

# 2050 HF Transceiver - Outback traveller pack



- Address books
- Selcall / Telcall
- Installation kit
- Free to air
- SMS - Pagecall
- Multiple Self ID's
- GPS interface software
- Reliable and easy to operate

Designed and built in Australia for the world's harshest conditions, Barrett HF radio equipment thrives in the outback and has the track record to prove it. The Barrett "Outback Traveller Pack" should be considered as standard equipment for anyone travelling in remote areas.

Utilising the "free to air" nature of HF radio communications, the "Outback Traveller Pack" provides access to essential safety and emergency services with no ongoing call charges.

The pack includes 2050 HF Transceiver, 2019 Auto tune mobile antenna and Installation kit. It is available in either wireless handset configuration or remote head configuration.

An optional GPS receiver can be incorporated within the 2019 Auto tune mobile antenna.



[www.barrettcommunications.com.au](http://www.barrettcommunications.com.au)

BCB205002/3

# HF Radio Communications



Wireless handset configuration

## Wireless handset features

- Compact water-resistant wireless handset set with LCD display
- No cabling required between the main RF unit, the control handset and the speaker
- The handset cradle and wireless speaker only require a power supply between 10 and 18 VDC
- Wireless handset operation and display identical to existing 2050 control heads
- Wireless handset operates up to seven metres\* from the vehicle
- Multiple speakers supported

## Security

The protocol between the handset, speaker and the HF transceiver RF module is proprietary and not based on any current wireless protocols such as Bluetooth® and 802.11. This protocol and the spread spectrum frequency selection are specifically designed to operate in high RF environments from HF through to VHF and UHF.

The handset can be removed from the vehicle by the authorised operator disabling the use of the HF transceiver when unattended. For fleet use a security tethering cord is supplied to avoid the unit being removed from the vehicle.

The handset has internal batteries (not user replaceable to preclude easy removal) and is charged by the mounting cradle that comes in two parts enabling mounting on a dash top or a dash vertical face.

Following installation and on initial power up the HF transceiver RF module automatically 'pairs' the speaker and handset to itself with a unique security code. This ensures that if vehicles are operated in close proximity their respective wireless links do not interfere with each other.

\*Range depends on location of wireless adapter in the vehicle and conditions.



Remote head configuration

## 2050 HF SSB transceiver features

(Features and options listed below are standard inclusions with the 2000 Series Outback Traveller Pack).

## Full HF spectrum coverage

Transmit and receive frequency range from 1.6 MHz to 30MHz. (Transceiver is programmed to meet Australian Communications Authority requirements).

## 100 Watt PEP power output

The transceiver has 100 Watt (PEP) power output in voice mode on all frequencies.

## Selective call

Selective call - Selcall - provides a simple and efficient method of calling stations within an HF network. The 2050 allows either four or six digit Selcalls which can be programmed into the transceiver on a channel by channel basis. Selcall ID's and details can be stored in the internal address book.

## Direct dial telephone calls

Telcall allows telephone access utilising direct dial telephone services (such as those provided by the Radtel HF Radio Network) to place or receive telephone calls without the requirement to go through an operator (call charges may apply).

## Scanning

Channel scanning combined with Selcall enables calls to get through on the channel most suitable. Eight scan tables are available with up to 30 channels programmable per table.

## Emergency Selective call with geographical position

The Barrett 2050 displays and annunciates emergency selective calls, also showing the position of the station sending the emergency call, if it is fitted with a GPS receiver.

## Call history

Detail of all recent calls, including call type, time, date and Selcall ID are held in history buffers for future viewing.

## GPS interface software

The GPS interface software installed in your transceiver used in conjunction with an external GPS receiver (not provided) will enable the following:- display of your current position (latitude and longitude), transmission of your position to another Barrett transceiver, and the ability to interrogate the position of other similarly equipped Barrett transceivers.

## SMS

Allows short text messages to be sent from one 2050 transceiver to another using the alpha numeric keypad on the front of the transceiver.

## Scan resume - no missed calls

If the transceiver has been left unattended it automatically returns to scanning and is ready to receive calls on any channel.

## Tunable receiver

Tunes all frequencies, in all modes, between 500 kHz to 30 MHz down to 1 Hz steps.

