



Deutscher  
Akkreditierungsdienst  
D-PL 21375-01-02  
D-PL 21375-01-03



Wahl-GAR 01/01/23

# Test Report

**Test report no.:** 23058741-34055-1

**Date of issue:** 2023-10-18

**Test result:** The test item - **passed** - and complies with the listed standards.

## Applicant

Hella Aglaia Mobile Vision GmbH

## Manufacturer

SynchronicIT BV

## Test Item

UWB Dongle

## Radio Frequency Testing according to:

Title 47  
FCC Regulations Subpart 15F  
§15.517

Tested by  
(name, function, signature)

*Piotr Sardyko*  
Labor Manager RF

signature

Approved by  
(name, function, signature)

*Karsten Gerald*  
Senior Lab Manager RF

signature

| Applicant and Test item details |                                                                                 |
|---------------------------------|---------------------------------------------------------------------------------|
| Applicant                       | Hella Aglaia Mobile Vision GmbH<br>Ullsteinstraße 140, 12109 Berlin<br>Germany  |
| Manufacturer                    | SynchronicIT BV<br>Spoonstraat 155, Room 413<br>6591 GT Gennep, The Netherlands |
| Test item description           | UWB dongle & UWB wearable with wireless charge                                  |
| Model/Type reference            | UWB Dongle                                                                      |
| FCC ID                          | 2ASWU-PS11                                                                      |

### Disclaimer and Notes

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Within this test report, a ☒ point / ☐ comma is used as a decimal separator.  
If otherwise, a detailed note is added adjoined to its use.

Decision rule: Binary Statement for Simple Acceptance Rule according ILAC-G8:09/2019

# 1 TABLE OF CONTENTS

|     |                                                          |    |
|-----|----------------------------------------------------------|----|
| 1   | TABLE OF CONTENTS                                        | 1  |
| 1   | TABLE OF CONTENTS                                        | 3  |
| 2   | GENERAL INFORMATION                                      | 4  |
| 2.1 | ADMINISTRATIVE DETAILS                                   | 4  |
| 2.2 | POSSIBLE VERDICTS OF THE RESULTS                         | 4  |
| 2.3 | OBSERVATIONS                                             | 4  |
| 2.4 | OPINIONS AND INTERPRETATIONS                             | 4  |
| 2.5 | REVISION HISTORY                                         | 5  |
| 2.6 | FURTHER DOCUMENTS                                        | 5  |
| 2.7 | FORMULA FOR DETERMINATION OF CORRECTION VALUES ( $E_c$ ) | 5  |
| 2.8 | SOFTWARE/FIRMWARE USED FOR MEASUREMENTS                  | 5  |
| 2.9 | BLOCK DIAGRAMS                                           | 6  |
| 3   | ENVIRONMENTAL & TEST CONDITIONS                          | 7  |
| 3.1 | ENVIRONMENTAL CONDITIONS                                 | 7  |
| 4   | TEST STANDARDS AND REFERENCES                            | 7  |
| 5   | EQUIPMENT UNDER TEST (EUT)                               | 8  |
| 5.1 | PRODUCT DESCRIPTION*                                     | 8  |
| 5.2 | TECHNICAL DATA OF EQUIPMENT*                             | 8  |
| 5.3 | TEST ITEM (EQUIPMENT UNDER TEST) DESCRIPTION*            | 8  |
| 5.4 | AUXILIARY EQUIPMENT (AE) DESCRIPTION*                    | 8  |
| 5.5 | TEST ITEM OPERATING MODES DESCRIPTION*                   | 8  |
| 5.6 | TEST ITEM SET-UPS DESCRIPTION                            | 9  |
| 5.7 | NORMALEST CONDITIONS                                     | 9  |
| 5.8 | ADDITIONAL INFORMATION                                   | 9  |
| 6   | SUMMARY OF TEST RESULTS                                  | 10 |
| 7   | TEST RESULTS                                             | 11 |
| 7.1 | INDOOR OPERATION                                         | 11 |
| 7.2 | OCCUPIED BANDWIDTH                                       | 13 |
| 7.3 | RADIATED FIELD STRENGTH / EMISSIONS                      | 14 |
| 7.4 | RADIATED EMISSIONS IN THE GPS BANDS                      | 16 |
| 7.5 | FUNDAMENTAL EMISSION PEAK POWER                          | 17 |
| 7.6 | ANTENNA REQUIREMENT ACCORDING TO FCC 15.203              | 17 |
| 7.7 | CONDUCTED EMISSIONS                                      | 18 |
| 8   | MEASUREMENT EQUIPMENT                                    | 20 |
| 9   | MEASUREMENT UNCERTAINTIES                                | 23 |

## 2 GENERAL INFORMATION

### 2.1 Administrative details

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Testing laboratory              | <b>IBL-Lab GmbH</b><br>Heinrich-Hertz-Allee 7<br>66386 Sankt Ingbert / Germany<br>Fon: +49 6894 38938-0<br>Fax: +49 6894 38938-99<br>URL: <a href="http://www.ib-lenhardt.de">www.ib-lenhardt.de</a><br>E-Mail: <a href="mailto:info@ib-lenhardt.de">info@ib-lenhardt.de</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Accreditation                   | <p>The testing laboratory is accredited by Deutsche Akkreditierungsstelle GmbH (DAKKS) in compliance with DIN EN ISO/IEC 17025:2018.</p> <p>Scope of testing and registration number:</p> <ul style="list-style-type: none"> <li>Electronics, EMC, Radio <a href="#">D-PL-21375-01-01</a></li> <li>Electromagnetic Compatibility and Telecommunication (FCC requirements) <a href="#">D-PL-21375-01-02</a></li> <li>Testing Laboratory Designation Number DE0024</li> <li>Telecommunication (TC) and Electromagnetic Compatibility (EMC) for Canadian Standards <a href="#">D-PL-21375-01-03</a></li> <li>ISED Company Number 27156</li> <li>Testing Laboratory CAB Identifier DE0020</li> </ul> <p>Website DAKKS: <a href="https://www.dakks.de/">https://www.dakks.de/</a></p> <p>The Deutsche Akkreditierungsstelle GmbH (DAKKS) is also a signatory to the <a href="#">ILAC Mutual Recognition Arrangement</a></p> |
| Date of receipt of test samples | 2023-08-07                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Start – End of tests            | 2023-08-07 – 2023-08-11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### 2.2 Possible verdicts of the results

|                                             |                                                                      |
|---------------------------------------------|----------------------------------------------------------------------|
| Test sample meets the requirements          | P (PASS) – the measured value is below the acceptance limit, AL = TL |
| Test sample does not meet the requirements  | F (FAIL) – the measured value is above the acceptance limit, AL = TL |
| Test case does not apply to the test sample | N/A (Not applicable)                                                 |
| Test case not performed                     | N/P (Not performed)                                                  |

### 2.3 Observations

No additional observations other than the reported observations within this test report have been made.

### 2.4 Opinions and Interpretations

No appropriate opinions or interpretations according ISO/IEC 17025:2017 clause 7.8.7 are within this test report.

## 2.5 Revision History

### -0 Initial Version

#### -1:

- Indoor operation chapter was added to test report. Correspondent tests were done.

**This test report 23058741-34055-1 replaces the previous test report 23058741-34055-0.**

## 2.6 Further documents

List of further applicable documents belonging to the present test report:

Measurement plots: 23058741-34055-1\_Annex A

EUT photographs: 23058741-34055-1\_Annex B

Test setup photographs: 23058741-34055-1\_Annex C

## 2.7 Formula for determination of correction values ( $E_c$ )

$$E_c = E_R + AF + C_L + D_F - G_A \quad (1)$$

$E_c$  = Electrical field – corrected value

$E_R$  = Receiver reading

$$M = L_T - E_c \quad (2)$$

M = Margin

$L_T$  = Limit

AF = Antenna factor

$C_L$  = Cable loss

$D_F$  = Distance correction factor (if used)

$G_A$  = Gain of pre-amplifier (if used)

All units are dB-units, positive margin means value is below limit.

## 2.8 Software/Firmware used for measurements

All measurements were done directly with spectrum analyzer or SW R&S EMC32.

In some measurements (please see test equipment list for each test) R&S ESW 26 was used (please see chapter 8).

(Instrument) Firmware Version: **1.70**

In some measurements (please see test equipment list for each test) R&S FSW 50 was used (please see chapter 8).

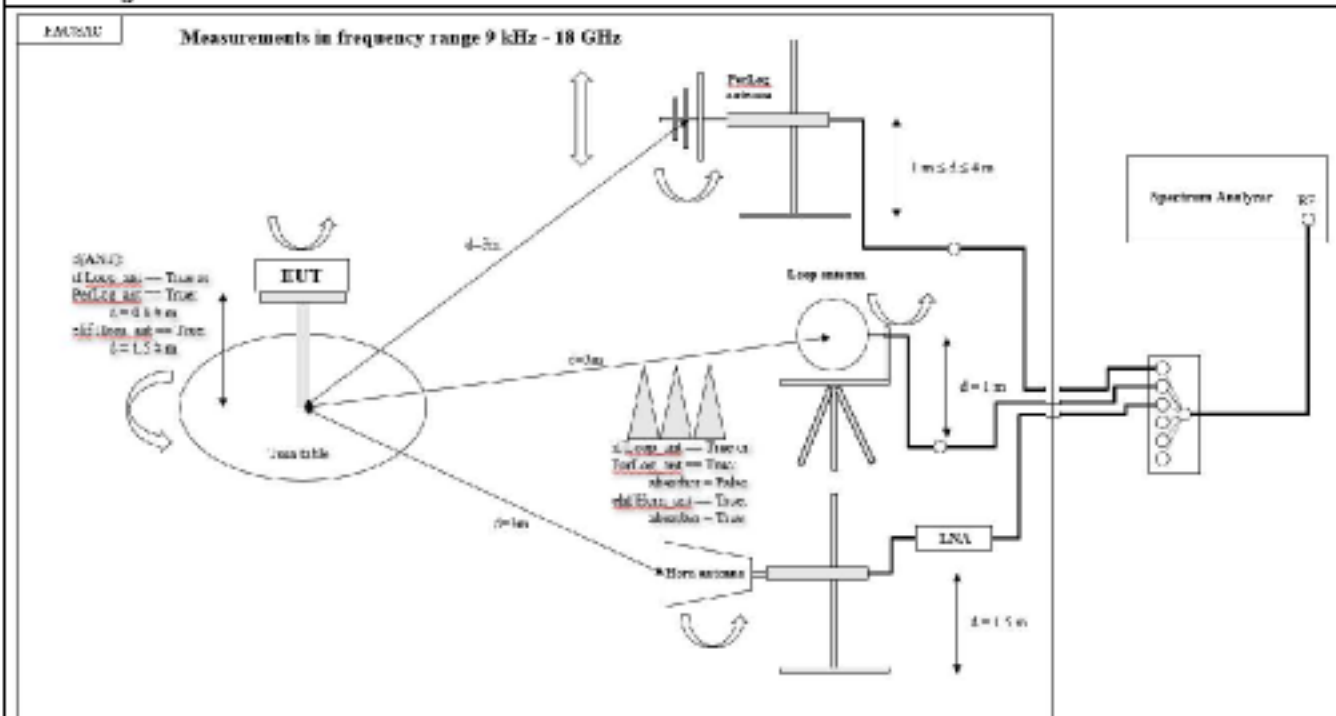
(Instrument) Firmware Version: **4.61**

In some measurements SW R&S EMC32 was used.

Version: **11.10.00**

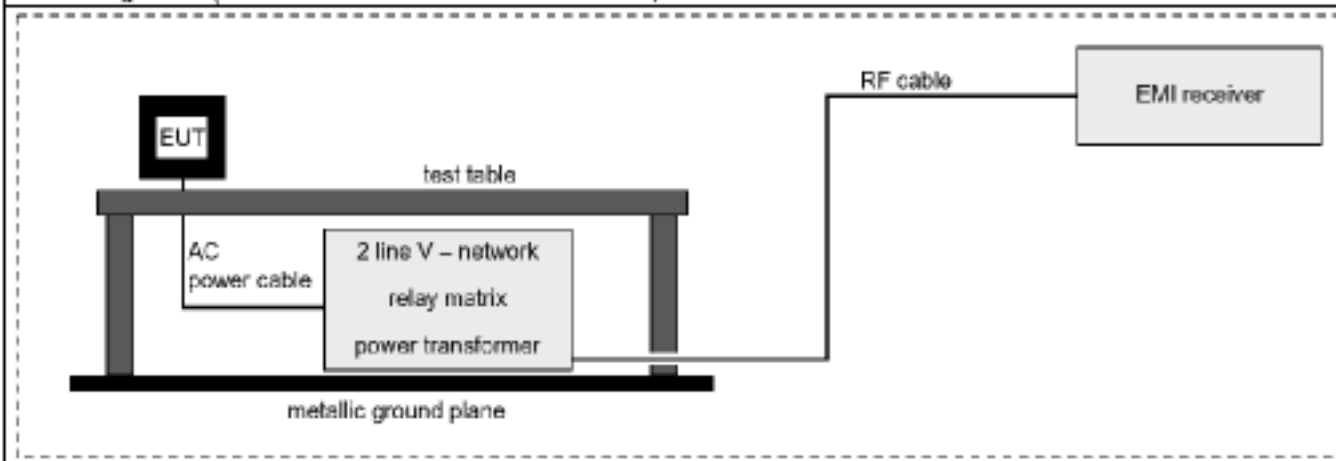
## 2.9 Block diagrams

Block diagram 1\*:



\* depending on limit line different horn antennas, correspondingly different measurement distances, can be used. If the case here, please see the annex C with test set-up photos.

Block diagram 2 (conducted emissions measurements):



### 3 ENVIRONMENTAL & TEST CONDITIONS

#### 3.1 Environmental conditions

|                     |               |
|---------------------|---------------|
| Temperature         | 20 °C ± 5 °C  |
| Relative humidity   | 25-75 % R.H.  |
| Barometric Pressure | 860-1060 mbar |
| Power supply        | 5 V USB       |

### 4 TEST STANDARDS AND REFERENCES

#### Test standard (accredited)

|                                    |     |
|------------------------------------|-----|
| FCC CFR Title 47 Part 15 Subpart F | --- |
| ANSI C63.10: 2013                  | --- |

#### Test standard (not accredited)

|      |
|------|
| None |
|------|

| Reference | Description |
|-----------|-------------|
| none      | ---         |

## 5 EQUIPMENT UNDER TEST (EUT)

### 5.1 Product Description\*

UWB dongle & UWB wearable with wireless charge. According to customers information the test item is intended to be used only indoors in the retail market.

\*: declared by the applicant

### 5.2 Technical Data of Equipment\*

|                         |                                    |
|-------------------------|------------------------------------|
| Number of channel:      | 1                                  |
| Channel tested:         | $f_{\text{cent}}$ : 6489.6 MHz     |
| Device type:            | Indoor UWB system                  |
| Number of channels:     | 1                                  |
| Emission designator(s): | IEEE 802.15.4-2011 UWB             |
| RF mode:                | Tx / Rx                            |
| Antenna Type:           | Internal (Johansson 7000AT18A1600) |
| Max radiated emissions: | < -41.3 dBm                        |
| Antenna connector:      | None                               |
| Equipment type:         | Production model                   |
| Temperature range:      | Tmin: 0 °C, Tmax: 40 °C            |
| Type of power source:   | Power supply through USB (5 V)     |

\*: declared by the applicant

### 5.3 Test Item (Equipment Under Test) Description\*

| Short designation | EUT Model  | EUT Description | ID  | Hardware status | Software status |
|-------------------|------------|-----------------|-----|-----------------|-----------------|
| EUT A             | UWB Dongle | Tx              | N/A | NH201           | N/A             |
| EUT B             | UWB Dongle | Normal sample   | N/A | NH201           | N/A             |

\*: declared by the applicant

### 5.4 Auxiliary Equipment (AE) Description\*

| AE short designation | EUT Name (if available) | EUT Description | Serial number (if available) | Software (if used) |
|----------------------|-------------------------|-----------------|------------------------------|--------------------|
| AE1                  | Normal sample           | UWB Tag         | -                            | -                  |

\*: declared by the applicant

### 5.5 Test Item Operating Modes Description\*

| EUT operating mode no. | Description of operating modes | Additional information |
|------------------------|--------------------------------|------------------------|
| op. 1                  | Continuous modulated           | -                      |
| op. 2                  | Normal mode                    | -                      |

\*: declared by the applicant

## 5.6 Test Item Set-ups Description

|        |              |
|--------|--------------|
| set. 1 | EUT A        |
| set. 2 | EUT B + AE 1 |

## 5.7 Test Conditions

| Temperatur, [ C] |        | Voltage, [V] |   |
|------------------|--------|--------------|---|
| Tnom             | 20 ± 5 | Vnom         | 5 |

## 5.8 Additional Information

|                                                                           |                                                                                                    |
|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Test items differences                                                    | -                                                                                                  |
| Additional application considerations to test a component or sub-assembly | <p>The power was set with the following command in the script:</p> <pre>config.txPower = 33;</pre> |

## 6 SUMMARY OF TEST RESULTS

### Test specification

FCC 15.517

| FCC part         | Requirement / Test Case             | Test Conditions | Set-up | Operating mode | Result / Remark | Verdict |
|------------------|-------------------------------------|-----------------|--------|----------------|-----------------|---------|
| 15.517 (a)(5)    | Indoor operation                    | Nominal         | 2      | 2              | None            | Pass    |
| 15.517(b)        | 10 dB bandwidth                     | Nominal         | 1      | 1              | None            | Pass    |
| 15.209 15.517(c) | Radiated emissions                  | Nominal         | 1      | 1              | None            | Pass    |
| 15.517(d)        | Radiated emissions in the GPS bands | Nominal         | 1      | 1              | None            | Pass    |
| 15.517(e)        | Fundamental emission peak power     | Nominal         | 1      | 1              | None            | Pass    |
| 15.203           | Antenna requirement                 | -               | -      | -              | -               | Pass    |
| 15.207(a)        | Conducted emissions                 | Normal          | 1      | 1              | None            | Pass    |

### Notes

None

### Comments and observations

None

## 7 TEST RESULTS

### 7.1 Indoor operation

#### Test equipment (Please see Chapter 8 for exact information of test equipment)

Radiated: R3, A3, C1, Amp2

#### Description

The Applicant provided following information to functionality of the EUT and AE:

#### 1 OVERVIEW

HELLA Aglaia Mobile Vision GmbH provides solutions for people counting in the retail market and for public transport. The solution is based on stereoscopic cameras which can give detailed information about the people being counted.

For their retail solution, UWB dongles and tags are used to differentiate between customers and employees. Each camera is equipped with an UWB dongle. Each employee carries an UWB tag with them and the distance to each camera is measured. Based on these measurements, employees can be marked by the camera, leaving them out of the customer count.

#### 2 SOLUTION

The dongles are connected to the cameras using the USB Port. They contain a SFM10 module (based on NXP QL23D0) from SynchronicIT. The SFM10 will listen for and communicate with the tags. As part of the communication, the distance towards this dongle is measured. Both the tag and the dongle will know the distance, so it can be used to optimize the power usage vs. response time in case there are several dongles within each others range of UWB, they will align the communication, so all distances are known at every camera

The tag also contain a SFM10 module. The tags are powered by a rechargeable lithium polymer battery. To optimize battery life a movement sensor detects if the sensor is at rest.

