The WRM-Installation manual

NOTE

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ATTENTION

The RDS-32 Radiation Survey Meter does not contain any hazardous or dangerous substances and can be recycled accordingly. The batteries of the device must be recycled separately as instructed by the manufacturer of the batteries.

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FCC Compliance Statement

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.

Modifications: Any modifications made to this device that are not approved by Mirion Technologies Oy may void the authority granted to the user by the FCC to operate this equipment.

IC Compliance Statement:

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-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 sus-ceptible d'en compromettre le fonctionnement.

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2. GENERAL

This document describes the installation of the 915 MHz WRM-radio (**XB Pro 900 HP)** in the RDS-32 -meter.

3. RDS-32 METER PREPARATION

3.1 RF-MODULE PREPARATION

The preparation is as follows:

NOTE! The antenna is fragile and must not be bent.

The RF-module contacts (1-10) are cut to a length of 2,5 mm as shown in Figure 1.

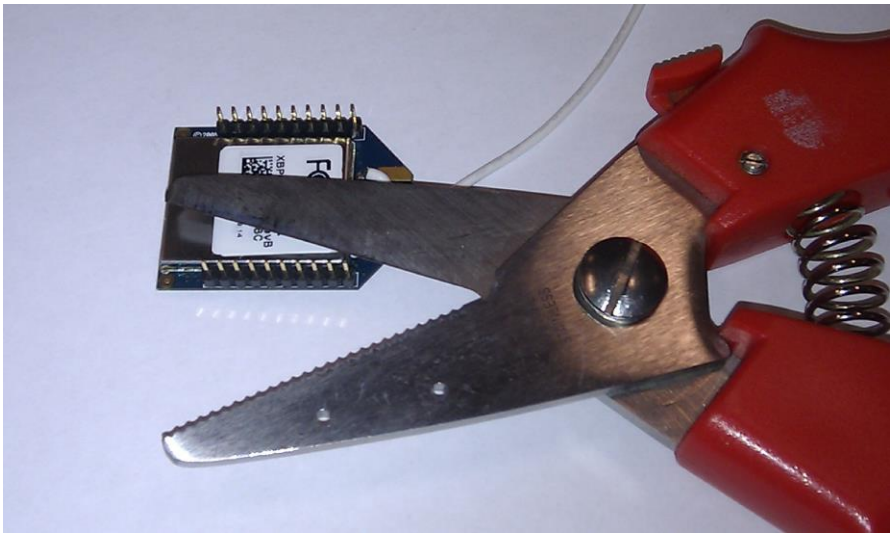

Figure 1. The cutting and trimming of the contacts of the RF-module contacts.

1. Attach the 2×16 mm piece of dual- sided adhesive tape to the 21220028 RF-module as shown in Figure 2.

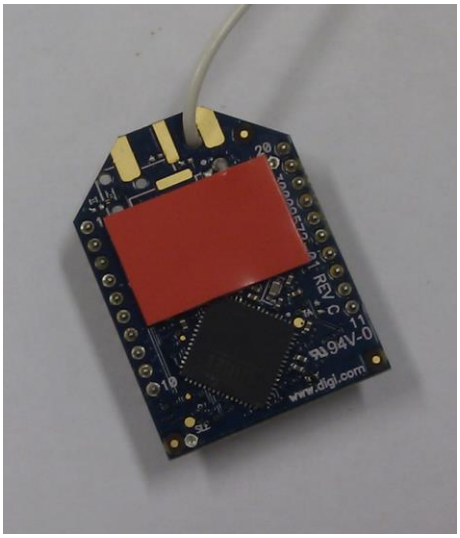

Figure 2.
The positioning of the dual-sided tape.

2. Attach the super-conductor 21638023 with the paper side upwards to the module as shown in Figure 3.The soldering can be trimmed.

