

# ARCHIVED REPORT

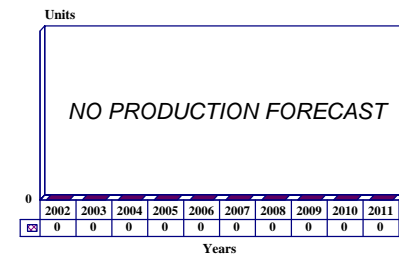
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## PRC-139(V) - Archived 11/2003

### Outlook

- Production completed; no further sales expected
- Possible spares market for main PRC-139(V) models
- Future sales likely to focus on Shark and MSHR models
- This report will be archived in November 2003

10 Year Unit Production Forecast  
2002 - 2011



### Orientation

**Description.** The PRC-139(V) handheld radio is part of a complete tactical communications system providing base station, vehicular adapter, and tactical repeater configurations developed under the US Scope Shield II Communications System effort. The development of the PRC-139 has also led to many offshoot variants.

**Sponsor.** The PRC-139(V) handheld radio is part of a complete tactical communications system providing base station, vehicular adapter, and tactical repeater configurations developed under the US Scope Shield II Communications System effort. The development of the PRC-139 has also led to many offshoot variants.

#### Contractors

Thales Communications Inc  
(Formerly Racal Communications Inc)  
22605 Gateway Center Drive  
Clarksburg, Maryland (MD) 20871  
USA  
Tel: +1 240 864 7000  
Fax: +1 240 864 7249  
Web site: <http://www.thalescommunications.com>  
(Prime Producer PRC-139 and Variants)

**Status.** In service. The main PRC-139 model is believed to have completed production, but there are several other versions based on the PRC-139 currently available.

**Total Produced.** Approximately 16,000 PRC-139 radios were estimated to have been produced by 2002.

**Application.** The PRC-139(V) is reportedly used by the US Air Force, Army, Navy, and Marine Corps. Variant models are used by other US government agencies such as the US Federal Bureau of Investigation (FBI).

**Price Range.** According to the manufacturer, under one contract, the US Air Force paid just over US\$5,000 per unit.

## Technical Data

### PRC-139(C) Scope Shield II Radio

	<u>US</u>	<u>Metric</u>
<b>Standard Features</b>		
Physical Parameters (with battery)		
Length	9.13 in	23.2 cm
Width	2.95 in	7.49 cm
Depth	1.77 in	4.50 cm
Volume	47.7 cu in	782 cc
Weight	2.98 lb	1.35 kg
Reliability/Maintainability	4,000 Hours MTBF @ 90 percent confidence <30 Minutes MTTR	
Environmental Specifications		
Temperature		-30° C to +49° C
Operating		-51° C to +68° C
Storage Humidity	90 Percent Non-Condensing	
Immersion	7 Feet	2 Meters (20 Meters Optional)
Shock	3 Feet 6 Inches	1 Meter Drop
Frequency Bands	30-88 MHz 136-174 MHz 403-470 MHz	
Tuning Steps	12.5 kHz	
Power	0.5 and 2 Watt RF Power Levels	
Battery Life	At 2 Watts RF Power Output: 1:1:8 Duty Cycle 24 Hour Lithium Disposable Battery 12 Hour Rechargeable NiCd battery	
Channels	14 Programmable Channels Embedded Digital US Type 1 VINSON Compatible or FED-STD-1023 Encryption TEMPEST Approved	
Channel Spacing	25 kHz	
Programming	Personal Computer Base Station Frequency Fill Device Radio-to-Radio Cloning	
Channel Programmable Functions	RF Output Power Transmit and Receive Frequency CTCSS Squelch Tones Bandwidth Crypto Clock Speed	
Radio Programmable Functions	Transmit Time Out Squelch Level Cloning Mode Radio Zeroize	
COMSEC	Three Traffic Encryption Keys Over-the-Air Re-keying (OTAR) 12 or 16 kbps Clock Speeds	

LED Indicators	Transmit Receive Clear Scan
External Controls	Channel Select Push-to-Talk Squelch Disable Scan
Audio Interface	Off/On/Whisper/Volume Clear/Key Select/Zeroize 400 mW Output at 8 Ohms Optional Internal Speaker/Microphone Audio Accessories
Options	Synchronous Data Capability Compliant with MIL-STD-188-114 RS 232 Data Capability Immersible to 20 Meters Internal Speaker and Microphone PC based Programming Commercial Encryption or Unencrypted Audio Accessories

**Design Specifications.** The PRC-139(V) operates over the 30 to 88 MHz, 136 to 174 MHz, or 403 to 470 MHz bands. Band change is accomplished by exchanging the transceiver module of the unit, which can be done at the unit level with a Philips head screwdriver. It is a 14-channel system, with channel spacing of 25 or 12.5 kHz, depending on the frequency. The off-the-shelf version has been modified to transmit images from an infantry soldier's thermal weapon sight to a Bradley fighting vehicle.

