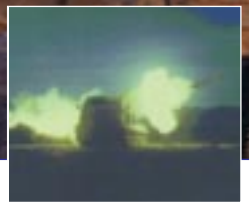
AN/TPQ-37 Firefinder Weapon Locating System

- Extended air defense missions
- Air command and control missions
- Battlefield surveillance and coordination missions
- Combined command and control missions



ThalesRaytheonSystems

AN/TPQ-37 Firefinder Weapon Locating System

Description:

Long-Range Surveillance

ThalesRaytheonSystems' combat-proven AN/TPQ-37 Firefinder is the first radar capable of quickly locating long-range mortars, artillery, and rocket launchers, even beyond those weapons' maximum effective ranges. After tracking a shell for only a few seconds, the AN/TPQ-37 weapon-locating radar can determine its point of origin. During a barrage – when myriad rockets and artillery shells are in the air – the radar pinpoints large numbers of enemy weapons and quickly relays precise location information for counterfire.

Defeats Enemy Firepower, Supports Friendly Weapons

The AN/TPQ-37's stationary antenna sweeps a rapid sequence of beams along the horizon, forming an electronic radar curtain over a 90° area. Any target penetrating the curtain triggers an immediate verification beam. On verification, an automatic tracking sequence begins.

While tracking any single target, the radar continues scanning, locating and tracking others. The AN/TPQ-37 can locate up to 10 different weapons in seconds, at a maximum range of 50 km. When long-range surface-to-surface missiles must be located, a special 60° sector mode extends the AN/TPQ-37's range. Friendly fire can then neutralize further fire from those weapons.

The AN/TPQ-37 also tracks, corrects, and improves the fire of friendly weapons with registration and adjustment data. It also identifies the impact location of hostile projectiles, allowing counterfire on highest priority targets.

Highly Mobile

Like the smaller AN/TPQ-36 weapon-locating radar, the AN/TPQ-37 is highly mobile. The entire system can be setup or taken down and moved in minutes by a small crew. Its operation control shelter can be transported on a vehicle as small as a High Mobility Multi-purpose Wheeled Vehicle - HMMWV.

The U.S. Army combines the AN/TPQ-37 with the AN/TPQ-36 to field an exceptionally accurate and mobile Firefinder weapon-locating system. The AN/TPQ-36 would be deployed near the battle line, with the AN/TPQ-37 farther back in friendly territory

Powerful

Artillery rounds are more difficult for radar to detect than mortar rounds, which have higher reflectivity and more vertical trajectories. The low radar cross-section of the artillery shell means higher power is required to detect it at long ranges, and extensively refined discriminants must be applied throughout the tracking process to achieve a high probability of location and an extremely low false-location rate.

Both the AN/TPQ-36 and -37 have high-performance clutter rejection, enabling them to pick up targets out of ground or sky clutter. In both areas, the AN/TPQ-37 is optimal for locating long-range mortar, artillery, and rocket projectiles.

Exceptionally Reliable

ThalesRaytheonSystems' Firefinder systems are designed to achieve high system availability, with 90 percent of all repairs being performed in the field. Mean-time-to-repair is 30 minutes.

The system features both off- and on-line diagnostic hardware, built-in test equipment, and automatic fault isolation to the replaceable unit level. When the diagnostics are operating off-line, the computer injects test signals and monitors the resulting functions. When operating on-line, a continuous automatic program runs system tests. In the event of failure, the computer performs fault isolation and prints out the problem description and remedial action.

The result is a system of exceptional availability with reduced maintenance costs and downtime, because most repairs can be done quickly in the field.

Block I Program Upgrades

Under the Firefinder Block I program, ThalesRaytheonSystems designed, developed, qualified, integrated, documented, and supported reliability and performance improvements to the AN/TPQ-37 radar. The upgrades facilitate radar loading and unloading on C-130 and C-141 aircraft, provide self-survey capability, and add a tracked suspension system.

AN/TPQ-37 Firefinder Weapon Locating System

Capabilities	Specifications	Features
Locates mortars, artillery, rocket launchers, and missiles	Maximum range: 50 km	Permanent storage for 99 targets
Locates 10 weapons simultaneously	Effective range Artillery: 30 km Rockets: 50 km	Field exercise mode
Locates targets on first round	Azimuth sector: 90°	Digital data interface
Performs high-burst, datum-plane, and impact registrations	Frequency: S-band, 15 frequencies	
Adjusts friendly fire	Prime power: 115/200 VAC, 400 Hz, 3-phase, 43 kW	
Interfaces with tactical fire	Peak transmitted power: 120 kW, min.	
Predicts impact of hostile projectiles		

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