

ARCHIVED REPORT

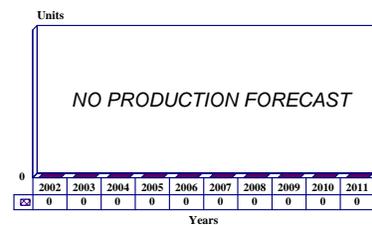
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SSQ-75 ERAPS Sonobuoy – Archived 11/2002

Outlook

- Last production run believed completed in 1999
- No additional procurement forecast
- Future sales very unlikely
- Barring any future activity, this report will be archived next year, November 2002

10 Year Unit Production Forecast
2002 - 2011



Orientation

Description. The SSQ-75 Expendable Reliable Acoustic Path Sonobuoy (ERAPS) is an expendable command-activated long-range active sonobuoy.

Sponsor

US Navy
Naval Air Warfare Center
Aircraft Division
Patuxent River, Maryland (MD) USA

Contractors

ERAPSCO
(Originally a joint venture of Magnavox and Sparton)
Ultra Electronics Holdings Plc
Sonar and Communications Systems
419 Bridgeport Road
Greenford
Middlesex, UB6 8UA
United Kingdom
Tel: +44 (0) 20 88113 4567
Fax: +44 (0) 20 8813 4568
Web site: <http://www.ultra-electronics.com>

Ultra Electronics Holdings Plc
UnderSea Sensor Systems Inc
(formerly Raytheon Co, and prior to that
Hughes Defense Electronics, which formerly had
been Magnavox Electronic Systems Co)

4578 East Part 30 Drive
Columbia City, Indiana (IN) 46725-8869
USA
Tel: +1 219 248 3500
Fax: +1 219 248 3510
Web site: <http://www.ultra-electronics.com>

Sparton Corp
Electronics Division
5612 Johnson Lake Road
Deleon Springs, Florida (FL) 32130
USA
Tel: +1 904 985 4631
Fax: +1 904 985 5036
Web site: <http://www.sparton.com>

Status. Program development terminated in 1997; initial-low-rate production contract completed in 1999.

Total Produced. An estimated 1,305 initial low-rate production units believed to have been produced through October 2001.

Platform. P-3C Orion and S-3B Viking ASW aircraft.

Application. The SSQ-75 ERAPS (Expendable Reliable Acoustic Path Sonobuoy) is designed for the anti-submarine warfare mission of locating and tracking hostile submarines.

Price Range. Estimated unit cost was US\$6,000 in FY92 dollars based on contract cost averaging.

Technical Data

Originally funded under the US Navy's Acoustic Search Sensors (Engineering) program, PE#0604261N, the SSQ-75 is a long-range active search sensor designed to exploit the long-range direct propagation mode known as the reliable acoustic path. It can actively search for a submarine, thus rapidly localizing the target for an attack. The active detection ranges should be greater than those gained with present-day

sonobuoys. The detection range is gained by using a low-frequency, high-power transmitted pulse and a volumetric hydrophone receiving array. Range, bearing and Doppler radar are provided. The unit uses two- or five-second pulses and has a three-hour life-cycle. Depth may be 60 to 16,500 feet, allowing it to be used in either the Mediterranean Sea or the Atlantic Ocean. The maximum range is 15 nautical miles.



US Navy P-3C Orion Aircraft

Source: US Navy



US Navy S-3B Viking Aircraft

Source: US Navy

Variants/Upgrades

No variants or upgrades have been identified.

Program Review

Background. Development of the SSQ-75 was funded under PE#0603259N in FY76. A contract was awarded to investigate the use development of a B size sonobuoy. The system transitioned to Engineering Development in FY77 under Project S0478 of PE#0604261N. The feasibility of using the reliable acoustic path propagation mode was verified in FY78 in tests held in the Atlantic and Pacific oceans and the Mediterranean Sea.

Bunker Ramo Corp received a US\$12.5 million contract in FY80 for design and development of ERAPS engineering development models. Software specifications for the Advanced Signal Processor (ASP) were then determined. In FY81, air drop tests were conducted on the EDMs, and ASP software programs were written and tested. Contractor demonstration tests of air-dropped models were conducted in FY82. The shipping/storage container was designed and built. In FY83, air drop and over-the-side sea tests were successfully completed, and the Surfaced Electronics Subsystem were tested.

By FY84, the subsystem final design was completed, and radio frequency patterns were verified. In FY85, air/mechanical/environmental units with a lithium reserve battery were fabricated and tested, fully configured air drop tests were initiated, Technical Evaluation/Operational Evaluation units were procured, and UYS-1 software was developed. In March 1985, Bunker Ramo Corp was bought by the Oceanics Division of Allied Bendix. In April 1985 Bendix received a US\$4 million contract increment for ERAPS design and development. In addition, the US Navy issued an Approval for Limited Production. In FY86, preliminary signal processing software coding was completed, and high-data-rate telemetry over varying lengths of sea cable was demonstrated, as was safe P-3 air carriage and delivery.

