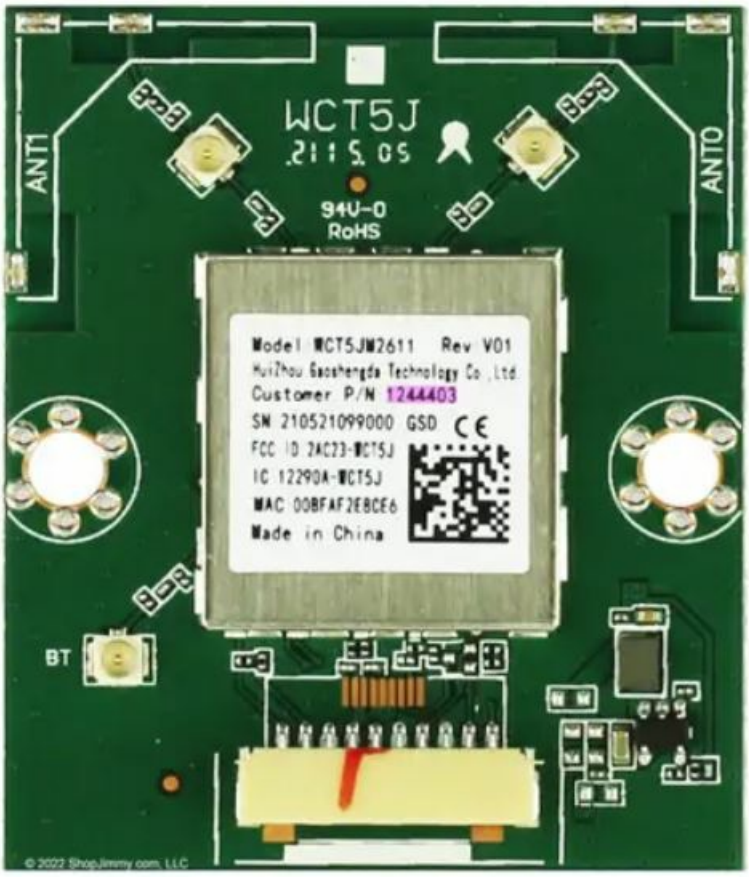
# GSD WXT2LM2611 WIFI and Bluetooth Module Instruction Manual



Contents



**GSD WXT2LM2611 WIFI and Bluetooth Module**




## Product Information

### Specifications

- **Model:** WXT2LM2611
- **Product Name:** WIFI+BT Module
- **Standard:** IEEE 802.11 a/b/g/n/ac/ax
- **Interface:** USB
- **Data Transfer Rate:** 1, 2, 5.5, 6, 11, 12, 18, 22, 24, 30, 36, 48, 54, 60, 90, 120 and maximum of 1201Mbps
- **Modulation Method:**
  - GFSK, /4-DQPSK, 8DPSK (Bluetooth)
  - DQPSK, DBPSK, CCK (802.11b)
  - QPSK, BPSK, 16QAM, 64QAM with OFDM (802.11g)
  - QPSK, BPSK, 16QAM, 64QAM with OFDM (802.11n)
  - QPSK, BPSK, 16QAM, 64QAM, 256QAM with OFDM (802.11a)
  - QPSK, BPSK, 16QAM, 64QAM, 256QAM, 1024QAM with OFDMA (802.11ac)
  - BLUETOOTH
- **Frequency Band:**
  - **WIFI:** 2.4G: 2412~2462 MHz, 5G: 5150~5350MHz, 5470~5725MHz, 5725~5850MHz, 6G: 5925~7125MHz
  - **BLUETOOTH:** 2402~2480 MHz
- **Operation Mode:** Infrastructure
- **Security:** WEP, TKIP, AES, WPA, WPA2
- **Operating Voltage:** Not specified

- **Current Consumption:** Not specified
- **Antenna Type:** PIFA
- **Operating Temperature:** Not specified
- **Storage Temperature:** Not specified
- **Humidity:** 5 to 95% maximum (non-condensing)

## Product Descrition And Features

### Product Descrition

The WXT2LM2611 is a complete 2.4GHz/5GHz/6GHz WIFI 2×2 MIMO module. This module provides a high level of integration with a dual-stream IEEE 802.11ax MAC/ base band /radio and Bluetooth 5.2.The WLAN operation supports 20MHz,40MHz and 80MHz channels for data rates up to 1201Mbps. It fully complies with IEEE 802.11 a/b/g/n/ac/ax feature rich wireless connectivity at high standards,delivers reliable,cost-effective, throughput from an extended distance.

