



# SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.  
Ph: 886-3-327-3456 / FAX: 886-3-327-0973 / [www.sporton.com.tw](http://www.sporton.com.tw)

## FCC RADIO TEST REPORT

|                        |                                                                      |
|------------------------|----------------------------------------------------------------------|
| Applicant's company    | Motorola Solutions, Inc.                                             |
| Applicant Address      | One Motorola Plaza Holtsville, NY 11742 USA                          |
| FCC ID                 | UZ7AP7522I                                                           |
| Manufacturer's company | Wistron NeWeb Corporation                                            |
| Manufacturer Address   | 20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan, R.O.C. |

|                   |                                                      |
|-------------------|------------------------------------------------------|
| Product Name      | Oak Internal                                         |
| Brand Name        | MOTOROLA                                             |
| Model No.         | AP-7522I                                             |
| Test Rule Part(s) | 47 CFR FCC Part 15 Subpart E § 15.407                |
| Test Freq. Range  | 5250 ~ 5350MHz / 5470 ~ 5725MHz                      |
| Received Date     | Apr. 15, 2014                                        |
| Final Test Date   | Jul. 25, 2014                                        |
| Submission Type   | Class II Change                                      |
| Operating Mode    | Master and Client (without radar detection function) |

### Statement

**Test result included is for the IEEE 802.11n and IEEE 802.11a/ac of the product.**

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2009, 47 CFR FCC Part 15 Subpart E, KDB789033 D02 v01, KDB662911 D01 v02r01, KDB644545 D03 v01.**

The test equipment used to perform the test is calibrated and traceable to NML/ROC.



## Table of Contents

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| <b>1. CERTIFICATE OF COMPLIANCE .....</b>                       | <b>1</b>       |
| <b>2. SUMMARY OF THE TEST RESULT .....</b>                      | <b>2</b>       |
| <b>3. GENERAL INFORMATION .....</b>                             | <b>3</b>       |
| 3.1. Product Details.....                                       | 3              |
| 3.2. Accessories.....                                           | 7              |
| 3.3. Table for Filed Antenna.....                               | 8              |
| 3.4. Table for Carrier Frequencies .....                        | 10             |
| 3.5. Table for Test Modes .....                                 | 11             |
| 3.6. Table for Testing Locations.....                           | 15             |
| 3.7. Table for Class II Change .....                            | 15             |
| 3.8. Table for Supporting Units .....                           | 15             |
| 3.9. Table for Parameters of Test Software Setting .....        | 16             |
| 3.10. EUT Operation during Test .....                           | 20             |
| 3.11. Duty Cycle .....                                          | 21             |
| 3.12. Test Configurations .....                                 | 24             |
| <b>4. TEST RESULT .....</b>                                     | <b>27</b>      |
| 4.1. AC Power Line Conducted Emissions Measurement.....         | 27             |
| 4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement..... | 31             |
| 4.3. Maximum Conducted Output Power Measurement.....            | 52             |
| 4.4. Power Spectral Density Measurement .....                   | 63             |
| 4.5. Radiated Emissions Measurement .....                       | 82             |
| 4.6. Band Edge Emissions Measurement .....                      | 123            |
| 4.7. Frequency Stability Measurement .....                      | 157            |
| 4.8. Antenna Requirements .....                                 | 159            |
| <b>5. LIST OF MEASURING EQUIPMENTS .....</b>                    | <b>160</b>     |
| <b>6. MEASUREMENT UNCERTAINTY.....</b>                          | <b>162</b>     |
| <b>APPENDIX A. TEST PHOTOS .....</b>                            | <b>A1 ~ A5</b> |
| <b>APPENDIX B. RADIATED EMISSION CO-LOCATION REPORT.....</b>    | <b>B1 ~ B3</b> |

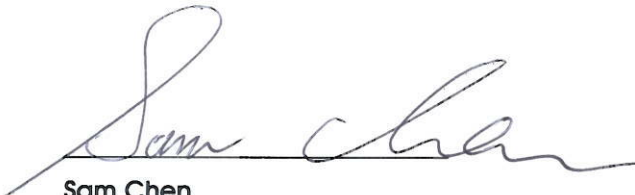
## History of This Test Report

| REPORT NO.  | VERSION | DESCRIPTION             | ISSUED DATE   |
|-------------|---------|-------------------------|---------------|
| FR441804-07 | Rev. 01 | Initial issue of report | Nov. 26, 2014 |
|             |         |                         |               |
|             |         |                         |               |
|             |         |                         |               |
|             |         |                         |               |
|             |         |                         |               |
|             |         |                         |               |
|             |         |                         |               |
|             |         |                         |               |
|             |         |                         |               |
|             |         |                         |               |
|             |         |                         |               |
|             |         |                         |               |
|             |         |                         |               |
|             |         |                         |               |

## 1. CERTIFICATE OF COMPLIANCE

Product Name : Oak Internal  
Brand Name : MOTOROLA  
Model No. : AP-7522I  
Applicant : Motorola Solutions, Inc.  
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Apr. 15, 2014 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.



Sam Chen

SPORTON INTERNATIONAL INC.

## 2. SUMMARY OF THE TEST RESULT

| Applied Standard: 47 CFR FCC Part 15 Subpart E |              |                                                    |          |             |
|------------------------------------------------|--------------|----------------------------------------------------|----------|-------------|
| Part                                           | Rule Section | Description of Test                                | Result   | Under Limit |
| 4.1                                            | 15.207       | AC Power Line Conducted Emissions                  | Complies | 6.90 dB     |
| 4.2                                            | 15.407(a)    | 26dB Spectrum Bandwidth and 99% Occupied Bandwidth | Complies | -           |
| 4.3                                            | 15.407(a)    | Maximum Conducted Output Power                     | Complies | 0.04 dB     |
| 4.4                                            | 15.407(a)    | Power Spectral Density                             | Complies | 0.21 dB     |
| 4.5                                            | 15.407(b)    | Radiated Emissions                                 | Complies | 3.83 dB     |
| 4.6                                            | 15.407(b)    | Band Edge Emissions                                | Complies | 1.02 dB     |
| 4.7                                            | 15.407(g)    | Frequency Stability                                | Complies | -           |
| 4.8                                            | 15.203       | Antenna Requirements                               | Complies | -           |

### 3. GENERAL INFORMATION

#### 3.1. Product Details

##### IEEE 802.11n/ac

| Items                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Type             | WLAN (1TX,2TX/1RX,2RX)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Radio Type               | Intentional Transceiver                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Power Type               | From power adapter or PoE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Modulation               | see the below table for IEEE 802.11n/ac                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Data Modulation          | For 802.11n: OFDM (BPSK / QPSK / 16QAM / 64QAM)<br>For 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Data Rate (Mbps)         | see the below table for IEEE 802.11n/ac                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Frequency Range          | 5250 ~ 5350MHz / 5470 ~ 5725MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Channel Number           | 16 for 20MHz bandwidth ; 8 for 40MHz bandwidth<br>4 for 80MHz bandwidth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Channel Band Width (99%) | For Non-Beamforming Mode:<br>For 1TX<br>Band 2:<br>802.11ac MCS0/Nss1 (VHT20): 18.72 MHz ;<br>802.11ac MCS0/Nss1 (VHT40): 37.12 MHz ;<br>802.11ac MCS0/Nss1 (VHT80): 75.52 MHz<br>Band 3:<br>802.11ac MCS0/Nss1 (VHT20): 18.56 MHz ;<br>802.11ac MCS0/Nss1 (VHT40): 36.48 MHz ;<br>802.11ac MCS0/Nss1 (VHT80): 76.80 MHz<br>For STBC Mode:<br>For 2TX<br>Band 2:<br>802.11ac MCS0/Nss1 (VHT20): 18.08 MHz ;<br>802.11ac MCS0/Nss1 (VHT40): 36.80 MHz ;<br>802.11ac MCS0/Nss1 (VHT80): 76.80MHz<br>Band 3:<br>802.11ac MCS0/Nss1 (VHT20): 18.08 MHz ;<br>802.11ac MCS0/Nss1 (VHT40): 36.48 MHz ;<br>802.11ac MCS0/Nss1 (VHT80): 76.80 MHz |

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum Conducted Output Power | <p>For Non-Beamforming Mode:</p> <p>For 1TX</p> <p>Band 2:</p> <p>802.11n MCS0 (HT20): 21.87 dBm ;</p> <p>802.11n MCS0 (HT40): 21.87 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT20): 21.89 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT40): 21.83 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT80): 14.03 dBm</p> <p>Band 3:</p> <p>802.11n MCS0 (HT20): 21.78 dBm ;</p> <p>802.11n MCS0 (HT40): 21.95 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT20): 21.96 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT40): 21.98 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT80): 20.56 dBm</p> <p>For 2TX</p> <p>Band 2:</p> <p>802.11n MCS0 (HT20): 21.30 dBm ;</p> <p>802.11n MCS0 (HT40): 23.79 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT20): 21.28 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT40): 23.85 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT80): 16.69 dBm</p> <p>Band 3:</p> <p>802.11n MCS0 (HT20): 21.25 dBm ;</p> <p>802.11n MCS0 (HT40): 21.95 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT20): 21.17 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT40): 21.94 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT80): 23.11 dBm</p> <p>For Beamforming Mode:</p> <p>For 2TX</p> <p>Band 2:</p> <p>802.11ac MCS0/Nss1 (VHT20): 18.57 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT40): 19.52 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT80): 12.46 dBm</p> <p>Band 3:</p> <p>802.11ac MCS0/Nss1 (VHT20): 20.51 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT40): 19.79 dBm ;</p> <p>802.11ac MCS0/Nss1 (VHT80): 19.92 dBm</p> |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     | For STBC Mode:<br>For 2TX<br>Band 2:<br>802.11n MCS0 (HT20): 23.33 dBm ;<br>802.11n MCS0 (HT40): 23.94 dBm ;<br>802.11ac MCS0/Nss1 (VHT20): 23.31 dBm ;<br>802.11ac MCS0/Nss1 (VHT40): 23.96 dBm ;<br>802.11ac MCS0/Nss1 (VHT80): 18.57 dBm<br>Band 3:<br>802.11n MCS0 (HT20): 23.33 dBm ;<br>802.11n MCS0 (HT40): 23.90 dBm ;<br>802.11ac MCS0/Nss1 (VHT20): 23.41 dBm ;<br>802.11ac MCS0/Nss1 (VHT40): 23.83 dBm ;<br>802.11ac MCS0/Nss1 (VHT80): 23.35 dBm |
| Carrier Frequencies | Please refer to section 3.4                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Antenna             | Please refer to section 3.3                                                                                                                                                                                                                                                                                                                                                                                                                                   |

### IEEE 802.11a

| Items                          | Description                                                                                                                                                                                              |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Type                   | WLAN (1TX,2TX/1RX,2RX)                                                                                                                                                                                   |
| Radio Type                     | Intentional Transceiver                                                                                                                                                                                  |
| Power Type                     | From power adapter or PoE                                                                                                                                                                                |
| Modulation                     | OFDM for IEEE 802.11a                                                                                                                                                                                    |
| Data Modulation                | OFDM (BPSK / QPSK / 16QAM / 64QAM)                                                                                                                                                                       |
| Data Rate (Mbps)               | OFDM (6/9/12/18/24/36/48/54)                                                                                                                                                                             |
| Frequency Range                | 5250 ~ 5350MHz / 5470 ~ 5725MHz                                                                                                                                                                          |
| Channel Number                 | 16                                                                                                                                                                                                       |
| Maximum Conducted Output Power | For Non-Beamforming Mode:<br>For 1TX: Band 2: 21.91 dBm ; Band 3: 21.96 dBm<br>For 2TX: Band 2: 21.32 dBm ; Band 3: 21.22 dBm<br>For Beamforming Mode:<br>For 2TX: Band 2: 18.49 dBm ; Band 3: 20.50 dBm |
| Carrier Frequencies            | Please refer to section 3.4                                                                                                                                                                              |
| Antenna                        | Please refer to section 3.3                                                                                                                                                                              |

| Items                       | Description                                                                                         |
|-----------------------------|-----------------------------------------------------------------------------------------------------|
| Communication Mode          | <input checked="" type="checkbox"/> IP Based (Load Based) <input type="checkbox"/> Frame Based      |
| TPC Function                | <input checked="" type="checkbox"/> With TPC <input type="checkbox"/> Without TPC                   |
| Weather Band (5600~5650MHz) | <input checked="" type="checkbox"/> With 5600~5650MHz <input type="checkbox"/> Without 5600~5650MHz |
| Beamforming Function        | <input checked="" type="checkbox"/> With beamforming <input type="checkbox"/> Without beamforming   |

Note: The product has beamforming function for 802.11g/n/ac in 2.4GHz and 802.11a/n/ac in 5GHz

### Antenna and Band width

| Antenna         | Single (TX) |        |        | Two (TX) |        |        |
|-----------------|-------------|--------|--------|----------|--------|--------|
| Band width Mode | 20 MHz      | 40 MHz | 80 MHz | 20 MHz   | 40 MHz | 80 MHz |
| IEEE 802.11a    | V           | X      | X      | V        | X      | X      |
| IEEE 802.11n    | V           | V      | X      | V        | V      | X      |
| IEEE 802.11ac   | V           | V      | V      | V        | V      | V      |

### IEEE 11n/ac Spec.

| Protocol         | Number of Transmit Chains (NTX) | Data Rate / MCS |
|------------------|---------------------------------|-----------------|
| 802.11n (HT20)   | 1,2                             | MCS 0-15        |
| 802.11n (HT40)   | 1,2                             | MCS 0-15        |
| 802.11ac (VHT20) | 1,2                             | MCS 0-9/Nss1-2  |
| 802.11ac (VHT40) | 1,2                             | MCS 0-9/Nss1-2  |
| 802.11ac (VHT80) | 1,2                             | MCS 0-9/Nss1-2  |

Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput).

Then EUT support HT20 and HT40.

Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160 (VHT: Very High Throughput). Then EUT supports VHT20, VHT40 in 2.4GHz and supports VHT20, VHT40, VHT80 in 5GHz.

Note 3: Modulation modes consist of below configuration:

HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac

### 3.2. Accessories

| Power   | Brand  | Model           | Rating                                                 |
|---------|--------|-----------------|--------------------------------------------------------|
| Adapter | Leader | NU60-H120500-13 | INPUT: 100-240V ~ 50/60Hz, 1.4A<br>OUTPUT: 12.0V, 5.0A |

### 3.3. Table for Filed Antenna

| Ant. | Brand    | Model Name    | Antenna Type | Connector | Antenna Gain (dBi) |      | Cable Loss (dBi) |    | True Gain (dBi) |      |
|------|----------|---------------|--------------|-----------|--------------------|------|------------------|----|-----------------|------|
|      |          |               |              |           | 2.4G               | 5G   | 2.4G             | 5G | 2.4G            | 5G   |
| 1    | MOTOROLA | BIRCH INT ANT | PIFA Antenna | U.FL      | 4.13               | 5.92 | -                | -  | 4.13            | 5.92 |
| 2    | MOTOROLA | BIRCH INT ANT | PIFA Antenna | U.FL      | 4.13               | 5.92 | -                | -  | 4.13            | 5.92 |
| 3    | MOTOROLA | BIRCH INT ANT | PIFA Antenna | U.FL      | 4.13               | 5.92 | -                | -  | 4.13            | 5.92 |
| 4    | MOTOROLA | BIRCH INT ANT | PIFA Antenna | U.FL      | 4.13               | 5.92 | -                | -  | 4.13            | 5.92 |

Note: The EUT has four antennas of the same type

#### <For 2.4GHz Band>

For IEEE 802.11b/g/n/ac mode (1TX,2TX/1RX,2RX):

The EUT can support 1TX, 2TX and 1RX, 2RX functions.

For 1TX

Both Chain 3 and Chain 4 support transmit and receive functions, but only one of them will be used at one time.

After evaluating, Chain 3 has been evaluated to be the worst case, so it's selected to record in this test report.

For 2TX

Chain 3 and Chain 4 could transmit/receive simultaneously.

#### <For 5GHz Band>

For IEEE 802.11a/n/ac mode (1TX,2TX/1RX,2RX):

The EUT can support 1TX, 2TX and 1RX, 2RX functions.

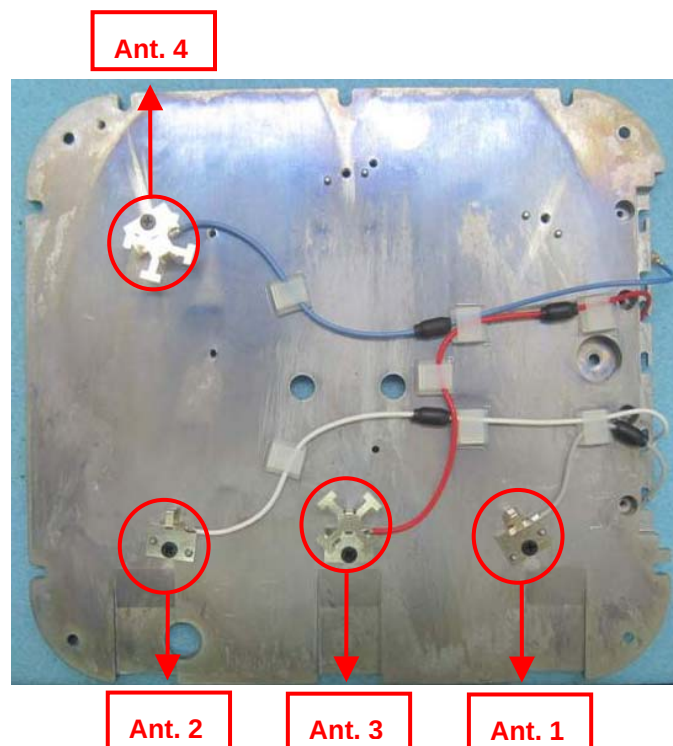
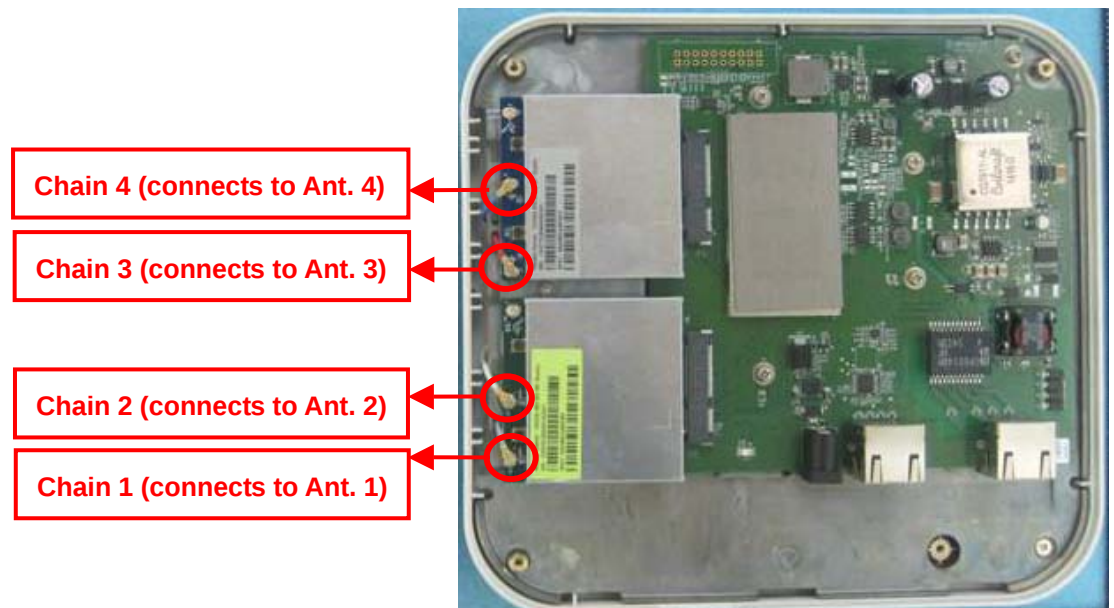
For 1TX

Both Chain 1 and Chain 2 support transmit and receive functions, but only one of them will be used at one time.

After evaluating, Chain 2 has been evaluated to be the worst case, so it's selected to record in this test report.

For 2TX

Chain 1 and Chain 2 could transmit/receive simultaneously.



### 3.4. Table for Carrier Frequencies

There are three bandwidth systems.

For 20MHz bandwidth systems, use Channel 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 144.

For 40MHz bandwidth systems, use Channel 54, 62, 102, 110, 118, 126, 134, 142.

For 80MHz bandwidth systems, use Channel 58, 106, 122, 138.

| Frequency Band          | Channel No. | Frequency | Channel No. | Frequency |
|-------------------------|-------------|-----------|-------------|-----------|
| 5250~5350 MHz<br>Band 2 | 52          | 5260 MHz  | 60          | 5300 MHz  |
|                         | 54          | 5270 MHz  | 62          | 5310 MHz  |
|                         | 56          | 5280 MHz  | 64          | 5320 MHz  |
|                         | 58          | 5290 MHz  | -           | -         |
| 5470~5725 MHz<br>Band 3 | 100         | 5500 MHz  | 124         | 5620 MHz  |
|                         | 102         | 5510 MHz  | 126         | 5630 MHz  |
|                         | 104         | 5520 MHz  | 128         | 5640 MHz  |
|                         | 106         | 5530 MHz  | 132         | 5660 MHz  |
|                         | 108         | 5540 MHz  | 134         | 5670 MHz  |
|                         | 110         | 5550 MHz  | 136         | 5680 MHz  |
|                         | 112         | 5560 MHz  | 138         | 5690 MHz  |
|                         | 116         | 5580 MHz  | 140         | 5700 MHz  |
|                         | 118         | 5590 MHz  | 142         | 5710 MHz  |
|                         | 120         | 5600 MHz  | 144         | 5720 MHz  |
|                         | 122         | 5610 MHz  | -           | -         |

### 3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

| Test Items                  | Mode                 |          | Data Rate | Channel                      | Chain    |
|-----------------------------|----------------------|----------|-----------|------------------------------|----------|
| AC Power Conducted Emission | Normal Link          |          | -         | -                            | -        |
| Max. Conducted Output Power | Non-beamforming Mode |          |           |                              |          |
|                             | 11n HT20             | Band 2-3 | MCS0      | 52/60/64/100/<br>116/140/144 | 2<br>1+2 |
|                             | 11n HT40             | Band 2-3 | MCS0      | 54/62/102/110/<br>134/142    | 2<br>1+2 |
|                             | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 2<br>1+2 |
|                             | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 2<br>1+2 |
|                             | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 2<br>1+2 |
|                             | 11a/BPSK             | Band 2-3 | 6Mbps     | 52/60/64/100/<br>116/140/144 | 2<br>1+2 |
|                             | beamforming Mode     |          |           |                              |          |
|                             | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 1+2      |
|                             | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 1+2      |
|                             | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 1+2      |
|                             | 11a/BPSK             | Band 2-3 | 6Mbps     | 52/60/64/100/<br>116/140/144 | 1+2      |
|                             | STBC Mode            |          |           |                              |          |
|                             | 11n HT20             | Band 2-3 | MCS0      | 52/60/64/100/<br>116/140/144 | 1+2      |
|                             | 11n HT40             | Band 2-3 | MCS0      | 54/62/102/110/<br>134/142    | 1+2      |
|                             | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 1+2      |

|                                                                  |                      |          |           |                              |          |
|------------------------------------------------------------------|----------------------|----------|-----------|------------------------------|----------|
|                                                                  | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 1+2      |
|                                                                  | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 1+2      |
| Power Spectral Density                                           | Non-beamforming Mode |          |           |                              |          |
|                                                                  | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 2<br>1+2 |
|                                                                  | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 2<br>1+2 |
|                                                                  | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 2<br>1+2 |
|                                                                  | beamforming Mode     |          |           |                              |          |
|                                                                  | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 1+2      |
|                                                                  | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 1+2      |
|                                                                  | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 1+2      |
|                                                                  | STBC Mode            |          |           |                              |          |
|                                                                  | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 1+2      |
|                                                                  | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 1+2      |
|                                                                  | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 1+2      |
| 26dB Spectrum Bandwidth<br>99% Occupied Bandwidth<br>Measurement | Non-beamforming Mode |          |           |                              |          |
|                                                                  | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 2        |
|                                                                  | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 2        |
|                                                                  | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 2        |
|                                                                  | STBC Mode            |          |           |                              |          |
|                                                                  | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 1+2      |
|                                                                  | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 1+2      |
|                                                                  | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 1+2      |
| Radiated Emission Below 1GHz                                     | Normal Link          |          | -         | -                            | -        |
| Radiated Emission Above 1GHz                                     | Non-beamforming Mode |          |           |                              |          |
|                                                                  | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 2        |

|                     |                      |          |           |                              |          |
|---------------------|----------------------|----------|-----------|------------------------------|----------|
|                     | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 2        |
|                     | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 2        |
|                     | STBC Mode            |          |           |                              |          |
|                     | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 1+2      |
|                     | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 1+2      |
|                     | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 1+2      |
| Band Edge Emission  | Non-beamforming Mode |          |           |                              |          |
|                     | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 2<br>1+2 |
|                     | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 2<br>1+2 |
|                     | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 2<br>1+2 |
|                     | beamforming Mode     |          |           |                              |          |
|                     | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 1+2      |
|                     | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 1+2      |
|                     | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 1+2      |
|                     | STBC Mode            |          |           |                              |          |
|                     | 11ac VHT20           | Band 2-3 | MCS0/Nss1 | 52/60/64/100/<br>116/140/144 | 1+2      |
|                     | 11ac VHT40           | Band 2-3 | MCS0/Nss1 | 54/62/102/110/<br>134/142    | 1+2      |
|                     | 11ac VHT80           | Band 2-3 | MCS0/Nss1 | 58/106/122/138               | 1+2      |
| Frequency Stability | Un-modulation        |          | -         | 60/100                       | 1+2      |

Note: VHT20/VHT40 covers HT20/HT40, due to same modulation.

The following test modes were performed for all tests:

**For Conducted Emission test:**

Test Mode 1: Normal Link - EUT + Adapter

Test Mode 2: Normal Link - EUT + PoE

Mode 1 performed as worst case, it was recorded in this report.

**For Radiated Emission below 1GHz test:**

Test Mode 1: Normal Link - EUT standing + Adapter

Test Mode 2: Normal Link - EUT laying + Adapter

Mode 2 has been evaluated to be the worst case, thus measurement will follow this same test mode for Mode 3.

Test Mode 3: Normal Link - EUT laying + PoE

Mode 2 performed as worst case, it was recorded in this report.

**For Radiated Emission above 1GHz test:**

There are two test modes, one is EUT standing, and the other is EUT laying. After evaluating, EUT standing has been evaluated to be the worst case. Consequently, measurements for Radiated Emission above 1GHz test will follow this same test mode.

Test Mode 1: CTX - EUT standing

**For Co-location MPE and Radiated Emission Co-location Test:**

The EUT could be applied with 2.4GHz WLAN function and 5GHz WLAN function; therefore Co-location Maximum Permissible Exposure (Please refer to FA441804-07) and Radiated Emission Co-location (please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN function.

### 3.6. Table for Testing Locations

| Test Site Location |                                                                            |          |              |             |              |
|--------------------|----------------------------------------------------------------------------|----------|--------------|-------------|--------------|
| Address:           | No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C. |          |              |             |              |
| TEL:               | 886-3-656-9065                                                             |          |              |             |              |
| FAX:               | 886-3-656-9085                                                             |          |              |             |              |
| Test Site No.      | Site Category                                                              | Location | FCC Reg. No. | IC File No. | VCCI Reg. No |
| 03CH01-CB          | SAC                                                                        | Hsin Chu | 262045       | IC 4086D    | -            |
| CO01-CB            | Conduction                                                                 | Hsin Chu | 262045       | IC 4086D    | -            |
| TH01-CB            | OVEN Room                                                                  | Hsin Chu | -            | -           | -            |

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC).

### 3.7. Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR441804-03AB

Below is the table for the change of the product with respect to the original one.

| Description           | Performance Checking |
|-----------------------|----------------------|
| Add Band 2 and Band 3 | All Item test        |

### 3.8. Table for Supporting Units

For Test Site No: CO01-CB

| Support Unit | Brand | Model | FCC ID |
|--------------|-------|-------|--------|
| Notebook*3   | DELL  | E6430 | DoC    |

For Test Site No: 03CH01-CB (For Below 1GHz)

| Support Unit | Brand | Model | FCC ID      |
|--------------|-------|-------|-------------|
| Notebook     | DELL  | M1330 | E2K4965AGNM |
| Notebook     | DELL  | M1340 | E2K4965AGNM |
| Notebook     | DELL  | E6430 | DoC         |

For Test Site No: 03CH01-CB (For Above 1GHz)

| Support Unit | Brand | Model | FCC ID      |
|--------------|-------|-------|-------------|
| Notebook     | DELL  | M1330 | E2K4965AGNM |

For Test Site No: TH01-CB

| Support Unit | Brand | Model | FCC ID |
|--------------|-------|-------|--------|
| Notebook     | DELL  | E6220 | DoC    |

### 3.9. Table for Parameters of Test Software Setting

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

<For Non-Beamforming Mode>

For 1TX

#### Power Parameters of IEEE 802.11n MCS0 HT20

| Test Software Version | MTOOL_2.0.1.0 |          |          |          |          |          |          |
|-----------------------|---------------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5260 MHz      | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz | 5720 MHz |
| MCS0 HT20             | 81            | 81       | 71       | 68       | 82       | 63       | 82       |

#### Power Parameters of IEEE 802.11n MCS0 HT40

| Test Software Version | MTOOL_2.0.1.0 |          |          |          |          |          |
|-----------------------|---------------|----------|----------|----------|----------|----------|
| Frequency             | 5270 MHz      | 5310 MHz | 5510 MHz | 5550 MHz | 5670 MHz | 5710 MHz |
| MCS0 HT40             | 82            | 54       | 55       | 76       | 68       | 83       |

#### Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

| Test Software Version | MTOOL_2.0.1.0 |          |          |          |          |          |          |
|-----------------------|---------------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5260 MHz      | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz | 5720 MHz |
| MCS0/Nss1 VHT20       | 81            | 81       | 71       | 68       | 82       | 63       | 82       |

#### Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

| Test Software Version | MTOOL_2.0.1.0 |          |          |          |          |          |
|-----------------------|---------------|----------|----------|----------|----------|----------|
| Frequency             | 5270 MHz      | 5310 MHz | 5510 MHz | 5550 MHz | 5670 MHz | 5710 MHz |
| MCS0/Nss1 VHT40       | 82            | 54       | 55       | 76       | 68       | 83       |

#### Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

| Test Software Version | MTOOL_2.0.1.0 |          |          |          |
|-----------------------|---------------|----------|----------|----------|
| Frequency             | 5290 MHz      | 5530 MHz | 5610 MHz | 5690 MHz |
| MCS0/Nss1 VHT80       | 51            | 54       | 75       | 80       |

#### Power Parameters of IEEE 802.11a

| Test Software Version | MTOOL_2.0.1.0 |          |          |          |          |          |          |
|-----------------------|---------------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5260 MHz      | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz | 5720 MHz |
| 802.11a               | 81            | 81       | 71       | 68       | 82       | 63       | 82       |

# For 2TX

## Power Parameters of IEEE 802.11n MCS0 HT20

| Test Software Version | DOS      |          |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5260 MHz | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz | 5720 MHz |
| MCS0 HT20             | 68       | 68       | 68       | 66       | 68       | 63       | 70       |

## Power Parameters of IEEE 802.11n MCS0 HT40

| Test Software Version | DOS      |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5270 MHz | 5310 MHz | 5510 MHz | 5550 MHz | 5670 MHz | 5710 MHz |
| MCS0 HT40             | 78       | 54       | 52       | 72       | 68       | 70       |

## Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

| Test Software Version | DOS      |          |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5260 MHz | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz | 5720 MHz |
| MCS0/Nss1 VHT20       | 68       | 68       | 68       | 66       | 68       | 63       | 70       |

## Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

| Test Software Version | DOS      |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5270 MHz | 5310 MHz | 5510 MHz | 5550 MHz | 5670 MHz | 5710 MHz |
| MCS0/Nss1 VHT40       | 78       | 54       | 52       | 72       | 68       | 70       |

## Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

| Test Software Version | DOS      |          |          |          |
|-----------------------|----------|----------|----------|----------|
| Frequency             | 5290 MHz | 5530 MHz | 5610 MHz | 5690 MHz |
| MCS0/Nss1 VHT80       | 49       | 54       | 73       | 78       |

## Power Parameters of IEEE 802.11a

| Test Software Version | DOS      |          |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5260 MHz | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz | 5720 MHz |
| 802.11a               | 68       | 68       | 68       | 66       | 68       | 63       | 70       |

<For Beamforming Mode>

For 2TX

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

| Test Software Version | DOS      |          |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5260 MHz | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz | 5720 MHz |
| MCS0/Nss1 VHT20       | 57       | 56       | 55       | 52       | 53       | 50       | 68       |

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

| Test Software Version | DOS      |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5270 MHz | 5310 MHz | 5510 MHz | 5550 MHz | 5670 MHz | 5710 MHz |
| MCS0/Nss1 VHT40       | 60       | 40       | 40       | 50       | 55       | 64       |

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

| Test Software Version | DOS      |          |          |          |
|-----------------------|----------|----------|----------|----------|
| Frequency             | 5290 MHz | 5530 MHz | 5610 MHz | 5690 MHz |
| MCS0/Nss1 VHT80       | 32       | 38       | 66       | 66       |

<For STBC Mode>

For 2TX

**Power Parameters of IEEE 802.11n MCS0 HT20**

| Test Software Version | DOS      |          |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5260 MHz | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz | 5720 MHz |
| MCS0 HT20             | 76       | 76       | 70       | 69       | 78       | 64       | 78       |

**Power Parameters of IEEE 802.11n MCS0 HT40**

| Test Software Version | DOS      |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5270 MHz | 5310 MHz | 5510 MHz | 5550 MHz | 5670 MHz | 5710 MHz |
| MCS0 HT40             | 79       | 54       | 56       | 74       | 68       | 80       |

**Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20**

| Test Software Version | DOS      |          |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5260 MHz | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz | 5720 MHz |
| MCS0/Nss1 VHT20       | 76       | 76       | 70       | 69       | 78       | 64       | 78       |

**Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40**

| Test Software Version | DOS      |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|
| Frequency             | 5270 MHz | 5310 MHz | 5510 MHz | 5550 MHz | 5670 MHz | 5710 MHz |
| MCS0/Nss1 VHT40       | 79       | 54       | 54       | 74       | 68       | 80       |

**Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80**

| Test Software Version | DOS      |          |          |          |
|-----------------------|----------|----------|----------|----------|
| Frequency             | 5290 MHz | 5530 MHz | 5610 MHz | 5690 MHz |
| MCS0/Nss1 VHT80       | 57       | 52       | 74       | 79       |

### 3.10. EUT Operation during Test

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

The measured result was added array gain  $10 \cdot \log(2) = 3.01 \text{ dBi}$  as worse case in beamforming mode.

For Radiated Mode:

The EUT was programmed to be in continuously transmitting mode.

The measured result was added array gain  $10 \cdot \log(2) = 3.01 \text{ dBi}$  as worse case in beamforming mode.

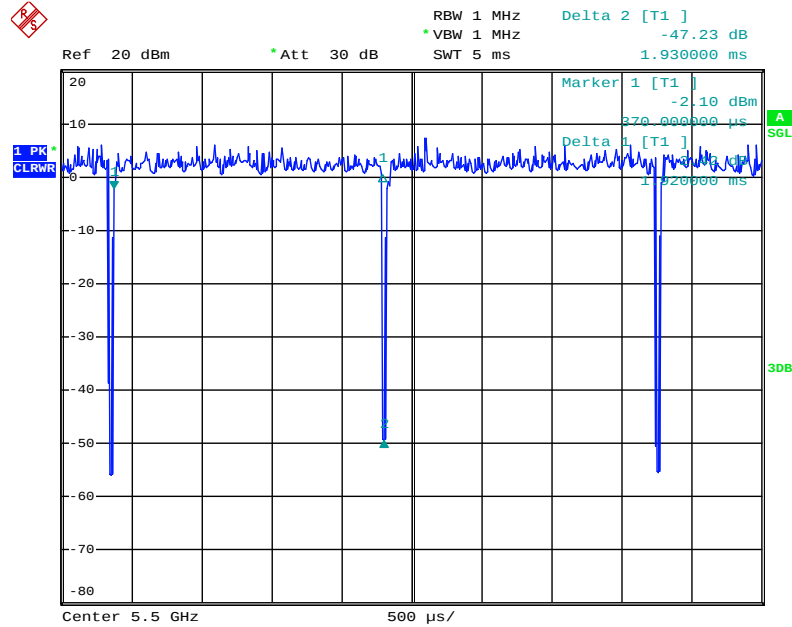
For STBC mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

