

## TEST REPORT

**Applicant** : ESPERIA Corporation

**Address** : 2-8-85, YOSHINODAI, KAWAGOE-CITY, SAITAMA-PREF, JAPAN

**Products** : MW, FM Radio with Bluetooth

**Model No.** : KRH-M202

**Serial No.** : 01014  
01011

**Test Standard** : CFR 47 FCC Rules and Regulations Part 15

**Test Results** : **Passed**

**Date of Test** : May 16, 2017 ~ May 22, 2017



A handwritten signature in black ink, appearing to read 'H. Kajiwarara'.

Hideki Kajiwarara  
Manager

Japan Quality Assurance Organization  
SAFETY & EMC CENTER

Testing Dept.

Testing Div. 1

4-4-4, Minamiosawa, Hachioji-shi, Tokyo 192-0364, Japan

- 
- The test results in this test report was made by using the measuring instruments which are traceable to national standards of measurement in accordance with ISO/IEC 17025.
  - The applicable standard, testing condition and testing method which were used for the tests are based on the request of the applicant.
  - The test results presented in this report relate only to the offered test sample.
  - The contents of this test report cannot be used for the purposes, such as advertisement for consumers.
  - This test report shall not be reproduced except in full without the written approval of JQA.
  - VLAC does not approve, certify or warrant the product by this test report.

**Table of Contents**

|                                           | <b>Page</b> |
|-------------------------------------------|-------------|
| 1 Description of the Equipment Under Test | 3           |
| 2 Summary of Test Results                 | 4           |
| 3 Test Procedure                          | 5           |
| 4 Test Location                           | 5           |
| 5 Recognition of Test Laboratory          | 5           |
| 6 Description of Test Setup               | 6-7         |
| 7 Test Requirements                       | 8-50        |
| Appendix A : SAR Test Exclusion           | 51          |
| Appendix B : Test Setup(Photograph)       | 52-53       |

**Definitions for Abbreviation and Symbols Used In This Test Report**

“EUT” means Equipment Under the Test.

“AE” means Associated Equipment.

“N/A” means that Not Applicable.

“N/T” means that Not Tested.

☒ - indicates that the listed condition, standard or equipment is applicable for this report.

☐ - indicates that the listed condition, standard or equipment is not applicable for this report.

## 1 Description of the Equipment Under Test

- |    |                       |    |                                                                                 |
|----|-----------------------|----|---------------------------------------------------------------------------------|
| 1  | Manufacturer          | :  | ESPERIA Corporation<br>2-8-85, YOSHINODAI, KAWAGOE-CITY,<br>SAITAMA-PREF, JAPAN |
| 2  | Products              | :  | MW, FM Radio with Bluetooth                                                     |
| 3  | Model No.             | :  | KRH-M202                                                                        |
| 4  | Serial No.            | :  | 01014<br>01011                                                                  |
| 5  | Product Type          | :  | Pre-Production                                                                  |
| 6  | Date of Manufacture   | :  | -                                                                               |
| 7  | Power Rating          | :  | 12~24 VDC (Operating voltage range)                                             |
| 8  | Grounding             | :  | None                                                                            |
| 9  | Transmitter Frequency | :  | 2402.0 MHz (00ch) – 2480.0 MHz (78ch)                                           |
| 10 | Receiver Frequency    | :  | 2402.0 MHz (00ch) – 2480.0 MHz (78ch)                                           |
| 11 | MAX RF Output Power   | :  | -1.78 dBm (Measure Value)                                                       |
| 12 | Antenna Type          | :: | Pattern Antenna (Integral)                                                      |
| 13 | Antenna Gain          | :  | 2.0 dBi                                                                         |
| 14 | Category              | :  | Spread Spectrum Transmitter (FHSS)                                              |
| 15 | EUT Authorization     | :  | Certification                                                                   |
| 16 | Received Date of EUT  | :  | March 27, 2017                                                                  |
| 17 | Channel Plan          |    |                                                                                 |
- The carrier spacing is 1 MHz.  
The carrier frequency is designated by the absolute frequency channel number (ARFCN).  
The carrier frequency is expressed in the equation shown as follows:
- Normal Mode:  
Transmitting Frequency (in MHz) =  $2402.0 + n$   
Receiving Frequency (in MHz) =  $2402.0 + n$   
where,  $n$  : channel number ( $0 \leq n \leq 78$ )

## 2 Summary of Test Results

Applied Standard : CFR 47 FCC Rules and Regulations Part 15  
Subpart C – Intentional Radiators

The EUT described in clause 1 was tested according to the applied standard shown above.  
Details of the test configuration is shown in clause 6.

The conclusion for the test items of which are required by the applied standard is indicated under the test result.

- ☒ - The test result was passed for the test requirements of the applied standard.
- ☐ - The test result was failed for the test requirements of the applied standard.
- ☐ - The test result was not judged the test requirements of the applied standard.

In the approval of test results,

- Determining compliance with the limits in this report was based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- No deviations were employed from the applied standard.
- No modifications were conducted by JQA to achieve compliance to the limitations.

Reviewed by:

Tested by:



Yuichi Fukumoto  
Advisor  
SAFETY & EMC CENTER  
Testing Dept.  
Testing Div. 1



Naohiko Ueno  
Assistant Manager  
SAFETY & EMC CENTER  
Testing Dept.  
Testing Div. 1

### 3 Test Procedure

Test Requirements: §15.247, §15.207 and §15.209

Test Procedure : ANSI C63.10–2013  
Testing unlicensed wireless devices.

FCC Public Notice DA 00-705, released March 30, 2000.

KDB414788(Publication Date : April 18, 2017)  
Test Sites for Radiated Emission Measurements

KDB 447498  
RF exposure and equipment authorization requirements

### 4 Test Location

Japan Quality Assurance Organization  
SAFETY & EMC CENTER  
Testing Dept.  
Testing Div. 1  
4-4-4, Minamiosawa, Hachioji-shi, Tokyo 192-0364, Japan

### 5 Recognition of Test Laboratory

Japan Quality Assurance Organization, Safety & EMC Center Testing Dept. Testing Div. 1.  
Is accredited under ISO/IEC 17025 by following accreditation bodies and the test facility of Testing Division is registered by the following bodies .

VLAC Code : VLAC-001-5 (Effective through : March 30, 2018)  
VCCI Registration Number : A-0001 (Effective through : March 30, 2018)  
FCC Registration Number : 349652 (Effective through : March 30, 2018)  
IC Registration Number : 21462-1 (Effective through: May 24, 2019)

Accredited as conformity assessment body for Japan electrical appliances and material law by METI. (Effective through : February 22, 2019)

## 6 Description of Test Setup

### 6.1 Test Configuration

The EUT consists of :

| Sign | Item                        | Manufacturer        | Model No. | Serial No.           |
|------|-----------------------------|---------------------|-----------|----------------------|
| A    | MW, FM Radio with Bluetooth | ESPERIA Corporation | KRH-M202  | 01014 *1<br>01011 *2 |

\*1) Used for Antenna Conducted Emission

\*2) Used for Field Strength of Spurious Emission

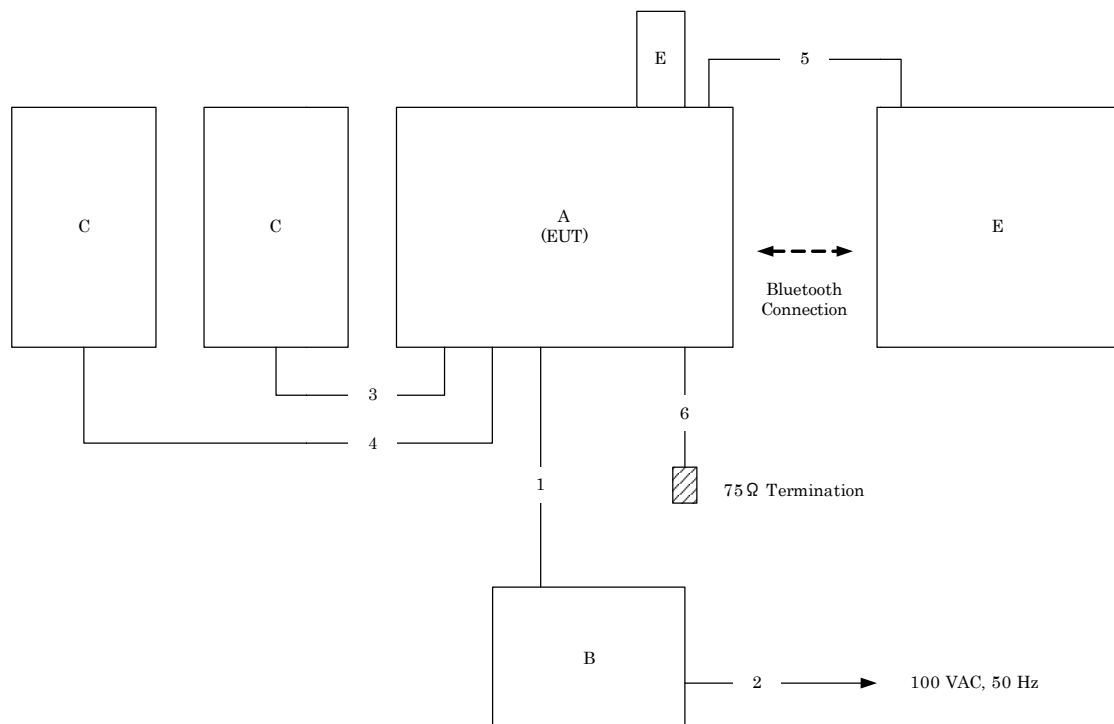
The AE used for testing :

| Sign | Item            | Manufacturer                  | Model No.      | Serial No. | FCCID |
|------|-----------------|-------------------------------|----------------|------------|-------|
| B    | DC Power Supply | Kikusui Electronics Co., Ltd. | PAN35-20A      | GJ000984   | N/A   |
| C    | Dummy Load      | -                             | -              | -          | N/A   |
| D    | Tablet PC       | Dell Inc                      | Venue Pro 5855 | -          | DoC   |
| E    | USB Memory      | -                             | -              | -          | N/A   |

Type of Cable used for testing :

| No. | Description         | Identification (Manu. Etc.) | Connector Shielded | Cable Shielded | Ferrite Core | Length (m) |
|-----|---------------------|-----------------------------|--------------------|----------------|--------------|------------|
| 1   | DC Power Cable      | -                           | No                 | No             | No           | 0.2        |
| 2   | AC Power Cable      | -                           | No                 | No             | No           | 2.0        |
| 3   | Speaker (Lch) Cable | -                           | No                 | No             | No           | 0.2        |
| 4   | Speaker (Rch) Cable | -                           | No                 | No             | No           | 0.2        |
| 5   | AUX In Cable        | -                           | No                 | No             | No           | 1.0        |
| 6   | Antenna Cable       | -                           | No                 | No             | No           | 0.2        |

### 6.2 Test Arrangement (Drawings)



### 6.3 Operating Condition

Power Supply Voltage : 12/24 VDC

Transmitting/Receiving

Bluetooth 2.1 + EDR

Transmitting frequency : 2402.0 MHz(0CH) – 2480.0 MHz(78CH)

Receiver frequency : 2402.0 MHz(0CH) – 2480.0 MHz(78CH)

The test were carried under 2 mode shown as follows:

1) BDR

2) EDR

In Spurious Emissions(Conducted) and Radiated Emissions, the worst case is BDR mode.

Modulation Type

1. DH1/ DH3/ DH5 Packet (Modulation Type : GFSK)

2. 2DH1/ 2DH3/ 2DH5 Packet (Modulation Type : pi/4-DQPSK)

3. 3DH1/ 3DH3/ 3DH5 Packet (Modulation Type : 8DPSK)

The EUT with temporary antenna port was used in conducted measurement.

The test were carried out using the following test program supplied by applicant;

- Software Name: BK32xx RF Test
- Software Version: Version 1.5\_en(JPN)
- Storage Location: Controller PC

## 7 Test Requirements

### 7.1 Summary of Test Results

| Test Item                       | FCC Specification         | Reference of the Test Report | Results        | Remarks |
|---------------------------------|---------------------------|------------------------------|----------------|---------|
| Antenna Requirement             | Section 15.203            | Section 1.12                 | Passed         | -       |
| Channel Separation              | Section 15.247(a)(1)      | Section 7.2                  | Passed         | -       |
| Minimum Hopping Channel         | Section 15.247(a)(1)(iii) | Section 7.3                  | Passed         | -       |
| Occupied Bandwidth              | Section 15.247(a)(1)      | Section 7.4                  | Passed         | -       |
| Dwell Time                      | Section 15.247(a)(1)(iii) | Section 7.5                  | Passed         | -       |
| Peak Output Power (Conduction)  | Section 15.247(b)(1)      | Section 7.6                  | Passed         | -       |
| Peak Power Density (Conduction) | Section 15.247(e)         | Section 7.7                  | Not Applicable | -       |
| Spurious Emissions (Conduction) | Section 15.247(d)         | Section 7.8                  | Passed         | -       |
| AC Powerline Conducted Emission | Section 15.207            | Section 7.9                  | Passed         | -       |
| Radiated Emission               | Section 15.247(d)         | Section 7.10                 | Passed         | -       |
| SAR Test Exclusion              | Section 15.247(i)         | Appendix A                   | Passed         | -       |

## 7.2 Channel Separation

For the requirements, ☒ - Applicable [ ☒ - Tested. ☐ - Not tested by applicant request. ]  
☐ - Not Applicable

### 7.2.1 Test Results

For the standard, ☒ - Passed ☐ - Failed ☐ - Not judged

Channel Separation is 1.001 MHz  
 Channel Separation (Inquiry) is - MHz

Uncertainty of measurement results +/- 0.131 %(2σ)

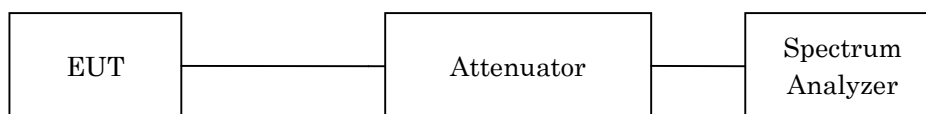
Remarks : Since EUT is a Bluetooth slave device, it does not have Inquiry oscillation

### 7.2.2 Test Instruments

| Type          | Model    | Manufacturer    | ID No. | Last Cal. | Interval |
|---------------|----------|-----------------|--------|-----------|----------|
| Test Receiver | ESW44    | Rohde & Schwarz | R04    | 2017/2    | 1 Year   |
| RF Cable      | S 04272B | SUHNER          | CS04   | 2016/5    | 1 Year   |
| Attenuator    | 43KC-10  | Anritsu         | ATT01  | 2016/10   | 1 Year   |

### 7.2.3 Test Method and Test Setup (Diagrammatic illustration)

The test system is shown as follows:



The setting of the spectrum analyzer are shown as follows:

|                 |               |
|-----------------|---------------|
| Res. Bandwidth  | 100 kHz       |
| Video Bandwidth | 300 kHz       |
| Span            | 3 MHz / 5 MHz |
| Sweep Time      | AUTO          |
| Trace           | Maxhold       |

## 7.2.4 Test Data

Test Date : May 16, 2017

Temp.: 22°C, Humi: 48%

| Mode of EUT | Channel Separation (MHz) | Limit* (MHz) |
|-------------|--------------------------|--------------|
| Hopping     | 1.001                    | 0.917        |
| Inquiry     | -                        | -            |

Note: Two-thirds of the maximum 20 dB bandwidth of the hopping channel or 25 kHz (whichever is greater). Refer to the section 7.4.

