

Navy Threat Simulation Validation

NAVAL AVIATION SYSTEMS

TEAM



Navy Threat / Simulation Validation Coordinator

Code 53C000D, NAWCWD China Lake

<http://www.aitso.com/simval>

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Objective

- ◆ **Provide OPNAV, NAVAIR and COMOPTEVFOR with:**

- Validated threat systems & simulations to support DT&E, OT&E testing and Fleet training.
- Navy validation program management.
- Validated systems to support accreditation.

Objective (cont)

- ◆ Monitor and coordinate validation at:
 - NAVAIRWARCEN Aircraft Div. - Patuxent River
 - NAVAIRWARCEN Weapons Div. - Point Mugu
 - NAVAIRWARCEN Weapons Div. - China Lake
 - Other Navy T&E labs and ranges (NRL, NPGS, ...etc.)
 - Training Open Air Ranges and Simulations

Definition

- “The process of determining the degree to which a simulator/target/model or simulation is an accurate representation of the threat from the perspective of its *intended use*.”

Description

- Identification and analysis of threat and simulation differences
- Documentation of parametric and *performance* differences
- Provide DOD approved validations for DT/OT&E and Training
- Provide COMOPTEVFOR with validated simulations for accreditation process

History

◆ 1987

- Threat Simulator Program mandated by Congress
 - Lack of service coordination
 - Unnecessary duplication
 - Simulations not always threat representative
- OSD EXCOM became responsible oversight organization
- CROSSBOW-S Committee designated technical arm

◆ 1988-

- CROSSBOW-S Validation Working Group established
- Threat Simulator Program Plan approved

History Cont'd

- ◆ 1990-
 - Navy I-15: *First* service threat simulator to successfully complete validation and receive DOD approval.
- ◆ 1996-
 - CROSSBOW-S validation approval moved to DTSE&E
 - New DOD validation working group established under DTSE&E authority
- ◆ 1999-
 - Validation approval authority assumed by DOT&E
- ◆ 2001-
 - Navy has completed *forty-two* approved validations to

Current Approval Process

- ◆ Draft sent to DOT&E Threat Systems Office for review
- ◆ Review committee called
 - Chaired by TSO
 - Committee make up:
 - DIA representative
 - Experts in system of interest
 - Cognizant Intelligence analyst
- ◆ Review comments/issues compiled, sent to validation office.

Current Approval Process cont'd

- ◆ Review committee/validation team meeting to resolve issues.
- ◆ Final report revision
- ◆ Final report submitted.
- ◆ Approval by DOT&E

Report Format

- ◆ DOD format has proven successful and meets DOT&E service accreditation requirements.
 - Executive Summary
 - Introduction
 - Validation Process
 - Threat Description (DIA approved)
 - Simulation Description
 - Discussion of Differences and Impacts
 - Conclusions
 - Bibliography
 - Acronyms
 - Appendices (Parametric validation Tables, Intel analyst's notes, etc.)

