



# WIFI+BT Module

## IEEE 802.11 a/b/g/n/ac 1T/1R

### Model Number: WCT5HM2511

#### Product Description

The WCT5HM2511 is a complete dual-band(2.4GHz and 5GHz)WIFI 1×1 module. This module provides a high level of integration with a dual-stream IEEE 802.11ac MAC/ base band /radio and Bluetooth 5.0.The WLAN operation supports 20MHz,40MHz and 80MHz channels for data rates up to 433.3Mbps. It fully complies with IEEE 802.11 a/b/g/n/ac 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 for 2.4GHz and IEEE 802.11a/n/ac 5GHz Wireless LAN.
- ◆ Bluetooth v5.0
- ◆ One transmit and One receive path(1T1R)
- ◆ Works with all existing network infrastructure.
- ◆ Capable of up to 128-Bit WEP Encryption.
- ◆ Freedom to roam while staying connected.
- ◆ UP to 433.3 Mbps High-Speed Transfer Rate in 802.11ac mode of operation.
- ◆ Operating Systems: Linux,Win7, Win8, Win10,XP
- ◆ Low power consumption.
- ◆ Easy to install and configure.
- ◆ High speed USB 2.0 interface

#### Product Specification

|                       |                                                                                                                                                                                                                                                         |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model                 | WIF+BT Module                                                                                                                                                                                                                                           |
| Product Name          | WCT5HM2511                                                                                                                                                                                                                                              |
| Standard              | 802.11 a /b/g/n/ac                                                                                                                                                                                                                                      |
| 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 433.3Mbps                                                                                                                                                                                 |
| 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) |
| Frequency Band        | BLUETOOTH<br>2402~2480 MHz<br><br>WIFI<br>2.4G: 2412~2462 MHz<br>5G: 5150~5250MHz,5725~5850MHz                                                                                                                                                          |
| Operation Mode        | Infrastructure                                                                                                                                                                                                                                          |
| Security              | WEP, TKIP, AES, WPA, WPA2                                                                                                                                                                                                                               |
| Operating Voltage     | 5V±10%                                                                                                                                                                                                                                                  |
| Current Consumption   | <1000mA                                                                                                                                                                                                                                                 |
| Antenna Type          | PIFA                                                                                                                                                                                                                                                    |
| 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.

## Compliance statements

### - 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.

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:2AC23-WCT5H" any similar wording that expresses the same meaning may be used.

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.

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Any company of the host device which install this modular with limit modular approval 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 and 15.407 Subpart E requirement, Only if the test result comply with FCC



part 15C : 15.247 and 15.209 & 15.207 ,15B Class B and 15.407 Subpart E requirement, then the host can be sold legally.

CFR 47 FCC PART 15 SUBPART C (15.247) and SUBPART E (15.407) has been investigated. It is applicable to the modular transmitter

This radio transmitter 2AC23-WCT5H 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.

unique antenna connector (IPEX) must be used on the Part 15 authorized transmitters used in the host product.

The concrete contents to check are the following three points.

- 1) Must use following one of the three antenna.
  - 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.

BT antenna

| Antenna model | Frequency (MHz) | Antenna Type | Antenna Gain (dBi) |
|---------------|-----------------|--------------|--------------------|
| WCT5H-20      | 2402-2480       | PIFA Antenna | 2.77               |
| WCT5H-40      | 2402-2480       | PIFA Antenna | 2.60               |
| WCT5H-60      | 2402-2480       | PIFA Antenna | 2.71               |

2.4G WIFI antenna

| Antenna model | Frequency (MHz) | Antenna Type | Antenna Gain (dBi) |
|---------------|-----------------|--------------|--------------------|
| WCT5H-20      | 2412-2462       | PIFA Antenna | 2.77               |
| WCT5H-40      | 2412-2462       | PIFA Antenna | 2.60               |
| WCT5H-60      | 2412-2462       | PIFA Antenna | 2.71               |

5G wifi antenna

| Antenna model | Frequency (MHz) | Antenna Type | Antenna Gain (dBi) |
|---------------|-----------------|--------------|--------------------|
| WCT5H-20      | 5150-5850       | PIFA Antenna | 3.79               |
| WCT5H-40      | 5150-5850       | PIFA Antenna | 3.83               |
| WCT5H-60      | 5150-5850       | PIFA Antenna | 3.64               |



## Compliance statements

### - Canada Statement

This device complies with Industry Canada' s licence-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-WCT5H" any similar wording that expresses the same meaning may be used.

