

## TEST REPORT

**Applicant** : SHARP CORPORATION, IoT Communication BU  
**Address** : 2-13-1, Iida Hachihonmatsu, Higashi-Hiroshima City, Hiroshima,  
739-0192, Japan

**Products** : Smart Phone  
**Model No.** : 606SH  
**Serial No.** : 004401/11/612057/3  
004401/11/612067/2

**FCC ID** : APYHRO00250

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

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

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



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- 
- 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.

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## DEFINITIONS FOR ABBREVIATION AND SYMBOLS USED IN THIS TEST REPORT

**EUT** : Equipment Under Test**AE** : Associated Equipment**N/A** : Not Applicable**N/T** : Not Tested**EMC** : Electromagnetic Compatibility**EMI** : Electromagnetic Interference**EMS** : Electromagnetic Susceptibility☒ - 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 : SHARP CORPORATION, IoT Communication BU  
2-13-1, Iida Hachihonmatsu, Higashi-Hiroshima City, Hiroshima,  
739-0192, Japan
2. Products : Smart Phone
3. Model No. : 606SH
4. Serial No. : 004401/11/612057/3  
004401/11/612067/2
5. Product Type : Pre-production
6. Date of Manufacture : April, 2017
7. Power Rating : 4.0VDC (Lithium-ion Battery UBATIA270AFN1 3010mAh)
8. Grounding : None
9. Transmitting Frequency : WLAN: 2412.0 MHz(01CH) –2462.0MHz(11CH)  
Bluetooth LE: 2402.0 MHz(00CH) – 2480.0MHz(39CH)
10. Receiving Frequency : WLAN: 2412.0 MHz(01CH) –2462.0MHz(11CH)  
Bluetooth LE: 2402.0 MHz(00CH) – 2480.0MHz(39CH)
11. Max. RF Output Power : 18.24 dBm(Measure Value of IEEE802.11b)  
21.98 dBm(Measure Value of IEEE802.11g)  
22.29 dBm(Measure Value of IEEE802.11n)  
1.43 dBm(Measure Value of Bluetooth LE)
12. Antenna Type : Inverted-L Type Antenna (Integral)
13. Antenna Gain : 0 dBi (Main/Sub)
14. Category : DTS
15. EUT Authorization : Certification
16. Received Date of EUT : May 15, 2017

### 17. Channel Plan

#### WLAN:

The carrier spacing is 5 MHz.

The carrier frequency is designated by the absolute frequency channel number (ARFCN).

The carrier frequency is expressed in the equation shown as follows:

Transmitting Frequency (in MHz) =  $2407.0 + 5 \cdot n$

Receiving Frequency (in MHz) =  $2407.0 + 5 \cdot n$

where,  $n$  : channel number ( $1 \leq n \leq 11$ )

#### Bluetooth Low Energy Mode:

The carrier spacing is 2 MHz.

The carrier frequency is designated by the absolute frequency channel number (ARFCN).

The carrier frequency is expressed in the equation shown as follows:

Transmitting Frequency (in MHz) =  $2402.0 + 2 \cdot n$

Receiving Frequency (in MHz) =  $2402.0 + 2 \cdot n$

where,  $n$  : channel number ( $0 \leq n \leq 39$ )

## 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:



Shigeru Kinoshita  
Assistant Manager  
JQA KITA-KANSAI Testing Center  
SAITO EMC Branch



Shigeru Osawa  
Deputy Manager  
JQA KITA-KANSAI Testing Center  
SAITO EMC Branch

### 3 Test Procedure

Test Requirements : §15.247, §15.207 and §15.209

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

KDB 558074 D01  
DTS Meas Guidance v04: April 5, 2017.

KDB 414788 D01  
Radiated Test Site v01: April 18, 2017

### 4 Test Location

Japan Quality Assurance Organization (JQA)  
KITA-KANSAI Testing Center  
7-7, Ishimaru, 1-chome, Minoh-shi, Osaka, 562-0027, Japan  
SAITO EMC Branch  
7-3-10, Saito-asagi, Ibaraki-shi, Osaka 567-0085, Japan

### 5 Recognition of Test Laboratory

JQA KITA-KANSAI Testing Center SAITO EMC Branch is accredited under ISO/IEC 17025 by following accreditation bodies and the test facility is registered by the following bodies.

VLAC Accreditation No. : VLAC-001-2 (Expiry date : March 30, 2018)  
VCCI Registration No. : A-0002 (Expiry date : March 30, 2018)  
BSMI Registration No. : SL2-IS-E-6006, SL2-IN-E-6006, SL2-R1/R2-E-6006, SL2-A1-E-6006  
(Expiry date : September 14, 2019)  
IC Registration No. : 2079E-3, 2079E-4 (Expiry date : July 16, 2017)

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

## 6 Description of Test Setup

### 6.1 Test Configuration

The equipment under test (EUT) consists of :

|   | Item             | Manufacturer | Model No. | Serial No.                                       | FCC ID      |
|---|------------------|--------------|-----------|--------------------------------------------------|-------------|
| A | Smart Phone      | Sharp        | 606SH     | 004401/11/612057/3 *1)<br>004401/11/612067/2 *2) | APYHRO00250 |
| B | AC Adapter       | Sharp        | SHCEJ1    | --                                               | N/A         |
| C | Stereo Handsfree | Sharp        | --        | --                                               | N/A         |
| D | DTV Antenna      | Sharp        | --        | --                                               | N/A         |

\*1) Used for Field Strength of Spurious Emission.

\*2) Used for Antenna Conducted Emission.

The auxiliary equipment used for testing :

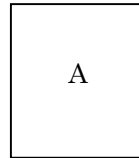
None

Type of Cable:

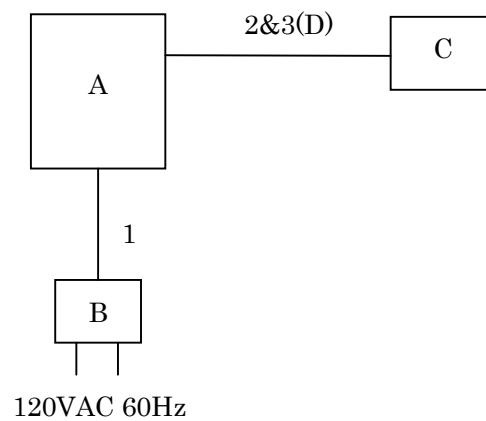
| No. | Description          | Identification<br>(Manu. etc.) | Connector<br>Shielded | Cable<br>Shielded | Ferrite<br>Core | Length<br>(m) |
|-----|----------------------|--------------------------------|-----------------------|-------------------|-----------------|---------------|
| 1   | USB conversion cable | --                             | --                    | NO                | NO              | 1.5           |
| 2   | Handsfree Cable      | --                             | --                    | NO                | NO              | 1.5           |
| 3   | DTV Antenna Cable    | --                             | --                    | NO                | NO              | 0.1           |

## 6.2 Test Arrangement (Drawings)

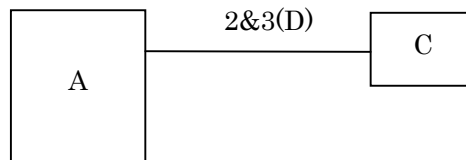
### a) Single Unit



### b) AC Adapter used



### c) Earphone used



### 6.3 Operating Condition

Power Supply Voltage : 4.0 VDC (for Battery)  
120 VAC, 60 Hz (For AC Adapter)

Transmitting/Receiving

WLAN:

Transmitting frequency : 2412.0 MHz(1CH) – 2462.0 MHz(11CH)

Receiver frequency : 2412.0 MHz(1CH) – 2462.0 MHz(11CH)

Bluetooth Low Energy Mode(Bluetooth 4.2 + EDR + LE):

Transmitting frequency : 2402.0 MHz(0CH) – 2480.0 MHz(39CH)

Receiver frequency : 2402.0 MHz(0CH) – 2480.0 MHz(39CH)

Modulation Type

1. 802.11b : DSSS
2. 802.11g : OFDM
3. 802.11n : OFDM
4. LE Packet (Modulation Type : GFSK)

Other Clock Frequency

19.2MHz, 27MHz, 27.12MHz

The tests were carried under the worst channel (maximum power).

(Ref. JQA File number: KL80160050, FCC ID: APYHRO00237)

1. IEEE802.11b: 2412.0 MHz (1 ch)
2. IEEE802.11g: 2437.0 MHz (6 ch)
3. IEEE802.11n: 2462.0 MHz (11 ch)
4. Bluetooth LE: 2402.0 MHz (0 ch)

The tests were performed in the following worst condition.

| Mode        | Condition      |
|-------------|----------------|
| IEEE802.11b | 11 Mbps        |
| IEEE802.11g | 18 Mbps        |
| IEEE802.11n | MCS5 (52 Mbps) |

Note: The worst condition was determined based on the test result of Maximum Peak Output Power.

The EUT was rotated through three orthogonal axis (X, Y and Z axis) in radiated measurement.

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: WLAN\_BT Manual test mode operation\_ver 2
- Software Version: Version 2
- Storage Location: Controller PC(supplied by applicant)

## 7 Test Requirements

### 7.0.1 Introduction

This application re-use data collected on a similar device. The subjected device of this application (Model No.: 606SH, FCC ID: APYHRO00250) is electrically identical to the reference device (Model No.: 507SH, FCC ID: APYHRO00237) for the portions of the circuitry corresponding to the data being re-used.

The FCC ID: APYHRO00237 test data shall remain representative of FCC ID: APYHRO00250.

A statement that the applicant takes full responsibility that the test data as referenced in this section represent compliance for this FCC ID: APYHRO00250.

### 7.0.2 Difference Section

The device of this application is electrically identical to the reference device other than the FeliCa Block. Please refer to the Comparison List Between 507SH and 606SH.

### 7.0.3 Spot Check Verification Data Section

The spot check verification tests were carried under the worst channel (maximum power).  
(Ref. JQA File number: KL80160050, FCC ID: APYHRO00237)

1. Conducted: 2462.0 MHz (11 ch)
2. Radiated: 2412.0 MHz (1 ch)

| Test Item                         | Reference Model<br>(FCC ID: APYHRO00237) | Spot Check Model<br>(FCC ID: APYHRO00250) |
|-----------------------------------|------------------------------------------|-------------------------------------------|
| Peak Output Power<br>(Conduction) | 21.86dBm (at 2462.0 MHz)                 | 22.29dBm (at 2462.0 MHz)                  |
| Radiated Emission                 | 43.51dBuV/m<br>(at 2390.0MHz)            | 44.20dBuV/m<br>(at 2390.0MHz)             |

### Summary of the Test Results

| Test Item                          | FCC Specification         | Reference of the<br>Test Report | Results    | Remarks |
|------------------------------------|---------------------------|---------------------------------|------------|---------|
| Antenna Requirement                | Section 15.203            | Section 1.12                    | Passed     | -       |
| Channel Separation                 | Section 15.247(a)(1)      | -                               | -          | -       |
| Minimum Hopping Channel            | Section 15.247(a)(1)(iii) | -                               | -          | -       |
| Occupied Bandwidth                 | Section 15.247(a)(2)      | Section 7.3                     | Not Tested | -       |
| Dwell Time                         | Section 15.247(a)(1)(iii) | -                               | -          | -       |
| Peak Output Power<br>(Conduction)  | Section 15.247(b)(3)      | Section 7.5                     | Passed     | -       |
| Peak Power Density<br>(Conduction) | Section 15.247(e)         | Section 7.6                     | Not Tested | -       |
| Spurious Emissions<br>(Conduction) | Section 15.247(d)         | Section 7.7                     | Not Tested | -       |
| AC Powerline Conducted<br>Emission | Section 15.207            | Section 7.8                     | Not Tested | -       |
| Radiated Emission                  | Section 15.247(d)         | Section 7.9                     | Passed     | -       |

**7.0.4 Reference Detail Section**

| <b>Equipment Class</b>         | <b>FCC ID</b> | <b>Test Report Title</b>                   | <b>Report Section</b>      |
|--------------------------------|---------------|--------------------------------------------|----------------------------|
| DTS<br>(WLAN,<br>Bluetooth LE) | APYHRO00250   | APYHRO00237_TestReport_KL80160050<br>(DTS) | All sections<br>applicable |

## 7.1 Channel Separation

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

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

## 7.2 Minimum Hopping Channel

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

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

## 7.3 Occupied Bandwidth

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

## 7.4 Dwell Time

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

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

## 7.5 Peak Output Power(Conduction)

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

### 7.5.1 Test Results

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

|                                      |              |     |    |               |     |
|--------------------------------------|--------------|-----|----|---------------|-----|
| Peak Output Power of IEEE802.11b is  | <u>18.24</u> | dBm | at | <u>2412.0</u> | MHz |
| Peak Output Power of IEEE802.11g is  | <u>21.98</u> | dBm | at | <u>2437.0</u> | MHz |
| Peak Output Power of IEEE802.11n is  | <u>22.29</u> | dBm | at | <u>2462.0</u> | MHz |
| Peak Output Power of Bluetooth LE is | <u>1.43</u>  | dBm | at | <u>2402.0</u> | MHz |

Uncertainty of Measurement Results ± 0.9 dB(2σ)

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

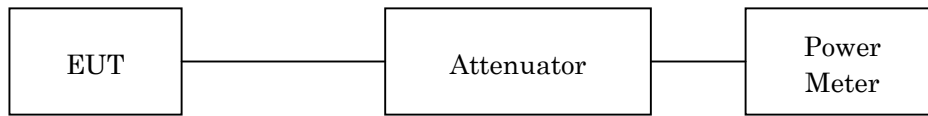
### 7.5.2 Test Instruments

| Shielded Room S4 |             |                   |              |            |
|------------------|-------------|-------------------|--------------|------------|
| Type             | Model       | Serial No. (ID)   | Manufacturer | Cal. Due   |
| Power Meter      | N1911A      | GB45100291 (B-63) | Agilent      | 2017/07/10 |
| Power Sensor     | N1921A      | US44510470 (B-64) | Agilent      | 2017/07/10 |
| Attenuator       | 54A-10      | W5675 (D-28)      | Weinschel    | 2017/08/2  |
| RF Cable         | SUCOFLEX102 | 14253/2 (C-52)    | HUBER+SUHNER | 2017/08/2  |

NOTE : The calibration interval of the above test instruments is 12 months.

### 7.5.3 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.



## 7.5.4 Test Data

### 1) IEEE 802.11b

Data Rate : 11Mbps

Test Date: May 16, 2017  
Temp.: 26 °C, Humi: 43 %

| Transmitting Frequency | Correction Factor | Meter Reading | Conducted Peak Output Power | Limits | Margin |
|------------------------|-------------------|---------------|-----------------------------|--------|--------|
| CH [MHz]               | [dB]              | [dBm]         | [dBm] [mW]                  | [dBm]  | [dB]   |
| 01 2412                | 10.15             | 8.09          | 18.24 66.68                 | 30.00  | +11.76 |

Calculated result at 2412.000 MHz, as the worst point shown on underline:

|                   |   |                      |
|-------------------|---|----------------------|
| Correction Factor | = | 10.15 dB             |
| + ) Meter Reading | = | 8.09 dBm             |
| Result            | = | 18.24 dBm = 66.68 mW |

Minimum Margin: 30.00 - 18.24 = 11.76 (dB)

#### NOTES

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

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

CH [MHz]  
06 2437

| Rate    | Meter Reading [dBm] | Remark |
|---------|---------------------|--------|
| 1Mbps   | 7.82                |        |
| 2Mbps   | 8.06                |        |
| 5.5Mbps | 8.03                |        |
| 11Mbps  | 8.09                | *      |

\* : Worst Rate

All comparison were performed on the same measurement condition.