The solution is for indoor use only. Neither dongle, tag nor camera are waterproof.

#### 3 COMMUNICATION

##### 3.1 DONGLE

Initially the dongle is deactivated and will not transmit any ultra-wideband signals. When the camera detects a person in the field of view, it will activate the dongle. The dongle will then transmit wake-up calls for tags and listen for signals by any tag to establish the communication.

The dongles will deactivate themselves when there is no person in the field of view of the camera and no signal by any tag was received for 10 seconds.

##### 3.2 TAG

Initially the tags are in passive mode and will not transmit any ultra-wideband signals. They will listen once a second for a wake-up call by a dongle in range. After receiving a wake-up call, the tag will send out poll signals and listen for replies to establish the communication.

When a tag has not received any reply to its poll signal for 10 seconds it will switch back to passive mode and wait for a new wake-up call.

To minimize the power drain the tags will deactivate themselves when they are at rest. In this case they will neither receive nor transmit any ultra-wideband signals. Any movement will activate the tag again. It will then start again in passive mode.

Additional measurements were done to check the description above\*:

Plot 1.1.: No trigger signal -> EUT B is not transmitting.

Plot 1.2.: Trigger signal at M1. EUT B starts to transmit at M1. No movement. -> AE 1 is not **responding**. EUT B stops to transmit at D2.

Plot 1.3.: Trigger signal at M1. EUT B starts to transmit at M1. Movement from 0 s up to M3. -> AE 1 starts to transmit at M2 and stops at M4. EUT B stops to transmit at M5.

#### Limits

##### FCC 15.517(a):

(a) Operation under the provisions of this section is limited to UWB transmitters employed solely for indoor operation.

(1) Indoor UWB devices, by the nature of their design, must be capable of operation only indoors. The necessity to operate with a fixed indoor infrastructure, e.g., a transmitter that must be connected to the AC power lines, may be considered sufficient to demonstrate this.

(2) The emissions from equipment operated under this section shall not be intentionally directed outside of the building in which the equipment is located, such as through a window or a doorway, to perform an outside function, such as the detection of persons about to enter a building.

(3) The use of outdoor mounted antennas, e.g., antennas mounted on the outside of a building or on a telephone pole, or any other outdoors infrastructure is prohibited.

(4) Field disturbance sensors installed inside of metal or underground storage tanks are considered to operate indoors provided the emissions are directed towards the ground.

(5) A communications system shall transmit only when the intentional radiator is sending information to an associated receiver.

#### Results\*

(1) The EUT has no waterproof housing. The EUT is using USB connection for power supply. The EUT can function only together with a camera (after getting a trigger signal from camera). Thus, the EUT is capable to work only indoors.

(2)(3) The antenna, used in the EUT, is a ceramic antenna (Johansson 7000AT18A1600), which is covered with a housing. What doesn't allow to use the EUT antenna as a directional antenna. What, on his part, doesn't give a possibility intentionally to direct the emissions in one direction or another e.g. outside.

(5) The EUT (Dongle) is transmitting only when it is sending information to an associated receiver (Tag). The EUT (Dongle) stops transmitting in less then 10 s if the AE (Tag) stops to respond.

**Pass.**

\* Please see measurement plots in Annex A.

## 7.2 Occupied Bandwidth

**Test equipment (Please see Chapter 8 for exact information of test equipment)**

Radiated: R3, A3, C1, Amp2

### Description

The measurement test set-up and test procedure are in accordance with the provisions described in ANSI 63.10: 2013, Chapter 10.1.

Please see test set-up photos in Annex C and block diagram in Chapter 2.9.

Please see Plots in Annex A for spectrum analyzer settings.

Measurement was done radiated.

### Limits

The UWB bandwidth of a device operating under the provisions of this section must be contained between 3100 MHz and 10600 MHz.

### Results\*

| Plot No | Set-up / Op. | $f_{low}$ [MHz] | $f_{high}$ [MHz] | Measured value (10 dB BW), [MHz] | Limit, [GHz] | Result |
|---------|--------------|-----------------|------------------|----------------------------------|--------------|--------|
| 2.1.    | 1 / 1        | 6201.1          | 6773.2           | 572.1                            | 3.1 – 10.6   | Pass   |

\* Please see measurement plots in Annex A.

### 7.3 Radiated field strength / emissions

#### Test equipment

##### Frequency range 9 kHz – 30 MHz

Measurement in a semianechoic room with the distance between the EUT and the reference point of the antenna 3 m (see photos in Annex B). The measurement was done with software R&S EMC 32 V11.00.

Radiated: A1, C1, R1, SW2

##### Frequency range 30 MHz – 1 GHz

Measurement in a semianechoic room with the distance between the EUT and the reference point of the antenna 3 m (see photos in Annex B). The measurement was done with software R&S EMC 32 V11.00.

Radiated: A2, C1, R1, SW2

##### Frequency range 1 GHz – 40 GHz

The measurement was done directly with spectrum analyzer.

Radiated: Amp2, C1, R3

| Frequency range, [MHz] | Antenna | Measurement distance, [m] | Min Rayleigh (far-field) distance, [m] | Amplifier used | Is the measurement distance in m equal to or greater than the Rayleigh distance |
|------------------------|---------|---------------------------|----------------------------------------|----------------|---------------------------------------------------------------------------------|
| 960-1610               | A3      | 1                         | 0.99                                   | Amp2           | Yes                                                                             |
| 1610-3100              | A3      | 2                         | 1.59                                   | Amp2           | Yes                                                                             |
| 3100-10600             | A3      | 3                         | 3                                      | Amp2           | Yes                                                                             |
| 10600-15000            | A7      | 1                         | 0.97                                   | Amp3           | Yes                                                                             |
| 15000-18000            | A8      | 1                         | 0.62                                   | Amp3           | Yes                                                                             |
| 18000-26500            | A9      | 0.5                       | 0.48                                   | Amp4           | Yes                                                                             |
| 26500-40000            | A10     | 0.32                      | 0.31                                   | Amp4           | Yes                                                                             |

#### Description

The measurement test set-up and test procedure are in accordance with the provisions described in ANSI 63.10: 2013.

RBW for frequency range 9 kHz- 30 MHz: 200 Hz, 9 kHz.

RBW for frequency range 30 MHz- 1 GHz: 120 kHz.

RBW for frequency range 1 GHz- 40 GHz: 1 MHz.

See photos in Annex C for test Set-up and block diagram in Chapter 2.9.

#### Limits

According to FCC 15.209(a):

| Frequency (MHz) | Magnetic field strength (HField) (μA/m)* | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|------------------------------------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 6.37/F (F in kHz)                        | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 63.7/F (F in kHz)                        | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 0.08                                     | 30                                | 30                            |
| 30-88           | -                                        | 100                               | 3                             |
| 88-216          | -                                        | 150                               | 3                             |
| 216-930         | -                                        | 200                               | 3                             |

\* the measurement was done with dBuV/m units. Please see the appropriate dBuV/m limits in the same table

#### Limits

According to FCC 15.517(c) Radiated emissions:

| Frequency [MHz] | EIRP in dBm | Measurement distance [meters] | Remarks |
|-----------------|-------------|-------------------------------|---------|
| 950-1810        | -75.3       | 3                             | -       |
| 1810-1990       | -53.3       |                               |         |
| 1990-3100       | -51.3       |                               |         |
| 3100-10600      | -41.3       |                               |         |
| Above 10600     | -51.3       |                               |         |

#### Test Results

| Set-up / Op. | Frequency      | Verdict |
|--------------|----------------|---------|
| 1 / 1        | 9 kHz – 40 GHz | Pass    |

All Readings below 1 GHz are Quasi-Peak or Peak detector, above 1 GHz with RMS detector.

|          |     |
|----------|-----|
| Comment: | --- |
|----------|-----|

|         |          |                                                |
|---------|----------|------------------------------------------------|
| Verdict | - PASS - | For plots please see Annex A to current report |
|---------|----------|------------------------------------------------|

## 7.4 Radiated emissions in the GPS bands

### Test equipment (Please see Chapter 8 for exact information of test equipment)

Radiated: R3, A3, C1, Amp2

### Description

The measurement test set-up and test procedure are in accordance with the provisions described in ANSI 63.10: 2013, Chapter 10.3.10.

Please see test set-up photos in Annex C and block diagram in Chapter 2.9.

Please see Plots in Annex A for spectrum analyzer settings.

Measurement was done radiated.

Measurement distance: 3 m.

### Limits

-85.3 dBm for frequency range 1164 MHz – 1240 MHz and 1559 MHz – 1610 MHz.

### Test Results

| Set-up / Op. | Frequency range, [MHz] | Verdict |
|--------------|------------------------|---------|
| 1 / 1        | 1164-1240              | Pass    |
| 1 / 1        | 1559-1610              | Pass    |

All Readings were done with RMS detector.

### Comment:

---

### Verdict

- PASS -

For plots please see Annex A to current report

## 7.5 Fundamental emission peak power

**Test equipment** (Please see Chapter 8 for exact information of test equipment)

Radiated: R3, A3, C1, Amp2

### Description

The measurement test set-up and test procedure are in accordance with the provisions described in ANSI 63.10: 2013, Chapter 10.3.6.

Please see test set-up photos in Annex C and block diagram in Chapter 2.9.

Please see Plots in Annex A for spectrum analyzer settings.

Measurement was done radiated.

Measurement distance: 3 m.

### Limits

0 dBm

### Results\*

| Plot No | Set-up / Op. | f <sub>c</sub> , [MHz] | f <sub>max</sub> , [MHz] | P <sub>max</sub> , [dBm] | Limit, [dBm] | Result |
|---------|--------------|------------------------|--------------------------|--------------------------|--------------|--------|
| 5.1.    | 1 / 1        | 6489.6                 | 6495.23                  | -2.3                     | 0            | Pass   |

\* Please see measurement plots in Annex A.

## 7.6 Antenna requirement according to FCC 15.203

The antenna is permanently affixed to the module.

|         |          |                                       |
|---------|----------|---------------------------------------|
| Verdict | - PASS - | Please see internal photos of the EUT |
|---------|----------|---------------------------------------|

## 7.7 Conducted emissions

### Test equipment (Please see Chapter 8 for exact information of test equipment)

Radiated: R1, L1, C5, SW2

### Description

#### Test setup

- The EUT is set up according to its intended use, as described in the user manual or as defined by the manufacturer.
- In case of floor standing equipment, it is placed in the middle of the turn table.  
In case of tabletop equipment it is placed on a non-conductive table with a height of 80 cm.
- Additional equipment, cables, ... necessary for testing, are positioned like under normal operation.
- Interface cables, e.g. power supply, network, ... are connected to the connection box in the turn table.
- EUT is powered on and set into operation.

#### Pre-scan

- The EMI-receiver/spectrum analyser performs a positive-peak/max-hold sweep (=worst-case). Data is transferred to EMI-software and recorded. EMI-software will show the maximum level of all single sweeps as the final result for the pre-scan.

#### Final measurement

- Significant emissions found during the pre-scan will be maximized by the EMI-software based on evaluated data during the pre-scan.
- Final measurement will be performed with measuring equipment settings as defined in the applicable test standards (e.g. ANSI C63.4).
- Plot of the pre-scan with frequencies of identified emissions including levels, correction factors, and settings of measuring equipment is recorded.

Detailed requirements can be found in e.g. ANSI C63.4

Please see test set-up photos in Annex C and block diagram 2 in Chapter 2.9.

### Limits

| Frequency of emission (MHz) | Conducted limit (dBμV) |           |
|-----------------------------|------------------------|-----------|
|                             | Quasi-peak             | Average   |
| 0.15–0.5                    | 66 to 56*              | 56 to 46* |
| 0.5–5                       | 56                     | 46        |
| 5–30                        | 60                     | 50        |

\*Decreases with the logarithm of the frequency.

Please see FCC Title 47 § 15.207 for more details.

### Test Results

| Set-up / Op. | Line | Verdict |
|--------------|------|---------|
| 1 / 1        | L1   | Pass    |
| 1 / 1        | N    | Pass    |

All Readings were done with Quasi-Peak and Average detector.

|          |     |
|----------|-----|
| Comment: | --- |
|----------|-----|

|         |          |                                                |
|---------|----------|------------------------------------------------|
| Verdict | - PASS - | For plots please see Annex A to current report |
|---------|----------|------------------------------------------------|

## 8 MEASUREMENT EQUIPMENT

| No                        | Equipment                            | Type                           | Manufacturer                    | Serial No. | Int. No.  | Last Calibration | Next Calibration |
|---------------------------|--------------------------------------|--------------------------------|---------------------------------|------------|-----------|------------------|------------------|
| <b>Antennas (A):</b>      |                                      |                                |                                 |            |           |                  |                  |
| 1.                        | Active Loop Antenna                  | HFH2-Z2E                       | Rohde & Schwarz                 | 100108     | LAB000108 | 2023-05-05       | 2026-05-05       |
| 2.                        | Ultrabroadband antenna               | HL562E                         | Rohde & Schwarz                 | 102005     | LAB000150 | 2022-12-22       | 2025-12-22       |
| 3.                        | Double-Ridged Waveguide Horn Antenna | HF-907                         | Rohde & Schwarz                 | 102899     | LAB000151 | 2023-05-05       | 2026-05-05       |
| 4.                        | Rod Antenna                          | -                              | -                               | -          | LAB000280 | -                | -                |
| 5.                        | Horn Antenna (2.6 GHz – 3.95 GHz)    | PE9863/S F-10                  | Pasternack                      | -          | LAB000312 | 2021-01-13       | -                |
| 6.                        | Horn Antenna (3.95 GHz – 5.85 GHz)   | PE9861/S F-10                  | Pasternack                      | -          | LAB000264 | 2020-09-29       | -                |
| 7.                        | Horn Antenna (10 GHz – 15 GHz)       | PE9855 S F-20                  | Pasternack                      | -          | LAB000263 | 2020-09-29       | -                |
| 8.                        | Horn Antenna (12.4 GHz – 18 GHz)     | 62-HA20-A-5MF                  | TTE Europe                      | -          | LAB000282 | 2020-09-29       | -                |
| 9.                        | Horn Antenna (17.6 GHz – 26.7 GHz)   | 20240-20                       | Rann Microwave Ltd              | 268402     | LAB000127 | 2020-06-29       | -                |
| 10.                       | Horn Antenna (26.4 GHz – 40.1 GHz)   | 22240-20                       | Rann Microwave Ltd              | 270447     | LAB000129 | 2020-06-29       | -                |
| 11.                       | Horn Antenna (33 GHz – 50.1 GHz)     | 23240-20                       | Rann Microwave Ltd              | 273430     | LAB000132 | 2020-07-01       | -                |
| 12.                       | Horn Antenna (49.9 GHz – 75.8 GHz)   | 25240-20                       | Rann Microwave Ltd              | 272860     | LAB000133 | 2020-07-01       | -                |
| 13.                       | Horn Antenna (80.5 GHz – 91.5 GHz)   | 26240-20                       | Rann Microwave Ltd              | 273417     | LAB000135 | 2020-07-01       | -                |
| 14.                       | Horn Antenna (73.8 GHz – 114 GHz)    | 27240-20                       | Rann Microwave Ltd              | 273388     | LAB000138 | 2020-07-01       | -                |
| 15.                       | Horn Antenna (114 GHz – 173 GHz)     | 28240-20                       | Rann Microwave Ltd              | 273382     | LAB000139 | 2020-07-01       | -                |
| 16.                       | Horn Antenna (145 GHz – 220 GHz)     | 30240-20                       | Rann Microwave Ltd              | 273390     | LAB000178 | 2020-08-01       | -                |
| 17.                       | Horn Antenna (217 GHz – 330 GHz)     | 32240-20                       | Rann Microwave Ltd              | 273469     | LAB000152 | 2020-08-01       | -                |
| 18.                       | Horn Antenna (49.9 GHz – 75.8 GHz)   | 25240-20                       | Rann Microwave Ltd              | 272861     | LAB000134 | 2020-07-01       | -                |
| 19.                       | Horn Antenna (80.5 GHz – 91.5 GHz)   | 26240-20                       | Rann Microwave Ltd              | 273418     | LAB000136 | 2020-08-01       | -                |
| <b>Amplifiers (Amp)*:</b> |                                      |                                |                                 |            |           |                  |                  |
| 1.                        | Pre-Amplifier                        | BBV 9718 C                     | Schwarzbeck Mess-Elektronik OHG | 84         | LAB000189 | -                | -                |
| 2.                        | Low noise amplifier                  | BZ-01000900-111550-202320      | B&Z Technologies                | 24336      | LAB000296 | -                | -                |
| 3.                        | Low noise amplifier                  | BZ-08001800-180855-202020      | B&Z Technologies                | 22105      | LAB000297 | -                | -                |
| 4.                        | Low noise amplifier                  | BZ-18004000-270845-252525      | B&Z Technologies                | 22449      | LAB000298 | -                | -                |
| <b>Attenuator (Att)*:</b> |                                      |                                |                                 |            |           |                  |                  |
| 1.                        | Attenuator                           | 25081-20 (49.9 GHz – 75.8 GHz) | Rann Microwave Ltd              | 234411     | LAB000229 | -                | -                |

