RFID Reader Module sd905

Integration Manual
FCC ID QSS-SD905
IC:6215A-SD905

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RFID Reader Module sd905

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Version History			
Date	Version	Changed by	Description of Changes
2016-05-18	1.0	SOCH	
2016-08-09	1.1	SOCH	Minor changes
2016-08-22	1.2	SOCH	New Antennas: sd901 and sd902
2016-12-21	1.3	SOCH	Chapter 3 revised
2017-02-07	1.4	SOCH	Technical data completed
2017-12-28	2.0	SOCH	Consideration of sd906

RFID Reader Module sd905

1. Table of Contents

2. General

Validity

This manual describes the sd905 RFID Reader Module into hosts, e.g. the Coder LIGHT (CO LIGHT).

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 60950-1:2006.

Contents and purpose

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

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ESD (electro static 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.

3. sd905

3.1 Connectors of the sd905

Fig. 1: *Connectors of the sd905, top side*

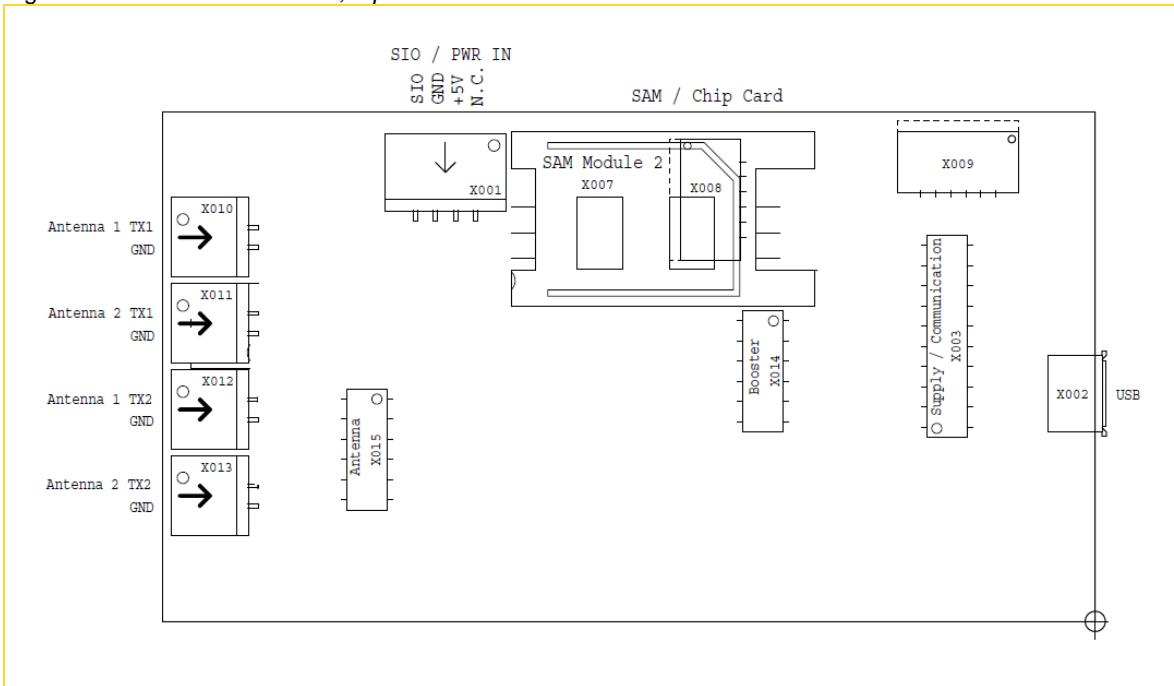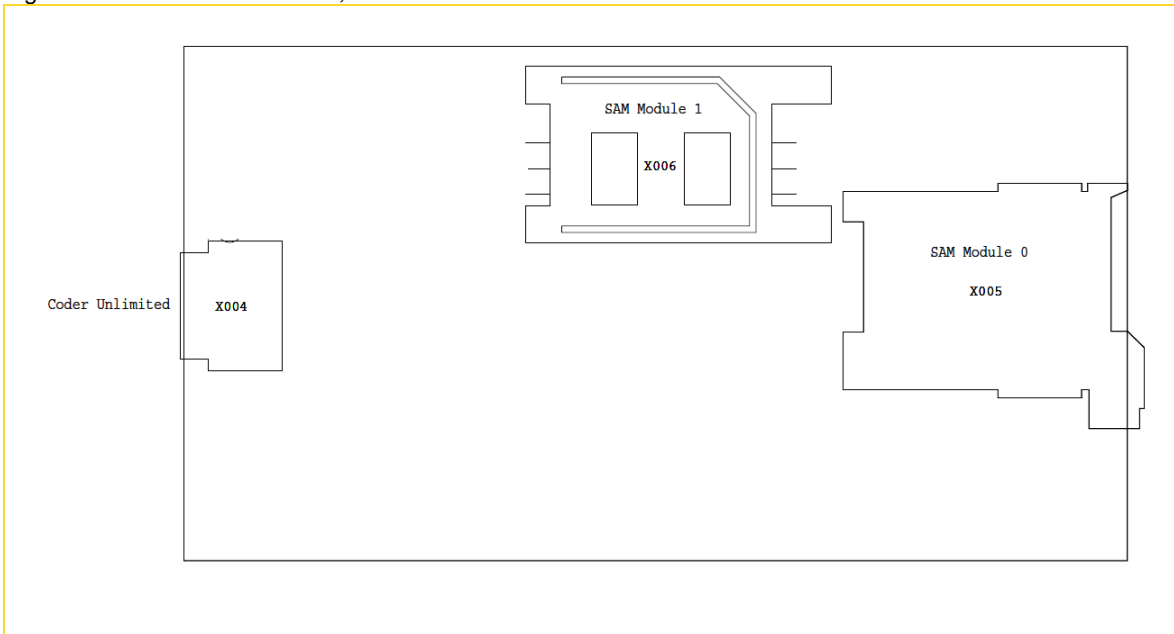Fig. 2: *Connectors of the sd905, bottom side*

3.2   Technical Characteristics

— Dimensions: 93 mm ✕ 51 mm
— Weight: 25 g
— Operating frequencies: 13,56 MHz
— Modulation: ASK
— Pulse repetition rule: 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 RFID data carriers supported by SKIDATA systems
— Compatible with data carriers compliant to ISO 15693 and ISO 14443

3.3   Description

The sd905 functions as a built-in interface between a SKIDATA device and contactless data carriers (RFID). Data communication between the sd905 and the SKIDATA device is provided by means of a 0 V/5 V RS232 data link or a USB connection.

The most basic communication scenario is where the (unique) serial number of the data carrier is sent to the RFID interface. This may or may not lead to further data communication between the data carrier and RFID interface, and it may or may not lead to communication, via data link, between the RFID interface and connected devices.

The sd905 is equipped with two amplifier stages. These stages may be used to drive two antennas independently, or to drive one antenna in bridge connection. In case of a bridge connection the amplifier stages will be driven inversely phased. An antenna for bridge connection must be equipped with a special connector to be connected to X015 of the sd905. This special connector will be explicitly mentioned at the description of the respective antenna in chapter 4.