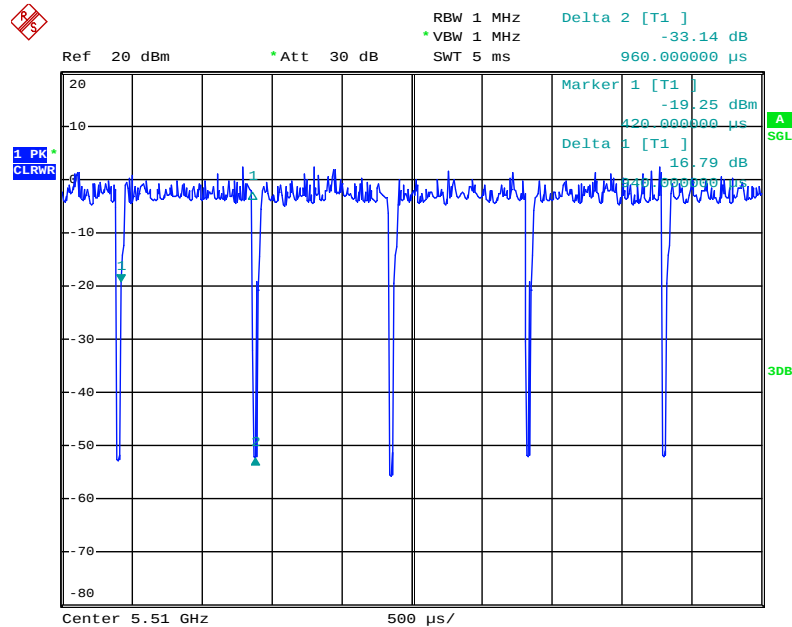
### 3.11. Duty Cycle

#### IEEE 802.11n MCS0 HT20



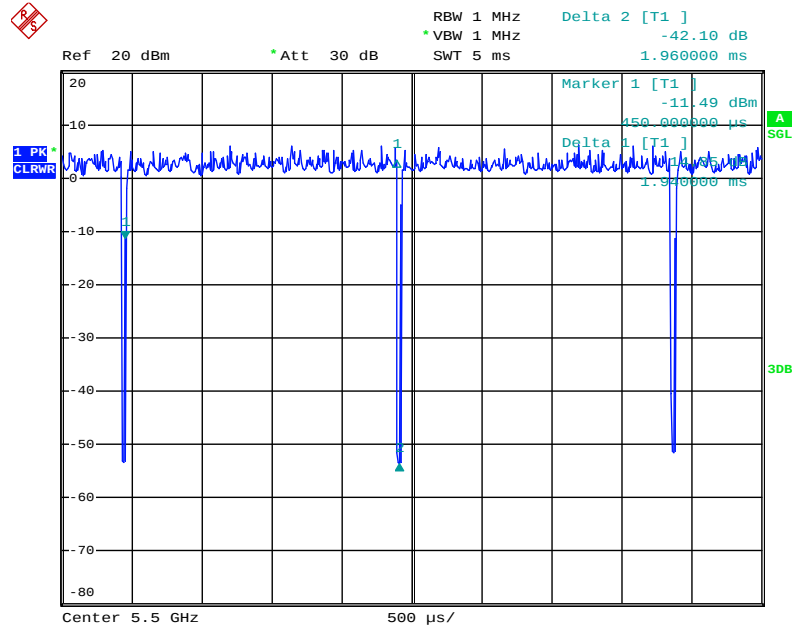
Date: 25.JUL.2014 14:41:40

#### IEEE 802.11n MCS0 HT40



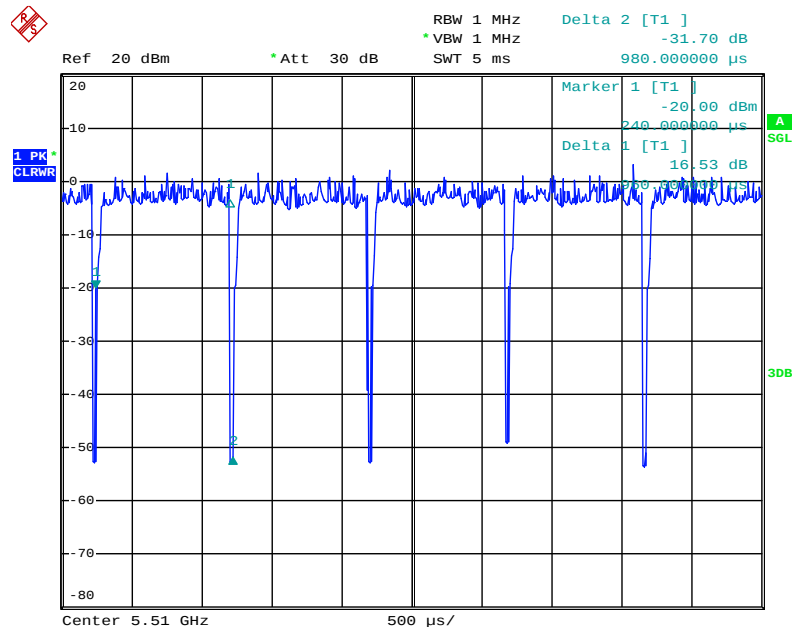
Date: 25.JUL.2014 14:50:05

# IEEE 802.11ac MCS0/Nss1 VHT20



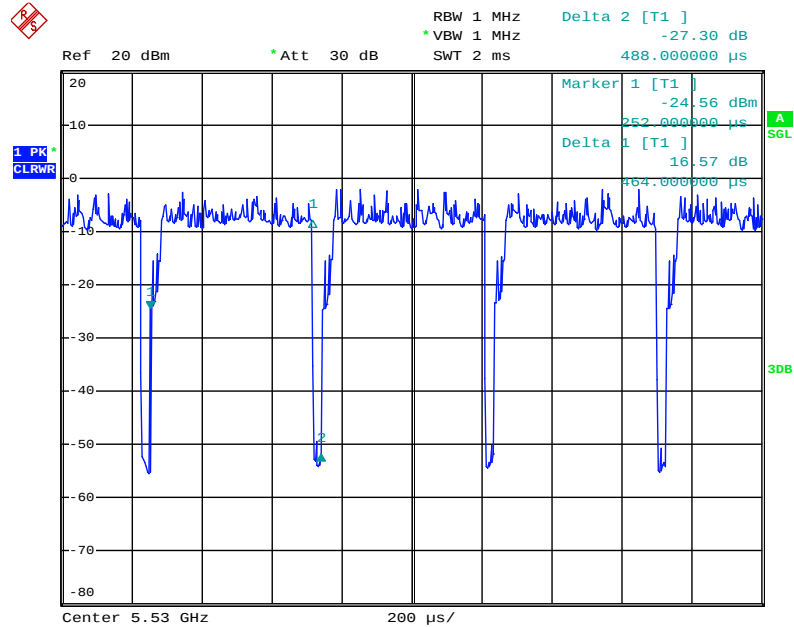
Date: 25.JUL.2014 14:44:29

# IEEE 802.11ac MCS0/Nss1 VHT40



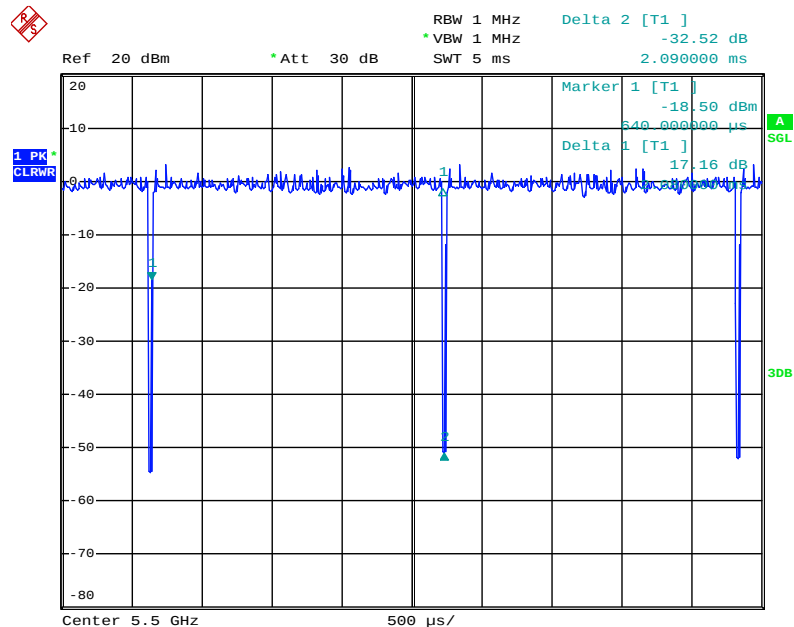
Date: 25.JUL.2014 14:45:36

# IEEE 802.11ac MCS0/Nss1 VHT80



Date: 25.JUL.2014 14:51:33

# IEEE 802.11a

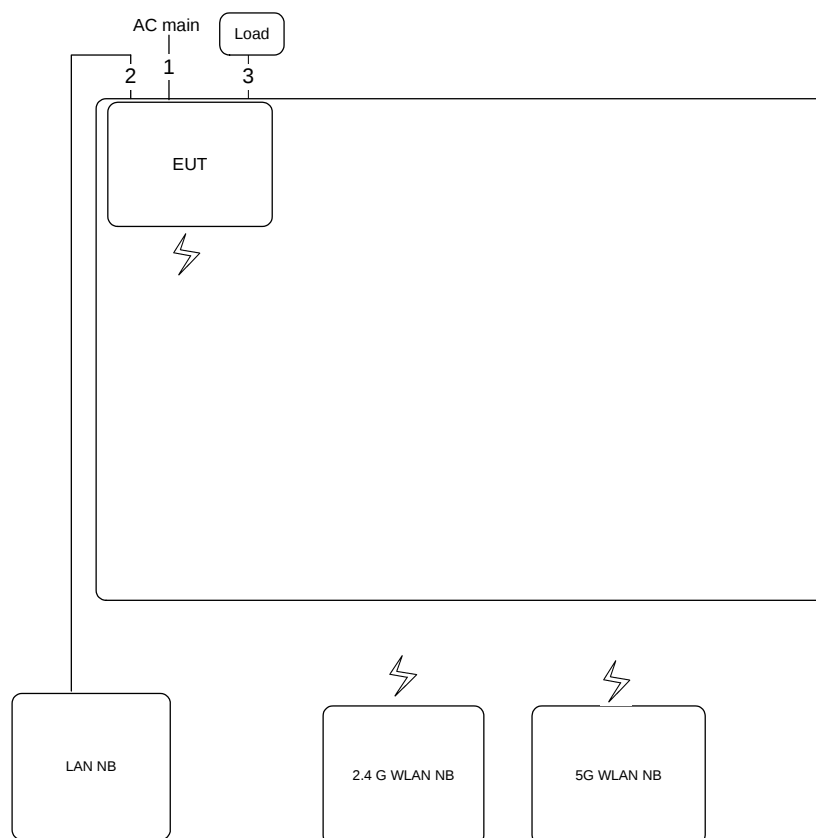


Date: 25.JUL.2014 14:38:26

## 3.12. Test Configurations

### 3.12.1. AC Power Line Conduction Emissions Test Configuration

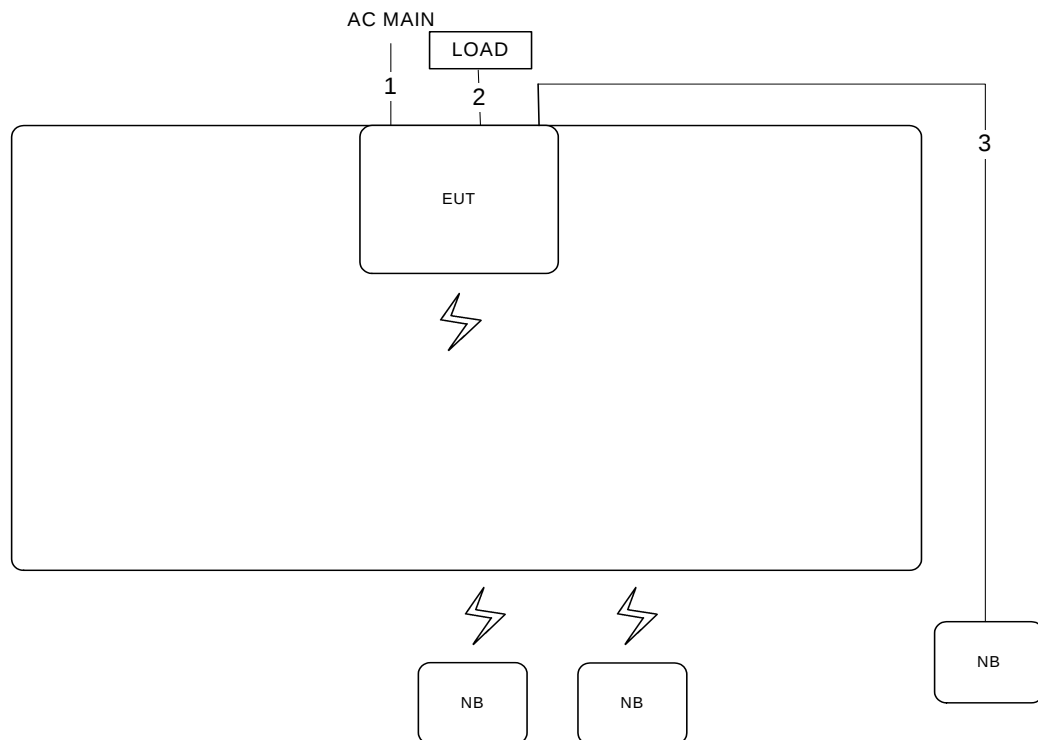
Test Mode: Mode 1



| Item | Connection     | Shield | Length(m) | Remark |
|------|----------------|--------|-----------|--------|
| 1    | AC power cable | No     | 3.3m      | -      |
| 2    | RJ-45 cable    | No     | 10m       | -      |
| 3    | Console cable  | No     | 1.5m      | Load   |

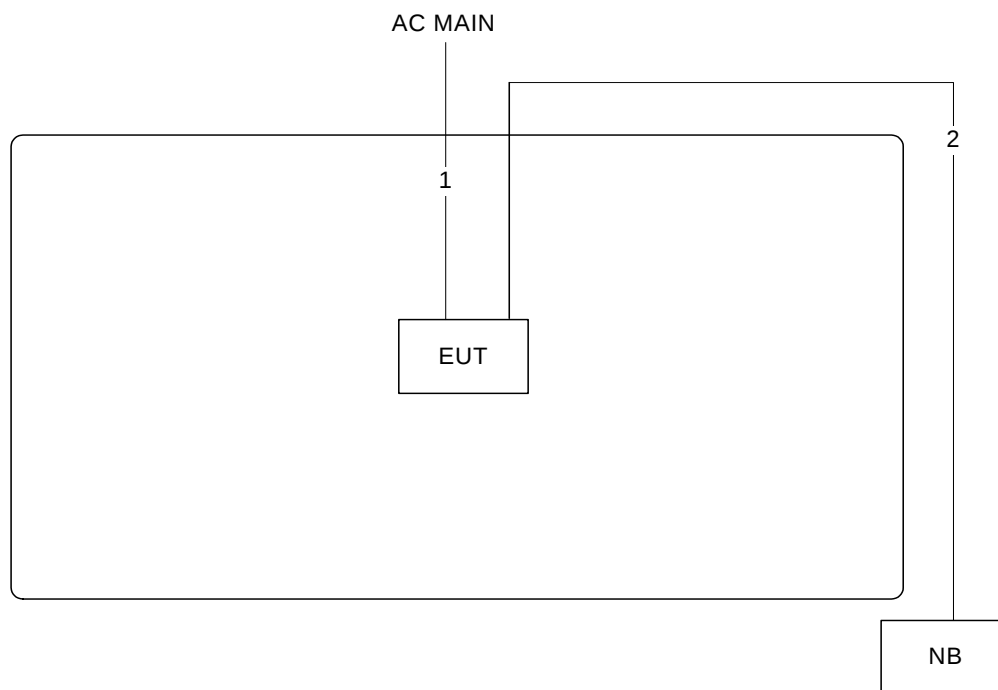
### 3.12.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz ~1GHz / Test Mode: Mode 2



| Item | Connection     | Shield | Length(m) | Remark |
|------|----------------|--------|-----------|--------|
| 1    | AC power cable | No     | 3.3m      | -      |
| 2    | Console cable  | No     | 1.5m      | Load   |
| 3    | RJ-45 cable    | No     | 10m       | -      |

Test Configuration: above 1GHz / Test Mode: Mode 1



| Item | Connection     | Shield | Length(m) |
|------|----------------|--------|-----------|
| 1    | AC power cable | No     | 3.3m      |
| 2    | RJ-45 cable    | No     | 10m       |

## 4. TEST RESULT

### 4.1. AC Power Line Conducted Emissions Measurement

#### 4.1.1. Limit

For this product that is designed to connect to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

| Frequency (MHz) | QP Limit (dBuV) | AV Limit (dBuV) |
|-----------------|-----------------|-----------------|
| 0.15~0.5        | 66~56           | 56~46           |
| 0.5~5           | 56              | 46              |
| 5~30            | 60              | 50              |

#### 4.1.2. Measuring Instruments and Setting

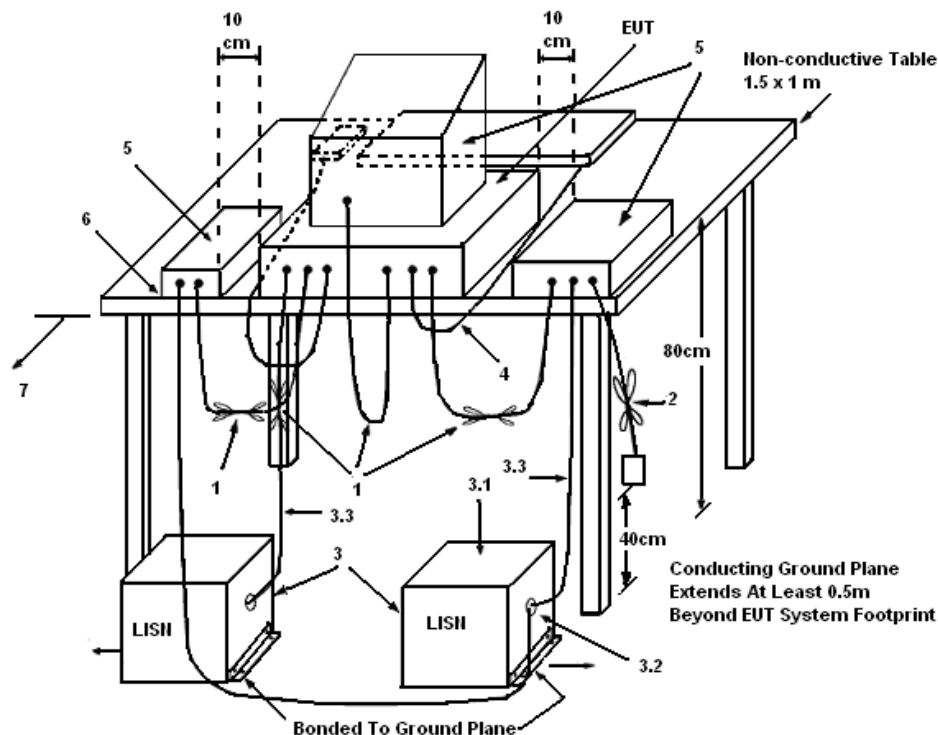
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

| Receiver Parameters | Setting  |
|---------------------|----------|
| Attenuation         | 10 dB    |
| Start Frequency     | 0.15 MHz |
| Stop Frequency      | 30 MHz   |
| IF Bandwidth        | 9 kHz    |

#### 4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

#### 4.1.4. Test Setup Layout



##### LEGEND:

- (1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50  $\Omega$ . LISN can be placed on top of, or immediately beneath, reference ground plane.
- (3.1) All other equipment powered from additional LISN(s).
- (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
- (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

#### 4.1.5. Test Deviation

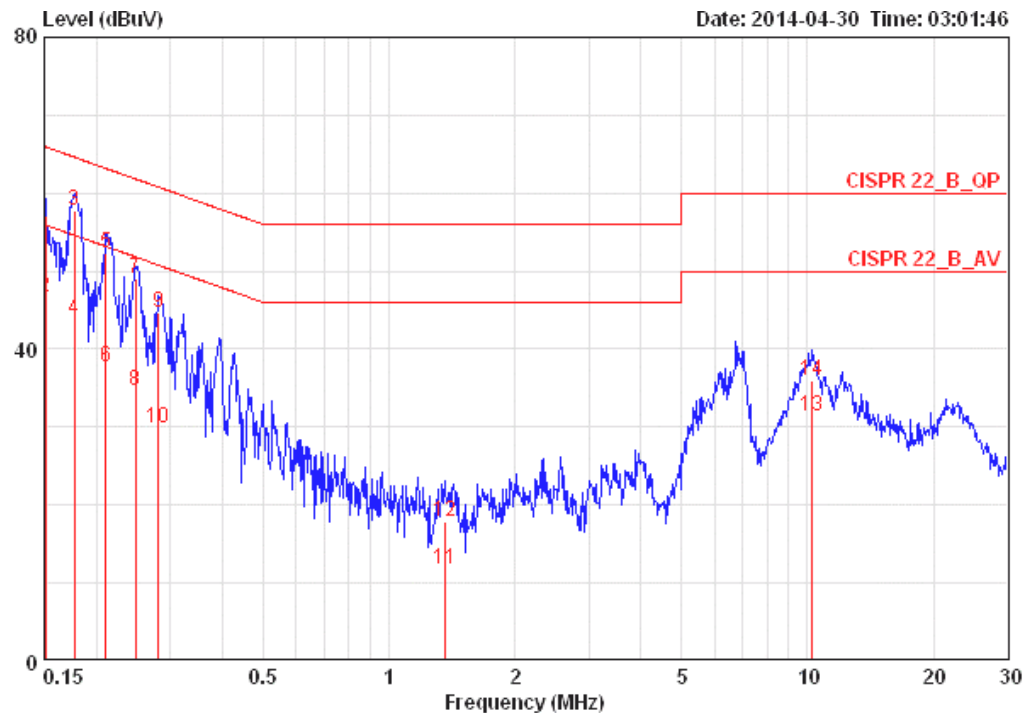
There is no deviation with the original standard.

#### 4.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

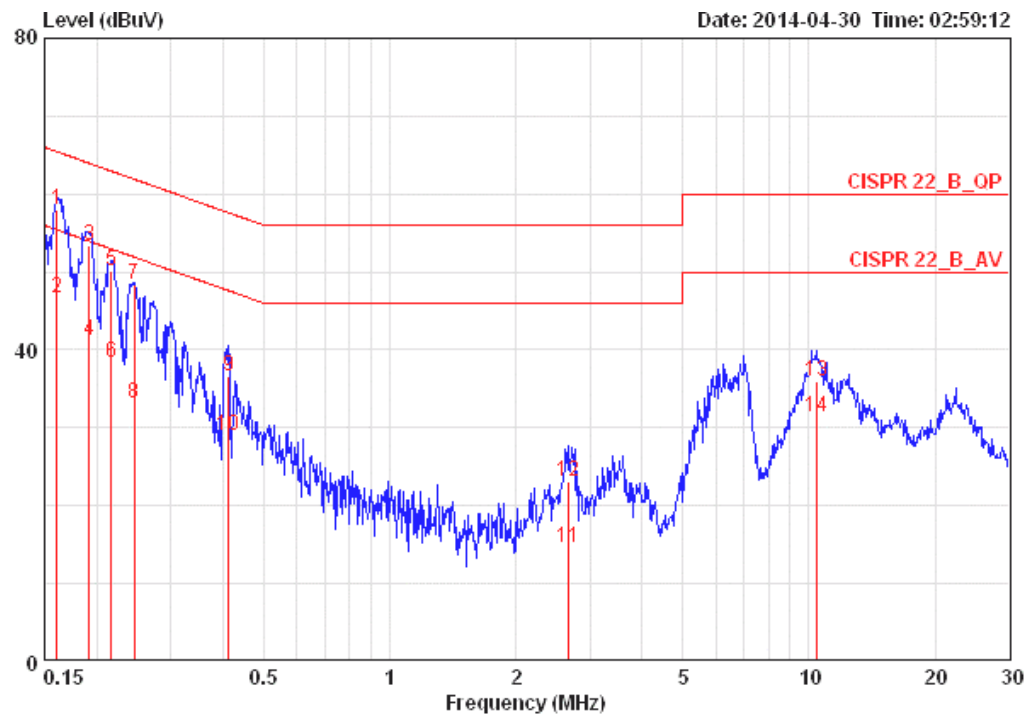
#### 4.1.7. Results of AC Power Line Conducted Emissions Measurement

|               |             |           |        |
|---------------|-------------|-----------|--------|
| Temperature   | 24°C        | Humidity  | 55%    |
| Test Engineer | Parody Lin  | Phase     | Line   |
| Configuration | Normal Link | Test Mode | Mode 1 |



|    | Freq    | Level | Over Limit | Limit Line | LISN Factor | Read Level | Cable Loss | Pol/Phase | Remark  |
|----|---------|-------|------------|------------|-------------|------------|------------|-----------|---------|
|    | MHz     | dBuV  | dB         | dBuV       | dB          | dBuV       | dB         |           |         |
| 1  | 0.15080 | 57.11 | -8.85      | 65.96      | 0.15        | 56.80      | 0.16       | LINE      | QP      |
| 2  | 0.15080 | 46.55 | -9.41      | 55.96      | 0.15        | 46.24      | 0.16       | LINE      | AVERAGE |
| 3  | 0.17678 | 57.73 | -6.90      | 64.64      | 0.15        | 57.42      | 0.16       | LINE      | AVERAGE |
| 4  | 0.17678 | 43.90 | -10.73     | 54.64      | 0.15        | 43.59      | 0.16       | LINE      | AVERAGE |
| 5  | 0.21055 | 52.39 | -10.80     | 63.18      | 0.15        | 52.07      | 0.17       | LINE      | QP      |
| 6  | 0.21055 | 37.61 | -15.58     | 53.18      | 0.15        | 37.29      | 0.17       | LINE      | AVERAGE |
| 7  | 0.24814 | 49.00 | -12.82     | 61.82      | 0.15        | 48.68      | 0.17       | LINE      | QP      |
| 8  | 0.24814 | 34.69 | -17.13     | 51.82      | 0.15        | 34.37      | 0.17       | LINE      | AVERAGE |
| 9  | 0.28178 | 44.63 | -16.13     | 60.76      | 0.15        | 44.31      | 0.17       | LINE      | QP      |
| 10 | 0.28178 | 29.88 | -20.88     | 50.76      | 0.15        | 29.56      | 0.17       | LINE      | AVERAGE |
| 11 | 1.359   | 11.66 | -34.34     | 46.00      | 0.17        | 11.27      | 0.22       | LINE      | AVERAGE |
| 12 | 1.359   | 17.82 | -38.18     | 56.00      | 0.17        | 17.43      | 0.22       | LINE      | QP      |
| 13 | 10.288  | 31.36 | -18.64     | 50.00      | 0.38        | 30.60      | 0.39       | LINE      | AVERAGE |
| 14 | 10.288  | 35.95 | -24.05     | 60.00      | 0.38        | 35.19      | 0.39       | LINE      | QP      |

|               |             |           |         |
|---------------|-------------|-----------|---------|
| Temperature   | 24°C        | Humidity  | 55%     |
| Test Engineer | Parody Lin  | Phase     | Neutral |
| Configuration | Normal Link | Test Mode | Mode 1  |



|    | Freq    | Level | Over   | Limit | LISN   | Read  | Cable | Pol/Phase | Remark  |
|----|---------|-------|--------|-------|--------|-------|-------|-----------|---------|
|    | MHz     | dBuV  | Limit  | Line  | Factor | Level | Loss  |           |         |
|    |         |       | dB     | dBuV  | dB     | dBuV  | dB    |           |         |
| 1  | 0.16070 | 57.92 | -7.51  | 65.43 | 0.07   | 57.69 | 0.16  | NEUTRAL   | QP      |
| 2  | 0.16070 | 46.56 | -8.87  | 55.43 | 0.07   | 46.33 | 0.16  | NEUTRAL   | AVERAGE |
| 3  | 0.19140 | 53.34 | -10.63 | 63.98 | 0.07   | 53.11 | 0.16  | NEUTRAL   | QP      |
| 4  | 0.19140 | 41.09 | -12.88 | 53.98 | 0.07   | 40.86 | 0.16  | NEUTRAL   | AVERAGE |
| 5  | 0.21620 | 50.08 | -12.89 | 62.96 | 0.07   | 49.84 | 0.17  | NEUTRAL   | QP      |
| 6  | 0.21620 | 38.34 | -14.63 | 52.96 | 0.07   | 38.10 | 0.17  | NEUTRAL   | AVERAGE |
| 7  | 0.24552 | 48.38 | -13.53 | 61.91 | 0.07   | 48.14 | 0.17  | NEUTRAL   | QP      |
| 8  | 0.24552 | 33.19 | -18.72 | 51.91 | 0.07   | 32.95 | 0.17  | NEUTRAL   | AVERAGE |
| 9  | 0.41266 | 36.64 | -20.95 | 57.59 | 0.07   | 36.39 | 0.18  | NEUTRAL   | QP      |
| 10 | 0.41266 | 28.97 | -18.62 | 47.59 | 0.07   | 28.72 | 0.18  | NEUTRAL   | AVERAGE |
| 11 | 2.664   | 14.66 | -31.34 | 46.00 | 0.12   | 14.27 | 0.27  | NEUTRAL   | AVERAGE |
| 12 | 2.664   | 23.08 | -32.92 | 56.00 | 0.12   | 22.69 | 0.27  | NEUTRAL   | QP      |
| 13 | 10.397  | 35.91 | -24.09 | 60.00 | 0.28   | 35.25 | 0.39  | NEUTRAL   | QP      |
| 14 | 10.397  | 31.40 | -18.60 | 50.00 | 0.28   | 30.74 | 0.39  | NEUTRAL   | AVERAGE |

Note:

Level = Read Level + LISN Factor + Cable Loss.

## 4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

### 4.2.1. Limit

No restriction limits.

### 4.2.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| 26dB Bandwidth         |                                            |
|------------------------|--------------------------------------------|
| Spectrum Parameters    | Setting                                    |
| Attenuation            | Auto                                       |
| Span Frequency         | > 26dB Bandwidth                           |
| RBW                    | Approximately 1% of the emission bandwidth |
| VBW                    | VBW > RBW                                  |
| Detector               | Peak                                       |
| Trace                  | Max Hold                                   |
| Sweep Time             | Auto                                       |
| 99% Occupied Bandwidth |                                            |
| Spectrum Parameters    | Setting                                    |
| Span                   | 1.5 times to 5.0 times the OBW             |
| RBW                    | 1 % to 5 % of the OBW                      |
| VBW                    | $\geq 3 \times \text{RBW}$                 |
| Detector               | Peak                                       |
| Trace                  | Max Hold                                   |

### 4.2.3. Test Procedures

For Radiated 26dB Bandwidth and 99% Occupied Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.  
Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

### 4.2.4. Test Setup Layout

For Radiated 26dB Bandwidth and 99% Occupied Bandwidth Measurement:

This test setup layout is the same as that shown in section 4.5.4.

### 4.2.5. Test Deviation

There is no deviation with the original standard.

### 4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

#### 4.2.7. Test Result of 26dB Bandwidth and 99% Occupied Bandwidth

<For Non-Beamforming Mode>

|               |           |                |               |
|---------------|-----------|----------------|---------------|
| Temperature   | 20°C      | Humidity       | 53%           |
| Test Engineer | Jim Huang | Configurations | IEEE 802.11ac |

For 1TX

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 52      | 5260 MHz  | 34.72                | 18.40                        |
| 60      | 5300 MHz  | 32.80                | 18.72                        |
| 64      | 5320 MHz  | 25.12                | 18.24                        |
| 100     | 5500 MHz  | 20.80                | 18.08                        |
| 116     | 5580 MHz  | 35.84                | 18.56                        |
| 140     | 5700 MHz  | 20.64                | 18.08                        |
| 144     | 5720 MHz  | 35.20                | 18.40                        |

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 54      | 5270 MHz  | 65.28                | 37.12                        |
| 62      | 5310 MHz  | 39.36                | 36.48                        |
| 102     | 5510 MHz  | 39.68                | 36.48                        |
| 110     | 5550 MHz  | 43.84                | 36.48                        |
| 134     | 5670 MHz  | 39.68                | 36.48                        |
| 142     | 5710 MHz  | 64.00                | 36.48                        |

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 58      | 5290 MHz  | 82.56                | 75.52                        |
| 106     | 5530 MHz  | 81.92                | 76.80                        |
| 122     | 5610 MHz  | 88.96                | 76.16                        |
| 138     | 5690 MHz  | 90.88                | 76.80                        |

<For STBC Mode>

|               |           |                |               |
|---------------|-----------|----------------|---------------|
| Temperature   | 20°C      | Humidity       | 53%           |
| Test Engineer | Jim Huang | Configurations | IEEE 802.11ac |

For 2TX

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 52      | 5260 MHz  | 20.80                | 18.08                        |
| 60      | 5300 MHz  | 21.12                | 18.08                        |
| 64      | 5320 MHz  | 20.64                | 18.08                        |
| 100     | 5500 MHz  | 20.48                | 18.08                        |
| 116     | 5580 MHz  | 20.48                | 18.08                        |
| 140     | 5700 MHz  | 20.48                | 18.08                        |
| 144     | 5720 MHz  | 21.60                | 18.08                        |

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 54      | 5270 MHz  | 56.00                | 36.80                        |
| 62      | 5310 MHz  | 39.04                | 36.48                        |
| 102     | 5510 MHz  | 39.04                | 36.48                        |
| 110     | 5550 MHz  | 39.04                | 36.48                        |
| 134     | 5670 MHz  | 39.04                | 36.48                        |
| 142     | 5710 MHz  | 39.04                | 36.48                        |

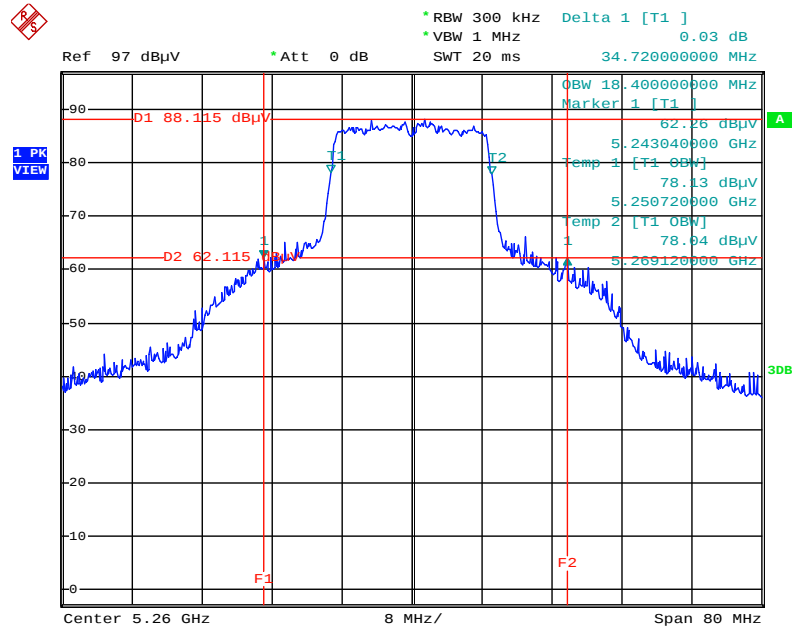
Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 58      | 5290 MHz  | 82.56                | 76.80                        |
| 106     | 5530 MHz  | 82.56                | 76.80                        |
| 122     | 5610 MHz  | 81.92                | 76.16                        |
| 138     | 5690 MHz  | 92.16                | 76.80                        |