|                                  |                                                       |                                  |                                |            |           |            |            |
|----------------------------------|-------------------------------------------------------|----------------------------------|--------------------------------|------------|-----------|------------|------------|
| 2.                               | Attenuator                                            | 270B1-20<br>(73.8 GHz – 112 GHz) | Rann Microwave Ltd             | 270004     | LAB000230 | -          | -          |
| <b>RF Cables (Cab):</b>          |                                                       |                                  |                                |            |           |            |            |
| 1.                               | Coaxial cable                                         | LU7-022-1000                     | Rosenberger                    | 33         | LAB000153 | -          | -          |
| 2.                               | Coaxial cable                                         | LU7-022-1000                     | Rosenberger                    | 34         | LAB000153 | -          | -          |
| 3.                               | Coaxial cable                                         | SF101/1.5m                       | Huber & Suhner                 | 503987/1   | LAB000185 | -          | -          |
| <b>Chambers (C):</b>             |                                                       |                                  |                                |            |           |            |            |
| 1.                               | Semi/Fully Anechoic Chamber                           | SAC5                             | Albatross Projects GmbH        | 20168.PRB  | LAB000235 | 2022-01-31 | 2025-01-31 |
| 2.                               | Climatic chamber                                      | T-65/50                          | CTS GmbH                       | 204002     | LAB000110 | 2023-05-11 | 2024-05-11 |
| 3.                               | Shielding Cover                                       | GMU-Z11                          | Rohde & Schwarz                | 100876     | LAB000039 | -          | -          |
| 4.                               | Climatic chamber                                      | T-70/350                         | CTS GmbH                       | 194027     | LAB000096 | 2023-06-30 | 2024-06-30 |
| 5.                               | Shielded room                                         | Sputnik 1<br>(Schirmkabine)      | Albatross Projects GmbH        | -          | LAB000257 | -          | -          |
| <b>Corner Reflector (CR):</b>    |                                                       |                                  |                                |            |           |            |            |
| 1.                               | Trihedral Corner Reflector                            | SAJ-080-S1                       | ERAVANT                        | 04756-01   | LAB000201 | -          | -          |
| <b>Directional coupler (DC):</b> |                                                       |                                  |                                |            |           |            |            |
| 1.                               | Directional coupler                                   | CPL-5230-10-SMA-79               | Midwest Microwave              | -          | LAB000672 | -          | -          |
| <b>Distance meter (DM):</b>      |                                                       |                                  |                                |            |           |            |            |
| 1.                               | Laser distance meter                                  | GLM 50 C                         | Bosch                          | -          | -         | -          | -          |
| 2.                               | Laser distance meter                                  | GLM 120 C                        | Bosch                          | -          | -         | -          | -          |
| <b>Filter (F):</b>               |                                                       |                                  |                                |            |           |            |            |
| 1.                               | High-pass filter<br>(84 GHz – 110 GHz)                | 10-WHPF-84.5-UG387               | TTE                            | -          | LAB000299 | -          | -          |
| 2.                               | High-pass filter<br>(7 GHz – 23 GHz)                  | HPF 7-23                         | AtlantRF                       | -          | LAB000444 | -          | -          |
| 3.                               | High-pass filter<br>(3.3 GHz – 12.75 GHz)             | HPF 3.3-11                       | AtlantRF                       | -          | LAB000382 | -          | -          |
| 4.                               | High-pass filter<br>(1.3 GHz – 12.75 GHz)             | H1G713G1                         | Microwave Circuits Inc         | 48291      | LAB000443 | -          | -          |
| 5.                               | High-pass filter<br>(1.3 GHz – 12.75 GHz)             | H1G713G1                         | Microwave Circuits Inc         | 1896-01    | LAB000670 | -          | -          |
| 6.                               | Bandstop filter<br>(30MHz – 3GHz for<br>900 MHz Band) | WRG876/960-<br>847/989-50/8SS    | Wainwright<br>Instruments GmbH | -          | LAB000671 | -          | -          |
| <b>Harmonic mixers (H):</b>      |                                                       |                                  |                                |            |           |            |            |
| 1.                               | Harmonic Mixer                                        | FS-Z60                           | Rohde & Schwarz                | 101350     | LAB000375 | 2023-04-13 | 2024-04-13 |
| 2.                               | Harmonic Mixer                                        | FS-Z75                           | Rohde & Schwarz                | 102015     | LAB000112 | 2023-05-03 | 2024-05-03 |
| 3.                               | Harmonic Mixer                                        | FS-Z90                           | Rohde & Schwarz                | 102020     | LAB000113 | 2023-04-06 | 2024-04-06 |
| 4.                               | Harmonic Mixer                                        | FS-Z110                          | Rohde & Schwarz                | 102000     | LAB000114 | 2023-05-02 | 2024-05-02 |
| 5.                               | Harmonic Mixer                                        | FS-Z170                          | Rohde & Schwarz                | 100996     | LAB000126 | 2023-04-26 | 2024-04-26 |
| 6.                               | Harmonic Mixer                                        | FS-Z220                          | Rohde & Schwarz                | 101039     | LAB000116 | 2023-04-16 | 2024-04-06 |
| 7.                               | Harmonic Mixer                                        | FS-Z325                          | Rohde & Schwarz                | 101015     | LAB000117 | 2023-04-11 | 2024-04-11 |
| <b>LISN (L):</b>                 |                                                       |                                  |                                |            |           |            |            |
| 1.                               | Two-line V-Network                                    | ENV216                           | Rohde & Schwarz                | 102597     | LAB000220 | 2022-09-27 | 2023-09-27 |
| 2.                               | Two-line V-Network                                    | ENV216                           | Rohde & Schwarz                | 102598     | LAB000217 | 2023-06-01 | 2024-06-01 |
| <b>Multimeters (M):</b>          |                                                       |                                  |                                |            |           |            |            |
| 1.                               | Multimeter                                            | U1242B                           | Keysight                       | MY59240021 | LAB000187 | 2022-08-20 | 2024-08-20 |
| 2.                               | Multimeter                                            | U1242B                           | Keysight                       | MY59160026 | LAB000018 | 2021-08-30 | 2023-08-30 |
| <b>Multipliers (Mp):</b>         |                                                       |                                  |                                |            |           |            |            |
| 1.                               | Multiplier                                            | SMZ75                            | Rohde & Schwarz                | 101307     | -         | 2018-03-15 | -          |
| 2.                               | Multiplier                                            | SMZ110                           | Rohde & Schwarz                | 100001     | -         | 2020-05-09 | -          |
| <b>Power Supply (P):</b>         |                                                       |                                  |                                |            |           |            |            |
| 1.                               | Power Supply                                          | PS 2042-10 B                     | Elektro-Automatis<br>GmbH      | 2878350263 | LAB000190 | -          | -          |

| 2.                                           | Power Supply                       | PS 2042-10 B     | Elektro-Automatik GmbH | 2878350322        | LAB000192 | -          | -          |
|----------------------------------------------|------------------------------------|------------------|------------------------|-------------------|-----------|------------|------------|
| 3.                                           | Power Supply                       | E3640A           | Agilent                | MY40005893        | LAB000036 | -          | -          |
| <b>Power meters (PM):</b>                    |                                    |                  |                        |                   |           |            |            |
| 1.                                           | Power meter                        | NRP-ZB1          | Rohde & Schwarz        | 105194            | LAB000120 | 2023-05-10 | 2024-05-10 |
| 2.                                           | Power meter                        | NRP110T          | Rohde & Schwarz        | 101151            | LAB000119 | 2023-06-05 | 2024-06-05 |
| <b>Receivers and Spectrum analyzers (R):</b> |                                    |                  |                        |                   |           |            |            |
| 1.                                           | Test Receiver, SAC5                | ESW-26           | Rohde & Schwarz        | 101517            | LAB000363 | 2023-01-31 | 2024-01-30 |
| 2.                                           | Test Receiver                      | ESW-26           | Rohde & Schwarz        | 101481            | LAB000236 | -          | -          |
| 3.                                           | Spectrum Analyzer 1<br>Hz = 50 GHz | FSW-50           | Rohde & Schwarz        | 101450            | LAB000111 | 2023-07-26 | 2024-07-26 |
| 4.                                           | Spectrum Analyzer 2<br>Hz = 43 GHz | FSW-43           | Rohde & Schwarz        | 101391            | LAB000289 | 2023-06-02 | 2024-06-02 |
| <b>Signal Generators (SG):</b>               |                                    |                  |                        |                   |           |            |            |
| 1.                                           | Signal generator 8 kHz<br>– 50 GHz | SMA100B          | Rohde & Schwarz        | 103838            | LAB000118 | 2021-06-30 | 2024-06-30 |
| 2.                                           | Vector Signal<br>Generator         | SMW200A          | Rohde & Schwarz        | 108822            | LAB000288 | -          | -          |
| <b>Software (SW):</b>                        |                                    |                  |                        |                   |           |            |            |
| No                                           | Type                               | Name             | Manufacturer           | Version           | Int. No.  | Build      | Rev        |
| 1.                                           | Software                           | R&S Power Viewer | Rohde & Schwarz        | 11.3,<br>3.2.2020 | -         | 7338       | 3230       |
| 2.                                           | Software                           | R&S EMC32        | Rohde & Schwarz        | 11.20             | -         | -          | -          |

\* The gain values of Amp and attenuation values of Cab and Att are remeasured annually internal.

## 9 MEASUREMENT UNCERTAINTIES

| Test case                     | Measurement uncertainty* |
|-------------------------------|--------------------------|
| Radiated field strength       | $\leq \pm 6$ dB          |
| Occupied bandwidth            | $\pm 100$ kHz            |
| Time domain measurement       | $\pm 2.32$ ms            |
| DC and low frequency voltages | $\pm 3$ %                |
| Temperature                   | $\pm 1$ °C               |
| Humidity                      | $\pm 3$ %                |

\*) The indicated expanded measurement uncertainty corresponds to the standard measurement uncertainty for the measurement results multiplied by the coverage factor  $k = 2$ . The true value is located in the corresponding interval with a probability of 95 %.

## END OF THE REPORT

# Annex A

Measurement plots

part of / in addition to

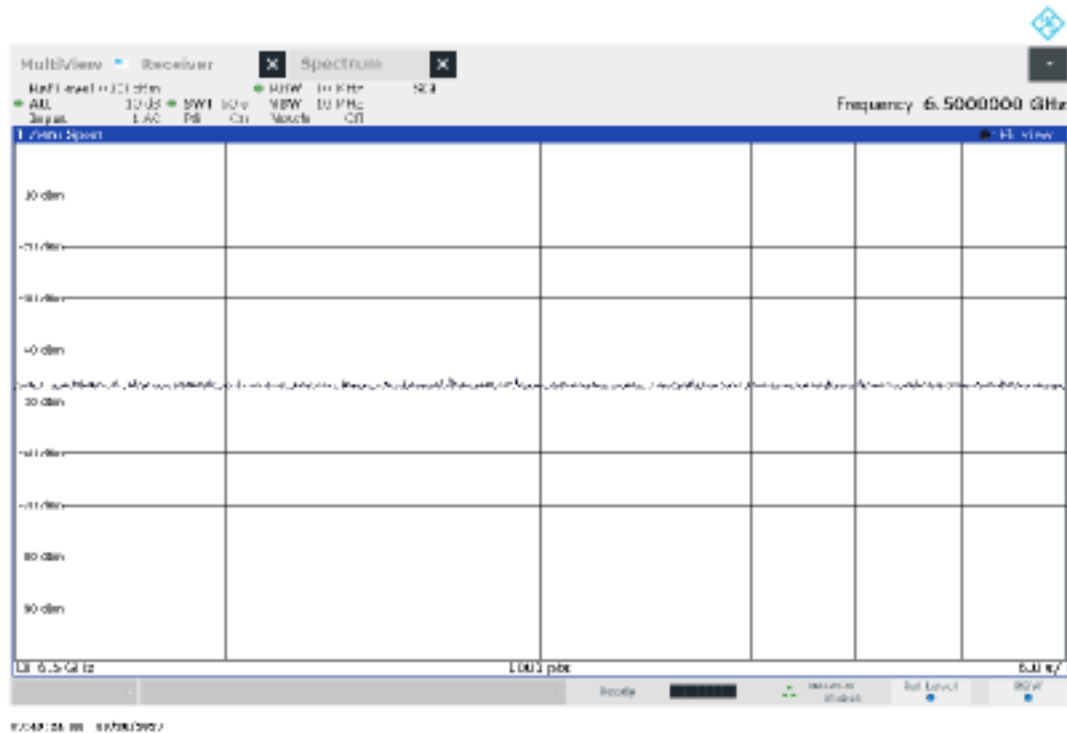
**Test report no.:** 23058741-34055-1

## Table of contents:

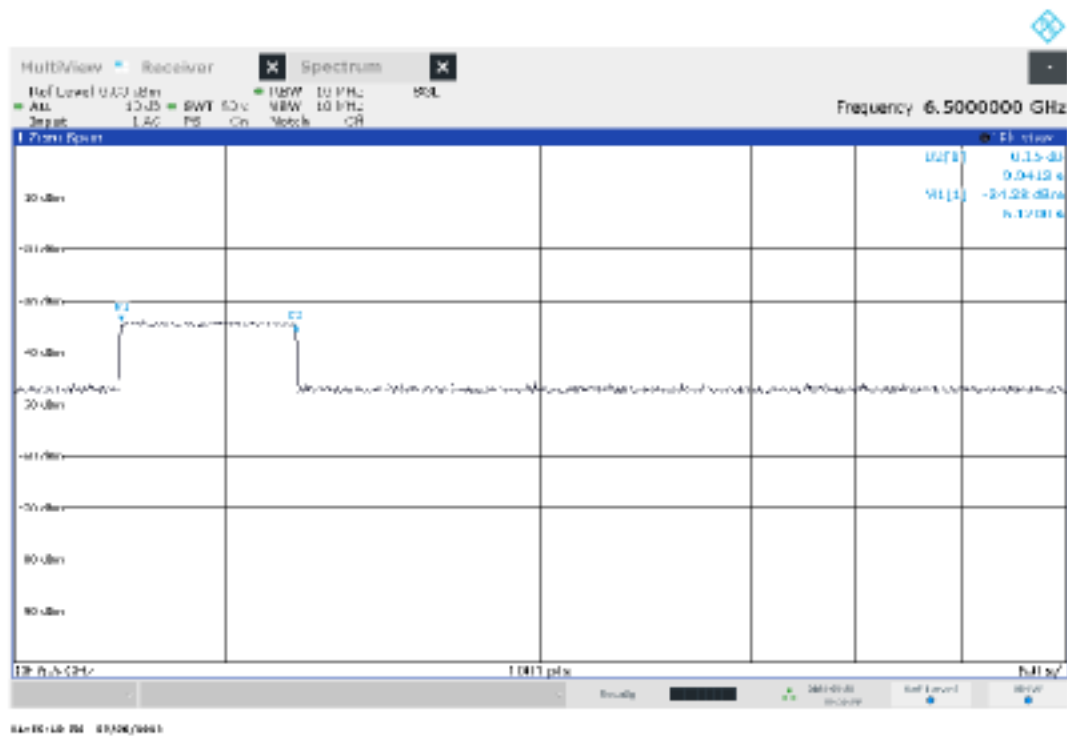
|          |                                                                                                                                                                                   |           |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>1</b> | <b>INDOOR OPERATION</b>                                                                                                                                                           | <b>3</b>  |
| 1.1      | Measurement 1: No trigger signal -> EUT B is not transmitting.                                                                                                                    | 3         |
| 1.2      | Measurement 2: Trigger signal at M1. EUT B starts to transmit at M1. No movement. -> AE 1 is not responding. EUT B stops to transmit at D2.                                       | 3         |
| 1.3      | Measurement 3: Trigger signal at M1. EUT B starts to transmit at M1. Movement from 0 s up to M3. -> AE 1 starts to transmit at M2 and stops at M4. EUT B stops to transmit at M5. | 4         |
| <b>2</b> | <b>OCCUPIED BANDWIDTH</b>                                                                                                                                                         | <b>5</b>  |
| 2.1      | 10 dB bandwidth, set-up 1, op. 1                                                                                                                                                  | 5         |
| <b>3</b> | <b>GENERAL LIMIT - RADIATED FIELD STRENGTH EMISSIONS, 9 kHz – 5 GHz</b>                                                                                                           | <b>6</b>  |
| 3.1      | Radiated field strength measurements ( $f < 30$ MHz)                                                                                                                              | 6         |
| 3.1.1    | Set-up 1, 9 kHz – 30 MHz, Op. 1, EUTs lying                                                                                                                                       | 6         |
| 3.1.2    | Set-up 1, 9 kHz – 30 MHz, Op. 1, EUTs staying                                                                                                                                     | 7         |
| 3.2      | Radiated field strength measurements ( $30 \text{ MHz} < f < 1000 \text{ MHz}$ )                                                                                                  | 8         |
| 3.2.1    | Lying, Set-up 1, Op. 1                                                                                                                                                            | 8         |
| 3.2.2    | Staying, Set-up 1, Op. 1                                                                                                                                                          | 9         |
| 3.3      | Radiated field strength measurements ( $1 \text{ GHz} < f < 40 \text{ GHz}$ )                                                                                                     | 10        |
| 3.3.1    | 960 MHz – 1610 MHz, Set-up 1, Op. 1                                                                                                                                               | 10        |
| 3.3.2    | 1610 MHz – 3100 MHz, Set-up 1, Op. 1                                                                                                                                              | 10        |
| 3.3.3    | 3100 MHz – 5590 MHz, Set-up 1, Op. 1                                                                                                                                              | 11        |
| 3.3.4    | 5590 MHz – 6190 MHz, Set-up 1, Op. 1                                                                                                                                              | 11        |
| 3.3.5    | $f_c=6489.6$ , span = 600 MHz, pts = 600, swt = 600 ms, Set-up 1, Op. 1                                                                                                           | 12        |
| 3.3.6    | 6789 MHz – 7389 MHz, Set-up 1, Op. 1                                                                                                                                              | 12        |
| 3.3.7    | 7389 MHz – 10600 MHz, Set-up 1, Op. 1                                                                                                                                             | 13        |
| 3.3.8    | 10600 MHz – 15000 MHz, Set-up 1, Op. 1, ANT HOR                                                                                                                                   | 13        |
| 3.3.9    | 10600 MHz – 15000 MHz, Set-up 1, Op. 1, ANT VER                                                                                                                                   | 14        |
| 3.3.10   | 15000 MHz – 18000 MHz, Set-up 1, Op. 1, ANT HOR                                                                                                                                   | 14        |
| 3.3.11   | 15000 MHz – 18000 MHz, Set-up 1, Op. 1, ANT VER                                                                                                                                   | 15        |
| 3.3.12   | 18000 MHz – 26500 MHz, Set-up 1, Op. 1, ANT HOR                                                                                                                                   | 15        |
| 3.3.13   | 18000 MHz – 26500 MHz, Set-up 1, Op. 1, ANT VER                                                                                                                                   | 16        |
| 3.3.14   | 26500 MHz – 40000 MHz, Set-up 1, Op. 1, ANT HOR                                                                                                                                   | 16        |
| 3.3.15   | 26500 MHz – 40000 MHz, Set-up 1, Op. 1, ANT VER                                                                                                                                   | 17        |
| <b>4</b> | <b>FUNDAMENTAL EMISSIONS IN THE GPS BAND</b>                                                                                                                                      | <b>18</b> |
| 4.1      | Frequency range 1164 MHz – 1240 MHz, Set-up 1, Op. 1                                                                                                                              | 18        |
| 4.2      | Frequency range 1559 MHz – 1610 MHz, Set-up 1, Op. 1                                                                                                                              | 18        |
| <b>5</b> | <b>FUNDAMENTAL EMISSION PEAK POWER</b>                                                                                                                                            | <b>19</b> |
| 5.1      | Set-up 1, Op. 1                                                                                                                                                                   | 19        |
| <b>6</b> | <b>Conducted emissions</b>                                                                                                                                                        | <b>20</b> |
| 6.1      | Set-up 1, Op. 1, L1                                                                                                                                                               | 20        |
| 6.2      | Set-up 1, Op. 1, N                                                                                                                                                                | 21        |

## 1 INDOOR OPERATION

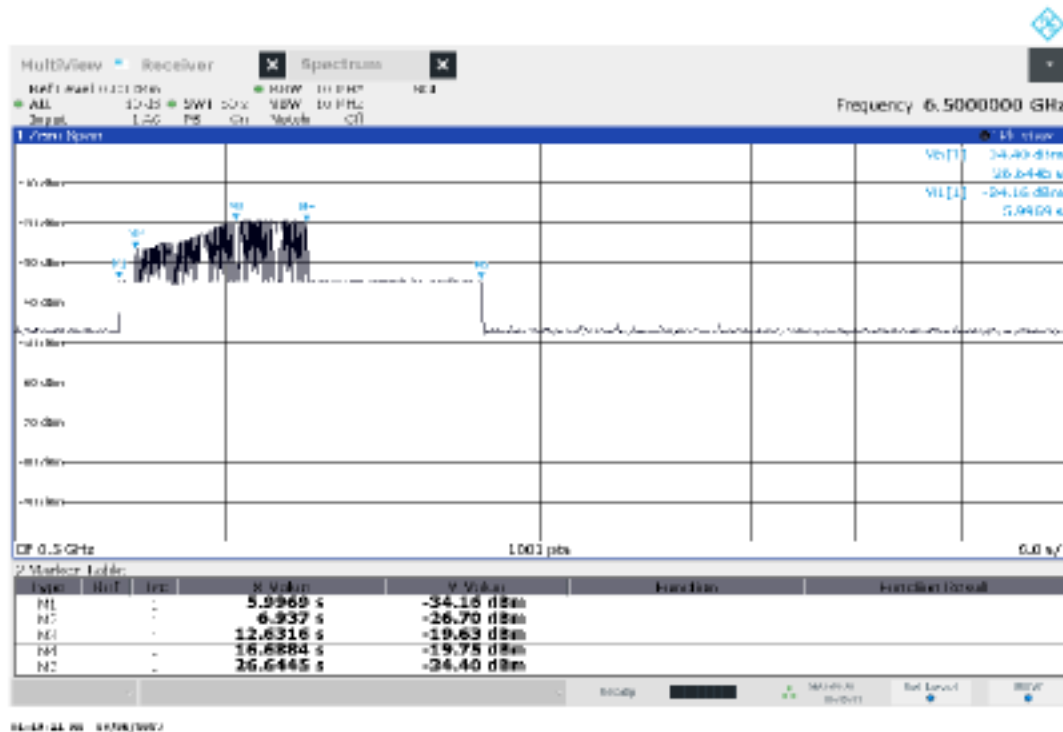
**1.1 Measurement 1:** No trigger signal -> EUT B is not transmitting.



