

EH-MC26 and EH-MC26B Module Portfolio

High Performance Bluetooth Low Energy Wireless Module

OVERVIEW

The EH-MC26 and EH-MC26B is a Bluetooth 5.3 Low Energy and 2.4GHz proprietary multi-application module that merges the exceptional performance of a leading RF transceiver with a low-power ARM Cortex-M4 64MHz processor, power management unit, ADC, and intelligent I/O distribution controller. Notably, the EH-MC26 and EH-MC26B module showcases outstanding ultra-low power performance, with broadcast power consumption as low as 9uA at a 1-second interval, and connection power consumption as low as 7uA at a 1-second interval.

The chip integrates a high-performance MCU with speeds of up to 64MHz, along with DMA, GPIO, SPI, UART, Timer, and Watchdog functionalities. It also supports a 32MHz external crystal and integrates a multi-purpose 12-bit ADC with a maximum of 12 channels. Additionally, the EH-MC26 incorporates on-chip 80K SRAM and a 256-bit EFUSE, and it supports user-defined IDE system-on-chip development with SFLASH MCU and JTAG software upgrade capabilities.

EH-MC26 operates in host less mode, capable of running both the Bluetooth stack and applications without an external MCU. It can also be used as a BLE transceiver in hosted (HCI) mode via UART interface (AT command) with an external host running Bluetooth stacks and applications. It has undergone rigorous regulatory compliance testing and is certified with FCC, CE, IC, SRRC and environmentally compliant with RoHS and WEEE directives.

Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01
List of applicable FCC rules:

FCC Part 15 Subpart C 15.247 & 15.207 & 15.209

Specific operational use conditions:

The module is a Bluetooth module with BLE function. Operation Frequency: 2402-2480MHz

Number of Channel: 40 Modulation: GFSK

Type: EH-MC26 PCB Antenna(2.5dBi); EH-MC26B External Antenna (3.0dBi)

The module can be used for mobile or portable applications with a maximum 3.0dBi antenna. The host manufacturer installing this module into their product must ensure that the final composit product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules, including the transmitter operation. The host manufacturer has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

Limited module procedures

Not applicable. The module is a Single module and complies with the requirement of FCC Part 15.212.

Trace antenna designs

Not applicable. The module has its own antenna, and doesn't need a host's printed board microstrip trace antenna etc.

RF exposure considerations

The module must be installed in the host equipment such that at least 20cm is maintained between the antenna and users' body; and if RF exposure statement or module layout is changed, then the host product manufacturer required to take responsibility of the module through a change in FCC ID or new application. The FCC ID of the module cannot be used on the final product. In these circumstances, the host manufacturer will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Antennas

Antenna Specification are as follows: Type: EH-MC26 (PCB Antenna); EH-MC26B (External Antenna)
Gain: EH-MC26 (2.5dBi); EH-MC26B (3.0dBi)

This device is intended only for host manufacturers under the following conditions: The transmitter module may not be co-located with any other transmitter or antenna;

The module shall be only used with the internal antenna(s) that has been originally tested and certified with this module. The antenna must be either permanently attached or employ a 'unique' antenna coupler.

As long as the conditions above are met, further transmitter test will not be required. However, the host manufacturer is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.)

Label and compliance information

Host product manufacturers need to provide a physical or e-label stating "Contains FCC ID: 2ACCRMC26" with their finished product.

Information on test modes and additional testing requirements

Operation Frequency: 2402-2480MHz Number of Channel: 40

Modulation: GFSK

Host manufacturer must perform test of radiated & conducted emission and spurious emission, etc according to the actual test modes for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product.

Only when all the test results of test modes comply with FCC requirements, then the end product can be sold legally.

Additional testing, Part 15 Subpart B disclaimer

The modular transmitter is only FCC authorized for FCC Part 15 Subpart C 15.247 & 15.207 & 15.209 and that 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 circuitry), 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.

Federal Communication Commission Statement (FCC, U.S.)

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 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 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.

FCC Caution:

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

IMPORTANT NOTES

Co-location warning:

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

OEM integration instructions:

This device is intended only for OEM integrators under the following conditions:

The transmitter module may not be co-located with any other transmitter or antenna. The module shall be only used with the external antenna(s) that has been originally tested and certified with this module.

As long as the conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

Validity of using the module certification:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End product labeling:

The final end product must be labeled in a visible area with the following: "Contains Transmitter Module FCC ID: 2ACCRMC26".

Information that must be placed in the end user manual:

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

ISED Statement

English: This device complies with Industry Canada license - exempt RSS standard(s). 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. The digital apparatus complies with Canadian CAN ICES - 3 (B)/NMB - 3(B).

French: 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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device. Le présent émetteur radio a été approuvé par Industrie 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, sont strictement interdits pour l'exploitation de l'émetteur.

Radiation Exposure Statement

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Déclaration d'exposition aux radiations

Cet équipement est conforme aux limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à une distance minimum de 20cm entre le radiateur et votre corps.

