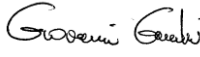





| <b>TEST REPORT nr. R15143201</b>              |  |
|---|--|
| <b>Federal Communication Commission (FCC)</b> |  |
| <b>Test item</b>                              |  |
| Description.....:                             | TRANSCEIVER UNIT   |
| Trademark.....:                               | AUTEC  |
| Model/Type.....:                              | Model LKN Type LA2EM   |
| FCC ID.....:                                  | OQA-LKNLA2EM   |
| <b>Test Specification</b>                     |  |
| Standard.....:                                | FCC Rules & Regulations, Title 47:2014<br>Part 15 paragraph(s): 203, 204, 207, 209 and 249                                   |
| <b>Client's name</b> .....:                   | AUTEC S.r.l.   |
| Address.....:                                 | Via Pomaroli, 65 – 36030 Caldogno (VI) – ITALY   |
| <b>Manufacturer's name</b> :                  | Same as client   |
| Address.....:                                 | --   |
| <b>Report</b>                                 |  |
| Tested by.....:                               | G. Gandini – <i>Technician</i>           |
| Approved by.....:                             | R. Beghetto – <i>Laboratory Manager</i>  |
| Date of issue.....:                           | 16.12.15   |
| Contents.....:                                | 41 pages   |

This test report shall not be reproduced except in full without the written approval of CMC.  
 The test results presented in this report relate only to the item tested.

CMC Centro Misure Compatibilità S.r.l.



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## 1. Summary

*Standard:*

FCC Rules & Regulations, Title 47:2014  
 Part 15 paragraph(s): 203, 204, 207, 209 and 249

| Test specifications    | Environmental Phenomena | Tests sequence | Result   |
|------------------------|-------------------------|----------------|----------|
| Part 15.203            | Antenna requirements    | 1              | Complies |
| Part 15.207            | Conducted emissions     | --             | N.A. (+) |
| Part 15.209            | Radiated emissions      | 2              | Complies |
| Part 15.209 and 15.249 | Peak Output Power       | 3              | Complies |
| Part 15.249 (d)        | Band edge               | 4              | Complies |
| Part 15.209            | Spurious emission       | 5              | Complies |

(+) Devices which only employ battery power. See FCC Part 15.207 (c)

The Test Report was given to the Client representatives for necessary documentation of ratification of the tested equipment and it is valid for the FCC certification





## 5. Photograph(s) of EUT

### 5.1 Photograph(s) of EUT





## 6. Equipment list

| <i>Id. number</i> | <i>Manufacturer</i> | <i>Model</i> | <i>Description</i>        | <i>Serial number</i> | <i>Last calibration</i> | <i>Due date calibration</i> |
|-------------------|---------------------|--------------|---------------------------|----------------------|-------------------------|-----------------------------|
| CMC S010          | Rohde & Schwarz     | ESH3-Z2      | Impulses Limiting Device  | ---                  | January '15             | January '16                 |
| CMC S108          | EMCO                | 3115         | Horn Antenna              | 9811-5622            | May '13                 | May '16                     |
| CMC S127          | Schaffner           | HLA6120      | Loop Antenna              | 1191                 | January '13             | January '16                 |
| CMC S136          | Schwarzbeck         | VULB 9163    | Broadband Antenna         | 9136-205             | May '13                 | May '16                     |
| CMC S164          | Rohde & Schwarz     | ESU26        | EMC interference receiver | 100052               | January '15             | January '16                 |
| CMC S200          | Schwarzbeck         | NSLK 8128    | V-LISN                    | 8128-273             | January '15             | January '16                 |
| CMC S227          | Rohde & Schwarz     | ESR7         | EMI Test Receiver 7GHz    | 101121               | January '15             | January '16                 |



## 7. Measurement uncertainty

| Test  | Expanded Uncertainty | note |
|---|----------------------|------|
| <b>Conducted Emission</b>   |                      |      |
| (50Ω/50μH AMN) - (9 kHz – 150 kHz)                                  | ±3.6 dB              | 1    |
| (50Ω/50μH AMN) - (150 kHz – 30 MHz)                                 | ±3.0 dB              | 1    |
| (Voltage probe) - (150 kHz – 30 MHz)                                | ±2.8 dB              | 1    |
| (50Ω/5μH AMN) - (150 kHz – 108 MHz)                                 | ±2.6 dB              | 1    |
| <b>Discontinuous Conducted Emission</b>                             |                      |      |
| Conducted Emission (50Ω/50μH AMN) - (150 kHz – 30 MHz)              | ±3.0 dB              | 1    |
| <b>Disturbance Power (30 MHz – 300 MHz)</b>                         |                      |      |
|   | ±3.7 dB              | 1    |
| <b>Radiated Emission</b>  |                      |      |
| (0,150 MHz – 30 MHz)  | ±4.0 dB              | 1    |
| (30 MHz – 1000 MHz)   | ±4.3 dB              | 1    |
| (1 GHz – 6 GHz)   | ±4.5 dB              | 1    |
| <b>Electromagnetic field EMF</b>                                    |                      |      |
|   | ±10.5 %              | 1    |
| <b>Harmonic current emissions test</b>                              |                      |      |
|   | ±1.8 %               | 1    |
| <b>Voltage fluctuation and flicker test</b>                         |                      |      |
|   | ±2.6 %               | 1    |
| <b>Insertion loss test</b>  |                      |      |
|   | ±2.0 dB              | 1    |
| <b>Radiated electromagnetic disturbance test (loop antenna)</b>     |                      |      |
|   | ±2.1 dB              | 1    |
| <b>Radiated electromagnetic field immunity test</b>                 |                      |      |
|   | 0.81 V/m at 3V/m     | 1    |
| <b>Pulse modulated radiated electromagnetic field immunity test</b> |                      |      |
|   | 0.81 V/m at 3V/m     | 1    |
| <b>Injected currents immunity test</b>                              |                      |      |
|   | 0.45 V at 3V         | 1    |
| <b>Bulk current</b>   |                      |      |
|   | 3.7 mA at 60 mA      | 1    |
| <b>Power frequency magnetic field immunity test</b>                 |                      |      |
|   | 0.1 A/m at 10 A/m    | 1    |
| <b>Effective radiated power (F &lt; 1GHz)</b>                       |                      |      |
|   | ±4.3 dB              | 1    |
| <b>Effective radiated power (F &gt; 1GHz)</b>                       |                      |      |
|   | ±3.7 dB              | 1    |
| <b>Frequency error</b>  |                      |      |
|   | < 1x10 <sup>-7</sup> | 1    |
| <b>Modulation bandwidth</b>   |                      |      |
|   | < 1x10 <sup>-7</sup> | 1    |
| <b>Conducted RF power and spurious emission</b>                     |                      |      |
|   | ±0.7 dB              | 1    |
| <b>Adjacent channel power</b>                                       |                      |      |
|   | ±1.2 dB              | 1    |
| <b>Blocking</b>   |                      |      |
|   | ±1.2 dB              | 1    |
| <b>Electrostatic discharge immunity test</b>                        |                      |      |
|   |                      | 2    |
| <b>Electrical fast transients / burst immunity test</b>             |                      |      |
|   |                      | 2    |
| <b>Surge immunity test</b>  |                      |      |
|   |                      | 2    |
| <b>Pulse magnetic field immunity test</b>                           |                      |      |
|   |                      | 2    |
| <b>Damped oscillatory magnetic field immunity test</b>              |                      |      |
|   |                      | 2    |
| <b>Short interruption immunity test</b>                             |                      |      |
|   |                      | 2    |
| <b>Voltage transient emission test</b>                              |                      |      |
|   | ±2.2 %               | 1    |
| <b>Transient immunity test</b>                                      |                      |      |
|   |                      | 2    |

### Notes

#### Note 1:

The expanded uncertainty reported according to EN55016-4-2:2011 is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of p = 95%

#### Note 2:

It has been demonstrated that the used test equipment meets the specified requirements in the standard with at least a 95% confidence, covering factor k = 2.



