

AN/TPY-2

Army Navy/Transportable Radar Surveillance – Model 2



A phased-array radar that provides early detection, tracking and discrimination of ballistic missile threats.

Benefits

- Key element in defense of U.S., deployed forces and allies
- Provides a robust, modular, best-value capability to the warfighter
- Highly mobile
- Capable of long-range surveillance
- Acquires targets in boost, midcourse and terminal phases
- Tracks complex targets
- Discriminates threats from non-threats
- Reports radar data for system Command and Control and Battle Management
- Enables target selection

Multi-Function Capability

The AN/TPY-2, the world's most advanced mobile radar, is a multi-function, X-band radar designed to search, acquire, track and discriminate threats from non-threats. One of Raytheon's family of X-band radars, the AN/TPY-2 is a phased array radar that delivers high power output and exceptional beam/waveform agility. It is an integral part of the Ballistic Missile Defense System (BMDS), where it is used to perform several vital functions, including surveillance, interceptor track, in-flight data uplink/downlink, target classification/typing/ identification, and intercept assessment.

The AN/TPY-2 radar is composed of four mobile components: an antenna unit, an electronics unit, a cooling unit and a prime power unit. Built for versatility, the AN/TPY-2

can be self-cued or can accept an external cue (e.g., from Aegis or an early warning satellite). In return, the radar can cue the Aegis or a Ground Based Interceptor (GBI), as well as lower tier missile defense capabilities such as Patriot. It can be also be powered by either the prime power unit, a fixed generator or commercial power depending upon location and power availability.

The antenna array is populated with 25,344 X-band transmit/receive modules and has a 9.2 meter square aperture. The radar is transportable via C-5 or C-17 aircraft and can be used in a forward-based or terminal mode.

In addition, Raytheon supplies a full array of sustainment services, including training, spare parts, logistics support and engineering.

Flawless Test Performances

Since 2005, the AN/TPY-2 has performed flawlessly in more than 50 targets-of-opportunity and system flight test missions, as well as in thousands of satellite tracking exercises. The AN/TPY-2 (terminal mode), which is soldier operated, has demonstrated the capability to counter real-world unitary and separating ballistic missile threats.

This flawless test program demonstrates the mission capability of the AN/TPY-2 for both forward-based and terminal-based missions.

Deployment

AN/TPY-2's are currently deployed at locations around the world defending the U.S. and allies around the clock with NoDoubt™ Mission Assurance.

Forward-Based Mode

When employed in a forward-based mode, the AN/TPY-2 will detect a ballistic missile close to the country of origin. The Forward-Based X-band Radar (FBX-T) tracks the object and its flight and reports the data to the Command and Control Battle Management Communications (C2BMC) element. If the threat is deemed hostile, the target is intercepted and destroyed by a Ground Based Interceptor (GBI) or Standard Missile.

Terminal-Based Mode

In the terminal mode, the AN/TPY-2 is part of the THAAD (Terminal High Altitude Area Defense) integrated weapon system. The THAAD weapon system consists of launchers, interceptors, fire control and communications, and the AN/TPY-2 radar. The radar communicates with the fire control and the interceptor to detect, track, discriminate and destroy the threatening missile.

Solid-State X-Band Phased Array Radar

- Antenna, electronics unit, cooling unit, diesel generator
- Surveillance for short-range and medium-range ballistic missiles
- Array populated with 25,344 X-band transmit/receive modules – 9.2 meter square aperture
- Transportable via C-5 and C-17 aircraft

Operational Concept

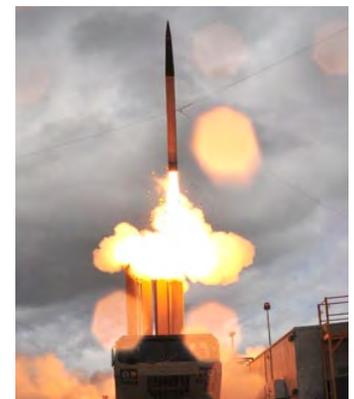
- Surveillance/detection
- Track
- Discrimination
- Hit assessment
- Cue lower tier



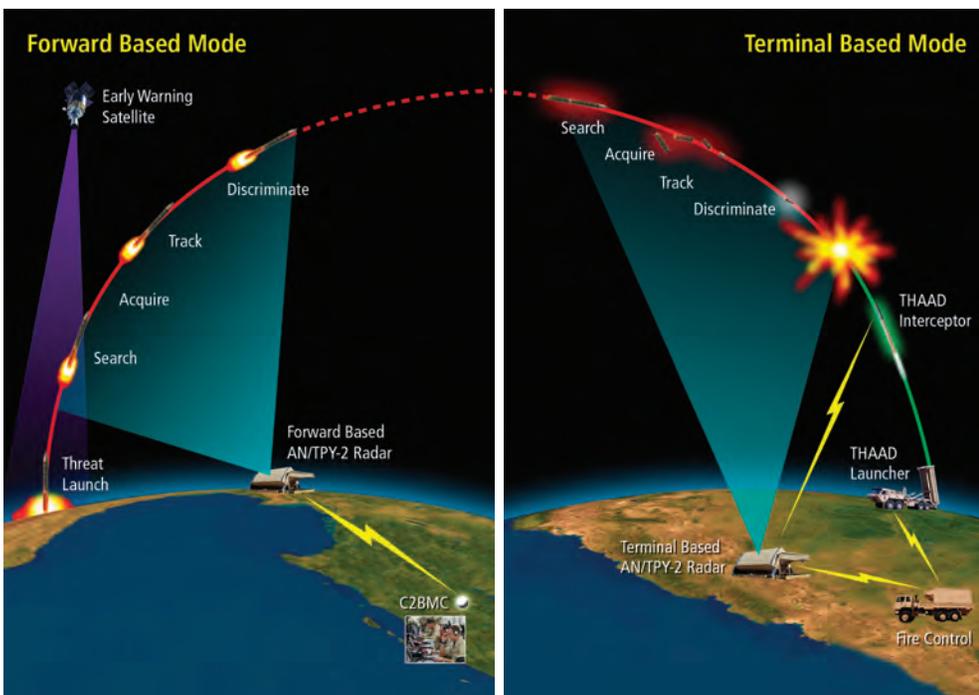
The AN/TPY-2 emplaced and running on generator power. The antenna is in the foreground with the electronics unit behind it.



The AN/TPY-2 emplaced in the desert.



A THAAD interceptor is launched to engage and destroy a threat target detected and discriminated by the AN/TPY-2.



Notional Engagements

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