# FCC Test Report

| | |
|---|---|
| **Report No.:** | RF150430E02B-1 |
| **FCC ID:** | PY315200309 |
| **Test Model:** | R8500 |
| **Received Date:** | May 07, 2015 |
| **Test Date:** | Dec. 29, 2015 to Jan. 22, 2016 |
| **Issued Date:** | July 29, 2016 |
| **Applicant:** | NETGEAR, Inc. |
| **Address:** | 350 East Plumeria Drive San Jose, CA 95134 |
| **Issued By:** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory |
| **Lab Address:** | E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C. |
| **Test Lab (A):** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory |
| **Test Location (1):** | E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C. |
| **Test Location (2):** | No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C. |
| **Test Lab (B):** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories |
| **Test Location (1):** | No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.) |

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## Release Control Record

| Issue No. | Description | Date Issued |
|---|---|---|
| RF150430E02B-1 | Original release. | July 29, 2016 |

## 1 Certificate of Conformity

| | |
|---|---|
| **Product:** | Nighthawk X8 Tri Band WiFi Router |
| **Brand:** | NETGEAR |
| **Test Model:** | R8500 |
| **Sample Status:** | ENGINEERING SAMPLE |
| **Applicant:** | NETGEAR, Inc. |
| **Test Date:** | Dec. 29, 2015 to Jan. 22, 2016 |
| **Standard:** | 47 CFR FCC Part 15, Subpart E (Section 15.407)<br>ANSI C63.10: 2013 |

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report. This report contains Radiated Emissions & Band Edge Measurement (above 1GHz) test data that were produced under subcontract by Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories.

**Prepared by :** _____ , **Date:** July 29, 2016

Midoli Peng / Specialist

**Approved by :** _____ , **Date:** July 29, 2016

May Chen / Manager

## 2 Summary of Test Results

| 47 CFR FCC Part 15, Subpart E (SECTION 15.407) | | | |
|---|---|---|---|
| FCC Clause | Test Item | Result | Remarks |
| 15.407(b)(6) | AC Power Conducted Emissions | PASS | Meet the requirement of limit. Minimum passing margin is -18.69dB at 11.99609MHz. |
| 15.407(b) (1/2/3/4/6) | Radiated Emissions & Band Edge Measurement | PASS | Meet the requirement of limit. Minimum passing margin is -0.1dB at 5350.00MHz |
| 15.407(a)(1/2/3) | Max Average Transmit Power | PASS | Meet the requirement of limit. |
| 15.407(a)(1/2/3) | Peak Power Spectral Density | PASS | Meet the requirement of limit. |
| 15.407(g) | Frequency Stability | PASS | Meet the requirement of limit. |
| 15.203 | Antenna Requirement | PASS | Antenna connector is i-pex(MHF) and i-pex not a standard connector. |

**NOTE:** 1. This report is prepared for FCC class II permissive change. (Add DFS band: 5.26GHz ~ 5.32GHz, 5.5GHz ~ 5.7GHz).

2. The DFS report was recorded in another test report.

### 2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| Measurement | Frequency | Expended Uncertainty (k=2) (±) |
|---|---|---|
| Conducted Emissions at mains ports | 150kHz ~ 30MHz | 2.86 dB |
| Radiated Emissions up to 1 GHz | 30MHz ~1GHz | 5.37 dB |
| Radiated Emissions above 1 GHz | 1GHz ~ 18GHz | 2.29 dB |
| | 18GHz ~ 40GHz | 2.29 dB |

### 2.2 Modification Record

There were no modifications required for compliance.

## 3 General Information

### 3.1 General Description of EUT (DFS Band)

| | |
|---|---|
| Product | Nighthawk X8 Tri Band WiFi Router |
| Brand | NETGEAR |
| Test Model | R8500 |
| Status of EUT | ENGINEERING SAMPLE |
| Power Supply Rating | 19Vdc from power adapter |
| Modulation Type | 64QAM, 16QAM, QPSK, BPSK for OFDM<br>256QAM for OFDM in 11ac mode |
| Modulation Technology | OFDM |
| Transfer Rate | 802.11a: up to 54Mbps<br>802.11n: up to 600Mbps<br>802.11ac: up to 1733.3Mbps |
| Operating Frequency | 5.26GHz ~ 5.32GHz, 5.5GHz ~ 5.7GHz |
| Number of Channel | 15 for 802.11a, 802.11n (HT20), 802.11ac (VHT20)<br>7 for 802.11n (HT40), 802.11ac (VHT40)<br>3 for 802.11ac (VHT80) |
| Output Power | **CDD Mode:**<br>802.11a: 248.145mW<br>802.11ac (VHT20): 245.243mW<br>802.11ac (VHT40): 249.545mW<br>802.11ac (VHT80): 243.457mW<br>**Beamforming Mode:**<br>802.11ac (VHT20): 245.243mW<br>802.11ac (VHT40): 245.888mW<br>802.11ac (VHT80): 237.612mW |
| Antenna Type | Refer to Note |
| Antenna Connector | Refer to Note |
| Accessory Device | Adapter x 1 |
| Data Cable Supplied | Ethernet cable (shielded, 1.5m) |

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the Report No.: RF150430E02C-1 design is as the following:
   - ◆ Add DFS band <5.26GHz ~ 5.32GHz, 5.5GHz ~ 5.7GHz>
2. According to above condition, all test items need to be performed. And all data weres verified to meet the requirements.
3. The EUT's appearance has two different colors (black and gray), and gray was selected as representative color for the test and its data was recorded in this report.
4. The EUT has two different types could be chosen and please refer the below table:

| Type | Brand | Model | Different |
|---|---|---|---|
| Type 1 | NETGEAR | R8500 | BRCM chipset version B1 |
| Type 2 | NETGEAR | R8500 | BRCM chipset version C0 |
| From the above type, the worst case was found in type 1. Therefore only the test data of the modes were recorded in this report. | | | |

5. The EUT must be supplied with a power adapter as following table:

| No | Brand Name | Model No. | P/N | Spec. |
|---|---|---|---|---|
| 1 | NETGEAR | AD2003F10 | 332-10631-01 | Input: 100-120Vac, 50/60Hz, 1.5A<br>Output: 19Vdc, 3.16A<br>DC output cable: 1.8m, unshielded |
| 2 | NETGEAR | 2ABS060K 1 NA | 332-10788-01 | Input: 100-120Vac, 50/60Hz, 1.0A<br>Output: 19Vdc, 3.16A<br>DC output cable: 1.8m, unshielded |
| From the above adapters, the worst radiated emission was found in Adapter 1. Therefore only the test data of the modes were recorded in this report. | | | | |

6. The antennas provided to the EUT, please refer to the following table:

| Antenna No. | Ant. Gain(dBi) | Frequency range (GHz to GHz) | Antenna Type | Connecter Type |
|---|---|---|---|---|
| Internal (1) | 3.99 | 5.15~5.25 | Dipole | i-pex(MHF) |
| | 3.71 | 5.25~5.35 | Dipole | i-pex(MHF) |
| | 3.71 | 5.47~5.725 | Dipole | i-pex(MHF) |
| | 3.98 | 5.725~5.85 | Dipole | i-pex(MHF) |
| Internal (2) | 3.99 | 5.15~5.25 | Dipole | i-pex(MHF) |
| | 3.71 | 5.25~5.35 | Dipole | i-pex(MHF) |
| | 3.71 | 5.47~5.725 | Dipole | i-pex(MHF) |
| | 3.98 | 5.725~5.85 | Dipole | i-pex(MHF) |
| Internal (3) | 3.99 | 5.15~5.25 | Dipole | i-pex(MHF) |
| | 3.71 | 5.25~5.35 | Dipole | i-pex(MHF) |
| | 3.71 | 5.47~5.725 | Dipole | i-pex(MHF) |
| | 3.98 | 5.725~5.85 | Dipole | i-pex(MHF) |
| Internal (4) | 3.99 | 5.15~5.25 | Dipole | i-pex(MHF) |
| | 3.71 | 5.25~5.35 | Dipole | i-pex(MHF) |
| | 3.71 | 5.47~5.725 | Dipole | i-pex(MHF) |
| | 3.98 | 5.725~5.85 | Dipole | i-pex(MHF) |
| External (1) | 0.67 | 2.4~2.4835 | Dipole | i-pex(MHF) |
| | -0.84 | 5.15~5.25 | Dipole | i-pex(MHF) |
| | -1.38 | 5.25~5.35 | Dipole | i-pex(MHF) |
| | -1.6 | 5.47~5.725 | Dipole | i-pex(MHF) |
| | -1.79 | 5.725~5.85 | Dipole | i-pex(MHF) |
| External (2) | 0.67 | 2.4~2.4835 | Dipole | i-pex(MHF) |
| | -0.84 | 5.15~5.25 | Dipole | i-pex(MHF) |
| | -1.38 | 5.25~5.35 | Dipole | i-pex(MHF) |
| | -1.6 | 5.47~5.725 | Dipole | i-pex(MHF) |
| | -1.79 | 5.725~5.85 | Dipole | i-pex(MHF) |
| External (3) | 0.67 | 2.4~2.4835 | Dipole | i-pex(MHF) |
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| | -1.6 | 5.47~5.725 | Dipole | i-pex(MHF) |
| | -1.79 | 5.725~5.85 | Dipole | i-pex(MHF) |
| External (4) | 0.67 | 2.4~2.4835 | Dipole | i-pex(MHF) |
| | -0.84 | 5.15~5.25 | Dipole | i-pex(MHF) |
| | -1.38 | 5.25~5.35 | Dipole | i-pex(MHF) |
| | -1.6 | 5.47~5.725 | Dipole | i-pex(MHF) |
| | -1.79 | 5.725~5.85 | Dipole | i-pex(MHF) |

7. The coexistence mode:

| **Technology** | | |
|---|---|---|
| WLAN(2.4GHz)<br>- External Antenna | WLAN<br>(5GHz <5150~5250MHz & 5250~5350MHz>)<br>- External Antenna | WLAN<br>(5GHz <5470~5725 & 5725~5850MHz>)<br>- Internal Antenna |
| **Note:** The emission of the simultaneous operation has been evaluated and no non-compliance was found. | | |

8. The EUT incorporates a MIMO function with beamforming.

| For 2.4GHz Band | | | |
|---|---|---|---|
| **MODULATION MODE** | **DATA RATE (MCS)** | **TX & RX CONFIGURATION** | |
| **802.11b** | 1 ~ 11Mbps | 4TX | 4RX |
| **802.11g** | 6 ~ 54Mbps | 4TX | 4RX |
| **802.11n (HT20)** | MCS 0~7 | 4TX | 4RX |
| | MCS 8~15 | 4TX | 4RX |
| | MCS 16~23 | 4TX | 4RX |
| | MCS 24~31 | 4TX | 4RX |
| **802.11n (HT40)** | MCS 0~7 | 4TX | 4RX |
| | MCS 8~15 | 4TX | 4RX |
| | MCS 16~23 | 4TX | 4RX |
| | MCS 24~31 | 4TX | 4RX |
| **VHT20** | MCS0~8 Nss=1 | 4TX | 4RX |
| | MCS0~8 Nss=2 | 4TX | 4RX |
| | MCS0~9 Nss=3 | 4TX | 4RX |
| | MCS0~8 Nss=4 | 4TX | 4RX |
| **VHT40** | MCS0~9 Nss=1 | 4TX | 4RX |
| | MCS0~9 Nss=2 | 4TX | 4RX |
| | MCS0~9 Nss=3 | 4TX | 4RX |
| | MCS0~9 Nss=4 | 4TX | 4RX |
| **For 5GHz Band** | | | |
| **MODULATION MODE** | **DATA RATE (MCS)** | **TX & RX CONFIGURATION** | |
| **802.11a** | 6 ~ 54Mbps | 4TX | 4RX |
| **802.11n (HT20)** | MCS 0~7 | 4TX | 4RX |
| | MCS 8~15 | 4TX | 4RX |
| | MCS 16~23 | 4TX | 4RX |
| | MCS 24~31 | 4TX | 4RX |
| **802.11n (HT40)** | MCS 0~7 | 4TX | 4RX |
| | MCS 8~15 | 4TX | 4RX |
| | MCS 16~23 | 4TX | 4RX |
| | MCS 24~31 | 4TX | 4RX |
| **802.11ac (VHT20)** | MCS 0~8, Nss=1 | 4TX | 4RX |
| | MCS 0~8, Nss=2 | 4TX | 4RX |
| | MCS 0~9, Nss=3 | 4TX | 4RX |
| | MCS 0~8, Nss=4 | 4TX | 4RX |
| **802.11ac (VHT40)** | MCS 0~9, Nss=1 | 4TX | 4RX |
| | MCS 0~9, Nss=2 | 4TX | 4RX |
| | MCS 0~9, Nss=3 | 4TX | 4RX |
| | MCS 0~9, Nss=4 | 4TX | 4RX |
| **802.11ac (VHT80)** | MCS 0~9, Nss=1 | 4TX | 4RX |
| | MCS 0~9, Nss=2 | 4TX | 4RX |
| | MCS 0~9, Nss=3 | 4TX | 4RX |
| | MCS 0~9, Nss=4 | 4TX | 4RX |

Note: 1. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

2. All of modulation mode support beamforming function except 802.11a/b/g modulation mode.

9. The Directional gain table:

| Frequency (MHz) | Max Gain (dBi) |
|---|---|
| 5470~5725 | 6.23 |

Note:

1. Non-TxBF mode & TxBF mode antenna gain refer to KDB 662911 F 2) f) (ii)

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$$

*where*

Each antenna is driven by no more than one spatial stream;

$N_{SS}$ = the number of independent spatial streams of data;

$N_{ANT}$ = the total number of antennas

$g_{j,k} = 10^{G_k/20}$ if the $k$th antenna is being fed by spatial stream $j$, or zero if it is not;

$G_k$ is the gain in dBi of the kth antenna.

10. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

## 3.2 Description of Test Modes

**For 5260 ~ 5320MHz**

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

| Channel | Frequency | Channel | Frequency |
|---|---|---|---|
| 52 | 5260 MHz | 60 | 5300 MHz |
| 56 | 5280 MHz | 64 | 5320 MHz |

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

| Channel | Frequency | Channel | Frequency |
|---|---|---|---|
| 54 | 5270 MHz | 62 | 5310 MHz |

1 channel is provided for 802.11ac (VHT80):

| Channel | Frequency |
|---|---|
| 58 | 5290MHz |

**For 5500 ~ 5700MHz**

11 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

| Channel | Frequency | Channel | Frequency |
|---|---|---|---|
| 100 | 5500 MHz | 124 | 5620 MHz |
| 104 | 5520 MHz | 128 | 5640 MHz |
| 108 | 5540 MHz | 132 | 5660 MHz |
| 112 | 5560 MHz | 136 | 5680 MHz |
| 116 | 5580 MHz | 140 | 5700 MHz |
| 120 | 5600 MHz | | |

5 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

| Channel | Frequency | Channel | Frequency |
|---|---|---|---|
| 102 | 5510 MHz | 126 | 5630 MHz |
| 110 | 5550 MHz | 134 | 5670 MHz |
| 118 | 5590 MHz | | |

2 channels are provided for 802.11ac (VHT80):

| Channel | Frequency | Channel | Frequency |
|---|---|---|---|
| 106 | 5530MHz | 122 | 5610MHz |

### 3.2.1 Test Mode Applicability and Tested Channel Detail

| EUT CONFIGURE MODE | APPLICABLE TO | | | | DESCRIPTION |
|---|---|---|---|---|---|
| | RE≥1G | RE<1G | PLC | APCM | |
| 1 | √ | √ | √ | √ | With adapter 1 |
| 2 | - | - | √ | - | With adapter 2 |

Where **RE≥1G:** Radiated Emission above 1GHz **RE<1G:** Radiated Emission below 1GHz
**PLC:** Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

**NOTE:**
1. The test mode was reference to the worst case in the original test report.
2. "-" means no effect.

**Radiated Emission Test (Above 1GHz):**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

| CDD MODE | | | | | | |
|---|---|---|---|---|---|---|
| MODE | FREQ. BAND (MHz) | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
| 802.11a | 5260-5320 | 52 to 64 | 52, 60, 64 | OFDM | BPSK | 6 |
| 802.11ac (VHT20) | | 52 to 64 | 52, 60, 64 | OFDM | BPSK | 6.5 |
| 802.11ac (VHT40) | | 54 to 62 | 54, 62 | OFDM | BPSK | 13.5 |
| 802.11ac (VHT80) | | 58 | 58 | OFDM | BPSK | 29.3 |
| 802.11a | 5500-5700 | 100 to 140 | 100, 116, 140 | OFDM | BPSK | 6 |
| 802.11ac (VHT20) | | 100 to 140 | 100, 116, 140 | OFDM | BPSK | 6.5 |
| 802.11ac (VHT40) | | 102 to 134 | 102, 110, 134 | OFDM | BPSK | 13.5 |
| 802.11ac (VHT80) | | 106 to 122 | 106, 122 | OFDM | BPSK | 29.3 |

