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FCC RADIO TEST REPORT

| | |
|---------------------|--|
| Applicant's company | BELKIN INTERNATIONAL, INC. |
| Applicant Address | 12045 East Waterfront Drive Playa Vista California 90094 United States |
| FCC ID | K7SF9K1117V2 |

| | |
|-------------------|--|
| Product Name | AC1200 DB Wi-Fi Dual-Band AC+ Gigabit Router |
| Brand Name | Belkin |
| Model No. | F9K1113V4 |
| Test Rule Part(s) | 47 CFR FCC Part 15 Subpart E § 15.407 |
| Test Freq. Range | 5150 ~ 5250 MHz / 5725 ~ 5850 MHz |
| Received Date | Oct. 25, 2012 |
| Final Test Date | Aug. 06, 2014 |
| Submission Type | Class II Change |
| Operating Mode | Master |

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 D01 v01r02.**

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



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History of This Test Report

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|---------------|---------|-------------------------|---------------|
| FR2O2519-03AB | Rev. 01 | Initial issue of report | Sep. 05, 2014 |
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1. CERTIFICATE OF COMPLIANCE

Product Name : AC1200 DB Wi-Fi Dual-Band AC+ Gigabit Router
Brand Name : Belkin
Model No. : F9K1113V4
Applicant : BELKIN INTERNATIONAL, 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 Oct. 25, 2012 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.

A handwritten signature in blue ink that reads 'Sam Chen'. The signature is written in a cursive style and is positioned above a horizontal line.

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 | 15.407(a) | 26dB Spectrum Bandwidth and 99% Occupied Bandwidth | Complies | - |
| 4.2 | 15.407(e) | 6dB Spectrum Bandwidth and 99% Occupied Bandwidth | Complies | - |
| 4.3 | 15.407(a) | Maximum Conducted Output Power | Complies | 7.26 dB |
| 4.4 | 15.407(a) | Power Spectral Density | Complies | 6.48 dB |
| 4.5 | 15.407(b) | Radiated Emissions | Complies | 3.02 dB |
| 4.6 | 15.407(b) | Band Edge Emissions | Complies | 1.00 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 (2TX, 2RX) |
| Radio Type | Intentional Transceiver |
| Power Type | From power adapter |
| Modulation | see the below table for IEEE 802.11n/ac |
| Data Modulation | For 802.11n: OFDM (BPSK / QPSK / 16QAM / 64QAM) For 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) |
| Data Rate (Mbps) | see the below table for IEEE 802.11n/ac |
| Frequency Range | 5150 ~ 5250 MHz / 5725 ~ 5850 MHz |
| Channel Number | 9 for 20MHz bandwidth ; 4 for 40MHz bandwidth 2 for 80MHz bandwidth |
| Channel Band Width (99%) | Band 1: 802.11ac MCS0/Nss1 (VHT20): 19.52 MHz ; 802.11ac MCS0/Nss1 (VHT40): 37.12 MHz ; 802.11ac MCS0/Nss1 (VHT80): 75.52 MHz Band 4: 802.11ac MCS0/Nss1 (VHT20): 18.48 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.32 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.16 MHz |
| Maximum Conducted Output Power | Band 1: 802.11ac MCS0/Nss1 (VHT20): 22.74 dBm ; 802.11ac MCS0/Nss1 (VHT40): 22.37 dBm ; 802.11ac MCS0/Nss1 (VHT80): 14.51 dBm Band 4: 802.11ac MCS0/Nss1 (VHT20): 22.74 dBm ; 802.11ac MCS0/Nss1 (VHT40): 16.68 dBm ; 802.11ac MCS0/Nss1 (VHT80): 13.87 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, 1RX) |
| Radio Type | Intentional Transceiver |
| Power Type | From power adapter |
| 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 | 5150 ~ 5250 MHz / 5725 ~ 5850 MHz |
| Channel Number | 9 |
| Channel Band Width (99%) | Band 1: 22.56 MHz ; Band 4: 21.44 MHz |
| Maximum Conducted Output Power | Band 1: 21.57 dBm ; Band 4: 22.19 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 |
| Beamforming Function | <input type="checkbox"/> With beamforming | <input checked="" type="checkbox"/> Without beamforming |

Antenna and Band width

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

IEEE 11n/ac Spec.

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

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 | belkin | DSA-18PFG-12 FUS 120150 | INPUT: 100-240V, 50-60Hz 0.6A OUTPUT: 12V, 1.5A |
| Other | | | |
| RJ-45 Cable*1, Non-Shielded, 1.2m | | | |

3.3. Table for Filed Antenna

| Ant. | Brand | Model Name | Antenna Type | Connector | Gain (dBi) | |
|------|--------|------------|--------------|-----------|------------|------|
| | | | | | 2.4GHz | 5GHz |
| 1 | SERCOM | AC1200 | PCB Antenna | I-PEX | 3.71 | 4.03 |
| 2 | SERCOM | AC1200 | PCB Antenna | I-PEX | 3.69 | 4.11 |

Note: The EUT has two Antennas.

<For 2.4GHz Band>

For IEEE 802.11b/g mode (1TX/1RX):

Only Chain 1 can be used as transmitting/receiving antenna.

For IEEE 802.11n mode (2TX/2RX):

Both Chain 1 and Chain 2 could transmit/receive simultaneously.

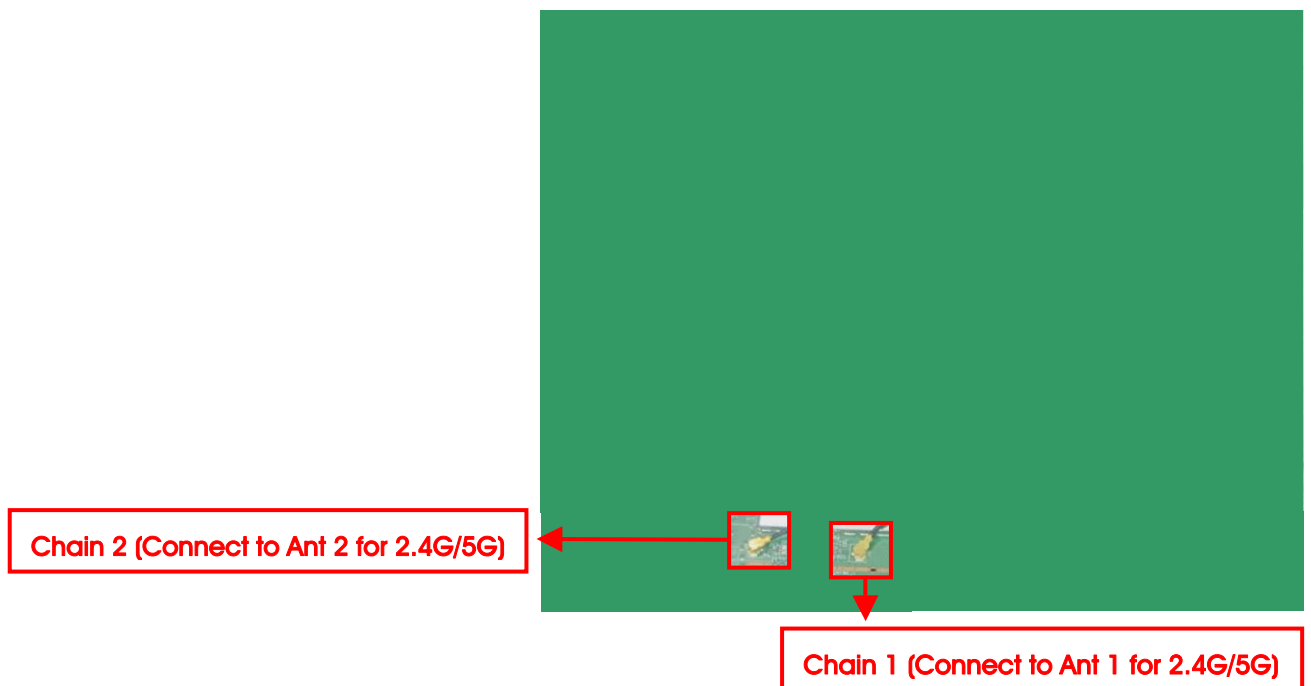
<For 5GHz Band>

For IEEE 802.11a mode (1TX/1RX):

Only Chain 1 can be used as transmitting/receiving antenna.

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

Both 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 36, 40, 44, 48, 149, 153, 157, 161, 165.

For 40MHz bandwidth systems, use Channel 38, 46, 151, 159.

For 80MHz bandwidth systems, use Channel 42, 155.

| Frequency Band | Channel No. | Frequency | Channel No. | Frequency |
|-------------------------|-------------|-----------|-------------|-----------|
| 5150~5250 MHz Band 1 | 36 | 5180 MHz | 44 | 5220 MHz |
| | 38 | 5190 MHz | 46 | 5230 MHz |
| | 40 | 5200 MHz | 48 | 5240 MHz |
| | 42 | 5210 MHz | - | - |
| 5725~5850 MHz Band 4 | 149 | 5745 MHz | 157 | 5785 MHz |
| | 151 | 5755 MHz | 159 | 5795 MHz |
| | 153 | 5765 MHz | 161 | 5805 MHz |
| | 155 | 5775 MHz | 165 | 5825 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 |
|--|------------|----------|-----------|--------------------------|-------|
| Max. Conducted Output Power | 11ac VHT20 | Band 1&4 | MCS0/Nss1 | 36/40/48/149/157 /165 | 1+2 |
| | 11ac VHT40 | Band 1&4 | MCS0/Nss1 | 38/46/151/159 | 1+2 |
| | 11ac VHT80 | Band 1&4 | MCS0/Nss1 | 42/155 | 1+2 |
| | 11a/BPSK | Band 1&4 | 6Mbps | 36/40/48/149/157 /165 | 1 |
| Power Spectral Density | 11ac VHT20 | Band 1&4 | MCS0/Nss1 | 36/40/48/149/157 /165 | 1+2 |
| | 11ac VHT40 | Band 1&4 | MCS0/Nss1 | 38/46/151/159 | 1+2 |
| | 11ac VHT80 | Band 1&4 | MCS0/Nss1 | 42/155 | 1+2 |
| | 11a/BPSK | Band 1&4 | 6Mbps | 36/40/48/149/157 /165 | 1 |
| 26dB&6dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement | 11ac VHT20 | Band 1&4 | MCS0/Nss1 | 36/40/48/149/157 /165 | 1+2 |
| | 11ac VHT40 | Band 1&4 | MCS0/Nss1 | 38/46/151/159 | 1+2 |
| | 11ac VHT80 | Band 1&4 | MCS0/Nss1 | 42/155 | 1+2 |
| | 11a/BPSK | Band 1&4 | 6Mbps | 36/40/48/149/157 /165 | 1 |
| Radiated Emission Below 1GHz | CTX | | - | - | - |
| Radiated Emission Above 1GHz | 11ac VHT20 | Band 1&4 | MCS0/Nss1 | 36/40/48/149/157 /165 | 1+2 |
| | 11ac VHT40 | Band 1&4 | MCS0/Nss1 | 38/46/151/159 | 1+2 |
| | 11ac VHT80 | Band 1&4 | MCS0/Nss1 | 42/155 | 1+2 |
| | 11a/BPSK | Band 1&4 | 6Mbps | 36/40/48/149/157 /165 | 1 |

| | | | | | |
|---------------------|---------------|----------|-----------|--------------------------|-----|
| Band Edge Emission | 11ac VHT20 | Band 1&4 | MCS0/Nss1 | 36/40/48/149/157 /165 | 1+2 |
| | 11ac VHT40 | Band 1&4 | MCS0/Nss1 | 38/46/151/159 | 1+2 |
| | 11ac VHT80 | Band 1&4 | MCS0/Nss1 | 42/155 | 1+2 |
| | 11a/BPSK | Band 1&4 | 6Mbps | 36/40/48/149/157 /165 | 1 |
| Frequency Stability | Un-modulation | | - | 40 | 1+2 |

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

The following test modes were performed for all tests:

For Radiated Emission test:

Test Mode : EUT standing + Adapter

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 Appendix B) and Radiated Emission Co-location (please refer to Appendix C) 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 | - |
| 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: FR2O2519AB

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

| Modifications | Performance Checking |
|--|--|
| 1. Changing antenna type and position of antenna. 2. Removing one adapter (Model: DSA-12PFE-12 BUS 120100) 3. Adding model No.: F9K1113V4 and equipment name: AC1200 DB Wi-Fi Dual-Band AC+ Gigabit Router for this application due to the modifications above. 4. Changing 5GHz Band 1 and Band 4 to "New Rules" from "Old Rules". | 1. 26dB Bandwidth and 99% Occupied Bandwidth Measurement 2. 6dB Spectrum Bandwidth and 99% Occupied Bandwidth Measurement 3. Maximum Conducted Output Power Measurement 4. Power Spectral Density Measurement 5. Radiated Emissions Measurement 6. Band Edge Emissions Measurement 7. Frequency Stability Measurement 8. Maximum Permissible Exposure 9. Radiated Emission Co-location |

Note: There is no change in hardware or in existing RF relevant portion

3.8. Table for Supporting Units

For Test Site No: 03CH01-CB

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

For Test Site No: TH01-CB

| Support Unit | Brand | Model | FCC ID |
|--------------|-------|-------|--------|
| Notebook | DELL | E6430 | 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.

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

| Test Software Version | RTL819x 2.2.1-12/09/28 | | | | | |
|-----------------------|------------------------|----------|----------|----------|----------|----------|
| Frequency | 5180 MHz | 5200 MHz | 5240 MHz | 5745 MHz | 5785 MHz | 5825 MHz |
| MCS0/Nss1 VHT20 | 53/59 | 59/63 | 60/63 | 52/53 | 62/63 | 53/54 |

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

| Test Software Version | RTL819x 2.2.1-12/09/28 | | | |
|-----------------------|------------------------|----------|----------|----------|
| Frequency | 5190 MHz | 5230 MHz | 5755 MHz | 5795 MHz |
| MCS0/Nss1 VHT40 | 43/49 | 59/63 | 48/48 | 50/51 |

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

| Test Software Version | RTL819x 2.2.1-12/09/28 | |
|-----------------------|------------------------|----------|
| Frequency | 5210 MHz | 5775 MHz |
| MCS0/Nss1 VHT80 | 38/43 | 45/46 |

Power Parameters of IEEE 802.11a

| Test Software Version | RTL819x 2.2.1-12/09/28 | | | | | |
|-----------------------|------------------------|----------|----------|----------|----------|----------|
| Frequency | 5180 MHz | 5200 MHz | 5240 MHz | 5745 MHz | 5785 MHz | 5825 MHz |
| 802.11a | 55 | 63 | 63 | 47 | 63 | 47 |

3.10. EUT Operation during Test

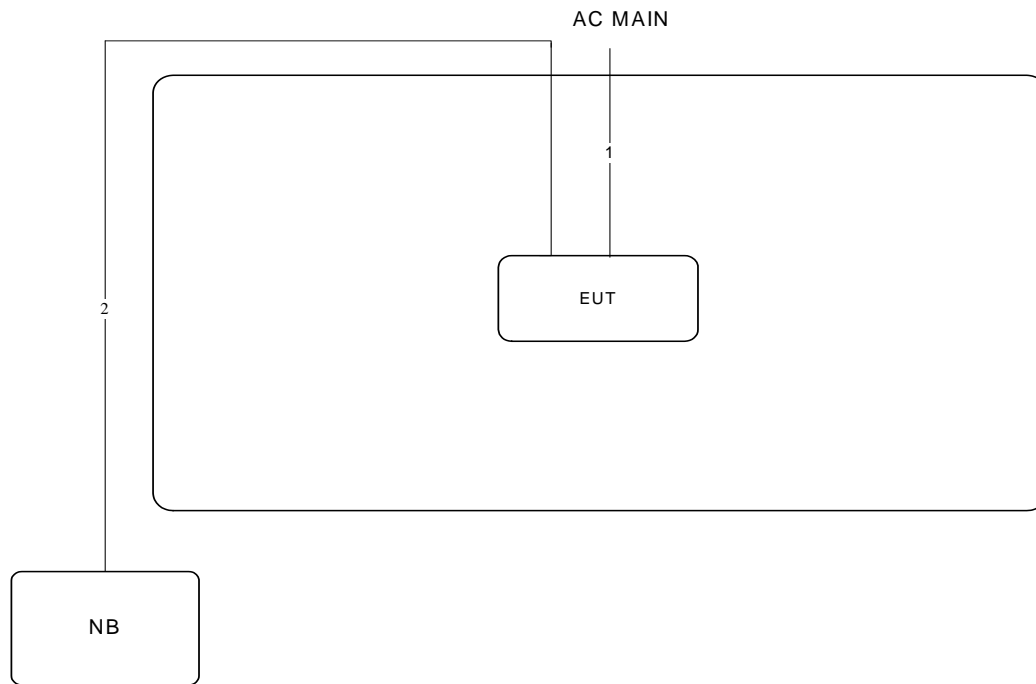
The EUT was programmed to be in continuously transmitting mode.