The main purposes of the sd905 RFID interface are:
— Coding of RFID data carriers. SKIDATA coding devices use sd905 as an RFID transceiver module for encoding RFID data carriers before issuing them to the user.
— Access control. SKIDATA access control devices use sd905 for reading RFID data carriers. Depending on the validity details stored on the data carrier, access is granted or refused.
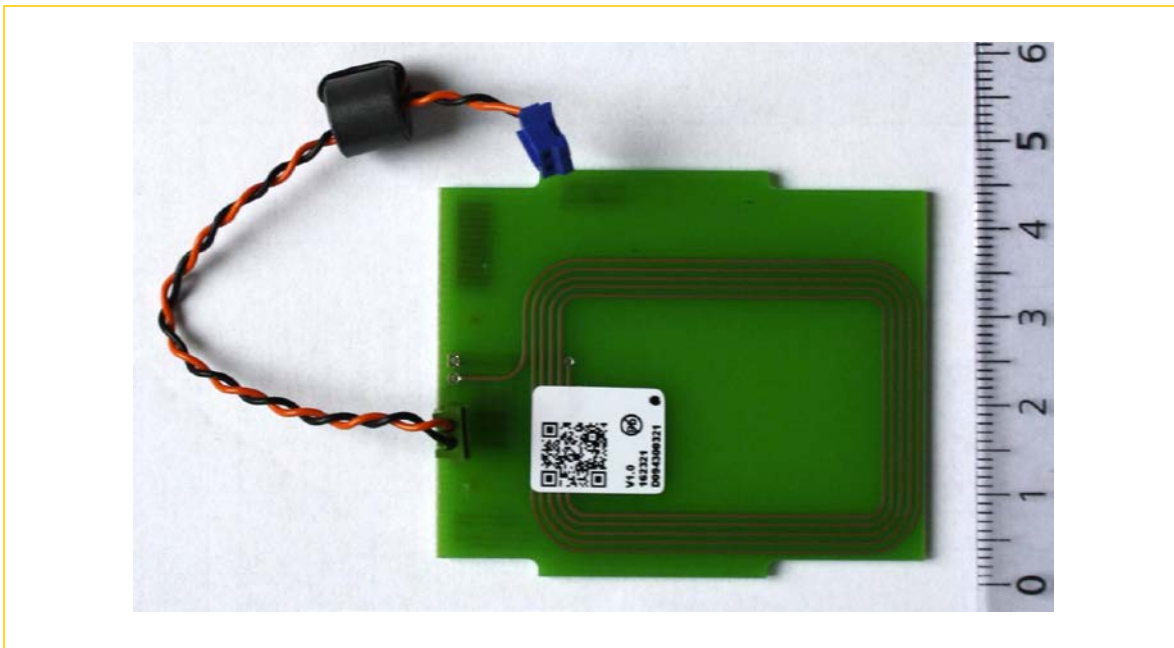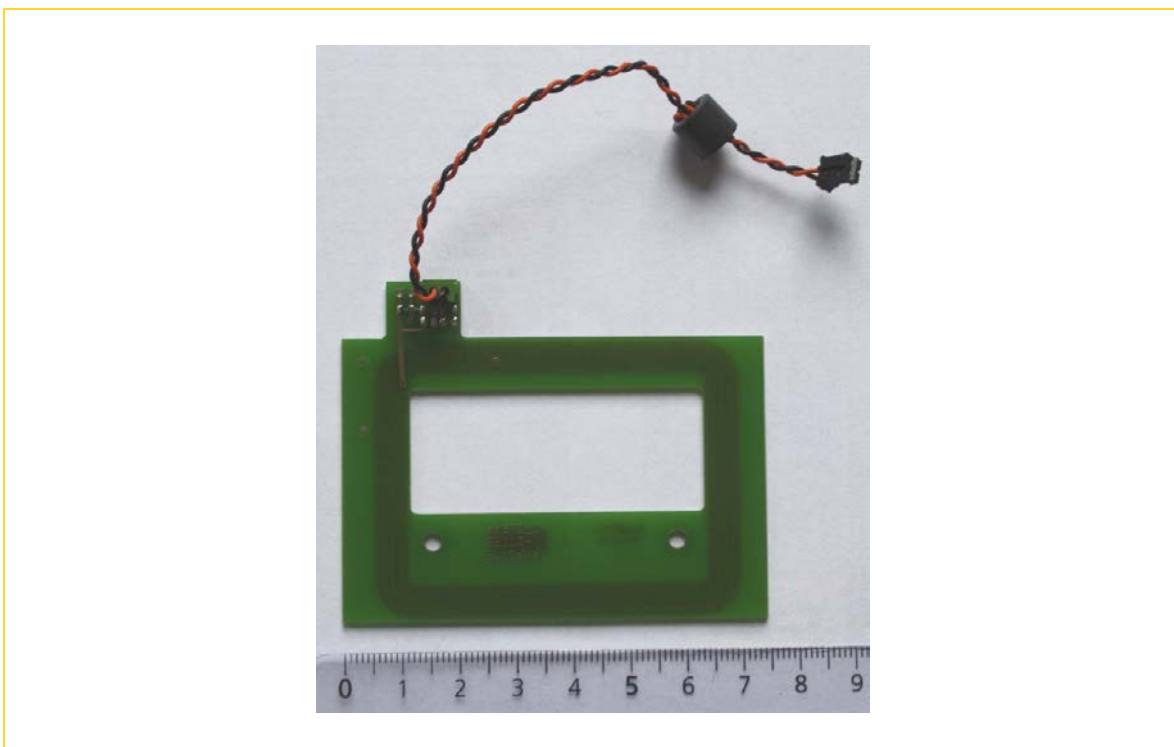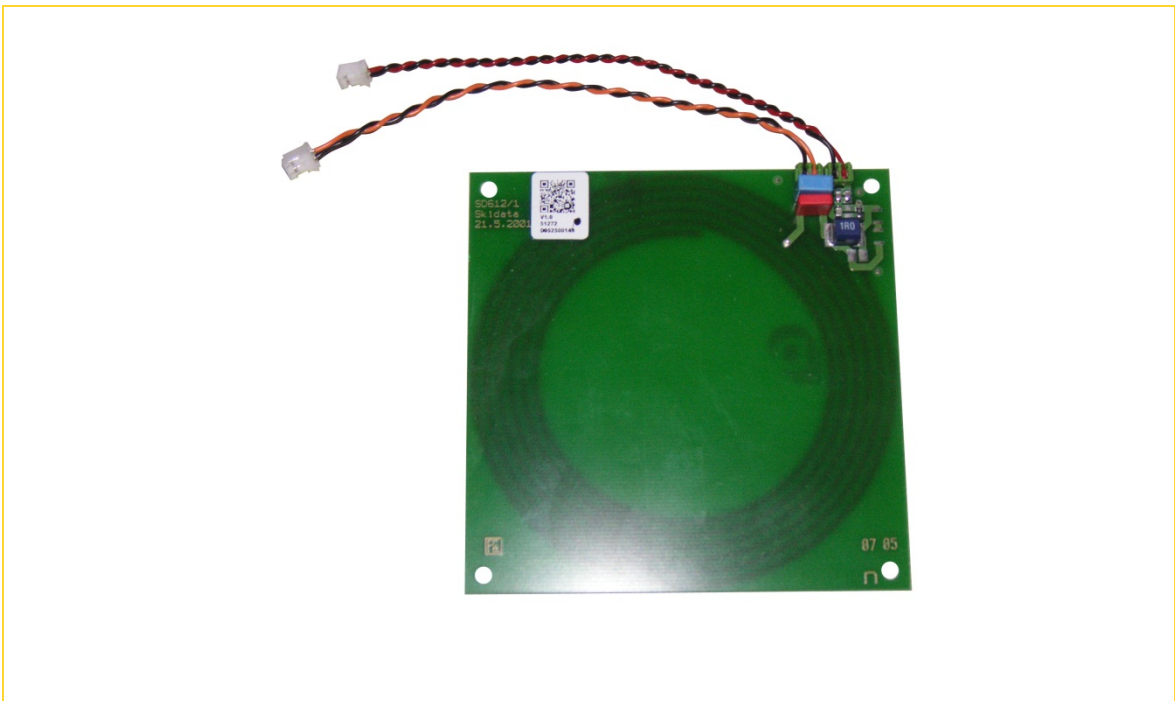
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4. Antennas

