

IDS Division

Air Traffic Control Embedded Trainer Software Requirements Specification

Document Identification

Document Control Number:	4592-ETRN-2010.031
Date:	10 December 2010
Version:	1.00
Security/Classification:	UNCLASSIFIED
Prepared by:	



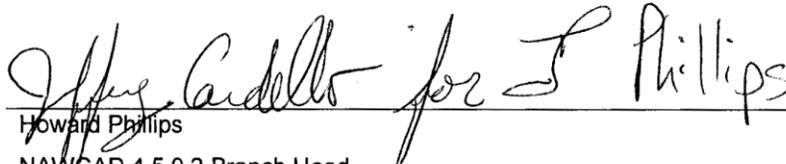
ATC Processing and Display Branch (NAWCAD 4.5.9.2)
NAWCAD 4.5.9, Identification Systems Division, Bldg 8131
17472 Webster Field Road
St. Inigoes, MD 20684-4012

Distribution D:

Distribution authorized to the Department of Defense and U.S. DoD contractors only Administrative or Operational, Dec 2010. Other requests shall be referred to Commanding Officer, NAWCAD 4.5.9.2, 17472 Webster Field Road, B-8131, Unit 11, St. Inigoes, MD 20684-4012.

This page intentionally left blank.

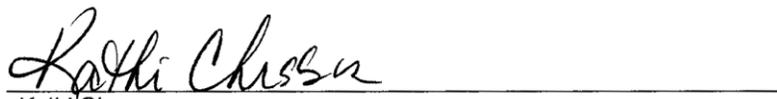
APPROVAL SIGNATURES


Howard Phillips
NAWCAD 4.5.9.2 Branch Head

1/3/11
Date


Paul Wainwright
NAWCAD 4.5.9.2 Ship Systems Team Lead

1/3/11
Date


Kathi Chesser
NAWCAD 4.5.9.2 Embedded Trainer Project Manager

1/4/11
Date


Jeff Cardello
NAWCAD 4.5.9.2 Embedded Trainer Systems Engineer

1/3/11
Date

This page intentionally left blank.

REVISION HISTORY

Revision	Date	Author	Description
DRAFT	09 November 2010	Jessica Howard	Draft Baseline
1.00	10 December 2010	Jessica Howard	Peer Reviewed by ET Project Team, Changes made based on Peer Review

This page intentionally left blank.

Table of Contents

1.0 SCOPE	1
1.1 IDENTIFICATION.....	1
1.2 SYSTEM OVERVIEW.....	1
1.2.1 Embedded Trainer (ET) Background _____	1
1.2.2 AN/TPX-42 Background _____	1
1.3 DOCUMENT OVERVIEW.....	2
2.0 REFERENCED DOCUMENTS	2
2.1 GOVERNMENT DOCUMENTS.....	2
2.1.1 Specifications _____	2
2.1.2 Standards _____	3
2.1.3 Other Publications _____	3
2.2 NON-GOVERNMENT DOCUMENTS.....	3
3.0 REQUIREMENTS	3
3.1 REQUIRED STATES, MODES AND ROLES.....	3
3.1.1 Required States _____	3
3.1.1 Required Modes _____	4
3.1.2 Required Roles _____	4
3.2 CSCI CAPABILITY REQUIREMENTS.....	5
3.2.1 Provide Simulated Aircraft (Rqmt ID: 1) _____	5
3.2.2 Provide Scenario Control for Embedded Trainer Operator (Rqmt ID: 2) _____	7
3.2.3 Provide Voice Communication Between Consoles (Rqmt ID: 3) _____	12
3.2.4 Provide Voice Recognition (Rqmt ID: 4) _____	12
3.2.5 Stimulate Air Traffic Control Equipment (Rqmt ID: 1.5) _____	13
3.2.6 Vendor Software (Rqmt ID: 1.6) _____	13
3.3 CSCI EXTERNAL INTERFACE REQUIREMENTS.....	14
3.3.1 AN/TPX-42 Interface Requirements _____	14
3.4 CSCI INTERNAL INTERFACE REQUIREMENTS.....	14
3.5 CSCI INTERNAL DATA REQUIREMENTS.....	14
3.6 ADAPTATION REQUIREMENTS.....	14
3.7 SAFETY REQUIREMENTS.....	14
3.8 SECURITY AND PRIVACY REQUIREMENTS.....	14
3.9 CSCI ENVIRONMENT REQUIREMENTS.....	14
3.10 COMPUTER RESOURCE REQUIREMENTS.....	14
3.10.1 Computer Hardware Requirements _____	14
3.10.2 Computer Hardware Resource Utilization Requirements _____	14
3.10.3 Computer Communications Requirements _____	15
3.11 SOFTWARE QUALITY FACTORS.....	15
3.12 DESIGN AND IMPLEMENTATION CONSTRAINTS.....	15
3.13 PERSONNEL-RELATED REQUIREMENTS.....	15
3.14 TRAINING-RELATED REQUIREMENTS.....	15
3.15 LOGISTICS-RELATED REQUIREMENTS.....	15
3.16 OTHER REQUIREMENTS.....	15
3.17 PACKAGING REQUIREMENTS.....	15

3.18 PRECEDENCE AND CRITICALITY OF REQUIREMENTS	15
4.0 QUALIFICATION PROVISIONS	16
5.0 REQUIREMENTS TRACEABILITY	16
6.0 NOTES	25
APPENDIX A: ACRONYMS	26

This page intentionally left blank.

1.0 Scope

1.1 Identification

This document is the Software Requirements Specification (SRS) for the Shipboard Air Traffic Control Embedded Trainer (ET) system. The ET system is integrated into the AN/TPX-42A(V) system and utilizes its capabilities to achieve the ET mission. The system modifications required to realize the ET mission will build upon the AN/TPX-42A(V)14 FC3 system baseline. This specification applies to the vendor supplied software components that constitute the ET system. This specification identifies all requirements that the ET Commercial Off The Shelf (COTS) software must meet. There are other software requirements that apply to the overall AN/TPX-42A(V)14 FC3 with the ET system. Those are the AN/TPX-42A(V)14 FC3 software requirements and the AN/TPX-42A(V)14 FC3 to ET interface requirements. Those are identified in the AN/TPX-42A(V)14 FC3 System Subsystem Interface Requirements Description and the AN/TPX-42A(V)14 FC3 to ET Interface Requirements Specification respectively. Any change or addition to the ET COTS components implemented as part of this effort will be identified as part of the design/spec process. Those changes shall be reflected within this specification.

1.2 System Overview

1.2.1 Embedded Trainer (ET) Background

The Department of the Navy (DoN) utilizes the Carrier Air Traffic Control Centers (CATCC) and Amphibious Air Traffic Control Centers (AATCC) onboard CVN and LH class ships to support Air Traffic Control (ATC) operations. There are no automated training capabilities available for CATCC/AATCC to provide initial and proficiency training at sea. Team training evolutions are conducted at the shore-based training facility at the Naval Air Technical Training Center (NATTC) in Pensacola, FL. While effective, this approach takes sailors away from their ship and home port, which is cost prohibitive and is fully dependent on team status and the ability to schedule and coordinate shore-based team training with all of the other ships that require lab time at the NATTC. As a result Naval Air Traffic Control, Air Navigation Aids and Landing System (NAALS) Operational Capability Improvement Request (OCIR) 2008-003 has identified a need for an ATC ET device. The Naval Aviation Requirements Group (NARG)/Operational Advisory Group (OAG) has also listed an ATC ET as a priority since 2008. These requirements drove the Office of the Chief of Naval Operations (OPNAV) to fund PMA 213 to develop an ET to interface with the AN/TPX-42 Interrogator Set, CATCC / Amphibious Air Traffic Control Direct Altitude and Identity Readout (AATC DAIR) system.

1.2.2 AN/TPX-42 Background

The AN/TPX-42(V)14 Interrogator Set, CATCC/AATC DAIR system is an essential part of the ATC operations carried out on aircraft carriers (CVN class ships) and amphibious assault ships (LH class ships). The CATCC/AATC DAIR system furnishes an automated ATC capability to provide situational awareness for fixed

and rotary wing aircraft and supports the mission of ATC within assigned airspace. The CATCC/AATC DAIR system supports this mission as the Carrier Control Approach (CCA) when operating on CVN class ships and as Helicopter Direction Center (HDC) and Tactical Air Control Center (TACC) when operating on LHA/LHD class ships.