3.11. Duty Cycle

| Mode | On Time(ms) | On+Off Time(ms) | Duty Cycle(%) | 1/T Minimum VBW (kHz) |
|--------------------------|-------------|-----------------|---------------|-----------------------|
| 802.11ac MCS0/Nss1 VHT20 | 1.000 | 1.000 | 100 | 0.01 |
| 802.11ac MCS0/Nss1 VHT40 | 1.000 | 1.000 | 100 | 0.01 |
| 802.11ac MCS0/Nss1 VHT80 | 1.000 | 1.000 | 100 | 0.01 |
| 802.11a | 1.000 | 1.000 | 100 | 0.01 |

3.12. Test Configurations

3.12.1. Radiation Emissions Test Configuration



| Item | Connection | Shielded | Length(m) |
|------|-------------|----------|-----------|
| 1 | Power cable | No | 1.5m |
| 2 | RJ-45 cable | No | 10m |

4. TEST RESULT

4.1. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.1.1. Limit

No restriction limits.

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 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 | $\geq 3 \times$ RBW |
| Detector | Peak |
| Trace | Max Hold |

4.1.3. 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%.

4.1.4. 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.

4.1.5. Test Deviation

There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.1.7. Test Result of 26dB Bandwidth and 99% Occupied Bandwidth

| | | | |
|---------------|-----------|----------------|---------------|
| Temperature | 22°C | Humidity | 60% |
| Test Engineer | Jim Huang | Configurations | IEEE 802.11ac |

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

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 36 | 5180 MHz | 21.44 | 17.92 |
| 40 | 5200 MHz | 35.68 | 18.40 |
| 48 | 5240 MHz | 38.08 | 19.52 |

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

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 38 | 5190 MHz | 41.28 | 36.16 |
| 46 | 5230 MHz | 66.24 | 37.12 |

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

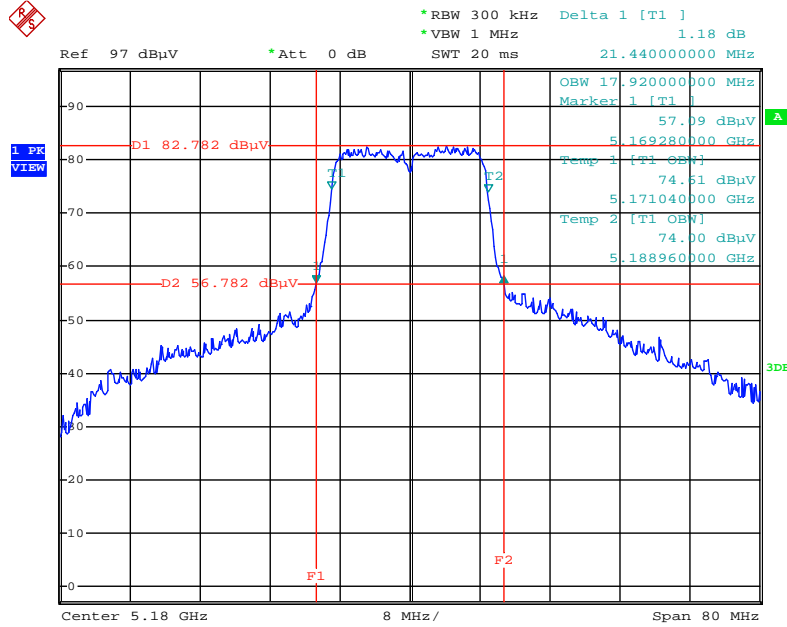
| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 42 | 5210 MHz | 82.56 | 75.52 |

| | | | |
|----------------------|-----------|-----------------------|--------------|
| Temperature | 22°C | Humidity | 60% |
| Test Engineer | Jim Huang | Configurations | IEEE 802.11a |

Configuration IEEE 802.11a / Chain 1

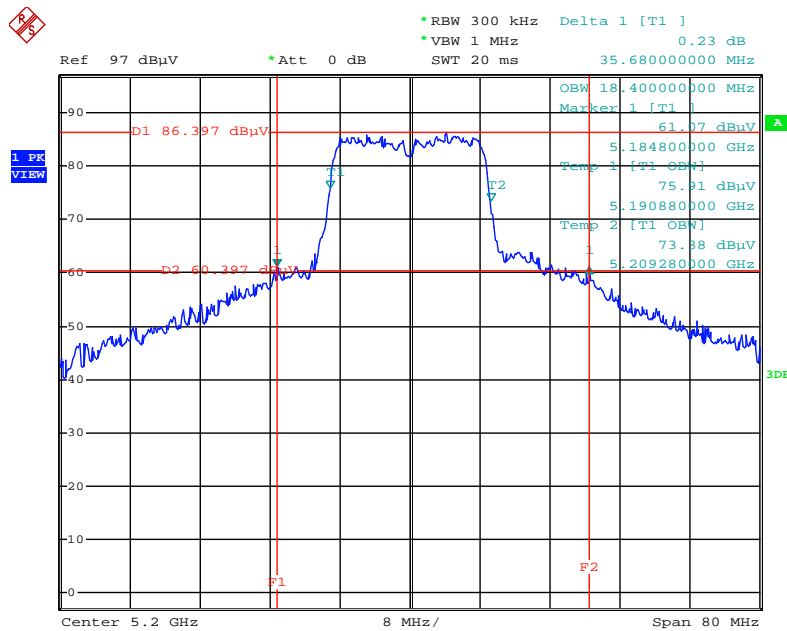
| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|----------------|------------------|-----------------------------|-------------------------------------|
| 36 | 5180 MHz | 23.68 | 17.12 |
| 40 | 5200 MHz | 36.64 | 19.04 |
| 48 | 5240 MHz | 39.20 | 22.56 |

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5180 MHz



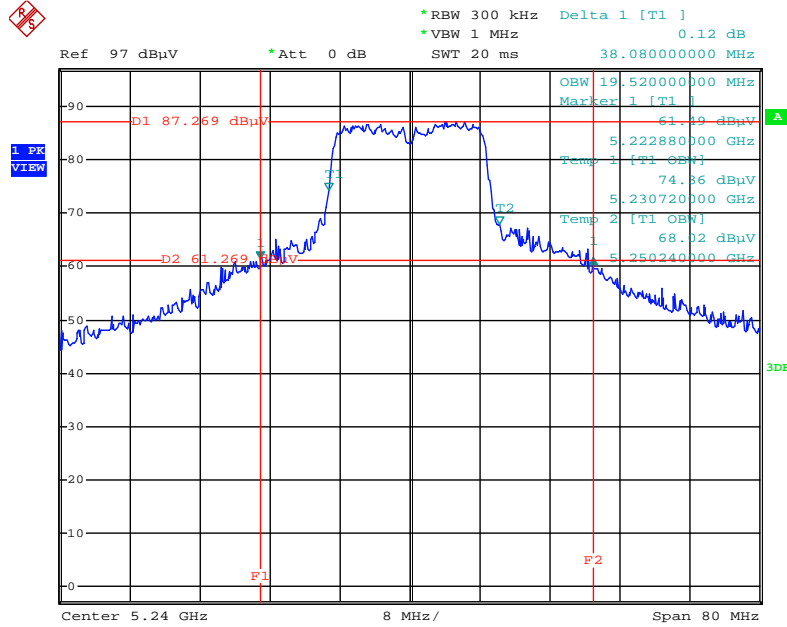
Date: 5.AUG.2014 12:17:22

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5200 MHz



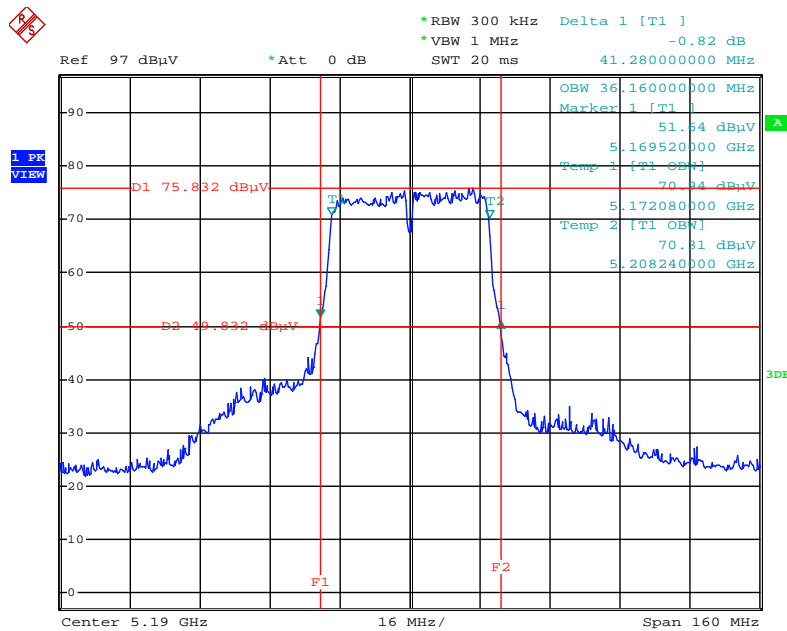
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5240 MHz



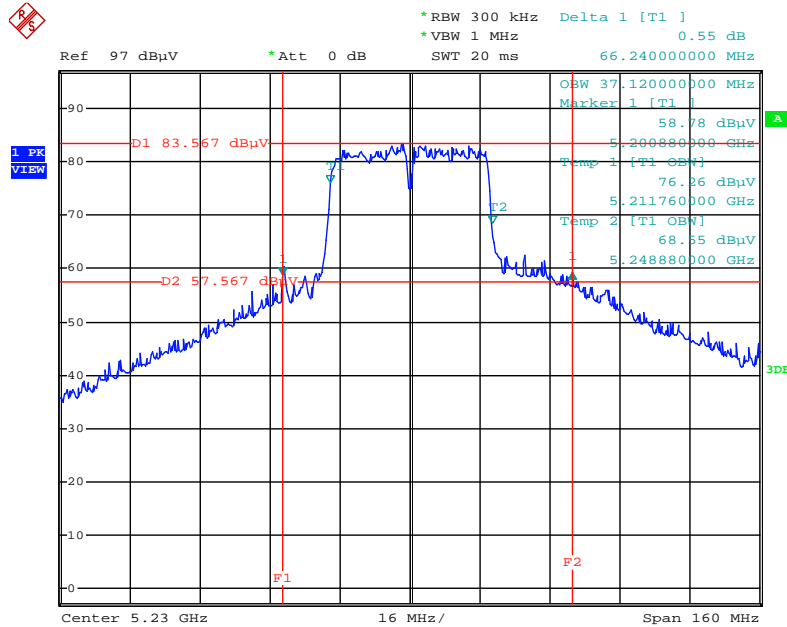
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5190 MHz



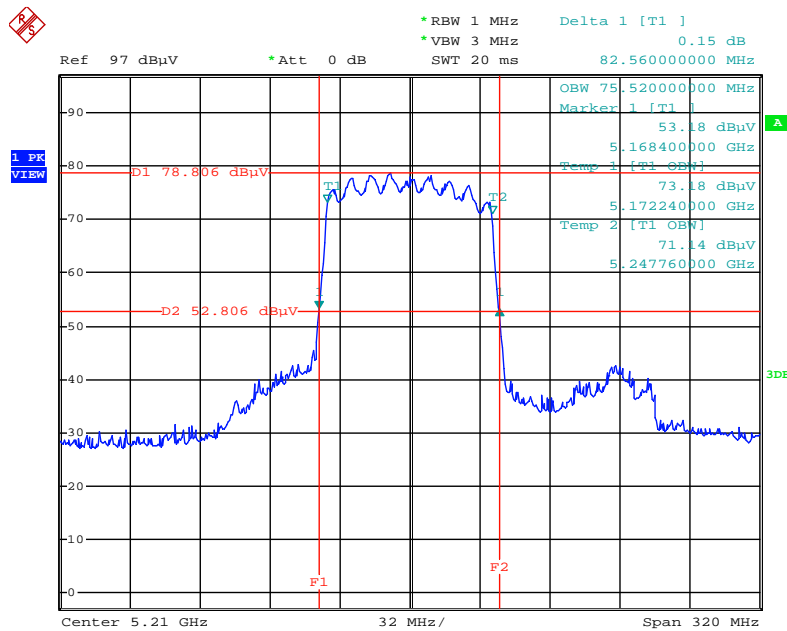
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5230 MHz



