

Overview

The TEAC BTR-875 is a component that mounts the RAYSON Bluetooth module BTM-875 on a wiring printed board with a pattern antenna to achieve Full Module Approval compliance. It is used in end products.

The CSR8675, the Bluetooth Audio SoC for this unit, also integrates a 120MHz Qualcomm® Kalimba™ DSP, supporting 24-bit audio and apt-X HD over Bluetooth, enabling premium audio products.

Operation Description

After starting up and connecting to other devices under control of the end product, the unit begins receiving signals. The control interface with the end-product is via UART or SPI. The received audio signal is decoded and output to the end product as a PCM/I²S signal only.

RF description

E.I.R.P.	10.14 dBm (max)
Transmit Power Max	3.10 dBm

Antenna Information PCB Pattern Antenna (PCB,BTR-875)

Antenna Gain	7.04 dBi (typical)
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Bluetooth Version V4.2 dual mode

Sample Type	Fixed production
Class of Device	Class.1
Operation Frequency	2402MHz~2480MHz
Channel Number	79 (classic mode)
Modulation Technology	Frequency Hopping Spread Spectrum (FHSS)
Modulation Type	GFSK, π/4DQPSK, 8DPSK
Data Rate	1Mbps / 2Mbps / 3Mbps
Profile	HSP / HFP / A2DP / AVRCP/ PBAP / SPP
Codec	SBC, MP3, AAC, Faststream, aptX-HD, LDAC, LHDC

Bluetooth Module Ryson BTM-875

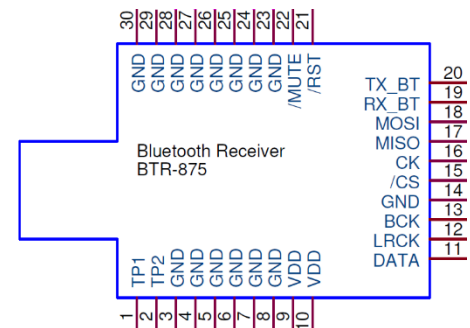
Main Chipset	Qualcomm CSR8675
Oscillator	Crystal 26MHz
Operating Voltage	DC 2.7~4.25V
Antenna Information	Non (external)

Application Note

Connecting the TEAC BTR-875 is simple. Select either UART (Universal Asynchronous Receiver/Transmitter) or SPI (Serial Peripheral Interface) for the module control communication line. Received AUDIO PCM data is output to the host product's D/A converter via a 3-wire serial audio interface..

1	TP1	Spare terminals (pads only)
2	TP2	
3 8	GND	Common Ground
9 10	VDD	Common Power line (2.8V~3.6V) *
11	DATA	PCM data output
12	LRCK	PCM synchronous output
13	BCK	PCM clock output
14	GND	Common Ground
15	/CS	Chip select for SPI, active low
16	CK	SPI clock
17	MISO	SPI data output
18	MOSI	SPI data input
19	RX_BT	UART data input
20	TX_BT	UART data output
21	/RST	Reset if low. Pull low for minimum 5ms to cause a reset
22	/MUTE	Mute facility that forces PCM out to be ZERO. (Programmable I/O line)
23 30	GND	Common Ground

Pin assignment List



*) NOTE

The only power supply line, the VDD terminal (pins 9 and 10), is connected internally. The usable VDD input voltage range is 2.8V to 3.6V.

The Bluetooth core chip CSR8675 implemented in the BTR-875 has an internal switching mode power supply circuit that generates two constant voltages, 1.35V and 1.8V, and operates on these power supplies. This means that it is not affected by power supply voltage fluctuations.

However, this also serves as the power supply for the communication I/O logic signals with the host product. For this reason, when incorporating into a host product, we recommend using 3.3V logic for the communication signal I/O and a VDD input power supply voltage of DC 3.3V.

Qualification and approvals

1 .Country approvals

The BTR-875 module is certified for use in the following countries/regions:

- Europe (ETSI RED)
- US (FCC /CFR 47part 15 unlicensed modular transmitter approval)
- Canada (IC /ISED RSS)
- Japan (MIC)
- Chaina (SRRC)

2 .European Union regulatory compliance

Information about regulatory compliance of the European Union for BTR-875 modules is available in the Declaration of Conformity [1]:

2.1 Radio Equipment Directive (RED) 2014/53/EU

The BTR-875 modules comply with the essential requirements and other relevant provisions of Radio Equipment Directive (RED) 2014/53/EU.

2.2 Compliance with the RoHS directive

The BTR-875 modules comply with the "Directive 2015/863/EU" of the European Parliament and the Council on the Restriction of Use of certain Hazardous Substances in Electrical and Electronic Equipment" (RoHS).

3 .FCC and IC Compliance

This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s).

Caution

Any changes or modification NOT explicitly APPROVED TEAC Corporation may cause the module to cease to comply with FCC rule's part 15 thus void the user's authority to operate the equipment.

The BTR-875 module is for OEM integrations only. The end product must be professionally installed in such manner that only the authorized internal PCB Pattern antennas can be used.

3.1 FCC Compliance Statement

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.

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 the 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 or more 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.

