# *Wireless LAN 802.11ax*

# +

# *Bluetooth® 5.4 (BR/EDR + Low Energy) Module*

# *WKI611AA1*

Application Note

When designing your product using this module, please make sure to check the latest specifications. For the most up-to-date specifications, contact your nearest sales office.

# Table of contents

# 1. Revision History

| Revision | Date | Change history |
|---|---|---|
| 1.0 | 16-Jan. 2026 | Initial release |
| 1.1 | 12-Feb. 2026 | Corrected typos in WLAN configuration table and Bluetooth DN. |
| | | |

## 2. Summary

This document provides design guidelines to ensure stable characteristics for wireless communication modules developed and sold by KAGA FEI. It contains technical data for designing your product that incorporate the module and for designing peripheral circuits around the module. When designing peripheral circuits or products based on this document, please thoroughly evaluate the module's characteristics in your own product.
For inquiries, please contact our sales representative.

## 3. Scope of Application

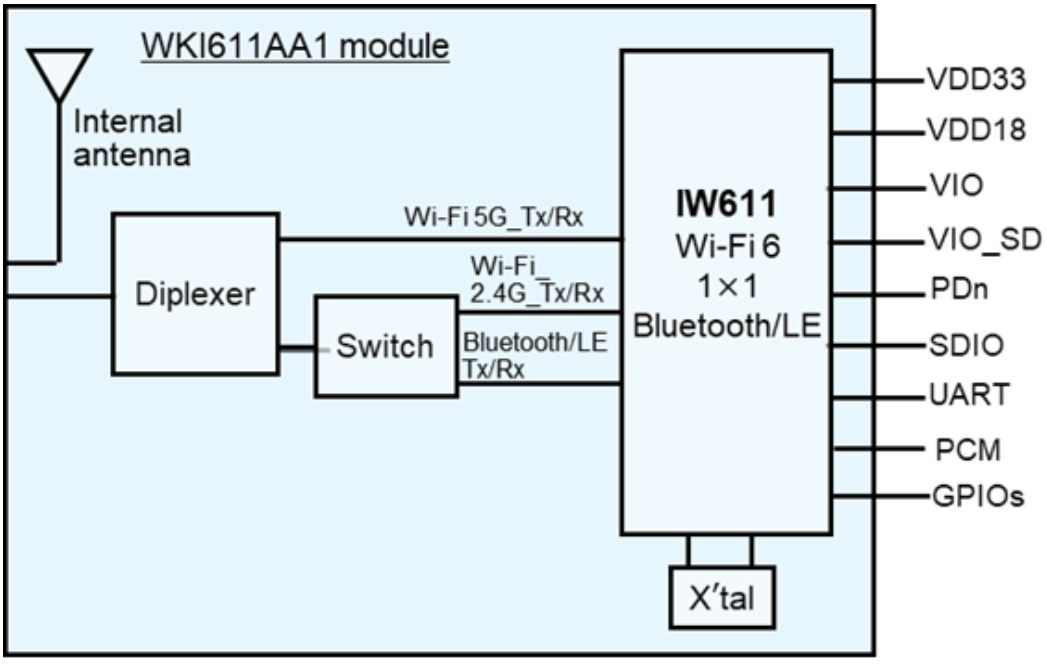
The content of this document applies to wireless communication module products developed and sold by KAGA FEI.

item： WKI611AA1

## 4. Overview of the Module

This module adopts an NXP Semiconductors' product, IW611. It is a multifunctional module compliant with IEEE802.11a/b/g/n/ac/ax and Bluetooth®/ Bluetooth® Low Energy, and is equipped with interfaces such as SDIO, UART, PCM. For details on functions and characteristics, please refer to the latest Data Sheet.

### 4.1 Module Configuration

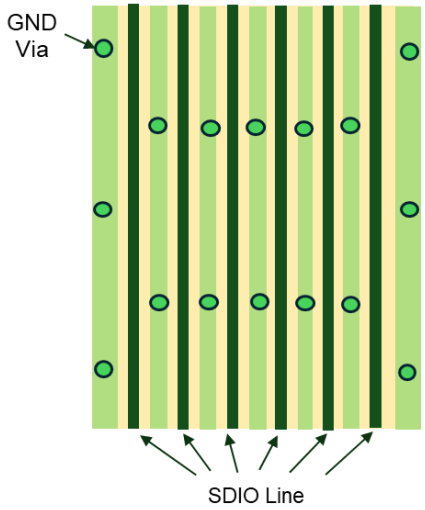


# 5. Design Guide

## 5.1 Digital I/F

Pay attention to the following points for SDIO signal lines.

- A characteristic impedance of 50 ohms (+/- 10%) is recommended.
- Route SDIO signal lines as far as possible from RF signal lines and other digital signal lines, and avoid overlapping these signals on adjacent layers.
- Keep all SDIO signal lines parallel, with equal lengths, and as short as possible.
- When using long wiring between boards or connectors/FPCs, insert damping resistors in series with each line as needed to eliminate reflection effects. To enhance shielding, place GND vias between the lines.




- Ensure power lines do not overlap SDIO signal lines on adjacent layers.
- When bending SDIO signal lines, avoid right angles (90 degrees); instead, route with a large radius for smooth curves.

## 5.2 Unused Pin Processing

Leave unused pins open.

## 5.3 Land Pattern Dimensions for Mounting

Refer to the recommended land pattern in the Data Sheet.

