# Accredited testing-laboratory

**DAR registration number: DAT-P-176/94-D1**

**Federal Motor Transport Authority (KBA)**
**DAR registration number: KBA-P 00070-97**

**Recognized by the Federal Communications Commission**
**Anechoic chamber registration no.: 90462 (FCC)**
**Anechoic chamber registration no.: 3462C-1 (IC)**
**Certification ID: DE 0001**
**Accreditation ID: DE 0002**

**Accredited Bluetooth® Test Facility (BQTF)**



| | | |
|---|---|---|
| **Test report no.** | **:** | **1-1309-01-07/09-A** |
| **Type identification** | **:** | **WTX TA434** |
| **Applicant** | **:** | **Synapse GmbH** |
| **FCC ID** | **:** | **XSU-CAREWATCH** |
| **IC Certification No** | **:** | **8675A-CAREWATCH** |
| **Test standards** | **:** | **47 CFR Part 15** |
| | | **RSS - 210 Issue 7** |

# Table of contents

# 1 General information

## 1.1 Notes

The test results of this test report relate exclusively to the test item specified in 3.1.1. The CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

**Test laboratory manager:**

| **2010-04-12** | **Daniel Muyunga** | |
|---|---|---|
| Date | Name | Signature |

**Technical responsibility for area of testing:**

| **2010-04-12** | **Stefan Bös** | |
|---|---|---|
| Date | Name | Signature |

## 1.2 Testing laboratory

**CETECOM ICT Services GmbH**

**Untertürkheimer Straße 6 - 10**
**66117 Saarbrücken**
**Germany**
**Phone: + 49 681 5 98 - 0**
**Fax: + 49 681 5 98 - 9075**
**e-mail: info@ICT.cetecom.de**
**Internet: http://www.cetecom-ict.de**

**State of accreditation:** **The test laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025**
**DAR registration number: DAT-P-176/94-D1**

**Accredited by:** **Federal Motor Transport Authority (KBA)**
**DAR registration number: KBA-P 00070-97**

**Testing location, if different from CETECOM ICT Services GmbH:**

**Name :**
**Street :**
**Town :**
**Country :**
**Phone :**
**Fax :**

## 1.3 Details of applicant

| | |
|---|---|
| Name: | **Synapse GmbH** |
| | |
| | |
| Street: | **Falkenstrasse 19** |
| Town: | **2500 Biel** |
| Country: | **SWITZERLAND** |
| | |
| Telephone: | |
| Fax: | **+41 32 341 02 11** |
| | |
| Contact: | **Stephan Bühler** |
| E-mail: | **buehler@synapse-co.ch** |
| Telephone: | **+41 32 341 27 48** |

## 1.4 Application details

| | |
|---|---|
| Date of receipt of order: | **2009-05-27** |
| | |
| Date of receipt of test item: | **2009-10-12** |
| | |
| Date of start test: | **2009-10-12** |
| Date of end test | **2009-10-13** |
| | |
| Persons(s) who have been present during the test: | **Stephan Bühler**<br>**Synapse GmbH** |

## 2 Test standard/s

| | | |
|---|---|---|
| **47 CFR Part 15** | **2008-07** | **Title 47 of the Code of Federal Regulations; Chapter I-Federal Communications Commission<br>subchapter A - general, Part 15-Radio frequency devices** |
| **RSS - 210 Issue 7** | **2007-06** | **Spectrum Management and Telecommunications - Radio Standards Specification<br>Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment** |

# 3 Technical tests

## 3.1 Details of manufacturer

| | |
|---|---|
| Name: | **Synapse GmbH** |
| | |
| | |
| Street: | **Falkenstrasse 19** |
| Town: | **2500 Biel** |
| Country: | **SWITZERLAND** |

## 3.2 Test Item

| | | |
|---|---|---|
| Kind of test item | : | **Alarm trigger in a watch** |
| Type identification | : | **WTX TA434** |
| | | |
| S/N serial number | : | **40 983 00049** |
| HW hardware status | : | **B_434_v 0.2** |
| SW software status | : | **TA A V 1.04** |
| Frequency Range (or fixed frequency) | : | **434 MHz** |
| Type of Modulation | : | **FSK** |
| Number of channels | : | **1** |
| Antenna information | : | **PCB stripe antenna** |
| Power Supply | : | **3 V DC Lithium battery** |
| Temperature Range | : | **-20 °C to +55 °C** |

**Max. field strength:** **69.7 dBµV/m AV at 3 m distance**

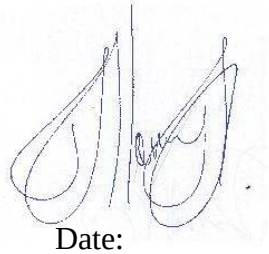
**FCC ID:** **XSU-CAREWATCH**
**IC:** **8675A-CAREWATCH**

## 3.3 Additional EUT information For IC Canada (appendix 2)

| | |
|---|---|
| IC Registration Number: | **8675A-CAREWATCH** |
| Model Name: | **WTX TA434** |
| Manufacturer (complete Address): | **Synapse GmbH<br>Falkenstrasse 19<br>2500 Biel<br>SWITZERLAND** |
| Tested to Radio Standards Specification (RSS) No.: | **RSS-210 Issue 7** |
| Open Area Test Site Industry Canada Number: | **IC 3462C-1** |
| Frequency Range (or fixed frequency) [MHz]: | **434** |
| Field Strength (at what distance): | **69.7 dBµV/m AV at 3 m distance** |
| Antenna Type: | **PCB stripe antenna** |
| Occupied Bandwidth (99% BW) [kHz]: | **9.91** |
| Type of Modulation: | **FSK** |
| Emission Designator (TRC-43): | **9K91F1D** |
| Transmitter Spurious (worst case) [dBµV/m in 3m]: | **57.72 peak** |
| Receiver Spurious (worst case) [dBµV/m in 10m]: | **Not applicable (only transmitter)** |

ATTESTATION: I attest that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned departmental standard(s), and that the radio equipment identified in this application has been subject to all applicable test conditions specified in the departmental standards and all of the requirements of the standards have been met.

Signature:



Date: 2010-04-12
Test engineer: Daniel Muyunga

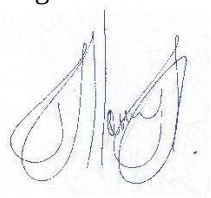
## 3.4 RF Technical Brief Cover Sheet acc. To RSS-102

**Declaration of RF Exposure Compliance for Exemption from Routine Evaluation Limits**

**ATTESTATION:** I attest that the radiocommunication apparatus meets the exemption from the routine evaluation limits in Section 2.5 of this standard; that the Technical Brief was prepared and the information contained therein is correct; that the device evaluation was performed or supervised by me; that applicable measurement methods and evaluation methodologies have been followed; and that the device meets the SAR and/or RF field strength limits of RSS-102.

