

# FCC Measurement/Technical Report on RF-560

FCC ID: 2AO3N-TH39P6ERPI  
IC: 23389-TH39P6ERPI

**Test Report Reference:** MDE\_DEDRONE\_2201\_FCC\_01

**Test Laboratory:**

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Germany



Deutsche  
Akkreditierungsstelle  
D-PL-12140-01-01  
D-PL-12140-01-02  
D-PL-12140-01-03

**Note:**

The following test results relate only to the devices specified in this document. This report shall not be reproduced in parts without the written approval of the test laboratory.

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## 1 APPLIED STANDARDS AND TEST SUMMARY

### 1.1 APPLIED STANDARDS

#### **Applicable FCC Rules**

Prepared in accordance with the requirements of FCC Rules and Regulations as listed in 47 CFR Ch.1 Parts 2 and 15 (10-1-21 Edition). The following subparts are applicable to the results in this test report.

#### **Part 2, Subpart J - Equipment Authorization Procedures, Certification**

#### **Part 15, Subpart B – Unintentional Radiators**

§ 15.107 Conducted limits

§ 15.109 Radiated emission limits; general requirements

§ 15.111 Antenna power conduction limits for receivers.

§ 15.121 Scanning receivers and frequency converters used with scanning receivers.

#### **Applicable ISED Standards**

ICES-Gen, Issue 1 + Amendment 1 (February 2021)

ICES-003, Issue 7

Note:

ANSI C63.4–2014 is applied.

## 1.2 FCC-IC CORRELATION TABLE

### Correlation of measurement requirements for Information Technology Equipment (ITE) from FCC and ISED Canada

| Measurement                                                                    | FCC reference | ISED reference                          |
|--------------------------------------------------------------------------------|---------------|-----------------------------------------|
| Conducted Emissions<br>(AC Power Line)                                         | §15.107       | ICES-003 Issue 7: 3.3.1                 |
| Radiated Spurious Emissions                                                    | §15.109       | ICES-003 Issue 7: 3.3.2                 |
| Antenna Power conduction<br>limits for receivers                               | § 15.111      | RSS-135 Issue 2<br>RSS-GEN Issue 5: 7.4 |
| Scanning receivers and<br>frequency converters used<br>with scanning receivers | § 15.121      | -                                       |

#### Remarks:

1. FCC Part 15 subpart B, ICES 003 and CISPR 22 contain different definitions of Class A and Class B limits, i.e. which class is applicable to which kind of EUT.  
ICES 003 and CISPR 22 distinguish between the location where the EUT is intended to operate whilst FCC refers to the method of commercial distribution (distributive trades).
2. The correct assignment of the appropriate class to the concrete EUT is not scope of this test report!
3. A radio apparatus that is specifically subject to an ISED Radio Standard Specification (RSS) and which contains an ITE is not subject to ICES-003 provided the ITE is used only to enable operation of the radio apparatus and the ITE does not control additional functions or capabilities.
4. ISM (Industrial, Scientific or Medical) radio frequency generators, though they may contain ITE, are excluded from the definition of ITE and are not subject to ICES-003. They are instead subject to the Interference-Causing Equipment Standard ICES-001, which specifically addresses ISM radio frequency generators.

### 1.3 MEASUREMENT SUMMARY

#### 47 CFR CHAPTER I FCC PART 15 Subpart B

#### § 15.107 Class A

Conducted Emissions at AC mains

The measurement was performed according to ANSI C63.4

#### Final Result

| OP-Mode                                                                         | Setup    | Date       | FCC    | IC     |
|---------------------------------------------------------------------------------|----------|------------|--------|--------|
| AC mains connection, Test setup<br>via auxiliary equipment, computer peripheric | S01_aa02 | 2023-04-25 | Passed | Passed |

#### 47 CFR CHAPTER I FCC PART 15 Subpart B

#### § 15.109 Class B

Radiated Emissions

The measurement was performed according to ANSI C63.4

#### Final Result

| OP-Mode                                                          | Setup    | Date       | FCC    | IC     |
|------------------------------------------------------------------|----------|------------|--------|--------|
| AC mains connection, Measurement range,<br>Test setup            |          |            |        |        |
| via auxiliary equipment, 26 GHz - 40 GHz,<br>computer peripheric | S01_aa02 | 2023-04-27 | Passed | Passed |
| via auxiliary equipment, 18 GHz - 26 GHz,<br>computer peripheric | S01_aa02 | 2023-04-27 | Passed | Passed |
| via auxiliary equipment, 1 GHz - 18 GHz,<br>computer peripheric  | S01_aa02 | 2023-04-24 | Passed | Passed |
| via auxiliary equipment, 30 MHz - 1 GHz,<br>computer peripheric  | S01_aa02 | 2023-04-24 | Passed | Passed |

N/A: Not applicable

N/P: Not performed

## 2 REVISION HISTORY / SIGNATURES

| Report version control |              |                    |                  |
|------------------------|--------------|--------------------|------------------|
| Version                | Release date | Change Description | Version validity |
| initial                | 2023-06-01   | --                 | valid            |
| --                     | --           | --                 | --               |

COMMENT: -



(responsible for accreditation scope)  
Marco Kulik



(responsible for testing and report)  
Mohamed Fraitat



7 layers GmbH, Borsigstr. 11  
40880 Ratingen, Germany  
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### 3 ADMINISTRATIVE DATA

#### 3.1 TESTING LABORATORY

Company Name: 7layers GmbH  
Address: Borsigstr. 11  
40880 Ratingen  
Germany

The test facility is accredited by the following accreditation organisation:

Laboratory accreditation no: DAKKS D-PL-12140-01-01| -02 | -03  
FCC Designation Number: DE0015  
FCC Test Firm Registration: 929146  
ISED CAB Identifier DE0007; ISED#: 3699A

Responsible for accreditation scope: Marco Kulik  
Report Template Version: 2022-05-25

#### 3.2 PROJECT DATA

Responsible for testing and report: Mohamed Fraitat  
Employees who performed the tests: documented internally at 7Layers  
Date of Report: 2023-06-01  
Testing Period: 2023-04-24 to 2023-04-27

#### 3.3 APPLICANT DATA

Company Name: Dedrone Holdings, Inc  
Address: 45662 Terminal Dr, Suite 110, Sterling,  
VA 20166  
USA  
Contact Person: Mr. Robin H. Jaeger

### 3.5 MANUFACTURER DATA

|                 |                                           |
|-----------------|-------------------------------------------|
| Company Name:   | Dedrone GmbH                              |
| Address:        | Miramstraße 87<br>34128 Kassel<br>Germany |
| Contact Person: | Mr. Robin H. Jaeger                       |

## 4 TEST OBJECT DATA

### 4.1 GENERAL EUT DESCRIPTION

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kind of Device<br>product description    | The RF Sensor RF-560 is a sensor component for Dedrone's Drone detection system. It integrates three kinds of frequency scanner to detect and locate Unmanned Autonomous Vehicles (UAV) on the property of the customer. It scans the RF spectrum passively for known patterns and alarms the customer on detection.                                                                                                  |
| Product name                             | RF-560                                                                                                                                                                                                                                                                                                                                                                                                                |
| Type                                     | RF-560                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Declared EUT data by the supplier</b> |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Power Supply Type                        | AC                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Nominal Voltage /<br>Frequency           | 110/240VAC 60Hz                                                                                                                                                                                                                                                                                                                                                                                                       |
| Test Voltage /<br>Frequency              | 110VAC / 60 Hz                                                                                                                                                                                                                                                                                                                                                                                                        |
| Highest internal<br>frequency            | 1910 MHz (cellular)<br>5800 MHz (wlan receiving only)                                                                                                                                                                                                                                                                                                                                                                 |
| Ports                                    | <ul style="list-style-type: none"> <li>- Power (connected to AC/DC converter, 1m)</li> <li>- Ethernet (connected to Router, 1m)</li> <li>- Antenna               <ul style="list-style-type: none"> <li>o Ch A (connected to antenna AUX 8, 0m)</li> <li>o Ch B (connected to antenna AUX 9, 0m)</li> <li>o A1 (connected to antenna AUX 7, 0m)</li> <li>o A2 (connected to antenna AUX 6, 0m)</li> </ul> </li> </ul> |

### 4.2 EUT MAIN COMPONENTS

| Sample Name      | Sample Code        | Description     |
|------------------|--------------------|-----------------|
| EUT AA02         | DE1270009aa02      | radiated sample |
| Sample Parameter | Value              |                 |
| Serial No.       | DR0560DEVSP5001023 |                 |
| HW Version       | 1                  |                 |
| SW Version       | 5                  |                 |
| Comment          |                    |                 |

NOTE: The short description is used to simplify the identification of the EUT in this test report.

#### 4.4 ANCILLARY EQUIPMENT

For the purposes of this test report, ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Ancillary Equipment can influence the test results.

| Device | Details<br>(Manufacturer, Type Model, OUT Code) | Description |
|--------|-------------------------------------------------|-------------|
| -      | -                                               | -           |

#### 4.5 AUXILIARY EQUIPMENT

For the purposes of this test report, auxiliary equipment is defined as equipment which is used temporarily to enable operational and control features especially used for the tests of the EUT which is not used during normal operation or equipment that is used during the tests in combination with the EUT but is not subject of this test report. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Auxiliary Equipment can influence the test results.

| Device | Details<br>(Manufacturer, Type Model, HW, SW, S/N)             | Description                       |
|--------|----------------------------------------------------------------|-----------------------------------|
| AUX 1  | Traco Power, TEX 120-112, -, 31852818570                       | AC/DC converter                   |
| AUX 2  | Ettus Research, USRP E310, -, -, 3179372                       | Drone Simulator                   |
| AUX 3  | -, Dronetag Beacon, -, -, 1596A34ADB93AF                       | Bluetooth simulator               |
| AUX 4  | Edimax Technology, BR-6478AC V2, -, -, 6478ACV261CB00089       | WLAN Router (for WLAN simulation) |
| AUX 5  | Linksys, WRT3200ACM, -, -, 1981160B900782                      | Router                            |
| AUX 6  | -, OMB.433.B03F21, -, -, -                                     | Antenna 433 MHz                   |
| AUX 7  | -, OMB.868.B05F21, -, -, -                                     | Antenna 868 MHz                   |
| AUX 8  | L-com, HGV-2458-03U-NM, -, -, -                                | Antenna 2.4 and 5 G               |
| AUX 9  | -, AOA-2458-79AM, -, -, 21A25879M0007                          | Antenna 2.4 and 5 G               |
| AUX 10 | Fujitsu Ltd., AC Adapter 65W RE04:A13-065N3A, -, -, 184903C604 | AC/DC Adapter RE04                |
| AUX 11 | Fujitsu Ltd., Laptop RE04:Lifebook U758, -, -, DSAL006396      | Laptop                            |

## 4.7 EUT SETUPS

This chapter describes the combination of EUTs and equipment used for testing. The rationale for selecting the EUTs, ancillary and auxiliary equipment and interconnecting cables, is to test a representative configuration meeting the requirements of the referenced standards.

| Setup    | Combination of EUTs     | Description and Rationale     |
|----------|-------------------------|-------------------------------|
| S01_aa02 | EUT AA02, AUX1 to AUX11 | Setup for Computer peripheric |

## 4.8 OPERATING MODES / TEST CHANNELS

This chapter describes the operating modes of the EUTs used for testing.

