

AN/ARC-231A RT-1987

Very-High Frequency and Ultra-High Frequency (VHF/UHF) airborne communications system

The AN/ARC-231A RT-1987 is BAE Systems' newest generation of multi-band, multi-mission, airborne communications system with a modernized NSA, Type 1 embedded cryptographic solution. The Software Communications Architecture (SCA)/ Software-Defined Radio (SDR) design of the RT-1987 provides a design reserve capacity for software-only deployment of future operational, mission, and end user deployment focused configurability. The RT-1987 is a fully backward compatible, drop in SDR replacement that includes all RT-1808A control interfaces, both federated and Flight Management System (FMS) functions and requires no other changes for existing integrated platforms. It duplicates the communications capabilities of its predecessor with the same set of Electronic Counter-Counter Measures (ECCM) capabilities (HAVE QUICK, SATURN, and SINCGARS), and UHF SATCOM modes (DAMA and IW), coupled with the foundational building blocks supporting Mobile User Objective System (MUOS).

The RT-1987 adds Ethernet and USB for remote control via aircraft FMS and discrete remote control sets to the MIL-STD-1553, EIA RS-232/422, and continues to support current and evolving joint service interoperable voice and data standards for Line of Sight (LOS) and beyond LOS communications in VHF/ UHF spectrum. Field-tested, the RT-1987 covers 30 to 512 MHz with expandable coverage out to 2GHz. Designed to perform in the most demanding environments, BAE Systems' RT-1987 airborne radio provides warfighters with secure mission-critical information when they need it most.



Features and benefits

- Programmability reduces the time to field evolving communication needs, special mission modifications, and performance enhancements.
- SCA/SDR design provides a significant opportunity to field new capabilities as software-only upgrades.
- Multiple control interface options — such as independent red and black MIL-STD-1553, Ethernet, and USB — allows for flexible integration and mission deployment options.
- Provides ED-23C (8.33 kHz) internationally compliant air traffic control communications and full range of mandatory US and NATO capabilities.

Physical characteristics

Nomenclature	Dimensions (inches)			Weight	Power
	Height	Width	Depth	Max lbs.	Watts
RT-1987	5.38	5.88	9.93	14.80	200
AM-7668	4.70	5.99	13.90	11.80	475
AM-7767	3.06	6.20	10.15	5.50	25
C-12601	3.36	5.75	5.38	2.50	28
C-12608	1.48	5.74	5.38	2.50	4
C-12609	1.48	5.74	3.19	1.0	4
MT-7169	2.84	6.98	11.94	2.10	N/A
MT-7166	2.50	6.98	13.25	1.50	N/A
Non-MUOS					
AM-7565	4.70	5.99	13.90	15.0	475
AM-7566	2.85	5.69	10.15	5.0	15
AM-7529	2.84	6.59	10.90	7.0	15

Radio system items

Nomenclature	Part No.	Description	NSN
RT-1987	902918-801	Receiver/Transmitter	5821-01-616-0469
AM-7668	728290-801	MUOS HPA	5996-01-631-3420
AM-7667	727902-801	MUOS Preamplifier	5996-01-631-3477
C-12601	726295-801	Remote Control Indicator	5821-01-503-3799
C-12608	726073-806	Remote Fill Panel (28VDC)	5895-01-503-3800
C-12609	726073-807	Remote Fill Panel (5 VAC)	5895-01-554-6073
MT-7168	902220-801	RT Mount	5975-01-504-7746
MT-7166	902456-801	HPA Mount	5975-01-504-7745
Non-MUOS			
AM-7565	622274-1	125W HPA	5996-01-503-8589
AM-7566	902458-801	SATCOM Preamplifier	5996-01-503-8094
AM-7529	902049-801	SATCOM Preamplifier with Dual Antenna Ports	5821-01-616-0469

General characteristics

Frequency range	30 to 2,000 MHz (CNR, ATC, Maritime, HQ I/II, SATCOM, LMR)
Channel spacing	5, 6.25, 8.33, 12.5, 25 kHz (VHF, UHF, LOS and SATCOM)
Frequency accuracy	< 1 ppm
Remote control via	MIL-STD-1553, RS-422, Ethernet
Presets	More Than 200 Total (expandable)

