AFCTN Report 94-081

AFCTB-ID 94-039

Technical Raster Transfer Using:

Industrial Data Link's GOLFPORT

Project, Supporting:

ASC/YIEC And OO-ALC/PKDTM

(Contract #F0862-92-C-0012)

MIL-STD-1840A

MIL-R-28002A (Raster)

Quick Short Test Report

09 May 1994

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Prepared for
Electronic Systems Center
Air Force CALS Program Office
HQ ESC/AV-2
4027 Colonel Glenn Hwy Suite 300
Dayton OH 45431-1672

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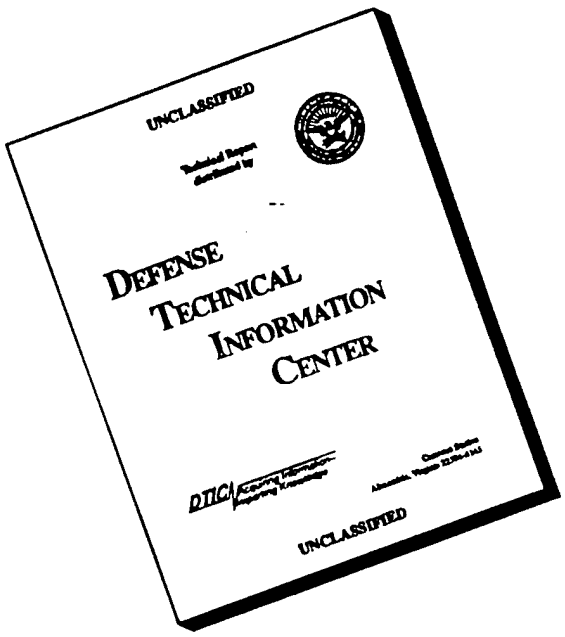

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Quick Short Test Report

09 May 1994

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Air Force CALS Test Bed

Notification of Test Results

09 May 1994

This notice documents the results of an Air Force CALS Test Bed (AFCTB) Quick Short Test Report (QSTR) evaluation of data submitted by:

Industrial Data Link

Identified as follows:

Title:	**Technical Raster Transfer**
Program:	**GOLFPORT**
Program Office:	**ASC/YIEC and OO-ALC/PKDTM**
Contract No.:	**F0862-92-C-0012**
QSTRNo.:	**AFCTB-ID 94-039**

Received on the following media: **9-Track Tape**

The results of the QSTR evaluation are as follows:

MIL-STD-1840A Standard	**Pass**
MIL-STD-1840A Media Format:	**Pass**
MIL-D-28000A IGES:	**N/A**
MIL-M-28001A SGML:	**N/A**
MIL-R-28002A Raster:	**Pass**
MIL-D-28003 CGM:	**N/A**

Formal results with associated disclaimer are documented and available from the AFCTB.

Air Force CALS Test Bed
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4027 Colonel Glenn Highway, Suite 300
Dayton, OH 45431-1672
Phone: 513-257-3085 FAX: 513-257-5881

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1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Industrial Data Link's interpretation and use of the CALS standards in transferring technical Raster data. Industrial Data Link used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

2. Test Parameters

Test Plan: AFCTB 94-039

Date of Evaluation: 9 May 1994

Evaluator:
George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/AV-2P
4027 Colonel Glenn Hwy
Suite 300
Dayton OH 45431-1672

Data Originator:
Debbie Glasser
Industrial Data Link
P. O. Box 900368
San Diego CA 92190
(619) 537-2960

Data Description: Technical Manual Test
3 Document Declaration files
19 Raster files

Data Source System:

1840

HARDWARE
VAX 3600

SOFTWARE
AFCTN *Tapetool*
AUTODESK *AutoCAD R 12C2*

Raster

HARDWARE
PC 486-33

SOFTWARE
Inset System *HiJaak v2.0*
AFCTN *validg4*

Evaluation Tools Used:

MIL-STD-1840A (TAPE)

