HARRIS®

assuredcommunications®

AN/VRC-103(V)1
AN/VRC-103(V)2

MULTIBAND, MULTIMISSION VEHICULAR RADIO SYSTEM

A fully integrated, 50-watt communications system, offering the security and performance features that missions demand



The AN/VRC-103(V)1 multiband, multimission manpack radio system covers the 30 to 512 MHz frequency range with up to 50 watts of transmit output power using the included AN/PRC-117F(C) radio transceiver. The system has embedded Communications Security (COMSEC), Transmission Security (TRANSEC), SINCGARS, and Havequick I/II ECCM capability, with full-circuit protection, DC filtering, VHF/Low FM (30 to 90 MHz) collocation filter, and Satellite Communications (SATCOM) Low Noise Amplifier (LNA). Includes necessary accessories to allow manpack operation using the AN/PRC-117F(C) in a "jerk-and-run" configuration. The AN/VRC-103(V)2 model has an additional (225 to 400 MHz) UHF AM collocation filter.

The AN/VRC-103(V) system is fully compatible with VINSON, ANDVT/KYV-5, KG-84C, and 12 Kbps Fascinator encryption in voice and data modes, with full Over-the-Air-Rekeying (OTAR) capability. Storing up to 75 COMSEC keys, the radio supports DS-101, DS-102 fill, and CT3 interfaces, utilizing all common fill devices.

An embedded software programmable JITC-certified SATCOM and Demand-Assigned Multiple Access (DAMA) modem complies with DOD MIL-STD-188-181B, 182-/A, and 183-/A revisions. Mixed Excitation Linear Prediction (MELP) digitized voice greatly improves narrowband voice communications and is MIL-STD-3005 compliant with other MELP radios. The programmable SATCOM table can be custom built for international SATCOM requirements. The system also features SATCOM Situational Awareness (SA) transmit and receive capability.

The system has SINCGARS and Havequick I/II ECCM frequency hopping. ESIP and ASIP modes are supported, along with ICOM Mode 2/3 SINCGARS, with manual or Global Positioning System (GPS) and Time of Day (TOD) clock sync capability, and SA capability.

The High Performance Waveform (HPW) data waveform can securely transmit and receive email and transfer large files over SATCOM and line-of-sight (LOS) AM/FM nets by adapting to varying channel conditions. HPW ensures error-free data delivery using high-speed, over-the-air data rates up to 64 Kbps on LOS nets and up to 56 Kbps on wideband SATCOM nets.

Channel SCAN provides monitoring of up to 10 SATCOM or LOS nets. Both CDCSS and CTCSS squelch tone support is provided in transmit and receive, for LMR repeater systems and FRS nets.

The removable Keypad/Display Unit provides total control when on the move with a full-function remote control capability. The simple, menu-driven interface allows programming and control of 110 nets. Cable radio cloning is standard, or optional wireless radio cloning with the Radio Programming Application (RPA) ensure critical communications nets are quickly and accurately programmed and established.



Specifications for the AN/VRC-103(V)1 and AN/VRC-103(V)2 with AN/PRC-117F(C) Radio Transceiver

General

Frequency Range 30-512 MHz	VHF Low: 30.000–89.999 MHz VHF High: 90.000–224.999 MHz UHF: 225.000–512.000 MHz UHF SATCOM: 243.000–270.000 and 292.000–318.000 MHz
Channels	Resolution: 10 Hz AM Spacing: 8.33, 12.5, or 25 kHz FM Deviation: 5, 6.25, or 8.0 kHz
Presets Channels	100 Fixed/Hopping presets 10 DAMA presets
Modulation	VHF Low: FM, FSK, TCM VHF High: FM, AM, FSK, ASK UHF: FM, AM, FSK, ASK UHF SATCOM: BPSK, SBPSK, SOQPSK, DEQPSK, CPM
Power Supply	26 VDC Nominal, accepts one or two BA-5590, BB-390A/U, BB-2590, or BB-590 batteries
Environmental	Tested to MIL-STD-810F Shock/Vibration: Ground mobile environment Immersion: 1 m of water Operating Temperature: -40° to +70°C Altitude: Operate to 15,000 ft. (After storage: 40,000 ft.)
Size (maximum envelope)	9.9 H x 15 W x 13.98 D in.
Weight	55 lbs.
Voice Modes	Simplex or Half-duplex SINCGARS ECCM (VHF Lowband only) Plain Text Analog Voice Wideband Cipher Text Digital Voice (16 Kbps; CVSD; KY-57), 12 Kbps Fascinator Narrowband Cipher Text Digital Voice (2.4 Kbps; LPC-10), (MELP, ANDVT/KYV-5, KG-84) Havequick I/II ECCM (UHF band only)