Name: Daniel K. Muyunga
Title: Dipl.-Ing. (FH)
Company: Cetecom ICT Services GmbH
Date: 2010-04-12

Signature:



## 3.5 Extreme conditions testing values

| Description | Shortcut | Unit | Value |
|---|---|---|---|
| | | | |
| Nominal Temperature | $T_{nom}$ | °C | **+23** |
| Nominal Humidity | $H_{nom}$ | % | **38** |
| Nominal Power Source | $V_{nom}$ | V | **3** |

Type of power source: **DC Lithium battery**

# 4 Statement of Compliance

## 4.1 Summary of Measurement Results

☒ **No deviations from the technical specifications were ascertained**

☐ There were deviations from the technical specifications ascertained

## 4.2 CFR 47 Part 15 Unintentional Radiators

| Section in this Report | Test Name / Section FCC Part 15 | Test Name / Section RSS 210 Issue 7 | Measurement applicable | Verdict |
|---|---|---|---|---|
| 6.1 | § 15.35 (c)<br>Timing of the transmitter (Duty cycle correction factor ) | RSS-GEN Issue 2<br>Section 4.5 | YES | PASS |
| 6.2 | § 15.231 (a) (1)<br>Switch off time | RSS-210 Issue 7<br>Section A1.1.1 | YES | PASS |
| 6.3 | § 15.231 (3) (c)<br>Emission Bandwidth | RSS-210 Issue 7<br>Section A1.1.3 | YES | PASS |
| 6.4 | § 15.231 (b)<br>Fieldstrength of Fundamental | RSS-210 Issue 7<br>Section A1.1.2 / 2.7 Table 4 | YES | PASS |
| 6.5 | § 15.209<br>Fieldstrength of harmonics and spurious | RSS-210 Issue 7<br>Section 2.7 Table 4 | YES | PASS |
| 6.6 | § 15.209<br>Receiver spurious emissions (radiated) | RSS-GEN Issue<br>Section 6 | NO | -/- |

# 5 Measurements and results

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 20 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber.
The receiving antennas are confirmed with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2003 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test set-ups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received.
The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.4-2003 clause 4.2.
Antennas are confirmed with ANSI C63.2-1996 item 15.

9 kHz - 30 MHz: Quasi Peak measurement, 9 kHz Bandwidth, active loop antenna.

30 MHz - 200 MHz: Quasi Peak measurement, 120 kHz Bandwidth, biconical antenna

200MHz - 1GHz: Quasi Peak measurement, 120 kHz Bandwidth, log periodic antenna

>1GHz: Average, RBW 1MHz, VBW 10 Hz, wave guide horn

All measurement settings are according to FCC 15.109 and 15.107

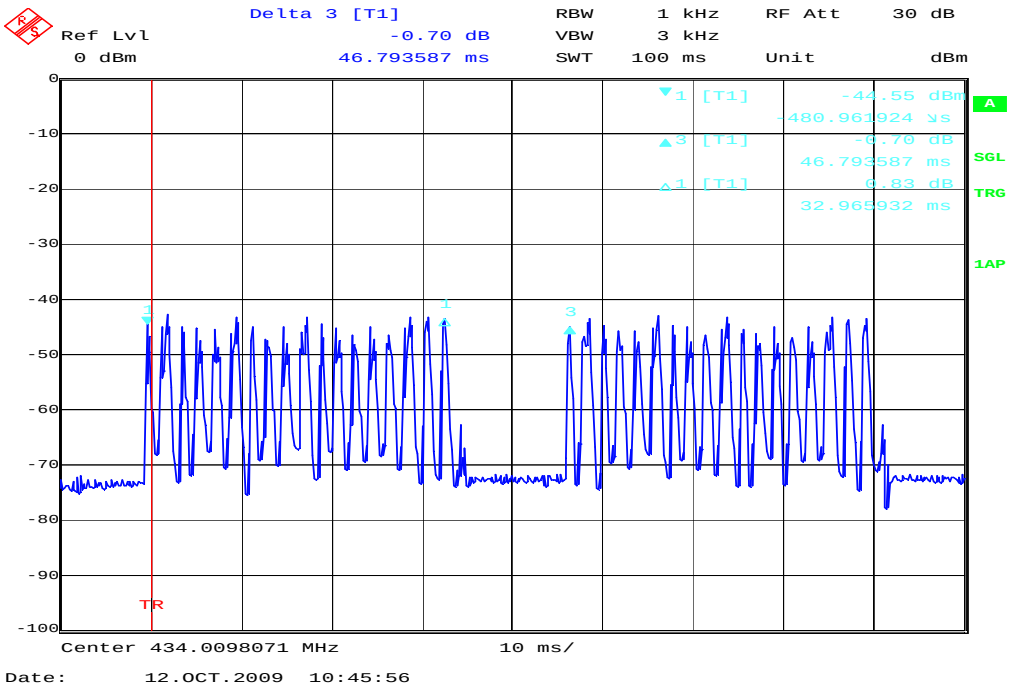
# 6 FCC Part 15 Subpart C

## 6.1 Timing of the transmitter

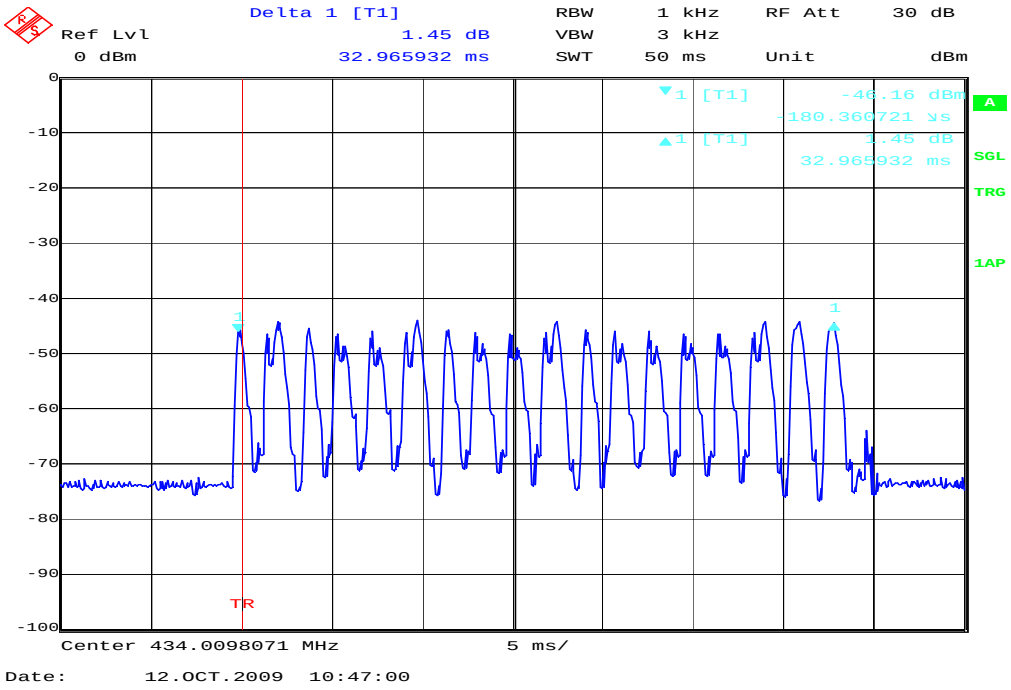
**Reference**

| | |
|---|---|
| FCC: | CFR Part SUBCLAUSE § 15.35 (c) |
| IC: | RSS-GEN Issue 2 Section 4.5 |

Plot 1: Timing of the Transmitter



Plot 2: Zoomed Transmit burst




| | | | |
|---|---|---|---|
| Transmit time (Tx on) | = | 33 ms | (Plot 1) |
| Tx on + Tx off | = | 47 ms | (Plot 1) |

Considering a duty cycle of around 50 % inside the transmit burst (Plot 2), the transmit time should now be reduced to 16.5 ms.

