

# TEST REPORT

**Reference No.** ..... : WTS15S0832004-6E  
**FCC ID** ..... : 2AFJXA5UNLIMITED  
**Applicant** ..... : Ocean Coast Resources(HongKong) Limited  
**Address** ..... : Room 1501, 15/F, SPA Centre, 53-55 Lockhart Road, Wanchai, Hong Kong  
**Manufacturer** ..... : Uwin Innovation (Hongkong) Limited  
**Address** ..... : 206A, 2nd floor of No. 30 building, Wisdomland Business Park, 2nd road, Nantou Gate, NanShan District, ShenZhen P.R.C.  
**Product Name** ..... : Mobile Phone  
**Model No.** ..... : A5 UNLIMITED, NOW LTE OC55  
**Brand** ..... : AUDINAC(A5 UNLIMITED), I-modo(NOW LTE OC55)  
**Standards** ..... : FCC CFR47 Part 15 C Section 15.407:2014  
**Date of Receipt sample** ..... : Aug. 18, 2015  
**Date of Test** ..... : Aug. 21 – Sep.06, 2015  
**Date of Issue** ..... : Sep.10, 2015  
**Test Result** ..... : **Pass**

**Remarks:**

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.  
The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

**Prepared By:**

**Waltek Services (Shenzhen) Co., Ltd.**

Address: 1/F., Fukangtai Building, West Baima Road, Songgang Street, Baoan District, Shenzhen, Guangdong, China

Tel :+86-755-83551033

Fax:+86-755-83552400

Compiled by:



Zero Zhou / Project Engineer

Approved by:



Philo Zhong / Manager

## 2 Test Summary

| Test Items                                                        | Test Requirement                    | Result |
|-------------------------------------------------------------------|-------------------------------------|--------|
| Conducted Emissions                                               | 15.207(a)                           | PASS   |
| Radiated Emissions                                                | 15.407(a)<br>15.205(a)<br>15.209(a) | PASS   |
| Duty Cycle                                                        | KDB 789033                          | --     |
| 6dB Bandwidth                                                     | 15.407(a)                           | PASS   |
| 26 dB Emission Bandwidth<br>& 99% Occupied Bandwidth              | 15.407(a)                           | PASS   |
| Maximum Conducted Output Power                                    | 15.407(a)                           | PASS   |
| Power Spectral Density                                            | 15.407(a)                           | PASS   |
| Restricted bands around<br>fundamental frequency                  | 15.407(a)                           | PASS   |
| Antenna Requirement                                               | 15.203                              | PASS   |
| Maximum Permissible Exposure<br>(Exposure of Humans to RF Fields) | 1.1307(b)(1)                        | PASS   |

### 3 Contents

|                                                            | <b>Page</b> |
|------------------------------------------------------------|-------------|
| <b>1 COVER PAGE.....</b>                                   | <b>1</b>    |
| <b>2 TEST SUMMARY .....</b>                                | <b>2</b>    |
| <b>3 CONTENTS .....</b>                                    | <b>3</b>    |
| <b>4 GENERAL INFORMATION.....</b>                          | <b>4</b>    |
| 4.1 GENERAL DESCRIPTION OF E.U.T. ....                     | 4           |
| 4.2 DETAILS OF E.U.T. ....                                 | 4           |
| 4.3 CHANNEL LIST.....                                      | 6           |
| 4.4 TEST FACILITY.....                                     | 7           |
| <b>5 EQUIPMENT USED DURING TEST .....</b>                  | <b>8</b>    |
| 5.1 EQUIPMENTS LIST .....                                  | 8           |
| 5.2 DESCRIPTION OF SUPPORT UNITS .....                     | 9           |
| 5.3 MEASUREMENT UNCERTAINTY .....                          | 9           |
| 5.4 TEST EQUIPMENT CALIBRATION .....                       | 9           |
| <b>6 CONDUCTED EMISSION .....</b>                          | <b>10</b>   |
| 6.1 E.U.T. OPERATION .....                                 | 10          |
| 6.2 EUT SETUP.....                                         | 10          |
| 6.3 MEASUREMENT DESCRIPTION .....                          | 10          |
| 6.4 CONDUCTED EMISSION TEST RESULT .....                   | 11          |
| <b>7 RADIATED EMISSIONS.....</b>                           | <b>13</b>   |
| 7.1 EUT OPERATION.....                                     | 13          |
| 7.2 TEST SETUP .....                                       | 14          |
| 7.3 SPECTRUM ANALYZER SETUP .....                          | 15          |
| 7.4 TEST PROCEDURE .....                                   | 16          |
| 7.5 SUMMARY OF TEST RESULTS.....                           | 17          |
| <b>8 DUTY CYCLE.....</b>                                   | <b>25</b>   |
| 8.1 SUMMARY OF TEST RESULTS.....                           | 25          |
| <b>9 BAND EDGE .....</b>                                   | <b>29</b>   |
| 9.1 TEST PRODUCE.....                                      | 29          |
| 9.2 TEST RESULT .....                                      | 30          |
| <b>10 6 DB BANDWIDTH.....</b>                              | <b>36</b>   |
| 10.1 TEST PROCEDURE:.....                                  | 36          |
| 10.2 TEST RESULT: .....                                    | 36          |
| <b>11 26 DB BANDWIDTH AND 99% OCCUPIED BANDWIDTH .....</b> | <b>41</b>   |
| 11.1 TEST PROCEDURE:.....                                  | 41          |
| 11.2 TEST RESULT: .....                                    | 41          |
| <b>12 CONDUCTED OUTPUT POWER .....</b>                     | <b>50</b>   |
| 12.1 TEST PROCEDURE:.....                                  | 50          |
| 12.2 TEST RESULT: .....                                    | 50          |
| <b>13 POWER SPECTRAL DENSITY .....</b>                     | <b>59</b>   |
| 13.1 TEST PROCEDURE:.....                                  | 59          |
| 13.2 TEST RESULT: .....                                    | 59          |
| <b>14 ANTENNA REQUIREMENT .....</b>                        | <b>68</b>   |
| <b>15 RF EXPOSURE.....</b>                                 | <b>69</b>   |

## 4 General Information

### 4.1 General Description of E.U.T.

|                     |                                                                                                              |
|---------------------|--------------------------------------------------------------------------------------------------------------|
| Product Name        | : Mobile Phone                                                                                               |
| Model No.           | : A5 UNLIMITED, NOW LTE OC55                                                                                 |
| Model Description   | : Only model number and brand name are different                                                             |
| GSM Band(s)         | : GSM 850/900/1800/1900MHz                                                                                   |
| GPRS/EGPRS Class    | : 12                                                                                                         |
| WCDMA Band(s)       | : FDD Band II/V                                                                                              |
| LTE Bnad(s)         | : LTE Band 4                                                                                                 |
| Wi-Fi Specification | : 2.4G: 802.11b/g/n HT20/n HT40<br>5G Band I: 802.11a/ n HT20/ n HT40<br>5G Band IV: 802.11a/ n HT20/ n HT40 |
| Bluetooth Version   | : Bluetooth v4.0 with BLE                                                                                    |
| GPS                 | : Support                                                                                                    |
| NFC                 | : N/A                                                                                                        |
| Hardware Version    | : ALPS.L1.MP3.V2.0_KLINK6735.64.L1_P9                                                                        |
| Software Version    | : MT6735_QF506Ah.2015081309                                                                                  |

### 4.2 Details of E.U.T.

|                      |                                                                                                                                                                                                                                                                                                                                                 |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operation Frequency  | : GSM/GPRS/EGPRS 850: 824~849MHz<br>PCS/GPRS/EGPRS1900: 1850~1910MHz<br>WCDMA Band II: 1850~1910MHz<br>WCDMA Band V: 824~849MHz<br>LTE Band 4: 1710~1755MHz<br>WiFi:<br>802.11b/g/n HT20: 2412~2462MHz<br>802.11n HT40: 2422~2452MHz<br>802.11a/ n(HT20/40): 5150MHz~5250MHz<br>802.11a/ n(HT20/40): 5725MHz~5850MHz<br>Bluetooth: 2402~2480MHz |
| Max. RF output power | : GSM 850: 32.39dBm<br>EGPRS 850: 27.74dBm<br>PCS1900:29.44dBm<br>EGPRS 1900:26.85dBm<br>WCDMA Band II: 22.79dBm<br>WCDMA Band V: 22.60dBm<br>LTE Band 4: 22.94dBm<br>WiFi(2.4G): 9.44dBm<br>WiFi(5G): 6.97dBm<br>Bluetooth: 6.33dBm                                                                                                            |
| Type of Modulation   | : GSM,GPRS: GMSK<br>EGPRS: GMSK, 8PSK<br>WCDMA: BPSK<br>LTE: QPSK, 16QAM                                                                                                                                                                                                                                                                        |

WiFi: CCK, OFDM

Bluetooth: GFSK, Pi/4 DQPSK, 8DPSK

|                      |                                                                                                                                                  |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Antenna installation | : GSM/WCDMA/LTE: internal permanent antenna<br>WiFi/Bluetooth: internal permanent antenna                                                        |
| Antenna Gain         | : GSM 850: 0.9dBi<br>PCS1900: 1.4dBi<br>WCDMA Band II: 1.4dBi<br>WCDMA Band V: 0.9dBi<br>LTE Band 4: 1.4dBi<br>WiFi: 2.0dBi<br>Bluetooth: 2.0dBi |
| Technical Data       | : Battery DC 3.8V, 2500mAh<br>DC 5V, 1000mA, Charging form adapter<br>(Adapter Input: 100-240V~50/60Hz, 0.2A)                                    |
| Adapter              | : Manufacture: iSWAG                                                                                                                             |

### 4.3 Channel List

| Band I (5.15-5.25GHz) |                | Band IV (5.725-5.85GHz) |                |
|-----------------------|----------------|-------------------------|----------------|
| channel               | Frequency(MHz) | channel                 | Frequency(MHz) |
| 36                    | 5180           | 149                     | 5745           |
| 38                    | 5190           | 151                     | 5755           |
| 40                    | 5200           | 153                     | 5765           |
| 42                    | 5210           | 155                     | 5775           |
| 44                    | 5220           | 157                     | 5785           |
| 46                    | 5230           | 159                     | 5795           |
| 48                    | 5240           | 161                     | 5805           |
|                       |                | 165                     | 5825           |

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

For 802.11a/n(HT20):

| channel | Frequency(MHz) | channel | Frequency(MHz) |
|---------|----------------|---------|----------------|
| 36      | 5180           | 149     | 5745           |
| 40      | 5200           | 157     | 5785           |
| 48      | 5240           | 165     | 5825           |

For 802.11 n(HT40):

| channel | Frequency(MHz) | channel | Frequency(MHz) |
|---------|----------------|---------|----------------|
| 38      | 5190           | 151     | 5755           |
| /       | /              | 159     | 5795           |

#### 4.4 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 7760A-1**

Waltek Services(Shenzhen) Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files.

Registration number 7760A-1, July 12, 2012.

- **FCC Test Site 1#– Registration No.: 880581**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, April 29, 2014.

- **FCC Test Site 2#– Registration No.: 328995**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 328995, December 3, 2014.

## 5 Equipment Used during Test

## 5.1 Equipments List

| Conducted Emissions Test Site 1#                              |                            |                                  |              |                 |                       |                      |
|---------------------------------------------------------------|----------------------------|----------------------------------|--------------|-----------------|-----------------------|----------------------|
| Item                                                          | Equipment                  | Manufacturer                     | Model No.    | Serial No.      | Last Calibration Date | Calibration Due Date |
| 1.                                                            | EMI Test Receiver          | R&S                              | ESCI         | 100947          | Sep.15,2014           | Sep.14,2015          |
| 2.                                                            | LISN                       | R&S                              | ENV216       | 101215          | Sep.15,2014           | Sep.14,2015          |
| 3.                                                            | Cable                      | Top                              | TYPE16(3.5M) | -               | Sep.15,2014           | Sep.14,2015          |
| Conducted Emissions Test Site 2#                              |                            |                                  |              |                 |                       |                      |
| Item                                                          | Equipment                  | Manufacturer                     | Model No.    | Serial No.      | Last Calibration Date | Calibration Due Date |
| 1.                                                            | EMI Test Receiver          | R&S                              | ESCI         | 101155          | Sep.15,2014           | Sep.14,2015          |
| 2.                                                            | LISN                       | SCHWARZBECK                      | NSLK 8128    | 8128-289        | Sep.15,2014           | Sep.14,2015          |
| 3.                                                            | Limiter                    | York                             | MTS-IMP-136  | 261115-001-0024 | Sep.15,2014           | Sep.14,2015          |
| 4.                                                            | Cable                      | LARGE                            | RF300        | -               | Sep.15,2014           | Sep.14,2015          |
| 3m Semi-anechoic Chamber for Radiation Emissions Test site 1# |                            |                                  |              |                 |                       |                      |
| Item                                                          | Equipment                  | Manufacturer                     | Model No.    | Serial No.      | Last Calibration Date | Calibration Due Date |
| 1                                                             | EMC Analyzer               | Agilent                          | E7405A       | MY45114943      | Sep.15,2014           | Sep.14,2015          |
| 2                                                             | Active Loop Antenna        | Beijing Dazhi                    | ZN30900A     | -               | Sep.15,2014           | Sep.14,2015          |
| 3                                                             | Trilog Broadband Antenna   | SCHWARZBECK                      | VULB9163     | 336             | Apr.19,2015           | Apr.18,2016          |
| 4                                                             | Coaxial Cable (below 1GHz) | Top                              | TYPE16(13M)  | -               | Sep.15,2014           | Sep.14,2015          |
| 5                                                             | Broad-band Horn Antenna    | SCHWARZBECK                      | BBHA 9120 D  | 667             | Apr.19,2015           | Apr.18,2016          |
| 6                                                             | Broad-band Horn Antenna    | SCHWARZBECK                      | BBHA 9170    | 335             | Apr.19,2015           | Apr.18,2016          |
| 7                                                             | Broadband Preamplifier     | COMPLIANCE DIRECTION             | PAP-1G18     | 2004            | Mar.17,2015           | Mar.16,2016          |
| 8                                                             | Coaxial Cable (above 1GHz) | Top                              | 1GHz-25GHz   | EW02014-7       | Apr.10,2015           | Apr.09,2016          |
| 3m Semi-anechoic Chamber for Radiation Emissions Test site 2# |                            |                                  |              |                 |                       |                      |
| Item                                                          | Equipment                  | Manufacturer                     | Model No.    | Serial No       | Last Calibration Date | Calibration Due Date |
| 1                                                             | Test Receiver              | R&S                              | ESCI         | 101296          | Sep.15,2014           | Sep.14,2015          |
| 2                                                             | Trilog Broadband Antenna   | SCHWARZBECK                      | VULB9160     | 9160-3325       | Sep.15,2014           | Sep.14,2015          |
| 3                                                             | Amplifier                  | Compliance pirection systems inc | PAP-0203     | 22024           | Sep.15,2014           | Sep.14,2015          |
| 4                                                             | Cable                      | HUBER+SUHNER                     | CBL2         | 525178          | Sep.15,2014           | Sep.14,2015          |
| RF Conducted Testing                                          |                            |                                  |              |                 |                       |                      |



| Item | Equipment                       | Manufacturer | Model No. | Serial No. | Last Calibration Date | Calibration Due Date |
|------|---------------------------------|--------------|-----------|------------|-----------------------|----------------------|
| 1.   | EMC Analyzer<br>(9k~26.5GHz)    | Agilent      | E7405A    | MY45114943 | Sep.15,2014           | Sep.14,2015          |
| 2.   | Spectrum Analyzer<br>(9k-6GHz)  | R&S          | FSL6      | 100959     | Sep.15,2014           | Sep.14,2015          |
| 3.   | Signal Analyzer<br>(9k~26.5GHz) | Agilent      | N9010A    | MY50520207 | Sep.15,2014           | Sep.14,2015          |

## 5.2 Description of Support Units

| Equipment | Manufacturer | Model No. | Series No. |
|-----------|--------------|-----------|------------|
| /         | /            | /         | /          |

## 5.3 Measurement Uncertainty

| Parameter                         | Uncertainty                           |
|-----------------------------------|---------------------------------------|
| Radio Frequency                   | $\pm 1 \times 10^{-6}$                |
| RF Power                          | $\pm 1.0$ dB                          |
| RF Power Density                  | $\pm 2.2$ dB                          |
| Radiated Spurious Emissions test  | $\pm 5.03$ dB (30M~1000MHz)           |
|                                   | $\pm 5.47$ dB (1000M~25000MHz)        |
| Conducted Spurious Emissions test | $\pm 3.64$ dB (AC mains 150KHz~30MHz) |

## 5.4 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

## 6 Conducted Emission

|                   |                                                                                                                        |
|-------------------|------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC CFR 47 Part 15 Section 15.207                                                                                      |
| Test Method:      | ANSI C63.4:2009                                                                                                        |
| Test Result:      | PASS                                                                                                                   |
| Frequency Range:  | 150kHz to 30MHz                                                                                                        |
| Class/Severity:   | Class B                                                                                                                |
| Limit:            | 66-56 dB $\mu$ V between 0.15MHz & 0.5MHz<br>56 dB $\mu$ V between 0.5MHz & 5MHz<br>60 dB $\mu$ V between 5MHz & 30MHz |
| Detector:         | Peak for pre-scan (9kHz Resolution Bandwidth)                                                                          |

### 6.1 E.U.T. Operation

Operating Environment :

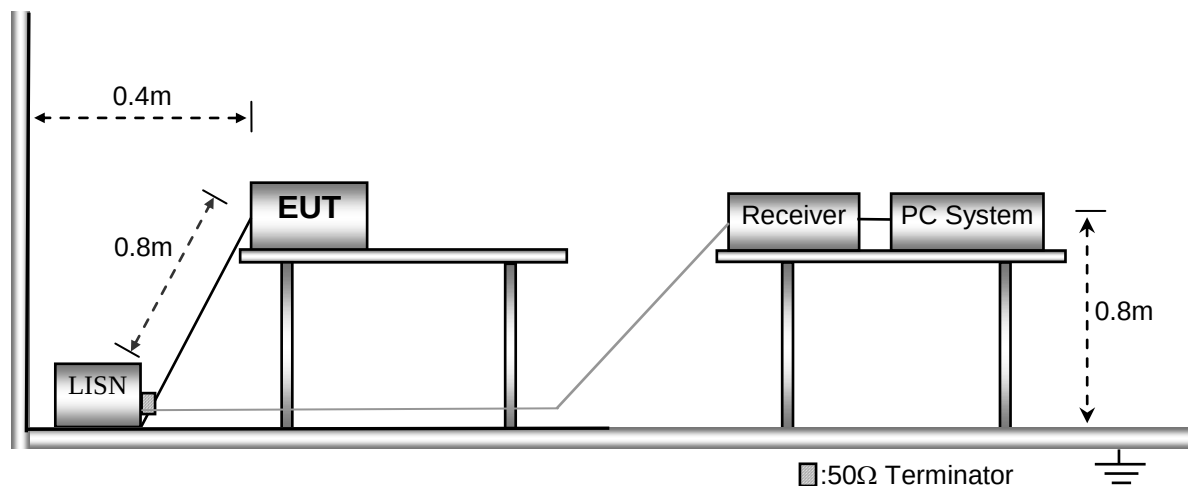
|                       |           |
|-----------------------|-----------|
| Temperature:          | 21.5 °C   |
| Humidity:             | 51.9 % RH |
| Atmospheric Pressure: | 101.2kPa  |

EUT Operation :

The test was performed in transmitting mode, the test data were shown in the report.