## 2) IEEE 802.11g

Data Rate : 18Mbps

Test Date: May 16, 2017  
Temp.: 26 °C, Humi: 43 %

| Transmitting Frequency | Correction Factor | Meter Reading | Conducted Peak Output Power | Limits | Margin |
|------------------------|-------------------|---------------|-----------------------------|--------|--------|
| CH [MHz]               | [dB]              | [dBm]         | [dBm] [mW]                  | [dBm]  | [dB]   |
| 06                     | 2437              | 10.15         | 11.83                       | 21.98  | 157.76 |
|                        |                   |               |                             | 30.00  | + 8.02 |

Calculated result at 2437.000 MHz, as the worst point shown on underline:

|                   |   |                       |
|-------------------|---|-----------------------|
| Correction Factor | = | 10.15 dB              |
| + ) Meter Reading | = | 11.83 dBm             |
| Result            | = | 21.98 dBm = 157.76 mW |

Minimum Margin: 30.00 - 21.98 = 8.02 (dB)

## NOTES

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

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

CH [MHz]  
06 2437

| Rate   | Meter Reading [dBm] | Remark |
|--------|---------------------|--------|
| 6Mbps  | 10.74               |        |
| 9Mbps  | 11.27               |        |
| 12Mbps | 11.60               |        |
| 18Mbps | 11.83               | *      |
| 24Mbps | 11.15               |        |
| 36Mbps | 11.74               |        |
| 48Mbps | 11.27               |        |
| 54Mbps | 11.66               |        |

\* : Worst Rate

All comparison were performed on the same measurement condition.

## 3) IEEE 802.11n

Data Rate : MCS5

Test Date: May 16, 2017  
Temp.: 26 °C, Humi: 43 %

| Transmitting Frequency |       | Correction Factor | Meter Reading | Conducted Peak Output Power |        | Limits | Margin |
|------------------------|-------|-------------------|---------------|-----------------------------|--------|--------|--------|
| CH                     | [MHz] | [dB]              | [dBm]         | [dBm]                       | [mW]   | [dBm]  | [dB]   |
| 11                     | 2462  | 10.15             | 12.14         | 22.29                       | 169.43 | 30.00  | + 7.71 |

Calculated result at 2462.000 MHz, as the worst point shown on underline:

|                   |   |                       |
|-------------------|---|-----------------------|
| Correction Factor | = | 10.15 dB              |
| + ) Meter Reading | = | 12.14 dBm             |
| Result            | = | 22.29 dBm = 169.43 mW |

Minimum Margin: 30.00 - 22.29 = 7.71 (dB)

## NOTES

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

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

CH [MHz]  
06 2437

| Rate | Meter Reading [dBm] | Remark |
|------|---------------------|--------|
| MCS0 | 11.35               |        |
| MCS1 | 11.67               |        |
| MCS2 | 11.68               |        |
| MCS3 | 11.62               |        |
| MCS4 | 11.75               |        |
| MCS5 | 12.14               | *      |
| MCS6 | 11.79               |        |
| MCS7 | 11.27               |        |

\* : Worst Rate

All comparison were performed on the same measurement condition.

## 4) Bluetooth LE (Modulation type : GFSK)

Test Date: May 16, 2017

Temp.: 26 °C, Humi: 43 %

| Transmitting Frequency |       | Correction Factor | Meter Reading | Conducted Peak Output Power |      | Limits | Margin |
|------------------------|-------|-------------------|---------------|-----------------------------|------|--------|--------|
| CH                     | [MHz] | [dB]              | [dBm]         | [dBm]                       | [mW] | [dBm]  | [dB]   |
| 00                     | 2402  | 10.15             | -8.72         | 1.43                        | 1.39 | 30.00  | +28.57 |

Calculated result at 2402.000 MHz, as the worst point shown on underline:

|                                           |   |                    |
|-------------------------------------------|---|--------------------|
| Correction Factor                         | = | 10.15 dB           |
| + ) Meter Reading                         | = | -8.72 dBm          |
| Result                                    | = | 1.43 dBm = 1.39 mW |
| Minimum Margin: 30.00 - 1.43 = 28.57 (dB) |   |                    |

## NOTES

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

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

## 7.6 Peak Power Density(Conduction)

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

## 7.7 Spurious Emissions(Conduction)

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

## 7.8 AC Powerline Conducted Emission

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

## 7.9 Radiated Emission

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

### 7.9.1 Test Results

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

Min. Limit Margin (Average) 9.8 dB at 2390.0 MHz

|                                    |                    |              |        |
|------------------------------------|--------------------|--------------|--------|
| Uncertainty of Measurement Results | 9 kHz – 30 MHz     | <u>± 3.0</u> | dB(2σ) |
|                                    | 30 MHz – 300 MHz   | <u>± 3.8</u> | dB(2σ) |
|                                    | 300 MHz – 1000 MHz | <u>± 4.8</u> | dB(2σ) |
|                                    | 1 GHz – 6 GHz      | <u>± 4.7</u> | dB(2σ) |
|                                    | 6 GHz – 18 GHz     | <u>± 4.6</u> | dB(2σ) |
|                                    | 18 GHz – 40 GHz    | <u>± 5.5</u> | dB(2σ) |

Remarks : IEEE802.11n mode, Y axis position.

## 7.9.2 Test Instruments

| Anechoic Chamber A2   |                   |                     |                 |            |
|-----------------------|-------------------|---------------------|-----------------|------------|
| Type                  | Model             | Serial No. (ID)     | Manufacturer    | Cal. Due   |
| Test Receiver         | ESU 26            | 100170 (A-6)        | Rohde & Schwarz | 2018/02/28 |
| Loop Antenna          | HFH2-Z2           | 872096/25 (C-2)     | Rohde & Schwarz | 2017/07/21 |
| RF Cable              | RG213/U           | --- (H-28)          | HUBER+SUHNER    | 2017/07/21 |
| Pre-Amplifier         | 310N              | 304573 (A-17)       | SONOMA          | 2018/04/02 |
| Biconical Antenna     | VHA9103/BBA9106   | 2355 (C-30)         | Schwarzbeck     | 2017/05/18 |
| Log-periodic Antenna  | UHALP9108-A1      | 0694 (C-31)         | Schwarzbeck     | 2017/05/18 |
| RF Cable              | S 10162 B-11 etc. | --- (H-4)           | HUBER+SUHNER    | 2018/04/02 |
| Pre-Amplifier         | TPA0118-36        | 1010 (A-37)         | TOYO            | 2018/05/14 |
| Horn Antenna          | 91888-2           | 562 (C-41-1)        | EATON           | 2017/06/12 |
| Horn Antenna          | 91889-2           | 568 (C-41-2)        | EATON           | 2017/06/12 |
| Horn Antenna          | 3160-04           | 9903-1053<br>(C-55) | EMCO            | 2017/06/13 |
| Horn Antenna          | 3160-05           | 9902-1061<br>(C-56) | EMCO            | 2017/06/13 |
| Horn Antenna          | 3160-06           | 9712-1045<br>(C-57) | EMCO            | 2017/06/13 |
| Horn Antenna          | 3160-07           | 9902-1113<br>(C-58) | EMCO            | 2017/06/13 |
| Horn Antenna          | 3160-08           | 9904-1099<br>(C-59) | EMCO            | 2017/06/13 |
| Horn Antenna          | 3160-09           | 9808-1117<br>(C-48) | EMCO            | 2017/06/15 |
| Attenuator            | 54A-10            | W5713 (D-29)        | Weinschel       | 2017/06/13 |
| Attenuator            | 2-10              | BA6214 (D-79)       | Weinschel       | 2017/06/15 |
| RF Cable              | SUCOFLEX104       | 267479/4 (C-66)     | HUBER+SUHNER    | 2017/08/02 |
| RF Cable              | SUCOFLEX104       | 267414/4 (C-67)     | HUBER+SUHNER    | 2017/11/21 |
| RF Cable              | SUCOFLEX102EA     | 3041/2EA<br>(C-69)  | HUBER+SUHNER    | 2018/01/10 |
| Band Rejection Filter | BRM50701          | 029 (D-93)          | MICRO-TRONICS   | 2018/01/10 |

NOTE : The calibration interval of the above test instruments is 12 months.

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

#### 7.9.3.1 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.

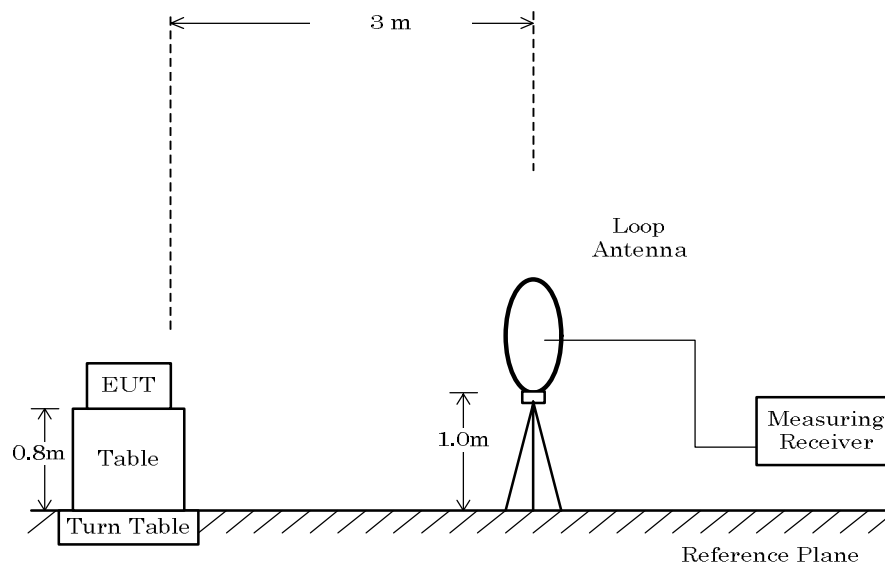
The EUT configuration(in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions.

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

According to KDB 414788, 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 –



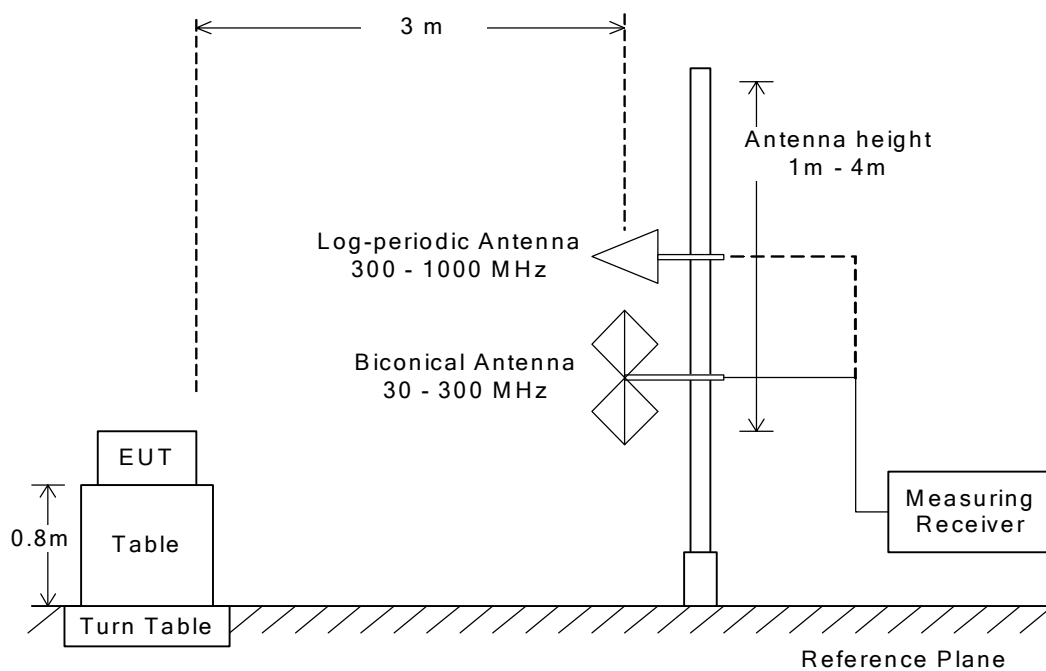
### 7.9.3.2 Radiated Emission 30 MHz – 1000 MHz

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

The EUT configuration(in X, Y and Z axis), 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 –



### 7.9.3.3 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(in X, Y and Z axis), 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:

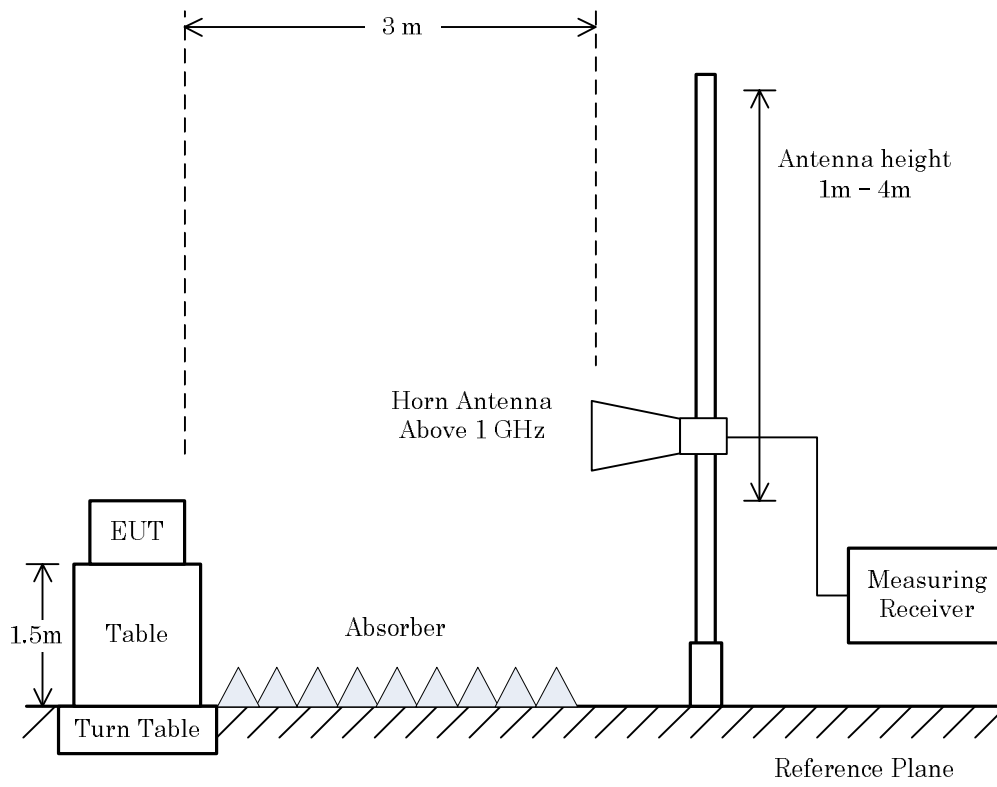
| Type              | Peak           | Average         |
|-------------------|----------------|-----------------|
| Detector Function | Peak           | Peak            |
| Res. Bandwidth    | 1 MHz          | 1 MHz           |
| Video Bandwidth   | 3 MHz          | $\geq 1/T * 1)$ |
| Video Filtering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

Note: 1. T: Minimum transmission duration

Average (VBW) Setting:

| Mode                      | Interval<br>(msec) | Cycle<br>(msec) | Duty cycle<br>(%) | Burst on period(T)<br>(msec) | Min. VBW(1/T)<br>(kHz) | VBW Setting<br>(kHz) |
|---------------------------|--------------------|-----------------|-------------------|------------------------------|------------------------|----------------------|
| IEEE802.11b(11Mbps)       | 0.02               | 0.94            | 97.9%             | 0.92                         | 1.09                   | 2.00                 |
| IEEE802.11g(18Mbps)       | 0.02               | 0.49            | 95.9%             | 0.47                         | 2.13                   | 3.00                 |
| IEEE802.11n(52Mbps(MCS5)) | 0.02               | 0.21            | 90.5%             | 0.19                         | 5.26                   | 10.00                |
| Bluetooth LE              | 0.23               | 0.63            | 63.5%             | 0.40                         | 2.50                   | 3.00                 |

– 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.