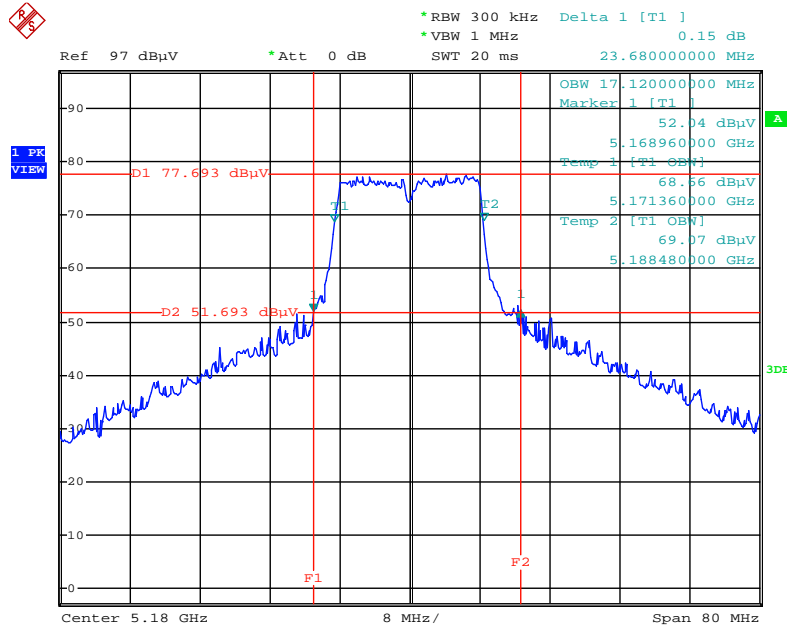
Date: 5.AUG.2014 12:16:28

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5210 MHz



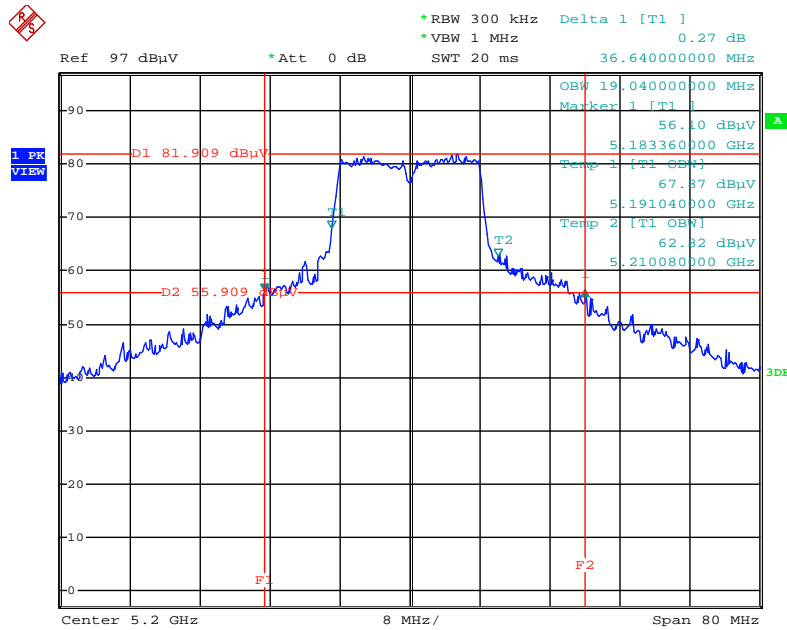
Date: 5.AUG.2014 12:14:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5180 MHz



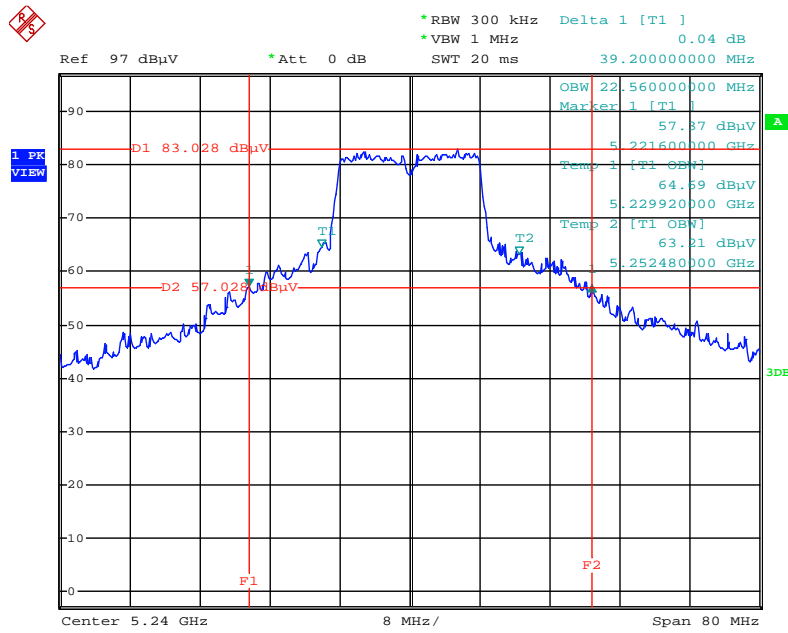
Date: 5.AUG.2014 12:20:13

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5200 MHz



Date: 5.AUG.2014 12:19:52

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5240 MHz



Date: 5.AUG.2014 12:18:58

4.2. 6dB Spectrum Bandwidth and 99% Occupied Bandwidth Measurement

4.2.1. Limit

For digital modulation systems, the minimum 6dB bandwidth shall be at least 500 kHz.

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 spectrum analyzer.

| Spectrum Parameters | Setting |
|---------------------|--|
| Attenuation | Auto |
| Span Frequency | > 6dB Bandwidth |
| RBW | approximately 1% of the emission bandwidth |
| VBW | VBW > RBW |
| Detector | Peak |
| Trace | Max Hold |
| Sweep Time | Auto |

4.2.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (C) Emission Bandwidth.
3. Multiple antenna system was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

4.2.4. Test Setup Layout

For Radiated 6dB 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 6dB Spectrum Bandwidth and 99% Occupied Bandwidth

| | | | |
|---------------|-----------|----------------|---------------|
| Temperature | 22°C | Humidity | 60% |
| Test Engineer | Jim Huang | Configurations | IEEE 802.11ac |

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

| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-------------|
| 149 | 5745 MHz | 17.68 | 17.68 | 500 | Complies |
| 157 | 5785 MHz | 17.68 | 18.48 | 500 | Complies |
| 165 | 5825 MHz | 17.60 | 17.68 | 500 | Complies |

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

| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-------------|
| 151 | 5755 MHz | 36.48 | 36.32 | 500 | Complies |
| 159 | 5795 MHz | 36.48 | 36.16 | 500 | Complies |

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

| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-------------|
| 155 | 5775 MHz | 76.48 | 76.16 | 500 | Complies |

| | | | |
|----------------------|-----------|-----------------------|--------------|
| Temperature | 22°C | Humidity | 60% |
| Test Engineer | Jim Huang | Configurations | IEEE 802.11a |

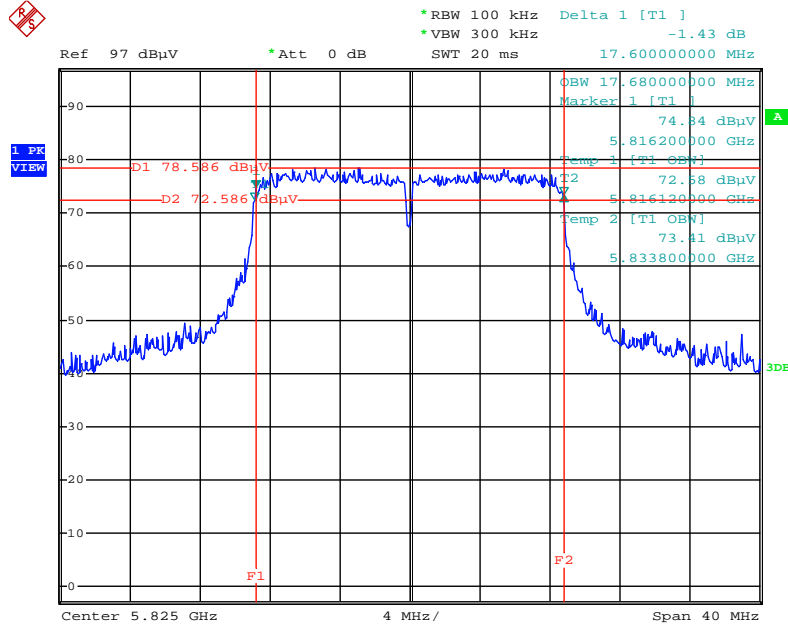
Configuration IEEE 802.11a / Chain 1

| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-----------------|
| 149 | 5745 MHz | 16.56 | 16.56 | 500 | Complies |
| 157 | 5785 MHz | 16.48 | 21.44 | 500 | Complies |
| 165 | 5825 MHz | 16.56 | 16.56 | 500 | Complies |

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

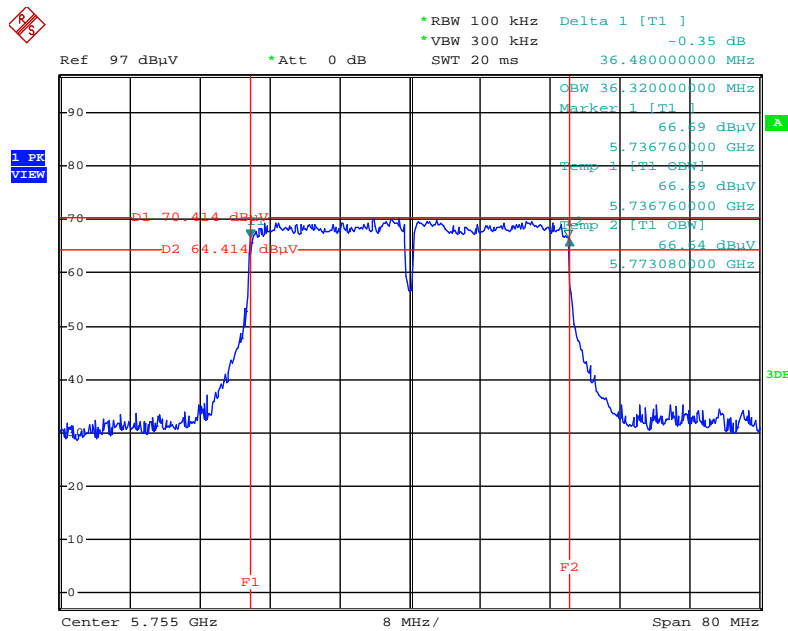
For plots, only the channel with worse result was shown.

6 dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5825 MHz



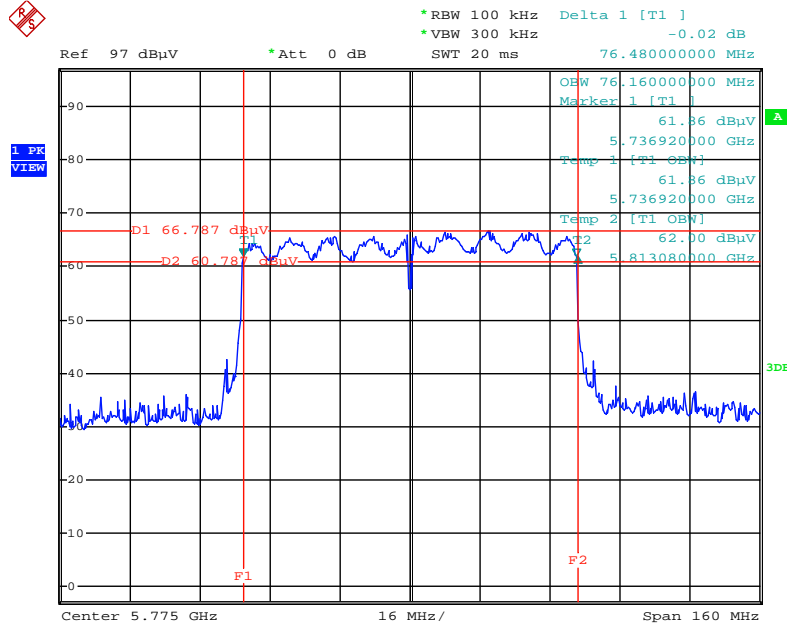
Date: 5.AUG.2014 12:24:01

6 dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5755MHz



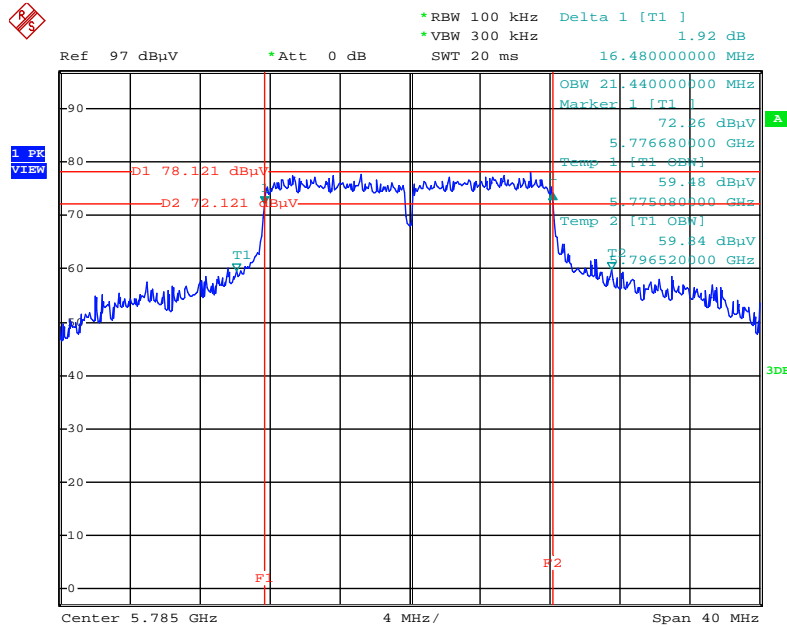
Date: 5.AUG.2014 12:26:35

6 dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5775 MHz



Date: 5.AUG.2014 12:27:59

6 dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5785 MHz



Date: 5.AUG.2014 12:22:35

4.3. Maximum Conducted Output Power Measurement

4.3.1. Limit

For the band 5.15~5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. 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.

For the band 5.725~5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). 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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple colocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

4.3.2. Measuring Instruments and Setting

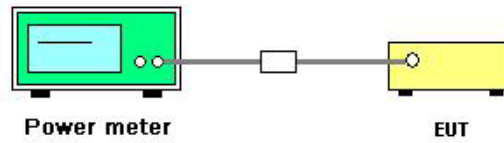
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

| 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

| | | | |
|---------------|---------------|----------------|---------------|
| Temperature | 22°C | Humidity | 60% |
| Test Engineer | Jim Huang | Configurations | IEEE 802.11ac |
| Test Date | Aug. 05, 2014 | | |

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 | | |
| 36 | 5180 MHz | 17.05 | 16.4 | 19.75 | 30.00 | Complies |
| 40 | 5200 MHz | 18.69 | 18.61 | 21.66 | 30.00 | Complies |
| 48 | 5240 MHz | 19.81 | 19.65 | 22.74 | 30.00 | Complies |
| 149 | 5745 MHz | 15.81 | 15.52 | 18.68 | 30.00 | Complies |
| 157 | 5785 MHz | 19.84 | 19.62 | 22.74 | 30.00 | Complies |
| 165 | 5825 MHz | 16.11 | 15.99 | 19.06 | 30.00 | 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 | | |
| 38 | 5190 MHz | 11.44 | 11.65 | 14.56 | 30.00 | Complies |
| 46 | 5230 MHz | 19.58 | 19.12 | 22.37 | 30.00 | Complies |
| 151 | 5755 MHz | 12.21 | 12.43 | 15.33 | 30.00 | Complies |
| 159 | 5795 MHz | 13.73 | 13.61 | 16.68 | 30.00 | 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 | | |
| 42 | 5210 MHz | 11.97 | 10.97 | 14.51 | 30.00 | Complies |
| 155 | 5775 MHz | 10.83 | 10.89 | 13.87 | 30.00 | Complies |



| | | | |
|----------------------|---------------|-----------------------|--------------|
| Temperature | 22°C | Humidity | 60% |
| Test Engineer | Jim Huang | Configurations | IEEE 802.11a |
| Test Date | Aug. 05, 2014 | | |

Configuration IEEE 802.11a / Chain 1

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|----------------|------------------|------------------------------|-------------------------|-----------------|
| 36 | 5180 MHz | 16.55 | 30.00 | Complies |
| 40 | 5200 MHz | 20.50 | 30.00 | Complies |
| 48 | 5240 MHz | 21.57 | 30.00 | Complies |
| 149 | 5745 MHz | 15.12 | 30.00 | Complies |
| 157 | 5785 MHz | 22.19 | 30.00 | Complies |
| 165 | 5825 MHz | 15.72 | 30.00 | 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 |
|-----------------|------------------------------|
| 5.15~5.25 GHz | 17 dBm/MHz |
| 5.725~5.85 GHz | 30 dBm/500kHz |

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.