The peak-to-average correction factor is calculated by 20Log (Tx on/(Tx on + Tx off)).
Hereby the peak-to-average correction factor is -9.1 dB.

**Limits:** § 15.35 (c)

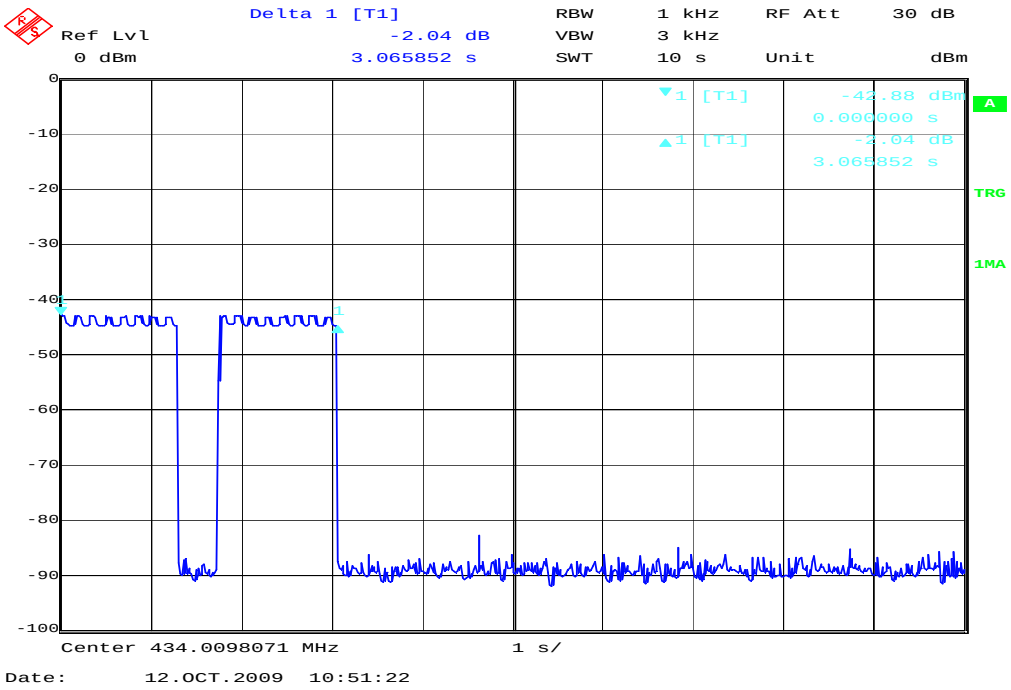
(c) Unless otherwise specified, e.g. Section 15.255(b), when the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value. The exact method of calculating the average field strength shall be submitted with any application for certification or shall be retained in the measurement data file for equipment subject to notification or verification.

## 6.2 Switch off time

**Reference**

| | |
|---|---|
| FCC: | CFR Part SUBCLAUSE § 15.231 (a) (1) |
| IC: | RSS-210 Issue 7 Section A1.1.1 |

Plot 1:




When activating the EUT transmits only a maximum of 2 bursts and then goes inactive regardless of whether the switch is subsequently released or not. The maximum active time of the transmitter doesn't exceed 3.06 s.

**Limits:** § 15.231 (a) (1)

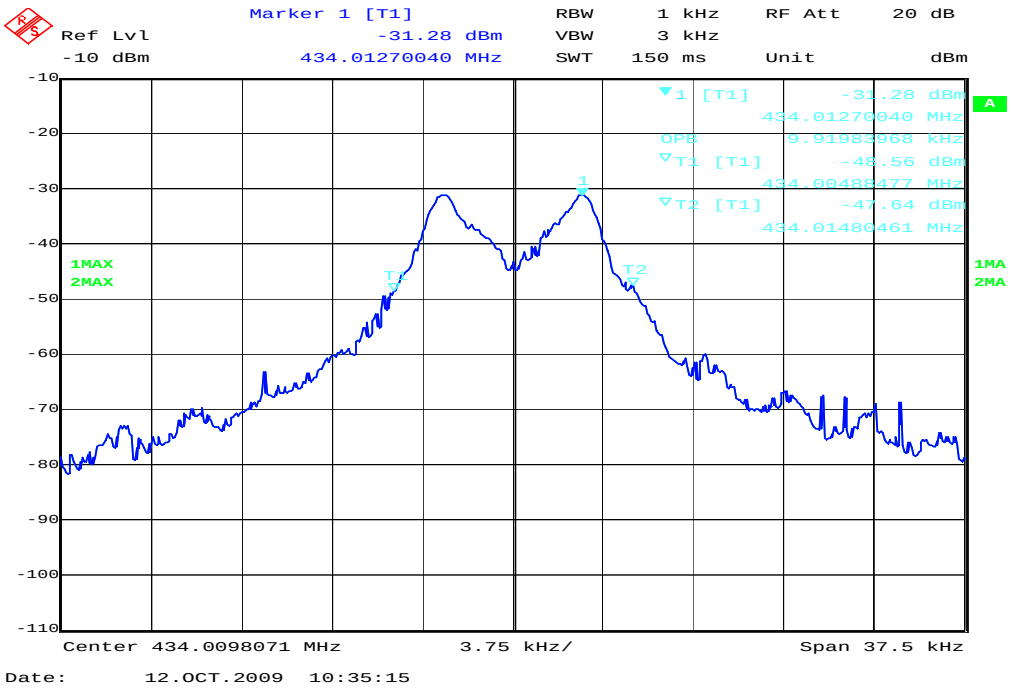
| |
|---|
| A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released. |

## 6.3 Emission Bandwidth

**Reference**

| | |
|---|---|
| FCC: | CFR Part SUBCLAUSE § 15.231 (c) |
| IC: | RSS-210 Issue 7 Section A1.1.3 |

Plot 1:




The emission bandwidth at 20 dB is 9.91 KHz

Limit: **§ 15.231 (3) (c)**

| |
|---|
| The OBW shall not be wider than 0.25 % of the centre frequency, here maximum 787.5 kHz. |

