



## CONFORMANCE TEST REPORT FOR FCC 47 CFR, Part 15 Subpart C

**Report No.: 17-11-MAS-079-01**

Client: Fames Technology Co., Ltd  
Product: Keyless receiver  
Model: 38700-LGC6-E00  
FCC ID: 2AOP538700-LGC6-E00  
Manufacturer/supplier: Fames Technology Co., Ltd

Date test item received: 2017/11/14  
Date test campaign completed: 2017/12/28  
Date of issue: 2018/01/15

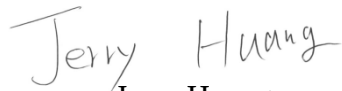
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*Total number of pages of this test report: 51 pages*

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Manufacturer : Fames Technology Co., Ltd  
Address : 4F., No.1, Ln. 15, Ziqiang St., Tucheng Dist., New Taipei City 236, Taiwan (R.O.C.)  
EUT : Keyless receiver  
Trade name : KYMCO  
Model No. : 38700-LGC6-E00  
Power Source : 12 Vdc  
Regulations applied : FCC 47 CFR, Part 15 Subpart C

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- ⑥ Industry Canada Site Registration Number: IC 2949A-2



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## 1. GENERAL INFORMATION

### 1.1 Product Description

- a) Type of EUT : Keyless receiver  
 b) Model No. : 38700-LGC6-E00  
 c) FCC ID. : 2AOP538700-LGC6-E00  
 d) Working Frequency : 2402 MHz ~ 2480 MHz

### 1.2 Characteristics of Device:

Device consists of RF transmitter and receiver for digital data exchanging, which are equipped on motorcycles. The wireless frequency is worldwide 2.4GHz ISM Band.

### 1.3 Test Methodology

Radiated testing were performed according to the procedures in chapter 6 of ANSI C63.10 (2013)

The device under test was operated continuously in its normal operating mode for the purpose of the measurements. In order to secure the continuous operation of the device under test, rewiring in the circuit was done by the manufacturer so as to affect its intended operation.

The receiving antenna was varied from 1 to 4 meters and the wooden turntable was rotated through 360 degrees to obtain the highest reading on the field strength meter or on the display of the spectrum analyzer. And also, each emission was to be maximized by changing the orientation of the device under test. The hand-held or body-worn devices rotated through three orthogonal axes to determine which attitude and configuration produces the highest emission relatives to the limit.

### 1.4 Test Facility

The semi-anechoic chamber and conducted measurement facility used to collect the radiated and conducted data are located inside the Building at No.8, Lane 29, Wenming Rd. Guishan Dist. Taoyuan City 33383, Taiwan, R.O.C.

This site has been accreditation as a FCC filing site.

### 1.5 Test Summary

| Requirement               | FCC Paragraph #        | Test Pass      |
|---------------------------|------------------------|----------------|
| Field Strength            | 15.249(a)              | Pass           |
| Radiated Emission         | 15.249, 15.209, 15.205 | Pass           |
| OUT-OF-BAND Bandedge      | 15.249(d),15.205       | Pass           |
| Operating Frequency Range | 15.249,15.205          | Pass           |
| Conducted Emission        | 15.207                 | Not Applicable |

## 2. DEFINITION AND LIMITS

### 2.1 Definition

Intentional radiator:

A device that intentionally generates and emits radio frequency energy by radiation or induction.

### 2.2 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

| MHz               | MHz                   | MHz           | GHz         |
|-------------------|-----------------------|---------------|-------------|
| 0.090 - 0.110     | 16.42-16.423          | 399.9-410     | 4.5-5.15    |
| 0.495 - 0.505 **  | 16.69475 - 16.69525   | 608-614       | 5.35-5.46   |
| 2.1735 - 2.1905   | 16.80425 - 16.80475   | 960-1240      | 7.25-7.75   |
| 4.125-4.128       | 25.5-25.67            | 1300-1427     | 8.025-8.5   |
| 4.17725-4.17775   | 37.5-38.25            | 1435-1626.5   | 9.0-9.2     |
| 4.20725-4.20775   | 73-74.6               | 1645.5-1646.5 | 9.3-9.5     |
| 6.215-6.218       | 74.8-75.2             | 1660-1710     | 10.6-12.7   |
| 6.26775-6.26825   | 108-121.94            | 1718.8-1722.2 | 13.25-13.4  |
| 6.31175-6.31225   | 123-138               | 2200-2300     | 14.47-14.5  |
| 8.291-8.294       | 149.9-150.05          | 2310-2390     | 15.35-16.2  |
| 8.362-8.366       | 156.52475 - 156.52525 | 2483.5-2500   | 17.7-21.4   |
| 8.37625-8.38675   | 156.7-156.9           | 2690-2900     | 22.01-23.12 |
| 8.41425-8.41475   | 162.0125-167.17       | 3260-3267     | 23.6-24.0   |
| 12.29-12.293      | 167.72-173.2          | 3332-3339     | 31.2-31.8   |
| 12.51975-12.52025 | 240-285               | 3345.8-3358   | 36.43-36.5  |
| 12.57675-12.57725 | 322-335.4             | 3600-4400     | Above 38.6  |
| 13.36-13.41       |                       |               |             |

Remark “\*\*\*”: Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

### 2.3 Limitation

#### (1) Conducted Emission Limits:

According to 15.207, for an intentional radiator, which is designed to be connected to the public utility (AC) power line, the conducted limit is the following:

| Frequency<br>MHz | Quasi Peak<br>dB $\mu$ V | Average<br>dB $\mu$ V |
|------------------|--------------------------|-----------------------|
| 0.15 - 0.5       | 66-56*                   | 56-46*                |
| 0.5 - 5.0        | 56                       | 46                    |
| 5.0 - 30.0       | 60                       | 50                    |

\*Decreases with the logarithm of the frequency.

**(2) Radiated Emission Limits:**

According to 15.249(a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

| Frequency Band (MHz) | Field strength of Fundamental (mV/m) | Field strength of Harmonics (uV/m) |
|----------------------|--------------------------------------|------------------------------------|
| 902 – 928            | 50                                   | 500                                |
| 2400 – 2483.5        | 50                                   | 500                                |
| 5725 – 5875          | 50                                   | 500                                |
| 24.0 – 24.25 GHz     | 250                                  | 2500                               |

According to 15.249(c), field strength limits are at the distance of 3 meters.

According to 15.249(d), emissions radiated outside of the specified bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated limits in 15.209, whichever is the lesser attenuation.

According to 15.209(a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009 - 0.490   | 2400/F(kHz)                       | 300                           |
| 0.490 - 1.705   | 24000/F(kHz)                      | 30                            |
| 1.705 - 30      | 30                                | 30                            |
| 30 - 88         | 100                               | 3                             |
| 88 - 216        | 150                               | 3                             |
| 216 - 960       | 200                               | 3                             |
| Above 960       | 500                               | 3                             |

According to 15.249(e), as shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

**2.4 Labeling Requirement**

The device shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## **2.5 User Information**

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To comply with the FCC RF exposure compliance requirement, this device and its antenna must not be co-located or operating to conjunction with any other antenna or transmitter.

### 3. SYSTEM TEST CONFIGURATION

#### 3.1 Justification

For the purposes of this test report ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT during the test.

#### 3.2 Devices for Tested System

| Device             | Manufacture               | Model          | Cable Description                                              |
|--------------------|---------------------------|----------------|----------------------------------------------------------------|
| * Keyless receiver | Fames Technology Co., Ltd | 38700-LGC6-E00 | ----                                                           |
| DC Power Supply    | GW                        | GPS-3030D      | 1.8m*1, Unshielded Power Line<br>2.0m*1 Unshielded Signal Line |

Remark :“\*” means equipment under test.



## 4. RADIATED EMISSION MEASUREMENT

### 4.1 Applicable Standard

For periodic operation intentional radiator, the radiated emission shall comply with § 15.249 and 15.209.

### 4.2 Measurement Procedure

1. Setup the configuration per figure 1 and 2 for frequencies measured below and above 1 GHz respectively. Turn on EUT and make sure that it is in normal function.
2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a semi-anechoic chamber to determine the accurate frequencies of higher emissions and then each selected frequency is precisely measured. As the same purpose, for emission measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.
3. For emission measured below and above 1 GHz, set the spectrum analyzer on a 120 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.
4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.
5. Repeat step 4 until all frequencies that need to be measured were complete.
6. Repeat step 5 with search antenna in vertical polarized orientations.
7. Check the frequencies of highest emission with varying the placement of cables (if any) associated with EUT to obtain the worse case and record the result.

Figure 1: Frequencies measured below 1 GHz configuration

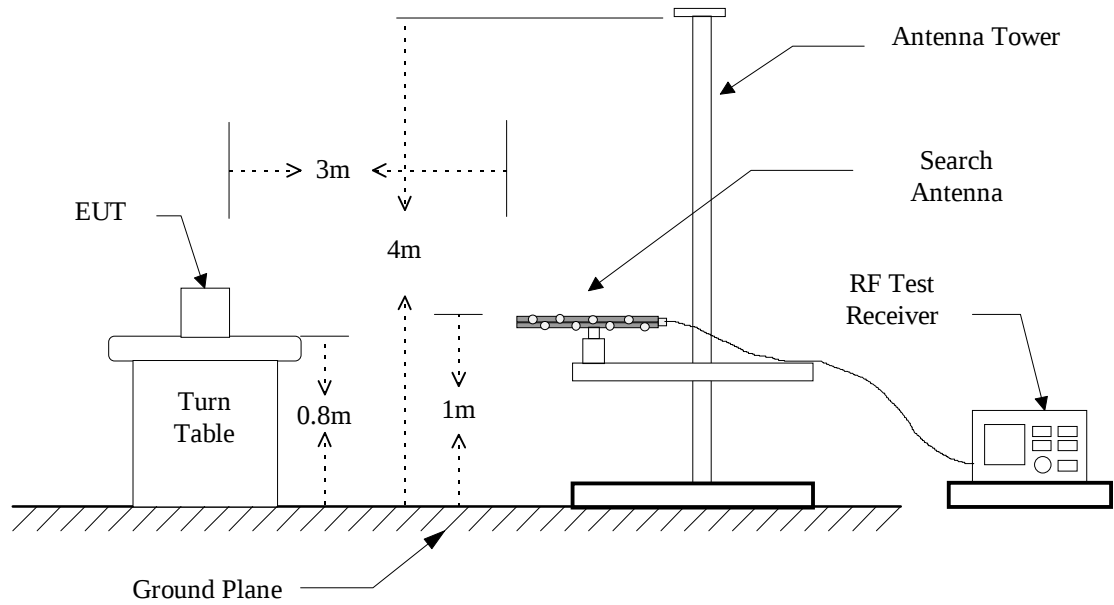
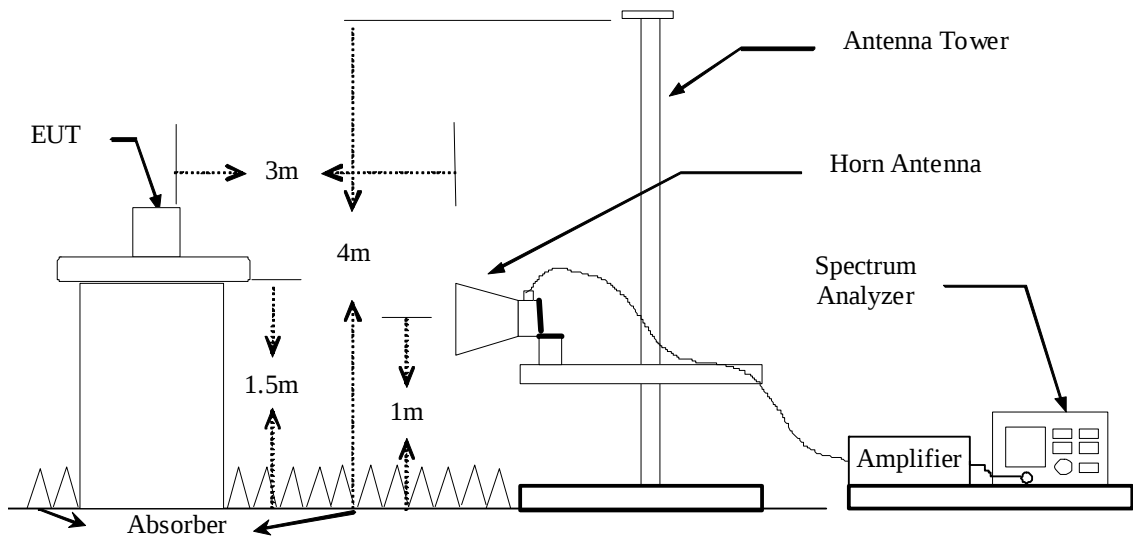


Figure 2: Frequencies measured above 1 GHz configuration



### 4.3 Test Data

#### 4.3.1 Fundamental and Harmonic Emissions

4.3.1.1 Operated mode: Transmitting (CH Low)

Test Date : Dec. 12, 2017

Temperature : 21°C

Humidity : 63%

| Frequency<br><br>(MHz) | Ant<br>Pol<br><br>H/V | Reading<br>(dBuV/m)<br>@3m |      | Correct<br>Factor<br><br>(dB) | Result<br>(dBuV/m)<br>@3m |      | Limit (dBuV/m)<br>@3m |      | Margin<br>(worse)<br><br>(dB) |
|------------------------|-----------------------|----------------------------|------|-------------------------------|---------------------------|------|-----------------------|------|-------------------------------|
|                        |                       | Peak                       | AVG  |                               | Peak                      | AVG  | Peak                  | AVG  |                               |
| Fundamental            |                       |                            |      |                               |                           |      |                       |      |                               |
| 2402.0000              | H                     | 51.0                       | 48.5 | 30.9                          | 81.9                      | 79.4 | 114.0                 | 94.0 | -14.6                         |
| 2402.0000              | V                     | 46.1                       | 43.3 | 30.9                          | 77.0                      | 74.2 | 114.0                 | 94.0 | -19.8                         |
| Harmonic               |                       |                            |      |                               |                           |      |                       |      |                               |
| 4804.0000              | H                     | 56.1                       | 51.9 | 0.0                           | 56.1                      | 51.9 | 74.0                  | 54.0 | -2.1                          |
| 4804.0000              | V                     | 52.5                       | 44.9 | 0.0                           | 52.5                      | 44.9 | 74.0                  | 54.0 | -9.1                          |
| 7206.0000              | H                     | 51.9                       | 42.4 | 3.3                           | 55.2                      | 45.7 | 74.0                  | 54.0 | -8.3                          |
| 7206.0000              | V                     | 51.0                       | 41.5 | 3.3                           | 54.3                      | 44.8 | 74.0                  | 54.0 | -9.2                          |
| 9608.0000              | H                     | ---                        | ---  | 5.4                           | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 9608.0000              | V                     | ---                        | ---  | 5.4                           | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 12010.0000             | H                     | ---                        | ---  | 8.1                           | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 12010.0000             | V                     | ---                        | ---  | 8.1                           | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 14412.0000             | H                     | ---                        | ---  | 13.0                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 14412.0000             | V                     | ---                        | ---  | 13.0                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 16814.0000             | H                     | ---                        | ---  | 10.9                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 16814.0000             | V                     | ---                        | ---  | 10.9                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 19216.0000             | H                     | ---                        | ---  | 19.5                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 19216.0000             | V                     | ---                        | ---  | 19.5                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 21618.0000             | H                     | ---                        | ---  | 19.2                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 21618.0000             | V                     | ---                        | ---  | 19.2                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 24020.0000             | H                     | ---                        | ---  | 19.4                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 24020.0000             | V                     | ---                        | ---  | 19.4                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |

**Note:**

1. Result = Reading + Correct Factor
2. If the peak result is under the AVG limit, that is deemed to meet the AVG limit.
3. Remark “---” means that the emissions level is too low to be measured.
4. The estimated measurement uncertainty of the result measurement is:  
 $\pm 4.1\text{dB}$  ( $1\text{GHz} \leq f \leq 18\text{GHz}$ ).  
 $\pm 4.4\text{dB}$  ( $18\text{GHz} < f \leq 40\text{GHz}$ ).
5. Please refer to page 17 to page 34 for chart