- Drone detection
- Wifi detection
- Bluetooth detection
- PING via LAN to a laptop
- LTE eFDD2 Idle

## 4.9 PRODUCT LABELLING

### 4.9.1 FCC ID LABEL

Please refer to the documentation of the applicant.

### 4.9.2 LOCATION OF THE LABEL ON THE EUT

Please refer to the documentation of the applicant.

## 5 TEST RESULTS

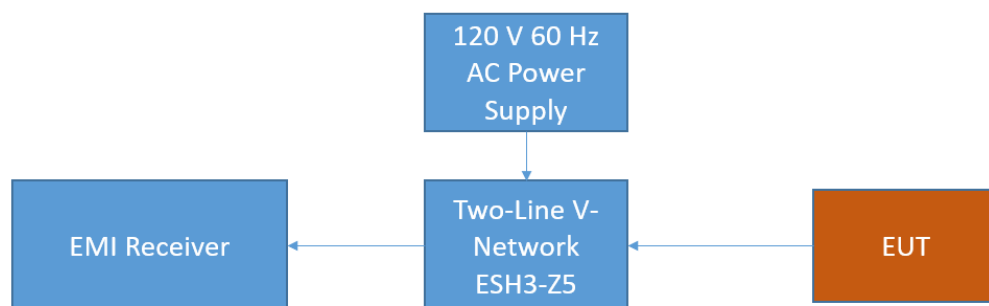
### 5.1 CONDUCTED EMISSIONS AT AC MAINS

Standard **FCC Part 15 Subpart B**

**The test was performed according to:**  
 ANSI C63.4

#### 5.1.1 TEST DESCRIPTION

The test set-up was made in accordance with the general provisions of ANSI C 63.4. The Equipment Under Test (EUT) was setup in a shielded room to perform the conducted emissions measurements in a typical installation configuration. The EUT was powered from 50 $\mu$ H || 50 Ohm Line Impedance Stabilization Network (LISN). The LISN's unused connections were terminated with 50 Ohm loads.



FCC Conducted Emissions on AC

The measurement procedure consists of two steps. It is implemented into the EMI test software EMC-32 from R&S.

#### Step 1: Preliminary scan

Intention of this step is, to determine the conducted EMI-profile of the EUT.

EMI receiver settings:

- Detector: Quasi-Peak & Average, trace Max-hold
- Frequency range: 150 kHz – 30 MHz
- Frequency steps: 2.5 kHz
- IF-Bandwidth: 9 kHz
- Measuring time / Frequency step: 100 ms (FFT-based)
- Measurement combinations:
  - 1) Neutral lead - reference ground (PE grounded)
  - 2) Phase lead - reference ground (PE grounded)
  - 3) Neutral lead - reference ground (PE floating)
  - 4) Phase lead - reference ground (PE floating)

On basis of this preliminary scan the highest amplitudes and the corresponding frequencies relative to the limit are identified. Emissions above the limit and emissions which are in the 10 dB range below the limit are considered.

#### Step 2: Final measurement

Intention of this step is, to determine the highest emissions with the settings defined in the test specification for the frequencies and leads identified in step 1.

EMI receiver settings:

- Detector: Quasi-Peak & CISPR-Average
- IF Bandwidth: 9 kHz
- Measuring time: 15 x 1 s / frequency

The highest value is reported in the table.

### 5.1.2 TEST REQUIREMENTS / LIMITS

FCC Part 15, Subpart B, §15.107

#### Class B:

| Frequency (MHz) | QP Limits (dBµV) | AV Limits (dBµV) |
|-----------------|------------------|------------------|
| 0.15 – 0.5      | 66 - 56          | 56 - 46          |
| 0.5 - 5         | 56               | 46               |
| 5 - 30          | 60               | 50               |

#### Class A:

| Frequency (MHz) | QP Limits (dBµV) | AV Limits (dBµV) |
|-----------------|------------------|------------------|
| 0.15 – 0.5      | 79               | 66               |
| 0.5 - 30        | 73               | 60               |

### 5.1.3 TEST PROTOCOL

Temperature: 24 °C  
 Air Pressure: 1008 hPa  
 Humidity: 37 %  
 via auxiliary equipment, computer peripheric

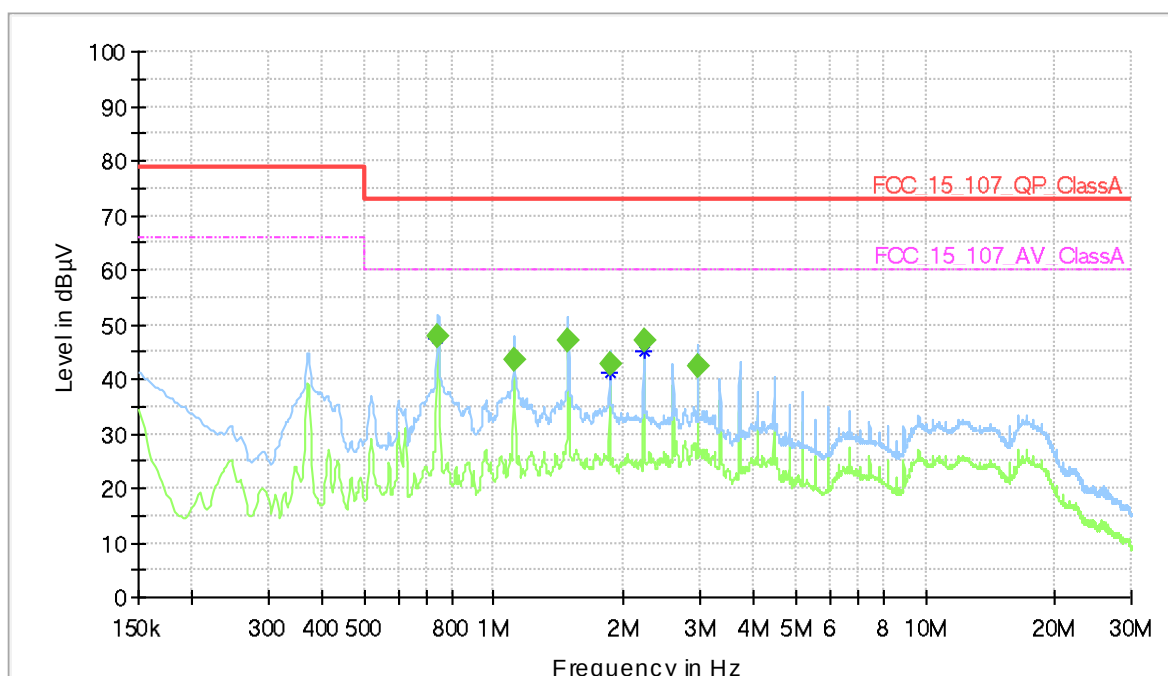
| PE  | Power line | Frequency [MHz] | Level [dBµV] | Detector | Limit [dBµV] | Margin [dB] |
|-----|------------|-----------------|--------------|----------|--------------|-------------|
| FLO | L1         | 0,74            | 47,8         | AV       | 60,0         | 12,2        |
| FLO | L1         | 1,11            | 43,3         | AV       | 60,0         | 16,7        |
| FLO | L1         | 1,48            | 47,1         | AV       | 60,0         | 12,9        |
| FLO | L1         | 1,86            | 42,6         | AV       | 60,0         | 17,4        |
| FLO | L1         | 2,23            | 47,1         | AV       | 60,0         | 13,0        |
| FLO | L1         | 2,97            | 42,5         | AV       | 60,0         | 17,5        |

Remark: Please see next sub-clause for the measurement plot.

### 5.1.5 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

#### Common Information

Test Description: Conducted Emissions / Class A  
 Test Standard: FCC §15.107, ANSI C63.4  
 EUT / Setup Code: DE1270009aa02 / S01\_aa02  
 Operating Conditions: 120 V 60 Hz, eFDD5D, LAN-Ping, drone detection on 433MHz, WLAN detection on Ch 1, BT detection  
 Comment: AC mains via AUX 01, Computer peripheral Setup  
 Legend: Trace: blue = QP, green = CISPR AV; Star: red or blue = critical frequency; Rhombus: blue = final QP, green = final CISPR AV  
 Tested Port / used LISN: AC mains => 1st LISN ESH3-Z5  
 Termination of other ports: AC of AUX => 2nd LISN ESH3-Z5 +50 Ohm



#### Final Result

| Frequency (MHz) | QuasiPeak (dBµV) | CAverage (dBµV) | Limit (dBµV) | Margin (dB) | Meas. Time | Bandwidth (kHz) | Line | PE  | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|------------|-----------------|------|-----|------------|
| 0.741750        | ---              | 47.82           | 60.00        | 12.18       | 1000.0     | 9.000           | L1   | FLO | 10.1       |
| 1.113000        | ---              | 43.34           | 60.00        | 16.66       | 1000.0     | 9.000           | L1   | FLO | 10.1       |
| 1.484250        | ---              | 47.09           | 60.00        | 12.91       | 1000.0     | 9.000           | L1   | FLO | 10.2       |
| 1.855500        | ---              | 42.56           | 60.00        | 17.44       | 1000.0     | 9.000           | L1   | FLO | 10.2       |
| 2.226750        | ---              | 47.05           | 60.00        | 12.95       | 1000.0     | 9.000           | L1   | FLO | 10.2       |
| 2.969250        | ---              | 42.48           | 60.00        | 17.52       | 1000.0     | 9.000           | L1   | FLO | 10.3       |