### 5.4 Module Mounting Position

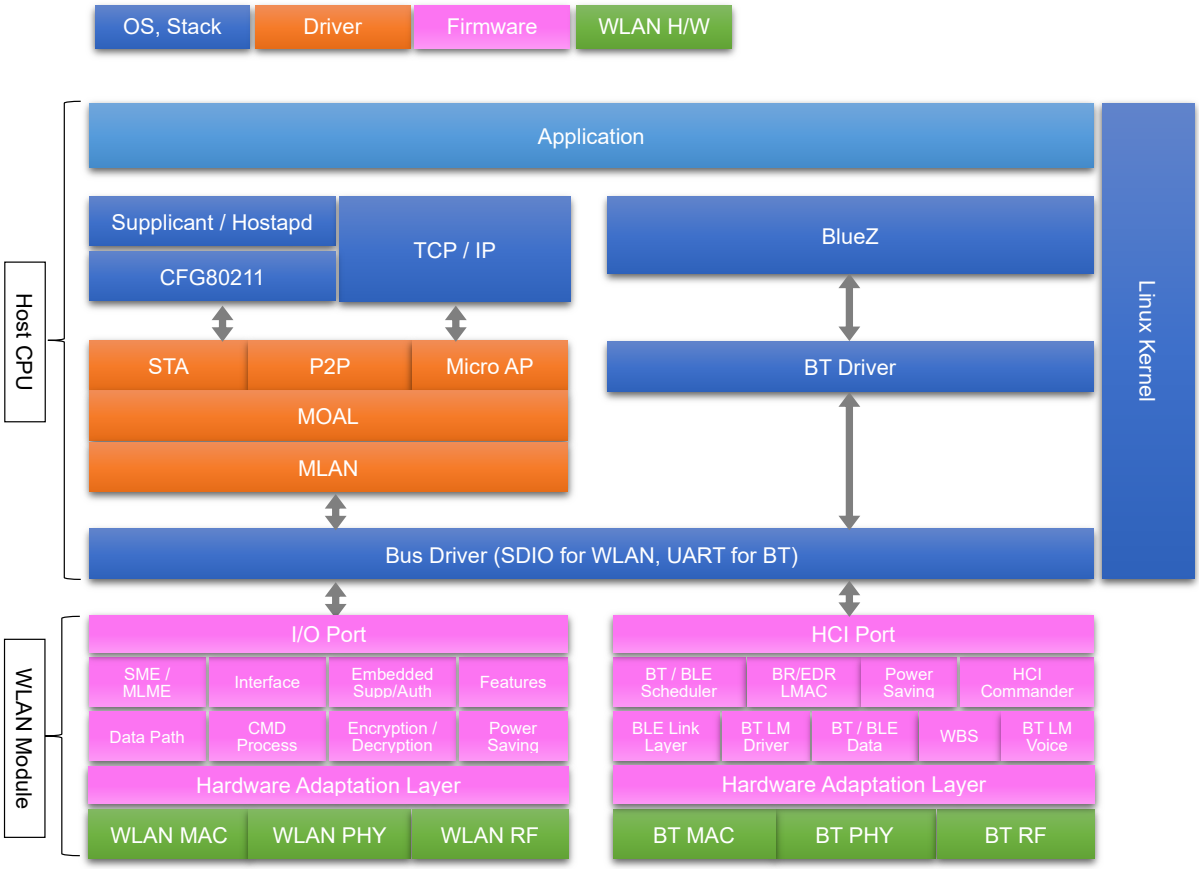
The RF antenna is built into the WKI611AA1. For better antenna characteristics and RF performance, consider the module's mounting position on the main board. Refer to the Data Sheet.

### 5.5 Heat Dissipation Measures

In high-temperature environments, this product may not perform adequately. Design the placement of this product to avoid the influence of circuits or devices that may become heat sources. Also, ensure heat dissipation for the module by connecting to the GND layer of your product's PCB via through-holes, etc.

## 6. Software Description

### 6.1 Linux Driver Architecture




The software that makes up the WKI611AA1 consists of a wireless LAN driver and Bluetooth driver on the Linux architecture, and firmware that runs on the module.

The protocol stack middleware and Bluetooth driver use standard Linux drivers, while the wireless LAN driver and firmware are provided by the chip vendor.

The wireless LAN driver consists of the MOAL module and the MLAN module. MOAL is an OS-dependent module that includes the upper interface between the kernel and the protocol stack, as well as bus drivers.MLAN is an OS-independent module that includes driver functionality and an interface to the module firmware.

The IEEE 802.11 Wireless Extensions provide an interface to the wireless features provided by Linux.
(802.11-specific features such as scanning, authentication, 802.11d, 802.11h, and WMM)

The network interface is available in three BSS types:
STA mode, which operates as a slave station,
AP mode, which operates as a master station,
and P2P mode, which connects terminals together.
Each can be used according to the device environment.

## 6.2 Driver Type

The drivers provided by chip vendors are for the Linux architecture.
The drivers are provided as source code, so you can port them to your environment.

A package for the i.MX8M Mini EVK board is available as a reference environment for drivers provided by chip vendor, allowing you to check operation for consideration, evaluation, and development.

[NXP standard driver]

| MPU / OS | WLAN I/F | Bluetooth I/F |
|---|---|---|
| MCIMX8M-EVK / Linux v2.6.32 ～ v6.x.x | SDIO | UART |

## 6.3 Software License

The chip vendor has released a pre-built Linux image for the i.MX8M Mini EVK, which includes driver objects and can be used free of charge.

To obtain the latest driver source code, you will need to enter into an SLA (Software License Agreement) with Kaga FEI. Please contact our sales office for details.

## 6.4 Host Interface

UART
Default 115.2Kbps (Max 3Mbps)
SDIO 3.0
Maximum operating frequency: SDR104 (208MHz) / Bus width: 4 bits or 1 bit
* For throughput performance, an operating frequency of 150MHz or higher is recommended.

We recommend that your product's SD controller meet the following specifications:
- SDIO 3.0, operating frequency of 150 MHz or higher, SDIO bus 4-bit mode
- Data transfer system, supports multi-block transfers via DMA

# 7. Transmit Power Table

## 7.1 Notes on Radio Regulations

When using this module, you must set the transmission power for Wireless LAN (WLAN), Bluetooth, and Bluetooth Low Energy according to the regulations of each country. The WLAN Regulatory Table and Bluetooth / Bluetooth Low Energy Power Table in this document show the certified channel frequencies and maximum transmission power for each country. Designers should refer to these tables and configure the module's output settings according to the target region.

Applicable items include:

- ✓ Transmission power output
- ✓ Channel usage range
- ✓ Weather radar detection (5GHz band DFS)
- ✓ Passive scan
- ✓ Energy detection

The procedures for applying radio regulations and the software are available on the Website.

