



## TEST REPORT nr. R17082901

### Federal Communication Commission (FCC)

#### Test item

Description .....: TRANSMITTER FOR AUTOMATIC DOOR SAFETY EDGES  
Trademark .....: JCM TECHNOLOGIES  
Model/Type .....: RB-TX10  
FCC ID .....: U5Z-RB-TX10

#### Test Specification

Standard .....: FCC Rules & Regulations, Title 47:2016  
Part 15 paragraph(s): 203, 209 and 231

**Client's name** .....: JCM TECHNOLOGIES S.A.

Address .....: Bisbe Morgades, 46 (Baixos) – 08500 Vic – SPAIN

**Manufacturer's name** : Same as client

Address .....: --

#### Report

Tested by .....: A. Bertezolo – Technician

Approved by .....: R. Beghetto – Laboratory Manager

Date of issue .....: 18.05.17

Contents .....: 58 pages

*[Signature]*  
*[Signature]*

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.



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## ANNEX 1: photographs of test setup



## 1. Summary

Standard:

FCC Rules & Regulations, Title 47:2016  
Part 15 paragraph(s): 203, 209 and 231

| 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 15.231(b) | Fundamental and spurious emissions ( $\leq 1$ GHz) | 3              | Complies |
| Part 15.209 and 15.231    | Spurious emissions ( $> 1$ GHz)                    | 4              | Complies |
| Part 15.231(c)            | Occupied channel bandwidth                         | 5              | Complies |
| Part 15.231(a3)           | Periodic operation characteristics                 | 6              | 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



## 2. Description of Equipment under test (EUT)

Power supply ..... : 3,6 Vdc from battery

Serial Number ..... : --

Type of equipment ..... : ☒ Transmitter Unit  
☒ Receiver Unit

Type of station ..... : ☒ Fixed station  
☐ Portable station  
☐ Mobile station

Nominal frequency ..... : 902,30 MHz  
915,65 MHz  
927,70 MHz

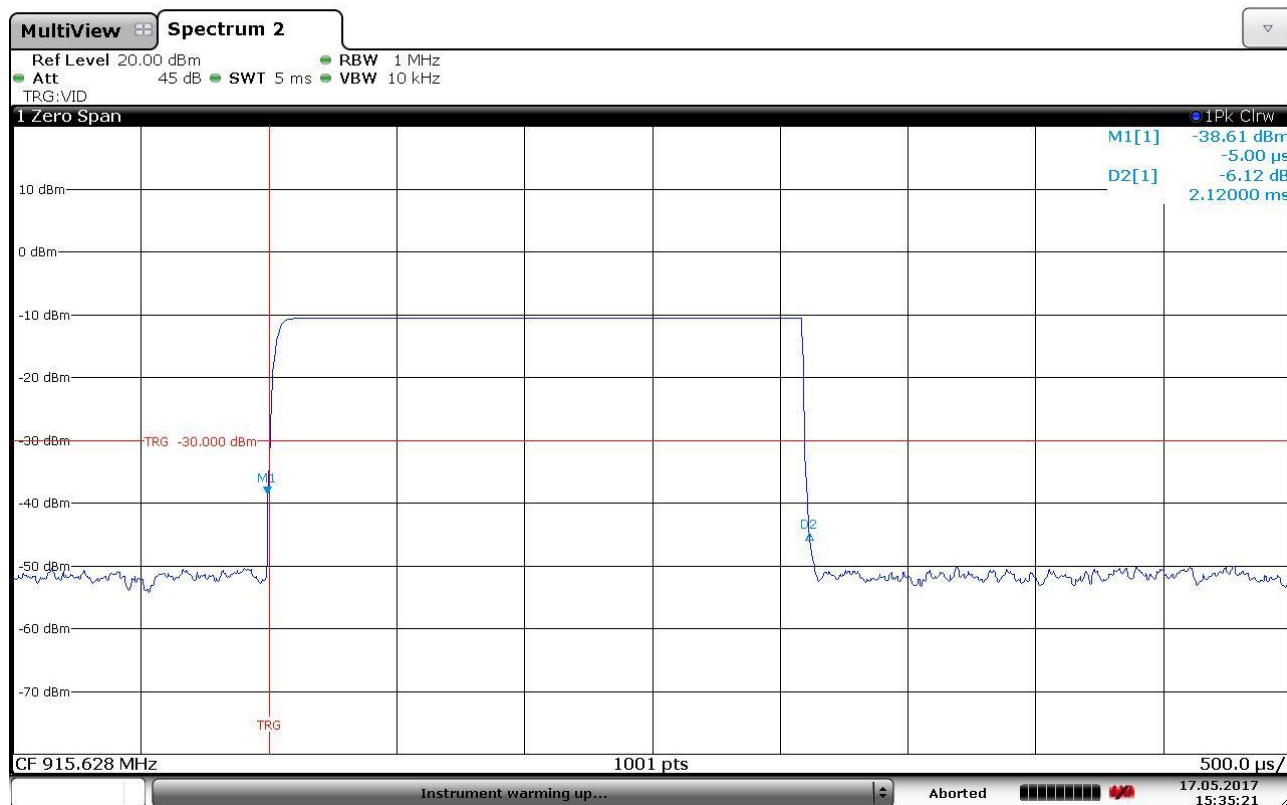
Duty cycle evaluation ..... : 2,12 ms

Evaluation has been performed in agreement with FCC Part 15.35c. This transmission is intended as a train of pulses of 2,12 ms ON and 97,88 ms OFF on 100 ms evaluation. See also graph G17082925

Delta (dB) for the performing of tests ..... :  $20\log (2,12 \text{ ms} / 100 \text{ ms}) = -33,4 \text{ dB}$



Bertezzo17082925





## 2.1 Test Site

Company ..... : CMC Centro Misure Compatibilità S.r.l.

Address ..... : Via della Fisica, 20  
36016 Thiene (VI) – ITALY

Test site facility's FCC registration number ..... : 182474

## 3. Testing and sampling

Date of receipt of test item ..... : 25.11.16

Testing start date ..... : 15.05.17

Testing end date ..... : 17.05.17

Samples tested nr. .... : 1

Sampling procedure. .... : Equipment used for testing was picked up by the manufacturer, at the end of the production process with random criterion

Internal identification ..... : adhesive label with the product number P161442

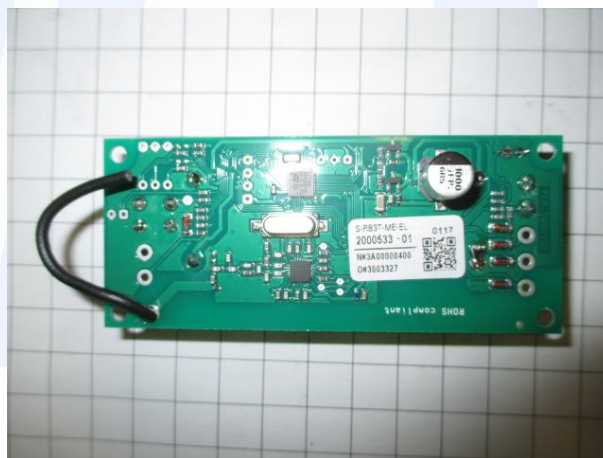
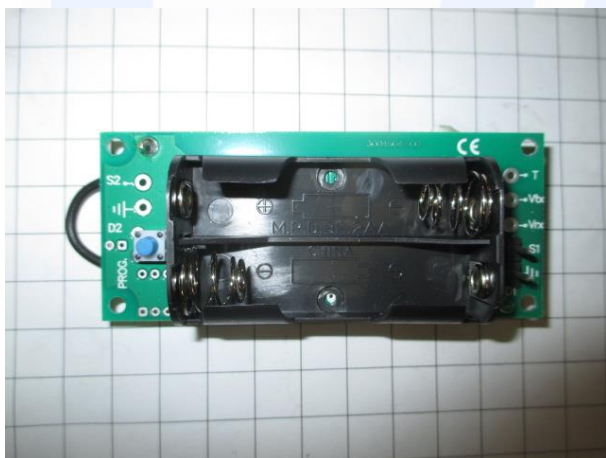
## 4. Operative conditions

EUT exercising ..... : EUT in continuous transmission at the maximum power on each operating frequency



## 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              | Pulse limiter device                | --                   | January 13 <sup>th</sup> '17 | January '18                 |
| CMC S108          | EMCO                | 3115                 | Horn Antenna                        | 9811-5622            | June 21 <sup>st</sup> '16    | June '19                    |
| CMC S164          | Rohde & Schwarz     | ESU26                | EMC interference receiver           | 100052               | January 10 <sup>th</sup> '17 | January '18                 |
| CMC S190          | Spin                | AMDR-10180           | Horn Antenna (1-18 GHz)             | 01-309-09            | N.C.R.                       | N.C.R.                      |
| CMC S200          | Schwarzbeck         | NSLK 8128            | V-LISN                              | 8128-273             | January 11 <sup>th</sup> '17 | January '18                 |
| CMC S260          | CMC                 | Wfr_N                | Shielded Cable                      | Wfr_ant10-1          | November '16                 | November '17                |
| CMC S261          | CMC                 | Wfr_N                | Shielded Cable                      | Wfr_ant20-1          | November '16                 | November '17                |
| CMC S262          | CMC                 | Wfr_N_fix            | Shielded Cable                      | Wfr_fix32-1          | November '16                 | November '17                |
| CMC S263          | CMC                 | Wfr_N_fix            | Shielded Cable                      | Wfr_fix31-1          | November '16                 | November '17                |
| CMC S264          | CMC                 | Wfr_N                | Shielded Cable                      | Wfr_ext03-1          | November '16                 | November '17                |
| CMC S271          | Schwarzbeck         | BBA 9106 + VHBB 9124 | Biconical Antenna (30-300MHz)       | 831                  | June 21 <sup>st</sup> , '16  | June '19                    |
| CMC S287          | Schwarzbeck         | VUSLP 9111B          | Log-periodic Antenna (200 MHz-3GHz) | 9111B-203            | June 21 <sup>st</sup> , '16  | June '19                    |
| CMC S288          | CMC                 | W_sma_white          | Joint Shielded Cable                | W_001                | November '16                 | November '17                |



## 7. Measurement uncertainty

| Test                                                     | Test Setup | Expanded uncertainty     | Note |
|----------------------------------------------------------|------------|--------------------------|------|
| Conducted emission CISPR 16<br>LISN 50uH 0,009-0,0150MHz | PE001_01   | 3,4 dB                   | 1    |
| Conducted emission CISPR 16<br>LISN 50uH 0,150-30,0MHz   | PE001_01   | 2,8 dB                   | 1    |
| Conducted emission CISPR 16<br>Voltage Probe 0,15-30MHz  | PE001_02   | 2,6 dB                   | 1    |
| Conducted emission CISPR 16<br>Current Probe 0,15-30MHz  | PE001_03   | 2,2 dB                   | 1    |
| Conducted emission CISPR 16<br>ISN 0,15-30MHz            | PE001_04   | 4,5 dB                   | 1    |
| Clic CISPR 16<br>LISN 50uH 0,150-30,0MHz                 | PE001_05   | 2,8 dB                   | 1    |
| Disturbance Power<br>30-300 MHz                          | PE002_01   | 3,4 dB                   | 1    |
| Radiated Emission LAS<br>0,15-30MHz                      | PE003_01   | 1,5 dB                   | 1    |
| Radiated Emission CISPR 16<br>Loop Ant. 0,15-30MHz       | PE004_01   | 3,8 dB                   | 1    |
| Radiated Emission CISPR 16<br>Bicon. Ant. 30-300MHz      | PE004_02   | 3,3 dB                   | 1    |
| Radiated Emission CISPR 16<br>LogP. Ant. 300-1000MHz     | PE004_03   | 3,2 dB                   | 1    |
| Radiated Emission CISPR 16<br>Horn Ant. 1-18GHz          | PE004_04   | 3,6 dB                   | 1    |
| Human Exposure to electromagnetic fields                 | PE005_01   | 10,5 %                   | 1    |
| Harmonic current emissions test                          | PE006_01   | 10 mA + 1,6 %            | 1    |
| Voltage fluctuation and flicker test                     | PE007_01   | 3,9 %                    | 1    |
| Radiated Immunity<br>80MHz-6GHz                          | PE102_XX   | 2,1 dB 0,81 V/m a 3V/m   | 1    |
| Conducted Immunity<br>0,15-230MHz                        | PE105_XX   | 1,2 dB 0,44 V a 3V       | 1    |
| AC Magnetic field                                        | PE106_01   | 1,55 % 0,15 A/m a 10A/m  | 1    |
| Pulse Magnetic field                                     | PE107_01   | 6,22 % 18,6 A/m a 300A/m | 1    |
| Dumped Magnetic field                                    | PE108_01   | 6,22 % 1,86 A/m a 30A/m  | 1    |
| Common mode conducted immunity                           | PE112_01   | 2,12 % 0,21 V a 10V      | 1    |



| Test                                       | Test Setup  | Expanded uncertainty | Note |
|--------------------------------------------|-------------|----------------------|------|
| Power/Spurious<br>9kHz-30MHz               | PR001_01    | 3,8 dB               | 1    |
| Power/Spurious ERP<br>30-1000MHz d=10m     | PR001_02+03 | 4,3 dB               | 1    |
| Misura della potenza EIRP<br>1-18GHz d=3m  | PR001_04    | 4,3 dB               | 1    |
| Misura della potenza EIRP<br>18-40GHz d=3m | PR001_05    | 5,5 dB               | 1    |
| Frequency error                            | PR002_01+02 | $< 1 \times 10^{-7}$ | 1    |
| Timing zero span (1001pts.)                | PR002_01+02 | 0,2 % SWT            | 1    |
| Modulation bandwidth                       | PR002_01+02 | $< 1 \times 10^{-7}$ | 1    |
| Conducted RF power and spurious emission   | PR002_01+02 | 1,2 dB               | 1    |
| Adjacent channel power                     | PR002_01+02 | 1,2 dB               | 1    |
| Blocking                                   | PR002_01+02 | 1,2 dB               | 1    |

| Test                                             | Test Setup | Expanded uncertainty | Note |
|--------------------------------------------------|------------|----------------------|------|
| Electrostatic discharge immunity test            | PE101_0X   |                      | 2    |
| Electrical fast transients / burst immunity test | PE103_0X   |                      | 2    |
| Surge immunity test                              | PE104_0X   |                      | 2    |
| Short interruption immunity test                 | PE109_01   |                      | 2    |
| Rev_17_01 date 20/03/2017                        |            |                      |      |