## Rugged construction

An extruded aluminium chassis combined with a rugged weather resistant polycarbonate alloy front panel has been designed to withstand harsh and hostile environments. Extensive vibration testing and temperature cycling has proved the Barrett 2050 will operate in the world's toughest environments.

## Noise reduction

The 2050 utilises a Digital Signal Processing (DSP) noise reduction system.

## Australian National 4WD Radio Network Voucher

All new 2050 "Outback Traveller Packs" will include a voucher for 12 months membership to VKS-737.

# 2050 HF Transceiver - Outback traveller pack

## 2019 Automatic tuning mobile HF antenna

The Barrett 2019 is an automatic tuning mobile antenna, designed to interface with Barrett 2000 series transceivers.

Providing a frequency coverage of 2 MHz to 30 MHz, the Barrett 2019 features rapid tuning (typically <1.5 S) and low power consumption. High radiation efficiency and accurate tuning are assured by maximising antenna current (not minimising the VSWR) on every tune.

The Barrett 2019 antenna incorporates a wideband amplifier that is activated in receive mode to enable channel scanning.

An optional GPS receiver can be fitted within the 2019 antenna casing and interfaces directly through the RF control cable to current production 2050 transceivers. The active tuning elements of the antenna are housed in black waterproof, highly impact resistant technical plastic moulding.

The housing incorporates a heavy duty anti-vibration mount at its base. Even with its rugged construction, the Barrett 2019 weighs only 3.6 kg.

The Barrett 2019 is supplied standard with a two piece fibreglass MIL-STD whip and a tapered spring. An optional NVIS extension is available in the form of two extra whip sections.

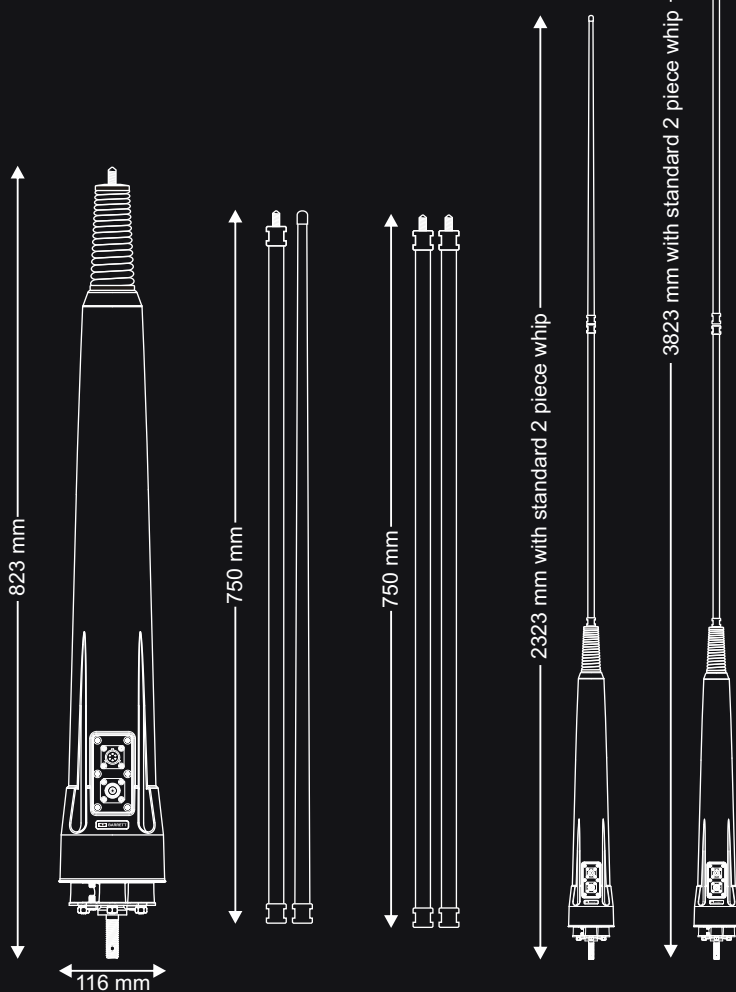
The main antenna body has a MIL-STD control cable connector and a UHF RF connector. The 2019 is supplied with a 6 metre composite control and RF cable and connectors to connect it with the transceiver. A 10 metre control RF cable is available as an accessory.