**1.2 Measurement 2:** Trigger signal at M1. EUT B starts to transmit at M1. No movement. -> AE 1 is not responding. EUT B stops to transmit at D2.

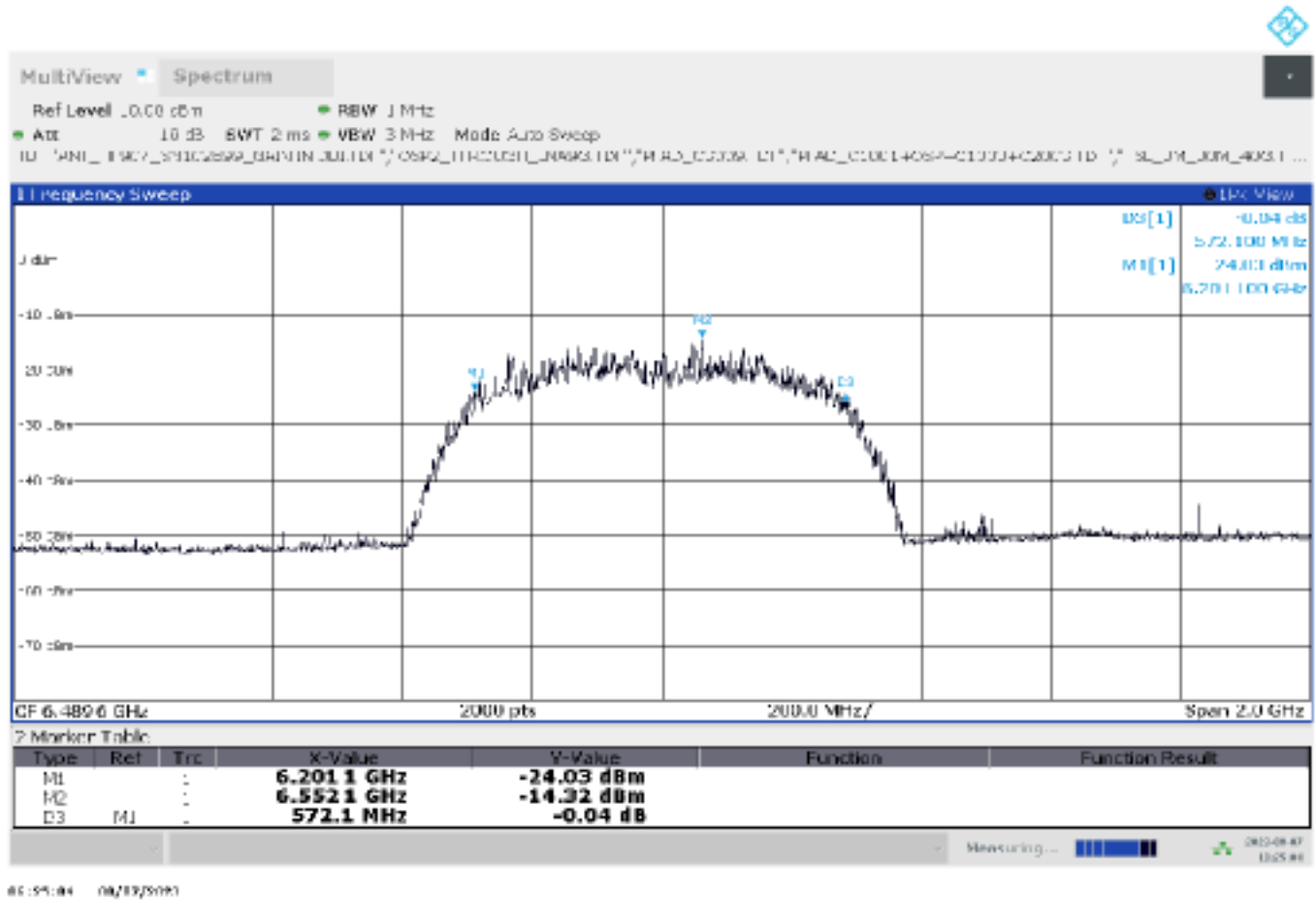


- 1.3 Measurement 3:** Trigger signal at M1. EUT B starts to transmit at M1. Movement from 0 s up to M3. -> AE 1 starts to transmit at M2 and stops at M4. EUT B stops to transmit at M5.



## 2 OCCUPIED BANDWIDTH

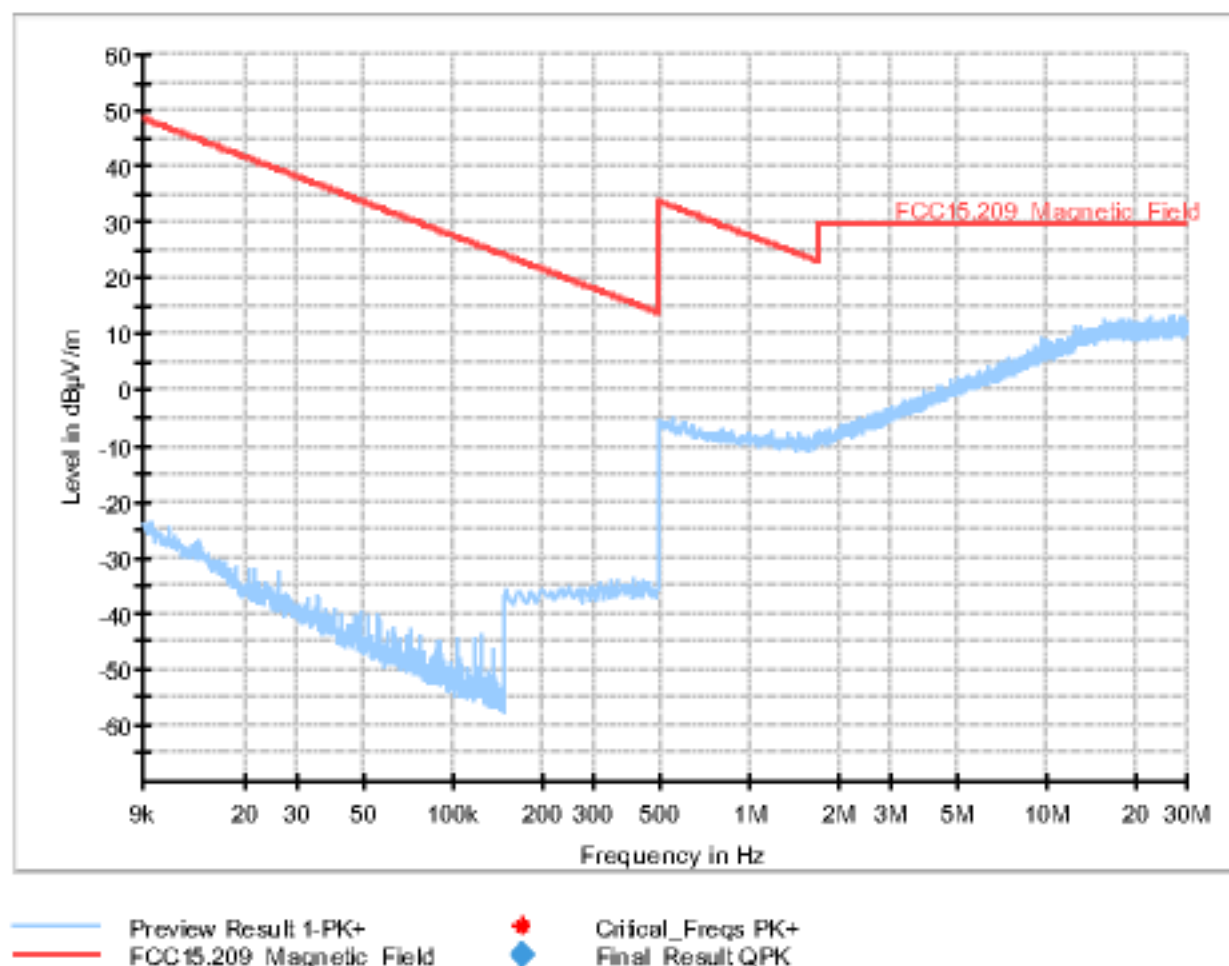
### 2.1 10 dB bandwidth, set-up 1, op. 1



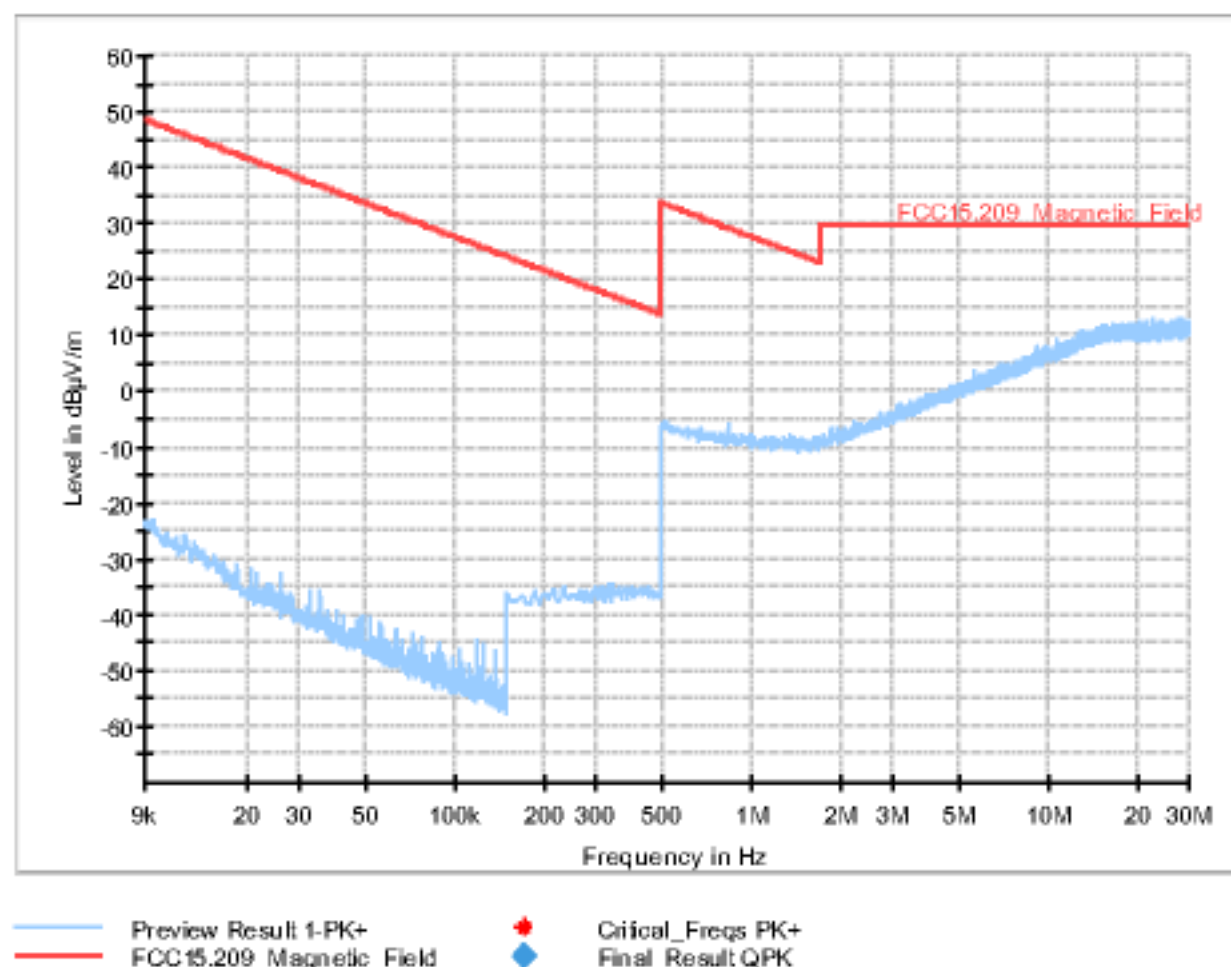
### 3 GENERAL LIMIT - RADIATED FIELD STRENGTH EMISSIONS, 9 kHz – 5 GHz

#### 3.1 Radiated field strength measurements ( $f < 30$ MHz)

##### 3.1.1 Set-up 1, 9 kHz – 30 MHz, Op. 1, EUTs lying

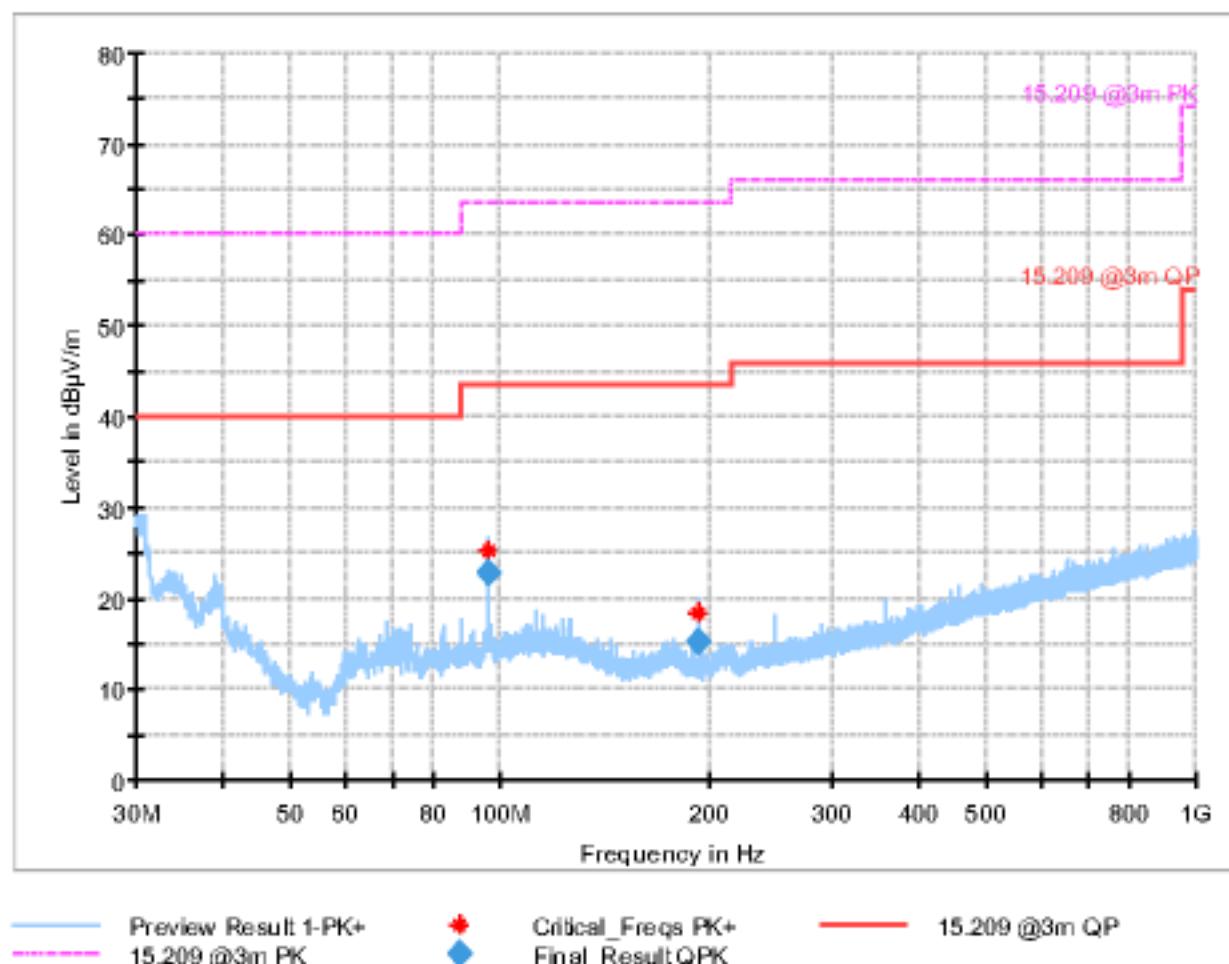


### 3.1.2 Set-up 1, 9 kHz – 30 MHz, Op. 1, EUTs staying



### 3.2 Radiated field strength measurements (30 MHz < f < 1000 MHz)

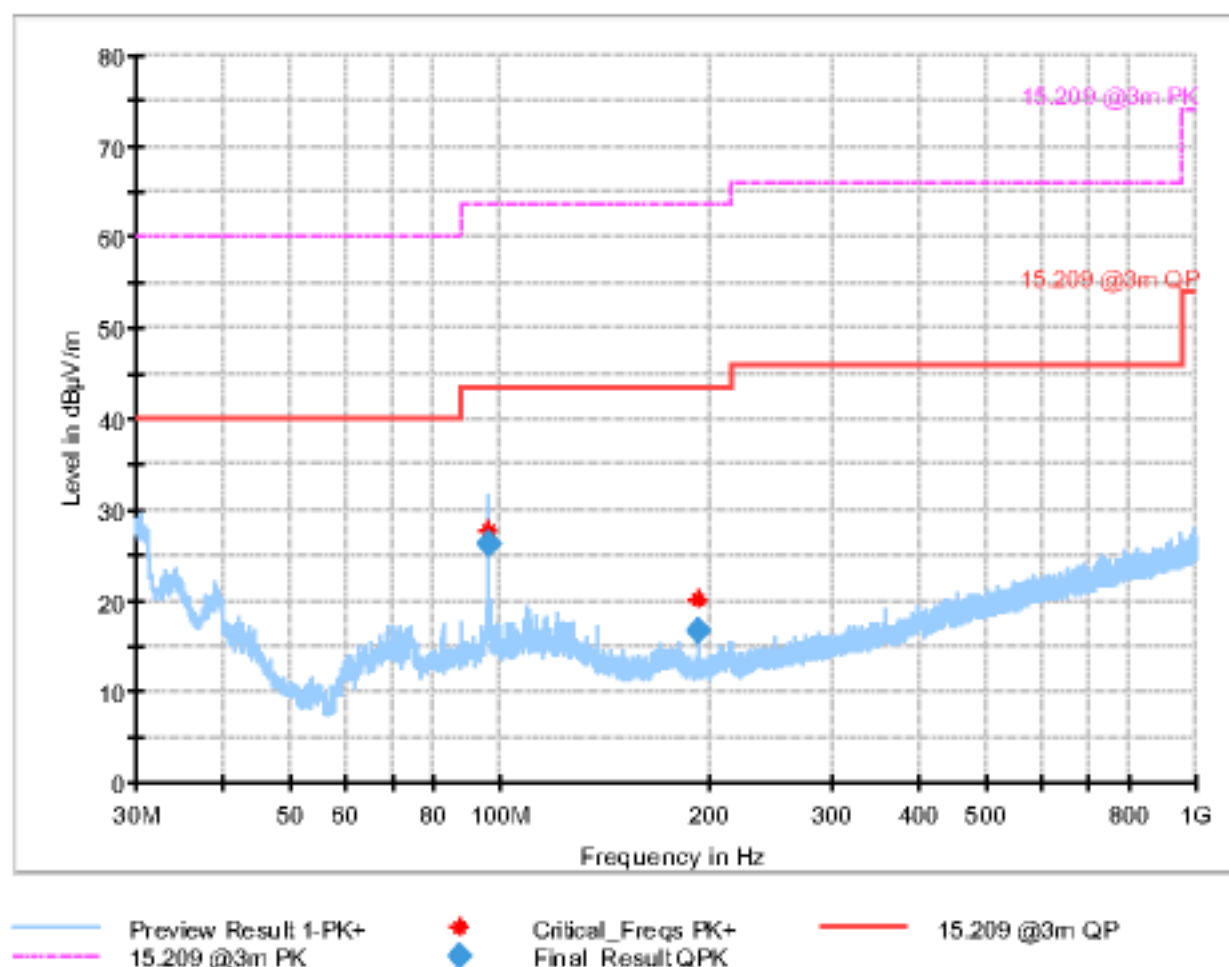
#### 3.2.1 Lying, Set-up 1, Op. 1



#### Final Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|
| 95.400000       | 22.79              | 43.50          | 20.71       | 100.0           | 120.000         | 104.0       | V   | 30.0          |
| 193.225000      | 15.18              | 43.50          | 28.32       | 100.0           | 120.000         | 100.0       | V   | 60.0          |

