



Land-Based Phalanx Weapon System

Integrated Defense System



Land-Based Phalanx Weapon System provides immediate situational awareness, precision fires, real-time targeting and kill assessment.

Benefits

- Seamless and responsive sensors and weapon system
- Interoperable with Army and Joint systems
- Accuracy and timeliness of targeting and destroying threats

As attacks by insurgents in the urban setting increased, commanders discovered a capabilities gap in the defense systems to counter rocket, artillery and mortar attacks. Most significant were the almost daily attacks by an enemy who could quickly set a mortar tube, fire a handful of rounds and seemingly disappear into the surrounding maze of streets and buildings. Commanders needed a way to not only warn friendly forces on the ground of an incoming attack but also to determine where the attack originated and most importantly destroy the mortars before they could inflict injuries and damage. The solution to destroying this threat is Raytheon's Phalanx Block 1B Close-In Weapon System.

In response to the need to protect U.S. forces from rocket, artillery and mortar threats in Iraq, Raytheon Company and the U.S. Navy partnered with the U.S. Army to develop a

Land-Based Phalanx Weapon System (LPWS) to be integrated with the forward area air defense/command, control and intelligence (FAAD/C2I) protection system.

The LPWS mission represents a revolutionary approach to countering insurgent activities by intercepting rockets, artillery and mortar rounds in the air prior to impact, thereby reducing or eliminating any damage they might cause. The U.S. Navy uses the same capability of the Phalanx 1B sea-based system as its point-defense weapon to protect the fleet from low-flying cruise missiles and other air and surface threats. The Phalanx was first tested for LPWS missions in November 2004 and did so well that production was moved forward. The first test of the Army-integrated LPWS took place in April 2005 at Yuma Proving Grounds, Ariz. The first two LPWS were deployed in June 2005.

Raytheon reconfigured the U.S. Navy system to integrate it into the Army's FAAD/C2I structure. The Phalanx is familiar to the Army because it is similar to the cannon used in the Vulcan air defense gun system, which was the mainstay of divisional air defense battalions in the 1970s through the early 1990s.

Phalanx combines a proven 20 mm M61A1 Gatling gun, firing M-246 Vulcan high-explosive self-destruct rounds at a selectable rate of 3,000 or 4,500 shots per minute, with an advanced search and track Ku-band radar featuring closed-loop spotting technology to provide autonomous target detection and engagement. In the LPWS application, Phalanx is interfaced with a multitude of sensors and FAAD/C2I systems designed to provide an overarching protection umbrella to forces on the ground.

The Block 1B configuration of Phalanx utilizes six optimized



Land-Based Phalanx Weapon System

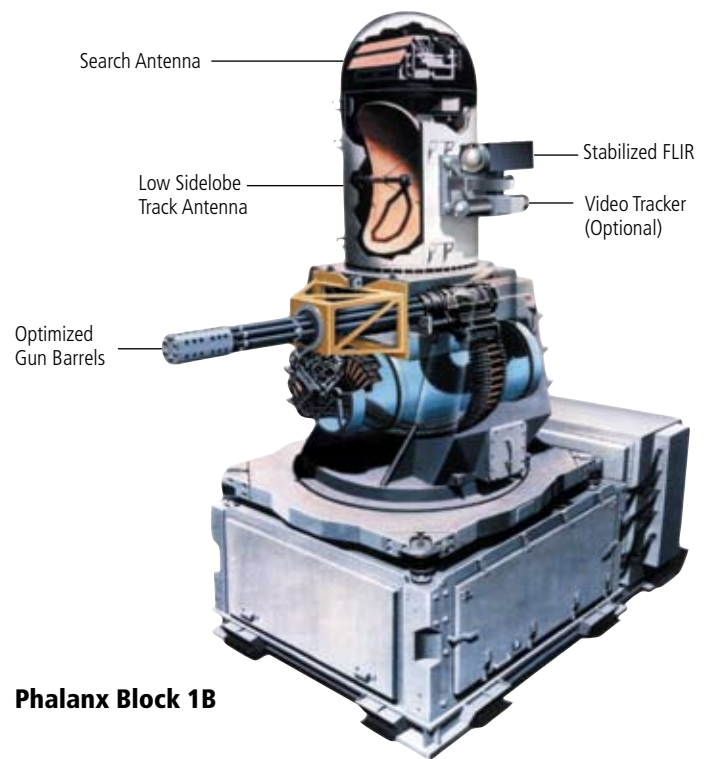
gun barrels along with an integrated forward-looking infrared (FLIR) sensor suite. Block 1B barrels are 19 inches longer and 19 pounds heavier than those used on previous Phalanx models and are capable of more stringent firing schedules. By securing the six barrels at the muzzle, mid-barrel and breech, more accuracy and a concentrated shot dispersion pattern is provided. The Block 1B FLIR provides the capability to search, track and engage threats while simultaneously providing a detect, prioritize and kill assessment feature effective in both daylight and nighttime environments.

Utilizing a Ku-band radar, both the sea-based Phalanx and LPWS are proven to detect threats early in their flight and then hand over to the track mode only when those targets are determined to threaten the area protected by the system. To augment its tracking and engagement capability, the Phalanx Block 1B incorporates a thermal imager with automatic acquisition tracking. The system operates in the 8–12 micron wavelength and is mounted on a stabilized pedestal attached

to the existing Block 1B track antenna radome. This system provides a reliable day/night passive search and track capability while improving the anti-air warfare performance in multi-path environments.

Phalanx is proven to successfully identify and engage mortar rounds in both high and low quadrant elevation trajectories. In the land-based configuration, a Phalanx Block 1B is mounted on a wheeled platform, which provides both a stable site and mobility to allow for repositioning. The LPWS is powered by a generator and has a water chiller cooling system as well as an enclosed control station.

Collateral damage is always a concern whenever combat developers consider a high-speed gun system as a solution to the rocket, artillery and mortar threat. In urban terrain or heavily populated areas, outgoing rounds might prove as dangerous — if not more dangerous — than incoming rounds. To minimize collateral damage, LPWS fires self-destruct rounds. Studies show that residue from self-destructed rounds cause virtually no damage.



Phalanx Block 1B

The deployment of the Phalanx Block 1B and its integration into a holistic approach to defeat rocket, artillery and mortar threats is changing the face of operations on the battlefield and will force insurgents to seriously consider their activities when attacking deployed forces. The enemy is now forced to change tactics and potentially make mistakes that will allow coalition forces to react quickly and defeat threats.



Land-Based Phalanx Weapon System Specifications

Gun:	M61A1 20 mm cannon
Gun Drive:	Pneumatic
Magazine:	1,500-round high explosive incendiary tracer self-destruct
Mount Drive:	Electric
Fire Rate:	Dual fire rate – 3,000 or 4,500 shots per minute
Fire Control:	Fully integrated closed-loop with manual override
Weight:	53,000 lb trailer mounted
Search Radar:	Ku-band, digital MTI
Track Radar:	Ku-band, pulse Doppler monopulse
E/O Sensor:	FLIR imaging system with automatic acquisition tracker
Elevation/Train Accel:	8 rad/sec ²
Elevation/Train Vel:	2 rad/sec
Elevation Limits:	–25 degrees to +85 degrees

Raytheon Company
Missile Systems
Naval Weapon System
P.O. Box 11337
Tucson, Arizona
85734-1337 USA
520.794.5844 phone
520.794.2542 fax

www.raytheon.com

Raytheon

Customer Success Is Our Mission