For 5.15~5.25 GHz

| 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 |

For 5.725~5.85 GHz

| Spectrum Parameter | Setting |
|---|--|
| Attenuation | Auto |
| Span Frequency | Set the span to 1.5 times the DTS channel bandwidth. |
| RBW | $RBW \geq 1/T$ |
| VBW | $VBW \geq 3 RBW$ |
| Detector | Peak |
| Trace | Max Hold |
| Sweep Time | Auto couple |
| Note: If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ kHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement. | |

4.4.3. Test Procedures

For 5.15~5.25 GHz

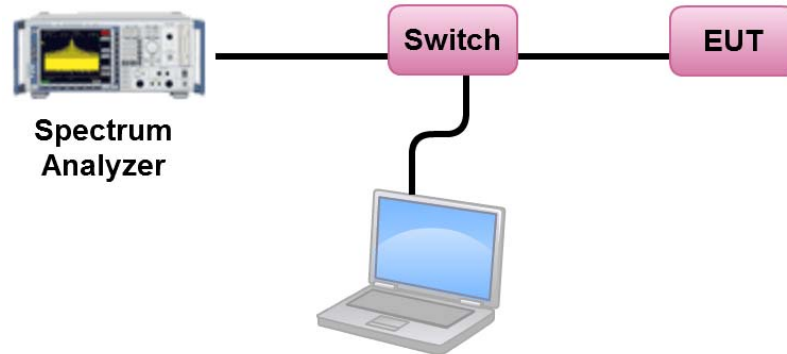
1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple 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.

For 5.725~5.85 GHz

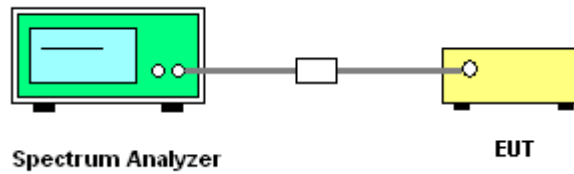
1. Test procedures refer KDB662911 D01 v02r01 section In-Band Power Spectral Density (PSD) Measurements option (b) Measure and sum spectral maximal across the outputs.
2. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.
3. Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span/RBW}$ (use of a greater number of measurement points than this minimum requirement is recommended).
4. Use the peak marker function to determine the maximum level in any 3 kHz band segment within the fundamental EBW.
5. The measured result of PSD level must add $10\log(500\text{kHz/RBW})$ and the final result should ≤ 30 dBm.

4.4.4. Test Setup Layout

For 5.15~5.25 GHz



For 5.725~5.85 GHz



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

| | | | |
|---------------|---------------|----------------|---------------|
| Temperature | 22°C | Humidity | 60% |
| Test Engineer | Jim Huang | Configurations | IEEE 802.11ac |
| Test Date | Aug. 05, 2014 | | |

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

| Channel | Frequency | Total Power Density (dBm/MHz) | Max. Limit (dBm/MHz) | Result |
|---------|-----------|-------------------------------|----------------------|----------|
| 36 | 5180 MHz | 6.31 | 15.92 | Complies |
| 40 | 5200 MHz | 8.09 | 15.92 | Complies |
| 48 | 5240 MHz | 9.44 | 15.92 | Complies |

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{f=1}^{N_{ANT}} \left\{ \sum_{i=1}^{N_{SIGNAL}} S_{f,i,A} \right\}^2}{N_{ANT}} \right] = 7.08\text{dBi} > 6\text{dBi}$, So Band1 Limit = 17-(7.08-6)=15.92dBm/MHz

| Channel | Frequency | Power Density (dBm/3kHz) | | | BWCF factor 3kHz to 500kHz | Total Power Density dBm/500kHz | Power Density Limit dBm/500kHz | Result |
|---------|-----------|--------------------------|---------|-------|-------------------------------|-----------------------------------|-----------------------------------|----------|
| | | Chain 1 | Chain 2 | Total | | | | |
| 149 | 5745 MHz | -11.25 | -11.82 | -8.52 | 22.22 | 13.70 | 28.92 | Complies |
| 157 | 5785 MHz | -6.02 | -7.09 | -3.51 | 22.22 | 18.71 | 28.92 | Complies |
| 165 | 5825 MHz | -10.13 | -11.61 | -7.80 | 22.22 | 14.42 | 28.92 | Complies |

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{f=1}^{N_{ANT}} \left\{ \sum_{i=1}^{N_{SIGNAL}} S_{f,i,A} \right\}^2}{N_{ANT}} \right] = 7.08\text{dBi} > 6\text{dBi}$, So Power Density Limit = 30-(7.08-6)=28.92dBm/500kHz

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

| Channel | Frequency | Total Power Density (dBm/MHz) | Max. Limit (dBm/MHz) | Result |
|---------|-----------|-------------------------------|----------------------|----------|
| 38 | 5190 MHz | -2.06 | 15.92 | Complies |
| 46 | 5230 MHz | 6.00 | 15.92 | Complies |

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{f=1}^{N_{ANT}} \left\{ \sum_{i=1}^{N_{SIGNAL}} S_{f,i,A} \right\}^2}{N_{ANT}} \right] = 7.08\text{dBi} > 6\text{dBi}$, So Band1 Limit = 17-(7.08-6)=15.92dBm/MHz

| Channel | Frequency | Power Density (dBm/3kHz) | | | BWCF factor 3kHz to 500kHz | Total Power Density dBm/500kHz | Power Density Limit dBm/500kHz | Result |
|---------|-----------|--------------------------|---------|--------|-------------------------------|-----------------------------------|-----------------------------------|----------|
| | | Chain 1 | Chain 2 | Total | | | | |
| 151 | 5755 MHz | -16.93 | -16.24 | -13.56 | 22.22 | 8.66 | 28.92 | Complies |
| 159 | 5795 MHz | -14.93 | -15.63 | -12.26 | 22.22 | 9.96 | 28.92 | Complies |

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{f=1}^{N_{ANT}} \left\{ \sum_{i=1}^{N_{SIGNAL}} S_{f,i,A} \right\}^2}{N_{ANT}} \right] = 7.08\text{dBi} > 6\text{dBi}$, So Power Density Limit = 30-(7.08-6)=28.92dBm/500kHz

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

| Channel | Frequency | Total Power Density (dBm/MHz) | Max. Limit (dBm/MHz) | Result |
|---------|-----------|-------------------------------|----------------------|----------|
| 42 | 5210 MHz | -5.09 | 15.92 | Complies |

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{i=1}^{N_{SIGNAL}} S_{j,i} \right\}^2}{N_{ANT}} \right] = 7.08\text{dBi} > 6\text{dBi}$, So Band1 Limit = 17-(7.08-6)=15.92dBm/MHz

| Channel | Frequency | Power Density (dBm/3kHz) | | | BWCF factor 3kHz to 500kHz | Total Power Density dBm/500kHz | Power Density Limit dBm/500kHz | Result |
|---------|-----------|--------------------------|---------|--------|-------------------------------|-----------------------------------|-----------------------------------|----------|
| | | Chain 1 | Chain 2 | Total | | | | |
| 155 | 5775 MHz | -20.50 | -19.40 | -16.90 | 22.22 | 5.32 | 28.92 | Complies |

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{i=1}^{N_{SIGNAL}} S_{j,i} \right\}^2}{N_{ANT}} \right] = 7.08\text{dBi} > 6\text{dBi}$, So Power Density Limit = 30-(7.08-6)=28.92dBm/500kHz

| | | | |
|----------------------|---------------|-----------------------|--------------|
| Temperature | 22°C | Humidity | 60% |
| Test Engineer | Jim Huang | Configurations | IEEE 802.11a |
| Test Date | Aug. 05, 2014 | | |

Configuration IEEE 802.11a / Chain 1

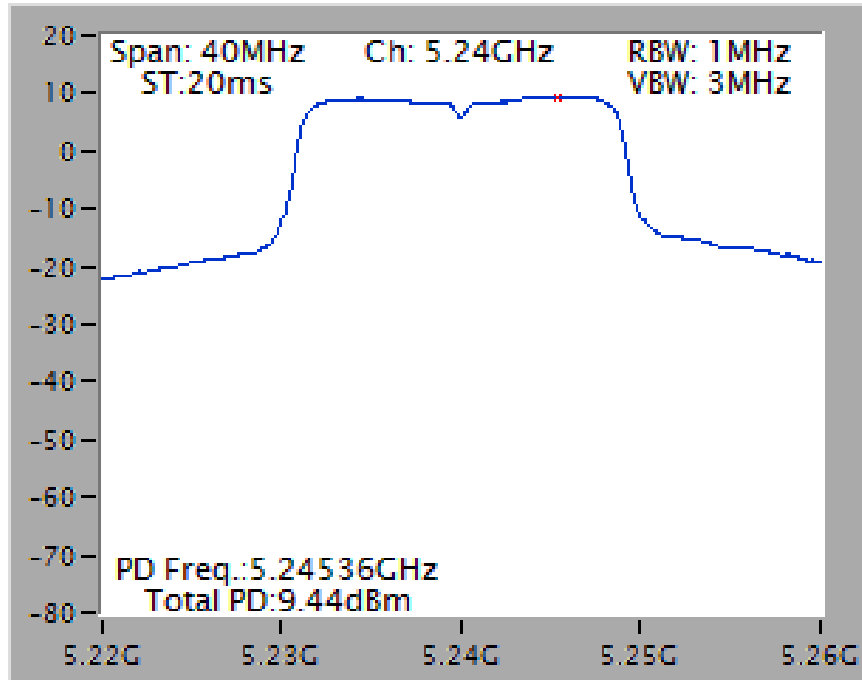
| Channel | Frequency | Total Power Density (dBm/MHz) | Max. Limit (dBm/MHz) | Result |
|---------|-----------|-------------------------------|----------------------|----------|
| 36 | 5180 MHz | 3.35 | 17.00 | Complies |
| 40 | 5200 MHz | 7.05 | 17.00 | Complies |
| 48 | 5240 MHz | 8.18 | 17.00 | Complies |

| Channel | Frequency | Power Density (dBm/3kHz) | BWCF factor | Total Power Density | Power Density Limit | Result |
|---------|-----------|--------------------------|----------------|---------------------|---------------------|----------|
| | | | 3kHz to 500kHz | dBm/500kHz | | |
| 149 | 5745 MHz | -14.17 | 22.22 | 8.05 | 30.00 | Complies |
| 157 | 5785 MHz | -6.94 | 22.22 | 15.28 | 30.00 | Complies |
| 165 | 5825 MHz | -13.09 | 22.22 | 9.13 | 30.00 | Complies |

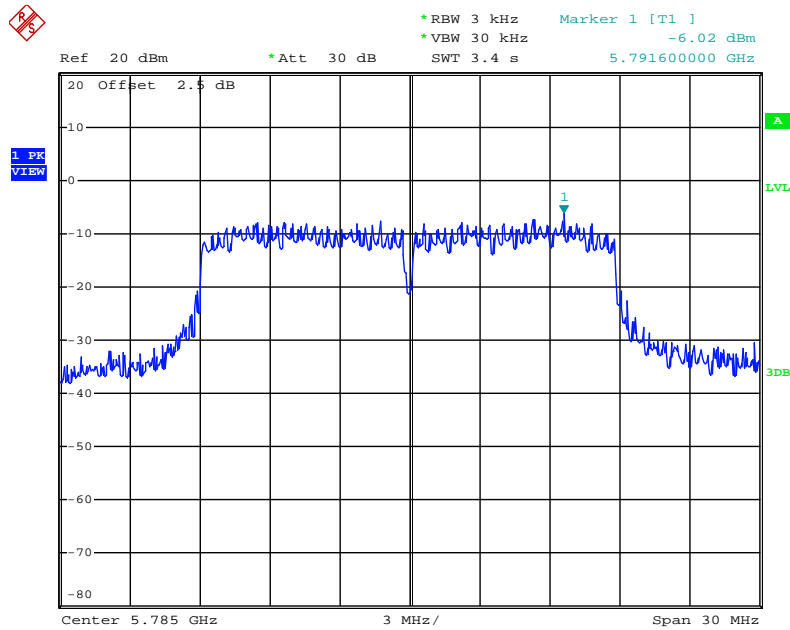
Note: All the test values were listed in the report.