### 3.2.2 Staying, Set-up 1, Op. 1

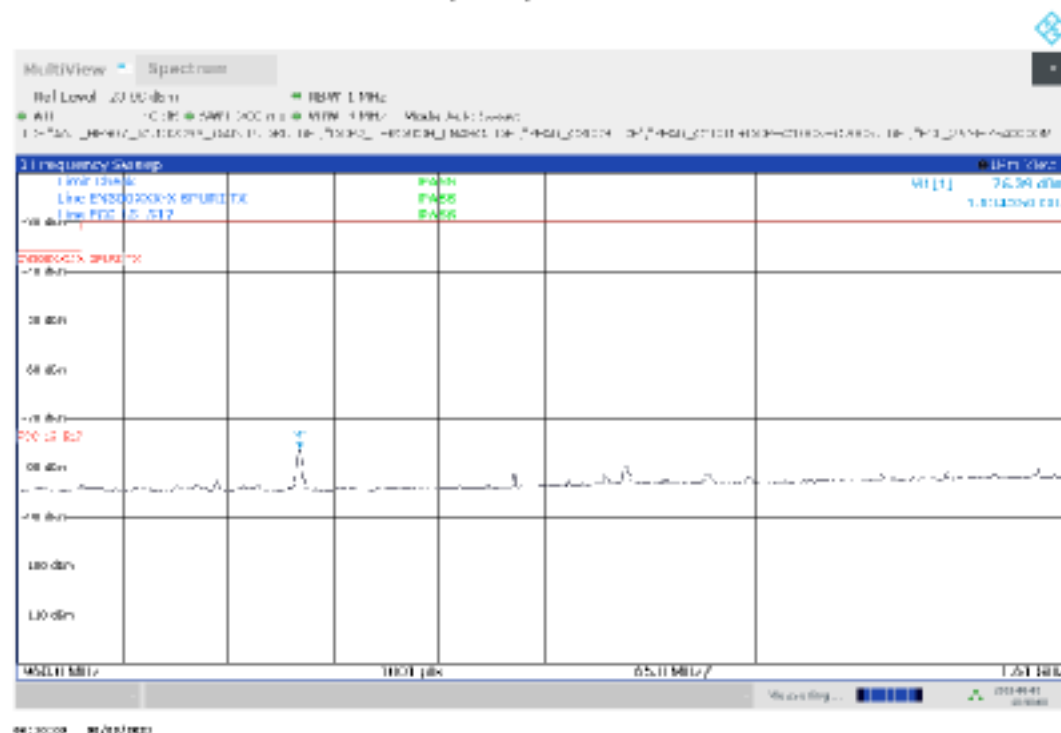


### Final Result

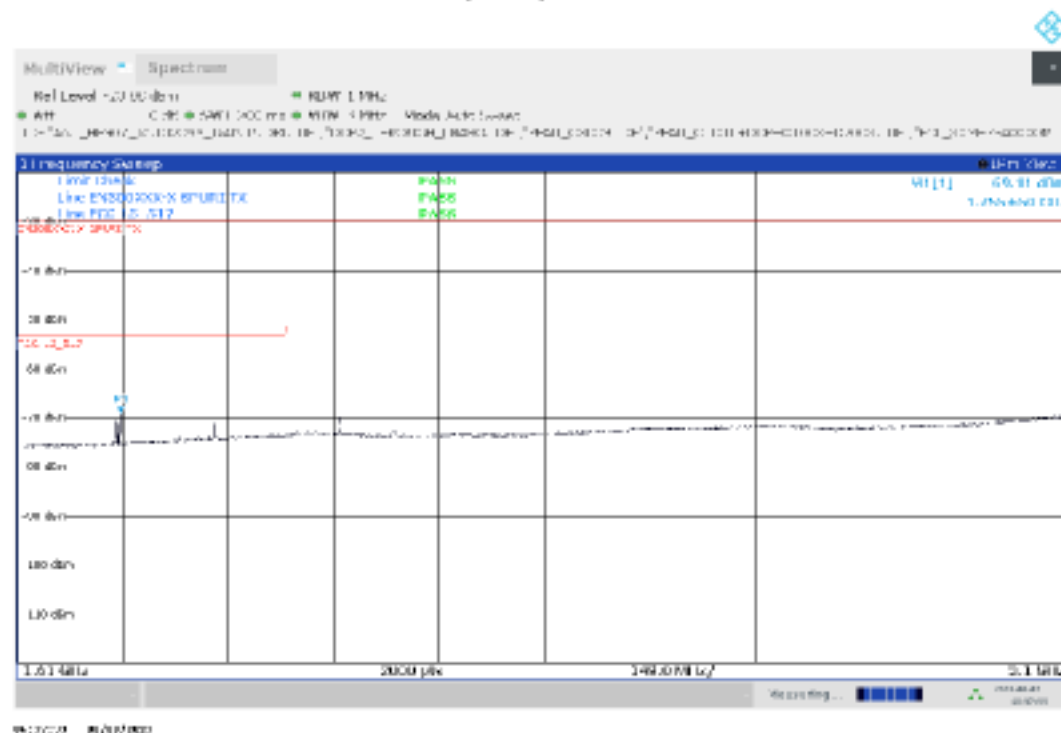
| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|
| 96.375000       | 26.16              | 43.50          | 17.34       | 100.0           | 120.000         | 115.0       | V   | 198.0         |
| 193.200000      | 16.63              | 43.50          | 26.87       | 100.0           | 120.000         | 100.0       | V   | 66.0          |