**Radiated Emission Test (Below 1GHz):**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

| CDD MODE | | | | | | |
|---|---|---|---|---|---|---|
| MODE | FREQ. BAND (MHz) | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
| 802.11ac (VHT40) | 5260-5320<br>5500-5700 | 54 to 62<br>102 to 134 | 102 | OFDM | BPSK | 13.5 |

**Power Line Conducted Emission Test:**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

| CDD MODE | | | | | | |
|---|---|---|---|---|---|---|
| MODE | FREQ. BAND (MHz) | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
| 802.11ac (VHT40) | 5260-5320<br>5500-5700 | 54 to 62<br>102 to 134 | 102 | OFDM | BPSK | 13.5 |

**Antenna Port Conducted Measurement:**

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

| CDD MODE | | | | | | |
|---|---|---|---|---|---|---|
| For Transmit Power / Power Spectral Density Measurement | | | | | | |
| MODE | FREQ. BAND (MHz) | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
| 802.11a | 5260-5320 | 52 to 64 | 52, 60, 64 | OFDM | BPSK | 6 |
| 802.11ac (VHT20) | | 52 to 64 | 52, 60, 64 | OFDM | BPSK | 6.5 |
| 802.11ac (VHT40) | | 54 to 62 | 54, 62 | OFDM | BPSK | 13.5 |
| 802.11ac (VHT80) | | 58 | 58 | OFDM | BPSK | 29.3 |
| 802.11a | 5500-5700 | 100 to 140 | 100, 116, 140 | OFDM | BPSK | 6 |
| 802.11ac (VHT20) | | 100 to 140 | 100, 116, 140 | OFDM | BPSK | 6.5 |
| 802.11ac (VHT40) | | 102 to 134 | 102, 110, 134 | OFDM | BPSK | 13.5 |
| 802.11ac (VHT80) | | 106 to 122 | 106, 122 | OFDM | BPSK | 29.3 |
| Beamforming MODE | | | | | | |
| For Transmit Power Measurement | | | | | | |
| MODE | FREQ. BAND (MHz) | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
| 802.11ac (VHT20) | 5260-5320 | 52 to 64 | 52, 60, 64 | OFDM | BPSK | 6.5 |
| 802.11ac (VHT40) | | 54 to 62 | 54, 62 | OFDM | BPSK | 13.5 |
| 802.11ac (VHT80) | | 58 | 58 | OFDM | BPSK | 29.3 |
| 802.11ac (VHT20) | 5500-5700 | 100 to 140 | 100, 116, 140 | OFDM | BPSK | 6.5 |
| 802.11ac (VHT40) | | 102 to 134 | 102, 110, 134 | OFDM | BPSK | 13.5 |
| 802.11ac (VHT80) | | 106 to 122 | 106, 122 | OFDM | BPSK | 29.3 |

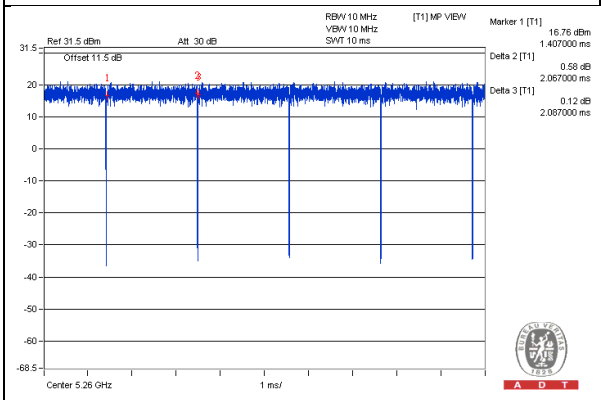
**Test Condition:**

| APPLICABLE TO | ENVIRONMENTAL CONDITIONS | INPUT POWER | TESTED BY | TEST LOCATION |
|---|---|---|---|---|
| **RE≥1G** | 24deg. C, 65%RH | 120Vac, 60Hz | Alen Wu | 1(Hwa Ya) |
| **RE<1G** | 24deg. C, 68%RH | 120Vac, 60Hz | Weiwei Lo | 2 |
| **PLC** | 25deg. C, 68%RH | 120Vac, 60Hz | Jason Huang | 2 |
| **APCM** | 25deg. C, 60%RH | 120Vac, 60Hz | Anderson Chen | 1(Hsinchu) |

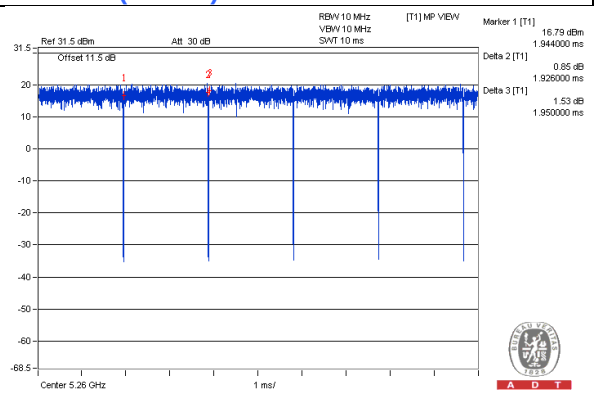
### 3.3 Duty Cycle of Test Signal

If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98 %, duty factor shall be considered.
**802.11a**: Duty cycle = 2.067 ms/2.087 ms = 0.99
**802.11ac (VHT20):** Duty cycle = 1.926 ms/1.95 ms = 0.988
**802.11ac (VHT40):** Duty cycle = 0.947 ms/0.965 ms = 0.981
**802.11ac (VHT80):** Duty cycle = 0.455 ms/0.478 ms = 0.952, Duty factor = 10 * log( 1/0.952) = 0.21

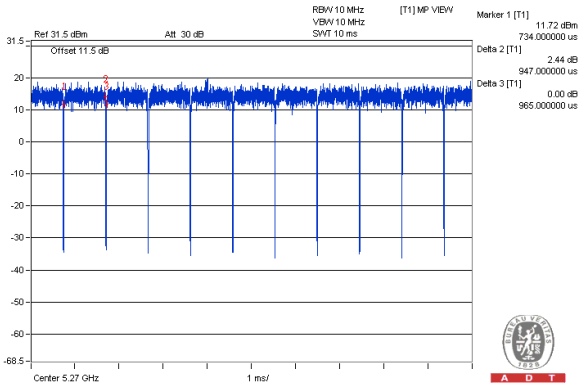
**802.11a**



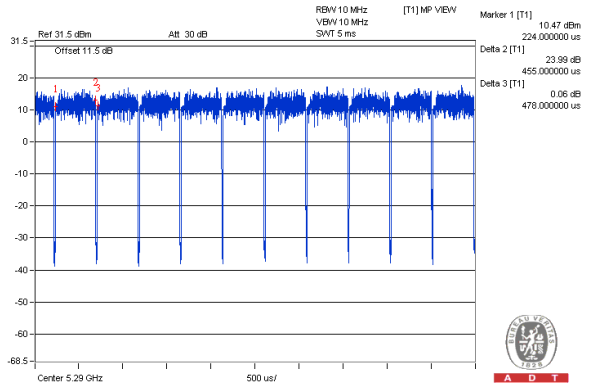

**802.11ac (VHT20)**




**802.11ac (VHT40)**




**802.11ac (VHT80)**



## 3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

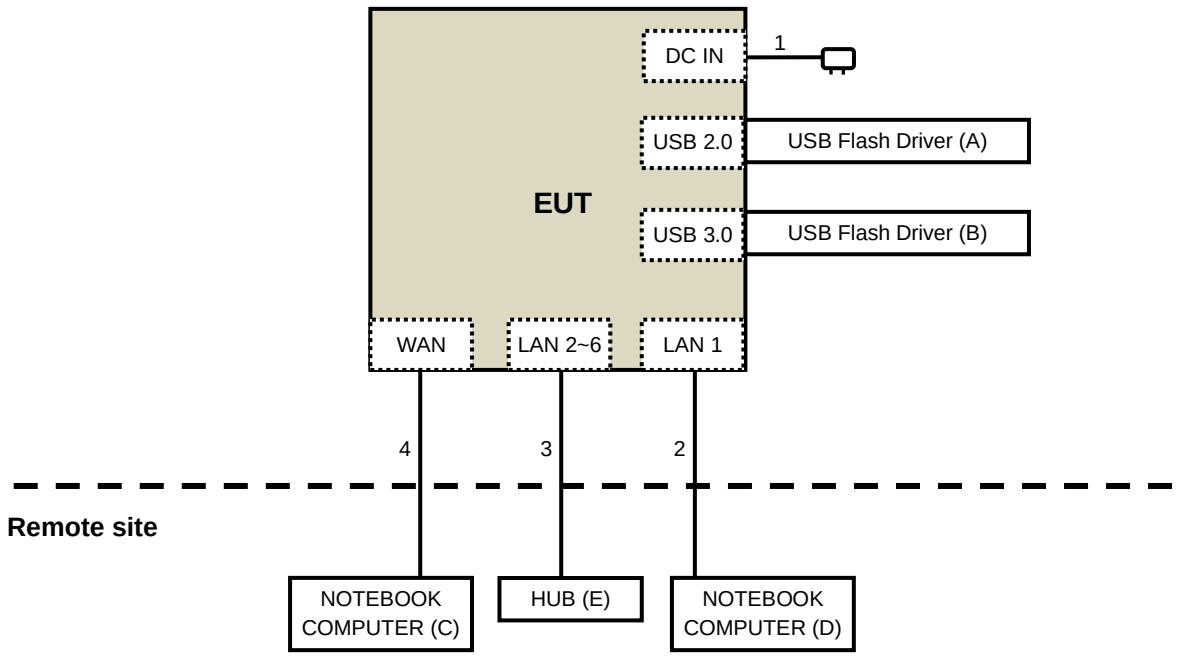
| No. | Product | Brand | Model No. | Serial No. | FCC ID | Remark |
|---|---|---|---|---|---|---|
| A | USB Flash Driver | Transcend | JetFlash 790 | NA | NA | Provided by Lab |
| B | USB Flash Driver | Transcend | JetFlash 790 | NA | NA | Provided by Lab |
| C | NOTEBOOK COMPUTER | DELL | PP32LA | HSLB32S | FCC DoC | Provided by Lab |
| D | NOTEBOOK COMPUTER | DELL | E5430 | 4YV4VY1 | FCC DoC | Provided by Lab |
| E | HUB | ZyXEL | ES-116P | S060H02000215 | FCC DoC | Provided by Lab |

**NOTE:**

1. All power cords of the above support units are non-shielded (1.8 m).

| No. | Cable | Qty. | Length (m) | Shielded (Yes/ No) | Cores (Number) | Remark |
|---|---|---|---|---|---|---|
| 1 | DC | 1 | 1.8 | No | 0 | Supplied by Client |
| 2 | RJ45 | 1 | 10 | No | 0 | Provided by Lab |
| 3 | RJ45 | 5 | 10 | No | 0 | Provided by Lab |
| 4 | RJ45 | 1 | 10 | No | 0 | Provided by Lab |

### 3.4.1 Configuration of System under Test



### 3.5 General Description of Applied Standard

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC Part 15, Subpart E (15.407)**
**KDB 789033 D02 General UNII Test Procedure New Rules v01r02**
**KDB 662911 D01 Multiple Transmitter Output v02r01**
ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

**NOTE:** The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

| Frequencies (MHz) | Field Strength (microvolts/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 |

**NOTE**:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

| **APPLICABLE TO** | **LIMIT** | |
|---|---|---|
| KDB 789033 D02 General UNII Test Procedure New Rules v01r02 | FIELD STRENGTH AT 3m | |
| | PK:74 (dBμV/m) | AV:54 (dBμV/m) |
| **APPLICABLE TO** | **EIRP LIMIT** | **EQUIVALENT FIELD STRENGTH AT 3m** |
| 15.407(b)(1) | PK:-27 (dBm/MHz) | PK:68.2(dBμV/m) |
| 15.407(b)(2) | | |
| 15.407(b)(3) | | |
| 15.407(b)(4) | PK:-27 (dBm/MHz) *1<br>PK:-17 (dBm/MHz) *2 | PK: 68.2(dBμV/m) *1<br>PK:78.2 (dBμV/m) *2 |

**NOTE:** *1 beyond 10MHz of the band edge *2 within 10 MHz of band edge

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts).

4.1.2 Test Instruments

For above 1GHz test:

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|---|---|---|---|---|
| Test Receiver ROHDE & SCHWARZ | ESCI | 100424 | Oct. 12, 2015 | Oct. 11, 2016 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSP40 | 100040 | July 08, 2015 | July 07, 2016 |
| BILOG Antenna SCHWARZBECK | VULB9168 | 9168-155 | Feb. 06, 2015 | Feb. 05, 2016 |
| HORN Antenna SCHWARZBECK | BBHA 9120D | 9120D-1170 | Feb. 05, 2015 | Feb. 04, 2016 |
| HORN Antenna SCHWARZBECK | BBHA 9170 | BBHA9170241 | Feb. 09, 2015 | Feb. 08, 2016 |
| Preamplifier Agilent | 8449B | 3008A01960 | Aug. 09, 2015 | Aug. 08, 2016 |
| Preamplifier Agilent | 8447D | 2944A10631 | Aug. 09, 2015 | Aug. 08, 2016 |
| RF signal cable HUBER+SUHNER | SUCOFLEX 104 | Cable-CH4-02(295012+ 309220) | Aug. 09, 2015 | Aug. 08, 2016 |
| RF signal cable HUBER+SUHNER | SUCOFLEX 104 | Cable-CH4-03(250724) | Aug. 09, 2015 | Aug. 08, 2016 |
| Software BV ADT | ADT_Radiated_ V7.6.15.9.4 | NA | NA | NA |
| Antenna Tower inn-co GmbH | MA 4000 | 010303 | NA | NA |
| Antenna Tower Controller BV ADT | AT100 | AT93021703 | NA | NA |
| Turn Table BV ADT | TT100 | TT93021703 | NA | NA |
| Turn Table Controller BV ADT | SC100. | SC93021703 | NA | NA |
| 26GHz ~ 40GHz Amplifier | EM26400 | 815221 | Oct. 18, 2015 | Oct. 17, 2016 |
| High Speed Peak Power Meter | ML2495A | 0824011 | July 09, 2015 | July 08, 2016 |
| Power Sensor | MA2411B | 0738171 | July 09, 2015 | July 08, 2016 |
| WIT Standard Temperature And Humidity Chamber | TH-4S-C | W981030 | June 08, 2015 | June 07, 2016 |

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 4.
3. The FCC Site Registration No. is 460141.
4. The IC Site Registration No. is IC7450F-4.
5. Tested Date: Dec. 29, 2015

For below 1GHz test:

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|---|---|---|---|---|
| Test Receiver<br>Agilent | N9038A | MY51210105 | July 24, 2015 | July 23, 2016 |
| Pre-Amplifier(*)<br>EMCI | EMC001340 | 980142 | Jan. 20, 2016 | Jan. 19, 2018 |
| Loop Antenna(*)<br>Electro-Metrics | EM-6879 | 264 | Dec. 16, 2014 | Dec. 15, 2016 |
| RF Cable | NA | LOOPCAB-001<br>LOOPCAB-002 | Jan. 18, 2016 | Jan. 17, 2017 |
| Pre-Amplifier<br>Mini-Circuits | ZFL-1000VH2B | AMP-ZFL-03 | Nov. 11, 2015 | Nov. 10, 2016 |
| Trilog Broadband Antenna<br>SCHWARZBECK | VULB 9168 | 9168-360 | Feb. 06, 2015 | Feb. 05, 2016 |
| RF Cable | 8D-FB | CHGCAB-001-1<br>CHGCAB-001-2 | Oct. 03, 2015 | Oct. 02, 2016 |
| | RF-141 | CHGCAB-004 | Oct. 03, 2015 | Oct. 02, 2016 |
| Software | ADT_Radiated_V8.7.07 | NA | NA | NA |
| Antenna Tower & Turn Table<br>CT | NA | NA | NA | NA |