The CATCC/AATC DAIR system is designed to present air traffic controllers with information relevant to the identification and position of aircraft within airspace of interest. The CATCC/AATC DAIR system does this by accepting primary and secondary radar and Identification Friend or Foe (IFF) reports, and processes this information and presents air traffic controllers with aircraft identity, altitude, speed, direction, and position symbols on the display. Using this visual information the controller is able to coordinate the movement of air traffic to maintain safe separation, which is the basic function of ATC. In addition to displaying aircraft data blocks(?) and symbolology, the CATCC/AATC DAIR system also displays system list data, geographic points and map lines as well as conveys aircraft information to the Advanced Combat Direction System (ACDS) and Precision Approach and Landing System (PALS) (CVN only) to aid in launch and recovery operations.

1.3 Document Overview

The SRS specifies the requirements for a Computer Software Configuration Item (CSCI) and the methods to be used to ensure that each requirement has been met. Requirements pertaining to CSCI's external interfaces may be presented in the SRS or in one or more Interface Requirements Specifications (IRs) (DI-IPSC-81434A) referenced from the SRS.

The SRS, possibly supplemented by IRs, is used as the basis for design and qualification testing of a CSCI.

2.0 Referenced Documents

2.1 Government Documents

2.1.1 Specifications

DI-IPSC-81433A

Software Requirements Specification (SRS)

Number

Title

Date

Software Requirements
Specification (SRS)

15 December 1999

2.1.2 Standards

2.1.3 Other Publications

MIL-HDBK-454	General Guidelines for Electronic Equipment
NAVAIR AE-LHATC-OPM-000	LHA/LHD Air Traffic Control Handbook
NAVAIR AE-CVATC-OPM-000	Carrier Air Traffic Control Handbook
4592-TPX-2010.0xx	AN/TPX-42A(V)14 FC3 SRD
4592-TPX-2010.025	AN/TPX-42A(V)14 FC3 IRS DD for Inter-Component Messaging
ADSFC3-000.00-IRS/DD-000.13	Interface Requirements Specification And Design Document For AN/TPX-42A(V)14 Field Change (FC) 3 Upgrade
NAVAIR 00-80T-106	LHA/LHD Naval Air Training And Operating Procedures Standardization (NATOPS) Manual
NAVAIR 00-80T-105	CVN Naval Air Training And Operating Procedures Standardization (NATOPS) Manual
NAVAIR Instruction 4355.19	Systems Engineering Technical Review Process

2.2 Non-Government Documents

Number	Title
IEEE/EIA 12207.0	Standard for Information Technology Software Life Cycle Processes
IEEE/EIA 12207.1	Standard for Information Technology Software Life Cycle Processes Life Cycle Data
IEEE/EIA 12207.2	Standard for Information Technology Software Life Cycle Processes Implementation Considerations

3.0 Requirements

3.1 Required States, Modes and Roles

3.1.1 Required States

The AN/TPX-42A(V)14 FC3 system with the ET system needs to be capable of the following states:

Live State – This state is the basis for all CATCC/AATCC operations. The AN/TPX-42 operates as designed to control live aircraft during flight operations. The ET is disabled during this state so it is incapable of interfering with the operations of CATCC/AATCC.

Training State – This state is the basis for ET operations. One or more AN/TPX-42 Advanced Display System (ADS) consoles are placed in a training state and air traffic controllers interact with simulated aircraft on those consoles. The air traffic

controllers use existing Shipboard Air Traffic Control Communications (SATCC) headsets to provide a communications interface with the ET. These headsets are unplugged from the SATCC system and plugged into an ET communications port.

Concurrent State

This state is a mixture of both live and training states. In this state, some of the AN/TPX-42 ADS consoles are live and some of them are training. During this state, the ADS consoles in training *cannot* interfere with the operational ADS consoles.

3.1.1 Required Modes

The ET must be capable of the modes listed below. These modes are only applicable to the TPX-42 with an ET system that is in either the Training or Concurrent state. When the system is in live state, these modes do not apply, as the ET is disabled.

Autonomous Mode – During this mode, only a single controller and the ET interact to conduct training scenarios.

Team Mode – During this mode, a set of controllers (trainees) interact with each other as well as the ET to conduct team based training scenarios.

Pseudo-Pilot Mode – During this mode, an instructor acts as a pilot for added training flexibility. The instructor, ET and controller(s) all interact in a training scenario. The instructor interacts with the team through spoken commands. This mode can be used in conjunction with either Autonomous or Team mode.

Maintenance Mode – During this mode, a technician performs routine system maintenance on the ET software, such as software/database updates, download system logs, or error correction. This mode cannot be used in conjunction with any other modes. During this mode, the ET system is not operational.

3.1.2 Required Roles

The ET needs to support users with the following roles.

Instructor –The ET is required to have four different operational roles. The first role is the ET instructor. This role sets up the training scenarios for the controller who is being trained (trainee). The instructor also assesses the performance of the trainee either during or after a scenario. The instructor uses the AN/TPX-42 console to interact with the ET system.

Pseudo-Pilot – The next role is the pseudo-pilot. The pseudo-pilot acts as a pilot during training scenarios. They react to control commands as a normal pilot would to add a layer of realism to the scenario. This role can be realized by an instructor or another operator who has experience in ATC operations. The pseudo-pilot uses the ET communications channels to interact with both the trainee and the ET system.

Trainee –The next role is the trainee. This role is realized by the air traffic controller requiring training. The trainee interacts with the ET system utilizing the same operational procedures used with live aircraft. The key difference is that there is no need to use live aircraft.

Maintainer –The final role is the ET maintainer. This role is realized by the electronics technician that is assigned to the AN/TPX-42 equipment. This role is responsible for updating software, databases, retrieving error logs and performing periodic system maintenance. The interface for the maintainer shall be specified as part of the ET design effort.

3.2 CSCI Capability Requirements

The Embedded Trainer shall provide the following CSCI capabilities.

3.2.1 Provide Simulated Aircraft (Rqmt ID: 1)

- The system shall automate the simulated aircraft to operate in accordance with the Launching procedures as defined in the LHA/LHD NATOPS (NAVAIR 00-80T-106): (Rqmt ID: 1.1).
- The system shall automate the simulated aircraft to operate in accordance with the Launching procedures as defined in the LHA/LHD Air Traffic Control Handbook (NAVAIR AE-LHATC-OPM-000): (Rqmt ID: 1.2).
- The system shall automate the simulated aircraft to operate in accordance with the Recovery procedures as defined in the LHA/LHD NATOPS (NAVAIR 00-80T-106) (Rqmt ID: 1.5).
- The system shall automate the simulated aircraft to operate in accordance with the Recovery procedures as defined in the LHA/LHD Air Traffic Control Handbook (NAVAIR AE-LHATC-OPM-000) (Rqmt ID: 1.6).
- The system shall have the simulated aircraft make voice reports in accordance with the LHA/LHD NATOPS (NAVAIR 00-80T-106) (Rqmt ID: 1.13).
- The system shall have the simulated aircraft make voice reports in accordance with the LHA/LHD Air Traffic Control Handbook (NAVAIR AE-LHATC-OPM-000) (Rqmt ID: 1.14).
- The system shall automate the simulated aircraft to operate in accordance with the Launching procedures as defined in the CVN NATOPS (NAVAIR 00-80T-105) (Rqmt ID: 1.3).
- The system shall automate the simulated aircraft to operate in accordance with the Launching procedures as defined in the Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000) (Rqmt ID: 1.4).
- The system shall automate the simulated aircraft to operate in accordance with the Recovery procedures as defined in the CVN NATOPS (NAVAIR 00-80T-105) (Rqmt ID: 1.7).