Product URL :
https://www.kagafei.com/jp/eng/products/wireless-modules/wlan/WKI611AA1.html

| Document | WKI611_Setup_RgCert_R1.0.pdf |
|---|---|
| Linux Power Table | rgpower_CA.bin<br>rgpower_DE.bin<br>rgpower_JP.bin<br>rgpower_US.bin<br>rgpower_WW.bin |

## 7.2 WLAN Configuration Table

### 7.2.1 Japan

The transmission setting information for the certification under the Japanese Radio Law is as follows:

| | | Power table [unit: dBm] | | | | | | | | | | | | | | | | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CH/Freq. [MHz] | | 11b | 11g | 11n | | 11ac | | | | | 11ax | | | | | | | | DFS / NO_IR | ED_MAC |
| 2.4GHz | | 1-11 Mbps | 6-54 Mbps | HT 20 MCS 0-7 | HT 40 MCS 0-7 | VHT 20 MCS 0-7 | VHT 20 MCS 8 | VHT 40 MCS 0-7 | VHT 40 MCS 8-9 | VHT 80 MCS 0-9 | HE 20 MCS 0-7 | HE 20 MCS 8-9 | HE 20 MCS 10-11 | HE 40 MCS 0-7 | HE 40 MCS 8-9 | HE 40 MCS 10-11 | HE 80 MCS 0-9 | HE 80 MCS 10-11 | | |
| 1 | 2412 | 15 | 15 | 15 | N/A | N/A | N/A | N/A | N/A | N/A | 15 | 12 | 12 | N/A | N/A | N/A | N/A | N/A | N/A | 10 dec |
| 2 | 2417 | 15 | 15 | 15 | | | | | | | 15 | 12 | 12 | | | | | | | |
| 3 | 2422 | 15 | 15 | 15 | 13 | | | | | | 15 | 12 | 12 | 13 | 13 | 12 | | | | |
| 4 | 2427 | 15 | 15 | 15 | 13 | | | | | | 15 | 12 | 12 | 13 | 13 | 12 | | | | |
| 5 | 2432 | 15 | 15 | 15 | 13 | | | | | | 15 | 12 | 12 | 13 | 13 | 12 | | | | |
| 6 | 2437 | 15 | 15 | 15 | 13 | | | | | | 15 | 12 | 12 | 13 | 13 | 12 | | | | |
| 7 | 2442 | 15 | 15 | 15 | 13 | | | | | | 15 | 12 | 12 | 13 | 13 | 12 | | | | |
| 8 | 2447 | 15 | 15 | 15 | 13 | | | | | | 15 | 12 | 12 | 13 | 13 | 12 | | | | |
| 9 | 2452 | 15 | 15 | 15 | 13 | | | | | | 15 | 12 | 12 | 13 | 13 | 12 | | | | |
| 10 | 2457 | 15 | 15 | 15 | 13 | | | | | | 15 | 12 | 12 | 13 | 13 | 12 | | | | |
| 11 | 2462 | 15 | 15 | 15 | 13 | | | | | | 15 | 12 | 12 | 13 | 13 | 12 | | | | |
| 12 | 2467 | 15 | 15 | 15 | N/A | | | | | | 15 | 12 | 12 | N/A | N/A | N/A | | | | |
| 13 | 2472 | 15 | 15 | 15 | | | | | | | 15 | 12 | 12 | | | | | | | |
| 14 | 2482 | N/A | N/A | N/A | | | | | | | N/A | N/A | N/A | | | | | | | |
| 5GHz W52 | | | | | | | | | | | | | | | | | | | | |
| 36 | 5180 | N/A | 14 | 14 | 13 | 14 | 12 | 13 | 12 | 12 | 14 | 12 | 9 | 13 | 12 | 9 | 12 | 9 | N/A | 10 dec |
| 40 | 5200 | | 14 | 14 | | 14 | 12 | | | | 14 | 12 | 9 | | | | | | | |
| 44 | 5220 | | 14 | 14 | 13 | 14 | 12 | 13 | 12 | | 14 | 12 | 9 | 13 | 12 | 9 | | | | |
| 48 | 5240 | | 14 | 14 | | 14 | 12 | | | | 14 | 12 | 9 | | | | | | | |
| 5GHz W53 | | | | | | | | | | | | | | | | | | | | |
| 52 | 5260 | N/A | 14 | 14 | 13 | 14 | 12 | 13 | 12 | 12 | 14 | 12 | 9 | 13 | 12 | 9 | 12 | 9 | DFS NO_IR | 10 dec |
| 56 | 5280 | | 14 | 14 | | 14 | 12 | | | | 14 | 12 | 9 | | | | | | | |
| 60 | 5300 | | 14 | 14 | 13 | 14 | 12 | 13 | 12 | | 14 | 12 | 9 | 13 | 12 | 9 | | | | |
| 64 | 5320 | | 14 | 14 | | 14 | 12 | | | | 14 | 12 | 9 | | | | | | | |
| 5GHz W56 | | | | | | | | | | | | | | | | | | | | |
| 100 | 5500 | N/A | 14 | 14 | 13 | 14 | 12 | 13 | 12 | 12 | 14 | 12 | 9 | 13 | 12 | 9 | 12 | 9 | DFS NO_IR | 10 dec |
| 104 | 5520 | | 14 | 14 | | 14 | 12 | | | | 14 | 12 | 9 | | | | | | | |
| 108 | 5540 | | 14 | 14 | 13 | 14 | 12 | 13 | 12 | | 14 | 12 | 9 | 13 | 12 | 9 | | | | |
| 112 | 5560 | | 14 | 14 | | 14 | 12 | | | | 14 | 12 | 9 | | | | | | | |
| 116 | 5580 | | 14 | 14 | 13 | 14 | 12 | 13 | 12 | 12 | 14 | 12 | 9 | 13 | 12 | 9 | 12 | 9 | | |
| 120 | 5600 | | 14 | 14 | | 14 | 12 | | | | 14 | 12 | 9 | | | | | | | |
| 124 | 5620 | | 14 | 14 | 13 | 14 | 12 | 13 | 12 | | 14 | 12 | 9 | 13 | 12 | 9 | | | | |
| 128 | 5640 | | 14 | 14 | | 14 | 12 | | | | 14 | 12 | 9 | | | | | | | |
| 132 | 5660 | | 14 | 14 | 13 | 14 | 12 | 13 | 12 | 12 | 14 | 12 | 9 | 13 | 12 | 9 | 12 | 9 | | |
| 136 | 5680 | | 14 | 14 | | 14 | 12 | | | | 14 | 12 | 9 | | | | | | | |
| 140 | 5700 | | 14 | 14 | 13 | 14 | 12 | 13 | 12 | | 14 | 12 | 9 | 13 | 12 | 9 | | | | |
| 144 | 5720 | | 14 | 14 | | 14 | 12 | | | | 14 | 12 | 9 | | | | | | | |
| 5GHz W58 | | | | | | | | | | | | | | | | | | | | |
| 149 | 5745 | N/A | | | | | | | | | | | | | | | | | | |
| 153 | 5765 | | | | | | | | | | | | | | | | | | | |
| 157 | 5785 | | | | | | | | | | | | | | | | | | | |
| 161 | 5805 | | | | | | | | | | | | | | | | | | | |
| 165 | 5825 | | | | | | | | | | | | | | | | | | | |
| 169 | 5845 | | | | | | | | | | | | | | | | | | | |
| 173 | 5865 | | | | | | | | | | | | | | | | | | | |
| 177 | 5885 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |

### 7.2.2 ETSI

The transmission setting information for RF conducted testing in the EN standard is as follows:

| CH/Freq. [MHz] | | Power table [unit: dBm] | | | | | | | | | | | | | | | | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11b | 11g | 11n | | 11ac | | | | | 11ax | | | | | | | | | |
| | | 1-11 Mbps | 6-54 Mbps | HT 20 MCS 0-7 | HT 40 MCS 0-7 | VHT 20 MCS 0-7 | VHT 20 MCS 8 | VHT 40 MCS 0-7 | VHT 40 MCS 8-9 | VHT 80 MCS 0-9 | HE 20 MCS 0-7 | HE 20 MCS 8 -9 | HE 20 MCS 10 -11 | HE 40 MCS 0 -7 | HE 40 MCS 8 -9 | HE 40 MCS 10 -11 | HE 80 MCS 0 -9 | HE 80 MCS 10 -11 | DFS / NO_ IR | ED_ MAC |
| 2.4GHz | | | | | | | | | | | | | | | | | | | | |
| 1 | 2412 | 14 | 12 | 11 | N/A | N/A | N/A | N/A | N/A | N/A | 11 | 11 | 11 | N/A | N/A | N/A | N/A | N/A | N/A | 10 dec |
| 2 | 2417 | 14 | 12 | 11 | | | | | | | 11 | 11 | 11 | | | | | | | |
| 3 | 2422 | 14 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 4 | 2427 | 14 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 5 | 2432 | 14 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 6 | 2437 | 14 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 7 | 2442 | 14 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 8 | 2447 | 14 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 9 | 2452 | 14 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 10 | 2457 | 14 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 11 | 2462 | 14 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 12 | 2467 | 14 | 12 | 11 | N/A | | | | | | 11 | 11 | 11 | N/A | N/A | N/A | | | | |
| 13 | 2472 | 14 | 12 | 11 | | | | | | | 11 | 11 | 11 | | | | | | | |
| 14 | 2482 | N/A | N/A | N/A | | | | | | | N/A | N/A | N/A | | | | | | | |
| 5GHz W52 | | | | | | | | | | | | | | | | | | | | |
| 36 | 5180 | N/A | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 8 | 10 | 10 | 7 | 9 | 6 | N/A | 10 dec |
| 40 | 5200 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 8 | | | | | | | |
| 44 | 5220 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 8 | 10 | 10 | 7 | | | | |
| 48 | 5240 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 8 | | | | | | | |
| 5GHz W53 | | | | | | | | | | | | | | | | | | | | |
| 52 | 5260 | N/A | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 8 | 10 | 10 | 7 | 9 | 6 | DFS NO_IR | 10 dec |
| 56 | 5280 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 8 | | | | | | | |
| 60 | 5300 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 8 | 10 | 10 | 7 | | | | |
| 64 | 5320 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 8 | | | | | | | |
| 5GHz W56 | | | | | | | | | | | | | | | | | | | | |
| 100 | 5500 | N/A | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 8 | 10 | 10 | 7 | 9 | 6 | DFS NO_IR | 10 dec |
| 104 | 5520 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 8 | | | | | | | |
| 108 | 5540 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 8 | 10 | 10 | 7 | | | | |
| 112 | 5560 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 8 | | | | | | | |
| 116 | 5580 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 8 | 10 | 10 | 7 | 9 | 6 | | |
| 120 | 5600 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 8 | | | | | | | |
| 124 | 5620 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 8 | 10 | 10 | 7 | | | | |
| 128 | 5640 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 8 | | | | | | | |
| 132 | 5660 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | N/A | 11 | 11 | 8 | 10 | 10 | 7 | N/A | N/A | | |
| 136 | 5680 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 8 | | | | | | | |
| 140 | 5700 | | 13 | 11 | N/A | 11 | 11 | N/A | N/A | | 11 | 11 | 8 | N/A | N/A | N/A | | | | |
| 144 | 5720 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |
| 5GHz W58 | | | | | | | | | | | | | | | | | | | | |
| 149 | 5745 | N/A | | | | | | | | | | | | | | | | | | |
| 153 | 5765 | | | | | | | | | | | | | | | | | | | |
| 157 | 5785 | | | | | | | | | | | | | | | | | | | |
| 161 | 5805 | | | | | | | | | | | | | | | | | | | |
| 165 | 5825 | | | | | | | | | | | | | | | | | | | |
| 169 | 5845 | | | | | | | | | | | | | | | | | | | |
| 173 | 5865 | | | | | | | | | | | | | | | | | | | |
| 177 | 5885 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |

### 7.2.3 U.S.

The transmission setting information for FCC certification is as follows:

| CH/Freq. [MHz] | | Power table [unit: dBm] | | | | | | | | | | | | | | | | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11b | 11g | 11n | | 11ac | | | | | 11ax | | | | | | | | | |
| | | 1-11 Mbps | 6-54 Mbps | HT 20 MCS 0-7 | HT 40 MCS 0-7 | VHT 20 MCS 0-7 | VHT 20 MCS 8 | VHT 40 MCS 0-7 | VHT 40 MCS 8-9 | VHT 80 MCS 0-9 | HE 20 MCS 0-7 | HE 20 MCS 8-9 | HE 20 MCS 10-11 | HE 40 MCS 0-7 | HE 40 MCS 8-9 | HE 40 MCS 10-11 | HE 80 MCS 0-9 | HE 80 MCS 10-11 | DFS / NO_IR | ED_MAC |
| 2.4GHz | | | | | | | | | | | | | | | | | | | | |
| 1 | 2412 | 17 | 12 | 11 | N/A | N/A | N/A | N/A | N/A | N/A | 11 | 11 | 11 | N/A | N/A | N/A | N/A | N/A | N/A | 10 dec |
| 2 | 2417 | 17 | 12 | 11 | | | | | | | 11 | 11 | 11 | | | | | | | |
| 3 | 2422 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 4 | 2427 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 5 | 2432 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 6 | 2437 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 7 | 2442 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 8 | 2447 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 9 | 2452 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 10 | 2457 | 17 | 12 | 11 | | | | | | | 11 | 11 | 11 | | | | | | | |
| 11 | 2462 | 17 | 12 | 11 | | | | | | | 11 | 11 | 11 | | | | | | | |
| 12 | 2467 | N/A | N/A | N/A | N/A | | | | | | N/A | N/A | N/A | N/A | N/A | N/A | | | | |
| 13 | 2472 | N/A | N/A | N/A | | | | | | | N/A | N/A | N/A | | | | | | | |
| 14 | 2482 | N/A | N/A | N/A | | | | | | | N/A | N/A | N/A | | | | | | | |
| 5GHz W52 | | | | | | | | | | | | | | | | | | | | |
| 36 | 5180 | N/A | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 11 | 10 | 10 | 10 | 9 | 9 | N/A | 10 dec |
| 40 | 5200 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 44 | 5220 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 11 | 10 | 10 | 10 | | | | |
| 48 | 5240 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 5GHz W53 | | | | | | | | | | | | | | | | | | | | |
| 52 | 5260 | N/A | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 11 | 10 | 10 | 10 | 9 | 9 | DFS NO_IR | 10 dec |
| 56 | 5280 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 60 | 5300 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 11 | 10 | 10 | 10 | | | | |
| 64 | 5320 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 5GHz W56 | | | | | | | | | | | | | | | | | | | | |
| 100 | 5500 | N/A | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 11 | 10 | 10 | 10 | 9 | 9 | DFS NO_IR | 10 dec |
| 104 | 5520 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 108 | 5540 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 11 | 10 | 10 | 10 | | | | |
| 112 | 5560 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 116 | 5580 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 11 | 10 | 10 | 10 | 9 | 9 | | |
| 120 | 5600 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 124 | 5620 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 11 | 10 | 10 | 10 | | | | |
| 128 | 5640 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 132 | 5660 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 11 | 10 | 10 | 10 | 9 | 9 | | |
| 136 | 5680 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 140 | 5700 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 11 | 10 | 10 | 10 | | | | |
| 144 | 5720 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 5GHz W58 | | | | | | | | | | | | | | | | | | | | |
| 149 | 5745 | N/A | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 11 | 10 | 10 | 10 | 9 | 9 | N/A | 10 dec |
| 153 | 5765 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 157 | 5785 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 11 | 10 | 10 | 10 | | | | |
| 161 | 5805 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 165 | 5825 | | 13 | 11 | N/A | 11 | 11 | N/A | N/A | N/A | 11 | 11 | 11 | N/A | N/A | N/A | N/A | N/A | | |
| 169 | 5845 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |
| 173 | 5865 | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | | N/A | N/A | N/A | N/A | N/A | N/A | | | | |
| 177 | 5885 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |

### 7.2.4 Canada

The transmission setting information for ISED certification is as follows:

| | | Power table [unit: dBm] | | | | | | | | | | | | | | | | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CH/Freq. [MHz] 2.4GHz | | 11b 1-11 Mbps | 11g 6-54 Mbps | 11n | | 11ac | | | | | 11ax | | | | | | | | DFS / NO_IR | ED_MAC |
| | | | | HT 20 MCS 0-7 | HT 40 MCS 0-7 | VHT 20 MCS 0-7 | VHT 20 MCS 8 | VHT 40 MCS 0-7 | VHT 40 MCS 8-9 | VHT 80 MCS 0-9 | HE 20 MCS 0-7 | HE 20 MCS 8 -9 | HE 20 MCS 10 -11 | HE 40 MCS 0 -7 | HE 40 MCS 8 -9 | HE 40 MCS 10 -11 | HE 80 MCS 0 -9 | HE 80 MCS 10 -11 | | |
| 1 | 2412 | 17 | 12 | 11 | N/A | N/A | N/A | N/A | N/A | N/A | 11 | 11 | 11 | N/A | N/A | N/A | N/A | N/A | N/A | 10 dec |
| 2 | 2417 | 17 | 12 | 11 | | | | | | | 11 | 11 | 11 | | | | | | | |
| 3 | 2422 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 4 | 2427 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 5 | 2432 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 6 | 2437 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 7 | 2442 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 8 | 2447 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 9 | 2452 | 17 | 12 | 11 | 9 | | | | | | 11 | 11 | 11 | 9 | 9 | 9 | | | | |
| 10 | 2457 | 17 | 12 | 11 | | | | | | | 11 | 11 | 11 | | | | | | | |
| 11 | 2462 | 17 | 12 | 11 | | | | | | | 11 | 11 | 11 | | | | | | | |
| 12 | 2467 | N/A | N/A | N/A | N/A | | | | | | N/A | N/A | N/A | N/A | N/A | N/A | | | | |
| 13 | 2472 | N/A | N/A | N/A | | | | | | | N/A | N/A | N/A | | | | | | | |
| 14 | 2482 | N/A | N/A | N/A | | | | | | | N/A | N/A | N/A | | | | | | | |
| 5GHz W52 | | | | | | | | | | | | | | | | | | | | |
| 36 | 5180 | N/A | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 11 | 10 | 10 | 10 | 9 | 9 | N/A | 10 dec |
| 40 | 5200 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 44 | 5220 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 11 | 10 | 10 | 10 | | | | |
| 48 | 5240 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 5GHz W53 | | | | | | | | | | | | | | | | | | | | |
| 52 | 5260 | N/A | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 11 | 10 | 10 | 10 | 9 | 9 | DFS NO_IR | 10 dec |
| 56 | 5280 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 60 | 5300 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 11 | 10 | 10 | 10 | | | | |
| 64 | 5320 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 5GHz W56 | | | | | | | | | | | | | | | | | | | | |
| 100 | 5500 | N/A | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 11 | 10 | 10 | 10 | 9 | 9 | DFS NO_IR | 10 dec |
| 104 | 5520 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 108 | 5540 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 11 | 10 | 10 | 10 | | | | |
| 112 | 5560 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 116 | 5580 | | 13 | 11 | N/A | 11 | 11 | N/A | N/A | N/A | 11 | 11 | 11 | N/A | N/A | N/A | N/A | N/A | | |
| 120 | 5600 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |
| 124 | 5620 | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | | N/A | N/A | N/A | N/A | N/A | N/A | | | | |
| 128 | 5640 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |
| 132 | 5660 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 11 | 10 | 10 | 10 | 9 | 9 | | |
| 136 | 5680 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 140 | 5700 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 11 | 10 | 10 | 10 | | | | |
| 144 | 5720 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 5GHz W58 | | | | | | | | | | | | | | | | | | | | |
| 149 | 5745 | N/A | 13 | 11 | 10 | 11 | 11 | 10 | 10 | 9 | 11 | 11 | 11 | 10 | 10 | 10 | 9 | 9 | N/A | 10 dec |
| 153 | 5765 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 157 | 5785 | | 13 | 11 | 10 | 11 | 11 | 10 | 10 | | 11 | 11 | 11 | 10 | 10 | 10 | | | | |
| 161 | 5805 | | 13 | 11 | | 11 | 11 | | | | 11 | 11 | 11 | | | | | | | |
| 165 | 5825 | | 13 | 11 | N/A | 11 | 11 | N/A | N/A | N/A | 11 | 11 | 11 | N/A | N/A | N/A | N/A | N/A | | |
| 169 | 5845 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |
| 173 | 5865 | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | | N/A | N/A | N/A | N/A | N/A | N/A | | | | |
| 177 | 5885 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |

### 7.2.5 W/W Safe

| CH/Freq. [MHz] 2.4GHz | | Power table [unit: dBm] | | | | | | | | | | | | | | | | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11b 1-11 Mbps | 11g 6-54 Mbps | 11n | | 11ac | | | | | 11ax | | | | | | | | DFS / NO_IR | ED_MAC |
| | | | | HT 20 MCS 0-7 | HT 40 MCS 0-7 | VHT 20 MCS 0-7 | VHT 20 MCS 8 | VHT 40 MCS 0-7 | VHT 40 MCS 8-9 | VHT 80 MCS 0-9 | HE 20 MCS 0-7 | HE 20 MCS 8-9 | HE 20 MCS 10-11 | HE 40 MCS 0-7 | HE 40 MCS 8-9 | HE 40 MCS 10-11 | HE 80 MCS 0-9 | HE 80 MCS 10-11 | | |
| 1 | 2412 | 9 | 9 | 9 | N/A | N/A | N/A | N/A | N/A | N/A | 9 | 9 | 9 | N/A | N/A | N/A | N/A | N/A | N/A | 10 dec |
| 2 | 2417 | 9 | 9 | 9 | | | | | | | 9 | 9 | 9 | | | | | | | |
| 3 | 2422 | 9 | 9 | 9 | 9 | | | | | | 9 | 9 | 9 | 9 | 9 | 9 | | | | |
| 4 | 2427 | 9 | 9 | 9 | 9 | | | | | | 9 | 9 | 9 | 9 | 9 | 9 | | | | |
| 5 | 2432 | 9 | 9 | 9 | 9 | | | | | | 9 | 9 | 9 | 9 | 9 | 9 | | | | |
| 6 | 2437 | 9 | 9 | 9 | 9 | | | | | | 9 | 9 | 9 | 9 | 9 | 9 | | | | |
| 7 | 2442 | 9 | 9 | 9 | 9 | | | | | | 9 | 9 | 9 | 9 | 9 | 9 | | | | |
| 8 | 2447 | 9 | 9 | 9 | 9 | | | | | | 9 | 9 | 9 | 9 | 9 | 9 | | | | |
| 9 | 2452 | 9 | 9 | 9 | 9 | | | | | | 9 | 9 | 9 | 9 | 9 | 9 | | | | |
| 10 | 2457 | 9 | 9 | 9 | N/A | | | | | | 9 | 9 | 9 | N/A | N/A | N/A | | | | |
| 11 | 2462 | 9 | 9 | 9 | | | | | | | 9 | 9 | 9 | | | | | | | |
| 12 | 2467 | N/A | N/A | N/A | | | | | | | N/A | N/A | N/A | | | | | | | |
| 13 | 2472 | N/A | N/A | N/A | | | | | | | N/A | N/A | N/A | | | | | | | |
| 14 | 2482 | N/A | N/A | N/A | | | | | | | N/A | N/A | N/A | | | | | | | |
| 5GHz W52 | | | | | | | | | | | | | | | | | | | | |
| 36 | 5180 | N/A | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | N/A | 10 dec |
| 40 | 5200 | | 6 | 6 | | 6 | 6 | | | | 6 | 6 | 6 | | | | | | | |
| 44 | 5220 | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | | 6 | 6 | 6 | 6 | 6 | 6 | | | | |
| 48 | 5240 | | 6 | 6 | | 6 | 6 | | | | 6 | 6 | 6 | | | | | | | |
| 5GHz W53 | | | | | | | | | | | | | | | | | | | | |
| 52 | 5260 | N/A | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | DFS NO_IR | 10 dec |
| 56 | 5280 | | 6 | 6 | | 6 | 6 | | | | 6 | 6 | 6 | | | | | | | |
| 60 | 5300 | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | | 6 | 6 | 6 | 6 | 6 | 6 | | | | |
| 64 | 5320 | | 6 | 6 | | 6 | 6 | | | | 6 | 6 | 6 | | | | | | | |
| 5GHz W56 | | | | | | | | | | | | | | | | | | | | |
| 100 | 5500 | N/A | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | DFS NO_IR | 10 dec |
| 104 | 5520 | | 6 | 6 | | 6 | 6 | | | | 6 | 6 | 6 | | | | | | | |
| 108 | 5540 | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | | 6 | 6 | 6 | 6 | 6 | 6 | | | | |
| 112 | 5560 | | 6 | 6 | | 6 | 6 | | | | 6 | 6 | 6 | | | | | | | |
| 116 | 5580 | | 6 | 6 | N/A | 6 | 6 | N/A | N/A | N/A | 6 | 6 | 6 | N/A | N/A | N/A | N/A | N/A | | |
| 120 | 5600 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |
| 124 | 5620 | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | | N/A | N/A | N/A | N/A | N/A | N/A | | | | |
| 128 | 5640 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |
| 132 | 5660 | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | | |
| 136 | 5680 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |
| 140 | 5700 | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | | N/A | N/A | N/A | N/A | N/A | N/A | | | | |
| 144 | 5720 | | N/A | N/A | | N/A | N/A | | | | N/A | N/A | N/A | | | | | | | |
| 5GHz W58 | | | | | | | | | | | | | | | | | | | | |
| 149 | 5745 | N/A | | | | | | | | | | | | | | | | | | |
| 153 | 5765 | | | | | | | | | | | | | | | | | | | |
| 157 | 5785 | | | | | | | | | | | | | | | | | | | |
| 161 | 5805 | | | | | | | | | | | | | | | | | | | |
| 165 | 5825 | | | | | | | | | | | | | | | | | | | |
| 169 | 5845 | | | | | | | | | | | | | | | | | | | |
| 173 | 5865 | | | | | | | | | | | | | | | | | | | |
| 177 | 5885 | | | | | | | | | | | | | | | | | | | |