### 6.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.4.



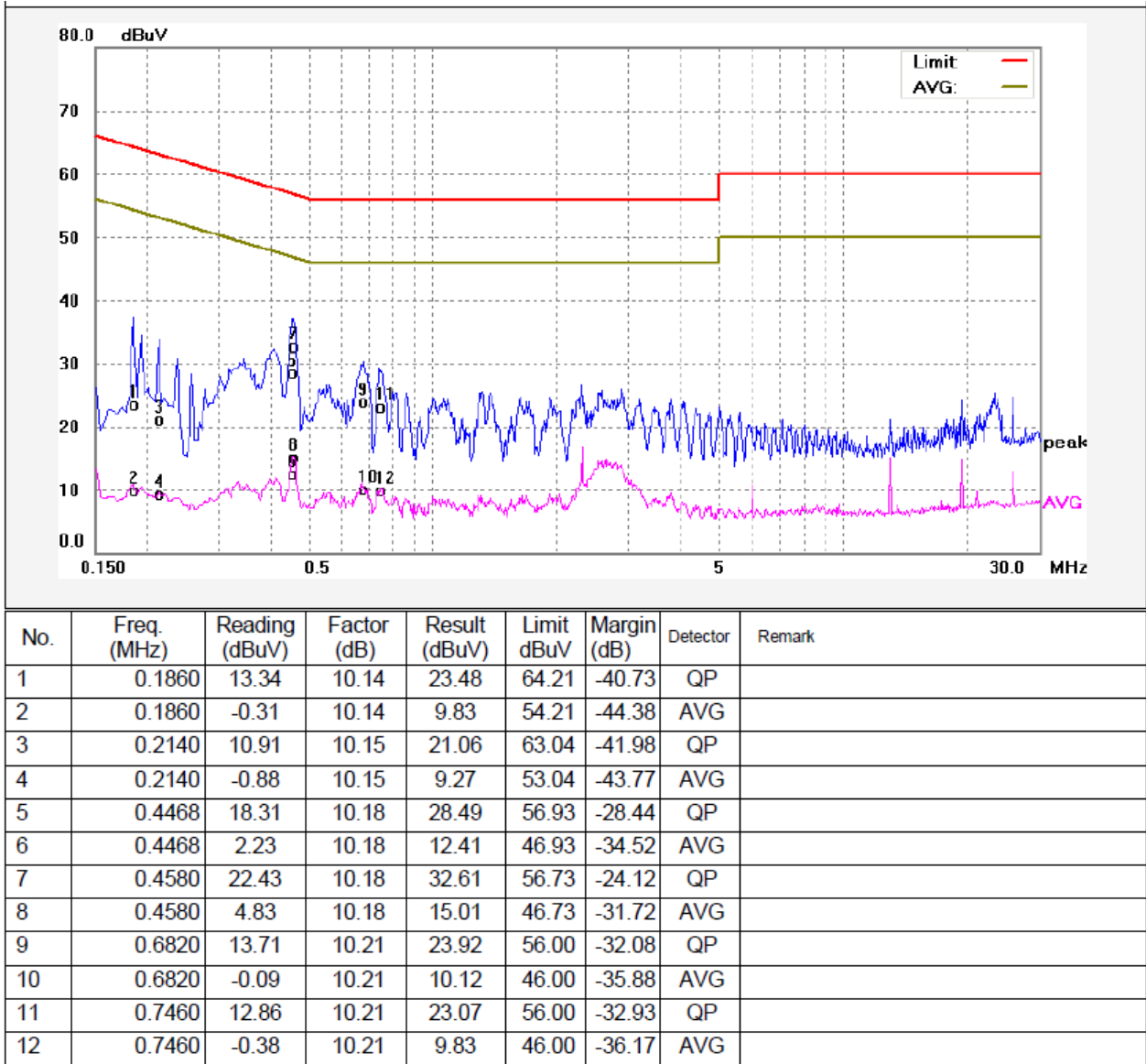
### 6.3 Measurement Description

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

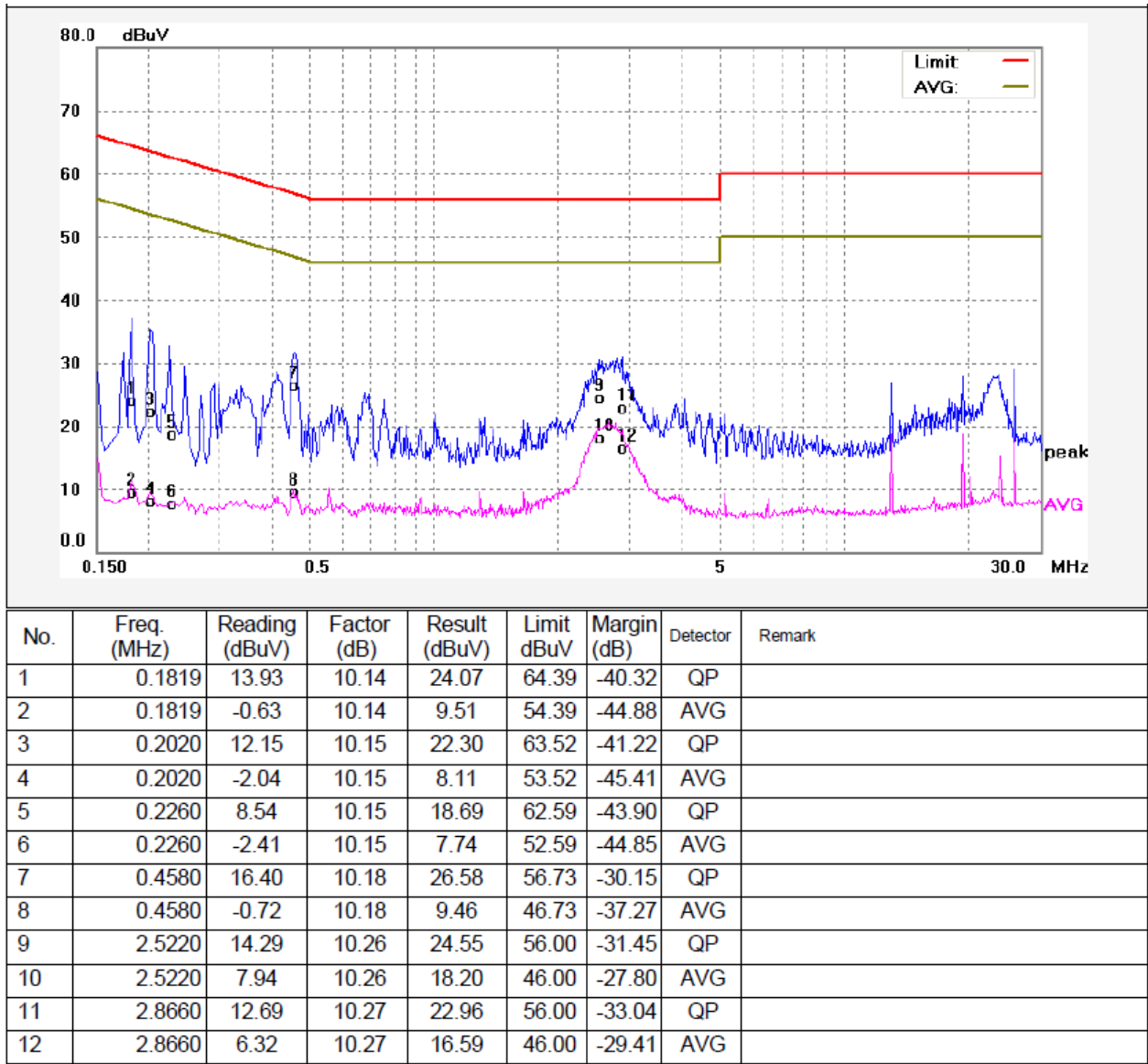
6.4 Conducted Emission Test Result

An initial pre-scan was performed on the live and neutral lines.

Live line:



Neutral line:



## 7 Radiated Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.407

Test Method: ANSI C63.4:2009

Test Result: PASS

Measurement Distance: 3m

Limit:

| Frequency<br>(MHz) | Field Strength        |                 | Field Strength Limit at 3m Measurement Dist |                                       |
|--------------------|-----------------------|-----------------|---------------------------------------------|---------------------------------------|
|                    | uV/m                  | Distance<br>(m) | uV/m                                        | dBuV/m                                |
| 0.009 ~ 0.490      | $2400/F(\text{kHz})$  | 300             | $10000 * 2400/F(\text{kHz})$                | $20\log^{(2400/F(\text{kHz}))} + 80$  |
| 0.490 ~ 1.705      | $24000/F(\text{kHz})$ | 30              | $100 * 24000/F(\text{kHz})$                 | $20\log^{(24000/F(\text{kHz}))} + 40$ |
| 1.705 ~ 30         | 30                    | 30              | $100 * 30$                                  | $20\log^{(30)} + 40$                  |
| 30 ~ 88            | 100                   | 3               | 100                                         | $20\log^{(100)}$                      |
| 88 ~ 216           | 150                   | 3               | 150                                         | $20\log^{(150)}$                      |
| 216 ~ 960          | 200                   | 3               | 200                                         | $20\log^{(200)}$                      |
| Above 960          | 500                   | 3               | 500                                         | $20\log^{(500)}$                      |

### 7.1 EUT Operation

Operating Environment :

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

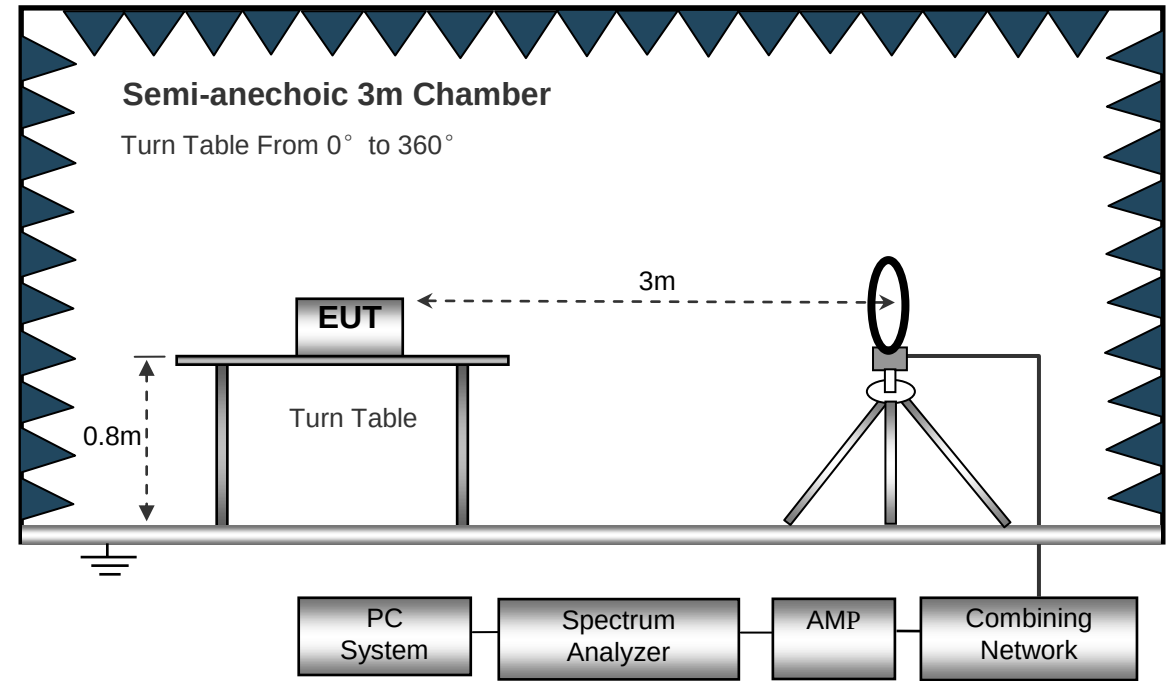
EUT Operation :

The test was performed in transmitting mode, the test data were shown in the report.

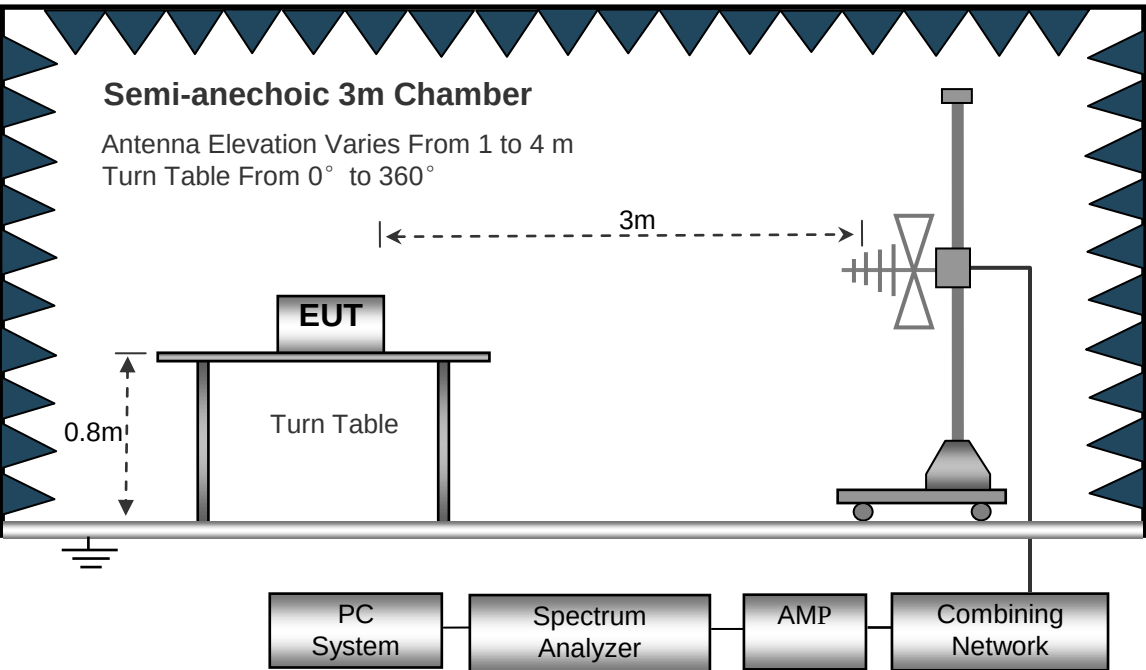
7.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.

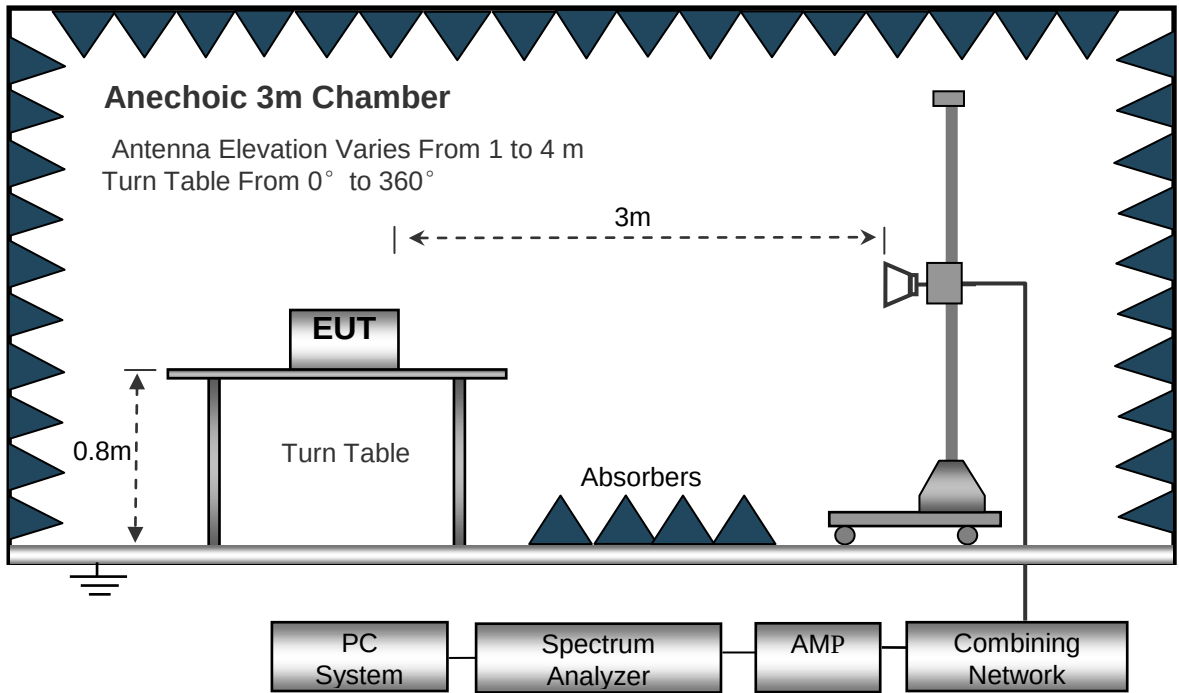
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

Below 30MHz

Sweep Speed ..... Auto  
IF Bandwidth.....10kHz  
Video Bandwidth.....10kHz  
Resolution Bandwidth.....10kHz

30MHz ~ 1GHz

Sweep Speed ..... Auto  
Detector .....PK  
Resolution Bandwidth.....100kHz  
Video Bandwidth.....300kHz

Above 1GHz

Sweep Speed ..... Auto  
Detector .....PK  
Resolution Bandwidth.....1MHz  
Video Bandwidth.....3MHz  
Detector .....Ave.  
Resolution Bandwidth.....1MHz  
Video Bandwidth.....10Hz

## 7.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above 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 moved from 1m to 4m to find out the maximum 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. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in X axis,so the worst data were shown as follow.
8. A 2.4GHz high –pass filter is used druing radiated emissions above 1GHz measurement.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$



## 7.5 Summary of Test Results

### Test Frequency : 30MHz ~ 18GHz

| Frequency                          | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                    |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                              | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11a band I Low Channel 5180MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                             | 41.05            | QP          | 133              | 1.4        | H     | -11.62           | 29.43               | 46.00                   | -16.57 |
| 333.45                             | 36.26            | QP          | 8                | 1.0        | V     | -11.62           | 24.64               | 46.00                   | -21.36 |
| 4505.64                            | 50.44            | PK          | 282              | 1.5        | H     | -2.03            | 48.41               | 74.00                   | -25.59 |
| 4505.64                            | 46.32            | Ave         | 282              | 1.5        | H     | -2.03            | 44.29               | 54.00                   | -9.71  |
| 5141.53                            | 52.53            | PK          | 105              | 1.1        | H     | -1.02            | 51.51               | 74.00                   | -22.49 |
| 5141.53                            | 48.18            | Ave         | 105              | 1.1        | H     | -1.02            | 47.16               | 54.00                   | -6.84  |
| 10360.00                           | 41.08            | PK          | 137              | 1.7        | H     | 5.33             | 46.41               | 74.00                   | -27.59 |
| 10360.00                           | 36.85            | Ave         | 137              | 1.7        | H     | 5.33             | 42.18               | 54.00                   | -11.82 |
| 5376.95                            | 44.27            | PK          | 5                | 1.7        | H     | -1.04            | 43.23               | 74.00                   | -30.77 |
| 5376.95                            | 37.88            | Ave         | 5                | 1.7        | H     | -1.04            | 36.84               | 54.00                   | -17.16 |

| Frequency                             | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|---------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                       |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                 | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11a band I middle channel 5200MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                                | 41.10            | QP          | 229              | 1.6        | H     | -11.62           | 29.48               | 46.00                   | -16.52 |
| 333.45                                | 36.34            | QP          | 250              | 1.8        | V     | -11.62           | 24.72               | 46.00                   | -21.28 |
| 4505.47                               | 49.20            | PK          | 76               | 1.6        | H     | -1.94            | 47.26               | 74.00                   | -26.74 |
| 4505.47                               | 45.99            | Ave         | 76               | 1.6        | H     | -1.94            | 44.05               | 54.00                   | -9.95  |
| 5145.45                               | 51.91            | PK          | 311              | 1.2        | H     | -1.06            | 50.85               | 74.00                   | -23.15 |
| 5145.45                               | 49.33            | Ave         | 311              | 1.2        | H     | -1.06            | 48.27               | 54.00                   | -5.73  |
| 10400.00                              | 42.26            | PK          | 329              | 1.6        | H     | 5.21             | 47.47               | 74.00                   | -26.53 |
| 10400.00                              | 36.54            | Ave         | 329              | 1.6        | H     | 5.21             | 41.75               | 54.00                   | -12.25 |
| 5366.62                               | 45.61            | PK          | 229              | 1.0        | H     | -1.06            | 44.55               | 74.00                   | -29.45 |
| 5366.62                               | 38.28            | Ave         | 229              | 1.0        | H     | -1.06            | 37.22               | 54.00                   | -16.78 |

| Frequency                           | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|-------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                     |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                               | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11a band I High channel 5240MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                              | 41.24            | QP          | 315              | 1.9        | H     | -11.62           | 29.62               | 46.00                   | -16.38 |
| 333.45                              | 37.14            | QP          | 184              | 1.7        | V     | -11.62           | 25.52               | 46.00                   | -20.48 |
| 4513.25                             | 47.97            | PK          | 31               | 1.1        | H     | -2.24            | 45.73               | 74.00                   | -28.27 |
| 4513.25                             | 45.50            | Ave         | 31               | 1.1        | H     | -2.24            | 43.26               | 54.00                   | -10.74 |
| 5144.20                             | 53.61            | PK          | 146              | 1.5        | H     | -1.06            | 52.55               | 74.00                   | -21.45 |
| 5144.20                             | 48.96            | Ave         | 146              | 1.5        | H     | -1.06            | 47.90               | 54.00                   | -6.10  |
| 10480.00                            | 41.30            | PK          | 32               | 1.8        | H     | 5.14             | 46.44               | 74.00                   | -27.56 |
| 10480.00                            | 37.11            | Ave         | 32               | 1.8        | H     | 5.14             | 42.25               | 54.00                   | -11.75 |
| 5370.23                             | 46.87            | PK          | 34               | 1.4        | H     | -1.08            | 45.79               | 74.00                   | -28.21 |
| 5370.23                             | 38.69            | Ave         | 34               | 1.4        | H     | -1.08            | 37.61               | 54.00                   | -16.39 |

| Frequency                           | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|-------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                     |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                               | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11a band IV low Channel 5745MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                              | 40.96            | QP          | 103              | 1.3        | H     | -11.62           | 29.34               | 46.00                   | -16.66 |
| 333.45                              | 35.73            | QP          | 167              | 1.6        | V     | -11.62           | 24.11               | 46.00                   | -21.89 |
| 4520.94                             | 48.29            | PK          | 282              | 1.8        | H     | -2.06            | 46.23               | 74.00                   | -27.77 |
| 4520.94                             | 44.42            | Ave         | 282              | 1.8        | H     | -2.06            | 42.36               | 54.00                   | -11.64 |
| 11490.00                            | 39.99            | PK          | 240              | 1.3        | H     | 5.93             | 45.92               | 74.00                   | -28.08 |
| 11490.00                            | 37.95            | Ave         | 240              | 1.3        | H     | 5.93             | 43.88               | 54.00                   | -10.12 |
| 5388.32                             | 45.57            | PK          | 109              | 1.8        | H     | -1.15            | 44.42               | 74.00                   | -29.58 |
| 5388.32                             | 39.26            | Ave         | 109              | 1.8        | H     | -1.15            | 38.11               | 54.00                   | -15.89 |
| 5452.50                             | 46.80            | PK          | 34               | 1.4        | H     | -1.36            | 45.44               | 74.00                   | -28.56 |
| 5452.50                             | 38.72            | Ave         | 34               | 1.4        | H     | -1.36            | 37.36               | 54.00                   | -16.64 |

| Frequency                              | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|----------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                        |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                  | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11a band IV middle channel 5785MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                                 | 40.92            | QP          | 309              | 1.6        | H     | -11.62           | 29.30               | 46.00                   | -16.70 |
| 333.45                                 | 36.09            | QP          | 188              | 1.8        | V     | -11.62           | 24.47               | 46.00                   | -21.53 |
| 4526.66                                | 46.85            | PK          | 71               | 1.6        | H     | -2.03            | 44.82               | 74.00                   | -29.18 |
| 4526.66                                | 44.98            | Ave         | 71               | 1.6        | H     | -2.03            | 42.95               | 54.00                   | -11.05 |
| 11570.00                               | 40.20            | PK          | 97               | 1.7        | H     | 5.81             | 46.01               | 74.00                   | -27.99 |
| 11570.00                               | 37.91            | Ave         | 97               | 1.7        | H     | 5.81             | 43.72               | 54.00                   | -10.28 |
| 5373.91                                | 45.25            | PK          | 287              | 1.2        | H     | -1.22            | 44.03               | 74.00                   | -29.97 |
| 5373.91                                | 37.88            | Ave         | 287              | 1.2        | H     | -1.22            | 36.66               | 54.00                   | -17.34 |
| 5455.71                                | 45.32            | PK          | 222              | 1.6        | H     | -1.36            | 43.96               | 74.00                   | -30.04 |
| 5455.71                                | 38.36            | Ave         | 222              | 1.6        | H     | -1.36            | 37.00               | 54.00                   | -17.00 |