## 2019 Automatic tuning mobile HF antenna

### General specifications

<b>Standards</b>	Complies with MIL-STD. 810G for drop, dust, temperature, shock and vibration
<b>Frequency range</b>	2 MHz to 30 MHz (continuous)
<b>Power handling capability</b>	150 W PEP
<b>VSWR</b>	Better than 2:1 when tuned
<b>Tuning time</b>	Less than 1.5 seconds (typical)
<b>Operating temperature</b>	-30°C to +60°C
<b>Humidity</b>	95% relative, non-condensing
<b>Environmental</b>	IP67 immersion 1 m for 1 hr
<b>Supply voltage</b>	12.6 V DC (derived from transceiver)
<b>Antenna impedance</b>	50 ohms unbalanced
<b>Mounting</b>	M16 stud with provision for padlock
<b>Input current</b>	Average 80 mA @ +12.6 V input
<b>Shock</b>	MIL-STD 810G Method 516.6
<b>Vibration</b>	MIL-STD-810G Method 514.6



Main antenna body weight including heavy duty spring 4.15 kg

Standard 2 piece whip kit 0.55 kg

NVIS 2 piece extension whip kit 0.60 kg

Total antenna lengths with standard and NVIS

# HF Radio Communications

## 2050 HF SSB transceiver

### General specifications

<b>Standards</b>	Exceeds/complies with Australian/ New Zealand standard AS/NZS 4770:2000 and AS/NZS 4582:1999 Exceeds/complies with EMC and vibration standard IEC 945 Complies with MIL-STD 810G for drop, dust, temperature, shock and vibration
<b>Transmit frequency range</b>	1.6 MHz to 30 MHz (continuous)
<b>Receive frequency range</b>	250 kHz to 30 MHz (continuous)*
<b>Channel capacity</b>	Up to 500 programmable channels (simplex or semi-duplex)
<b>Frequency resolution</b>	10 Hz program mode 1 Hz tunable receiver
<b>Frequency stability</b>	±10 Hz or better than 0.3 ppm over temperature range -30°C to +70°C
<b>Operating modes</b>	J3E (USB, LSB) - H3E (AM) - J2A (CW) - J2B (AFSK) Optional J2B (AFSK) with narrow filter
<b>Operating temperature</b>	-30°C to +70°C humidity 95% relative, non-condensing
<b>Supply voltage</b>	2050 -13.8 V DC +20% / -10% (negative ground) polarity protected. Over voltage protected. Manpack 22 to 27 V DC (100 to 260 VAC or 11 to 16 V DC with power adaptor)
<b>Current consumption</b>	470 mA standby (muted, back lighting off)
<b>Selcall system</b>	Based on CCIR 493-4, four and six digit systems. Protocol available for free distribution. Fully compatible with other major HF manufacturers' four and six digit systems including encrypted systems
<b>Switching speed</b>	Less than 15 ms Tx to Rx, Rx to Tx

### Receiver specifications

<b>Sensitivity</b>	-120 dBm (0.224 uV) for 10 dB SINAD - J3E Mode pre-amp on -110 dBm (0.708 uV) for 20 dB SINAD - J3E Mode pre-amp off
<b>Selectivity J3E</b>	-1 kHz and +4 kHz better than 50 dB -2 kHz and +5 kHz better than 55 dB -5 kHz and +8 kHz better than 60 dB
<b>Selectivity J2B (optional)</b>	-500 Hz and +500 Hz better than 60 dB - the level of an unwanted signal above the level of a wanted signal that will reduce the SINAD of the wanted signal from 20 dB SINAD to 14 dB SINAD
<b>Blocking</b>	-20 kHz and +20 kHz better than 71 dB - the level of an unwanted signal above the level of a wanted signal that will reduce the SINAD of the wanted signal by 6 dB or cause an output level change of 3 dB
<b>Intermodulation</b>	Better than 89 dBuV - the level of two unwanted signals, that are within 30 kHz of the wanted signal, above the level of a wanted signal that reduces the SINAD of the wanted signal to 20 dB
<b>Spurious response ratio</b>	Better than 70 dB
<b>Reciprocal mixing</b>	Better than 105 dBuV
<b>In-band IMD</b>	Better than 34 dB
<b>Audio output</b>	4 W into 4 ohm at less than 2% distortion
<b>Audio response</b>	Less than 6 dB variation from 350 Hz to 2700 Hz
<b>Input protection</b>	Better than 30 V RMS from a 50 ohm source