3.2 End product labeling requirements

3.2.1 IC Compliance

The Innovation, Science and Economic Development Canada certification label of a module shall be clearly visible at all times when installed in the host product; otherwise, the host product must be labelled to display the Innovation, Science and Economic Development Canada certification number for the module, preceded by the word "Contains", as shown in Figure 1.

L'étiquette de certification d'Innovation, Sciences et Développement économique Canada d'un module doit être clairement visible en tout temps lorsqu'il est installé dans le produit hôte; sinon, le produit hôte doit être étiqueté de façon à afficher le numéro de certification d'Innovation, Sciences et Développement économique Canada du module, précédé du mot « Contains », comme illustré à la figure 1.

3.2.2 FCC Compliance

For an end product that uses the BTR-875 module, there must be a label containing, at least, the information shown in Figure 1. The label must be affixed on an exterior surface of the end product such that it will be visible upon inspection in compliance with the modular approval guidelines developed by the FCC.

In accordance with 47 CFR § 15.19, the end product shall bear the following statement in a conspicuous location on the device:

"This device complies with Part 15 of the FCC Rules. 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. "*

When the final product is so small or for such use that it is not practicable to place the statement above on it, the information shall be placed in a prominent location in the instruction manual supplied to the user or, alternatively, shall be placed on the container in which the device is marketed.

This device contains FCC ID : XEG-BTR875 IC : 1559C-BTR875
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Figure 1

3.3 End product user manual Instructions

3.3.1 IC Compliance

User manuals for license-exempt radio apparatus shall contain the following text, or an equivalent notice that shall be displayed in a conspicuous location, either in the user manual or on the device, or both:

"This device complies with Industry Canada's license-exempt RSSs. 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 manuel d'utilisation des appareils radio exempts de licence doit contenir l'énoncé qui suit, ou l'équivalent, à un endroit bien en vue dans le manuel d'utilisation ou sur l'appareil, ou encore aux deux endroits:

"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;*
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement. "*

3.4 RF-exposure statement

3.4.1 IC Compliance

This equipment complies with the requirements of IC RSS-102 issue 6 radiation exposure limits set forth for an uncontrolled environment. Having a separation distance of minimum 15 mm between the user and/or bystander and the antenna and /or radiating element ensures that the output power (E.I.R.P.) of BTR-875 is below the SAR evaluation Exemption limits defined in RSS-102 issue 6.

3.4.2 FCC Compliance

This device complies with the FCC radiation exposure limits set forth for an uncontrolled environment. The maximum output power of BTR-875 is below the SAR test exclusion limits presented in KDB 447498 D01v06 applicable for separation distances of minimum 10 mm. Therefore, SAR evaluation is not needed.

4. Japan radio equipment compliance

The BTR-875 module complies with the Japanese Technical Regulation Conformity Certification of Specified Radio Equipment (ordinance of MPT N°. 37, 1981), Article 2, Paragraph 1:

Item 19 "2.4 GHz band wide band low power data communication system

4.1 End product labelling requirement

When products equipped with a BTR-875 module are introduced into the Japanese market, they may affix a label bearing the "Technical Conformity" mark to the product, as shown in Figure 2.

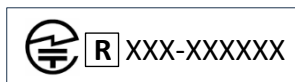


Figure 2

Note) The required minimum size of the Giteki mark is Ø3.0 mm.

4.2 End product user manual requirement

The BTR-875 mark includes the MIC ID, but if end product manufacturers do not affix the mark to the product, they must include the BTR-875's MIC ID in the end product's technical documentation.

5. SRRC China Radio Transmission Equipment Type Approval

In accordance with the provisions on the Radio Regulations of the People's Republic of China, the Bluetooth module with the product name BTR-875 conforms to the provisions with its CMIIT ID: xxxxxxxxxxxx

5.1 End product labelling requirement

The following requirements apply for end products that are sold in China:

- Label with CMIIT ID number of the module is required to be placed on the end product.
- The following statement must be included in Chinese in the Chinese user manual:

CMIIT ID: xxxxxxxxxxxx

(This device contains certified RF module which certificate number is
CMIIT ID: xxxxxxxxxxxx)

Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01

2.2 List of applicable FCC rules

FCC Part 15.247

2.3 Specific operational use conditions

This transmitter/module and its antenna(s) must not be co-located or operating in conjunction with any transmitter. This information also extends to the host manufacturer ' s instruction manual.

2.4 Limited module procedures

Not applicable

2.5 Trace antenna designs

It is “ not applicable ” as trace antenna which is not used on the module.

2.6 RF exposure considerations

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This compliance to FCC radiation exposure limits for an uncontrolled environment, and minimum of 20cm separation between antenna and body.

The host product manufacturer would provide the above information to end users in their end-product manuals.

2.7 Antennas

PCB antenna; 7.04dBi; 2.402 GHz~2.480GHz

2.8 Label and compliance information

The end product must carry a physical label or shall use e-labeling followed KDB784748D01 and KDB 784748 stating “ Contains Transmitter Module FCC ID: XEG-BTR875 ” .

2.9 Information on test modes and additional testing requirementsFor more information on testing, please contact the manufacturer.

2.10 Additional testing, Part 15 Subpart B disclaimer

The modular transmitter is only FCC authorized for the specific rule parts (FCC Part 15.247) listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed when contains digital circuitry.