SUN 3/280

AFCTN *Tapetool v1.2.10 UNIX*
XSoft *CAPS/CALS v40.4*

MIL-R-28002 (Raster)

HP 735

AFCTN *xrastb.hp*
InterCAP *X-Change v7.82*

SGI Indigo2

AFCTN *xrastb.sgi*
IGES Data Analysis (IDA) *CALSView*

SUN SparcStation 2

ArborText *g42tiff*
Carberry *CADLeaf Plus v3.1*
AFCTN *validg4*
AFCTN *xrastb.sun4*
IDA *IGESView v3.0*

PC 486

Inset Systems *HiJaak Pro*
Expert Graphics *RxHighlight v1.0*

Standards Tested:

MIL-STD-1840A
MIL-R-28002A

3. 1840A Analysis

3.1 External Packaging

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was marked with a magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was not enclosed in a barrier bag or barrier sheet material, as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. Enclosed in the box was a packing list showing all files recorded on the tape.

3.2 Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1 Tape Formats

The tape was run through the AFCTN *Tapetool v1.2.10* utility. No errors were encountered while evaluating the contents of the tape labels.

The tape was read using XSoft's *CAPS read1840A* utility without any reported errors.

The physical structure of the tape meets the CALS MIL-STD-1840A and ANSI x3.27 requirements.

3.2.2 Declaration and Header Fields

No errors were found in the Document Declaration file and data file headers. This portion of the tape meets the requirements defined in MIL-STD-1840A for CALS format.

4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included in this evaluation.

5. SGML Analysis

No Standard Generalized Markup Language (SGML) files were include in this evaluation.

6. Raster Analysis

The tape contained 19 Raster files. All files were evaluated using the AFCTN *validg4* utility. This program reported all 19 files meet the CALS MIL-R-28002A specification.

The files were read into the AFCTN *xrastb.sun4* viewing utility. No problems were noted, however, many of the files were unusable. The text displayed as dots with definitions. Some graphics were impossible to read.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

All files were viewed using the software applications shown below. While no problems were encountered during the viewing operation, the quality of files D001R001, R002, R004, R005, D002R003, R004, R005, R006, and D003R003 were judged to be unacceptable. All of the listed files had text or graphics that were unreadable. Samples of the files are included in Appendix B, Section 10 of this report.

The Raster files were read into Carberry's *CADLeaf* software without a reported error. The images were displayed and printed.

The files were read using IDA's *CALSView* without a reported error.

The files were read into IDA's *IGESView* and *IGESView for Windows* without a reported error.

The files were read into Inset Systems' *HiJaak for Windows* without a reported error.

The files were read using InterCAP's *X-Change* without a reported error.

The Raster files were imported into Expert Graphics' *Rx-Highlight* and displayed without a reported error.

While the Raster files meet the CALS MIL-R-28002A specification, the overall quality was not acceptable. Many of the images had areas which appear to be text but are not readable.

7. CGM Analysis

No Computer Graphics Metafile (CGM) files were included in this evaluation.

8. Conclusions and Recommendations

The tape from Industrial Data Link was correct. No errors were reported in the physical structure or CALS headers. The tape meets the requirements defined in CALS MIL-STD-1840A and ANSI x3.27.

All Raster files meet the CALS MIL-R-28002A specification. However, the quality of the images in many cases was unacceptable.

The tape submitted by Industrial Data Link meets the CALS MIL-STD-1840A requirements.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

```
CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information
    ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Mon May  9 11:00:07 1994

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set068

                                                                    Page: 1

                                                  Record
                                                  Format/    Block      Selected/
File Name                File Type                Length  Length/Total  Extracted
------------------------------------------------------------------------------ ---
D001                     Document Declaration     D/00260 02048/000001  Extracted
D002                     Document Declaration     D/00260 02048/000001  Extracted
D003                     Document Declaration     D/00260 02048/000001  Extracted
D001R001                 Raster                   F/00128 02048/000019  Extracted
D001R002                 Raster                   F/00128 02048/000009  Extracted
D001R003                 Raster                   F/00128 02048/000006  Extracted

                          <<<<< PART OF LOG FILE REMOVED HERE >>>>>

D003R003                 Raster                   F/00128 02048/000011  Extracted
D003R004                 Raster                   F/00128 02048/000008  Extracted

Catalog Process terminated normally.
```