## 6.4 Field Strength of the Fundamental

**Reference**

| | |
|---|---|
| FCC: | CFR Part SUBCLAUSE § 15.231 (b) |
| IC: | RSS-210 Issue 7 Section A1.1.2 / 2.7 Table 4 |

### MAXIMUM FIELD STRENGTH

| TEST CONDITIONS | | MAXIMUM FIELD STRENGTH (dBµV/m at 3 m distance) | | |
|---|---|---|---|---|
| Frequency | | 434 MHz | 434 MHz | 434 MHz |
| Mode | | Peak | Average | Quasi-Peak |
| $T_{nom}$ = 23 °C | $V_{nom}$= 3 V DC | 78.8 | 69.7* | 62.7 |
| Measurement uncertainty | | ±3dB | | |

RBW/VBW: 120 KHz/100 KHz

*Value recalculated from Peak-to-Average correction factor described in 6.1

**Limits (Average Values)** **SUBCLAUSE § 15.231 (b)**

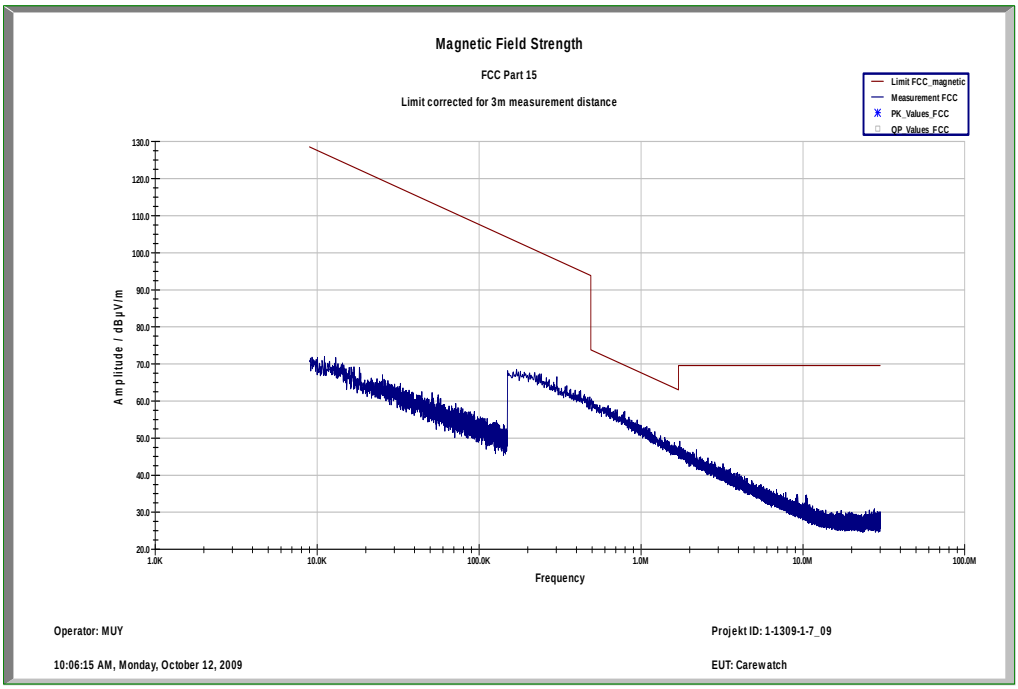
| Fundamental Frequency (MHz) | Field strength of Fundamental (µV/m) | Field strength of spurious(µV/m) |
|---|---|---|
| 40.66 – 40.70 | 2,250 | 225 |
| 70-130 | 1,250 | 125 |
| 130-174 | 1,250 to 3,750 | 125 to 375 |
| 174-260 | 3,750 | 375 |
| **260-470 (434)** | **3,750 to 12,500 (80.82 dBµV/m)** | **375 to 1,250 (60.82 dBµV/m)** |
| Above 470 | 12,500 | 1,250 |

## 6.5 Field Strength of the Harmonics and Spurious

**Reference**

| | |
|---|---|
| FCC: | CFR Part SUBCLAUSE § 15.231 (b) |
| IC: | RSS-210 Issue 7 Section 2.7 Table 4 |

**Part 15.109 Magnetics**
Measurement distance 3m and the limits were corrected for 3 m measurement distance




**Limits** **SUBCLAUSE § 15.209**

| Frequency (MHz) | Field strength (µV/m) | Measurement distance (m) |
|---|---|---|
| 0.009 – 0.490 | 2400/F(kHz) | 300 |
| 0.490 – 1.705 | 24000/F(kHz) | 30 |
| 1.705 - 30 | 30 | 30 |
| 30 - 88 | 100 | 3 |
| 88 - 216 | 150 | 3 |
| 216 - 960 | 200 | 3 |
| above 960 | 500 | 3 |

Plot 1: Tx: 30 MHz – 1 GHz

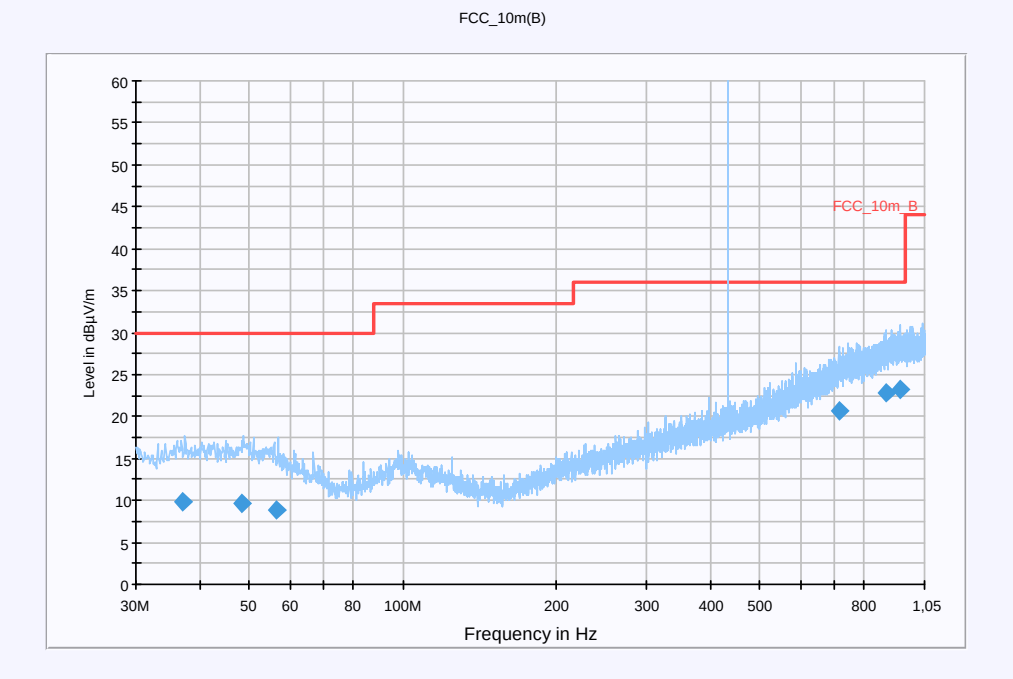
**Information**

| | |
|---|---|
| **EUT:** | WTX TA434 |
| **Serial Number:** | 40 983 00049 |
| **Test Description:** | FCC part 15 class B @ 10 m |
| **Operating Conditions:** | TX 434 MHz |
| **Operator Name:** | Hennemann |
| **Comment:** | battery powered / carrier @ 434 MHz |

