



## EGNR V2 USER GUIDE

VERSION 1.0

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## 1. INTRODUCTION

The EGNR V2 an FCC part 15.247compliant device that enables communication to the Shoof Technologies data network. The EGNR module communicates using the 2.4GHz ISM band.



Figure 1 – EGNR module



## 2. ANTENNA CONNECTIONS

EGNR V2 has two antenna connections:

1. Main antenna – MMCX connector
2. Diversity Antenna – MMCX connector

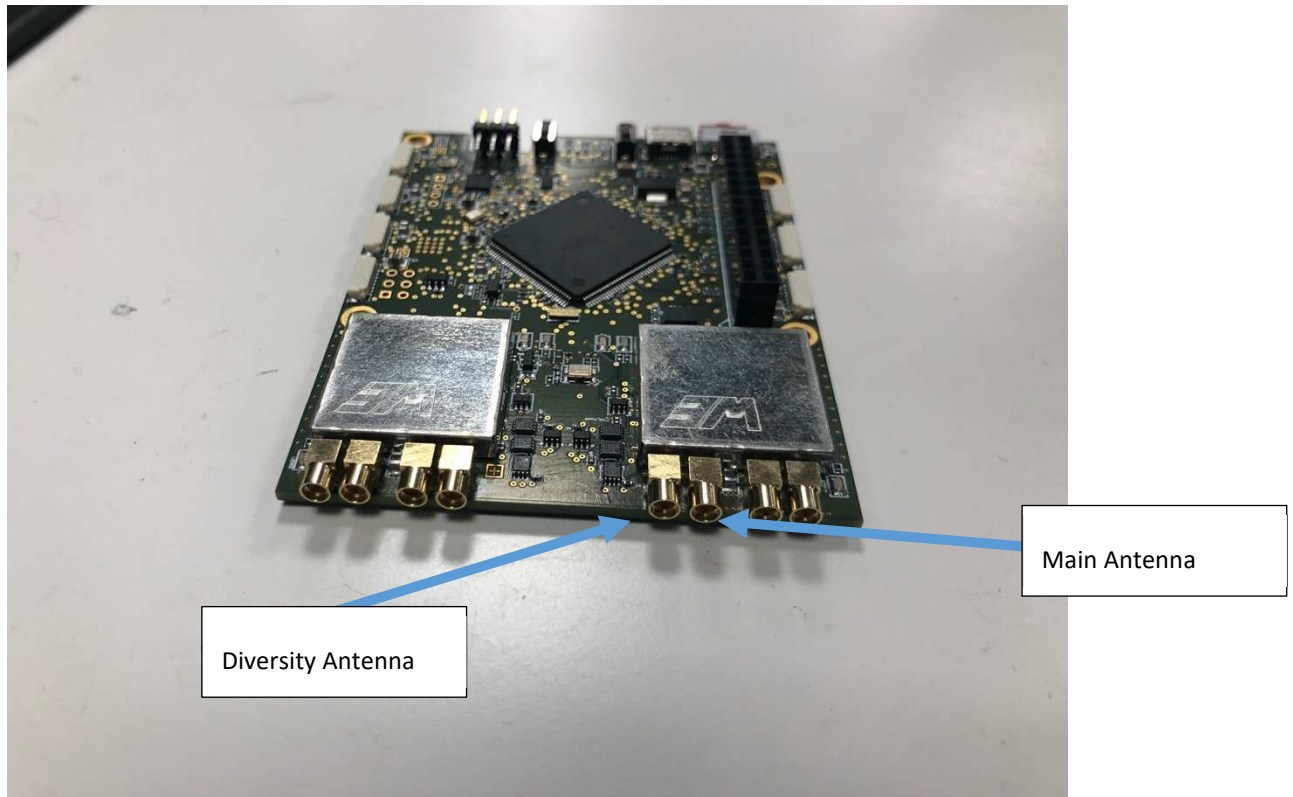


Figure 2 – Antenna connector positions



| Port              | Connector Type | Antenna type | Maximum gain |
|-------------------|----------------|--------------|--------------|
| Main Antenna      | MMCX           | Omni         | 4dBi         |
| Diversity antenna | MMCX           | Patch        | 8dBi         |

