# FCC RF Test Report

| | | |
|---|---|---|
| APPLICANT | : | ZTE CORPORATION |
| EQUIPMENT | : | CDMA/LTE Ufi |
| BRAND NAME | : | ZTE |
| MODEL NAME | : | 306ZT |
| FCC ID | : | SRQ-ZTEMF975S |
| STANDARD | : | FCC Part 15 Subpart E §15.407 |
| CLASSIFICATION | : | (NII) Unlicensed National Information Infrastructure |

**The product was received on Jun. 18, 2014 and testing was completed on Aug. 22, 2014. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.**

**The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.**

**Reviewed by: Joseph Lin / Supervisor**

**Approved by: Jones Tsai / Manager**

Testing Laboratory
2627

***SPORTON INTERNATIONAL (KUNSHAN) INC.***
***No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.***

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**APPENDIX A. SETUP PHOTOGRAPHS**

# REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|---|---|---|---|
| FR461802C | Rev. 01 | Initial issue of report | Aug. 26, 2014 |
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# SUMMARY OF TEST RESULT

| Report Section | FCC Rule | Description | Limit | Result | Remark |
|---|---|---|---|---|---|
| 3.1 | 15.403(i) | 6dB Bandwidth | > 500kHz | Pass | - |
| 3.2 | 15.407(a) | Maximum Conducted Output Power | ≤ 30 dBm | Pass | - |
| 3.3 | 15.407(a) | Power Spectral Density | ≤ 30 dBm/500kHz | Pass | - |
| 3.4 | 15.407(b) | Unwanted Emissions | ≤ -17, -27 dBm/MHz &15.209(a) | Pass | Under limit 2.83 dB at 5724.920 MHz |
| 3.5 | 15.207 | AC Conducted Emission | 15.207(a) | Pass | Under limit 7.89 dB at 0.580 MHz |
| 3.6 | 15.407(g) | Frequency Stability | Within Operation Band | Pass | - |
| 3.7 | 15.407(c) | Automatically Discontinue Transmission | Discontinue Transmission | Pass | - |
| 3.8 | 15.203 & 15.407(a) | Antenna Requirement | N/A | Pass | - |

# 1 General Description

## 1.1 Applicant

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

## 1.2 Manufacturer

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

## 1.3 Feature of Equipment Under Test

| Product Feature | |
|---|---|
| **Equipment** | CDMA/LTE Ufi |
| **Brand Name** | ZTE |
| **Model Name** | 306ZT |
| **FCC ID** | SRQ-ZTEMF975S |
| **EUT supports Radios application** | CDMA/EV-DO/LTE/<br>WLAN 2.4GHz 802.11b/g/n HT20/HT40/<br>WLAN 5GHz 802.11a/n HT20/HT40/<br>WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 |
| **HW Version** | xw3B |
| **SW Version** | 306ZTV1.0.0B09 |
| **EUT Stage** | Identical Prototype |

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 1.4 Product Specification of Equipment Under Test

| Product Specification subjective to this standard | |
|---|---|
| **Tx/Rx Channel Frequency Range** | 5725 MHz ~ 5850 MHz |
| **Maximum Output Power** | 802.11a : 13.11 dBm / 0.0205 W<br>802.11n HT20 : 12.66 dBm / 0.0185 W<br>802.11n HT40 : 11.14 dBm / 0.0130 W<br>802.11n VHT20 : 14.21 dBm / 0.0264 W<br>802.11n VHT40 : 10.16 dBm / 0.0104 W<br>802.11n VHT80 : 8.99 dBm / 0.0079 W |
| **Minimum 6dB Bandwidth** | 802.11a : 15.12 MHz<br>802.11n HT20 : 15.12 MHz<br>802.11n HT40 : 35.08 MHz<br>802.11ac VHT20 : 15.12 MHz<br>802.11ac VHT40 : 35.08 MHz<br>802.11ac VHT80 : 75.04 MHz |
| **Type of Modulation** | 802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)<br>802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) |
| **Antenna Type / Gain** | Chain Port 0 : Monopole Antenna with gain 2.6 dBi<br>Chain Port 1 : Monopole Antenna with gain 2.5 dBi |
| **Antenna Function Description** | |

| | Chain Port 0 | Chain Port 1 |
|---|---|---|
| 802.11 a/n/ac MIMO | V | V |

## 1.5 Modification of EUT

No modifications are made to the EUT during all test items.