The radio incorporates internal COMSEC, using an embedded indicator device for US Type 1, VINSON encryption capability. It is interoperative with most US and NATO tactical radios, including SINCGARS. It is programmed with crypto rates of either 12 or 16 kbits/s, which allow channel-by-channel selection of either KY-57 or FED-STD-19\023 compatibility, providing interoperability with federal and military agencies. The

digital data transmission capability of the radio systems allows direct, high-speed RS-232 data and voice transfer via radio between computers and sensors, including the Land Warrior/Next Generation Soldier testbed, without the need for a modem. The testbed is exploring concepts eventually expected to define the equipment carried into battle by US soldiers in the early 21st century. The testing is being used to demonstrate both voice and digital information transfer between soldiers in a combat environment. The digital information consists of imagery and data including location, situational awareness, and command and control.

The PRC-139(V) is available with an internal speaker microphone, ear-microphone, internal display/keypad for programmability, various battery and audio accessories, carrying cases, lanyard, fill device, and PC programming cable with software.



PRC-139(C) Radio



PRC-6725E Radio

Source: Thales Communications Inc  
(Formerly Racal Communications)

## Variants/Upgrades

PRC-139(C). Latest version of the PRC-139(V) Scope Shield II Radio. It has three frequency bands (30-88 MHz, 136-174 MHz, and 402-470 MHz), 0.5 and 2 Watt RF Power Levels, 14 programmable channels, embedded digital US Type 1 VINSON compatible or FED-STD-1023 encryption, and is TEMPEST approved.

Shark. The Shark is a variant of the PRC-139(V) which is waterproof to a depth of 20 meters. It reportedly provides integrity to a 40 meter saltwater depth. Before it was developed, radios had to be carried in waterproof containers and could not be used until they were on land. Forces can now carry the Shark, instead of both a radio and a waterproof container, and use it without additional preparation as soon as they come out of the water. The US Navy is the primary user of this variant. According to the manufacturer, less than 100 units have been produced.

PRC-6725. A single band version of the PRC-130(C). It weighs three pounds and offers 14 channels that can be programmed for transmit and receive frequency, RF output power, IF bandwidth, CTCSS squeal tones, and crypto clock speed. It can be ordered with US Type 1 COMSEC, commercial encryption, or no encryption.

PRC 6725E. The PRC 6725E is a derivative of the PRC-139(V), used by the Australian Army under Project Pintail. It can transmit/receive voice and data, and can operate in bands 30 to 88 MHz, 136 to 174 MHz, and 403 to 470 MHz. It is reportedly compatible

with existing Australian Army ancillary devices such as speech security. Used by infantry and small artillery platoons and by engineer and armor subunits for internal communications, it is interoperative with the Australian Army's current Raven and Wagtail family of radios.

MSHR. The Miniature Secure Hand-held Radio (MSHR) is about one-third the size of the PRC-139(V). MSHR is a 5 watt, handheld tactical radio that is submersible up to 20 meters. It can operate from 100 programmable channels in the 136 to 174 MHz frequencies. It can also manage digital and analog voice and data modes. Racal won a contract in May 1995 from the Federal Bureau of Investigation (FBI) to develop it. Later, in February 1998, Racal was awarded an additional US\$5.8 million in MSHR orders from the FBI and Department of Defense (DoD).

OF-228(V)/U. As an enhanced version of the PRC-139, the OF-228(V)/U includes an amplified transmitter and a built-in battery charger. When the radio is plugged into the adapter, maximum output power is 10 watts.

Pintail. The Pintail Fixed Frequency 5W Transceiver is an enhanced version of the PRC-139. It has a multiband capability and power output of 5 watts. Additionally, the radio has a built-in keypad and display with an available PC-based programmer. As far as is known, this particular unit is built primarily in the United Kingdom.

## Program Review

**Background.** The PRC-139(V) tactical radio system, introduced in 1991, became the heart of Racal's (Racal is now a part of Thales) effort in the US Scope Shield II Communications System. In late 1993, the Command and Control branch of the US Army Communications Electronics Command (CECOM) contracted with Racal for the supply of several modified PRC-139(V) tactical radios. The PRC-139(V) is used by all branches of the US military. An export version, the PRC 6725E, is used by the Australian Army.