<For Non-Beamforming Mode>

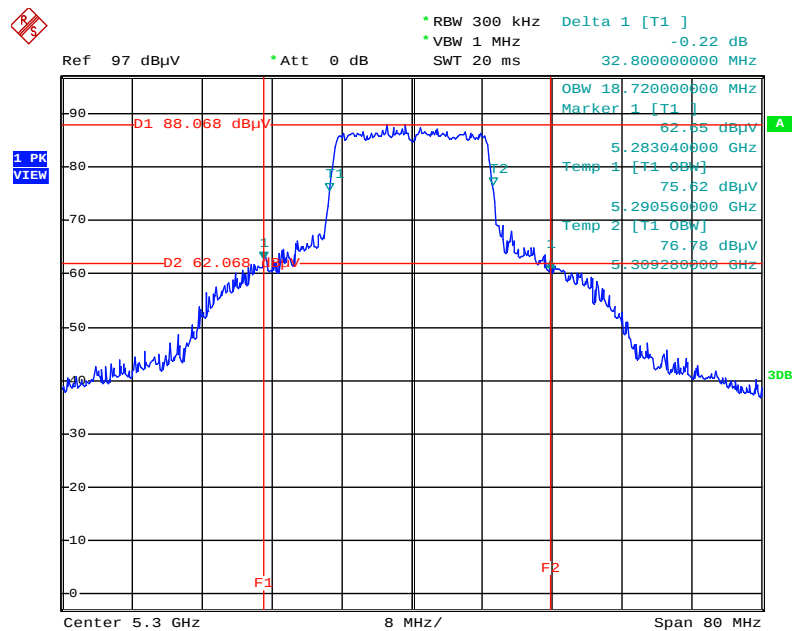
For 1TX

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5260 MHz



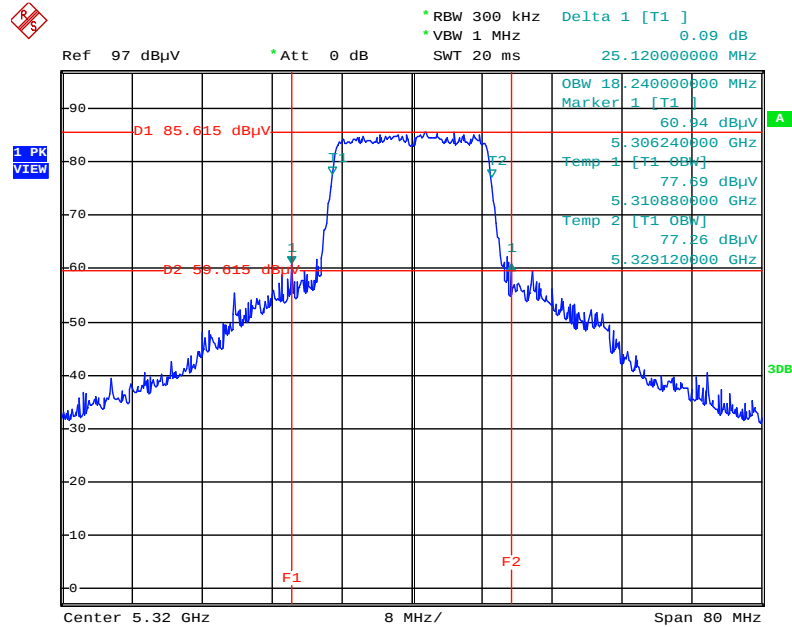
Date: 30.JUN.2014 15:01:37

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5300 MHz



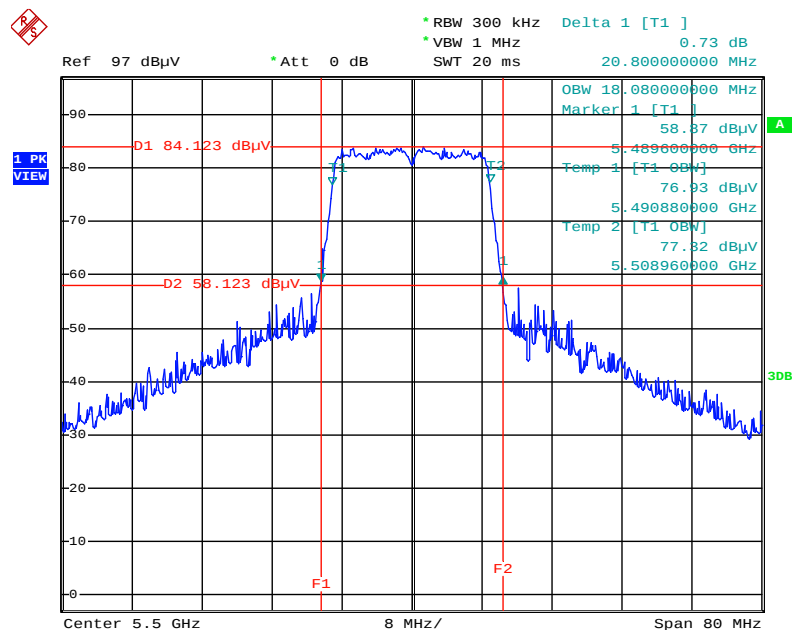
Date: 30.JUN.2014 15:02:27

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5320 MHz



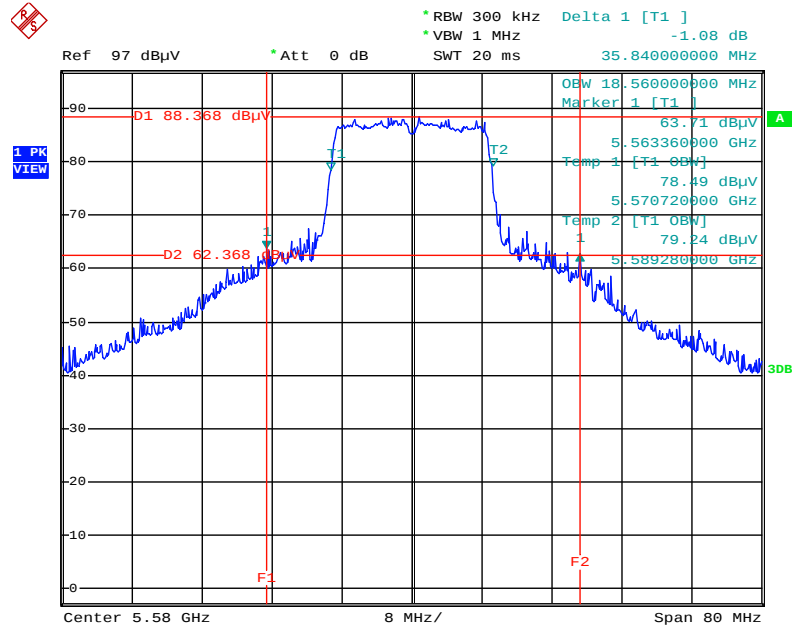
Date: 30.JUN.2014 15:03:06

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5500 MHz



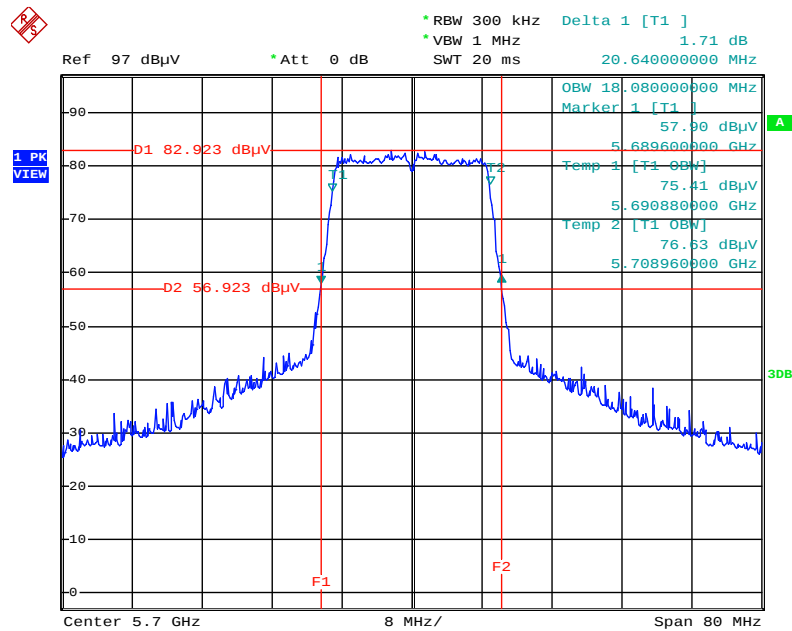
Date: 30.JUN.2014 15:03:45

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5580 MHz



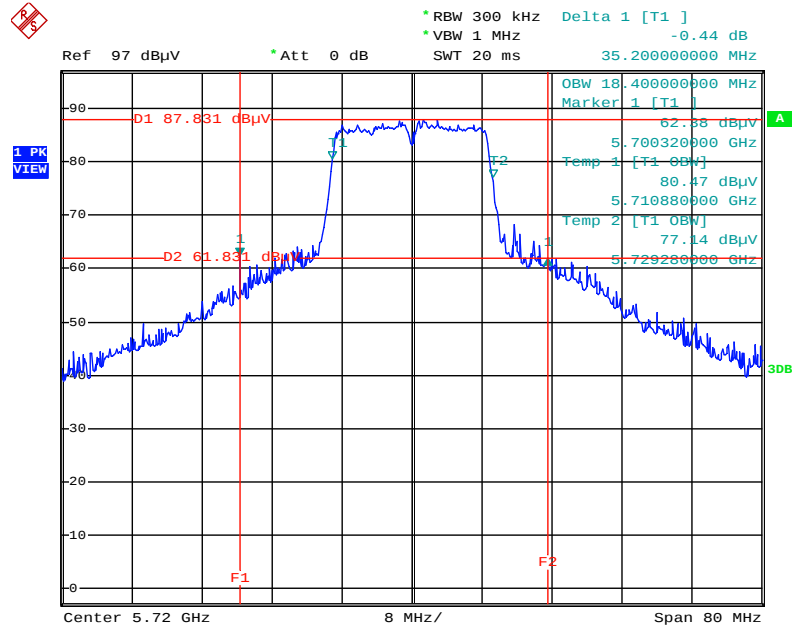
Date: 30.JUN.2014 15:04:37

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5700 MHz



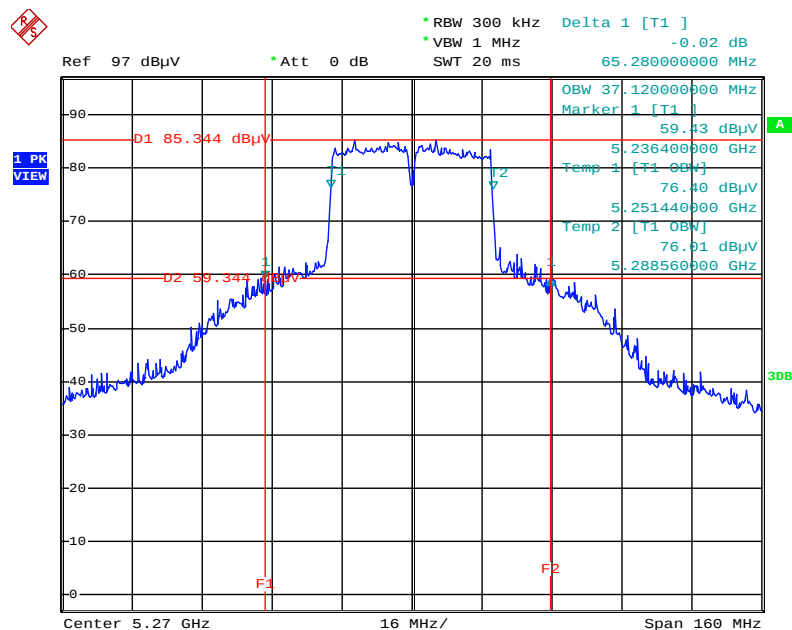
Date: 30.JUN.2014 15:05:21

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5720 MHz



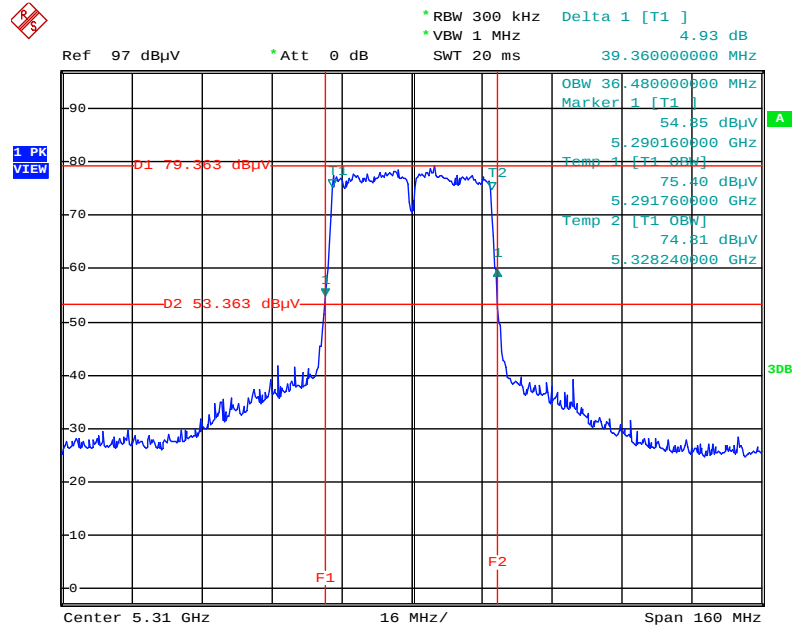
Date: 30.JUN.2014 15:05:59

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5270 MHz



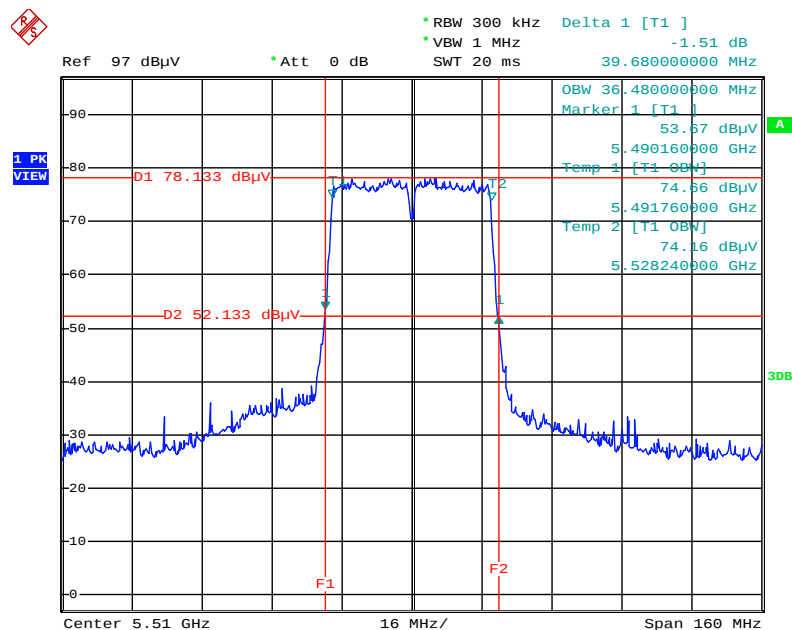
Date: 30.JUN.2014 15:06:59

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5310 MHz



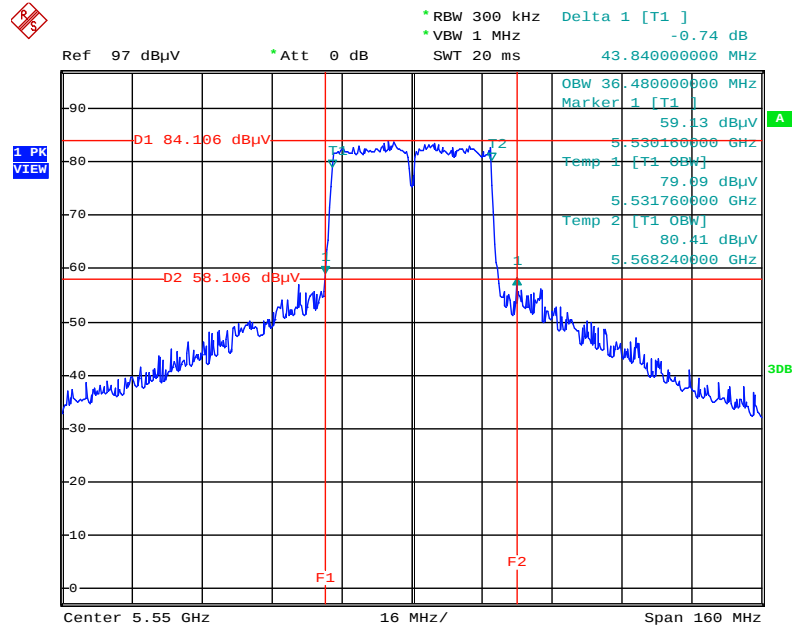
Date: 30.JUN.2014 15:07:44

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5510 MHz



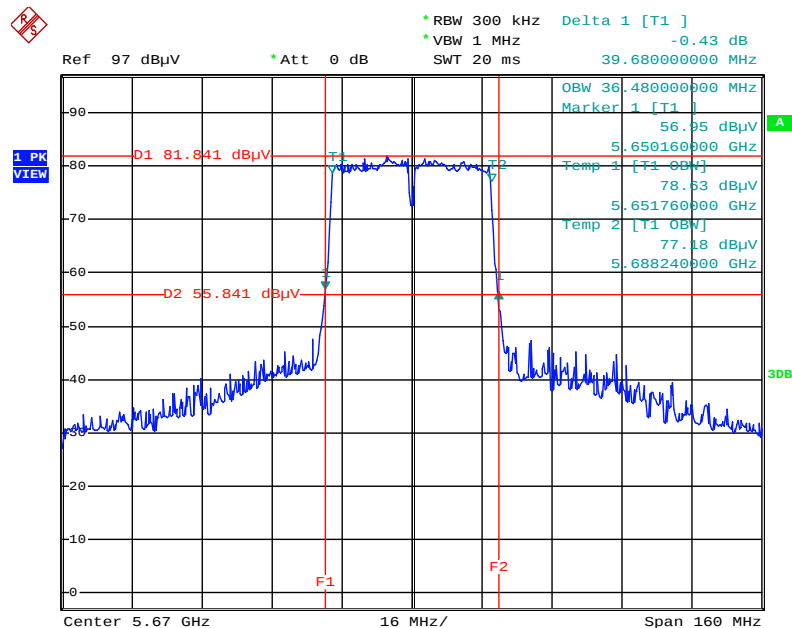
Date: 30.JUN.2014 15:08:19

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5550 MHz



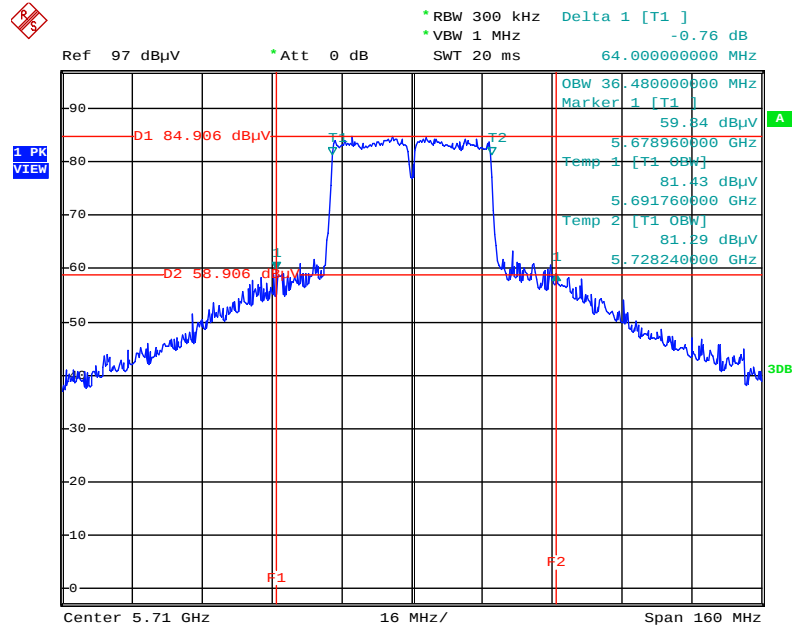
Date: 30.JUN.2014 15:08:55

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5670 MHz



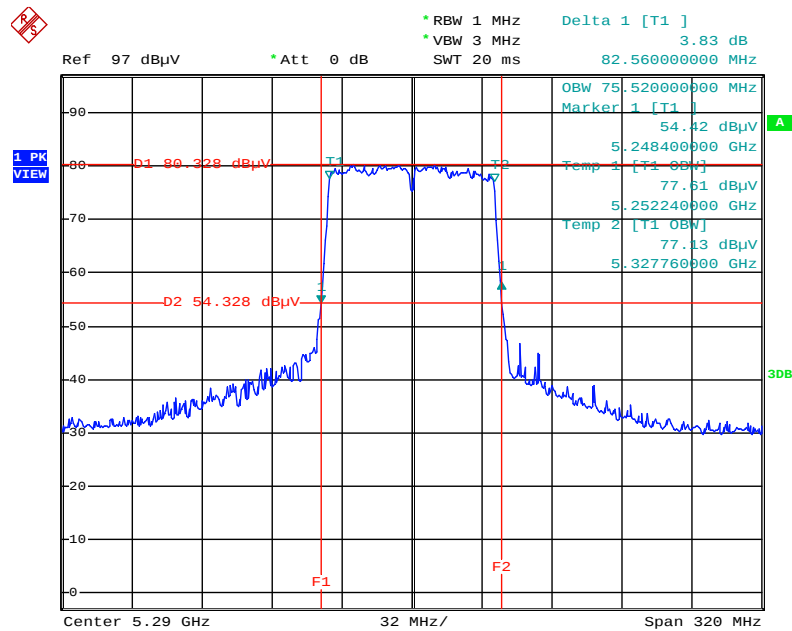
Date: 30.JUN.2014 15:09:34

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5710 MHz



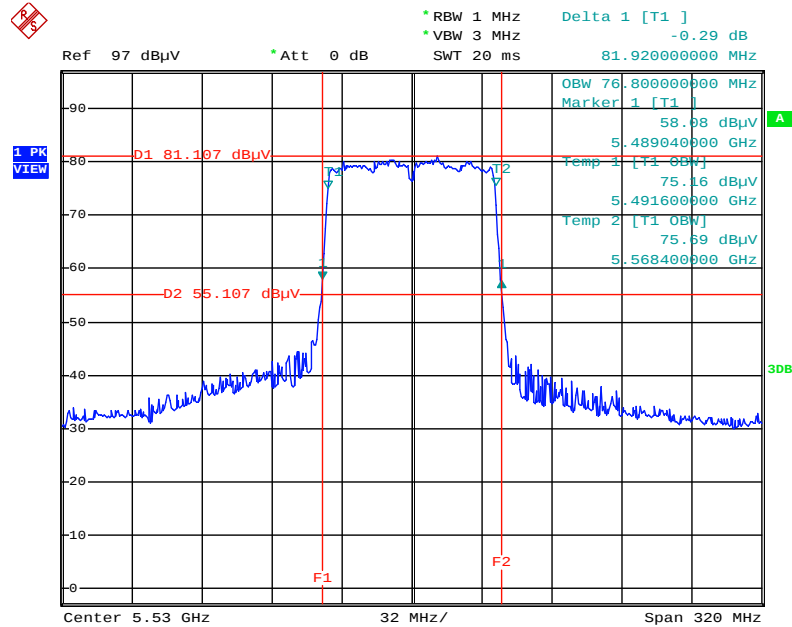
Date: 30.JUN.2014 15:10:12

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5290 MHz



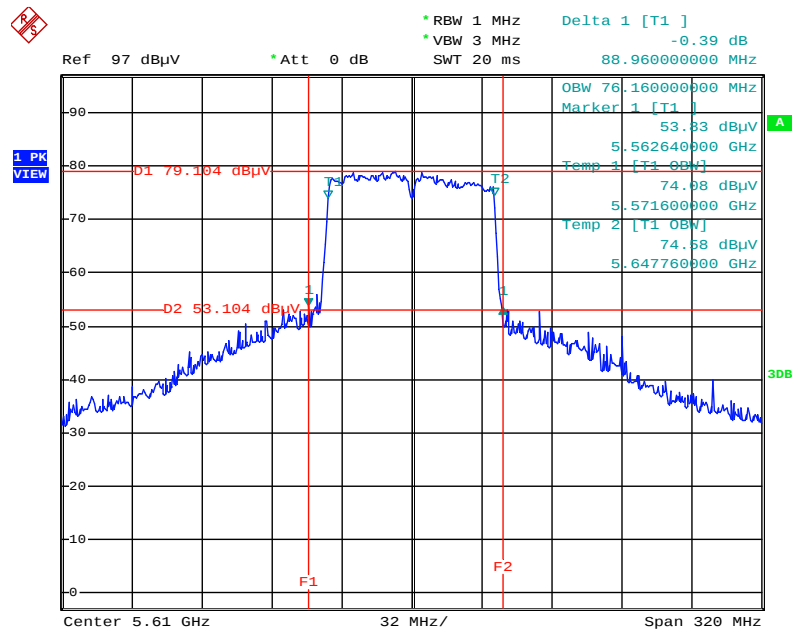
Date: 30.JUN.2014 15:11:23

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5530 MHz



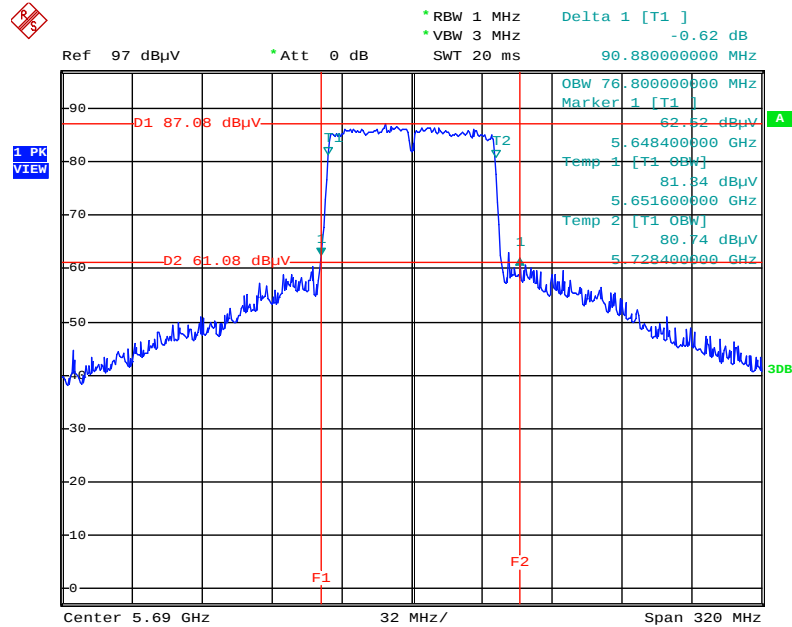
Date: 30.JUN.2014 15:11:55

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5610 MHz



Date: 8.JUL.2014 14:26:16

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5690 MHz

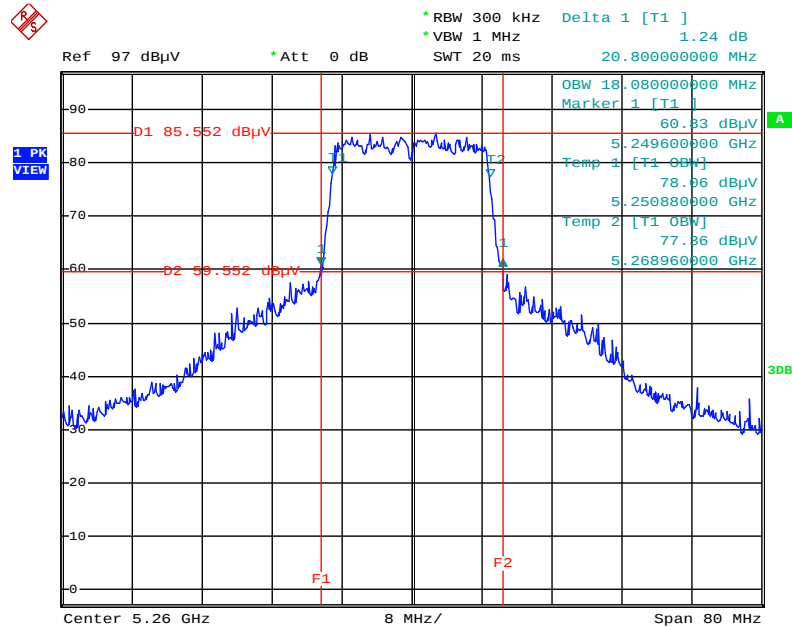


Date: 30.JUN.2014 15:12:46

<For STBC Mode>

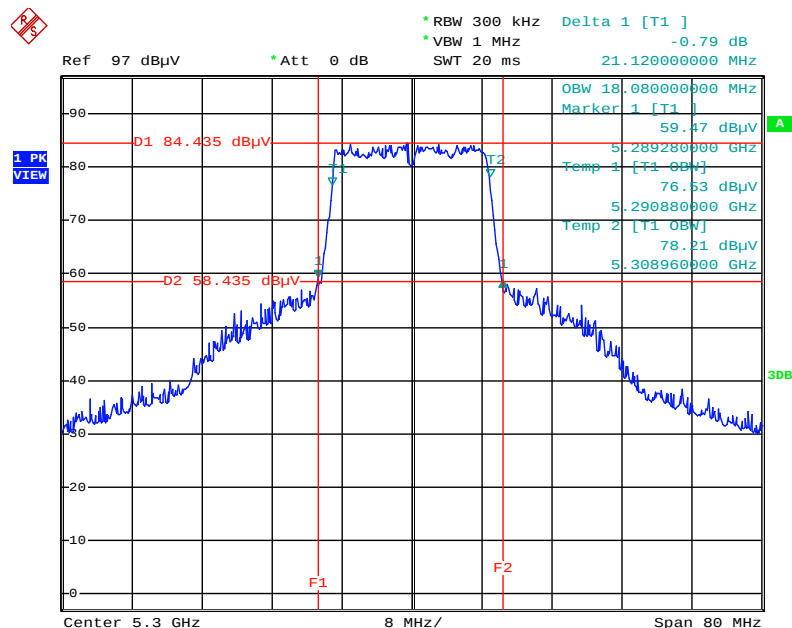
For 2TX

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 /  
Chain 1 + Chain 2 / 5260 MHz



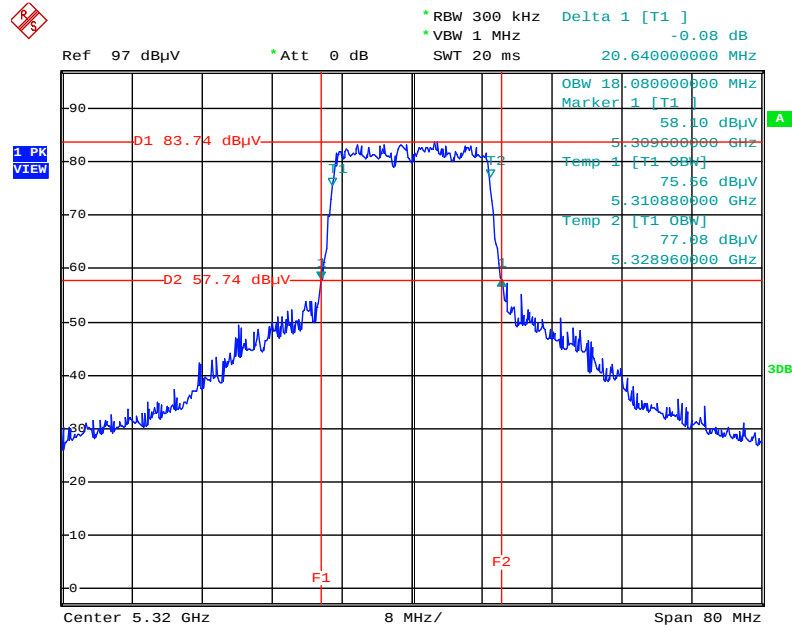
Date: 30.JUN.2014 13:55:20

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 /  
Chain 1 + Chain 2 / 5300 MHz



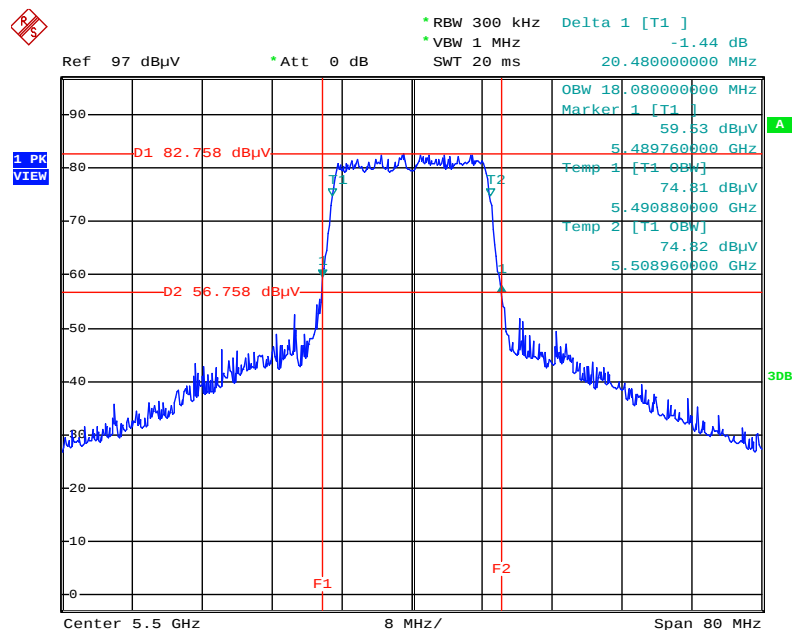
Date: 30.JUN.2014 13:56:11

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5320 MHz



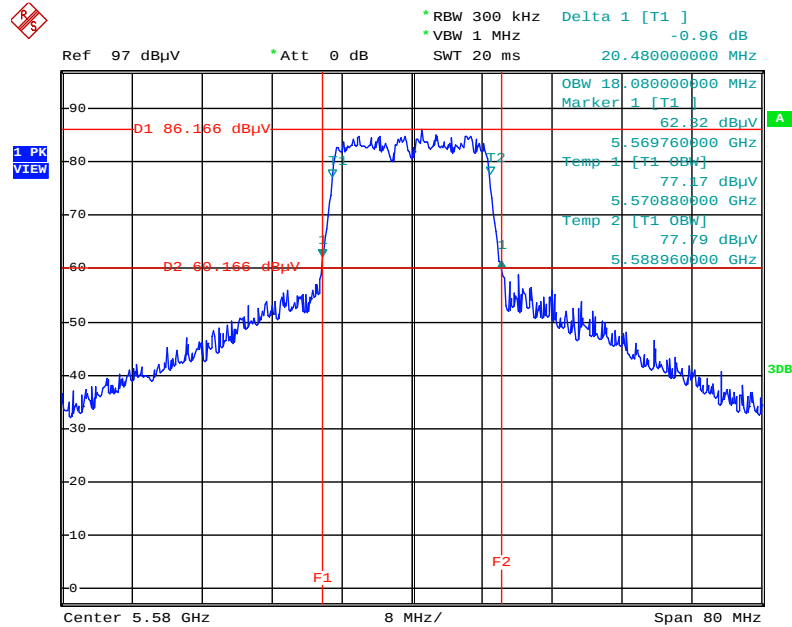
Date: 30.JUN.2014 13:57:35

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5500 MHz



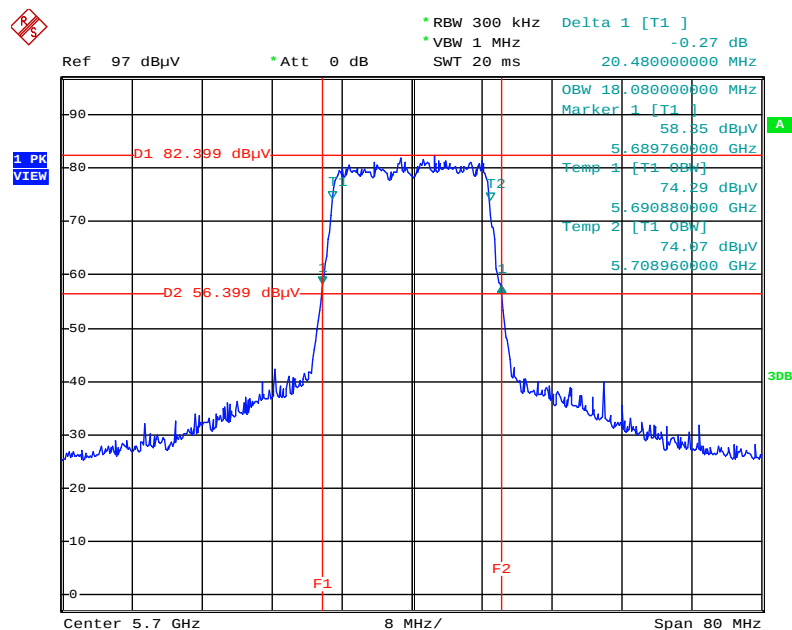
Date: 30.JUN.2014 13:58:45

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5580 MHz



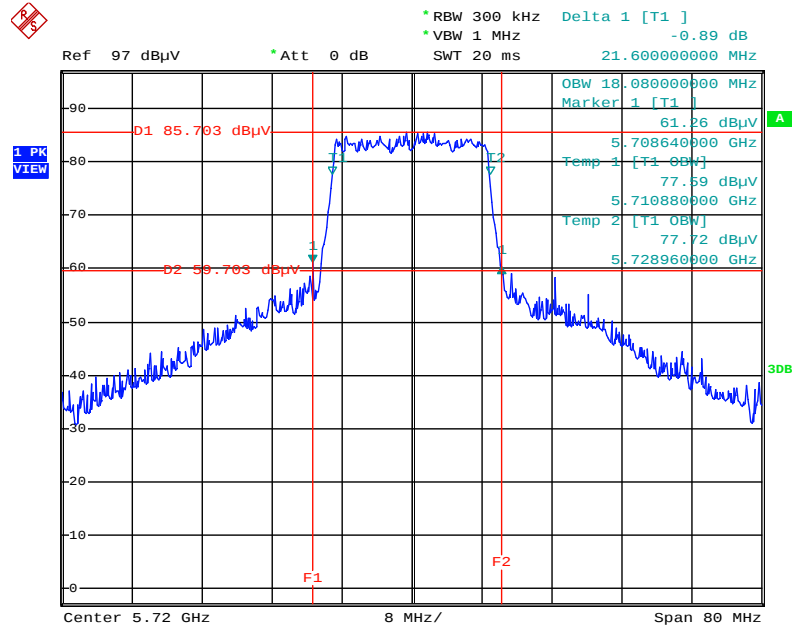
Date: 30.JUN.2014 13:59:34

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5700 MHz



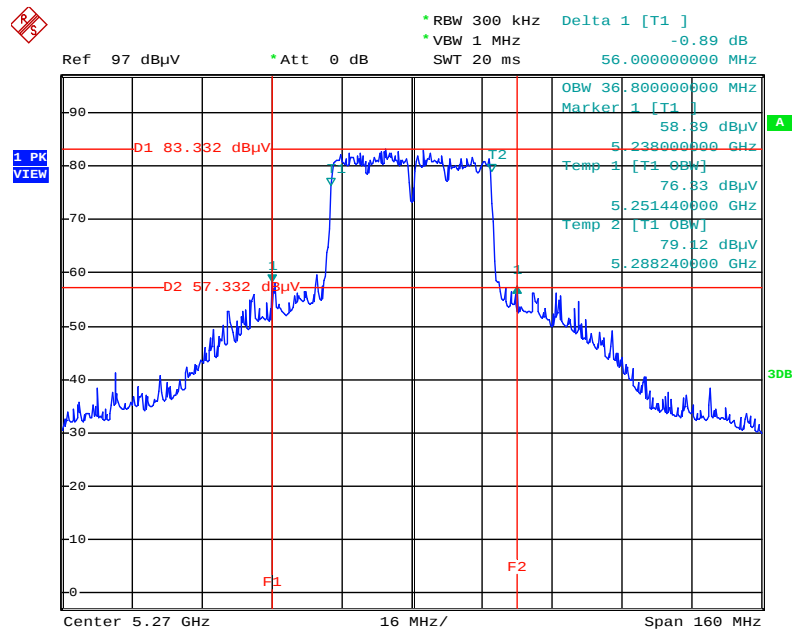
Date: 30.JUN.2014 14:00:37

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5720 MHz



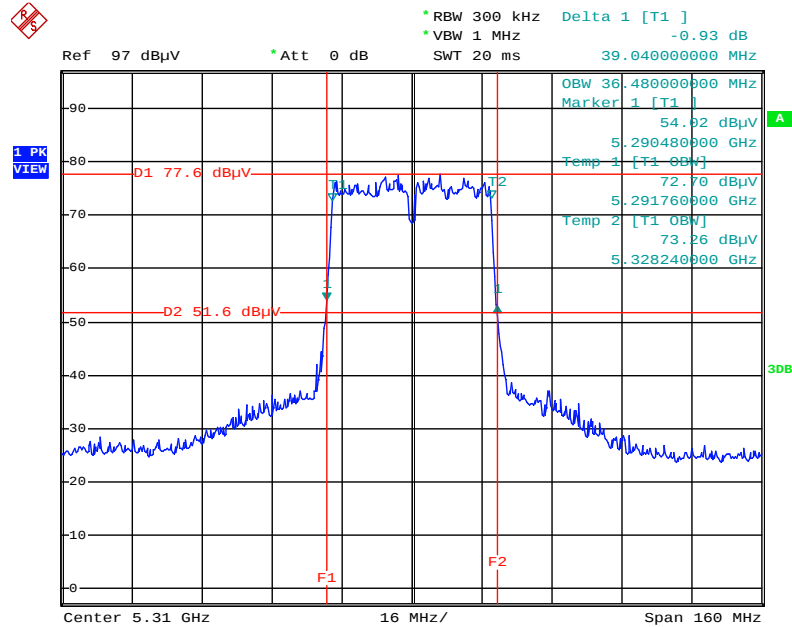
Date: 30.JUN.2014 14:01:19

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5270 MHz



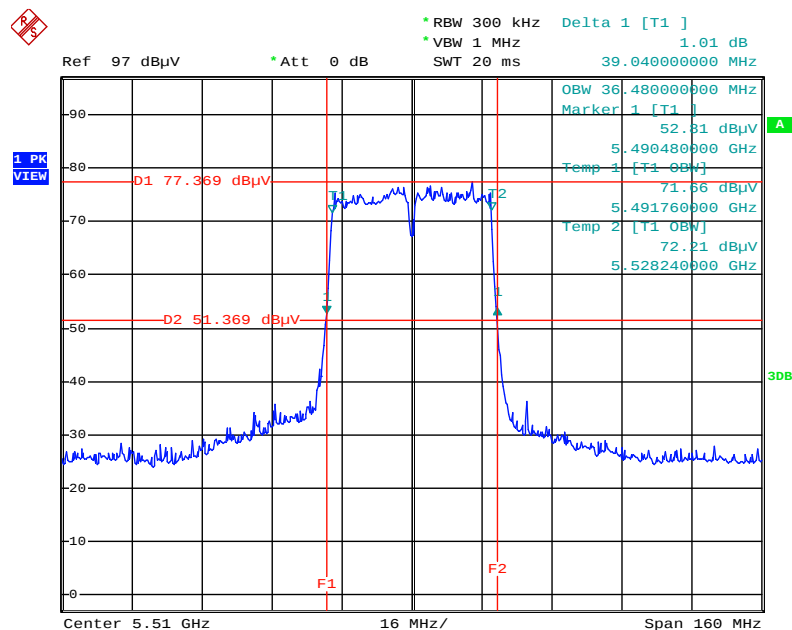
Date: 30.JUN.2014 14:05:28

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5310 MHz



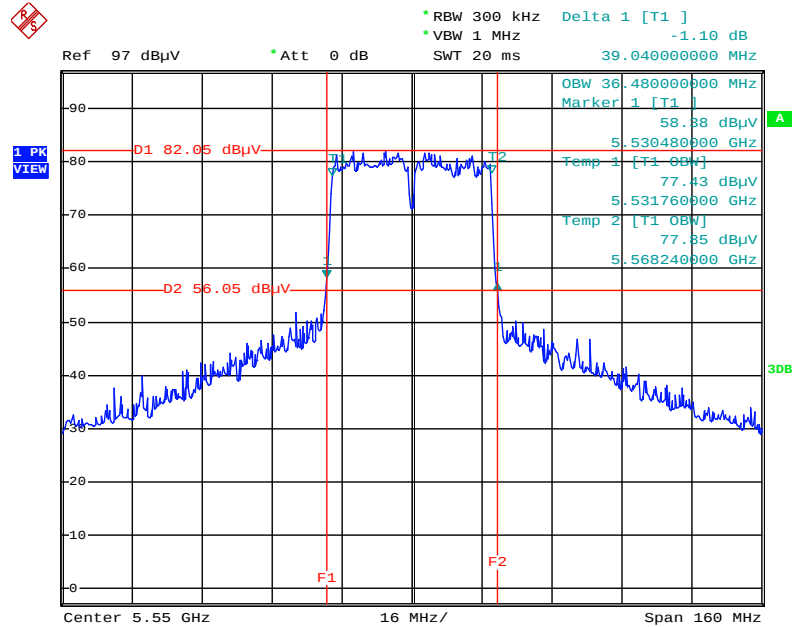
Date: 30.JUN.2014 14:06:22

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5510 MHz



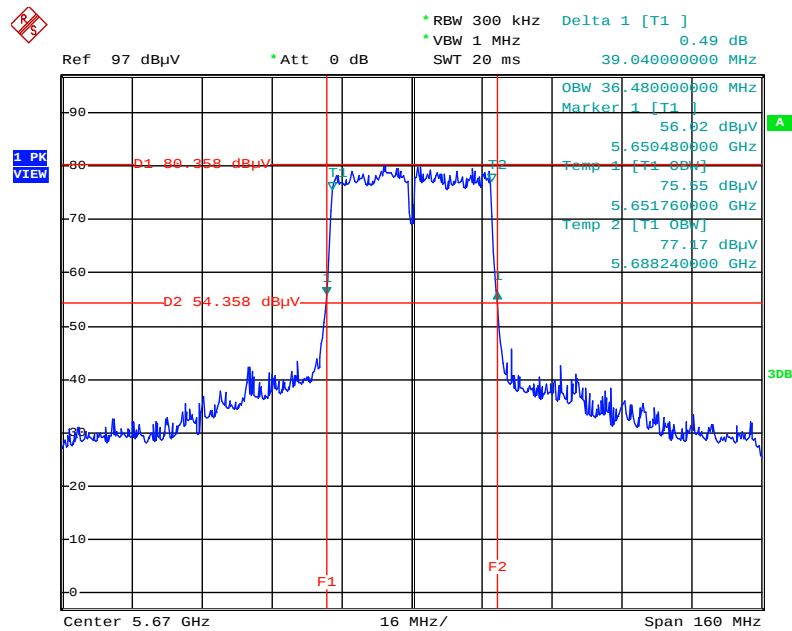
Date: 30.JUN.2014 14:07:14

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5550 MHz



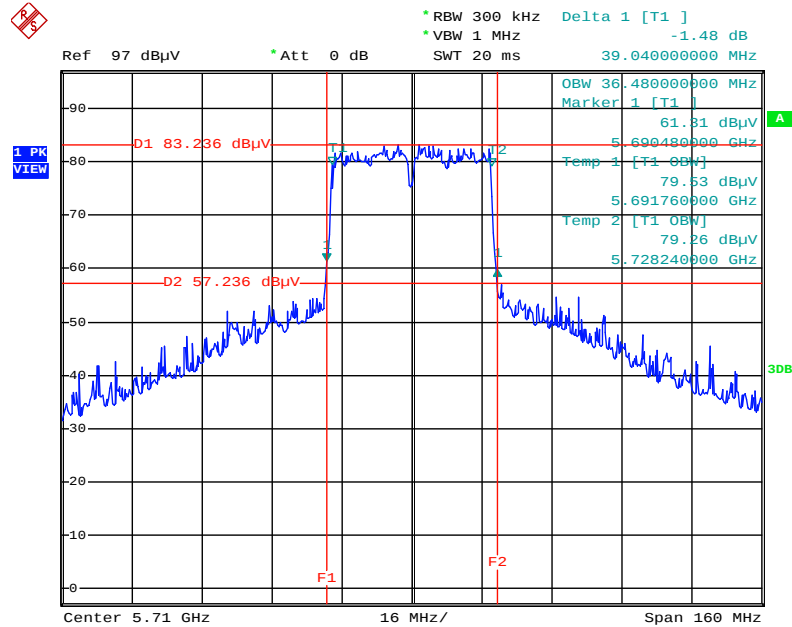
Date: 30.JUN.2014 14:08:07

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5670 MHz



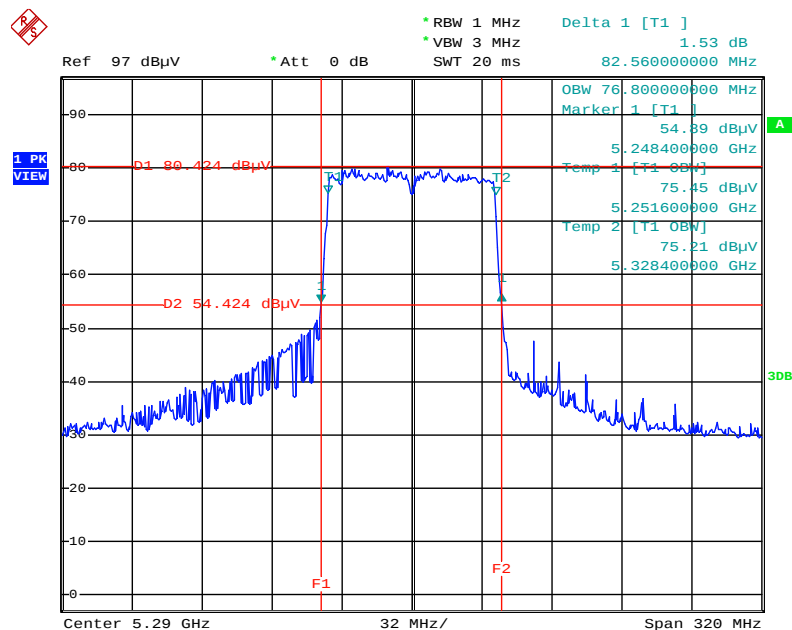
Date: 30.JUN.2014 14:08:57

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5710 MHz



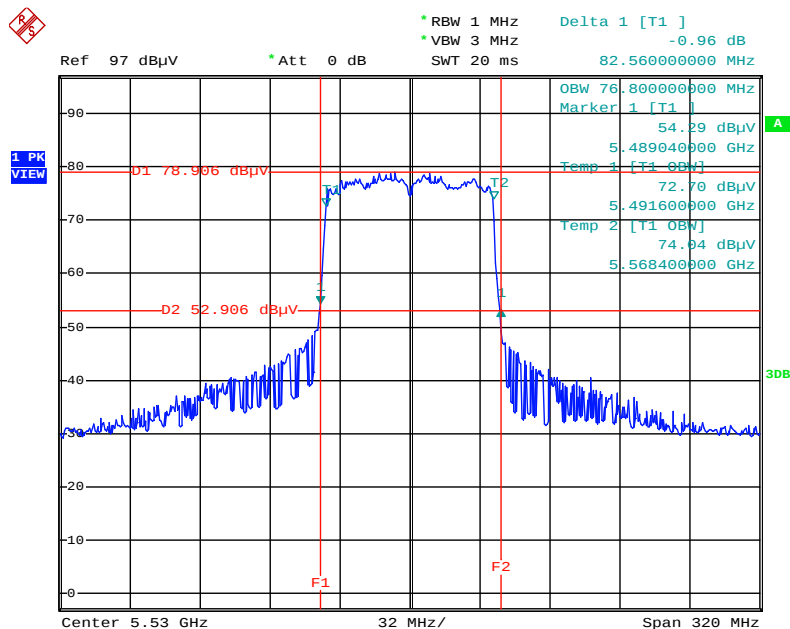
Date: 30.JUN.2014 14:09:45

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5290 MHz



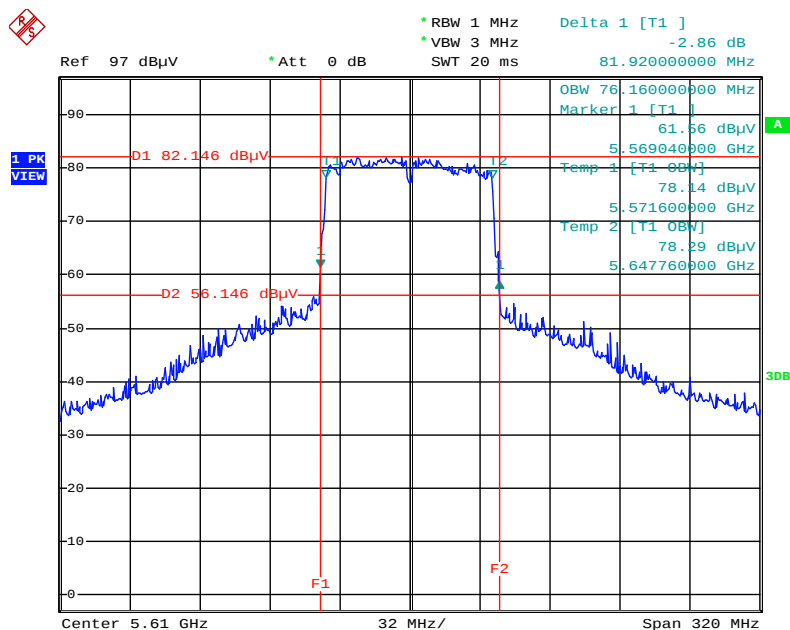
Date: 30.JUN.2014 14:11:14

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5530 MHz



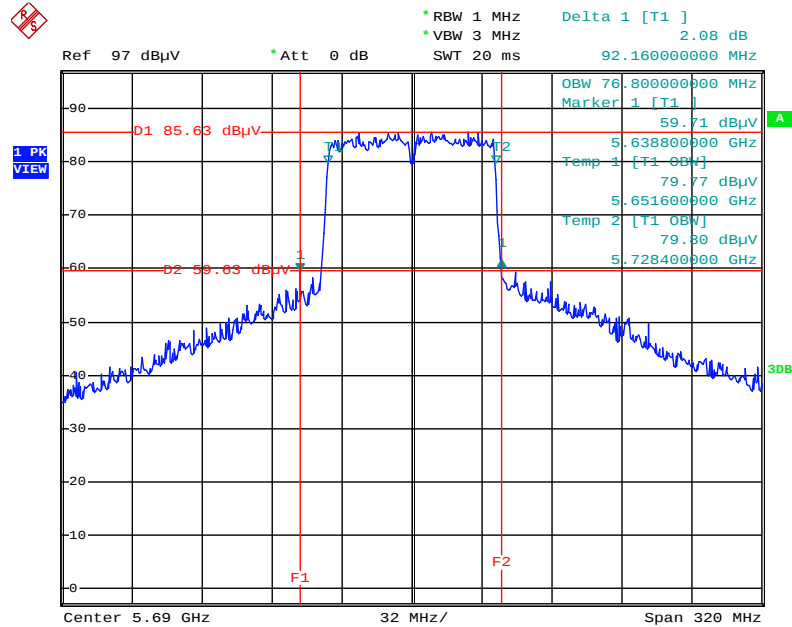
Date: 30.JUN.2014 14:11:57

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5610 MHz



Date: 8.JUL.2014 14:26:54

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5690 MHz



Date: 30.JUN.2014 14:12:42

### 4.3. Maximum Conducted Output Power Measurement

#### 4.3.1. Limit

For the 5.25-5.35 GHz and 5.470-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or  $11 \text{ dBm} + 10\log B$ , where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### 4.3.2. Measuring Instruments and Setting

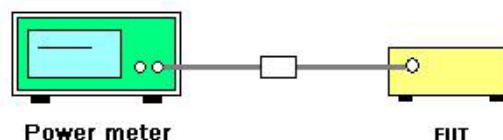
Please refer to section 5 of equipments list in this report The following table is the setting of the power meter.

| Power Meter Parameter | Setting |
|-----------------------|---------|
| Detector              | AVERAGE |

#### 4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power Meter (PM) =>b) Method PM-G (Measurement using a gated RF average power meter).
3. Multiple antenna systems was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. When measuring maximum conducted output power with multiple antenna systems,add every result of the values by mathematic formula.

