

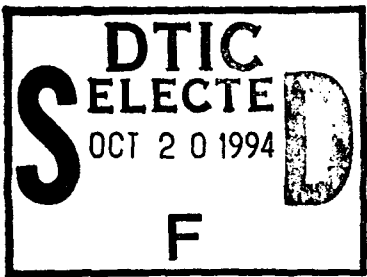
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MISSILE INTERFACE DEFINITION

FINAL REPORT



Contract Number DASG60-88-C-0079

October 1992

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This report summarizes SPARTA activities performed under Contract DASG60-88-C-0079, Missile Interface Definition. The activities related to this contract were performed in support of the U.S. Army Strategic Defense Command (USASDC) Ground Based Interceptor (GBI) Project office. The objective of this contract was to perform efforts to support development and demonstration of an exoatmospheric interceptor.

Activities under this contract fell under two broad areas within the Scope of Work. The first area, entitled "Evaluation of Exoatmospheric Interceptor Development Efforts," required assessment of the GBI Dem/Val and Phase I interceptor program to ensure that evolving interceptor subsystem concepts were commensurate with the midcourse strategic defense system performance objectives. In addition, SPARTA assessed GBI Dem/Val plans to ensure that system interface issues identified by other organizations were properly included in the Dem/Val test plans. The other major activity within the Scope of Work was entitled "Interface Development for the Phase I Exoatmospheric Interceptor." Under this area, SPARTA assessed the interoperability of each of the major components or exoatmospheric interceptor concepts (i.e., missile, support equipment, system interfaces) to recommend compromises and tradeoffs necessary to combine preferred components into tactical configurations. In addition, SPARTA performed evaluations of GBI ground support equipment (GSE) to quantify characteristics and resulting tradeoffs with other elements of the interceptor subsystem. Finally, SPARTA assessed the impact of endgame algorithm performance on engagement miss distance, including consideration of seeker design characteristics, algorithms employed, target characteristics, and potential countermeasures.

Throughout the course of this contract, SPARTA has documented the results of these activities in the form of reports provided to the Government. The following is a list of major reports which best summarize the activities performed. Included along with the title of each report is the SPARTA document control number, to aid in retrieval if details concerning these activities are desired.

- H88:2500-3 Exo-Technology Requirements**
- H88-2501-1 Evolving Interface Requirements for ERIS**
- H89-0859-1 Inputs to ERIS Review to Project Office - Sunlight Engagements**
- H89-1347-16 SDS Ground Based Elements Integrated Basing Study Final Task Briefing**
- H89:1612-18 Sunlit Threat Trajectory Briefing to GBI Project Office**
- H89:1639-1 Missile Interface Definition Task E-SP-89-S Final Report**
- H90:0110-1 Innovative Kill Vehicle concept for GBI Midcontract Review**
- H90:0216-1 Missile Interface Definition-Review to the GBI Project Office**
- H90:0332-1 GBI Baseline Engineering Team (BET) Meeting Minutes**

H90:0525-2 Review of ERIS Phase I Design Notebook Dated 26 Feb 1990
H90:0595-1 Earliest Engagement Scenarios for Five GBI-X Concepts
H90:1206-0 Ground Based Sweeper Subsystem (GBSS) Cost Analysis Requirements Document (CARD) for Midcourse Terminal Tier Review MATTR
H90:1354-1 BIS Effectiveness Study SPFE Probe Launch Vehicle IPR #1 Data Package and Report
H90:1379-7 GBI Summary Description
H90:1467-3 Summary Description of MATTR GBI
H90:1468-5 Evaluation of Martin Marietta GBI Concept
H90:1534-1 Evaluation of Rockwell GBI Concept
H90:1535-1 Evaluation of Hughes GBI Concept
H91:0061-1 GBI LPS Analysis Inputs
H91:0109-1 GBI Handover and Divert Requirements Operational Organizational and Support Concept for Exoatmospheric Reentry Vehicle Interceptor Subsystem ERIS
H91:0131-0 GBI LPS Trades
H91:0250-1 GBI Inputs to Midcourse and Terminal Interface Study
H91:0265-24 ERIS FTV-01 Systems Engineering Post-Flight Analysis
H91:0290-1 GBI Inputs to Architecture Integration Study
H91:0445-1 Ground Based Interceptor (GBI) Role in Limited Protection System (LPS)
H91:0547-1 Near Term Deployment Ground Based Interceptor (GBI) Description
H91:0680-1 Utility of Lower Engagement Altitudes Against Depressed-Trajectory Attacks
H91:0970-49 Operational Requirements Document (ORD) for the Ground-Based Interceptor (GBI)
H91:0848-1 GBI-X Performance in an LPS/GPALS System
H91:0917-1 GBI/E2I Technical Comparisons
H91:0962-1 GBI Briefing
H91:0984-0 GBI Response to AIS Questions
H91:1006-2 GBI Briefing to POET
H91:1114-1 GBI-X Performance in an LPS/GPALS System
H92:0178-1 Trip Report GBI Discrimination Meetings in Washington, D.C.
H92:0275-1 PBV Intercept Requirements
H92:0338-5 Impact of RV Signature on GBI Performance
H92:0380-1 Projected GBI Seeker Design Performance in a Nuclear Environment

- H92:0535-3 Debris Gamma and Radiance Environments for NMD Limited Operational Capability (NMD LOC)
- H92:0629-4 National Missile Defense (NMD) Ground Based Interceptor (GBI) Cost Analysis Requirements Document (CARD)
- H92:0654-1 FTV2 Post Flight Analysis
- H92:0673-16 ERIS FTV System Engineering Analysis, FTV-02C Post-Flight and FTV Program Analyses
- H92:0751-1 GBI Hardness Requirements for GPALS Scenarios
- H92:0752-1 GBI Briefing for SAS Weapons Workshop
- H92:0766-8 Sun Exclusion Impacts on Interceptor Coverage
- H92:0779-1 GBI Hardness/VBO Trades
- H92:0851-1 Acquisition Costs for Various Basing Concepts
- H92:0878-1 SPARTA Environment Requirements Analyses for GBI
- H92:0947-3 GBI VBO Requirements
- H92:1387-28 Ground Based Interceptor (GBI) Element for National missile Defense (NMD) Technical Requirements Document (TRD)
- H92:1491-1 GBI TRD Threat Overview to J. Katechis GBI Discrimination - Inputs to Advanced Interceptor Study

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