**Note:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Loop antenna was used for all emissions below 30 MHz.
4. The test was performed in 966 Chamber No. G.
5. The FCC Site Registration No. is 966073.
6. The CANADA Site Registration No. is IC 7450H-2.
7. Tested Date: Jan. 22, 2016

4.1.3 Test Procedure

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

**Note:**

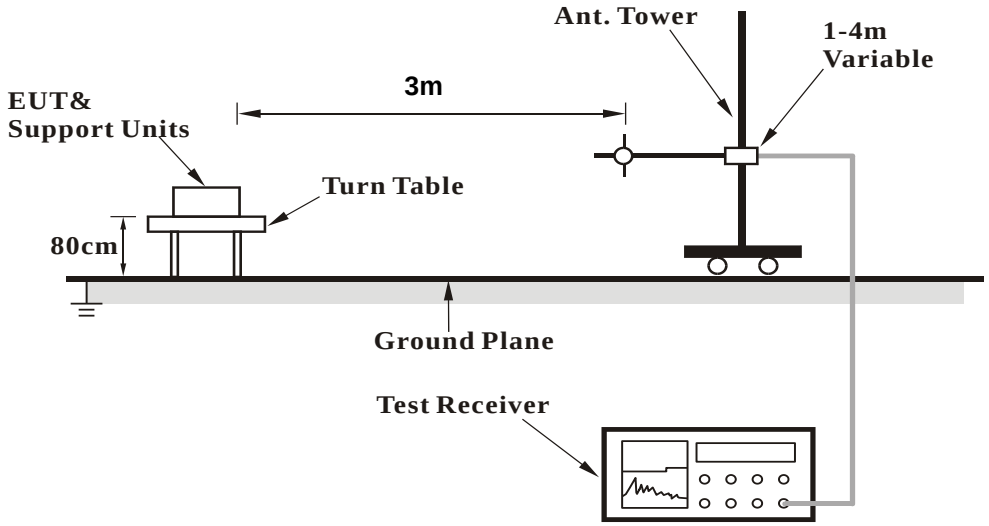
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

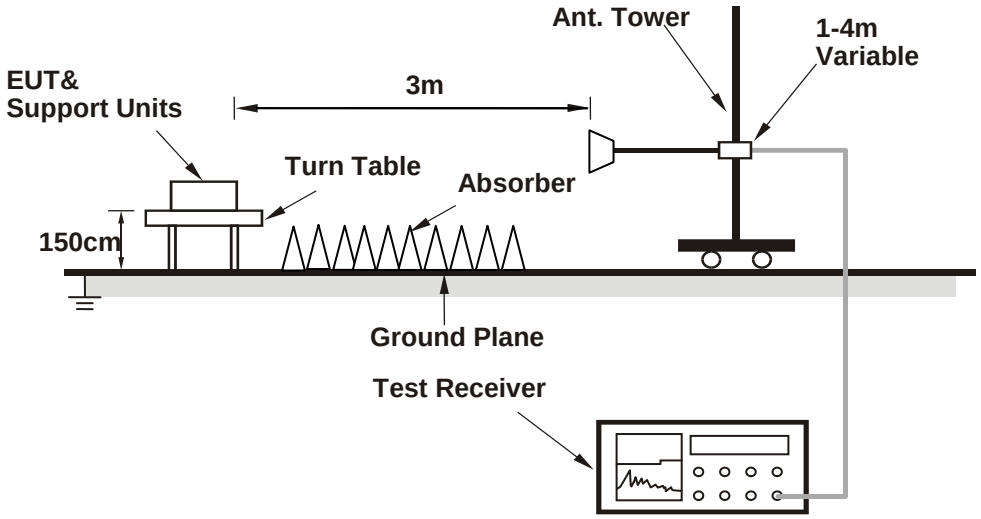
No deviation.

4.1.5 Test Setup

**<Frequency Range below 1GHz>**




**<Frequency Range above 1GHz>**




For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Condition

1. Connect the EUT with the support units C-D (Notebook Computer) which is placed on remote site.
2. Controlling software (Mtool.exe_2_0_2_7) has been activated to set the EUT on specific status.

4.1.7 Test Results

**Above 1GHz Data (Subcontract Item)**

**CDD Mode**

**802.11a**

| | | | |
|---|---|---|---|
| **CHANNEL** | TX Channel 52 | **DETECTOR FUNCTION** | Peak (PK)<br>Average (AV) |
| **FREQUENCY RANGE** | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **NO.** | **FREQ. (MHz)** | **EMISSION LEVEL (dBuV/m)** | **LIMIT (dBuV/m)** | **MARGIN (dB)** | **ANTENNA HEIGHT (m)** | **TABLE ANGLE (Degree)** | **RAW VALUE (dBuV)** | **CORRECTION FACTOR (dB/m)** |
| 1 | 5100.00 | 56.3 PK | 74.0 | -17.7 | 1.19 H | 109 | 51.38 | 4.92 |
| 2 | 5100.00 | 45.3 AV | 54.0 | -8.7 | 1.19 H | 109 | 40.38 | 4.92 |
| 3 | *5260.00 | 115.4 PK | | | 1.19 H | 109 | 110.25 | 5.15 |
| 4 | *5260.00 | 105.8 AV | | | 1.19 H | 109 | 100.65 | 5.15 |
| 5 | #10520.00 | 66.7 PK | 74.0 | -7.3 | 1.16 H | 79 | 50.38 | 16.32 |
| 6 | #10520.00 | 51.1 AV | 54.0 | -2.9 | 1.16 H | 79 | 34.78 | 16.32 |
| 7 | 15780.00 | 55.4 PK | 74.0 | -18.6 | 1.32 H | 117 | 38.30 | 17.10 |
| 8 | 15780.00 | 42.4 AV | 54.0 | -11.6 | 1.32 H | 117 | 25.30 | 17.10 |
| **ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M** | | | | | | | | |
| **NO.** | **FREQ. (MHz)** | **EMISSION LEVEL (dBuV/m)** | **LIMIT (dBuV/m)** | **MARGIN (dB)** | **ANTENNA HEIGHT (m)** | **TABLE ANGLE (Degree)** | **RAW VALUE (dBuV)** | **CORRECTION FACTOR (dB/m)** |
| 1 | 5100.00 | 58.7 PK | 74.0 | -15.3 | 1.45 V | 128 | 53.78 | 4.92 |
| 2 | 5100.00 | 47.7 AV | 54.0 | -6.3 | 1.45 V | 128 | 42.78 | 4.92 |
| 3 | *5260.00 | 118.1 PK | | | 1.48 V | 129 | 112.95 | 5.15 |
| 4 | *5260.00 | 108.6 AV | | | 1.48 V | 129 | 103.45 | 5.15 |
| 5 | #10520.00 | 69.0 PK | 74.0 | -5.0 | 1.00 V | 266 | 52.68 | 16.32 |
| 6 | #10520.00 | 53.5 AV | 54.0 | -0.5 | 1.00 V | 266 | 37.18 | 16.32 |
| 7 | 15780.00 | 55.4 PK | 74.0 | -18.6 | 1.38 V | 60 | 38.30 | 17.10 |
| 8 | 15780.00 | 42.0 AV | 54.0 | -12.0 | 1.38 V | 60 | 24.90 | 17.10 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

| CHANNEL | TX Channel 60 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5140.00 | 58.0 PK | 74.0 | -16.0 | 1.11 H | 99 | 53.03 | 4.97 |
| 2 | 5140.00 | 45.8 AV | 54.0 | -8.2 | 1.11 H | 99 | 40.83 | 4.97 |
| 3 | *5300.00 | 114.6 PK | | | 1.11 H | 99 | 109.38 | 5.22 |
| 4 | *5300.00 | 104.5 AV | | | 1.11 H | 99 | 99.28 | 5.22 |
| 5 | 10600.00 | 66.1 PK | 74.0 | -7.9 | 1.19 H | 85 | 49.65 | 16.45 |
| 6 | 10600.00 | 51.2 AV | 54.0 | -2.8 | 1.19 H | 85 | 34.75 | 16.45 |
| 7 | 15900.00 | 55.4 PK | 74.0 | -18.6 | 1.24 H | 105 | 38.84 | 16.56 |
| 8 | 15900.00 | 42.6 AV | 54.0 | -11.4 | 1.24 H | 105 | 26.04 | 16.56 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5140.00 | 60.2 PK | 74.0 | -13.8 | 1.41 V | 129 | 55.23 | 4.97 |
| 2 | 5140.00 | 48.0 AV | 54.0 | -6.0 | 1.41 V | 129 | 43.03 | 4.97 |
| 3 | *5300.00 | 117.3 PK | | | 1.39 V | 181 | 112.08 | 5.22 |
| 4 | *5300.00 | 107.4 AV | | | 1.39 V | 181 | 102.18 | 5.22 |
| 5 | 10600.00 | 68.3 PK | 74.0 | -5.7 | 1.00 V | 188 | 51.85 | 16.45 |
| 6 | 10600.00 | 53.6 AV | 54.0 | -0.4 | 1.00 V | 188 | 37.15 | 16.45 |
| 7 | 15900.00 | 55.0 PK | 74.0 | -19.0 | 1.26 V | 44 | 38.44 | 16.56 |
| 8 | 15900.00 | 42.0 AV | 54.0 | -12.0 | 1.26 V | 44 | 25.44 | 16.56 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

| CHANNEL | TX Channel 64 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5320.00 | 116.0 PK | | | 1.20 H | 109 | 110.72 | 5.28 |
| 2 | *5320.00 | 105.3 AV | | | 1.20 H | 109 | 100.02 | 5.28 |
| 3 | 5350.00 | 66.2 PK | 74.0 | -7.8 | 1.20 H | 109 | 60.84 | 5.36 |
| 4 | 5350.00 | 51.6 AV | 54.0 | -2.4 | 1.20 H | 109 | 46.24 | 5.36 |
| 5 | 10640.00 | 65.4 PK | 74.0 | -8.6 | 1.16 H | 89 | 49.07 | 16.33 |
| 6 | 10640.00 | 51.1 AV | 54.0 | -2.9 | 1.16 H | 89 | 34.77 | 16.33 |
| 7 | 15960.00 | 55.4 PK | 74.0 | -18.6 | 1.33 H | 95 | 38.70 | 16.70 |
| 8 | 15960.00 | 42.1 AV | 54.0 | -11.9 | 1.33 H | 95 | 25.40 | 16.70 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5320.00 | 118.5 PK | | | 1.59 V | 152 | 113.22 | 5.28 |
| 2 | *5320.00 | 108.3 AV | | | 1.59 V | 152 | 103.02 | 5.28 |
| 3 | 5350.00 | 68.6 PK | 74.0 | -5.4 | 1.59 V | 152 | 63.24 | 5.36 |
| **4** | **5350.00** | **53.9 AV** | **54.0** | **-0.1** | **1.59 V** | **152** | **48.54** | **5.36** |
| 5 | 10640.00 | 67.8 PK | 74.0 | -6.2 | 1.00 V | 113 | 51.47 | 16.33 |
| 6 | 10640.00 | 53.3 AV | 54.0 | -0.7 | 1.00 V | 113 | 36.97 | 16.33 |
| 7 | 15960.00 | 55.1 PK | 74.0 | -18.9 | 1.26 V | 61 | 38.40 | 16.70 |
| 8 | 15960.00 | 42.0 AV | 54.0 | -12.0 | 1.26 V | 61 | 25.30 | 16.70 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

| CHANNEL | TX Channel 100 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5460.00 | 59.1 PK | 74.0 | -14.9 | 1.22 H | 118 | 53.48 | 5.62 |
| 2 | 5460.00 | 46.9 AV | 54.0 | -7.1 | 1.22 H | 118 | 41.28 | 5.62 |
| 3 | #5466.00 | 67.8 PK | 74.0 | -6.2 | 1.22 H | 118 | 62.17 | 5.63 |
| 4 | #5466.00 | 51.2 AV | 54.0 | -2.8 | 1.22 H | 118 | 45.57 | 5.63 |
| 5 | *5500.00 | 116.3 PK | | | 1.22 H | 118 | 110.60 | 5.70 |
| 6 | *5500.00 | 105.8 AV | | | 1.22 H | 118 | 100.10 | 5.70 |
| 7 | 11000.00 | 59.1 PK | 74.0 | -14.9 | 1.09 H | 78 | 41.92 | 17.18 |
| 8 | 11000.00 | 47.0 AV | 54.0 | -7.0 | 1.09 H | 78 | 29.82 | 17.18 |
| 9 | #16500.00 | 55.2 PK | 74.0 | -18.8 | 1.26 H | 107 | 35.66 | 19.54 |
| 10 | #16500.00 | 42.1 AV | 54.0 | -11.9 | 1.26 H | 107 | 22.56 | 19.54 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5460.00 | 61.3 PK | 74.0 | -12.7 | 1.00 V | 279 | 55.68 | 5.62 |
| 2 | 5460.00 | 49.0 AV | 54.0 | -5.0 | 1.00 V | 279 | 43.38 | 5.62 |
| 3 | #5466.00 | 70.0 PK | 74.0 | -4.0 | 1.00 V | 279 | 64.37 | 5.63 |
| 4 | #5466.00 | 53.5 AV | 54.0 | -0.5 | 1.00 V | 279 | 47.87 | 5.63 |
| 5 | *5500.00 | 118.8 PK | | | 1.00 V | 279 | 113.10 | 5.70 |
| 6 | *5500.00 | 108.8 AV | | | 1.00 V | 279 | 103.10 | 5.70 |
| 7 | 11000.00 | 61.4 PK | 74.0 | -12.6 | 1.00 V | 10 | 44.22 | 17.18 |
| 8 | 11000.00 | 49.1 AV | 54.0 | -4.9 | 1.00 V | 10 | 31.92 | 17.18 |
| 9 | #16500.00 | 55.6 PK | 74.0 | -18.4 | 1.34 V | 36 | 36.06 | 19.54 |
| 10 | #16500.00 | 42.1 AV | 54.0 | -11.9 | 1.34 V | 36 | 22.56 | 19.54 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

| CHANNEL | TX Channel 116 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5580.00 | 117.1 PK | | | 1.20 H | 115 | 111.33 | 5.77 |
| 2 | *5580.00 | 106.7 AV | | | 1.20 H | 115 | 100.93 | 5.77 |
| 3 | #5740.00 | 65.4 PK | 68.2 | -2.8 | 1.20 H | 115 | 59.21 | 6.19 |
| 4 | 11160.00 | 59.8 PK | 74.0 | -14.2 | 1.22 H | 101 | 42.63 | 17.17 |
| 5 | 11160.00 | 47.6 AV | 54.0 | -6.4 | 1.22 H | 101 | 30.43 | 17.17 |
| 6 | #16740.00 | 54.7 PK | 68.2 | -13.5 | 1.30 H | 116 | 35.02 | 19.68 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5580.00 | 119.4 PK | | | 1.00 V | 278 | 113.63 | 5.77 |
| 2 | *5580.00 | 109.7 AV | | | 1.00 V | 278 | 103.93 | 5.77 |
| 3 | #5740.00 | 67.8 PK | 68.2 | -0.4 | 1.14 V | 92 | 61.61 | 6.19 |
| 4 | 11160.00 | 62.1 PK | 74.0 | -11.9 | 1.00 V | 14 | 44.93 | 17.17 |
| 5 | 11160.00 | 49.9 AV | 54.0 | -4.1 | 1.00 V | 14 | 32.73 | 17.17 |
| 6 | #16740.00 | 55.2 PK | 68.2 | -13.0 | 1.29 V | 43 | 35.52 | 19.68 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

| CHANNEL | TX Channel 140 | DETECTOR FUNCTION | Peak (PK) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5700.00 | 114.8 PK | | | 1.15 H | 96 | 108.73 | 6.07 |
| 2 | *5700.00 | 104.6 AV | | | 1.15 H | 96 | 98.53 | 6.07 |
| 3 | #5725.00 | 66.1 PK | 74.0 | -7.9 | 1.15 H | 96 | 59.96 | 6.14 |
| 4 | #5725.00 | 51.5 AV | 54.0 | -2.5 | 1.15 H | 96 | 45.36 | 6.14 |
| 5 | 11400.00 | 59.1 PK | 74.0 | -14.9 | 1.15 H | 79 | 41.93 | 17.17 |
| 6 | 11400.00 | 46.2 AV | 54.0 | -7.8 | 1.15 H | 79 | 29.03 | 17.17 |
| 7 | #17100.00 | 55.2 PK | 74.0 | -18.8 | 1.29 H | 121 | 33.39 | 21.81 |
| 8 | #17100.00 | 42.4 AV | 54.0 | -11.6 | 1.29 H | 121 | 20.59 | 21.81 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5700.00 | 117.2 PK | | | 1.00 V | 265 | 111.13 | 6.07 |
| 2 | *5700.00 | 107.7 AV | | | 1.00 V | 265 | 101.63 | 6.07 |
| 3 | #5725.00 | 68.4 PK | 74.0 | -5.6 | 1.00 V | 265 | 62.26 | 6.14 |
| 4 | #5725.00 | 53.8 AV | 54.0 | -0.2 | 1.00 V | 265 | 47.66 | 6.14 |
| 5 | 11400.00 | 61.3 PK | 74.0 | -12.7 | 1.00 V | 2 | 44.13 | 17.17 |
| 6 | 11400.00 | 48.4 AV | 54.0 | -5.6 | 1.00 V | 2 | 31.23 | 17.17 |
| 7 | #17100.00 | 55.3 PK | 74.0 | -18.7 | 1.35 V | 35 | 33.49 | 21.81 |
| 8 | #17100.00 | 41.8 AV | 54.0 | -12.2 | 1.35 V | 35 | 19.99 | 21.81 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