#### 4.3.4. Test Setup Layout



#### 4.3.5. Test Deviation

There is no deviation with the original standard.

#### 4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

#### 4.3.7. Test Result of Maximum Conducted Output Power

<For Non-Beamforming Mode>

|               |               |                |                   |
|---------------|---------------|----------------|-------------------|
| Temperature   | 20°C          | Humidity       | 53%               |
| Test Engineer | Jim Huang     | Configurations | IEEE 802.11a/n/ac |
| Test Date     | Jun. 30, 2014 |                |                   |

For 1TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 2

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|------------------|----------|
| 52      | 5260 MHz  | 21.87                 | 24.00            | Complies |
| 60      | 5300 MHz  | 21.81                 | 24.00            | Complies |
| 64      | 5320 MHz  | 19.30                 | 24.00            | Complies |
| 100     | 5500 MHz  | 18.20                 | 24.00            | Complies |
| 116     | 5580 MHz  | 21.78                 | 24.00            | Complies |
| 140     | 5700 MHz  | 16.18                 | 24.00            | Complies |
| 144     | 5720 MHz  | 21.77                 | 24.00            | Complies |

Configuration IEEE 802.11n MCS0 HT40 / Chain 2

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|------------------|----------|
| 54      | 5270 MHz  | 21.87                 | 24.00            | Complies |
| 62      | 5310 MHz  | 15.23                 | 24.00            | Complies |
| 102     | 5510 MHz  | 14.73                 | 24.00            | Complies |
| 110     | 5550 MHz  | 20.07                 | 24.00            | Complies |
| 134     | 5670 MHz  | 17.91                 | 24.00            | Complies |
| 142     | 5710 MHz  | 21.95                 | 24.00            | Complies |

**Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2**

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|------------------|----------|
| 52      | 5260 MHz  | 21.89                 | 24.00            | Complies |
| 60      | 5300 MHz  | 21.75                 | 24.00            | Complies |
| 64      | 5320 MHz  | 19.39                 | 24.00            | Complies |
| 100     | 5500 MHz  | 18.11                 | 24.00            | Complies |
| 116     | 5580 MHz  | 21.75                 | 24.00            | Complies |
| 140     | 5700 MHz  | 16.12                 | 24.00            | Complies |
| 144     | 5720 MHz  | 21.96                 | 24.00            | Complies |

**Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2**

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|------------------|----------|
| 54      | 5270 MHz  | 21.83                 | 24.00            | Complies |
| 62      | 5310 MHz  | 15.36                 | 24.00            | Complies |
| 102     | 5510 MHz  | 14.84                 | 24.00            | Complies |
| 110     | 5550 MHz  | 20.06                 | 24.00            | Complies |
| 134     | 5670 MHz  | 17.81                 | 24.00            | Complies |
| 142     | 5710 MHz  | 21.98                 | 24.00            | Complies |

**Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2**

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|------------------|----------|
| 58      | 5290 MHz  | 14.03                 | 24.00            | Complies |
| 106     | 5530 MHz  | 13.82                 | 24.00            | Complies |
| 122     | 5610 MHz  | 19.18                 | 24.00            | Complies |
| 138     | 5690 MHz  | 20.56                 | 24.00            | Complies |

## Configuration IEEE 802.11a / Chain 2

| Channel | Frequency | Conducted Power<br>(dBm) | Max. Limit<br>(dBm) | Result   |
|---------|-----------|--------------------------|---------------------|----------|
| 52      | 5260 MHz  | 21.91                    | 24.00               | Complies |
| 60      | 5300 MHz  | 21.76                    | 24.00               | Complies |
| 64      | 5320 MHz  | 19.43                    | 24.00               | Complies |
| 100     | 5500 MHz  | 18.10                    | 24.00               | Complies |
| 116     | 5580 MHz  | 21.76                    | 24.00               | Complies |
| 140     | 5700 MHz  | 16.18                    | 24.00               | Complies |
| 144     | 5720 MHz  | 21.96                    | 24.00               | Complies |

|               |               |                |                   |
|---------------|---------------|----------------|-------------------|
| Temperature   | 20°C          | Humidity       | 53%               |
| Test Engineer | Jim Huang     | Configurations | IEEE 802.11a/n/ac |
| Test Date     | Jun. 30, 2014 |                |                   |

For 2TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 52      | 5260 MHz  | 17.90                 | 18.46   | 21.20 | 24.00            | Complies |
| 60      | 5300 MHz  | 17.97                 | 18.58   | 21.30 | 24.00            | Complies |
| 64      | 5320 MHz  | 17.80                 | 18.49   | 21.17 | 24.00            | Complies |
| 100     | 5500 MHz  | 17.22                 | 17.58   | 20.41 | 24.00            | Complies |
| 116     | 5580 MHz  | 17.64                 | 17.77   | 20.72 | 24.00            | Complies |
| 140     | 5700 MHz  | 16.37                 | 16.25   | 19.32 | 24.00            | Complies |
| 144     | 5720 MHz  | 18.16                 | 18.31   | 21.25 | 24.00            | Complies |

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 54      | 5270 MHz  | 20.59                 | 20.97   | 23.79 | 24.00            | Complies |
| 62      | 5310 MHz  | 14.89                 | 15.50   | 18.22 | 24.00            | Complies |
| 102     | 5510 MHz  | 14.18                 | 14.05   | 17.13 | 24.00            | Complies |
| 110     | 5550 MHz  | 18.75                 | 19.13   | 21.95 | 24.00            | Complies |
| 134     | 5670 MHz  | 17.57                 | 17.96   | 20.78 | 24.00            | Complies |
| 142     | 5710 MHz  | 18.36                 | 18.31   | 21.35 | 24.00            | Complies |

**Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2**

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 52      | 5260 MHz  | 17.92                 | 18.48   | 21.22 | 24.00            | Complies |
| 60      | 5300 MHz  | 17.96                 | 18.55   | 21.28 | 24.00            | Complies |
| 64      | 5320 MHz  | 17.96                 | 18.51   | 21.25 | 24.00            | Complies |
| 100     | 5500 MHz  | 17.34                 | 17.58   | 20.47 | 24.00            | Complies |
| 116     | 5580 MHz  | 17.52                 | 17.88   | 20.71 | 24.00            | Complies |
| 140     | 5700 MHz  | 16.31                 | 16.10   | 19.22 | 24.00            | Complies |
| 144     | 5720 MHz  | 18.11                 | 18.20   | 21.17 | 24.00            | Complies |

**Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2**

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 54      | 5270 MHz  | 20.71                 | 20.97   | 23.85 | 24.00            | Complies |
| 62      | 5310 MHz  | 14.78                 | 15.24   | 18.03 | 24.00            | Complies |
| 102     | 5510 MHz  | 14.28                 | 13.88   | 17.09 | 24.00            | Complies |
| 110     | 5550 MHz  | 18.66                 | 19.18   | 21.94 | 24.00            | Complies |
| 134     | 5670 MHz  | 17.51                 | 17.87   | 20.70 | 24.00            | Complies |
| 142     | 5710 MHz  | 18.29                 | 18.28   | 21.30 | 24.00            | Complies |

**Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2**

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 58      | 5290 MHz  | 13.14                 | 14.16   | 16.69 | 24.00            | Complies |
| 106     | 5530 MHz  | 13.91                 | 14.46   | 17.20 | 24.00            | Complies |
| 122     | 5610 MHz  | 17.97                 | 19.16   | 21.62 | 24.00            | Complies |
| 138     | 5690 MHz  | 19.67                 | 20.49   | 23.11 | 24.00            | Complies |

**Configuration IEEE 802.11a / Chain 1 + Chain 2**

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 52      | 5260 MHz  | 17.90                 | 18.61   | 21.28 | 24.00            | Complies |
| 60      | 5300 MHz  | 17.93                 | 18.66   | 21.32 | 24.00            | Complies |
| 64      | 5320 MHz  | 17.81                 | 18.53   | 21.20 | 24.00            | Complies |
| 100     | 5500 MHz  | 17.22                 | 17.59   | 20.42 | 24.00            | Complies |
| 116     | 5580 MHz  | 17.56                 | 17.93   | 20.76 | 24.00            | Complies |
| 140     | 5700 MHz  | 16.36                 | 16.30   | 19.34 | 24.00            | Complies |
| 144     | 5720 MHz  | 18.05                 | 18.36   | 21.22 | 24.00            | Complies |

## &lt;For Beamforming Mode&gt;

|               |               |                |                 |
|---------------|---------------|----------------|-----------------|
| Temperature   | 20°C          | Humidity       | 53%             |
| Test Engineer | Jim Huang     | Configurations | IEEE 802.11a/ac |
| Test Date     | Jun. 30, 2014 |                |                 |

## For 2TX

## Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 52      | 5260 MHz  | 15.24                 | 15.85   | 18.57 | 21.07            | Complies |
| 60      | 5300 MHz  | 15.05                 | 15.51   | 18.30 | 21.07            | Complies |
| 64      | 5320 MHz  | 14.87                 | 15.34   | 18.12 | 21.07            | Complies |
| 100     | 5500 MHz  | 14.00                 | 13.90   | 16.96 | 21.07            | Complies |
| 116     | 5580 MHz  | 14.03                 | 13.76   | 16.91 | 21.07            | Complies |
| 140     | 5700 MHz  | 13.11                 | 12.85   | 15.99 | 21.07            | Complies |
| 144     | 5720 MHz  | 17.37                 | 17.63   | 20.51 | 21.07            | Complies |

Note: Directional gain =  $G_{ANT} + 10 \log(N_{ANT}/N_{ss}) = 8.93 \text{ dBi} > 6 \text{ dBi}$ , So Power Limit =  $24 - (8.93 - 6) = 21.07 \text{ dBm}$

## Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 54      | 5270 MHz  | 16.28                 | 16.73   | 19.52 | 21.07            | Complies |
| 62      | 5310 MHz  | 11.12                 | 11.49   | 14.32 | 21.07            | Complies |
| 102     | 5510 MHz  | 11.52                 | 10.49   | 14.05 | 21.07            | Complies |
| 110     | 5550 MHz  | 13.47                 | 13.27   | 16.38 | 21.07            | Complies |
| 134     | 5670 MHz  | 14.70                 | 14.56   | 17.64 | 21.07            | Complies |
| 142     | 5710 MHz  | 16.92                 | 16.63   | 19.79 | 21.07            | Complies |

Note: Directional gain =  $G_{ANT} + 10 \log(N_{ANT}/N_{ss}) = 8.93 \text{ dBi} > 6 \text{ dBi}$ , So Power Limit =  $24 - (8.93 - 6) = 21.07 \text{ dBm}$

## Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 58      | 5290 MHz  | 8.96                  | 9.89    | 12.46 | 21.07            | Complies |
| 106     | 5530 MHz  | 10.52                 | 10.81   | 13.68 | 21.07            | Complies |
| 122     | 5610 MHz  | 16.09                 | 17.21   | 19.70 | 21.07            | Complies |
| 138     | 5690 MHz  | 16.52                 | 17.26   | 19.92 | 21.07            | Complies |

Note: Directional gain =  $G_{ANT} + 10 \log(N_{ANT}/N_{ss}) = 8.93 \text{ dBi} > 6 \text{ dBi}$ , So Power Limit =  $24 - (8.93 - 6) = 21.07 \text{ dBm}$

**Configuration IEEE 802.11a / Chain 1 + Chain 2**

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 52      | 5260 MHz  | 15.13                 | 15.81   | 18.49 | 21.07            | Complies |
| 60      | 5300 MHz  | 15.08                 | 15.44   | 18.27 | 21.07            | Complies |
| 64      | 5320 MHz  | 14.79                 | 15.32   | 18.07 | 21.07            | Complies |
| 100     | 5500 MHz  | 13.87                 | 13.88   | 16.89 | 21.07            | Complies |
| 116     | 5580 MHz  | 14.06                 | 13.68   | 16.88 | 21.07            | Complies |
| 140     | 5700 MHz  | 13.02                 | 12.81   | 15.93 | 21.07            | Complies |
| 144     | 5720 MHz  | 17.32                 | 17.66   | 20.50 | 21.07            | Complies |

Note: Directional gain =  $G_{ANT} + 10 \log(N_{ANT}/N_{ss}) = 8.93 \text{ dBi} > 6 \text{ dBi}$ , So Power Limit =  $24 - (8.93 - 6) = 21.07 \text{ dBm}$

<For STBC Mode>

|               |               |                |                 |
|---------------|---------------|----------------|-----------------|
| Temperature   | 20°C          | Humidity       | 53%             |
| Test Engineer | Jim Huang     | Configurations | IEEE 802.11n/ac |
| Test Date     | Jun. 30, 2014 |                |                 |

For 2TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 52      | 5260 MHz  | 20.17                 | 20.46   | 23.33 | 24.00            | Complies |
| 60      | 5300 MHz  | 19.98                 | 20.46   | 23.24 | 24.00            | Complies |
| 64      | 5320 MHz  | 18.46                 | 18.91   | 21.70 | 24.00            | Complies |
| 100     | 5500 MHz  | 18.20                 | 18.29   | 21.26 | 24.00            | Complies |
| 116     | 5580 MHz  | 20.06                 | 20.56   | 23.33 | 24.00            | Complies |
| 140     | 5700 MHz  | 16.56                 | 16.60   | 19.59 | 24.00            | Complies |
| 144     | 5720 MHz  | 20.00                 | 20.60   | 23.32 | 24.00            | Complies |

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 54      | 5270 MHz  | 20.75                 | 21.11   | 23.94 | 24.00            | Complies |
| 62      | 5310 MHz  | 14.83                 | 15.32   | 18.09 | 24.00            | Complies |
| 102     | 5510 MHz  | 15.24                 | 15.04   | 18.15 | 24.00            | Complies |
| 110     | 5550 MHz  | 18.93                 | 19.63   | 22.30 | 24.00            | Complies |
| 134     | 5670 MHz  | 17.53                 | 17.96   | 20.76 | 24.00            | Complies |
| 142     | 5710 MHz  | 20.71                 | 21.07   | 23.90 | 24.00            | Complies |

**Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2**

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 52      | 5260 MHz  | 20.11                 | 20.49   | 23.31 | 24.00            | Complies |
| 60      | 5300 MHz  | 20.05                 | 20.43   | 23.25 | 24.00            | Complies |
| 64      | 5320 MHz  | 18.53                 | 18.99   | 21.78 | 24.00            | Complies |
| 100     | 5500 MHz  | 18.26                 | 18.24   | 21.26 | 24.00            | Complies |
| 116     | 5580 MHz  | 20.15                 | 20.64   | 23.41 | 24.00            | Complies |
| 140     | 5700 MHz  | 16.58                 | 16.62   | 19.61 | 24.00            | Complies |
| 144     | 5720 MHz  | 20.07                 | 20.65   | 23.38 | 24.00            | Complies |

**Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2**

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 54      | 5270 MHz  | 20.77                 | 21.12   | 23.96 | 24.00            | Complies |
| 62      | 5310 MHz  | 14.78                 | 15.28   | 18.05 | 24.00            | Complies |
| 102     | 5510 MHz  | 15.62                 | 14.65   | 18.17 | 24.00            | Complies |
| 110     | 5550 MHz  | 18.99                 | 19.67   | 22.35 | 24.00            | Complies |
| 134     | 5670 MHz  | 17.43                 | 17.83   | 20.64 | 24.00            | Complies |
| 142     | 5710 MHz  | 20.75                 | 20.88   | 23.83 | 24.00            | Complies |

**Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2**

| Channel | Frequency | Conducted Power (dBm) |         |       | Max. Limit (dBm) | Result   |
|---------|-----------|-----------------------|---------|-------|------------------|----------|
|         |           | Chain 1               | Chain 2 | Total |                  |          |
| 58      | 5290 MHz  | 15.01                 | 16.05   | 18.57 | 24.00            | Complies |
| 106     | 5530 MHz  | 13.53                 | 14.02   | 16.79 | 24.00            | Complies |
| 122     | 5610 MHz  | 18.28                 | 19.53   | 21.96 | 24.00            | Complies |
| 138     | 5690 MHz  | 19.88                 | 20.76   | 23.35 | 24.00            | Complies |

## 4.4. Power Spectral Density Measurement

### 4.4.1. Limit

The power spectral density is defined as the highest level of power in dBm per MHz generated by the transmitter within the power envelope. The following table is power spectral density limits and decrease power density limit rule refer to section 4.3.1.

| Frequency Range | Power Spectral Density limit (dBm/MHz) |
|-----------------|----------------------------------------|
| 5.25-5.35 GHz   | 11                                     |
| 5.470-5.725 GHz | 11                                     |

### 4.4.2. Measuring Instruments and Setting

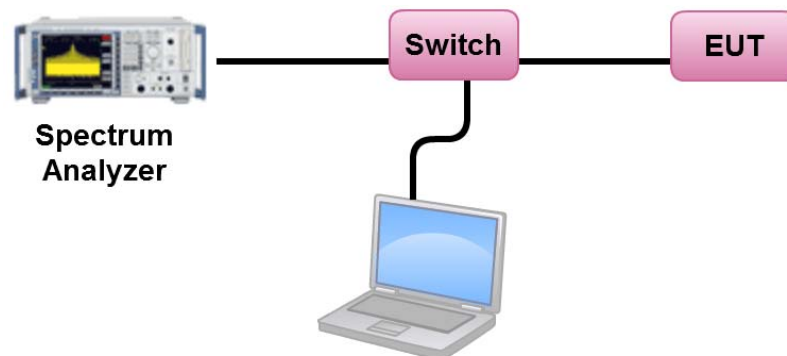
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter | Setting                                                      |
|--------------------|--------------------------------------------------------------|
| Attenuation        | Auto                                                         |
| Span Frequency     | Encompass the entire emissions bandwidth (EBW) of the signal |
| RBW                | 1000 kHz                                                     |
| VBW                | 3000 kHz                                                     |
| Detector           | RMS                                                          |
| Trace              | AVERAGE                                                      |
| Sweep Time         | Auto                                                         |
| Trace Average      | 100 times                                                    |

### 4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple antenna systems was performed in accordance KDB662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements (a) Measure and sum the spectra across the outputs.
4. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.

#### 4.4.4. Test Setup Layout



#### 4.4.5. Test Deviation

There is no deviation with the original standard.

#### 4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

#### 4.4.7. Test Result of Power Spectral Density

<For Non-Beamforming Mode>

|               |               |                |               |
|---------------|---------------|----------------|---------------|
| Temperature   | 20°C          | Humidity       | 53%           |
| Test Engineer | Jim Huang     | Configurations | IEEE 802.11ac |
| Test Date     | Jun. 30, 2014 |                |               |

For 1TX

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2

| Channel | Frequency | Total Power Density (dBm/MHz) | Max. Limit (dBm/MHz) | Result   |
|---------|-----------|-------------------------------|----------------------|----------|
| 52      | 5260 MHz  | 8.06                          | 11.00                | Complies |
| 60      | 5300 MHz  | 8.24                          | 11.00                | Complies |
| 64      | 5320 MHz  | 5.79                          | 11.00                | Complies |
| 100     | 5500 MHz  | 5.17                          | 11.00                | Complies |
| 116     | 5580 MHz  | 8.53                          | 11.00                | Complies |
| 140     | 5700 MHz  | 2.23                          | 11.00                | Complies |
| 144     | 5720 MHz  | 8.06                          | 11.00                | Complies |

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2

| Channel | Frequency | Total Power Density (dBm/MHz) | Max. Limit (dBm/MHz) | Result   |
|---------|-----------|-------------------------------|----------------------|----------|
| 54      | 5270 MHz  | 5.32                          | 11.00                | Complies |
| 62      | 5310 MHz  | -0.92                         | 11.00                | Complies |
| 102     | 5510 MHz  | -0.94                         | 11.00                | Complies |
| 110     | 5550 MHz  | 3.77                          | 11.00                | Complies |
| 134     | 5670 MHz  | 1.12                          | 11.00                | Complies |
| 142     | 5710 MHz  | 5.35                          | 11.00                | Complies |

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2

| Channel | Frequency | Total Power Density (dBm/MHz) | Max. Limit (dBm/MHz) | Result   |
|---------|-----------|-------------------------------|----------------------|----------|
| 58      | 5290 MHz  | -5.09                         | 11.00                | Complies |
| 106     | 5530 MHz  | -4.88                         | 11.00                | Complies |
| 122     | 5610 MHz  | -0.43                         | 11.00                | Complies |
| 138     | 5690 MHz  | 0.57                          | 11.00                | Complies |

|               |               |                |               |
|---------------|---------------|----------------|---------------|
| Temperature   | 20°C          | Humidity       | 53%           |
| Test Engineer | Jim Huang     | Configurations | IEEE 802.11ac |
| Test Date     | Jun. 30, 2014 |                |               |

For 2TX

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2

| Channel | Frequency | Total Power Density (dBm/MHz) | Max. Limit (dBm/MHz) | Result   |
|---------|-----------|-------------------------------|----------------------|----------|
| 52      | 5260 MHz  | 7.86                          | 8.07                 | Complies |
| 60      | 5300 MHz  | 7.83                          | 8.07                 | Complies |
| 64      | 5320 MHz  | 7.77                          | 8.07                 | Complies |
| 100     | 5500 MHz  | 7.28                          | 8.07                 | Complies |
| 116     | 5580 MHz  | 7.45                          | 8.07                 | Complies |
| 140     | 5700 MHz  | 5.74                          | 8.07                 | Complies |
| 144     | 5720 MHz  | 7.79                          | 8.07                 | Complies |

Note: Directional gain =  $G_{ANT} + 10\log(N_{ANT}/Nss) = 8.93\text{dBi} > 6\text{dBi}$ , So Band2 Limit =  $11 - (8.93 - 6) = 8.07\text{dBm/MHz}$   
 $= 8.93\text{dBi} > 6\text{dBi}$ , So Band3 Limit =  $11 - (8.93 - 6) = 8.07\text{dBm/MHz}$

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2

| Channel | Frequency | Total Power Density (dBm/MHz) | Max. Limit (dBm/MHz) | Result   |
|---------|-----------|-------------------------------|----------------------|----------|
| 54      | 5270 MHz  | 7.32                          | 8.07                 | Complies |
| 62      | 5310 MHz  | 1.71                          | 8.07                 | Complies |
| 102     | 5510 MHz  | 0.61                          | 8.07                 | Complies |
| 110     | 5550 MHz  | 5.53                          | 8.07                 | Complies |
| 134     | 5670 MHz  | 4.39                          | 8.07                 | Complies |
| 142     | 5710 MHz  | 4.78                          | 8.07                 | Complies |

Note: Directional gain =  $G_{ANT} + 10\log(N_{ANT}/Nss) = 8.93\text{dBi} > 6\text{dBi}$ , So Band2 Limit =  $11 - (8.93 - 6) = 8.07\text{dBm/MHz}$   
 $= 8.93\text{dBi} > 6\text{dBi}$ , So Band3 Limit =  $11 - (8.93 - 6) = 8.07\text{dBm/MHz}$

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2

| Channel | Frequency | Total Power Density (dBm/MHz) | Max. Limit (dBm/MHz) | Result   |
|---------|-----------|-------------------------------|----------------------|----------|
| 58      | 5290 MHz  | -2.11                         | 8.07                 | Complies |
| 106     | 5530 MHz  | -1.85                         | 8.07                 | Complies |
| 122     | 5610 MHz  | 2.63                          | 8.07                 | Complies |
| 138     | 5690 MHz  | 3.85                          | 8.07                 | Complies |

Note: Directional gain =  $G_{ANT} + 10\log(N_{ANT}/Nss) = 8.93\text{dBi} > 6\text{dBi}$ , So Band2 Limit =  $11 - (8.93 - 6) = 8.07\text{dBm/MHz}$   
 $= 8.93\text{dBi} > 6\text{dBi}$ , So Band3 Limit =  $11 - (8.93 - 6) = 8.07\text{dBm/MHz}$

## &lt;For Beamforming Mode&gt;

|               |               |                |               |
|---------------|---------------|----------------|---------------|
| Temperature   | 20°C          | Humidity       | 53%           |
| Test Engineer | Jim Huang     | Configurations | IEEE 802.11ac |
| Test Date     | Jun. 30, 2014 |                |               |

## For 2TX

## Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2

| Channel | Frequency | Total Power Density<br>(dBm/MHz) | Max. Limit<br>(dBm/MHz) | Result   |
|---------|-----------|----------------------------------|-------------------------|----------|
| 52      | 5260 MHz  | 5.53                             | 8.07                    | Complies |
| 60      | 5300 MHz  | 5.14                             | 8.07                    | Complies |
| 64      | 5320 MHz  | 5.09                             | 8.07                    | Complies |
| 100     | 5500 MHz  | 3.68                             | 8.07                    | Complies |
| 116     | 5580 MHz  | 3.44                             | 8.07                    | Complies |
| 140     | 5700 MHz  | 2.39                             | 8.07                    | Complies |
| 144     | 5720 MHz  | 7.27                             | 8.07                    | Complies |

Note: Directional gain =  $G_{ANT} + 10\log(N_{ANT}/Nss) = 8.93\text{dBi} > 6\text{dBi}$ , So Band2 Limit =  $11 - (8.93 - 6) = 8.07\text{dBm/MHz}$   
 $= 8.93\text{dBi} > 6\text{dBi}$ , So Band3 Limit =  $11 - (8.93 - 6) = 8.07\text{dBm/MHz}$

## Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2

| Channel | Frequency | Total Power Density<br>(dBm/MHz) | Max. Limit<br>(dBm/MHz) | Result   |
|---------|-----------|----------------------------------|-------------------------|----------|
| 54      | 5270 MHz  | 3.61                             | 8.07                    | Complies |
| 62      | 5310 MHz  | -1.58                            | 8.07                    | Complies |
| 102     | 5510 MHz  | -2.63                            | 8.07                    | Complies |
| 110     | 5550 MHz  | 0.03                             | 8.07                    | Complies |
| 134     | 5670 MHz  | 1.05                             | 8.07                    | Complies |
| 142     | 5710 MHz  | 3.04                             | 8.07                    | Complies |

Note: Directional gain =  $G_{ANT} + 10\log(N_{ANT}/Nss) = 8.93\text{dBi} > 6\text{dBi}$ , So Band2 Limit =  $11 - (8.93 - 6) = 8.07\text{dBm/MHz}$   
 $= 8.93\text{dBi} > 6\text{dBi}$ , So Band3 Limit =  $11 - (8.93 - 6) = 8.07\text{dBm/MHz}$

**Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2**

| Channel | Frequency | Total Power Density<br>(dBm/MHz) | Max. Limit<br>(dBm/MHz) | Result   |
|---------|-----------|----------------------------------|-------------------------|----------|
| 58      | 5290 MHz  | -6.22                            | 8.07                    | Complies |
| 106     | 5530 MHz  | -5.43                            | 8.07                    | Complies |
| 122     | 5610 MHz  | 0.79                             | 8.07                    | Complies |
| 138     | 5690 MHz  | 0.64                             | 8.07                    | Complies |

Note: Directional gain =  $G_{ANT} + 10 \log(N_{ANT}/N_{ss}) = 8.93 \text{ dBi} > 6 \text{ dBi}$ , So Band2 Limit =  $11 - (8.93 - 6) = 8.07 \text{ dBm/MHz}$   
 $= 8.93 \text{ dBi} > 6 \text{ dBi}$ , So Band3 Limit =  $11 - (8.93 - 6) = 8.07 \text{ dBm/MHz}$

<For STBC Mode>

|               |               |                |               |
|---------------|---------------|----------------|---------------|
| Temperature   | 20°C          | Humidity       | 53%           |
| Test Engineer | Jim Huang     | Configurations | IEEE 802.11ac |
| Test Date     | Jun. 30, 2014 |                |               |

For 2TX

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2

| Channel | Frequency | Total Power Density<br>(dBm/MHz) | Max. Limit<br>(dBm/MHz) | Result   |
|---------|-----------|----------------------------------|-------------------------|----------|
| 52      | 5260 MHz  | 9.80                             | 11.00                   | Complies |
| 60      | 5300 MHz  | 9.64                             | 11.00                   | Complies |
| 64      | 5320 MHz  | 8.24                             | 11.00                   | Complies |
| 100     | 5500 MHz  | 7.87                             | 11.00                   | Complies |
| 116     | 5580 MHz  | 10.26                            | 11.00                   | Complies |
| 140     | 5700 MHz  | 6.08                             | 11.00                   | Complies |
| 144     | 5720 MHz  | 9.99                             | 11.00                   | Complies |

Note: Directional gain= $G_{ANT} + 10\log(N_{ANT}/Nss) = 5.92\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2

| Channel | Frequency | Total Power Density<br>(dBm/MHz) | Max. Limit<br>(dBm/MHz) | Result   |
|---------|-----------|----------------------------------|-------------------------|----------|
| 54      | 5270 MHz  | 3.61                             | 11.00                   | Complies |
| 62      | 5310 MHz  | 1.86                             | 11.00                   | Complies |
| 102     | 5510 MHz  | 1.41                             | 11.00                   | Complies |
| 110     | 5550 MHz  | 6.24                             | 11.00                   | Complies |
| 134     | 5670 MHz  | 4.38                             | 11.00                   | Complies |
| 142     | 5710 MHz  | 7.28                             | 11.00                   | Complies |

Note: Directional gain= $G_{ANT} + 10\log(N_{ANT}/Nss) = 5.92\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2

| Channel | Frequency | Total Power Density<br>(dBm/MHz) | Max. Limit<br>(dBm/MHz) | Result   |
|---------|-----------|----------------------------------|-------------------------|----------|
| 58      | 5290 MHz  | -0.48                            | 11.00                   | Complies |
| 106     | 5530 MHz  | -2.31                            | 11.00                   | Complies |
| 122     | 5610 MHz  | 2.91                             | 11.00                   | Complies |
| 138     | 5690 MHz  | 3.91                             | 11.00                   | Complies |

Note: Directional gain= $G_{ANT} + 10\log(N_{ANT}/Nss) = 5.92\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

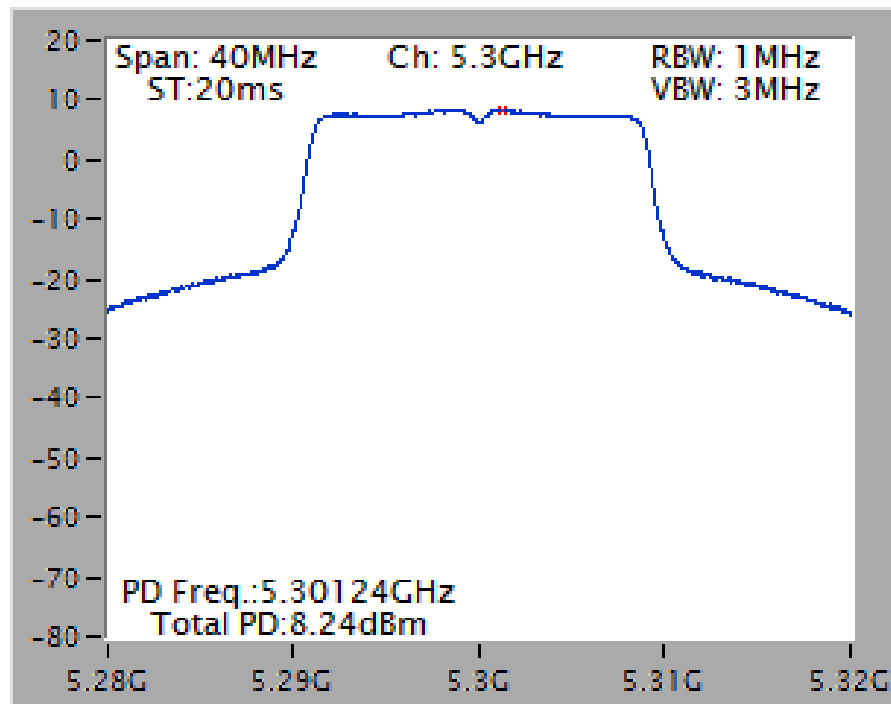
Note: All the test values were listed in the report.

For plots, only the channel with worse result was shown.

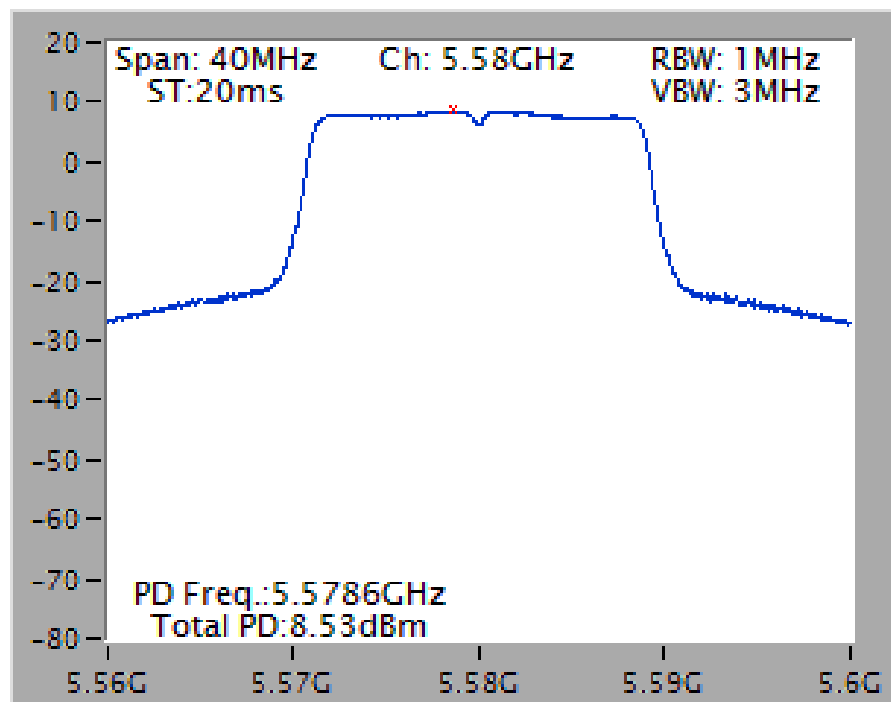
<For Non-Beamforming Mode>

For 1TX

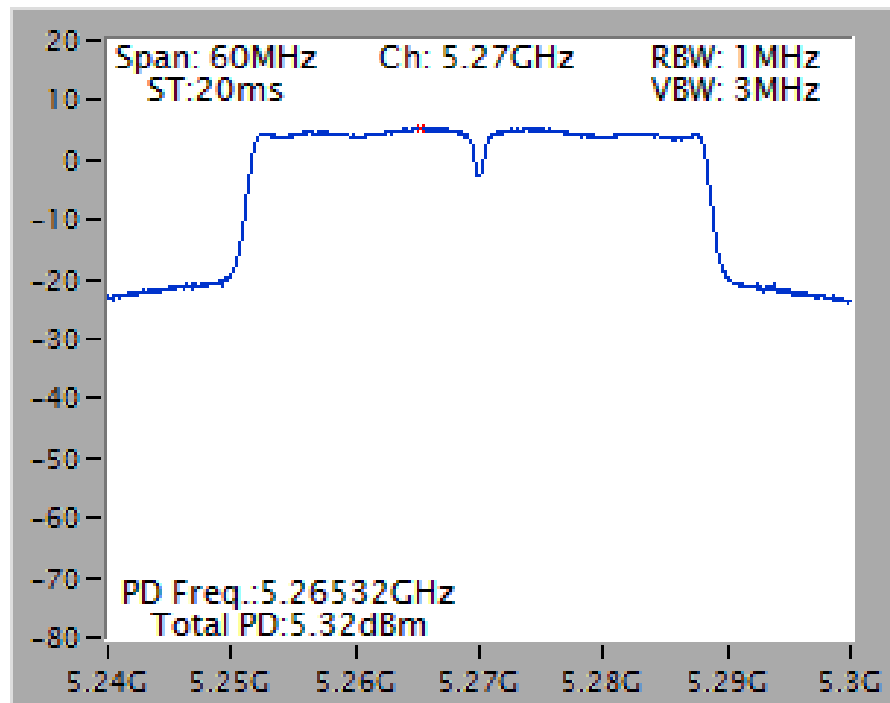
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5300 MHz



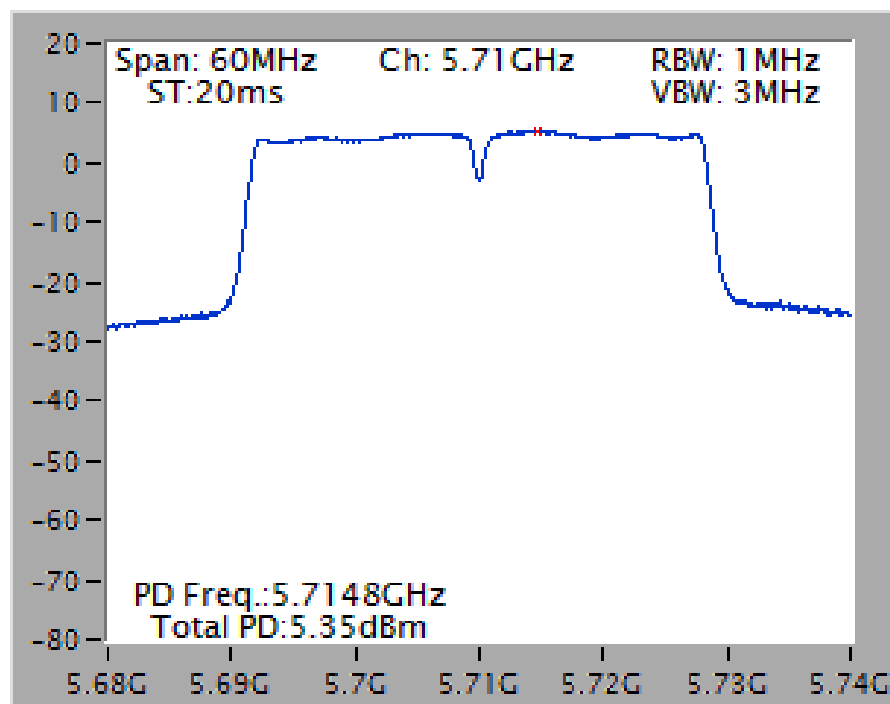
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5580 MHz



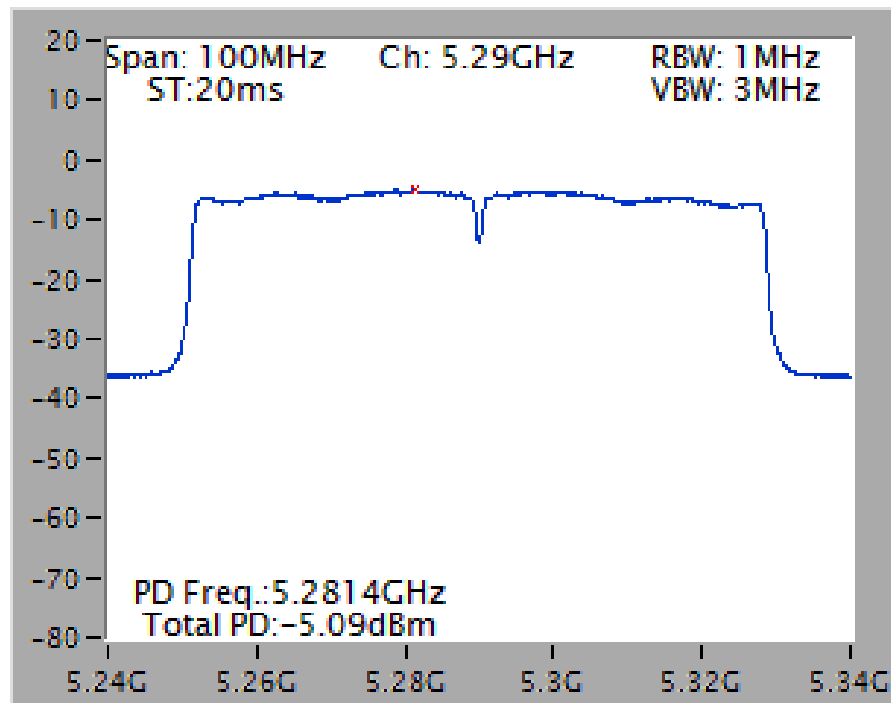
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5270 MHz



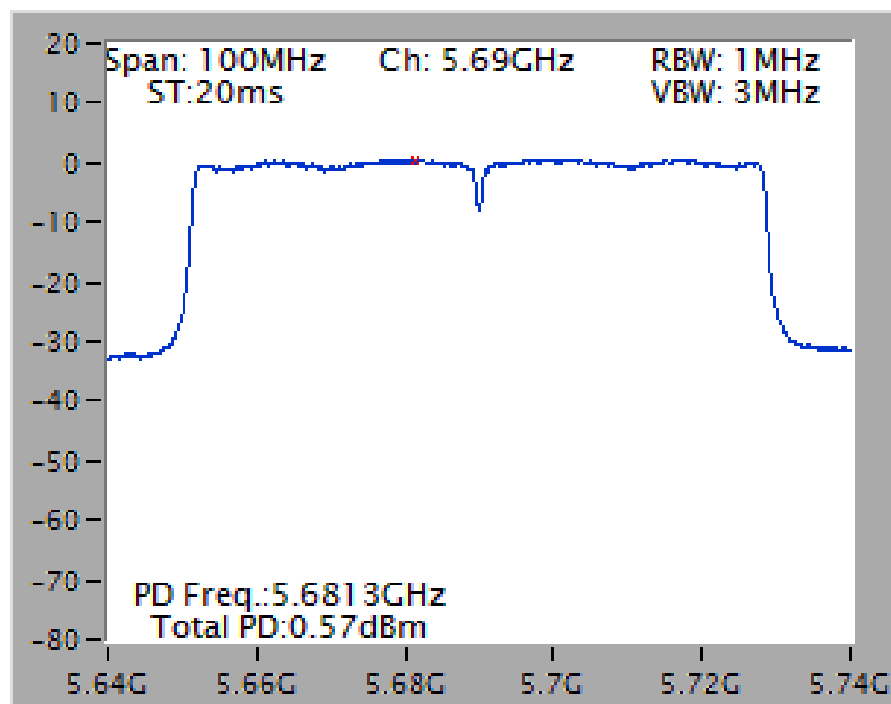
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5710 MHz



### Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5290 MHz

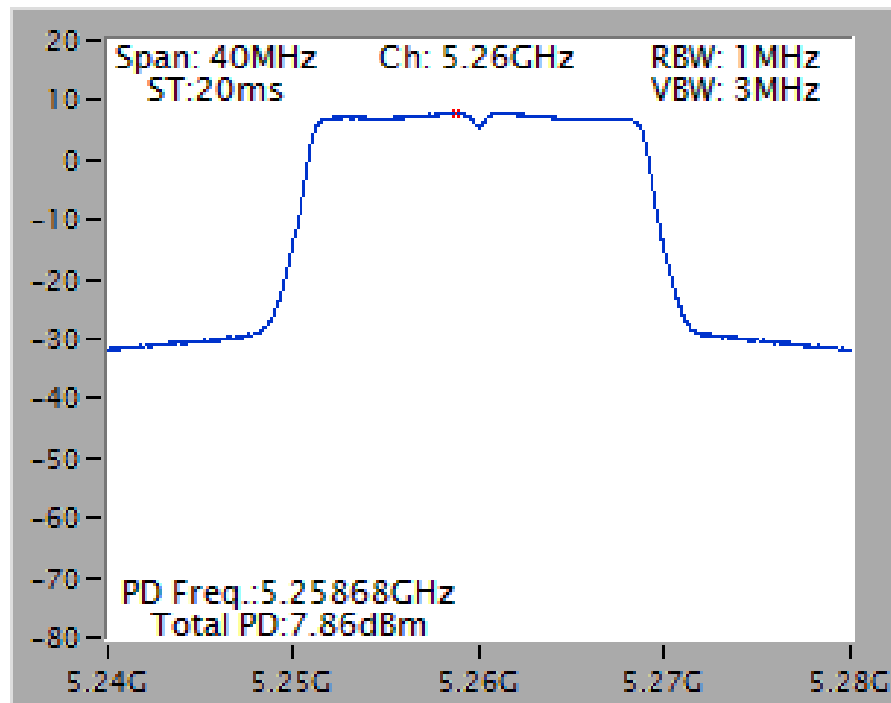


### Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5690 MHz

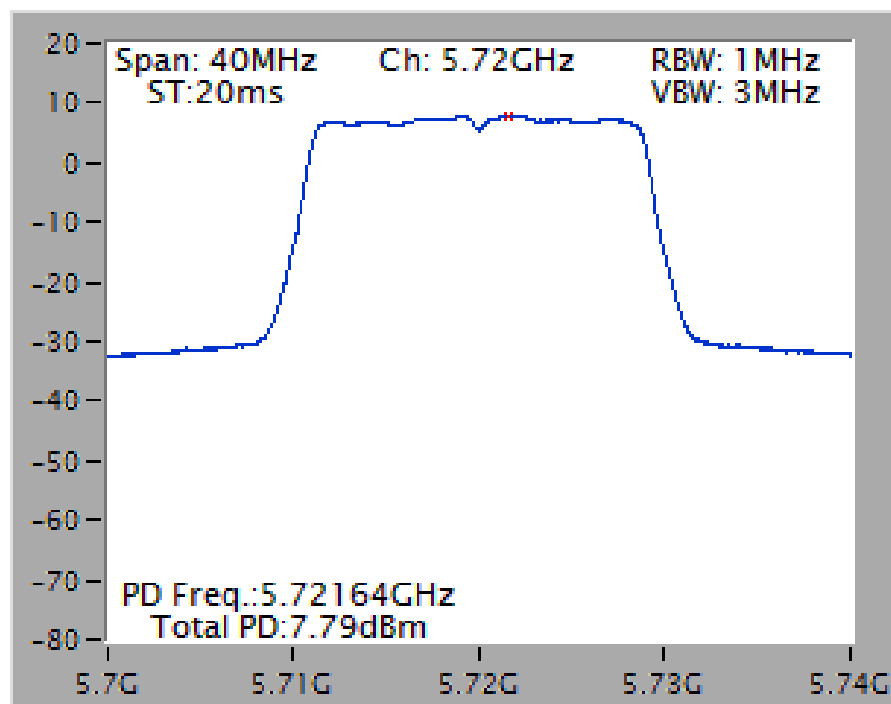


For 2TX

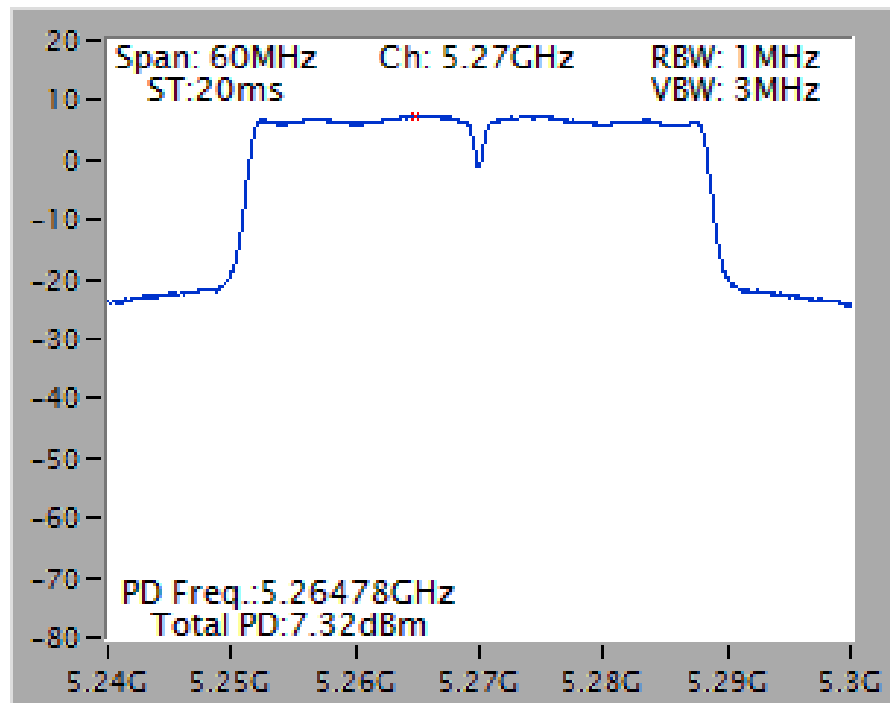
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5260 MHz



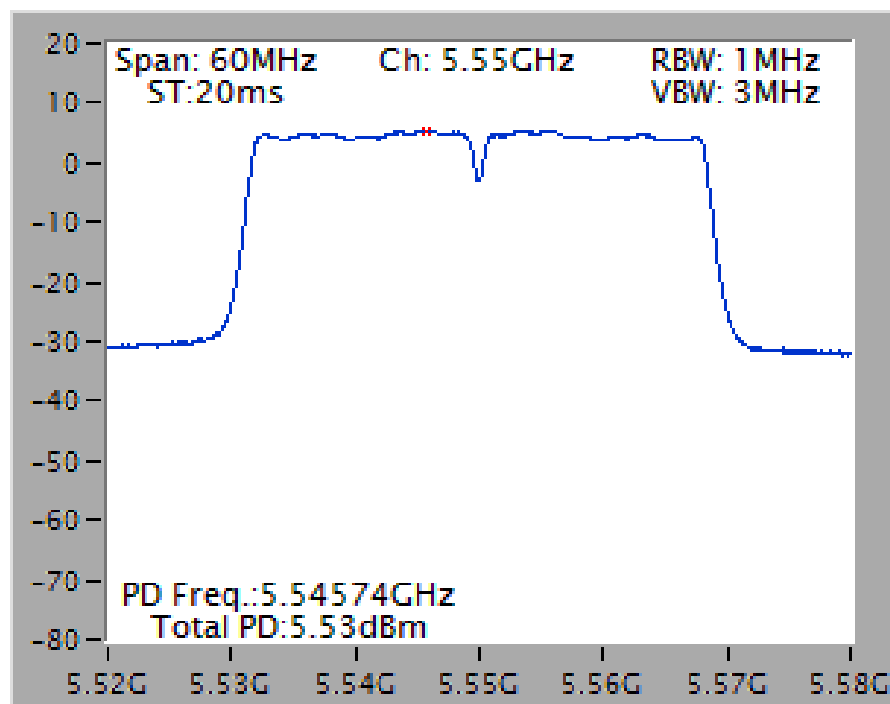
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5720 MHz



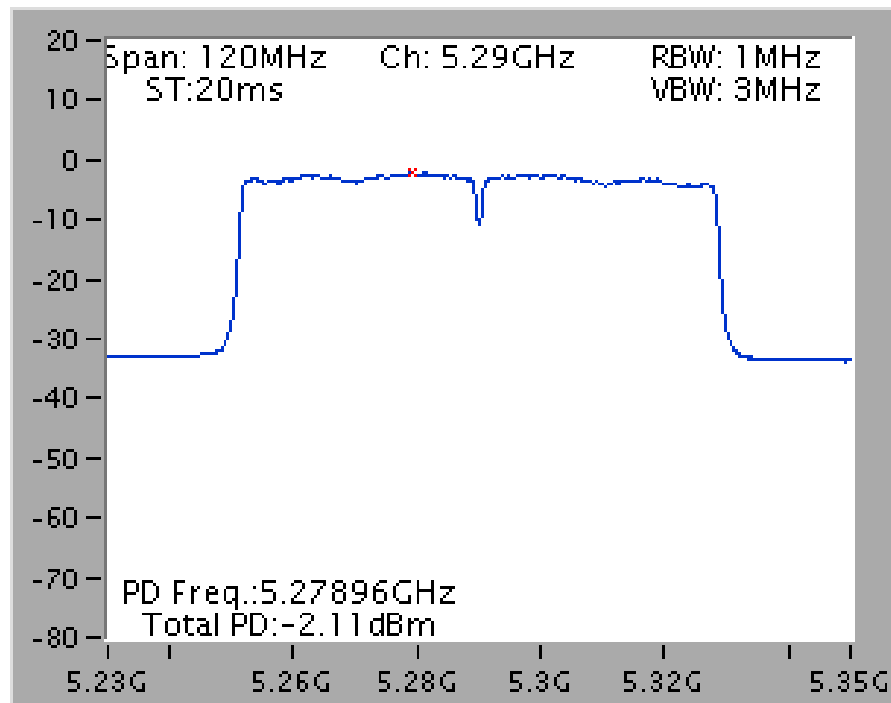
### Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5270 MHz



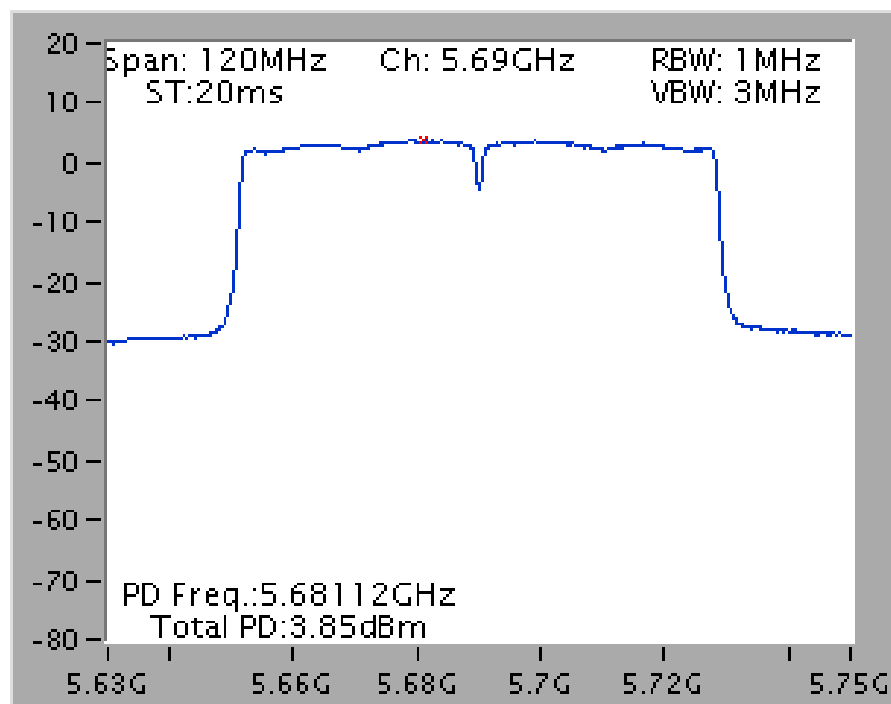
### Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5550 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5290 MHz



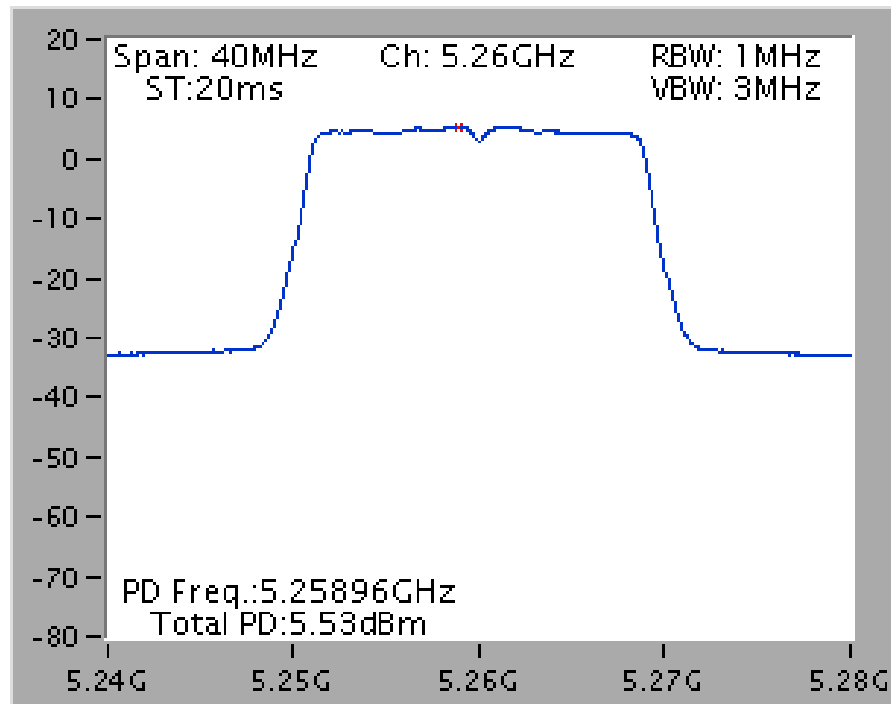
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5690 MHz



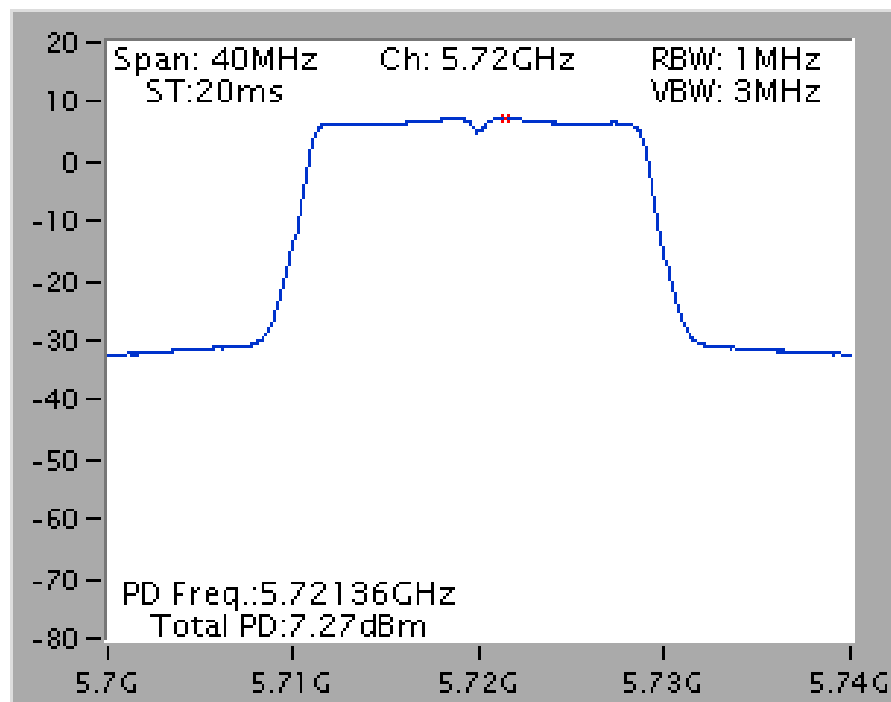
<For Beamforming Mode>

For 2TX

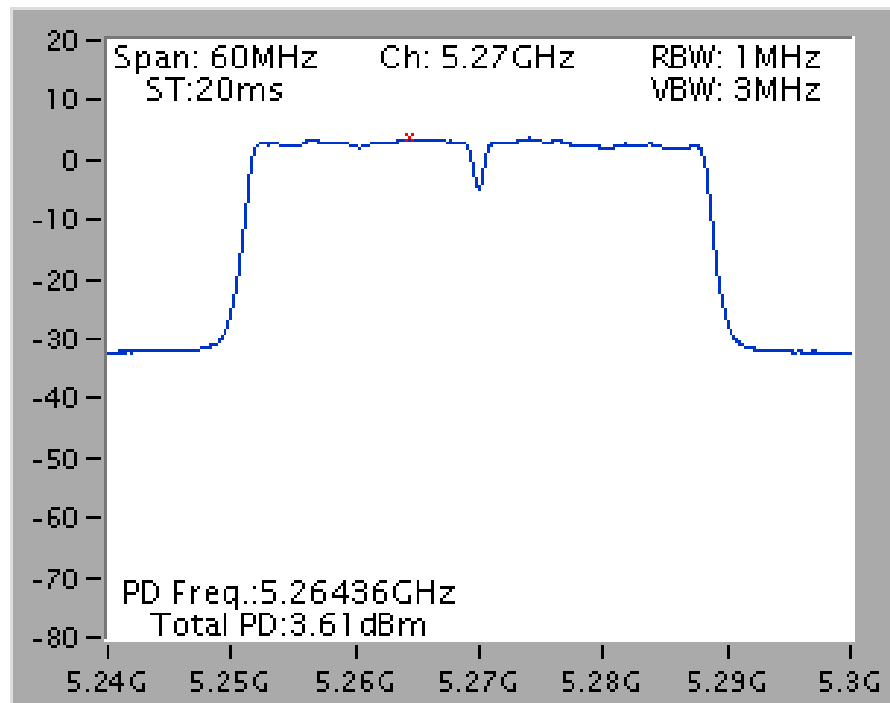
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5260 MHz



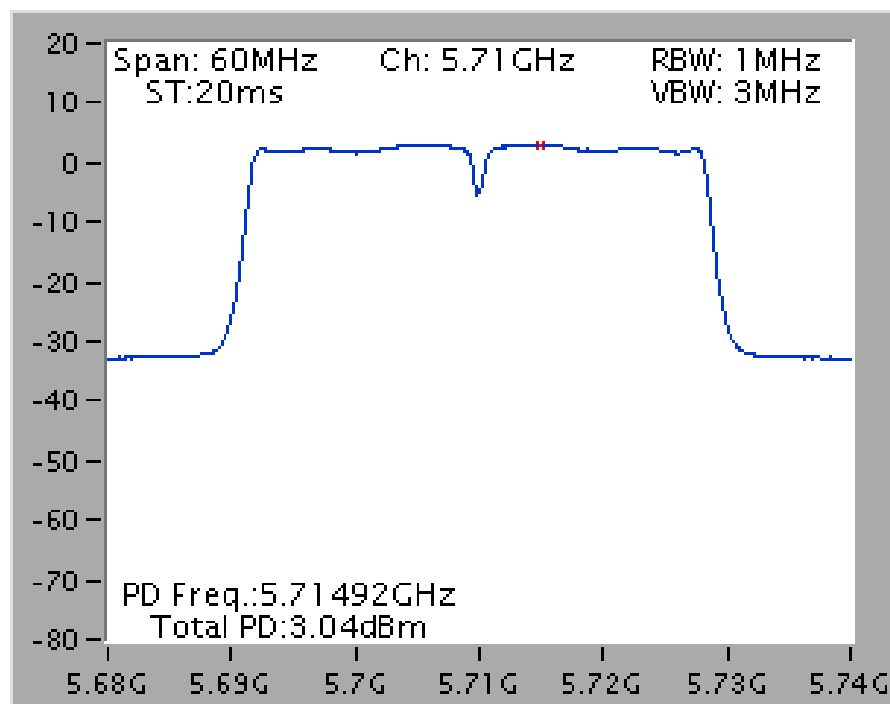
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5720 MHz



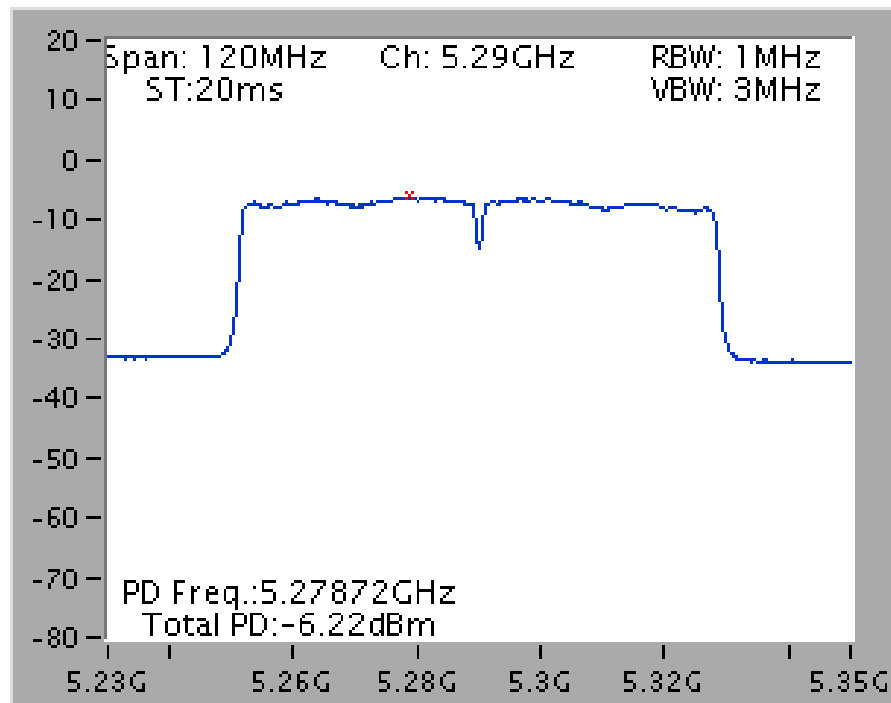
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5270 MHz



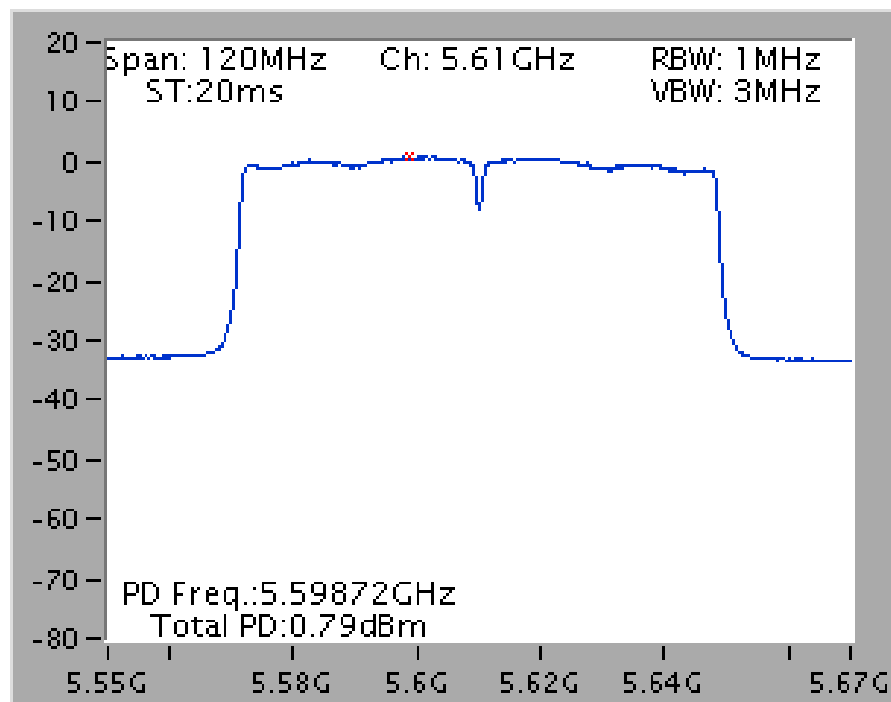
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5710 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5290 MHz



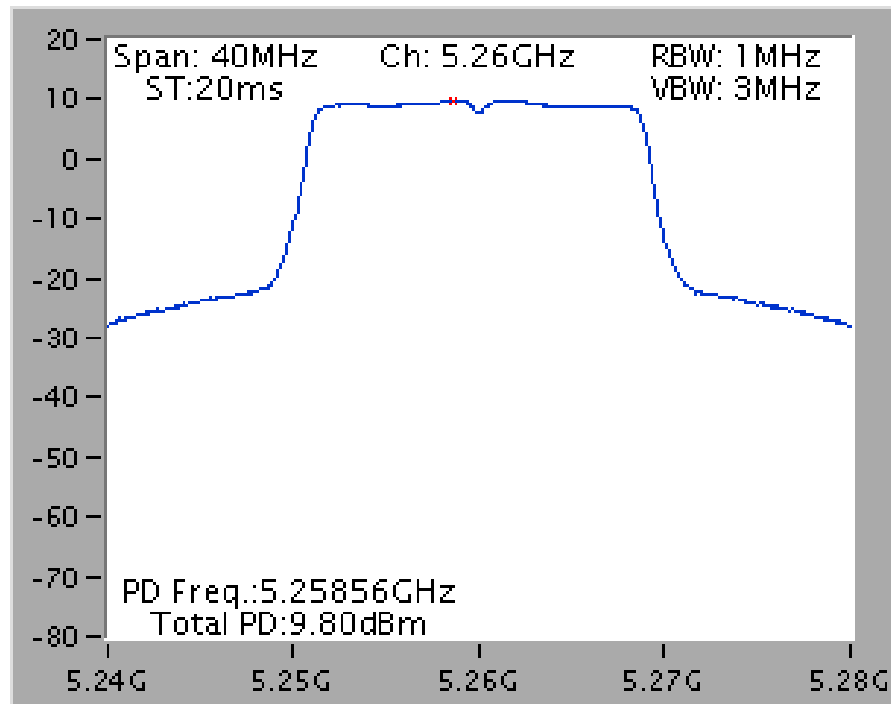
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 / 5610 MHz



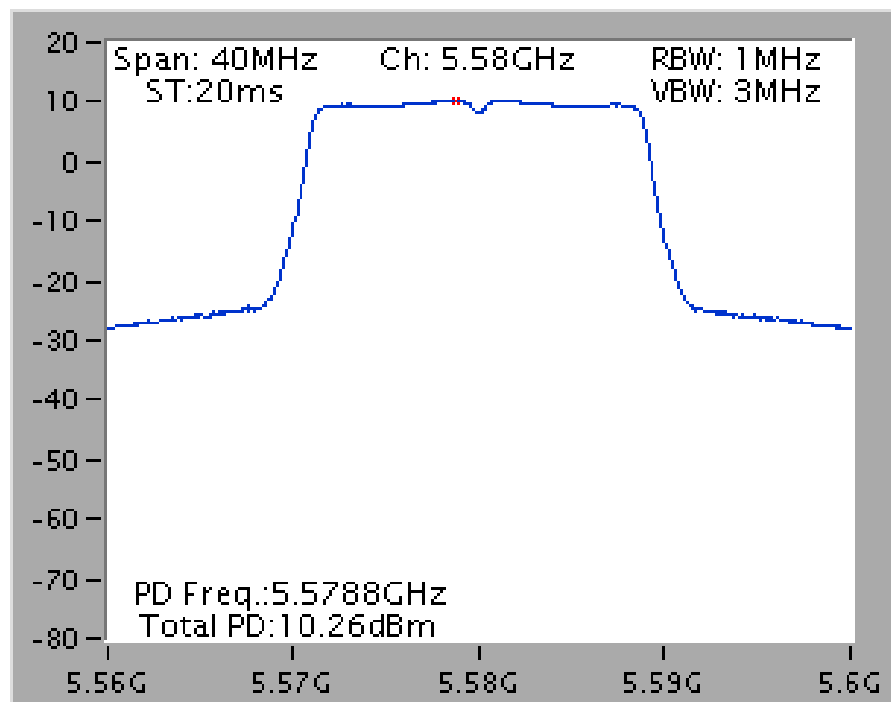
&lt;For STBC Mode&gt;

For 2TX

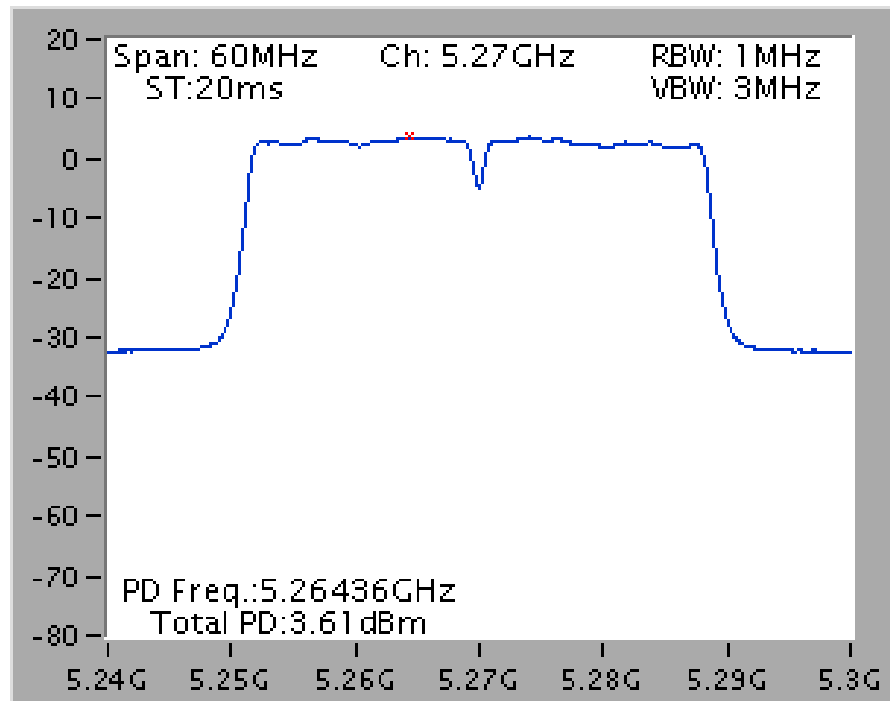
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5260 MHz



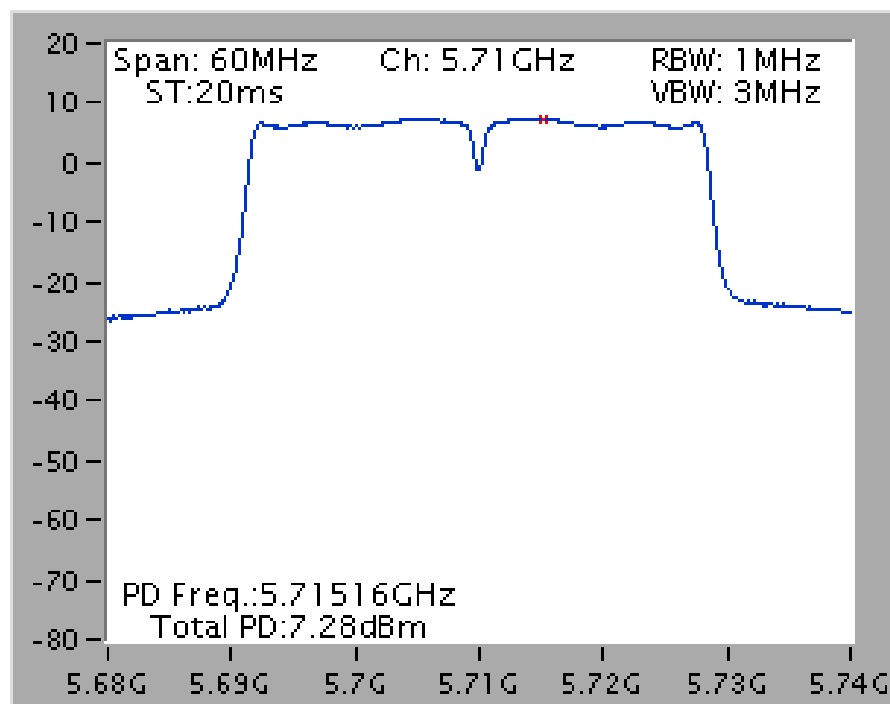
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5580 MHz



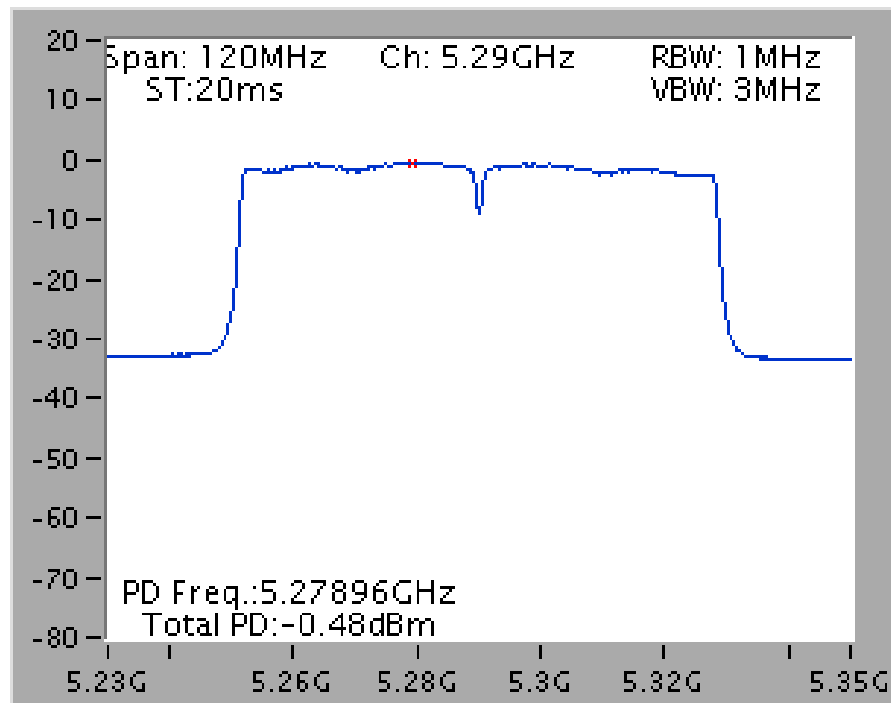
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5270 MHz



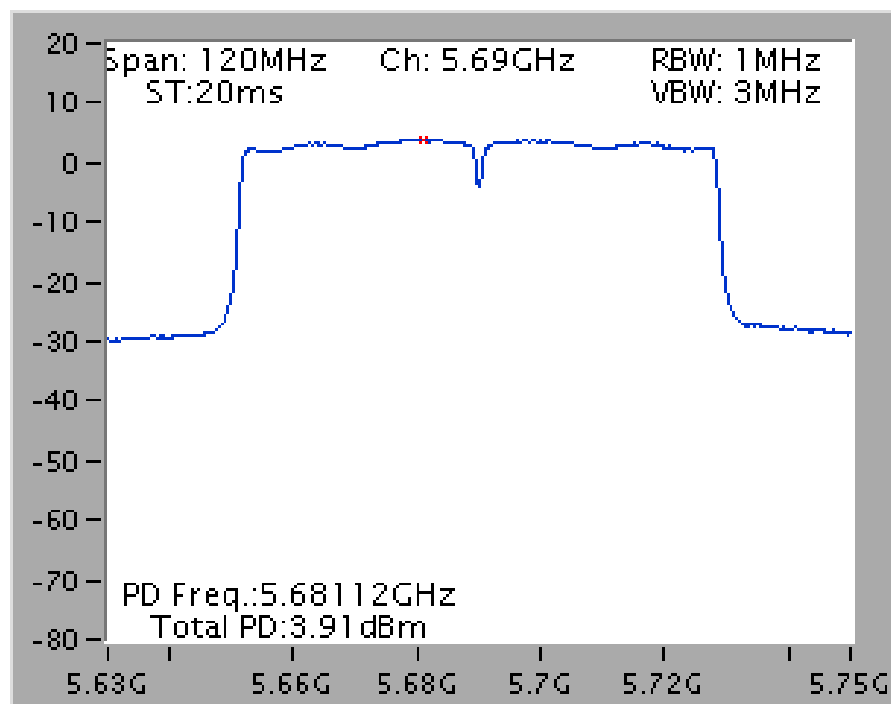
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5710 MHz



### Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5290 MHz



### Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5690 MHz



## 4.5. Radiated Emissions Measurement

### 4.5.1. Limit

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of  $-27$  dBm/MHz.

For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of  $-27$  dBm/MHz.

In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| Frequencies<br>(MHz) | Field Strength<br>(micorvolts/meter) | Measurement Distance<br>(meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009~0.490          | 2400/F(kHz)                          | 300                              |
| 0.490~1.705          | 24000/F(kHz)                         | 30                               |
| 1.705~30.0           | 30                                   | 30                               |
| 30~88                | 100                                  | 3                                |
| 88~216               | 150                                  | 3                                |
| 216~960              | 200                                  | 3                                |
| Above 960            | 500                                  | 3                                |

### 4.5.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

| Spectrum Parameter                          | Setting                                         |
|---------------------------------------------|-------------------------------------------------|
| Attenuation                                 | Auto                                            |
| Start Frequency                             | 1 000 MHz                                       |
| Stop Frequency                              | 40 GHz                                          |
| RBW / VBW (Emission in restricted band)     | 1 MHz / 3MHz for Peak, 1 MHz / 10Hz for Average |
| RBW / VBW (Emission in non-restricted band) | 1 MHz / 3MHz for peak                           |

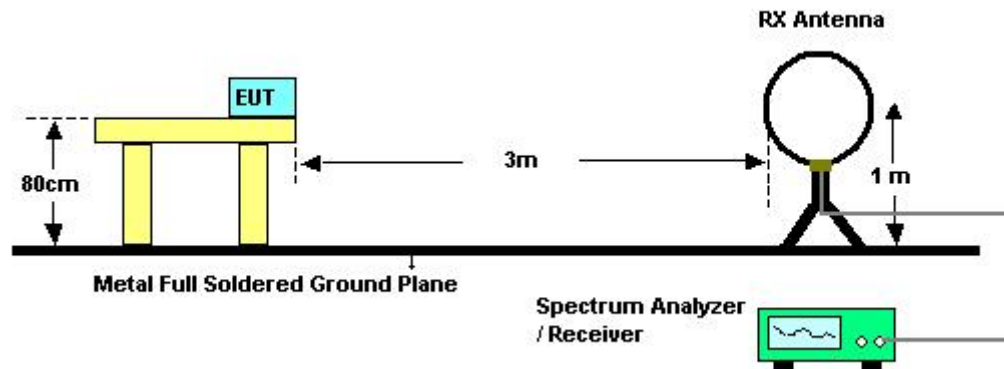
| Receiver Parameter     | Setting                           |
|------------------------|-----------------------------------|
| Attenuation            | Auto                              |
| Start ~ Stop Frequency | 9kHz~150kHz / RBW 200Hz for QP    |
| Start ~ Stop Frequency | 150kHz~30MHz / RBW 9kHz for QP    |
| Start ~ Stop Frequency | 30MHz~1000MHz / RBW 120kHz for QP |

#### 4.5.3. Test Procedures

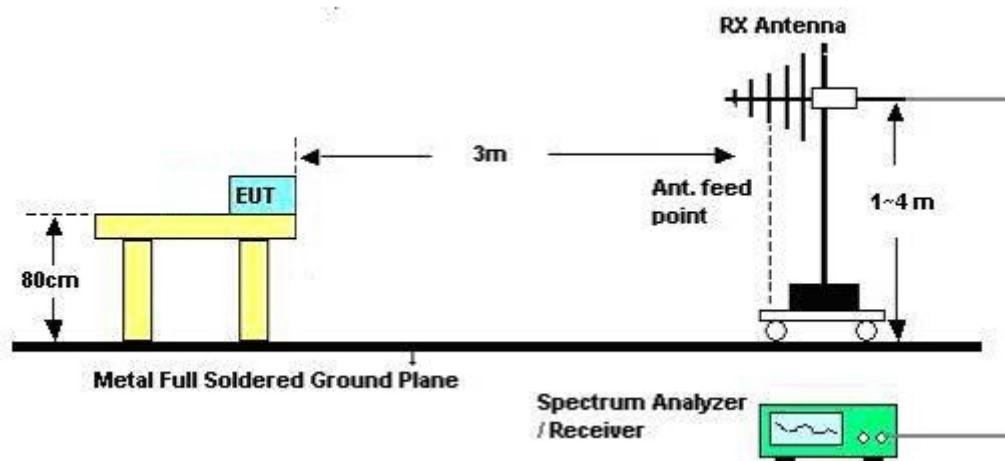
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
8. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
9. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

#### 4.5.4. Test Setup Layout

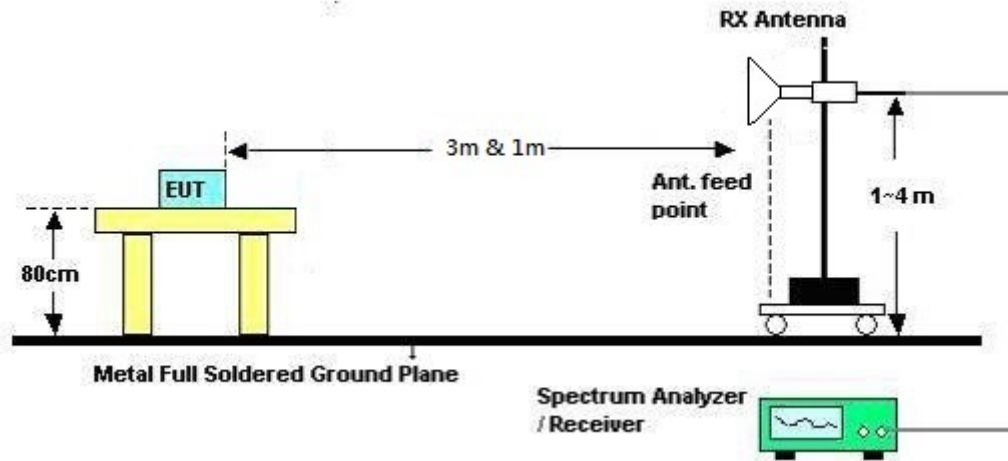
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



#### For Radiated Emissions: Above 1GHz



#### 4.5.5. Test Deviation

There is no deviation with the original standard.

#### 4.5.6. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For STBC mode:

The EUT was programmed to be in continuously transmitting mode.

