

6. Appendix A: Regulatory Approval

The PIC32WM-BW1 Module has received regulatory approval for the following countries:

- Bluetooth Special Interest Group (SIG) QDID: D056857
- United States/FCC ID: 2ADHKBW1002
- Canada/ISED:
 - IC: 20266-BW1002
 - HVIN: PIC32WM-BW1002UC, PIC32WM-BW1002UE
 - PMN: PIC32WM-BW1 Wi-Fi® and Bluetooth® Low Energy Combo MCU Module
- Europe/CE

6.1. United States

The PIC32WM-BW1002UC and PIC32WM-BW1002UE modules have received Federal Communications Commission (FCC) CFR47 Telecommunications, Part 15

Subpart C “Intentional Radiators” single-modular approval in accordance with Part 15.212 Modular Transmitter approval. Single-modular transmitter approval is defined as a complete RF transmission sub-assembly, designed to be incorporated into another device, that must demonstrate compliance with FCC rules and policies independent of any host. A transmitter with a modular grant can be installed in different end-use products (referred to as a host, host product or host device) by the grantee or other equipment manufacturer, then the host product may not require additional testing or equipment authorization for the transmitter function provided by that specific module or limited module device.

The user must comply with all of the instructions provided by the Grantee, which indicate installation and/or operating conditions necessary for compliance. Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

A host product itself is required to comply with all other applicable FCC equipment authorization regulations, requirements, and equipment functions that are not associated with the transmitter module portion. For example, compliance must be demonstrated: to regulations for other transmitter components within a host product; to requirements for unintentional radiators (Part 15 Subpart B), such as digital devices, computer peripherals, radio receivers, etc.; and to additional authorization requirements for the non-transmitter functions on the transmitter module (i.e., Suppliers Declaration of Conformity (SDoC) or certification) as appropriate (e.g., Bluetooth and Wi-Fi transmitter modules may also contain digital logic functions).

6.1.1. Labeling and User Information Requirements

The PIC32WM-BW1002UC and PIC32WM-BW1002UE modules have been labeled with its own FCC ID number, and if the FCC ID is not visible when the module is installed inside another device, then the outside of the finished product into which the module is installed must display a label referring to the enclosed module. This exterior label must use the following wording:

Contains Transmitter Module FCC ID: 2ADHKBW1002

or

Contains FCC ID: 2ADHKBW1002

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.

The user's manual for the finished product must include the following 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

Additional information on labeling and user information requirements for Part 15 devices can be found in KDB Publication 784748, which is available at the FCC Office of Engineering and Technology (OET) Laboratory Division Knowledge Database (KDB) apps.fcc.gov/oetcf/kdb/index.cfm.

6.1.2. RF Exposure

All transmitters regulated by FCC must comply with RF exposure requirements. KDB 447498 General RF Exposure Guidance provides guidance in determining whether proposed or existing transmitting facilities, operations or devices comply with limits for human exposure to Radio Frequency (RF) fields adopted by the Federal Communications Commission (FCC).

From the FCC Grant: Output power listed is conducted. This grant is valid only when the module is sold to OEM integrators and must be installed by the OEM or OEM integrators. This transmitter is restricted for use with the specific antenna(s) tested in this application for Certification and must not be co-located or operating in conjunction with any other antenna or transmitters within a host device, except in accordance with FCC multi-transmitter product procedures.

PIC32WM-BW1002UC/UE: These modules are approved for installation into mobile or/and 20cm host platforms.

6.1.3. Helpful Web Sites

- Federal Communications Commission (FCC): www.fcc.gov.
- FCC Office of Engineering and Technology (OET) Laboratory Division Knowledge Database (KDB) apps.fcc.gov/oetcf/kdb/index.cfm.

6.2. Canada

The PIC32WM-BW1002UC/UE module has been certified for use in Canada under Innovation, Science and Economic Development Canada (ISED, formerly Industry Canada) Radio Standards Procedure (RSP) RSP-100, Radio Standards Specification (RSS) RSS-Gen and RSS-247. Modular approval permits the installation of a module in a mobile host device without the need to recertify the device.

6.2.1. Labeling and User Information Requirements

Labeling Requirements (from RSP-100 - Issue 12, Section 5): The host product shall be properly labeled to identify the module within the host device.

The PIC32WM-BW1002UC/UE module must be labeled to display the Innovation, Science and Economic Development Canada certification number of the module, preceded by the word "Contains" or similar wording expressing the same meaning, as follows:

Contains IC: 20266-BW1002

User Manual Notice for License-Exempt Radio Apparatus (from Section 8.4 RSS-Gen, Issue 5, February 2021): User manuals for license-exempt radio apparatus shall contain the following or equivalent notice in a conspicuous location in the user manual or alternatively on the device or both:

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 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'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Transmitter Antenna (From Section 6.8 RSS-GEN, Issue 5, February 2021): User manuals, for transmitters shall display the following notice in a conspicuous location:

This radio transmitter [IC: 20266-BW1002] 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 [IC: 20266-BW1002] 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.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types approved for use with the transmitter, indicating the maximum permissible antenna gain (in dBi) and required impedance for each.

