RF-350 Series
HF Transceiver Group

100/500/1000 Watt • 1.6 to 30 MHz

The RF-350 Series HF Radio product line 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, fulfills a wide range of communications requirements.

The RF-350 is a microprocessor-controlled transceiver, conservatively rated at 100 watts PEP and Average. 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 full communication flexibility.

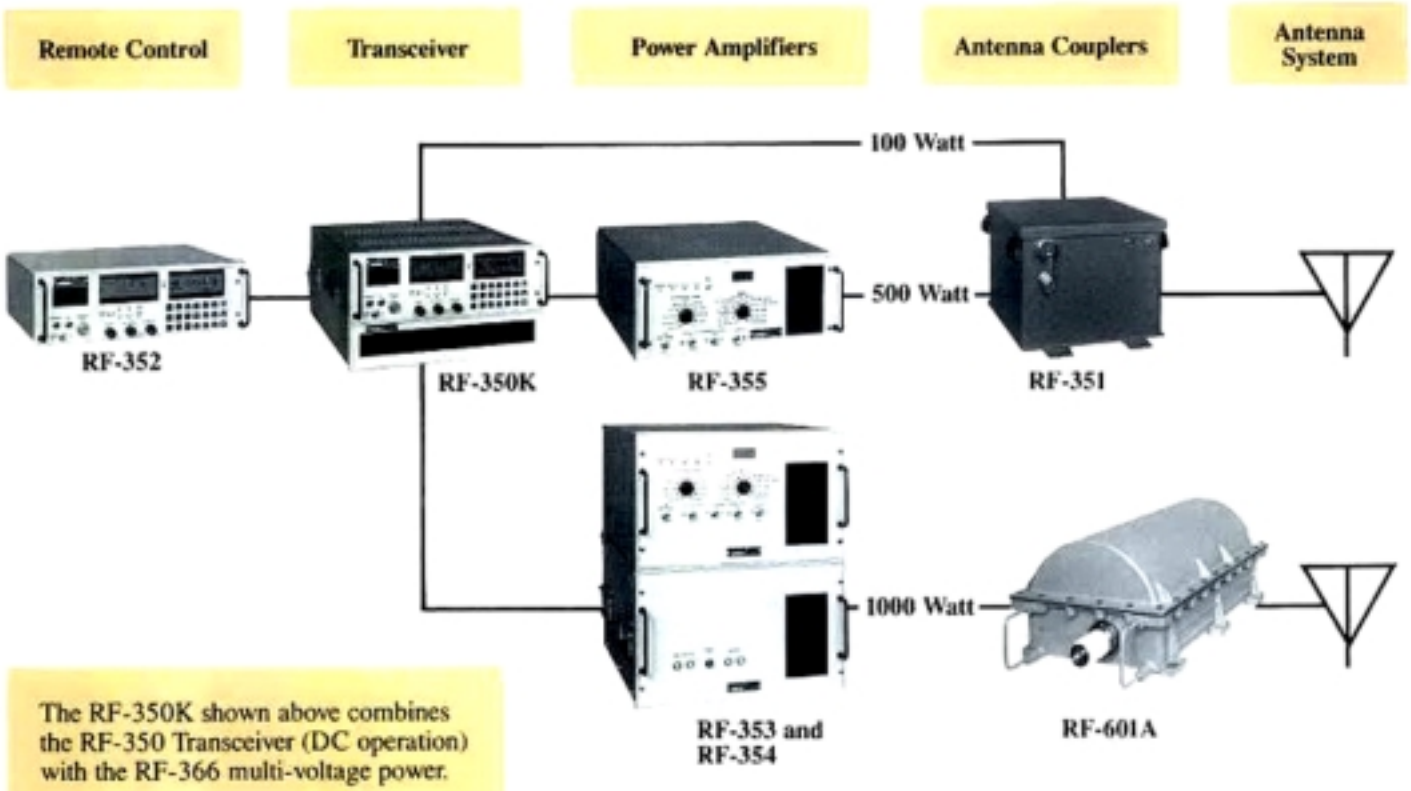
The exceptionally rugged, industrial/military design and construction of the RF-350 system guarantees continuous high performance and reliability under demanding field conditions. Automatic diagnostic BITE provides board-level fault isolation for the entire system.

The RF-350 system is tuned by simply selecting a frequency (or preset channel) and keying. All other tuning functions, including linear power amplifier and antenna tuning, are performed automatically.

RF-350-05T

The versatility of the RF-350 Series allows for cost-effective, high-performance system integration. Systems providing 100, 500, and 1000 watt power output can be configured to meet a variety of demanding user requirements.

RF-350 High Performance HF Transceiver Group



The RF-350K shown above combines the RF-350 Transceiver (DC operation) with the RF-366 multi-voltage power.

RF-350 Series
HF Transceiver Group

RF-350 Transceiver

- 100 watts PEP/Average
- 1.6 to 30 MHz
- Microprocessor controlled
- Digital fine tuning
- 10 Hz synthesized steps
- Field programmable channelization
- All solid state
- Built-in optional FSK modem
- Built-in phone patch
- LCD display
- BFO
- Automatic tuning
- Modular construction
- Automatic diagnostic BITE
- RS-232C/422 computer control/interface

RF-355 500 Watt Linear Power Amplifier

- Only 7 inches high
- 500 watt PEP/250 watt Average
- 110/220 VAC 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

RF-353/354 1 kW Linear Power Amplifier

- 1 kW PEP/Average
- 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

RF-351 100/500 Watt Coupler

- 1.6 to 30 MHz
- 500 watt rating
- Fully automatic
- Matches 15- to 35-foot whips and 75- to 150-foot long wires
- Automatic long-wire adapter
- High VSWR protection

RF-352 Remote Control

- 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
- Built-in phone patch

HARRIS

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 Wa 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

	RT-1446/URC Transceiver	C-11329/URC Remote Control Unit	CU-2310/URC 100/500 Wa Antenna Coupler
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-7223/URC 500 Watt Linear Power Amplifier	**AM-7224/URC 1 KW Linear Power Amplifier with PP-7913/URC Power Supply**	**AN/URA-38C 1 KW Antenna Coupler**	**Audio Frequency Shift Keyer/Converter**
				
	NSN 5820-01-162-3312	NSN 5820-01-164-4871 with 6130-01-164-6580ZX	NSN-5985-00-486-8589ZX	NSN 5820-01-174-7219
	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 leve • Center Frequency and Shift—2805 ± 42.5 Hz, 2000 ± 85 Hz, 2000 ± 425 Hz
				X
	X			X
		X	X	X

HARRIS

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 10^6.
Power Input	110/220 VAC ± 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 indicator.
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 μv for 10 dB SINAD. AM: 3 μv 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 m sec. max. Release time: selectable 3 ± 1 sec., 200 ± 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 fo +100 kHz and fo +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 ± 42.5 Hz. 2000 ± 85 Hz. 2000 ± 425 Hz.

*With optional AFSK module.

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221-1218-103

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 ± 10% at 50 to 400 Hz or +28 VDC. AM-7224/URC with PP-7913/URC: 110/220 VAC ± 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 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.

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