### 5.1.6 TEST EQUIPMENT USED

- Conducted Emissions FCC

## 5.2 RADIATED EMISSIONS

Standard **FCC Part 15 Subpart B**

**The test was performed according to:**  
ANSI C63.4

### 5.2.1 TEST DESCRIPTION

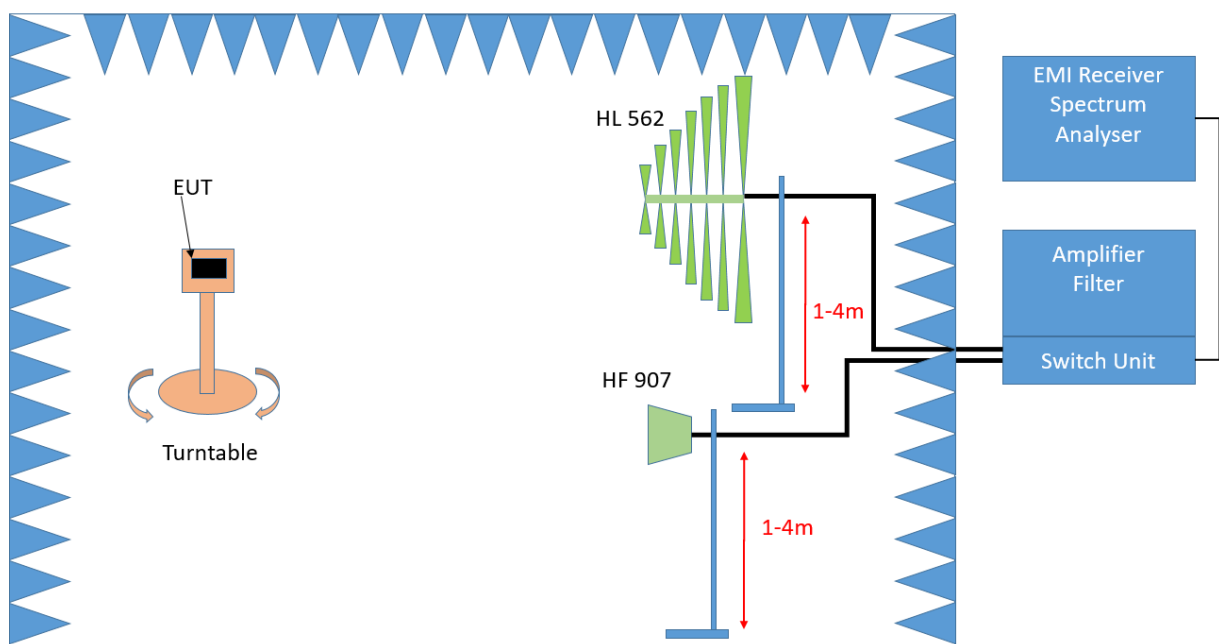
The test set-up was made in accordance to the general provisions of ANSI C63.4 in a typical installation configuration. The measurements were performed according to the following sub-chapters of ANSI C63.4:

- 30 MHz – 1 GHz: Chapter 8.3.2.1
- > 1 GHz: Chapter 8.3.2.2

The measurement procedure is implemented into the EMI test software EMC32 from R&S. Exploratory tests are performed at 3 orthogonal axes to determine the worst-case orientation of a body-worn or handheld EUT. The final test on all kind of EUTs is also performed at 3 axes. A pre-check is performed while the EUT is powered.

The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The influence of the EUT support table that is used between 30–1000 MHz was evaluated.

### 1. Measurement setup



Test Setup; Spurious Emission Radiated (SAC)

## Frequency range 30 MHz – 1 GHz

### Step 1: Preliminary scan

This is a preliminary test to identify the highest amplitudes relative to the limit.

Settings for step 1:

- Antenna distance: 3 m
- Detector: Peak-Max-hold / Quasi-Peak (FFT-based)
- Frequency range: 30 – 1000 MHz
- Frequency steps: 30 kHz
- IF-Bandwidth: 120 kHz
- Measuring time / Frequency step: 100 ms
- Turntable angle range:  $-180^{\circ}$  to  $90^{\circ}$
- Turntable step size:  $90^{\circ}$
- Height variation range: 1 – 4 m
- Height variation step size: 1.5 m
- Polarisation: Horizontal + Vertical

Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

### Step 2: Adjustment measurement

In this step the accuracy of the turntable azimuth and antenna height will be improved. This is necessary to find out the maximum value of every frequency.

For each frequency, which was determined the turntable azimuth and antenna height will be adjusted. The turntable azimuth will slowly vary by  $360^{\circ}$ . During this action, the value of emission is continuously measured. The turntable azimuth at the highest emission will be recorded and adjusted. In this position, the antenna height will slowly vary between 1 – 4 m. During this action, the value of emission is also continuously measured. The antenna height of the highest emission will also be recorded and adjusted.

- Detector: Peak – Max-hold
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 100 ms
- Turntable angle range:  $360^{\circ}$
- Height variation range: 1 – 4 m
- Antenna Polarization: max. value determined in step 1

### Step 3: Final measurement with QP detector

With the settings determined in step 2, the final measurement will be performed:

EMI receiver settings for step 3:

- Detector: Quasi-Peak
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 1 s

## Above 1 GHz:

The following changes apply to the measurement procedure for the frequency range above 1 GHz:

### Step 1:

- Turntable step size: 45°
- Detector: Peak, Average (Max-hold)
- IF – Bandwidth: 1 MHz
- Frequency steps: 250 kHz
- Measuring time: 500 ms / GHz

### Step 2:

- IF – Bandwidth: 1 MHz

### Step 3:

- Detector: Peak / CISPR Average
- IF – Bandwidth: 1 MHz

After every measurement a plot will be generated which contains a diagram with the results of the preliminary scan and a chart with the frequencies and values of the results of the final measurement.

## 5.2.2 TEST REQUIREMENTS / LIMITS

FCC Part 15, Subpart B, §15.109, Radiated Emission Limits

### Class B:

| Frequency (MHz) | Limit (µV/m) | Measurement distance (m) | Limits (dBµV/m) |
|-----------------|--------------|--------------------------|-----------------|
| 30 – 88         | 100@3m       | 3                        | 40.0@3m         |
| 88 – 216        | 150@3m       | 3                        | 43.5@3m         |
| 216 – 960       | 200@3m       | 3                        | 46.0@3m         |
| 960 – 26000     | 500@3m       | 3                        | 54.0@3m         |
| 26000 – 40000   | 500@3m       | 1                        | 54.0@3m         |

### Class A:

| Frequency (MHz) | Limit (µV/m) | Measurement distance (m) | Limits (dBµV/m) |
|-----------------|--------------|--------------------------|-----------------|
| 30 – 88         | 90@10m       | 3                        | 39.1@10m        |
| 88 – 216        | 150@10m      | 3                        | 43.5@10m        |
| 216 – 960       | 210@10m      | 3                        | 46.4@10m        |
| 960 – 26000     | 300@10m      | 3                        | 49.5@10m        |
| 26000 – 40000   | 300@10m      | 1                        | 49.5@10m        |

The measured values for Class A and for Class B (> 26 GHz) measurements are corrected with an inverse linear distance extrapolation factor (20 dB/decade).

§15.35(b) ..., there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit....

Used conversion factor:  $\text{Limit (dBµV/m)} = 20 \log (\text{Limit (µV/m)}/1\mu\text{V/m})$

### 5.2.3 TEST PROTOCOL

Ambient temperature: 22 °C  
 Air Pressure: 996 hPa  
 Humidity: 36 %  
 via auxiliary equipment, computer peripheric

| Spurious Freq.<br>[MHz] | Spurious Level<br>[dBμV/m] | Detector | RBW<br>[kHz] | Limit<br>[dBμV/m] | Margin to Limit<br>[dB] |
|-------------------------|----------------------------|----------|--------------|-------------------|-------------------------|
| 32,1                    | 35,9                       | QP       | 120          | 40,0              | 4,1                     |
| 41,1                    | 35,2                       | QP       | 120          | 40,0              | 4,8                     |
| 84,1                    | 33,6                       | QP       | 120          | 40,0              | 6,4                     |
| 272,0                   | 35,0                       | QP       | 120          | 46,0              | 11,0                    |
| 800,7                   | 24,1                       | QP       | 120          | 46,0              | 21,9                    |
| 898,4                   | 31,6                       | QP       | 120          | 46,0              | 14,4                    |
| 1687,5                  | 27,8                       | AV       | 1000         | 54,0              | 26,2                    |
| 2388,8                  | 54,6                       | PEAK     | 1000         | 74,0              | 19,4                    |
| 5974,3                  | 60,4                       | PEAK     | 1000         | 74,0              | 13,6                    |
| 17835,3                 | 59,9                       | PEAK     | 1000         | 74,0              | 14,1                    |
| 17835,3                 | 46,5                       | AV       | 1000         | 54,0              | 7,6                     |

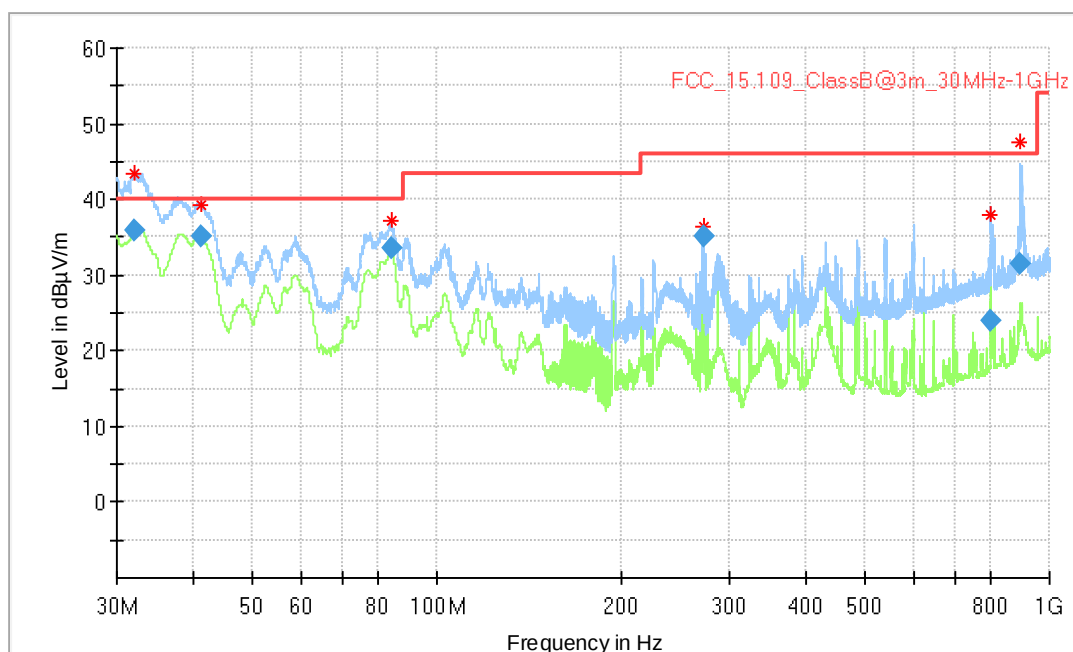
Remark: Please see next sub-clause for the measurement plot.