## 8. Reference documents

| Reference no.                                      | Description  |
|--|--|
| FCC Rules and Regulation Title 47 part 15:2014     | --   |
| ANSI C63.4:2009                                    | American National Standard for Methods of Measuring of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz – 40 GHz |
| ANSI C63.10:2013                                   | American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices   |
| Internal Procedure PM001 rev. 2.0 (Quality Manual) | Measure Procedure  |
| Internal procedure INC_M rev. 8.2 (Quality Manual) | Measurement uncertainty calculation  |





## 9. Deviation from test specification

In agreement with the client, emission tests were performed with peak detector.

At the frequencies where the measures exceed the limit or within 6 dB from it, the test was repeated with quasi-peak detector and/or average detector.

## 10. Test case verdicts

Test case does not apply to the test object..... : N.A.

Test item does meet the requirement..... : Complies

Test item does not meet the requirement..... : Does not comply

Test not performed ..... : N.E.

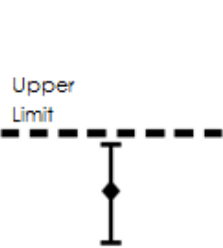
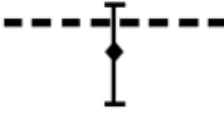
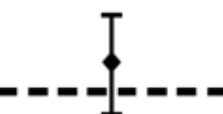



## 11. Results

In this clause tests results are reported.

Measurement uncertainty is in accordance with document CMC INC\_M rev. 8.2.

Judgement of compliance:

| Case 1  | Case 2   | Case 3   | Case 4  |
|---|--|--|---|
|  <p>The sample complies with the requirement.</p> <p>The measurement results is within the specification limit when the measurement uncertainty is taken into account.</p> |  <p>The sample complies with the requirement.</p> <p>It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty although the measurement result is below the limit.</p> |  <p>The sample does not comply with the requirement.</p> <p>It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty also the measurement result is upper the limit.</p> |  <p>The sample does not comply with the requirement.</p> <p>The measurement results is outside the specification limit when the measurement uncertainty is taken into account.</p> |

In agreement with ILAC-G8: 03/2009 Guidelines on the Reporting of Compliance with Specification.

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## 11.1 Antenna requirements

### Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.203 and 15.204
- Internal procedure PM001
- See clause 4 of this test report

### Test configuration and test method

Test site:  
Laboratory

Auxiliary equipment:  
See clause 4 of this test report

### EUT exercising

See clause 4 of this test report

### Test equipment used

--  
Measurement uncertainty: See clause 7 of this test report

### Test specification

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31 (d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded

### Environmental conditions

| Temperature<br>(°C) | Atmospheric pressure<br>(kPa) | Relative humidity<br>(%) |
|---------------------|-------------------------------|--------------------------|
| 22                  | 100                           | 45                       |

### Result

| Antenna Type     | External R.F.<br>power amplifier | Gain | Remarks | Results  |
|------------------|----------------------------------|------|---------|----------|
| Integral antenna | Not Present                      | --   | --      | Complies |

**Result:** The requirements are met



## 11.2 Radiated emissions

### Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part. 15.209
- Internal procedure PM001
- See clause 4 of this test report

### Test configuration and test method

*Test site:*  
Semi-anechoic chamber

*Auxiliary equipment:*  
See clause 4 of this test report

### EUT exercising

See clause 4 of this test report

### Test equipment used

CMC S108, CMC S127, CMC S136, CMC S164  
Measurement uncertainty: See clause 7 of this test report

### Test specification

Port: Enclosure  
Frequency range: 0,009 MHz – 1000 MHz  
Antenna polarization: Horizontal (H) – Vertical (V)  
EUT – Antenna distance: 3 m

### Environmental conditions

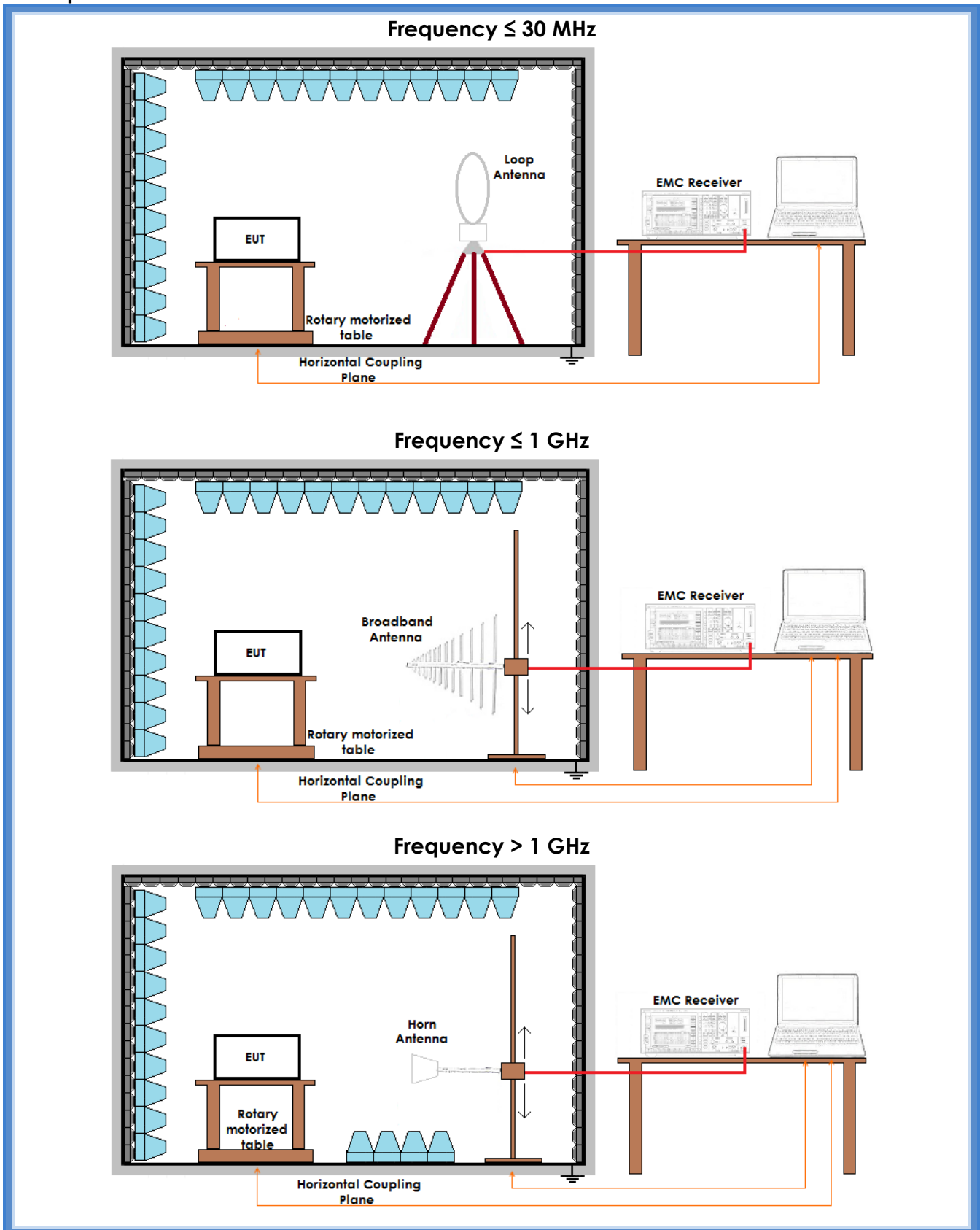
| Temperature<br>(°C) | Atmospheric pressure<br>(kPa) | Relative humidity<br>(%) |
|---------------------|-------------------------------|--------------------------|
| 24                  | 100                           | 55                       |

### Acceptance limits

| Frequency range<br>(MHz) | Limits<br>[dB(μV/m)] |
|--------------------------|----------------------|
| 0,009 to 0,490           | 128,51 to 93,80      |
| 0,490 to 1,705           | 73,80 to 62,97       |
| 1,705 to 30              | 69,54                |
| 30 to 88                 | 40                   |
| 88 to 216                | 43,52                |
| 216 to 960               | 46,02                |
| Above 960                | 53,98                |

