELS+EMISSION+THREAT+TABLE+FILE),CLASS:=EE1FILCL;
EE9DS(F+13+NELS+EMISSION+THREAT+TABLE+FILE),DSTYP:=
F+13+NELS+EMISSION+THREAT+TABLE+FILE;
EE9DS(F+13+NELS+EMISSION+THREAT+TABLE+FILE),INTYP:=
EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE;
EE9DS(F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE),DSKIND:=
EE6DATASET;
EE9DS(F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE),CLASS:=
EE1FILCL;
EE9DS(F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE),DSTYP:=
F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE;
EE9DS(F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE),INTYP:=
EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE;
EE9DS(F+15+NELS+EMITTER+CHARACTERISTICS+FILE),DSKIND:=
EE6DATASET;
EE9DS(F+15+NELS+EMITTER+CHARACTERISTICS+FILE),CLASS:=EE1FILCL;
EE9DS(F+15+NELS+EMITTER+CHARACTERISTICS+FILE),DSTYP:=
F+15+NELS+EMITTER+CHARACTERISTICS+FILE;
EE9DS(F+15+NELS+EMITTER+CHARACTERISTICS+FILE),INTYP:=
EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE;
EE9DS(F+16+NELS+EMITTER+FILE),DSKIND:=EE6DATASET;
EE9DS(F+16+NELS+EMITTER+FILE),CLASS:=EE1FILCL;
EE9DS(F+16+NELS+EMITTER+FILE),DSTYP:=F+16+NELS+EMITTER+FILE;
EE9DS(F+16+NELS+EMITTER+FILE),INTYP:=EE0F+16+NELS+EMITTER+FILE
;
EE9DS(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE),DSKIND:=
EE6DATASET;
EE9DS(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE),CLASS:=
EE1FILCL;
EE9DS(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE),DSTYP:=
F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE;
EE9DS(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE),INTYP:=
EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE;
EE9DS(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE),DSKIND:=
EE6DATASET;
EE9DS(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE),CLASS:=EE1FILCL;
EE9DS(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE),DSTYP:=
```

```
F+19+NELS+ESTIMATED+GROUND+TRUTH+FILE;
EE9DS(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE),INTYP:=
EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE;
EE9DS(F+19+NELS+FREQUENCY+SCAN+FILE),DSKIND:=EE6DATASET;
EE9DS(F+19+NELS+FREQUENCY+SCAN+FILE),CLASS:=EE1FILCL;
EE9DS(F+19+NELS+FREQUENCY+SCAN+FILE),DSTYP:=
F+19+NELS+FREQUENCY+SCAN+FILE;
EE9DS(F+19+NELS+FREQUENCY+SCAN+FILE),INTYP:=
EE0F+19+NELS+FREQUENCY+SCAN+FILE;
EE9DS(F+20+NELS+PRE+BRIEFED+AOI+FILE),DSKIND:=EE6DATASET;
EE9DS(F+20+NELS+PRE+BRIEFED+AOI+FILE),CLASS:=EE1FILCL;
EE9DS(F+20+NELS+PRE+BRIEFED+AOI+FILE),DSTYP:=
F+20+NELS+PRE+BRIEFED+AOI+FILE;
EE9DS(F+20+NELS+PRE+BRIEFED+AOI+FILE),INTYP:=
EE0F+20+NELS+PRE+BRIEFED+AOI+FILE;
EE9DS(F+21+NELS+PRE+BRIEFED+SOI+FILE),DSKIND:=EE6DATASET;
EE9DS(F+21+NELS+PRE+BRIEFED+SOI+FILE),CLASS:=EE1FILCL;
EE9DS(F+21+NELS+PRE+BRIEFED+SOI+FILE),DSTYP:=
F+21+NELS+PRE+BRIEFED+SOI+FILE;
EE9DS(F+21+NELS+PRE+BRIEFED+SOI+FILE),INTYP:=
EE0F+21+NELS+PRE+BRIEFED+SOI+FILE;
EE9DS(F+24+NELS+TDOA+DD+FILE),DSKIND:=EE6DATASET;
EE9DS(F+24+NELS+TDOA+DD+FILE),CLASS:=EE1FILCL;
EE9DS(F+24+NELS+TDOA+DD+FILE),DSTYP:=F+24+NELS+TDOA+DD+FILE;
EE9DS(F+24+NELS+TDOA+DD+FILE),INTYP:=EE0F+24+NELS+TDOA+DD+FILE
;
EE9DS(F+25+NELS+TYPED+EMITTER+REPORT+FILE),DSKIND:=EE6DATASET;
EE9DS(F+25+NELS+TYPED+EMITTER+REPORT+FILE),CLASS:=EE1FILCL;
EE9DS(F+25+NELS+TYPED+EMITTER+REPORT+FILE),DSTYP:=
F+25+NELS+TYPED+EMITTER+REPORT+FILE;
EE9DS(F+25+NELS+TYPED+EMITTER+REPORT+FILE),INTYP:=
EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE;
EE9DS(F+26+NELS+WEATHER+CONDITIONS+FILE),DSKIND:=EE6DATASET;
EE9DS(F+26+NELS+WEATHER+CONDITIONS+FILE),CLASS:=EE1FILCL;
EE9DS(F+26+NELS+WEATHER+CONDITIONS+FILE),DSTYP:=
F+26+NELS+WEATHER+CONDITIONS+FILE;
EE9DS(F+26+NELS+WEATHER+CONDITIONS+FILE),INTYP:=
EE0F+26+NELS+WEATHER+CONDITIONS+FILE;
EE9DS(F+27+PLATFORM+CONTROL+FILE),DSKIND:=EE6DATASET;
EE9DS(F+27+PLATFORM+CONTROL+FILE),CLASS:=EE1FILCL;
EE9DS(F+27+PLATFORM+CONTROL+FILE),DSTYP:=
F+27+PLATFORM+CONTROL+FILE;
EE9DS(F+27+PLATFORM+CONTROL+FILE),INTYP:=
EE0F+27+PLATFORM+CONTROL+FILE;
EE9DS(F+28+PRIMARY+ROADS+FILE),DSKIND:=EE6DATASET;
EE9DS(F+28+PRIMARY+ROADS+FILE),CLASS:=EE1FILCL;
EE9DS(F+28+PRIMARY+ROADS+FILE),DSTYP:=F+28+PRIMARY+ROADS+FILE;
EE9DS(F+28+PRIMARY+ROADS+FILE),INTYP:=
EE0F+28+PRIMARY+ROADS+FILE;
EE9DS(F+29+RAILROAD+LOCATIONS+FILE),DSKIND:=EE6DATASET;
EE9DS(F+29+RAILROAD+LOCATIONS+FILE),CLASS:=EE1FILCL;
EE9DS(F+29+RAILROAD+LOCATIONS+FILE),DSTYP:=
F+29+RAILROAD+LOCATIONS+FILE;
EE9DS(F+29+RAILROAD+LOCATIONS+FILE),INTYP:=
EE0F+29+RAILROAD+LOCATIONS+FILE;
EE9DS(F+30+RIVER+LOCATIONS+FILE),DSKIND:=EE6DATASET;
EE9DS(F+30+RIVER+LOCATIONS+FILE),CLASS:=EE1FILCL;
```

```
        EE9DS(F+30+RIVER+LOCATIONS+FILE),DSTYP:=
        F+30+RIVER+LOCATIONS+FILE;
        EE9DS(F+30+RIVER+LOCATIONS+FILE),INTYP:=
        EE0F+30+RIVER+LOCATIONS+FILE;
        EE9DS(F+31+SECONDARY+ROADS+FILE),DSKIND:=EE6DATASET;
        EE9DS(F+31+SECONDARY+ROADS+FILE),CLASS:=EE1FILCL;
        EE9DS(F+31+SECONDARY+ROADS+FILE),DSTYP:=
        F+31+SECONDARY+ROADS+FILE;
        EE9DS(F+31+SECONDARY+ROADS+FILE),INTYP:=
        EE0F+31+SECONDARY+ROADS+FILE;
        EE9DS(F+32+SENSOR+ORBIT+MODS+FILE),DSKIND:=EE6DATASET;
        EE9DS(F+32+SENSOR+ORBIT+MODS+FILE),CLASS:=EE1FILCL;
        EE9DS(F+32+SENSOR+ORBIT+MODS+FILE),DSTYP:=
        F+32+SENSOR+ORBIT+MODS+FILE;
        EE9DS(F+32+SENSOR+ORBIT+MODS+FILE),INTYP:=
        EE0F+32+SENSOR+ORBIT+MODS+FILE;
        EE9DS(F+33+SENSOR+PLATFORM+LOCATION+FILE),DSKIND:=EE6DATASET;
        EE9DS(F+33+SENSOR+PLATFORM+LOCATION+FILE),CLASS:=EE1FILCL;
        EE9DS(F+33+SENSOR+PLATFORM+LOCATION+FILE),DSTYP:=
        F+33+SENSOR+PLATFORM+LOCATION+FILE;
        EE9DS(F+33+SENSOR+PLATFORM+LOCATION+FILE),INTYP:=
        EE0F+33+SENSOR+PLATFORM+LOCATION+FILE;
        EE9DS(F+34+SENSOR+STATUS+FILE),DSKIND:=EE6DATASET;
        EE9DS(F+34+SENSOR+STATUS+FILE),CLASS:=EE1FILCL;
        EE9DS(F+34+SENSOR+STATUS+FILE),DSTYP:=F+34+SENSOR+STATUS+FILE;
        EE9DS(F+34+SENSOR+STATUS+FILE),INTYP:=
        EE0F+34+SENSOR+STATUS+FILE;
        EE9DS(EF1FILCL),DSKIND:=EE6CLASS;
        EE9DS(EF1FILCL),DSTYP:=EE1FILCL;
        EE9DS(EF1FILCL),BOC  :=F+01+BRIDGE+LOCATIONS+FILE;
        EE9DS(EF1FILCL),EOC  :=F+34+SENSOR+STATUS+FILE;
        EE9DS(EF1FILCL),COS  :=EE1FILCL;
        EE9DS(EF1FILCL),NEW  :=FALSE;
        EE9DS(INTO+NELS+SENSOR),DSKIND:=EE6DATASET;
        EE9DS(INTO+NELS+SENSOR),CLASS:=EE1INTCL;
        EE9DS(INTO+NELS+SENSOR),DSTYP:=INTO+NELS+SENSOR;
        EE9DS(INTO+NELS+SENSOR),INTYP:=EE1NOIN;
EE9INAM(%+01+ELS+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN),AASTR:=
'INTO+NELS+SENSOR                                              ';
EE9INAM(%+01+ELS+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN
),AALE:= 16;
EE9INTRC(%+01+ELS+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN
):=INTO+NELS+SENSOR;
EE9INAM(%+02+NELS+CARTO+UPDATES+MSG+IN),AASTR:=
'INTO+NELS+SENSOR                                              ';
EE9INAM(%+02+NELS+CARTO+UPDATES+MSG+IN
),AALE:= 16;
EE9INTRC(%+02+NELS+CARTO+UPDATES+MSG+IN
):=INTO+NELS+SENSOR;
EE9INAM(%+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN),AASTR:=
'INTO+NELS+SENSOR                                              ';
EE9INAM(%+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN
),AALE:= 16;
EE9INTRC(%+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN
):=INTO+NELS+SENSOR;
EE9INAM(%+04+NELS+MODIFIED+TASK+MSG+IN),AASTR:=
'INTO+NELS+SENSOR                                              ';
```

```
EE9INTNAM[M+04+NELS+MODIFIED+TASK+MSG+IN
],AALEN:= 16;
EE9INTREC[M+04+NELS+MODIFIED+TASK+MSG+IN
]:=INTO+NELS+SENSOR;
EE9INTNAM[M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN],AASTR:=
'INTO+NELS+SENSOR                                    ';
EE9INTNAM[M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN
],AALEN:= 16;
EE9INTREC[M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN
]:=INTO+NELS+SENSOR;
EE9INTNAM[M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN],AASTR:=
'INTO+NELS+SENSOR                                    ';
EE9INTNAM[M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN
],AALEN:= 16;
EE9INTREC[M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN
]:=INTO+NELS+SENSOR;
EE9INTNAM[M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN],AASTR:=
'INTO+NELS+SENSOR                                    ';
EE9INTNAM[M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN
],AALEN:= 16;
EE9INTREC[M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN
]:=INTO+NELS+SENSOR;
EE9INTNAM[M+15+T+AND+C+STOP+NELS+MSG+IN],AASTR:=
'INTO+NELS+SENSOR                                    ';
EE9INTNAM[M+15+T+AND+C+STOP+NELS+MSG+IN
],AALEN:= 16;
EE9INTREC[M+15+T+AND+C+STOP+NELS+MSG+IN
]:=INTO+NELS+SENSOR;
          EE9DSTTO+TIMING+AND+CONTROL+FROM+NELS],DSKIND:=EE6DATASET;
          EE9DSTTO+TIMING+AND+CONTROL+FROM+NELS],CLASS:=EE1INTCL;
          EE9DSTTO+TIMING+AND+CONTROL+FROM+NELS],DSTYP:=
          TO+TIMING+AND+CONTROL+FROM+NELS;
          EE9DSTTO+TIMING+AND+CONTROL+FROM+NELS],INTYP:=EE1NDIN;
EE9INTNAM[M+05+NELS+NDI+SURVEILLANCE+TARGET+REPORTS+MSG+OUT],AASTR:=
'TO+TIMING+AND+CONTROL+FROM+NELS                     ';
EE9INTNAM[M+05+NELS+NDI+SURVEILLANCE+TARGET+REPORTS+MSG+OUT
],AALEN:= 31;
EE9INTREC[M+05+NELS+NDI+SURVEILLANCE+TARGET+REPORTS+MSG+OUT
]:=TO+TIMING+AND+CONTROL+FROM+NELS;
EE9INTNAM[M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT],AASTR:=
'TO+TIMING+AND+CONTROL+FROM+NELS                     ';
EE9INTNAM[M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT
],AALEN:= 31;
EE9INTREC[M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT
]:=TO+TIMING+AND+CONTROL+FROM+NELS;
EE9INTNAM[M+10+NELS+SENSOR+REQUESTS+MSG+OUT],AASTR:=
'TO+TIMING+AND+CONTROL+FROM+NELS                     ';
EE9INTNAM[M+10+NELS+SENSOR+REQUESTS+MSG+OUT
],AALEN:= 31;
EE9INTREC[M+10+NELS+SENSOR+REQUESTS+MSG+OUT
]:=TO+TIMING+AND+CONTROL+FROM+NELS;
EE9INTNAM[M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT],AASTR:=
'TO+TIMING+AND+CONTROL+FROM+NELS                     ';
EE9INTNAM[M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT
],AALEN:= 31;
EE9INTREC[M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT
]:=TO+TIMING+AND+CONTROL+FROM+NELS;
```

```
EE9INTNAM[M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT],AASTR:=
'TO+TIMING+AND+CONTROL+FROM+NELS                                    ';
EE9INTNAM[M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT
],AALEN:= 31;
EE9INTREC[M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT
]:=TO+TIMING+AND+CONTROL+FROM+NELS;
EE9INTNAM[M+13+NELS+TASKING+RESPONSES+MSG+OUT],AASTR:=
'TO+TIMING+AND+CONTROL+FROM+NELS                                    ';
EE9INTNAM[M+13+NELS+TASKING+RESPONSES+MSG+OUT
],AALEN:= 31;
EE9INTREC[M+13+NELS+TASKING+RESPONSES+MSG+OUT
]:=TO+TIMING+AND+CONTROL+FROM+NELS;
EE9INTNAM[M+14+NELS+TRACK+MESSAGE+MSG+OUT],AASTR:=
'TO+TIMING+AND+CONTROL+FROM+NELS                                    ';
EE9INTNAM[M+14+NELS+TRACK+MESSAGE+MSG+OUT
],AALEN:= 31;
EE9INTREC[M+14+NELS+TRACK+MESSAGE+MSG+OUT
]:=TO+TIMING+AND+CONTROL+FROM+NELS;
        EE9DS[EE1INTCL],DSKIND:=EE6CLASS;
        EE9DS[EE1INTCL],DSTYP:=EE1INTCL;
        EE9DS[EE1INTCL],BOC   :=INTO+NELS+SENSOR;
        EE9DS[EE1INTCL],EOC   :=TO+TIMING+AND+CONTROL+FROM+NELS;
        EE9DS[EE1INTCL],CDS   :=EE1INTCL;
        EE9DS[EE1INTCL],NEA   :=FALSE;
        EE9DS[ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET],DSKIND:=
        EE6DATASET;
        EE9DS[ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET],CLASS:=
        EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC;
        EE9DS[ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET],DSTYP:=
        ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET;
        EE9DS[ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET],INTYP:=
        EE9ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET;
        EE9DS[ET+5+NELS+PRE+BRIEFED+SOI+ET],DSKIND:=EE6DATASET;
        EE9DS[ET+5+NELS+PRE+BRIEFED+SOI+ET],CLASS:=
        EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC;
        EE9DS[ET+5+NELS+PRE+BRIEFED+SOI+ET],DSTYP:=
        ET+5+NELS+PRE+BRIEFED+SOI+ET;
        EE9DS[ET+5+NELS+PRE+BRIEFED+SOI+ET],INTYP:=
        EE9ET+5+NELS+PRE+BRIEFED+SOI+ET;
        EE9DS[ET+8+NELS+PRE+BRIEFED+AOI+ET],DSKIND:=EE6DATASET;
        EE9DS[ET+8+NELS+PRE+BRIEFED+AOI+ET],CLASS:=
        EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC;
        EE9DS[ET+8+NELS+PRE+BRIEFED+AOI+ET],DSTYP:=
        ET+8+NELS+PRE+BRIEFED+AOI+ET;
        EE9DS[ET+8+NELS+PRE+BRIEFED+AOI+ET],INTYP:=
        EE9ET+8+NELS+PRE+BRIEFED+AOI+ET;
        EE9DS[ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET],DSKIND:=
        EE6DATASET;
        EE9DS[ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET],CLASS:=
        EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC;
        EE9DS[ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET],DSTYP:=
        ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET;
        EE9DS[ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET],INTYP:=
        EE9ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET;
        EE9DS[EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC],DSKIND:=
        EE6CLASS;
        EE9DS[EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC],DSTYP:=
```

```
EC←1←NELS←DETECTABLE←EMISSION←BREAKOUT←EC;
EE9DS(EC←1←NELS←DETECTABLE←EMISSION←BREAKOUT←EC),BOC  :=
ET←10←GROUND←SHADOWING←CANDIDATE←TARGETS←ET;
EE9DS(EC←1←NELS←DETECTABLE←EMISSION←BREAKOUT←EC),EOC  :=
ET←9←SIGNAL←NOISE←CANDIDATE←TARGETS←ET;
EE9DS(EC←1←NELS←DETECTABLE←EMISSION←BREAKOUT←EC),CDS  :=
EC←1←NELS←DETECTABLE←EMISSION←BREAKOUT←EC;
EE9DS(EC←1←NELS←DETECTABLE←EMISSION←BREAKOUT←EC),NEW  :=FALSE;
EE9DS(ET←2←NELS←EMITTER←GROUND←TRUTH←ET),DSKIND:=EE6DATASET;
EE9DS(ET←2←NELS←EMITTER←GROUND←TRUTH←ET),CLASS:=
EC←2←NELS←SCENARIO←EC;
EE9DS(ET←2←NELS←EMITTER←GROUND←TRUTH←ET),DSTYP:=
ET←2←NELS←EMITTER←GROUND←TRUTH←ET;
EE9DS(ET←2←NELS←EMITTER←GROUND←TRUTH←ET),INTYP:=
EE0ET←2←NELS←EMITTER←GROUND←TRUTH←ET;
EE9DS(ET←7←NELS←WEATHER←ET),DSKIND:=EE6DATASET;
EE9DS(ET←7←NELS←WEATHER←ET),CLASS:=EC←2←NELS←SCENARIO←EC;
EE9DS(ET←7←NELS←WEATHER←ET),DSTYP:=ET←7←NELS←WEATHER←ET;
EE9DS(ET←7←NELS←WEATHER←ET),INTYP:=EE0ET←7←NELS←WEATHER←ET;
EE9DS(EC←2←NELS←SCENARIO←EC),DSKIND:=EE6CLASS;
EE9DS(EC←2←NELS←SCENARIO←EC),DSTYP:=EC←2←NELS←SCENARIO←EC;
EE9DS(EC←2←NELS←SCENARIO←EC),BOC  :=
ET←2←NELS←EMITTER←GROUND←TRUTH←ET;
EE9DS(EC←2←NELS←SCENARIO←EC),EOC  :=ET←7←NELS←WEATHER←ET;
EE9DS(EC←2←NELS←SCENARIO←EC),CDS  :=EC←2←NELS←SCENARIO←EC;
EE9DS(EC←2←NELS←SCENARIO←EC),NEW  :=FALSE;
EE9DS(ET←3←NELS←FLIGHT←ET),DSKIND:=EE6DATASET;
EE9DS(ET←3←NELS←FLIGHT←ET),CLASS:=EC←3←NELS←TASKS←EC;
EE9DS(ET←3←NELS←FLIGHT←ET),DSTYP:=ET←3←NELS←FLIGHT←ET;
EE9DS(ET←3←NELS←FLIGHT←ET),INTYP:=EE0ET←3←NELS←FLIGHT←ET;
EE9DS(ET←4←NELS←FREQUENCY←SCAN←ET),DSKIND:=EE6DATASET;
EE9DS(ET←4←NELS←FREQUENCY←SCAN←ET),CLASS:=EC←3←NELS←TASKS←EC;
EE9DS(ET←4←NELS←FREQUENCY←SCAN←ET),DSTYP:=
ET←4←NELS←FREQUENCY←SCAN←ET;
EE9DS(ET←4←NELS←FREQUENCY←SCAN←ET),INTYP:=
EE0ET←4←NELS←FREQUENCY←SCAN←ET;
EE9DS(EC←3←NELS←TASKS←EC),DSKIND:=EE6CLASS;
EE9DS(EC←3←NELS←TASKS←EC),DSTYP:=EC←3←NELS←TASKS←EC;
EE9DS(EC←3←NELS←TASKS←EC),BOC  :=ET←3←NELS←FLIGHT←ET;
EE9DS(EC←3←NELS←TASKS←EC),EOC  :=ET←4←NELS←FREQUENCY←SCAN←ET;
EE9DS(EC←3←NELS←TASKS←EC),CDS  :=EC←3←NELS←TASKS←EC;
EE9DS(EC←3←NELS←TASKS←EC),NEW  :=FALSE;
EE9DS(ET←1←NELS←EMISSION←THREAT←ET),DSKIND:=EE6DATASET;
EE9DS(ET←1←NELS←EMISSION←THREAT←ET),CLASS:=EC←4←NELS←THREAT←EC
;
EE9DS(ET←1←NELS←EMISSION←THREAT←ET),DSTYP:=
ET←1←NELS←EMISSION←THREAT←ET;
EE9DS(ET←1←NELS←EMISSION←THREAT←ET),INTYP:=
EE0ET←1←NELS←EMISSION←THREAT←ET;
EE9DS(EC←4←NELS←THREAT←EC),DSKIND:=EE6CLASS;
EE9DS(EC←4←NELS←THREAT←EC),DSTYP:=EC←4←NELS←THREAT←EC;
EE9DS(EC←4←NELS←THREAT←EC),BOC  :=ET←1←NELS←EMISSION←THREAT←ET
;
EE9DS(EC←4←NELS←THREAT←EC),EOC  :=ET←1←NELS←EMISSION←THREAT←ET
;
EE9DS(EC←4←NELS←THREAT←EC),CDS  :=EC←4←NELS←THREAT←EC;
EE9DS(EC←4←NELS←THREAT←EC),NEW  :=FALSE;
```

```
EE9DS[ET+6+NELS+VEHICLE+CHARACTERISTICS+ET].DSKIND:=EE6DATASET
;
EE9DS[ET+6+NELS+VEHICLE+CHARACTERISTICS+ET].CLASS:=
EC+5+NELS+VEHICLE+CHARACTERISTICS+EC;
EE9DS[ET+6+NELS+VEHICLE+CHARACTERISTICS+ET].DSTYP:=
ET+6+NELS+VEHICLE+CHARACTERISTICS+ET;
EE9DS[ET+6+NELS+VEHICLE+CHARACTERISTICS+ET].INTYP:=
EE0ET+6+NELS+VEHICLE+CHARACTERISTICS+ET;
EE9DS[EC+5+NELS+VEHICLE+CHARACTERISTICS+EC].DSKIND:=EE6CLASS;
EE9DS[EC+5+NELS+VEHICLE+CHARACTERISTICS+EC].DSTYP:=
EC+5+NELS+VEHICLE+CHARACTERISTICS+EC;
EE9DS[EC+5+NELS+VEHICLE+CHARACTERISTICS+EC].BOC  :=
ET+6+NELS+VEHICLE+CHARACTERISTICS+ET;
EE9DS[EC+5+NELS+VEHICLE+CHARACTERISTICS+EC].EOC  :=
ET+6+NELS+VEHICLE+CHARACTERISTICS+ET;
EE9DS[EC+5+NELS+VEHICLE+CHARACTERISTICS+EC].CDS  :=
EC+5+NELS+VEHICLE+CHARACTERISTICS+EC;
EE9DS[EC+5+NELS+VEHICLE+CHARACTERISTICS+EC].NEW  :=FALSE;
EE9DS[ET+11+DETECTED+EMISSIONS+DD+TDOA+ET].DSKIND:=EE6DATASET;
EE9DS[ET+11+DETECTED+EMISSIONS+DD+TDOA+ET].CLASS:=
EC+6+DETECTED+EMISSIONS+INFO+EC;
EE9DS[ET+11+DETECTED+EMISSIONS+DD+TDOA+ET].DSTYP:=
ET+11+DETECTED+EMISSIONS+DD+TDOA+ET;
EE9DS[ET+11+DETECTED+EMISSIONS+DD+TDOA+ET].INTYP:=
EE0ET+11+DETECTED+EMISSIONS+DD+TDOA+ET;
EE9DS[ET+12+DETECTED+EMISSIONS+COARSE+ET].DSKIND:=EE6DATASET;
EE9DS[ET+12+DETECTED+EMISSIONS+COARSE+ET].CLASS:=
EC+6+DETECTED+EMISSIONS+INFO+EC;
EE9DS[ET+12+DETECTED+EMISSIONS+COARSE+ET].DSTYP:=
ET+12+DETECTED+EMISSIONS+COARSE+ET;
EE9DS[ET+12+DETECTED+EMISSIONS+COARSE+ET].INTYP:=
EE0ET+12+DETECTED+EMISSIONS+COARSE+ET;
EE9DS[ET+13+DETECTED+EMISSIONS+FINE+ET].DSKIND:=EE6DATASET;
EE9DS[ET+13+DETECTED+EMISSIONS+FINE+ET].CLASS:=
EC+6+DETECTED+EMISSIONS+INFO+EC;
EE9DS[ET+13+DETECTED+EMISSIONS+FINE+ET].DSTYP:=
ET+13+DETECTED+EMISSIONS+FINE+ET;
EE9DS[ET+13+DETECTED+EMISSIONS+FINE+ET].INTYP:=
EE0ET+13+DETECTED+EMISSIONS+FINE+ET;
EE9DS[EC+6+DETECTED+EMISSIONS+INFO+EC].DSKIND:=EE6CLASS;
EE9DS[EC+6+DETECTED+EMISSIONS+INFO+EC].DSTYP:=
EC+6+DETECTED+EMISSIONS+INFO+EC;
EE9DS[EC+6+DETECTED+EMISSIONS+INFO+EC].BOC  :=
ET+11+DETECTED+EMISSIONS+DD+TDOA+ET;
EE9DS[EC+6+DETECTED+EMISSIONS+INFO+EC].EOC  :=
ET+13+DETECTED+EMISSIONS+FINE+ET;
EE9DS[EC+6+DETECTED+EMISSIONS+INFO+EC].CDS  :=
EC+6+DETECTED+EMISSIONS+INFO+EC;
EE9DS[EC+6+DETECTED+EMISSIONS+INFO+EC].NEW  :=FALSE;
FOR EE9I:=EE1NUDS TO  ET+13+DETECTED+EMISSIONS+FINE+ET DO
     IF EE9DS[EE9I].DSKIND = EE6DATASET THEN
          BEGIN
          EE9DS[EE9I].NXTDS:=NIL;
          EE9DS[EE9I].FELCT:=0;
          EE9DS[EE9I].INCNT:=0;
          EE9DS[EE9I].BOI  :=NIL;
          EE9DS[EE9I].EOI  :=NIL;
```

```
            EE9DS[EE9I].CIN  :=NIL;
            EE9DS[EE9I].INSTT:=EE6NULL
            END
    END (* FEASETUP *);
(*-------------------------------------------------------------*)
PROCEDURE FEAMAT(VAR EE9INP:EE7INPTR; EE9INS:EE7INLST);
    VAR  EE9P1          :EE7INPTR;
         EE9F1,EE9F2    :EE7DSPTR;
    BEGIN
    CASE EE9INS OF
         EE1NOIN: ;
         EE0F+01+BRIDGE+LOCATIONS+FILE:
              BEGIN
              NEW(EE9P1,EE0F+01+BRIDGE+LOCATIONS+FILE);
              EE9P1^.DSLNK := NIL
              END;
         EE0F+02+CARTO+UPDATE+FILE:
              BEGIN
              NEW(EE9P1,EE0F+02+CARTO+UPDATE+FILE);
              EE9P1^.DSLNK := NIL
              END;
         EE0F+03+CITY+LOCATIONS+FILE:
              BEGIN
              NEW(EE9P1,EE0F+03+CITY+LOCATIONS+FILE);
              EE9P1^.DSLNK := NIL
              END;
         EE0F+04+CMDRS+DATA+TO+UPDATE+FILE:
              BEGIN
              NEW(EE9P1,EE0F+04+CMDRS+DATA+TO+UPDATE+FILE);
              EE9P1^.DSLNK := NIL
              END;
         EE0F+05+FEASIBLE+ACTIVITY+AREA+FILE:
              BEGIN
              NEW(EE9P1,EE0F+05+FEASIBLE+ACTIVITY+AREA+FILE);
              EE9P1^.DSLNK := NIL
              END;
         EE0F+06+FLIGHT+PROFILE+FILE:
              BEGIN
              NEW(EE9P1,EE0F+06+FLIGHT+PROFILE+FILE);
              EE9P1^.DSLNK := NIL
              END;
         EE0F+07+GROUP+TARGET+LOCS+FILE:
              BEGIN
              NEW(EE9P1,EE0F+07+GROUP+TARGET+LOCS+FILE);
              EE9P1^.DSLNK := NIL
              END;
         EE0F+08+HYPSO+DATA+FILE:
              BEGIN
              NEW(EE9P1,EE0F+08+HYPSO+DATA+FILE);
              EE9P1^.DSLNK := NIL
              END;
         EE0F+09+MARSHALLING+AREAS+FILE:
              BEGIN
              NEW(EE9P1,EE0F+09+MARSHALLING+AREAS+FILE);
              EE9P1^.DSLNK := NIL
              END;
         EE0F+10+MELS+CANDIDATE+TARGETS+FILE:
```

```
        BEGIN
        NEW(EE9P1,EE0F+10+NELS+CANDIDATE+TARGETS+FILE);
        EE9P1↑.DSLNK := NIL
        END;
    EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE:
        BEGIN
        NEW(EE9P1,EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE);
        EE9P1↑.DSLNK := NIL
        END;
    EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE:
        BEGIN
        NEW(EE9P1,EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE);
        EE9P1↑.DSLNK := NIL
        END;
    EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE:
        BEGIN
        NEW(EE9P1,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE);
        EE9P1↑.DSLNK := NIL
        END;
    EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE:
        BEGIN
        NEW(EE9P1,EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE)
        ;
        EE9P1↑.DSLNK := NIL
        END;
    EE0F+16+NELS+EMITTER+FILE:
        BEGIN
        NEW(EE9P1,EE0F+16+NELS+EMITTER+FILE);
        EE9P1↑.DSLNK := NIL
        END;
    EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE:
        BEGIN
        NEW(EE9P1,
        EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
        EE9P1↑.DSLNK := NIL
        END;
    EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE:
        BEGIN
        NEW(EE9P1,EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE);
        EE9P1↑.DSLNK := NIL
        END;
    EE0F+19+NELS+FREQUENCY+SCAN+FILE:
        BEGIN
        NEW(EE9P1,EE0F+19+NELS+FREQUENCY+SCAN+FILE);
        EE9P1↑.DSLNK := NIL
        END;
    EE0F+20+NELS+PRE+BRIEFED+AOI+FILE:
        BEGIN
        NEW(EE9P1,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE);
        EE9P1↑.DSLNK := NIL
        END;
    EE0F+21+NELS+PRE+BRIEFED+SOI+FILE:
        BEGIN
        NEW(EE9P1,EE0F+21+NELS+PRE+BRIEFED+SOI+FILE);
        EE9P1↑.DSLNK := NIL
        END;
```

```
EE0F←24←NELS←TDOA←DD←FILE:
      BEGIN
      NEW(EE9P1,EE0F←24←NELS←TDOA←DD←FILE);
      EE9P1↑.DSLNK := NIL
      END;
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE:
      BEGIN
      NEW(EE9P1,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE);
      EE9P1↑.DSLNK := NIL
      END;
EE0F←26←NELS←WEATHER←CONDITIONS←FILE:
      BEGIN
      NEW(EE9P1,EE0F←26←NELS←WEATHER←CONDITIONS←FILE);
      EE9P1↑.DSLNK := NIL
      END;
EE0F←27←PLATFORM←CONTROL←FILE:
      BEGIN
      NEW(EE9P1,EE0F←27←PLATFORM←CONTROL←FILE);
      EE9P1↑.DSLNK := NIL
      END;
EE0F←28←PRIMARY←ROADS←FILE:
      BEGIN
      NEW(EE9P1,EE0F←28←PRIMARY←ROADS←FILE);
      EE9P1↑.DSLNK := NIL
      END;
EE0F←29←RAILROAD←LOCATIONS←FILE:
      BEGIN
      NEW(EE9P1,EE0F←29←RAILROAD←LOCATIONS←FILE);
      EE9P1↑.DSLNK := NIL
      END;
EE0F←30←RIVER←LOCATIONS←FILE:
      BEGIN
      NEW(EE9P1,EE0F←30←RIVER←LOCATIONS←FILE);
      EE9P1↑.DSLNK := NIL
      END;
EE0F←31←SECONDARY←ROADS←FILE:
      BEGIN
      NEW(EE9P1,EE0F←31←SECONDARY←ROADS←FILE);
      EE9P1↑.DSLNK := NIL
      END;
EE0F←32←SENSOR←ORBIT←MODS←FILE:
      BEGIN
      NEW(EE9P1,EE0F←32←SENSOR←ORBIT←MODS←FILE);
      EE9P1↑.DSLNK := NIL
      END;
EE0F←33←SENSOR←PLATFORM←LOCATION←FILE:
      BEGIN
      NEW(EE9P1,EE0F←33←SENSOR←PLATFORM←LOCATION←FILE);
      EE9P1↑.DSLNK := NIL
      END;
EE0F←34←SENSOR←STATUS←FILE:
      BEGIN
      NEW(EE9P1,EE0F←34←SENSOR←STATUS←FILE);
      EE9P1↑.DSLNK := NIL
      END;
EE01←ER←NELS←UNIT←AND←ENVIRONMENT←DATA←MSG←IN:
      BEGIN
```

```
        NEW(EE9P1,
        M+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN);
        NEW(EE9F1);
        EE8KOPDSH(EE9DS(F+16+NELS+EMITTER+FILE),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
    M+02+NELS+CARTO+UPDATES+MSG+IN:
        BEGIN
        NEW(EE9P1,M+02+NELS+CARTO+UPDATES+MSG+IN);
        NEW(EE9F1);
        EE8KOPDSH(EE9DS(F+02+CARTO+UPDATE+FILE),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
    M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN:
        BEGIN
        NEW(EE9P1,M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN);
        NEW(EE9F1);
        EE8KOPDSH(EE9DS(F+04+CMDRS+DATA+TO+UPDATE+FILE
        ),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
    M+04+NELS+MODIFIED+TASK+MSG+IN:
        BEGIN
        NEW(EE9P1,M+04+NELS+MODIFIED+TASK+MSG+IN);
        NEW(EE9F1);
        EE8KOPDSH(EE9DS(F+05+FEASIBLE+ACTIVITY+AREA+FILE
        ),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
    M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN:
        BEGIN
        NEW(EE9P1,M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN);
        NEW(EE9F1);
        EE8KOPDSH(EE9DS(F+32+SENSOR+ORBIT+MODS+FILE
        ),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EF9F1;
        EF9F1↑.NXTDS := NIL
        END;
    M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN:
        BEGIN
        NEW(EE9P1,
        M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN);
        NEW(EE9F1);
        EE8KOPDSH(EE9DS(F+05+FEASIBLE+ACTIVITY+AREA+FILE
        ),EE9F1↑);
        EF8INDS(EF9F1↑);
        EF9P1↑.DSLNK := EF9F1;
        EE9F1↑.NXTDS := NIL
```

```
        END;
M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN;
        BEGIN
        NEW(EE9P1,M-09-NELS-REQUESTED-SENSOR-DATA-MSG-IN);
        NEW(EE9F1);
        EE8KOPDSH(EE9DSIF-07-GROUP-TARGET-LOCS-FILE
        ),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
M-15-T-AND-C-STOP-NELS-MSG-IN;
        BEGIN
        NEW(EE9P1,M-15-T-AND-C-STOP-NELS-MSG-IN);
        EE9P1↑.DSLNK := NIL
        END;
M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT;
        BEGIN
        NEW(EE9P1,
        M-05-NELS-NON-SURVEILLANCE-TARGET-REPORTS-MSG-OUT);
        NEW(EE9F1);
        EE8KOPDSH(EE9DSIF-07-GROUP-TARGET-LOCS-FILE
        ),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT;
        BEGIN
        NEW(EE9P1,
        M-07-NELS-PLATFORM-LOCATION-REPORTS-MSG-OUT);
        NEW(EE9F1);
        EE8KOPDSH(EE9DSIF-33-SENSOR-PLATFORM-LOCATION-FILE
        ),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
M-10-NELS-SENSOR-REQUESTS-MSG-OUT;
        BEGIN
        NEW(EE9P1,M-10-NELS-SENSOR-REQUESTS-MSG-OUT);
        EE9P1↑.DSLNK := NIL
        END;
M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT;
        BEGIN
        NEW(EE9P1,M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT);
        NEW(EE9F1);
        EE8KOPDSH(EE9DSIF-34-SENSOR-STATUS-FILE),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT;
        BEGIN
        NEW(EE9P1,
        M-12-NELS-SURVEILLANCE-TARGET-REPORTS-MSG-OUT);
        NEW(EE9F1);
```

