

**TEST REPORT****Nr. R19190501****Federal Communication Commission (FCC)**

|                                                                                                                                                                                                            |                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Report Reference No.</b> .....                                                                                                                                                                          | R19190501                                                                                            |
| Date of issue: .....                                                                                                                                                                                       | 29.01.2020                                                                                           |
| Total number pages: .....                                                                                                                                                                                  | 47                                                                                                   |
| <b>Applicant's name</b> .....                                                                                                                                                                              | Tecnolab del Lago Maggiore S.r.l.                                                                    |
| Address .....                                                                                                                                                                                              | Via dell'Industria, 20 – 28924 Verbania (VB) – Italy                                                 |
| <b>Test specification:</b>                                                                                                                                                                                 |                                                                                                      |
| Standards .....                                                                                                                                                                                            | FCC Rules & Regulations, Title 47:2018<br>Part 15 paragraph(s): 203, 204, 205, 207, 209, 215 and 225 |
| Non-standard test method .....                                                                                                                                                                             | N/A                                                                                                  |
| <b>Test Report Form No.</b> .....                                                                                                                                                                          | 15_225CMC                                                                                            |
| Test Report Form(s) Originator ..                                                                                                                                                                          | CMC Centro Misure Compatibilità S.r.l.                                                               |
| Master TRF .....                                                                                                                                                                                           | 2020-01                                                                                              |
| <b>General disclaimer:</b>                                                                                                                                                                                 |                                                                                                      |
| The test results presented in this report relate only to the object tested.<br>This report shall not be reproduced, except in full, without the written approval of CMC Centro Misure Compatibilità S.r.l. |                                                                                                      |
| <b>Test item description</b> .....                                                                                                                                                                         | GTV RFID 13,56 module                                                                                |
| Trademark .....                                                                                                                                                                                            | Madic Italia                                                                                         |
| Manufacturer .....                                                                                                                                                                                         | Madic Italia S.p.A.                                                                                  |
| Model / Type reference .....                                                                                                                                                                               | BV1000GTV                                                                                            |
| FCC ID .....                                                                                                                                                                                               | 2AKMT-GTV222A                                                                                        |
| Rating(s) .....                                                                                                                                                                                            | 9-42 Vdc                                                                                             |
| <b>Report</b>                                                                                                                                                                                              |                                                                                                      |
| Tested by (name + signature) .....                                                                                                                                                                         | A. Bertezzo                                                                                          |
| Approved by (name + signature) .....                                                                                                                                                                       | R. Beghetto                                                                                          |



## 1 Summary

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|                                                                                                                                                    |    |
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| <b>2 Reference standard</b>                                                                                                                        |    |
| FCC Rules and Regulation Title 47 part 15:2018                                                                                                     | -- |
| <b>3 List of attachments</b>                                                                                                                       |    |
| Attachment 1: Instruments list, measurement uncertainty, judgement of compliance and quality manual references                                     |    |
| <b>4 Deviation(s) from test specification</b>                                                                                                      |    |
| None                                                                                                                                               |    |
| <b>5 Testing location</b>                                                                                                                          |    |
| CMC Centro Misure Compatibilità S.r.l.<br>Via della Fisica, 20 – 36016 Thiene (VI) – Italy<br>Test site facility's FCC registration number: 182474 |    |



|                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Testing and sampling:</b>                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                            |
| Date of receipt of test item .....                                                                                                                                                                                                                                                                                                   | 03.09.2019                                                                                                                                                                                 |
| Testing start date .....                                                                                                                                                                                                                                                                                                             | 23.01.2020                                                                                                                                                                                 |
| Testing end date .....                                                                                                                                                                                                                                                                                                               | 27.01.2020                                                                                                                                                                                 |
| Sampling procedure.....                                                                                                                                                                                                                                                                                                              | Equipment used for testing was picked up by the manufacturer, at the end of the production process with random criterion.<br><br>The results relate to the sample as it has been received. |
| Internal identification .....                                                                                                                                                                                                                                                                                                        | Adhesive label with the product number P191032                                                                                                                                             |
| <b>General remarks:</b>                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                            |
| <p>This report shall not be reproduced, except in full, without the written approval of CMC.</p> <p>The test results presented in this report relate only to the object tested.</p> <p>“(see appended table)”: refers to a table appended to the report.</p> <p>Throughout this report a comma is used as the decimal separator.</p> |                                                                                                                                                                                            |
| <b>Possible test case verdicts:</b>                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                            |
| Test case does not apply to the test object:                                                                                                                                                                                                                                                                                         | N/A (Not Applicable)                                                                                                                                                                       |
| Test object does meet the requirement:                                                                                                                                                                                                                                                                                               | P (Pass)                                                                                                                                                                                   |
| Test object does not meet the requirement:                                                                                                                                                                                                                                                                                           | F (Fail)                                                                                                                                                                                   |
| Test object does not performed:                                                                                                                                                                                                                                                                                                      | N/E (Not Executed)                                                                                                                                                                         |
| <b>Definition of symbols used in this test report:</b>                                                                                                                                                                                                                                                                               |                                                                                                                                                                                            |
| <input checked="" type="checkbox"/> Indicates that the listed condition, standard or equipment is applicable for this report.<br><input type="checkbox"/> Indicates that the listed condition, standard or equipment is not applicable for this report.                                                                              |                                                                                                                                                                                            |



