

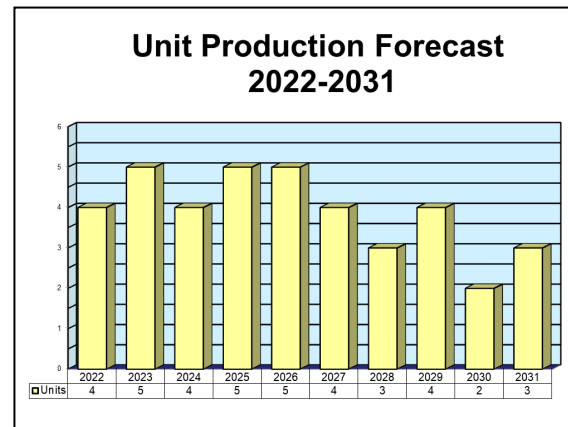
ARCHIVED REPORT

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ALQ-212

Outlook

- Production for new-build U.S. platforms has ended
- Approved for export by the U.S. Department of Defense
- Primary user, the U.S. Army, has moved toward newer version of the system by the same maker



Orientation

Description. Integrated missile warning and countermeasures system consisting of Advanced Threat Infrared Countermeasures (ATIRCM).

Status. Production most likely for spares and replacements only.

Total Produced. Through 2022, an estimated 920 systems were produced.

Application. Army: MH-60K, MH/CH-47, AH-64D, UH/EH-60, CH-47F.

Price Range. The ATIRCM suite is estimated to cost \$1 million.

Contractors

Prime

BAE Systems Inc, Electronic Systems (HQ)	http://www.baesystems.com , 65 Spit Brook Rd, Nashua, NH 03060 United States, Tel: + 1 (603) 885-4321, Fax: + 1 (603) 885-2772, Prime
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Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

ALQ-212**Technical Data**

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Weight		
Electronic control unit	7.26 kg	16 lb
Sensor (6) (w/anti-icing)	1.36 kg/5.5 kg	3 lb/12 lb
Jam head control unit	5.9 kg	13 lb
Jam head (2)	16.8 kg/33.6 kg	37 lb/74 lb
Laser jam source	9.53 kg	21 lb
Size		
Electronic control unit	12.7 x 22.9 x 33 cm	5 x 9 x 13 in
Sensor (w/anti-icing)	10 x 10 cm	4 x 4 in
Jam head control unit	20.3 x 17.8 x 22.9 cm	8 x 7 x 9 in
Jam head (2)	35.6 x 22.9 x 22.9 cm	14 x 9 x 9 in
Laser jam source	17.8 x 17.8 x 45.7 cm	7 x 7 x 18 in

Design Features. The ALQ-212 ATIRCM is a directed, laser-based countermeasures system for protecting helicopters and some fixed-wing aircraft from heat-seeking missiles. A laser is mounted in a movable turret, and energy from it overloads or disrupts a missile's seeker head circuits. Hot-flare decoys are nearly useless in attracting these missiles. ATIRCM aims a high-intensity, pulse-modulated beam of infrared energy at the missile to confuse and overload the seeker.

Directed energy is needed because non-directional techniques require an impossibly high output energy level to spread the transmitted energy across a large angular space and put enough power into the finite area of a missile seeker head to be effective. This is compounded as the size of the aircraft increases and there is a corresponding need for greater power.

Using a directed jamming source solves the power problem by reducing the angular volume that must be filled with energy at any one time. Instead of continuously radiating over a large volume of space, the directed jammer radiates over a small subset of that volume corresponding to the missile angle of arrival. This saves power and makes the jammer more covert,

but it does so at the expense of making the overall system more complex. Missile warning and pointing control systems are needed.

The ATIRCM uses power only when jamming. This makes its effective output substantially greater and eliminates the need for warm-up. The warning system will discern when a threat has been eliminated, as well as where the next threat is coming from.

The ALQ-212 was designed to counter the anticipated missile threats out to the year 2020 and beyond. Up to six sensors can be installed on an aircraft and integrated with the ATIRCM directed energy system or operated as a stand-alone warning system integrated with jamming and dispenser systems.

Operational Characteristics. The ATIRCM system uses a laser to counter infrared-seeking missiles whose sensors will operate on longer wavelengths. Traditionally, IR-seeking missiles targeted a jet engine's exhaust using sensors in the 1- to 2-micron range. This has been increased to 4 microns to counter new missiles that seek cooler targets and attack from nearly any target-aspect angle.