```
        EE8KOPDSH(EE9DS(F+07+GROUP+TARGET+LOCS+FILE
        ),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
M+13+NELS+TASKING+RESPONSES+MSG+OUT;
        BEGIN
        NEW(EE9P1,M+13+NELS+TASKING+RESPONSES+MSG+OUT);
        EE9P1↑.DSLNK := NIL
        END;
M+14+NELS+TRACK+MESSAGE+MSG+OUT;
        BEGIN
        NEW(EE9P1,M+14+NELS+TRACK+MESSAGE+MSG+OUT);
        NEW(EE9F1);
        EE8KOPDSH(EE9DS(F+02+CARTO+UPDATE+FILE),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
EE0ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET;
        BEGIN
        NEW(EE9P1,
        EE0ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET);
        NEW(EE9F1);
        EE8KOPDSH(EE9DS(F+10+NELS+CANDIDATE+TARGETS+FILE
        ),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        NEW(EE9F2);
        EE8KOPDSH(EE9DS(F+12+DETECTED+CANDIDATE+TARGETS+FILE
        ),EE9F2↑);
        EE8INDS(EE9F2↑);
        EE9F1↑.NXTDS := EE9F2;
        EE9F1 := EE9F2 ;
        EE9F1↑.NXTDS := NIL
        END;
EE0ET+5+NELS+PRE+BRIEFED+SOI+ET;
        BEGIN
        NEW(EE9P1,EE0ET+5+NELS+PRE+BRIEFED+SOI+ET);
        NEW(EE9F1);
        EE8KOPDSH(EE9DS(F+1)+NELS+CANDIDATE+TARGETS+FILE
        ),EE9F1↑);
        EE8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        NEW(EE9F2);
        EE8KOPDSH(EE9DS(F+21+NELS+PRE+BRIEFED+SOI+FILE
        ),EE9F2↑);
        EE8INDS(EE9F2↑);
        EE9F1↑.NXTDS := EE9F2;
        EE9F1 := EE9F2 ;
        EE9F1↑.NXTDS := NIL
        END;
EE0ET+8+NELS+PRE+BRIEFED+AOI+ET;
        BEGIN
        NEW(EE9P1,EE0ET+8+NELS+PRE+BRIEFED+AOI+ET);
        NEW(EE9F1);
```

```
        EF8KOPDSH(EE9DS(F+10+NELS+CANDIDATE+TARGETS+FILE
        ),EE9F1↑);
        EF8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        NEW(EE9F2);
        EF8KOPDSH(EE9DS(F+20+NELS+PRE+BRIEFED+AOI+FILE
        ),EE9F2↑);
        EF8INDS(EE9F2↑);
        EE9F1↑.NXTDS := EE9F2;
        EE9F1 := EE9F2 ;
        EE9F1↑.NXTDS := NIL
        END;
    EE0ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET;
        BEGIN
        NEW(EE9P1,EE0ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET)
        ;
        GF+(EE9F1);
        EF8KOPDSH(EE9DS(F+10+NELS+CANDIDATE+TARGETS+FILE
        ),EE9F1↑);
        EF8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
    EE0ET+2+NELS+EMITTER+GROUND+TRUTH+ET;
        BEGIN
        NEW(EE9P1,EE0ET+2+NELS+EMITTER+GROUND+TRUTH+ET);
        NEW(EE9F1);
        EF8KOPDSH(EE9DS(
        F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE
        ),EE9F1↑);
        EF8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
    EE0ET+7+NELS+WEATHER+ET;
        BEGIN
        NEW(EE9P1,EE0ET+7+NELS+WEATHER+ET);
        NEW(EE9F1);
        EF8KOPDSH(EE9DS(F+26+NELS+WEATHER+CONDITIONS+FILE
        ),EE9F1↑);
        EF8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        EE9F1↑.NXTDS := NIL
        END;
    EE0ET+3+NELS+FLIGHT+ET;
        BEGIN
        NEW(EE9P1,EE0ET+3+NELS+FLIGHT+ET);
        NEW(EE9F1);
        EF8KOPDSH(EE9DS(F+05+FLIGHT+PROFILE+FILE),EE9F1↑);
        EF8INDS(EE9F1↑);
        EE9P1↑.DSLNK := EE9F1;
        NEW(EE9F2);
        EF8KOPDSH(EE9DS(F+27+PLATFORM+CONTROL+FILE),EE9F2↑);
        EF8INDS(EE9F2↑);
        EE9F1↑.NXTDS := EE9F2;
        EE9F1 := EE9F2 ;
        EE9F1↑.NXTDS := NIL
```

```
      END;
EE0ET+4+NELS+FREQUENCY+SCAN+ET;
      BEGIN
      NEW(EF9P1,EE0ET+4+NELS+FREQUENCY+SCAN+ET);
      NEW(EE9F1);
      EE8KOPDSH(EE9DS(F+19+NELS+FREQUENCY+SCAN+FILE
      ),EE9F1↑);
      EE8INDS(EE9F1↑);
      EE9P1↑.DSLNK := EF9F1;
      EE9F1↑.NXTDS := NIL
      END;
EE0ET+1+NELS+EMISSION+THREAT+ET;
      BEGIN
      NEW(EF9P1,EE0ET+1+NELS+EMISSION+THREAT+ET);
      NEW(EE9F1);
      EE8KOPDSH(EE9DS(F+13+NELS+EMISSION+THREAT+TABLE+FILE
      ),EE9F1↑);
      EE8INDS(EE9F1↑);
      EE9P1↑.DSLNK := EF9F1;
      EE9F1↑.NXTDS := NIL
      END;
EE0ET+6+NELS+VEHICLE+CHARACTERISTICS+ET;
      BEGIN
      NEW(EE9P1,EE0ET+6+NELS+VEHICLE+CHARACTERISTICS+ET);
      NEW(EE9F1);
      EE8KOPDSH(EE9DS(
      F+15+NELS+EMITTER+CHARACTERISTICS+FILE),EE9F1↑);
      EE8INDS(EE9F1↑);
      EE9P1↑.DSLNK := EE9F1;
      EE9F1↑.NXTDS := NIL
      END;
EE0ET+11+DETECTED+EMISSIONS+DD+TDOA+ET;
      BEGIN
      NEW(EE9P1,EE0ET+11+DETECTED+EMISSIONS+DD+TDOA+ET);
      NEW(EE9F1);
      EE8KOPDSH(EE9DS(
      F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
      ),EE9F1↑);
      EE8INDS(EE9F1↑);
      EE9P1↑.DSLNK := EE9F1;
      NEW(EE9F2);
      EE8KOPDSH(EE9DS(
      F+13+NELS+ESTIMATED+GROUND+TRUTH+FILE),EE9F2↑);
      EE8INDS(EE9F2↑);
      EE9F1↑.NXTDS := EE9F2;
      EE9F1 := EE9F2 ;
      EE9F1↑.NXTDS := NIL
      END;
EE0ET+12+DETECTED+EMISSIONS+COARSE+ET;
      BEGIN
      NEW(EE9P1,EE0ET+12+DETECTED+EMISSIONS+COARSE+ET);
      NEW(EE9F1);
      EE8KOPDSH(EE9DS(
      F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
      ),EE9F1↑);
      EE8INDS(EE9F1↑);
      EE9P1↑.DSLNK := EE9F1;
```

```
            NEW(EE9F2);
            EE8KOPDSH(EE9DS(
            F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE),EE9F2↑);
            EE8INDS(EE9F2↑);
            EE9F1↑.NXTDS := EE9F2;
            EE9F1 := EE9F2 ;
            EE9F1↑.NXTDS := NIL
            END;
      FE0ET+13+DETECTED+EMISSIONS+FINE+ET:
            BEGIN
            NEW(EE9P1,FE0ET+13+DETECTED+EMISSIONS+FINE+ET);
            NEW(EE9F1);
            EE8KOPDSH(EE9DS(
            F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
            ),EE9F1↑);
            EE8INDS(EE9F1↑);
            EE9P1↑.OSLNK := EE9F1;
            NEW(EE9F2);
            EE8KOPDSH(EE9DS(
            F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE),EE9F2↑);
            EE8INDS(EE9F2↑);
            EE9F1↑.NXTDS := EE9F2;
            EE9F1 := EE9F2 ;
            EE9F1↑.NXTDS := NIL
            END
      END;
   EE9INP := EE9P1;
   EE9INP↑.INTYP := FE9INS;
   EE9INP↑.FLNK := NIL;
   EE9INP↑.RLNK := NIL;
   EE9INP↑.CNTR := 0;
   EE9INP↑.ULID := FALSE
   END (* EE8NEW *);
(*-----------------------------------------------------------------*)
PROCEDURE READIS(EE9INP:EE7INPTR);
   BEGIN
   CASE EE9INP↑.INTYP OF
      FE1NCIN:  ;
      FE0F+01+BRIDGE+LOCATIONS+FILE:
            BEGIN
            EE8DDSH(EE9INP);
            DISPOSE(EE9INP,FE0F+01+BRIDGE+LOCATIONS+FILE)
            END;
      FE0F+02+CARTO+UPDATE+FILE:
            BEGIN
            EE8DDSH(EE9INP);
            DISPOSE(EE9INP,FE0F+02+CARTO+UPDATE+FILE)
            END;
      FE0F+03+CITY+LOCATIONS+FILE:
            BEGIN
            EE8DDSH(EE9INP);
            DISPOSE(EE9INP,FE0F+03+CITY+LOCATIONS+FILE)
            END;
      FE0F+04+CMOHS+DATA+TO+UPDATE+FILE:
            BEGIN
            EE8DDSH(EE9INP);
            DISPOSE(EE9INP,FE0F+04+CMOHS+DATA+TO+UPDATE+FILE)
```

```
        END;
FE0F+05+FEASIBLE+ACTIVITY+AREA+FILE:
        BEGIN
        EF8DDSH(EE9INP);
        DISPOSE(EE9INP,FE0F+05+FEASIBLE+ACTIVITY+AREA+FILE)
        END;
FE0F+06+FLIGHT+PROFILE+FILE:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,FE0F+06+FLIGHT+PROFILE+FILE)
        END;
FE0F+07+GROUP+TARGET+LOCS+FILE:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,FE0F+07+GROUP+TARGET+LOCS+FILE)
        END;
FE0F+08+HYPSO+DATA+FILE:
        BEGIN
        EF8DDSH(EE9INP);
        DISPOSE(EE9INP,FE0F+08+HYPSO+DATA+FILE)
        END;
FE0F+09+MARSHALLING+AREAS+FILE:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,FE0F+09+MARSHALLING+AREAS+FILE)
        END;
FE0F+10+NELS+CANDIDATE+TARGETS+FILE:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,FE0F+10+NELS+CANDIDATE+TARGETS+FILE)
        END;
FE0F+12+DETECTED+CANDIDATE+TARGETS+FILE:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,
        FE0F+12+DETECTED+CANDIDATE+TARGETS+FILE)
        END;
FE0F+13+NELS+EMISSION+THREAT+TABLE+FILE:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,
        FE0F+13+NELS+EMISSION+THREAT+TABLE+FILE)
        END;
FE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,
        FE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE)
        END;
FE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,
        FE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE)
        END;
FE0F+16+NELS+EMITTER+FILE:
        BEGIN
```

```
        EF$DDSH(EE9INP);
        DISPOSE(EE9INP,EE0F+16+NELS+EMITTER+FILE)
        END;
EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,
        EE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE)
        END;
EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,
        EE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE)
        END;
EE0F+19+NELS+FREQUENCY+SCAN+FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,EE0F+19+NELS+FREQUENCY+SCAN+FILE)
        END;
EE0F+20+NELS+PRE+BRIEFED+AOI+FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE)
        END;
EE0F+21+NELS+PRE+BRIEFED+SOI+FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,EE0F+21+NELS+PRE+BRIEFED+SOI+FILE)
        END;
EE0F+24+NELS+TDOA+DD+FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,EE0F+24+NELS+TDOA+DD+FILE)
        END;
EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,
        EE0F+25+NELS+TYPED+EMITTER+REPORT+FILE)
        END;
EE0F+26+NELS+WEATHER+CONDITIONS+FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,EE0F+26+NELS+WEATHER+CONDITIONS+FILE)
        END;
EE0F+27+PLATFORM+CONTROL+FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,EE0F+27+PLATFORM+CONTROL+FILE)
        END;
EE0F+28+PRIMARY+ROADS+FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,EE0F+28+PRIMARY+ROADS+FILE)
        END;
EE0F+29+RAILROAD+LOCATIONS+FILE:
```

```
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,FE0F$29$RAILROAD$LOCATIONS$FILE)
        END;
FE0F$30$RIVER$LOCATIONS$FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,FE0F$30$RIVER$LOCATIONS$FILE)
        END;
FE0F$31$SECONDARY$ROADS$FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,FE0F$31$SECONDARY$ROADS$FILE)
        END;
FE0F$32$SENSOR$ORBIT$MODS$FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,FE0F$32$SENSOR$ORBIT$MODS$FILE)
        END;
FE0F$33$SENSOR$PLATFORM$LOCATION$FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,FE0F$33$SENSOR$PLATFORM$LOCATION$FILE
        )
        END;
FE0F$34$SENSOR$STATUS$FILE:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,FE0F$34$SENSOR$STATUS$FILE)
        END;
M$01$ES$NELS$UNIT$AND$ENVIRONMENT$DATA$MSG$IN:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,
        M$01$ES$NELS$UNIT$AND$ENVIRONMENT$DATA$MSG$IN)
        END;
M$02$NELS$CARTO$UPDATES$MSG$IN:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,M$02$NELS$CARTO$UPDATES$MSG$IN)
        END;
M$03$NELS$COMMANDERS$REQUIREMENTS$MSG$IN:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,
        M$03$NELS$COMMANDERS$REQUIREMENTS$MSG$IN)
        END;
M$04$NELS$MODIFIED$TASK$MSG$IN:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,M$04$NELS$MODIFIED$TASK$MSG$IN)
        END;
M$06$NELS$ORBIT$MODIFICATIONS$MSG$IN:
        BEGIN
        EE$DDSH(EE9INP);
        DISPOSE(EE9INP,M$06$NELS$ORBIT$MODIFICATIONS$MSG$IN)
        END;
```

```
M*03*NELS*PRIORITIZED*SENSOR*DIRECTIONS*MSG*IN;
      BEGIN
      EE8DDSH(EE9INP);
      DISPOSE(EE9INP,
      M*08*NELS*PRIORITIZED*SENSOR*DIRECTIONS*MSG*IN)
      END;
M*09*NELS*REQUESTED*SENSOR*DATA*MSG*IN;
      BEGIN
      EE9DDSH(EE9INP);
      DISPOSE(EE9INP,
      M*09*NELS*REQUESTED*SENSOR*DATA*MSG*IN)
      END;
M*15*T*AND*C*STOP*NELS*MSG*IN;
      BEGIN
      EE8DDSH(EE9INP);
      DISPOSE(EE9INP,M*15*T*AND*C*STOP*NELS*MSG*IN)
      END;
M*05*NELS*NON*SURVEILLANCE*TARGET*REPORTS*MSG*OUT;
      BEGIN
      EE8DDSH(EE9INP);
      DISPOSE(EE9INP,
      M*05*NELS*NON*SURVEILLANCE*TARGET*REPORTS*MSG*OUT)
      END;
M*07*NELS*PLATFORM*LOCATION*REPORTS*MSG*OUT;
      BEGIN
      EE8DDSH(EE9INP);
      DISPOSE(EE9INP,
      M*07*NELS*PLATFORM*LOCATION*REPORTS*MSG*OUT)
      END;
M*10*NELS*SENSOR*REQUESTS*MSG*OUT;
      BEGIN
      EE8DDSH(EE9INP);
      DISPOSE(EE9INP,M*10*NELS*SENSOR*REQUESTS*MSG*OUT)
      END;
M*11*NELS*SENSOR*SYSTEM*STATUS*MSG*OUT;
      BEGIN
      EE8DDSH(EE9INP);
      DISPOSE(EE9INP,
      M*11*NELS*SENSOR*SYSTEM*STATUS*MSG*OUT)
      END;
M*12*NELS*SURVEILLANCE*TARGET*REPORTS*MSG*OUT;
      BEGIN
      EE8DDSH(EE9INP);
      DISPOSE(EE9INP,
      M*12*NELS*SURVEILLANCE*TARGET*REPORTS*MSG*OUT)
      END;
M*13*NELS*TASKING*RESPONSES*MSG*OUT;
      BEGIN
      EE8DDSH(EE9INP);
      DISPOSE(EE9INP,M*13*NELS*TASKING*RESPONSES*MSG*OUT)
      END;
M*14*NELS*TRACK*MESSAGE*MSG*OUT;
      BEGIN
      EE8DDSH(EE9INP);
      DISPOSE(EE9INP,M*14*NELS*TRACK*MESSAGE*MSG*OUT)
      END;
EE9ET*10*GROUND*SHADOWING*CANDIDATE*TARGETS*ET;
```

```
        BEGIN
        EF8DDSH(EE9INP);
        DISPOSE(EE9INP,
        EE0ET+10+GROUND+SHADOWING+CANDIDATE+TARGETS+ET)
        END;
    EE0ET+5+NELS+PRE+BRIEFED+SOI+ET:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,EE0ET+5+NELS+PRE+BRIEFED+SOI+ET)
        END;
    EE0ET+8+NELS+PRE+BRIEFED+AOI+ET:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,EE0ET+8+NELS+PRE+BRIEFED+AOI+ET)
        END;
    EE0ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,
        EE0ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET)
        END;
    EE0ET+2+NELS+EMITTER+GROUND+TRUTH+ET:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,EE0ET+2+NELS+EMITTER+GROUND+TRUTH+ET)
        END;
    EE0ET+7+NELS+WEATHER+ET:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,EE0ET+7+NELS+WEATHER+ET)
        END;
    EE0ET+3+NELS+FLIGHT+ET:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,EE0ET+3+NELS+FLIGHT+ET)
        END;
    EE0ET+4+NELS+FREQUENCY+SCAN+ET:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,EE0ET+4+NELS+FREQUENCY+SCAN+ET)
        END;
    EE0ET+1+NELS+EMISSION+THREAT+ET:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,EE0ET+1+NELS+EMISSION+THREAT+ET)
        END;
    EE0ET+6+NELS+VEHICLE+CHARACTERISTICS+ET:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,
        EE0ET+6+NELS+VEHICLE+CHARACTERISTICS+ET)
        END;
    EE0ET+11+DETECTED+EMISSIONS+DD+TDOA+ET:
        BEGIN
        EE8DDSH(EE9INP);
        DISPOSE(EE9INP,
        EE0ET+11+DETECTED+EMISSIONS+DD+TDOA+ET)
```

```
            END;
        FE0ET+12+DETECTED+EMISSIONS+COARSE+ET;
            BEGIN
            EE8DDSH(EE9INP);
            DISPOSE(EE9INP,FE0ET+12+DETECTED+EMISSIONS+COARSE+ET
            )
            END;
        FE0ET+13+DETECTED+EMISSIONS+FINE+ET;
            BEGIN
            EE8DDSH(EE9INP);
            DISPOSE(EE9INP,FE0ET+13+DETECTED+EMISSIONS+FINE+ET)
            END
        END
    END (* FE8DISI *);
(*-------------------------------------------------------------*)
PROCEDURE EE8INCL(EE9DSI:EE7DSLST);
    BEGIN
    CASE EE9DSI OF
        EE1NCLS:  ;
        EC+1+NELS+DETECTABLE+EMISSION+BREAKOUT+EC;
            BEGIN
            D+140+TBD+DATA :=  TRUE
            END;
        EC+2+NELS+SCENARIO+EC;
            BEGIN
            D+140+TBD+DATA :=  TRUE
            END;
        EC+3+NELS+TASKS+EC;
            BEGIN
            D+140+TBD+DATA :=  TRUE
            END;
        EC+4+NELS+THREAT+EC;
            BEGIN
            D+140+TBD+DATA :=  TRUE
            END;
        EC+5+NELS+VEHICLE+CHARACTERISTICS+EC;
            BEGIN
            D+140+TBD+DATA :=  TRUE
            END;
        EC+6+DETECTED+EMISSIONS+INFO+EC;
            BEGIN
            END
        END
    END (*  EE8INCL *);
(*-------------------------------------------------------------*)
FUNCTION EE8KYCMP(EE9INP:EE7INPTR): EE7CMPR;
    BEGIN
    CASE EE9INP^.INTYP OF
        EE1NCIN:  ;
        EECF+01+BRIDGE+LOCATIONS+FILE;
            BEGIN
            EE8KYCMP:=EE6UNO
            END ;
        FE0F+02+CARTO+UPDATE+FILE;
            BEGIN
            IF EE9INP^.FE0F+02+CARTO+UPDATE+FILE.
            D+029+CARTO+SECTION+NUM+DATA <
```

```
      D+029+CARTO+SECTION+NUM+DATA THEN
           EE8KYCMP := EE6LTN
      ELSE IF EE9INPT.EE0F+02+CARTO+UPDATE+FILE.
      D+029+CARTO+SECTION+NUM+DATA >
      D+029+CARTO+SECTION+NUM+DATA THEN
           EE8KYCMP := EE6GTN
      ELSE EE8KYCMP := EE4EQL
      END ;
EE0F+03+CITY+LOCATIONS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
EE0F+04+CMDRS+DATA+TO+UPDATE+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
EE0F+05+FEASIBLE+ACTIVITY+AREA+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
EE0F+06+FLIGHT+PROFILE+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
EE0F+07+GROUP+TARGET+LOCS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
EE0F+08+HYPSO+DATA+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
EE0F+09+MARSHALLING+AREAS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
EE0F+10+NELS+CANDIDATE+TARGETS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
EE0F+12+DETECTED+CANDIDATE+TARGETS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE:
      BEGIN
      IF EE9INPT.EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE.
      D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA <
      D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA THEN
           EE8KYCMP := EE6LTN
      ELSE IF EE9INPT.
      EE0F+13+NELS+EMISSION+THREAT+TABLE+FILE.
      D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA >
      D+079+NELS+EMITTER+TIME+OF+LOCATION+DATA THEN
           EE8KYCMP := EE6GTN
      ELSE EE8KYCMP := EE4EQL
      END ;
```

```
FE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE:
      BEGIN
      IF EE9INP↑.
      EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE.
      D+075+8+NELS+EMITTER+ID+DATA <
      D+075+8+NELS+EMITTER+ID+DATA THEN
           EE8KYCMP := FE6LTN
      ELSE IF EE9INP↑.
      EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE.
      D+075+8+NELS+EMITTER+ID+DATA >
      D+075+8+NELS+EMITTER+ID+DATA THEN
           EE8KYCMP := FE6GTN
      ELSE EE8KYCMP := FE6EQL
      END ;
FE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FE0F+16+NELS+EMITTER+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FE0F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FE0F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FE0F+19+NELS+FREQUENCY+SCAN+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FE0F+20+NELS+PRE+BRIEFED+ADI+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FE0F+21+NELS+PRE+BRIEFED+SCI+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FE0F+22+NELS+TDOA+DD+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FE0F+23+NELS+TYPED+EMITTER+REPORT+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FE0F+24+NELS+WEATHER+CONDITIONS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FE0F+27+PLATFORM+CONTROL+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
```

```
      END ;
FEOF+28+PRIMARY+ROADS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FEOF+29+RAILROAD+LOCATIONS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FEOF+30+RIVER+LOCATIONS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FEOF+31+SECONDARY+ROADS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FEOF+32+SENSOR+ORBIT+MODS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FEOF+33+SENSOR+PLATFORM+LOCATION+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
FEOF+34+SENSOR+STATUS+FILE:
      BEGIN
      EE8KYCMP:=EE6UNO
      END ;
M+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN:
      BEGIN
      IF EE9INPT.
      M+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN.
      EE1TIME < EF1TIME THEN
            EE8KYCMP := EE4LTN
      ELSE IF EE9INPT.
      M+01+ES+NELS+UNIT+ANL+ENVIRONMENT+DATA+MSG+IN.
      EE1TIME > EE1TIME THEN
            EE8KYCMP := EE4GTN
      ELSE EE8KYCMP := EE4EQL
      END ;
M+02+NELS+CARTO+UPDATES+MSG+IN:
      BEGIN
      IF EE9INPT.M+02+NELS+CARTO+UPDATES+MSG+IN.EE1TIME <
      EE1TIME THEN
            EE8KYCMP := EE6LTN
      ELSE IF EE9INPT.M+02+NELS+CARTO+UPDATES+MSG+IN.
      EF1TIME > EF1TIME THEN
            EE8KYCMP := EE4GTN
      ELSE EE8KYCMP := EE6EQL
      END ;
M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN:
      BEGIN
      IF EE9INPT.M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN.
      EE1TIME < EF1TIME THEN
            EE8KYCMP := EE4LTN
      ELSE IF EE9INPT.
```

```
     M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN,EE1TIME >
     EE1TIME THEN
          EE8KYCMP := EE6GTN
     ELSE EE8KYCMP := EE6EQL
     END ;
M+04+NELS+MODIFIED+TASK+MSG+IN:
     BEGIN
     IF EE9INP↑,M+04+NELS+MODIFIED+TASK+MSG+IN,EE1TIME <
     EE1TIME THEN
          EE8KYCMP := EE6LTN
     ELSE IF EE9INP↑,M+04+NELS+MODIFIED+TASK+MSG+IN,
     EF1TIME > EE1TIME THEN
          EE8KYCMP := EE6GTN
     ELSE EE8KYCMP := EE6EQL
     END ;
M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN:
     BEGIN
     IF EE9INP↑,M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN,
     EE1TIME < EE1TIME THEN
          EE8KYCMP := EE6LTN
     ELSE IF EE9INP↑,M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN
     ,EE1TIME > EE1TIME THEN
          EE8KYCMP := EE6GTN
     ELSE EE8KYCMP := EE6EQL
     END ;
M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN:
     BEGIN
     IF EE9INP↑,
     M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
     EE1TIME < EE1TIME THEN
          EE8KYCMP := EE6LTN
     ELSE IF EE9INP↑,
     M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
     EE1TIME > EE1TIME THEN
          EE8KYCMP := EE6GTN
     ELSE EE8KYCMP := EE6EQL
     END ;
M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN:
     BEGIN
     IF EE9INP↑,M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,
     EE1TIME < EE1TIME THEN
          EE8KYCMP := EE6LTN
     ELSE IF EE9INP↑,
     M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,EE1TIME >
     EE1TIME THEN
          EE8KYCMP := EE6GTN
     ELSE EE8KYCMP := EE6EQL
     END ;
M+15+T+AND+C+STOP+NELS+MSG+IN:
     BEGIN
     IF EE9INP↑,M+15+T+AND+C+STOP+NELS+MSG+IN,EE1TIME <
     EE1TIME THEN
          EE8KYCMP := EE6LTN
     ELSE IF EE9INP↑,M+15+T+AND+C+STOP+NELS+MSG+IN,
     EE1TIME > EE1TIME THEN
          EE8KYCMP := EE6GTN
     ELSE EE8KYCMP := EE6EQL
```

```
      END ;
M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT;
      BEGIN
      IF FE9INP↑.
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT.
      EE1TIME < EE1TIME THEN
           EE8KYCMP := FE6LTN
      ELSE IF EE9INP↑.
      M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT.
      EE1TIME > EE1TIME THEN
           EE8KYCMP := EE6GTN
      ELSE EE8KYCMP := EE6EQL
      END ;
M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT;
      BEGIN
      IF FE9INP↑.
      M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT.EE1TIME
       < EE1TIME THEN
           EE8KYCMP := EE6LTN
      ELSE IF EE9INP↑.
      M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT.EE1TIME
       > EE1TIME THEN
           EE8KYCMP := EE6GTN
      ELSE EE8KYCMP := EE6EQL
      END ;
M+10+NELS+SENSOR+REQUESTS+MSG+OUT;
      BEGIN
      IF FE9INP↑.M+10+NELS+SENSOR+REQUESTS+MSG+OUT.EE1TIME
       < EE1TIME THEN
           EE8KYCMP := EE6LTN
      ELSE IF EE9INP↑.M+10+NELS+SENSOR+REQUESTS+MSG+OUT.
      EE1TIME > EE1TIME THEN
           EE8KYCMP := EE6GTN
      ELSE EE8KYCMP := EE6EQL
      END ;
M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT;
      BEGIN
      IF EE9INP↑.M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT.
      EE1TIME < EE1TIME THEN
           EE8KYCMP := EE6LTN
      ELSE IF EE9INP↑.
      M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT.EE1TIME >
      EE1TIME THEN
           EE8KYCMP := EE6GTN
      ELSE EE8KYCMP := EE6EQL
      END ;
M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT;
      BEGIN
      IF EE9INP↑.
      M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT.
      EE1TIME < EE1TIME THEN
           EE8KYCMP := EE6LTN
      ELSE IF EE9INP↑.
      M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT.
      EE1TIME > EE1TIME THEN
           EE8KYCMP := EE6GTN
      ELSE EE8KYCMP := EE6EQL
```

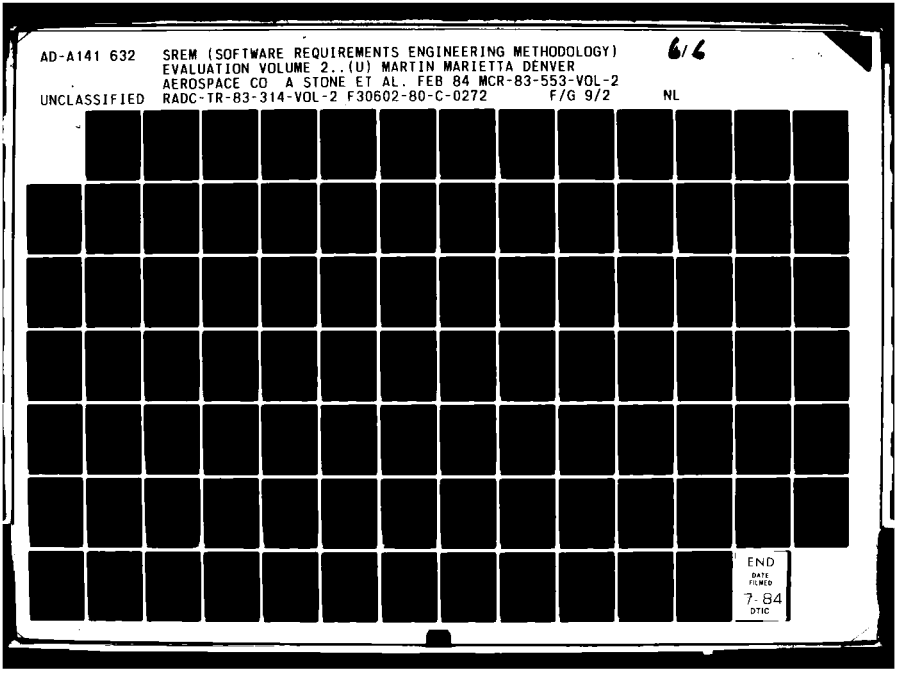
```
        END ;
M$13$NELS$TASKING$RESPONSES$MSG$OUT;
        BEGIN
        IF EE9INP↑.M$13$NELS$TASKING$RESPONSES$MSG$OUT.
        EE1TIME < EE1TIME THEN
             EE8KYCMP := EE6LTN
        ELSE IF EE9INP↑.M$13$NELS$TASKING$RESPONSES$MSG$OUT.
        EE1TIME > EE1TIME THEN
             EE8KYCMP := EE6GTN
        ELSE EE8KYCMP := EE6EQL
        END ;
M$14$NELS$TRACK$MESSAGE$MSG$OUT;
        BEGIN
        IF EE9INP↑.M$14$NELS$TRACK$MESSAGE$MSG$OUT.EE1TIME
         < EE1TIME THEN
             EE8KYCMP := EE6LTN
        ELSE IF EE9INP↑.M$14$NELS$TRACK$MESSAGE$MSG$OUT.
        EE1TIME > EE1TIME THEN
             EE8KYCMP := EE6GTN
        ELSE EE8KYCMP := EE6EQL
        END ;
EE0ET$10$GROUND$SHADOWING$CANDIDATE$TARGETS$ET;
        BEGIN
        EE8KYCMP:=EE6UNO
        END ;
EE0ET$5$NELS$PRE$BRIEFED$SOI$ET;
        BEGIN
        EE8KYCMP:=EE6UNO
        END ;
EE0ET$8$NELS$PRE$BRIEFED$AOI$ET;
        BEGIN
        EE8KYCMP:=EE6UNO
        END ;
EE0ET$9$SIGNAL$NOISE$CANDIDATE$TARGETS$ET;
        BEGIN
        EE8KYCMP:=EE6UNO
        END ;
EE0ET$2$NELS$LMITTER$GROUND$TRUTH$ET;
        BEGIN
        EE8KYCMP:=EE6UNO
        END ;
EE0ET$7$NELS$WEATHER$ET;
        BEGIN
        EE8KYCMP:=EE6UNO
        END ;
EE0ET$3$NELS$FLIGHT$ET;
        BEGIN
        EE8KYCMP:=EE6UNO
        END ;
EE0ET$4$NELS$FREQUENCY$SCAN$ET;
        BEGIN
        EE8KYCMP:=EE6UNO
        END ;
EE0ET$1$NELS$EMISSION$THREAT$ET;
        BEGIN
        EE8KYCMP:=EE6UNO
        END ;
```

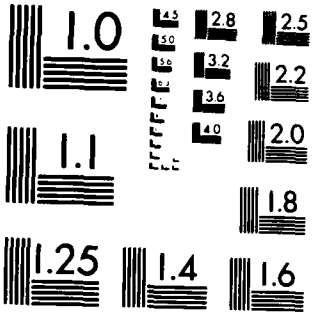
```
            FE0ET+6+NELS+VEHICLE+CHARACTERISTICS+ET;
                  BEGIN
                  EE8KYCMP:=EE6UNO
                  END  ;
            FE0ET+11+DETECTED+EMISSIONS+DD+TDOA+ET;
                  BEGIN
                  EE8KYCMP:=EE6UNO
                  END  ;
            FE0ET+12+DETECTED+EMISSIONS+COARSE+ET;
                  BEGIN
                  EE8KYCMP:=EE6UNO
                  END  ;
            FE0ET+13+DETECTED+EMISSIONS+FINE+ET;
                  BEGIN
                  EE8KYCMP:=EE6UNO
                  END
            END
      END (* FE8KYCMP *);
(*-----------------------------------------------------------------*)
PROCEDURE FE8FORM(EE9INS:EF7INLST);
      BEGIN
      CASE FE9INS OF
            FEINDIN:  ;
            M+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN;
                  BEGIN
                  EE9DS[INTO+NELS+SENSOR].INSTT:= EE6NEW;
                  EE9DS[INTO+NELS+SENSOR].INTYP:=
                  M+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN
                  END;
            M+02+NELS+CARTO+UPDATES+MSG+IN;
                  BEGIN
                  EE9DS[INTO+NELS+SENSOR].INSTT:= EE6NEW;
                  EE9DS[INTO+NELS+SENSOR].INTYP:=
                  M+02+NELS+CARTO+UPDATES+MSG+IN
                  END;
            M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN;
                  BEGIN
                  EE9DS[INTO+NELS+SENSOR].INSTT:= EE6NEW;
                  EE9DS[INTO+NELS+SENSOR].INTYP:=
                  M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN
                  END;
            M+04+NELS+MODIFIED+TASK+MSG+IN;
                  BEGIN
                  EE9DS[INTO+NELS+SENSOR].INSTT:= EE6NEW;
                  EE9DS[INTO+NELS+SENSOR].INTYP:=
                  M+04+NELS+MODIFIED+TASK+MSG+IN
                  END;
            M+05+NELS+ORBIT+MODIFICATIONS+MSG+IN;
                  BEGIN
                  EE9DS[INTO+NELS+SENSOR].INSTT:= EE6NEW;
                  EE9DS[INTO+NELS+SENSOR].INTYP:=
                  M+05+NELS+ORBIT+MODIFICATIONS+MSG+IN
                  END;
            M+06+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN;
                  BEGIN
                  EE9DS[INTO+NELS+SENSOR].INSTT:= EE6NEW;
                  EE9DS[INTO+NELS+SENSOR].INTYP:=
```

