

Bluetooth® Module



BR-C46AR Class2 Bluetooth® ver2.0

OUTLINE

- **AT HOME. AT WORK. ON THE ROAD. USING BLUETOOTH WIRELESS TECHNOLOGY MEANS TOTAL FREEDOM FROM THE CONSTRAINTS AND CLUTTER OF WIRES IN YOUR LIFE.**
- Wireless communications module certified to *Bluetooth*® ver. 2.0
- Two types of models: With/without an antenna provided.
- FCC, CE, RoHS, and *Bluetooth*® certified ISM 2.4GHz band module.
- UART data interface (2-wire or 4-wire with CTS/RTS).
- 13-bit PCM, 8k samples/s, synchronous bidirectional audio interface
- Includes integrated software stack, profiles, and AT modem like commands.
- Embedded *Bluetooth* Stack Profiles Included (*requires no host MCU stack*): SPP, DUN, LAN, PAN, Headset, HFP, eSCO, SCO, Audio Gateway, FTP Client/Server, OBEX, OPP – Push/Pull, GAP, SDP, RFCOMM, and L2CAP protocols.



FEATURES

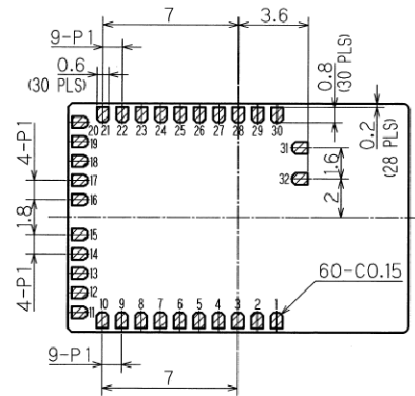
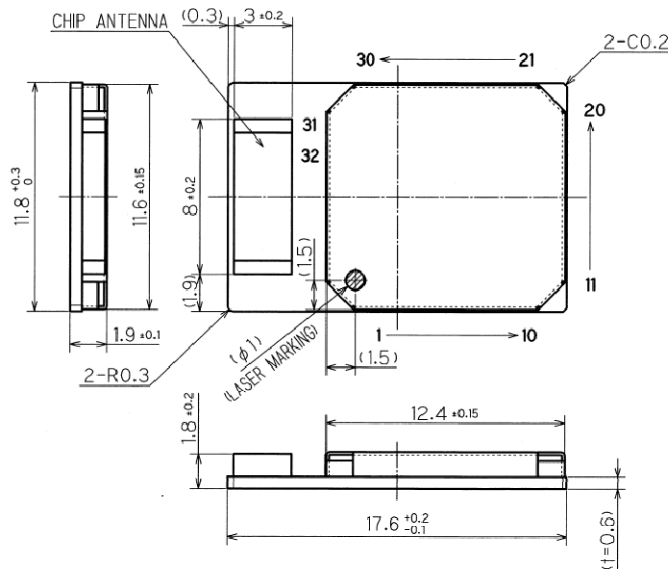
- The *BlueRadios* serial radio modems can be configured, commanded, and controlled through simple ASCII strings over the *Bluetooth* RF link or directly through the hardware serial UART.
- Dedicated PCM voice channel for audio applications, and eSCO for exceptional audio clarity
- UART baud rate speeds: 1200bps up to 921.6Kbps, and customized
- +10 meter (33 feet) distance
- Software adjustable transmitter power from short to longer range applications
- Low power consumption (*50mA TX, 40mA RX, 1.4mA idle mode, and 30uA deep sleep*)
- Small-form factor SMT radio modem
- Operating temperature range: -40~+85°C.
- Secure and robust communication link
 - ✓ FHSS (Frequency Hopping Spread Spectrum)
 - ✓ Encryption and 16 alphanumeric Personal Identification Number (PIN)
 - ✓ Error correction schemes

SPECIFICATIONS

Item	Specifications
Frequency	2402 ~ 2480MHz
Modulation	FHSS/GFSK
Channel intervals	1MHz
Number of channels	79CH
Power supply voltage	2.8Vdc ~ 3.4Vdc ± 0.1V and < 10mVp-p noise
Current consumption	60mA worst case peak
Transmission rate (over the air)	721kbps
Receive sensitivity	-82dBm typ.
Output Power (Class2)	0dBm max.
Dimensions	Without antenna
	With antenna
	11.8(W)X12.6(L)X1.9(H)mm
	11.8(W)X17.6(L)X1.9(H)mm

DIMENSIONS

- **BR-C46AR (With Antenna)** *make from WML-C46AHR*



VDD = 2.8 ~ 3.4Vdc, 10mVp-p max noise
Part is not 5Vdc tolerant. Reset is active **low**;
pulse >5msec.
PIO Sink Current is 4mA max
Unused pins can float except for PIO(4), tie to
ground if not used or disable via software.