## 6 General description of test item(s)

|                                               |                                                                                                                                                        |                                                                                                                                                                                  |  |                          |                          |                          |                          |                          |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Description .....                             | GTV RFID 13,56 module                                                                                                                                  |                                                                                                                                                                                  |  |                          |                          |                          |                          |                          |
| Model Number .....                            | BV1000GTV                                                                                                                                              |                                                                                                                                                                                  |  |                          |                          |                          |                          |                          |
| FCC ID .....                                  | 2AKMT-GTV222A                                                                                                                                          |                                                                                                                                                                                  |  |                          |                          |                          |                          |                          |
| Serial Number .....                           | --                                                                                                                                                     |                                                                                                                                                                                  |  |                          |                          |                          |                          |                          |
| Brand name .....                              | Madic Italia                                                                                                                                           |                                                                                                                                                                                  |  |                          |                          |                          |                          |                          |
| Nominal frequency .....                       | 13,56 MHz                                                                                                                                              |                                                                                                                                                                                  |  |                          |                          |                          |                          |                          |
| Rated power supply .....                      | Voltage and Frequency                                                                                                                                  |                                                                                                                                                                                  |  | Reference poles          |                          |                          |                          |                          |
|                                               |                                                                                                                                                        |                                                                                                                                                                                  |  | N                        | L1                       | L2                       | L3                       | PE                       |
|                                               | <input type="checkbox"/>                                                                                                                               | AC:                                                                                                                                                                              |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                                               | <input type="checkbox"/>                                                                                                                               | AC:                                                                                                                                                                              |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                                               | <input checked="" type="checkbox"/>                                                                                                                    | DC: 9-42 V                                                                                                                                                                       |  |                          |                          |                          |                          | <input type="checkbox"/> |
| Unconnected EUT ports list .....              | Serial port (S2 connector) has been used to enable the EUT but it has been unconnected during the test as provided by the manufacturer's documentation |                                                                                                                                                                                  |  |                          |                          |                          |                          |                          |
| Software version .....                        | ch_env_R01-01                                                                                                                                          |                                                                                                                                                                                  |  |                          |                          |                          |                          |                          |
| General mounting position .....               | <input type="checkbox"/>                                                                                                                               | Table top equipment                                                                                                                                                              |  |                          |                          |                          |                          |                          |
|                                               | <input checked="" type="checkbox"/>                                                                                                                    | Wall/ceiling mounted equipment                                                                                                                                                   |  |                          |                          |                          |                          |                          |
|                                               | <input type="checkbox"/>                                                                                                                               | Floor standing equipment                                                                                                                                                         |  |                          |                          |                          |                          |                          |
|                                               | <input type="checkbox"/>                                                                                                                               | Hand-held equipment                                                                                                                                                              |  |                          |                          |                          |                          |                          |
| Type of equipment .....                       | <input checked="" type="checkbox"/>                                                                                                                    | Transmitter unit                                                                                                                                                                 |  |                          |                          |                          |                          |                          |
|                                               | <input checked="" type="checkbox"/>                                                                                                                    | Receiver unit                                                                                                                                                                    |  |                          |                          |                          |                          |                          |
| Type of station .....                         | <input checked="" type="checkbox"/>                                                                                                                    | Fixed station                                                                                                                                                                    |  |                          |                          |                          |                          |                          |
|                                               | <input type="checkbox"/>                                                                                                                               | Portable station                                                                                                                                                                 |  |                          |                          |                          |                          |                          |
|                                               | <input type="checkbox"/>                                                                                                                               | Mobile station                                                                                                                                                                   |  |                          |                          |                          |                          |                          |
| Operating modes .....                         | No.                                                                                                                                                    | Operating mode of test item                                                                                                                                                      |  |                          |                          |                          |                          |                          |
|                                               | 1                                                                                                                                                      | TX mode, continuous transmission at 13,56 MHz obtained with "rf_antenna_on" command from auxiliary tera term                                                                     |  |                          |                          |                          |                          |                          |
|                                               | 2                                                                                                                                                      | TX dummy mode, continuous transmission at 13,56 MHz with dummy antenna prepared by the manufacturer. Transmission obtained with "rf_antenna_on" command from auxiliary tera term |  |                          |                          |                          |                          |                          |
| Accessories (not part of the test item) ..... | PC with tera term provided by the manufacturer                                                                                                         |                                                                                                                                                                                  |  |                          |                          |                          |                          |                          |



## 6.1 Photos of the test item





## 7 Verdict summary section

| FCC Rules & Regulations, Title 47:2018<br>Part 15 paragraph(s): 203, 204, 205, 207, 209, 215 and 225 |                                       |                |         |
|------------------------------------------------------------------------------------------------------|---------------------------------------|----------------|---------|
| Clause                                                                                               | Requirement – Test case               | Basic standard | Verdict |
| Part 15.203                                                                                          | Antenna requirements                  | --             | P       |
| Part 15.207                                                                                          | Conducted emissions                   | ANSI C63.10    | P       |
| Part 15.209                                                                                          | Radiated emissions                    | ANSI C63.10    | P       |
| Part 15.225                                                                                          | Field strength with the assigned band | ANSI C63.10    | P       |
| Part 15.225 (e)                                                                                      | Frequency tolerance                   | ANSI C63.10    | P       |
| Part 15.215                                                                                          | 20 dB bandwidth                       | ANSI C63.10    | P       |



| Normative references                           |                                                                                                                                                                  |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference no.                                  | Description                                                                                                                                                      |
| FCC Rules and Regulation Title 47 part 15:2018 | --                                                                                                                                                               |
| ANSI C63.4:2014                                | 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                                                                   |