### Product Features

- Complies with IEEE 802.11b/g/n/ax for 2.4GHz IEEE 802.11a/n/ac/ax for 5GHz IEEE 802.11ax for 6GHz Wireless LAN.
- Bluetooth v5.2
- Two transmit and Two receive path(2T2R)
- Works with all existing network nfrastructure.
- Capable of up to 128-Bit WEP Encryption.
- Freedom to roam while staying connected.
- UP to 1201 Mbps High-Speed Transfer Rate in 802.11ax mode of operation.
- **Operating Systems** Linux, Win10, Win11.
- Low power consumption.
- Easy to install and configure.

## Product Specification

| | |
|---|---|
| Model | WIF+BT Module |
| Product Name | WXT2LM2611 |
| Standard | 802.11 a/b/g/n/ac/ax |
| Interface | USB |
| Data Transfer Rate | 1,2,5.5,6,11,12,18,22,24,30,36,48,54,60,90,120 and maximum of 1201Mbps |
| Modulation Method | GFSK,π/4-DQPSK,8DPSK(bluetooth) DQPSK,DBPSK,CCK(802.11b) QPSK,BPSK,16QAM,64QAM with OFDM (802.11g) QPSK,BPSK,16QAM,64QAM with OFDM (802.11n) QPSK,BPSK,16QAM,64QAM with OFDM (802.11a) QPSK,BPSK,16QAM,64QAM,256QAM with OFDM (802.11ac) QPSK,BPSK,16QAM,64QAM,256QAM,1024QAM with OFDMA (802.11ax) |
| Frequency Band | BLUETOOTH 2402~2480 MHz<br>WIFI<br>2.4G: 2412~2462 MHz<br>5G: 5150~5350MHz, 5470~5725MHz 5725~5850MHz<br>6G: 5925~7125MHz |
| Operation Mode | Infrastructure |
| Security | WEP, TKIP, AES, WPA, WPA2 |
| Operating Voltage | 5V±10% |
| Current Consumption | 1000mA |
| Antenna Type | PIFA |
| Operating Temperature | -10 ~ 70°C ambient temperature |
| Storage Temperature | -40 ~ 80°C ambient temperature |
| Humidity | 5 to 95 % maximum (non-condensing) |

**NOTICE**

- please keep this product and accessories attached to the places which children can’t touch;
- do not splash water or other liquid onto this product, otherwise it may cause damage;
- do not put this product near the heat source or direct sunlight, otherwise it may cause deformation or

malfunction;

- please keep this product away from flammable or naked flame;
- please do not repair this product by yourself. Only qualified personnel can be repaired.

## FCC Statement

This equipment has been tested and found to comply with the limits for a Class B d igital device, pur sua nt to part 15 of the FCC rules. These limits are desi gned to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if no t in stalled and used i n a ccordance with the instructions, may cause harmful in terference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interferenc e to radio or televisi on reception, which can be determined by turning the equ ipment 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 se pa ration between the eq uipment 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.

**This equipment 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.

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

This module has been assessed against the following FCC rule parts: CFR 47 FCC Part 15 C (15.247, DTS and DSS) and CFR 47 FCC Part 15 E (NI). It is applicable to the modular transmitter

This radio transmitter FCC ID: 2AC23-WXT2L has been approved by Federal Communications Commission to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device. The concrete contents to check are the following three points.