## 5.2.5 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

**Diagram 2.01**

### Common Information

|                       |                                                                                                          |
|-----------------------|----------------------------------------------------------------------------------------------------------|
| Test Description:     | Radiated Emissions, Test Site: Semi Anechoic Chamber @ 4 m                                               |
| Test Standard:        | FCC §15.109, ANSI C63.4, Class B                                                                         |
| Frequency range:      | 30 MHz – 1 GHz                                                                                           |
| EUT / Setup Code:     | DE1270009aa02 / S01_aa02                                                                                 |
| Operating Conditions: | 120 V 60 Hz, eFDD2 Idle, LAN-Ping, drone detection on 433MHz, WLAN detection on Ch 1, BT detection       |
| Operator Name:        | CAP                                                                                                      |
| Comment:              | AC mains via AUX 01, Computer peripheral Setup                                                           |
| Legend:               | Trace (preview): blue = PK, green = QP; Star: red or blue = critical frequency; Rhombus: blue = final QP |



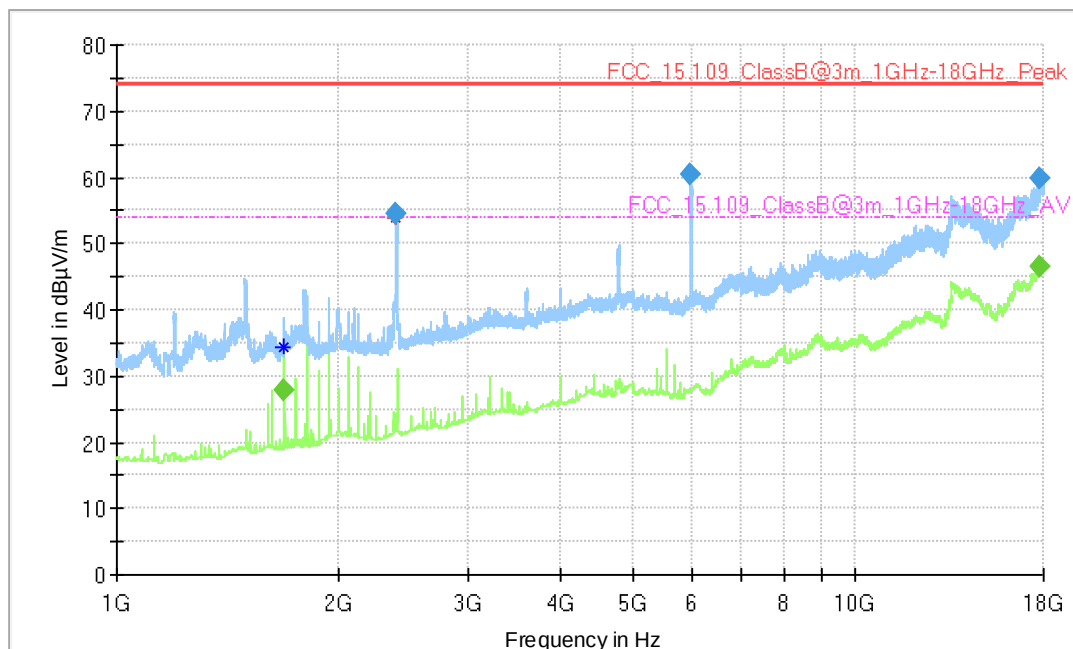
### Final Result

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|--------------|
| 32.100000       | 35.91              | 40.00          | 4.09        | 1000.0          | 120.000         | 104.0       | V   | 69.0          | 18.0         |
| 41.070000       | 35.19              | 40.00          | 4.81        | 1000.0          | 120.000         | 110.0       | V   | 336.0         | 12.9         |
| 84.060000       | 33.57              | 40.00          | 6.43        | 1000.0          | 120.000         | 104.0       | V   | 91.0          | 10.3         |
| 272.010000      | 35.02              | 46.00          | 10.98       | 1000.0          | 120.000         | 116.0       | V   | 165.0         | 12.9         |
| 800.670000      | 24.07              | 46.00          | 21.93       | 1000.0          | 120.000         | 104.0       | V   | 2.0           | 24.3         |
| 898.350000      | 31.58              | 46.00          | 14.42       | 1000.0          | 120.000         | 104.0       | V   | 323.0         | 25.6         |

## Diagram 2.02

### Common Information

Test Description: Radiated Emissions @ 3 m, SAC + mobile floor absorber  
 Test Standard: FCC §15.109, ANSI C63.4  
 Frequency range: 1 GHz – 18 GHz  
 EUT / Setup Code: DE1270009aa02  
 Operating Conditions: 120 V 60 Hz, eFDD2 Idle, LAN-Ping, drone detection on 433MHz, WLAN detection on Ch 1, BT detection  
 Operator Name: CAP  
 Comment: AC mains via AUX 01, Computer peripheral Setup  
 Legend: Trace (preview): blue = PK, green = AV; Star: red or blue = critical frequency; Rhombus: blue = final Peak, green = Final CISPR AV



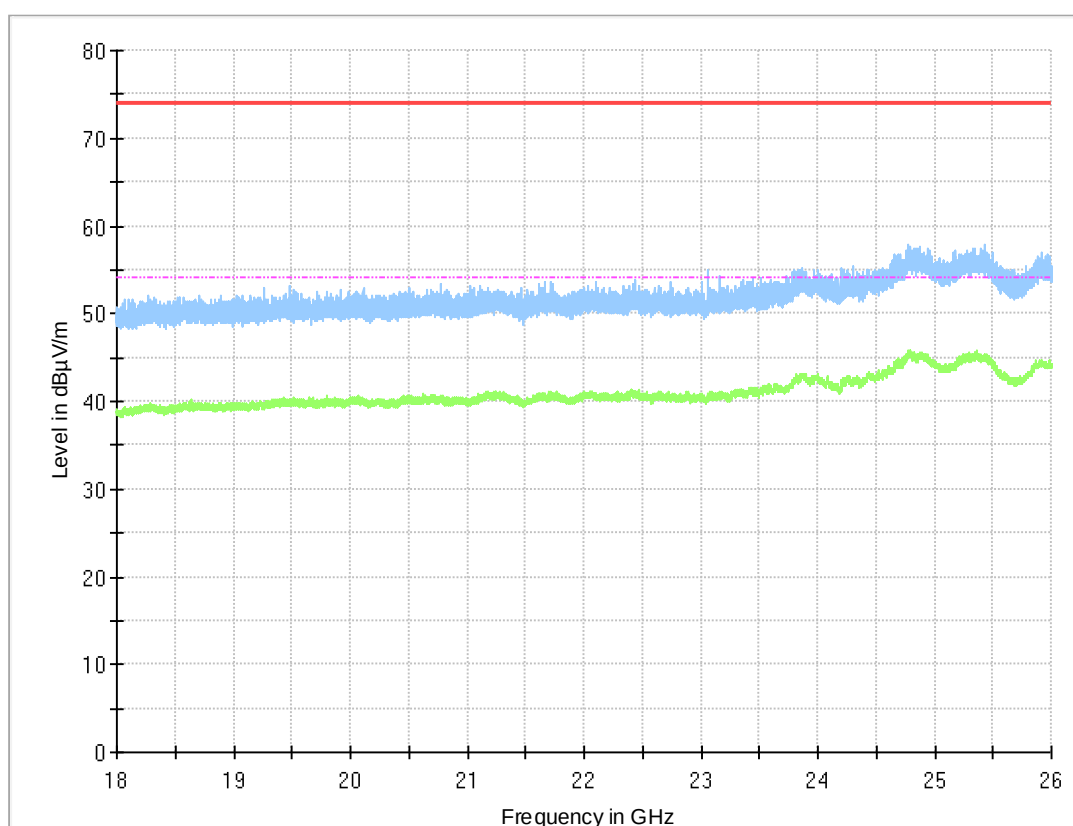
### Final Result

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|--------------|
| 1687.500000     | ---              | 27.84             | 54.00          | 26.16       | 200.0           | 1000.000        | 342.0       | V   | 88.0          | 2.8          |
| 2388.750000     | 54.63            | ---               | 74.00          | 19.37       | 200.0           | 1000.000        | 103.0       | V   | -95.0         | 6.0          |
| 5974.250000     | 60.36            | ---               | 74.00          | 13.64       | 200.0           | 1000.000        | 342.0       | V   | 88.0          | 14.9         |
| 17835.250000    | 59.94            | ---               | 74.00          | 14.06       | 200.0           | 1000.000        | 365.0       | V   | -76.0         | 31.4         |
| 17835.250000    | ---              | 46.45             | 54.00          | 7.55        | 200.0           | 1000.000        | 365.0       | V   | 88.0          | 31.4         |