## 7.3 Bluetooth®/Bluetooth® LE Power Table

[unit : dBm]

| Country/Region | Max Transmit power | | |
|---|---|---|---|
| | Bluetooth BR | Bluetooth EDR | Bluetooth LE |
| JAPAN | 6 | | |
| ETSI | 4 | | |
| U.S. | 17 | 8 | 17 |
| Canada | 17 | 8 | 17 |

# 8. Compliance Obligations

Products incorporating this module must comply with the radio laws and related certification requirements of each country. Detailed requirements are listed below by country.

## Japan Regulatory Information

a) This module is approved with the specific antenna on this module. Please ensure that your product can also bear a label with the following information. If the product is so small that it is not practicable to place the label, you can also place it in the instruction manual and package. The mark diameter shall be easily legible without using a device such as light microscopes.


R 005-103569

b) It is recommended to include the following sentence in the user manual of your product:
This product installs a radio system which has been approved as a radio station in a low power data communication system based on the Radio Law.
a) WKI611 ： 005-103569

## Canada Regulatory Information

a) This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following 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.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicable s 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'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

b) Please use the specified supply voltage in "Recommendation operating range" when installing this product.

Veuillez utiliser la tension d'alimentation précisée dans “Recommandation gamme opératoire” lorsque vous i nstallez ce produit.

c) This product for operation in the band 5250-5350MHz are intended for indoor use only to reduce the potential for harmful interference to co-channel mobile satellite systems.

Ce produit dont la fréquence de fonctionnement se situe entre et 5250- 5350MHz est conçu uniquement pour une utilisation en intérieur afin de réduire les risques d'interférences nuisibles avec les systèmes mobiles par satellite co-canal.

d) Please inform your users that high power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350MHz and 5650-5850MHz and that these radars could cause interference and/or damage to the product.

Veuillez informer vos utilisateurs que les radars à haute puissance sont désignés comme utilisateurs principaux (c-à-d des utilisateurs prioritaires) des fréquences 5250-5350MHz et 5650-5850MHz et que ces radars pourraient provoquer des interférences et/ou endommager les appareils.

e) This product shall not be capable of transmitting in the band 5600-5650MHz.

Ce produit ne doit pas être capable de transmettre entre les fréquences 5600-5650MHz.

f) Data transmission is always initiated by software, which is the passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinue transmission in case of either absence of information to transmit or operational failure.

La transmission des données est toujours initiée par le logiciel, puis les données sont transmises par l'intermédiaire du MAC, par la bande d e base numérique et analogique et, enfin, à la puce RF. Plusieurs paquets spéciaux sont initiés par le MAC. Ce sont les seuls moyens pour qu'une partie de la bande de base numérique active l'émetteur RF, puis désac tive celui-ci à la fin du paquet. En con sé quence l'émetteur reste uniquement activé lors de la transmission d'un des paquets susmentionnés. En d'autres termes, ce

dispositif interrompt automatiquement toute transmission en cas d'absence d'information à transmettre ou de défaillance.

