

# **FCC and IC Test report for parts 15.109, ICES-003, RSS-Gen**



Product name : Quectel EG25-G Manager V4 2G/3G/4G

Applicant : Inter-data Europe B.V.

Test report No. : P000134978 002 Ver 1.00

## Laboratory information

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### Testing Location

|                           |                                                                               |
|---------------------------|-------------------------------------------------------------------------------|
| <b>Test Site</b>          | Kiwa Nederland B.V.                                                           |
| <b>Test Site location</b> | Wilmersdorf 50<br>7327 AC Apeldoorn<br>The Netherlands<br>Tel. +31 88998 3393 |
| <b>Test Site FCC</b>      | NL0001                                                                        |
| <b>CABID</b>              | NL0001                                                                        |

## Revision History

| Version | Date       | Remarks       | By |
|---------|------------|---------------|----|
| v0.50   | 20-01-2023 | First draft   | KK |
| v1.00   | 21-02-2023 | Final version | KK |
|         |            |               |    |

## Table of Contents

|                                                                        |           |
|------------------------------------------------------------------------|-----------|
| <b>Revision History</b> .....                                          | <b>2</b>  |
| <b>Summary of Test results</b> .....                                   | <b>4</b>  |
| <b>1 General Description</b> .....                                     | <b>5</b>  |
| 1.1 Applicant .....                                                    | 5         |
| 1.2 Manufacturer .....                                                 | 5         |
| 1.3 Tested Equipment Under Test (EUT) .....                            | 5         |
| 1.4 Product specifications of Equipment under test.....                | 6         |
| 1.5 Environmental conditions .....                                     | 6         |
| 1.6 Measurement standards.....                                         | 6         |
| 1.7 Applicable standards.....                                          | 6         |
| 1.8 Observation and remarks.....                                       | 6         |
| 1.9 Conclusions .....                                                  | 7         |
| <b>2 Test configuration of the Equipment Under Test</b> .....          | <b>8</b>  |
| 2.1 Test mode .....                                                    | 8         |
| 2.2 Test setups .....                                                  | 8         |
| 2.3 Equipment used in the test configuration .....                     | 10        |
| 2.4 Sample calculations.....                                           | 10        |
| <b>3 Test results</b> .....                                            | <b>11</b> |
| 3.1 Radiated spurious emissions.....                                   | 11        |
| 3.1.1 Limit .....                                                      | 11        |
| 3.1.2 Measurement instruments .....                                    | 11        |
| 3.1.3 Test setup .....                                                 | 11        |
| 3.1.4 Test procedure.....                                              | 11        |
| 3.1.5 Measurement Uncertainty .....                                    | 11        |
| 3.1.6 Peak tables of the radiated spurious emissions measurement ..... | 12        |
| 3.1.7 Plots of the Radiated Spurious Emissions Measurement .....       | 13        |
| 3.2 AC power line conducted emissions .....                            | 16        |
| 3.2.1 Limit .....                                                      | 16        |
| 3.2.2 Measurement instruments .....                                    | 16        |
| 3.2.3 Test setup .....                                                 | 16        |
| 3.2.4 Test procedure.....                                              | 16        |
| 3.2.5 Measurement uncertainty .....                                    | 16        |
| 3.2.6 Plots of the AC mains conducted spurious measurement.....        | 17        |
| <b>4 Sample calculations</b> .....                                     | <b>19</b> |

**Summary of Test results**

| FCC       | ISED        | Description                  | Section in report | Verdict |
|-----------|-------------|------------------------------|-------------------|---------|
| 15.109(b) | RSS-Gen 8.9 | Radiated spurious emissions  | 3.1               | Pass    |
| 15.107(b) | RSS-Gen 8.8 | Conducted spurious emissions | 3.2               | Pass    |

## 1 General Description

### 1.1 Applicant

|                      |                                  |
|----------------------|----------------------------------|
| <b>Client name:</b>  | Inter-data Europe B.V.           |
| <b>Address:</b>      | Wanraaij 4, Andelst, Netherlands |
| <b>Zip code:</b>     | 6673 DN                          |
| <b>Telephone:</b>    | +31617518580                     |
| <b>E-mail:</b>       | d.bouwens@inter-data.eu          |
| <b>Contact name:</b> | Daniel Bouwens                   |

### 1.2 Manufacturer

|                           |                                  |
|---------------------------|----------------------------------|
| <b>Manufacturer name:</b> | Inter-data Europe B.V.           |
| <b>Address:</b>           | Wanraaij 4, Andelst, Netherlands |
| <b>Zip code:</b>          | 6673 DN                          |
| <b>Telephone:</b>         | +31617518580                     |
| <b>E-mail:</b>            | d.bouwens@inter-data.eu          |
| <b>Contact name:</b>      | Daniel Bouwens                   |

### 1.3 Tested Equipment Under Test (EUT)

|                                |                                                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Product name:</b>           | Quectel EG25-G Manager V4 2G/3G/4G                                                              |
| <b>Brand name:</b>             | Inter-data Europe B.V.                                                                          |
| <b>Product description:</b>    | GNSS hardware with the option to write own scripts and control all peripherals including CANbus |
| <b>Variant Model(s):</b>       | Quectel EG25-G FM03 2G/3G/4G                                                                    |
| <b>Batch and/or serial No.</b> | -                                                                                               |
| <b>Software version:</b>       | -                                                                                               |
| <b>Hardware version:</b>       | XG3740 / XG3764                                                                                 |
| <b>Date of receipt</b>         | 05-09-2022                                                                                      |
| <b>Tests started:</b>          | 07-09-2022                                                                                      |
| <b>Testing ended:</b>          | 11-11-2022                                                                                      |

## 1.4 Product specifications of Equipment under test

The device has been tested for unintentional radiators part 15B, during the tests radio part has been disabled.

## 1.5 Environmental conditions

|                     |            |
|---------------------|------------|
| Test date           | 07-09-2022 |
| Ambient temperature | 22.5 C°    |
| Humidity            | 65.7 %     |

## 1.6 Measurement standards

- ANSI C63.4:2014

## 1.7 Applicable standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart B
- ICES-003, issue 7
- RSS-Gen Issue 5

## 1.8 Observation and remarks

The EUT has DC powered device.

## 1.9 Conclusions

The sample of the product showed **NO NON-COMPLIANCES** to the specifications stated in paragraph 1.7 of this report.

The results of the test as stated in this report, are exclusively applicable to the product items as identified in this report. Kiwa Nederland B.V. accepts no responsibility for any properties of product items in this test report, which are not supported by the tests as specified in paragraph 1.7 *"Applicable standards"*.

All conducted tests are performed by:

Name : Koray Korcum, MSc

Review of test methods and report by:

Name : ing. R. van Barneveld

The above conclusions have been verified by the following signatory:

Date : 24-02-2023

Name : ing. R. van Barneveld

Function : Test Engineer

Signature :

A handwritten signature in blue ink, consisting of a stylized 'R' followed by several horizontal strokes.