## Diagram 2.03

## Common Information

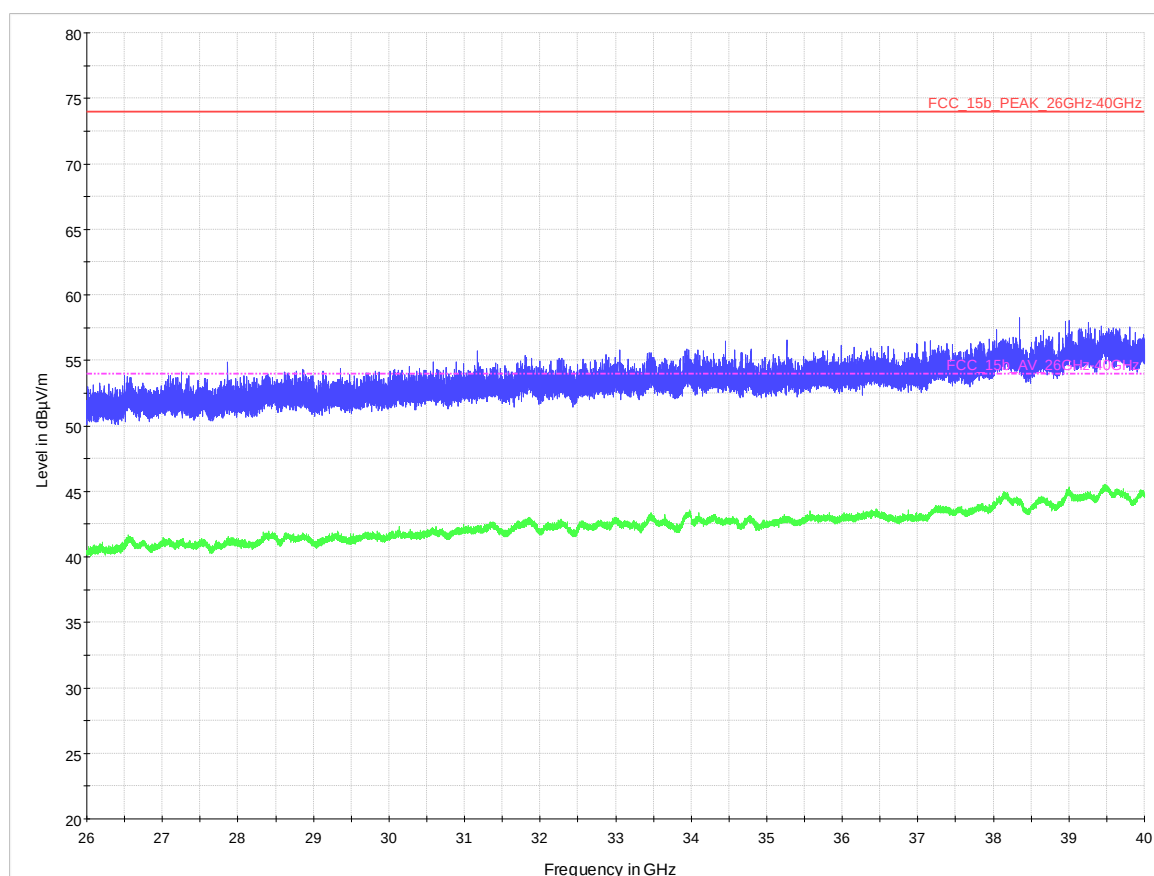
|                       |                                                                                                                                    |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Test Description:     | Radiated Emissions in FAC                                                                                                          |
| Test Standard:        | FCC §15.109, ANSI C63.4                                                                                                            |
| Frequency range:      | 18 GHz - 26 GHz                                                                                                                    |
| EUT / Setup Code:     | DE1270009aa02 / S01_aa02                                                                                                           |
| Operating Conditions: | 120 V 60 Hz, eFDD2 Idle, LAN-Ping, drone detection on 433MHz, WLAN detection on Ch 1, BT detection                                 |
| Comment:              | AC mains via AUX 01, Computer peripheral Setup                                                                                     |
| Legend:               | Trace (preview): blue = PK, green = AV; Star: red or blue = critical frequency; Rhombus: blue = final Peak, green = Final CISPR AV |



**Diagram 2.04**

## Common Information

|                       |                                                                                                                                    |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Test Description:     | Radiated Emissions in FAC                                                                                                          |
| Test Standard:        | FCC §15.109                                                                                                                        |
| Frequency range:      | 26 GHz – 40 MHz                                                                                                                    |
| EUT / Setup Code:     | DE1270009aa02 / S01_aa02                                                                                                           |
| Operating Conditions: | 120 V 60 Hz, eFDD2 Idle, LAN-Ping, drone detection on 433MHz, WLAN detection on Ch 1, BT detection                                 |
| Comment               | AC mains via AUX 01, Computer peripheral Setup                                                                                     |
| Legend:               | Trace (preview): blue = PK, green = AV; Star: red or blue = critical frequency; Rhombus: blue = final Peak, green = Final CISPR AV |



### 5.2.6 TEST EQUIPMENT USED

- Radiated Emissions SAC above 1 GHz
- Radiated Emissions SAC up to 1 GHz
- Radiated emissions FAC

## 6 TEST EQUIPMENT

### 6.1 TEST EQUIPMENT HARDWARE

- 1 Conducted Emissions FCC  
Conducted Emissions AC Mains for FCC standards

| Ref.No. | Device Name          | Description                                                                | Manufacturer                        | Serial Number | Last Calibration | Calibration Due |
|---------|----------------------|----------------------------------------------------------------------------|-------------------------------------|---------------|------------------|-----------------|
| 1.1     | Opus10 TPR (8253.00) | T/P Logger 13                                                              | Lufft Mess- und Regeltechnik GmbH   | 13936         | 2021-10          | 2023-10         |
| 1.2     | SMBV100A             | Vector Signal Generator 9 kHz - 3.2 GHz (GNSS / Broadcast Signalling Unit) | Rohde & Schwarz GmbH & Co. KG       | 260001        | 2021-02          | 2024-02         |
| 1.3     | Fluke 177            | Digital Multimeter 03 (Multimeter)                                         | Fluke Europe B.V.                   | 86670383      | 2022-06          | 2024-06         |
| 1.4     | ESH3-Z5              | Two-Line V-Network (AUX)                                                   | Rohde & Schwarz GmbH & Co. KG       | 828304/029    | 2021-08          | 2023-08         |
| 1.5     | EP 1200/B, NA/B1     | AC Source, Amplifier with integrated variable Oscillator                   | Spitzenberger & Spies GmbH & Co. KG | B6278         | N/A              | N/A             |
| 1.6     | Chroma 6404          | AC Source                                                                  | Chroma ATE INC.                     | 64040001304   | N/A              | N/A             |
| 1.7     | CMW500               | Callbox OIL-RE, SUW                                                        | Rohde & Schwarz GmbH & Co. KG       | 155999-Ei     | 2023-01          | 2026-01         |
| 1.8     | CMW500               | Callbox OIL-RE, SUA                                                        | Rohde & Schwarz GmbH & Co. KG       | 163529-bw     | 2023-01          | 2026-01         |
| 1.9     | Shielded Room 02     | Shielded Room 4m x 3m                                                      | Frankonia Germany EMC Solution GmbH | -             |                  |                 |
| 1.10    | CMW500               | Callbox OIL-RE, SUA-160 MHz                                                | Rohde & Schwarz GmbH & Co. KG       | 168927-cv     | 2020-05          | 2023-05         |
| 1.11    | ESH3-Z5              | Two-Line V-Network (EUT)                                                   | Rohde & Schwarz GmbH & Co. KG       | 829996/002    | 2021-08          | 2023-08         |
| 1.12    | ESR 7                | EMI Receiver / Spectrum Analyzer                                           | Rohde & Schwarz                     | 101424        | 2023-01          | 2025-01         |
| 1.13    | CMW500               | Callbox OIL-RE, SUA-160 MHz                                                | Rohde & Schwarz GmbH & Co. KG       | 167766-By     | 2022-05          | 2025-05         |
| 1.14    | Opus10 THI (8152.00) | T/H Logger 02                                                              | Lufft Mess- und Regeltechnik GmbH   | 7489          | 2021-10          | 2023-10         |
| 1.15    | CS-RUB6              | Rubidium Frequency Standard                                                | Rohde & Schwarz GmbH & Co. KG       | 100321        | 2022-10          | 2023-10         |

2 Radiated Emissions SAC above 1 GHz  
 Radiated emission tests above 1 GHz in a semi anechoic room with floor absorbers

| Ref.No. | Device Name          | Description                                              | Manufacturer                        | Serial Number | Last Calibration | Calibration Due |
|---------|----------------------|----------------------------------------------------------|-------------------------------------|---------------|------------------|-----------------|
| 2.1     | N5000/NP             | Filter for EUT, 2 Lines, 250 V, 16 A                     | ETS-LINDGREN                        | 241515        | N/A              | N/A             |
| 2.2     | Opus10 TPR (8253.00) | T/P Logger 13                                            | Lufft Mess- und Regeltechnik GmbH   | 13936         | 2021-10          | 2023-10         |
| 2.3     | ESW44                | EMI Receiver / Spectrum Analyzer                         | Rohde & Schwarz GmbH & Co. KG       | 101603        | 2022-01          | 2024-01         |
| 2.4     | Anechoic Chamber 01  | SAC/FAR, 10.58 m x 6.38 m x 6.00 m                       | Frankonia                           | none          | N/A              | N/A             |
| 2.5     | Fluke 177            | Digital Multimeter 03 (Multimeter)                       | Fluke Europe B.V.                   | 86670383      | 2022-06          | 2024-06         |
| 2.6     | Opus10 THI (8152.00) | T/H Logger 10                                            | Lufft Mess- und Regeltechnik GmbH   | 12488         | 2021-08          | 2023-08         |
| 2.7     | EP 1200/B, NA/B1     | AC Source, Amplifier with integrated variable Oscillator | Spitzenberger & Spies GmbH & Co. KG | B6278         | N/A              | N/A             |
| 2.8     | DS 420S              | Turn Table 2 m diameter                                  | HD GmbH                             | 420/573/99    | N/A              | N/A             |
| 2.9     | JS4-00102600-42-5A   | Broadband Amplifier 30 MHz - 26 GHz                      | Miteq                               | 619368        | N/A              | N/A             |
| 2.10    | MA4985-XP-ET         | Bore Sight Antenna Mast                                  | innco systems GmbH                  | none          | N/A              | N/A             |
| 2.11    | BB4312-C30-H3x       | Filter Universal 1A                                      | Siemens Matsushita Components       | none          | N/A              | N/A             |
| 2.12    | HF 907-2             | Double-ridged horn                                       | Rohde & Schwarz                     | 102817        | 2022-07          | 2025-07         |

3 Radiated Emissions SAC up to 1 GHz  
Radiated emission tests up to 1 GHz in a semi anechoic room

| Ref.No. | Device Name          | Description                                                        | Manufacturer                        | Serial Number       | Last Calibration | Calibration Due |
|---------|----------------------|--------------------------------------------------------------------|-------------------------------------|---------------------|------------------|-----------------|
| 3.1     | N5000/NP             | Filter for EUT, 2 Lines, 250 V, 16 A                               | ETS-LINDGREN                        | 241515              | N/A              | N/A             |
| 3.2     | Opus10 TPR (8253.00) | T/P Logger 13                                                      | Lufft Mess- und Regeltechnik GmbH   | 13936               | 2021-10          | 2023-10         |
| 3.3     | ESW44                | EMI Receiver / Spectrum Analyzer                                   | Rohde & Schwarz GmbH & Co. KG       | 101603              | 2022-01          | 2024-01         |
| 3.4     | Anechoic Chamber 01  | SAC/FAR, 10.58 m x 6.38 m x 6.00 m                                 | Frankonia                           | none                | N/A              | N/A             |
| 3.5     | HL 562 ULTRALOG      | Biconical-log-per antenna (30 MHz - 3 GHz) with HL 562E biconicals | Rohde & Schwarz GmbH & Co. KG       | 830547/003          | 2021-09          | 2024-09         |
| 3.6     | Fluke 177            | Digital Multimeter 03 (Multimeter)                                 | Fluke Europe B.V.                   | 86670383            | 2022-06          | 2024-06         |
| 3.7     | Opus10 THI (8152.00) | T/H Logger 10                                                      | Lufft Mess- und Regeltechnik GmbH   | 12488               | 2021-08          | 2023-08         |
| 3.8     | EP 1200/B, NA/B1     | AC Source, Amplifier with integrated variable Oscillator           | Spitzenberger & Spies GmbH & Co. KG | B6278               | N/A              | N/A             |
| 3.9     | DS 420S              | Turn Table 2 m diameter                                            | HD GmbH                             | 420/573/99          | N/A              | N/A             |
| 3.10    | AM 4.0               | Antenna Mast 4 m                                                   | Maturo GmbH                         | AM4.0/180/1192 0513 | N/A              | N/A             |