#### 4.5.7. Results of Radiated Emissions (9kHz~30MHz)

|               |               |                |             |
|---------------|---------------|----------------|-------------|
| Temperature   | 24°C          | Humidity       | 56%         |
| Test Engineer | Nick Peng     | Configurations | Normal Link |
| Test Date     | Apr. 26, 2014 | Test Mode      | Mode 2      |

| Freq.<br>(MHz) | Level<br>(dBuV) | Over Limit<br>(dB) | Limit Line<br>(dBuV) | Remark   |
|----------------|-----------------|--------------------|----------------------|----------|
| -              | -               | -                  | -                    | See Note |

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

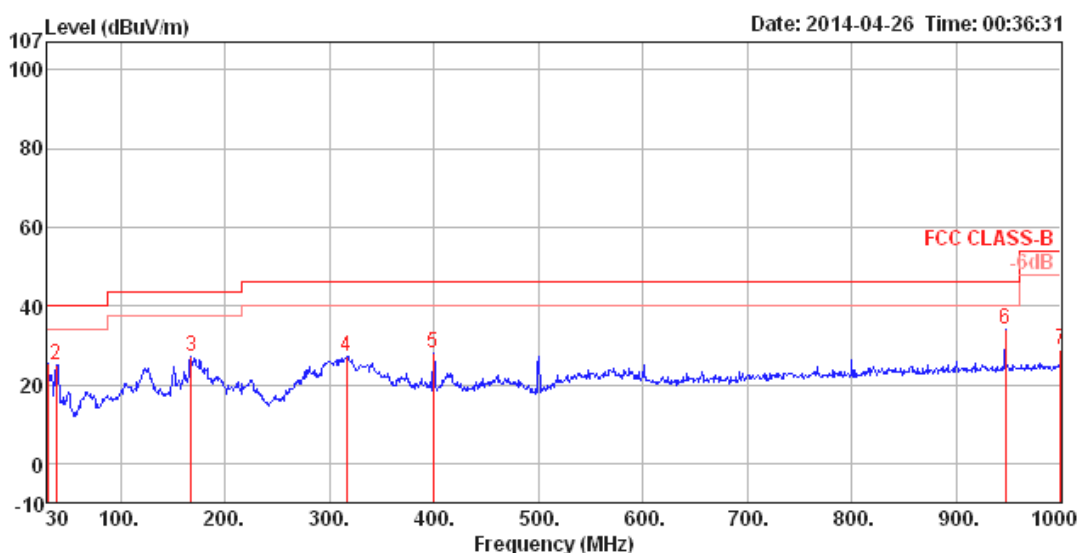
Distance extrapolation factor =  $40 \log (\text{specific distance} / \text{test distance})$  (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

#### 4.5.8. Results of Radiated Emissions (30MHz~1GHz)

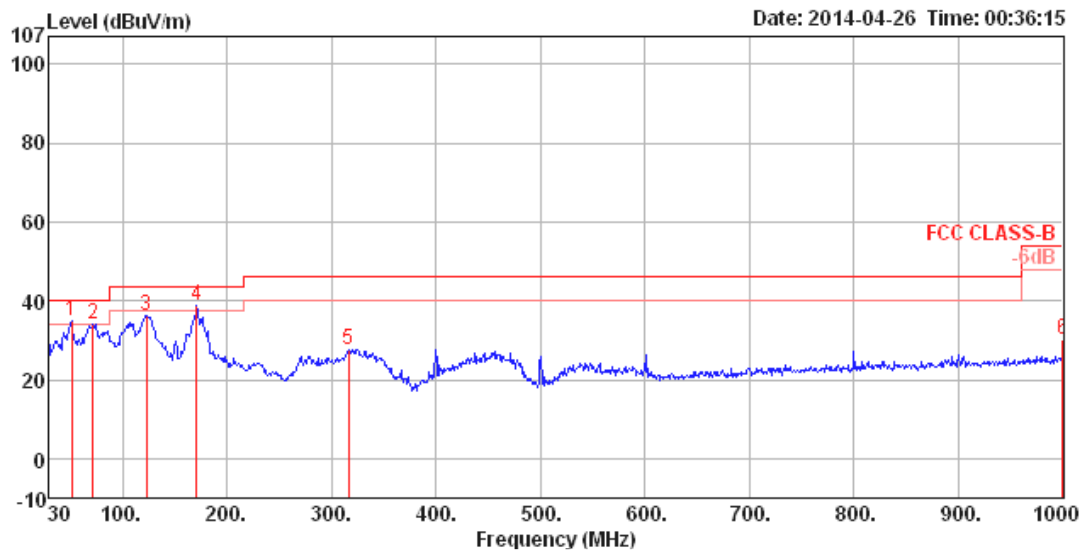
|               |           |                |             |
|---------------|-----------|----------------|-------------|
| Temperature   | 24°C      | Humidity       | 56%         |
| Test Engineer | Nick Peng | Configurations | Normal Link |
| Test Mode     | Mode 2    |                |             |

##### Horizontal



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase  | Remark |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|------------|--------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |            |        |
| 1 | 30.00   | 25.32  | 40.00  | -14.68 | 38.51 | 0.64  | 17.98   | 31.81  | 100   | 138   | HORIZONTAL | Peak   |
| 2 | 38.73   | 24.96  | 40.00  | -15.04 | 43.01 | 0.73  | 13.10   | 31.88  | 100   | 56    | HORIZONTAL | Peak   |
| 3 | 167.74  | 27.08  | 43.50  | -16.42 | 47.79 | 1.57  | 9.25    | 31.53  | 150   | 195   | HORIZONTAL | Peak   |
| 4 | 316.15  | 27.04  | 46.00  | -18.96 | 42.76 | 2.17  | 13.51   | 31.40  | 125   | 191   | HORIZONTAL | Peak   |
| 5 | 399.57  | 27.78  | 46.00  | -18.22 | 40.89 | 2.49  | 15.86   | 31.46  | 125   | 184   | HORIZONTAL | Peak   |
| 6 | 946.65  | 34.02  | 46.00  | -11.98 | 40.18 | 4.07  | 20.89   | 31.12  | 100   | 214   | HORIZONTAL | Peak   |
| 7 | 1000.00 | 28.76  | 54.00  | -25.24 | 34.29 | 4.21  | 21.44   | 31.18  | 125   | 218   | HORIZONTAL | Peak   |

## Vertical



|   | Freq    | Level  | Limit  | Over   | Read  | CableAntenna | Preamp | A/Pos | T/Pos | Pol/Phase    | Remark |
|---|---------|--------|--------|--------|-------|--------------|--------|-------|-------|--------------|--------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB           | dB/m   | dB    | cm    | deg          |        |
| 1 | 51.34   | 34.79  | 40.00  | -5.21  | 58.58 | 0.85         | 7.15   | 31.79 | 125   | 188 VERTICAL | Peak   |
| 2 | 71.71   | 34.09  | 40.00  | -5.91  | 59.34 | 1.01         | 5.49   | 31.75 | 125   | 200 VERTICAL | Peak   |
| 3 | 123.12  | 36.21  | 43.50  | -7.29  | 54.79 | 1.31         | 11.67  | 31.56 | 100   | 262 VERTICAL | Peak   |
| 4 | 170.65  | 38.72  | 43.50  | -4.78  | 59.61 | 1.59         | 9.04   | 31.52 | 125   | 158 VERTICAL | Peak   |
| 5 | 316.15  | 27.53  | 46.00  | -18.47 | 43.25 | 2.17         | 13.51  | 31.40 | 200   | 182 VERTICAL | Peak   |
| 6 | 1000.00 | 30.01  | 54.00  | -23.99 | 35.54 | 4.21         | 21.44  | 31.18 | 150   | 3 VERTICAL   | Peak   |

### Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

#### 4.5.9. Results for Radiated Emissions (1GHz~40GHz)

<For Non-Beamforming Mode>

|               |               |                |                                                     |
|---------------|---------------|----------------|-----------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                 |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                     |

##### Horizontal

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | deg   | cm    |            |
| 1 | 15776.66 | 55.86  | 74.00      | -18.14     | 44.37      | 7.93       | 38.48          | 34.92         | Peak    | 356   | 100   | HORIZONTAL |
| 2 | 15780.02 | 43.89  | 54.00      | -10.11     | 32.42      | 7.93       | 38.48          | 34.94         | Average | 356   | 100   | HORIZONTAL |

##### Vertical

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | deg   | cm    |           |
| 1 | 15777.36 | 44.14  | 54.00      | -9.86      | 32.67      | 7.93       | 38.48          | 34.94         | Average | 22    | 100   | VERTICAL  |
| 2 | 15779.34 | 58.17  | 74.00      | -15.83     | 46.70      | 7.93       | 38.48          | 34.94         | Peak    | 22    | 100   | VERTICAL  |

|               |               |                |                                                     |
|---------------|---------------|----------------|-----------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                 |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                     |

### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase |            |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|-----------|------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |           |            |
| 1 | 10598.12 | 56.61  | 74.00         | -17.39        | 46.63         | 6.60                        | 38.38            | 35.00  | Peak    | 58    | 100       | HORIZONTAL |
| 2 | 10599.62 | 42.42  | 54.00         | -11.58        | 32.44         | 6.60                        | 38.38            | 35.00  | Average | 58    | 100       | HORIZONTAL |
| 3 | 15895.30 | 59.15  | 74.00         | -14.85        | 47.83         | 7.97                        | 38.38            | 35.03  | Peak    | 344   | 121       | HORIZONTAL |
| 4 | 15900.38 | 44.67  | 54.00         | -9.33         | 33.35         | 7.97                        | 38.38            | 35.03  | Average | 344   | 121       | HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Cable<br>Loss | Antenna<br>Factor | Preamp<br>Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|---------------|---------------|---------------|---------------|-------------------|------------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB            | dB/m              | dB               |         | deg   | cm    |           |
| 1 | 10599.80 | 38.44  | 54.00         | -15.56        | 28.46         | 6.60          | 38.38             | 35.00            | Average | 276   | 100   | VERTICAL  |
| 2 | 10601.38 | 52.82  | 74.00         | -21.18        | 42.83         | 6.60          | 38.38             | 34.99            | Peak    | 276   | 100   | VERTICAL  |
| 3 | 15897.94 | 56.30  | 74.00         | -17.70        | 44.98         | 7.97          | 38.38             | 35.03            | Peak    | 12    | 119   | VERTICAL  |
| 4 | 15903.02 | 42.80  | 54.00         | -11.20        | 31.48         | 7.98          | 38.37             | 35.03            | Average | 12    | 119   | VERTICAL  |

|               |               |                |                                                     |
|---------------|---------------|----------------|-----------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                 |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                     |

#### Horizontal

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | CableAntenna Loss | Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|------------|------------|------------|-------------------|--------|---------------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB                | dB/m   | dB            |         | deg   | cm    |            |
| 1 | 10639.84 | 39.66  | 54.00      | -14.34     | 29.67      | 6.59              | 38.37  | 34.97         | Average | 58    | 153   | HORIZONTAL |
| 2 | 10640.24 | 53.20  | 74.00      | -20.80     | 43.21      | 6.59              | 38.37  | 34.97         | Peak    | 58    | 153   | HORIZONTAL |
| 3 | 15956.56 | 40.95  | 54.00      | -13.05     | 29.72      | 8.00              | 38.33  | 35.10         | Average | 340   | 100   | HORIZONTAL |
| 4 | 15958.52 | 54.25  | 74.00      | -19.75     | 43.02      | 8.00              | 38.33  | 35.10         | Peak    | 340   | 100   | HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | CableAntenna Loss | Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|--------|---------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB                | dB/m   | dB            |         | deg   | cm    |           |
| 1 | 10639.90 | 37.73  | 54.00      | -16.27     | 27.74      | 6.59              | 38.37  | 34.97         | Average | 355   | 100   | VERTICAL  |
| 2 | 10642.74 | 51.34  | 74.00      | -22.66     | 41.35      | 6.59              | 38.37  | 34.97         | Peak    | 355   | 100   | VERTICAL  |
| 3 | 15959.48 | 54.22  | 74.00      | -19.78     | 42.99      | 8.00              | 38.33  | 35.10         | Peak    | 5     | 100   | VERTICAL  |
| 4 | 15965.00 | 40.90  | 54.00      | -13.10     | 29.67      | 8.00              | 38.33  | 35.10         | Average | 5     | 100   | VERTICAL  |

|               |               |                |                                                      |
|---------------|---------------|----------------|------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                      |

#### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 10995.04 | 50.43  | 74.00         | -23.57        | 40.38         | 6.46                        | 38.30            | 34.71  | Peak    | 292   | 100 HORIZONTAL |
| 2 | 10999.98 | 37.24  | 54.00         | -16.76        | 27.19         | 6.46                        | 38.30            | 34.71  | Average | 292   | 100 HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |              |
| 1 | 10998.34 | 50.53  | 74.00         | -23.47        | 40.48         | 6.46                        | 38.30            | 34.71  | Peak    | 59    | 100 VERTICAL |
| 2 | 11002.70 | 36.87  | 54.00         | -17.13        | 26.82         | 6.46                        | 38.30            | 34.71  | Average | 59    | 100 VERTICAL |

|               |               |                |                                                      |
|---------------|---------------|----------------|------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                      |

### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 11161.10 | 42.77  | 54.00         | -11.23        | 32.60         | 6.56                        | 38.30            | 34.69  | Average | 72    | 107 HORIZONTAL |
| 2 | 11163.16 | 56.10  | 74.00         | -17.90        | 45.93         | 6.56                        | 38.30            | 34.69  | Peak    | 72    | 107 HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Factor | Preamp<br>Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|---------------|---------------|---------------|----------------------|--------|------------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m   | dB               |         | deg   | cm    |           |
| 1 | 11158.42 | 42.09  | 54.00         | -11.91        | 31.92         | 6.56                 | 38.30  | 34.69            | Average | 33    | 104   | VERTICAL  |
| 2 | 11159.44 | 56.31  | 74.00         | -17.69        | 46.14         | 6.56                 | 38.30  | 34.69            | Peak    | 33    | 104   | VERTICAL  |

|               |               |                |                                                      |
|---------------|---------------|----------------|------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                      |

#### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 11398.06 | 49.70  | 74.00         | -24.30        | 39.38         | 6.69                        | 38.30            | 34.67  | Peak    | 320   | 100 HORIZONTAL |
| 2 | 11400.60 | 36.17  | 54.00         | -17.83        | 25.85         | 6.69                        | 38.30            | 34.67  | Average | 320   | 100 HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|---------------|---------------|---------------|----------------------|------------------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB     | deg     | cm    |              |
| 1 | 11395.52 | 36.19  | 54.00         | -17.81        | 25.87         | 6.69                 | 38.30            | 34.67  | Average | 131   | 100 VERTICAL |
| 2 | 11395.74 | 50.16  | 74.00         | -23.84        | 39.84         | 6.69                 | 38.30            | 34.67  | Peak    | 131   | 100 VERTICAL |

|               |               |                |                                                      |
|---------------|---------------|----------------|------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                      |

### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase |            |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|-----------|------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |           |            |
| 1 | 11439.36 | 60.34  | 74.00         | -13.66        | 50.00         | 6.71                        | 38.30            | 34.67  | Peak    | 58    | 125       | HORIZONTAL |
| 2 | 11441.00 | 45.37  | 54.00         | -8.63         | 35.03         | 6.71                        | 38.30            | 34.67  | Average | 58    | 125       | HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |              |
| 1 | 11442.82 | 58.24  | 74.00         | -15.76        | 47.90         | 6.71                        | 38.30            | 34.67  | Peak    | 354   | 123 VERTICAL |
| 2 | 11443.58 | 43.32  | 54.00         | -10.68        | 32.98         | 6.71                        | 38.30            | 34.67  | Average | 354   | 123 VERTICAL |

|               |               |                |                                                     |
|---------------|---------------|----------------|-----------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                 |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                     |

### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 15805.14 | 41.03  | 54.00         | -12.97        | 29.60         | 7.95                        | 38.45            | 34.97  | Average | 328   | 100 HORIZONTAL |
| 2 | 15805.86 | 54.06  | 74.00         | -19.94        | 42.63         | 7.95                        | 38.45            | 34.97  | Peak    | 328   | 100 HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|---------------|---------------|---------------|----------------------|------------------|--------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB     |         | deg   | cm    |           |
| 1 | 15805.56 | 41.07  | 54.00         | -12.93        | 29.64         | 7.95                 | 38.45            | 34.97  | Average | 61    | 100   | VERTICAL  |
| 2 | 15811.86 | 54.59  | 74.00         | -19.41        | 43.16         | 7.95                 | 38.45            | 34.97  | Peak    | 61    | 100   | VERTICAL  |

|               |               |                |                                                     |
|---------------|---------------|----------------|-----------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                 |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 62 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                     |

#### Horizontal

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | CableAntenna Loss | Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|------------|------------|------------|-------------------|--------|---------------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB                | dB/m   | dB            |         | deg   | cm    |            |
| 1 | 10620.02 | 37.80  | 54.00      | -16.20     | 27.81      | 6.60              | 38.38  | 34.99         | Average | 260   | 100   | HORIZONTAL |
| 2 | 10621.84 | 50.79  | 74.00      | -23.21     | 40.80      | 6.60              | 38.38  | 34.99         | Peak    | 260   | 100   | HORIZONTAL |
| 3 | 15925.56 | 41.11  | 54.00      | -12.89     | 29.81      | 7.99              | 38.36  | 35.05         | Average | 141   | 100   | HORIZONTAL |
| 4 | 15934.54 | 53.91  | 74.00      | -20.09     | 42.66      | 7.99              | 38.34  | 35.08         | Peak    | 141   | 100   | HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | CableAntenna Loss | Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|--------|---------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB                | dB/m   | dB            |         | deg   | cm    |           |
| 1 | 10619.92 | 37.52  | 54.00      | -16.48     | 27.53      | 6.60              | 38.38  | 34.99         | Average | 58    | 100   | VERTICAL  |
| 2 | 10623.68 | 50.99  | 74.00      | -23.01     | 41.00      | 6.60              | 38.38  | 34.99         | Peak    | 58    | 100   | VERTICAL  |
| 3 | 15925.62 | 40.97  | 54.00      | -13.03     | 29.67      | 7.99              | 38.36  | 35.05         | Average | 252   | 100   | VERTICAL  |
| 4 | 15932.90 | 53.89  | 74.00      | -20.11     | 42.62      | 7.99              | 38.36  | 35.08         | Peak    | 252   | 100   | VERTICAL  |

|               |               |                |                                                      |
|---------------|---------------|----------------|------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 102 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                      |

#### Horizontal

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | deg   | cm    |            |
| 1 | 11017.84 | 50.61  | 74.00      | -23.39     | 40.55      | 6.47       | 38.30          | 34.71         | Peak    | 350   | 100   | HORIZONTAL |
| 2 | 11019.86 | 37.42  | 54.00      | -16.58     | 27.36      | 6.47       | 38.30          | 34.71         | Average | 350   | 100   | HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | deg   | cm    |           |
| 1 | 11018.16 | 50.74  | 74.00      | -23.26     | 40.68      | 6.47       | 38.30          | 34.71         | Peak    | 144   | 100   | VERTICAL  |
| 2 | 11024.86 | 36.89  | 54.00      | -17.11     | 26.82      | 6.48       | 38.30          | 34.71         | Average | 144   | 100   | VERTICAL  |

|               |               |                |                                                      |
|---------------|---------------|----------------|------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 110 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                      |

### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 11098.36 | 38.08  | 54.00         | -15.92        | 27.96         | 6.52                        | 38.30            | 34.70  | Average | 10    | 100 HORIZONTAL |
| 2 | 11102.02 | 51.02  | 74.00         | -22.98        | 40.90         | 6.52                        | 38.30            | 34.70  | Peak    | 10    | 100 HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |              |
| 1 | 11098.38 | 37.80  | 54.00         | -16.20        | 27.68         | 6.52                        | 38.30            | 34.70  | Average | 285   | 100 VERTICAL |
| 2 | 11104.08 | 52.02  | 74.00         | -21.98        | 41.90         | 6.52                        | 38.30            | 34.70  | Peak    | 285   | 100 VERTICAL |

|               |               |                |                                                      |
|---------------|---------------|----------------|------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 134 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                      |

#### Horizontal

|   | Freq     | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     |         | deg   | cm    |            |
| 1 | 11338.06 | 49.77  | 74.00  | -24.23 | 39.50 | 6.65  | 38.30   | 34.68  | Peak    | 291   | 100   | HORIZONTAL |
| 2 | 11338.84 | 36.47  | 54.00  | -17.53 | 26.20 | 6.65  | 38.30   | 34.68  | Average | 291   | 100   | HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     |         | deg   | cm    |           |
| 1 | 11341.18 | 36.06  | 54.00  | -17.94 | 25.78 | 6.65  | 38.30   | 34.67  | Average | 61    | 100   | VERTICAL  |
| 2 | 11344.32 | 49.67  | 74.00  | -24.33 | 39.39 | 6.65  | 38.30   | 34.67  | Peak    | 61    | 100   | VERTICAL  |

|               |               |                |                                                      |
|---------------|---------------|----------------|------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 142 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                      |

### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase |            |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|-----------|------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |           |            |
| 1 | 11419.24 | 56.61  | 74.00         | -17.39        | 46.28         | 6.70                        | 38.30            | 34.67  | Peak    | 56    | 132       | HORIZONTAL |
| 2 | 11421.16 | 41.85  | 54.00         | -12.15        | 31.52         | 6.70                        | 38.30            | 34.67  | Average | 56    | 132       | HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|---------------|---------------|---------------|----------------------|------------------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB     | deg     | cm    |              |
| 1 | 11418.28 | 41.19  | 54.00         | -12.81        | 30.86         | 6.70                 | 38.30            | 34.67  | Average | 354   | 149 VERTICAL |
| 2 | 11419.72 | 55.48  | 74.00         | -18.52        | 45.15         | 6.70                 | 38.30            | 34.67  | Peak    | 354   | 149 VERTICAL |

|               |               |                |                                                     |
|---------------|---------------|----------------|-----------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                 |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                     |

### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 15865.08 | 53.42  | 74.00         | -20.58        | 42.06         | 7.96                        | 38.41            | 35.01  | Peak    | 87    | 100 HORIZONTAL |
| 2 | 15869.48 | 40.28  | 54.00         | -13.72        | 28.92         | 7.97                        | 38.40            | 35.01  | Average | 87    | 100 HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|---------------|---------------|---------------|----------------------|------------------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB     | deg     | cm    |              |
| 1 | 15866.84 | 40.42  | 54.00         | -13.58        | 29.06         | 7.97                 | 38.40            | 35.01  | Average | 204   | 100 VERTICAL |
| 2 | 15873.32 | 53.37  | 74.00         | -20.63        | 42.01         | 7.97                 | 38.40            | 35.01  | Peak    | 204   | 100 VERTICAL |

|               |               |                |                                                      |
|---------------|---------------|----------------|------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80 CH 106 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                      |

#### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 11059.20 | 51.14  | 74.00         | -22.86        | 41.04         | 6.50                        | 38.30            | 34.70  | Peak    | 178   | 100 HORIZONTAL |
| 2 | 11059.96 | 37.55  | 54.00         | -16.45        | 27.45         | 6.50                        | 38.30            | 34.70  | Average | 178   | 100 HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|---------------|---------------|---------------|----------------------|------------------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB     | deg     | cm    |              |
| 1 | 11060.88 | 37.41  | 54.00         | -16.59        | 27.31         | 6.50                 | 38.30            | 34.70  | Average | 280   | 100 VERTICAL |
| 2 | 11062.44 | 51.04  | 74.00         | -22.96        | 40.94         | 6.50                 | 38.30            | 34.70  | Peak    | 280   | 100 VERTICAL |

|               |               |                |                                                      |
|---------------|---------------|----------------|------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80 CH 122 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                      |

#### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 11230.10 | 52.14  | 74.00         | -21.86        | 41.93         | 6.60                        | 38.30            | 34.69  | Peak    | 251   | 100 HORIZONTAL |
| 2 | 11238.83 | 37.91  | 54.00         | -16.09        | 27.69         | 6.60                        | 38.30            | 34.68  | Average | 251   | 100 HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |              |
| 1 | 11239.31 | 52.03  | 74.00         | -21.97        | 41.81         | 6.60                        | 38.30            | 34.68  | Peak    | 123   | 100 VERTICAL |
| 2 | 11244.28 | 38.13  | 54.00         | -15.87        | 27.90         | 6.61                        | 38.30            | 34.68  | Average | 123   | 100 VERTICAL |

|               |               |                |                                                      |
|---------------|---------------|----------------|------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80 CH 138 / Chain 2 / 1TX |
| Test Date     | Jun. 11, 2014 |                |                                                      |

#### Horizontal

|   | Freq     | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     |         | deg   | cm    |            |
| 1 | 11375.10 | 50.91  | 74.00  | -23.09 | 40.61 | 6.67  | 38.30   | 34.67  | Peak    | 345   | 100   | HORIZONTAL |
| 2 | 11375.96 | 37.09  | 54.00  | -16.91 | 26.79 | 6.67  | 38.30   | 34.67  | Average | 345   | 100   | HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     |         | deg   | cm    |           |
| 1 | 11377.86 | 50.37  | 74.00  | -23.63 | 40.07 | 6.67  | 38.30   | 34.67  | Peak    | 22    | 100   | VERTICAL  |
| 2 | 11379.40 | 36.78  | 54.00  | -17.22 | 26.47 | 6.68  | 38.30   | 34.67  | Average | 22    | 100   | VERTICAL  |

#### Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

## &lt;For STBC Mode&gt;

|               |               |                |                                                               |
|---------------|---------------|----------------|---------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                           |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                               |

## Horizontal

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm             |
| 1 | 15779.00 | 44.47  | 54.00  | -9.53  | 33.00 | 7.93         | 38.48  | 34.94  | Average | 350   | 100 HORIZONTAL |
| 2 | 15781.40 | 58.81  | 74.00  | -15.19 | 47.34 | 7.93         | 38.48  | 34.94  | Peak    | 350   | 100 HORIZONTAL |

## Vertical

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm           |
| 1 | 15780.00 | 44.72  | 54.00  | -9.28  | 33.25 | 7.93         | 38.48  | 34.94  | Average | 20    | 100 VERTICAL |
| 2 | 15780.56 | 58.79  | 74.00  | -15.21 | 47.32 | 7.93         | 38.48  | 34.94  | Peak    | 20    | 100 VERTICAL |

|               |               |                |                                                               |
|---------------|---------------|----------------|---------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                           |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                               |

### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase |            |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|-----------|------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |           |            |
| 1 | 10600.28 | 45.41  | 54.00         | -8.59         | 35.43         | 6.60                        | 38.38            | 35.00  | Average | 75    | 150       | HORIZONTAL |
| 2 | 10601.84 | 59.99  | 74.00         | -14.01        | 50.00         | 6.60                        | 38.38            | 34.99  | Peak    | 75    | 150       | HORIZONTAL |
| 3 | 15897.80 | 58.63  | 74.00         | -15.37        | 47.31         | 7.97                        | 38.38            | 35.03  | Peak    | 24    | 100       | HORIZONTAL |
| 4 | 15902.96 | 44.39  | 54.00         | -9.61         | 33.07         | 7.98                        | 38.37            | 35.03  | Average | 24    | 100       | HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableLoss | Antenna<br>Factor | Preamp<br>Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|---------------|---------------|---------------|-----------|-------------------|------------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB        | dB/m              | dB               |         | deg   | cm    |           |
| 1 | 10598.60 | 54.38  | 74.00         | -19.62        | 44.40         | 6.60      | 38.38             | 35.00            | Peak    | 11    | 145   | VERTICAL  |
| 2 | 10599.92 | 41.06  | 54.00         | -12.94        | 31.08         | 6.60      | 38.38             | 35.00            | Average | 11    | 145   | VERTICAL  |
| 3 | 15901.12 | 42.98  | 54.00         | -11.02        | 31.66         | 7.98      | 38.37             | 35.03            | Average | 344   | 100   | VERTICAL  |
| 4 | 15908.64 | 56.70  | 74.00         | -17.30        | 45.40         | 7.98      | 38.37             | 35.05            | Peak    | 344   | 100   | VERTICAL  |

|               |               |                |                                                               |
|---------------|---------------|----------------|---------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                           |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                               |

### Horizontal

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | CableAntenna Loss | Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|------------|------------|------------|-------------------|--------|---------------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB                | dB/m   | dB            |         | deg   | cm    |            |
| 1 | 10640.58 | 52.48  | 74.00      | -21.52     | 42.49      | 6.59              | 38.37  | 34.97         | Peak    | 71    | 100   | HORIZONTAL |
| 2 | 10642.68 | 38.71  | 54.00      | -15.29     | 28.72      | 6.59              | 38.37  | 34.97         | Average | 71    | 100   | HORIZONTAL |
| 3 | 15956.54 | 41.68  | 54.00      | -12.32     | 30.45      | 8.00              | 38.33  | 35.10         | Average | 332   | 100   | HORIZONTAL |
| 4 | 15962.98 | 55.58  | 74.00      | -18.42     | 44.35      | 8.00              | 38.33  | 35.10         | Peak    | 332   | 100   | HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | CableAntenna Loss | Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|--------|---------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB                | dB/m   | dB            |         | deg   | cm    |           |
| 1 | 10639.90 | 51.69  | 74.00      | -22.31     | 41.70      | 6.59              | 38.37  | 34.97         | Peak    | 291   | 100   | VERTICAL  |
| 2 | 10639.96 | 38.48  | 54.00      | -15.52     | 28.49      | 6.59              | 38.37  | 34.97         | Average | 291   | 100   | VERTICAL  |
| 3 | 15961.58 | 55.42  | 74.00      | -18.58     | 44.19      | 8.00              | 38.33  | 35.10         | Peak    | 23    | 100   | VERTICAL  |
| 4 | 15964.98 | 41.70  | 54.00      | -12.30     | 30.47      | 8.00              | 38.33  | 35.10         | Average | 23    | 100   | VERTICAL  |

|               |               |                |                                                                |
|---------------|---------------|----------------|----------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                            |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                                |

### Horizontal

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm             |
| 1 | 10999.84 | 54.63  | 74.00  | -19.37 | 44.58 | 6.46         | 38.30  | 34.71  | Peak    | 44    | 100 HORIZONTAL |
| 2 | 10999.98 | 39.44  | 54.00  | -14.56 | 29.39 | 6.46         | 38.30  | 34.71  | Average | 44    | 100 HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm           |
| 1 | 10997.50 | 53.16  | 74.00  | -20.84 | 43.11 | 6.46         | 38.30  | 34.71  | Peak    | 19    | 100 VERTICAL |
| 2 | 10999.92 | 38.74  | 54.00  | -15.26 | 28.69 | 6.46         | 38.30  | 34.71  | Average | 19    | 100 VERTICAL |

|               |               |                |                                                                |
|---------------|---------------|----------------|----------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                            |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                                |

### Horizontal

|   | Freq     | Level  | Limit  | Over  | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|--------|-------|-------|--------------|--------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m | dB    | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm             |
| 1 | 11159.64 | 64.37  | 74.00  | -9.63 | 54.20 | 6.56         | 38.30  | 34.69  | Peak    | 44    | 102 HORIZONTAL |
| 2 | 11159.84 | 50.17  | 54.00  | -3.83 | 40.00 | 6.56         | 38.30  | 34.69  | Average | 44    | 102 HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm           |
| 1 | 11159.96 | 46.27  | 54.00  | -7.73  | 36.10 | 6.56         | 38.30  | 34.69  | Average | 14    | 104 VERTICAL |
| 2 | 11160.00 | 61.01  | 74.00  | -12.99 | 50.84 | 6.56         | 38.30  | 34.69  | Peak    | 14    | 104 VERTICAL |

|               |               |                |                                                                |
|---------------|---------------|----------------|----------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                            |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                                |

### Horizontal

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | deg   | cm    |            |
| 1 | 11401.66 | 37.47  | 54.00      | -16.53     | 27.15      | 6.69       | 38.30          | 34.67         | Average | 135   | 100   | HORIZONTAL |
| 2 | 11403.18 | 50.04  | 74.00      | -23.96     | 39.72      | 6.69       | 38.30          | 34.67         | Peak    | 135   | 100   | HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | deg   | cm    |           |
| 1 | 11398.96 | 50.60  | 74.00      | -23.40     | 40.28      | 6.69       | 38.30          | 34.67         | Peak    | 262   | 100   | VERTICAL  |
| 2 | 11402.28 | 36.66  | 54.00      | -17.34     | 26.34      | 6.69       | 38.30          | 34.67         | Average | 262   | 100   | VERTICAL  |

|               |               |                |                                                                |
|---------------|---------------|----------------|----------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                            |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                                |

### Horizontal

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | CableAntenna Loss | Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|------------|------------|------------|-------------------|--------|---------------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB                | dB/m   | dB            |         | deg   | cm    |            |
| 1 | 11439.88 | 49.37  | 54.00      | -4.63      | 39.03      | 6.71              | 38.30  | 34.67         | Average | 81    | 116   | HORIZONTAL |
| 2 | 11439.92 | 64.45  | 74.00      | -9.55      | 54.11      | 6.71              | 38.30  | 34.67         | Peak    | 81    | 116   | HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | CableAntenna Loss | Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|--------|---------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB                | dB/m   | dB            |         | deg   | cm    |           |
| 1 | 11440.80 | 47.93  | 54.00      | -6.07      | 37.59      | 6.71              | 38.30  | 34.67         | Average | 20    | 100   | VERTICAL  |
| 2 | 11443.28 | 63.16  | 74.00      | -10.84     | 52.82      | 6.71              | 38.30  | 34.67         | Peak    | 20    | 100   | VERTICAL  |

|               |               |                |                                                               |
|---------------|---------------|----------------|---------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                           |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                               |

### Horizontal

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm             |
| 1 | 15806.16 | 41.59  | 54.00  | -12.41 | 30.16 | 7.95         | 38.45  | 34.97  | Average | 332   | 100 HORIZONTAL |
| 2 | 15810.96 | 55.50  | 74.00  | -18.50 | 44.07 | 7.95         | 38.45  | 34.97  | Peak    | 332   | 100 HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm           |
| 1 | 15805.40 | 41.46  | 54.00  | -12.54 | 30.03 | 7.95         | 38.45  | 34.97  | Average | 62    | 100 VERTICAL |
| 2 | 15808.32 | 54.87  | 74.00  | -19.13 | 43.44 | 7.95         | 38.45  | 34.97  | Peak    | 62    | 100 VERTICAL |

|               |               |                |                                                               |
|---------------|---------------|----------------|---------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                           |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 62 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                               |

#### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 10619.06 | 52.50  | 74.00         | -21.50        | 42.51         | 6.60                        | 38.38            | 34.99  | Peak    | 82    | 100 HORIZONTAL |
| 2 | 10619.86 | 38.32  | 54.00         | -15.68        | 28.33         | 6.60                        | 38.38            | 34.99  | Average | 82    | 100 HORIZONTAL |
| 3 | 15925.94 | 42.04  | 54.00         | -11.96        | 30.74         | 7.99                        | 38.36            | 35.05  | Average | 274   | 100 HORIZONTAL |
| 4 | 15933.28 | 56.08  | 74.00         | -17.92        | 44.81         | 7.99                        | 38.36            | 35.08  | Peak    | 274   | 100 HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Cable<br>Loss | Antenna<br>Factor | Preamp<br>Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|---------------|---------------|---------------|---------------|-------------------|------------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB            | dB/m              | dB               |         | deg   | cm    |           |
| 1 | 10619.72 | 52.43  | 74.00         | -21.57        | 42.44         | 6.60          | 38.38             | 34.99            | Peak    | 351   | 100   | VERTICAL  |
| 2 | 10619.86 | 38.57  | 54.00         | -15.43        | 28.58         | 6.60          | 38.38             | 34.99            | Average | 351   | 100   | VERTICAL  |
| 3 | 15927.12 | 55.34  | 74.00         | -18.66        | 44.04         | 7.99          | 38.36             | 35.05            | Peak    | 57    | 100   | VERTICAL  |
| 4 | 15928.64 | 41.99  | 54.00         | -12.01        | 30.69         | 7.99          | 38.36             | 35.05            | Average | 57    | 100   | VERTICAL  |

|               |               |                |                                                                |
|---------------|---------------|----------------|----------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                            |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 102 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                                |

### Horizontal

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm             |
| 1 | 11016.24 | 50.99  | 74.00  | -23.01 | 40.93 | 6.47         | 38.30  | 34.71  | Peak    | 22    | 100 HORIZONTAL |
| 2 | 11019.84 | 37.16  | 54.00  | -16.84 | 27.10 | 6.47         | 38.30  | 34.71  | Average | 22    | 100 HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm           |
| 1 | 11016.88 | 50.56  | 74.00  | -23.44 | 40.50 | 6.47         | 38.30  | 34.71  | Peak    | 272   | 100 VERTICAL |
| 2 | 11022.60 | 37.13  | 54.00  | -16.87 | 27.06 | 6.48         | 38.30  | 34.71  | Average | 272   | 100 VERTICAL |

|               |               |                |                                                                |
|---------------|---------------|----------------|----------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                            |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 110 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                                |

### Horizontal

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm             |
| 1 | 11099.40 | 55.60  | 74.00  | -18.40 | 45.48 | 6.52         | 38.30  | 34.70  | Peak    | 357   | 100 HORIZONTAL |
| 2 | 11100.16 | 40.82  | 54.00  | -13.18 | 30.70 | 6.52         | 38.30  | 34.70  | Average | 357   | 100 HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm           |
| 1 | 11099.22 | 39.73  | 54.00  | -14.27 | 29.61 | 6.52         | 38.30  | 34.70  | Average | 72    | 100 VERTICAL |
| 2 | 11100.00 | 55.39  | 74.00  | -18.61 | 45.27 | 6.52         | 38.30  | 34.70  | Peak    | 72    | 100 VERTICAL |

|               |               |                |                                                                |
|---------------|---------------|----------------|----------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                            |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 134 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                                |

### Horizontal

|   | Freq     | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     |         | deg   | cm    |            |
| 1 | 11338.60 | 51.98  | 74.00  | -22.02 | 41.71 | 6.65  | 38.30   | 34.68  | Peak    | 39    | 100   | HORIZONTAL |
| 2 | 11339.86 | 37.69  | 54.00  | -16.31 | 27.42 | 6.65  | 38.30   | 34.68  | Average | 39    | 100   | HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     |         | deg   | cm    |           |
| 1 | 11336.14 | 51.20  | 74.00  | -22.80 | 40.93 | 6.65  | 38.30   | 34.68  | Peak    | 331   | 100   | VERTICAL  |
| 2 | 11342.44 | 37.33  | 54.00  | -16.67 | 27.05 | 6.65  | 38.30   | 34.67  | Average | 331   | 100   | VERTICAL  |

|               |               |                |                                                                |
|---------------|---------------|----------------|----------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                            |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 142 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                                |

### Horizontal

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | deg   | cm    |            |
| 1 | 11419.88 | 42.19  | 54.00      | -11.81     | 31.86      | 6.70       | 38.30          | 34.67         | Average | 35    | 172   | HORIZONTAL |
| 2 | 11419.94 | 57.17  | 74.00      | -16.83     | 46.84      | 6.70       | 38.30          | 34.67         | Peak    | 35    | 172   | HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | deg   | cm    |           |
| 1 | 11419.94 | 58.94  | 74.00      | -15.06     | 48.61      | 6.70       | 38.30          | 34.67         | Peak    | 22    | 100   | VERTICAL  |
| 2 | 11420.68 | 42.96  | 54.00      | -11.04     | 32.63      | 6.70       | 38.30          | 34.67         | Average | 22    | 100   | VERTICAL  |

|               |               |                |                                                               |
|---------------|---------------|----------------|---------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                           |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                               |

### Horizontal

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase  |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |            |
| 1 | 15865.08 | 54.73  | 74.00         | -19.27        | 43.37         | 7.96                        | 38.41            | 35.01  | Peak    | 100   | HORIZONTAL |
| 2 | 15869.62 | 41.29  | 54.00         | -12.71        | 29.93         | 7.97                        | 38.40            | 35.01  | Average | 100   | HORIZONTAL |

### Vertical

|   | Freq     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase  |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |            |
| 1 | 15865.08 | 54.73  | 74.00         | -19.27        | 43.37         | 7.96                        | 38.41            | 35.01  | Peak    | 100   | HORIZONTAL |
| 2 | 15869.62 | 41.29  | 54.00         | -12.71        | 29.93         | 7.97                        | 38.40            | 35.01  | Average | 100   | HORIZONTAL |

|               |               |                |                                                                |
|---------------|---------------|----------------|----------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                            |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80 CH 106 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                                |

#### Horizontal

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase      |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|----------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm             |
| 1 | 11061.02 | 51.46  | 74.00  | -22.54 | 41.36 | 6.50         | 38.30  | 34.70  | Peak    | 336   | 100 HORIZONTAL |
| 2 | 11062.20 | 37.80  | 54.00  | -16.20 | 27.70 | 6.50         | 38.30  | 34.70  | Average | 336   | 100 HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |        | T/Pos   | A/Pos | Pol/Phase    |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|--------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | Loss         | Factor | Factor | Remark  | deg   | cm           |
| 1 | 11058.80 | 52.23  | 74.00  | -21.77 | 42.13 | 6.50         | 38.30  | 34.70  | Peak    | 44    | 100 VERTICAL |
| 2 | 11062.14 | 37.80  | 54.00  | -16.20 | 27.70 | 6.50         | 38.30  | 34.70  | Average | 44    | 100 VERTICAL |

|               |               |                |                                                                |
|---------------|---------------|----------------|----------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                            |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80 CH 122 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                                |

#### Horizontal

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | deg   | cm    |            |
| 1 | 11237.15 | 38.29  | 54.00      | -15.71     | 28.08      | 6.60       | 38.30          | 34.69         | Average | 279   | 100   | HORIZONTAL |
| 2 | 11239.07 | 52.13  | 74.00      | -21.87     | 41.91      | 6.60       | 38.30          | 34.68         | Peak    | 279   | 100   | HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | deg   | cm    |           |
| 1 | 11213.24 | 52.19  | 74.00      | -21.81     | 41.99      | 6.59       | 38.30          | 34.69         | Peak    | 126   | 100   | VERTICAL  |
| 2 | 11227.44 | 37.71  | 54.00      | -16.29     | 27.50      | 6.60       | 38.30          | 34.69         | Average | 126   | 100   | VERTICAL  |

|               |               |                |                                                                |
|---------------|---------------|----------------|----------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                            |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80 CH 138 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 11, 2014 |                |                                                                |

#### Horizontal

|   | Freq     | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|----------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|------------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     |         | deg   | cm    |            |
| 1 | 11376.80 | 53.64  | 74.00  | -20.36 | 43.34 | 6.67  | 38.30   | 34.67  | Peak    | 38    | 100   | HORIZONTAL |
| 2 | 11376.80 | 39.22  | 54.00  | -14.78 | 28.92 | 6.67  | 38.30   | 34.67  | Average | 38    | 100   | HORIZONTAL |

#### Vertical

|   | Freq     | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | Remark  | T/Pos | A/Pos | Pol/Phase |
|---|----------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|-----------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     |         | deg   | cm    |           |
| 1 | 11375.00 | 38.67  | 54.00  | -15.33 | 28.37 | 6.67  | 38.30   | 34.67  | Average | 358   | 100   | VERTICAL  |
| 2 | 11382.20 | 52.60  | 74.00  | -21.40 | 42.29 | 6.68  | 38.30   | 34.67  | Peak    | 358   | 100   | VERTICAL  |

#### Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

## 4.6. Band Edge Emissions Measurement

### 4.6.1. Limit

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of  $-27$  dBm/MHz.

