

**FCC 47 CFR PART15 SUBPART E****Test Report****For****Product Name: 10.1 inchesTablet****Brand Name: LYNX****Model No.: 850-033343****Series Model.: 850-033465,850-033466,850-033467,850-033468,850-033469****FCC ID: 2ABMA-888-700-213****Test Report Number:****C160512R01-RPW2****Issued for****Lynx Innovation Limited****Unit 8A, 331 Rosedale Road,Albany 0632,North Shore City ,New Zealand****Issued by****Compliance Certification Services Inc.****Kun shan Laboratory****No.10 Weiye Rd., Innovation park, Eco&Tec,  
Development Zone, Kunshan City, Jiangsu, China****TEL: 86-512-57355888****FAX: 86-512-57370818**

TESTING CERT #2541.01

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## Revision History

| Rev.   | Issue Date   | Report NO.      | Effect Page | Contents            |
|--------|--------------|-----------------|-------------|---------------------|
| 00     | May 19, 2016 | C160512R01-RPW2 | ALL         | N/A                 |
| update | May 24, 2016 | C160512R01-RPW2 | P1,P4,P5    | Update Product Name |

# 1 TEST RESULT CERTIFICATION

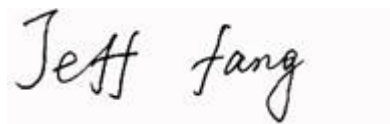
|                               |                                                                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Name:</b>          | 10.1 inches Tablet                                                                                                                |
| <b>Trade Name:</b>            | LYNX                                                                                                                              |
| <b>Model Name.:</b>           | 850-033343                                                                                                                        |
| <b>Series Model:</b>          | 850-033465,850-033466,850-033467,850-033468,850-033469                                                                            |
| <b>Applicant Discrepancy:</b> | Initial                                                                                                                           |
| <b>Device Category:</b>       | Mobile unit                                                                                                                       |
| <b>Date of Test:</b>          | May 13, 2016 ~ May 19, 2016                                                                                                       |
| <b>Applicant:</b>             | <b>Lynx Innovation Limited</b><br>Unit 8A, 331 Rosedale Road, Albany 0632, North Shore City, New Zealand                          |
| <b>Manufacturer:</b>          | <b>Jiaxing Lynx Displays Limited</b><br>1F, Bldg#7, No.3288, Zhongshan Xi Road, Xiuzhou Industrial Park, Jiaxing, Zhejiang, China |
| <b>Application Type:</b>      | Certification                                                                                                                     |

| APPLICABLE STANDARDS         |                         |
|------------------------------|-------------------------|
| STANDARD                     | TEST RESULT             |
| FCC 47 CFR Part 15 Subpart E | No non-compliance noted |

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.407 and KDB 789033.

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

**Approved by:**

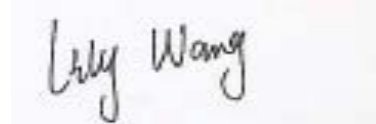


Jeff.Fang

RF Manager

Compliance Certification Service Inc.

**Tested by:**



Lily.Wang

Test Engineer

Compliance Certification Service Inc.

**2 EUT DESCRIPTION**

|                               |                                                                                                                                                                                                                                                                                     |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Name:</b>          | 10.1 inches Tablet                                                                                                                                                                                                                                                                  |
| <b>Brand Name:</b>            | LYNX                                                                                                                                                                                                                                                                                |
| <b>Model Name:</b>            | 850-033343                                                                                                                                                                                                                                                                          |
| <b>Series Model:</b>          | 850-033465,850-033466,850-033467,850-033468,850-033469                                                                                                                                                                                                                              |
| <b>Model Discrepancy:</b>     | Only for market segment                                                                                                                                                                                                                                                             |
| <b>Power Adapter:</b>         | DC 12V                                                                                                                                                                                                                                                                              |
| <b>Frequency Range :</b>      | 5725MHz-5850MHz                                                                                                                                                                                                                                                                     |
| <b>Transmit Power :</b>       | IEEE 802.11a: 13.00 dBm<br>IEEE 802.11n HT20 MHz Channel Mode: 12.51 dBm<br>IEEE 802.11n HT40 MHz Channel Mode: 12.76 dBm<br>IEEE 802.11ac VHT20 MHz Channel Mode: 12.58 dBm<br>IEEE 802.11ac VHT40 MHz Channel Mode: 12.72 dBm<br>IEEE 802.11ac VHT 80 MHz Channel Mode: 12.33 dBm |
| <b>Modulation Technique :</b> | IEEE 802.11a mode: OFDM<br>IEEE 802.11n HT20 MHz Mode: OFDM<br>IEEE 802.11n HT40 MHz Mode: OFDM<br>IEEE 802.11ac VHT20 MHz Mode: OFDM<br>IEEE 802.11ac VHT40 MHz Mode: OFDM<br>IEEE 802.11ac VHT80 MHz Mode: OFDM                                                                   |
| <b>Number of Channels :</b>   | IEEE 802.11a/n HT20/ac VHT20 mode: 5 Channels<br>IEEE 802.11n HT40/ac VHT40 Mode:2 Channels<br>IEEE 802.11ac VHT80 MHz Mode:1 Channel                                                                                                                                               |
| <b>Antenna Specification:</b> | Dipole Antenna Gain: 4.5 dBi                                                                                                                                                                                                                                                        |

**Remark:**

1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for **FCC ID: 2ABMA-888-700-213** filing to comply with FCC Part 15, Subpart E Rules.

### **3 TEST METHODOLOGY**

The tests documented in this report were performed in accordance with ANSI C63.10:2013 and FCC CFR 47 15.207, 15.209 and 15.407.

#### **3.1 EUT CONFIGURATION**

The EUT configuration for testing is installed for RF field strength measurement to meet the Commissions requirement, and is operated in a manner intended to generate the maximum emission in a continuous normal application.

#### **3.2 EUT EXERCISE**

The EUT is operated in the engineering mode to fix the Tx frequency for the purposes of measurement.

According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

#### **3.3 GENERAL TEST PROCEDURES**

##### **Conducted Emissions**

The EUT is placed on the turntable, which is positioned at 0.8 m above the ground plane. According to the requirements in Section 13.3 of ANSI C63.10:2013, the conducted emission from the EUT is measured in the frequency range between 0.15 MHz and 30MHz, using the CISPR Quasi-Peak detector mode.

##### **Radiated Emissions**

###### **Under 1GHz**

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable 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 maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.10:2013.

###### **Above 1GHz**

The EUT is placed on a turn table, which is 1.5 m above ground plane. The turntable 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 maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.10:2013.

**3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS**

- (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz                          | MHz                   | MHz             | GHz                         |
|------------------------------|-----------------------|-----------------|-----------------------------|
| 0.090 - 0.110                | 16.42 - 16.423        | 399.9 - 410     | 4.50 - 5.15                 |
| 0.495 - 0.505 <sup>(1)</sup> | 16.69475 - 16.69525   | 608 - 614       | 5.35 - 5.46                 |
| 2.1735 - 2.1905              | 16.80425 - 16.80475   | 960.0 - 1240    | 7.25 - 7.75                 |
| 4.125 - 4.128                | 25.50 - 25.67         | 1300 - 1427     | 8.025 - 8.500               |
| 4.17725 - 4.17775            | 37.50 - 38.25         | 1435.0 - 1626.5 | 9.0 - 9.2                   |
| 4.20725 - 4.20775            | 73.00 - 74.60         | 1645.5 - 1646.5 | 9.3 - 9.5                   |
| 6.215 - 6.218                | 74.80 - 75.20         | 1660 - 1710     | 10.6 - 12.7                 |
| 6.26775 - 6.26825            | 108.00 - 121.94       | 1718.8 - 1722.2 | 13.25 - 13.4                |
| 6.31175 - 6.31225            | 123 - 138             | 2200 - 2300     | 14.47 - 14.5                |
| 8.291 - 8.294                | 149.90 - 150.05       | 2310 - 2390     | 15.35 - 16.2                |
| 8.362 - 8.366                | 156.52475 - 156.52525 | 2483.5 - 2500.0 | 17.7 - 21.4                 |
| 8.37625 - 8.38675            | 156.70 - 156.90       | 2655 - 2900     | 22.01 - 23.12               |
| 8.41425 - 8.41475            | 162.0125 - 167.1700   | 3260 - 3267     | 23.6 - 24.0                 |
| 12.29 - 12.293               | 167.72 - 173.20       | 3332 - 3339     | 31.2 - 31.8                 |
| 12.51975 - 12.52025          | 240 - 285             | 3345.8 - 3358.0 | 36.43 - 36.5 <sup>(2)</sup> |
| 12.57675 - 12.57725          | 322.0 - 335.4         | 3600 - 4400     |                             |
| 13.36 - 13.41                |                       |                 |                             |

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

- (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

### 3.5 DESCRIPTION OF TEST MODES

| Description                    | Modulation Technology | Modulation Type |
|--------------------------------|-----------------------|-----------------|
| 6dB Bandwidth                  | OFDM                  | BPSK            |
| Maximum conducted output power | OFDM                  | BPSK            |
| Band edges measurement         | OFDM                  | BPSK            |
| Peak Power Spectral Density    | OFDM                  | BPSK            |
| Radiated undesirable emission  | OFDM                  | BPSK            |
| Conducted undesirable emission | OFDM                  | BPSK            |
| Powerline conducted emission   | OFDM                  | BPSK            |

**IEEE 802.11a mode:**

Channel Low (5745MHz), Channel Mid (5785MHz) and Channel High (5825MHz) with 24Mbps data rate were chosen for full testing.

**IEEE 802.11n HT20 mode:**

Channel Low (5745MHz), Channel Mid (5785MHz) and Channel High (5825MHz) with MCS0 data rate were chosen for full testing.

**IEEE 802.11n HT40 mode:**

Channel Low (5755MHz) and Channel High (5795MHz) with 24Mbps data rate were chosen for full testing.

**IEEE 802.11ac VHT20 mode:**

Channel Low (5745MHz), Channel Mid (5785MHz) and Channel High (5825MHz) with MCS0 data rate were chosen for full testing.

**IEEE 802.11ac VHT40 mode:**

Channel Low (5755MHz) and Channel High (5795MHz) with MCS0 data rate were chosen for full testing.

**IEEE 802.11ac VHT80 mode:**

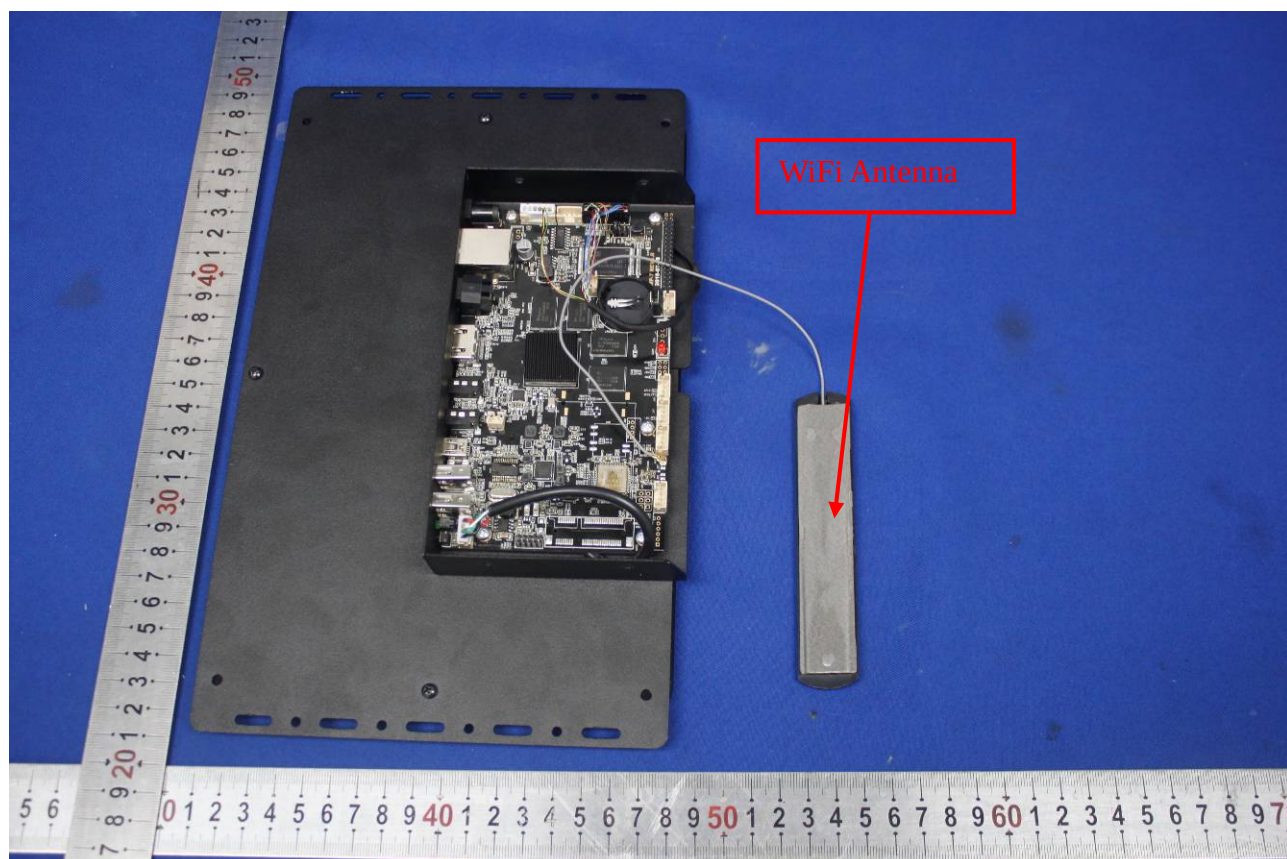
Channel Mid (5775MHz) with MCS0 data rate were chosen for full testing.

### 3.6 ANTENNA DESCRIPTION

an intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached or an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section"

\* the antenna of this EUT is a unique(Dipole Antenna for WiFi and Bluetooth)

\* the EUT complies with the requirement of 15.203.



## 4 INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

### 4.1 MEASUREMENT EQUIPMENT USED

| Conducted Emissions Test Site |               |          |               |                  |                 |
|-------------------------------|---------------|----------|---------------|------------------|-----------------|
| Name of Equipment             | Manufacturer  | Model    | Serial Number | Calibration Date | Calibration Due |
| Spectrum Analyzer             | Agilent       | E4446A   | MY44020154    | 2015-9-11        | 2016-9-10       |
| Spectrum Analyzer             | RS            | FSU26    | 200789        | 2015-8-10        | 2016-8-9        |
| OSCILLOSCOPE                  | Agilent       | DSO6104A | MY44002585    | 2016-3-2         | 2017-3-1        |
| Power meter                   | Anritsu       | ML2495A  | 1445010       | 2016-4-23        | 2017-4-22       |
| Power sensor                  | Anritsu       | MA2411B  | 1339220       | 2016-4-23        | 2017-4-22       |
| Power SPLITTER                | Mini-Circuits | ZN2PD-9G | SF078500430   | N.C.R            | N.C.R           |
| DC Power Supply               | AGILENT       | E3632A   | MY50340053    | N.C.R            | N.C.R           |
| Temp. / Humidity Gauge        | Anymetre      | TH603    | CCS007        | 2015-11-04       | 2016-11-03      |

| 977 Chamber       |              |                      |               |                  |                 |
|-------------------|--------------|----------------------|---------------|------------------|-----------------|
| Name of Equipment | Manufacturer | Model                | Serial Number | Calibration Date | Calibration Due |
| Spectrum Analyzer | Agilent      | E4446A               | MY44020154    | 2015-9-11        | 2016-9-10       |
| EMI Test Receiver | R&S          | ESCI                 | 101378        | 2016-1-6         | 2017-1-5        |
| Pre-Amplifier     | MINI         | ZFL-1000VH2          | d041703       | 2016-1-13        | 2017-1-12       |
| Pre-Amplifier     | Miteq        | JS41-00101800-32-10P | 1675713       | 2015-8-10        | 2016-8-9        |
| Bilog Antenna     | Sunol        | JB1                  | A062604       | 2016-3-6         | 2017-3-5        |
| Horn-antenna      | SCHWARZBECK  | BBHA9120D            | D:266         | 2016-3-6         | 2017-3-5        |
| Turn Table        | CT           | CT123                | 4165          | N.C.R            | N.C.R           |
| Antenna Tower     | CT           | CTERG23              | 3256          | N.C.R            | N.C.R           |
| Controller        | CT           | CT100                | 95637         | N.C.R            | N.C.R           |
| Test Software     |              |                      | EZ-EMC        |                  |                 |

| Conducted Emission |              |                         |               |                  |                 |
|--------------------|--------------|-------------------------|---------------|------------------|-----------------|
| Name of Equipment  | Manufacturer | Model                   | Serial Number | Calibration Date | Calibration Due |
| EMI TEST RECEIVER  | R&S          | ESCI                    | 100781        | 2016-3-2         | 2017-3-1        |
| V (V-LISN)         | SCHWARZBECK  | NNLK 8129               | 8129-143      | 2015-11-2        | 2016-11-1       |
| LISN (EUT)         | FCC          | FCC-LISN-50/250-50-2-02 | 05012         | 2015-9-16        | 2016-9-15       |
| Pulse LIMITER      | R&S          | ESH3-Z2                 | 100524        | 2016-1-6         | 2017-1-5        |
| Test Software      | EZ-EMC       |                         |               |                  |                 |

**Remark:** Each piece of equipment is scheduled for calibration once a year.

## 4.2 MEASUREMENT UNCERTAINTY

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR 100 028-1 [2] and shall correspond to an expansion factor (coverage factor)  $k = 1,96$  or  $k = 2$  (which provide confidence levels of respectively 95 % and 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Table 6 is based on such expansion factors.

**Table 6: Maximum measurement uncertainty**

| Parameter                                                     | UNCERTAINTY              |
|---------------------------------------------------------------|--------------------------|
| Radio frequency                                               | $\pm 0.8 \times 10^{-7}$ |
| RF power, conducted                                           | 0.2054                   |
| Maximum frequency deviation:                                  |                          |
| -within 300 Hz and 6 kHz of audio frequency                   | 1.3%                     |
| -within 6 kHz and 25 kHz of audio frequency                   | 0.65 dB                  |
| Adjacent channel power                                        | 0.2054                   |
| Conducted spurious emission of transmitter, valid up to 6 GHz | 0.2892                   |
| Conducted emission of receivers                               | +1.2/-1.1 dB             |
| Radiated emission of transmitter, valid up to 6 GHz           | $\pm 3.94$ dB            |
| Radiated emission of receiver, valid up to 6 GHz              | $\pm 3.94$ dB            |
| RF level uncertainty for a given BER                          | $\pm 0.3$ dB             |
| Temperature                                                   | 0.1979                   |
| Humidity                                                      | $\pm 1$ %                |

## 5 FACILITIES AND ACCREDITATIONS

### 5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☒ **No.10Weiye Rd., Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.**

The sites are constructed in conformance with the requirements of ANSI C63.10:2013 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 5.3 TABLE OF ACCREDITATIONS AND LISTINGS

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 200581-0 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, 2324E-1 for 10m chamber 10m, 2324E-2 for 10m chamber 3m; the test facilities are listed with USA, Certification and Engineering Bureau, 424105 for 10m chamber 10m, 238958 for 10m chamber 3m.