## 8 Test conditions

### 8.1 General

|                                          |                                                                                                                                                                                                                                 |                 |                             |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------|
| Environmental reference conditions.....: | The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment.<br>The climatic conditions during the tests were within the following limits: |                 |                             |
|                                          | <b>Temperature</b>                                                                                                                                                                                                              | <b>Humidity</b> | <b>Atmospheric pressure</b> |
|                                          | 15 °C – 35 °C                                                                                                                                                                                                                   | 30 % - 60 %     | 800 hPa – 1060 hPa          |
|                                          | If explicitly required in the basic standard or applied product standard the climatic values are recorded and documented separately in this test report.                                                                        |                 |                             |
| Measurement uncertainties .....          | Attachment 1                                                                                                                                                                                                                    |                 |                             |



## 9 Test results

### 9.1 Antenna requirements

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Tested by .....                     | A. Bertezolo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |
| Test date .....                     | 23.01.2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                  |
| Reference standards .....           | FCC Rules and Regulation; Titles 47 Part. 15.203 and 15.204                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |
| Test specification .....            | <p>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, 15.221, or § 15.236. 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</p> |                  |
| Antenna type.....                   | <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Integral antenna |
|                                     | <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | External antenna |
| Antenna gain.....                   | 0 dBi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |
| External R.F. power amplifier ..... | Not Present                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |



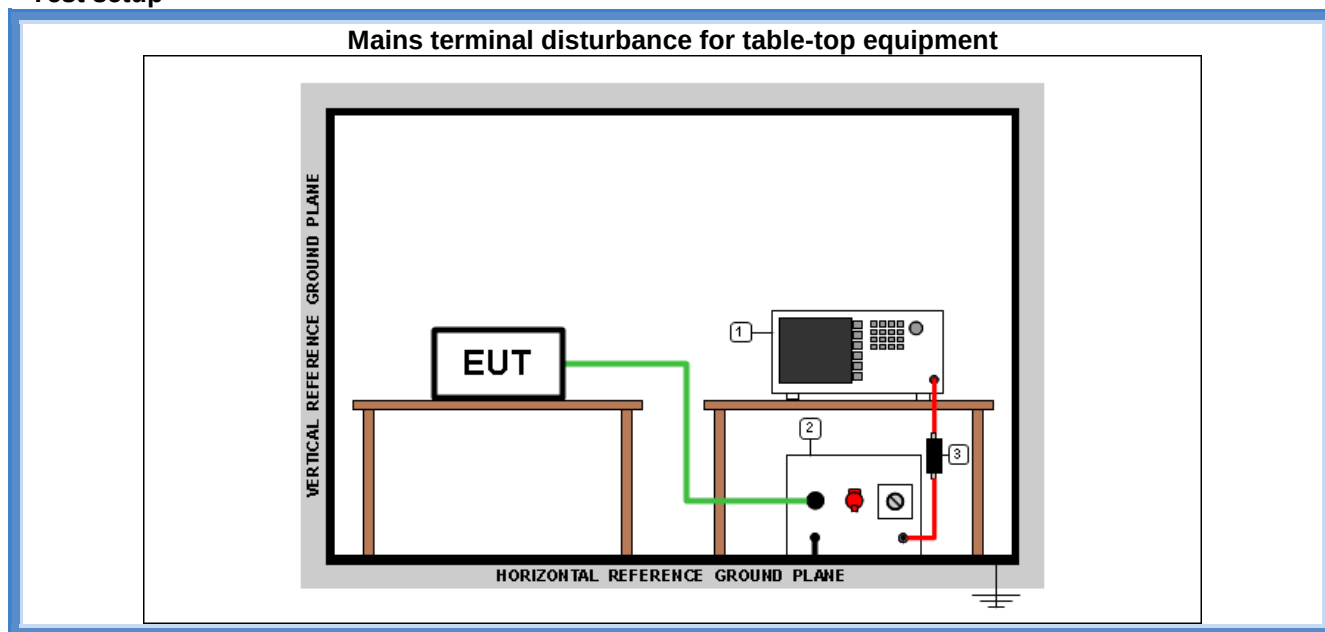
## 9.2 Conducted emission

|                                             |                                                                         |                                                                                                              |
|---------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Tested by .....                             | A. Bertezolo                                                            |                                                                                                              |
| Test date .....                             | 23.01.2020                                                              |                                                                                                              |
| Test location (stand) .....                 | Shielded chamber (CMC A001)                                             |                                                                                                              |
| Reference standards .....                   | FCC Rules and Regulation; Titles 47 Part. 15.207<br>ANSI C63.10 cl. 6.2 |                                                                                                              |
| Test set-up description .....               | <input checked="" type="checkbox"/>                                     | Table top equipment set-up (80 cm above the reference ground plane)                                          |
|                                             | <input type="checkbox"/>                                                | Floor standing equipment set-up (insulating material up to 12 mm thick)                                      |
|                                             | <input type="checkbox"/>                                                | False floor installation equipment set-up (insulating material up to 34 cm above the reference ground plane) |
| Supplementary Test set-up description ..... | --                                                                      |                                                                                                              |
| Test method applied .....                   | <input checked="" type="checkbox"/>                                     | Artificial mains network, 50 $\mu$ H/50 $\Omega$ LISN                                                        |
|                                             | <input type="checkbox"/>                                                | Other:                                                                                                       |