This equipment complies with IC RF radiation exposure limits set forth for an uncontrolled environment.

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 minimum distance 7.9 inches (20 cm) between the radiator & your body.

Le présent appareil est conforme de ce matériel aux conformités ou aux limites d' intensité de champ RF, les utilisateurs peuvent sur l' exposition aux radiofréquences et la conformité and compliance d' acquérir les informations correspondante.

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-WCT5H » ou d' une formulation similaire exprimant le même sens, comme suit

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

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;

~~Les dispositifs fonctionnant dans la bande 5150-5250 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;

pour les dispositifs munis d'antennes amovibles, le gain maximal d'antenne permis (pour les dispositifs utilisant la bande de 5 725 à 5 850 MHz) doit être conforme à la limite de la p.i.r.e. spécifiée, selon le cas;

This radio transmitter 12290A-WCT5H 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.

Le présent émetteur radio 12290A-WCT5H a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au

gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.

The concrete contents to check are the following three points.

- 1) Must use following one of the three antenna.
- 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. Le contenu concret à vérifier sont les trois points suivants.

- 1) il doit utiliser suivant de l'antenne.
- 2) doivent être installés de façon que l'utilisateur final ne peut pas modifier l'antenne
- 3) La ligne d'alimentation doit être conçue en 50ohm

Le réglage précis de la perte de rendement, etc. peut être effectué en utilisant un réseau correspondant.

BT antenna

| Antenna model | Frequency (MHz) | Antenna Type | Antenna Gain (dBi) |
|---------------|-----------------|--------------|--------------------|
| WCT5H-20      | 2402-2480       | PIFA Antenna | 2.77               |
| WCT5H-40      | 2402-2480       | PIFA Antenna | 2.60               |
| WCT5H-60      | 2402-2480       | PIFA Antenna | 2.71               |

2.4G WIFI antenna

| Antenna model | Frequency (MHz) | Antenna Type | Antenna Gain (dBi) |
|---------------|-----------------|--------------|--------------------|
| WCT5H-20      | 2412-2462       | PIFA Antenna | 2.77               |
| WCT5H-40      | 2412-2462       | PIFA Antenna | 2.60               |
| WCT5H-60      | 2412-2462       | PIFA Antenna | 2.71               |



5G wifi antenna

| Antenna model | Frequency (MHz) | Antenna Type | Antenna Gain (dBi) |
|---------------|-----------------|--------------|--------------------|
| WCT5H-20      | 5150-5850       | PIFA Antenna | 3.79               |
| WCT5H-40      | 5150-5850       | PIFA Antenna | 3.83               |
| WCT5H-60      | 5150-5850       | PIFA Antenna | 3.64               |

## Notice to OEM integrator

The module is limited to OEM installation ONLY.

The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.

A separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and difference antenna configurations.

There is requirement that the grantee provide guidance to the host manufacturer for compliance with Part 15B requirements.

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

Trace antenna designs: Not applicable.

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.

The end user manual shall include FCC Part 15 /ISED RSS GEN compliance statements related to the transmitter as show in this manual.

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.

Must have on the host device a label showing Contains FCC ID: 2AC23-WCT5H, Contains IC: 12290A-WCT5H

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.

~~l'hôte doit utiliser l'instrument uniquement dans des dispositifs qui répondent à la fcc / (catégorie d'exposition rf~~



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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-WCT5H contient IC : 12290A-WCT5H