Fig. 3: *sd571*

Fig. 4: *sd572*

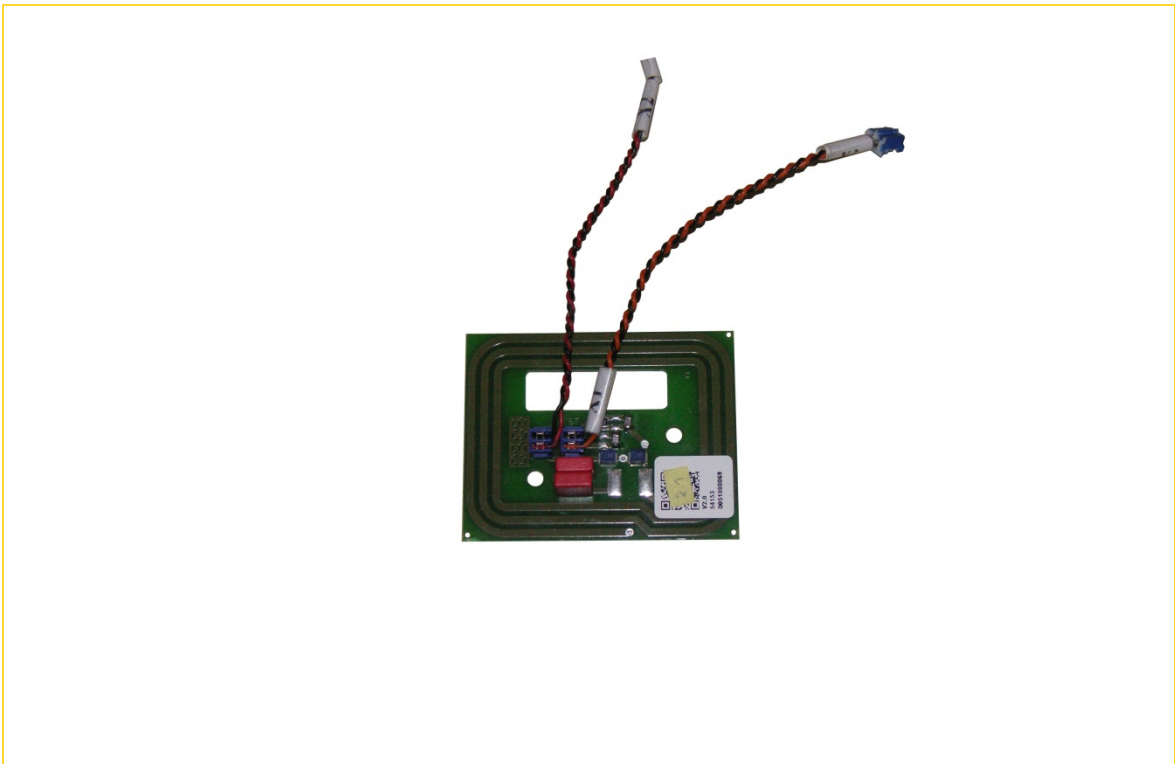# RFID Reader Module sd905

Fig. 5: *sd611*
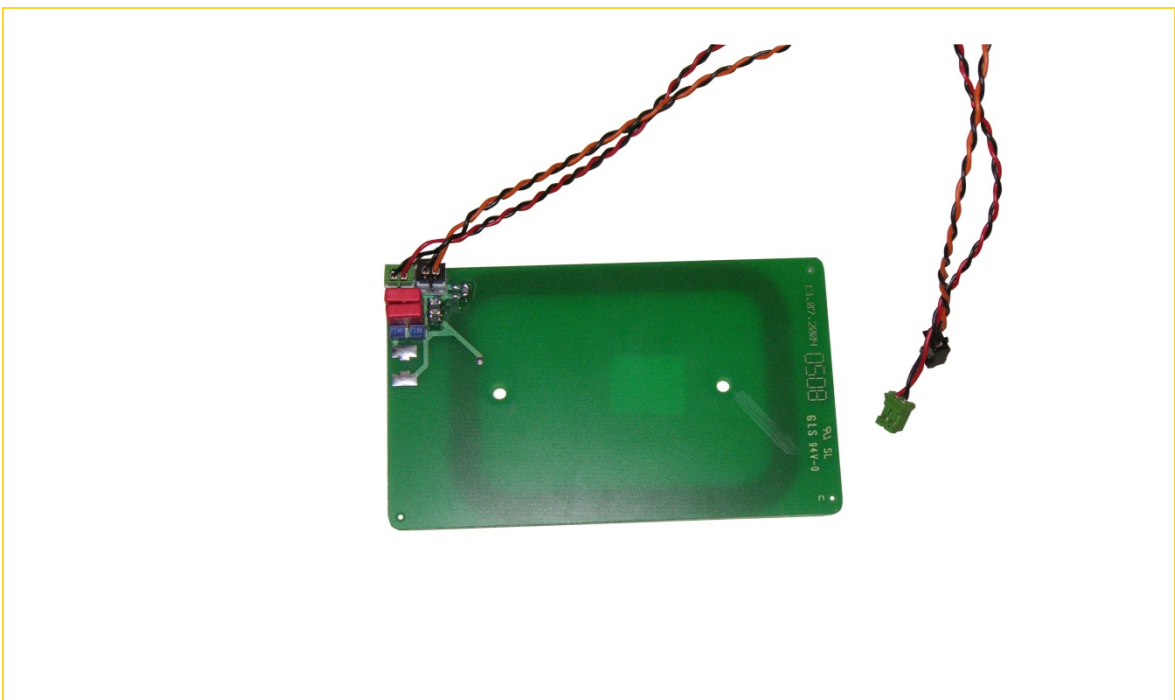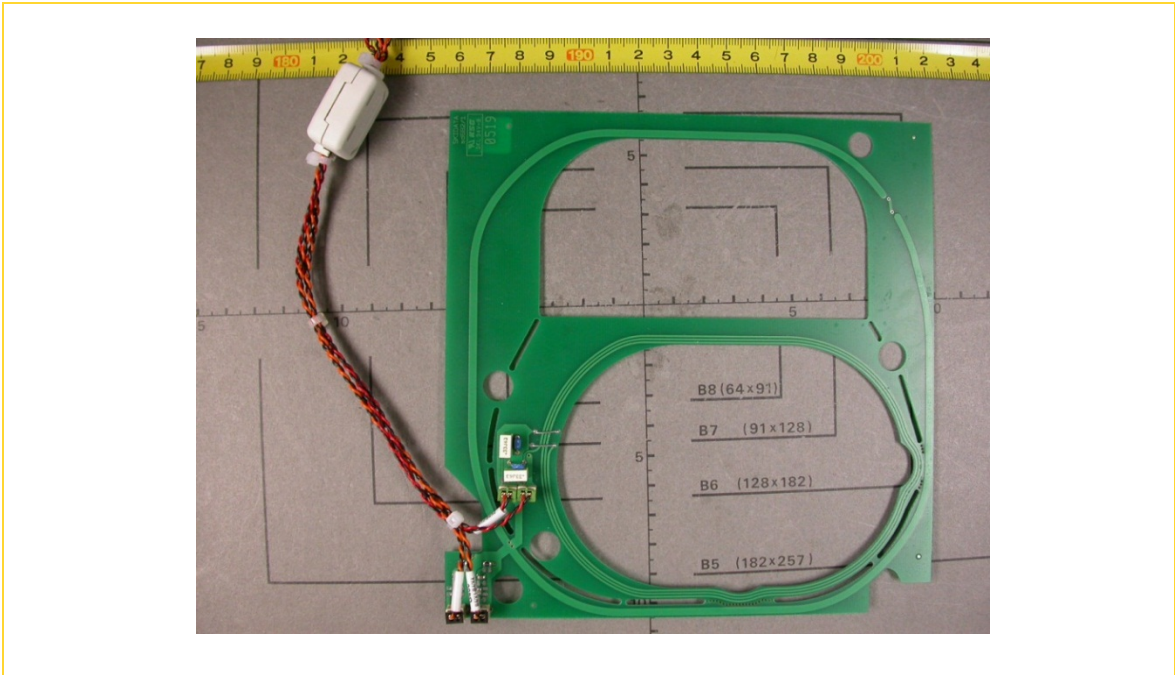

Fig. 6: *sd612*

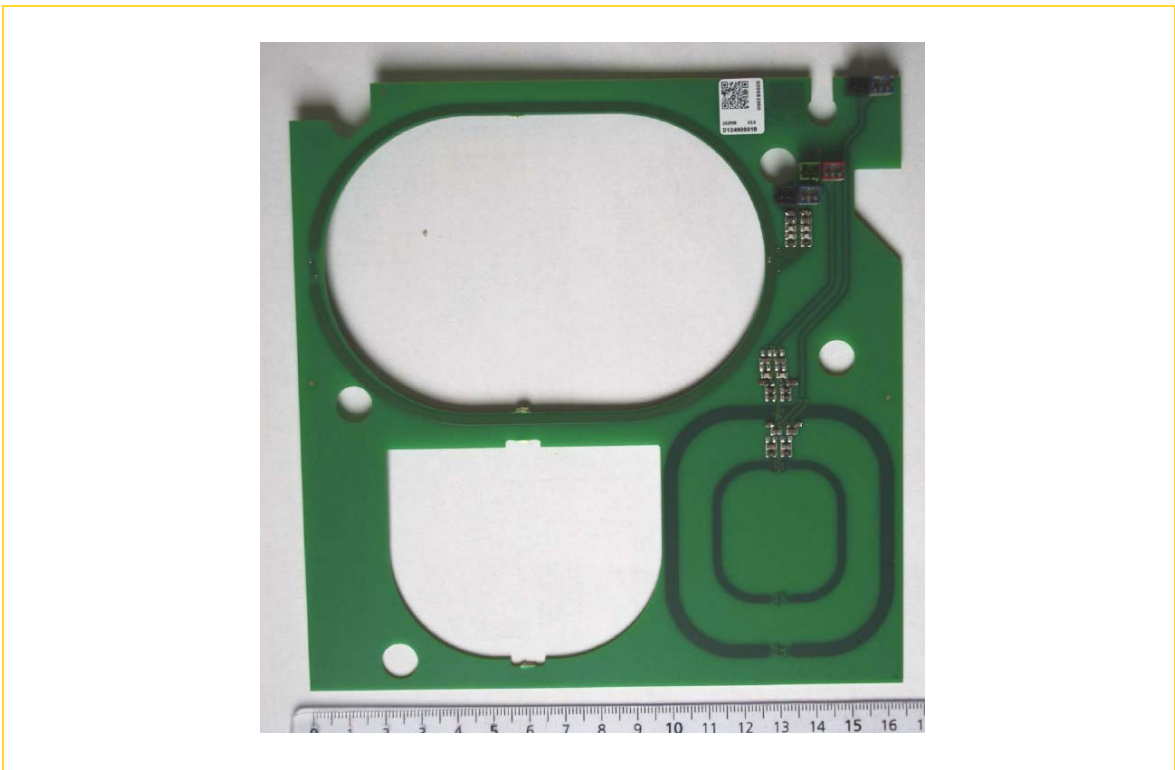Fig. 7: *sd647*

Fig. 8: *sd648*

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Fig. 9: *sd682/1*

Only the 13 MHz antenna is used with sd905; the 122 kHz antenna remains unused
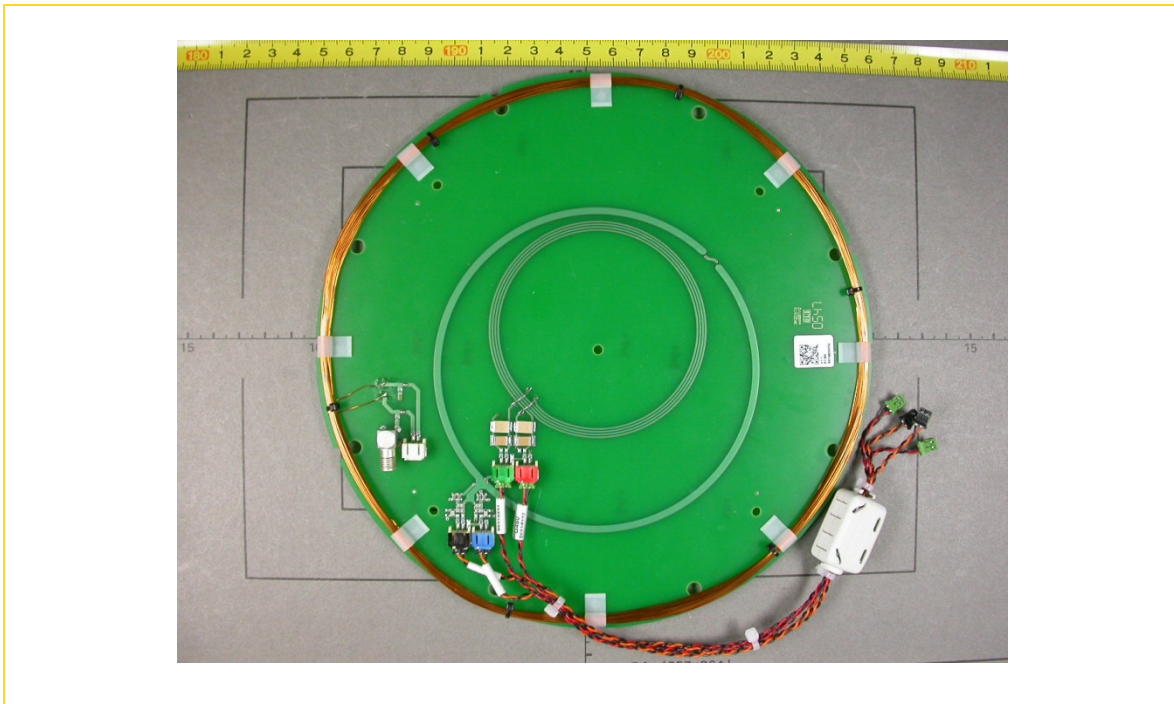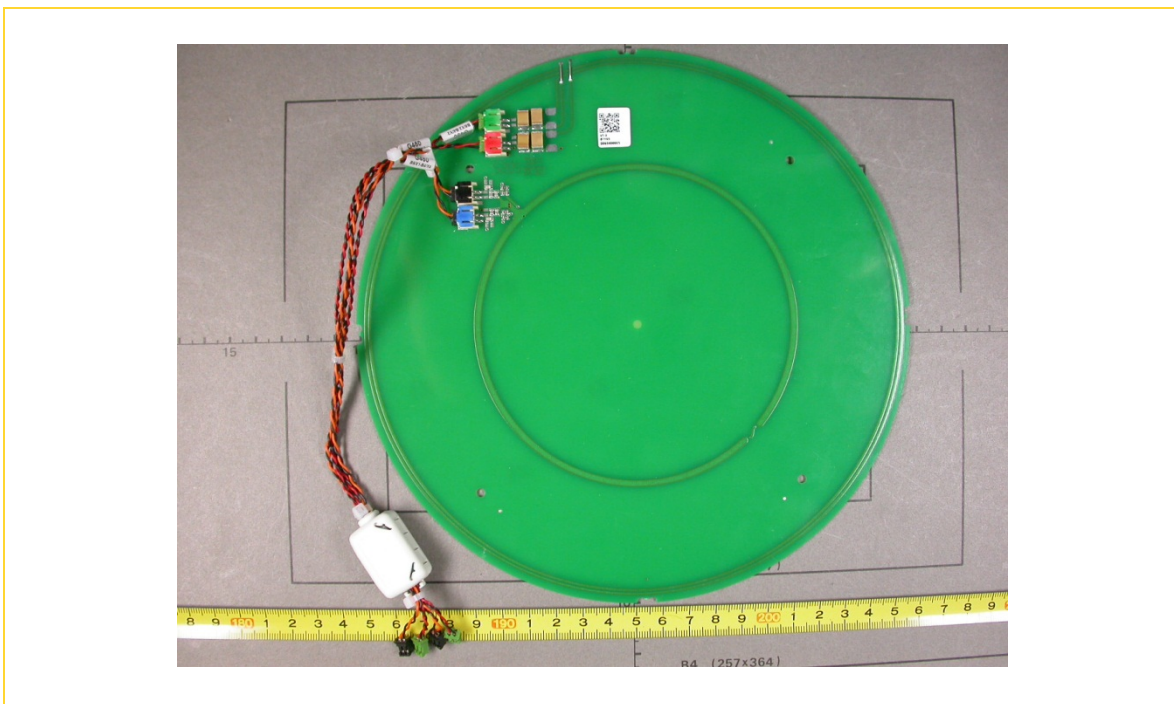
Fig. 10: *sd682*