### Acceptance limits

| Frequency range (MHz) | <i>dB(<math>\mu</math>V) Quasi-peak</i> | <i>dB(<math>\mu</math>V) Average</i> |
|-----------------------|-----------------------------------------|--------------------------------------|
| 0,15 to 0,50          | 66 to 56                                | 56 to 46                             |
| 0,5 to 5              | 56                                      | 46                                   |
| 5 to 30               | 60                                      | 50                                   |

## Test setup



Test setup PE001\_01

| Test setup PE001_01 |            |                 |           |                        |
|---------------------|------------|-----------------|-----------|------------------------|
| Nr.                 | Id. Number | Manufacturer    | Model     | Description            |
| 3                   | CMC S010   | Rohde & Schwarz | ESH3-Z2   | Pulse limiter          |
| 2                   | CMC S200   | Schwarzbeck     | NSLK 8128 | V-LISN                 |
| 1                   | CMC S206   | Rohde & Schwarz | ESCI 7    | EMC Receiver 9KHz-7GHz |

## Result

| Line | Frequency Range (MHz) | Graphs    | Remarks       | Result |
|------|-----------------------|-----------|---------------|--------|
| N    | 0,15 – 30             | G19190501 | TX mode       | P      |
| L1   | 0,15 – 30             | G19190502 | TX mode       | P      |
| L1   | 0,15 – 30             | G19190503 | TX dummy mode | P      |
| N    | 0,15 – 30             | G19190504 | TX dummy mode | P      |

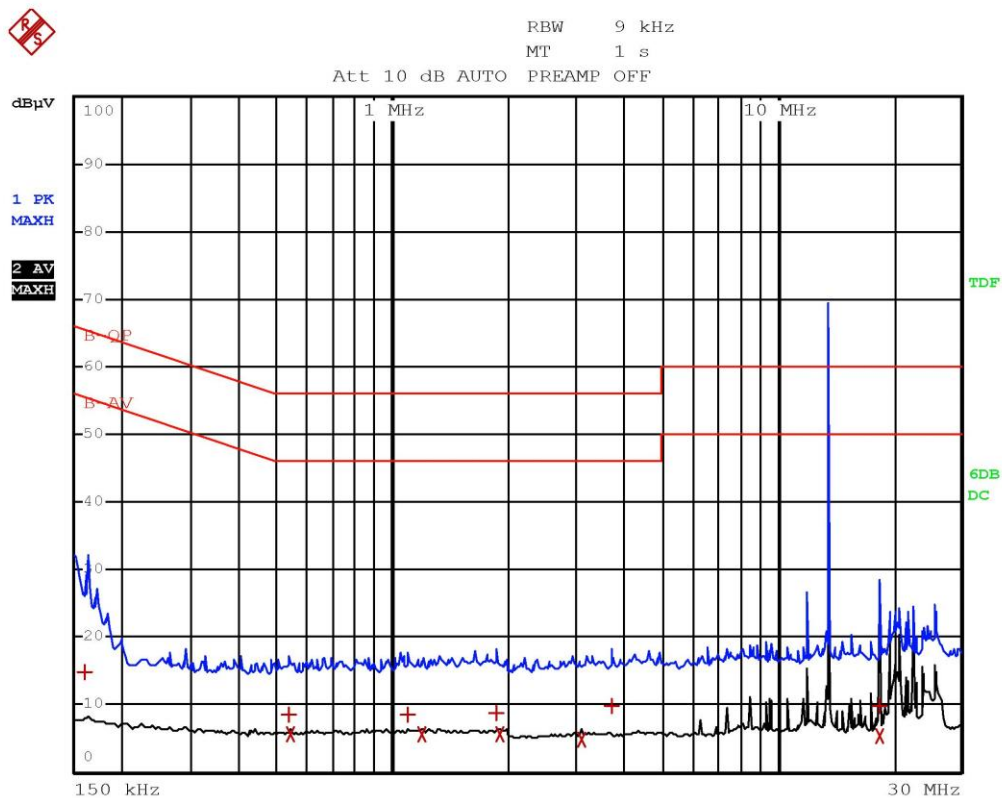
**Remarks:** tests performed on 120 Vac side of AC/DC power unit, the graphs show the highest emission detected on the full supply voltage range 9-42 Vdc

