

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

## INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

**Product Name:** 2.4G Hz Wireless Touch Pad

**Brand Name:** N/A

**Model No.:** TP001LR

**Model Difference:** N/A

**FCC ID:** P5A-CB0019

**Report No.:** ER/2014/50080

**Issue Date:** Jun. 06, 2014

**FCC Rule Part:** §15.249

**Prepared for:** ARESON Technology Corp.  
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**Prepared by:** SGS Taiwan Ltd.  
Electronics & Communication Laboratory  
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## VERIFICATION OF COMPLIANCE

**Applicant:** ARESON Technology Corp.  
11F, No. 646, Sec. 5, Chongxin Rd., Sanchung Dist., New Taipei City  
241, Taiwan (R.O.C.)

**Product Description:** 2.4G Hz Touch Pad

**Brand Name:** N/A

**Model No.:** TP001LR

**Model Difference:** N/A

**FCC ID:** P5A-CB0019

**File Number:** ER/2014/50080

**Date of test:** May. 22, 2014 ~ Jun. 06, 2014

**Date of EUT Received:** May. 22, 2014

## We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd., Electronics & Communication Laboratory.

The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4:2009 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.249.

The test results of this report relate only to the tested sample identified in this report.

Test By:

Marcus Tseng

Date:

Jun. 06, 2014

Prepared By:

Marcus Tseng / Engineer  
Julia Chang

Date:

Jun. 06, 2014

Approved By:

Julia Chang / Clerk  
Jim Chang

Date:

Jun. 06, 2014

Jim Chang / Supervisor

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## Version

| Version No. | Date          | Description                  |
|-------------|---------------|------------------------------|
| 00          | Jun. 06, 2014 | Initial creation of document |
|             |               |                              |

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## 1. GENERAL INFORMATION

### 1.1. Product Description

General:

|                      |                                |
|----------------------|--------------------------------|
| Product Name:        | 2.4G Hz Wireless Touch Pad     |
| Brand Name:          | N/A                            |
| Model No.:           | TP001LR                        |
| Model Difference:    | N/A                            |
| Transmit Power       | 92.32dBuV/m at 3m.             |
| Operation Frequency: | 2408 – 2474MHz                 |
| Channel Number:      | 34                             |
| Channel Space:       | 2MHz                           |
| Modulation Type:     | GFSK                           |
| Hardware Version:    | Ver00                          |
| Software Version:    | MA60H435 & MA80M35             |
| Power Supply:        | 3Vdc form AA battery x 2       |
| Antenna Designation: | Printed Antenna, Gain: 1.25dBi |

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## 1.2. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **P5A-CB0019** filing to comply with Section 15.249 of the FCC Part 15, Subpart C Rules.

## 1.3. Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4:2009. Radiated testing was performed at an antenna to EUT distance 3 meters.

## 1.4. Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2009. FCC Registration Number: 990257. The address of SGS Taiwan Ltd. Electronics & Communication Laboratory 1F, No.134, Wukung Road New Taipei City TAIWAN 24803, Canada Registration Number: 4620A-5.

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No.2, Keji 1st Rd., Guishan Township, Taoyuan County, Taiwan which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. FCC Registration Number: 455997. The address of SGS Taiwan Ltd. Electronics & Communication Laboratory 1F, No.134, Wukung Road New Taipei City TAIWAN 24803, IC Registration Number: 4620A-6.

## 1.5. Special Accessories

There are no special accessories used while test was conducted.

## 1.6. Equipment Modifications

There was no modification incorporated into the EUT.

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## 2. SYSTEM TEST CONFIGURATION

### 2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2. EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

### 2.3. Test Procedure

#### 2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7.3.1 of ANSI C63.4-2009. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz and the measurement procedure 7.3 in ANSI 63.4:2009 & 6.2.2 is followed to carry out the test. The CISPR Quasi-Peak and Average detector mode is employed according to §15.107

#### 2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 8 and 13 of ANSI C63.4-2009.

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## 2.4. Limitation

### (1) Conducted Emission

According to section 15.207(a) Conducted Emission Limits is as following.

| Frequency (MHz) | Conducted Limit (dBuV) |         |
|-----------------|------------------------|---------|
|                 | Quasi-Peak             | Average |
| 0.15 – 0.5      | 66 - 56                | 56 - 46 |
| 0.5 – 5         | 56                     | 46      |
| 5 - 30          | 60                     | 50      |

### (2) Radiated Emission 15.249(a)

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following.

| Frequency (MHz) | Field strength of Fundamental | Field strength of Harmonics | Distance (m) |
|-----------------|-------------------------------|-----------------------------|--------------|
| 902 - 928       | 50 mV/m<br>(94dBuV/m)         | 500 uV/m<br>(54dBuV/m)      | 3            |
| 2400 – 2483.5   | 50 mV/m<br>(94dBuV/m)         | 500 uV/m<br>(54dBuV/m)      | 3            |
| 5725 – 5875     | 50 mV/m<br>(94dBuV/m)         | 500 uV/m<br>(54dBuV/m)      | 3            |
| 24.0 – 24.25GHz | 250 mV/m<br>(107.95dBuV/m)    | 2500 uV/m<br>(67.95dBuV/m)  | 3            |

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**(3) Radiated Emission 15.249 (d)**

Emission Radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in Section 15.209 and as below, whichever is the lesser attenuation.

| Frequency<br>(MHz) | Field strength<br>$\mu\text{V/m}$ | Distance (m) | Field strength at 3m<br>$\text{dB}\mu\text{V/m}$ |
|--------------------|-----------------------------------|--------------|--------------------------------------------------|
| 1.705-30           | 30                                | 30           | 69.54                                            |
| 30-88              | 100                               | 3            | 40                                               |
| 88-216             | 150                               | 3            | 43.5                                             |
| 216-960            | 200                               | 3            | 46                                               |
| Above 960          | 500                               | 3            | 54                                               |

**(4) Radiated Emission 15.249(e)**

For frequencies above 1000MHz, the above field strength limits are based on average limits. The peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20dB under any condition of modulation.

- Remark:
1. Emission level in  $\text{dB}\mu\text{V/m} = 20 \log (\mu\text{V/m})$
  2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
  3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of § 15.205
  4. Emission spurious frequency which appearing within the Restricted Bands specified in provision of § 15.205, then the general radiated emission limits in § 15.209 apply.

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## 2.5. Configuration of Tested System

**Fig. 2-1 Radiated Emission & Conducted (Antenna Port) Configuration**

EUT

**Table 2-1 Equipment Used in Tested System**

| Item | Equipment     | Mfr/Brand | Model/Type No. | Series No. | Data Cable | Power Cord |
|------|---------------|-----------|----------------|------------|------------|------------|
| 1.   | Test Software | N/A       | N/A            | N/A        | N/A        | N/A        |

**Note:** All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

**Grounding:** Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

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### 3. SUMMARY OF TEST RESULTS

| FCC Rules     | Description Of Test              | Result    |
|---------------|----------------------------------|-----------|
| §15.207(a)    | AC Power Line Conducted Emission | N/A       |
| §15.249(a)(e) | Radiated Emission                | Compliant |
| §15.249(e)    | 20dB band width Measurement      | Compliant |

### 4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

The EUT is staying in continuous transmitting mode.

Channel Low (2408MHz), Channel Mid (2440MHz), Channel High: (2474MHz) and Standby mode were chosen for full testing.

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) Transmitter for channel Low, Mid and High , and the worst case E2 position was reported.