**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 15:2016     | --                                                                                             |
| ANSI C63.10:2013                                   | American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices |
| Internal Procedure PM001 rev. 3.0 (Quality Manual) | Measure Procedure                                                                              |
| Internal procedure INC_M rev. 9.0 (Quality Manual) | Measurement uncertainty calculation                                                            |



## 9. Deviation from test specification

None

## 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.

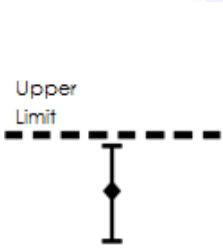
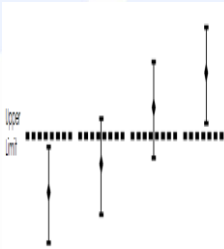
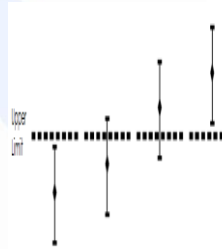


## 11. Results

In this clause tests results are reported.

Measurement uncertainty is in accordance with document CMC INC\_M rev. 9.0.

*Judgement of compliance:*

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

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



## 11.1 Antenna requirements

### Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.203
- Internal procedure PM001
- See clause 4 of this test report
- Test date: January 10<sup>th</sup>, 2017
- Technician: A. Bertezolo

### 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                  | 101                           | 45                       |

### Result

| Antenna Type       | External R.F.<br>power amplifier | Gain | Remarks | Results  |
|--------------------|----------------------------------|------|---------|----------|
| Integrated 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
- ANSI C63.10 cl. 6.3, 6.4, 6.5 and 6.6
- Internal procedure PM001
- See clause 4 of this test report
- Test date: May 15<sup>th</sup>, 2017
- Technician: A. Bertezolo

### 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 S010, CMC S108, CMC S164, CMC S200,  
CMC S271, CMC S287  
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:  
10 m for frequencies  $\leq$  1000 MHz  
3 m for frequencies  $>$  1000 MHz  
EUT height about the floor:  
80 cm for frequencies  $\leq$  1000 MHz  
1,5 m for frequencies  $>$  1000 MHz

### Environmental conditions

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



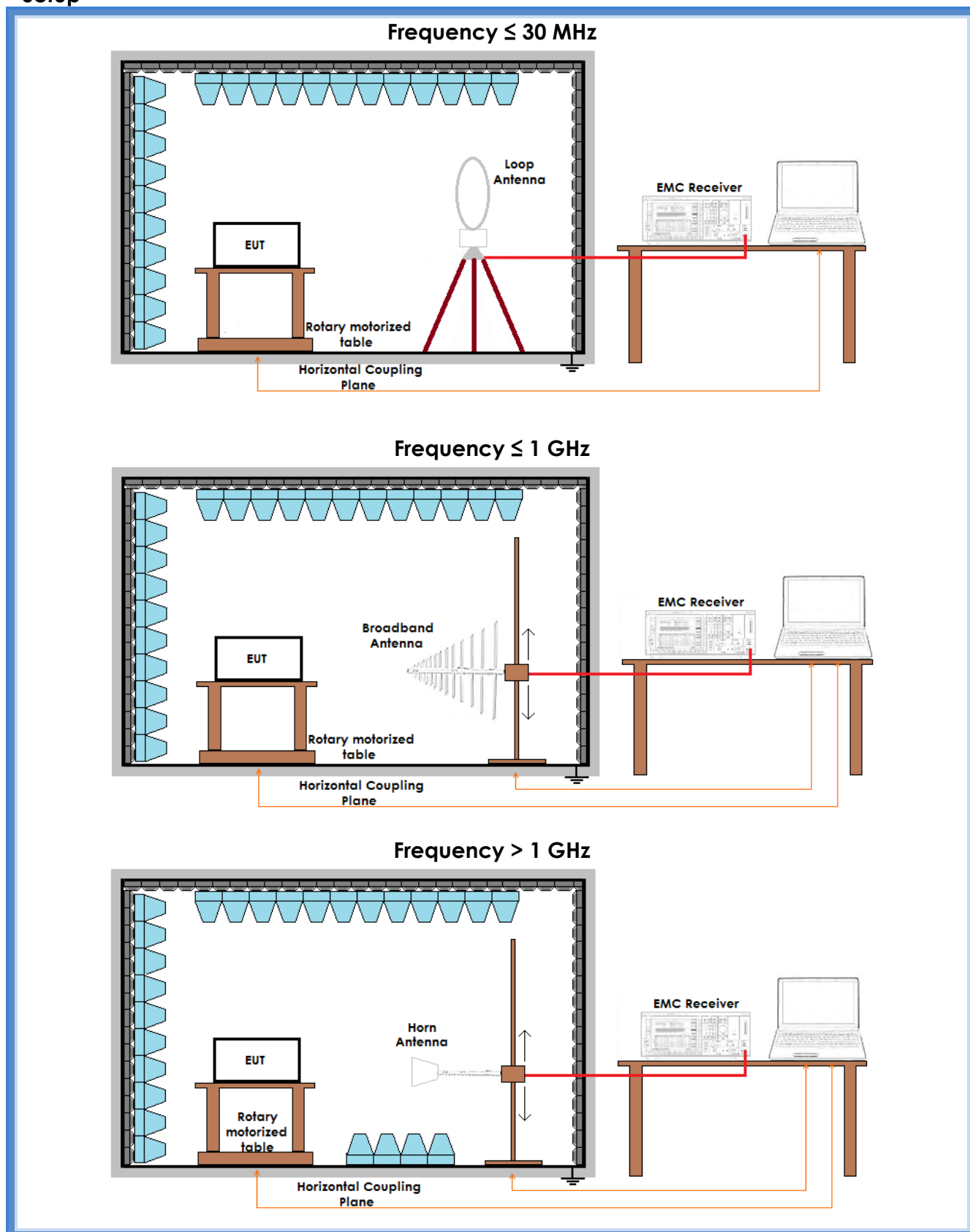
### Acceptance limits

| Frequency range (MHz) | Test distance (m) | Limits [dB(μV/m)]                  |                          |
|-----------------------|-------------------|------------------------------------|--------------------------|
| 0,009 to 0,490        | 300               | 48,5 to 13,8                       |                          |
| 0,490 to 1,705        | 30                | 33,8 to 22,9                       |                          |
| 1,705 to 30           | 30                | 29,5                               |                          |
| 30 to 88              | 3                 | 40                                 |                          |
| 88 to 216             | 3                 | 43,5                               |                          |
| 216 to 960            | 3                 | 46,0                               |                          |
| Above 960             | 3                 | 53,9                               |                          |
|                       | Test distance (m) | Linear average detector [dB(μV/m)] | Peak detector [dB(μV/m)] |
| Above 1000            | 3                 | 53,9                               | 73,9                     |

**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   |
|--------------|-----------------------|-----------|------------|----------|
| H            | 300 – 1000            | G17082901 | 902,30 MHz | Complies |
| V            | 300 – 1000            | G17082902 | 902,30 MHz | Complies |
| V            | 300 – 1000            | G17082903 | 915,65 MHz | Complies |
| H            | 300 – 1000            | G17082904 | 915,65 MHz | Complies |
| H            | 300 – 1000            | G17082905 | 927,70 MHz | Complies |
| V            | 300 – 1000            | G17082906 | 927,70 MHz | Complies |
| V            | 30 – 300              | G17082907 | Worst case | Complies |
| H            | 30 – 300              | G17082908 | Worst case | Complies |
| Loop         | 0,009 – 30            | G17082909 | Worst case | Complies |
| H            | 1000 – 10000          | G17082916 | 927,70 MHz | Complies |
| H            | 1000 – 10000          | G17082917 | 902,30 MHz | Complies |
| H            | 1000 – 10000          | G17082918 | 915,65 MHz | Complies |
| V            | 1000 – 10000          | G17082919 | 915,65 MHz | Complies |
| V            | 1000 – 10000          | G17082920 | 927,70 MHz | Complies |
| V            | 1000 – 10000          | G17082921 | 902,30 MHz | Complies |

**Remarks:** Measurements at frequencies lower than 1000 MHz have been performed with an EUT – antenna distance of 10 m. Measured values have been corrected with FCC 3A10 factor.  
Peaks above the limits are caused by the nominal transmitting frequencies. Final measurements have been performed only for values with margin lower than 30 dB from limit

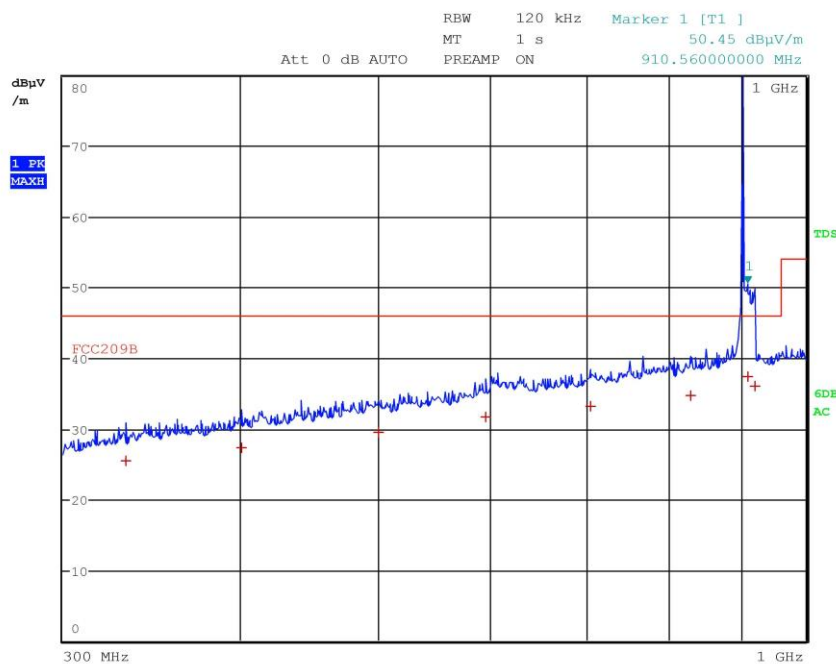
### Graphs Legend

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

Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082901  
Test Spec



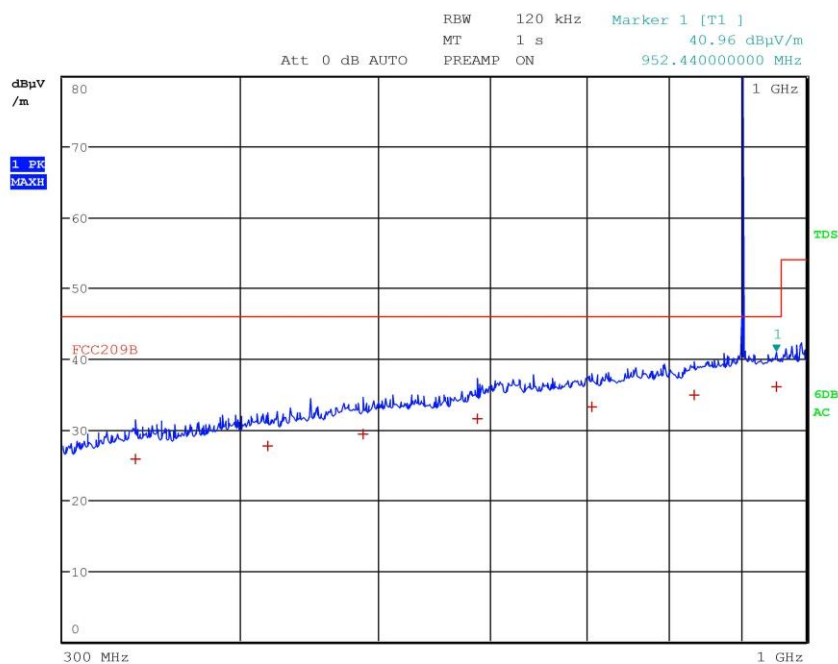
### Final Measurement

Meas Time: 1 s  
Margin: 20 dB  
Subranges: 8

| Trace | Frequency         | Level (dBμV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 332.440000000 MHz | 25.54          | Quasi Peak | -20.48         |
| 1     | 400.320000000 MHz | 27.39          | Quasi Peak | -18.63         |
| 1     | 500.400000000 MHz | 29.54          | Quasi Peak | -16.48         |
| 1     | 594.560000000 MHz | 31.74          | Quasi Peak | -14.28         |
| 1     | 705.200000000 MHz | 33.23          | Quasi Peak | -12.79         |
| 1     | 829.920000000 MHz | 34.79          | Quasi Peak | -11.23         |
| 1     | 910.560000000 MHz | 37.34          | Quasi Peak | -8.68          |
| 1     | 920.560000000 MHz | 36.11          | Quasi Peak | -9.91          |



Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082902  
Test Spec



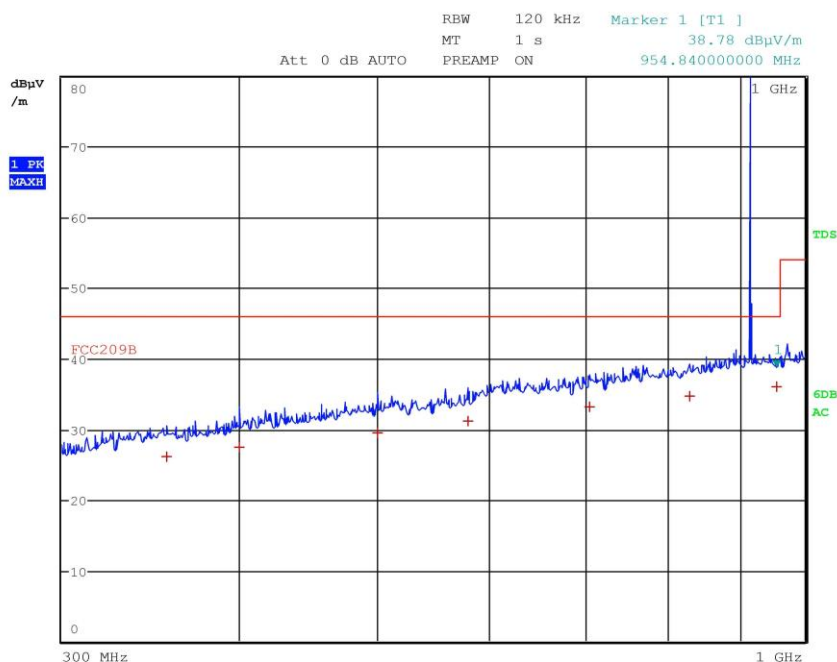
### Final Measurement

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

| Trace | Frequency         | Level (dBμV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 337.280000000 MHz | 25.76          | Quasi Peak | -20.26         |
| 1     | 417.680000000 MHz | 27.62          | Quasi Peak | -18.40         |
| 1     | 487.520000000 MHz | 29.34          | Quasi Peak | -16.68         |
| 1     | 587.520000000 MHz | 31.48          | Quasi Peak | -14.54         |
| 1     | 706.520000000 MHz | 33.19          | Quasi Peak | -12.83         |
| 1     | 834.640000000 MHz | 34.82          | Quasi Peak | -11.20         |
| 1     | 952.440000000 MHz | 36.08          | Quasi Peak | -9.94          |



Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082903  
Test Spec



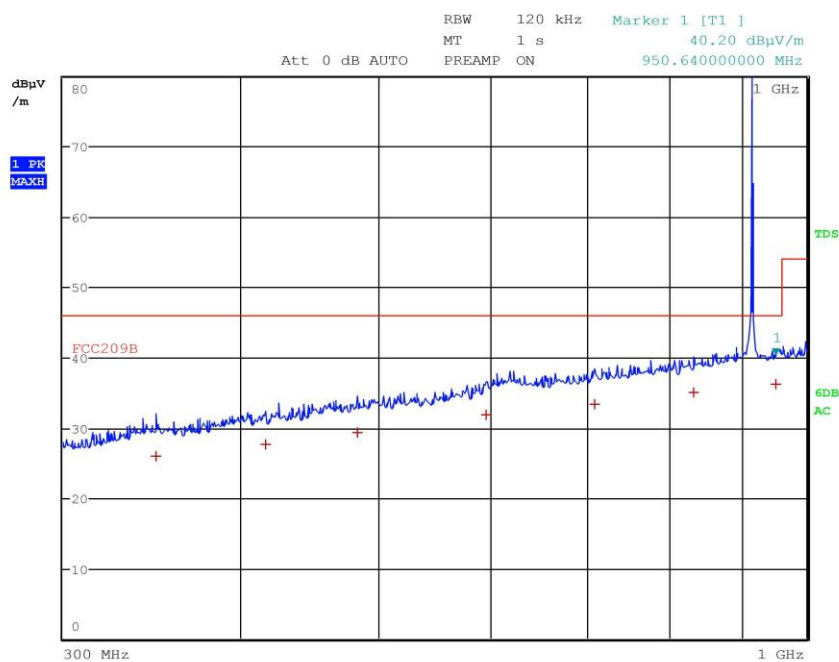
### Final Measurement

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

| Trace | Frequency         | Level (dBμV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 355.400000000 MHz | 26.09          | Quasi Peak | -19.93         |
| 1     | 400.000000000 MHz | 27.40          | Quasi Peak | -18.62         |
| 1     | 500.280000000 MHz | 29.53          | Quasi Peak | -16.49         |
| 1     | 579.160000000 MHz | 31.16          | Quasi Peak | -14.86         |
| 1     | 705.640000000 MHz | 33.12          | Quasi Peak | -12.90         |
| 1     | 828.640000000 MHz | 34.69          | Quasi Peak | -11.33         |
| 1     | 954.840000000 MHz | 36.03          | Quasi Peak | -9.99          |



Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082904  
Test Spec



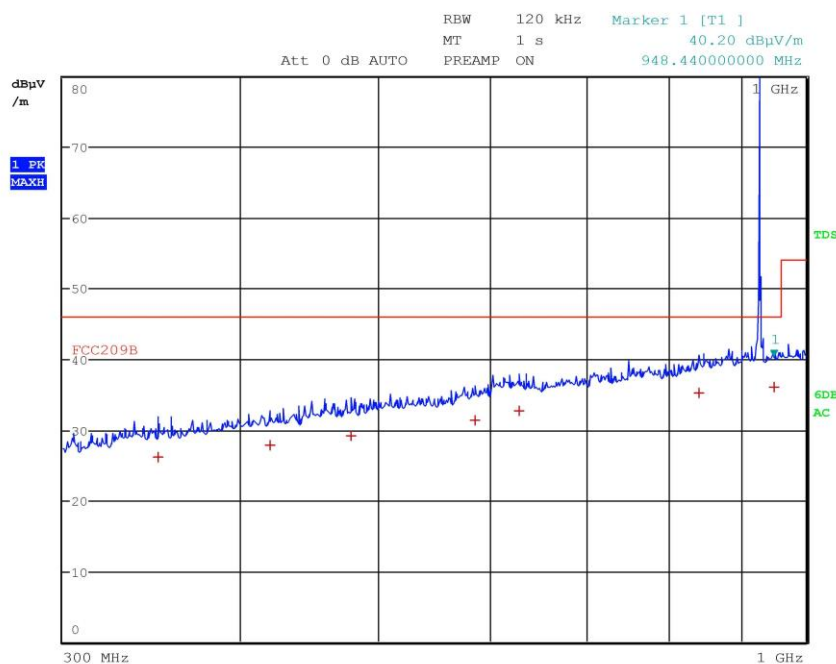
### Final Measurement

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

| Trace | Frequency        | Level (dBμV/m) | Detector   | Delta Limit/dB |
|-------|------------------|----------------|------------|----------------|
| 1     | 349.00000000 MHz | 26.03          | Quasi Peak | -19.99         |
| 1     | 416.16000000 MHz | 27.67          | Quasi Peak | -18.35         |
| 1     | 482.68000000 MHz | 29.35          | Quasi Peak | -16.67         |
| 1     | 594.92000000 MHz | 31.77          | Quasi Peak | -14.25         |
| 1     | 708.84000000 MHz | 33.28          | Quasi Peak | -12.74         |
| 1     | 832.08000000 MHz | 35.00          | Quasi Peak | -11.02         |
| 1     | 950.64000000 MHz | 36.17          | Quasi Peak | -9.85          |



Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082905  
Test Spec



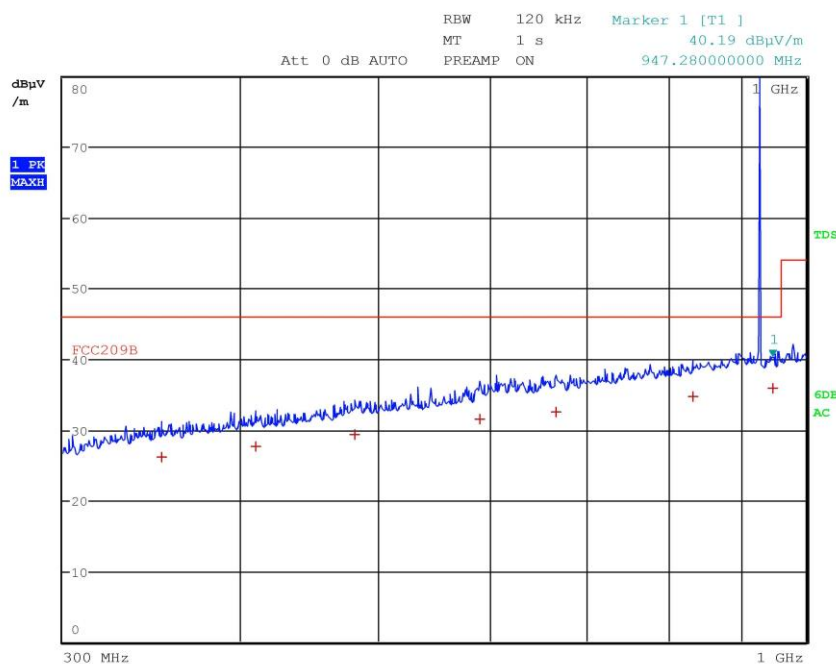
### Final Measurement

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

| Trace | Frequency         | Level (dBμV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 349.960000000 MHz | 26.12          | Quasi Peak | -19.90         |
| 1     | 419.360000000 MHz | 27.77          | Quasi Peak | -18.25         |
| 1     | 478.840000000 MHz | 29.23          | Quasi Peak | -16.79         |
| 1     | 584.800000000 MHz | 31.39          | Quasi Peak | -14.63         |
| 1     | 628.520000000 MHz | 32.61          | Quasi Peak | -13.41         |
| 1     | 840.720000000 MHz | 35.18          | Quasi Peak | -10.84         |
| 1     | 948.440000000 MHz | 36.01          | Quasi Peak | -10.01         |



Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082906  
Test Spec



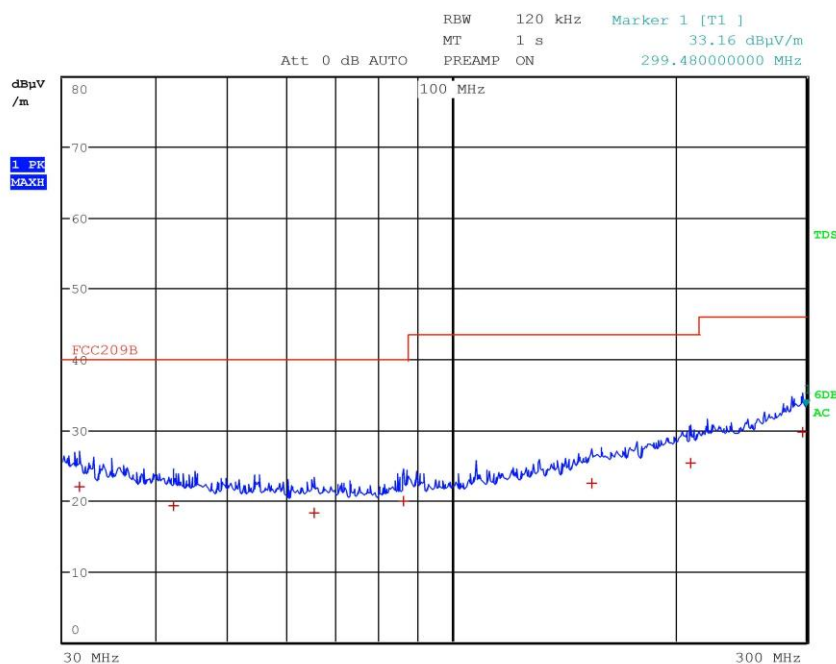
### Final Measurement

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

| Trace | Frequency         | Level (dBμV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 352.360000000 MHz | 26.13          | Quasi Peak | -19.89         |
| 1     | 410.280000000 MHz | 27.72          | Quasi Peak | -18.30         |
| 1     | 481.000000000 MHz | 29.33          | Quasi Peak | -16.69         |
| 1     | 589.440000000 MHz | 31.50          | Quasi Peak | -14.52         |
| 1     | 667.280000000 MHz | 32.49          | Quasi Peak | -13.53         |
| 1     | 831.840000000 MHz | 34.75          | Quasi Peak | -11.27         |
| 1     | 947.280000000 MHz | 35.87          | Quasi Peak | -10.15         |



Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082907  
Test Spec



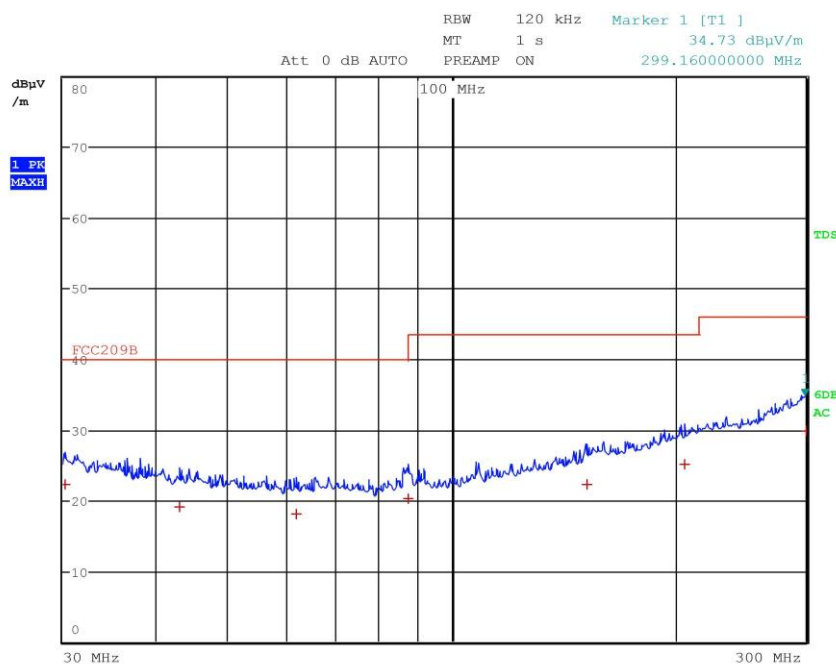
### Final Measurement

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

| Trace | Frequency         | Level (dBμV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 31.600000000 MHz  | 21.91          | Quasi Peak | -18.09         |
| 1     | 42.240000000 MHz  | 19.26          | Quasi Peak | -20.74         |
| 1     | 65.240000000 MHz  | 18.17          | Quasi Peak | -21.83         |
| 1     | 86.280000000 MHz  | 19.99          | Quasi Peak | -20.01         |
| 1     | 154.320000000 MHz | 22.44          | Quasi Peak | -21.08         |
| 1     | 209.880000000 MHz | 25.30          | Quasi Peak | -18.22         |
| 1     | 296.600000000 MHz | 29.58          | Quasi Peak | -16.44         |



Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082908  
Test Spec



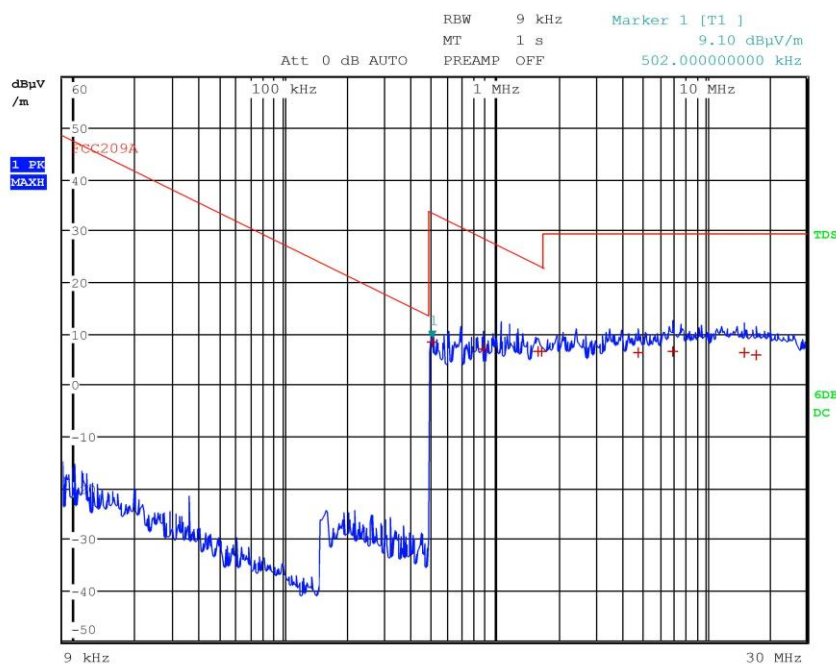
### Final Measurement

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

| Trace | Frequency         | Level (dBμV/m) | Detector   | Delta Limit/dB |
|-------|-------------------|----------------|------------|----------------|
| 1     | 30.200000000 MHz  | 22.28          | Quasi Peak | -17.72         |
| 1     | 42.960000000 MHz  | 19.09          | Quasi Peak | -20.91         |
| 1     | 61.880000000 MHz  | 18.03          | Quasi Peak | -21.97         |
| 1     | 87.440000000 MHz  | 20.17          | Quasi Peak | -19.83         |
| 1     | 152.200000000 MHz | 22.30          | Quasi Peak | -21.22         |
| 1     | 206.040000000 MHz | 25.08          | Quasi Peak | -18.44         |
| 1     | 299.560000000 MHz | 29.79          | Quasi Peak | -16.23         |



Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082909  
Test Spec



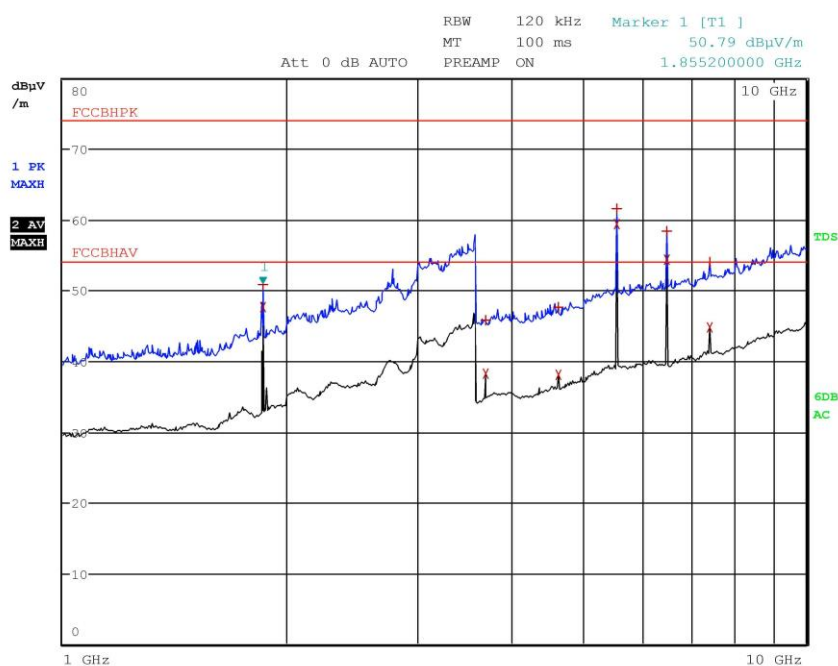
### Final Measurement

Meas Time: 1 s  
Margin: 20 dB  
Subranges: 8

| Trace | Frequency        | Level (dBμV/m) | Detector   | Delta Limit/dB |
|-------|------------------|----------------|------------|----------------|
| 1     | 502.00000000 kHz | 8.42           | Quasi Peak | -25.17         |
| 1     | 882.00000000 kHz | 7.03           | Quasi Peak | -21.66         |
| 1     | 1.614000000 MHz  | 6.54           | Quasi Peak | -16.90         |
| 1     | 1.666000000 MHz  | 6.45           | Quasi Peak | -16.72         |
| 1     | 4.794000000 MHz  | 6.21           | Quasi Peak | -23.28         |
| 1     | 6.974000000 MHz  | 6.56           | Quasi Peak | -22.91         |
| 1     | 15.182000000 MHz | 6.32           | Quasi Peak | -23.12         |
| 1     | 17.338000000 MHz | 5.79           | Quasi Peak | -23.63         |



Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082916  
Test Spec





Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082916  
Test Spec

### Final Measurement

Meas Time: 1 s  
Margin: 20 dB  
Subranges: 12

| Trace | Frequency       | Level (dBµV/m) | Detector | Delta Limit/dB |
|-------|-----------------|----------------|----------|----------------|
| 2     | 1.855200000 GHz | 47.69          | Average  | -6.29          |
| 1     | 1.855200000 GHz | 50.79          | Max Peak | -23.19         |
| 1     | 3.708400000 GHz | 45.73          | Max Peak | -28.25         |
| 2     | 3.710800000 GHz | 38.19          | Average  | -15.79         |
| 1     | 4.635600000 GHz | 47.58          | Max Peak | -26.40         |
| 2     | 4.638400000 GHz | 38.13          | Average  | -15.85         |
| 2     | 5.566000000 GHz | 59.49          | Average  | 5.51           |
| 1     | 5.566400000 GHz | 61.66          | Max Peak | -12.32         |
| 1     | 6.493600000 GHz | 58.36          | Max Peak | -15.62         |
| 2     | 6.493600000 GHz | 54.44          | Average  | 0.46           |
| 1     | 7.421200000 GHz | 54.07          | Max Peak | -19.91         |
| 2     | 7.421600000 GHz | 44.84          | Average  | -9.14          |

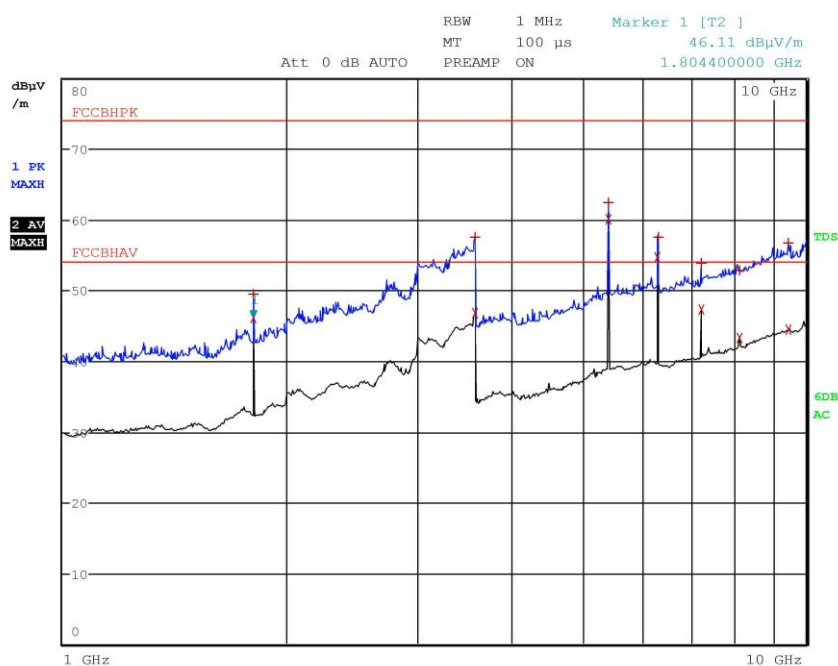


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Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082917  
Test Spec





Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082917  
Test Spec

### Final Measurement

Meas Time: 1 s  
Margin: 20 dB  
Subranges: 14

| Trace | Frequency       | Level (dBµV/m) | Detector | Delta Limit/dB |
|-------|-----------------|----------------|----------|----------------|
| 2     | 1.804400000 GHz | 46.11          | Average  | -7.87          |
| 1     | 1.804800000 GHz | 49.53          | Max Peak | -24.45         |
| 1     | 3.592000000 GHz | 57.51          | Max Peak | -16.47         |
| 2     | 3.594000000 GHz | 46.84          | Average  | -7.14          |
| 1     | 5.413600000 GHz | 62.36          | Max Peak | -11.62         |
| 2     | 5.413600000 GHz | 60.15          | Average  | 6.17           |
| 2     | 6.316000000 GHz | 54.70          | Average  | 0.72           |
| 1     | 6.316400000 GHz | 57.54          | Max Peak | -16.44         |
| 1     | 7.218000000 GHz | 53.86          | Max Peak | -20.12         |
| 2     | 7.218400000 GHz | 47.27          | Average  | -6.71          |
| 2     | 8.120400000 GHz | 43.31          | Average  | -10.67         |
| 1     | 8.147200000 GHz | 52.80          | Max Peak | -21.18         |
| 2     | 9.456800000 GHz | 44.41          | Average  | -9.57          |
| 1     | 9.468000000 GHz | 56.76          | Max Peak | -17.22         |

