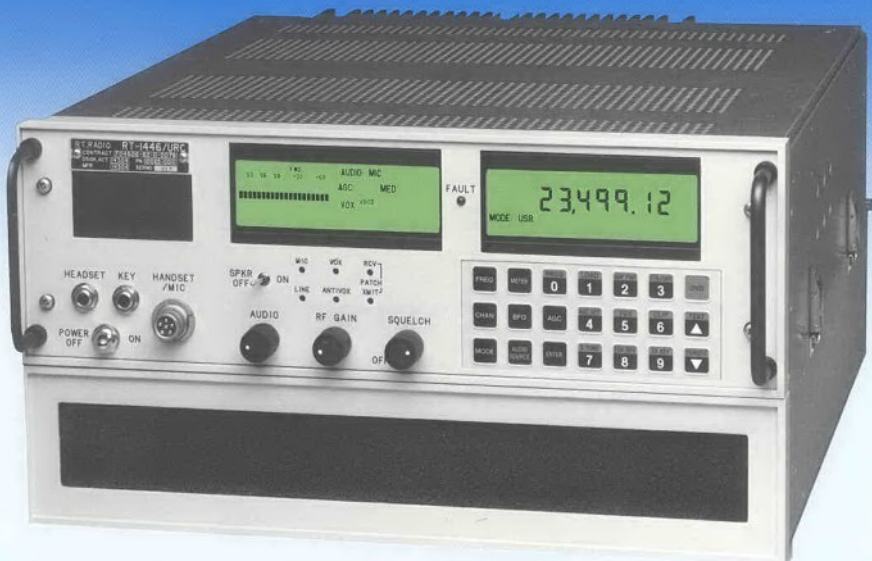


# AN/URC-119(V) Series HF Radio Set



The AN/URC-119(V) Series HF Radio Set provides high-performance, long-range communications capability. It is designed to provide reliable, easily maintained, HF voice and data communications for fixed plant, transportable, shelter, and mobile stations. The transceiver, configured with a 500-watt or 1000-watt linear power amplifier and remote control, fulfills a wide range of communications requirements.

## Features

- 100/500/1000 watts output power
- 1.6 to 30 MHz
- Microprocessor controlled
- Digital fine tuning
- 10 Hz synthesized steps
- 99 field programmable channels

The RT-1446/URC is a microprocessor-controlled transceiver, conservatively rated at 100 watts PEP and Average output power. The solid-state power amplifier assures continuous full-output power during keydown operation. All operating and metering functions of the transceiver are fully remote controllable over two- or four-wire phone lines. Additionally, the built-in phone patch and internally mounted AFSK option provide communication flexibility. The unit is compatible with standard DOD encryption devices, including ANDVT.

The exceptionally rugged design and construction of this system guarantee continuous high performance and reliability under demanding field conditions. Automatic diagnostic BITE provides board-level fault isolation for the entire system.

The AN/URC-119(V) Radio Set is tuned by simply selecting a frequency (or preset channel) and keying. All other functions, including linear power amplifier and antenna tuning, are performed automatically.

## Upgrade All Your Long Range HF Radio Communications with a Product Line of Nomenclatured Equipment

The versatile AN/URC-119(V) Series Radio Set has been selected by the United States Department of Defense for a wide range of applications—fixed station, transportable, tactical, mobile, shipboard—for large scale replacement of existing systems as well as new communications requirements. It is electronically and mechanically designed to be compatible with existing networks and anticipated adaptive operating schemes to provide reliable, supportable, high-performance communications into the 21st century.

Operation of any system configuration is straightforward. Frequency, mode, and other operating characteristics can be operator selected or can be preset on up to 99 field programmable channels. Tuning is as easy as selecting a frequency or channel and keying. All other tuning functions are automatic. An individual can become a qualified operator in a matter of minutes. System self-test and automatic diagnostic BITE make it simple to identify and locate problems in the field. Modular construction puts you back on the air when seconds count.

Operation and maintenance manuals, data, documentation, provisioning, and training packages provide all required levels of support from the field to the depot.



**AN/URC-119(V) configured for shipboard use**

### AN/URC-119(V) Series HF Radio Sets Configurations

#### RT-1446/URC Transceiver



NSN 5820-01-162-3402

- 100 watts PEP/Average
- 1.6 to 30 MHz
- 115/230 VAC, 47-420 Hz or 12/24 VDC
- Microprocessor controlled
- Digital fine tuning
- 10 Hz synthesized steps
- Field programmable channelization
- All solid state
- Built-in phone patch
- LCD display
- BFO
- Automatic tuning
- Modular construction
- Automatic diagnostic BITE
- RS-232C/422 computer control/interface
- Squelch
- Built-in speaker

#### C-11329/URC Remote Control Unit



NSN 5820-01-160-9360

- Provides full control and monitoring of transceiver
- Remote BITE of entire system
- 9600 baud RS-232C/422 control interface allows control up to 1 mile
- Built-in 300 baud FSK modem for control over phone lines for unlimited separation distances
- Built-in phone patch

