# RF
## TEST REPORT

**Report No.** : 150108020SZN-003

**Model No.** : WS880

**Issued Date** : 2 February 2015

**Applicant:** Huawei Technologies Co.,Ltd
Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.China

**Test Method/ Standard:** FCC Part 15 Subpart E, KDB 789033 D02 General UNII Test Procedures New Rules v01, KDB 662911 D01 Multiple Transmitter Output v02r01, ANSI C63.4 2009.

**Note:** N/A

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# Table of Contents

**Summary of Tests**

| FCC Parts | Test | Section | Results |
|---|---|---|---|
| 15.203 | Antenna Requirement | 1.3 | Pass |
| 15.407 a (1)/(3) | Maximum output power test | 3 | Pass |
| 15.407 a (1)/(3) | Power Spectrum Density test | 4 | Pass |
| 15.407 e | Minimum 6 dB RF Bandwidth and 99% Occupied Bandwidth and 26dB down Emission Bandwidth | 5 | Pass |
| 15.407 b, 15.205, 15.209 | Radiated spurious emission test | 6 | Pass |
| 15.207 | AC line conducted emission test | 7 | Pass |
| 15.407 g | Frequency Stability | 8 | Pass |

## 1. General information

### 1.1 Identification of the EUT

| | |
|---|---|
| Product: | 802.11ac Wireless Router |
| Model No.: | WS880 |
| Type of Device: | Master device |
| Nominal Channel Bandwidth: | 802.11a/n-HT20 (20 MHz), 802.11n-HT40 (40MHz), 802.11ac (80MHz) |
| Operating Frequency: | 1. 5180 MHz ~ 5240 MHz<br>2. 5745 MHz ~ 5825 MHz |
| Channel Number: | 1.1 4 channels for 5180 MHz ~ 5240 MHz for 802.11a/n-HT20<br>1.2 2 channels for 5190 MHz ~ 5230 MHz for 802.11n-HT40<br>1.3 1 channels for 5210 MHz for 802.11ac<br>2.1 5 channels for 5745 MHz ~ 5825 MHz for 802.11a/n-HT20<br>2.2 2 channels for 5755 MHz ~ 5795 MHz for 802.11n-HT40<br>2.3 1 channels for 5775 MHz for 802.11ac |
| Rated Power: | 12Vdc, 3A from adapter (Model No.: HW-120300U6W),<br>Input: 100-240Vac, 50/60Hz, Output: 12Vdc, 3A |
| Data Cable: | N/A |
| Sample Received: | 8 January 2015 |
| Test Date(s): | 8 January 2015 to 20 January 2015 |
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| Note 2: | When determining the test conclusion, the Measurement Uncertainty of test has been considered. |

## 1.2 Additional information about the EUT

The EUT is an 802.11ac Wireless Router, the device is a WIFI product with 3 Antenna. when product operates on SISO mode 802.11a/n-HT20/40/ac mode (5.2/5.8G band), only one Ant0 is used for transmission. when product operates on MIMO mode (2Tx) can form 3 MIMO mode (Ant0+Ant1 or Ant1+Ant2 or Ant0+Ant2) under the 802.11n-HT20/40/ac, If the receiver sensitivity has meet internal limit valve, the antenna of EUT will auto transfer to the another antenna. when product operates on MIMO mode (3Tx) can form 1 MIMO mode (Ant0+Ant1+Ant2).

For more detail features, please refer to User's manual as file name "descri.pdf".

## 1.3 Antenna description (15.203)

The EUT uses Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

## 1.4 Peripherals equipment

| Description | Manufacturer | Model No. |
|---|---|---|
| Laptop | Lenovo | T420 |
| Hard Disk | Smart.drive | HD-003 |
| USB Cable | Smart.drive | Unshielded, Length 155cm |
| 1394 Cable | Smart.drive | Unshielded, Length 180cm |
| LAN Cable*5 | N/A | Unshielded, Length: 200cm |
| AC Adapter | Huawei | HW-120300U6W<br>Input:100-240V 50/60Hz<br>Output: 12Vdc, 3A |
| USB Disk | Sandisk | USB 3.0 / 16GB |
| Router*4 | TP-LINK | TL-MR11U |

Note: The Model: WS880 has two different AC/DC Adapters as its alternative power supply device.

Relevant tests with each adapter have already arranged and the worst case data is recorded in this report.

## 2. Test specifications

### 2.1 Test standard

The EUT was performed according to the procedures in FCC Part 15 E, Section15.203, 15.207, 15.209, 15.407 and ANSI C63.4/2009, method of measurement: reference to FCC 789033 D02 General UNII Test Procedures New Rules v01.

The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of this frequency band was all meet limit requirement, thus we evaluate the EUT pass the specified test.

The AC power conducted emissions was invested over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz (15.207 paragraph).

Radiated emissions were invested cover the frequency range from 9KHz to 30MHz using a receiver RBW of 9kHz, from 30 MHz to 1000 MHz using a receiver RBW of 120 kHz record QP reading, and the frequency over 1 GHz using a spectrum analyzer RBW of 1 MHz, VBW of 3MHz, Detector=Peak record for Peak reading, RBW of 1 MHz, VBW of 3MHz, Detector=RMS record for Average reading recorded on the report.

The EUT setup configurations please refer to the photo of radiated setup photos.pdf & conducted setup photos.pdf.

## 2.2 Operation mode

The EUT was supplied by adapter with 12Vdc, 3A (AC/DC Adapter rating: Input: 100-240Vac, 50-60Hz, Output: 12Vdc, 3A) and it was run in TX mode that was controlled by client provided RF testing program.

The EUT was transmitted continuously during the test.

With individual verifying, the maximum output power was found at 6 Mbps data rate for 802.11a mode, 6.5 Mbps data rate for 802.11n-HT20 mode, 13.5 Mbps data rate for 802.11n-HT40 mode, 29.3Mbps data rate for 802.11ac. The final tests were executed under these conditions and recorded in this report individually.

**Table for Parameters of Test Software Setting**

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

### Power Parameters of 802.11a/n/ac

| 5.2G band Modem | Software Power Setting | | |
|---|---|---|---|
| | 5180 MHz | 5200 MHz | 5240 MHz |
| 802.11a | 10.0 | 10.0 | 10.0 |
| 802.11n-HT20 | 5180 MHz | 5200 MHz | 5240 MHz |
| | 10.0 | 10.0 | 10.0 |
| 802.11n-HT40 | 5190 MHz | 5230 MHz | - |
| | 10.0 | 10.0 | - |
| 802.11ac | 5210MHz | - | - |
| | 10.0 | - | - |
| 5.8G band Modem | Software Power Setting | | |
| | 5745 MHz | 5785 MHz | 5825 MHz |
| 802.11a | 10.0 | 10.0 | 10.0 |
| 802.11n-HT20 | 5745 MHz | 5785 MHz | 5825 MHz |
| | 10.0 | 10.0 | 10.0 |
| 802.11n-HT40 | 5755 MHz | 5795 MHz | - |
| | 10.0 | 10.0 | - |
| 802.11ac | 5775 MHz | - | - |
| | 10.0 | - | - |

## 3. Maximum Output Power test (FCC 15.407)

### 3.1 Operating environment

Temperature:            25     ℃
Relative Humidity:      50     %
Atmospheric Pressure:   1023   hPa

### 3.2 Test setup & procedure

The power output per FCC §15.407(a) was measured on the EUT using a 50 ohm SMA cable connected to Power Meter and the measurement method refer to 789033 D02 General UNII Test Procedures New Rules v01. Power was read directly and cable loss correction (0.5dB) was added to the reading to obtain power at the EUT antenna terminals.

### 3.3 Limit

| Operating Frequency (MHz) | Max Conducted TX Power | Max EIRP |
|---|---|---|
| 5150~5250 | $*_1$30dBm (1W) for master device | $*_2$4W (36dBm) with 6dBi antenna |
| | 24dBm (250mW) for mobile/portable client device | |
| 5725~5850 | $*_1$30dBm (1W) for master device | $*_2$4W (36dBm) with 6dBi antenna |

Remark: $*_1$ The device declare as Master device.

$*_2$ 1).Tx Power Reduction (dBm-by-dBi) required when antenna excees 6dBi.

2). For MIMO system of 802.11n/ac, total power is calculated by combining the output power of each antenna according to KDB662911.

3). 5.2/5.8G band Ant0/1/2: 2dBi

4). In MIMO (2Tx), Ant0+Ant1 Directional gain = GANT + 10 log(N) dBi = 2 + 10 log(2) = 5.0dBi and the Ant1+Ant2, Ant0+Ant2 same as Ant0+Ant1.

5). In MIMO (3Tx), Ant0+Ant1+Ant2 Directional gain = GANT + 10 log(N) dBi = 2 + 10 log(3) = 6.8dBi so the conducted TX power limit will reduce to 29.2dBm and EIRP Power limit will reduce to 35.2dBm (3311.3mW) which according to KDB662911 and KDB 905462.

## 3.4 Measured data of Maximum Output Power test results

## 5150 MHz ~ 5250 MHz

## Max Conducted TX Power

SISO Mode, Ant0

| Mode | Channel | Data Rate (Mbps) | Output Power (dBm) | Limit (dBm) |
|---|---|---|---|---|
| 802.11a | 36 | 6 | 9.4 | 30 |
| | 40 | | 9.5 | 30 |
| | 48 | | 9.6 | 30 |
| 802.11n-HT20 | 36 | 6.5 | 9.5 | 30 |
| | 40 | | 9.5 | 30 |
| | 48 | | 9.6 | 30 |
| 802.11n-HT40 | 38 | 13.5 | 10.4 | 30 |
| | 46 | | 10.5 | 30 |
| 802.11ac | 42 | 29.3 | 10.4 | 30 |

MIMO Mode, 2Tx, Ant0+Ant1

| Mode | Channel | Data Rate (Mbps) | Output Power (dBm) | | | Limit (dBm) |
|---|---|---|---|---|---|---|
| | | | Ant0 | Ant1 | Total | |
| 802.11n-HT20 | 36 | 13 | 8.5 | 8.5 | 11.5 | 30 |
| | 40 | | 8.5 | 8.6 | 11.6 | 30 |
| | 48 | | 8.6 | 9.0 | 11.8 | 30 |
| 802.11n-HT40 | 38 | 27 | 8.4 | 8.4 | 11.4 | 30 |
| | 46 | | 8.3 | 8.7 | 11.5 | 30 |
| 802.11ac | 42 | 58.6 | 8.4 | 8.9 | 11.7 | 30 |

MIMO Mode, 2Tx, Ant0+Ant2

| Mode | Channel | Data Rate (Mbps) | Output Power (dBm) | | | Limit (dBm) |
|---|---|---|---|---|---|---|
| | | | Ant0 | Ant2 | Total | |
| 802.11n-HT20 | 36 | 13 | 8.5 | 9.9 | 12.3 | 30 |
| | 40 | | 8.5 | 10.3 | 12.5 | 30 |
| | 48 | | 8.6 | 9.8 | 12.3 | 30 |
| 802.11n-HT40 | 38 | 27 | 8.4 | 9.7 | 12.1 | 30 |
| | 46 | | 8.3 | 9.8 | 12.1 | 30 |
| 802.11ac | 42 | 58.6 | 8.4 | 10.2 | 12.4 | 30 |

MIMO Mode, 2Tx, Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | Output Power (dBm) | | | Limit (dBm) |
|---|---|---|---|---|---|---|
| | | | Ant1 | Ant2 | Total | |
| 802.11n-HT20 | 36 | 13 | 8.5 | 9.9 | 12.3 | 30 |
| | 40 | | 8.6 | 10.3 | 12.5 | 30 |
| | 48 | | 9.0 | 9.8 | 12.4 | 30 |
| 802.11n-HT40 | 38 | 27 | 8.4 | 9.7 | 12.1 | 30 |
| | 46 | | 8.7 | 9.8 | 12.3 | 30 |
| 802.11ac | 42 | 58.6 | 8.9 | 10.2 | 12.6 | 30 |

MIMO Mode, 3Tx, Ant0+Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | Output Power (dBm) | | | | Limit (dBm) |
|---|---|---|---|---|---|---|---|
| | | | Ant0 | Ant1 | Ant2 | Total | |
| 802.11n-HT20 | 36 | 19.5 | 8.9 | 8.9 | 10.6 | 14.3 | 29.2 |
| | 40 | | 8.4 | 8.8 | 10.3 | 14.0 | 29.2 |
| | 48 | | 8.6 | 8.7 | 10.1 | 14.0 | 29.2 |
| 802.11n-HT40 | 38 | 40.5 | 8.7 | 8.5 | 10.2 | 14.0 | 29.2 |
| | 46 | | 8.6 | 8.8 | 10.2 | 14.0 | 29.2 |
| 802.11ac | 42 | 87.9 | 9.0 | 9.0 | 10.5 | 14.3 | 29.2 |

Max EIRP

SISO Mode, Ant0

| Mode | Channel | Data Rate (Mbps) | Duty cycle | Output Power (dBm) | Gain (dBi) | E.I.R.P (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|
| 802.11a | 36 | 6 | 99% | 9.4 | 2 | 11.4 | 36 |
| | 40 | | | 9.5 | 2 | 11.5 | 36 |
| | 48 | | | 9.6 | 2 | 11.6 | 36 |
| 802.11n-HT20 | 36 | 6.5 | 99% | 9.5 | 2 | 11.5 | 36 |
| | 40 | | | 9.5 | 2 | 11.5 | 36 |
| | 48 | | | 9.6 | 2 | 11.6 | 36 |
| 802.11n-HT40 | 38 | 13.5 | 99% | 10.4 | 2 | 12.4 | 36 |
| | 46 | | | 10.5 | 2 | 12.5 | 36 |
| 802.11ac | 42 | 29.3 | 99% | 10.4 | 2 | 12.4 | 36 |

MIMO Mode, 2Tx, Ant0+Ant1

| Mode | Channel | Data Rate (Mbps) | Duty cycle | Output Power (dBm) | | | Gain (dBi) | E.I.R.P (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Ant0 | Ant1 | Total | | | |
| 802.11n-HT20 | 36 | 13 | 99% | 8.5 | 8.5 | 11.5 | 5.0 | 16.5 | 36 |
| | 40 | | | 8.5 | 8.6 | 11.6 | 5.0 | 16.6 | 36 |
| | 48 | | | 8.6 | 9.0 | 11.8 | 5.0 | 16.8 | 36 |
| 802.11n-HT40 | 38 | 27 | 99% | 8.4 | 8.4 | 11.4 | 5.0 | 16.4 | 36 |
| | 46 | | | 8.3 | 8.7 | 11.5 | 5.0 | 16.5 | 36 |
| 802.11ac | 42 | 58.6 | 99% | 8.4 | 8.9 | 11.7 | 5.0 | 16.7 | 36 |

