



## TEST REPORT nr. R18277601

### Federal Communication Commission (FCC)

#### Test item

Description .....: CARD READER  
Trademark .....: SCHINDLER  
Model/Type .....: PCR2-TWN4LF  
FCC ID .....: XFIPCR2TWN4LF

#### Test Specification

Standard .....: FCC Rules & Regulations, Title 47:2017  
Part 15 paragraph(s): 203, 204, 205, 207 and 209

**Client's name** .....: TECNOLAB del Lago Maggiore S.r.l.

Address .....: Via dell'Industria, 20 – 28924 Verbania (VB) – ITALY

**Manufacturer's name** : SCHINDLER ELEVATOR Ltd

Address .....: Via della Pace, 22 – 6600 Locarno (CH) – SWITZERLAND

#### Report

Tested by .....: A. Bertezolo

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

Date of issue .....: 04.06.19

Contents .....: 30 pages

*[Signature]*  
*[Signature]*

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The test results presented in this report relate only to the item tested.



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## 1. Summary

### Standard:

FCC Rules & Regulations, Title 47:2017  
Part 15 paragraph(s): 203, 204, 205, 207 and 209

| Test specifications | Environmental Phenomena | Tests sequence | Result   |
|---------------------|-------------------------|----------------|----------|
| Part 15.207         | Conducted emissions     | 1              | Complies |
| Part 15.209         | Radiated emissions      | 2              | Complies |

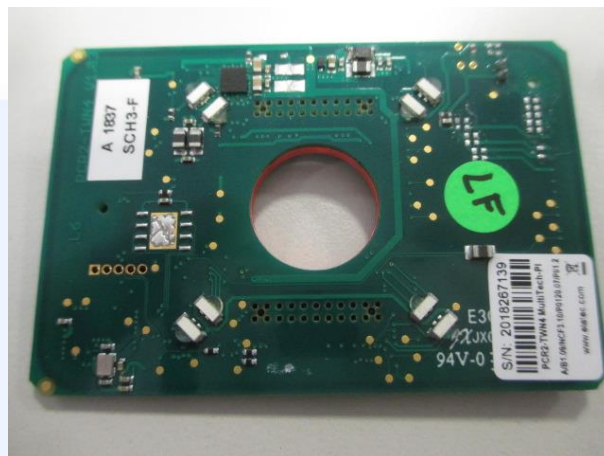
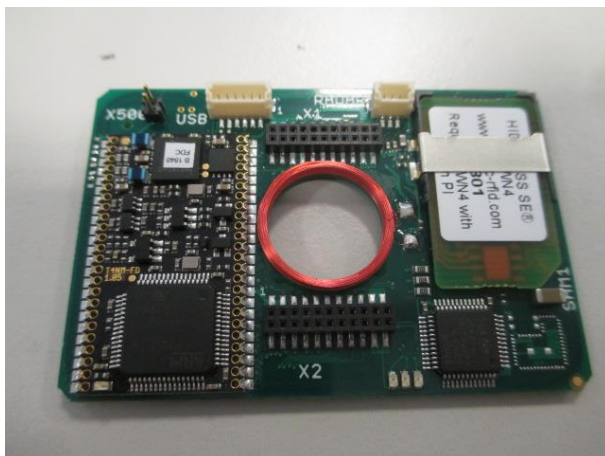
The Test Report was given to the Client representatives for necessary documentation of ratification of the tested equipment and it is valid for the FCC certification





## 5. Photograph(s) of EUT

### 5.1 Photograph(s) of EUT





## 6. Equipment list

| <i>Id. number</i> | <i>Manufacturer</i> | <i>Model</i>         | <i>Description</i>            | <i>Serial number</i> | <i>Last calibration</i> | <i>Due date calibration</i> |
|-------------------|---------------------|----------------------|-------------------------------|----------------------|-------------------------|-----------------------------|
| CMC S127          | Schaffner           | HLA6120              | Loop Antenna                  | 1191                 | March '17               | March '20                   |
| CMC S164          | Rohde & Schwarz     | ESU26                | EMC receiver                  | 100052               | January '19             | January '20                 |
| CMC S010          | Rohde & Schwarz     | ESH3-Z2              | Impulses Limiting Device      | - - -                | January '19             | January '20                 |
| CMC S200          | Schwarzbeck         | NSLK 8128            | V-LISN                        | 8128-273             | January '19             | January '20                 |
| CMC S206          | Rohde & Schwarz     | ESCI 7               | EMC Receiver 9KHz-7GHz        | 100781               | January '19             | January '20                 |
| CMC S271          | Schwarzbeck         | BBA 9106 + VHBB 9124 | Biconical Antenna (30-300MHz) | 831                  | June '16                | June '19                    |
| CMC S287          | Schwarzbeck         | VUSLP 9111B          | Broadband Antenna             | 9111B-203            | June '16                | June '19                    |



