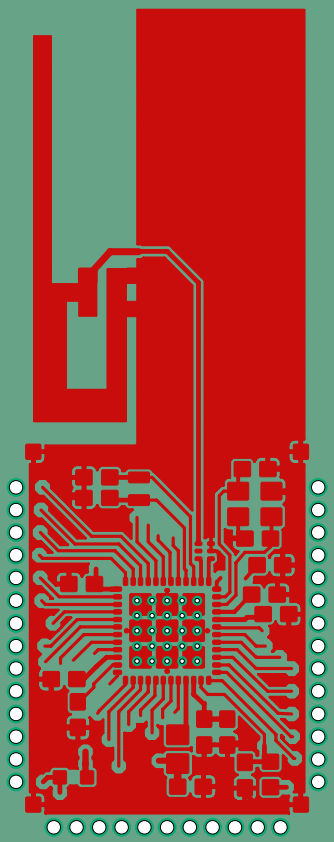
muonio

FRESH & INTELIGENT

CC2640
RADIO MODULE



CC2640 RADIO MODULE is a low-cost and low-power consumption module which has all of the Bluetooth Smart 4.1 functionalities.

The CC2640 RADIO MODULE module fully supports the single mode Bluetooth Low Energy operation, and the output power can support class 2.

The module provides the ability to either put your entire application into the integrated ARM Cortex M3 microcontroller, or use the module in Network Processor mode in conjunction with the microcontroller of your choice.

FCC ID: 2AZ89C2640

USER MANUAL

Features & Applications

Built in CC2640F128 Bluetooth Smart (BLE 5.0) System-On-Chip (SOC)
128 kB Flash / 20 kB SRAM
Size: 55 mm x 20 mm
Operating Voltage: 1.8V to 3.8V
Operating Temperature: -40 to +85C
8.4 mA Transmit Mode
7.4 mA Receive Mode
1µA Standby (SRAM/CPU retention andRTC running) with quick 100 µs start up
200nA Shutdown
61µA/MHz Active CPU Current
Drivers, Bluetooth Low Energy
Controller, and bootloader in ROM
Flexible peripheral set
On board 32 .768kHZ and 24 MHz Crystals
Worldwide Acceptance

Applicatons

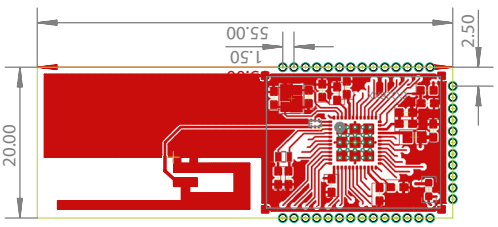
Consumer electronics
Mobile phone accessories
Sports & Fitness equipment
HID applications
Home and Building Automation, Lighting
Control, Alarm and Security
Electronic Shelf Labeling, Proximity
Tags
And many more...

Electrical Characteristics

ITEM TEST REQUIREMENT REMARKS
Voltage supply 1.8-3.8V DC
Center frequency 2402-2480MHz Programmable
Frequency error ±50KHz
Modulation O-QPS
Receiving sensitivity -97dBm High gain Mode
Receiving current 5.9mA
Transmitting current 9.1mA TX Power 5dBm
Sleep consumption At
power mode2 1uA Sleep Timer ON
Sleep consumption At
power mode3 0.1uA External interrupts
Transmit distance >60M BER<0.1%
Antenna 50 ohm
Module size 55 mm*20 mm

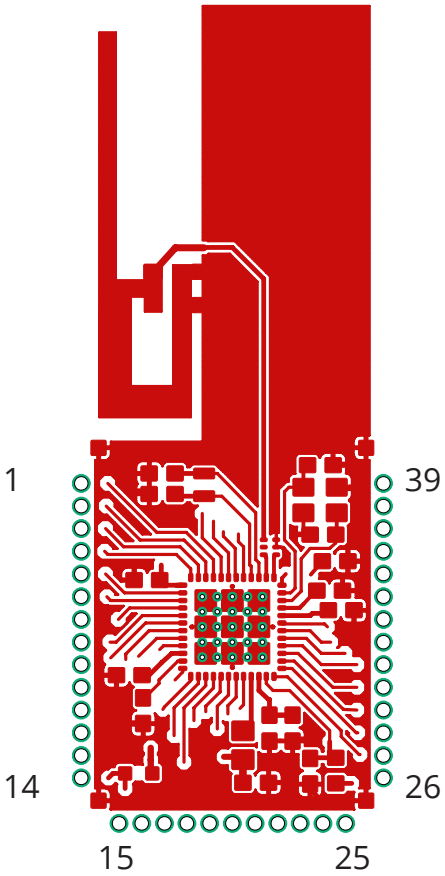
RECOMMENDED OPERATING CONDITIONS
MIN MAX UNIT
Operating ambient temperature range, TA -30 85 °C
Operating supply voltage 1.8 3.8 V