#### CU-2310/URC 100/500 Watt Antenna Coupler



NSN 5985-01-161-1724ZX

- 1.6 to 30 MHz
- 500 watt rating
- Fully automatic
- Matches 15- to 35-foot whips dipoles on NVIS antennas
- Automatic long-wire adapter
- High VSWR protection
- Weatherproof

100 Watt

**X**

**X**

500 Watt

**X**

**X**

**X**

1 KW

**X**

**X**

## Typical Application Features

- Interfaces with various record message devices such as AN/UGC-74, AN/UGC-129, and AN/UGC-141.
- Operates with various digital message entry devices (DMED) to provide burst communications capability.
- Demonstrated interface with COMSEC equipment such as Parkhill KY65/KY75 and Advanced Narrow-Band Digital Voice Terminal (ANDVT) CV-3591.
- Demonstrated AFSK interface with Transportable Record Communications Terminal (TRCT).
- Demonstrated high-speed data transmission and reception up to 2400 bps (with RF-3466 High-Speed Data Modem).
- Adaptive HF with channel evaluation and selective call using RF-7110 AUTOLINK® Adaptive Controller.
- Built-in phone patch and VOX for operation to/from telephone lines.

**AM-7224/URC 1 KW Linear Power Amplifier with PP-7913/URC Power Supply**



NSN 5820-01-164-4871 with  
6130-01-164-6580ZX

**AN/URA-38C 1 KW Antenna Coupler**



NSN-5985-00-486-8589ZX

**Audio Frequency Shift Keyer/Converter**



NSN 5820-01-174-7219

**AM-7223/URC 500 Watt Linear Power Amplifier**



NSN 5820-01-162-3312

Only 7 inches high  
500 watt PEP/250 watt Average output power  
110/220 VAC, 47-420 Hz, and optional 28 VDC  
Serial data interface control  
Continuous tuning, fully automatic  
Rack/stack mount  
Microprocessor BITE and control  
Rugged construction  
Manual tuning backup  
Fully protected into any load

- 1 KW PEP/Average output power
- Serial data interface control
- Continuous tuning, fully automatic
- Rack/stack mount
- Microprocessor BITE and control
- Rugged construction
- Manual tuning backup
- Fully protected into any load

- 1 KW rating
- Fully automatic
- Up to 500 feet separation from transmitter
- Matches 15- to 35-foot whips
- Matches long-wire antennas with optional RF-625 Long-Wire Adapter

- FSK Modem Interface—MIL-STD-188-114 (low level)
- Center Frequency and Shift—2805  $\pm$  42.5 Hz, 2000  $\pm$  85 Hz, 2000  $\pm$  425 Hz.

			<b>X</b>
<b>X</b>			<b>X</b>
	<b>X</b>	<b>X</b>	<b>X</b>

# SPECIFICATIONS

## FOR THE AN/URC-119(V) SERIES HF RADIO SET EQUIPMENTS

### RT-1446/URC 100 Watt HF Transceiver

#### General

Frequency Range ..... 1.6 to 30 MHz (10 Hz synthesized steps).  
 Power Output ..... 100 watt PEP/Average.  
 Channels ..... 99 front panel programmable channels.  
 Frequency Stability ..... 0.3 parts in 10<sup>6</sup>.  
 Power Input ..... 110/220 VAC  $\pm$  10% at 50 to 400 Hz, +28 VDC or +12 VDC.

RF Input/Output  
 Impedance ..... 50 ohms nominal unbalanced, capable of driving a 2:1 VSWR load.  
 Temperature ..... -30° to +50° C.  
 Tuning Time ..... Less than 10 msec.  
 Display ..... LCD.  
 Built-In Test  
 Diagnostics ..... Fault isolation to LRU/front-panel alphanumeric indication.  
 Emission Modes ..... A3J (single sideband, upper or lower); A3H (compatible AM); A2J (CW); AFSK.  
 Size ..... 8.75 H x 16.75 W x 20.0 D inches (22.2 H x 42.5 W x 50.8 cm).  
 Weight ..... 85 lbs. (38.6 kg).  
 Mounting ..... Rack, stack, or tactical case.

#### Transmitter

Power Output ..... SSB (A3J) 100 watt PEP/Average; compatible AM (A3H) 25 watt carrier nominal; CW (A2J) 100 watt PEP.  
 Overload Protection ..... Power amplifier is fully protected from mismatch, including an open or shorted antenna.  
 Carrier Suppression (A3J Mode) ..... At least 50 dB below PEP output.  
 Intermodulation  
 Distortion ..... 33 dB below PEP.  
 Undesired Sideband  
 Suppression ..... 50 dB at 1 kHz.  
 Harmonic Suppression ..... 2nd 40 dB, 3rd 55 dB, 50-400 MHz 70 dB below PEP.  
 Audio Input ..... Either carbon or dynamic microphone; in addition, a 600 ohm input is provided.  
 Residual Noise Level ..... 50 dB below PEP.