## 802.11ac (VHT20)

| CHANNEL | TX Channel 52 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5100.00 | 57.0 PK | 74.0 | -17.0 | 1.20 H | 122 | 52.08 | 4.92 |
| 2 | 5100.00 | 44.9 AV | 54.0 | -9.1 | 1.20 H | 122 | 39.98 | 4.92 |
| 3 | *5260.00 | 116.3 PK | | | 1.20 H | 122 | 111.15 | 5.15 |
| 4 | *5260.00 | 105.4 AV | | | 1.20 H | 122 | 100.25 | 5.15 |
| 5 | #10520.00 | 66.5 PK | 74.0 | -7.5 | 1.16 H | 109 | 50.18 | 16.32 |
| 6 | #10520.00 | 51.5 AV | 54.0 | -2.5 | 1.16 H | 109 | 35.18 | 16.32 |
| 7 | 15780.00 | 55.5 PK | 74.0 | -18.5 | 1.32 H | 121 | 38.40 | 17.10 |
| 8 | 15780.00 | 42.5 AV | 54.0 | -11.5 | 1.32 H | 121 | 25.40 | 17.10 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5100.00 | 59.2 PK | 74.0 | -14.8 | 1.64 V | 188 | 54.28 | 4.92 |
| 2 | 5100.00 | 47.0 AV | 54.0 | -7.0 | 1.64 V | 188 | 42.08 | 4.92 |
| 3 | *5260.00 | 118.7 PK | | | 1.63 V | 182 | 113.55 | 5.15 |
| 4 | *5260.00 | 108.5 AV | | | 1.63 V | 182 | 103.35 | 5.15 |
| 5 | #10520.00 | 68.8 PK | 74.0 | -5.2 | 1.00 V | 132 | 52.48 | 16.32 |
| 6 | #10520.00 | 53.8 AV | 54.0 | -0.2 | 1.00 V | 132 | 37.48 | 16.32 |
| 7 | 15780.00 | 55.8 PK | 74.0 | -18.2 | 1.33 V | 40 | 38.70 | 17.10 |
| 8 | 15780.00 | 42.3 AV | 54.0 | -11.7 | 1.33 V | 40 | 25.20 | 17.10 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

| CHANNEL | TX Channel 60 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5300.00 | 116.1 PK | | | 1.22 H | 131 | 110.88 | 5.22 |
| 2 | *5300.00 | 105.1 AV | | | 1.22 H | 131 | 99.88 | 5.22 |
| 3 | 10600.00 | 65.9 PK | 74.0 | -8.1 | 1.12 H | 79 | 49.45 | 16.45 |
| 4 | 10600.00 | 51.4 AV | 54.0 | -2.6 | 1.12 H | 79 | 34.95 | 16.45 |
| 5 | 15900.00 | 55.1 PK | 74.0 | -18.9 | 1.25 H | 98 | 38.54 | 16.56 |
| 6 | 15900.00 | 42.4 AV | 54.0 | -11.6 | 1.25 H | 98 | 25.84 | 16.56 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5300.00 | 118.5 PK | | | 1.53 V | 158 | 113.28 | 5.22 |
| 2 | *5300.00 | 108.2 AV | | | 1.53 V | 158 | 102.98 | 5.22 |
| 3 | 10600.00 | 68.1 PK | 74.0 | -5.9 | 1.00 V | 189 | 51.65 | 16.45 |
| 4 | 10600.00 | 53.6 AV | 54.0 | -0.4 | 1.00 V | 189 | 37.15 | 16.45 |
| 5 | 15900.00 | 56.3 PK | 74.0 | -17.7 | 1.27 V | 51 | 39.74 | 16.56 |
| 6 | 15900.00 | 42.7 AV | 54.0 | -11.3 | 1.27 V | 51 | 26.14 | 16.56 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

| CHANNEL | TX Channel 64 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5320.00 | 116.9 PK | | | 1.18 H | 101 | 111.62 | 5.28 |
| 2 | *5320.00 | 106.0 AV | | | 1.18 H | 101 | 100.72 | 5.28 |
| 3 | 5350.00 | 66.5 PK | 74.0 | -7.5 | 1.18 H | 101 | 61.14 | 5.36 |
| 4 | 5350.00 | 51.1 AV | 54.0 | -2.9 | 1.18 H | 101 | 45.74 | 5.36 |
| 5 | 10640.00 | 63.5 PK | 74.0 | -10.5 | 1.29 H | 111 | 47.17 | 16.33 |
| 6 | 10640.00 | 49.8 AV | 54.0 | -4.2 | 1.29 H | 111 | 33.47 | 16.33 |
| 7 | 15960.00 | 55.4 PK | 74.0 | -18.6 | 1.25 H | 97 | 38.70 | 16.70 |
| 8 | 15960.00 | 42.4 AV | 54.0 | -11.6 | 1.25 H | 97 | 25.70 | 16.70 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5320.00 | 119.3 PK | | | 1.61 V | 158 | 114.02 | 5.28 |
| 2 | *5320.00 | 109.2 AV | | | 1.61 V | 158 | 103.92 | 5.28 |
| 3 | 5350.00 | 68.8 PK | 74.0 | -5.2 | 1.61 V | 158 | 63.44 | 5.36 |
| 4 | 5350.00 | 53.6 AV | 54.0 | -0.4 | 1.61 V | 158 | 48.24 | 5.36 |
| 5 | 10640.00 | 65.8 PK | 74.0 | -8.2 | 1.00 V | 190 | 49.47 | 16.33 |
| 6 | 10640.00 | 52.1 AV | 54.0 | -1.9 | 1.00 V | 190 | 35.77 | 16.33 |
| 7 | 15960.00 | 56.0 PK | 74.0 | -18.0 | 1.37 V | 49 | 39.30 | 16.70 |
| 8 | 15960.00 | 42.4 AV | 54.0 | -11.6 | 1.37 V | 49 | 25.70 | 16.70 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

| CHANNEL | TX Channel 100 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5460.00 | 61.2 PK | 74.0 | -12.8 | 1.22 H | 109 | 55.58 | 5.62 |
| 2 | 5460.00 | 46.5 AV | 54.0 | -7.5 | 1.22 H | 109 | 40.88 | 5.62 |
| 3 | #5468.00 | 70.5 PK | 74.0 | -3.5 | 1.22 H | 109 | 64.86 | 5.64 |
| 4 | #5468.00 | 51.3 AV | 54.0 | -2.7 | 1.22 H | 109 | 45.66 | 5.64 |
| 5 | *5500.00 | 117.0 PK | | | 1.22 H | 109 | 111.30 | 5.70 |
| 6 | *5500.00 | 106.2 AV | | | 1.22 H | 109 | 100.50 | 5.70 |
| 7 | 11000.00 | 58.8 PK | 74.0 | -15.2 | 1.24 H | 158 | 41.62 | 17.18 |
| 8 | 11000.00 | 47.2 AV | 54.0 | -6.8 | 1.24 H | 158 | 30.02 | 17.18 |
| 9 | #16500.00 | 54.4 PK | 74.0 | -19.6 | 1.29 H | 103 | 34.86 | 19.54 |
| 10 | #16500.00 | 41.7 AV | 54.0 | -12.3 | 1.29 H | 103 | 22.16 | 19.54 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5460.00 | 63.4 PK | 74.0 | -10.6 | 1.00 V | 94 | 57.78 | 5.62 |
| 2 | 5460.00 | 48.7 AV | 54.0 | -5.3 | 1.00 V | 94 | 43.08 | 5.62 |
| 3 | #5468.00 | 72.8 PK | 74.0 | -1.2 | 1.00 V | 94 | 67.16 | 5.64 |
| 4 | #5468.00 | 53.7 AV | 54.0 | -0.3 | 1.00 V | 94 | 48.06 | 5.64 |
| 5 | *5500.00 | 119.3 PK | | | 1.00 V | 94 | 113.60 | 5.70 |
| 6 | *5500.00 | 109.2 AV | | | 1.00 V | 94 | 103.50 | 5.70 |
| 7 | 11000.00 | 61.5 PK | 74.0 | -12.5 | 1.00 V | 7 | 44.32 | 17.18 |
| 8 | 11000.00 | 49.4 AV | 54.0 | -4.6 | 1.00 V | 7 | 32.22 | 17.18 |
| 9 | #16500.00 | 55.7 PK | 74.0 | -18.3 | 1.33 V | 63 | 36.16 | 19.54 |
| 10 | #16500.00 | 42.5 AV | 54.0 | -11.5 | 1.33 V | 63 | 22.96 | 19.54 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

| CHANNEL | TX Channel 116 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5580.00 | 117.7 PK | | | 1.16 H | 110 | 111.93 | 5.77 |
| 2 | *5580.00 | 107.0 AV | | | 1.16 H | 110 | 101.23 | 5.77 |
| 3 | #5740.00 | 65.2 PK | 68.2 | -3.0 | 1.16 H | 110 | 59.01 | 6.19 |
| 4 | 11160.00 | 60.1 PK | 74.0 | -13.9 | 1.29 H | 48 | 42.93 | 17.17 |
| 5 | 11160.00 | 47.8 AV | 54.0 | -6.2 | 1.29 H | 48 | 30.63 | 17.17 |
| 6 | #16740.00 | 54.5 PK | 68.2 | -13.7 | 1.29 H | 97 | 34.82 | 19.68 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5580.00 | 120.0 PK | | | 1.00 V | 283 | 114.23 | 5.77 |
| 2 | *5580.00 | 109.7 AV | | | 1.00 V | 283 | 103.93 | 5.77 |
| 3 | #5740.00 | 67.8 PK | 68.2 | -0.4 | 1.00 V | 93 | 61.61 | 6.19 |
| 4 | 11160.00 | 62.3 PK | 74.0 | -11.7 | 1.00 V | 15 | 45.13 | 17.17 |
| 5 | 11160.00 | 50.0 AV | 54.0 | -4.0 | 1.00 V | 15 | 32.83 | 17.17 |
| 6 | #16740.00 | 55.3 PK | 68.2 | -12.9 | 1.32 V | 54 | 35.62 | 19.68 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

| CHANNEL | TX Channel 140 | DETECTOR FUNCTION | Peak (PK) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5700.00 | 116.6 PK | | | 1.17 H | 105 | 110.53 | 6.07 |
| 2 | *5700.00 | 105.6 AV | | | 1.17 H | 105 | 99.53 | 6.07 |
| 3 | #5725.00 | 67.1 PK | 74.0 | -6.9 | 1.17 H | 105 | 60.96 | 6.14 |
| 4 | #5725.00 | 51.5 AV | 54.0 | -2.5 | 1.17 H | 105 | 45.36 | 6.14 |
| 5 | 11400.00 | 58.5 PK | 74.0 | -15.5 | 1.26 H | 79 | 41.33 | 17.17 |
| 6 | 11400.00 | 46.8 AV | 54.0 | -7.2 | 1.26 H | 79 | 29.63 | 17.17 |
| 7 | #17100.00 | 55.8 PK | 74.0 | -18.2 | 1.23 H | 97 | 33.99 | 21.81 |
| 8 | #17100.00 | 42.5 AV | 54.0 | -11.5 | 1.23 H | 97 | 20.69 | 21.81 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5700.00 | 119.0 PK | | | 1.00 V | 88 | 112.93 | 6.07 |
| 2 | *5700.00 | 108.2 AV | | | 1.00 V | 88 | 102.13 | 6.07 |
| 3 | #5725.00 | 69.4 PK | 74.0 | -4.6 | 1.00 V | 88 | 63.26 | 6.14 |
| 4 | #5725.00 | 53.8 AV | 54.0 | -0.2 | 1.00 V | 88 | 47.66 | 6.14 |
| 5 | 11400.00 | 60.9 PK | 74.0 | -13.1 | 1.00 V | 6 | 43.73 | 17.17 |
| 6 | 11400.00 | 49.0 AV | 54.0 | -5.0 | 1.00 V | 6 | 31.83 | 17.17 |
| 7 | #17100.00 | 55.0 PK | 74.0 | -19.0 | 1.30 V | 43 | 33.19 | 21.81 |
| 8 | #17100.00 | 41.9 AV | 54.0 | -12.1 | 1.30 V | 43 | 20.09 | 21.81 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

## 802.11ac (VHT40)

| CHANNEL | TX Channel 54 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5110.00 | 62.3 PK | 74.0 | -11.7 | 1.15 H | 100 | 57.37 | 4.93 |
| 2 | 5110.00 | 51.5 AV | 54.0 | -2.5 | 1.15 H | 100 | 46.57 | 4.93 |
| 3 | *5270.00 | 113.6 PK | | | 1.15 H | 100 | 108.44 | 5.16 |
| 4 | *5270.00 | 104.0 AV | | | 1.15 H | 100 | 98.84 | 5.16 |
| 5 | #10540.00 | 64.8 PK | 74.0 | -9.2 | 1.18 H | 95 | 48.45 | 16.35 |
| 6 | #10540.00 | 50.1 AV | 54.0 | -3.9 | 1.18 H | 95 | 33.75 | 16.35 |
| 7 | 15810.00 | 55.4 PK | 74.0 | -18.6 | 1.31 H | 115 | 38.49 | 16.91 |
| 8 | 15810.00 | 42.5 AV | 54.0 | -11.5 | 1.31 H | 115 | 25.59 | 16.91 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5110.00 | 64.8 PK | 74.0 | -9.2 | 1.48 V | 134 | 59.87 | 4.93 |
| 2 | 5110.00 | 53.8 AV | 54.0 | -0.2 | 1.48 V | 134 | 48.87 | 4.93 |
| 3 | *5270.00 | 116.2 PK | | | 1.48 V | 183 | 111.04 | 5.16 |
| 4 | *5270.00 | 106.6 AV | | | 1.48 V | 183 | 101.44 | 5.16 |
| 5 | #10540.00 | 67.1 PK | 74.0 | -6.9 | 1.00 V | 134 | 50.75 | 16.35 |
| 6 | #10540.00 | 52.4 AV | 54.0 | -1.6 | 1.00 V | 134 | 36.05 | 16.35 |
| 7 | 15810.00 | 55.4 PK | 74.0 | -18.6 | 1.27 V | 63 | 38.49 | 16.91 |
| 8 | 15810.00 | 41.9 AV | 54.0 | -12.1 | 1.27 V | 63 | 24.99 | 16.91 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