Antennas A, B and C

Fig. 11: *sd697/2*

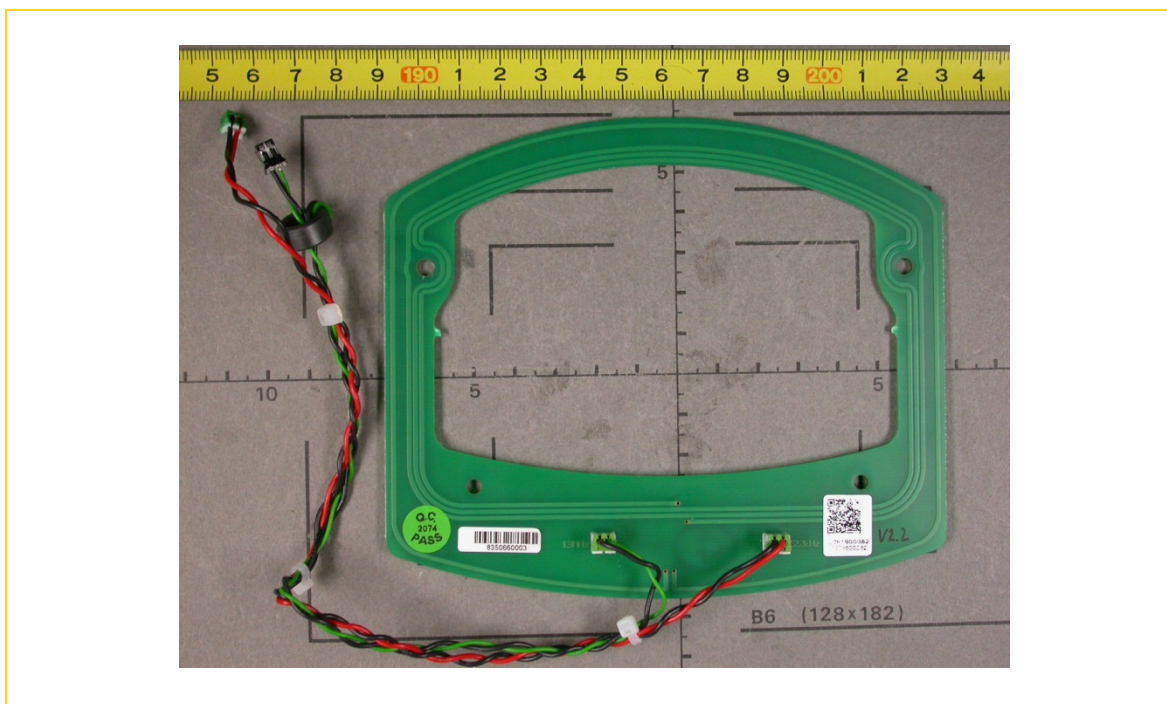Only the 13 MHz antenna is used with sd905; the 122 kHz antenna (wired coil) remains unused

Fig. 12: *697/3*

Only the 13 MHz antenna is used with sd905; the 122 kHz antenna remains unused
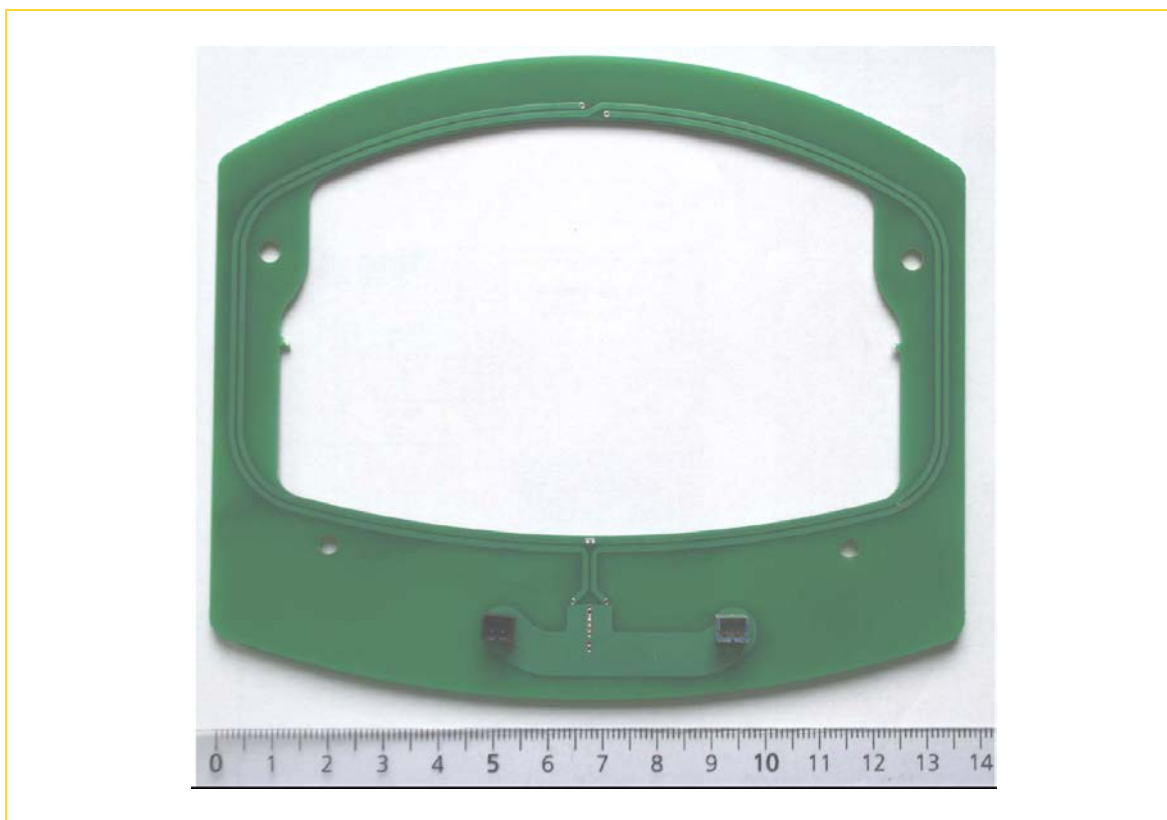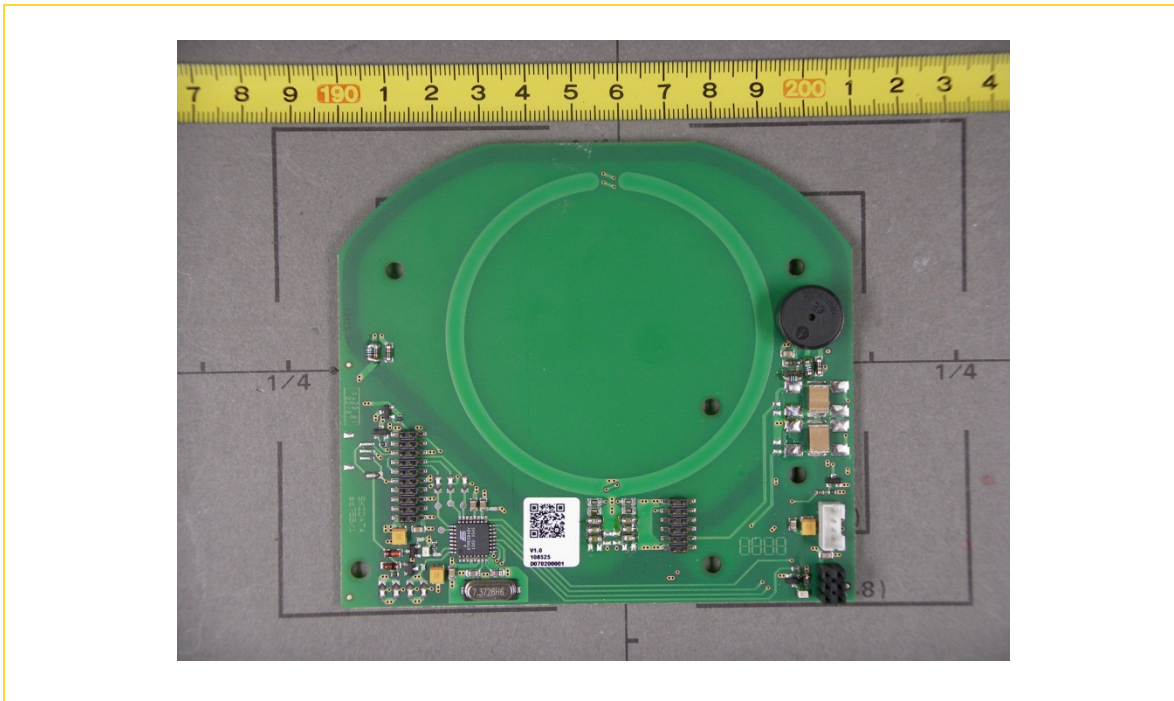
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Fig. 13: *sd733/2*