**Remarks:** The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

## Setup





## Result

| Polarization | Frequency Range (MHz) | Graphs    | Remarks         | Result   |
|--------------|-----------------------|-----------|-----------------|----------|
| Loop         | 0,009 – 30            | G15143223 | Worst case      | Complies |
| V            | 30 – 1000             | G15143217 | Lowest channel  | Complies |
| H            | 30 – 1000             | G15143218 | Lowest channel  | Complies |
| V            | 30 – 1000             | G15143220 | Medium channel  | Complies |
| H            | 30 – 1000             | G15143219 | Medium channel  | Complies |
| V            | 30 – 1000             | G15143221 | Highest channel | Complies |
| H            | 30 – 1000             | G15143222 | Highest channel | Complies |
| V            | 1000 – 10000          | G15143224 | Worst case      | Complies |
| H            | 1000 – 10000          | G15143225 | Worst case      | Complies |

Remarks: --

### Graphs Legend

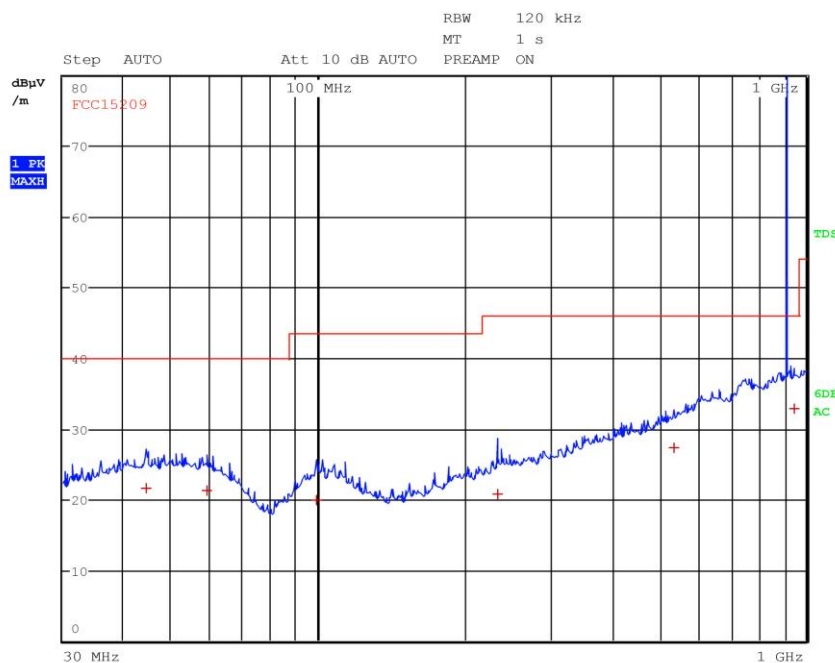
PK: Peak; QP [1s] (quasi-peak at 1 second) values are marked with a +  
 AV: Average; AV [1s] (average at 1 second) values are marked with a x



Graphs

G15143217

Meas Type Emission  
 Equipment under Test  
 Manufacturer  
 OP Condition Tx - Fmin  
 Operator Gandini 15143217  
 Test Spec  
 Vert



Final Measurement

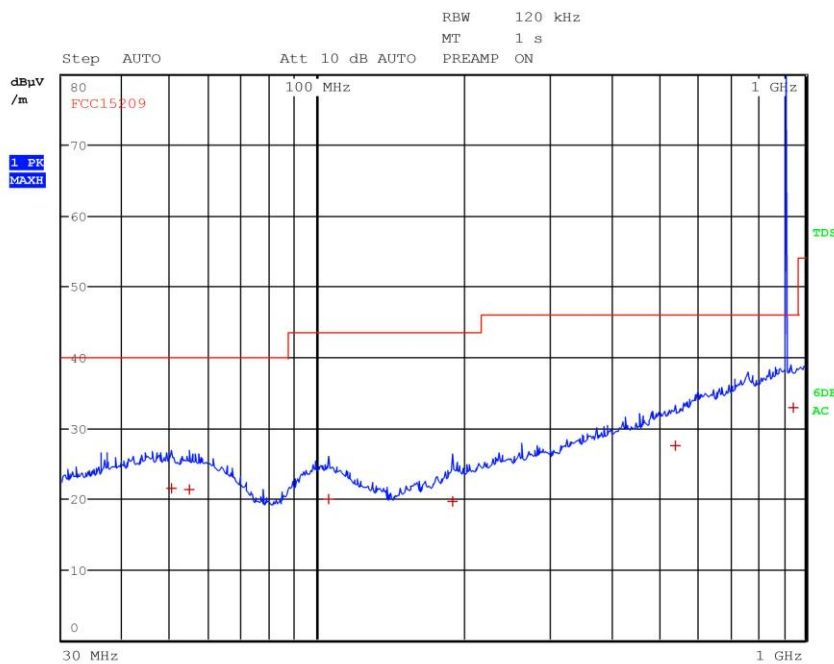
Meas Time: 1 s  
 Margin: 20 dB  
 Subranges: 6

| Trace | Frequency         | Level (dBµV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 44.320000000 MHz  | 21.59          | Quasi Peak | -18.41         |
| 1     | 59.200000000 MHz  | 21.26          | Quasi Peak | -18.74         |
| 1     | 99.000000000 MHz  | 19.91          | Quasi Peak | -23.61         |
| 1     | 233.560000000 MHz | 20.82          | Quasi Peak | -25.20         |
| 1     | 537.000000000 MHz | 27.34          | Quasi Peak | -18.68         |
| 1     | 947.160000000 MHz | 32.80          | Quasi Peak | -13.22         |



G15143218

**Meas Type** Emission  
**Equipment under Test**  
**Manufacturer**  
**OP Condition** Tx - Fmin  
**Operator** Gandini 15143218  
**Test Spec**  
 Horiz



**Final Measurement**

Meas Time: 1 s  
 Margin: 20 dB  
 Subranges: 6

| Trace | Frequency         | Level (dBµV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 50.240000000 MHz  | 21.48          | Quasi Peak | -18.52         |
| 1     | 54.640000000 MHz  | 21.20          | Quasi Peak | -18.80         |
| 1     | 105.640000000 MHz | 19.97          | Quasi Peak | -23.55         |
| 1     | 189.920000000 MHz | 19.52          | Quasi Peak | -24.00         |
| 1     | 542.560000000 MHz | 27.40          | Quasi Peak | -18.62         |
| 1     | 947.720000000 MHz | 32.85          | Quasi Peak | -13.17         |

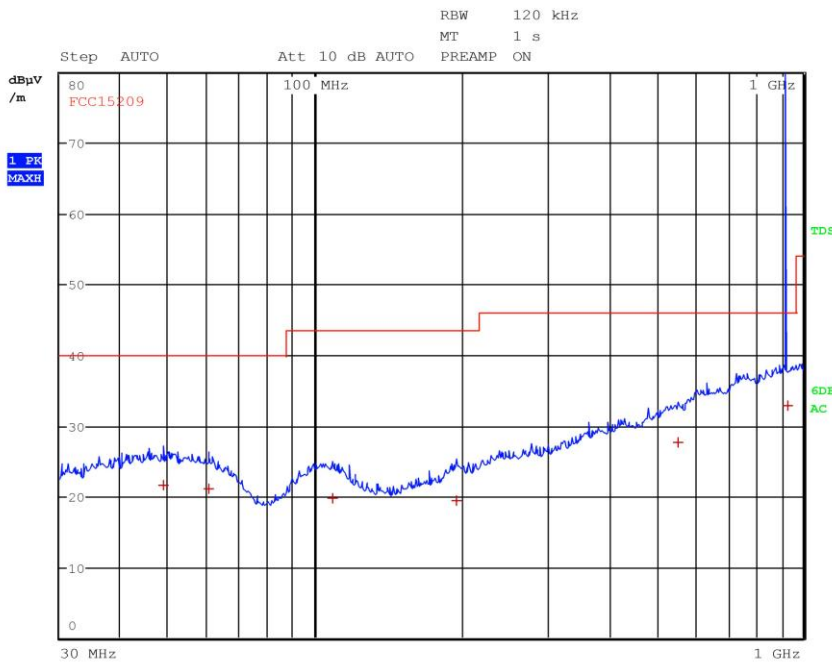
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G15143219

**Meas Type** Emission  
**Equipment under Test**  
**Manufacturer**  
**OP Condition** Tx - Fmid  
**Operator** Gandini 15143219  
**Test Spec**  
 Horiz



