BLE Module

Integration Manual

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IC:6215A-BLE

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BLE Module

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Version History			
Date	Version	Changed by	Description of Changes
2022-09-08	1.0	SOCH	
2022-11-10	1.1	SOCH	Statements required by FCC added

BLE Module

1. Table of Contents

2. General

Validity
This manual describes how to integrate SKIDATA BLE modules into hosts, e.g. the Longrange Antenna (Ski Antenna).

Addressees
This manual is written exclusively for specialists.
The descriptions in this manual are intended for personnel trained by the manufacturer. The information in this manual cannot substitute the product training.
The content of this manual is intended for use by the following groups of people:

— **Project manager**

Project manager who is responsible for the system and entrusted with project planning and realization.

— **Fitter**

Person specialized in mounting and installation.

Person who has an adequate technical training and sufficient experience and who has been authorized by the manufacturer after completing the training on the product.

— **Service technician**

Specialist for initial set-up and maintenance of the installation.

Person who has an adequate technical training and sufficient experience and who has been authorized by the manufacturer after completing the training on the product.

— **Network administrator**

Realizes the set-up of the device within the network and makes sure that the devices are accessible within the network.

— **Software partner**

Specialists for connecting the system to the user software by defining operating and booking sequences, programming the customer applications and setting the parameters of the devices.

NOTICE!
For reasons of device safety, some of the activities might only be carried out by the SERVICE PERSON.
Only persons of the groups "Fitter" and "Service technician" have the status of a SERVICE PERSON according to EN 62368-1.

Contents and purpose
The contents are limited to the assembly and installation of the hardware.

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ESD (electrostatic discharge) protective measures

CAUTION
— Danger for electronic components due to electrostatic discharge.
— Improper handling of printed circuit boards or components can cause damages that lead to complete failures or sporadic errors.
— During installation and repair of the device, the ESD protective measures must be considered.

Please consider the following guidelines before the installation or maintenance of the device:
— Always carry an ESD antistatic wristband when dealing with electronic components. Connect one part of the wristband with a discharge socket or an unvarnished grounded metal component. This way, static charges are discharged from your body securely and effectively.
— Only touch the printed circuit boards at the edges. Do not touch the printed circuit board itself or the connector.
— Place all dismantled components on an anti-static surface or in an anti-static container.
— Avoid contact between printed circuit boards and your clothing. The wristband only protects the printed circuit boards against electrostatic discharge from the body, but there is still a risk of damage through electrostatic discharge from your clothing.
— Transport and dispatch dismantled modules only in electrostatically shielded protective bags.

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2.1 Technical Characteristics

— Dimensions:
  - 60 mm × 24 mm for the miniaturizes module
  - 130 mm × 60 mm for the multipanel module
  - 260 mm × 250 mm for the five-module panel
  - 250 mm × 60 mm for the two-module panel

— Operating frequencies:	2,402 GHz – 2,480 GHz
— Modulation:	GFSK
— BLE Beacon frequency:	100 ms typ.
— Supply Voltage:	5 V
— Supply Current:	500 mA max.
— Supply Power:	2,5 W max.
— Operating Temperature:	−30 °C to +85 °C
— Pollution Degree:	2
— Sea Level:	5000 m max.

— Compatible with BLE 4.2

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2.2 Description

The BLE Module comes with different panels:

— A miniaturized single-BLE panel, which is exactly one BLE module. This panel has a Mini-USB connector for the communication with outside

— A main panel with five BLE modules. This panel has a USB connector, Type B, for the communication with outside, and a JST connector for communication with the sub panel.

— A sub panel with two BLE modules. This panel has a JST connector to make a connection to the main panel mentioned above. In fact, it expands the five-module panel to a seven-module unit.

The BLE modules/panels functions as a built-in interface between a SKIDATA device and contactless BLE devices – e.g.: smartphones.

Data communication between the BLE module/panel and the SKIDATA device is provided by means of a 0 V/5 V RS422 data link or a USB connection.

The most basic communication scenario is where the (unique) serial number of the BLE device is sent to the BLE panel. This may or may not lead to further data communication between the BLE panel and the BLE device, and it may or may not lead to communication, via data link, between the BLE panel and the connected SKIDATA device.

