

# Integrated Fires Test Campaign (IFTC)



Left: Lower Tier Air and Missile Defense Sensor (LTAMDS)  
Right: Integrated Fire Protection Capability Increment 2 (IFPC Inc 2)

In November 2023, the Army conducted operational testing for the Integrated Fires Test Campaign 2023 (IFTC 23) at White Sands Missile Range, New Mexico. IFTC 23 was the first in a series of IFTC events that the Army plans to conduct annually. The purpose of IFTC is to provide the Army an opportunity to test the integration of sensors and shooters in the Army Integrated Air and Missile Defense (AIAMD) command and control (C2) architecture. The test campaign provides an opportunity for demonstrating system-of-systems integration and is also a source of operational evaluation data for individual programs of record. The Army began operational testing for IFTC 24 in September 2024 at White Sands Missile Range, New Mexico.

## CAMPAIGN OVERVIEW

The Army intends for IFTC to facilitate a more comprehensive evaluation of the Army's air and missile defense systems, testing them as a single, integrated system of systems, as opposed to individual components. The Army

also intends for IFTCs to reduce overall T&E costs across the Program Executive Office Missiles and Space (PEO MS) by combining test events for multiple systems.

The Army's stated IFTC objectives are: (1) synchronize component experimental, developmental, and operational testing to achieve resource and T&E efficiencies by

tailoring common architectures, threats, and force structures and support component acquisition data requirements; (2) identify requirements and/or test indirect fire capabilities to close operational capability and materiel performance gaps which are described in detail within programs' corresponding test plans; and (3) accelerate existing

materiel release and certification processes through agreements with external process stakeholders to achieve an annual fielding cadence.

## IFTC ASSESSMENT

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During IFTC 23, the Army integrated its Lower Tier Air and Missile Defense Sensor (LTAMDS) into the AIAMD C2 architecture. The Army conducted three days of software- and hardware-in-the-loop (S/HWIL) and four days of uncontested live air testing; the testing included one LTAMDS radar connected to a single AIAMD Engagement Operations Center with its Integrated Collaborative Environment tent, with four simulated Patriot launchers. The Army conducted the testing almost entirely within a simulated HWIL environment and was intended to support both an annual update for the AIAMD program and an operational assessment for LTAMDS. During IFTC 24 the Army plans to expand the number of systems by including the Integrated Fire Protection Capability Increment 2 (IFPC Inc 2) launcher and associated Sentinel A3 radar.

### » TEST DESIGN

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The test design process for IFTC 23 did not differ substantially from individual system testing, as it was designed to evaluate only the LTAMDS system. See the Missile Defense System article in the Annual Report for additional details on LTAMDS. The AIAMD program participated in IFTC 23

but had no individual operational test objectives. The Army Test and Evaluation Command developed a set of limited operational scenarios that were tailored to existing LTAMDS capabilities. While IFTC 24 includes the addition of the IFPC Inc 2 launcher system and a Sentinel A3 radar, the two developmental systems (LTAMDS and IFPC Inc 2) will operate on their own individual AIAMD networks throughout all phases of the test, allowing for system-specific operational scenarios.

### » TEST UNIT

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The 3-43 Air Defense Artillery (ADA), previously designated as the AIAMD test battalion, acted as the primary system operators for IFTC 23. They will also operate the AIAMD software during IFTC 24, with support from the 1-51 ADA, which will be responsible for movement and emplacement of IFPC Inc 2 launchers.

### » MODELING AND SIMULATION (M&S)

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The test designs for IFTC 23 and IFTC 24 rely heavily on use of M&S tools developed under individual programs of record that span PEO MS. These M&S tools must be verified, validated, and accredited and then integrated together to provide a simulated operational test environment. DOT&E determined that IFTC 23 was inadequate to support an assessment of operational effectiveness for the LTAMDS system, due to immature and unaccredited LTAMDS M&S tools. These M&S challenges persist

in IFTC 24 for both LTAMDS and IFPC Inc 2. The Army should focus on efficiently using developmental testing to support M&S tool development, verification, validation, and accreditation.

### » SCHEDULE

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The IFTC schedule is driven almost entirely by individual program schedules. IFTC 23 was intended to serve as the first operational assessment for LTAMDS, while IFTC 24 will serve as an operational assessment for both LTAMDS and IFPC Inc 2.

IFTC 25 will not include LTAMDS or IFPC Inc 2 and will serve only as the FOT&E for the AIAMD system. See the AIAMD article in this Annual Report for additional details. IFTC 26, as currently envisioned, will be the first opportunity to demonstrate multiple new developmental sensors and shooters on the same AIAMD network, including both the LTAMDS and Sentinel A4 radars, as well as the Patriot and IFPC Inc 2 launchers. IFTC 26 is intended to support T&E of the Army's contribution to the Guam Defense System.

### » TEST RESOURCES

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Operational testing of air defense systems requires fixed- and rotary-wing aircraft to provide live tracking of air targets. As the Army lacks sufficient fixed-wing assets, the IFTC provides an opportunity to reduce overall asset demand and leverage the size of the event to gain support from external

communities such as the Air Force and Navy.

The Army is assessing courses of action to send LTAMDS and IFPC prototypes into theater prior to their operational testing. The assessment includes the possibility of sending the systems overseas to support combatant commands. The PEO should ensure retention of adequate test assets in CONUS to support continued development and testing in the event prototype systems are forward-deployed.

## » **JOINT PARTICIPATION**

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IFTC 23 did not include any participants outside of the Army's air and missile defense community. Previous AIAMD program testing included the Ground/Air Task-Oriented Radar operated by the Marine Corps. The Army has stated an intent to include joint participants in future IFTC events.

## **RECOMMENDATIONS**

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The Army should:

1. Ensure that the M&S tools required for IFTC performance evaluations are validated, verified, and accredited prior to test execution.
2. Ensure adequate test assets are available in CONUS in the event these prototype systems are forward-deployed.
3. Coordinate with the Navy and the Missile Defense Agency to ensure that future IFTC

events include appropriate joint participation, including when testing the Defense of Guam architecture in IFTC 26.