Since EUT is a Bluetooth slave device, it does not have Inquiry oscillation

Mode of EUT : Hopping



### 7.3 Minimum Hopping Channel

For the requirements, ☒ - Applicable [ ☒ - Tested. ☐ - Not tested by applicant request. ]  
☐ - Not Applicable

#### 7.3.1 Test Results

For the standard, ☒ - Passed ☐ - Failed ☐ - Not judged

|                                |    |
|--------------------------------|----|
| Number of Channel is           | 79 |
| Number of Channel (Inquiry) is | -  |
| Number of Channel (AFH) is     | 20 |

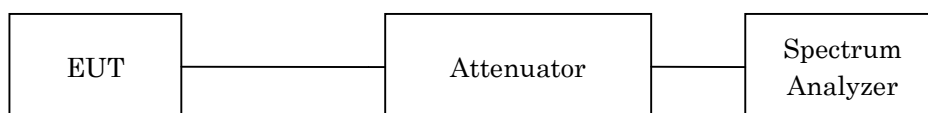
Remarks : Since EUT is a Bluetooth slave device, it does not have Inquiry oscillation

#### 7.3.2 Test Instruments

| Type          | Model    | Manufacturer    | ID No. | Last Cal. | Interval |
|---------------|----------|-----------------|--------|-----------|----------|
| Test Receiver | ESW44    | Rohde & Schwarz | R04    | 2017/2    | 1 Year   |
| RF Cable      | S 04272B | SUHNER          | CS04   | 2016/5    | 1 Year   |
| Attenuator    | 43KC-10  | Anritsu         | ATT01  | 2016/10   | 1 Year   |

#### 7.3.3 Test Method and Test Setup (Diagrammatic illustration)

The test system is shown as follows:



The setting of the spectrum analyzer are shown as follows:

|                 |         |
|-----------------|---------|
| Res. Bandwidth  | 300 kHz |
| Video Bandwidth | 300 kHz |
| Span            | 30 MHz  |
| Sweep Time      | AUTO    |
| Trace           | Maxhold |

### 7.3.4 Test Data

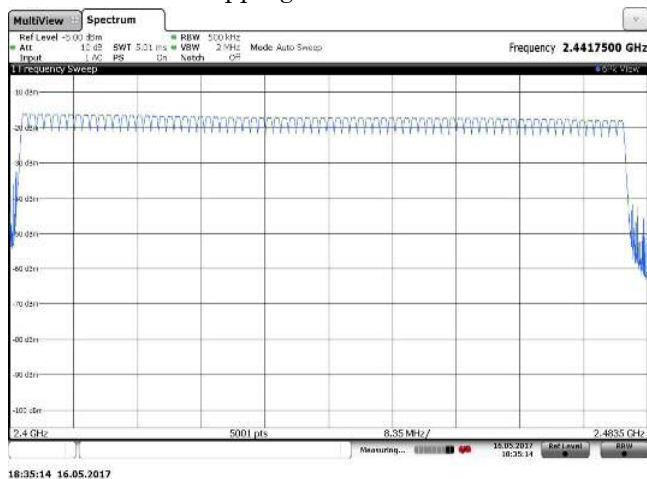
Test Date : May 16, 2017

Temp.:22°C, Humi:48%

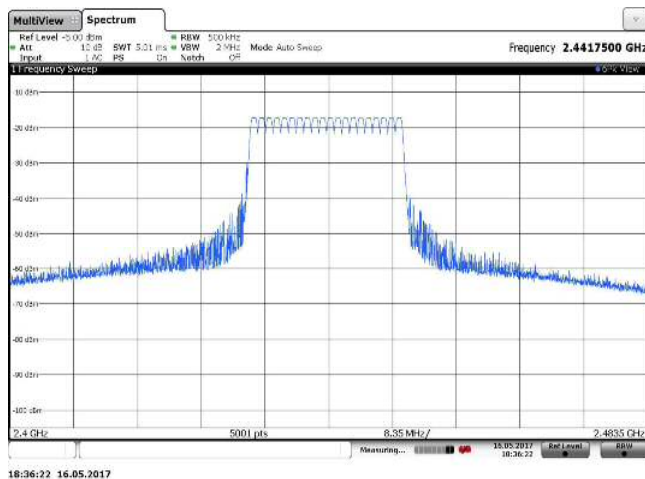
| Mode of EUT  | Minimum Hopping Channel | Limit |
|--------------|-------------------------|-------|
| Hopping      | 79                      | 15    |
| Inquiry      | -                       | 15    |
| AFH(minimum) | 20                      | 15    |

Note : Since EUT is a Bluetooth slave device, it does not have Inquiry oscillation

Mode of EUT : Hopping



Mode of EUT : AFH(minimum)



## 7.4 Occupied Bandwidth

For the requirements, ☒ - Applicable [ ☒ - Tested. ☐ - Not tested by applicant request. ]  
☐ - Not Applicable

### 7.4.1 Test Report

For the standard, ☒ - Passed ☐ - Failed ☐ - Not judged

The 99% Bandwidth is 1345.6 kHz at 2480.0 MHz

The 20dB Bandwidth is 1375.7 kHz at 2441.0 MHz

Uncertainty of measurement results +/- 0.131 %(2σ)

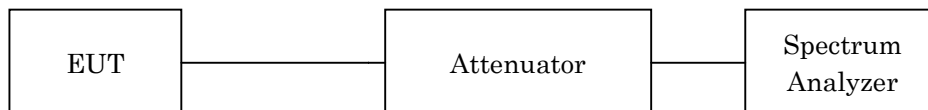
Remarks : \_\_\_\_\_

### 7.4.2 Test Instruments

| Type          | Model    | Manufacturer    | ID No. | Last Cal. | Interval |
|---------------|----------|-----------------|--------|-----------|----------|
| Test Receiver | ESW44    | Rohde & Schwarz | R04    | 2017/2    | 1 Year   |
| RF Cable      | S 04272B | SUHNER          | CS04   | 2016/5    | 1 Year   |
| Attenuator    | 43KC-10  | Anritsu         | ATT01  | 2016/10   | 1 Year   |

### 7.4.3 Test Method and Test Setup (Diagrammatic illustration)

The test system is shown as follows:



The setting of the spectrum analyzer are shown as follows:

|                 |               |
|-----------------|---------------|
| Res. Bandwidth  | 30 kHz        |
| Video Bandwidth | 91 kHz        |
| Span            | 2 MHz / 3 MHz |
| Sweep Time      | AUTO          |
| Trace           | Maxhold       |

#### 7.4.4 Test Data

Date : May 16, 2017  
 Temp. : 22 °C  
 Humi. : 48 %

The resolution bandwidth was set to about 1% of emission bandwidth, -20dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

##### 1) Packet Setting : DH5 (Modulation type : GFSK)

| Cannel | Frequency (MHz) | 99% Bandwidth (kHz) | -20dBc Bandwidth (kHz) | Two-thirds of the 20 dB bandwidth (kHz) |
|--------|-----------------|---------------------|------------------------|-----------------------------------------|
| 00     | 2402.0          | 965.0               | 1025.0                 | 683.3                                   |
| 39     | 2441.0          | 965.0               | 1018.9                 | 679.3                                   |
| 78     | 2480.0          | 965.0               | 1018.9                 | 679.3                                   |

##### 2) Packet Setting : 2DH5 (Modulation type : pi/4-DQPSK)

| Cannel | Frequency (MHz) | 99% Bandwidth (kHz) | -20dBc Bandwidth (kHz) | Two-thirds of the 20 dB bandwidth (kHz) |
|--------|-----------------|---------------------|------------------------|-----------------------------------------|
| 00     | 2402.0          | 1264.7              | 1372.7                 | 915.1                                   |
| 39     | 2441.0          | 1270.7              | 1375.7                 | 917.1                                   |
| 78     | 2480.0          | 1291.7              | 1375.7                 | 917.1                                   |

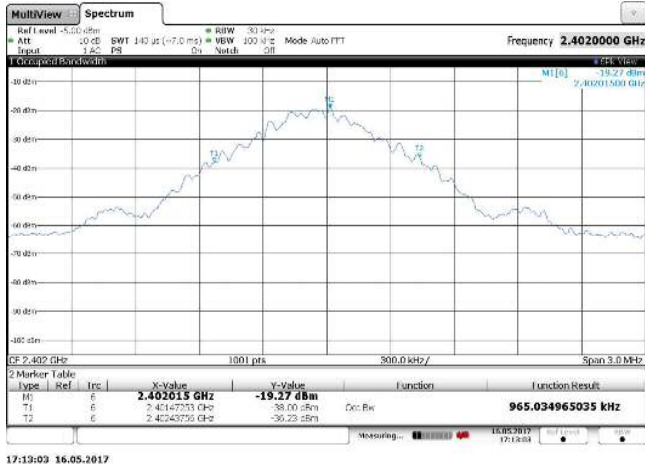
##### 3) Packet Setting : 3DH5 (Modulation type : 8DPSK)

| Cannel | Frequency (MHz) | 99% Bandwidth (kHz) | -20dBc Bandwidth (kHz) | Two-thirds of the 20 dB bandwidth (kHz) |
|--------|-----------------|---------------------|------------------------|-----------------------------------------|
| 00     | 2402.0          | 1270.7              | 1363.7                 | 909.1                                   |
| 39     | 2441.0          | 1237.7              | 1366.7                 | 911.1                                   |
| 78     | 2480.0          | 1345.6              | 1369.7                 | 913.1                                   |

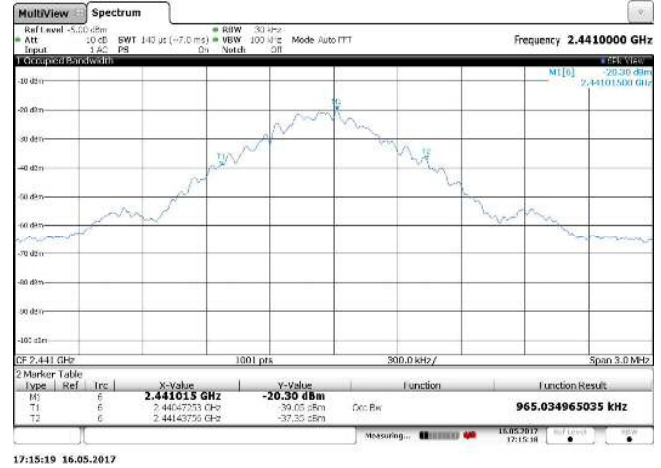
# 1) 99% Bandwidth

## 1.1) DH5 (Modulation type : GFSK)

### Low Channel



### Mid Channel



### High Channel

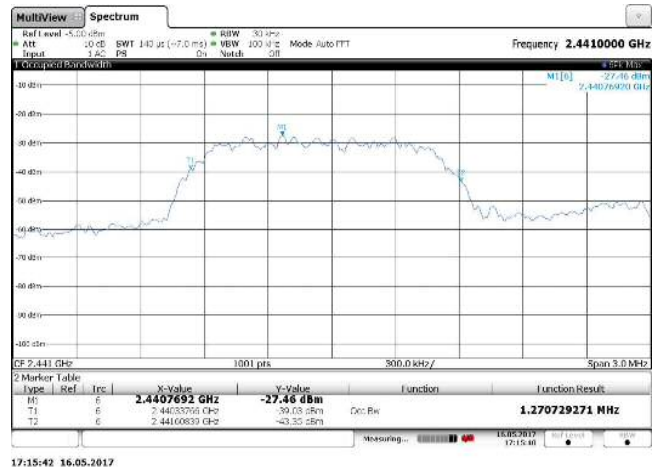


## 1.2) 2DH5 (Modulation type : pi/4-DQPSK)

### Low Channel



### Mid Channel



### High Channel

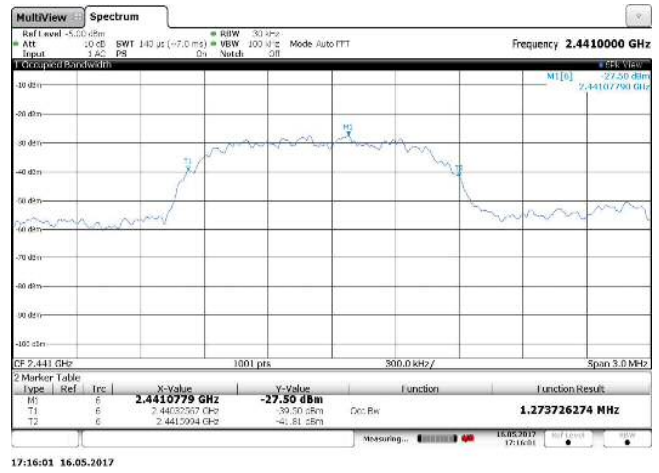


### 1.3) 3DH5 (Modulation type : 8DPSK)

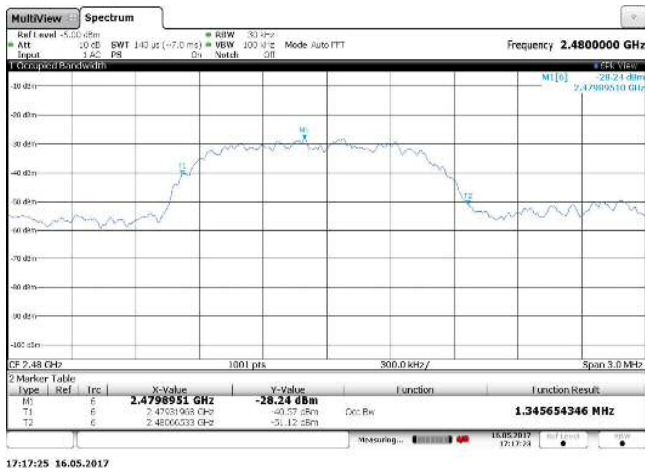
#### Low Channel



#### Mid Channel



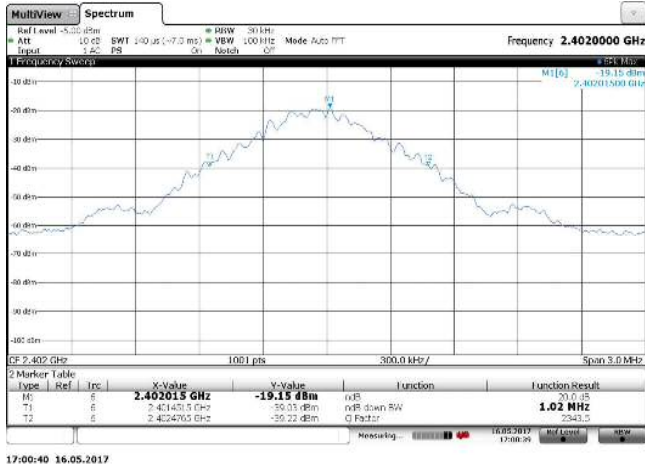
#### High Channel



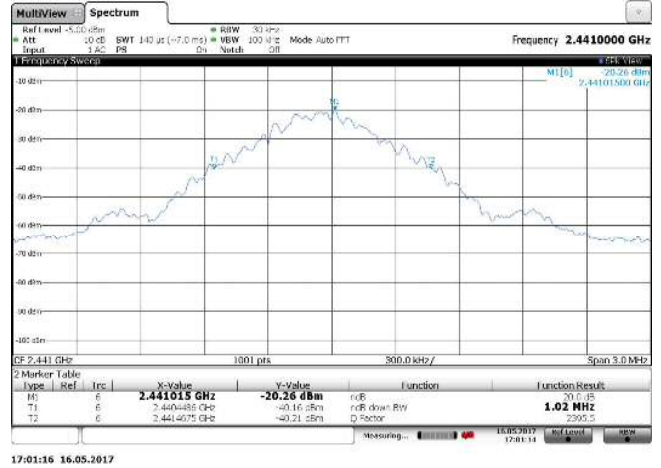
## 2) -20dBc Bandwidth

### 2.1) DH5 (Modulation type : GFSK)

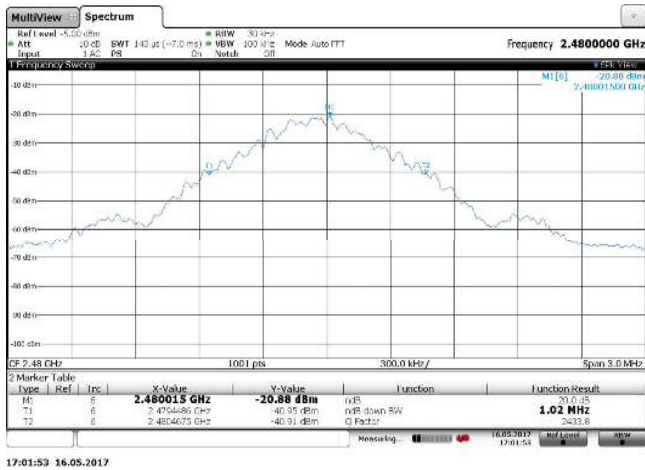
#### Low Channel



#### Mid Channel

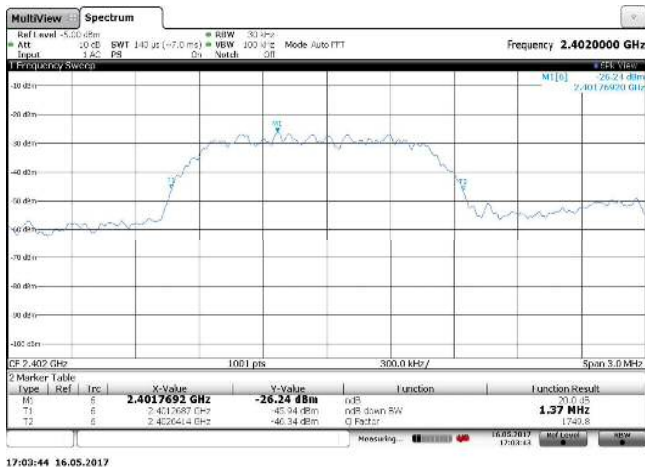


#### High Channel



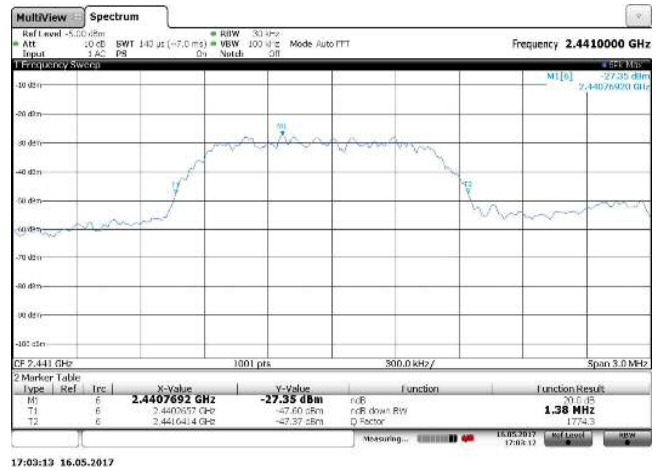
## 2.2) 2DH5 (Modulation type : pi/4-DQPSK)