### Transmitter specifications

<b>RF output power</b>	125 W PEP voice ±1.5 dB or 30 W PEP voice ±1.5 dB or 10 W PEP voice ±1.5 dB
<b>Duty cycle</b>	100% two tone input signal with fan option
<b>Intermodulation products</b>	Better than -31 dB below PEP (25 dB below two tone peak)
<b>Audio frequency response</b>	Less than 6 dB variation 350 Hz to 2700 Hz
<b>Current consumption</b>	Voice average less than 9 Amps typical Two tone less than 12 Amps typical

### Wireless link specifications

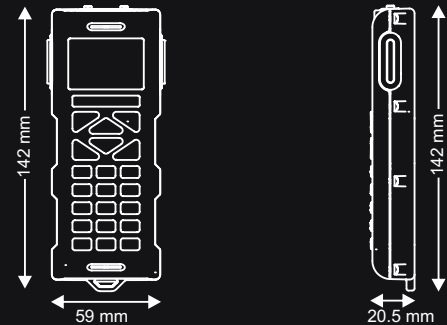
<b>Digital frequency hopping, TDMA radio, 260 channels 2.4 GHz ISM Band</b>
<b>Output power max 1 mW</b>
<b>High resistance to multipath interference</b>
<b>High RF field immunity</b>
<b>Digital audio transceiver with high speed digital control channel</b>
<b>Automatic sense of standard Barrett 2050 front panel via RJ-45 connector</b>
<b>Multiple speakers supported from one HF transceiver RF module</b>

### Wireless handset specifications

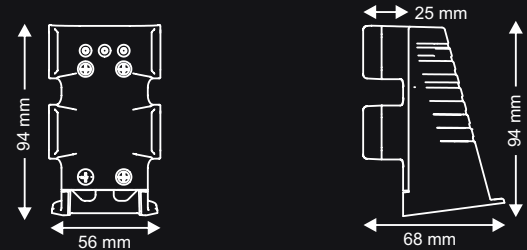
<b>Standby current</b>	25 mA
<b>Operational current</b>	50 mA
<b>Battery life</b>	6 hours (approx)
<b>LCD status display</b>	*Auto Off* if no HF transceiver RF module located
<b>Input voltage</b>	To handset cradle 10 to 18 V DC (to supply charge controller in handset when docked)

\* reduced sensitivity 250 kHz to 500 kHz

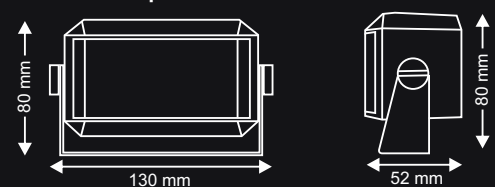
### 2050 wireless handset dimensions



### 2050 wireless handset cradle dimensions

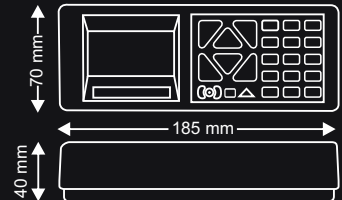


### 2050 wireless speaker dimensions



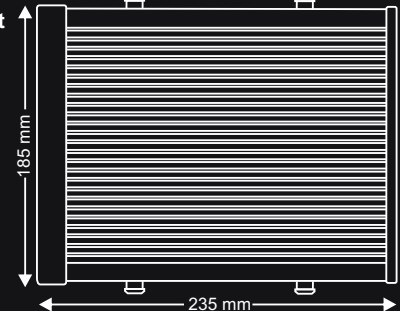
### 2050 remote control head dimensions

Weight 0.22 kg



### 2050 main unit dimensions

Weight 2.36 kg



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