ALQ-212 ATIRCM

Source: BAE Systems

Program Review

Background. In the spring of 1991, the U.S. Army issued a Request for Proposals for an infrared countermeasures system for Special Operations Forces helicopters integrating an IR jammer, a missile-approach warning system, and a decoy dispenser. Sanders (now BAE Systems North America) was awarded an initial three-year development contract in a deal that also included (then) Loral Infrared and Imaging Systems, with Loral providing its AAR-47(V) passive missile warning system to be integrated into the ATIRCM.

Seeking a single system that could be used by a variety of aircraft, the Pentagon made the ATIRCM effort tri-service in 1994. Under the newly aligned program, the Common Missile Warning System (CMWS) was added to the development program and would be designed either as part of the suite or as a stand-alone system. In FY95, demonstration and validation of ATIRCM/CMWS was completed, and the engineering and manufacturing development (EMD) phase of the program was begun.

First Major Contract Gets Production Line Moving

An EMD contract was awarded in September 1995. It included design and fabrication of six ATIRCM/CMWS units for flight tests on the MH-60K helicopter, with

options for an additional 25 systems. The contract provided for the delivery of 50 CMWSs, initial spare parts, and support equipment, and covered systems integration and engineering support. In June 1996, a Preliminary Design Review was completed.

The U.S. Army awarded an 18-month contract in June 1997 to integrate the ATIRCM/CMWS on the AH-64D Longbow Apache helicopter. The effort would determine the optimum configuration and interface requirements for the helicopter.

Facing Rising Costs, U.S. Army Looks for Alternatives

In early 1999, the DoD launched a study to evaluate the suitability of Directed Infrared Countermeasures (DIRCM) as a replacement for the AAQ-24 ATIRCM. Schedule delays and cost growth in the ATIRCM/CMWS program prompted the study, which was to determine if the AAQ-24 DIRCM and its associated AAR-54(V) Missile Warning System could be a cost-effective alternative capable of meeting the requirements established for the original systems.

The AAR-57 CMWS was designed for tactical attack and rotary-wing aircraft, while the AAR-54(V) was designed primarily for rotary-wing and large, slow aircraft. The study had to evaluate whether DIRCM and associated equipment could be reasonably converted to

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meet the more stringent specifications of ATIRCM. It was decided that the two needs could not be met by one system, and reducing the number of DIRCM providers to one was determined to be unwise.

In late 1999, the Air Force opted out of the CMWS program because of budget limits and other priorities. Planners continued EMD (AF lead), but would not procure any AAR-57s. The service would seek other systems to meet its stand-alone CMWS needs.

In March 2000, designers successfully demonstrated a multiband laser unit that could be added to the ATIRCM system.

Army officials placed a notice in the October 31, 2000, Commerce Business Daily seeking sources and information for an ATIRCM/CMWS production program. The missile warning component of the system, the AAR-57, would have to be designed to meet the flight and environmental requirements of the DoD's Tactical Aircraft (the F-16, F-15, AV-8B, F-18, and A/AO-10).

An Acquisition Strategy Emerges

The acquisition strategy for low-rate initial production (LRIP) was sole-source, fixed-price procurement. Funding supported a strategy of buying CMWS separately from ATIRCM while installing A-Kits on all modernized aircraft. The ATIRCM full-rate production decision was scheduled to follow the initial operational test and evaluation (IOT&E). Production was to continue through FY17.

In March 2005, the U.S. Government Accountability Office (GAO) published a report titled "Defense Acquisitions: Assessment of Selected Major Weapon Programs" at the request of Congress. Report GAO-05-301 estimated the procurement quantity of the ATIRCM/CMWS would be 2,583, with the last procurement in 2023. The 2003 program unit cost was put at \$1.075 million, an increase of 13.5 percent from the 1996 figure.

The U.S. Army awarded BAE Systems a \$52 million contract in May 2006 for more than 200 CMWS units

for fixed-wing aircraft and helicopters. This was part of a five-year award with a maximum ceiling of \$1.4 billion to provide up to 1,710 systems.

BAE Systems announced in September 2007 that it had delivered its 1,000th CMWS to the U.S. Army.

In June 2007, BAE Systems was awarded three U.S. Army contracts totaling \$27 million to prepare the ATIRCM system for operational test and evaluation in 2009. BAE Systems incorporated a multiband laser (MBL) upgrade to replace the infrared jam laser and flashlamp subsystem, and updated software with improved built-in test and mission capability. The MBL has an infrared countermeasures capability that provides laser jamming in all three key threat bands.