- The system shall automate the simulated aircraft to operate in accordance with the Recovery procedures as defined in the Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)(Rqmt ID: 1.8).
- The system shall have the simulated aircraft make voice reports in accordance with the CVN NATOPS (NAVAIR 00-80T-105) (Rqmt ID: 1.15).
- The system shall have the simulated aircraft make voice reports in accordance with the Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)(Rqmt ID: 1.16).
- The simulated aircraft shall respond to improperly issued commands in a manner consistent with live pilots: (Rqmt ID 1.17)
- The system shall automate the simulated aircraft to operate in accordance with the Tanker procedures as defined in the CVN NATOPS (NAVAIR 00-80T-105) (Rqmt ID: 1.9).
- The system shall automate the simulated aircraft to operate in accordance with the Tanker procedures as defined in the Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)(Rqmt ID: 1.10).
- The system shall automate the simulated aircraft to operate in accordance with the Plane Guard procedures as defined in the CVN NATOPS (NAVAIR (00-80T-105) (Rqmt ID: 1.11).
- The system shall automate the simulated aircraft to operate in accordance with the Plane Guard procedures as defined in the Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)(Rqmt ID: 1.12).
- The simulated aircraft shall have the capability to rendezvous with other simulated aircraft as defined in the CVN NATOPS (NAVAIR (00-80T-105) (Rqmt ID: 1.18).
- The simulated aircraft shall have the capability to rendezvous with other simulated aircraft as defined in the Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)(Rqmt ID: 1.19).
- The simulated aircraft shall have the capability to rendezvous with other simulated aircraft as defined in the LHA/LHD NATOPS (NAVAIR 00-80T-106)(Rqmt ID: 1.20).
- The simulated aircraft shall have the capability to rendezvous with other simulated aircraft as defined in the LHA/LHD Air Traffic Control Handbook (NAVAIR AE-LHATC-OPM-000) (Rqmt ID: 1.21).
- The aircraft formation shall execute commands issued to the flight leader (Rqmt ID: 1.22).
- The system shall simulate aircraft failure modes (Rqmt ID: 1.23).
 - o The system shall simulate loss of IFF (Rqmt ID: 1.23.1).
 - The system shall simulate loss of military IFF (Rqmt ID: 1.23.1.1).
 - The system shall simulate loss of civil aviation IFF (Rqmt ID: 1.23.1.2).
 - o The system shall simulate loss of communications (Rqmt ID: 1.23.2).
 - o The system shall simulate loss of gyro (Rqmt ID: 1.23.3).
 - o The system shall simulate loss of AN/SPN-46 (Rqmt ID: 1.23.4).

- The system shall simulate loss of TACAN (Rqmt ID: 1.23.5).
- The system shall simulate loss of AN/SPN-41 (Rqmt ID: 1.23.6).

3.2.2 Provide Scenario Control for Embedded Trainer Operator (Rqmt ID: 2)

- The system shall allow the Embedded Trainer Operator to create Air Traffic Control scenarios (Rqmt ID: 2.1).
 - The system shall allow the Embedded Trainer Operator to create the operational parameters of the scenario (Rqmt ID: 2.1.1).
 - The system shall allow the Embedded Trainer Operator to select the number of aircraft in the scenario (Rqmt ID: 2.1.1.1).
 - The system shall allow the Embedded Trainer Operator to select the type of aircraft in the scenario (Rqmt ID: 2.1.1.2).
 - The system shall allow the Embedded Trainer Operator to select the geographical area of the scenario (Rqmt ID: 2.1.1.3).
 - The system shall allow the Embedded Trainer Operator to select the communication frequencies to be used in the scenario (Rqmt ID: 2.1.1.4).
 - The system shall allow the Embedded Trainer Operator to set the duration of the scenario (Rqmt ID: 2.1.1.5).
 - The system shall allow the Embedded Trainer Operator to select the air traffic control position of an individual console (Rqmt ID: 2.1.1.6).
 - The system shall display time in hours, minutes and seconds per military time standards (Rqmt ID: 2.1.1.7).
 - The system shall allow the Embedded Trainer Operator to select the Departure Case (Rqmt ID: 2.1.1.8).
 - The system shall allow the Embedded Trainer Operator to select the Recovery Case (Rqmt ID: 2.1.1.9).
 - The system shall allow the Embedded Trainer Operator to select the Departure Reference Radial (DRR) (Rqmt ID: 2.1.1.10).
 - The system shall allow the Embedded Trainer Operator to create the ship data (Rqmt ID: 2.1.2).
 - The system shall allow the Embedded Trainer Operator to select the ship call sign (Rqmt ID: 2.1.2.1).
 - The system shall allow the Embedded Trainer Operator to select the ship latitude (Rqmt ID: 2.1.2.2).
 - The system shall allow the Embedded Trainer Operator to select the ship longitude (Rqmt ID: 2.1.2.3).
 - The system shall allow the Embedded Trainer Operator to select the ship speed (Rqmt ID: 2.1.2.4).
 - The system shall allow the Embedded Trainer Operator to select the ship heading (Rqmt ID: 2.1.2.5).
 - The system shall allow the Embedded Trainer Operator to create the weather data (Rqmt ID: 2.1.3)

- The system shall allow the Embedded Trainer Operator to create the wind aloft data (Rqmt ID: 2.1.4)
 - The system shall allow the Embedded Trainer Operator to select the wind layer (Rqmt ID: 2.1.4.1).
 - The system shall allow the Embedded Trainer Operator to select the wind speed (Rqmt ID: 2.1.4.2).
 - The system shall allow the Embedded Trainer Operator to select the wind direction (Rqmt ID: 2.1.4.3).
 - The system shall allow the Embedded Trainer Operator to select the altitude range (Rqmt ID: 2.1.4.4).
- The system shall allow the Embedded Trainer Operator to create the surface wind data (Rqmt ID: 2.1.5)
 - The system shall allow the Embedded Trainer Operator to select the wind speed (Rqmt ID: 2.1.5.1).
 - The system shall allow the Embedded Trainer Operator to select the wind direction (Rqmt ID: 2.1.5.2).
- The system shall allow the Embedded Trainer Operator to create the air target data (Rqmt ID: 2.1.6).
 - The system shall allow the Embedded Trainer Operator to select the air target (Rqmt ID: 2.1.6.1).
 - The system shall allow the Embedded Trainer Operator to select the air target type (Rqmt ID: 2.1.6.2).
 - The system shall allow the Embedded Trainer Operator to select the air target squadron call sign (Rqmt ID: 2.1.6.3).
 - The system shall allow the Embedded Trainer Operator to select the air target squadron side number (Rqmt ID: 2.1.6.4).
 - The system shall allow the Embedded Trainer Operator to select the air target IFF Mode Codes (Rqmt ID: 2.1.6.5).
 - The system shall allow the Embedded Trainer Operator to select the air target channel frequency (Rqmt ID: 2.1.6.6).
 - The system shall allow the Embedded Trainer Operator to select the air target Plane Guard Pattern (Rqmt ID: 2.1.6.7).
 - The system shall allow the Embedded Trainer Operator to select the air target flight pattern, (Rqmt ID: 2.1.6.8).
 - The system shall allow the Embedded Trainer Operator to select the air target tanker altitude (Rqmt ID: 2.1.6.9).
 - The system shall allow the Embedded Trainer Operator to select the amount of fuel that the Tanker air target has to give (Rqmt ID: 2.1.6.10).
 - The system shall allow the Embedded Trainer Operator to select the type of air target approach (Rqmt ID: 2.1.6.11).
 - The system shall allow the Embedded Trainer Operator to select the air target fuel state (Rqmt ID: 2.1.6.12).
 - The system shall allow the Embedded Trainer Operator to select if the aircraft will be on auto-pilot (Rqmt ID: 2.1.6.13).