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

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5240 MHz

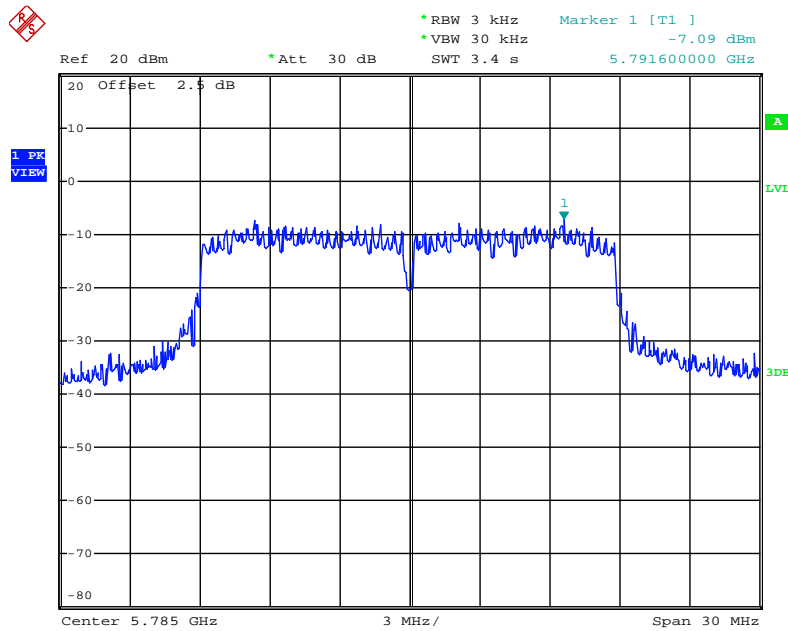


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5785 MHz



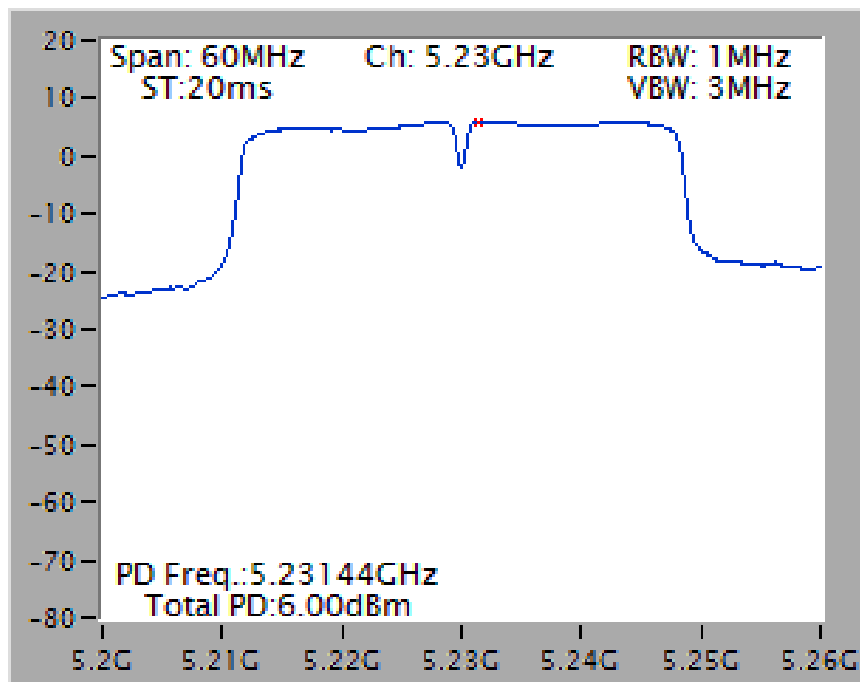
Date: 5.AUG.2014 12:35:17

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5785 MHz

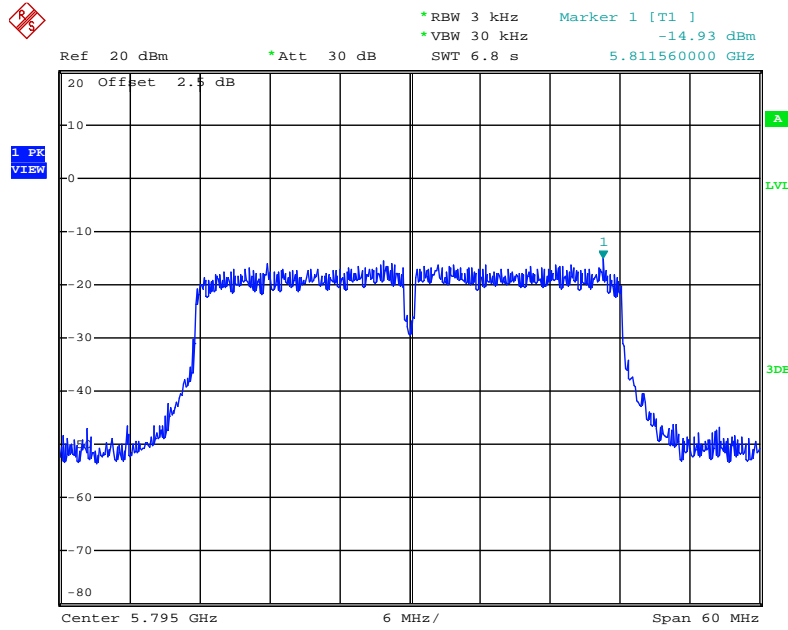


Date: 5.AUG.2014 12:34:47

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5230 MHz

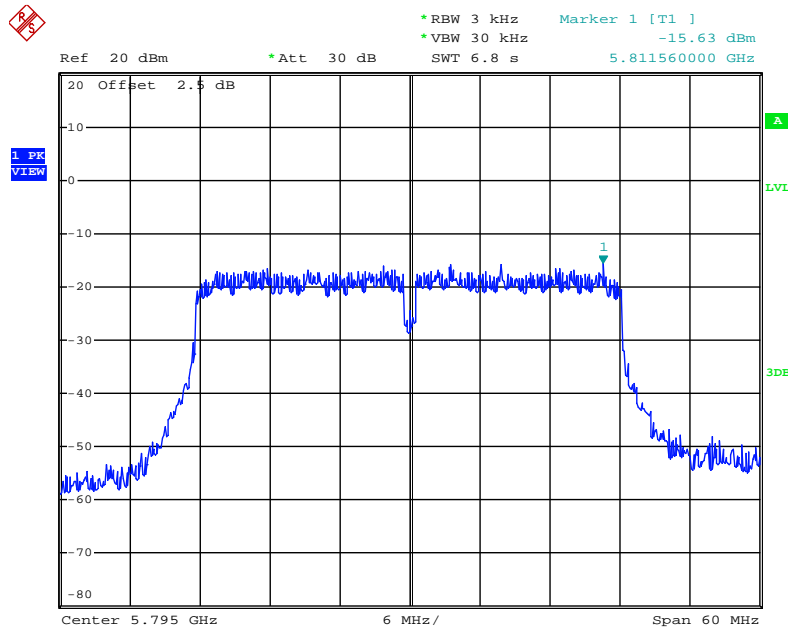


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5795 MHz



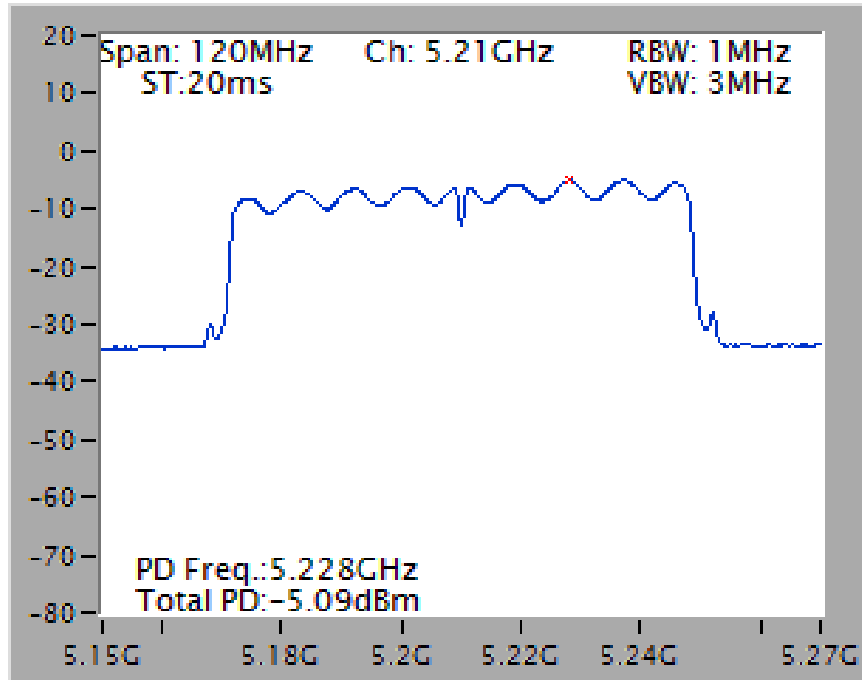
Date: 5.AUG.2014 12:38:44

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5795 MHz

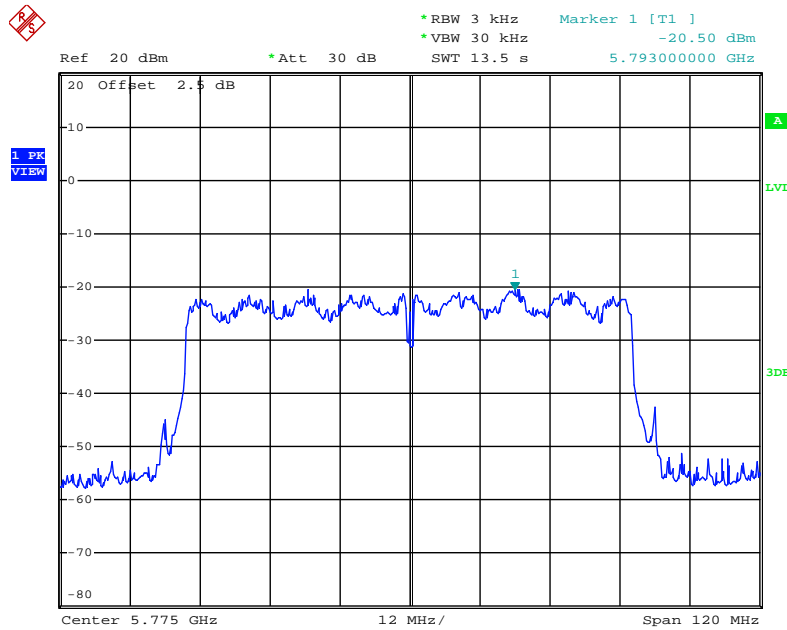


Date: 5.AUG.2014 12:39:24

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5210 MHz

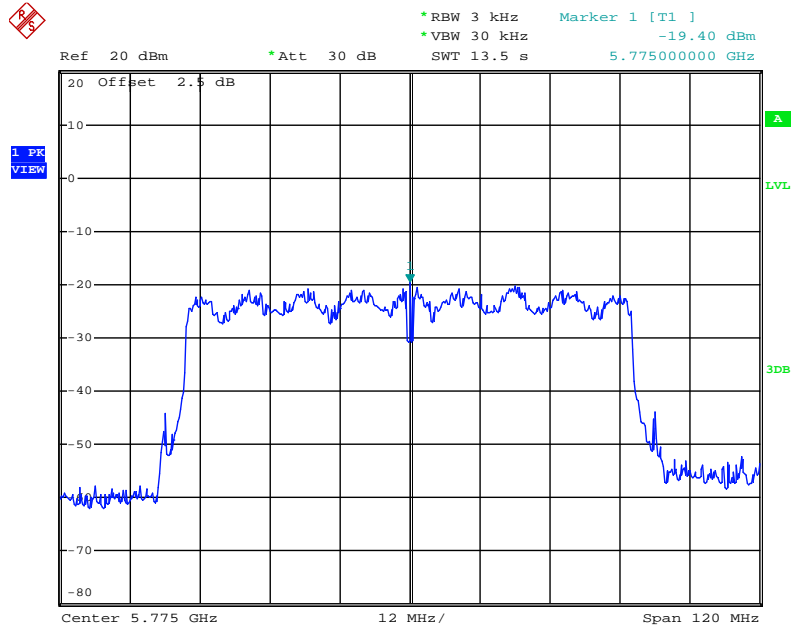


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5775 MHz



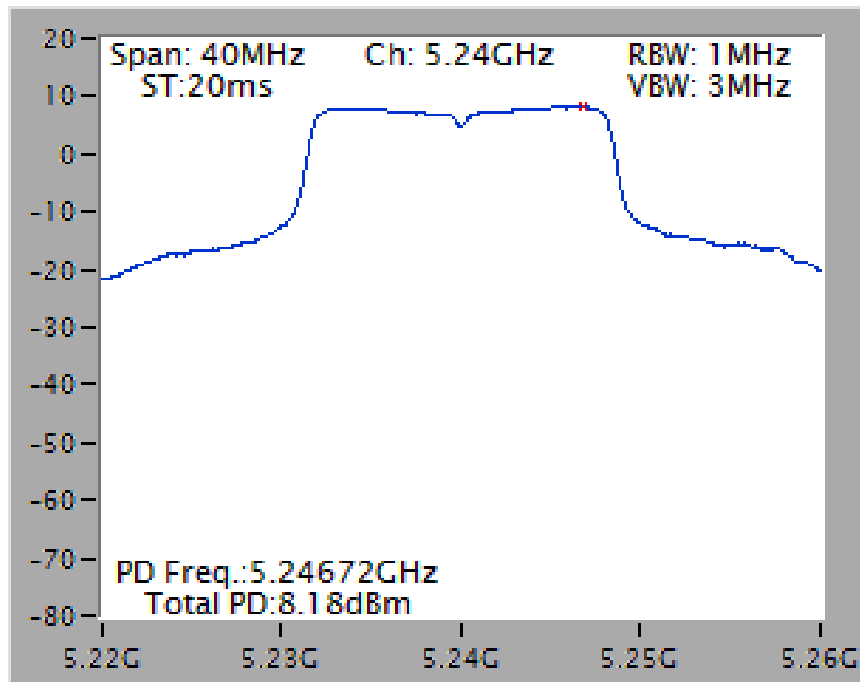
Date: 5.AUG.2014 12:41:18

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5775 MHz

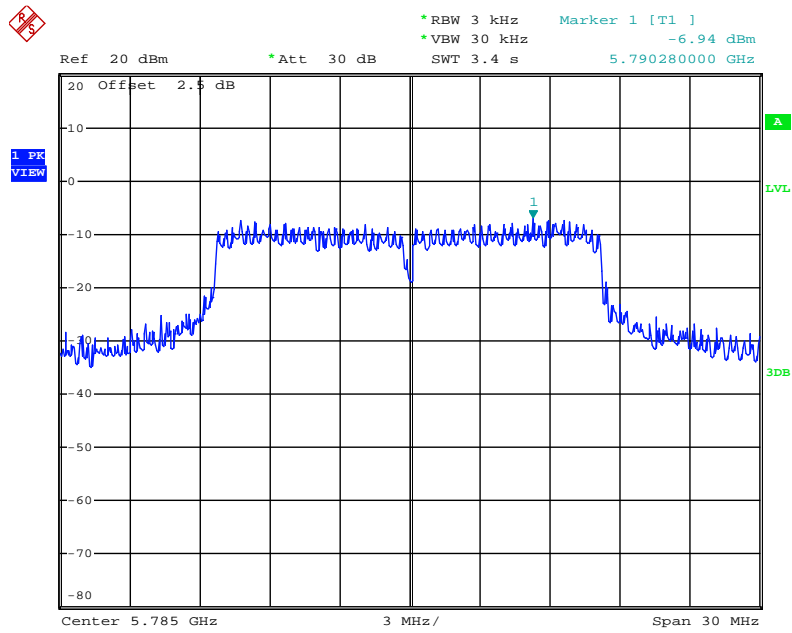


Date: 5.AUG.2014 12:40:25

Power Density Plot on Configuration IEEE 802.11a / Chain 1 / 5240 MHz



Power Density Plot on Configuration IEEE 802.11a / Chain 1 / 5785 MHz



Date: 5.AUG.2014 12:32:16

4.5. Radiated Emissions Measurement

4.5.1. Limit

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

For transmitters operating in the 5.725-5.85 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

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

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 | 1000 MHz |
| Stop Frequency | 40 GHz |
| RBW / VBW (Emission in restricted band) | 1 MHz / 3MHz for Peak, Please refer to section 3.11 for Average |
| RBW / VBW (Emission in non-restricted band) | 1 MHz / 3MHz for peak |

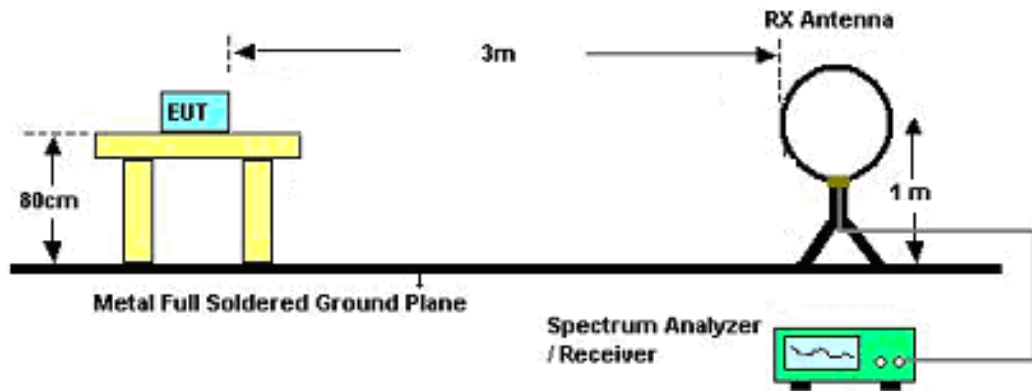
| Receiver Parameter | Setting |
|------------------------|-----------------------------------|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RBW 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RBW 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RBW 120kHz for QP |