Data over-the-air in Cipher Text (CT)

LOS Data Capabilities	VINSON: 16 Kbps, KG-84 up to 64 Kbps FASCINATOR: 12 Kbps
SINCGARS and ESIP Data Capabilities	VINSON: 600, 1200, 2400, 4800 bps, and 16 Kbps (includes SA) KYV-5: 1200N, 2400N, 4800N, 9600N bps EDM (PT, CT-TACFIRE) SDM (interoperability with DCT, IDM) RS-232 EDM (allows ASYNC data to be sent as SYNC data over-the-air) Packet EDM (interoperability with SINCGARS/X.21, includes SA)
Reed-Solomon FEC rates 25 kHz: CPM	4.8, 6.0, 7.2, 8.0, 28.8, 32.0, 38.4 Kbps
Havequick I/II Data Capabilities	VINSON: 16 Kbps
UHF Dedicated SATCOM Data Capabilities	VINSON 16 Kbps (Includes SA) ANDVT: 300, 600, 1200, 2400 bps KG-84: 300, 600,1200, 2400, 9600 bps and CPM, 4.8, 6.0, 7.2, 8.0, 9.6, 19.2, 28.8, 32, 38.4, 48, 56 Kbps FASCINATOR: 12 Kbps

Data over-the-air in Cipher Text (CT) cont.

SATCOM Compatibility	MIL-STD-188-181B-Dedicated Channels (SA) MIL-STD-188-182 rev (-) & rev (A) 5 kHz DAMA MIL-STD-188-183 rev (-) & rev (A) 25 kHz DAMA Full order wire capability User-programmable frequency table MELP-5 kHz dedicated SATCOM and DAMA SATCOM TDMA Compatibility (STC)
COMSEC Interoperability	KY-57 VINSON, ANDVT/KYV-5 (Mode 3), KG-84C (Modes 1, 2, 3, 4), Fascinator 12 Kbps
COMSEC Features	One Cryptographic Ignition Key (CIK) KDU, OTAR & OTAT, storage for 75 Traffic Encryption Keys, with associated KEK, and 50 Transmission Security Keys
COMSEC Fill Devices	KYK-13, KOI-18, KYX-15, AN/CYZ-10, SKL, supporting DS-101, DS-102/RDS, and CT-3 fill formats
TRANSEC Interoperability	SINCGARS ESIP (ICOM, SDM and EDM) Havequick I/II (DAMA and HPW order wire)
TRANSEC Fill Devices	MX-18290/VRC, AN/CYZ-10, and SKL
GPS Capability	External dedicated interface, DOD PLGR/DAGR and NMEA-183 commercial GPS devices
External Data Interfaces	MIL-STD-188-114A (RS-232E and RS-422 balanced)
Remote Control Capability	ASCII, with full remote control—RS-232E or RS-422 balanced interface Removable Keypad/Display Unit (KDU) up to 250 feet
Situational Awareness	(TX/RX) LOS, SATCOM, Havequick and SINCGARS send report based on time, position, PTT, or combination

Transmitter Specifications

Output Power	5-50 watts PEP
Output Power Selection	Variable in 2 dB steps

Receiver Specifications

FM	30-512 MHz; -118 dBm with internal LNA
AM	90-512 MHz @70% modulation; -112 dBm with internal LNA
UHF TACSAT	-120 dBm with internal LNA

Available Features

Embedded Internet Protocol (IP)
Wireless radio-to-radio cloning
5 kHz SATCOM STC
200-400 MHz collocation filter (AN/VRC-103(V)2)
External Fan Kit (12005-7100-01)
Locking Kit (12005-1200)
Amplifier-only option for existing AN/PRC-117F(C) (AM-7588 and AM-7588A)

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