This device is intended only for OEM integrators under the following condition:

The transmitter module may not be co-located with any other transmitter or antenna.

As long as the condition above is met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes: Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.

Tant que les 1 condition ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

Important Note:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the IC cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.

Note Importante:

Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisations avec un autre émetteur), l'autorisation du Canada n'est plus considérée comme valide et l'IC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

End Product Labeling

The final end product must be labeled in a visible area with the following: Contains IC: 20625-MC26.

Plaque signalétique du produit final

Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: Contient des IC: 20625-MC26

HVIN:EH-MC26,EH-MC26B

EH-MC26 (PCB Antenna); EH-MC26B (External Antenna)

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

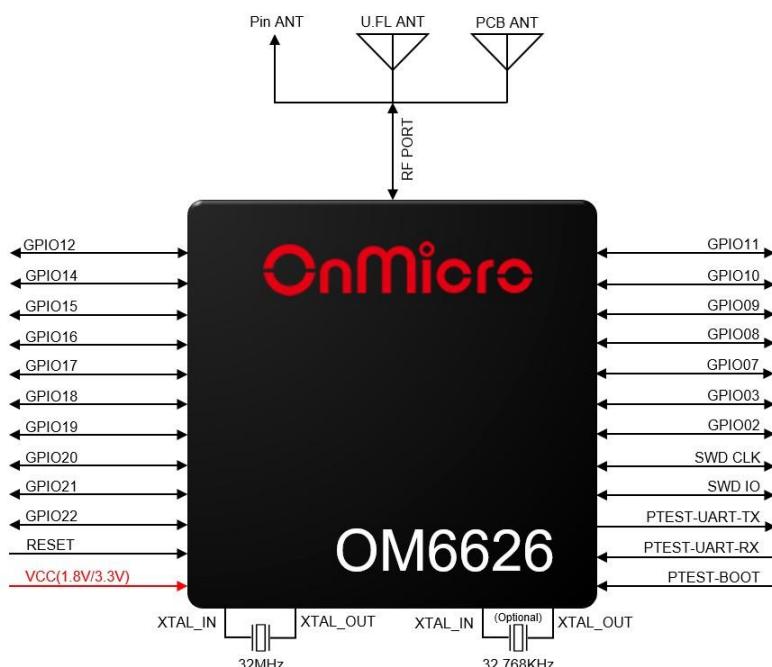
Manuel d'information à l'utilisateur final

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.

Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.

This radio transmitter ISED Number: 20625-MC26 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.

BLOCK DIAGRAM



EH-MC26, EH-MC26B Module Portfolio

SPECIFICATION

ITEM	SPECIFICATION	
Microcontroller	<p>ARM Cortex-M4 CPU (Maximum 64MHz)</p> <ul style="list-style-type: none">• EFUSE:256-bit• SRAM:80kB• Serial Flash:1MB• I-Cache RAM:8KB	
Standards	<ul style="list-style-type: none">• Low Energy (BLE) compliant to Bluetooth SIG v5.3• 2.4G proprietary features	
BLE Radio	<p>Tx Power</p> <ul style="list-style-type: none">• -30dBm to +10dBm <p>Rx Sensitivity</p> <ul style="list-style-type: none">• 2Mbps:-96dbm• 1Mbps:-99dBm	<p>Active Tx Power</p> <ul style="list-style-type: none">• RX mode: 3.0mA• Active TX mode:3.5mA@-20dBm• Active TX mode:4.0mA@0dBm• Active TX mode:4.5mA@4dBm• Active TX mode:6.8mA@7.5dBm• Advertising: 9uA (adv_interval:1s, payload: 23Bytes,0dBm)
Power Consumption	Deep LPS: 1.0uA (with 16K RAM retention, 32KHz RC)	
Peripherals	<p>20 x GPIO(mux'ed)</p> <p>2 x SPI(master or slave)</p> <p>1 x I2C(master)</p> <p>1 x I2S/PCM</p> <p>2 x UART</p>	<p>8 x Timers</p> <p>8 x PWM</p> <p>1 x Watchdog Timer</p>
Voltage	Input voltage: 1.71V~3.6V, 3.3V (typical)	
Environmental	<p>Temperature:</p> <ul style="list-style-type: none">• Operating: -40°C ~ 85°C• Storage: -55°C ~ 150°C	<p>Humidity</p> <ul style="list-style-type: none">• Relative: < 90% Non-condensing• Storage: < 90% Non-condensing
Physical	<p>Dimension: 17.7 x 11.95 x 1.8 mm</p> <p>PCB Antenna (EH-MC26); External Antenna (EH-MC26B)</p>	<p>Pin: 29-pin stamp</p> <p>Weight: 0.85g</p>
Certification	BQB, FCC, CE, IC, SRRC, RoHS	



ABOUT EHONG: Founded in 2014, Ehong is focusing on design, manufacturing, marketing and support of wireless connectivity modules. All Ehong wireless module products have fully certified with all regulatory compliance such as FCC, IC, CE, UKCA, SRRC, MIC, KCC, etc. please visit our website at www.ehonglink.com.

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