MIMO Mode, 2Tx, Ant0+Ant2

| Mode | Channel | Data Rate (Mbps) | Duty cycle | Output Power (dBm) | | | Gain (dBi) | E.I.R.P (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Ant0 | Ant1 | Total | | | |
| 802.11n-HT20 | 36 | 13 | 99% | 8.5 | 9.9 | 12.3 | 5.0 | 17.3 | 36 |
| | 40 | | | 8.5 | 10.3 | 12.5 | 5.0 | 17.5 | 36 |
| | 48 | | | 8.6 | 9.8 | 12.3 | 5.0 | 17.3 | 36 |
| 802.11n-HT40 | 38 | 27 | 99% | 8.4 | 9.7 | 12.1 | 5.0 | 17.1 | 36 |
| | 46 | | | 8.3 | 9.8 | 12.1 | 5.0 | 17.1 | 36 |
| 802.11ac | 42 | 58.6 | 99% | 8.4 | 10.2 | 12.4 | 5.0 | 17.4 | 36 |

MIMO Mode, 2Tx, Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | Duty cycle | Output Power (dBm) | | | Gain (dBi) | E.I.R.P (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Ant0 | Ant1 | Total | | | |
| 802.11n-HT20 | 36 | 13 | 99% | 8.5 | 9.9 | 12.3 | 5.0 | 17.3 | 36 |
| | 40 | | | 8.6 | 10.3 | 12.5 | 5.0 | 17.5 | 36 |
| | 48 | | | 9.0 | 9.8 | 12.4 | 5.0 | 17.4 | 36 |
| 802.11n-HT40 | 38 | 27 | 99% | 8.4 | 9.7 | 12.1 | 5.0 | 17.1 | 36 |
| | 46 | | | 8.7 | 9.8 | 12.3 | 5.0 | 17.3 | 36 |
| 802.11ac | 42 | 58.6 | 99% | 8.9 | 10.2 | 12.6 | 5.0 | 17.5 | 36 |

MIMO Mode, 3Tx, Ant0+Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | Duty cycle | Output Power (dBm) | | | | Gain (dBi) | E.I.R.P (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ant0 | Ant1 | Ant2 | Total | | | |
| 802.11n-HT20 | 36 | 19.5 | 99% | 8.9 | 8.9 | 10.6 | 14.3 | 6.8 | 21.1 | 35.2 |
| | 40 | | | 8.4 | 8.8 | 10.3 | 14.0 | 6.8 | 20.8 | 35.2 |
| | 48 | | | 8.6 | 8.7 | 10.1 | 14.0 | 6.8 | 20.8 | 35.2 |
| 802.11n-HT40 | 38 | 40.5 | 99% | 8.7 | 8.5 | 10.2 | 14.0 | 6.8 | 20.8 | 35.2 |
| | 46 | | | 8.6 | 8.8 | 10.2 | 14.0 | 6.8 | 20.8 | 35.2 |
| 802.11ac | 42 | 87.9 | 99% | 9.0 | 9.0 | 10.5 | 14.3 | 6.8 | 21.1 | 35.2 |

**5725 MHz ~ 5850 MHz**

**Max Conducted TX Power**

SISO Mode, Ant0

| Mode | Channel | Data Rate (Mbps) | Output Power (dBm) | Limit (dBm) |
|---|---|---|---|---|
| 802.11a | 149 | 6 | 23.5 | 30 |
| | 157 | | 23.8 | 30 |
| | 165 | | 24.7 | 30 |
| 802.11n-HT20 | 149 | 6.5 | 23.4 | 30 |
| | 157 | | 23.5 | 30 |
| | 165 | | 24.0 | 30 |
| 802.11n-HT40 | 151 | 13.5 | 23.7 | 30 |
| | 159 | | 24.5 | 30 |
| 802.11ac | 155 | 29.3 | 22.5 | 30 |

MIMO Mode, 2Tx, Ant0+Ant1

| Mode | Channel | Data Rate (Mbps) | Output Power (dBm) | | | Limit (dBm) |
|---|---|---|---|---|---|---|
| | | | Ant0 | Ant1 | Total | |
| 802.11n-HT20 | 149 | 13 | 22.4 | 23.4 | 25.9 | 30 |
| | 157 | | 21.9 | 23.3 | 25.7 | 30 |
| | 165 | | 21.8 | 22.9 | 25.4 | 30 |
| 802.11n-HT40 | 151 | 27 | 22.2 | 23.0 | 25.6 | 30 |
| | 159 | | 21.9 | 23.0 | 25.5 | 30 |
| 802.11ac | 155 | 58.6 | 21.3 | 21.8 | 24.6 | 30 |

MIMO Mode, 2Tx, Ant0+Ant2

| Mode | Channel | Data Rate (Mbps) | Output Power (dBm) | | | Limit (dBm) |
|---|---|---|---|---|---|---|
| | | | Ant0 | Ant2 | Total | |
| 802.11n-HT20 | 149 | 13 | 22.4 | 21.9 | 25.2 | 30 |
| | 157 | | 21.9 | 21.3 | 24.6 | 30 |
| | 165 | | 21.8 | 20.9 | 24.4 | 30 |
| 802.11n-HT40 | 151 | 27 | 22.2 | 21.7 | 25.0 | 30 |
| | 159 | | 21.9 | 21.2 | 24.6 | 30 |
| 802.11ac | 155 | 58.6 | 21.3 | 21.2 | 24.3 | 30 |

MIMO Mode, 2Tx, Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | Output Power (dBm) | | | Limit (dBm) |
|---|---|---|---|---|---|---|
| | | | Ant1 | Ant2 | Total | |
| 802.11n-HT20 | 149 | 13 | 23.4 | 21.9 | 25.7 | 30 |
| | 157 | | 23.3 | 21.3 | 25.4 | 30 |
| | 165 | | 22.9 | 20.9 | 25.0 | 30 |
| 802.11n-HT40 | 151 | 27 | 23.0 | 21.7 | 25.4 | 30 |
| | 159 | | 23.0 | 21.2 | 25.2 | 30 |
| 802.11ac | 155 | 58.6 | 21.8 | 21.2 | 24.5 | 30 |

MIMO Mode, 3Tx, Ant0+Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | Output Power (dBm) | | | | Limit (dBm) |
|---|---|---|---|---|---|---|---|
| | | | Ant0 | Ant1 | Ant2 | Total | |
| 802.11n-HT20 | 149 | 19.5 | 22.0 | 23.2 | 21.6 | 27.1 | 29.2 |
| | 157 | | 22.0 | 22.9 | 21.3 | 26.9 | 29.2 |
| | 165 | | 21.6 | 22.9 | 20.5 | 26.5 | 29.2 |
| 802.11n-HT40 | 151 | 40.5 | 22.6 | 22.8 | 22.1 | 27.3 | 29.2 |
| | 159 | | 22.5 | 23.4 | 21.7 | 27.4 | 29.2 |
| 802.11ac | 155 | 87.9 | 21.3 | 22.5 | 20.8 | 26.4 | 29.2 |

TRF no.: FCC 15C_Tx_b

Max EIRP

SISO Mode, Ant0

| Mode | Channel | Data Rate (Mbps) | Duty cycle | Output Power (dBm) | Gain (dBi) | E.I.R.P (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|
| 802.11a | 149 | 6 | 99% | 23.5 | 2 | 25.5 | 36 |
| | 157 | | | 23.8 | 2 | 25.8 | 36 |
| | 165 | | | 24.7 | 2 | 26.7 | 36 |
| 802.11n-HT20 | 149 | 6.5 | 99% | 23.4 | 2 | 25.4 | 36 |
| | 157 | | | 23.5 | 2 | 25.5 | 36 |
| | 165 | | | 24.0 | 2 | 26.0 | 36 |
| 802.11n-HT40 | 151 | 13.5 | 99% | 23.7 | 2 | 25.7 | 36 |
| | 159 | | | 24.5 | 2 | 26.5 | 36 |
| 802.11ac | 155 | 29.3 | 99% | 22.5 | 2 | 24.5 | 36 |

MIMO Mode, 2Tx, Ant0+Ant1

| Mode | Channel | Data Rate (Mbps) | Duty cycle | Output Power (dBm) | | | Gain (dBi) | E.I.R.P (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Ant0 | Ant1 | Total | | | |
| 802.11n-HT20 | 149 | 13 | 99% | 22.4 | 23.4 | 25.9 | 5.0 | 30.9 | 36 |
| | 157 | | | 21.9 | 23.3 | 25.7 | 5.0 | 30.7 | 36 |
| | 165 | | | 21.8 | 22.9 | 25.4 | 5.0 | 30.4 | 36 |
| 802.11n-HT40 | 151 | 27 | 99% | 22.2 | 23.0 | 25.6 | 5.0 | 30.6 | 36 |
| | 159 | | | 21.9 | 23.0 | 25.5 | 5.0 | 30.5 | 36 |
| 802.11ac | 155 | 58.6 | 99% | 21.3 | 21.8 | 24.6 | 5.0 | 29.6 | 36 |

MIMO Mode, 2Tx, Ant0+Ant2

| Mode | Channel | Data Rate (Mbps) | Duty cycle | Output Power (dBm) | | | Gain (dBi) | E.I.R.P (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Ant0 | Ant2 | Total | | | |
| 802.11n-HT20 | 149 | 13 | 99% | 22.4 | 21.9 | 25.2 | 5.0 | 30.2 | 36 |
| | 157 | | | 21.9 | 21.3 | 24.6 | 5.0 | 29.6 | 36 |
| | 165 | | | 21.8 | 20.9 | 24.4 | 5.0 | 29.4 | 36 |
| 802.11n-HT40 | 151 | 27 | 99% | 22.2 | 21.7 | 25.0 | 5.0 | 30.0 | 36 |
| | 159 | | | 21.9 | 21.2 | 24.6 | 5.0 | 29.6 | 36 |
| 802.11ac | 155 | 58.6 | 99% | 21.3 | 21.2 | 24.3 | 5.0 | 29.3 | 36 |

MIMO Mode, 2Tx, Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | Duty cycle | Output Power (dBm) | | | Gain (dBi) | E.I.R.P (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Ant1 | Ant2 | Total | | | |
| 802.11n-HT20 | 149 | 13 | 99% | 23.4 | 21.9 | 25.7 | 5.0 | 30.7 | 36 |
| | 157 | | | 23.3 | 21.3 | 25.4 | 5.0 | 30.4 | 36 |
| | 165 | | | 22.9 | 20.9 | 25.0 | 5.0 | 30.0 | 36 |
| 802.11n-HT40 | 151 | 27 | 99% | 23.0 | 21.7 | 25.4 | 5.0 | 30.4 | 36 |
| | 159 | | | 23.0 | 21.2 | 25.2 | 5.0 | 30.2 | 36 |
| 802.11ac | 155 | 58.6 | 99% | 21.8 | 21.2 | 24.5 | 5.0 | 29.5 | 36 |

MIMO Mode, 3Tx, Ant0+Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | Duty cycle | Output Power (dBm) | | | | Gain (dBi) | E.I.R.P (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ant0 | Ant1 | Ant2 | Total | | | |
| 802.11n-HT20 | 149 | 19.5 | 99% | 22.0 | 23.2 | 21.6 | 27.1 | 6.8 | 33.9 | 35.2 |
| | 157 | | | 22.0 | 22.9 | 21.3 | 26.9 | 6.8 | 33.7 | 35.2 |
| | 165 | | | 21.6 | 22.9 | 20.5 | 26.5 | 6.8 | 33.3 | 35.2 |
| 802.11n-HT40 | 151 | 40.5 | 99% | 22.6 | 22.8 | 22.1 | 27.3 | 6.8 | 34.1 | 35.2 |
| | 159 | | | 22.5 | 23.4 | 21.7 | 27.4 | 6.8 | 34.2 | 35.2 |
| 802.11ac | 155 | 87.9 | 99% | 21.3 | 22.5 | 20.8 | 26.4 | 6.8 | 33.2 | 35.2 |

## 4. Power Spectrum Density test (FCC 15.407)

### 4.1 Operating environment

Temperature:              25      ℃
Relative Humidity:        50      %
Atmospheric Pressure:     1023    hPa

### 4.2 Test setup & procedure

**Method of Measurement:**

The power spectrum density per FCC §15.407(a) was measured from the antenna port of the EUT using a 50 ohm spectrum analyzer with the resolution bandwidth set at 1MHz/500KHz, the video bandwidth set at 3 MHz/2MHz (measurement method refer to KDB 789033 D02 General UNII Test Procedures New Rules v01). Power spectrum density was read directly and cable loss (0.5 dB) reading to obtain power at the EUT antenna terminals.

For MIMO system 2Tx/3Tx the antenna ports is checked, the worst case power density is calculated from the method of Measure by adding 10Log(2)/10Log(3) according KDB662911.

### 4.3 Limit

| Operating Frequency (MHz) | Max Conducted Power Spectral Density |
|---|---|
| 5150~5250 | *[1]17dBm/MHz for master device |
|  | 11dBm/MHz for mobile/portable client device |
| 5725~5850 | *[1]30dBm/500KHz for master device |

Remark: *[1] The device declare as Master device.

   1).Tx Power Reduction (dBm-by-dBi) required when antenna excees 6dBi.

   2). For MIMO system of 802.11n/ac, total power is calculated by combining the
    output power of each antenna according to KDB662911.

   3). 5.2/5.8G band Ant0/1/2: 2dBi

   4). In MIMO (2Tx), Ant0+Ant1 Directional gain = GANT + 10 log(N) dBi = 2 + 10 log(2) = 5.0dBi and the Ant1+Ant2, Ant0+Ant2 same as Ant0+Ant1.

   5). In MIMO (3Tx), Ant0+Ant1+Ant2 Directional gain = GANT + 10 log(N) dBi = 2 + 10 log(3) = 6.8dBi so for the band 5150~5250MHz the Power limit will reduce to 16.2dBm/MHz and for the band 5725~5850MHz the power limit will reduce to 29.2dBm/MHz which according to KDB662911 and KDB 905462.