Encryption

Embedded	Modern Programmable Type 1 TRANSEC & COMSEC, Data & Voice, HAPE (MUOS), TSVCS
External/Interop	Y-57/KY-58, KYV-5, KY-99A/KY-100, KG-84 A/C (Modes 1-4), KIV-7, Fascinator (SABER), KY-57M, KY-100M (and SY equivalents)
Features	LPC-10e and MELP narrowband vocoders, Transmit and Receive Over-the-Air rekey (OTAR), DS-102 and DS-101 (Bussed and Non-Bussed) key fill
Fill Devices	AN/PYQ-10 (SKL), KIK-30 (RSKL)

For more information contact:

BAE Systems
Multiband Communications and Crypto (MCC)

T: 1-877-227-2231

W: baesystems.com/ARC231A

Cleared for open publication on **12/20**

BAE Systems | AN/ARC-231A RT-1987

Transmitter characteristics

Power output

LOS AM	10 W (116 to 156 MHz, 225 to 400 MHz)
SINCGARS/LOS FM	20 W (30 to 88 MHz, 130 to 174 MHz, 225 to 512 MHz)
SATCOM	125 W (290 to 320 MHz w/AM-7565 or AM-7668 HPAs)
MUOS	100 W (300 to 320 MHz w/AM-7668 HPA)
Exciter output	10 dBm (512–2,000 MHz)
Adjustable power	1 db steps down to 0.2 Watts
Audio input	Adjustable for 150 ohm, 600 ohm, DC-MIC, Wideband and X-mode inputs

Receiver characteristics

LOS	Sensitivity (10dB SINAD) AM < -105 dBm (30% mod) ATC mode receiver includes FM < -112 dBm (±5.6 kHz dev) FM immunity filter
IF bandwidth	50 kHz, 1.2, 4.8 and 19.5 MHz
Audio output	0 to 300mW adjustable for both 150 and 600 ohm interfaces
Response	Narrowband and ATC (±3 dB) 300 to 3,000 Hz Normal 300 to 3,000 Hz Wideband 30 to 10,240 Hz
Distortion	<5% AM or FM
SATCOM	Bit Error Rate (BER) 1×10^{-5} Dedicated Channel (2.4K) C/kt = 54.5 dB/Hz 25K DAMA (19.2K Burst) Eb/No = 6.5 dB (FEC)
SATCOM mode noise figure	10 dBm (512–2,000 MHz)
SATCOM mode sensitivity	1db steps down to 0.2 Watts
Guard receiver	Dedicated 121.5 MHz/243 MHz (LOS) and scanning

Environmental characteristics

Temperature range

Operating	-40° to +71°C
Non-operating	-55° to +95°C
Altitude	55,000 ft.
Humidity	100%
EMI/EMC	MIL-STD-461F, ADS-37A-PRF
Primary Power:	MIL-STD-704A-E 28VDC

Modes of operation

LOS	AM, FM, FSK, Continuous Phase Modulation (CPM) (CPM data rate up to 76.8 kbps)
ECCM	HQ I/II, SINCGARS ESIP/EOM, SATURN
Dedicated SATCOM	MIL-STD-188-181B, Narrowband (1.2 kbps to 9.6 kbps.) Wideband (1.2 kbps to 56 kbps)
25kHz DAMA	MIL-STD-188-183 AC and DC Modes (75 bps to 16 kbps)
IW	MIL-STD-188-182B and 183B (75 bps to 48 kbps)
MUOS	Voice and Data (2.4 kbps to 384 kbps)

Modulation modes

LOS AM	80% nominal at 1 kHz
LOS FM	± 5.6 kHz dev at 1 kHz
Dedicated SATCOM	FSK, SBPSK, DESBPSK, CPM
DAMA	BPSK, QPSK, SOQPSK, DEQPSK
IW	BPSK, QPSK, SOQPSK, DEQPSK, CPM
MUOS	WCDMA

Disclaimer and copyright

This document gives only a general description of the product(s) and service(s) and, except where expressly provided otherwise, shall not form any part of any contract. From time to time, changes may be made in the products or the conditions of supply.

BAE SYSTEMS is a registered trademark of BAE Systems plc.
©2020 BAE Systems. All rights reserved.

ES-C4ISR-111620-0206
CS-20-C11