AN/ARN-153(V) Advanced Digital TACAN

A robust interface design supports a variety of digital and analog interfaces simultaneously. Digital interfaces include dual MIL-STD-1553B buses and ARINC 429, 568 or 582 buses providing range, bearing, frequency, velocity, and time-to-station. Analog synchro distance and bearing is supplied utilizing patented circuitry that supports loads in any mix of impedance without the “sticking” or “motoring” problems inherent in other solid-state techniques.

An optimized output power design supports operational requirements of high performance aircraft by providing a minimum 500-watt transmit capability over the full range of environments.

Selecting range ratios of 30:1 or 4:1 is accomplished through the automatic gain control (AGC) enable/disable switch, the 1553 bus, or the RNAV (ARINC) input bus.

Enhanced BIT circuitry retains failure information even after the unit has been powered down.

The AN/ARN-153(V) is a full featured TACAN capable of supporting the operational requirements of high performance aircraft in a lightweight compact design. Utilizing the knowledge and experience gained through more than 40 years as a leader in TACAN design and production, Rockwell Collins has designed the ARN-153(V) to support the needs of both new and retrofit applications.

The AN/ARN-153(V) supports four modes of operation: receive mode; transmit-receive mode; air-to-air receive mode; and air-to-air transmit-receive mode. When used in conjunction with the optional 938Y-1 rotating antenna and a control unit, the system also provides bearing to an air-to-air TACAN that is transmitting an unmodulated squitter, and bearing to DME-only ground stations.

**KEY FEATURES**

- Compatible with all standard jTACAN digital and analog interfaces
- X and Y mode channels for surface and air-to-air operations
- 252 channels
- Echo protection
- Mutual suppression interface with other equipment
- High reliability: predicted MTBF is 11,000 hours
- Growth option: Rho-Rho DME with DO-178B software certificate
- Design refresh 2010
### SPECIFICATIONS

#### General
- **Frequency control**: Serial digital MIL-STD-1553B optional
- **Number of channels**: 252 (126X and 126Y) provision made for W and Z channels
- **Frequency range**
  - Receiver: 962 to 1213 MHz
  - Transmitter: 1025 to 1150 MHz
- **Ground interrogator characteristics**: Per FAA Advisory Circular 00-31 and MIL-STD-291
- **Receiver/decoder characteristics**: Per FAA Advisory Circular 00-31 and MIL-STD-291

#### Performance
- **Distance range**: 0 to 390 mi
- **Distance accuracy**
  - Digital: ±0.1 mi
  - Analog: ±0.2 mi
- **Distance acquisition time**: 2 seconds, 2-sigma probability
- **Distance memory**: 15 seconds ±2
- **Bearing Accuracy**
  - Digital: ±0.5 degree
  - Analog: ±1.5 degree
- **Bearing acquisition time**: 5 seconds, 2-sigma probability
- **Bearing memory**: 3 seconds nominal
- **Transmitter power**: 500 W minimum
- **Receiver sensitivity**: -89 dBm (-93 dBm at minimum of bearing modulation)

#### Environmental
- **Vibration**: 0.04 g^2/Hz functional; 0.12 g^2/Hz endurance
- **Service shock**: 15 g
- **Crash safety shock**: 30 g
- **Altitude**: 70,000 ft
- **Operation temperature**: -54 to +71 °C
- **EMI**: MIL-STD-461A, Notice 3

#### Power requirements
- **Primary power**: 28 V dc 1.5 A nominal
- **Power transients**: MIL-STD-704C

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