### 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

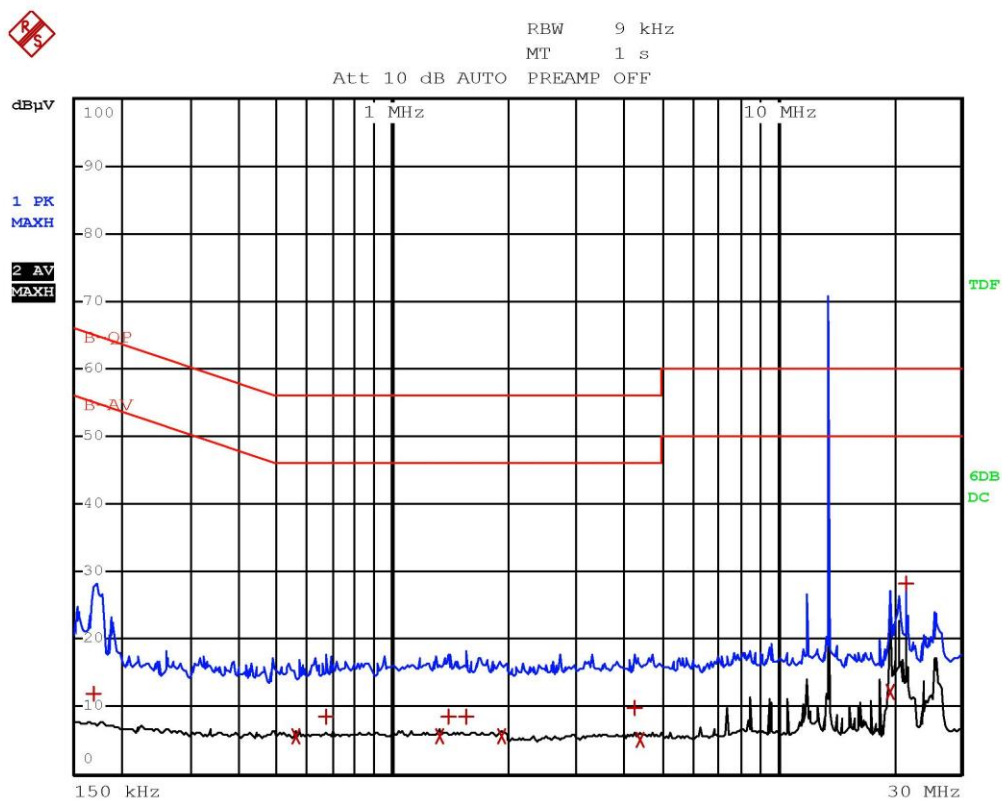


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| EDIT PEAK LIST (Final Measurement Results) |            |            |                |  |
|--------------------------------------------|------------|------------|----------------|--|
| Trace1:                                    | B-QP       |            |                |  |
| Trace2:                                    | B-AV       |            |                |  |
| Trace3:                                    | ---        |            |                |  |
| TRACE                                      | FREQUENCY  | LEVEL dBμV | DELTA LIMIT dB |  |
| 1 Quasi Peak                               | 162 kHz    | 14.73      | -50.63         |  |
| 1 Quasi Peak                               | 534 kHz    | 8.58       | -47.41         |  |
| 2 Average                                  | 542 kHz    | 5.55       | -40.44         |  |
| 1 Quasi Peak                               | 1.09 MHz   | 8.58       | -47.41         |  |
| 2 Average                                  | 1.194 MHz  | 5.57       | -40.42         |  |
| 1 Quasi Peak                               | 1.866 MHz  | 8.83       | -47.16         |  |
| 2 Average                                  | 1.894 MHz  | 5.61       | -40.38         |  |
| 2 Average                                  | 3.118 MHz  | 4.96       | -41.03         |  |
| 1 Quasi Peak                               | 3.702 MHz  | 9.82       | -46.17         |  |
| 1 Quasi Peak                               | 18.434 MHz | 9.77       | -50.22         |  |
| 2 Average                                  | 18.434 MHz | 5.26       | -44.73         |  |

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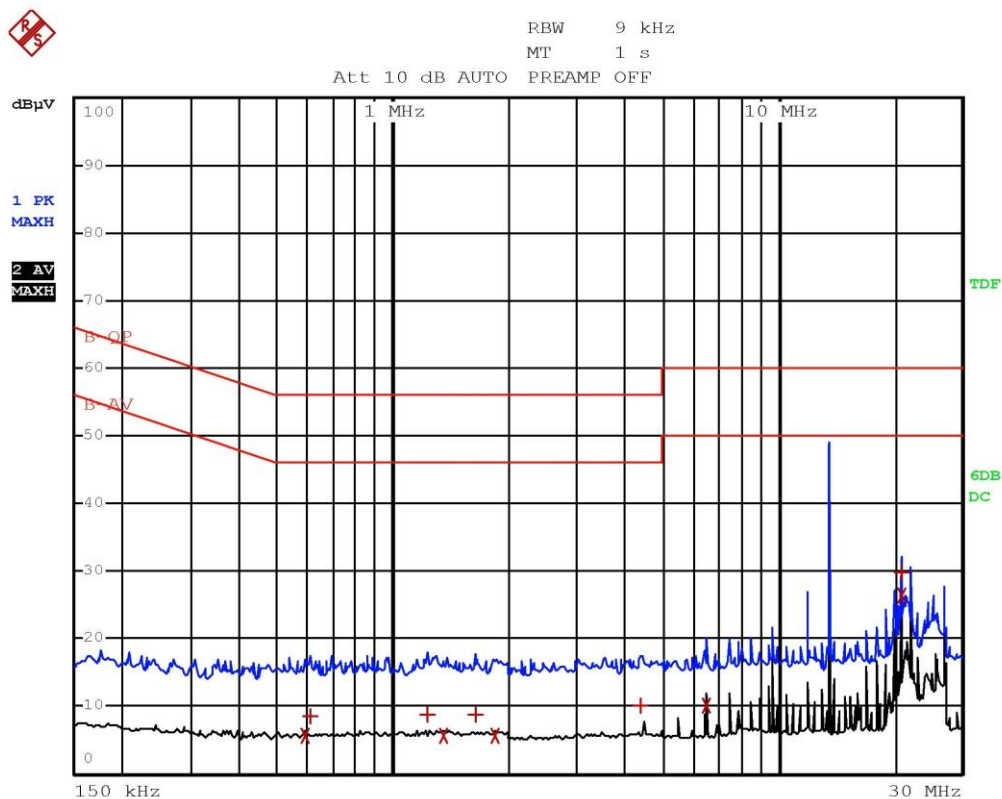