## 1.6 Testing Location

| | | | | |
|---|---|---|---|---|
| **Test Site** | SPORTON INTERNATIONAL (KUNSHAN) INC. | | | |
| **Test Site Location** | No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. C.<br>TEL: +86-0512-5790-0158<br>FAX: +86-0512-5790-0958 | | | |
| **Test Site No.** | **Sporton Site No.** | | | **FCC Registration No.** |
| | TH01-KS | 03CH01-KS | CO01-KS | 149928 |

## 1.7 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v01
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.4-2003

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

# 2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

## 2.1 Carrier Frequency and Channel

| Frequency Band | Channel | Freq. (MHz) | Channel | Freq. (MHz) |
|---|---|---|---|---|
| 5725-5850 MHz Band 4 (U-NII-3) | 149 | 5745 | 157 | 5785 |
| | **151** | **5755** | **159** | **5795** |
| | 153 | 5765 | 161 | 5805 |
| | 155 | 5775 | 165 | 5825 |

**Note:** The above Frequency and Channel in boldface were 802.11n HT40 and 802.11ac VHT40.

## 2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and data rate associated with the highest power were chosen for full test in the following tables. Final Output Power equals to Measured Output Power adds the duty factor.

| Channel | Frequency (MHz) | Chain Port | WLAN 5GHz 802.11a Output Power (dBm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Data Rate | Power vs. Data Rate | | | | | | | |
| | | | 6Mbps | Channel | 9Mbps | 12Mbps | 18Mbps | 24Mbps | 36Mbps | 48Mbps | 54Mbps |
| CH 149 | 5745 | 0+1(0) | 10.29 | CH 157 | 10.81 | 10.83 | 10.82 | 10.81 | 10.71 | 10.75 | 10.73 |
| CH 157 | 5785 | 0+1(0) | **10.99** | | | | | | | | |
| CH 165 | 5825 | 0+1(0) | 10.69 | | | | | | | | |
| CH 149 | 5745 | 0+1(1) | **9.25** | CH 149 | 9.22 | 9.07 | 9.14 | 9.17 | 9.14 | 9.21 | 9.22 |
| CH 157 | 5785 | 0+1(1) | 8.98 | | | | | | | | |
| CH 165 | 5825 | 0+1(1) | 8.81 | | | | | | | | |
| CH 149 | 5745 | 0+1 | 12.81 | CH 157 | 13.01 | 13.03 | 13.01 | 13.00 | 13.02 | 12.98 | 13.01 |
| CH 157 | 5785 | 0+1 | **13.11** | | | | | | | | |
| CH 165 | 5825 | 0+1 | 12.86 | | | | | | | | |

| Channel | Frequency (MHz) | Chain Port | WLAN 5GHz 802.11n-HT20 Output Power (dBm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MCS Index | Power vs. Data Rate | | | | | | | |
| | | | MCS8 | Channel | MCS9 | MCS10 | MCS11 | MCS12 | MCS13 | MCS14 | MCS15 |
| CH 149 | 5745 | 0+1(0) | 9.84 | CH 165 | 10.17 | 10.22 | 10.27 | 10.24 | 10.23 | 10.12 | 10.20 |
| CH 157 | 5785 | 0+1(0) | 10.16 | | | | | | | | |
| CH 165 | 5825 | 0+1(0) | **10.28** | | | | | | | | |
| CH 149 | 5745 | 0+1(1) | 8.67 | CH 165 | 8.56 | 8.39 | 8.56 | 8.57 | 8.52 | 8.51 | 8.55 |
| CH 157 | 5785 | 0+1(1) | 8.88 | | | | | | | | |
| CH 165 | 5825 | 0+1(1) | **8.92** | | | | | | | | |
| CH 149 | 5745 | 0+1 | 12.30 | CH 165 | 12.45 | 12.41 | 12.51 | 12.50 | 12.47 | 12.40 | 12.46 |
| CH 157 | 5785 | 0+1 | 12.58 | | | | | | | | |
| CH 165 | 5825 | 0+1 | **12.66** | | | | | | | | |

