

AN/ARC-260

Airborne multi-channel wideband high frequency software defined radio solution

Advanced High Frequency (HF) radio performance in an ARC-190 radio replacement package

The AN/ARC-260 system consists of the RT-2122 and C-12598 radio set control. This airborne HF radio provides full ARC-190 form, fit, and functionality with improved performance and advanced functions, including Wide Band High Frequency (WBHF) and Wideband Automatic Link Establishment (WALE) waveforms per certified military standards to ensure long-term interoperability.

Competitively selected by the U.S. Air Force to replace all ARC-190 HF radios and Automatic Communications Processors (ACPs), the RT-2122's true open-system, non-proprietary architecture possesses server-like processing capacity, multiple Gigabit Ethernet ports, and internalized ACP functions. It will also support third-party waveform development and other high-performance functions.

Substantial processing power, memory, internal and external hardware expansion, and integrated transmit and receive simultaneous operations (SIMOPs) filters ensure extended lifecycle relevance on complex mission platforms.

The ARC-260 system includes the C-12958 radio set control that replaces legacy cockpit control heads and mates to existing aircraft connectors. The radio set control is capable of controlling up to four separate HF radios with the addition of aircraft Ethernet control lines.

The ARC-260 airborne wideband HF solution is the Air Force's choice to replace the ARC-190 HF system with an advanced form-fit solution for the future.



Features and benefits

- Rapid replacement of the ARC-190 HF radio reduces integration cost and extends platform service.
- Direct sampling technology architecture with digital channel tuning and filtering achieves superior spectrum awareness across the entire HF band, and enables up to four simultaneous, programmable receive channels.
- Expandable, non-proprietary, open Software Defined Radio (SDR) promotes rapid third-party software development of new waveforms and advanced functions.
- VITA 49.2 digital data interface standard supports rapid development of new functions and applications.
- Significant computing power and memory capacity for future applications and waveforms in a flight qualified system.
- Embedded SELCAL, HF DL, and ALE without an external communications processor.
- Performs all existing interfaces plus 1 Gigabit Ethernet and Open Mission System (OMS) Tier-3 to support future platforms and missions.

Technical Features

- Rapid drop-in replacement for ARC-190 radio with direct connection to existing aircraft wiring and full 1553 control
- Advanced capabilities are accessed through the new flight deck radio control set
- 2/3/4G ALE per MIL-STD-188-141D (JITC certification pending)
- Wideband HF waveforms per MIL-STD-188-110D with bit rates up to 240 kbps (JITC certification pending)
- Modulations: USB, LSB, ISB, CW, WBHF, AME
- MELPe digital voice waveform at 600/1200/2400 bps
- High Frequency Data Link (HF DL) per ARINC 635-4 / 735-3
- Selective Calling (SELCAL) transmit and receive per ARINC 714A
- Embedded Simultaneous Operations (SIMOP) transmit and receive filtering
- Compatible with certified external cryptographic devices

Advanced Features

- Up to four simultaneous, independent receivers with full duplex support (software upgradable to eight).
- Cooperative secondary receive antenna port provides diversity and spectrum awareness.
- Compatible with external networking and application equipment including Link 22, STANAG 5066, MARLIN, JREAP-C.
- Two internal and one external hardware module slots for future expansion.
- C-12958 cockpit radio control set controls up to four RT-2122 radios (expandable to control other radio types).

Transmitter

- RF power: 400 Watt PEP, adjustable in 1dB steps
- Frequency range: 2.0 - 29.9999 MHz in 100 Hz steps
- Transmit modes: USB, LSB, ISB, CW, WBHF, AME
- Duty cycle: 100% (continuous)
- Automatic protection from short/open circuit and over temperature
- Audio ports: seven inputs at 150/600/10k ohms

Receiver

- Frequency range: 1.6 - 29.9999 MHz in 100 Hz steps
- Audio ports: seven outputs at 150/600/10k ohms



C-12958 Radio Set Control

Interfaces

- Control: Ethernet, RS-232, RS-485, MIL-STD-1553C, OMSTier-3
- Data: audio, 1 Gb Ethernet (4 ports), sync/async digital serial
- Time-of-day input per 1PPS, Ethernet NTP, and MIL-STD-1553C
- External frequency standard input

Physical

- RT-2122 dimensions: 7.7"H x 10.1"W x 19.0"D
- RT-2122 weight: 55 pounds
- C-12958 dimensions: 2.2"H x 5.75"W x 6.25"D including knobs (4.95" chassis)
- C-12958 weight: 1.5 pounds

Environmental and EMI

- Operating temperature: -40 to +55 C
- Non-operating temperature: -55 to +85 C
- Altitude: up to 50,000 feet
- Vibration and shock IAW MIL-STD-810G
- Humidity, sand, dust, fungus, salt fog IAW MIL-STD-810G
- Electromagnetic interference and high-altitude electromagnetic pulse (HEMP) in accordance with IAW MIL-STD-461G and MIL-STD-2169C

Electrical Power

- 115 VAC / 400 Hz 3-phase

Reliability

- RT-2122 MTBF >3300 hours +55C for Airborne Inhabited Cargo (AiC) environments
- RT-2122 MTBF >2038 hours +55C for Airborne Uninhabited Cargo (AuC) environment
- C-12958 MTBF >22,000 hours +55C for AiC environments
- Built-in-test with 95% detection and fault isolation

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