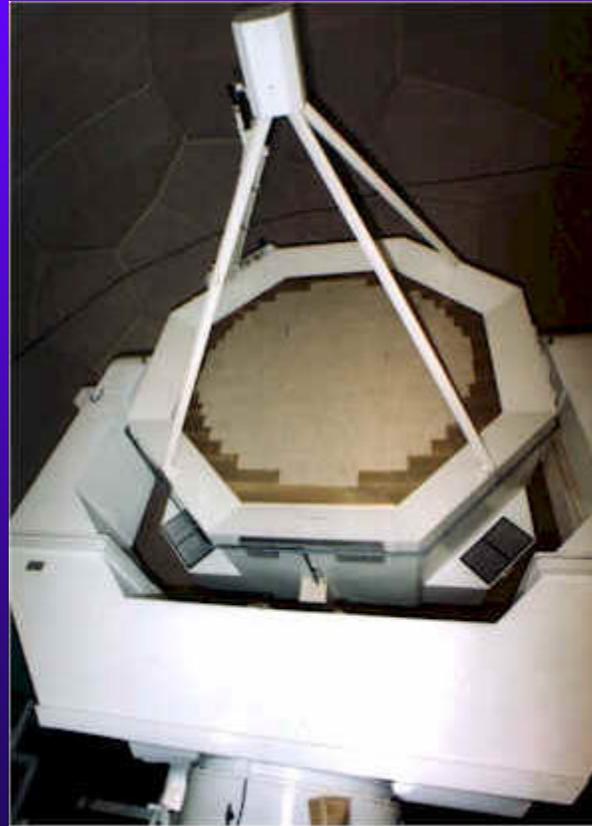
NAVY THREAT SIMULATION VALIDATION

Types of Validations

- ◆ Actual threat hardware
- ◆ OAR Emitter/Receiver/Processor (ERP)
- ◆ OAR Emitters
- ◆ Hardware -in- the- Loop-Simulations (HLS)
- ◆ Digital missile Fly-out simulations
- ◆ EO/IR and UV systems
- ◆ C3, surrogates, jammers....

Navy Validation Effort Examples

**I-32 Initial Operational Capability Validation Report
2001**



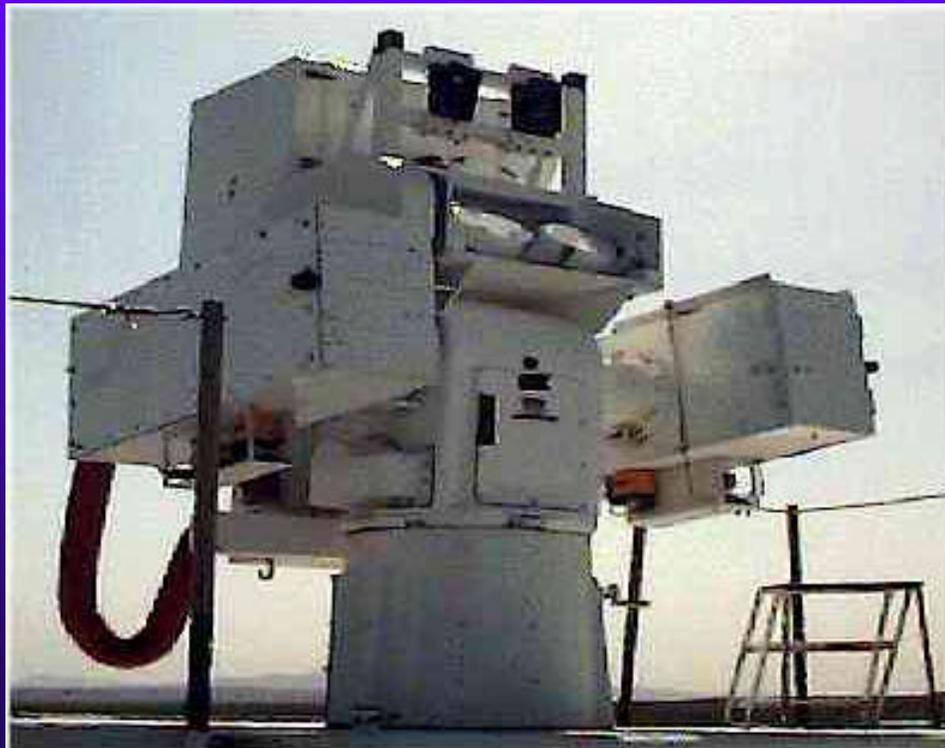
Validation Effort Examples

**Roland II Initial Operational Capability Validation Report
1998**



Validation Effort Examples

**MATS FFM Simulator Initial Operational Capability
Validation Report 1997**



Validation Effort Examples

**H-9 Initial Operational Capability Validation Report
DEC 2000**



Current Validation Workload

- ◆ Open Air Range Validations
 - I-32 Ground-mounted Seeker
 - UV Stimulator
 - Missile on Mountain (MOM) 2
 - Missile on Mountain Illuminator
 - Range Signal Density Enhancement (RSDE) Mobile 1
 - RSDE Mobile 2
 - SA-XX Seeker
 - SA-XX Illuminator
 - A-2
 - C-4

Current Validation Workload (cont'd)

- ◆ Hybrid Laboratory Simulations
 - J Band Advanced Technology HLS
 - ACETEF FASS

- ◆ Missile Fly-out Simulations
 - JBATS Grey Model
 - SA-XX Fly-out Model

Summary

- ◆ Navy funded test assets used in support of milestone decisions are being successfully validated under this program.
- ◆ The validations are being conducted in accordance with DOD, DOT&E, SECNAV, OPNAV, and COMOPTEVFOR guidelines, procedures and instructions.

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