4.3.1.2 Operated mode: Transmitting (CH Mid)Test Date: Dec. 12, 2017Temperature : 21°CHumidity : 63%

| Frequency<br><br>(MHz) | Ant<br>Pol<br><br>H/V | Reading<br>(dBuV/m)<br>@3m |      | Correct<br>Factor<br><br>(dB) | Result<br>(dBuV/m)<br>@3m |      | Limit (dBuV/m)<br>@3m |      | Margin<br>(worse)<br><br>(dB) |
|------------------------|-----------------------|----------------------------|------|-------------------------------|---------------------------|------|-----------------------|------|-------------------------------|
|                        |                       | Peak                       | AVG  |                               | Peak                      | AVG  | Peak                  | AVG  |                               |
| Fundamental            |                       |                            |      |                               |                           |      |                       |      |                               |
| 2440.0000              | H                     | 51.4                       | 48.9 | 30.9                          | 82.3                      | 79.8 | 114.0                 | 94.0 | -14.2                         |
| 2440.0000              | V                     | 48.0                       | 45.4 | 30.9                          | 78.9                      | 76.3 | 114.0                 | 94.0 | -17.7                         |
| Harmonic               |                       |                            |      |                               |                           |      |                       |      |                               |
| 4880.0000              | H                     | 53.8                       | 47.7 | 0.2                           | 54.0                      | 47.9 | 74.0                  | 54.0 | -6.1                          |
| 4880.0000              | V                     | 55.0                       | 49.9 | 0.2                           | 55.2                      | 50.1 | 74.0                  | 54.0 | -3.9                          |
| 7320.0000              | H                     | 52.4                       | 43.4 | 3.6                           | 56.0                      | 47.0 | 74.0                  | 54.0 | -7.0                          |
| 7320.0000              | V                     | 53.0                       | 45.3 | 3.6                           | 56.6                      | 48.9 | 74.0                  | 54.0 | -5.1                          |
| 9760.0000              | H                     | ---                        | ---  | 5.5                           | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 9760.0000              | V                     | ---                        | ---  | 5.5                           | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 12200.0000             | H                     | ---                        | ---  | 8.3                           | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 12200.0000             | V                     | ---                        | ---  | 8.3                           | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 14640.0000             | H                     | ---                        | ---  | 12.2                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 14640.0000             | V                     | ---                        | ---  | 12.2                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 17080.0000             | H                     | ---                        | ---  | 12.5                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 17080.0000             | V                     | ---                        | ---  | 12.5                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 19520.0000             | H                     | ---                        | ---  | 19.4                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 19520.0000             | V                     | ---                        | ---  | 19.4                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 21960.0000             | H                     | ---                        | ---  | 19.2                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 21960.0000             | V                     | ---                        | ---  | 19.2                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 24400.0000             | H                     | ---                        | ---  | 19.7                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 24400.0000             | V                     | ---                        | ---  | 19.7                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |

**Note:**

1. Result = Reading + Correct Factor
2. If the peak result is under the AVG limit, that is deemed to meet the AVG limit.
3. Remark “---” means that the emissions level is too low to be measured.
4. The estimated measurement uncertainty of the result measurement is:  
 $\pm 4.1\text{dB}$  ( $1\text{GHz} \leq f \leq 18\text{GHz}$ ).  
 $\pm 4.4\text{dB}$  ( $18\text{GHz} < f \leq 40\text{GHz}$ ).
5. Please refer to page 17 to page 34 for chart

4.3.1.3 Operated mode : Transmitting (CH High)Test Date: Dec. 12, 2017Temperature : 21°CHumidity : 63%

| Frequency<br><br>(MHz) | Ant<br>Pol<br><br>H/V | Reading<br>(dBuV/m)<br>@3m |      | Correct<br>Factor<br><br>(dB) | Result<br>(dBuV/m)<br>@3m |      | Limit (dBuV/m)<br>@3m |      | Margin<br>(worse)<br><br>(dB) |
|------------------------|-----------------------|----------------------------|------|-------------------------------|---------------------------|------|-----------------------|------|-------------------------------|
|                        |                       | Peak                       | AVG  |                               | Peak                      | AVG  | Peak                  | AVG  |                               |
| Fundamental            |                       |                            |      |                               |                           |      |                       |      |                               |
| 2480.0000              | H                     | 54.0                       | 51.3 | 31.0                          | 85.0                      | 82.3 | 114.0                 | 94.0 | -11.7                         |
| 2480.0000              | V                     | 49.9                       | 47.2 | 31.0                          | 80.9                      | 78.2 | 114.0                 | 94.0 | -15.8                         |
| Harmonic               |                       |                            |      |                               |                           |      |                       |      |                               |
| 4960.0000              | H                     | 53.4                       | 47.8 | 0.4                           | 53.8                      | 48.2 | 74.0                  | 54.0 | -5.8                          |
| 4960.0000              | V                     | 53.5                       | 47.3 | 0.4                           | 53.9                      | 47.7 | 74.0                  | 54.0 | -6.3                          |
| 7440.0000              | H                     | 51.3                       | 41.3 | 4.0                           | 55.3                      | 45.3 | 74.0                  | 54.0 | -8.7                          |
| 7440.0000              | V                     | 52.7                       | 44.9 | 4.0                           | 56.7                      | 48.9 | 74.0                  | 54.0 | -5.1                          |
| 9920.0000              | H                     | ---                        | ---  | 5.6                           | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 9920.0000              | V                     | ---                        | ---  | 5.6                           | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 12400.0000             | H                     | ---                        | ---  | 8.4                           | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 12400.0000             | V                     | ---                        | ---  | 8.4                           | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 14880.0000             | H                     | ---                        | ---  | 11.2                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 14880.0000             | V                     | ---                        | ---  | 11.2                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 17360.0000             | H                     | ---                        | ---  | 14.4                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 17360.0000             | V                     | ---                        | ---  | 14.4                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 19840.0000             | H                     | ---                        | ---  | 19.4                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 19840.0000             | V                     | ---                        | ---  | 19.4                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 22320.0000             | H                     | ---                        | ---  | 19.3                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 22320.0000             | V                     | ---                        | ---  | 19.3                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 24800.0000             | H                     | ---                        | ---  | 19.8                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |
| 24800.0000             | V                     | ---                        | ---  | 19.8                          | ---                       | ---  | 74.0                  | 54.0 | ---                           |

**Note:**

1. Result = Reading + Correct Factor
2. If the peak result is under the AVG limit, that is deemed to meet the AVG limit.
3. Remark “---” means that the emissions level is too low to be measured.
4. The estimated measurement uncertainty of the result measurement is:  
 $\pm 4.1\text{dB}$  ( $1\text{GHz} \leq f \leq 18\text{GHz}$ ).  
 $\pm 4.4\text{dB}$  ( $18\text{GHz} < f \leq 40\text{GHz}$ ).
5. Please refer to page 17 to page 34 for chart

## 4.3.2 Other emissions

## 4.3.2.1 below 1GHz

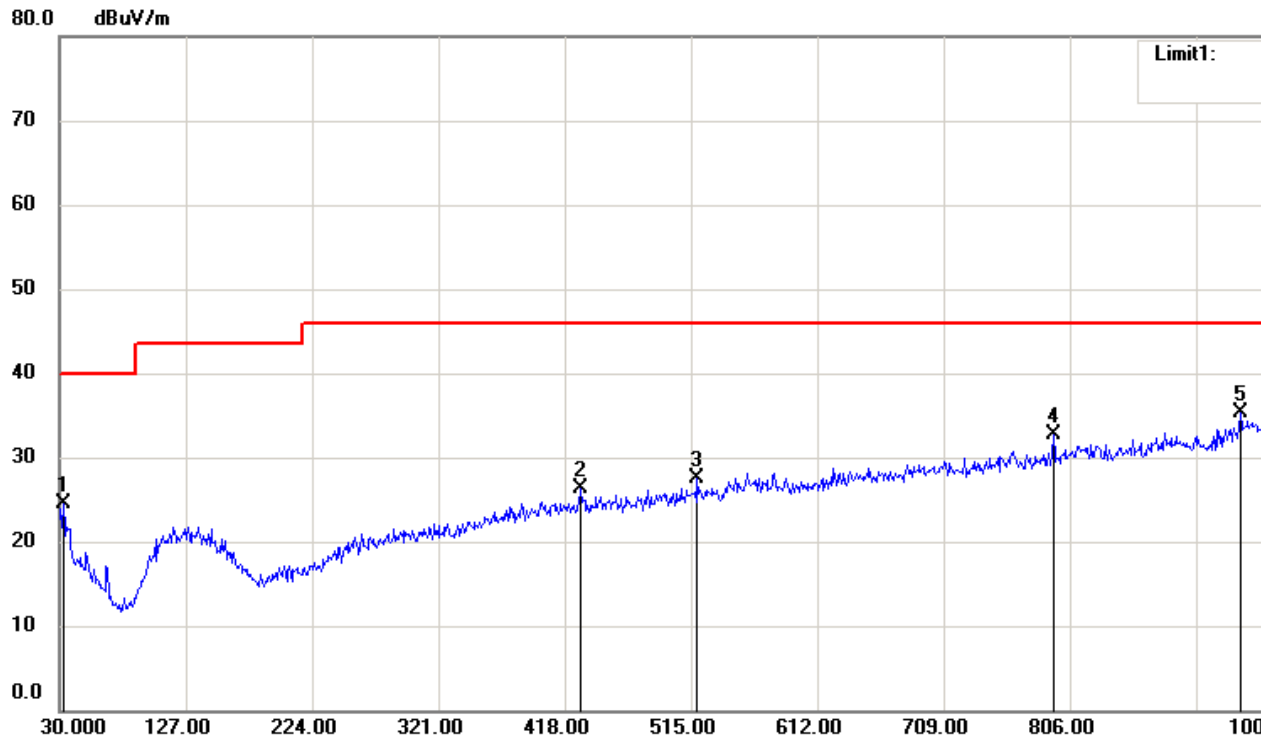
File: 17-11-MAS-079\_OK Data: #1

Date: 2017/12/12

Temperature: 21 °C

Time: PM 01:27:14

Humidity: 63 %



Condition: FCC\_30-1000MHz

Polarization: Horizontal

EUT:

Distance: 3m

Model:

Test Mode:

Note:

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Corrected<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) |
|-----|--------------------|---------------------|----------|-------------------------|--------------------|-------------------|----------------|
| 1   | 32.9100            | 31.91               | peak     | -7.41                   | 24.50              | 40.00             | -15.50         |
| 2   | 430.6100           | 28.20               | peak     | -1.89                   | 26.31              | 46.00             | -19.69         |
| 3   | 519.8500           | 28.42               | peak     | -0.82                   | 27.60              | 46.00             | -18.40         |
| 4   | 793.3900           | 28.70               | peak     | 3.93                    | 32.63              | 46.00             | -13.37         |
| 5   | 936.9500           | 28.07               | peak     | 7.21                    | 35.28              | 46.00             | -10.72         |
| 6   | 973.8100           | 26.98               | peak     | 8.21                    | 35.19              | 54.00             | -18.81         |

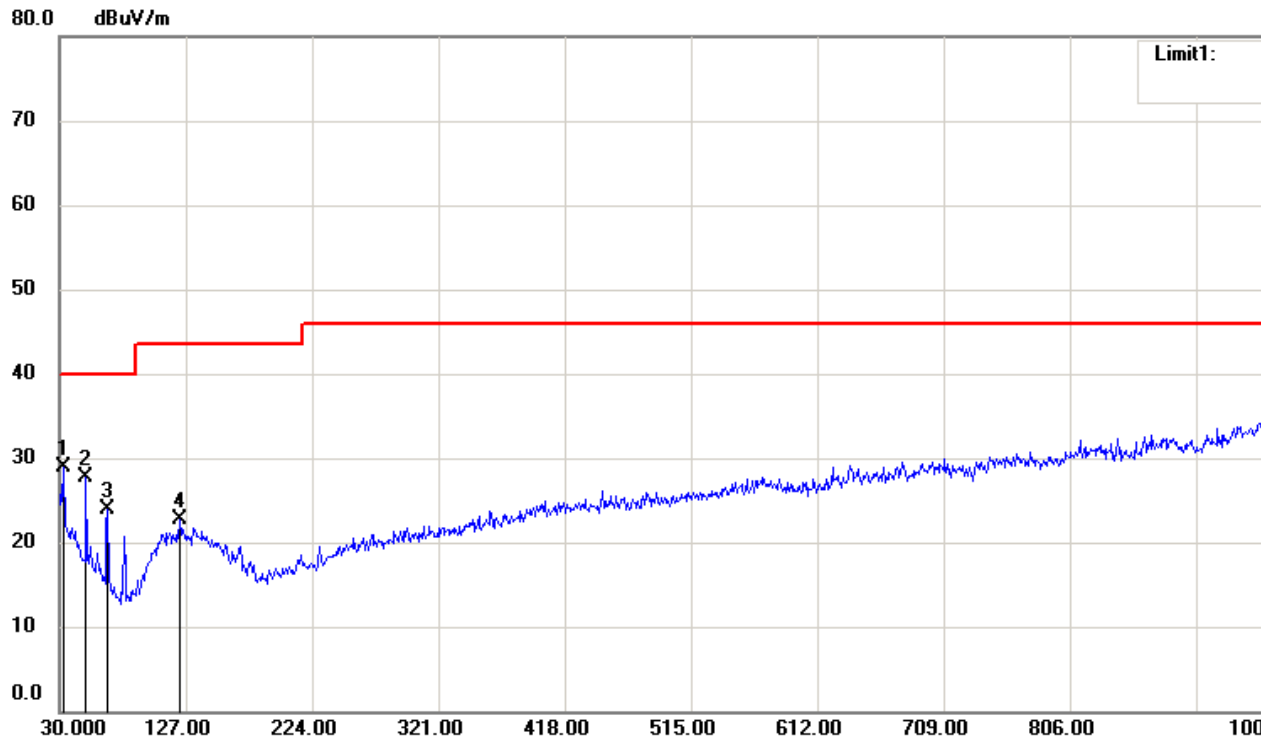
File: 17-11-MAS-079\_OK Data: #2

Date: 2017/12/12

Temperature: 21 °C

Time: PM 01:31:51

Humidity: 63 %



Condition: FCC\_30-1000MHz  
 EUT:  
 Model:  
 Test Mode:  
 Note:

Polarization: Vertical  
 Distance: 3m

| No. | Frequency (MHz) | Reading (dBuV/m) | Detector | Corrected Factor(dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----|-----------------|------------------|----------|----------------------|-----------------|----------------|-------------|
| 1   | 32.9100         | 36.36            | peak     | -7.41                | 28.95           | 40.00          | -11.05      |
| 2   | 50.3700         | 36.97            | peak     | -9.26                | 27.71           | 40.00          | -12.29      |
| 3   | 66.8600         | 36.35            | peak     | -12.53               | 23.82           | 40.00          | -16.18      |
| 4   | 122.1500        | 27.80            | peak     | -5.10                | 22.70           | 43.50          | -20.80      |
| 5   | 963.1400        | 26.54            | peak     | 8.00                 | 34.54           | 54.00          | -19.46      |
| 6   | 995.1500        | 26.14            | peak     | 8.63                 | 34.77           | 54.00          | -19.23      |

**Note:** 1. Remark “---” means that the emissions level is too low to be measured.

2. If the peak result is under the quasi-peak limit, that is deemed to meet the quasi-peak limit.

3. The estimated measurement uncertainty of the result measurement is:

$$\pm 4.6\text{dB} \quad (30\text{MHz} \leq f < 300\text{MHz})$$

$$\pm 4.2\text{dB} \quad (300\text{MHz} \leq f < 1\text{GHz})$$

## 4.3.2.2 above 1GHz

## 4.3.2.2.1 Fundamental Frequency: 2402 MHz

| Frequency | Ant Pol | Reading (dBuV/m)@3m |     | Correct Factor | Result (dBuV/m)@3m |     | Limit (dBuV/m)@3m |      | Margin (worse) |
|-----------|---------|---------------------|-----|----------------|--------------------|-----|-------------------|------|----------------|
| (MHz)     | H/V     | Peak                | AVG | (dB)           | Peak               | AVG | Peak              | AVG  | (dB)           |
| 1226.6025 | V       | 50.0                | --- | -12.1          | 37.9               | --- | 74.0              | 54.0 | -16.1          |
| 2211.5385 | H       | 49.7                | --- | -7.0           | 42.7               | --- | 74.0              | 54.0 | -11.3          |
| 2757.0280 | H       | 49.0                | --- | -5.3           | 43.7               | --- | 74.0              | 54.0 | -10.3          |
| 2757.0280 | V       | 49.5                | --- | -5.3           | 44.2               | --- | 74.0              | 54.0 | -9.8           |

