

System Requirements Document

FOR

AVIATION COMBINED ARMS TACTICAL TRAINER (AVCATT) UH-72A UPGRADE

**Prepared by
U.S. Army PEO Simulation, Training and Instrumentation (PEO STRI)
12350 Research Parkway
Orlando, FL 32826-3276**

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For
AVCATT UH-72A UPGRADE**

1.0 SCOPE

This System Requirement Document (SRD) defines the technical requirements to upgrade the UH-72A Lakota platform into the Aviation Combined Arms Tactical Trainer (AVCATT).

1.1 Background

The U.S. Army Program Executive Office for Simulation, Training and Instrumentation (PEO STRI) has a requirement to keep their simulators current with fielded aircraft systems. The Training and Doctrine Command (TRADOC) Capability Manager-Virtual (TCM-V) has required that the AVCATT includes the UH-72A Lakota aircraft configuration in order to comply with this requirement.

2.0 APPLICABLE DOCUMENTS

The following documents of issue shown on the document summary list form a part of this System Requirement Document to the extent specified herein.

PEO-STRI-13-W0009	UH-72A Upgrade Statement Of Work
UH-72A FA	UH-72A Fidelity Analysis
TC 3-04.21	Aircrew Training Manual, UH- 72A
SSS	AVCATT System / Subsystem Specification (SSS)

3.0 REQUIREMENTS

The AVCATT system shall be updated to include the three different manned module configurations of the UH-72A Lakota platform into the AVCATT in accordance with the UH-72A Fidelity Analysis (FA) document and Collective Task List. The requirements of this document, the AVCATT SSS, and the UH-72A Fidelity Analysis shall be met and any changes resulting from this upgrade shall not adversely impact existing AVCATT functionality.

The new Manned Modules (MM) kits, also referred to as B kits, shall be compatible with and interface with all existing AVCATT hardware interfaces including but not limited to physical mounting, cabling, network, visual, power, etc.

Any new or modified software shall be compatible with the existing AVCATT hardware computing environment, system software, and operating systems. Any new software shall be able to be hosted on the existing computing resources without addition of new hardware.

The system shall include new visual models and ownship cockpit masks for each aircraft configuration. The models shall be GFI SE Core CM2 models that are fully integrated into the system and compatible with the AVCATT software, AVCATT OneSAF, VDIS, Model entity list (MEL), and Gateway.

3.1 Manned Module Hardware

The cyclic, collective, center console, main instrument panels, overhead panel, foot controls and other cockpit systems shall be simulated in accordance with the UH-72A Fidelity Analysis (FA) document.

The AVCATT drawing package is provided for the current center consoles, overhead consoles, and main instrument panels. The UH-72A design for these components must be stand alone components that are not shared with other AVCATT manned module types. As an example, the center console must be a new standalone console that is NOT a modification of an existing console. The design can be similar to the existing AVCATT design solution as defined in the AVCATT design documents and TDP; however an all new design is also acceptable as long as it interfaces with the existing hardware, mechanical, power, network, and software interfaces.

The Contractor shall ensure the UH-72A Lakota B kits are transferable and configurable among all AVCATT fielded suites. The UH-72A hardware B kits shall be transferable to any AVCATT suite and operational without the need for future hardware modifications. The hardware design of the Lakota UH-72A upgrade shall not cause the trailer to exceed the weight limits per axle and in total listed in the SSS.

3.2 Flight and Engine Models

The flight characteristics of the UH-72A aircraft shall be provided based on real performance or instrumented aircraft data to support the required training tasks/preclude

negative habit transfer and the learning of incorrect skills in the control of the aircraft. The flight characteristics shall realistically reflect environmental factors such as temperature, wind, and density altitude. In addition aircraft performance capability shall be realistically affected and limited by gross weight, altitude and temperature with engine parameters accurately reflected on cockpit instrumentation. Aircraft weight and inertia shall reflect fuel loading appropriately. Fuel consumption rates shall be realistically simulated to limit range.

Hoist and sling load operations shall be simulated, including load dynamics and power required effects. Engine torque indications shall approximate respective aircraft operator manual performance charts.

3.3 Operational Flight Program

A solution for the UH-72A Operational Flight Program (OFP) shall be incorporated into the AVCATT software baseline. The aircraft OFP or a simulated solution shall interface with the simulated manned module hardware, displays, avionics, aircraft, and mission systems to support simulation of the aircraft avionics architecture and interfaces in accordance with the UH-72A FA. The operator shall be able to navigate through all simulated avionic components, respective menus and execute functions driven by the OFP simulations in accordance with the UH-72A FA.

The AVCATT upgrade shall utilize the tactical aircraft as the basis for software design and simulation whenever feasible.

3.4 Semi-Automated Forces (SAF)

The SAF shall be upgraded to provide tactical interaction and synthetic environment as well as communication and wingman representation of the UH-72A aircraft. The SAF shall be updated to add the behaviors for all 3 UH72A aircraft configurations for all training tasks in all operational modes. The design shall demonstrate all aspects of fair fight in the networked Synthetic Training Environment (STE). Any SAF changes shall be compliant with the existing AVCATT designs for OneSAF, VDIS, and the Model Entity List (MEL). All new development and modification of existing AVCATT OneSAF, VDIS, SE Core Gateway, and CM2 models shall maintain conformance to the latest SE Core and OneSAF design, integration, test, documentation and configuration management standards.

The SAF shall be updated to support all derived behaviors or models needed to recreate the approved Collective Training Tasks that are listed in the Fidelity Analysis.

3.5 Battle Master Controller (BMC) / After Action Review (AAR)

The BMC and AAR shall be upgraded to incorporate the UH-72A capabilities and functions such that the aircraft simulation can be properly initialized, displayed, and controlled from the BMC and AAR.

3.6 Voice Communications

The voice communications systems of the UH-72A shall function and operate in accordance with the aircraft FA. The AVCATT Communication GUI shall be upgraded to meet the fidelity requirements for communication capabilities in accordance with the aircraft's FA.

3.7 After Action Review

The AAR shall support record / playback and live monitor display of a combination of UH-72A avionics instrumentation within the constraints of the existing AVCATT Sensor Video Recording System (SVRS) architecture. The AAR reports shall be updated to account for the UH-72A aircraft configurations.

3.8 Hardware Storage

The B kits containing hardware instrument panels, consoles, and controls shall be designed to allow being stored in existing storage areas inside the two trailers. An AVCATT suite shall support as many as six different configurations of aircraft (B kits) on board. While one B kit is installed in the manned module, the remaining B kits shall be stored in existing storage areas inside of each trailer, for storage and transportation.

3.9 Manned Module Kit

The UH-72A hardware B kits shall be transferable to any AVCATT suites and operational without the need for future hardware modifications. The contractor shall structure all interfaces and licenses so that they are either on all of the AVCATT Suites and SEE's or are transferable with the B kit from Suite to Suite or SEE.

For example if an ASTI license is needed for the new kit then the offeror could purchase a license for each Suite and SEE or negotiate that each license is tied to its respective kit.