## 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   | 3,0 dB                   | 1    |
| Conducted emission CISPR 16<br>Voltage Probe 0,15-30MHz  | PE001_02   | 2,9 dB                   | 1    |
| Conducted emission CISPR 16<br>Current Probe 0,15-30MHz  | PE001_03   | 2,6 dB                   | 1    |
| Conducted emission CISPR 16<br>ISN 0,15-30MHz            | PE001_04   | 4,7 dB                   | 1    |
| Clic CISPR 16<br>LISN 50uH 0,150-30,0MHz                 | PE001_05   | 3,1 dB                   | 1    |
| Disturbance Power<br>30-300 MHz                          | PE002_01   | 3,6 dB                   | 1    |
| Radiated Emission LAS<br>0,15-30MHz                      | PE003_01   | 2,0 dB                   | 1    |
| Radiated Emission CISPR 16<br>Loop Ant. 0,15-30MHz       | PE004_01   | 4,0 dB                   | 1    |
| Radiated Emission CISPR 16<br>Bicon. Ant. 30-300MHz      | PE004_02   | 3,9 dB                   | 1    |
| Radiated Emission CISPR 16<br>LogP. Ant. 300-1000MHz     | PE004_03   | 3,8 dB                   | 1    |
| Radiated Emission CISPR 16<br>Horn Ant. 1-18GHz          | PE004_04   | 4,2 dB                   | 1    |
| Human Exposure to electromagnetic fields                 | PE005_01   | 23,6 %                   | 1    |
| Harmonic current emissions test                          | PE006_01   | 10 mA + 2,6 %            | 1    |
| Voltage fluctuation and flicker test                     | PE007_01   | 4,8 %                    | 1    |
| Radiated Immunity<br>80MHz-6GHz                          | PE102_XX   | 2,1 dB 0,82 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   | 6,25 % 18,7 A/m a 300A/m | 1    |
| Dumped Magnetic field                                    | PE108_01   | 6,25 % 1,87 A/m a 30A/m  | 1    |
| Common mode conducted immunity                           | PE112_01   | 2,21 % 0,22 V a 10V      | 1    |



| Test                                       | Test Setup  | Expanded uncertainty | Note |
|--------------------------------------------|-------------|----------------------|------|
| Power/Spurious<br>9kHz-30MHz               | PR001_01    | 4,0 dB               | 1    |
| Power/Spurious ERP<br>30-1000MHz d=10m     | PR001_02+03 | 4,7 dB               | 1    |
| Misura della potenza EIRP<br>1-18GHz d=3m  | PR001_04    | 4,7 dB               | 1    |
| Misura della potenza EIRP<br>18-40GHz d=3m | PR001_05    | 5,4 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 | 1,1 dB               | 1    |
| Adjacent channel power                     | PR002_01+02 | 1,1 dB               | 1    |
| Blocking                                   | PR002_01+02 | 1,1 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_19_01 date 14/01/2019                        |            |                      |      |

**Note 1:**

The expanded uncertainty reported according to the document EA-4-02 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 15:2017     | --                                                                                                                                                               |
| 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                                                                   |
| Internal Procedure PM001 rev. 3.0 (Quality Manual) | Measure Procedure                                                                                                                                                |
| Internal procedure INC_M rev. 9.1 (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.

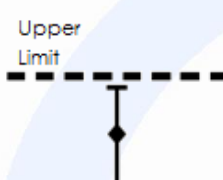
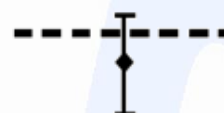


## 11. Results

In this clause tests results are reported.

Measurement uncertainty is in accordance with document CMC INC\_M rev. 9.1.

*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 Conducted emissions

### Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.207
- Internal procedure PM001
- See clause 4 of this test report

### Test configuration and test method

Test site:  
Shielded 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 S200, CMC S206  
Measurement uncertainty: See clause 7 of this test report

### Test specification

Port: Main port  
Frequency range: 150 kHz – 30 MHz

### Environmental conditions

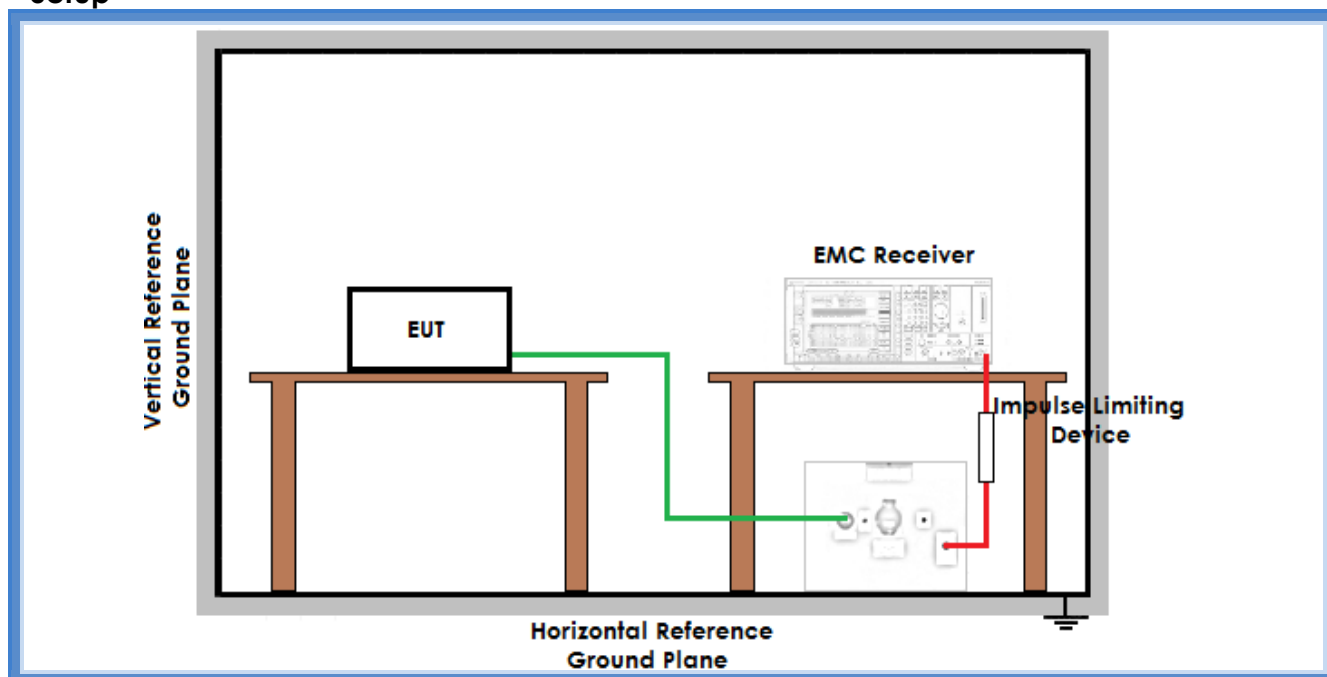
| Temperature<br>(°C) | Atmospheric pressure<br>(kPa) | Relative humidity<br>(%) |
|---------------------|-------------------------------|--------------------------|
| 22                  | 101                           | 45                       |