## 4.3.2.2.2 Fundamental Frequency: 2441 MHz

| Frequency | Ant Pol | Reading (dBuV/m)@3m |     | Correct Factor | Result (dBuV/m)@3m |     | Limit (dBuV/m)@3m |     | Margin (worse) |
|-----------|---------|---------------------|-----|----------------|--------------------|-----|-------------------|-----|----------------|
| (MHz)     | H/V     | Peak                | AVG | (dB)           | Peak               | AVG | Peak              | AVG | (dB)           |
| 1145.8333 | H       | 49.5                | --- | -12.50         | 37.0               | --- | 74                | 54  | -17.0          |
| 1195.1921 | V       | 49.5                | --- | -12.30         | 37.2               | --- | 74                | 54  | -16.8          |
| 2707.2957 | H       | 48.9                | --- | -5.50          | 43.4               | --- | 74                | 54  | -10.6          |
| 2757.0280 | V       | 49.3                | --- | -5.30          | 44.0               | --- | 74                | 54  | -10.0          |
| 3279.2180 | H       | 47.8                | --- | -3.60          | 44.2               | --- | 74                | 54  | -9.8           |
| 3378.6826 | V       | 49.9                | --- | -3.30          | 46.6               | --- | 74                | 54  | -7.4           |
| 5716.1041 | H       | 47.6                | --- | 1.60           | 49.2               | --- | 74                | 54  | -4.8           |

## 4.3.2.2.3 Fundamental Frequency: 2480 MHz

| Frequency | Ant Pol | Reading (dBuV/m)@3m |     | Correct Factor | Result (dBuV/m)@3m |     | Limit (dBuV/m)@3m |     | Margin (worse) |
|-----------|---------|---------------------|-----|----------------|--------------------|-----|-------------------|-----|----------------|
| (MHz)     | H/V     | Peak                | AVG | (dB)           | Peak               | AVG | Peak              | AVG | (dB)           |
| 1067.3077 | H       | 49.4                | --- | -12.90         | 36.5               | --- | 74                | 54  | -17.5          |
| 1231.0896 | V       | 49.7                | --- | -12.10         | 37.6               | --- | 74                | 54  | -16.4          |
| 2732.1620 | H       | 48.8                | --- | -5.40          | 43.4               | --- | 74                | 54  | -10.6          |
| 2732.1620 | V       | 48.8                | --- | -5.40          | 43.4               | --- | 74                | 54  | -10.6          |
| 3204.6194 | V       | 50.1                | --- | -3.80          | 46.3               | --- | 74                | 54  | -7.7           |

**Note:**

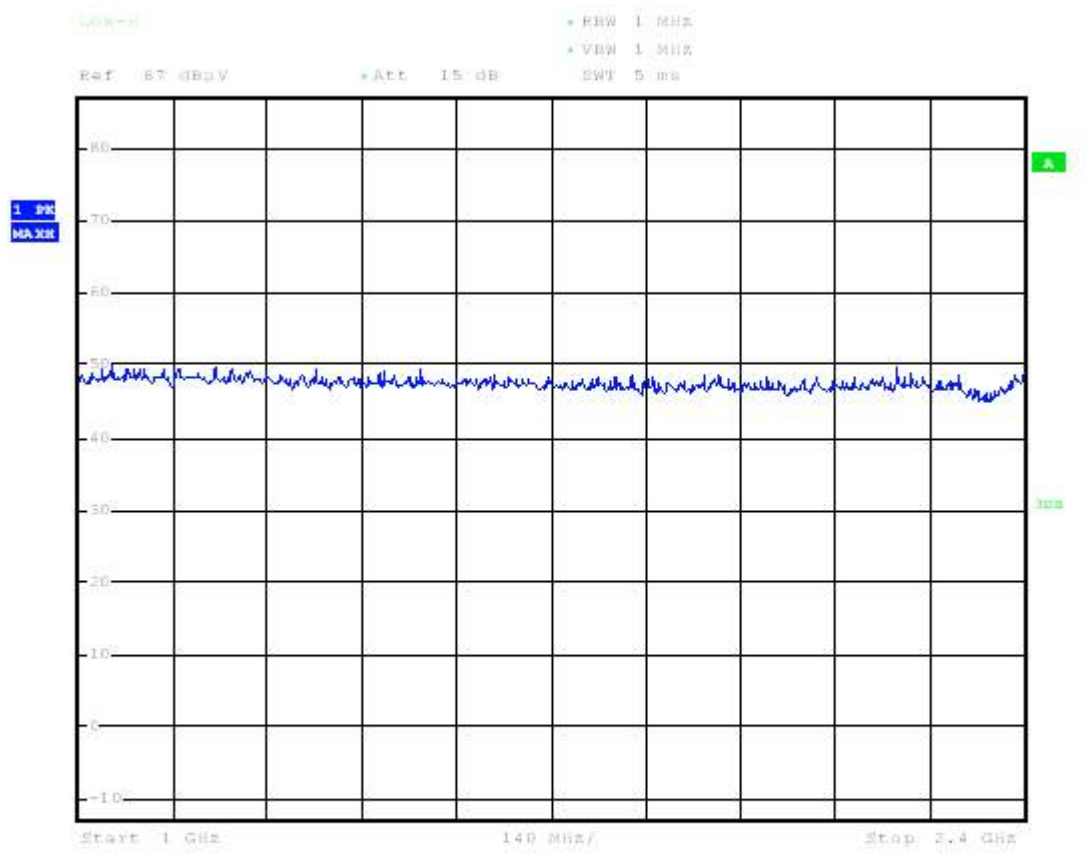
1. Result = Reading + Correct Factor
2. If the peak result is under the AVG limit, that is deemed to meet the AVG limit.
3. Remark “---” means that the emissions level is too low to be measured.
4. The estimated measurement uncertainty of the result measurement is:  
 $\pm 4.1\text{dB}$  ( $1\text{GHz} \leq f \leq 18\text{GHz}$ ).  
 $\pm 4.4\text{dB}$  ( $18\text{GHz} < f \leq 40\text{GHz}$ ).
5. Please refer to page 18 to page 35 for chart

## 4.3.2.3 below 30MHz

| Frequency<br>(MHz)                                                                 | Reading<br>(dBuV/m) | Duty<br>(dB) | Factor<br>(dB) | Result @3m<br>(dBuV/m) |     |      | Limit @3m<br>(dBuV/m) |  |
|------------------------------------------------------------------------------------|---------------------|--------------|----------------|------------------------|-----|------|-----------------------|--|
|                                                                                    | Peak                |              |                | QP                     | AVG | Peak | AVG                   |  |
| Radiated emission frequencies from 9 kHz to 30 MHz<br>were too low to be measured. |                     |              |                |                        |     |      |                       |  |

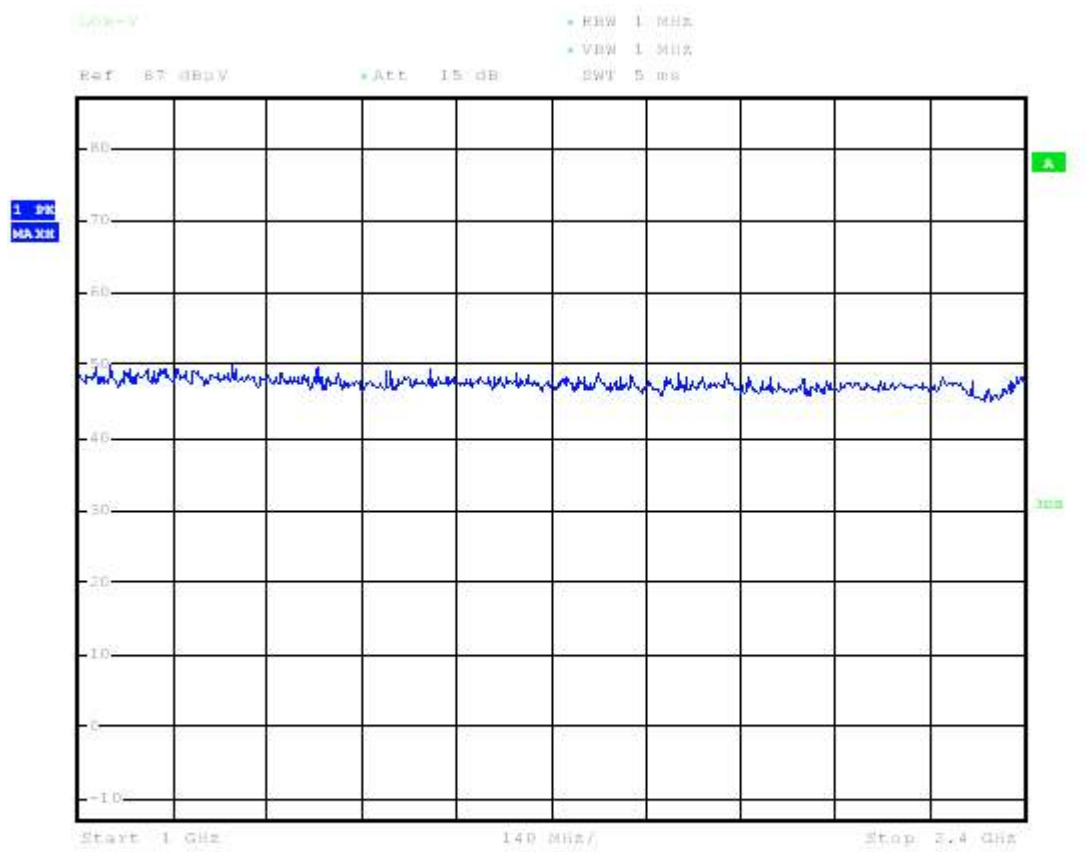
**Note:**

1. Place of Measurement: Measuring site of the ETC.
2. If the data table appeared symbol of "---" means the value was too low to be measured.
3. The estimated measurement uncertainty of the result measurement is  
 $\pm 4.2\text{dB}$  ( $9\text{kHz} \leq f \leq 30\text{MHz}$ )

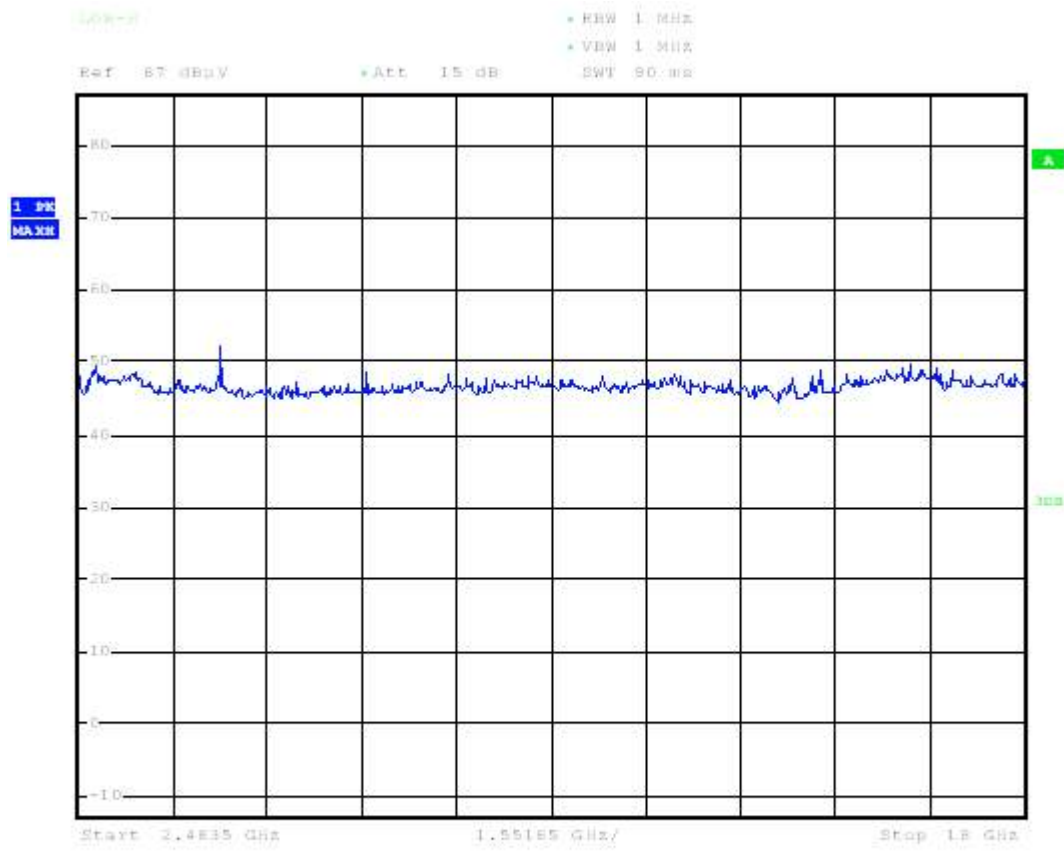
**CH Low (Horizontal)**

Date: 12.DEC.2017 10:57:28

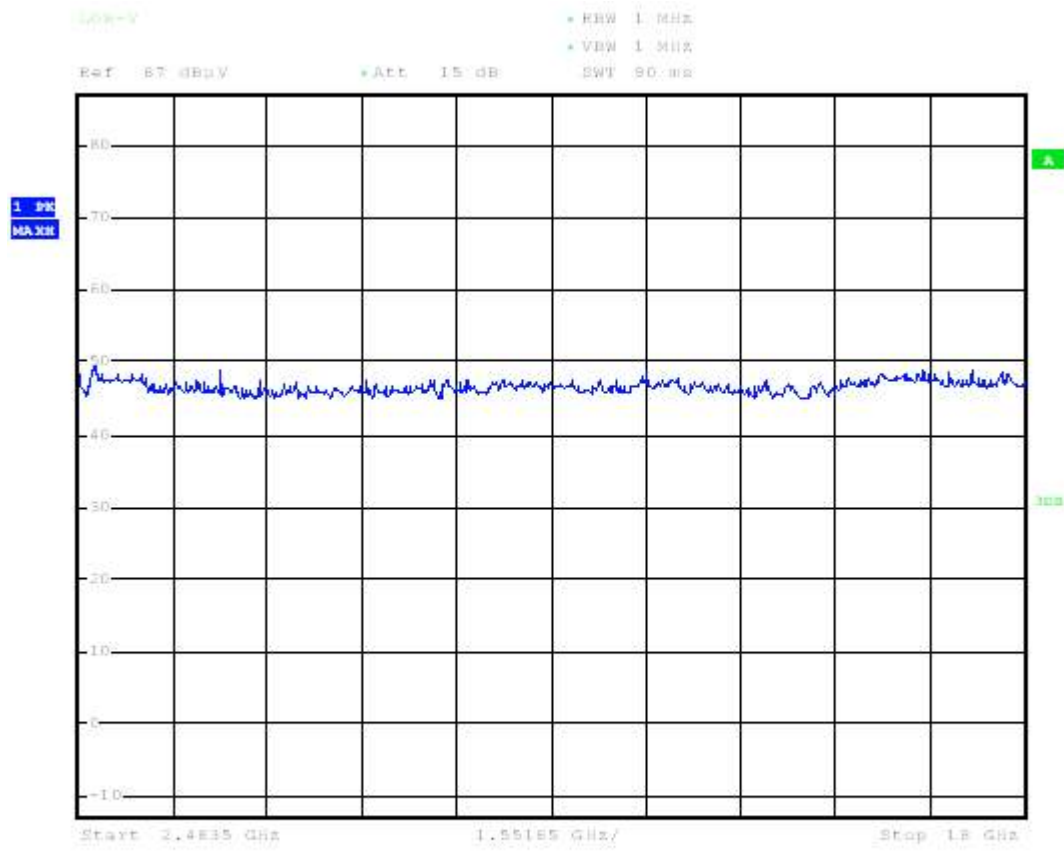
## CH Low (Vertical)



