

# PRODUCT SPECIFICATION

## BT V4.0 LE Dual Mode Bluetooth Stereo Audio Module

# WB118C

## User Manual

### Change History

Revision	Date	Author	Change List
Version 1.0	2014/05/30	Ben J. Chen	Preliminary

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## PRODUCT FEATURES

- Bluetooth V4.0 specification compliant Backwards compatible with BT version of 1.1, 1.2, 2.0, 2.1+EDR
- Dual-mode Bluetooth low energy radio
- 80MHz RISC MCU and 80MIPS Kalimba DSP
- BT using SPI interface
- Multipoint HFP connection to 2 phones for voice
- Multipoint A2DP connection enables a headset(A2DP) connection to 2 A2DP source devices for music playback
- Secure simple pairing, CSR's proximity pairing and CSR's proximity connection
- SBC, MP3 and AAC decoder support
- Fast AGC for enhanced dynamic range
- RoHS compliance
- Low Halogen compliance

## PRODUCT SPECIFICATIONS

### MAIN CHIPSET

CSR 8645

### FUNCTIONAL SPECIFICATIONS

BT Function	
Standard	Bluetooth V4.0 LE
Bus Interface	SPI
Data Rate	1 Mbps, 2Mbps and Up to 3Mbps
Modulation Scheme	GFSK, $\pi/4$ -DQPSK and 8-DPSK
Frequency Range	2.402~2.480 GHz
Transmit Output Power	$0 \leq \text{Output Power} \leq +4$ ; Class 2 Device
Receiver Sensitivity	< 0.1% BER at -82dBm
Operating Voltage	3.3 V $\pm$ 9% I/O supply voltage
Power Consumption	<i>Stereo high quality SBC:</i> 15 mA <i>Idle Mode:</i> 280 $\mu$ A
Antenna Type	Metal Antenna

### Antenna General Information

Ant.Cat.	Ant. Type	Connector	Gain (dBi)
External	PIFA	U.FL	2.85

**FCC Statement:**

## Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**LABEL OF THE END PRODUCT:**

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: MDZ-WB118C ".

**Co-located**

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

**This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation**

The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module.

Appropriate measurements (e.g. 15 B compliance) and if applicable additional equipment authorizations (e.g. Verification , Doc) of the host device to be addressed by the integrator/manufacturer.

**IC Statement:**

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

*Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

**IC Radiation Exposure Statement:**

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment

*CAN ICES-3 (B)/NMB-3(B)*

The final end product must be labeled in a visible area with the following:  
"Contains transmitter module IC: 7825A-WB118C".

*Contient le module d'émission IC: 7825A-WB118C*

## Baseband and Software

- Internal ROM
- Memory protection unit supporting accelerated VM
- 56KB internal RAM, enables full-speed data transfer, mixed voice/data and full piconet support
- Logic for forward error correction, header error control, access code correlation, CRC, demodulation, encryption bit stream generation, whitening and transmit pulse shaping

- Transcoders for A-law,  $\mu$ -law and linear voice from host and A-law,  $\mu$ -law and CVSD voice over air

### CSR8600 ROM Series Configuration Tool

Configures the CSR8640 stereo ROM solution software features:

- Bluetooth v4.0 specification features
- Reconnection policies, e.g. reconnect on power-on
- Audio features, including default volumes
- Button events: configuring button presses and durations for certain events, e.g. double press on PIO for last number redial
- LED indications for states, e.g. headset connected, and events, power on etc.
- Indication tones for events and ringtones
- HFP v1.6 supported features
- Battery divider ratios and thresholds, e.g. thresholds for battery low indication, full battery etc.
- Advanced Multipoint settings

### CSR8640 Stereo ROM Solution Development Kit

- CSR8640 stereo ROM solution demonstrator board (DB-8640-10085-1A)
- Interface adapters and cables are available
- Works in conjunction with the CSR8600 ROM Series Configuration Tool and other supporting Utilities

## Proximity Pairing

Proximity pairing is headset-initiated pairing and it simplifies the out-of-box pairing process. Proximity pairing enables

the headset to find the closest discoverable phone. The headset then initiates the pairing activity and the user simply

has to accept the incoming pairing invitation on the phone.

This means that the phone-user does not have to hunt through phone menus to pair with the new headset.

Depending on the phone UI:

- For a Bluetooth v2.0 phone the headset pairing is with a PIN code
- For a Bluetooth v2.1 (or above) phone the headset pairing is without a PIN code

Proximity pairing is based on finding and pairing with the closest phone. To do this, the headset finds the loudest phone by carrying out RSSI power threshold measurements. The loudest phone is the one with the largest RSSI power threshold measurement, and it is defined as the closest device. The headset then attempts to pair with and

connect to this device.

Proximity pairing is configurable using the Headset Configurator tool available from [www.csrsupport.com](http://www.csrsupport.com).