### Acceptance limits

| Frequency range (MHz) | dB(μV) Quasi-peak | dB(μV) Average |
|-----------------------|-------------------|----------------|
| 0,15 to 0,50          | 66 to 56          | 56 to 46       |
| 0,50 to 5             | 56                | 46             |
| 5 to 30               | 60                | 50             |



## Setup



## Result

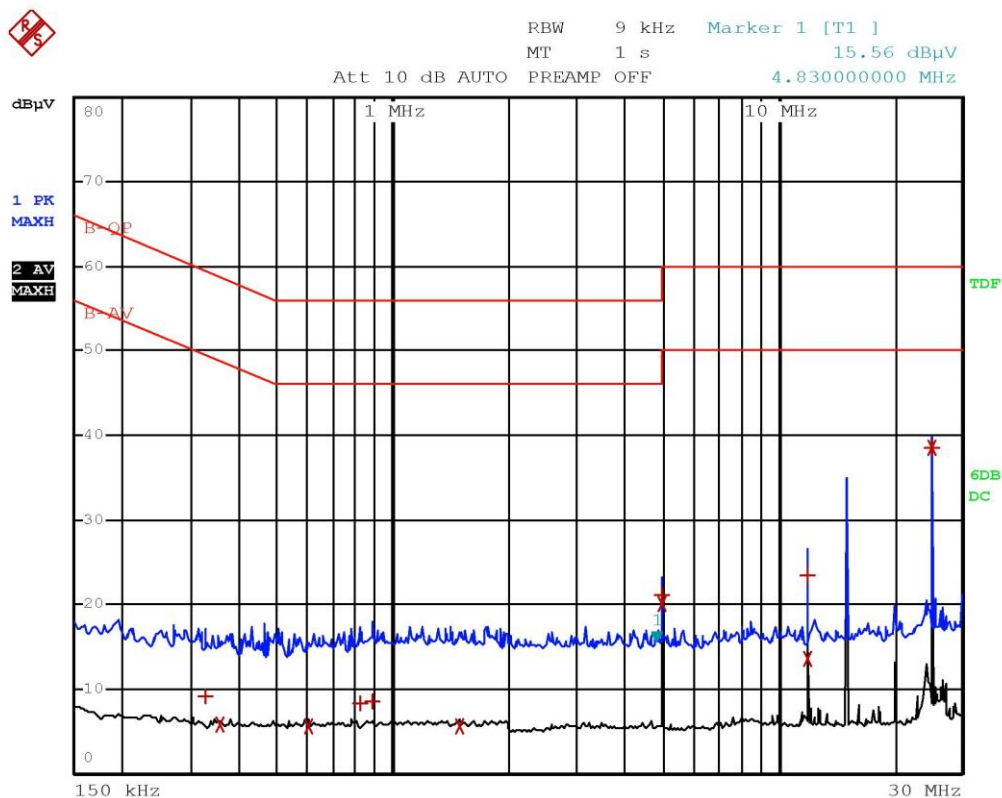
| Line                                                  | Graphs    | Remarks | Result   |
|-------------------------------------------------------|-----------|---------|----------|
| L1                                                    | G18277608 | --      | Complies |
| N                                                     | G18277609 | --      | Complies |
| <b>Remarks:</b> Tests performed on 120 Vac side of PC |           |         |          |