6.2.2. RF Exposure

All transmitters regulated by Innovation, Science and Economic Development Canada (ISED) must comply with RF exposure requirements listed in RSS-102 - Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands).

This transmitter is restricted for use with a specific antenna tested in this application for certification, and must not be co-located or operating in conjunction with any other antenna or transmitters within a host device, except in accordance with Canada multi-transmitter product procedures.

PIC32WM-BW1002UC/UE: The device operates at an output power level which is within the ISED SAR test exemption limits at 20cm.

Exposition aux RF

Tous les émetteurs réglementés par Innovation, Sciences et Développement économique Canada (ISDE) doivent se conformer à l'exposition aux RF. exigences énumérées dans RSS-102 - Conformité à l'exposition aux radiofréquences (RF) des appareils de radiocommunication (toutes les bandes de fréquences).

Cet émetteur est limité à une utilisation avec une antenne spécifique testée dans cette application pour la certification, et ne doit pas être colocalisé ou fonctionner conjointement avec une autre antenne ou émetteur au sein d'un appareil hôte, sauf conformément avec les procédures canadiennes relatives aux produits multi-transmetteurs.

Les appareils fonctionnent à un niveau de puissance de sortie qui se situe dans les limites du DAS ISED. tester les limites d'exemption à toute distance d'utilisateur supérieure à 20 cm.

6.2.3. Helpful Web Sites

Innovation, Science and Economic Development Canada (ISED): www.ic.gc.ca/.

6.3. Europe

The PIC32WM-BW1002UC/UE module is a Radio Equipment Directive (RED) assessed radio module that is CE marked and has been manufactured and tested with the intention of being integrated into a final product.

The PIC32WM-BW1002UC/UE module has been tested to RED 2014/53/EU Essential Requirements mentioned in the following European Compliance table.

Certification	Standard	Article
Safety	EN 62368	3.1a
Health	EN 62311	
EMC	EN 301 489-1	3.1b
	EN 301 489-17	
Radio	EN 300 328	3.2

The ETSI provides guidance on modular devices in the "Guide to the application of harmonised standards covering articles 3.1b and 3.2 of the RED 2014/53/EU (RED) to multi-radio and combined radio and non-radio equipment" document available at http://www.etsi.org/deliver/etsi_eg/203300_203399/203367/01.01.01_eg_203367v010101p.pdf.

Note: To maintain conformance to the standards listed in the preceding European Compliance table, the module shall be installed in accordance with the installation instructions in this data sheet and shall not be modified. When integrating a radio module into a completed product, the integrator becomes the manufacturer of the final product and is therefore responsible for demonstrating compliance of the final product with the essential requirements against the RED.

6.3.1. Labeling and User Information Requirements

The label on the final product that contains the PIC32WM-BW1002UC/UE module must follow CE marking requirements

6.3.2 Conformity Assessment

From ETSI Guidance Note EG 203367, section 6.1, when non-radio products are combined with a radio product:

If the manufacturer of the combined equipment installs the radio product in a host non-radio product in equivalent assessment conditions (i.e. host equivalent to the one used for the assessment of the radio product) and according to the installation instructions for the radio product, then no additional assessment of the combined equipment against article 3.2 of the RED is required.

6.3.2.1. Simplified EU Declaration of Conformity

Hereby, Microchip Technology Inc. declares that the radio equipment type PIC32WM-BW1002UC/UE module is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity, for this product, is available at www.microchip.com/design-centers/wireless-connectivity/

6.3.3 Helpful Websites

A document that can be used as a starting point in understanding the use of Short Range Devices (SRD) in Europe is the European Radio Communications Committee (ERC) Recommendation 70-03 E, which can be downloaded from the European Communications Committee (ECC) at docdb.cept.org/.

Additional helpful web sites are:

- Radio Equipment Directive (2014/53/EU):
https://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/red_en
- European Conference of Postal and Telecommunications Administrations (CEPT):
<http://www.cept.org>
- European Telecommunications Standards Institute (ETSI):
<http://www.etsi.org>
- The Radio Equipment Directive Compliance Association (REDCA):
<http://www.redca.eu/>

6.4. List of certified antennae

Sl.No	Part Number	Vendor	Gain	Antenna type
1	ANT-2.4-LPW-125	Linx Technologies	2.8	Dipole
2	RFA-02-L2H1	Aristotle	2	Dipole
3	RFA-02-C2H1-D034	Aristotle	2	Dipole
4	RFA-02-D3	Aristotle	2	Dipole
5	RFDPA870910IMAB308	Walsin	2.04	Dipole
6	W1049B030	Pulse	2.85	Dipole
7	RFDPA870920IMLB301	Walsin	1.84	Dipole
8	RFDPA870920IMAB302	Walsin	1.82	Dipole
9	RFDPA870920IMAB305	Walsin	1.82	Dipole
10	RFDPA870915IMAB306	Walsin	1.82	Dipole
11	YF0026AA	Quectel	2.1	FPCB
12	FXP70.07.0053A	TAOGLAS	1.1	FPCB
13	RFA-02-P05-D034	Aristotle	2	PCB
14	RFA-02-P33-D034	Aristotle	2	PCB

Note: all the dipole antennae in the above list have similar cutoff frequency.