### Low Channel



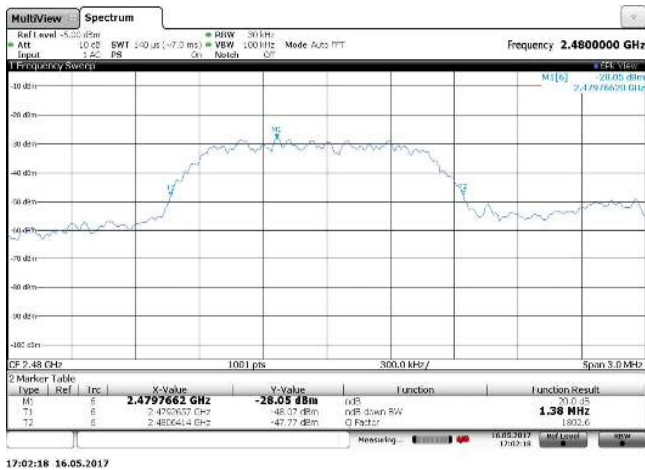
17:03:44 16.05.2017

### Mid Channel



17:03:13 16.05.2017

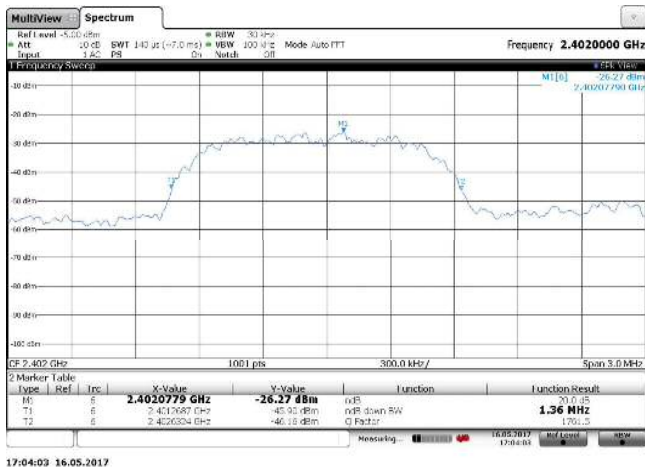
### High Channel



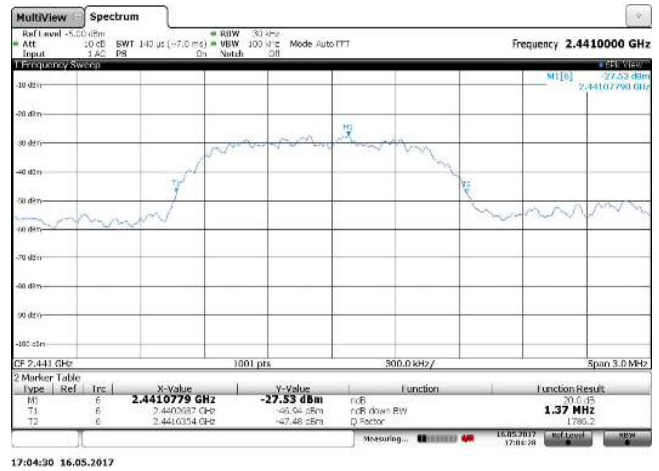
17:02:18 16.05.2017

## 2.3) 3DH5 (Modulation type : 8DPSK)

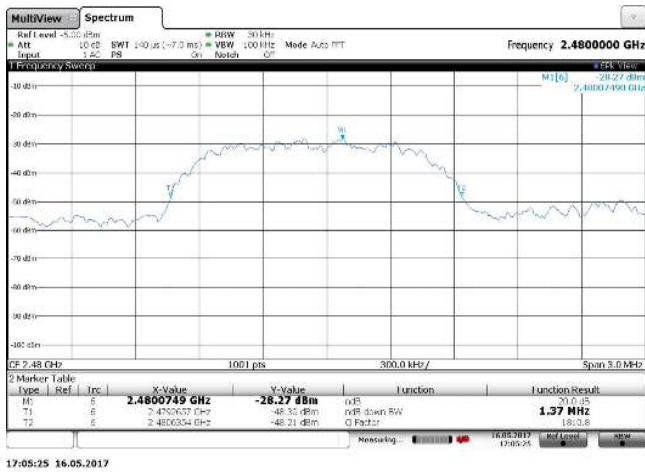
### Low Channel



### Mid Channel



### High Channel



## 7.5 Dwell Time

For the requirements, ☒ - Applicable [ ☒ - Tested. ☐ - Not tested by applicant request. ]  
☐ - Not Applicable

### 7.5.1 Test Results

For the standard, ☒ - Passed ☐ - Failed ☐ - Not judged

|                                    |         |        |
|------------------------------------|---------|--------|
| Dwell Time is                      | 301.96  | msec   |
| Dwell Time (Inquiry) is            | -       | msec   |
| Dwell Time (AFH) is                | 300.89  | msec   |
| Uncertainty of measurement results | +/- 1.2 | dB(2σ) |

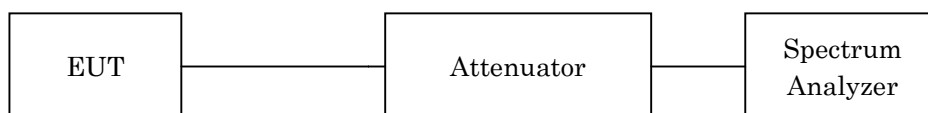
Remarks : Since EUT is a Bluetooth slave device, it does not have Inquiry oscillation

### 7.5.2 Test Instruments

| Type          | Model    | Manufacturer    | ID No. | Last Cal. | Interval |
|---------------|----------|-----------------|--------|-----------|----------|
| Test Receiver | ESW44    | Rohde & Schwarz | R04    | 2017/2    | 1 Year   |
| RF Cable      | S 04272B | SUHNER          | CS04   | 2016/5    | 1 Year   |
| Attenuator    | 43KC-10  | Anritsu         | ATT01  | 2016/10   | 1 Year   |

### 7.5.3 Test Method and Test Setup (Diagrammatic illustration)

The test system is shown as follows:



The setting of the spectrum analyzer are shown as follows:

|                 |           |
|-----------------|-----------|
| Res. Bandwidth  | 1 MHz     |
| Video Bandwidth | 1 MHz     |
| Span            | Zero Span |

## 7.5.4 Test Data

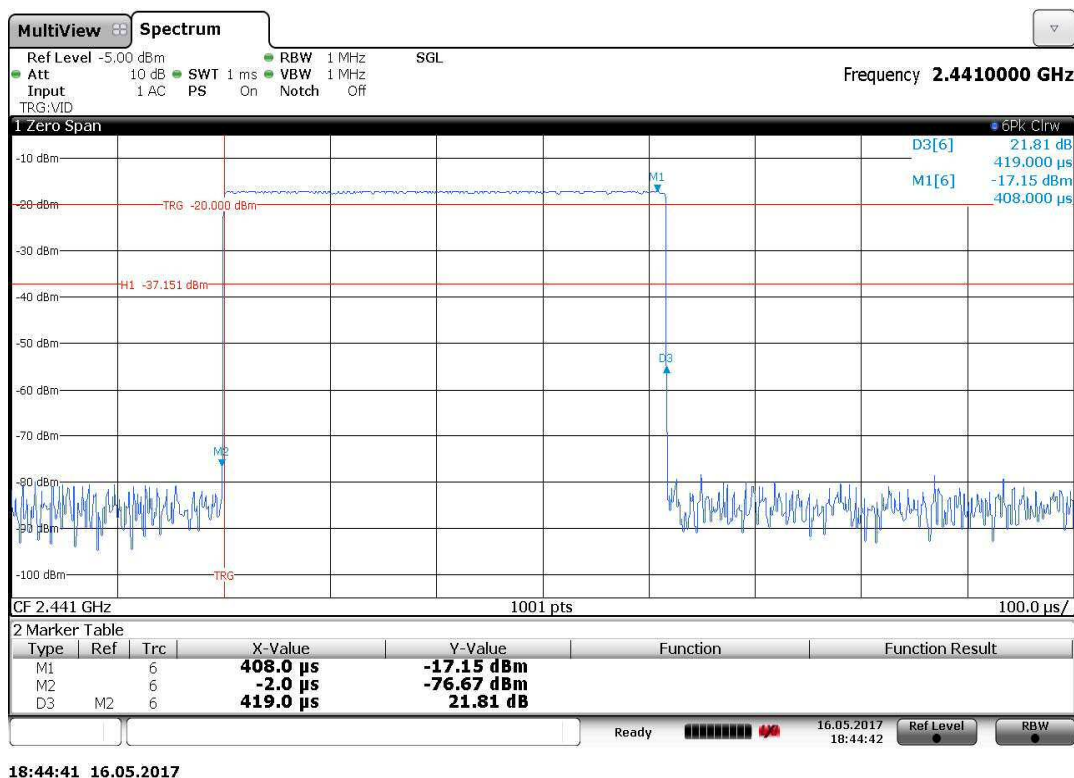
Test Date : May 16, 2017

Temp.: 22°C, Humi: 48%

| Mode of EUT | Dwell Time (msec) | Limit (msec) |
|-------------|-------------------|--------------|
| DH1         | 134.08            | 400          |
| DH3         | 258.08            | 400          |
| DH5         | 301.96            | 400          |
| Inquiry     | -                 | 400          |

Since EUT is a Bluetooth slave device, it does not have Inquiry oscillation

DH1 (Modulation type : GFSK)

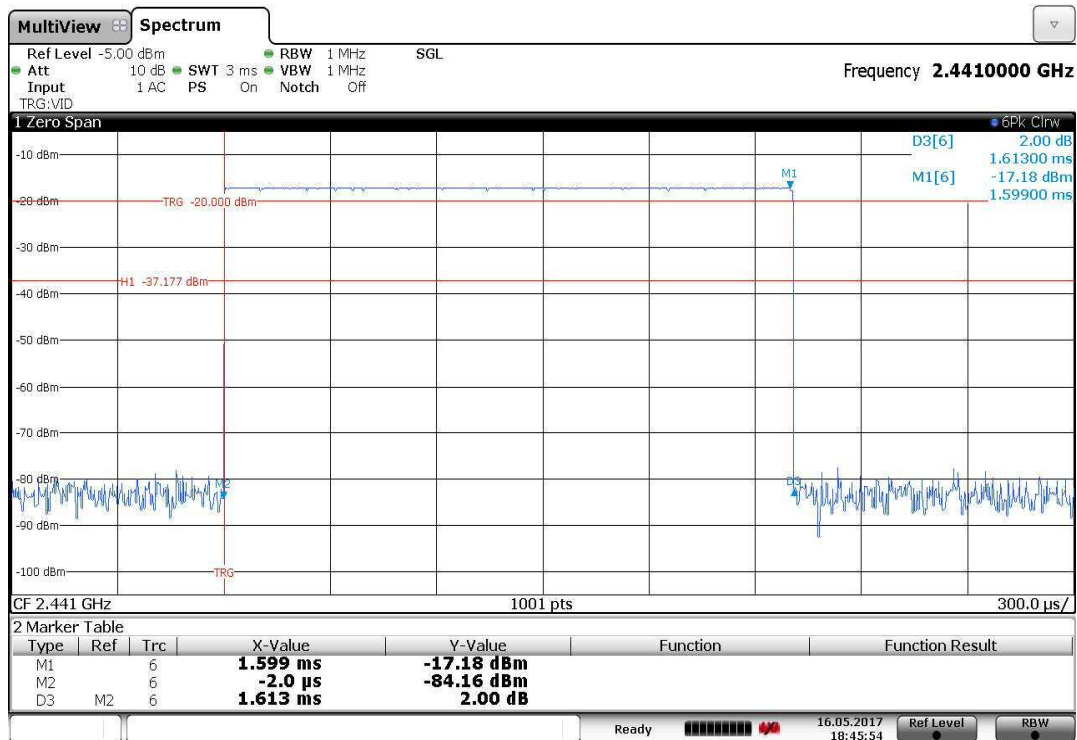


Note : The system makes worst case 1600 hops per second or 1 time slot has a length of 625 μs with 79 channels. A DH1 Packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 800 hops per second with 79 channels. So the system has each channel 10.1266 times per second and so for 31.6 seconds the system have 320.0 times of appearance.

Each tx-time per appearance is 0.419 ms.

Dwell time = 320.0 \* 0.419 = 134.08 ms

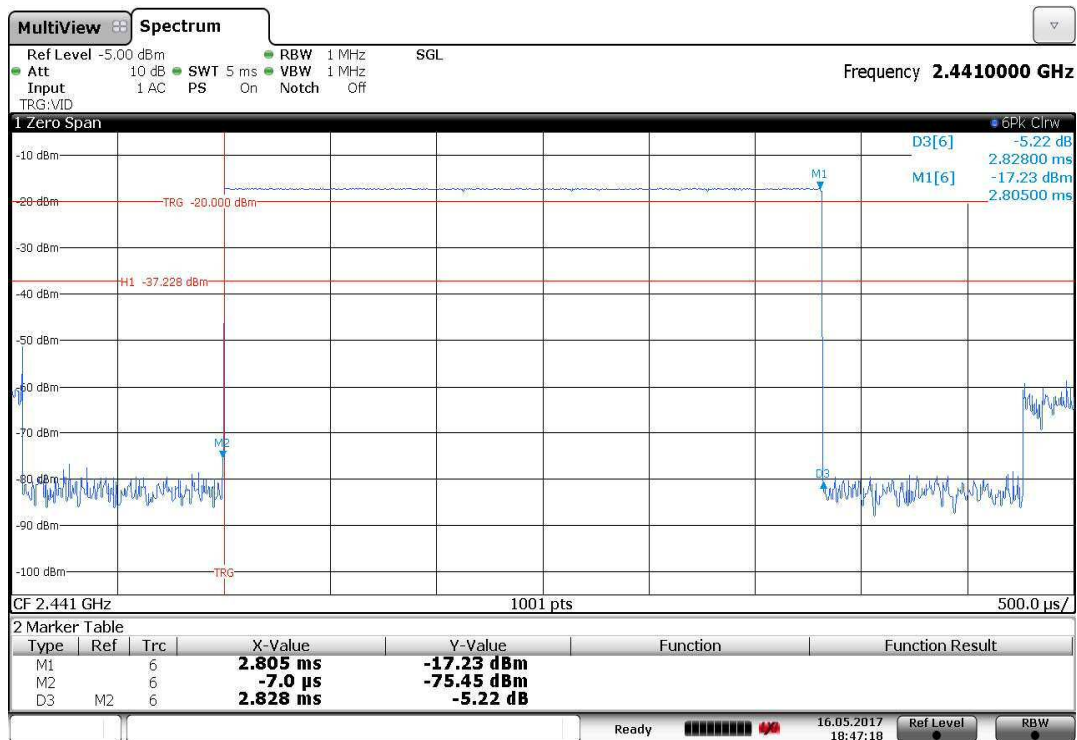
## DH3(Modulation type : GFSK)



18:45:54 16.05.2017

Note : A DH3 Packet need 3 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 400 hops per second with 79 channels. So the system have each channel 5.063 times per second and so for 31.6 seconds the system have 160.0 times of appearance. Each tx-time per appearance is 1.613 ms. Dwell time = 160.0 \* 1.613 = 258.08 ms

DH5(Modulation type : GFSK)



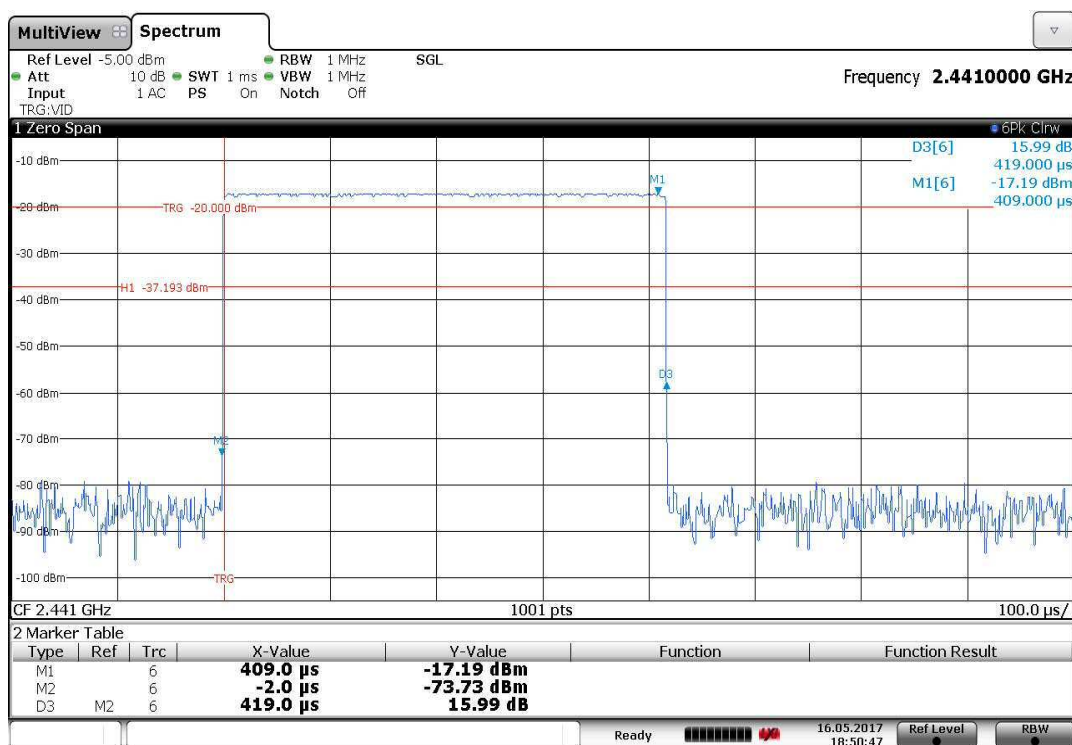
18:47:18 16.05.2017

Note : A DH5 Packet need 5 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 266.667 hops per second with 79 channels. So the system have each channel 3.3755 times per second and so for 31.6 seconds the system have 106.7 times of appearance. Each tx-time per appearance is 2.83 ms.  
 Dwell time = 106.7 \* 2.83 = 301.96 ms

Test Date : May 16, 2017  
 Temp.: 22°C, Humi: 48%

| Mode of EUT | Dwell Time (msec) | Limit (msec) |
|-------------|-------------------|--------------|
| DH1(AFH)    | 67.04             | 400          |
| DH3(AFH)    | 128.48            | 400          |
| DH5(AFH)    | 150.3             | 400          |

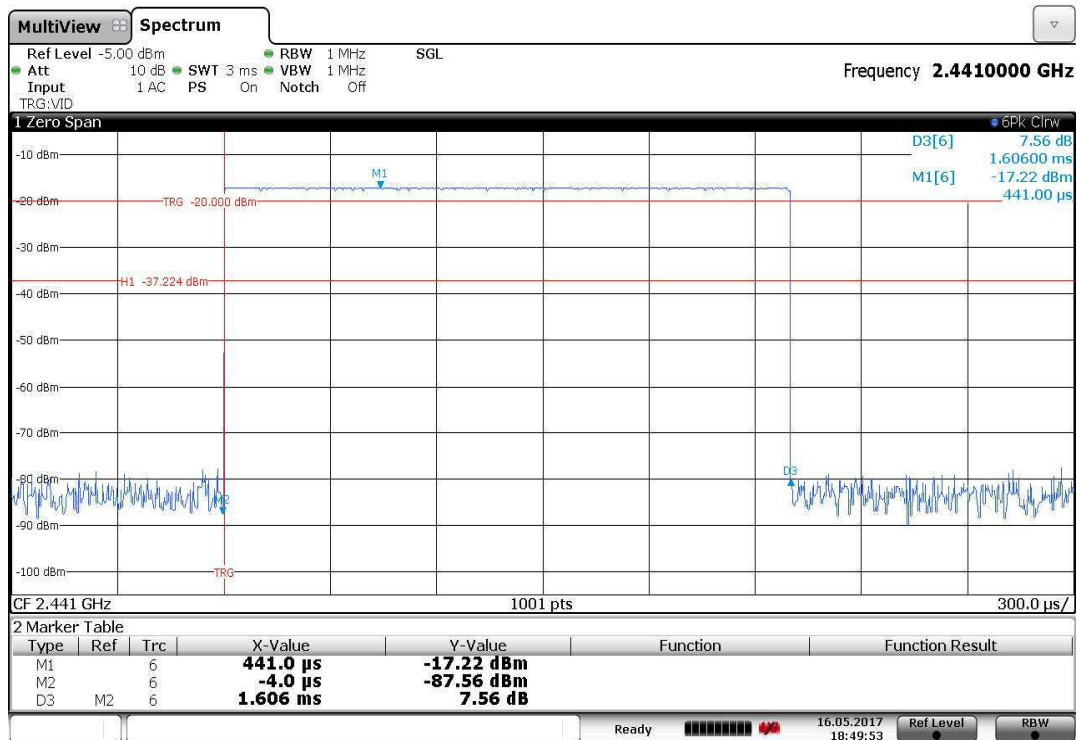
DH1(Modulation type : GFSK)



18:50:47 16.05.2017

Note : A DH1 Packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 400 hops per second with 20 channels. So the system has each channel 40 times per second and so for 8 seconds the system have 160.0 times of appearance.  
 Each tx-time per appearance is 0.419 ms.  
 Dwell time = 160.0 \* 0.419 = 67.04 ms

## DH3(Modulation type : GFSK)



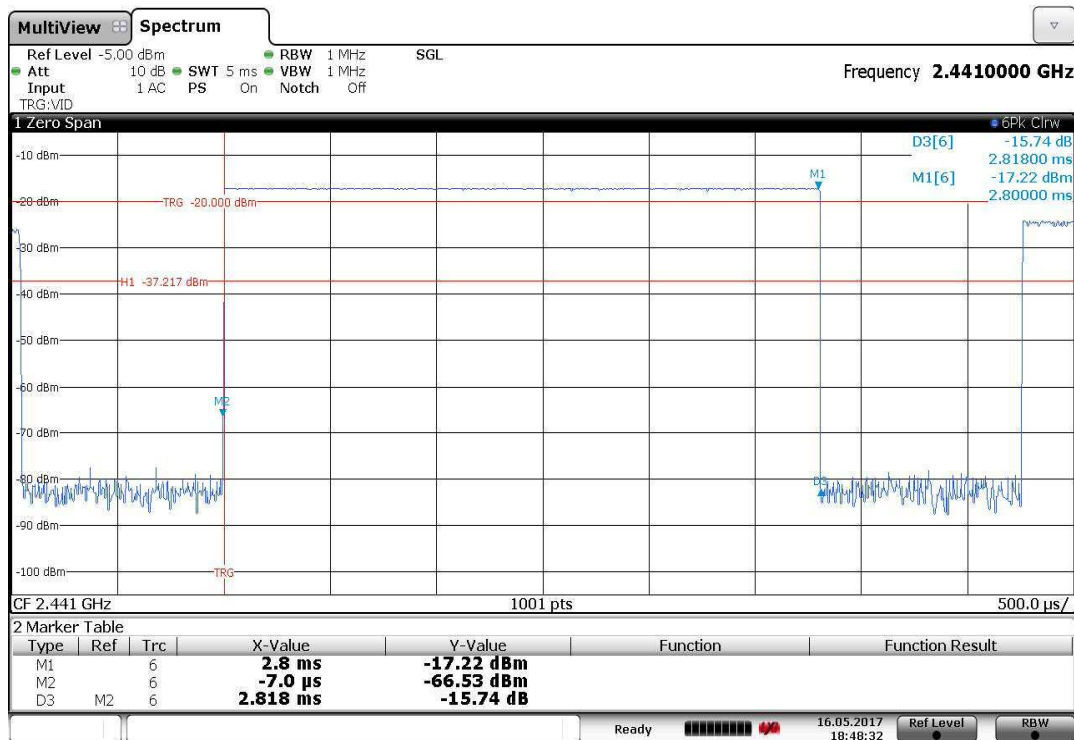
18:49:53 16.05.2017

Note : A DH3 Packet need 3 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 200 hops per second with 20 channels. So the system have each channel 20 times per second and so for 8 seconds the system have 80.0 times of appearance.

Each tx-time per appearance is 1.606 ms.

Dwell time = 80.0 \* 1.606 =128.48 ms

DH5(Modulation type : GFSK)



18:48:34 16.05.2017

Note : A DH5 Packet need 5 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 133.333 hops per second with 20 channels. So the system have each channel 13.33335 times per second and so for 8 seconds the system have 53.3 times of appearance. Each tx-time per appearance is 2.82 ms.  
Dwell time = 53.3 \* 2.82 = 150.3 ms

**7.6 Peak Output Power (Conduction)**

For the requirements, ☒ - Applicable [ ☒ - Tested. ☐ - Not tested by applicant request. ]  
☐ - Not Applicable

**7.6.1 Test Results**

For the standard, ☒ - Passed ☐ - Failed ☐ - Not judged

Peak Output Power is \_\_\_\_\_ dBm, at \_\_\_\_\_ MHz

Uncertainty of measurement results +/- 0.7 dB(2 $\sigma$ )

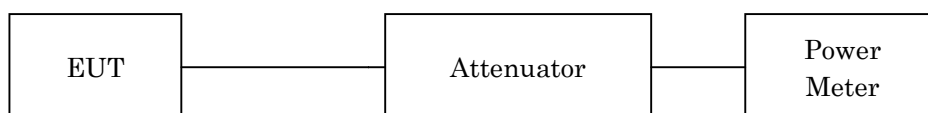
Remarks : \_\_\_\_\_

**7.6.2 Test Instruments**

| Type         | Model    | Manufacturer | ID No.  | Last Cal. | Interval |
|--------------|----------|--------------|---------|-----------|----------|
| Power Meter  | ML2495A  | Anritsu      | PM01    | 2016/6    | 1 Year   |
| Power Sensor | MA2491A  | Anritsu      | PM01-S1 | 2016/6    | 1 Year   |
| RF Cable     | S 04272B | SUHNER       | CS04    | 2016/5    | 1 Year   |
| Attenuator   | 43KC-10  | Anritsu      | ATT01   | 2016/10   | 1 Year   |

**7.6.3 Test Method and Test Setup (Diagrammatic illustration)**

The Conducted RF Power Output was measured with a power meter, one attenuator and a short, low loss cable.



#### 7.6.4 Test Data

Mode of EUT : DH5 (Modulation type : GFSK)

Date : May 16, 2017  
 Temp. : 22 °C  
 Humi. : 48 %

| Transmitting Frequency | Correction Factor | Meter Reading | Conducted                    | Limits | Margin |
|------------------------|-------------------|---------------|------------------------------|--------|--------|
| Ch (MHz)               | (dB)              | (dBm)         | Peak Output Power (dBm) (mW) | (dBm)  | (dB)   |
| 01 2402                | 12.52             | -14.30        | -1.78 0.66                   | 30.00  | 31.78  |
| 06 2441                | 12.52             | -15.42        | -2.90 0.51                   | 30.00  | 32.90  |
| 11 2480                | 12.52             | -15.90        | -3.38 0.46                   | 30.00  | 33.38  |

Calculated result at 2402 MHz, as the worst point shown on underline:

|                   |   |        |     |           |
|-------------------|---|--------|-----|-----------|
| Correction Factor | = | 12.52  | dB  |           |
| + ) Meter Reading | = | -14.30 | dBm |           |
| Result            | = | -1.78  | dBm | = 0.66 mW |

Minimum Margin: 30.00 - -1.78 = 31.78 (dB)

#### Notes

- The correction factor shows the attenuation pad loss including the cable loss.
- Setting of measuring instrument(s) :

|                   |           |
|-------------------|-----------|
| Detector Function | Video B.W |
| Peak              | OFF       |

\*\*Although AC power supply voltage was changed from 10.2VDC to 27.6VDC, the Peak Output Power did not change.

Mode of EUT : 2DH5 (Modulation type : pi/4-DQPSK)

Date : May 16, 2017  
 Temp. : 22 °C  
 Humi. : 48 %

| Transmitting Frequency | Correction Factor | Meter Reading | Conducted                    | Limits | Margin |
|------------------------|-------------------|---------------|------------------------------|--------|--------|
| Ch (MHz)               | (dB)              | (dBm)         | Peak Output Power (dBm) (mW) | (dBm)  | (dB)   |
| 01 2412                | 12.52             | -16.35        | -3.83 0.41                   | 30.00  | 33.83  |
| 06 2437                | 12.52             | -17.69        | -5.17 0.30                   | 30.00  | 35.17  |
| 11 2462                | 12.52             | -18.22        | -5.70 0.27                   | 30.00  | 35.70  |

Calculated result at 2412 MHz, as the worst point shown on underline:

|                   |   |        |     |           |
|-------------------|---|--------|-----|-----------|
| Correction Factor | = | 12.52  | dB  |           |
| + ) Meter Reading | = | -16.35 | dBm |           |
| Result            | = | -3.83  | dBm | = 0.41 mW |

Minimum Margin: 30.00 - -3.83 = 33.83 (dB)

#### Notes

1. The correction factor shows the attenuation pad loss including the cable loss.
2. Setting of measuring instrument(s) :

|                   |           |
|-------------------|-----------|
| Detector Function | Video B.W |
| Peak              | OFF       |

\*\*Although AC power supply voltage was changed from 10.2VDC to 27.6VDC, the Peak Output Power did not change.

Mode of EUT : 3DH5 (Modulation type : 8DPSK)

Date : May 16, 2017

Temp. : 22 °C

Humi. : 48 %

| Transmitting Frequency |       | Correction | Meter Reading | Conducted         |      | Limits | Margin |
|------------------------|-------|------------|---------------|-------------------|------|--------|--------|
| Ch                     | (MHz) | Factor     | (dBm)         | Peak Output Power | (mW) | (dBm)  | (dB)   |
|                        |       | (dB)       |               | (dBm)             |      |        |        |
| 01                     | 2412  | 12.52      | -15.87        | -3.35             | 0.46 | 30.00  | 33.35  |
| 06                     | 2437  | 12.52      | -17.31        | -4.79             | 0.33 | 30.00  | 34.79  |
| 11                     | 2462  | 12.52      | -17.82        | -5.30             | 0.30 | 30.00  | 35.30  |

Calculated result at 2412 MHz, as the worst point shown on underline:

|                   |   |        |               |
|-------------------|---|--------|---------------|
| Correction Factor | = | 12.52  | dB            |
| + ) Meter Reading | = | -15.87 | dBm           |
| Result            | = | -3.35  | dBm = 0.46 mW |

Minimum Margin: 30.00 - -3.35 = 33.35 (dB)

#### Notes

- The correction factor shows the attenuation pad loss including the cable loss.
- Setting of measuring instrument(s) :

|                   |           |
|-------------------|-----------|
| Detector Function | Video B.W |
| Peak              | OFF       |

\*\*Although AC power supply voltage was changed from 10.2VDC to 27.6VDC, the Peak Output Power did not change.

**7.7 Peak Power Density (Conduction)**

For the requirements, ☐ - Applicable [ ☐ - Tested. ☐ - Not tested by applicant request. ]  
☒ - Not Applicable

Remarks : \_\_\_\_\_

**7.8 Spurious Emissions (Conduction)**

For the requirements, ☒ - Applicable [ ☒ - Tested. ☐ - Not tested by applicant request. ]  
☐ - Not Applicable

**7.8.1 Test Results**

For the standard, ☒ - Passed ☐ - Failed ☐ - Not judged

Uncertainty of Measurement Results

|                 |              |                 |
|-----------------|--------------|-----------------|
| 9 kHz – 1 GHz   | <u>± 1.4</u> | dB(2 $\sigma$ ) |
| 1 GHz – 18 GHz  | <u>± 1.7</u> | dB(2 $\sigma$ ) |
| 18 GHz – 40 GHz | <u>± 2.3</u> | dB(2 $\sigma$ ) |

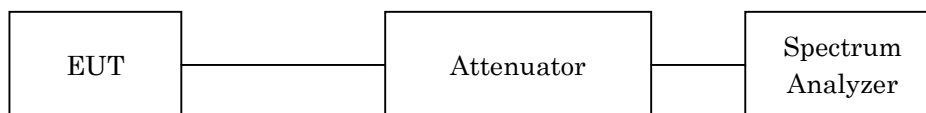
Remarks : \_\_\_\_\_

**7.8.2 Test Instruments**

| Type          | Model    | Manufacturer    | ID No. | Last Cal. | Interval |
|---------------|----------|-----------------|--------|-----------|----------|
| Test Receiver | ESW44    | Rohde & Schwarz | R04    | 2017/2    | 1 Year   |
| RF Cable      | S 04272B | SUHNER          | CS04   | 2016/5    | 1 Year   |
| Attenuator    | 43KC-10  | Anritsu         | ATT01  | 2016/10   | 1 Year   |

**7.8.3 Test Method and Test Setup (Diagrammatic illustration)**

The test system is shown as follows:



The setting of the spectrum analyzer are shown as follows:

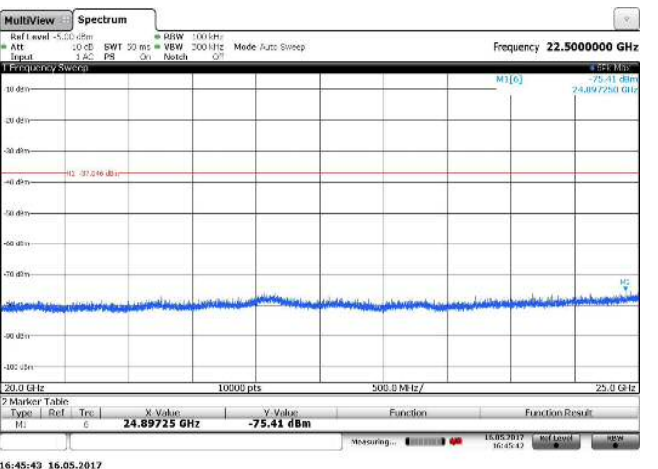
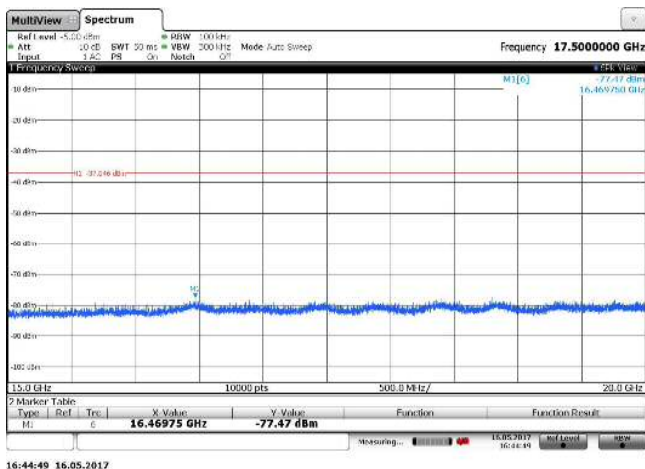
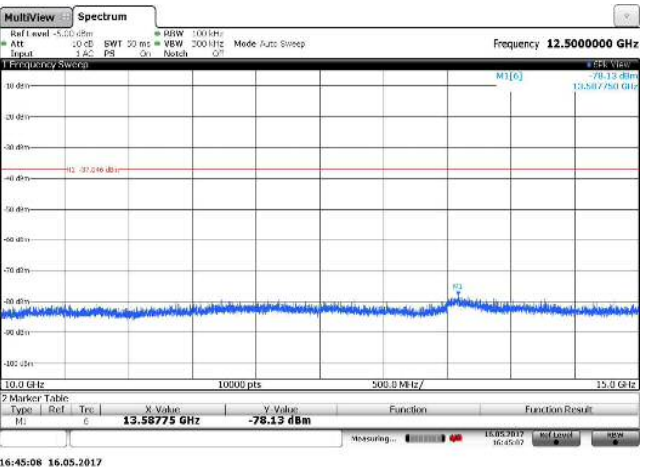
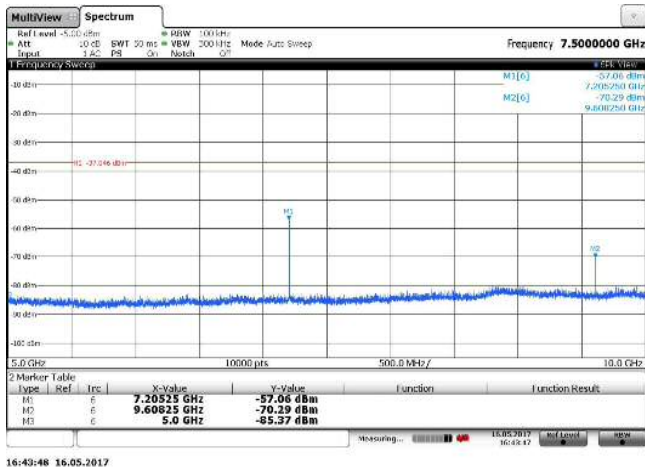
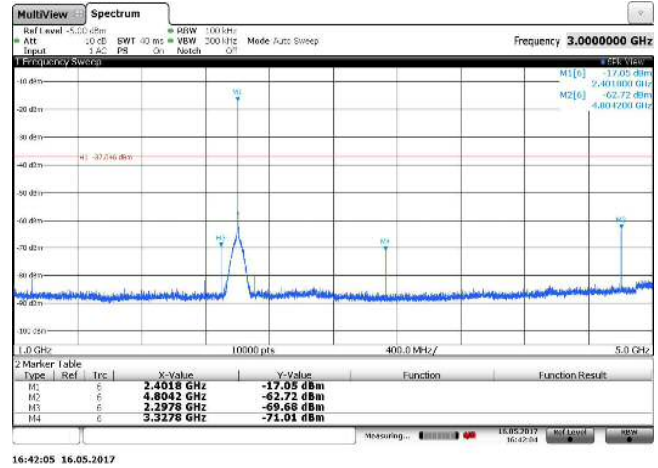
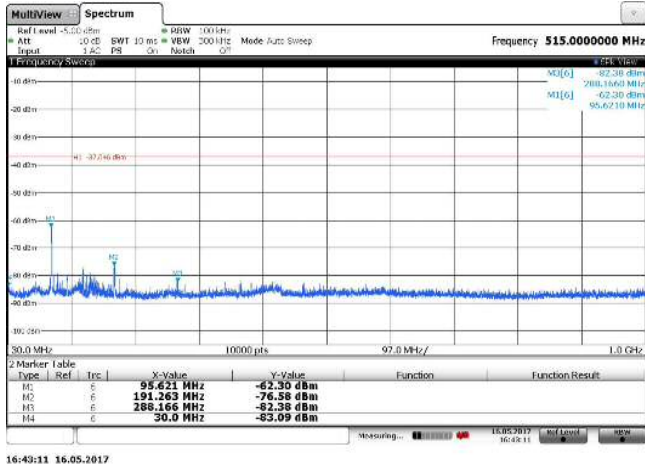
|                 |                 |           |
|-----------------|-----------------|-----------|
| Frequency Range | 30 MHz - 25 GHz | Band-Edge |
| Res. Bandwidth  | 100 kHz         | 100 kHz   |
| Video Bandwidth | 300 kHz         | 300 kHz   |
| Sweep Time      | AUTO            | AUTO      |
| Trace           | Maxhold         | Maxhold   |

## 7.8.4 Test Data

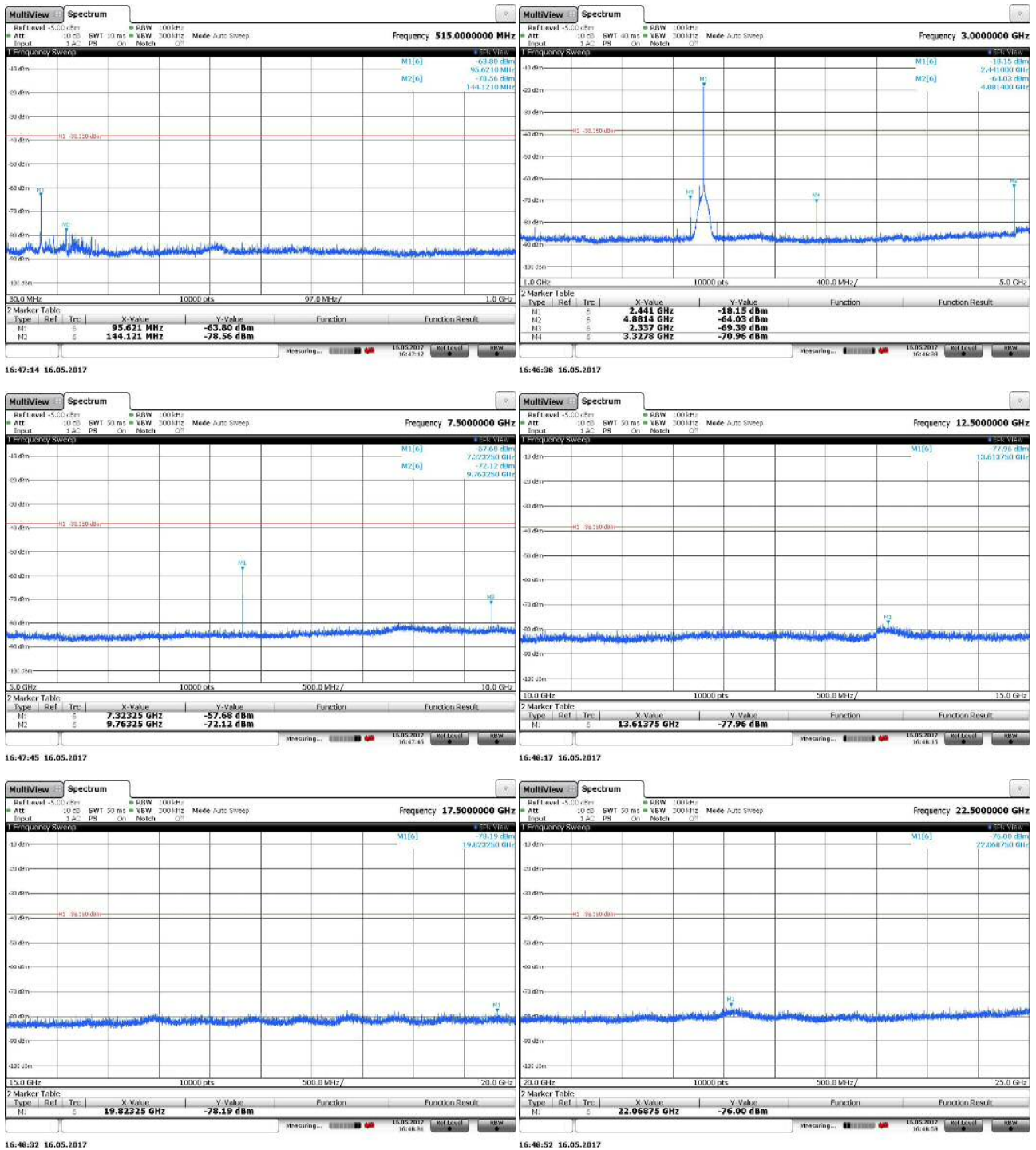
Test Date : May 16, 2017

Temp.: 22°C, Humi: 48%

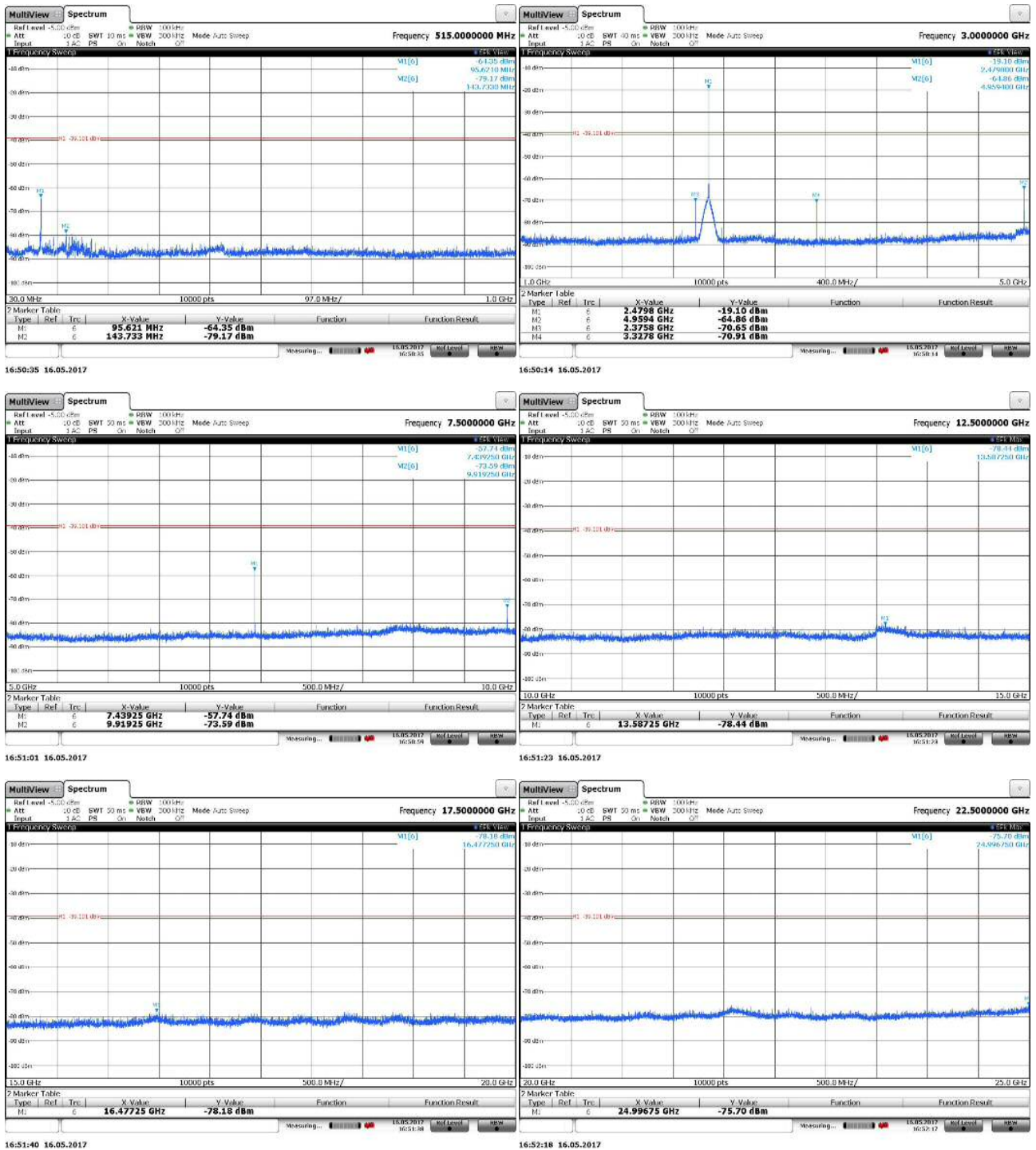
### Low Channel



## Mid Channel

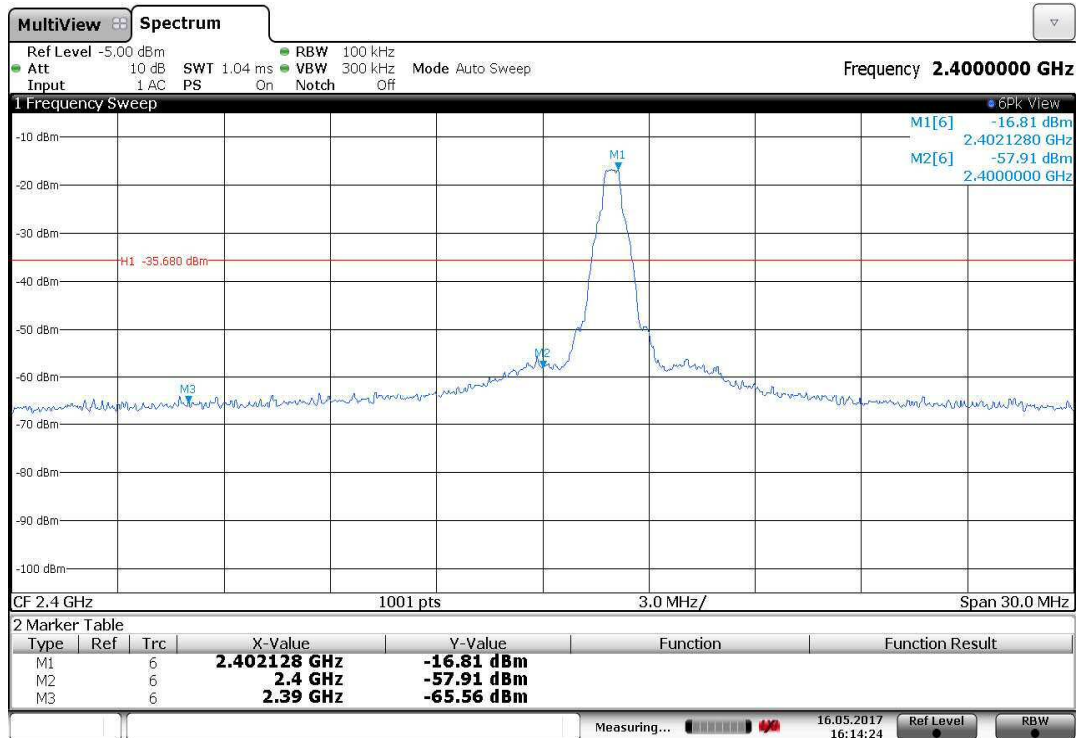


## High Channel



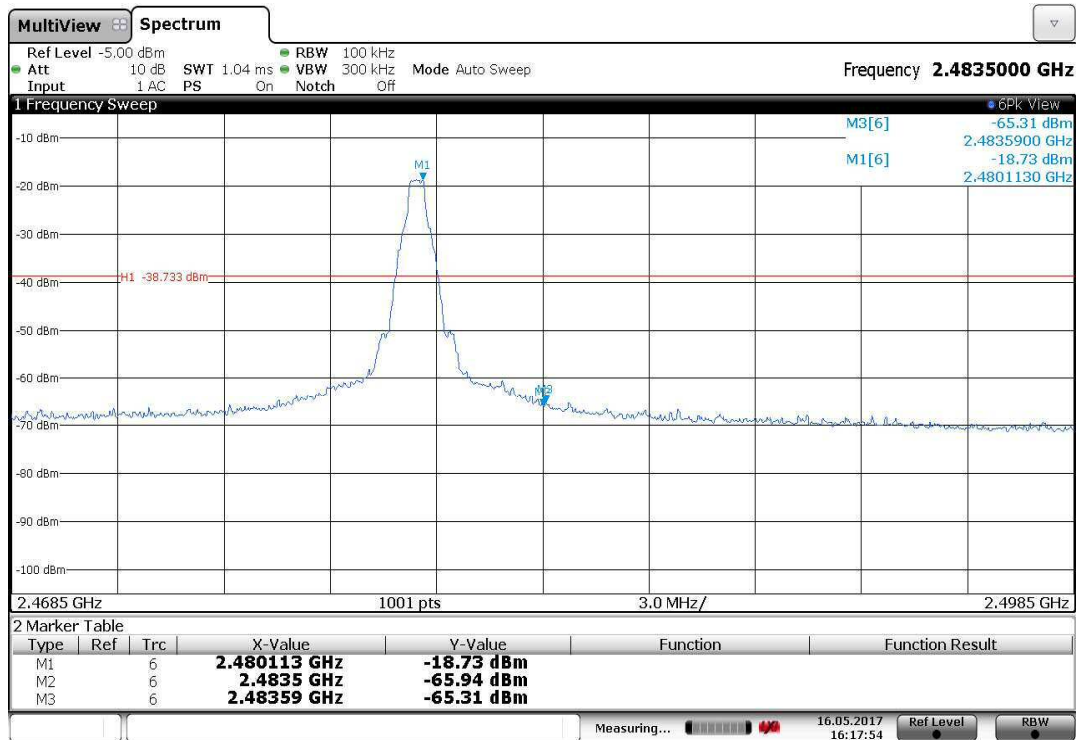
## Band-Edge Emission

Low Channel(Hopping off), Band-Edge Emission



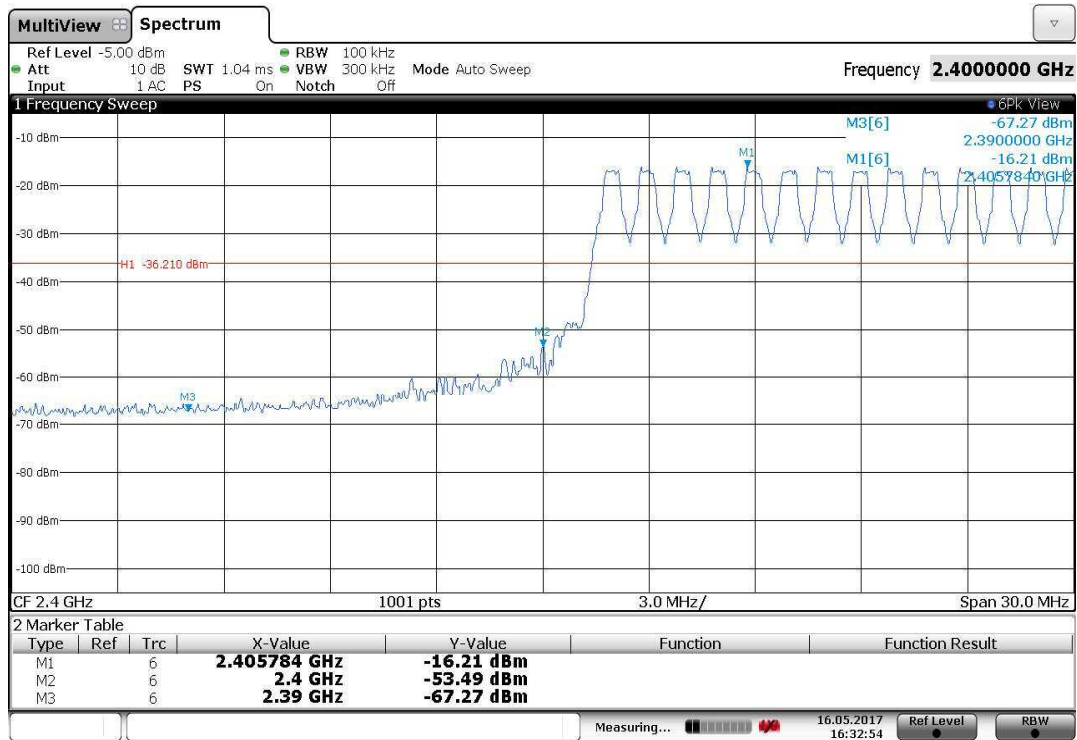
16:14:09 16.05.2017

High Channel(Hopping off), Band-Edge Emission



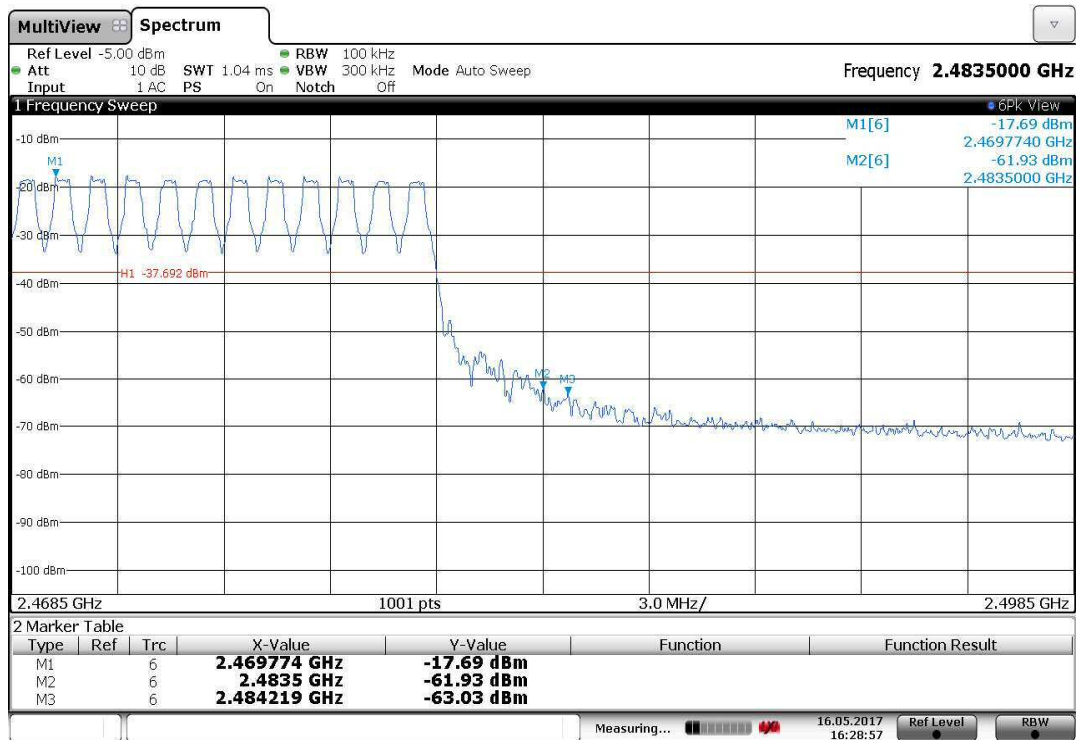
16:17:56 16.05.2017

## Low Channel(Hopping on), Band-Edge Emission



16:32:55 16.05.2017

## High Channel(Hopping on), Band-Edge Emission



16:28:57 16.05.2017

## 7.9 AC Powerline Conducted Emission

For the requirements, ☐ - Applicable [ ☐ - Tested. ☐ - Not tested by applicant request. ]  
☒ - Not Applicable

Remarks : EUT was Battery use only

## 7.10 Radiated Emission

For the requirements, ☒ - Applicable [ ☒ - Tested. ☐ - Not tested by applicant request. ]  
☐ - Not Applicable

### 7.10.1 Test Results

9kHz – 1000 MHz

Min Limit Margin (Quasi-Peak) 13.7 dB at 816.5 MHz

Above 1GHz

Min Limit Margin (Peak) 17.3 dB at 1866.5 MHz

Min Limit Margin (Average) 9.7 dB at 7323.0 MHz

Uncertainty of measurement results

|               |              |        |
|---------------|--------------|--------|
| 9kHz-30 MHz   | <u>±2.5</u>  | dB(2σ) |
| 30-300 MHz    | <u>±4.6</u>  | dB(2σ) |
| 300-1000 MHz  | <u>±4.5</u>  | dB(2σ) |
| 1 - 6 GHz     | <u>± 4.2</u> | dB(2σ) |
| 6 - 18 GHz    | <u>± 4.6</u> | dB(2σ) |
| 18 – 26.5 GHz | <u>± 4.8</u> | dB(2σ) |
| 26.5 - 40 GHz | <u>± 4.8</u> | dB(2σ) |

### 7.10.2 Test Instruments

| Type                 | Model              | Manufacturer        | ID No. | Last Cal. | Interval |
|----------------------|--------------------|---------------------|--------|-----------|----------|
| Anechoic Chamber     | -                  | TDK                 | A-1    | 2016/6    | 1 Year   |
| Test Receiver        | ESW44              | Rohde & Schwarz     | R04    | 2017/2    | 1 Year   |
| Loop Antenna         | HFH2-Z2            | Rohde & Schwarz     | ALP01  | 2017/2    | 1 Year   |
| Biconical Antenna    | BBA9106            | Schwarzbeck         | AB01   | 2016/7    | 1 Year   |
| Log-periodic Antenna | UHALP9108A         | Schwarzbeck         | AB02   | 2016/7    | 1 Year   |
| Log-periodic Antenna | HL050              | Rohde & Schwarz     | AL03   | 2017/2    | 1 Year   |
| Horn Antenna         | 3160-09            | ETS                 | AH02   | 2017/2    | 1 Year   |
| Horn Antenna         | 3160-10            | ETS                 | AH03   | 2017/2    | 1 Year   |
| RF Cable             | MWX122             | Junkosha Inc.       | CS01   | 2017/3    | 1 Year   |
| RF Cable             | MWX221             | Junkosha Inc.       | CS02   | 2017/3    | 1 Year   |
| RF Cable             | MWX221             | Junkosha Inc.       | CS10   | 2016/8    | 1 Year   |
| RF Cable             | KPS-1501-1181-KPS  | INSULATED WIRE INC. | CK01   | 2016/10   | 1 Year   |
| RF Amplifier         | JS4-00102600-28-5A | MITEQ               | PA05   | 2016/8    | 1 Year   |
| RF Amplifier         | JS4-26004000-27-8A | MITEQ               | PA06   | 2016/11   | 1 Year   |

### 7.10.3 Test Method and Test Setup (Diagrammatic illustration)

#### 7.10.3.1 Radiated Emission 9 kHz – 30 MHz

The preliminary tests were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.

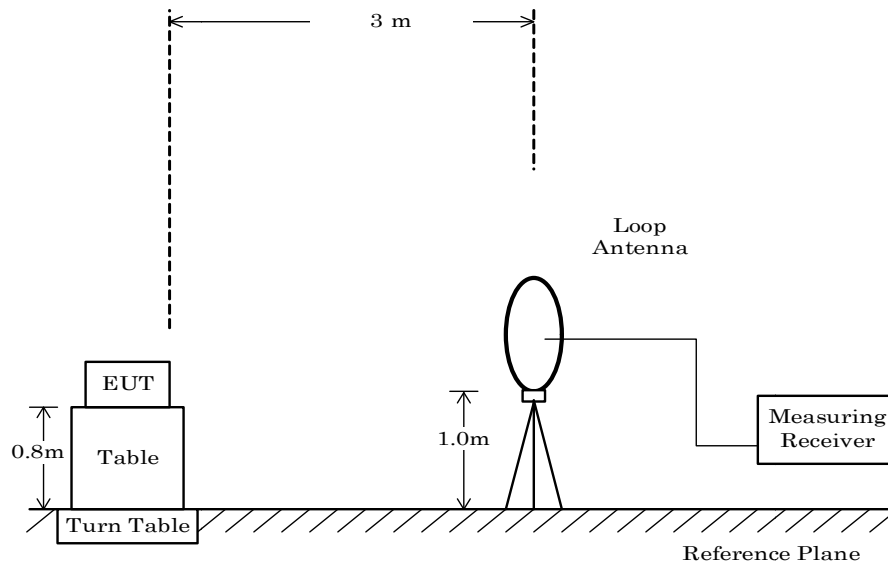
The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.

The measurement were performed about three antenna orientations (parallel, perpendicular, and ground-parallel).

According to KDB414788, a used anechoic chamber were equivalent to those on an open fields site based on comparison measurements.

This configurations was used for the final tests.

– Side View –



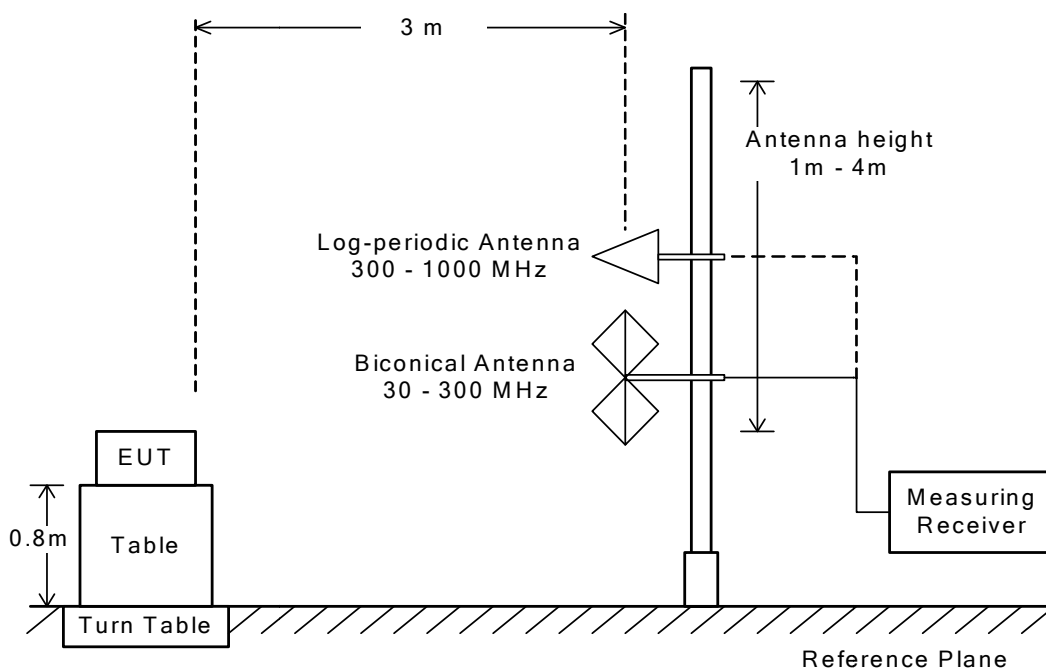
### 7.10.3.2 Radiated Emission 30 MHz – 1000 MHz

The preliminary tests were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.

This configurations was used for the final tests.

– Side View –



### 7.10.3.3 Radiated Emission above 1 GHz

The preliminary tests were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.

This configurations was used for the final tests.

The setting of the measuring instruments are shown as follows:

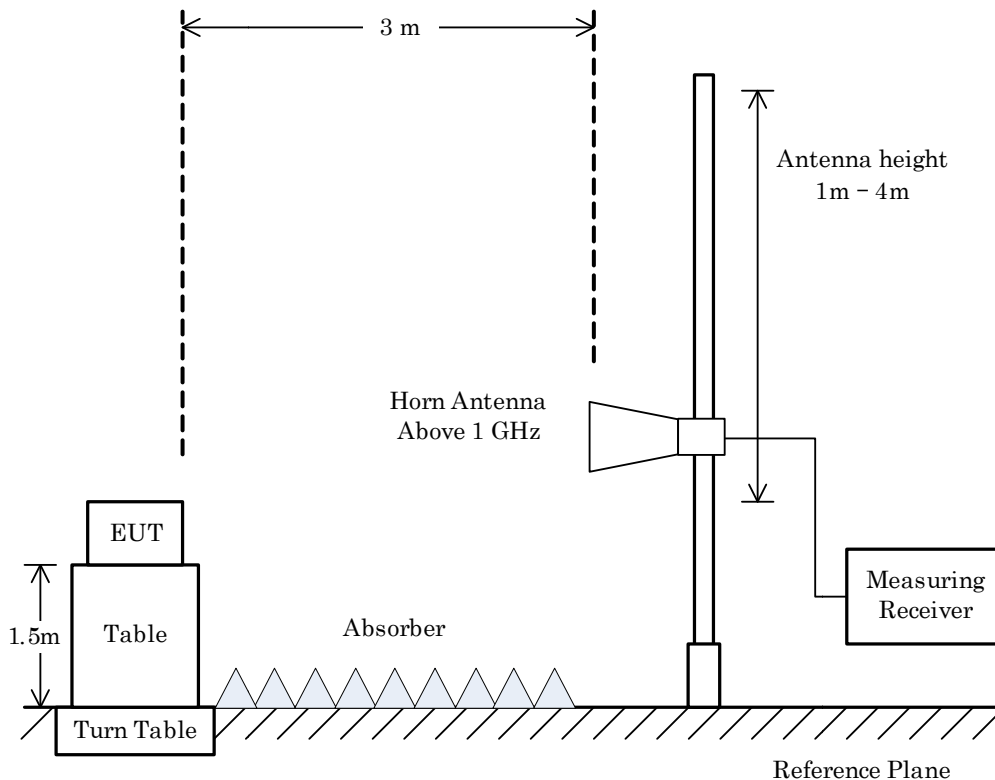
| Type              | Peak           | Average         |
|-------------------|----------------|-----------------|
| Detector Function | Peak           | Peak            |
| Res. Bandwidth    | 1 MHz          | 1 MHz           |
| Video Bandwidth   | 3 MHz          | $\geq 1/T * 1)$ |
| Video Filtering   | Linear Voltage | Linear Voltage  |
| Sweep Time        | AUTO           | AUTO            |
| Trace             | Max Hold       | Max Hold        |

Note: 1. T: Minimum transmission duration

Average (VBW) Setting:

| Mode     | Interval (msec) | Cycle (msec) | Duty cycle (%) | Burst on period(T) (msec) | Min. VBW(1/T) (kHz) | VBW Setting (kHz) |
|----------|-----------------|--------------|----------------|---------------------------|---------------------|-------------------|
| BDR(DH5) | 0.86            | 3.69         | 0.77           | 2.83                      | 0.35                | 0.50              |

– Side View –



#### NOTE

When the EUT is manipulated through three different orientations, the scan height upper range for the measurement antenna is limited to 2.5 m or 0.5 m above the top of the EUT.

## 7.10.4 Test Data

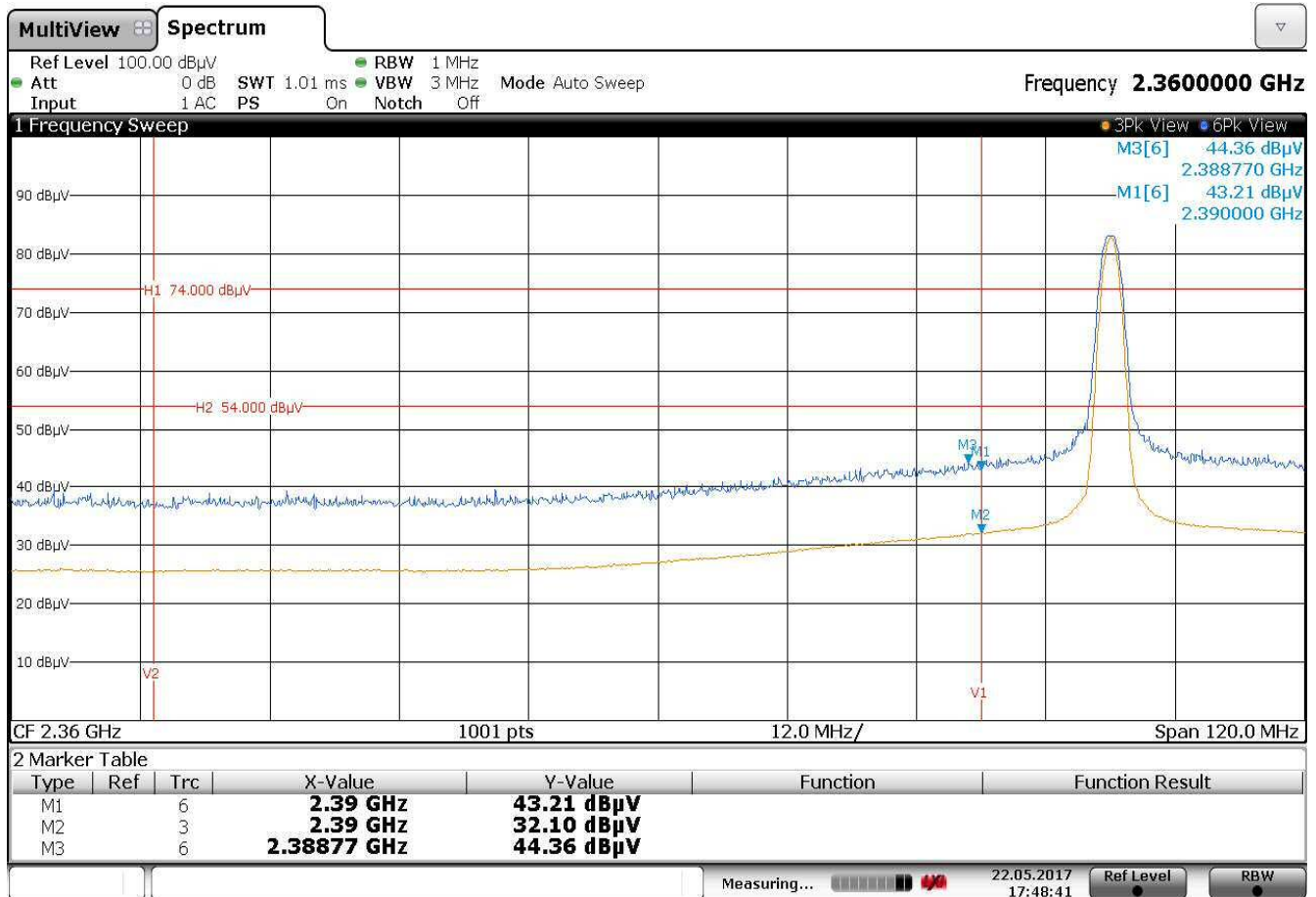
### 7.10.4.1 Band-Edge Compliance

Test Date : May 22, 2017

Temp.:24, Humi:52%

Mode of EUT : BDR, Hopping off (0ch: 2402 MHz) (worst case)

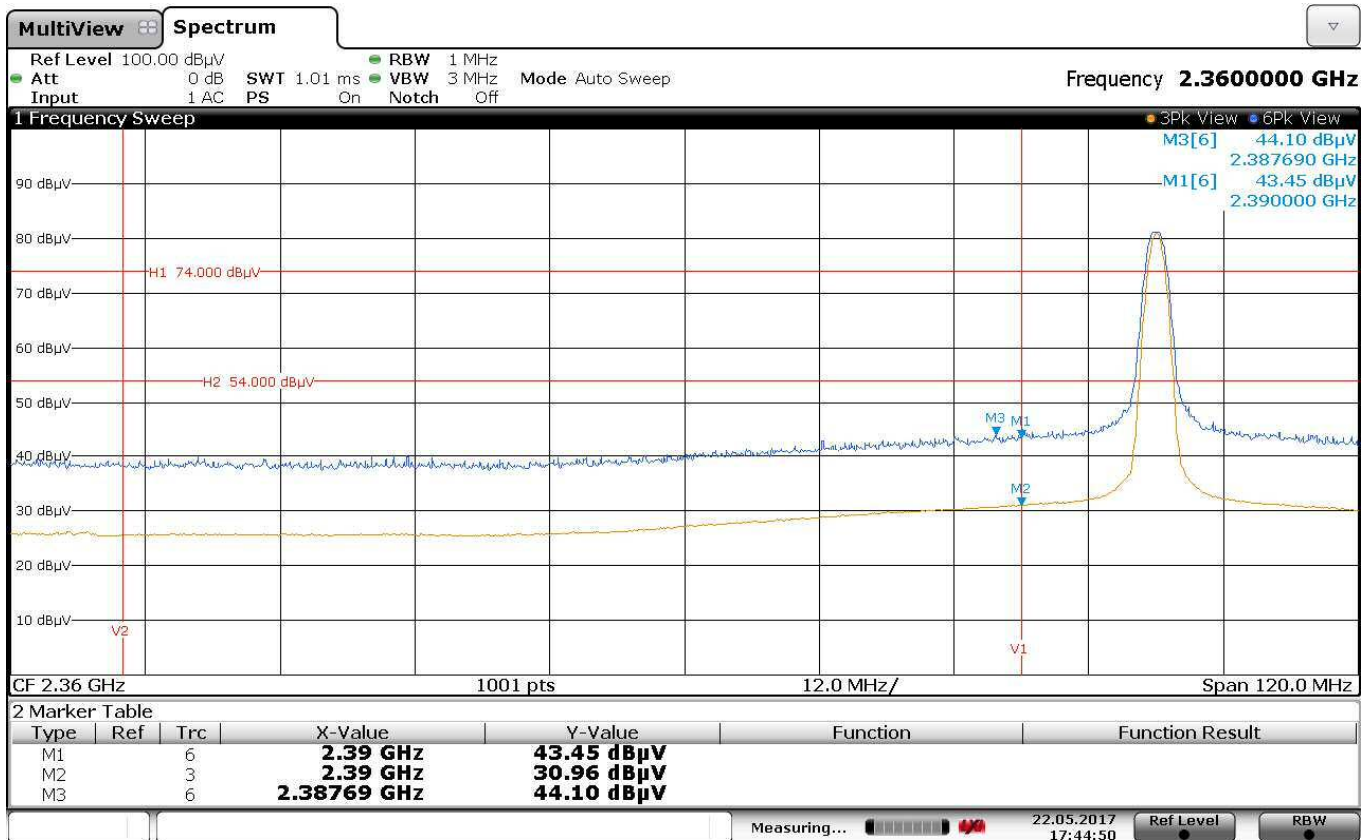
Antenna Polarization : Horizontal



17:48:42 22.05.2017

Mode of EUT : BDR, Hopping off (0ch: 2402 MHz) (worst case)

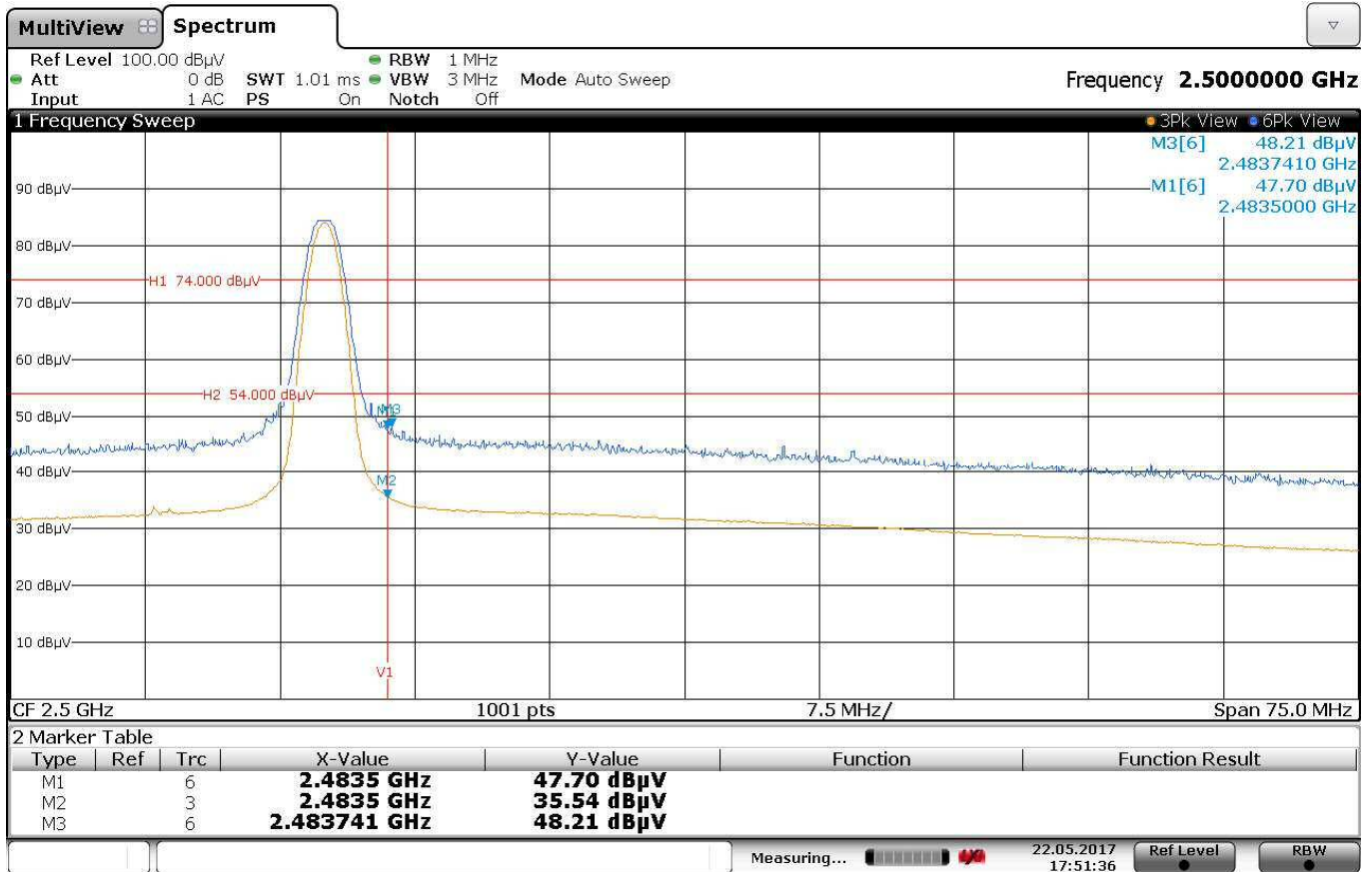
Antenna Polarization : Vertical



17:44:51 22.05.2017

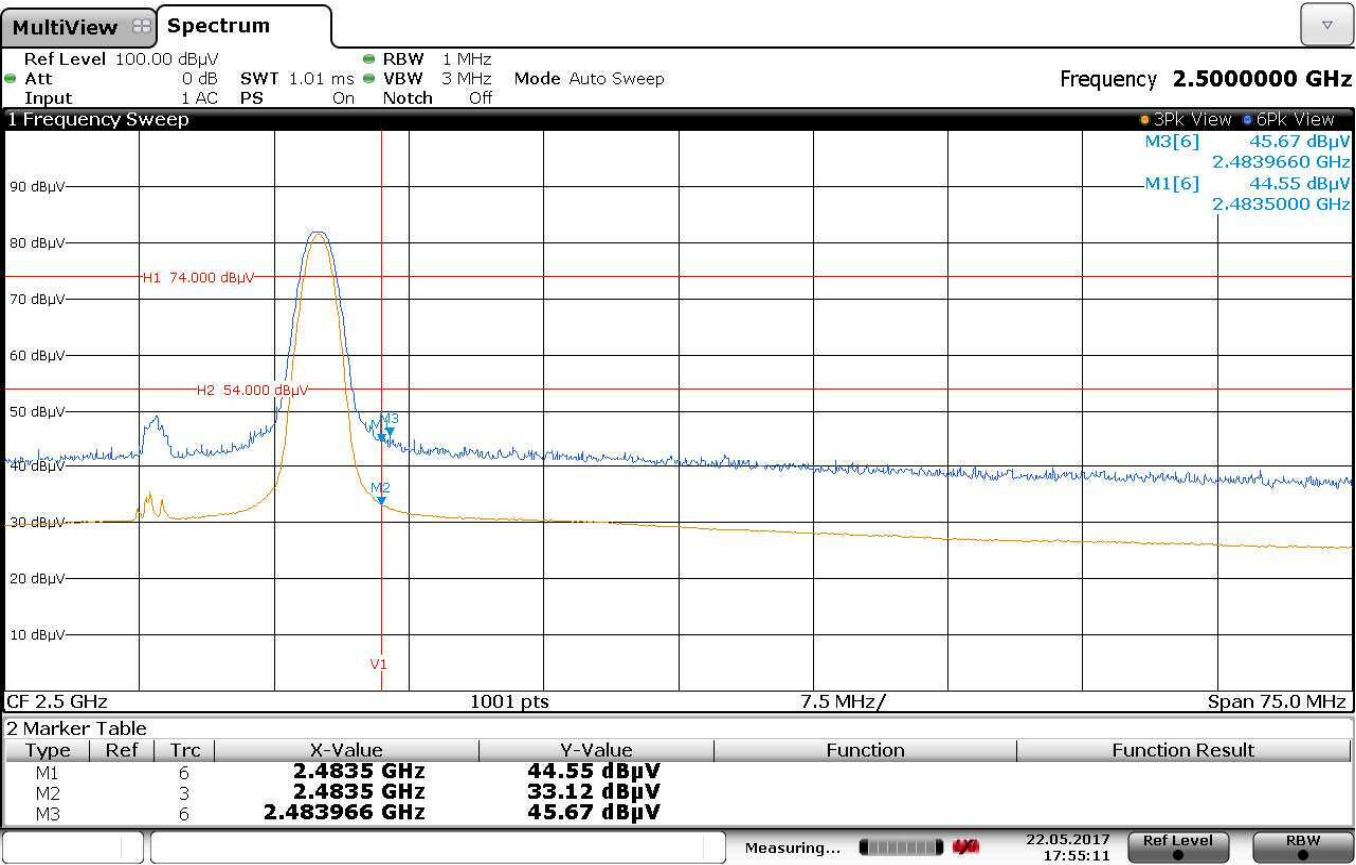
Mode of EUT : BDR, Hopping off (78ch: 2480 MHz) (worst case)

Antenna Polarization : Horizontal



17:51:35 22.05.2017

Mode of EUT : BDR, Hopping off (78ch: 2480 MHz) (worst case)  
Antenna Polarization : Vertical



17:55:13 22.05.2017

**7.10.4.2 Other Spurious Emission (9kHz – 30 MHz)**Test Date : May 23, 2017Temp.:24, Humi:51%

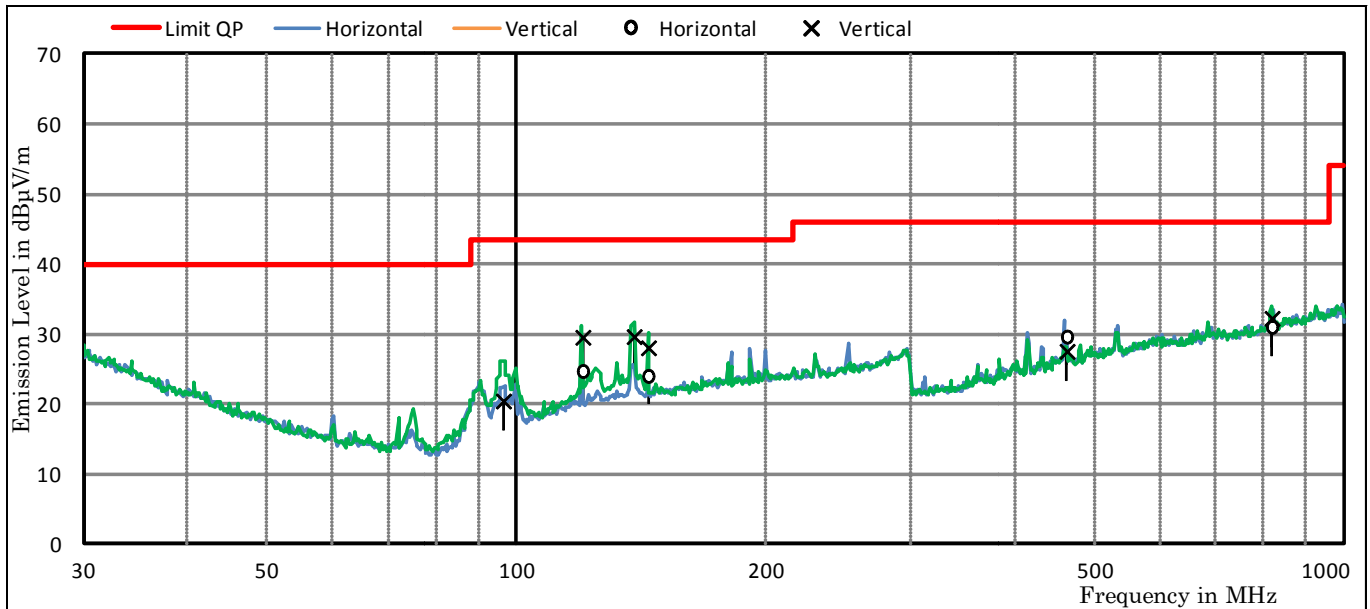
Mode of EUT : All modes have been investigated and the worst case mode has been listed.

Results : No spurious emissions in the range 20dB below the limit.

### 7.10.4.3 Other Spurious Emission (30MHz – 1000 MHz)

Mode of EUT : All modes have been investigated and the worst case mode has been listed.

| Measurement Date | Ambient Temperature | Relative Humidity | Atmospheric pressure |
|------------------|---------------------|-------------------|----------------------|
| May 23, 2017     | 24 °C               | 51 %              | 996 hPa              |



| Frequency<br>[MHz] | Polarity | Factor<br>[dB/m] | Meter Reading<br>[dBμV] | Limit<br>[dBμV/m]<br>QP | Emission Level<br>[ dBμV/m ] | Margin<br>[dB] | Azimuth<br>/ Ant.Height |
|--------------------|----------|------------------|-------------------------|-------------------------|------------------------------|----------------|-------------------------|
| 96.2               | Hori.    | 12.6             | < - 2.0                 | 43.5                    | < 10.6                       | > 32.9         |                         |
| 96.2               | Vert.    | 12.6             | 7.9                     | 43.5                    | 20.5                         | 23.0           | 57deg/1.00m             |
| 120.0              | Hori.    | 16.4             | 8.4                     | 43.5                    | 24.8                         | 18.7           | 257deg/1.65m            |
| 120.0              | Vert.    | 16.4             | 13.2                    | 43.5                    | 29.6                         | 13.9           | 173deg/1.00m            |
| 138.4              | Hori.    | 17.7             | < - 2.0                 | 43.5                    | < 15.7                       | > 27.8         |                         |
| 138.4              | Vert.    | 17.7             | 12.0                    | 43.5                    | 29.7                         | 13.8           | 260deg/1.00m            |
| 144.0              | Hori.    | 18.0             | 6.1                     | 43.5                    | 24.1                         | 19.4           | 277deg/2.41m            |
| 144.0              | Vert.    | 18.0             | 10.1                    | 43.5                    | 28.1                         | 15.4           | 252deg/1.00m            |
| 461.6              | Hori.    | 21.4             | 8.3                     | 46.0                    | 29.7                         | 16.3           | 43deg/1.00m             |
| 461.6              | Vert.    | 21.4             | 6.2                     | 46.0                    | 27.6                         | 18.4           | 124deg/1.00m            |
| 816.5              | Hori.    | 25.9             | 5.2                     | 46.0                    | 31.1                         | 14.9           | 235deg/1.42m            |
| 816.5              | Vert.    | 25.9             | 6.4                     | 46.0                    | 32.3                         | 13.7           | 44deg/1.00m             |