### 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

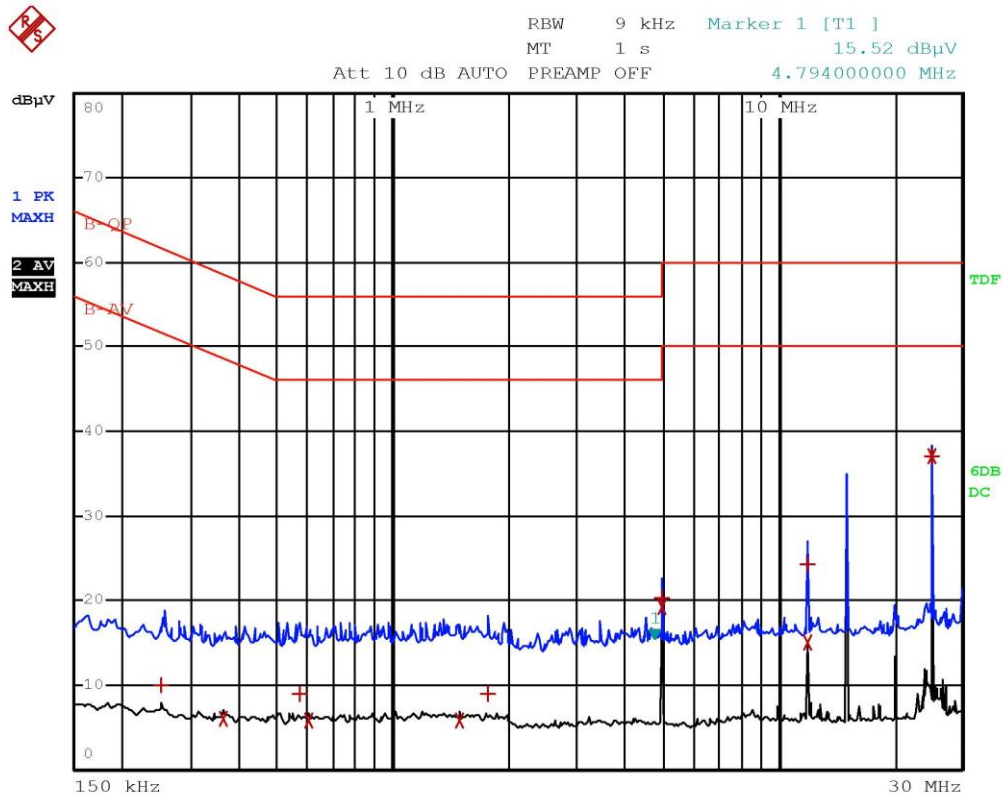


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| EDIT PEAK LIST (Final Measurement Results) |            |            |                |
|--------------------------------------------|------------|------------|----------------|
| Trace1:                                    | B-QP       |            |                |
| Trace2:                                    | B-AV       |            |                |
| Trace3:                                    | ---        |            |                |
| TRACE                                      | FREQUENCY  | LEVEL dBμV | DELTA LIMIT dB |
| 1 Quasi Peak                               | 326 kHz    | 9.17       | -50.38         |
| 2 Average                                  | 354 kHz    | 5.75       | -43.11         |
| 2 Average                                  | 602 kHz    | 5.58       | -40.41         |
| 1 Quasi Peak                               | 826 kHz    | 8.31       | -47.68         |
| 1 Quasi Peak                               | 886 kHz    | 8.49       | -47.50         |
| 2 Average                                  | 1.498 MHz  | 5.53       | -40.46         |
| 1 Quasi Peak                               | 4.998 MHz  | 21.15      | -34.84         |
| 2 Average                                  | 4.998 MHz  | 20.12      | -25.87         |
| 1 Quasi Peak                               | 11.934 MHz | 23.42      | -36.57         |
| 2 Average                                  | 11.934 MHz | 13.55      | -36.44         |
| 1 Quasi Peak                               | 24.998 MHz | 38.46      | -21.54         |
| 2 Average                                  | 24.998 MHz | 38.55      | -11.44         |

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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                               | 254 kHz    | 9.87       | -51.75         |
| 2 Average                                  | 362 kHz    | 6.01       | -42.66         |
| 1 Quasi Peak                               | 570 kHz    | 8.92       | -47.07         |
| 2 Average                                  | 602 kHz    | 5.79       | -40.20         |
| 2 Average                                  | 1.494 MHz  | 5.85       | -40.14         |
| 1 Quasi Peak                               | 1.762 MHz  | 8.92       | -47.07         |
| 1 Quasi Peak                               | 4.998 MHz  | 20.31      | -35.68         |
| 2 Average                                  | 4.998 MHz  | 19.14      | -26.85         |
| 1 Quasi Peak                               | 11.942 MHz | 24.31      | -35.68         |
| 2 Average                                  | 11.942 MHz | 15.02      | -34.97         |
| 1 Quasi Peak                               | 24.998 MHz | 37.03      | -22.96         |
| 2 Average                                  | 24.998 MHz | 37.12      | -12.87         |

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**Result:** The requirements are met



## 11.2 Radiated emissions

### Test set-up and execution

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

### Test configuration and test method

*Test site:*  
Semi-anechoic chamber

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

### EUT exercising

See clause 4 of this test report

### Test equipment used

CMC S127, CMC S164, CMC S271, CMC S287  
Measurement uncertainty: See clause 7 of this test report

### Test specification

Port: Enclosure  
Frequency range: 0,009 MHz – 300 MHz  
Antenna polarization: Horizontal (H) – Vertical (V)  
EUT – Antenna distance: 10 m  
EUT height about the floor: 80 cm

