



MODEL 1150A VHF Omni-Directional Range

The Model 1150A VOR is one of the most advanced solid-state navaid systems in the industry today. Our performance record for safety and reliability is respected worldwide.

PRODUCT OVERVIEW

With systems sold and in service worldwide, the Model 1150A VHF Omni-Directional Range (VOR) has become the international standard for high reliability in en-route navigation and approach systems. Available in Doppler, Conventional, mobile and transportable configurations, the 1150A offers Windows™-based remote maintenance monitoring and control, automatic VSWR and ground check features, and built-in test equipment (BITE). The 1150A provides advanced state-of-the-art performance, highly dependable operation and ease of maintenance. The 1150A complies with U.S. FCC certification requirements, carries the European CE Mark, and meets or exceeds ICAO Annex 10 recommendations.

ADDITIONAL FEATURES INCLUDE:

- Dual and Single Equipment Configurations
 - Comprehensive Windows™ graphical based PMDT and RMM:
 - Automatic Fault Diagnostics
 - Remote Monitor Certification
 - On-screen bearing error graphing
- Configuration/Control
 - Monitoring and Recording
- Dual Independent Monitoring
- Fanless operation

SPECIFICATIONS

ENVIRONMENTAL

Environmental Temperature: -10°C to +55°C for equipment installed in the shelter. All other outdoor equipment such as antennas and cables: -50°C to +70°C.

Relative Humidity: To 95% (non-condensing) indoor, 100% outdoor.

Altitude: 0 to 15,000 ft (4,573m) MSL.

Duty Cycle: Continuous.

Wind: In excess of 100 mph (161 km/h).

Ice and Snow: Two-inch (5 cm) ice coating causes negligible course error.

Hail: Up to at least 1cm without external component damage.

ELECTRICAL

Primary Power: 85 to 264 volts AC auto selection, 45 to 63 Hz, single phase.

Standby Power: 48VDC no-break battery backup system.

Frequency Band: Frequency 108.00 to 117.95 MHz.

Frequency Source: Synthesizer.

Frequency Stability: $\pm 0.0005\%$ (5ppm).

Power Output: Transmitter output adjustable from 25 to 100 W in 0.1 watt increments (14 to 20 dBW). (Effective Radiated Power (ERP) 23 dBW at 100W (20dBW) transmitter power).

Hum and Noise: With voice, VOR reference and identification inputs applied, hum and noise on the carrier are more than 30 db below the audio level equivalent of 30% modulation.

Maximum Range: Line-of-sight limited, 175 nautical miles at 37,500 feet (11,433 M) above the facility.

Azimuth Index: Station azimuth fully adjustable in 0.01° increments over a range of 0° to 360° .

Spurious Outputs: Greater than 77 db below the carrier at 30% modulation.

Harmonic Radiation: Greater than 83 dB below the carrier.

System Accuracy: $\pm 1^\circ$.

CVOR/ DVOR Ground Check Tolerances: The maximum spread of any ground check error curves are less than 2.0° .

Equipment: Model 1150A includes built-in test equipment and test points necessary to achieve and maintain system performance with a minimum of maintenance.

Monitors: Dual parallel AND/OR configuration, built-in test generator for continuous monitor certification and calibration.

Adjacent Channel Rejection: >60 dB.

RMM: Comprehensive, includes alarms, pre alarms and maintenance alerts with automatic dial out to any telephone number. Smoke, intrusion sensors (optional).

CVOR MODULATION

VOR Reference: Sideband 9960 Hz frequency modulated at 30 Hz $\pm 0.01\%$ with a deviation ratio of 16 ± 1 . Amplitude modulates the carrier at 30%.

VOR Variable: $30\text{Hz} \pm .01\%$ amplitude modulates the carrier 30%.

DVOR MODULATION

VOR Reference: $30\text{ Hz} \pm .01\%$ amplitude modulates the carrier 30%.

VOR Variable: $9960\text{ Hz} \pm 0.1\%$ upper and lower sidebands modulate the carrier at less than 40% when measured at 300 m or greater. Blending with a $\text{Cos}^{0.836}X$ envelope.

Tone Identification: AM adjustable (0% to 25%) with keyed 1020 Hz $\pm 0.01\%$. Identification keying to a collocated DME is standard.



CVOR

Semi Automatic 16-point Ground Check: standard.

Fully Automatic 16-point Ground Check: optional kit for accurate azimuth measurement at 16 points around CVOR via menu selection.

Fully automatic 8-point Ground Check optional.

DVOR

Standard Antenna VSWR monitoring and field detector "notch" monitoring standard. Fully automatic DVOR ground check system standard. Counterpoise edge monitor optional.

CVOR & DVOR

Auto ground checks include a Fourier Analysis of the signal, automatic screen PMDT plot and printing of error curves for analysis, thus reducing maintenance, down time, and flight inspection requirements, by signal verification after maintenance.

ANTENNA

Antenna Polarization: Horizontal.

Antenna Configuration: CVOR-4 Alford Loop
(Slot antenna optional).

DVOR-48+1 Alford Loop.

Frequency Range: 108 to 117.95MHz.

Impedance: 50 ohms.

VSWR: $<1.1:1$.