```
      M◆0A◆NELS◆PRIORITIZED◆SENSOR◆DIRECTIONS◆MSG◆IN
      END;
M◆09◆NELS◆REQUESTED◆SENSOR◆DATA◆MSG◆IN;
      BEGIN
      EE9DS[INTO◆NELS◆SENSOR],INSTT:= EE6NEW;
      EE9DS[INTO◆NELS◆SENSOR],INTYP:=
      M◆09◆NELS◆REQUESTED◆SENSOR◆DATA◆MSG◆IN
      END;
M◆15◆T◆AND◆C◆STOP◆NELS◆MSG◆IN;
      BEGIN
      EE9DS[INTO◆NELS◆SENSOR],INSTT:= EE6NEW;
      EE9DS[INTO◆NELS◆SENSOR],INTYP:=
      M◆15◆T◆AND◆C◆STOP◆NELS◆MSG◆IN
      END;
M◆05◆NELS◆NON◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT;
      BEGIN
      EE9DS[TO◆TIMING◆AND◆CONTROL◆FROM◆NELS],INSTT:=
       EE6NEW;
      EE9DS[TO◆TIMING◆AND◆CONTROL◆FROM◆NELS],INTYP:=
      M◆05◆NELS◆NON◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT
      END;
M◆07◆NELS◆PLATFORM◆LOCATION◆REPORTS◆MSG◆OUT;
      BEGIN
      EE9DS[TO◆TIMING◆AND◆CONTROL◆FROM◆NELS],INSTT:=
       EE6NEW;
      EE9DS[TO◆TIMING◆AND◆CONTROL◆FROM◆NELS],INTYP:=
      M◆07◆NELS◆PLATFORM◆LOCATION◆REPORTS◆MSG◆OUT
      END;
M◆10◆NELS◆SENSOR◆REQUESTS◆MSG◆OUT;
      BEGIN
      EE9DS[TO◆TIMING◆AND◆CONTROL◆FROM◆NELS],INSTT:=
       EE6NEW;
      EE9DS[TO◆TIMING◆AND◆CONTROL◆FROM◆NELS],INTYP:=
      M◆10◆NELS◆SENSOR◆REQUESTS◆MSG◆OUT
      END;
M◆11◆NELS◆SENSOR◆SYSTEM◆STATUS◆MSG◆OUT;
      BEGIN
      EE9DS[TO◆TIMING◆AND◆CONTROL◆FROM◆NELS],INSTT:=
       EE6NEW;
      EE9DS[TO◆TIMING◆AND◆CONTROL◆FROM◆NELS],INTYP:=
      M◆11◆NELS◆SENSOR◆SYSTEM◆STATUS◆MSG◆OUT
      END;
M◆12◆NELS◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT;
      BEGIN
      EE9DS[TO◆TIMING◆AND◆CONTROL◆FROM◆NELS],INSTT:=
       EE6NEW;
      EE9DS[TO◆TIMING◆AND◆CONTROL◆FROM◆NELS],INTYP:=
      M◆12◆NELS◆SURVEILLANCE◆TARGET◆REPORTS◆MSG◆OUT
      END;
M◆13◆NELS◆TASKING◆RESPONSES◆MSG◆OUT;
      BEGIN
      EE9DS[TO◆TIMING◆AND◆CONTROL◆FROM◆NELS],INSTT:=
       EE6NEW;
      EE9DS[TO◆TIMING◆AND◆CONTROL◆FROM◆NELS],INTYP:=
      M◆13◆NELS◆TASKING◆RESPONSES◆MSG◆OUT
      END;
M◆14◆NELS◆TRACK◆MESSAGE◆MSG◆OUT;
```

```
            BEGIN
            EE9DS(TO+TIMING+AND+CONTROL+FROM+NELS),INSTT;=
             EE6NEW;
            EE9DS(TO+TIMING+AND+CONTROL+FROM+NELS),INTYP;=
            M+14+NELS+TRACK+MESSAGE+MSG+OUT
            END
        END
    END (* PERFORM  *);
(*-------------------------------------------------------------*)
PROCEDURE FE8CPYIN(VAR EE9INP:FE7INPTR; VAR EE9IP2:EE7INPTR);
    BEGIN
    CASE EE9INP^.INTYP OF
        EE1NCIN:  ;
        EE0F+01+BRIDGE+LOCATIONS+FILE:
            BEGIN
            EE9IP2^.EE0F+01+BRIDGE+LOCATIONS+FILE.
            D+026+BRIDGE+LOC+X+DATA:=EE9INP^.
            EE0F+01+BRIDGE+LOCATIONS+FILE.
            D+026+BRIDGE+LOC+Y+DATA;
            EE9IP2^.EE0F+01+BRIDGE+LOCATIONS+FILE.
            D+027+BRIDGE+LOC+Y+DATA:=EE9INP^.
            EE0F+01+BRIDGE+LOCATIONS+FILE.
            D+027+BRIDGE+LOC+Y+DATA
            END;
        EE0F+02+CARTO+UPDATE+FILE:
            BEGIN
            EE9IP2^.EE0F+02+CARTO+UPDATE+FILE.
            D+029+CARTO+SECTION+NUM+DATA:=EE9INP^.
            EE0F+02+CARTO+UPDATE+FILE.
            D+029+CARTO+SECTION+NUM+DATA;
            EE9IP2^.EE0F+02+CARTO+UPDATE+FILE.
            D+030+CARTO+UPDATE+1+DATA:=EE9INP^.
            EE0F+02+CARTO+UPDATE+FILE.D+030+CARTO+UPDATE+1+DATA;
            EE9IP2^.EE0F+02+CARTO+UPDATE+FILE.
            D+031+CARTO+UPDATE+2+DATA:=EE9INP^.
            EE0F+02+CARTO+UPDATE+FILE.D+031+CARTO+UPDATE+2+DATA;
            EE9IP2^.EE0F+02+CARTO+UPDATE+FILE.
            D+032+CARTO+UPDATE+3+DATA:=EE9INP^.
            EE0F+02+CARTO+UPDATE+FILE.D+032+CARTO+UPDATE+3+DATA;
            EE9IP2^.EE0F+02+CARTO+UPDATE+FILE.
            D+033+CARTO+UPDATE+X+DATA:=EE9INP^.
            EE0F+02+CARTO+UPDATE+FILE.D+033+CARTO+UPDATE+X+DATA;
            EE9IP2^.EE0F+02+CARTO+UPDATE+FILE.
            D+034+CARTO+UPDATE+Y+DATA:=EE9INP^.
            EE0F+02+CARTO+UPDATE+FILE.D+034+CARTO+UPDATE+Y+DATA
            END;
        EE0F+03+CITY+LOCATIONS+FILE:
            BEGIN
            EE9IP2^.EE0F+03+CITY+LOCATIONS+FILE.
            D+035+CITY+LOC+X+DATA:=EE9INP^.
            EE0F+03+CITY+LOCATIONS+FILE.D+035+CITY+LOC+X+DATA;
            EE9IP2^.EE0F+03+CITY+LOCATIONS+FILE.
            D+036+CITY+LOC+Y+DATA:=EE9INP^.
            EE0F+03+CITY+LOCATIONS+FILE.D+036+CITY+LOC+Y+DATA
            END;
        EE0F+04+CMDRS+DATA+TO+UPDATE+FILE:
            BEGIN
```

```
        EF9IP2↑,EE0F←04←CMDRS←DATA←TO←UPDATE←FILE,
        D←040←FIRST←CMDRS←REQ←UPDATE←DATA:=EE9INP↑,
        EE0F←04←CMDRS←DATA←TO←UPDATE←FILE,
        D←040←FIRST←CMDRS←REQ←UPDATE←DATA;
        EF9IP2↑,EE0F←04←CMDRS←DATA←TO←UPDATE←FILE,
        D←133←SECOND←CMDRS←REQ←UPDATE←DATA:=EE9INP↑,
        EE0F←04←CMDRS←DATA←TO←UPDATE←FILE,
        D←133←SECOND←CMDRS←REQ←UPDATE←DATA
        END;
EE0F←05←FEASIBLE←ACTIVITY←AREA←FILE:
        BEGIN
        EF9IP2↑,EE0F←05←FEASIBLE←ACTIVITY←AREA←FILE,
        D←143←X←LOC←FEASIBLE←DATA:=EE9INP↑,
        EE0F←05←FEASIBLE←ACTIVITY←AREA←FILE,
        D←143←X←LOC←FEASIBLE←DATA;
        EF9IP2↑,EE0F←05←FEASIBLE←ACTIVITY←AREA←FILE,
        D←145←Y←LOC←FEASIBLE←DATA:=EE9INP↑,
        EE0F←05←FEASIBLE←ACTIVITY←AREA←FILE,
        D←145←Y←LOC←FEASIBLE←DATA
        END;
EE0F←06←FLIGHT←PROFILE←FILE:
        BEGIN
        EF9IP2↑,EE0F←06←FLIGHT←PROFILE←FILE,
        D←041←FLIGHT←WAYPOINT←X←DATA:=EF9INP↑,
        EE0F←06←FLIGHT←PROFILE←FILE,
        D←041←FLIGHT←WAYPOINT←X←DATA;
        EE9IP2↑,EE0F←06←FLIGHT←PROFILE←FILE,
        D←042←FLIGHT←WAYPOINT←Y←DATA:=EE9INP↑,
        EE0F←06←FLIGHT←PROFILE←FILE,
        D←042←FLIGHT←WAYPOINT←Y←DATA;
        EF9IP2↑,EE0F←06←FLIGHT←PROFILE←FILE,
        D←043←FLIGHT←WAYPOINT←Z←DATA:=EE9INP↑,
        EE0F←06←FLIGHT←PROFILE←FILE,
        D←043←FLIGHT←WAYPOINT←Z←DATA
        END;
EE0F←07←GROUP←TARGET←LOCS←FILE:
        BEGIN
        EF9IP2↑,EE0F←07←GROUP←TARGET←LOCS←FILE,
        D←048←GROUND←TARGET←LOC←X←DATA:=EE9INP↑,
        EE0F←07←GROUP←TARGET←LOCS←FILE,
        D←048←GROUND←TARGET←LOC←X←DATA;
        EF9IP2↑,EE0F←07←GROUP←TARGET←LOCS←FILE,
        D←049←GROUND←TARGET←LOC←Y←DATA:=EE9INP↑,
        EE0F←07←GROUP←TARGET←LOCS←FILE,
        D←049←GROUND←TARGET←LOC←Y←DATA
        END;
EE0F←08←HYPSO←DATA←FILE:
        BEGIN
        EF9IP2↑,EE0F←08←HYPSO←DATA←FILE,
        D←051←HYPSO←ELEV←DATA:=EE9INP↑,
        EE0F←08←HYPSO←DATA←FILE,D←051←HYPSO←ELEV←DATA;
        EF9IP2↑,EE0F←08←HYPSO←DATA←FILE,
        D←052←HYPSO←LOC←X←DATA:=EF9INP↑,
        EE0F←08←HYPSO←DATA←FILE,D←052←HYPSO←LOC←X←DATA;
        EF9IP2↑,EE0F←08←HYPSO←DATA←FILE,
        D←053←HYPSO←LOC←Y←DATA:=EE9INP↑,
        EE0F←08←HYPSO←DATA←FILE,D←053←HYPSO←LOC←Y←DATA
```


AD-A141 632
SREM (SOFTWARE REQUIREMENTS ENGINEERING METHODOLOGY)
EVALUATION VOLUME 2..(U) MARTIN MARIETTA DENVER
AEROSPACE CO A STONE ET AL. FEB 84 MCR-83-553-VOL-2
UNCLASSIFIED
RADC-TR-83-314-VOL-2 F30602-80-C-0272
F/G 9/2
NL
6/6
END
DATE FILMED
7-84
DTIC



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

```
    END;
EE0F$09$MARSHALLING$AREAS$FILE;
    BEGIN
    EE9IP2↑,EE0F$09$MARSHALLING$AREAS$FILE,
    D$054$MARSHALLING$X$DATA;=EE9INP↑,
    EE0F$09$MARSHALLING$AREAS$FILE,
    D$054$MARSHALLING$X$DATA;
    EE9IP2↑,EE0F$09$MARSHALLING$AREAS$FILE,
    D$055$MARSHALLING$Y$DATA;=EE9INP↑,
    EE0F$09$MARSHALLING$AREAS$FILE,
    D$055$MARSHALLING$Y$DATA
    END;
EE0F$10$NELS$CANDIDATE$TARGETS$FILE;
    BEGIN
    EE9IP2↑,EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$061$NELS$EMISSION$DURATION$DATA;=EE9INP↑,
    EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$061$NELS$EMISSION$DURATION$DATA;
    EE9IP2↑,EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$062$NELS$EMISSION$SIGNAL$STRENGTH$DATA;=EE9INP↑,
    EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$062$NELS$EMISSION$SIGNAL$STRENGTH$DATA;
    EE9IP2↑,EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$063$NELS$EMISSION$START$TIME$DATA;=EE9INP↑,
    EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$063$NELS$EMISSION$START$TIME$DATA;
    EE9IP2↑,EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$073$NELS$EMITTER$FREQUENCY$BANDWIDTH$DATA
    ;=EE9INP↑,EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$073$NELS$EMITTER$FREQUENCY$BANDWIDTH$DATA;
    EE9IP2↑,EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$075$NELS$EMITTER$ID$DATA;=EE9INP↑,
    EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$075$NELS$EMITTER$ID$DATA;
    EE9IP2↑,EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$091$NELS$EMITTER$TRANSMISSION$FREQUENCY$DATA
    ;=EE9INP↑,EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$091$NELS$EMITTER$TRANSMISSION$FREQUENCY$DATA;
    EE9IP2↑,EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$085$NELS$EMITTER$Y$DATA;=EE9INP↑,
    EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$085$NELS$EMITTER$X$DATA;
    EE9IP2↑,EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$086$NELS$EMITTER$Y$DATA;=EE9INP↑,
    EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$086$NELS$EMITTER$Y$DATA;
    EE9IP2↑,EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$087$NELS$EMITTER$Z$DATA;=EE9INP↑,
    EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$087$NELS$EMITTER$Z$DATA;
    EE9IP2↑,EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$130$SCENARIO$GEN$TD$NUM$DATA;=EE9INP↑,
    EE0F$10$NELS$CANDIDATE$TARGETS$FILE,
    D$130$SCENARIO$GEN$TD$NUM$DATA
    END;
EE0F$12$DETECTED$CANDIDATE$TARGETS$FILE;
    BEGIN
```

```
        EE9IP2↑,EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←147←NELS←EMISSION←DURATION←DATA:=EE9INP↑.
        EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←147←NELS←EMISSION←DURATION←DATA;
        EE9IP2↑,EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←148←NELS←EMISSION←SIGNAL←STRENGTH←DATA:=EE9INP↑.
        EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←148←NELS←EMISSION←SIGNAL←STRENGTH←DATA;
        EE9IP2↑,EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←149←NELS←EMISSION←START←TIME←DATA:=EE9INP↑.
        EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←149←NELS←EMISSION←START←TIME←DATA;
        EE9IP2↑,EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←150←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA
        :=EE9INP↑,EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←150←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA;
        EE9IP2↑,EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←151←NELS←EMITTER←ID←DATA:=EE9INP↑.
        EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←151←NELS←EMITTER←ID←DATA;
        EE9IP2↑,EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←152←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
        :=EE9INP↑,EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←152←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA;
        EE9IP2↑,EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←153←NELS←EMITTER←X←DATA:=EE9INP↑.
        EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←153←NELS←EMITTER←X←DATA;
        EE9IP2↑,EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←154←NELS←EMITTER←Y←DATA:=EE9INP↑.
        EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←154←NELS←EMITTER←Y←DATA;
        EE9IP2↑,EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←155←NELS←EMITTER←Z←DATA:=EE9INP↑.
        EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←155←NELS←EMITTER←Z←DATA;
        EE9IP2↑,EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←156←SCENARIO←GEN←ID←NUM←DATA:=EE9INP↑.
        EE0F←12←DETECTED←CANDIDATE←TARGETS←FILE.
        D←156←SCENARIO←GEN←ID←NUM←DATA
        END;
EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE;
        BEGIN
        EE9IP2↑,EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←079←NELS←EMITTER←TIME←OF←LOCATION←DATA:=EE9INP↑.
        EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←079←NELS←EMITTER←TIME←OF←LOCATION←DATA;
        EE9IP2↑,EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←080←NELS←EMITTER←TRAFFIC←TYPE←DATA:=EE9INP↑.
        EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←080←NELS←EMITTER←TRAFFIC←TYPE←DATA;
        EE9IP2↑,EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←171←NELS←EMITTER←ID←DATA:=EE9INP↑.
        EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←171←NELS←EMITTER←ID←DATA;
        EE9IP2↑,EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←172←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
```

```
        :=EE9INP↑,EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←172←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA;
        EE9IP2↑,EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←173←NELS←EMITTER←X←DATA:=EE9INP↑.
        EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←173←NELS←EMITTER←X←DATA;
        EE9IP2↑,EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←174←NELS←EMITTER←Y←DATA:=EE9INP↑.
        EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←174←NELS←EMITTER←Y←DATA;
        EE9IP2↑,EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←175←NELS←EMITTER←Z←DATA:=EE9INP↑.
        EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←175←NELS←EMITTER←Z←DATA;
        EE9IP2↑,EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←181←NELS←EMITTER←MODULATION←TYPE←DATA:=EE9INP↑.
        EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←181←NELS←EMITTER←MODULATION←TYPE←DATA;
        EE9IP2↑,EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←182←NELS←EMITTER←BANDWIDTH←DATA:=EE9INP↑.
        EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←182←NELS←EMITTER←BANDWIDTH←DATA;
        EE9IP2↑,EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←183←NELS←EMITTER←CEP←DATA:=EE9INP↑.
        EE0F←13←NELS←EMISSION←THREAT←TABLE←FILE.
        D←183←NELS←EMITTER←CEP←DATA
        END;
EE0F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE;
        BEGIN
        EE9IP2↑.
        EE0F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE.
        D←063←B←NELS←EMISSION←START←TIME←DATA:=EE9INP↑.
        EE0F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE.
        D←063←B←NELS←EMISSION←START←TIME←DATA;
        EE9IP2↑.
        EE0F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE.
        D←064←NELS←EMISSION←STOP←TIME←DATA:=EE9INP↑.
        EE0F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE.
        D←064←NELS←EMISSION←STOP←TIME←DATA;
        EE9IP2↑.
        EE0F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE.
        D←073←B←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA
        :=EE9INP↑.
        EE0F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE.
        D←073←B←NELS←EMITTER←FREQUENCY←BANDWIDTH←DATA;
        EE9IP2↑.
        EE0F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE.
        D←075←B←NELS←EMITTER←ID←DATA:=EE9INP↑.
        EE0F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE.
        D←075←B←NELS←EMITTER←ID←DATA;
        EE9IP2↑.
        EE0F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE.
        D←081←B←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA
        :=EE9INP↑.
        EE0F←14←NELS←EMITTER←ACTIVITY←GROUND←TRUTH←FILE.
        D←081←B←NELS←EMITTER←TRANSMISSION←FREQUENCY←DATA;
        EE9IP2↑.
```

```
        EF0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+082+NELS+EMITTER+VEL+X+DATA;=EE9INP↑,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+082+NELS+EMITTER+VEL+X+DATA,
        EE9IP2↑,
        EF0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+083+NELS+EMITTER+VEL+Y+DATA;=EE9INP↑,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+083+NELS+EMITTER+VEL+Y+DATA;
        EE9IP2↑,
        EF0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+084+NELS+EMITTER+VEL+Z+DATA;=EE9INP↑,
        EF0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+084+NELS+EMITTER+VEL+Z+DATA;
        EE9IP2↑,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+085+8+NELS+EMITTER+X+DATA;=EE9INP↑,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+085+8+NELS+EMITTER+X+DATA;
        EE9IP2↑,
        EF0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+086+8+NELS+EMITTER+Y+DATA;=EE9INP↑,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+086+8+NELS+EMITTER+Y+DATA;
        EE9IP2↑,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+087+8+NELS+EMITTER+Z+DATA;=EE9INP↑,
        EF0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+087+8+NELS+EMITTER+Z+DATA;
        EE9IP2↑,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+130+8+SCENARIO+GEN+ID+NUM+DATA;=EE9INP↑,
        EE0F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE,
        D+130+8+SCENARIO+GEN+ID+NUM+DATA
        END;
EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE;
        BEGIN
        EE9IP2↑,EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE,
        D+067+NELS+EMITTER+BANDWIDTH+DATA;=EE9INP↑,
        EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE,
        D+067+NELS+EMITTER+BANDWIDTH+DATA;
        EE9IP2↑,EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE,
        D+077+A+NELS+EMITTER+MODULATION+TYPE+DATA;=EE9INP↑,
        EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE,
        D+077+A+NELS+EMITTER+MODULATION+TYPE+DATA;
        EE9IP2↑,EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE,
        D+078+A+NELS+EMITTER+POWER+LEVEL+DATA;=EE9INP↑,
        EE0F+15+NELS+EMITTER+CHARACTERISTICS+FILE,
        D+078+A+NELS+EMITTER+POWER+LEVEL+DATA
        END;
EE0F+16+NELS+EMITTER+FILE;
        BEGIN
        EE9IP2↑,EE0F+16+NELS+EMITTER+FILE,
        D+063+A+NELS+EMISSION+START+TIME+DATA;=EE9INP↑,
        EE0F+16+NELS+EMITTER+FILE,
        D+063+A+NELS+EMISSION+START+TIME+DATA;
        EE9IP2↑,EE0F+16+NELS+EMITTER+FILE,
```

```
        D↑064↑A↑NELS↑EMISSION↑STOP↑TIME↑DATA:=EE9INP↑,
        EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑064↑A↑NELS↑EMISSION↑STOP↑TIME↑DATA;
        EE9IP2↑,EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑073↑A↑NELS↑EMITTER↑FREQUENCY↑BANDWIDTH↑DATA
        :=EE9INP↑,EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑073↑A↑NELS↑EMITTER↑FREQUENCY↑BANDWIDTH↑DATA;
        EE9IP2↑,EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑075↑A↑NELS↑EMITTER↑ID↑DATA:=EE9INP↑,
        EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑075↑A↑NELS↑EMITTER↑ID↑DATA;
        EE9IP2↑,EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑081↑A↑NELS↑EMITTER↑TRANSMISSION↑FREQUENCY↑DATA
        :=EE9INP↑,EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑081↑A↑NELS↑EMITTER↑TRANSMISSION↑FREQUENCY↑DATA;
        EE9IP2↑,EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑082↑A↑NELS↑EMITTER↑VEL↑X↑DATA:=EE9INP↑,
        EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑082↑A↑NELS↑EMITTER↑VEL↑X↑DATA;
        EE9IP2↑,EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑083↑A↑NELS↑EMITTER↑VEL↑Y↑DATA:=EE9INP↑,
        EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑083↑A↑NELS↑EMITTER↑VEL↑Y↑DATA;
        EE9IP2↑,EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑084↑A↑NELS↑EMITTER↑VEL↑Z↑DATA:=EE9INP↑,
        EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑084↑A↑NELS↑EMITTER↑VEL↑Z↑DATA;
        EE9IP2↑,EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑085↑A↑NELS↑EMITTER↑X↑DATA:=EE9INP↑,
        EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑085↑A↑NELS↑EMITTER↑X↑DATA;
        EE9IP2↑,EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑086↑A↑NELS↑EMITTER↑Y↑DATA:=EE9INP↑,
        EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑086↑A↑NELS↑EMITTER↑Y↑DATA;
        EE9IP2↑,EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑087↑A↑NELS↑EMITTER↑Z↑DATA:=EE9INP↑,
        EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑087↑A↑NELS↑EMITTER↑Z↑DATA;
        EE9IP2↑,EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑130↑A↑SCENARIO↑GEN↑ID↑NUM↑DATA:=EE9INP↑,
        EE0F↑16↑NELS↑EMITTER↑FILE,
        D↑130↑A↑SCENARIO↑GEN↑ID↑NUM↑DATA
        END;
EE0F↑17↑NELS↑ESTIMATED↑EMITTER↑PARAMETERS↑FILE:
        BEGIN
        EE9IP2↑,
        EE0F↑17↑NELS↑ESTIMATED↑EMITTER↑PARAMETERS↑FILE,
        D↑077↑NELS↑EMITTER↑MODULATION↑TYPE↑DATA:=EE9INP↑,
        EE0F↑17↑NELS↑ESTIMATED↑EMITTER↑PARAMETERS↑FILE,
        D↑077↑NELS↑EMITTER↑MODULATION↑TYPE↑DATA;
        EE9IP2↑,
        EE0F↑17↑NELS↑ESTIMATED↑EMITTER↑PARAMETERS↑FILE,
        D↑078↑NELS↑EMITTER↑POWER↑LEVEL↑DATA:=EE9INP↑,
        EE0F↑17↑NELS↑ESTIMATED↑EMITTER↑PARAMETERS↑FILE,
        D↑078↑NELS↑EMITTER↑POWER↑LEVEL↑DATA;
        EE9IP2↑,
```

```
    EEOF+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
    D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
    ;=EE9INP↑,
    EEOF+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
    D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;
    EE9IP2↑,
    EEOF+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
    D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
    ;=EE9INP↑,
    EEOF+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
    D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
    END;
EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE;
    BEGIN
    EE9IP2↑,EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+068+NELS+EMITTER+CEP+DATA;=EE9INP↑,
    EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+068+NELS+EMITTER+CEP+DATA;
    EE9IP2↑,EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+157+NELS+EMISSION+DURATION+DATA;=EE9INP↑,
    EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+157+NELS+EMISSION+DURATION+DATA;
    EE9IP2↑,EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+158+NELS+EMISSION+START+TIME+DATA;=EE9INP↑,
    EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+158+NELS+EMISSION+START+TIME+DATA;
    EE9IP2↑,EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+160+NELS+EMITTER+ID+DATA;=EE9INP↑,
    EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+160+NELS+EMITTER+ID+DATA;
    EE9IP2↑,EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+162+NELS+EMITTER+X+DATA;=EE9INP↑,
    EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+162+NELS+EMITTER+X+DATA;
    EE9IP2↑,EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+163+NELS+EMITTER+Y+DATA;=EE9INP↑,
    EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+163+NELS+EMITTER+Y+DATA;
    EE9IP2↑,EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+164+NELS+EMITTER+Z+DATA;=EE9INP↑,
    EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+164+NELS+EMITTER+Z+DATA;
    EE9IP2↑,EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+165+SCENARIO+GEN+ID+NUM+DATA;=EE9INP↑,
    EEOF+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
    D+165+SCENARIO+GEN+ID+NUM+DATA
    END;
EEOF+19+NELS+FREQUENCY+SCAN+FILE;
    BEGIN
    EE9IP2↑,EEOF+19+NELS+FREQUENCY+SCAN+FILE,
    D+092+NELS+FREQ+SCAN+LOWER+FREQ+DATA;=EE9INP↑,
    EEOF+19+NELS+FREQUENCY+SCAN+FILE,
    D+092+NELS+FREQ+SCAN+LOWER+FREQ+DATA;
    EE9IP2↑,EEOF+19+NELS+FREQUENCY+SCAN+FILE,
    D+093+NELS+FREQ+SCAN+UPPER+FREQ+DATA;=EE9INP↑,
    EEOF+19+NELS+FREQUENCY+SCAN+FILE,
    D+093+NELS+FREQ+SCAN+UPPER+FREQ+DATA
```

```
    END;
EE0F+20+NELS+PRE+BRIEFED+AOI+FILE;
    BEGIN
    EE9IP2↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
    D+095+NELS+PRE+BRIEFED+AOI+FILTERING+CRITERIA+DATA
    :=EE9INP↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
    D+095+NELS+PRE+BRIEFED+AOI+FILTERING+CRITERIA+DATA;
    EE9IP2↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
    D+097+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+X+DATA
    :=EE9INP↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
    D+097+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+X+DATA;
    EE9IP2↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
    D+098+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+Y+DATA
    :=EE9INP↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
    D+098+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+Y+DATA;
    EE9IP2↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
    D+100+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+X+DATA
    :=EE9INP↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
    D+100+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+X+DATA;
    EE9IP2↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
    D+101+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+Y+DATA
    :=EE9INP↑,EE0F+20+NELS+PRE+BRIEFED+AOI+FILE,
    D+101+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+Y+DATA
    END;
EE0F+21+NELS+PRE+BRIEFED+SOI+FILE;
    BEGIN
    EE9IP2↑,EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
    D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA:=EE9INP↑,
    EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
    D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA;
    EE9IP2↑,EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
    D+104+NELS+PRE+BRIEFED+SOI+FREQ+DATA:=EE9INP↑,
    EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
    D+104+NELS+PRE+BRIEFED+SOI+FREQ+DATA;
    EE9IP2↑,EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
    D+105+NELS+PRE+BRIEFED+SOI+MODULATION+TYPE+DATA
    :=EE9INP↑,EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
    D+105+NELS+PRE+BRIEFED+SOI+MODULATION+TYPE+DATA;
    EE9IP2↑,EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
    D+106+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA:=EE9INP↑,
    EE0F+21+NELS+PRE+BRIEFED+SOI+FILE,
    D+106+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA
    END;
EE0F+24+NELS+TDOA+DD+FILE;
    BEGIN
    EE9IP2↑,EE0F+24+NELS+TDOA+DD+FILE,
    D+058+NELS+DD+1+2+DATA:=EE9INP↑,
    EE0F+24+NELS+TDOA+DD+FILE,D+058+NELS+DD+1+2+DATA;
    EE9IP2↑,EE0F+24+NELS+TDOA+DD+FILE,
    D+059+NELS+DD+1+3+DATA:=EE9INP↑,
    EE0F+24+NELS+TDOA+DD+FILE,D+059+NELS+DD+1+3+DATA;
    EE9IP2↑,EE0F+24+NELS+TDOA+DD+FILE,
    D+060+NELS+DD+2+3+DATA:=EE9INP↑,
    EE0F+24+NELS+TDOA+DD+FILE,D+060+NELS+DD+2+3+DATA;
    EE9IP2↑,EE0F+24+NELS+TDOA+DD+FILE,
    D+109+NELS+TDOA+1+2+DATA:=EE9INP↑,
    EE0F+24+NELS+TDOA+DD+FILE,D+109+NELS+TDOA+1+2+DATA;
```

```
EE9IP2↑,EE0F←24←NELS←TDOA←DD←FILE,
D←110←NELS←TDOA←1←3←DATA↓=EE9INP↑,
EE0F←24←NELS←TDOA←DD←FILE,D←110←NELS←TDOA←1←3←DATA↓
EE9IP2↑,EE0F←24←NELS←TDOA←DD←FILE,
D←111←NELS←TDOA←2←3←DATA↓=EE9INP↑,
EE0F←24←NELS←TDOA←DD←FILE,D←111←NELS←TDOA←2←3←DATA
END;
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE↓
BEGIN
EE9IP2↑,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←070←NELS←EMITTER←COV←DATA↓=EE9INP↑,
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←070←NELS←EMITTER←COV←DATA↓
EE9IP2↑,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←074←NELS←EMITTER←FREQUENCY←DATA↓=EE9INP↑,
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←074←NELS←EMITTER←FREQUENCY←DATA↓
EE9IP2↑,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←166←NELS←EMITTER←TOA←DATA↓=EE9INP↑,
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←166←NELS←EMITTER←TOA←DATA↓
EE9IP2↑,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←167←NELS←EMITTER←X←DATA↓=EE9INP↑,
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←167←NELS←EMITTER←X←DATA↓
EE9IP2↑,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←168←NELS←EMITTER←Y←DATA↓=EE9INP↑,
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←168←NELS←EMITTER←Y←DATA↓
EE9IP2↑,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←169←NELS←EMITTER←Z←DATA↓=EE9INP↑,
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←169←NELS←EMITTER←Z←DATA↓
EE9IP2↑,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←170←SCENARIO←GEN←ID←NUM←DATA↓=EE9INP↑,
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←170←SCENARIO←GEN←ID←NUM←DATA↓
EE9IP2↑,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←176←NELS←EMITTER←BANDWIDTH←DATA↓=EE9INP↑,
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←176←NELS←EMITTER←BANDWIDTH←DATA↓
EE9IP2↑,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←177←NELS←EMITTER←CEP←DATA↓=EE9INP↑,
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←177←NELS←EMITTER←CEP←DATA↓
EE9IP2↑,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←178←NELS←EMITTER←MODULATION←TYPE←DATA↓=EE9INP↑,
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←178←NELS←EMITTER←MODULATION←TYPE←DATA↓
EE9IP2↑,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←179←NELS←EMITTER←TIME←OF←LOCATION←DATA↓=EE9INP↑,
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←179←NELS←EMITTER←TIME←OF←LOCATION←DATA↓
EE9IP2↑,EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←180←NELS←EMITTER←TRAFFIC←TYPE←DATA↓=EE9INP↑,
EE0F←25←NELS←TYPED←EMITTER←REPORT←FILE,
D←180←NELS←EMITTER←TRAFFIC←TYPE←DATA
```

```
    END;
EE0F←26←NELS←WEATHER←CONDITIONS←FILE;
    BEGIN
    EE9IP2↑,EE0F←26←NELS←WEATHER←CONDITIONS←FILE,
    D←037←CLOUD←COVER←DATA;=EE9INP↑,
    EE0F←26←NELS←WEATHER←CONDITIONS←FILE,
    D←037←CLOUD←COVER←DATA;
    EE9IP2↑,EE0F←26←NELS←WEATHER←CONDITIONS←FILE,
    D←039←ELEVATION←WEATHER←DATA;=EE9INP↑,
    EE0F←26←NELS←WEATHER←CONDITIONS←FILE,
    D←039←ELEVATION←WEATHER←DATA;
    EE9IP2↑,EE0F←26←NELS←WEATHER←CONDITIONS←FILE,
    D←120←PRECIPITATION←DATA;=EE9INP↑,
    EE0F←26←NELS←WEATHER←CONDITIONS←FILE,
    D←120←PRECIPITATION←DATA;
    EE9IP2↑,EE0F←26←NELS←WEATHER←CONDITIONS←FILE,
    D←144←X←WEATHER←LOC←DATA;=EE9INP↑,
    EE0F←26←NELS←WEATHER←CONDITIONS←FILE,
    D←144←X←WEATHER←LOC←DATA;
    EE9IP2↑,EE0F←26←NELS←WEATHER←CONDITIONS←FILE,
    D←146←Y←WEATHER←LOC←DATA;=EE9INP↑,
    EE0F←26←NELS←WEATHER←CONDITIONS←FILE,
    D←146←Y←WEATHER←LOC←DATA
    END;
EE0F←27←PLATFORM←CONTROL←FILE;
    BEGIN
    EE9IP2↑,EE0F←27←PLATFORM←CONTROL←FILE,
    D←010←ASP←ALTITUDE←DATA;=EE9INP↑,
    EE0F←27←PLATFORM←CONTROL←FILE,
    D←010←ASP←ALTITUDE←DATA;
    EE9IP2↑,EE0F←27←PLATFORM←CONTROL←FILE,
    D←014←ASP←LOC←X←DATA;=EE9INP↑,
    EE0F←27←PLATFORM←CONTROL←FILE,D←014←ASP←LOC←X←DATA;
    EE9IP2↑,EE0F←27←PLATFORM←CONTROL←FILE,
    D←015←ASP←LOC←Y←DATA;=EE9INP↑,
    EE0F←27←PLATFORM←CONTROL←FILE,D←015←ASP←LOC←Y←DATA;
    EE9IP2↑,EE0F←27←PLATFORM←CONTROL←FILE,
    D←016←ASP←LOC←Z←DATA;=EE9INP↑,
    EE0F←27←PLATFORM←CONTROL←FILE,D←016←ASP←LOC←Z←DATA;
    EE9IP2↑,EE0F←27←PLATFORM←CONTROL←FILE,
    D←022←ASP←VEL←X←DATA;=EE9INP↑,
    EE0F←27←PLATFORM←CONTROL←FILE,D←022←ASP←VEL←X←DATA;
    EE9IP2↑,EE0F←27←PLATFORM←CONTROL←FILE,
    D←023←ASP←VEL←Y←DATA;=EE9INP↑,
    EE0F←27←PLATFORM←CONTROL←FILE,D←023←ASP←VEL←Y←DATA;
    EE9IP2↑,EE0F←27←PLATFORM←CONTROL←FILE,
    D←024←ASP←VEL←Z←DATA;=EE9INP↑,
    EE0F←27←PLATFORM←CONTROL←FILE,D←024←ASP←VEL←Z←DATA
    END;
EE0F←28←PRIMARY←ROADS←FILE;
    BEGIN
    EE9IP2↑,EE0F←28←PRIMARY←ROADS←FILE,
    D←121←PRIMARY←ROADS←X←DATA;=EE9INP↑,
    EE0F←28←PRIMARY←ROADS←FILE,
    D←121←PRIMARY←ROADS←X←DATA;
    EE9IP2↑,EE0F←28←PRIMARY←ROADS←FILE,
    D←122←PRIMARY←ROADS←Y←DATA;=EE9INP↑,
```

```
        EE0F+28+PRIMARY+ROADS+FILE,
        D+122+PRIMARY+ROADS+Y+DATA
        END;
EE0F+29+RAILROAD+LOCATIONS+FILE;
        BEGIN
        EE9IP2↑,EE0F+29+RAILROAD+LOCATIONS+FILE,
        D+123+RAILROAD+LOC+X+DATA:=EE9INP↑,
        EE0F+29+RAILROAD+LOCATIONS+FILE,
        D+123+RAILROAD+LOC+X+DATA;
        EE9IP2↑,EE0F+29+RAILROAD+LOCATIONS+FILE,
        D+124+RAILROAD+LOC+Y+DATA:=EE9INP↑,
        EE0F+29+RAILROAD+LOCATIONS+FILE,
        D+124+RAILROAD+LOC+Y+DATA
        END;
EE0F+30+RIVER+LOCATIONS+FILE;
        BEGIN
        EE9IP2↑,EE0F+30+RIVER+LOCATIONS+FILE,
        D+128+RIVER+LOC+X+DATA:=EE9INP↑,
        EE0F+30+RIVER+LOCATIONS+FILE,D+128+RIVER+LOC+X+DATA;
        EE9IP2↑,EE0F+30+RIVER+LOCATIONS+FILE,
        D+129+RIVER+LOC+Y+DATA:=EE9INP↑,
        EE0F+30+RIVER+LOCATIONS+FILE,D+129+RIVER+LOC+Y+DATA
        END;
EE0F+31+SECONDARY+ROADS+FILE;
        BEGIN
        EE9IP2↑,EE0F+31+SECONDARY+ROADS+FILE,
        D+131+SECONDARY+ROAD+X+DATA:=EE9INP↑,
        EE0F+31+SECONDARY+ROADS+FILE,
        D+131+SECONDARY+ROAD+X+DATA;
        EE9IP2↑,EE0F+31+SECONDARY+ROADS+FILE,
        D+132+SECONDARY+ROAD+Y+DATA:=EE9INP↑,
        EE0F+31+SECONDARY+ROADS+FILE,
        D+132+SECONDARY+ROAD+Y+DATA
        END;
EE0F+32+SENSOR+ORBIT+MODS+FILE;
        BEGIN
        EE9IP2↑,EE0F+32+SENSOR+ORBIT+MODS+FILE,
        D+117+PLATFORM+MOD+X+DATA:=EE9INP↑,
        EE0F+32+SENSOR+ORBIT+MODS+FILE,
        D+117+PLATFORM+MOD+X+DATA;
        EE9IP2↑,EE0F+32+SENSOR+ORBIT+MODS+FILE,
        D+118+PLATFORM+MOD+Y+DATA:=EE9INP↑,
        EE0F+32+SENSOR+ORBIT+MODS+FILE,
        D+118+PLATFORM+MOD+Y+DATA;
        EE9IP2↑,EE0F+32+SENSOR+ORBIT+MODS+FILE,
        D+119+PLATFORM+MOD+Z+DATA:=EE9INP↑,
        EE0F+32+SENSOR+ORBIT+MODS+FILE,
        D+119+PLATFORM+MOD+Z+DATA
        END;
EE0F+33+SENSOR+PLATFORM+LOCATION+FILE;
        BEGIN
        EE9IP2↑,EE0F+33+SENSOR+PLATFORM+LOCATION+FILE,
        D+114+PLATFORM+LOCATION+X+DATA:=EE9INP↑,
        EE0F+33+SENSOR+PLATFORM+LOCATION+FILE,
        D+114+PLATFORM+LOCATION+X+DATA;
        EE9IP2↑,EE0F+33+SENSOR+PLATFORM+LOCATION+FILE,
        D+115+PLATFORM+LOCATION+Y+DATA:=EE9INP↑,
```

