

ZBM1501

802.15.4/Zigbee radio module

2017-02-21

Product features:

- FCC and IC approvals
- 802.15.4 Compliant
- Integrated power amplifier, Power output :20dBm
- RF data rate : 250kbps
- Frequency band : 2.4GHz
- Network topology support: Mesh, Point to point
- Antenna type: PCB IFA strip
- Internal voltage regulator Limit's the TX power fluctuation

Operating conditions:

Parameter	Min	Typical	Max	Value
Supply voltage	2.9		3.3	Vdc
Operating temperature	-40°		60°	°C

Electrical Specifications:

Parameter	Min	Typical	Max	Value
RX supply Current		19		mA
TX supply current		140		mA

Transceiver Specifications:

Parameter	Min	Typical	Max	Value
Modulation		O-QPSK DSSS		
TX power		20		dBm
RX sensitivity (note 1)		-108		dBm

Note 1: LNA enabled

Supply voltage:

Although the transceiver does have a voltage regulator to guaranty the power of the transmission output, it is not recommend to use a supply voltage higher than 3.3. Supply higher than 3.3V might damage the module.

Transmit Power Settings Note:

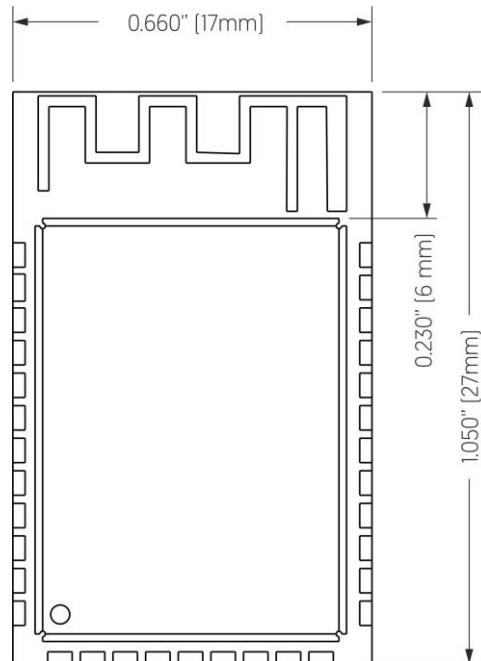
The maximum power setting possible for the module is 15, however, the manufacturer will set the maximum at 13 by means of firmware. The end user will not have access to power control and thus will limit the maximum power setting at 13. Power settings as listed below will be set by the manufacturer in the final product.

Although the end user does not have access to channel power settings, it is important to note that FCC/IC approval for this module has been granted subject to channel power settings as stated below.

Any deviation from said power level (P.L) would void the FCC/IC Grant.

802.15.4 Channel	Maximum Power level (register settings TX_PWR)
11	11
12	11
13	11
14	11
15	11
16	11
17	11
18	11
19	11
20	11
21	11
22	11
23	11
24	11
25	13
26	15

Dimensions:



Compliance Statements:

FCC Compliance Statement (Part 15.19)

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.
- 2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Interference Statement (Part 15.105 (b))

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.

Responsibility to the FCC Rules and Regulations

The ZBM1501 Module has been certified per FCC Part 15 rules for integration into products without further testing or certification. To fulfill the FCC certification requirements the Radio

Module must ensure that the information provided on the Module Label is placed on the outside of the final product.

The Radio Module is labeled with its own FCC ID Number. If the FCC ID 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 Transmitter Module FCC ID: 2AK2T-ZBM1501”

or

“Contains FCC ID: 2AK2T-ZBM1501”

Warning (Part 15.21)

Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

FCC RF Radiation Exposure Statement:

To comply with FCC exposure requirements, users of this device must ensure that the module be installed to operate with a separation distance of 20cm or more from all persons.

Industry Canada Statement

The ZBM1501 module has been certified for use in Canada under Industry Canada (IC) Radio Standards Specification (RSS) RSS-210 and RSS-Gen. Modular approval permits the installation of a module in a host device without the need to recertify the device. Labeling Requirements for the Host Device (from Section 3.2.1, RSS-Gen, Issue 3, December 2010). The host device must be labeled to identify the module within the host device. The Industry Canada certification label of a module shall be clearly visible at all times when installed in the host device, otherwise the host device must be labeled to display the Industry Canada certification number of the module, preceded by the words “Contains transmitter module”, or the word “Contains”, or similar wording expressing the same meaning, as follows:

“Contains Transmitter Module IC: 22394-ZBM1501”

User manuals for license-exempt radio apparatus must contain the following or equivalent notice in a conspicuous location in the user manual or alternatively on the device or both.

“This device complies with Industry Canada license 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. »

To comply with Industry Canada exposure requirements, users of this device must ensure that the module be installed to operate with a separation distance of 20cm or more from all persons.

Pour se conformer aux exigences d'Industrie Canada, une distance de séparation d'au moins 20cm doit être maintenue entre l'antenne de cet appareil et toutes personnes.