9.2 Tape Evaluation Log

```
CALS Test Network Tape Evaluation - Version 1.2; Release 10 (C)
  Standards referenced:
    ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Mon May  9 10:59:53 1994

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1CALS01                                                              4

  Label Identifier: VOL1
  Volume Identifier: CALS01
  Volume Accessibility:
  Owner Identifier:
  Label Standard Version: 4

HDR1D001              CALS0100010001000000 94125 00000 000000

                          <<<<< PART OF LOG FILE REMOVED HERE >>>>>

********** Tape Mark ***************

############ End of Volume CALS01 ##############

############ End Of Tape File Set ##############

Deallocating /dev/rmt0...

Tape Import Process terminated normally.
```

9.3 Tape File Set Validation Log

```
CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Mon May  9 11:00:07 1994
MIL-STD-1840A File Set Evaluation Log
File Set: Set068

Found file: D001
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: Industrial Data Link Corp. 10060 Willow Creek Rd. San Diego, CA
92131 FSCM 4P410
srcdocid: GA0005
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19940505
dstsys: ME
dstdocid: GA0005
dstrelid: NONE
dtetrn: 19940505
dlvacc: CDRL A003
filcnt: R5
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: PARTS LIST / ASSEMBLY DRAWING
docttl: Measurement & Debriefing System, Gulfport ACMI

Found file: D001R001
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: GA0005
dstdocid: NONE
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: NONE
rtype: 1
rorient: 000,270
rpelcnt: 001500,001157
rdensty: 0300
notes: DRAWING
```

Saving Raster Header File: D001R001_HDR
Saving Raster Data File: D001R001_GR4

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D001.

Found file: D002
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: Industrial Data Link Corp. 10060 Willow Creek Rd. San Diego, CA 92131 FSCM 4P410
srcdocid: GA0008
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19940505
dstsys: ME
dstdocid: GA0008
dstrelid: NONE
dtetrn: 19940505
dlvacc: CDRL A003
filcnt: R9
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: ASSEMBLY DRAWING / PARTS LIST
docttl: Remote Site, NR6, Wiggins GNR ACMI

Found file: D002R001
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: GA0008
dstdocid: NONE
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: NONE
rtype: 1
rorient: 000,270

rpelcnt: 001500,001159
rdensty: 0300
notes: PARTS LIST SHEET 1

<<<<< *PART OF LOG FILE REMOVED HERE* >>>>>

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D002.

Found file: D003 Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: Industrial Data Link Corp. 10060 Willow Creek Rd. San Diego, CA 92131 FSCM 4P410
srcdocid: GA0009
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19940505
dstsys: ME
dstdocid: GA0009
dstrelid: NONE
dtetrn: 19940505
dlvacc: CDRL A003
filcnt: R4
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: ASSEMBLY DRAWING / PARTS LIST
docttl: Panel, Power Distribution

Found file: D003R001
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: GA0009
dstdocid: NONE
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: NONE
rtype: 1
rorient: 000,270

rpelcnt: 001500,001159
rdensty: 0300
notes: PARTS LIST SHEET 1

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D003.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