TERMINALS	
1. GND	17. PCM_SYNC
2. N.C.	18. PCM_OUT
3. RESET	19. N.C.
4. AIO[1]	20. GND
5. SPI_MISO	21. AIO[0]
6. SPI_CSB	22. PIO[9]
7. SPI_CLK	23. PIO[2]
8. SPI_MOSI	24. PIO[5]
9. VDD	25. PIO[6]
10. GND	26. PIO[3]
11. UART_CTS	27. PIO[8]
12. UART_RTS	28. PIO[4]
13. UART_TX	29. PIO[7]
14. UART_RX	30. GND
15. PCM_CLK	31. N.C. (RF_Test:ANT)
16. PCM_IN	32. N.C. (RF_Test:GND)

Power-up Sequence

The unit must be reset with terminal 3 "RESET" after turning on the power supply VDD. Reset terminal should be **low** for >5 msec. to cause a reset incase of electrical "brown-out" or poor input supplied VDD. Allow 1sec for module to fully reboot. Unit will not initially boot-up reliably if the VDD ramp rate is in milliseconds.

Please refer to BlueRadios Specification BR-AT_COMMANDS-100 hardware and software interface definition.

Firmware Options

- **AT Command**
 - Multi-point
 - Point-to-point
 - Repeater
- **HCI or BCSP**
- **Custom**

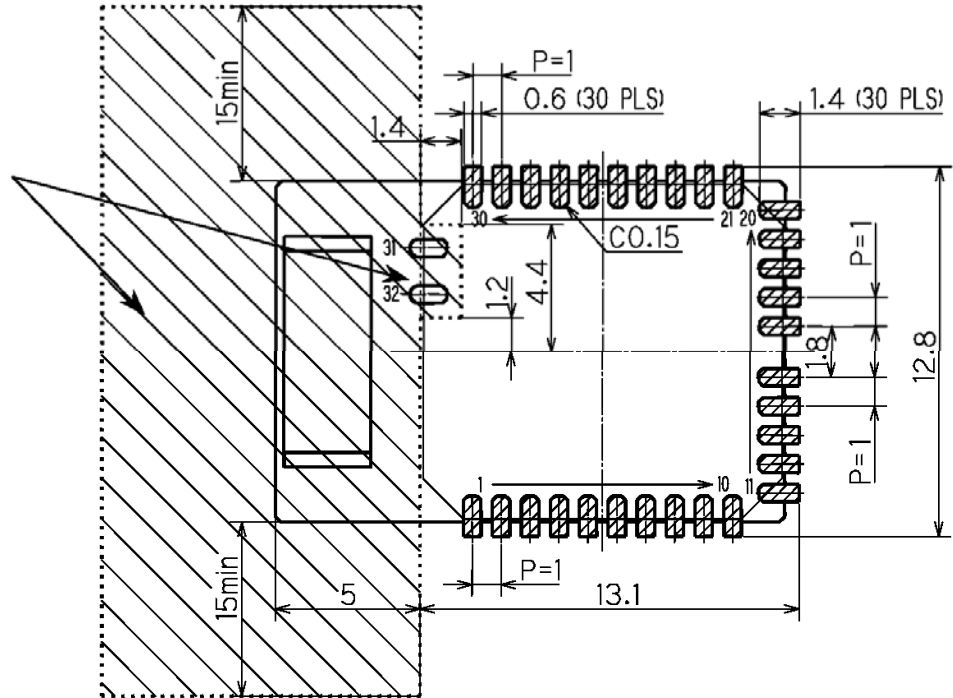
Unit: mm

*For technical details of the products in this page, refer to Sales Dept., BlueRadios, Inc.

STANDARD LAND DIMENSIONS

● **BR-C46AR (With Antenna)** *make from WML-C46AHR*

In this area, you should not locate any parts or GND plane / Patterns on surface or internal layer.



Note: Radio requires a RF ground plane on the rest of the Printed Circuit Board (PCB) area. This can be located on any layer of the PCB. Extend the RF ground plane parallel to module pins 31 and 32 the entire length of your board. Connect all ground pins and do not notch the ground plane around the module. Bottom of module is grounded so be careful of vias or conductive traces located under the modules that are not soldered masked to prevent shorting. Keep metallic components, connectors, copper traces, internal layers, and ground planes away from the antenna area in 3D space!