### Environmental conditions

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

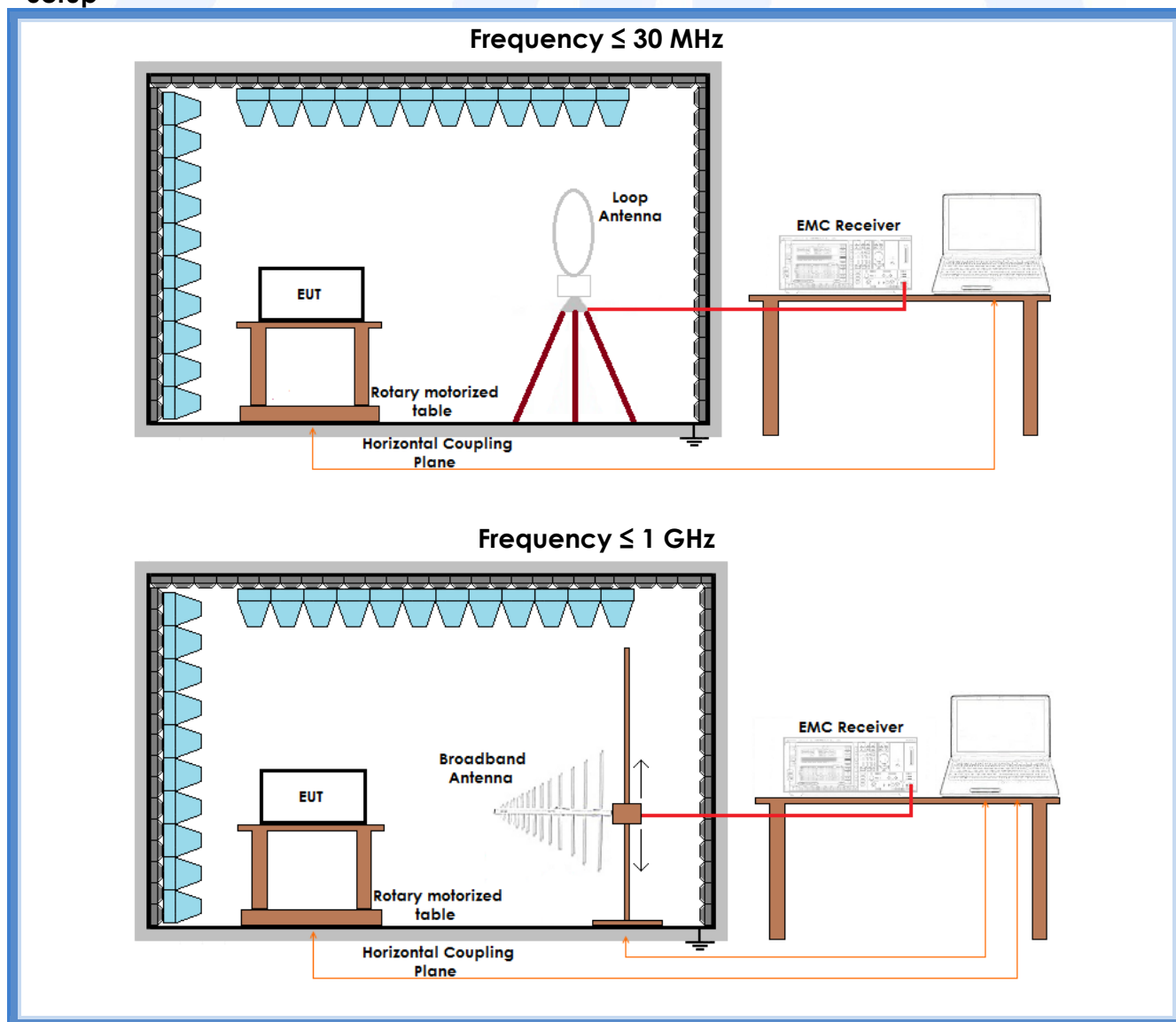


## Acceptance limits

| 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   |
|--------------|-----------------------|-----------|---------|----------|
| Loop         | 0,009 – 30            | G18277603 | --      | Complies |
| V            | 30 – 300              | G18277604 | --      | Complies |
| H            | 30 – 300              | G18277605 | --      | Complies |
| H            | 300 – 1000            | G18277606 | --      | Complies |
| V            | 300 – 1000            | G18277607 | --      | Complies |

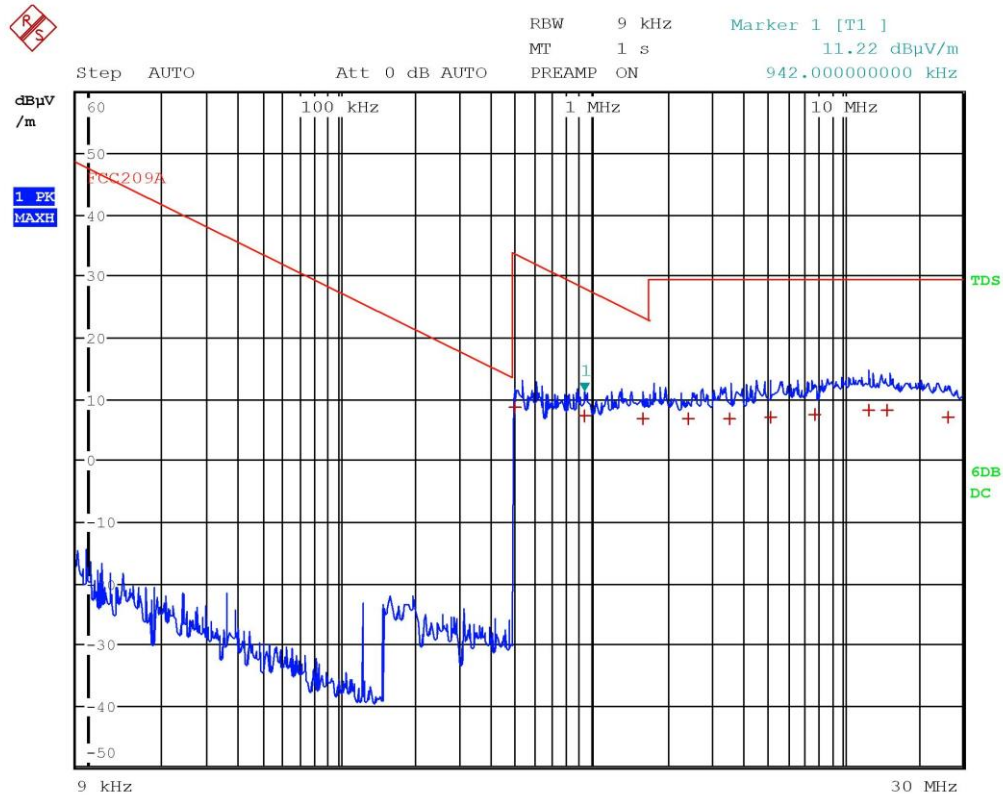
**Remarks:** Measurements have been performed with an EUT – antenna distance of 10 m.  
Measured values have been corrected with different conversion factors, based on the measuring distance provided by the standard.  
Checks carried out in the open field area show that the values measured in the semi-anechoic chamber are worse in the frequency range 0,009 - 30 MHz