**5.4 TABLE OF ACCREDITATIONS AND LISTINGS**

| Country | Agency | Scope of Accreditation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Logo                                                                                                         |
|---------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| USA     | A2LA   | 47 CFR FCC Part 15/18 (using ANSI C63.10 :2013); VCCI V3; CNS 13438; CNS 13439; CNS 13803; CISPR 11; EN 55011; CISPR 13; EN 55013; CISPR 22:2005; CISPR 22:1997 +A1 :2000+A2 :2002; EN 55022:2006; EN55022 :1998 +A1 :2001+A2 :2003; EN 61000-6-3 (excluding discontinuous interference); EN 61000-6-4; AS/NZS CISPR 22; CAN/CSA-CEI/IEC CISPR 22; EN 61000-3-2; EN 61000-3-3; EN550024; EN 61000-4-2; EN 61000-4-3; EN61000-4-4; EN 61000-4-5; EN 61000-4-6; IEC 61000-4-8; EN 61000-4-11; IEC61000-3-2; IEC61000-3-3; IEC 61000-4-2; IEC 61000-4-3; IEC 61000-4-4; IEC 61000-4-5; IEC 61000-4-6; IEC 61000-4-8; IEC 61000-4-11; EN 300 220-3; EN 300 328; EN 300 330-2; EN 300 440-1; EN 300-440-2; EN 300 893; EN 301 489-01; EN 301 489-3; EN 301 489-07; EN 301 489-17; 47 CFR FCC Part 15, 22, 24 | <br>TESTING CERT #2541.01 |
| USA     | FCC    | 3/10 meter Sites to perform FCC Part 15/18 measurements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <br>93105, 90471        |
| Japan   | VCCI   | 3/10 meter Sites and conducted test sites to perform radiated/conducted measurements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>VCCI</b><br>R-1600<br>C-1707<br>G-216                                                                     |

*\* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.*

## 6 SETUP OF EQUIPMENT UNDER TEST

### 6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### 6.2 SUPPORT EQUIPMENT

| No. | Equipment | Model No. | Serial No. |
|-----|-----------|-----------|------------|
|     | N/A       |           |            |

**Remark:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

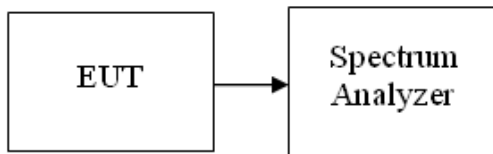
## 7 FCC PART 15 REQUIREMENTS

### 7.1 6 DB BANDWIDTH MEASUREMENT

#### LIMIT

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz.

#### Test Configuration



#### TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low-loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW =100KHz, VBW  $\geq$  3RBW, Detector = Peak. Trace mode = max hold.
4. Measure the maximum width of the emission that is 6 dB down from the peak of the emission..
5. Measure and record the results in the test report

#### TEST RESULTS

*No non-compliance noted*

#### Test Data

##### Test mode: IEEE 802.11a mode

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | FCC 6 dB Bandwidth Min. Limit (MHz) |
|---------|-----------------|----------------------|-------------------------------------|
| Low     | 5745            | 16.439               | 0.5                                 |
| Mid     | 5785            | 16.419               | 0.5                                 |
| High    | 5825            | 16.402               | 0.5                                 |

##### Test mode: IEEE 802.11n HT20 mode

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | FCC 6 dB Bandwidth Min. Limit (MHz) |
|---------|-----------------|----------------------|-------------------------------------|
| Low     | 5745            | 17.711               | 0.5                                 |
| Mid     | 5785            | 17.661               | 0.5                                 |
| High    | 5825            | 17.679               | 0.5                                 |

**Test mode: IEEE 802.11n HT40 mode**

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | FCC 6 dB Bandwidth Min. Limit (MHz) |
|---------|-----------------|----------------------|-------------------------------------|
| Low     | 5755            | 36.050               | 0.5                                 |
| High    | 5795            | 36.272               | 0.5                                 |

**Test mode: IEEE 802.11ac VHT20 mode**

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | FCC 6 dB Bandwidth Min. Limit (MHz) |
|---------|-----------------|----------------------|-------------------------------------|
| Low     | 5745            | 17.680               | 0.5                                 |
| Mid     | 5785            | 17.656               | 0.5                                 |
| High    | 5825            | 17.473               | 0.5                                 |

**Test mode: IEEE 802.11ac VHT40 mode**

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | FCC 6 dB Bandwidth Min. Limit (MHz) |
|---------|-----------------|----------------------|-------------------------------------|
| Low     | 5755            | 35.910               | 0.5                                 |
| High    | 5795            | 36.351               | 0.5                                 |

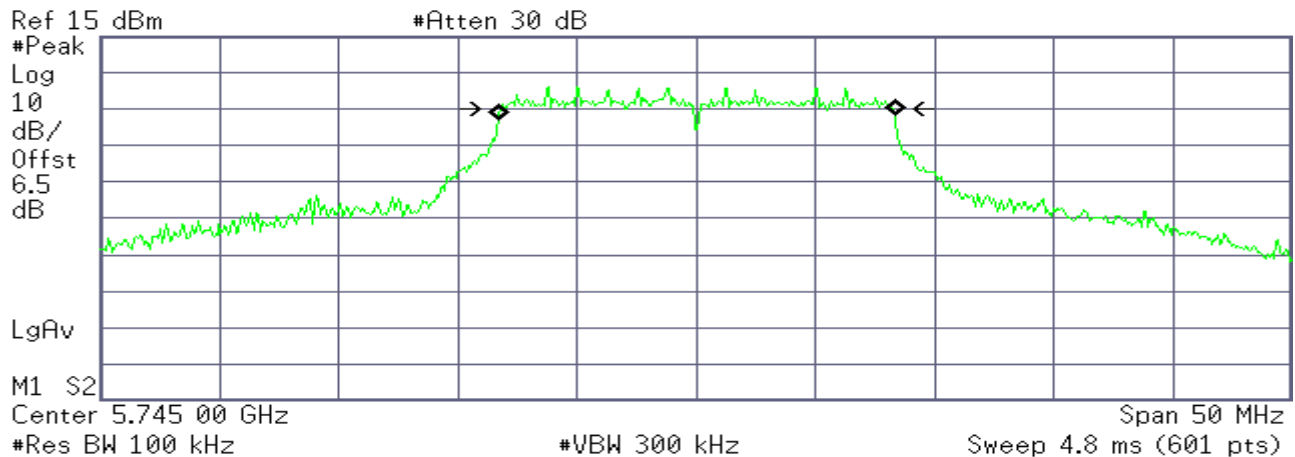
**Test mode: IEEE 802.11ac VHT80 mode**

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | FCC 6 dB Bandwidth Min. Limit (MHz) |
|---------|-----------------|----------------------|-------------------------------------|
| Mid     | 5775            | 75.685               | 0.5                                 |

**Test Plot****IEEE 802.11a mode****6dB Bandwidth (CH Low)**

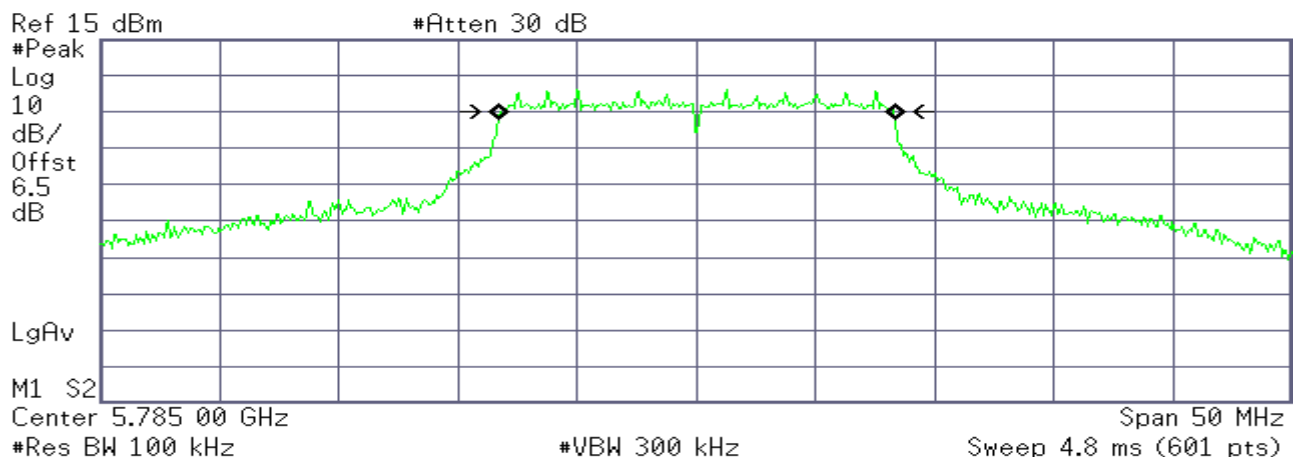
Agilent

R T

**Occupied Bandwidth**  
**16.5913 MHz****Occ BW % Pwr** 99.00 %  
**x dB** -6.00 dB**Transmit Freq Error** 20.893 kHz  
**x dB Bandwidth** 16.439 MHz**6dB Bandwidth (CH Mid)**

Agilent

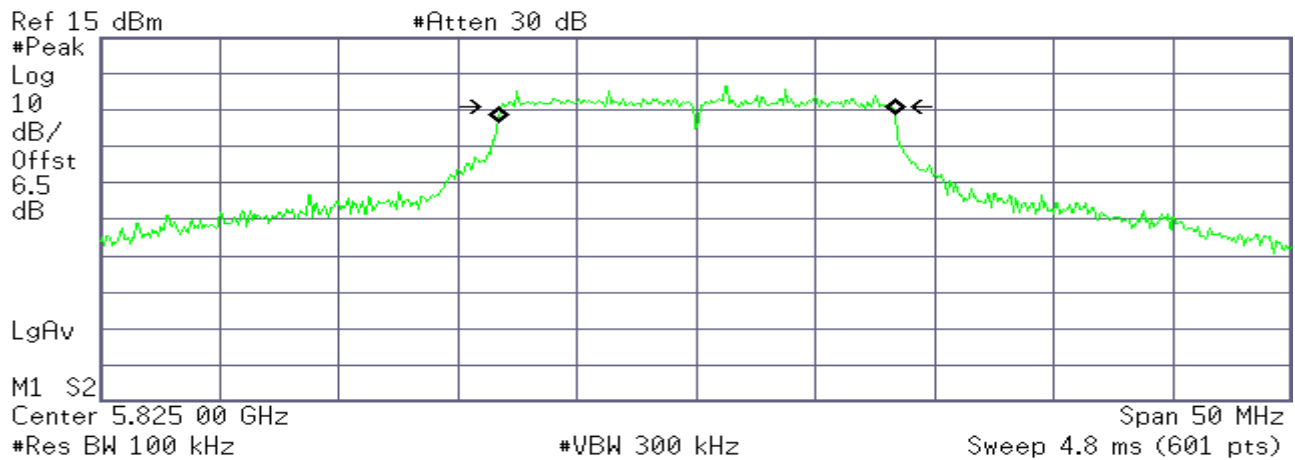
R T

**Occupied Bandwidth**  
**16.5837 MHz****Occ BW % Pwr** 99.00 %  
**x dB** -6.00 dB**Transmit Freq Error** 24.762 kHz  
**Occupied Bandwidth** 16.419 MHz

## 6dB Bandwidth (CH High)

Agilent

R T



Occupied Bandwidth  
16.5945 MHz

Occ BW % Pwr 99.00 %  
x dB -6.00 dB

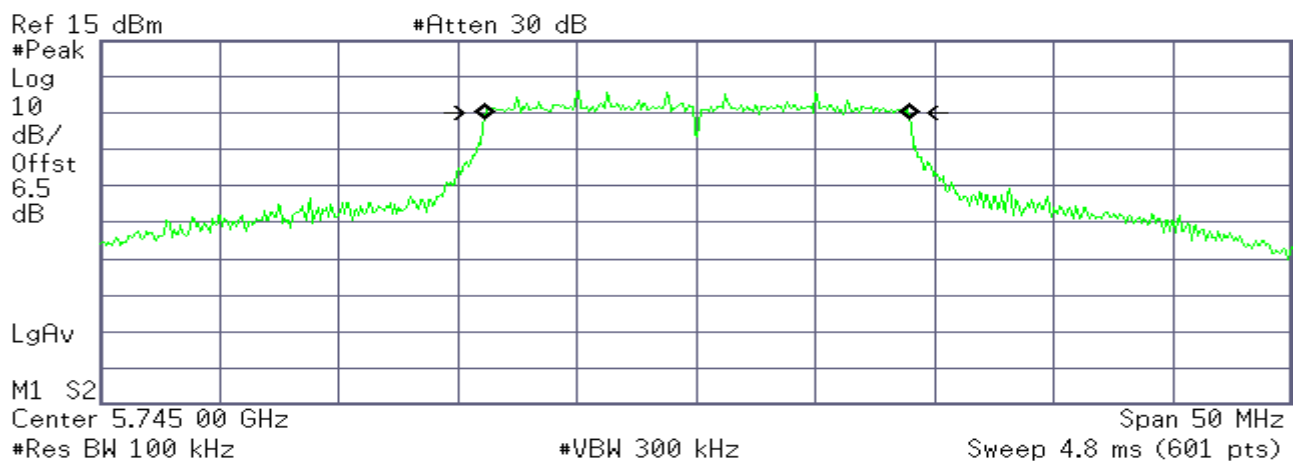
Transmit Freq Error 22.090 kHz  
x dB Bandwidth 16.402 MHz

