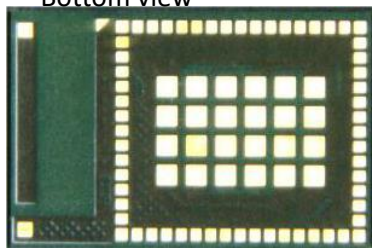


Bluetooth® Low Energy 5.0 and 802.15.4 module

Top view



Bottom view



These pictures are not contractual

Features

- Module name : BLE SiP Dory
- Brand : STMicroelectronics
- Model name : STM32WB5M
- Integrated chip antenna
- Bluetooth® Low Energy 5.0, ZigBee® 3.0, OpenThread certified
- IEEE 802.15.4-2011 MAC PHY
- Supports 2 Mbits/s
- TX output power up to +6 dBm with 1 dB steps
- RX sensitivity: -96 dBm (Bluetooth® Low Energy at 1 Mbps), -100 dBm (802.15.4)
- Dedicated Arm® Cortex®-M0+ for radio and security tasks
- Dedicated Arm® Cortex®-M4 CPU with FPU and ART (adaptive real-time accelerator) up to 64 MHz speed
- 1-Mbyte Flash, 256-Kbyte SRAM
- Embedded 32 MHz radio and 32 kHz RTC crystals
- Integrated IPD for best-in-class and reliable antenna matching
- 1.8 V to 3.6 V VDD range
- -40 °C to 85 °C temperature range
- Built-in security feature as secure firmware installation (SFI) for radio stack, customer key storage/key management services, PKA, AES 256-bit, TRNG, PCROP, CRC, 96-bit UID, possibility to derive 802.15.4 and Bluetooth® Low Energy 48-bit UEI
- Certifications: CE, FCC, IC, JRF, SRRC, RoHS, REACH, GOST, KC, NCC
- Two layers PCB compatible (using external raw pins only)

Application

- Lighting and home automation
- Wireless audio devices
- Wellness, healthcare, personal trackers
- Gaming and toys
- Smart locks
- Beacons and accessories
- Industrial

Description

The STM32WB5MMG is an ultra-low-power and small form factor certified wireless module. It supports Bluetooth® Low Energy 5.0, ZigBee® 3.0, OpenThread and 802.15.4 proprietary protocols. Based on STMicroelectronics STM32WB55VG wireless SOC, the STM32WB5MMG provides best-in-class RF performance thanks to its good receiver sensitivity and a high output power signal. Its low-power features enable extended battery life time, small coin-cell batteries or energy harvesting.

The STM32WB5MMG requires no RF expertise and is the best way to speed-up any development and to reduce associated costs. The module is completely protocol stack royalty-free.

Product summary	
Order code	STM32WB5MMG
Temperature range	-40 °C to 85 °C
Package	10x10 LGA 86L
Package dimensions (mm)	7.3 x 11 x 1.342 x 0.435 pitch
Packaging	Tape and reel



FCC Statement:

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.

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.

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

Label requirements

If the 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, **Contains**

FCC ID: YCP-STM32WB5M001, Contain IC: 8976A-STM32WB5M01. HVIN: STM32WB5M01 (XXXX should be corrected in accordance with current module ID)

Other

Co-location of this module with other transmitters that operate simultaneously are required to be evaluated using the multi-transmitter procedures.

The host integrator must follow the integration instructions provided in this document and ensure that the composite-system end product complies with the requirements by a technical assessment or evaluation to the rules and to KDB Publication 996369.

The host integrator installing this module into their product must ensure that the final composite product complies with the requirements by a technical assessment or evaluation to the rules, including the transmitter operation and should refer to guidance in KDB 996369.

RF Exposure statement

The module antenna must be installed to meet the RF exposure compliance separation distance of "20 cm" and any additional testing and authorization process as required

For Canada, the "compliance statement and unlicensed device usage conditions" which must be shown in the user manual has changed.

It should now read like this:

This device contains licence-exempt transmitter(s) that comply with Innovation, Science and Economic Development Canada's licence-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 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.

**NCC Statement :**

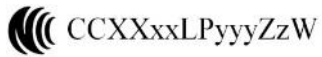
低功率電波輻射性電機管理辦法

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

此模組於取得認證後將依規定於模組本體標示審驗合格標籤，並要求平台廠商於平台上標示本產品內含發射器模組

**JRF Label :**