### 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

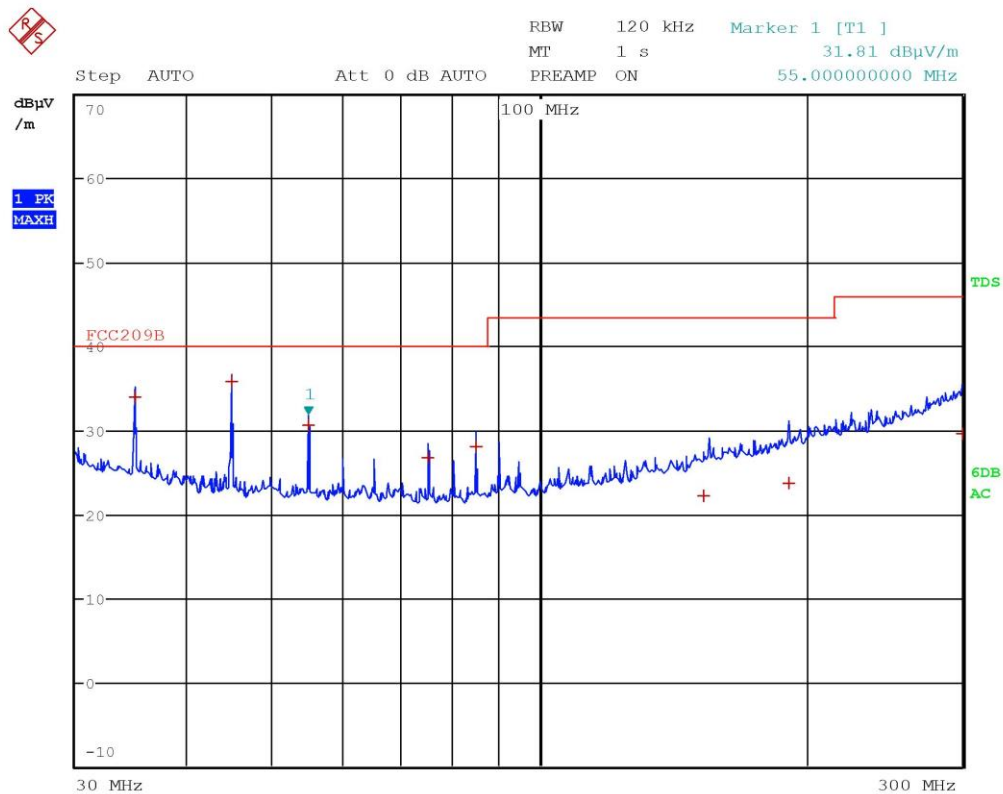


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| EDIT PEAK LIST (Final Measurement Results) |            |              |                |
|--------------------------------------------|------------|--------------|----------------|
| Trace1:                                    | FCC209A    |              |                |
| Trace2:                                    | ---        |              |                |
| Trace3:                                    | ---        |              |                |
| TRACE                                      | FREQUENCY  | LEVEL dBμV/m | DELTA LIMIT dB |
| 1 Quasi Peak                               | 498 kHz    | 8.54         | -25.11         |
| 1 Quasi Peak                               | 942 kHz    | 7.14         | -20.98         |
| 1 Quasi Peak                               | 1.61 MHz   | 6.83         | -16.62         |
| 1 Quasi Peak                               | 2.43 MHz   | 6.66         | -22.87         |
| 1 Quasi Peak                               | 3.562 MHz  | 6.61         | -22.92         |
| 1 Quasi Peak                               | 5.158 MHz  | 6.88         | -22.65         |
| 1 Quasi Peak                               | 7.722 MHz  | 7.47         | -22.06         |
| 1 Quasi Peak                               | 12.742 MHz | 8.19         | -21.34         |
| 1 Quasi Peak                               | 15.022 MHz | 8.12         | -21.41         |
| 1 Quasi Peak                               | 26.19 MHz  | 6.99         | -22.54         |

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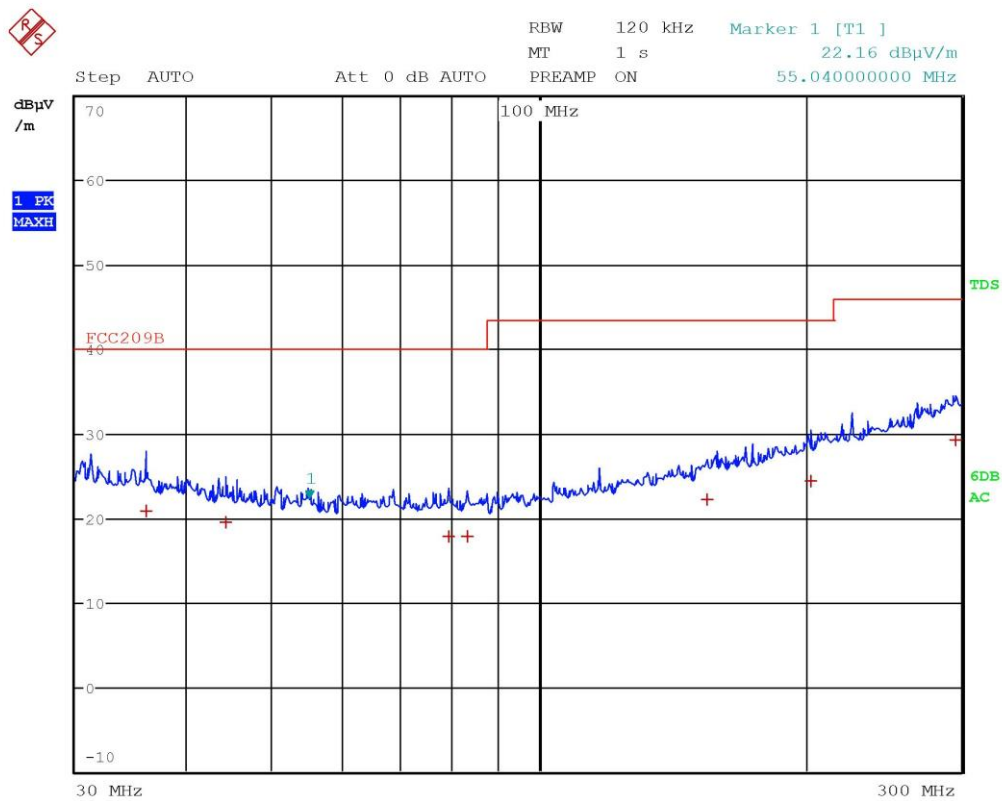


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| EDIT PEAK LIST (Final Measurement Results) |            |              |                |
|--------------------------------------------|------------|--------------|----------------|
| Trace1:                                    | FCC209B    |              |                |
| Trace2:                                    | ---        |              |                |
| Trace3:                                    | ---        |              |                |
| TRACE                                      | FREQUENCY  | LEVEL dBμV/m | DELTA LIMIT dB |
| 1 Quasi Peak                               | 35 MHz     | 33.90        | -6.09          |
| 1 Quasi Peak                               | 45 MHz     | 35.82        | -4.17          |
| 1 Quasi Peak                               | 55 MHz     | 30.62        | -9.37          |
| 1 Quasi Peak                               | 75 MHz     | 26.69        | -13.30         |
| 1 Quasi Peak                               | 85 MHz     | 28.04        | -11.95         |
| 1 Quasi Peak                               | 153.12 MHz | 22.16        | -21.35         |
| 1 Quasi Peak                               | 191 MHz    | 23.70        | -19.81         |
| 1 Quasi Peak                               | 299.84 MHz | 29.61        | -16.40         |

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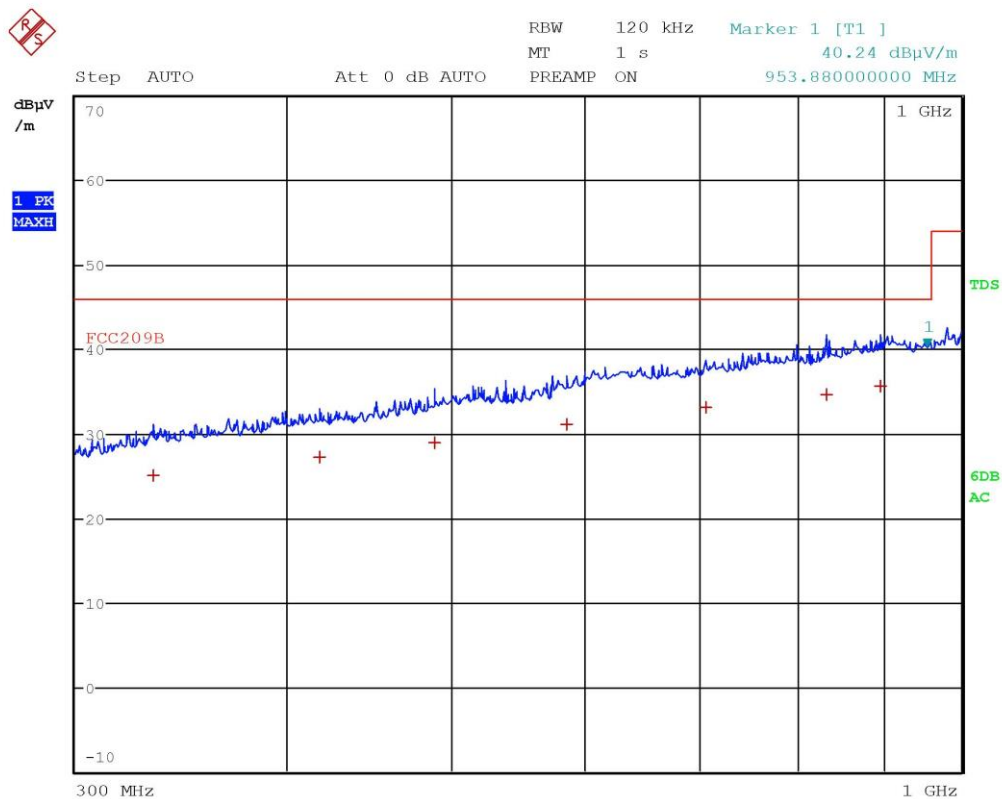