The US Congress directed that the ERAPS program be restructured in FY87 to reduce the risk of cost overruns and growth during early sonobuoy procurement.

Integrated logistics planning for the SSQ-75 ERAPS was completed by the Navy in mid-FY88. The service then began conducting air drop and over-the-side acoustic tests of the SSQ-75 sonobuoy and started systems design review.

In 1988, Magnavox and Sparton announced that they had formed a joint partnership, ERAPSCo, and were awarded a US\$2.5 million initial contract. ERAPSCo received a US\$47.6 million contract in July 1992 to design, develop, and build 1,275 units of the sonobuoy. The contract was completed by December 1999. The contract also had options for an additional 10,400 units, but no further units were known to have been ordered.

Testing and Operational Evaluation was scheduled for 1994, after which a contract was to be awarded for full-scale production. However, no announcement of full-scale production was ever made.

Further development was halted in 1997, and the program was terminated in favor of other sonobuoys in production and development. The last contract, (initial low-rate of production) issued in 1992, ran its course to completion at the end of 1999.

Ultra Electronics Takes Over Raytheon Sonobuoy Division. In late 1998, the United Kingdom-based aerospace and defense electronics company Ultra Electronics acquired Raytheon's sonobuoy product line. In a defense industry full of takeovers and mergers, this acquisition (coupled with its previous buyout of Hermes in Canada) should offer Ultra Electronics a significant expansion capability into the North American (specifically US) sonobuoy market.

Funding

Last years of documented RDT&E funding were FY92, US\$5.2 million and FY93, US\$0.5 million.

Recent Contracts

To date, no full-scale production contracts are known to have been awarded.

| <u>Contractor</u> | <u>Award (\$ millions)</u> | <u>Date/Description</u> |
|-------------------|--------------------------------|--|
| ERAPSCo | 23.0 | Jun 1989 – FFP modification making definite a previously awarded Letter contract to cover the development of the ERAPS sonobuoy and the delivery of 30 OT-IIA sonobuoys. (N62269-88-C-1112) |
| ERAPSCo | 47.6 | Jul 1992 – CPIF/competitive-phased-price contract to cover the design, development, and fabrication of 1,275 air deployable active receiver sonobuoy systems with options for an additional 10,400 units. Contract completed December 1999. (N62269-92-C-0570) |

Timetable

| <u>Year</u> | <u>Major Development</u> |
|-------------|---|
| FY76 | Contract for ADM award |
| FY78 | Preliminary design reviews of EDM receivers and antennas |
| FY79 | Aircraft/ERAPS interface studies conducted |
| FY80 | EDM contract for ERAPS hardware |
| | Software development for acoustic processing initiated |
| FY84 | Subsystem final design complete |
| | Radio frequency patterns verify |
| FY85 | TECHEVAL and OPEVAL sonobuoys procurement |
| FY85-86 | UYS-1 software development |
| | Air mechanical/environmental units test |
| | Fully configured air drop tests |
| FY86 | Operational tests (OT-IIA) with stand-alone |
| | Signal Processor complete |
| FY87 | Program restructured to conform to congressional guidance |
| | Program specifications revised to reduce risk |
| FY88 | Development and testing (OT-IIB) completed; initial development contract awarded to ERAPSCo |
| FY89 | Limited-rate development contract award |
| FY92 | Critical Design Review and DT-IIA complete; Low-rate contract awarded |
| FY93 | OT-IIA complete; low-rate initial production |
| FY94 | TECHEVAL and OPEVAL complete |
| FY97 | Further development canceled |
| FY99 | Last known contract completed |

Worldwide Distribution

Originally designed for use by the **US Navy**.

Forecast Rationale

Originally designed for the US Navy as a variable depth sonobuoy for long-range active detection (maximum range is 15 nm), the SSQ-75 Expendable Reliable Acoustic Path Sonobuoy (ERAPS) was first produced

by Magnavox, which was later acquired by Hughes, which in turn was acquired by Raytheon, whose sonobuoy division was later taken over by Ultra Electronics. The SSQ-75 ERAPS was intended as an

aid in detecting Soviet nuclear submarines. However, with contemporary focus now on improving the US Navy's ability to detect and track diesel-electric submarines in shallow waters, further development of this unit was terminated in favor of other sonobuoys.

The last known development/low-rate production contract, which was awarded in 1992, was completed at

the end of 1999. It is extremely doubtful that this sonobuoy effort will start up again and ever see full-scale production, especially considering it would be competing against sonobuoy market favorites such as the SSQ-53(V) and the SSQ-62(V).

Ten-Year Outlook

Production was completed in 1999; therefore the forecast chart has been omitted. This report is being archived as of November 2002.

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