## 7.9.4 Test Data

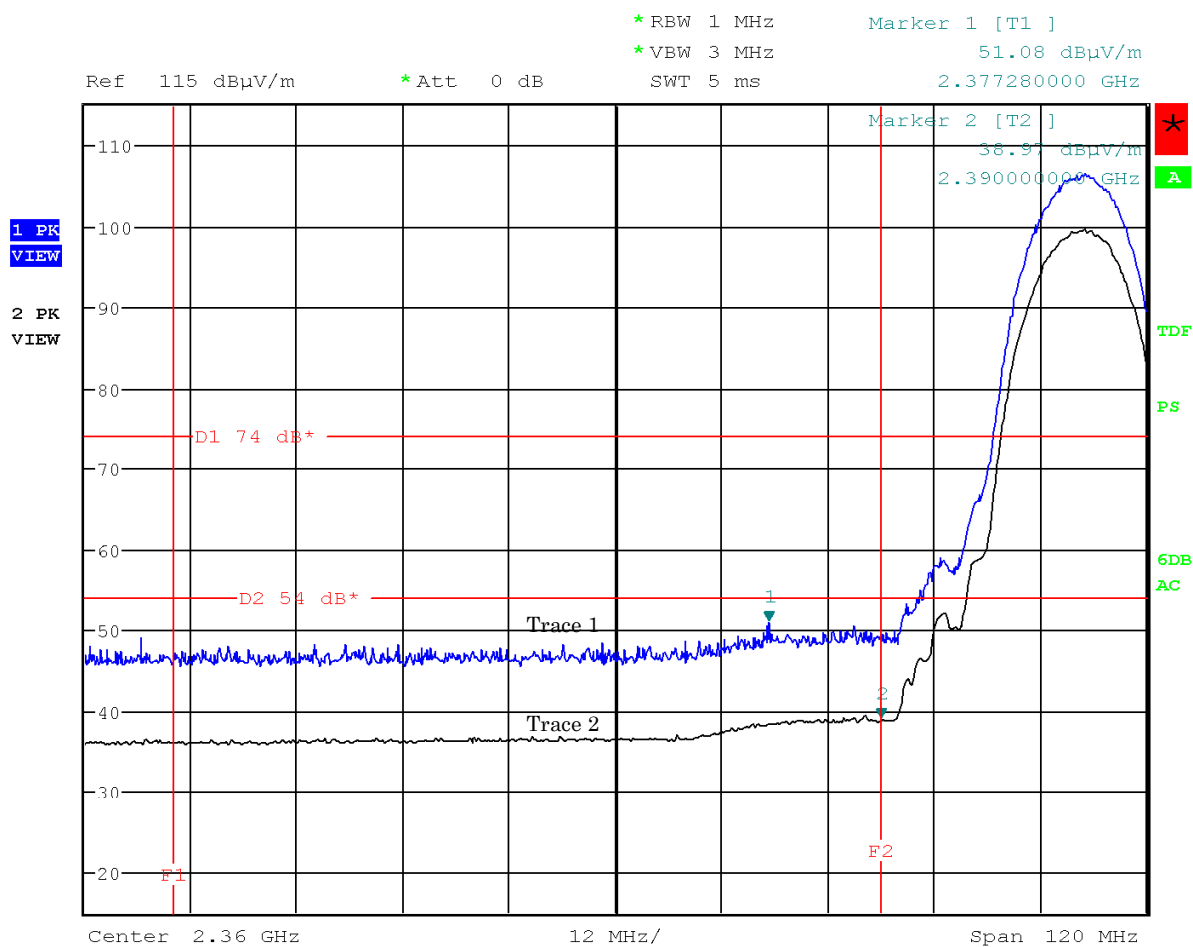
### 7.9.4.1 Band-edge Compliance

Test Date : May 19, 2017

Temp.: 23°C, Humi: 37%

Mode of EUT : 1ch: 2412 MHz, (IEEE 802.11b)

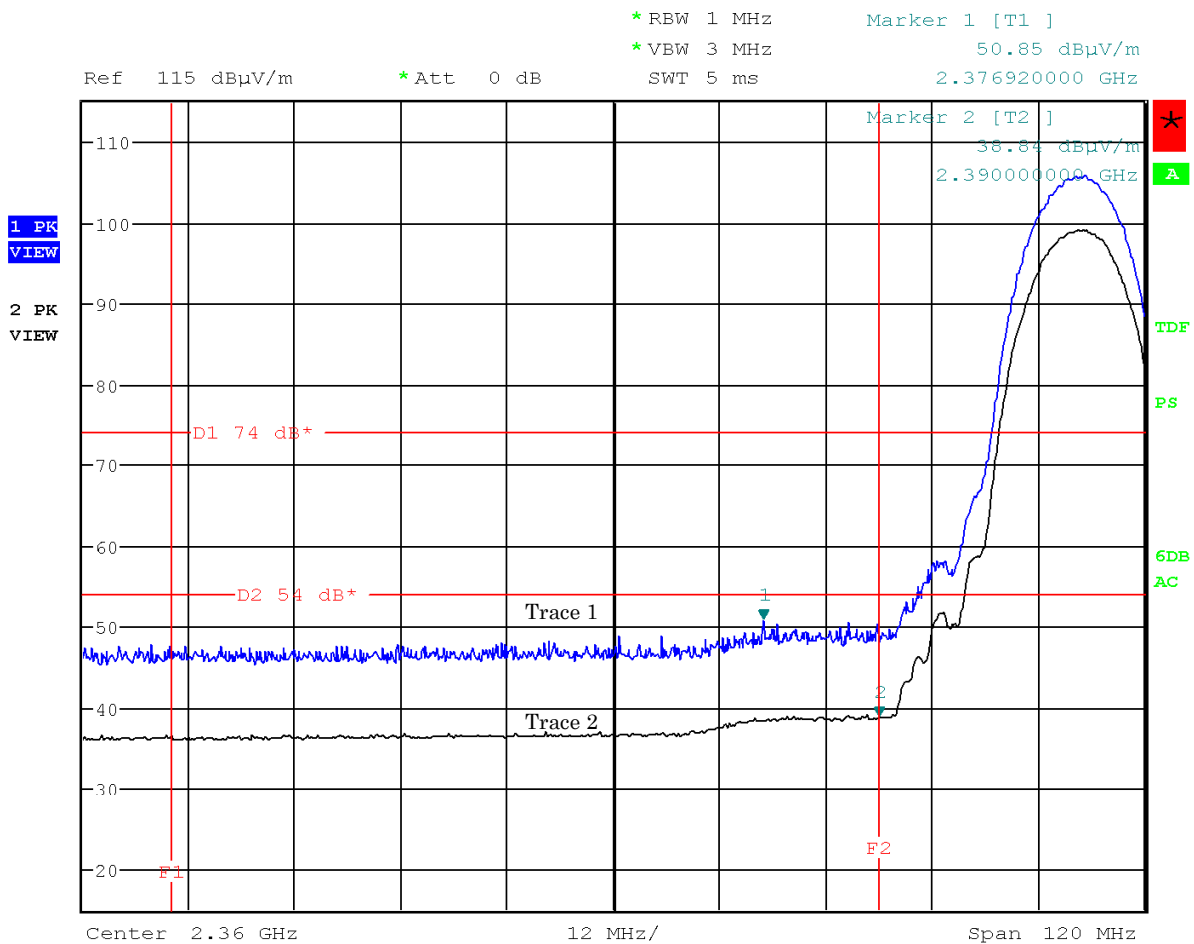
Antenna Polarization : Horizontal



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 1ch: 2412 MHz, (IEEE 802.11b)

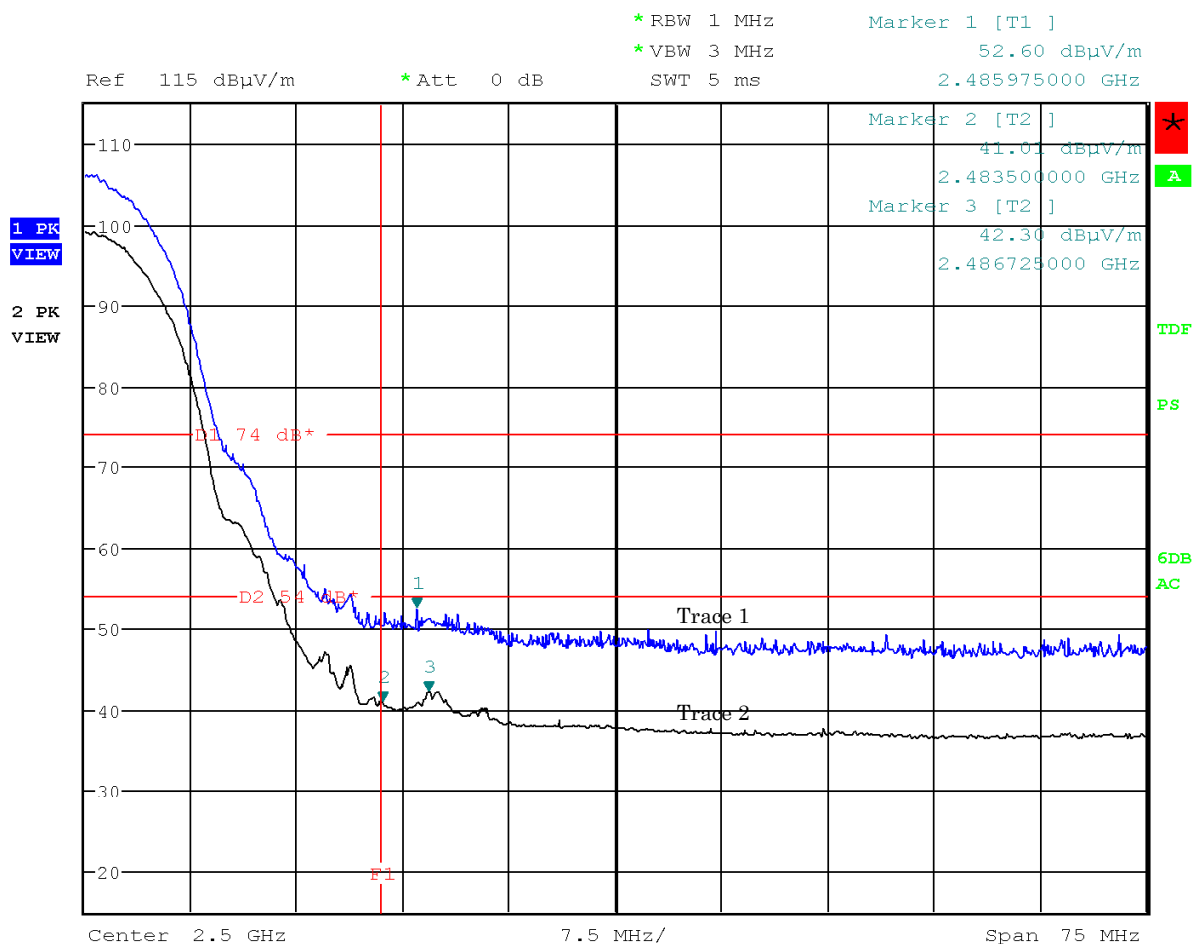
Antenna Polarization : Vertical



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 11ch: 2462 MHz, (IEEE 802.11b)

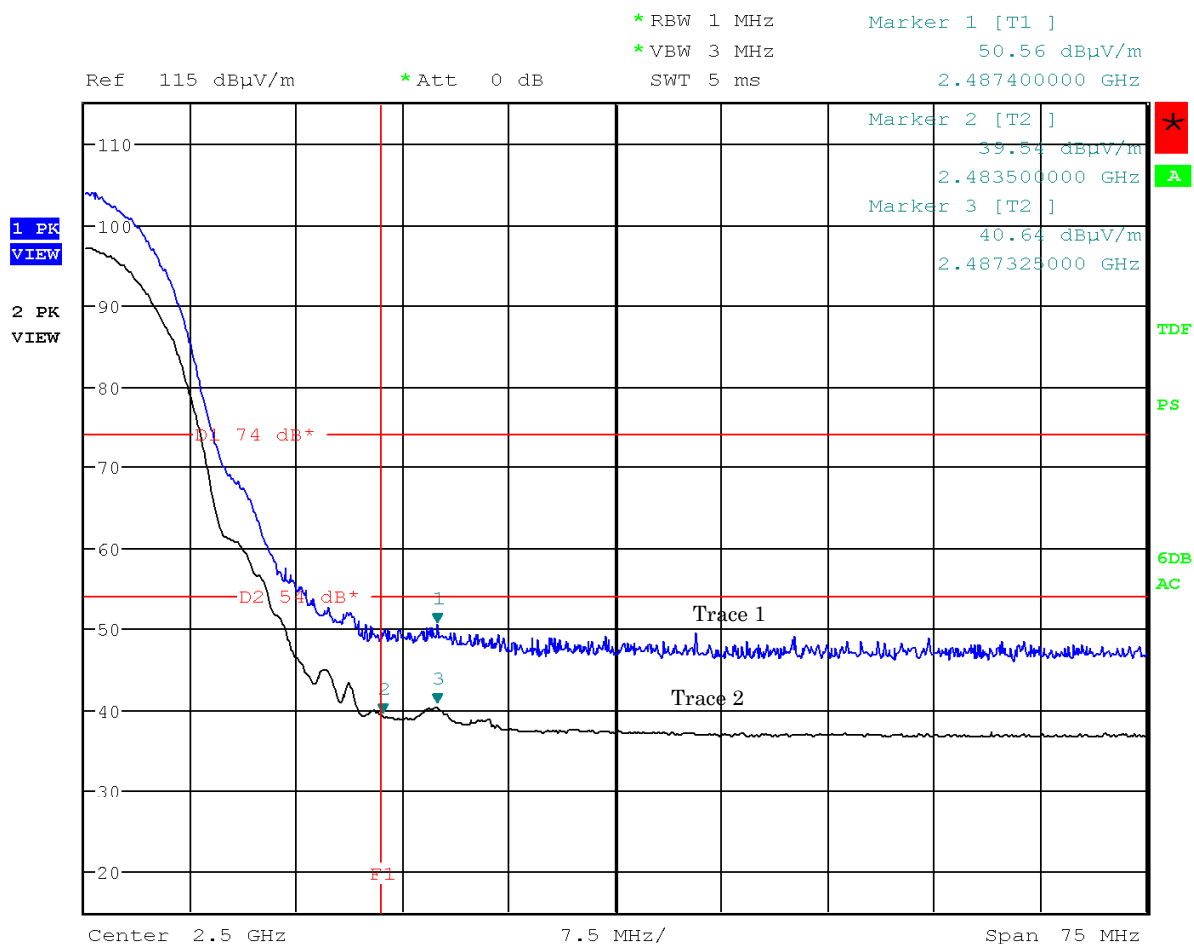
Antenna Polarization : Horizontal



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 11ch: 2462 MHz, (IEEE 802.11b)