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| EDIT PEAK LIST (Final Measurement Results) |            |              |                |
|--------------------------------------------|------------|--------------|----------------|
| Trace1:                                    | FCC209B    |              |                |
| Trace2:                                    | ---        |              |                |
| Trace3:                                    | ---        |              |                |
| TRACE                                      | FREQUENCY  | LEVEL dBμV/m | DELTA LIMIT dB |
| 1 Quasi Peak                               | 36 MHz     | 20.87        | -19.12         |
| 1 Quasi Peak                               | 44.32 MHz  | 19.47        | -20.52         |
| 1 Quasi Peak                               | 79.2 MHz   | 17.88        | -22.11         |
| 1 Quasi Peak                               | 83.08 MHz  | 17.77        | -22.22         |
| 1 Quasi Peak                               | 154.8 MHz  | 22.23        | -21.28         |
| 1 Quasi Peak                               | 202.96 MHz | 24.36        | -19.15         |
| 1 Quasi Peak                               | 295.52 MHz | 29.25        | -16.76         |

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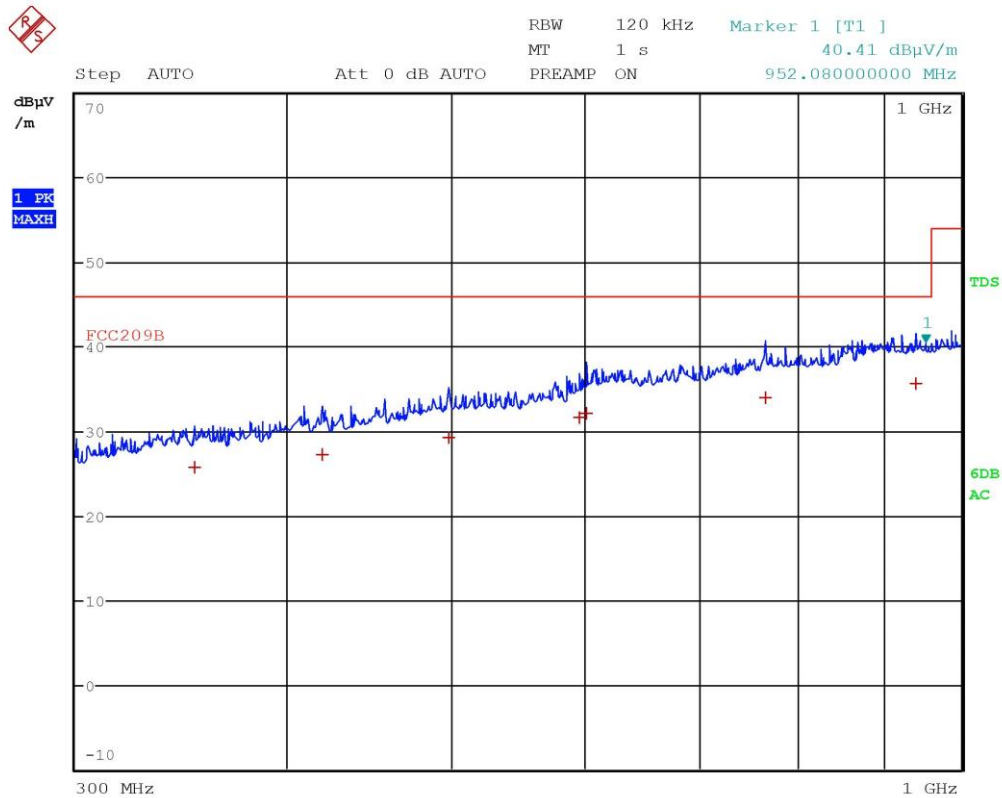


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| EDIT PEAK LIST (Final Measurement Results) |            |              |                |
|--------------------------------------------|------------|--------------|----------------|
| Trace1:                                    | FCC209B    |              |                |
| Trace2:                                    | ---        |              |                |
| Trace3:                                    | ---        |              |                |
| TRACE                                      | FREQUENCY  | LEVEL dBμV/m | DELTA LIMIT dB |
| 1 Quasi Peak                               | 333.84 MHz | 25.07        | -20.94         |
| 1 Quasi Peak                               | 418.4 MHz  | 27.22        | -18.79         |
| 1 Quasi Peak                               | 488.4 MHz  | 28.95        | -17.06         |
| 1 Quasi Peak                               | 585.12 MHz | 31.11        | -14.90         |
| 1 Quasi Peak                               | 706.72 MHz | 33.06        | -12.95         |
| 1 Quasi Peak                               | 831.72 MHz | 34.54        | -11.47         |
| 1 Quasi Peak                               | 896.36 MHz | 35.65        | -10.36         |

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| EDIT PEAK LIST (Final Measurement Results) |            |              |                |
|--------------------------------------------|------------|--------------|----------------|
| Trace1:                                    | FCC209B    |              |                |
| Trace2:                                    | ---        |              |                |
| Trace3:                                    | ---        |              |                |
| TRACE                                      | FREQUENCY  | LEVEL dBμV/m | DELTA LIMIT dB |
| 1 Quasi Peak                               | 352.84 MHz | 25.76        | -20.25         |
| 1 Quasi Peak                               | 419.88 MHz | 27.24        | -18.77         |
| 1 Quasi Peak                               | 497.92 MHz | 29.25        | -16.76         |
| 1 Quasi Peak                               | 594.92 MHz | 31.53        | -14.48         |
| 1 Quasi Peak                               | 601.16 MHz | 32.14        | -13.87         |
| 1 Quasi Peak                               | 766.28 MHz | 33.87        | -12.14         |
| 1 Quasi Peak                               | 940.4 MHz  | 35.62        | -10.39         |

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**Result:** The requirements are met