The BLE panel is equipped with 1 to 7 BLE BlueNRG-LP chips with attached 2,4 GHz antennas. These BLE chips transmit connectable BLE-beacons for possible connections with BLE devices or non-connectable BLE beacons for the localization of close by BLE devices.
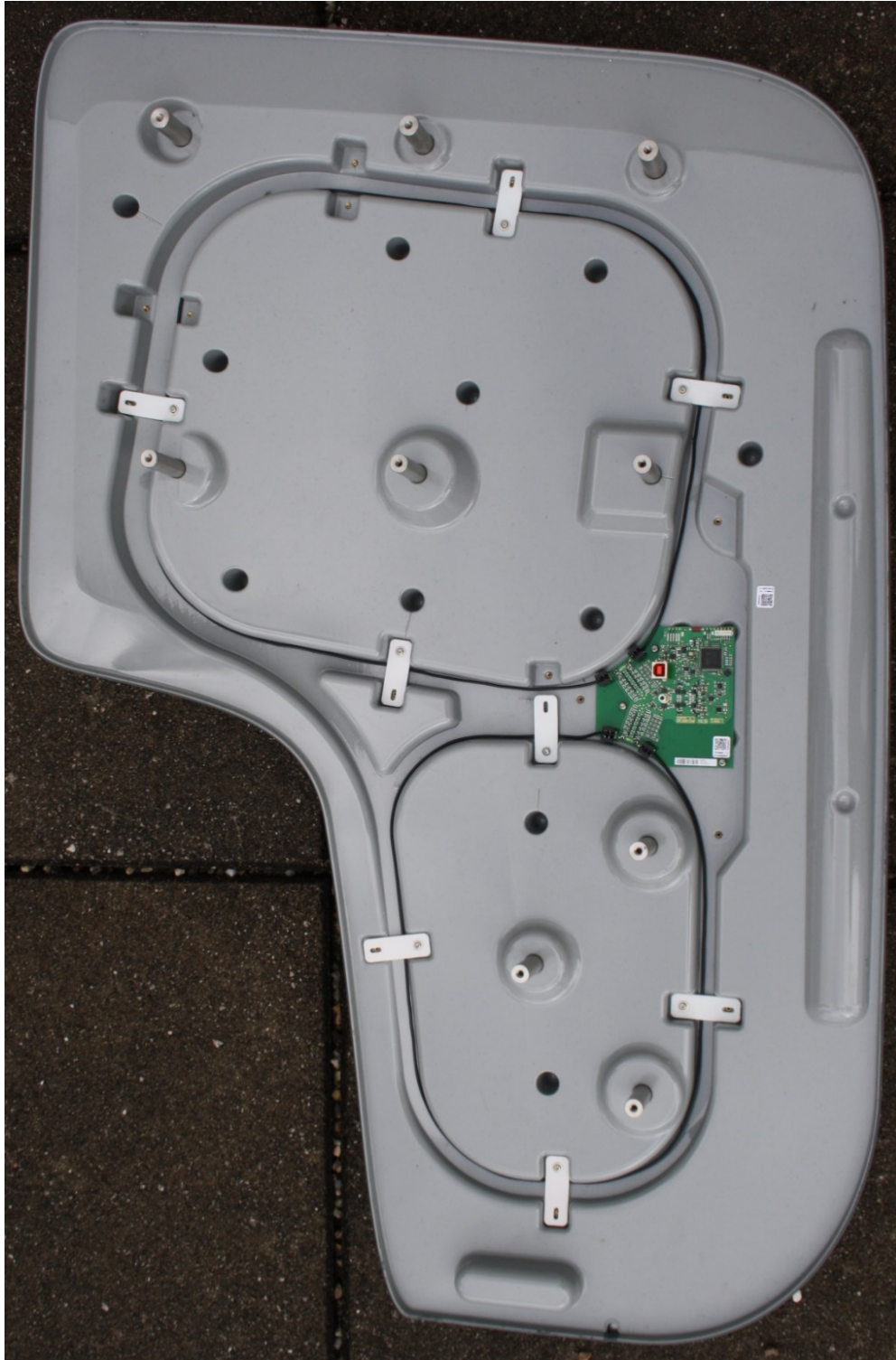
The main purposes of the BLE module/panel are:

— Coding and reading of BLE device data carriers. SKIDATA coding devices use the BLE panel for encoding and reading of BLE devices as electronic tickets.