**Final Measurement**

Meas Time: 1 s  
 Margin: 20 dB  
 Subranges: 6

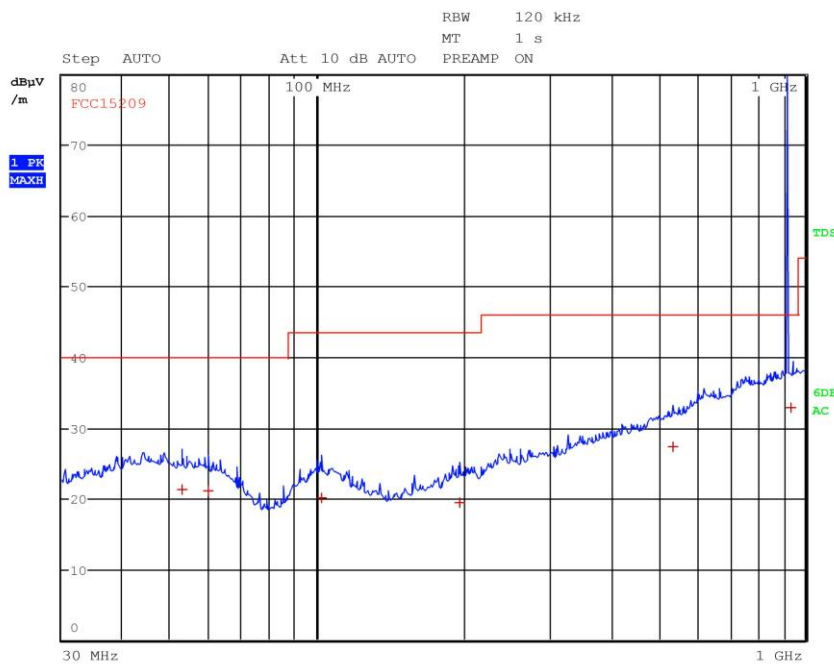
| Trace | Frequency         | Level (dBµV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 48.760000000 MHz  | 21.58          | Quasi Peak | -18.42         |
| 1     | 60.560000000 MHz  | 21.08          | Quasi Peak | -18.92         |
| 1     | 108.480000000 MHz | 19.76          | Quasi Peak | -23.76         |
| 1     | 195.320000000 MHz | 19.43          | Quasi Peak | -24.09         |
| 1     | 553.840000000 MHz | 27.70          | Quasi Peak | -18.32         |
| 1     | 926.920000000 MHz | 32.88          | Quasi Peak | -13.14         |

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G15143220

**Meas Type** Emission  
**Equipment under Test**  
**Manufacturer**  
**OP Condition** Tx - Fmid  
**Operator** Gandini 15143220  
**Test Spec**  
 Vert



**Final Measurement**

Meas Time: 1 s  
 Margin: 20 dB  
 Subranges: 6

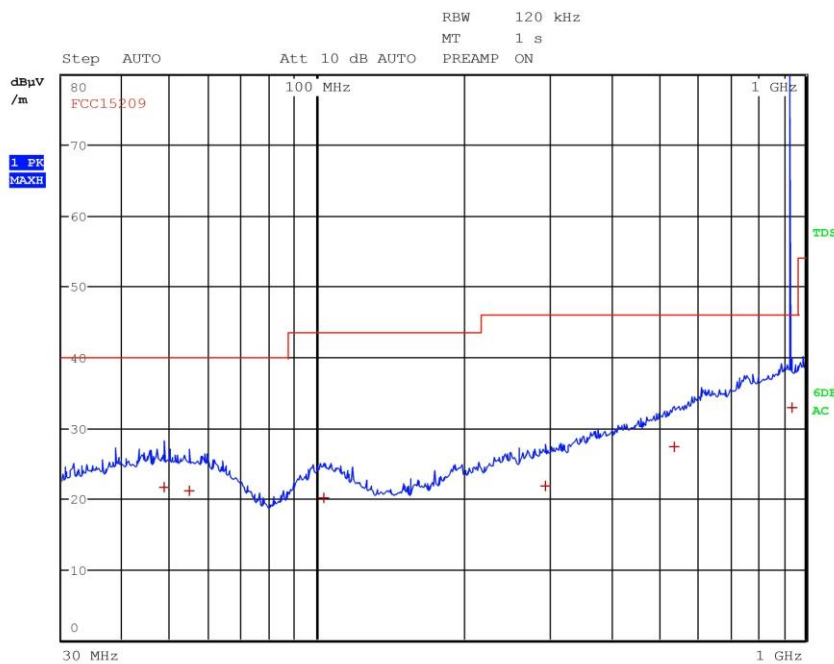
| Trace | Frequency         | Level (dBµV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 52.920000000 MHz  | 21.33          | Quasi Peak | -18.67         |
| 1     | 60.000000000 MHz  | 21.13          | Quasi Peak | -18.87         |
| 1     | 102.240000000 MHz | 20.07          | Quasi Peak | -23.45         |
| 1     | 196.240000000 MHz | 19.44          | Quasi Peak | -24.08         |
| 1     | 535.520000000 MHz | 27.30          | Quasi Peak | -18.72         |
| 1     | 935.160000000 MHz | 32.80          | Quasi Peak | -13.22         |

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G15143221

**Meas Type** Emission  
**Equipment under Test**  
**Manufacturer**  
**OP Condition** Tx - Fmax  
**Operator** Gandini 15143221  
**Test Spec**  
 Vert



**Final Measurement**

Meas Time: 1 s  
 Margin: 20 dB  
 Subranges: 6

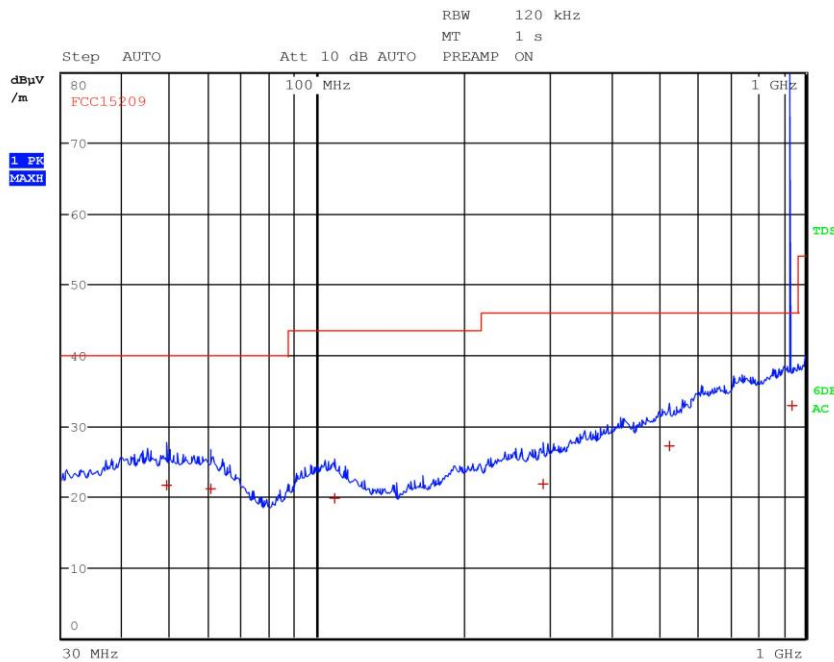
| Trace | Frequency         | Level (dBµV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 48.600000000 MHz  | 21.64          | Quasi Peak | -18.36         |
| 1     | 54.800000000 MHz  | 21.15          | Quasi Peak | -18.85         |
| 1     | 103.400000000 MHz | 20.03          | Quasi Peak | -23.49         |
| 1     | 293.640000000 MHz | 21.79          | Quasi Peak | -24.23         |
| 1     | 538.920000000 MHz | 27.37          | Quasi Peak | -18.65         |
| 1     | 940.360000000 MHz | 32.88          | Quasi Peak | -13.14         |

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G15143222

**Meas Type** Emission  
**Equipment under Test**  
**Manufacturer**  
**OP Condition** Tx - Fmax  
**Operator** Gandini 15143222  
**Test Spec**  
 Horiz



