Backgrounder

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Boeing Standoff Land Attack Missile Expanded Response (SLAM ER)

Description & Purpose:
The Standoff Land Attack Missile Expanded Response (SLAM ER) – the highly accurate man-in-the-loop cruise missile – is the U.S. Navy's choice for surgical strike against high-value land targets and ships in port and at sea.

An affordable inventory upgrade for the U.S. Navy, SLAM ER incorporates a number of improvements to the baseline SLAM, a derivative of the Harpoon anti-ship missile. These retrofit upgrades include planar wings to improve range and aerodynamic performance, an improved warhead to increase penetration and lethality against hardened targets, and software improvements that make it easier for the control aircraft to designate track on the target aimpoint.

Customer(s):
Over 500 SLAM missiles in the U.S. Navy arsenal have been retrofitted with the SLAM ER upgrade. The Republic of Korea purchased SLAM ER as part of its Boeing F-15K program, and SLAM ER has been approved for release to multiple countries worldwide.

General Characteristics:

Length:	172 inches (436.9 cm)
Diameter:	13.5 inches (34.3 cm)
Wing Span:	85.9 inches (218.2 cm)
Weight:	1,400 pounds (635 kg)
Range:	In excess of 150 nautical miles
Propulsion:	Air-Breathing Turbojet Engine
Navigation	Global Positioning System
Data Link	Advanced Weapon Data Link
Guidance	Ring Laser Gyro
	Imaging Infra-Red Seeker

Seeker	Automatic Target Acquisition image matching system
Current Platforms & Controllers:	F/A-18C/D/E/F Hornet P-3C Orion S-3B Viking F-15 Eagle
Potential Platforms:	F-16 Falcon F-22 Raptor F-35 Joint Strike Fighter P-8A Poseidon EA-18G AV-8B Harrier F-111 Nimrod Fokker 50 F-27 B-1 / B-2 / B-52 Tornado Jaguar Eurofighter MIG-29 CP-140 Aurora

SLAM ER is extremely accurate in the fire-and-forget mode, but the missile's highly successful man-in-the-loop mode allows the pilot to precisely update the point of impact during the missile's final moments of flight. A data link in the missile is used to transmit an image of the target to the controlling aircraft. A key feature of the SLAM ER's improved man-in-the-loop interface, known as the Stop-Motion Aimpoint Update, allows the control aircraft pilot to freeze the target scene video on his cockpit display, designate a precise aimpoint and then command a missile to attack that aimpoint. This unique SLAM ER guidance mode will allow the missile to attack and hit critical aimpoints even when the aimpoints have no distinguishing infrared signature.

SLAM ER's control system offers several tactically significant advantages over other types of standoff weapon guidance systems. Viewing the target scene in real time prior to impact allows target identification; reduced collateral damage; selection of a secondary aimpoint in the event that some portion of the original target has already been destroyed; and an immediate indication of mission success. Time-critical aimpoint age is reduced to a few seconds, compared to hours or days for other weapons.

SLAM ER is the first missile that can be re-targeted after launch. With flex targeting, the warfighter can assess the state of the primary target through the missile imaging infrared video display in the cockpit. If the primary target has already been destroyed,

the missile can be re-directed through the weapon data link to another target miles away from the original planned target.

In addition to retargeting, SLAM ER can attack land targets moving at highway speeds. The capability makes SLAM ER the first operational standoff weapon that can attack moving targets with surgical precision on land and at sea.

Designed for deployment from carrier-based and land-based aircraft, SLAM ER can be adapted for ship launch. SLAM ER can be launched from safe standoff ranges of more than 150 nautical miles.

Background:
In March 1995, the U.S. Navy awarded Boeing a $99.4 million contract for engineering and manufacturing development of the SLAM ER program.

SLAM ER made its first flight on March 18, 1997, followed by 13 successful combined development/operational tests.

SLAM ER received early operational capability in the summer of 1999 and verification testing was completed in March 2000. Full-rate production began in 2000.

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