Modified versions of the PRC-139(V) have been purchased by the US Army for various battlefield exercises, including Desert Hammer VI and Warrior Focus. The handheld radio and the system's base station, vehicle adapter, and repeater were also used in Bosnia, Kosovo, Panama, Cuba, Haiti, and Somalia.

According to the manufacturer, at the end of September 1995, PRC-139(V) sales had exceeded US\$125 million.

By mid-1996, sales increased to over US\$140 million. At that time, the US Department of Defense (DoD) placed further orders worth US\$9 million. Racal produced the PRC-139(C)s under a contract for the US Air Force that expired in 1999.

No new production contracts have been identified since the end of the last contract; however, spares and maintenance are expected to remain strong for this actively used radio. The PRC-139 also has extensive auxiliary equipment that can be added on to it, which should help to keep the radio marketable and operational for several years. Additionally, the PRC-139 serves as the foundation for many offshoot radios, such as the Shark, PRC-6725, and MSHR, which are expected to do well for their specific and respective applications.

## Funding

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All development funding is believed complete at this time. Additional funding may be allocated as needed for spares and maintenance.

## Recent Contracts

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No new contracts valued over US\$5 million have been identified in open sources at this time.

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
Racal Communications	N/A	1993 – Contract from CECOM to supply several modified PRC-139(V) radios.
Racal Communications	7.6	Mar 1995 – US\$7,683,000 (not-to-exceed) FFP contract for spare parts for the Scope Shield II radio. Completed June 1996. (F04606-95-C-0139)
Racal Communications	N/A	May 1995 – Contract from the FBI to develop MSHR variant.
Racal Communications	0.3	Aug 1995 – US\$300,000+ contract to supply 60 Shark radios to the US Navy for underwater operations.
Stanilite/Racal	7.1	Sep 1995 – Contract to supply 1,300 radios to the Australian Army under Project Pintail.
Racal Communications	N/A	Contract with the US Air Force. Expired March 1999.

## Timetable

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<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1991	Introduction of PRC-139(V)
Late	1993	CECOM contract to Racal for an unknown amount of modified PRC-139(V) radios
Aug	1995	Initiate contract to supply Shark radios for the US Navy
Sep	1995	Australian Army Project Pintail contract
Jun	1996	Contract for spare parts of the Scope Shield II radio complete
	1996	Project Pintail deliveries begin
Mar	1999	Contract with US Air Force expires

## Worldwide Distribution

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The PRC-139(V) is used primarily in the **United States**, by all US branches of the military, as well as the Department of Defense and the Federal Bureau of Investigation. One of the PRC-139(V)'s variants, the PRC-6725E, is reportedly used by the **Australian Army**.

## Forecast Rationale

Initially developed and produced under the US Scope Shield II Communications System program, Thales Communications' (formerly Racal) PRC-139(V) hand-held radio is part of a complete tactical communications

system providing base station, vehicular adapter, and tactical repeater configurations. Approximately 16,000 PRC-139(V) radios were produced through its lifetime production run.

The original PRC-139 radio has served as a technology foundation that has led to the development and production of several variants, including the PRC-6725E, the Miniature Secure Hand-held Radio, the Shark, and the OF-228(V)/U. The PRC-6725E is the export version of the PRC-139(V) and has reportedly been delivered for use within the Australian military. The MSHR, currently a US program only, has reportedly seen two contracts from the US Federal Bureau of Investigation (FBI) and the US Department of Defense (DoD) for its development and production. The Shark version of PRC-139(V) appears to be a US-only program as well. The OF-228(V)/U is a PRC-139 radio with an amplified transmitter and a built-in battery

charger (it has a maximum output power of 10 watts when plugged into the adapter).

PRC-139(V) production reportedly ended with the US Air Force in 1999. While no new contracts seemed to have appeared for additional production, one can expect a strong spares and maintenance effort for several years for this actively used radio. The PRC-139(V) appears to have a great compatibility with other militaries' radios, including SINCGARS and the Wagtail family of radios, which makes it a popular choice. There may be a chance that the PRC-139(V), or upgraded versions of it, will be procured in the future, but because it is so small, this possibility is not included in this market intelligence analysis. Additional foreign procurement is not included either, since no interest has been discerned and/or verified at this time. Any future sales, other than spares, will likely center on the PRC-139(V)'s offshoot models such as the Shark, the PRC-6735, and the MSHR.

## Ten-Year Outlook

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As no further production is forecast at this time, the forecast chart has been omitted. This report will be archived in November 2003.

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