

Barrett 950 HF transceiver specifications

Using measurement methods described in European Telecommunication Standard 300 373.

General Specifications

Equipment	BARRETT 950 transceiver local and remote control models	
Standards	Exceeds technical specifications Australian SMA RB209 Complies with European standard ETSI 300 373 Complies with EMC standard IEC 945 Complies with European standard EN60945 for shock and vibration Meets MIL-STD 810E for shock and vibration	
Transmit frequency range	1.6MHz to 30MHz (continuous)	
Receive frequency range	500kHz to 30MHz (continuous)	
Channel capacity	Up to 450 programmable channels (simplex or semi-duplex)	
Frequency resolution	10Hz program mode 1Hz tuneable receiver	
Frequency stability	Standard	"50Hz / 1.7 PPM (0E to +55EC)
	Optional DTCXO	"10Hz / 0.3 PPM (-15EC to +55EC)
Intermediate frequencies	45MHz and 455kHz (double conversion)	
Operating modes	J3E (USB, LSB) - H3E (AM) - J2A (CW) - J2B(AFSK)-optional J2B (AFSK) with narrow filter.	
Operating temperature	-30EC to +60EC	
Humidity	95% relative, non condensing	
Display system	Supertwist backlit LCD matrix, 16 character x 2 line	
Controls	20 key keypad (illuminated), analogue power/volume	
Supply voltage	13.8VDC + 20% / - 10% (negative ground) Polarity protected. Overvoltage protected	
Current consumption	950 (local control)	840mA standby (muted, back-light off)
	950 (remote control)	850mA standby (muted, back-light off)
Antenna impedance	50 Ohms unbalanced	
Weight	950 local control model	3.7Kg.
	950 remote control model, main unit	3.45Kg.
	950 remote control model, remote head	0.4Kg
Dimensions	950 local control	245mm x 330mm x 75mm
	950 remote control, main unit	245mm x 310mm x 75mm
	950 remote control, remote head	200mm x 48mm x 75mm
Selcall system	Based on CCIR 493-4	
Scan types	Selcall, Voice(syllabic), AGC derived signal level.	
Scan channels	Two tables, programmable by channel.	

Scan rate	Selcall Scan - Fixed at 500ms . Non Selcall scan - Adjustable from 100ms to 5 secs.
Switching speed	Less than 15mS Tx to Rx, Rx to Tx

Receiver Specifications

Sensitivity	-119dBm (0.25uV) for 10dB SINAD - J3E Mode
Selectivity J3E	-1kHz and + 4kHz better than 60dB
Selectivity J2B (optional)	-500Hz and + 500Hz better than 45dB
Desensitisation	-1kHz and + 4kHz better than 60dB -10kHz and +10kHz better than 71dB -20kHz and +20kHz better than 80dB -50kHz and +50kHz better than 87dB -100kHz and +100Khz better than 92dB
	The level of an unwanted signal above the level of a wanted signal that will reduce the SINAD of the wanted signal producing 10dB SINAD to 7dB SINAD
Image rejection	Better than 76dB
Spurious response ratio	Better than 70dB
Cross modulation	-20kHz and +20kHz better than 82dB
	The level of an unwanted signal that is 30% AM modulated and at 20kHz above the level of a wanted signal that is producing 10dB SINAD that will cause this wanted signal SINAD to reduce by 3dB
Blocking	-20kHz and +20kHz better than 80dB
	The level of an unwanted signal above the level of a wanted signal that will reduce the SINAD of the wanted signal producing 10dB SINAD to 7dB SINAD
Intermodulation	85dB - the level of an unwanted signal in relation to a wanted signal.
Inband IMD	Greater than 34dB
Clarifier range	Receive only 1Hz steps up to "1kHz (dependant on configuration).
AGC efficiency	Less than 6.0 dB variation with an input signal of 6uV(-91.4dBm) to 3V(+22.5dBm).
Signal to noise improvement	Increasing the input signal level 20dB above an input signal of 108dBm that produces a SINAD of 20dB, increases the SINAD by at least 15dB to greater than 35dB.
Audio Output	4W into 4 Ohms, 2W into 8 Ohms at less than 5% distortion
Audio output_impedance	2 to 80 Ohms
Audio response	Less than 6dB variation from 350Hz to 2750Hz
Audio distortion	Less than 5% at rated power J3E mode
Input protection	Better than 30V RMS from a 50 ohm source