| Frequency                            | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|--------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                      |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11a band IV High channel 5825MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                               | 41.51            | QP          | 49               | 2.0        | H     | -11.62           | 29.89               | 46.00                   | -16.11 |
| 333.45                               | 35.67            | QP          | 297              | 1.7        | V     | -11.62           | 24.05               | 46.00                   | -21.95 |
| 4534.49                              | 45.57            | PK          | 63               | 1.5        | H     | -1.84            | 43.73               | 74.00                   | -30.27 |
| 4534.49                              | 44.21            | Ave         | 63               | 1.5        | H     | -1.84            | 42.37               | 54.00                   | -11.63 |
| 11650.00                             | 41.28            | PK          | 67               | 1.2        | H     | 5.84             | 47.12               | 74.00                   | -26.88 |
| 11650.00                             | 36.00            | Ave         | 67               | 1.2        | H     | 5.84             | 41.84               | 54.00                   | -12.16 |
| 5361.75                              | 45.29            | PK          | 95               | 1.1        | H     | -1.30            | 43.99               | 74.00                   | -30.01 |
| 5361.75                              | 38.82            | Ave         | 95               | 1.1        | H     | -1.30            | 37.52               | 54.00                   | -16.48 |
| 5456.04                              | 45.92            | PK          | 232              | 1.0        | H     | -1.36            | 44.56               | 74.00                   | -29.44 |
| 5456.04                              | 37.22            | Ave         | 232              | 1.0        | H     | -1.36            | 35.86               | 54.00                   | -18.14 |

| Frequency                                | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                          |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                    | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT20) band I low Channel 5180MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                                   | 42.53            | QP          | 118              | 1.6        | H     | -11.62           | 30.91               | 46.00                   | -15.09 |
| 333.45                                   | 35.45            | QP          | 151              | 1.8        | V     | -11.62           | 23.83               | 46.00                   | -22.17 |
| 4516.39                                  | 44.58            | PK          | 243              | 1.1        | H     | -2.14            | 42.44               | 74.00                   | -31.56 |
| 4516.39                                  | 44.99            | Ave         | 243              | 1.1        | H     | -2.14            | 42.85               | 54.00                   | -11.15 |
| 5142.83                                  | 47.72            | PK          | 191              | 1.3        | H     | -1.06            | 46.66               | 74.00                   | -27.34 |
| 5142.83                                  | 39.07            | Ave         | 191              | 1.3        | H     | -1.06            | 38.01               | 54.00                   | -15.99 |
| 10360.00                                 | 42.25            | PK          | 64               | 1.2        | H     | 5.33             | 47.58               | 74.00                   | -26.42 |
| 10360.00                                 | 36.90            | Ave         | 64               | 1.2        | H     | 5.33             | 42.23               | 54.00                   | -11.77 |
| 5363.62                                  | 45.20            | PK          | 179              | 1.8        | H     | -1.26            | 43.94               | 74.00                   | -30.06 |
| 5363.62                                  | 37.06            | Ave         | 179              | 1.8        | H     | -1.26            | 35.80               | 54.00                   | -18.20 |

| Frequency                                   | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|---------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                             |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                       | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT20) band I middle channel 5200MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                                      | 43.47            | QP          | 23               | 1.0        | H     | -11.62           | 31.85               | 46.00                   | -14.15 |
| 333.45                                      | 36.61            | QP          | 355              | 1.2        | V     | -11.62           | 24.99               | 46.00                   | -21.01 |
| 4518.51                                     | 43.88            | PK          | 16               | 1.5        | H     | -2.12            | 41.76               | 74.00                   | -32.24 |
| 4518.51                                     | 44.07            | Ave         | 16               | 1.5        | H     | -2.12            | 41.95               | 54.00                   | -12.05 |
| 5145.99                                     | 49.24            | PK          | 44               | 1.7        | H     | -1.06            | 48.18               | 74.00                   | -25.82 |
| 5145.99                                     | 39.13            | Ave         | 44               | 1.7        | H     | -1.06            | 38.07               | 54.00                   | -15.93 |
| 10400.00                                    | 41.19            | PK          | 145              | 1.6        | H     | 5.21             | 46.40               | 74.00                   | -27.60 |
| 10400.00                                    | 38.09            | Ave         | 145              | 1.6        | H     | 5.21             | 43.30               | 54.00                   | -10.70 |
| 5363.15                                     | 45.18            | PK          | 208              | 1.5        | H     | -1.07            | 44.11               | 74.00                   | -29.89 |
| 5363.15                                     | 37.67            | Ave         | 208              | 1.5        | H     | -1.07            | 36.60               | 54.00                   | -17.40 |

| Frequency                                 | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|-------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                           |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                     | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT20) band I High channel 5240MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                                    | 43.83            | QP          | 101              | 1.7        | H     | -11.62           | 32.21               | 46.00                   | -13.79 |
| 333.45                                    | 36.24            | QP          | 200              | 1.7        | V     | -11.62           | 24.62               | 46.00                   | -21.38 |
| 4509.99                                   | 44.86            | PK          | 147              | 1.1        | H     | -1.96            | 42.90               | 74.00                   | -31.10 |
| 4509.99                                   | 43.89            | Ave         | 147              | 1.1        | H     | -1.96            | 41.93               | 54.00                   | -12.07 |
| 5144.05                                   | 48.68            | PK          | 13               | 1.7        | H     | -1.06            | 47.62               | 74.00                   | -26.38 |
| 5144.05                                   | 41.04            | Ave         | 13               | 1.7        | H     | -1.06            | 39.98               | 54.00                   | -14.02 |
| 10480.00                                  | 40.70            | PK          | 68               | 1.3        | H     | 5.14             | 45.84               | 74.00                   | -28.16 |
| 10480.00                                  | 36.70            | Ave         | 68               | 1.3        | H     | 5.14             | 41.84               | 54.00                   | -12.16 |
| 5367.83                                   | 45.45            | PK          | 239              | 1.6        | H     | -1.10            | 44.35               | 74.00                   | -29.65 |
| 5367.83                                   | 37.58            | Ave         | 239              | 1.6        | H     | -1.10            | 36.48               | 54.00                   | -17.52 |

| Frequency                                 | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|-------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                           |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                     | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT20) band IV low Channel 5745MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                                    | 42.81            | QP          | 45               | 1.2        | H     | -11.62           | 31.19               | 46.00                   | -14.81 |
| 333.45                                    | 36.25            | QP          | 18               | 1.4        | V     | -11.62           | 24.63               | 46.00                   | -21.37 |
| 4513.63                                   | 42.77            | PK          | 238              | 1.8        | H     | -1.85            | 40.92               | 74.00                   | -33.08 |
| 4513.63                                   | 42.20            | Ave         | 238              | 1.8        | H     | -1.85            | 40.35               | 54.00                   | -13.65 |
| 11490.00                                  | 38.66            | PK          | 213              | 1.7        | H     | 5.93             | 44.59               | 74.00                   | -29.41 |
| 11490.00                                  | 34.21            | Ave         | 213              | 1.7        | H     | 5.93             | 40.14               | 54.00                   | -13.86 |
| 5371.49                                   | 45.27            | PK          | 13               | 1.6        | H     | -1.01            | 44.26               | 74.00                   | -29.74 |
| 5371.49                                   | 38.58            | Ave         | 13               | 1.6        | H     | -1.01            | 37.57               | 54.00                   | -16.43 |
| 5459.49                                   | 45.22            | PK          | 26               | 1.0        | H     | -1.36            | 43.86               | 74.00                   | -30.14 |
| 5459.49                                   | 39.96            | Ave         | 26               | 1.0        | H     | -1.36            | 38.60               | 54.00                   | -15.40 |

| Frequency                                    | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|----------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                              |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                        | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT20) band IV middle channel 5785MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                                       | 42.68            | QP          | 322              | 1.8        | H     | -11.62           | 31.06               | 46.00                   | -14.94 |
| 333.45                                       | 36.43            | QP          | 54               | 1.5        | V     | -11.62           | 24.81               | 46.00                   | -21.19 |
| 4510.33                                      | 41.80            | PK          | 266              | 1.8        | H     | -1.89            | 39.91               | 74.00                   | -34.09 |
| 4510.33                                      | 42.44            | Ave         | 266              | 1.8        | H     | -1.89            | 40.55               | 54.00                   | -13.45 |
| 11570.00                                     | 40.76            | PK          | 293              | 1.8        | H     | 5.81             | 46.57               | 74.00                   | -27.43 |
| 11570.00                                     | 35.91            | Ave         | 293              | 1.8        | H     | 5.81             | 41.72               | 54.00                   | -12.28 |
| 5389.89                                      | 45.32            | PK          | 229              | 1.4        | H     | -1.04            | 44.28               | 74.00                   | -29.72 |
| 5389.89                                      | 38.03            | Ave         | 229              | 1.4        | H     | -1.04            | 36.99               | 54.00                   | -17.01 |
| 5455.76                                      | 46.07            | PK          | 331              | 1.9        | H     | -1.36            | 44.71               | 74.00                   | -29.29 |
| 5455.76                                      | 38.93            | Ave         | 331              | 1.9        | H     | -1.36            | 37.57               | 54.00                   | -16.43 |

| Frequency                                  | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|--------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                            |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                      | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT20) band IV High channel 5825MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                                     | 42.88            | QP          | 315              | 1.5        | H     | -11.62           | 31.26               | 46.00                   | -14.74 |
| 333.45                                     | 36.90            | QP          | 113              | 1.7        | V     | -11.62           | 25.28               | 46.00                   | -20.72 |
| 4507.80                                    | 41.03            | PK          | 286              | 1.7        | H     | -1.97            | 39.06               | 74.00                   | -34.94 |
| 4507.80                                    | 42.75            | Ave         | 286              | 1.7        | H     | -1.97            | 40.78               | 54.00                   | -13.22 |
| 11650.00                                   | 40.62            | PK          | 229              | 1.0        | H     | 5.84             | 46.46               | 74.00                   | -27.54 |
| 11650.00                                   | 36.42            | Ave         | 229              | 1.0        | H     | 5.84             | 42.26               | 54.00                   | -11.74 |
| 5388.75                                    | 46.82            | PK          | 311              | 1.3        | H     | -1.12            | 45.70               | 74.00                   | -28.30 |
| 5388.75                                    | 38.33            | Ave         | 311              | 1.3        | H     | -1.12            | 37.21               | 54.00                   | -16.79 |
| 5458.04                                    | 46.94            | PK          | 97               | 1.9        | H     | -1.36            | 45.58               | 74.00                   | -28.42 |
| 5458.04                                    | 39.65            | Ave         | 97               | 1.9        | H     | -1.36            | 38.29               | 54.00                   | -15.71 |

| Frequency                                | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                          |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                    | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT40) band I low Channel 5190MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                                   | 43.88            | QP          | 201              | 1.7        | H     | -11.62           | 32.26               | 46.00                   | -13.74 |
| 333.45                                   | 35.28            | QP          | 241              | 1.7        | V     | -11.62           | 23.66               | 46.00                   | -22.34 |
| 4530.48                                  | 36.54            | PK          | 179              | 1.7        | H     | -1.89            | 34.65               | 74.00                   | -39.35 |
| 4530.48                                  | 35.88            | Ave         | 179              | 1.7        | H     | -1.89            | 33.99               | 54.00                   | -20.01 |
| 5148.17                                  | 47.88            | PK          | 140              | 1.2        | H     | -1.06            | 46.82               | 74.00                   | -27.18 |
| 5148.17                                  | 39.79            | Ave         | 140              | 1.2        | H     | -1.06            | 38.73               | 54.00                   | -15.27 |
| 10380.00                                 | 39.87            | PK          | 191              | 1.5        | H     | 5.26             | 45.13               | 74.00                   | -28.87 |
| 10380.00                                 | 33.97            | Ave         | 191              | 1.5        | H     | 5.26             | 39.23               | 54.00                   | -14.77 |
| 5369.66                                  | 46.64            | PK          | 171              | 1.2        | H     | -1.03            | 45.61               | 74.00                   | -28.39 |
| 5369.66                                  | 39.17            | Ave         | 171              | 1.2        | H     | -1.03            | 38.14               | 54.00                   | -15.86 |

| Frequency                                 | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|-------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                           |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                     | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT40) band IV low Channel 5755MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                                    | 43.75            | QP          | 175              | 1.5        | H     | -11.62           | 32.13               | 46.00                   | -13.87 |
| 333.45                                    | 35.28            | QP          | 292              | 2.0        | V     | -11.62           | 23.66               | 46.00                   | -22.34 |
| 4535.50                                   | 34.47            | PK          | 244              | 1.1        | H     | -1.96            | 32.51               | 74.00                   | -41.49 |
| 4535.50                                   | 33.22            | Ave         | 244              | 1.1        | H     | -1.96            | 31.26               | 54.00                   | -22.74 |
| 11510.00                                  | 39.71            | PK          | 339              | 1.9        | H     | 5.88             | 45.59               | 74.00                   | -28.41 |
| 11510.00                                  | 34.38            | Ave         | 339              | 1.9        | H     | 5.88             | 40.26               | 54.00                   | -13.74 |
| 5351.01                                   | 46.21            | PK          | 358              | 1.6        | H     | -1.01            | 45.20               | 74.00                   | -28.80 |
| 5351.01                                   | 38.99            | Ave         | 358              | 1.6        | H     | -1.01            | 37.98               | 54.00                   | -16.02 |
| 5458.29                                   | 46.44            | PK          | 95               | 1.5        | H     | -1.36            | 45.08               | 74.00                   | -28.92 |
| 5458.29                                   | 37.50            | Ave         | 95               | 1.5        | H     | -1.36            | 36.14               | 54.00                   | -17.86 |

| Frequency                                  | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|--------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                            |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                      | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT40) band IV High channel 5795MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 333.45                                     | 43.03            | QP          | 87               | 1.3        | H     | -11.62           | 31.41               | 46.00                   | -14.59 |
| 333.45                                     | 36.04            | QP          | 315              | 1.6        | V     | -11.62           | 24.42               | 46.00                   | -21.58 |
| 4536.32                                    | 34.77            | PK          | 0                | 1.5        | H     | -1.92            | 32.85               | 74.00                   | -41.15 |
| 4536.32                                    | 33.53            | Ave         | 0                | 1.5        | H     | -1.92            | 31.61               | 54.00                   | -22.39 |
| 11590.00                                   | 41.24            | PK          | 64               | 1.5        | H     | 5.63             | 46.87               | 74.00                   | -27.13 |
| 11590.00                                   | 37.16            | Ave         | 64               | 1.5        | H     | 5.63             | 42.79               | 54.00                   | -11.21 |
| 5387.19                                    | 46.32            | PK          | 246              | 1.5        | H     | -1.04            | 45.28               | 74.00                   | -28.72 |
| 5387.19                                    | 39.88            | Ave         | 246              | 1.5        | H     | -1.04            | 38.84               | 54.00                   | -15.16 |
| 5457.68                                    | 45.58            | PK          | 144              | 1.5        | H     | -1.36            | 44.22               | 74.00                   | -29.78 |
| 5457.68                                    | 38.70            | Ave         | 144              | 1.5        | H     | -1.36            | 37.34               | 54.00                   | -16.66 |

**Test Frequency: 18GHz~40GHz**

The measurements were more than 20 dB below the limit and not reported.



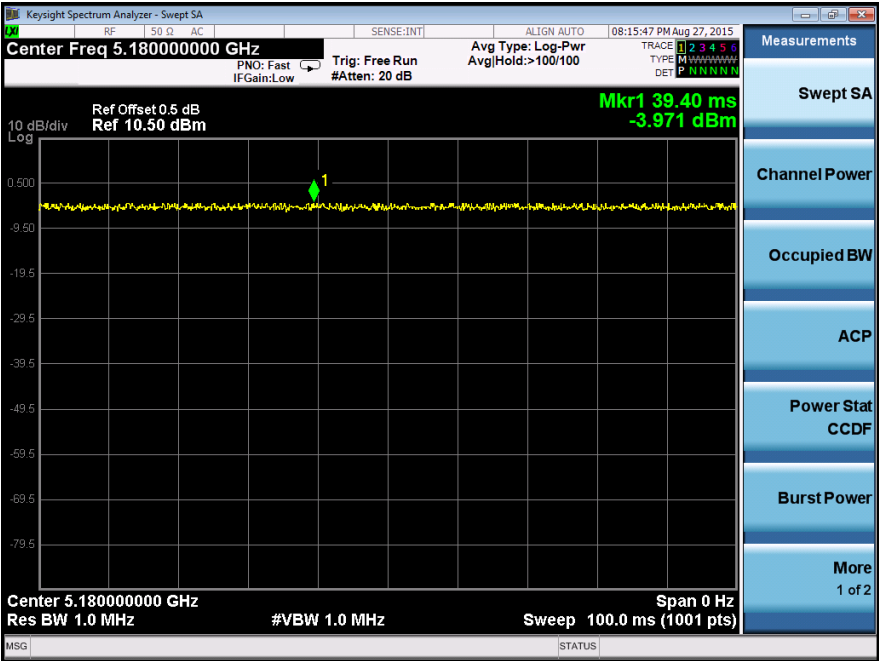
## 8 Duty cycle

|                   |                                                                                                                         |
|-------------------|-------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | 47 CFR Part 15C 15.407 and 789033 D02 General UNII Test Procedures New Rules v01, Section (B)                           |
| Test Method:      | ANSI C63.10: 2009                                                                                                       |
| Test Limit:       | N/A                                                                                                                     |
| Test Result:      | PASS                                                                                                                    |
| Remark:           | Through Pre-scan, and found 802.11a at lowest channel is the worst case. Only the worst case is recorded in the report. |

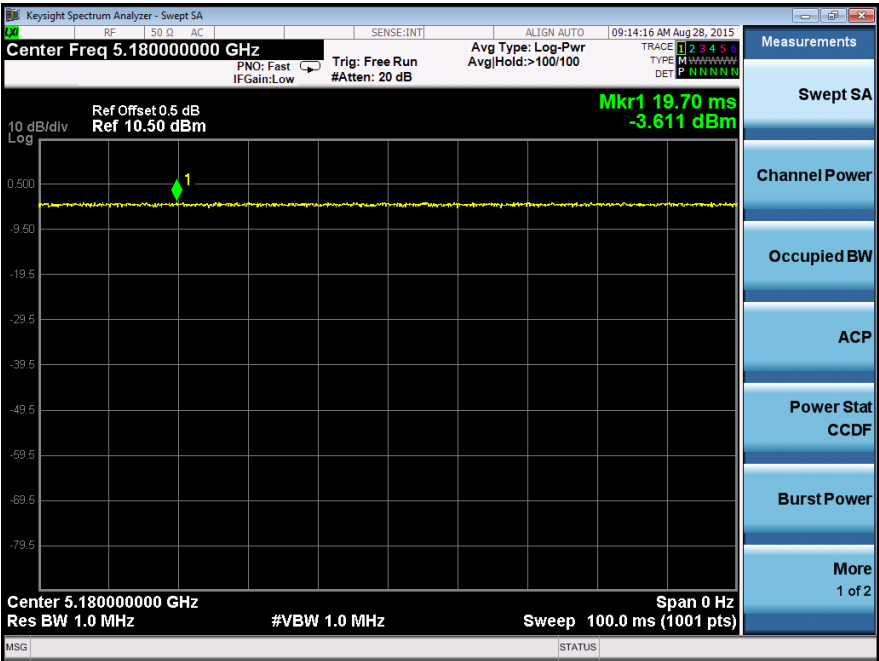
### 8.1 Summary of Test Results

| 802.11a mode       |             |            |               |
|--------------------|-------------|------------|---------------|
| channel            | On time(ms) | Period(ms) | Duty Cycle(%) |
| 36                 | 100         | 100        | 100           |
| 149                | 100         | 100        | 100           |
| 802.11n(HT20) mode |             |            |               |
| channel            | On time(ms) | Period(ms) | Duty Cycle(%) |
| 36                 | 100         | 100        | 100           |
| 149                | 100         | 100        | 100           |
| 802.11n(HT40) mode |             |            |               |
| channel            | On time(ms) | Period(ms) | Duty Cycle(%) |
| 38                 | 100         | 100        | 100           |
| 151                | 100         | 100        | 100           |

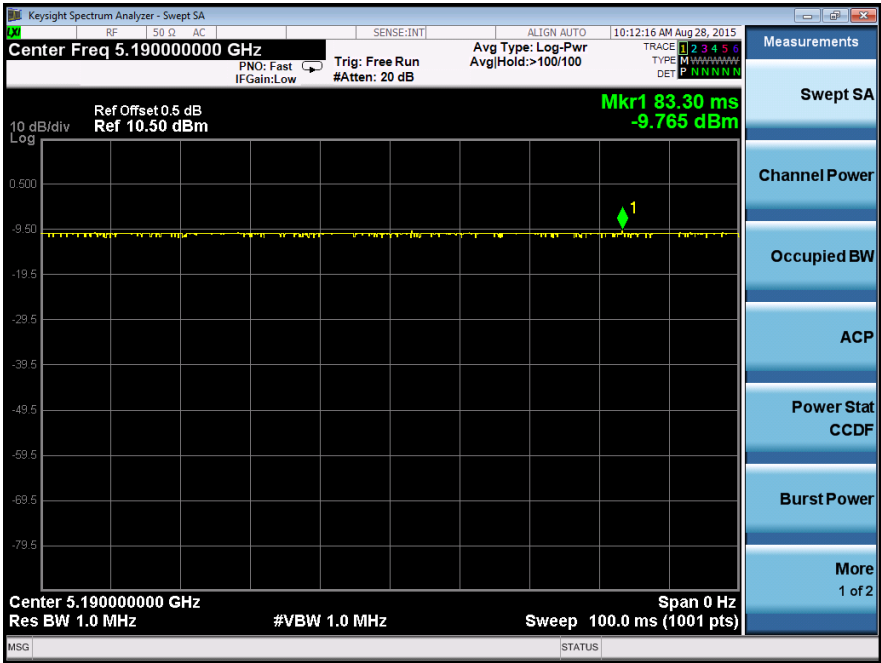
Test result plots shown as follows:



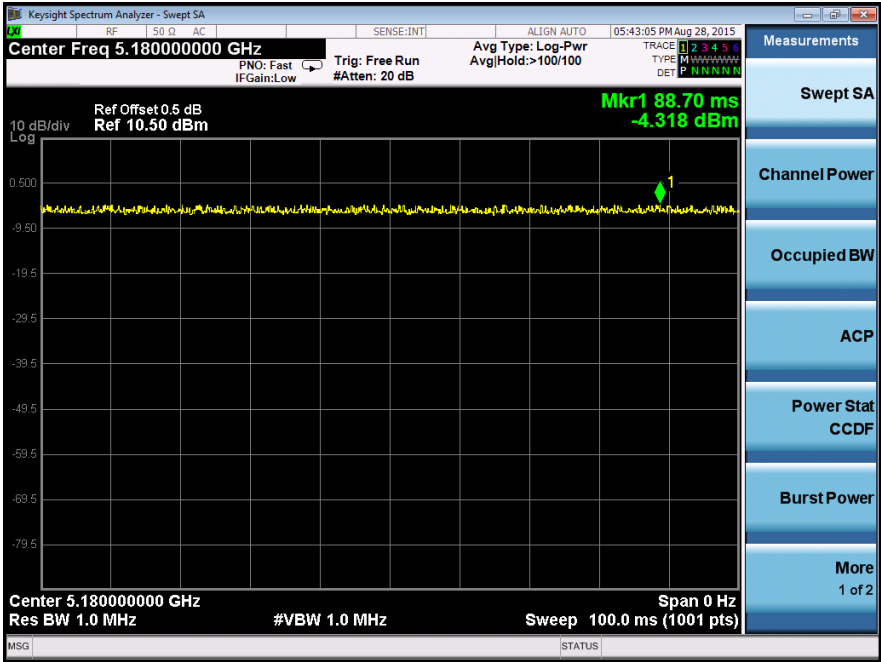
802.11a band I Low channel



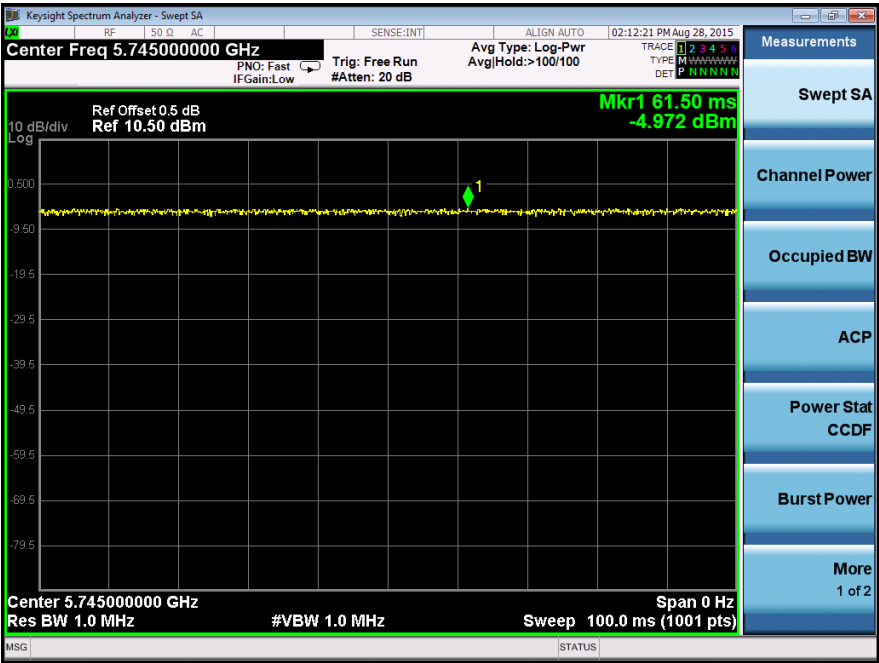
802.11n(HT20) band I Low channel



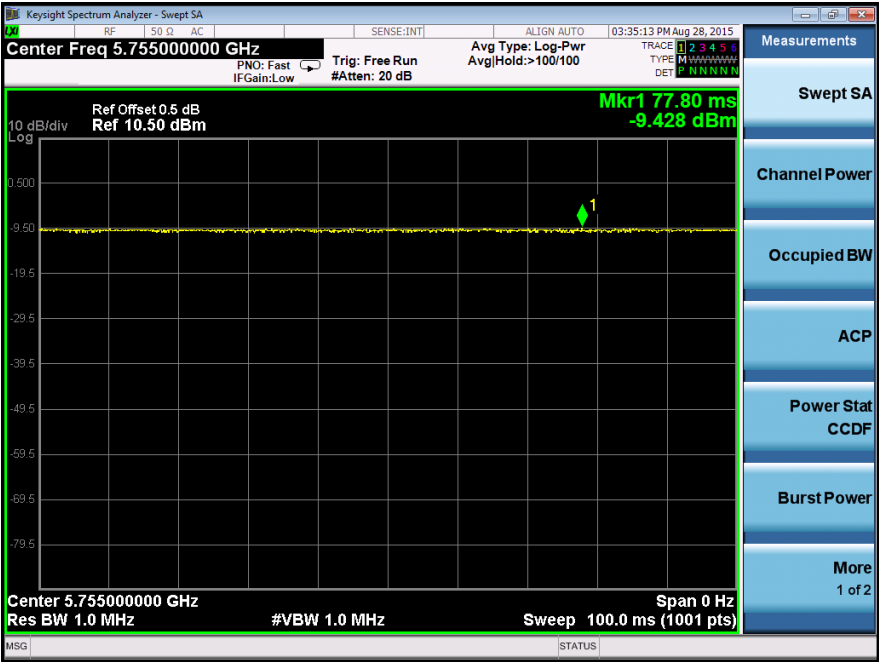
802.11n(HT40) band I Low channel



802.11a band IV Low channel



802.11n(HT20) band IV Low channel



802.11n(HT40) band IV Low channel

## 9 Band Edge

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC CFR47 Part 15 Section 15.407                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Test Method:      | ANSI C63.10 2009                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Test Limit:       | (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27dBm/MHz.<br>(2) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz. |
| Test Result:      | PASS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

### 9.1 Test Produce

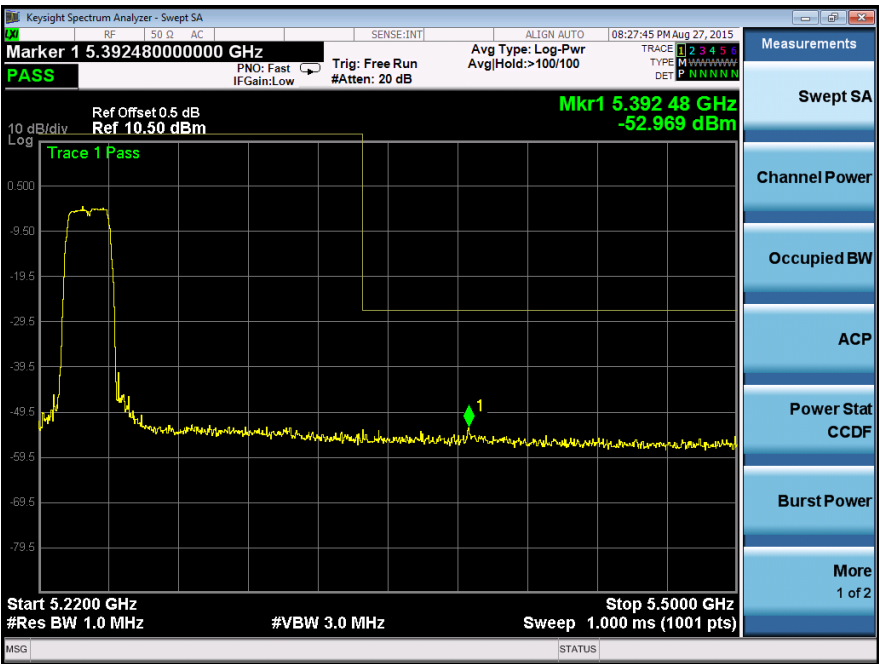
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

9.2 Test Result

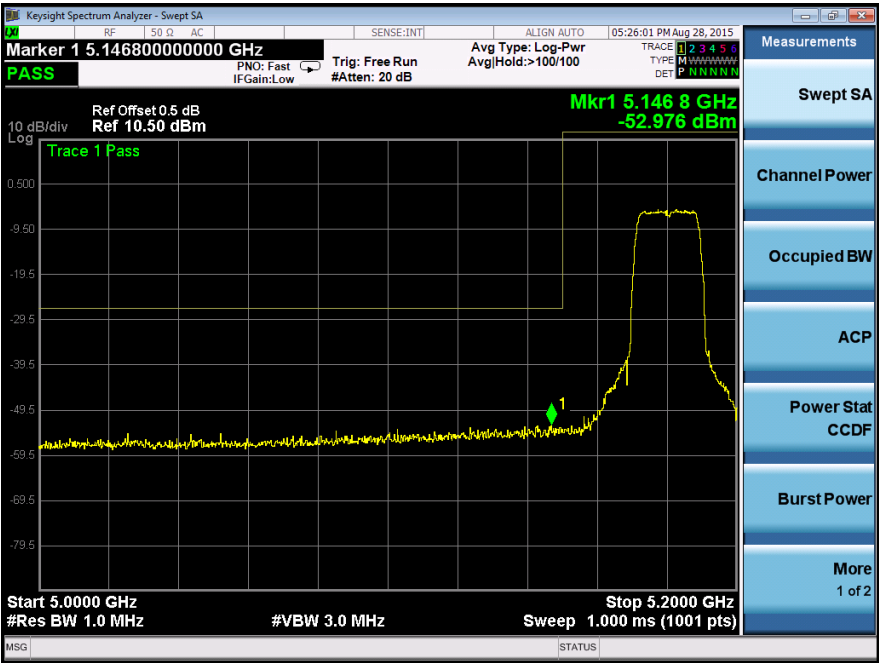
Test result plots shown as follows:



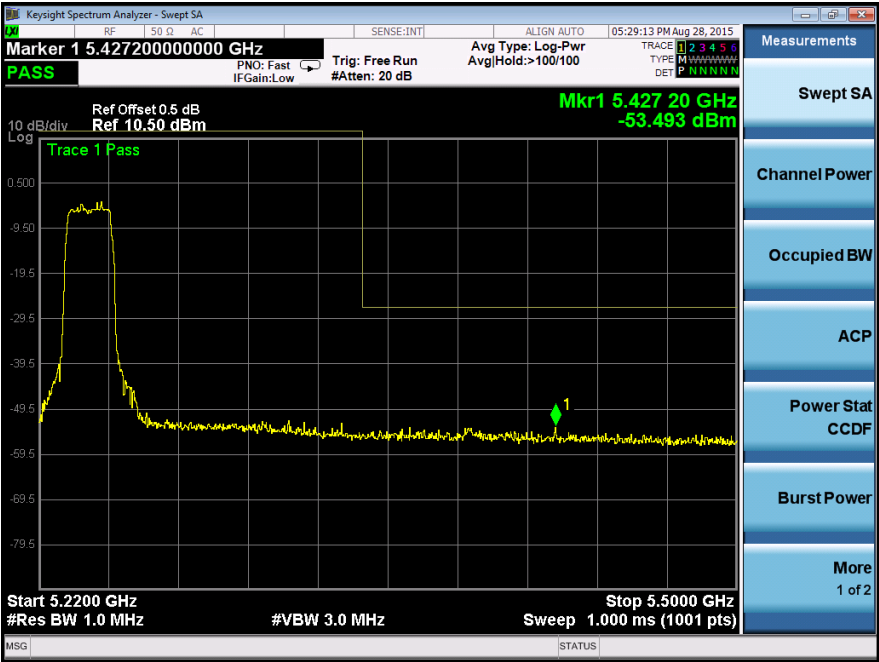
802.11a band I Band edge-left side



802.11a band I Band edge-right side



802.11n(HT20) band I Band edge-left side



802.11n(HT20) band I Band edge-right side

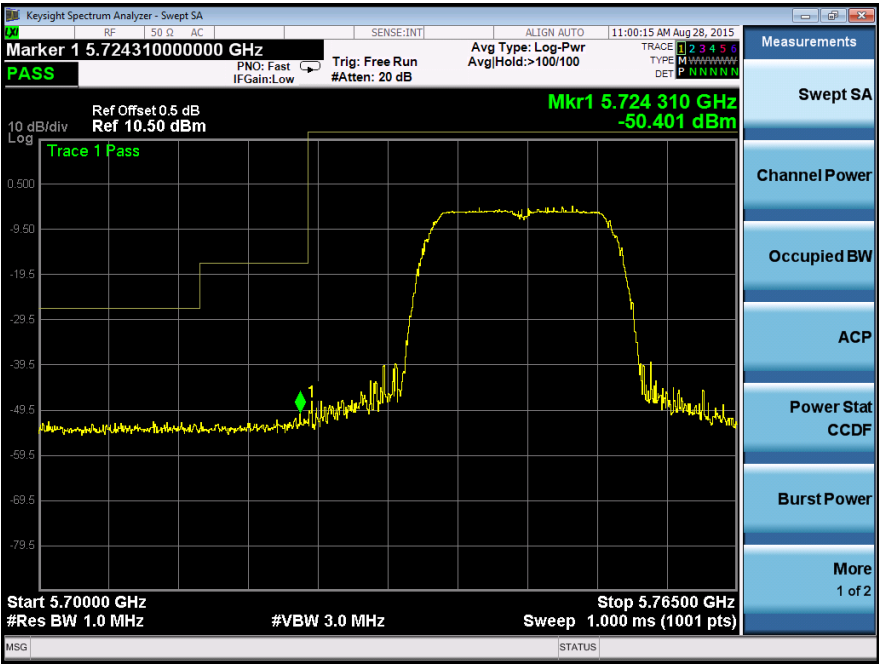


802.11n(HT40) band I Band edge-left side

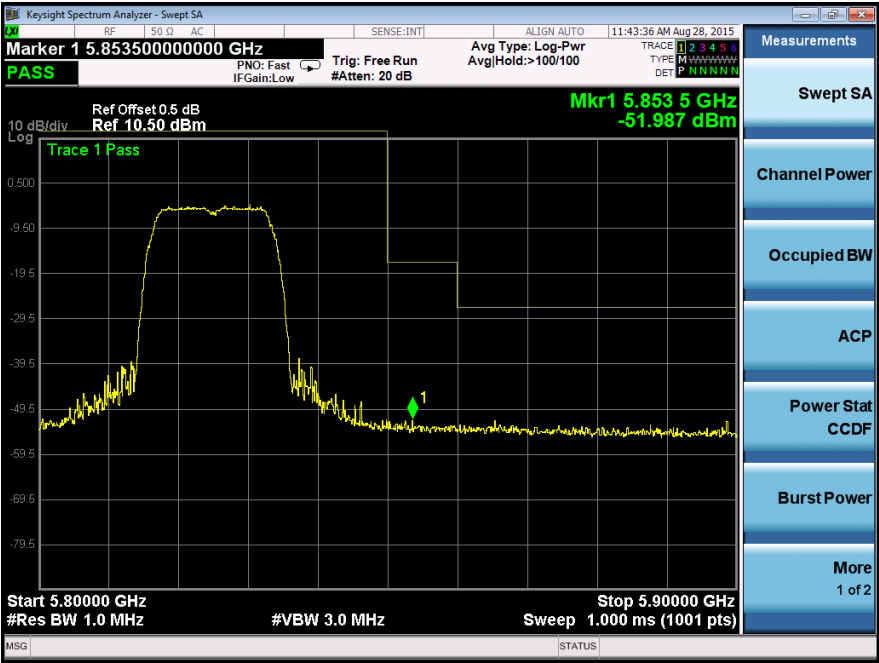


802.11n(HT40) band I Band edge-right side

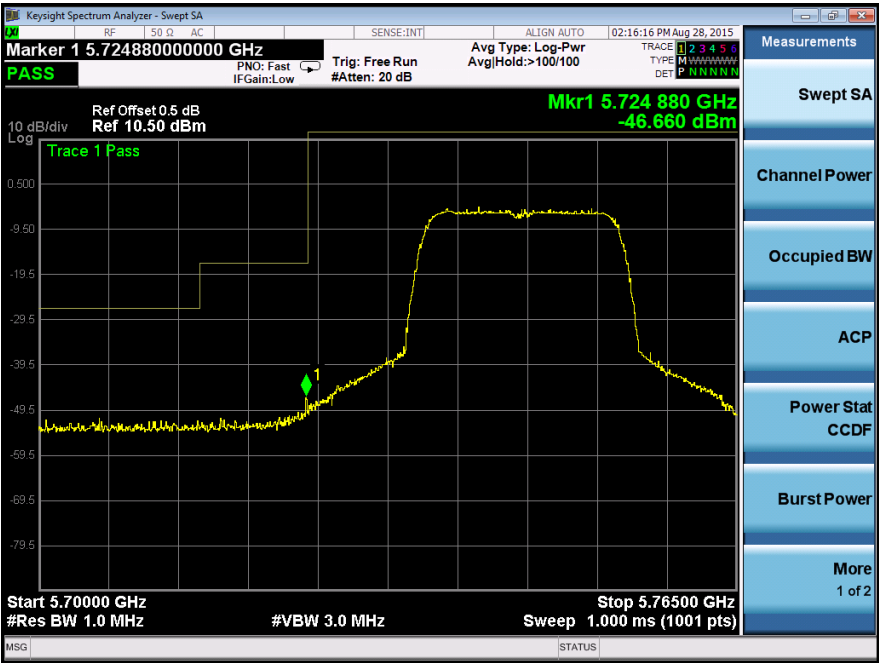




802.11a band IV Band edge-left side



802.11a band IV Band edge-right side



802.11n(HT20) band IV Band edge-left side



802.11n(HT20) band IV Band edge-right side



802.11n(HT40) band IV Band edge-left side



802.11n(HT40) band IV Band edge-right side

## 10 6 dB Bandwidth

Test Requirement: FCC CFR47 Part 15 Section 15.407(e)  
 KDB662911 D01 Multiple Transmitter Output v02r01  
 Test Method: KDB789033 D02 General UNII Test Procedures New Rules v01  
 Section C  
 Test Limit:  $\geq 500$  kHz  
 Test Result: PASS

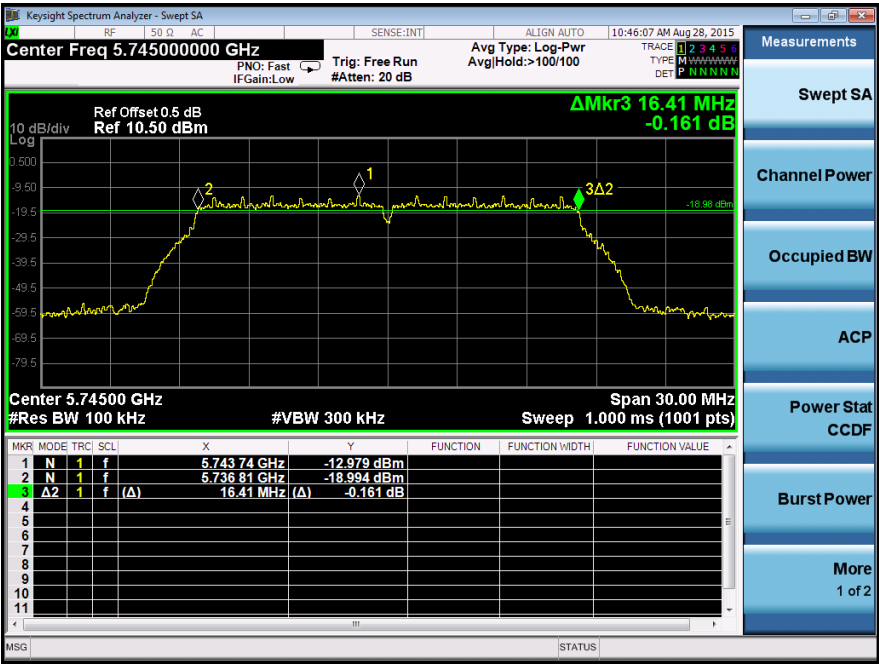
### 10.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

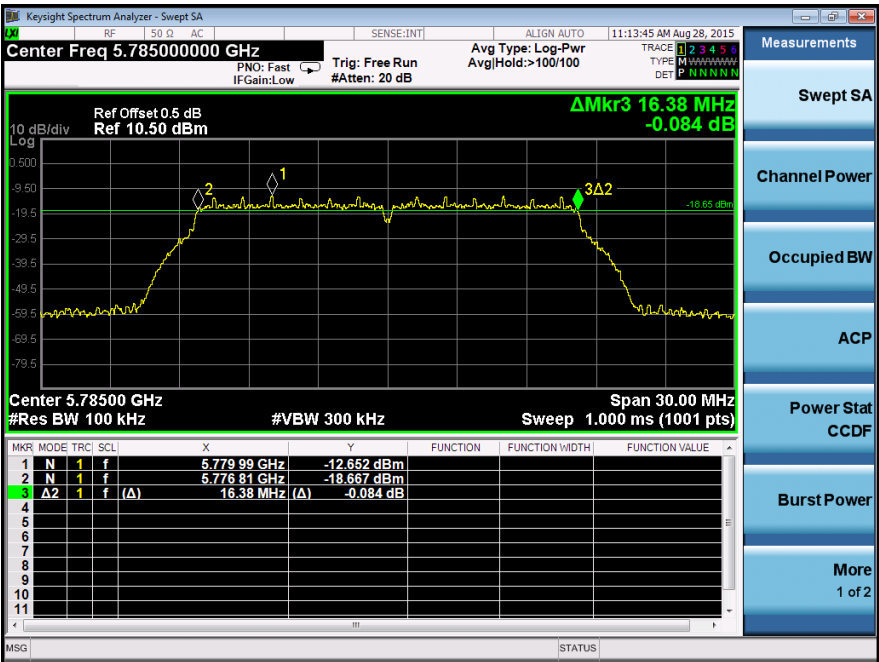
### 10.2 Test Result:

| Band    | Operation mode | 6 dB Bandwidth (MHz) |        |       |
|---------|----------------|----------------------|--------|-------|
|         |                | Low                  | Middle | High  |
| Band IV | 802.11a        | 16.41                | 16.38  | 16.41 |
|         | 802.11n(HT20)  | 17.64                | 17.64  | 17.70 |
|         | 802.11n(HT40)  | 36.30                | /      | 36.36 |