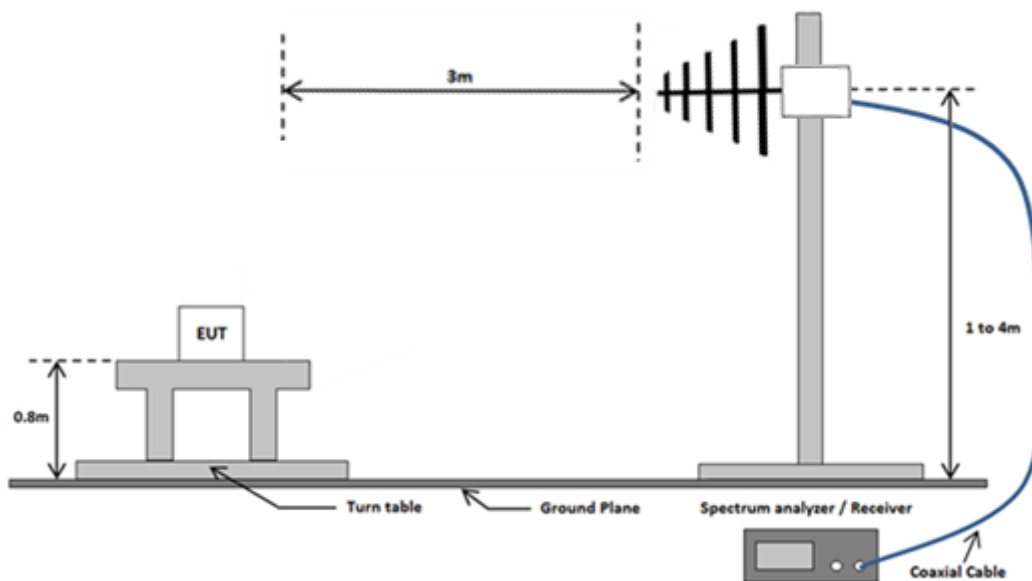
## 2 Test configuration of the Equipment Under Test

### 2.1 Test mode

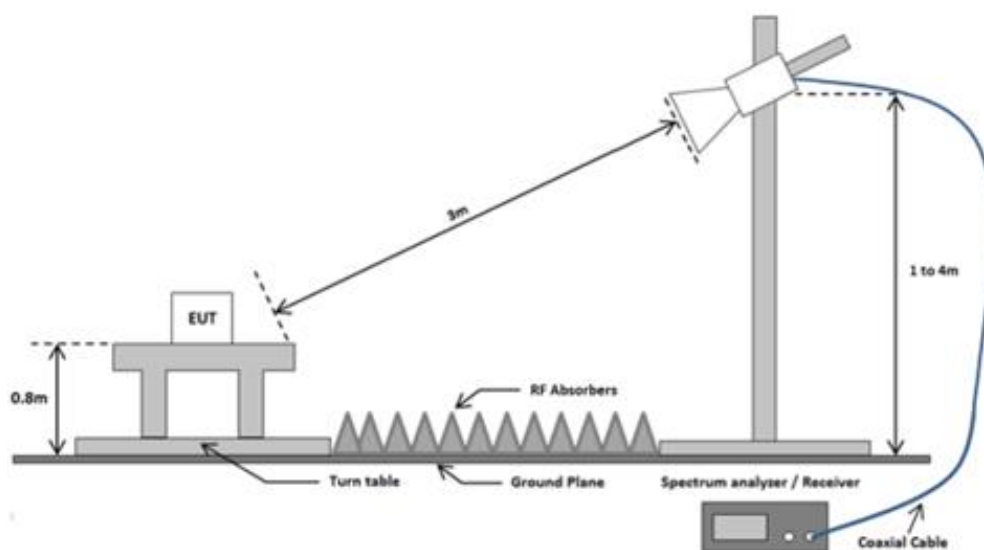
Device has been tested with normal operations mode without the radio transmitter operational.

### 2.2 Test setups

**Radiated emissions test setup 30 MHz - 1 GHz**

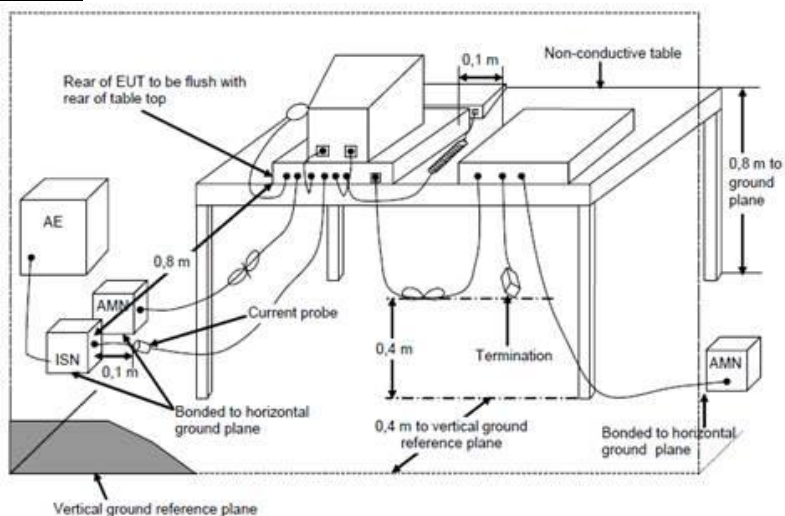


**Radiated emissions test setup above 1 GHz**



## Conducted emissions test setup

### Emissions test at AC mains



## 2.3 Equipment used in the test configuration

| Description            | Manufacturer             | Model                       | ID     | Cal. Done date | Cal. due date | Used at Par. |
|------------------------|--------------------------|-----------------------------|--------|----------------|---------------|--------------|
| Spectrum analyzer      | Rohde & Schwarz          | FSP40                       | 114792 | 03-2022        | 03-2022       | 3.1          |
| Measurement receiver   | Rohde & Schwarz          | ESR7                        | 114534 | 01-2022        | 01-2023       | 3.1, 3.2     |
| Log periodic Antenna   | EMCO                     | 3147                        | 114385 | 02-2021        | 02-2026       | 3.1          |
| Biconical Antenna      | Seibersdorf laboratories | BBA 9106                    | 114436 | 03-2021        | 03-2026       | 3.1          |
| Horn antenna           | EMCO                     | 3115                        | 114607 | 01-2021        | 01-2024       | 3.1          |
| Preamplifier 1-18 GHz  | µComp Nordic             | MCNA-40-0010800-25-10P      | 114690 | 01-2022        | 01-2023       | 3.1          |
| Preamplifier 18-40 GHz | Miteq                    | JS4-18004000-33-8P          | 114693 | 01-2022        | 01-2023       | 3.1          |
| Horn antenna           | Flann Microwave          | 20240-25                    | 114607 | NA*            | NA*           | 3.1          |
| Test software          | DARE                     | Radimation Version 2021.2.7 | --     | --             | --            | 3.1, 3.2     |
| Two line V-network     | Rohde & Schwarz          | ENV 216                     | 114379 | 07-2021        | 07-2023       | 3.2          |

\*Note: Standard gain horn antennas do not need calibration

## 2.4 Sample calculations

All formulas for data conversions and conversion factors are reported in chapter 4 of this test report.

### 3 Test results

#### 3.1 Radiated spurious emissions

##### 3.1.1 Limit

| Frequency (MHz) | Field strength ( $\mu\text{V/m}$ ) | Field strength ( $\text{dB}\mu\text{V/m}$ ) | Measurement distance(m) |
|-----------------|------------------------------------|---------------------------------------------|-------------------------|
| 30 -88          | 100                                | 40                                          | 3                       |
| 88 - 216        | 150                                | 43,5                                        | 3                       |
| 216-960         | 200                                | 46                                          | 3                       |
| Above 960       | 500                                | 54                                          | 3                       |

##### 3.1.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

##### 3.1.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

##### 3.1.4 Test procedure

Prior to running the measurements, the EUT has been investigated in the X, Y and Z dimensions to determine the worst case configuration for spurious emissions.

30 MHz to 26.5 GHz: According to ANSI C63.4: 2014

30 MHz to 1 GHz: IRN 026 – Method 1

1 GHz to 18 GHz: IRN 026 – Method 2

##### 3.1.5 Measurement Uncertainty

| Frequency range | Polarization | Uncertainty  |
|-----------------|--------------|--------------|
| 30 – 200 MHz    | Horizontal   | $\pm 4.5$ dB |
|                 | Vertical     | $\pm 5.4$ dB |
| 200 -1000 MHz   | Horizontal   | $\pm 3.6$ dB |
|                 | Vertical     | $\pm 4.6$ dB |
| 1 – 18 GHz      | Horizontal   | $\pm 5.7$ dB |
|                 | Vertical     | $\pm 5.7$ dB |

### 3.1.6 Peak tables of the radiated spurious emissions measurement

| Frequency   | Peak              | Peak Limit      | Status | Angle      | Height | Polarization |
|-------------|-------------------|-----------------|--------|------------|--------|--------------|
| 316,094 MHz | 35,6 dB $\mu$ V/m | 46 dB $\mu$ V/m | Pass   | 63 degrees | 1 m    | Horizontal   |

| Frequency  | Peak              | Peak Limit      | Status | Angle       | Height | Polarization |
|------------|-------------------|-----------------|--------|-------------|--------|--------------|
| 48,81 MHz  | 31,7 dB $\mu$ V/m | 40 dB $\mu$ V/m | Pass   | 72 degrees  | 1 m    | Vertical     |
| 49,91 MHz  | 30,4 dB $\mu$ V/m | 40 dB $\mu$ V/m | Pass   | 148 degrees | 1 m    | Vertical     |
| 35,885 MHz | 33 dB $\mu$ V/m   | 40 dB $\mu$ V/m | Pass   | 66 degrees  | 1,5 m  | Vertical     |

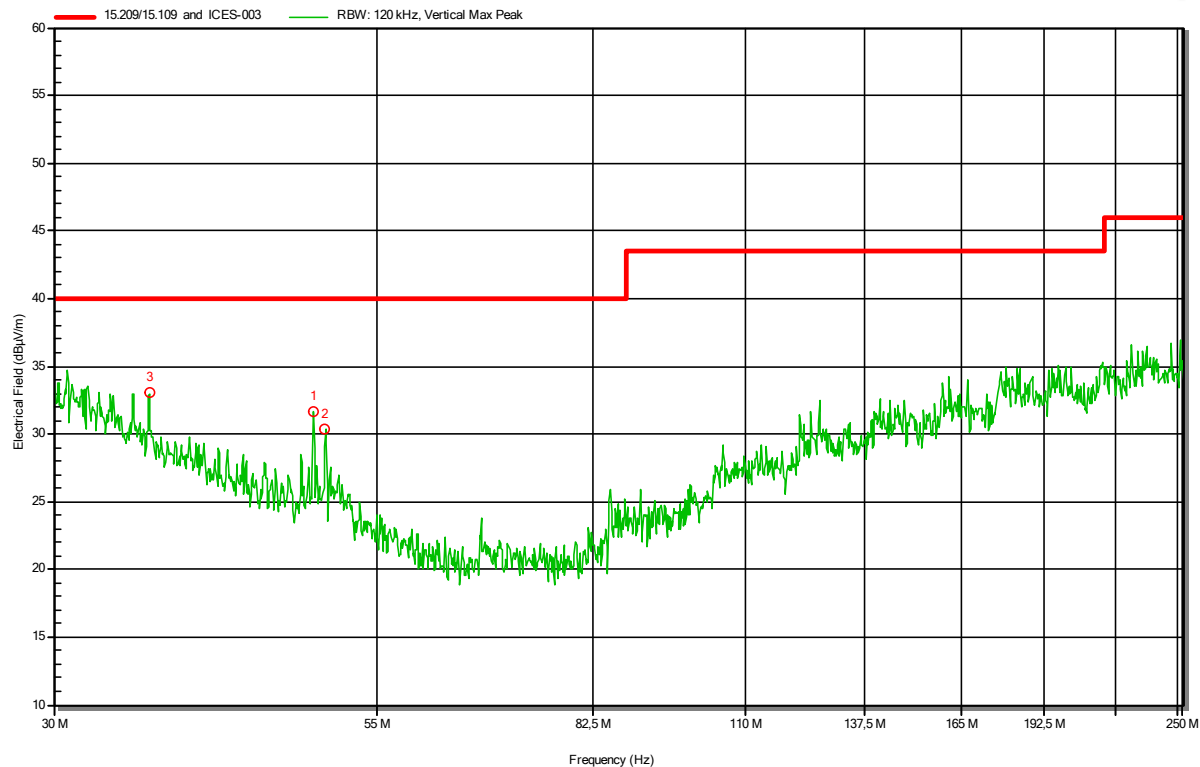
| Frequency  | Peak              | Peak Limit      | Average           | Average Limit   | Status | Angle       | Height | Polarization |
|------------|-------------------|-----------------|-------------------|-----------------|--------|-------------|--------|--------------|
| 14,239 GHz | 53,3 dB $\mu$ V/m | 74 dB $\mu$ V/m | 42,6 dB $\mu$ V/m | 54 dB $\mu$ V/m | Pass   | 359 degrees | 2,5 m  | Horizontal   |
| 4,585 GHz  | 38,6 dB $\mu$ V/m | 74 dB $\mu$ V/m | 25,5 dB $\mu$ V/m | 54 dB $\mu$ V/m | Pass   | 360 degrees | 1,5 m  | Horizontal   |

### 3.1.7 Plots of the Radiated Spurious Emissions Measurement

30 -250 MHz

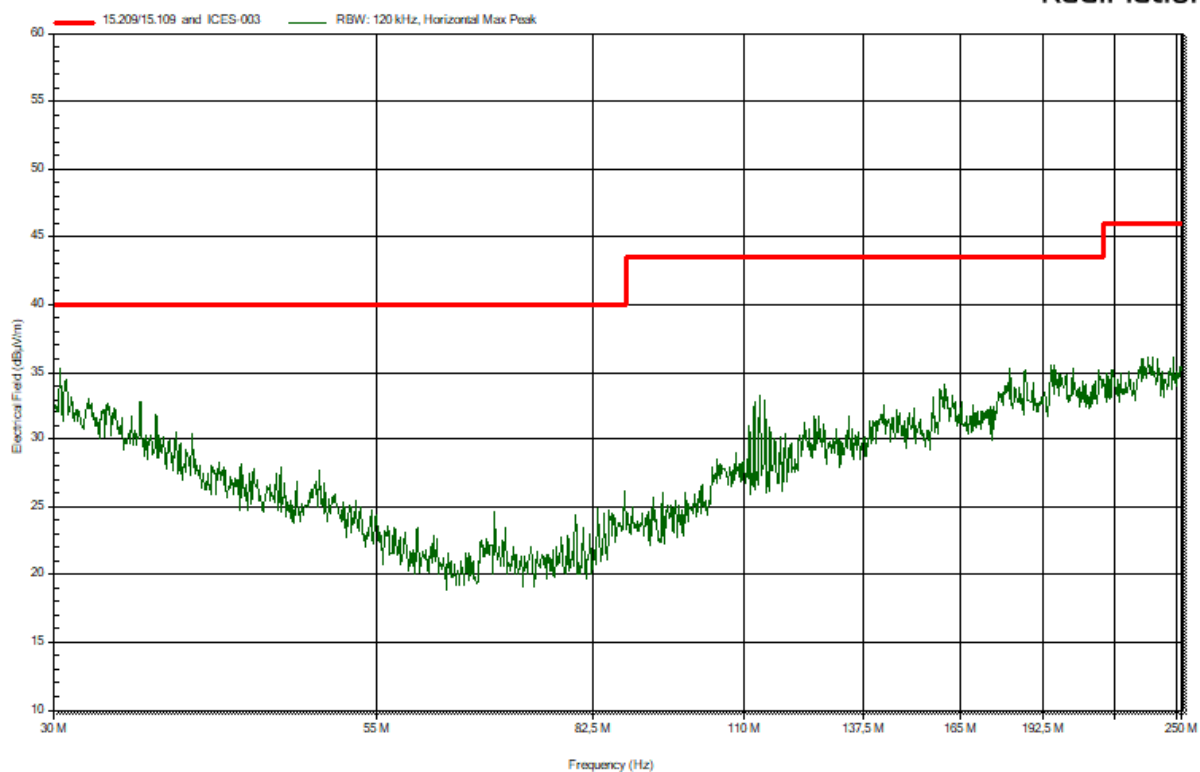
Vertical polarization

RadiMation



Horizontal polarization

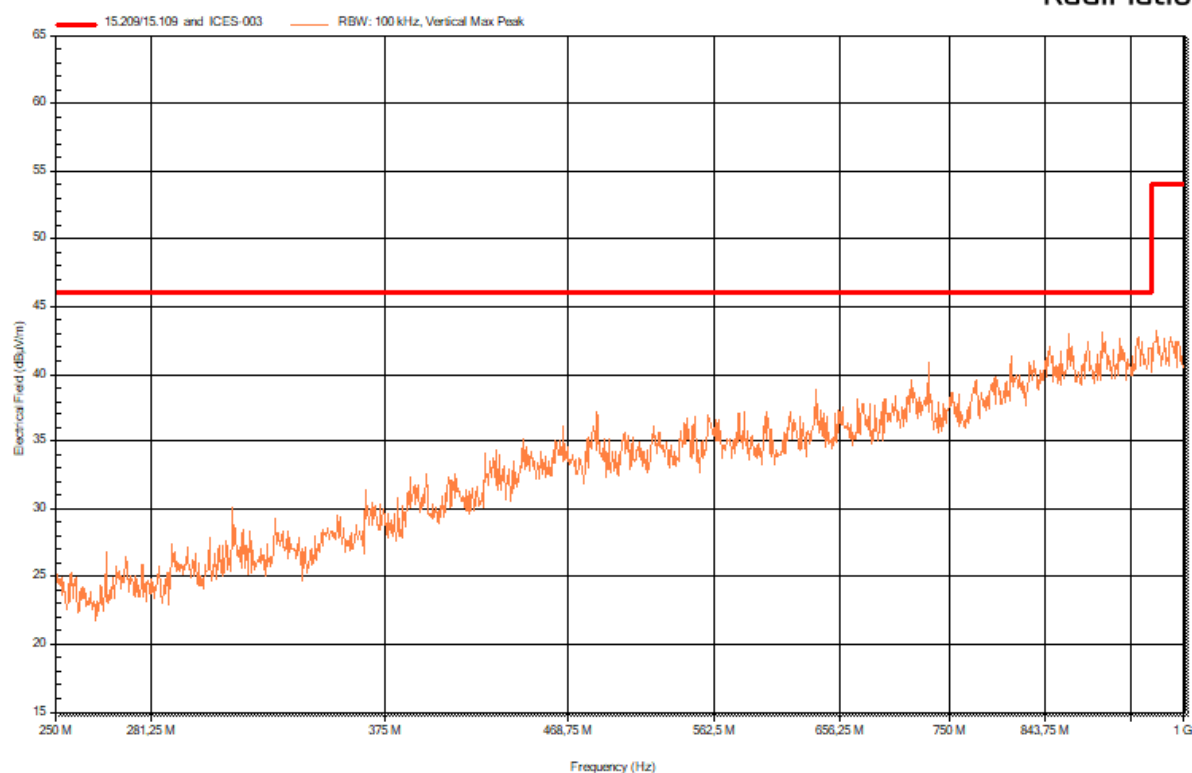
RadiMation



## 250 -1000 MHz

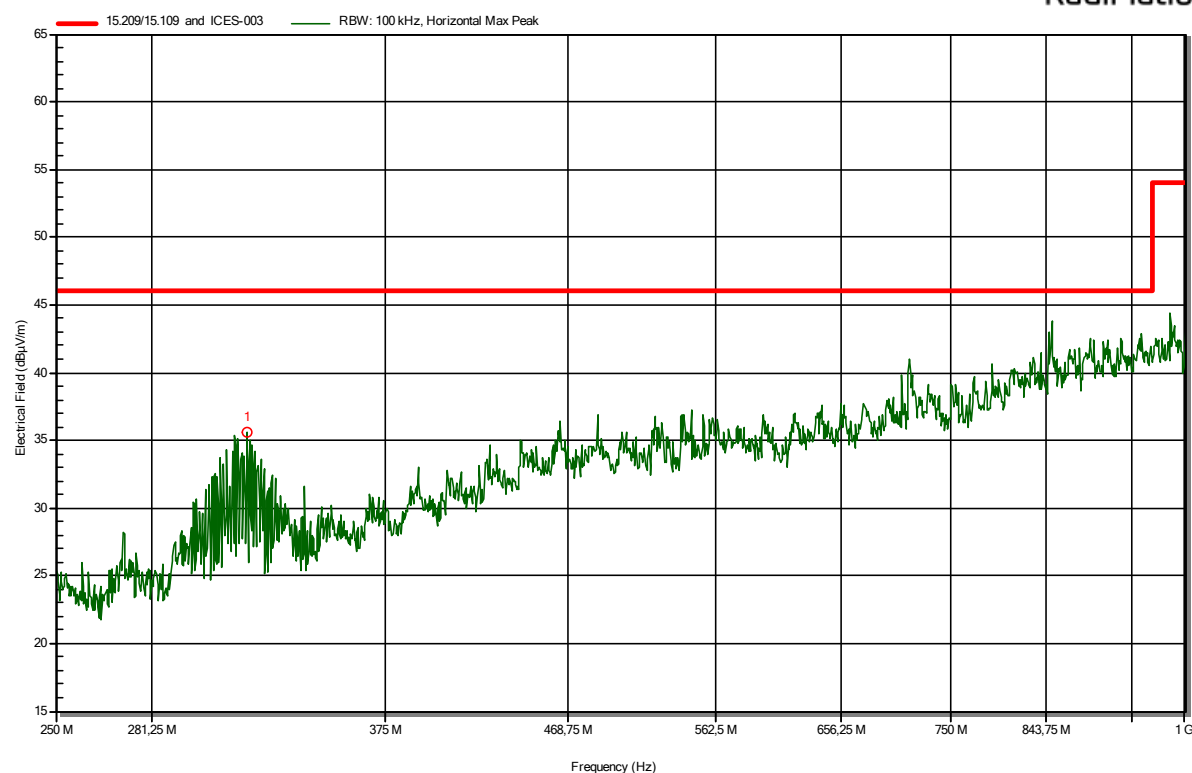
### Vertical polarization

RadiMation



### Horizontal polarization

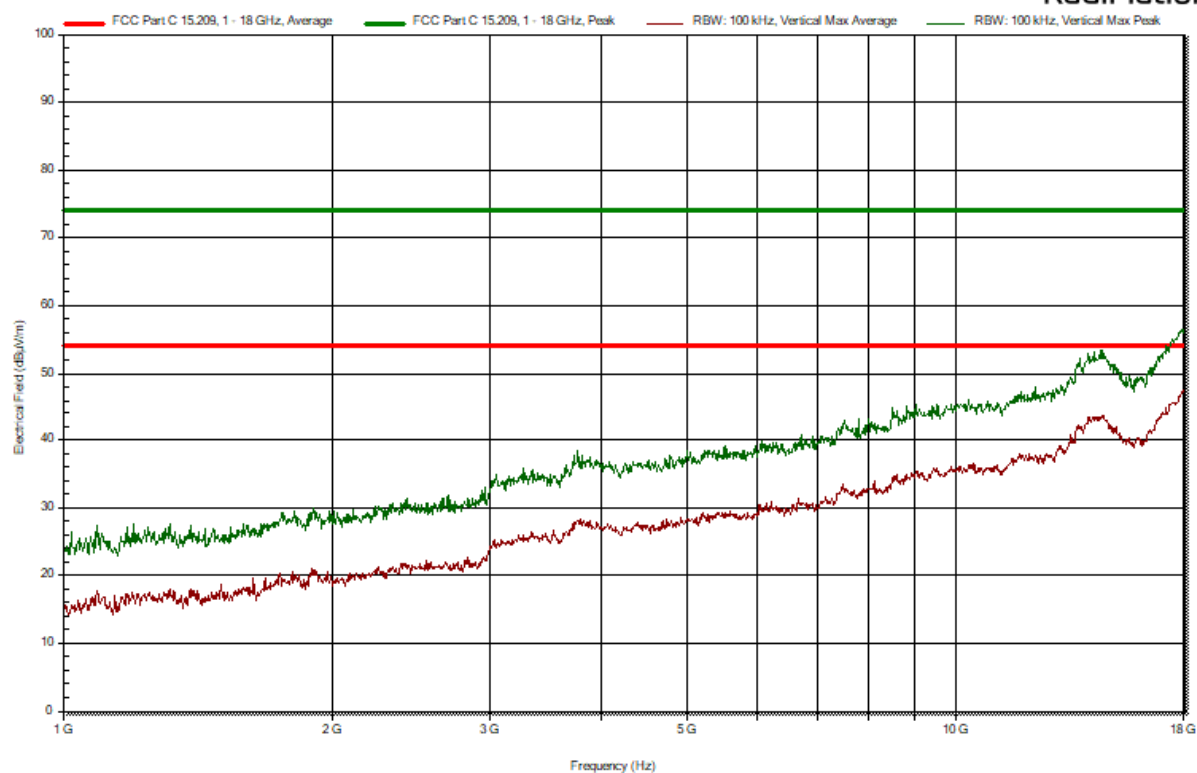
RadiMation



## 1 – 18 GHz

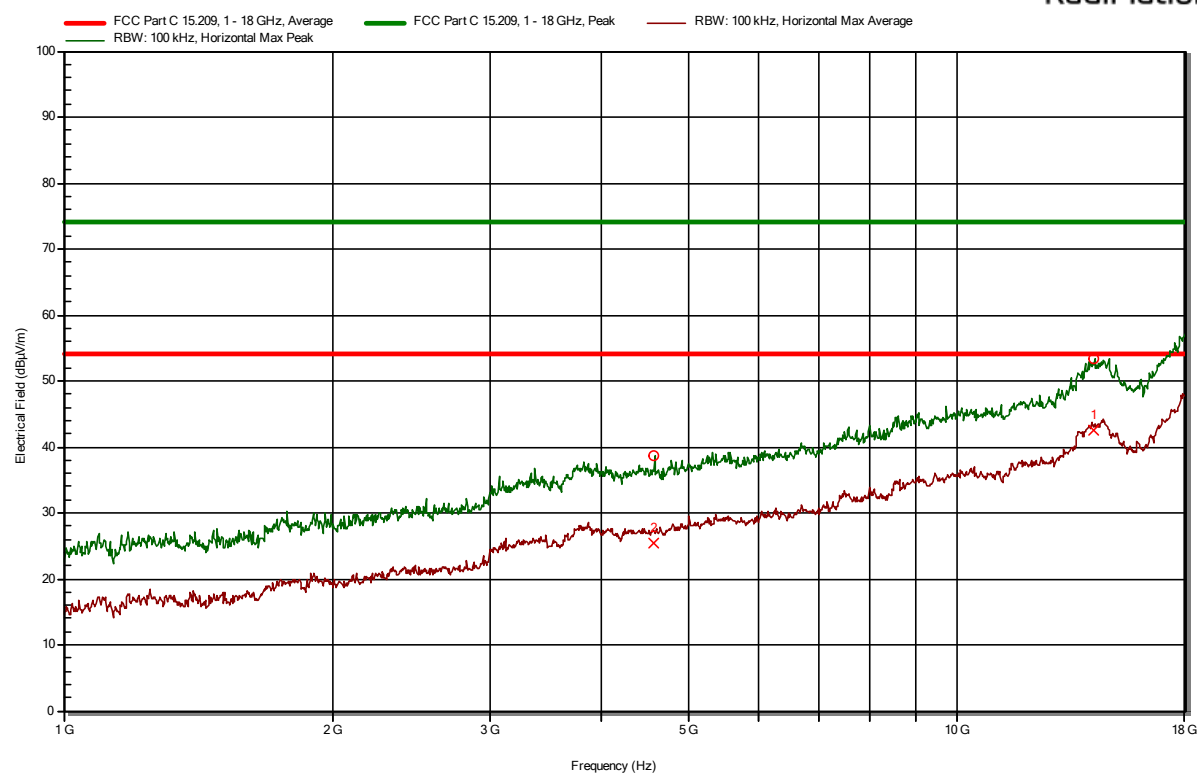
### Vertical polarization

RadiMation



### Horizontal polarization

RadiMation





## 3.2 AC power line conducted emissions

### 3.2.1 Limit

According to 15.107 (b)

Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

| Frequency of emission (MHz) | Conducted limit (dB $\mu$ V) |           |
|-----------------------------|------------------------------|-----------|
|                             | Quasi-peak                   | Average   |
| 0.15–0.5 .....              | 66 to 56* .....              | 56 to 46* |
| 0.5–5 .....                 | 56 .....                     | 46        |
| 5–30 .....                  | 60 .....                     | 50        |

\*Decreases with the logarithm of the frequency.

### 3.2.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

### 3.2.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

### 3.2.4 Test procedure

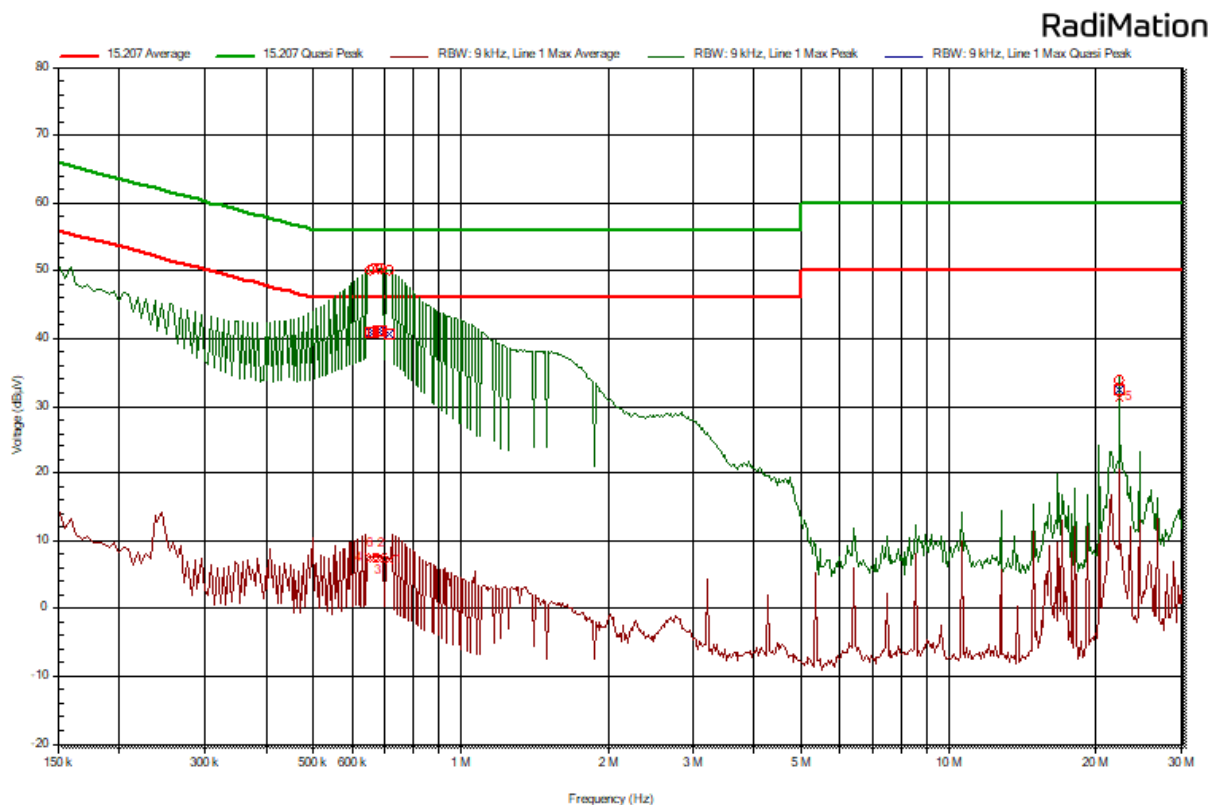
According to ANSI C63.4: 2014  
IRN 029 – Method 1

### 3.2.5 Measurement uncertainty

+/- 3.6 dB

### 3.2.6 Plots of the AC mains conducted spurious measurement

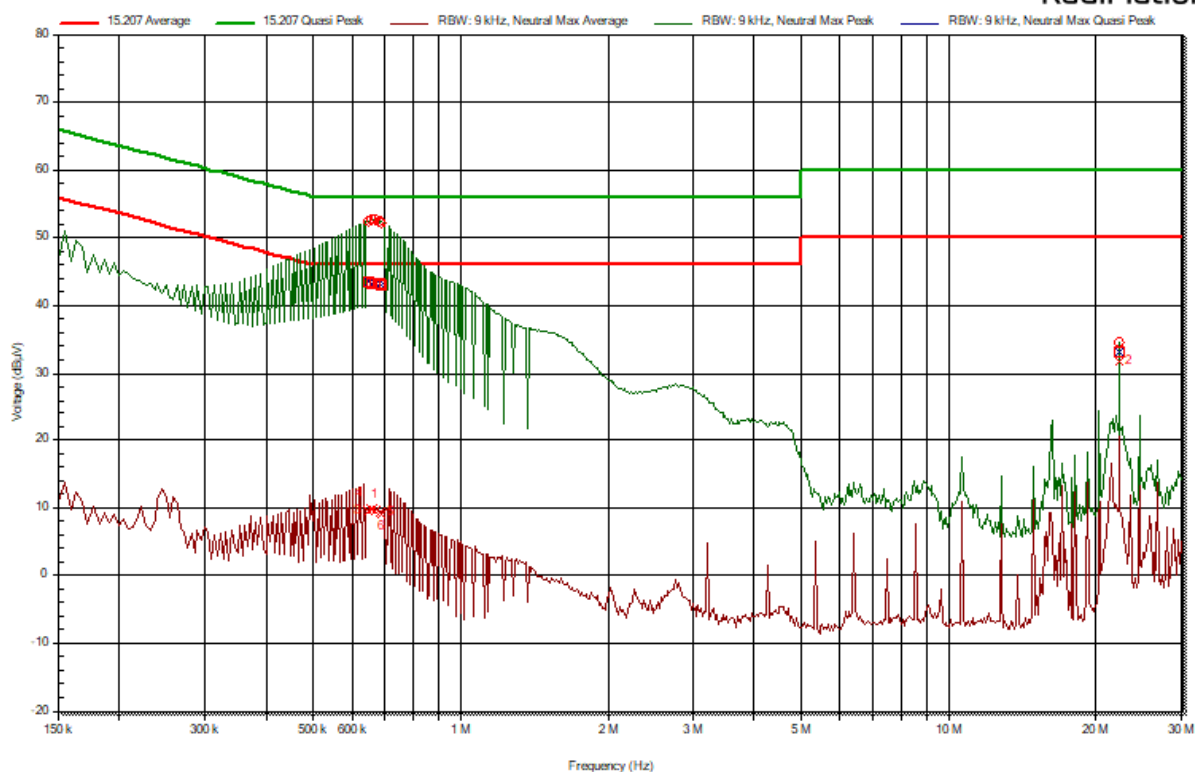
Phase



| Frequency  | Peak      | Peak Limit | Average   | Average Limit | Quasi-Peak | Quasi-Peak Limit | Status | LISN   |
|------------|-----------|------------|-----------|---------------|------------|------------------|--------|--------|
| 712,5 kHz  | 50 dBμV   | 56 dBμV    | 7 dBμV    | 46 dBμV       | 40,7 dBμV  | 56 dBμV          | Pass   | Line 1 |
| 685,5 kHz  | 50,4 dBμV | 56 dBμV    | 7,3 dBμV  | 46 dBμV       | 41,2 dBμV  | 56 dBμV          | Pass   | Line 1 |
| 676,5 kHz  | 50,3 dBμV | 56 dBμV    | 7,3 dBμV  | 46 dBμV       | 41,1 dBμV  | 56 dBμV          | Pass   | Line 1 |
| 663 kHz    | 50,2 dBμV | 56 dBμV    | 7,3 dBμV  | 46 dBμV       | 41 dBμV    | 56 dBμV          | Pass   | Line 1 |
| 22,367 MHz | 33,8 dBμV | 60 dBμV    | 31,3 dBμV | 50 dBμV       | 32,4 dBμV  | 60 dBμV          | Pass   | Line 1 |
| 654 kHz    | 50,1 dBμV | 56 dBμV    | 7,3 dBμV  | 46 dBμV       | 40,9 dBμV  | 56 dBμV          | Pass   | Line 1 |

## Neutral

## RadiMation



| Frequency  | Peak      | Peak Limit | Average   | Average Limit | Quasi-Peak | Quasi-Peak Limit | Status | LISN    |
|------------|-----------|------------|-----------|---------------|------------|------------------|--------|---------|
| 667,5 kHz  | 52,6 dBμV | 56 dBμV    | 9,4 dBμV  | 46 dBμV       | 43,3 dBμV  | 56 dBμV          | Pass   | Neutral |
| 22,367 MHz | 34,5 dBμV | 60 dBμV    | 31,7 dBμV | 50 dBμV       | 33,2 dBμV  | 60 dBμV          | Pass   | Neutral |
| 649,5 kHz  | 52,5 dBμV | 56 dBμV    | 9,5 dBμV  | 46 dBμV       | 43,4 dBμV  | 56 dBμV          | Pass   | Neutral |
| 658,5 kHz  | 52,6 dBμV | 56 dBμV    | 9,6 dBμV  | 46 dBμV       | 43,3 dBμV  | 56 dBμV          | Pass   | Neutral |
| 681 kHz    | 52,4 dBμV | 56 dBμV    | 9,2 dBμV  | 46 dBμV       | 43,2 dBμV  | 56 dBμV          | Pass   | Neutral |
| 690 kHz    | 52,2 dBμV | 56 dBμV    | 9,1 dBμV  | 46 dBμV       | 43 dBμV    | 56 dBμV          | Pass   | Neutral |

## 4 Sample calculations

All formulas for data conversions and conversion factors are reported in this chapter.

Conducted emission Measurement:

$$U_{\text{lisn}} (\text{dB}\mu\text{V}) = U (\text{dB}\mu\text{V}) + \text{Corr. (dB)}$$

Where:

U = Measuring receiver voltage

LISN insertion loss = Voltage division factor of LISN

Corr. = sum of single correction factors of used LISN, cables and pulse limiter.

Linear interpolation will be used for frequencies in between the values in the table.

| Frequency (Mhz) | Voltage division LISN (db)       | Cable loss (dB) | Corr. (dB) |
|-----------------|----------------------------------|-----------------|------------|
|                 | 114379<br>Rohde & Schwarz ENV216 | TE 11134        |            |
| 0,15            | 9.6                              | 0,02            | 9.62       |
| 0,3             | 9.6                              | 0,03            | 9.63       |
| 0,5             | 9.6                              | 0,08            | 9.68       |
| 0,7             | 9.7                              | 0,25            | 9.95       |
| 1               | 9.6                              | 0,11            | 9.71       |
| 3               | 9.6                              | 0,21            | 9.81       |
| 5               | 9.6                              | 0,21            | 9.81       |
| 7               | 9.7                              | 0,25            | 9.95       |
| 10              | 9.7                              | 0,29            | 9.99       |
| 15              | 9.7                              | 0,34            | 10.04      |
| 20              | 9.8                              | 0,37            | 10.17      |
| 22              | 9.6                              | 0,39            | 9.99       |
| 24              | 9.6                              | 0,43            | 10.03      |
| 30              | 9.6                              | 0,45            | 10.05      |

Magnetic field strength measurement:

$$H \left[ dB \left( \mu \frac{A}{m} \right) \right] = V[dB(\mu V)] + L_c[dB] + AF^H \left[ \frac{dB}{\Omega m} \right]$$

Where:

H is the magnetic field strength (to be compared to the limit)

V is the voltage level measured by the receiver or spectrum analyzer

L<sub>c</sub> is the cable loss

AF<sup>H</sup> is the magnetic antenna factor

| Frequency (MHz) | AF (dB/Ωm)                           | CL (dB)   | Corr. (dB) |
|-----------------|--------------------------------------|-----------|------------|
|                 | 114515<br>EMCO 6505<br>S/N:9112-2710 | SAR cable |            |
| 0,009           | -32,35                               | 0,7       | -31,65     |
| 0,01            | -33,16                               | 0,05      | -33,11     |
| 0,02            | -37,56                               | 0,07      | -37,49     |
| 0,03            | -39,29                               | 0,1       | -39,19     |
| 0,04            | -40,11                               | 0,1       | -40,01     |
| 0,1             | -41,27                               | 0,1       | -41,17     |
| 0,2             | -41,48                               | 0,1       | -41,38     |
| 0,5             | -41,58                               | 0,1       | -41,48     |
| 1               | -41,62                               | 0,2       | -41,42     |
| 3               | -41,6                                | 0,2       | -41,4      |
| 5               | -41,65                               | 0,3       | -41,35     |
| 10              | -42,11                               | 0,6       | -41,51     |
| 15              | -42,88                               | 0,9       | -41,98     |
| 20              | -43,78                               | 1         | -42,78     |
| 25              | -44,85                               | 0,7       | -44,15     |
| 27              | -45,36                               | 1,2       | -44,16     |
| 30              | -46,25                               | 1         | -45,25     |

# Field Strength Measurement:

$$E \text{ (dB}\mu\text{V/m)} = U \text{ (dB}\mu\text{V)} + AF \text{ (dB/m)} + \text{Corr. (dB)}$$

Where:

E = Electric field strength

U = Measuring receiver voltage

AF = Antenna factor

CL = Cable loss

Corr. = sum of single correction factors of used cable and amplifier (if applicable).