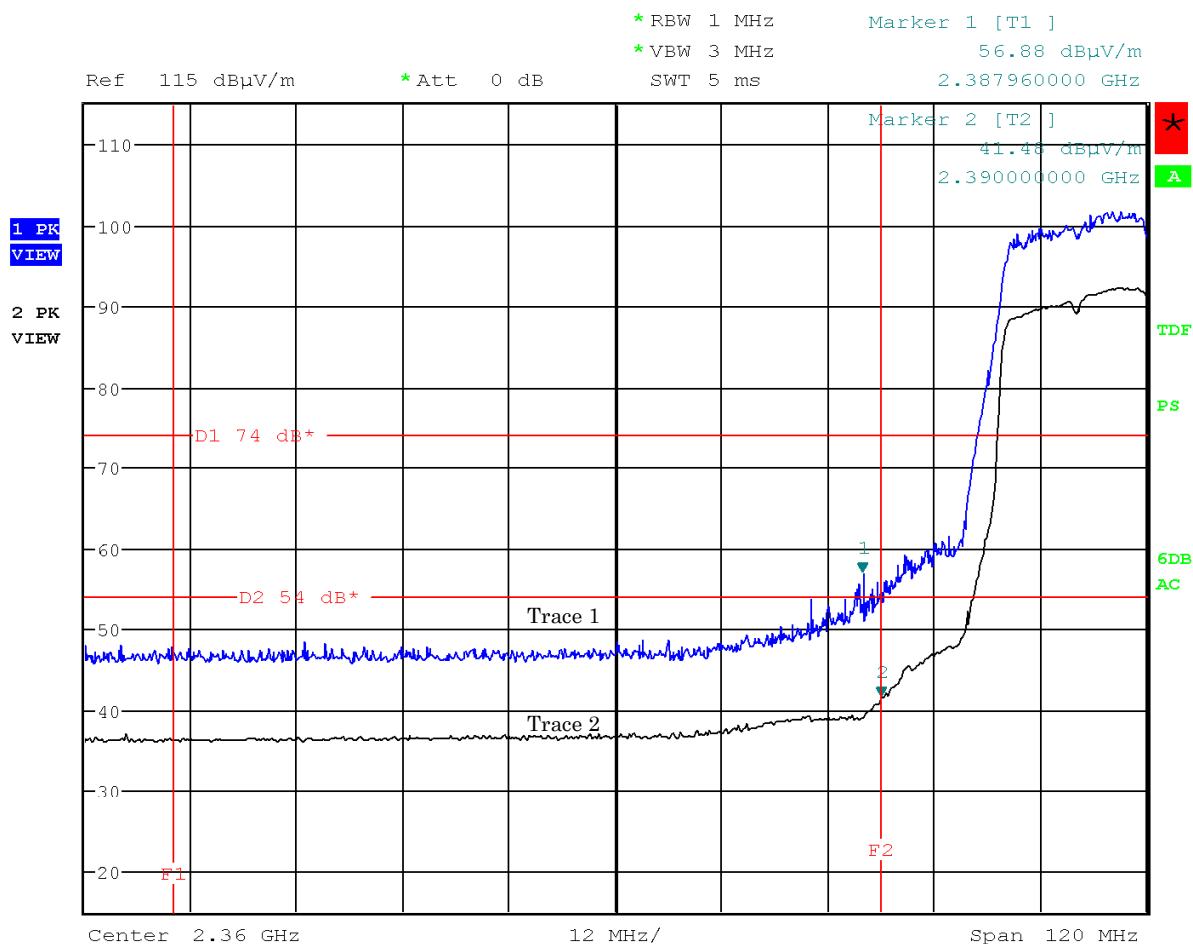
Antenna Polarization : Vertical



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 1ch: 2412 MHz, (IEEE 802.11g)

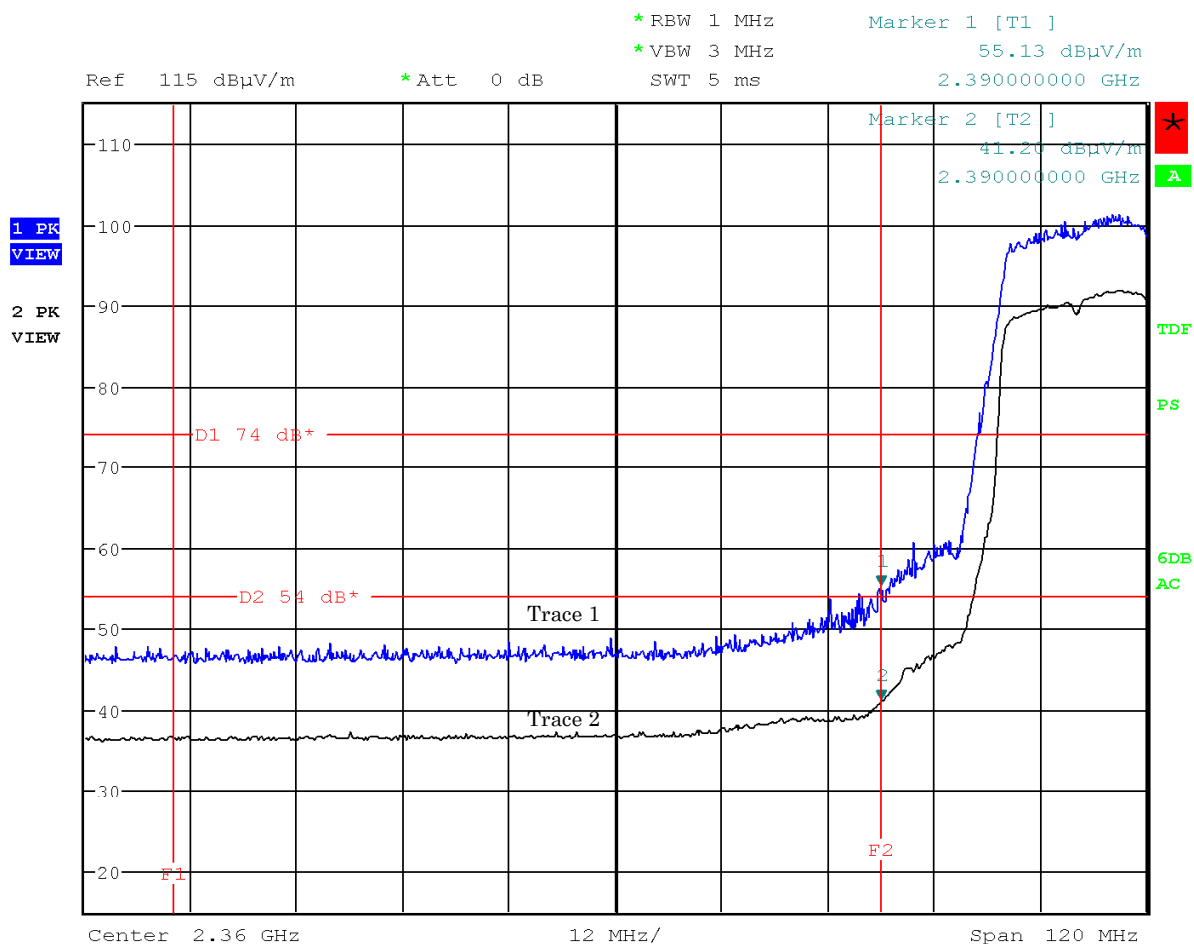
Antenna Polarization : Horizontal



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 1ch: 2412 MHz, (IEEE 802.11g)

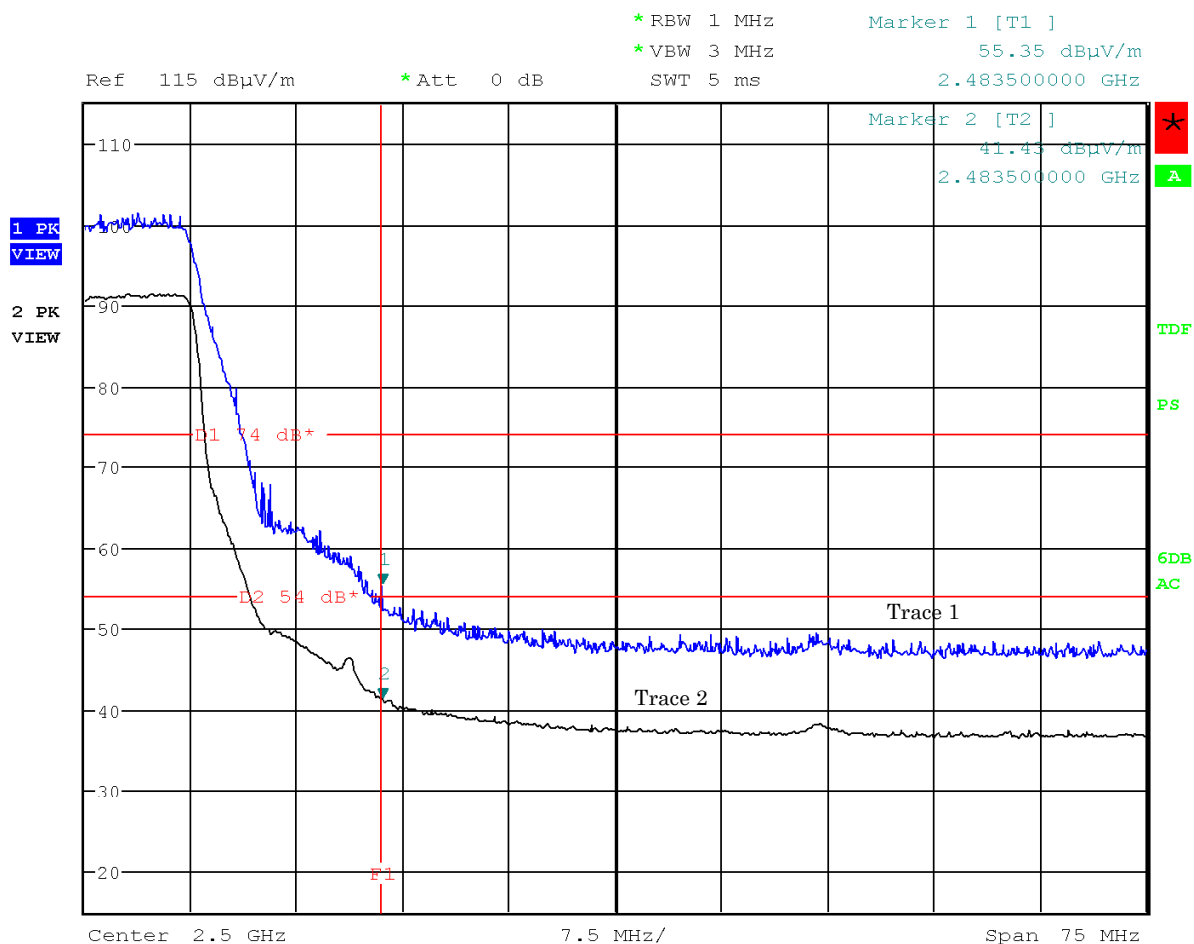
Antenna Polarization : Vertical



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 11ch: 2462 MHz, (IEEE 802.11g)

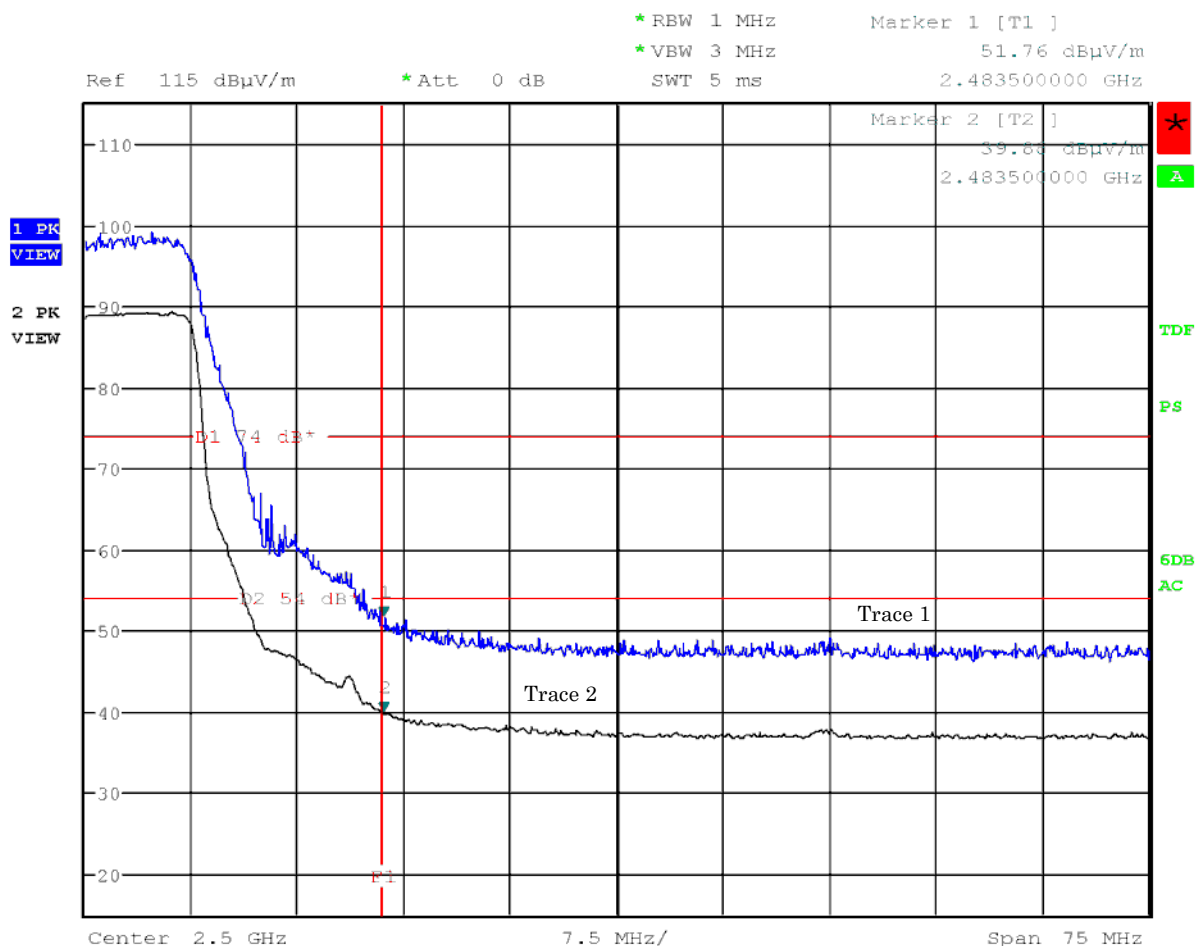
Antenna Polarization : Horizontal



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 11ch: 2462 MHz, (IEEE 802.11g)