**Final Measurement**

Meas Time: 1 s  
 Margin: 20 dB  
 Subranges: 6

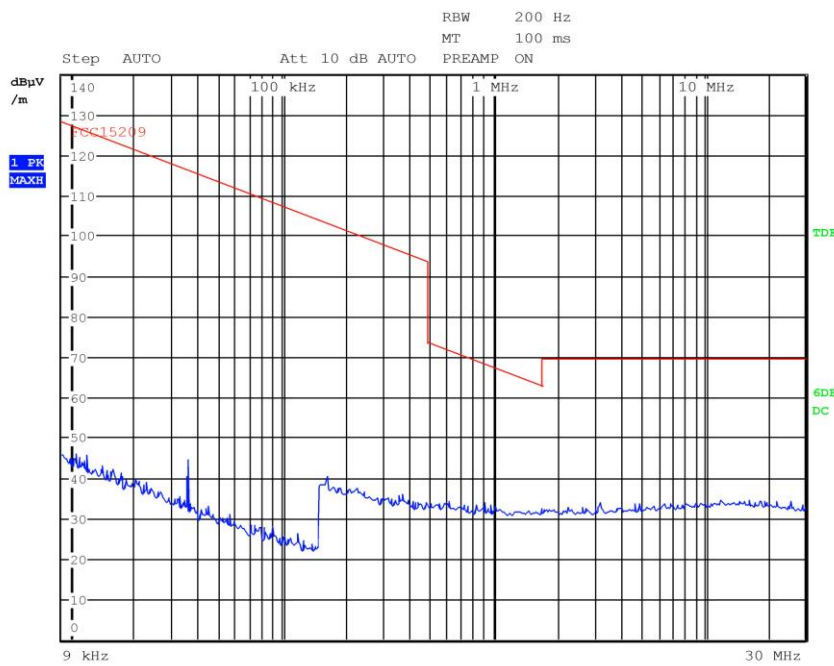
| Trace | Frequency         | Level (dBµV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 49.160000000 MHz  | 21.61          | Quasi Peak | -18.39         |
| 1     | 60.400000000 MHz  | 21.07          | Quasi Peak | -18.93         |
| 1     | 108.800000000 MHz | 19.74          | Quasi Peak | -23.78         |
| 1     | 290.400000000 MHz | 21.77          | Quasi Peak | -24.25         |
| 1     | 528.360000000 MHz | 27.18          | Quasi Peak | -18.84         |
| 1     | 938.640000000 MHz | 32.86          | Quasi Peak | -13.16         |

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G15143223

**Meas Type** Emission  
**Equipment under Test**  
**Manufacturer**  
**OP Condition** Tx-Rx  
**Operator** Gandini 15143223  
**Test Spec**  
 Loop



**Final Measurement**

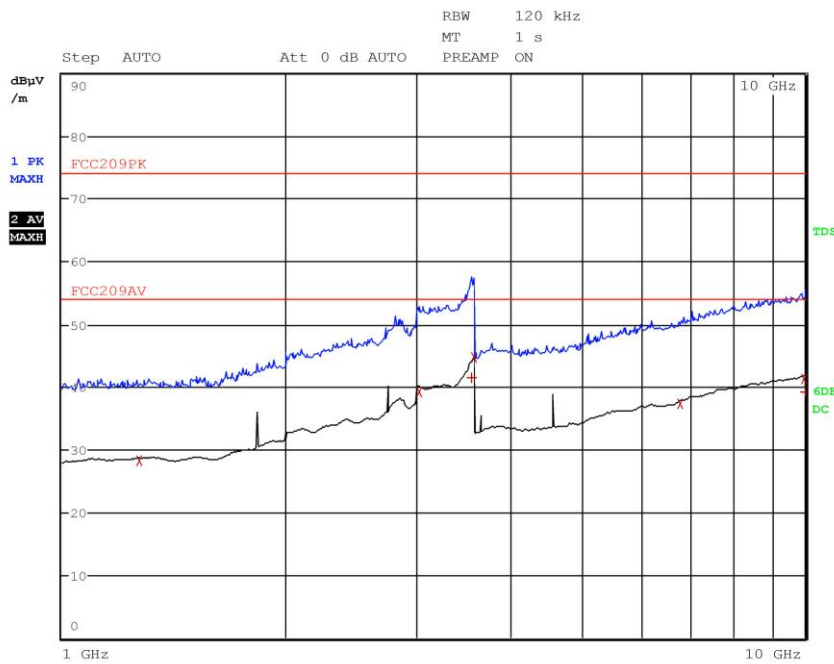
Meas Time: 1 s  
 Margin: 20 dB  
 Subranges: 0

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G15143224

**Meas Type** Emission  
**Equipment under Test**  
**Manufacturer**  
**OP Condition** Tx-Rx  
**Operator** Gandini 15143224  
**Test Spec**  
 Vert



**Final Measurement**

Meas Time: 1 s  
 Margin: 20 dB  
 Subranges: 7

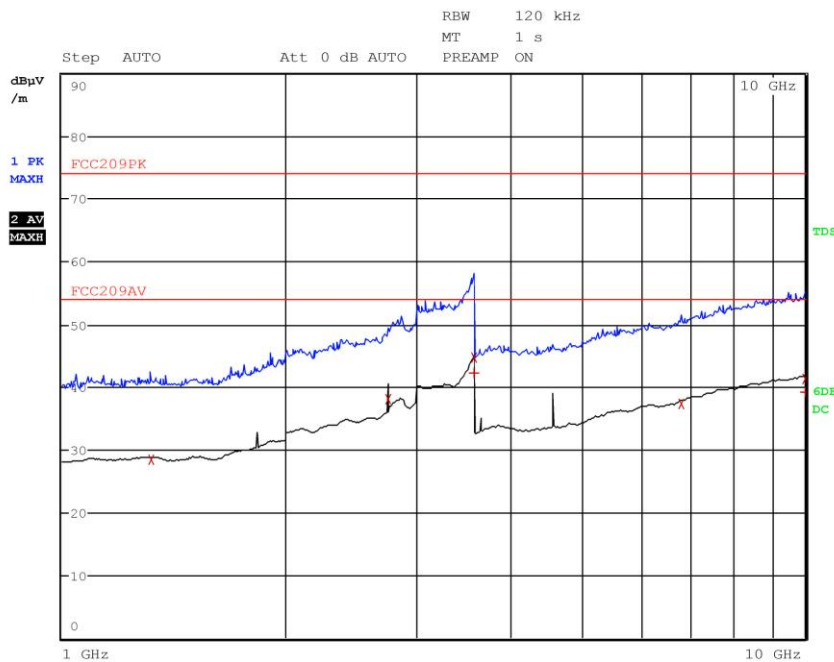
| Trace | Frequency       | Level (dBµV/m) | Detector   | Delta Limit/dB |
|-------|-----------------|----------------|------------|----------------|
| 2     | 1.270000000 GHz | 28.32          | Average    |                |
| 2     | 3.023600000 GHz | 39.16          | Average    |                |
| 1     | 3.560800000 GHz | 41.42          | Quasi Peak | -32.58         |
| 2     | 3.596800000 GHz | 44.66          | Average    |                |
| 2     | 6.798800000 GHz | 37.43          | Average    |                |
| 2     | 9.976000000 GHz | 41.34          | Average    |                |
| 1     | 9.993200000 GHz | 39.22          | Quasi Peak | -34.78         |

CMC Centro Misure Compatibilità S.r.l.