CAUTION:
ESD sensitive device. Precautions should be used when handing the device in order to prevent permanent damage.



Pin assignemet

NAME	NO.	TYPE
VDD	14,15	Power
GND	13,16, 39	Power
DIO_0	35	Digital I/O
DIO_1	36	Digital I/O
DIO_2	37	Digital I/O
DIO_3	38	Digital I/O
DIO_4	1	Digital I/O
DIO_5	2	Digital I/O
DIO_6	3	Digital I/O
DIO_7	4	Digital I/O
DIO_8	5	Digital I/O
DIO_9	6	Digital I/O
DIO_10	7	Digital I/O
DIO_11	8	Digital I/O
DIO_12	9	Digital I/O
DIO_13	10	Digital I/O
DIO_14	11	Digital I/O
DIO_15	12	Digital I/O
DIO_16	19	Digital I/O
DIO_17	20	Digital I/O
DIO_18	21	Digital I/O
DIO_19	22	Digital I/O
DIO_20	23	Digital I/O
DIO_21	24	Digital I/O
DIO_22	25	Digital I/O
DIO_23	27	Digital/Analog I/O
DIO_24	28	Digital/Analog I/O
DIO_25	29	Digital/Analog I/O
DIO_26	30	Digital/Analog I/O
DIO_27	31	Digital/Analog I/O
DIO_28	32	Digital/Analog I/O
DIO_29	33	Digital/Analog I/O
DIO_30	34	Digital/Analog I/O
JTAG_TMSC	17	Digital I/O
JTAG_TCKC	18	Digital I/O
RESET_N	26	Digital input



Pin countig starts top left.

FCC regulatory compliance statement

§15.19 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.

§15.21 Information to user
Warning: changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

List of applicable FCC rules:
47 CFR Part 15, Subpart C 15.203
47 CFR Part 15, Subpart C 15.205
47 CFR Part 15, Subpart C 15.207
47 CFR Part 15, Subpart C 15.209
47 CFR Part 15, Subpart C 15.247
47 CFR Part 2 2.1091

Summarize the specific operational use conditions
This module can be used in IOT devices, the input voltage to the module is nominally 5V. Only the embedded integral antenna is allowed. Any other external antenna is prohibited.

Limited module procedures
This module is not a limited module.

Trace antenna designs
The antenna is not a trace antenna.

RF exposure considerations
This Module complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