```
                EE0F+33+SENSOR+PLATFORM+LOCATION+FILE,
                D+115+PLATFORM+LOCATION+Y+DATA;
                EE9IP2↑,EE0F+33+SENSOR+PLATFORM+LOCATION+FILE,
                D+116+PLATFORM+LOCATION+Z+DATA;=EE9INP↑,
                EF0F+33+SENSOR+PLATFORM+LOCATION+FILE,
                D+116+PLATFORM+LOCATION+Z+DATA
                END;
           EE0F+34+SENSOR+STATUS+FILE:
                BEGIN
                EE9IP2↑,EE0F+34+SENSOR+STATUS+FILE,
                D+044+FREQUENCY+SCAN+PARAMETER+DATA;=EE9INP↑,
                EE0F+34+SENSUR+STATUS+FILE,
                D+044+FREQUENCY+SCAN+PARAMETER+DATA;
                EE9IP2↑,EE0F+34+SENSOR+STATUS+FILE,
                D+136+SENSOR+MODE+OF+OPERATION+DATA;=EE9INP↑,
                EE0F+34+SENSOR+STATUS+FILE,
                D+136+SENSOR+MODE+OF+OPERATION+DATA
                END
           END
     END (* EE9CFYIN *);
(*-------------------------------------------------------------*)
PROCEDURE EE8IIFAC(EE9DSI:EE7DSLST);
     BEGIN
     CASE EE9DSI OF
          EE1NODS:  ;
          INTO+NELS+SENSOR:
                BEGIN
                EE8ININ(
                M+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN);
                EE8ININ(  M+02+NELS+CARTO+UPDATES+MSG+IN);
                EE8ININ(  M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN);
                EE8ININ(  M+04+NELS+MODIFIED+TASK+MSG+IN);
                EE8ININ(  M+06+NELS+OPBIT+MODIFICATIONS+MSG+IN);
                EE8ININ(
                M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN);
                EE8ININ(  M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN);
                EE8ININ(  M+15+7+AND+C+STOP+NELS+MSG+IN)
                END;
          TO+TIMING+AND+CONTROL+FROM+NELS:
                BEGIN
                EE8ININ(
                M+05+NELS+NON+SURVEILLANCE+TARGET+REPORTS+MSG+OUT);
                EE8ININ(
                M+07+NELS+PLATFORM+LOCATION+REPORTS+MSG+OUT);
                EE8ININ(  M+10+NELS+SENSOR+REQUESTS+MSG+OUT);
                EE8ININ(  M+11+NELS+SENSOR+SYSTEM+STATUS+MSG+OUT);
                EE8ININ(
                M+12+NELS+SURVEILLANCE+TARGET+REPORTS+MSG+OUT);
                EE8ININ(  M+13+NELS+TASKING+RESPONSES+MSG+OUT);
                EE8ININ(  M+14+NELS+TRACK+MESSAGE+MSG+OUT)
                END
          END
     END (* EE8IIFAC *);
(*-------------------------------------------------------------*)
PROCEDURE EE9LOCAL;
     VAR       EE9I       :EE7LSLST;
     BEGIN
```

```
        FOUND := FALSE;
        RECORD_FOUND := FALSE;
        FOR EE9I:=EE9DS[EE1INTCL].BOC TO EE9DS[EE1INTCL].EOC DO
            IF EE9I > EE1NODS THEN EE8IIFAC(EE9I)
            ELSE FOR EE9I:=EE1NODS TO  ET-1$-UFTECTED-EMISSIONS-FINE-ET
        DO IF EE9DS[EE9I].DSKIND=EE6DATASET THEN IF EE9I<>EE1NODS THEN
        IF EE9DS[EE9I].CLASS=EE1FILCL THEN EE8UPDATE(EE9I) ELSE ELSE
        ELSE IF EE9I>EE1INTCL THEN EE8UPDATE(EE9I);
            END (* EE8LOCFIL *);
(* DATA MANAGEMENT SUBMODULE PROCEDURES/HEADERS   RISE *)
(*----------RISE CODE FOLLOWS----------*)
(*-------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8UDSS            VAX*)
PROCEDURE EE8UDSS(DSI:EE7DSLST);FORWARD;
(*-------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8NEXT            VAX*)
(*PROCEDURE EE8NEXT(DSI:EE7DSLST);  FORWARD;
(*-------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8LSTDIAG         VAX*)
(*PROCEDURE EE8LSTDIAG( A : EE7DSTR );
(*          :TN.TECE4;
(*
(*
(*            AS OF  ,EE1TEC[1].TCL, 111));
(*
(*    A EE8LSTDIAG *);
(*-------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8INDS            VAX*)
PROCEDURE EE8INDS;
(*                                                                   *)
(*       EE8INDS INITIALIZES THE DATA-SET DESCRIPTION BLOCK WHICH IS *)
(*       INPUT TO IT.                                                *)
(* INPUTS:                                                           *)
(*       DS = A DATA-SET DESCRIPTION BLOCK TO BE INITIALIZE.         *)
    BEGIN
    DS.[ ] := [ ];
    DS.[ ] := [ ];
    DS.[ ]:=0;
    DS.[ ] := [ ];
    DS.[ ] := FE8NULL;
    IF DS.CLASS = EE1FILCL THEN DS.INTYP := EE1NDIN
        ELSE EE8TI S *);
(*-------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8LNKOUT          VAX*)
PROCEDURE EE8LNKOUT ( DSI: EE7DSLST );
(* DESCRIPTION:                                                     *)
(*       EE8LNKOUT REMOVES THE CURRENTLY SELECTED INSTANCE (POINTED- *)
(*       TO BY DSI) FROM THE INPUT DATA-SET LINKED LIST.             *)
(* INPUT:                                                           *)
(*       DSI = INDEX INTO THE DATA-SET/CLASS DESCRIPTION ARRAY, EE9DS*)
(*             , TO THE DATA-SET DESCRIPTION BLOCK WHICH POINTS VIA  *)
(*             [ ] TO THE INSTANCE TO BE REMOVED.                    *)
VAR     DP          :EE7IOPTR;
    BEGIN
    DP := EE9DS[DSI].[ ];
    EE9DS[DSI].[ ] := DP^.FLINK;
    IF DP^.FLINK <> [ ] THEN
```

```
        OP↑.FLNK↑.RLNK := OP↑.RLNK
    ELSE EE9DS↑DS1].EOI := OP↑.RLNK;
    IF OP↑.RLNK <> NIL THEN
        OP↑.RLNK↑.FLNK := OP↑.FLNK
    ELSE EE9DS↑DS1].BOI := OP↑.FLNK
    END (* EE8LNKOUT *);
(*----------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8LNKIN          VAX*)
PROCEDURE EE8LNKIN(VAR DS:EE7DSTYP; INP:EE7INPTR);
(* DESCRIPTION:                                                        *)
(*      EE8LNKIN INSERTS A NEW INSTANCE INTO A DATA-SET LINKED LIST.*)
(* INPUTS:                                                             *)
(*      DS - DATA-SET DESCRIPTION BLOCK IN WHICH CIN POINTS TO THE  *)
(*           INSTANCE IN FRONT OF WHICH A NEW INSTANCE IS TO BE PUT.*)
(*      INP - POINTER TO THE INSTANCE TO BE INSERTED.                  *)
VAR     OP      :EE7INPTR;
    BEGIN
    OP := DS.CIN;
    INP↑.FLNK := OP;
    IF OP <> NIL THEN
        BEGIN  (* CURRENT INSTANCE IS NOT AT EOI *)
        INP↑.FLNK := OP↑.RLNK;
        IF OP↑.FLNK <> NIL THEN
            OP↑.FLNK↑.FLNK := INP
        ELSE DS.BOI := INP;
        OP↑.RLNK := INP
        END
    ELSE BEGIN  (* CURRENT INSTANCE IS AT EOI *)
        INP↑.RLNK := DS.EOI;
        IF DS.EOI <> NIL THEN
            BEGIN (* DATA-SET IS NOT EMPTY *)
            DS.EOI↑.FLNK := INP;
            DS.EOI := INP
            END
        ELSE BEGIN  (* DATA-SET IS EMPTY *)
            DS.BOI := INP;
            DS.EOI := INP
            END
        END;
    DS.CIN := INP
    END (* EE8LNKIN *);
(*----------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8KOPYDS          VAX*)
PROCEDURE EE8KOPYDS( VAR DS1: EE7DSTYP; VAR DS2: EE7DSTYP);
(* DESCRIPTION:                                                        *)
(*      EE8KOPYDS CREATES A COPY OF AN INPUT DATA-SET.                 *)
(* INPUTS:                                                             *)
(*      DS1 - DATA-SET DESCRIPTION BLOCK FOR DATA-SET WHICH IS TO BE*)
(*           COPIED.                                                   *)
(*      DS2 - DATA-SET DESCRIPTION BLOCK FOR DATA-SET WHICH IS TO   *)
(*           RECEIVE THE COPY (MUST BE EMPTY).                         *)
CONST   DC1 =
    '4241 DATA-SET BEING COPIED INTO IS NOT EMPTY                      ';
VAR     CI,NI,NC  :EE7INPTR;
    BEGIN
    CI := DS1.BOI;
    IF (DS2.BOI <> NIL) OR (DS2.EOI <> NIL ) THEN
```

```
        BEGIN  (* OUTPUT DATA-SET IS NOT EMPTY *)
        EE8LSTDIAG( DC1 )
        END
    ELSE BEGIN (* OUTPUT DATA-SET IS EMPTY *)
        DS2.CIN := NIL;
        NC := NIL;
        WHILE CI <> NIL DO
            BEGIN
            EE8NEWI(NI , CI^.INTYP);
            NI^.DSTYP := CI^.DSTYP;
            EE8LINKIN(DS2,NI);
            EE8COPYIN(CI,NI);
            IF CI = DS1.CIN THEN NC:= NI;
            DS2.CIN := NIL;
            CI := CI^.FLNK
            END;
        DS2.INCNT:=DS1.INCNT;
        DS2.CIN := NC
        END
    END (* EE8KCPYDS *);
(*-----------------------------------------------------------------------*)
(*VAX ----------EE8KOPDSM                                          VAX*)
PROCEDURE EE8KOPDSM;
(* DESCRIPTION:                                                          *)
(*      EE8KOPDSM COPIES   DATA-SET DESCRIPTION BLOCK CONTENTS FROM     *)
(*      ONE BLOCK TO ANOTHER.                                           *)
(* INPUTS:                                                               *)
(*      DS1 = INPUT OR SOURCE DATA-SET DESCRIPTION BLOCK.               *)
(*      DS2 = OUTPUT OR DESTINATION DATA-SET DESCRIPTION BLOCK.         *)
    BEGIN
    DS2.FOI      := DS1.FOI;
    DS2.EOI      := DS1.EOI;
    DS2.CIN      := DS1.CIN;
    DS2.INSTT    := DS1.INSTT;
    DS2.INTYP    := DS1.INTYP;
    DS2.DSTYP    := DS1.DSTYP;
    DS2.INCNT    := DS1.INCNT;
    DS2.DSKIND   := DS1.DSKIND;
    DS2.CLASS    := DS1.CLASS
    END (* EE8KOPDSM *);
(*-----------------------------------------------------------------------*)
(*VAX ----------                                                    VAX*)
PROCEDURE EE8KPDS( INP: FE7INPTR );
(* DESCRIPTION:                                                          *)
(*      EE8KPD COPIES EITHER DATA-SET DESCRIPTION BLOCK CONTENTS        *)
(*      (FILES OWNED BY ENTITIES) OR DATA-SET INSTANCE FILES OWNED      *)
(*      BY MESSAGES) FOR ALL FILES OWNED BY AN INSTANCE,                *)
(* INPUTS:                                                               *)
(*      INP = POINTER TO THE INSTANCE WHOSE FILES ARE TO BE COPIED.     *)
CONST   DC1 =
    '-181 ATTEMPT TO DESELECT OWNING INSTANCE INSIDE FOR-EACH ON FILE ';
        DC2 =
    '     FATAL TO SIMULATION EXECUTION                               ';
VAR     DSP         :FE7DSPTR;
        CLS         :FE7DSLST;
    BEGIN
    DSP := INP^.DSINK;
```

```
    CLS := EE9DS[INP↑.DSTYP].CLASS;
    WHILE DSP <> NIL DO
        BEGIN (* TRANSFER ONE DATA-SET OUT *)
        EE8UDSS(DSP↑.DSTYP);
        IF  CLS = EE1INTGL THEN
            BEGIN (* MESSAGE INSTANCE *)
            EE8KCPYDS(EE9DS[DSP↑.DSTYP], DSP↑)
            END
        ELSE BEGIN (* FILE OR ENTITY INSTANCE *)
            IF EE9DS[DSP↑.DSTYP].FFLCT <> 0 THEN
                BEGIN (* FILE IS LOCKED BY A FOR-EACH *)
                EE8LSTDIAG(DC1);
                EE8LSTDIAG(DC2);
                HALT
                END;
            EE8KCPDSH(EE9DS[DSP↑.DSTYP], DSP↑);
            EE8INDS( EE9DS[DSP↑.DSTYP] )
            END;
        DSP := DSP↑.NXTDS
        END
    END (* EE8XFO *);
(*-----------------------------------------------------------------------*)
(*VAX ---------------------------------------EE8XFI                  VAX*)
PROCEDURE EE8XFI( INP: EE7INPTR);
(* DESCRIPTION:                                                         *)
(*      EE8XFI COPIES CONTENTS OF DATA-SET DESCRIPTION BLOCKS INTO      *)
(*      THE DATA-SET/CLASS DESCRIPTION ARRAY FOR ALL FILES OWNED BY     *)
(*      AN INSTANCE.                                                    *)
(* INPUTS:                                                              *)
(*      INP = POINTER TO THE INSTANCE WHOSE FILES ARE TO BE COPIED      *)
CONST   DC1 =
    '4201 DATA-SET HEADER BEING LOADED INTO FROM INSTANCE IS NOT EMPTY!;
VAR     DSP         :EE7DSPTR;
    BEGIN
    DSP := INP↑.DSLNK;
    WHILE DSP <> NIL DO
        BEGIN
        IF (EE9DS[DSP↑.DSTYP].BOI <> NIL ) THEN
            BEGIN  (* DATA-SET HEADER IS NOT EMPTY *)
            EE8LSTDIAG(DC1);
            EE8UDSIN(EE9DS[DSP↑.DSTYP])
            END;
        EE8KCPDSH(DSP↑,EE9DS[DSP↑.DSTYP]);
        EE8INDS( DSP↑);
        DSP := DSP↑.NXTDS
        END
    END (* EE8XFI *);
(*-----------------------------------------------------------------------*)
(*VAX ---------------------------------------EE8NXTIN                VAX*)
PROCEDURE EE8NXTIN( DSI: EE7DSLSI );
(* DESCRIPTION:                                                         *)
(*      EE8NXTIN DISPOSES OF THE INSTANCE POINTED AT BY CIN IF IT IS    *)
(*      MARKED AS DELETED (DLTD<>TRUE) AND NO FOR-EACH IS EXAMINING     *)
(*      IT (CNTR=0). EE8NXTIN ADVANCES CIN TO THE NEXT VALID            *)
(*      INSTANCE (NOT DELETED), DISPOSING OF INSTANCES WHEN POSSIBLE    *)
(*      ALONG THE WAY.                                                  *)
(* INPUTS:                                                              *)
```

```
(*         DSI = INDEX INTO THE DATA-SET/CLASS DESCRIPTION ARRAY TO THE*)
(*             DATA-SET DESCRIPTION BLOCK WHOSE NEXT VALID INSTANCE IS*)
(*             TO BE SELECTED.                                        *)
    NDEL        :BOOLEAN;
    NREC        :INTEGER;
    RECNOK      :BOOLEAN;
    CINP        :EE7INPTR;
  BEGIN
  NDEL:= TRUE ;
  RECNOK := TRUE;
  NREC := 0;
  WHILE (NREC < 2) OR (RECNOK) DO
      BEGIN (* EXAMINE CURRENT INSTANCE THEN NEXT INSTANCE *)
      IF EE9DS(DSI).CIN <> NIL THEN
          BEGIN  (* INSTANCE IS PRESENT *)
          IF EE9DS(DSI).CIN^.DLTD THEN
              BEGIN (* INSTANCE IS DELETED *)
              RECNOK:= TRUE;
              IF EE9DS(DSI).CIN^.CNTR = 0 THEN
                  BEGIN (* INSTANCE CAN BE REMOVED *)
                  NDEL:= FALSE;
                  CINP:= EE9DS(DSI).CIN;
                  EE8LNKOUT(DSI);
                  EE8DIS(CINP)
                  END
              END
          ELSE RECNOK := FALSE;
          NREC := NREC + 1;
          IF (NREC < 2) OR (RECNOK) THEN
              BEGIN
              IF NDEL THEN EE9DS(DST).CIN:=EE9DS(DSI).CIN^.FLNK
              ELSE NDEL := TRUE
              END
          END
      ELSE BEGIN (* INSTANCE IS ABSENT *)
          NREC := 2;
          RECNOK := FALSE
          END
      END
  END (* EE8NXTIN *);
(*****************************************************************)
(*                                                    EE8UDSS    VAX*)
PROCEDURE EE8UDSS;
(* DESCRIPTION:                                                   *)
(*         EE8UDSS UPDATES THE CURRENTLY SELECTED INSTANCE OF A DATA-  *)
(*         SET OR CREATES A NEW INSTANCE OF A DATA-SET OR DOES NOTHING *)
(*         DEPENDING ON THE CURRENT INSTANCE STATUS, INSTT, OF A DATA- *)
(*         SET. EE8UDSS MAINTAINS THE PROPER ORDERING OF DATA-SET      *)
(*         INSTANCES FOR BOTH RANKED AND FIFO SEQUENCING.              *)
(* INPUTS:                                                        *)
(*         DSI = INDEX INTO THE DATA-SET/CLASS DESCRIPTION ARRAY TO THE*)
(*             DATA-SET DESCRIPTION BLOCK WHOSE CURRENT OR NEW         *)
(*         INSTANCE IS TO BE UPDATED OR CREATED.                       *)
    ST      :CC1=
      '-021 ' ATA-SET INSTANCE STATUS IS OLD BUT NO INSTANCE PRESENT    ';
    INSTT       :EE7DSTYP;
    I9          :EE7DSPTR;
```

```
        KYC         :FE7CMPR ;
        BL          :BOOLEAN ;
BEGIN
DS := EE9DS[DSI];
IF (DS.INSTT = EE6OLD) THEN
        BEGIN  (* OLD INSTANCE *)
        IF DS.CIN  <> NIL  THEN
                BEGIN  (* INSTANCE IS PRESENT *)
                IF (NOT DS.CIN^.DLTD) THEN
                        BEGIN  (* VALID OLD INSTANCE - STORE IT *)
                        KYC := EE8KYCMP(DS.CIN);
                        IF (KYC = EE6EQL) OR (KYC = EE6UNO) THEN
                                BEGIN (* KEY UNCHANGED OR UNORDERED DATA-SET *)
                                EE8XFD( DS.CIN);
                                EE8XID( DS.CIN )
                                END
                        ELSE BEGIN (* KEY CHANGED *)
                                EE9DS[DST].CIN := EE9DS[DSI].BOI;
                                BL := TRUE;
                                WHILE (EE9DS[DSI].CIN <> NIL) AND (BL) DO
                                        BEGIN (* FIND NEW POSITION *)
                                        IF EE9DS[DSI].CIN^.DLTD THEN
                                                EE8NXTIN(DSI);
                                        IF EE9DS[DST].CIN <> NIL THEN
                                                BEGIN
                                                IF  EE8KYCMP(EE9DS[DSI].CIN) =
                                                        EE6GTN THEN BL:=FALSE
                                                ELSE EE8NXTIN( DSI)
                                                END
                                        END;
                                IF EE9DS[DSI].CIN <> DS.CIN^.FLNK THEN
                                        BEGIN (* RELOCATE INSTANCE TO NEW POSITN*)
                                        EE8NEWI(IP, DS.CIN^.INTYP);
                                        IP^.DSTYP:= DSI;
                                        EE8LNKIN(EE9DS[DSI],IP);
                                        EE8XID( EE9DS[DSI].CIN );
                                        EE8XFD( EE9DS[DSI].CIN );
                                        EE9DS[DSI].CIN := DS.CIN;
                                        DS.CIN^.DLTD := TRUE
                                        END
                                ELSE BEGIN (* NEW POSITION IS SAME AS OLD *)
                                        EE9DS[DSI].CIN := DS.CIN;
                                        EE8XFD( DS.CIN );
                                        EE8XID( DS.CIN )
                                        END
                                END
                        END
                END
        ELSE BEGIN (* OLD INSTANCE NOT PRESENT *)
                EE8LSTDIAG( DC1 )
                END;
        EE9DS[DSI].INSTT := EE6NULL
        END
ELSE IF (DS.INSTT = EE6NEW) THEN
        BEGIN (* NEW INSTANCE - CREATE IT *)
        EE9DS[DSI].CIN := EE9DS[DST].BOI;
        BL := TRUE;
```

```
        WHILE (EE9DS[DSI].CIN <> NIL) AND (BL) DO
            BEGIN (* FIND POSITION *)
            IF EE9DS[DSI].CIN^.OLTO THEN
                EE8NXTIN( DSI );
            IF EE9DS[DSI].CIN <> NIL THEN
                BEGIN
                KYC := EE8KYCMP(EE9DS[DSI].CIN);
                IF KYC = EF6GTN THEN BL := FALSE
                ELSE IF KYC = EE6UNO THEN EE9DS[DSI].CIN:=NIL
                    ELSE EE8NXTIN( DSI )
                END
            END;
        EE8NEWT(IP, EE9DS[DSI].INTYP);
        IP^.DSTYP := DSI;
        EE8LNKIN(EE9DS[DSI],IP);
        EE8XTO( EE9DS[DSI].CIN);
        EE8XFO( EE9DS[DSI].CIN );
        EE9DS[DST].INSTI := EE6NIL
        END
    END (* EE8UDSS *);
(*************************************************************************)
(*VAX ------------------------------------------EE8UPDATE                VAX*)
PROCEDURE EE8UPDATE;  (*(DSI:EE7DSLST)*)
(* DESCRIPTION:                                                          *)
(*      EE8UPDATE UPDATES A DATA-SET OR CLASS BY MAKING APPROPRIATE *)
(*      CALLS TO EE8UDSS. THE CURRENTLY SELECTED DATA-SET OF A CLASS*)
(*      IS UPDATED FOR INPUTS WHICH ARE ENTITY-TYPES OR ENTITY-CLASS*)
(*      -ES.                                                          *)
(* INPUTS:                                                            *)
(*      DSI - INDEX INTO THE DATA-SET/CLASS DESCRIPTION ARRAY TO THE*)
(*            DATA-SET OR CLASS DESCRIPTION BLOCK WHOSE CURRENT OR    *)
(*            NEW INSTANCE IS TO BE UPDATED OR CREATED.               *)
CONST   DC1 =
    'DC1 NO SET TYPE FOR A NEW ENTITY-CLASS INSTANCE                   ';
VAR     CL          :EE7DSTYP;
    BEGIN
    IF EE9DS[DSI].DSKIND  =  EE6CLASS  THEN
        BEGIN  (* UPDATE A CLASS *)
        CL := EE9DS[DSI];
        IF  CL.CDS  <=  CL.EOC THEN
            BEGIN (* UPDATE THE SELECTED TYPE *)
            EE8UDSS( CL.CDS )
            END
        ELSE BEGIN (* NO TYPE SELECTED *)
            IF  CL.NEW THEN
                BEGIN  (* NEW INSTANCE WITH NO TYPE *)
                EE8LSTDIAG( DC1 )
                END
            END
        END
    ELSE BEGIN (* UPDATE A DATA-SET *)
        IF EE9DS[DSI].CLASS > EE1INTCL THEN
            BEGIN (* UPDATE AN ENTITY-TYPE *)
            CL := EE9DS[ EE9DS[DSI].CLASS];
            IF CL.CDS <= CL.EOC THEN
                BEGIN (* UPDATE SELECTED ENTITY *)
                EE8UDSS( CL.CDS )
```

```
                END
            ELSE BEGIN (* NO ENTITY-TYPE SELECTED *)
                IF CL.NEW THEN
                    BEGIN (* NEW INSTANCE WITH NO TYPE *)
                    EERLSTDIAG( DC1 )
                    END
                END
            END
        ELSE BEGIN (* UPDATE A FILE OR INTERFACE *)
            EERUDSS( DSI )
            END
        END
    END (* EF8UPDATE *);
(*-------------------------------------------------------------------*)
FUNCTION EE8ENDS(DSI:EE7DSLST): BOOLEAN;
(* DESCRIPTION:                                                      *)
(*      EE8ENDS RETURNS A VALUE OF TRUE IF A DATA-SET IS AT END (CIN*)
(*      =NIL) OR IF A CLASS IS AT END (CDS>LAST DATA-SET OF CLASS)  *)
(*      OTHERWISE EE8ENDS RETURNS FALSE.                            *)
(* INPUTS:                                                           *)
(*      DSI - INDEX INTO THE DATA-SET/CLASS DESCRIPTION ARRAY, EE9DS*)
(*          , TO THE DATA-SET OR CLASS DESCRIPTION BLOCK WHOSE END-*)
(*          STATUS IS TO BE CHECKED.                                *)
    BEGIN
    IF EE9DS[DSI].DSKIND = EE6CLASS THEN
        BEGIN (* CLASS *)
        EE8ENDS := EE9DS[DSI].CDS > EE9DS[DSI].EOC
        END
    ELSE BEGIN (* DATA-SET *)
        EE8ENDS := EE9DS[DSI].CIN = NIL
        END
    END (* EE8ENDS *);
(*-------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8FIRST      VAX*)
PROCEDURE EE8FIRST(DSI:EE7DSLST);
(* DESCRIPTION:                                                      *)
(*      EE8FIRST SELECTS  (SETS CIN TO) THE FIRST INSTANCE OF A DATA*)
(*      -SET OR SELECTS  (SETS CDS TO) THE FIRST DATA-SET OF A CLASS*)
(*      AND THE FIRST INSTANCE WITHIN THE DATA-SET.                 *)
(* INPUTS:                                                           *)
(*      DSI - INDEX INTO THE DATA-SET/CLASS DESCRIPTION ARRAY, EE9DS*)
(*          , TO THE DATA-SET OR CLASS DESCRIPTION BLOCK WHOSE FRST*)
(*          INSTANCE IS TO BE SELECTED.                             *)
    BEGIN
    IF EE9DS[DSI].DSKIND = EE6CLASS THEN
        BEGIN  (* CLASS *)
        EE9DS[DSI].CDS := EE9DS[DSI].BOC;
        EE8FIRST(EE9DS[DSI].CDS);
        IF EE8ENDS(EE9DS[DSI].CDS) THEN EE8NEXT(DSI)
        END
    ELSE BEGIN  (* DATA-SET *)
        IF EE9DS[DSI].CIN <> NIL THEN EE8NXTIN(DSI);
        EE9DS[DSI].CIN := EE9DS[DSI].BOI;
        IF EE9DS[DSI].CIN <> NIL THEN
            IF EE9DS[DSI].CINT.DLTD THEN EE8NXTIN(DSI);
        IF (NOT EE8ENDS(DSI)) THEN EERXII(EE9DS[DSI].CIN)
        END
```

```
    END (* EE8FIRST *);
(*-------------------------------------------------------------------*)
(*VAX ------------------------------------------EE8NEXT                VAR
PROCEDURE EE8NEXT;
(* DESCRIPTION:                                                      *)
(*        EE8NEXT SELECTS (SETS CIN TO OR CIN AND CDS TO) THE NEXT   *)
(*        INSTANCE OF A DATA-SET OR CLASS. IN A CLASS, SELECTION     *)
(*        SWITCHES FROM THE END OF ONE DATA-SET TO THE BEGINING OF THE*)
(*        NEXT WITH NO INDICATION UNTIL THE END OF CLASS.            *)
(* INPUTS:                                                           *)
(*        DSI = INDEX INTO THE DATA-SET/CLASS DESCRIPTION ARRAY, EE9DS*)
(*             , TO THE DATA-SET OR CLASS DESCRIPTION BLOCK WHOSE NEXT*)
(*             INSTANCE IS TO BE SELECTED.                           *)
CONST   DC1=
    '4061 SELECT NEXT WITH NO SELECT FIRST OR WITH NO FOUND CHECK     ';
VAR     BL          :BOOLEAN;
    BEGIN
    IF EE9DS(DSI).DSKIND = EE6CLASS THEN
        BEGIN  (* CLASS *)
        IF EE8ENDS(DSI) THEN
            BEGIN (* NEXT WITH NO FIRST OR NO FOUND CHECK *)
            EE8LSTDIAG( DC1 )
            END
        ELSE BEGIN (* NOT END OF CLASS *)
            BL := TRUE;
            WHILE (BL) AND (NOT EE8ENDS(DSI)) DO
                BEGIN (* SELECT NEXT INSTANCE *)
                IF (NOT EE8ENDS(EE9DS(DSI).CDS)) THEN
                    EE8NEXT(EE9DS(DSI).CDS);
                IF (NOT EE8ENDS(EE9DS(DSI).CDS)) THEN
                    BL := FALSE
                ELSE BEGIN (* SELECT NEXT ENTITY-TYPE *)
                    EE9DS(DSI).CDS:=SUCC(EE9DS(DSI).CDS);
                    IF EE9DS(DSI).CDS <= EE9DS(DSI).EOC THEN
                        BEGIN
                        EE8FIRST(EE9DS(DSI).CDS);
                        IF (NOT EE8ENDS(EE9DS(DSI).CDS)) THEN
                            BL := FALSE
                        END
                    END
                END
            END
        END
    ELSE BEGIN  (* DATA-SET *)
        IF EE8ENDS(DSI) THEN
            BEGIN  (* NEXT WITH NO FIRST OR NO FOUND CHECK *)
            EE8LSTDIAG( DC1 )
            END
        ELSE BEGIN  (* NOT END OF DATA-SET *)
            EE8NXTIN(DSI);
            IF (NOT EE8ENDS(DSI)) THEN EE8XII(EE9DS(DSI).CIN)
            END
        END
    END (* EE8NEXT *);
(*-------------------------------------------------------------------*)
FUNCTION EE8FOUND(DSI:EE7DSLST): BOOLEAN;
(* DESCRIPTION:                                                      *)
```

```
(*        EE8FOUND RETURNS TRUE IF THE SELECTED DATA-SET OR CLASS      *)
(*        INSTANCE IS FOUND, EE8FOUND TRANSFERS FOUND-INSTANCE-OWNED-  *)
(*        FILES INTO THE DATA-SET/CLASS DESCRIPTION ARRAY, EE8FOUND    *)
(*        RETURNS FALSE IF IT DOES NOT RETURN TRUE.                    *)
(* INPUTS:                                                             *)
(*        DSI = INDEX INTO THE DATA-SET/CLASS DESCRIPTION ARRAY, EE9DS*)
(*              , TO THE DATA-SET OR CLASS DESCRIPTION BLOCK WHOSE     *)
(*              FOUND-STATUS IS TO BE RETURNED.                        *)
VAR     FOUND       :BOOLEAN;
    BEGIN
    FOUND := (NOT EE8ENDS(DSI));
    EE8FOUND := FOUND;
    IF EE9DS[DSI].DSKIND = EE6CLASS THEN
        BEGIN (* CLASS *)
        IF FOUND THEN
            BEGIN
            IF (NOT EE8ENDS(EE9DS[DSI].CDS)) THEN
                BEGIN
                EE9DS[EE9DS[DSI].CDS].INSTT := EE6OLD;
                EE8XFI(EE9DS[EE9DS[DSI].CDS].CIN)
                END
            END
        END
    ELSE BEGIN (* DATA-SET *)
        IF FOUND THEN
            BEGIN
            IF EE9DS[DSI].CLASS > EE1INTCL THEN
                BEGIN (* SELECT ENTITY TYPE IN CLASS *)
                EE9DS[EE9DS[DSI].CLASS].CDS := DSI
                END;
            EE9DS[DSI].INSTT := EE6OLD;
            EE8XFI(EE9DS[DSI].CIN)
            END
        END
    END (* EE8FOUND *);
(*-----------------------------------------------------------------*)
(*VAX -------------------------------------------EE8DINDS          VAX*)
PROCEDURE EE8DINDS( INP : EE7INPTR );
(* DESCRIPTION:                                                     *)
(*        EE8DINDS DESTROYS ALL INSTANCES OF ALL DATA-SETS OWNED BY AN*)
(*        INPUT INSTANCE.                                          *)
(* INPUTS:                                                         *)
(*        INP - POINTER TO THE INSTANCE DYNAMIC RECORD WHOSE OWNED  *)
(*              FILES ARE TO BE EMPTIED.                           *)
VAR     DSP         :EE7DSPTR;
    BEGIN  (* DESTROY ALL DATA-SETS ASSOCIATED WITH ONE INSTANCE *)
    DSP := INP^.DSLNK;
    WHILE DSP <> NIL DO
        BEGIN (* DESTROY ONE DATA-SET *)
        EE8DDSIN( DSP^ );
        DSP := DSP^.NXTDS
        END
    END (* EE8DINDS *);
(*-----------------------------------------------------------------*)
(*VAX -------------------------------------------EE8DDSIN          VAX*)
PROCEDURE EE8DDSIN;
(* DESCRIPTION:                                                     *)
```

```
(*        ERRDDSIN DESTROYS ALL INSTANCES OF AN INPUT DATA-SET.          *)
(* INPUTS:                                                               *)
(*        DS - DATA-SET DESCRIPTION BLOCK FOR THE DATA-SET WHOSE INS-    *)
(*             TANCES ARE TO BE DESTROYED.                               *)
PROCEDURE      ERRDDSIN;
        ... INSTANCE TO BE DESTROYED IS LOCKED BY A FOR-EACH              ');
        CI:=CI1    :ERR7INPTR;
    BEGIN (* DESTROY ALL INSTANCES ASSOCIATED WITH ONE DATA-SET *)
    CI := DS.DCI;
    WHILE CI <> NIL DO
        BEGIN (* DESTROY ONE INSTANCE *)
        IF CI^.CNTR <> 0 THEN
            BEGIN (* INSTANCE IS LOCKED BY A FOR-EACH *)
            ERRLSTDIAG(DC1);
            HALT
            END;
        CI1 := CI^.FLNK;
        ERRDIDOS( CI );
        ERRDISI( CI );
        CI := CI1
        END;
```

```
EEAINDS( DS )
END (* EEBDDSIN *);
```

```
(*-------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8DDSH          VAX*)
PROCEDURE EE8DDSH;
(* DESCRIPTION:                                                      *)
(*       EE8DDSH DESTROYS THE DATA-SET DESCRIPTION BLOCKS OF ALL     *)
(*       DATA-SETS OWNED BY AN INPUT INSTANCE.                       *)
(* INPUTS:                                                           *)
(*       INP = POINTER TO THE INSTANCE DYNAMIC RECORD WHOSE OWNED    *)
(*             FILES ARE TO HAVE THEIR DATA-SET DESCRIPTION BLOCKS   *)
(*             DESTROYED.                                            *)
CONST  DC1 =
    '4301 DATA-SET HEADER TO BE DESTROYED IS NOT EMPTY               ';
VAR       DSP,DSP1  :EE7DSPTR;
      BEGIN (* DESTROY ALL DATA-SET HEADERS LINKED TO AN INSTANCE *)
      DSP := INPT.DSLNK;
      WHILE DSP <> NIL DO
        BEGIN (* DESTROY ONE HEADER *)
          DSP1 := DSP^.NXTDS;
          IF (DSP^.POI <> NIL) OR (DSP^.EOI <> NIL) THEN
              BEGIN (* DATA-SET TO BE DESTROYED IS NON-EMPTY *)
              FERLSTDIAG( DC1 )
              END;
          DISPOSE(DSP);
          DSP := DSP1
        END
      END (* EE8DDSH *);
(*-------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8CREATE        VAX*)
PROCEDURE EE8CREATE(DSI:EE7DSLST);
(* DESCRIPTION:                                                      *)
(*       EE8CREATE CREATES AN INSTANCE (BUT NOT A DYNAMIC RECORD) FOR*)
(*       A FILE OR ENTITY-CLASS BY INITIALIZING STATIC DATA VARIABLES*)
(*       AND BY SETTING FLAGS IN THE DATA-SET OR CLASS DESCRIPTION   *)
(*       BLOCK TO INDICATE NEW RECORD.                               *)
(* INPUTS:                                                           *)
(*       DSI = INDEX INTO THE DATA-SET/CLASS DESCRIPTION ARRAY, EE9DS*
(*             , TO THE DATA-SET OR CLASS DESCRIPTION BLOCK WHOSE NEW *)
(*             INSTANCES IS TO BE CREATED.                           *)
VAR       ID        :EE7DSLST;
      BEGIN
      EE8UPDATA( DSI );
      IF EE9DS[DSI].DSKIND = EE6CLASS THEN
          BEGIN (* CLASS *)
          EE9DS[DSI].NEW := TRUE;
          EF9DS[DSI].CDS := DSI;
          FOR  ID:=EE9DS[DSI].HOC TO EE9DS[DSI].EOC  DO
              FERININ( EE9DS[ID].INTYP );
          FERINCL( DSI)
          END
      ELSE BEGIN (* FILE OR INTERFACE *)
          IF EE9DS[DSI].CLASS = EF1FILCL THEN
              FERININ( EF9DS[DSI].INTYP )
          ELSE EERIFAC(DSI);
          EE9DS[DSI].INCNT := EF9DS[DSI].INCNT + 1;
          EE9DS[DSI].INSIT := EE6NEW
          END
      END (* EE8CREATE *);
```