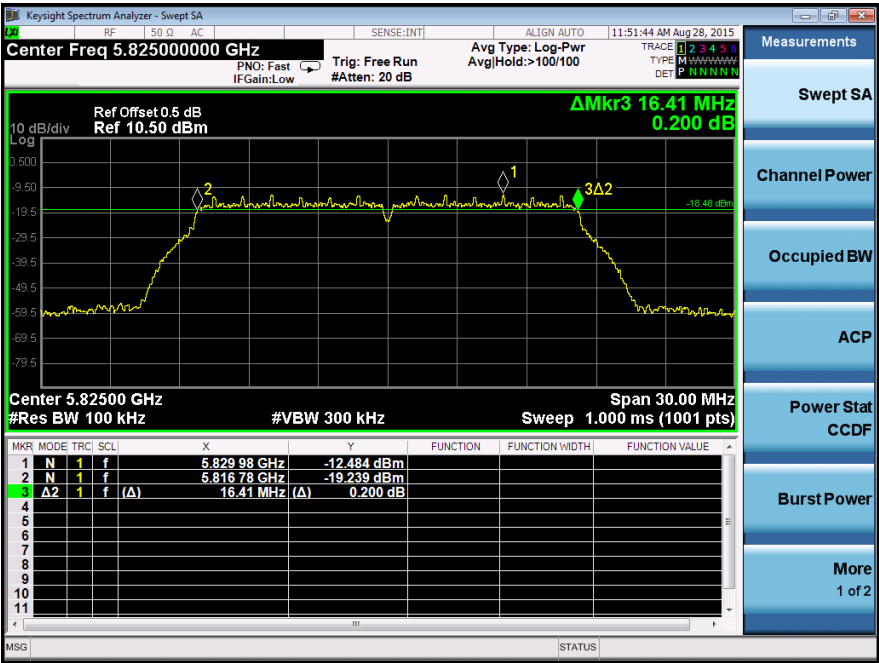
Test result plots shown as follows:



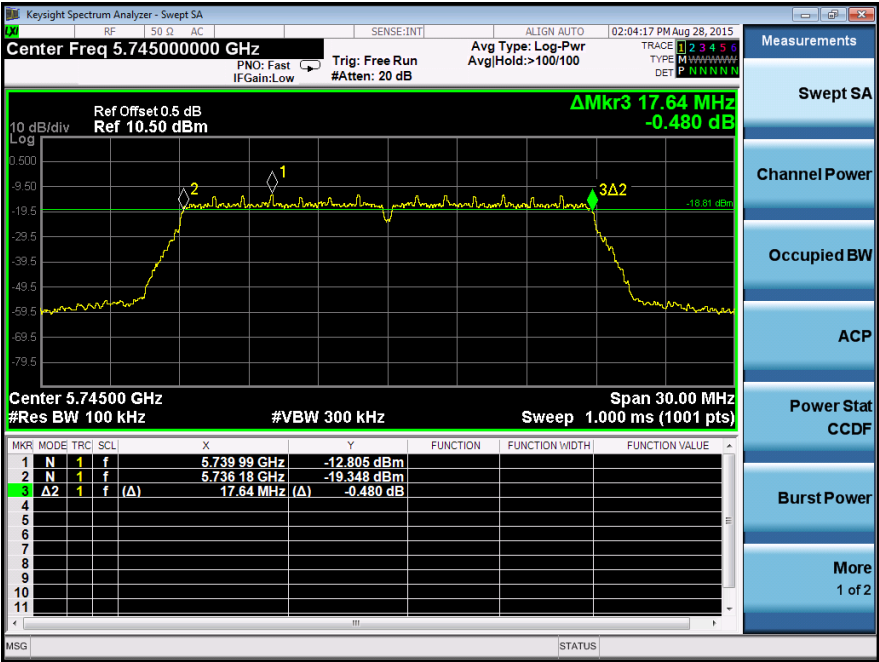
802.11a band IV Low channel



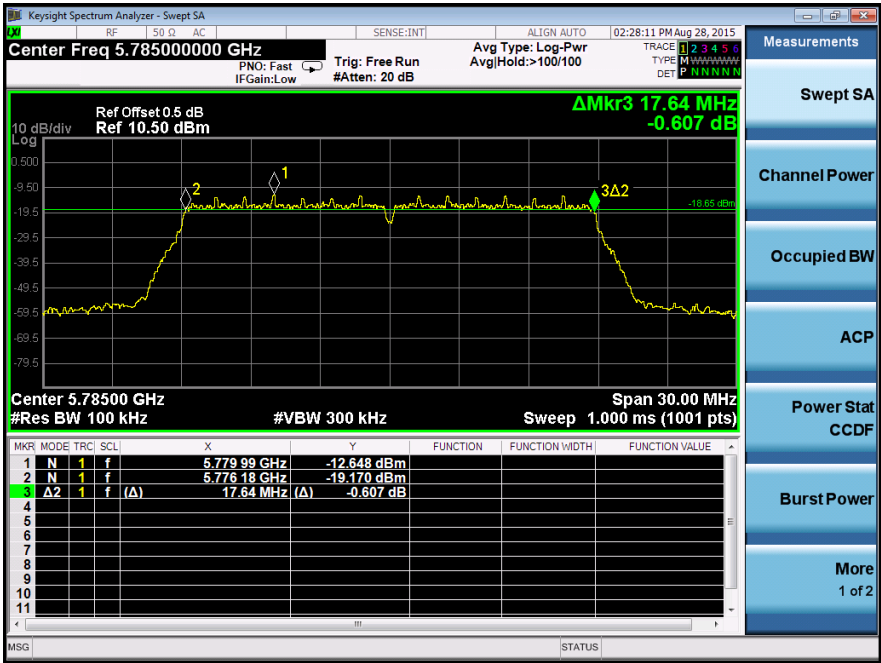
802.11a band IV Middle channel



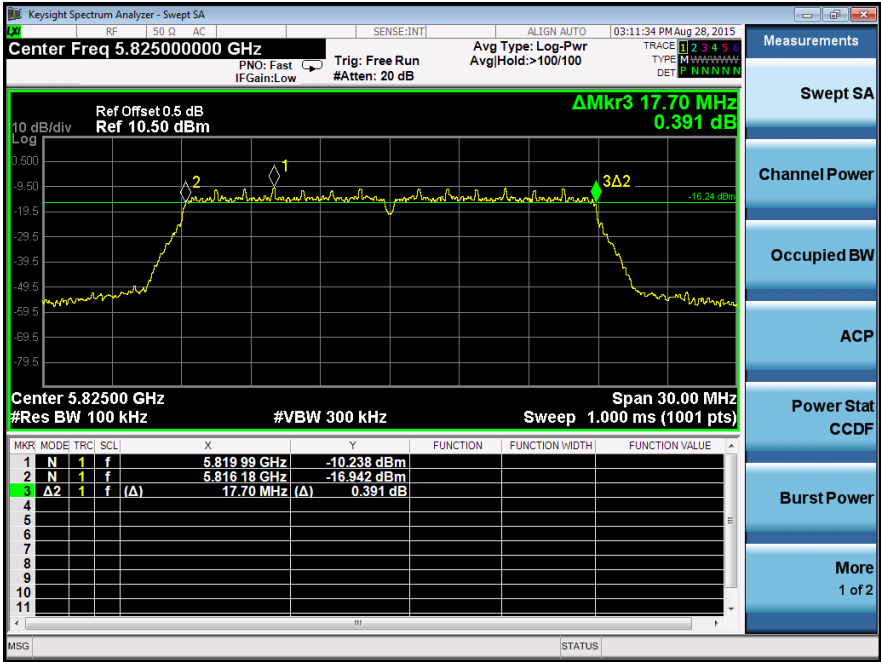
802.11a band IV High channel



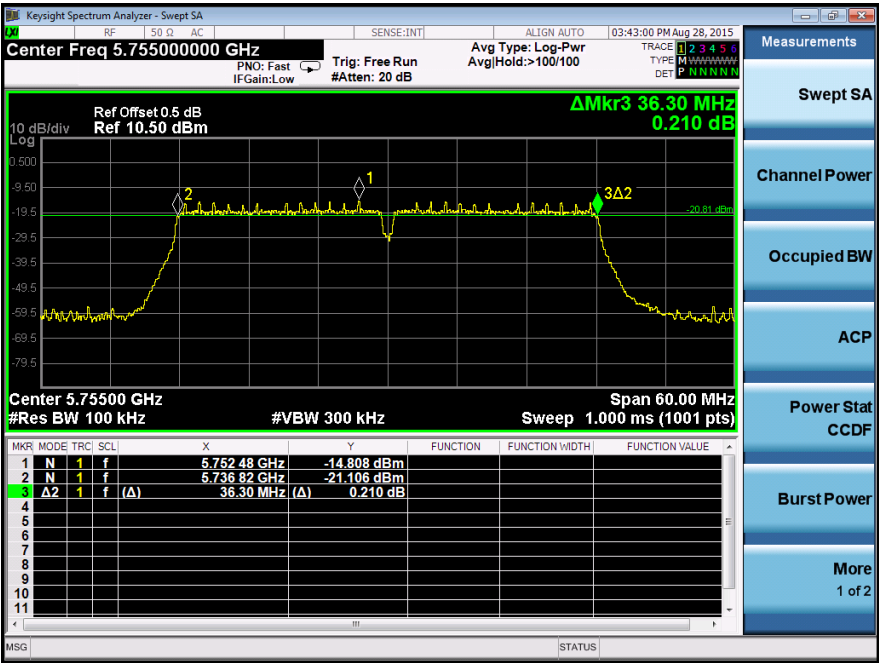
802.11n(HT20) band IV Low channel



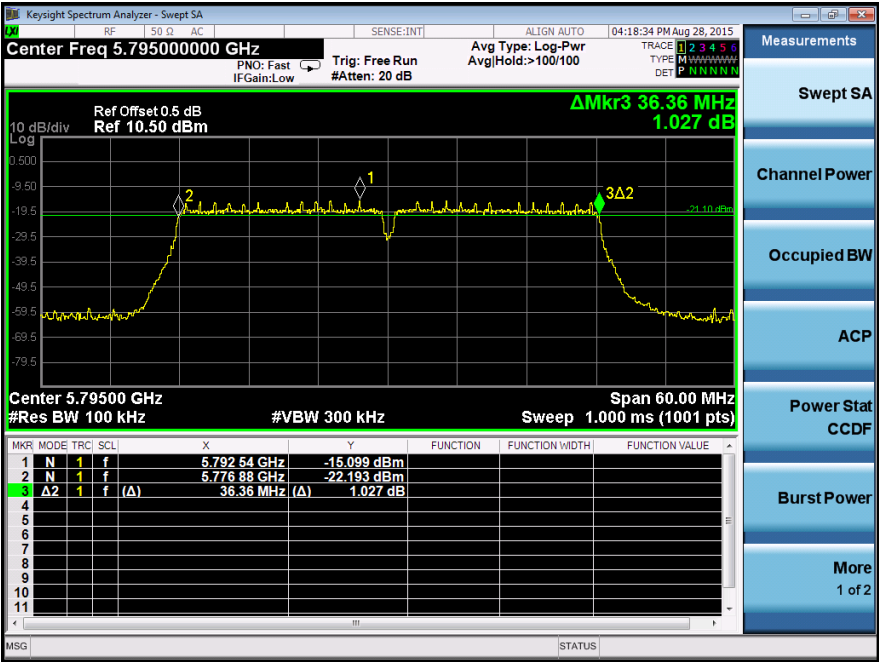
802.11n(HT20) band IV Middle channel



802.11n(HT20) band IV High channel



802.11n(HT40) band IV Low channel



802.11n(HT40) band IV High channel



## 11 26 dB Bandwidth and 99% Occupied Bandwidth

Test Requirement: 47 CFR Part 15C Section 15.407 (a)  
KDB662911 D01 Multiple Transmitter Output v02r01  
Test Method: KDB789033 D02 General UNII Test Procedures New Rules v01  
Section D  
Test Limit: No restriction limits  
Test Result: PASS

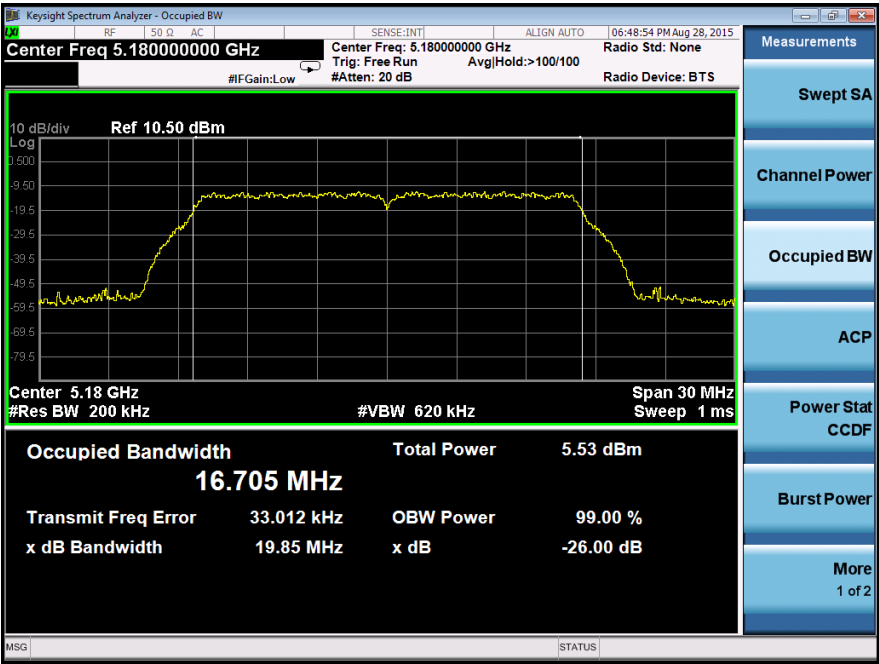
### 11.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

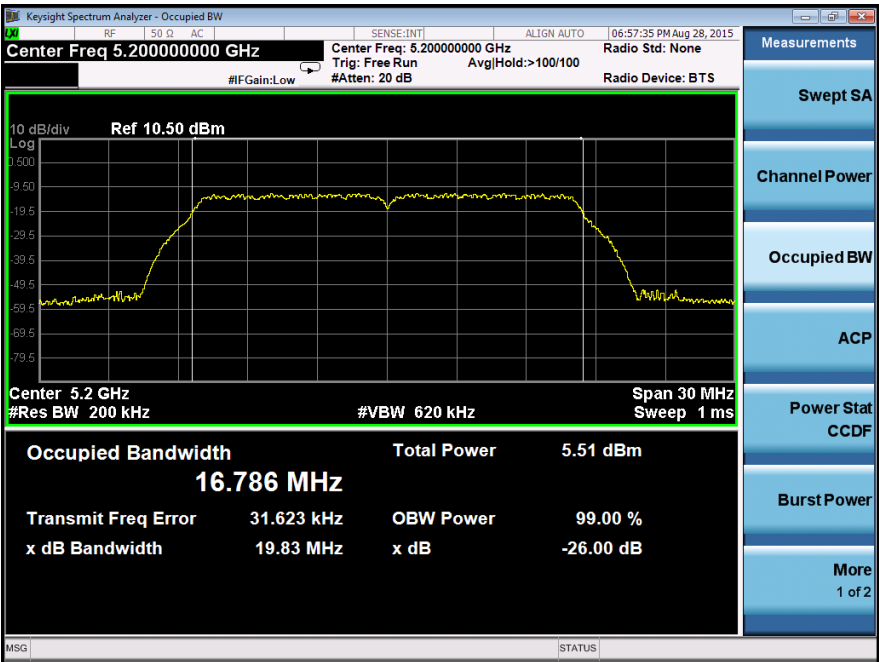
### 11.2 Test Result:

| Band    | Operation mode | 26 dB Bandwidth (MHz) |        |       | 99% Bandwidth (MHz) |        |        |
|---------|----------------|-----------------------|--------|-------|---------------------|--------|--------|
|         |                | Low                   | Middle | High  | Low                 | Middle | High   |
| Band I  | 802.11a        | 19.85                 | 19.83  | 19.83 | 16.705              | 16.786 | 16.754 |
|         | 802.11n(HT20)  | 19.92                 | 19.93  | 19.97 | 17.718              | 17.711 | 17.713 |
|         | 802.11n(HT40)  | 40.15                 | /      | /     | 36.249              | /      | /      |
| Band IV | 802.11a        | 19.81                 | 19.85  | 19.80 | 16.718              | 16.692 | 16.709 |
|         | 802.11n(HT20)  | 19.95                 | 19.96  | 19.96 | 17.695              | 17.727 | 17.709 |
|         | 802.11n(HT40)  | 40.34                 | /      | 40.11 | 36.250              | /      | 36.283 |

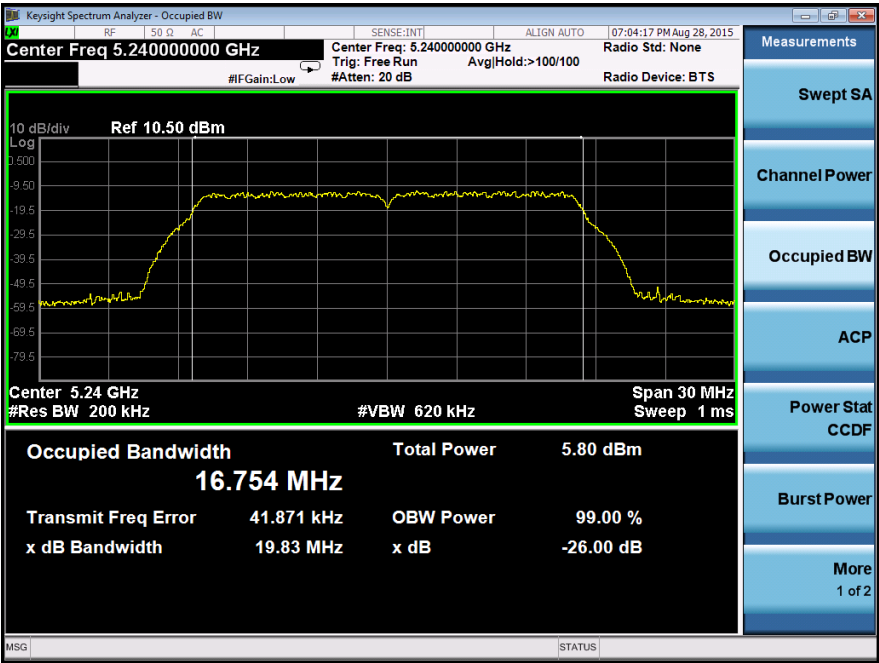
Test result plots shown as follows:



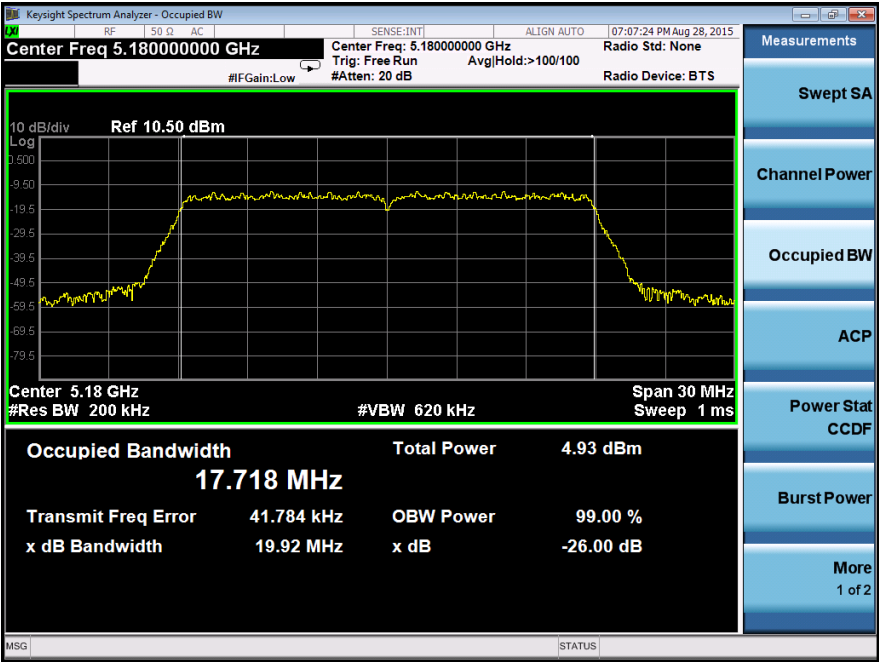
802.11a band I Low channel



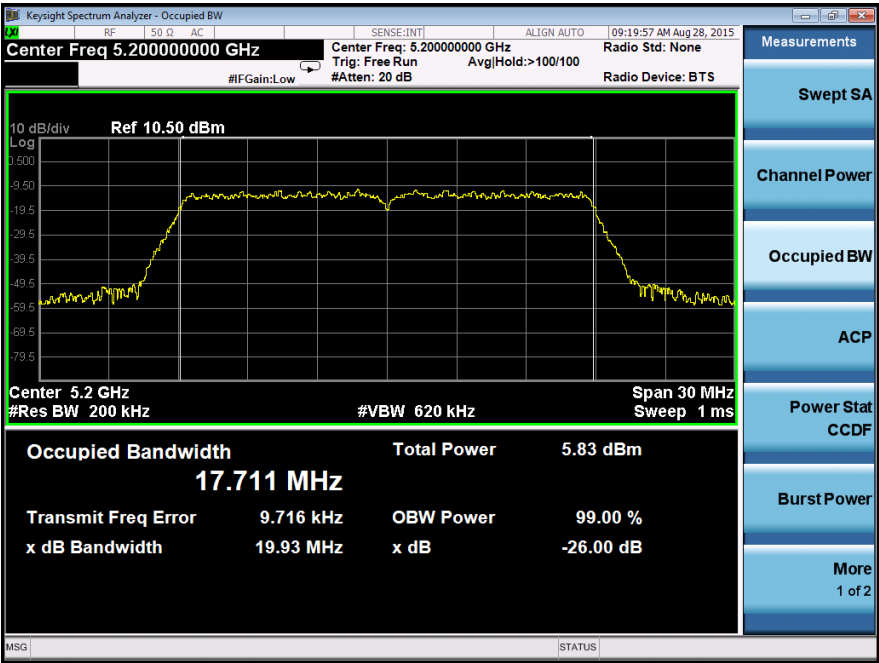
802.11a band I Middle channel



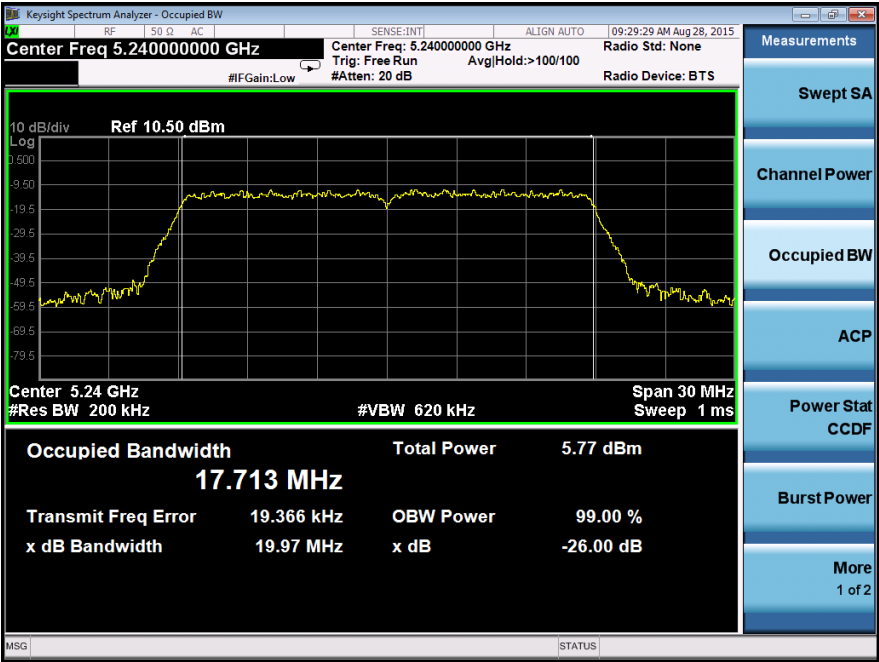
802.11a band I High channel



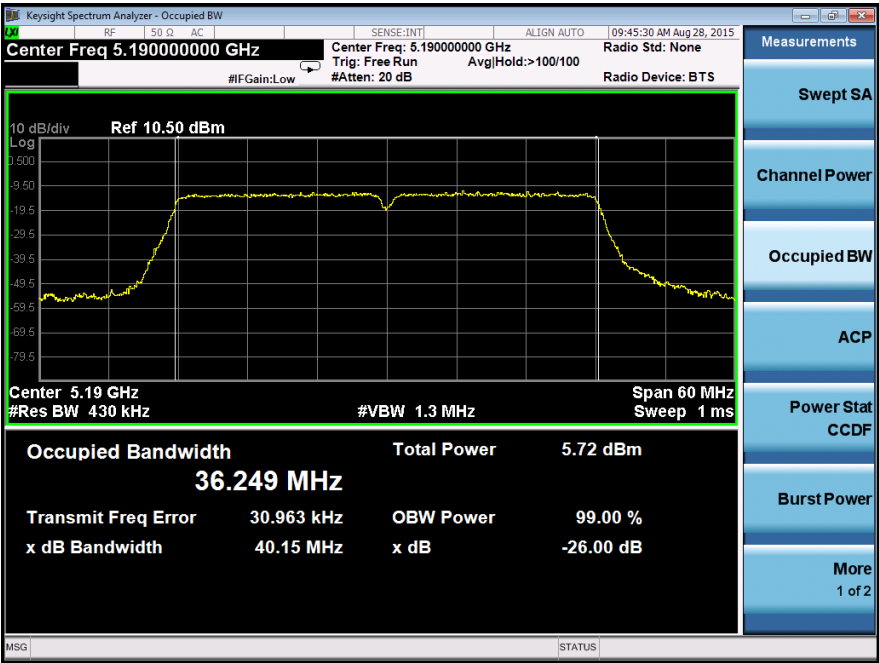
802.11n(HT20) band I Low channel



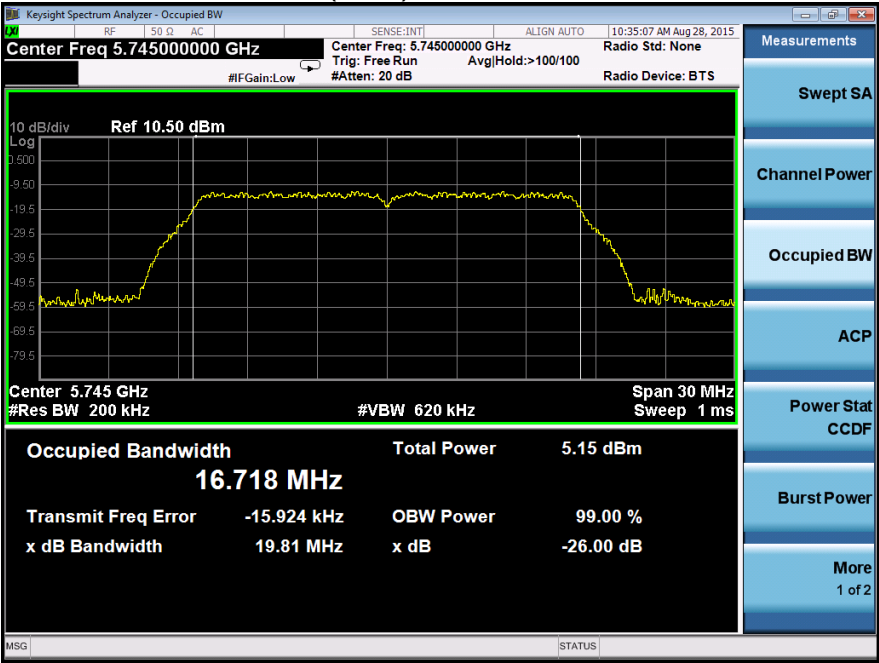
802.11n(HT20) band I Middle channel



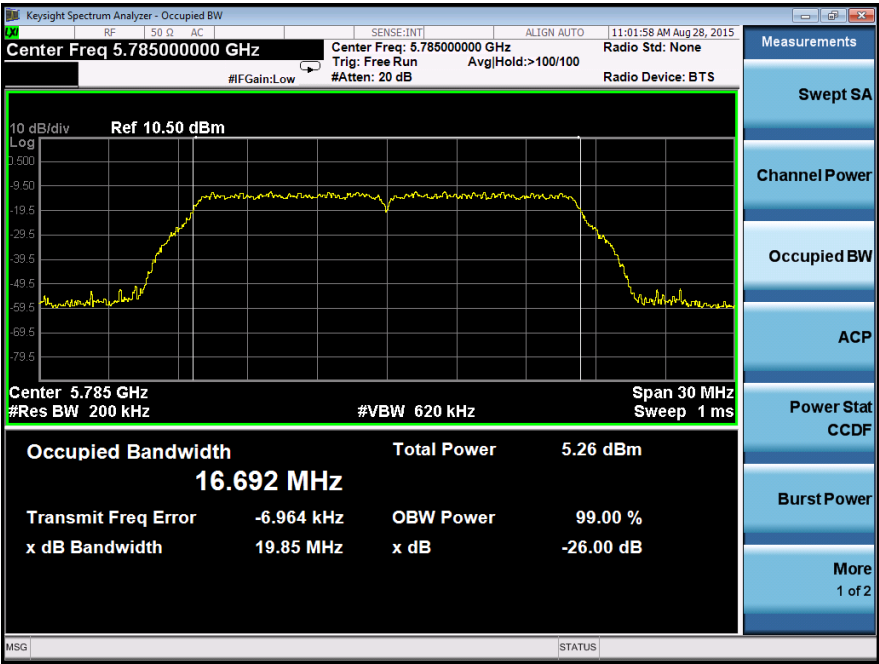
802.11n(HT20) band I High channel



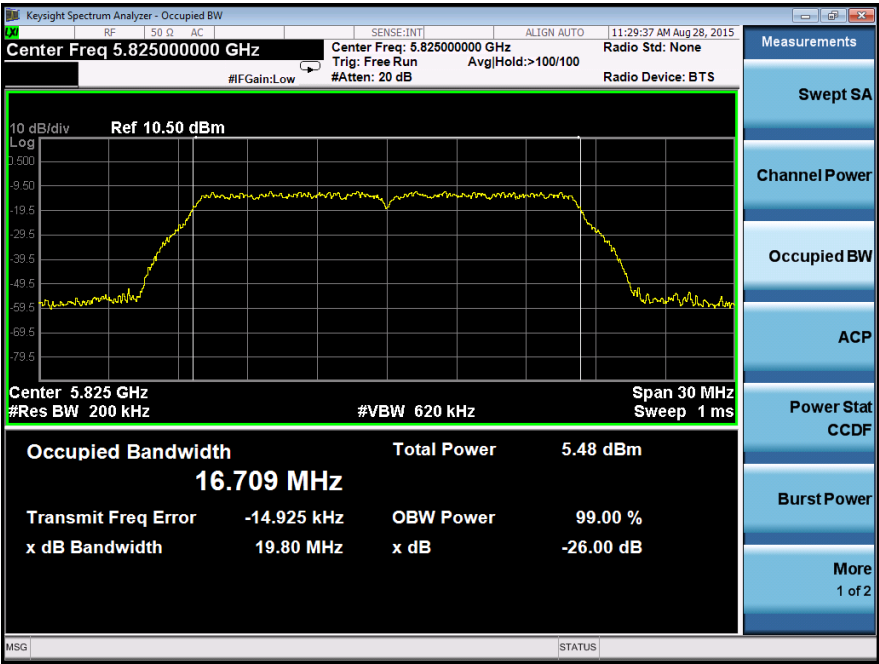
802.11n(HT40) band I Low channel



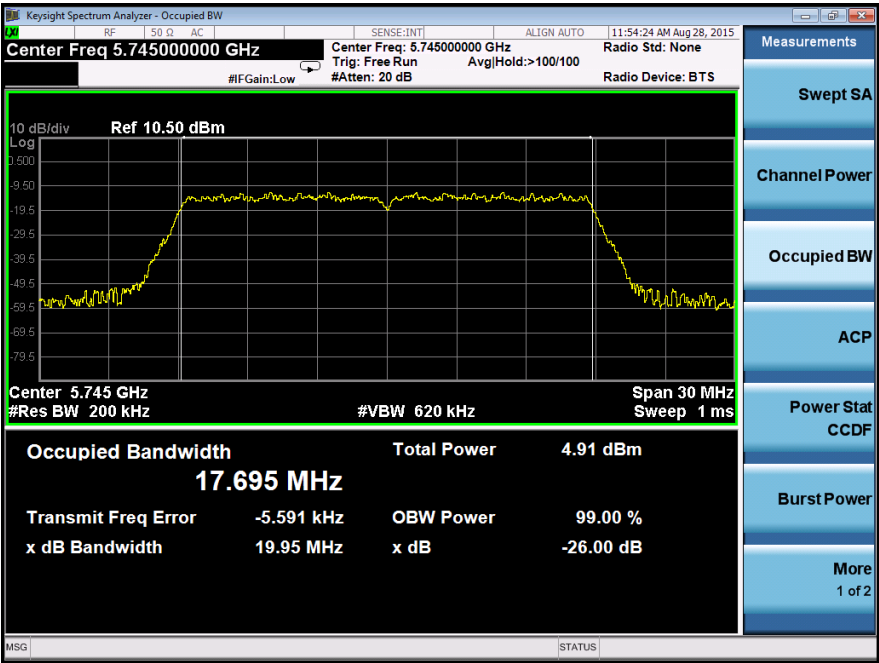
802.11a band IV Low channel



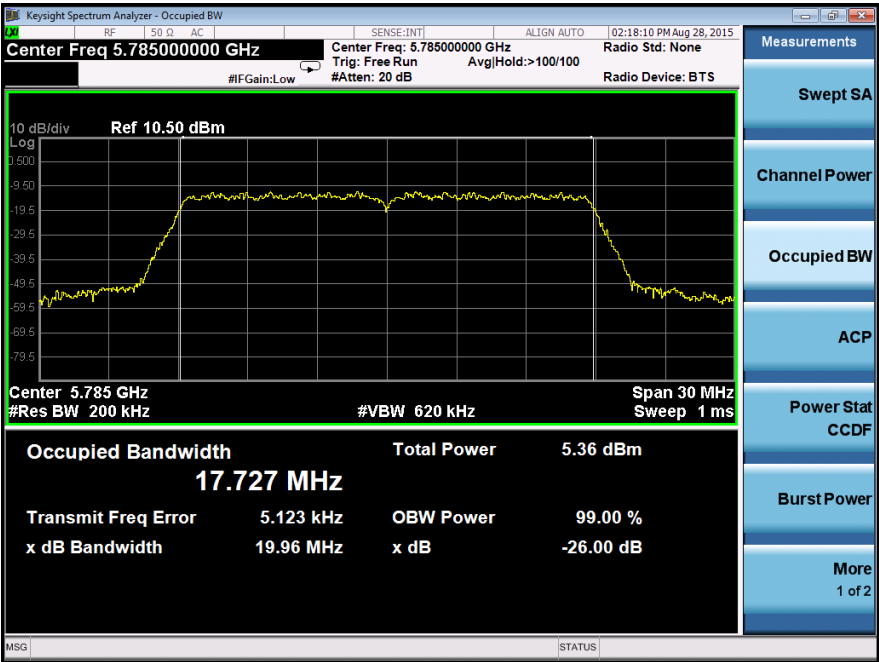
802.11a band IV Middle channel



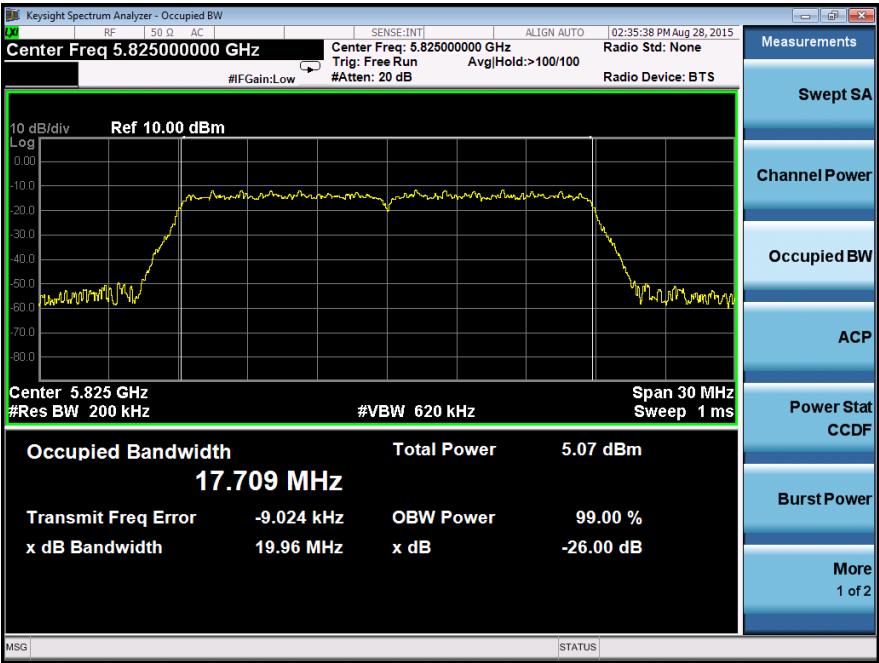
802.11a band IV High channel



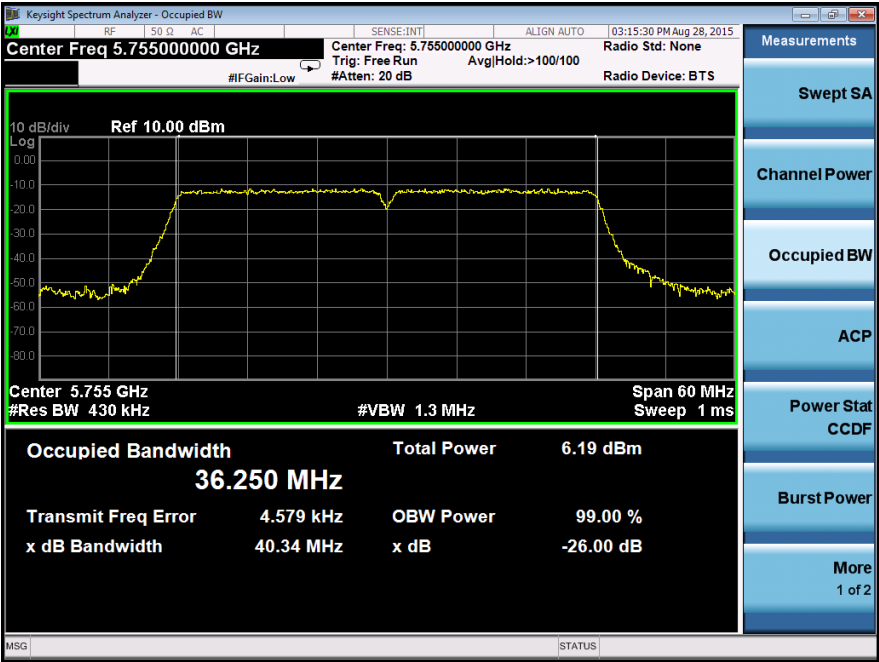
802.11n(HT20) band IV Low channel



802.11n(HT20) band IV Middle channel

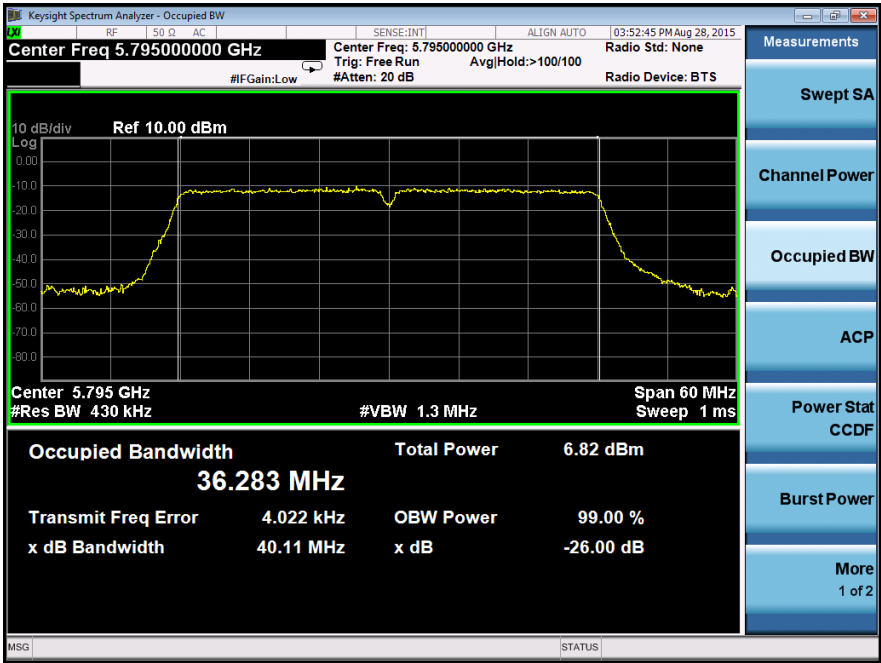


802.11n(HT20) band IV High channel



802.11n(HT40) band IV Low channel





802.11n(HT40) band IV High channel

## 12 Conducted Output Power

|                   |                                                                                                    |
|-------------------|----------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC CFR47 Part 15 Section 15.407(a)<br>KDB662911 D01 Multiple Transmitter Output v02r01            |
| Test Method:      | KDB789033 D02 General UNII Test Procedures New Rules v01<br>Section E                              |
| Test Limit:       | 30dBm                                                                                              |
| Test Result:      | PASS<br>Conducted output power= measurement power+10log(1/x)<br>X is duty cycle=1, so 10log(1/1)=0 |
| Remark:           | Conducted output power= measurement power                                                          |

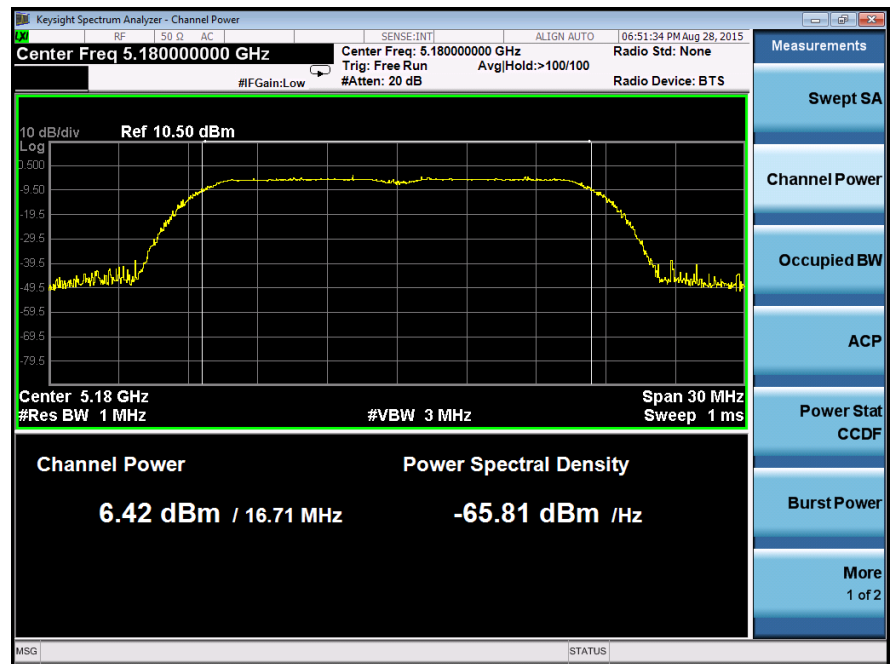
### 12.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 1 MHz. VBW = 3 MHz. Sweep = auto; Detector Function = Peak, Set the span to fully encompass the DTS bandwidth.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

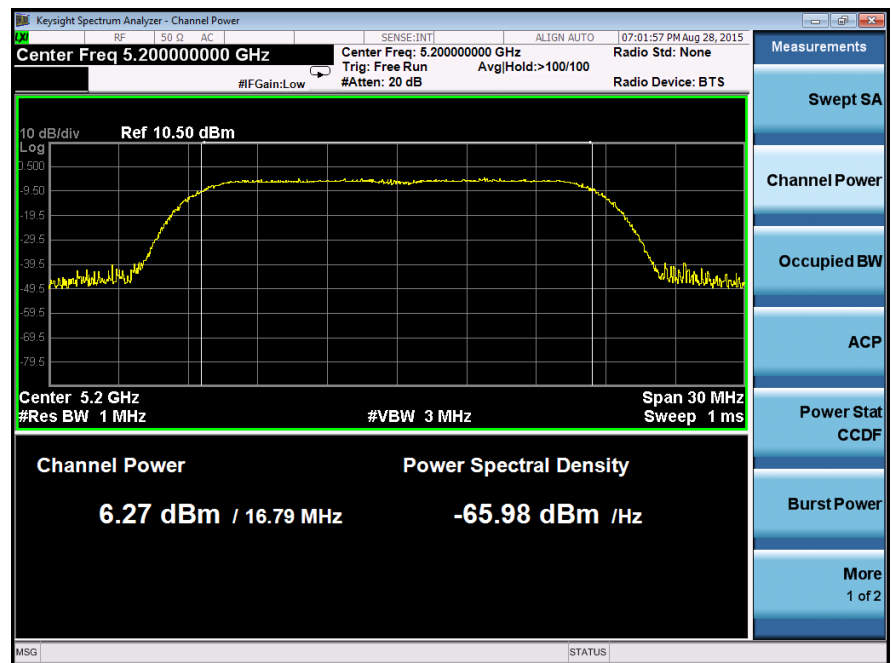
### 12.2 Test Result:

| Band    | Operation mode | Conducted Output Power (dBm) |        |      |
|---------|----------------|------------------------------|--------|------|
|         |                | Low                          | Middle | High |
| Band I  | 802.11a        | 6.42                         | 6.27   | 6.42 |
|         | 802.11n(HT20)  | 6.57                         | 6.74   | 6.92 |
|         | 802.11n(HT40)  | 6.33                         | /      | /    |
| Band IV | 802.11a        | 6.26                         | 6.31   | 6.53 |
|         | 802.11n(HT20)  | 6.32                         | 6.42   | 6.65 |
|         | 802.11n(HT40)  | 6.97                         | /      | 6.76 |

