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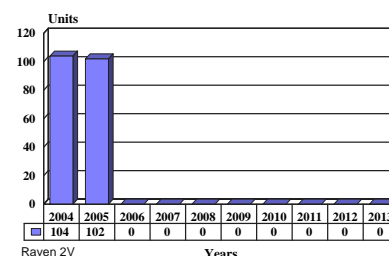
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Raven 2V - Archived 9/2005

Outlook

- Forecast International projects consumers will purchase some 206 Raven 2V radios by the end of 2005
- Look for zero Raven 2V radio systems to be procured after 2005
- This report will be archived in 2005 barring the disclosure of new information regarding the Raven 2V

10 Year Unit Production Forecast
2004 - 2013



Orientation

Description. The Raven 2V is a military tactical radio manufactured by BAE Systems. The Raven 2V delivers voice, data, teleprinter, and facsimile communications in a handheld, manpack, vehicular station, or base station configuration.

Sponsor

BAE Systems plc
6 Carlton Gardens
London, United Kingdom SW1Y5AD
Tel: +44 (0) 1252 373232
Fax: +44 (0) 1252 383991
Web site: <http://www.baesystems.com>

Status. In production and service.

Total Produced. Through 2003, some 1,324 Raven 2V tactical radios had been produced.

Application. Communications

Price Range. Approximately US\$45,000 (U.S.).

Contractors

BAE Systems plc, <http://www.baesystems.com>, 6 Carlton Gardens, London, SW1Y 5AD United Kingdom, Tel: + 44 1252 373232, Fax: + 44 1252 383991, Prime

Technical Data

The Raven 2V is a bus-driven radio with module interface bus chips that talk to each module inside the radio. Each of these chips is an application-specific integrated circuit.

The unit uses a very fast serial bus and a master or slave configuration. Individual addressing allows the system to talk quickly with modules and master processor ancillaries, and provides effective radio control. The Raven 2V uses an Intel 16-bit complementary metal

oxide semiconductor 186 processor and a totally automatic synchronization system. The radio delivers integrated hopping, cryptography, and synchronization.

The Raven 2V operates between 30 megahertz and 88 megahertz, with a channel spacing of 25 kilohertz. An optional 12.5-kilohertz frequency offset is also available. The radio can transmit in three modes: frequency modulation (FM) voice, FM data, and FM analog.



The Raven 2V employs several electronic countermeasures techniques. Full band hopping of up to 2,320 channels is supported. Communications security measures include a range of internal or external cryptographic algorithms.

The radio delivers 100 hops per second using a pseudo-random code operating on a time-of-day system. The Raven 2V employs a Gaussian minimum shift keying technique, and transmits a 16-kilobit-per-second data rate.

A suite of electronic counter-countermeasures protects transmissions. These include frequency hopping, digital encryption, remote control, frequency offset, and burst-data transmission. These techniques prevent interception, jamming, direction finding, and spoofing.

Note: *The Raven 2V is a VHF radio developed in the U.K. by BAE Systems. It is not a derivative of the Australian Army's Raven combat Net Radio system.*

Variants/Upgrades

Handheld. The Raven 2V handheld radio provides voice and data communications over 2,320 channels (at 25 kilohertz spacing) in the 30 megahertz to 88 megahertz frequency band. Ten channels can be pre-set, and selected via the radio's keypad.

The Raven 2V handheld radio weighs 750 grams complete with battery. Blade, compressed helical, and whip antennas are available. Both shoulder holster and waist mounting carrying pouches can be supplied.

Manpack. The transmitter of the manpack version of the Raven 2V operates at three power outputs: 5 watts, 0.5 watts, and 100 milliwatts. Relative to the carrier, the unit achieves a harmonic output of -50 decibels and a spurious output of -80 decibels.

Mission life of the manpack unit is 12 hours with a 4-amp-hour battery. Battery options include 8-amp-hour

lithium and 1.2-amp-hour or 4-amp-hour nickel cadmium. Alternative power supplies are solar panels, hand generators, and 12-volt/24-volt vehicle direct current converters.