IEEE 802.11n HT20 mode

## 6dB Bandwidth (CH Low)

Agilent

R T



Occupied Bandwidth  
17.7865 MHz

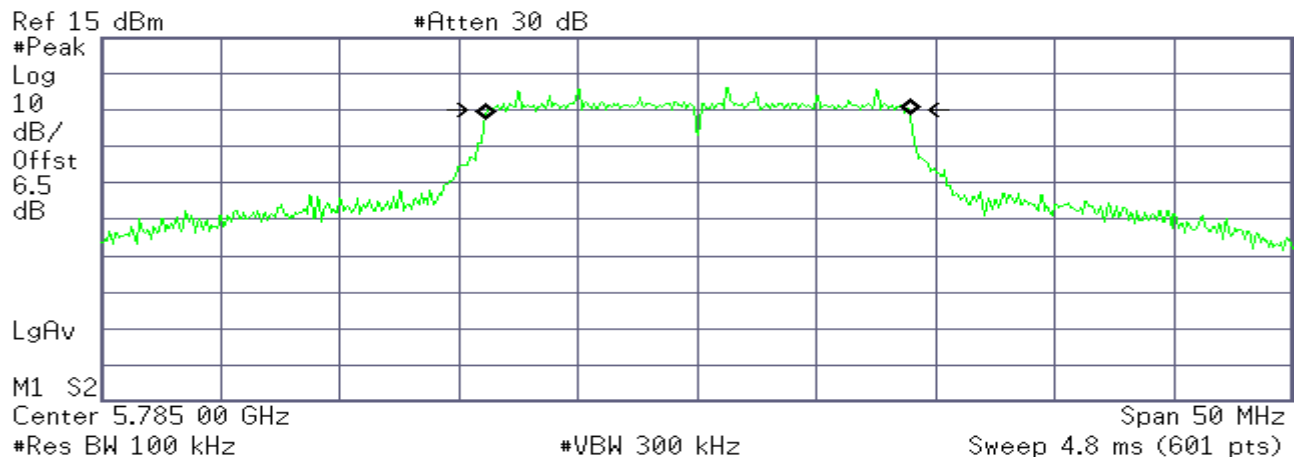
Occ BW % Pwr 99.00 %  
x dB -6.00 dB

Transmit Freq Error 34.011 kHz  
x dB Bandwidth 17.711 MHz

## 6dB Bandwidth (CH Mid)

Agilent

R T



Occupied Bandwidth  
17.7676 MHz

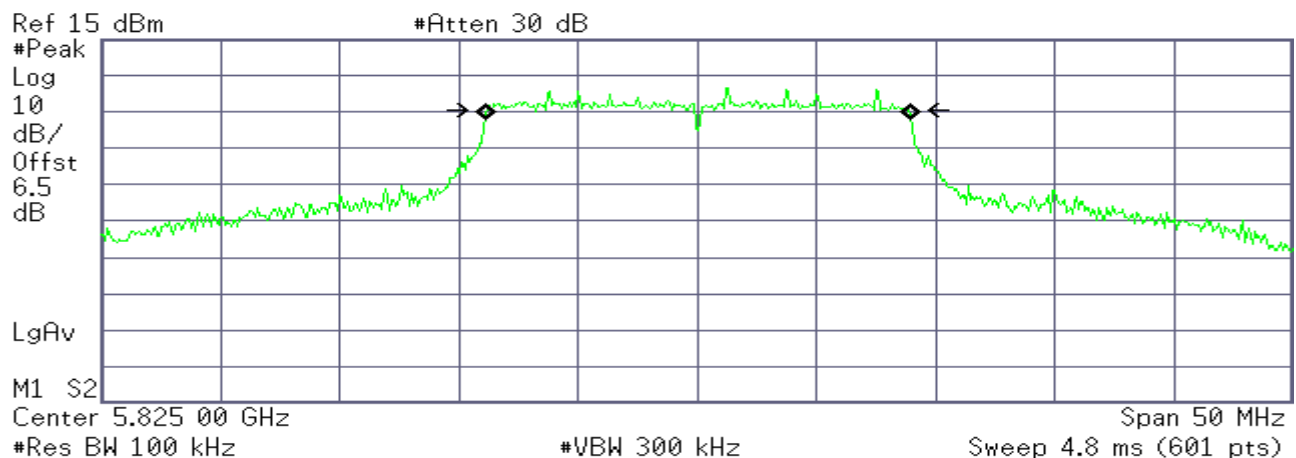
Occ BW % Pwr 99.00 %  
x dB -6.00 dB

Transmit Freq Error 26.930 kHz  
x dB Bandwidth 17.661 MHz

## 6dB Bandwidth (CH High)

Agilent

R T



Occupied Bandwidth  
17.7848 MHz

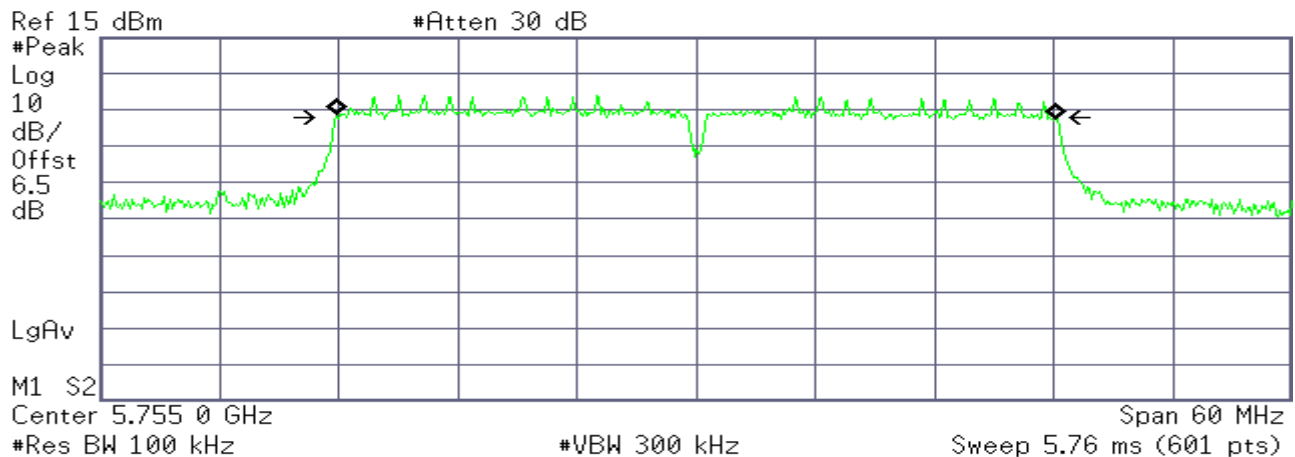
Occ BW % Pwr 99.00 %  
x dB -6.00 dB

Transmit Freq Error 32.183 kHz  
x dB Bandwidth 17.679 MHz

**IEEE 802.11n HT40 mode****6dB Bandwidth (CH Low)**

\* Agilent

R T



Occupied Bandwidth  
36.1893 MHz

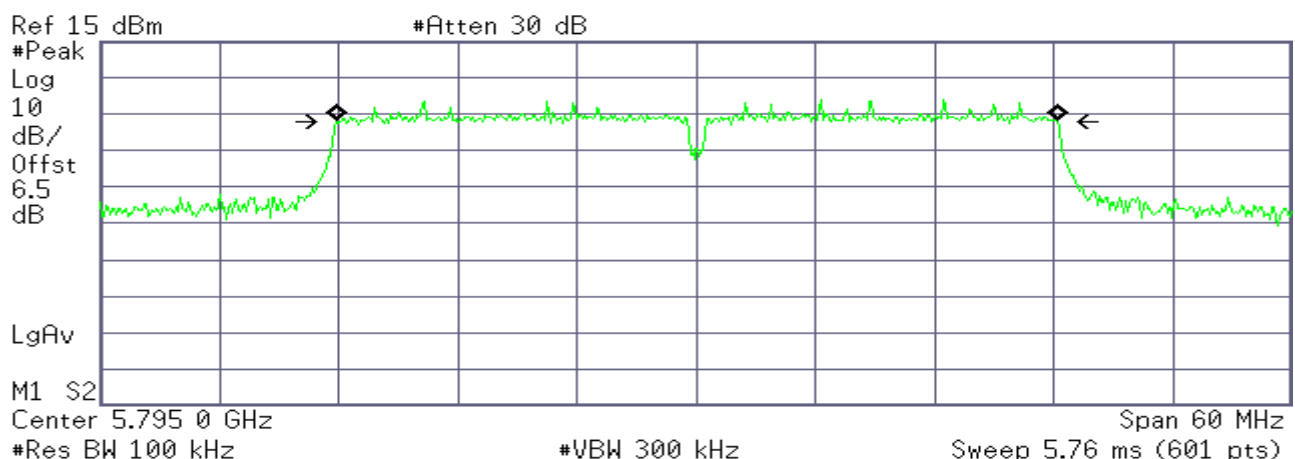
Occ BW % Pwr 99.00 %  
x dB -6.00 dB

Transmit Freq Error 18.649 kHz  
x dB Bandwidth 36.050 MHz

**6dB Bandwidth (CH High)**

\* Agilent

R T



Occupied Bandwidth  
36.2307 MHz

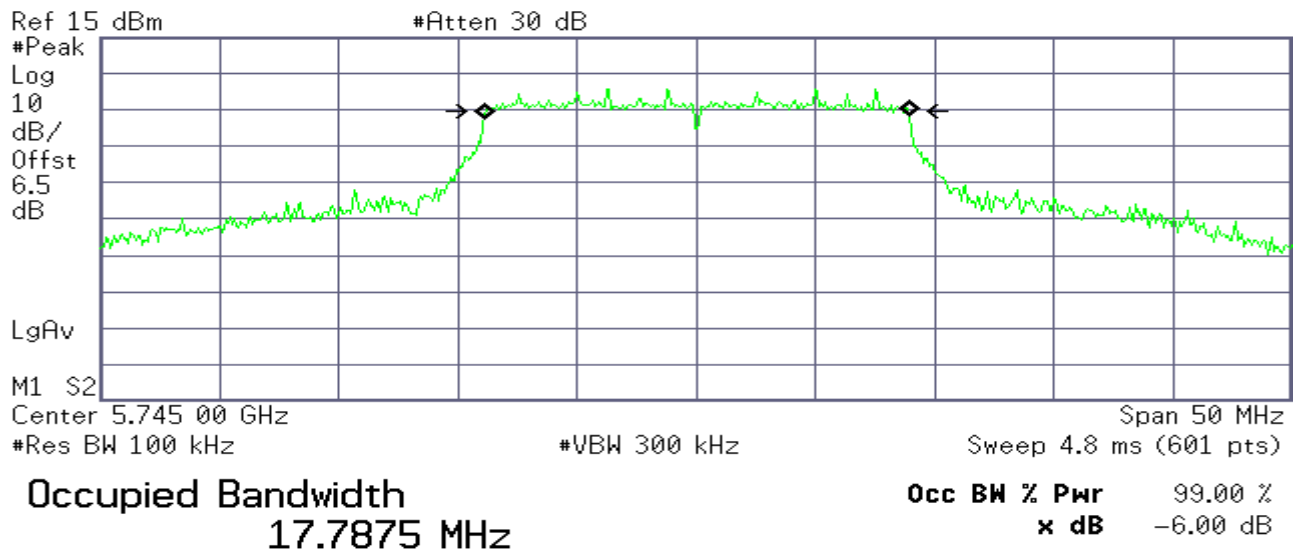
Occ BW % Pwr 99.00 %  
x dB -6.00 dB

Transmit Freq Error 37.305 kHz  
x dB Bandwidth 36.272 MHz

**IEEE 802.11ac VHT20 mode****6dB Bandwidth (CH Low)**

\* Agilent

R T

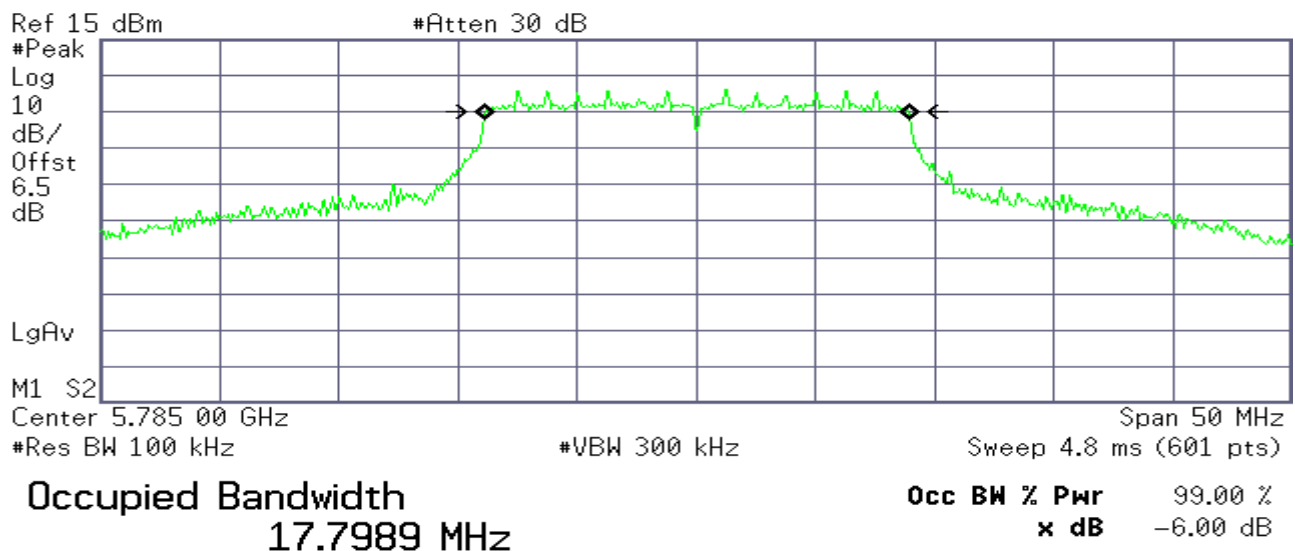


**Transmit Freq Error** 29.913 kHz  
**x dB Bandwidth** 17.680 MHz

**6dB Bandwidth (CH Mid)**

\* Agilent

R T

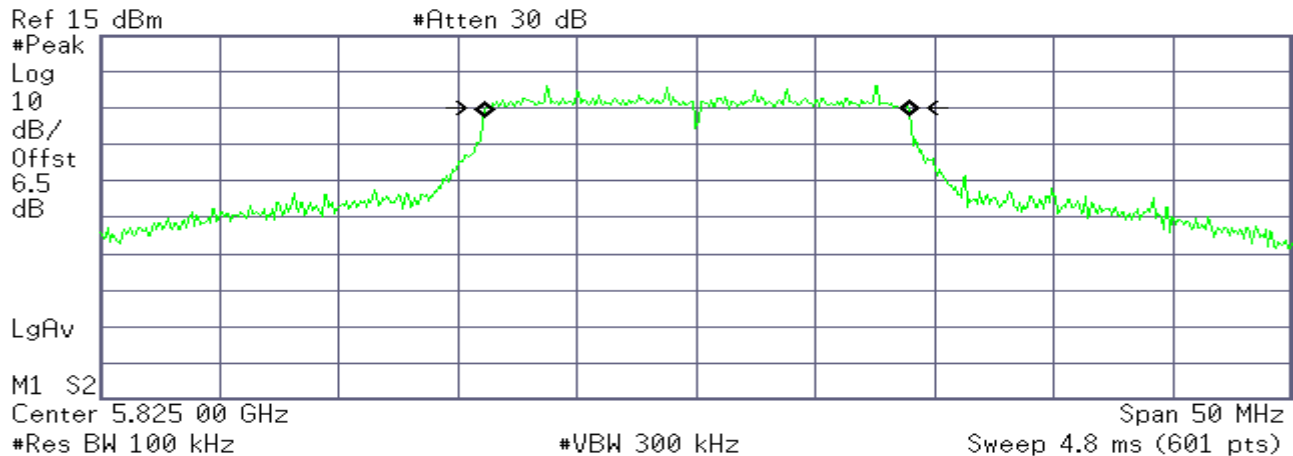


**Transmit Freq Error** 36.131 kHz  
**x dB Bandwidth** 17.656 MHz

## 6dB Bandwidth (CH High)

Agilent

R T



Occupied Bandwidth  
17.7865 MHz

Occ BW % Pwr 99.00 %  
x dB -6.00 dB

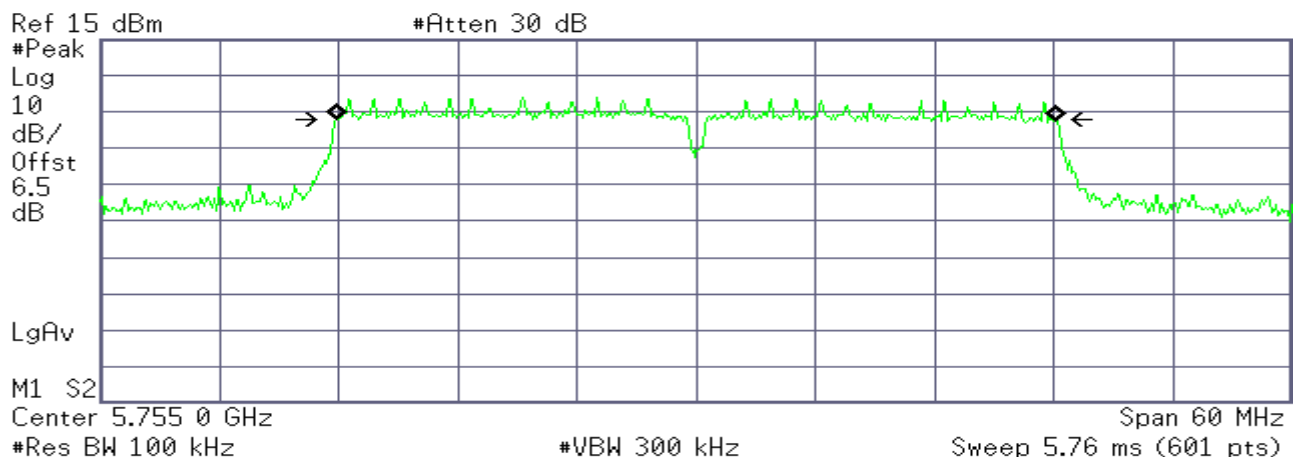
Transmit Freq Error 36.074 kHz  
x dB Bandwidth 17.473 MHz

## IEEE 802.11ac VHT40 mode

## 6dB Bandwidth (CH Low)

Agilent

R T



Occupied Bandwidth  
36.1966 MHz

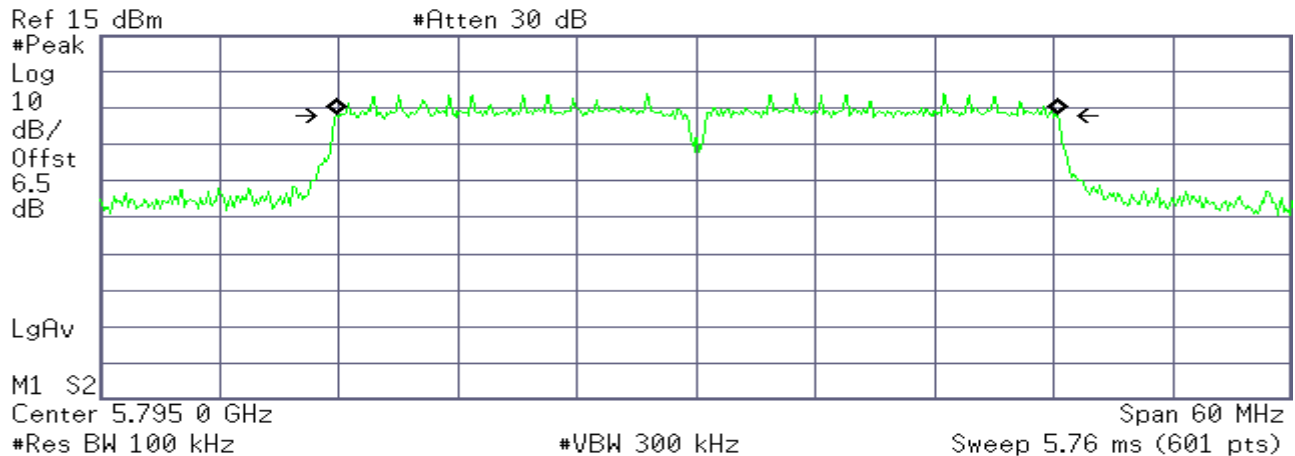
Occ BW % Pwr 99.00 %  
x dB -6.00 dB

Transmit Freq Error 15.480 kHz  
x dB Bandwidth 35.910 MHz

## 6dB Bandwidth (CH High)

Agilent

R T



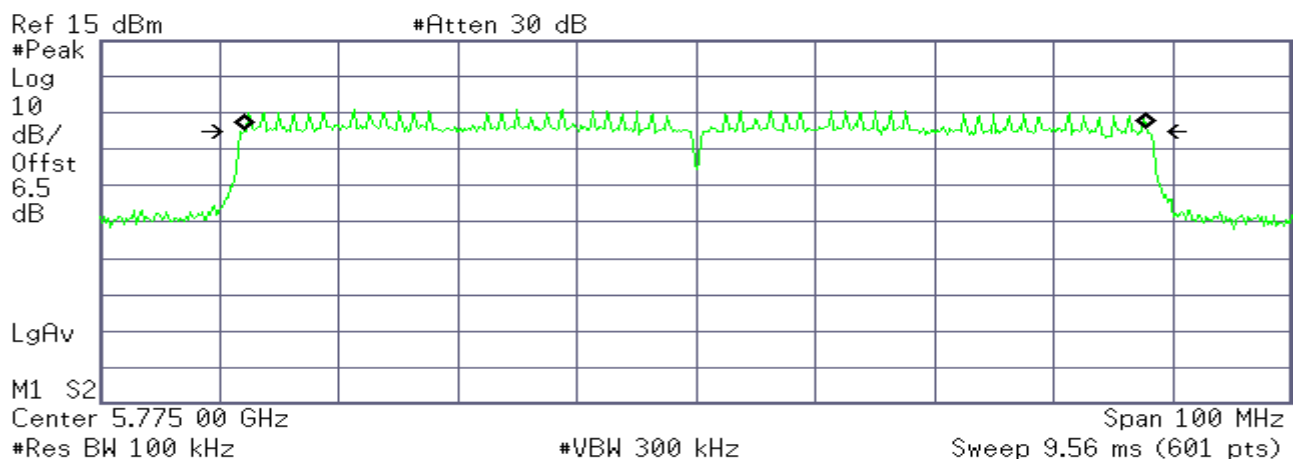
Transmit Freq Error 32.379 kHz  
x dB Bandwidth 36.351 MHz

## IEEE 802.11ac VHT80 mode

## 6dB Bandwidth (CH Mid)

Agilent

R T



Transmit Freq Error -7.872 kHz  
x dB Bandwidth 75.685 MHz

## 7.2 MAXIMUM CONDUCTED OUTPUT POWER

### LIMIT

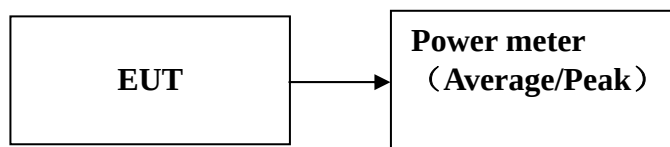
According to §15.407(a),

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

*If transmitting antennas of directional gain greater than 6dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.*

The peak power shall not exceed the limit as follow:

### Test Configuration



*The EUT was connected to a spectrum analyzer through a 50Ω RF cable.*

### TEST PROCEDURE

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor,  $10 \log(1/x)$ , where x is the duty cycle.

### TEST RESULTS

*No non-compliance noted*

**Test Data****Test mode: IEEE 802.11a mode****5725~5850MHz**

| Channel | Frequency (MHz) | Average Conducted Power(dBm) | Limit (dBm) |
|---------|-----------------|------------------------------|-------------|
| Low     | 5745            | 1300                         | 30          |
| Mid     | 5785            | 12.44                        | 30          |
| High    | 5825            | 12.35                        | 30          |

**Test mode: IEEE 802.11n HT20 mode****5725~5850MHz**

| Channel | Frequency (MHz) | Average Conducted Power(dBm) | Limit (dBm) |
|---------|-----------------|------------------------------|-------------|
| Low     | 5745            | 12.51                        | 30          |
| Mid     | 5785            | 12.30                        | 30          |
| High    | 5825            | 12.22                        | 30          |

**Test mode: IEEE 802.11n HT40 mode****5725~5850MHz**

| Channel | Frequency (MHz) | Average Conducted Power(dBm) | Limit (dBm) |
|---------|-----------------|------------------------------|-------------|
| Low     | 5755            | 12.76                        | 30          |
| High    | 5795            | 12.73                        | 30          |

**Test mode: IEEE 802.11ac VHT20 mode****5725~5850MHz**

| Channel | Frequency (MHz) | Average Conducted Power(dBm) | Limit (dBm) |
|---------|-----------------|------------------------------|-------------|
| Low     | 5745            | 12.58                        | 30          |
| Mid     | 5785            | 12.35                        | 30          |
| High    | 5825            | 12.26                        | 30          |

**Test mode: IEEE 802.11ac VHT40 mode****5725~5850MHz**

| Channel | Frequency (MHz) | Average Conducted Power(dBm) | Limit (dBm) |
|---------|-----------------|------------------------------|-------------|
| Low     | 5755            | 12.72                        | 30          |
| High    | 5795            | 12.67                        | 30          |

**Test mode: IEEE 802.11ac VHT80 mode****5725~5850MHz**

| Channel | Frequency (MHz) | Average Conducted Power(dBm) | Limit (dBm) |
|---------|-----------------|------------------------------|-------------|
| Mid     | 5775            | 12.33                        | 30          |

**Note:Duty factor has been offsetted with cableloss**

## 7.3 BAND EDGES MEASUREMENT

### LIMIT

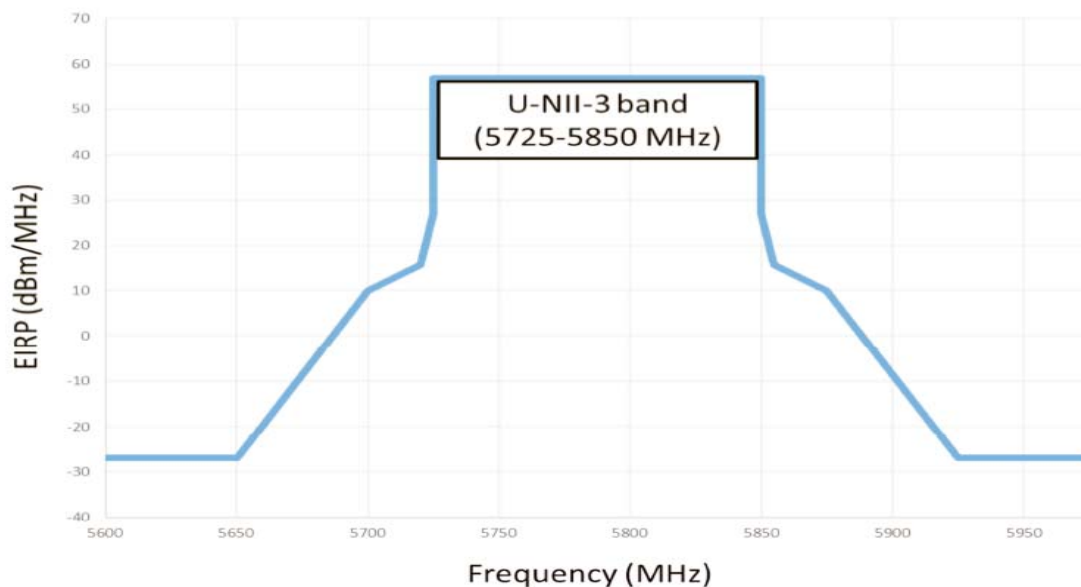
According to §15.407(b),

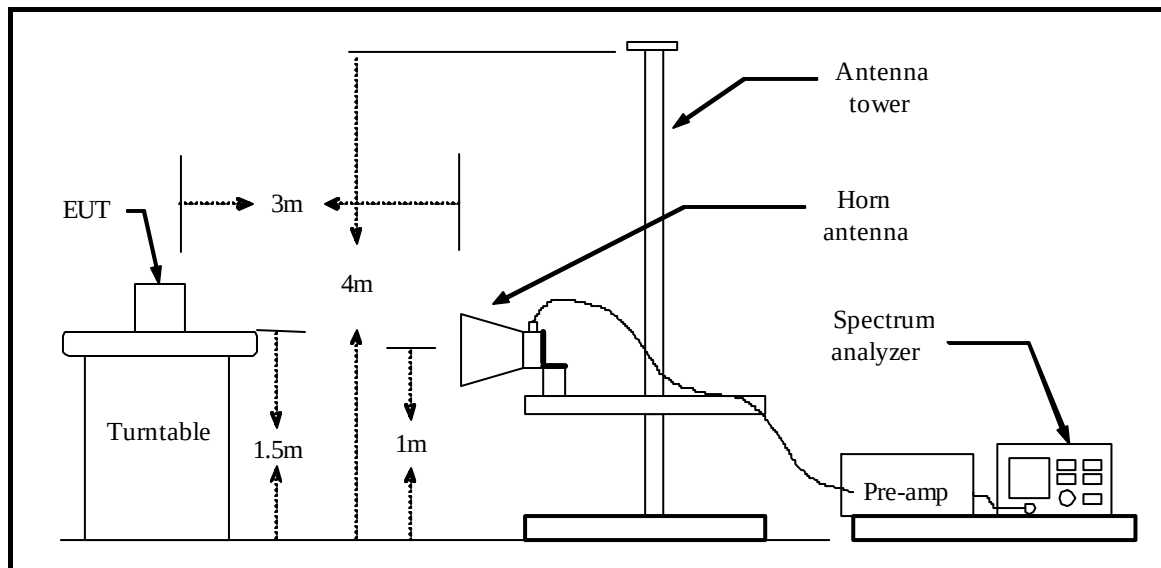
(1) The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

(2) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.