**Scan Setup: STAN_Fin [EMI radiated]**

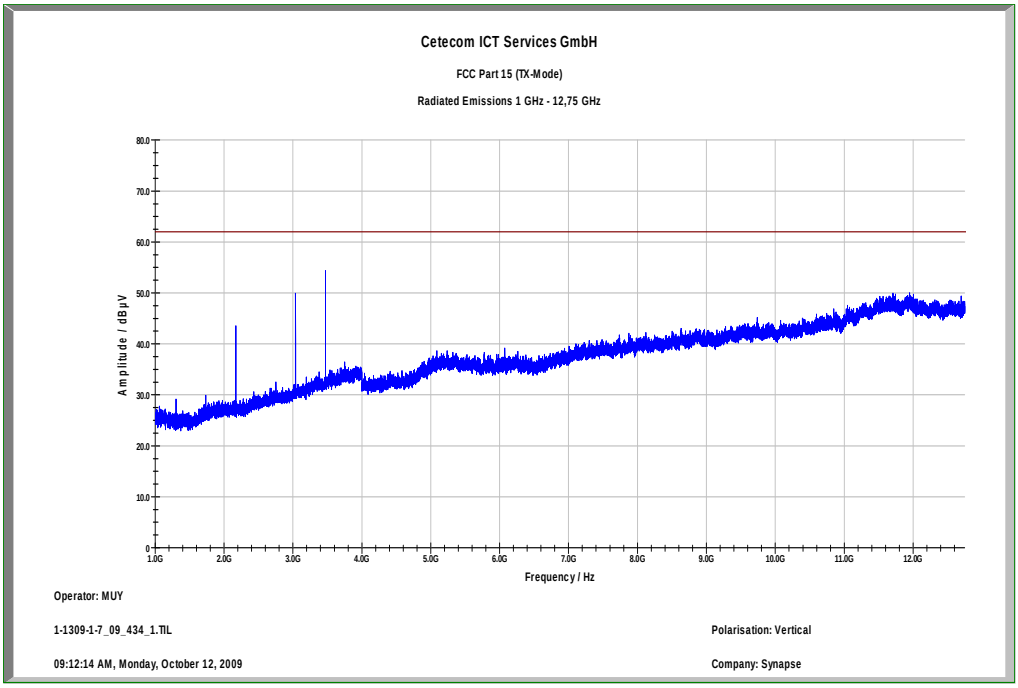
| | |
|---|---|
| **Hardware Setup:** | Electric Field (NOS) |
| **Level Unit:** | dBµV/m |

| Subrange | Detectors | IF Bandwidth | Meas. Time | Receiver |
|---|---|---|---|---|
| 30 MHz - 1 GHz | QuasiPeak | 120 kHz | 15 s | Receiver |

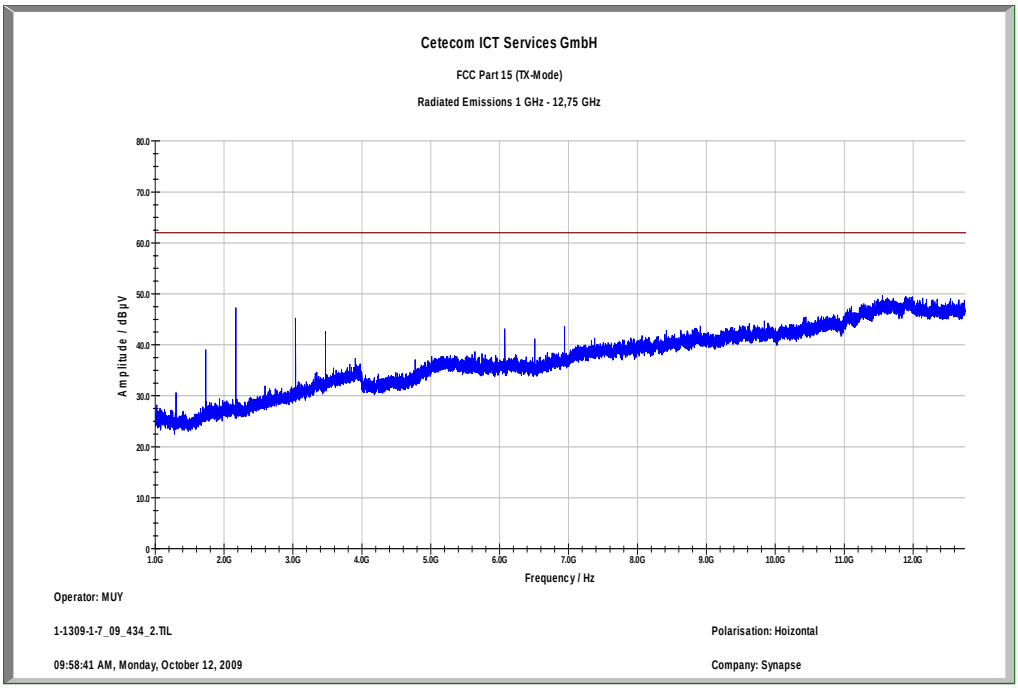



| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Antenna height (cm) | Polarity | Turntable position (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|---|---|---|---|---|---|---|---|---|---|
| 37.117950 | 9.9 | 15000.000 | 120.000 | 198.0 | V | 44.0 | 13.3 | 20.1 | 30.0 |
| 48.472350 | 9.7 | 15000.000 | 120.000 | 400.0 | H | 313.0 | 13.5 | 20.3 | 30.0 |
| 56.635650 | 8.9 | 15000.000 | 120.000 | 400.0 | V | 188.0 | 12.7 | 21.1 | 30.0 |
| 713.190900 | 20.6 | 15000.000 | 120.000 | 167.0 | V | 227.0 | 23.3 | 15.4 | 36.0 |
| 882.605250 | 22.9 | 15000.000 | 120.000 | 323.0 | V | 48.0 | 25.5 | 13.1 | 36.0 |
| 943.424250 | 23.3 | 15000.000 | 120.000 | 190.0 | H | 150.0 | 25.8 | 12.7 | 36.0 |

Plot 2:
Tx : 1 GHz – 12 GHz, Antenna Vertical




Plot 3:
Tx: 1 GHz – 12 GHz, Antenna Horizontal



| EMISSION LIMITATIONS | | | | |
|---|---|---|---|---|
| **f (MHz)** | **Detection mode PK/AV/QP** | **Amplitude of Emission (dBµV/m)** | **Max. allowed Average Limit** | **Results** |
| 343 | AV | 69.7 | 80.82 dBµV/m | Operating frequency |
| 1736.0 | PK | 45.31 | 20dBc or 62 dBµV/m and 54 dBµV/m in restricted bands | Complies |
| 2170.0 | PK | 47.16 | | Complies |
| 3038.2 | PK | 49.05 | | Complies |
| 3472.1 | PK | 57.72 | | Complies |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Measurement uncertainty | | | ± 3dB | |