9.4 Other Tape Reading Logs

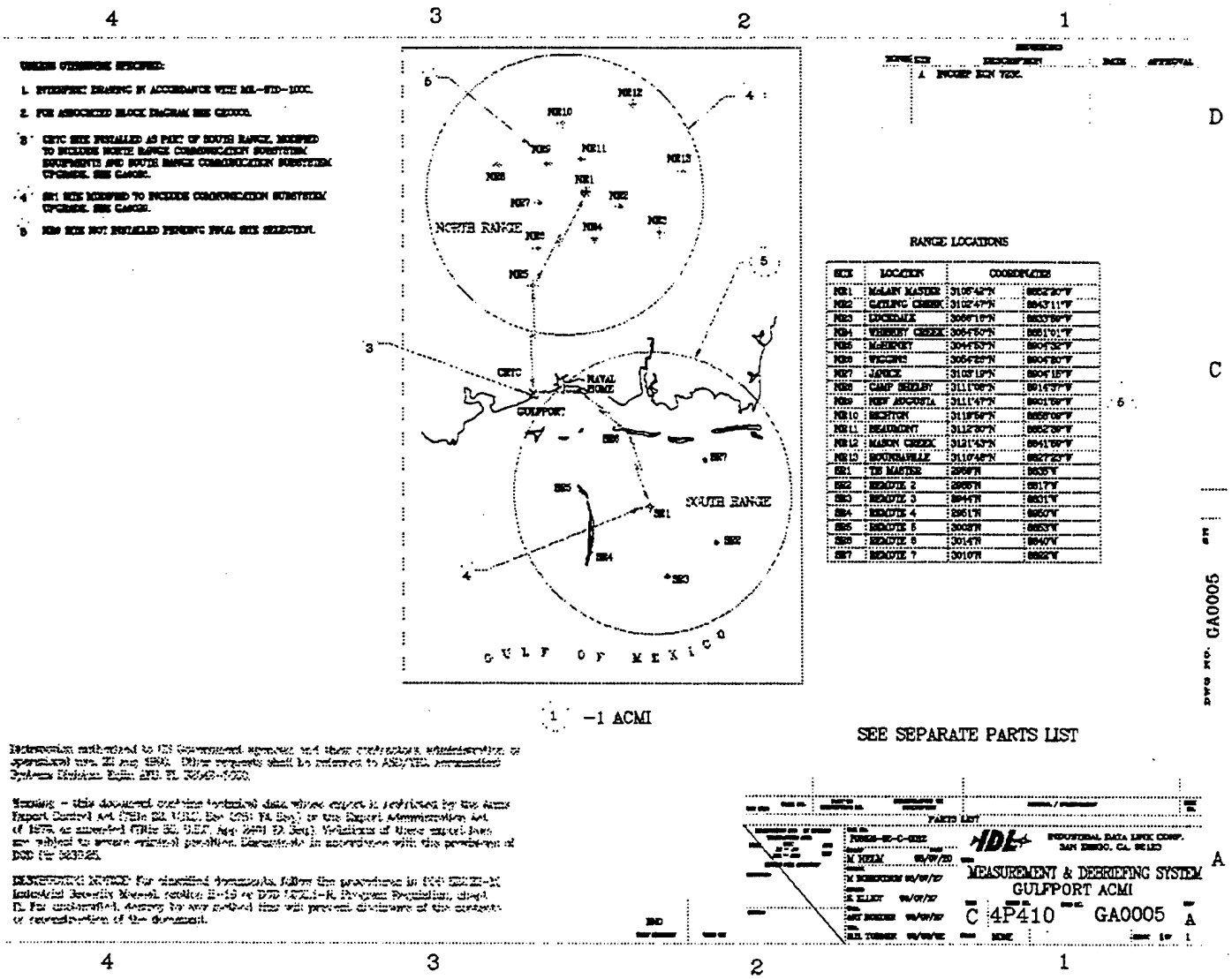
```
/cals/caps/Bin/read1840A: --- Read declaration file 'D001     ' ---
/cals/caps/Bin/read1840A: --- Read declaration file 'D002     ' ---
/cals/caps/Bin/read1840A: --- Read declaration file 'D003     ' ---

/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0005/GA00051.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0005/GA00052.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0005/GA00053.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0005/GA00054.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0005/GA00055.R.cci'.

-- declaration file indicates 0 files of type T
-- declaration file indicates 0 files of type G
-- declaration file indicates 0 files of type H
-- declaration file indicates 0 files of type Q
-- declaration file indicates 5 files of type R
-- declaration file indicates 0 files of type C
-- declaration file indicates 0 files of type X
-- declaration file indicates 0 files of type P
-- declaration file indicates 0 files of type Z

/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0008/GA00081.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0008/GA00082.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0008/GA00083.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0008/GA00084.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0008/GA00085.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0008/GA00086.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0008/GA00087.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0008/GA00088.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0008/GA00089.R.cci'.

-- declaration file indicates 0 files of type T
-- declaration file indicates 0 files of type G
-- declaration file indicates 0 files of type H
-- declaration file indicates 0 files of type Q
-- declaration file indicates 9 files of type R
-- declaration file indicates 0 files of type C
-- declaration file indicates 0 files of type X
-- declaration file indicates 0 files of type P
-- declaration file indicates 0 files of type Z

/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0009/GA00091.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0009/GA00092.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0009/GA00093.R.cci'.
/cals/caps/Bin/read1840A: writing data file 'aftb9439/GA0009/GA00094.R.cci'.
```

```
-- declaration file indicates 0 files of type T
-- declaration file indicates 0 files of type G
-- declaration file indicates 0 files of type H
-- declaration file indicates 0 files of type Q
-- declaration file indicates 4 files of type R
-- declaration file indicates 0 files of type C
-- declaration file indicates 0 files of type X
-- declaration file indicates 0 files of type P
-- declaration file indicates 0 files of type Z
```