- The system shall allow the Embedded Trainer Operator to select the Ident (Rqmt ID: 2.1.6.14).
- The system shall allow the Embedded Trainer Operator to create the air target launch data (Rqmt ID: 2.1.7).
 - The system shall allow the Embedded Trainer Operator to select the air target to launch (Rqmt ID: 2.1.7.1).
 - The system shall allow the Embedded Trainer Operator to select the air target departure radial (Rqmt ID: 2.1.7.2).
 - The system shall allow the Embedded Trainer Operator to select the air target launch time (Rqmt ID: 2.1.7.3).
 - The system shall allow the Embedded Trainer Operator to select the air target departure point (Rqmt ID: 2.1.7.4).
- The system shall allow the Embedded Trainer Operator to create the air target recovery data (Rqmt ID: 2.1.8).
 - The system shall allow the Embedded Trainer Operator to initiate the air target recovery (Rqmt ID: 2.1.8.1).
 - The system shall allow the Embedded Trainer Operator to select the simulated air target check in time (Rqmt ID: 2.1.8.2).
 - The system shall allow the Embedded Trainer Operator to select the air target radial (Rqmt ID: 2.1.8.3).
 - The system shall allow the Embedded Trainer Operator to select the air target range (Rqmt ID: 2.1.8.4).
 - The system shall allow the Embedded Trainer Operator to select the air target altitude (Rqmt ID: 2.1.8.5).
 - The system shall allow the Embedded Trainer Operator to select the air target heading (Rqmt ID: 2.1.8.6).
 - The system shall allow the Embedded Trainer Operator to select the air target speed (Rqmt ID: 2.1.8.7).
 - The system shall allow the Embedded Trainer Operator to select the air target expected approach time (Rqmt ID: 2.1.8.8).
 - The system shall allow the Embedded Trainer Operator to select the air target approach plate (Rqmt ID: 2.1.8.9).
 - The system shall allow the Embedded Trainer Operator to select the air target landing intention (Rqmt ID: 2.1.8.10).
- The system shall allow the Embedded Trainer Operator to create the surface target data (Rqmt ID: 2.1.9).
 - The system shall allow the Embedded Trainer Operator to select the surface target ID: (Rqmt ID: 2.1.9.1).
 - The system shall allow the Embedded Trainer Operator to select the surface target type (Rqmt ID: 2.1.9.2).
 - The system shall allow the Embedded Trainer Operator to select the surface target initiate time (Rqmt ID: 2.1.9.3).
 - The system shall allow the Embedded Trainer Operator to select the surface target range (Rqmt ID: 2.1.9.4).
 - The system shall allow the Embedded Trainer Operator to select the surface target bearing (Rqmt ID: 2.1.9.5).

- The system shall allow the Embedded Trainer Operator to select the surface target speed (Rqmt ID: 2.1.9.6).
- The system shall allow the Embedded Trainer Operator to select the surface target heading (Rqmt ID: 2.1.9.7).
- The system shall allow the Embedded Trainer Operator to select the surface target Mode 2 Code (Rqmt ID: 2.1.9.8).
- The system shall allow the Embedded Trainer Operator to create the surface target profile data (Rqmt ID: 2.1.10).
 - The system shall allow the Embedded Trainer Operator to select the surface target (Rqmt ID: 2.1.10.1).
 - The system shall allow the Embedded Trainer Operator to select the surface target latitude (Rqmt ID: 2.1.10.2).
 - The system shall allow the Embedded Trainer Operator to select the surface target longitude (Rqmt ID: 2.1.10.3).
- The system shall allow the Embedded Trainer Operator to create the target call sign data (Rqmt ID: 2.1.11).
 - The system shall allow the Embedded Trainer Operator to select the target call sign number (Rqmt ID: 2.1.11.1).
 - The system shall allow the Embedded Trainer Operator to select the target call sign name (Rqmt ID: 2.1.11.2).
- The system shall allow the Embedded Trainer Operator to create air target emergency data (Rqmt ID: 2.1.12).
 - The system shall allow the Embedded Trainer Operator to select the air target (Rqmt ID: 2.1.12.1).
 - The system shall allow the Embedded Trainer Operator to select the air target Mode C initial (Rqmt ID: 2.1.12.2).
 - The system shall allow the Embedded Trainer Operator to select the air target IFF transponder (Rqmt ID: 2.1.12.3).
 - The system shall allow the Embedded Trainer Operator to select the air target Emergency marshal altitude (Rqmt ID: 2.1.12.4).
 - The system shall allow the Embedded Trainer Operator to select the air target emergency marshal range (Rqmt ID: 2.1.12.5).
 - The system shall allow the Embedded Trainer Operator to select the air target emergency marshal bearing (Rqmt ID: 2.1.12.6).
 - The system shall allow the Embedded Trainer Operator to select the air target emergency expected approach time (Rqmt ID: 2.1.12.7).
- The system shall allow the Embedded Trainer Operator to set the communication channel button for the scenario (Rqmt ID: 2.1.13).
- The system shall allow the Embedded Trainer Operator to create maneuver points to be used during the scenario (Rqmt ID: 2.1.14).
 - The system shall allow the Embedded Trainer Operator to select the maneuver point type (Rqmt ID: 2.1.14.1).

- The system shall allow the Embedded Trainer Operator to select the maneuver point radial (Rqmt ID: 2.1.14.2).
 - The system shall allow the Embedded Trainer Operator to select the maneuver point distance measuring equipment (Rqmt ID: 2.1.14.3).
 - The system shall allow the Embedded Trainer Operator to select the maneuver point altitude (Rqmt ID: 2.1.14.4).
 - The system shall allow the Embedded Trainer Operator to select the maneuver point latitude (Rqmt ID: 2.1.14.5).
 - The system shall allow the Embedded Trainer Operator to select the maneuver point longitude (Rqmt ID: 2.1.14.6).
- The system shall allow the Embedded Trainer Operator to save maneuver points based on type for future use (Rqmt ID: 2.1.15).
- The system shall allow the Embedded Trainer Operator to modify maneuver points during a paused scenario (Rqmt ID: 2.1.16).
- The system shall allow the Embedded Trainer Operator to continue a scenario with modified maneuver points (Rqmt ID: 2.1.17).
 - The system shall allow the Embedded Trainer Operator to manually modify all air target data at any point during the scenario. (Rqmt ID: 2.1.11.10).
- The system shall automate the aircraft to conduct the Embedded Trainer Operator created scenario. (Rqmt ID: 2.3).
 - The system shall allow the Embedded Trainer Operator to modify, utilize, and save scenario data for immediate access and for future use. (Rqmt ID: 2.3.1).
- The system shall allow the Embedded Trainer Operator to maintain an aircraft database (Rqmt ID: 2.4).
 - The system shall allow the Embedded Trainer Operator to add new aircraft types with flight characteristics for use in scenarios. (Rqmt ID: 2.4.1).
 - The system shall allow the Embedded Trainer Operator to save new aircraft types with flight characteristics for use in scenarios. (Rqmt ID: 2.4.2).
 - The system shall allow the Embedded Trainer Operator to delete aircraft types with flight characteristics for use in scenarios. (Rqmt ID: 2.4.3).
- The system shall allow the Embedded Trainer Operator to create aircraft type parameters (Rqmt ID: 2.2).
 - The system shall allow the Embedded Trainer Operator to select the aircraft class (Rqmt ID: 2.2.1).
 - The system shall allow the Embedded Trainer Operator to select the aircraft type (Rqmt ID: 2.2.2).
 - The system shall allow the Embedded Trainer Operator to select the maximum speed (Rqmt ID: 2.2.3).
 - The system shall allow the Embedded Trainer Operator to select the final approach speed (Rqmt ID: 2.2.4).

- The system shall allow the Embedded Trainer Operator to select the fuel capacity (Rqmt ID: 2.2.5).
- The system shall allow the Embedded Trainer Operator to select the maneuver action (Rqmt ID: 2.2.6).
 - The system shall allow the Embedded Trainer Operator to select the aircraft maneuverability thresholds (Rqmt ID: 2.2.6.1).
- The system shall allow the Embedded Trainer Operator to select the aircraft call sign (Rqmt ID: 2.2.7).
- The system shall allow the Embedded Trainer Operator to save new aircraft parameters (Rqmt ID: 2.2.8).
 - The system shall allow the Embedded Trainer Operator to manually modify all ship parameters at any point during the scenario. (Rqmt ID: 2.1.13.6).
 - The system shall display simulated aircraft flight characteristics to the Embedded Trainer Operator (Rqmt ID: 2.1.13.7).
 - The system shall display simulated aircraft status to the Embedded Trainer Operator (Rqmt ID: 2.1.13.8).
 - The system shall be able to pause a training scenario. (Rqmt ID: 2.1.13.9).
 - The system shall be able to replay a training scenario from a specific moment in time with modified parameters. (Rqmt ID: 2.1.13.10).
 - The system shall allow the parameters of a paused scenario to be modified (Rqmt ID: 2.1.13.11).
 - The system shall be able to save all data associated with a training scenario. (Rqmt ID: 2.1.13.12).
 - The system shall be able to replay a training scenario. (Rqmt ID: 2.1.13.13).

