



X1TXP1UC 2.4GHz Module User Manual.

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1. Features

2.4GHz Frequency Hopping Spread Spectrum (FHSS) radio transceiver module
Operates in the unlicensed worldwide ISM band (2.4 GHz to 2.483.5GHz) band
Fully integrated power regulation with a wide input unregulated operating range 3V to 10V.
Fully integrated local oscillator and 12MHz 20ppm reference crystal
200mA operating current
Transmit power - 100mW EIRP
Receive sensitivity up to -95dBm
DSSS data rates up to 250kbps
1 mile operating range
Full packet assembling and disassembling
Auto transaction sequencer
Fully buffered digital interface with high voltage tolerant inputs

2. Pin description

Pin Number	Name	Description
1	GND	Module Ground
2	VCE	Power control monitoring
3	VIN	Module DC Power
4	P21	Baseband CPU digital port P2.1
5	P33	Baseband CPU digital port P3.3
6	P17	Baseband CPU digital port P1.7
7	P32	Baseband CPU digital port P3.2
8	GND	Module Ground
9	P30	Baseband CPU digital port P3.0
10	XRES	Baseband CPU reset input
11	P11	Baseband CPU digital port P1.1
12	P10	Baseband CPU digital port P1.0



3. Specifications

Parameter	Value	Units
Storage Temp	-65 to 105	Degrees Celsius
VDD	2.4 to 3.6	Volts
Receive Sensitivity	-95	dBm
Transmit power (conducted)	18.5	dBm MAX
Transmit power (radiated)	20	dBm MAX
Idle current	1	mA
Receive current	22	mA
Transmit current	200	mA

4. Module User Requirements

4.1 This module must be integrated into a device where the user cannot access the antenna connector.

4.2 Only a 2.0dBi antenna can be used with this module. The antenna must meet and not exceed the gain and pattern of the supplied folded dipole antenna.

4.3 The device must contain the following permanent labeling on the exterior of the device as follows:

Contains FCC ID: BRWX1TXP1UC

4.4 The user manual of the device must contain the following paragraph:

**FCC Information**

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.

IC Information

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.

Information IC

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.

Caution:

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

4.5 This module meets the requirements for a mobile device that may be used at separation distances of more than 20cm from the human body. It may be used in hand-held controllers that provide a separation distance of at least 5cm between the antenna and the body (excluding hands/wrists). The instructions to the user for the host device must include information requiring the product be used in a manner to ensure the appropriate separation (20cm or 5cm) between antenna and body and requiring that the transmitter not be collocated with another transmitter.

FCC Information to OEM integrator

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user manual of the end product.

The user manual which is provided by OEM integrators for end users must include the following information in a prominent location.

1. To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter, except in accordance with FCC multi-transmitter product procedures.
2. Only those antennas with same type and lesser gain filed under this FCC ID number can be used with this device.



3. The regulatory label on the final system must include the statement: “Contains FCC ID: BRWX1TXP1UC” or using electronic labeling method as documented in KDB 784748.
4. The final system integrator must ensure there is no instruction provided in the user manual or customer documentation indicating how to install or remove the transmitter module except such device has implemented two-ways authentication between module and the host system

IC Information to OEM integrator

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user manual of the end product.
The user manual which is provided by OEM integrators for end users must include the following information in a prominent location.

1. To comply with IC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter, except in accordance with IC multi-transmitter product procedures.
2. Only those antennas with same type and lesser gain filed under this IC number can be used with this device.
3. The regulatory label on the final system must include the statement: “Contains IC: 6157A-BRWX1TXP1UC “.
4. The final system integrator must ensure there is no instruction provided in the user manual or customer documentation indicating how to install or remove the transmitter module except such device has implemented two-ways authentication between module and the host system.

CE Information

This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a Class 1 wideband radio transmitter in the 2.400 GHz to 2.4835 GHz frequency range.