

# User manual for MDBT42Q-VE

Since this module is not sold to general end users directly, there is no user manual of module.

For the details about this module, please refer to the specification sheet of module.

This module should be installed in the host device according to the interface specification.  
(installation procedure)

The following information must be indicated on the host device of this module;

**[for FCC]**

**Contains Transmitter Module FCC ID: 2A2XGMDBT42Q-VE**

or

**Contains FCC ID: 2A2XGMDBT42Q-VE**

**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.**

**[for IC]**

**Contains IC: 27461- MDBT42QVE**

## Specificaiton:

	Min.	Max.	Unit
<b>Supply voltages</b>			
VDD	-0.3	+3.9	V
VSS	0		V
<b>I/O pin voltage</b>			
$V_{I/O}$ , VDD $\leq$ 3.6 V	-0.3	VDD + 0.3 V	V
$V_{I/O}$ , VDD $>$ 3.6 V	-0.3	3.9 V	V
<b>NFC antenna pin current</b>			
$I_{NFC1/2}$	80		mA
<b>Radio</b>			
RF input level	10		dBm
<b>Environmental QFN48, 6x6 mm package</b>			
Storage temperature	-40	+125	°C
MSL (moisture sensitivity level)	2		
ESD HBM (human body model)	4		kV
ESD CDM (charged device model)	1000		V
<b>Flash memory</b>			
Endurance	10 000		Write/erase cycles
Retention	10 years at 40°C		

## Operation Conditions:

Symbol	Parameter	Min.	Nom.	Max.	Units
VDD	Supply voltage, independent of DCDC enable	1.7	3.0	3.6	V
$t_{R\_VDD}$	Supply rise time (0 V to 1.7 V)			60	ms
TA	Operating temperature	-40	25	85	°C

**Important:** The on-chip power-on set circuitry may not function properly for rise times longer than the specified maximum.

The following statements must be described on the user manual of the host device of this module;

**[for FCC]**

**FCC CAUTION**

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

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

**This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This equipment has very low levels of RF energy that is deemed to comply without maximum permissive exposure evaluation (MPE).**

**[for IC]**

**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.**

**This radio transmitter (IC:27461- MDBT42QVE) has been approved by Industry Canada to operate with the antenna types listed below 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.**

**Antenna type: PCB Gain: -5.36597 dBi**

**Cet émetteur radio (IC:27461- MDBT42QVE) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous avec le gain maximal autorisé indiqué. Les types d'antennes non inclus dans cette liste, ayant un gain supérieur au gain maximum indiqué pour ce type, sont strictement interdits d'utilisation avec cet appareil.**

**Type d'antenne: PCB Gain d'antenne: -5.36597 dBi**

**The radiated output power of the Wireless Device is below the Innovation, Science and Economic Development Canada radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.**

**This device has also been evaluated and shown compliant with the IC RF Exposure limits under portable exposure conditions. (antennas are less than 20 cm of a person's body).**

**La puissance de sortie émise par l'appareil de sans fil est inférieure à la limite d'exposition aux fréquences radio d'Innovation, Sciences et Développement économique Canada. Utilisez l'appareil de sans fil de façon à minimiser les contacts humains lors du fonctionnement normal.**

**Ce périphérique a également été évalué et démontré conforme aux limites d'exposition aux RF d'IC dans des conditions d'exposition à des appareils portables. (les antennes sont moins de 20 cm du corps d'une personne).**

## FCC warning statement

### FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE 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.

#### CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

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.

#### RF exposure warning

The modular complies with FCC RF exposure limits set forth for an uncontrolled environment. The equipment must not be co-located or operating in conjunction with any other antenna or transmitter.

#### End Product Labeling

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: 2A2XGMDBT42Q-VE" and "Contains IC: 27461- MDBT42QVE "

#### Information for the OEMs and Integrators

The following statement must be included with all versions of this document supplied to an OEM or integrator, but should not be distributed to the end user.

- 1) This device is intended for OEM integrators only.
- 2) Please see the full Grant of Equipment document for other restrictions.

## ISED warning statement

### Canada, Innovation, Science and Economic Development Canada (ISED) Notices

This device contains licence-exempt transmitter(s)/receiver(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.

### Avis du Canada, Innovation, Sciences et Développement économique Canada (ISED)

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.

### Radio Frequency (RF) Exposure Information

The radiated output power of the Wireless Device is below the Innovation, Science and Economic Development Canada radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

This device has also been evaluated and shown compliant with the IC RF Exposure limits under portable exposure conditions. (antennas are less than 20 cm of a person's body).

### Informations concernant l'exposition aux fréquences radio (RF)

La puissance de sortie émise par l'appareil de sans fil est inférieure à la limite d'exposition aux fréquences radio d'Innovation, Sciences et Développement économique Canada. Utilisez l'appareil de sans fil de façon à minimiser les contacts humains lors du fonctionnement normal.

Ce périphérique a également été évalué et démontré conforme aux limites d'exposition aux RF d'IC dans des conditions d'exposition à des appareils portables. (les antennes sont moins de 20 cm du corps d'une personne).

### KDB996369 D03 Requirements

#### 2.2 List of applicable FCC rules

This module meets all the requirements of FCC part 15.247

#### 2.3 Summarize the specific operational use conditions

This module is a Bluetooth Module with built-in Bluetooth V4.2 transceiver.

Operation frequency: 2402-2480MHz

The Module Antenna type is PCB antenna with a maximum gain of -5.36597dBi.

#### 2.4 Limited module procedures

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

#### 2.5 Trace antenna designs

No, this module is without trace antenna designs, the module use fixed-length PCB antenna.

#### 2.6 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.

#### 2.7 Antennas

The Module antenna specification is as follows:

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Raytac	MDBT42Q-VE	PCB Antenna	-5.36597dBi for 2.4 GHz

## **2.8 Label and compliance information**

The final end product must be labeled in a visible area with the following: "Contains FCC ID: 2A2XGMDBT42Q-VE".

## **2.9 Information on test modes and additional testing requirements**

The Host manufacturer must perform a 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.

## **2.10 Additional testing, Part 15 Subpart B disclaimer**

The modular transmitter is only FCC authorized for FCC Part 15 Subpart C 15.247 & 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.