Table 1 - External Antennas



### 3. POWER CONNECTION

Power connection can be applied to the EGNR V2 via the USB connector. Standard USB wiring and voltage apply. Power port is identified in following figure:

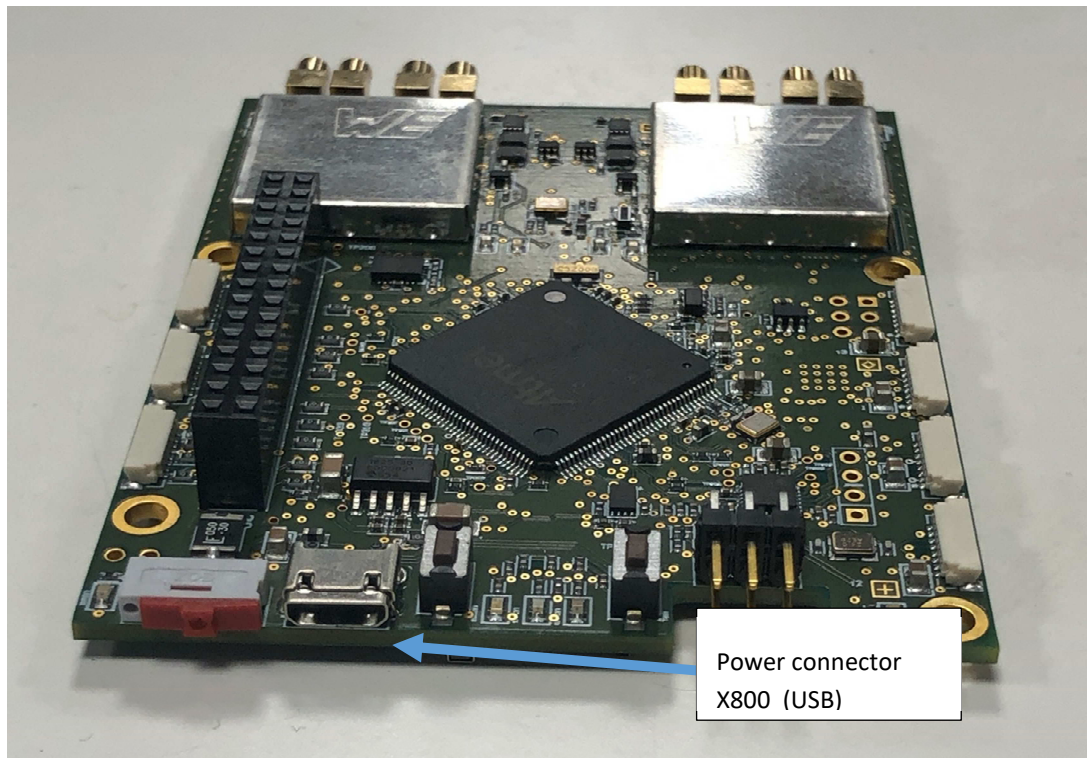


Figure 3 - power connector

#### VOLTAGE LIMITATION:

| Function             | Maximum | Typ (Recommended) | Minimum |
|----------------------|---------|-------------------|---------|
| Supply voltage @ USB | 5.2V    | 5V                | 4.8V    |



#### 4. LABELING

Below is an example of the FCC ID label that can be found in the location indicated in Figure 5.