| CHANNEL | TX Channel 62 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5310.00 | 110.6 PK | | | 1.19 H | 106 | 105.35 | 5.25 |
| 2 | *5310.00 | 100.5 AV | | | 1.19 H | 106 | 95.25 | 5.25 |
| 3 | 5350.00 | 65.6 PK | 74.0 | -8.4 | 1.19 H | 106 | 60.24 | 5.36 |
| 4 | 5350.00 | 51.6 AV | 54.0 | -2.4 | 1.19 H | 106 | 46.24 | 5.36 |
| 5 | 10620.00 | 63.2 PK | 74.0 | -10.8 | 1.22 H | 88 | 46.81 | 16.39 |
| 6 | 10620.00 | 49.6 AV | 54.0 | -4.4 | 1.22 H | 88 | 33.21 | 16.39 |
| 7 | 15930.00 | 55.5 PK | 74.0 | -18.5 | 1.31 H | 118 | 38.86 | 16.64 |
| 8 | 15930.00 | 42.2 AV | 54.0 | -11.8 | 1.31 H | 118 | 25.56 | 16.64 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5310.00 | 113.4 PK | | | 1.59 V | 156 | 108.15 | 5.25 |
| 2 | *5310.00 | 103.1 AV | | | 1.59 V | 156 | 97.85 | 5.25 |
| 3 | 5350.00 | 68.0 PK | 74.0 | -6.0 | 1.59 V | 156 | 62.64 | 5.36 |
| 4 | 5350.00 | 53.8 AV | 54.0 | -0.2 | 1.59 V | 156 | 48.44 | 5.36 |
| 5 | 10620.00 | 65.5 PK | 74.0 | -8.5 | 1.00 V | 196 | 49.11 | 16.39 |
| 6 | 10620.00 | 51.9 AV | 54.0 | -2.1 | 1.00 V | 196 | 35.51 | 16.39 |
| 7 | 15930.00 | 56.1 PK | 74.0 | -17.9 | 1.37 V | 35 | 39.46 | 16.64 |
| 8 | 15930.00 | 42.8 AV | 54.0 | -11.2 | 1.37 V | 35 | 26.16 | 16.64 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

| CHANNEL | TX Channel 102 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5460.00 | 64.8 PK | 74.0 | -9.2 | 1.20 H | 111 | 59.18 | 5.62 |
| 2 | 5460.00 | 48.2 AV | 54.0 | -5.8 | 1.20 H | 111 | 42.58 | 5.62 |
| 3 | #5468.00 | 69.8 PK | 74.0 | -4.2 | 1.20 H | 111 | 64.16 | 5.64 |
| 4 | #5468.00 | 51.4 AV | 54.0 | -2.6 | 1.20 H | 111 | 45.76 | 5.64 |
| 5 | *5510.00 | 112.6 PK | | | 1.20 H | 111 | 106.89 | 5.71 |
| 6 | *5510.00 | 101.8 AV | | | 1.20 H | 111 | 96.09 | 5.71 |
| 7 | 11020.00 | 50.9 PK | 74.0 | -23.1 | 1.17 H | 80 | 33.63 | 17.27 |
| 8 | 11020.00 | 48.9 AV | 54.0 | -5.1 | 1.17 H | 80 | 31.63 | 17.27 |
| 9 | #16530.00 | 55.0 PK | 74.0 | -19.0 | 1.25 H | 104 | 35.45 | 19.55 |
| 10 | #16530.00 | 41.8 AV | 54.0 | -12.2 | 1.25 H | 104 | 22.25 | 19.55 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5460.00 | 67.0 PK | 74.0 | -7.0 | 1.00 V | 90 | 61.38 | 5.62 |
| 2 | 5460.00 | 50.4 AV | 54.0 | -3.6 | 1.00 V | 90 | 44.78 | 5.62 |
| 3 | #5468.00 | 72.1 PK | 74.0 | -1.9 | 1.00 V | 90 | 66.46 | 5.64 |
| 4 | #5468.00 | 53.8 AV | 54.0 | -0.2 | 1.00 V | 90 | 48.16 | 5.64 |
| 5 | *5510.00 | 115.4 PK | | | 1.00 V | 90 | 109.69 | 5.71 |
| 6 | *5510.00 | 104.5 AV | | | 1.00 V | 90 | 98.79 | 5.71 |
| 7 | 11020.00 | 51.2 PK | 74.0 | -22.8 | 1.00 V | 4 | 33.93 | 17.27 |
| 8 | 11020.00 | 49.2 AV | 54.0 | -4.8 | 1.00 V | 4 | 31.93 | 17.27 |
| 9 | #16530.00 | 56.1 PK | 74.0 | -17.9 | 1.32 V | 60 | 36.55 | 19.55 |
| 10 | #16530.00 | 42.7 AV | 54.0 | -11.3 | 1.32 V | 60 | 23.15 | 19.55 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

| CHANNEL | TX Channel 110 | DETECTOR FUNCTION | Peak (PK) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5550.00 | 116.8 PK | | | 1.14 H | 91 | 111.06 | 5.74 |
| 2 | *5550.00 | 105.8 AV | | | 1.14 H | 91 | 100.06 | 5.74 |
| 3 | #5790.00 | 61.1 PK | 74.0 | -12.9 | 1.14 H | 91 | 54.76 | 6.34 |
| 4 | #5790.00 | 49.7 AV | 54.0 | -4.3 | 1.14 H | 91 | 43.36 | 6.34 |
| 5 | 11100.00 | 51.1 PK | 74.0 | -22.9 | 1.22 H | 95 | 33.45 | 17.65 |
| 6 | 11100.00 | 49.2 AV | 54.0 | -4.8 | 1.22 H | 95 | 31.55 | 17.65 |
| 7 | #16650.00 | 55.5 PK | 74.0 | -18.5 | 1.29 H | 113 | 35.93 | 19.57 |
| 8 | #16650.00 | 42.5 AV | 54.0 | -11.5 | 1.29 H | 113 | 22.93 | 19.57 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5550.00 | 119.6 PK | | | 1.00 V | 89 | 113.86 | 5.74 |
| 2 | *5550.00 | 108.5 AV | | | 1.00 V | 89 | 102.76 | 5.74 |
| 3 | #5790.00 | 63.7 PK | 74.0 | -10.3 | 1.00 V | 91 | 57.36 | 6.34 |
| 4 | #5790.00 | 52.0 AV | 54.0 | -2.0 | 1.00 V | 91 | 45.66 | 6.34 |
| 5 | 11100.00 | 51.5 PK | 74.0 | -22.5 | 1.00 V | 10 | 33.85 | 17.65 |
| 6 | 11100.00 | 49.8 AV | 54.0 | -4.2 | 1.00 V | 10 | 32.15 | 17.65 |
| 7 | #16650.00 | 55.5 PK | 74.0 | -18.5 | 1.33 V | 56 | 35.93 | 19.57 |
| 8 | #16650.00 | 42.4 AV | 54.0 | -11.6 | 1.33 V | 56 | 22.83 | 19.57 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

| CHANNEL | TX Channel 134 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5670.00 | 114.9 PK | | | 1.18 H | 72 | 108.93 | 5.97 |
| 2 | *5670.00 | 104.5 AV | | | 1.18 H | 72 | 98.53 | 5.97 |
| 3 | #5725.00 | 66.0 PK | 74.0 | -8.0 | 1.18 H | 72 | 59.86 | 6.14 |
| 4 | #5725.00 | 51.4 AV | 54.0 | -2.6 | 1.18 H | 72 | 45.26 | 6.14 |
| 5 | 11340.00 | 58.4 PK | 74.0 | -15.6 | 1.11 H | 75 | 41.17 | 17.23 |
| 6 | 11340.00 | 46.2 AV | 54.0 | -7.8 | 1.11 H | 75 | 28.97 | 17.23 |
| 7 | #17010.00 | 55.3 PK | 74.0 | -18.7 | 1.34 H | 124 | 33.66 | 21.64 |
| 8 | #17010.00 | 42.3 AV | 54.0 | -11.7 | 1.34 H | 124 | 20.66 | 21.64 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5670.00 | 117.5 PK | | | 1.61 V | 305 | 111.53 | 5.97 |
| 2 | *5670.00 | 107.3 AV | | | 1.61 V | 305 | 101.33 | 5.97 |
| 3 | #5725.00 | 68.4 PK | 74.0 | -5.6 | 1.61 V | 305 | 62.26 | 6.14 |
| 4 | #5725.00 | 53.8 AV | 54.0 | -0.2 | 1.61 V | 305 | 47.66 | 6.14 |
| 5 | 11340.00 | 60.9 PK | 74.0 | -13.1 | 1.00 V | 11 | 43.67 | 17.23 |
| 6 | 11340.00 | 48.9 AV | 54.0 | -5.1 | 1.00 V | 11 | 31.67 | 17.23 |
| 7 | #17010.00 | 54.9 PK | 74.0 | -19.1 | 1.31 V | 65 | 33.26 | 21.64 |
| 8 | #17010.00 | 41.8 AV | 54.0 | -12.2 | 1.31 V | 65 | 20.16 | 21.64 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

## 802.11ac (VHT80)

| CHANNEL | TX Channel 58 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5290.00 | 105.8 PK | | | 1.22 H | 91 | 100.60 | 5.20 |
| 2 | *5290.00 | 95.8 AV | | | 1.22 H | 91 | 90.60 | 5.20 |
| 3 | 5350.00 | 64.8 PK | 74.0 | -9.2 | 1.22 H | 91 | 59.44 | 5.36 |
| 4 | 5350.00 | 51.2 AV | 54.0 | -2.8 | 1.22 H | 91 | 45.84 | 5.36 |
| 5 | #10580.00 | 60.0 PK | 74.0 | -14.0 | 1.15 H | 65 | 43.59 | 16.41 |
| 6 | #10580.00 | 48.1 AV | 54.0 | -5.9 | 1.15 H | 65 | 31.69 | 16.41 |
| 7 | 15870.00 | 54.8 PK | 74.0 | -19.2 | 1.34 H | 101 | 38.12 | 16.68 |
| 8 | 15870.00 | 41.7 AV | 54.0 | -12.3 | 1.34 H | 101 | 25.02 | 16.68 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5290.00 | 108.4 PK | | | 1.54 V | 196 | 103.20 | 5.20 |
| 2 | *5290.00 | 98.6 AV | | | 1.54 V | 196 | 93.40 | 5.20 |
| 3 | 5350.00 | 67.0 PK | 74.0 | -7.0 | 1.54 V | 196 | 61.64 | 5.36 |
| 4 | 5350.00 | 53.8 AV | 54.0 | -0.2 | 1.54 V | 196 | 48.44 | 5.36 |
| 5 | #10580.00 | 64.2 PK | 74.0 | -9.8 | 1.00 V | 190 | 47.79 | 16.41 |
| 6 | #10580.00 | 50.4 AV | 54.0 | -3.6 | 1.00 V | 190 | 33.99 | 16.41 |
| 7 | 15870.00 | 55.6 PK | 74.0 | -18.4 | 1.26 V | 49 | 38.92 | 16.68 |
| 8 | 15870.00 | 42.4 AV | 54.0 | -11.6 | 1.26 V | 49 | 25.72 | 16.68 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

| CHANNEL | TX Channel 106 | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5460.00 | 63.1 PK | 74.0 | -10.9 | 1.19 H | 86 | 57.48 | 5.62 |
| 2 | 5460.00 | 49.9 AV | 54.0 | -4.1 | 1.19 H | 86 | 44.28 | 5.62 |
| 3 | #5468.00 | 66.0 PK | 74.0 | -8.0 | 1.19 H | 86 | 60.36 | 5.64 |
| 4 | #5468.00 | 51.6 AV | 54.0 | -2.4 | 1.19 H | 86 | 45.96 | 5.64 |
| 5 | *5530.00 | 109.7 PK | | | 1.19 H | 86 | 103.98 | 5.72 |
| 6 | *5530.00 | 98.4 AV | | | 1.19 H | 86 | 92.68 | 5.72 |
| 7 | 11060.00 | 58.5 PK | 74.0 | -15.5 | 1.13 H | 88 | 41.04 | 17.46 |
| 8 | 11060.00 | 46.7 AV | 54.0 | -7.3 | 1.13 H | 88 | 29.24 | 17.46 |
| 9 | #16590.00 | 55.3 PK | 74.0 | -18.7 | 1.24 H | 106 | 35.74 | 19.56 |
| 10 | #16590.00 | 42.4 AV | 54.0 | -11.6 | 1.24 H | 106 | 22.84 | 19.56 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5460.00 | 65.3 PK | 74.0 | -8.7 | 1.04 V | 323 | 59.68 | 5.62 |
| 2 | 5460.00 | 52.1 AV | 54.0 | -1.9 | 1.04 V | 323 | 46.48 | 5.62 |
| 3 | #5468.00 | 68.4 PK | 74.0 | -5.6 | 1.04 V | 323 | 62.76 | 5.64 |
| 4 | #5468.00 | 53.8 AV | 54.0 | -0.2 | 1.04 V | 323 | 48.16 | 5.64 |
| 5 | *5530.00 | 112.3 PK | | | 1.04 V | 323 | 106.58 | 5.72 |
| 6 | *5530.00 | 101.4 AV | | | 1.04 V | 323 | 95.68 | 5.72 |
| 7 | 11060.00 | 60.8 PK | 74.0 | -13.2 | 1.00 V | 12 | 43.34 | 17.46 |
| 8 | 11060.00 | 49.0 AV | 54.0 | -5.0 | 1.00 V | 12 | 31.54 | 17.46 |
| 9 | #16590.00 | 55.5 PK | 74.0 | -18.5 | 1.34 V | 59 | 35.94 | 19.56 |
| 10 | #16590.00 | 42.4 AV | 54.0 | -11.6 | 1.34 V | 59 | 22.84 | 19.56 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

| CHANNEL | TX Channel 122 | DETECTOR FUNCTION | Peak (PK) |
|---|---|---|---|
| FREQUENCY RANGE | 1GHz ~ 40GHz | | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5610.00 | 106.4 PK | | | 1.14 H | 85 | 100.59 | 5.81 |
| 2 | *5610.00 | 96.2 AV | | | 1.14 H | 85 | 90.39 | 5.81 |
| 3 | #5798.00 | 62.2 PK | 74.0 | -11.8 | 1.14 H | 85 | 55.84 | 6.36 |
| 4 | #5798.00 | 50.6 AV | 54.0 | -3.4 | 1.14 H | 85 | 44.24 | 6.36 |
| 5 | 11220.00 | 59.5 PK | 74.0 | -14.5 | 1.10 H | 69 | 42.57 | 16.93 |
| 6 | 11220.00 | 47.1 AV | 54.0 | -6.9 | 1.10 H | 69 | 30.17 | 16.93 |
| 7 | #16830.00 | 55.1 PK | 74.0 | -18.9 | 1.29 H | 111 | 35.08 | 20.02 |
| 8 | #16830.00 | 42.1 AV | 54.0 | -11.9 | 1.29 H | 111 | 22.08 | 20.02 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *5610.00 | 109.0 PK | | | 1.26 V | 120 | 103.19 | 5.81 |
| 2 | *5610.00 | 99.2 AV | | | 1.26 V | 120 | 93.39 | 5.81 |
| 3 | #5798.00 | 64.4 PK | 74.0 | -9.6 | 1.26 V | 120 | 58.04 | 6.36 |
| 4 | #5798.00 | 52.9 AV | 54.0 | -1.1 | 1.26 V | 120 | 46.54 | 6.36 |
| 5 | 11220.00 | 61.4 PK | 74.0 | -12.6 | 1.03 V | 6 | 44.47 | 16.93 |
| 6 | 11220.00 | 49.3 AV | 54.0 | -4.7 | 1.03 V | 6 | 32.37 | 16.93 |
| 7 | #16830.00 | 55.6 PK | 74.0 | -18.4 | 1.32 V | 49 | 35.58 | 20.02 |
| 8 | #16830.00 | 42.3 AV | 54.0 | -11.7 | 1.32 V | 49 | 22.28 | 20.02 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

## Below 1GHz Data

### CDD Mode

### 802.11ac (VHT40)

| CHANNEL | TX Channel 102 | DETECTOR FUNCTION | Quasi-Peak (QP) |
|---|---|---|---|
| FREQUENCY RANGE | Below 1GHz | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 99.99 | 36.3 QP | 43.5 | -7.2 | 1.50 H | 360 | 48.56 | -12.27 |
| 2 | 180.28 | 39.4 QP | 43.5 | -4.1 | 2.00 H | 292 | 48.75 | -9.31 |
| 3 | 227.88 | 39.6 QP | 46.0 | -6.4 | 1.50 H | 211 | 50.11 | -10.52 |
| 4 | 330.87 | 39.6 QP | 46.0 | -6.5 | 1.00 H | 103 | 45.38 | -5.83 |
| 5 | 383.23 | 39.1 QP | 46.0 | -6.9 | 1.00 H | 145 | 43.63 | -4.51 |
| 6 | 441.16 | 30.9 QP | 46.0 | -15.1 | 1.00 H | 329 | 33.57 | -2.68 |
| **ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M** | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 107.43 | 35.9 QP | 43.5 | -7.6 | 1.00 V | 308 | 46.92 | -11.05 |
| 2 | 143.27 | 36.7 QP | 43.5 | -6.8 | 1.00 V | 285 | 44.71 | -7.99 |
| 3 | 180.88 | 36.7 QP | 43.5 | -6.8 | 1.00 V | 211 | 46.06 | -9.40 |
| 4 | 333.56 | 40.4 QP | 46.0 | -5.7 | 1.50 V | 0 | 46.16 | -5.81 |
| 5 | 352.28 | 39.0 QP | 46.0 | -7.0 | 1.50 V | 308 | 44.53 | -5.49 |
| 6 | 380.17 | 42.3 QP | 46.0 | -3.7 | 1.00 V | 3 | 46.86 | -4.56 |