— Localization of close by BLE devices

— Access control. SKIDATA access control devices use the RFID Reader Module for reading RFID data carriers. Depending on the validity details stored on the data carrier, access is granted or refused.
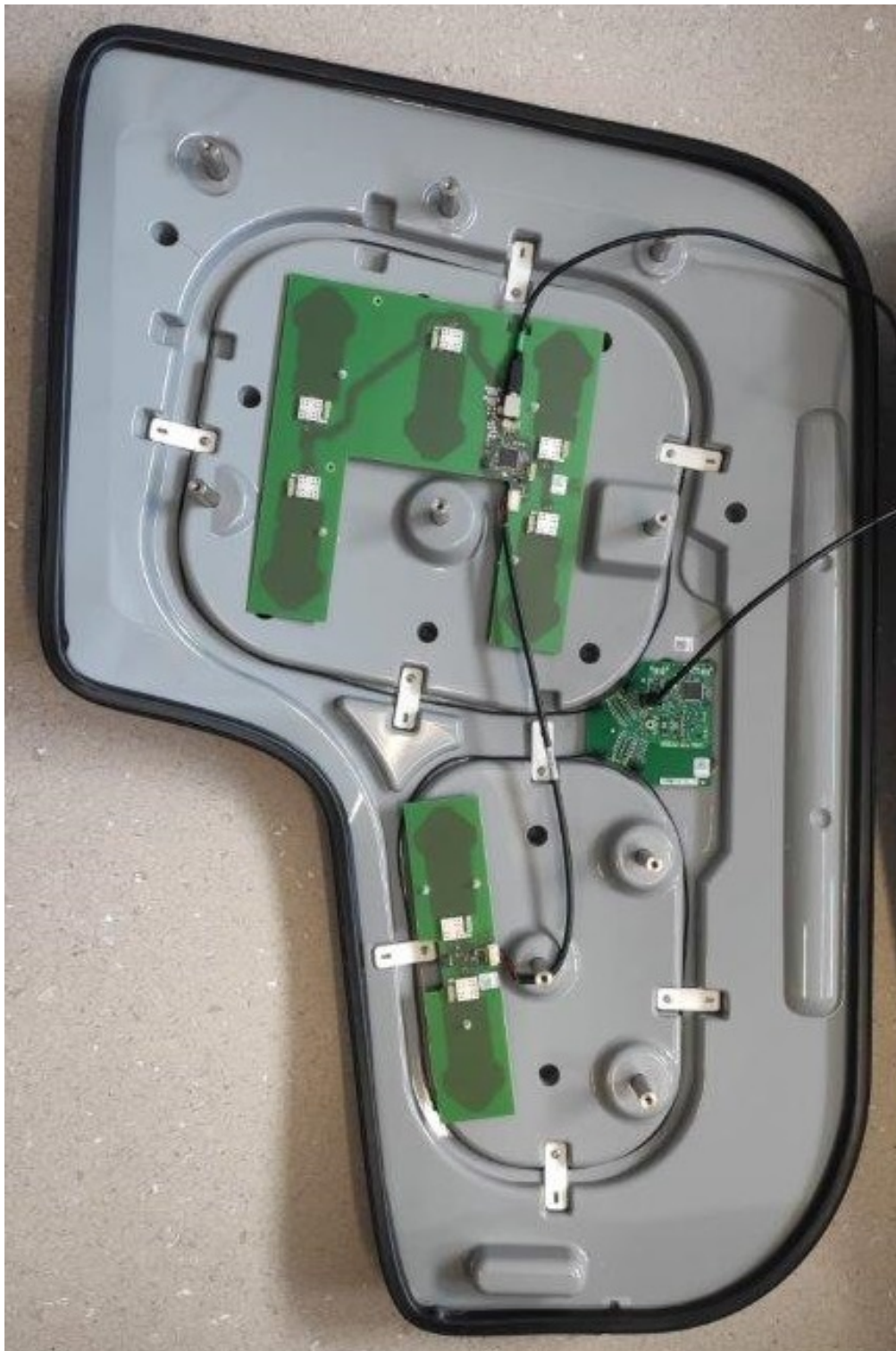
3. Integration into Devices

3.1 Integration into a Longrange Antenne (Ski Antenna)

Fig. 1: Inside view of Longrange Antenna, ready to install the BLE modules/panels. Please note the sd905 RFID module with Antenna sd906 which is already installed.

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Fig. 2: Inside view of the same Longrange Antenna as before, after the installation of a five-module BLE panel, connected to a two-module BLE panel. The sd905 RFID module with Antenna sd906 remains installed.

Please note that the color and the shape of the Longrange Antenna can vary such that it can be adjusted to different access controls. This does not have any effect to its ratings and characteristics.

4. Labeling

Using a permanently affixed label, the modular transmitter will be labeled with its own FCC identification number, and, 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. The same applies to the IC (Industry Canada) identification number.

This exterior label can use wording such as the following:

For the USA:

"Contains Transmitter Module FCC ID:QSS-BLE" or "Contains FCC ID:QSS-BLE". Any similar wording that expresses the same meaning may be used.

For Canada:

"Contains Transmitter Module IC:6215A-BLE" or "Contains IC:6215A-BLE". Any similar wording that expresses the same meaning may be used.

5. DECLARATIONS OF CONFORMITY

USA:
DECLARATION OF CONFORMITY
according to FCC Part 15:

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

Part 15 Subpart B disclaimer: The final host product still requires Part 15B compliance testing with the modular transmitter installed.

RF Exposure:
In order to comply with FCC RF Exposure requirements, this equipment can be installed and operated without minimum distance restriction between the radiator and user's body. Because this equipment has been evaluated to meet general RF exposure requirement at 5 millimeters distance.

FCC Rules:
Part 15.247

Canada:
DECLARATION OF CONFORMITY

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, 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, et

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

RF Exposure:
In order to comply with ISED RF Exposure requirements, this equipment can be installed and operated without minimum distance restriction between the radiator and user's body. Because this equipment has been evaluated to meet general RF exposure requirement at 5 millimeters distance.

Afin de se conformer aux exigences d'exposition RF ISED, cet appareil peut être installé et utilisé sans limitation de la distance minimale entre le radiateur et le corps de l'utilisateur.
Étant donné que cet appareil a été évalué de manière à satisfaire aux exigences générales en matière d'exposition aux radiofréquences à une distance de 5 millimètres.