## 4.4 Measured data of Power Spectrum Density test results

## 5150 MHz ~ 5250 MHz

SISO Mode, Ant0

| Mode | Channel | Data Rate (Mbps) | PSD (dBm/MHz) | Limit (dBm/MHz) |
|---|---|---|---|---|
| 802.11a | 36 | 6 | 1.90 | 17 |
| | 40 | | 1.95 | 17 |
| | 48 | | 2.49 | 17 |
| 802.11n-HT20 | 36 | 6.5 | 2.37 | 17 |
| | 40 | | 2.01 | 17 |
| | 48 | | 2.35 | 17 |
| 802.11n-HT40 | 38 | 13.5 | 0.35 | 17 |
| | 46 | | 1.34 | 17 |
| 802.11ac | 42 | 29.3 | -2.04 | 17 |

MIMO Mode, 2Tx, Ant0+Ant1

| Mode | Channel | Data Rate (Mbps) | PSD (dBm/MHz) | | | Limit (dBm/MHz) |
|---|---|---|---|---|---|---|
| | | | Ant0 | Ant1 | Total | |
| 802.11n-HT20 | 36 | 13 | -0.74 | -1.21 | 2.27 | 17 |
| | 40 | | -0.01 | -0.21 | 3.00 | 17 |
| | 48 | | 0.06 | 0.33 | 3.34 | 17 |
| 802.11n-HT40 | 38 | 27 | -2.24 | -1.28 | 1.73 | 17 |
| | 46 | | -1.27 | -0.84 | 2.17 | 17 |
| 802.11ac | 42 | 58.6 | -4.47 | -3.81 | -0.80 | 17 |

MIMO Mode, 2Tx, Ant0+Ant2

| Mode | Channel | Data Rate (Mbps) | PSD (dBm/MHz) | | | Limit (dBm/MHz) |
|---|---|---|---|---|---|---|
| | | | Ant0 | Ant2 | Total | |
| 802.11n-HT20 | 36 | 13 | -0.74 | -0.98 | 2.27 | 17 |
| | 40 | | -0.01 | -0.03 | 3.00 | 17 |
| | 48 | | 0.06 | 0.16 | 3.17 | 17 |
| 802.11n-HT40 | 38 | 27 | -2.24 | 0.74 | 3.75 | 17 |
| | 46 | | -1.27 | 0.84 | 3.85 | 17 |
| 802.11ac | 42 | 58.6 | -4.47 | -2.02 | 0.99 | 17 |

MIMO Mode, 2Tx, Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | PSD (dBm/MHz) | | | Limit (dBm/MHz) |
|---|---|---|---|---|---|---|
| | | | Ant1 | Ant2 | Total | |
| 802.11n-HT20 | 36 | 13 | -1.21 | -0.98 | 2.03 | 17 |
| | 40 | | -0.21 | -0.03 | 2.98 | 17 |
| | 48 | | 0.33 | 0.16 | 3.34 | 17 |
| 802.11n-HT40 | 38 | 27 | -1.28 | 0.74 | 3.75 | 17 |
| | 46 | | -0.84 | 0.84 | 3.85 | 17 |
| 802.11ac | 42 | 58.6 | -3.81 | -2.02 | 0.99 | 17 |

MIMO Mode, 3Tx, Ant0+Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | PSD (dBm/MHz) | | | | Limit (dBm/MHz) |
|---|---|---|---|---|---|---|---|
| | | | Ant0 | Ant1 | Ant2 | Total | |
| 802.11n-HT20 | 36 | 19.5 | -2.37 | -2.07 | -2.16 | 2.70 | 16.2 |
| | 40 | | -1.99 | -1.79 | -1.94 | 2.98 | 16.2 |
| | 48 | | -2.52 | -2.44 | -1.70 | 3.07 | 16.2 |
| 802.11n-HT40 | 38 | 40.5 | -2.16 | -1.86 | -2.05 | 2.91 | 16.2 |
| | 46 | | -1.84 | -2.22 | -1.89 | 2.93 | 16.2 |
| 802.11ac | 42 | 87.9 | -5.69 | -4.40 | -2.53 | 2.24 | 16.2 |

**5725 MHz ~ 5850 MHz**

SISO Mode, Ant0

| Mode | Channel | Data Rate (Mbps) | PSD (dBm/500KHz) | Limit (dBm/500KHz) |
|---|---|---|---|---|
| 802.11a | 149 | 6 | 6.76 | 30 |
| | 157 | | 6.85 | 30 |
| | 165 | | 6.76 | 30 |
| 802.11n-HT20 | 149 | 6.5 | 7.41 | 30 |
| | 157 | | 7.20 | 30 |
| | 165 | | 7.38 | 30 |
| 802.11n-HT40 | 151 | 13.5 | 4.19 | 30 |
| | 159 | | 4.24 | 30 |
| 802.11ac | 155 | 29.3 | 1.19 | 30 |

MIMO Mode, 2Tx, Ant0+Ant1

| Mode | Channel | Data Rate (Mbps) | PSD (dBm/500KHz) | | | Limit (dBm/500KHz) |
|---|---|---|---|---|---|---|
| | | | Ant0 | Ant1 | Total | |
| 802.11n-HT20 | 149 | 13 | 6.01 | 7.56 | 10.57 | 30 |
| | 157 | | 5.75 | 6.95 | 9.96 | 30 |
| | 165 | | 5.83 | 6.67 | 9.68 | 30 |
| 802.11n-HT40 | 151 | 27 | 4.48 | 5.07 | 8.08 | 30 |
| | 159 | | 3.73 | 4.96 | 7.97 | 30 |
| 802.11ac | 155 | 58.6 | 0.51 | 1.13 | 4.14 | 30 |

MIMO Mode, 2Tx, Ant0+Ant2

| Mode | Channel | Data Rate (Mbps) | PSD (dBm/500KHz) | | | Limit (dBm/500KHz) |
|---|---|---|---|---|---|---|
| | | | Ant0 | Ant2 | Total | |
| 802.11n-HT20 | 149 | 13 | 6.01 | 6.49 | 9.50 | 30 |
| | 157 | | 5.75 | 5.79 | 8.80 | 30 |
| | 165 | | 5.83 | 5.65 | 8.84 | 30 |
| 802.11n-HT40 | 151 | 27 | 4.48 | 4.74 | 7.75 | 30 |
| | 159 | | 3.73 | 3.86 | 6.87 | 30 |
| 802.11ac | 155 | 58.6 | 0.51 | 1.27 | 4.28 | 30 |

MIMO Mode, 2Tx, Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | PSD (dBm/500KHz) | | | Limit (dBm/500KHz) |
|---|---|---|---|---|---|---|
| | | | Ant1 | Ant2 | Total | |
| 802.11n-HT20 | 149 | 13 | 7.56 | 6.49 | 10.57 | 30 |
| | 157 | | 6.95 | 5.79 | 9.96 | 30 |
| | 165 | | 6.67 | 5.65 | 9.68 | 30 |
| 802.11n-HT40 | 151 | 27 | 5.07 | 4.74 | 8.08 | 30 |
| | 159 | | 4.96 | 3.86 | 7.97 | 30 |
| 802.11ac | 155 | 58.6 | 1.13 | 1.27 | 4.28 | 30 |

MIMO Mode, 3Tx, Ant0+Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | PSD (dBm/500KHz) | | | | Limit (dBm/500KHz) |
|---|---|---|---|---|---|---|---|
| | | | Ant0 | Ant1 | Ant2 | Total | |
| 802.11n-HT20 | 149 | 19.5 | 4.43 | 7.39 | 5.90 | 12.16 | 29.2 |
| | 157 | | 4.43 | 6.90 | 5.87 | 11.67 | 29.2 |
| | 165 | | 4.26 | 6.88 | 5.18 | 11.65 | 29.2 |
| 802.11n-HT40 | 151 | 40.5 | 2.12 | 4.02 | 3.44 | 8.79 | 29.2 |
| | 159 | | 1.44 | 4.35 | 2.98 | 9.12 | 29.2 |
| 802.11ac | 155 | 87.9 | -1.81 | 0.29 | 0.23 | 5.06 | 29.2 |

Please refer the graph of "PSD.pdf".

TRF no.: FCC 15C_Tx_b

## 5. Minimum 6 dB RF Bandwidth and 99% Occupied Bandwidth and 26dB down Emission Bandwidth (FCC 15.407)

### 5.1 Operating environment

Temperature:            25      ℃
Relative Humidity:      50      %
Atmospheric Pressure:   1023    hPa

### 5.2 Test setup & procedure

**For Minimum 6 dB RF Bandwidth**

The Minimum 6 dB RF Bandwidth per 789033 D02 General UNII Test Procedures New Rules v01 was measured from the antenna port of the EUT using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100KHz, and set the video bandwidth (VBW) $\geq$ 3 x RBW. (measurement method refer to KDB 789033 D02 General UNII Test Procedures New Rules v01). For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

**For 99% Occupied Bandwidth**

The 99% Occupied Bandwidth per 789033 D02 General UNII Test Procedures New Rules v01 was measured from the antenna port of the EUT using a 50 ohm spectrum analyzer with the resolution bandwidth set center frequency to the nominal EUT channel center frequency, set span = 1.5 times to 5.0 times the OBW, set RBW = 1 % to 5 % of the OBW, set VBW $\geq$ 3 x RBW, The 99% occupied bandwidth was determined from where the channel output spectrum intersected the display line.

**For 26dB down Emission Bandwidth**

The 26dB down Emission Bandwidth per 789033 D02 General UNII Test Procedures New Rules v01 was measured from the antenna port of the EUT using a 50 ohm spectrum analyzer with the resolution bandwidth set RBW = approximately 1% of the emission bandwidth. set the VBW > RBW, Detector = Peak, Trace mode = max hold (Measure the maximum width of the emission that is 26 dB down from the maximum 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%). The 26dB down emission bandwidth was determined from where the channel output spectrum intersected the display line.

**5.3 Limit**

**Minimum 6 dB RF Bandwidth**

| Operating Frequency (MHz) | Minimum 6 dB RF Bandwidth Limit |
|---|---|
| 5150~5250 | N/A |
| 5725~5850 | ≥500KHz |

**99% Occupied Bandwidth within the U-NII-1 band and 26dB Emission Bandwidth for reference.**

**5.4 Measured data of Minimum 6 dB RF Bandwidth test results**

SISO Mode, Ant0

| Mode | Channel | Data Rate (Mbps) | Result |
|---|---|---|---|
| 802.11a | 149 | 6 | Pass |
| | 157 | | Pass |
| | 165 | | Pass |
| 802.11n-HT20 | 149 | 6.5 | Pass |
| | 157 | | Pass |
| | 165 | | Pass |
| 802.11n-HT40 | 151 | 13.5 | Pass |
| | 159 | | Pass |
| 802.11ac | 155 | 29.3 | Pass |

MIMO Mode, 2Tx, Ant0+Ant1

| Mode | Channel | Data Rate (Mbps) | Result |
|---|---|---|---|
| 802.11n-HT20 | 149 | 13 | Pass |
| | 157 | | Pass |
| | 165 | | Pass |
| 802.11n-HT40 | 151 | 27 | Pass |
| | 159 | | Pass |
| 802.11ac | 155 | 58.6 | Pass |

TRF no.: FCC 15C_Tx_b

MIMO Mode, 2Tx, Ant0+Ant2

| Mode | Channel | Data Rate (Mbps) | Result |
|---|---|---|---|
| 802.11n-HT20 | 149 | 13 | Pass |
| | 157 | | Pass |
| | 165 | | Pass |
| 802.11n-HT40 | 151 | 27 | Pass |
| | 159 | | Pass |
| 802.11ac | 155 | 58.6 | Pass |

MIMO Mode, 2Tx, Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | Limit (dBm/MHz) |
|---|---|---|---|
| 802.11n-HT20 | 149 | 13 | Pass |
| | 157 | | Pass |
| | 165 | | Pass |
| 802.11n-HT40 | 151 | 27 | Pass |
| | 159 | | Pass |
| 802.11ac | 155 | 58.6 | Pass |

MIMO Mode, 3Tx, Ant0+Ant1+Ant2

| Mode | Channel | Data Rate (Mbps) | Result |
|---|---|---|---|
| 802.11n-HT20 | 149 | 19.5 | Pass |
| | 157 | | Pass |
| | 165 | | Pass |
| 802.11n-HT40 | 151 | 40.5 | Pass |
| | 159 | | Pass |
| 802.11ac | 155 | 87.9 | Pass |

Please refer the graph of "6 dB Bandwidth.pdf, 26dBEBW.pdf, 99%OBW.pdf".

## 6. Radiated Emission test (FCC 15.205 & 15.209 & 15.407)

### 6.1 Operating environment

Temperature:              23        ℃
Relative Humidity:        58        %
Atmospheric Pressure      1023      hPa

### 6.2 Test setup & procedure

The Diagram below shows the test setup, which is utilized to make these measurements.
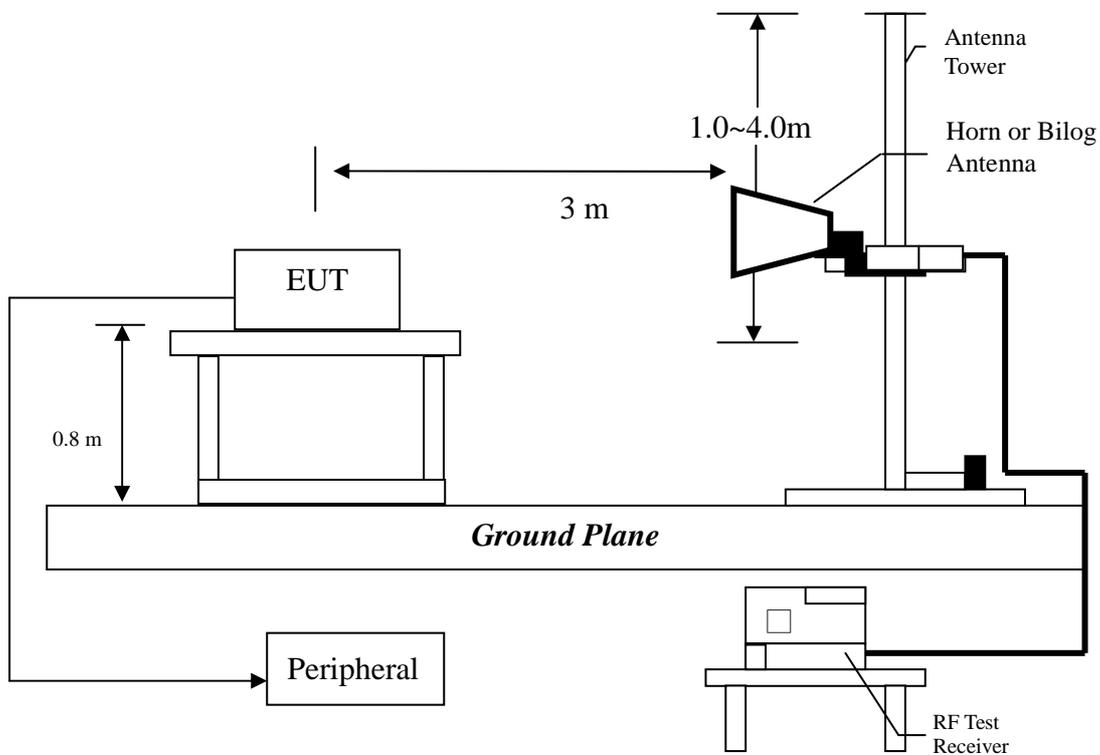


Radiated emission measurements were performed from 30MHz to tenth harmonic or 40GHz. The EUT for testing is arranged on a wooden turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.