### 3.3 Radiated field strength measurements ( $1\text{ GHz} < f < 40\text{ GHz}$ )

### 3.3.1 960 MHz – 1610 MHz, Set-up 1, Op. 1

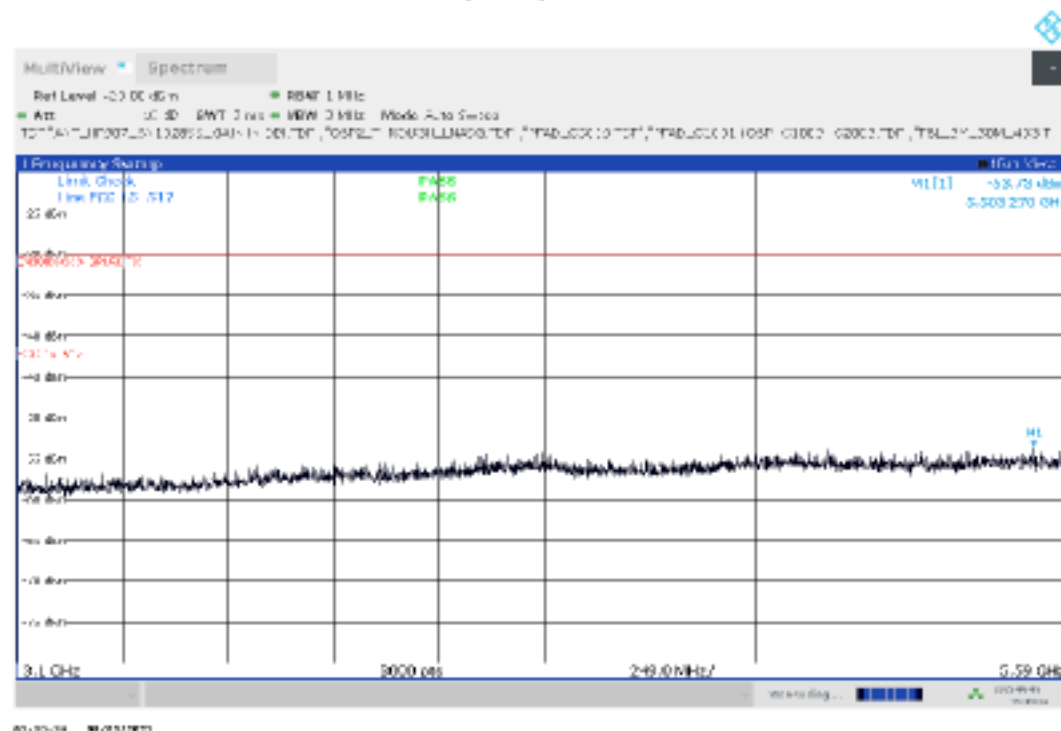


### 3.3.2 1610 MHz – 3100 MHz, Set-up 1, Op. 1



# Annex A of TR no.: 23058741-34055-1

## 3.3.3 3100 MHz – 5590 MHz, Set-up 1, Op. 1

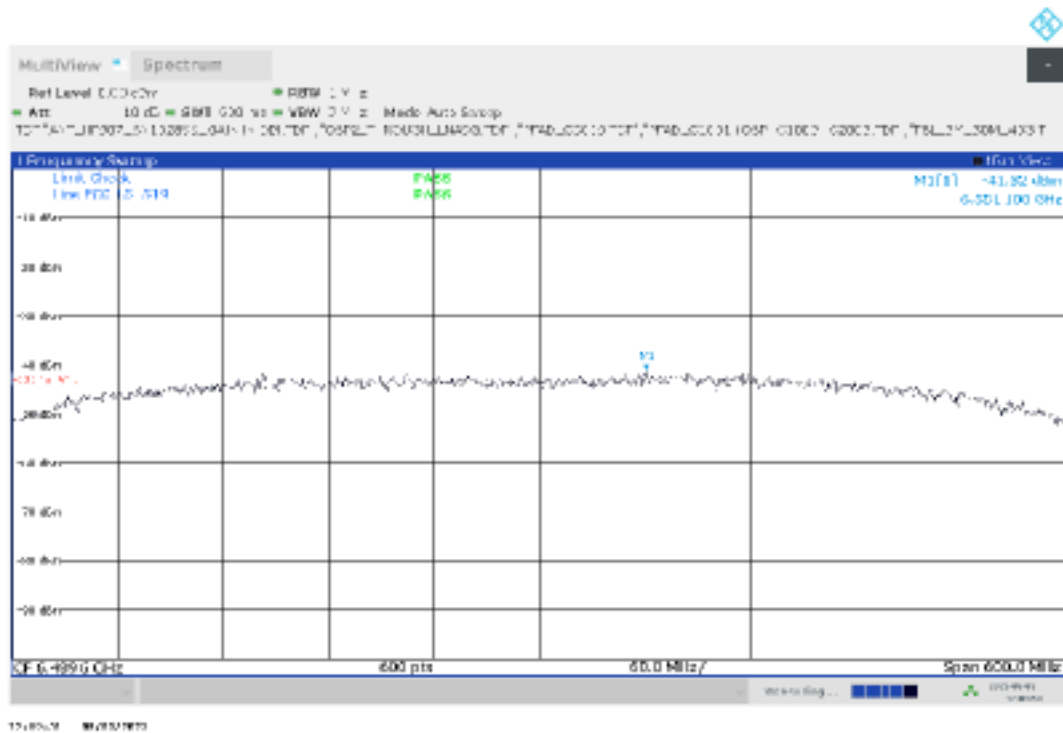


## 3.3.4 5590 MHz – 6190 MHz, Set-up 1, Op. 1

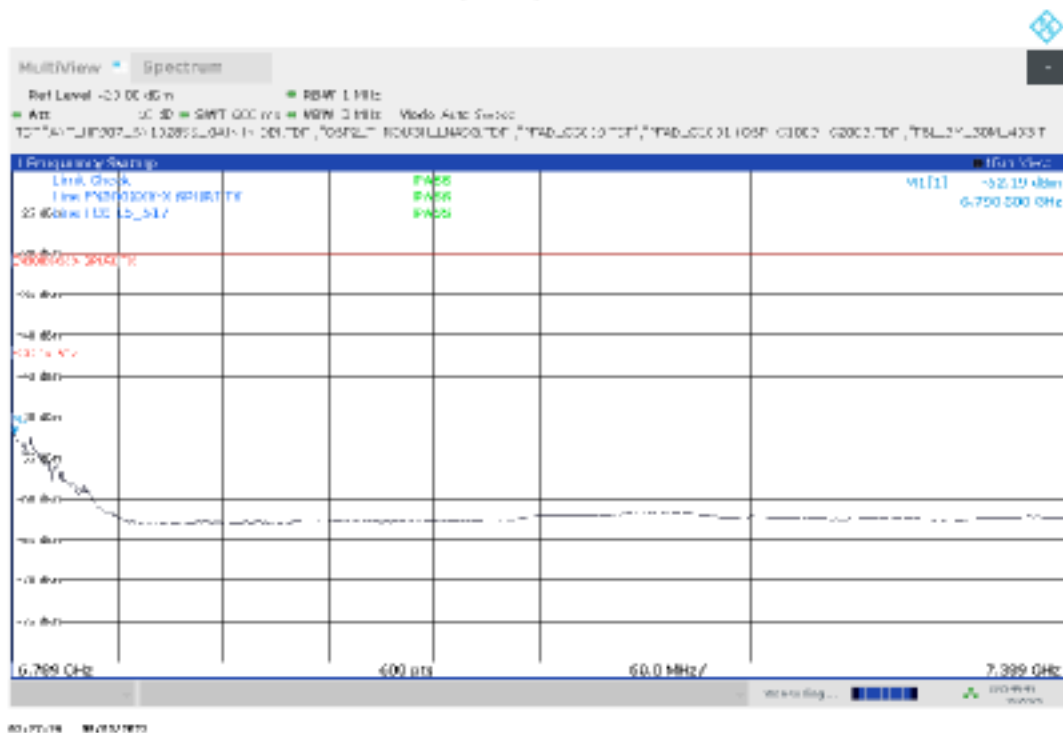


Annex A of TR no.: 23058741-34055-1

3.3.5  $f_c=6489.6$ , span = 600 MHz, pts = 600, swt = 600 ms, Set-up 1, Op. 1

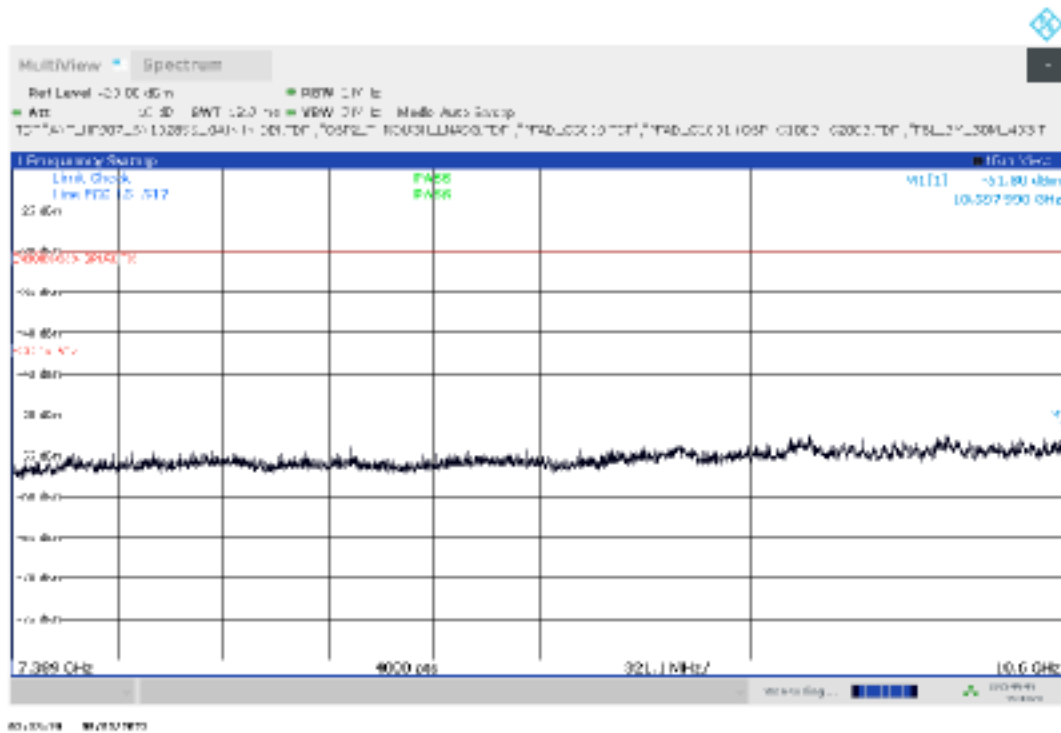


### 3.3.6 6789 MHz – 7389 MHz, Set-up 1, Op. 1



Annex A of TR no.: 23058741-34055-1

### 3.3.7 7389 MHz – 10600 MHz, Set-up 1, Op. 1

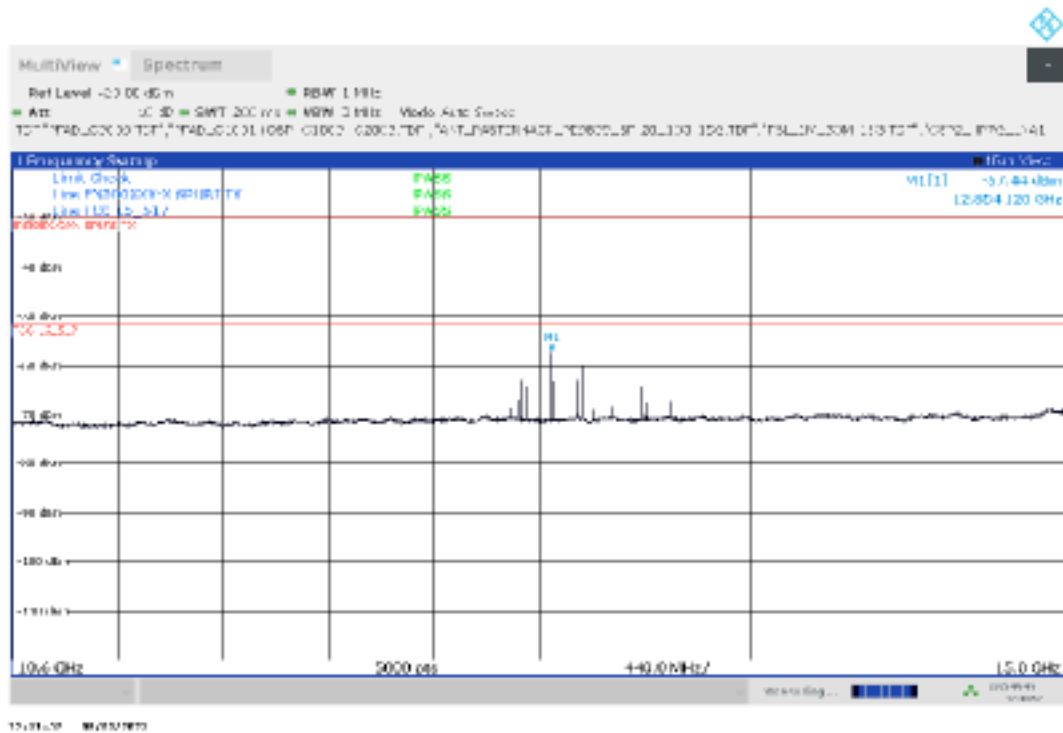


### 3.3.8 10600 MHz – 15000 MHz, Set-up 1, Op. 1, ANT HOR

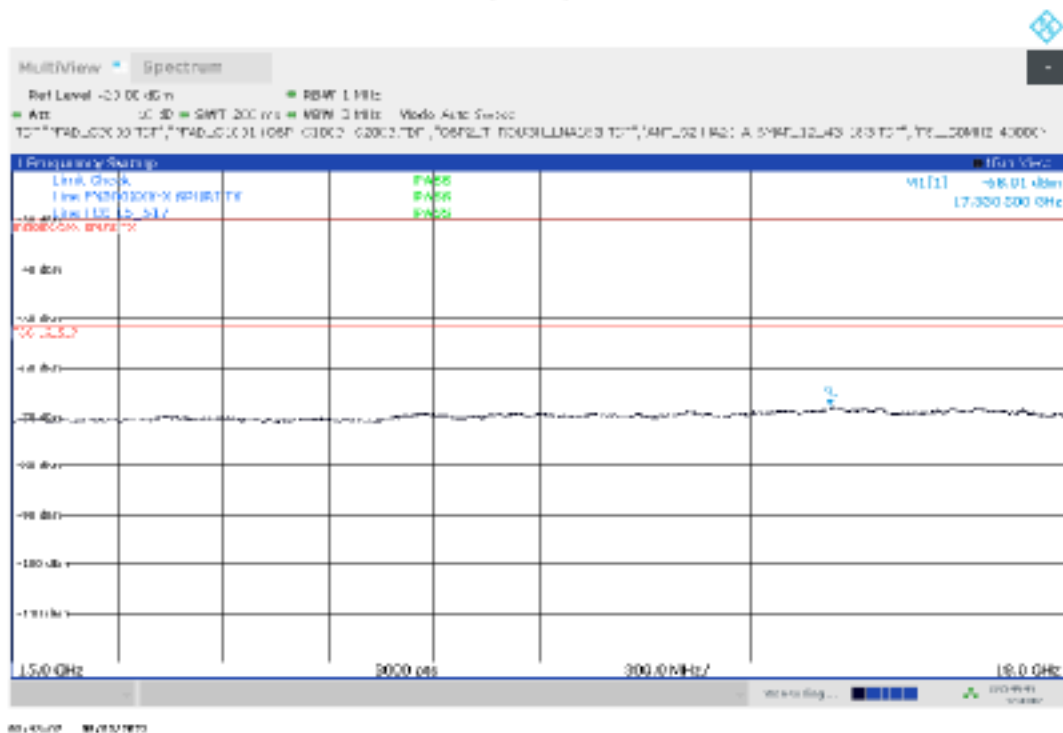


Annex A of TR no.: 23058741-34055-1

### 3.3.9 10600 MHz – 15000 MHz, Set-up 1, Op. 1, ANT VER

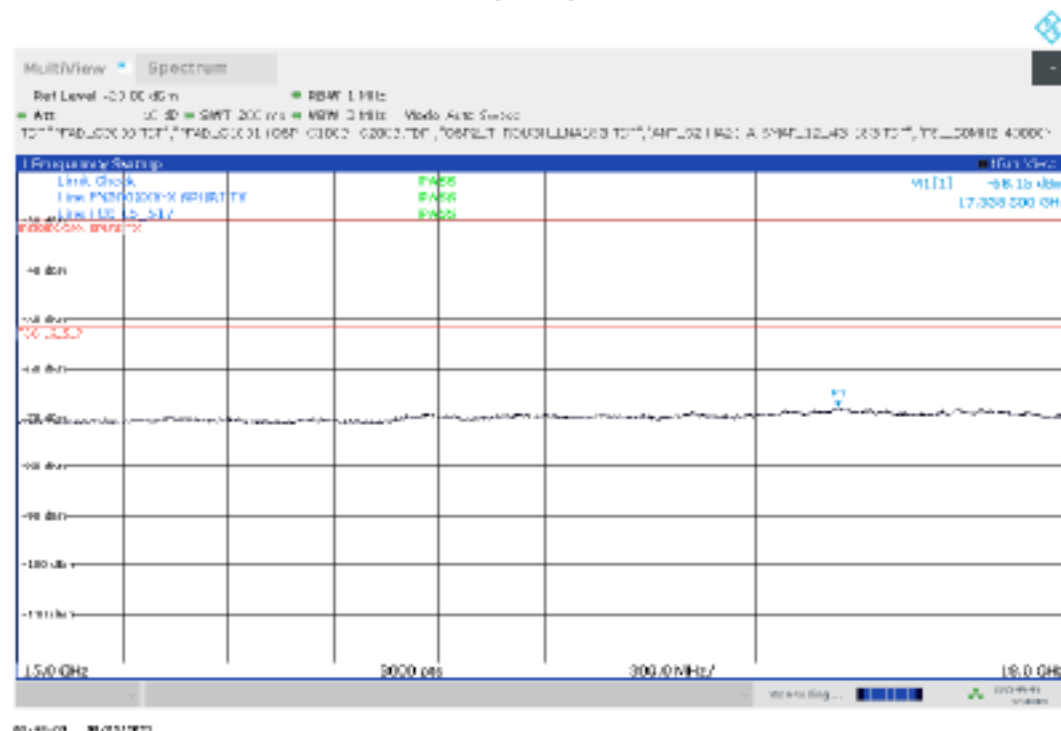


### 3.3.10 15000 MHz – 18000 MHz, Set-up 1, Op. 1, ANT HOR

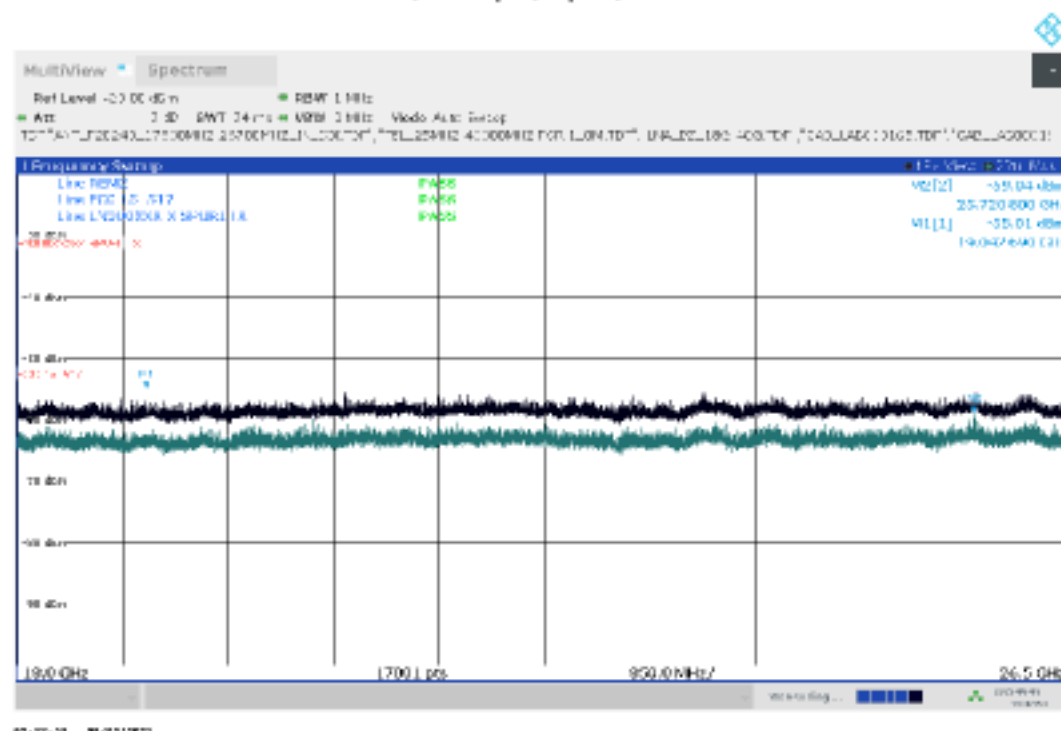


# Annex A of TR no.: 23058741-34055-1

## 3.3.11 15000 MHz – 18000 MHz, Set-up 1, Op. 1, ANT VER

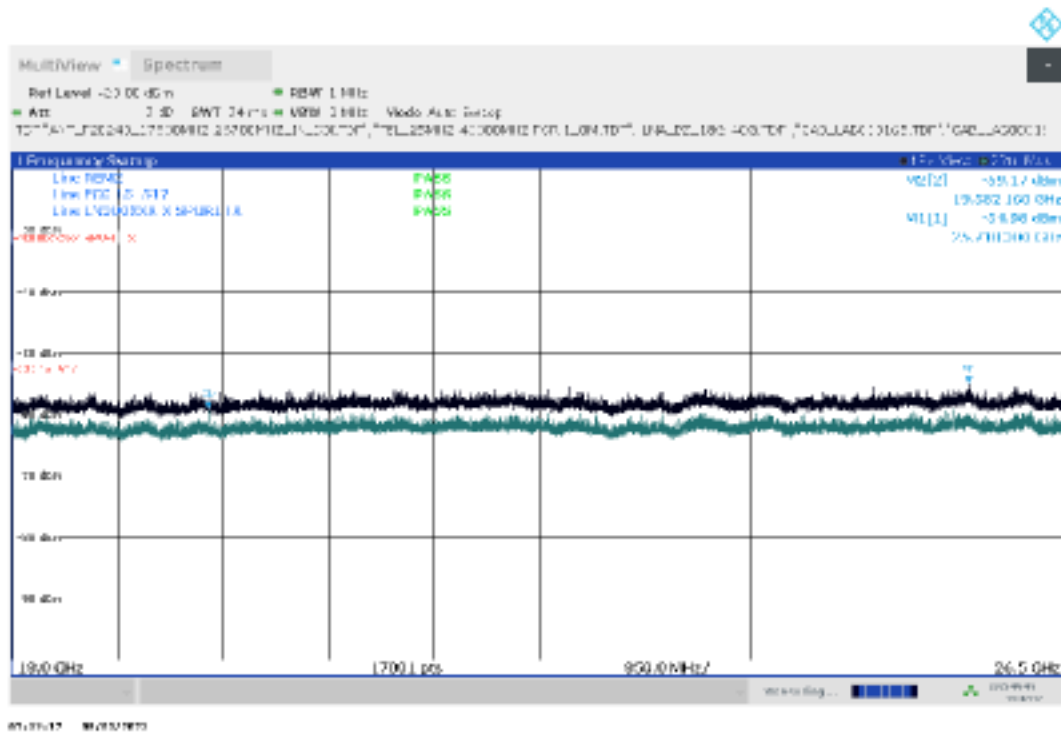


## 3.3.12 18000 MHz – 26500 MHz, Set-up 1, Op. 1, ANT HOR

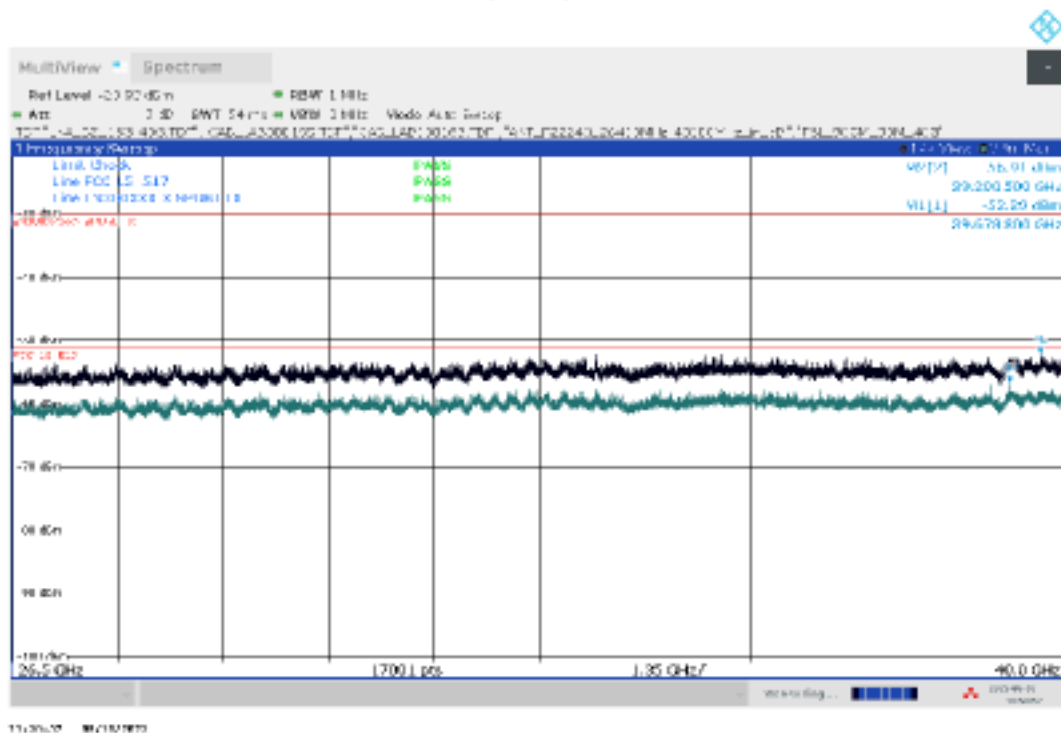


Annex A of TR no.: 23058741-34055-1

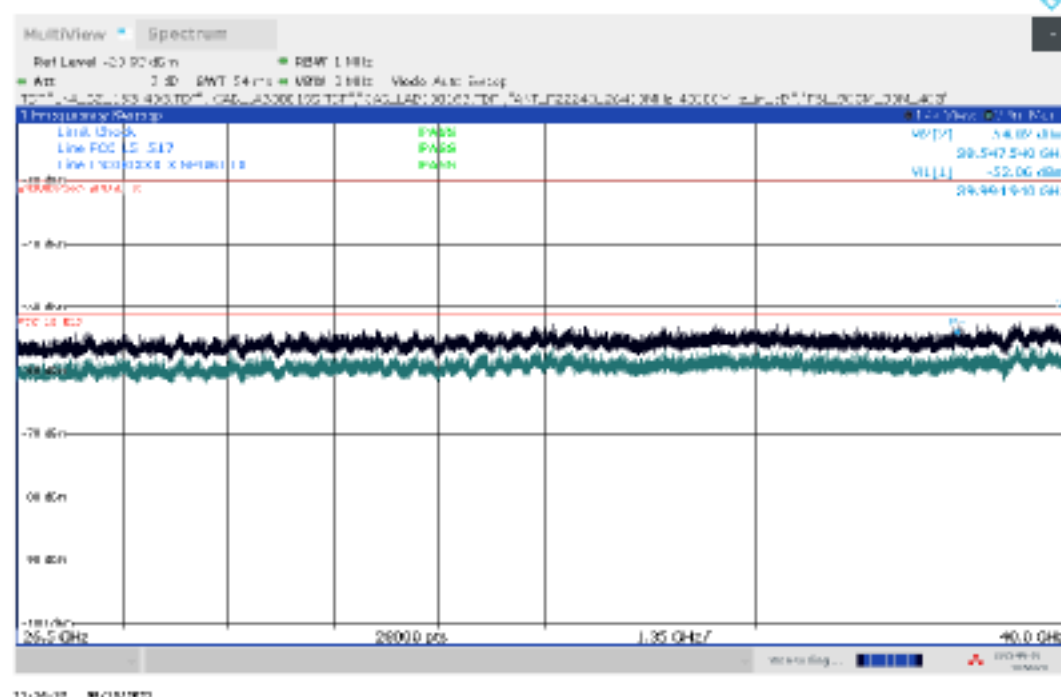
### 3.3.13 18000 MHz – 26500 MHz, Set-up 1, Op. 1, ANT VER