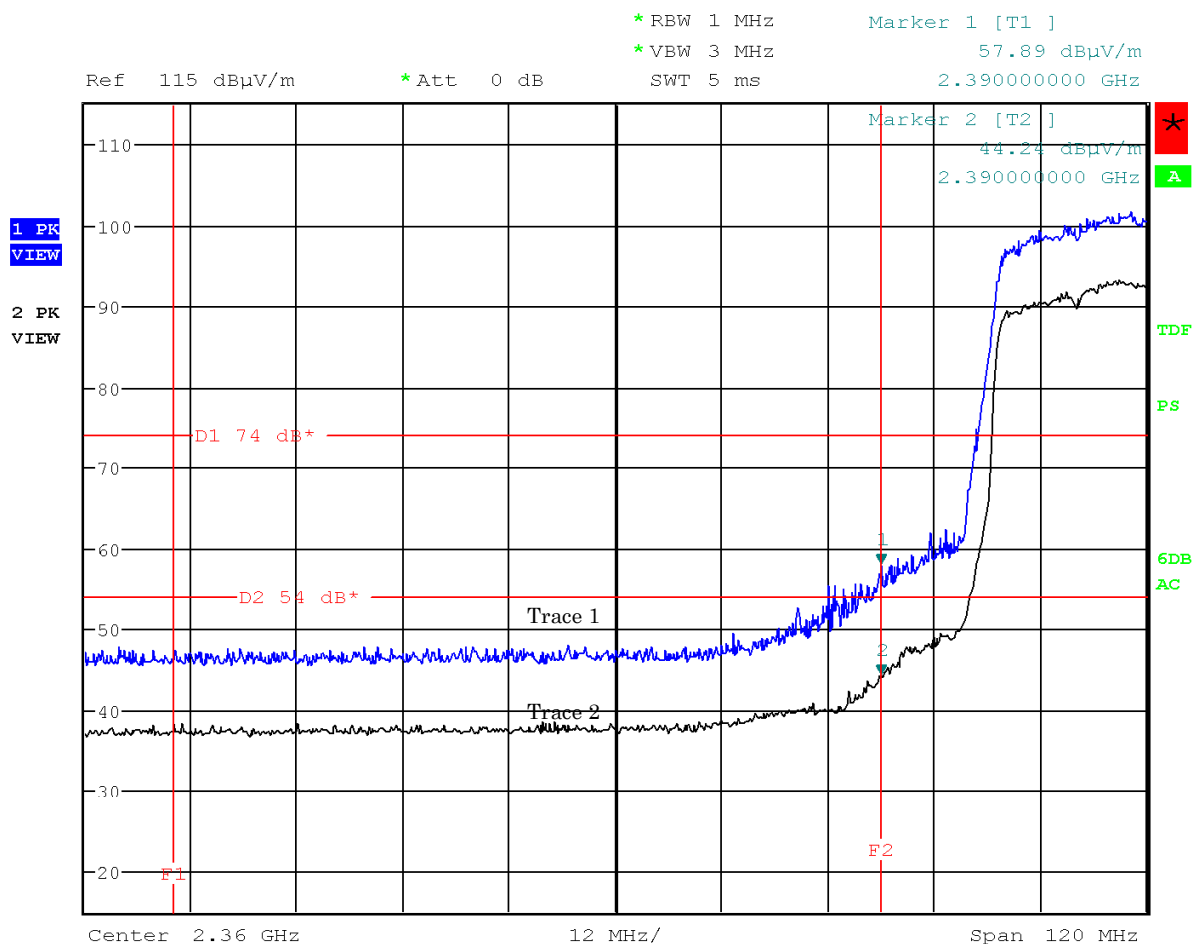
Antenna Polarization : Vertical



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 1ch: 2412 MHz, (IEEE 802.11n)

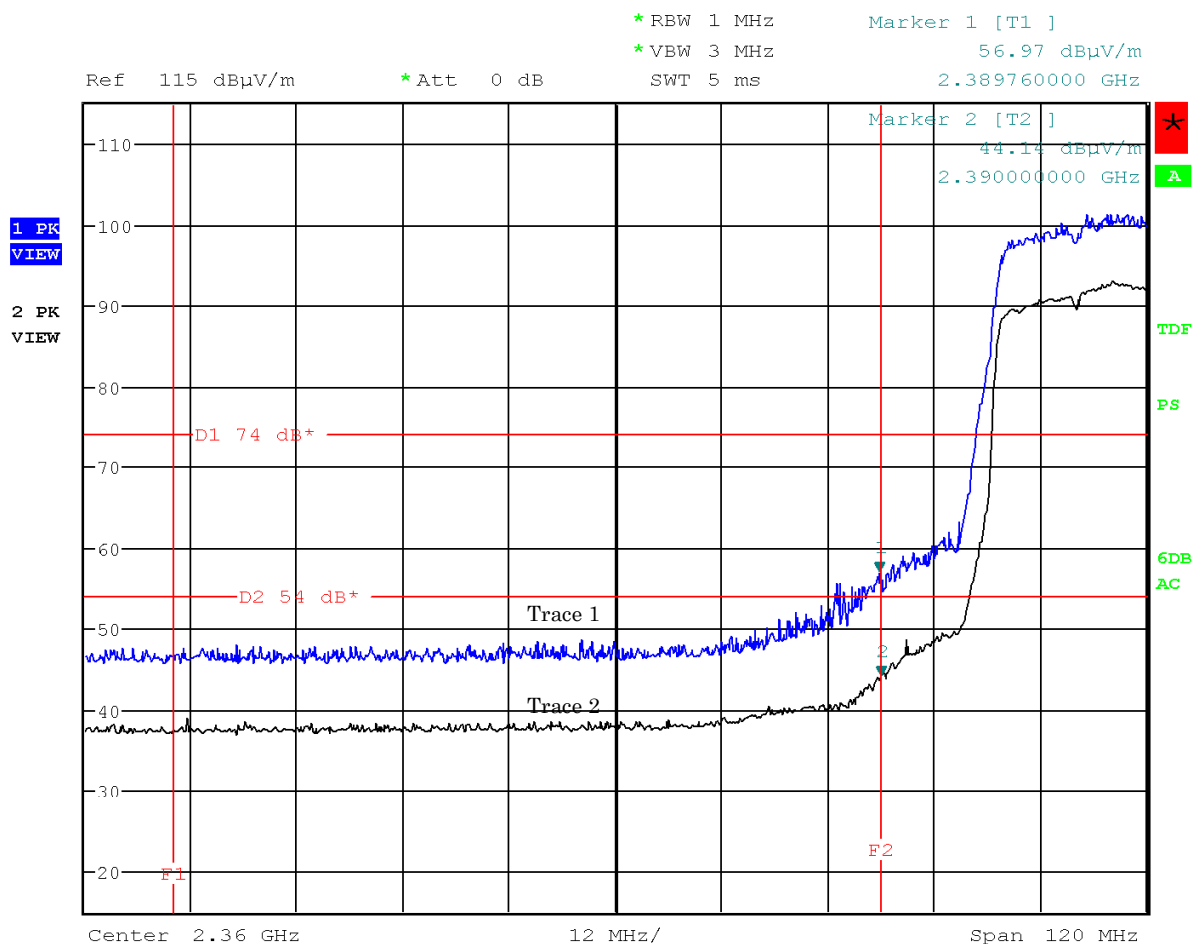
Antenna Polarization : Horizontal



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 1ch: 2412 MHz, (IEEE 802.11n)

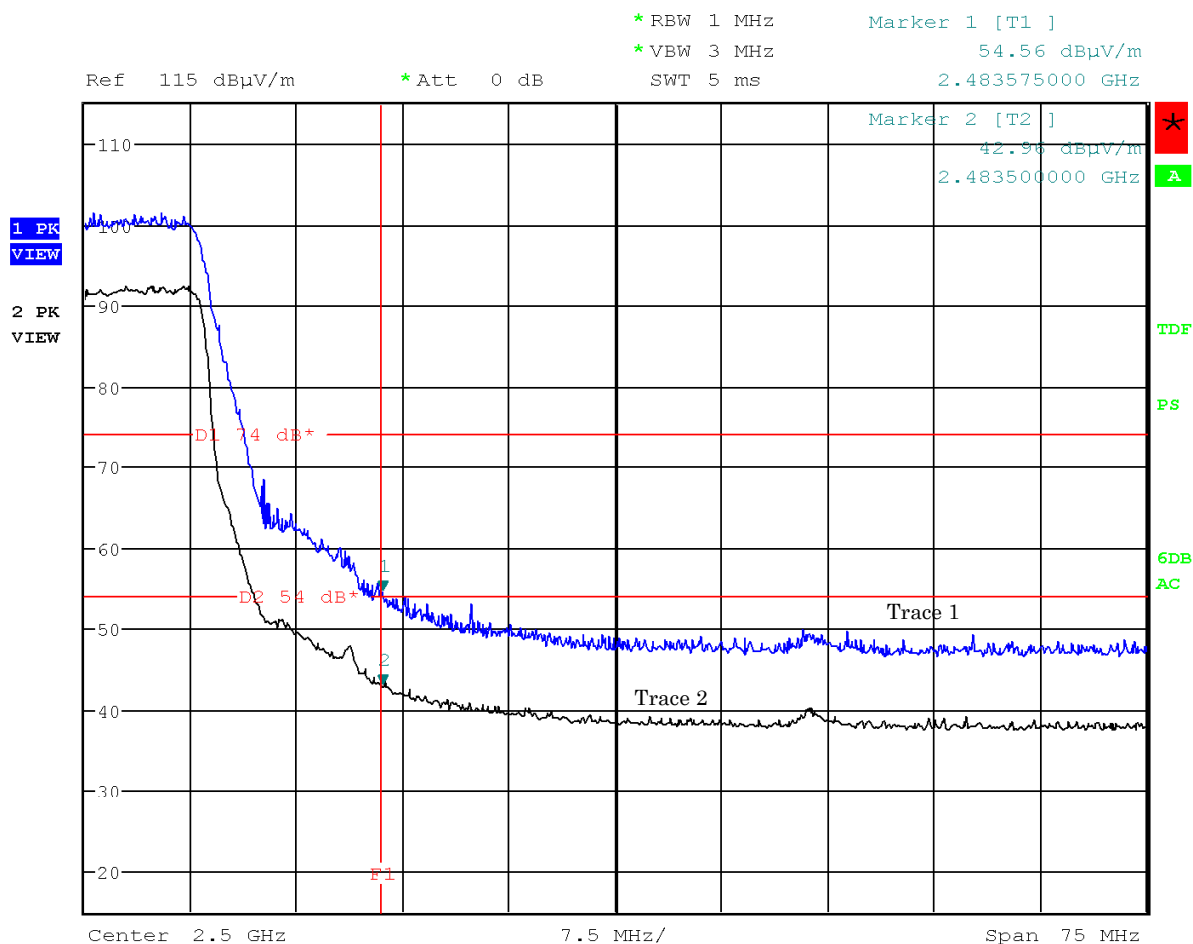
Antenna Polarization : Vertical



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 11ch: 2462 MHz, (IEEE 802.11n)

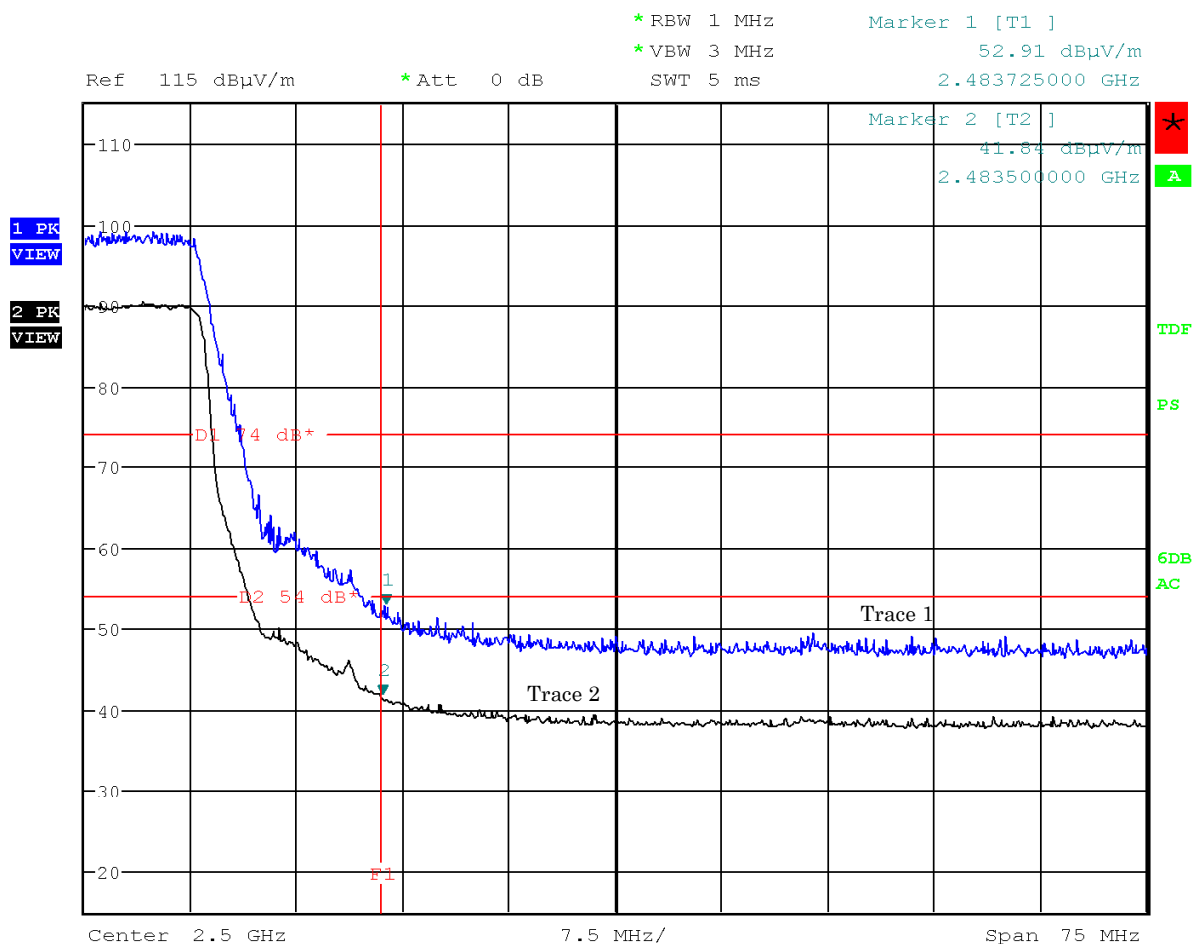
Antenna Polarization : Horizontal



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 11ch: 2462 MHz, (IEEE 802.11n)

Antenna Polarization : Vertical



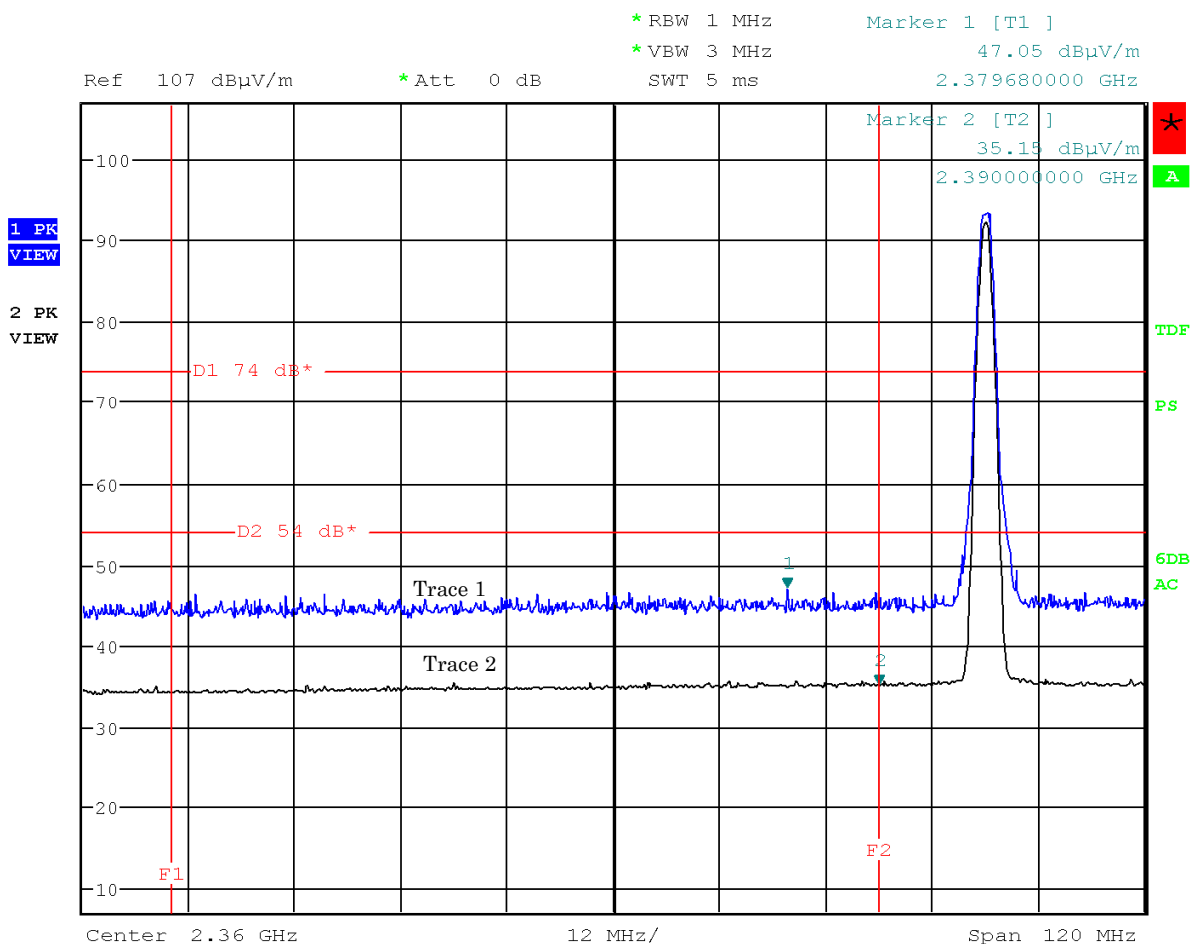
Note: The trace 1 is Peak . The trace 2 is Average.