Date: 12.DEC.2017 11:00:11

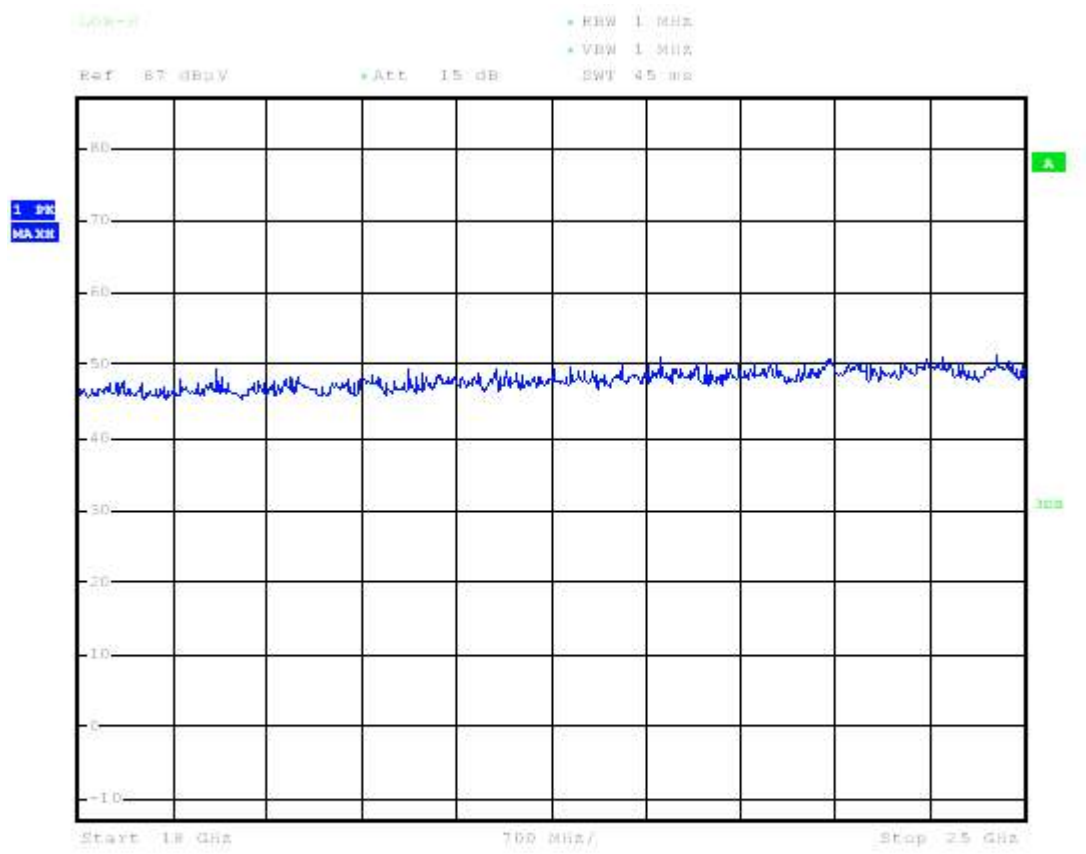
**CH Low (Horizontal)**

Date: 12.DEC.2017 10:58:40

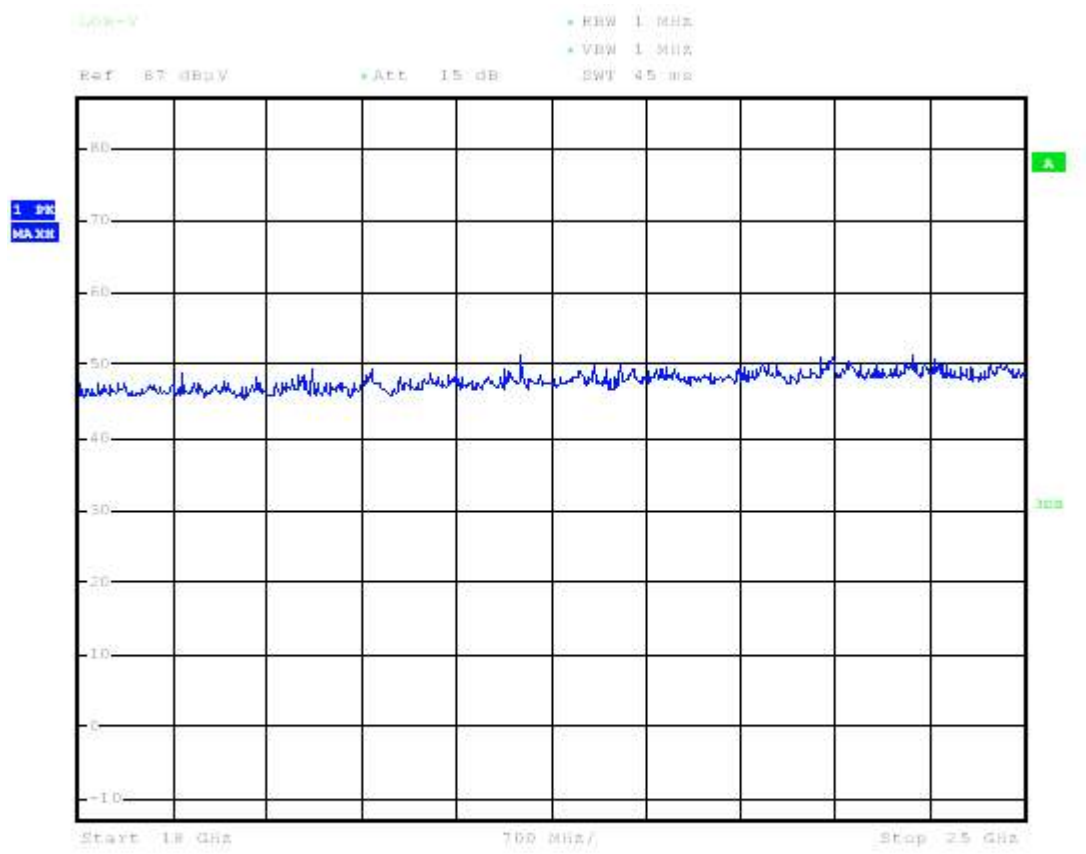
**CH Low (Vertical)**

Date: 12.DEC.2017 11:01:22

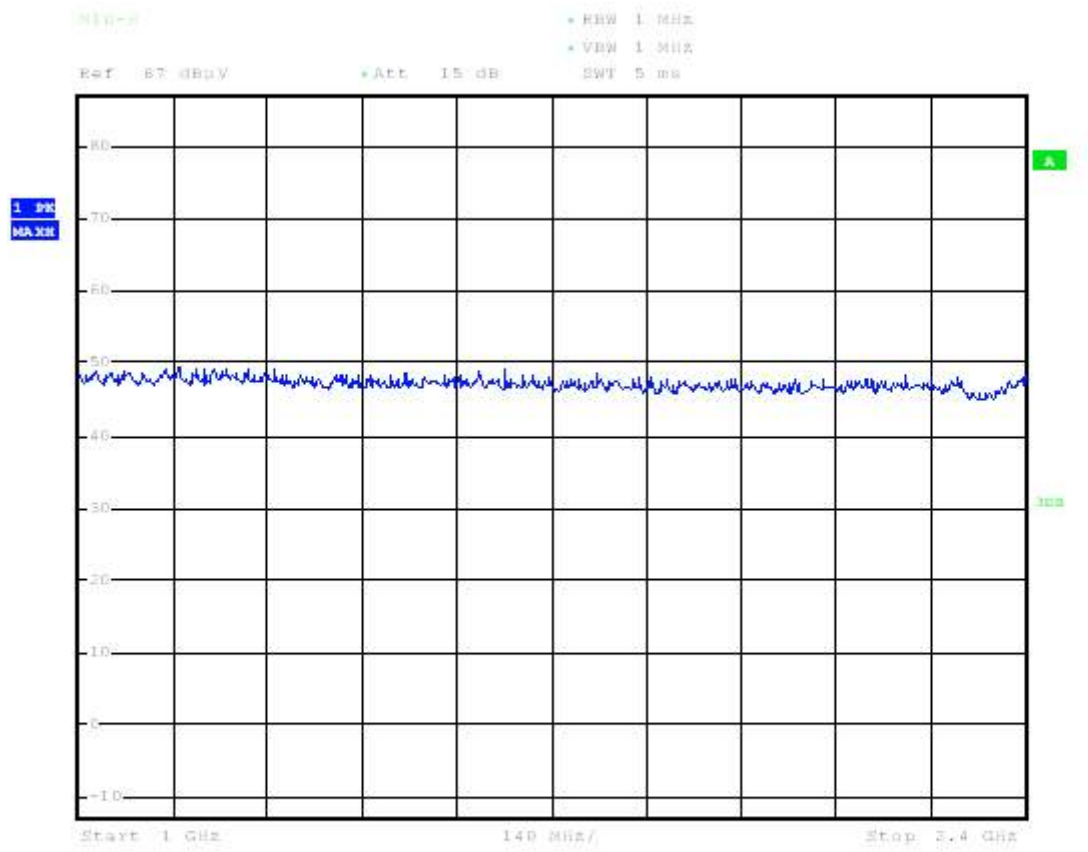
## CH Low (Horizontal)