Only the 13 MHz antenna is used with sd905; the 122 kHz antenna remains unused

Fig. 14: *sd733*

Fig. 15: *sd758 (Shortrange module)*

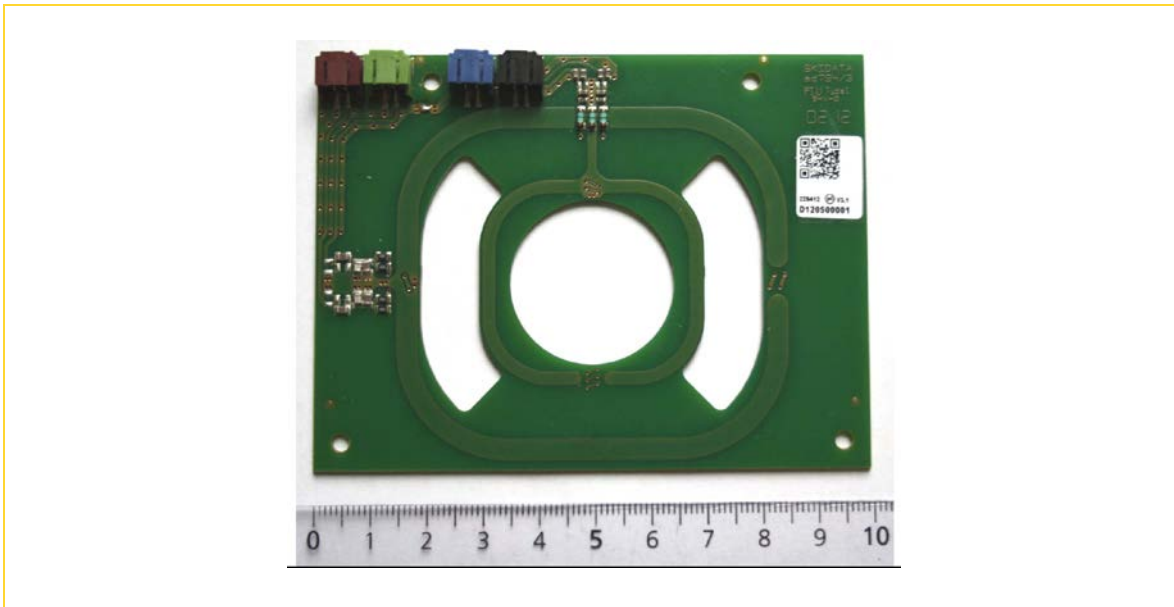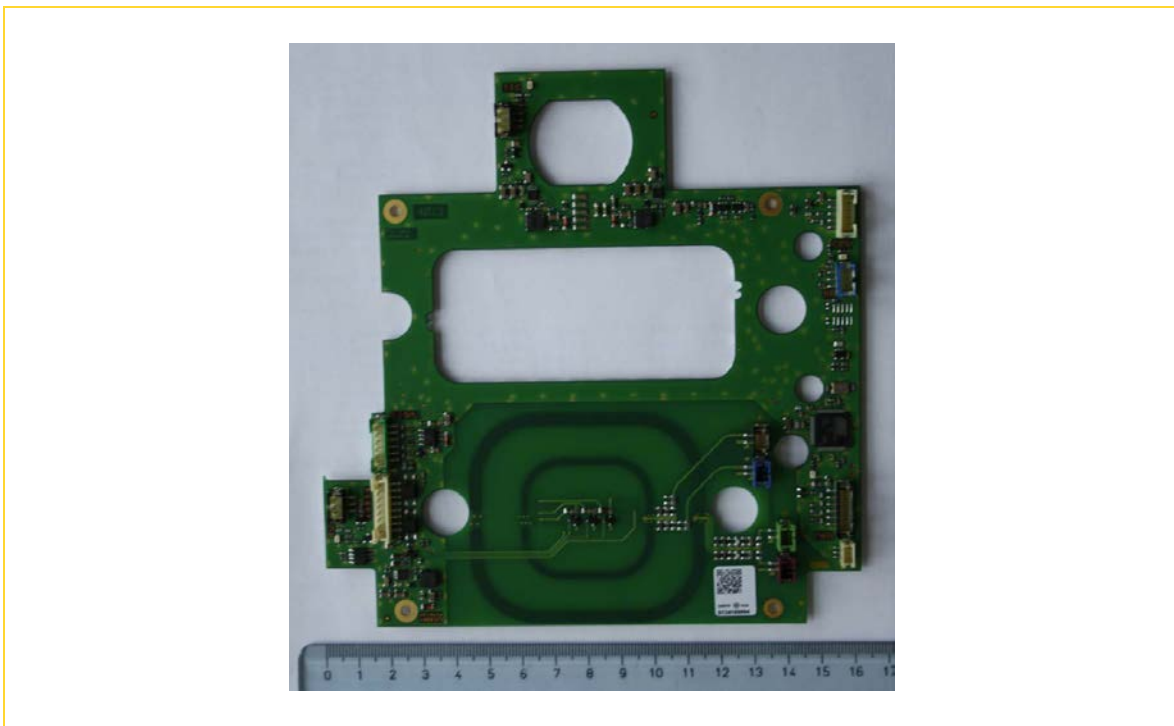Only the 13 MHz antenna is used with sd905; the 122 kHz antenna remains unused

