

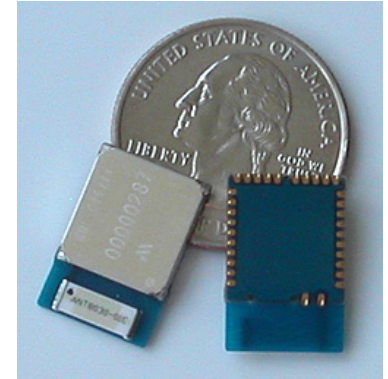
**Bluetooth® Module**



**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
- 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



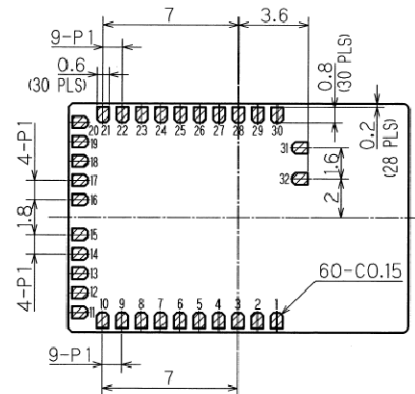
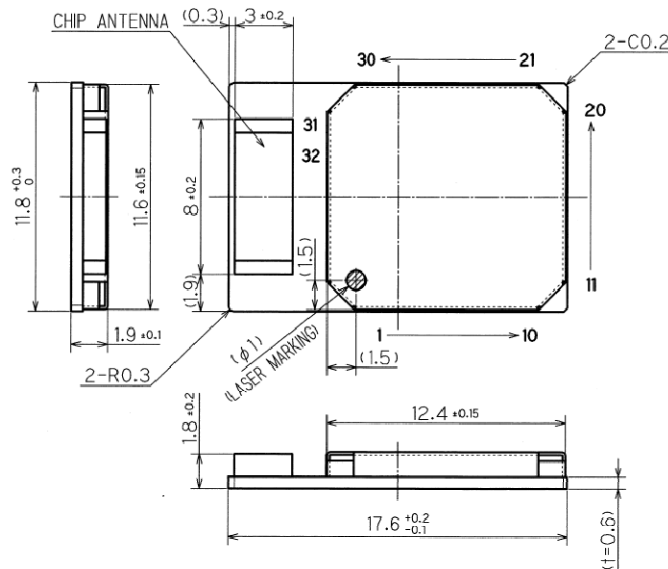
**Pb-Free**

**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)            | 4dBm 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 in case 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**

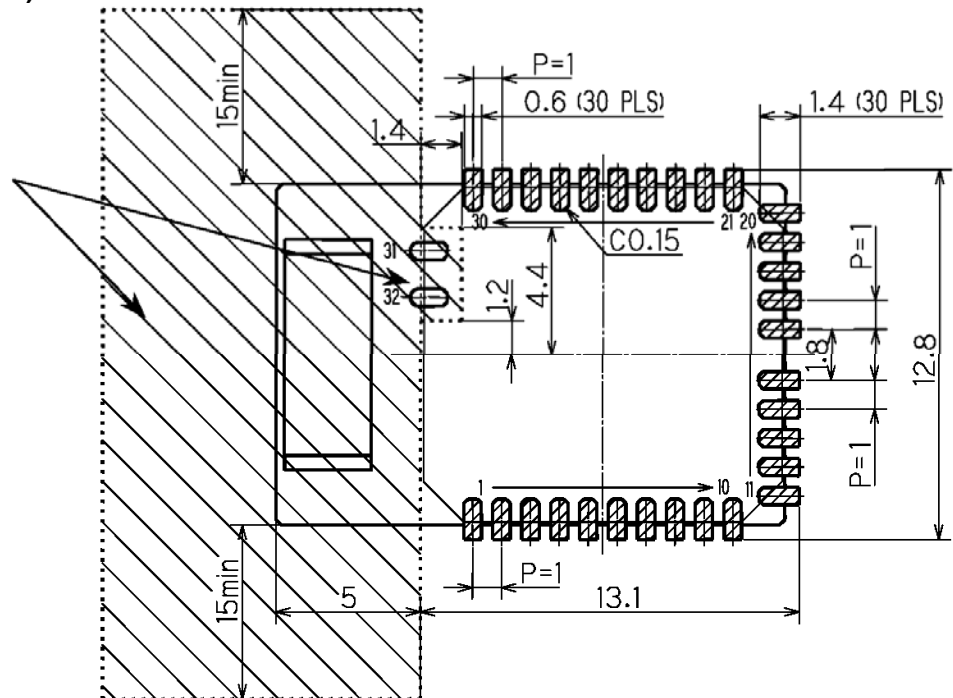
Unit: mm

\*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 1 and 30 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!