1. Must use an antenna such as PIFA Antenna with a gain not exceeding 4.09 dBi for BT/BLE/2.4G WIFI, 4.09 dBi for 5G WIFI, 6 dBi for 6G WIFI;
2. Should be installed so that the end user cannot modify the antenna;
3. Feed line should be designed in 50ohm

Fine-tuning of return loss etc. can be performed using a matching network.
The antenna shall not be accessible for modification or change by the end user

The module complies with FCC Part 15.247 / Part 15.407 and applies for Single module approval.

**Trace antenna designs:** Not Applicable, trace antennas not used, only externally connected PIFA antennas are allowed

This equipment complies with FCC radiation exposure limits set fort h for an uncontrolled environment. This equipment should be insta lled and operated with a m inim u m distance o f 20cm between the radiator & your body. T his transmitter must not be co located or operating in conjunction with any other antenna or transmitter.

**Antenna type and antenna gain:**

**WIFI Antennas**

| 2.4G Ant 0 & Ant 1 | 5G Ant 0 & Ant 1 | 6G Ant 0 & Ant 1 |
|---|---|---|
| PIFA antenna: 4.09 dBi | PIFA antenna: 5.17 dBi | Maximum: PIFA antenna: 6 dBi<br>Minimum: PIFA antenna: 3.47 dBi |

**BT Antenna**

| BRADE | TYPE | GAIN |
|---|---|---|
| ZTX | Ant 0: PIFA antenna | 4.09 dBi |

Please notice that if the FCC identification numb er is not visi ble when the module is installed inside another device, then the outside of the device into which the module is in stalled must also display a label referring to the enclosed module. This exter ior label can use wording su ch as the followi ng: “ Contains F CC I D: 2AC23 WX T2L ” Any similar wording that expresses the same meaning may be used.

Testing of the host product with all the transmitters installed referred to as the composite investigation testis recommended, to verify that the host product me ets a ll the applicable FCC rules. The radio spectrum is to be investigated with all the transmitters in the final host product functioning to determine that no emissions exceed the highest li mit permitt ed for an y one individu al transmitter as required by S ectio n 2.947(f). The host manufacturer is responsible to ensure that when their product operates as intended it does not have any emissions present that are out of compliance that were not pr e sent when the trans mitters were t ested individually.

If the modular transmitter has been fully tested by the module grantee on the required number of channels, modulation types, and modes, i t should not be necessary for the host installer to re test all t he availabl e transmi tter modes or settings. It is recommended tha t the host product manufacturer, installing the modular transmitter, perform some investigative measurements to confirm that t he resulting composite system does not exceed the spurious emissi o ns limits or band e dge limits (e. g., where a different antenna m ay be causing additional emissions).

The testing should check for emissions that may occur due to the intermixing of emissions with the other transmitters, digital circuitry, or due to physi cal propert ies of the host product (enclosure). This investigatio n is especially important when integrating multiple modular transmitters where the certification is based on testing each of t hem in a stand alone configuration.

Any company of the host device which install this modular should perform the test of radiate d & condicted emission and spurious emission etc. according to FCC Part 15C: 15.247 15.209 , & 15.207, Part 15E: 15.407 , 15B class B req uirement, only if the test result complies with FCC part 15C: 15.247 15.209 , & 15.2 07, Part 15E: 15.407 , 15B class B re quirement. Then the host can be sold legally.

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. If the grantee markets their product as being Part 15

Subpart B compliant ( when it also contains unintentional radiator digital circuity), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

The host manufacture is recommended to use D04 Module Integration Guide recommending as “best practice” RF design engineering testing and evaluation in case non line ar interactions generate additional non compliant limits due to module placement to host components or properties.

This module is stand alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system.

**FCC**

**Wi Fi 6E statement**

1. FCC regulations restrict the operation of this device to indoor use only.
2. The operation of this device is prohibi ted on oil platforms, cars, trains , boats, and aircraft, except that operation of this device is permitted in large aircraft while flying above 10,000 feet.
3. Operation of transmitters in the 5.925 7.125 GHz band is prohibited for control of or communications with unmanned aircraft systems.