Bertezzo 19190502



| EDIT PEAK LIST (Final Measurement Results) |            |                  |                |
|--------------------------------------------|------------|------------------|----------------|
| Trace1:                                    | B-QP       |                  |                |
| Trace2:                                    | B-AV       |                  |                |
| Trace3:                                    | ---        |                  |                |
| TRACE                                      | FREQUENCY  | LEVEL dB $\mu$ V | DELTA LIMIT dB |
| 1 Quasi Peak                               | 170 kHz    | 12.04            | -52.91         |
| 2 Average                                  | 558 kHz    | 5.53             | -40.46         |
| 1 Quasi Peak                               | 670 kHz    | 8.40             | -47.59         |
| 2 Average                                  | 1.33 MHz   | 5.51             | -40.48         |
| 1 Quasi Peak                               | 1.398 MHz  | 8.49             | -47.50         |
| 1 Quasi Peak                               | 1.562 MHz  | 8.40             | -47.59         |
| 2 Average                                  | 1.926 MHz  | 5.63             | -40.36         |
| 1 Quasi Peak                               | 4.25 MHz   | 9.80             | -46.20         |
| 2 Average                                  | 4.406 MHz  | 5.20             | -40.80         |
| 2 Average                                  | 19.554 MHz | 12.31            | -37.68         |
| 1 Quasi Peak                               | 21.662 MHz | 28.21            | -31.78         |

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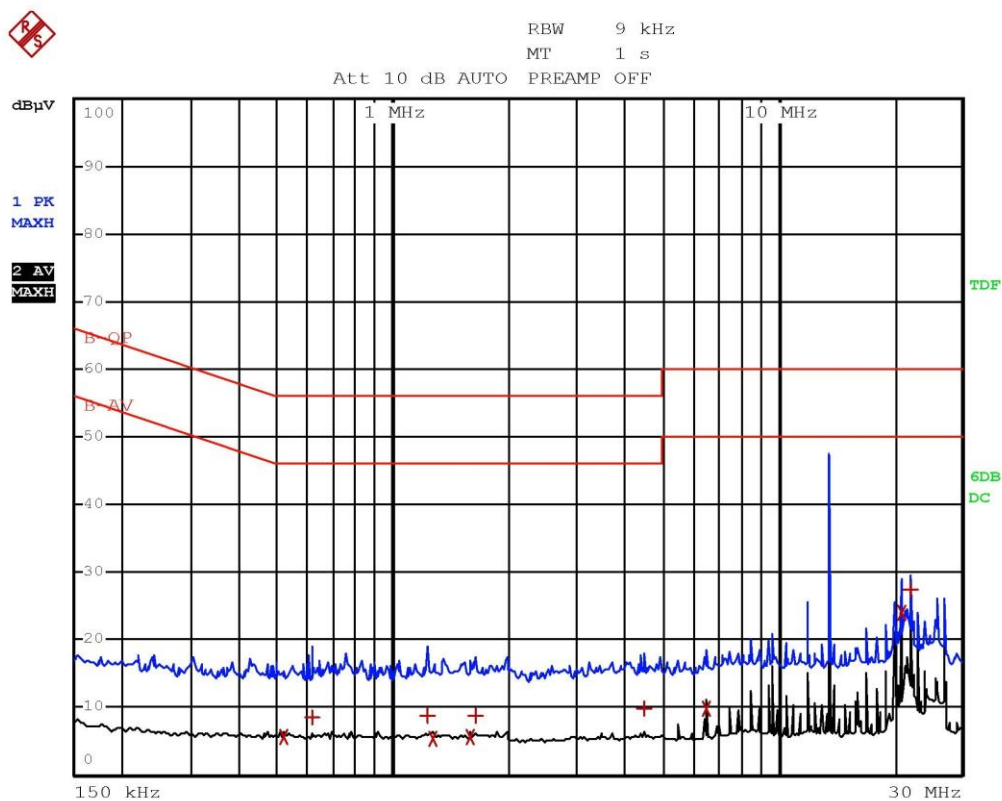