3.2.3 Provide Voice Communication Between Consoles (Rqmt ID: 3)

- The system shall provide four independent communication channels (Rqmt ID: 3.1).
- The system shall allow for the selection of a communication channel. (Rqmt ID: 3.2).
- The system shall allow for simultaneous communications on multiple channels. (Rqmt ID: 3.3).
- The system shall allow up to all four channels to be monitored simultaneously. (Rqmt ID: 3.4).
- The system shall interface with existing headsets used in CATCC/AATCC (Rqmt ID: 3.5).

3.2.4 Provide Voice Recognition (Rqmt ID: 4)

- The system shall recognize trainee voice commands (Rqmt ID: 4.1).
- The system shall convert trainee voice commands into instructions for simulated aircraft. (Rqmt ID: 4.2).

- The system shall provide an automatic transcription of voice communications to the Embedded Trainer Operator screen as understood per channel. (Rqmt ID: 4.7).
- The simulated aircraft shall respond to verbal commands in accordance with LHA/LHD NATOPS (NAVAIR 00-80T-106) (Rqmt ID: 4.11).
- The simulated aircraft shall respond to verbal commands in accordance with LHA/LHD Air Traffic Control Handbook (NAVAIR AE-LHATC-OPM-000) (Rqmt ID: 4.12).
- The simulated aircraft shall respond to verbal commands in accordance with CVN NATOPS (NAVAIR 00-80T-105) (Rqmt ID: 4.8).
- The simulated aircraft shall respond to verbal commands in accordance with Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000) (Rqmt ID: 4.9).
- The system shall allow the Embedded Trainer Operator to add verbal commands to existing trainer functions. (Rqmt ID: 4.13).
- The simulated aircraft shall execute verbal commands in accordance with LHA/LHD NATOPS (NAVAIR 00-80T-106) (Rqmt ID: 4.3).
- The simulated aircraft shall execute verbal commands in accordance with LHA/LHD Air Traffic Control Handbook (NAVAIR AE-LHATC-OPM-000) (Rqmt ID: 4.4).
- The simulated aircraft shall execute verbal commands in accordance with CVN NATOPS (NAVAIR 00-80T-105) (Rqmt ID: 4.5).
- The simulated aircraft shall execute verbal commands in accordance with Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000) (Rqmt ID: 4.6).
- The system shall respond appropriately to trainee voice commands (Rqmt ID: 4.10).

3.2.5 Stimulate Air Traffic Control Equipment (Rqmt ID: 1.5)

- The system shall stimulate operational equipment with periodic simulated ship's navigational position. (Rqmt ID: 1.5.1).
- The system shall stimulate AN/TPX-42A(v)14 w/FC3 with periodic simulated aircraft position updates (Rqmt ID: 1.5.2).
- The system shall stimulate the AN/TPX-42A(v)14 w/FC3 to display RADAR video for all simulated aircraft (Rqmt ID: 1.5.3).
- The system shall interface with AN/TPX-42A(v)14 w/FC3 (Rqmt ID: 1.5.4).

3.2.6 Vendor Software (Rqmt ID: 1.6)

- The system shall be hardware independent. (Rqmt ID: 1.6.1).
- The system shall reload a selected software version from a storage device (Rqmt ID: 1.6.2).
- Existing commercial off-the-shelf manuals or unique service manuals requiring update shall be provided as part of the program's integrated data environment (Rqmt ID: 1.6.3).

3.3 CSCI External Interface Requirements

3.3.1 AN/TPX-42 Interface Requirements

These requirements are specified in the Embedded Trainer to AN/TPX-42 IRS.

3.4 CSCI Internal Interface Requirements

The CSCI internal interface requirements have not been defined at this time. These requirements will be addressed as part of the requirements analysis.

3.5 CSCI Internal Data Requirements

The CSCI internal data requirements have not been defined at this time. These requirements will be addressed as part of the requirements analysis.

3.6 Adaptation Requirements

The adaptation requirements have not been defined at this time. Those will be addressed as part of the requirements analysis.

3.7 Safety Requirements

The safety requirements have not been defined at this time. These requirements will be addressed as part of the requirements analysis.

3.8 Security and Privacy Requirements

The security and privacy requirements have not been defined at this time. These requirements will be addressed as part of the requirements analysis.

3.9 CSCI Environment Requirements

The CSCI environment requirements have not been defined at this time. These requirements will be addressed as part of the requirements analysis.

3.10 Computer Resource Requirements

3.10.1 Computer Hardware Requirements

The computer hardware requirements have not been defined at this time. These requirements will be addressed as part of the requirements analysis. These requirements will be located within the Embedded Trainer System/Subsystem Specification.

3.10.2 Computer Hardware Resource Utilization Requirements

The computer hardware resource utilization requirements have not been defined at this time. These requirements will be addressed as part of the requirements analysis. These requirements will be located within the Embedded Trainer System/Subsystem Specification.

3.10.3 Computer Communications Requirements

The computer communications requirements have not been defined at this time. These requirements will be addressed as part of the requirements analysis.

3.11 Software Quality Factors

The software quality factors have not been defined at this time. These factors will be addressed as part of the requirements analysis.

3.12 Design and Implementation Constraints

The design and implementation constraints requirements have not been defined at this time. These requirements will be addressed as part of the requirements analysis.

3.13 Personnel-Related Requirements

The personnel related requirements have not been defined at this time. These requirements will be addressed as part of the requirements analysis.

3.14 Training-Related Requirements

The training related requirements have not been defined at this time. These requirements will be addressed as part of the requirements analysis.

3.15 Logistics-Related Requirements

The personnel related requirements have not been defined at this time. These requirements will be addressed as part of the Part II ECP effort.

3.16 Other Requirements

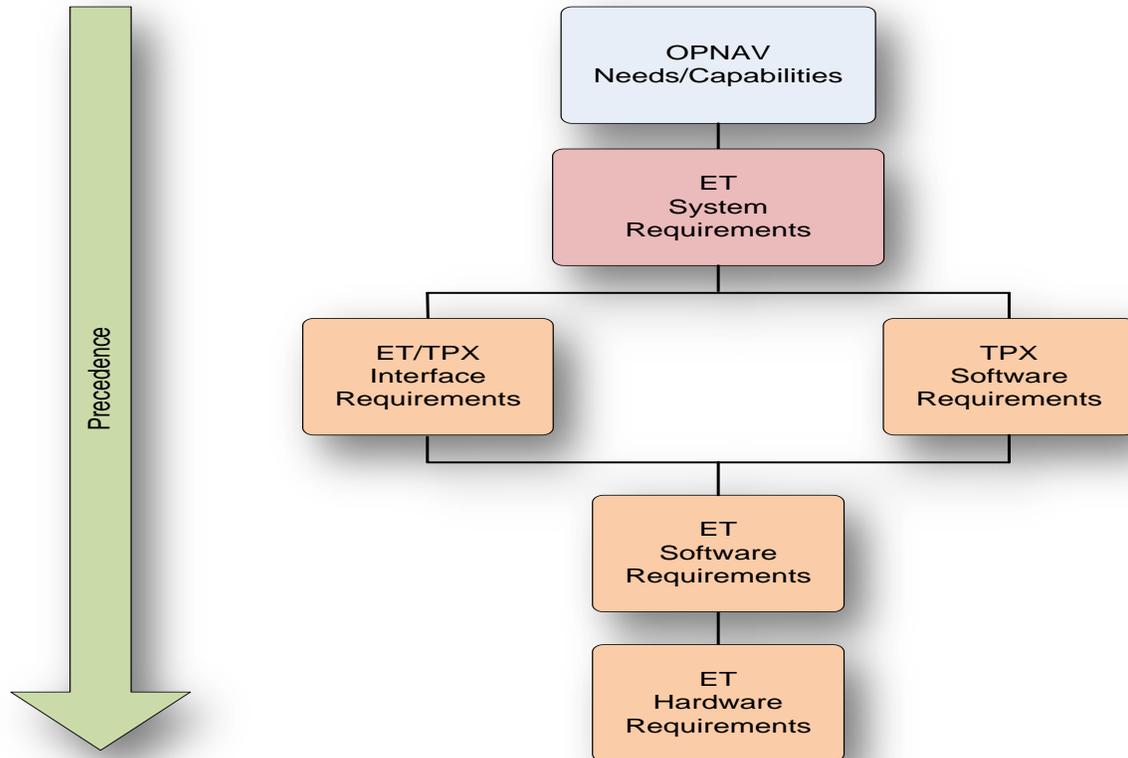
There are no other requirements at this time.