g) This radio transmitter (28568-WKI611) has been approved by Innovation, Science and Economic Development Canada to operate with the antenna model 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.
To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

| Model No. | Antenna Type | Frequency | Antenna Gain (Max.) | Impedance |
|---|---|---|---|---|
| AW-002 | Monopole | 2400-2500 MHz<br>5150-5850 MHz | 1.0dBi<br>1.4dBi | 50Ω<br>50Ω |
| 1461870100<br>1461870150<br>1461870200<br>1461870300 | Dipole | 2400-2500 MHz<br>5150-5850 MHz | 3.2dBi<br>4.5dBi | 50Ω<br>50Ω |
| 2344657-1<br>2344657-2<br>2344657-3<br>2344657-4<br>2344657-9 | Dipole | 2400-2500 MHz<br>5150-5875 MHz | 1.1dBi<br>4.9dBi | 50Ω<br>50Ω |

Le présent émetteur radio (28568-WKI611) a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les modèle d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les mod è le d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout modèle figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.
De réduire les interférences potentielles avec les autres utilisateurs, il est nécessaire de choisir le type d’antenne et le gain ne dépassant pas.) accepté pour une communication normale.

| Modèle Non | Type d'antenne | Fréquenc es | Gain de l'antenne (Max.) | l'impédance |
|---|---|---|---|---|
| AW-002 | Monopole | 2400-2500 MHz<br>5150-5850 MHz | 1.0dBi<br>1.4dBi | 50Ω<br>50Ω |
| 1461870100<br>1461870150<br>1461870200<br>1461870300 | Dipole | 2400-2500 MHz<br>5150-5850 MHz | 3.2dBi<br>4.5dBi | 50Ω<br>50Ω |
| 2344657-1<br>2344657-2<br>2344657-3<br>2344657-4<br>2344657-9 | Dipole | 2400-2500 MHz<br>5150-5875 MHz | 1.1dBi<br>4.9dBi | 50Ω<br>50Ω |

h) This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the ISED radio frequency (RF) Exposure rules. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body.

Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles d'exposition aux fréquences radioélectriques (RF) RSS-102 de l'ISED. Cet équipement doit être installé et utilisé en gardant une distance de 20cm ou plus entre le radiateur et le corps humain.

i) Please label ISED certification number and Host Marketing Name (HMN) at any location on the exterior of your product. Please indicate ISED certification number by either one of the following method:

Veuillez étiqueter le numéro de certification ISED et le nom commercial de l'hôte à tout emplacement sur l'extérieur de votre produit. Veuillez indiquer le numéro de certification ISED par l'une des méthodes suivantes.

-Contains Transmitter module IC: 28568-WKI611

-Contains IC: 28568-WKI611

Host Marketing Name (HMN)

-The HMN is the name or model number of a final product, which contains a certified radio module.

-The Host Marketing Name (HMN) shall be displayed according to the e-labelling requirements of RSS-Gen, section 4.4 or indicated on the exterior of the host product or on the product packaging, or in the product literature, which shall be supplied with the host product or readily available online.

j) Please include the following statements in the user manual of the host device of this module both in English and French:

(i) The device for operation in the bands 5150-5250 MHz and 5250-5350MHz are only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

Ce produit dont la fréquence de fonctionnement se situe entre 5150-5250MHz et 5250-5350MHz est conçue uniquement pour une utilisation en intérieur afin de réduire les risques d' interferences nuisibles avec les systèmes mobiles par satellite co-canal.

## U.S. Regulatory Information

a) 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.

b) Please use the specified supply voltage in "Recommendation operating range" when installing this product.

c) Data transmission is inevitably initiated by software of host devices with the exception that several special packets are transmitted by the MAC. However, data transmission is terminated by end of packets in any cases. Therefore, it is RF transmitted only while packets are being transmitted. This modular transmitter automatically discontinues transmission in case of either absence of information to transmit or operational failure because RF parts will not be ON in neither case.

d) Frequency Tolerance: 2.4GHz Band ±20 ppm, 5GHz Band ±20 ppm

e) The device is designed to use the antennas listed below. Do not modify the antenna or any other part of the module. Any modifications will invalidate the modular certifications and require new approvals for the host system.

| Model No. | Antenna Type | Frequency | Antenna Gain (Max.) | Impedance |
|---|---|---|---|---|
| AW-002 | Monopole | 2400-2500 MHz<br>5150-5850 MHz | 1.0dBi<br>1.4dBi | 50Ω<br>50Ω |
| 1461870100<br>1461870150<br>1461870200<br>1461870300 | Dipole | 2400-2500 MHz<br>5150-5850 MHz | 3.2dBi<br>4.5dBi | 50Ω<br>50Ω |
| 2344657-1<br>2344657-2<br>2344657-3<br>2344657-4<br>2344657-9 | Dipole | 2400-2500 MHz<br>4900-5875 MHz | 1.1dBi<br>4.9dBi | 50Ω<br>50Ω |

f) CAUTION:

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

- To maintain compliance with FCC's RF exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

g) Please label the FCC ID at any location on the exterior of your product. Please indicate the FCC ID by either one of the following methods:
-Contains Transmitter Module FCC ID: 2A6NFWKI611
-Contains FCC ID: 2A6NFWKI611

h) This device complies with the following FCC Rules:
Part 15 Subpart C
Part 15 Subpart E

i) This modular transmitter is only FCC authorized for the specific rule parts listed on our grant, 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 in any case shall ensure host product which is installed and operating with the module is in compliant with Part 15B requirements. Please note that for a Class B or A digital devices or peripheral, the instructions furnished the user manual of the end-user product shall include statement set out in §15.105 Information to the user or such similar statement and place it in a prominent location in the text of host product manual. Original texts as following:

<For Class B>
NOTE: 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.

<For Class A>

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

j) Co-location of this module with other transmitters that operate simultaneously are required to be evaluated using the FCC multi-transmitter procedures. When installing this module to your final devices, please make sure to carry out all the necessary evaluations according to the applicable guidelines like follows:

-for RF exposure: KDB 447498, KDB 996369 and any other relevant guidelines

-for EMC: KDB 996369 D04 and any other relevant guidelines

## 9. Bluetooth Qualification

Please perform Bluetooth Qualification for this product using the Design Number and Product Type.

| Product Type | DN |
|---|---|
| Core-Controller Configuration | Q370912 |