```
(*------------------------------------------------------------------*)
(*VAX ------------------------------------------EE8DESTROY-------------VAX*)
PROCEDURE EE8DESTROY(DSI:EE7DSLST);
CONST     DC1 =
    '4401 DESTROY ENTITY-CLASS WITH NO ENTITY SELECTED                ';
          DC2 =
    '4402 DESTROY DATA-SET WITH NO INSTANCE SELECTED                  ';
VAR       ID          :EE7DSLST;
     BEGIN
     IF  EE9DS[DSI].DSKIND  =  EE6CLASS  THEN
          BEGIN (* CLASS *)
          IF  EE9DS[DSI].CDS  >  EE9DS[DSI].EOC  THEN
               BEGIN  (* NOTHING SELECTED *)
               IF EE9DS[DSI].NEW  THEN
                    BEGIN (* NEW ENTITY WITH NO TYPE *)
                    EE9DS[DSI].NEW := FALSE;
                    FOR ID:= EE9DS[DSI].BOC  TO  EE9DS[DSI].EOC  DO
                         EE8ININ( EE9DS[ID].INTYP );
                    EE8INCL( DSI )
                    END
               ELSE BEGIN  (* DESTROY WITH NO SELECTED ENTITY *)
                    EE8LSTDIAG( DC1 )
                    END
               END
          ELSE BEGIN
               EE8DESTROY(EE9DS[DSI].CDS);
               FOR ID:=EE9DS[DSI].BOC TO EE9DS[DST].EOC DO
                    EE8ININ( EE9DS[ID].INTYP );
               EE8INCL( DSI )
               END
          END
     ELSE BEGIN (* FILE, INTERFACE, OR ENTITY-TYPE *)
          IF (EE9DS[DSI].INSTT = EE6NULL) OR (EE9DS[DSI].CIN = NIL) THEN
               BEGIN (* DESTROY WITH NO INSTANCE SELECTED *)
               EE8LSTDIAG( DC2 )
               END
          ELSE BEGIN  (* INSTANCE IS PRESENT *)
               IF EE9DS[DSI].CIN^.DLTD THEN
                    BEGIN  (* INSTANCE IS ALREADY DELETED *)
                    EE8LSTDIAG( DC2 )
                    END
               ELSE BEGIN
                    EE9DS[DSI].CIN^.DLTD := TRUE;
          EE9DS[DSI].INCNT := EE9DS[DSI].INCNT - 1;
                    EE9DS[DSI].INSTT := EE6NULL;
                    EE8ININ( EE9DS[DSI].CIN^.INTYP )
                    END
               END
          END
     END (* EE8DESTROY *);
(*------------------------------------------------------------------*)
(*VAX ------------------------------------------EE8RESDS--------------VAX*)
PROCEDURE EE8RESDS( DSI : EE7DSLST ; VAR SV : EE7SVTYP);
CONST     DC1 =
    '4361 ATTEMPT TO RESTORE ENTITY-TYPE WHICH IS NOT IN ENTITY-CLASS ';
          DC2 =
    '4362 ATTEMPT TO RESTORE DATA-SET WHICH WAS NOT SAVED             ';
```

```
        DC3 =
    14363 ATTEMPT TO RESTORE A NON-EXISTENT INSTANCE                    *)
VAR                 :EE7DSTYP;
    BEGIN
    IF EE9DS[DSI].DSKIND = EE6CLASS THEN
        BEGIN (* CLASS *)
        IF (SV.CDS < EE9DS[DSI].BOC) OR (SV.CDS > EE9DS[DSI].EOC)
            THEN BEGIN (* ENTITY-TYPE IS NOT IN THE CLASS *)
                EE4LSTDIAG( DC1 )
                END
        ELSE EE8RESDS( SV.CDS , SV )
        END
    ELSE  (* FILE, INTERFACE, OR ENTITY-TYPE *)
        IF EE9DS[DSI].DSTYP <> SV.CDS THEN
            BEGIN (* SAVED DATA-SET IS NOT THE SAME AS RESTORED *)
            EE4LSTDIAG( DC2 )
            END
        ELSE BEGIN
            IF SV.CIN = NIL THEN
                BEGIN (* SAVED INSTANCE IS NON-EXISTENT *)
                EE6LSTDIAG( DC3 )
                END
            ELSE BEGIN
                EE9DS[DSI].CIN := SV.CIN;
                EE9DS[EE9DS[DSI].CLASS].CDS := SV.CDS;
                IF EE9DS[DSI].FELCT > 0 THEN
                    EE9DS[DSI].FELCT := EE9DS[DSI].FELCT + 1;
                IF SV.CINT.CNTR > 0 THEN  SV.CINT.CNTR :=
                    SV.CINT.CNTR + 1;
                SV.CIN := NIL
                END
            END
        END (* EE8RESDS *);
(*****************************************************************)
PROCEDURE EE8SAVDS                                          VAR
    DSI : EE7DSLST ; VAR SV : EE7SVT);
    DC1 =
    14354 ATTEMPT TO SAVE ENTITY-CLASS WITH NO ENTITY-TYPE SELECTED  *)
    DC2 =
    14364 ATTEMPT TO SAVE ENTITY-TYPE WHICH IS NOT SELECTED          *)
    DC3 =
    14374 ATTEMPT TO SAVE DATA-SET WHICH HAS NO VALID INSTANCE SELECTED*)
VAR     CL          :EE7DSTYP;
        CL          :EE7DSTYP;
    BEGIN
    IF EE9DS[DSI].DSKIND = EE6CLASS  THEN
        BEGIN (* CLASS *)
        CL := EE9DS[DSI];
        IF (CL.CDS > CL.EOC)  THEN
            BEGIN  (* NO ENTITY-TYPE SELECTED ON A SAVE *)
            EE4LSTDIAG( DC1 )
            END
        ELSE EE8SAVDS( CL.CDS, SV )
        END
    ELSE  (* FILE, INTERFACE, OR ENTITY-TYPE *)
        CL := EE9DS[DSI];
```

```
        IF (DS.CLASS > EE1INTCL) AND (EE9DS[DS.CLASS].CDS <> DSI )
            THEN BEGIN (* ENTITY-TYPE NOT SELECTED IN ITS CLASS *)
            EE8LSTDIAG( DC2 )
            END
        ELSE BEGIN
            IF DS.CIN = NIL THEN
                BEGIN (* CURRENT INSTANCE NOT VALID *)
                EE8LSTDIAG( DC3 )
                END
            ELSE BEGIN (* CURRENT INSTANCE PRESENT *)
                IF DS.CIN^.DLTD THEN
                    BEGIN (* CURRENT INSTANCE NOT VALID *)
                    EE8LSTDIAG( DC3 )
                    END
                ELSE BEGIN (* CURRENT INSTANCE IS GOOD *)
                    SV.CDS := DS.DSTYP;
                    SV.CIN := DS.CIN;
                    EE9DS[DSI].FELCT := EE9DS[DSI].FELCT + 1;
                    DS.CIN^.CNTR := DS.CIN^.CNTR + 1
                    END
                END
            END
    END (* EE8SAVDS *);
(*-------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8SETYP          VAX*)
PROCEDURE EE8SETYP( DSI :EE7DSLST );
CONST   DC1 =
    '4441 SET TYPE ON ENTITY-CLASS                          ';
        DC2 =
    '4442 SET TYPE ON FILE OR INTERFACE                     ';
        DC3 =
    '4443 SET TYPE WITH NO NEW OR SELECTED ENTITY           ';
        DC4 =
    '4444 SET TYPE WITH AN INVALID INSTANCE SELECTED        ';
VAR     CL,DS     :EE7DSTYP;
        CLI,ID,DSJ:EE7DSLST;
        IP        :EE7INPTR;
    BEGIN
    IF EE9DS[DSI].DSKIND  =  EE6CLASS THEN
        BEGIN (* SET TYPE ON CLASS *)
        EE8LSTDIAG( DC1 )
        END
    ELSE BEGIN  (* FILE, INTERFACE, OR ENTITY-TYPE *)
        CLI := EE9DS[DST].CLASS;
        IF  CLI <=  EE1INTCL THEN
            BEGIN  (* SET TYPE ON FILE OR INTERFACE *)
            EE8LSTDIAG( DC2 )
            END
        ELSE BEGIN (* ENTITY-TYPE *)
            CL := EE9DS[CLI];
            IF ( CL.CDS > CL.EOC ) THEN
                BEGIN (* NO ENTITY-TYPE SELECTED *)
                IF ( CL.NEW ) THEN
                    BEGIN
                    EE9DS[CLI].NEW := FALSE;
                    EE9DS[CLI].CDS := DSI;
```

```
                    EE9DS[DSI].INSTT := EE6NEW;
                    FOR ID:=CL.BOC TO CL.EOC DO
                        EE8ININ(EE9DS[ID].INTYP)
                    END
                ELSE BEGIN (* NOTHING SELECTED ON SET-TYPE*)
                    EE8LSTDIAG( DC3 )
                    END
                END
            ELSE BEGIN (* AN ENTITY-TYPE IS SELECTED *)
                DSJ := CL.CDS;
                DS  := EE9DS[DSJ];
                IF (DS.INSTT <> EE6DLD) OR (DS.CIN = NIL ) THEN
                    BEGIN  (* SET TYPE ON INVALID INSTANCE *)
                    EE8LSTDIAG( DC4 )
                    END
                ELSE BEGIN
                    IF DS.CIN^.DLTD THEN
                        BEGIN (* SET TYPE ON AN INVALID INSTANCE*)
                        EE8LSTDIAG( DC4)
                        END
                    ELSE BEGIN (* SELECTED INSTANCE IS VALID *)
                        IF DSJ <> DSI THEN
                        BEGIN
                        EE8XIO( DS.CIN );
                        EE8XFO( DS.CIN );
                        FOR ID:=CL.BOC TO CL.EOC DO
                            EE8ININ( EE9DS[ID].INTYP );
                        EE8XII( DS.CIN );
                        EE8XFI( DS.CIN );
                        EE8NEWI( IP, EE9DS[DSI].INTYP );
                        IP^.DSTYP := DSI;
                        EE8XIO( IP );
                        EE8XFO( IP );
                        FOR ID:=CL.BOC TO CL.EOC DO
                            EE8ININ( EE9DS[ID].INTYP );
                        EE8XII( IP );
                        EE8XFI( IP );
                        EE8DISI( IP );
                        DS.CIN^.DLTD := TRUE;
                        EE9DS[CLI].CDS  := DSI;
                        EE9DS[DSI].INCNT := EE9DS[DSI].INCNT + 1;
                        EE9DS[DSJ].INCNT := EE9DS[DSJ].INCNT - 1;
                        EE9DS[DSI].INSTT:= EE6NEW;
                        EE9DS[DSJ].INSTT:= EE6NULL
                        END
                        END
                    END
                END
            END
        END
    END (* EE8SETYP *);
(*-------------------------------------------------------------------*)
(*VAX ----------------------------------------------EE8DICHEK          VAX*)
PROCEDURE EE8DICHEK;
    EE9T      :EE7DSLST;
    BEGIN
    FOR EE9I:=EE9DS[EE1INTCL].BOC TO EE9DS[EE1INTCL].EOC DO
```

```
        BEGIN
        IF EE9DS(EE9I).INSTT = EE6NEW THEN
            BEGIN
            EE9DS(EE9I).INSTT := EE6NULL;
            EE9DS(EE9I).INTYP := EE1NOIN
            END
        END
    END (* EE8OICHEK *);
(*-------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8TOI              VAX*)
PROCEDURE EE8TOI(EE9DSI:EE7DSLST);
CONST   DC1 =
    '4501 ATTEMPT TO TERMINATE A NON-OUTPUT-INTERFACE                ';
        DC2 =
    '4502 A MESSAGE WAS NOT FORMED ON AN OUTPUT-INTERFACE            ';
VAR     DS          :EE7DSTYP;
    BEGIN (* TERMINATE AN OUTPUT INTERFACE *)
    DS:= EE9DS(EE9DSI);
    IF DS.DSKIND <> EE6DATASET THEN
        BEGIN (* NOT AN INTERFACE *)
        EE8LSTDIAG(DC1)
        END
    ELSE BEGIN (* A DATA-SET WAS INPUT *)
        IF DS.CLASS <> EE1INTCL THEN
            BEGIN (* NOT AN INTERFACE *)
            EE8LSTDIAG(DC1)
            END
        ELSE BEGIN (* AN INTERFACE WAS INPUT *)
            IF (DS.INSTT <> EE6NEW) OR (DS.INTYP = EE1NOIN) THEN
                BEGIN (* A FORM WAS NOT DONE ON A MESSAGE *)
                EE8LSTDIAG(DC2)
                END
            ELSE BEGIN
                EE1TIME := 0.0;
                EE8UPDATE(EE9DSI)
                END
            END
        END
    END (* EE8TOI *);
(*-------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8VALSAV           VAX*)
PROCEDURE EE8VALSAV(EE9FN:EE7DSLST; VAR S1:EE7INPTR; VAR S2:EE7INPTR);
    BEGIN
    EE8UPDATE(EE9FN);
    S1 := EE9DS(EE9FN).CIN;
    IF S1 <> NIL THEN
        BEGIN
        S1^.CNTR := S1^.CNTR + 1
        END;
    EE8NEWI(S2, EE9DS(EE9FN).INTYP);
    S2^.DSTYP := EE9FN;
    EE8XIO(S2);
    END (* EE8VALSAV *);
(*-------------------------------------------------------------------*)
(*VAX ---------------------------------------------EE8VALRES           VAX*)
PROCEDURE EE8VALRES(EE9FN:EE7DSLST; VAR S1:EE7INPTR; VAR S2:EE7INPTR);
CONST   DC1 =
```

```
    '45 1 DATA-SET TYPE INCONSISTENT WITH CURRENT INSTANCE POINTER    ';
          DC2 =
    '45 1 CURRENT STATIC DATA POINTER IS NIL                         ';
          DC3 =
    '45 1 DATA-SET TYPE INCONSISTENT WITH STATIC DATA POINTER        ';
    BEGIN
    IF S1 <> NIL THEN
         BEGIN
         IF S1^.CNTR > 0 THEN S1^.CNTR := S1^.CNTR - 1;
         IF S1^.DSTYP <> EE9FN THEN
              BEGIN (* INPUTS ARE INCONSISTENT *)
              EE8LSTDIAG(DC1)
              END
         ELSE EE9DS(EE9FN).CIN := S1;
         END
    ELSE EE9DS(EE9FN).CIN := NIL;
    IF S2 = NIL THEN
         BEGIN (* INPUTS ARE NOT CONSISTENT *)
         EE8LSTDIAG(DC2)
         END
    ELSE BEGIN
         IF S2^.DSTYP <> EE9FN THEN
              BEGIN (* INPUTS ARE NOT CONSISTENT *)
              EE8LSTDIAG(DC3)
              END
         ELSE BEGIN  (* DATA-SET AGREES *)
              EE8XII(S2);
              EE8DISI(S2);
              S2 := NIL
              END
         END
    END (* EE8ALRES *);
(*-----------------------------------------------------------------------*)
FUNCTION EE8VPOC (* (DSI:EE7DSLST):BOOLEAN *);
VAR   C,D          :EE7DSTYP;        BL          :BOOLEAN;
BEGIN
  IF EE9DS(DSI).DSKIND = EE6CLASS THEN
    BEGIN (* OWNER IS AN ENTITY-CLASS *)
    C := EE9DS(DSI);
    IF (C.CIS > 0) OR (C.CDS < C.ROC) THEN EE8VPOC := TRUE
    ELSE IF C.CDS > C.EOC THEN
           IF C.NEW THEN  EE8VPOC:=FALSE ELSE EE8VPOC:=TRUE
    ELSE  BEGIN  (* CLASS HAS AN ENTITY-TYPE SELECTED *)
          BL := EE8VPOC(C.CDS);
          EE8VPOC := BL
          END
    END
  ELSE BEGIN (* OWNER IS A DATA-SET  *)
    D := EE9DS(DSI);
    IF D.INSTT = EE6NULL THEN  EE8VPOC := TRUE
    ELSE IF D.INSTT = EE6NEW THEN EE8VPOC := FALSE
    ELSE BEGIN (* INSTANT SELECTED *)
      IF D.CIN = NIL THEN EE8VPOC := TRUE
      ELSE IF D.CIN^.DLTD  THEN EE8VPOC := TRUE
           ELSE IF  D.CLASS > EE1INTCL THEN
                  IF EE9DS(D.CLASS).CDS = DSI THEN EE8VPOC := FALSE
                  ELSE EE8VPOC := TRUE
```

```
                ELSE EE$VPOC := FALSE
        END
    END
END (* FE$VPOC *);
(*----------END OF RISF CODE BLOCK----------*)
(* VALIDATION MODULE PROCEDURES  PDSF *)
(* DATA RECORDING MODULE PROCEDURES/HEADERS  RISF *)
(*----------RISF CODE FOLLOWS----------*)
(*VAX ----------EEDEBUG VAX*)
PROCEDURE EEDEBUG;
BEGIN
EEDEBUG:=TRUE;
END;
(*VAX ----------EEVALID VAX*)
PROCEDURE EEVALID;
BEGIN
END;
(*----------END OF RISF CODE BLOCK----------*)
(* EVENT MANAGEMENT SUBMODULE PROCEDURES/HEADERS     RISF  *)
(*----------RISF CODE FOLLOWS----------*)
(*VAX ----------EESETEV VAX*)
PROCEDURE EESETEV(EEVTNAM:EESTR; EEVENTN:INTEGER; EETIME:REAL);
VAR
  EVT,NEWE,PREVT: EEVTPTR;
BEGIN
  IF EETIME < EECLOCK THEN
    BEGIN
    WRITELN(OUTPUT,'0ATTEMPTED BACKUP IN TIME, EVENT IGNORED,',
    ' TIME = ',EECLOCK);
    WRITELN(OUTPUT,' EVENT NAME IS ',EEVTNAM, ' EVENT TIME = ',EETIME)
    END
  ELSE
    BEGIN
      NEW(NEWE);
      NEWE^.EEVENT := EEVENTN;
      NEWE^.EETIME := EETIME;
      NEWE^.EENEXTE:=NIL;
      IF EEFEVT=NIL THEN BEGIN EEFEVT:=NEWE;EELEVT:=NEWE END
      ELSE IF NEWE^.EETIME<EEFEVT^.EETIME THEN
        BEGIN NEWE^.EENEXTE:=EEFEVT;EEFEVT:=NEWE END
        ELSE IF NEWE^.EETIME >= EELEVT^.EETIME THEN
          BEGIN EELEVT^.EENEXTE:=NEWE;EELEVT:=NEWE END
          ELSE
            BEGIN
              PREVT:=EEFEVT;EVT:=EEFEVT^.EENEXTE;
              WHILE NEWE^.EETIME >= EVT^.EETIME DO
                BEGIN PREVT:=EVT;EVT:=EVT^.EENEXTE END;
              PREVT^.EENEXTE:=NEWE;NEWE^.EENEXTE:=EVT
            END
    END
END;
(*VAX ----------EECAUSE VAX*)
PROCEDURE EECAUSE(EEVTNAME: EESTR; EETIME: REAL);
VAR
  I: INTEGER;
  FOUND: BOOLEAN;
BEGIN
```

```
  FOUND:=FALSE; I:=0;
  REPEAT  IF FEVTNAME = EEVLIST[I],EEVTNAM,4ASTR THEN
    BEGIN
    FOUND := TRUE;
    EESFTEVT(EEVTNAME,EEVLIST[I],EEVTNUM,EETIME)
    END
    ELSE  I:=I+1
  UNTIL (I>FEVMAX) OR FOUND;
  IF NOT FOUND THEN
    BEGIN
    WRITELN(OUTPUT,'ATTEMPTED CAUSE OF AN UNKNOWN EVENT,',
      ' EVENT IGNORED, TIME = ',EECLOCK);
    WRITELN(OUTPUT,' EVENT NAME IS ',FEVTNAME)
    END
END;
(*-------------------------------------------------------------------*)
(*VAX ------------------------------------------EEFSTMES                VAX*)
PROCEDURE EEFSTMES(MN:EE7TMLST; TM:REAL);
BEGIN     SELTYPE:=TM;
  CAUSE(EEGTNTYANTM[MN],4ASTR,TM);
  EEAFORE(MN);
  EEB ( EEVTNTYNTYREC[MN])
      (*EEFSTMES                                                    *);
(*-------------------------------------------------------------------*)
(*VAX ------------------------------------------EEFSTMES                VAX*)
PROCE    EEFSTMES(INTN:EE7DSLST; VAR FD:BOOLEAN);
BEGIN     EFBFIRST(INTN);      FD:=EFBFOUND(INTN)  END (* EEFSTMES    *);
(*-------------------------------------------------------------------*)
(*VAX ------------------------------------------EENXTMES                VAX*)
PROCEDURE EENXTMES(INTN:EE7DSLST; DF:BOOLEAN; VAR FD:BOOLEAN);
BEGIN     IF DF THEN FEREQSTROY(INTN);
  EEB EXT(INTN);     FD:=EFBFOUND(INTN)  END (* EENXTMES              *);
(*-------------------------------------------------------------------*)
(*VAX ------------------------------------------EFBLDREC                VAX*)
PROCEDURE EFBLDREC(DSN:FE7DSLST);
BEGIN  FEQCREATE(DSN)    END (* EFBLDREC                              *);
(*-------------------------------------------------------------------*)
(*VAX ------------------------------------------EFSAVREC                VAX*)
PROCEDURE EFSAVREC(DSN:FE7DSLST);
BEGIN  FEREQUPDATE(DSN)   END (* FESAVREC                            *);
(*-------------------------------------------------------------------*)
(*VAX ------------------------------------------EFDSTREC                VAX*)
PROCEDURE EFDSTREC(DSN:FE7DSLST);
BEGIN  FEREQSTROY(DSN)  END (* FEDSTREC                             *);
(*-------------------------------------------------------------------*)
(*VAX ------------------------------------------EEFSTREC                VAX*)
PROCEDURE EEFSTREC(DSN:FE7DSLST; VAR FD:BOOLEAN);
BEGIN  FEMFIRST(DSN);  FD:=EFBFOUND(DSN)  END (* FEFSTREC             *);
(*-------------------------------------------------------------------*)
(*VAX ------------------------------------------EENXTREC                VAX*)
PROCEDURE EENXTREC(DSN:FE7DSLST; VAR FD:BOOLEAN);
BEGIN  FEMNEXT(DSN);  FD:=EFBFOUND(DSN)  END (* EENXTREC              *);
(*----------END OF RISE CODE BLOCK--------------------------------*)
(* SETS PROCEDURES FOR HEADERS   SDF          *)
PROCEDURE SDEVUS (* EXOGENOUS STIMULI *)
  BEGIN
    (* ALL EXOGENOUS STIMULI ARE USED IN THIS SIMULATION *)
```

```
  END (* SSFXOG *);

PROCEDURE SSSTARTUP (* STARTUP OF SIMULATION *)

  (* POST THE FIRST MESSAGE TO THE SUBSYSTEM AT *)
  (* THE DESIRED SIMULATION START TIME *)

  ;BEGIN
    OPEN(MSGS,'NELSMSGS.DAT',OLD)
    ;RESET(MSGS)
    ;OPEN(STAT,'NELSSTAT.DAT',OLD)
    ;RESET(STAT)
    ;READ(MSGS,SS+MSG+SOURCE
              ,SS+MSG+NAME
              ,SS+MSG+DEST)

      ;D+005+ASET+MSG+SOURCE+DATA:=SS+MSG+SOURCE
      ;D+004+ASET+MSG+NAME+DATA:=SS+MSG+NAME
      ;D+002+ASET+MSG+DEST+DATA:=SS+MSG+DEST

    ;EEPLDREC(F+16+NELS+EMITTER+FILE)
    ;READLN(MSGS,D+063+A+NELS+EMISSION+START+TIME+DATA, Re
         D+064+A+NELS+EMISSION+STOP+TIME+DATA,
         D+082+A+NELS+EMITTER+VEL+X+DATA,
         D+083+A+NELS+EMITTER+VEL+Y+DATA,
         D+084+A+NELS+EMITTER+VEL+Z+DATA,
         D+073+A+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA,
         D+075+A+NELS+EMITTER+ID+DATA,
         D+085+A+NELS+EMITTER+X+DATA,
         D+086+A+NELS+EMITTER+Y+DATA,
         D+087+A+NELS+EMITTER+Z+DATA,
         D+081+A+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA,
         D+130+A+SCENARIO+GEN+ID+NUM+DATA)
    ;EESAVREC(F+16+NELS+EMITTER+FILE)
    ;OPEN(POST,'POSTSET.DAT',OLD)
    ;RESET(POST)
    ;READLN(POST,SSPOSTINGTIME)
    ;EEPSTMES(P+01+ES+NELS+UNIT+AND+ENVIRONMENT+DATA+MSG+IN,SSPOSTINGTIME)
  END (* SSSTARTUP *);

PROCEDURE SS+1+REST+OF+ASE (* DUMMY MODEL OF ASET SYSTEM *)

  ;BEGIN

    (* SINCE THIS SIMULATION MODEL POSTS MESSAGES FROM A PRESET *)
    (* FILE, IT DOES NOT NEED TO EXAMINE CONTENTS OF OUTPUT MSGS *)

    (* WHILE HEADERS AND FORM MESSAGES UNTIL END OF MSGS FILE *)

    WHILE NOT EOF(MSGS) DO BEGIN
    ;READ(MSGS,SS+MSG+SOURCE
              ,SS+MSG+NAME
              ,SS+MSG+DEST)
    ;READLN(POST,SSPOSTINGTIME)
        ;D+005+ASET+MSG+SOURCE+DATA:=SS+MSG+SOURCE
        ;D+004+ASET+MSG+NAME+DATA:=SS+MSG+NAME
        ;D+002+ASET+MSG+DEST+DATA:=SS+MSG+DEST
```

```
CASE [1:...] OF SET(MSG+NAME+DATA,0+
  MN+02+NELS+CARTO+UPDATES;BEGIN
    EEBLDREC(F+02+CARTO+UPDATE+FILE)
    ;READLN(MSGS,D+029+CARTO+SECTION+NUM+DATA,
            S+030+CARTO+UPDATE+1+DATA,
            D+031+CARTO+UPDATE+2+DATA,
            D+032+CARTO+UPDATE+3+DATA,
            D+033+CARTO+UPDATE+X+DATA,
            D+034+CARTO+UPDATE+Y+DATA)
    ;FESAVREC(F+02+CARTO+UPDATE+FILE)
    ;EEPSTMES(M+02+NELS+CARTO+UPDATES+MSG+IN,SSPOSTINGTIME)
  END
  ;MN+03+NELS+COMMANDERS+REQUIREMENTS ; BEGIN
    EEBLDREC(F+04+CMDRS+DATA+TO+UPDATE+FILE)
    ;READLN(MSGS,D+040+FIRST+CMDRS+REQ+UPDATE+DATA,
            D+133+SECOND+CMDRS+REQ+UPDATE+DATA)
    ;FESAVREC(F+04+CMDRS+DATA+TO+UPDATE+FILE)
    ;EEPSTMES(M+03+NELS+COMMANDERS+REQUIREMENTS+MSG+IN,SSPOSTINGTIME)
  END
  ;MN+04+NELS+MODIFIED+TASK ; BEGIN
    READLN(MSGS,D+05+NEEDED+FEASIBLE+DATA,
           D+139+TASK+QUE+ID+DATA)
    ;EEBLDREC(F+05+FEASIBLE+ACTIVITY+AREA+FILE)
    ;READLN(MSGS,D+143+X+LOC+FEASIBLE+DATA,
            D+145+Y+LOC+FEASIBLE+DATA)
    ;FESAVREC(F+05+FEASIBLE+ACTIVITY+AREA+FILE)
    ;EEPSTMES(M+04+NELS+MODIFIED+TASK+MSG+IN,SSPOSTINGTIME)
  END
  ;MN+04+NELS+ORBIT+MODIFICATIONS ; BEGIN
    READLN(MSGS,D+135+SENSOR+ID+DATA)
    ;EEBLDREC(F+32+SENSOR+ORBIT+MODS+FILE)
    ;READLN(MSGS,D+117+PLATFORM+MOD+X+DATA,
            D+118+PLATFORM+MOD+Y+DATA,
            D+119+PLATFORM+MOD+Z+DATA)
    ;FESAVREC(F+32+SENSOR+ORBIT+MODS+FILE)
    ;EEPSTMES(M+06+NELS+ORBIT+MODIFICATIONS+MSG+IN,SSPOSTINGTIME)
  END
  ;MN+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS ; BEGIN
    READLN(MSGS,D+056+NEEDED+FEASIBLE+DATA,
           D+135+SENSOR+ID+DATA,
           D+137+SENSOR+PRIORITY+DATA)
    ;EEBLDREC(F+05+FEASIBLE+ACTIVITY+AREA+FILE)
    ;READLN(MSGS,D+143+X+LOC+FEASIBLE+DATA,
            D+145+Y+LOC+FEASIBLE+DATA)
    ;FESAVREC(F+05+FEASIBLE+ACTIVITY+AREA+FILE)
    ;EEPSTMES(M+08+NELS+PRIORITIZED+SENSOR+DIRECTIONS+MSG+IN,
              SSPOSTINGTIME)
  END
  ;MN+09+NELS+REQUESTED+SENSOR+DATA ; BEGIN
    READLN(MSGS,D+045+GPS+ID+DATA)
    ;EEBLDREC(F+07+GROUP+TARGET+LOCS+FILE)
    ;READLN(MSGS,D+048+GROUND+TARGET+LOC+X+DATA,
            D+079+GROUND+TARGET+LOC+Y+DATA)
    ;FESAVREC(F+07+GROUP+TARGET+LOCS+FILE)
    ;EEPSTMES(M+09+NELS+REQUESTED+SENSOR+DATA+MSG+IN,SSPOSTINGTIME)
  END
  ;MN+15+TASK+COMP+STOP+NELS ; BEGIN
```

```
          EEPSTMES('*15*T*AND*C*STOP*NELS*MSG*IN,SSPOSTINGTIME)
        END
      END; (* CASE *)
    END
    ;WRITELN('End of message file - End of simulation.')
    ;CLOSE(MSGS)
    ;CLOSE(STAT)
  END (* SS*1*REST*CF*ASE *);
(* SIMULATION INITIALIZATION PROCEDURES   RISF  *)
(*----------RISF CODE FOLLOWS----------------------------------------*)
(*VAX ---------------------------------------EEINITIAL                VAX*)
PROCEDURE EEINITIAL;
VAR
  I: INTEGER;
  CH: CHAR;
  EEZZID, EEZZTIME, EEZZDATE: AASTRING;
  EEOFNULL, EEOFVAL: BOOLEAN;
BEGIN
OPEN(EEDF,'EEDF.DAT',OLD);
OPEN(EESUIF,'EESUIF.DAT',OLD);
WRITELN(' SIMULATION OUTPUT ');
WRITELN;
FOR I:=1 TO EEMAXDEP DO
EEDEPLST[I]:=FALSE;
  RESET(EEDF);
  EEOFNULL := EOF(EEDF);
  WHILE NOT EOF(EEDF) DO
  BEGIN
IF EEDF↑.EERT = EEVNTREC THEN BEGIN
I:=EEDF↑.EEVTNUM;
EEVLIST[I]:=EEDF↑;
END
ELSE
  IF EEDF↑.EERT = EELISTREC THEN BEGIN
    IF EEDF↑.EENAMECODE = EELSIMID THEN
      EEZZID := EEDF↑.EENAMESTR
    ELSE
    IF EEDF↑.EENAMECODE = EELSIMDATE THEN
      EEZZDATE := EEDF↑.EENAMESTR
    ELSE
    IF EEDF↑.EENAMECODE = EELSIMTIME THEN
      EEZZTIME := EEDF↑.EENAMESTR
    END;
GET(EEDF)
  END;
  EELEVT:=NIL;EEFEVT:=NIL; EECEVT:=0;
  EETERM := FALSE;
  EEBSETUP;
  EECLOCK := EESSINITTIME;
  CLOCK*TIME := EESSINITTIME;
  EEDEFSTART := FALSE;
  EEDEFEND := FALSE;
  RESET(EESUIF);
  EESUIFEOR := EOF(EESUIF);
  WHILE NOT(EOF(EESUIF)) DO
    BEGIN READ(EESUIF,EERECTYPE);
      IF (EERECTYPE=1) THEN
```

```
      BEGIN READLN(EESUIF,EESTARTTIME); EEDEFSTART:=TRUE END
    ELSE
    IF (EERECTYPE=2) THEN
      BEGIN READLN(EESUIF,EESTOPTIME); EEDEFEND:=TRUE END
    ELSE
    IF (EERECTYPE = 3) THEN
      BEGIN
      EERUNID.AALEN := 0;
      FOR I := 1 TO AASTRLEN DO EERUNID.AASTR[I] := ' ';
      READ(EESUIF,CH);
      WHILE (CH = ' ') AND NOT(EOLN(EESUIF)) DO READ(EESUIF,CH);
      I := 1;
      EERUNID.AASTR[1] := CH;
      WHILE (NOT EOLN(EESUIF)) AND (NOT EOF(EESUIF)) DO
        BEGIN
        READ(EESUIF,CH);
        I := I + 1;
        EERUNID.AASTR[I] := CH
        END;
      IF NOT EOF(EESUIF) THEN READLN(EESUIF);
      EERUNID.AALEN := I
      END
    ELSE
      BEGIN READLN(EESUIF);WRITELN(' INPUT IGNORED, RECORD TYPE = ',
        EERECTYPE)
      END
  END;
EEDFVAL := (EEZZID.AASTR = EESIMID.AASTR) AND
  (EEZZID.AALEN = EESIMID.AALEN);
EEDFVAL := EEDFVAL AND (EEZZTIME.AASTR = EEGTIME.AASTR) AND
  (EEZZTIME.AALEN = EEGTIME.AALEN);
EEDFVAL := EEDFVAL AND (EEZZDATE.AASTR = EEGDATE.AASTR) AND
  (EEZZDATE.AALEN = EEGDATE.AALEN);
WRITELN(' SIMULATION CREATED ON ',EEGDATE.AASTR:EEGDATE.AALEN,' AT ',
  EEGTIME.AASTR:EEGTIME.AALEN,' WITH ID ',EESIMID.AASTR:EESIMID.AALEN);
IF EEDFNULL THEN WRITELN(' NO EEDF FILE PROVIDED ')
ELSE
IF NOT EEDFVAL THEN BEGIN
  WRITELN(' EEDF FILE DOES NOT MATCH THE SIMULATION PROGRAM TEXT ');
  WRITE(' EEDF CREATED ON ',EEZZDATE.AASTR:EEZZDATE.AALEN,' AT ',
    EEZZTIME.AASTR:EEZZTIME.AALEN,' WITH ID ',
    EEZZID.AASTR:EEZZID.AALEN);
  END;
IF NOT EEDEFSTART THEN
    BEGIN WRITELN(' START TIME NOT INPUT '); EESUIFERR:=TRUE END;
IF NOT EEDEFEND THEN
    BEGIN WRITELN(' END TIME NOT INPUT '); EESUIFERR:=TRUE END;
IF (EESUIFERR) OR (EEDFNULL) OR (NOT EEDFVAL) THEN
  BEGIN
    WRITELN(' SIMULATION PROGRAM CAN NOT BE EXECUTED ');
    GOTO 9999
  END
ELSE BEGIN
WRITELN;
WRITELN(' RUN ID: ',EERUNID.AASTR:EERUNID.AALEN,
  ', DATE: ',EEXDATE.AASTR:EEXDATE.AALEN,
  ', TIME: ',EEXTIME.AASTR:EEXTIME.AALEN);
```

```
  WRITELN(' SIMULATION START TIME = ',EESTARTTIME);
  WRITELN(' SIMULATION END TIME = ',EESTOPTIME);
  WRITELN;
  REWRITE(EEVALDAT);
  WRITELN(EEVALDAT,' VALIDATION DATA FOR RUN: ',
    EERUNID.AASTR:EERUNID.AALEN,', DATE: ',EEXDATE.AASTR:EEXDATE.AALEN,
    ' TIME: ',EEXTIME.AASTR:EEXTIME.AALEN);
  WRITELN(EEVALDAT);
  EECAUSE('SSSTARTUP                                                ',
  EECLOCK);
  EECAUSE('FEDERUG                                                  ',
  EECLOCK);
  EECAUSE('EESTOP                                                   ',
  EESTOPTIME);
    END
  END;
  (*----------END OF RISE CODE BLOCK-----------------------------------*)
  (* ALPHA PROCEDURES                          PDSE    *)
   PROCEDURE A*01*DME*INS*NOISE*GENERATION*ALPHA;
        BEGIN