For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of  $-27$  dBm/MHz.

In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| Frequencies<br>(MHz) | Field Strength<br>(micorvolts/meter) | Measurement Distance<br>(meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009~0.490          | 2400/F(kHz)                          | 300                              |
| 0.490~1.705          | 24000/F(kHz)                         | 30                               |
| 1.705~30.0           | 30                                   | 30                               |
| 30~88                | 100                                  | 3                                |
| 88~216               | 150                                  | 3                                |
| 216~960              | 200                                  | 3                                |
| Above 960            | 500                                  | 3                                |

### 4.6.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter                          | Setting                                         |
|---------------------------------------------|-------------------------------------------------|
| Attenuation                                 | Auto                                            |
| Span Frequency                              | 100 MHz                                         |
| RBW / VBW (Emission in restricted band)     | 1 MHz / 3MHz for Peak, 1 MHz / 10Hz for Average |
| RBW / VBW (Emission in non-restricted band) | 1 MHz / 3MHz for Peak                           |

### 4.6.3. Test Procedures

1. The test procedure is the same as section 4.5.3, only the frequency range investigated is limited to 100MHz around bandedges.

### 4.6.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.5.4.

### 4.6.5. Test Deviation

There is no deviation with the original standard.

#### 4.6.6. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

The EUT was programmed to be in beamforming transmitting mode.

For STBC mode:

The EUT was programmed to be in continuously transmitting mode.

#### 4.6.7. Test Result of Band Edge and Fundamental Emissions

<For Non-Beamforming Mode>

|               |               |                |                                                             |
|---------------|---------------|----------------|-------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                         |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 2 / 1TX |
| Test Date     | Jun. 05, 2014 |                |                                                             |

##### Channel 52

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5141.03 | 63.81  | 74.00  | -10.19 | 60.86  | 4.34         | 33.14  | 34.53  | 239   | 131   | HORIZONTAL |
| 2 | 5141.67 | 52.32  | 54.00  | -1.68  | 49.37  | 4.34         | 33.14  | 34.53  | 239   | 131   | HORIZONTAL |
| 3 | 5258.72 | 119.90 |        |        | 116.68 | 4.42         | 33.33  | 34.53  | 239   | 131   | HORIZONTAL |
| 4 | 5258.72 | 109.42 |        |        | 106.20 | 4.42         | 33.33  | 34.53  | 239   | 131   | HORIZONTAL |
| 5 | 5417.95 | 63.65  | 74.00  | -10.35 | 60.09  | 4.52         | 33.57  | 34.53  | 239   | 131   | HORIZONTAL |
| 6 | 5418.33 | 52.50  | 54.00  | -1.50  | 48.94  | 4.52         | 33.57  | 34.53  | 239   | 131   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5260 MHz.

##### Channel 60

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5138.46 | 50.00  | 54.00  | -4.00  | 47.09  | 4.33         | 33.11  | 34.53  | 230   | 108   | HORIZONTAL |
| 2 | 5139.10 | 61.33  | 74.00  | -12.67 | 58.42  | 4.33         | 33.11  | 34.53  | 230   | 108   | HORIZONTAL |
| 3 | 5298.08 | 118.56 |        |        | 115.27 | 4.44         | 33.38  | 34.53  | 230   | 108   | HORIZONTAL |
| 4 | 5301.28 | 108.40 |        |        | 105.11 | 4.44         | 33.38  | 34.53  | 230   | 108   | HORIZONTAL |
| 5 | 5350.00 | 67.04  | 74.00  | -6.96  | 63.64  | 4.47         | 33.46  | 34.53  | 230   | 108   | HORIZONTAL |
| 6 | 5350.00 | 52.69  | 54.00  | -1.31  | 49.29  | 4.47         | 33.46  | 34.53  | 230   | 108   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5300 MHz.

##### Channel 64

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5318.56 | 116.21 |        |       | 112.88 | 4.45         | 33.41  | 34.53  | 230   | 107   | HORIZONTAL |
| 2 | 5318.72 | 105.01 |        |       | 101.68 | 4.45         | 33.41  | 34.53  | 230   | 107   | HORIZONTAL |
| 3 | 5350.00 | 52.54  | 54.00  | -1.46 | 49.14  | 4.47         | 33.46  | 34.53  | 230   | 107   | HORIZONTAL |
| 4 | 5350.16 | 69.55  | 74.00  | -4.45 | 66.15  | 4.47         | 33.46  | 34.53  | 230   | 107   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5320 MHz.

|               |               |                |                                                                |
|---------------|---------------|----------------|----------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                            |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 116, 140 / Chain 2 / 1TX |
| Test Date     | Jun. 05, 2014 |                |                                                                |

#### Channel 100

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preampl |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|---------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | Loss         | Factor  | Factor | deg   | cm    |            |
| 1 | 5378.27 | 48.87  | 54.00  | -5.13  | 45.40  | 4.49         | 33.51   | 34.53  | 241   | 125   | HORIZONTAL |
| 2 | 5381.64 | 61.47  | 74.00  | -12.53 | 58.00  | 4.49         | 33.51   | 34.53  | 241   | 125   | HORIZONTAL |
| 3 | 5470.00 | 71.19  | 74.00  | -2.81  | 67.52  | 4.55         | 33.65   | 34.53  | 241   | 125   | HORIZONTAL |
| 4 | 5470.00 | 52.73  | 54.00  | -1.27  | 49.06  | 4.55         | 33.65   | 34.53  | 241   | 125   | HORIZONTAL |
| 5 | 5498.56 | 106.99 |        |        | 103.25 | 4.57         | 33.70   | 34.53  | 241   | 125   | HORIZONTAL |
| 6 | 5501.92 | 117.36 |        |        | 113.62 | 4.57         | 33.70   | 34.53  | 241   | 125   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5500 MHz.

#### Channel 116

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preampl |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|---------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | Loss         | Factor  | Factor | deg   | cm    |            |
| 1 | 5420.90 | 52.56  | 54.00  | -1.44  | 49.00  | 4.52         | 33.57   | 34.53  | 241   | 121   | HORIZONTAL |
| 2 | 5421.54 | 64.20  | 74.00  | -9.80  | 60.64  | 4.52         | 33.57   | 34.53  | 241   | 121   | HORIZONTAL |
| 3 | 5462.56 | 51.05  | 54.00  | -2.95  | 47.38  | 4.55         | 33.65   | 34.53  | 241   | 121   | HORIZONTAL |
| 4 | 5466.15 | 63.05  | 74.00  | -10.95 | 59.38  | 4.55         | 33.65   | 34.53  | 241   | 121   | HORIZONTAL |
| 5 | 5578.72 | 111.96 |        |        | 107.98 | 4.62         | 33.91   | 34.55  | 241   | 121   | HORIZONTAL |
| 6 | 5579.36 | 122.73 |        |        | 118.75 | 4.62         | 33.91   | 34.55  | 241   | 121   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5580 MHz.

#### Channel 140

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preampl |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|---------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor  | Factor | deg   | cm    |            |
| 1 | 5699.04 | 104.43 |        |       | 100.03 | 4.70         | 34.27   | 34.57  | 241   | 121   | HORIZONTAL |
| 2 | 5705.13 | 116.02 |        |       | 111.57 | 4.71         | 34.32   | 34.58  | 241   | 121   | HORIZONTAL |
| 3 | 5725.00 | 52.47  | 54.00  | -1.53 | 47.96  | 4.72         | 34.37   | 34.58  | 241   | 121   | HORIZONTAL |
| 4 | 5725.16 | 72.85  | 74.00  | -1.15 | 68.34  | 4.72         | 34.37   | 34.58  | 241   | 121   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5700 MHz.

|               |               |                |                                                         |
|---------------|---------------|----------------|---------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                     |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 144<br>/ Chain 2 / 1TX |
| Test Date     | Jun. 05, 2014 |                |                                                         |

#### Channel 144

|   | Freq    | Level  | Limit | Over  | Read   | CableAntenna | Preamp |        | T/Pos   | A/Pos |                |
|---|---------|--------|-------|-------|--------|--------------|--------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | Line  | Limit | Level  | Loss         | Factor | Factor | Remark  | deg   | cm             |
|   |         |        |       | dB    | dBuV   | dB           | dB/m   | dB     |         |       | Pol/Phase      |
| 1 | 5721.28 | 110.91 |       |       | 106.40 | 4.72         | 34.37  | 34.58  | Average | 238   | 121 HORIZONTAL |
| 2 | 5724.49 | 122.67 |       |       | 118.16 | 4.72         | 34.37  | 34.58  | Peak    | 238   | 121 HORIZONTAL |
| 3 | 5874.36 | 66.05  | 68.20 | -2.15 | 60.99  | 4.82         | 34.84  | 34.60  | Peak    | 238   | 121 HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5720 MHz.

|               |               |                |                                                            |
|---------------|---------------|----------------|------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                        |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40<br>CH 54, 62 / Chain 2 / 1TX |
| Test Date     | Jun. 05, 2014 |                |                                                            |

#### Channel 54

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5146.15 | 50.38  | 54.00  | -3.62 | 47.43  | 4.34         | 33.14  | 34.53  | 239   | 133   | HORIZONTAL |
| 2 | 5148.72 | 64.04  | 74.00  | -9.96 | 61.09  | 4.34         | 33.14  | 34.53  | 239   | 133   | HORIZONTAL |
| 3 | 5273.85 | 104.09 |        |       | 100.87 | 4.42         | 33.33  | 34.53  | 239   | 133   | HORIZONTAL |
| 4 | 5276.41 | 115.72 |        |       | 112.47 | 4.43         | 33.35  | 34.53  | 239   | 133   | HORIZONTAL |
| 5 | 5350.64 | 67.01  | 74.00  | -6.99 | 63.61  | 4.47         | 33.46  | 34.53  | 239   | 133   | HORIZONTAL |
| 6 | 5351.28 | 52.70  | 54.00  | -1.30 | 49.30  | 4.47         | 33.46  | 34.53  | 239   | 133   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5270 MHz.

#### Channel 62

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5314.81 | 98.41  |        |       | 95.08  | 4.45         | 33.41  | 34.53  | 239   | 134   | HORIZONTAL |
| 2 | 5318.01 | 110.54 |        |       | 107.21 | 4.45         | 33.41  | 34.53  | 239   | 134   | HORIZONTAL |
| 3 | 5350.00 | 68.59  | 74.00  | -5.41 | 65.19  | 4.47         | 33.46  | 34.53  | 239   | 134   | HORIZONTAL |
| 4 | 5350.00 | 52.76  | 54.00  | -1.24 | 49.36  | 4.47         | 33.46  | 34.53  | 239   | 134   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5310 MHz.

|               |               |                |                                                              |
|---------------|---------------|----------------|--------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                          |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40<br>CH 102, 110 / Chain 2 / 1TX |
| Test Date     | Jun. 05, 2014 |                |                                                              |

#### Channel 102

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase |            |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|-----------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |           |            |
| 1 | 5460.00 | 67.17  | 74.00         | -6.83         | 63.54         | 4.54                        | 33.62            | 34.53  | Peak    | 241   | 125       | HORIZONTAL |
| 2 | 5460.00 | 47.47  | 54.00         | -6.53         | 43.84         | 4.54                        | 33.62            | 34.53  | Average | 241   | 125       | HORIZONTAL |
| 3 | 5469.04 | 67.68  | 74.00         | -6.32         | 64.01         | 4.55                        | 33.65            | 34.53  | Peak    | 241   | 125       | HORIZONTAL |
| 4 | 5470.00 | 52.62  | 54.00         | -1.38         | 48.95         | 4.55                        | 33.65            | 34.53  | Average | 241   | 125       | HORIZONTAL |
| 5 | 5513.85 | 99.77  |               |               | 95.97         | 4.58                        | 33.75            | 34.53  | Average | 241   | 125       | HORIZONTAL |
| 6 | 5515.45 | 112.45 |               |               | 108.65        | 4.58                        | 33.75            | 34.53  | Peak    | 241   | 125       | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5510 MHz.

#### Channel 110

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5432.44 | 65.80  | 74.00         | -8.20         | 62.21         | 4.53                        | 33.59            | 34.53  | Peak    | 239   | 125 HORIZONTAL |
| 2 | 5434.36 | 52.25  | 54.00         | -1.75         | 48.66         | 4.53                        | 33.59            | 34.53  | Average | 239   | 125 HORIZONTAL |
| 3 | 5468.72 | 52.82  | 54.00         | -1.18         | 49.15         | 4.55                        | 33.65            | 34.53  | Average | 239   | 125 HORIZONTAL |
| 4 | 5470.00 | 69.57  | 74.00         | -4.43         | 65.90         | 4.55                        | 33.65            | 34.53  | Peak    | 239   | 125 HORIZONTAL |
| 5 | 5551.92 | 118.02 |               |               | 114.10        | 4.60                        | 33.86            | 34.54  | Peak    | 239   | 125 HORIZONTAL |
| 6 | 5555.13 | 105.70 |               |               | 101.78        | 4.60                        | 33.86            | 34.54  | Average | 239   | 125 HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5550 MHz.

|               |               |                |                                                             |
|---------------|---------------|----------------|-------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                         |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40<br>CH134, 142 / Chain 2 / 1TX |
| Test Date     | Jun. 05, 2014 |                |                                                             |

#### Channel 134

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|----------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB     | deg     | cm    |                |
| 1 | 5663.59 | 114.16 |               |               | 109.88        | 4.67                 | 34.17            | 34.56  | Peak    | 240   | 121 HORIZONTAL |
| 2 | 5665.19 | 103.35 |               |               | 99.07         | 4.67                 | 34.17            | 34.56  | Average | 240   | 121 HORIZONTAL |
| 3 | 5725.00 | 72.87  | 74.00         | -1.13         | 68.36         | 4.72                 | 34.37            | 34.58  | Peak    | 240   | 121 HORIZONTAL |
| 4 | 5732.37 | 52.90  | 54.00         | -1.10         | 48.39         | 4.72                 | 34.37            | 34.58  | Average | 240   | 121 HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5670 MHz.

#### Channel 142

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5704.87 | 119.27 |               |               | 114.82        | 4.71                        | 34.32            | 34.58  | Peak    | 239   | 120 HORIZONTAL |
| 2 | 5705.51 | 107.18 |               |               | 102.73        | 4.71                        | 34.32            | 34.58  | Average | 239   | 120 HORIZONTAL |
| 3 | 5854.49 | 67.15  | 68.20         | -1.05         | 62.15         | 4.81                        | 34.79            | 34.60  | Peak    | 239   | 120 HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5710 MHz.

|               |               |                |                                                             |
|---------------|---------------|----------------|-------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                         |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80<br>CH 58, 106 / Chain 2 / 1TX |
| Test Date     | Jun. 05, 2014 |                |                                                             |

#### Channel 58

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5277.18 | 92.66  |               |               | 89.41         | 4.43                        | 33.35            | 34.53  | Average | 239   | 132 HORIZONTAL |
| 2 | 5287.44 | 107.01 |               |               | 103.76        | 4.43                        | 33.35            | 34.53  | Peak    | 239   | 132 HORIZONTAL |
| 3 | 5350.00 | 70.49  | 74.00         | -3.51         | 67.09         | 4.47                        | 33.46            | 34.53  | Peak    | 239   | 132 HORIZONTAL |
| 4 | 5350.00 | 52.67  | 54.00         | -1.33         | 49.27         | 4.47                        | 33.46            | 34.53  | Average | 239   | 132 HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5290 MHz.

#### Channel 106

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase |            |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|-----------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |           |            |
| 1 | 5460.00 | 64.98  | 74.00         | -9.02         | 61.35         | 4.54                        | 33.62            | 34.53  | Peak    | 240   | 125       | HORIZONTAL |
| 2 | 5460.00 | 50.99  | 54.00         | -3.01         | 47.36         | 4.54                        | 33.62            | 34.53  | Average | 240   | 125       | HORIZONTAL |
| 3 | 5469.36 | 70.87  | 74.00         | -3.13         | 67.20         | 4.55                        | 33.65            | 34.53  | Peak    | 240   | 125       | HORIZONTAL |
| 4 | 5470.00 | 52.78  | 54.00         | -1.22         | 49.11         | 4.55                        | 33.65            | 34.53  | Average | 240   | 125       | HORIZONTAL |
| 5 | 5540.90 | 108.42 |               |               | 104.57        | 4.59                        | 33.80            | 34.54  | Peak    | 240   | 125       | HORIZONTAL |
| 6 | 5541.54 | 94.94  |               |               | 91.09         | 4.59                        | 33.80            | 34.54  | Average | 240   | 125       | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5530 MHz.

|               |                               |                |                                                              |
|---------------|-------------------------------|----------------|--------------------------------------------------------------|
| Temperature   | 24°C                          | Humidity       | 56%                                                          |
| Test Engineer | Nick Peng                     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80<br>CH 122, 138 / Chain 2 / 1TX |
| Test Date     | Jun. 05, 2014 ~ Jun. 11, 2014 |                |                                                              |

### Channel 122

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Factor | Preamp<br>Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|----------------------|--------|------------------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m   | dB               |         | deg   | cm    |            |
| 1 | 5460.00 | 61.16  | 74.00         | -12.84        | 57.53         | 4.54                 | 33.62  | 34.53            | Peak    | 60    | 126   | HORIZONTAL |
| 2 | 5460.00 | 48.95  | 54.00         | -5.05         | 45.32         | 4.54                 | 33.62  | 34.53            | Average | 60    | 126   | HORIZONTAL |
| 3 | 5470.00 | 62.49  | 74.00         | -11.51        | 58.82         | 4.55                 | 33.65  | 34.53            | Peak    | 60    | 126   | HORIZONTAL |
| 4 | 5470.00 | 49.54  | 54.00         | -4.46         | 45.87         | 4.55                 | 33.65  | 34.53            | Average | 60    | 126   | HORIZONTAL |
| 5 | 5597.00 | 96.49  |               |               | 92.45         | 4.63                 | 33.96  | 34.55            | Average | 60    | 126   | HORIZONTAL |
| 6 | 5616.00 | 109.92 |               |               | 105.77        | 4.65                 | 34.06  | 34.56            | Peak    | 60    | 126   | HORIZONTAL |
| 7 | 5725.00 | 52.98  | 54.00         | -1.02         | 48.47         | 4.72                 | 34.37  | 34.58            | Average | 60    | 126   | HORIZONTAL |
| 8 | 5728.00 | 69.05  | 74.00         | -4.95         | 64.54         | 4.72                 | 34.37  | 34.58            | Peak    | 60    | 126   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5610 MHz.

### Channel 138

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5681.67 | 100.17 |               |               | 95.84         | 4.68                        | 34.22            | 34.57  | Average | 240   | 121 HORIZONTAL |
| 2 | 5686.80 | 113.43 |               |               | 109.03        | 4.70                        | 34.27            | 34.57  | Peak    | 240   | 121 HORIZONTAL |
| 3 | 5850.64 | 52.75  | 54.00         | -1.25         | 47.82         | 4.80                        | 34.73            | 34.60  | Average | 240   | 121 HORIZONTAL |
| 4 | 5853.21 | 68.74  | 74.00         | -5.26         | 63.81         | 4.80                        | 34.73            | 34.60  | Peak    | 240   | 121 HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5690 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

|               |               |                |                                                                       |
|---------------|---------------|----------------|-----------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                   |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 04, 2014 |                |                                                                       |

#### Channel 52

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5141.19 | 64.79  | 74.00  | -9.21  | 61.84  | 4.34         | 33.14  | 34.53  | 53    | 112   | HORIZONTAL |
| 2 | 5141.19 | 52.54  | 54.00  | -1.46  | 49.59  | 4.34         | 33.14  | 34.53  | 53    | 112   | HORIZONTAL |
| 3 | 5259.20 | 120.68 |        |        | 117.46 | 4.42         | 33.33  | 34.53  | 53    | 112   | HORIZONTAL |
| 4 | 5259.20 | 110.17 |        |        | 106.95 | 4.42         | 33.33  | 34.53  | 53    | 112   | HORIZONTAL |
| 5 | 5379.65 | 51.90  | 54.00  | -2.10  | 48.43  | 4.49         | 33.51  | 34.53  | 53    | 112   | HORIZONTAL |
| 6 | 5380.45 | 62.83  | 74.00  | -11.17 | 59.36  | 4.49         | 33.51  | 34.53  | 53    | 112   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5260 MHz.

#### Channel 60

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5141.19 | 52.64  | 54.00  | -1.36  | 49.69  | 4.34         | 33.14  | 34.53  | 58    | 113   | HORIZONTAL |
| 2 | 5143.59 | 63.29  | 74.00  | -10.71 | 60.34  | 4.34         | 33.14  | 34.53  | 58    | 113   | HORIZONTAL |
| 3 | 5299.20 | 119.91 |        |        | 116.62 | 4.44         | 33.38  | 34.53  | 58    | 113   | HORIZONTAL |
| 4 | 5299.20 | 109.45 |        |        | 106.16 | 4.44         | 33.38  | 34.53  | 58    | 113   | HORIZONTAL |
| 5 | 5459.78 | 62.26  | 74.00  | -11.74 | 58.63  | 4.54         | 33.62  | 34.53  | 58    | 113   | HORIZONTAL |
| 6 | 5459.78 | 51.54  | 54.00  | -2.46  | 47.91  | 4.54         | 33.62  | 34.53  | 58    | 113   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5300 MHz.

#### Channel 64

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5150.00 | 54.70  | 74.00  | -19.30 | 51.75  | 4.34         | 33.14  | 34.53  | 56    | 124   | HORIZONTAL |
| 2 | 5150.00 | 48.08  | 54.00  | -5.92  | 45.13  | 4.34         | 33.14  | 34.53  | 56    | 124   | HORIZONTAL |
| 3 | 5321.60 | 117.52 |        |        | 114.19 | 4.45         | 33.41  | 34.53  | 56    | 124   | HORIZONTAL |
| 4 | 5321.60 | 107.48 |        |        | 104.15 | 4.45         | 33.41  | 34.53  | 56    | 124   | HORIZONTAL |
| 5 | 5350.00 | 67.97  | 74.00  | -6.03  | 64.57  | 4.47         | 33.46  | 34.53  | 56    | 124   | HORIZONTAL |
| 6 | 5350.00 | 52.48  | 54.00  | -1.52  | 49.08  | 4.47         | 33.46  | 34.53  | 56    | 124   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5320 MHz.

|               |               |                |                                                                          |
|---------------|---------------|----------------|--------------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                      |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 116, 140 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 04, 2014 |                |                                                                          |

#### Channel 100

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5378.27 | 49.89  | 54.00         | -4.11         | 46.42         | 4.49                        | 33.51            | 34.53  | Average | 295   | 130 HORIZONTAL |
| 2 | 5385.48 | 61.88  | 74.00         | -12.12        | 58.41         | 4.49                        | 33.51            | 34.53  | Peak    | 295   | 130 HORIZONTAL |
| 3 | 5468.40 | 69.25  | 74.00         | -4.75         | 65.58         | 4.55                        | 33.65            | 34.53  | Peak    | 295   | 130 HORIZONTAL |
| 4 | 5470.00 | 52.32  | 54.00         | -1.68         | 48.65         | 4.55                        | 33.65            | 34.53  | Average | 295   | 130 HORIZONTAL |
| 5 | 5499.20 | 118.32 |               |               | 114.58        | 4.57                        | 33.70            | 34.53  | Peak    | 295   | 130 HORIZONTAL |
| 6 | 5500.80 | 107.87 |               |               | 104.13        | 4.57                        | 33.70            | 34.53  | Average | 295   | 130 HORIZONTAL |
| 7 | 5729.01 | 50.04  | 54.00         | -3.96         | 45.53         | 4.72                        | 34.37            | 34.58  | Average | 295   | 130 HORIZONTAL |
| 8 | 5732.21 | 62.03  | 74.00         | -11.97        | 57.52         | 4.72                        | 34.37            | 34.58  | Peak    | 295   | 130 HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5500 MHz.

#### Channel 116

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5458.40 | 63.40  | 74.00         | -10.60        | 59.77         | 4.54                        | 33.62            | 34.53  | Peak    | 292   | 127 HORIZONTAL |
| 2 | 5458.40 | 52.91  | 54.00         | -1.09         | 49.28         | 4.54                        | 33.62            | 34.53  | Average | 292   | 127 HORIZONTAL |
| 3 | 5465.99 | 62.93  | 74.00         | -11.07        | 59.26         | 4.55                        | 33.65            | 34.53  | Peak    | 292   | 127 HORIZONTAL |
| 4 | 5468.40 | 52.08  | 54.00         | -1.92         | 48.41         | 4.55                        | 33.65            | 34.53  | Average | 292   | 127 HORIZONTAL |
| 5 | 5578.40 | 118.60 |               |               | 114.62        | 4.62                        | 33.91            | 34.55  | Peak    | 292   | 127 HORIZONTAL |
| 6 | 5579.20 | 108.59 |               |               | 104.61        | 4.62                        | 33.91            | 34.55  | Average | 292   | 127 HORIZONTAL |
| 7 | 5739.42 | 51.89  | 54.00         | -2.11         | 47.32         | 4.73                        | 34.42            | 34.58  | Average | 292   | 127 HORIZONTAL |
| 8 | 5741.83 | 63.03  | 74.00         | -10.97        | 58.46         | 4.73                        | 34.42            | 34.58  | Peak    | 292   | 127 HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5580 MHz.

#### Channel 140

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableLoss | Antenna<br>Factor | Preamp<br>Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|-----------|-------------------|------------------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB        | dB/m              | dB               |         | deg   | cm    |            |
| 1 | 5699.20 | 116.45 |               |               | 112.05        | 4.70      | 34.27             | 34.57            | Peak    | 285   | 126   | HORIZONTAL |
| 2 | 5701.60 | 105.98 |               |               | 101.52        | 4.71      | 34.32             | 34.57            | Average | 285   | 126   | HORIZONTAL |
| 3 | 5725.00 | 72.98  | 74.00         | -1.02         | 68.47         | 4.72      | 34.37             | 34.58            | Peak    | 285   | 126   | HORIZONTAL |
| 4 | 5725.00 | 52.83  | 54.00         | -1.17         | 48.32         | 4.72      | 34.37             | 34.58            | Average | 285   | 126   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5700 MHz.

|               |               |                |                                                                   |
|---------------|---------------|----------------|-------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                               |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 144<br>/ Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 06, 2014 |                |                                                                   |

#### Channel 144

|   | Freq    | Level  | Limit | Over  | Read   | Cable | Antenna | Preamp |         | T/Pos | A/Pos |            |
|---|---------|--------|-------|-------|--------|-------|---------|--------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | Line  | Limit | Level  | Loss  | Factor  | Factor | Remark  | deg   | cm    | Pol/Phase  |
| 1 | 5719.20 | 112.00 |       |       | 107.49 | 4.72  | 34.37   | 34.58  | Average | 241   | 122   | HORIZONTAL |
| 2 | 5721.60 | 124.37 |       |       | 119.86 | 4.72  | 34.37   | 34.58  | Peak    | 241   | 122   | HORIZONTAL |
| 3 | 5872.44 | 66.65  | 68.20 | -1.55 | 61.59  | 4.82  | 34.84   | 34.60  | Peak    | 241   | 122   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5720 MHz.

|               |               |                |                                                                      |
|---------------|---------------|----------------|----------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40<br>CH 54, 62 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 04, 2014 |                |                                                                      |

#### Channel 54

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5126.76 | 62.53  | 74.00  | -11.47 | 59.62  | 4.33         | 33.11  | 34.53  | 57    | 111   | HORIZONTAL |
| 2 | 5148.40 | 50.60  | 54.00  | -3.40  | 47.65  | 4.34         | 33.14  | 34.53  | 57    | 111   | HORIZONTAL |
| 3 | 5274.01 | 117.56 |        |        | 114.34 | 4.42         | 33.33  | 34.53  | 57    | 111   | HORIZONTAL |
| 4 | 5274.01 | 106.09 |        |        | 102.87 | 4.42         | 33.33  | 34.53  | 57    | 111   | HORIZONTAL |
| 5 | 5350.80 | 52.63  | 54.00  | -1.37  | 49.23  | 4.47         | 33.46  | 34.53  | 57    | 111   | HORIZONTAL |
| 6 | 5351.60 | 66.76  | 74.00  | -7.24  | 63.36  | 4.47         | 33.46  | 34.53  | 57    | 111   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5270 MHz.

#### Channel 62

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5145.99 | 60.07  | 74.00  | -13.93 | 57.12  | 4.34         | 33.14  | 34.53  | 59    | 111   | HORIZONTAL |
| 2 | 5148.40 | 47.75  | 54.00  | -6.25  | 44.80  | 4.34         | 33.14  | 34.53  | 59    | 111   | HORIZONTAL |
| 3 | 5314.01 | 99.72  |        |        | 96.39  | 4.45         | 33.41  | 34.53  | 59    | 111   | HORIZONTAL |
| 4 | 5314.81 | 111.58 |        |        | 108.25 | 4.45         | 33.41  | 34.53  | 59    | 111   | HORIZONTAL |
| 5 | 5350.00 | 52.74  | 54.00  | -1.26  | 49.34  | 4.47         | 33.46  | 34.53  | 59    | 111   | HORIZONTAL |
| 6 | 5350.80 | 65.31  | 74.00  | -8.69  | 61.91  | 4.47         | 33.46  | 34.53  | 59    | 111   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5310 MHz.

|               |                               |                |                                                                        |
|---------------|-------------------------------|----------------|------------------------------------------------------------------------|
| Temperature   | 24°C                          | Humidity       | 56%                                                                    |
| Test Engineer | Nick Peng                     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40<br>CH 102, 110 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 04, 2014 ~ Jun. 05, 2014 |                |                                                                        |

#### Channel 102

|   | Freq    | Level  | Limit  | Over   | ReadAntenna | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|--------|--------|-------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV        | dB/m   | deg     | cm    |                |
| 1 | 5458.40 | 62.17  | 74.00  | -11.83 | 58.54       | 33.62  | Peak    | 297   | 129 HORIZONTAL |
| 2 | 5460.00 | 48.03  | 54.00  | -5.97  | 44.40       | 33.62  | Average | 297   | 129 HORIZONTAL |
| 3 | 5468.40 | 68.87  | 74.00  | -5.13  | 65.20       | 33.65  | Peak    | 297   | 129 HORIZONTAL |
| 4 | 5468.40 | 52.48  | 54.00  | -1.52  | 48.81       | 33.65  | Average | 297   | 129 HORIZONTAL |
| 5 | 5505.99 | 112.09 |        |        | 108.35      | 33.70  | Peak    | 297   | 129 HORIZONTAL |
| 6 | 5514.01 | 101.13 |        |        | 97.33       | 33.75  | Average | 297   | 129 HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5510 MHz.

#### Channel 110

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg   | cm    |            |
| 1 | 5458.40 | 63.94  | 74.00         | -10.06        | 60.31         | 4.54                        | 33.62            | 34.53  | 73    | 130   | HORIZONTAL |
| 2 | 5460.00 | 50.71  | 54.00         | -3.29         | 47.08         | 4.54                        | 33.62            | 34.53  | 73    | 130   | HORIZONTAL |
| 3 | 5468.40 | 72.57  | 74.00         | -1.43         | 68.90         | 4.55                        | 33.65            | 34.53  | 73    | 130   | HORIZONTAL |
| 4 | 5468.40 | 52.19  | 54.00         | -1.81         | 48.52         | 4.55                        | 33.65            | 34.53  | 73    | 130   | HORIZONTAL |
| 5 | 5554.01 | 105.48 |               |               | 101.56        | 4.60                        | 33.86            | 34.54  | 73    | 130   | HORIZONTAL |
| 6 | 5556.41 | 118.35 |               |               | 114.43        | 4.60                        | 33.86            | 34.54  | 73    | 130   | HORIZONTAL |
| 7 | 5725.00 | 48.28  | 54.00         | -5.72         | 43.77         | 4.72                        | 34.37            | 34.58  | 73    | 130   | HORIZONTAL |
| 8 | 5727.40 | 60.76  | 74.00         | -13.24        | 56.25         | 4.72                        | 34.37            | 34.58  | 73    | 130   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5550 MHz.

|               |                               |                |                                                                       |
|---------------|-------------------------------|----------------|-----------------------------------------------------------------------|
| Temperature   | 24°C                          | Humidity       | 56%                                                                   |
| Test Engineer | Nick Peng                     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40<br>CH134, 142 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 ~ Jun. 06, 2014 |                |                                                                       |

#### Channel 134

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5664.39 | 102.63 |               |               | 98.35         | 4.67                        | 34.17            | 34.56  | Average | 58    | 185 HORIZONTAL |
| 2 | 5674.81 | 114.24 |               |               | 109.90        | 4.68                        | 34.22            | 34.56  | Peak    | 58    | 185 HORIZONTAL |
| 3 | 5725.80 | 72.61  | 74.00         | -1.39         | 68.10         | 4.72                        | 34.37            | 34.58  | Peak    | 58    | 185 HORIZONTAL |
| 4 | 5794.71 | 52.13  | 54.00         | -1.87         | 47.38         | 4.76                        | 34.58            | 34.59  | Average | 58    | 185 HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5670 MHz.

#### Channel 142

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|---------------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB            | deg   | cm    |            |
| 1 | 5696.38 | 121.05 |               |               | 116.65        | 4.70                        | 34.27            | 34.57 Peak    | 243   | 123   | HORIZONTAL |
| 2 | 5714.01 | 109.25 |               |               | 104.80        | 4.71                        | 34.32            | 34.58 Average | 243   | 123   | HORIZONTAL |
| 3 | 5854.01 | 66.81  | 68.20         | -1.39         | 61.81         | 4.81                        | 34.79            | 34.60 Peak    | 243   | 123   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5710 MHz.

|               |               |                |                                                                       |
|---------------|---------------|----------------|-----------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                   |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80<br>CH 58, 106 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 |                |                                                                       |

#### Channel 58

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preampl | Remark        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|---------|---------------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | dB           | dB/m    | dB            | deg   | cm    |            |
| 1 | 5149.20 | 44.81  | 54.00  | -9.19  | 41.86  | 4.34         | 33.14   | 34.53 Average | 59    | 123   | HORIZONTAL |
| 2 | 5150.00 | 57.94  | 74.00  | -16.06 | 54.99  | 4.34         | 33.14   | 34.53 Peak    | 59    | 123   | HORIZONTAL |
| 3 | 5278.78 | 94.38  |        |        | 91.13  | 4.43         | 33.35   | 34.53 Average | 59    | 123   | HORIZONTAL |
| 4 | 5281.19 | 107.05 |        |        | 103.80 | 4.43         | 33.35   | 34.53 Peak    | 59    | 123   | HORIZONTAL |
| 5 | 5351.60 | 52.71  | 54.00  | -1.29  | 49.31  | 4.47         | 33.46   | 34.53 Average | 59    | 123   | HORIZONTAL |
| 6 | 5356.41 | 69.05  | 74.00  | -4.95  | 65.65  | 4.47         | 33.46   | 34.53 Peak    | 59    | 123   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5290 MHz.

#### Channel 106

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preampl | Remark        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|---------|---------------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | dB           | dB/m    | dB            | deg   | cm    |            |
| 1 | 5451.99 | 67.09  | 74.00  | -6.91 | 63.46  | 4.54         | 33.62   | 34.53 Peak    | 44    | 194   | HORIZONTAL |
| 2 | 5460.00 | 51.14  | 54.00  | -2.86 | 47.51  | 4.54         | 33.62   | 34.53 Average | 44    | 194   | HORIZONTAL |
| 3 | 5467.60 | 66.14  | 74.00  | -7.86 | 62.47  | 4.55         | 33.65   | 34.53 Peak    | 44    | 194   | HORIZONTAL |
| 4 | 5470.00 | 52.66  | 54.00  | -1.34 | 48.99  | 4.55         | 33.65   | 34.53 Average | 44    | 194   | HORIZONTAL |
| 5 | 5534.81 | 94.58  |        |       | 90.73  | 4.59         | 33.80   | 34.54 Average | 44    | 194   | HORIZONTAL |
| 6 | 5537.21 | 107.38 |        |       | 103.53 | 4.59         | 33.80   | 34.54 Peak    | 44    | 194   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5530 MHz.

|               |                               |                |                                                                        |
|---------------|-------------------------------|----------------|------------------------------------------------------------------------|
| Temperature   | 24°C                          | Humidity       | 56%                                                                    |
| Test Engineer | Nick Peng                     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80<br>CH 122, 138 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 06, 2014 ~ Jun. 11, 2014 |                |                                                                        |

### Channel 122

|   | Freq    | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | deg   | cm    |            |
| 1 | 5460.00 | 61.65  | 74.00      | -12.35     | 58.02      | 4.54       | 33.62          | 34.53         | Peak    | 57    | 126   | HORIZONTAL |
| 2 | 5460.00 | 49.46  | 54.00      | -4.54      | 45.83      | 4.54       | 33.62          | 34.53         | Average | 57    | 126   | HORIZONTAL |
| 3 | 5466.00 | 64.49  | 74.00      | -9.51      | 60.82      | 4.55       | 33.65          | 34.53         | Peak    | 57    | 126   | HORIZONTAL |
| 4 | 5470.00 | 50.19  | 54.00      | -3.81      | 46.52      | 4.55       | 33.65          | 34.53         | Average | 57    | 126   | HORIZONTAL |
| 5 | 5619.00 | 98.86  |            |            | 94.71      | 4.65       | 34.06          | 34.56         | Average | 57    | 126   | HORIZONTAL |
| 6 | 5624.00 | 112.10 |            |            | 107.95     | 4.65       | 34.06          | 34.56         | Peak    | 57    | 126   | HORIZONTAL |
| 7 | 5725.00 | 52.74  | 54.00      | -1.26      | 48.23      | 4.72       | 34.37          | 34.58         | Average | 57    | 126   | HORIZONTAL |
| 8 | 5730.00 | 69.77  | 74.00      | -4.23      | 65.26      | 4.72       | 34.37          | 34.58         | Peak    | 57    | 126   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5610 MHz.

### Channel 138

|   | Freq    | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | deg   | cm    |            |
| 1 | 5698.81 | 102.04 |            |            | 97.64      | 4.70       | 34.27          | 34.57         | Average | 245   | 125   | HORIZONTAL |
| 2 | 5702.02 | 114.77 |            |            | 110.31     | 4.71       | 34.32          | 34.57         | Peak    | 245   | 125   | HORIZONTAL |
| 3 | 5850.00 | 52.52  | 54.00      | -1.48      | 47.59      | 4.80       | 34.73          | 34.60         | Average | 245   | 125   | HORIZONTAL |
| 4 | 5854.81 | 68.14  | 74.00      | -5.86      | 63.14      | 4.81       | 34.79          | 34.60         | Peak    | 245   | 125   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5690 MHz.

### Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

## &lt;For Beamforming Mode&gt;

|               |               |                |                                                                       |
|---------------|---------------|----------------|-----------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                   |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 |                |                                                                       |

## Channel 52

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5140.39 | 64.06  | 74.00         | -9.94         | 61.11         | 4.34                        | 33.14            | 34.53  | Peak    | 53    | 112 HORIZONTAL |
| 2 | 5141.19 | 52.44  | 54.00         | -1.56         | 49.49         | 4.34                        | 33.14            | 34.53  | Average | 53    | 112 HORIZONTAL |
| 3 | 5255.99 | 119.15 |               |               | 115.98        | 4.40                        | 33.30            | 34.53  | Peak    | 53    | 112 HORIZONTAL |
| 4 | 5259.20 | 109.49 |               |               | 106.27        | 4.42                        | 33.33            | 34.53  | Average | 53    | 112 HORIZONTAL |
| 5 | 5371.64 | 63.21  | 74.00         | -10.79        | 59.77         | 4.48                        | 33.49            | 34.53  | Peak    | 53    | 112 HORIZONTAL |
| 6 | 5419.71 | 52.14  | 54.00         | -1.86         | 48.58         | 4.52                        | 33.57            | 34.53  | Average | 53    | 112 HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5260 MHz.

## Channel 60

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5141.19 | 64.26  | 74.00         | -9.74         | 61.31         | 4.34                        | 33.14            | 34.53  | Peak    | 58    | 113 HORIZONTAL |
| 2 | 5141.19 | 52.64  | 54.00         | -1.36         | 49.69         | 4.34                        | 33.14            | 34.53  | Average | 343   | 113 HORIZONTAL |
| 3 | 5298.40 | 118.15 |               |               | 114.86        | 4.44                        | 33.38            | 34.53  | Peak    | 58    | 113 HORIZONTAL |
| 4 | 5299.20 | 108.71 |               |               | 105.42        | 4.44                        | 33.38            | 34.53  | Average | 58    | 113 HORIZONTAL |
| 5 | 5376.44 | 62.51  | 74.00         | -11.49        | 59.07         | 4.48                        | 33.49            | 34.53  | Peak    | 58    | 113 HORIZONTAL |
| 6 | 5377.24 | 50.35  | 54.00         | -3.65         | 46.91         | 4.48                        | 33.49            | 34.53  | Average | 58    | 113 HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5300 MHz.