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## 5. MEASUREMENT UNCERTAINTY

| Test Items                       | Uncertainty             |
|----------------------------------|-------------------------|
| AC Power Line Conducted Emission | +/- 2.586 dB            |
| 20dB Bandwidth                   | +/- 123.36 Hz           |
| Temperature                      | +/- 0.8 °C              |
| Humidity                         | +/- 4.7 %               |
| DC / AC Power Source             | DC= +/- 1%, AC=+/- 0.2% |

Radiated Spurious Emission:

|                         |                         |
|-------------------------|-------------------------|
| Measurement uncertainty | 9kHz - 30MHz: +/- 2.3dB |
|-------------------------|-------------------------|

|                                                              |                            |
|--------------------------------------------------------------|----------------------------|
| Measurement uncertainty<br>(Polarization : <b>Vertical</b> ) | 30MHz - 180MHz: +/- 3.37dB |
|                                                              | 180MHz -417MHz: +/- 3.19dB |
|                                                              | 0.417GHz-1GHz: +/- 3.19dB  |
|                                                              | 1GHz - 18GHz: +/- 4.04dB   |
|                                                              | 18GHz - 40GHz: +/- 4.04dB  |

|                                                                |                            |
|----------------------------------------------------------------|----------------------------|
| Measurement uncertainty<br>(Polarization : <b>Horizontal</b> ) | 30MHz - 167MHz: +/- 4.22dB |
|                                                                | 167MHz -500MHz: +/- 3.44dB |
|                                                                | 0.5GHz-1GHz: +/- 3.39dB    |
|                                                                | 1GHz - 18GHz: +/- 4.08dB   |
|                                                                | 18GHz - 40GHz: +/- 4.08dB  |

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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## 6. CONDUCTED EMISSIONS TEST

### 6.1 Standard Applicable:

According to §15.207, frequency range within 150kHz to 30MHz shall not exceed the Limit table as below.

| Frequency range<br>MHz                                                                                                                                                       | Limits<br>dB(uV) |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------|
|                                                                                                                                                                              | Quasi-peak       | Average  |
| 0.15 to 0.50                                                                                                                                                                 | 66 to 56         | 56 to 46 |
| 0.50 to 5                                                                                                                                                                    | 56               | 46       |
| 5 to 30                                                                                                                                                                      | 60               | 50       |
| Note<br>1.The lower limit shall apply at the transition frequencies<br>2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz. |                  |          |

### 6.2 Measurement Equipment Used:

| Conducted Emission Test Site |            |                         |                  |              |            |
|------------------------------|------------|-------------------------|------------------|--------------|------------|
| EQUIPMENT<br>TYPE            | MFR        | MODEL<br>NUMBER         | SERIAL<br>NUMBER | LAST<br>CAL. | CAL DUE.   |
| EMI Test Receiver            | R&S        | ESCI7                   | 100760           | 05/26/2014   | 05/25/2015 |
| LISN                         | Rolf-Heine | NNB-2/16Z               | 99012            | 03/26/2014   | 03/25/2015 |
| LISN                         | FCC        | FCC-LISN-50/250-25-2-01 | 04034            | 03/19/2014   | 03/18/2015 |
| Coaxial Cables               | N/A        | WK CE Cable             | N/A              | 11/26/2013   | 11/25/2014 |

### 6.3 EUT Setup:

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4:2009
2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
3. The LISN was connected with 120Vac/60Hz power source.

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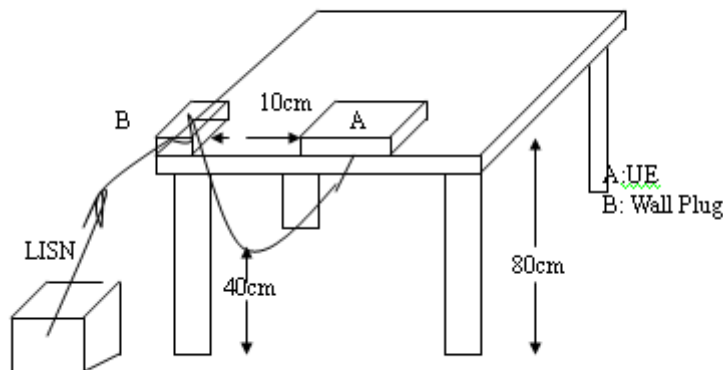
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#### 6.4. Test SET-UP (Block Diagram of Configuration)



#### 6.5. Measurement Procedure:

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed

#### 6.6. Measurement Result:

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

**Test Result: N/A, this device is powered by battery.**

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## 7. RADIATED EMISSION TEST

### 7.1 Measurement Procedure

- 1 The EUT was placed on a turn table which is 0.8m above ground plane.
- 2 The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- 3 EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- 4 When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.
- 5 Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 6 And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 7 Repeat above procedures until all frequency of the interest measured were complete.

Auxiliary Procedure (Setting on Spectrum to capture the reading of emission level):

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz

VBW  $\geq$  RBW

Sweep = auto

Detector function = peak

Trace = max hold

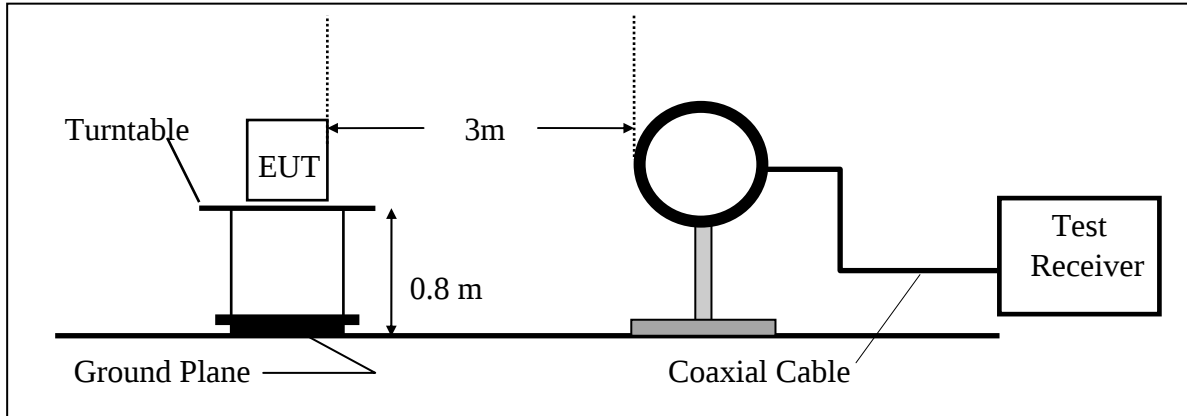
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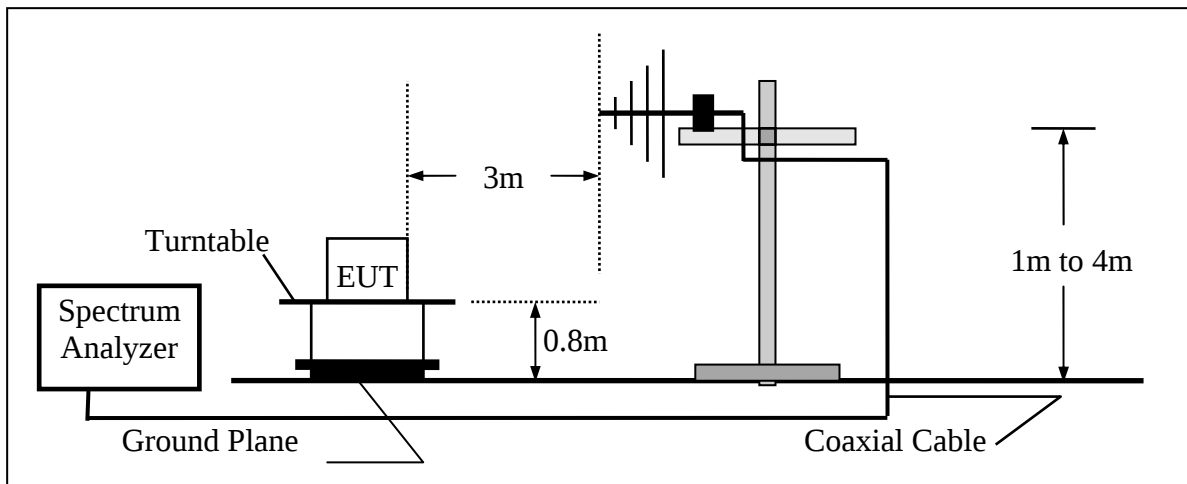
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## 7.2. Test SET-UP (Block Diagram of Configuration)

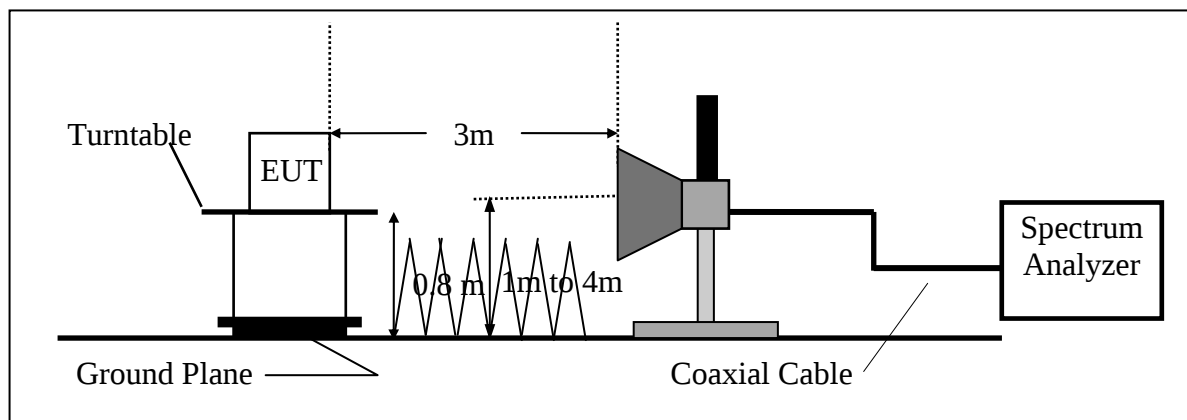
### (A) Radiated Emission Test Set-Up, Frequency Below 30MHz



### (B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



### (B) Radiated Emission Test Set-UP Frequency Over 1 GHz



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### 7.3 Measurement Equipment Used:

| 966 Chamber            |                       |              |               |            |            |
|------------------------|-----------------------|--------------|---------------|------------|------------|
| EQUIPMENT TYPE         | MFR                   | MODEL NUMBER | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |
| EMI Test Receiver      | R&S                   | ESCI7        | 100760        | 05/27/2013 | 05/26/2014 |
| Spectrum Analyzer      | Agilent               | E4446A       | MY51100003    | 05/19/2014 | 05/18/2015 |
| EXA Spectrum Analyzer  | Agilent               | N9010A       | MY50420195    | 01/20/2014 | 01/19/2015 |
| Spectrum Analyzer      | R&S                   | FSV-30       | 101398        | 10/22/2013 | 10/21/2014 |
| Loop Antenna           | ETS.LINDGREN          | 6502         | 00148045      | 07/05/2013 | 07/04/2014 |
| Bilog Antenna          | SCHWAZBECK            | VULB9168     | 378           | 01/02/2014 | 01/01/2015 |
| Horn antenna           | ETS.LINDGREN          | 3117         | 123995        | 05/19/2014 | 05/18/2015 |
| Horn Antenna           | Schwarzbeck           | BBHA9170     | 184           | 01/23/2014 | 01/22/2015 |
| Pre-Amplifier          | Agilent               | 8447D        | 2944A07676    | 01/03/2014 | 01/02/2015 |
| Pre-Amplifier          | Agilent               | 8449B        | 3008A00578    | 01/03/2014 | 01/02/2015 |
| Pre-Amplifier          | EMC Instruments Corp. | EMC184045    | 980135        | 01/24/2014 | 01/23/2015 |
| Filter 2400-2483.5 MHz | EWT                   | EWT-14-0166  | M2            | 02/27/2014 | 02/26/2015 |
| Attenuator             | Mini-Circuit          | BW-S10W2+    | 004           | 02/27/2014 | 02/26/2015 |
| Turn Table             | HD                    | DT420        | N/A           | N.C.R      | N.C.R      |
| Antenna Tower          | HD                    | MA240-N      | 240/657       | N.C.R      | N.C.R      |
| Controller             | HD                    | HD100        | N/A           | N.C.R      | N.C.R      |
| Low Loss Cable         | Huber Suhner          | 966_Rx       | 9             | 01/03/2014 | 01/02/2015 |
| 3m Site NSA            | SGS                   | 966 chamber  | N/A           | 07/15/2013 | 07/14/2014 |

|                   |     |       |        |            |            |
|-------------------|-----|-------|--------|------------|------------|
| EMI Test Receiver | R&S | ESCI7 | 100760 | 05/27/2014 | 05/26/2015 |
|-------------------|-----|-------|--------|------------|------------|

*Note: The measurement was taken place with the long duration of the time, and additional equipment list as shown above indicate those equipment of which has been subject to undertake the calibration in intermediate period of time of the measurement.*

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## 7.4 Field Strength Calculation

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

$$FS = RA + AF + CL - AG$$

|       |                        |                                            |
|-------|------------------------|--------------------------------------------|
| Where | FS = Field Strength    | CL = Cable Attenuation Factor (Cable Loss) |
|       | RA = Reading Amplitude | AG = Amplifier Gain                        |
|       | AF = Antenna Factor    |                                            |

Note: 15.31(o) The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported.

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## 7.5 Measurement Result

### Radiated Spurious Emission Measurement Result (MAIN)

|                       |           |                          |                 |
|-----------------------|-----------|--------------------------|-----------------|
| Operation Band        | :2.4G     | Test Date                | :2014-05-29     |
| Fundamental Frequency | :2408 MHz | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :MAIN LOW | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane | Measurement Antenna Pol. | :VERTICAL       |

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.   | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Safe   |
|---------|---------|----------|---------------|--------|--------|--------|--------|
|         |         | Mode     | Reading Level |        | FS     | @3m    | Margin |
| MHz     | F/H/E/S | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 2407.54 | F       | Average  | 85.23         | 2.50   | 87.73  | 94.00  | -6.27  |
| 2407.54 | F       | Peak     | 87.55         | 2.50   | 90.05  | 114.00 | -23.95 |

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|                       |           |                          |                 |
|-----------------------|-----------|--------------------------|-----------------|
| Operation Band        | :2.4G     | Test Date                | :2014-05-29     |
| Fundamental Frequency | :2408 MHz | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :MAIN LOW | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane | Measurement Antenna Pol. | :HORIZONTAL     |

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.   | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Safe   |
|---------|---------|----------|---------------|--------|--------|--------|--------|
| MHz     | F/H/E/S | Mode     | Reading Level |        | FS     | @3m    | Margin |
|         |         | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 2408.53 | F       | Average  | 87.63         | 2.51   | 90.14  | 94.00  | -3.86  |
| 2408.53 | F       | Peak     | 89.81         | 2.51   | 92.32  | 114.00 | -21.68 |

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|                       |           |                          |                 |
|-----------------------|-----------|--------------------------|-----------------|
| Operation Band        | :2.4G     | Test Date                | :2014-05-29     |
| Fundamental Frequency | :2440 MHz | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :MAIN MID | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane | Measurement Antenna Pol. | :VERTICAL       |

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.   | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Safe   |
|---------|---------|----------|---------------|--------|--------|--------|--------|
|         |         | Mode     | Reading Level |        | FS     | @3m    | Margin |
| MHz     | F/H/E/S | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 2439.54 | F       | Average  | 85.01         | 2.66   | 87.67  | 94.00  | -6.33  |
| 2439.54 | F       | Peak     | 87.30         | 2.66   | 89.96  | 114.00 | -24.04 |

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|                       |           |                          |                 |
|-----------------------|-----------|--------------------------|-----------------|
| Operation Band        | :2.4G     | Test Date                | :2014-05-29     |
| Fundamental Frequency | :2440 MHz | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :MAIN MID | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane | Measurement Antenna Pol. | :HORIZONTAL     |

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.   | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Safe   |
|---------|---------|----------|---------------|--------|--------|--------|--------|
|         |         | Mode     | Reading Level |        | FS     | @3m    | Margin |
| MHz     | F/H/E/S | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 2439.50 | F       | Average  | 76.82         | 2.66   | 79.48  | 94.00  | -14.52 |
| 2439.50 | F       | Peak     | 79.02         | 2.66   | 81.68  | 114.00 | -32.32 |

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|-----------------------|------------|--------------------------|-----------------|
| Operation Band        | :2.4G      | Test Date                | :2014-05-30     |
| Fundamental Frequency | :2480 MHz  | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :MAIN HIGH | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane  | Measurement Antenna Pol. | :VERTICAL       |

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.   | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Safe   |
|---------|---------|----------|---------------|--------|--------|--------|--------|
| MHz     | F/H/E/S | Mode     | Reading Level |        | FS     | @3m    | Margin |
|         |         | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 2473.54 | F       | Average  | 84.73         | 2.73   | 87.46  | 94.00  | -6.54  |
| 2473.54 | F       | Peak     | 86.33         | 2.73   | 89.06  | 114.00 | -24.94 |

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|                       |            |                          |                 |
|-----------------------|------------|--------------------------|-----------------|
| Operation Band        | :2.4G      | Test Date                | :2014-05-29     |
| Fundamental Frequency | :2480 MHz  | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :MAIN HIGH | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane  | Measurement Antenna Pol. | :HORIZONTAL     |

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.   | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Safe   |
|---------|---------|----------|---------------|--------|--------|--------|--------|
| MHz     | F/H/E/S | Mode     | Reading Level |        | FS     | @3m    | Margin |
|         |         | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 2473.53 | F       | Average  | 85.98         | 2.73   | 88.71  | 94.00  | -5.29  |
| 2473.53 | F       | Peak     | 88.34         | 2.73   | 91.07  | 114.00 | -22.93 |

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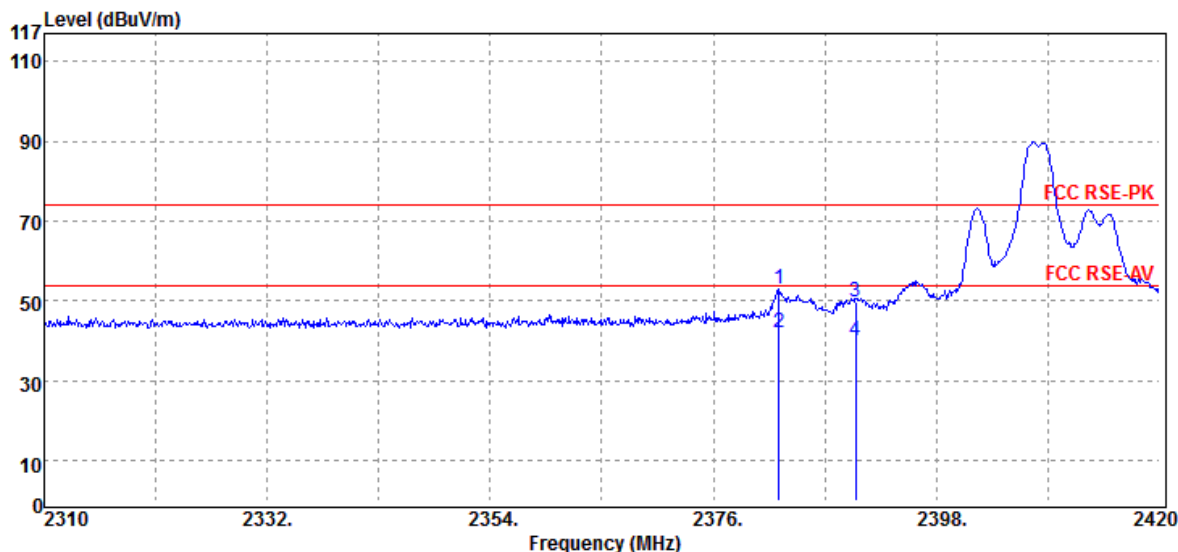
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**Radiated Emission Measurement Result**

|                       |                |                          |                 |
|-----------------------|----------------|--------------------------|-----------------|
| Operation Band        | :2.4G          | Test Date                | :2014-05-22     |
| Fundamental Frequency | :2408 MHz      | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :Band Edge LOW | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane      | Measurement Antenna Pol. | :VERTICAL       |



Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.   | Note    | Detector | Spectrum      | Factor | Actual | Limit | Margin |
|---------|---------|----------|---------------|--------|--------|-------|--------|
| MHz     | F/H/E/S | Mode     | Reading Level | dB     | FS     | @3m   | dB     |
| 2382.49 | S       | Peak     | 50.52         | 2.38   | 52.90  | 74.00 | -21.10 |
| 2382.49 | S       | Average  | 39.54         | 2.38   | 41.92  | 54.00 | -12.08 |
| 2390.00 | E       | Peak     | 47.48         | 2.42   | 49.90  | 74.00 | -24.10 |
| 2390.00 | E       | Average  | 37.48         | 2.42   | 39.90  | 54.00 | -14.10 |

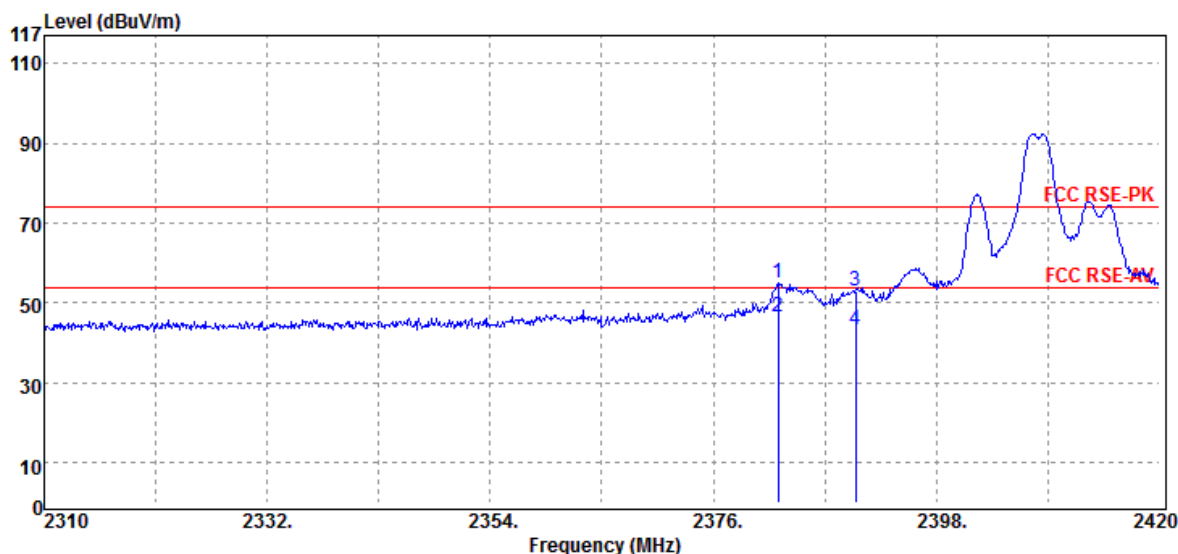
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Operation Band :2.4G  
 Fundamental Frequency :2408 MHz  
 Operation Mode :Band Edge LOW  
 EUT Pol. :E2 Plane

Test Date :2014-05-22  
 Temp./Humi. :21 deg\_C/61 RH  
 Engineer :Tin  
 Measurement Antenna Pol. :HORIZONTAL



Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.   | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Margin |
|---------|---------|----------|---------------|--------|--------|--------|--------|
| MHz     | F/H/E/S | Mode     | Reading Level |        | FS     | @3m    |        |
| MHz     | F/H/E/S | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 2382.38 | S       | Peak     | 52.52         | 2.38   | 54.90  | 74.00  | -19.10 |
| 2382.38 | S       | Average  | 44.25         | 2.38   | 46.63  | 54.00  | -7.37  |
| 2390.00 | E       | Peak     | 50.79         | 2.42   | 53.21  | 74.00  | -20.79 |
| 2390.00 | E       | Average  | 40.95         | 2.42   | 43.37  | 54.00  | -10.63 |

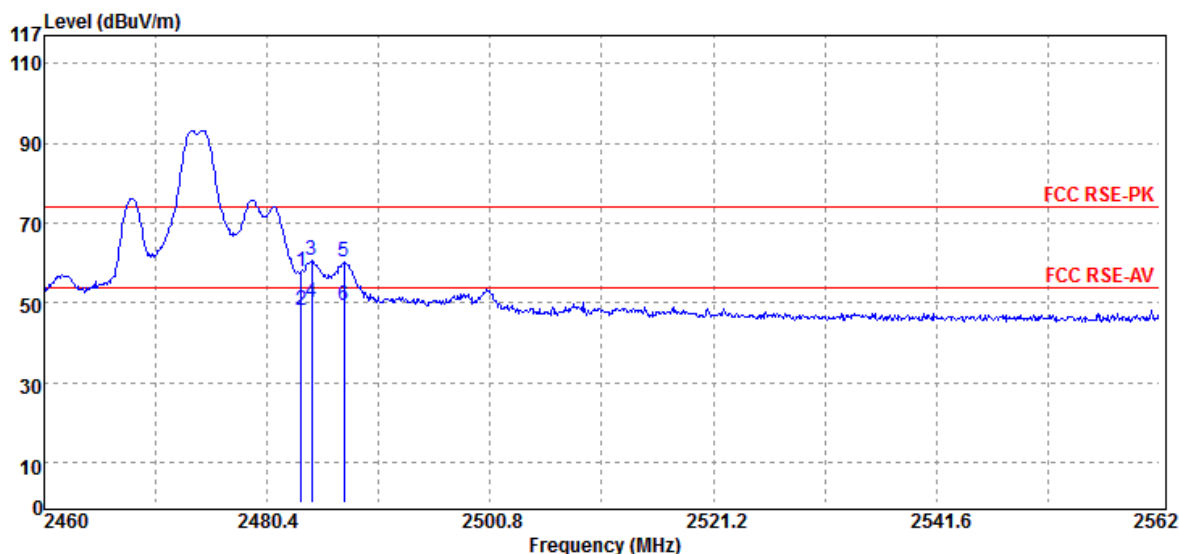
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Operation Band :2.4G  
 Fundamental Frequency :2474 MHz  
 Operation Mode :Band Edge HIGH  
 EUT Pol. :E2 Plane

Test Date :2014-05-22  
 Temp./Humi. :21 deg\_C/61 RH  
 Engineer :Tin  
 Measurement Antenna Pol. :VERTICAL



Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.   | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Margin |
|---------|---------|----------|---------------|--------|--------|--------|--------|
| MHz     | F/H/E/S | Mode     | Reading Level |        | FS     | @3m    |        |
| MHz     | F/H/E/S | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 2483.50 | E       | Peak     | 55.09         | 2.74   | 57.83  | 74.00  | -16.17 |
| 2483.50 | E       | Average  | 45.28         | 2.74   | 48.02  | 54.00  | -5.98  |
| 2484.48 | S       | Peak     | 57.82         | 2.76   | 60.58  | 74.00  | -13.42 |
| 2484.48 | S       | Average  | 47.31         | 2.76   | 50.07  | 54.00  | -3.93  |
| 2487.44 | S       | Peak     | 57.42         | 2.76   | 60.18  | 74.00  | -13.82 |
| 2487.44 | S       | Average  | 46.57         | 2.76   | 49.33  | 54.00  | -4.67  |

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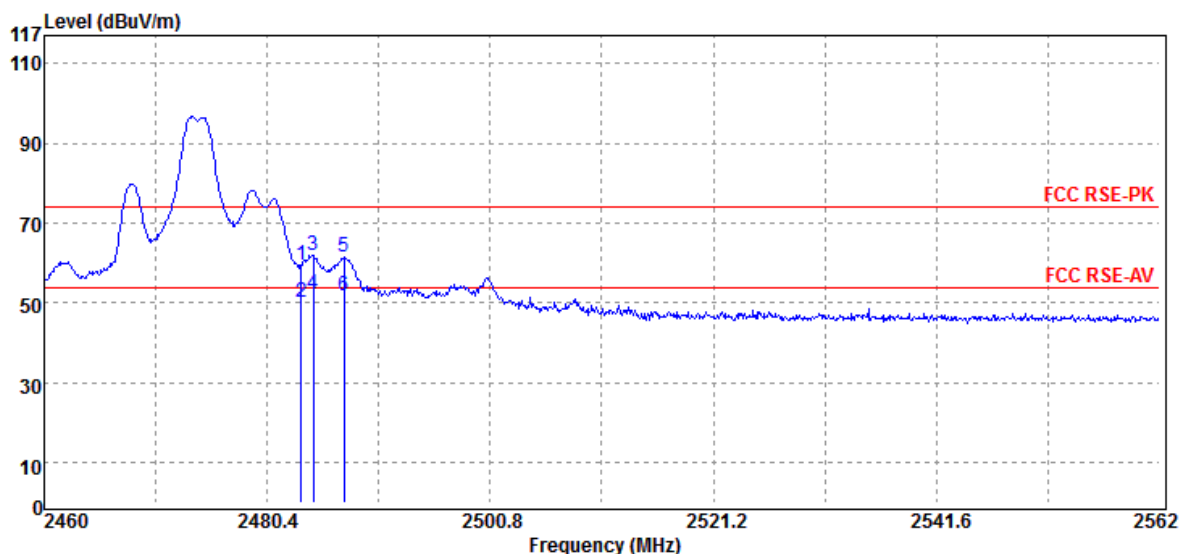
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|                       |                 |                          |                 |
|-----------------------|-----------------|--------------------------|-----------------|
| Operation Band        | :2.4G           | Test Date                | :2014-05-22     |
| Fundamental Frequency | :2474 MHz       | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :Band Edge HIGH | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane       | Measurement Antenna Pol. | :HORIZONTAL     |



Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.   | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Margin |
|---------|---------|----------|---------------|--------|--------|--------|--------|
| MHz     | F/H/E/S | Mode     | Reading Level |        | FS     | @3m    |        |
| MHz     | F/H/E/S | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 2483.50 | E       | Peak     | 56.71         | 2.74   | 59.45  | 74.00  | -14.55 |
| 2483.50 | E       | Average  | 47.48         | 2.74   | 50.22  | 54.00  | -3.78  |
| 2484.58 | S       | Peak     | 59.15         | 2.76   | 61.91  | 74.00  | -12.09 |
| 2484.58 | S       | Average  | 48.60         | 2.76   | 51.36  | 54.00  | -2.64  |
| 2487.44 | S       | Peak     | 58.73         | 2.76   | 61.49  | 74.00  | -12.51 |
| 2487.44 | S       | Average  | 48.14         | 2.76   | 50.90  | 54.00  | -3.10  |

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**Radiated Spurious Emission Measurement Result**

|                       |           |                          |                 |
|-----------------------|-----------|--------------------------|-----------------|
| Operation Band        | :2.4G     | Test Date                | :2014-05-22     |
| Fundamental Frequency | :2408 MHz | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :TX LOW   | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane | Measurement Antenna Pol. | :VERTICAL       |

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.    | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Margin |
|----------|---------|----------|---------------|--------|--------|--------|--------|
|          |         | Mode     | Reading Level |        | FS     | @3m    |        |
| MHz      | F/H/E/S | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 38.73    | S       | Peak     | 38.79         | -13.51 | 25.28  | 40.00  | -14.72 |
| 160.95   | S       | Peak     | 33.32         | -12.66 | 20.66  | 43.50  | -22.84 |
| 393.75   | S       | Peak     | 30.33         | -9.30  | 21.03  | 46.00  | -24.97 |
| 541.19   | S       | Peak     | 28.35         | -7.60  | 20.75  | 46.00  | -25.25 |
| 683.78   | S       | Peak     | 28.03         | -3.67  | 24.36  | 46.00  | -21.64 |
| 927.25   | S       | Peak     | 27.67         | -0.17  | 27.50  | 46.00  | -18.50 |
| 4816.00  | H       | Peak     | 49.65         | 6.85   | 56.50  | 74.00  | -17.50 |
| 4816.00  | H       | Average  | 42.37         | 6.85   | 49.22  | 54.00  | -4.78  |
| 7224.00  | H       | ---      |               |        |        |        |        |
| 9632.00  | H       | ---      |               |        |        |        |        |
| 12040.00 | H       | ---      |               |        |        |        |        |
| 14448.00 | H       | ---      |               |        |        |        |        |
| 16856.00 | H       | ---      |               |        |        |        |        |
| 19264.00 | H       | ---      |               |        |        |        |        |
| 21672.00 | H       | ---      |               |        |        |        |        |
| 24080.00 | H       | ---      |               |        |        |        |        |

*Note: No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).*

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|                       |           |                          |                 |
|-----------------------|-----------|--------------------------|-----------------|
| Operation Band        | :2.4G     | Test Date                | :2014-05-22     |
| Fundamental Frequency | :2408 MHz | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :TX LOW   | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane | Measurement Antenna Pol. | :HORIZONTAL     |

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.    | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Margin |
|----------|---------|----------|---------------|--------|--------|--------|--------|
|          |         | Mode     | Reading Level |        | FS     | @3m    |        |
| MHz      | F/H/E/S | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 39.70    | S       | Peak     | 31.63         | -13.45 | 18.18  | 40.00  | -21.82 |
| 191.99   | S       | Peak     | 33.48         | -14.82 | 18.66  | 43.50  | -24.84 |
| 384.05   | S       | Peak     | 34.22         | -9.50  | 24.72  | 46.00  | -21.28 |
| 557.68   | S       | Peak     | 27.93         | -6.84  | 21.09  | 46.00  | -24.91 |
| 696.39   | S       | Peak     | 31.13         | -3.94  | 27.19  | 46.00  | -18.81 |
| 963.14   | S       | Peak     | 27.76         | 0.20   | 27.96  | 54.00  | -26.04 |
| 4816.00  | H       | Peak     | 46.07         | 6.85   | 52.92  | 74.00  | -21.08 |
| 4816.00  | H       | Average  | 37.60         | 6.85   | 44.45  | 54.00  | -9.55  |
| 7224.00  | H       | ---      |               |        |        |        |        |
| 9632.00  | H       | ---      |               |        |        |        |        |
| 12040.00 | H       | ---      |               |        |        |        |        |
| 14448.00 | H       | ---      |               |        |        |        |        |
| 16856.00 | H       | ---      |               |        |        |        |        |
| 19264.00 | H       | ---      |               |        |        |        |        |
| 21672.00 | H       | ---      |               |        |        |        |        |
| 24080.00 | H       | ---      |               |        |        |        |        |

Note: No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

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|                       |           |                          |                 |
|-----------------------|-----------|--------------------------|-----------------|
| Operation Band        | :2.4G     | Test Date                | :2014-05-22     |
| Fundamental Frequency | :2440 MHz | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :TX MID   | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane | Measurement Antenna Pol. | :VERTICAL       |

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.    | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Margin |
|----------|---------|----------|---------------|--------|--------|--------|--------|
|          |         | Mode     | Reading Level |        | FS     | @3m    |        |
| MHz      | F/H/E/S | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 38.73    | S       | Peak     | 38.56         | -13.51 | 25.05  | 40.00  | -14.95 |
| 150.28   | S       | Peak     | 34.02         | -12.79 | 21.23  | 43.50  | -22.27 |
| 391.81   | S       | Peak     | 29.90         | -9.35  | 20.55  | 46.00  | -25.45 |
| 548.95   | S       | Peak     | 29.18         | -7.40  | 21.78  | 46.00  | -24.22 |
| 675.05   | S       | Peak     | 28.22         | -3.84  | 24.38  | 46.00  | -21.62 |
| 949.56   | S       | Peak     | 27.49         | 0.18   | 27.67  | 46.00  | -18.33 |
| 4880.00  | H       | Peak     | 50.83         | 6.95   | 57.78  | 74.00  | -16.22 |
| 4880.00  | H       | Average  | 42.24         | 6.95   | 49.19  | 54.00  | -4.81  |
| 7320.00  | H       | ---      |               |        |        |        |        |
| 9760.00  | H       | ---      |               |        |        |        |        |
| 12200.00 | H       | ---      |               |        |        |        |        |
| 14640.00 | H       | ---      |               |        |        |        |        |
| 17080.00 | H       | ---      |               |        |        |        |        |
| 19520.00 | H       | ---      |               |        |        |        |        |
| 21960.00 | H       | ---      |               |        |        |        |        |
| 24400.00 | H       | ---      |               |        |        |        |        |

Note: No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

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|-----------------------|-----------|--------------------------|-----------------|
| Operation Band        | :2.4G     | Test Date                | :2014-05-22     |
| Fundamental Frequency | :2440 MHz | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :TX MID   | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane | Measurement Antenna Pol. | :HORIZONTAL     |

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.    | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Margin |
|----------|---------|----------|---------------|--------|--------|--------|--------|
|          |         | Mode     | Reading Level |        | FS     | @3m    |        |
| MHz      | F/H/E/S | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 39.70    | S       | Peak     | 31.16         | -13.45 | 17.71  | 40.00  | -22.29 |
| 216.24   | S       | Peak     | 33.20         | -14.72 | 18.48  | 46.00  | -27.52 |
| 384.05   | S       | Peak     | 35.53         | -9.50  | 26.03  | 46.00  | -19.97 |
| 555.74   | S       | Peak     | 28.68         | -6.98  | 21.70  | 46.00  | -24.30 |
| 696.39   | S       | Peak     | 32.01         | -3.94  | 28.07  | 46.00  | -17.93 |
| 743.92   | S       | Peak     | 31.77         | -2.96  | 28.81  | 46.00  | -17.19 |
| 4880.00  | H       | Peak     | 44.94         | 6.95   | 51.89  | 74.00  | -22.11 |
| 4880.00  | H       | Average  | 41.91         | 6.95   | 48.86  | 54.00  | -5.14  |
| 7320.00  | H       | ---      |               |        |        |        |        |
| 9760.00  | H       | ---      |               |        |        |        |        |
| 12200.00 | H       | ---      |               |        |        |        |        |
| 14640.00 | H       | ---      |               |        |        |        |        |
| 17080.00 | H       | ---      |               |        |        |        |        |
| 19520.00 | H       | ---      |               |        |        |        |        |
| 21960.00 | H       | ---      |               |        |        |        |        |
| 24400.00 | H       | ---      |               |        |        |        |        |

Note: No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

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|-----------------------|-----------|--------------------------|-----------------|
| Operation Band        | :2.4G     | Test Date                | :2014-05-22     |
| Fundamental Frequency | :2474 MHz | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :TX HIGH  | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane | Measurement Antenna Pol. | :VERTICAL       |

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.    | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Margin |
|----------|---------|----------|---------------|--------|--------|--------|--------|
|          |         | Mode     | Reading Level |        | FS     | @3m    |        |
| MHz      | F/H/E/S | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 39.70    | S       | Peak     | 38.89         | -13.45 | 25.44  | 40.00  | -14.56 |
| 156.10   | S       | Peak     | 33.82         | -12.70 | 21.12  | 43.50  | -22.38 |
| 385.02   | S       | Peak     | 30.27         | -9.47  | 20.80  | 46.00  | -25.20 |
| 557.68   | S       | Peak     | 27.76         | -6.84  | 20.92  | 46.00  | -25.08 |
| 664.38   | S       | Peak     | 28.41         | -4.19  | 24.22  | 46.00  | -21.78 |
| 913.67   | S       | Peak     | 28.06         | -0.42  | 27.64  | 46.00  | -18.36 |
| 4948.00  | H       | Peak     | 50.29         | 7.06   | 57.35  | 74.00  | -16.65 |
| 4948.00  | H       | Average  | 41.85         | 7.06   | 48.91  | 54.00  | -5.09  |
| 7422.00  | H       | ---      |               |        |        |        |        |
| 9896.00  | H       | ---      |               |        |        |        |        |
| 12370.00 | H       | ---      |               |        |        |        |        |
| 14844.00 | H       | ---      |               |        |        |        |        |
| 17318.00 | H       | ---      |               |        |        |        |        |
| 19792.00 | H       | ---      |               |        |        |        |        |
| 22266.00 | H       | ---      |               |        |        |        |        |
| 24740.00 | H       | ---      |               |        |        |        |        |

Note: No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

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|                       |           |                          |                 |
|-----------------------|-----------|--------------------------|-----------------|
| Operation Band        | :2.4G     | Test Date                | :2014-05-22     |
| Fundamental Frequency | :2474 MHz | Temp./Humi.              | :21 deg_C/61 RH |
| Operation Mode        | :TX HIGH  | Engineer                 | :Tin            |
| EUT Pol.              | :E2 Plane | Measurement Antenna Pol. | :HORIZONTAL     |

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

| Freq.    | Note    | Detector | Spectrum      | Factor | Actual | Limit  | Margin |
|----------|---------|----------|---------------|--------|--------|--------|--------|
|          |         | Mode     | Reading Level |        | FS     | @3m    |        |
| MHz      | F/H/E/S | PK/QP/AV | dBμV          | dB     | dBμV/m | dBμV/m | dB     |
| 39.70    | S       | Peak     | 31.51         | -13.45 | 18.06  | 40.00  | -21.94 |
| 216.24   | S       | Peak     | 33.27         | -14.72 | 18.55  | 46.00  | -27.45 |
| 384.05   | S       | Peak     | 34.94         | -9.50  | 25.44  | 46.00  | -20.56 |
| 551.86   | S       | Peak     | 28.92         | -7.24  | 21.68  | 46.00  | -24.32 |
| 696.39   | S       | Peak     | 31.61         | -3.94  | 27.67  | 46.00  | -18.33 |
| 909.79   | S       | Peak     | 28.89         | -0.50  | 28.39  | 46.00  | -17.61 |
| 4948.00  | H       | Peak     | 43.31         | 7.06   | 50.37  | 74.00  | -23.63 |
| 4948.00  | H       | Average  | 39.15         | 7.06   | 46.21  | 54.00  | -7.79  |
| 7422.00  | H       | ---      |               |        |        |        |        |
| 9896.00  | H       | ---      |               |        |        |        |        |
| 12370.00 | H       | ---      |               |        |        |        |        |
| 14844.00 | H       | ---      |               |        |        |        |        |
| 17318.00 | H       | ---      |               |        |        |        |        |
| 19792.00 | H       | ---      |               |        |        |        |        |
| 22266.00 | H       | ---      |               |        |        |        |        |
| 24740.00 | H       | ---      |               |        |        |        |        |

Note: No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

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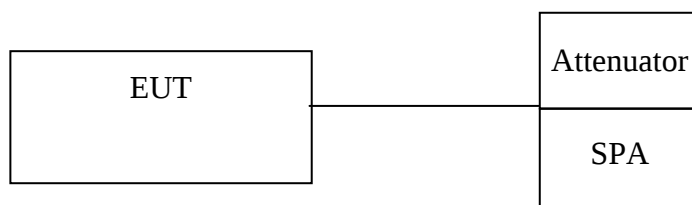
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## 8. 20 dB BAND WIDTH MEASUREMENT

### 8.1 Measurement Procedure

- 1 Place the EUT on the table and set it in transmitting mode.
- 2 Set the spectrum analyzer Frequency = fundamental frequency, RBW=100 kHz, VBW = 300 kHz, Span= 5MHz, Sweep=auto, and Max hold for 20dB test.
- 3 Mark the max reading.
- 4 Repeat above procedures until all frequency measured were complete.

### 8.2. Test SET-UP (Block Diagram of Configuration)



### 8.3. Measurement Equipment Used:

| Conducted Emission Test Site |               |                 |               |            |            |
|------------------------------|---------------|-----------------|---------------|------------|------------|
| EQUIPMENT TYPE               | MFR           | MODEL NUMBER    | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |
| Power Meter                  | Anritsu       | ML2495A         | 1005007       | 01/13/2014 | 01/12/2015 |
| Power Sensor                 | Anritsu       | MA2411B         | 917032        | 01/13/2014 | 01/12/2015 |
| Spectrum Analyzer            | Agilent       | E4446A          | MY51100003    | 05/19/2014 | 05/18/2015 |
| Spectrum Analyzer            | Agilent       | E4440A          | MY45304525    | 03/08/2014 | 03/07/2015 |
| DC Block                     | Mini-Circuits | BLK-18-S+       | 1             | 02/27/2014 | 02/26/2015 |
| Low Loss Cable               | HUBER+SUHNER  | SUCOFLEX 104PEA | N/A           | 01/03/2014 | 01/02/2015 |
| Attenuator                   | Mini-Circuit  | BW-S10W2+       | 002           | 02/27/2014 | 02/26/2015 |
| Splitter                     | Agilent       | 11636B          | N/A           | 02/27/2014 | 02/26/2015 |

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#### 8.4. Measurement Results:

##### 20dB Bandwidth:

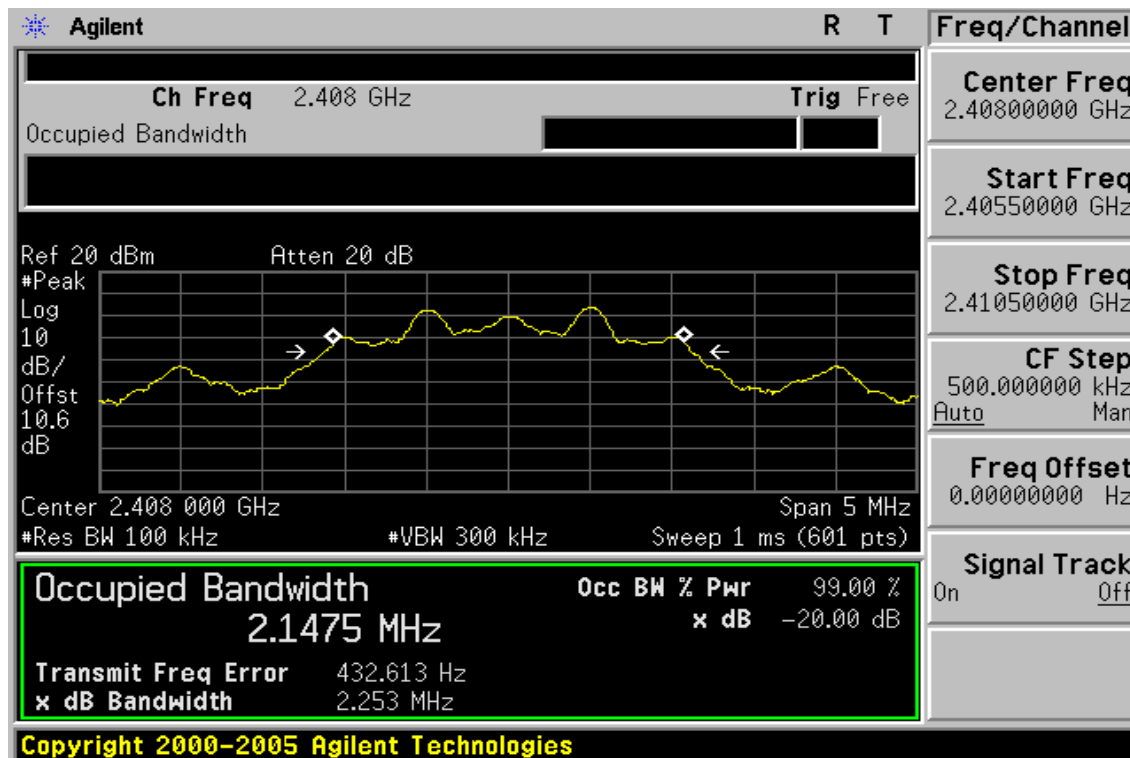
| Frequency<br>MHz | 20dB Bandwidth<br>(MHz) |
|------------------|-------------------------|
| 2408             | 2.253                   |
| 2440             | 2.248                   |
| 2474             | 2.251                   |

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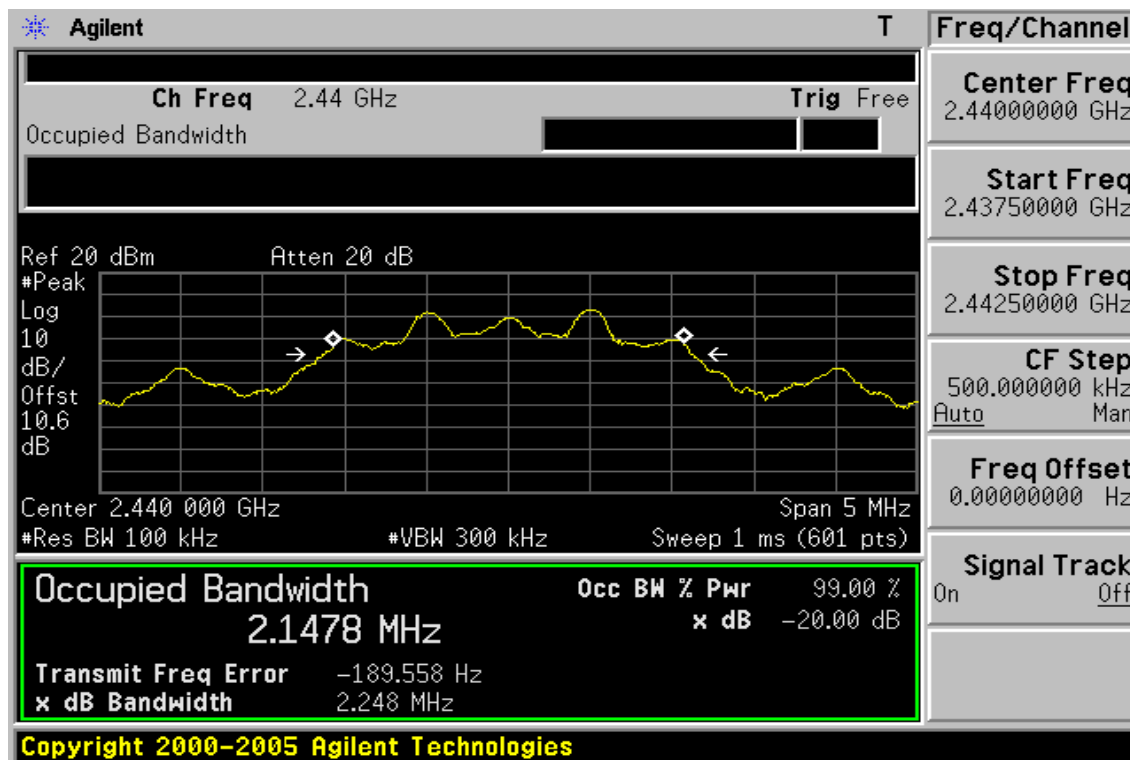
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## 20dB Bandwidth Test Data CH-Low



## 20dB Bandwidth Test Data CH-Mid



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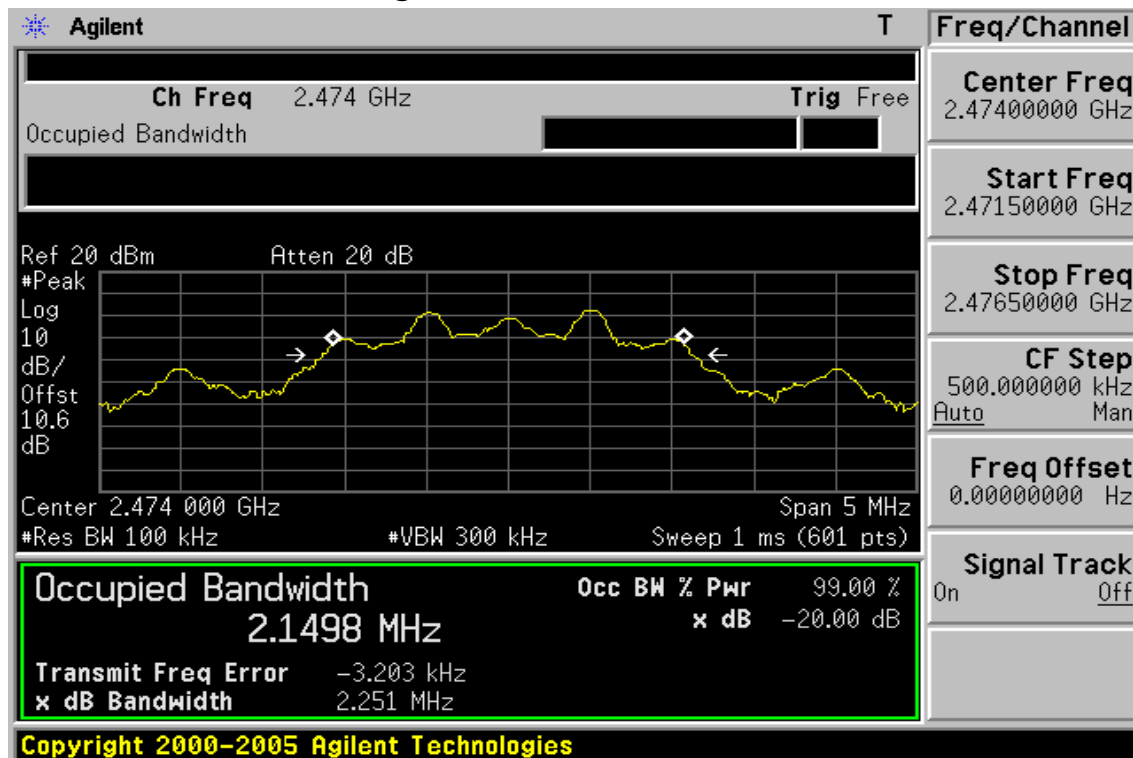
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**20dB Bandwidth Test Data CH- High**

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