Testing settings (refer to KDB 789033 D02 General UNII Test Procedures New Rules v01)
Peak Measurements below 1GHz
1, Analyzer center frequency was set to the frequency of the radiated spurious emission.
2, Span=encompass the entire emission
3, RBW=120KHz
4, Detector=Quasi-Peak
5, Trace was allowed to stabilize

Peake Measurements above 1GHz
1, Analyzer center frequency was set to the frequency of the radiated spurious emission.
2, Span=encompass the entire emission
3, RBW=1MHz
4, VBW=3MHz
4, Detector= Peak (Max-hold)
5, Trace was allowed to stabilize

Average Measurements above 1GHz
1, Analyzer center frequency was set to the frequency of the radiated spurious emission.
2, Span=encompass the entire emission
3, RBW=1MHz
4, VBW=3MHz
4, Detector= RMS (Max-hold)
5, Trace was allowed to stabilize

## 6.3 Limit

The spurious Emission shall test through the 10th harmonic or 40GHz (whichever is lower). In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

Notes:
1, All emission out-side of the 5.15-5.35GHz & 5.47-5.725GHz band shall not exceed an EIRP of -27dBm/MHz (68.2dBuV/m, test distance: 3 meter), for band 5.725-5.85GHz shall not exceed an≤-17dBm/MHz (78.2dBuV/m, test distance: 3 meter) within 5715-5725MHz and 5850-5860MHz, ≤-27dBm/MHz (68.2dBuV/m, test distance: 3 meter) outside 5715-5860MHz.
2, The spectrum is measured from 9KHz to the $10^{th}$ harmonic of the fundamental frequency of the transmitter using QP detector below 1GHz, above 1GHz, average & peak measurements were taken using for test. The worst-case emission are reported however emission whose levels were not within 20dB of the respective limited were not reported.
3, The test was performed on EUT under 802.11a/n-HT20/n-HT40/ac continuously transmitting mode.

Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors).   A sample calculation is included below.

FS = RA + AF + CF - AG + PD

Where    FS = Field Strength in dBµV/m
            RA = Receiver Amplitude (including preamplifier) in dBµV
            CF = Cable Attenuation Factor in dB
            AF = Antenna Factor in dB
            AG = Amplifier Gain in dB
            PD = Pulse Desensitization in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain.   An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD

Example
Assume a receiver reading of 62.0 dBµV is obtained.   The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted.   The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 32 dBµV/m. This value in dBµV/m was converted to its corresponding level in µV/m.

RA = 62.0 dBµV
AF =   7.4 dB
CF =   1.6 dB
AG = 29.0 dB
PD = 0 dB
FS = 62 + 7.4 + 1.6 - 29 + 0 = 42 dBµV/m

Level in mV/m = Common Antilogarithm [(42 dBµV/m)/20] = 125.9 µV/m

## 6.4 Radiated spurious emission test data

### 6.4.1 Measurement results: frequencies equal to or less than 1 GHz

The worst case occurred at 802.11n-HT20, MIMO, 2Tx, Ant0+Ant2, Channel 36/27Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 124.599 | 38.3 | 20.0 | 8.0 | 26.3 | 43.5 | -17.2 |
| Horizontal | 228.492 | 39.6 | 20.0 | 11.9 | 31.5 | 46.0 | -14.5 |
| Horizontal | 295.433 | 42.8 | 20.0 | 13.0 | 35.8 | 46.0 | -10.2 |
| Horizontal | 360.305 | 38.1 | 20.0 | 15.9 | 34.0 | 46.0 | -12.0 |
| Horizontal | 599.875 | 34.7 | 20.0 | 24.0 | 38.7 | 46.0 | -7.3 |
| Horizontal | 726.902 | 37.2 | 20.0 | 24.0 | 41.2 | 46.0 | -4.8 |
| Vertical | 35.008 | 37.4 | 20.0 | 18.9 | 36.3 | 40.0 | -3.7 |
| Vertical | 76.309 | 45.8 | 20.0 | 7.4 | 33.2 | 40.0 | -6.8 |
| Vertical | 158.929 | 44.1 | 20.0 | 7.8 | 31.9 | 43.5 | -11.6 |
| Vertical | 179.959 | 44.7 | 20.0 | 9.1 | 33.8 | 43.5 | -9.7 |
| Vertical | 360.003 | 44.0 | 20.0 | 13.0 | 37.0 | 46.0 | -9.0 |
| Vertical | 599.923 | 34.0 | 20.0 | 24.0 | 38.0 | 46.0 | -8.0 |

### 6.4.2 Measurement results: frequency above 1GHz

Test Condition  : 802.11a, SISO, Ant0, Channel 36/6Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10360.000 | 53.2 | 36.3 | 38.9 | 55.8 | 68.2 | -12.4 |
| Horizontal | 15540.000 | 50.7 | 34.7 | 41.0 | 57.0 | 68.2 | -11.2 |
| Horizontal | *5149.056 | 59.3 | 36.1 | 35.5 | 58.7 | 68.2 | -9.5 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15540.000 | 41.2 | 34.7 | 41.0 | 47.5 | 54.0 | -6.5 |
| Horizontal | *5149.056 | 49.1 | 36.1 | 35.5 | 48.5 | 54.0 | -5.5 |

Test Condition  : 802.11a, SISO, Ant0, Channel 40/6Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10400.000 | 54.6 | 36.3 | 38.9 | 57.2 | 68.2 | -11.0 |
| Horizontal | 15600.000 | 52.7 | 34.7 | 41.0 | 59.0 | 68.2 | -9.2 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15600.000 | 40.2 | 34.7 | 41.0 | 46.5 | 54.0 | -7.5 |

Test Condition  : 802.11a, SISO, Ant0, Channel 48/6Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10480.000 | 53.2 | 36.3 | 38.9 | 55.8 | 68.2 | -12.4 |
| Horizontal | 15720.000 | 51.9 | 34.7 | 41.0 | 58.2 | 68.2 | -10.0 |
| Horizontal | *5351.752 | 59.0 | 35.9 | 36.4 | 59.5 | 68.2 | -8.7 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15720.000 | 38.7 | 34.7 | 41.0 | 45.0 | 54.0 | -9.0 |
| Horizontal | *5351.752 | 45.7 | 35.9 | 36.4 | 46.2 | 54.0 | -7.8 |

Test Condition : 802.11n-HT20, SISO, Ant0, Channel 36/6.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10360.000 | 53.1 | 36.3 | 38.9 | 55.7 | 68.2 | -12.5 |
| Horizontal | 15540.000 | 50.6 | 34.7 | 41.0 | 56.9 | 68.2 | -11.3 |
| Horizontal | *5148.540 | 58.8 | 36.1 | 35.5 | 58.2 | 68.2 | -10.0 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15540.000 | 40.3 | 34.7 | 41.0 | 46.6 | 54.0 | -7.4 |
| Horizontal | *5148.540 | 49.1 | 36.1 | 35.5 | 48.5 | 54.0 | -5.5 |

Test Condition : 802.11n-HT20, SISO, Ant0, Channel 40/6.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10400.000 | 53.6 | 36.3 | 38.9 | 56.2 | 68.2 | -12.0 |
| Horizontal | 15600.000 | 52.4 | 34.7 | 41.0 | 58.7 | 68.2 | -9.5 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15600.000 | 40.7 | 34.7 | 41.0 | 47.0 | 54.0 | -7.0 |

Test Condition : 802.11n-HT20, SISO, Ant0, Channel 48/6.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10480.000 | 53.9 | 36.3 | 38.9 | 56.5 | 68.2 | -11.7 |
| Horizontal | 15720.000 | 52.7 | 34.7 | 41.0 | 59.0 | 68.2 | -9.2 |
| Horizontal | *5351.583 | 58.0 | 35.9 | 36.4 | 58.5 | 68.2 | -9.7 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15720.000 | 38.7 | 34.7 | 41.0 | 45.0 | 54.0 | -9.0 |
| Horizontal | *5351.583 | 45.5 | 35.9 | 36.4 | 46.0 | 54.0 | -8.0 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant0+1, Channel 36/13Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10360.000 | 53.4 | 36.3 | 38.9 | 56.0 | 68.2 | -12.2 |
| Horizontal | 15540.000 | 51.0 | 34.7 | 41.0 | 57.3 | 68.2 | -10.9 |
| Horizontal | *5149.453 | 59.1 | 36.1 | 35.5 | 58.5 | 68.2 | -9.7 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15540.000 | 40.2 | 34.7 | 41.0 | 46.5 | 54.0 | -7.5 |
| Horizontal | *5149.453 | 48.6 | 36.1 | 35.5 | 48.0 | 54.0 | -6.0 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant0+1, Channel 40/13Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10400.000 | 54.6 | 36.3 | 38.9 | 57.2 | 68.2 | -11.0 |
| Horizontal | 15600.000 | 52.7 | 34.7 | 41.0 | 59.0 | 68.2 | -9.2 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15600.000 | 42.2 | 34.7 | 41.0 | 48.5 | 54.0 | -5.5 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant0+1, Channel 48/13Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10480.000 | 54.4 | 36.3 | 38.9 | 57.0 | 68.2 | -11.2 |
| Horizontal | 15720.000 | 52.9 | 34.7 | 41.0 | 59.2 | 68.2 | -9.0 |
| Horizontal | *5351.502 | 58.1 | 35.9 | 36.4 | 58.6 | 68.2 | -9.6 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15720.000 | 39.2 | 34.7 | 41.0 | 45.5 | 54.0 | -8.5 |
| Horizontal | *5351.502 | 46.3 | 35.9 | 36.4 | 46.8 | 54.0 | -7.2 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant0+2, Channel 36/13Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10360.000 | 53.9 | 36.3 | 38.9 | 56.5 | 68.2 | -11.7 |
| Horizontal | 15540.000 | 51.9 | 34.7 | 41.0 | 58.2 | 68.2 | -10.0 |
| Horizontal | *5149.858 | 58.8 | 36.1 | 35.5 | 58.2 | 68.2 | -10.0 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15540.000 | 40.5 | 34.7 | 41.0 | 46.8 | 54.0 | -7.2 |
| Horizontal | *5149.858 | 49.6 | 36.1 | 35.5 | 49.0 | 54.0 | -5.0 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant0+2, Channel 40/13Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10400.000 | 55.4 | 36.3 | 38.9 | 58.0 | 68.2 | -10.2 |
| Horizontal | 15600.000 | 53.2 | 34.7 | 41.0 | 59.5 | 68.2 | -8.7 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15600.000 | 42.3 | 34.7 | 41.0 | 48.6 | 54.0 | -5.4 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant0+2, Channel 48/13Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10480.000 | 54.5 | 36.3 | 38.9 | 57.1 | 68.2 | -11.1 |
| Horizontal | 15720.000 | 52.7 | 34.7 | 41.0 | 59.0 | 68.2 | -9.2 |
| Horizontal | *5351.859 | 58.0 | 35.9 | 36.4 | 58.5 | 68.2 | -9.7 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15720.000 | 39.7 | 34.7 | 41.0 | 46.0 | 54.0 | -8.0 |
| Horizontal | *5351.859 | 47.4 | 35.9 | 36.4 | 47.9 | 54.0 | -6.1 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant1+2, Channel 36/13Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10360.000 | 54.6 | 36.3 | 38.9 | 57.2 | 68.2 | -11.0 |
| Horizontal | 15540.000 | 52.6 | 34.7 | 41.0 | 58.9 | 68.2 | -9.3 |
| Horizontal | *5149.630 | 59.1 | 36.1 | 35.5 | 58.5 | 68.2 | -9.7 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15540.000 | 41.0 | 34.7 | 41.0 | 47.3 | 54.0 | -6.7 |
| Horizontal | *5149.630 | 49.1 | 36.1 | 35.5 | 48.5 | 54.0 | -5.5 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant1+2, Channel 40/13Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10400.000 | 55.1 | 36.3 | 38.9 | 57.7 | 68.2 | -10.5 |
| Horizontal | 15600.000 | 53.3 | 34.7 | 41.0 | 59.6 | 68.2 | -8.6 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15600.000 | 42.2 | 34.7 | 41.0 | 48.5 | 54.0 | -5.5 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant1+2, Channel 48/13Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10480.000 | 54.9 | 36.3 | 38.9 | 57.5 | 68.2 | -10.7 |
| Horizontal | 15720.000 | 53.2 | 34.7 | 41.0 | 59.5 | 68.2 | -8.7 |
| Horizontal | *5351.044 | 58.3 | 35.9 | 36.4 | 58.8 | 68.2 | -9.4 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15720.000 | 40.0 | 34.7 | 41.0 | 46.3 | 54.0 | -7.7 |
| Horizontal | *5351.044 | 47.0 | 35.9 | 36.4 | 47.5 | 54.0 | -6.5 |

Test Condition      : 802.11n-HT20, MIMO, 3Tx, Ant1+2+3, Channel 36/19.5Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10360.000 | 55.1 | 36.3 | 38.9 | 57.7 | 68.2 | -10.5 |
| Horizontal | 15540.000 | 51.7 | 34.7 | 41.0 | 58.0 | 68.2 | -10.2 |
| Horizontal | *5148.750 | 59.8 | 36.1 | 35.5 | 59.2 | 68.2 | -9.0 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15540.000 | 41.2 | 34.7 | 41.0 | 47.5 | 54.0 | -6.5 |
| Horizontal | *5148.750 | 49.1 | 36.1 | 35.5 | 48.5 | 54.0 | -5.5 |

Test Condition      : 802.11n-HT20, MIMO, 3Tx, Ant1+2+3, Channel 40/19.5Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10400.000 | 54.4 | 36.3 | 38.9 | 57.0 | 68.2 | -11.2 |
| Horizontal | 15600.000 | 52.7 | 34.7 | 41.0 | 59.0 | 68.2 | -9.2 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15600.000 | 41.7 | 34.7 | 41.0 | 48.0 | 54.0 | -6.0 |

Test Condition      : 802.11n-HT20, MIMO, 3Tx, Ant1+2+3, Channel 48/19.5Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10480.000 | 55.0 | 36.3 | 38.9 | 57.6 | 68.2 | -10.6 |
| Horizontal | 15720.000 | 53.0 | 34.7 | 41.0 | 59.3 | 68.2 | -8.9 |
| Horizontal | *5351.741 | 58.5 | 35.9 | 36.4 | 59.0 | 68.2 | -9.2 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15720.000 | 39.9 | 34.7 | 41.0 | 46.2 | 54.0 | -7.8 |
| Horizontal | *5351.741 | 46.3 | 35.9 | 36.4 | 46.8 | 54.0 | -7.2 |

Test Condition : 802.11n-HT40, SISO, Ant0, Channel 38/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10380.000 | 55.3 | 36.3 | 38.9 | 57.9 | 68.2 | -10.3 |
| Horizontal | 15570.000 | 51.9 | 34.7 | 41.0 | 58.2 | 68.2 | -10.0 |
| Horizontal | *5148.850 | 57.1 | 36.1 | 35.5 | 56.5 | 68.2 | -11.7 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15570.000 | 40.0 | 34.7 | 41.0 | 46.3 | 54.0 | -7.7 |
| Horizontal | *5148.850 | 47.2 | 36.1 | 35.5 | 46.6 | 54.0 | -7.4 |