This module cannot be installed in a weatherized enclosure and cannot operate from battery but only power sources
The host device must be connected to a power source as it has no battery.

**Canada Statement**

This device complies with Indus try Cana da’s licence exe mpt RSSs. O perat ion is subject to the f ollo wing two conditions:

1. This device may not cause interference;
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Please notice that if the ISE D certification 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 IC: 122 90A WXT2L ” any similar wording that expresses the same meaning may be used.

The device for operation in the band 5150 5250 MHz is o nly for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS 102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

This transmitter must not be colocated or operating in conjunction with any other antenna or transmitter. Thi s e quipments hould be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

This radio transmitter [IC: 12290A WXT2L ] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

The concrete contents to check are the following three points.

1. Must use an antenna such as PIFA A ntenna with a gain not exceeding 4.09 dBi for BT /BLE 2.4G WIFI , 4.09 dBi for 5G WIFI, 6 dBi for 6G WIFI
2. Should be installed so that the end user cannot modify the antenna;
3. Feed line should be designed in 50ohm
4. Fine tuning of return loss etc. can be performed usin g a matching network.

***Antenna type and antenna gain***

**WIFI Antennas**

| 2.4G Ant 0 & Ant 1 | 5G Ant 0 & Ant 1 | 6G Ant 0 & Ant 1 |
|---|---|---|
| PIFA antenna: 4.09 dBi | PIFA antenna: 5.17 dBi | Maximum: PIFA antenna: 6 dBi<br>Minimum: PIFA antenna: 3.47 dBi |

**BT Antenna**

| BRADE | TYPE | GAIN |
|---|---|---|
| ZTX | Ant 0: PIFA antenna | 4.09 dBi |

**IC Wi Fi 6E Statement:**

- Devices shall not be used for control of or communications with unmanned aircraft systems.

Low-power indoor access points and indoor subordinate devices shall bear statements acknowledging both of the following restrictions in the user manual and, where feasible, in a conspicuous location on the device:

- Operation shall be limited to indoor use only.
- Operation on oil platforms, automobiles, trains, maritime vessels and aircraft shall be prohibited except for on large aircraft flying above 3,048 m (10,000 ft).

**Notice to OEM integrator**

Must use the device only in host devices that meet the FCC/ISED RF exposure category of mobile, which means the device is installed and used at distances of at least 20cm from persons. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The end user manual shall include FCC Part 15 /ISED RSS GEN compliance statements related to the transmitter as show in this manual(FCC/ICanada statement).

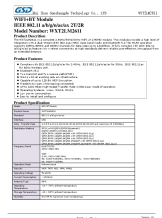
Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B, ICES 003. Host manufacturer is strongly recommended to confirm compliance with FCC/ISED requirements for the transmitter when the module is installed in the host. The use condition limitations extend to professional users, then instructions must state that this information also extends to the host manufacturer's instruction manual.

This module is stand-alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system.

Any company of the host device which install this modular should perform the test of radiated & conducted emission and spurious emission etc. according to FCC Part 15C: 15.247 and 15.209 & 15.207, 15B class B requirement, only if the test result comply with FCC part 15C: 15.247 and 15.209 & 15.207, 15B class B requirement. Then the host can be sold legally. This modular transmitter is only FCC authorized for the specific rule parts ( 47CFR Part 15.247 and 15.407) 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. Host manufacturer is strongly recommended to confirm compliance with FCC/ISED requirements for the transmitter when the module is installed in the host.

Must have on the host device a label showing Contains FCC ID: 2AC23-WXT2L or IC: 12290A-WXT2L. Both FCC ID and IC ID are not to be placed on the host at the same time and only hosts going into the US can use the FCC ID and only hosts going into Canada can use the IC ID. Installer should put it in the manual: The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

## Documents / Resources

| | |
|---|---|
|  | GSD WXT2LM2611 WIFI and Bluetooth Module [pdf] Instruction Manual<br>WXT2LM2611 WIFI and Bluetooth Module, WXT2LM2611, WIFI and Bluetooth Module, Blueto oth Module |

## References

- User Manual