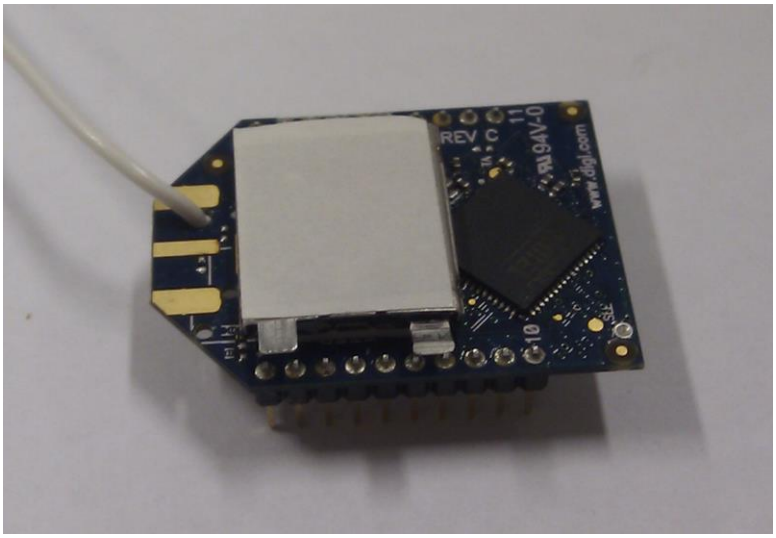

Figure 3. The attaching of the super-cpnductor to the RF-module.

3. The Flex print JRG 20566322 (version B) is soldered askew to the cut connectors of the RF-module as shown in Figure 4.

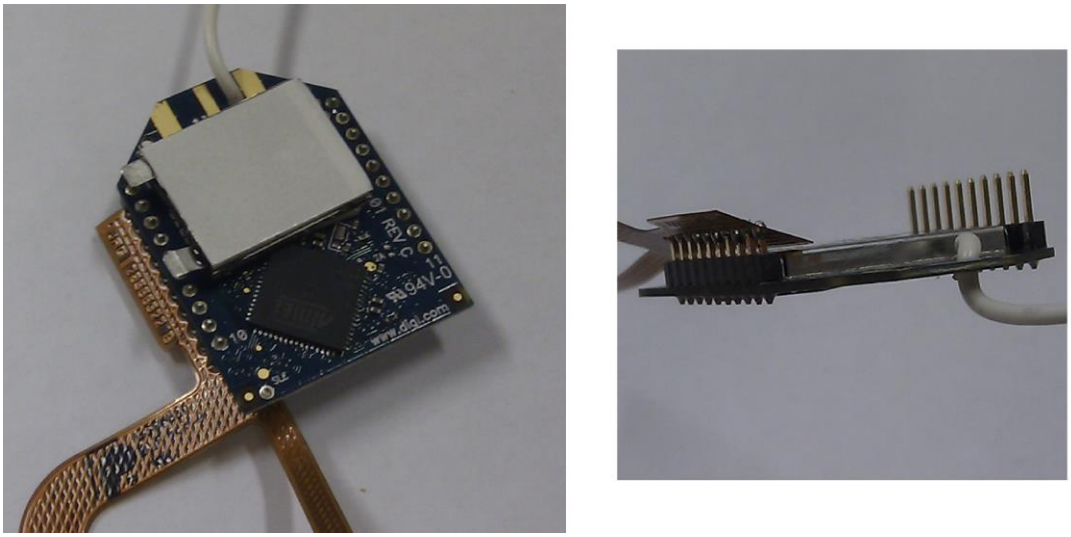

Figure 4. The soldering of the flex print to the RF-module.

4. The flex print is soldered to the super-conductor as shown in Figure 4.
5. The protectice paper is removed from the super-conductor. The Mirion FCC-label is attached as shown in Figure 5.

Figure 5 The Mirion FCC-label

4. FINAL ASSEMBLY AND THE FUNCTIONALITY TESTING

4.1 THE RF-MODULE INSTALLATION

The RF-module is installed on top of the KRO-board on the HV-convertor's interference shield as follows:

1. The interference shield's surfaces are cleaned with rubbing alcohol to remove any grease residues.
2. The askew edge of the interference shield is covered with two layers of polyethene adhesive tape 21220033 as shown in Figure 6.

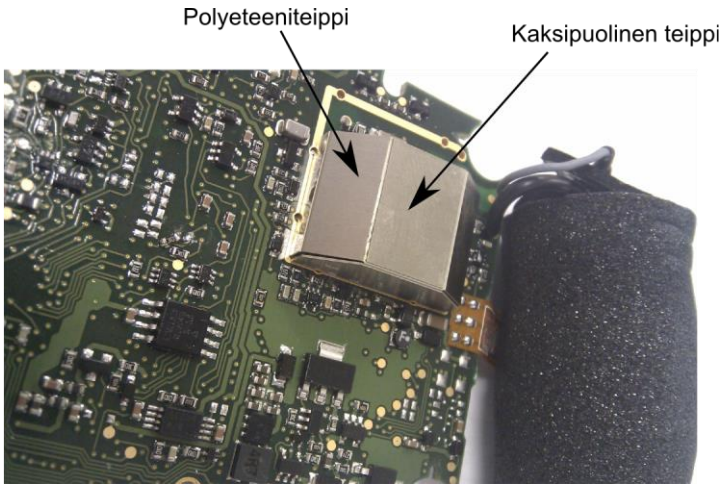

Figure 6. The attaching of the polyethene tape and the dual-sided adhesive tape on top of the interference shield.