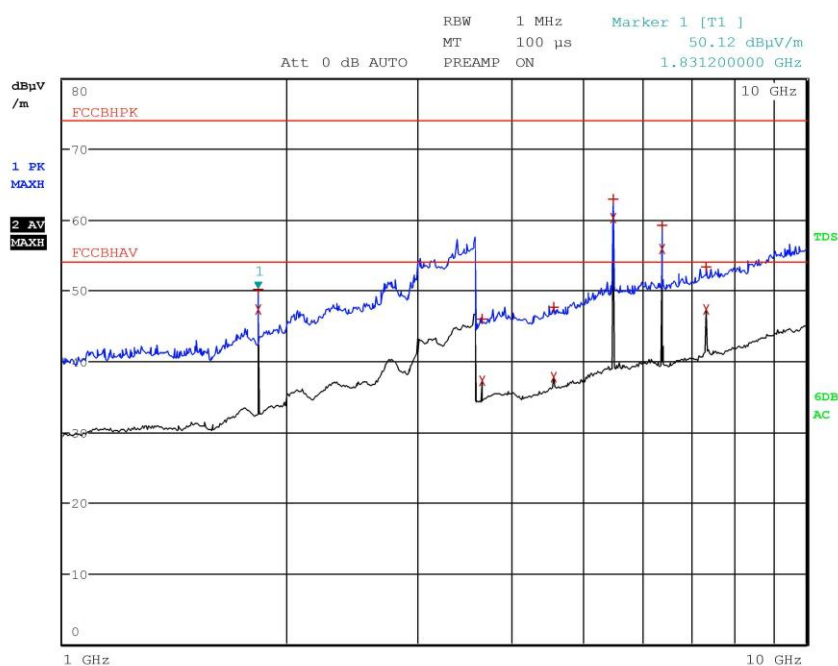


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LAB N° 0168

Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082918  
Test Spec





Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082918  
Test Spec

### Final Measurement

Meas Time: 1 s  
Margin: 20 dB  
Subranges: 12

| Trace | Frequency       | Level (dBµV/m) | Detector | Delta Limit/dB |
|-------|-----------------|----------------|----------|----------------|
| 2     | 1.831200000 GHz | 47.32          | Average  | -6.66          |
| 1     | 1.831200000 GHz | 50.12          | Max Peak | -23.86         |
| 2     | 3.662400000 GHz | 37.17          | Average  | -16.81         |
| 1     | 3.662400000 GHz | 45.97          | Max Peak | -28.01         |
| 2     | 4.578400000 GHz | 37.76          | Average  | -16.22         |
| 1     | 4.578400000 GHz | 47.58          | Max Peak | -26.40         |
| 1     | 5.494000000 GHz | 62.92          | Max Peak | -11.06         |
| 2     | 5.494000000 GHz | 60.26          | Average  | 6.28           |
| 1     | 6.409200000 GHz | 59.19          | Max Peak | -14.79         |
| 2     | 6.409600000 GHz | 55.92          | Average  | 1.94           |
| 1     | 7.324400000 GHz | 53.43          | Max Peak | -20.55         |
| 2     | 7.325200000 GHz | 47.32          | Average  | -6.66          |

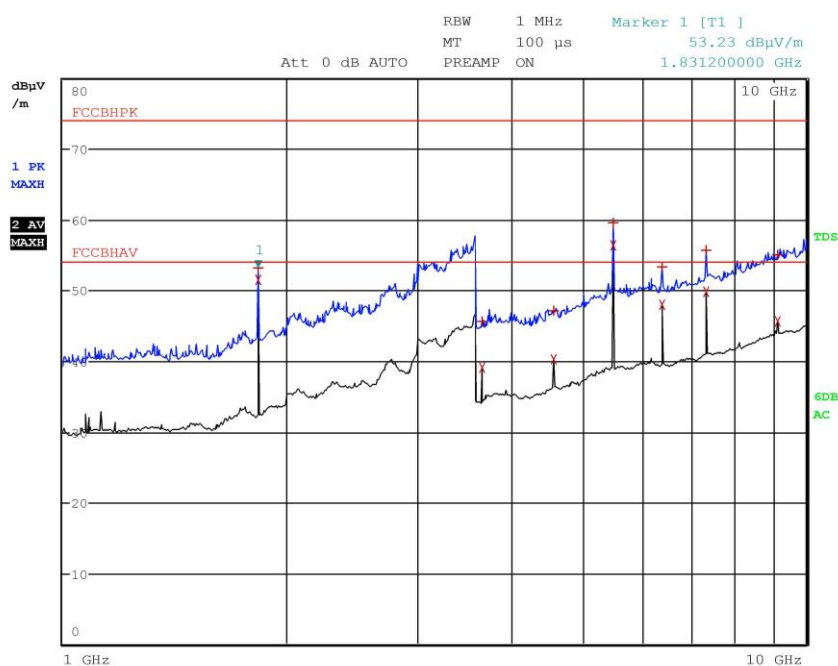


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Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082919  
Test Spec





Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082919  
Test Spec

### Final Measurement

Meas Time: 1 s  
Margin: 20 dB  
Subranges: 14

| Trace | Frequency       | Level (dBµV/m) | Detector | Delta Limit/dB |
|-------|-----------------|----------------|----------|----------------|
| 2     | 1.831200000 GHz | 51.57          | Average  | -2.41          |
| 1     | 1.831200000 GHz | 53.23          | Max Peak | -20.75         |
| 2     | 3.662400000 GHz | 39.16          | Average  | -14.82         |
| 1     | 3.662400000 GHz | 45.69          | Max Peak | -28.29         |
| 2     | 4.578000000 GHz | 40.30          | Average  | -13.68         |
| 1     | 4.578000000 GHz | 47.09          | Max Peak | -26.89         |
| 1     | 5.493600000 GHz | 59.51          | Max Peak | -14.47         |
| 2     | 5.493600000 GHz | 56.38          | Average  | 2.40           |
| 1     | 6.409200000 GHz | 53.38          | Max Peak | -20.60         |
| 2     | 6.409600000 GHz | 47.98          | Average  | -6.00          |
| 1     | 7.324800000 GHz | 55.78          | Max Peak | -18.20         |
| 2     | 7.325200000 GHz | 49.91          | Average  | -4.07          |
| 1     | 9.156000000 GHz | 55.07          | Max Peak | -18.91         |
| 2     | 9.156000000 GHz | 45.57          | Average  | -8.41          |

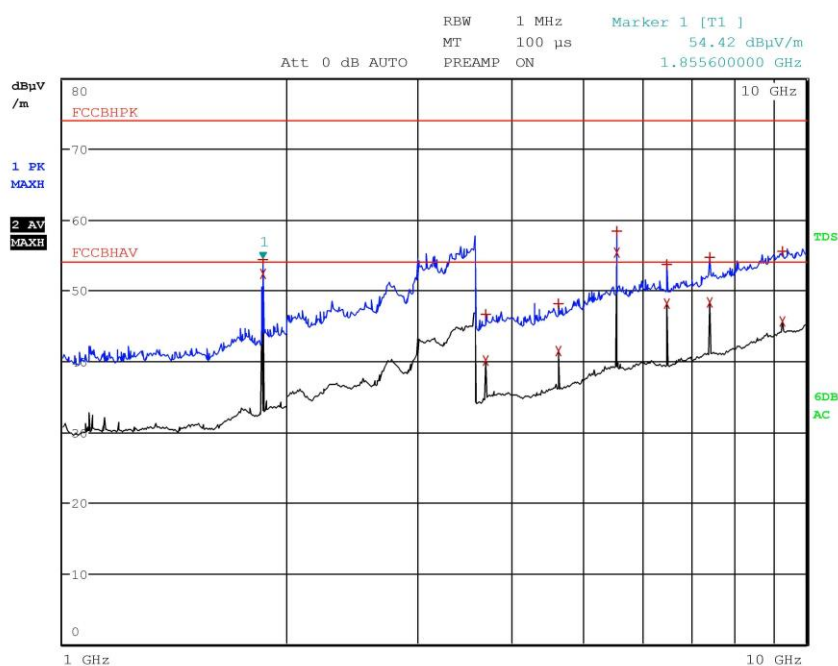


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Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082920  
Test Spec





Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082920  
Test Spec

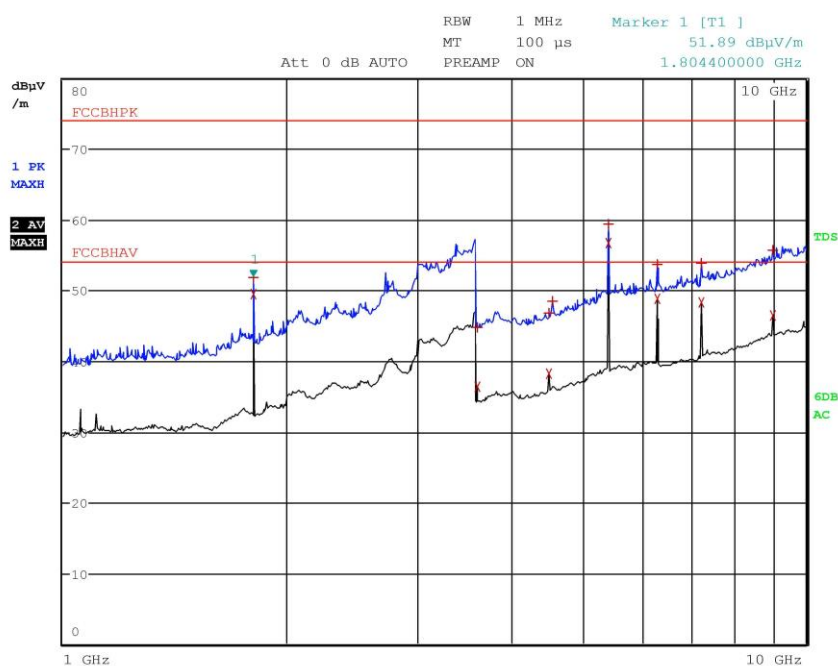
### Final Measurement

Meas Time: 1 s  
Margin: 20 dB  
Subranges: 14

| Trace | Frequency       | Level (dBμV/m) | Detector | Delta Limit/dB |
|-------|-----------------|----------------|----------|----------------|
| 2     | 1.855200000 GHz | 52.42          | Average  | -1.56          |
| 1     | 1.855600000 GHz | 54.42          | Max Peak | -19.56         |
| 1     | 3.710400000 GHz | 46.58          | Max Peak | -27.40         |
| 2     | 3.710800000 GHz | 40.11          | Average  | -13.87         |
| 1     | 4.638000000 GHz | 48.14          | Max Peak | -25.84         |
| 2     | 4.638400000 GHz | 41.39          | Average  | -12.59         |
| 1     | 5.566000000 GHz | 58.43          | Max Peak | -15.55         |
| 2     | 5.566000000 GHz | 55.37          | Average  | 1.39           |
| 2     | 6.493600000 GHz | 48.23          | Average  | -5.75          |
| 1     | 6.494000000 GHz | 53.77          | Max Peak | -20.21         |
| 1     | 7.421200000 GHz | 54.74          | Max Peak | -19.24         |
| 2     | 7.421600000 GHz | 48.34          | Average  | -5.64          |
| 1     | 9.277200000 GHz | 55.57          | Max Peak | -18.41         |
| 2     | 9.277200000 GHz | 45.64          | Average  | -8.34          |



Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082921  
Test Spec





Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082921  
Test Spec

### Final Measurement

Meas Time: 1 s  
Margin: 20 dB  
Subranges: 15

| Trace | Frequency       | Level (dBµV/m) | Detector | Delta Limit/dB |
|-------|-----------------|----------------|----------|----------------|
| 2     | 1.804400000 GHz | 49.58          | Average  | -4.40          |
| 1     | 1.804400000 GHz | 51.89          | Max Peak | -22.09         |
| 2     | 3.609200000 GHz | 36.39          | Average  | -17.59         |
| 1     | 3.609200000 GHz | 44.79          | Max Peak | -29.19         |
| 1     | 4.505600000 GHz | 46.86          | Max Peak | -27.12         |
| 2     | 4.511600000 GHz | 38.29          | Average  | -15.69         |
| 1     | 4.555200000 GHz | 48.42          | Max Peak | -25.56         |
| 2     | 5.413600000 GHz | 56.76          | Average  | 2.78           |
| 1     | 5.414000000 GHz | 59.41          | Max Peak | -14.57         |
| 1     | 6.316000000 GHz | 53.67          | Max Peak | -20.31         |
| 2     | 6.316000000 GHz | 48.78          | Average  | -5.20          |
| 1     | 7.218000000 GHz | 53.88          | Max Peak | -20.10         |
| 2     | 7.218400000 GHz | 48.25          | Average  | -5.73          |
| 2     | 9.022800000 GHz | 46.52          | Average  | -7.46          |
| 1     | 9.023200000 GHz | 55.79          | Max Peak | -18.19         |

**Result:** The requirements are met



### 11.3 Fundamental and Spurious Emission ( $\leq 1$ GHz)

#### Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.209 and Part 15.231 (b)
- Internal procedure PM001
- See clause 4 of this test report
- Test date: May 16<sup>th</sup>, 2017
- Technician: A. Bertezolo

#### 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 S164, CMC S287  
Measurement uncertainty: See clause 7 of this test report

#### Test specification

Port: Enclosure  
Antenna polarization: Horizontal (H) – Vertical (V)  
EUT – Antenna distance: 10 m  
EUT height about the floor: 80 cm  
Detector CISPR quasi-peak

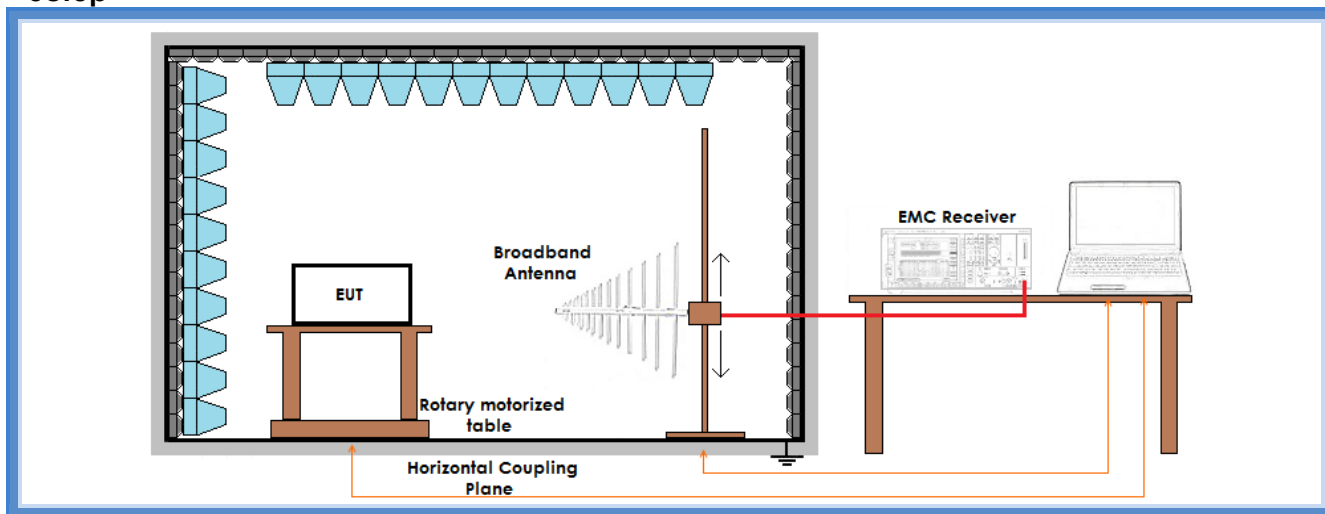
#### Environmental conditions

| Temperature<br>(°C) | Atmospheric pressure<br>(kPa) | Relative humidity<br>(%) |
|---------------------|-------------------------------|--------------------------|
| 23                  | 100                           | 45                       |