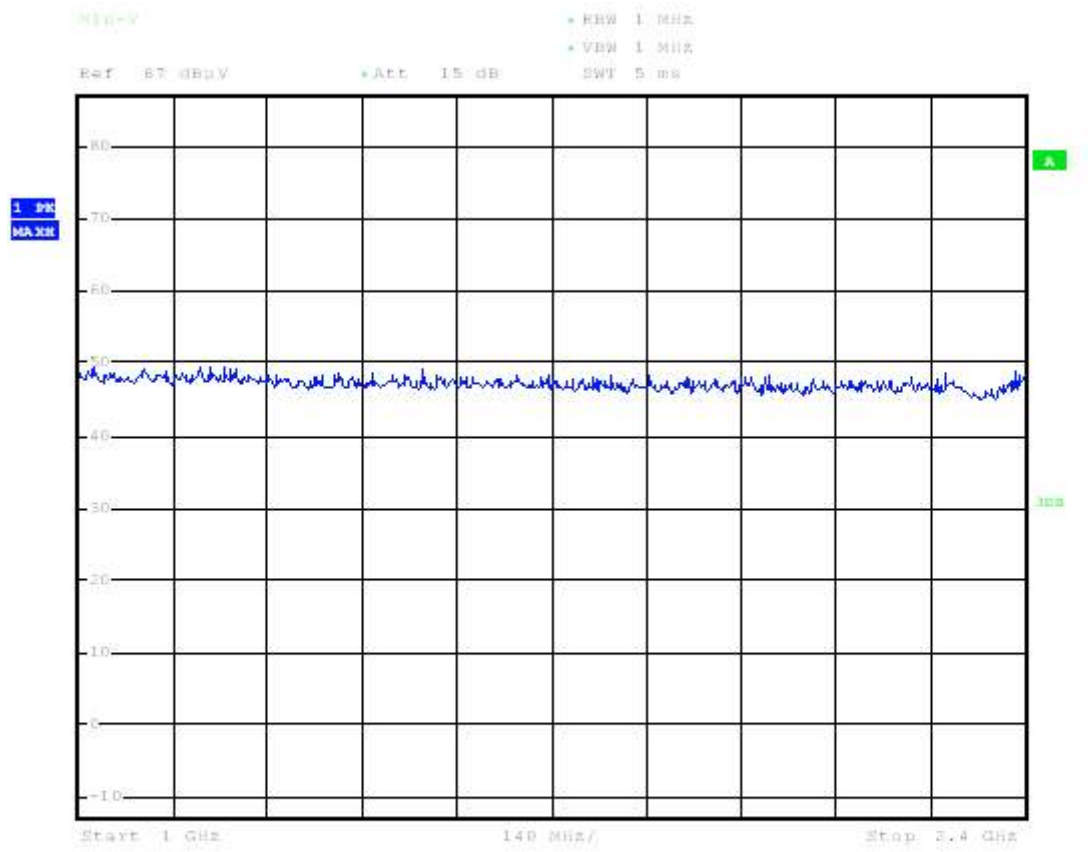
Date: 12.DEC.2017 10:59:00

**CH Low (Vertical)**

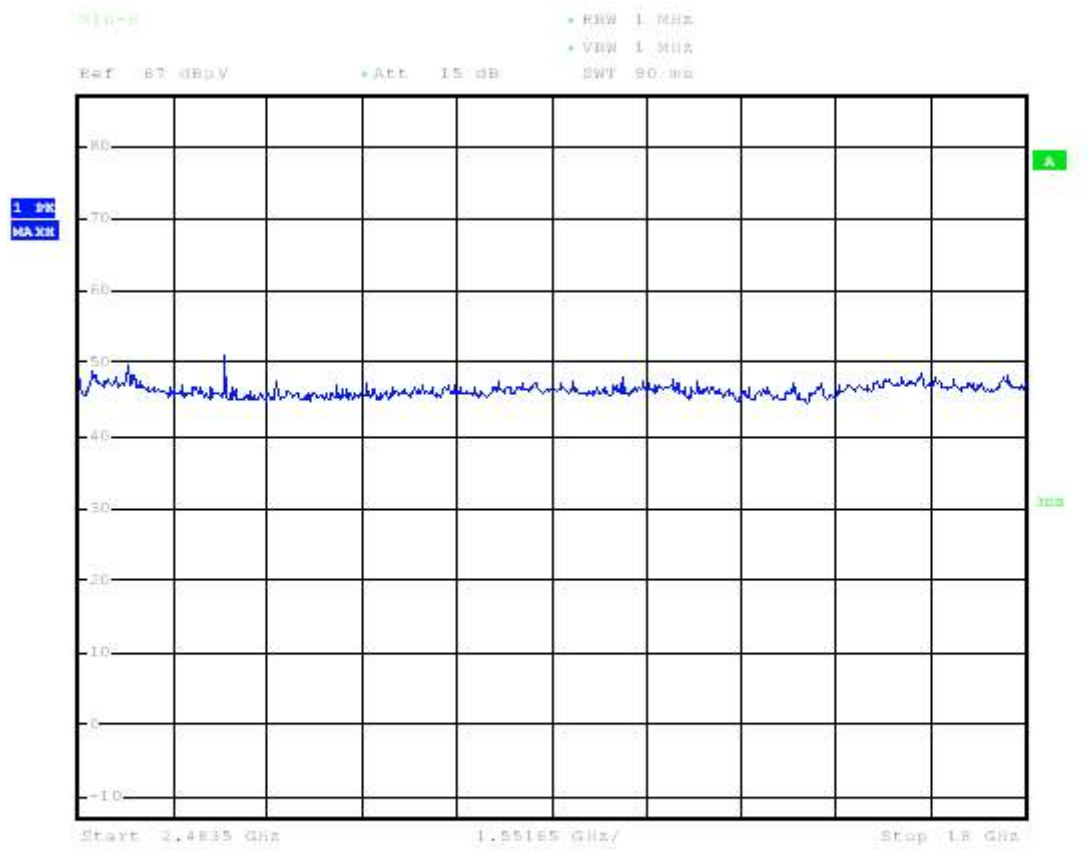
Date: 12.DEC.2017 11:01:42

**CH Mid (Horizontal)**

Date: 12.DEC.2017 12:19:43

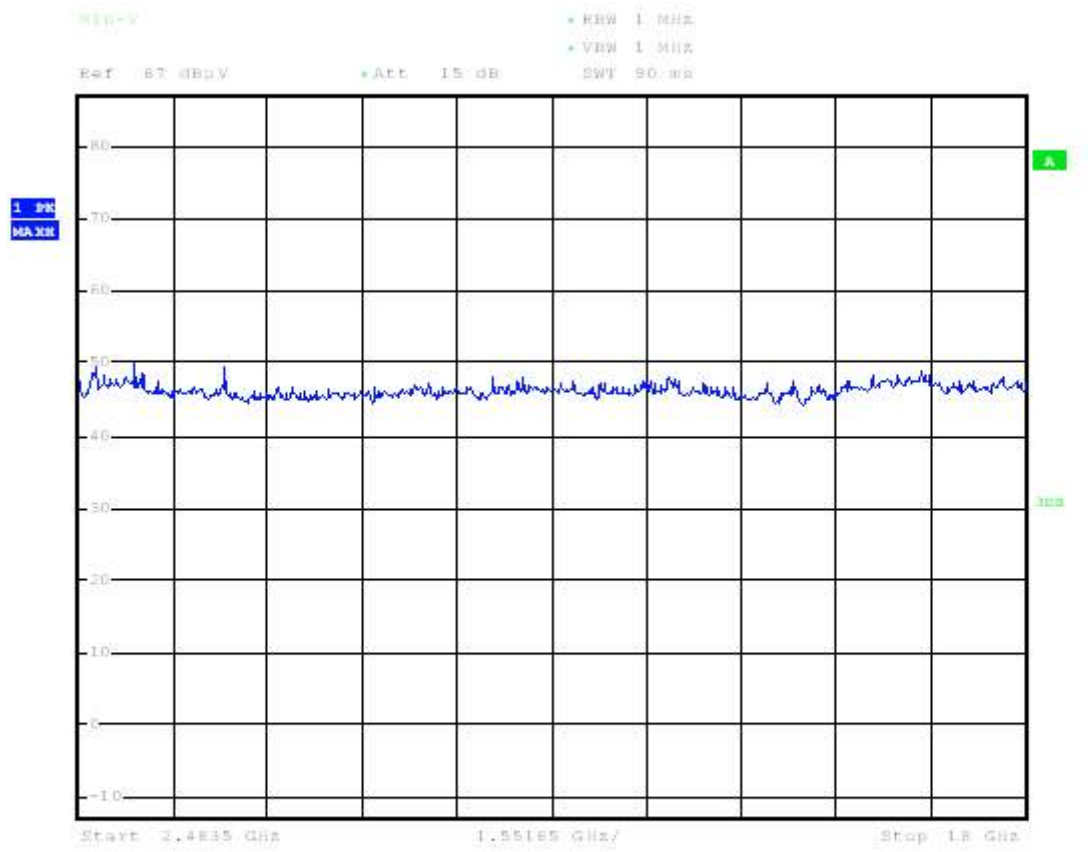
**CH Mid (Vertical)**

Date: 12.DEC.2017 12:22:26

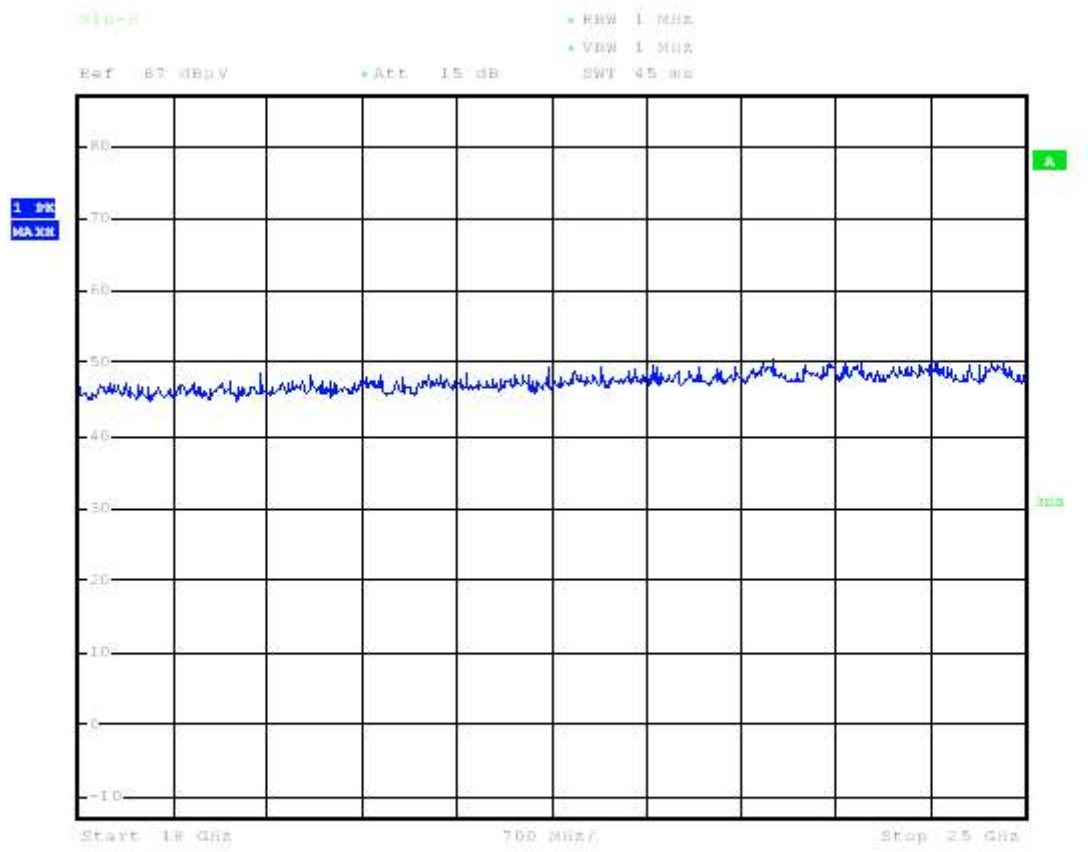
**CH Mid (Horizontal)**

Date: 12.DEC.2017 12:20:54

## CH Mid (Vertical)

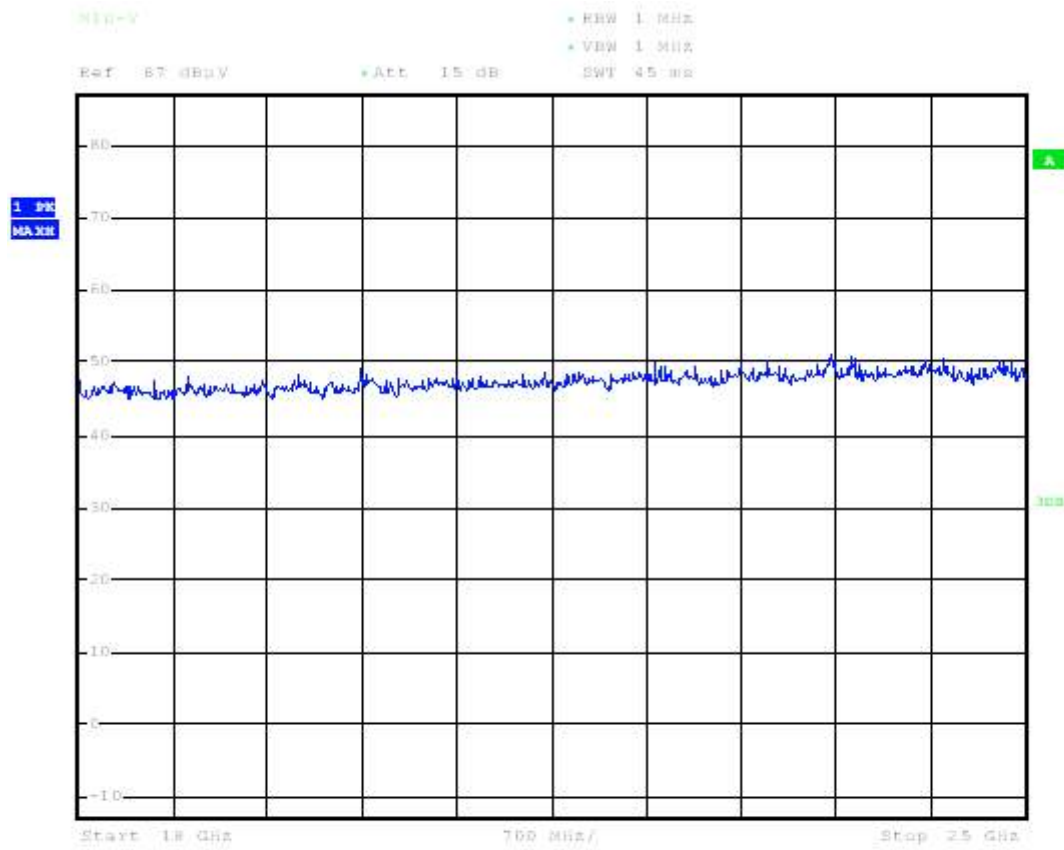


Date: 12.DEC.2017 12:23:38

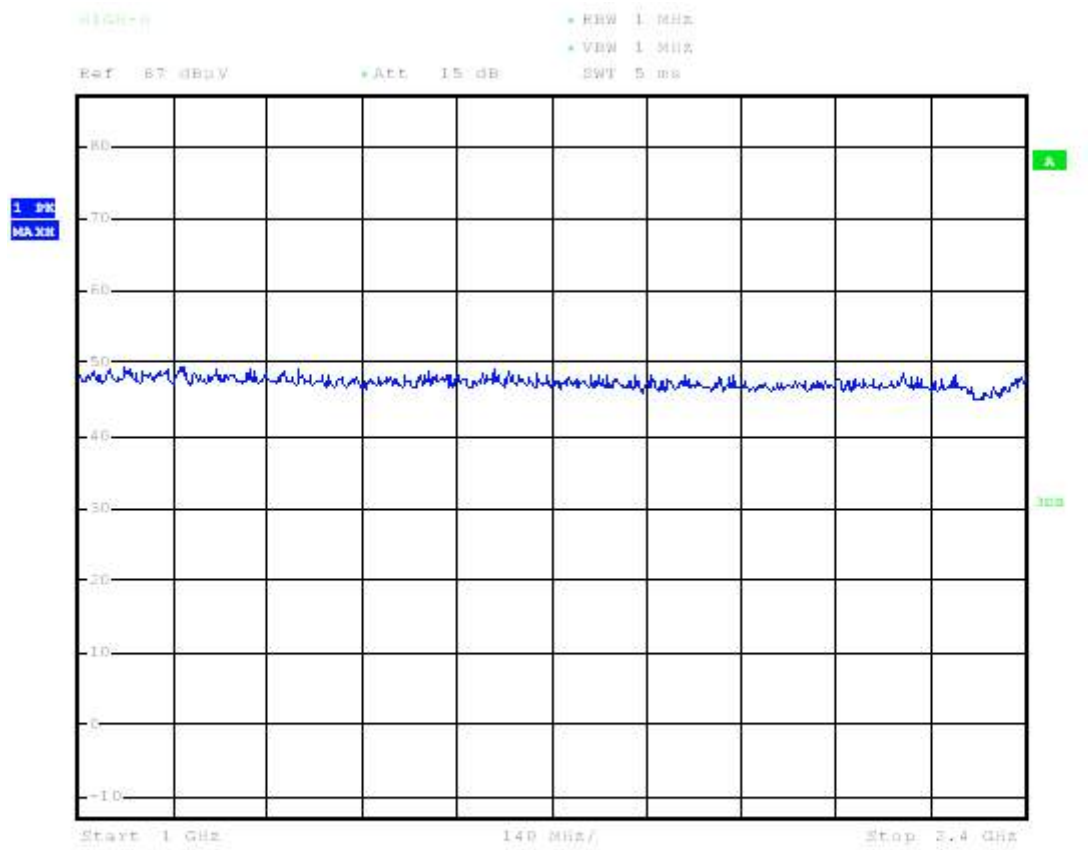
**CH Mid (Horizontal)**

Date: 12.DEC.2017 12:21:15

## CH Mid (Vertical)

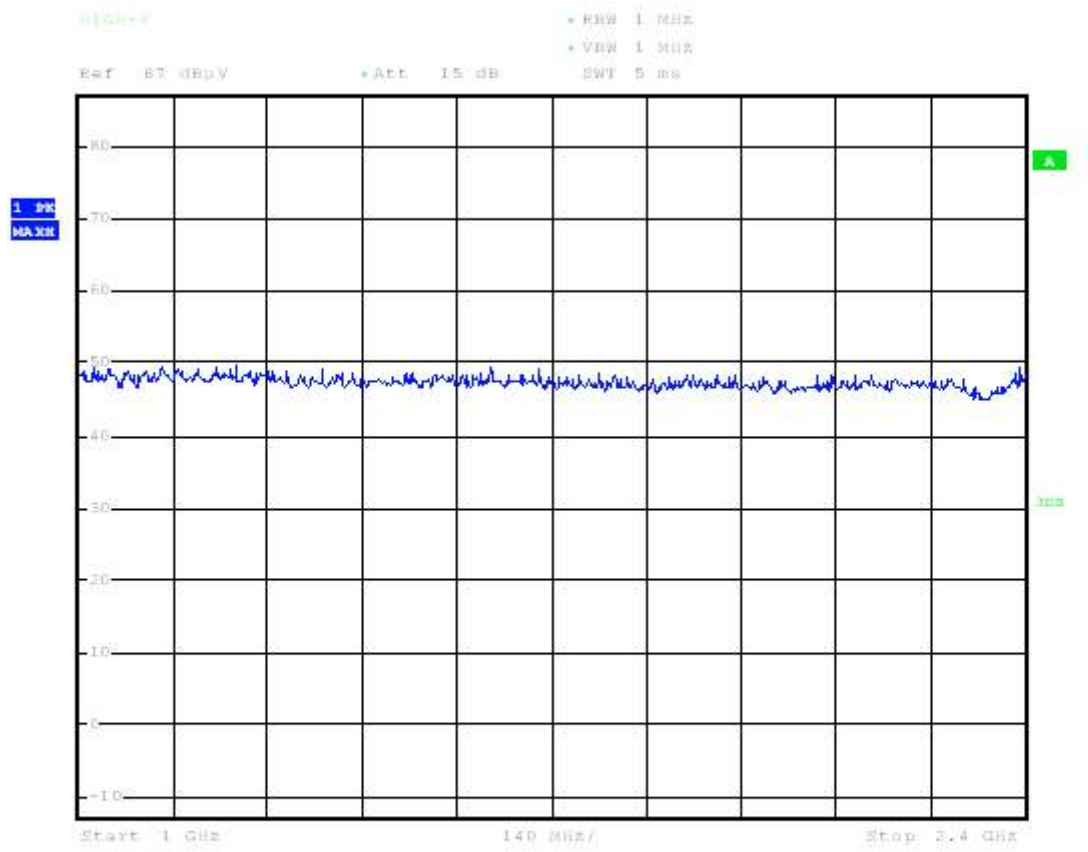


Date: 12.DEC.2017 12:23:58

**CH High (Horizontal)**

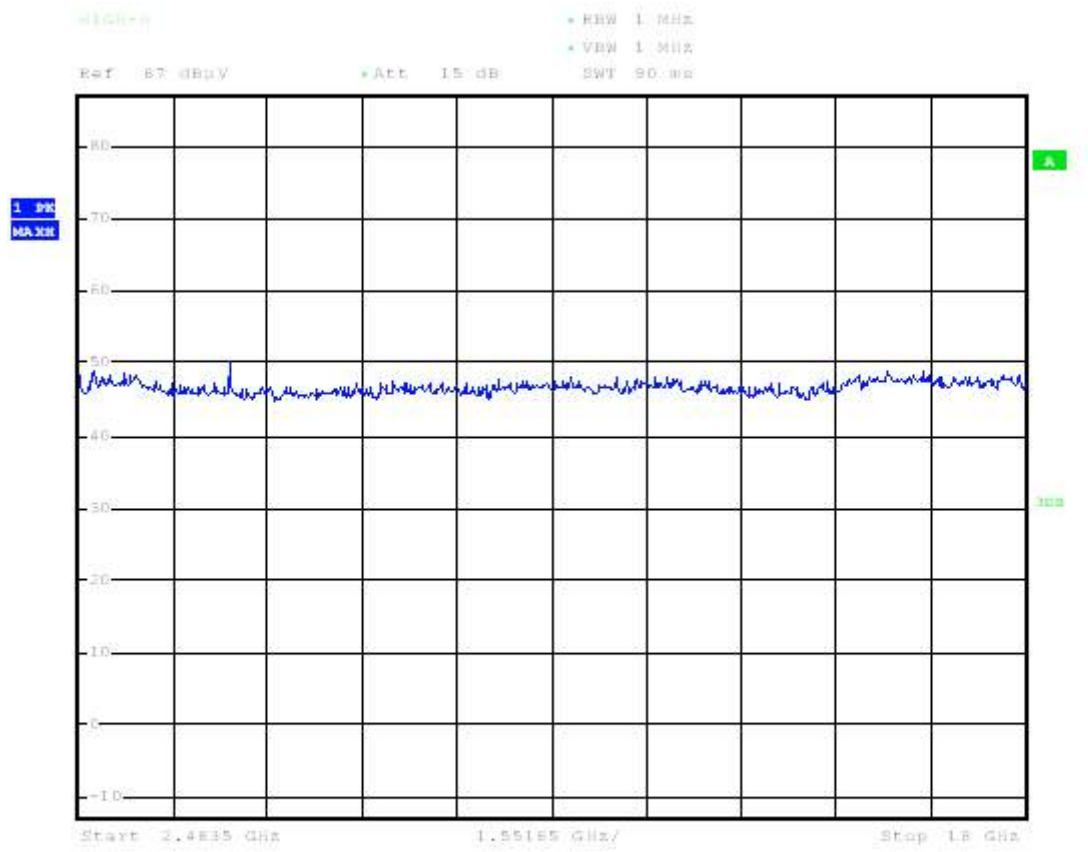
Date: 13.DEC.2017 03:27:04

## CH High (Vertical)



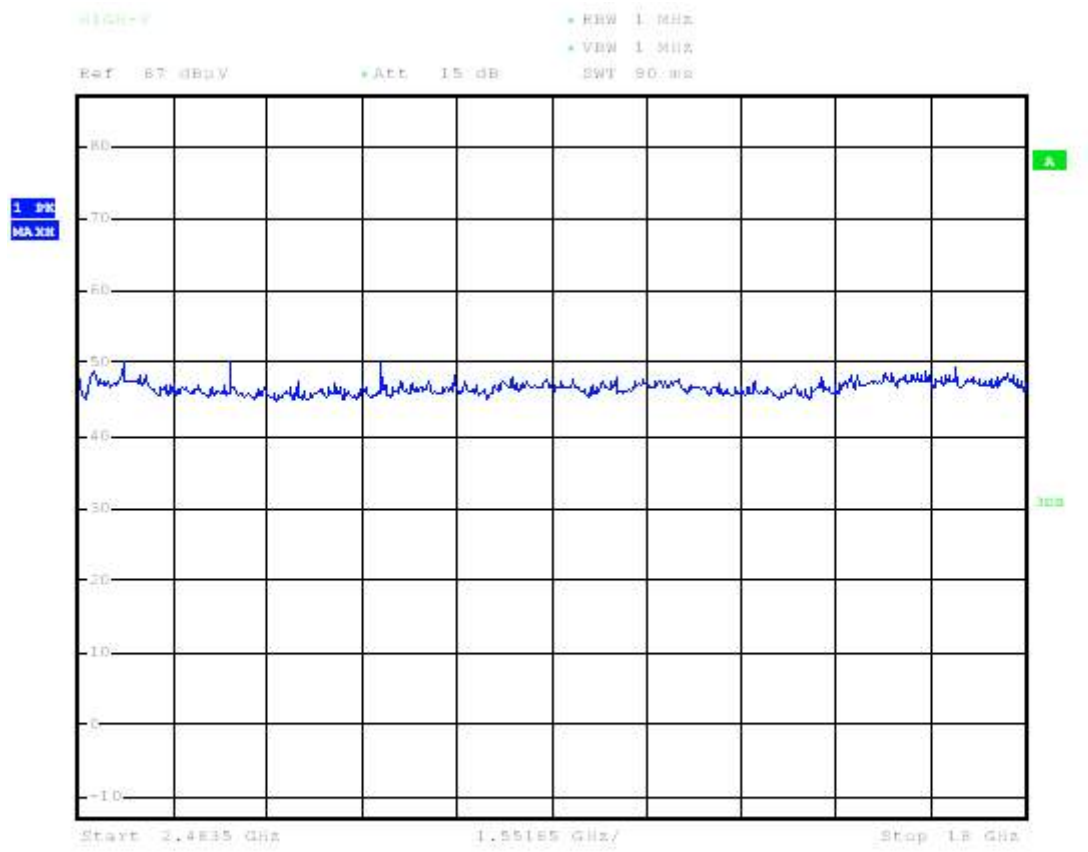
Date: 13.DEC.2017 03:29:49

## CH High (Horizontal)



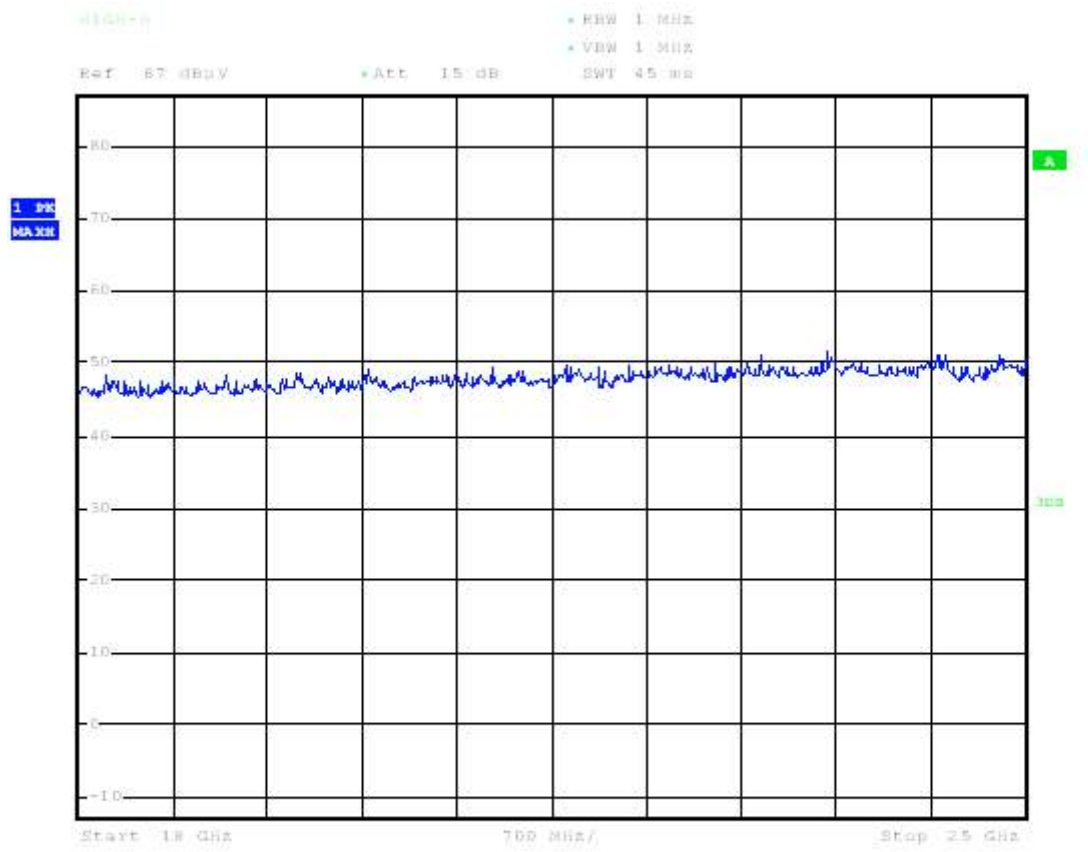
Date: 13.DEC.2017 03:28:16

## CH High (Vertical)



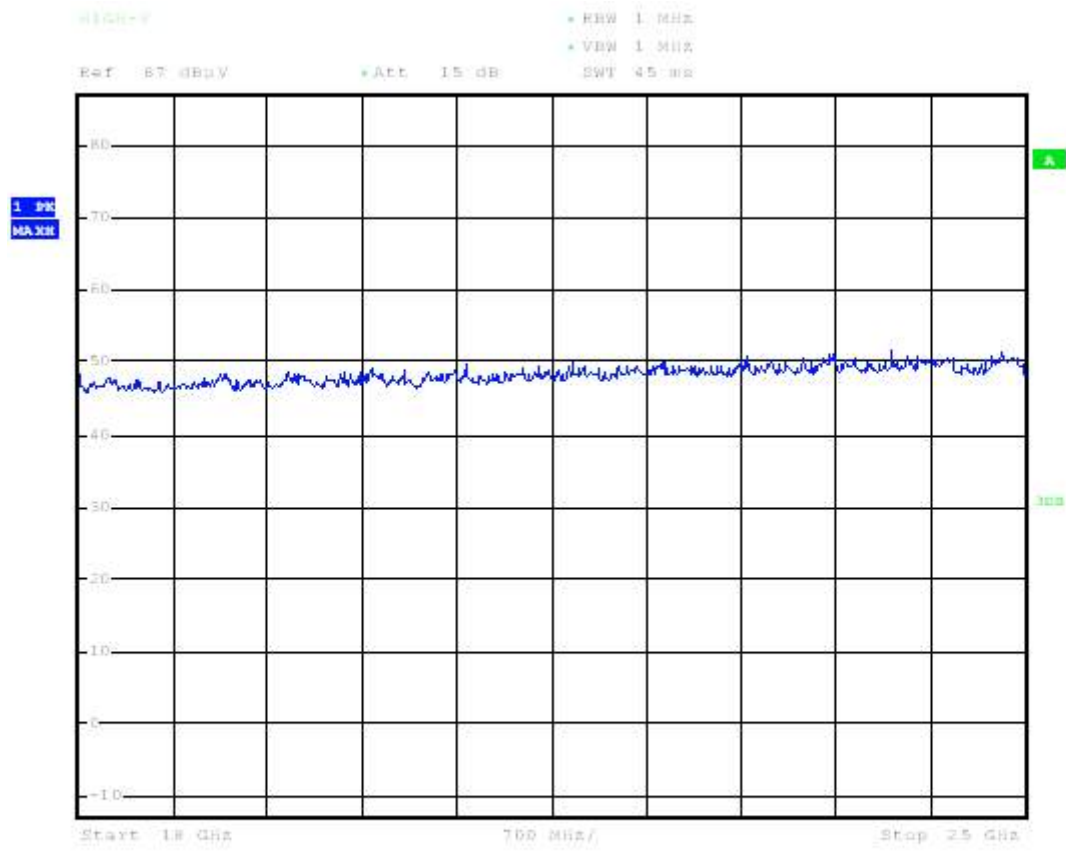
Date: 13.DEC.2017 03:31:00

## CH High (Horizontal)



Date: 13.DEC.2017 03:28:36

## CH High (Vertical)



Date: 13.DEC.2017 03:31:28

## 4.3.2.4 Radiated Measurement at Bandedge with Fundamental Frequencies

Test Date : Dec. 12, 2017Temperature : 21°CHumidity : 63%

| Channel | Frequency | Reading @3m (dBuV/m) |      |      |      | Factor | Result   |      | Limit @3m |      | Margin (worse) |      |
|---------|-----------|----------------------|------|------|------|--------|----------|------|-----------|------|----------------|------|