The FY09 U.S. Defense Budget included \$1.1 billion in procurement funding for ATIRCM/CMWS under the Aircraft Survivability Equipment (ASE) Infrared Countermeasures program.

In April 2009, the ATIRCM/CMWS program was restructured per an Acquisition Decision Memorandum from the Under Secretary of Defense for Acquisition, Technology and Logistics. USD (AT&L) designated the ATIRCM/CMWS program an Acquisition Category ID special interest program and directed the establishment of CIRCUM (common infrared countermeasures) subprograms.

The ATIRCM ALQ-212 was last funded in the defense budget in FY11. Moving forward, production of the system would likely be for export, replacements, and spares only.

In March 2015, BAE Systems announced that ATIRCM had been approved for export by the U.S. Department of Defense.

In August 2019, BAE Systems was awarded a \$242.2 million contract from the U.S. Army to provide systems engineering, integration, logistics, and other technical support services for the newest version of its ATIRCM – the OT-225 – and the AAR-57. Work is expected to be completed in July 2026.

Contracts/Orders & Options

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
BAE Systems	125.0	Jan 2002 – Time and material contract for technical support of the ATIRCM/CMWS. Services included engineering support associated with the development of new jamming codes to counter emerging threats, contractor logistics support, system installation into other aircraft to support DoD and FMS requirements, software support, and integration of product improvements. Work was completed Jan 2007. (DAAB07-02-D-B201)
BAE Systems	12.7	Mar 2002 – FFP contract for the procurement of 26 CMWS units for the Special Operations Regiment in support of Operation Enduring Freedom. Completed Sep 2003. (DAAB07-02-C-B213)
BAE Systems	25.3	Apr 2004 – Mod to an FFP contract for 13 ATIRCM/CMWS units and 40 MWSs. Completed Mar 2004. (W15P7T-04-C-J404)
BAE Systems	27.8	Sep 2004 – Indefinite delivery/indefinite quantity, five-year contract for 484 ATIRCM/CMWS units. Consisted of LRIP, spares, test equipment, and support. (W15P7T-04-R-J032)
BAE Systems	22.9	Nov 2008 – \$11.2 million contract with a not-to-exceed total of \$22.9 million for 73 ATIRCM/CMWS A-Kits for the CH-47 aircraft.
BAE Systems	7.9	Mar 2014 – Mod to contract W58RGZ-13-D-0245 for spare parts, systems engineering, and technical and logistics support for both the AAR-57 CMWS and ALQ-212(V). Completed Feb 2015. The U.S. Army Contracting Command, Redstone Arsenal, AL, was the contracting activity.

Selected Acquisition Reports (SARs)

The Department of Defense (DoD) periodically releases Selected Acquisition Reports (SARs) that summarize the latest estimates of cost, schedule, and performance status for Major Defense Acquisition Programs (MDAP). These reports are prepared annually in conjunction with submission of the president's budget. (Subsequent quarterly exception reports are required only for those programs experiencing unit cost increases of at least 15 percent or schedule delays of at least six months.)

The total program cost estimates provided in the SARs include research and development, procurement, military construction, and acquisition-related operations and maintenance. Total program costs reflect actual costs to date as well as future anticipated costs.

See below for instructions on how to view the annual SAR related to this particular report.

Online and DVD Clients – Click links below.

Hard-Copy Clients – Insert the CD located in the sleeve at the front of the binder. (Electronic version updated quarterly.)

ALQ-212**Worldwide Distribution/Inventories**

This is a U.S. Army program. In March 2015, BAE Systems announced that ATIRCM had been approved for export by the U.S. Department of Defense.

Forecast Rationale

The next several years may see limited production of the ALQ-212 Advanced Threat Infrared Countermeasures (ATIRCM) system for U.S. military replacement purposes.

Prime contractor BAE Systems has apparently made the full transition to its latest iteration of ATIRCM – the OT-225 – for future production. While in-service ALQ-212 units may continue to receive support, the newer OT-225 will likely fulfill the demand for new and

replacement units for the U.S. and international users in the years ahead.

In August 2019, BAE Systems was awarded a \$242.2 million contract from the U.S. Army to provide systems engineering, integration, logistics, and other technical support services for the OT-225 and associated AAR-57 missile warning system. Work is expected to be completed in July 2026.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			Total
	Thru 2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
BAE Systems Inc, Electronic Systems (HQ)												
ALQ-212 <> United States <> Army												
	920	4	5	4	5	5	4	3	4	2	3	39
Total	920	4	5	4	5	5	4	3	4	2	3	39