#### Acceptance limits

| FCC Part 15.231 (b)            |                                                   |                                                          |
|--------------------------------|---------------------------------------------------|----------------------------------------------------------|
| Fundamental frequency<br>(MHz) | Field strength of fundamental<br>[dB( $\mu$ V/m)] | Field strength of spurious<br>emissions [dB( $\mu$ V/m)] |
| 40,66 to 40,70                 | 67,04                                             | 47,04                                                    |
| 70 to 130                      | 61,94                                             | 41,94                                                    |
| 130 to 174                     | 61,94 to 71,48                                    | 41,94 to 51,48                                           |
| 174 to 260                     | 71,48                                             | 51,48                                                    |
| 260 to 470                     | 71,48 to 81,94                                    | 51,48 to 61,94                                           |
| Above 470                      | 81,94                                             | 61,94                                                    |

## Setup



## Result – Field strength of fundamental

| Frequency (MHz) | Graphs    | Limits (dBμV/m) | 3 m referred peak level (dBμV/m) | Duty cycle (dB) | Level (dBμV/m) | Results  |
|-----------------|-----------|-----------------|----------------------------------|-----------------|----------------|----------|
| 902,30          | G17082911 | 81,94           | 102,20                           | -33,4           | 68,80          | Complies |
| 915,65          | G17082912 | 81,94           | 102,08                           | -33,4           | 68,68          | Complies |
| 927,70          | G17082910 | 81,94           | 101,23                           | -33,4           | 67,83          | Complies |

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

Duty cycle value has been obtained using the following formula:

Duty cycle =  $20\log(2,12 \text{ ms} / 100 \text{ ms}) = -33,4 \text{ dB}$ , see also the duty cycle evaluation of cl. 2 of this Test Report

## Result – Field strength of spurious emissions

| Frequency band (MHz) | Frequency (MHz) | Limits (dBμV/m) | Peak level (dBμV/m)         | Duty cycle (dB) | Level (dBμV/m)              | Results  |
|----------------------|-----------------|-----------------|-----------------------------|-----------------|-----------------------------|----------|
| 902,30               | < 1000          | 61,94           | More than 20 dB below limit | -33,4           | More than 20 dB below limit | Complies |
| 915,65               | < 1000          | 61,94           | More than 20 dB below limit | -33,4           | More than 20 dB below limit | Complies |
| 927,70               | < 1000          | 61,94           | More than 20 dB below limit | -33,4           | More than 20 dB below limit | Complies |

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

Duty cycle value has been obtained using the following formula:

Duty cycle =  $20\log(2,12 \text{ ms} / 100 \text{ ms}) = -33,4 \text{ dB}$ , see also the duty cycle evaluation of cl. 2 of this Test Report



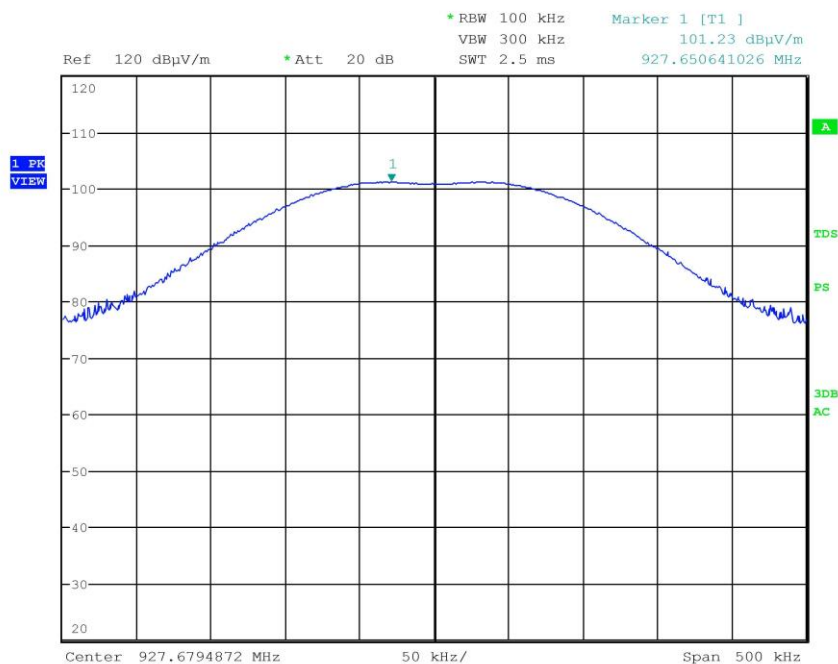
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36016 Thiene (VI)



LAB N° 0168

## Graphs

**Meas Type** Emission  
**Equipment under Test**  
**Manufacturer**  
**OP Condition**  
**Operator** Bertezzo 17082910  
**Test Spec**



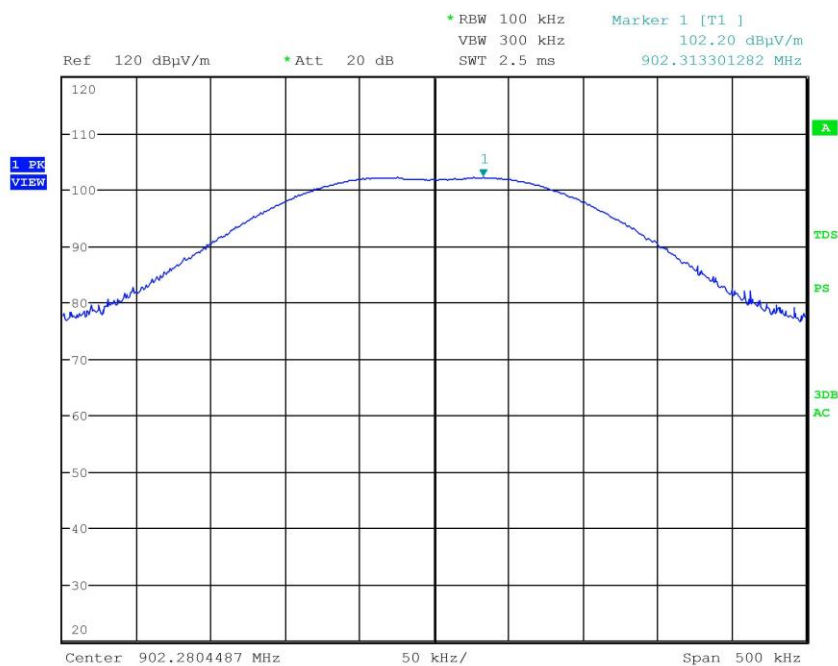


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LAB N° 0168

Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082911  
Test Spec



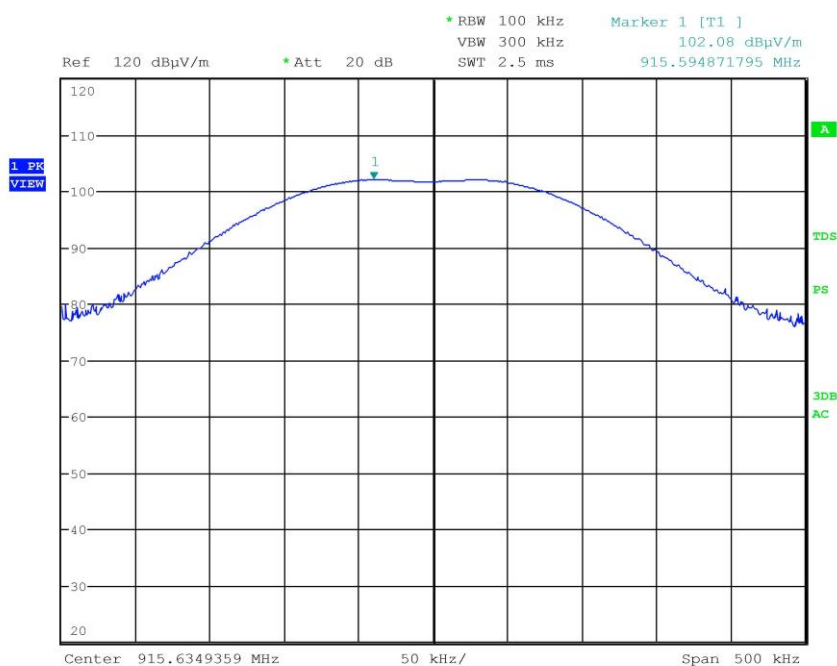


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LAB N° 0168

Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082912  
Test Spec



**Result:** The requirements are met



## 11.4 Spurious Emission (> 1 GHz)

### Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.209 and Part 15.231
- ANSI C63.10 cl. 6.3.1
- Internal procedure PM001
- See clause 4 of this test report
- Test date: May 16<sup>th</sup>, 2017
- Technician: A. Bertezolo

### 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 S164, CMC S190  
Measurement uncertainty: See clause 7 of this test report

### Test specification

Port: Enclosure  
Antenna polarization: Horizontal (H) – Vertical (V)  
EUT – Antenna distance: 3 m  
EUT height about the floor: 1,5 m  
Detector AV + Peak

### Environmental conditions

| Temperature<br>(°C) | Atmospheric pressure<br>(kPa) | Relative humidity<br>(%) |
|---------------------|-------------------------------|--------------------------|
| 23                  | 100                           | 45                       |

### Acceptance limits

| Acceptance limits for emissions in restricted frequency bands |                         |                           |
|---------------------------------------------------------------|-------------------------|---------------------------|
| Frequency<br>(MHz)                                            | AV limits<br>[dB(μV/m)] | Peak limits<br>[dB(μV/m)] |
| > 1000                                                        | 54                      | 74                        |

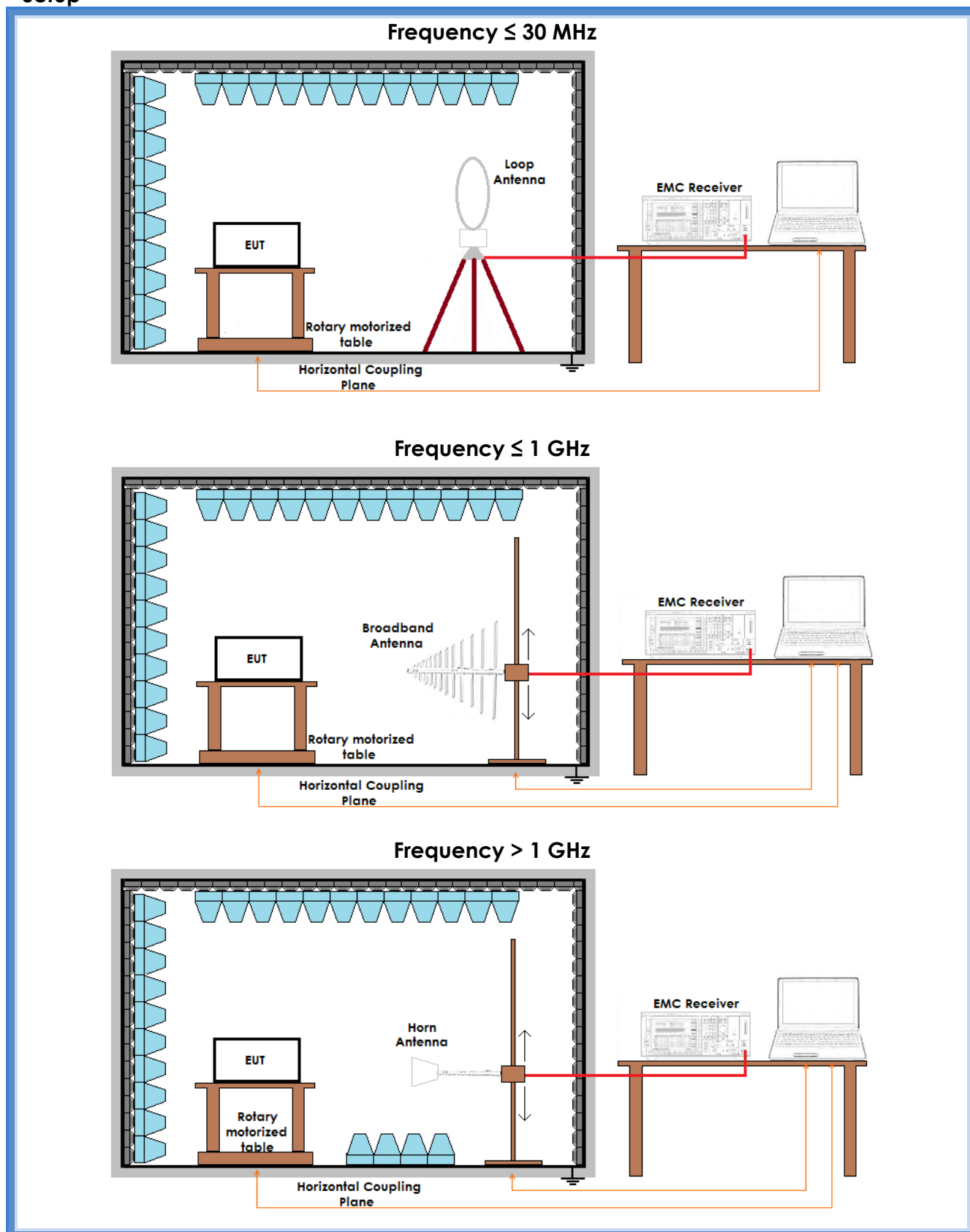
| Acceptance limits for emissions in non-restricted frequency bands |                         |                           |
|-------------------------------------------------------------------|-------------------------|---------------------------|
| Frequency<br>(MHz)                                                | AV limits<br>[dB(μV/m)] | Peak limits<br>[dB(μV/m)] |
| > 1000                                                            | 51,48                   | 71,48                     |