Transmitter Specifications

RF output power	100 watt PEP two tone " 1.5dB 125 watt PEP voice " 1.5dB or 20 watt PEP two tone " 1.5dB 25 watt PEP voice " 1.5dB
Duty cycle	100% two-tone input signal with fan option
Protection	Safe under all load conditions, thermal protection against excessive power transistor temperatures.
Sideband suppression	Better than -65dB below PEP
Harmonic suppression	Better than -60dB below PEP
Carrier suppression	Better than -60dB below PEP
Spurious emission	Better than -60dB below PEP
Intermodulation products	Better than -31dB below PEP (25dB below two tone peak)
Audio frequency response	Less than 6dB variation 350Hz to 2750 Hz
Current consumption	Voice average less than 9Amps typical Two tone less than 15Amps typical

Option Specifications

Automatic link establishment (ALE) option P/N BCA95003 or BCA95004

Interoperability	FED standard 1045 MIL-STD-188-141A
Physical	Internal fit on a daughter board mounted on a 950 transceiver microprocessor board. The daughter board can be used to fit an ALE option either on its own or in combination with a GPS option.
Dimensions ALE PCB	125mm x 85mm x 10mm
Dimensions daughter PCB	150mm x 143mm x 10mm
Weight ALE PCB	70grams
Weight daughter PCB	120grams
Temperature operating	-40 to +65 C
Humidity	0 to 95% non-condensing
Power	+5V at 250mA (typical)
Audio bandwidth	500Hz to 2750Hz
Tone frequencies	750Hz, 1000Hz, 1250Hz, 1500Hz, 1750Hz, 2000Hz, 2250Hz.

GPS receiver internal fit option P/N BCA90030

Two types of GPS receiver engines are used depending upon availability.

Garmin GPS25

Physical	Internal fit on a daughter board mounted on a 950 transceiver microprocessor board. The daughter board can be used to fit a GPS option on its own or in combination with an ALE option.
Dimensions GPS PCB	79.9mm x 46.5mm x 11.4mm
Dimensions daughter PCB	150mm x 143mm x 10mm
Weight GPS PCB	38grams
Weight daughter PCB	120grams
Temperature - operating	-30Ec to +85Ec
Temperature - storage	-40Ec to +90Ec
Power	+ 5 VDC \pm 5% regulated at 115 mA
Backup power	3V lithium coin cell battery; up to 10 year life
Sensitivity	-166 dBW min.
Tracking capability	Tracks up to 12 satellites
Acquisition times warm	15 seconds (all data known)
Acquisition times cold	45 seconds
Auto Locate	5 minutes (almanac known)
Sky Search	5 minutes (all data known)
Update rate	Once per second continuously
Position accuracy	15 metres RMS

Trimble SVeeSix-CM3

Physical	Internal fit on a daughter board mounted on a 950 transceiver microprocessor board. The daughter board can be used to fit a GPS option on its own or in combination with an ALE option.
Dimensions GPS PCB	82.5mm x 46.5mm x 14.7mm
Dimensions daughter PCB	150mm x 143mm x 10mm
Weight GPS PCB	60grams
Weight daughter PCB	120grams
Temperature - operating	-10Ec to +60Ec
Temperature - storage	-55Ec to +85Ec

Power	+ 5 VDC \pm 5% regulated at 240 mA
Backup Power	3V lithium coin cell battery; up to 10 year life
	Sensitivity -166 dBW min.
Tracking capability	Tracks up to 8 satellites
Acquisition times warm	15 seconds (all data known)
Acquisition times cold	2 to 5 minutes
Update rate	Once per second continuously
Position accuracy	15 metres RMS

Voice scrambler P/N BCA90031

Scrambling method	The voice frequency band is split into upper and lower bands using switched capacitor filters, then each band is modulated using different carrier frequencies to frequency invert the bands. A total of 32 different audio band split points and carrier frequency combinations are set by a 5 bit code using solder pads on the scrambler PCB.
Physical	PCB plugs into socket on 950 transceiver RF/Audio PCB
Weight	10grams
Dimensions	52mm x 32mm x 10mm
Power	+5.0VDC at 8mA

Note:- All specifications subject to change