## Channel 64

|   | Freq    | Level  | Limit  | Over   | Read   | Cable | Antenna | Preamp | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|-------|---------|--------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | Limit  | Level  | Loss  | Factor  | Factor |         |       |       |            |
|   |         |        |        | dB     | dBuV   | dB    | dB/m    | dB     |         | deg   | cm    |            |
| 1 | 5150.00 | 57.90  | 74.00  | -16.10 | 54.95  | 4.34  | 33.14   | 34.53  | Peak    | 56    | 126   | HORIZONTAL |
| 2 | 5150.00 | 50.01  | 54.00  | -3.99  | 47.06  | 4.34  | 33.14   | 34.53  | Average | 56    | 126   | HORIZONTAL |
| 3 | 5311.99 | 114.62 |        |        | 111.29 | 4.45  | 33.41   | 34.53  | Peak    | 56    | 126   | HORIZONTAL |
| 4 | 5319.20 | 108.26 |        |        | 104.93 | 4.45  | 33.41   | 34.53  | Average | 56    | 126   | HORIZONTAL |
| 5 | 5350.00 | 66.80  | 74.00  | -7.20  | 63.40  | 4.47  | 33.46   | 34.53  | Peak    | 56    | 126   | HORIZONTAL |
| 6 | 5350.00 | 52.82  | 54.00  | -1.18  | 49.42  | 4.47  | 33.46   | 34.53  | Average | 56    | 126   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5320 MHz.

|               |               |                |                                                                          |
|---------------|---------------|----------------|--------------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                      |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 116, 140 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 |                |                                                                          |

### Channel 100

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5037.82 | 52.46  | 54.00         | -1.54         | 49.74         | 4.27                        | 32.98            | 34.53  | Average | 295   | 130 HORIZONTAL |
| 2 | 5042.63 | 62.88  | 74.00         | -11.12        | 60.16         | 4.27                        | 32.98            | 34.53  | Peak    | 295   | 130 HORIZONTAL |
| 3 | 5381.47 | 51.21  | 54.00         | -2.79         | 47.74         | 4.49                        | 33.51            | 34.53  | Average | 295   | 130 HORIZONTAL |
| 4 | 5382.05 | 63.08  | 74.00         | -10.92        | 59.61         | 4.49                        | 33.51            | 34.53  | Peak    | 295   | 130 HORIZONTAL |
| 5 | 5470.00 | 61.69  | 68.20         | -6.51         | 58.02         | 4.55                        | 33.65            | 34.53  | Peak    | 295   | 130 HORIZONTAL |
| 6 | 5496.80 | 114.75 |               |               | 111.01        | 4.57                        | 33.70            | 34.53  | Peak    | 295   | 130 HORIZONTAL |
| 7 | 5501.60 | 108.10 |               |               | 104.36        | 4.57                        | 33.70            | 34.53  | Average | 295   | 130 HORIZONTAL |
| 8 | 5960.39 | 63.57  | 68.20         | -4.63         | 58.21         | 4.88                        | 35.10            | 34.62  | Peak    | 295   | 130 HORIZONTAL |

Item 6, 7 are the fundamental frequency at 5500 MHz.

### Channel 116

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Factor | Preamp<br>Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|----------------------|--------|------------------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m   | dB               |         | deg   | cm    |            |
| 1 | 5114.23 | 52.96  | 54.00         | -1.04         | 50.08         | 4.32                 | 33.09  | 34.53            | Average | 292   | 127   | HORIZONTAL |
| 2 | 5116.35 | 63.28  | 74.00         | -10.72        | 60.40         | 4.32                 | 33.09  | 34.53            | Peak    | 292   | 127   | HORIZONTAL |
| 3 | 5421.92 | 51.36  | 54.00         | -2.64         | 47.80         | 4.52                 | 33.57  | 34.53            | Average | 292   | 127   | HORIZONTAL |
| 4 | 5427.95 | 62.13  | 74.00         | -11.87        | 58.57         | 4.52                 | 33.57  | 34.53            | Peak    | 292   | 127   | HORIZONTAL |
| 5 | 5466.80 | 62.88  | 74.00         | -11.12        | 59.21         | 4.55                 | 33.65  | 34.53            | Peak    | 292   | 127   | HORIZONTAL |
| 6 | 5578.40 | 108.18 |               |               | 104.20        | 4.62                 | 33.91  | 34.55            | Average | 292   | 127   | HORIZONTAL |
| 7 | 5584.81 | 115.18 |               |               | 111.14        | 4.63                 | 33.96  | 34.55            | Peak    | 292   | 127   | HORIZONTAL |
| 8 | 5812.37 | 62.97  | 74.00         | -11.03        | 58.17         | 4.77                 | 34.63  | 34.60            | Peak    | 292   | 127   | HORIZONTAL |

Item 6, 7 are the fundamental frequency at 5580 MHz.

### Channel 140

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5701.60 | 107.25 |               |               | 102.79        | 4.71                        | 34.32            | 34.57  | Average | 285   | 126 HORIZONTAL |
| 2 | 5704.01 | 115.63 |               |               | 111.17        | 4.71                        | 34.32            | 34.57  | Peak    | 285   | 126 HORIZONTAL |
| 3 | 5725.00 | 64.81  | 74.00         | -9.19         | 60.30         | 4.72                        | 34.37            | 34.58  | Peak    | 285   | 126 HORIZONTAL |
| 4 | 5817.15 | 52.87  | 54.00         | -1.13         | 48.07         | 4.77                        | 34.63            | 34.60  | Average | 285   | 126 HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5700 MHz.

|               |               |                |                                                                   |
|---------------|---------------|----------------|-------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                               |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 144<br>/ Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 06, 2014 |                |                                                                   |

#### Channel 144

|   | Freq    | Level  | Limit | Over  | Read   | Cable | Antenna | Preamp |         | T/Pos | A/Pos |            |
|---|---------|--------|-------|-------|--------|-------|---------|--------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | Line  | Limit | Level  | Loss  | Factor  | Factor | Remark  | deg   | cm    | Pol/Phase  |
| 1 | 5714.39 | 123.69 |       |       | 119.24 | 4.71  | 34.32   | 34.58  | Peak    | 241   | 122   | HORIZONTAL |
| 2 | 5721.60 | 112.18 |       |       | 107.67 | 4.72  | 34.37   | 34.58  | Average | 241   | 122   | HORIZONTAL |
| 3 | 5878.05 | 66.76  | 68.20 | -1.44 | 61.70  | 4.82  | 34.84   | 34.60  | Peak    | 241   | 122   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5720 MHz.

|               |               |                |                                                                      |
|---------------|---------------|----------------|----------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40<br>CH 54, 62 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 |                |                                                                      |

#### Channel 54

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5148.40 | 62.77  | 74.00  | -11.23 | 59.82  | 4.34         | 33.14  | 34.53  | 58    | 111   | HORIZONTAL |
| 2 | 5148.40 | 51.91  | 54.00  | -2.09  | 48.96  | 4.34         | 33.14  | 34.53  | 58    | 111   | HORIZONTAL |
| 3 | 5274.01 | 116.10 |        |        | 112.88 | 4.42         | 33.33  | 34.53  | 58    | 111   | HORIZONTAL |
| 4 | 5274.01 | 107.28 |        |        | 104.06 | 4.42         | 33.33  | 34.53  | 58    | 111   | HORIZONTAL |
| 5 | 5351.60 | 65.27  | 74.00  | -8.73  | 61.87  | 4.47         | 33.46  | 34.53  | 58    | 111   | HORIZONTAL |
| 6 | 5351.60 | 52.57  | 54.00  | -1.43  | 49.17  | 4.47         | 33.46  | 34.53  | 58    | 111   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5270 MHz.

#### Channel 62

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5305.99 | 112.58 |        |       | 109.29 | 4.44         | 33.38  | 34.53  | 59    | 111   | HORIZONTAL |
| 2 | 5314.01 | 101.46 |        |       | 98.13  | 4.45         | 33.41  | 34.53  | 59    | 111   | HORIZONTAL |
| 3 | 5351.60 | 67.20  | 74.00  | -6.80 | 63.80  | 4.47         | 33.46  | 34.53  | 59    | 111   | HORIZONTAL |
| 4 | 5351.60 | 52.78  | 54.00  | -1.22 | 49.38  | 4.47         | 33.46  | 34.53  | 59    | 111   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5310 MHz.

|               |               |                |                                                                        |
|---------------|---------------|----------------|------------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                    |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40<br>CH 102, 110 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 |                |                                                                        |

#### Channel 102

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5460.00 | 61.51  | 74.00         | -12.49        | 57.88         | 4.54                        | 33.62            | 34.53  | Peak    | 297   | 129 HORIZONTAL |
| 2 | 5460.00 | 48.69  | 54.00         | -5.31         | 45.06         | 4.54                        | 33.62            | 34.53  | Average | 297   | 129 HORIZONTAL |
| 3 | 5468.40 | 65.30  | 74.00         | -8.70         | 61.63         | 4.55                        | 33.65            | 34.53  | Peak    | 297   | 129 HORIZONTAL |
| 4 | 5468.40 | 52.43  | 54.00         | -1.57         | 48.76         | 4.55                        | 33.65            | 34.53  | Average | 297   | 129 HORIZONTAL |
| 5 | 5505.99 | 102.04 |               |               | 98.30         | 4.57                        | 33.70            | 34.53  | Average | 297   | 129 HORIZONTAL |
| 6 | 5514.01 | 112.70 |               |               | 108.90        | 4.58                        | 33.75            | 34.53  | Peak    | 297   | 129 HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5510 MHz.

#### Channel 110

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5423.14 | 64.36  | 74.00         | -9.64         | 60.80         | 4.52                        | 33.57            | 34.53  | Peak    | 73    | 110 HORIZONTAL |
| 2 | 5425.55 | 52.48  | 54.00         | -1.52         | 48.92         | 4.52                        | 33.57            | 34.53  | Average | 73    | 110 HORIZONTAL |
| 3 | 5467.60 | 61.88  | 74.00         | -12.12        | 58.21         | 4.55                        | 33.65            | 34.53  | Peak    | 73    | 110 HORIZONTAL |
| 4 | 5468.40 | 50.25  | 54.00         | -3.75         | 46.58         | 4.55                        | 33.65            | 34.53  | Average | 73    | 110 HORIZONTAL |
| 5 | 5546.80 | 114.41 |               |               | 110.56        | 4.59                        | 33.80            | 34.54  | Peak    | 73    | 110 HORIZONTAL |
| 6 | 5554.01 | 103.38 |               |               | 99.46         | 4.60                        | 33.86            | 34.54  | Average | 73    | 110 HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5550 MHz.

|               |                               |                |                                                                       |
|---------------|-------------------------------|----------------|-----------------------------------------------------------------------|
| Temperature   | 24°C                          | Humidity       | 56%                                                                   |
| Test Engineer | Nick Peng                     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40<br>CH134, 142 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 ~ Jun. 06, 2014 |                |                                                                       |

#### Channel 134

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preampl |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|---------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor  | Factor | deg   | cm    |            |
| 1 | 5664.39 | 104.80 |        |       | 100.52 | 4.67         | 34.17   | 34.56  | 58    | 185   | HORIZONTAL |
| 2 | 5672.40 | 115.39 |        |       | 111.05 | 4.68         | 34.22   | 34.56  | 58    | 185   | HORIZONTAL |
| 3 | 5731.41 | 67.85  | 74.00  | -6.15 | 63.34  | 4.72         | 34.37   | 34.58  | 58    | 185   | HORIZONTAL |
| 4 | 5744.23 | 52.95  | 54.00  | -1.05 | 48.38  | 4.73         | 34.42   | 34.58  | 58    | 185   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5670 MHz.

#### Channel 142

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preampl |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|---------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor  | Factor | deg   | cm    |            |
| 1 | 5706.80 | 119.86 |        |       | 115.41 | 4.71         | 34.32   | 34.58  | 243   | 123   | HORIZONTAL |
| 2 | 5714.01 | 107.81 |        |       | 103.36 | 4.71         | 34.32   | 34.58  | 243   | 123   | HORIZONTAL |
| 3 | 5857.21 | 66.72  | 68.20  | -1.48 | 61.72  | 4.81         | 34.79   | 34.60  | 243   | 123   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5710 MHz.

|               |               |                |                                                                       |
|---------------|---------------|----------------|-----------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                   |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80<br>CH 58, 106 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 |                |                                                                       |

#### Channel 58

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5150.00 | 60.02  | 74.00  | -13.98 | 57.07  | 4.34         | 33.14  | 34.53  | 59    | 123   | HORIZONTAL |
| 2 | 5150.00 | 46.55  | 54.00  | -7.45  | 43.60  | 4.34         | 33.14  | 34.53  | 59    | 123   | HORIZONTAL |
| 3 | 5276.38 | 108.57 |        |        | 105.32 | 4.43         | 33.35  | 34.53  | 59    | 123   | HORIZONTAL |
| 4 | 5278.78 | 95.63  |        |        | 92.38  | 4.43         | 33.35  | 34.53  | 59    | 123   | HORIZONTAL |
| 5 | 5350.00 | 72.27  | 74.00  | -1.73  | 68.87  | 4.47         | 33.46  | 34.53  | 59    | 123   | HORIZONTAL |
| 6 | 5351.60 | 52.51  | 54.00  | -1.49  | 49.11  | 4.47         | 33.46  | 34.53  | 59    | 123   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5290 MHz.

#### Channel 106

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5454.39 | 66.00  | 74.00  | -8.00 | 62.37  | 4.54         | 33.62  | 34.53  | 44    | 194   | HORIZONTAL |
| 2 | 5459.20 | 51.42  | 54.00  | -2.58 | 47.79  | 4.54         | 33.62  | 34.53  | 44    | 194   | HORIZONTAL |
| 3 | 5470.00 | 68.20  | 74.00  | -5.80 | 64.53  | 4.55         | 33.65  | 34.53  | 44    | 194   | HORIZONTAL |
| 4 | 5470.00 | 52.83  | 54.00  | -1.17 | 49.16  | 4.55         | 33.65  | 34.53  | 44    | 194   | HORIZONTAL |
| 5 | 5534.81 | 95.45  |        |       | 91.60  | 4.59         | 33.80  | 34.54  | 44    | 194   | HORIZONTAL |
| 6 | 5537.21 | 108.10 |        |       | 104.25 | 4.59         | 33.80  | 34.54  | 44    | 194   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5530 MHz.

|               |                               |                |                                                                        |
|---------------|-------------------------------|----------------|------------------------------------------------------------------------|
| Temperature   | 24°C                          | Humidity       | 56%                                                                    |
| Test Engineer | Nick Peng                     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80<br>CH 122, 138 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 06, 2014 ~ Jun. 11, 2014 |                |                                                                        |

### Channel 122

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Factor | Preamp<br>Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|----------------------|--------|------------------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m   | dB               |         | deg   | cm    |            |
| 1 | 5453.59 | 61.85  | 74.00         | -12.15        | 58.22         | 4.54                 | 33.62  | 34.53            | Peak    | 52    | 125   | HORIZONTAL |
| 2 | 5460.00 | 48.36  | 54.00         | -5.64         | 44.73         | 4.54                 | 33.62  | 34.53            | Average | 52    | 125   | HORIZONTAL |
| 3 | 5468.40 | 48.94  | 54.00         | -5.06         | 45.27         | 4.55                 | 33.65  | 34.53            | Average | 52    | 125   | HORIZONTAL |
| 4 | 5470.00 | 59.88  | 74.00         | -14.12        | 56.21         | 4.55                 | 33.65  | 34.53            | Peak    | 52    | 125   | HORIZONTAL |
| 5 | 5597.18 | 114.04 |               |               | 110.00        | 4.63                 | 33.96  | 34.55            | Peak    | 52    | 125   | HORIZONTAL |
| 6 | 5619.62 | 99.85  |               |               | 95.70         | 4.65                 | 34.06  | 34.56            | Average | 52    | 125   | HORIZONTAL |
| 7 | 5725.00 | 52.87  | 54.00         | -1.13         | 48.36         | 4.72                 | 34.37  | 34.58            | Average | 52    | 125   | HORIZONTAL |
| 8 | 5731.41 | 70.29  | 74.00         | -3.71         | 65.78         | 4.72                 | 34.37  | 34.58            | Peak    | 52    | 125   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5610 MHz.

### Channel 138

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5684.39 | 117.42 |               |               | 113.02        | 4.70                        | 34.27            | 34.57  | Peak    | 245   | 125 HORIZONTAL |
| 2 | 5698.81 | 104.08 |               |               | 99.68         | 4.70                        | 34.27            | 34.57  | Average | 245   | 125 HORIZONTAL |
| 3 | 5850.00 | 63.79  | 74.00         | -10.21        | 58.86         | 4.80                        | 34.73            | 34.60  | Peak    | 245   | 125 HORIZONTAL |
| 4 | 5851.60 | 52.86  | 54.00         | -1.14         | 47.93         | 4.80                        | 34.73            | 34.60  | Average | 245   | 125 HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5690 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

## &lt;For STBC Mode&gt;

|               |               |                |                                                                       |
|---------------|---------------|----------------|-----------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                   |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 |                |                                                                       |

## Channel 52

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5140.80 | 51.77  | 54.00  | -2.23 | 48.82  | 4.34         | 33.14  | 34.53  | 55    | 110   | HORIZONTAL |
| 2 | 5144.23 | 64.85  | 74.00  | -9.15 | 61.90  | 4.34         | 33.14  | 34.53  | 55    | 110   | HORIZONTAL |
| 3 | 5260.64 | 121.12 |        |       | 117.90 | 4.42         | 33.33  | 34.53  | 55    | 110   | HORIZONTAL |
| 4 | 5260.64 | 109.34 |        |       | 106.12 | 4.42         | 33.33  | 34.53  | 55    | 110   | HORIZONTAL |
| 5 | 5382.40 | 52.67  | 54.00  | -1.33 | 49.20  | 4.49         | 33.51  | 34.53  | 55    | 110   | HORIZONTAL |
| 6 | 5387.18 | 65.76  | 74.00  | -8.24 | 62.29  | 4.49         | 33.51  | 34.53  | 55    | 110   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5260 MHz.

## Channel 60

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5294.23 | 120.55 |        |       | 117.26 | 4.44         | 33.38  | 34.53  | 58    | 108   | HORIZONTAL |
| 2 | 5306.40 | 108.85 |        |       | 105.56 | 4.44         | 33.38  | 34.53  | 58    | 108   | HORIZONTAL |
| 3 | 5350.00 | 67.98  | 74.00  | -6.02 | 64.58  | 4.47         | 33.46  | 34.53  | 58    | 108   | HORIZONTAL |
| 4 | 5350.00 | 52.98  | 54.00  | -1.02 | 49.58  | 4.47         | 33.46  | 34.53  | 58    | 108   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5300 MHz.

## Channel 64

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5321.12 | 117.20 |        |       | 113.87 | 4.45         | 33.41  | 34.53  | 52    | 107   | HORIZONTAL |
| 2 | 5321.12 | 105.40 |        |       | 102.07 | 4.45         | 33.41  | 34.53  | 52    | 107   | HORIZONTAL |
| 3 | 5350.00 | 70.72  | 74.00  | -3.28 | 67.32  | 4.47         | 33.46  | 34.53  | 52    | 107   | HORIZONTAL |
| 4 | 5350.00 | 52.63  | 54.00  | -1.37 | 49.23  | 4.47         | 33.46  | 34.53  | 52    | 107   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5320 MHz.

|               |               |                |                                                                          |
|---------------|---------------|----------------|--------------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                      |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 116, 140 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 |                |                                                                          |

#### Channel 100

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preamp |       | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|--------|-------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | dB           | dB/m   | dB    | deg   | cm    |            |
| 1 | 5379.23 | 61.91  | 74.00  | -12.09 | 58.44  | 4.49         | 33.51  | 34.53 | 53    | 198   | HORIZONTAL |
| 2 | 5382.12 | 49.03  | 54.00  | -4.97  | 45.56  | 4.49         | 33.51  | 34.53 | 53    | 198   | HORIZONTAL |
| 3 | 5470.00 | 71.97  | 74.00  | -2.03  | 68.30  | 4.55         | 33.65  | 34.53 | 53    | 198   | HORIZONTAL |
| 4 | 5470.00 | 52.60  | 54.00  | -1.40  | 48.93  | 4.55         | 33.65  | 34.53 | 53    | 198   | HORIZONTAL |
| 5 | 5499.04 | 117.20 |        |        | 113.46 | 4.57         | 33.70  | 34.53 | 53    | 198   | HORIZONTAL |
| 6 | 5502.40 | 105.94 |        |        | 102.20 | 4.57         | 33.70  | 34.53 | 53    | 198   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5500 MHz.

#### Channel 116

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preamp |       | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|--------|-------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | dB           | dB/m   | dB    | deg   | cm    |            |
| 1 | 5114.74 | 63.56  | 74.00  | -10.44 | 60.68  | 4.32         | 33.09  | 34.53 | 48    | 104   | HORIZONTAL |
| 2 | 5119.55 | 51.75  | 54.00  | -2.25  | 48.87  | 4.32         | 33.09  | 34.53 | 48    | 104   | HORIZONTAL |
| 3 | 5421.54 | 52.87  | 54.00  | -1.13  | 49.31  | 4.52         | 33.57  | 34.53 | 48    | 104   | HORIZONTAL |
| 4 | 5423.14 | 64.77  | 74.00  | -9.23  | 61.21  | 4.52         | 33.57  | 34.53 | 48    | 104   | HORIZONTAL |
| 5 | 5578.40 | 122.95 |        |        | 118.97 | 4.62         | 33.91  | 34.55 | 48    | 104   | HORIZONTAL |
| 6 | 5581.60 | 111.44 |        |        | 107.40 | 4.63         | 33.96  | 34.55 | 48    | 104   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5580 MHz.

#### Channel 140

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preamp |       | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|--------|-------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | dB           | dB/m   | dB    | deg   | cm    |            |
| 1 | 5698.56 | 116.25 |        |       | 111.85 | 4.70         | 34.27  | 34.57 | 54    | 100   | HORIZONTAL |
| 2 | 5702.08 | 104.19 |        |       | 99.73  | 4.71         | 34.32  | 34.57 | 54    | 100   | HORIZONTAL |
| 3 | 5725.00 | 52.36  | 54.00  | -1.64 | 47.85  | 4.72         | 34.37  | 34.58 | 54    | 100   | HORIZONTAL |
| 4 | 5725.96 | 72.90  | 74.00  | -1.10 | 68.39  | 4.72         | 34.37  | 34.58 | 54    | 100   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5700 MHz.

|               |               |                |                                                                   |
|---------------|---------------|----------------|-------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                               |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 144<br>/ Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 06, 2014 |                |                                                                   |

#### Channel 144

|   | Freq    | Level  | Limit  | Over  | Read   | Cable | Antenna | Preamp | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|-------|---------|--------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | dB    | dB/m    | dB     |         | deg   | cm    |            |
| 1 | 5721.60 | 122.87 |        |       | 118.36 | 4.72  | 34.37   | 34.58  | Peak    | 248   | 123   | HORIZONTAL |
| 2 | 5726.41 | 111.59 |        |       | 107.08 | 4.72  | 34.37   | 34.58  | Average | 248   | 123   | HORIZONTAL |
| 3 | 5874.84 | 66.75  | 68.20  | -1.45 | 61.69  | 4.82  | 34.84   | 34.60  | Peak    | 248   | 123   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5720 MHz.

|               |               |                |                                                                      |
|---------------|---------------|----------------|----------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                  |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40<br>CH 54, 62 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 |                |                                                                      |

#### Channel 54

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Factor | Preamp<br>Factor | Remark  | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|----------------------|--------|------------------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m   | dB               |         | deg   | cm    |            |
| 1 | 5146.80 | 63.76  | 74.00         | -10.24        | 60.81         | 4.34                 | 33.14  | 34.53            | Peak    | 58    | 122   | HORIZONTAL |
| 2 | 5146.80 | 50.08  | 54.00         | -3.92         | 47.13         | 4.34                 | 33.14  | 34.53            | Average | 58    | 122   | HORIZONTAL |
| 3 | 5266.80 | 117.71 |               |               | 114.49        | 4.42                 | 33.33  | 34.53            | Peak    | 58    | 122   | HORIZONTAL |
| 4 | 5266.80 | 106.03 |               |               | 102.81        | 4.42                 | 33.33  | 34.53            | Average | 58    | 122   | HORIZONTAL |
| 5 | 5350.00 | 67.68  | 74.00         | -6.32         | 64.28         | 4.47                 | 33.46  | 34.53            | Peak    | 58    | 122   | HORIZONTAL |
| 6 | 5350.00 | 52.56  | 54.00         | -1.44         | 49.16         | 4.47                 | 33.46  | 34.53            | Average | 58    | 122   | HORIZONTAL |
| 7 | 5709.00 | 51.52  | 54.00         | -2.48         | 47.07         | 4.71                 | 34.32  | 34.58            | Average | 58    | 122   | HORIZONTAL |
| 8 | 5710.58 | 58.45  | 74.00         | -15.55        | 54.00         | 4.71                 | 34.32  | 34.58            | Peak    | 58    | 122   | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5270 MHz.

#### Channel 62

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5306.47 | 111.32 |               |               | 108.03        | 4.44                        | 33.38            | 34.53  | Peak    | 58    | 111 HORIZONTAL |
| 2 | 5306.47 | 99.56  |               |               | 96.27         | 4.44                        | 33.38            | 34.53  | Average | 58    | 111 HORIZONTAL |
| 3 | 5350.00 | 52.80  | 54.00         | -1.20         | 49.40         | 4.47                        | 33.46            | 34.53  | Average | 58    | 111 HORIZONTAL |
| 4 | 5350.64 | 68.21  | 74.00         | -5.79         | 64.81         | 4.47                        | 33.46            | 34.53  | Peak    | 58    | 111 HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5310 MHz.

|               |               |                |                                                                        |
|---------------|---------------|----------------|------------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                    |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40<br>CH 102, 110 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 |                |                                                                        |

#### Channel 102

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5458.40 | 67.32  | 74.00  | -6.68 | 63.69  | 4.54         | 33.62  | 34.53  | 239   | 129   | HORIZONTAL |
| 2 | 5460.00 | 47.62  | 54.00  | -6.38 | 43.99  | 4.54         | 33.62  | 34.53  | 239   | 129   | HORIZONTAL |
| 3 | 5468.40 | 66.75  | 74.00  | -7.25 | 63.08  | 4.55         | 33.65  | 34.53  | 239   | 129   | HORIZONTAL |
| 4 | 5470.00 | 52.89  | 54.00  | -1.11 | 49.22  | 4.55         | 33.65  | 34.53  | 239   | 129   | HORIZONTAL |
| 5 | 5505.83 | 112.38 |        |       | 108.64 | 4.57         | 33.70  | 34.53  | 239   | 129   | HORIZONTAL |
| 6 | 5506.47 | 100.61 |        |       | 96.87  | 4.57         | 33.70  | 34.53  | 239   | 129   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5510 MHz.

#### Channel 110

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5454.87 | 67.59  | 74.00  | -6.41 | 63.96  | 4.54         | 33.62  | 34.53  | 240   | 126   | HORIZONTAL |
| 2 | 5457.44 | 51.06  | 54.00  | -2.94 | 47.43  | 4.54         | 33.62  | 34.53  | 240   | 126   | HORIZONTAL |
| 3 | 5466.80 | 52.65  | 54.00  | -1.35 | 48.98  | 4.55         | 33.65  | 34.53  | 240   | 126   | HORIZONTAL |
| 4 | 5470.00 | 69.35  | 74.00  | -4.65 | 65.68  | 4.55         | 33.65  | 34.53  | 240   | 126   | HORIZONTAL |
| 5 | 5545.51 | 119.04 |        |       | 115.19 | 4.59         | 33.80  | 34.54  | 240   | 126   | HORIZONTAL |
| 6 | 5546.80 | 105.50 |        |       | 101.65 | 4.59         | 33.80  | 34.54  | 240   | 126   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5550 MHz.

|               |                               |                |                                                                       |
|---------------|-------------------------------|----------------|-----------------------------------------------------------------------|
| Temperature   | 24°C                          | Humidity       | 56%                                                                   |
| Test Engineer | Nick Peng                     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40<br>CH134, 142 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 ~ Jun. 06, 2014 |                |                                                                       |

#### Channel 134

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5664.55 | 116.53 |               |               | 112.25        | 4.67                        | 34.17            | 34.56  | Peak    | 240   | 122 HORIZONTAL |
| 2 | 5666.47 | 103.68 |               |               | 99.40         | 4.67                        | 34.17            | 34.56  | Average | 240   | 122 HORIZONTAL |
| 3 | 5725.00 | 72.21  | 74.00         | -1.79         | 67.70         | 4.72                        | 34.37            | 34.58  | Peak    | 240   | 122 HORIZONTAL |
| 4 | 5725.00 | 52.76  | 54.00         | -1.24         | 48.25         | 4.72                        | 34.37            | 34.58  | Average | 240   | 122 HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5670 MHz.

#### Channel 142

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | Remark | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB     | deg     | cm    |                |
| 1 | 5706.80 | 119.41 |               |               | 114.96        | 4.71                        | 34.32            | 34.58  | Peak    | 248   | 124 HORIZONTAL |
| 2 | 5706.80 | 106.92 |               |               | 102.47        | 4.71                        | 34.32            | 34.58  | Average | 248   | 124 HORIZONTAL |
| 3 | 5853.21 | 66.86  | 68.20         | -1.34         | 61.93         | 4.80                        | 34.73            | 34.60  | Peak    | 248   | 124 HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5710 MHz.

|               |               |                |                                                                       |
|---------------|---------------|----------------|-----------------------------------------------------------------------|
| Temperature   | 24°C          | Humidity       | 56%                                                                   |
| Test Engineer | Nick Peng     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80<br>CH 58, 106 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 05, 2014 |                |                                                                       |

#### Channel 58

|   | Freq    | Level  | Limit  | Over   | Read  | CableAntenna | Preampl |       | T/Pos   | A/Pos | Pol/Phase    |
|---|---------|--------|--------|--------|-------|--------------|---------|-------|---------|-------|--------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB           | dB/m    | dB    | deg     | cm    |              |
| 1 | 5298.97 | 99.88  |        |        | 96.59 | 4.44         | 33.38   | 34.53 | Peak    | 140   | 100 VERTICAL |
| 2 | 5302.18 | 86.49  |        |        | 83.20 | 4.44         | 33.38   | 34.53 | Average | 140   | 100 VERTICAL |
| 3 | 5350.00 | 47.50  | 54.00  | -6.50  | 44.10 | 4.47         | 33.46   | 34.53 | Average | 140   | 100 VERTICAL |
| 4 | 5351.28 | 62.38  | 74.00  | -11.62 | 58.98 | 4.47         | 33.46   | 34.53 | Peak    | 140   | 100 VERTICAL |

Item 1, 2 are the fundamental frequency at 5290 MHz.

#### Channel 106

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preampl |       | T/Pos   | A/Pos | Pol/Phase      |
|---|---------|--------|--------|-------|--------|--------------|---------|-------|---------|-------|----------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | dB           | dB/m    | dB    | deg     | cm    |                |
| 1 | 5458.72 | 68.69  | 74.00  | -5.31 | 65.06  | 4.54         | 33.62   | 34.53 | Peak    | 239   | 125 HORIZONTAL |
| 2 | 5458.72 | 51.24  | 54.00  | -2.76 | 47.61  | 4.54         | 33.62   | 34.53 | Average | 239   | 125 HORIZONTAL |
| 3 | 5469.36 | 71.05  | 74.00  | -2.95 | 67.38  | 4.55         | 33.65   | 34.53 | Peak    | 239   | 125 HORIZONTAL |
| 4 | 5470.00 | 52.77  | 54.00  | -1.23 | 49.10  | 4.55         | 33.65   | 34.53 | Average | 239   | 125 HORIZONTAL |
| 5 | 5531.92 | 109.47 |        |       | 105.62 | 4.59         | 33.80   | 34.54 | Peak    | 239   | 125 HORIZONTAL |
| 6 | 5540.90 | 95.52  |        |       | 91.67  | 4.59         | 33.80   | 34.54 | Average | 239   | 125 HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5530 MHz.

|               |                               |                |                                                                        |
|---------------|-------------------------------|----------------|------------------------------------------------------------------------|
| Temperature   | 24°C                          | Humidity       | 56%                                                                    |
| Test Engineer | Nick Peng                     | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80<br>CH 122, 138 / Chain 1 + Chain 2 / 2TX |
| Test Date     | Jun. 06, 2014 ~ Jun. 11, 2014 |                |                                                                        |

### Channel 122

|   | Freq    | Level  | Limit  | Over   | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5460.00 | 62.41  | 74.00  | -11.59 | 58.78  | 4.54         | 33.62  | 34.53  | 49    | 104   | HORIZONTAL |
| 2 | 5460.00 | 49.68  | 54.00  | -4.32  | 46.05  | 4.54         | 33.62  | 34.53  | 49    | 104   | HORIZONTAL |
| 3 | 5469.00 | 67.73  | 74.00  | -6.27  | 64.06  | 4.55         | 33.65  | 34.53  | 49    | 104   | HORIZONTAL |
| 4 | 5470.00 | 51.04  | 54.00  | -2.96  | 47.37  | 4.55         | 33.65  | 34.53  | 49    | 104   | HORIZONTAL |
| 5 | 5619.00 | 110.93 |        |        | 106.78 | 4.65         | 34.06  | 34.56  | 49    | 104   | HORIZONTAL |
| 6 | 5622.00 | 97.66  |        |        | 93.51  | 4.65         | 34.06  | 34.56  | 49    | 104   | HORIZONTAL |
| 7 | 5725.00 | 52.91  | 54.00  | -1.09  | 48.40  | 4.72         | 34.37  | 34.58  | 49    | 104   | HORIZONTAL |
| 8 | 5726.00 | 69.92  | 74.00  | -4.08  | 65.41  | 4.72         | 34.37  | 34.58  | 49    | 104   | HORIZONTAL |

Item 5, 6 are the fundamental frequency at 5610 MHz.

### Channel 138

|   | Freq    | Level  | Limit  | Over  | Read   | CableAntenna | Preamp |        | T/Pos | A/Pos | Pol/Phase  |
|---|---------|--------|--------|-------|--------|--------------|--------|--------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV   | Loss         | Factor | Factor | deg   | cm    |            |
| 1 | 5663.56 | 114.66 |        |       | 110.38 | 4.67         | 34.17  | 34.56  | 239   | 122   | HORIZONTAL |
| 2 | 5683.59 | 100.83 |        |       | 96.43  | 4.70         | 34.27  | 34.57  | 239   | 122   | HORIZONTAL |
| 3 | 5852.40 | 52.52  | 54.00  | -1.48 | 47.59  | 4.80         | 34.73  | 34.60  | 239   | 122   | HORIZONTAL |
| 4 | 5853.21 | 69.01  | 74.00  | -4.99 | 64.08  | 4.80         | 34.73  | 34.60  | 239   | 122   | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5690 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

## 4.7. Frequency Stability Measurement

### 4.7.1. Limit

In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be  $\pm 20$  ppm maximum for the 5 GHz band (IEEE 802.11n specification).

### 4.7.2. Measuring Instruments and Setting

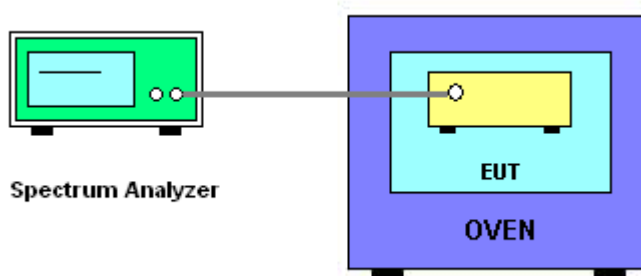
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter | Setting                                          |
|--------------------|--------------------------------------------------|
| Attenuation        | Auto                                             |
| Span Frequency     | Entire absence of modulation emissions bandwidth |
| RBW                | 10 kHz                                           |
| VBW                | 10 kHz                                           |
| Sweep Time         | Auto                                             |

### 4.7.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5.  $f_c$  is declaring of channel frequency. Then the frequency error formula is  $(f_c - f)/f_c \times 10^6$  ppm and the limit is less than  $\pm 20$  ppm (IEEE 802.11n specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is  $0^\circ\text{C} \sim 40^\circ\text{C}$ .

### 4.7.4. Test Setup Layout



#### 4.7.5. Test Deviation

There is no deviation with the original standard.

#### 4.7.6. EUT Operation during Test

The EUT was programmed to be in continuously un-modulation transmitting mode.

#### 4.7.7. Test Result of Frequency Stability

|                      |           |                  |               |
|----------------------|-----------|------------------|---------------|
| <b>Temperature</b>   | 20°C      | <b>Humidity</b>  | 53%           |
| <b>Test Engineer</b> | Jim Huang | <b>Test Date</b> | Jun. 30, 2014 |

##### Voltage vs. Frequency Stability

| <b>Voltage</b>       | <b>Measurement Frequency (MHz)</b> |                 |
|----------------------|------------------------------------|-----------------|
| (V)                  | 5300 MHz                           | 5500 MHz        |
| 126.50               | 5300.0246                          | 5500.0387       |
| 110.00               | 5300.0251                          | 5500.0410       |
| 93.50                | 5300.0256                          | 5500.0432       |
| Max. Deviation (MHz) | <b>0.025600</b>                    | <b>0.043200</b> |
| Max. Deviation (ppm) | <b>4.83</b>                        | <b>7.85</b>     |

##### Temperature vs. Frequency Stability

| <b>Temperature</b>   | <b>Measurement Frequency (MHz)</b> |                 |
|----------------------|------------------------------------|-----------------|
| (°C)                 | 5300 MHz                           | 5500 MHz        |
| 0                    | 5300.0238                          | 5500.0560       |
| 10                   | 5300.0244                          | 5500.0490       |
| 20                   | 5300.0251                          | 5500.0410       |
| 30                   | 5300.0266                          | 5500.0330       |
| 40                   | 5300.0271                          | 5500.0240       |
| Max. Deviation (MHz) | <b>0.027100</b>                    | <b>0.056000</b> |
| Max. Deviation (ppm) | <b>5.11</b>                        | <b>10.18</b>    |

## **4.8. Antenna Requirements**

### **4.8.1. Limit**

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

### **4.8.2. Antenna Connector Construction**

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

## 5. LIST OF MEASURING EQUIPMENTS

| Instrument                 | Manufacturer | Model No.        | Serial No.  | Characteristics   | Calibration Date | Remark                |
|----------------------------|--------------|------------------|-------------|-------------------|------------------|-----------------------|
| EMI Test Receiver          | R&S          | ESCS 30          | 100355      | 9 kHz ~ 2.75 GHz  | Apr. 23, 2014    | Conduction (CO01-CB)  |
| LISN                       | F.C.C.       | FCC-LISN-50-16-2 | 04083       | 150 kHz ~ 100 MHz | Nov. 23, 2013    | Conduction (CO01-CB)  |
| LISN                       | Schwarzbeck  | NSLK 8127        | 8127478     | 9kHz ~ 30MHz      | Nov. 11, 2013    | Conduction (CO01-CB)  |
| COND Cable                 | Woken        | Cable            | 01          | 150 kHz ~ 30 MHz  | Dec. 04, 2013    | Conduction (CO01-CB)  |
| Software                   | Audix        | E3               | 5.410e      | -                 | N.C.R.           | Conduction (CO01-CB)  |
| BILOG ANTENNA              | Schaffner    | CBL6112B         | 2928        | 30MHz ~ 2GHz      | Dec. 27, 2013    | Radiation (03CH01-CB) |
| Loop Antenna               | Teseq        | HLA 6120         | 24155       | 9 kHz - 30 MHz    | Nov. 05, 2012*   | Radiation (03CH01-CB) |
| Horn Antenna               | EMCO         | 3115             | 00075790    | 750MHz~18GHz      | Nov. 01, 2013    | Radiation (03CH01-CB) |
| Horn Antenna               | SCHWARZBEAK  | BBHA 9170        | BBHA9170252 | 15GHz ~ 40GHz     | Dec. 17, 2013    | Radiation (03CH01-CB) |
| Pre-Amplifier              | Agilent      | 8447D            | 2944A10991  | 0.1MHz ~ 1.3GHz   | Nov. 12, 2013    | Radiation (03CH01-CB) |
| Pre-Amplifier              | Agilent      | 8449B            | 3008A02310  | 1GHz ~ 26.5GHz    | Dec. 16, 2013    | Radiation (03CH01-CB) |
| Pre-Amplifier              | WM           | TF-130N-R1       | 923365      | 26GHz ~ 40GHz     | Oct. 23, 2013    | Radiation (03CH01-CB) |
| Spectrum analyzer          | R&S          | FSP40            | 100019      | 9kHz~40GHz        | Dec. 02, 2013    | Radiation (03CH01-CB) |
| EMI Test Receiver          | Agilent      | N9038A           | MY52260123  | 9kHz ~ 8GHz       | Dec. 12, 2013    | Radiation (03CH01-CB) |
| Turn Table                 | INN CO       | CO 2000          | N/A         | 0 ~ 360 degree    | N.C.R.           | Radiation (03CH01-CB) |
| Antenna Mast               | INN CO       | CO2000           | N/A         | 1 m - 4 m         | N.C.R.           | Radiation (03CH01-CB) |
| RF Cable-low               | Woken        | Low Cable-1      | N/A         | 30 MHz - 1 GHz    | Nov. 17, 2013    | Radiation (03CH01-CB) |
| RF Cable-high              | Woken        | High Cable-3     | N/A         | 1 GHz - 40 GHz    | Nov. 17, 2013    | Radiation (03CH01-CB) |
| RF Cable-high              | Woken        | High Cable-4     | N/A         | 1 GHz - 40 GHz    | Nov. 17, 2013    | Radiation (03CH01-CB) |
| Signal analyzer            | R&S          | FSV40            | 100979      | 9kHz~40GHz        | Nov. 29, 2013    | Conducted (TH01-CB)   |
| Temp. and Humidity Chamber | Ten Billion  | TTH-D3SP         | TBN-931011  | -30~100 degree    | Jun. 03, 2014    | Conducted (TH01-CB)   |
| RF Cable-high              | Woken        | High Cable-7     | -           | 1 GHz ~ 26.5 GHz  | Nov. 17, 2013    | Conducted (TH01-CB)   |
| RF Cable-high              | Woken        | High Cable-8     | -           | 1 GHz ~ 26.5 GHz  | Nov. 17, 2013    | Conducted (TH01-CB)   |
| RF Cable-high              | Woken        | High Cable-9     | -           | 1 GHz ~ 26.5 GHz  | Nov. 17, 2013    | Conducted (TH01-CB)   |
| RF Cable-high              | Woken        | High Cable-10    | -           | 1 GHz ~ 26.5 GHz  | Nov. 17, 2013    | Conducted (TH01-CB)   |
| RF Cable-high              | Woken        | High Cable-11    | -           | 1 GHz ~ 26.5 GHz  | Nov. 17, 2013    | Conducted (TH01-CB)   |

| Instrument   | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark              |
|--------------|--------------|-----------|------------|-----------------|------------------|---------------------|
| Power Sensor | Anritsu      | MA2411B   | 0917223    | 300MHz~40GHz    | Sep. 18, 2013    | Conducted (TH01-CB) |
| Power Meter  | Anritsu      | ML2495A   | 1035008    | 300MHz~40GHz    | Sep. 18, 2013    | Conducted (TH01-CB) |

Note: Calibration Interval of instruments listed above is one year.

“\*” Calibration Interval of instruments listed above is two years.

NCR means Non-Calibration required.

## 6. MEASUREMENT UNCERTAINTY

| Test Items                           | Uncertainty | Remark                   |
|--------------------------------------|-------------|--------------------------|
| Conducted Emission (150kHz ~ 30MHz)  | 2.4 dB      | Confidence levels of 95% |
| Radiated Emission (30MHz ~ 1,000MHz) | 3.6 dB      | Confidence levels of 95% |
| Radiated Emission (1GHz ~ 18GHz)     | 3.7 dB      | Confidence levels of 95% |
| Radiated Emission (18GHz ~ 40GHz)    | 3.5 dB      | Confidence levels of 95% |
| Conducted Emission                   | 1.7 dB      | Confidence levels of 95% |