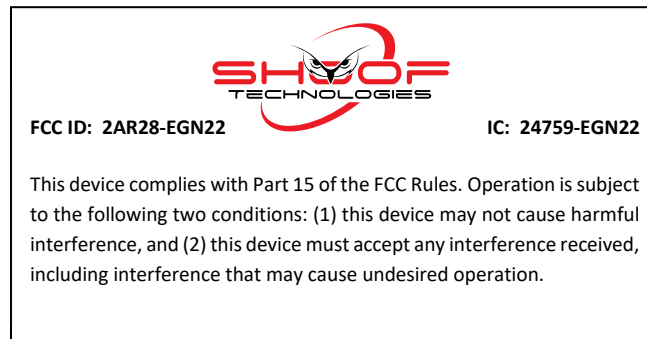


Figure 4 - Sample FCC ID Label

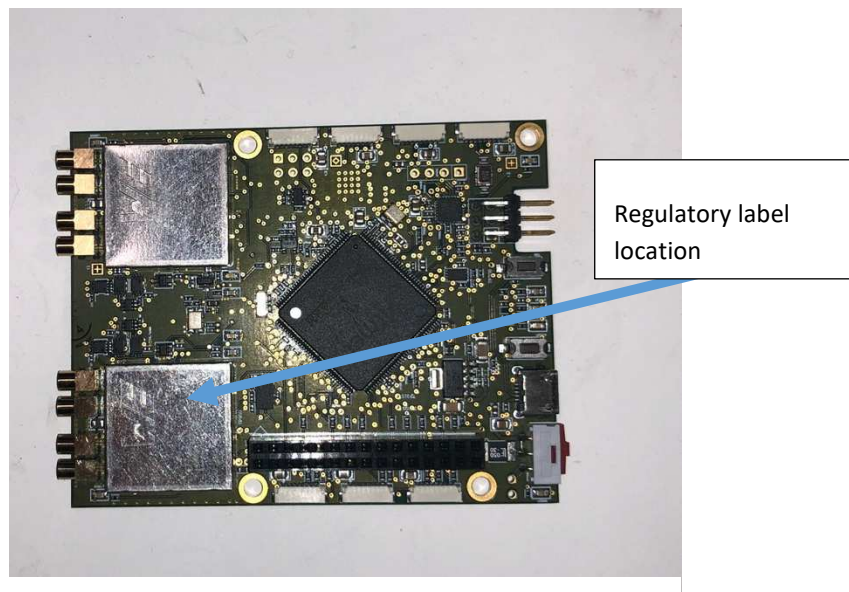


Figure 5 Label location



## 5. MODULE SPECIFICATION

### i. Physical specification

| Parameter  | Value    |
|------------|----------|
| Size (mm)  | 84x66x19 |
| Weight (g) | 39       |

### ii. Electrical Specification

| Parameter             | Value  | Notes  |
|-----------------------|--------|--------|
| Operating Frequencies | 2.4GHz |        |
| Max output power      | +20dBm | 2.4GHz |
| Voltage Supply        | 5V     |        |

### iii. Environmental Specification

| Parameter      | Value        |
|----------------|--------------|
| Storage Temp   | -40 – +125°C |
| Operating Temp | -40 – +85°C  |

### iv. External antenna maximum gain

| Frequency | Maximum gain | Type  |
|-----------|--------------|-------|
| 2.4GHz    | 4dBi         | Omni  |
| 2.4GHz    | 8dBi         | Patch |



## 6. FCC AND INDUSTRY CANADA GOVERNMENT GUIDELINES

FCC ID: 2AR28-EGN22

IC: 24759-EGN22

### **Modifications (15.21)**

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

### **Part 15 Certification Notice (15.19(a)(3)) and RSS-GEN**

This device complies with Part 15 of the FCC Rules and ISSED license-exempt RSS standard(s). 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 antenna of this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The device should be installed so that people will not come within 20 cm (8 in.) of the antenna.

### **Information to User for Class B digital device (15.105)**

This equipment has been tested and found to comply with Part 15 of the FCC Rules. 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.

### **Exigences d'Industrie Canada**

Le Shoof Egnar V2 DOIT être installée par un technicien ayant reçu une formation adéquate. Une installation incorrecte peut annuler l'autorisation de l'utilisateur à se servir de l'équipement.

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.

L'antenne de cet émetteur ne doit pas se trouver à proximité de ou fonctionner en association avec une autre antenne ou un autre émetteur.

L'appareil doit être installé de telle sorte que les gens ne viendront pas au sein de 20 cm (8 in.) de l'antenne.