G15143225

**Meas Type** Emission  
**Equipment under Test**  
**Manufacturer**  
**OP Condition** Tx-Rx  
**Operator** Gandini 15143225  
**Test Spec**  
 Horiz



**Final Measurement**

Meas Time: 1 s  
 Margin: 20 dB  
 Subranges: 7

| Trace | Frequency       | Level (dBµV/m) | Detector   | Delta Limit/dB |
|-------|-----------------|----------------|------------|----------------|
| 2     | 1.319600000 GHz | 28.46          | Average    |                |
| 2     | 2.745200000 GHz | 38.14          | Average    |                |
| 1     | 3.588400000 GHz | 42.26          | Quasi Peak | -31.74         |
| 2     | 3.597200000 GHz | 44.68          | Average    |                |
| 2     | 6.800000000 GHz | 37.39          | Average    |                |
| 2     | 9.983200000 GHz | 41.30          | Average    |                |
| 1     | 9.983600000 GHz | 39.17          | Quasi Peak | -34.83         |

**Result:** The requirements are met

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### 11.3 Peak Output Power

#### Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.209 and Part 15.249
- Internal procedure PM001
- See clause 4 of this test report

#### Test configuration and test method

*Test site:*  
Semi-anechoic chamber

*Auxiliary equipment:*  
See clause 4 of this test report

#### EUT exercising

See clause 4 of this test report

#### Test equipment used

CMC S108, CMC S136, CMC S164  
Measurement uncertainty: See clause 7 of this test report

#### Test specification

Port: Enclosure  
Antenna polarization: Horizontal (H) – Vertical (V)  
EUT – Antenna distance: 3 m

#### Environmental conditions

| Temperature (°C) | Atmospheric pressure (kPa) | Relative humidity (%) |
|------------------|----------------------------|-----------------------|
| 22               | 100                        | 45                    |

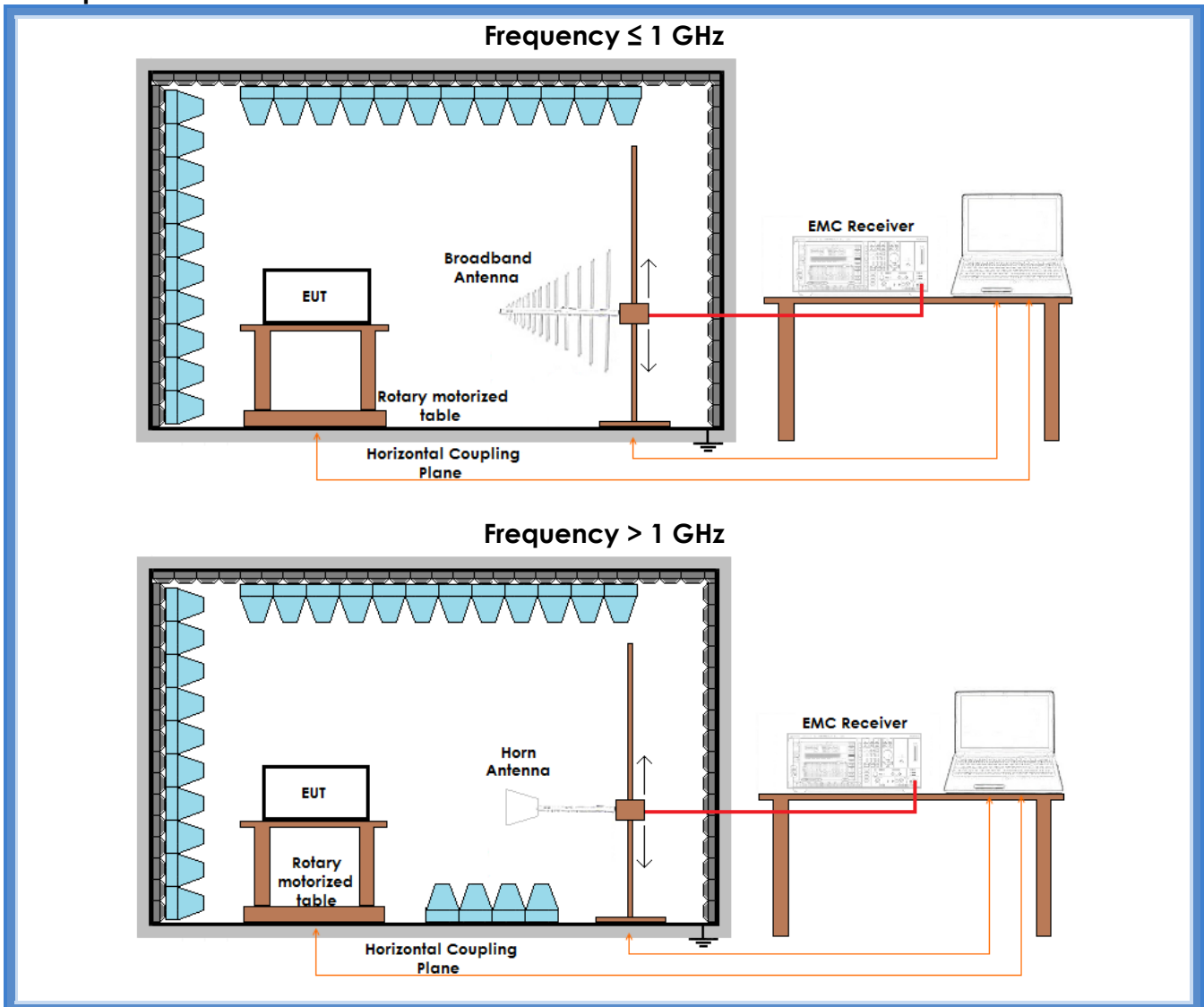
#### Acceptance limits

| Frequency range (MHz) | RF Power Output dB(μV/m) |
|-----------------------|--------------------------|
| 902 – 928             | 94                       |

| Frequency range (MHz) | RF Power Output dB(μV/m) |
|-----------------------|--------------------------|
| 2400 – 2483,5         | 94                       |



## Setup



## Result

| Frequency (MHz) | Polarization | Graphs    | Measured QP level (dB $\mu$ V/m) | Peak Output Power (mW) | Remarks |
|-----------------|--------------|-----------|----------------------------------|------------------------|---------|
| 915,0500        | Horizontal   | G15143211 | 93,80                            | 0,720                  | --      |
| 915,0548        | Vertical     | G15143216 | 87,25                            | 0,159                  | --      |
| 920,9984        | Horizontal   | G15143208 | 93,90                            | 0,736                  | --      |
| 920,9968        | Vertical     | G15143207 | 88,05                            | 0,191                  | --      |
| 927,7484        | Horizontal   | G15143201 | 93,45                            | 0,664                  | --      |
| 927,7468        | Vertical     | G15143206 | 86,43                            | 0,132                  | --      |



### Remarks

$$P = (E \times d)^2 / (30 \times G)$$

Where:

E = the measured maximum fundamental field strength in V/m

G = the numeric gain of the transmitting antenna: 1 (0 dBi)

d = the distance in meters from which the field strength was measured (3 m)

P = the power in watts

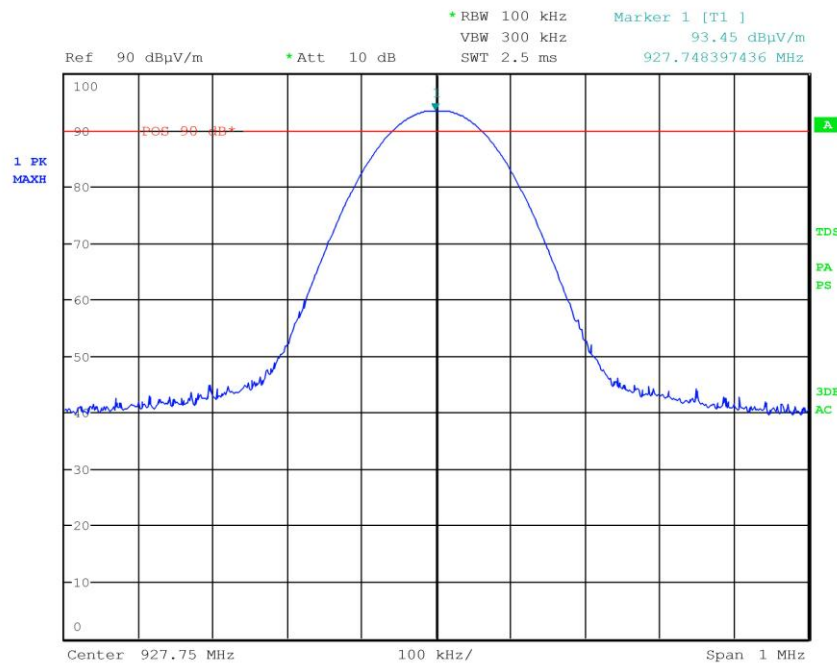




Graphs

G15143201

**Meas Type** Emission  
**Equipment under Test**  
**Manufacturer**  
**OP Condition** Tx - Fmax  
**Operator** Gandini 15143201  
**Test Spec**  
 Horiz - EUT Horiz



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## 11.4 Band edge

### Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.249 (d)
- Internal procedure PM001
- See clause 4 of this test report