|         |           | H                    |      | V    |      |        | (dBuV/m) |      | (dBuV/m)  |      | (dB)           |      |
|         | (MHz)     | Peak                 | Ave  | Peak | Ave  | (dB)   | Peak     | Ave  | Peak      | Ave  | Peak           | Ave  |
| CH Low  | 2400.000  | 28.6                 | 20.9 | 26.9 | 18.0 | 30.8   | 59.4     | 51.7 | 74.0      | 54.0 | -14.6          | -2.3 |
| CH High | 2483.500  | 28.1                 | 14.3 | 27.4 | 14.0 | 31.02  | 59.1     | 45.4 | 74.0      | 54.0 | -14.9          | -8.7 |

**Note:** 1. The result is the highest value of radiated emission from restrict band of 2350~2500 MHz.  
2. Please refer to page 36 to page 43 for chart.

**Low bandedge-Peak-H**

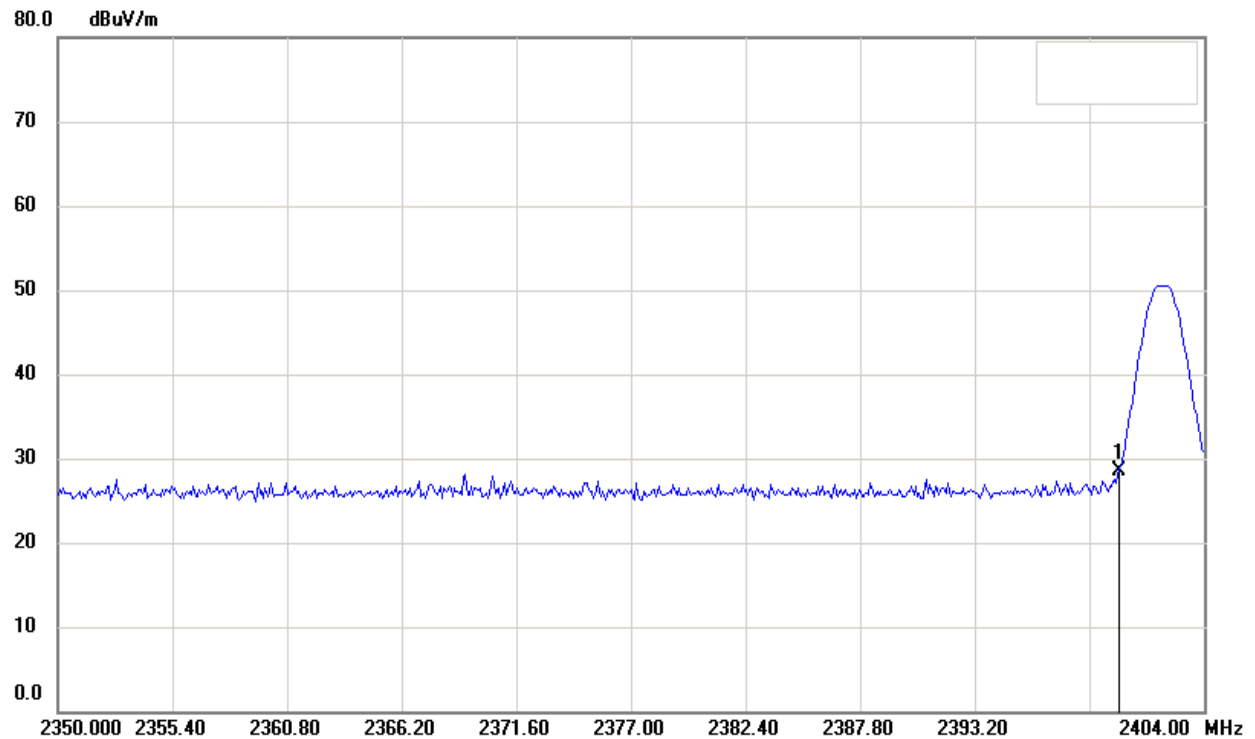
File: 17-11-MAS-079\_OK Data: #25

Date: 2017/12/12

Temperature: 21 °C

Time: PM 05:23:06

Humidity: 63 %



Condition:

Polarization:

Horizontal

EUT:

Distance:

3m

Model:

Test Mode:

Note:

CHL

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Corrected<br>Factor(dB) | Result<br>(dBuV/m) |
|-----|--------------------|---------------------|----------|-------------------------|--------------------|
| 1   | 2400.0000          | 28.60               | peak     | 0.00                    | 28.60              |

**Low bandedge-AVG-H**

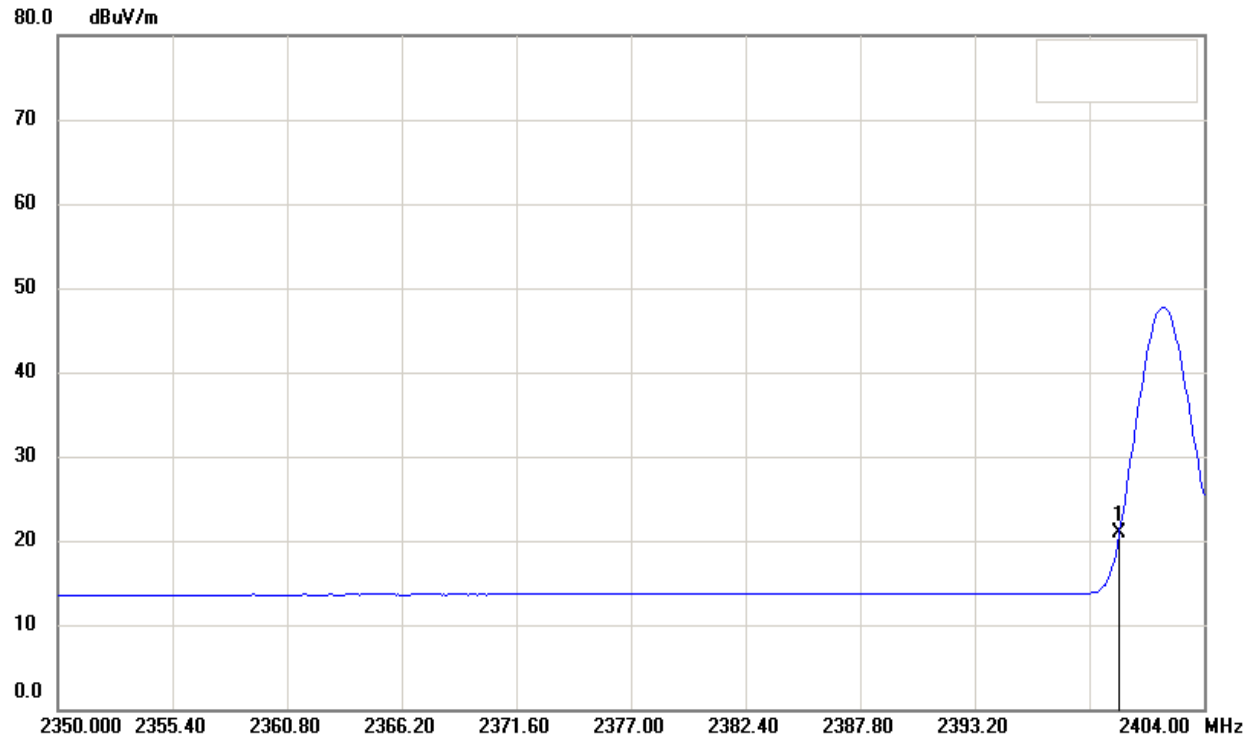
File: 17-11-MAS-079\_OK Data: #28

Date: 2017/12/12

Temperature: 21 °C

Time: PM 05:27:16

Humidity: 63 %



Condition:

Polarization:

Horizontal

EUT:

Distance:

3m

Model:

Test Mode:

Note:

CHL

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Corrected<br>Factor(dB) | Result<br>(dBuV/m) |
|-----|--------------------|---------------------|----------|-------------------------|--------------------|
| 1   | 2400.0000          | 20.90               | AVG      | 0.00                    | 20.90              |

**Low bandedge-Peak-V**

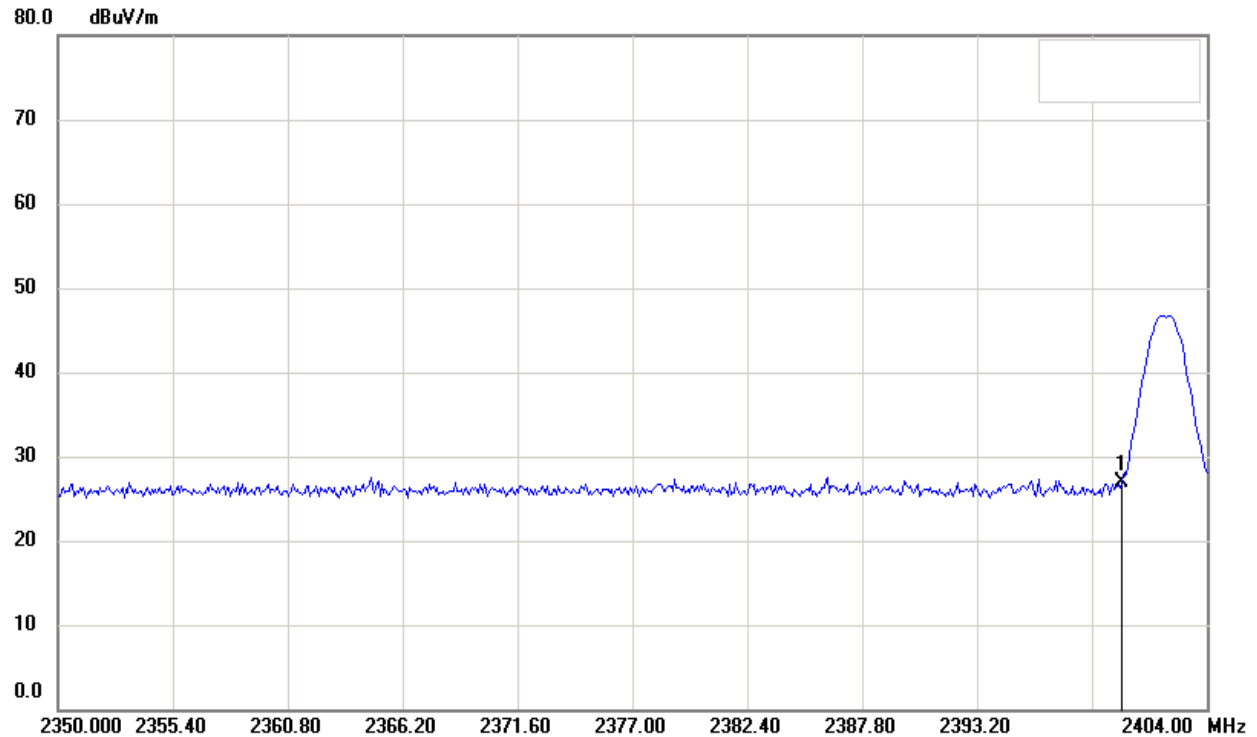
File: 17-11-MAS-079\_OK Data: #29

Date: 2017/12/12

Temperature: 21 °C

Time: PM 05:37:07

Humidity: 63 %



Condition:

Polarization:

Vertical

EUT:

Distance:

3m

Model:

Test Mode:

Note:

CHL

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Corrected<br>Factor(dB) | Result<br>(dBuV/m) |
|-----|--------------------|---------------------|----------|-------------------------|--------------------|
| 1   | 2400.0000          | 26.86               | peak     | 0.00                    | 26.86              |

**Low bandedge\_AVG-V**

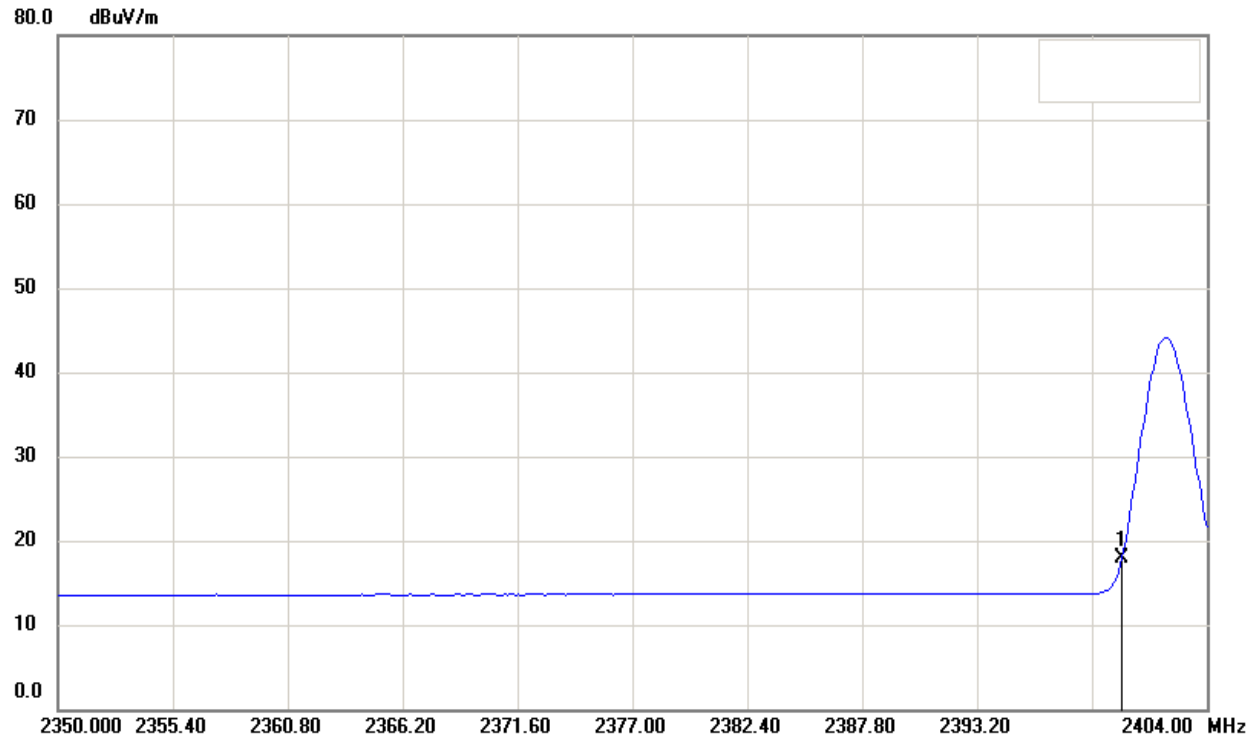
File: 17-11-MAS-079\_OK Data: #32

Date: 2017/12/12

Temperature: 21 °C

Time: PM 05:40:39

Humidity: 63 %



Condition:

Polarization:

Vertical

EUT:

Distance:

3m

Model:

Test Mode:

Note:

CHL

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Corrected<br>Factor(dB) | Result<br>(dBuV/m) |
|-----|--------------------|---------------------|----------|-------------------------|--------------------|
| 1   | 2400.0000          | 17.97               | AVG      | 0.00                    | 17.97              |

**High bandedge-Peak-H**

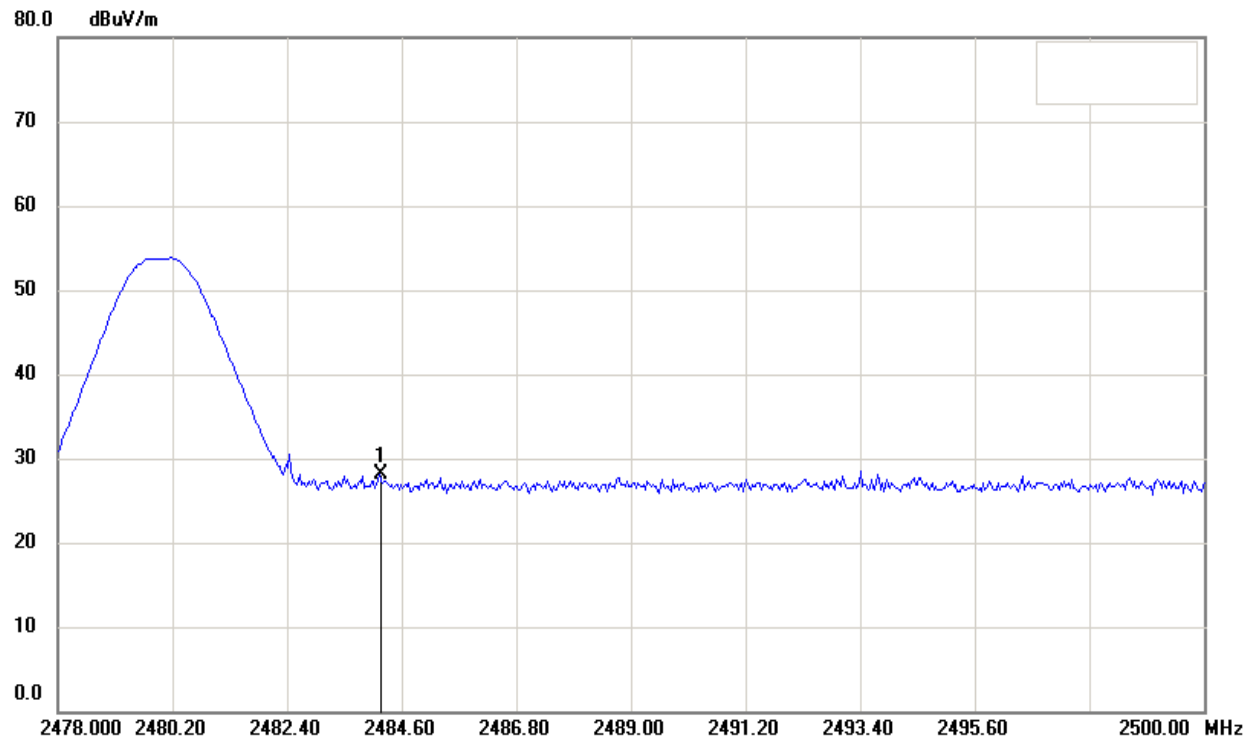
File: 17-11-MAS-079\_OK Data: #23

Date: 2017/12/12

Temperature: 21 °C

Time: PM 05:09:57

Humidity: 63 %

Condition:  
EUT:  
Model:  
Test Mode:  
Note: CHHPolarization: Horizontal  
Distance: 3m

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Corrected<br>Factor(dB) | Result<br>(dBuV/m) |
|-----|--------------------|---------------------|----------|-------------------------|--------------------|
| 1   | 2484.1700          | 28.12               | peak     | 0.00                    | 28.12              |

**High bandedge-AVG-H**

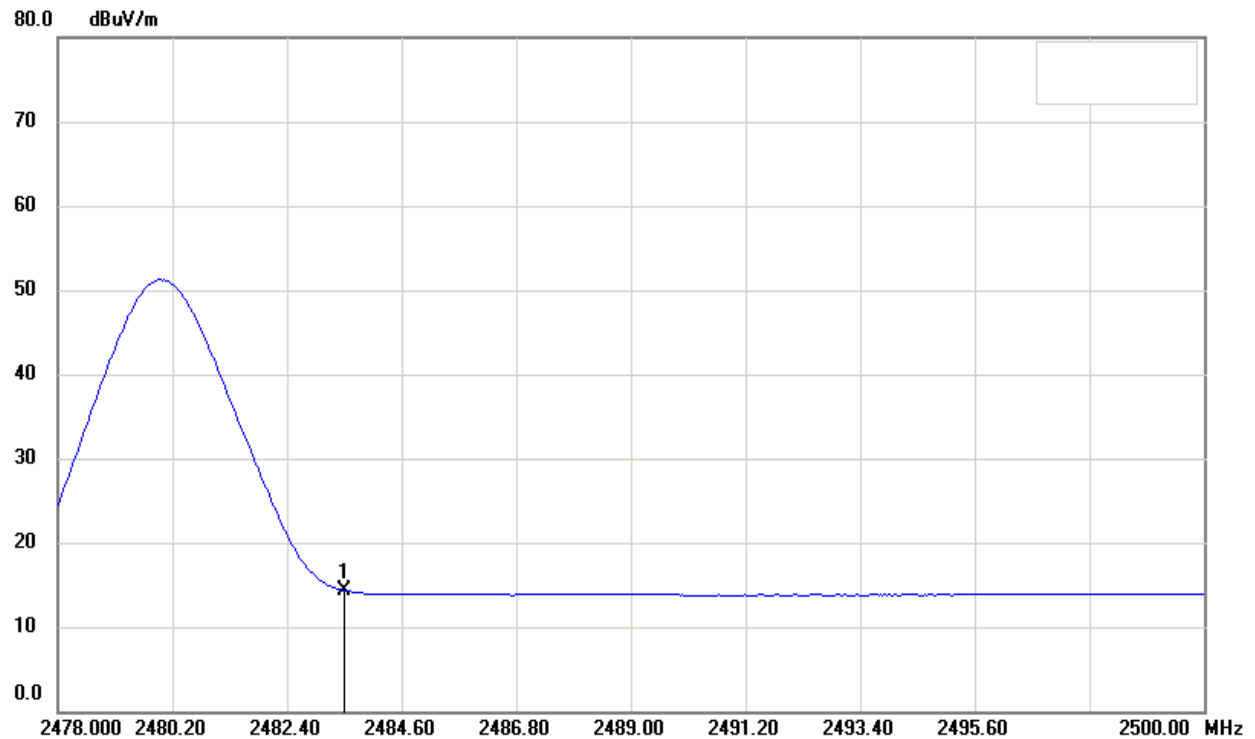
File: 17-11-MAS-079\_OK Data: #24

Date: 2017/12/12

Temperature: 21 °C

Time: PM 05:11:12

Humidity: 63 %



Condition:

Polarization:

Horizontal

EUT:

Distance:

3m

Model:

Test Mode:

Note:

CHH

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Corrected<br>Factor(dB) | Result<br>(dBuV/m) |
|-----|--------------------|---------------------|----------|-------------------------|--------------------|
| 1   | 2483.5000          | 14.33               | AVG      | 0.00                    | 14.33              |

**High bandedge-Peak-V**

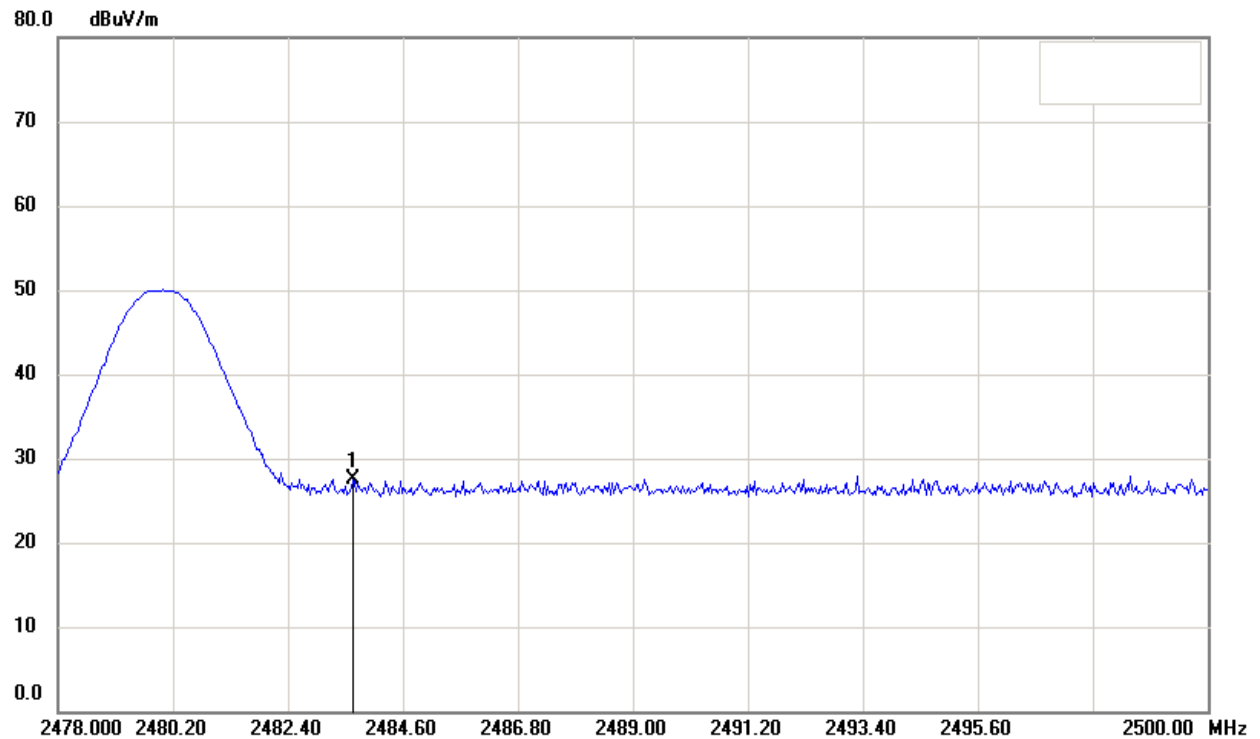
File: 17-11-MAS-079\_OK Data: #21

Date: 2017/12/12

Temperature: 21 °C

Time: PM 04:58:00

Humidity: 63 %



Condition:

Polarization:

Vertical

EUT:

Distance:

3m

Model:

Test Mode:

Note:

CHH

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Corrected<br>Factor(dB) | Result<br>(dBuV/m) |
|-----|--------------------|---------------------|----------|-------------------------|--------------------|
| 1   | 2483.6410          | 27.42               | peak     | 0.00                    | 27.42              |

**High bandedge-AVG-V**

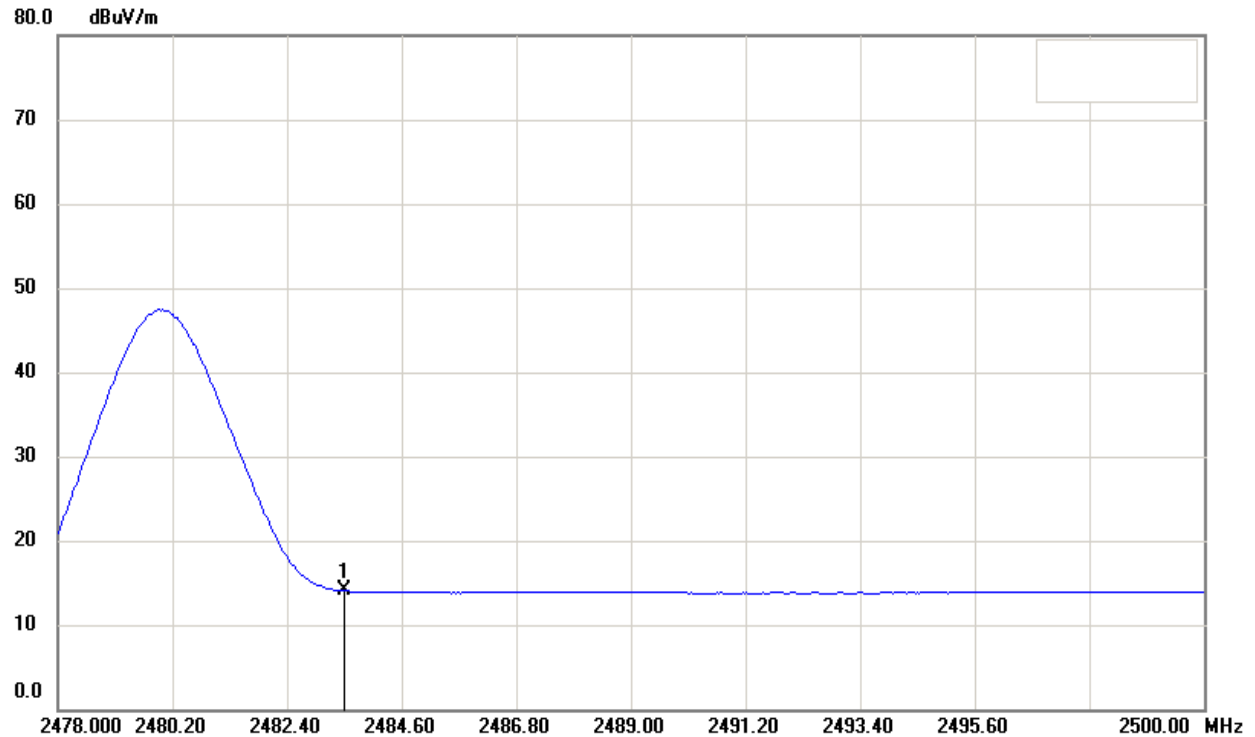
File: 17-11-MAS-079\_OK Data: #22

Date: 2017/12/12

Temperature: 21 °C

Time: PM 05:01:26

Humidity: 63 %



Condition:

Polarization:

Vertical

EUT:

Distance:

3m

Model:

Test Mode:

Note:

CHH

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Corrected<br>Factor(dB) | Result<br>(dBuV/m) |
|-----|--------------------|---------------------|----------|-------------------------|--------------------|
| 1   | 2483.5000          | 14.01               | AVG      | 0.00                    | 14.01              |

#### 4.4 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$\text{RESULT} = \text{READING} + \text{CORR. FACTOR}$$

where CORR. FACTOR= Antenna FACTOR + Cable FACTOR - Amplifier Gain (if any)

#### 4.5 Radiated Test Equipment

The following instrument are used for radiated emissions measurement:

| Equipment         | Manufacturer    | Model No.  |
|-------------------|-----------------|------------|
| EMI Receiver      | R&S             | ESCI       |
| BiLog Antenna     | ETC             | MCTD 2786B |
| Loop Antenna      | EMCO            | 6512       |
| PRE-Amplifier     | Agilent         | 8449B      |
| PRE-Amplifier     | Agilent         | 8447D      |
| Spectrum Analyzer | Rohde & Schwarz | FSU46      |

*Note: The standards used to perform this calibration are traceable to NML/ROC, NIST/USA and NPL.*

## 5. MEASUREMENT OF OPERATING FREQUENCY RANGE

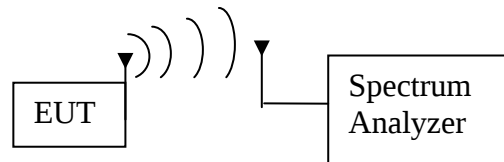
### 5.1 Applicable Standard

According to §15.205, Only spurious emissions are permitted in any of the frequency bands listed below:

| MHz               | MHz                   | MHz           | GHz         |
|-------------------|-----------------------|---------------|-------------|
| 0.090 - 0.110     | 16.42-16.423          | 399.9-410     | 4.5-5.25    |
| 0.495 - 0.505 **  | 16.69475 - 16.69525   | 608-614       | 5.35-5.46   |
| 2.1735 - 2.1905   | 16.80425 - 16.80475   | 960-1240      | 7.25-7.75   |
| 4.125-4.128       | 25.5-25.67            | 1300-1427     | 8.025-8.5   |
| 4.17725-4.17775   | 37.5-38.25            | 1435-1626.5   | 9.0-9.2     |
| 4.20725-4.20775   | 73-74.6               | 1645.5-1646.5 | 9.3-9.5     |
| 6.215-6.218       | 74.8-75.2             | 1660-1710     | 10.6-12.7   |
| 6.26775-6.26825   | 108-121.94            | 1718.8-1722.2 | 13.25-13.4  |
| 6.31175-6.31225   | 123-138               | 2200-2300     | 14.47-14.5  |
| 8.291-8.294       | 149.9-150.05          | 2310-2390     | 15.35-16.2  |
| 8.362-8.366       | 156.52475 - 156.52525 | 2483.5-2500   | 17.7-21.4   |
| 8.37625-8.38675   | 156.7-156.9           | 2655-2900     | 22.01-23.12 |
| 8.41425-8.41475   | 162.0125-167.17       | 3260-3267     | 23.6-24.0   |
| 12.29-12.293      | 167.72-173.2          | 3332-3339     | 31.2-31.8   |
| 12.51975-12.52025 | 240-285               | 3345.8-3358   | 36.43-36.5  |
| 12.57675-12.57725 | 322-335.4             | 3600-4400     | Above 38.6  |
| 13.36-13.41       |                       |               |             |

\*\* : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

### 5.2 Operating frequency range measurement configuration



### 5.3 Operating frequency range Test Equipment

| Equipment         | Manufacturer | Model No. |
|-------------------|--------------|-----------|
| Spectrum Analyzer | Agilent      | E4446A    |

## 5.4 Test Result

Operated mode : Transmitting

Test Date : Dec. 11, 2017

Temperature : 21°C

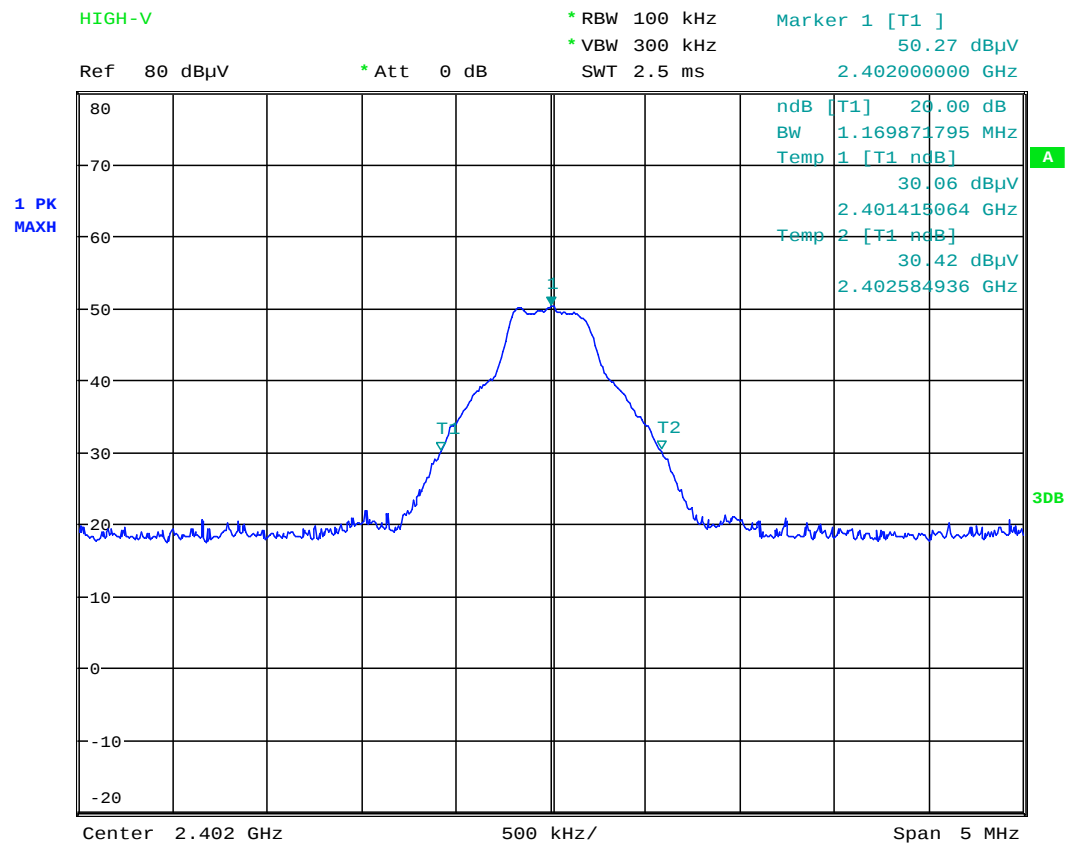
Humidity : 63

%

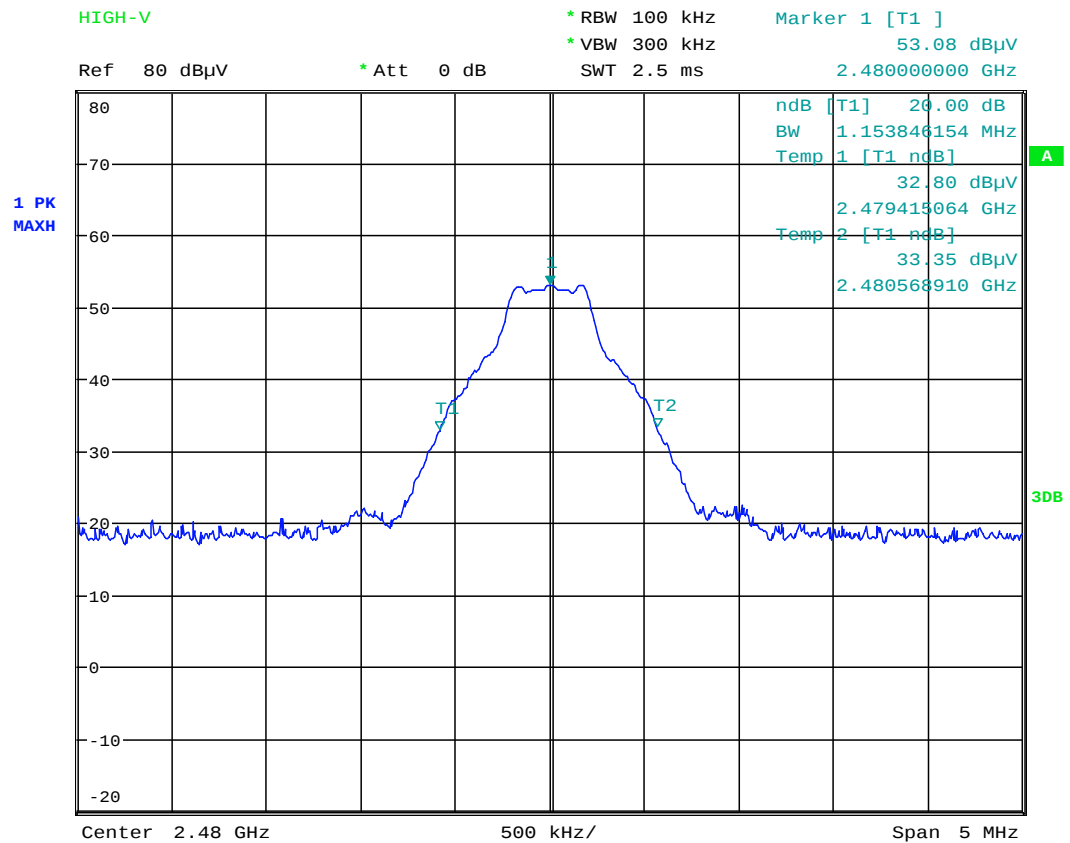
The operating frequency range is not within the restricted bands and meets the requirements of §15.205.

**Note:** Please refer to page 48 and page 49 for chart.

CH Low



Date: 13.DEC.2017 06:46:43

**CH High**

Date: 13.DEC.2017 06:59:35

## 6. CONDUCTED EMISSION MEASUREMENT

This EUT is excused from investigation of conducted emission, for it is powered by battery only. According to 15.107(d), measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

**7. EQUIPMENTS LIST FOR TESTING**

| <b>Equipment</b>  | <b>Manufacturer</b> | <b>Model No.</b> | <b>S/N</b>   | <b>Calibration Date</b> | <b>Next Cal. Due</b> |
|-------------------|---------------------|------------------|--------------|-------------------------|----------------------|
| EMI Receiver      | R&S                 | ESCI             | 13054423-001 | 01/13/2017              | 01/12/2018           |
| Horn Antenna      | EMCO                | 3115             | 13059201-001 | 11/29/2017              | 11/28/2018           |
| BiLog Antenna     | ETC                 | MCTD2786B        | BLB17F04016  | 02/15/2017              | 02/14/2018           |
| Horn Antenna      | EMCO                | 3116             | 13059202-001 | 11/04/2017              | 11/03/2018           |
| PRE-Amplifier     | Agilent             | 8449B            | 13040709-001 | 01/10/2017              | 01/09/2018           |
| PRE-Amplifier     | Agilent             | 8447D            | 13040715-002 | 04/25/2017              | 04/24/2018           |
| Spectrum Analyzer | R&S                 | FSU46            | 13040904-001 | 01/10/2017              | 01/09/2018           |