Test Condition : 802.11n-HT40, SISO, Ant0, Channel 46/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10460.000 | 54.6 | 36.3 | 38.9 | 57.2 | 68.2 | -11.0 |
| Horizontal | 15690.000 | 51.7 | 34.7 | 41.0 | 58.0 | 68.2 | -10.2 |
| Horizontal | *5352.499 | 58.0 | 35.9 | 36.4 | 58.5 | 68.2 | -9.7 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15690.000 | 39.7 | 34.7 | 41.0 | 46.0 | 54.0 | -8.0 |
| Horizontal | *5352.499 | 46.7 | 35.9 | 36.4 | 47.2 | 54.0 | -6.8 |

Test Condition : 802.11n-HT40, MIMO, 2Tx, Ant0+1, Channel 38/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10380.000 | 54.4 | 36.3 | 38.9 | 57.0 | 68.2 | -11.2 |
| Horizontal | 15570.000 | 51.9 | 34.7 | 41.0 | 58.2 | 68.2 | -10.0 |
| Horizontal | *5148.800 | 58.5 | 36.1 | 35.5 | 57.9 | 68.2 | -10.3 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15570.000 | 40.2 | 34.7 | 41.0 | 46.5 | 54.0 | -7.5 |
| Horizontal | *5148.800 | 47.5 | 36.1 | 35.5 | 46.9 | 54.0 | -7.1 |

Test Condition : 802.11n-HT40, MIMO, 2Tx, Ant0+1, Channel 46/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10460.000 | 55.4 | 36.3 | 38.9 | 58.0 | 68.2 | -10.2 |
| Horizontal | 15690.000 | 51.9 | 34.7 | 41.0 | 58.2 | 68.2 | -10.0 |
| Horizontal | *5352.105 | 58.5 | 35.9 | 36.4 | 59.0 | 68.2 | -9.2 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15690.000 | 40.0 | 34.7 | 41.0 | 46.3 | 54.0 | -7.7 |
| Horizontal | *5352.105 | 46.1 | 35.9 | 36.4 | 46.6 | 54.0 | -7.4 |

Test Condition : 802.11n-HT40, MIMO, 2Tx, Ant0+2, Channel 38/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10380.000 | 55.3 | 36.3 | 38.9 | 57.9 | 68.2 | -10.3 |
| Horizontal | 15570.000 | 53.0 | 34.7 | 41.0 | 59.3 | 68.2 | -8.9 |
| Horizontal | *5148.992 | 58.6 | 36.1 | 35.5 | 58.0 | 68.2 | -10.2 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15570.000 | 39.9 | 34.7 | 41.0 | 46.2 | 54.0 | -7.8 |
| Horizontal | *5148.992 | 47.3 | 36.1 | 35.5 | 46.7 | 54.0 | -7.3 |

Test Condition : 802.11n-HT40, MIMO, 2Tx, Ant0+2, Channel 46/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10460.000 | 54.4 | 36.3 | 38.9 | 57.0 | 68.2 | -11.2 |
| Horizontal | 15690.000 | 52.6 | 34.7 | 41.0 | 58.9 | 68.2 | -9.3 |
| Horizontal | *5352.168 | 58.5 | 35.9 | 36.4 | 59.0 | 68.2 | -9.2 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15690.000 | 39.4 | 34.7 | 41.0 | 45.7 | 54.0 | -8.3 |
| Horizontal | *5352.168 | 45.5 | 35.9 | 36.4 | 46.0 | 54.0 | -8.0 |

Test Condition : 802.11n-HT40, MIMO, 2Tx, Ant1+2, Channel 38/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10380.000 | 55.4 | 36.3 | 38.9 | 58.0 | 68.2 | -10.2 |
| Horizontal | 15570.000 | 52.7 | 34.7 | 41.0 | 59.0 | 68.2 | -9.2 |
| Horizontal | *5148.650 | 59.4 | 36.1 | 35.5 | 58.8 | 68.2 | -9.4 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15570.000 | 39.7 | 34.7 | 41.0 | 46.0 | 54.0 | -8.0 |
| Horizontal | *5148.650 | 48.1 | 36.1 | 35.5 | 47.5 | 54.0 | -6.5 |

Test Condition : 802.11n-HT40, MIMO, 2Tx, Ant1+2, Channel 46/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10460.000 | 55.0 | 36.3 | 38.9 | 57.6 | 68.2 | -10.6 |
| Horizontal | 15690.000 | 51.7 | 34.7 | 41.0 | 58.0 | 68.2 | -10.2 |
| Horizontal | *5352.583 | 58.2 | 35.9 | 36.4 | 58.7 | 68.2 | -9.5 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15690.000 | 39.7 | 34.7 | 41.0 | 46.0 | 54.0 | -8.0 |
| Horizontal | *5352.583 | 46.7 | 35.9 | 36.4 | 47.2 | 54.0 | -6.8 |

TRF no.: FCC 15C_Tx_b

Test Condition : 802.11n-HT40, MIMO, 3Tx, Ant0+1+2, Channel 38/29.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10380.000 | 55.0 | 36.3 | 38.9 | 57.6 | 68.2 | -10.6 |
| Horizontal | 15570.000 | 52.0 | 34.7 | 41.0 | 58.3 | 68.2 | -9.9 |
| Horizontal | *5148.436 | 59.2 | 36.1 | 35.5 | 58.6 | 68.2 | -9.6 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15570.000 | 39.6 | 34.7 | 41.0 | 45.9 | 54.0 | -8.1 |
| Horizontal | *5148.436 | 47.2 | 36.1 | 35.5 | 46.6 | 54.0 | -7.4 |

Test Condition : 802.11n-HT40, MIMO, 3Tx, Ant0+1+2, Channel 46/29.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10460.000 | 55.4 | 36.3 | 38.9 | 58.0 | 68.2 | -10.2 |
| Horizontal | 15690.000 | 52.2 | 34.7 | 41.0 | 58.5 | 68.2 | -9.7 |
| Horizontal | *5352.632 | 57.7 | 35.9 | 36.4 | 58.2 | 68.2 | -10.0 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15690.000 | 39.5 | 34.7 | 41.0 | 45.8 | 54.0 | -8.2 |
| Horizontal | *5352.632 | 46.5 | 35.9 | 36.4 | 47.0 | 54.0 | -7.0 |

Test Condition : 802.11ac, SISO, Ant0, Channel 42/29.3Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10420.000 | 52.0 | 36.3 | 38.9 | 54.6 | 68.2 | -13.6 |
| Horizontal | 15630.000 | 49.5 | 34.7 | 41.0 | 55.8 | 68.2 | -12.4 |
| Horizontal | *5148.492 | 55.5 | 35.9 | 36.4 | 56.0 | 68.2 | -12.2 |
| Horizontal | *5352.580 | 57.4 | 35.9 | 36.4 | 57.9 | 68.2 | -10.3 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15630.000 | 38.7 | 34.7 | 41.0 | 45.0 | 54.0 | -9.0 |
| Horizontal | *5148.492 | 47.2 | 35.9 | 36.4 | 47.7 | 54.0 | -6.3 |
| Horizontal | *5352.580 | 45.7 | 35.9 | 36.4 | 46.2 | 54.0 | -7.8 |

Test Condition : 802.11ac, MIMO, 2Tx, Ant0+1, Channel 42/58.6Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10420.000 | 52.6 | 36.3 | 38.9 | 55.2 | 68.2 | -13.0 |
| Horizontal | 15630.000 | 50.0 | 34.7 | 41.0 | 56.3 | 68.2 | -11.9 |
| Horizontal | *5148.492 | 57.4 | 35.9 | 36.4 | 57.9 | 68.2 | -10.3 |
| Horizontal | *5352.580 | 57.7 | 35.9 | 36.4 | 58.2 | 68.2 | -10.0 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15630.000 | 40.0 | 34.7 | 41.0 | 46.3 | 54.0 | -7.7 |
| Horizontal | *5148.492 | 46.1 | 35.9 | 36.4 | 46.6 | 54.0 | -7.4 |
| Horizontal | *5352.580 | 46.2 | 35.9 | 36.4 | 46.7 | 54.0 | -7.3 |

Test Condition : 802.11ac, MIMO, 2Tx, Ant0+2, Channel 42/58.6Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10420.000 | 52.3 | 36.3 | 38.9 | 54.9 | 68.2 | -13.3 |
| Horizontal | 15630.000 | 49.2 | 34.7 | 41.0 | 55.5 | 68.2 | -12.7 |
| Horizontal | *5148.684 | 55.5 | 35.9 | 36.4 | 56.0 | 68.2 | -12.2 |
| Horizontal | *5352.659 | 57.8 | 35.9 | 36.4 | 58.3 | 68.2 | -9.9 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15630.000 | 39.3 | 34.7 | 41.0 | 45.6 | 54.0 | -8.4 |
| Horizontal | *5148.684 | 46.8 | 35.9 | 36.4 | 47.3 | 54.0 | -6.7 |
| Horizontal | *5352.659 | 45.5 | 35.9 | 36.4 | 46.0 | 54.0 | -8.0 |

Test Condition : 802.11ac, MIMO, 2Tx, Ant1+2, Channel 42/58.6Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10420.000 | 53.2 | 36.3 | 38.9 | 55.8 | 68.2 | -12.4 |
| Horizontal | 15630.000 | 50.6 | 34.7 | 41.0 | 56.9 | 68.2 | -11.3 |
| Horizontal | *5148.540 | 56.7 | 35.9 | 36.4 | 57.2 | 68.2 | -11.0 |
| Horizontal | *5352.822 | 57.5 | 35.9 | 36.4 | 58.0 | 68.2 | -10.2 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15630.000 | 39.7 | 34.7 | 41.0 | 46.0 | 54.0 | -8.0 |
| Horizontal | *5148.540 | 46.8 | 35.9 | 36.4 | 47.3 | 54.0 | -6.7 |
| Horizontal | *5352.822 | 45.5 | 35.9 | 36.4 | 46.0 | 54.0 | -8.0 |

Test Condition    : 802.11ac, MIMO, 3Tx, Ant0+1+2, Channel 42/87.9Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 10420.000 | 53.4 | 36.3 | 38.9 | 56.0 | 68.2 | -12.2 |
| Horizontal | 15630.000 | 50.2 | 34.7 | 41.0 | 56.5 | 68.2 | -11.7 |
| Horizontal | *5148.580 | 55.5 | 35.9 | 36.4 | 56.0 | 68.2 | -12.2 |
| Horizontal | *5352.965 | 57.0 | 35.9 | 36.4 | 57.5 | 68.2 | -10.7 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 15630.000 | 39.3 | 34.7 | 41.0 | 45.6 | 54.0 | -8.4 |
| Horizontal | *5148.580 | 47.0 | 35.9 | 36.4 | 47.5 | 54.0 | -6.5 |
| Horizontal | *5352.965 | 45.8 | 35.9 | 36.4 | 46.3 | 54.0 | -7.7 |

Test Condition : 802.11a, SISO, Ant0, Channel 149/6Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11490 | 50.6 | 35.3 | 41.2 | 56.5 | 68.2 | -11.7 |
| Horizontal | *17235 | 52.9 | 33.9 | 39.2 | 58.2 | 68.2 | -10.0 |
| Horizontal | *5716.399 | 71.0 | 36.7 | 27.2 | 61.5 | 78.2 | -16.7 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11490 | 40.4 | 35.3 | 41.2 | 46.3 | 54.0 | -7.7 |
| Horizontal | *17235 | 43.2 | 33.9 | 39.2 | 48.5 | 54.0 | -5.5 |

Test Condition : 802.11a, SISO, Ant0, Channel 157/6Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11570 | 51.1 | 35.3 | 41.2 | 57.0 | 68.2 | -11.2 |
| Horizontal | *17355 | 53.9 | 33.9 | 39.2 | 59.2 | 68.2 | -9.0 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11570 | 43.0 | 35.3 | 41.2 | 48.9 | 54.0 | -5.1 |
| Horizontal | *17355 | 43.9 | 33.9 | 39.2 | 49.2 | 54.0 | -4.8 |

Test Condition : 802.11a, SISO, Ant0, Channel 165/6Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11650 | 52.6 | 35.3 | 41.2 | 58.5 | 68.2 | -9.7 |
| Horizontal | *17475 | 53.7 | 33.9 | 39.2 | 59.0 | 68.2 | -9.2 |
| Horizontal | *5856.399 | 71.6 | 36.7 | 27.7 | 62.6 | 78.2 | -15.6 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11650 | 40.3 | 35.3 | 41.2 | 46.2 | 54.0 | -7.8 |
| Horizontal | *17475 | 43.3 | 33.9 | 39.2 | 48.6 | 54.0 | -5.4 |

Test Condition : 802.11n-HT20, SISO, Ant0, Channel 149/6.5Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11490 | 52.2 | 35.3 | 41.2 | 58.1 | 68.2 | -10.1 |
| Horizontal | *17235 | 55.7 | 33.9 | 39.2 | 61.0 | 68.2 | -7.2 |
| Horizontal | *5718.024 | 72.5 | 36.7 | 27.2 | 63.0 | 78.2 | -15.2 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11490 | 41.3 | 35.3 | 41.2 | 47.2 | 54.0 | -6.8 |
| Horizontal | *17235 | 42.7 | 33.9 | 39.2 | 48.0 | 54.0 | -6.0 |

Test Condition : 802.11n-HT20, SISO, Ant0, Channel 157/6.5Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11570 | 51.1 | 35.3 | 41.2 | 57.0 | 68.2 | -11.2 |
| Horizontal | *17355 | 54.3 | 33.9 | 39.2 | 59.6 | 68.2 | -8.6 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11570 | 41.3 | 35.3 | 41.2 | 47.2 | 54.0 | -6.8 |
| Horizontal | *17355 | 43.2 | 33.9 | 39.2 | 48.5 | 54.0 | -5.5 |