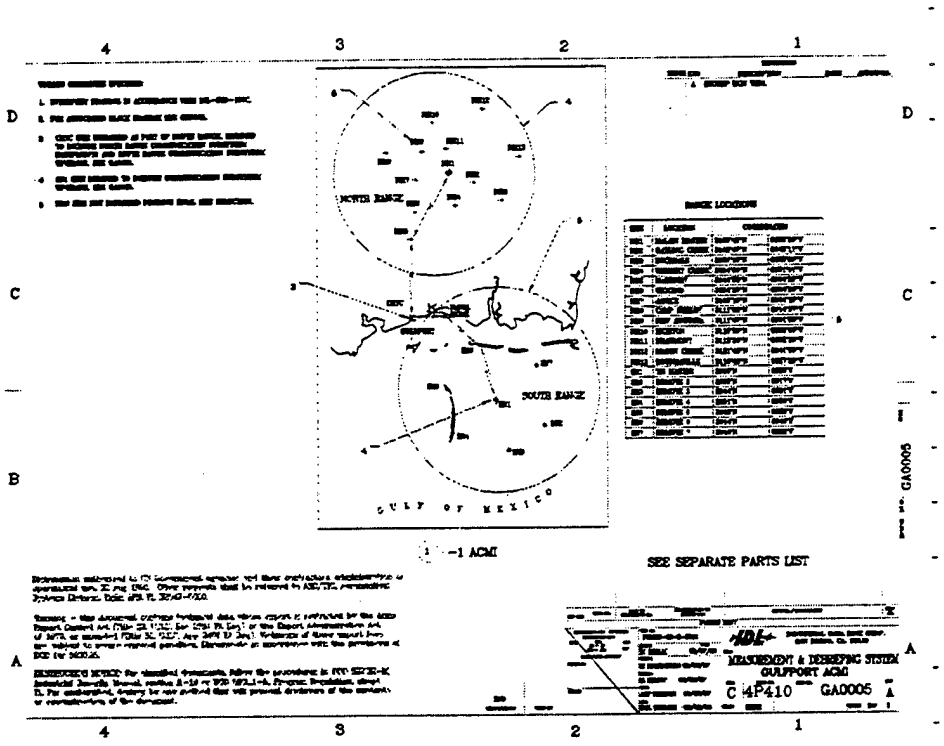
10. Appendix B - Detailed Raster Analysis