4 Radiated Emissions FAC

| Ref. No. | Device Name             | Description                            | Manufacturer                      | Serial Number      | Last Calibration | Calibration Due |
|----------|-------------------------|----------------------------------------|-----------------------------------|--------------------|------------------|-----------------|
| 4.1      | Opus10 TPR (8253.00)    | T/P Logger 13                          | Lufft Mess- und Regeltechnik GmbH | 13936              | 2021-10          | 2023-10         |
| 4.2      | AMF-7D00101800-30-10P-R | Broadband Amplifier 100 MHz - 18 GHz   | Miteq                             |                    | N/A              | N/A             |
| 4.3      | 5HC2700/12750-1.5-KK    | High Pass Filter                       | Trilithic                         | 9942012            | N/A              | N/A             |
| 4.4      | ASP 1.2/1.8-10 kg       | Antenna Mast                           | Maturo GmbH                       | -                  | N/A              | N/A             |
| 4.5      | Anechoic Chamber 03     | FAR, 8.80m x 4.60m x 4.05m (l x w x h) | Albatross Projects                | P26971-647-001-PRB | N/A              | N/A             |
| 4.6      | Fluke 177               | Digital Multimeter 03 (Multimeter)     | Fluke Europe B.V.                 | 86670383           | 2022-06          | 2024-06         |

|      |                        |                                                 |                                   |                        |         |         |
|------|------------------------|-------------------------------------------------|-----------------------------------|------------------------|---------|---------|
| 4.7  | JS4-18002600-32-5P     | Broadband Amplifier 18 GHz - 26 GHz             | Miteq                             | 849785                 | N/A     | N/A     |
| 4.8  | FSW43                  | Spectrum Analyzer                               | Rohde & Schwarz GmbH & Co. KG     | 103779                 | 2023-04 | 2025-04 |
| 4.9  | 3160-09                | Standard Gain / Pyramidal Horn Antenna 26.5 GHz | EMCO Elektronik GmbH              | 00083069               | N/A     | N/A     |
| 4.10 | WHKX 7.0/18G-8SS       | High Pass Filter                                | Wainwright Instruments GmbH       | 09                     | N/A     | N/A     |
| 4.11 | 4HC1600/12750-1.5-KK   | High Pass Filter                                | Trilithic                         | 9942011                | N/A     | N/A     |
| 4.12 | TT 1.5 WI              | Turn Table                                      | Maturo GmbH                       | -                      | N/A     | N/A     |
| 4.13 | HL 562 ULTRALOG        | Biconical-log-per Antenna (30 MHz - 3 GHz)      | Rohde & Schwarz GmbH & Co. KG     | 100609                 | 2022-06 | 2025-06 |
| 4.14 | 3160-10                | Standard Gain / Pyramidal Horn Antenna 40 GHz   | EMCO Elektronik GmbH              | 00086675               | N/A     | N/A     |
| 4.15 | VLFX-650+              | Low Pass Filter DC650 MHz                       | Mini-Circuits                     | 15542                  | N/A     | N/A     |
| 4.16 | 5HC3500/18000-1.2-KK   | High Pass Filter                                | Trilithic                         | 200035008              | N/A     | N/A     |
| 4.17 | Opus 20 THI (8120.00)  | ThermoHygro Datalogger                          | Lufft Mess- und Regeltechnik GmbH | 115.0318.0802.033      | N/A     | N/A     |
| 4.18 | TD1.5-10kg             | EUT Tilt Device (Rohacell)                      | Maturo GmbH                       | TD1.5-10kg/024/3790709 | N/A     | N/A     |
| 4.19 | PAS 2.5 - 10 kg        | Antenna Mast                                    | Maturo GmbH                       | -                      | N/A     | N/A     |
| 4.20 | AFS42-00101800-25-S-42 | Broadband Amplifier 25 MHz - 18 GHz             | Miteq                             | 2035324                | N/A     | N/A     |
| 4.21 | HF 907                 | Double-ridged horn                              | Rohde & Schwarz                   | 102444                 | 2021-09 | 2024-09 |

The calibration interval is the time interval between "Last Calibration" and "Calibration Due"

### 6.3 TEST EQUIPMENT SOFTWARE

|                                |          |
|--------------------------------|----------|
| <b>Semi-Anechoic Chamber:</b>  |          |
| Software                       | Version  |
| EMC32 Measurement Software     | 10.60.10 |
| INNCO Mast Controller          | 1.02.62  |
| MATURO Mast Controller         | 12.19    |
| MATURO Turn-Table Controller   | 30.10    |
| <b>Fully-Anechoic Chamber:</b> |          |
| Software                       | Version  |
| EMC32 Measurement Software     | 10.60.10 |
| MATURO Turn-Unit Cotrolller    | 11.10    |
| MATURO Mast Controller         | 12.10    |
| MATURO Turntable Controller    | 12.11    |
| <b>Conducted AC Emissions:</b> |          |
| Software                       | Version  |
| EMC32 Measurement Software     | 10.60.20 |

## 7 ANTENNA FACTORS, CABLE LOSS AND SAMPLE CALCULATIONS

This chapter contains the antenna factors with their corresponding path loss of the used measurement path for all antennas as well as the insertion loss of the LISN.

### 7.1 LISN R&S ESH3-Z5 (150 KHZ – 30 MHZ)

| Frequency |  | Corr. | LISN<br>insertion<br>loss<br>ESH3-<br>Z5 | cable<br>loss<br>(incl. 10<br>dB<br>atten-<br>uator) |
|-----------|--|-------|------------------------------------------|------------------------------------------------------|
| MHz       |  | dB    | dB                                       | dB                                                   |
| 0.15      |  | 10.1  | 0.1                                      | 10.0                                                 |
| 5         |  | 10.3  | 0.1                                      | 10.2                                                 |
| 7         |  | 10.5  | 0.2                                      | 10.3                                                 |
| 10        |  | 10.5  | 0.2                                      | 10.3                                                 |
| 12        |  | 10.7  | 0.3                                      | 10.4                                                 |
| 14        |  | 10.7  | 0.3                                      | 10.4                                                 |
| 16        |  | 10.8  | 0.4                                      | 10.4                                                 |
| 18        |  | 10.9  | 0.4                                      | 10.5                                                 |
| 20        |  | 10.9  | 0.4                                      | 10.5                                                 |
| 22        |  | 11.1  | 0.5                                      | 10.6                                                 |
| 24        |  | 11.1  | 0.5                                      | 10.6                                                 |
| 26        |  | 11.2  | 0.5                                      | 10.7                                                 |
| 28        |  | 11.2  | 0.5                                      | 10.7                                                 |
| 30        |  | 11.3  | 0.5                                      | 10.8                                                 |

#### Sample calculation

$$U_{\text{LISN}} (\text{dB } \mu\text{V}) = U (\text{dB } \mu\text{V}) + \text{Corr. (dB)}$$

U = Receiver reading

LISN Insertion loss = Voltage Division Factor of LISN

Corr. = sum of single correction factors of used LISN, cables, switch units (if used)

Linear interpolation will be used for frequencies in between the values in the table.

## 7.2 ANTENNA R&S HFH2-Z2 (9 KHZ – 30 MHZ)

| Frequency<br>MHz | AF<br>HFH-Z2)<br>dB (1/m) | Corr.<br>dB | cable<br>loss 1<br>(inside<br>chamber)<br>dB | cable<br>loss 2<br>(outside<br>chamber)<br>dB | cable<br>loss 3<br>(switch<br>unit)<br>dB | cable<br>loss 4<br>(to<br>receiver)<br>dB | distance<br>corr.<br>(-40 dB/<br>decade)<br>dB | d <sub>Limit</sub><br>(meas.<br>distance<br>(limit)<br>m | d <sub>used</sub><br>(meas.<br>distance<br>(used)<br>m |
|------------------|---------------------------|-------------|----------------------------------------------|-----------------------------------------------|-------------------------------------------|-------------------------------------------|------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------|
| 0.009            | 20.50                     | -79.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -80                                            | 300                                                      | 3                                                      |
| 0.01             | 20.45                     | -79.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -80                                            | 300                                                      | 3                                                      |
| 0.015            | 20.37                     | -79.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -80                                            | 300                                                      | 3                                                      |
| 0.02             | 20.36                     | -79.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -80                                            | 300                                                      | 3                                                      |
| 0.025            | 20.38                     | -79.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -80                                            | 300                                                      | 3                                                      |
| 0.03             | 20.32                     | -79.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -80                                            | 300                                                      | 3                                                      |
| 0.05             | 20.35                     | -79.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -80                                            | 300                                                      | 3                                                      |
| 0.08             | 20.30                     | -79.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -80                                            | 300                                                      | 3                                                      |
| 0.1              | 20.20                     | -79.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -80                                            | 300                                                      | 3                                                      |
| 0.2              | 20.17                     | -79.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -80                                            | 300                                                      | 3                                                      |
| 0.3              | 20.14                     | -79.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -80                                            | 300                                                      | 3                                                      |
| 0.49             | 20.12                     | -79.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -80                                            | 300                                                      | 3                                                      |
| 0.490001         | 20.12                     | -39.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 0.5              | 20.11                     | -39.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 0.8              | 20.10                     | -39.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 1                | 20.09                     | -39.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 2                | 20.08                     | -39.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 3                | 20.06                     | -39.6       | 0.1                                          | 0.1                                           | 0.1                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 4                | 20.05                     | -39.5       | 0.2                                          | 0.1                                           | 0.1                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 5                | 20.05                     | -39.5       | 0.2                                          | 0.1                                           | 0.1                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 6                | 20.02                     | -39.5       | 0.2                                          | 0.1                                           | 0.1                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 8                | 19.95                     | -39.5       | 0.2                                          | 0.1                                           | 0.1                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 10               | 19.83                     | -39.4       | 0.2                                          | 0.1                                           | 0.2                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 12               | 19.71                     | -39.4       | 0.2                                          | 0.1                                           | 0.2                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 14               | 19.54                     | -39.4       | 0.2                                          | 0.1                                           | 0.2                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 16               | 19.53                     | -39.3       | 0.3                                          | 0.1                                           | 0.2                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 18               | 19.50                     | -39.3       | 0.3                                          | 0.1                                           | 0.2                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 20               | 19.57                     | -39.3       | 0.3                                          | 0.1                                           | 0.2                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 22               | 19.61                     | -39.3       | 0.3                                          | 0.1                                           | 0.2                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 24               | 19.61                     | -39.3       | 0.3                                          | 0.1                                           | 0.2                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 26               | 19.54                     | -39.3       | 0.3                                          | 0.1                                           | 0.2                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 28               | 19.46                     | -39.2       | 0.3                                          | 0.1                                           | 0.3                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |
| 30               | 19.73                     | -39.1       | 0.4                                          | 0.1                                           | 0.3                                       | 0.1                                       | -40                                            | 30                                                       | 3                                                      |

### Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + Corr. \text{ (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

distance correction =  $-40 * \text{LOG} (d_{\text{Limit}} / d_{\text{used}})$

Linear interpolation will be used for frequencies in between the values in the table.