1. According to APPENDIX A Final Rules of FCC-16-24A1, For transmitters operating in the 5.725-5.85 GHz band:

All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.



**Test Configuration****TEST PROCEDURE**

1. The EUT is placed on a turntable, which is 1.5m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
  - (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
  - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

**TEST RESULTS**

Refer to attach spectrum analyzer data chart.

|                        |                                |                   |             |
|------------------------|--------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11a mode CH/ Low | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                           | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                         | <b>Polarity:</b>  | Ver. / Hor. |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5713.725           | 56.53             | 1.28                    | 57.81              | 109.04            | -51.23         | 100            | 165              | peak   |
| 2   | 5723.150           | 60.64             | 1.28                    | 61.92              | 117.98            | -56.06         | 100            | 162              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5716.325           | 60.68             | 1.28                    | 61.96              | 109.77            | -47.81         | 100            | 218              | peak   |
| 2   | 5722.175           | 63.96             | 1.28                    | 65.24              | 115.76            | -50.52         | 100            | 212              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

|                        |                                 |                   |             |
|------------------------|---------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11a mode/ CH High | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                            | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                          | <b>Polarity:</b>  | Ver. / Hor. |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5850.550           | 58.33             | 1.27                    | 59.60              | 120.95            | -61.35         | 100            | 201              | peak   |
| 2   | 5896.050           | 53.34             | 1.27                    | 54.61              | 89.62             | -35.01         | 100            | 160              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5850.550           | 61.94             | 1.27                    | 63.21              | 120.95            | -57.74         | 100            | 148              | peak   |
| 2   | 5856.725           | 59.11             | 1.27                    | 60.38              | 110.32            | -49.94         | 100            | 216              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

|                        |                                     |                   |             |
|------------------------|-------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11n HT20 mode/ CH Low | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                              | <b>Polarity:</b>  | Ver. / Hor. |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5716.650           | 59.08             | 1.28                    | 60.36              | 109.86            | -49.50         | 100            | 169              | peak   |
| 2   | 5722.500           | 65.75             | 1.28                    | 67.03              | 116.50            | -49.47         | 100            | 169              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5716.975           | 61.75             | 1.28                    | 63.03              | 109.95            | -46.92         | 100            | 218              | peak   |
| 2   | 5723.800           | 67.83             | 1.28                    | 69.11              | 119.46            | -50.35         | 100            | 215              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

|                        |                                      |                   |             |
|------------------------|--------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11n HT20 mode/ CH High | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                 | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                               | <b>Polarity:</b>  | Ver. / Hor. |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5850.550           | 59.19             | 1.27                    | 60.46              | 120.95            | -60.49         | 100            | 199              | peak   |
| 2   | 5895.400           | 51.78             | 1.27                    | 53.05              | 90.10             | -37.05         | 100            | 158              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5850.875           | 61.63             | 1.27                    | 62.90              | 120.20            | -57.30         | 100            | 140              | peak   |
| 2   | 5894.425           | 54.92             | 1.27                    | 56.19              | 90.83             | -34.64         | 100            | 130              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

|                        |                                     |                   |             |
|------------------------|-------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11n HT40 mode/ CH Low | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                              | <b>Polarity:</b>  | Ver. / Hor. |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5712.100           | 66.82             | 1.28                    | 68.10              | 108.59            | -40.49         | 100            | 164              | peak   |
| 2   | 5718.275           | 71.53             | 1.28                    | 72.81              | 110.32            | -37.51         | 100            | 164              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5710.150           | 70.06             | 1.28                    | 71.34              | 108.04            | -36.70         | 100            | 220              | peak   |
| 2   | 5716.325           | 74.96             | 1.28                    | 76.24              | 109.77            | -33.53         | 100            | 213              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |

|                        |                                      |                   |             |
|------------------------|--------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11n HT40 mode/ CH High | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                 | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                               | <b>Polarity:</b>  | Ver. / Hor. |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5854.125           | 57.21             | 1.27                    | 58.48              | 112.80            | -54.32         | 100            | 201              | peak   |
| 2   | 5867.775           | 54.56             | 1.27                    | 55.83              | 107.22            | -51.39         | 100            | 160              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5850.875           | 59.23             | 1.27                    | 60.50              | 120.20            | -59.70         | 100            | 219              | peak   |
| 2   | 5861.275           | 59.06             | 1.27                    | 60.33              | 109.04            | -48.71         | 100            | 212              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

|                        |                                       |                   |             |
|------------------------|---------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11ac VHT20 mode/ CH Low | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                  | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                                | <b>Polarity:</b>  | Ver. / Hor. |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5723.150           | 62.23             | 1.28                    | 63.51              | 117.98            | -54.47         | 100            | 163              | peak   |
| 2   | 5724.775           | 70.58             | 1.28                    | 71.86              | 121.69            | -49.83         | 100            | 167              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5714.700           | 58.55             | 1.28                    | 59.83              | 109.32            | -49.49         | 100            | 210              | peak   |
| 2   | 5723.150           | 67.03             | 1.28                    | 68.31              | 117.98            | -49.67         | 100            | 260              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

|                        |                                        |                   |             |
|------------------------|----------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11ac VHT20 mode/ CH High | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                   | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                                 | <b>Polarity:</b>  | Ver. / Hor. |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5853.800           | 58.38             | 1.27                    | 59.65              | 113.54            | -53.89         | 100            | 160              | peak   |
| 2   | 5874.600           | 54.52             | 1.27                    | 55.79              | 105.31            | -49.52         | 100            | 127              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5851.200           | 62.03             | 1.27                    | 63.30              | 119.46            | -56.16         | 100            | 216              | peak   |
| 2   | 5891.500           | 53.94             | 1.27                    | 55.21              | 92.99             | -37.78         | 100            | 137              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

|                        |                                       |                   |             |
|------------------------|---------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11ac VHT40 mode/ CH Low | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                  | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                                | <b>Polarity:</b>  | Ver. / Hor. |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5712.425           | 69.83             | 1.28                    | 71.11              | 108.68            | -37.57         | 100            | 161              | peak   |
| 2   | 5723.150           | 72.22             | 1.28                    | 73.50              | 117.98            | -44.48         | 100            | 165              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5711.450           | 69.35             | 1.28                    | 70.63              | 108.41            | -37.78         | 100            | 214              | peak   |
| 2   | 5720.875           | 71.27             | 1.28                    | 72.55              | 112.80            | -40.25         | 100            | 214              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

|                        |                                        |                   |             |
|------------------------|----------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11ac VHT40 mode/ CH High | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                   | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                                 | <b>Polarity:</b>  | Ver. / Hor. |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5858.350           | 55.58             | 1.27                    | 56.85              | 109.86            | -53.01         | 100            | 202              | peak   |
| 2   | 5872.975           | 54.85             | 1.27                    | 56.12              | 105.77            | -49.65         | 100            | 162              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5855.100           | 59.39             | 1.27                    | 60.66              | 110.77            | -50.11         | 100            | 208              | peak   |
| 2   | 5866.800           | 58.51             | 1.27                    | 59.78              | 107.50            | -47.72         | 100            | 215              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |

|                        |                                       |                   |             |
|------------------------|---------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11ac VHT80 mode/ CH Mid | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                  | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                                | <b>Polarity:</b>  | Ver. / Hor. |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5697.800           | 61.74             | 1.28                    | 63.02              | 103.57            | -40.55         | 100            | 165              | peak   |
| 2   | 5717.625           | 62.93             | 1.28                    | 64.21              | 110.13            | -45.92         | 100            | 165              | peak   |
| 3   | 5865.175           | 54.99             | 1.27                    | 56.26              | 107.95            | -51.69         | 100            | 127              | peak   |
| 4   | N/A                |                   |                         |                    |                   |                |                |                  |        |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 5698.125           | 62.06             | 1.28                    | 63.34              | 103.81            | -40.47         | 100            | 137              | peak   |
| 2   | 5717.950           | 64.81             | 1.28                    | 66.09              | 110.23            | -44.14         | 100            | 130              | peak   |
| 3   | 5857.050           | 61.07             | 1.27                    | 62.34              | 110.23            | -47.89         | 100            | 208              | peak   |
| 4   | N/A                |                   |                         |                    |                   |                |                |                  |        |

## 7.4 POWER SPECTRAL DENSITY

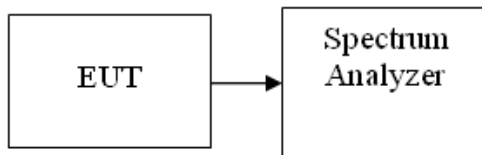
### LIMIT

According to §15.407(a),

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

*If transmitting antennas of directional gain greater than 6dBi are used, both the maximum transmit power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.*

### Test Configuration



### TEST PROCEDURE

1. The testing follows Method SA-2 of FCC KDB 789033 D01 General UNII Test Procedures v01r04.
2. Measure the duty cycle, Set span to encompass the entire emission bandwidth (EBW) of the signal. Set RBW = 300 kHz. Set VBW  $\geq 1$  MHz. Number of points in sweep  $\geq 2$  Span / RBW. Sweep time = auto. Detector = RMS, Trace average at least 100 traces in power averaging mode. Add  $10 \log(500\text{kHz}/\text{RBW})$  to the test result. Add  $10 \log(1/x)$ , where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add  $10 \log(1/0.25) = 6$  dB if the duty cycle is 25 percent.
3. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
4. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

Method (1): Measure and sum the spectra across the outputs. The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

### TEST RESULTS

*No non-compliance noted*

**Test Data****Test mode: IEEE 802.11a mode****5725~5850MHz**

| Channel | Frequency (MHz) | Average PSD(dBm/300kHz) | 10log (500kHz/RBW) Factor(dB) | Average PSD (dBm/500kHz) | Average PSD Limit (dBm/500kHz) | Result |
|---------|-----------------|-------------------------|-------------------------------|--------------------------|--------------------------------|--------|
| Low     | 5745            | 3.17                    | 2.22                          | 5.39                     | 30.00                          | PASS   |
| Mid     | 5785            | 2.67                    | 2.22                          | 4.89                     | 30.00                          | PASS   |
| High    | 5825            | 3.01                    | 2.22                          | 5.23                     | 30.00                          | PASS   |

**Test mode: IEEE 802.11n HT20 mode****5725~5850MHz**

| Channel | Frequency (MHz) | Average PSD(dBm/300kHz) | 10log (500kHz/RBW) Factor(dB) | Average PSD (dBm/500kHz) | Average PSD Limit (dBm/500kHz) | Result |
|---------|-----------------|-------------------------|-------------------------------|--------------------------|--------------------------------|--------|
| Low     | 5745            | 3.82                    | 2.22                          | 6.04                     | 30.00                          | PASS   |
| Mid     | 5785            | 2.53                    | 2.22                          | 4.75                     | 30.00                          | PASS   |
| High    | 5825            | 3.40                    | 2.22                          | 5.62                     | 30.00                          | PASS   |

**Test mode: IEEE 802.11n HT40 mode****5725~5850MHz**

| Channel | Frequency (MHz) | Average PSD(dBm/300kHz) | 10log (500kHz/RBW) Factor(dB) | Average PSD (dBm/500kHz) | Average PSD Limit (dBm/500kHz) | Result |
|---------|-----------------|-------------------------|-------------------------------|--------------------------|--------------------------------|--------|
| Low     | 5755            | -0.22                   | 2.22                          | 2.00                     | 30.00                          | PASS   |
| High    | 5795            | -0.22                   | 2.22                          | 2.00                     | 30.00                          | PASS   |

**Test mode: IEEE 802.11ac VHT20 mode****5725~5850MHz**

| Channel | Frequency (MHz) | Average PSD(dBm/300kHz) | 10log (500kHz/RBW) Factor(dB) | Average PSD (dBm/500kHz) | Average PSD Limit (dBm/500kHz) | Result |
|---------|-----------------|-------------------------|-------------------------------|--------------------------|--------------------------------|--------|
| Low     | 5745            | 2.85                    | 2.22                          | 5.07                     | 30.00                          | PASS   |
| Mid     | 5785            | 2.54                    | 2.22                          | 4.76                     | 30.00                          | PASS   |
| High    | 5825            | 3.46                    | 2.22                          | 5.68                     | 30.00                          | PASS   |

**Test mode: IEEE 802.11ac VHT40 mode****5725~5850MHz**

| Channel | Frequency (MHz) | Average PSD(dBm/300kHz) | 10log (500kHz/RBW) Factor(dB) | Average PSD (dBm/500kHz) | Average PSD Limit (dBm/500kHz) | Result |
|---------|-----------------|-------------------------|-------------------------------|--------------------------|--------------------------------|--------|
| Low     | 5755            | 0.12                    | 2.22                          | 2.34                     | 30.00                          | PASS   |
| High    | 5795            | -0.20                   | 2.22                          | 2.02                     | 30.00                          | PASS   |

**Test mode: IEEE 802.11ac VHT80 mode****5725~5850MHz**

| Channel | Frequency (MHz) | Average PSD(dBm/300kHz) | 10log (500kHz/RBW) Factor(dB) | Average PSD (dBm/500kHz) | Average PSD Limit (dBm/500kHz) | Result |
|---------|-----------------|-------------------------|-------------------------------|--------------------------|--------------------------------|--------|
| Mid     | 5775            | -3.58                   | 2.22                          | -1.36                    | 30.00                          | PASS   |