Test Condition : 802.11n-HT20, SISO, Ant0, Channel 165/6.5Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11650 | 52.1 | 35.3 | 41.2 | 58.0 | 68.2 | -10.2 |
| Horizontal | *17475 | 55.7 | 33.9 | 39.2 | 61.0 | 68.2 | -7.2 |
| Horizontal | *5855.892 | 74.1 | 36.7 | 27.7 | 65.1 | 78.2 | -13.1 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11650 | 42.4 | 35.3 | 41.2 | 48.3 | 54.0 | -5.7 |
| Horizontal | *17475 | 44.0 | 33.9 | 39.2 | 49.3 | 54.0 | -4.7 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant0+1, Channel 149/13Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11490 | 51.7 | 35.3 | 41.2 | 57.6 | 68.2 | -10.6 |
| Horizontal | *17235 | 55.2 | 33.9 | 39.2 | 60.5 | 68.2 | -7.7 |
| Horizontal | *5717.028 | 73.1 | 36.7 | 27.2 | 63.6 | 78.2 | -14.6 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11490 | 42.3 | 35.3 | 41.2 | 48.2 | 54.0 | -5.8 |
| Horizontal | *17235 | 43.7 | 33.9 | 39.2 | 49.0 | 54.0 | -5.0 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant0+1, Channel 157/13Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11570 | 50.9 | 35.3 | 41.2 | 56.8 | 68.2 | -11.4 |
| Horizontal | *17355 | 54.9 | 33.9 | 39.2 | 60.2 | 68.2 | -8.0 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11570 | 40.6 | 35.3 | 41.2 | 46.5 | 54.0 | -7.5 |
| Horizontal | *17355 | 42.6 | 33.9 | 39.2 | 47.9 | 54.0 | -6.1 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant0+1, Channel 165/13Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11650 | 53.7 | 35.3 | 41.2 | 59.6 | 68.2 | -8.6 |
| Horizontal | *17475 | 56.0 | 33.9 | 39.2 | 61.3 | 68.2 | -6.9 |
| Horizontal | *5853.582 | 64.3 | 36.7 | 27.7 | 55.3 | 78.2 | -22.9 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11650 | 42.1 | 35.3 | 41.2 | 48.0 | 54.0 | -6.0 |
| Horizontal | *17475 | 43.9 | 33.9 | 39.2 | 49.2 | 54.0 | -4.8 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant0+2, Channel 149/13Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11490 | 50.9 | 35.3 | 41.2 | 56.8 | 68.2 | -11.4 |
| Horizontal | *17235 | 54.2 | 33.9 | 39.2 | 59.5 | 68.2 | -8.7 |
| Horizontal | *5716.298 | 73.5 | 36.7 | 27.2 | 64.0 | 78.2 | -14.2 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11490 | 42.0 | 35.3 | 41.2 | 47.9 | 54.0 | -6.1 |
| Horizontal | *17235 | 43.2 | 33.9 | 39.2 | 48.5 | 54.0 | -5.5 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant0+2, Channel 157/13Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11570 | 51.1 | 35.3 | 41.2 | 57.0 | 68.2 | -11.2 |
| Horizontal | *17355 | 54.7 | 33.9 | 39.2 | 60.0 | 68.2 | -8.2 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11570 | 40.4 | 35.3 | 41.2 | 46.3 | 54.0 | -7.7 |
| Horizontal | *17355 | 42.7 | 33.9 | 39.2 | 48.0 | 54.0 | -6.0 |

Test Condition : 802.11n-HT20, MIMO, 2Tx, Ant0+2, Channel 165/13Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11650 | 54.3 | 35.3 | 41.2 | 60.2 | 68.2 | -8.0 |
| Horizontal | *17475 | 56.2 | 33.9 | 39.2 | 61.5 | 68.2 | -6.7 |
| Horizontal | *5852.395 | 72.8 | 36.7 | 27.7 | 63.8 | 78.2 | -14.4 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11650 | 42.1 | 35.3 | 41.2 | 48.0 | 54.0 | -6.0 |
| Horizontal | *17475 | 44.0 | 33.9 | 39.2 | 49.3 | 54.0 | -4.7 |

Test Condition        : 802.11n-HT20, MIMO, 2Tx, Ant1+2, Channel 149/13Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11490 | 49.9 | 35.3 | 41.2 | 55.8 | 68.2 | -12.4 |
| Horizontal | *17235 | 53.2 | 33.9 | 39.2 | 58.5 | 68.2 | -9.7 |
| Horizontal | *5720.492 | 74.8 | 36.7 | 27.2 | 65.3 | 78.2 | -12.9 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11490 | 40.6 | 35.3 | 41.2 | 46.5 | 54.0 | -7.5 |
| Horizontal | *17235 | 43.2 | 33.9 | 39.2 | 48.5 | 54.0 | -5.5 |

Test Condition        : 802.11n-HT20, MIMO, 2Tx, Ant1+2, Channel 157/13Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11570 | 52.1 | 35.3 | 41.2 | 58.0 | 68.2 | -10.2 |
| Horizontal | *17355 | 54.7 | 33.9 | 39.2 | 60.0 | 68.2 | -8.2 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11570 | 40.6 | 35.3 | 41.2 | 46.5 | 54.0 | -7.5 |
| Horizontal | *17355 | 43.0 | 33.9 | 39.2 | 48.3 | 54.0 | -5.7 |

Test Condition        : 802.11n-HT20, MIMO, 2Tx, Ant1+2, Channel 165/13Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11650 | 53.3 | 35.3 | 41.2 | 59.2 | 68.2 | -9.0 |
| Horizontal | *17475 | 56.2 | 33.9 | 39.2 | 61.5 | 68.2 | -6.7 |
| Horizontal | *5853.992 | 72.8 | 36.7 | 27.7 | 63.8 | 78.2 | -14.4 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11650 | 42.4 | 35.3 | 41.2 | 48.3 | 54.0 | -5.7 |
| Horizontal | *17475 | 44.5 | 33.9 | 39.2 | 49.8 | 54.0 | -4.2 |

Test Condition : 802.11n-HT20, MIMO, 3Tx, Ant1+2+3, Channel 149/19.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11490 | 48.6 | 35.3 | 41.2 | 54.5 | 68.2 | -13.7 |
| Horizontal | *17235 | 52.7 | 33.9 | 39.2 | 58.0 | 68.2 | -10.2 |
| Horizontal | *5718.380 | 72.4 | 36.7 | 27.2 | 62.9 | 78.2 | -15.3 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11490 | 40.3 | 35.3 | 41.2 | 46.2 | 54.0 | -7.8 |
| Horizontal | *17235 | 42.6 | 33.9 | 39.2 | 47.9 | 54.0 | -6.1 |

Test Condition : 802.11n-HT20, MIMO, 3Tx, Ant1+2+3, Channel 157/19.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11570 | 51.7 | 35.3 | 41.2 | 57.6 | 68.2 | -10.6 |
| Horizontal | *17355 | 54.2 | 33.9 | 39.2 | 59.5 | 68.2 | -8.7 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11570 | 40.4 | 35.3 | 41.2 | 46.3 | 54.0 | -7.7 |
| Horizontal | *17355 | 42.7 | 33.9 | 39.2 | 48.0 | 54.0 | -6.0 |

Test Condition : 802.11n-HT20, MIMO, 3Tx, Ant1+2+3, Channel 165/19.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11650 | 52.6 | 35.3 | 41.2 | 58.5 | 68.2 | -9.7 |
| Horizontal | *17475 | 54.9 | 33.9 | 39.2 | 60.2 | 68.2 | -8.0 |
| Horizontal | *5852.495 | 73.2 | 36.7 | 27.7 | 64.2 | 78.2 | -14.0 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11650 | 42.1 | 35.3 | 41.2 | 48.0 | 54.0 | -6.0 |
| Horizontal | *17475 | 43.5 | 33.9 | 39.2 | 48.8 | 54.0 | -5.2 |

Test Condition : 802.11n-HT40, SISO, Ant0, Channel 151/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11510 | 53.4 | 35.3 | 41.2 | 59.3 | 68.2 | -8.9 |
| Horizontal | *17265 | 55.0 | 33.9 | 39.2 | 60.3 | 68.2 | -7.9 |
| Horizontal | *5719.038 | 73.3 | 36.8 | 26.5 | 63.0 | 78.2 | -15.2 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11510 | 42.4 | 35.3 | 41.2 | 48.3 | 54.0 | -5.7 |
| Horizontal | *17265 | 44.2 | 33.9 | 39.2 | 49.5 | 54.0 | -4.5 |

Test Condition : 802.11n-HT40, SISO, Ant0, Channel 159/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11590 | 52.3 | 35.3 | 41.2 | 58.2 | 68.2 | -10.0 |
| Horizontal | *17385 | 55.2 | 33.9 | 39.2 | 60.5 | 68.2 | -7.7 |
| Horizontal | *5855.900 | 73.0 | 36.7 | 27.7 | 64.0 | 78.2 | -14.2 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11590 | 41.1 | 35.3 | 41.2 | 47.0 | 54.0 | -7.0 |
| Horizontal | *17385 | 43.2 | 33.9 | 39.2 | 48.5 | 54.0 | -5.5 |

Test Condition : 802.11n-HT40, MIMO, 2Tx, Ant0+1, Channel 151/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11510 | 52.3 | 35.3 | 41.2 | 58.2 | 68.2 | -10.0 |
| Horizontal | *17265 | 55.2 | 33.9 | 39.2 | 60.5 | 68.2 | -7.7 |
| Horizontal | *5722.385 | 74.8 | 36.8 | 26.5 | 64.5 | 78.2 | -13.7 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11510 | 40.6 | 35.3 | 41.2 | 46.5 | 54.0 | -7.5 |
| Horizontal | *17265 | 42.7 | 33.9 | 39.2 | 48.0 | 54.0 | -6.0 |

Test Condition : 802.11n-HT40, MIMO, 2Tx, Ant0+1, Channel 159/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11590 | 52.1 | 35.3 | 41.2 | 58.0 | 68.2 | -10.2 |
| Horizontal | *17385 | 55.7 | 33.9 | 39.2 | 61.0 | 68.2 | -7.2 |
| Horizontal | *5852.006 | 72.7 | 36.7 | 27.7 | 63.7 | 78.2 | -14.5 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11590 | 41.7 | 35.3 | 41.2 | 47.6 | 54.0 | -6.4 |
| Horizontal | *17385 | 43.5 | 33.9 | 39.2 | 48.8 | 54.0 | -5.2 |

TRF no.: FCC 15C_Tx_b

Test Condition : 802.11n-HT40, MIMO, 2Tx, Ant0+2, Channel 151/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11510 | 50.6 | 35.3 | 41.2 | 56.5 | 68.2 | -11.7 |
| Horizontal | *17265 | 54.7 | 33.9 | 39.2 | 60.0 | 68.2 | -8.2 |
| Horizontal | *5720.860 | 73.5 | 36.8 | 26.5 | 63.2 | 78.2 | -15.0 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11510 | 40.3 | 35.3 | 41.2 | 46.2 | 54.0 | -7.8 |
| Horizontal | *17265 | 42.3 | 33.9 | 39.2 | 47.6 | 54.0 | -6.4 |

Test Condition : 802.11n-HT40, MIMO, 2Tx, Ant0+2, Channel 159/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11590 | 53.1 | 35.3 | 41.2 | 59.0 | 68.2 | -9.2 |
| Horizontal | *17385 | 56.0 | 33.9 | 39.2 | 61.3 | 68.2 | -6.9 |
| Horizontal | *5855.725 | 73.0 | 36.7 | 27.7 | 64.0 | 78.2 | -14.2 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11590 | 40.1 | 35.3 | 41.2 | 46.0 | 54.0 | -8.0 |
| Horizontal | *17385 | 42.2 | 33.9 | 39.2 | 47.5 | 54.0 | -6.5 |

TRF no.: FCC 15C_Tx_b

Test Condition : 802.11n-HT40, MIMO, 2Tx, Ant1+2, Channel 151/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11510 | 52.6 | 35.3 | 41.2 | 58.5 | 68.2 | -9.7 |
| Horizontal | *17265 | 55.2 | 33.9 | 39.2 | 60.5 | 68.2 | -7.7 |
| Horizontal | *5720.385 | 74.7 | 36.8 | 26.5 | 64.4 | 78.2 | -13.8 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11510 | 40.1 | 35.3 | 41.2 | 46.0 | 54.0 | -8.0 |
| Horizontal | *17265 | 42.6 | 33.9 | 39.2 | 47.9 | 54.0 | -6.1 |

Test Condition : 802.11n-HT40, MIMO, 2Tx, Ant1+2, Channel 159/13.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11590 | 53.6 | 35.3 | 41.2 | 59.5 | 68.2 | -8.7 |
| Horizontal | *17385 | 56.7 | 33.9 | 39.2 | 62.0 | 68.2 | -6.2 |
| Horizontal | *5852.485 | 73.5 | 36.7 | 27.7 | 64.5 | 78.2 | -13.7 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11590 | 41.6 | 35.3 | 41.2 | 47.5 | 54.0 | -6.5 |
| Horizontal | *17385 | 43.7 | 33.9 | 39.2 | 49.0 | 54.0 | -5.0 |

Test Condition  : 802.11n-HT40, MIMO, 3Tx, Ant0+1+2, Channel 151/29.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11510 | 50.3 | 35.3 | 41.2 | 56.2 | 68.2 | -12.0 |
| Horizontal | *17265 | 54.3 | 33.9 | 39.2 | 59.6 | 68.2 | -8.6 |
| Horizontal | *5721.820 | 73.3 | 36.8 | 26.5 | 63.0 | 78.2 | -15.2 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11510 | 39.4 | 35.3 | 41.2 | 45.3 | 54.0 | -8.7 |
| Horizontal | *17265 | 41.5 | 33.9 | 39.2 | 46.8 | 54.0 | -7.2 |

Test Condition  : 802.11n-HT40, MIMO, 3Tx, Ant0+1+2, Channel 159/29.5Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11590 | 52.0 | 35.3 | 41.2 | 57.9 | 68.2 | -10.3 |
| Horizontal | *17385 | 54.7 | 33.9 | 39.2 | 60.0 | 68.2 | -8.2 |
| Horizontal | *5855.005 | 73.7 | 36.7 | 27.7 | 64.7 | 78.2 | -13.5 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11590 | 39.5 | 35.3 | 41.2 | 45.4 | 54.0 | -8.6 |
| Horizontal | *17385 | 41.0 | 33.9 | 39.2 | 46.3 | 54.0 | -7.7 |

Test Condition : 802.11ac, SISO, Ant0, Channel 155/29.3Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11550 | 50.6 | 35.3 | 41.2 | 56.5 | 68.2 | -11.7 |
| Horizontal | *17325 | 54.0 | 33.9 | 39.2 | 59.3 | 68.2 | -8.9 |
| Horizontal | *5721.395 | 73.5 | 36.8 | 26.5 | 63.2 | 78.2 | -15.0 |
| Horizontal | *5858.046 | 60.5 | 36.3 | 38.6 | 62.8 | 78.2 | -15.4 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11550 | 38.7 | 35.3 | 41.2 | 44.6 | 54.0 | -9.4 |
| Horizontal | *17325 | 40.7 | 33.9 | 39.2 | 46.0 | 54.0 | -8.0 |

Test Condition : 802.11ac, MIMO, 2Tx, Ant0+1, Channel 155/58.6Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11550 | 50.1 | 35.3 | 41.2 | 56.0 | 68.2 | -12.2 |
| Horizontal | *17325 | 54.8 | 33.9 | 39.2 | 60.1 | 68.2 | -8.1 |
| Horizontal | *5722.486 | 73.3 | 36.8 | 26.5 | 63.0 | 78.2 | -15.2 |
| Horizontal | *5851.029 | 61.3 | 36.3 | 38.6 | 63.6 | 78.2 | -14.6 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11550 | 38.6 | 35.3 | 41.2 | 44.5 | 54.0 | -9.5 |
| Horizontal | *17325 | 40.9 | 33.9 | 39.2 | 46.2 | 54.0 | -7.8 |