### 3.3.14 26500 MHz – 40000 MHz, Set-up 1, Op. 1, ANT HOR

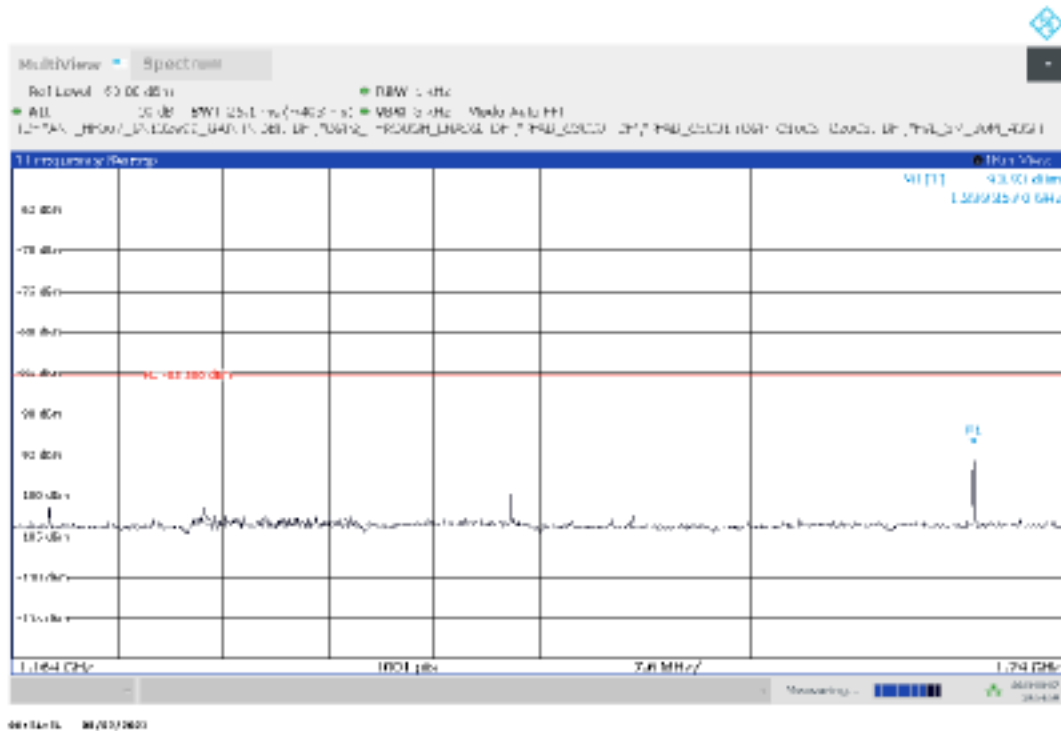


### 3.3.15 26500 MHz – 40000 MHz, Set-up 1, Op. 1, ANT VER

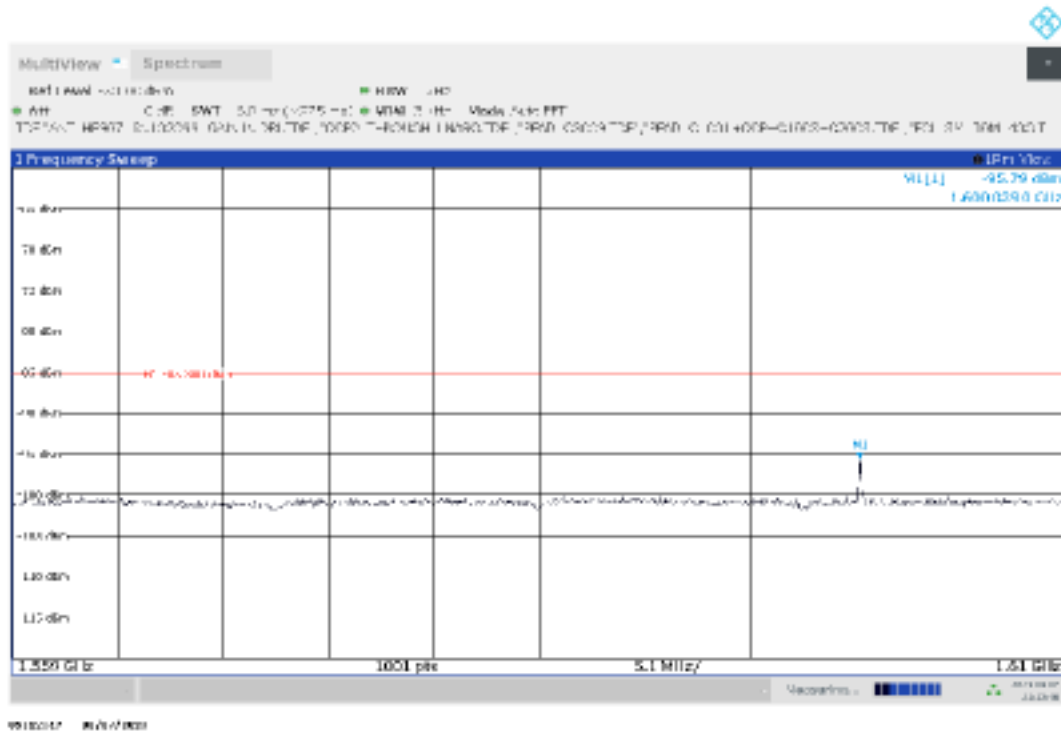


#### 4 FUNDAMENTAL EMISSIONS IN THE GPS BAND

#### 4.1 Frequency range 1164 MHz – 1240 MHz, Set-up 1, Op. 1

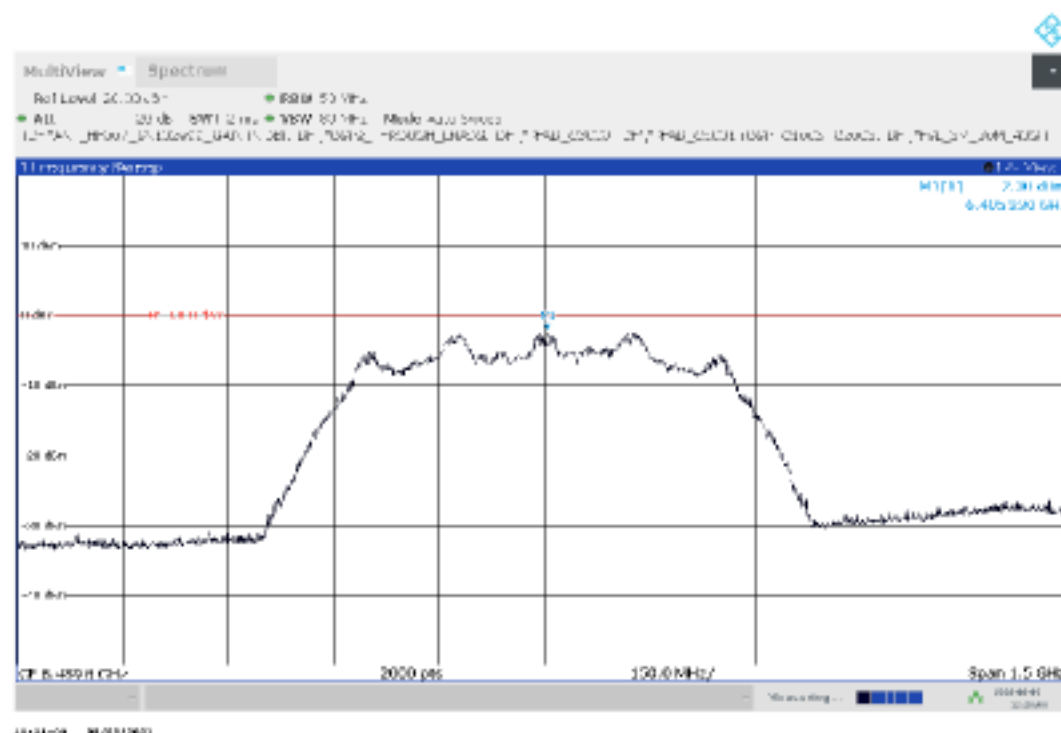


#### 4.2 Frequency range 1559 MHz – 1610 MHz, Set-up 1, Op. 1



## 5 FUNDAMENTAL EMISSION PEAK POWER

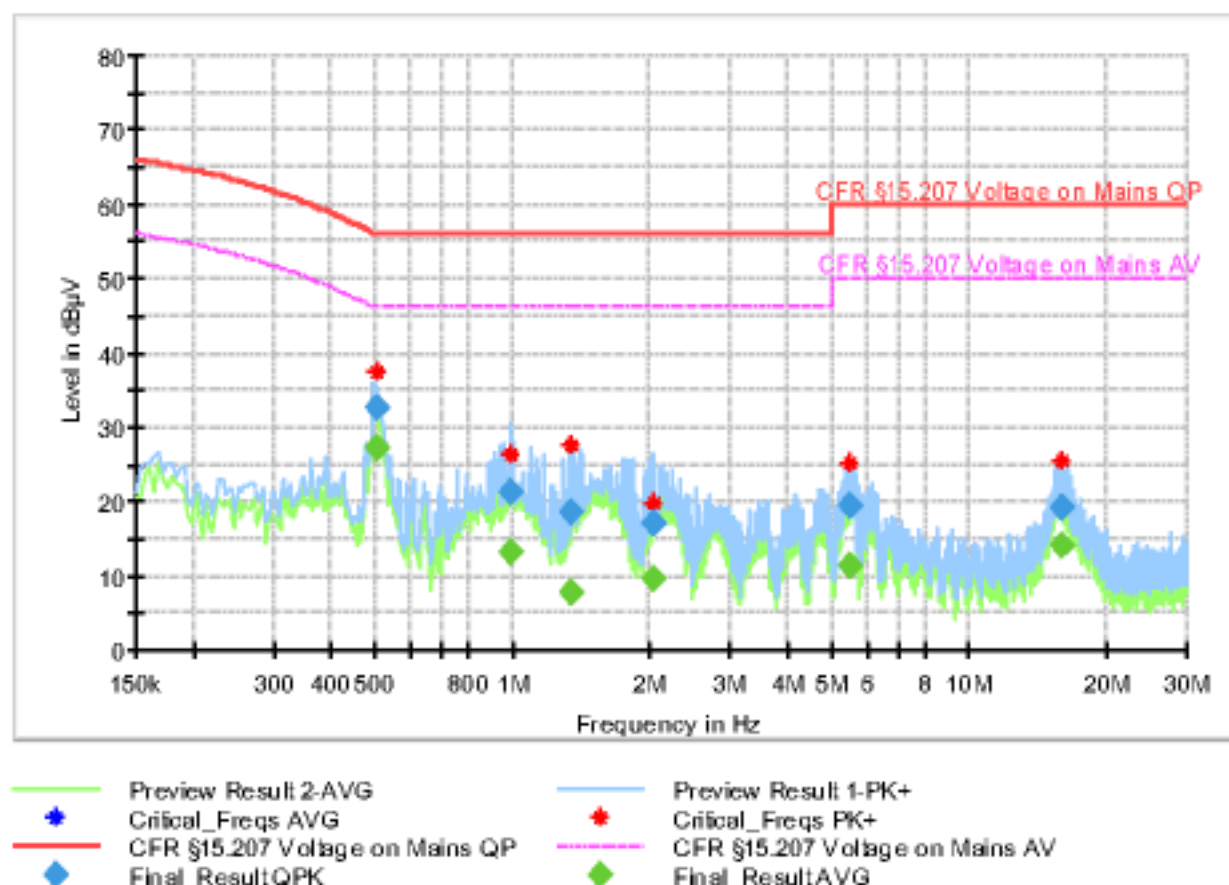
### 5.1 Set-up 1, Op. 1



## 6 Conducted emissions

### 6.1 Set-up 1, Op. 1, L1

Full Spectrum

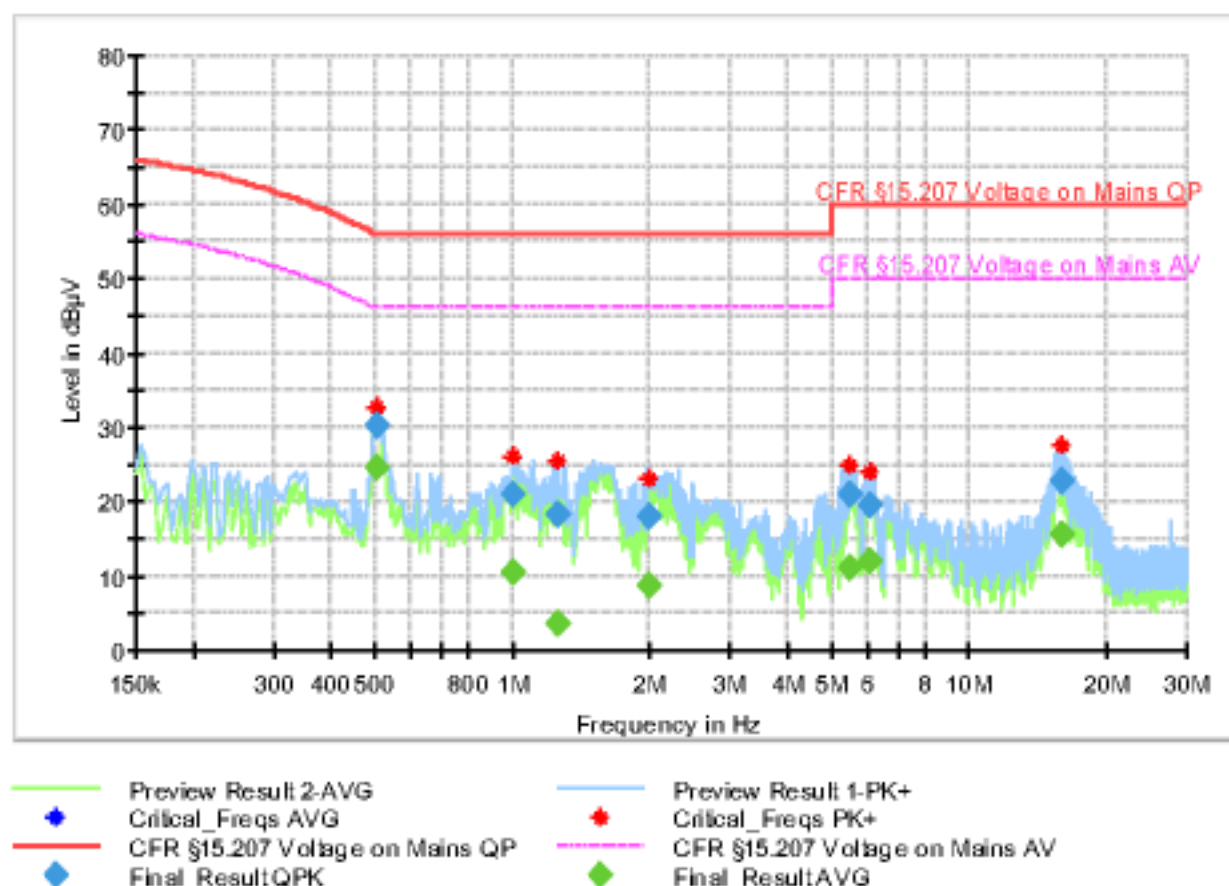


### Final Result

| Frequency (MHz) | QuasiPeak (dBµV) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Mess. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.504237        | ---              | 27.19          | 46.00        | 18.81       | 15000.0         | 9.000           | L1   | 10.1       |
| 0.904237        | 32.67            | ---            | 56.00        | 23.33       | 15000.0         | 9.000           | L1   | 10.1       |
| 0.996762        | ---              | 13.06          | 46.00        | 32.94       | 15000.0         | 9.000           | L1   | 9.9        |
| 0.996762        | 21.15            | ---            | 56.00        | 34.85       | 15000.0         | 9.000           | L1   | 9.9        |
| 1.341038        | ---              | 7.77           | 46.00        | 38.23       | 15000.0         | 9.000           | L1   | 9.9        |
| 1.341038        | 18.68            | ---            | 56.00        | 37.32       | 15000.0         | 9.000           | L1   | 9.9        |
| 2.030050        | ---              | 9.60           | 46.00        | 36.40       | 15000.0         | 9.000           | L1   | 9.9        |
| 2.030050        | 17.03            | ---            | 56.00        | 38.97       | 15000.0         | 9.000           | L1   | 9.9        |
| 5.500381        | ---              | 11.28          | 50.00        | 38.72       | 15000.0         | 9.000           | L1   | 10.0       |
| 5.500381        | 19.58            | ---            | 60.00        | 40.42       | 15000.0         | 9.000           | L1   | 10.0       |
| 15.891375       | ---              | 14.05          | 50.00        | 35.95       | 15000.0         | 9.000           | L1   | 10.4       |
| 15.891375       | 19.14            | ---            | 60.00        | 40.86       | 15000.0         | 9.000           | L1   | 10.4       |

## 6.2 Set-up 1, Op. 1, N

Full Spectrum



## Final\_Result

| Frequency (MHz) | QuasiPeak (dBµV) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Mess. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.505237        | ---              | 24.67          | 46.00        | 21.33       | 15000.0         | 9.000           | N    | 10.1       |
| 0.505237        | 30.28            | ---            | 56.00        | 25.72       | 15000.0         | 9.000           | N    | 10.1       |
| 1.004225        | ---              | 10.57          | 46.00        | 35.43       | 15000.0         | 9.000           | N    | 9.9        |
| 1.004225        | 21.05            | ---            | 56.00        | 34.95       | 15000.0         | 9.000           | N    | 9.9        |
| 1.261681        | ---              | 3.70           | 46.00        | 42.30       | 15000.0         | 9.000           | N    | 9.9        |
| 1.261681        | 18.20            | ---            | 56.00        | 37.80       | 15000.0         | 9.000           | N    | 9.9        |
| 1.986544        | ---              | 8.60           | 46.00        | 37.40       | 15000.0         | 9.000           | N    | 9.9        |
| 1.986544        | 17.94            | ---            | 56.00        | 38.06       | 15000.0         | 9.000           | N    | 9.9        |
| 5.493919        | ---              | 11.19          | 50.00        | 38.81       | 15000.0         | 9.000           | N    | 10.0       |
| 5.493919        | 20.83            | ---            | 60.00        | 39.17       | 15000.0         | 9.000           | N    | 10.0       |
| 6.079725        | ---              | 12.11          | 50.00        | 37.89       | 15000.0         | 9.000           | N    | 10.0       |
| 6.079725        | 19.34            | ---            | 60.00        | 40.66       | 15000.0         | 9.000           | N    | 10.0       |
| 15.936688       | ---              | 15.57          | 50.00        | 34.43       | 15000.0         | 9.000           | N    | 10.4       |
| 15.936688       | 22.81            | ---            | 60.00        | 37.19       | 15000.0         | 9.000           | N    | 10.4       |

## Annex B

External photographs of EUT

part of / in addition to

**Test report no.:** 23058741-34055-1

## Table of contents

|                                   |   |
|-----------------------------------|---|
| 1. EUT external photographs ..... | 3 |
|-----------------------------------|---|

Annex B of TR no.: 23058741-34055-1

## 1. EUT external photographs

Photograph 1: EUT A, view 1



Photograph 2: EUT A, view 2



**Annex B** of TR no.: 23058741-34055-1

Photograph 3: EUT B, view 1



Photograph 4: EUT B, view 2



**Annex B** of TR no.: 23058741-34055-1

Photograph 5: AE 1, view 1

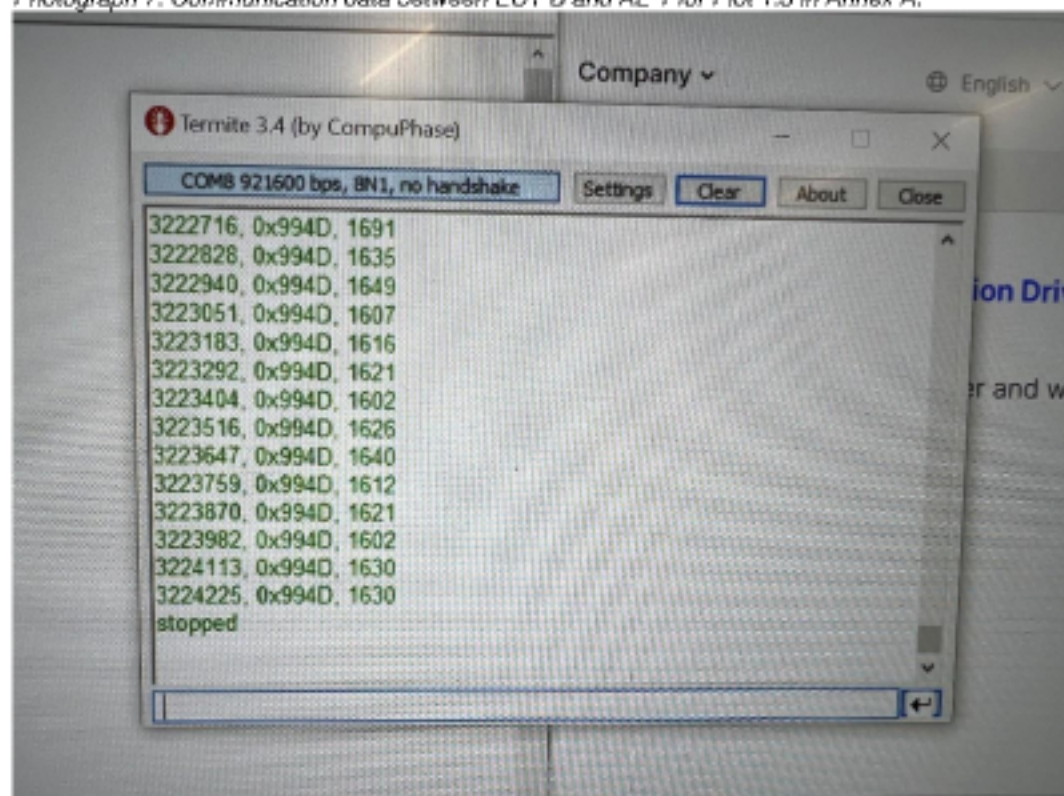


Photograph 6: AE 1, view 2



# Annex B of TR no.: 23058741-34055-1

Photograph 7: Communication data between EUT B and AE 1 for Plot 1.3 in Annex A.