3.17 Packaging Requirements

There are no packaging requirements at this time.

3.18 Precedence and Criticality of Requirements

The precedence of requirements are as depicted below. The precedence flows from top to bottom. TPX-42 requirements can drive changes to Embedded Trainer requirements but not vice versa.



4.0 Qualification Provisions

The qualification provisions have not been defined at this time. Those will be addressed as part of the requirements analysis.

5.0 Requirements Traceability

Parent ID	Rqmt ID	SRS Para.#	Requirement Text	Test Method
N/A	1	3.2.1	Provide Simulated Aircraft	Inspection
1	1.1	3.2.1	The system shall automate the simulated aircraft to operate in accordance with the Launching procedures as defined in the LHA/LHD NATOPS (NAVAIR 00-80T-106)	Demonstration
1	1.2	3.2.1	The system shall automate the simulated aircraft to operate in accordance with the Launching procedures as defined in the LHA/LHD Air Traffic Control Handbook (NAVAIR AE-LHATC-OPM-000)	Demonstration
1	1.3	3.2.1	The system shall automate the simulated aircraft to operate in accordance with the Launching procedures as defined in CVN NATOPS (NAVAIR 00-80T-105)	Demonstration

Parent ID	Rqmt ID	SRS Para.#	Requirement Text	Test Method
1	1.4	3.2.1	The system shall automate the simulated aircraft to operate in accordance with the Launching procedures as defined in the Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)	Demonstration
1	1.5	3.2.1	The system shall automate the simulated aircraft to operate in accordance with the Recovery procedures as defined in the LHA/LHD NATOPS (NAVAIR 00-80T-106)	Demonstration
1	1.6	3.2.1	The system shall automate the simulated aircraft to operate in accordance with the Recovery procedures as defined in the LHA/LHD Air Traffic Control Handbook (NAVAIR AE-LHATC-OPM-000)	Demonstration
1	1.7	3.2.1	The system shall automate the simulated aircraft to operate in accordance with the Recovery procedures as defined in the CVN NATOPS (NAVAIR 00-80T-105)	Demonstration
1	1.8	3.2.1	The system shall automate the simulated aircraft to operate in accordance with the Recovery procedures as defined in the Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)	Demonstration
1	1.9	3.2.1	The system shall automate the simulated aircraft to operate in accordance with the Tanker procedures as defined in the CVN NATOPS (NAVAIR 00-80T-105)	Demonstration
1	1.10	3.2.1	The system shall automate the simulated aircraft to operate in accordance with the Tanker procedures as defined in the Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)	Demonstration
1	1.11	3.2.1	The system shall automate the simulated aircraft to operate in accordance with the Plane Guard procedures as defined in the CVN NATOPS (NAVAIR (00-80T-105)	Demonstration
1	1.12	3.2.1	The system shall automate the simulated aircraft to operate in accordance with the Plane Guard procedures as defined in the Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)	Demonstration
1	1.13	3.2.1	The system shall have the simulated aircraft make voice reports in accordance with the LHA/LHD NATOPS (NAVAIR 00-80T-106)	Demonstration
1	1.14	3.2.1	The system shall have the simulated aircraft make voice reports in accordance with the LHA/LHD Air Traffic Control Handbook (NAVAIR AE-LHATC-OPM-000)	Demonstration
1	1.15	3.2.1	The system shall have the simulated aircraft make voice reports in accordance with the CVN NATOPS (NAVAIR 00-80T-105)	Demonstration
1	1.16	3.2.1	The system shall have the simulated aircraft make voice reports in accordance with the Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)	Demonstration
1	1.17	3.2.1	The simulated aircraft shall respond to improperly issued commands in a manner consistent with live pilots	

Parent ID	Rqmt ID	SRS Para.#	Requirement Text	Test Method
1	1.18	3.2.1	The simulated aircraft shall have the capability to rendezvous with other simulated aircraft as defined in the CVN NATOPS (NAVAIR (00-80T-105)	Demonstration
1	1.19	3.2.1	The simulated aircraft shall have the capability to rendezvous with other simulated aircraft as defined in the Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)	Demonstration
1	1.20	3.2.1	The simulated aircraft shall have the capability to rendezvous with other simulated aircraft as defined in the LHA/LHD NATOPS (NAVAIR 00-80T-106)	Demonstration
1	1.21	3.2.1	The simulated aircraft shall have the capability to rendezvous with other simulated aircraft as defined in the LHA/LHD Air Traffic Control Handbook (NAVAIR AE-LHATC-OPM-000)	Demonstration
1	1.22	3.2.1	The aircraft formation shall execute commands issued to the flight leader	Demonstration
1	1.23	3.2.1	The system shall simulate aircraft failure modes	Demonstration
1.23	1.23.1	3.2.1	The system shall simulate loss of IFF	Demonstration
1.23	1.23.1.1	3.2.1	The system shall simulate loss of military IFF	Demonstration
1.23	1.23.1.2	3.2.1	The system shall simulate loss of civil aviation IFF	Demonstration
1.23	1.23.2	3.2.1	The system shall simulate loss of communications	Demonstration
1.23	1.23.3	3.2.1	The system shall simulate loss of gyro	Demonstration
1.23	1.23.4	3.2.1	The system shall simulate loss of AN/SPN-46	Demonstration
1.23	1.23.5	3.2.1	The system shall simulate loss of TACAN	Demonstration
1.23	1.23.6	3.2.1	The system shall simulate loss of AN/SPN-41	Demonstration
N/A	2	3.2.2	Provide Scenario Control for Embedded Trainer Operator	Demonstration
2	2.1	3.2.2	The system shall allow the Embedded Trainer Operator to create Air Traffic Control scenarios	Test
2.1	2.1.1	3.2.2	The system shall allow the Embedded Trainer Operator to create the operational parameters of the scenario	Test
2.1	2.1.1.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the number of aircraft in the scenario	Demonstration
2.1	2.1.1.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the type of aircraft in the scenario	Demonstration
2.1	2.1.1.4	3.2.2	The system shall allow the Embedded Trainer Operator to select the communication frequencies to be used in the scenario	Demonstration
2.1	2.1.1.5	3.2.2	The system shall allow the Embedded Trainer Operator to set the duration of the scenario	Test
2.1	2.1.1.6	3.2.2	The system shall allow the Embedded Trainer Operator to select the air traffic control position of an individual console	Demonstration
2.1	2.1.1.7	3.2.2	The system shall display time in hours, minutes and seconds per military time standards	Inspection
2.1	2.1.1.8	3.2.2	The system shall allow the Embedded Trainer Operator to select the Departure Case	Demonstration
2.1	2.1.1.9	3.2.2	The system shall allow the Embedded Trainer Operator to select the Recovery Case	Demonstration