Bertezzo 19190503



| EDIT PEAK LIST (Final Measurement Results) |            |            |                |
|--------------------------------------------|------------|------------|----------------|
| Trace1:                                    | B-QP       |            |                |
| Trace2:                                    | B-AV       |            |                |
| Trace3:                                    | ---        |            |                |
| TRACE                                      | FREQUENCY  | LEVEL dBμV | DELTA LIMIT dB |
| 2 Average                                  | 590 kHz    | 5.61       | -40.38         |
| 1 Quasi Peak                               | 610 kHz    | 8.49       | -47.50         |
| 1 Quasi Peak                               | 1.226 MHz  | 8.66       | -47.33         |
| 2 Average                                  | 1.358 MHz  | 5.51       | -40.48         |
| 1 Quasi Peak                               | 1.642 MHz  | 8.66       | -47.33         |
| 2 Average                                  | 1.842 MHz  | 5.60       | -40.39         |
| 1 Quasi Peak                               | 4.422 MHz  | 9.98       | -46.01         |
| 2 Average                                  | 6.486 MHz  | 10.20      | -39.79         |
| 1 Quasi Peak                               | 20.954 MHz | 29.72      | -30.27         |
| 2 Average                                  | 20.954 MHz | 26.46      | -23.53         |

Bertezzolo 19190503



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| EDIT PEAK LIST (Final Measurement Results) |            |            |                |
|--------------------------------------------|------------|------------|----------------|
| Trace1:                                    | B-QP       |            |                |
| Trace2:                                    | B-AV       |            |                |
| Trace3:                                    | ---        |            |                |
| TRACE                                      | FREQUENCY  | LEVEL dBμV | DELTA LIMIT dB |
| 2 Average                                  | 518 kHz    | 5.61       | -40.38         |
| 1 Quasi Peak                               | 614 kHz    | 8.58       | -47.41         |
| 1 Quasi Peak                               | 1.23 MHz   | 8.66       | -47.33         |
| 2 Average                                  | 1.27 MHz   | 5.51       | -40.48         |
| 2 Average                                  | 1.594 MHz  | 5.56       | -40.43         |
| 1 Quasi Peak                               | 1.642 MHz  | 8.66       | -47.33         |
| 1 Quasi Peak                               | 4.474 MHz  | 9.82       | -46.17         |
| 2 Average                                  | 6.486 MHz  | 9.96       | -40.03         |
| 2 Average                                  | 20.954 MHz | 23.92      | -26.08         |
| 1 Quasi Peak                               | 21.95 MHz  | 27.50      | -32.49         |

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### 9.3 Radiated emissions

|                                             |                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                              |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Tested by .....                             | A. Bertezolo                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                              |
| Test date .....                             | 27.01.2020                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                              |
| Test location (stand) .....                 | Semi-anechoic chamber (CMC A070)                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                              |
| Reference standards .....                   | FCC Rules and Regulation; Titles 47 Part. 15.209<br>ANSI C63.10 cl. 6.3, 6.4, 6.5 and 6.6                                                                                                                                                                                                                                                                                                               |                                                                                                              |
| Test set-up description .....               | <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                     | Table top equipment set-up (80 cm above the reference ground plane)                                          |
|                                             | <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                | Floor standing equipment set-up (insulating material up to 12 mm thick)                                      |
|                                             | <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                | False floor installation equipment set-up (insulating material up to 34 cm above the reference ground plane) |
| Supplementary test set-up description ..... | --                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                              |
| Test method applied .....                   | <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                     | SAC with measurement distance [m]: 10                                                                        |
| Supplementary information.....              | According to KDB 414788 D01 chapter 2, emissions at frequencies below 30 MHz have been evaluated on 10 m SAC test site.<br>As demonstrated on document "Test site correlation" date 28.03.2019, results of tests on SAC10 are slightly higher than the results of tests on OATS test site.<br>The evaluation has been performed at both 10 and 3 m distance and at both 125 kHz and 13,56 MHz frequency |                                                                                                              |

#### Acceptance limits

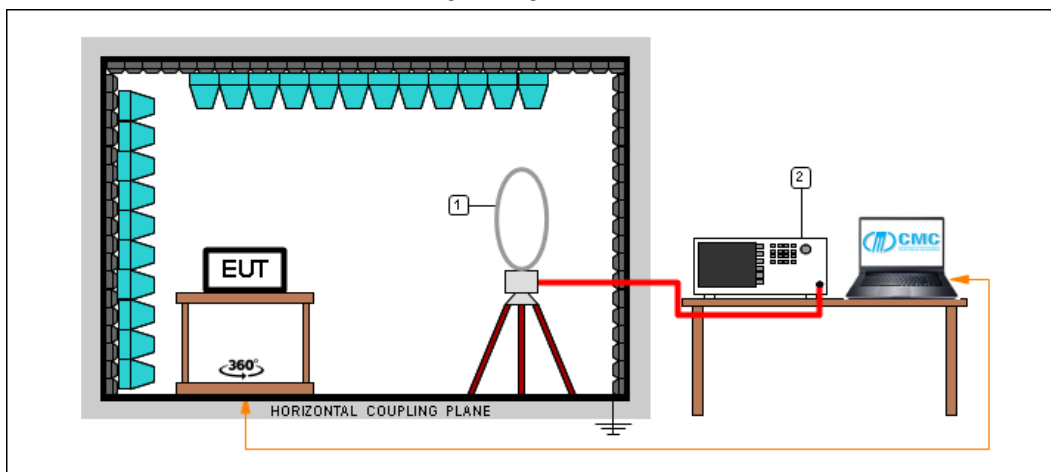
| Frequency range (MHz) | Test distance (m) | Limits [dB(μV/m)] |
|-----------------------|-------------------|-------------------|
| 0,009 to 0,490        | 300               | 48,5 to 13,8      |
| 0,490 to 1,705        | 30                | 33,8 to 22,9      |
| 1,705 to 30           | 30                | 29,5              |
| 30 to 88              | 3                 | 40                |
| 88 to 216             | 3                 | 43,5              |
| 216 to 960            | 3                 | 46,0              |
| 960 to 1000           | 3                 | 54                |