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

| Frequency (MHz) | Conducted Limit (dBuV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 - 0.5 | 66 - 56 | 56 - 46 |
| 0.50 - 5.0 | 56 | 46 |
| 5.0 - 30.0 | 60 | 50 |

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### 4.2.2 Test Instruments

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|---|---|---|---|---|
| Test Receiver R&S | ESCS 30 | 100375 | May 06, 2015 | May 05, 2016 |
| Line-Impedance Stabilization Network (for EUT) SCHWARZBECK | NSLK-8127 | 8127-522 | Sep. 01, 2015 | Aug. 31, 2016 |
| Line-Impedance Stabilization Network (for Peripheral ) R&S | ENV216 | 100072 | June 11, 2015 | June 10, 2016 |
| RF Cable | 5D-FB | COCCAB-001 | Mar. 09, 2015 | Mar. 08, 2016 |
| 50 ohms Terminator | N/A | EMC-03 | Sep. 23, 2015 | Sep. 22, 2016 |
| 50 ohms Terminator | N/A | EMC-02 | Oct. 01, 2015 | Sep. 30, 2016 |
| Software BVADT | BVADT_Cond_ V7.3.7.3 | NA | NA | NA |

**Note:**

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3 The VCCI Con C Registration No. is C-3611.
4 Tested Date: Jan. 21, 2016

4.2.3 Test Procedure

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

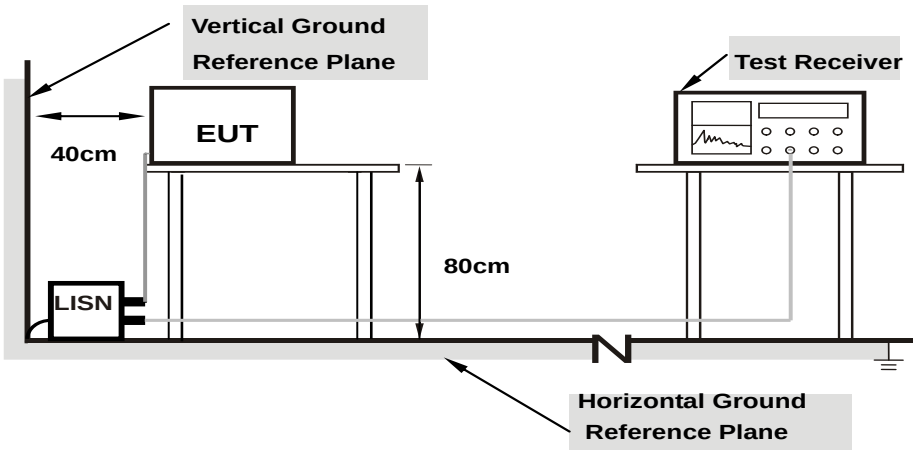
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

**NOTE:** All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup




**Note: 1.Support units were connected to second LISN.**

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Condition

Same as 4.1.6.

4.2.7 Test Results (Mode 1)

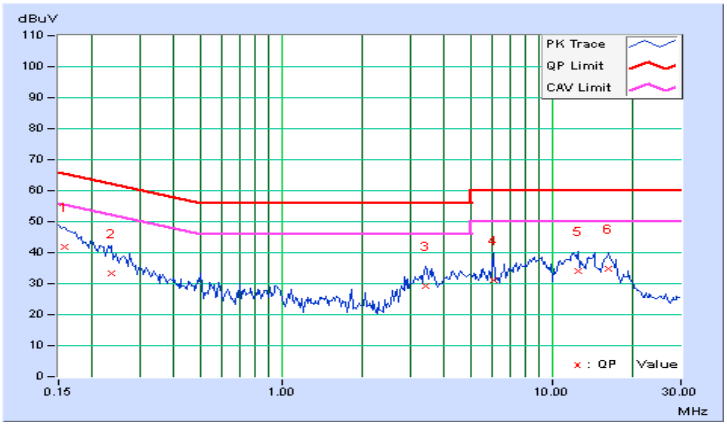
**CDD Mode**

| Phase | Line (L) | Detector Function | Quasi-Peak (QP) / Average (AV) |
|---|---|---|---|

| Phase Of Power : Line (L) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.15781 | 10.37 | 31.65 | 9.95 | 42.02 | 20.32 | 65.58 | 55.58 | -23.55 | -35.25 |
| 2 | 0.23594 | 10.35 | 23.02 | 7.70 | 33.37 | 18.05 | 62.24 | 52.24 | -28.87 | -34.19 |
| 3 | 3.39844 | 10.52 | 18.91 | 10.10 | 29.43 | 20.62 | 56.00 | 46.00 | -26.57 | -25.38 |
| 4 | 6.11328 | 10.69 | 20.30 | 12.72 | 30.99 | 23.41 | 60.00 | 50.00 | -29.01 | -26.59 |
| 5 | 12.54688 | 11.07 | 23.11 | 17.77 | 34.18 | 28.84 | 60.00 | 50.00 | -25.82 | -21.16 |
| 6 | 16.10938 | 11.28 | 23.60 | 18.97 | 34.88 | 30.25 | 60.00 | 50.00 | -25.12 | -19.75 |

**Remarks:**

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

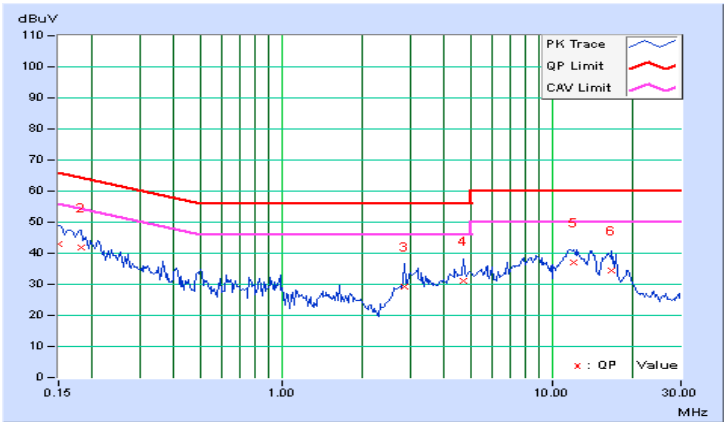


| Phase | Neutral (N) | Detector Function | Quasi-Peak (QP) / Average (AV) |
|---|---|---|---|

| Phase Of Power : Neutral (N) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.15000 | 10.38 | 32.76 | 10.83 | 43.14 | 21.21 | 66.00 | 56.00 | -22.86 | -34.79 |
| 2 | 0.18125 | 10.39 | 31.52 | 23.20 | 41.91 | 33.59 | 64.43 | 54.43 | -22.52 | -20.84 |
| 3 | 2.86831 | 10.55 | 18.63 | 10.73 | 29.18 | 21.28 | 56.00 | 46.00 | -26.82 | -24.72 |
| 4 | 4.72656 | 10.71 | 20.44 | 14.03 | 31.15 | 24.74 | 56.00 | 46.00 | -24.85 | -21.26 |
| **5** | **11.99609** | **11.05** | **25.95** | **20.26** | **37.00** | **31.31** | **60.00** | **50.00** | **-23.00** | **-18.69** |
| 6 | 16.56250 | 11.31 | 23.16 | 18.34 | 34.47 | 29.65 | 60.00 | 50.00 | -25.53 | -20.35 |

**Remarks:**

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



4.2.8 Test Results (Mode 2)

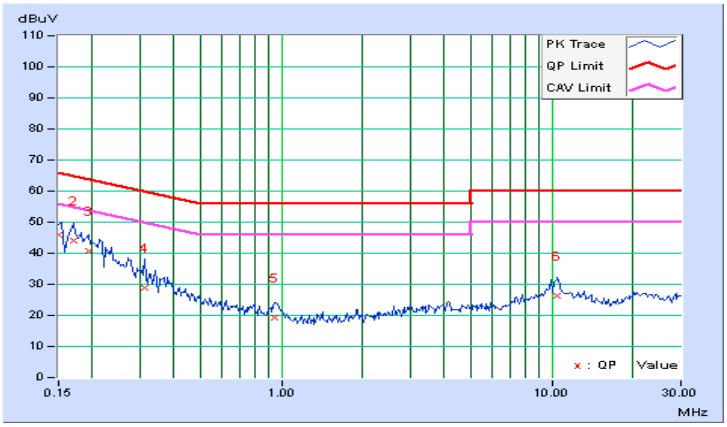
**CDD Mode**

| Phase | Line (L) | Detector Function | Quasi-Peak (QP) / Average (AV) |
|---|---|---|---|

| Phase Of Power : Line (L) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.15000 | 10.38 | 35.50 | 20.19 | 45.88 | 30.57 | 66.00 | 56.00 | -20.12 | -25.43 |
| 2 | 0.16953 | 10.36 | 33.87 | 18.87 | 44.23 | 29.23 | 64.98 | 54.98 | -20.75 | -25.75 |
| 3 | 0.19297 | 10.35 | 30.50 | 15.17 | 40.85 | 25.52 | 63.91 | 53.91 | -23.06 | -28.39 |
| 4 | 0.31406 | 10.36 | 18.35 | 4.11 | 28.71 | 14.47 | 59.86 | 49.86 | -31.16 | -35.40 |
| 5 | 0.94297 | 10.32 | 9.10 | 7.89 | 19.42 | 18.21 | 56.00 | 46.00 | -36.58 | -27.79 |
| 6 | 10.43359 | 10.93 | 15.44 | 10.40 | 26.37 | 21.33 | 60.00 | 50.00 | -33.63 | -28.67 |

**Remarks:**

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

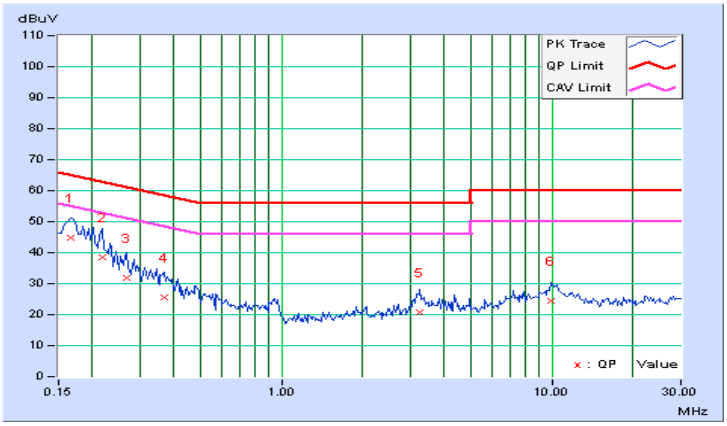


| Phase | Neutral (N) | Detector Function | Quasi-Peak (QP) / Average (AV) |
|---|---|---|---|

| Phase Of Power : Neutral (N) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.16562 | 10.38 | 34.61 | 18.31 | 44.99 | 28.69 | 65.18 | 55.18 | -20.18 | -26.48 |
| 2 | 0.21641 | 10.39 | 28.02 | 12.71 | 38.41 | 23.10 | 62.96 | 52.96 | -24.54 | -29.85 |
| 3 | 0.26719 | 10.40 | 21.34 | 7.15 | 31.74 | 17.55 | 61.20 | 51.20 | -29.46 | -33.65 |
| 4 | 0.36875 | 10.42 | 15.13 | 2.29 | 25.55 | 12.71 | 58.53 | 48.53 | -32.98 | -35.82 |
| 5 | 3.25000 | 10.59 | 10.02 | 4.20 | 20.61 | 14.79 | 56.00 | 46.00 | -35.39 | -31.21 |
| 6 | 9.93359 | 10.92 | 13.63 | 9.22 | 24.55 | 20.14 | 60.00 | 50.00 | -35.45 | -29.86 |

**Remarks:**

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



## 4.3 Transmit Power Measurment

### 4.3.1 Limits of Transmit Power Measurement

| Operation Band | EUT Category | | LIMIT |
|---|---|---|---|
| U-NII-1 | | Outdoor Access Point | 1 Watt (30 dBm)<br>(Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon) |
| | | Fixed point-to-point Access Point | 1 Watt (30 dBm) |
| | | Indoor Access Point | 1 Watt (30 dBm) |
| | | Mobile and Portable client device | 250mW (24 dBm) |
| U-NII-2A | √ | | 250mW (24 dBm) or 11 dBm+10 log B* |
| U-NII-2C | √ | | 250mW (24 dBm) or 11 dBm+10 log B* |
| U-NII-3 | | | 1 Watt (30 dBm) |

*B is the 26 dB emission bandwidth in megahertz

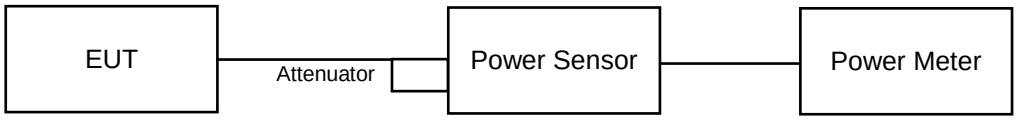
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any $N_{ANT}$;
Array Gain = 5 log($N_{ANT}/N_{SS}$) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

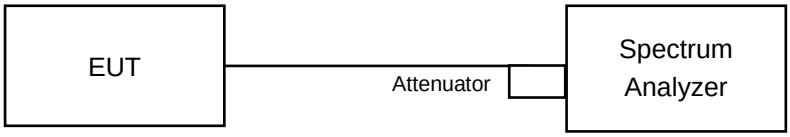
For power measurements on all other devices: Array Gain = 10 log($N_{ANT}/N_{SS}$) dB.

4.3.2 Test Setup

**FOR POWER OUTPUT MEASUREMENT**




**FOR 26dB OCCUPIED BANDWIDTH**




4.3.3 Test Instruments

**FOR POWER OUTPUT MEASUREMENT**

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|---|---|---|---|---|
| Power meter Anritsu | ML2495A | 1014008 | Apr. 28, 2015 | Apr. 27, 2016 |
| Power sensor Anritsu | MA2411B | 0917122 | Apr. 28, 2015 | Apr. 27, 2016 |

**NOTE:** 1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: Dec. 29, 2015

**FOR 26dB OCCUPIED BANDWIDTH**

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|---|---|---|---|---|
| SPECTRUM ANALYZER R&S | FSP40 | 100060 | May 08, 2015 | May 07, 2016 |

**NOTE:** 1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: Dec. 29, 2015

### 4.3.4 Test Procedure

**FOR AVERAGE POWER MEASUREMENT**

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter with average sensor is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

**FOR 26dB OCCUPIED BANDWIDTH**

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. 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%.

### 4.3.5 Deviation from Test Standard

No deviation.