Parent ID	Rqmt ID	SRS Para.#	Requirement Text	Test Method
2.1	2.1.1.10	3.2.2	The system shall allow the Embedded Trainer Operator to select the Departure Reference Radial	Demonstration
2.1.4	2.1.13	3.2.2	The system shall allow the Embedded Trainer Operator to set the communication channel button for the scenario	Demonstration
2.1	2.1.14	3.2.2	The system shall allow the Embedded Trainer Operator to create maneuver points to be used during the scenario	Test
2.1.11	2.1.14.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the maneuver point type	Demonstration
2.1.11	2.1.14.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the maneuver point radial	Demonstration
2.1.11	2.1.14.3	3.2.2	The system shall allow the Embedded Trainer Operator to select the maneuver point distance measuring equipment	Demonstration
2.1.11	2.1.14.4	3.2.2	The system shall allow the Embedded Trainer Operator to select the maneuver point altitude	Demonstration
2.1.11	2.1.14.5	3.2.2	The system shall allow the Embedded Trainer Operator to select the maneuver point latitude	Demonstration
2.1.11	2.1.14.6	3.2.2	The system shall allow the Embedded Trainer Operator to select the maneuver point longitude	Demonstration
2.1.11	2.1.15	3.2.2	The system shall allow the Embedded Trainer Operator to save maneuver points based on type for future use	Demonstration
2.1.11	2.1.16	3.2.2	The system shall allow the Embedded Trainer Operator to modify maneuver points during a paused scenario	Test
2.1.11	2.1.17	3.2.2	The system shall allow the Embedded Trainer Operator to continue a scenario with modified maneuver points	Test
2.1.11	2.1.11.10	3.2.2	The system shall allow the Embedded Trainer Operator to manually modify all air target data at any point during the scenario.	Test
2.1	2.1.1.3	3.2.2	The system shall allow the Embedded Trainer Operator to select the geographical area of the scenario	Demonstration
2.1	2.1.2	3.2.2	The system shall allow the Embedded Trainer Operator to create the ship data	Test
2.1.13	2.1.2.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the ship call sign	Demonstration
2.1.13	2.1.2.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the ship latitude	Demonstration
2.1.13	2.1.2.3	3.2.2	The system shall allow the Embedded Trainer Operator to select the ship longitude	Demonstration
2.1.13	2.1.2.4	3.2.2	The system shall allow the Embedded Trainer Operator to select the ship speed	Demonstration
2.1.13	2.1.2.5	3.2.2	The system shall allow the Embedded Trainer Operator to select the ship heading	Demonstration
2.1	2.1.3	3.2.2	The system shall allow the Embedded Trainer Operator to create the weather data	Test
2.1.14	2.1.4	3.2.2	The system shall allow the Embedded Trainer Operator to create the wind aloft data	Demonstration
2.1.14	2.1.4.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the wind layer	Demonstration

Parent ID	Rqmt ID	SRS Para.#	Requirement Text	Test Method
2.1.14	2.1.4.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the wind speed	Demonstration
2.1.14	2.1.4.3	3.2.2	The system shall allow the Embedded Trainer Operator to select the wind direction	Demonstration
2.1.14	2.1.4.4	3.2.2	The system shall allow the Embedded Trainer Operator to select the altitude range	Demonstration
2.1.14	2.1.5	3.2.2	The system shall allow the Embedded Trainer Operator to create the surface wind data	Test
2.1.14	2.1.5.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the wind speed	Demonstration
2.1.14	2.1.5.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the wind direction	Demonstration
2.1	2.1.6	3.2.2	The system shall allow the Embedded Trainer Operator to create the air target data	Test
2.1.15	2.1.6.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target	Demonstration
2.1.15	2.1.6.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target type	Demonstration
2.1.15	2.1.6.3	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target squadron call sign	Demonstration
2.1.15	2.1.6.4	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target squadron side number	Demonstration
2.1.15	2.1.6.5	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target IFF Mode Codes	Demonstration
2.1.15	2.1.6.6	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target channel frequency	Demonstration
2.1.15	2.1.6.7	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target Plane Guard Pattern	Demonstration
2.1.15	2.1.6.8	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target flight pattern	Demonstration
2.1.15	2.1.6.9	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target tanker altitude	Demonstration
2.1.15	2.1.6.10	3.2.2	The system shall allow the Embedded Trainer Operator to select the amount of fuel that the Tanker air target has to give	Demonstration
2.1.15	2.1.6.11	3.2.2	The system shall allow the Embedded Trainer Operator to select the type of air target approach	Demonstration
2.1.15	2.1.6.12	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target fuel state	Demonstration
2.1.15	2.1.6.13	3.2.2	The system shall allow the Embedded Trainer Operator to select if the aircraft will be on auto-pilot	Demonstration
2.1.15	2.1.6.14	3.2.2	The system shall allow the Embedded Trainer Operator to select the Ident	Demonstration
2.1	2.1.7	3.2.2	The system shall allow the Embedded Trainer Operator to create the air target launch data	Test
2.1.16	2.1.7.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target to launch	Demonstration

Parent ID	Rqmt ID	SRS Para.#	Requirement Text	Test Method
2.1.16	2.1.7.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target departure radial	Demonstration
2.1.16	2.1.7.3	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target launch time	Demonstration
2.1.16	2.1.7.4	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target departure point	Demonstration
2.1	2.1.8	3.2.2	The system shall allow the Embedded Trainer Operator to create the air target recovery data	Demonstration
2.1.17	2.1.8.1	3.2.2	The system shall allow the Embedded Trainer Operator to initiate the air target recovery	Demonstration
2.1.17	2.1.8.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the simulated air target check in time	Demonstration
2.1.17	2.1.8.3	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target radial	Demonstration
2.1.17	2.1.8.4	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target range	Demonstration
2.1.17	2.1.8.5	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target altitude	Demonstration
2.1.17	2.1.8.6	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target heading	Demonstration
2.1.17	2.1.8.7	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target speed	Demonstration
2.1.17	2.1.8.8	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target expected approach time	Demonstration
2.1.17	2.1.8.9	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target approach plate	Demonstration
2.1.17	2.1.8.10	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target landing intention	Demonstration
2.1	2.1.9	3.2.2	The system shall allow the Embedded Trainer Operator to create the surface target data	Test
2.1.18	2.1.9.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the surface target id	Demonstration
2.1.18	2.1.9.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the surface target type	Demonstration
2.1.18	2.1.9.3	3.2.2	The system shall allow the Embedded Trainer Operator to select the surface target initiate time	Demonstration
2.1.18	2.1.9.4	3.2.2	The system shall allow the Embedded Trainer Operator to select the surface target range	Demonstration
2.1.18	2.1.9.5	3.2.2	The system shall allow the Embedded Trainer Operator to select the surface target bearing	Demonstration
2.1.18	2.1.9.6	3.2.2	The system shall allow the Embedded Trainer Operator to select the surface target speed	Demonstration
2.1.18	2.1.9.7	3.2.2	The system shall allow the Embedded Trainer Operator to select the surface target heading	Demonstration
2.1.18	2.1.9.8	3.2.2	The system shall allow the Embedded Trainer Operator to select the surface target Mode 2 Code	Demonstration

Parent ID	Rqmt ID	SRS Para.#	Requirement Text	Test Method
2.1.18	2.1.10	3.2.2	The system shall allow the Embedded Trainer Operator to create the surface target profile data	Test
2.1.18	2.1.10.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the surface target	Demonstration
2.1.18	2.1.10.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the surface target latitude	Demonstration
2.1.18	2.1.10.3	3.2.2	The system shall allow the Embedded Trainer Operator to select the surface target longitude	Demonstration
2.1	2.1.11	3.2.2	The system shall allow the Embedded Trainer Operator to create the target call sign data	Test
2.1.19	2.1.11.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the target call sign number	Demonstration
2.1.19	2.1.11.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the target call sign name	Demonstration
2.1	2.1.12	3.2.2	The system shall allow the Embedded Trainer Operator to create air target emergency data	Test
2.1.12	2.1.12.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target	
2.1.15	2.1.12.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target Mode C initial	Demonstration
2.1.15	2.1.12.3	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target IFF transponder	Demonstration
2.1.20	2.1.12.4	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target Emergency Marshal Altitude	Demonstration
2.1.20	2.1.12.5	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target emergency marshal range	Demonstration
2.1.20	2.1.12.6	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target emergency marshal bearing	Demonstration
2.1.20	2.1.12.7	3.2.2	The system shall allow the Embedded Trainer Operator to select the air target emergency expected approach time	Demonstration
2	2.2	3.2.2	The system shall allow the Embedded Trainer Operator to create aircraft type parameters	Test
2.2	2.2.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the aircraft class	Demonstration
2.2	2.2.2	3.2.2	The system shall allow the Embedded Trainer Operator to select the aircraft type	Demonstration
2.2	2.2.3	3.2.2	The system shall allow the Embedded Trainer Operator to select the maximum speed	Demonstration
2.2	2.2.4	3.2.2	The system shall allow the Embedded Trainer Operator to select the final approach speed	Demonstration
2.2	2.2.5	3.2.2	The system shall allow the Embedded Trainer Operator to select the fuel capacity	Demonstration
2.2	2.2.6	3.2.2	The system shall allow the Embedded Trainer Operator to select the maneuver action	Demonstration
2.2.6	2.2.6.1	3.2.2	The system shall allow the Embedded Trainer Operator to select the aircraft maneuverability thresholds	Demonstration