Test Date : May 22, 2017

Temp.: 25°C, Humi: 49%

Mode of EUT : Bluetooth Low Energy, Hopping off (0ch: 2402 MHz)

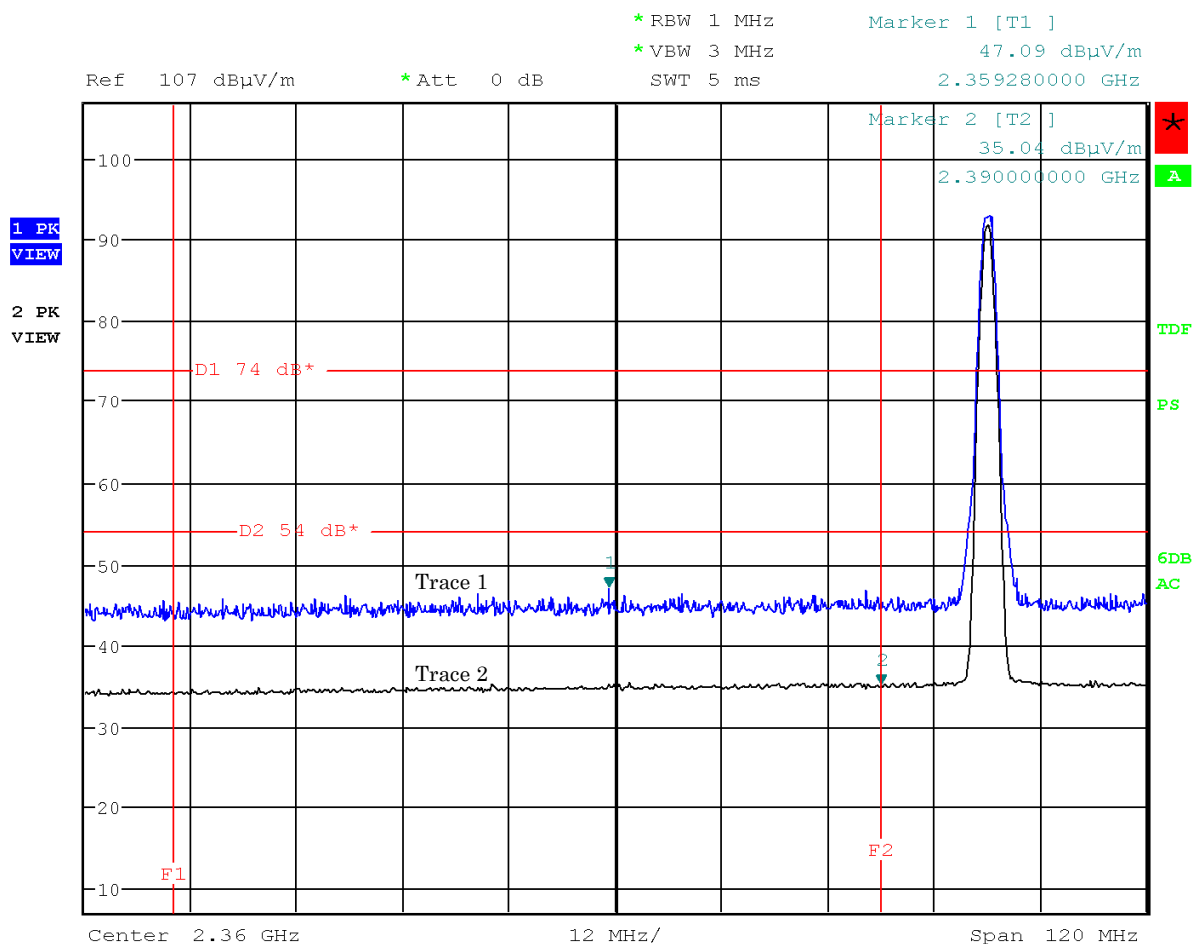
Antenna Polarization : Horizontal



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : Bluetooth Low Energy, Hopping off (0ch: 2402 MHz)

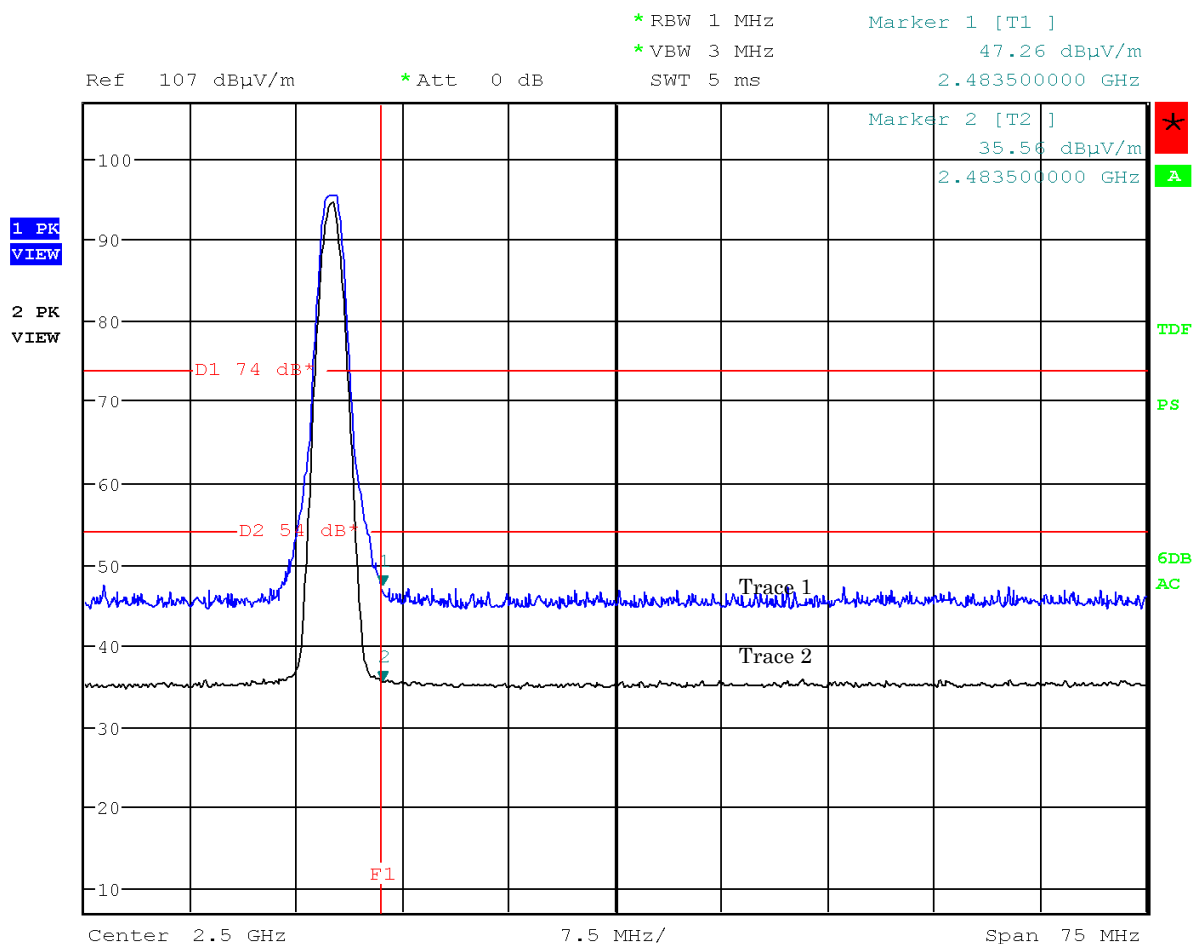
Antenna Polarization : Vertical



Note: 'The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : Bluetooth Low Energy, Hopping off (39ch: 2480 MHz)

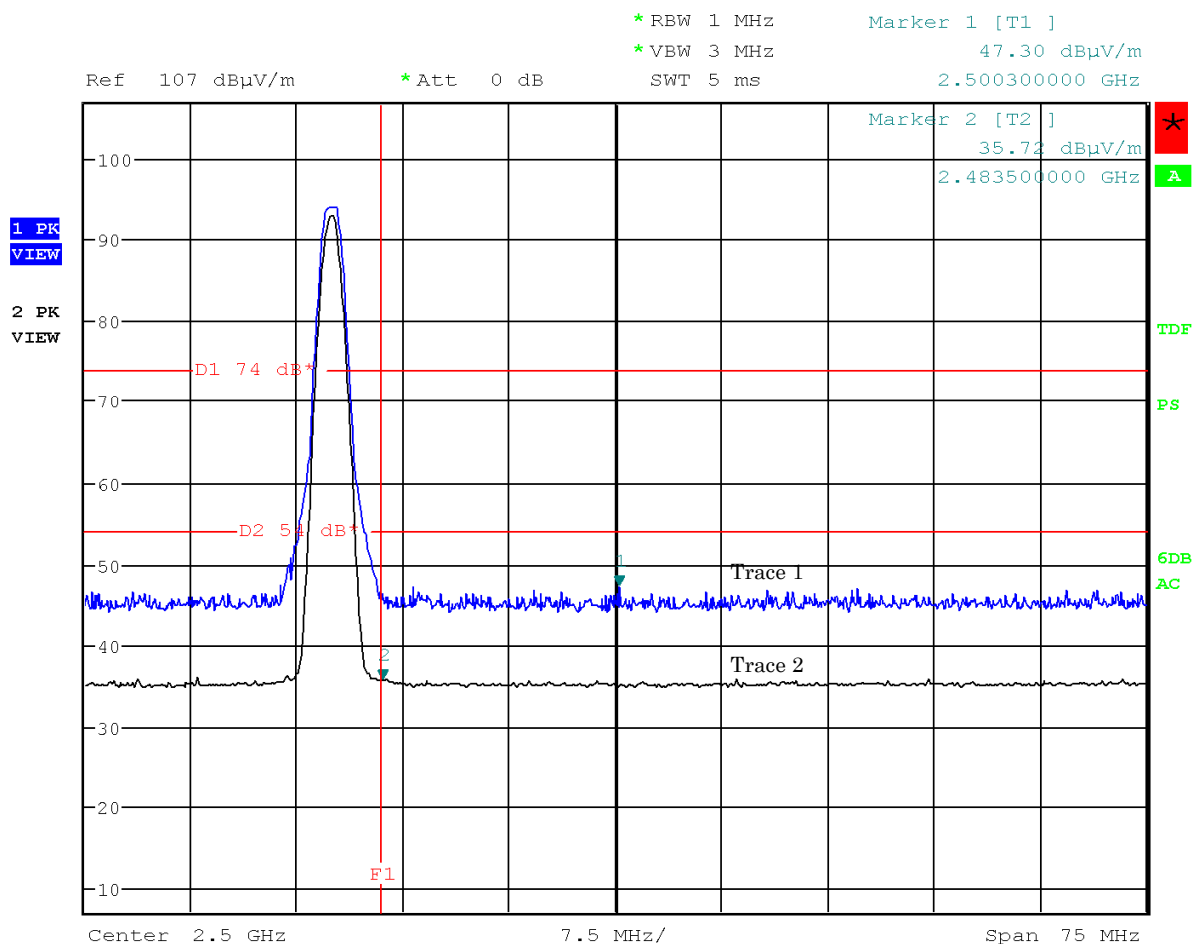
Antenna Polarization : Horizontal



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : Bluetooth Low Energy, Hopping off (39ch: 2480 MHz)

Antenna Polarization : Vertical



Note: The trace 1 is Peak . The trace 2 is Average.

#### 7.9.4.2 Other Spurious Emission (9kHz – 30MHz)

Test Date : May 18, 2017

Temp.: 23°C, Humi: 43%

Mode of EUT : WLAN/Bluetooth LE

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

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

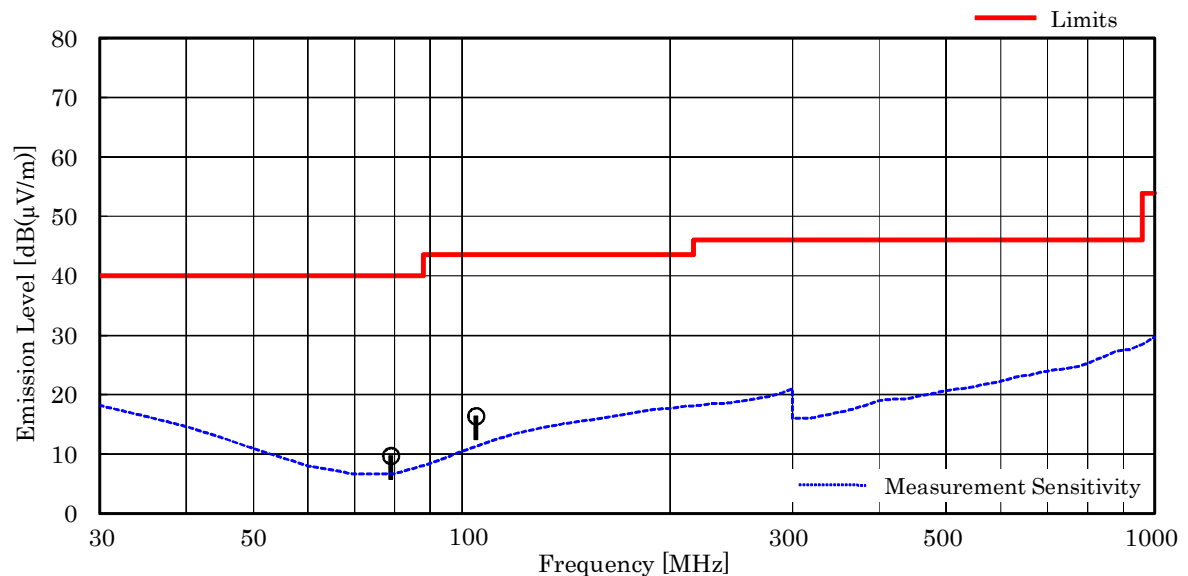
Mode of EUT : (WLAN) All modes have been investigated and the worst case mode for channel (06ch: 2437MHz / IEEE802.11b, IEEE802.11g and IEEE802.11n) has been listed.