3. A piece of dual-sided adhesive tape (approx. 16×12 mm) is attached on top of the interference shield as shown in Figure 7. The tape is pressed with fingers to ensure that the adhesive tape attaches itself properly.

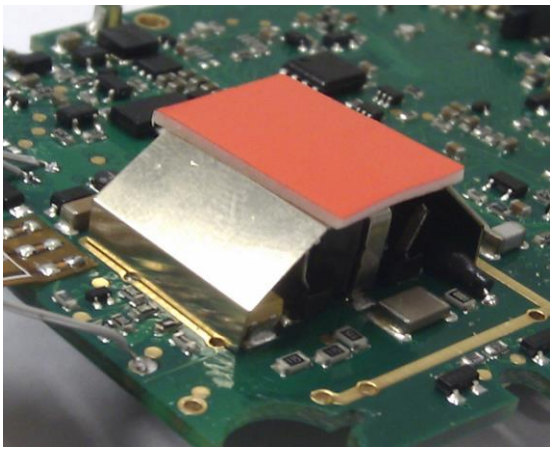

Figure 7. The dual-sided adhesive tape on top of the interference shield.

4. The RF-module is attached on top of the interference shield as shown in Figure 8. When viewed from the side, the contacts of the RF-module must not come in contact with the interference shield's slanted sides (Figure 9.). The RF-module must be pressed for a while to ensure that the adhesive tape has attached itself properly.

   The antenna is positioned as shown in the pictures below.

   Antenna type is: 24AWG Full length: 75mm, Gain: 1.9 dBi (max)

Figure 8 The positioning of the RF-module on the KRO-board.

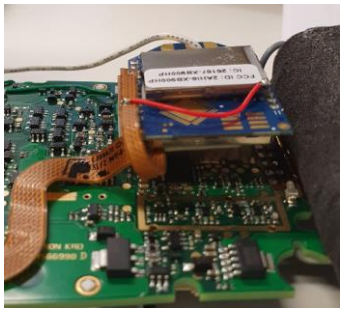

Figure 9 The positioning of the RF-module on the KRO-board

5. The flex print is connected to the connector K16 on the IRC-board, Figure 9.

4.2 THE INSTALLATION OF THE KRO-BOARD IN THE RDS-32 CASING

The installation of the component board in the casing is performed as in the assembly instruction 2096 7154. The proper positioning of the RF-module antenna must be ensured as in Figure 10.

Figure 10. The positioning of the RF-module antenna within the RDS-32 casing.

5. CALIBRATION AND TESTING

5.1 CALIBRATION AND TESTING

The calibration and testing are carried out as in the instruction 2096 7154.

5.2 THE PRODUCTION CLIMATE TESTS

The climate tests are performed according to instruction 2096 7177.

5.3 THE TESTING OF THE RF-MODULE

5.3.1 THE RF-MODULE TESTING

The testing of the RF-module is performed after the production climate tests.

If the tested device's RF module uses a certain forbidden frequency, the device must be in an electromagnetically shielded space during the test where that certain frequency is blocked.

1. Connect the meter's USB-cable and establish the connection with the RDS-31 Service-program (”RDS-31 Service.exe”)
2. Move to the Config-sheet of the RDS-31 Service program and retrieve the meter's settings by pressing 'Get'.
3. Start the RF-module by checking the Group 4's WRM-box: 'WRM Used'.

   If you are using an older version of the RDS-31 service program, the correct check box option is ”not used 7”, which stands for 'WRM Used'.
4. Store the data by pressing 'Set'. The meter must be switched off thereafter.
5. Detach the USB-cable from the meter.
6. Re-start the meter and set the transmission interval of the WRM to '2s' from the WRM-menu in the meter.
7. Connect a radio receiver (operating on the meter's frequency) to the testing PC's USB-port.
8. Start the TERMINAL program in the PC.
9. Select 'Communications' from the TERMINAL program's Settings menu and set the Connector to the port used by the radio receiver.
10. Set the Baud Rate at 19200.
11. Set the Flow Control to 'None'.
12. Press OK.
13. Numeric strings should appear therafter in the TERMINAL-program's interface.