Les changements ou modifications apportés sans l'approbation expresse de l'autorité responsable de la conformité pourront entraîner l'annulation de l'autorisation d'utilisation de cet équipement.

### **Labeling Requirements for Host Device (DA 00-1407, RSS-GEN)**

The following is an extract from FCC PART 15 UNLICENSED MODULAR TRANSMITTER APPROVAL, DA 00-1407, Released: June 26, 2000, Section 6 describing labeling requirements for devices containing a modular transmitter.

Section 6. The modular transmitter must be 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 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 Transmitter Module FCC ID: 2AR28-EGN22" or "Contains FCC ID: 2AR28-EGN22." Any similar wording that expresses the same meaning may be used. The Grantee may either provide such a label, an example of which must be included in the application for equipment authorization, or, must provide adequate instructions along with the module which explain this requirement.

In the latter case, a copy of these instructions must be included in the application for equipment authorization.

The following is an extract from RSS-GEN, General Requirements and Information for the Certification of Radio Apparatus, Section 3.2.1, describing labeling requirements for a host device integrating a radio module.

The host device shall be properly labelled to identify the modules within the host device.

The Innovation, Science and Economic Development Canada certification label of a module shall be clearly visible at all times when installed in the host device, otherwise the host device must be labelled to display the Industry Canada certification number of the module, preceded by the words "Contains transmitter module", or the word "Contains", or similar wording expressing the same meaning, as follows:

Contains transmitter module IC: 24759-EGN22  
where 24759-EGN22 is the module's certification number.



L'extrait suivant provient du Cahier des charges sur les normes radioélectriques (CNR); exigences générales et information relatives à la certification des appareils radio, section 3.2.1, et décrit les exigences en matière d'étiquetage pour un dispositif hôte intégrant un module radio. Le dispositif hôte doit être correctement étiqueté afin d'identifier les modules qu'il comprend.

L'étiquette de certification CNR d'Innovation, Sciences et Développement économique Canada d'un module doit toujours être bien visible lors de l'installation sur un dispositif hôte. Dans le cas contraire, le dispositif hôte doit être étiqueté de façon à afficher le numéro de certification Industrie Canada du module, précédé de l'expression « Contains transmitter module » ou du mot « Contains », ou d'une formulation similaire ayant la même signification. Par exemple :

Contains transmitter module IC : 24759-EGN22

où 24759-EGN22 représente le numéro de certification du module.

The applicant for equipment certification of the module shall provide with each unit of the module either a label such as described above, or an explanation and instructions to the user as to the host device labelling requirements.

<include a sample label>

#### **External Antenna Integration (RSS-GEN)**

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed in Table 3 with the maximum permissible gain and required antenna impedance for each antenna type 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.

Cet émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés dans le tableau 3 ci-dessous avec le gain maximal admissible et l'impédance d'antenne requise pour chaque type d'antenne indiqué. Les types d'antennes ne figurant pas dans cette liste, ayant un gain supérieur au gain maximum

| Antenna        | Antenna Type     | Gain (dBi) | Frequency |
|----------------|------------------|------------|-----------|
| WPANT30211-S1A | Omni Directional | 4          | 2.4GHz    |
| HG2409PCR-SM   | Patch            | 8          | 2.4GHz    |

Table 2 - External Antennas

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

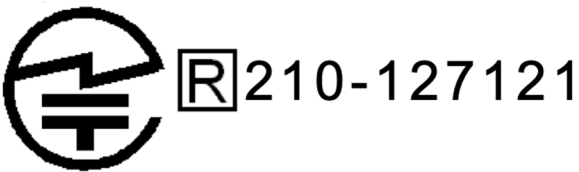


## 7. REGULATORY APPROVALS

### Japanese Type Approval

EGNR V2 complies with the Japanese radio law and is certified according to ARIB STD-T108.

When the product is placed on the Japanese market, it must carry the Specified Radio Equipment marking as shown below:



If the certification label cannot be recognized from outside (e.g. installation in a host) appropriate information must be referenced in the user manual.

In case this unit is installed on a fixed, outdoor equipment the following label shall be affixed to the enclosure:

