

## ANNEX D RESULTS OF THE RECEIVER MEASUREMENTS

### 1 RADIATED EMISSIONS (RECEIVER)

#### 1.1 Preliminary radiated emission measurement

|                     |       |                   |      |
|---------------------|-------|-------------------|------|
| Ambient temperature | 20 °C | Relative humidity | 32 % |
|---------------------|-------|-------------------|------|

Position of EUT: The EUT was set-up on a non-conducting table of a height of 0.8 m. The distance between EUT and antenna was 3 m.

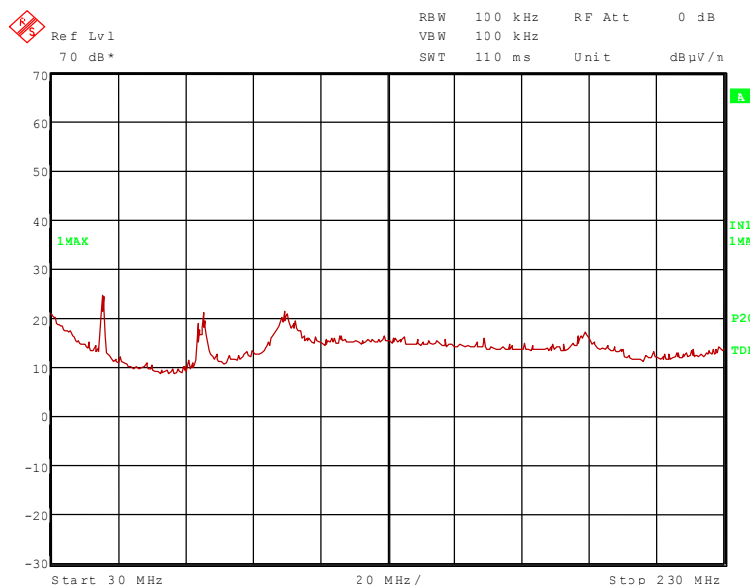
Cable guide: For detail information of test set-up and the cable guide refer to the pictures in annex A of this test report.

Test record: All results are shown in the following.

Supply voltage: During all measurements the EUT was supplied by the external battery, which was charged by an external AC/DC adaptor type NK120P100PGS, which was supplied by 120 V AC / 60 Hz.

Remark: As pre-tests have shown, the emissions of the EUT are not depending on the receiver operation mode. Therefore all measurements were carried out in operation mode 5.

120019\_18.wmf: Receiver emissions from 30 MHz to 230 MHz (operation mode 5):

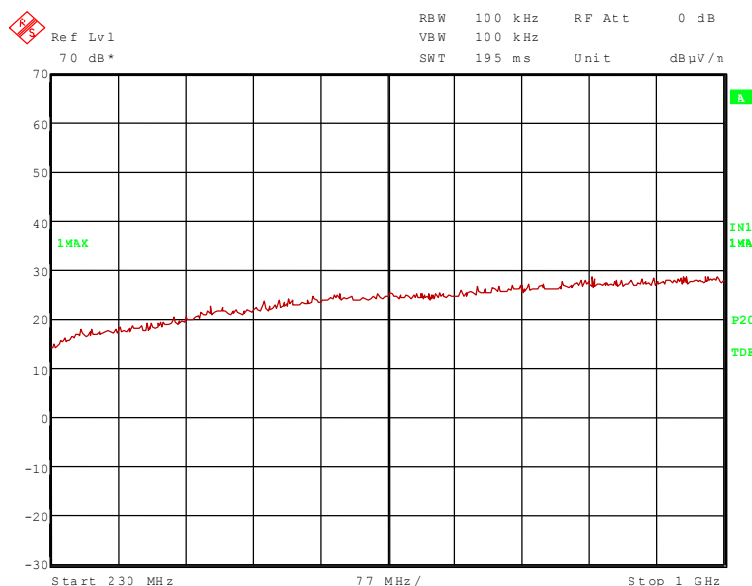


#### TEST EQUIPMENT USED FOR THE TEST:

29, 31 – 36, 43, 44, 49

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120019\_19.wmf: Receiver emissions from 230 MHz to 1 GHz (operation mode 5):

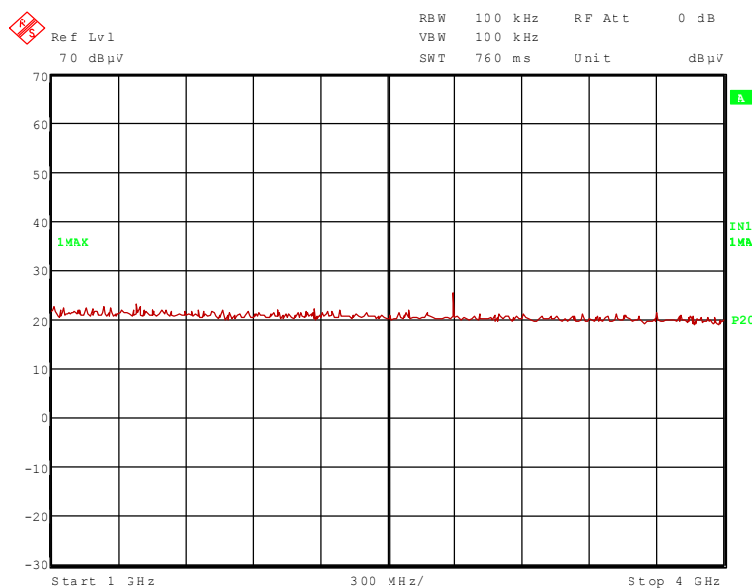


The following frequencies were found during the preliminary emission measurement:

45.725 MHz, 75.480 MHz and 99.171 MHz.

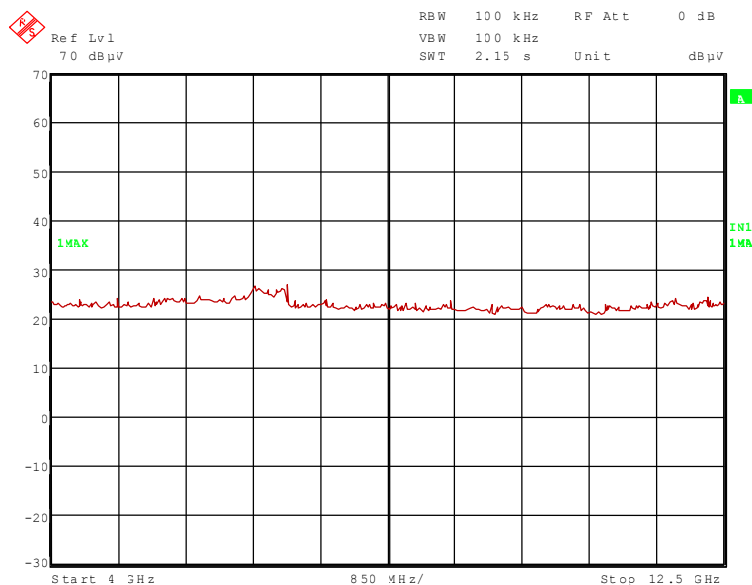
These frequencies have to be measured in a final measurement on a open are test site. The results were presented in the following.

120019\_20.wmf: Receiver emissions from 1 GHz to 4 GHz (operation mode 5):



## ANNEX D RESULTS OF THE RECEIVER MEASUREMENTS

120019\_21.wmf: Receiver emissions from 4 GHz to 12.5 GHz (operation mode 5):



The following frequency was found during the preliminary emission measurement:

2.792 GHz.

This frequency has to be measured in a final measurement. The results were presented in the following.

## ANNEX D RESULTS OF THE RECEIVER MEASUREMENTS

### 1.2 Final radiated emission measurement (30 MHz to 1 GHz)

|                     |       |                   |      |
|---------------------|-------|-------------------|------|
| Ambient temperature | 20 °C | Relative humidity | 35 % |
|---------------------|-------|-------------------|------|

Position of EUT: The EUT was set-up on a non-conducting table of a height of 0.8 m. The distance between EUT and antenna was 3 m.

Cable guide: For detail information of test set-up and the cable guide refer to the pictures in annex A of this test report.

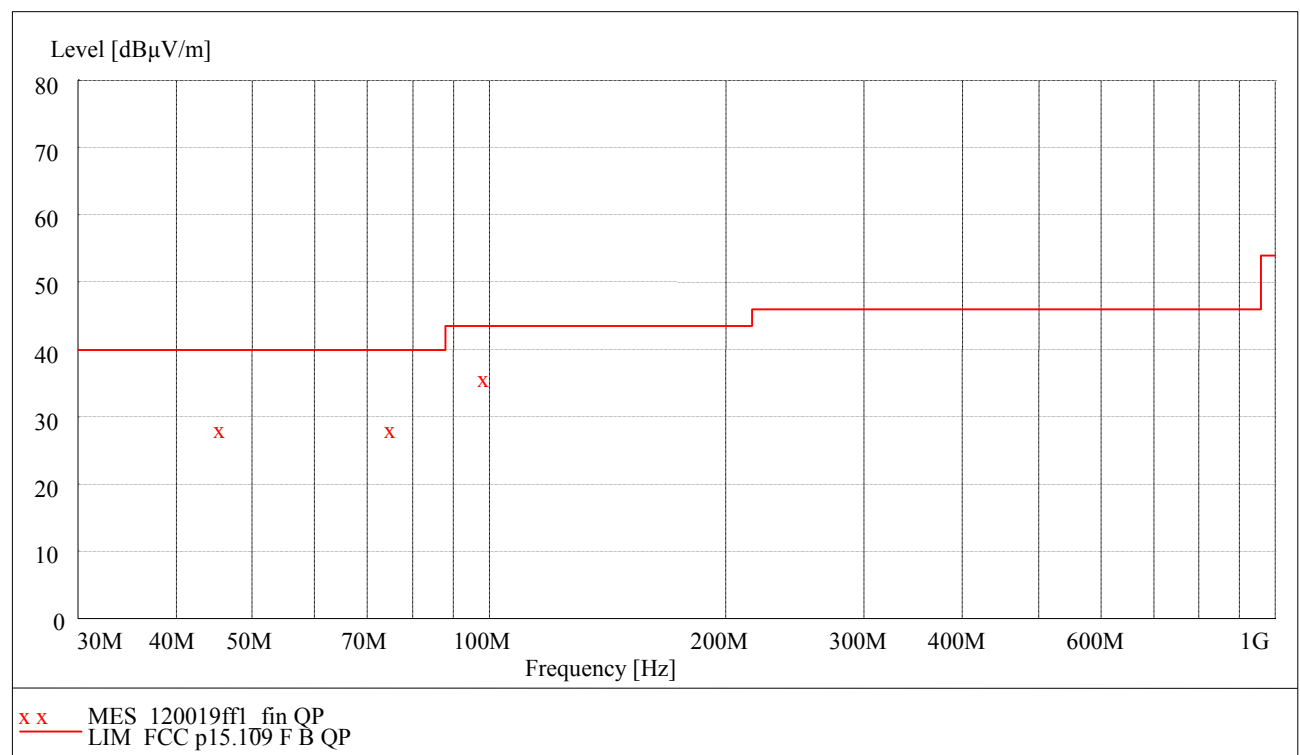
Test record: All results are shown in the following.

Supply voltage: During all measurements the EUT was supplied by the external battery, which was charged by an external AC/DC adaptor type NK120P100PGS, which was supplied by 120 V AC / 60 Hz.

Test results: The test results were calculated with the following formula:

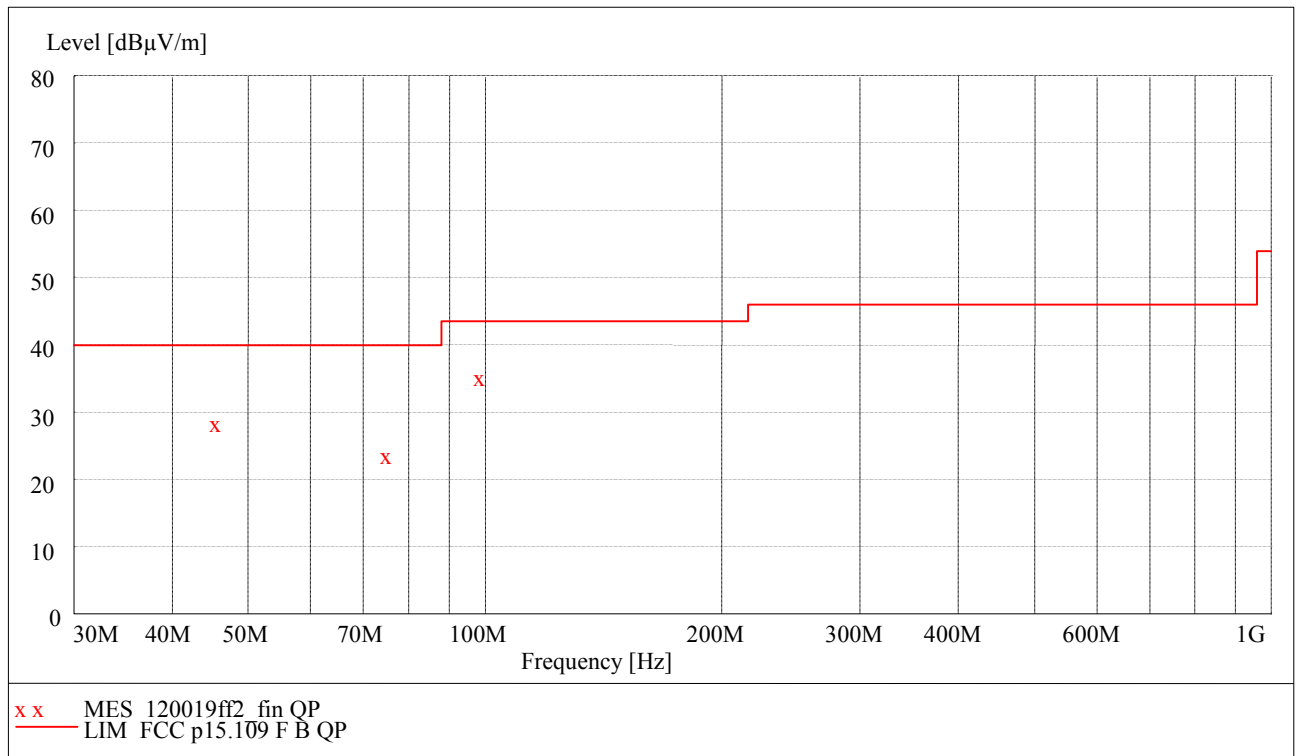
$$\text{Result [dB}\mu\text{V/m]} = \text{reading [dB}\mu\text{V]} + \text{cable loss [dB]} + \text{antenna factor [dB/m]}$$

The measured points and the limit line in the following diagram refer to the standard measurement of the emitted interference in compliance with the above-mentioned standard. The measured points marked with an x are the measured results of the standard final measurement on the open area test site.



Data record name: 120019ff1 (Position 1)

## ANNEX D RESULTS OF THE RECEIVER MEASUREMENTS



Data record name: 120019ff2 (Position 2)

The results of the standard subsequent measurement on the open area test site are indicated in the table below. The limits as well as the measured results (levels) refer to the above mentioned standard while taking account of the specified requirements for a 3 m measuring distance.

The measurement time with the quasi-peak measuring detector is 1 second.

**Result measured with the quasipeak detector:**  
(This value is marked in the diagrams by an x)

| Spurious emissions outside restricted bands |        |        |        |                   |                |            |        |         |       |      |
|---|--------|--------|--------|-------------------|----------------|------------|--------|---------|-------|------|
| Frequency                                   | Result | Limit  | Margin | Readings          | Antenna factor | Cable loss | Height | Azimuth | Pol.  | Pos. |
| MHz   | dBμV/m | dBμV/m | dB     | dBμV              | dB/m           | dB         | cm     | deg     |       |      |
| 45.725                                      | 29.0   | 40.0   | 11.0   | 16.5              | 11.8           | 0.7        | 105.0  | 44.0    | Vert. | 2    |
| 75.480                                      | 28.8   | 40.0   | 11.2   | 20.5              | 7.4            | 0.9        | 400.0  | 60.0    | Hor.  | 1    |
| 99.171                                      | 36.3   | 43.5   | 7.2    | 24.5              | 10.7           | 1.1        | 355.0  | 315.0   | Hor.  | 1    |
| Measurement uncertainty                     |        |        |        | +2.2 dB / -3.6 dB |                |            |        |         |       |      |

Test: Passed

TEST EQUIPMENT USED FOR THE TEST:

14 – 20

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### 1.3 Final radiated emission measurement (1 GHz to 12.5 GHz)

|                     |       |                   |      |
|---------------------|-------|-------------------|------|
| Ambient temperature | 20 °C | Relative humidity | 32 % |
|---------------------|-------|-------------------|------|

Position of EUT: The EUT was set-up on a non-conducting table of a height of 0.8 m. The distance between EUT and antenna was 3 m.

Cable guide: For detail information of test set-up and the cable guide refer to the pictures in annex A of this test report.

Test record: All results are shown in the following.

Supply voltage: During all measurements the EUT was supplied by the external battery, which was charged by an external AC/DC adaptor type NK120P100PGS, which was supplied by 120 V AC / 60 Hz.

Resolution bandwidth: For all measurements a resolution bandwidth of 1 MHz was used.

#### Result measured with the peak detector:

| Frequency<br>GHz        | Corr. value<br>dBμV/m | Limit<br>dBμV/m | Margin<br>dB | Readings<br>dBμV | Antenna<br>factor<br>1/m | Preamp.<br>dB     | Cable<br>loss<br>dB | Height<br>cm | Pol. | Pos. |
|-------------------------|-----------------------|-----------------|--------------|------------------|--------------------------|-------------------|---------------------|--------------|------|------|
| 2.792                   | 40.2                  | 74.0            | 33.8         | 33.4             | 29.1                     | 26.4              | 4.1                 | 150          | Hor. | 1    |
| Measurement uncertainty |                       |                 |              |                  |                          | +2.2 dB / -3.6 dB |                     |              |      |      |

#### Result measured with the average detector:

| Frequency<br>GHz        | Corr. value<br>dBμV/m | Limit<br>dBμV/m | Margin<br>dB | Readings<br>dBμV | Antenna<br>factor<br>1/m | Preamp.<br>dB     | Cable<br>loss<br>dB | Height<br>cm | Pol. | Pos. |
|-------------------------|-----------------------|-----------------|--------------|------------------|--------------------------|-------------------|---------------------|--------------|------|------|
| 2.792                   | 30.9                  | 54.0            | 23.1         | 24.1             | 29.1                     | 26.4              | 4.1                 | 150          | Hor. | 1    |
| Measurement uncertainty |                       |                 |              |                  |                          | +2.2 dB / -3.6 dB |                     |              |      |      |

Test: Passed

|                                   |
|-----------------------------------|
| TEST EQUIPMENT USED FOR THE TEST: |
| 29, 31 –34, 36, 44, 49            |

## ANNEX D RESULTS OF THE RECEIVER MEASUREMENTS

### 2 Test results (conducted emissions on power supply lines)

|                     |       |                   |      |
|---------------------|-------|-------------------|------|
| Ambient temperature | 21 °C | Relative humidity | 32 % |
|---------------------|-------|-------------------|------|

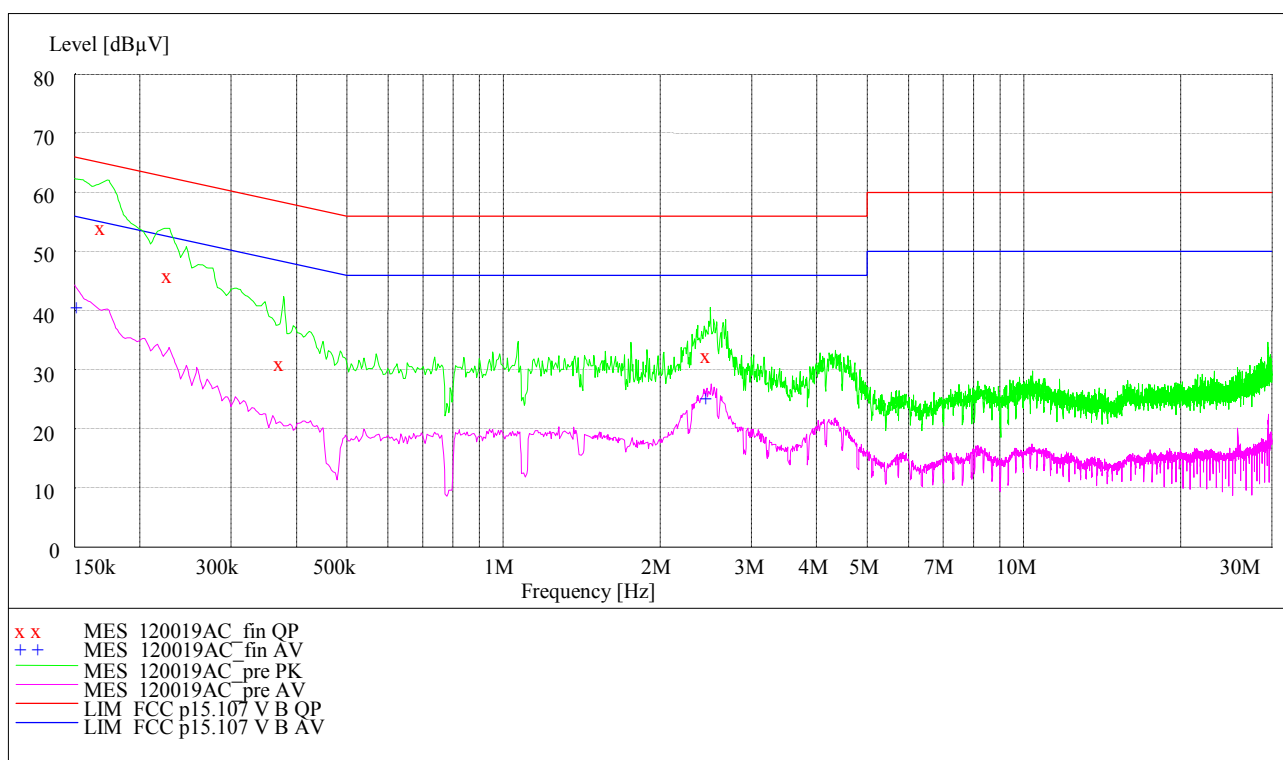
Position of EUT: The EUT was set-up on a non-conducting table of a height of 0.8 m.

Cable guide: The cables of the EUT were fixed on the non-conducting table. For further information of the cable guide refer to the pictures in annex A of this test report.

Test record: All results are shown in the following.

Supply voltage: During all measurements the EUT was supplied by the external battery, which was charged by an external AC/DC adaptor type NK120P100PGS, which was supplied by 120 V AC / 60 Hz.

The curves in the diagram only represent for each frequency point the maximum measured value of all preliminary measurements, which were made for each power supply line. The top measured curve represents the peak measurement and the bottom measured curve the average measurement.



Data record name: 120019AC

## ANNEX D RESULTS OF THE RECEIVER MEASUREMENTS

**Result measured with the quasipeak detector (marked in the diagram by an x):**

| Frequency<br>MHz        | Level<br>dBμV | Transducer<br>dB | Limit<br>dBμV     | Margin<br>dB | Line | PE  |
|-------------------------|---------------|------------------|-------------------|--------------|------|-----|
| 0.1716                  | 54.7          | 1.1              | 64.9              | 10.2         | L1   | FLO |
| 0.2301                  | 46.8          | 0.8              | 62.4              | 15.7         | N    | FLO |
| 0.3750                  | 31.7          | 0.7              | 58.4              | 26.7         | N    | FLO |
| 2.5026                  | 33.20         | 0.9              | 56.0              | 22.8         | L1   | FLO |
| Measurement uncertainty |               |                  | +3.6 dB / -4.5 dB |              |      |     |

**Result measured with the average detector (marked in the diagram by an +):**

| Frequency<br>MHz        | Level<br>dBμV | Transducer<br>dB | Limit<br>dBμV     | Margin<br>dB | Line | PE  |
|-------------------------|---------------|------------------|-------------------|--------------|------|-----|
| 0.1536                  | 41.2          | 1.7              | 55.8              | 14.6         | N    | FLO |
| 2.5080                  | 25.8          | 0.9              | 46.0              | 20.2         | L1   | FLO |
| Measurement uncertainty |               |                  | +3.6 dB / -4.5 dB |              |      |     |

Test: Passed

|                                   |
|-----------------------------------|
| TEST EQUIPMENT USED FOR THE TEST: |
| 1 - 4, 20                         |