**Limits (Average Values)** **SUBCLAUSE § 15.231 (b)**

| Fundamental Frequency (MHz) | Field strength of Fundamental (µV/m) | Field strength of spurious(µV/m) |
|---|---|---|
| 40.66 – 40.70 | 2,250 | 225 |
| 70-130 | 1,250 | 125 |
| 130-174 | 1,250 to 3,750 | 125 to 375 |
| 174-260 | 3,750 | 375 |
| 260-470(434) | 3,750 to 12,500 | 375 to 1,250 |
| Above 470 | 12,500 | 1,250 |

**Limits in restricted bands (Average Values)**

| Frequency (MHz) | Field strength (µV/m) | Measurement distance (m) |
|---|---|---|
| 0.009 – 0.490 | 2400/F(kHz) | 300 |
| 0.490 – 1.705 | 24000/F(kHz) | 30 |
| 1.705 - 30 | 30 | 30 |
| 30 - 88 | 100 | 3 |
| 88 - 216 | 150 | 3 |
| 216 - 960 | 200 | 3 |
| above 960 | 500 | 3 |

## 6.6 Receiver Spurious Emission (radiated)

**Reference**

| | |
|---|---|
| FCC: | CFR Part SUBCLAUSE § 15.109 |
| IC: | RSS-GEN Issue Section 6 |

**Not applicable**

**Limits** **SUBCLAUSE § 15.109**

| Frequency (MHz) | Field strength (µV/m) | Measurement distance (m) |
|---|---|---|
| 30 - 88 | 100 | 3 |
| 88 - 216 | 150 | 3 |
| 216 - 960 | 200 | 3 |
| above 960 | 500 | 3 |

# 7 Test equipment and ancillaries used for tests

To simplify the identification on each page of the test equipment used, on each page of the test report, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory, below.

All reported calibration intervals are calibrations according to the EN/ISO/IEC 17025 standard. These calibrations were performed from an accredited external calibration laboratory.
Additional to these calibrations the laboratory performed comparison measurements with other calibrated systems and performed a weekly chamber inspection.
All used devices are connected with a 10 MHz external reference.
According to the manufacturers' instruction is it possible to establish a calibration interval for the FSP unit of 24 month, if the device has an external 10 MHz reference.

***Anechoic chamber C:***

| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|---|---|---|---|---|---|---|---|
| 1 | Anechoic chamber | MWB | 87400/02 | 300000996 | Monthly verification | | |
| 2 | System-Rack 85900 | HP I.V. | * | 300000222 | n.a. | | |
| 3 | Measurement System 1 | | | | | | |
| 4 | PSA-Spektrumanalysator 3 Hz - 26.5 GHz (E4440A) | Agilent | MY48250080 | 300003812 | 05.08.2008 | 24 | 05.08.2010 |
| 5 | EMI Preselector 9 kHz - 1 GHz (N9039A) | Agilent | MY48260003 | 300003825 | 19.08.2008 | 24 | 19.08.2010 |
| 6 | Microwave Analog Signal Generator (N5183A) | Agilent | MY47420220 | 300003813 | 06.08.2008 | 24 | 06.08.2010 |
| 7 | PC | F+W | | | n.a. | | |
| 8 | TILE | TILE | | | n.a. | | |
| 9 | TRILOG Super Broadband Antenna (VULB9163) | Schwarzbeck | 371 | 300003854 | Monthly verification (System cal.) | | |
| 10 | Double Ridged Antenna 3115 | EMCO | 3088 | 300001032 | Monthly verification (System cal.) | | |
| 11 | Active Loop Antenna 6502 | EMCO | 2210 | 300001015 | Monthly verification (System cal.) | | |
| 12 | Switch / Control Unit 3488A | HP | 2719A15013 | 300001156 | n.a. | | |
| 13 | Power Supply 6032A | HP | 2818A03450 | 300001040 | 08.01.2009 | 36 | 08.01.2012 |
| 14 | Busisolator | Kontron | | 300001056 | n.a. | | |
| 15 | Leitungsteiler 11850C | HP | | 300000997 | Monthly verification (System cal.) | | |
| 16 | Power attenuator 8325 | Byrd | 1530 | 300001595 | Monthly verification (System cal.) | | |
| 17 | Band reject filter WRCG1855/1910 | Wainwright | 7 | 300003350 | Monthly verification (System cal.) | | |
| 18 | Band reject filter WRCG2400/2483 | Wainwright | 11 | 300003351 | Monthly verification (System cal.) | | |
| 19 | Hochpassfilter WHK1.1/15G-10SS | Wainwright | 3 | 300003255 | Monthly verification (System cal.) | | |
| 20 | Hochpassfilter WHKX2.9/18G-12SS | Wainwright | 1 | 300003492 | Monthly verification (System cal.) | | |
| 21 | Hochpassfilter WHKX7.0/18G-8SS | Wainwright | 18 | 300003789 | Monthly verification (System cal.) | | |
| 22 | Switch / Control Unit 3488A | HP | 2605e08770 | 300001443 | n.a. | | |
| 23 | Trenntrafo RT5A | Grundig | 9242 | 300001263 | n.a. | | |
| 24 | Relais Matrix PSU | R&S | 890167/024 | 300001168 | n.a. | | |
| 25 | Netznachbildung ESH3-Z5 | R&S | 828576/020 | 300001210 | n.a. | | |