Manpack antenna options include standard whip, manpack blade, and manpack elevated. The radio is secured in a harness or frame manpack.

Vehicular Station. The Raven 2V vehicular station provides 50 watt output power from a very small foot print. Vehicle antenna options include end fed, center fed, low profile, and elevated versions.

Base Station. The base station unit is designed for mobile or fixed station operation in conjunction with any 50-ohm wideband antenna system. The device is powered from a 24-volt supply. The transceivers also operate at 5 watts, 0.5 watts and 100 milliwatts.

Program Review

Background. In the early to mid 1990s, the tactical communications systems division of Siemens Plessey Systems (now BAE Systems) developed the Raven 2V. In 1996, the radio was fielded in the United Kingdom where it underwent testing and evaluation.

Also in 1996, the Raven 2V was selected as the data carrier radio for the HALO artillery location system deployed with British troops as part of NATO operation IFOR in Bosnia. In 1998, HALO was upgraded and repackaged using the Raven 2V as its communications bearer.

In June 1998, BAE completed delivering Raven 2V radios to an undisclosed export customer. In November of 1998, BAE announced it would be supplying a "substantial" quantity of its Raven 2V radios (manpack and handheld versions) to the NATO Contingency Force.

Latest Information. In July of 2000, BAE Systems announced that it would be supplying up to 14 United Nations peacekeeping vehicles with the Raven 2V radio. The vehicles with accompanying Raven 2V radios are being used to support United Nations peacekeeping operations in Sierra Leone.

Funding

Consumer purchases of the Raven 2V fund the manufacturing of the radio.

Recent Contracts

No recent contracts have been identified.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	Early to mid 1990's	The tactical communications systems division of Siemens Plessey Systems (now BAE Systems) develops the Raven 2V radio
	1996	The Raven 2V is fielded in the U.K., where it undergoes testing and evaluation
	1998	The HALO artillery location system is upgraded and repackaged using the Raven 2V as its communications bearer
Jul	2000	BAE Systems announces it will be supplying up to 14 United Nations peacekeeping vehicles with its Raven 2V radio

Worldwide Distribution

According to a BAE Systems press release, the Raven 2V is in service in five continents.

Forecast Rationale

The Raven 2V is a military tactical radio manufactured by BAE Systems. The Raven 2V delivers voice, data, teleprinter, and facsimile communications in a handheld, manpack, vehicular station, or base station configuration.

As indicated by the **Ten-Year Outlook** chart, Forecast International predicts consumers will purchase some 206 Raven 2V radios by the end of 2005. Forecast International expects no Raven 2V radio systems to be procured after 2005.

Public disclosure of information regarding the Raven 2V tactical radio has been nonexistent over the past four years. BAE Systems' July 2002 press release

announcing it would be supplying 14 United Nations peacekeeping vehicles with its Raven 2V radio is the last information Forecast International has been able to obtain concerning the Raven 2V.

The desire of defense departments to use software-operated communications systems like the Joint Tactical Radio System is adversely affecting Raven 2V purchases. More telling, the considerable amount of resources BAE Systems is devoting to help develop the Joint Tactical Radio System indicates that demand for the Raven 2V tactical radio is waning.

Barring the disclosure of new information regarding the Raven 2V, this report will be archived in 2005.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

Designation	System	Thru 03	<u>High Confidence Level</u>				<u>Good Confidence Level</u>				<u>Speculative</u>		Total 04-13
			04	05	06	07	08	09	10	11	12	13	
RAVEN 2V TACTICAL RADIO	RAVEN 2V TACTICAL RADIO (NATO)	1320	100	100	0	0	0	0	0	0	0	0	200
RAVEN 2V TACTICAL RADIO	RAVEN 2V TACTICAL RADIO (UNITED NATIONS)	4	4	2	0	0	0	0	0	0	0	0	6
Total Production		1324	104	102	0	0	0	0	0	0	0	0	206