# Test Report

| | |
|---|---|
| **Manufacturer:** | GreenPro ApS |
| **Product:** | Keyboard GM 200/201 series. |
| **Standards:** | EN 60601-1-2: 2015 +A1:2021<br>(IEC 60601-1-2:2014 +AMD1)<br>EN 61000-3-2: 2014<br>EN 61000-3-3: 2013 |
| **Report No:** | B2026233 |
| **Date and Signature:** | 2026-09-21<br>Michael Borgensen |

**Bolls ApS**

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| | |
|---|---|
| **Test object:** (incl SW ver.) | GreenMatic Keyboard, GM 201-1111, S/N: 0325004087 Representing series 200/201 |
| **Associated equipment:** | **None.** |
| **Manufacturer:** | GreePro ApS<br>Kirstinehøj 54A<br>DK-2770 Kastrup<br>Denmark |
| **Test dates:** | 2026-09-02 – 09. |
| **Standards:** | Emission:<br>EN 60601-1-2:2015 +A1: 2021 (IEC 60601-1-2:2014 +AMD:1 2020) Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests<br><br>Product family standards:<br>EN 61000-3-2:2014 Harmonic<br>EN 61000-3-3:2013, Flicker<br><br>Immunity:<br>EN 60601-1-2:2015+A1: 2021 (IEC 60601-1-2:2014 +AMD:1 2020) Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests |
| **Test engineer:** | Michael Jørgensen |
| **Approved by:** | Kim Boll Jensen; CEO |
| **Test laboratory:** | All tests are made at the following test laboratories<br>Bolls ApS<br>Ved Gadekæret 11F<br>DK-3660 Stenløse<br>Denmark |
| **Conclusion:** | The product has been tested according to the above mentioned standards and has been found to fulfill the requirements. |

**Revision history:**

| Report no. | Date | Author | Change log. |
|---|---|---|---|
| B2026233 | 2026-09-21 | MJ | • Original |

The results of this report relate exclusively to the item tested as specified in **Test object** and are not transferable to any other test items.

Bolls ApS is not responsible for any generalizations and conclusions drawn from this report. Any modification to the test item can lead to invalidity of test results and this report may therefore be not applicable to the modified test item.

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# 1. Introduction

## 1.1 General

The purpose of this report is to describe the tests that this product has been submitted to. These tests have been performed to verify that EMC requirements for the product are met.

## 1.2 Summary of tests

| Phenomenon | Used Basic standard | Test on | Result |
|---|---|---|---|
| Radiated emission | EN 55011: 2016 + A1: 2017 +A11: 2020<br>CISPR 11: 2015 + A1: 2016 +A2: 2019 | Enclosure port | Requirements fulfilled |
| Conducted emission | CISPR 11: 2009 + A1: 2010 | Input AC power port | N/A |
| Harmonic current emission | EN/IEC 61000-3-2: 2014 | Input AC power port | N/A |
| Voltage fluctuation and flicker emission | EN/IEC 61000-3-3:2013 | Input AC power port | N/A |
| ESD immunity | EN 61000-4-2:2009<br>IEC 61000-4-2: 2008 | Enclosure port | Requirements fulfilled |
| Radiated RF immunity | EN/IEC 61000-4-3: 2006 +A1 +A2 | Enclosure port | Requirements fulfilled |
| Conducted RF immunity | EN 61000-4-6: 2014<br>IEC 61000-4-6: 2013 | Input AC power port Signal ports | Requirements fulfilled |
| Conducted fast transient immunity | EN/IEC 61000-4-4: 2012 | Input AC power port Signal ports | Requirements fulfilled |
| Conducted surge transient immunity | EN/IEC 61000-4-5: 2014 +A1: 2017 | Input AC power port | N/A |
| Power frequency magnetic field immunity | EN 61000-4-8: 2010<br>IEC 61000-4-8: 2009 | Enclosure port | Requirements fulfilled |
| Radiated fields in close proximity | EN/IEC 61000-4-39: 2017 | Enclosure port | Requirements fulfilled |
| Voltage dips and interruptions immunity | EN/IEC 61000-4-11: 2004+A1: 2017 | Input AC power port | N/A |

*N/A = Not Applicable*

## 1.3 Picture of EUT.




EUT inside the shielded chamber.

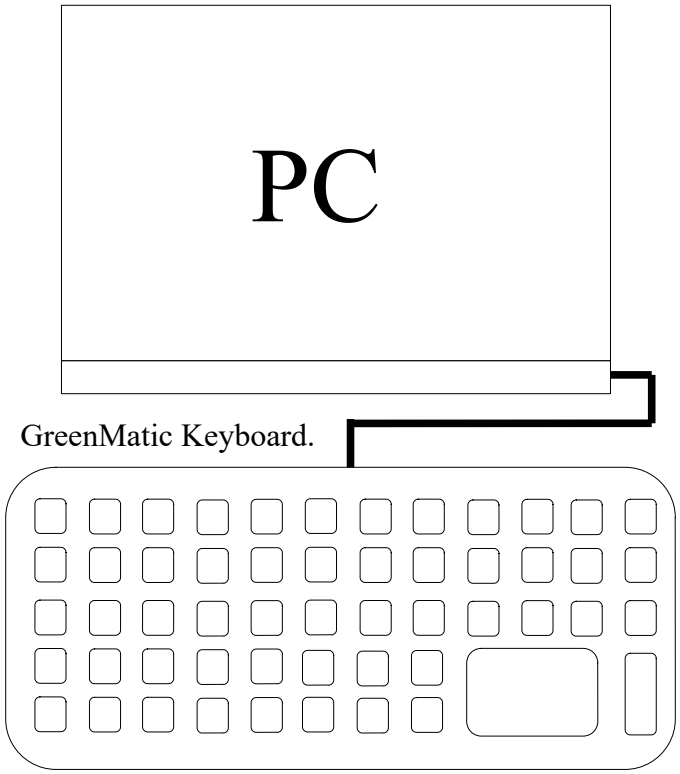



EUT on the test bench for conducted immunity test

## 1.4 Test set-up

Block diagram of the ME equipment or system and all peripherals and auxiliary equipment used including cable descriptions (shielded/unshielded, length etc.) , definition of used SIP/SOP's and any patient coupled cables:

GreenMatic keyboard.



## 1.5 Description of product

| Definition | Yes | No |
|---|---|---|
| Life supporting equipment | | X |
| Patient coupled equipment | | X |
| Mains supplied/connected equipment | | X |
| Battery operated equipment | | X |
| Apply RF energy | | X |
| Intermittent operation | X | |
| Contains/emits X-ray | | X |
| Professional use only | | X |
| For use only in shielded locations | | X |
| For Home healthcare | X | X |
| Hand-held | X | |
| Vehicle installed | | X |

This template don't include test for products which are used in airplanes and transportation

Rating:

Voltages: 5 V DC
Frequency: DC
Effect: > 2,5W

| Short description of EUT: (Intended use and intended environment) |
|---|
| EUT is a Clinical and ATEX approved keyboard for a PC for use in moisturized and explosive environments. |

## 1.6 Definition of pass/fail and performance criteria for immunity testing :

Performance criteria of intended use/purpose as defined in EN TR 60601-4-2 shall be stated

**Basic safety and Essential performance monitored under test:**

EUT have no Basic safety and Essential performance

**Intended use/purpose monitored under test:**

EUT is activated under test to verify that it is active and can send correct characters to PC

| No. | Function to verify for freedom from unacceptable risk and/or performance | Immunity pass criteria/performance criteria | Note* |
|---|---|---|---|
| 1 | Any key | Same characters typed at EUT and received at PC | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

** If product can operate in different modes, please specify criteria in each mode*

## 1.7 Test environment:

Ambient were maintained within the following range;

- temperature maintained between 15 – 35°C : 23 °C
- humidity maintained between 30 -60%; 56 %

## 1.8 Calibration and Measurement uncertainty

Test equipment calibration are subcontracted to an ISO 17025 accredited calibration laboratory traceable to national (DANAK Reg. nr 04-0333, 04-0563 and 04-0022) and international calibrations norms.

DANAK has linkages with international bodies like International Laboratory Accreditation Co-operation (ILAC), European co-operation for Accreditation (EA) and International Accreditation Forum Inc. (IAF). Tests are performed according to ISO 17025 requirements.

A few instruments are calibrated at Bolls by using external calibrated instruments according to internal test procedures..

All measurement uncertainty are within the limits of the different used basic standards and documented in Bolls Aps Quality System based on ISO 17025 requirements.

# 2. Marking and Accompanying Documents

The accompanying documents and marking have been checked for the following requirements and the relevance of it, according to EN/IEC 60601-1-2 § 5:

| Clause | Requirements | Comment | Verdict* |
|---|---|---|---|
| 5 | Marking and documentation | | - |
| 5.1 | Equipment and systems specified for use only in a shielded location shall be labeled with a warning that they should be used only in the specified type of shielded location. | This product is not specified to be used in a shielded location. | N/A |
| 5.2 | Instruction for use shall include: | | P |
| 5.2.1.1<br><br>a | A statement of the environments for which the Equipment is suitable. E.g. hospitals, homecare etc. | | P |
| b | the performance of the ME EQUIPMENT or ME SYSTEM that was determined to be ESSENTIAL PERFORMANCE and a description of what the OPERATOR can expect if the ESSENTIAL PERFORMANCE is lost or degraded due to EM DISTURBANCES | | N/A |
| c | a warning statement to the effect that "WARNING: Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally." | | P |
| d | a list of all cables and maximum lengths of cables (if applicable) , transducers and other ACCESSORIES that are replaceable by the RESPONSIBLE ORGANISATION and that are likely to affect compliance of the ME EQUIPMENT or ME SYSTEM | No accessories | N/A |
| e | a warning statement to the effect that "WARNING: Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation." | | N/A |
| f | a warning statement to the effect that: "WARNING: Portable RF communications | | P |

| Clause | Requirements | Comment | Verdict* |
|---|---|---|---|
| | equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the [ME EQUIPMENT or ME SYSTEM], including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result. " | | |
| 5.2.1.2 | Class A EQUIPMENT shall include note:<br><br>NOTE The EMISSIONS characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CIS PR 11 class B is normally required)this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment. | | N/A |
| 5.2.2.1 | The technical description shall describe precautions to be taken to prevent adverse events to the PATIENT and OPERATOR due to ELECTROMAGNETIC DISTURBANCES. | | P |
| a) | The compliance for each emission and immunity standard test eg. class and levels | | P |
| b) | Any deviations from this standard and allowances used | | N/A |
| c) | Instruction for maintaining Basic safety and Essential performance with regard to EMC | | N/A |

*(* P = Pass requirements, F = Failed requirements, N/A = Not Applicable)*

# 3. Emission test: CISPR 11

Test applicable [ X ]  Not applicable [  ]. Comment:

EUT is placed on a turn table. The table is turned from 0° to 360°. Measurements using max hold peak detector is performed. For peaks over the limit or closer than 6 dB/µV to the limit line in a given frequency the frequency is recorded in the peak-list. A maximization in these frequencies using Quasi-peak detector is then performed and the max level and table angle is recorded in a max quasi-peak list.

## 3.1 Classification of equipment

See definitions in CISPR 11 § 4

| Group | Class | Test | (Choose only one) |
|---|---|---|---|
| Group 1 | A | Test site | |
| | A | In situ | |
| | B | Test site | X |
| Group 2 | A | Test site | |
| | A | In situ | |
| | B | Test site | |

*Class A equipment are only allowed in domestic establishments when used under the jurisdiction of a health care professional.*

## 3.2 Limits

The following limits apply for the  class B equipment under test:

| Frequency MHz | QP (dBµV/m) | Average (dBµV/m) |
|---|---|---|
| **Conducted:** | | |
| 0,15 – 0,5 | 66 to 56 | 56 to 46 |
| 0,5 – 5 | 56 | 46 |
| 5 – 30 | 60 | 50 |
| **Radiated: at 3 m** | | |
| 30 – 230 | 40 | |
| 230 – 1000 | 47 | |

If operation frequency is above 400MHz

| Frequency MHz | Peak (dBµV/m) Class A | Peak (dBµV/m) Class B |
|---|---|---|
| 1 – 18GHz | - | - |
| within harmonic frequency bands | 82 | 70 |
| outside harmonic frequency bands | 70 | 70 |
| 11.7  -  12.7GHz | 73 | 73 |

## 3.3 Measurements

Test setup shall be normal use with max. load according to standards. If product have more than one voltage and frequency rating test shall be made at both max and min voltage if difference is more than 25% of max voltage but at only one frequency.

| | Min Voltage | Max Voltage |
|---|---|---|
| Voltage used: | USB 5 VDC | USB 5 VDC |
| Frequency used: | DC | DC |

EUT operation mode description:

The keyboard is connected to a power bank.

Test sheets shall always be attached to this test.

| Test : | OK / not OK | Comments : |
|---|---|---|
| Shielded room 3m | OK | |
| Conducted, mains | - | EUT is powered from a PC USB port. |
| | | |

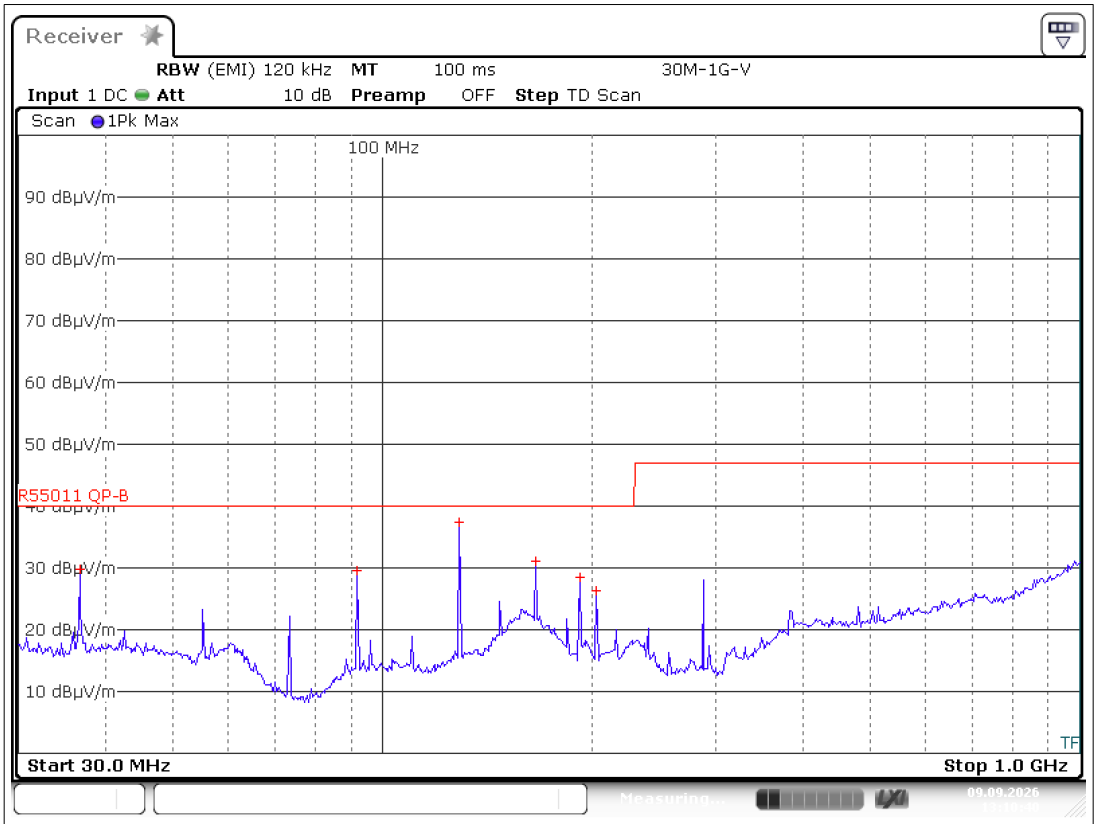
**Comments: Test passed.**

Tested by : Michael Jørgensen
Date : 2026-09-09

Pictures from the radiated emission test.



Results from the radiated emission with vertical antenna.




Date: 9.SEP.2026 13:10:40

Full measurement with max-hold peak detector.

**Peak List**

Margin 15.0 dB
Peaks 25

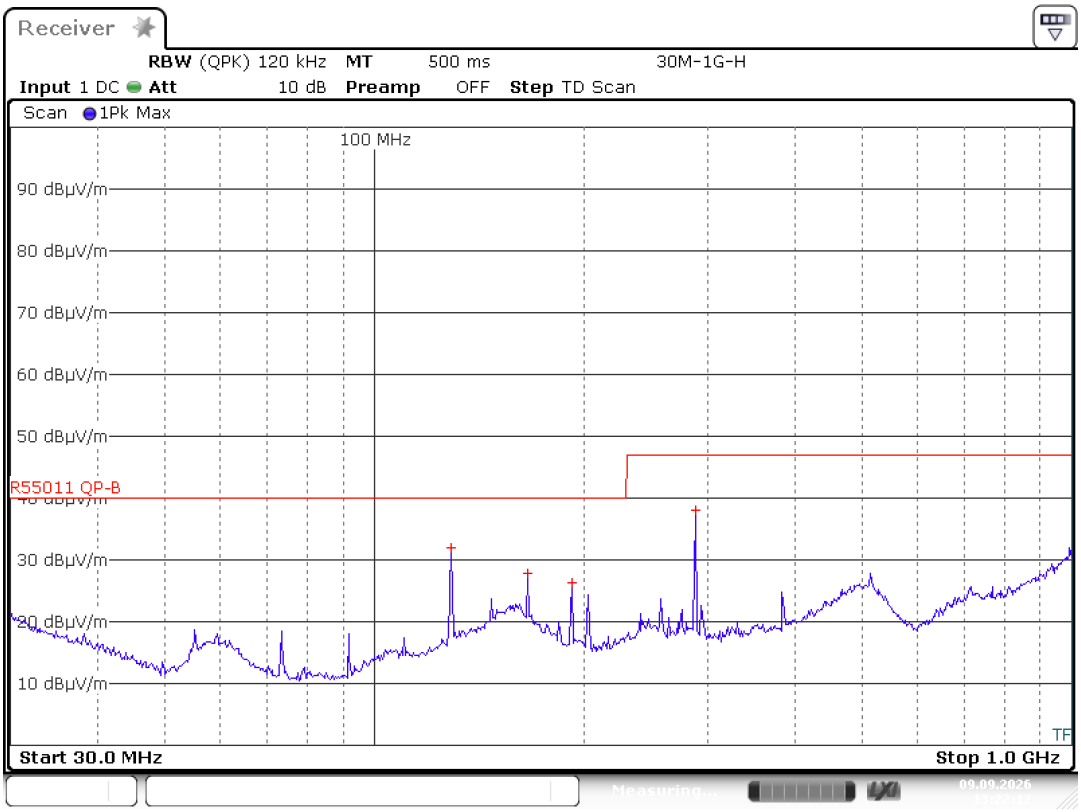
| Trace | Frequency | Level (dBµV/m) | Phase | Detector | Delta Limit/dB |
|---|---|---|---|---|---|
| 1 | 36.780000000 MHz | 29.81 | | Positive Peak | -10.19 |
| 1 | 91.920000000 MHz | 29.54 | | Positive Peak | -10.46 |
| 1 | 128.760000000 MHz | 37.38 | | Positive Peak | -2.62 |
| 1 | 165.420000000 MHz | 31.05 | | Positive Peak | -8.95 |
| 1 | 192.000000000 MHz | 28.38 | | Positive Peak | -11.62 |
| 1 | 202.290000000 MHz | 26.37 | | Positive Peak | -13.63 |

The max-hold peak list.

| Frequency [MHz] | Level [dBµV] | Table angle [dg] | Limit [dBµV] | Delta Limit [dBµV] |
|---|---|---|---|---|
| 36,78 | 28,464 | 208 | 40 | -11,536 |
| 91,92 | 28,319 | 0 | 40 | -11,681 |
| 128,76 | 36,191 | 96 | 40 | -3,809 |
| 165,42 | 28,458 | 354 | 40 | -11,542 |
| 192 | 26,867 | 18 | 40 | -13,133 |
| 202,29 | 24,169 | 1 | 40 | -15,831 |

The maximized quasi-peak list.

Results from the radiated emission with horizontal antenna.




Date: 9.SEP.2026 13:22:13

Full measurement with max-hold peak detector.

**Peak List**

Margin 15.0 dB
Peaks 25

| Trace | Frequency | Level (dBµV/m) | Phase | Detector | Delta Limit/dB |
|---|---|---|---|---|---|
| 1 | 128.610000000 MHz | 31.90 | | Positive Peak | -8.10 |
| 1 | 165.390000000 MHz | 27.72 | | Positive Peak | -12.28 |
| 1 | 192.000000000 MHz | 26.22 | | Positive Peak | -13.78 |
| 1 | 288.030000000 MHz | 37.94 | | Positive Peak | -9.06 |

The max-hold peak list.

| Frequency [MHz] | Level [dBµV] | Table angle [dg] | Limit [dBµV] | Delta Limit [dBµV] |
|---|---|---|---|---|
| 128,61 | 30,228 | 281 | 40 | -9,772 |
| 165,39 | 24,195 | 293 | 40 | -15,805 |
| 192 | 23,476 | 303 | 40 | -16,524 |
| 288,03 | 36,759 | 317 | 47 | -10,241 |

The maximized quasi-peak list.

# 4. Harmonic Current: EN/IEC 61000-3-2

Test applicable [ ] Not applicable [ X ]. Comment: EUT is DC powered from a PC USB port.

**Scope**
Applicable to mains operated equipment (>= 220Vac) with input current <= 16A per phase, no limits are specified for professional equipment with at total rated power of more than 1kWatt.
Class A, B and D; Not applicable if max. power < 75W

**Measurements :**
Test setup shall be normal use with max. load according to standards.
Input Voltage shall be a sin. Voltage with minimum distortion.

*The test shall be performed at the highest rated input power voltage and frequency can be 50Hz or 60Hz.*

| | |
|---|---|
| Voltage used: | |
| Frequency used: | 50Hz |

| EUT operation mode description: |
|---|
| |

Comments:

Evaluation by : Michael Jørgensen
Date : 2026-09-02

# 5. Voltage fluctuations and flicker: EN/IEC 61000-3-3

Test applicable [ ] Not applicable [ X ]. Comment: EUT is powered from a PC USB port.

**Scope**
Applicable to mains operated equipment (>= 220Vac) with input current <= 16A per phase.

According to § 6.1 of this standard, test shall not be made on equipment which is unlikely to produce significant voltage fluctuations or flicker.

*The test shall be performed at the highest rated input power voltage and frequency shall be 50Hz.*

| | |
|---|---|
| Voltage used: | |
| Frequency used: | 50Hz |

| EUT operation mode description: |
|---|
| |

Comments:

Evaluation by : Michael Jørgensen
Date : 2026-09-02

# 6. ESD-Test: EN/IEC 61000-4-2

Test applicable [ X ]  Not applicable [  ]. Comment:

**Test 1 :**
Discharge on product on typical operator accessible points.

**Contact**:  ±8 kV applied to conductive accessible parts. 10 discharges pr. points, min. 1 sec. interval (per polarity) min. 4 different points.

**Air discharges**: ± 2, 4, 8, 15 kV applied to non-conductive accessible parts. 10 discharges pr. points

**Also discharge to open connectors for I/O and patient coupling ports.**

*The test may be performed at any input power voltage and frequency within the ME EQUIPMENT or ME SYSTEM RATED voltage and frequency range.*

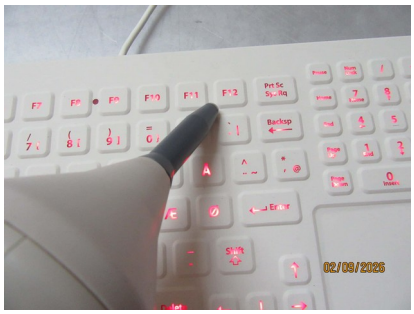
| | |
|---|---|
| Voltage used: | 5 V DC |
| Frequency used: | DC |

| |
|---|
| EUT operation mode description:<br><br>EUT is connected to a PC. |

| No | Discharge point | Number of discharges | Voltage Polarity | Air 2, 4, 8, 15 kV | Contact 8 kV |
|---|---|---|---|---|---|
| 1 | Top surface of the keyboard. | 20 | +/- | OK | |
| 2 | Touch pad. | 20 | +/- | OK | |
| 3 | Line of cabinet assembly. | 20 | +/- | OK | |
| 4 | Bottom surface of keyboard. | 20 | +/- | OK | |
| 5 | Area over fixation screws. | 20 | +/- | OK | |
| 6 | Keyboard buzzer. | 20 | +/- | OK | |
| 7 | Cable inlet. | 20 | +/- | OK | |
| | | | | | |

Comments: **Test passed.**


GreenMatic
02/09/2026

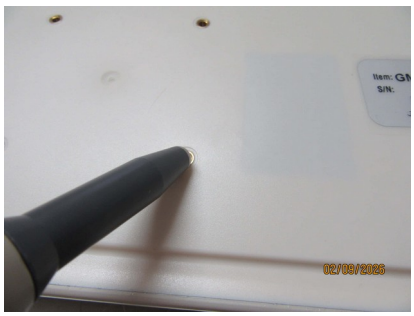

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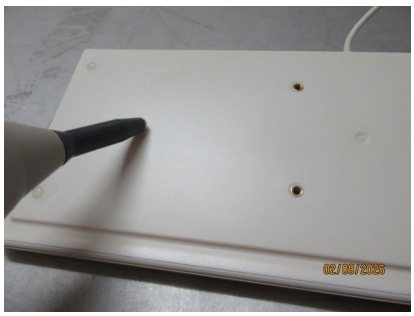

02/09/2026


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GreenMatic
02/09/2026


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02/09/2026


Item: GM 201-1111
S/N: 0325004087
02/09/2026


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02/09/2026

**Test 2 :**
Discharges on the horizontal coupling plane (HCP) (ground plane) and vertical coupling plane (VCP) according to standard.
10 discharges on each position min. 1 sec. interval applied to the edge of the plans in center of the equipment.

Test level: ±8 kV max.

| No | Positions | Number of discharges | Voltage Polarity | Contact 8 kV |
|---|---|---|---|---|
| 1 | In front of product at HCP | 20 | +/- | OK |
| 3 | In front of product at VCP | 20 | +/- | OK |
| 5 | Behind product at VCP | 20 | +/- | OK |
| 7 | Left side of product at VCP | 20 | +/- | OK |
| 9 | Right side of product at VCP | 20 | +/- | OK |
| | | | | |

Comments: **Test passed.**

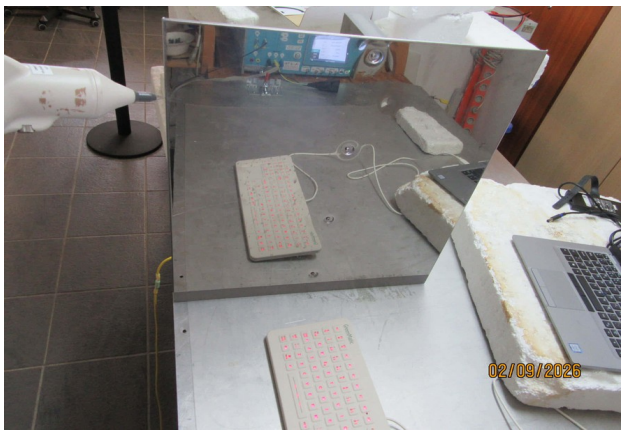
Tested by : Michael Jørgensen
Date : 2026-09-02

Pictures from the ESD to coupling planes test.












# 7. EM Field immunity; EN/IEC 61000-4-3

Test applicable [ X ]  Not applicable [  ]. Comment:

**Measurements (shortform) :**
Test setup shall be normal use with max. load according to standards.
80 to 2700 MHz 80% AM

| Modulation: | |
|---|---|
| 1kHz 80% AM all other | X |

**Immunity level;**

Equipment professional healthcare only; 3 V/m
Home healthcare 10 V/m

**Frequency sweep:**
Sweep: 1% incremental
Dwell:  1 sec. for 1 kHz modulation, but not less than the response time of the slowest responding function plus the settling time of the radiated RF immunity test system.

*The test may be performed at any input power voltage and frequency within the ME EQUIPMENT or ME SYSTEM RATED voltage and frequency range.*

| | |
|---|---|
| Voltage used: | 5 V DC |
| Frequency used: | DC |

| EUT operation mode description:<br><br>EUT is connected to a PC USB port, keyboard is sending ‘h’ all the time. |
|---|

| Antenna & product position : | 80 M – 2.7 GHz 10 V/m | Comments: |
|---|---|---|
| Vertical & Position 1 : | OK | |
| Vertical & Position 2 : | OK | |
| Vertical & Position 3 : | OK | |
| Horizontal & Position 1 : | OK | |
| Horizontal & Position 2 : | OK | |
| Horizontal & Position 3 : | OK | |
| | | |

Comments: **Test passed.**

Tested by : Michael Jørgensen
Date : 2026-09-09

## 7.1 Proximity fields from RF communication: EN/IEC 61000-4-3

If field strength is impossible to achieve, antenna can be moved into a distance of 1 meter.

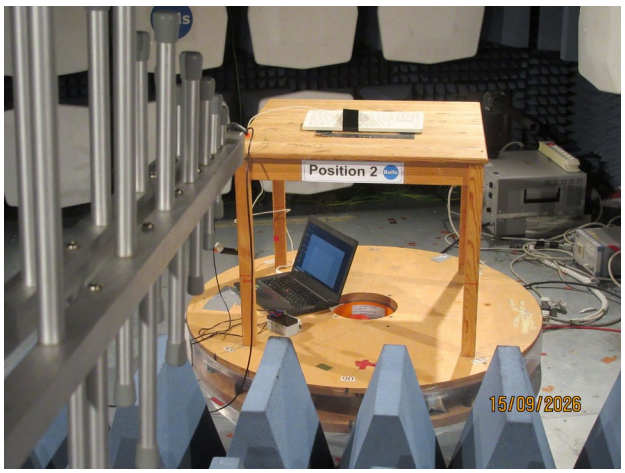
| Test frequency MHz | Modulation | Immunity level v/m | Antenna polarization | Pass/ Fail | Comments |
|---|---|---|---|---|---|
| 385 | PM 18 Hz | 27 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 450 | FM ±5 kHz deviation 1 kHz sine | 28 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 710 | PM 217 Hz | 9 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 745 | PM 217 Hz | 9 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 780 | PM 217 Hz | 9 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 810 | PM 18 Hz | 28 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 870 | PM 18 Hz | 28 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 930 | PM 18 Hz | 28 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 1720 | PM 217 Hz | 28 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 1845 | PM 217 Hz | 28 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 1970 | PM 217 Hz | 28 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 2450 | PM 217 Hz | 28 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 5240 | PM 217 Hz | 9 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 5500 | PM 217 Hz | 9 | Horizontal | Pass | |
| | | | Vertical | Pass | |
| 5785 | PM 217 Hz | 9 | Horizontal | Pass | |
| | | | Vertical | Pass | |

All PM have 50% duty cycle square wave signal

Comments:

Tested by : Michael Jørgensen
Date : 2026-09-09

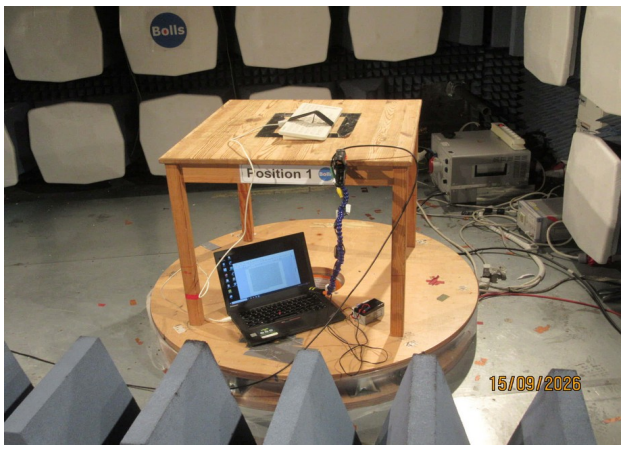
Pictures from the radiated RF immunity test.







EUT positions related to the antenna in the shielded chamber




Position 1.




Position 2.




Position 3.

# 8. RF immunity on cables: EN/IEC 61000-4-6

Test applicable [ X ]  Not applicable [  ]. Comment:

**Scope**
Test applies to AC/DC power ports and signal ports.
Signal ports cable < 1 meter is not tested.
Patient coupling cables are always tested

**Test**
0,15 – 80MHz minimum 3Vrms 80% AM. (6Vrms at ISM frequencies)

**Frequency sweep:**
Sweep: 1% incremental
Dwell: 1 sec. for 1 kHz modulation

6 V at ISM frequencies
Test setup as pr. standard. Product in normal operating mode.
Patient coupling cables shall be tested in clamp, and are terminated in CISPR RC element

*The test may be performed at any input power voltage and frequency within the ME EQUIPMENT or ME SYSTEM RATED voltage and frequency range.*

| | |
|---|---|
| Voltage used: | 5 V DC |
| Frequency used: | DC |

| |
|---|
| EUT operation mode description:<br><br>EUT is connected to a PC and the function of the keyboard is checked frequently. |

| **Cable:** | **0,15 – 80MHz 3 Vrms** | **Comments:** |
|---|---|---|
| USB cable | OK | Tested at 6 Vrms in the full frequency range |
| | | |

Comments: **Test passed.**

Tested by : Michael Jørgensen
Date : 2026-09-02

Picture from the conducted RF immunity test.



# 9. Burst Test: EN/IEC 61000-4-4

Test applicable [ X ]  Not applicable [  ]. Comment:

**Test 1 - immunities on power port :**
Product is in normal operating mode.
2 kV 100kHz on AC and DC connected equipment.
Test is performed as 1 min. positive and 1 min. negative pulses.
If product have mains power outputs, they shall also be tested with same procedure.

*The test may be performed at any input power voltage and frequency within the ME EQUIPMENT or ME SYSTEM RATED voltage and frequency range.*

| | |
|---|---|
| Voltage used: | 5 V DC |
| Frequency used: | DC |

| |
|---|
| EUT operation mode description:<br><br>EUT is connected to a PC and the function of the keyboard is checked frequently. |

Test applicable [ X ]  Not applicable [  ]. Comment:

| **Port :** | **2 kVolt 100kHz** + | - | **Comments:** |
|---|---|---|---|
| AC-port : | - | - | |
| DC- port (USB cable | OK | OK | |
| | | | |

**Test 2 - immunities on signal- and controlport :**
(Test is only performed if connection cable is over 3 meter.)

**Patient coupling cables shall not be tested**, but shall be connected by the CISPR hand. Hand-held parts are connected to the CISPR hand.

Product is in normal operating mode. Test set-up according to EN/IEC 61000-4-4. Signal or control cables that are not tested on shall be placed in a terminated capacitive coupling clamp.
1 KV max.
Test is performed as 1 min. positive and 1 min. negative pulses.

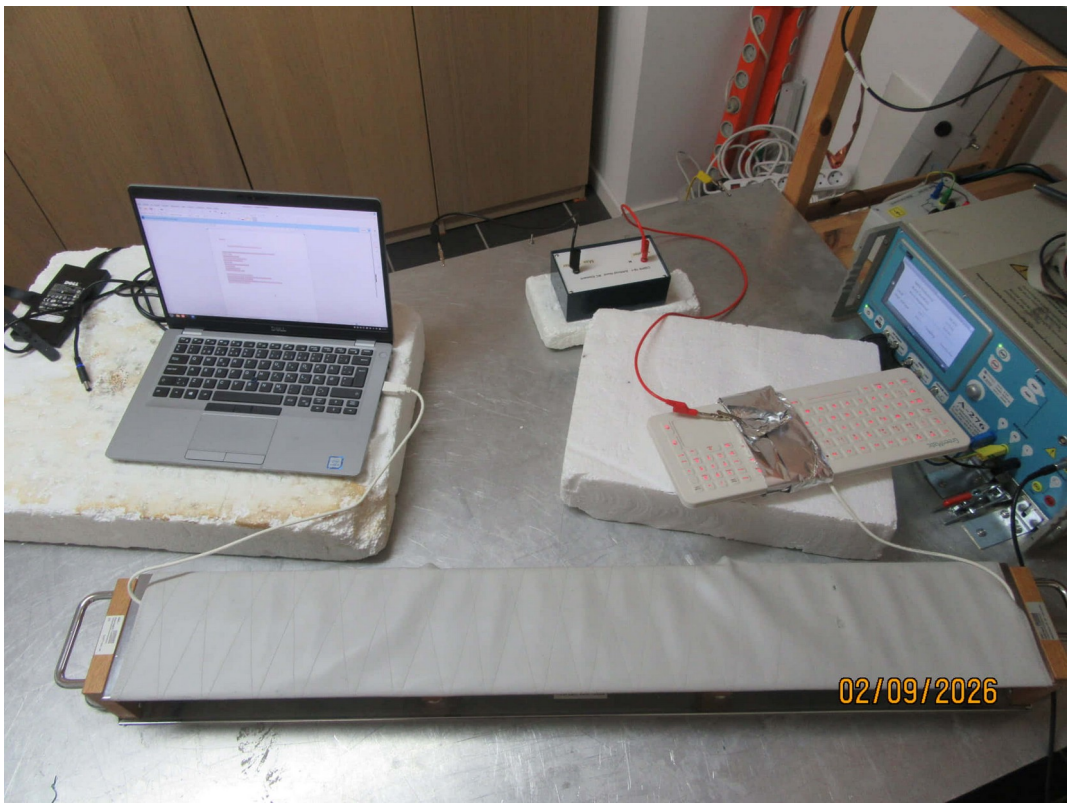
Test applicable [ X ] Not applicable [ ]. Comment:

| **Signal / Control cable :** | **1 kVolt 100kHz** | | **Comments** |
|---|---|---|---|
| | + | - | |
| **USB cable** | | | |
| | | | |
| | | | |

Comments: **Test passed.**

Tested by : Michael Jørgensen
Date : 2026-09-02

Picture from the conducted burst test.



# 10. Surge: EN/IEC 61000-4-5

Test applicable [ ] Not applicable [ X ]. Comment: No AC power connection. USB port only.

**Immunities on AC mains powerport :**
AC and DC:1 kVolt Line to Line and 2 kVolt Line to ground .
Coupling network is used, and both positive and negative pulses are used, minimum 1 minute between pulses and at least 5 pulses of each.

Test is performed by applying 5 positive and 5 negative pulses at 0°, 90°, 180° and 270°.
Time between successive pulses: 1 minute. May be shorter if EUT is capable of withstanding a shorter time.

Line or Neutral to Ground on Class II ac products not tested

DC lines are only tested if;
- permanently connected to cables > 3m

I/O lines only tested if connected to outdoor cables

*The test may be performed at any input power voltage and frequency within the ME EQUIPMENT or ME SYSTEM RATED voltage and frequency range.*

| | |
|---|---|
| Voltage used: | |
| Frequency used: | |

| EUT operation mode description: |
|---|
| |

Test applicable [ ] Not applicable [ X ]. Comment: USB port only.

| Port : | 0,5 kVolt + | 0,5 kVolt - | 1 kVolt + | 1 kVolt - | 2 kVolt + | 2 kVolt - | Comments |
|---|---|---|---|---|---|---|---|
| Line to neutral | | | | | - | - | |
| Line to GND* | | | | | | | |
| Neutral to GND* | | | | | | | |
| | | | | | | | |
| DC line1 to line2 | | | | | - | - | |
| DC line 1 to GND | | | | | | | |
| DC line 2 to GND | | | | | | | |
| | | | | | | | |
| I/O line to GND | - | - | - | - | | | |

* Not for Class II equipment

Comments:

Evaluation by : Michael Jørgensen
Date : 2026-09-02

# 11. Power freq. magnetic field: EN/IEC 610004-8

Test applicable [ X ]  Not applicable [  ]. Comment:

**Scope**
Test applies to enclosure (including cables)

**Test**
50Hz or 60 Hz  30 A/m (r.m.s.)
Test setup as pr. standard. Product in normal operating mode.
Test is performed in three directions.

*The test may be performed at any input power voltage and frequency within the ME EQUIPMENT or ME SYSTEM RATED voltage and frequency range. NOTICE frequency of field shall be same as supply.*

| | |
|---|---|
| Voltage used: | 5 V DC |
| Frequency used: | DC |

| |
|---|
| EUT operation mode description:<br><br>EUT is connected to a PC and the function of the keyboard is checked frequently. |

| **H-field direction** | **50Hz 30A/m** | **60Hz 30A/m** | **Comments:** |
|---|---|---|---|
| Vertical 1 | OK | | |
| Vertical 2 | OK | | |
| Horizontal | OK | | |

Comments: **Test passed.**

Tested by : Michael Jørgensen
Date : 2026-09-02

Pictures from the power frequency magnetic field test.







# 12. Proximity magnetic fields EN/IEC 61000-4-39

Test applicable [ X ]  Not applicable [  ]. Comment:

**Scope**
Test applies to enclosure.

If magnetic sensitive components are separated by min 15 cm inside from enclosure no test needed.

**Test**

Test setup as pr. standard. Product in normal operating mode.
Test is performed on all accessible sides of enclosure or only where magnetic sensitive components are separated by less than 15 cm inside from enclosure.

*The test may be performed at any input power voltage and frequency within the ME EQUIPMENT or ME SYSTEM RATED voltage and frequency range.*

| | |
|---|---|
| Voltage used: | 5 V DC |
| Frequency used: | DC |

| |
|---|
| EUT operation mode description:<br><br>EUT is connected to a PC and the function of the keyboard is checked frequently. |

| H-field | Result | Comments: |
|---|---|---|
| 30 kHz CW  8A/m  (only applicable for Home Healthcare products) | OK | |
| 134,2kHz  PM @2.1kHz  65A/m | OK | |
| 13.56MHz  PM @50kHz  7.5A/m | OK | |

Comments: **Test passed.**

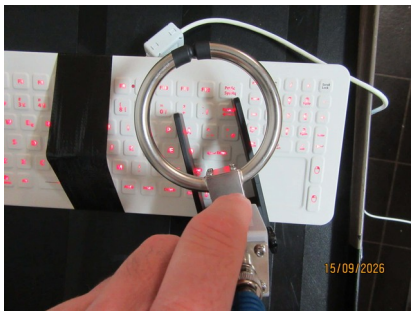
Tested by : Michael Jørgensen
Date : 2026-09-09


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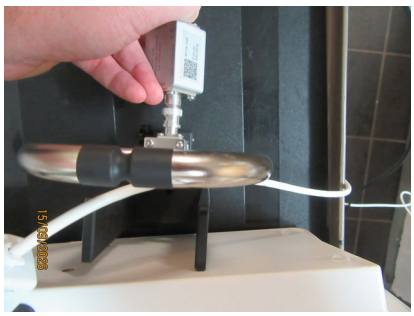

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# 13. Voltage dips/interruptions: EN/IEC 61000-4-11

Test applicable [ ] Not applicable [ X ]. Comment: No AC mains connection.

1kVA< X < 16A consumption is allowed to differ from compliance criteria and equipment rated over 16A are not tested.

*Test shall be made at both max and min voltage if difference is more than 25% of max voltage Test may be performed at any input power frequency*

| | | |
|---|---|---|
| Voltage used: | | |
| Frequency used: | | |

| |
|---|
| EUT operation mode description: |

The voltage is tested at min. and max. voltage and with the following dips/interruptions introduced:

| Mains voltage | Reduction in % | Cycles | Phase | OK / not OK | Comment |
|---|---|---|---|---|---|
| | 100 | 0.5 | 0 | | |
| | 100 | 0.5 | 45 | | |
| | 100 | 0.5 | 90 | | |
| | 100 | 0.5 | 135 | | |
| | 100 | 0.5 | 180 | | |
| | 100 | 0.5 | 225 | | |
| | 100 | 0.5 | 270 | | |
| | 100 | 0.5 | 315 | | |
| | | | | | |
| | 100 | 1 | 0 | | |
| | | | | | |
| | 30 | 25 (30@60Hz) | 0 | | |
| | | | | | |
| | 100 | 250 (300@60Hz) | 0 | | |
| | | | | | |

Comments:

Evaluation by : Michael Jørgensen
Date : 2026-09-02

# 14. Conclusion and Remarks

EUT has been tested according to the standards mentioned and has been found to fulfil the requirements as described in this test report.

# 15. List of instruments:

## Radiated emission:

| Instrument | Manufacturer | Type | Serial number | Last calibrated | Calibration due | Bolls No. |
|---|---|---|---|---|---|---|
| Shielded room | Euroshield | RFD-F/A-100 | 1758 | - | - | A184 |
| Test receiver | R & S | ESR-26 | 101748 | 19-09-2025 | 19-09-2027 | A312 |
| Antenna | Schwarzbeck | 9161/4007 | 4007 | 26-02-2025 | 26-02-2028 | A7 |
| Antenna | Schwarzbeck | BBHA9120E | 659 | 07-08-2024 | 07-08-2028 | A192 |
| Antenna preamplifier | Schwarzbeck | BBV9743B 10M – 6GHz | 00084 | 21-08-2026 | 21-08-2028 | A328 |

## Radiated RF immunity:

| Instrument | Manufacturer | Type | Serial number | Last calibrated | Calibration due | Bolls No. |
|---|---|---|---|---|---|---|
| Shielded room | Euroshield | RFD-F/A-100 | 1758 | - | - | A184 |
| Generator | R & S | SMB100A | 113892 | 07-05-2025 | 07-05-2027 | A207 |
| Antenna | Schwarzbeck | 9161/4007 | 4007 | 16-02-2024 | 16-02-2028 | A7 |
| Antenna | Schwarzbeck | BBHA9120E | 659 | 07-08-2024 | 07-08-2028 | A192 |
| Amplifier | Amplifier Research | 80-1000MHz /250W | 356321 | 04-12-2025 | 04-12-2028 | A347 |
| Amplifier | BI | 0,96 – 3 GHz / 160W | | 29-01-2025 | 29-01-2027 | A173 |
| Amplifier | BI | 2,5 – 6GHz / | | 29-01-2025 | 29-01-2027 | A233 |
| Field strength Probe | ETS-Lindgren | HI-6006 | 214007 | 19-07-2023 | 19-07-2027 | A337 |

## Magnetic field immunity:

| Instrument | Manufacturer | Type | Serial number | Last calibrated | Calibration due | Bolls No. |
|---|---|---|---|---|---|---|
| Power supply | BI | Vario box | - | | | - |
| Meter | Fluke | 189 | 80460167 | 25-02-2025 | 25-02-2027 | A38 |
| Helmholz | TDC | - | - | | | - |

## Proximity magnetic field:

| Instrument | Manufacturer | Type | Serial number | Last calibrated | Calibration due | Bolls No. |
|---|---|---|---|---|---|---|
| Generator 9k – 3,2GHz | Rohde & Schwarz | SMC100A | 104728 | 11-06-2025 | 11-06-2027 | A165 |
| Amplifier | AR | 25A100 | 11692 | 11-06-2025 | 11-06-2027 | A12 |
| H felt antenna | Schwarzbeck | FESP 5132 | 418 | 21-01-2026 | 21-01-2028 | A331 |
| H felt antenna | Schwarzbeck | HFRAE 5164 + NFCN 1356 | 5164-0043 | 21-01-2026 | 21-01-2028 | A332 |

## Conducted RF immunity:

| Instrument | Manufacturer | Type | Serial number | Last calibrated | Calibration due | Bolls No. |
|---|---|---|---|---|---|---|
| Generator | R & S | SMC 100A | 101162 | 11-06-2025 | 11-06-2027 | A64 |
| Amplifier | Amplifier Research | 75A250 | 19163 | 11-06-2025 | 11-06-2027 | A73 |
| 6 dB attenuator | MiniCircuit | BW-N6W20+ | - | 14-02-2025 | 14-02-2027 | A339 |
| Clamp | FCC | F-203I-23MM | 487 | 09-01-2025 | 09-01-2027 | A29 |

## ESD, Surge, Burst and Voltage dips and variation immunity:

| Instrument | Manufacturer | Type | Serial number | | | |
|---|---|---|---|---|---|---|
| Generator | EMC Partner | IMU4000 | 2131 | 03-07-2025 | 03-07-2027 | A276 |
| ESD Gun | EMC Partner | 108233 | EXT-IMU E-1514 | 03-07-2025 | 03-07-2027 | A278 |
| Clamp | EMC partner | CNEFT 1000-194 | 588 | 16-07-2026 | 16-07-2028 | A267 |
| Coupling plane | EMC partner | ESD-VCP50 | 032 | 16-07-2026 | 16-07-2028 | A284 |