Test Date: May 18, 2017

Temp.: 23 °C, Humi: 43 %

Antenna pole : Horizontal

| Frequency<br>[MHz] | Antenna<br>Factor<br>[dB(1/m)] | Corr.<br>Factor<br>[dB] | Meter Readings<br>[dB(μV)] | Limits<br>[dB(μV/m)] | Results<br>[dB(μV/m)] | Margin<br>[dB] | Remarks |
|--------------------|--------------------------------|-------------------------|----------------------------|----------------------|-----------------------|----------------|---------|
| 78.99              | 6.5                            | -26.9                   | 30.1                       | 40.0                 | 9.7                   | +30.3          | -       |
| 104.82             | 11.0                           | -26.6                   | 32.0                       | 43.5                 | 16.4                  | +27.1          | -       |



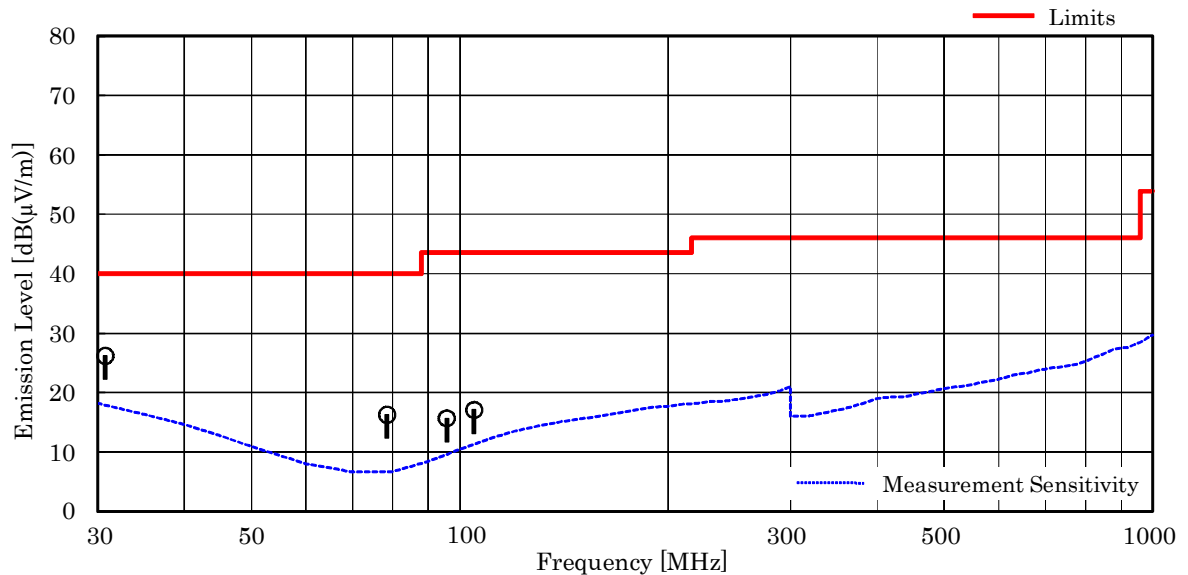
#### NOTES

1. Test Distance : 3 m
2. The spectrum was checked from 30 MHz to 1000 MHz.
3. The correction factor is composed of cable loss, pad attenuation and/or amplifier gain.
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. Calculated result at 104.82 MHz, as the worst point shown on underline:  
Antenna Factor + Correction Factor + Meter Reading = 11.0 + (-26.6) + 32.0 = 16.4 dB(μV/m)  
Antenna Height : 177 cm, Turntable Angle : 241 °
7. Test receiver setting(s) : CISPR QP 120 kHz [QP : Quasi-Peak]

Test Date: May 18, 2017  
Temp.: 23 °C, Humi: 43 %

Antenna pole : Vertical

| Frequency<br>[MHz] | Antenna<br>Factor<br>[dB(1/m)] | Corr.<br>Factor<br>[dB] | Meter Readings<br>[dB(μV)] | Limits<br>[dB(μV/m)] | Results<br>[dB(μV/m)] | Margin<br>[dB] | Remarks |
|--------------------|--------------------------------|-------------------------|----------------------------|----------------------|-----------------------|----------------|---------|
| 30.75              | 18.5                           | -27.6                   | 35.3                       | 40.0                 | 26.2                  | +13.8          | -       |
| 78.46              | 6.5                            | -26.9                   | 36.7                       | 40.0                 | 16.3                  | +23.7          | -       |
| 95.66              | 9.3                            | -26.7                   | 33.1                       | 43.5                 | 15.7                  | +27.8          | -       |
| 104.82             | 11.0                           | -26.6                   | 32.7                       | 43.5                 | 17.1                  | +26.4          | -       |



NOTES

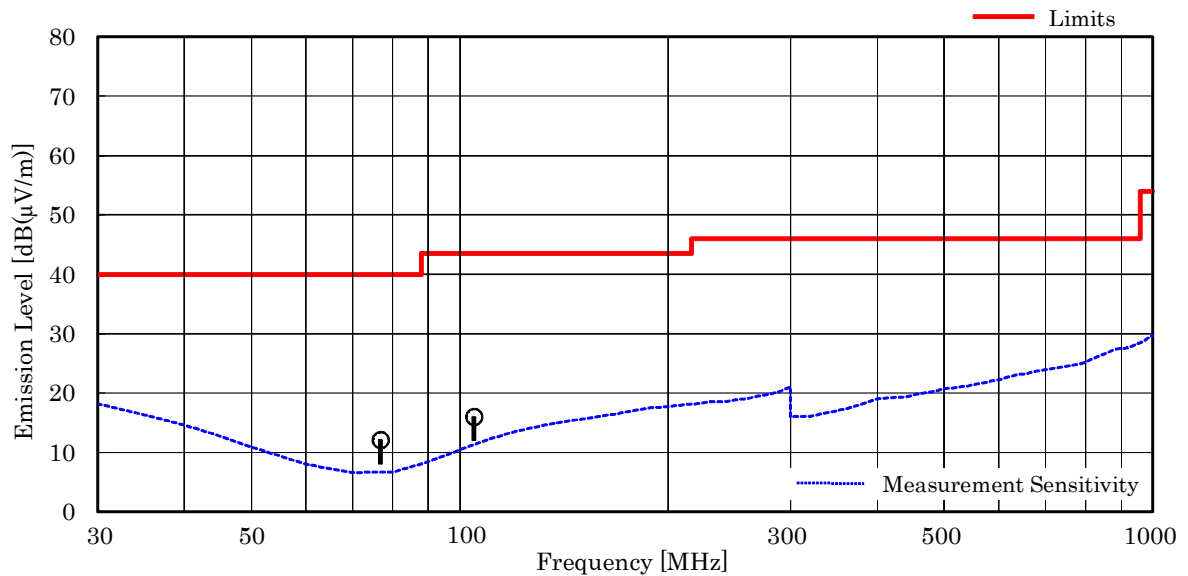
1. Test Distance : 3 m
2. The spectrum was checked from 30 MHz to 1000 MHz.
3. The correction factor is composed of cable loss, pad attenuation and/or amplifier gain.
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. Calculated result at 30.75 MHz, as the worst point shown on underline:  
Antenna Factor + Correction Factor + Meter Reading = 18.5 + (-27.6) + 35.3 = 26.2 dB(μV/m)  
Antenna Height : 100 cm, Turntable Angle : 28 °
7. Test receiver setting(s) : CISPR QP 120 kHz [QP : Quasi-Peak]

Mode of EUT : Bluetooth Low Energy

Test Date: May 18, 2017  
Temp.: 23 °C, Humi: 43 %

Antenna pole : Horizontal

| Frequency<br>[MHz] | Antenna<br>Factor<br>[dB(1/m)] | Corr.<br>Factor<br>[dB] | Meter Readings<br>[dB(μV)] | Limits<br>[dB(μV/m)] | Results<br>[dB(μV/m)] | Margin<br>[dB] | Remarks |
|--------------------|--------------------------------|-------------------------|----------------------------|----------------------|-----------------------|----------------|---------|
| 76.82              | 6.4                            | -26.9                   | 32.6                       | 40.0                 | 12.1                  | +27.9          | -       |
| 104.82             | 11.0                           | -26.6                   | 31.6                       | 43.5                 | 16.0                  | +27.5          | -       |



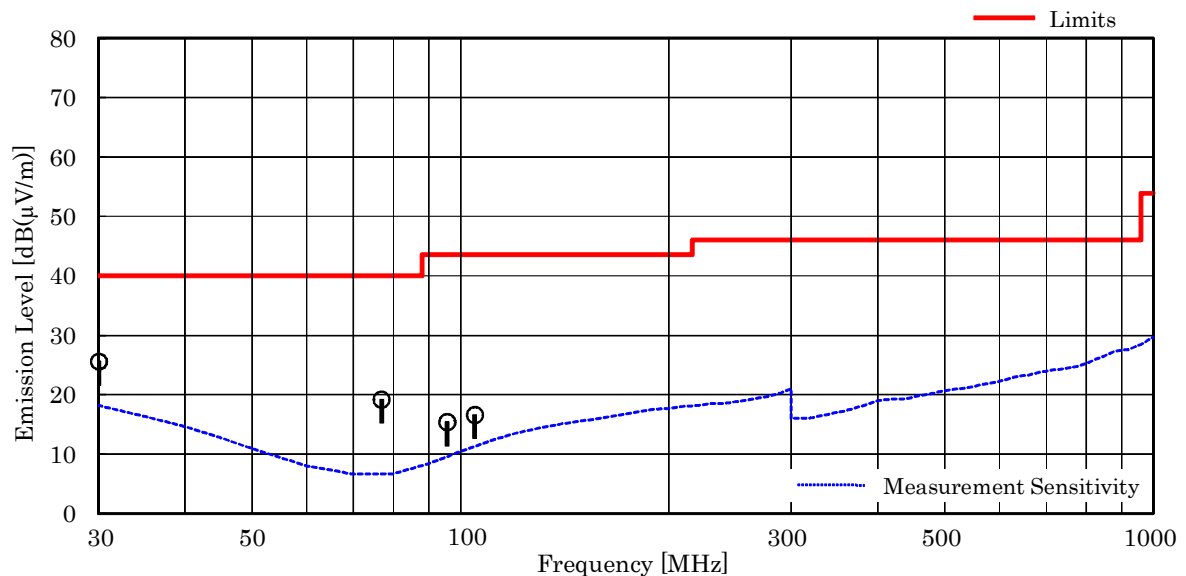
#### NOTES

- Test Distance : 3 m
- The spectrum was checked from 30 MHz to 1000 MHz.
- The correction factor is composed of cable loss, pad attenuation and/or amplifier gain.
- The symbol of "<" means "or less".
- The symbol of ">" means "more than".
- Calculated result at 104.82 MHz, as the worst point shown on underline:  
Antenna Factor + Correction Factor + Meter Reading = 11.0 + (-26.6) + 31.6 = 16.0 dB(μV/m)  
Antenna Height : 174 cm, Turntable Angle : 235 °
- Test receiver setting(s) : CISPR QP 120 kHz [QP : Quasi-Peak]

Test Date: May 18, 2017  
Temp.: 23 °C, Humi: 43 %

Antenna pole : Vertical

| Frequency<br>[MHz] | Antenna<br>Factor<br>[dB(1/m)] | Corr.<br>Factor<br>[dB] | Meter Readings<br>[dB(μV)] | Limits<br>[dB(μV/m)] | Results<br>[dB(μV/m)] | Margin<br>[dB] | Remarks |
|--------------------|--------------------------------|-------------------------|----------------------------|----------------------|-----------------------|----------------|---------|
| 30.03              | 18.8                           | -27.6                   | 34.4                       | 40.0                 | 25.6                  | +14.4          | -       |
| 76.84              | 6.4                            | -26.9                   | 39.7                       | 40.0                 | 19.2                  | +20.8          | -       |
| 95.58              | 9.3                            | -26.7                   | 32.8                       | 43.5                 | 15.4                  | +28.1          | -       |
| 104.82             | 11.0                           | -26.6                   | 32.2                       | 43.5                 | 16.6                  | +26.9          | -       |



NOTES

1. Test Distance : 3 m
2. The spectrum was checked from 30 MHz to 1000 MHz.
3. The correction factor is composed of cable loss, pad attenuation and/or amplifier gain.
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. Calculated result at 30.03 MHz, as the worst point shown on underline:  
Antenna Factor + Correction Factor + Meter Reading = 18.8 + (-27.6) + 34.4 = 25.6 dB(μV/m)  
Antenna Height : 100 cm, Turntable Angle : 346 °
7. Test receiver setting(s) : CISPR QP 120 kHz [QP : Quasi-Peak]

#### 7.9.4.4 Other Spurious Emission (Above 1000MHz)

Mode of EUT : IEEE802.11b

Test Date: May 22, 2017

Temp.: 25 °C, Humi: 49 %

| Frequency                  | Antenna<br>Factor | Corr.<br>Factor | Meter Readings [dB(μV)] |        |          |        | Limits     |      | Results    |        | Margin  | Remarks |
|----------------------------|-------------------|-----------------|-------------------------|--------|----------|--------|------------|------|------------|--------|---------|---------|
|                            |                   |                 | Horizontal              |        | Vertical |        | [dB(μV/m)] |      | [dB(μV/m)] |        |         |         |
|                            |                   |                 | PK                      | AVE    | PK       | AVE    | PK         | AVE  | PK         | AVE    |         |         |
| [MHz]                      | [dB(1/m)]         | [dB]            |                         |        |          |        |            |      |            |        | [dB]    |         |
| Test condition : Tx Low Ch |                   |                 |                         |        |          |        |            |      |            |        |         |         |
| 4824.0                     | 27.0              | -15.8           | < 38.0                  | < 28.0 | < 38.0   | < 28.0 | 74.0       | 54.0 | < 49.2     | < 39.2 | > +14.8 |         |
| 12060.0                    | 33.4              | -25.4           | < 38.0                  | < 28.0 | < 38.0   | < 28.0 | 74.0       | 54.0 | < 46.0     | < 36.0 | > +18.0 |         |
| 14472.0                    | 37.0              | -26.1           | < 38.0                  | < 28.0 | < 38.0   | < 28.0 | 74.0       | 54.0 | < 48.9     | < 38.9 | > +15.1 |         |
| 19296.0                    | 40.5              | -43.0           | < 50.0                  | < 40.0 | < 50.0   | < 40.0 | 74.0       | 54.0 | < 47.5     | < 37.5 | > +16.5 |         |

Calculated result at 4824.0 MHz, as the worst point shown on underline:

|                   |   |                |
|-------------------|---|----------------|
| Antenna Factor    | = | 27.0 dB(1/m)   |
| Corr. Factor      | = | -15.8 dB       |
| + ) Meter Reading | = | <28.0 dB(μV)   |
| Result            | = | <39.2 dB(μV/m) |