TRF no.: FCC 15C_Tx_b

Test Condition : 802.11ac, MIMO, 2Tx, Ant0+2, Channel 155/58.6Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11550 | 49.9 | 35.3 | 41.2 | 55.8 | 68.2 | -12.4 |
| Horizontal | *17325 | 54.6 | 33.9 | 39.2 | 59.9 | 68.2 | -8.3 |
| Horizontal | *5720.385 | 72.3 | 36.8 | 26.5 | 62.0 | 78.2 | -16.2 |
| Horizontal | *5852.590 | 62.0 | 36.3 | 38.6 | 64.3 | 78.2 | -13.9 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11550 | 39.1 | 35.3 | 41.2 | 45.0 | 54.0 | -9.0 |
| Horizontal | *17325 | 41.3 | 33.9 | 39.2 | 46.6 | 54.0 | -7.4 |

Test Condition : 802.11ac, MIMO, 2Tx, Ant1+2, Channel 155/58.6Mbps

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11550 | 51.1 | 35.3 | 41.2 | 57.0 | 68.2 | -11.2 |
| Horizontal | *17325 | 54.5 | 33.9 | 39.2 | 59.8 | 68.2 | -8.4 |
| Horizontal | *5721.580 | 73.7 | 36.8 | 26.5 | 63.4 | 78.2 | -14.8 |
| Horizontal | *5855.008 | 60.2 | 36.3 | 38.6 | 62.5 | 78.2 | -15.7 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11550 | 39.3 | 35.3 | 41.2 | 45.2 | 54.0 | -8.8 |
| Horizontal | *17325 | 42.6 | 33.9 | 39.2 | 47.9 | 54.0 | -6.1 |

Test Condition : 802.11ac, MIMO, 3Tx, Ant0+1+2, Channel 155/87.9Mbps

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11550 | 49.3 | 35.3 | 41.2 | 55.2 | 68.2 | -13.0 |
| Horizontal | *17325 | 53.2 | 33.9 | 39.2 | 58.5 | 68.2 | -9.7 |
| Horizontal | *5723.509 | 72.9 | 36.8 | 26.5 | 62.6 | 78.2 | -15.6 |
| Horizontal | *5851.370 | 61.4 | 36.3 | 38.6 | 63.7 | 78.2 | -14.5 |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *11550 | 38.7 | 35.3 | 41.2 | 44.6 | 54.0 | -9.4 |
| Horizontal | *17325 | 41.0 | 33.9 | 39.2 | 46.3 | 54.0 | -7.7 |

## 7. Power Line Conducted Emission test

### 7.1 Operating environment

Temperature:                    23        ℃
Relative Humidity:              55        %
Atmospheric Pressure           1023      hPa

### 7.2 Test setup & procedure

AC Power → LISN 1 → EUT ←(1)→ PC ← LISN 2

LISN 1 → EMI Receiver

AC Power → LISN 2
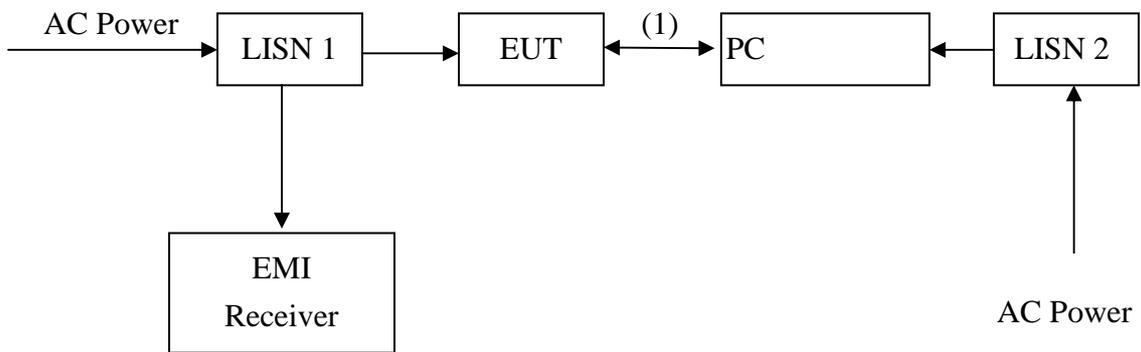
The EUT are connected to the main power through a line impedance stabilization network (LISN).   This provides a 50 ohm/50 uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50 ohm/50 uH coupling impedance with 50 ohm termination.
Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4/2009 on conducted measurement. The bandwidth of the field strength meter (R & S Test Receiver ESCI 30) is set at 9 kHz.

## 7.3 Limit

| Freq. (MHz) | Conducted Limit (dBuV) | |
| --- | --- | --- |
| | Q.P. | Ave. |
| 0.15~0.50 | 66 – 56* | 56 – 46* |
| 0.50~5.00 | 56 | 46 |
| 5.00~30.0 | 60 | 50 |

*Decreases with the logarithm of the frequency.

## 7.4 Power Line Conducted Emission test data

The test was performed on EUT under 802.11a/n/ac continuously transmitting mode. The worst case occurred at 802.11n-HT20, MIMO, 3Tx test mode.

| | |
|---|---|
| Phase: | Line |
| Test Condition: | 802.11n-HT20, MIMO, 3Tx, 36/19.5Mpbs |
| AC/DC Adapter: | UE |
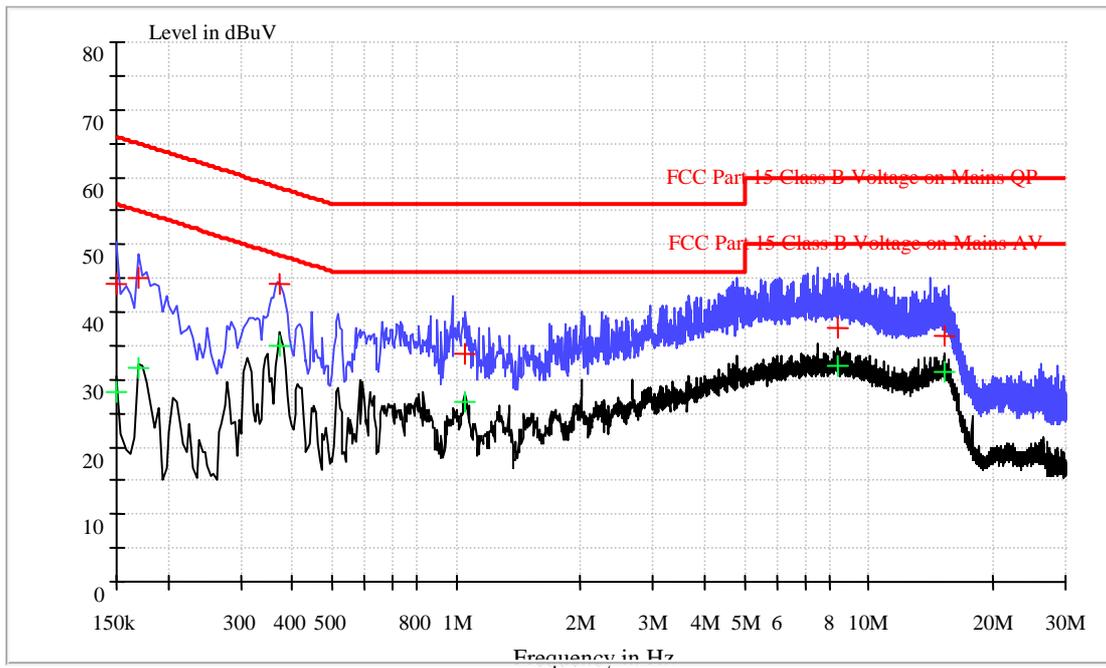


## Result Table QP

| Frequency (MHz) | QuasiPeak (dB$\mu$V) | Line | Corr. (dB) | Margin (dB) | Limit (dB$\mu$V) |
|---|---|---|---|---|---|
| 0.150 | 44.3 | L1 | 9.8 | 21.7 | 66.0 |
| 0.170 | 44.9 | L1 | 9.8 | 20.1 | 65.0 |
| 0.374 | 44.2 | L1 | 9.8 | 14.2 | 58.4 |
| 1.046 | 33.8 | L1 | 9.9 | 22.2 | 56.0 |
| 8.414 | 37.8 | L1 | 10.1 | 22.2 | 60.0 |
| 15.270 | 36.6 | L1 | 10.2 | 23.4 | 60.0 |

## Result Table AV

| Frequency (MHz) | Average (dB$\mu$V) | Line | Corr. (dB) | Margin (dB) | Limit (dB$\mu$V) |
|---|---|---|---|---|---|
| 0.150 | 28.3 | L1 | 9.8 | 27.7 | 56.0 |
| 0.170 | 31.6 | L1 | 9.8 | 23.4 | 55.0 |
| 0.374 | 35.0 | L1 | 9.8 | 13.4 | 48.4 |
| 1.046 | 26.7 | L1 | 9.9 | 19.3 | 46.0 |
| 8.414 | 31.9 | L1 | 10.1 | 18.1 | 50.0 |
| 15.270 | 31.1 | L1 | 10.2 | 18.9 | 50.0 |

TRF no.: FCC 15C_Tx_b

Phase:                              : Neutral
Test Condition:                     : 802.11n-HT20, MIMO, 3Tx, 36/19.5Mpbs
AC/DC Adapter:                      UE
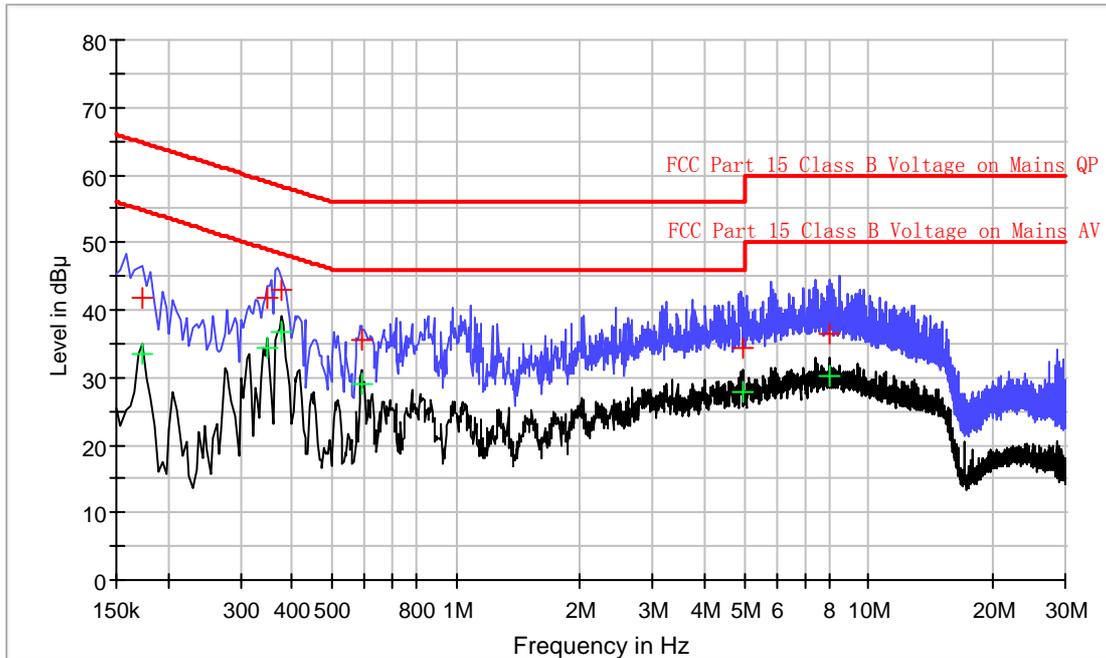


## Result Table QP

| Frequency (MHz) | QuasiPeak (dB$\mu$V) | Line | Corr. (dB) | Margin (dB) | Limit (dB$\mu$V) |
|---|---|---|---|---|---|
| 0.174 | 41.8 | N | 10.0 | 23.0 | 64.8 |
| 0.350 | 41.7 | N | 10.1 | 17.3 | 59.0 |
| 0.378 | 43.1 | N | 10.1 | 15.2 | 58.3 |
| 0.590 | 35.7 | N | 10.2 | 20.3 | 56.0 |
| 4.946 | 34.2 | N | 10.3 | 21.8 | 56.0 |
| 8.086 | 36.5 | N | 10.4 | 23.5 | 60.0 |

## Result Table AV

| Frequency (MHz) | Average (dB$\mu$V) | Line | Corr. (dB) | Margin (dB) | Limit (dB$\mu$V) |
|---|---|---|---|---|---|
| 0.174 | 33.6 | N | 10.0 | 21.2 | 54.8 |
| 0.350 | 34.4 | N | 10.1 | 14.6 | 49.0 |
| 0.378 | 36.8 | N | 10.1 | 11.5 | 48.3 |
| 0.590 | 29.2 | N | 10.2 | 16.8 | 46.0 |
| 4.946 | 27.9 | N | 10.3 | 18.1 | 46.0 |
| 8.086 | 30.1 | N | 10.4 | 19.9 | 50.0 |

TRF no.: FCC 15C_Tx_b

**8. Frequency Stability Test**

**8.1 Test setup & procedure**
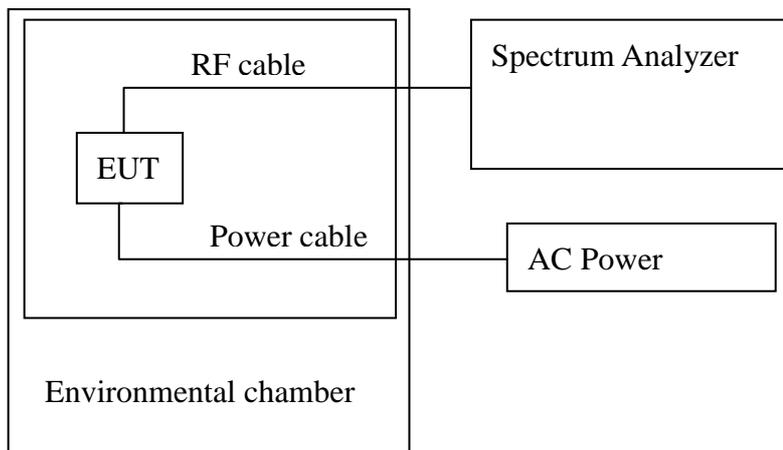


Note1: The frequency stability is measured with the temperature variation range of -30˚C to +50˚C (10˚C increment), and voltage supply variation range of 85% to 115% of nominal AC supply voltage.

2: To ensure emission at the band-edge is maintained within the authorized band, the frequency 802.11a/n-HT20/40/ac channel 36, 40, 48, 38, 46, 42, 149, 157, 165, 151, 159, 155 and the channel36, 48, 38, 46, 42, 149, 165, 151, 159, 155 are selected to test.

3: The EUT was power by AC/DC Adapter, Input: 120Vac, 60Hz.

**8.2 Frequency Stability Test Data**

20˚C is taken as temperature in normal condition.