4.5.3. Test Procedures

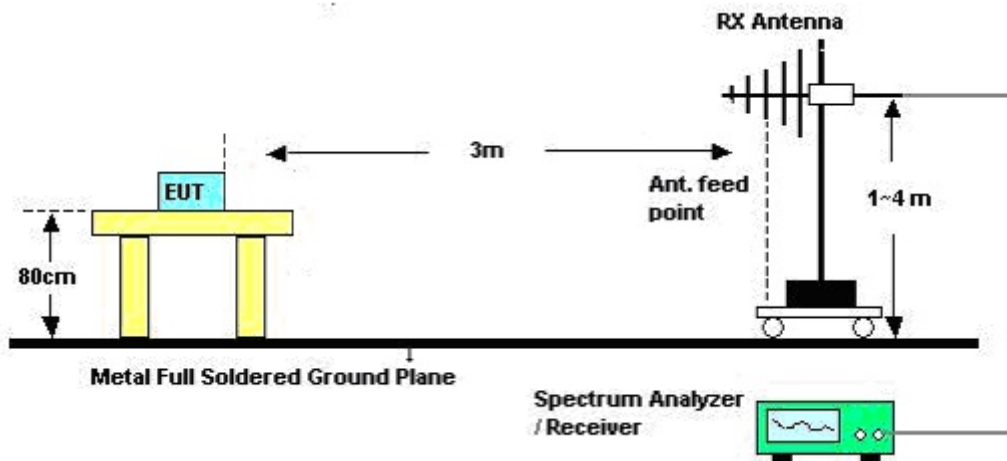
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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

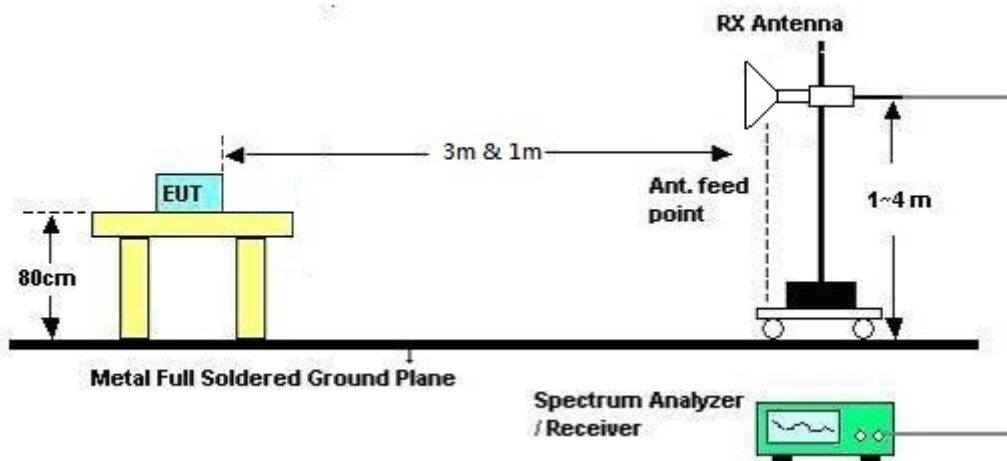
For Radiated Emissions: 9kHz ~30MHz



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

The EUT was programmed to be in continuously transmitting mode.

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

| | | | |
|---------------|---------------|----------------|-----|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | CTX |
| Test Date | Jul. 18, 2014 | | |

| Freq. (MHz) | Level (dBuV) | Over Limit (dB) | Limit Line (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.

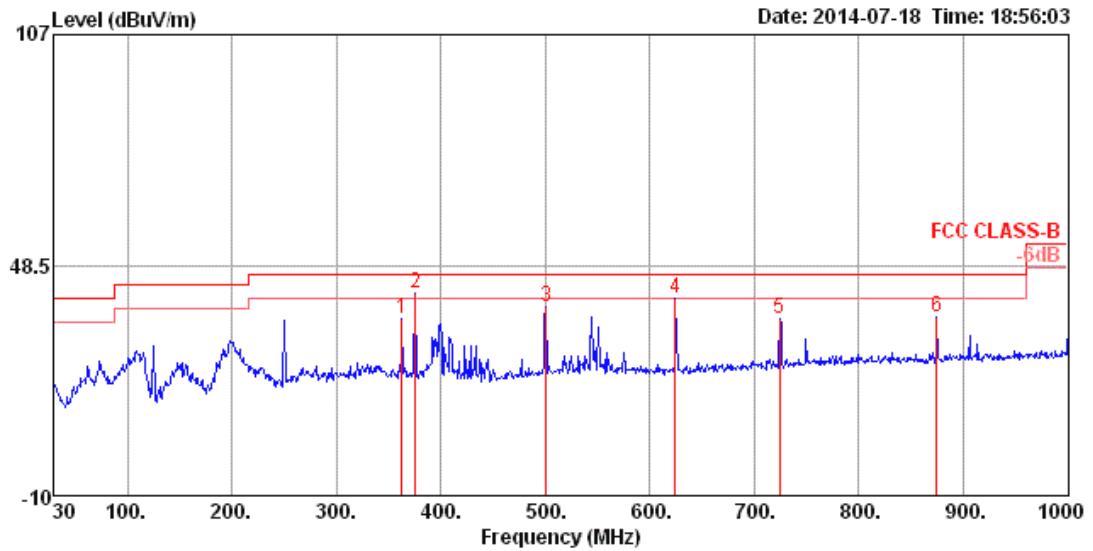
Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);

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

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

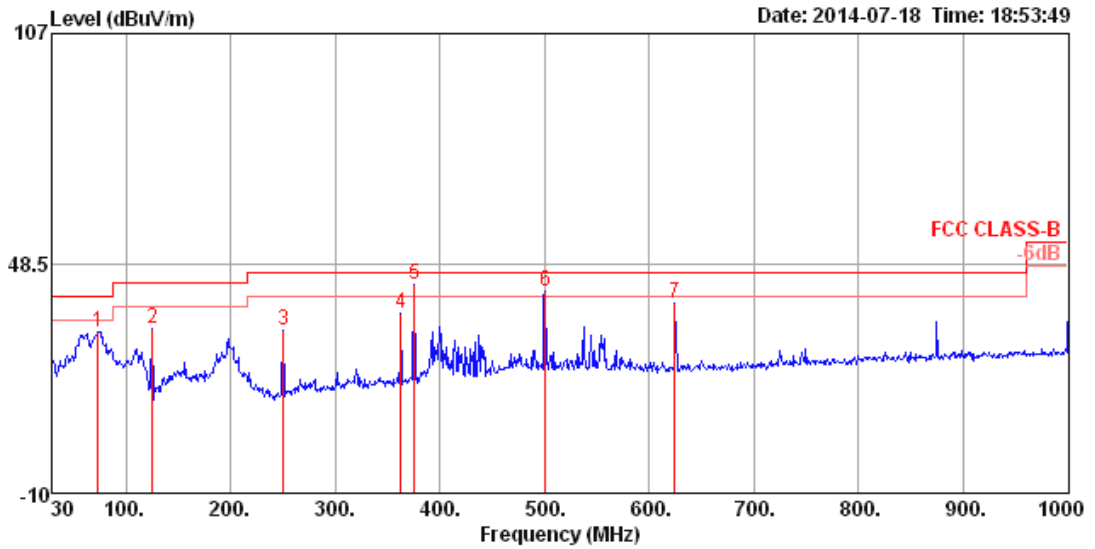
| | | | |
|---------------|-----------|----------------|-----|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | CTX |

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 | 362.71 | 35.07 | 46.00 | -10.93 | 49.35 | 2.37 | 14.70 | 31.35 | 100 | 226 | HORIZONTAL | Peak |
| 2 | 375.32 | 41.25 | 46.00 | -4.75 | 55.31 | 2.44 | 14.93 | 31.43 | 100 | 241 | HORIZONTAL | QP |
| 3 | 500.45 | 37.87 | 46.00 | -8.13 | 49.54 | 2.82 | 16.92 | 31.41 | 150 | 141 | HORIZONTAL | Peak |
| 4 | 624.61 | 40.08 | 46.00 | -5.92 | 49.69 | 3.18 | 18.61 | 31.40 | 125 | 151 | HORIZONTAL | QP |
| 5 | 724.52 | 35.00 | 46.00 | -11.00 | 43.42 | 3.45 | 19.40 | 31.27 | 100 | 17 | HORIZONTAL | Peak |
| 6 | 874.87 | 35.33 | 46.00 | -10.67 | 42.35 | 3.89 | 20.24 | 31.15 | 100 | 54 | HORIZONTAL | Peak |

Vertical



| | 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 | 73.65 | 31.07 | 40.00 | -8.93 | 55.95 | 1.02 | 5.80 | 31.70 | 150 | 34 | VERTICAL | Peak |
| 2 | 125.06 | 32.07 | 43.50 | -11.43 | 50.58 | 1.33 | 11.73 | 31.57 | 100 | 164 | VERTICAL | Peak |
| 3 | 250.19 | 31.39 | 46.00 | -14.61 | 49.07 | 1.90 | 11.91 | 31.49 | 200 | 316 | VERTICAL | Peak |
| 4 | 362.71 | 35.70 | 46.00 | -10.30 | 49.98 | 2.37 | 14.70 | 31.35 | 150 | 279 | VERTICAL | Peak |
| 5 | 375.32 | 42.98 | 46.00 | -3.02 | 57.04 | 2.44 | 14.93 | 31.43 | 112 | 174 | VERTICAL | QP |
| 6 | 500.45 | 41.41 | 46.00 | -4.59 | 53.08 | 2.82 | 16.92 | 31.41 | 102 | 2 | VERTICAL | QP |
| 7 | 624.61 | 38.54 | 46.00 | -7.46 | 48.15 | 3.18 | 18.61 | 31.40 | 150 | 170 | 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)

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Chain 1 + Chain 2 |
| Test Date | Jun. 16, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|---------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 15544.76 | 55.89 | 74.00 | -18.11 | 42.58 | 10.78 | 38.12 | 35.59 | Peak | 100 | 259 | HORIZONTAL |
| 2 | 15549.48 | 41.95 | 54.00 | -12.05 | 28.64 | 10.78 | 38.12 | 35.59 | Average | 100 | 259 | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|---------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 15547.56 | 55.43 | 74.00 | -18.57 | 42.12 | 10.78 | 38.12 | 35.59 | Peak | 100 | 31 | VERTICAL |
| 2 | 15549.12 | 42.85 | 54.00 | -11.15 | 29.54 | 10.78 | 38.12 | 35.59 | Average | 100 | 31 | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 1 + Chain 2 |
| Test Date | Jun. 17, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 15607.48 | 56.32 | 74.00 | -17.68 | 43.10 | 10.78 | 38.01 | 35.57 | Peak | 100 | 184 | HORIZONTAL |
| 2 | 15608.48 | 42.22 | 54.00 | -11.78 | 29.00 | 10.78 | 38.01 | 35.57 | Average | 100 | 184 | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 15592.32 | 56.16 | 74.00 | -17.84 | 42.92 | 10.78 | 38.04 | 35.58 | Peak | 100 | 269 | VERTICAL |
| 2 | 15605.00 | 42.01 | 54.00 | -11.99 | 28.77 | 10.78 | 38.04 | 35.58 | Average | 100 | 269 | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 1 + Chain 2 |
| Test Date | Jun. 17, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|--------------------------|---------------|---------------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | |
| 1 | 15721.16 | 43.60 | 54.00 | -10.40 | 30.52 | 10.79 | 37.85 | 35.56 Average | 100 | 284 | HORIZONTAL |
| 2 | 15725.08 | 57.48 | 74.00 | -16.52 | 44.40 | 10.79 | 37.85 | 35.56 Peak | 100 | 284 | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|--------------------------|---------------|---------------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | |
| 1 | 15713.36 | 56.30 | 74.00 | -17.70 | 43.22 | 10.79 | 37.85 | 35.56 Peak | 100 | 179 | VERTICAL |
| 2 | 15718.20 | 42.59 | 54.00 | -11.41 | 29.51 | 10.79 | 37.85 | 35.56 Average | 100 | 179 | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 1 + Chain 2 |
| Test Date | Aug. 04, 2014 | | |

Horizontal

| | 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 | 11489.84 | 49.85 | 54.00 | -4.15 | 36.51 | 9.09 | 39.10 | 34.85 | 106 | 101 | HORIZONTAL Average |
| 2 | 11494.18 | 58.47 | 74.00 | -15.53 | 45.12 | 9.10 | 39.10 | 34.85 | 106 | 101 | 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 | 11489.84 | 46.06 | 54.00 | -7.94 | 32.72 | 9.09 | 39.10 | 34.85 | 100 | 112 | VERTICAL Average |
| 2 | 11490.16 | 56.31 | 74.00 | -17.69 | 42.97 | 9.09 | 39.10 | 34.85 | 100 | 112 | VERTICAL Peak |



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 1 + Chain 2 |
| Test Date | Aug. 04, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Pol/Phase | Remark |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|------------|---------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 11567.58 | 66.22 | 74.00 | -7.78 | 52.95 | 9.11 | 39.01 | 34.85 | 108 | 93 | HORIZONTAL | Peak |
| 2 | 11569.76 | 52.09 | 54.00 | -1.91 | 38.82 | 9.11 | 39.01 | 34.85 | 108 | 93 | HORIZONTAL | Average |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Pol/Phase | Remark |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|-----------|---------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 11569.84 | 49.91 | 54.00 | -4.09 | 36.64 | 9.11 | 39.01 | 34.85 | 100 | 88 | VERTICAL | Average |
| 2 | 11575.76 | 61.64 | 74.00 | -12.36 | 48.37 | 9.11 | 39.01 | 34.85 | 100 | 88 | VERTICAL | Peak |