#### Receiver

Sensitivity ..... SSB: 0.5  $\mu$ V for 10 dB SINAD.  
 AM: 3  $\mu$ V for 10 dB SINAD.  
 Audio Output ..... 4 watts to internal speaker.  
 Selectivity ..... SSB: nominally 350-3050 Hz at 3 dB.  
 Image and IF Rejection ..... Greater than 80 dB.  
 AGC Characteristics ..... Attack time: SSB 30 sec. max.  
 Release time: selectable 3  $\pm$  1 sec., 200  $\pm$  100 msec., 30 msec. max.  
 Intermodulation  
 Distortion ..... In-band third order: -50 dB or better for two equal -36 dB m signal falling within SSB filter.  
 Out-of-band third order: -60 dB or better for two equal 0 dBm signals falling at 100 kHz and to +200 kHz.  
 Overload Protection ..... Receiver protected for input to 100 VRMS.  
 Spurious Responses ..... -80 dB.  
 \*FSK Modem Interface ..... MIL-STD-188-114 (low level).  
 \*Center Frequency and Shift ..... 2805  $\pm$  42.5 Hz.  
 2000  $\pm$  85 Hz.  
 2000  $\pm$  425 Hz.

\*With optional AFSK module.

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### AM-7223/URC 500 Watt HF Linear Power Amplifier and AM-7224/URC 1 KW Linear Power Amplifier with PP-7913/URC Power Supply

Frequency Range ..... 1.6 to 30 MHz.  
 RF Output Power ..... AM-7223/URC: 500 watt PEP and 250 watt Average.  
 AM-7224/URC with PP-7913/URC: 1000 watt PEP and Average.  
 Channel Change Time ..... 5 seconds nominal.  
 RF Drive Power  
 Required ..... 65 watts for full power output.  
 Output Impedance ..... 50 ohms.  
 Working VSWR ..... 2:1 self-protecting for any load.  
 Intermodulation  
 Distortion ..... Third order more than 33 dB down.  
 Harmonic Output ..... More than 40 dB down.  
 Input Power ..... AM-7223/URC: 110/220 VAC  $\pm$  10% at 50 to 400 Hz or +28 VDC.  
 AM-7224/URC with PP-7913/URC: 110/220 VAC  $\pm$  10% at 50 to 400 Hz.  
 Metering ..... Output power, grid current, plate current, and plate voltage.  
 Operating Temperature ..... -30 to +50° C.  
 Cooling ..... Forced air from internal blower.  
 Size ..... AM-7223/URC: 7.0 H x 16.75 W x 20.0 D inches (17.8 H x 42.5 W x 50.8 D cm).  
 AM-7224/URC: 10.5 H x 16.75 W x 20.0 D inches (26.7 H x 42.5 W x 50.8 D cm).  
 PP-7913/URC: 10.5 H x 16.75 W x 20.0 D inches (26.7 H x 42.5 W x 50.8 D cm).  
 Weight ..... AM-7223/URC: 77 lbs. (35.0 kg).  
 AM-7224/URC: 40 lbs. (18.1 kg).  
 PP-7913/URC: 135 lbs. (61.2 kg).  
 Mounting ..... Rack or stack.

### C-11329/URC Remote Control Unit

Functions ..... The remote control provides full control and monitoring of the transceiver.  
 Display ..... LCD.  
 Receive Frequency ..... Controllable in 10 Hz steps, from 1.6 to 30 MHz.  
 Transmit Frequency ..... Controllable in 10 Hz steps, from 1.6 to 30 MHz.  
 Distance ..... 1 mile using RS-232C/422 on field wire; unlimited over V1 grade phone lines.  
 Temperature Range ..... -30° to +50° C.  
 Size ..... 5.25 H x 16.75 W x 12.5 D inches (13.3 H x 42.5 W x 31.8 D cm).  
 Weight ..... 20 lbs. (9.1 kg).

### CU-2310/URC 100/500 Watt HF Antenna Coupler

Input Impedance ..... 50 ohms (maximum VSWR 1.5:1).  
 Frequency Range ..... 1.6 to 30 MHz into a 15- to 35-foot whip or a 75- to 150-foot long-wire antenna.  
 Power Level ..... 500 watt PEP/250 watt Average, continuous duty.  
 Size ..... 11.0 H x 16.0 W x 18.0 D inches (27.9 H x 40.6 W x 45.7 D cm).  
 Weight ..... 25 lbs. (11.3 kg).  
 Case Construction ..... Waterproof (sealed) for exposed mounting.  
 Operating Power ..... Derived from associated RT-1446/URC HF Transceiver.

Because Harris engineers are continually striving to improve all aspects of our equipment, published specifications are subject to change without notice.