### Test configuration and test method

*Test site:*  
 Laboratory

*Auxiliary equipment:*  
 See clause 4 of this test report

### EUT exercising

See clause 4 of this test report

### Test equipment used

CMC S108, CMC S136, CMC S164  
 Measurement uncertainty: See clause 7 of this test report

### Test specification

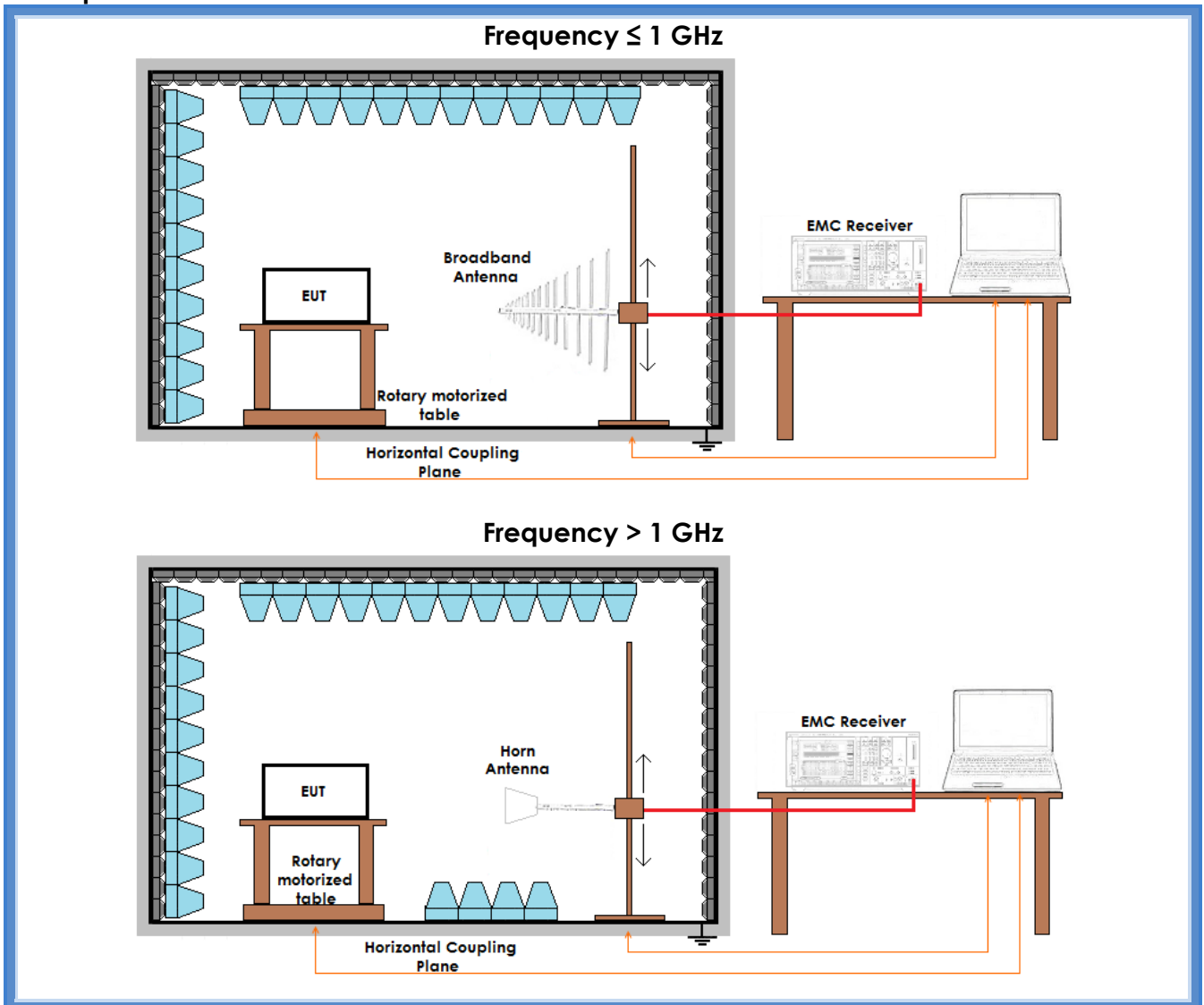
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation

### Environmental conditions

| Temperature<br>(°C) | Atmospheric pressure<br>(kPa) | Relative humidity<br>(%) |
|---------------------|-------------------------------|--------------------------|
| 22                  | 100                           | 45                       |

**Acceptance limits:** operation within the band 902 – 928 MHz

### Setup



### Result

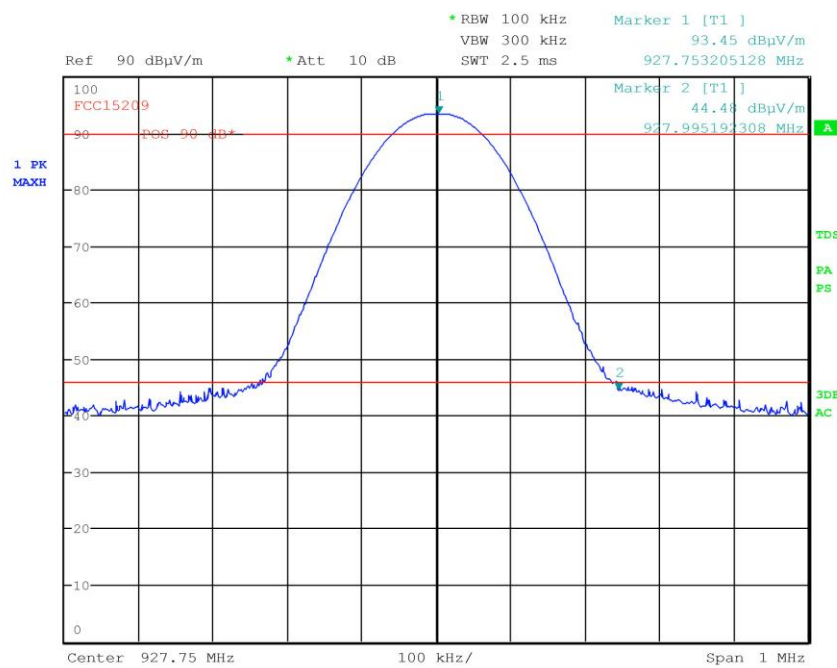
| Frequency (MHz) | Graph(s)  | Results                          |          |
|-----------------|-----------|----------------------------------|----------|
| 915,050         | G15143212 | F <sub>L</sub> : 914,7711538 MHz | Complies |
|                 | G15143215 |                                  |          |
| 927,750         | G15143202 | F <sub>H</sub> : 927,9951920 MHz | Complies |
|                 | G15143205 |                                  |          |



Graphs

G15143202

**Meas Type** Emission  
**Equipment under Test**  
**Manufacturer**  
**OP Condition** Tx - Fmax  
**Operator** Gandini 15143202  
**Test Spec**  
 Horiz - EUT Horiz



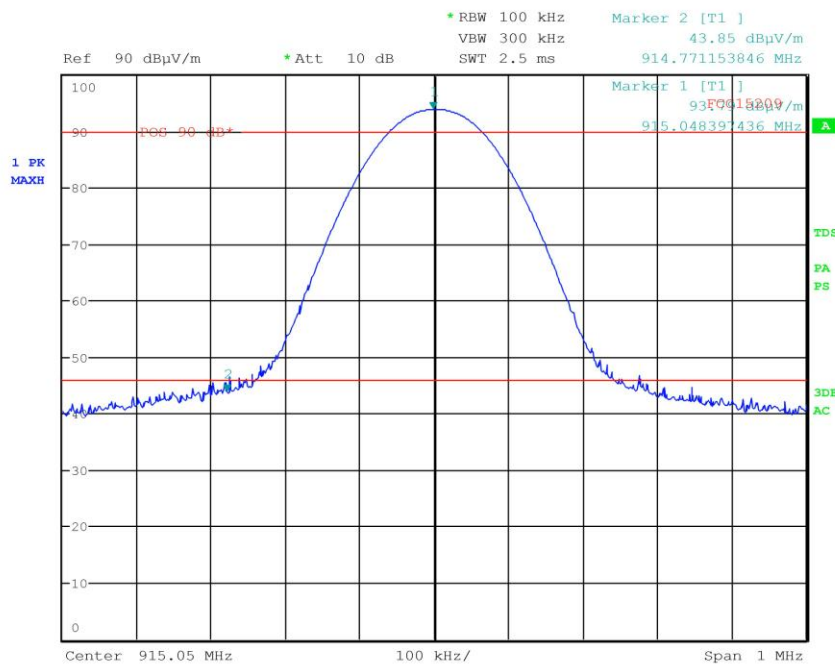
CMC Centro Misure Compatibilità S.r.l.





