Advanced Distributed Simulation Technology II (ADST II) Extended Air Defense Testbed (EADTB)

by

Lockheed-Martin Corporation
Information Systems Company
12506 Lake Underhill Road
Orlando, Florida

A Peer Review (AO11)
by

John C. Lindgren
IIT Research Institute

April 1999

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13. ABSTRACT (Maximum 200 words)

The Extended Air Defense Testbed (EADTB) Delivery Order (DO) was conducted under the Site Activation Process described in the Systems Engineering Management Plan (SEMP) and Delivery Order Management Process section of the ADST II Operational Description Plan. This site activation effort was for the Fort Bliss, TX EADTB facility. The technical period of performance was from June 17, 1997 to November 20, 1997. This contract was administered by the U.S. Army Simulation, Training, and Instrumentation Command (STRICOM).

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PEER Review

Advanced Distributed Simulation Technology II (ADST II)

Extended Air Defense Testbed (EADTB)

By

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Orlando, Florida.

This is a review of the above document written by Lockheed-Martin to describe the integration process of the Extended Air Defense Testbed (EADTB) in a Distributed Interactive Simulation (DIS) oriented environment. The period of work for this effort initially took place in June 1997 and ended in November 1997. The work was conducted to satisfy a delivery order to the U.S. Army Simulation, Training, and Instrumentation Command (STRICOM) in Orlando, FL. Key efforts for this integration process consisted of the following efforts:

1) A site survey of the facilities located at Ft. Bliss for housing the equipment.

2) Selecting the essential hardware components via a Key Enabling Investment (KEI) study.

3) Determining the operational requirements for the hardware based upon a Feasibility Analysis Study.

4) Performing an initial test and integration of the EADTB at an Operational Support Facility (OSF) in Orlando, Florida prior to shipping the operational system to Ft. Bliss, Texas.

The author assumes that the reader is familiar with EADTB and does not state the general operation of the simulation tool. The developer of EADTB (Raytheon/Hughes) describes the simulation tool as an:

> "...object-based simulation that supports a broad range of applications from the fire unit level to the theater level of combat in a constructive simulation framework. EADTB can be used to support other models in simulated combat environment which allows the user to place numbers of other simulated systems on a host gameboard without having to rewrite the other existing simulated systems to be compatible in the architecture."

Simply stated, EADTB when configured to operate in a DIS environment, receives other system simulation outputs, converts the data in coherent time and space data, and outputs the data on a universal gameboard for observers/controllers. Figure 1 depicts EADTB in a generic DIS environment.
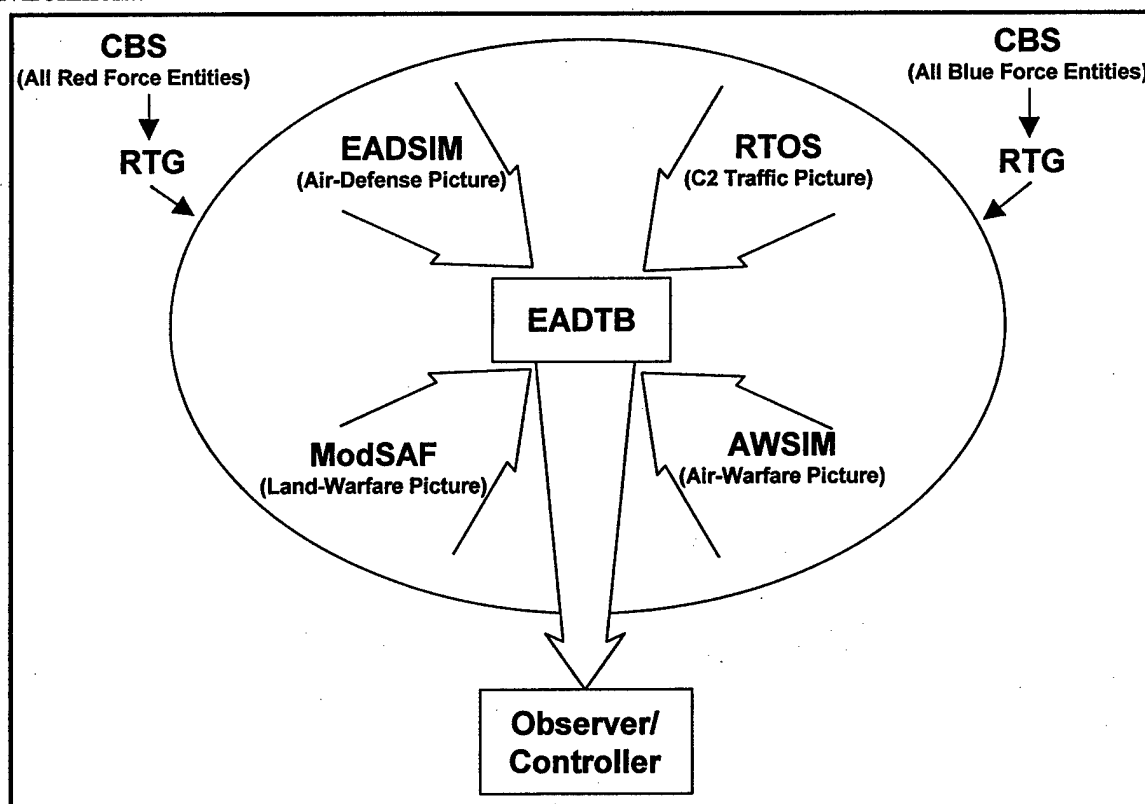

Figure 1. Generic diagram depicting EADTB in a DIS environment.

Figure 1 refers to various simulations that provide different aspects of a battle. Extended Air Defense Simulation (EADSIM) for example provides the air-defense picture and the information generated in EADSIM is forwarded to EADTB for the observer/controller to witness red and blue air-defense actions real-time. Other simulations not listed in Figure 1 can be integrated in EADTB provided there is DIS compatibility within the specific simulation and a need for a specific warfare-picture. The author notes the facility at Ft. Bliss has the ability to record all actions for After-Action Reviews (AAR).

The author goes on state the successful OSF integration of EADTB. Here the EADTB was tested in stand-alone and in confederated modes of operation with other simulations. It was a twelve-day effort and was necessary to conduct before shipping the complete package to Ft. Bliss.

Following the successful OSF integration, the system was sent to Ft. Bliss for on-site integration with other DIS oriented simulations housed in the facility. Once there, extensive network testing and training of personnel was conducted so proper operation of the system could be executed. The complete integration is referred to as the Advanced Distributed Simulation Technology II (ADST-II) program.

The author states that EADTB can support combat development experiments, demonstrations, training, and exercises. Specifically, the author states that with EADTB integrated in a DIS environment, warfighting support activities can be conducted to support Battle Laboratory Experiments (BLEs), Advanced Technology Demonstrations (ATDs), Advanced Concept Technology Demonstrations (ACTDs), and Advanced Warfighting Experiments (AWEs).

In addition, the author states that the ADST-II is set-up to such an extent to relieve some of the burdens when upgrading hardware or software of EADTB or when dealing with hardware or software changes in other simulations connected to EADTB.

The author concludes that the task was successful; However, there were some shortcomings during the execution of the tasks. For example, UPS workers were on strike during the shipment phase of the equipment and some equipment was lost and found after an extended period of time. Nevertheless, a core DIS facility exists at Ft. Bliss based on EADTB. A network is installed and configured with a high-band capability and Distributed Simulation Internet (DSI) access is present, and the hardware and software is in place for the use of ModSAF, EADSIM, and various other simulations.