***SRD Laboratory Room 002:***

| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|---|---|---|---|---|---|---|---|
| 1 | System Controller PSM 12 | R&S | 835259/007 | 300002681-00xx | n.a. | | |
| 2 | Memory Extension PSM-K10 | R&S | To 1 | 300002681 | n.a. | | |
| 3 | Operating Software PSM-B2 | R&S | To 1 | 300002681 | n.a. | | |
| 4 | 19'' Monitor | | 22759020-ED | 300002681 | n.a. | | |
| 5 | Mouse | | LZE 0095/6639 | 300002681 | n.a. | | |
| 6 | Keyboard | | G00013834L461 | 300002681 | n.a. | | |
| 7 | Spectrum Analyser FSIQ 26 | R&S | 835540/018 | 300002681-0005 | 10.01.2008 | 24 | 10.01.2010 |
| 8 | Tracking Generator FSIQ-B10 | R&S | 835107/015 | 300002681 | s.No.7 | | |
| 10 | RF-Generator SMIQ03 (B1 Signal) | R&S | 835541/056 | 300002681-0002 | 26.08.2008 | 36 | 26.08.2011 |
| 11 | Modulation Coder SMIQ-B20 | R&S | To 10 | 300002681 | s.No.10 | | |
| 12 | Data Generator SMIQ-B11 | R&S | To 10 | 300002681 | s.No.10 | | |
| 13 | RF Rear Connection SMIQ-B19 | R&S | To 10 | 300002681 | s.No.10 | | |
| 14 | Broadband horn antenna (1-18 GHz) | EMCO | 9107-3696 | 300001604 | 16.04.2008 | 24 | 16.04.2010 |
| 15 | Broadband horn antenna (1-18 GHz) | EMCO | 9107-3697 | 300001605 | 21.08.2008 | 24 | 21.08.2010 |
| 16 | Std gain horn antenna (18-26.5 GHz) | Narda | Model no. 638 | 300000486 | n.a. | | |
| 17 | Std gain horn antenna (18-26.5 GHz) | Narda | Model no. 638 | 300000487 | n.a. | | |
| 18 | Sleeve dipole antenna Model 3126-880 | ETS-Lindgren | 00040887 | 3000000 | n.a. | | |
| 19 | Fast CPU SM-B50 | R&S | To 10 | 300002681 | s.No.10 | | |
| 20 | FM Modulator SM-B5 | R&S | 835676/033 | 300002681 | s.No.10 | | |
| 21 | RF-Generator SMIQ03 (B2 Signal) | R&S | 835541/055 | 300002681-0001 | 25.08.2008 | 36 | 25.08.2011 |
| 22 | Modulation Coder SMIQ-B20 | R&S | To 21 | 300002681 | s.No.21 | | |
| 23 | Data Generator SMIQ-B11 | R&S | To 21 | 300002681 | s.No.21 | | |
| 24 | RF Rear Connection SMIQ-B19 | R&S | To 21 | 300002681 | s.No.21 | | |
| 25 | Fast CPU SM-B50 | R&S | To 21 | 300002681 | s.No.21 | | |
| 26 | FM Modulator SM-B5 | R&S | 836061/022 | 300002681 | s.No.21 | | |
| 27 | RF-Generator SMP03 (B3 Signal) | R&S | 835133/011 | 300002681-0003 | 26.08.2008 | 36 | 26.08.2011 |
| 28 | Attenuator SMP-B15 | R&S | 835136/014 | 300002681 | S.No.27 | | |
| 29 | RF Rear Connection SMP-B19 | R&S | 834745/007 | 300002681 | S.No.27 | | |
| 30 | Power Meter NRVD | R&S | 835430/044 | 300002681-0004 | 26.08.2008 | 24 | 26.08.2010 |
| 31 | Power Sensor NRVD-Z1 | R&S | 833894/012 | 300002681-0013 | 26.08.2008 | 24 | 26.08.2010 |
| 32 | Power Sensor NRVD-Z1 | R&S | 833894/011 | 300002681-0010 | 26.08.2008 | 24 | 26.08.2010 |
| 33 | Rubidium Standard RUB | R&S | | 300002681-0009 | 27.08.2008 | 24 | 27.08.2010 |
| 34 | Switching and Signal Conditioning Unit SSCU | R&S | 338864/003 | 300002681-0006 | Verified with path compensation | | |
| 35 | Laser Printer HP Deskjet 2100 | HP | N/A | 300002681-0011 | n.a. | | |
| 36 | 19'' Rack | R&S | 11138363000004 | 300002681 | n.a. | | |
| 37 | RF-cable set | R&S | N/A | 300002681 | n.a. | | |
| 39 | IEEE-cables | R&S | N/A | 300002681 | n.a. | | |
| 40 | Sampling System FSIQ-B70 | R&S | 835355/009 | 300002681 | s.No.7 | | |
| 41 | RSP programmable attenuator | R&S | 834500/010 | 300002681-0007 | 26.08.2008 | 24 | 26.08.2010 |
| 42 | Signalling Unit | R&S | 838312/011 | 300002681 | n.a. | | |
| 43 | NGPE programmable Power Supply for EUT | R&S | 192.033.41 | 300002681 | | | |
| 44 | Power Splitter 6005-3 | Inmet Corp. | none | 300002841 | n.a. | | |
| 45 | SMA Cables SPS-1151-985-SPS | Insulated Wire | different | different | n.a. | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 46 | CBT32 with EDR Signaling Unit | R&S | | | | | |
| 47 | Coupling unit | Narda | N/A | -- | n.a. | | |
| 48 | 2xSwitch Matrix PSU | R&S | 872584/021 | 300001329 | n.a. | | |
| 49 | RF-cable set | R&S | N/A | different | n.a. | | |
| 50 | IEEE-cables | R&S | N/A | -- | n.a. | | |

***Anechoic chamber F:***

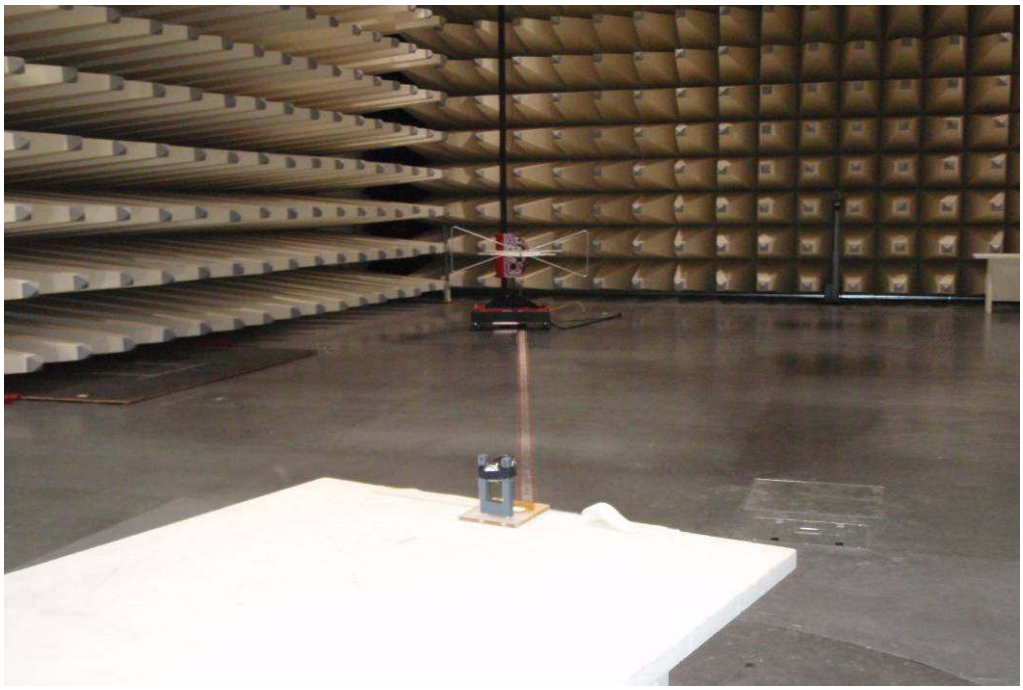
| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|---|---|---|---|---|---|---|---|
| 1 | Control Computer | F+W | FW0502032 | 300003303 | -/- | -/- | -/- |
| 2 | Trilog Antenna VULB 9163 | Schwarzbeck | 295 | 300003787 | 01.04.2008 | 24 | 01.04.2010 |
| 3 | Amplifier - 0518C-138 | Veritech Micro-wave Inc. | -/- | -/- | -/- | -/- | -/- |
| 4 | Switch - 3488A | HP | | 300000368 | -/- | -/- | -/- |
| 5 | EMI Test receiver - ESCI | R&S | 100083 | 300003312 | 01.06.2009 | 24 | 01.06.2011 |
| 6 | Turntable Controller - 1061 3M | EMCO | 1218 | 300000661 | -/- | -/- | -/- |
| 7 | Tower Controller 1051 Controller | EMCO | 1262 | 300000625 | -/- | -/- | -/- |
| 8 | Tower - 1051 | EMCO | 1262 | 300000625 | -/- | -/- | -/- |
| 10 | Ultra Notch-Filter Rejected band Ch. 62 | WRCD | 9 | -/- | -/- | -/- | -/- |