Fig.16: *sd794/2*
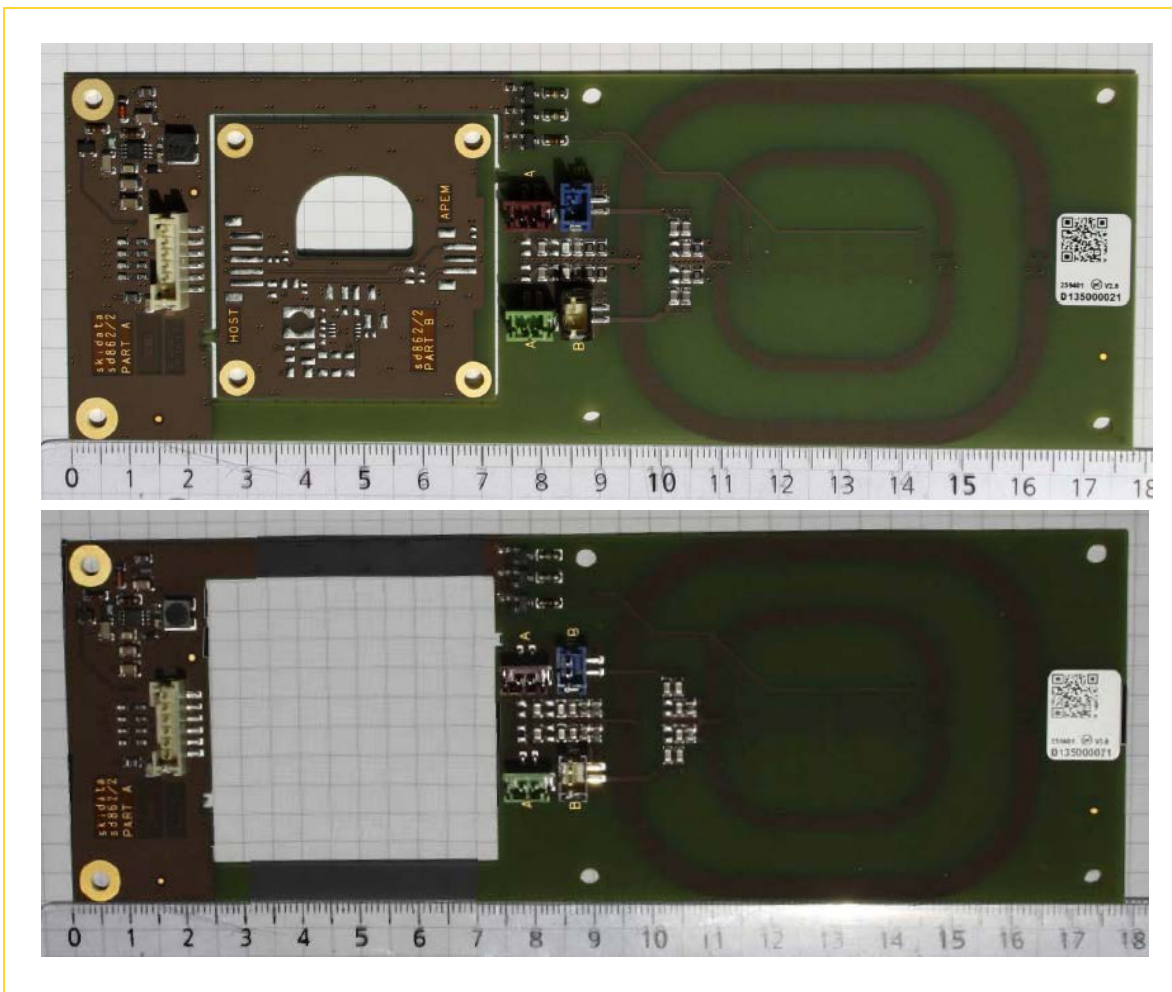
Fig.17: *sd794*

Antennas A and B

Fig. 18: *sd847*

Antennas A and B

The sd847 acts as an antenna, as an illumination and as a touch key. The antenna part is completely independent from all other parts.
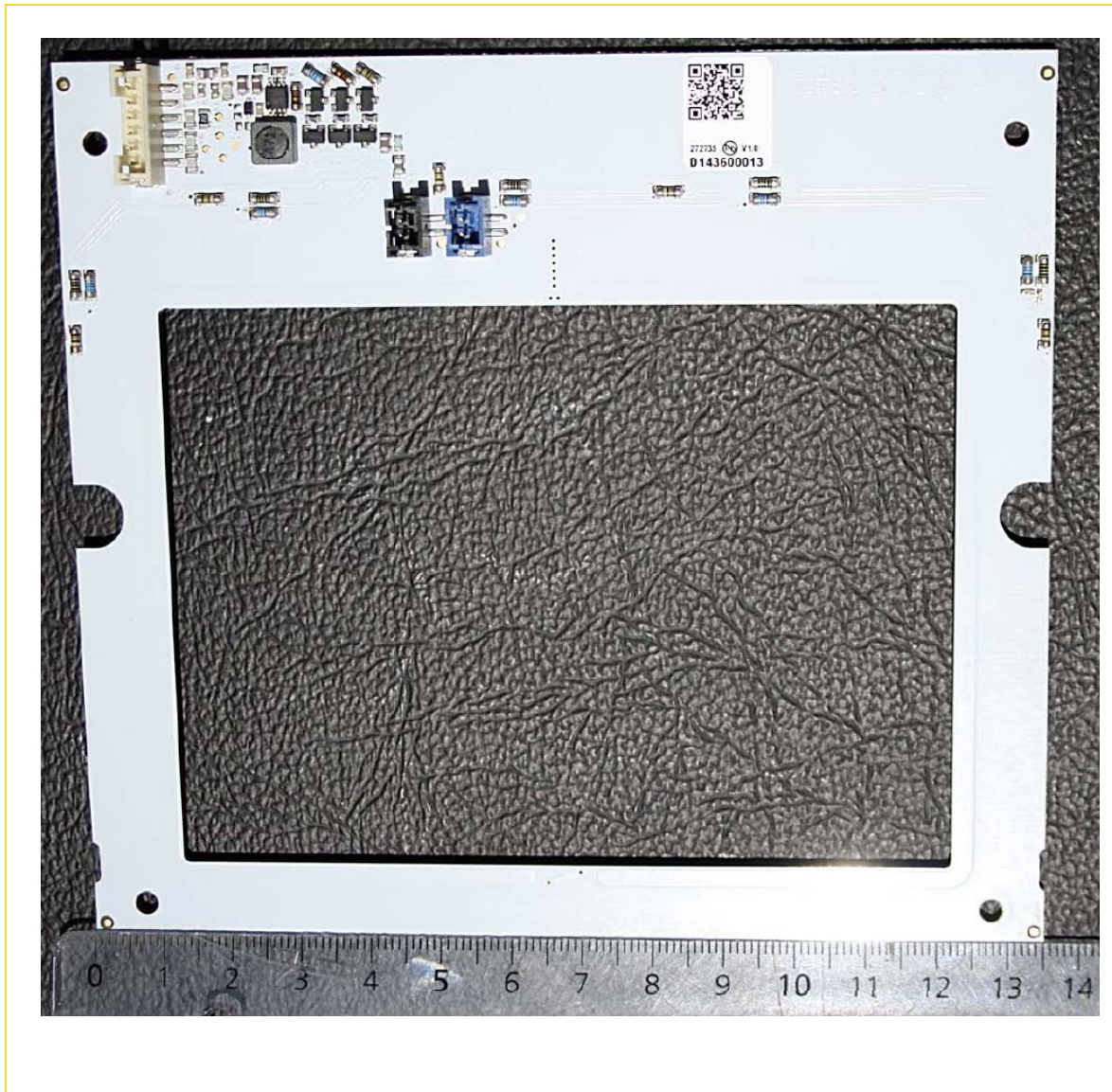
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Fig. 19: *sd862*

Antennas A and B

The sd862 acts as an antenna, as an illumination and as an illuminated touch key. The antenna part is completely independent from all other parts.

The square part is the illuminated touch key and may or may not be removed.

Antennas

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Fig. 20: *sd872*

The sd872 acts as an antenna and as an illumination. The antenna part is completely independent from the illumination.

Fig. 21: *sd877*

Antennas A and B
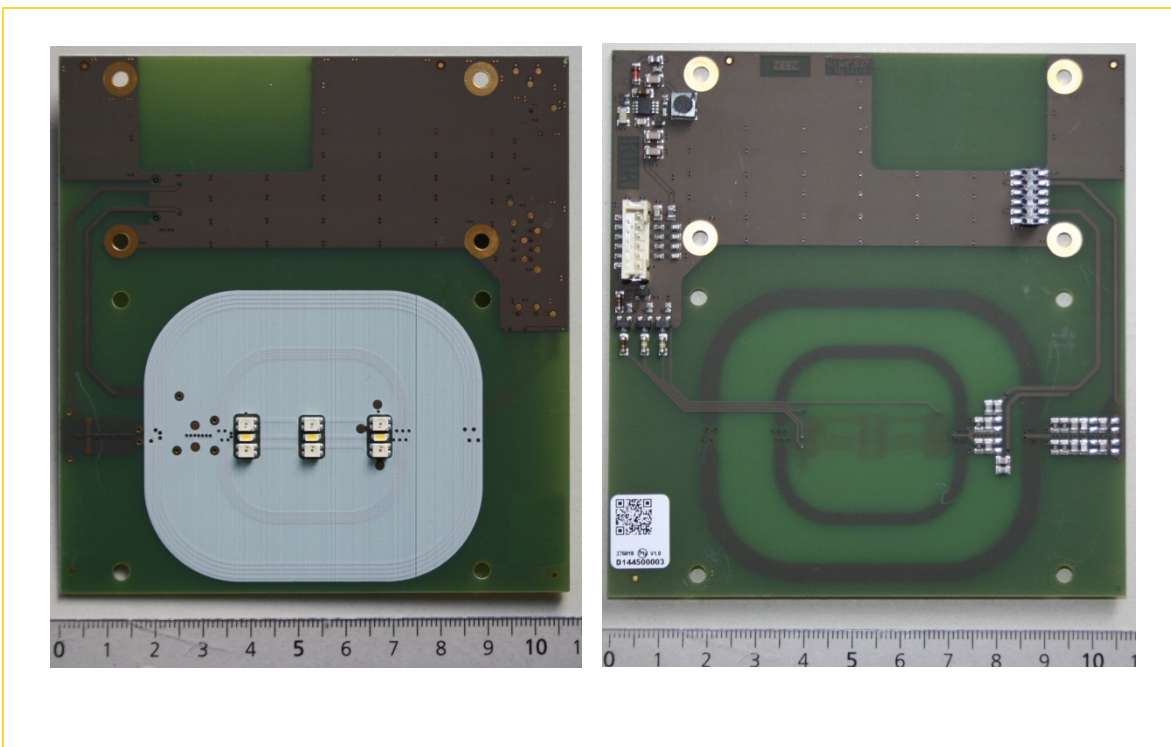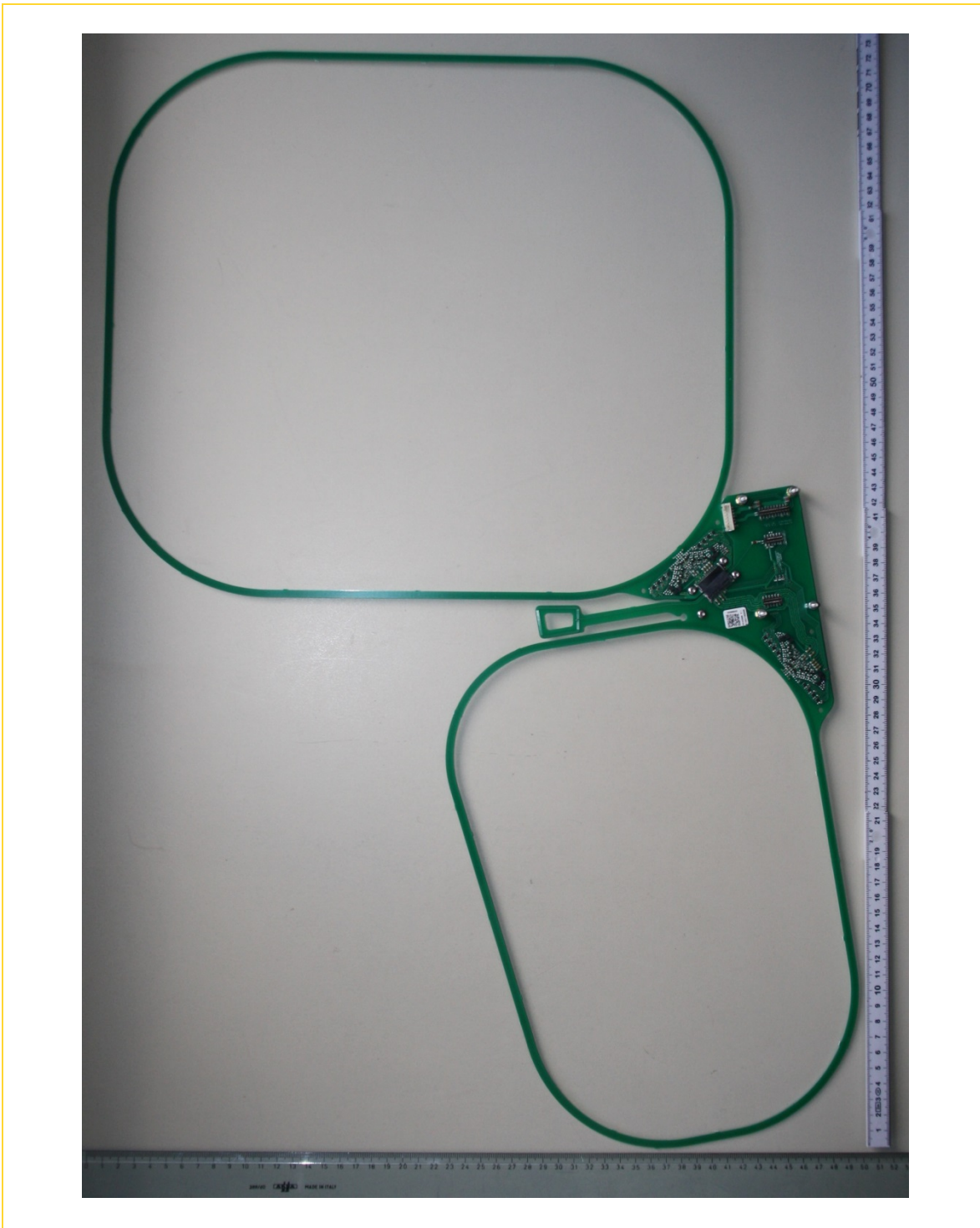
The sd877 acts as an antenna and as an illumination. The antenna part is completely independent from the illumination.