Parent ID	Rqmt ID	SRS Para.#	Requirement Text	Test Method
2.2	2.2.7	3.2.2	The system shall allow the Embedded Trainer Operator to select the aircraft call sign	Demonstration
2.2	2.2.8	3.2.2	The system shall allow the Embedded Trainer Operator to save new aircraft parameters	Test
2	2.3	3.2.2	The system shall automate the aircraft to conduct the Embedded Trainer Operator created scenario.	Test
2.3	2.3.1	3.2.2	The system shall allow the Embedded Trainer Operator to modify, utilize, and save scenario data for immediate access and for future use.	Test
2	2.4	3.2.2	The system shall allow the Embedded Trainer Operator to maintain an aircraft database	Test
2.4	2.4.1	3.2.2	The system shall allow the Embedded Trainer Operator to add new aircraft types with flight characteristics for use in scenarios.	Test
2.4	2.4.2	3.2.2	The system shall allow the Embedded Trainer Operator to save new aircraft types with flight characteristics for use in scenarios.	Test
2.4	2.4.3	3.2.2	The system shall allow the Embedded Trainer Operator to delete aircraft types with flight characteristics for use in scenarios.	Demonstration
2.1.13	2.1.13.6	3.2.2	The system shall allow the Embedded Trainer Operator to manually modify all ship parameters at any point during the scenario.	Test
2.1.13	2.1.13.7	3.2.2	The system shall display simulated aircraft flight characteristics to the Embedded Trainer Operator	Inspection
2.1.13	2.1.13.8	3.2.2	The system shall display simulated aircraft status to the Embedded Trainer Operator	Inspection
2.1.13	2.1.13.9	3.2.2	The system shall be able to pause a training scenario.	Demonstration
2.1.13	2.1.13.10	3.2.2	The system shall be able to replay a training scenario from a specific moment in time with modified parameters.	Demonstration
2.1.13	2.1.13.11	3.2.2	The system shall allow the parameters of a paused scenario to be modified	Test
2.1.13	2.1.13.12	3.2.2	The system shall be able to save all data associated with a training scenario.	Demonstration
2.1.13	2.1.13.13	3.2.2	The system shall be able to replay a training scenario.	Demonstration
N/A	3	3.2.3	Provide Voice Communication Between Consoles	Demonstration
3	3.1	3.2.3	The system shall provide four independent communication channels	Inspection
3	3.2	3.2.3	The system shall allow for the selection of a communication channel.	Demonstration
3	3.3	3.2.3	The system shall allow for simultaneous communications on multiple channels.	Demonstration
3	3.4	3.2.3	The system shall allow up to all four channels to be monitored simultaneously.	Demonstration
3	3.5	3.2.3	The system shall interface with existing headsets used in CATCC/AATCC	Demonstration
N/A	4	3.2.4	Provide Voice Recognition	Test

Parent ID	Rqmt ID	SRS Para.#	Requirement Text	Test Method
4	4.1	3.2.4	The system shall recognize trainee voice commands	Test
4	4.2	3.2.4	The system shall convert trainee voice commands into instructions for simulated aircraft.	Test
4	4.3	3.2.4	The simulated aircraft shall execute verbal commands in accordance with LHA/LHD NATOPS (NAVAIR 00-80T-106)	Test
4	4.4	3.2.4	The simulated aircraft shall execute verbal commands in accordance with LHA/LHD Air Traffic Control Handbook (NAVAIR AE-LHATC-OPM-000)	Test
4	4.5	3.2.4	The simulated aircraft shall execute verbal commands in accordance with CVN NATOPS (NAVAIR 00-80T-105)	Test
4	4.6	3.2.4	The simulated aircraft shall execute verbal commands in accordance with Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)	Test
4	4.7	3.2.4	The system shall provide an automatic transcription of voice communications to the Embedded Trainer Operator screen as understood per channel.	Demonstration
4	4.8	3.2.4	The simulated aircraft shall respond to verbal commands in accordance with CVN NATOPS (NAVAIR 00-80T-105)	Test
4	4.9	3.2.4	The simulated aircraft shall respond to verbal commands in accordance with Carrier Air Traffic Control Handbook (NAVAIR AE-CVATC-OPM-000)	Test
4	4.10	3.2.4	The system shall respond appropriately to trainee voice commands	Test
4	4.11	3.2.4	The simulated aircraft shall respond to verbal commands in accordance with LHA/LHD NATOPS (NAVAIR 00-80T-106)	Test
4	4.12	3.2.4	The simulated aircraft shall respond to verbal commands in accordance with LHA/LHD Air Traffic Control Handbook (NAVAIR AE-LHATC-OPM-000)	Test
4	4.13	3.2.4	The system shall allow the Embedded Trainer Operator to add verbal commands to existing trainer functions.	Test
1	1.5	1.5	Stimulate Air Traffic Control Equipment	Test
1.5	1.5.4	3.2.5	The system shall interface with AN/TPX-42A(v)14 w/FC3	Analysis
1.5	1.5.1	3.2.5	The system shall stimulate operational equipment with periodic simulated ship's navigational position.	Test
1.5	1.5.2	3.2.5	The system shall stimulate AN/TPX-42A(v)14 w/FC3 with periodic simulated aircraft position updates	Test
1.5	1.5.3	3.2.5	The system shall stimulate the AN/TPX-42A(v)14 w/FC3 to display RADAR video for all simulated aircraft	Test
1	1.6	1.6	Vendor Software	
1.6	1.6.2	3.2.6	The system shall reload a selected software version from a storage device	Demonstration
1.6	1.6.3	3.2.6	Existing commercial of-the-shelf manuals or unique service manuals requiring update shall be provided as part of the program's integrated data environment	Inspection

Parent ID	Rqmt ID	SRS Para.#	Requirement Text	Test Method
			Deleted per Problem Rpt #1	

6.0 Notes

APPENDIX A: ACRONYMS

AATC	Amphibious Air Traffic Control
AATCC	Amphibious Air Traffic Control Center
ACDS	Advanced Combat Direction System
ADS	Advanced Display System
ATC	Air Traffic Control
CATCC	Carrier Air Traffic Control Center
CCA	Carrier Control Approach
COTS	Commercial Off The Shelf
CSCI	Computer Software Configuration Item
CVN	Carrier Vessel Nuclear
DAIR	Direct Altitude and Identity Readout
DoN	Department of the Navy
DP	Display Processor
DT&E	Developmental Test and Evaluation
ET	Embedded Trainer
ETC	Embedded Trainer Component
HDC	Helicopter Direction Center
IFF	Identification Friend or Foe
IRS	Interface Requirements Specification
LH	Amphibious Assault Landing Helicopter
NATC	Naval Air Traffic Control
NAALS	Naval Air Navigation Aids and Landing System
NARG	Naval Aviation Requirements Group
NATOPS	Naval Air Training and Operating Procedures Standardization
NATTC	Naval Air Technical Training Center
OAG	Operational Advisory Group
OCIR	Operational Capability Improvement Request
OPNAV	Office of the Chief of Naval Operations
OT&E	Operational Test and Evaluation
PALS	Precision Approach and Landing System
RDP	Radar Display Processor

SATCC Shipboard Air Traffic Control Center
SRS Software Requirements Specification

TACC Tactical Air Control Center