**Note:Duty factor has been offsetted with cableloss**

**Test Plot****IEEE 802.11a mode****5725~5850MHz****CH Low**

\* Agilent

R T

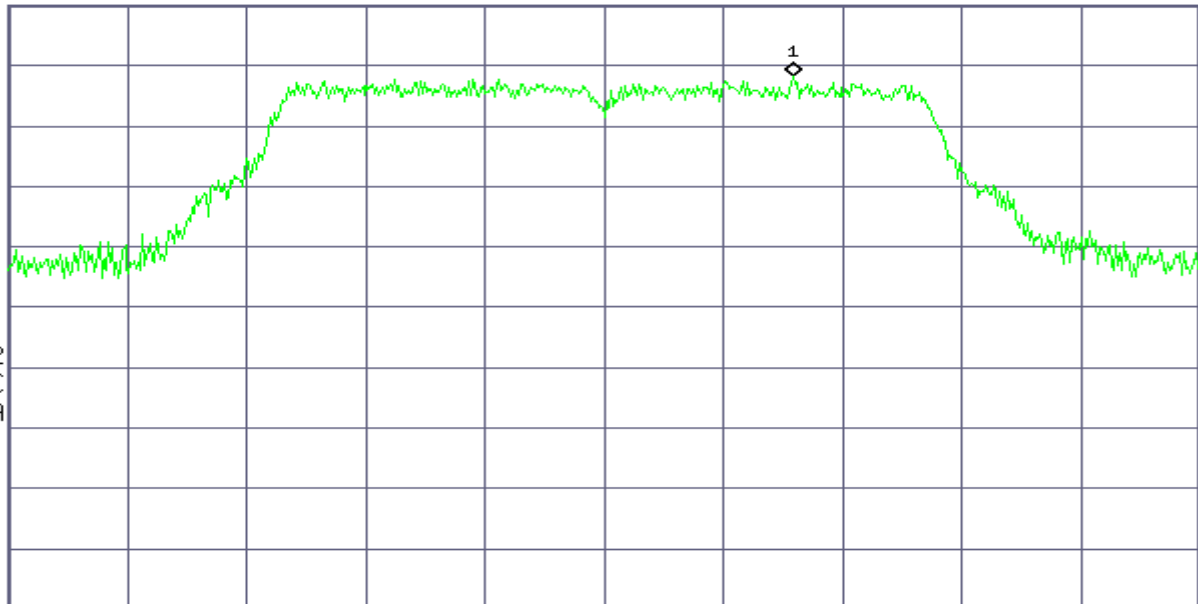
Mkr1 5.749 75 GHz  
3.17 dBm

Ref 15 dBm

#Atten 30 dB

#Avg  
Log  
10  
dB/  
Offst  
6.5  
dB

PAvg

M1 S2  
S3 FC  
AAE(f):  
FTun  
Swp**CH Mid**

\* Agilent

R T

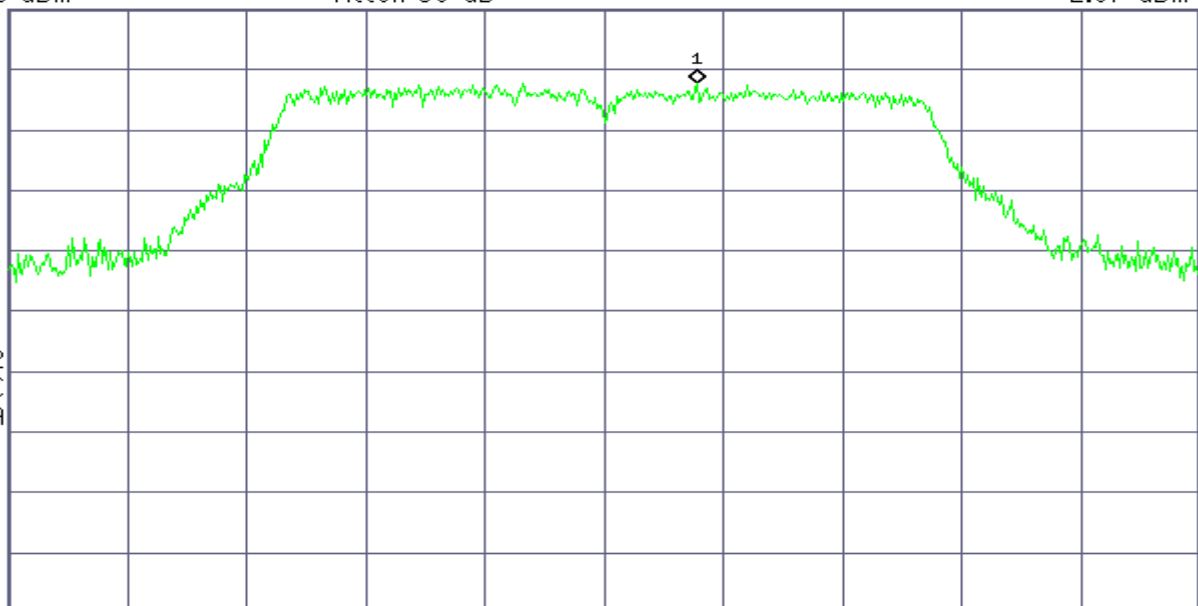
Mkr1 5.787 35 GHz  
2.67 dBm

Ref 15 dBm

#Atten 30 dB

#Avg  
Log  
10  
dB/  
Offst  
6.5  
dB

PAvg

M1 S2  
S3 FC  
AAE(f):  
FTun  
Swp

**CH High**

Agilent

R T

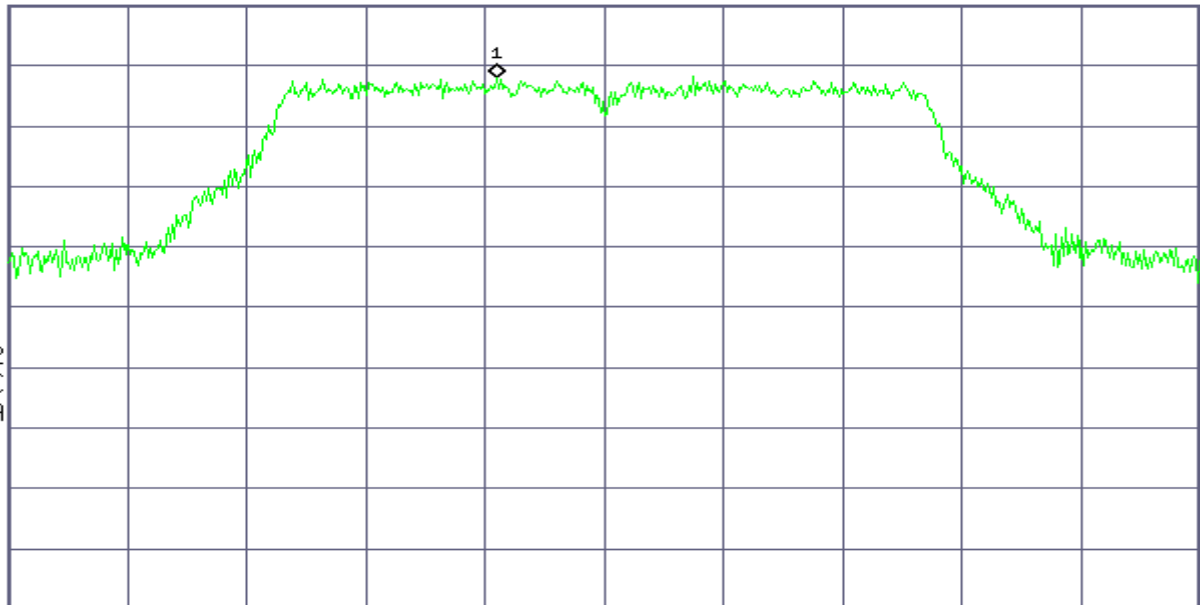
Mkr1 5.822 30 GHz  
3.01 dBm

Ref 15 dBm

#Atten 30 dB

#Avg  
Log  
10  
dB/  
Offst  
6.5  
dB

PAvg

M1 S2  
S3 FC  
AAE(f):  
FTun  
Swp

Center 5.825 00 GHz

Span 30 MHz

#Res BW 300 kHz

#VBW 1 MHz

Sweep 1 ms (601 pts)

**IEEE 802.11n HT20 mode  
5725~5850MHz****CH Low**

Agilent

R T

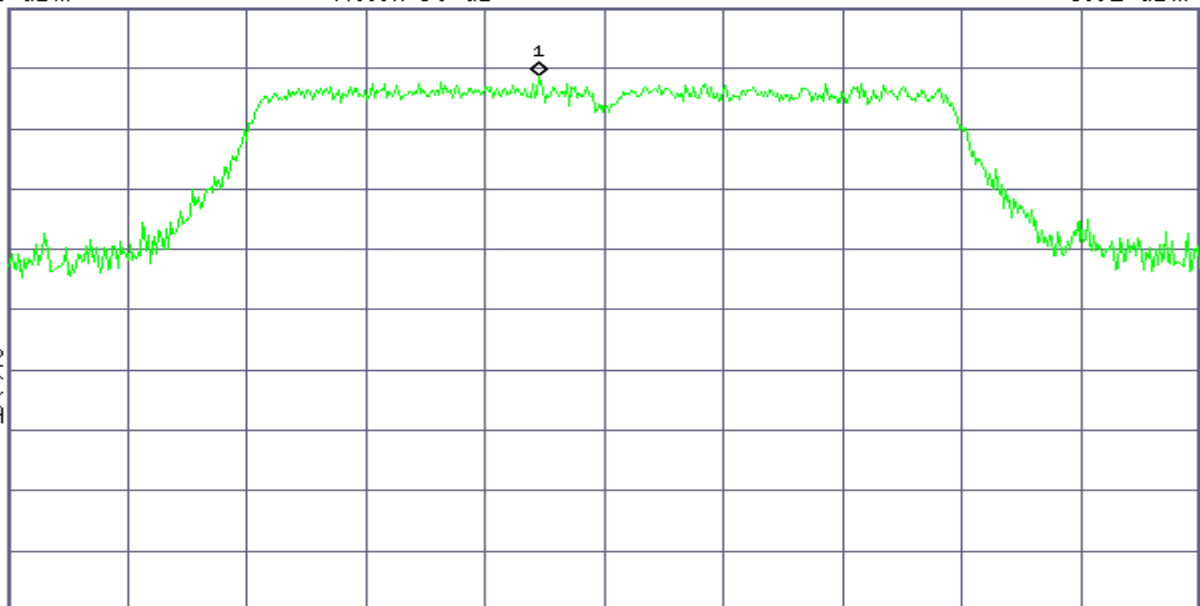
Mkr1 5.743 35 GHz  
3.82 dBm

Ref 15 dBm

#Atten 30 dB

#Avg  
Log  
10  
dB/  
Offst  
6.5  
dB

PAvg

M1 S2  
S3 FC  
AAE(f):  
FTun  
Swp

Center 5.745 00 GHz

Span 30 MHz

#Res BW 300 kHz

#VBW 1 MHz

Sweep 1 ms (601 pts)

**CH Mid**

Agilent

R T

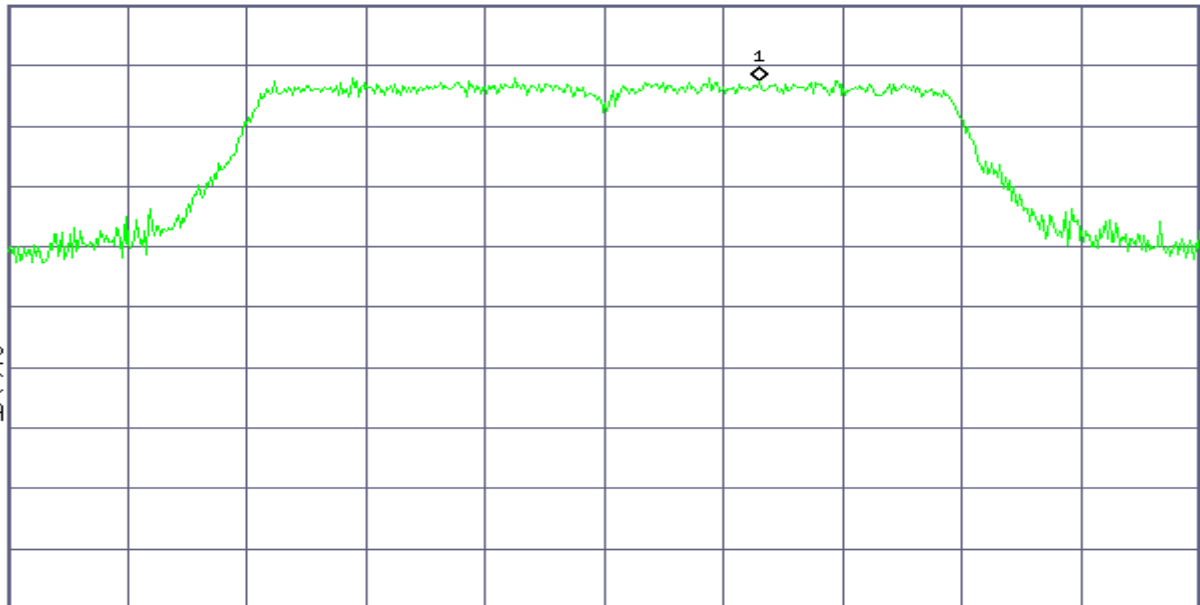
Mkr1 5.788 90 GHz  
2.53 dBm

Ref 15 dBm

#Atten 30 dB

#Avg  
Log  
10  
dB/  
Offst  
6.5  
dB

PAvg

M1 S2  
S3 FC  
AAE(f):  
FTun  
Swp

Center 5.785 00 GHz

#Res BW 300 kHz

#VBW 1 MHz

Span 30 MHz  
Sweep 1 ms (601 pts)**CH High**

Agilent

R T

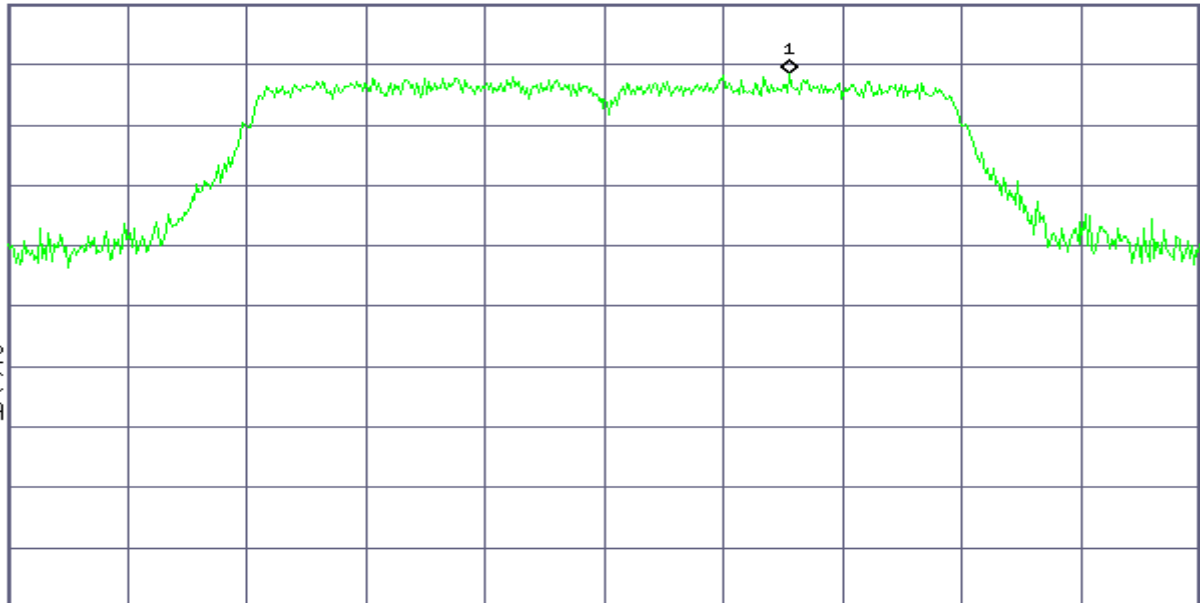
Mkr1 5.829 65 GHz  
3.40 dBm

Ref 15 dBm

#Atten 30 dB

#Avg  
Log  
10  
dB/  
Offst  
6.5  
dB

PAvg

M1 S2  
S3 FC  
AAE(f):  
FTun  
Swp

Start 5.810 00 GHz

#Res BW 300 kHz

#VBW 1 MHz

Stop 5.840 00 GHz  
Sweep 1 ms (601 pts)