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Fig. 22: *sd888*

Antennas A and B

The sd888 is equipped with a special connector which fits into X015 of the sd905 and will therefore be powered as a bridge circuit.
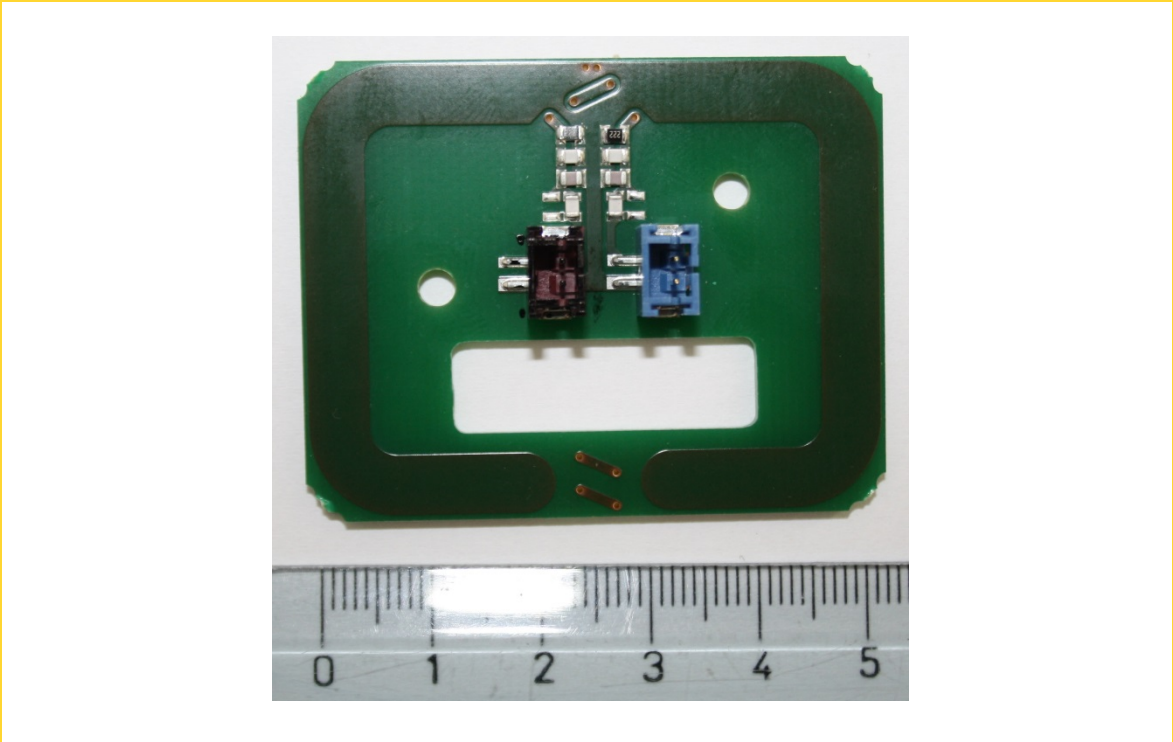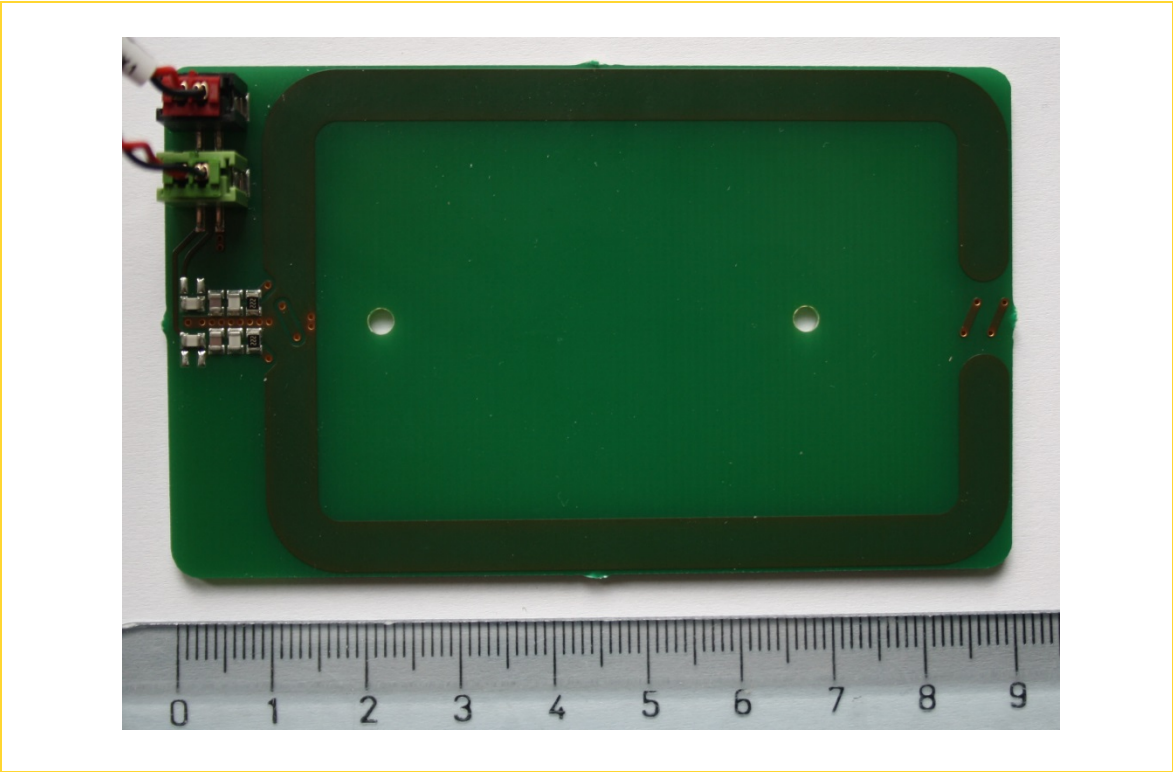
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Fig. 23: *sd901*
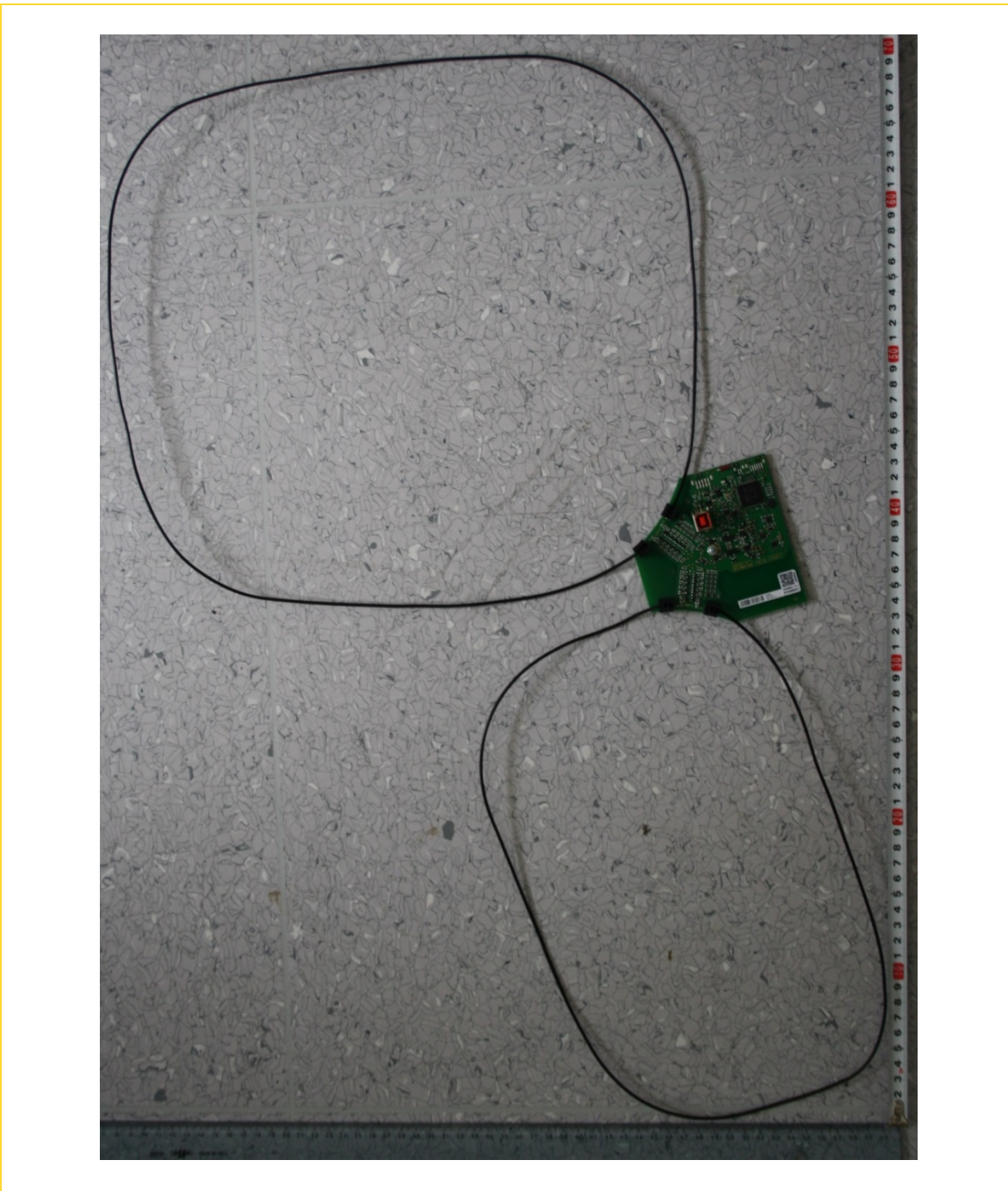