G15143212

**Meas Type** Emission  
**Equipment under Test**  
**Manufacturer**  
**OP Condition** Tx - Fmin  
**Operator** Gandini 15143212  
**Test Spec**  
 Horiz - EUT Horiz



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## 11.5 Spurious Emission

### Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.209
- Internal procedure PM001
- See clause 4 of this test report

### Test configuration and test method

*Test site:*  
 Semi-anechoic chamber

*Auxiliary equipment:*  
 See clause 4 of this test report

### EUT exercising

See clause 4 of this test report

### Test equipment used

CMC S108, CMC S136, CMC S164  
 Measurement uncertainty: See clause 7 of this test report

### Test specification

Port: Enclosure  
 Antenna polarization: Horizontal (H) – Vertical (V)  
 EUT – Antenna distance: 3 m  
 Detector AV + Peak

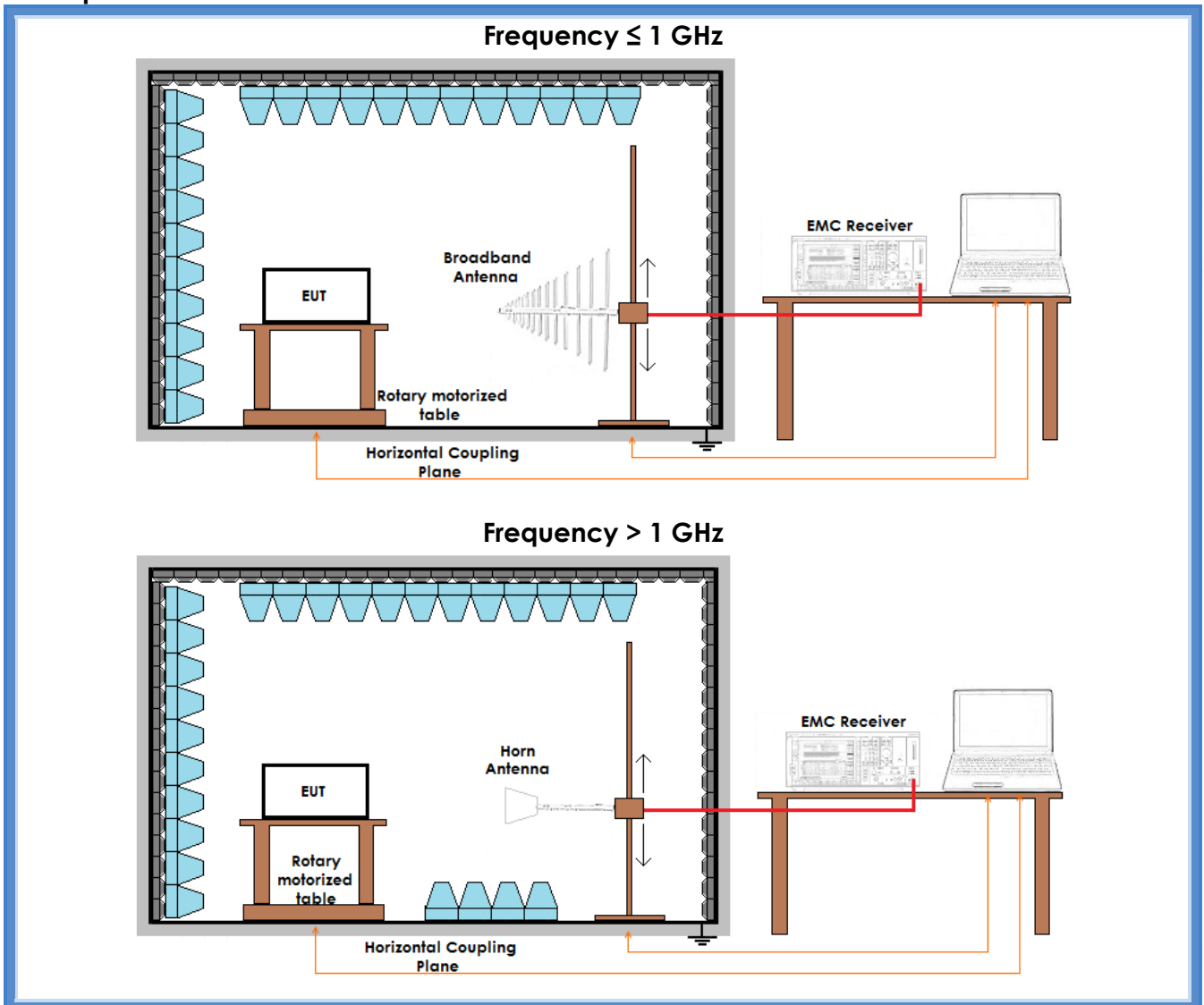
### Environmental conditions

| Temperature (°C) | Atmospheric pressure (kPa) | Relative humidity (%) |
|------------------|----------------------------|-----------------------|
| 22               | 100                        | 45                    |

### Acceptance limits

| Frequency (MHz) | AV limits [dB(μV/m)] | Peak limits [dB(μV/m)] |
|-----------------|----------------------|------------------------|
| > 1000          | 54                   | 74                     |

## Setup







### Result – AV detector

| Harmonic | Limits (dB $\mu$ V/m) | Level (dB $\mu$ V/m)        |                             |                             | Results  |
|----------|-----------------------|-----------------------------|-----------------------------|-----------------------------|----------|
|          |                       | 915,050 MHz                 | 921,000 MHz                 | 927,750 MHz                 |          |
| II       | 54                    | 41,5                        | 41,8                        | 41,6                        | Complies |
| III      | 54                    | 45,1                        | 44,6                        | 45,8                        | Complies |
| IV       | 54                    | 45,3                        | 43,4                        | 45,1                        | Complies |
| V        | 54                    | 44,2                        | 43,0                        | 43,8                        | Complies |
| VI       | 54                    | More than 20 dB below limit | More than 20 dB below limit | More than 20 dB below limit | Complies |
| VII      | 54                    | More than 20 dB below limit | More than 20 dB below limit | More than 20 dB below limit | Complies |
| VIII     | 54                    | More than 20 dB below limit | More than 20 dB below limit | More than 20 dB below limit | Complies |
| IX       | 54                    | More than 20 dB below limit | More than 20 dB below limit | More than 20 dB below limit | Complies |
| X        | 54                    | More than 20 dB below limit | More than 20 dB below limit | More than 20 dB below limit | Complies |

**Remarks:** EUT was tested in 3 orthogonal planes. The results in this table show the highest values

### Result – Peak detector

| Harmonic | Limits (dB $\mu$ V/m) | Level (dB $\mu$ V/m)        |                             |                             | Results  |
|----------|-----------------------|-----------------------------|-----------------------------|-----------------------------|----------|
|          |                       | 915,050 MHz                 | 921,000 MHz                 | 927,750 MHz                 |          |
| II       | 74                    | 43,5                        | 43,5                        | 43,4                        | Complies |
| III      | 74                    | 46,8                        | 46,5                        | 46,6                        | Complies |
| IV       | 74                    | 48,6                        | 47,6                        | 47,8                        | Complies |
| V        | 74                    | 48,4                        | 47,5                        | 46,8                        | Complies |
| VI       | 74                    | More than 20 dB below limit | More than 20 dB below limit | More than 20 dB below limit | Complies |
| VII      | 74                    | More than 20 dB below limit | More than 20 dB below limit | More than 20 dB below limit | Complies |
| VIII     | 74                    | More than 20 dB below limit | More than 20 dB below limit | More than 20 dB below limit | Complies |
| IX       | 74                    | More than 20 dB below limit | More than 20 dB below limit | More than 20 dB below limit | Complies |
| X        | 74                    | More than 20 dB below limit | More than 20 dB below limit | More than 20 dB below limit | Complies |

**Remarks:** EUT was tested in 3 orthogonal planes. The results in this table show the highest values

**Result:** The requirements are met