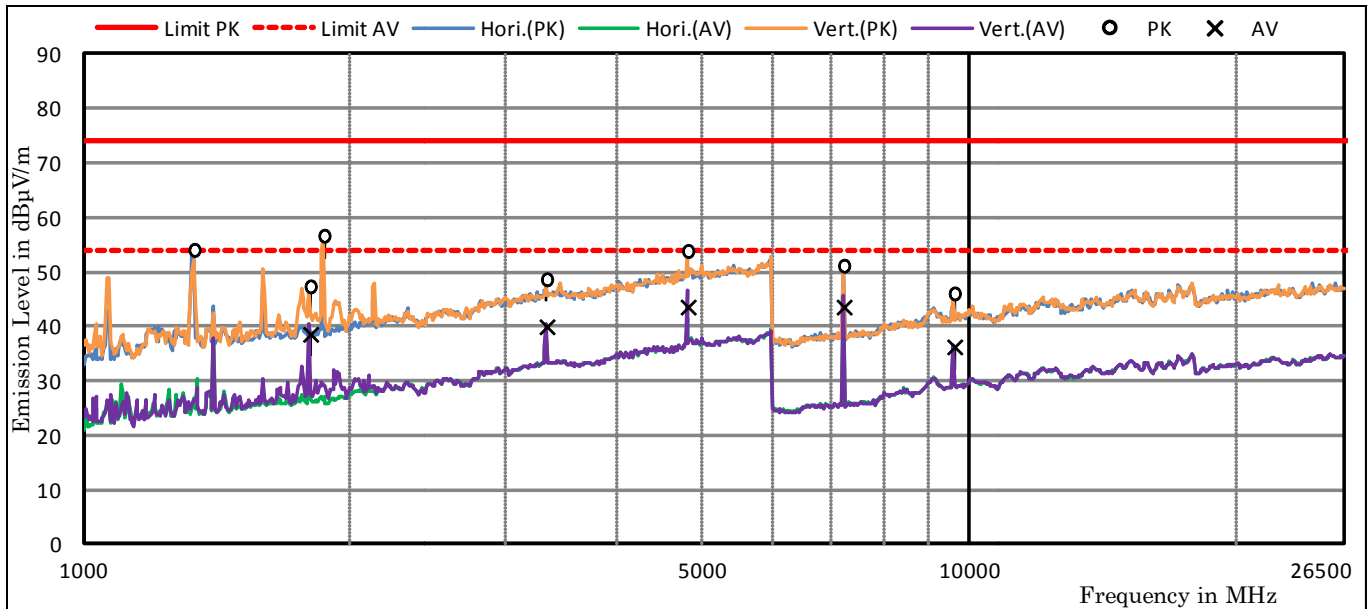
#### Note

- 1) The testing location: Anechoic Chamber A-1
- 2) QP: Quasi-Peak
- 3) The symbol of '<' means 'or less'.
- 4) The symbol of '>' means 'or greater'.
- 5) The symbol of '-' means 'Not applicable'.
- 6) Factor includes Antenna factor, and a cable loss.
- 7) A sample calculation was made at 816.5MHz  
Factor + Meter Reading = 25.9 + 6.4 = 32.3

## 7.10.4.4 Other Spurious Emission (Above 1GHz)

Mode of EUT : BDR Low Channel (worst case)

| Measurement Date | Ambient Temperature | Relative Humidity | Atmospheric pressure |
|------------------|---------------------|-------------------|----------------------|
| May 22, 2017     | 24 °C               | 52 %              | 998 hPa              |



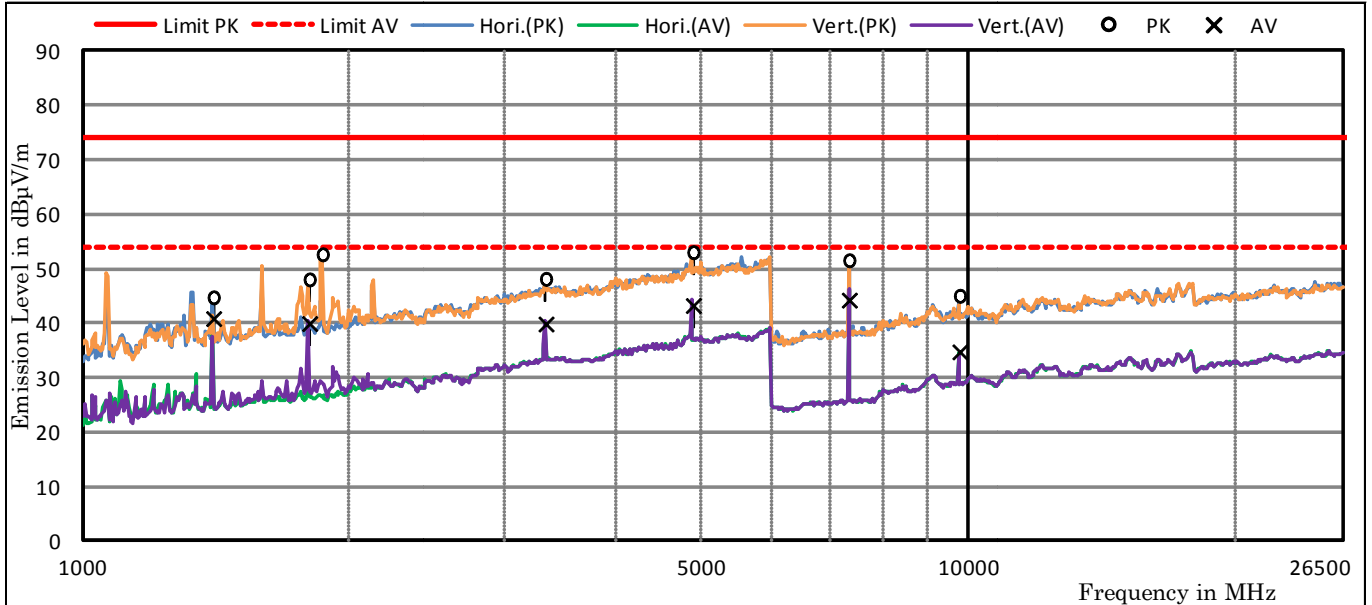
| Frequency<br>[MHz] | Polarity | Factor<br>[dB/m] | Meter Reading<br>[dBμV] |        | Limit<br>[dBμV/m] |      | Emission Level<br>[dBμV/m] |        | Margin<br>[dB] |        | Azimuth<br>/ Ant.Height |
|--------------------|----------|------------------|-------------------------|--------|-------------------|------|----------------------------|--------|----------------|--------|-------------------------|
|                    |          |                  | PK                      | AV     | PK                | AV   | PK                         | AV     | PK             | AV     |                         |
| 1330.8             | Hori.    | -1.8             | 55.9                    | < 30.0 | 74.0              | 54.0 | 54.1                       | < 28.2 | 19.9           | > 25.8 | 186deg/1.50m            |
| 1330.8             | Vert.    | -1.8             | 54.2                    | < 30.0 | 74.0              | 54.0 | 52.4                       | < 28.2 | 21.6           | > 25.8 | 251deg/1.56m            |
| 1800.0             | Vert.    | 1.0              | 46.4                    | 37.6   | 74.0              | 54.0 | 47.4                       | 38.6   | 26.6           | 15.4   | 172deg/1.46m            |
| 1865.5             | Vert.    | 1.2              | 55.5                    | < 30.0 | 74.0              | 54.0 | 56.7                       | < 31.2 | 17.3           | > 22.8 | 181deg/1.42m            |
| 3328.0             | Hori.    | 7.7              | 40.3                    | 30.6   | 74.0              | 54.0 | 48.0                       | 38.3   | 26.0           | 15.7   | 210deg/1.52m            |
| 3328.0             | Vert.    | 7.7              | 41.0                    | 32.3   | 74.0              | 54.0 | 48.7                       | 40.0   | 25.3           | 14.0   | 343deg/1.50m            |
| 4804.0             | Hori.    | 11.1             | < 40.0                  | < 30.0 | 74.0              | 54.0 | < 51.1                     | < 41.1 | > 22.9         | > 12.9 |                         |
| 4804.0             | Vert.    | 11.1             | 42.8                    | 32.5   | 74.0              | 54.0 | 53.9                       | 43.6   | 20.1           | 10.4   | 350deg/1.50m            |
| 7206.0             | Hori.    | -0.3             | 48.5                    | 39.4   | 74.0              | 54.0 | 48.2                       | 39.1   | 25.8           | 14.9   | 255deg/1.52m            |
| 7206.0             | Vert.    | -0.3             | 51.5                    | 43.9   | 74.0              | 54.0 | 51.2                       | 43.6   | 22.8           | 10.4   | 307deg/1.55m            |
| 9608.0             | Hori.    | 3.0              | 42.5                    | 32.2   | 74.0              | 54.0 | 45.5                       | 35.2   | 28.5           | 18.8   | 340deg/1.54m            |
| 9608.0             | Vert.    | 3.0              | 43.1                    | 33.3   | 74.0              | 54.0 | 46.1                       | 36.3   | 27.9           | 17.7   | 346deg/1.54m            |

## Note

- 1) The testing location: Anechoic Chamber A-1
- 2) PK: Peak, AV: Average
- 3) The symbol of '<' means 'or less'.
- 4) The symbol of '>' means 'or greater'.
- 5) The symbol of '-' means 'Not applicable'.
- 6) Factor includes Antenna factor, Amplifier gain, and a cable loss.
- 7) A sample calculation was made at 4804.0MHz  
Factor + Meter Reading = 11.1 + 42.8 = 53.9

Mode of EUT : BDR Mid Channel (worst case)

| Measurement Date | Ambient Temperature | Relative Humidity | Atmospheric pressure |
|------------------|---------------------|-------------------|----------------------|
| May 22, 2017     | 24 °C               | 52 %              | 998 hPa              |



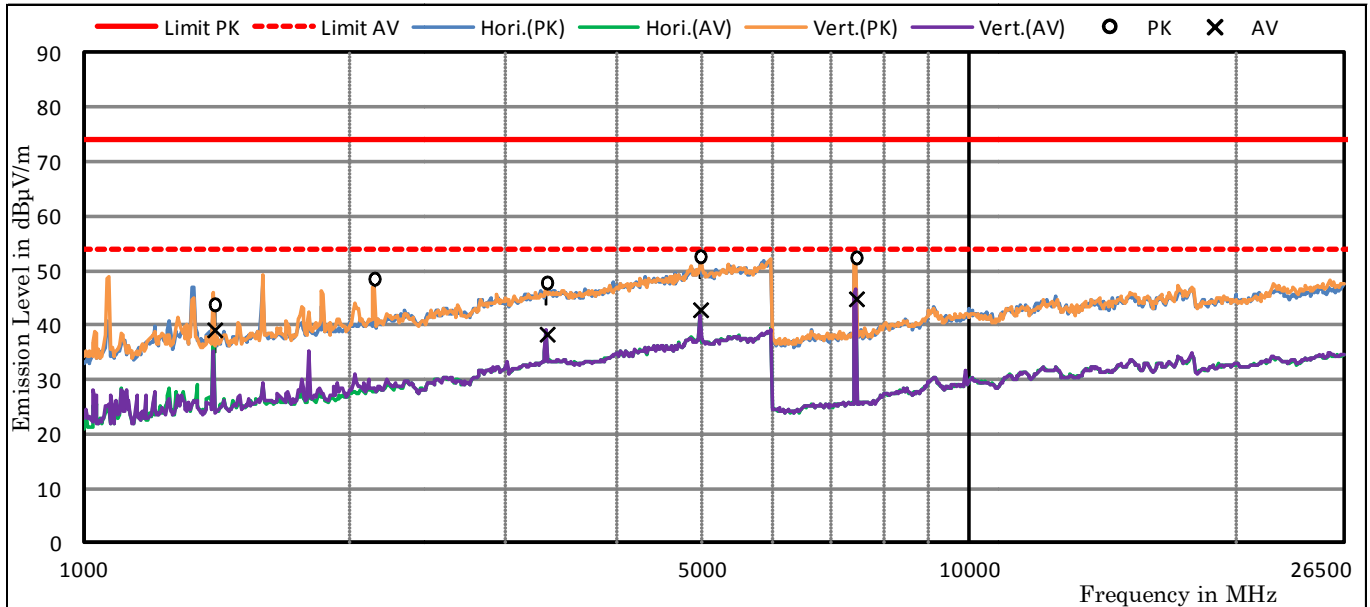
| Frequency [MHz] | Polarity | Factor [dB/m] | Meter Reading [dBμV] | Limit [dBμV/m] | Emission Level [dBμV/m] | Margin [dB]   | Azimuth / Ant.Height |
|-----------------|----------|---------------|----------------------|----------------|-------------------------|---------------|----------------------|
|                 |          |               | PK AV                | PK AV          | PK AV                   | PK AV         |                      |
| 1402.3          | Hori.    | -1.2          | 46.0 42.1            | 74.0 54.0      | 44.8 40.9               | 29.2 13.1     | 101deg/1.61m         |
| 1402.3          | Vert.    | -1.2          | 43.8 37.4            | 74.0 54.0      | 42.6 36.2               | 31.4 17.8     | 188deg/1.50m         |
| 1800.0          | Vert.    | 1.0           | 47.1 39.0            | 74.0 54.0      | 48.1 40.0               | 25.9 14.0     | 185deg/1.59m         |
| 1862.2          | Vert.    | 1.2           | 51.5 < 30.0          | 74.0 54.0      | 52.7 < 31.2             | 21.3 > 22.8   | 186deg/1.43m         |
| 3328.0          | Hori.    | 7.7 < 40.0    | < 30.0               | 74.0 54.0      | < 47.7 < 37.7           | > 26.3 > 16.3 |                      |
| 3328.0          | Vert.    | 7.7           | 40.5 32.2            | 74.0 54.0      | 48.2 39.9               | 25.8 14.1     | 18deg/1.00m          |
| 4882.0          | Hori.    | 11.6          | 40.2 30.2            | 74.0 54.0      | 51.8 41.8               | 22.2 12.2     | 64deg/1.71m          |
| 4882.0          | Vert.    | 11.6          | 41.5 31.7            | 74.0 54.0      | 53.1 43.3               | 20.9 10.7     | 2deg/1.49m           |
| 7323.0          | Hori.    | 0.0           | 51.6 44.3            | 74.0 54.0      | 51.6 44.3               | 22.4 9.7      | 339deg/1.45m         |
| 7323.0          | Vert.    | 0.0           | 51.6 44.3            | 74.0 54.0      | 51.6 44.3               | 22.4 9.7      | 41deg/1.55m          |
| 9764.0          | Hori.    | 3.0           | 41.6 30.7            | 74.0 54.0      | 44.6 33.7               | 29.4 20.3     | 341deg/1.57m         |
| 9764.0          | Vert.    | 3.0           | 42.1 31.8            | 74.0 54.0      | 45.1 34.8               | 28.9 19.2     | 347deg/1.48m         |

Note

- 1) The testing location: Anechoic Chamber A-1
- 2) PK: Peak, AV: Average
- 3) The symbol of '<' means 'or less'.
- 4) The symbol of '>' means 'or greater'.
- 5) The symbol of '-' means 'Not applicable'.
- 6) Factor includes Antenna factor, Amplifier gain, and a cable loss.
- 7) A sample calculation was made at 7323.0MHz  
Factor + Meter Reading = 0.0 + 51.6 = 51.6

Mode of EUT : BDR High Channel (worst case)

| Measurement Date | Ambient Temperature | Relative Humidity | Atmospheric pressure |
|------------------|---------------------|-------------------|----------------------|
| May 22, 2017     | 24 °C               | 52 %              | 998 hPa              |



| Frequency<br>[MHz] | Polarity | Factor<br>[dB/m] | Meter Reading<br>[dBμV] |        | Limit<br>[dBμV/m] |      | Emission Level<br>[dBμV/m] |        | Margin<br>[dB] |        | Azimuth<br>/ Ant.Height |
|--------------------|----------|------------------|-------------------------|--------|-------------------|------|----------------------------|--------|----------------|--------|-------------------------|
|                    |          |                  | PK                      | AV     | PK                | AV   | PK                         | AV     | PK             | AV     |                         |
| 1402.5             | Hori.    | -1.2             | 44.7                    | 40.4   | 74.0              | 54.0 | 43.5                       | 39.2   | 30.5           | 14.8   | 91deg/1.55m             |
| 1402.5             | Vert.    | -1.2             | 45.1                    | 38.3   | 74.0              | 54.0 | 43.9                       | 37.1   | 30.1           | 16.9   | 196deg/1.43m            |
| 2124.8             | Hori.    | 2.9 <            | 40.0                    | < 30.0 | 74.0              | 54.0 | < 42.9                     | < 32.9 | > 31.1         | > 21.1 |                         |
| 2124.8             | Vert.    | 2.9              | 45.7                    | < 30.0 | 74.0              | 54.0 | 48.6                       | < 32.9 | 25.4           | > 21.1 | 141deg/1.55m            |
| 3328.5             | Hori.    | 7.8 <            | 40.0                    | < 30.0 | 74.0              | 54.0 | < 47.8                     | < 37.8 | > 26.2         | > 16.2 |                         |
| 3328.5             | Vert.    | 7.8              | 40.1                    | 30.6   | 74.0              | 54.0 | 47.9                       | 38.4   | 26.1           | 15.6   | 338deg/1.55m            |
| 4960.0             | Hori.    | 11.6             | 40.5                    | 30.1   | 74.0              | 54.0 | 52.1                       | 41.7   | 21.9           | 12.3   | 67deg/1.55m             |
| 4960.0             | Vert.    | 11.6             | 41.1                    | 31.3   | 74.0              | 54.0 | 52.7                       | 42.9   | 21.3           | 11.1   | 359deg/1.53m            |
| 7440.0             | Hori.    | 0.4              | 50.8                    | 43.3   | 74.0              | 54.0 | 51.2                       | 43.7   | 22.8           | 10.3   | 341deg/1.46m            |
| 7440.0             | Vert.    | 0.4              | 52.1                    | 44.5   | 74.0              | 54.0 | 52.5                       | 44.9   | 21.5           | 9.1    | 58deg/1.42m             |
| 9920.0             | Hori.    | 3.7 <            | 40.0                    | < 30.0 | 74.0              | 54.0 | < 43.7                     | < 33.7 | > 30.3         | > 20.3 |                         |
| 9920.0             | Vert.    | 3.7 <            | 40.0                    | < 30.0 | 74.0              | 54.0 | < 43.7                     | < 33.7 | > 30.3         | > 20.3 |                         |

## Note

- 1) The testing location: Anechoic Chamber A-1
- 2) PK: Peak, AV: Average
- 3) The symbol of '<' means 'or less'.
- 4) The symbol of '>' means 'or greater'.
- 5) The symbol of '-' means 'Not applicable'.
- 6) Factor includes Antenna factor, Amplifier gain, and a cable loss.
- 7) A sample calculation was made at 7440.0MHz  
Factor + Meter Reading = 0.4 + 52.1 = 52.5