Fig. 24: *sd902*

Fig. 25: *sd906*

Antenna Loop A: 1 turn
Antenna Loop B: 1 turn

The sd906 is a modified compound of the sd905 with antenna sd888 on one single PCB. The antenna loops are made of wire. The technical data is altered as follows:

— Operating Temperature: −40 °C to +85 °C
— <u>Not</u> compatible with ISO 14443
— USB connection only – <u>no</u> RS232 data link

5. Integration into Devices

5.1 Integration into CO LIGHT

Fig. 26: Inside view of CO LIGHT with shows sd905 wih Antenna sd572

5.2   Integration into Ski Antenna

Fig. 27: Inside view of Ski Antenna which shows sd905 with Antenna sd888

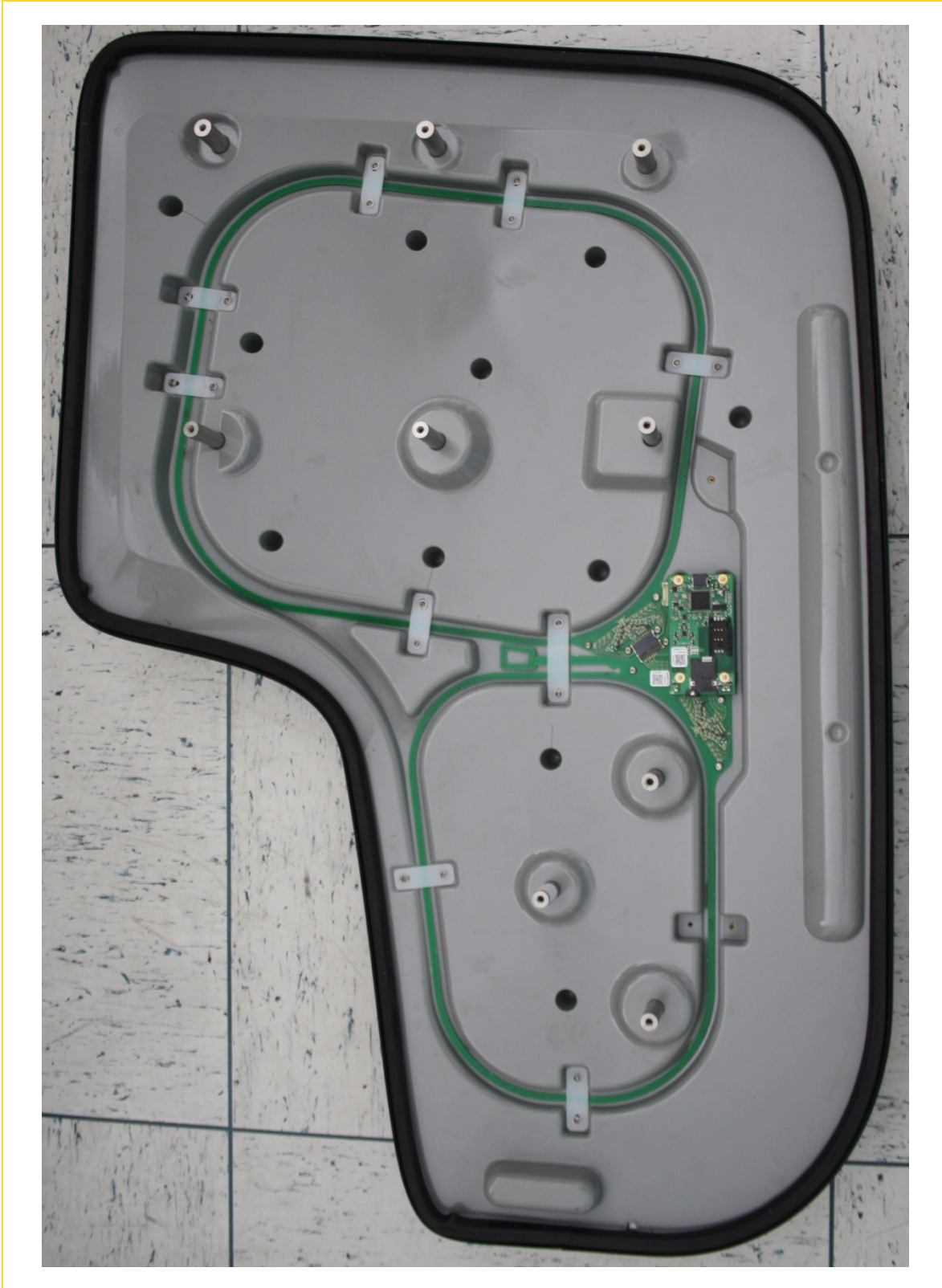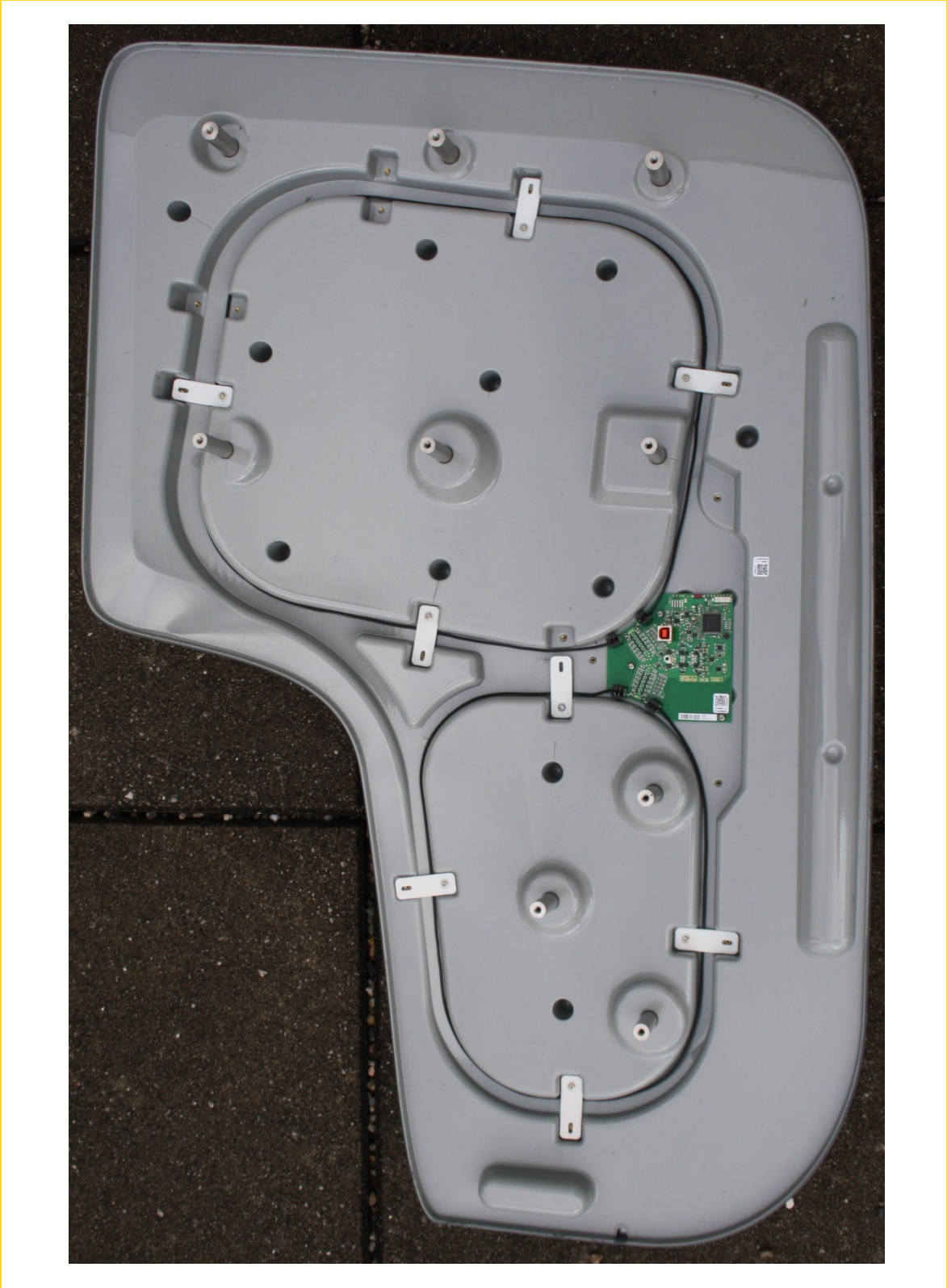*Fig. 28: Inside view of Ski Antenna which shows sd906with wire loops*

6. 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-SD905" or "Contains FCC ID QSS-SD905". Any similar wording that expresses the same meaning may be used.

For Canada:

"Contains Transmitter Module IC:6215A-SD905" or "Contains IC:6215A-SD905". Any similar wording that expresses the same meaning may be used.

7. 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.

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.