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 1 + Chain 2 |
| Test Date | Aug. 04, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Pol/Phase | Remark |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|------------|---------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 11649.56 | 61.01 | 74.00 | -12.99 | 47.82 | 9.11 | 38.93 | 34.85 | 101 | 94 | HORIZONTAL | Peak |
| 2 | 11649.76 | 50.58 | 54.00 | -3.42 | 37.39 | 9.11 | 38.93 | 34.85 | 101 | 94 | HORIZONTAL | Average |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Pol/Phase | Remark |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|-----------|---------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 11647.04 | 59.70 | 74.00 | -14.30 | 46.51 | 9.11 | 38.93 | 34.85 | 100 | 93 | VERTICAL | Peak |
| 2 | 11649.78 | 46.84 | 54.00 | -7.16 | 33.65 | 9.11 | 38.93 | 34.85 | 100 | 93 | VERTICAL | Average |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 1 + Chain 2 |
| Test Date | Jun. 17, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 15560.40 | 42.09 | 54.00 | -11.91 | 28.80 | 10.78 | 38.09 | 35.58 | Average | 100 | 272 | HORIZONTAL |
| 2 | 15560.60 | 56.06 | 74.00 | -17.94 | 42.77 | 10.78 | 38.09 | 35.58 | Peak | 100 | 272 | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 15569.12 | 42.93 | 54.00 | -11.07 | 29.64 | 10.78 | 38.09 | 35.58 | Average | 100 | 129 | VERTICAL |
| 2 | 15574.08 | 55.54 | 74.00 | -18.46 | 42.27 | 10.78 | 38.07 | 35.58 | Peak | 100 | 129 | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 1 + Chain 2 |
| Test Date | Jun. 17, 2014 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|----------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | |
| 1 | 15562.44 | 41.00 | 54.00 | -13.00 | 27.71 | 10.78 | 38.09 | 35.58 | Average | 100 | 277 HORIZONTAL |
| 2 | 15576.56 | 55.76 | 74.00 | -18.24 | 42.49 | 10.78 | 38.07 | 35.58 | Peak | 100 | 277 HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|--------|---------|-------|-------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | |
| 1 | 15564.32 | 41.93 | 54.00 | -12.07 | 28.64 | 10.78 | 38.09 | 35.58 | Average | 100 | 77 VERTICAL |
| 2 | 15569.56 | 56.08 | 74.00 | -17.92 | 42.79 | 10.78 | 38.09 | 35.58 | Peak | 100 | 77 VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2 |
| Test Date | Aug. 04, 2014 | | |

Horizontal

| | 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 | 11509.96 | 47.75 | 54.00 | -6.25 | 34.40 | 9.10 | 39.10 | 34.85 | 100 | 106 HORIZONTAL | Average |
| 2 | 11510.16 | 55.88 | 74.00 | -18.12 | 42.53 | 9.10 | 39.10 | 34.85 | 100 | 106 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 | 11509.82 | 44.96 | 54.00 | -9.04 | 31.61 | 9.10 | 39.10 | 34.85 | 100 | 120 VERTICAL | Average |
| 2 | 11516.18 | 55.78 | 74.00 | -18.22 | 42.43 | 9.10 | 39.10 | 34.85 | 100 | 120 VERTICAL | Peak |



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2 |
| Test Date | Aug. 04, 2014 | | |

Horizontal

| | 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 | 11589.92 | 47.54 | 54.00 | -6.46 | 34.31 | 9.11 | 38.97 | 34.85 | 113 | 111 | HORIZONTAL Average |
| 2 | 11596.58 | 55.99 | 74.00 | -18.01 | 42.76 | 9.11 | 38.97 | 34.85 | 113 | 111 | 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 | 11586.66 | 55.99 | 74.00 | -18.01 | 42.76 | 9.11 | 38.97 | 34.85 | 100 | 90 | VERTICAL Peak |
| 2 | 11589.84 | 45.30 | 54.00 | -8.70 | 32.07 | 9.11 | 38.97 | 34.85 | 100 | 90 | VERTICAL Average |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 1 + Chain 2 |
| Test Date | Jun. 17, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 15626.48 | 55.71 | 74.00 | -18.29 | 42.51 | 10.78 | 37.99 | 35.57 | Peak | 100 | 306 | HORIZONTAL |
| 2 | 15638.32 | 42.03 | 54.00 | -11.97 | 28.83 | 10.78 | 37.99 | 35.57 | Average | 100 | 306 | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 15629.68 | 42.21 | 54.00 | -11.79 | 29.01 | 10.78 | 37.99 | 35.57 | Average | 100 | 47 | VERTICAL |
| 2 | 15635.48 | 56.53 | 74.00 | -17.47 | 43.33 | 10.78 | 37.99 | 35.57 | Peak | 100 | 47 | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2 |
| Test Date | Aug. 04, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Pol/Phase | Remark |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|------------|---------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 11549.90 | 56.20 | 74.00 | -17.80 | 42.89 | 9.10 | 39.06 | 34.85 | 100 | 107 | HORIZONTAL | Peak |
| 2 | 11549.96 | 47.20 | 54.00 | -6.80 | 33.89 | 9.10 | 39.06 | 34.85 | 100 | 107 | HORIZONTAL | Average |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Pol/Phase | Remark |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|-----------|---------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 11548.24 | 55.09 | 74.00 | -18.91 | 41.78 | 9.10 | 39.06 | 34.85 | 100 | 82 | VERTICAL | Peak |
| 2 | 11549.80 | 45.59 | 54.00 | -8.41 | 32.28 | 9.10 | 39.06 | 34.85 | 100 | 82 | VERTICAL | Average |



| | | | |
|----------------------|---------------|-----------------------|------------------------------|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11a CH 36 / Chain 1 |
| Test Date | Jun. 16, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|---------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 15518.70 | 56.41 | 74.00 | -17.59 | 43.06 | 10.77 | 38.17 | 35.59 | Peak | 100 | 257 | HORIZONTAL |
| 2 | 15553.80 | 42.38 | 54.00 | -11.62 | 29.07 | 10.78 | 38.12 | 35.59 | Average | 100 | 257 | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|---------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 15553.70 | 42.56 | 54.00 | -11.44 | 29.25 | 10.78 | 38.12 | 35.59 | Average | 100 | 76 | VERTICAL |
| 2 | 15560.40 | 55.94 | 74.00 | -18.06 | 42.65 | 10.78 | 38.09 | 35.58 | Peak | 100 | 76 | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|------------------------------|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11a CH 40 / Chain 1 |
| Test Date | Jun. 16, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|----------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | |
| 1 | 15592.90 | 56.42 | 74.00 | -17.58 | 43.18 | 10.78 | 38.04 | 35.58 | Peak | 100 | 118 HORIZONTAL |
| 2 | 15608.50 | 42.24 | 54.00 | -11.76 | 29.02 | 10.78 | 38.01 | 35.57 | Average | 100 | 118 HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|---------------|---------------|---------------|-----------------------------|------------------|--------|---------|-------|--------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | |
| 1 | 15604.70 | 56.25 | 74.00 | -17.75 | 43.01 | 10.78 | 38.04 | 35.58 | Peak | 100 | 273 VERTICAL |
| 2 | 15611.10 | 42.27 | 54.00 | -11.73 | 29.05 | 10.78 | 38.01 | 35.57 | Average | 100 | 273 VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|------------------------------|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11a CH 48 / Chain 1 |
| Test Date | Jun. 16, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|---------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 15712.08 | 56.39 | 74.00 | -17.61 | 43.31 | 10.79 | 37.85 | 35.56 | Peak | 100 | 248 | HORIZONTAL |
| 2 | 15728.56 | 42.48 | 54.00 | -11.52 | 29.42 | 10.79 | 37.83 | 35.56 | Average | 100 | 248 | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|---------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 15718.40 | 42.47 | 54.00 | -11.53 | 29.39 | 10.79 | 37.85 | 35.56 | Average | 100 | 283 | VERTICAL |
| 2 | 15727.96 | 56.50 | 74.00 | -17.50 | 43.44 | 10.79 | 37.83 | 35.56 | Peak | 100 | 283 | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|-------------------------------|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11a CH 149 / Chain 1 |
| Test Date | Aug. 02, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|---------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 11489.90 | 48.17 | 54.00 | -5.83 | 38.95 | 5.11 | 39.39 | 35.28 | Average | 100 | 103 | HORIZONTAL |
| 2 | 11489.98 | 55.71 | 74.00 | -18.29 | 46.49 | 5.11 | 39.39 | 35.28 | Peak | 100 | 103 | HORIZONTAL |
| 3 | 17233.56 | 43.57 | 68.20 | -24.63 | 28.93 | 6.52 | 42.82 | 34.70 | Average | 100 | 75 | HORIZONTAL |
| 4 | 17239.74 | 56.32 | 68.20 | -11.88 | 41.68 | 6.52 | 42.82 | 34.70 | Peak | 100 | 75 | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|---------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 11489.90 | 40.69 | 54.00 | -13.31 | 31.47 | 5.11 | 39.39 | 35.28 | Average | 100 | 291 | VERTICAL |
| 2 | 11492.17 | 54.18 | 74.00 | -19.82 | 44.96 | 5.11 | 39.39 | 35.28 | Peak | 100 | 291 | VERTICAL |
| 3 | 17218.01 | 43.74 | 68.20 | -24.46 | 29.19 | 6.49 | 42.74 | 34.68 | Average | 100 | 83 | VERTICAL |
| 4 | 17258.24 | 56.49 | 68.20 | -11.71 | 41.77 | 6.54 | 42.90 | 34.72 | Peak | 100 | 83 | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|-------------------------------|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11a CH 157 / Chain 1 |
| Test Date | Aug. 02, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 11569.90 | 49.30 | 54.00 | -4.70 | 40.02 | 5.14 | 39.44 | 35.30 | Average | 100 | 97 | HORIZONTAL |
| 2 | 11569.95 | 62.20 | 74.00 | -11.80 | 52.92 | 5.14 | 39.44 | 35.30 | Peak | 100 | 97 | HORIZONTAL |
| 3 | 17346.51 | 57.62 | 68.20 | -10.58 | 42.43 | 6.61 | 43.38 | 34.80 | Peak | 100 | 115 | HORIZONTAL |
| 4 | 17359.10 | 45.53 | 68.20 | -22.67 | 30.31 | 6.64 | 43.38 | 34.80 | Average | 100 | 115 | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 11569.92 | 48.71 | 54.00 | -5.29 | 39.43 | 5.14 | 39.44 | 35.30 | Average | 100 | 119 | VERTICAL |
| 2 | 11571.73 | 62.62 | 74.00 | -11.38 | 53.34 | 5.14 | 39.44 | 35.30 | Peak | 100 | 119 | VERTICAL |
| 3 | 17359.17 | 44.98 | 68.20 | -23.22 | 29.76 | 6.64 | 43.38 | 34.80 | Average | 100 | 109 | VERTICAL |
| 4 | 17379.52 | 58.04 | 68.20 | -10.16 | 42.68 | 6.64 | 43.54 | 34.82 | Peak | 100 | 109 | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|-------------------------------|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11a CH 165 / Chain 1 |
| Test Date | Aug. 02, 2014 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 11649.90 | 47.85 | 54.00 | -6.15 | 38.51 | 5.16 | 39.48 | 35.30 | Average | 111 | 104 | HORIZONTAL |
| 2 | 11649.92 | 56.03 | 74.00 | -17.97 | 46.69 | 5.16 | 39.48 | 35.30 | Peak | 111 | 104 | HORIZONTAL |
| 3 | 17465.00 | 44.90 | 68.20 | -23.30 | 29.10 | 6.74 | 43.94 | 34.88 | Average | 100 | 96 | HORIZONTAL |
| 4 | 17469.97 | 57.87 | 68.20 | -10.33 | 42.07 | 6.74 | 43.94 | 34.88 | Peak | 100 | 96 | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 11649.71 | 41.14 | 54.00 | -12.86 | 31.80 | 5.16 | 39.48 | 35.30 | Average | 100 | 116 | VERTICAL |
| 2 | 11652.31 | 54.95 | 74.00 | -19.05 | 45.60 | 5.16 | 39.49 | 35.30 | Peak | 100 | 116 | VERTICAL |
| 3 | 17465.48 | 57.88 | 68.20 | -10.32 | 42.08 | 6.74 | 43.94 | 34.88 | Peak | 100 | 187 | VERTICAL |
| 4 | 17473.01 | 44.76 | 68.20 | -23.44 | 28.96 | 6.74 | 43.94 | 34.88 | Average | 100 | 187 | 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 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

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

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, Please refer to section 3.11 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 band edges.

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

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

| | | | |
|---------------|---------------|----------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 1 + Chain 2 |
| Test Date | Jun. 14, 2014 | | |

Channel 36

| | Freq | Level | Limit | Over | Read | Cable | Antenna | Preamp | Remark | T/Pos | A/Pos | Pol/Phase |
|---|---------|--------|--------|-------|--------|-------|---------|--------|---------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | Loss | Factor | Factor | | deg | cm | |
| 1 | 5150.00 | 71.04 | 74.00 | -2.96 | 68.09 | 4.34 | 33.14 | 34.53 | Peak | 149 | 125 | VERTICAL |
| 2 | 5150.00 | 53.00 | 54.00 | -1.00 | 50.05 | 4.34 | 33.14 | 34.53 | Average | 149 | 125 | VERTICAL |
| 3 | 5185.40 | 113.29 | | | 110.27 | 4.36 | 33.19 | 34.53 | Peak | 149 | 125 | VERTICAL |
| 4 | 5185.40 | 103.65 | | | 100.63 | 4.36 | 33.19 | 34.53 | Average | 149 | 125 | VERTICAL |

Item 3, 4 are the fundamental frequency at 5180 MHz.

Channel 40

| | Freq | Level | Limit | Over | Read | Cable | Antenna | Preamp | Remark | T/Pos | A/Pos | Pol/Phase |
|---|---------|--------|--------|-------|--------|-------|---------|--------|---------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | Loss | Factor | Factor | | deg | cm | |
| 1 | 5146.80 | 68.26 | 74.00 | -5.74 | 65.31 | 4.34 | 33.14 | 34.53 | Peak | 323 | 120 | VERTICAL |
| 2 | 5150.00 | 49.88 | 54.00 | -4.12 | 46.93 | 4.34 | 33.14 | 34.53 | Average | 323 | 120 | VERTICAL |
| 3 | 5194.40 | 117.45 | | | 114.39 | 4.37 | 33.22 | 34.53 | Peak | 323 | 120 | VERTICAL |
| 4 | 5205.20 | 107.88 | | | 104.82 | 4.37 | 33.22 | 34.53 | Average | 323 | 120 | VERTICAL |

Item 3, 4 are the fundamental frequency at 5200 MHz.

Channel 48

| | Freq | Level | Limit | Over | Read | Cable | Antenna | Preamp | Remark | T/Pos | A/Pos | Pol/Phase |
|---|---------|--------|--------|--------|--------|-------|---------|--------|---------|-------|-------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | Loss | Factor | Factor | | deg | cm | |
| 1 | 5150.00 | 54.35 | 74.00 | -19.65 | 51.40 | 4.34 | 33.14 | 34.53 | Peak | 148 | 109 | VERTICAL |
| 2 | 5150.00 | 43.46 | 54.00 | -10.54 | 40.51 | 4.34 | 33.14 | 34.53 | Average | 148 | 109 | VERTICAL |
| 3 | 5244.80 | 117.66 | | | 114.49 | 4.40 | 33.30 | 34.53 | Peak | 148 | 109 | VERTICAL |
| 4 | 5245.40 | 108.32 | | | 105.15 | 4.40 | 33.30 | 34.53 | Average | 148 | 109 | VERTICAL |
| 5 | 5350.00 | 54.77 | 74.00 | -19.23 | 51.37 | 4.47 | 33.46 | 34.53 | Peak | 148 | 109 | VERTICAL |
| 6 | 5350.00 | 44.23 | 54.00 | -9.77 | 40.83 | 4.47 | 33.46 | 34.53 | Average | 148 | 109 | VERTICAL |

Item 3, 4 are the fundamental frequency at 5240 MHz.

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 1 + Chain 2 |
| Test Date | Aug. 04, 2014 | | |

Channel 149

| | 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 | 5712.60 | 66.45 | 68.20 | -1.75 | 61.30 | 6.34 | 34.16 | 35.35 | 100 | 271 | HORIZONTAL Peak |
| 2 | 5724.40 | 73.75 | 78.20 | -4.45 | 68.56 | 6.35 | 34.18 | 35.34 | 100 | 271 | HORIZONTAL Peak |
| 3 | 5740.20 | 105.06 | | | 99.83 | 6.36 | 34.20 | 35.33 | 100 | 271 | HORIZONTAL Peak |
| 4 | 5750.40 | 95.40 | | | 90.15 | 6.37 | 34.20 | 35.32 | 100 | 271 | HORIZONTAL Average |

Item 3, 4 are the fundamental frequency at 5745 MHz.

Channel 157

| | 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 | 5715.00 | 64.59 | 68.20 | -3.61 | 59.43 | 6.35 | 34.16 | 35.35 | 152 | 280 | HORIZONTAL Peak |
| 2 | 5725.00 | 62.32 | 78.20 | -15.88 | 57.13 | 6.35 | 34.18 | 35.34 | 152 | 280 | HORIZONTAL Peak |
| 3 | 5779.40 | 102.93 | | | 97.50 | 6.39 | 34.33 | 35.29 | 152 | 280 | HORIZONTAL Average |
| 4 | 5779.60 | 112.00 | | | 106.57 | 6.39 | 34.33 | 35.29 | 152 | 280 | HORIZONTAL Peak |
| 5 | 5850.00 | 64.64 | 78.20 | -13.56 | 58.84 | 6.43 | 34.60 | 35.23 | 152 | 280 | HORIZONTAL Peak |
| 6 | 5863.00 | 62.79 | 68.20 | -5.41 | 56.90 | 6.44 | 34.67 | 35.22 | 152 | 280 | HORIZONTAL Peak |

Item 3, 4 are the fundamental frequency at 5785 MHz.

Channel 165

| | 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 | 5830.40 | 99.13 | | | 93.43 | 6.42 | 34.53 | 35.25 | 148 | 258 | HORIZONTAL Average |
| 2 | 5831.80 | 107.93 | | | 102.23 | 6.42 | 34.53 | 35.25 | 148 | 258 | HORIZONTAL Peak |
| 3 | 5850.20 | 74.79 | 78.20 | -3.41 | 68.99 | 6.43 | 34.60 | 35.23 | 148 | 258 | HORIZONTAL Peak |
| 4 | 5860.00 | 67.02 | 68.20 | -1.18 | 61.13 | 6.44 | 34.67 | 35.22 | 148 | 258 | HORIZONTAL Peak |

Item 1, 2 are the fundamental frequency at 5825 MHz.



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 1 + Chain 2 |
| Test Date | Jun. 14, 2014 | | |

Channel 38

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna 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 | 5150.00 | 66.90 | 74.00 | -7.10 | 63.95 | 4.34 | 33.14 | 34.53 | Peak | 258 | 166 | HORIZONTAL |
| 2 | 5150.00 | 52.57 | 54.00 | -1.43 | 49.62 | 4.34 | 33.14 | 34.53 | Average | 258 | 166 | HORIZONTAL |
| 3 | 5191.60 | 94.08 | | | 91.02 | 4.37 | 33.22 | 34.53 | Average | 258 | 166 | HORIZONTAL |
| 4 | 5200.40 | 104.30 | | | 101.24 | 4.37 | 33.22 | 34.53 | Peak | 258 | 166 | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5190 MHz.

Channel 46

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna 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 | 5150.00 | 65.13 | 74.00 | -8.87 | 62.18 | 4.34 | 33.14 | 34.53 | Peak | 330 | 120 | VERTICAL |
| 2 | 5150.00 | 51.44 | 54.00 | -2.56 | 48.49 | 4.34 | 33.14 | 34.53 | Average | 330 | 120 | VERTICAL |
| 3 | 5231.60 | 105.14 | | | 102.01 | 4.39 | 33.27 | 34.53 | Average | 330 | 120 | VERTICAL |
| 4 | 5232.80 | 115.17 | | | 112.04 | 4.39 | 33.27 | 34.53 | Peak | 330 | 120 | VERTICAL |

Item 3, 4 are the fundamental frequency at 5230 MHz.



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 1 + Chain 2 |
| Test Date | Aug. 04, 2014 | | |

Channel 151

| | 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 | 5714.40 | 66.83 | 68.20 | -1.37 | 61.67 | 6.35 | 34.16 | 35.35 | 100 | 265 | HORIZONTAL Peak |
| 2 | 5724.20 | 72.51 | 78.20 | -5.69 | 67.32 | 6.35 | 34.18 | 35.34 | 100 | 265 | HORIZONTAL Peak |
| 3 | 5753.20 | 91.22 | | | 85.97 | 6.37 | 34.20 | 35.32 | 100 | 265 | HORIZONTAL Average |
| 4 | 5753.20 | 91.22 | | | 85.97 | 6.37 | 34.20 | 35.32 | 100 | 265 | HORIZONTAL Average |

Item 3, 4 are the fundamental frequency at 5755 MHz.

Channel 159

| | 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 | 5807.80 | 106.09 | | | 100.48 | 6.41 | 34.47 | 35.27 | 150 | 280 | HORIZONTAL Peak |
| 2 | 5808.00 | 96.54 | | | 90.93 | 6.41 | 34.47 | 35.27 | 150 | 280 | HORIZONTAL Average |
| 3 | 5852.40 | 72.26 | 78.20 | -5.94 | 66.45 | 6.44 | 34.60 | 35.23 | 150 | 280 | HORIZONTAL Peak |
| 4 | 5862.20 | 66.90 | 68.20 | -1.30 | 61.01 | 6.44 | 34.67 | 35.22 | 150 | 280 | HORIZONTAL Peak |

Item 1, 2 are the fundamental frequency at 5795 MHz.



| | | | |
|----------------------|-------------------------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Chain 1 + Chain 2 |
| Test Date | Jun. 14, 2014 ~ Aug. 04, 2014 | | |

Channel 42

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | Remark | T/Pos | A/Pos | Pol/Phase | |
|---|---------|--------|--------|-------|-------|--------------|--------|--------|---------|-------|-----------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5145.20 | 65.65 | 74.00 | -8.35 | 62.70 | 4.34 | 33.14 | 34.53 | Peak | 273 | 118 | HORIZONTAL |
| 2 | 5145.20 | 52.36 | 54.00 | -1.64 | 49.41 | 4.34 | 33.14 | 34.53 | Average | 273 | 118 | HORIZONTAL |
| 3 | 5237.20 | 100.67 | | | 97.54 | 4.39 | 33.27 | 34.53 | Peak | 273 | 118 | HORIZONTAL |
| 4 | 5237.20 | 91.43 | | | 88.30 | 4.39 | 33.27 | 34.53 | Average | 273 | 118 | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5210 MHz.

Channel 155

| | 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 | 5704.50 | 66.95 | 68.20 | -1.25 | 61.83 | 6.34 | 34.14 | 35.36 | 100 | 262 | HORIZONTAL Peak |
| 2 | 5725.00 | 67.62 | 78.20 | -10.58 | 62.43 | 6.35 | 34.18 | 35.34 | 100 | 262 | HORIZONTAL Peak |
| 3 | 5792.40 | 96.37 | | | 90.85 | 6.40 | 34.40 | 35.28 | 100 | 262 | HORIZONTAL Peak |
| 4 | 5793.00 | 86.23 | | | 80.71 | 6.40 | 34.40 | 35.28 | 100 | 262 | HORIZONTAL Average |
| 5 | 5851.20 | 67.58 | 78.20 | -10.62 | 61.78 | 6.43 | 34.60 | 35.23 | 100 | 262 | HORIZONTAL Peak |
| 6 | 5868.10 | 65.65 | 68.20 | -2.55 | 59.75 | 6.45 | 34.67 | 35.22 | 100 | 262 | HORIZONTAL Peak |

Item 3, 4 are the fundamental frequency at 5775 MHz.



| | | | |
|----------------------|---------------|-----------------------|--------------------------------------|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11a CH 36, 40, 48 / Chain 1 |
| Test Date | Jun. 14, 2014 | | |

Channel 36

| | 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 | 5150.00 | 69.25 | 74.00 | -4.75 | 66.30 | 4.34 | 33.14 | 34.53 | Peak | 274 | 108 | HORIZONTAL |
| 2 | 5150.00 | 52.74 | 54.00 | -1.26 | 49.79 | 4.34 | 33.14 | 34.53 | Average | 274 | 108 | HORIZONTAL |
| 3 | 5186.20 | 102.19 | | | 99.17 | 4.36 | 33.19 | 34.53 | Average | 274 | 108 | HORIZONTAL |
| 4 | 5186.40 | 111.38 | | | 108.36 | 4.36 | 33.19 | 34.53 | Peak | 274 | 108 | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5180 MHz.

Channel 40

| | 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 | 5150.00 | 66.39 | 74.00 | -7.61 | 63.44 | 4.34 | 33.14 | 34.53 | Peak | 258 | 165 | HORIZONTAL |
| 2 | 5150.00 | 51.71 | 54.00 | -2.29 | 48.76 | 4.34 | 33.14 | 34.53 | Average | 258 | 165 | HORIZONTAL |
| 3 | 5205.60 | 114.82 | | | 111.76 | 4.37 | 33.22 | 34.53 | Peak | 258 | 165 | HORIZONTAL |
| 4 | 5206.40 | 105.57 | | | 102.51 | 4.37 | 33.22 | 34.53 | Average | 258 | 165 | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5200 MHz.

Channel 48

| | 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 | 5150.00 | 56.27 | 74.00 | -17.73 | 53.32 | 4.34 | 33.14 | 34.53 | Peak | 266 | 163 | HORIZONTAL |
| 2 | 5150.00 | 44.40 | 54.00 | -9.60 | 41.45 | 4.34 | 33.14 | 34.53 | Average | 266 | 163 | HORIZONTAL |
| 3 | 5245.40 | 116.10 | | | 112.93 | 4.40 | 33.30 | 34.53 | Peak | 266 | 163 | HORIZONTAL |
| 4 | 5246.00 | 106.68 | | | 103.51 | 4.40 | 33.30 | 34.53 | Average | 266 | 163 | HORIZONTAL |
| 5 | 5350.00 | 56.34 | 74.00 | -17.66 | 52.94 | 4.47 | 33.46 | 34.53 | Peak | 266 | 163 | HORIZONTAL |
| 6 | 5350.00 | 44.61 | 54.00 | -9.39 | 41.21 | 4.47 | 33.46 | 34.53 | Average | 266 | 163 | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5240 MHz.

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Serway Li | Configurations | IEEE 802.11a CH 149, 157, 165 / Chain 1 |
| Test Date | Aug. 02, 2014 | | |

Channel 149

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|---------|--------|------------|------------|------------|-------------------|----------------|---------------|---------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 5714.68 | 66.85 | 68.20 | -1.35 | 63.72 | 3.60 | 34.68 | 35.15 | Peak | 100 | 246 | HORIZONTAL |
| 2 | 5723.88 | 74.16 | 78.20 | -4.04 | 71.02 | 3.60 | 34.69 | 35.15 | Peak | 100 | 246 | HORIZONTAL |
| 3 | 5751.25 | 98.70 | | | 95.54 | 3.61 | 34.70 | 35.15 | Average | 100 | 246 | HORIZONTAL |
| 4 | 5751.25 | 108.15 | | | 104.99 | 3.61 | 34.70 | 35.15 | Peak | 100 | 246 | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5745 MHz.

Channel 157

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|---------|--------|------------|------------|------------|-------------------|----------------|---------------|---------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 5715.00 | 64.33 | 68.20 | -3.87 | 61.20 | 3.60 | 34.68 | 35.15 | Peak | 100 | 272 | HORIZONTAL |
| 2 | 5723.08 | 67.89 | 78.20 | -10.31 | 64.75 | 3.60 | 34.69 | 35.15 | Peak | 100 | 272 | HORIZONTAL |
| 3 | 5791.09 | 106.53 | | | 103.34 | 3.63 | 34.72 | 35.16 | Average | 100 | 272 | HORIZONTAL |
| 4 | 5791.73 | 116.43 | | | 113.24 | 3.63 | 34.72 | 35.16 | Peak | 100 | 272 | HORIZONTAL |
| 5 | 5851.60 | 68.06 | 78.20 | -10.14 | 64.85 | 3.64 | 34.74 | 35.17 | Peak | 100 | 272 | HORIZONTAL |
| 6 | 5862.89 | 63.85 | 68.20 | -4.35 | 60.63 | 3.65 | 34.74 | 35.17 | Peak | 100 | 272 | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5785 MHz.

Channel 165

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | Remark | A/Pos | T/Pos | Pol/Phase |
|---|---------|--------|------------|------------|------------|-------------------|----------------|---------------|---------|-------|-------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | | cm | deg | |
| 1 | 5818.59 | 110.31 | | | 107.13 | 3.63 | 34.72 | 35.17 | Peak | 100 | 255 | HORIZONTAL |
| 2 | 5818.75 | 100.30 | | | 97.12 | 3.63 | 34.72 | 35.17 | Average | 100 | 255 | HORIZONTAL |
| 3 | 5851.12 | 74.41 | 78.20 | -3.79 | 71.20 | 3.64 | 34.74 | 35.17 | Peak | 100 | 255 | HORIZONTAL |
| 4 | 5860.00 | 66.70 | 68.20 | -1.50 | 63.48 | 3.65 | 34.74 | 35.17 | Peak | 100 | 255 | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5825 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 ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification).

4.7.2. Measuring Instruments and Setting

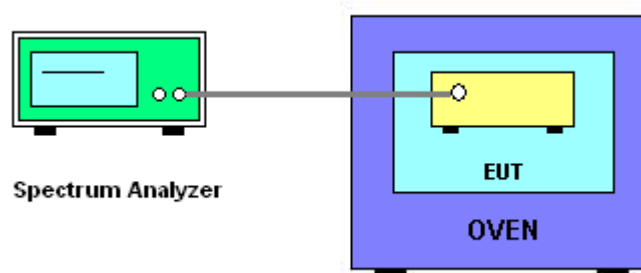
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| 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 ± 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

| | | | |
|----------------------|-----------|------------------|---------------|
| Temperature | 22°C | Humidity | 60% |
| Test Engineer | Jim Huang | Test Date | Aug. 05, 2014 |

Voltage vs. Frequency Stability

| Voltage | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| (V) | 5200 MHz |
| 126.50 | 5199.9572 |
| 110.00 | 5199.9592 |
| 93.50 | 5199.9614 |
| Max. Deviation (MHz) | 0.042800 |
| Max. Deviation (ppm) | 8.23 |

Temperature vs. Frequency Stability

| Temperature | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| (°C) | 5200 MHz |
| 0 | 5199.9530 |
| 10 | 5199.9584 |
| 20 | 5199.9592 |
| 30 | 5199.9644 |
| 40 | 5199.9678 |
| Max. Deviation (MHz) | 0.047000 |
| Max. Deviation (ppm) | 9.04 |

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 |
|----------------------------|--------------|---------------|-------------|------------------|------------------|-----------------------|
| 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 | CO 2000 | 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) |
| 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 |
|--------------------------------------|-------------|--------------------------|
| 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% |