The restricted frequency bands are listed in the following table

| MHz                 | MHz                   | MHz             | GHz           |
|---------------------|-----------------------|-----------------|---------------|
| 0,090 – 0,110       | 16,42 – 16,423        | 399,9 – 410     | 4,5 – 5,15    |
| 0,495 – 0,505       | 16,69475 – 16,69525   | 608 – 614       | 5,35 – 5,46   |
| 2,1735 – 2,1905     | 16,80425 – 16,80475   | 960 – 1240      | 7,25 – 7,75   |
| 4,125 – 4,128       | 25,5 – 25,67          | 1300 – 1427     | 8,025 – 8,5   |
| 4,17725 – 4,17775   | 37,5 – 38,25          | 1435 – 1626,5   | 9,0 – 9,2     |
| 4,20725 – 4,20775   | 73 – 74,6             | 1645,5 – 1646,5 | 9,3 – 9,5     |
| 6,215 – 6,218       | 74,8 – 75,2           | 1660 – 1710     | 10,6 – 12,7   |
| 6,26775 – 6,26825   | 108 – 121,94          | 1718,8 – 1722,2 | 13,25 – 13,4  |
| 6,31175 – 6,31225   | 123 – 138             | 2200 – 2300     | 14,47 – 14,5  |
| 8,291 – 8,294       | 149,9 – 150,05        | 2310 – 2390     | 15,35 – 16,2  |
| 8,362 – 8,366       | 156,52475 – 156,52525 | 2483,5 – 2500   | 17,7 – 21,4   |
| 8,37625 – 8,38675   | 156,7 – 156,9         | 2690 – 2900     | 22,01 – 23,12 |
| 8,41425 – 8,41475   | 162,0125 – 167,17     | 3260 – 3267     | 23,6 – 24,0   |
| 12,29 – 12,293      | 167,72 – 173,2        | 3332 – 3339     | 31,2 – 31,8   |
| 12,51975 – 12,52025 | 240 – 285             | 3345,8 – 3358   | 36,43 – 36,5  |
| 12,57675 – 12,57725 | 322 – 335,4           | 3600 – 4400     | Above 38,6    |
| 13,36 – 13,41       |                       |                 |               |

## Setup





## Result – AV detector

| Frequency band (MHz) | Frequency (MHz) | Limits (dB $\mu$ V/m) | Measured Level (dB $\mu$ V/m) | Duty cycle (dB) | Level (dB $\mu$ V/m) | Results  |
|----------------------|-----------------|-----------------------|-------------------------------|-----------------|----------------------|----------|
| 902,30               | 1804            | 51,48                 | 49,60                         | -33,4           | 16,20                | Complies |
| 902,30               | 3594            | 54,00                 | 46,50                         | -33,4           | 13,10                | Complies |
| 902,30               | 4511            | 54,00                 | 38,30                         | -33,4           | 4,90                 | Complies |
| 902,30               | 5413            | 54,00                 | 60,10                         | -33,4           | 26,70                | Complies |
| 902,30               | 6316            | 51,48                 | 54,70                         | -33,4           | 21,30                | Complies |
| 902,30               | 7280            | 54,00                 | 48,30                         | -33,4           | 14,90                | Complies |
| 902,30               | 8120            | 54,00                 | 43,30                         | -33,4           | 9,90                 | Complies |
| 902,30               | 9022            | 54,00                 | 46,50                         | -33,4           | 13,10                | Complies |
| 915,65               | 1831            | 51,48                 | 51,60                         | -33,4           | 18,20                | Complies |
| 915,65               | 3662            | 54,00                 | 39,21                         | -33,4           | 5,81                 | Complies |
| 915,65               | 4578            | 54,00                 | 40,30                         | -33,4           | 6,90                 | Complies |
| 915,65               | 5470            | 51,48                 | 60,30                         | -33,4           | 26,90                | Complies |
| 915,65               | 6409            | 51,48                 | 55,90                         | -33,4           | 22,50                | Complies |
| 915,65               | 7324            | 54,00                 | 49,90                         | -33,4           | 16,50                | Complies |
| 915,65               | 9156            | 54,00                 | 45,60                         | -33,4           | 12,20                | Complies |
| 927,70               | 1855            | 51,48                 | 52,20                         | -33,4           | 18,80                | Complies |
| 927,70               | 3710            | 54,00                 | 40,10                         | -33,4           | 6,70                 | Complies |
| 927,70               | 4638            | 54,00                 | 41,40                         | -33,4           | 8,00                 | Complies |
| 927,70               | 5566            | 51,48                 | 59,50                         | -33,4           | 26,10                | Complies |
| 927,70               | 6493            | 51,48                 | 54,40                         | -33,4           | 21,00                | Complies |
| 927,70               | 7421            | 54,00                 | 48,30                         | -33,4           | 14,90                | Complies |
| 927,70               | 9277            | 51,48                 | 45,60                         | -33,4           | 12,20                | Complies |

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

Duty cycle value has been obtained using the following formula:

Duty cycle =  $20\log(2,12 \text{ ms} / 100 \text{ ms}) = -33,4 \text{ dB}$ , see also the duty cycle evaluation of cl. 2 of this Test Report



## Result – Peak detector

| Frequency band (MHz) | Frequency (MHz) | Limits (dB $\mu$ V/m) | Measured Level (dB $\mu$ V/m) | Duty cycle (dB) | Level (dB $\mu$ V/m) | Results  |
|----------------------|-----------------|-----------------------|-------------------------------|-----------------|----------------------|----------|
| 902,30               | 1804            | 71,48                 | 51,90                         | -33,4           | 18,50                | Complies |
| 902,30               | 3594            | 74,00                 | 57,50                         | -33,4           | 24,10                | Complies |
| 902,30               | 4511            | 74,00                 | 48,40                         | -33,4           | 15,00                | Complies |
| 902,30               | 5413            | 74,00                 | 62,40                         | -33,4           | 29,00                | Complies |
| 902,30               | 6316            | 71,48                 | 57,50                         | -33,4           | 24,10                | Complies |
| 902,30               | 7280            | 74,00                 | 53,90                         | -33,4           | 20,50                | Complies |
| 902,30               | 8120            | 74,00                 | 52,80                         | -33,4           | 19,40                | Complies |
| 902,30               | 9022            | 74,00                 | 55,80                         | -33,4           | 22,40                | Complies |
| 915,65               | 1831            | 71,48                 | 53,20                         | -33,4           | 19,80                | Complies |
| 915,65               | 3662            | 74,00                 | 45,70                         | -33,4           | 12,30                | Complies |
| 915,65               | 4578            | 74,00                 | 47,10                         | -33,4           | 13,70                | Complies |
| 915,65               | 5470            | 71,48                 | 63,00                         | -33,4           | 29,60                | Complies |
| 915,65               | 6409            | 71,48                 | 59,20                         | -33,4           | 25,80                | Complies |
| 915,65               | 7324            | 74,00                 | 55,80                         | -33,4           | 22,40                | Complies |
| 915,65               | 9156            | 74,00                 | 55,10                         | -33,4           | 21,70                | Complies |
| 927,70               | 1855            | 71,48                 | 54,40                         | -33,4           | 21,00                | Complies |
| 927,70               | 3710            | 74,00                 | 46,60                         | -33,4           | 13,20                | Complies |
| 927,70               | 4638            | 74,00                 | 48,10                         | -33,4           | 14,70                | Complies |
| 927,70               | 5566            | 71,48                 | 61,70                         | -33,4           | 28,30                | Complies |
| 927,70               | 6493            | 71,48                 | 58,40                         | -33,4           | 25,00                | Complies |
| 927,70               | 7421            | 74,00                 | 54,80                         | -33,4           | 21,40                | Complies |
| 927,70               | 9277            | 71,48                 | 55,60                         | -33,4           | 22,20                | Complies |

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

Duty cycle value has been obtained using the following formula:

Duty cycle =  $20\log(2,12 \text{ ms} / 100 \text{ ms}) = -33,4 \text{ dB}$ , see also the duty cycle evaluation of cl. 2 of this Test Report

**Result:** The requirements are met



## 11.5 Occupied channel bandwidth

### Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.231 (c)
- ANSI C63.10 cl. 6.9
- Internal procedure PM001
- See clause 4 of this test report
- Test date: January 12<sup>th</sup>, 2017
- Technician: A. Bertezolo

### 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 S164, CMC S287  
Measurement uncertainty: See clause 7 of this test report

### Test specification

The bandwidth of the emission shall be no wider than 0,25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0,5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier

### Environmental conditions

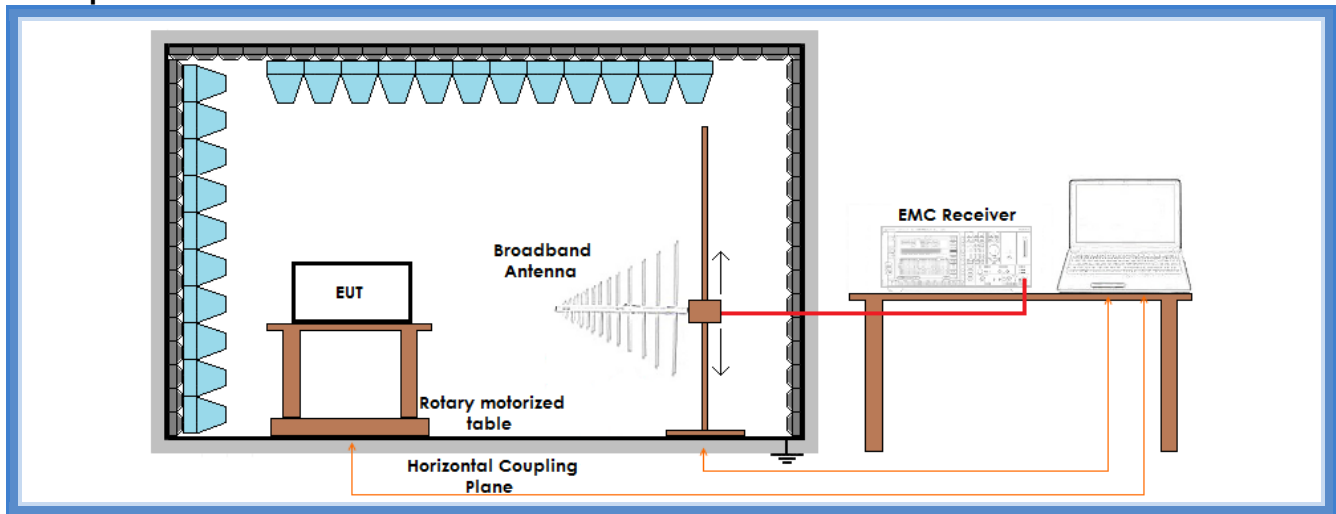
| Temperature<br>(°C) | Atmospheric pressure<br>(kPa) | Relative humidity<br>(%) |
|---------------------|-------------------------------|--------------------------|
| 23                  | 100                           | 45                       |

### Acceptance limits

| Limits                                              |                                    |
|-----------------------------------------------------|------------------------------------|
| Devices operating<br>above 70 MHz and below 900 MHz | Devices operating<br>above 900 MHz |
| 0,25% of the center frequency                       | 0,5% of the center frequency       |