Table shows an extract of values

### 7.3 ANTENNA R&S HL562 (30 MHZ – 1 GHZ)

( $d_{\text{Limit}} = 3 \text{ m}$ )

| Frequency | AF<br>R&S<br>HL562 | Corr. |
|-----------|--------------------|-------|
| MHz       | dB (1/m)           | dB    |
| 30        | 18.6               | 0.6   |
| 50        | 6.0                | 0.9   |
| 100       | 9.7                | 1.2   |
| 150       | 7.9                | 1.6   |
| 200       | 7.6                | 1.9   |
| 250       | 9.5                | 2.1   |
| 300       | 11.0               | 2.3   |
| 350       | 12.4               | 2.6   |
| 400       | 13.6               | 2.9   |
| 450       | 14.7               | 3.1   |
| 500       | 15.6               | 3.2   |
| 550       | 16.3               | 3.5   |
| 600       | 17.2               | 3.5   |
| 650       | 18.1               | 3.6   |
| 700       | 18.5               | 3.6   |
| 750       | 19.1               | 4.1   |
| 800       | 19.6               | 4.1   |
| 850       | 20.1               | 4.4   |
| 900       | 20.8               | 4.7   |
| 950       | 21.1               | 4.8   |
| 1000      | 21.6               | 4.9   |

| cable<br>loss 1<br>(inside<br>chamber) | cable<br>loss 2<br>(outside<br>chamber) | cable<br>loss 3<br>(switch<br>unit) | cable<br>loss 4<br>(to<br>receiver) | distance<br>corr.<br>(-20 dB/<br>decade) | $d_{\text{Limit}}$<br>(meas.<br>distance<br>(limit)) | $d_{\text{used}}$<br>(meas.<br>distance<br>(used)) |
|----------------------------------------|-----------------------------------------|-------------------------------------|-------------------------------------|------------------------------------------|------------------------------------------------------|----------------------------------------------------|
| dB                                     | dB                                      | dB                                  | dB                                  | dB                                       | m                                                    | m                                                  |
| 0.29                                   | 0.04                                    | 0.23                                | 0.02                                | 0.0                                      | 3                                                    | 3                                                  |
| 0.39                                   | 0.09                                    | 0.32                                | 0.08                                | 0.0                                      | 3                                                    | 3                                                  |
| 0.56                                   | 0.14                                    | 0.47                                | 0.08                                | 0.0                                      | 3                                                    | 3                                                  |
| 0.73                                   | 0.20                                    | 0.59                                | 0.12                                | 0.0                                      | 3                                                    | 3                                                  |
| 0.84                                   | 0.21                                    | 0.70                                | 0.11                                | 0.0                                      | 3                                                    | 3                                                  |
| 0.98                                   | 0.24                                    | 0.80                                | 0.13                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.04                                   | 0.26                                    | 0.89                                | 0.15                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.18                                   | 0.31                                    | 0.96                                | 0.13                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.28                                   | 0.35                                    | 1.03                                | 0.19                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.39                                   | 0.38                                    | 1.11                                | 0.22                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.44                                   | 0.39                                    | 1.20                                | 0.19                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.55                                   | 0.46                                    | 1.24                                | 0.23                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.59                                   | 0.43                                    | 1.29                                | 0.23                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.67                                   | 0.34                                    | 1.35                                | 0.22                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.67                                   | 0.42                                    | 1.41                                | 0.15                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.87                                   | 0.54                                    | 1.46                                | 0.25                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.90                                   | 0.46                                    | 1.51                                | 0.25                                | 0.0                                      | 3                                                    | 3                                                  |
| 1.99                                   | 0.60                                    | 1.56                                | 0.27                                | 0.0                                      | 3                                                    | 3                                                  |
| 2.14                                   | 0.60                                    | 1.63                                | 0.29                                | 0.0                                      | 3                                                    | 3                                                  |
| 2.22                                   | 0.60                                    | 1.66                                | 0.33                                | 0.0                                      | 3                                                    | 3                                                  |
| 2.23                                   | 0.61                                    | 1.71                                | 0.30                                | 0.0                                      | 3                                                    | 3                                                  |

( $d_{\text{Limit}} = 10 \text{ m}$ )

|      |      |      |
|------|------|------|
| 30   | 18.6 | -9.9 |
| 50   | 6.0  | -9.6 |
| 100  | 9.7  | -9.2 |
| 150  | 7.9  | -8.8 |
| 200  | 7.6  | -8.6 |
| 250  | 9.5  | -8.3 |
| 300  | 11.0 | -8.1 |
| 350  | 12.4 | -7.9 |
| 400  | 13.6 | -7.6 |
| 450  | 14.7 | -7.4 |
| 500  | 15.6 | -7.2 |
| 550  | 16.3 | -7.0 |
| 600  | 17.2 | -6.9 |
| 650  | 18.1 | -6.9 |
| 700  | 18.5 | -6.8 |
| 750  | 19.1 | -6.3 |
| 800  | 19.6 | -6.3 |
| 850  | 20.1 | -6.0 |
| 900  | 20.8 | -5.8 |
| 950  | 21.1 | -5.6 |
| 1000 | 21.6 | -5.6 |

|      |      |      |      |       |    |   |
|------|------|------|------|-------|----|---|
| 0.29 | 0.04 | 0.23 | 0.02 | -10.5 | 10 | 3 |
| 0.39 | 0.09 | 0.32 | 0.08 | -10.5 | 10 | 3 |
| 0.56 | 0.14 | 0.47 | 0.08 | -10.5 | 10 | 3 |
| 0.73 | 0.20 | 0.59 | 0.12 | -10.5 | 10 | 3 |
| 0.84 | 0.21 | 0.70 | 0.11 | -10.5 | 10 | 3 |
| 0.98 | 0.24 | 0.80 | 0.13 | -10.5 | 10 | 3 |
| 1.04 | 0.26 | 0.89 | 0.15 | -10.5 | 10 | 3 |
| 1.18 | 0.31 | 0.96 | 0.13 | -10.5 | 10 | 3 |
| 1.28 | 0.35 | 1.03 | 0.19 | -10.5 | 10 | 3 |
| 1.39 | 0.38 | 1.11 | 0.22 | -10.5 | 10 | 3 |
| 1.44 | 0.39 | 1.20 | 0.19 | -10.5 | 10 | 3 |
| 1.55 | 0.46 | 1.24 | 0.23 | -10.5 | 10 | 3 |
| 1.59 | 0.43 | 1.29 | 0.23 | -10.5 | 10 | 3 |
| 1.67 | 0.34 | 1.35 | 0.22 | -10.5 | 10 | 3 |
| 1.67 | 0.42 | 1.41 | 0.15 | -10.5 | 10 | 3 |
| 1.87 | 0.54 | 1.46 | 0.25 | -10.5 | 10 | 3 |
| 1.90 | 0.46 | 1.51 | 0.25 | -10.5 | 10 | 3 |
| 1.99 | 0.60 | 1.56 | 0.27 | -10.5 | 10 | 3 |
| 2.14 | 0.60 | 1.63 | 0.29 | -10.5 | 10 | 3 |
| 2.22 | 0.60 | 1.66 | 0.33 | -10.5 | 10 | 3 |
| 2.23 | 0.61 | 1.71 | 0.30 | -10.5 | 10 | 3 |

#### Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + \text{Corr. (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

distance correction =  $-20 * \text{LOG} (d_{\text{Limit}} / d_{\text{used}})$

Linear interpolation will be used for frequencies in between the values in the table.

Tables show an extract of values.

