# WIFI+BT Module
# IEEE 802.11 a/b/g/n/ac/ax/be 2T/2R
# Model Number: WET15M2513
# FCC ID: 2AC23-WET15
# IC:12290A-WET15

## Product Description

The WET15M2513 is a complete 2.4GHz/5GHz/6GHz WIFI module. This module provides a high level of integration with a dual-stream IEEE 802.11ax MAC/ base band /radio and Bluetooth 5.4.The WLAN operation supports 20MHz,40MHz,80MHz,160MHz channels for data rates up to 2882.4Mbps. It fully complies with IEEE 802.11 a/b/g/n/ac/ax/be feature rich wireless connectivity at high standards,delivers reliable,cost-effective, throughput from an extended distance.

## Product Features

- ◆ Complies with IEEE 802.11 b/g/n/ac/ax/be for 2.4GHz Wireless LAN.
- ◆ Complies with IEEE 802.11 a/n/ac/ax/be for 5GHz Wireless LAN.
- ◆ Complies with IEEE 802.11 ax/be for 6GHz Wireless LAN.
- ◆ Bluetooth v5.4
- ◆ 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 2882.4 Mbps High-Speed Transfer Rate in 802.11be mode of operation.
- ◆ Operating Systems：Linux,Windows
- ◆ Low power consumption.
- ◆ Easy to install and configure.
- ◆ High speed USB 2.0/USB 3.0 interface
- ◆ROHS compliant

## Product Specification

| | |
|---|---|
| Model | WET15M2513 |
| Product Name | WIFI+BT Module |
| Standard | 802.11 a/b/g/n/ac/ax/be |
| Interface | USB |
| Data Transfer Rate | Up to 2882.4Mbps |
| Modulation Method | GFSK,n/4-DQPSK,8DPSK(bluetooth)<br>DQPSK,DBPSK,CCK(802.11b)<br>QPSK,BPSK,16QAM,64QAM with OFDM (802.11g)<br>QPSK,BPSK,16QAM,64QAM with OFDM (802.11n)<br>QPSK,BPSK,16QAM,64QAM with OFDM (802.11a)<br>QPSK,BPSK,16QAM,64QAM,256QAM with OFDM (802.11ac)<br>QPSK,BPSK,16QAM,64QAM,256QAM,1024QAM with OFDMA (802.11ax)<br>QPSK,BPSK,16QAM,64QAM,256QAM,1024QAM,4096QAM with OFDMA (802.11ax) |
| Frequency Band | BLUETOOTH<br>2402~2480 MHz<br><br>WIFI<br>2.4G: 2412~2462 MHz<br>5G: 5180~5240MHz, 5260~5320MHz, 5500~5720MHz, 5745~5825MHz<br>6G：5925~7125MHz |
| Operation Mode | Infrastructure |
| Security | WEP, TKIP, AES, WPA, WPA2 |
| Operating Voltage | 5V±10% |
| Current Consumption | ＜1000mA |
| Antenna Type | PCB |

| | |
|---|---|
| Operating Temperature | 0 ~ 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 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.

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.

FCC regulations restrict operation of this device to indoor use only. The operation of this device is prohibited 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.

2.2

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 (NII). It is applicable to the modular transmitter

2.3

This radio transmitter 2AC23-WET15 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) Maximum antenna gains are shown in item 2.7 below.

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.

2.4

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

2.5

Trace antenna designs: Not applicable, the antenna conector for this module are integrated into the module. Use of external antennas or antennas integrated into the host circuit board are not an option.

2.6

This equipment 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 & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2.7

The following antennas have been certified for use with this module.
Only antennas of the same type with equal or lower gain may also be used with this module.
Other types of antennas and/or higher gain antennas may require the additional authorization for operation. The installer should use unique antenna connector and 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 manufacturer of module will inform installer to meet with the FCC part 15.203 in the warning part.
Antenna Specification list below:

Antennas:

| 2.4G | 5G | 6G |
|---|---|---|
| PCB antenna0 & 2.99 dBi | PCB antenna0 & 3.28 dBi | PCB antenna0 & 3.3 dBi |
| PCB antenna1 & 3.2 dBi | PCB antenna1 & 3.26 dBi | PCB antenna1 & 3.24 dBi |

| BT0 | BT1 |
|---|---|
| PCB antenna & 0.46 dBi | PCB antenna & 0.63 dBi |

Note: Minimum antenna gain for the 6G is 3.24 dBi.

2.8

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 “Contains FCC ID: 2AC23-WET15”; any similar wording that expresses the same meaning may be used.

