2010 TACAN
HIGH-PERFORMANCE TACAN FOR FIXED BASE AND MOBILE APPLICATIONS
Moog Inc. is a worldwide designer, manufacturer and integrator of mission critical products and systems. Over the past 60 years, we have developed a reputation for delivering innovative solutions for the most challenging civil, military and marine applications. Moog’s product heritage in navigation and surveillance systems is based on supplying innovative solutions to civil aviation authorities and military commands worldwide. By the 1980’s, we were supplying comprehensive fixed base, shipboard, mobile and man portable TACAN systems to customers globally.

2010 TACAN OVERVIEW

The 2010 is one of the world’s most technologically advanced, full service TACAN beacons available today. Best suited for fixed base and mobile applications, the 2010 TACAN operates in TACAN, silent, demand and DME-only modes, is available in single or dual transponder configurations with single and dual rack versions, and can be used independently or with existing VOR and DVOR systems. The mobile TACAN meets SAE8090 requirements and is compatible with road and C-130 transportation platforms. Its modular state-of-the-art design includes surface mount technology components, digital signal processing, hardware monitoring and soft-fail RF power amplifiers to maximize performance. Pulse shape and spectrum are controlled by an agile digital feedback control loop to keep the signal in space within permissible limits in all operating conditions. The 2010 TACAN is fully compliant with STANAG 5034, Mil-Std-291C and ICAO Annex 10, and offers lower maintenance, high reliability and ease of use.
REMOTE MAINTENANCE MONITORING (RMM)

The integrated monitoring and maintenance system provides capability to remotely monitor, control, troubleshoot and fault-isolate all system parameters. RMM functions can be accessed on a local PC, remote PC or a local diagnostics unit (LDU), allowing the unit to monitor system performance and conduct in-depth analysis and testing. Display screens show operating parameters, overall system status, LRU status, alarm limits, diagnostics and test, amplifier status and transmitter control status.

A local status indicator provides an intuitive user interface showing the operational TACAN status.

RMM features include:

- Windows compatibility and user password protection
- Alignment and adjustment of all critical parameters including settable adjustment of the hard and soft fail alarm limits
- Up to 400 sites monitored from a central RMM station
- Full RMM diagnostics and history logging for each site
- Dial-up/leased line/Ethernet connectivity
- LAN/Satellite link/Fiber optic connection option
- LRU serial number and build state look-up
- Remote flight check capability
- Auxiliary interface allows user defined sensors to be configured by RMM

BUILT-IN TEST EQUIPMENT

Independent, built-in interrogators provide automatic, real-time testing of the entire system to ensure fault free operation and beacon signal production.

- Fully operational from local or remote locations
- Available for troubleshooting and fault isolation
- Includes on-board status indicators for normal and fault conditions
- External test points configurable from LMM/RMM

ANTENNA COMPATABILITY

Moog’s line of electronically scanned antennae fully comply with relevant international standards to offer improved features, reliability and range. Tall and medium aperture antennas are available for fixed base and mobile applications:

- Rapid BITE fault isolation to LRU level
- Low power consumption and high gain provide reduced operating costs

LOGISTICS SUPPORT

Moog is the number one TACAN producer on the market, having sold and fielded more systems than all other TACAN suppliers combined. Our products have been installed and are used by civil and military customers across the globe.

Moog provides global logistics support and technical assistance, including:

- A customer helpline manned 24 hours a day
- Support packages for 15-20 years of the whole operational life of the equipment
- System installation and training
- Site survey and system commissioning
- Safety cases, spares and repairs
### System Configuration
- Single or dual transponders and monitors
- Fixed or mobile/deploable

### Transmitter Performance
#### Frequency
- 962 MHz - 1213 MHz

#### Frequency Stability
- ± 0.001%

#### Channels
- 252 (X and Y mode)

#### RF Pulse Spectrum, Spurious Outputs and Harmonics
- To relevant international standards (STANAG 5034 Ed 3, MIL-STD 291C and ICAO Annex 10)

#### Pulse Rise Time, Pulse Fall Time and Pulse Duration
- To relevant international standards (STANAG 5034 Ed 3, MIL-STD 291C and ICAO Annex 10)

#### Ident Rate
- To relevant international standards (STANAG 5034 Ed 3, MIL-STD 291C and ICAO Annex 10)

#### Pulse Pair Spacing
- X channel - 12 µs ± 0.1 µs
- Y channel - 30 µs ± 0.1 µs

#### Main Reference
- X channel - 12 pairs of pulses at 30 µs ± 0.1 µs
- Y channel - 13 single pulses at 30 µs ± 0.1 µs

#### Auxiliary Reference
- Pulse Group
  - X channel - 6 pairs of pulses at 24 µs ± 0.1 µs
  - Y channel - 13 single pulses at 15 µs ± 0.1 µs

#### Pulse Repetition Rate
- Up to 5400 pulse pairs per second

#### Equalizing Pair
- Transmitted 100 µs ± 10 µs after each identity pulse

#### Pulse Coding Precedence
- 1) Main reference group
- 2) Auxiliary reference group
- 3) Identity signal
- 4) Distance replies
- 5) Random pulse pairs

#### Distance Reply Signal
- X Mode 50 µs
- Y Mode 56 µs

#### Distance Accuracy
- ±50 feet (± 15 meters)

#### Reply Delay Time Stability
- < ± 0.1 µs

#### Transmitter Power
- Up to 5000 Watts

#### Peak Output Power
- 0 - 5 kW programmable

### Receiver Performance
#### Frequency
- 1025 MHZ to 1150 MHz
- (1 MHz channels Mil-Std 291C)

#### Sensitivity
- -94 dBm for 70% reply efficiency typical

### General
#### Aircraft Handling Capacity
- Bearing/Azimuth: Unlimited number of aircraft
- Distance: 200 aircraft simultaneously

#### Status Indication
- Full local and remote indication

#### System Monitoring (BITE)
- Complete dual system monitoring by microprocessors

#### Remote/Local Control
- Fully Windows compatible RMM system and optional separate remote and control panel, Local Diagnostics Unit, LDU

#### Antenna
- Designed for
  - E-Scan (Electronically modulated Moog, Rantec or dB Systems)
  - M-Scan (Mechanical rotating)

#### Range/Coverage Area
- > 300 nautical miles line-of-site (typical)

#### Input Power
- < 1500 VA

#### Power Supply
- AC - 115/230 VAC ± 10% 47/63 Hz with battery back up

### Dimensions/Weight
#### Dimensions
- 24 in (60 cm) x 24 in (60 cm) x 76 in (193 cm)
- 24 in (60 cm) x 24 in (60 cm) x 53 in (135 cm)

#### Weight
- 474 lbs (215 kg)

### Environmental
#### Temperature
- Operating: -10°C to +50°C
- Storage: -30°C to +60°C

#### Humidity
- 0% to 95% relative humidity over temperature range 20°C to 45°C (non-condensing)

#### Altitude
- 0 - 3,000 meters above MSL

### Reliability
#### MTBO
- >100,000 hrs. (Field Data)

#### MTBF
- >12,000 hrs. (cal. MIL-HDBK-217F)

#### MTTR
- <10 minutes

### Applicable Standards
- R&TTE Directive 1999/5/EC, Article 3.1 (a), Article 3.1 (b) and Article 3.2
- ICAO Annex 10
- MIL-STD-291C
- MIL-STD-461
- MIL-STD-810
- MIL-HDBK-217
- STANAG 5034
- ISO 9001:2000 Plus TickIT
- ISO 9001 for hardware
- ISO 9000-3 for software
- FAA:STD.0.16A

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