# 8 Photographs of the Test Set-up

Photo documentation

Photo 1:

Photo 2:



# 9 Photographs of the EUT

Photo documentation

Photo 3:

Photo 4:


Photo 5:

Photo 6:


Photo 7:

Photo 8:


Photo 9:

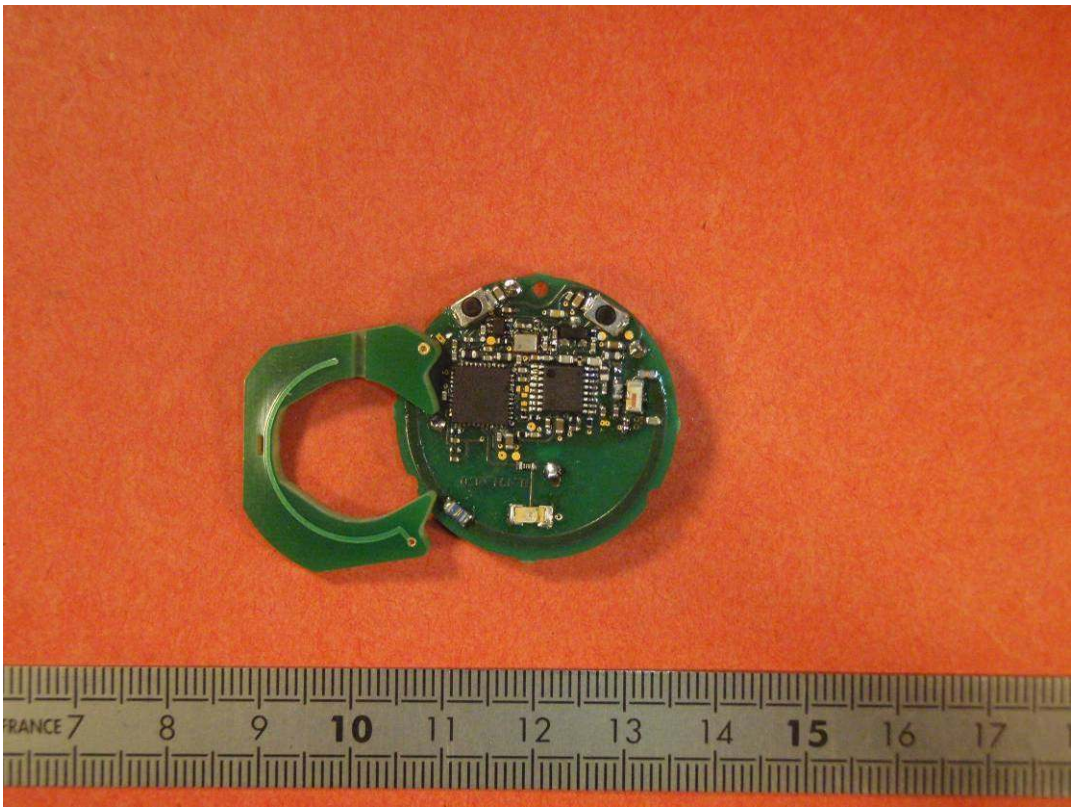


Photo 10:

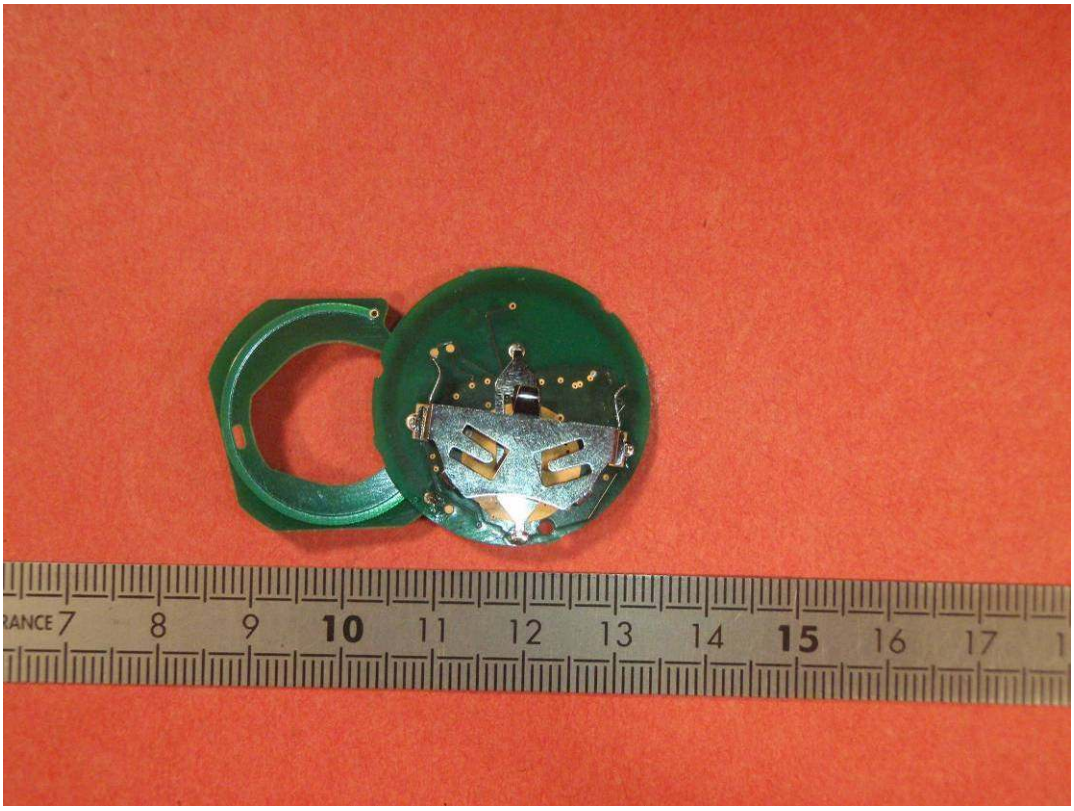



Photo 11: