

## SGS Germany GmbH

### Test Report No.: T4LM0004

**Order No.:** T4LM

**Pages:** 19

**Client:** Schroff GmbH

**Equipment Under Test:** 24395-600: SUBR PRO EMC 6U 84HP 235D HF TEST MUC with textile gaskets

**Manufacturer:** Schroff GmbH

**Task:** Evaluation of Shielding Effectiveness

**Test Specification(s):** • EN 61587-3  
[covered by accreditation]

**Result:** See Summary.

The results relate only to the items tested as described in this test report.

**approved by:**

**Date**

**Signature**

Bauer  
Lab Manager EMC

Jul 27, 2023



This document was signed electronically.

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## 1 Summary

### 1.1 Common

The shielding effectiveness of 24395-600: SUBR PRO EMC 6U 84HP 235D HF TEST MUC with textile gaskets should be measured in the frequency range 30 MHz to 3 GHz according to IEC 61587-3.

### 1.2 Execution of the measurements

The measurements of the shielding effectiveness of the EUTs were performed using an automatic antenna mast and a turntable. The antenna was moved from 1 m to 4 m with an increment of 1m, the azimuth was changed from 0° to 315° in 45° steps during the measurements. The antenna was set to both, horizontal and vertical polarisation.

The results show the minimum shielding effectiveness over all settings of antenna and turntable.

The measurements were performed in the following frequency ranges:

- 30 – 1000 MHz
- 1 – 3 GHz

### 1.3 Shielding performance levels of EN 61587-3

In Table 1 of IEC 61587-3, the following Performance Levels are defined:

**Table 1 – Electric field attenuation levels**

| Performance level | Minimum shielding performance        |   |   |
|-------------------|--------------------------------------|---|---|
|                   | Frequency range<br>30 MHz to 230 MHz | Frequency range<br>230 MHz to 1 000 MHz | Frequency range<br>1 000 MHz to 3 000 MHz |
| 1                 | 20 dB                                | 10 dB                                   | 0 dB                                      |
| 2                 | 40 dB                                | 30 dB                                   | 20 dB                                     |
| 3                 | 60 dB                                | 50 dB                                   | 40 dB                                     |

### 1.4 Summary of Results

Table 1-1 shows the minimum shielding effectiveness in the Frequency Bands acc. to IEC 61587-3 and the correlated performance levels.

| Frequency Band<br>(MHz) | Minimum shielding<br>effectiveness (dB) | Performance<br>level |
|-------------------------|---|----------------------|
| 30 – 230                | 50.9                                    | 2                    |
| 230 – 1,000             | 25.5                                    | 1                    |
| 1,000 – 3,000           | 10.1                                    | 1                    |

**Table 1-1**

## 2 References

### 2.1 Specifications

- EN 61587-3:2013  
Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297 – Part 3: Electromagnetic shielding performance tests for cabinets and subracks (IEC 61587-3:2013)

### 2.2 Glossary of Terms

#### EMC specific Abbreviations

|      |   |
|------|---|
| BW   | Bandwidth   |
| EMC  | Electromagnetic Compatibility                     |
| EMI  | Electromagnetic Interference                      |
| EN   | European Standard                                 |
| EUT  | Equipment Under Test                              |
| IEC  | International Electrotechnical Commission         |
| IEEE | Institute of Electrical and Electronics Engineers |
| SE   | Shielding Effectiveness                           |
| SW   | Software  |
| RX   | receive   |
| TX   | transmit  |
| VNA  | Vectorial Network Analyzer                        |

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### 3 General Information

#### 3.1 Identification of Client

Schroff GmbH  
Langenalber Str. 96-100  
75334 Straubenhardt

#### 3.2 Test Laboratory

SGS Germany GmbH  
Hofmannstraße 50  
81379 München

Business Address: SGS Germany GmbH, Heidenkampsweg 99, D-20097 Hamburg, Member of the SGS Group  
General Manager: Wim van Loon, Chairman of the Supervisory Board: Olivier Merkt  
Registered Office: Hamburg, HRB 4951 Amtsgericht Hamburg

#### 3.3 Time Schedule

Delivery of EUT: May 18, 2023  
Start of test: May 23, 2023  
End of test: May 24, 2023

#### 3.4 Participants

| Name             | Function                   |
|------------------|----------------------------|
| Richard Bandel   | Setup of EUT               |
| Waldemar Schulz  | Setup of EUT               |
| Nick Owen Wagner | Setup of EUT               |
| Andreas Pauli    | Accredited testing, Editor |

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## 4 Equipment Under Test

All information regarding the EUT(s) was provided by the customer and has been approved by customer during report-review-process.

**Test item description .....** 19-inch Subrack EuropacPro, EMC-Version  
**Trade Mark .....** nVent  
**Manufacturer / Importer .....** Schroff GmbH  
**Model/Type .....** 24395-600: SUBR PRO EMC 6U 84HP 235D HF TEST MUC with textile gaskets  
**Dimensions .....** Rack Height: 6 U  
Rack Width: 84 HP  
Depth: 235 mm  
**Serial No. ....** -  
**Number of tested samples.:** 1

ISO VORNE 1 : 3

[G0193] Vorderseite  
front side

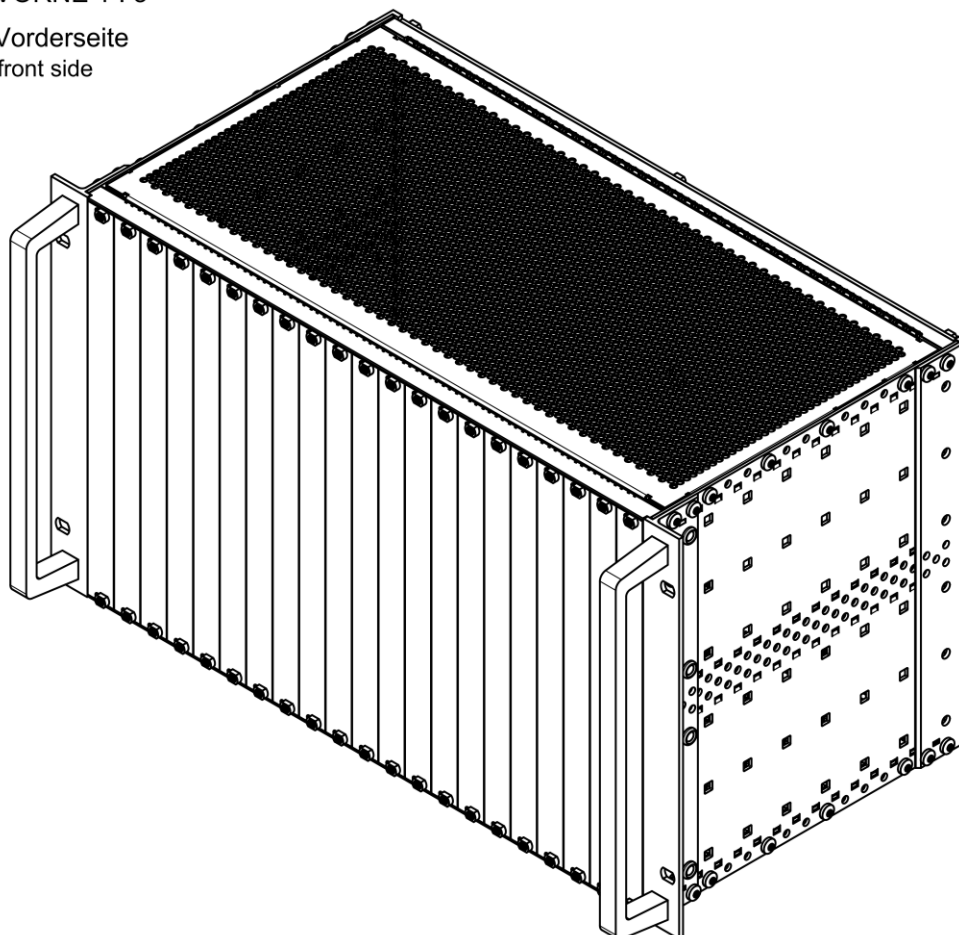


Figure 3-1: EUT

| Auflosungss<br>stufe | Positionsnr | Komponentennummer       | Objektkurztext                        | Komponentenmenge | KomplMenge<br>nEinheit |
|----------------------|-------------|-------------------------|---------------------------------------|------------------|------------------------|
| .1                   | 10          | 24566447                | SEITENW.H 6HE 235T M.GRIFF 2ST        | 1,000            | EA                     |
| .1                   | 20          | 10501008                | FRONTGRIFF ALU 6/9HE ELOX             | 2,000            | EA                     |
| .1                   | 30          | 64560225                | SENKSCHR.M5X12 4.8-TX20 (DIN965)      | 4,000            | EA                     |
| .1                   | 40          | .                       | .                                     | 1,000            | ST                     |
| .1                   | 50          | 34560284                | MODULSCH.VORNE 84TE H KD              | 2,000            | EA                     |
| .1                   | 60          | 34560784                | MODULSCH.HINTEN 84TE H VT             | 2,000            | EA                     |
| .1                   | 70          | 34561384                | GEWINDESTREIFEN 84TE M2.5             | 4,000            | EA                     |
| .1                   | 80          | 30845253                | LOCHSTREIFEN 84TE NUTZBAR             | 2,000            | EA                     |
| .1                   | 90          | 64560182                | FIXIERUNGSSTIFT M2.5X9 TX8            | 4,000            | EA                     |
| .1                   | 100         | 34562284                | KONTAKTSTR.MS-FPL 416,26L             | 4,000            | EA                     |
| .1                   | 110         | 61498107                | LIKOSCHR.M4X14 4.8-TX20 SELBS.        | 8,000            | EA                     |
| .1                   | 120         | 61498110                | LIKOSCHR.M4X10 4.8-TX20 SELBS.        | 8,000            | EA                     |
| .1                   | 190         | .                       | .                                     | 1,000            | ST                     |
| .1                   | 200         | 24564499                | ECKPROFIL 6HE 2STK                    | 1,000            | EA                     |
| .1                   | 240         | .                       | .                                     | 1,000            | ST                     |
| .1                   | 250         | 34562712                | ABDECKBLECH EMC 84TE 235T             | 2,000            | EA                     |
| .1                   | 260         | 24560245                | KONTAKTSTR.MS-ADBL 84TE 10STK         | 0,400            | EA                     |
| .1                   | 270         | 61498113                | LIKOSCHR.M4X6 10.9-TX20 PENTAF.SELBS. | 16,000           | EA                     |
| .1                   | 280         | .                       | .                                     | 1,000            | ST                     |
| .1                   | 290         | .                       | .                                     | 1,000            | ST                     |
| .1                   | 400         | 30848355                | TEILFRONTPLATTE 6HE 4TE               | 21,000           | EA                     |
| .1                   | 410         | 60807133                | EINPRESSNIPPEL MS/NI                  | 42,000           | EA                     |
| .1                   | 420         | 60807213                | HALSSCHR.M2.5X12.3 8.8-PZ1/SCHLITZ    | 42,000           | EA                     |
| .1                   | 430         | 21101856                | PROFILDICHTUNG 6HE EMV 100ST          | 0,240            | EA                     |
| .1                   | 440         | 21102108                | EMV-DICHTUNG 6HE 232LG 100ST          | 0,240            | EA                     |
| .1                   | 450         | .                       | .                                     | 1,000            | ST                     |
| .1                   | 460         | BEI EMV-TEST:           | .                                     | 1,000            | ST                     |
| .1                   | 470         | TESTAUFBAU ENTWEDER MIT | .                                     | 1,000            | ST                     |
| .1                   | 480         | POS. 43 TEXTILDICHTUNG  | .                                     | 1,000            | ST                     |
| .1                   | 490         | ODER                    | .                                     | 1,000            | ST                     |
| .1                   | 500         | POS. 44 EDELSTAHLFEDER  | .                                     | 1,000            | ST                     |
| .1                   | 590         | .                       | .                                     | 1,000            | ST                     |
| .1                   | 600         | 34393085                | FRONTPLATTE 6HE 84TE HF TEST MUENCHEN | 1,000            | EA                     |
| .1                   | 980         | .                       | .                                     | 1,000            | ST                     |
| .1                   | 990         | .                       | .                                     | 1,000            | ST                     |
| .1                   | 1000        | BGTR KOMPLETT MONTIERT  | .                                     | 1,000            | ST                     |
| .1                   | 1010        | NACH ZG. 24395-600      | .                                     | 1,000            | ST                     |
| .1                   | 8900        | .                       | .                                     | 1,000            | ST                     |
| .1                   | 8910        | .                       | .                                     | 1,000            | ST                     |
| .1                   | 8990        | 71000999                | .                                     | 1,000            | ST                     |

Figure 3-2: parts list

## 4.1 Photographs of EUT

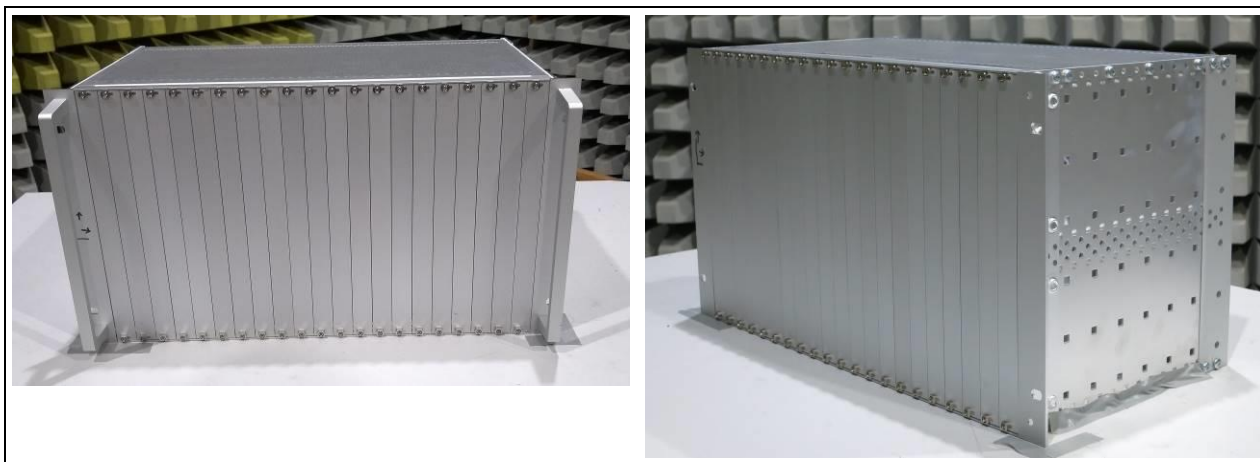


Figure 3-3: 24395-600: SUBR PRO EMC 6U 84HP 235D HF TEST MUC with textile gaskets

## 5 Test Equipment

### 5.1 Test Facility

The EMC-tests are carried out in the EMC-laboratory of SGS Germany, Consumer and Retail, Hofmannstraße 50, 81379 München, Germany.

| Chamber                | 1   | 2  | 3  | 4 / 5                 | 6                                       | 7                                     |
|------------------------|---|--|--|-----------------------|---|---------------------------------------|
| Dimensions (net)       | 17.7 * 10.8 * 6.8 m   | 9.6 * 8.5 * 5.3 m  | 7.4 * 6.6 * 5.2 m  | 4.1 * 3.5 * 3.5m      | 6.4 * 4.3 * 4.3m                        | 4.58 * 4.28 * 3.01m                   |
| Max. Door Exit (w x h) | 2.9 * 3.86 m  | 3.9 * 4.0 m  | 2.0 * 2.7 m  | 0.9 * 2.25 m          | 1.8 * 3.0 m                             | 1.2 * 2.050 m                         |
| Shielding material     | Sheet steel (Thickness: 1.5mm on floor, 1.0 mm on walls and ceiling)  | Sheet steel  | Sheet steel  | Sheet steel           | Sheet steel                             | Sheet steel                           |
| Absorbers              | Hybrid absorbers on walls and ceiling (TDK), length 1 m   | Hybrid absorbers on walls and ceiling (E+C), length 0.5 m  | Hybrid absorbers on walls and ceiling (E+C), length 0.3 m  | Without absorbers     | Without absorbers                       | Hybrid absorbers on walls and ceiling |
| Floor                  | Metallic ground plane<br>floor load: 12 t/m <sup>2</sup>  | Metallic ground plane<br>floor load: 1.5 t/m <sup>2</sup>  | Metallic ground plane<br>floor load: 1 t/m <sup>2</sup>  | Metallic ground plane | Metallic ground plane                   | Metallic ground plane                 |
| Turntable              | Ø 4 m / 7 t   | Ø 3.2 m / 1.5 t  | Ø 2.0 m / 1 t  |                       |   |                                       |
| Listings               |   | VCCI-listed<br>Reg. No. R-12623, G-10266   |  |                       | VCCI-listed<br>Reg. No. C-12866 T-11942 |                                       |
| Specials               | <b>Emission:</b><br><b>30 – 1000 MHz (d = 10 m)</b><br>- NSA acc. to:<br>• CISPR 16-1-4<br>• ANSI C63.4<br><br><b>1 – 18 GHz (d = 3 m)</b><br>Site VSWR<br>1 – 18 GHz acc. to CISPR 16-1-4<br><br><b>Immunity:</b><br>Field uniformity<br>27 – 6000 MHz acc. IEC/EN 61000-4-3 | <b>Emission:</b><br><b>30 – 1000 MHz (d = 3 m)</b><br>- NSA acc. to:<br>• CISPR 16-1-4<br>• ANSI C63.4<br><br><b>1 – 18 GHz (d = 3 m)</b><br>Site VSWR<br>1 – 18 GHz acc. to CISPR 16-1-4<br><br><b>Immunity:</b><br>Field uniformity<br>80 – 6000 MHz acc. IEC/EN 61000-4-3 | <b>Emission:</b><br><b>30 – 1000 MHz (d = 3 m)</b><br>- NSA acc. to:<br>• CISPR 16-1-4<br>• ANSI C63.4<br><br><b>1 – 18 GHz (d = 3 m)</b><br>Site VSWR<br>1 – 18 GHz acc. to CISPR 16-1-4<br><br><b>Immunity:</b><br>Field uniformity<br>80 – 6000 MHz acc. IEC/EN 61000-4-3 |                       |   | For automotive components only        |

|  |
|--|
| <b>FCC</b> (Federal Communication Commission): Recognition by Bundesnetzagentur (BNetzA-CAB-14/21-09) and Designation as <b>CAB (Conformity Assessment Body)</b> : Designation Number DE0013; Test firm Registration #: 366296 |
| Designation <b>KBA (Kraftfahrt-Bundesamt)</b> as Technical Service category A and D. Registration Number: KBA-P 00083-97   |
| <b>CB</b> Testing Laboratory under the responsibility of SGS CEBEC as National Certification Body and to carry out testing within the <b>IECEE CB Scheme</b> .   |
| Designation No. for <b>RRR</b> (Radio Research Agency) in <b>Korea</b> ; <b>EU0145</b>   |
| <b>VCCI</b> Member No. 2793  |

### 5.2 Measuring Equipment

See the respective sections of Chapter **Fehler! Verweisquelle konnte nicht gefunden werden., Fehler! Verweisquelle konnte nicht gefunden werden..**

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### 5.3 Test Setup

To perform the tests, a vectorial network analyzer (VNA) is used which is controlled via a software "Schirmdämpfung" based on Labview.  
The software version is v2.24.

Prior to the measurement of a shielding effectiveness a reference measurement is done. For that the TX and RX antennas are positioned in the predefined distance to each other, connected to the VNA with the same cabling and preamplifiers (optional) as used during the subsequent measurements.

At each antenna, an attenuator pad is applied to improve the VSWR.

For measurement of the shielding effectiveness, the RX antenna is located inside the EUT in front of the selected measuring point with distances to metallic surfaces as large as possible. The TX antenna is positioned outside the EUT directly opposite so that the overall distance between the antennas is the same as during the reference measurement.

Now the measurement is started again and the shielding effectiveness is calculated automatically by the software.

#### 5.3.1 Testing above 20 GHz

In the frequency range above 20 GHz, instead of the VNA a signal generator together with a frequency doubler was used as sender. The receiving antenna was connected to a receiver R&S ESU40.

In this frequency range, no automatic measurement is possible. Therefore, the shielding effectiveness in this frequency range is performed manually at selected frequencies.

### 5.4 Measurement Uncertainty

As far as the underlying standards include requirements concerning the uncertainty of measuring instruments or measuring methods, they are met.

The expanded measurement uncertainty of the measuring chain was calculated for all tests according to the "ISO Guide to the expression of uncertainty in measurement (GUM)". The results are documented in an "internal controlled document".

The measuring accuracy for all measuring devices is given in their technical description. The measuring instruments, including any accessories, are calibrated respectively verified to ensure the necessary accuracy. Depending on the kind of measuring equipment it is checked within regular intervals or directly before the measurement is performed. Adjustments are made and correction factors applied to measured data in accordance with the specifications of the specific instrument.

The expanded measurement instrumentation uncertainty of our Test Laboratory meets the requirements of IEC CISPR 16-4-2 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4-2: Uncertainties, statistics and limit modeling – Uncertainty in EMC measurements" for all listed tests.

## 5.5 Statement of Conformity & Decision Rule

If not otherwise stated, the Decision Rule is considered in different ways.

### **Emission based on CISPR 11, CISPR 14-1, CISPR 15, CISPR 32, CISPR 36, IEC 61000-6-3, IEC 61000-6-4:**

The decision rule for statement of conformity is based on  $U_{\text{CISPR}}$  given in CISPR 16-4-2. The relevant MIU (Measurement Instrumentation Uncertainty) calculations  $U_{\text{LAB}}$  of the EMC-lab for the single emission tests is below  $U_{\text{CISPR}}$ . Therefore, it can be considered that the measurement result is valid without any need of adaption and e.g., a result of 0 dB to the limit can be stated as pass.

### **All other emission tests:**

For all other emission tests, the relevant MIU have been calculated by the EMC-lab and  $U_{\text{LAB}}$  keep typical levels. In this case, the "Binary Statement for Simple Acceptance Rule" acc. 4.2.1 of ILAC G8:2019 is applied. The result can be considered to be passed if the measurement value is at least equal to the limit. Probability is only 50% in this case. If the measured value is below the limit by the amount of the measurement uncertainty, the risk of an incorrect assumption is already reduced to 2.5%.

### **Immunity**

The calculated MIU  $U_{\text{LAB}}$  of the test levels are according to the requirements of the corresponding test standards. As the influence of the characteristics of the test disturbance is not known and the DUT shows non-linear system behaviour in most cases, no decision rule can be stated for immunity tests.

## 6 Results

The test results in the report refer exclusively to the test object described in section 4 and the test period in section 3.3. The results apply to the sample(s) as received.

### 6.1 Summary of Results

Table 1-1 shows the minimum shielding effectiveness in the Frequency Bands acc. to IEC 61587-3 and the correlated performance levels.

| Frequency Band (MHz) | Minimum shielding effectiveness (dB) | Performance level |
|----------------------|--------------------------------------|-------------------|
| 30 – 230             | 50.9                                 | 2                 |
| 230 – 1,000          | 25.5                                 | 1                 |
| 1,000 – 3,000        | 10.1                                 | 1                 |

Table 6-1

### 6.2 30 – 1000 MHz

Tested by : Pauli

Test date : 2023-05-23

Test location : EMC chamber No. 3

#### 6.2.1 Test Setup

- Antenna distance = 2.50 m (between center of spherical dipole and reference point of Bilog antenna.)
- Antenna height = 0.93 m
- no preamp in RX path for Reference measurements
- preamp P1182 (sonoma) in RX path for EUT measurements
- amplifier P0680 (10 W) @ TX antenna (with 10dB attenuator at output)
- no attenuator at TX antenna
- 6dB attenuator @ RX antenna
- measuring bandwidth = 30Hz
- Number of points = 801

#### 6.2.2 Measuring Equipment

| ID    | Measuring Instrument  | Specification                                    | Status | Due date     |
|-------|---|--|--------|--------------|
| P2541 | Coax cable 4m (with ferrites)                                 | 50 Ohm, 3GHz                                     | cnn    |              |
| P1808 | Surface current blocking filter                               | 1 m / 11 ferrites, with polyester mesh, L = 1.4m | chk    | Jun 30, 2023 |
| P0029 | antenna   | 1 - 12.4 GHz                                     | chk    | Oct 31, 2024 |
| N0925 | antenna cubic, 86 x 86 x 99 mm (122 mm incl. 90°-Adapter SMA) | Cubic Dipole Antenna                             | cnn    |              |
| P1727 | attenuator 6dB  | 6 dB, 5.5 W, 0 - 18 GHz                          | chk    | Jul 31, 2023 |
| P1944 | Point2Point - AC Coupled Fibre Optic Link                     | 2 kHz to 1.35 GHz, 0 dBm Input/Output            | chk    | Jan 31, 2025 |

| ID    | Measuring Instrument          | Specification                                   | Status | Due date     |
|-------|-------------------------------|---|--------|--------------|
| P2506 | coax cable, L = 0.5m          | DC - 2 GHz, 0.56dB @ 2GHz, SMA, with ferrites   | cnn    |              |
| P1547 | Network Analyzer              | 9 kHz - 4 GHz                                   | cal    | Mar 31, 2024 |
| P2713 | attenuator, 3 dB              | Type N, 3 dB, 5 W, dc-18.GHz                    | chk    | Feb 29, 2024 |
| P0680 | amplifier                     | 1 - 1000 MHz                                    | cnn    |              |
| P1714 | attenuator 10dB               | 10 dB/ 50 W                                     | chk    | Feb 29, 2024 |
| P2541 | Coax cable 4m (with ferrites) | 50 Ohm, 3GHz                                    | cnn    |              |
| P0338 | EMC chamber 3                 | 7.4 x 6.6 x 5.2 m (net), 0.4 m hybrid absorbers | chk    |              |
| P2578 | coax cable 0.45 m, N - SMA    | DC - 18 GHz, 0.8 dB @ 18 GHz                    | cnn    |              |
| P2517 | coax cable, L = 0.5m, N       | DC - 6GHz, 0,6dB@6GHz, N                        | cnn    |              |

cal = Calibration, car = Calibration restricted use, chk = Check, chr = Check restricted use, cpu = Check prior to use, calchk = Calibration and check, ind = for indication only, cnn = Calibration not necessary, service = Wartung (Service), man = Maintenance, calservice = Calibration & Service, chkservice = Check & Service, calchkservice = Calibration & Check & Service

## 6.2.3 Photographs of test setup

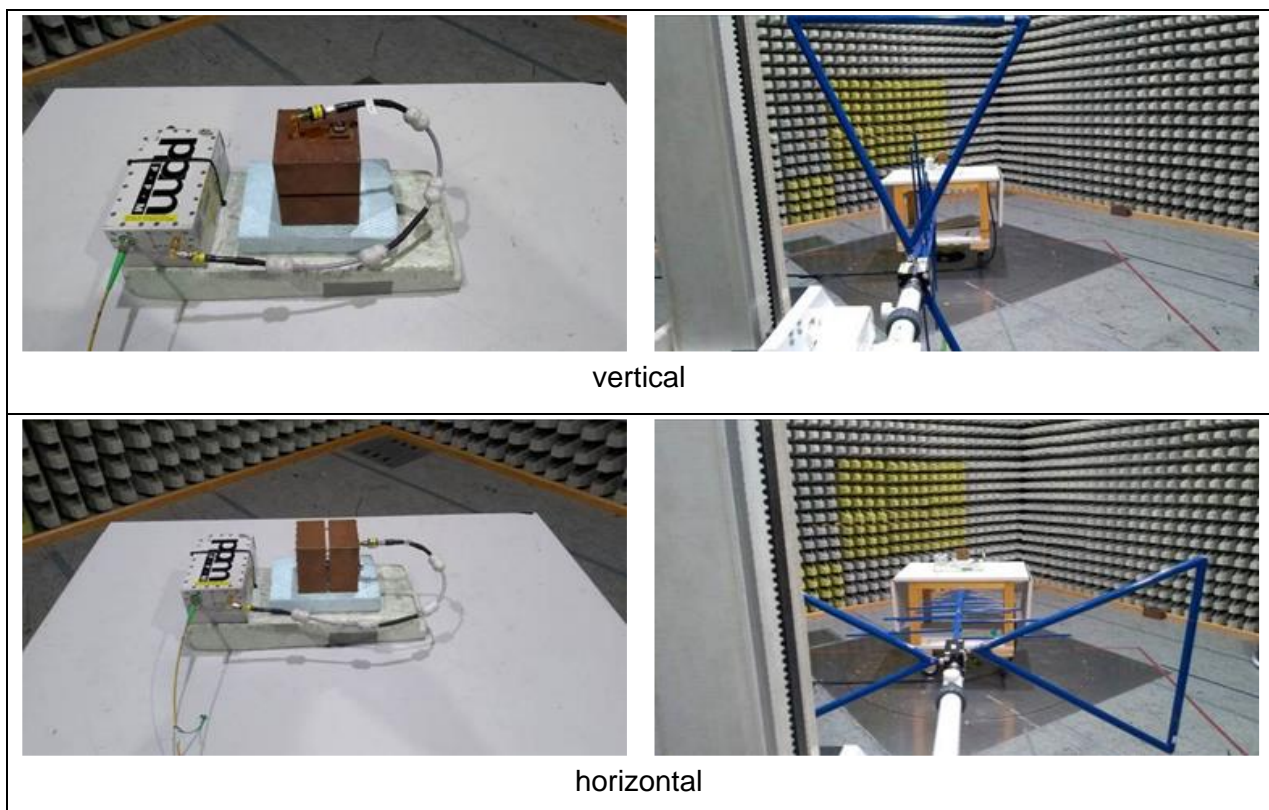
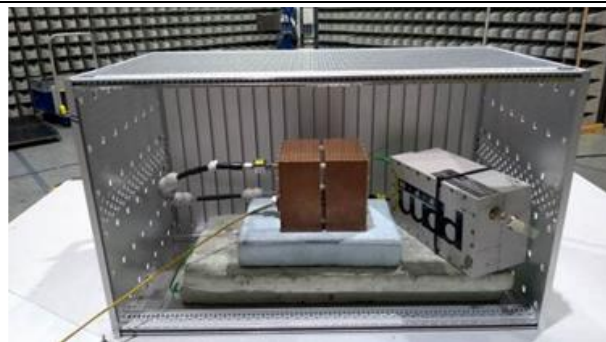
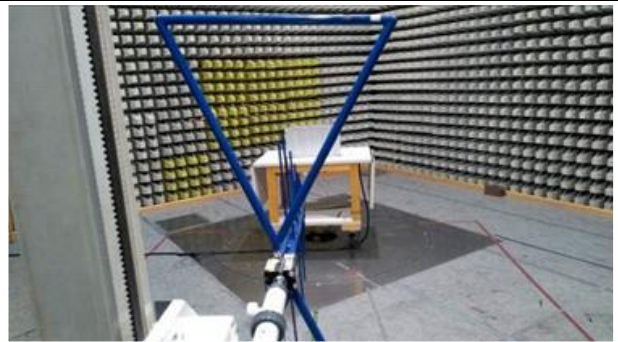


Figure 6-1: test setup reference measurements



vertical



horizontal

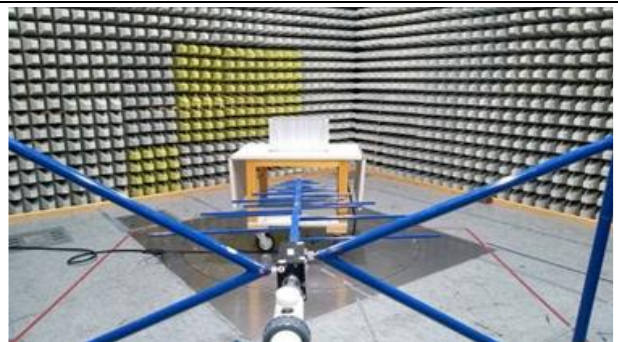
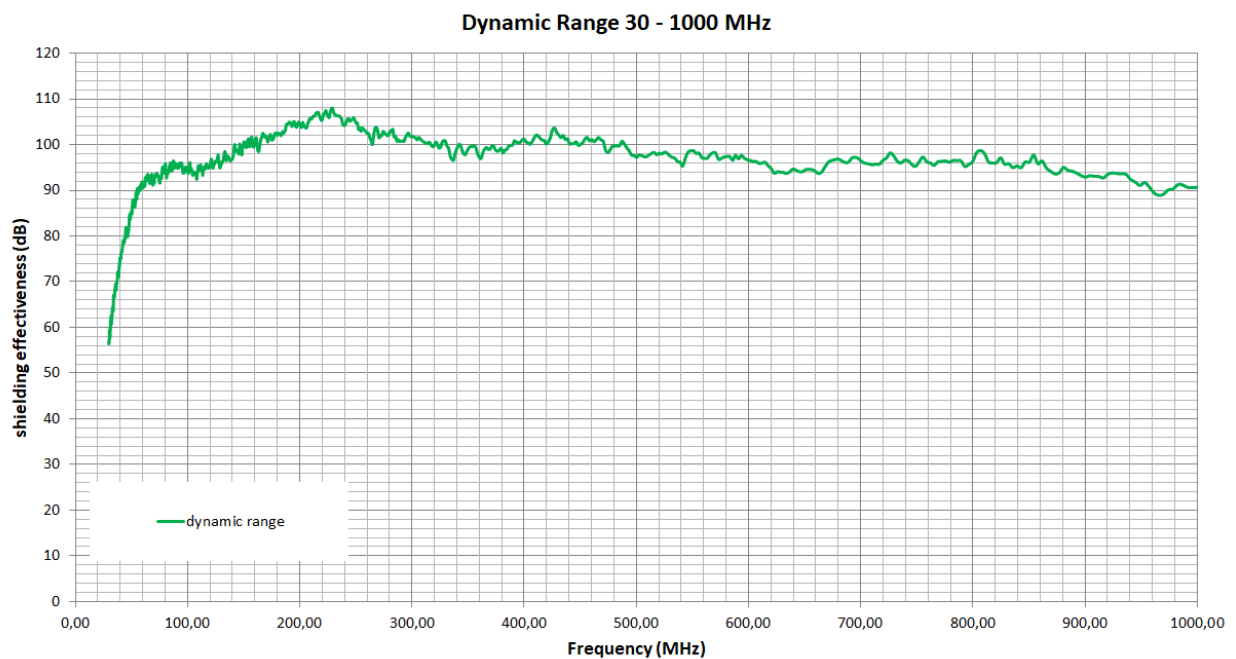


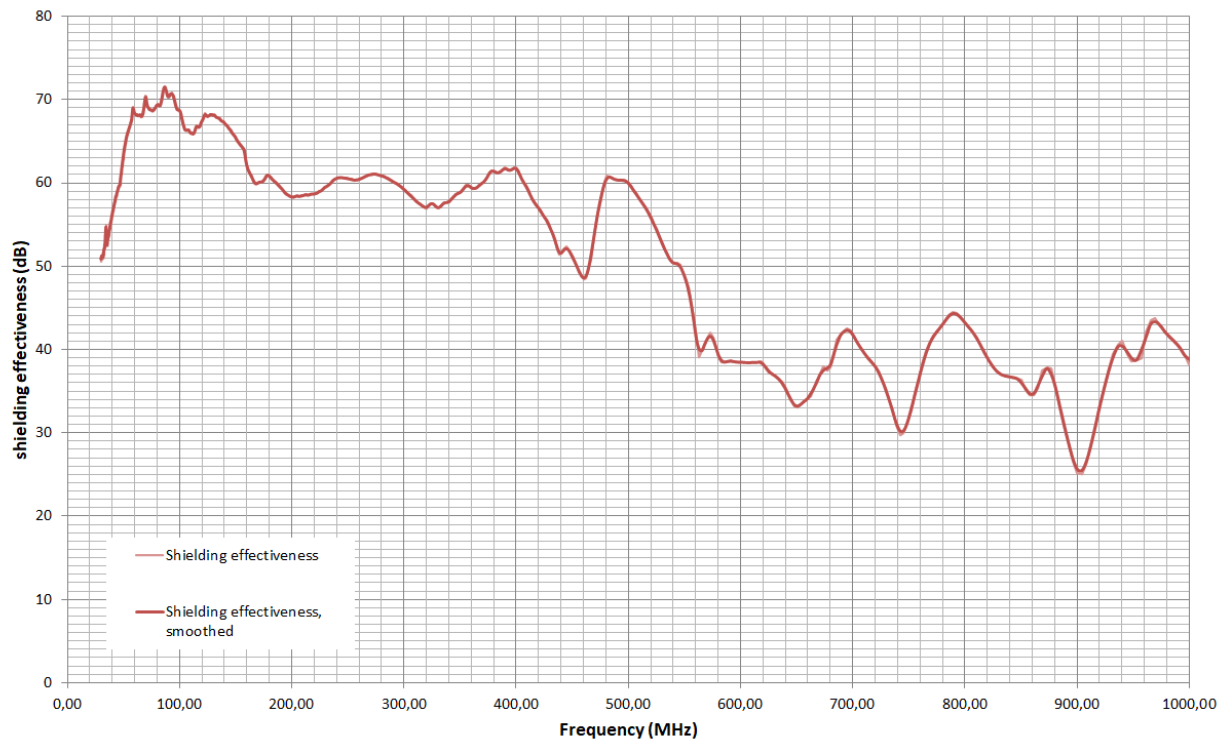
Figure 6-2: test setup EUT measurements

## 6.2.4 Dynamic range



## 6.2.5 Test Result

Shielding effectiveness 30 - 1000 MHz



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### 6.3 1 – 3 GHz

Tested by : Pauli

Test date : 2023-05-24

Test location : EMC chamber No. 3

#### 6.3.1 Test Setup

- Antenna distance = 2.00 m (front to front)
- Antenna height = 0.93 m
- no preamp in RX path
- Amplifier P1101 in TX path, gain set to 70%
- 16 dB attenuator at input of amplifier
- 10 dB attenuator at output of amplifier
- no attenuator at TX antenna
- 6 dB attenuator @ RX antenna
- measuring bandwidth = 100Hz
- Number of points = 801

#### 6.3.2 Measuring Equipment

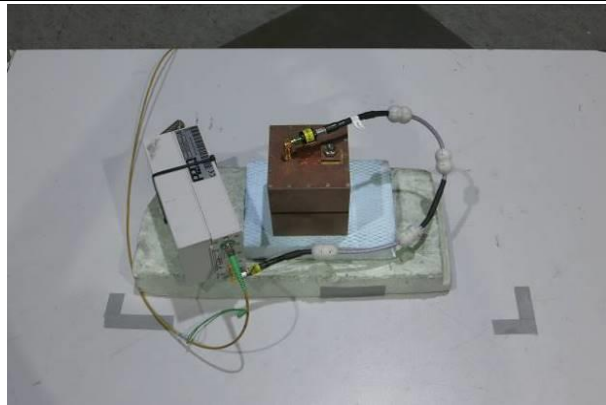
| ID    | Measuring Instrument  | Specification                                    | Status | Due date     |
|-------|---|--|--------|--------------|
| P1547 | Network Analyzer  | 9 kHz - 4 GHz                                    | cal    | Mar 31, 2024 |
| P2546 | attenuator 10dB   | 10dB   | chk    | Mar 31, 2024 |
| P2713 | attenuator, 3 dB  | Type N, 3 dB, 5 W, dc-18.GHz                     | chk    | Feb 29, 2024 |
| P1101 | amplifier   | 0.8 - 4.2 GHz, 50W                               | cnn    |              |
| P1714 | attenuator 10dB   | 10 dB/ 50 W                                      | chk    | Feb 29, 2024 |
| P2739 | coax cable, L = 2m  | DC - 6 GHz, 2dB @ 6GHz                           | cnn    |              |
| P2541 | Coax cable 4m (with ferrites)                                 | 50 Ohm, 3GHz                                     | cnn    |              |
| P1808 | Surface current blocking filter                               | 1 m / 11 ferrites, with polyester mesh, L = 1.4m | chk    | Jun 30, 2023 |
| P0029 | antenna   | 1 - 12.4 GHz                                     | chk    | Oct 31, 2024 |
| N0925 | antenna cubic, 86 x 86 x 99 mm (122 mm incl. 90°-Adapter SMA) | Cubic Dipole Antenna                             | cnn    |              |
| P1727 | attenuator 6dB  | 6 dB, 5.5 W, 0 - 18 GHz                          | chk    | Jul 31, 2023 |
| P1944 | Point2Point - AC Coupled Fibre Optic Link                     | 2 kHz to 1.35 GHz, 0 dBm Input/Output            | chk    | Jan 31, 2025 |
| P2506 | coax cable, L = 0.5m  | DC - 2 GHz, 0.56dB @ 2GHz, SMA, with ferrites    | cnn    |              |
| P0338 | EMC chamber 3   | 7.4 x 6.6 x 5.2 m (net), 0.4 m hybrid absorbers  | chk    |              |
| P2578 | coax cable 0.45 m, N - SMA                                    | DC - 18 GHz, 0.8 dB @ 18 GHz                     | cnn    |              |
| P2517 | coax cable, L = 0,5m, N                                       | DC - 6GHz, 0,6dB@6GHz, N                         | cnn    |              |

cal = Calibration, car = Calibration restricted use, chk = Check, chr = Check restricted use, cpu = Check prior to use, calchk = Calibration and check, ind = for indication only, cnn = Calibration not necessary, service = Wartung (Service), man = Maintenance, calservice = Calibration & Service, chkservice = Check & Service, calchkservice = Calibration & Check & Service

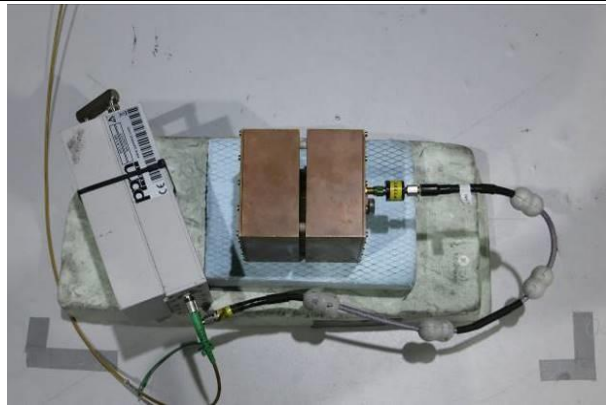
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## 6.3.3 Photographs of test setup



vertical



horizontal

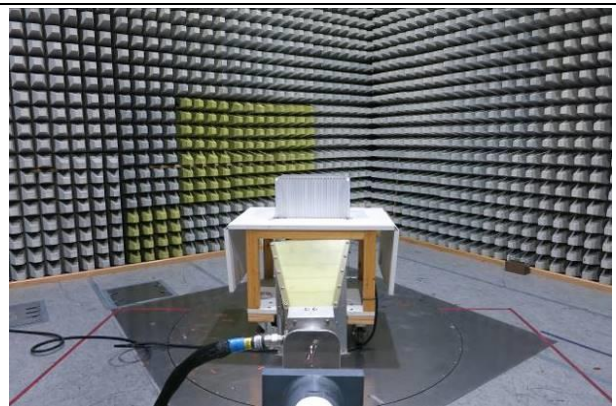
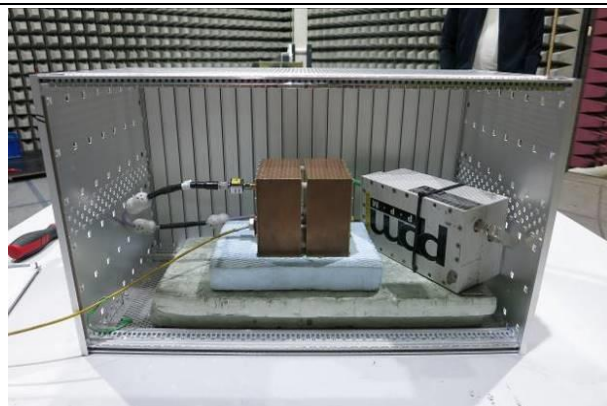
**Figure 6-3: test setup reference measurements**

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vertical

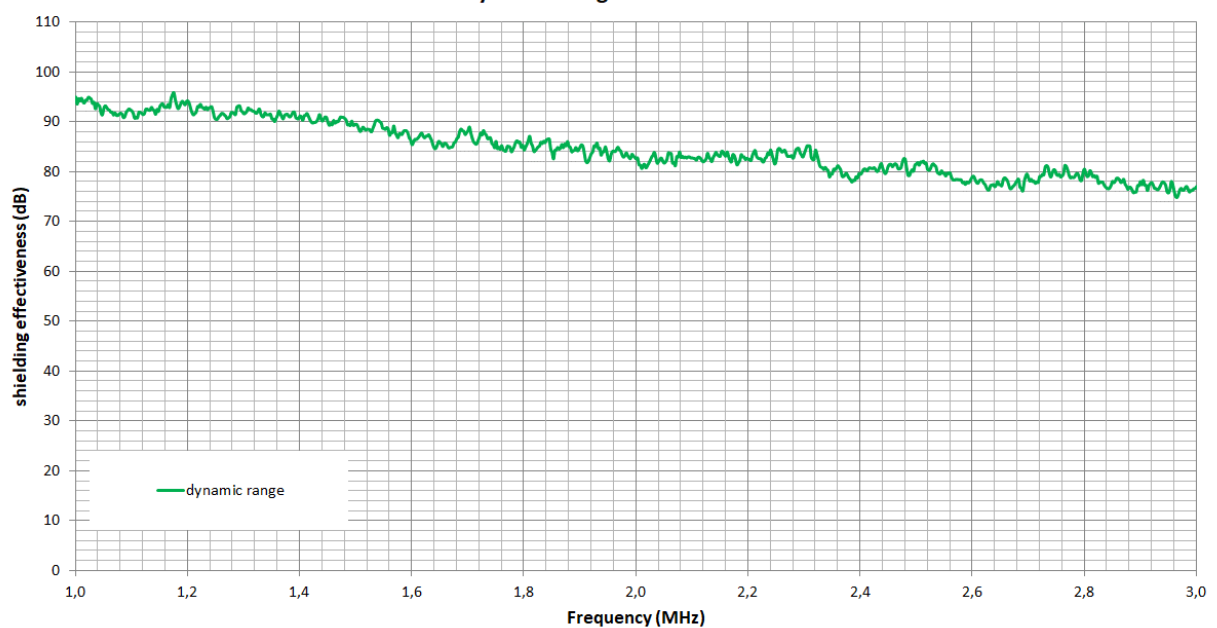


horizontal

Figure 6-4: test setup EUT measurements

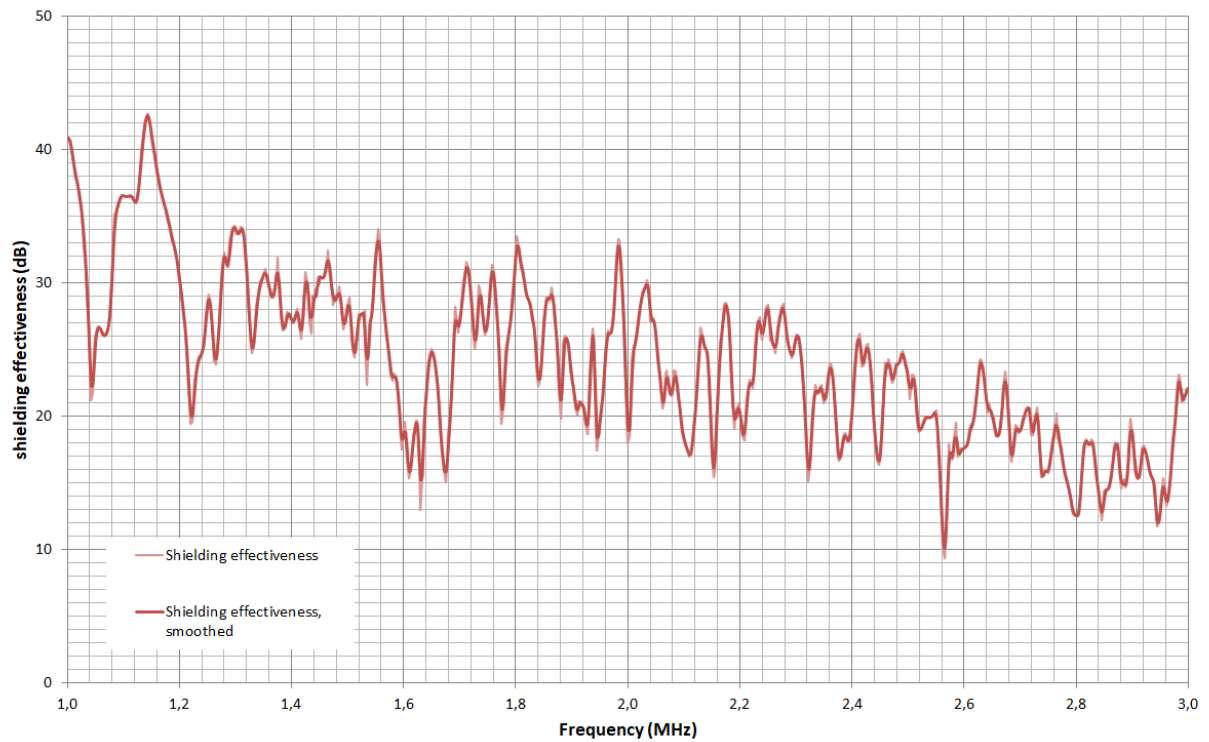
## 6.3.4 Dynamic range

Dynamic Range 1 - 3 GHz



### 6.3.5 Test Result

Shielding effectiveness 1 - 3 GHz



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## 7 Disclaimer

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