## 7.4 ANTENNA R&S HF907 (1 GHZ – 18 GHZ)

| Frequency | AF<br>R&S<br>HF907 | Corr. |
|-----------|--------------------|-------|
| MHz       | dB (1/m)           | dB    |
| 1000      | 24.4               | -19.4 |
| 2000      | 28.5               | -17.4 |
| 3000      | 31.0               | -16.1 |
| 4000      | 33.1               | -14.7 |
| 5000      | 34.4               | -13.7 |
| 6000      | 34.7               | -12.7 |
| 7000      | 35.6               | -11.0 |

| cable<br>loss 1<br>(relay +<br>cable<br>inside<br>chamber) | cable<br>loss 2<br>(outside<br>chamber) | cable<br>loss 3<br>(switch<br>unit,<br>atten-<br>uator &<br>pre-amp) | cable<br>loss 4 (to<br>receiver) |  |  |
|------------------------------------------------------------|-----------------------------------------|----------------------------------------------------------------------|----------------------------------|--|--|
| dB                                                         | dB                                      | dB                                                                   | dB                               |  |  |
| 0.99                                                       | 0.31                                    | -21.51                                                               | 0.79                             |  |  |
| 1.44                                                       | 0.44                                    | -20.63                                                               | 1.38                             |  |  |
| 1.87                                                       | 0.53                                    | -19.85                                                               | 1.33                             |  |  |
| 2.41                                                       | 0.67                                    | -19.13                                                               | 1.31                             |  |  |
| 2.78                                                       | 0.86                                    | -18.71                                                               | 1.40                             |  |  |
| 2.74                                                       | 0.90                                    | -17.83                                                               | 1.47                             |  |  |
| 2.82                                                       | 0.86                                    | -16.19                                                               | 1.46                             |  |  |

| Frequency | AF<br>R&S<br>HF907 | Corr. |
|-----------|--------------------|-------|
| MHz       | dB (1/m)           | dB    |
| 3000      | 31.0               | -23.4 |
| 4000      | 33.1               | -23.3 |
| 5000      | 34.4               | -21.7 |
| 6000      | 34.7               | -21.2 |
| 7000      | 35.6               | -19.8 |

| cable<br>loss 1<br>(relay<br>inside<br>chamber) | cable<br>loss 2<br>(inside<br>chamber) | cable<br>loss 3<br>(outside<br>chamber) | cable<br>loss 4<br>(switch<br>unit,<br>atten-<br>uator &<br>pre-amp) | cable<br>loss 5 (to<br>receiver) | used<br>for<br>FCC<br>15.247 |
|-------------------------------------------------|----------------------------------------|-----------------------------------------|----------------------------------------------------------------------|----------------------------------|------------------------------|
| dB                                              | dB                                     | dB                                      | dB                                                                   | dB                               |                              |
| 0.47                                            | 1.87                                   | 0.53                                    | -27.58                                                               | 1.33                             |                              |
| 0.56                                            | 2.41                                   | 0.67                                    | -28.23                                                               | 1.31                             |                              |
| 0.61                                            | 2.78                                   | 0.86                                    | -27.35                                                               | 1.40                             |                              |
| 0.58                                            | 2.74                                   | 0.90                                    | -26.89                                                               | 1.47                             |                              |
| 0.66                                            | 2.82                                   | 0.86                                    | -25.58                                                               | 1.46                             |                              |

| Frequency | AF<br>R&S<br>HF907 | Corr. |
|-----------|--------------------|-------|
| MHz       | dB (1/m)           | dB    |
| 7000      | 35.6               | -57.3 |
| 8000      | 36.3               | -56.3 |
| 9000      | 37.1               | -55.3 |
| 10000     | 37.5               | -56.2 |
| 11000     | 37.5               | -55.3 |
| 12000     | 37.6               | -53.7 |
| 13000     | 38.2               | -53.5 |
| 14000     | 39.9               | -56.3 |
| 15000     | 40.9               | -54.1 |
| 16000     | 41.3               | -54.1 |
| 17000     | 42.8               | -54.4 |
| 18000     | 44.2               | -54.7 |

| cable<br>loss 1<br>(relay<br>inside<br>chamber) | cable<br>loss 2<br>(High<br>Pass) | cable<br>loss 3<br>(pre-<br>amp) | cable<br>loss 4<br>(inside<br>chamber) | cable<br>loss 5<br>(outside<br>chamber) | cable<br>loss 6<br>(to<br>receiver) |
|-------------------------------------------------|-----------------------------------|----------------------------------|----------------------------------------|-----------------------------------------|-------------------------------------|
| dB                                              | dB                                | dB                               | dB                                     | dB                                      | dB                                  |
| 0.56                                            | 1.28                              | -62.72                           | 2.66                                   | 0.94                                    | 1.46                                |
| 0.69                                            | 0.71                              | -61.49                           | 2.84                                   | 1.00                                    | 1.53                                |
| 0.68                                            | 0.65                              | -60.80                           | 3.06                                   | 1.09                                    | 1.60                                |
| 0.70                                            | 0.54                              | -61.91                           | 3.28                                   | 1.20                                    | 1.67                                |
| 0.80                                            | 0.61                              | -61.40                           | 3.43                                   | 1.27                                    | 1.70                                |
| 0.84                                            | 0.42                              | -59.70                           | 3.53                                   | 1.26                                    | 1.73                                |
| 0.83                                            | 0.44                              | -59.81                           | 3.75                                   | 1.32                                    | 1.83                                |
| 0.91                                            | 0.53                              | -63.03                           | 3.91                                   | 1.40                                    | 1.77                                |
| 0.98                                            | 0.54                              | -61.05                           | 4.02                                   | 1.44                                    | 1.83                                |
| 1.23                                            | 0.49                              | -61.51                           | 4.17                                   | 1.51                                    | 1.85                                |
| 1.36                                            | 0.76                              | -62.36                           | 4.34                                   | 1.53                                    | 2.00                                |
| 1.70                                            | 0.53                              | -62.88                           | 4.41                                   | 1.55                                    | 1.91                                |

### Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + Corr. \text{ (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

Linear interpolation will be used for frequencies in between the values in the table.

Tables show an extract of values.

## 7.5 ANTENNA EMCO 3160-09 (18 GHZ – 26.5 GHZ)

| Frequency | AF<br>EMCO<br>3160-09 | Corr. | cable<br>loss 1<br>(inside<br>chamber) | cable<br>loss 2<br>(pre-<br>amp) | cable<br>loss 3<br>(inside<br>chamber) | cable<br>loss 4<br>(switch<br>unit) | cable<br>loss 5<br>(to<br>receiver) |
|-----------|-----------------------|-------|----------------------------------------|----------------------------------|----------------------------------------|-------------------------------------|-------------------------------------|
| MHz       | dB (1/m)              | dB    | dB                                     | dB                               | dB                                     | dB                                  | dB                                  |
| 18000     | 40.2                  | -23.5 | 0.72                                   | -35.85                           | 6.20                                   | 2.81                                | 2.65                                |
| 18500     | 40.2                  | -23.2 | 0.69                                   | -35.71                           | 6.46                                   | 2.76                                | 2.59                                |
| 19000     | 40.2                  | -22.0 | 0.76                                   | -35.44                           | 6.69                                   | 3.15                                | 2.79                                |
| 19500     | 40.3                  | -21.3 | 0.74                                   | -35.07                           | 7.04                                   | 3.11                                | 2.91                                |
| 20000     | 40.3                  | -20.3 | 0.72                                   | -34.49                           | 7.30                                   | 3.07                                | 3.05                                |
| 20500     | 40.3                  | -19.9 | 0.78                                   | -34.46                           | 7.48                                   | 3.12                                | 3.15                                |
| 21000     | 40.3                  | -19.1 | 0.87                                   | -34.07                           | 7.61                                   | 3.20                                | 3.33                                |
| 21500     | 40.3                  | -19.1 | 0.90                                   | -33.96                           | 7.47                                   | 3.28                                | 3.19                                |
| 22000     | 40.3                  | -18.7 | 0.89                                   | -33.57                           | 7.34                                   | 3.35                                | 3.28                                |
| 22500     | 40.4                  | -19.0 | 0.87                                   | -33.66                           | 7.06                                   | 3.75                                | 2.94                                |
| 23000     | 40.4                  | -19.5 | 0.88                                   | -33.75                           | 6.92                                   | 3.77                                | 2.70                                |
| 23500     | 40.4                  | -19.3 | 0.90                                   | -33.35                           | 6.99                                   | 3.52                                | 2.66                                |
| 24000     | 40.4                  | -19.8 | 0.88                                   | -33.99                           | 6.88                                   | 3.88                                | 2.58                                |
| 24500     | 40.4                  | -19.5 | 0.91                                   | -33.89                           | 7.01                                   | 3.93                                | 2.51                                |
| 25000     | 40.4                  | -19.3 | 0.88                                   | -33.00                           | 6.72                                   | 3.96                                | 2.14                                |
| 25500     | 40.5                  | -20.4 | 0.89                                   | -34.07                           | 6.90                                   | 3.66                                | 2.22                                |
| 26000     | 40.5                  | -21.3 | 0.86                                   | -35.11                           | 7.02                                   | 3.69                                | 2.28                                |
| 26500     | 40.5                  | -21.1 | 0.90                                   | -35.20                           | 7.15                                   | 3.91                                | 2.36                                |

### Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + Corr. \text{ (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

Linear interpolation will be used for frequencies in between the values in the table.

Table shows an extract of values.

## 7.6 ANTENNA EMCO 3160-10 (26.5 GHZ – 40 GHZ)

| Frequency | AF<br>EMCO<br>3160-10 | Corr. | cable<br>loss 1<br>(inside<br>chamber) | cable<br>loss 2<br>(outside<br>chamber) | cable<br>loss 3<br>(switch<br>unit) | cable<br>loss 4<br>(to<br>receiver) | distance<br>corr.<br>(-20 dB/<br>decade) | d <sub>Limit</sub><br>(meas.<br>distance<br>(limit)) | d <sub>used</sub><br>(meas.<br>distance<br>(used)) |
|-----------|-----------------------|-------|----------------------------------------|-----------------------------------------|-------------------------------------|-------------------------------------|------------------------------------------|------------------------------------------------------|----------------------------------------------------|
| GHz       | dB (1/m)              | dB    | dB                                     | dB                                      | dB                                  | dB                                  | dB                                       | m                                                    | m                                                  |
| 26.5      | 43.4                  | -11.2 | 4.4                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 27.0      | 43.4                  | -11.2 | 4.4                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 28.0      | 43.4                  | -11.1 | 4.5                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 29.0      | 43.5                  | -11.0 | 4.6                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 30.0      | 43.5                  | -10.9 | 4.7                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 31.0      | 43.5                  | -10.8 | 4.7                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 32.0      | 43.5                  | -10.7 | 4.8                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 33.0      | 43.6                  | -10.7 | 4.9                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 34.0      | 43.6                  | -10.6 | 5.0                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 35.0      | 43.6                  | -10.5 | 5.1                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 36.0      | 43.6                  | -10.4 | 5.1                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 37.0      | 43.7                  | -10.3 | 5.2                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 38.0      | 43.7                  | -10.2 | 5.3                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 39.0      | 43.7                  | -10.2 | 5.4                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |
| 40.0      | 43.8                  | -10.1 | 5.5                                    |                                         |                                     |                                     | -9.5                                     | 3                                                    | 1.0                                                |

### Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + Corr. \text{ (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

Linear interpolation will be used for frequencies in between the values in the table.

distance correction =  $-20 * \text{LOG} (d_{\text{Limit}} / d_{\text{used}})$

Linear interpolation will be used for frequencies in between the values in the table.

Table shows an extract of values.

## 8 MEASUREMENT UNCERTAINTIES

| Test Case                       | Parameter      | Uncertainty  |
|---------------------------------|----------------|--------------|
| Conducted Emissions at AC mains | Voltage        | $\pm 3.4$ dB |
| Radiated Emissions              | Field Strength | $\pm 5.5$ dB |

## 9 PHOTO REPORT

Please see separate photo report.