### 4.3.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Result

**CDD Mode**

**POWER OUTPUT:**

| Chan. | Chan. Freq. (MHz) | Maximum Conducted Power (dBm) | | | | Total Power (mW) | Total Power (dBm) | Limit (dBm) | Pass / Fail |
|---|---|---|---|---|---|---|---|---|---|
| | | Chain 0 | Chain 1 | Chain 2 | Chain 3 | | | | |
| **802.11a** | | | | | | | | | |
| 52 | 5260 | 18.22 | 18.21 | 17.46 | 17.56 | 245.331 | 23.90 | 24 | PASS |
| 60 | 5300 | 17.92 | 17.98 | 17.50 | 17.39 | 235.812 | 23.73 | 24 | PASS |
| 64 | 5320 | 18.11 | 18.27 | 17.66 | 17.63 | 248.145 | 23.95 | 24 | PASS |
| 100 | 5500 | 17.88 | 17.85 | 17.65 | 17.57 | 237.688 | 23.76 | 24 | PASS |
| 116 | 5580 | 17.95 | 17.65 | 18.24 | 17.32 | 241.215 | 23.82 | 24 | PASS |
| 140 | 5700 | 17.44 | 17.55 | 18.39 | 17.65 | 239.582 | 23.79 | 24 | PASS |
| **802.11ac (VHT20)** | | | | | | | | | |
| 52 | 5260 | 18.00 | 18.14 | 17.58 | 17.76 | 245.243 | 23.90 | 24 | PASS |
| 60 | 5300 | 18.10 | 17.92 | 17.64 | 17.81 | 244.98 | 23.89 | 24 | PASS |
| 64 | 5320 | 17.95 | 18.22 | 17.44 | 17.76 | 243.914 | 23.87 | 24 | PASS |
| 100 | 5500 | 17.81 | 17.96 | 17.65 | 17.54 | 237.876 | 23.76 | 24 | PASS |
| 116 | 5580 | 18.25 | 17.54 | 18.10 | 17.42 | 243.361 | 23.86 | 24 | PASS |
| 140 | 5700 | 17.56 | 18.07 | 17.72 | 17.30 | 233.996 | 23.69 | 24 | PASS |
| **802.11ac (VHT40)** | | | | | | | | | |
| 54 | 5270 | 18.20 | 18.16 | 17.43 | 17.71 | 245.888 | 23.91 | 24 | PASS |
| 62 | 5310 | 18.15 | 17.94 | 17.15 | 17.50 | 235.657 | 23.72 | 24 | PASS |
| 102 | 5510 | 17.91 | 17.86 | 17.74 | 17.77 | 242.166 | 23.84 | 24 | PASS |
| 110 | 5550 | 17.66 | 18.00 | 17.85 | 17.18 | 234.635 | 23.70 | 24 | PASS |
| 134 | 5670 | 17.91 | 17.76 | 18.53 | 17.54 | 249.545 | 23.97 | 24 | PASS |
| **802.11ac (VHT80)** | | | | | | | | | |
| 58 | 5290 | 18.04 | 18.08 | 17.34 | 17.44 | 237.612 | 23.76 | 24 | PASS |
| 106 | 5530 | 18.14 | 17.69 | 17.77 | 17.76 | 243.457 | 23.86 | 24 | PASS |
| 122 | 5610 | 18.15 | 17.54 | 17.75 | 17.65 | 239.843 | 23.80 | 24 | PASS |

## 26dB BANDWIDTH:

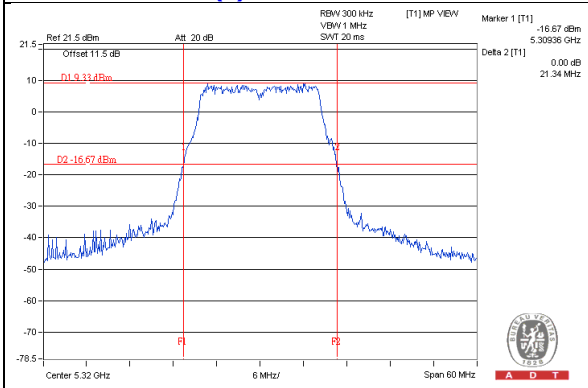
| Channel | Channel Frequency (MHz) | 26dBc Bandwidth (MHz) | | | |
|---|---|---|---|---|---|
| | | Chain 0 | Chain 1 | Chain 2 | Chain 3 |
| **802.11a** | | | | | |
| 52 | 5260 | 21.74 | 21.67 | 21.73 | 21.69 |
| 60 | 5300 | 21.65 | 21.68 | 21.67 | 21.76 |
| 64 | 5320 | 21.69 | 21.70 | 21.34 | 21.69 |
| 100 | 5500 | 21.57 | 21.55 | 21.55 | 21.52 |
| 116 | 5580 | 21.68 | 21.91 | 21.55 | 21.61 |
| 140 | 5700 | 21.66 | 21.74 | 21.55 | 21.58 |
| **802.11ac (VHT20)** | | | | | |
| 52 | 5260 | 21.88 | 21.77 | 21.83 | 21.74 |
| 60 | 5300 | 21.97 | 21.94 | 21.87 | 21.89 |
| 64 | 5320 | 21.88 | 21.82 | 21.75 | 21.74 |
| 100 | 5500 | 21.89 | 21.68 | 21.67 | 21.64 |
| 116 | 5580 | 22.13 | 21.42 | 21.50 | 21.70 |
| 140 | 5700 | 22.07 | 21.71 | 21.83 | 21.73 |
| **802.11ac (VHT40)** | | | | | |
| 54 | 5270 | 41.31 | 41.40 | 41.39 | 41.31 |
| 62 | 5310 | 41.13 | 41.35 | 41.42 | 41.39 |
| 102 | 5510 | 41.07 | 41.48 | 41.12 | 41.11 |
| 110 | 5550 | 41.76 | 41.30 | 41.24 | 41.42 |
| 134 | 5670 | 41.90 | 41.41 | 41.33 | 41.43 |
| **802.11ac (VHT80)** | | | | | |
| 58 | 5290 | 82.10 | 82.12 | 81.86 | 82.11 |
| 106 | 5530 | 81.82 | 81.79 | 81.57 | 81.75 |
| 122 | 5610 | 82.36 | 82.00 | 82.21 | 81.91 |

**Note: For FCC output power limitation is determined based on 26dB bandwidth.**

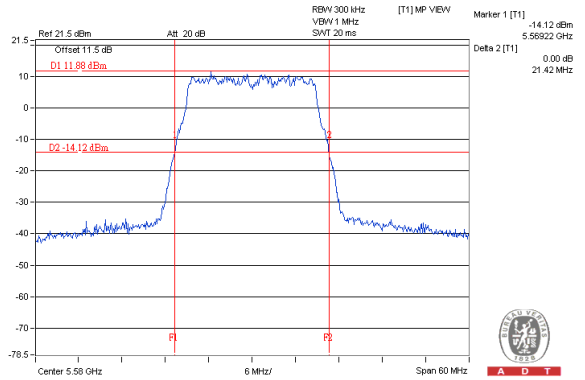
| Power Limit = 11dBm + 10logB < UNII Band 2A~2C> | | | |
|---|---|---|---|
| Channel Number | Freq.(MHz) | Min. B (MHz) | Determined Conducted Limit (dBm) |
| **802.11a** | | | |
| 52 | 5260 | 21.67 | 24.35 > 24 |
| 60 | 5300 | 21.65 | 24.35 > 24 |
| 64 | 5320 | 21.34 | 24.29 > 24 |
| 100 | 5500 | 21.52 | 24.32 > 24 |
| 116 | 5580 | 21.55 | 24.33 > 24 |
| 140 | 5700 | 21.55 | 24.33 > 24 |
| **802.11ac (VHT20)** | | | |
| 52 | 5260 | 21.74 | 24.37 > 24 |
| 60 | 5300 | 21.87 | 24.39 > 24 |
| 64 | 5320 | 21.74 | 24.37 > 24 |
| 100 | 5500 | 21.64 | 24.35 > 24 |
| 116 | 5580 | 21.42 | 24.3 > 24 |
| 140 | 5700 | 21.71 | 24.37 > 24 |
| **802.11ac (VHT40)** | | | |
| 54 | 5270 | 41.31 | 27.16 > 24 |
| 62 | 5310 | 41.13 | 27.14 > 24 |
| 102 | 5510 | 41.07 | 27.13 > 24 |
| 110 | 5550 | 41.24 | 27.15 > 24 |
| 134 | 5670 | 41.33 | 27.16 > 24 |
| **802.11ac (VHT80)** | | | |
| 58 | 5290 | 81.86 | 30.13 > 24 |
| 106 | 5530 | 81.57 | 30.11 > 24 |
| 122 | 5610 | 81.91 | 30.13 > 24 |

## SPECTRUM PLOT OF WORST VALUE

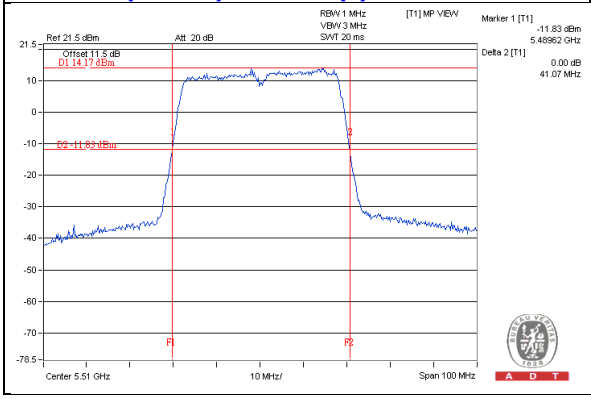
### 802.11a – Chain (2): CH 64



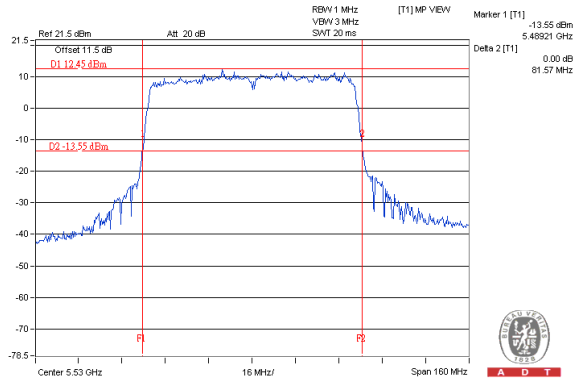

### 802.11ac (VHT20) – Chain (1): CH 116




### 802.11ac (VHT40) – Chain (0): CH 102




### 802.11ac (VHT80) – Chain (2): CH 106



**Beamforming Mode**

**POWER OUTPUT:**

| Chan. | Chan. Freq. (MHz) | Maximum Conducted Power (dBm) | | | | Total Power (mW) | Total Power (dBm) | Limit (dBm) | Pass / Fail |
|---|---|---|---|---|---|---|---|---|---|
| | | Chain 0 | Chain 1 | Chain 2 | Chain 3 | | | | |
| **802.11ac (VHT20)** | | | | | | | | | |
| 52 | 5260 | 18.00 | 18.14 | 17.58 | 17.76 | 245.243 | 23.90 | 24 | PASS |
| 60 | 5300 | 18.10 | 17.92 | 17.64 | 17.81 | 244.98 | 23.89 | 24 | PASS |
| 64 | 5320 | 17.95 | 18.22 | 17.44 | 17.76 | 243.914 | 23.87 | 24 | PASS |
| 100 | 5500 | 17.81 | 17.96 | 17.65 | 17.54 | 237.876 | 23.76 | 23.77 | PASS |
| 116 | 5580 | 18.04 | 17.38 | 17.96 | 17.24 | 233.865 | 23.69 | 23.77 | PASS |
| 140 | 5700 | 17.56 | 18.07 | 17.72 | 17.30 | 233.996 | 23.69 | 23.77 | PASS |
| **802.11ac (VHT40)** | | | | | | | | | |
| 54 | 5270 | 18.20 | 18.16 | 17.43 | 17.71 | 245.888 | 23.91 | 24 | PASS |
| 62 | 5310 | 18.15 | 17.94 | 17.15 | 17.50 | 235.657 | 23.72 | 24 | PASS |
| 102 | 5510 | 17.75 | 17.66 | 17.54 | 17.60 | 232.209 | 23.66 | 23.77 | PASS |
| 110 | 5550 | 17.66 | 18.00 | 17.85 | 17.18 | 234.635 | 23.70 | 23.77 | PASS |
| 134 | 5670 | 17.76 | 17.58 | 18.33 | 17.23 | 237.906 | 23.76 | 23.77 | PASS |
| **802.11ac (VHT80)** | | | | | | | | | |
| 58 | 5290 | 18.04 | 18.08 | 17.34 | 17.44 | 237.612 | 23.76 | 24 | PASS |
| 106 | 5530 | 17.95 | 17.56 | 17.42 | 17.58 | 231.877 | 23.65 | 23.77 | PASS |
| 122 | 5610 | 17.96 | 17.58 | 17.50 | 17.36 | 230.481 | 23.63 | 23.77 | PASS |

Note: 1. For U-NII-2A band: Directional gain = -1.38dBi + 10log(4) = 4.64dBi < 6dBi, so the power limit shall not be reduced.

2. For U-NII-2C band : Directional gain = 6.23dBi > 6dBi, so the power limit shall be reduced to "Determined Conducted Limit-(6.23-6)"

## 26dB BANDWIDTH:

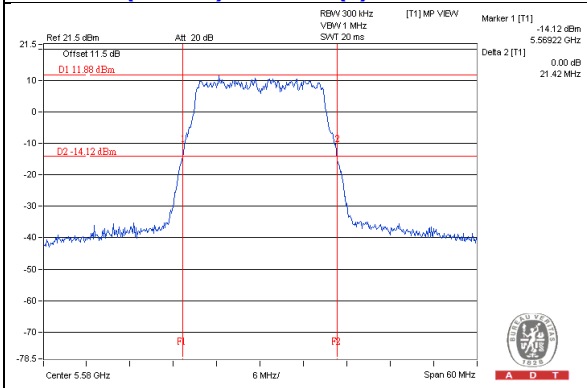
| Channel | Channel Frequency (MHz) | 26dBc Bandwidth (MHz) | | | |
|---|---|---|---|---|---|
| | | Chain 0 | Chain 1 | Chain 2 | Chain 3 |
| **802.11ac (VHT20)** | | | | | |
| 52 | 5260 | 21.88 | 21.77 | 21.83 | 21.74 |
| 60 | 5300 | 21.97 | 21.94 | 21.87 | 21.89 |
| 64 | 5320 | 21.88 | 21.82 | 21.75 | 21.74 |
| 100 | 5500 | 21.89 | 21.68 | 21.67 | 21.64 |
| 116 | 5580 | 22.13 | 21.42 | 21.50 | 21.70 |
| 140 | 5700 | 22.07 | 21.71 | 21.83 | 21.73 |
| **802.11ac (VHT40)** | | | | | |
| 54 | 5270 | 41.31 | 41.40 | 41.39 | 41.31 |
| 62 | 5310 | 41.13 | 41.35 | 41.42 | 41.39 |
| 102 | 5510 | 41.07 | 41.48 | 41.12 | 41.11 |
| 110 | 5550 | 41.76 | 41.30 | 41.24 | 41.42 |
| 134 | 5670 | 41.90 | 41.41 | 41.33 | 41.43 |
| **802.11ac (VHT80)** | | | | | |
| 58 | 5290 | 82.10 | 82.12 | 81.86 | 82.11 |
| 106 | 5530 | 81.82 | 81.79 | 81.57 | 81.75 |
| 122 | 5610 | 82.36 | 82.00 | 82.21 | 81.91 |

**Note: For FCC output power limitation is determined based on 26dB bandwidth.**

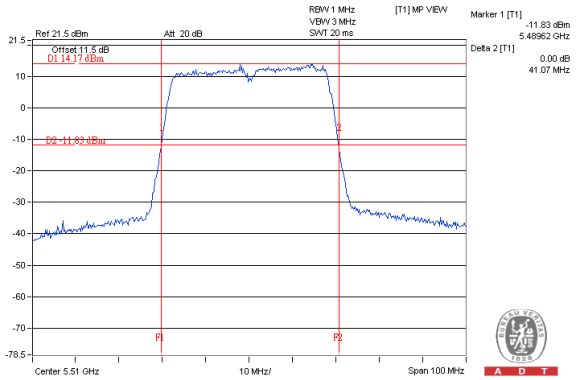
| Power Limit = 11dBm + 10logB < UNII Band 2A~2C> | | | |
|---|---|---|---|
| Channel Number | Freq.(MHz) | Min. B (MHz) | Determined Conducted Limit (dBm) |
| **802.11ac (VHT20)** | | | |
| 52 | 5260 | 21.74 | 24.37 > 24 |
| 60 | 5300 | 21.87 | 24.39 > 24 |
| 64 | 5320 | 21.74 | 24.37 > 24 |
| 100 | 5500 | 21.64 | 24.35 > 24 |
| 116 | 5580 | 21.42 | 24.3 > 24 |
| 140 | 5700 | 21.71 | 24.37 > 24 |
| **802.11ac (VHT40)** | | | |
| 54 | 5270 | 41.31 | 27.16 > 24 |
| 62 | 5310 | 41.13 | 27.14 > 24 |
| 102 | 5510 | 41.07 | 27.13 > 24 |
| 110 | 5550 | 41.24 | 27.15 > 24 |
| 134 | 5670 | 41.33 | 27.16 > 24 |
| **802.11ac (VHT80)** | | | |
| 58 | 5290 | 81.86 | 30.13 > 24 |
| 106 | 5530 | 81.57 | 30.11 > 24 |
| 122 | 5610 | 81.91 | 30.13 > 24 |

## SPECTRUM PLOT OF WORST VALUE

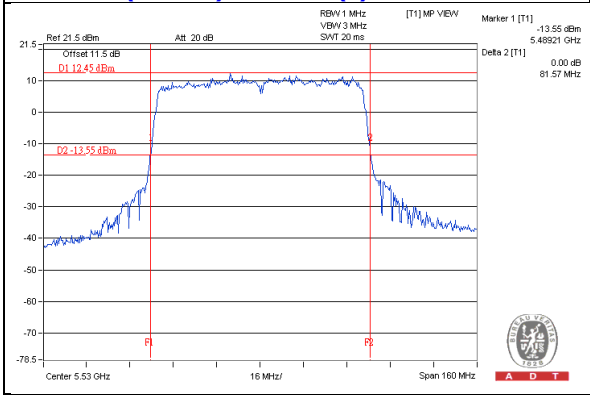
### 802.11ac (VHT20) – Chain (1): CH 116




### 802.11ac (VHT40) – Chain (0): CH 102




### 802.11ac (VHT80) – Chain (2): CH 106

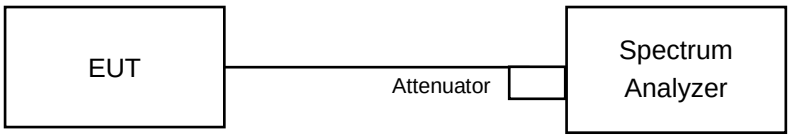


## 4.4 Peak Power Spectral Density Measurement

### 4.4.1 Limits of Peak Power Spectral Density Measurement

| Operation Band | EUT Category | | LIMIT |
|---|---|---|---|
| U-NII-1 | | Outdoor Access Point | 17dBm/ MHz |
| | | Fixed point-to-point Access Point | |
| | | Indoor Access Point | |
| | | Mobile and Portable client device | 11dBm/ MHz |
| U-NII-2A | √ | | 11dBm/ MHz |
| U-NII-2C | √ | | 11dBm/ MHz |
| U-NII-3 | | | 30dBm/ 500kHz |

### 4.4.2 Test Setup




### 4.4.3 Test Instruments

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|---|---|---|---|---|
| SPECTRUM ANALYZER R&S | FSP40 | 100060 | May 08, 2015 | May 07, 2016 |

**NOTE:** 1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: Dec. 29, 2015

4.4.4 Test Procedure

**For 802.11a, 802.11ac (VHT20) & 802.11ac (VHT40)**

**Using method SA-1**

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to “free run”.
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value

**For 802.11ac (VHT80)**

**Using method SA-2**

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to “free run”.
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value and add 10 log (1/duty cycle)

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Condition

Same as Item 4.3.6.

4.4.7 Test Results

**CDD Mode**

| Chan. | Chan. Freq. (MHz) | PSD (dBm/MHz) | | | | Total Power Density (dBm/MHz) | MAX. Limit (dBm/MHz) | Pass / Fail |
|---|---|---|---|---|---|---|---|---|
| | | Chain 0 | Chain 1 | Chain 2 | Chain 3 | | | |
| **802.11a** | | | | | | | | |
| 52 | 5260 | 5.02 | 5.08 | 4.28 | 4.27 | 10.70 | 11 | Pass |
| 60 | 5300 | 4.87 | 4.95 | 4.19 | 4.54 | 10.67 | 11 | Pass |
| 64 | 5320 | 5.20 | 5.23 | 4.29 | 4.55 | 10.86 | 11 | Pass |
| 100 | 5500 | 4.23 | 3.59 | 5.00 | 4.65 | 10.42 | 10.77 | Pass |
| 116 | 5580 | 5.98 | 4.29 | 4.92 | 3.28 | 10.75 | 10.77 | Pass |
| 140 | 5700 | 3.96 | 2.99 | 3.94 | 4.90 | 10.02 | 10.77 | Pass |
| **802.11ac (VHT20)** | | | | | | | | |
| 52 | 5260 | 4.40 | 4.61 | 4.49 | 4.14 | 10.43 | 11 | Pass |
| 60 | 5300 | 4.69 | 4.90 | 4.38 | 4.19 | 10.57 | 11 | Pass |
| 64 | 5320 | 4.16 | 4.98 | 4.21 | 4.15 | 10.41 | 11 | Pass |
| 100 | 5500 | 4.19 | 4.24 | 4.52 | 4.32 | 10.34 | 10.77 | Pass |
| 116 | 5580 | 4.69 | 4.97 | 5.71 | 2.37 | 10.62 | 10.77 | Pass |
| 140 | 5700 | 3.18 | 4.39 | 2.86 | 2.73 | 9.36 | 10.77 | Pass |
| **802.11ac (VHT40)** | | | | | | | | |
| 54 | 5270 | 1.38 | 1.40 | 1.37 | 1.36 | 7.40 | 11 | Pass |
| 62 | 5310 | 1.11 | 1.29 | 1.07 | 1.03 | 7.15 | 11 | Pass |
| 102 | 5510 | 1.18 | 1.16 | 1.12 | 1.20 | 7.19 | 10.77 | Pass |
| 110 | 5550 | 0.85 | 1.33 | 1.39 | 0.52 | 7.06 | 10.77 | Pass |
| 134 | 5670 | 1.17 | 0.76 | 1.37 | 0.77 | 7.05 | 10.77 | Pass |

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. For U-NII-2A band: Directional gain = -1.38dBi + 10log(4) = 4.64dBi < 6dBi , so the power density limit shall not be reduced.

3. For U-NII-2C band: Directional gain = 6.23dBi > 6dBi , so the power density limit shall be reduced to 11-(6.23-6) = 10.77dBm.

| Chan. | Chan. Freq. (MHz) | PSD w/o duty factor (dBm/MHz) | | | | Duty Factor (dB) | Total PSD with Duty Factor (dBm/MHz) | MAX. Limit (dBm/MHz) | Pass / Fail |
|---|---|---|---|---|---|---|---|---|---|
| | | Chain 0 | Chain 1 | Chain 2 | Chain 3 | | | | |
| **802.11ac (VHT80)** | | | | | | | | | |
| 58 | 5290 | -1.68 | -1.61 | -2.13 | -2.26 | 0.21 | 4.32 | 11 | Pass |
| 106 | 5530 | -0.05 | -0.04 | -0.20 | -0.12 | 0.21 | 6.13 | 10.77 | Pass |
| 122 | 5610 | -0.18 | -0.12 | -0.20 | -0.19 | 0.21 | 6.06 | 10.77 | Pass |

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

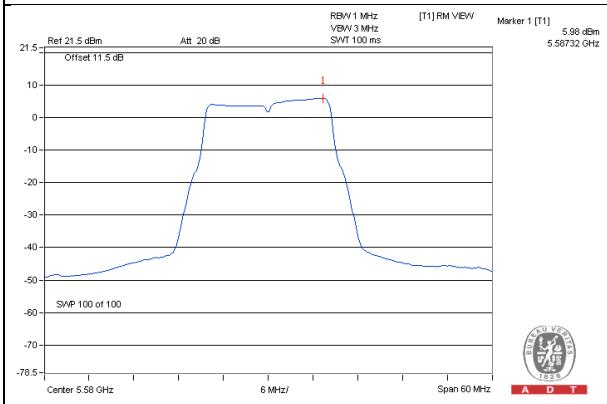
2. For U-NII-2A band: Directional gain = -1.38dBi + 10log(4) = 4.64dBi < 6dBi , so the power density limit shall not be reduced.

3. For U-NII-2C band: Directional gain = 6.23dBi > 6dBi , so the power density limit shall be reduced to 11-(6.23-6) = 10.77dBm.

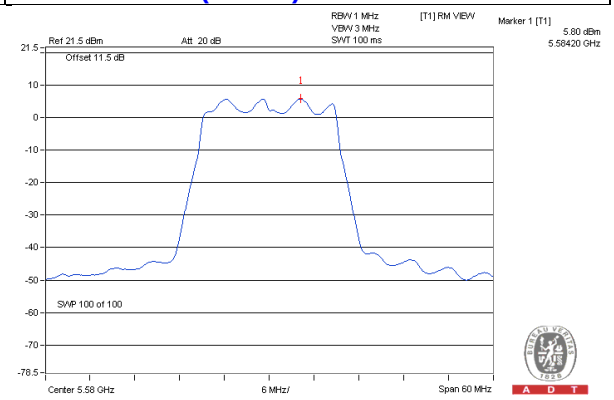
4. Refer to section 3.3 for duty cycle spectrum plot.

**SPECTRUM PLOT OF WORST VALUE**

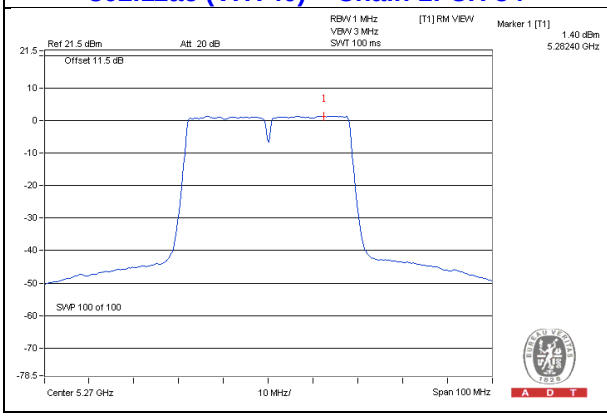
**802.11a – Chain 0: CH 116**



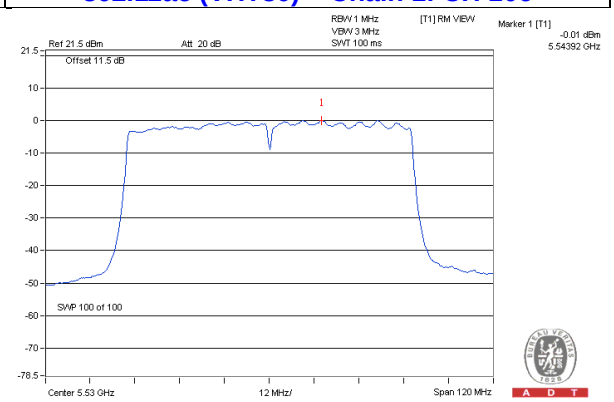

**802.11ac (VHT20) – Chain 2: CH 116**




**802.11ac (VHT40) – Chain 1: CH 54**




**802.11ac (VHT80) – Chain 1: CH 106**

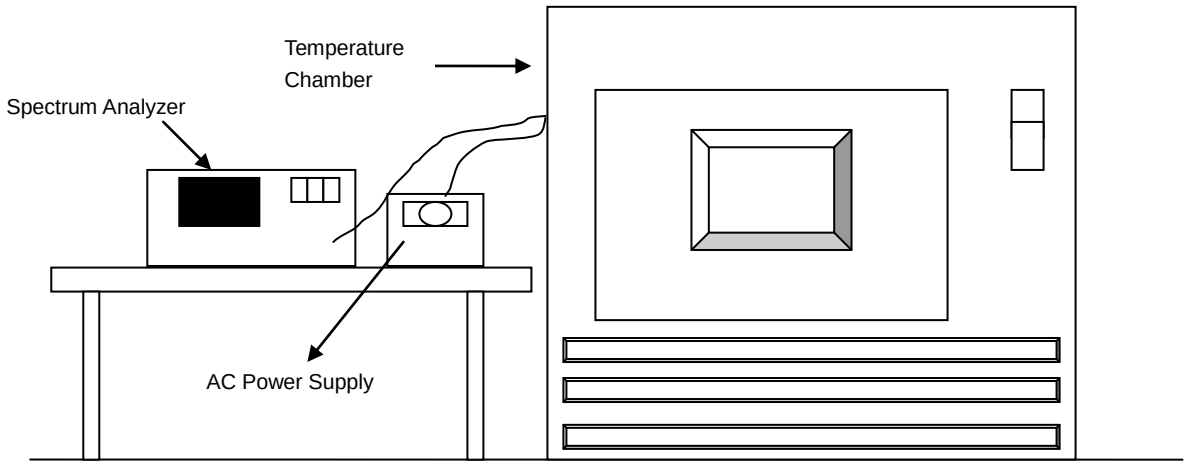


## 4.5 Frequency Stability Measurement

4.5.1 Limits of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation

4.5.2 Test Setup




4.5.3 Test Instruments

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|---|---|---|---|---|
| SPECTRUM ANALYZER R&S | FSP40 | 100060 | May 08, 2015 | May 07, 2016 |
| AC Power Source Extech Electronics | 6502 | 1140503 | NA | NA |
| Temperature & Humidity Chamber GIANTFORCE | GTH-150-40-SP-AR | MAA0812-008 | Jan. 12, 2015 | Jan. 11, 2016 |
| Digital Multimeter FLUKE | 87III | 73680266 | Nov. 10, 2015 | Nov. 09, 2016 |

**NOTE:** 1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: Dec. 29, 2015

4.5.4 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
b. Turn the EUT on and couple its output to a spectrum analyzer.
c. Turn the EUT off and set the chamber to the highest temperature specified.
d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

### 4.5.5 Deviation from Test Standard

No deviation.

### 4.5.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

4.5.7 Test Results

| FREQUEMCY STABILITY VERSUS TEMP. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| OPERATING FREQUENCY: 5260MHz | | | | | | | | | |
| TEMP. (℃) | POWER SUPPLY (Vac) | 0 MINUTE | | 2 MINUTE | | 5 MINUTE | | 10 MINUTE | |
| | | Measured Frequency (MHz) | Frequency Drift (%) | Measured Frequency (MHz) | Frequency Drift (%) | Measured Frequency (MHz) | Frequency Drift (%) | Measured Frequency (MHz) | Frequency Drift (%) |
| 50 | 120 | 5260.009 | 0.00017 | 5260.0095 | 0.00018 | 5260.0076 | 0.00014 | 5260.0078 | 0.00015 |
| 40 | 120 | 5259.9889 | -0.00021 | 5259.9896 | -0.00020 | 5259.9881 | -0.00023 | 5259.9905 | -0.00018 |
| 30 | 120 | 5260.0093 | 0.00018 | 5260.0081 | 0.00015 | 5260.0109 | 0.00021 | 5260.0114 | 0.00022 |
| 20 | 120 | 5260.0148 | 0.00028 | 5260.0149 | 0.00028 | 5260.0132 | 0.00025 | 5260.0139 | 0.00026 |
| 10 | 120 | 5260.0023 | 0.00004 | 5260.0022 | 0.00004 | 5260.0049 | 0.00009 | 5260.0036 | 0.00007 |
| 0 | 120 | 5259.9908 | -0.00017 | 5259.994 | -0.00011 | 5259.9924 | -0.00014 | 5259.994 | -0.00011 |
| -10 | 120 | 5260.0148 | 0.00028 | 5260.0166 | 0.00032 | 5260.0126 | 0.00024 | 5260.0163 | 0.00031 |
| -20 | 120 | 5260.0211 | 0.00040 | 5260.0166 | 0.00032 | 5260.0166 | 0.00032 | 5260.0172 | 0.00033 |
| -30 | 120 | 5259.9776 | -0.00043 | 5259.9791 | -0.00040 | 5259.9768 | -0.00044 | 5259.9751 | -0.00047 |

| FREQUEMCY STABILITY VERSUS VOLTAGE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| OPERATING FREQUENCY: 5260MHz | | | | | | | | | |
| TEMP. (℃) | POWER SUPPLY (Vac) | 0 MINUTE | | 2 MINUTE | | 5 MINUTE | | 10 MINUTE | |
| | | Measured Frequency (MHz) | Frequency Drift (%) | Measured Frequency (MHz) | Frequency Drift (%) | Measured Frequency (MHz) | Frequency Drift (%) | Measured Frequency (MHz) | Frequency Drift (%) |
| 20 | 138 | 5260.0155 | 0.00029 | 5260.0146 | 0.00028 | 5260.0139 | 0.00026 | 5260.0133 | 0.00025 |
| | 120 | 5260.0148 | 0.00028 | 5260.0149 | 0.00028 | 5260.0132 | 0.00025 | 5260.0139 | 0.00026 |
| | 102 | 5260.0147 | 0.00028 | 5260.0159 | 0.00030 | 5260.0124 | 0.00024 | 5260.0147 | 0.00028 |

## 5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

**Appendix – Information on the Testing Laboratories**

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:


**Linko EMC/RF Lab**
Tel: 886-2-26052180
Fax: 886-2-26051924

**Hsin Chu EMC/RF Lab/Telecom Lab**
Tel: 886-3-6668565
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**Hwa Ya EMC/RF/Safety**
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**Web Site:** www.bureauveritas-adt.com


The address and road map of all our labs can be found in our web site also.

**--- END ---**