      D*018*ASP*PITCH*DATA := D*018*ASP*PITCH*DATA + 0.01
      ;D*019*ASP*ROLL*DATA := D*019*ASP*ROLL*DATA - 0.01
      ;D*025*ASP*YAW*DATA := D*025*ASP*YAW*DATA + 0.01
      ;D*010*ASP*ALTITUDE*DATA := D*010*ASP*ALTITUDE*DATA - 0.01
      ;D*012*ASP*LATITUDE*DATA := D*012*ASP*LATITUDE*DATA + 0.01
      ;D*017*ASP*LONGITUDE*DATA := D*017*ASP*LONGITUDE*DATA - 0.01
      ;D*014*ASP*LOC*X*DATA := D*014*ASP*LOC*X*DATA + 0.01
      ;D*015*ASP*LOC*Y*DATA := D*015*ASP*LOC*Y*DATA - 0.01
      ;D*016*ASP*LOC*Z*DATA := D*016*ASP*LOC*Z*DATA + 0.01
      ;D*021*ASP*TIME*DATA := D*021*ASP*TIME*DATA - 0.01
      ;D*022*ASP*VEL*X*DATA := D*022*ASP*VEL*X*DATA + 0.01
      ;D*023*ASP*VEL*Y*DATA := D*023*ASP*VEL*Y*DATA - 0.01
      ;D*024*ASP*VEL*Z*DATA := D*024*ASP*VEL*Z*DATA + 0.01

  ;
  END;
   PROCEDURE A*02*GENERATE*DME*ALPHA;
              BEGIN

      D*021*ASP*TIME*DATA := D*141*TIME*DATA

      ;

  BEGIN
  EE8UPDATE(F*06*FLIGHT*PROFILE*FILE);
  EE8FIRST(F*06*FLIGHT*PROFILE*FILE);

  RECORD*FOUND := EE8FOUND(
  F*06*FLIGHT*PROFILE*FILE)
  END
  ;D*014*ASP*LOC*X*DATA := D*041*FLIGHT*WAYPOINT*X*DATA
      ;D*015*ASP*LOC*Y*DATA := D*042*FLIGHT*WAYPOINT*Y*DATA
      ;D*016*ASP*LOC*Z*DATA := D*043*FLIGHT*WAYPOINT*Z*DATA
      ;D*022*ASP*VEL*X*DATA := 0.0
      ;D*023*ASP*VEL*Y*DATA := 0.0
      ;D*024*ASP*VEL*Z*DATA := 0.0
```

```
END;
 PROCEDURE A-004-GENERATE-INS-ALPHA;
      BEGIN

      D-019-ASP-PITCH-DATA := 0.0
      ;D-019-ASP-ROLL-DATA := 0.0
      ;D-025-ASP-YAW-DATA := 0.0
      ;D-010-ASP-ALTITUDE-DATA := D-014-ASP-LOC-X-DATA

      ;D-012-ASP-LATITUDE-DATA := D-015-ASP-LOC-Y-DATA

      ;D-017-ASP-LONGITUDE-DATA := D-016-ASP-LOC-Z-DATA


END;
 PROCEDURE A-004-INITIALIZE-NELS-ALPHA;
      BEGIN
EE$CREATE(EC+1,"NELS-DETECTABLE-EMISSION-BREAKOUT-EC);
EE$CREATE(EC+2,"NELS-SCENARIO-EC);
EE$CREATE(EC+3,"NELS-ASPECTS-EC);
EE$CREATE(EC+4,"NELS-THREAT-EC);
EE$CREATE(EC+5,"NELS-VEHICLE-CHARACTERISTICS-EC);
EE$CREATE(EC+6,"DETECTED-EMISSIONS-INFO-EC);


BEGIN
EE$UPDATE(F+16,"NELS-EMITTER-FILE);
EE$FIRST(F+16,"NELS-EMITTER-FILE);
RECORD-FOUND := EE$FOUND;
F+16,"NELS-EMITTER-FILE);
WHILE RECORD-FOUND DO
BEGIN
  EE$SAVDS(F+16,"NELS-EMITTER-FILE,
EE7SAV01);
 BEGIN

CE$CREATE(F+16,"NELS-EMITTER-ACTIVITY-GROUND-TRUTH-FILE)

          ;D-063-B,"NELS-EMISSION-START-TIME-DATA :=
              D-063-A,"NELS-EMISSION-START-TIME-DATA;
          D-064-B,"NELS-EMISSION-STOP-TIME-DATA :=
              D-064-A,"NELS-EMISSION-STOP-TIME-DATA;
          D-082-B,"NELS-EMITTER-VEL-X-DATA :=
              D-082-A,"NELS-EMITTER-VEL-X-DATA;
          D-083-B,"NELS-EMITTER-VEL-Y-DATA :=
              D-083-A,"NELS-EMITTER-VEL-Y-DATA;
          D-084-B,"NELS-EMITTER-VEL-Z-DATA :=
              D-084-A,"NELS-EMITTER-VEL-Z-DATA;
          D-073-B,"NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA :=
              D-073-A,"NELS-EMITTER-FREQUENCY-BANDWIDTH-DATA;
          D-075-B,"NELS-EMITTER-ID-DATA :=
              D-075-A,"NELS-EMITTER-ID-DATA;
          D-085-B,"NELS-EMITTER-X-DATA :=
              D-085-A,"NELS-EMITTER-X-DATA;
```

```
            D+086+P+NELS+EMITTER+Y+DATA :=
              D+086+A+NELS+EMITTER+Y+DATA ;
            D+087+P+NELS+EMITTER+Z+DATA :=
              D+087+A+NELS+EMITTER+Z+DATA ;
            D+081+P+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
              D+081+A+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA ;
            D+130+P+SCENARIO+GEN+ID+NUM+DATA :=
              D+130+A+SCENARIO+GEN+ID+NUM+DATA
        END ;
   EE8UPDATE(F+16+NELS+EMITTER+FILE);
   EE8RESDS(F+16+NELS+EMITTER+FILE,
   EE7SAV01);
   EE8NEXT(F+16+NELS+EMITTER+FILE);
   RECORD+FOUND := EE8FOUND(
   F+16+NELS+EMITTER+FILE)
   END
   END

        ;
   EE8CREATE(F+06+FLIGHT+PROFILE+FILE)

          ;D+081+FLIGHT+WAYPOINT+X+DATA := 0.0
          ;D+082+FLIGHT+WAYPOINT+Y+DATA := 0.0
          ;D+083+FLIGHT+WAYPOINT+Z+DATA := 0.0
        ;
   EE8CREATE(F+27+PLATFORM+CONTROL+FILE)

          ;D+010+ASP+ALTITUDE+DATA := 0.0
          ;D+014+ASP+LOC+X+DATA := 0.0
          ;D+015+ASP+LOC+Y+DATA := 0.0
          ;D+016+ASP+LOC+Z+DATA := 0.0
          ;D+022+ASP+VEL+X+DATA := 0.0
          ;D+023+ASP+VEL+Y+DATA := 0.0
          ;D+024+ASP+VEL+Z+DATA := 0.0
        ;
   EE8CREATE(F+19+NELS+FREQUENCY+SCAN+FILE)

          ;D+092+NELS+FREQ+SCAN+LOWER+FREQ+DATA := 0.0
          ;D+093+NELS+FREQ+SCAN+UPPER+FREQ+DATA := 0.0
        ;
   EE8CREATE(F+20+NELS+PRE+BRIEFED+AOI+FILE)

          ;D+095+NELS+PRE+BRIEFED+AOI+FILTERING+CRITERIA+DATA :=
            WITHIN+AREA
          ;D+097+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+X+DATA := 0.0
          ;D+098+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+Y+DATA := 0.0
          ;D+100+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+X+DATA := 0.0
          ;D+101+NELS+PRE+BRIEFED+AOI+UPPER+RIGHT+Y+DATA := 0.0
        ;
   EE8CREATE(F+21+NELS+PRE+BRIEFED+SOI+FILE)

          ;D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA := 0.0
          ;D+104+NELS+PRE+BRIEFED+SOI+FREQ+DATA := 0.0
          ;D+105+NELS+PRE+BRIEFED+SOI+MODULATION+TYPE+DATA := MODULATED
          ;D+106+NELS+PRE+BRIEFED+SOI+START+FREQ+DATA := 0.0
        ;
   EE8CREATE(F+15+NELS+EMITTER+CHARACTERISTICS+FILE)
```

```
        ;D=067=NELS=EMITTER=BANDWIDTH=DATA := 0.0
        ;D=077=A=NELS=EMITTER=MODULATION=TYPE=DATA := MODULATED
        ;D=078=A=NELS=EMITTER=POWER=LEVEL=DATA := 0.)

EE=CREATE(F=2A=NELS=WEATHER=CONDITIONS=FILE)

        ;D=106=X=WEATHER=LOC=DATA := 0.0
        ;D=107=Y=WEATHER=LOC=DATA := 0.0
        ;D=139=ELEVATION=WEATHER=DATA := 0.0
        ;D=120=PRECIPITATION=DATA := NONE
        ;D=037=CLOUD=COVER=DATA := CLEAR

END;
  =D=EC=OPE A=NELS=AREA=OF=INTEREST=FILTER=ALPHA;
        VAR DREAL : REAL (= DUMMY REAL ITEM. =)
    RETIN

BEGIN
EE= E=(TE(F=1D=NELS=CANDIDATE=TARGETS=FILE);
EE=RESET(F=1D=NELS=CANDIDATE=TARGETS=FILE);
WHILE NOT EE=EOF(F=1D=NELS=CANDIDATE=TARGETS=FILE) DO
BEGIN
  EE=SAVDS(F=1D=NELS=CANDIDATE=TARGETS=FILE,
EE7SAV01);
  BEGIN
        ;D=0=1=NELS=EMISSION=DURATION=DATA :=
          D=0A1=NELS=EMISSION=DURATION=DATA
        ;D=062=NELS=EMISSION=SIGNAL=STRENGTH=DATA :=
          D=042=NELS=EMISSION=SIGNAL=STRENGTH=DATA
        ;D=1A1=NELS=EMISSION=START=TIME=DATA :=
          D=043=NELS=EMISSION=START=TIME=DATA
        ;D= 2A1= S=EMITTER=FREQUENCY=BANDWIDTH=DATA :=
          D=0Z3=NELS=EMITTER=FREQUENCY=BANDWIDTH=DATA
        ;D=175=NELS=EMITTER=ID=DATA := D=075=NELS=EMITTER=ID=DATA
        ;D=185=NELS=EMITTER=Y=DATA :=
          D=085=NELS=EMITTER=X=DATA;
        ;D=0B5=NELS=EMITTER=Y=DATA :=
          D=0B5=NELS=EMITTER=Y=DATA ;
        ;D=0B7=NELS=EMITTER=Z=DATA :=
          D=0B7=NELS=EMITTER=Z=DATA ;
        ;D=0A1=NELS=EMITTER=TRANSMISSION=FREQUENCY=DATA :=
          D=0B1=NELS=EMITTER=TRANSMISSION=FREQUENCY=DATA
        ;D=13=SCENARIO=GEN=ID=NUM=DATA :=
          D=143=SCENARIO=GEN=ID=NUM=DATA
      END ;
EE=UPDATE(F=1D=NELS=CANDIDATE=TARGETS=FILE);
EE=RESET(F=1D=NELS=CANDIDATE=TARGETS=FILE,
EE7SAV01);
EE=NEXT(F=1D=NELS=CANDIDATE=TARGETS=FILE);
WHILE NOT EE=EOF(F=1D=NELS=CANDIDATE=TARGETS=FILE)
END
```

```
END

      !
BEGIN
EE8UPDATE(F+20+NELS+PRE+BRIEFED+AOI+FILE);
EE8FIRST(F+20+NELS+PRE+BRIEFED+AOI+FILE);
RECORD+FOUND := EE8FOUND(
F+20+NELS+PRE+BRIEFED+AOI+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+20+NELS+PRE+BRIEFED+AOI+FILE,
EE7SAV01);

        DREAL := D+097+NELS+PRE+BRIEFED+AOI+LOWER+LEFT+X+DATA
      !
EE8UPDATE(F+20+NELS+PRE+BRIEFD+AOI+FILE);
EE8RESDS(F+20+NELS+PRE+BRIEFED+AOI+FILE,
EE7SAV01);
EE8NEXT(F+20+NELS+PRE+BRIEFED+AOI+FILE);
RECORD+FOUND := EE8FOUND(
F+20+NELS+PRE+BRIEFED+AOI+FILE)
END
END

      ;DREAL := D+014+ASP+LOC+X+DATA

      ;DREAL := D+01C+ASP+ALTITUDE+DATA

      ;DREAL := D+018+ASP+PITCH+DATA


;
END;
 PROCEDURE A+06+NELS+COARSE+LOCATION+ALPHA;
              VAR DREAL : REAL
     !BEGIN


BEGIN
EE8UPDATE(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE);
EE8FIRST(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE);

RECORD+FOUND := EE8FOUND(
F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE)
END
;
BEGIN
EE8UPDATE(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
EE8FIRST(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
RECORD+FOUND := EE8FOUND(
F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
EE7SAV01);
```

```
        BEGIN

EE8CREATE(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE)

        ;D+157+NELS+EMISSION+DURATION+DATA :=
            D+157+NELS+EMISSION+DURATION+DATA
          ;D+158+NELS+EMISSION+START+TIME+DATA :=
            D+158+NELS+EMISSION+START+TIME+DATA
          ;D+068+NELS+EMITTER+CEP+DATA := 0.5
          ;D+160+NELS+EMITTER+ID+DATA := D+160+NELS+EMITTER+ID+DATA;
            D+162+NELS+EMITTER+X+DATA :=
              D+162+NELS+EMITTER+X+DATA;
            D+163+NELS+EMITTER+Y+DATA :=
              D+163+NELS+EMITTER+Y+DATA;
            D+164+NELS+EMITTER+Z+DATA :=
              D+164+NELS+EMITTER+Z+DATA;
          ;D+16A+SCENARIO+GEN+ID+NUM+DATA :=
            D+16B+SCENARIO+GEN+ID+NUM+DATA
          ;DREAL := D+05A+NELS+DOP+2+DATA
          ;DREAL := D+018+ASP+PITCH+DATA
          ;DREAL := D+010+ASP+ALTITUDE+DATA
          ;DREAL := D+014+ASP+LOC+X+DATA

EE8UPDATE(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
EE8ERROR(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
EE7SAVE(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
RECORD+FOUND := EE8FOUND(
F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE)
END
END

;
END;
PROCED XE D+007+NELS+FIRE+LOCATION+ALPHA;
            VAR DREAL : REAL
  BEGIN


BEGIN
EE8UPDATE(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
EE8ERROR(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
RECORD+FOUND := EE8FOUND(
F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVOS(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE
EE7SAV01);

        BEGIN

EE8CREATE(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE)

        ;D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
            D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA;
          D+07A+NELS+EMITTER+MODULATION+TYPE+DATA :=
```

```
            D+077+NELS+EMITTER+MODULATION+TYPE+DATA ;
          D+078+NELS+EMITTER+POWER+LEVEL+DATA :=
            D+078+NELS+EMITTER+POWER+LEVEL+DATA ;
         D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
          D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        END ;
  EE8UPDATE(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
  EE8PRESDS(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
  EE7SAV01);
  EE8NEXT(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
  RECORD+FOUND := EE8FOUND(
  F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE)
  END
  END

        ;DREAL := D+018+ASP+PITCH+DATA

        ;DREAL := D+019+ASP+ALTITUDE+DATA

        ;DREAL := D+014+ASP+LOC+X+DATA

        ;
  BEGIN
  EE8UPDATE(F+13+NELS+EMISSION+THREAT+TABLE+FILE);
  EE8FIRST(F+13+NELS+EMISSION+THREAT+TABLE+FILE);
  RECORD+FOUND := EE8FOUND(
  F+13+NELS+EMISSION+THREAT+TABLE+FILE);
  WHILE RECORD+FOUND DO
  BEGIN
    EE8SAVDS(F+13+NELS+EMISSION+THREAT+TABLE+FILE,
  EE7SAV01);

          DREAL := D+067+NELS+EMITTER+BANDWIDTH+DATA ;
  EE8UPDATE(F+13+NELS+EMISSION+THREAT+TABLE+FILE);
  EE8PRESDS(F+13+NELS+EMISSION+THREAT+TABLE+FILE,
  EE7SAV01);
  EE8NEXT(F+13+NELS+EMISSION+THREAT+TABLE+FILE);
  RECORD+FOUND := EE8FOUND(
  F+13+NELS+EMISSION+THREAT+TABLE+FILE)
  END
  END

        ;
  BEGIN
  EE8UPDATE(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE);
  EE8FIRST(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE);
  RECORD+FOUND := EE8FOUND(
  F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE);
  WHILE RECORD+FOUND DO
  BEGIN
    EE8SAVDS(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
  EE7SAV01);

        BEGIN

  EE8CREATE(F+19+NELS+ESTIMATED+GROUND+TRUTH+FILE)
```

```
            ;D+157+NELS+EMISSION+DURATION+DATA :=
              D+157+NELS+EMISSION+DURATION+DATA
            ;D+158+NELS+EMISSION+START+TIME+DATA :=
              D+158+NELS+EMISSION+START+TIME+DATA
            ;D+066+NELS+EMITTER+CEP+DATA :=
              D+066+NELS+EMITTER+CEP+DATA
            ;D+070+NELS+EMITTER+COV+DATA := 0.5
            ;D+160+NELS+EMITTER+ID+DATA :=
              D+160+NELS+EMITTER+ID+DATA
          ;D+162+NELS+EMITTER+X+DATA :=
            D+162+NELS+EMITTER+X+DATA;
           D+163+NELS+EMITTER+Y+DATA :=
             D+163+NELS+EMITTER+Y+DATA ;
          D+164+NELS+EMITTER+Z+DATA :=
            D+164+NELS+EMITTER+Z+DATA ;
            D+165+SCENARIO+GEN+ID+NUM+DATA :=
              D+165+SCENARIO+GEN+ID+NUM+DATA
        END ;
LESUPDATE(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE);
LESRESDS(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE,
LE7SAV01);
SFENEXT(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE);
RECORD+FOUND := EFBFOUND(
F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE)
END
END
```

```
);
PROCEDURE D+PARNELS+FREQUENCY+SCAN+OPTIMIZATION+ALPHA;
        BEGIN


BEGIN
LESAVAILE(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
LESRESFST(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
RECORD+FOUND := EFBFOUND(
F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
WHILE RECORD+FOUND DO
BEGIN
  LESRESDS(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
LE7SAV01);

          D+091+NELS+FREQUENCY+SCAN+DATA :=
            D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        ;
LESUPDATE(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
LESRESDS(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE,
LE7SAV01);
EFBNEXT(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
RECORD+FOUND := EFBFOUND(
F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE)
END
END
```

```
;
END;
 PROCEDURE A+09+NELS+MAKE+SENSOR+REQUESTS+ALPHA;
         BEGIN

          D+005+ASET+MSG+SOURCE+DATA := NELS
         ;D+004+ASET+MSG+NAME+DATA := MN+10+NELS+SENSOR+REQUESTS
         ;D+002+ASET+MSG+DEST+DATA := ASE
         ;D+125+REQ+DESTINATION+SENSOR+ID+DATA := GPS+NELS+1
         ;D+126+REQ+REPORT+INFORMATION+TYPE+DATA := EE6UNKNWNVAL
         ;D+127+REQ+SENSOR+TARGET+ID+OF+INTEREST+DATA := EE6UNKNWNVAL
         ;D+135+SENSOR+ID+DATA := NELS+GPS+1

;
EE8FORM(M+10+NELS+SENSOR+REQUESTS+MSG+OUT);
END;
 PROCEDURE A+10+NELS+MODIFY+ORBIT+ALPHA;
                VAR DREAL : REAL
     ;BEGIN

        IF D+135+SENSOR+ID+DATA IN
          [NELS+GPS+1,NELS+GPS+2,NELS+GPS+3] THEN BEGIN

BEGIN
EE8UPDATE(F+06+FLIGHT+PROFILE+FILE);
EE8FIRST(F+06+FLIGHT+PROFILE+FILE);
RECORD+FOUND := EE8FOUND(
F+06+FLIGHT+PROFILE+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+06+FLIGHT+PROFILE+FILE,
EE7SAV01);

            DREAL := D+041+FLIGHT+WAYPOINT+X+DATA ;
EE8UPDATE(F+06+FLIGHT+PROFILE+FILE);
EE8RESDS(F+06+FLIGHT+PROFILE+FILE,
EE7SAV01);
EE8NEXT(F+06+FLIGHT+PROFILE+FILE);
RECORD+FOUND := EE8FOUND(
F+06+FLIGHT+PROFILE+FILE)
END
END

        ;
BEGIN
EE8UPDATE(F+32+SENSOR+ORBIT+MODS+FILE);
EE8FIRST(F+32+SENSOR+ORBIT+MODS+FILE);
RECORD+FOUND := EE8FOUND(
F+32+SENSOR+ORBIT+MODS+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+32+SENSOR+ORBIT+MODS+FILE,
EE7SAV01);
 BEGIN

EE8CREATE(F+06+FLIGHT+PROFILE+FILE)
```

```
                                                    17-Mar-1983 17:42:51     VAX-11 P
                                                    17-Mar-1983 17:19:39     DISK$US
                ;D+041+FLIGHT+WAYPOINT+X+DATA :=
                  D+117+PLATFORM+MOD+X+DATA
                ;D+042+FLIGHT+WAYPOINT+Y+DATA :=
                  D+119+PLATFORM+MOD+Y+DATA
                ;D+043+FLIGHT+WAYPOINT+Z+DATA :=
                  D+119+PLATFORM+MOD+Z+DATA
            END ;
EE5SAVE(F+32+SENSOR+ORBIT+MODS+FILE);
EE8RESOS(F+32+SENSOR+ORBIT+MODS+FILE,
EE7SAVC1);
EE8NEXT(F+32+SENSOR+ORBIT+MODS+FILE);
RECORD+FOUND := EE8FOUND(
F+32+SENSOR+ORBIT+MODS+FILE)
END
END

END;
PROCEDURE 4+11+NELS+MODIFY+TASK+ALPHA;
    VAR I : INTEGER
        ;AREAL : REAL
    ;BEGIN
      IF D+056+NEEDED+FEASIBLE+DATA IN [SOI,AOI,BOTH] THEN BEGIN
        D+139+TASK+QUE+ID+DATA := D+139+TASK+QUE+ID+DATA
        ;D+141+TIME+DATA := D+141+TIME+DATA
        ;D+139+TASKING+RESPONSE+DATA := GAN+UG
        ;D+005+ASET+MSG+SOURCE+DATA := NELS
        ;D+004+ASET+MSG+NAME+DATA := MN+13+NELS+TASKING+RESPONSES
        ;D+002+ASET+MSG+DEST+DATA := ARF
        ;
BEGIN
EE5SAVE(F+04+FLIGHT+PROFILE+FILE);
EE8FIRST(F+04+FLIGHT+PROFILE+FILE);
RECORD+FOUND := EE8FOUND(
F+04+FLIGHT+PROFILE+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVOS(F+04+FLIGHT+PROFILE+FILE,
EE7SAVC1);

      AREAL := D+041+FLIGHT+WAYPOINT+X+DATA ;
EE8UPDATE(F+04+FLIGHT+PROFILE+FILE);
EE8RESOS(F+04+FLIGHT+PROFILE+FILE,
EE7SAVC1);
EE8NEXT(F+04+FLIGHT+PROFILE+FILE);
RECORD+FOUND := EE8FOUND(
F+04+FLIGHT+PROFILE+FILE)
END
END
```

```
EE8CREATE(F+06+FLIGHT+PROFILE+FILE)

          ;D+041+FLIGHT+WAYPOINT+X+DATA :# D+143+X+LOC+FEASIBLE+DATA
          ;D+042+FLIGHT+WAYPOINT+Y+DATA :# D+145+Y+LOC+FEASIBLE+DATA
          ;D+043+FLIGHT+WAYPOINT+Z+DATA :# 0.0

END

;
EE8FORM(M+13+NELS+TASKING+RESPONSES+MSG+OUT);
END;
 PROCEDURE A+12+NELS+PERFORM+SIGNATURE+ANALYSIS+ALPHA;
                BEGIN


BEGIN
EE8UPDATE(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);
EE8FIRST(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE);

RECORD+FOUND :# EE8FOUND(
F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE)
END
;

BEGIN
EE8UPDATE(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE);
EE8FIRST(F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE);

RECORD+FOUND :# EE8FOUND(
F+18+NELS+ESTIMATED+GROUND+TRUTH+FILE)
END
;
EE8CREATE(F+25+NELS+TYPED+EMITTER+REPORT+FILE)

          ;D+174+NELS+EMITTER+BANDWIDTH+DATA :#
            D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
          ;D+177+NELS+EMITTER+CEP+DATA :# D+068+NELS+EMITTER+CEP+DATA
          ;D+070+NELS+EMITTER+COV+DATA :# D+070+NELS+EMITTER+COV+DATA
          ;D+074+NELS+EMITTER+FREQUENCY+DATA :#
            D+161+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
          ;D+164+NELS+EMITTER+ID+DATA :# D+160+NELS+EMITTER+ID+DATA
          ;D+167+NELS+EMITTER+X+DATA :#
            D+162+NELS+EMITTER+X+DATA;
           D+168+NELS+EMITTER+Y+DATA :#
            D+163+NELS+EMITTER+Y+DATA ;
           D+169+NELS+EMITTER+Z+DATA :#
            D+164+NELS+EMITTER+Z+DATA ;
          D+178+NELS+EMITTER+MODULATION+TYPE+DATA :#
            D+077+NELS+EMITTER+MODULATION+TYPE+DATA
          ;D+179+NELS+EMITTER+TIME+OF+LOCATION+DATA :#
            D+063+NELS+EMISSION+START+TIME+DATA
          ;D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA :# POTENTIAL+THREAT
          ;D+170+SCENARIO+GEN+ID+NUM+DATA :#
            D+145+SCENARIO+GEN+ID+NUM+DATA

;
```

```
END;
PROCEDURE A_13_NELS_PLATFORM_LOCATION_MSG_ALPHA;
        VAR DREAL : REAL
    BEGIN


!!SCREATE(F_37_SENSOR_PLATFORM_LOCATION_FILE)

        !D_114_PLATFORM_LOCATION_X_DATA := D_014_ASP_LOC_X_DATA

        !D_115_PLATFORM_LOCATION_Y_DATA := D_015_ASP_LOC_Y_DATA

        !D_116_PLATFORM_LOCATION_Z_DATA := D_016_ASP_LOC_Z_DATA

        !D_005_ASET_MSG_SOURCE_DATA := NELS
        !D_004_ASET_MSG_NAME_DATA :=
          M_017_NELS_PLATFORM_LOCATION_REPORT3
        !D____ASET_MSG_TEST_DATA := ARE

!
!!PUT(M_017_NELS_PLATFORM_LOCATION_REPORTS_MSG_OUT);
END;
PROCEDURE A_14_NELS_PROCESS_COMMANDERS_REQUIREMENTS_ALPHA;
        VAR DREAL : REAL
    BEGIN

      IF (D_040_FIRST_CMDRS_REQ_UPDATE_DATA = IN_AREA) OR
         (D_040_FIRST_CMDRS_REQ_UPDATE_DATA = OUTSIDE_AREA) OR
         (D_133_SECOND_CMDRS_REQ_UPDATE_DATA = IS_MODULATED) OR
         (D_134_SECOND_CMDRS_REQ_UPDATE_DATA = IS_NOT_MODULATED)
         THEN DREAL := 0.0

BEGIN
!!GUPDATE(F_20_NELS_PRE_BRIEFED_ADI_FILE);
!!GFIRST(F_21_NELS_PRE_BRIEFED_ADI_FILE);
RECORD_FOUND := !!GFOUND(
  F_20_NELS_PRE_BRIEFED_ADI_FILE);
WHILE RECORD_FOUND DO
BEGIN
  !!GSAVED(F_20_NELS_PRE_BRIEFED_ADI_FILE,
!!GISA_0_1);

        D_097_NELS_PRE_BRIEFED_ADI_LOWER_LEFT_X_DATA :=
          D_097_NELS_PRE_BRIEFED_ADI_LOWER_LEFT_X_DATA ;
!!GUPDATE(F_20_NELS_PRE_BRIEFED_ADI_FILE);
!!GPROCESS(F_20_NELS_PRE_BRIEFED_ADI_FILE,
!!GISA_0_1);
!!GSAVE(F_20_NELS_PRE_BRIEFED_ADI_FILE);
RECORD_FOUND := !!GFOUND(
F_21_NELS_PRE_BRIEFED_ADI_FILE)
END
END

      !
BEGIN
!!GUPDATE(F_21_NELS_PRE_BRIEFED_SOI_FILE);
!!GFIRST(F_21_NELS_PRE_BRIEFED_SOI_FILE);
```

```
      RECORD-FOUND := EE8FOUND(
      F-21-NELS-PRE-BRIEFED-SOI-FILE);
      WHILE RECORD-FOUND DO
      BEGIN
        EE8SAVDS(F-21-NELS-PRE-BRIEFED-SOI-FILE,
      EE7SAV01);

              D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA :=
                D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA ;
      EE8UPDATE(F-21-NELS-PRE-BRIEFED-SOI-FILE);
      EE8RESDS(F-21-NELS-PRE-BRIEFED-SOI-FILE,
      EE7SAV01);
      EE8NEXT(F-21-NELS-PRE-BRIEFED-SOI-FILE);
      RECORD-FOUND := EE8FOUND(
      F-21-NELS-PRE-BRIEFED-SOI-FILE)
      END
      END


      ;
      END;
       PROCEDURE A-)S-NELS-PROCESS-PRIORITIZED-SENSOR-DIRECTIONS-ALPHA;
                    VAR I :INTEGER
                   ;DREAL : REAL
            ;BEGIN

              IF ((D-056-NEEDED-FEASIBLE-DATA = SOI) OR
                   (D-056-NEEDED-FEASIBLE-DATA = AOI) OR
                   (D-056-NEEDED-FEASIBLE-DATA = BOTH)) AND
                  ((D-135-SENSOR-ID-DATA = NELS-GPS-1) OR
                   (D-135-SENSOR-ID-DATA = NELS-GPS-3) OR
                   (D-135-SENSOR-ID-DATA = NELS-GPS-3))
                   THEN DREAL := 0.0
              ;I := D-137-SENSOR-PRIORITY-DATA

              ;

      BEGIN
      EE8UPDATE(F-05-FEASIBLE-ACTIVITY-AREA-FILE);
      EE8FIRST(F-05-FEASIBLE-ACTIVITY-AREA-FILE);

      RECORD-FOUND := EE8FOUND(
      F-05-FEASIBLE-ACTIVITY-AREA-FILE)
      END
      ;DREAL := D-143-X-LOC-FEASIBLE-DATA
             ;
      BEGIN
      EE8UPDATE(F-19-NELS-FREQUENCY-SCAN-FILE);
      EE8FIRST(F-19-NELS-FREQUENCY-SCAN-FILE);
      RECORD-FOUND := EE8FOUND(
      F-19-NELS-FREQUENCY-SCAN-FILE);
      WHILE RECORD-FOUND DO
      BEGIN
        EE8SAVDS(F-19-NELS-FREQUENCY-SCAN-FILE,
      EE7SAV01);
       BEGIN
              D-092-NELS-FREQ-SCAN-LOWER-FREQ-DATA :=
```

```
                D+0492+NELS+FREQ+SCAN+LOWER+FREQ+DATA;
            D+0493+NELS+FREQ+SCAN+UPPER+FREQ+DATA :=
                D+0493+NELS+FREQ+SCAN+UPPER+FREQ+DATA END ;
    EE8SAVE(F+19+NELS+FREQUENCY+SCAN+FILE));
    EE7SAVE(F+19+NELS+FREQUENCY+SCAN+FILE,
    EE7SAVE(1));
    EE7FIRST(F+19+NELS+FREQUENCY+SCAN+FILE));
    RECORD+FOUND := EE8FOUND(
    F+19+NELS+FREQUENCY+SCAN+FILE)
    END
    END


    END;
     PROC  ESS A+16+NELS+PROCESS+REQUESTED+DATA+ALPHA;
            VAR OREAL : REAL
        BEGIN

            IF D+0+GPS+ID+DATA IN [GPS+1+NELS,GPS+2+NELS,GPS+3+NELS]
            THEN OREAL := 0.0
            ;
    BEGIN
    EE8UPDATE(F+07+GROUP+TARGET+LOCS+FILE);
    EE8FIRST(F+07+GROUP+TARGET+LOCS+FILE));
    RECORD+FOUND := EE8FOUND(
    F+07+GROUP+TARGET+LOCS+FILE);
    WHILE RECORD+FOUND DO
    BEGIN
      EE8SAVE(F+07+GROUP+TARGET+LOCS+FILE,
    EE7SAVE));

            OREAL := D+048+GROUND+TARGET+LOC+X+DATA ;
    EE8UPDATE(F+07+GROUP+TARGET+LOCS+FILE);
    EE8RESTORE(F+07+GROUP+TARGET+LOCS+FILE,
    EE7SAVE));
    EE8NEXT(F+07+GROUP+TARGET+LOCS+FILE));
    RECORD+FOUND := EE8FOUND(
    F+07+GROUP+TARGET+LOCS+FILE)
    END
    END

            ;
    BEGIN
    EE8UPDATE(F+06+FLIGHT+PROFILE+FILE);
    EE8FIRST(F+06+FLIGHT+PROFILE+FILE);
    RECORD+FOUND := EE8FOUND(
    F+06+FLIGHT+PROFILE+FILE));
    WHILE RECORD+FOUND DO
    BEGIN
      EE8SAVE(F+06+FLIGHT+PROFILE+FILE,
    EE7SAVE));

            D+041+FLIGHT+WAYPOINT+X+DATA :=
              D+041+FLIGHT+WAYPOINT+X+DATA ;
    EE8UPDATE(F+06+FLIGHT+PROFILE+FILE));
    EE8RESTORE(F+06+FLIGHT+PROFILE+FILE,
```

```
EE7SAV01);
EE8NEXT(F.06.FLIGHT.PROFILE.FILE);
RECORD.FOUND := EE8FOUND(
F.06.FLIGHT.PROFILE.FILE)
END
END


;
END;
 PROCEDURE A.17.NELS.SENSOR.STATUS.ALPHA;
                VAR DREAL : REAL
      ;BEGIN

        DREAL := D.014.ASP.LOC.X.DATA

        ;D.091.NELS.FREQUENCY.SCAN.DATA :=
          D.091.NELS.FREQUENCY.SCAN.DATA

        ;
BEGIN
EE8UPDATE(F.06.FLIGHT.PROFILE.FILE);
EE8FIRST(F.06.FLIGHT.PROFILE.FILE);
RECORD.FOUND := EE8FOUND(
F.06.FLIGHT.PROFILE.FILE);
WHILE RECORD.FOUND DO
BEGIN
  EE8SAVDS(F.06.FLIGHT.PROFILE.FILE,
EE7SAV01);

          DREAL := D.041.FLIGHT.WAYPOINT.X.DATA ;
EE8UPDATE(F.06.FLIGHT.PROFILE.FILE);
EE8RESDS(F.06.FLIGHT.PROFILE.FILE,
EE7SAV01);
EE8NEXT(F.06.FLIGHT.PROFILE.FILE);
RECORD.FOUND := EE8FOUND(
F.06.FLIGHT.PROFILE.FILE)
END
END

        ;
BEGIN
EE8UPDATE(F.20.NELS.PRE.BRIEFED.ADI.FILE);
EE8FIRST(F.20.NELS.PRE.BRIEFED.ADI.FILE);
RECORD.FOUND := EE8FOUND(
F.20.NELS.PRE.BRIEFED.ADI.FILE);
WHILE RECORD.FOUND DO
BEGIN
  EE8SAVDS(F.20.NELS.PRE.BRIEFED.ADI.FILE,
EE7SAV01);

          DREAL := D.097.NELS.PRE.BRIEFED.ADI.LOWER.LEFT.X.DATA
        ;
EE8UPDATE(F.20.NELS.PRE.BRIEFED.ADI.FILE);
EE8RESDS(F.20.NELS.PRE.BRIEFED.ADI.FILE,
EE7SAV01);
EE8NEXT(F.20.NELS.PRE.BRIEFED.ADI.FILE);
```

```
    RECORD-FOUND := EE8FOUND(
    F-20-NELS-PRE-BRIEFED-SOI-FILE)
    END
    END

          ;
    BEGIN
    EE8UPDATE(F-21-NELS-PRE-BRIEFED-SOI-FILE);
    EE8FIRST(F-21-NELS-PRE-BRIEFED-SOI-FILE);
    RECORD-FOUND := EE8FOUND(
    F-21-NELS-PRE-BRIEFED-SOI-FILE);
    WHILE RECORD-FOUND <>0
    BEGIN
      EE8SAVDS(F-21-NELS-PRE-BRIEFED-SOI-FILE,
    EE7SAV01);

            DREAL :=D-103-NELS-PRE-BRIEFED-SOI-END-FREQ-DATA
          ;
    EE8UPDATE(F-21-NELS-PRE-BRIEFED-SOI-FILE);
    EE8RESDS(F-21-NELS-PRE-BRIEFED-SOI-FILE,
    EE7SAV01);
    EE8NEXT(F-21-NELS-PRE-BRIEFED-SOI-FILE);
    RECORD-FOUND := EE8FOUND(
    F-21-NELS-PRE-BRIEFED-SOI-FILE)
    END
    END

          ;
    EE8CREATE(F-30-SENSOR-STATUS-FILE)

              ;D-044-FREQUENCY-SCAN-PARAMETER-DATA := 0.0
              ;D-136-SENSOR-MODE-OF-OPERATION-DATA := SOI-SEARCH
              ;D-135-SENSOR-ID-DATA := NELS-GPS-1
              ;D-005-ASET-MSG-SOURCE-DATA := NELS
              ;D-004-ASET-MSG-NAME-DATA := MN-11-NELS-SENSOR-SYSTEM-STATUS
              ;D-002-ASET-MSG-DEST-DATA := ASE