**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 and 110–490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector. The results have been extrapolated to the specified distance using an extrapolation factor

| Frequency (MHz) | Test distance (m) | AV limits [dB(μV/m)] | Peak limits [dB(μV/m)] |
|-----------------|-------------------|----------------------|------------------------|
| > 1000          | 3                 | 54                   | 74                     |

## Test setup

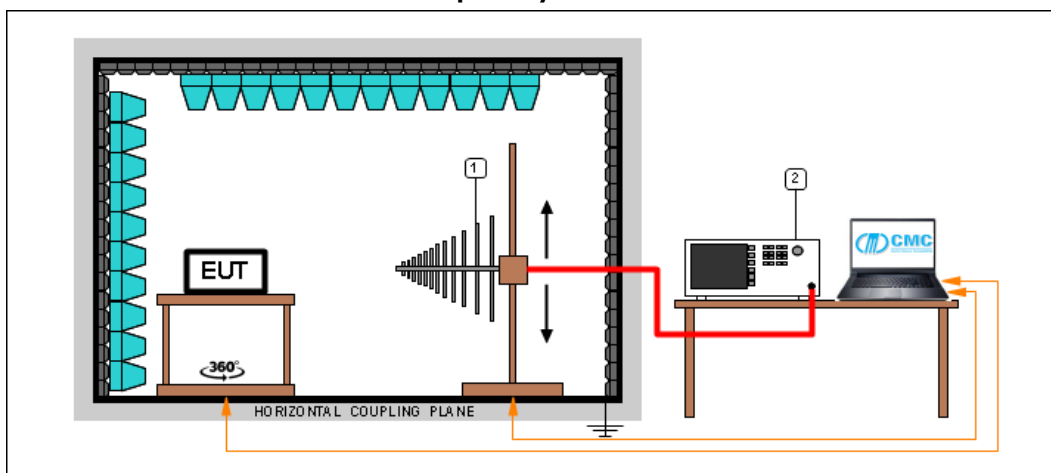
### Frequency $\leq 30$ MHz



#### Test setup PE004\_01

| Nr. | Id. Number | Manufacturer    | Model   | Description               |
|-----|------------|-----------------|---------|---------------------------|
| 2   | CMC S164   | Rohde & Schwarz | ESU26   | Receiver 20 Hz - 26.5 GHz |
| 1   | CMC S127   | Schaffner       | HLA6120 | Loop Antenna 9kHz - 30MHz |

### Frequency $\leq 1$ GHz



#### Test setup PE004\_02

| Nr. | Id. Number | Manufacturer    | Model                | Description               |
|-----|------------|-----------------|----------------------|---------------------------|
| 2   | CMC S164   | Rohde & Schwarz | ESU26                | Receiver 20 Hz - 26.5 GHz |
| 1   | CMC S271   | Schwarzbeck     | BBA 9106 + VHBB 9124 | Broadband Antenna         |

#### Test setup PE004\_03

| Nr. | Id. Number | Manufacturer    | Model       | Description               |
|-----|------------|-----------------|-------------|---------------------------|
| 2   | CMC S164   | Rohde & Schwarz | ESU26       | Receiver 20 Hz - 26.5 GHz |
| 1   | CMC S287   | Schwarzbeck     | VUSLP 9111B | Broadband Antenna         |



## Result

| Polarization | Frequency Range (MHz) | Graphs    | Remarks | Result |
|--------------|-----------------------|-----------|---------|--------|
| V            | 30 – 300              | G19190505 | --      | P      |
| H            | 30 – 300              | G19190506 | --      | P      |
| H            | 300 – 1000            | G19190507 | --      | P      |
| V            | 300 – 1000            | G19190508 | --      | P      |
| Loop         | 0,009 – 30            | G19190509 | --      | P      |

**Remarks:** EUT was tested in 3 orthogonal planes, graphs are related to the highest detected levels.

Measurements at frequencies lower than 30 MHz have been performed with an EUT – antenna distance of 10 m. Measured values have been corrected with conversion factor  $40\log(\text{test distance}/10)$  based on the measuring distance provided by the standard.

Measurements at frequencies higher than 30 MHz and lower than 1000 MHz have been performed with an EUT – antenna distance of 10 m. Measured values have been corrected with conversion factor  $20\log(\text{test distance}/10)$  based on the measuring distance provided by the standard.

Peaks above the limits are caused by the nominal transmitting frequencies.

### 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