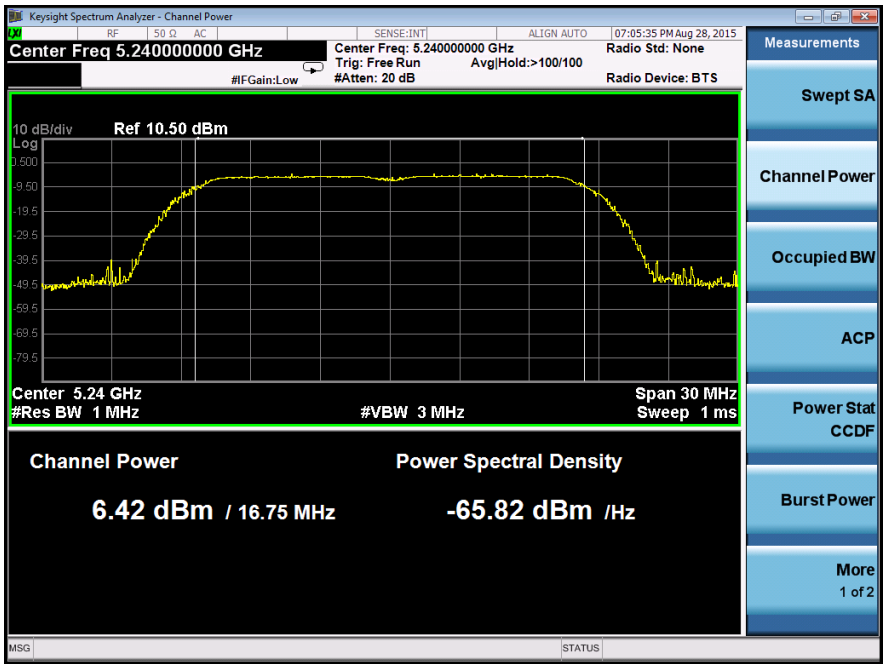
Test result plots shown as follows:



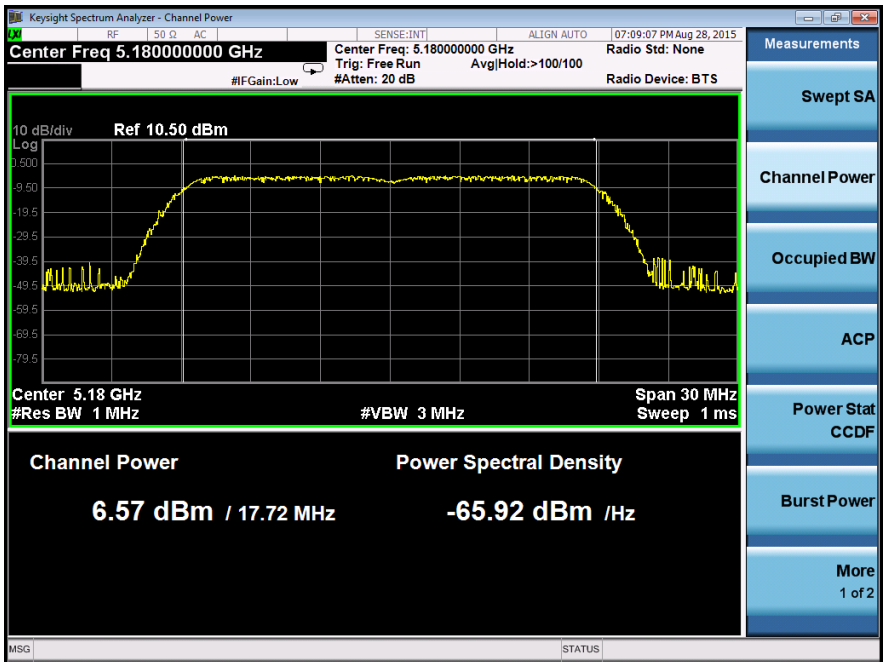
802.11a band I Low channel



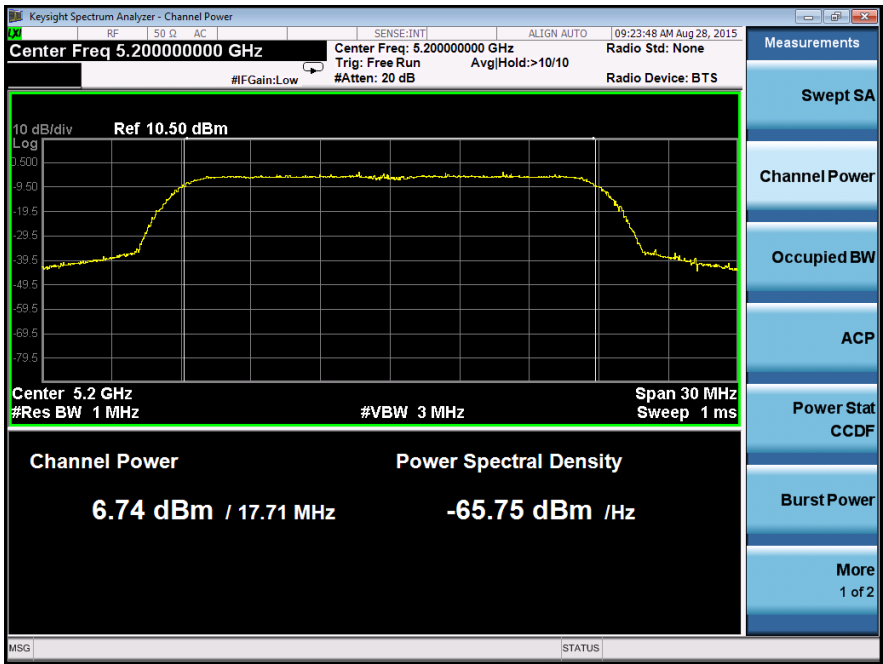
802.11a band I Middle channel



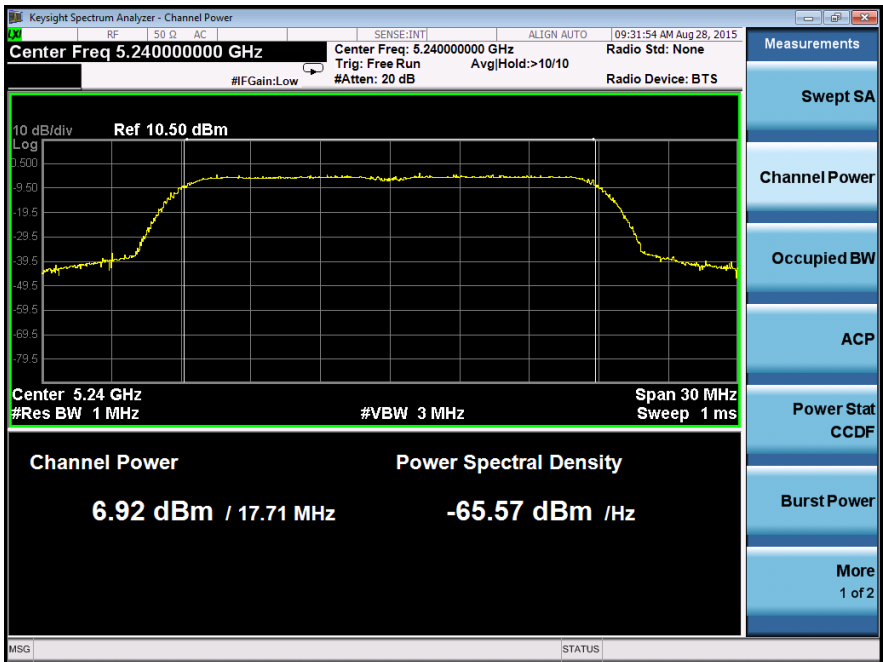
802.11a band I High channel



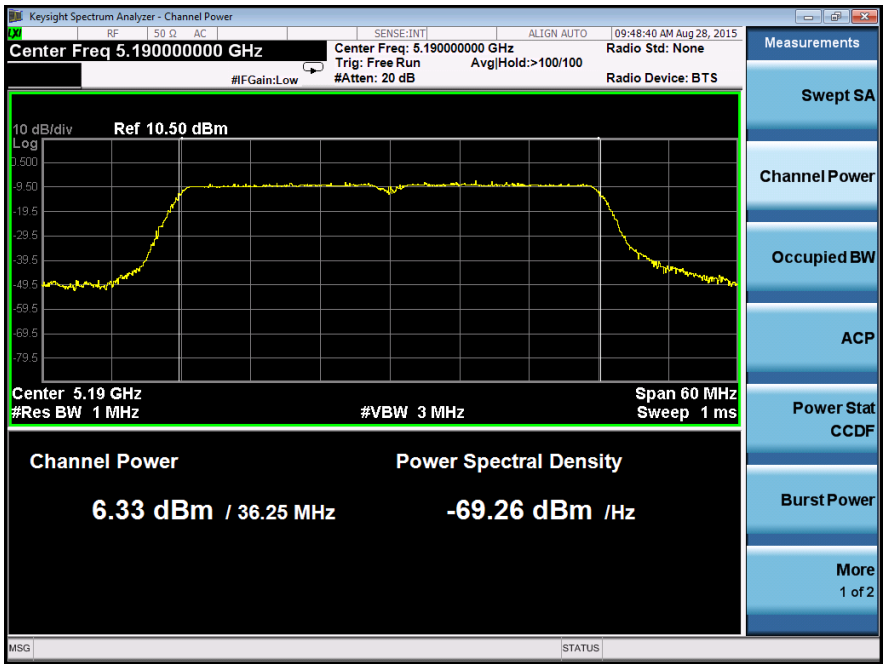
802.11n(HT20) band I Low channel



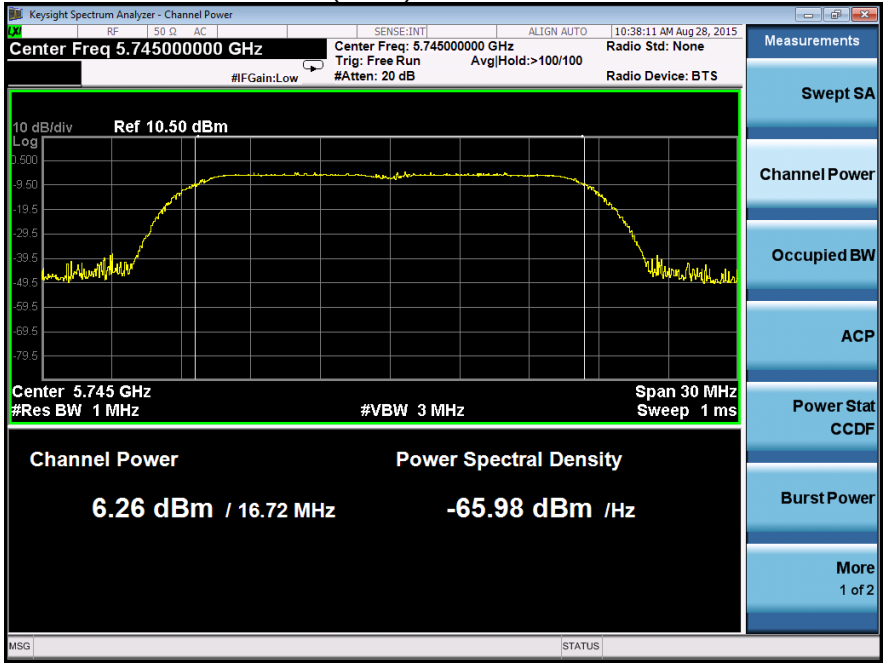
802.11n(HT20) band I Middle channel



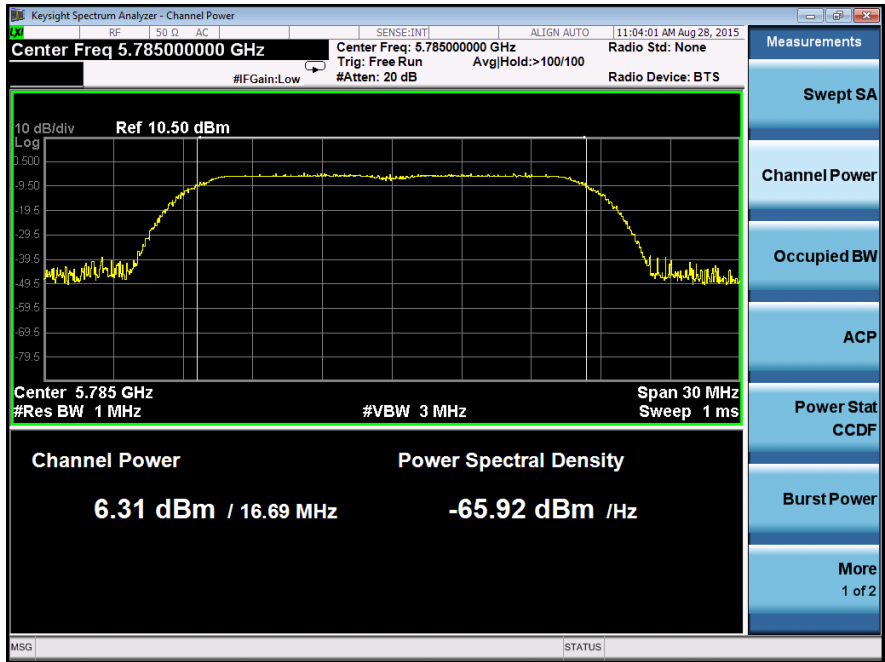
802.11n(HT20) band I High channel



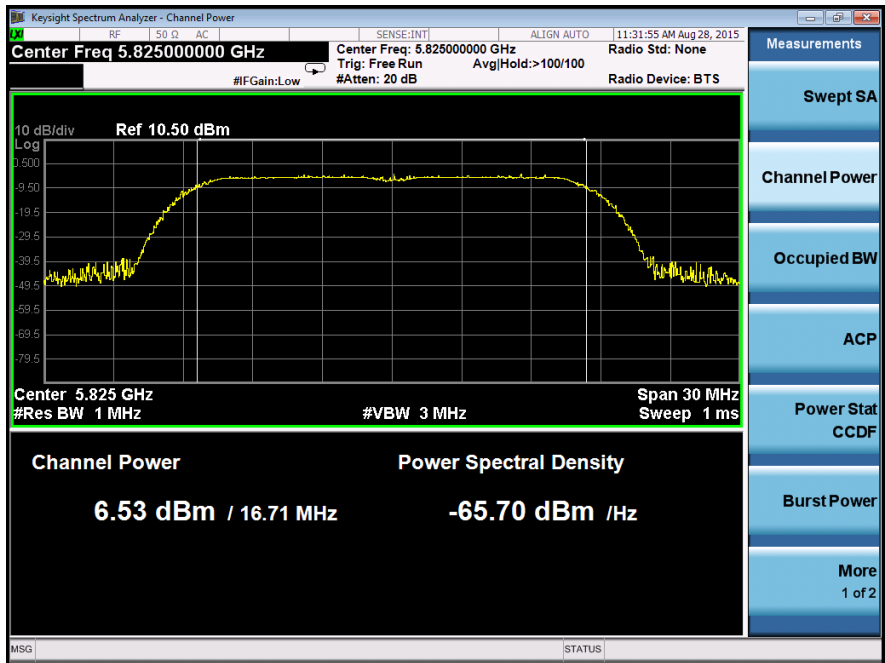
802.11n(HT40) band I Low channel



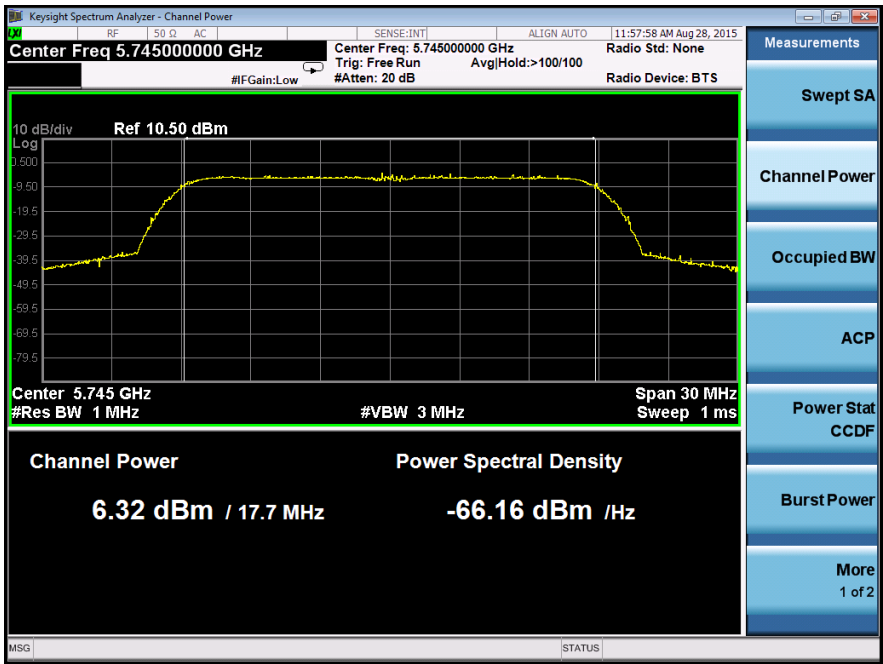
802.11a band IV Low channel



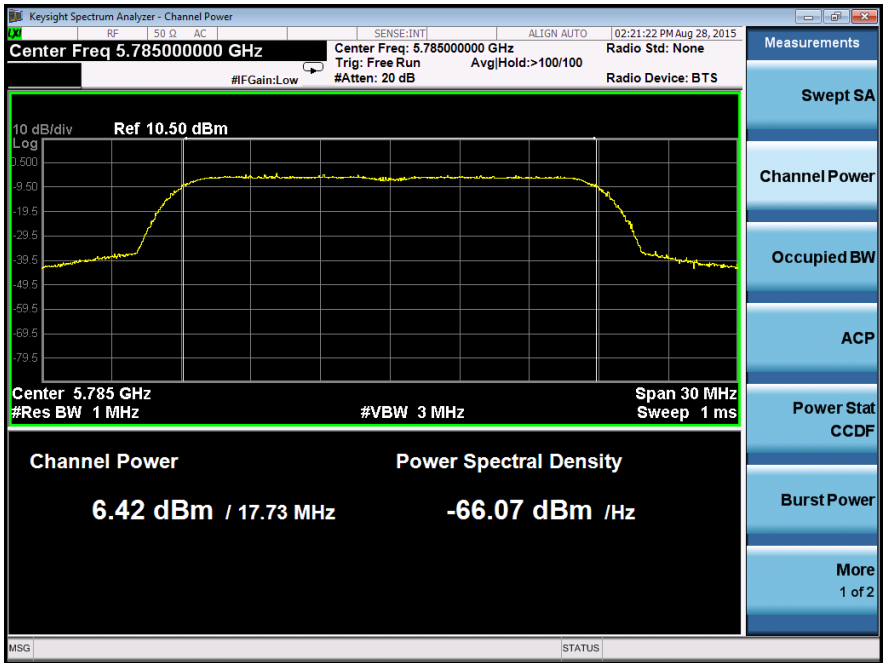
802.11a band IV Middle channel



802.11a band IV High channel

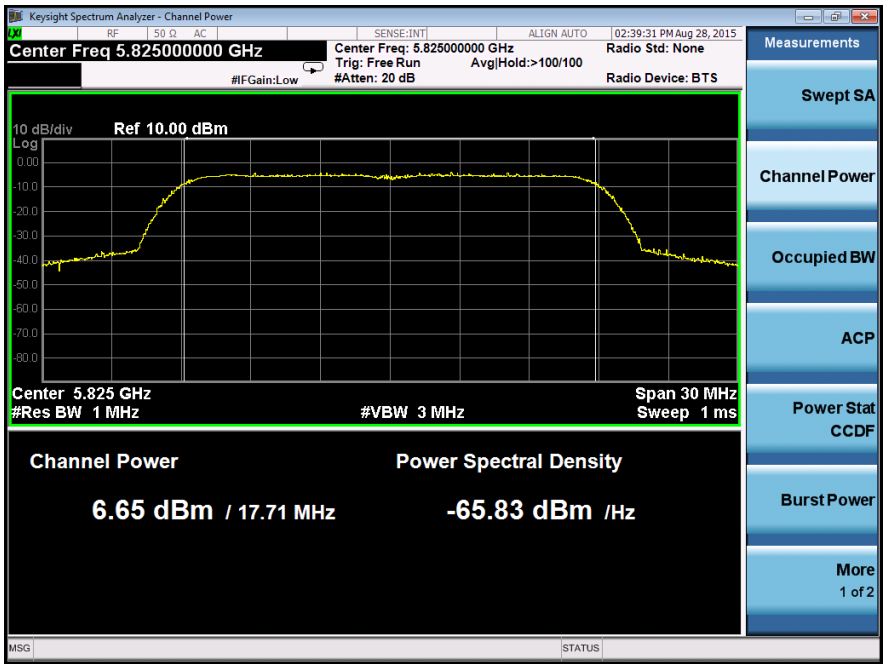


802.11n(HT20) band IV Low channel

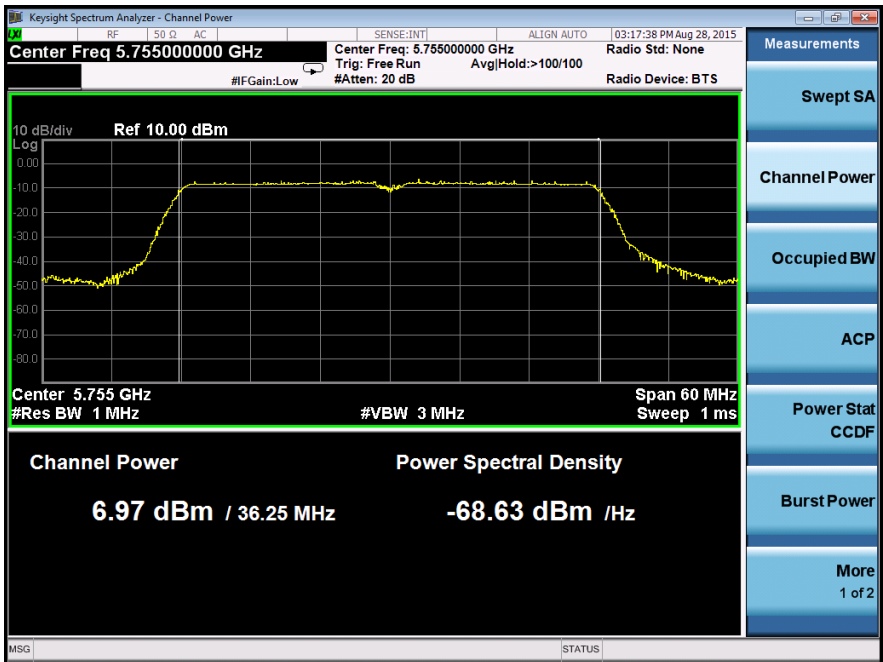


802.11n(HT20) band IV Middle channel

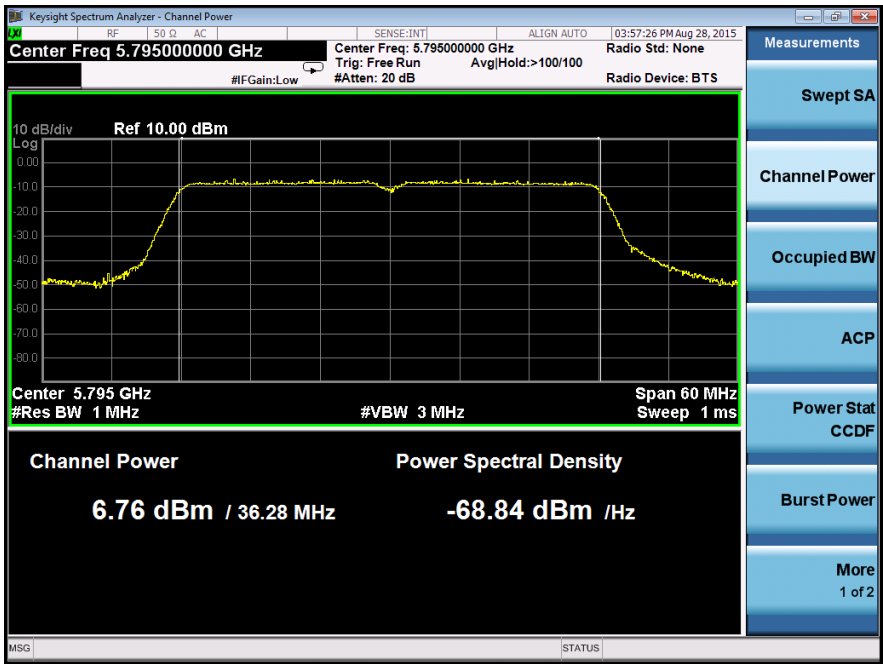




802.11n(HT20) band IV High channel



802.11n(HT40) band IV Low channel



802.11n(HT40) band IV High channel

### 13 Power Spectral density

|                   |                                                                                                                                                       |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC CFR47 Part 15 Section 15.407(a)<br>KDB662911 D01 Multiple Transmitter Output v02r01                                                               |
| Test Method:      | KDB789033 D02 General UNII Test Procedures New Rules v01,<br>Section F                                                                                |
| Test Limit:       | ≤17.00dBm/MHz for Operation in the band I(5150MHz-5250MHz)of<br>device<br>≤30.00dBm/500KHz for Operation in the band IV(5725MHz-<br>5850MHz)of device |
| Test Result:      | PASS                                                                                                                                                  |

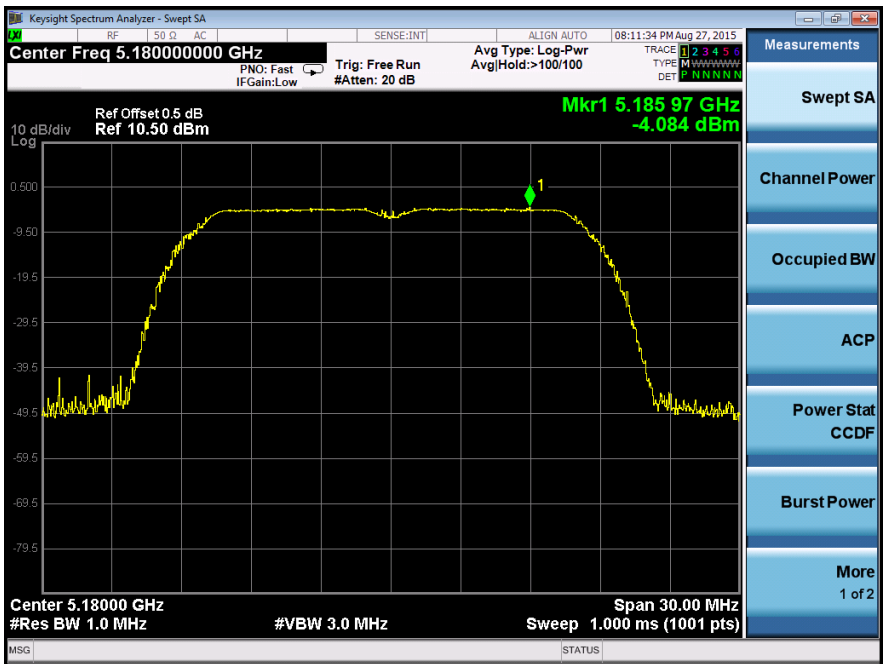
#### 13.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 510kHz/1MHz. VBW ≥ 3 RBW Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section  
Submit this plot.

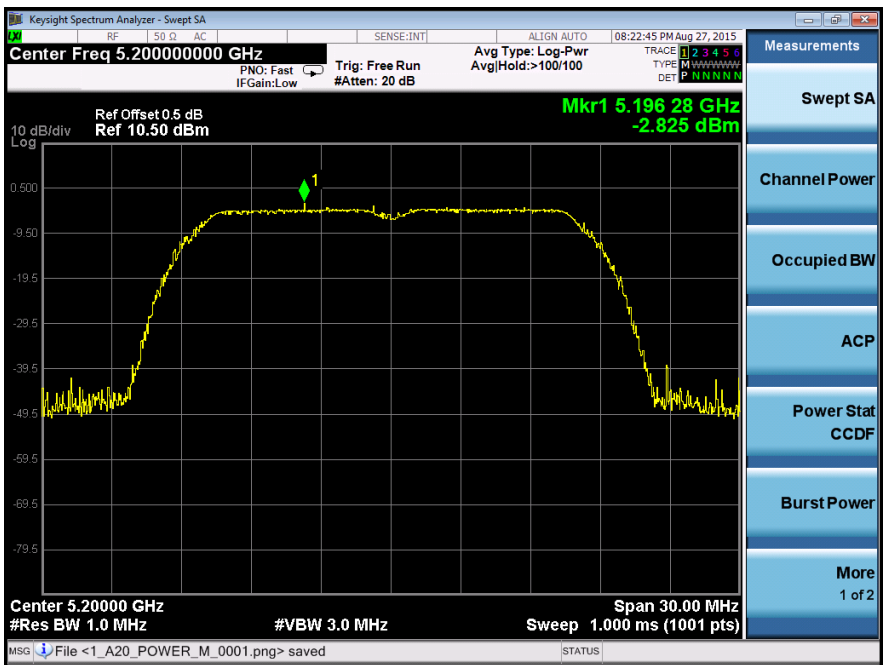
#### 13.2 Test Result:

| Band    | Operation mode | Power Spectral Density (dBm/MHz)    |        |       |
|---------|----------------|-------------------------------------|--------|-------|
|         |                | Low                                 | Middle | High  |
| Band I  | 802.11a        | -4.08                               | -2.83  | -4.11 |
|         | 802.11n(HT20)  | -2.21                               | -3.76  | -3.33 |
|         | 802.11n(HT40)  | -6.53                               | /      | /     |
|         | Limit          | ≤17.00dBm/MHz                       |        |       |
| Band    | Operation mode | Power Spectral Density (dBm/500kHz) |        |       |
|         |                | Low                                 | Middle | High  |
| Band IV | 802.11a        | -2.71                               | -2.72  | -3.03 |
|         | 802.11n(HT20)  | -4.31                               | -4.21  | -4.11 |
|         | 802.11n(HT40)  | -5.47                               | /      | -6.07 |
|         | Limit          | ≤30.00dBm/500KHz                    |        |       |

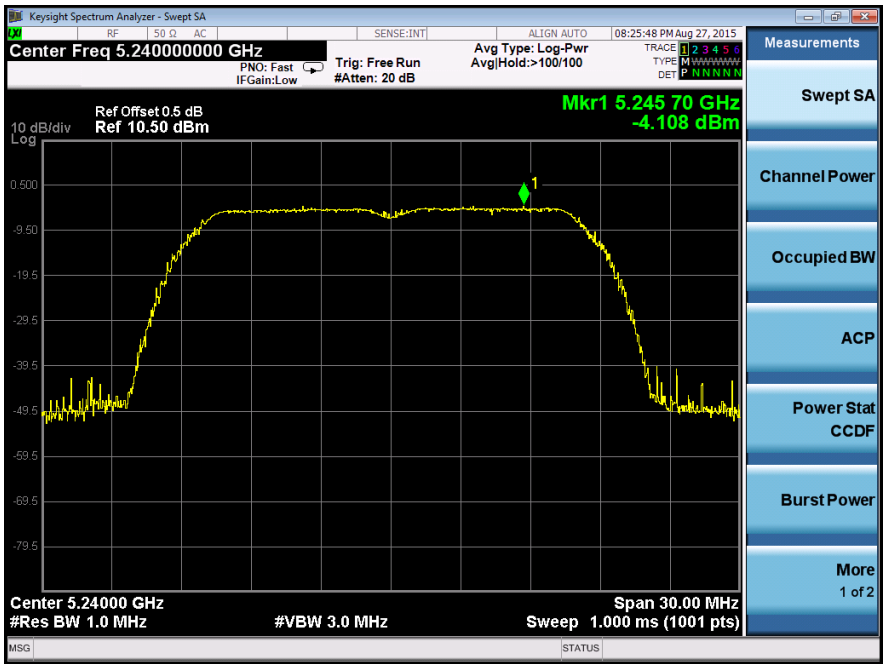
Test result plots shown as follows:



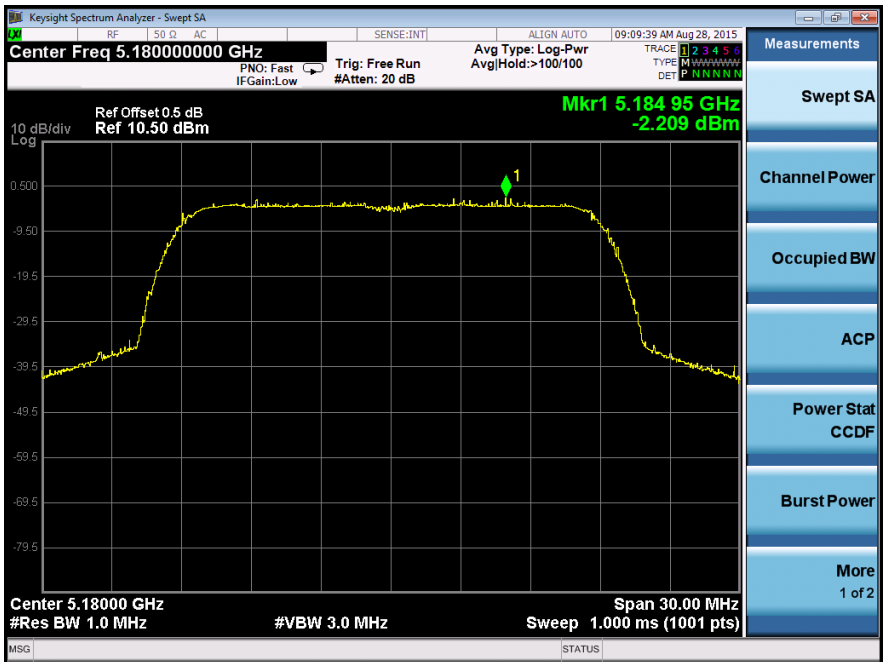
802.11a band I Low channel



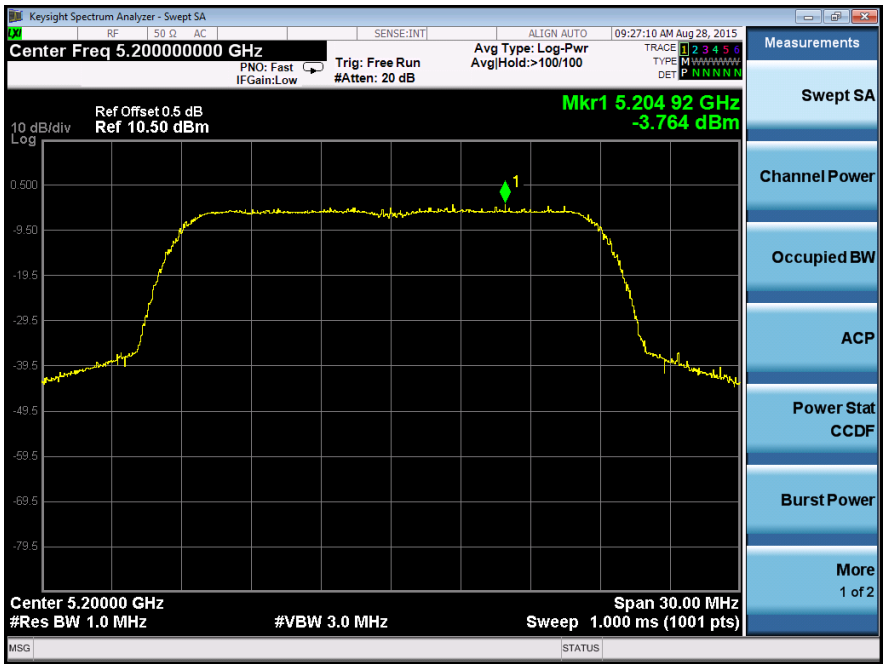
802.11a band I Middle channel



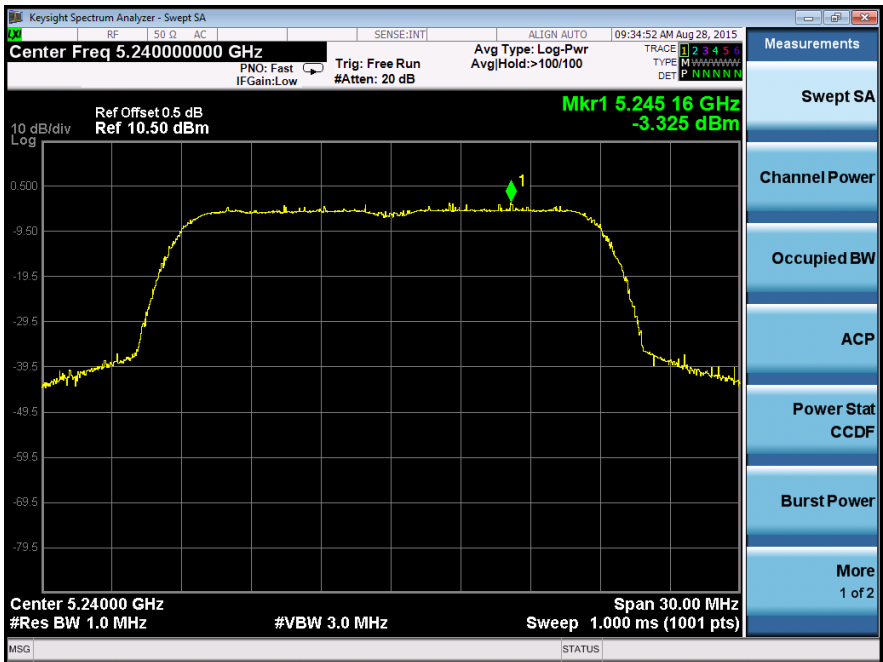
802.11a band I High channel



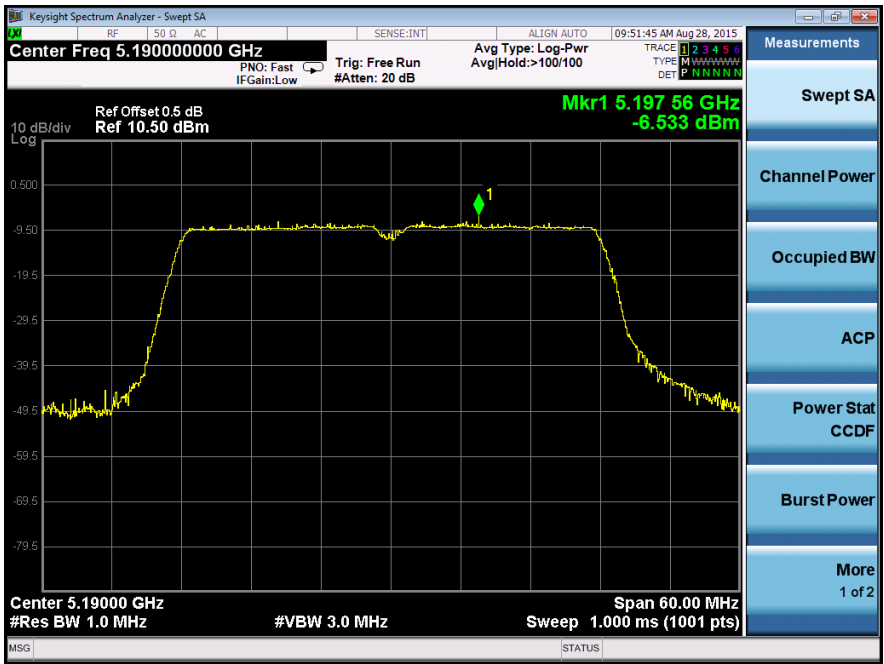
802.11n(HT20) band I Low channel



802.11n(HT20) band I Middle channel



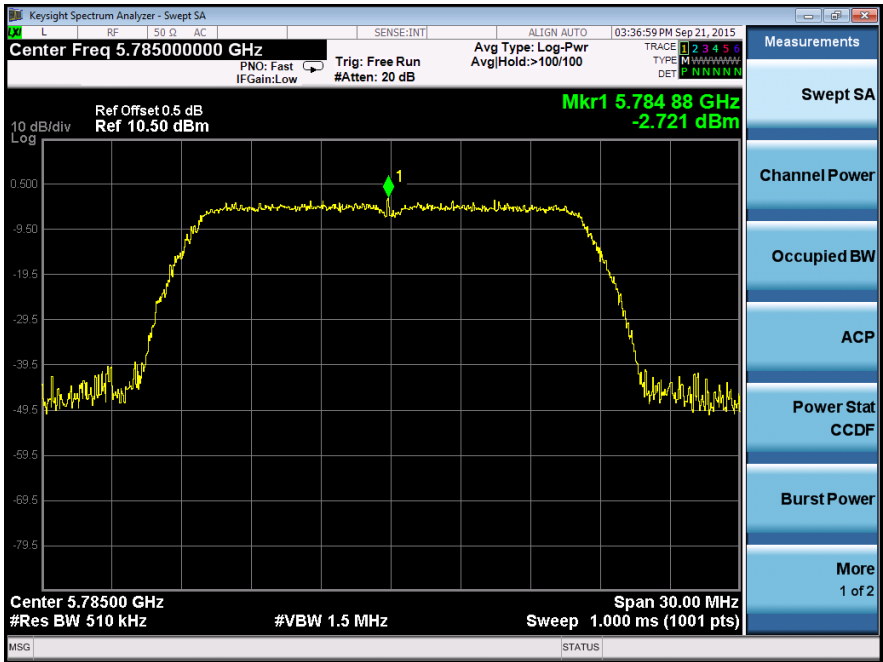
802.11n(HT20) band I High channel



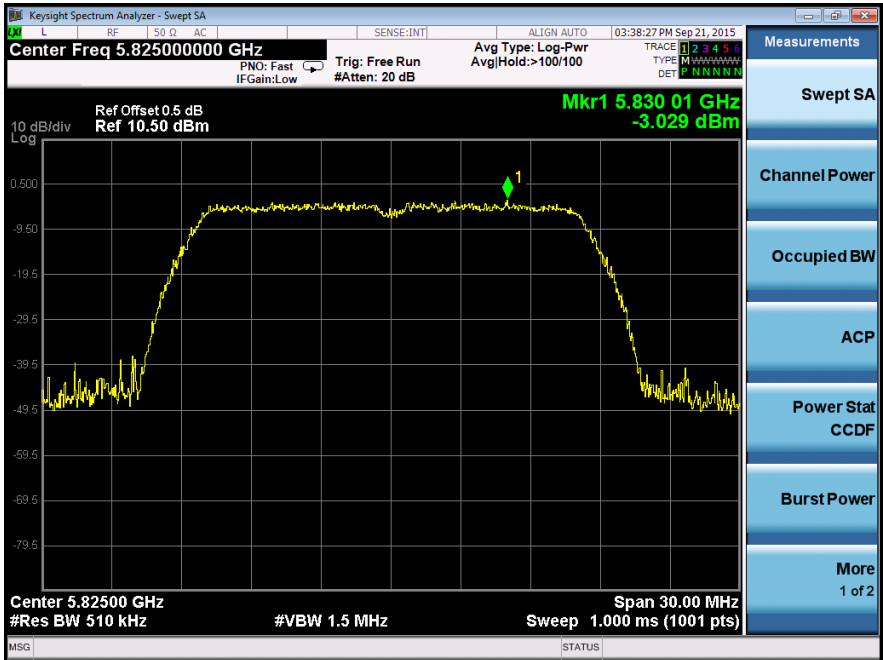
802.11n(HT40) band I Low channel



802.11a band IV Low channel



802.11a band IV Middle channel



802.11a band IV High channel





802.11n(HT20) band IV Low channel



802.11n(HT20) band IV Middle channel



802.11n(HT20) band IV High channel



802.11n(HT40) band IV Low channel



802.11n(HT40) band IV High channel

## **14 Antenna Requirement**

According to the FCC Part 15 Paragraph 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. This product has an internal integrated antenna fulfill the requirement of this section.

## 15 RF Exposure

Remark: refer to SAR test report: WTS15S0832003E.

=====End of Report=====