    ;
    EE8FORM(M-11-NELS-SENSOR-SYSTEM-STATUS-MSG-OUT);
    END;
     PROCEDURE A-1A-NELS-SIGNAL-OF-INTEREST-FILTER-ALPHA;
                    VAR DREAL : REAL
          ;BEGIN

             DREAL := D-01A-ASP-PITCH-DATA

             ;DREAL := D-01C-ASP-ALTITUDE-DATA

             ;DREAL := D-014-ASP-LOC-X-DATA

             ;DREAL := D-091-NELS-FREQUENCY-SCAN-DATA

             ;
    BEGIN
    EE8UPDATE(F-21-NELS-PRE-BRIEFED-SOI-FILE);
    EE8FIRST(F-21-NELS-PRE-BRIEFED-SOI-FILE);
    RECORD-FOUND := EE8FOUND(
```

```
F+21+NELS+PRE+BRIEFED+SOI+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+21+NELS+PRE+BRIEFED+SOI+FILE,
EE7SAV01);

          DRESL := D+103+NELS+PRE+BRIEFED+SOI+END+FREQ+DATA
        +
EE8UPDATE(F+21+NELS+PRE+BRIEFED+SOI+FILE);
EE8RESDS(F+21+NELS+PRE+BRIEFED+SOI+FILE,
EE7SAV01);
EE8NEXT(F+21+NELS+PRE+BRIEFED+SOI+FILE);
RECORD+FOUND := EE8FOUND(
F+21+NELS+PRE+BRIEFED+SOI+FILE)
END
END

        ;
EE8CREATE(F+10+NELS+CANDIDATE+TARGETS+FILE)

        ;

BEGIN
EE8UPDATE(F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE);
EE8FIRST(F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE);

RECORD+FOUND := EE8FOUND(
F+14+NELS+EMITTER+ACTIVITY+GROUND+TRUTH+FILE)
END
;

BEGIN
EE8UPDATE(F+15+NELS+EMITTER+CHARACTERISTICS+FILE);
EE8FIRST(F+15+NELS+EMITTER+CHARACTERISTICS+FILE);

RECORD+FOUND := EE8FOUND(
F+15+NELS+EMITTER+CHARACTERISTICS+FILE)
END
;D+061+NELS+EMISSION+DURATION+DATA :=
            D+064+NELS+EMISSION+STOP+TIME+DATA -
              D+063+B+NELS+EMISSION+START+TIME+DATA
           ;D+062+NELS+EMISSION+SIGNAL+STRENGTH+DATA :=
             D+078+A+NELS+EMITTER+POWER+LEVEL+DATA
           ;D+063+NELS+EMISSION+START+TIME+DATA :=
             D+063+B+NELS+EMISSION+START+TIME+DATA
           ;D+073+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
             D+073+B+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
           ;D+075+NELS+EMITTER+ID+DATA := D+075+B+NELS+EMITTER+ID+DATA
           ;D+085+NELS+EMITTER+X+DATA :=
             D+085+B+NELS+EMITTER+X+DATA;
            D+086+NELS+EMITTER+Y+DATA :=
              D+086+B+NELS+EMITTER+Y+DATA ;
            D+087+NELS+EMITTER+Z+DATA :=
              D+087+B+NELS+EMITTER+Z+DATA ;
           D+091+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
             D+091+B+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
           ;D+130+SCENARIO+GEN+ID+NUM+DATA :=
```

```
            D+130+R+SCENARIO+GEN+ID+NUM+DATA

;
END;
 PROCEDURE &+19+NELS+SIGNAL+TO+NOISE+DETECTABILITY+ALPHA;
              VAR DREAL : REAL
     ;BEGIN
       DREAL := D+015+ASP+PITCH+DATA
       ;DREAL := D+010+ASP+ALTITUDE+DATA
       ;DREAL := D+014+ASP+LOC+X+DATA
       ;
BEGIN
EE8UPDATE(F+10+NELS+CANDIDATE+TARGETS+FILE);
EE8FIRST(F+10+NELS+CANDIDATE+TARGETS+FILE);
RECORD+FOUND := EE8FOUND(
F+10+NELS+CANDIDATE+TARGETS+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVCS(F+10+NELS+CANDIDATE+TARGETS+FILE,
EE7SAV01);
 BEGIN
         D+0e1+NELS+EMISSION+DURATION+DATA :=
           D+001+NELS+EMISSION+DURATION+DATA
        ;D+0A2+NELS+EMISSION+SIGNAL+STRENGTH+DATA :=
           D+0e2+NELS+EMISSION+SIGNAL+STRENGTH+DATA
        ;D+0A3+NELS+EMISSION+START+TIME+DATA :=
           D+0e3+NELS+EMISSION+START+TIME+DATA
        ;D+073+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
           D+073+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
        ;D+075+NELS+EMITTER+ID+DATA := D+075+NELS+EMITTER+ID+DATA
        ;D+085+NELS+EMITTER+X+DATA :=
           D+085+NELS+EMITTER+X+DATA;
         D+086+NELS+EMITTER+Y+DATA :=
           D+086+NELS+EMITTER+Y+DATA ;
         D+087+NELS+EMITTER+Z+DATA :=
           D+087+NELS+EMITTER+Z+DATA ;
        D+081+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
          D+081+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
        ;D+130+SCENARIO+GEN+ID+NUM+DATA :=
          D+130+SCENARIO+GEN+ID+NUM+DATA
       END ;
EE8UPDATE(F+10+NELS+CANDIDATE+TARGETS+FILE);
EE8RESUS(F+10+NELS+CANDIDATE+TARGETS+FILE,
EE7SAV01);
EE8NEXT(F+10+NELS+CANDIDATE+TARGETS+FILE);
RECORD+FOUND := EE8FOUND(
F+10+NELS+CANDIDATE+TARGETS+FILE)
END
END

       ;
BEGIN
EE8UPDATE(F+24+NELS+WEATHER+CONDITIONS+FILE);
```

```
EE8FIRST(F+26+NELS+WEATHER+CONDITIONS+FILE);
RECORD+FOUND := EE8FOUND(
F+26+NELS+WEATHER+CONDITIONS+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+26+NELS+WEATHER+CONDITIONS+FILE,
EE7SAV01);

        DREAL := D+144+X+WEATHER+LOC+DATA    ;
EE8UPDATE(F+26+NELS+WEATHER+CONDITIONS+FILE);
EE8RESDS(F+26+NELS+WEATHER+CONDITIONS+FILE,
EE7SAV01);
EE8NEXT(F+26+NELS+WEATHER+CONDITIONS+FILE);
RECORD+FOUND := EE8FOUND(
F+26+NELS+WEATHER+CONDITIONS+FILE)
END
END


;
END;
 PROCEDURE A+20+NELS+SURVEILLANCE+AND+TRACK+MSGS+ALPHA;
        BEGIN

      D+005+ASET+MSG+SOURCE+DATA := NELS
      ;D+004+ASET+MSG+NAME+DATA := MN+14+NELS+TRACK+MESSAGE
      ;D+002+ASET+MSG+DEST+DATA := ASE
      ;D+029+CARTO+SECTION+NUM+DATA := 1
      ;D+047+GROUND+TARGET+LENGTH+DATA := 0.0
      ;D+050+GROUND+TARGET+VELOCITY+DATA := 0.0
      ;D+102+TRACK+MESSAGE+DATA := TRACKING
      ;
BEGIN
EE8UPDATE(F+25+NELS+TYPED+EMITTER+REPORT+FILE);
EE8FIRST(F+25+NELS+TYPED+EMITTER+REPORT+FILE);
RECORD+FOUND := EE8FOUND(
F+25+NELS+TYPED+EMITTER+REPORT+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+25+NELS+TYPED+EMITTER+REPORT+FILE,
EE7SAV01);
 BEGIN
        D+005+GPS+ID+DATA := GPS+1+NELS
        ;D+048+GROUND+TARGET+FREQUENCY+DATA :=
          D+074+NELS+EMITTER+FREQUENCY+DATA
        ;D+135+SENSOR+ID+DATA := NELS+GPS+1
        ;
EE8CREATE(F+07+GROUP+TARGET+LOCS+FILE)

        ;D+048+GROUND+TARGET+LOC+X+DATA := D+167+NELS+EMITTER+X+DATA
        ;D+049+GROUND+TARGET+LOC+Y+DATA := D+168+NELS+EMITTER+Y+DATA
      END ;
EE8UPDATE(F+25+NELS+TYPED+EMITTER+REPORT+FILE);
EE8RESDS(F+25+NELS+TYPED+EMITTER+REPORT+FILE,
EE7SAV01);
EE8NEXT(F+25+NELS+TYPED+EMITTER+REPORT+FILE);
RECORD+FOUND := EE8FOUND(
```

```
F+25+'ELS+TYPED+EMITTER+REPORT+FILE)
END
END


;
EE8FORM(M+05+NELS+NCN+SURVEILLANCE+TARGET+REPORTS+MSG+OUT);
EE8FORM(M+12+NELS+SL+VEILLANCE+TARGET+REPORTS+MSG+OUT);
EE8FORM(M+10+NELS+TRACK+MESSAGE+MSG+OUT);
END;
PROCEDURE 1+P1+NELS+TARGET+ACQUISITION+ALPHA;
          VAR OREAL : REAL;
    BEGIN

      OREAL := D+019+ASP+PITCH+DATA

      ;OREAL := D+010+ASP+ALTITUDE+DATA

      ;OREAL := D+014+ASP+LOC+X+DATA

      ;
BEGIN
EEAUPDATE(F+12+DETECTED+CANDIDATE+TARGETS+FILE);
EEABFIRST(F+12+DETECTED+CANDIDATE+TARGETS+FILE);
RECORD+FOUND := EEAFOUND(
F+12+DETECTED+CANDIDATE+TARGETS+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE+SAVUSER+12+DETECTED+CANDIDATE+TARGETS+FILE,
EE7SAV01);
 BEGI

EE8CREATE(F+17+NELS+ESTIMATED+EMITTER+PARAMETERS+FILE)

          ;D+159+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
              D+150+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
            ;D+077+NELS+EMITTER+MODULATION+TYPE+DATA := MODULATED
            ;D+074+NELS+EMITTER+POWER+LEVEL+DATA := 0.0
            ;D+16'+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
              D+152+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
          ;
EE8CREATE(F+19+ ELS+ESTIMATED+GROUND+TRUTH+FILE)

          ;D+157+NELS+EMISSION+DURATION+DATA :=
            D+147+NELS+EMISSION+DURATION+DATA
          ;D+150+NELS+EMITTER+ID+DATA := D+151+NELS+EMITTER+ID+DATA
        ;D+167+NELS+EMITTER+X+DATA :=
          D+153+NELS+EMITTER+X+DATA;
          +163+NELS+EMITTER+Y+DATA :=
          D+150+NELS+EMITTER+Y+DATA ;
        D+164+NELS+EMITTER+Z+DATA :=
          D+155+NELS+EMITTER+Z+DATA
        ;D+142+NELS+EMITTER+X+DATA :=
          D+137+NELS+EMITTER+X+DATA
        ;D+143+NELS+EMITTER+Y+DATA :=
          D+150+NELS+EMITTER+Y+DATA
        ;D+146+NELS+EMITTER+Z+DATA :=
```

```
                D+155+NELS+EMITTER+Z+DATA
              ;D+145+SCENARIO+GEN+ID+NUM+DATA :=
                D+156+SCENARIO+GEN+ID+NUM+DATA
            )
  EE8CREATE(F+20+NELS+TDOA+DD+FILE)

              ;D+058+NELS+DD+1+2+DATA := 0.0
              ;D+059+NELS+DD+1+3+DATA := 0.0
              ;D+060+NELS+DD+2+3+DATA := 0.0
              ;D+109+NELS+TDOA+1+2+DATA := 0.0
              ;D+110+NELS+TDOA+1+3+DATA := 0.0
              ;D+111+NELS+TDOA+2+3+DATA := 0.0
          END ;
  EE8UPDATE(F+12+DETECTED+CANDIDATE+TARGETS+FILE);
  EE8RESDS(F+12+DETECTED+CANDIDATE+TARGETS+FILE,
  EE7SAV01);
  EE8NEXT(F+12+DETECTED+CANDIDATE+TARGETS+FILE);
  RECORD+FOUND := EE8FOUND(
  F+12+DETECTED+CANDIDATE+TARGETS+FILE)
  END
  END


  ;
  END;
    PROCEDURE A+22+NELS+TERRAIN+FOLIAGE+SHADOWING+ALPHA;
                  VAR DREAL : REAL;
        BEGIN

          DREAL := D+018+ASP+PITCH+DATA

          ;DREAL := D+010+ASP+ALTITUDE+DATA

          ;DREAL := D+014+ASP+LOC+X+DATA

          ;
  BEGIN
  EE8UPDATE(F+08+HYPSO+DATA+FILE);
  EE8FIRST(F+08+HYPSO+DATA+FILE);
  RECORD+FOUND := EE8FOUND(
  F+08+HYPSO+DATA+FILE);
  WHILE RECORD+FOUND DO
  BEGIN
    EE8SAVDS(F+08+HYPSO+DATA+FILE,
  EE7SAV01);

          DREAL := D+051+HYPSO+ELEV+DATA ;
  EE8UPDATE(F+08+HYPSO+DATA+FILE);
  EE8RESDS(F+08+HYPSO+DATA+FILE,
  EE7SAV01);
  EE8NEXT(F+08+HYPSO+DATA+FILE);
  RECORD+FOUND := EE8FOUND(
  F+08+HYPSO+DATA+FILE)
  END
  END
```

```
BEGIN
EE8UPDATE(F+10+NELS+CANDIDATE+TARGETS+FILE);
EE8FIRST(F+10+NELS+CANDIDATE+TARGETS+FILE);
RECORD+FOUND := EF8FOUND(
F+10+NELS+CANDIDATE+TARGETS+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+10+NELS+CANDIDATE+TARGETS+FILE,
EE7SAV01);
 BEGIN

EE8CREATE(F+12+DETECTED+CANDIDATE+TARGETS+FILE)

            ;D+147+NELS+EMISSION+DURATION+DATA :=
              D+061+NELS+EMISSION+DURATION+DATA
            ;D+148+NELS+EMISSION+SIGNAL+STRENGTH+DATA :=
              D+062+NELS+EMISSION+SIGNAL+STRENGTH+DATA
            ;D+149+NELS+EMISSION+START+TIME+DATA :=
              D+063+NELS+EMISSION+START+TIME+DATA
            ;D+150+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA :=
              D+073+NELS+EMITTER+FREQUENCY+BANDWIDTH+DATA
            ;D+151+NELS+EMITTER+ID+DATA := D+075+NELS+EMITTER+ID+DATA
          ;D+153+NELS+EMITTER+X+DATA :=
            D+085+NELS+EMITTER+X+DATA;
           D+154+NELS+EMITTER+Y+DATA :=
            D+086+NELS+EMITTER+Y+DATA ;
           D+155+NELS+EMITTER+Z+DATA :=
            D+087+NELS+EMITTER+Z+DATA ;
           D+152+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
            D+081+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA
           ;D+156+SCENARIO+GEN+ID+NUM+DATA :=
            D+130+SCENARIO+GEN+ID+NUM+DATA
       END ;
EE8UPDATE(F+10+NELS+CANDIDATE+TARGETS+FILE);
EE8RESDS(F+10+NELS+CANDIDATE+TARGETS+FILE,
EE7SAV01);
EE8NEXT(F+10+NELS+CANDIDATE+TARGETS+FILE);
RECORD+FOUND := EE8FOUND(
F+10+NELS+CANDIDATE+TARGETS+FILE)
END
END


;
END;
 PROCEDURE A+23+NELS+THREAT+TABLE+UPDATE+ALPHA;
            BEGIN


BEGIN
EE8UPDATE(F+25+NELS+TYPED+EMITTER+REPORT+FILE);
EE8FIRST(F+25+NELS+TYPED+EMITTER+REPORT+FILE);
RECORD+FOUND := EE8FOUND(
F+25+NELS+TYPED+EMITTER+REPORT+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+25+NELS+TYPED+EMITTER+REPORT+FILE,
```

```
   EE7SAV01);
    BEGIN

   EE8CREATE(F+13+NELS+EMISSION+THREAT+TABLE+FILE)
              ;D+182+NELS+EMITTER+BANDWIDTH+DATA :=
                 D+176+NELS+EMITTER+BANDWIDTH+DATA
               ;D+183+NELS+EMITTER+CEP+DATA := D+177+NELS+EMITTER+CEP+DATA
               ;D+171+NELS+EMITTER+ID+DATA := D+166+NELS+EMITTER+ID+DATA
              ;D+173+NELS+EMITTER+X+DATA :=
                 D+167+NELS+EMITTER+X+DATA;
               D+174+NELS+EMITTER+Y+DATA :=
                 D+168+NELS+EMITTER+Y+DATA ;
               D+175+NELS+EMITTER+Z+DATA :=
                 D+169+NELS+EMITTER+Z+DATA ;
               D+181+NELS+EMITTER+MODULATION+TYPE+DATA :=
                 D+178+NELS+EMITTER+MODULATION+TYPE+DATA
              ;D+079+NELS+EMITTER+TIME+OF+LOCATOIN+DATA :=
                 D+179+NELS+EMITTER+TIME+OF+LOCATOIN+DATA
              ;D+080+NELS+EMITTER+TRAFFIC+TYPE+DATA :=
                 D+180+NELS+EMITTER+TRAFFIC+TYPE+DATA
              ;D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA :=
                 D+172+NELS+EMITTER+TRANSMISSION+FREQUENCY+DATA

   END
              ;
   EE8UPDATE(F+25+NELS+TYPED+EMITTER+REPORT+FILE);
   EE8RESDS(F+25+NELS+TYPED+EMITTER+REPORT+FILE,
   EE7SAV01);
   EE8NEXT(F+25+NELS+TYPED+EMITTER+REPORT+FILE);
   RECORD+FOUND := EE8FOUND(
   F+25+NELS+TYPED+EMITTER+REPORT+FILE)
   END
   END

   ;
   END;
    PROCEDURE A+24+RESET+NELS+ALPHA;
    BEGIN

   ;
   EE8DESTROY(EC+2+NELS+SCENARIO+EC);
   EE8DESTROY(EC+3+NELS+TASKS+EC);
   EE8DESTROY(EC+4+NELS+THREAT+EC);
   EE8DESTROY(EC+5+NELS+VEHICLE+CHARACTERISTICS+EC);
   EE8DESTROY(EC+6+DETECTED+EMISSIONS+INFO+EC);
   END;
    PROCEDURE A+25+UPDATE+CARTO+ALPHA;
                VAR DREAL : REAL;
        BEGIN


   BEGIN
   EE8UPDATE(F+32+CARTO+UPDATE+FILE);
   EE8FIRST(F+32+CARTO+UPDATE+FILE);
   RECORD+FOUND := EE8FOUND(
```

```
F+02+CARTO+UPDATE+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+02+CARTO+UPDATE+FILE,
EE7SAV01);

        DREAL := D+033+CARTO+UPDATE+X+DATA ;
EE8UPDATE(F+02+CARTO+UPDATE+FILE);
EE8RESDS(F+02+CARTO+UPDATE+FILE,
EE7SAV01);
EE8NEXT(F+02+CARTO+UPDATE+FILE);
RECORD+FOUND := EE8FOUND(
F+02+CARTO+UPDATE+FILE)
END
END

        ;D+028+CARTO+MAP+SECT+NUM+DATA :=
          D+028+CARTO+MAP+SECT+NUM+DATA

        ;
BEGIN
EE8UPDATE(F+01+BRIDGE+LOCATIONS+FILE);
EE8FIRST(F+01+BRIDGE+LOCATIONS+FILE);
RECORD+FOUND := EE8FOUND(
F+01+BRIDGE+LOCATIONS+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+01+BRIDGE+LOCATIONS+FILE,
EE7SAV01);

        DREAL := D+026+BRIDGE+LOC+X+DATA ;
EE8UPDATE(F+01+BRIDGE+LOCATIONS+FILE);
EE8RESDS(F+01+BRIDGE+LOCATIONS+FILE,
EE7SAV01);
EE8NEXT(F+01+BRIDGE+LOCATIONS+FILE);
RECORD+FOUND := EE8FOUND(
F+01+BRIDGE+LOCATIONS+FILE)
END
END

        ;
BEGIN
EE8UPDATE(F+03+CITY+LOCATIONS+FILE);
EE8FIRST(F+03+CITY+LOCATIONS+FILE);
RECORD+FOUND := EE8FOUND(
F+03+CITY+LOC+TTONS+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+03+CITY+LOCATIONS+FILE,
EE7SAV01);

        DREAL := D+035+CITY+LOC+X+DATA ;
EE8UPDATE(F+03+CITY+LOCATIONS+FILE);
EE8RESDS(F+03+CITY+LOCATIONS+FILE,
EE7SAV01);
EE8NEXT(F+03+CITY+LOCATIONS+FILE);
RECORD+FOUND := EE8FOUND(
```

```
F◆03◆CITY◆LOCATIONS◆FILE)
END
END

;
BEGIN
EE8UPDATE(F◆08◆HYPSO◆DATA◆FILE);
EE8FIRST(F◆09◆HYPSO◆DATA◆FILE);
RECORD◆FOUND := EE8FOUND(
F◆08◆HYPSO◆DATA◆FILE);
WHILE RECORD◆FOUND DO
BEGIN
  EE8SAVDS(F◆08◆HYPSO◆DATA◆FILE,
EE7SAV01);

        OREAL := D◆051◆HYPSO◆ELEV◆DATA ;
EE8UPDATE(F◆02◆HYPSO◆DATA◆FILE);
EE8RESDS(F◆03◆HYPSO◆DATA◆FILE,
EE7SAV01);
EE8NEXT(F◆03◆HYPSO◆DATA◆FILE);
RECORD◆FOUND := EE8FOUND(
F◆08◆HYPSO◆DATA◆FILE)
END
END

;
BEGIN
EE8UPDATE(F◆09◆MARSHALLING◆AREAS◆FILE);
EE8FIRST(F◆09◆MARSHALLING◆AREAS◆FILE);
RECORD◆FOUND := EE8FOUND(
F◆09◆MARSHALLING◆AREAS◆FILE);
WHILE RECORD◆FOUND DO
BEGIN
  EE8SAVDS(F◆09◆MARSHALLING◆AREAS◆FILE,
EE7SAV01);

        OREAL := D◆054◆MARSHALLING◆X◆DATA ;
EE8UPDATE(F◆09◆MARSHALLING◆AREAS◆FILE);
EE8RESDS(F◆09◆MARSHALLING◆AREAS◆FILE,
EE7SAV01);
EE8NEXT(F◆09◆MARSHALLING◆AREAS◆FILE);
RECORD◆FOUND := EE8FOUND(
F◆09◆MARSHALLING◆AREAS◆FILE)
END
END

;
BEGIN
EE8UPDATE(F◆28◆PRIMARY◆ROADS◆FILE);
EE8FIRST(F◆28◆PRIMARY◆ROADS◆FILE);
RECORD◆FOUND := EE8FOUND(
F◆28◆PRIMARY◆ROADS◆FILE);
WHILE RECORD◆FOUND DO
BEGIN
  EE8SAVDS(F◆28◆PRIMARY◆ROADS◆FILE,
EE7SAV01);
```

```
        DREAL := D+121+PRIMARY+ROADS+X+DATA ;
EE8UPDATE(F+28+PRIMARY+ROADS+FILE);
EE8RESDS(F+28+PRIMARY+ROADS+FILE,
EE7SAV01);
EE8NEXT(F+28+PRIMARY+ROADS+FILE);
RECORD+FOUND := EE8FOUND(
F+28+PRIMARY+ROADS+FILE)
END
END

;
BEGIN
EE8UPDATE(F+29+RAILROAD+LOCATIONS+FILE);
EE8FIRST(F+29+RAILROAD+LOCATIONS+FILE);
RECORD+FOUND := EE8FOUND(
F+29+RAILROAD+LOCATIONS+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+29+RAILROAD+LOCATIONS+FILE,
EE7SAV01);

        DREAL := D+123+RAILROAD+LOC+X+DATA ;
EE8UPDATE(F+29+RAILROAD+LOCATIONS+FILE);
EE8RESDS(F+29+RAILROAD+LOCATIONS+FILE,
EE7SAV01);
EE8NEXT(F+29+RAILROAD+LOCATIONS+FILE);
RECORD+FOUND := EE8FOUND(
F+29+RAILROAD+LOCATIONS+FILE)
END
END

;
BEGIN
EE8UPDATE(F+30+RIVER+LOCATIONS+FILE);
EE8FIRST(F+30+RIVER+LOCATIONS+FILE);
RECORD+FOUND := EE8FOUND(
F+30+RIVER+LOCATIONS+FILE);
WHILE RECORD+FOUND DO
BEGIN
  EE8SAVDS(F+30+RIVER+LOCATIONS+FILE,
EE7SAV01);

        DREAL := D+128+RIVER+LOC+X+DATA ;
EE8UPDATE(F+30+RIVER+LOCATIONS+FILE);
EE8RESDS(F+30+RIVER+LOCATIONS+FILE,
EE7SAV01);
EE8NEXT(F+30+RIVER+LOCATIONS+FILE);
RECORD+FOUND := EE8FOUND(
F+30+RIVER+LOCATIONS+FILE)
END
END

;
BEGIN
EE8UPDATE(F+31+SECONDARY+ROADS+FILE);
EE8FIRST(F+31+SECONDARY+ROADS+FILE);
RECORD+FOUND := EE8FOUND(
```

```
  F.31.SECONDARY.ROADS.FILE);
  WHILE RECORD.FOUND DO
  BEGIN
    EE8SAVDS(F.31.SECONDARY.ROADS.FILE,
  EE7SAV01);

          DREAL := D.131.SECONDARY.ROAD.X.DATA ;
  EE8UPDATE(F.31.SECONDARY.ROADS.FILE);
  EE8RESDS(F.31.SECONDARY.ROADS.FILE,
  EE7SAV01);
  EE8NEXT(F.31.SECONDARY.ROADS.FILE);
  RECORD.FOUND := EE8FOUND(
  F.31.SECONDARY.ROADS.FILE)
  END
  END


  ;
  END;
    (*  SUBSET PROCEDURES AND HEADERS                    PDSF*)
  PROCEDURE S.1.CHECK.NELS.SENSOR.STATUS.SUB;
  FORWARD;
  PROCEDURE S.2.DO.NELS.OPERATIONAL.CONTROL.SUB;
  FORWARD;
  PROCEDURE S.3.MODEL.NELS.GPS.PROCESSING.SUB;
  FORWARD;
  PROCEDURE S.4.MODEL.NELS.PLATFORM.SUB;
  FORWARD;
  PROCEDURE S.5.MODEL.NELS.SENSOR.SUB;
  FORWARD;
  PROCEDURE S.1.CHECK.NELS.SENSOR.STATUS.SUB;
  LABEL 6,
        5,
        4,
        3,
        2,
        1;
  BEGIN (*   MAIN BODY  *)
  EENDFLAG:=TRUE;
  IF EEDIBUG THEN WRITELN(' ',' ':25,'S.1.CHECK.NELS.SENSOR.STATUS.SUB ',
  'BEGINS TO EXECUTE');
  IF EEDIBUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
  'ET.3.NELS.FLIGHT.ET EXECUTES'
  );
  EE8UPDATE(ET.3.NELS.FLIGHT.ET);
  EE8FIRST (ET.3.NELS.FLIGHT.ET);
  WHILE (NOT EE8EMDS(
  ET.3.NELS.FLIGHT.ET)) AND (NOT(
  (D.140.TAD.DATA = TRUE)
  )) DO EE8NEXT(
  ET.3.NELS.FLIGHT.ET);
  FOUND := EE8FOUND(
  ET.3.NELS.FLIGHT.ET);
  IF EEDIBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
  IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
  WRITELN(OUTPUT,'FALSE') END;
```

```
IF EE$IFUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'ET+S+NELS+PRE+BRIEFED+SOI+ET EXECUTES'
);
EE$UPDATE(ET+S+NELS+PRE+BRIEFED+SOI+ET);
EE$FIRST (ET+S+NELS+PRE+BRIEFED+SOI+ET);
WHILE (NOT EE$END$(
ET+S+NELS+PRE+BRIEFED+SOI+ET)) AND (NOT(
(0+140+IND+DATA = TRUE)
)) DO EE$NEXT(
ET+S+NELS+PRE+BRIEFED+SOI+ET);
FOUND := EE$FOUND(
ET+S+NELS+PRE+BRIEFED+SOI+ET);
IF EE$IFUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF EE$IFUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'ET+R+NELS+PRE+BRIEFED+ADI+ET EXECUTES'
);
EE$UPDATE(ET+R+NELS+PRE+BRIEFED+ADI+ET);
EE$FIRST (ET+R+NELS+PRE+BRIEFED+ADI+ET);
WHILE (NOT EE$END$(
ET+R+NELS+PRE+BRIEFED+ADI+ET)) AND (NOT(
(0+140+IND+DATA = TRUE)
)) DO EE$NEXT(
ET+R+NELS+PRE+BRIEFED+ADI+ET);
FOUND := EE$FOUND(
ET+R+NELS+PRE+BRIEFED+ADI+ET);
IF EE$IFUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF EE$IFUG THEN WRITELN(' ':30,'ALPHA ',
'A+17+NELS+SE$SON+STATUS+ALPHA',
' EXECUTES');
A+17+NELS+SE$SON+STATUS+ALPHA;
BEGIN (* AND BRANCH 2 *)
IF EE$IFUG THEN WRITELN(' ':30,'OUTPUT+INTERFACE ',
'TO+TIMING+AND+CONTROL+FROM+NELS',
' EXECUTES');
EE$TIME:=0;
EE$TU'(TO+TIMING+AND+CONTROL+FROM+NELS);
EE$SIEv('TO+TIMING+AND+CONTROL+FROM+NELS
,0,0,0+
EE$LOCK);
2:END; (* END OF AND BRANCH 2 *)
BEGIN (* AND BRANCH 3 *)
IF (0+136+SE$SCOPE+MODE+OF+OPERATION+DATA
=TRUE)
THEN BEGIN (* IF AND C *)
4: (* END OF AND C *)
END ELSE
IF (0+136+SE$SUB+MODE+OF+OPERATION+DATA
=OUT+SUBFILLED)
OR(0+136+SE$SCOPE+OF+OPERATION+DATA
=OUT+SCOPE)
OR(0+136+SE$SCOPE+OF+OPERATION+DATA
=OUT+SUBFILLED)
OR(0+136+SE$SCOPE+OF+OPERATION+DATA
```

```
=ADI+SEARCH)
 THEN BEGIN (* OR BRANCH 5 *)
IF EEDIBUG THEN WRITELN(' ':30,'EVENT
'F+1+ACTIVATE+SENSOR+EVENT',
' OCCURS ');
EESETEV('F+1+ACTIVATE+SENSOR+EVENT
,5,0.0+
EECLOCK);
5: (* END OF OR BRANCH 5 *)
END ELSE
BEGIN
WRITELN(OUTPUT,' CONSIDER OR-NODE DOES NOT COVER ALL'
,' POSSIBILITIES. SIMULATOR ABORTED.'); HALT END;
3:END; (* END OF AND BRANCH 3 *)
BEGIN (* AND BRANCH 6 *)
EENDFLAG:=FALSE;
6:END; (* END OF AND BRANCH 6 *)
1:IF EEDIBUG THEN WRITELN(' ',' ':25,'SUBNET ',
'S+1+CHECK+NELS+SENSOR+STATUS+SUB ',
'EXECUTION ENDS');
END; (* END OF SUBNET PROCEDURE *)
(*  S+1+CHECK+NELS+SENSOR+STATUS+SUB *)
PROCEDURE S+2+DO+NELS+OPERATIONAL+CONTROL+SUB;
LABEL 4,
      3,
      2,
      1;
BEGIN (*   MAIN BODY  *)
EENDFLAG:=TRUE;
IF EEDIBUG THEN WRITELN(' ',' ':25,'SUBNET ',
'S+2+DO+NELS+OPERATIONAL+CONTROL+SUB ',
'BEGINS TO EXECUTE');
S+4+MODEL+NELS+PLATFORM+SUB;
IF EENDFLAG THEN GOTO 1;
EENDFLAG:=TRUE;
(* SUBNET *)
BEGIN (* AND BRANCH 2 *)
EENDFLAG:=FALSE;
2:END; (* END OF AND BRANCH 2 *)
BEGIN (* AND BRANCH 3 *)
IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A+13+NELS+PLATFORM+LOCATION+MSG+ALPHA',
' EXECUTES');
A+13+NELS+PLATFORM+LOCATION+MSG+ALPHA;
IF EEDIBUG THEN WRITELN(' ':30,'OUTPUT+INTERFACE ',
'TO+TIMING+AND+CONTROL+FROM+NELS',
' EXECUTES');
EETITLE:=0;
EEBTUI(TO+TIMING+AND+CONTROL+FROM+NELS);
EESETEV('TO+TIMING+AND+CONTROL+FROM+NELS
,6,0.0+
EECLOCK);
3:END; (* END OF AND BRANCH 3 *)
BEGIN (* AND BRANCH 4 *)
S+5+MODEL+NELS+SENSOR+SUB;
IF EENDFLAG THEN GOTO 4;
EENDFLAG:=TRUE;
```

```
(* SUBNET *)
S$3$MODEL$NELS$GPS$PROCESSING$SUB;
IF ENDFLAG THEN GOTO 4;
ENDFLAG:=TRUE;
(* SUBNET *)
IF DEBUG THEN WRITELN(' ':30,'ALPHA ',
'A$20$NELS$SURVEILLANCE$AND$TRACK$MSGS$ALPHA',
' EXECUTES');
A$20$NELS$SURVEILLANCE$AND$TRACK$MSGS$ALPHA;
IF DEBUG THEN WRITELN(' ':30,'OUTPUT$INTERFACE
'TO$TIMING$AND$CONTROL$FROM$NELS',
' EXECUTES');
CPITIME:=0;
EF$TOI(T)$TIMING$AND$CONTROL$FROM$NELS);
EESETEV('TO$TIMING$AND$CONTROL$FROM$NELS
',6,0,0+
EECLOCK);
4:END; (* END OF AND BRANCH 4 *)
1:IF DEBUG THEN WRITELN(' ',' ':25,'SUBNET ',
'S$2$DO$NELS$OPERATIONAL$CONTROL$SUB ',
'EXECUTION ENDS');
END;  (* END OF SUBNET PROCEDURE *)
(*  S$2$DO$NELS$OPERATIONAL$CONTROL$SUB *)
PROCEDURE S$3$MODEL$NELS$GPS$PROCESSING$SUB;
LABEL 3,
      2,
      1;
BEGIN (*   MAIN BODY  *)
ENDFLAG:=TRUE;
IF DEBUG THEN WRITELN(' ',' ':25,'SUBNET ',
'S$3$MODEL$NELS$GPS$PROCESSING$SUB ',
'BEGINS TO EXECUTE');
IF DEBUG THEN WRITELN(' ':30,'ALPHA ',
'A$21$NELS$TARGET$ACQUISITION$ALPHA',
' EXECUTES');
A$21$NELS$TARGET$ACQUISITION$ALPHA;
IF DEBUG THEN WRITELN(' ':30,'ALPHA ',
'A$06$NELS$COARSE$LOCATION$ALPHA',
' EXECUTES');
A$06$NELS$COARSE$LOCATION$ALPHA;
IF DEBUG THEN WRITELN(' ':30,'ALPHA ',
'A$07$NELS$FINE$LOCATION$ALPHA',
' EXECUTES');
A$07$NELS$FINE$LOCATION$ALPHA;
IF DEBUG THEN WRITELN(' ':30,'ALPHA ',
'A$12$NELS$PERFORM$SIGNATURE$ANALYSIS$ALPHA',
' EXECUTES');
A$12$NELS$PERFORM$SIGNATURE$ANALYSIS$ALPHA;
BEGIN (* AND BRANCH 2 *)
IF DEBUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'ET$1$NELS$EMISSION$THREAT$ET EXECUTES'
);
EF$UPDATE(ET$1$NELS$EMISSION$THREAT$ET);
EF$NEXT (ET$1$NELS$EMISSION$THREAT$ET);
WHILE (NOT EF$END)S(
ET$1$NELS$EMISSION$THREAT$ET)) AND (NOT(
(C$1$DO$TUPLE$DATA = TRUE)
```

```
)) DO EE$NEXT(
ET+1+NELS+EMISSION+THREAT+ET);
FOUND := EEFOUND(
ET+1+NELS+EMISSION+THREAT+ET);
IF EEDIBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A+23+NELS+THREAT+TABLE+UPDATE+ALPHA',
' EXECUTES');
A+23+NELS+THREAT+TABLE+UPDATE+ALPHA;
(* REJOIN *)
2:END; (* END OF AND BRANCH 2 *)
BEGIN (* AND BRANCH 3 *)
IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A+08+NELS+FREQUENCY+SCAN+OPTIMIZATION+ALPHA',
' EXECUTES');
A+08+NELS+FREQUENCY+SCAN+OPTIMIZATION+ALPHA;
3:END; (* END OF AND BRANCH 3 *)
EENDFLAG:=FALSE;
1:IF EEDIBUG THEN WRITELN(' ',' ':25,'SUBNET ',
'S+3+MODEL+NELS+GPS+PROCESSING+SUB ',
'EXECUTION ENDS');
END; (* END OF SUBNET PROCEDURE *)
(*  S+3+MODEL+NELS+GPS+PROCESSING+SUB *)
PROCEDURE S+4+MODEL+NELS+PLATFORM+SUB;
LABEL 1;
BEGIN (*   MAIN BODY  *)
EENDFLAG:=TRUE;
IF EEDIBUG THEN WRITELN(' ',' ':25,'SUBNET ',
'S+4+MODEL+NELS+PLATFORM+SUB ',
'BEGINS TO EXECUTE');
IF EEDIBUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'ET+3+NELS+FLIGHT+ET EXECUTES'
);
EEUPDATE(ET+3+NELS+FLIGHT+ET);
EEFIRST (ET+3+NELS+FLIGHT+ET);
WHILE (NOT EEENDS(
ET+3+NELS+FLIGHT+ET)) AND (NOT(
(D+140+TBD+DATA = TRUE)
)) DO EE$NEXT(
ET+3+NELS+FLIGHT+ET);
FOUND := EEFOUND(
ET+3+NELS+FLIGHT+ET);
IF EEDIBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A+02+GENERATE+DVE+ALPHA',
' EXECUTES');
A+02+GENERATE+DVE+ALPHA;
IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A+03+GENERATE+INS+ALPHA',
' EXECUTES');
A+03+GENERATE+INS+ALPHA;
IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A+01+INE+INS+FIRE+GENERATION+ALPHA',
```

