

# RFID Module User manual

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## 1. Basic information

This RFID module utilizes near field communication technology. It operates at 13.56 MHz. It is based on the ST ST25R3911B chipset. The RFID module is powered and controlled by a connector from the host system.

## 2. Operation instructions

When a specific RFID card bound to the device approaches a specific area of the device, the charging device will automatically start or end the charging process; This RFID card is bound to the charging device and the antenna for this module is fixed and cannot be modified.

## 3. Integration Instructions

### 3.1 General

Host product manufacturers must follow 3.2 to 3.12 when integrating modules into host products.

### 3.2 List of applicable FCC rules

The module complies with FCC Part 15.225 and Canada RSS-210. It is applicable to the modular transmitter.

### 3.3 Summarize the specific operational use conditions

This Device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter. The host product manufacturer should state this information to the host instruction manual.

This device has been approved as mobile device in accordance with FCC and ISED Canada RF exposure requirements. This means that a restricted minimum separation distance of 20cm between the antenna and any person.

A change in use that involves a separation distance  $\leq$ 20cm (Portable usage) between the Module's antenna and any persons is a change in the RF exposure of the module and, hence, is subject to a FCC Class 2 Permissive Change and a ISED Canada Class 4 Permissive Change policy in accordance with FCC KDB 996396 D01 and ISED Canada RSP-100.

This module is stand-alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system. the module could be subject to a FCC Class 2 Permissive Change and a ISED Canada Class 4 Permissive Change policy in accordance with FCC KDB 996396 D01 and ISED Canada RSP-100.

### 3.4 Limited module procedures

Not applicable.

### 3.5 Trace antenna designs

Not applicable.

### 3.6 RF exposure consideration

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This compliance to FCC radiation exposure limits for an uncontrolled environment, and minimum of 20cm separation between antenna and body.

The host product shall show the same or similar statement to the end users in the end-product manuals.

If the module is installed to a host / end product with a used distance <20cm, additional SAR evaluation or measurement must be followed according to FCC KDB 447498 and RSS-102.

If the module is installed to a host / end product with multiple transmitters, additional RF exposure evaluation must be performed for the simultaneous transmission condition per FCC KDB 447498 and RSS-102. A Formula is also showed below:

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1$$

The procedure rules are provided in 3.3 in this document. As the module manufacturer is still taking responsibility for the compliance of this module, if you have any changes mentioned above, you must advise and get the help from us with the contact information as shown below 3.12.

### 3.7 Antennas

Antenna plate	PCB
Model Name	13.56MHz ANT
Polarization	Vertical
Azimuth Beam Pattern	Omni-directional
Antenna Length	40*70mm

### 3.8 Label and compliance information

Please notice that 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. That displays the contents shown in below:

Contains FCC ID: 2BMFT-RFIDC20

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.

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

Additional testing requirements should be taking into account for different operating conditions for the transmitter function.

If this module is operated as a stand-alone modular in a host:

- ❖ Radiated spurious emission per FCC Part 15.225 and RSS-210.
- ❖ The host should be operated in all its normal mode with the modular transmitter active.
- ❖ Please follow 3.11 in this document to obtain a best radio engineer design.

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

#### **Statement:**

The module complies with and authorized for transmitter rule: FCC Part 15.225 and Canada RSS-210. However, the host may also contain other unintentional-radiator digital functions / circuits. This digital functions / circuits are required additional FCC / ISED rules: FCC part 15B and relevant ICES standard, which are not covered by the modular certification. The host manufacturer is responsible for compliance to this additional FCC / ISED rules. And the host manufacturer should state the FCC / ISED SDOC compliance information.

### **3.11 Note EMI Considerations**

#### **EMI consideration for transmitting simultaneously:**

This module is stand-alone modular. If the end product has multiple certified modules integrated in a host and transmitting simultaneously: When after radiated emission testing, if there are no additional emissions generated due to simultaneous-transmission operations compared to single transmitter operations testing, it is not necessary to file the additional simultaneous transmission test data. FCC class II permissive changes is no necessary.

However, RF exposure for transmitting simultaneously also needed, please refer to 3.6 in this document.

#### **To obtain better engineer design while installing this module:**

It is recommended to place the module as close as possible to the edge of the baseplate. If conditions permit, make the antenna feed point closest to the edge of the baseplate. Please ensure that the module is not covered by any metal shell. Do not lay copper, wire, or place components in the antenna area of the module PCB.

### **3.12 How to make changes**

Only the module grantee is permitted to make permissive changes. If the host integrator is expected to install the module in a way different from this manual or want to change the module, please contact:

Company: PointGuard Energy Inc.

Address: 2377 Gold Meadow Way, Gold River, California, United States

Telephone No: 4086475785

Email: lvbinbin@sigenergy.com

#### 4. FCC statements

##### 4.1 FCC statements:

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.

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.

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

This equipment complies with FCC's and IC's RF radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must be installed and operated to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter. Installers must ensure that 20cm separation distance will be maintained between the device and users.

##### 4.2 ISED statements:

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.

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.

This equipment complies with IC's RF radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must be installed and operated to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter. Installers must ensure that 20cm separation distance will be maintained between the device and users.

L'appareil est conforme aux limites d'exposition aux rayonnements RF spécifiées par IC pour les environnements non contrôlés. L'antenne utilisée pour cet émetteur doit être installée et exploitée de manière à assurer une distance d'isolement d'au moins 20 cm de toute personne et ne doit pas être juxtaposée ou fonctionner en synergie avec une autre antenne ou un autre émetteur.

L'installateur doit s'assurer qu'un espacement de 20 cm est maintenu entre l'appareil et l'utilisateur.