

Appendix A: Specifications

General

Mounting	Bracket or flush mount	
Size (H x W x D): Ray49		
Flush Mounted	2.87 x 6.57 x 6.89in (73 x 167 x 175mm)	
Bracket Mounted	3.56 x 7.05 x 6.89in (90.3 x 179 x 175mm)	
Weight, Ray49: Transceiver & Microphone	2.5 lbs (1.13 kg)	
Power	12 VDC system (13.6 VDC, typical)	
Environmental: Operating Range Storage Range Humidity	Waterproof to IPX7 –10°C to +50°C –20°C to +70°C up to 95%	
Frequency Range: Transmit: Receive	156.050 to 157.425 MHz 156.050 to 163.275 MHz	
Oscillate Mode	PLL	
Modulation	FM (16K0G3E) DSC (16K0G2B)	
Channel Spacing	25 kHz Increments	
Frequency Stability	+/- 10 PPM (+/- 0.001%)	
Audio Output Power	3.5 watts, typical (at 10% distortion with 4 ohm load), 5 watts peak.	
Antenna Port Impedance	50 ohms, typical	
NMEA Port Impedance	100 ohms	
External Speaker Impedance	4 ohms	
NMEA IN Sentences supported (NMEA 0183 ver. 3.01):	GLL GGA RMA RMC GNS	Geographic position, Latitude/Longitude GPS fix data Recommended minimum data for LORAN Recommended minimum data for GPS GNSS fix data
NMEA OUT Sentences (NMEA 0183 ver. 3.01):	DSC DSE	DSC data Extended DSC data

Transmitter

Frequency Error	10 ppm
RF Power (at 13.6 VDC):	
Hi Mode	25 W
Lo Mode	1 W
Maximum Deviation	± 5 KHz
FM Hum and Noise Level	less than -40 dB below audio level
Audio Distortion	less than 10%
Adjacent Channel Power	more than 70 dB
Spurious/Harmonic Emissions	less than -70 dBc
Current Drain:	
Hi Power at 13.6V DC	less than 6 A

Receiver

Sensitivity @ 12db SINAD	0.28 μ V, typical
Hum and Noise	less than -40 dB below audio level
Audio Distortion	less than 10%
Adjacent Channel Rejection	more than 70 dB, typical
Intermodulation Rejection Ratio	more than 68 dB, typical
Spurious Image Rejection	more than 70 dB, typical
Squelch Sensitivity @ 12db SINAD	
at tight	less than 1 μ V,
at threshold	less than 0.28 μ V