Model: 802.11a, Operation frequency: 5180MHz, Channel: 36, Rate: 6Mbps

| Input voltage (VAC) | Temperature (˚C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5180.000235 | 235 | 0.05 |
| | -20 | 5180.000123 | 123 | 0.02 |
| | -10 | 5180.000322 | 322 | 0.06 |
| | 0 | 5180.000128 | 128 | 0.02 |
| | +10 | 5179.999523 | -477 | -0.09 |
| | +20 | 5179.999852 | -148 | -0.03 |
| | +30 | 5179.999502 | -498 | -0.10 |
| | +40 | 5179.99875 | -1,250 | -0.24 |
| | +50 | 5180.000195 | 195 | 0.04 |
| 102 | +20 | 5180.000183 | 183 | 0.04 |
| 138 | +20 | 5180.000126 | 126 | 0.02 |

TRF no.: FCC 15C_Tx_b

Model: 802.11a, Operation frequency: 5240MHz, Channel: 48, Rate: 6Mbps

| Input voltage (VAC) | Temperature (˚C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5240.000246 | 246 | 0.05 |
| | -20 | 5240.000259 | 259 | 0.05 |
| | -10 | 5240.000159 | 159 | 0.03 |
| | 0 | 5240.000195 | 195 | 0.04 |
| | +10 | 5240.000127 | 127 | 0.02 |
| | +20 | 5240.000178 | 178 | 0.03 |
| | +30 | 5240.000128 | 128 | 0.02 |
| | +40 | 5240.000175 | 175 | 0.03 |
| | +50 | 5240.000125 | 125 | 0.02 |
| 102 | +20 | 5240.000183 | 183 | 0.03 |
| 138 | +20 | 5240.000185 | 185 | 0.04 |

Model: 802.11n-HT20, Operation frequency: 5180MHz, Channel: 36, Rate: 6.5Mbps

| Input voltage (VAC) | Temperature (˚C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5180.000126 | 126 | 0.02 |
| | -20 | 5180.000152 | 152 | 0.03 |
| | -10 | 5180.000158 | 158 | 0.03 |
| | 0 | 5180.000210 | 210 | 0.04 |
| | +10 | 5180.000201 | 201 | 0.04 |
| | +20 | 5180.000158 | 158 | 0.03 |
| | +30 | 5180.000139 | 139 | 0.03 |
| | +40 | 5180.000111 | 111 | 0.02 |
| | +50 | 5180.000115 | 115 | 0.02 |
| 102 | +20 | 5180.000129 | 129 | 0.02 |
| 138 | +20 | 5180.000135 | 135 | 0.03 |

Model: 802.11n-HT20, Operation frequency: 5240MHz, Channel: 48, Rate: 6.5Mbps

| Input voltage (VAC) | Temperature (˚C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5240.000158 | 158 | 0.03 |
| | -20 | 5240.000157 | 157 | 0.03 |
| | -10 | 5240.000194 | 194 | 0.04 |
| | 0 | 5240.000175 | 175 | 0.03 |
| | +10 | 5240.000184 | 184 | 0.04 |
| | +20 | 5240.000198 | 198 | 0.04 |
| | +30 | 5240.000182 | 182 | 0.03 |
| | +40 | 5240.000185 | 185 | 0.04 |
| | +50 | 5240.000241 | 241 | 0.05 |
| 102 | +20 | 5240.000219 | 219 | 0.04 |
| 138 | +20 | 5240.000215 | 215 | 0.04 |

Model: 802.11n-HT40, Operation frequency: 5190MHz, Channel: 38, Rate: 13.5Mbps

| Input voltage (VAC) | Temperature (°C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5190.000128 | 128 | 0.02 |
| | -20 | 5190.000102 | 102 | 0.02 |
| | -10 | 5190.00016 | 160 | 0.03 |
| | 0 | 5190.000183 | 183 | 0.04 |
| | +10 | 5189.999284 | -716 | -0.14 |
| | +20 | 5189.999385 | -615 | -0.12 |
| | +30 | 5189.999284 | -716 | -0.14 |
| | +40 | 5190.000185 | 185 | 0.04 |
| | +50 | 5190.000219 | 219 | 0.04 |
| 102 | +20 | 5190.000211 | 211 | 0.04 |
| 138 | +20 | 5190.000182 | 182 | 0.04 |

Model: 802.11n-HT40, Operation frequency: 5230MHz, Channel: 46, Rate: 13.5Mbps

| Input voltage (VAC) | Temperature (°C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5230.000218 | 218 | 0.04 |
| | -20 | 5230.000215 | 215 | 0.04 |
| | -10 | 5230.000224 | 224 | 0.04 |
| | 0 | 5230.000225 | 225 | 0.04 |
| | +10 | 5230.000285 | 285 | 0.05 |
| | +20 | 5230.000281 | 281 | 0.05 |
| | +30 | 5230.000192 | 192 | 0.04 |
| | +40 | 5230.000185 | 185 | 0.04 |
| | +50 | 5230.000195 | 195 | 0.04 |
| 102 | +20 | 5230.000222 | 222 | 0.04 |
| 138 | +20 | 5230.000285 | 285 | 0.05 |

Model: 802.11ac, Operation frequency: 5210MHz, Channel: 42, Rate: 29.3Mbps

| Input voltage (VAC) | Temperature (°C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5210.000252 | 252 | 0.05 |
| | -20 | 5210.000218 | 218 | 0.04 |
| | -10 | 5210.000184 | 184 | 0.04 |
| | 0 | 5210.000187 | 187 | 0.04 |
| | +10 | 5210.000166 | 166 | 0.03 |
| | +20 | 5210.000185 | 185 | 0.04 |
| | +30 | 5210.000127 | 127 | 0.02 |
| | +40 | 5210.000182 | 182 | 0.03 |
| | +50 | 5210.000285 | 285 | 0.05 |
| 102 | +20 | 5210.000284 | 284 | 0.05 |
| 138 | +20 | 5210.000169 | 169 | 0.03 |

Model: 802.11a, Operation frequency: 5745MHz, Channel: 149, Rate: 6Mbps

| Input voltage (VAC) | Temperature (˚C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5745.000182 | 182 | 0.03 |
| | -20 | 5745.000156 | 156 | 0.03 |
| | -10 | 5745.000137 | 137 | 0.02 |
| | 0 | 5745.000122 | 122 | 0.02 |
| | +10 | 5745.000153 | 153 | 0.03 |
| | +20 | 5745.000089 | 89 | 0.02 |
| | +30 | 5745.000263 | 263 | 0.05 |
| | +40 | 5745.000212 | 212 | 0.04 |
| | +50 | 5745.000163 | 163 | 0.03 |
| 102 | +20 | 5745.000144 | 144 | 0.03 |
| 138 | +20 | 5745.000129 | 129 | 0.02 |

Model: 802.11a, Operation frequency: 5825MHz, Channel: 165, Rate: 6Mbps

| Input voltage (VAC) | Temperature (˚C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5825.000125 | 125 | 0.02 |
| | -20 | 5825.000172 | 172 | 0.03 |
| | -10 | 5825.000277 | 277 | 0.05 |
| | 0 | 5825.000162 | 162 | 0.03 |
| | +10 | 5825.000266 | 266 | 0.05 |
| | +20 | 5825.000216 | 216 | 0.04 |
| | +30 | 5825.000114 | 114 | 0.02 |
| | +40 | 5825.000276 | 276 | 0.05 |
| | +50 | 5825.000193 | 193 | 0.03 |
| 102 | +20 | 5825.000261 | 261 | 0.04 |
| 138 | +20 | 5825.000266 | 266 | 0.05 |

Model: 802.11n-HT20, Operation frequency: 5745MHz, Channel: 149, Rate: 6.5Mbps

| Input voltage (VAC) | Temperature (˚C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5745.000254 | 254 | 0.04 |
| | -20 | 5745.000222 | 222 | 0.04 |
| | -10 | 5745.000144 | 144 | 0.03 |
| | 0 | 5745.000146 | 146 | 0.03 |
| | +10 | 5745.00023 | 230 | 0.04 |
| | +20 | 5745.000255 | 255 | 0.04 |
| | +30 | 5745.000194 | 194 | 0.03 |
| | +40 | 5745.000155 | 155 | 0.03 |
| | +50 | 5745.000223 | 223 | 0.04 |
| 102 | +20 | 5745.000253 | 253 | 0.04 |
| 138 | +20 | 5745.000142 | 142 | 0.02 |

Model: 802.11n-HT20, Operation frequency: 5825MHz, Channel: 165, Rate: 6.5Mbps

| Input voltage (VAC) | Temperature (°C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5825.000183 | 183 | 0.03 |
| | -20 | 5825.000125 | 125 | 0.02 |
| | -10 | 5825.000072 | 72 | 0.01 |
| | 0 | 5825.000276 | 276 | 0.05 |
| | +10 | 5825.000277 | 277 | 0.05 |
| | +20 | 5825.000016 | 16 | 0.00 |
| | +30 | 5825.000255 | 255 | 0.04 |
| | +40 | 5825.000166 | 166 | 0.03 |
| | +50 | 5825.000212 | 212 | 0.04 |
| 102 | +20 | 5825.000244 | 244 | 0.04 |
| 138 | +20 | 5825.000103 | 103 | 0.02 |

Model: 802.11n-HT40, Operation frequency: 5755MHz, Channel: 151, Rate: 13.5Mbps

| Input voltage (VAC) | Temperature (°C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5755.000152 | 152 | 0.03 |
| | -20 | 5755.000127 | 127 | 0.02 |
| | -10 | 5755.000142 | 142 | 0.02 |
| | 0 | 5754.999294 | -706 | -0.12 |
| | +10 | 5754.999294 | -706 | -0.12 |
| | +20 | 5754.999726 | -274 | -0.05 |
| | +30 | 5754.999276 | -724 | -0.13 |
| | +40 | 5754.999020 | -980 | -0.17 |
| | +50 | 5755.000162 | 162 | 0.03 |
| 102 | +20 | 5755.000221 | 221 | 0.04 |
| 138 | +20 | 5755.000236 | 236 | 0.04 |

Model: 802.11n-HT40, Operation frequency: 5795MHz, Channel: 159, Rate: 13.5Mbps

| Input voltage (VAC) | Temperature (°C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5794.999263 | -737 | -0.13 |
| | -20 | 5794.999239 | -761 | -0.13 |
| | -10 | 5795.000142 | 142 | 0.02 |
| | 0 | 5795.000243 | 243 | 0.04 |
| | +10 | 5795.000253 | 253 | 0.04 |
| | +20 | 5795.000265 | 265 | 0.05 |
| | +30 | 5795.000255 | 255 | 0.04 |
| | +40 | 5795.000283 | 283 | 0.05 |
| | +50 | 5795.000221 | 221 | 0.04 |
| 102 | +20 | 5795.000123 | 123 | 0.02 |
| 138 | +20 | 5795.000211 | 211 | 0.04 |

Model: 802.11ac, Operation frequency: 5775MHz, Channel: 155, Rate: 29.3Mbps

| Input voltage (VAC) | Temperature (°C) | Measured Frequency (MHz) | Frequency deviation (Hz) | ppm |
|---|---|---|---|---|
| 120 | -30 | 5775.000273 | 273 | 0.05 |
| | -20 | 5775.000261 | 261 | 0.05 |
| | -10 | 5775.000266 | 266 | 0.05 |
| | 0 | 5775.000153 | 153 | 0.03 |
| | +10 | 5775.000155 | 155 | 0.03 |
| | +20 | 5775.000127 | 127 | 0.02 |
| | +30 | 5775.000155 | 155 | 0.03 |
| | +40 | 5775.000150 | 150 | 0.03 |
| | +50 | 5775.000235 | 235 | 0.04 |
| 102 | +20 | 5775.000027 | 27 | 0.00 |
| 138 | +20 | 5775.000266 | 266 | 0.05 |

Appendix A: Test equipment list

| Equipment No. | Equipment | Manufacturer | Model No. | Serial No. | Cal. Date | Due Date |
|---|---|---|---|---|---|---|
| SZ182-02 | RF Power Meter | Anritsu | ML2496A | 14-Jul-14 | 21-May-2014 | 21-May-2015 |
| SZ182-02-01 | Pulse Power Sensor | Anritsu | MA2411B | 14-Jul-14 | 21-May-2014 | 21-May-2015 |
| SZ070-24 | Open Switch and Control Unit with TS8997 option for power measurement test | R&S | OSP120+B157 | 1-Nov-14 | 1-Nov-2014 | 1-May-2015 |
| SZ061-03 | BiConiLog Antenna | ETS | 3142C | 00066460 | 28-Jun-2014 | 28-Jun-2015 |
| SZ061-06 | Active Loop Antenna | Electro-Metrics | EM-6876 | 217 | 29-Apr-2014 | 29-Apr-2015 |
| SZ061-09 | Horn Antenna | ETS | 3115 | 00092346 | 1-Nov-2014 | 1-Nov-2015 |
| SZ061-07 | Pyramidal Horn Antenna | ETS | 3160-09 | 00083067 | 3-Sep-2014 | 3-Sep-2015 |
| SZ185-01 | EMI Receiver | R&S | ESCI | 100547 | 10-Mar-2014 | 10-Mar-2015 |
| EM031-03 | EXA Spectrum Analyzer | R&S | FSV40 | 09-Jun-14 | 09-Jun-2014 | 09-Jun-2015 |
| SZ181-04 | Preamplifier | Agilent | 8449B | 3008A02474 | 10-Mar-2014 | 10-Mar-2015 |
| SZ188-01 | Anechoic Chamber | ETS | RFD-F/A-100 | 4102 | 19-Apr-2014 | 19-Apr-2015 |
| SZ062-02-01 | RF Cable | RADIALL | RG 213U | -- | 9-Oct-2014 | 9-Apr-2015 |
| SZ062-05-02 | RF Cable | RADIALL | 0.04-26.5GHz | -- | 9-Oct-2014 | 9-Apr-2015 |
| SZ062-12-02 | RF Cable | RADIALL | 0.04-26.5GHz | -- | 9-Oct-2014 | 9-Apr-2015 |
| SZ067-21 | Notch Filter | Micro-Tronics | High-pass filter | -- | 10-Mar-2014 | 10-Mar-2015 |
| SZ067-04 | Notch Filter | Micro-Tronics | BRM50702-02 | -- | 21-May-2014 | 21-May-2015 |
| SZ185-02 | EMI Test Receiver | R&S | ESCI | 100692 | 1-Nov-2014 | 1-Nov-2015 |
| SZ187-01 | Two-Line V-Network | R&S | ENV216 | 100072 | 1-Nov-2014 | 1-Nov-2015 |
| SZ187-02 | Two-Line V-Network | R&S | ENV216 | 100073 | 16-Jun-2014 | 16-Jun-2015 |
| SZ188-03 | Shielding Room | ETS | RFD-100 | 4100 | 23-Aug-2014 | 23-Aug-2015 |
| SZ016-12 | Programmable Temperature & Humidity Chamber | Taili | MHK-120NK | AB0105 | 7-Mar-2014 | 7-Mar-2015 |
| SZ006-12 | AC Power Source | Apcpowers | AFC-11005GS | F312020082 | 26-Sep-2014 | 26-Mar-2015 |

Expanded uncertainty of radiated emission measurement is ±4.9 dB.
Expanded uncertainty of conducted emission measurement is ±3.6 dB.