    If not, the device may be defective.
14. Connect 5V to the Binder connector. (+5V pin 8 red, 0V pin 7 blue).

15. Measure the currency from the external output. The currency must be at a level of 1 ... 2mA with spikes of 10mA in between.
16. Remove the external power input from the Binder connector.
17. Set the transmission interval at ’30s’ from the meter’s menu and switch the meter off thereafter.
18. Once the radio receiver has been connected to the computer and the settings in the TERMINAL-program are correct, the phases 1-6 and 13—17 can be repeated.

6. FINALIZATION

6.1 THE ATTACHMENT OF THE LABEL AND THE SETTING OF THE S/N

The label of the meter is attached Figure 11.

The 8-digit serial number is attached (21220040), which is of the type: 71xxxx, where the xxxx is a running number.

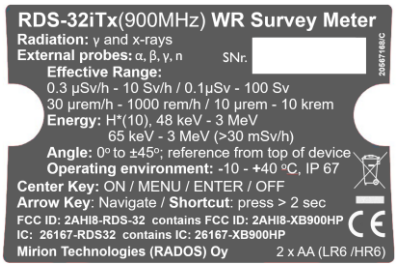

Figure 11. RDS-32iTx WR -label.

6.2 PACKING

6.3 RDS-32iTX PACKAGING

The meter is packaged as 1233-321 RDS-32S22.

REFERENCES

The Digi-Internation manual: **Digi International XB Pro 900 HP Manual 1792196**

The RDS-32 manual: **User Manual RDS-32 Survey Meter**

The Maximum Permissible Exposure report

APPENDIX A: AGENCY CERTIFICATIONS FOR S3B HARDWARE

FCC (United States) Certification / ISED Certification

The XBee-PRO® 900HP/XBee-PRO® XSC RF Module complies with Part 15 of the FCC rules and regulations. Compliance with the labeling requirements, FCC notices and antenna usage guidelines is required.

In order to operate under 's FCC Certification, RF Modules/integrators must comply with the following regulations:

1. The system integrator must ensure that the text provided with this device [Figure A-01] is placed on the outside of the final product and within the final product operation manual.

2. The XBee-PRO® 900HP/XBee-PRO® XSC RF Module may only be used with antennas that have been tested and approved for use with this module.

Labeling Requirements

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 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.

Host labeling requirement: Contains transmitter module:

FCC ID: 2AHI8-XB900HP
IC: 26167-XB900HP

FCC Notices

IMPORTANT: The XBee-PRO® 900HP/XBee-PRO® XSC OEM RF Module has been certified by the FCC for use with other products without any further certification (as per FCC section 2.1091). Modifications not expressly approved by could void the user's authority to operate the equipment.

IMPORTANT: This modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification.

IMPORTANT: OEMs must test final product to comply with unintentional radiators before declaring compliance of their final product to Part 15 Subpart B of the FCC Rules.

IMPORTANT: The RF module has been certified for portable applications.

The Omni-directional antenna below has been approved for use with this module when installed into the host device. The antenna Gain with Cable loss is less than 1.9 dBi.

FCC-approved Antennas

WARNING: The host device can only use the approved monopole antenna. The specifications and installation instructions of the antenna are described in Chapter 4.

Portable Applications and SAR Testing

The module can be used at distances closer than 20cm to all persons. The host device's frame's thickness shall be 3,2mm and this guarantees the safe use according to the Maximum Permissible Exposure report. The minimum separation distance is less than the device's frame thickness. According to the calculations, the WRM radio can be excluded from further SAR testing.

The approved module must not operate simultaneously with any other antenna or transmitter with the host device.

Grant note 20:
All electrical and mechanical devices employed for spurious radiation suppression, including any modifications made during certification testing, must be incorporated in each unit marketed.

Warning: The operators of part 15 devices must cease operation if harmful interferences should occur.

FEEDBACK

We are continuously working hard at producing correct and easy-to-read technical documents. However, complex systems are often difficult to explain or understand and therefore mistakes or inadequacies may occur occasionally in the documentation process. To correct these errors, we would like to hear your opinion on this document.

You can submit your feedback on our website www.mirion.com filling out the contact form. Alternatively, you can directly contact the manufacturing site for RDS-32:

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Same contact information applies for all service-related matters.

As standards, specifications and design are subject to change over a period of time, please request for the confirmation of the information given in this publication.

For additional information on Mirion products and solutions please visit our webpage www.mirion.com.