## Setup



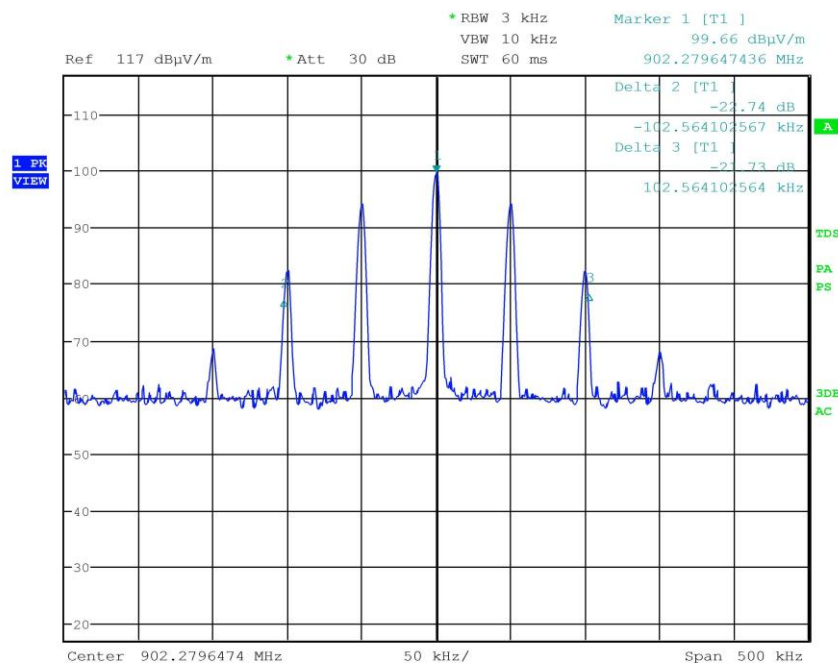
## Result

| Frequency (MHz) | Limit (kHz) | 20 dB bandwidth (kHz) | Graphs    | Results  |
|-----------------|-------------|-----------------------|-----------|----------|
| 902,30          | 4511        | 205,128               | G17082913 | Complies |
| 915,65          | 4578        | 204,326               | G17082914 | Complies |
| 927,70          | 4638        | 205,128               | G17082915 | Complies |



## Graphs

Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082913  
Test Spec



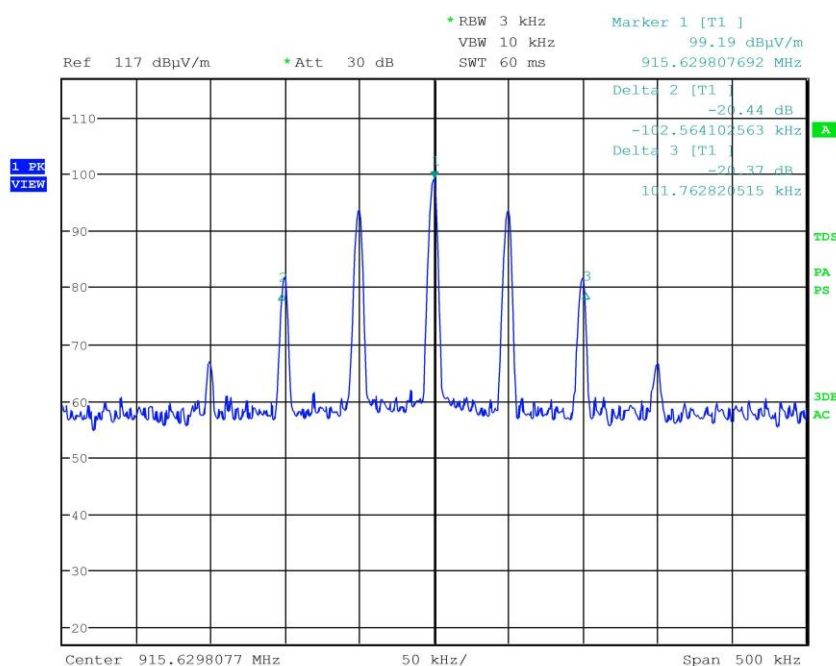


CMC  
Centro Misure Compatibilità S.r.l.  
Via della Fisica, 20  
36016 Thiene (VI)



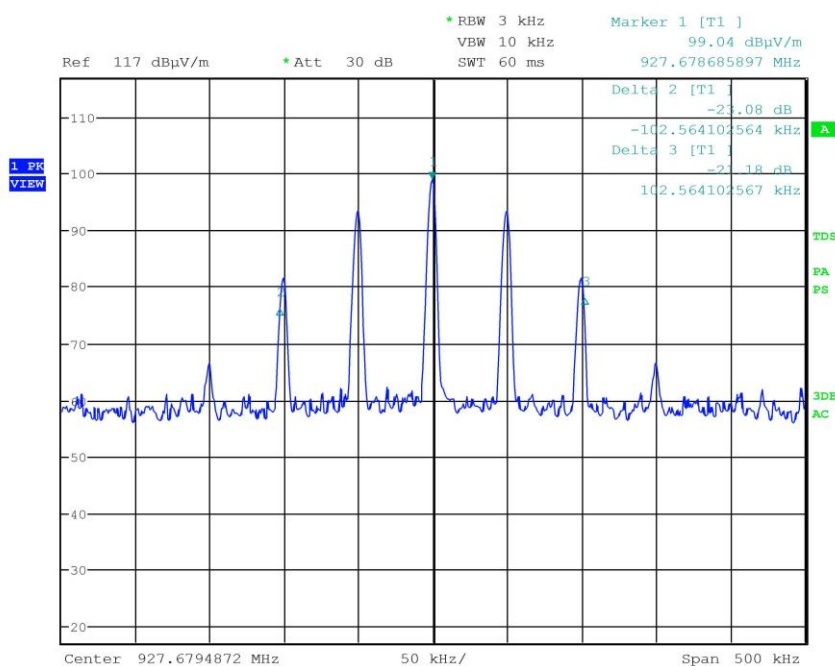
LAB N° 0168

Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezolo 17082914  
Test Spec





Meas Type Emission  
Equipment under Test  
Manufacturer  
OP Condition  
Operator Bertezzo 17082915  
Test Spec



**Result:** The requirements are met



## 11.6 Periodic Operation Characteristics

### Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.231 (a)
- Internal procedure PM001
- See clause 4 of this test report
- Test date: May 17<sup>th</sup>, 2017
- Technician: A. Bertezolo

### 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 S164  
Measurement uncertainty: See clause 7 of this test report

### Test specification

- ☐ Manually operated transmitter
- ☒ Transmitter activated automatically

Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

### Environmental conditions

| Temperature<br>(°C) | Atmospheric pressure<br>(kPa) | Relative humidity<br>(%) |
|---------------------|-------------------------------|--------------------------|
| 23                  | 100                           | 45                       |



15.231 (a1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released

**Result:** N.A.

15.231 (a2) A transmitter activated automatically shall cease transmission within 5 seconds after activation

**Result:** N.A.

15.231 (a3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour

| Parameter                     | Dwell time (ms) | Silent period between transmissions (s) | Number of transmissions during 1 hour | Total duration of transmissions (max 2 s per h)  | Results  |
|-------------------------------|-----------------|-----------------------------------------|---------------------------------------|--------------------------------------------------|----------|
| <b>Automatic transmission</b> | 2,12            | 20,1                                    | 179                                   | $179 \times 2,12 \text{ ms} = 379,70 \text{ ms}$ | Complies |
| <b>Graphs</b>                 | G17082925       | G17082926                               | --                                    | --                                               | --       |

15.231 (a4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition.

**Result:** N.A.

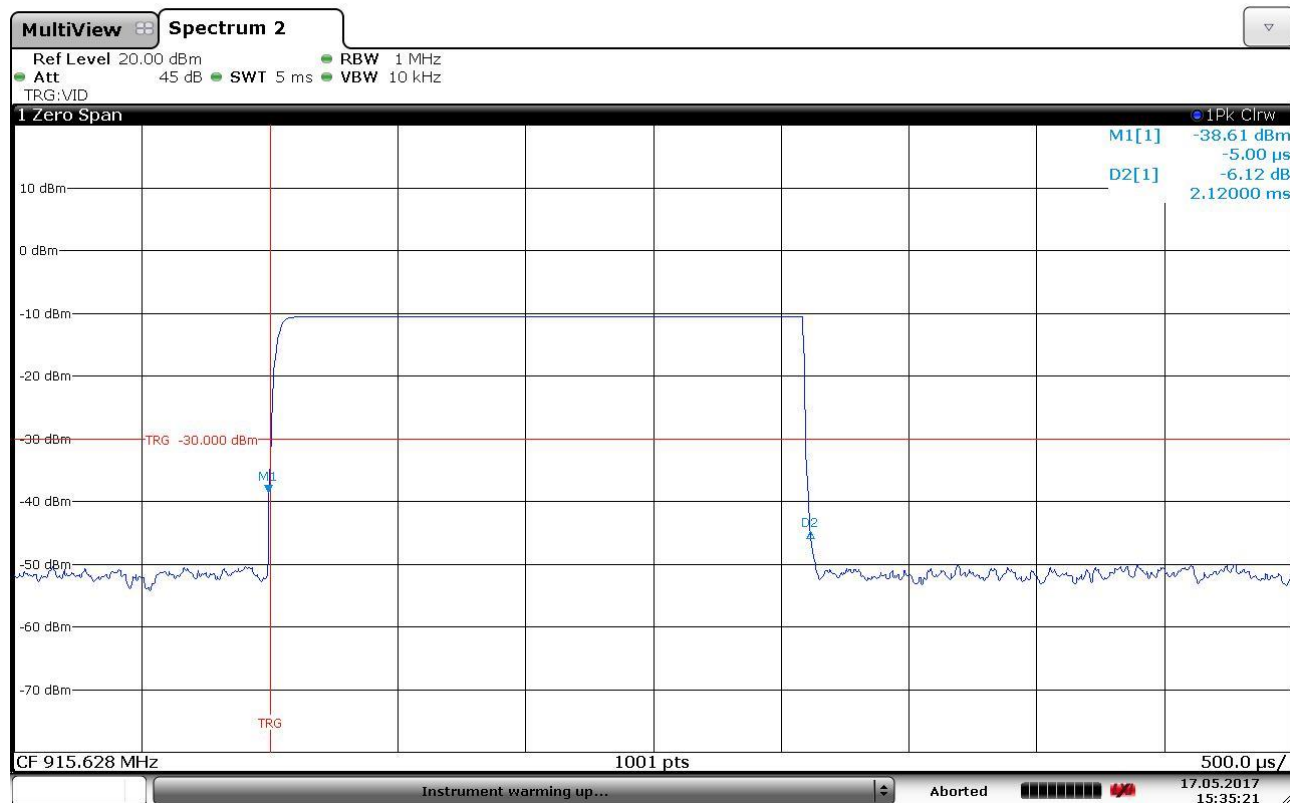
15.231 (a5) Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data

**Result:** N.A.



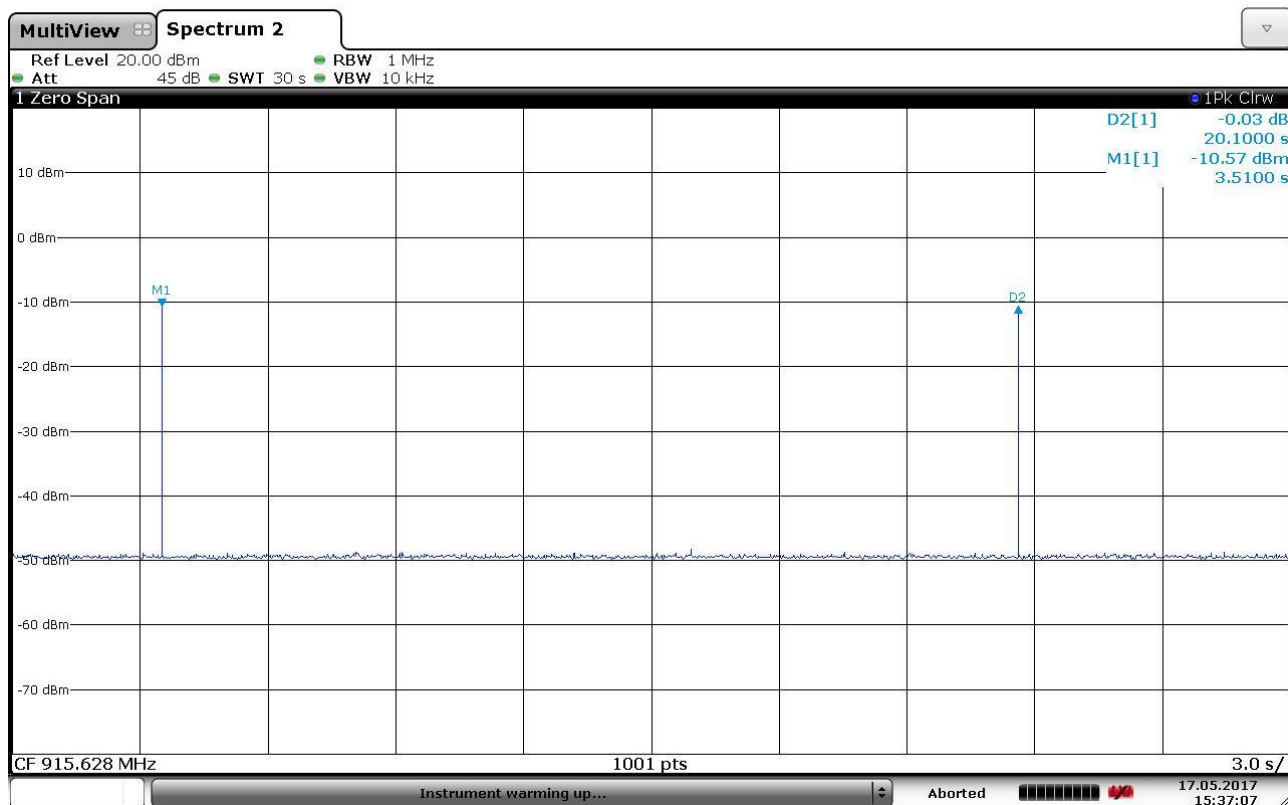
## Graphs

Bertezzo17082925





Bertezzo17082926



**Result:** The requirements are met