```
' EXECUTES');
A:=1;ONE:=INS+SUISE+GENERATION+ALPHA;
ERRORFLAG:=FALSE;
1:IF DEBUG THEN WRITELN(' ',' ':25,'SUBNET ',
'S+S+MODEL+ELS+PLATFORM+SUB ',
'EXECUTION ENDS');
END;  (* END OF SUBNET PROCEDURE *)
(*  S+S+MODEL+ELS+PLATFORM+SUB *)
PROCEDURE S+S+MODEL+ELS+SENSOR+SUB;
LABEL 1;
BEGIN (*  DATA BODY  *)
ERRORFLAG:=TRUE;
IF DEBUG THEN WRITELN(' ',' ':25,'SUBNET ',
'S+S+MODEL+ELS+SENSOR+SUB ',
'BEGINS TO EXECUTE');
IF DEBUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'ET+6+MELS+VEHICLE+CHARACTERISTICS+ET EXECUTES'
);
ERRUPDATE(ET+A+MELS+VEHICLE+CHARACTERISTICS+ET);
ERRFIRST (ET+A+MELS+VEHICLE+CHARACTERISTICS+ET);
WHILE (NOT ERRFOUND(
ET+6+MELS+VEHICLE+CHARACTERISTICS+ET)) AND (NOT(
(D+140+T+D+DATA = TRUE)
)) DO ERRNEXT(
ET+A+MELS+VEHICLE+CHARACTERISTICS+ET);
FOUND := ERRFOUND(
ET+6+MELS+VEHICLE+CHARACTERISTICS+ET);
IF DEBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF DEBUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'ET+2+MELS+EMITTER+GROUND+TRUTH+ET EXECUTES'
);
ERRUPDATE(ET+2+MELS+EMITTER+GROUND+TRUTH+ET);
ERRFIRST (ET+2+MELS+EMITTER+GROUND+TRUTH+ET);
WHILE (NOT ERRFOUND(
ET+2+MELS+EMITTER+GROUND+TRUTH+ET)) AND (NOT(
(D+140+T+D+DATA = TRUE)
)) DO ERRNEXT(
ET+2+MELS+EMITTER+GROUND+TRUTH+ET);
FOUND := ERRFOUND(
ET+2+MELS+EMITTER+GROUND+TRUTH+ET);
IF DEBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF DEBUG THEN WRITELN(' ':30,'ALPHA ',
'A+1+MELS+SIGNAL+OF+INTEREST+FILTER+ALPHA',
' EXECUTES');
A+1+MELS+SIGNAL+OF+INTEREST+FILTER+ALPHA;
IF DEBUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'ET+5+MFLS+ONE+MANEUVER+SUT+ET EXECUTES'
);
ERRUPDATE(ET+5+MELS+PREL+DIFFEL+SOI+ET);
ERRFIRST (ET+5+MELS+PREL+DIFFEL+SOI+ET);
WHILE (NOT ERRFOUND(
ET+5+MELS+PREL+DIFFEL+SOI+ET)) AND (NOT(
(D+1+T+D+DATA = TRUE)
```


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```
)) DO EE$NEXT(
ET+5+NELS+PRE+BRIEFED+AOI+ET));
FOUND := EE$FOUND(
ET+5+NELS+PRE+BRIEFED+AOI+ET);
IF EEDIBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A+05+NELS+AREA+OF+INTEREST+FILTER+ALPHA',
' EXECUTES');
A+05+NELS+AREA+OF+INTEREST+FILTER+ALPHA;
IF EEDIBUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'ET+5+NELS+PRE+BRIEFED+AOI+ET EXECUTES'
);
EE8UPDATE(ET+8+NELS+PRE+BRIEFED+AOI+ET);
EE8FIRST (ET+8+NELS+PRE+BRIEFED+AOI+ET);
WHILE (NOT EE8ENDS(
ET+8+NELS+PRE+BRIEFED+AOI+ET)) AND (NOT(
(D+140+TBD+DATA = TRUE)
)) DO EE8NEXT(
ET+8+NELS+PRE+BRIEFED+AOI+ET);
FOUND := EE8FOUND(
ET+8+NELS+PRE+BRIEFED+AOI+ET);
IF EEDIBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF EEDIBUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'ET+7+NELS+WEATHER+ET EXECUTES'
);
EE8UPDATE(ET+7+NELS+WEATHER+ET);
EE8FIRST (ET+7+NELS+WEATHER+ET);
WHILE (NOT EE8ENDS(
ET+7+NELS+WEATHER+ET)) AND (NOT(
(D+140+TBD+DATA = TRUE)
)) DO EE8NEXT(
ET+7+NELS+WEATHER+ET);
FOUND := EE8FOUND(
ET+7+NELS+WEATHER+ET);
IF EEDIBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A+19+NELS+SIGNAL+TO+NOISE+DETECTABILITY+ALPHA',
' EXECUTES');
A+19+NELS+SIGNAL+TO+NOISE+DETECTABILITY+ALPHA;
IF EEDIBUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET EXECUTES'
);
EE8UPDATE(ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET);
EE8FIRST (ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET);
WHILE (NOT EE8ENDS(
ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET)) AND (NOT(
(D+140+TBD+DATA = TRUE)
)) DO EE8NEXT(
ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET);
FOUND := EE8FOUND(
ET+9+SIGNAL+NOISE+CANDIDATE+TARGETS+ET);
```

```
IF FEEDBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF FEEDBUG THEN WRITELN(' ':30,'ALPHA ',
'A+22+MODELS+TERRAIN+ECLIPSE+SHADOWING+ALPHA',
' EXECUTES');
A+22+MODELS+TERRAIN+ECLIPSE+SHADOWING+ALPHA;
ENDOFLAG:=FALSE;
1:IF FEEDBUG THEN WRITELN(' ',' ':25,'SUBNET ',
'S+5+MODEL+MODELS+SENSOR+SUB ',
'EXECUTION ENDS');
END; (* END OF SUBNET PROCEDURE *)
(* S+5+MODULE+MODELS+SENSOR+SUB *)
(* R+NET PROCEDURES POSF *)
PROCEDURE P+1+HANDLE+MODELS+SENSOR+AND+GPS+PROCESSING+R+NET;
LABEL 1;
BEGIN (* MAIN BODY *)
IF FEEDBUG THEN WRITELN('0',' ':20,'R+NET ',
'P+1+HANDLE+MODELS+SENSOR+AND+GPS+PROCESSING+R+NET ',
' BEGINS TO EXECUTE - TIME = ',EECLOCK);
EESLOCAL;
CLOCK+TIME:=EECLOCK;
S+2+OD+MODELS+OPERATIONAL+CONTROL+SUB;
IF ENDOFLAG THEN GOTO 1;
ENDOFLAG:=TRUE;
(* SUBNET *)
S+1+CHECK+MODELS+SENSOR+STATUS+SUB;
IF ENDOFLAG THEN GOTO 1;
ENDOFLAG:=TRUE;
(* SUBNET *)
1:EEDIDNEK;
IF EEDIBUG THEN WRITELN(' ',' ':20,'R+NET ',
'P+1+HANDLE+MODELS+SENSOR+AND+GPS+PROCESSING+R+NET ',
' EXECUTION ENDS');
END; (* END OF R+NET PROCEDURE *)
(* P+1+HANDLE+MODELS+SENSOR+AND+GPS+PROCESSING+R+NET *)
PROCEDURE P+2+MODEL+MODELS+SENSOR+SYSTEM+R+NET;
LABEL 12,
      11,
      10,
      9,
      8,
      7,
      6,
      5,
      4,
      3,
      2,
      1;
BEGIN (* MAIN BODY *)
IF FEEDBUG THEN WRITELN('0',' ':20,'R+NET ',
'P+2+MODEL+MODELS+SENSOR+SYSTEM+R+NET ',
' BEGINS TO EXECUTE - TIME = ',EECLOCK);
EESLOCAL;
CLOCK+TIME:=EECLOCK;
IF FEEDBUG THEN WRITELN(' ':30,'INPUT+INTERFACE ',
'INTO+MODELS+SENSOR',
```

```
' EXECUTES');
EESFIRST(INTO$NELS$SENSOR);
FOUND:=EESFOUND(INTO$NELS$SENSOR);
IF (NOT FOUND) THEN BEGIN WRITE(' ':30,'NO MESSAGE ON INPUT$INTERFACE');
WRITELN(' INTO$NELS$SENSOR')
 END;
(* IF EEITIME<>EECLOCK THEN ERROR CODE *)
IF (D*004*ASET*MSG*NAME*DATA
=MN*01*ES*NELS*INIT*AND*ENVIRONMENT*DATA)
 THEN BEGIN (* OR BRANCH 2 *)
IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A*04*INITIALIZE*NELS*ALPHA',
' EXECUTES');
A*04*INITIALIZE*NELS*ALPHA;
IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A*09*NELS*MAKE*SENSOR*REQUESTS*ALPHA',
' EXECUTES');
A*09*NELS*MAKE*SENSOR*REQUESTS*ALPHA;
IF EEDIBUG THEN WRITELN(' ':30,'OUTPUT*INTERFACE ',
'TO*TIMING*AND*CONTROL*FROM*NELS',
' EXECUTES');
EEITIME:=0;
EERTOI(TO*TIMING*AND*CONTROL*FROM*NELS);
EFSETEV('TO*TIMING*AND*CONTROL*FROM*NELS
,6,0,(*
EECLOCK);
2: (* END OF OR BRANCH 2 *)
END ELSE
IF (D*004*ASET*MSG*NAME*DATA
=MN*15*T*ANDOR*STOP*ELS)
 THEN BEGIN (* OR BRANCH 3 *)
IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A*24*RESET*NELS*ALPHA',
' EXECUTES');
A*24*RESET*NELS*ALPHA;
3: (* END OF OR BRANCH 3 *)
END ELSE
IF (L*004*ASET*MSG*NAME*DATA
=MN*02*NELS*CERTO*UPDATES)
OR(D*004*ASET*MSG*NAME*DATA
=MN*03*NELS*COMMANDERS*REQUIREMENTS)
OR(D*002*ASET*MSG*NAME*DATA
=MN*04*NELS*MODIFIED*TASK)
OR(D*004*ASET*MSG*NAME*DATA
=MN*06*NELS*OBSTI*MODIFICATIONS)
OR(D*004*ASET*MSG*NAME*DATA
=MN*04*NELS*PRIORITIZED*SENSOR*DIRECTIONS)
OR(D*004*ASET*MSG*NAME*DATA
=MN*09*NELS*REQUESTED*SENSOR*DATA)
 THEN BEGIN (* OR BRANCH 4 *)
BEGIN (* AND BRANCH 5 *)
S*1*CHECK*NELS*SENSOR*STATUS*SUM;
IF EEANDFLAG THEN GOTO 5;
EEANDFLAG:=TRUE;
(* SUBJECT *)
5:END; (* END OF AND BRANCH 5 *)
BEGIN (* AND BRANCH 6 *)
```

```
IF (D+004+ASET+'SC+'AME+'DATA
='W+02+'ELS+CA+TO+'F'ATES)
 THEN BEGIN (* OR BRANCH 7 *)
IF EE'IPUS THEN WRITELN(' ':30,'ALPHA ',
'A+25+'PDATE+'ARIC+'ALPHA',
' EXECUTES');
A+25+'P'ATE+CA'TO+'ALPHA;
7: (* END OF OR BRANCH 7 *)
END ELSE
IF (D+004+ASET+'SC+'AME+'DATA
='W+03+'ELS+COMMANDERS+REQUIREMENTS)
 THEN BEGIN (* OR BRANCH 8 *)
IF EE'IPUS THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'EI+S+AELS+E+E+'RIEFED+SUI+ET EXECUTES'
);
EE+U'ATE(ET+E+'ELS+'RE+'RIEFED+SOI+ET);
EE+FIRST (ET+C+'ELS+'RE+'RIEFED+SOI+ET);
WHILE ('OT EE+E'DS(
ET+5+'ELS+'RE+'RIEFED+SOI+ET)) AND (NOT(
(D+140+TRU+DATA = TRUE)
)) DO EE'E(T(
ET+5+'ELS+PRE+'RIEFED+SOI+ET);
FOUND := FE'FOUND(
ET+5+'ELS+'RE+'RIEFED+SOI+ET);
IF EE'IPUS THEN BEGIN WRITE(OUTPUT,' ':30,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF EE'IPUS THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'EI+A+AELS+'RE+'RIEFED+AUI+ET EXECUTES'
);
EE+U'ATE(ET+E+'ELS+'RE+'RIEFED+AOI+ET);
EE+FIRST (ET+C+'ELS+'RE+'RIEFED+AOI+ET);
WHILE ('OT EE'E'DS(
ET+A+'ELS+'RE+'RIEFED+AOI+ET)) AND (NOT(
(D+140+TRU+DATA = TRUE)
)) DO EE'E(T(
ET+A+'ELS+'RE+'RIEFED+AOI+ET);
FOUND := FE'FOUND(
ET+A+'ELS+'RE+'RIEFED+AOI+ET);
IF EE'IPUS THEN BEGIN WRITE(OUTPUT,' ':30,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF EE'IPUS THEN WRITELN(' ':30,'ALPHA ',
'A+12+'ELS+'RE+'OCESS+COMMANDERS+REQUIREMENTS+ALPHA',
' EXECUTES');
A+12+'ELS+'RE+'OCESS+COMMANDERS+REQUIREMENTS+ALPHA;
9: (* END OF OR BRANCH 8 *)
END ELSE
IF (D+'+'+SET+'SC+'AME+'DATA
='W+04+'ELS+'RIORITIZE+SERVICE+OBJECTIVES)
 THEN BEGIN (* OR BRANCH 9 *)
IF EE'IPUS THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'EI+A+AELS+'RE+'RIEFED+SOI+ET EXECUTES'
);
EE+U'ATE(ET+E+'ELS+'RE+'RIEFED+SOI+ET);
EE+FIRST (ET+C+'ELS+'RE+'RIEFED+SOI+ET);
WHILE ('OT EE'E'DS(
```

```
  ET+4+NELS+FREQUENCY+SCAN+ET)) AND (NOT(
  (D+140+T3D+DATA = TRUE)
  )) DO EE8NEXT(
  ET+4+NELS+FREQUENCY+SCAN+ET);
  FOUND := EE8FOUND(
  ET+4+NELS+FREQUENCY+SCAN+ET);
  IF EEDIBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
  IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
  WRITELN(OUTPUT,'FALSE') END;
  IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
  'A+15+NELS+PROCESS+PRIORITIZED+SENSOR+DIRECTIONS+ALPHA',
  ' EXECUTES');
  A+15+NELS+PROCESS+PRIORITIZED+SENSOR+DIRECTIONS+ALPHA;
  9: (* END OF OR BRANCH 9 *)
  END ELSE
  IF (D+004+ASET+MSG+NAME+DATA
  =MN+04+NELS+MODIFIED+TASK)
   THEN BEGIN (* OR BRANCH 10 *)
  IF EEDIBUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
  'ET+3+NELS+FLIGHT+ET EXECUTES'
  );
  EE8UPDATE(ET+3+NELS+FLIGHT+ET);
  EE8FIRST (ET+3+NELS+FLIGHT+ET);
  WHILE (NOT EE8ENDS(
  ET+3+NELS+FLIGHT+ET)) AND (NOT(
  (D+140+T3D+DATA = TRUE)
  )) DO EE8NEXT(
  ET+3+NELS+FLIGHT+ET);
  FOUND := EE8FOUND(
  ET+3+NELS+FLIGHT+ET);
  IF EEDIBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
  IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
  WRITELN(OUTPUT,'FALSE') END;
  IF EEDIBUG THEN WRITELN(' ':30,'ALPHA ',
  'A+11+NELS+MODIFY+TASK+ALPHA',
  ' EXECUTES');
  A+11+NELS+MODIFY+TASK+ALPHA;
  IF EEDIBUG THEN WRITELN(' ':30,'OUTPUT+INTERFACE ',
  'TO+TIMING+AND+CONTROL+FROM+NELS',
  ' EXECUTES');
  EE1TIME:=0;
  EE8TOI(TO+TIMING+AND+CONTROL+FROM+NELS);
  EESETEV('TO+TIMING+AND+CONTROL+FROM+NELS
  ,6,0,0+
  EECLOCK);
  10: (* END OF OR BRANCH 10 *)
  END ELSE
  IF (D+004+ASET+MSG+NAME+DATA
  =MN+06+NELS+OPSIT+MODIFICATIONS)
   THEN BEGIN (* OR BRANCH 11 *)
  IF EEDIBUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
  'ET+3+NELS+FLIGHT+ET EXECUTES'
  );
  EE8UPDATE(ET+3+NELS+FLIGHT+ET);
  EE8FIRST (ET+3+NELS+FLIGHT+ET);
  WHILE (NOT EE8ENDS(
  ET+3+NELS+FLIGHT+ET)) AND (NOT(
```

```
(D+180+T80+DATA = TRUE)
)) DO EFBNEXT(
ET+3+NELS+FLIGHT+ET);
FOUND := FEFFOUND(
ET+3+NELS+FLIGHT+ET);
IF SEDIBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF SEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A+10+NELS+MODIFY+ORRIT+ALPHA',
' EXECUTES');
A+10+NELS+MODIFY+ORRIT+ALPHA;
11: (* END OF OR BRANCH 11 *)
END ELSE
IF (D+004+ASET+MSG+NAME+DATA
=M+0?+NELS+REQUESTED+SENSOR+DATA)
  THEN BEGIN (* OR BRANCH 12 *)
IF SEDIBUG THEN WRITELN(OUTPUT,' ':30,'SELECT ON ',
'ET+3+NELS+FLIGHT+ET EXECUTES'
);
EFBUPDATE(ET+3+NELS+FLIGHT+ET);
EFBFIRST (ET+3+NELS+FLIGHT+ET);
WHILE (NOT FEREMDS(
ET+3+NELS+FLIGHT+ET)) AND (NOT(
(D+180+T80+DATA = TRUE)
)) DO EFBNEXT(
ET+3+NELS+FLIGHT+ET);
FOUND := FEFFOUND(
ET+3+NELS+FLIGHT+ET);
IF SEDIBUG THEN BEGIN WRITE(OUTPUT,' ':40,'FOUND = ');
IF FOUND THEN WRITELN(OUTPUT,'TRUE') ELSE
WRITELN(OUTPUT,'FALSE') END;
IF SEDIBUG THEN WRITELN(' ':30,'ALPHA ',
'A+10+NELS+PROCESS+REQUESTED+DATA+ALPHA',
' EXECUTES');
A+10+NELS+PROCESS+REQUESTED+DATA+ALPHA;
12: (* END OF OR BRANCH 12 *)
END ELSE
BEGIN
WRITELN(OUTPUT,' CONSIDER OR-NODE DOES NOT COVER ALL'
,' POSSIBILITIES, SIMULATOR ABORTED.'); HALT END;
9:END; (* END OF A.T BRANCH 6 *)
4: (* END OF OR BRANCH 4 *)
END ELSE
BEGIN
WRITELN(OUTPUT,' CONSIDER OR-NODE DOES NOT COVER ALL'
,' POSSIBILITIES, SIMULATOR ABORTED.'); HALT END;
1:EFBDESTROY(
IMTR+NELS+SENSOR);
EFBQICHEK;
IF SEDIBUG THEN WRITELN(' ',' ':20,'R+NET ',
'R+2+MODEL+NELS+SENSOR+SYSTEM+R+NET ',
' EXECUTION ENDS');
END;  (* END OF R+NET PROCEDURE *)
(* R+2+MODEL+NELS+SENSOR+SYSTEM+R+NET *)
(* SIMULATION EXECUTIVE PROCEDURE          MISF    *)
(*-----------MISF CODE FOLLOWS-----------------------------------------*)
```

```
(*VAX ----------------------------------------------EESTOP                VAX*)
PROCEDURE EESTOP;
BEGIN
EETERM:=TRUE
END;
(*VAX ----------------------------------------------EERTOPE               VAX*)
PROCEDURE EERTOPE ( VAR EEVFOUND: BOOLEAN);
VAR
  EVT:EEVTPTR;
BEGIN
  EVT:=EEFEVT; EEVFOUND:=TRUE;
  IF EVT <> NIL THEN
    BEGIN
      EECLOCK:=EVT↑.EETIME; EECEVT:=EVT↑.EEVENT; EEFEVT:=EVT↑.EENEXTE;
      CLOCK_TIME := EECLOCK;
      DISPOSE(EVT)
    END
    ELSE
      BEGIN
      EEVFOUND:=FALSE; EETERM:=TRUE
      END
END;
```

```
(*VAX ------------------------------------------------EESETDEP                VAX*)
PROCEDURE EESETDEP;
```

```
VAR
  I: INTEGER;
BEGIN
  FOR I:=EEVLIST[EFCEVT  ].EEDEPPTR1 TO EEVLIST[EFCEVT  ].EEDEPPTR2
    DO EEDEPLST[I]:=TRUE
END;
(*VAX ----------------------------------------------EEVTLOG                VAX*)
PROCEDURE EEVTLOG(EEPARM: EESTP);
BEGIN
END;
(*VAX ----------------------------------------------EEVTLG1                VAX*)
PROCEDURE EEVTLG1(EEPARM: EESTP);
BEGIN
END;
(*----------END OF RISF CODE BLOCK-----------------------------------------*)
(* INITIAL CODE FOR PROCEDURE SCHEDULER  RISF    *)
(*----------RISF CODE FOLLOWS----------------------------------------------*)
(*VAX ----------------------------------------------EESCHED                VAX*)
PROCEDURE EESCHED;
VAR
  EEVPOINTER: ^INTEGER;
BEGIN
EEATOPE(EEVPOINTER);
  IF EEVPOINTER<>NIL
  THEN
    EEGETPLST;
(*----------END OF RISF CODE BLOCK-----------------------------------------*)
(* PROCEDURE SCHEDULER SUBMODULE PROCEDURE PSSF *)
 IF EEDEPLST[  1] THEN
 BEGIN
   EEDEPLST[  1] := FALSE;
   R*1*HAVELET*NELS*SEMISOR*AND*GPS*PROCESSING*R*NET;
 END;
 IF EEDEPLST[  2] THEN
 BEGIN
   EEDEPLST[  2] := FALSE;
   SS*1*REST*OF*ASE;
 END;
 IF EEDEPLST[  3] THEN
 BEGIN
   EEDEPLST[  3] := FALSE;
   SSSTA*TUS;
 END;
 IF EEDEPLST[  4] THEN
 BEGIN
   EEDEPLST[  4] := FALSE;
   EESTOP;
 END;
 IF EEDEPLST[  5] THEN
 BEGIN
   EEDEPLST[  5] := FALSE;
   EEPROC;
 END;
 IF EEDEPLST[  6] THEN
 BEGIN
   EEDEPLST[  6] := FALSE;
   EEWAIT;
```

```
    END;
    IF EPCBPRIOSTI 7] THEN
    BEGIN
      EPCBPCLSTI  7] := FALSE;
      SSEXEC;
    END;
(* FINAL CODE FOR PROCEDURE SCHEDULER      RISF *)
(*-----------RISF CODE FOLLOWS-----------------------------------------*)
  END
END;
(*-----------END OF RISF CODE BLOCK-------------------------------------*)
(* SIMULATION EXECUTIVE MODULE PROCEDURE    RISF *)
(*-----------RISF CODE FOLLOWS-----------------------------------------*)
(*VAX ---------------------------------------------EEXEC                  VAX*)
PROCEDURE EEXEC;
BEGIN
  WHILE NOT EETERM DO
    BEGIN ESCHED END
END;
(*-----------END OF RISF CODE BLOCK-------------------------------------*)
(* SIMULATION DATA PROGRAM                  RISF *)
(*-----------RISF CODE FOLLOWS-----------------------------------------*)
BEGIN
  EEINITIAL;
  EEXEC;
VOID;
END.
```

APPENDIX F

VAX NOTES

Installing REVS on the VAX

The VAX 11/780 version of REVS was received as a magnetic tape containing command files for the installation and execution of REVS as well as source, object and executable files. A short installation guide accompanied the tape. The following is a discussion of the problems we encountered.

Most of the command files for installation included compilation and linking commands for a particular segment of the system in one file. On our system, re-linking the modules was necessary but recompiling them was not. These command files had to be split into two files each to be useful. The object file [REVS.CWS] SEMAGEN.OBJ did not exist on the tape. Recompilation of this module produced system compilation warnings.

Several system dependent features have been included in the code and command files. Only one of these was mentioned in the installation guide. NEWDISK.COM contains editing commands to correct the disk name on which [REVS] resides. To use it one must be sure the system recognizes the symbol EDT as a command to use the EDT editor. (Our system normally recognizes EDIT/EDT). Some of the command files used to run the programs try to mail a message to user ID [PTCDDP]. No explanation was given for this so all references to this ID were removed from the files, since each run produced an error message for attempting to send mail to a non-existent user.

Before building the nucleus data base, the file NUCLEUS.TST must be modified to include all of the required comment statements. Otherwise error messages are generated and the data base produced is incomplete.

The BATCH execution command file RUNREVSB.COM (created by REVSPRE) assigns ZZ to SYS$OUTPUT. This means that the BATCH log file, which contains accounting information and system error messages, disappears. This assignment can be removed in REVSPRE.FOR if the BATCH log is desired.

There is no provision in creation of the execution command file for time limits. If the data base pointers are incorrect (i.e. if the system crashes while execution is occurring) during the next run the program may run forever (or until someone gets suspicious enough to stop it).

Upon completion of a BATCH run a message is mailed to [REVS] indicating that the run is finished. Since the program is run from some other ID, REVSPRE.FOR must be modified to send the message to the actual originating ID if such a notification is desired.

Before any operations are done, the data base is copied into TAPE2.DAT. This file is then the one that is updated. The problem with this is that the real name of the input data base is not documented for BATCH runs.

In order to reduce page faults in this version, two modules of the DBCS library were modified. BLKPRO2.FOR was changed from

```
COMMON/PAGE/PAGE(102400)
DATA MPICOR/200/
     to
COMMON/PAGE/PAGE(512000)
DATA MPICOR/1000/
```

and BLKFIX.FOR from

```
DATA NPAGES/200/
     to
DATA NPAGES/1000/.
```

These modules are linked with MAINREVS, MANDDLA, MANDBIN, and VVDBLDR.

A HELP file was included which must be added to the System HELP library. However, it is not accessible from within interactive REVS (where there is likely to be a need for help) but only from the System level. The file merely contains a short version of the User's Guide.

If the VAX version of REVS is to be distributed, several changes are needed in the installation procedure. First, all system dependent features (such as disk and ID names) should be removed from both the code and command files. Obvious errors and omissions on the tape must be corrected so that the files are consistent with REVS operation.

Each step in the installation procedure should be implemented as a separate command file with complete explanation of what is being done. This would help to find any errors or problems at the time of installation. Command procedures created by the program should also be explained and referenced to the creating module(s). This would allow the user to choose such things as whether or not to have the BATCH log printed.

The data base management portion of the system should be updated to inculde new or more efficient features. Updates on this and other new features should be sent to all users.

A provision for limiting execution time should be added to eliminate the possibility of bad pointers causing excessively long, erroneous runs.

A HELP function should be made available from any point in the interactive REVS environment. If a scratch data base (TAPE2.DAT) is to be used, it should be transparent to the user. That is, reports and other output need to include the name of the actual input data base file. In addition, provision should be made to output the modified data base to a new file named by the user.

Finally, there should be a complete test case including input, output and instructions for running all phases of REVS. If any commands are not implemented, this should be noted as well as plans, if any, for accomplishing this.

Miscellaneous Notes

The following are random observations based on using the VAX version of REVS.

- REVS does not understand lower case letters. All commands must be input in capital (upper case) letters.
- The phases of RADX referred to in the documentation do not exist in the VAX version. All pre-defined sets are in one package.
- Caution should be exercised if using the Unix (TM) editor. Tab characters may be inserted by the editor which REVS does not recognize. The ASSM does not accept the information but if the tab causes the line length to exceed the maximum, the line will be truncated and hence information will be lost.

APPENDIX G

DESIGN QUALITY MEASURES

Introduction

For several subsystems of the Advanced Sensor Exploitation Test (ASET) system, designs were produced from the specification and from the SREM output for comparison purposes. The design methodology was as required by the Martin Marietta Denver Aerospace Software Engineering Standards Manual. Design quality was measured using the complexity models of McCabe and Myers.

The goal of software design is to produce reliable software in a systematic manner. Reliability is defined as the probability that a program will run for a given time before an error of given severity occurs [MYER75]. Reliable software should be simple, modular and understandable so that errors are minimized and those which do occur are easier to locate and correct. A less complex program is therefore a more reliable program and a complexity measure is an indirect measure of reliability.

Several complexity models have been developed to measure the reliability of software systems. The most reliable designs minimize complexity by the use of small, highly independent modules with high module strength (performance of a single function) and loose module coupling (data shared by formal parameter passing techniques). McCabe's method measures the modules for internal complexity (strength). Myers' measure deals with inter-module dependencies (coupling, modularity). These measures were applied to the designs from RSL and from software specification. However, there are probably too few data points data points to justify drawing any definite conclusions.

McCabe's Measure

In examining the complexity of our designs, we are interested in knowing how much more difficult one design is to understand over its alternative. The more complex the design, the more difficult it is to

comprehend and hence, there is a greater chance for induced error during translation to the next life cycle phase. McCabe defines complexity as the minimum number of paths through a module that can be used in linear combinations to form all possible paths through a module [MCCA76]. Hence, the more branch or decision points a module has, the more complex (and less reliable) it is. A simple measure is to count the number of decision points in a module. This measure is known as the cyclomatic complexity number, or v(G). McCabe goes further to suggest that v(G) should be less than ten for a module to be considered reasonably understandable. Values of v(G) greater than ten suggest that the modules may be far too complex.

The original McCabe's measure counts one (1) for the module and one (1) for each branch or decision point except the DO CASE construct which counts the number of branches in the case minus one. (A decision point is an IF-THEN-ELSE, a DO-WHILE, a DO-UNTIL or a DO-CASE design construct.) A modified McCabe's measure counts one for the module itself plus one for each decision point.

As the designs from RSL and the specification were being prepared, v(G) was also calculated. Although comparisons of v(G) on a module-by-module basis may be interesting, they cannot be valid. If and only if the functional decompositions of both designs were exactly identical could a module-by-module comparison be valid. This was not the case, however. For our purpose, it is more reasonable to compare the average v(G) values and the v(G) values for each subsystem considered as a whole -- a system level v(G), as it were. The measure can be calculated from the module level v(G) values and is also defined in [MCCA76]. Note however, that the limit of ten does not apply to a system-level v(G). A value of ten or less would imply a system with so few paths through it as to be trivial.

The results of our calculations are shown below. For each subsystem the average and system-level v(G) values are shown:

Subsystem	Average v(G) From RSL	Average v(G) From Spec	System Level v(G) From RSL	System Level v(G) From Spec
CSID	6.44	14.40	99	68
ASE	5.23	3.00	111	35
C^3I	5.50	3.31	19	31
NELS	2.33	3.22	9	41
MTI	2.00	3.17	9	27

Table

McCabe's Cyclomatic Complexity Measures

Myers' Measure

The term modular is applied to "a program that has been structured into many highly independent parts or modules" [MYER75]. The modularity measure described by Myers was applied to the designs produced for the ASE, C^3I, MTI and NELS subsystems from both of the design methods.

The Myers' method produces a symmetrical matrix describing the dependencies among the modules of a system. This is called a complete dependence matrix and is derived as follows.

The first step is to derive the first-order dependence matrix by constructing a coupling matrix C of the same dimension as the number of modules. C_{ij} represents the coupling between modules i and j. $C_{ij} = C_{ji}$, $C_{ii} = 1$. The values are determined from the following list:

Type of Coupling	Description	Matrix Value
Content	One module makes direct reference to contents of another.	0.95
Common	Both reference shared global data structure such as a data base or external file.	0.70
External	Both reference shared data item in external data base or file.	0.60
Control	Calling module passes data which is used to control execution of called module.	0.50
Stamp	Reference same data structure (not global).	0.35
Data	Share data by formal parameter passing (i.e. argument list).	0.20

The next step is to consider the individual modules and evaluate the internal strength of each. Strength values are determined as follows:

Type of Strength	Description	Value
Coincidental	No relationship amongst the functions in the module.	0.95
Logical	Logical relationship between elements (example: executive)	0.40
Classical	Logical and time connection between elements (example: initialization).	0.60
Procedural	Multiple functions related with with respect to procedure of problem.	0.40
Communicational	Elements of module use same data.	0.25

Informational	Package of functional modules.	0.20
Functional	All elements are related to the performance of a single function.	0.20

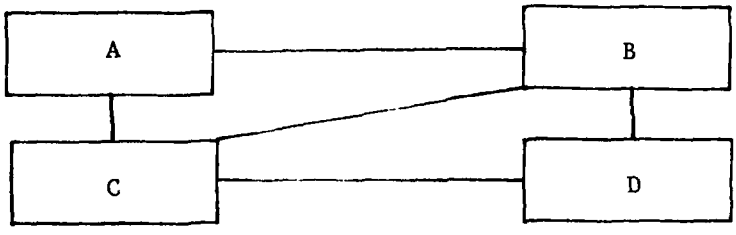
The first order dependence matrix is then computed from:

$$D_{ij} = 0.15\ (S_i + S_j) + 0.7\ C_{ij} \qquad C_{ij} = 0$$

$$D_{ij} = 0 \qquad C_{ij} = 0$$
$$D_{ij} = 1 \qquad i = j$$

The resultant matrix can be described as an undirected graph, where the modules are represented by nodes and the edges represent non-zero matrix elements. This matrix only shows the dependencies between modules which are adjacent in the hierarchy of the system. The complete dependence matrix will include the relationships between all of the modules.

To understand the complete dependence matrix, consider the system shown below.



If module A changes there are three possible paths by which module B could be affected (A-B, A-C-B, A-C-D-B). The probability of a change in A requiring a change in B is the product of the edges (non-zero values for the first order matrix) in the path.

Derive the complete dependence matrix by, first, finding all paths (and probabilities) between modules i and j. If there is only one path $E_{ij} = E_{ji} = P(x)$, where P(x) is the path probability. If there are two paths, $E_{ij} = E_{ji} = P(x) + P(y) - P(x)\,P(y)$. If there are three or more paths, choose the three largest probabilities. Then $E_{ij} = E_{ji} = P(x) + P(y) + P(z) - P(x)\,P(y) - P(x)\,P(z) - P(y)\,P(z) + P(x)\,P(y)\,P(z)$. $E_{ii} = 1$.

The sum of all of the elements in the complete dependence matrix divided by the number of modules yields an overall design measure. This measure is actually the expected number of modules that must be changed given that any random module changes (including the module itself). Again, the smaller the measure is, the better the design.

In order to facilitate meaningful comparison between the Myers' measures of systems with greatly different numbers of modules, some indication of the dispersion (error) in M is needed.

$$M = \frac{1}{n} \sum_{i=1}^{N} E_i$$

where

M is Myers' measure

n is the number of modules

N is n^2

E_i is an element of the complete dependence matrix.

Since M is functionally dependent on the E_i's, the expected error in M is

$$M = \left(\left(\frac{\delta M}{\delta E}\right)^2 (\Delta E)^2 \right)^{\frac{1}{2}}$$

$$= \left(\left(\frac{\delta \frac{1}{n}\Sigma E}{\delta E}\right)^2 (\Delta E)^2 \right)^{\frac{1}{2}}$$

$$= \left(\left(\frac{1}{n} \Sigma \frac{\delta E}{\delta E} \right)^2 (\Delta E)^2 \right)^{\frac{1}{2}}$$

$$= \left((n)^2 (\Delta E)^2 \right)^{\frac{1}{2}}$$

$$= n \Delta E$$

If ΔE is the standard deviation of E

$$S_E = \left(\frac{1}{n^2 - 1} \Sigma (E - \bar{E})^2 \right)^{\frac{1}{2}}$$

then M can be interpreted as $n S_E$.

The table below shows the results of the application.

Subsystem	RSL Design	Specification Design
ASE	3.83±18.23	6.28±13.85
C^3I	1.50±5.05	2.21±6.57
NELS	1.66±6.01	1.85±8.77
MTI	1.72±7.41	1.76±8.41

Table G-2 Myers' Modularity Measure

The Myers measure represents the probable number of modules one must alter in order to implement a change in the design. The lower the number, the more modular the design, and therefore the better the design . The application of the Myers Measure to the C^3I, MTI and NELS subsystems

resulted in nearly equivalent measures. This was expected due to the relatively simple subsystem constructs and simple designs generated from each design method. The ASE subsystem results were surprising in the sense that intuitively the ASE subsystem design from RSL is much less modular, or more interwoven, than the design from specification. We have identified two possible reasons for the resulting modularity numbers for the ASE subsystem. First, the overall Myers measure is determined by the sum of all the elements in the complete dependence matrix divided by the number of modules. The external accesses are dominant in the dependence matrix value and the number of modules in a design greatly affects the final modularity value. The number of external files accessed (18) is the same for both designs, but the number of modules is not close (54 for the specification design and 160 for the RSL design). Therefore, the resulting modularity values may not reflect valid design-level modularity measures. Secondly, many of the RSL process blocks, 38 to be specific, do nothing but form an output message and do not truly reflect any modularity concerns.

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