## Annex C

Test setup photographs

part of / in addition to

**Test report no.:** 23058741-34055-1

## Table of contents

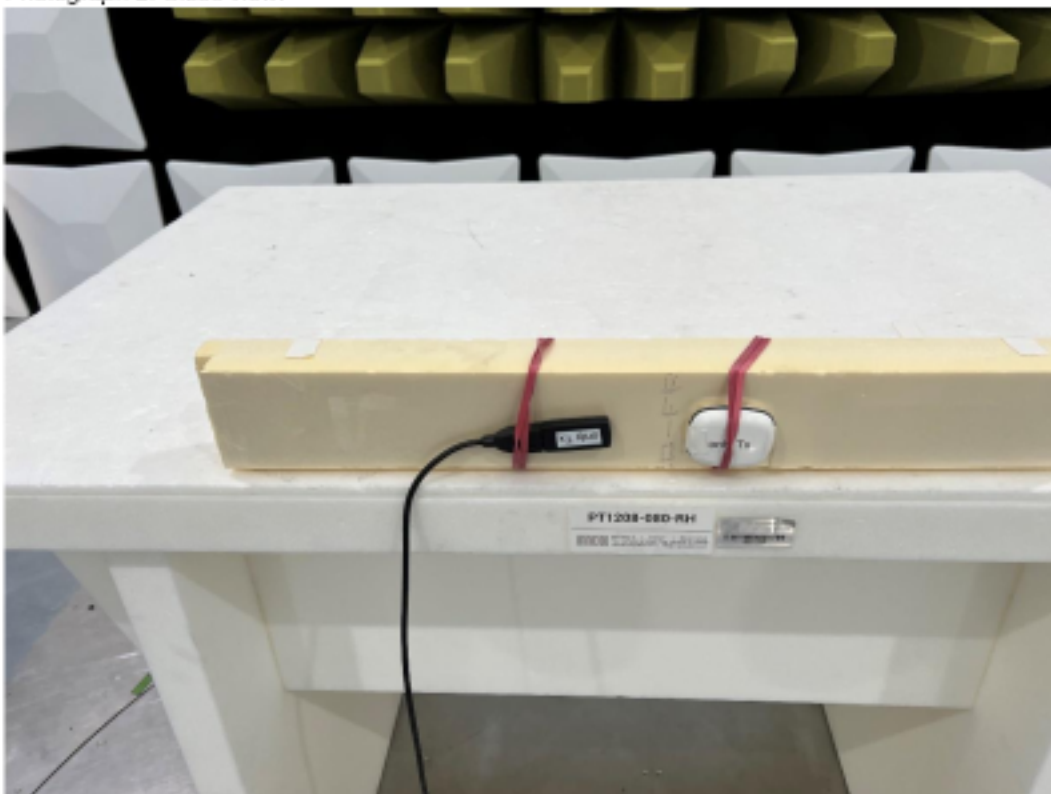
|                                                                                  |   |
|----------------------------------------------------------------------------------|---|
| 1. Measurements in frequency range $f < 30$ MHz .....                            | 3 |
| 2. Measurements in frequency range $30 \text{ MHz} < f < 1000 \text{ MHz}$ ..... | 4 |
| 3. Measurements in frequency range $1 \text{ GHz} < f < 40 \text{ GHz}$ .....    | 5 |
| 4. Conducted emissions .....                                                     | 6 |
| 5. Indoor operation.....                                                         | 9 |

## 1. Measurements in frequency range $f < 30$ MHz

Photograph 1: Overall view.



Photograph 2: Close view.

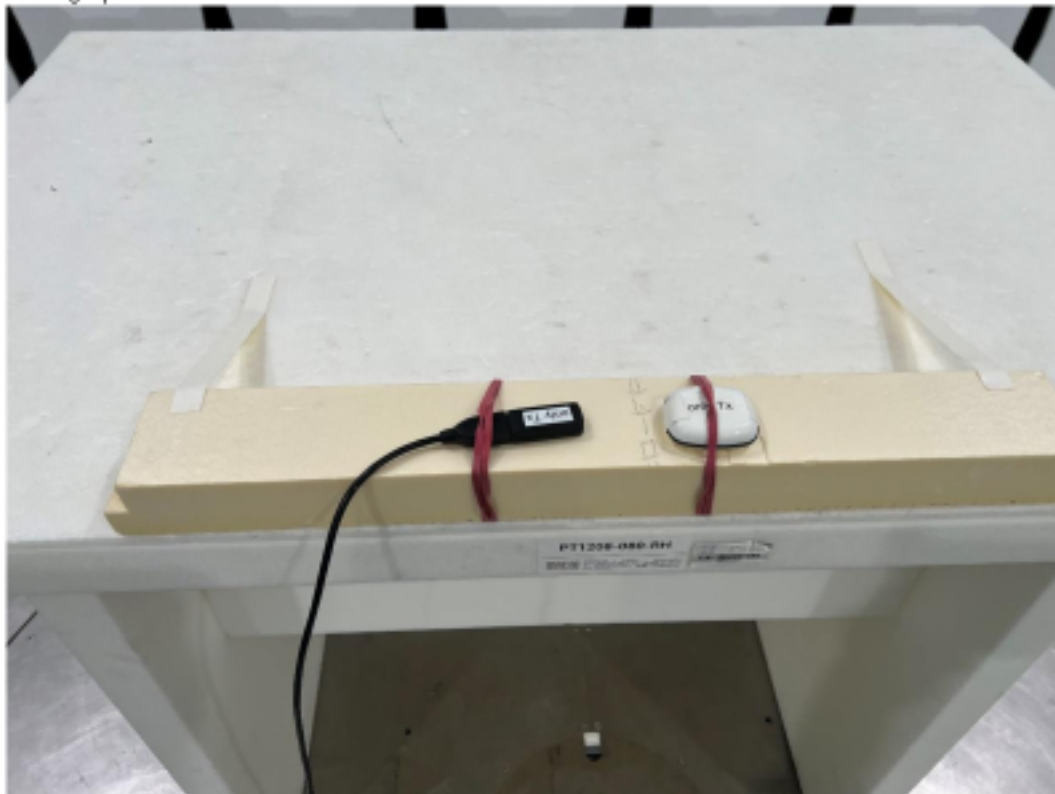


## 2. Measurements in frequency range $30 \text{ MHz} < f < 1000 \text{ MHz}$

Photograph 3: Overall view.



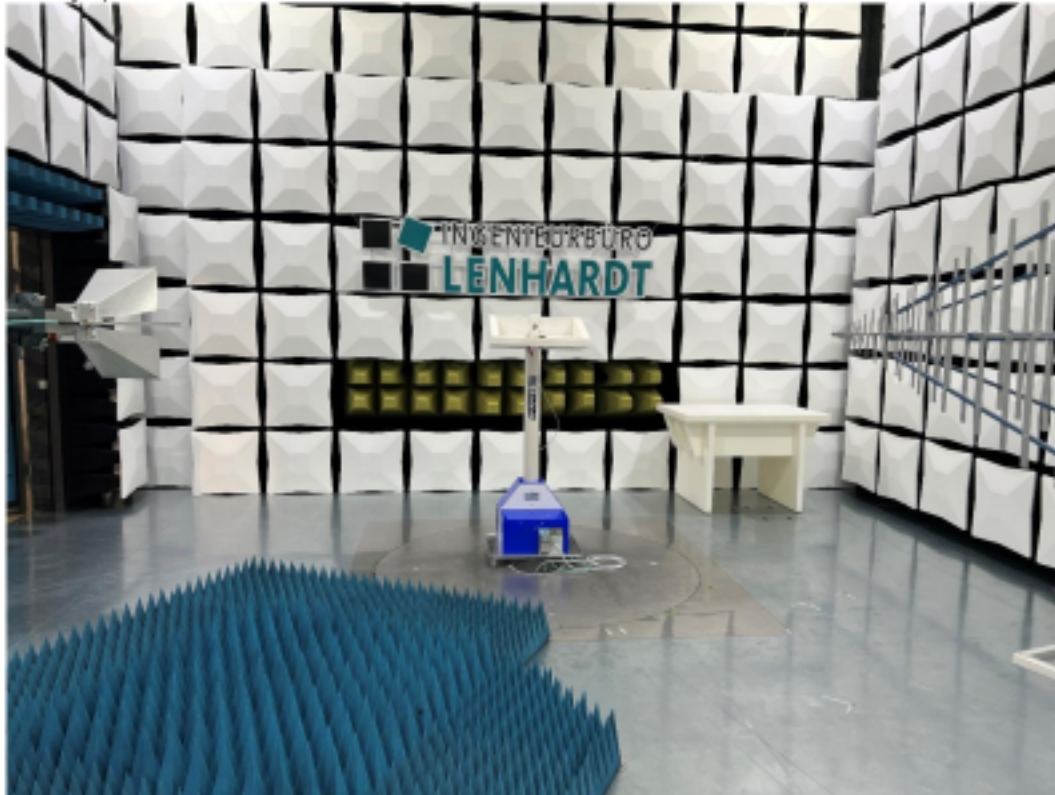
Photograph 4: Close view 1.



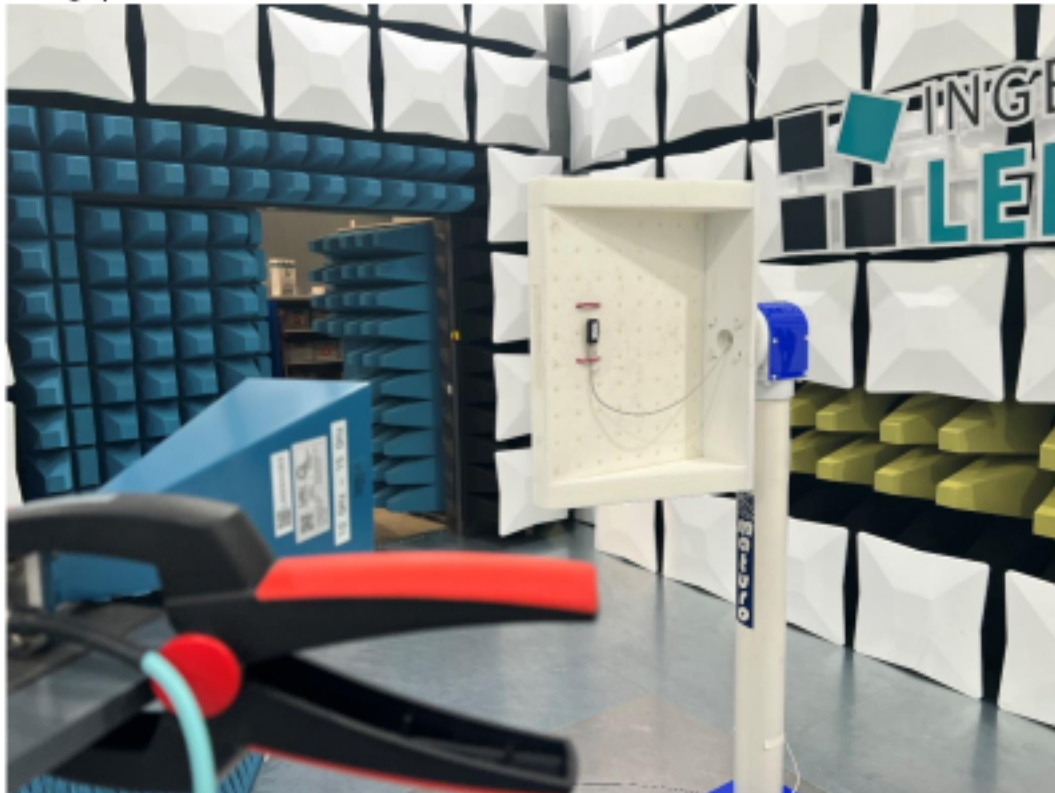
Annex C of TR no.: 23058741-34055-1

### 3. Measurements in frequency range $1 \text{ GHz} < f < 40 \text{ GHz}$

Photograph 5: Overall view 1.

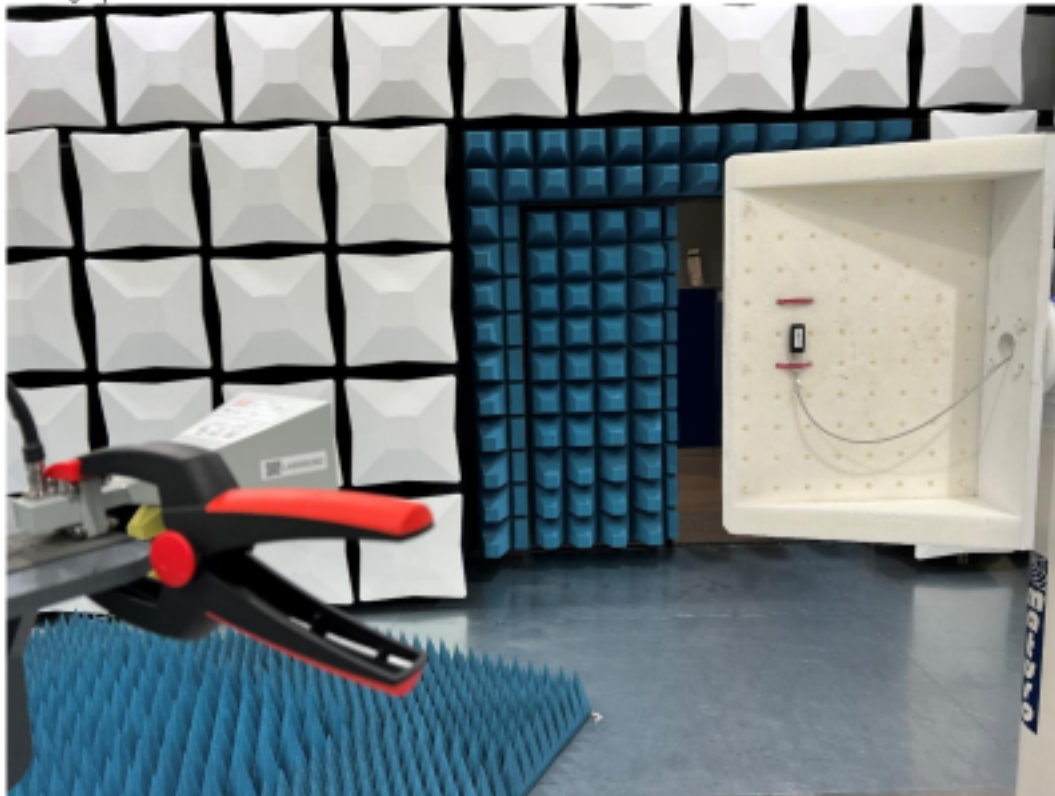


Photograph 6: Overall view 2.



**Annex C** of TR no.: 23058741-34055-1

*Photograph 7: Overall view 3.*

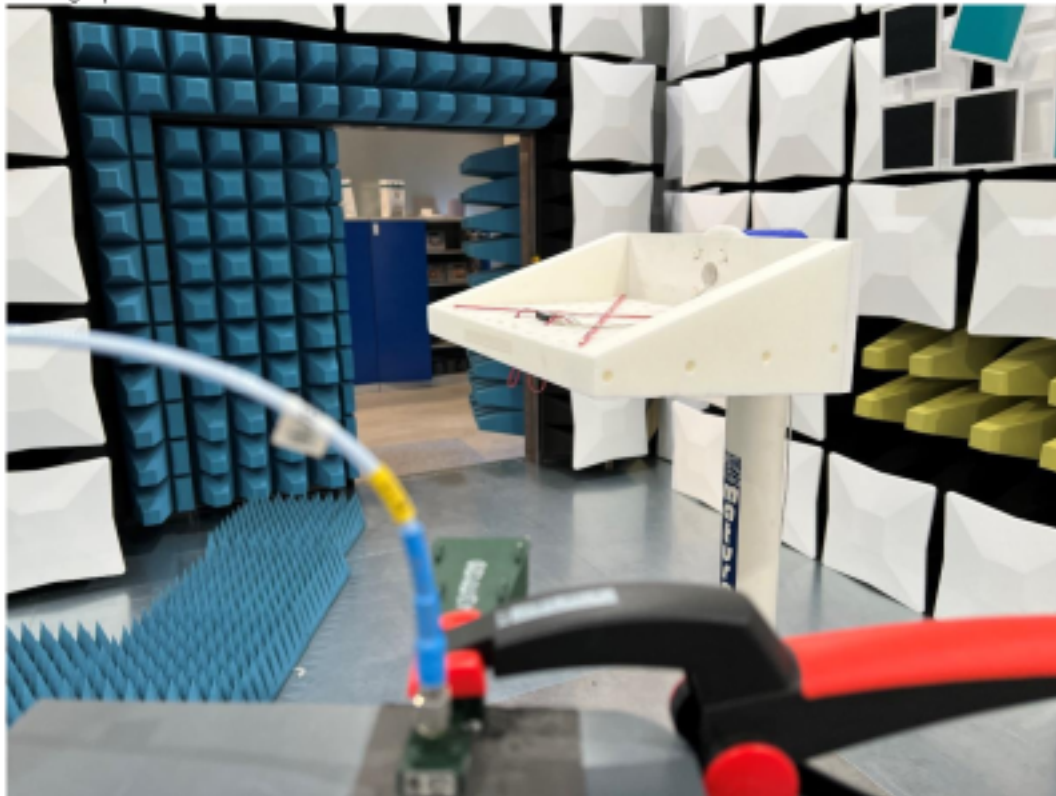


*Photograph 8: Overall view 4.*



**Annex C** of TR no.: 23058741-34055-1

Photograph 9: Overall view 5.



Photograph 10: Close view.