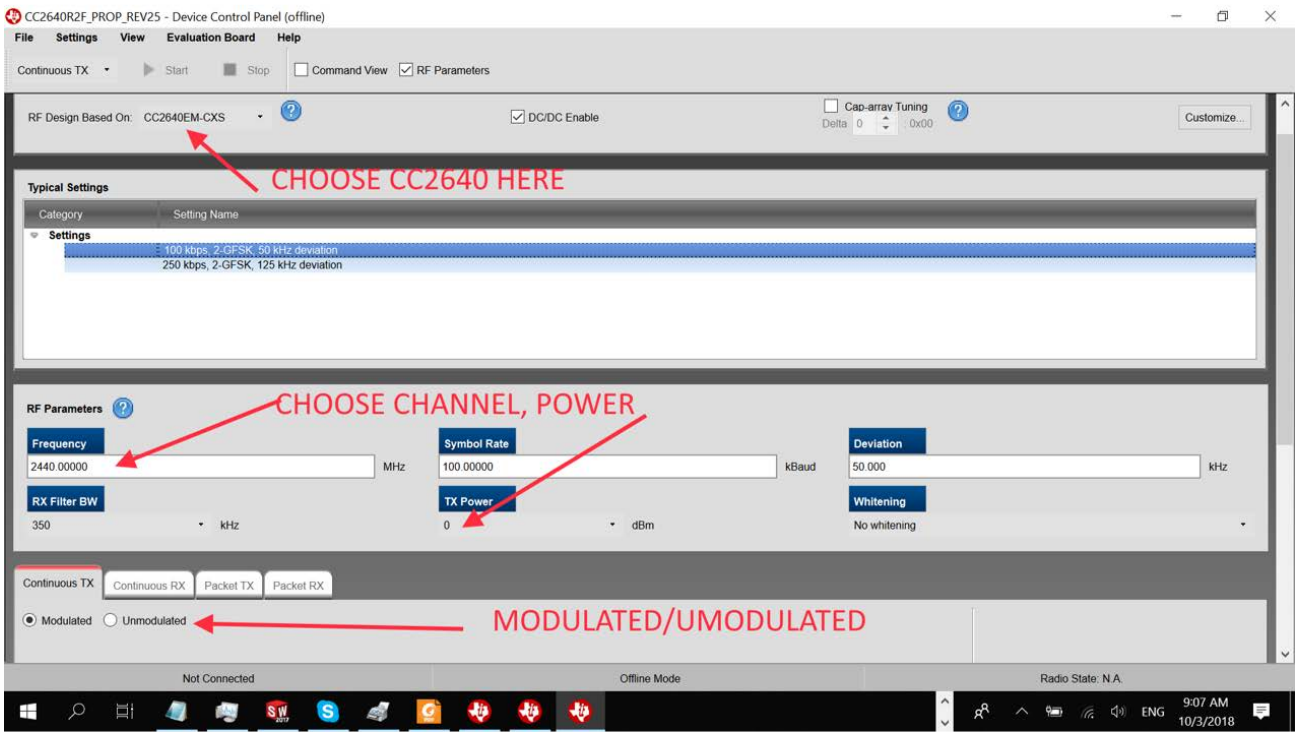
Antennas
If you desire to increase antenna gain and either change antenna type or use same antenna type certified, a Class II permissive change application is required to be filed by us, or you (host manufacturer) can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application.

FCC regulatory compliance statement

Label and compliance information
Please notice that if the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains FCC ID: _2AZ89C2640_” any similar wording that expresses the same meaning may be used.

§ 15.19 Labelling requirements shall be complied on end user device.
Labelling rules for special device, please refer to §2.925, § 15.19 (a)(5) and relevant KDB publications. For E-label, please refer to §2.935.

Information on test modes and additional testing requirements
The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.
The module is limited to installation in mobile application, a separate approval is required for all other operating configurations, including portable configurations with respect to §2.1093 and difference antenna configurations.
Test software: SmartRF Studio 7 2.10.0



Additional testing, Part 15 Subpart B disclaimer
This modular transmitter is only FCC authorized for the specific rule parts listed on our grant, 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. Host manufacturer in any case shall ensure host product which is installed and operating with the module is in compliant with Part 15B requirements.

Please note that For a Class B or Class A digital device or peripheral, the instructions furnished the user manual of the end-user product shall include statement set out in §15.105 Information to the user or such similar statement and place it in a prominent location in the text of host product manual. Original texts as following:

Sample Operation Description Sample Operation Description

For Class B
Note: 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 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.

The 24MHZ Hz crystal oscillator drives the base of Y2.
The modulation provided by IC TXC-7M-32.000MEEQ-T. The output of has the matching network consisting of balun 2450BM14G0011 that limit the harmonic content and effect the proper coupling of the antenna to the output stage.

Antenna, Ground and Power Source
The antenna consists of a 2.4GHz Meander line SWRU120C antenna.
Antenna gain: 1.1 to 3.3 dBi.

There is no external ground connection. The ground is only that of the printed circuit board.
Electric current is supplied by Input VCC;
Output: 3.3 Vd.c..

Operation Descriptions
The transmitter is a Portable Wireless Music System operating at 2400-2483.5MHz band. The transmitter is powered by 3.3 Vd.c and the transmitting frequency is crystal controlled. The operation is achieved by different combinations of form pulse modulating signal on the 2400MHz carrier frequency.
When the NTAG is positioned in the RF field, the high speed RF communication interface allows the transmission of the data and enable the Bluetooth pairing