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# MODEL 1150A



Air & Vessel Traffic Management Systems

## VHF OMNI-DIRECTIONAL RANGE

The Model 1150A VOR is one of the most advanced solidstate 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. It 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



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## 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 15,000ft (4,573m) MSL
Duty cycle	Continuous
Wind	In excess of 100mph (161km/h)
Ice and snow	Two inch (5cm) ice coating causes negligible course error
Hail	Up to at least 1cm without external component damage

### Electrical

Primary power	85 to 264V AC auto selection, 45 to 63Hz, single phase
Standby power	48VDC no-break battery backup system
Frequency band	Frequency 108.00 to 117.95MHz
Frequency source	Synthesizer
Frequency stability	±0.0005% (5ppm)
Power output	Transmitter output adjustable from 25 to 100W in 0.1W increments (14 to 20dBW). (Effective Radiated Power (ERP) 23dBW 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 30db below the audio level equivalent of 30% modulation
Maximum range	Line-of-sight limited, 175 nautical miles at 37,500 feet (11,433m) above the facility
Azimuth index	Station azimuth fully adjustable in 0.01° increments over a range of 0° to 360°
Spurious outputs	Greater than 77db below the carrier at 30% modulation
Harmonic radiation	Greater than 83 dB below the carrier
System accuracy	±1°
CVOR/DVOR ground	The maximum spread of any ground check tolerances 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	>60dB
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 9960Hz frequency modulated at 30Hz ±0.01% with a deviation ratio of 16 ±1. Amplitude modulates the carrier at 30%
VOR variable	30Hz ±.01% amplitude modulates the carrier 30%

### DVOR modulation

VOR reference	30 Hz ±.01% amplitude modulates the carrier 30%
VOR variable	9960Hz ± 0.1% upper and lower sidebands modulate the carrier at less than 40% when measured at 300m or greater. Blending with a Cos0.836X envelope
Tone identification	AM adjustable (0% to 25%) with keyed 1020 Hz ±0.01%
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



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