Linear interpolation will be used for frequencies in between the values in the table.

Tables shows an extract of the values.

| Frequency (Mhz) | AF (dB/m)<br>Id: 114436<br>Schwarzbeck<br>VHA9103+BBA9106<br>SN: 9856 | Cable loss (dB)<br>Id: SAR cable | Corr. (dB) |
|-----------------|-----------------------------------------------------------------------|----------------------------------|------------|
| 30              | 18,64                                                                 | 0,68                             | 19,32      |
| 100             | 10,43                                                                 | 1,15                             | 11,58      |
| 150             | 14,76                                                                 | 1,41                             | 16,17      |
| 200             | 16,04                                                                 | 1,63                             | 17,67      |
| 250             | 16,89                                                                 | 1,93                             | 18,82      |

| Frequency (Mhz) | AF (dB/m)<br>Id: 114385<br>EMCO 3147<br>SN: 9104-1031 | Cable loss (dB)<br>Id: SAR cable | Corr. (dB) |
|-----------------|-------------------------------------------------------|----------------------------------|------------|
| 250             | 11,8                                                  | 1,93                             | 13,73      |
| 300             | 13                                                    | 2,12                             | 15,12      |
| 350             | 14,2                                                  | 2,2                              | 16,4       |
| 400             | 15,6                                                  | 2,29                             | 17,89      |
| 450             | 17,1                                                  | 2,53                             | 19,63      |
| 500             | 17,3                                                  | 2,67                             | 19,97      |
| 550             | 17,7                                                  | 2,9                              | 20,6       |
| 600             | 18,4                                                  | 3,02                             | 21,42      |
| 650             | 19,2                                                  | 3,09                             | 22,29      |
| 700             | 19,7                                                  | 3,22                             | 22,92      |
| 750             | 20,3                                                  | 3,56                             | 23,86      |
| 800             | 21,4                                                  | 3,69                             | 25,09      |
| 900             | 22,1                                                  | 3,81                             | 25,91      |
| 950             | 22,6                                                  | 3,91                             | 26,51      |
| 1000            | 22,5                                                  | 4,3                              | 26,8       |

| Frequency (Mhz) | AF (dB/m)                              | Gain (dB)                                  | Cable loss (dB) | Corr. (dB) |
|-----------------|----------------------------------------|--------------------------------------------|-----------------|------------|
|                 | TE 00531<br>Emco 3115<br>SN: 9412-4377 | TE 11132<br>Miteq<br>JS4-18004000-30-8P-A1 | TE 01315        |            |
| 1000            | 23,6                                   | 40,4                                       | 2,0             | 66         |
| 1500            | 25,1                                   | 40,5                                       | 2,4             | 68         |
| 2000            | 27,1                                   | 40,5                                       | 2,7             | 70,3       |
| 2500            | 28,6                                   | 40,7                                       | 3,2             | 72,5       |
| 3000            | 30,5                                   | 40,7                                       | 3,2             | 74,4       |
| 3500            | 31,2                                   | 40,7                                       | 3,4             | 75,3       |
| 4000            | 32,7                                   | 40,9                                       | 4,9             | 78,5       |
| 4500            | 32,4                                   | 40,9                                       | 4,4             | 77,7       |
| 5000            | 33,2                                   | 40,7                                       | 4,6             | 78,5       |
| 5500            | 34,0                                   | 40,5                                       | 4,5             | 79         |
| 6000            | 34,6                                   | 40,0                                       | 5,2             | 79,8       |
| 6500            | 34,3                                   | 39,4                                       | 5,9             | 79,6       |
| 7000            | 35,2                                   | 38,6                                       | 5,7             | 79,5       |
| 7500            | 36,4                                   | 39,2                                       | 5,9             | 81,5       |
| 8000            | 37,0                                   | 38,9                                       | 6,3             | 82,2       |
| 8500            | 37,5                                   | 38,4                                       | 6,4             | 82,3       |
| 9000            | 38,1                                   | 37,4                                       | 6,5             | 82         |
| 9500            | 37,8                                   | 37,0                                       | 7,1             | 81,9       |
| 10000           | 38,2                                   | 36,5                                       | 7,3             | 82         |
| 10500           | 38,1                                   | 36,7                                       | 7,6             | 82,4       |
| 11000           | 38,3                                   | 36,9                                       | 8,3             | 83,5       |
| 11500           | 38,5                                   | 37,6                                       | 8,1             | 84,2       |
| 12000           | 39,1                                   | 38,3                                       | 8,4             | 85,8       |
| 12500           | 38,7                                   | 38,5                                       | 8,3             | 85,5       |
| 13000           | 39,2                                   | 38,9                                       | 9,2             | 87,3       |
| 13500           | 40,5                                   | 40,2                                       | 8,3             | 89         |
| 14000           | 41,1                                   | 40,0                                       | 8,2             | 89,3       |
| 14500           | 41,4                                   | 40,1                                       | 8,2             | 89,7       |
| 15000           | 40,2                                   | 41,4                                       | 8,3             | 89,9       |
| 15500           | 37,9                                   | 41,4                                       | 8,6             | 87,9       |
| 16000           | 37,5                                   | 42,8                                       | 9,2             | 89,5       |
| 16500           | 38,6                                   | 42,3                                       | 8,8             | 89,7       |
| 17000           | 41,1                                   | 43,1                                       | 9,4             | 93,6       |
| 17500           | 42,7                                   | 43,2                                       | 9,4             | 95,3       |
| 18000           | 44,0                                   | 44,2                                       | 9,8             | 98         |

| Frequency (Mhz) | AF (dB/m)                                | Gain (dB)                                  | Cable loss (dB) | Corr. (dB) |
|-----------------|------------------------------------------|--------------------------------------------|-----------------|------------|
|                 | TE 00818<br>Flann 20240-25<br>SN: 163703 | TE 11131<br>Miteq<br>JS4-18004000-30-8P-A1 | TE 01315        |            |
| 18000           | 31,3                                     | 26,2                                       | 9,8             | 67,3       |
| 19000           | 31,5                                     | 26,1                                       | 9,6             | 67,2       |
| 20000           | 31,7                                     | 25,9                                       | 11              | 68,6       |
| 21000           | 31,9                                     | 24,3                                       | 10,7            | 66,9       |
| 22000           | 32,1                                     | 18,3                                       | 10,5            | 60,9       |
| 23000           | 32,2                                     | 18,9                                       | 10,8            | 61,9       |
| 24000           | 32,3                                     | 23,6                                       | 11,4            | 67,3       |
| 25000           | 32,4                                     | 24,5                                       | 11,6            | 68,5       |
| 26000           | 32,5                                     | 25,3                                       | 11,7            | 69,5       |

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