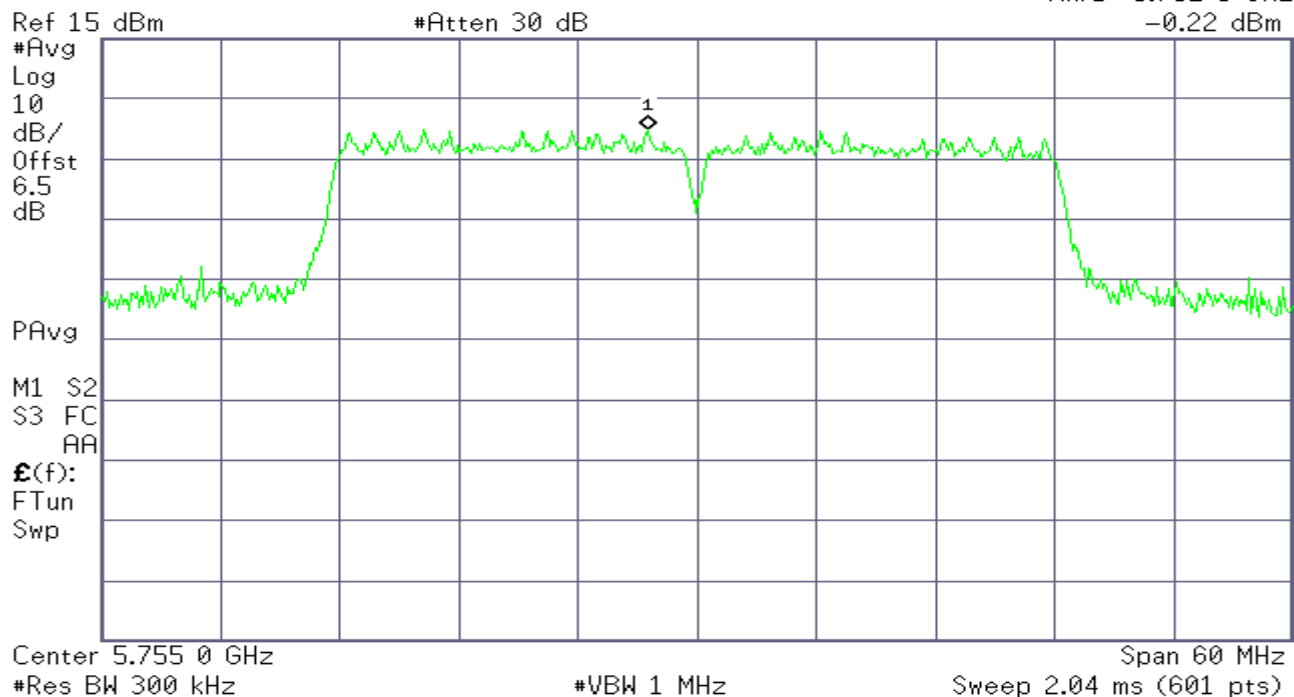
## IEEE 802.11n HT40 mode 5725~5850MHz

### CH Low

Agilent

R T

Mkr1 5.752 5 GHz  
-0.22 dBm

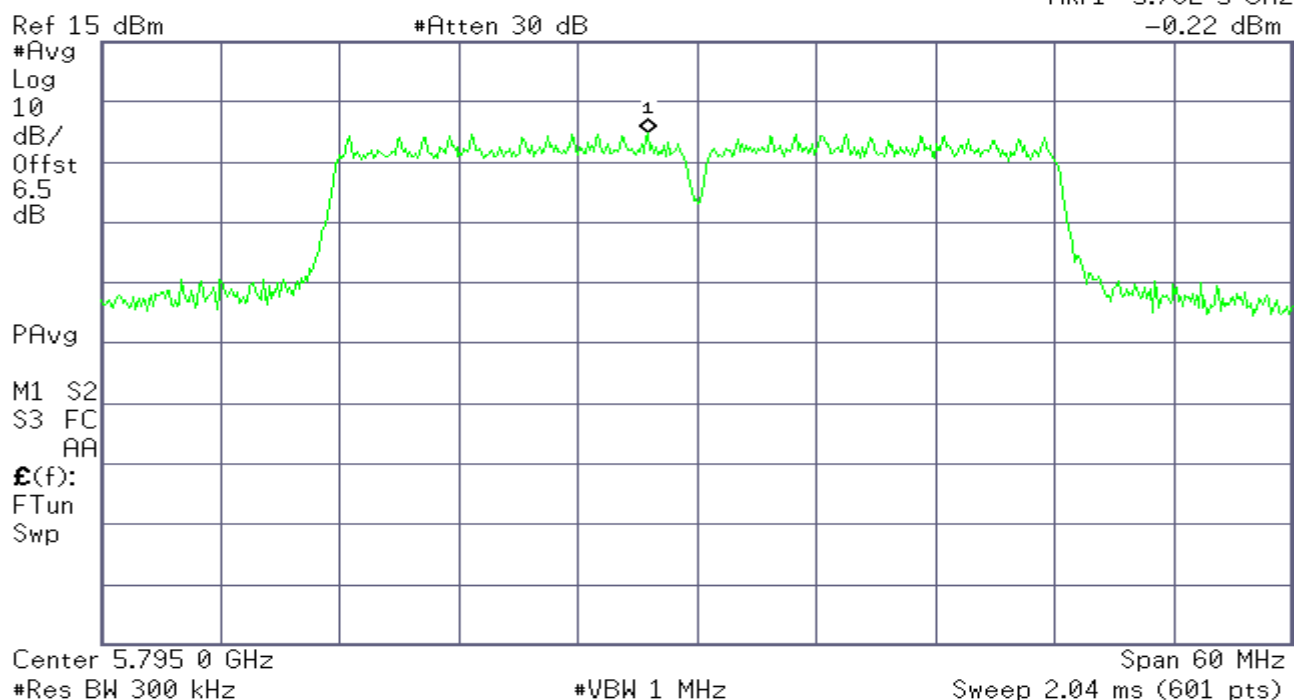


### CH High

Agilent

R T

Mkr1 5.792 5 GHz  
-0.22 dBm



**IEEE 802.11ac VHT20 mode**  
**5725~5850MHz****CH Low**

✱ Agilent

R T

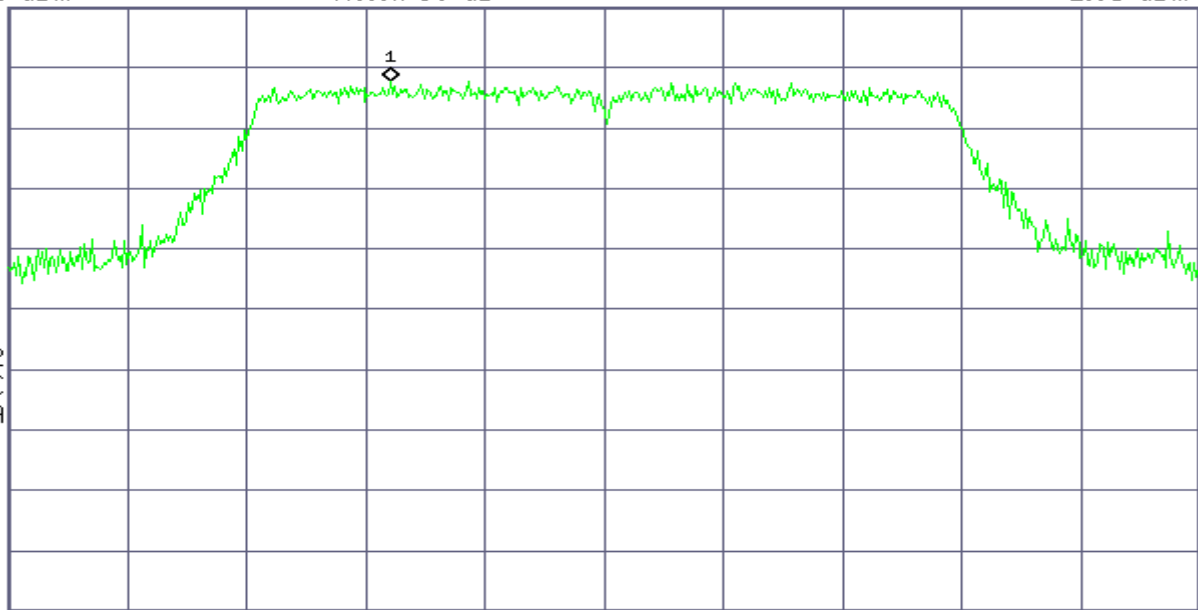
Mkr1 5.739 65 GHz  
2.85 dBm

Ref 15 dBm

#Atten 30 dB

#Avg  
Log  
10  
dB/  
Offst  
6.5  
dB

PAvg

M1 S2  
S3 FC  
AA£(f):  
FTun  
Swp

Center 5.745 00 GHz

#Res BW 300 kHz

#VBW 1 MHz

Span 30 MHz  
Sweep 1 ms (601 pts)**CH Mid**

✱ Agilent

R T

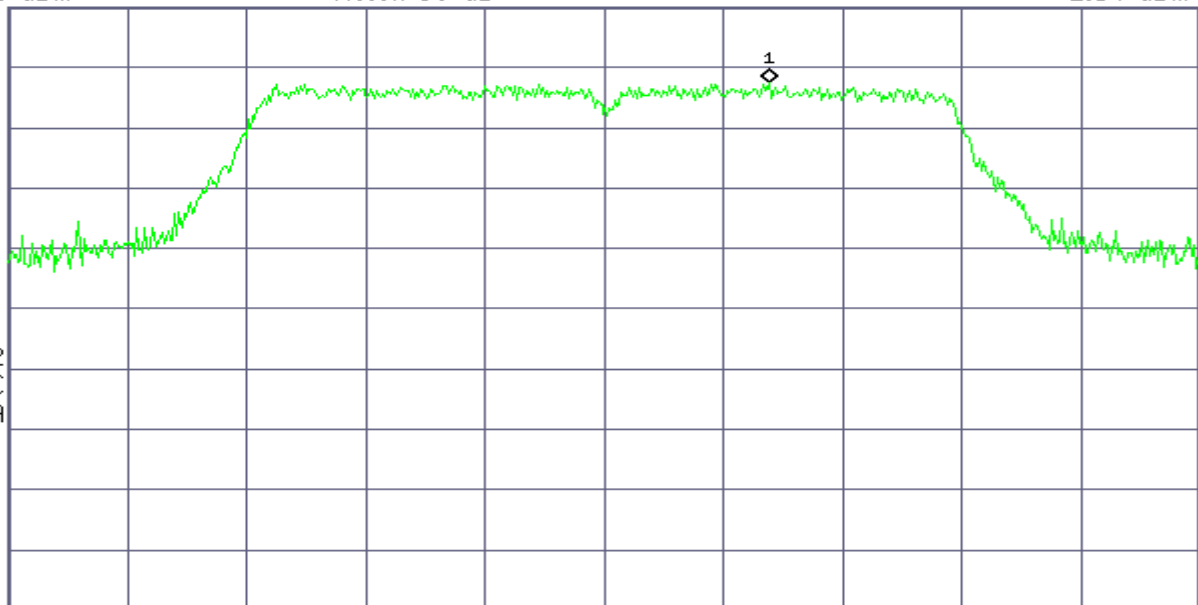
Mkr1 5.789 15 GHz  
2.54 dBm

Ref 15 dBm

#Atten 30 dB

#Avg  
Log  
10  
dB/  
Offst  
6.5  
dB

PAvg

M1 S2  
S3 FC  
AA£(f):  
FTun  
Swp

Center 5.785 00 GHz

#Res BW 300 kHz

#VBW 1 MHz

Span 30 MHz  
Sweep 1 ms (601 pts)

**CH High**

Agilent

R T

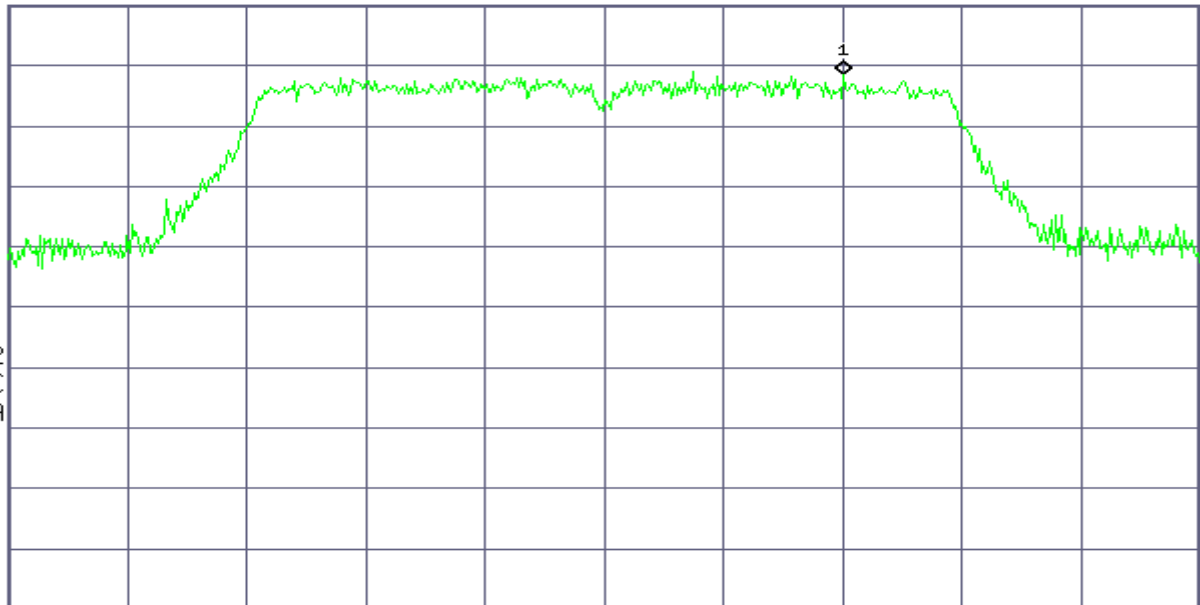
Mkr1 5.831 05 GHz  
3.46 dBm

Ref 15 dBm

#Atten 30 dB

#Avg  
Log  
10  
dB/  
Offst  
6.5  
dB

PAvg

M1 S2  
S3 FC  
AAE(f):  
FTun  
Swp

Center 5.825 00 GHz

Span 30 MHz

#Res BW 300 kHz

#VBW 1 MHz

Sweep 1 ms (601 pts)

**IEEE 802.11ac VHT40 mode  
5725~5850MHz****CH Low**

Agilent

R T

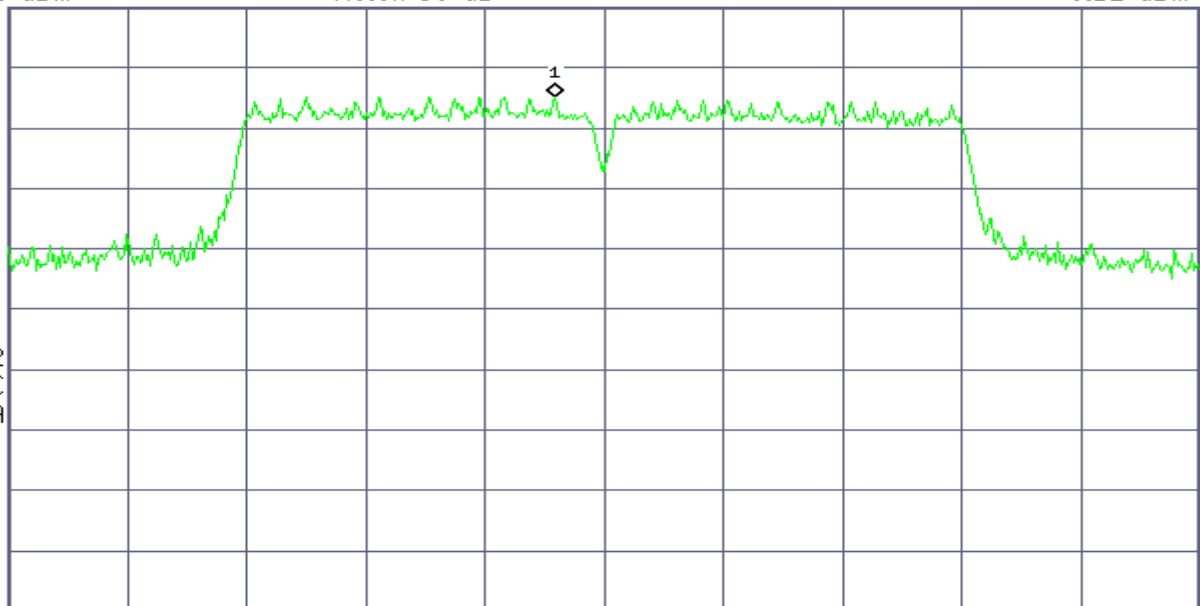
Mkr1 5.752 5 GHz  
0.12 dBm

Ref 15 dBm

#Atten 30 dB

#Avg  
Log  
10  
dB/  
Offst  
6.5  
dB

PAvg

M1 S2  
S3 FC  
AAE(f):  
FTun  
Swp

Center 5.755 0 GHz

Span 60 MHz

#Res BW 300 kHz

#VBW 1 MHz

Sweep 2.04 ms (601 pts)

**CH High**

Agilent

R T

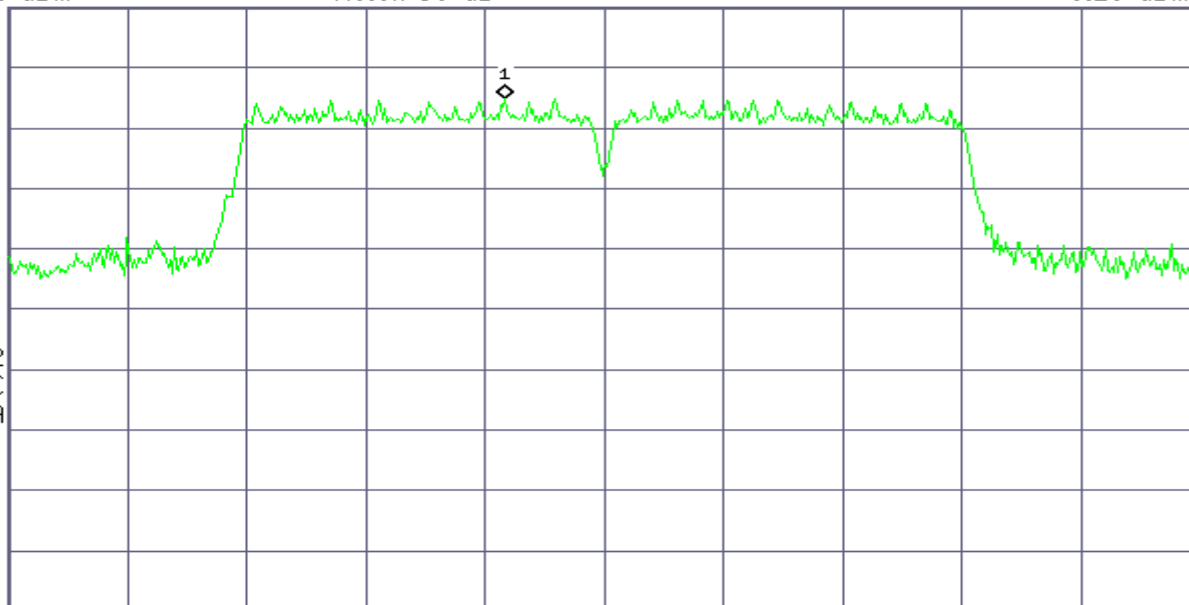
Mkr1 5.790 0 GHz  
-0.20 dBm

Ref 15 dBm

#Atten 30 dB

#Avg  
Log  
10  
dB/  
Offst  
6.5  
dB

PAvg

M1 S2  
S3 FC  
AAE(f):  
FTun  
Swp

Center 5.795 0 GHz

Span 60 MHz

#Res BW 300 kHz

#VBW 1 MHz

Sweep 2.04 ms (601 pts)

**IEEE 802.11ac VHT80 mode  
5725~5850MHz****CH Mid**

Agilent

R T

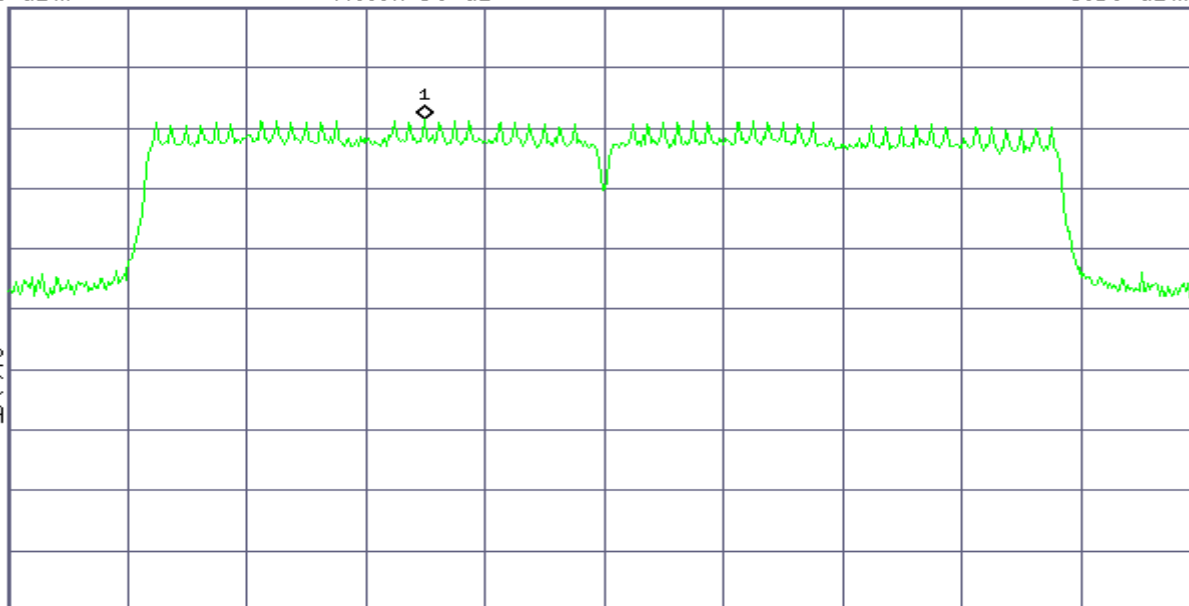
Mkr1 5.760 00 GHz  
-3.58 dBm

Ref 15 dBm

#Atten 30 dB

#Avg  
Log  
10  
dB/  
Offst  
6.5  
dB

PAvg

M1 S2  
S3 FC  
AAE(f):  
FTun  
Swp

Center 5.775 00 GHz

Span 100 MHz

#Res BW 300 kHz

#VBW 1 MHz

Sweep 3.36 ms (601 pts)

**7.5 RADIATED UNDESIRABLE EMISSION****LIMIT**

Radiated emissions from 9 kHz to 25 GHz were measured according to the methods defines in ANSI C63.10-2013. The EUT was placed above the ground plane, 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

1. For transmitters operating in the 5725-5850 MHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz (78.3dB $\mu$ V/m); for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz (68.3dB $\mu$ V/m).
2. KDB789033 v01 G)2)c) As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.
3. According to APPENDIX A Final Rules of FCC-16-24A1, For transmitters operating in the 5.725-5.85 GHz band:

All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

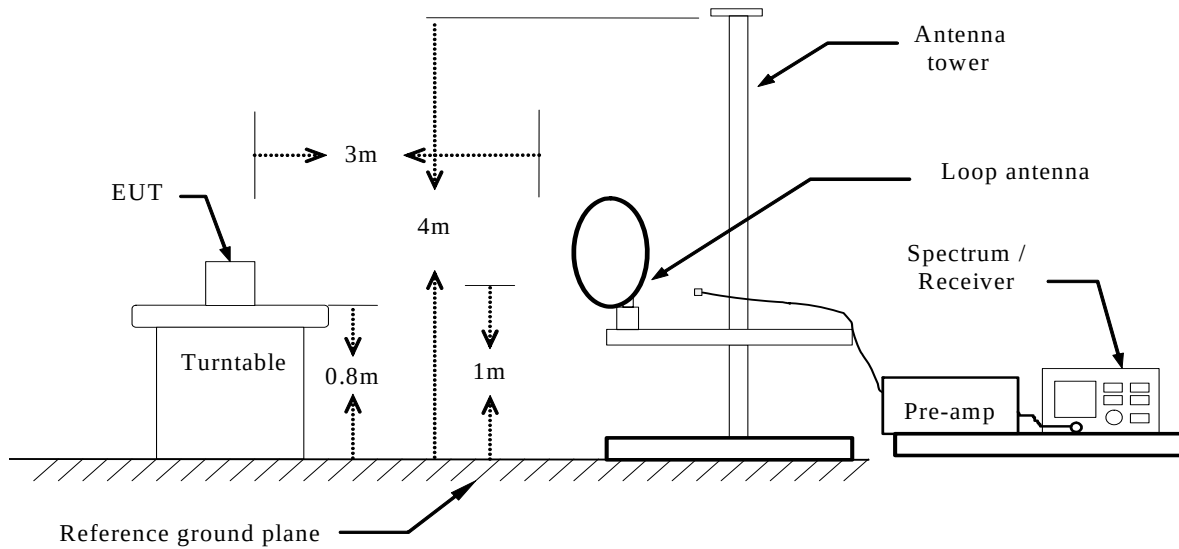
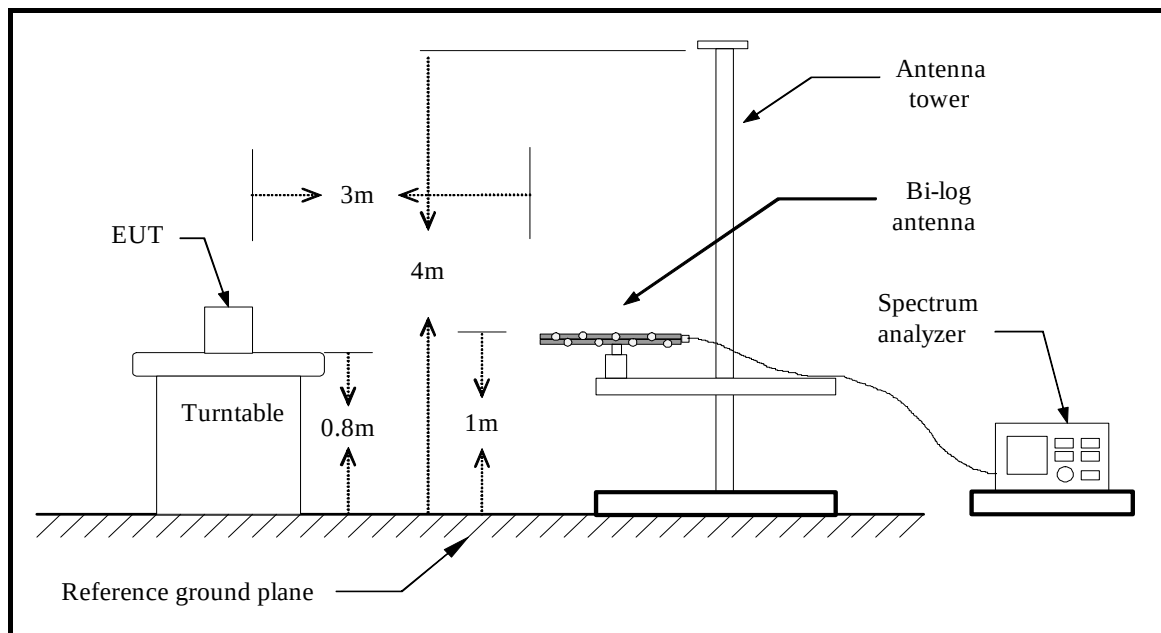
4. According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