2.9
Testing of the host product with all the transmitters installed – referred to as the composite investigation test- is recommended, to verify that the host product meets all 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 limit permitted for any one individual transmitter as required by Section 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 present when the transmitters were tested individually.

If the modular transmitter has been fully tested by the module grantee on the required number of channels, modulation types, and modes, it should not be necessary for the host installer to re-test all the available transmitter modes or settings. It is recommended that the host product manufacturer, installing the modular transmitter, perform some investigative measurements to confirm that the resulting composite system does not exceed the spurious emissions limits or band edge limits (e.g., where a different antenna may 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 physical properties of the host product (enclosure). This investigation is especially important when integrating multiple modular transmitters where the certification is based on testing each of them in a stand-alone configuration.

2.10
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, part 15 E 15.407,15B class B requirement, only if the test result comply with FCC part 15C: 15.247 and 15.209 & 15.207, part 15 E 15.407,15B class B requirement. 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.

2.11

The host manufacturer is recommended to use FCC KDB 996369 D04 Module Integration Guide recommending as "best practice" RF design engineering testing and evaluation in case non-linear interactions generate additional non-compliant limits due to module placement to host components or properties.

2.12

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.

## Canada Statement

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 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.

Please notice that if the ISED 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: 12290A-WET15” any similar wording that expresses the same meaning may be used.

l'appareil hôte doit porter une étiquette donnant le numéro de certification du module d'Industrie Canada, précédé des mots « Contient un module d'émission », du mot « IC: 12290A-WET15» ou d'une formulation similaire exprimant le même sens, comme suit

1、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;

2、for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;

3、for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits as appropriate; and

1、les dispositifs fonctionnant dans la bande 5 150-5 250 MHz sont réservés uniquement pour uneutilisation à l’intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;
2、le gain maximal d’antenne permis pour les dispositifs utilisant les bandes 5 250-5 350 MHz et5 470-5 725 MHz doit se conformer à la limite de p.i.r.e.;

3、le gain maximal d’antenne permis (pour les dispositifs utilisant la bande 5 725-5 825 MHz)doit se conformer à la limite de p.i.r.e. spécifiée pour l’exploitation point à point et non point à point, selon le cas.

Operation shall be limited to indoor use only; and
Operation on oil platforms, cars, trains, boats and aircraft shall be prohibited except for on large aircraft flying above10,000 ft.
un. Le fonctionnement doit être limité à une utilisation en intérieur uniquement; et
b. L'exploitation sur les plates-formes pétrolières, les voitures, les trains, les bateaux et les aéronefs est interdite, sauf pour les gros aéronefs volant au-dessus de 10 000 pieds.

The device meets the exemption from the routine evaluation limits in section 6.6 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.
Le dispositif rencontre l'exemption des limites courantes d'évaluation dans la section 6.6 de RSS 102 etla conformité à l'exposition de RSS-102 RF, utilisateurs peut obtenir l'information canadienne surl'exposition et la conformité de rf.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Cet émetteur ne doit pas être Co-placé ou ne fonctionnant en même temps qu'aucune autre antenne ouémetteur. Cet équipement devrait être installé et actionné avec une distance minimum de 20 centimètres entre le radiateur et votre corps.

# 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/Canada 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.

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-WET15 or IC: 12290A-WET15
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.

l'hôte doit utiliser l'instrument uniquement dans des dispositifs qui répondent à la fcc / (catégorie d'exposition rf mobile, ce qui signifie le dispositif est installé et utilisé à une distance d'au moins 20 cm de personnes.
le manuel de l'utilisateur final doit inclure la partie 15 / (fac rss gen déclarations de conformité relatives à l'émetteur que de montrer dans ce manuel.
le fabricant est responsable de la conformité de l'hôte, le système d'accueil avec le module installé avec toutes les autres exigences applicables du système comme la partie 15 b, ices - 003.
accueillir le fabricant est fortement recommandé de confirmer la conformité avec les exigences de la fcc / (émetteur lorsque le module est installé dans l'hôte.

le dispositif d'accueil doivent avoir une étiquette indiquant contient FCC ID: 2AC23-WET15，IC: 12290A-WET15

Les personnes chargées de l'installation devraient figurer dans le manuel:
Les dispositifs fonctionnant dans la bande de 5 150 à 5 250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

Doit avoir sur l'appareil hôte une étiquette indiquant Contient l'ID FCC 2AC23-WET15 ou IC : 12290A-WET15L'ID FCC et l'ID IC ne doivent pas être placés sur l'hôte en même temps et seuls les hôtes se rendant aux États-Unis peuvent utiliser l'ID FCC et seuls les hôtes se rendant au Canada peuvent utiliser l'ID IC.