

# Bluetooth 4.2 module (BLE only)

User manual

English Original manual

GB

GB

Radio module "BLE652-SA" for product integration



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## 1. Specifications

### 1.1. RF specifications

|                                 |                               |
|---------------------------------|-------------------------------|
| Frequency range                 | 2400 – 2483,5 MHz             |
| Modulation                      | GFSK                          |
| Channels                        | 40, from 2402 MHz to 2480 MHz |
| Frequency step between channels | 2MHz                          |
| Bandwidth                       | 1MHz                          |
| Baud rate                       | 1Mbps                         |

### 1.2. Physical characteristics

Physical dimensions (L x W x H):

- 14 x 10 x 2.1 mm

### 1.3. Supported antenna

| # | Type                                     | Peak Gain (dBi) | Manufacturer | Model          |
|---|------------------------------------------|-----------------|--------------|----------------|
| 1 | Ceramic chip monopole antenna – on board | 0.5             | ACX          | AT3216-B2R7HAA |

### 1.4. Firmware

This radio module is only compatible with authorized firmware images from Tractel®. It prevents unsigned firmware images from being deployed.

## 2. Regulations and standards

This radio module meets the requirements of the following Radio Equipment standards:

- FCC part 15 Radio Frequency Devices Subpart C Intentional Radiators
- RSS-GEN & RSS-247 Low power licence-exempt Radiocommunication devices

### 2.1. FCC Information – Federal Communication Commission Interference Statement 47 CFR Section 15.105(b)

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 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

## **2.2. No unauthorized modifications**

**CAUTION:** This device may not be modified, altered, or changed in any way without signed written permission from Tractel®. Unauthorized modification may void the equipment authorization from the FCC and will void the Tractel® warranty.

## **2.3. FCC RF Radiation Exposure Statement**

This device complies with FCC radiation exposure limits set forth for general population (uncontrolled exposure). End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter meets both portable "limb" and mobile limits as demonstrated in the RF Exposure Analysis. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter except with module FCC ID: OVL-RF24GHZ and in accordance with FCC multi-transmitter product procedures

## **2.4. IC Information**

This device complies with Industry Canada licence-exempt RSS standard(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.

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.

This device complies with Industry Canada radiation exposure limits set forth for an uncontrolled environment (uncontrolled exposure). End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter meets both portable "limb" and mobile limits as demonstrated in the RF Exposure Analysis and SAR test report. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter except with module IC: 3619A-RF24GHZ.

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.

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 d'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.

Cet appareil est conforme aux limites d'exposition aux rayonnements d'Industrie Canada établies pour un environnement non contrôlé (exposition non contrôlée). Les utilisateurs finaux doivent suivre les instructions de fonctionnement spécifiques pour se conformer à l'exposition RF. Cet émetteur respecte les limites à la fois portables « membres » et mobiles, comme démontré dans le rapport d'analyse d'exposition RF. Cet appareil ne doit pas être installé à proximité ou être utilisé en conjonction avec une autre antenne ou un autre émetteur excepté pour le module IC: 3619A-RF24GHZ

### 3. Host product labelling

This module is considered as component that will be operated in combination with the host product. Then, the final equipment still needs to re-confirm that the whole system complies with unintentional emission requirements.

If the FCC ID is not visible when the module is installed inside the host, then the outside of this host product must also display a label referring to the enclosed module. In that case, the host product must be labeled in a visible area with the following:

- "Contains Transmitter Module FCC ID: OVL-BL652"  
Or
- "Contains FCC ID: OVL-BL652 "

The statement warning for FCC and Canada RF radiation compliance and co-location should appear in the user manual of the host product.

The ISED certification label of a module shall be clearly visible at all times when installed in the host product; otherwise, the host product must be labelled to display the ISED certification number for the module, preceded by the word "contains" or similar wording expressing the same meaning, as follows:

- "Contains IC: 3619A-BL652"

### 4. Manual information to the End User

The OEM integrator must 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 host product which integrates this module.

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

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 hôte qui intègre ce module.

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

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