10.1 File D001R001

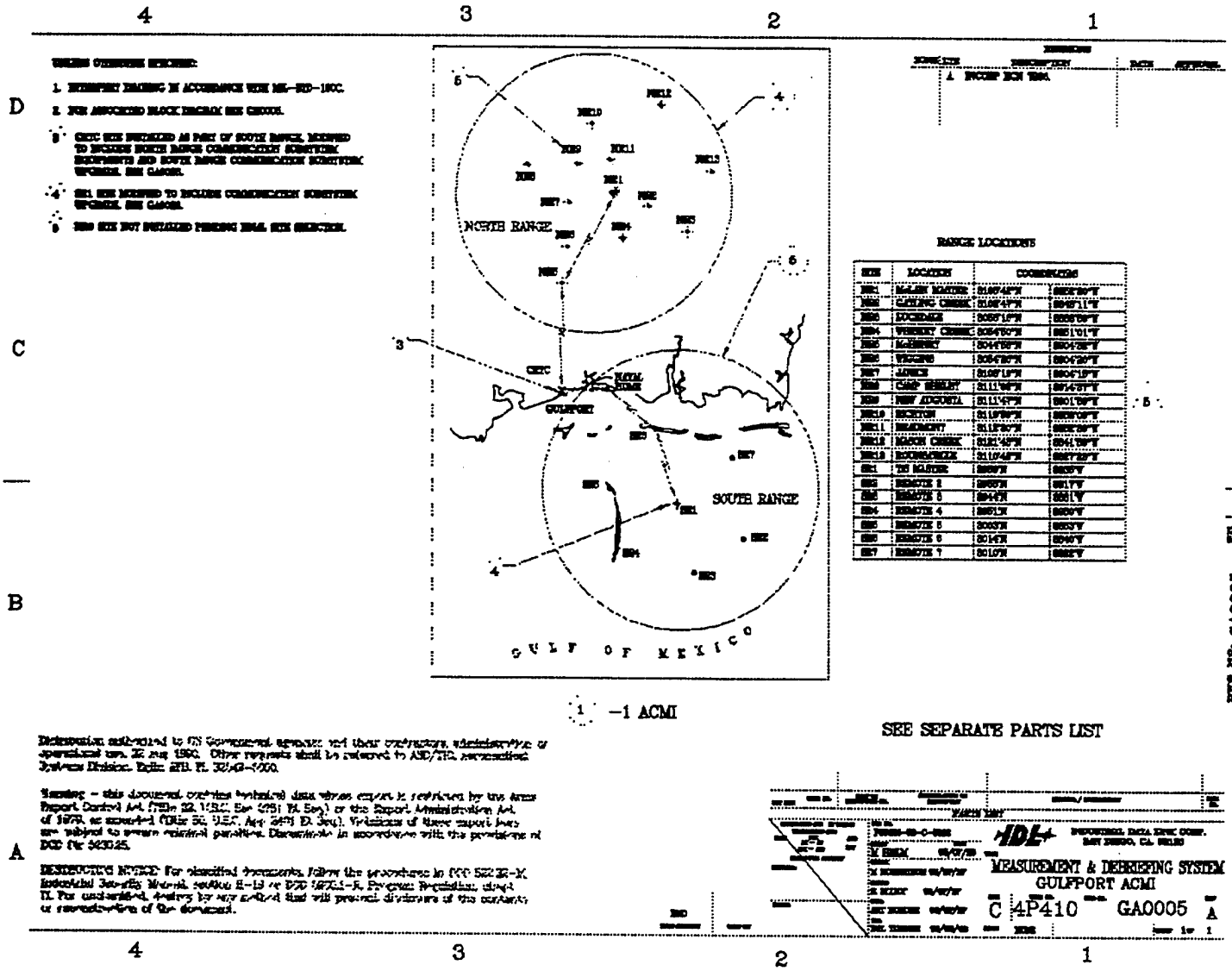
10.1.1 Output CADLeaf



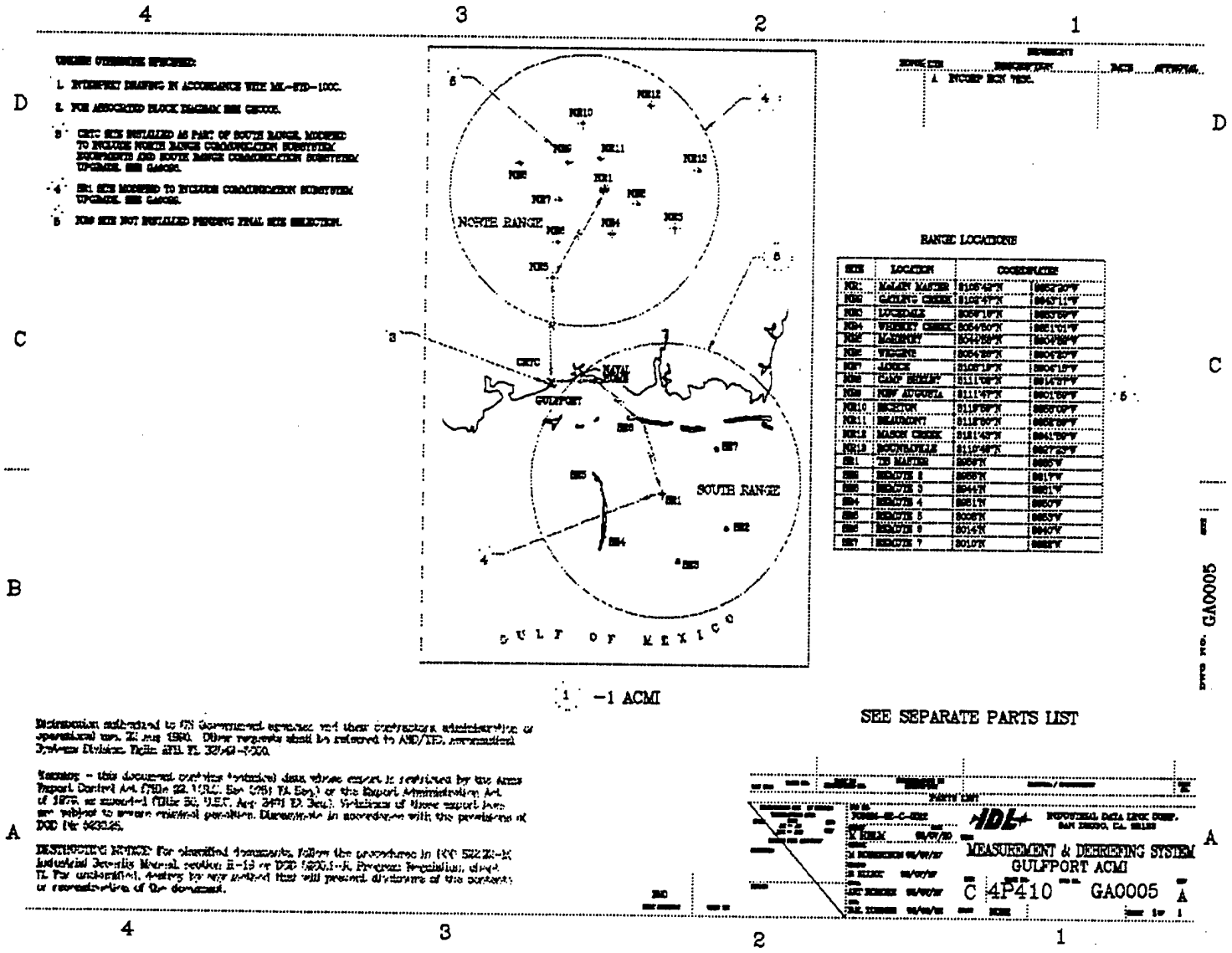
10.1.2 Output HiJaak Pro



10.1.3 Output IGESView



10.1.4 Output RxHighlight

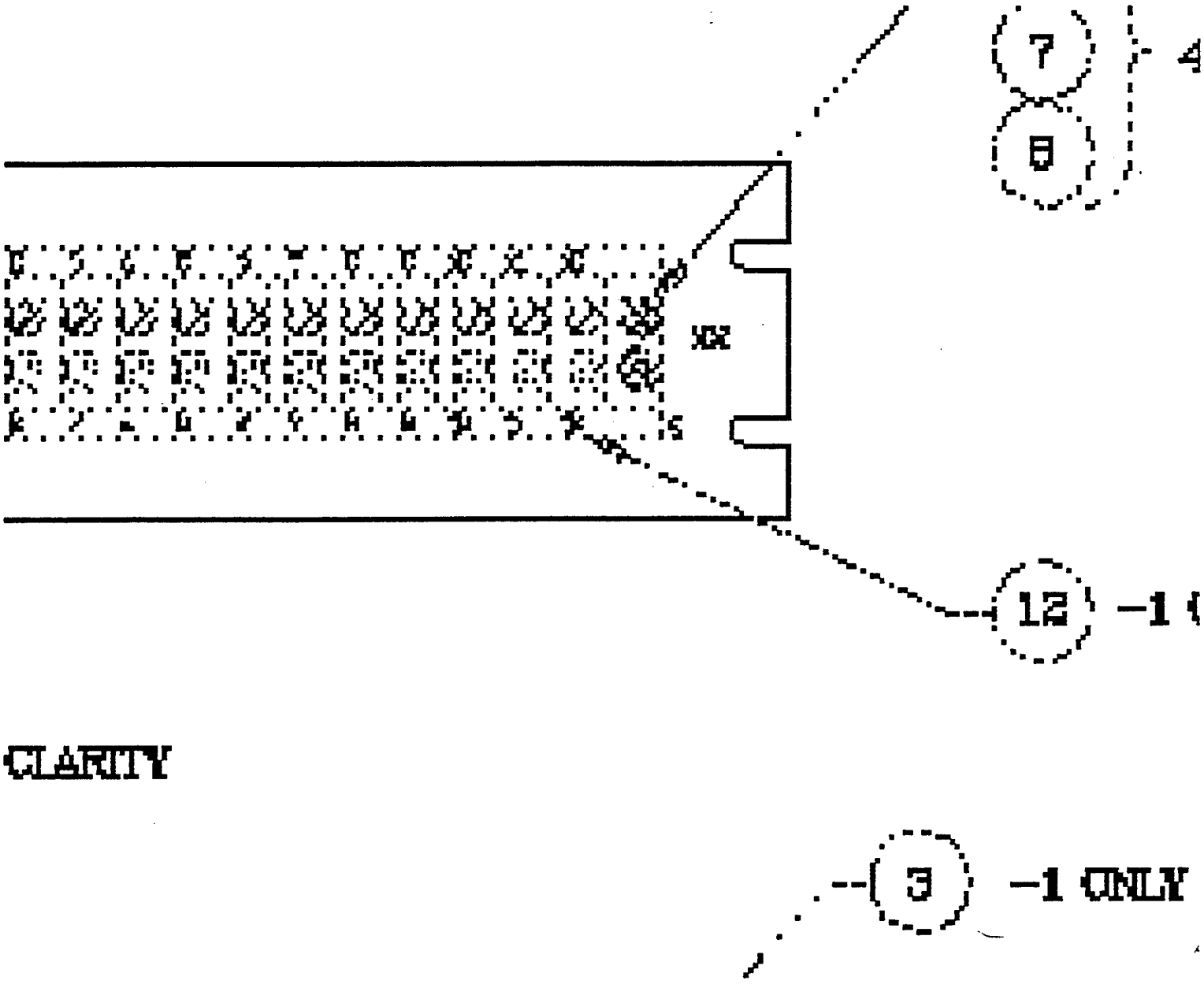


10.2 Detail File D002R004

[redacted]

[redacted]

[redacted]

7 6

10.3 Detail File D003R003