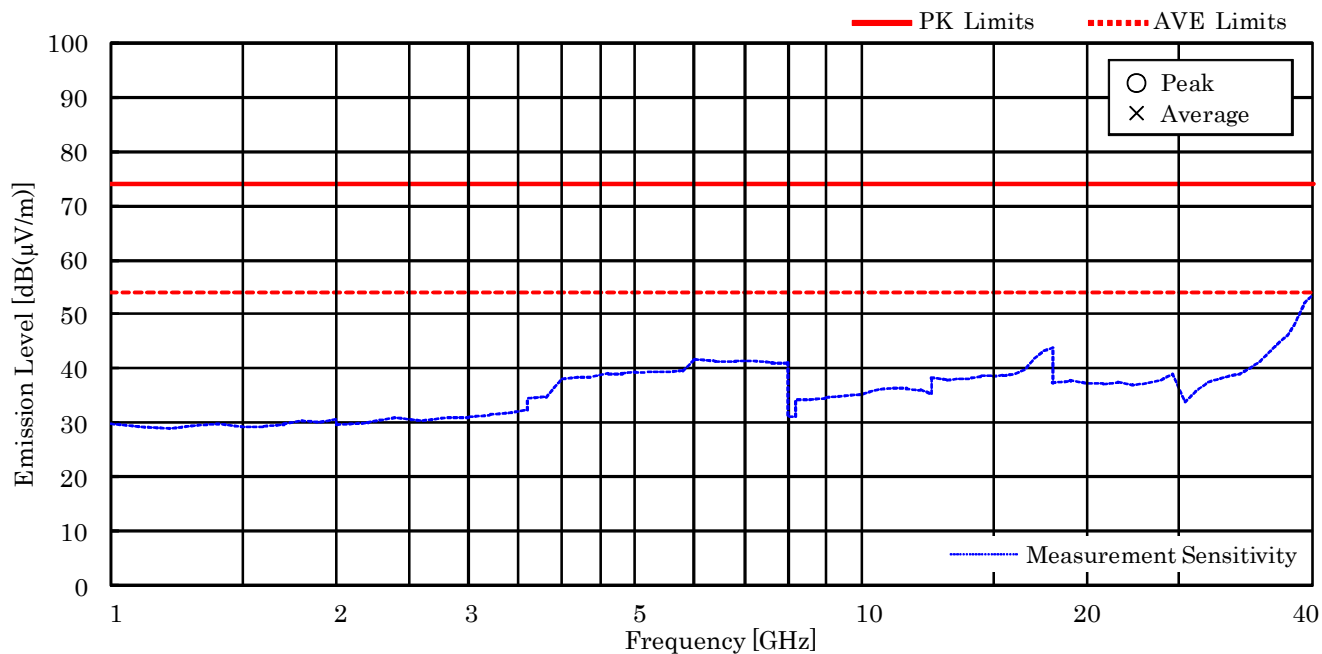
Minimum Margin: 54.0 - <39.2 = >14.8 (dB)

#### NOTES

1. Test Distance : 3 m
2. The spectrum was checked from 1 GHz to 25 GHz (10th harmonic of the highest fundamental frequency).
3. The correction factor is shown as follows:
  - Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
  - Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
  - Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (over 18 GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

Mode of EUT : IEEE802.11b

TX Low ch (Horizontal/Vertical)



Mode of EUT : IEEE802.11g

Test Date: May 22, 2017  
Temp.: 25 °C, Humi: 49 %

| Frequency                     | Antenna<br>Factor | Corr.<br>Factor | Meter Readings [dB(μV)] |        |          |        | Limits     |      | Results    |        | Margin  | Remarks |
|-------------------------------|-------------------|-----------------|-------------------------|--------|----------|--------|------------|------|------------|--------|---------|---------|
|                               |                   |                 | Horizontal              |        | Vertical |        | [dB(μV/m)] |      | [dB(μV/m)] |        |         |         |
| [MHz]                         | [dB(1/m)]         | [dB]            | PK                      | AVE    | PK       | AVE    | PK         | AVE  | PK         | AVE    | [dB]    |         |
| Test condition : TX Middle Ch |                   |                 |                         |        |          |        |            |      |            |        |         |         |
| 4874.0                        | 27.0              | -15.9           | < 38.0                  | < 28.0 | < 38.0   | < 28.0 | 74.0       | 54.0 | < 49.1     | < 39.1 | > +14.9 |         |
| 7311.0                        | 29.9              | -16.1           | < 38.0                  | < 28.0 | < 38.0   | < 28.0 | 74.0       | 54.0 | < 51.8     | < 41.8 | > +12.2 |         |
| 12185.0                       | 33.3              | -25.7           | < 38.0                  | < 28.0 | < 38.0   | < 28.0 | 74.0       | 54.0 | < 45.6     | < 35.6 | > +18.4 |         |
| 19496.0                       | 40.5              | -43.0           | < 50.0                  | < 40.0 | < 50.0   | < 40.0 | 74.0       | 54.0 | < 47.5     | < 37.5 | > +16.5 |         |

Calculated result at 7311.0 MHz, as the worst point shown on underline:

|                   |   |                |
|-------------------|---|----------------|
| Antenna Factor    | = | 29.9 dB(1/m)   |
| Corr. Factor      | = | -16.1 dB       |
| + ) Meter Reading | = | <28.0 dB(μV)   |
| Result            | = | <41.8 dB(μV/m) |

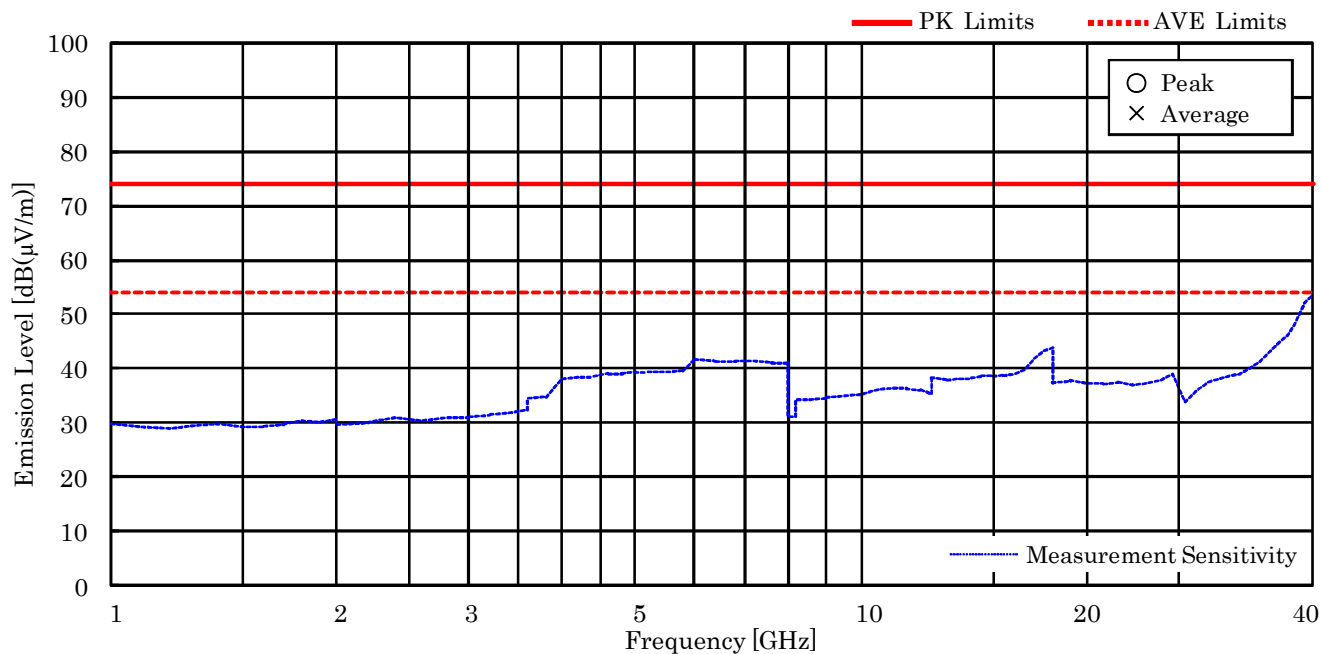
Minimum Margin: 54.0 - <41.8 = >12.2 (dB)

#### NOTES

- Test Distance : 3 m
- The spectrum was checked from 1 GHz to 25 GHz (10th harmonic of the highest fundamental frequency).
- The correction factor is shown as follows:
  - Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
  - Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
  - Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (over 18 GHz)
- The symbol of "<" means "or less".
- The symbol of ">" means "more than".
- PK : Peak / AVE : Average

Mode of EUT : IEEE802.11g

TX Middle ch (Horizontal/Vertical)



Mode of EUT : IEEE802.11n

Test Date: May 22, 2017

Temp.: 25 °C, Humi: 49 %

| Frequency                   | Antenna<br>Factor | Corr.<br>Factor | Meter Readings [dB(μV)] |        |          |        | Limits     |      | Results    |        | Margin  | Remarks |
|-----------------------------|-------------------|-----------------|-------------------------|--------|----------|--------|------------|------|------------|--------|---------|---------|
|                             |                   |                 | Horizontal              |        | Vertical |        | [dB(μV/m)] |      | [dB(μV/m)] |        |         |         |
| [MHz]                       | [dB(1/m)]         | [dB]            | PK                      | AVE    | PK       | AVE    | PK         | AVE  | PK         | AVE    | [dB]    |         |
| Test condition : TX High Ch |                   |                 |                         |        |          |        |            |      |            |        |         |         |
| 4924.0                      | 27.0              | -15.8           | < 38.0                  | < 28.0 | < 38.0   | < 28.0 | 74.0       | 54.0 | < 49.2     | < 39.2 | > +14.8 |         |
| 7386.0                      | 29.8              | -16.1           | < 38.0                  | < 28.0 | < 38.0   | < 28.0 | 74.0       | 54.0 | < 51.7     | < 41.7 | > +12.3 |         |
| 12310.0                     | 33.3              | -25.9           | < 38.0                  | < 28.0 | < 38.0   | < 28.0 | 74.0       | 54.0 | < 45.4     | < 35.4 | > +18.6 |         |
| 19696.0                     | 40.5              | -43.0           | < 50.0                  | < 40.0 | < 50.0   | < 40.0 | 74.0       | 54.0 | < 47.5     | < 37.5 | > +16.5 |         |
| 22158.0                     | 40.6              | -43.4           | < 50.0                  | < 40.0 | < 50.0   | < 40.0 | 74.0       | 54.0 | < 47.2     | < 37.2 | > +16.8 |         |

Calculated result at 7386.0 MHz, as the worst point shown on underline:

|                   |   |                |
|-------------------|---|----------------|
| Antenna Factor    | = | 29.8 dB(1/m)   |
| Corr. Factor      | = | -16.1 dB       |
| + ) Meter Reading | = | <28.0 dB(μV)   |
| Result            | = | <41.7 dB(μV/m) |

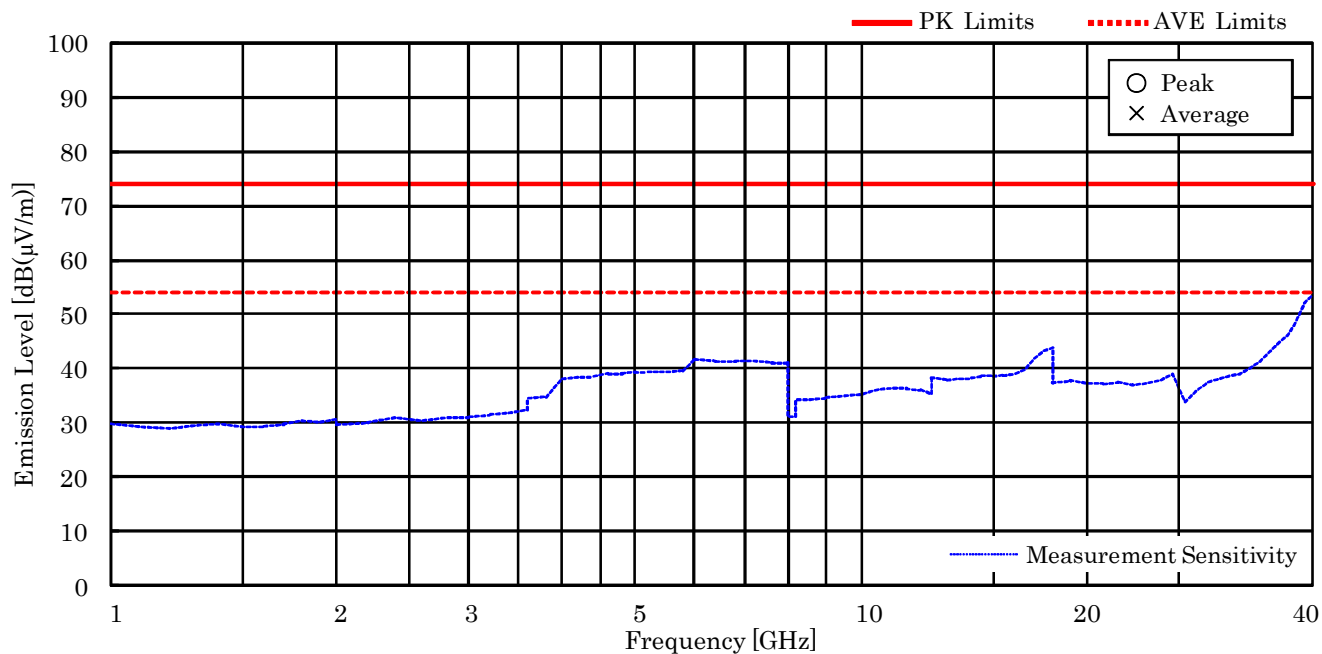
Minimum Margin: 54.0 - <41.7 = >12.3 (dB)

#### NOTES

- Test Distance : 3 m
- The spectrum was checked from 1 GHz to 25 GHz (10th harmonic of the highest fundamental frequency).
- The correction factor is shown as follows:
  - Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
  - Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
  - Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (over 18 GHz)
- The symbol of "<" means "or less".
- The symbol of ">" means "more than".
- PK : Peak / AVE : Average

Mode of EUT : IEEE802.11n

TX High ch (Horizontal/Vertical)



Mode of EUT : Bluetooth Low Energy

Test Date: May 22, 2017
Temp.: 25 °C, Humi: 49 %

| Frequency                  | Antenna | Corr.     | Meter Readings [dB(μ V)] |        |          |        | Limits      |      | Results     |        | Margin  | Remarks |
|----------------------------|---------|-----------|--------------------------|--------|----------|--------|-------------|------|-------------|--------|---------|---------|
|                            | Factor  | Factor    | Horizontal               |        | Vertical |        | [dB(μ V/m)] |      | [dB(μ V/m)] |        | [dB]    |         |
|                            | [MHz]   | [dB(1/m)] | [dB]                     | PK     | AVE      | PK     | AVE         | PK   | AVE         | PK     | AVE     |         |
| Test condition : Tx Low Ch |         |           |                          |        |          |        |             |      |             |        |         |         |
| 4804.0                     | 27.1    | -15.9     | < 38.0                   | < 28.0 | < 38.0   | < 28.0 | 74.0        | 54.0 | < 49.2      | < 39.2 | > +14.8 |         |
| 12010.0                    | 33.5    | -25.3     | < 38.0                   | < 28.0 | < 38.0   | < 28.0 | 74.0        | 54.0 | < 46.2      | < 36.2 | > +17.8 |         |
| 19216.0                    | 40.5    | -43.1     | < 50.0                   | < 40.0 | < 50.0   | < 40.0 | 74.0        | 54.0 | < 47.4      | < 37.4 | > +16.6 |         |

Calculated result at 4804.0 MHz, as the worst point shown on underline:

|                   |   |                |
|-------------------|---|----------------|
| Antenna Factor    | = | 27.1 dB(1/m)   |
| Corr. Factor      | = | -15.9 dB       |
| + ) Meter Reading | = | <28.0 dB(μV)   |
| Result            | = | <39.2 dB(μV/m) |

Minimum Margin: 54.0 - <39.2 => +14.8 (dB)

#### NOTES

- Test Distance : 3 m
- The spectrum was checked from 1 GHz to 25 GHz (10th harmonic of the highest fundamental frequency).
- The correction factor is shown as follows:
  - Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
  - Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
  - Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (over 18 GHz)
- The symbol of "<" means "or less".
- The symbol of ">" means "more than".
- PK : Peak / AVE : Average

Mode of EUT : Bluetooth Low Energy

TX Low ch (Horizontal/Vertical)