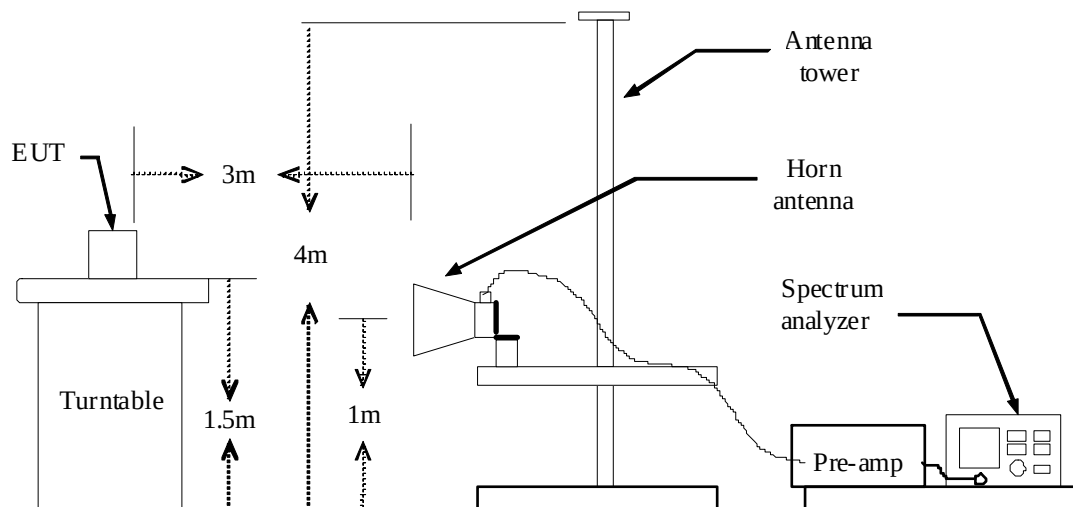
| FREQUENCIES(MHz) | FIELD STRENGTH<br>(microvolts/meter) | MEASUREMENT<br>DISTANCE(meters) |
|------------------|--------------------------------------|---------------------------------|
| 0.009~0.490      | 2400/F(kHz)                          | 300                             |
| 0.490~1.705      | 24000/F(kHz)                         | 30                              |
| 1.705~30.0       | 30                                   | 30                              |
| 30~88            | 100                                  | 3                               |
| 88~216           | 150                                  | 3                               |
| 216~960          | 200                                  | 3                               |
| Above 960        | 500                                  | 3                               |

**Remark:** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

5. In the emission table above, the tighter limit applies at the band edges.

| Frequency<br>(MHz) | Field Strength<br>( $\mu$ V/m at 3-meter) | Field Strength<br>(dB $\mu$ V/m at 3-meter) |
|--------------------|-------------------------------------------|---------------------------------------------|
| 30-88              | 100                                       | 40                                          |
| 88-216             | 150                                       | 43.5                                        |
| 216-960            | 200                                       | 46                                          |
| Above 960          | 500                                       | 54                                          |

**Test Configuration****Below 30MHz****Below 1 GHz**

**Above 1 GHz****TEST PROCEDURE**

1. The EUT is placed on a turntable above ground plane, which is 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

Below 1GHz:

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz:

(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.

**TEST RESULTS****Below 1 GHz**

|                        |             |                   |             |
|------------------------|-------------|-------------------|-------------|
| <b>Operation Mode:</b> | Normal Link | <b>Test Date:</b> | 2016-5-19   |
| <b>Temperature:</b>    | 25°C        | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 48% RH      | <b>Polarity:</b>  | Ver. / Hor. |

| Frequency (MHz) | Ant. Pol. (H/V) | Reading (dBuV) | Correction Factor (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----------------|-----------------|----------------|--------------------------|-----------------|----------------|-------------|--------|
| 32.9100         | V               | 16.06          | 19.19                    | 35.25           | 40.00          | -4.75       | QP     |
| 239.5200        | V               | 26.12          | 13.20                    | 39.32           | 46.00          | -6.68       | QP     |
| 375.3200        | V               | 27.90          | 16.35                    | 44.25           | 46.00          | -1.75       | QP     |
| 625.5800        | V               | 22.75          | 20.50                    | 43.25           | 46.00          | -2.75       | QP     |
| 750.7100        | V               | 20.05          | 22.20                    | 42.25           | 46.00          | -3.75       | QP     |
| 806.4500        | V               | 21.90          | 22.93                    | 44.83           | 46.00          | -1.17       | QP     |
| 30.9700         | H               | 11.31          | 20.22                    | 31.53           | 40.00          | -8.47       | QP     |
| 142.5200        | H               | 21.57          | 10.96                    | 32.53           | 43.50          | -10.97      | QP     |
| 239.5200        | H               | 25.05          | 13.20                    | 38.25           | 46.00          | -7.75       | QP     |
| 375.3200        | H               | 23.90          | 16.35                    | 40.25           | 46.00          | -5.75       | QP     |
| 809.7700        | H               | 19.57          | 22.96                    | 42.53           | 46.00          | -3.47       | QP     |
| 875.8400        | H               | 19.27          | 23.56                    | 42.83           | 46.00          | -3.17       | QP     |

**Remark:**

1. Measuring frequencies from 30 MHz to the 1GHz.(no emission found from the lowest internal used/generated frequency to 30MHz)
2. Radiated emissions measured were made with an instrument using peak/quasi-peak detector mode.
3. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.
4. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
5. Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).

**Above 1 GHz**

|                        |                               |                   |             |
|------------------------|-------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11a mode CH Low | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                          | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                        | <b>Polarity:</b>  | Ver. / Hor. |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 10503.000          | 40.37             | 5.47                    | 45.84              | 74.00             | -28.16         | 100            | 45               | peak   |
| 2   | 13053.000          | 41.00             | 9.81                    | 50.81              | 74.00             | -23.19         | 100            | 76               | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 10112.000          | 40.89             | 6.36                    | 47.25              | 74.00             | -26.75         | 100            | 215              | peak   |
| 2   | 13393.000          | 40.67             | 9.18                    | 49.85              | 74.00             | -24.15         | 100            | 0                | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

|                        |                               |                   |             |
|------------------------|-------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11a mode CH Mid | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                          | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                        | <b>Polarity:</b>  | Ver. / Hor. |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 12458.000          | 37.54             | 7.31                    | 44.85              | 74.00             | -29.15         | 100            | 73               | peak   |
| 2   | 15382.000          | 39.17             | 3.34                    | 42.51              | 74.00             | -31.49         | 100            | 124              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 11149.000          | 39.53             | 4.45                    | 43.98              | 74.00             | -30.02         | 100            | 126              | peak   |
| 2   | 14260.000          | 38.67             | 7.36                    | 46.03              | 74.00             | -27.97         | 100            | 143              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |



# Compliance Certification Services Inc.

Date of Issue :May 24, 2016

Report No: C160512R01-RPW2

FCC ID: 2ABMA-888-700-213

|                        |                                |                   |             |
|------------------------|--------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | Tx / IEEE 802.11a mode CH High | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                           | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                         | <b>Polarity:</b>  | Ver. / Hor. |

## Horizontal

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 10061.000          | 41.23             | 6.48                    | 47.71              | 74.00             | -26.29         | 100            | 165              | peak   |
| 2   | 16147.000          | 36.64             | 0.94                    | 37.58              | 74.00             | -36.42         | 100            | 333              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

## Vertical

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 11047.000          | 38.50             | 4.38                    | 42.88              | 74.00             | -31.12         | 100            | 204              | peak   |
| 2   | 15178.000          | 37.38             | 4.46                    | 41.84              | 74.00             | -32.16         | 100            | 115              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

|                        |                                     |                   |             |
|------------------------|-------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | TX / IEEE 802.11n HT20 mode /CH Low | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                              | <b>Polarity:</b>  | Ver. / Hor. |

## Horizontal

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 12917.000          | 41.76             | 9.51                    | 51.27              | 74.00             | -22.73         | 100            | 83               | peak   |
| 2   | 17082.000          | 37.67             | 6.86                    | 44.53              | 74.00             | -29.47         | 100            | 274              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

## Vertical

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 10299.000          | 41.05             | 5.94                    | 46.99              | 74.00             | -27.01         | 100            | 3                | peak   |
| 2   | 14906.000          | 37.94             | 5.68                    | 43.62              | 74.00             | -30.38         | 100            | 74               | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |



# Compliance Certification Services Inc.

Date of Issue : May 24, 2016

Report No: C160512R01-RPW2

FCC ID: 2ABMA-888-700-213

|                        |                                     |                   |             |
|------------------------|-------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | TX / IEEE 802.11n HT20 mode /CH Mid | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                              | <b>Polarity:</b>  | Ver. / Hor. |

## Horizontal

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 12645.000          | 38.57             | 8.21                    | 46.78              | 74.00             | -27.22         | 100            | 155              | peak   |
| 2   | 15501.000          | 38.77             | 2.69                    | 41.46              | 74.00             | -32.54         | 100            | 316              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

## Vertical

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 11574.000          | 34.48             | 4.78                    | 39.26              | 74.00             | -34.74         | 100            | 6                | peak   |
| 2   | 17167.000          | 36.73             | 7.14                    | 43.87              | 74.00             | -30.13         | 100            | 6                | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

|                        |                                      |                   |             |
|------------------------|--------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | TX / IEEE 802.11n HT20 mode /CH High | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                 | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                               | <b>Polarity:</b>  | Ver. / Hor. |

## Horizontal

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 12237.000          | 37.67             | 6.25                    | 43.92              | 74.00             | -30.08         | 100            | 326              | peak   |
| 2   | 15059.000          | 37.54             | 5.11                    | 42.65              | 74.00             | -31.35         | 100            | 97               | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

## Vertical

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 12254.000          | 38.15             | 6.33                    | 44.48              | 74.00             | -29.52         | 100            | 348              | peak   |
| 2   | 15841.000          | 35.40             | 0.84                    | 36.24              | 74.00             | -37.76         | 100            | 304              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

|                        |                                     |                   |             |
|------------------------|-------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | TX / IEEE 802.11n HT40 mode /CH Low | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                              | <b>Polarity:</b>  | Ver. / Hor. |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 11948.000          | 40.18             | 5.07                    | 45.25              | 74.00             | -28.75         | 100            | 107              | peak   |
| 2   | 14770.000          | 37.90             | 6.03                    | 43.93              | 74.00             | -30.07         | 100            | 322              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 11625.000          | 35.45             | 4.82                    | 40.27              | 74.00             | -33.73         | 100            | 150              | peak   |
| 2   | 16181.000          | 35.70             | 1.17                    | 36.87              | 74.00             | -37.13         | 100            | 352              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

|                        |                                      |                   |             |
|------------------------|--------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | TX / IEEE 802.11n HT40 mode /CH High | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                 | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                               | <b>Polarity:</b>  | Ver. / Hor. |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 11098.000          | 39.99             | 4.42                    | 44.41              | 74.00             | -29.59         | 100            | 278              | peak   |
| 2   | 15603.000          | 38.19             | 2.14                    | 40.33              | 74.00             | -33.67         | 100            | 134              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 13070.000          | 42.18             | 9.78                    | 51.96              | 74.00             | -22.04         | 100            | 160              | peak   |
| 2   | 14974.000          | 38.33             | 5.50                    | 43.83              | 74.00             | -30.17         | 100            | 146              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

|                        |                                       |                   |             |
|------------------------|---------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | TX / IEEE 802.11ac VHT20 mode /CH Low | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                  | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                                | <b>Polarity:</b>  | Ver. / Hor. |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 11931.000          | 39.14             | 5.06                    | 44.20              | 74.00             | -29.80         | 100            | 358              | peak   |
| 2   | 13750.000          | 40.53             | 8.51                    | 49.04              | 74.00             | -24.96         | 100            | 90               | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 12713.000          | 40.82             | 8.53                    | 49.35              | 74.00             | -24.65         | 100            | 359              | peak   |
| 2   | 14362.000          | 39.21             | 7.10                    | 46.31              | 74.00             | -27.69         | 100            | 167              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

|                        |                                       |                   |             |
|------------------------|---------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | TX / IEEE 802.11ac VHT20 mode /CH Mid | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                  | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                                | <b>Polarity:</b>  | Ver. / Hor. |

**Horizontal**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 12679.000          | 39.67             | 8.37                    | 48.04              | 74.00             | -25.96         | 100            | 39               | peak   |
| 2   | 15229.000          | 39.47             | 4.18                    | 43.65              | 74.00             | -30.35         | 100            | 243              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

**Vertical**

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 11081.000          | 39.92             | 4.40                    | 44.32              | 74.00             | -29.68         | 100            | 242              | peak   |
| 2   | 15365.000          | 37.08             | 3.44                    | 40.52              | 74.00             | -33.48         | 100            | 181              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |



# Compliance Certification Services Inc.

Date of Issue :May 24, 2016

Report No: C160512R01-RPW2

FCC ID: 2ABMA-888-700-213

|                        |                                        |                   |             |
|------------------------|----------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | TX / IEEE 802.11ac VHT20 mode /CH High | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                   | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                                 | <b>Polarity:</b>  | Ver. / Hor. |

## Horizontal

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 11030.000          | 40.09             | 4.36                    | 44.45              | 74.00             | -29.55         | 100            | 358              | peak   |
| 2   | 16538.000          | 35.35             | 3.54                    | 38.89              | 74.00             | -35.11         | 100            | 312              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

## Vertical

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 11846.000          | 36.30             | 4.99                    | 41.29              | 74.00             | -32.71         | 100            | 40               | peak   |
| 2   | 15229.000          | 37.74             | 4.18                    | 41.92              | 74.00             | -32.08         | 100            | 194              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

|                        |                                       |                   |             |
|------------------------|---------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | TX / IEEE 802.11ac VHT40 mode /CH Low | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                  | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                                | <b>Polarity:</b>  | Ver. / Hor. |

## Horizontal

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 13376.000          | 41.80             | 9.21                    | 51.01              | 74.00             | -22.99         | 100            | 59               | peak   |
| 2   | 15025.000          | 38.29             | 5.29                    | 43.58              | 74.00             | -30.42         | 100            | 52               | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

## Vertical

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 11098.000          | 40.31             | 4.42                    | 44.73              | 74.00             | -29.27         | 100            | 74               | peak   |
| 2   | 13971.000          | 38.92             | 8.09                    | 47.01              | 74.00             | -26.99         | 100            | 51               | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |



# Compliance Certification Services Inc.

Date of Issue :May 24, 2016

Report No: C160512R01-RPW2

FCC ID: 2ABMA-888-700-213

|                        |                                        |                   |             |
|------------------------|----------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | TX / IEEE 802.11ac VHT40 mode /CH High | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                   | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                                 | <b>Polarity:</b>  | Ver. / Hor. |

## Horizontal

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 10435.000          | 40.74             | 5.63                    | 46.37              | 74.00             | -27.63         | 100            | 97               | peak   |
| 2   | 14855.000          | 37.25             | 5.81                    | 43.06              | 74.00             | -30.94         | 100            | 210              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

## Vertical

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 13665.000          | 40.41             | 8.67                    | 49.08              | 74.00             | -24.92         | 100            | 75               | peak   |
| 2   | 16946.000          | 37.78             | 6.24                    | 44.02              | 74.00             | -29.98         | 100            | 68               | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

|                        |                                       |                   |             |
|------------------------|---------------------------------------|-------------------|-------------|
| <b>Operation Mode:</b> | TX / IEEE 802.11ac VHT80 mode /CH Mid | <b>Test Date:</b> | 2016-5-13   |
| <b>Temperature:</b>    | 25°C                                  | <b>Tested by:</b> | Lily.Wang   |
| <b>Humidity:</b>       | 55% RH                                | <b>Polarity:</b>  | Ver. / Hor. |

## Horizontal

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 10469.000          | 39.77             | 5.55                    | 45.32              | 74.00             | -28.68         | 100            | 336              | peak   |
| 2   | 15314.000          | 38.20             | 3.72                    | 41.92              | 74.00             | -32.08         | 100            | 244              | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

## Vertical

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|----------------|------------------|--------|
| 1   | 10248.000          | 40.73             | 6.05                    | 46.78              | 74.00             | -27.22         | 100            | 19               | peak   |
| 2   | 15756.000          | 38.03             | 1.30                    | 39.33              | 74.00             | -34.67         | 100            | 23               | peak   |
| 3   | N/A                |                   |                         |                    |                   |                |                |                  |        |
| 4   |                    |                   |                         |                    |                   |                |                |                  |        |
| 5   |                    |                   |                         |                    |                   |                |                |                  |        |
| 6   |                    |                   |                         |                    |                   |                |                |                  |        |

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 3 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

## 7.6 POWERLINE CONDUCTED EMISSIONS

### LIMIT

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

| Frequency Range<br>(MHz) | Limits<br>(dB $\mu$ V) |           |
|--------------------------|------------------------|-----------|
|                          | 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        |

\* Decreases with the logarithm of the frequency.

### TEST CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### TEST PROCEDURE

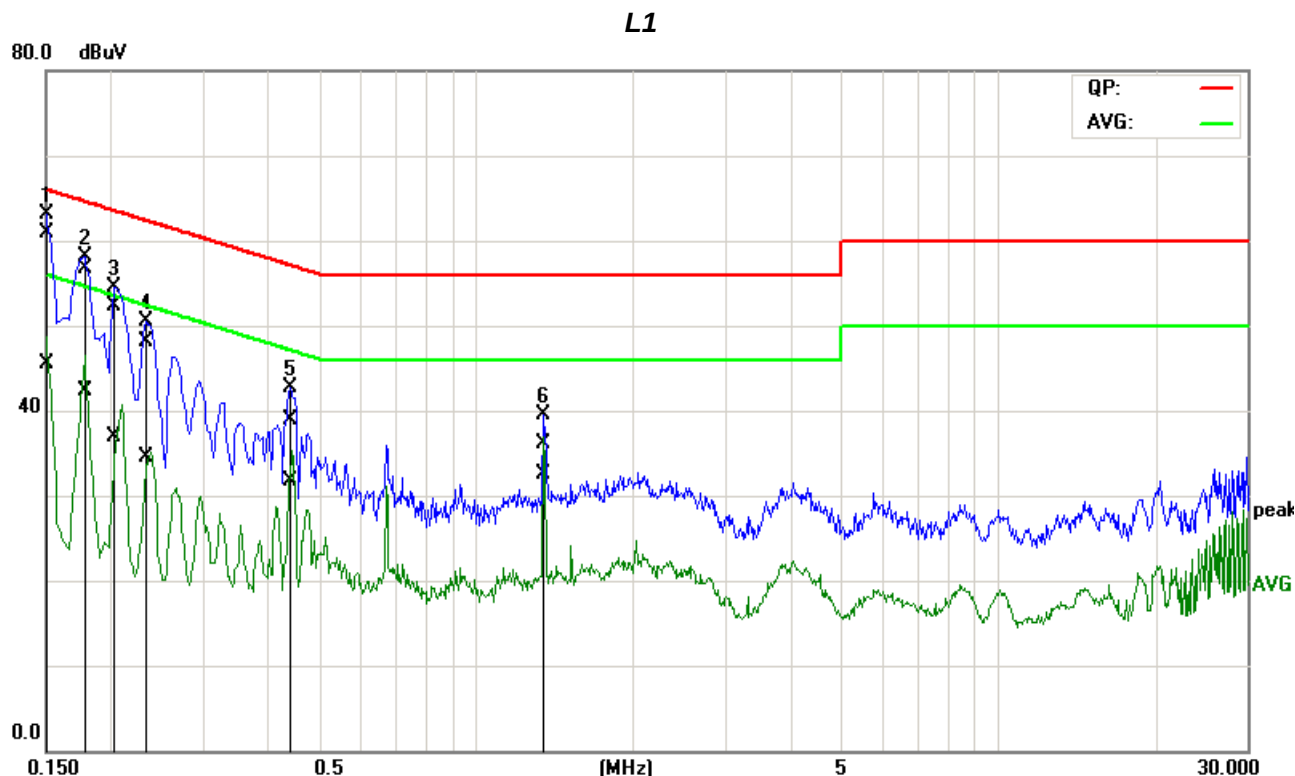
1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

### TEST RESULTS

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 Data**

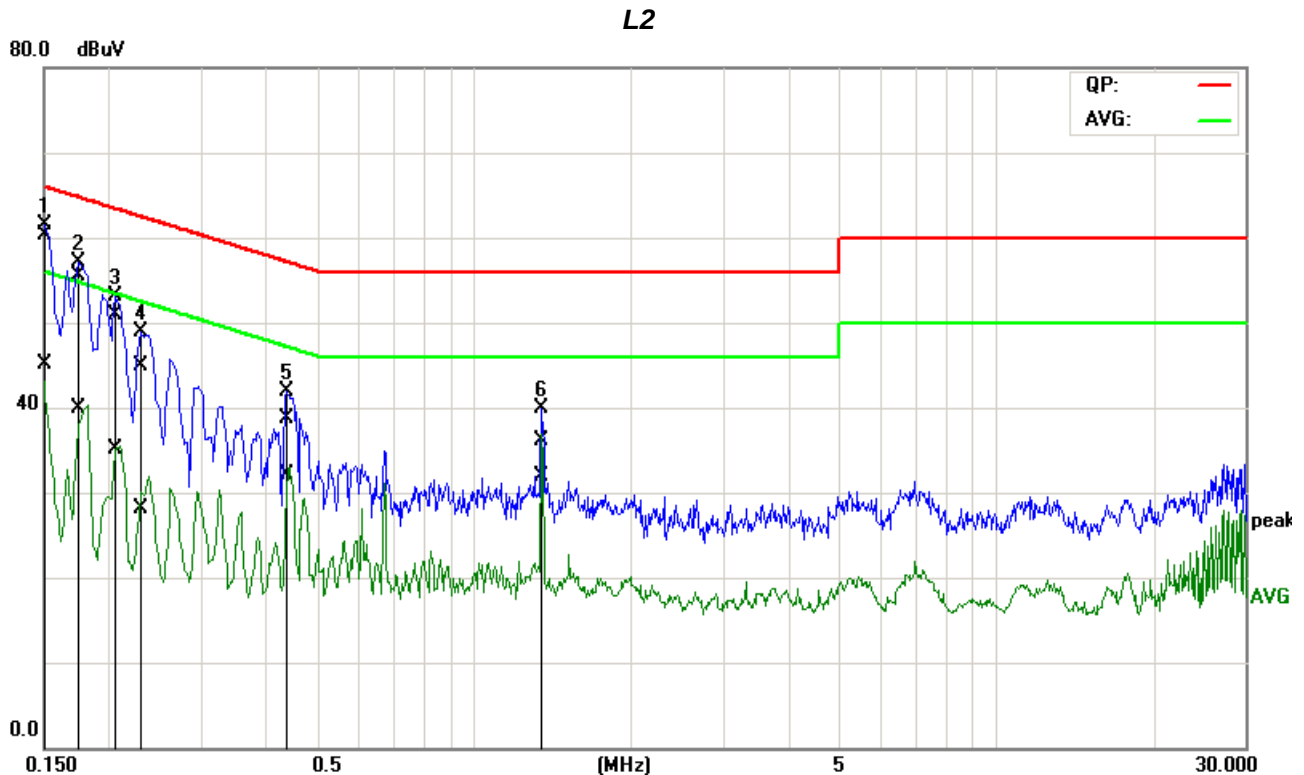
|            |                 |                   |              |
|------------|-----------------|-------------------|--------------|
| Job No.:   | C160512R01      | Date:             | 2016-5-19    |
| Model No.: | 850-033343      | Time:             | PM 04:45:37  |
| Standard:  | FCC Class B     | Temp.(C)/Hum.(%): | 22(C)/48%    |
| Test item: | Conduction test | Test By:          | Lily.Wang    |
| Line:      | L1              | Test Voltage:     | AC 120V/60Hz |
| Model:     |                 | Description:      |              |



| No. | Frequency<br>(MHz) | QuasiPeak<br>reading<br>(dBuV) | Average<br>reading<br>(dBuV) | Correction<br>factor<br>(dB) | QuasiPeak<br>result<br>(dBuV) | Average<br>result<br>(dBuV) | QuasiPeak<br>limit<br>(dBuV) | Average<br>limit<br>(dBuV) | QuasiPeak<br>margin<br>(dB) | Average<br>margin<br>(dB) | Remark |
|-----|--------------------|--------------------------------|------------------------------|------------------------------|-------------------------------|-----------------------------|------------------------------|----------------------------|-----------------------------|---------------------------|--------|
| 1*  | 0.1506             | 41.02                          | 25.81                        | 19.79                        | 60.81                         | 45.60                       | 65.97                        | 55.97                      | -5.16                       | -10.37                    | Pass   |
| 2   | 0.1764             | 36.98                          | 22.43                        | 19.79                        | 56.77                         | 42.22                       | 64.65                        | 54.65                      | -7.88                       | -12.43                    | Pass   |
| 3   | 0.2042             | 32.44                          | 17.13                        | 19.79                        | 52.23                         | 36.92                       | 63.44                        | 53.44                      | -11.21                      | -16.52                    | Pass   |
| 4   | 0.2347             | 28.38                          | 14.69                        | 19.80                        | 48.18                         | 34.49                       | 62.28                        | 52.28                      | -14.10                      | -17.79                    | Pass   |
| 5   | 0.4400             | 19.19                          | 11.85                        | 19.81                        | 39.00                         | 31.66                       | 57.06                        | 47.06                      | -18.06                      | -15.40                    | Pass   |
| 6   | 1.3483             | 16.25                          | 12.68                        | 19.81                        | 36.06                         | 32.49                       | 56.00                        | 46.00                      | -19.94                      | -13.51                    | Pass   |

**Note:** 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

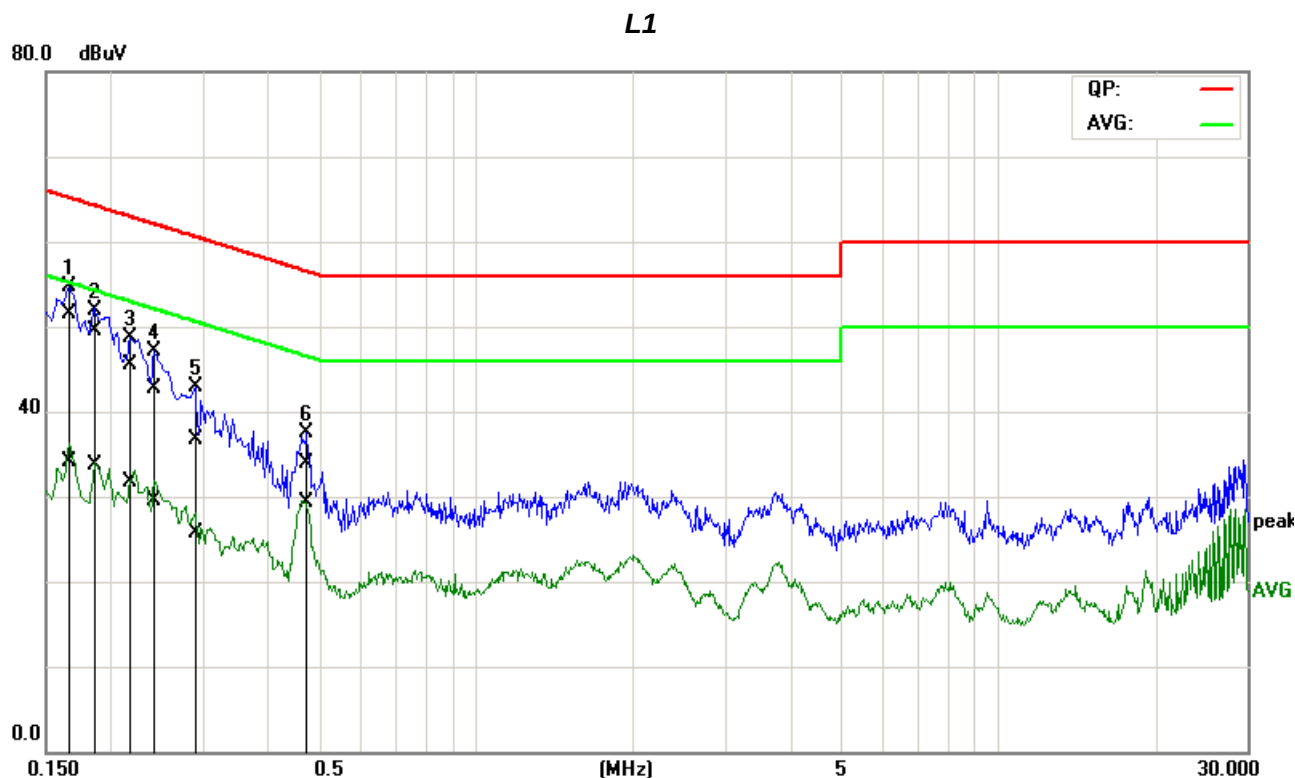
|            |                 |                   |              |
|------------|-----------------|-------------------|--------------|
| Job No.:   | C160512R01      | Date:             | 2016-5-19    |
| Model No.: | 850-033343      | Time:             | PM 04:52:16  |
| Standard:  | FCC Class B     | Temp.(C)/Hum.(%): | 22(C)/48%    |
| Test item: | Conduction test | Test By:          | Lily.Wang    |
| Line:      | L2              | Test Voltage:     | AC 120V/60Hz |
| Model:     |                 | Description:      |              |



| No. | Frequency<br>(MHz) | QuasiPeak<br>reading<br>(dBuV) | Average<br>reading<br>(dBuV) | Correction<br>factor<br>(dB) | QuasiPeak<br>result<br>(dBuV) | Average<br>result<br>(dBuV) | QuasiPeak<br>limit<br>(dBuV) | Average<br>limit<br>(dBuV) | QuasiPeak<br>margin<br>(dB) | Average<br>margin<br>(dB) | Remark |
|-----|--------------------|--------------------------------|------------------------------|------------------------------|-------------------------------|-----------------------------|------------------------------|----------------------------|-----------------------------|---------------------------|--------|
| 1*  | 0.1500             | 40.47                          | 25.30                        | 19.74                        | 60.21                         | 45.04                       | 66.00                        | 56.00                      | -5.79                       | -10.96                    | Pass   |
| 2   | 0.1755             | 35.72                          | 20.07                        | 19.74                        | 55.46                         | 39.81                       | 64.70                        | 54.70                      | -9.24                       | -14.89                    | Pass   |
| 3   | 0.2044             | 31.19                          | 15.45                        | 19.74                        | 50.93                         | 35.19                       | 63.43                        | 53.43                      | -12.50                      | -18.24                    | Pass   |
| 4   | 0.2310             | 25.25                          | 8.43                         | 19.75                        | 45.00                         | 28.18                       | 62.41                        | 52.41                      | -17.41                      | -24.23                    | Pass   |
| 5   | 0.4417             | 18.98                          | 12.32                        | 19.75                        | 38.73                         | 32.07                       | 57.03                        | 47.03                      | -18.30                      | -14.96                    | Pass   |
| 6   | 1.3484             | 16.34                          | 12.10                        | 19.75                        | 36.09                         | 31.85                       | 56.00                        | 46.00                      | -19.91                      | -14.15                    | Pass   |

**Note:** 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

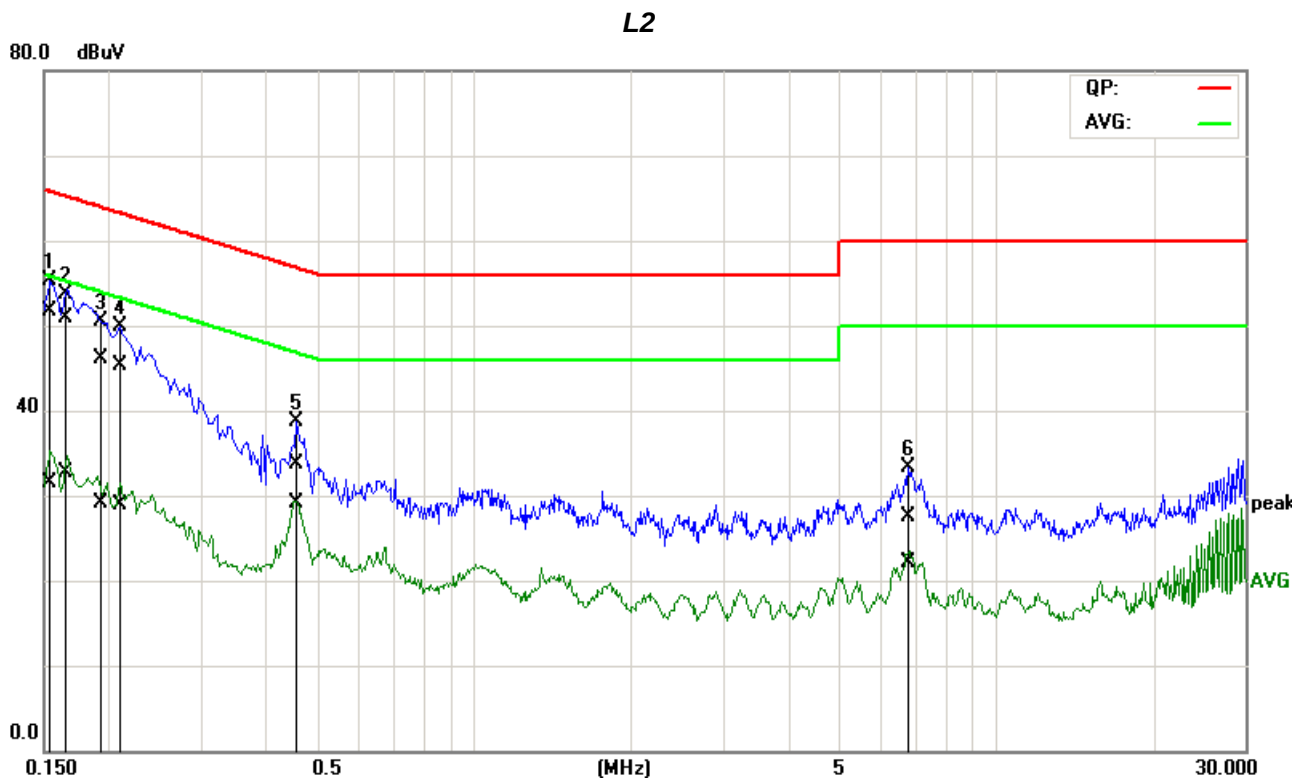
|            |                 |                  |              |
|------------|-----------------|------------------|--------------|
| Job No.:   | C160512R01      | Date:            | 2016-5-19    |
| Model No.: | 850-033343      | Time:            | PM 05:00:24  |
| Standard:  | FCC Class B     | Temp.(C)/Hum.(%) | 22(C)/48%    |
| Test item: | Conduction test | Test By:         | Lily.Wang    |
| Line:      | L1              | Test Voltage:    | AC 240V/60Hz |
| Model:     |                 | Description:     |              |



| No. | Frequency<br>(MHz) | QuasiPeak<br>reading<br>(dBuV) | Average<br>reading<br>(dBuV) | Correction<br>factor<br>(dB) | QuasiPeak<br>result<br>(dBuV) | Average<br>result<br>(dBuV) | QuasiPeak<br>limit<br>(dBuV) | Average<br>limit<br>(dBuV) | QuasiPeak<br>margin<br>(dB) | Average<br>margin<br>(dB) | Remark |
|-----|--------------------|--------------------------------|------------------------------|------------------------------|-------------------------------|-----------------------------|------------------------------|----------------------------|-----------------------------|---------------------------|--------|
| 1*  | 0.1633             | 31.65                          | 14.33                        | 19.79                        | 51.44                         | 34.12                       | 65.29                        | 55.29                      | -13.85                      | -21.17                    | Pass   |
| 2   | 0.1877             | 29.81                          | 13.83                        | 19.79                        | 49.60                         | 33.62                       | 64.14                        | 54.14                      | -14.54                      | -20.52                    | Pass   |
| 3   | 0.2193             | 25.79                          | 11.89                        | 19.79                        | 45.58                         | 31.68                       | 62.85                        | 52.85                      | -17.27                      | -21.17                    | Pass   |
| 4   | 0.2395             | 22.82                          | 9.78                         | 19.80                        | 42.62                         | 29.58                       | 62.11                        | 52.11                      | -19.49                      | -22.53                    | Pass   |
| 5   | 0.2913             | 16.95                          | 5.97                         | 19.80                        | 36.75                         | 25.77                       | 60.49                        | 50.49                      | -23.74                      | -24.72                    | Pass   |
| 6   | 0.4713             | 14.08                          | 9.42                         | 19.81                        | 33.89                         | 29.23                       | 56.49                        | 46.49                      | -22.60                      | -17.26                    | Pass   |

**Note:** 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

|            |                 |                   |              |
|------------|-----------------|-------------------|--------------|
| Job No.:   | C160512R01      | Date:             | 2016-5-19    |
| Model No.: | 850-033343      | Time:             | PM 05:06:52  |
| Standard:  | FCC Class B     | Temp.(C)/Hum.(%): | 22(C)/48%    |
| Test item: | Conduction test | Test By:          | Lily.Wang    |
| Line:      | L2              | Test Voltage:     | AC 240V/60Hz |
| Model:     |                 | Description:      |              |



| No. | Frequency<br>(MHz) | QuasiPeak<br>reading<br>(dBuV) | Average<br>reading<br>(dBuV) | Correction<br>factor<br>(dB) | QuasiPeak<br>result<br>(dBuV) | Average<br>result<br>(dBuV) | QuasiPeak<br>limit<br>(dBuV) | Average<br>limit<br>(dBuV) | QuasiPeak<br>margin<br>(dB) | Average<br>margin<br>(dB) | Remark |
|-----|--------------------|--------------------------------|------------------------------|------------------------------|-------------------------------|-----------------------------|------------------------------|----------------------------|-----------------------------|---------------------------|--------|
| 1*  | 0.1542             | 31.88                          | 11.69                        | 19.74                        | 51.62                         | 31.43                       | 65.77                        | 55.77                      | -14.15                      | -24.34                    | Pass   |
| 2   | 0.1624             | 31.08                          | 12.88                        | 19.74                        | 50.82                         | 32.62                       | 65.34                        | 55.34                      | -14.52                      | -22.72                    | Pass   |
| 3   | 0.1945             | 26.41                          | 9.30                         | 19.74                        | 46.15                         | 29.04                       | 63.84                        | 53.84                      | -17.69                      | -24.80                    | Pass   |
| 4   | 0.2114             | 25.65                          | 9.26                         | 19.74                        | 45.39                         | 29.00                       | 63.15                        | 53.15                      | -17.76                      | -24.15                    | Pass   |
| 5   | 0.4555             | 13.93                          | 9.45                         | 19.75                        | 33.68                         | 29.20                       | 56.77                        | 46.77                      | -23.09                      | -17.57                    | Pass   |
| 6   | 6.8032             | 7.58                           | 2.15                         | 19.88                        | 27.46                         | 22.03                       | 60.00                        | 50.00                      | -32.54                      | -27.97                    | Pass   |

**Note:** 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Remark:

- 1.The measuring frequencies range between 0.15 MHz and 30 MHz.
- 2.The emissions measured in the frequency range between 0.15 MHz and 30MHz were made with an instrument using Quasi-peak detector and Average detector.
- 3.“—” denotes the emission level was or more than 2dB below the Average limit, and no re-check was made.
- 4.The IF bandwidth of SPA between 0.15MHz and 30MHz was 10KHz. The IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9kHz.

**END OF REPORT**