| Channel | Frequency (MHz) | Chain Port | WLAN 5GHz 802.11n-HT40 Output Power (dBm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MCS Index | Power vs. Data Rate | | | | | | | |
| | | | MCS8 | Channel | MCS9 | MCS10 | MCS11 | MCS12 | MCS13 | MCS14 | MCS15 |
| CH 151 | 5755 | 0+1(0) | 8.62 | CH 159 | 8.64 | 8.60 | 8.48 | 8.39 | 8.43 | 8.41 | 8.38 |
| CH 159 | 5795 | 0+1(0) | **8.82** | | | | | | | | |
| CH 151 | 5755 | 0+1(1) | 7.10 | CH 159 | 6.93 | 6.89 | 6.82 | 6.75 | 6.75 | 6.81 | 6.71 |
| CH 159 | 5795 | 0+1(1) | **7.31** | | | | | | | | |
| CH 151 | 5755 | 0+1 | 10.93 | CH 159 | 10.88 | 10.84 | 10.74 | 10.66 | 10.68 | 10.70 | 10.64 |
| CH 159 | 5795 | 0+1 | **11.14** | | | | | | | | |

| Channel | Frequency (MHz) | Chain Port | WLAN 5GHz 802.11ac-VHT20 Output Power (dBm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MCS Index | Power vs. Data Rate | | | | | | | | |
| | | | MCS0 | Channel | MCS1 | MCS2 | MCS3 | MCS4 | MCS5 | MCS6 | MCS7 | MCS8 |
| CH 149 | 5745 | 0+1(0) | **12.06** | CH 149 | 11.45 | 11.85 | 11.82 | 11.87 | 11.54 | 11.63 | 11.58 | 11.78 |
| CH 157 | 5785 | 0+1(0) | 10.84 | | | | | | | | | |
| CH 165 | 5825 | 0+1(0) | 10.86 | | | | | | | | | |
| CH 149 | 5745 | 0+1(1) | **10.13** | CH 149 | 9.73 | 10.02 | 10.01 | 10.04 | 10.09 | 10.08 | 9.48 | 10.11 |
| CH 157 | 5785 | 0+1(1) | 9.15 | | | | | | | | | |
| CH 165 | 5825 | 0+1(1) | 8.98 | | | | | | | | | |
| CH 149 | 5745 | 0+1 | **14.21** | CH 149 | 13.68 | 14.05 | 14.02 | 14.06 | 13.89 | 13.94 | 13.67 | 14.03 |
| CH 157 | 5785 | 0+1 | 13.09 | | | | | | | | | |
| CH 165 | 5825 | 0+1 | 13.03 | | | | | | | | | |

| Channel | Frequency (MHz) | Chain Port | WLAN 5GHz 802.11ac-VHT40 Output Power (dBm) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MCS Index | Power vs. Data Rate | | | | | | | | | |
| | | | MCS0 | Channel | MCS1 | MCS2 | MCS3 | MCS4 | MCS5 | MCS6 | MCS7 | MCS8 | MCS9 |
| CH 151 | 5755 | 0+1(0) | 7.48 | CH 159 | 7.57 | 7.47 | 7.48 | 7.47 | 7.39 | 7.55 | 7.42 | 7.38 | 7.53 |
| CH 159 | 5795 | 0+1(0) | **7.58** | | | | | | | | | | |
| CH 151 | 5755 | 0+1(1) | 6.45 | CH 159 | 6.19 | 6.36 | 6.33 | 6.56 | 6.50 | 6.31 | 6.38 | 6.33 | 6.20 |
| CH 159 | 5795 | 0+1(1) | **6.67** | | | | | | | | | | |
| CH 151 | 5755 | 0+1 | 10.01 | CH 159 | 9.95 | 9.96 | 9.96 | 10.05 | 9.98 | 9.99 | 9.94 | 9.90 | 9.92 |
| CH 159 | 5795 | 0+1 | **10.16** | | | | | | | | | | |

| Channel | Frequency (MHz) | Chain Port | WLAN 5GHz 802.11ac-VHT80 Output Power (dBm) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MCS Index | Power vs. Data Rate | | | | | | | | | |
| | | | MCS0 | Channel | MCS1 | MCS2 | MCS3 | MCS4 | MCS5 | MCS6 | MCS7 | MCS8 | MCS9 |
| CH 155 | 5775 | 0+1(0) | **6.87** | CH 155 | 6.29 | 6.44 | 6.01 | 6.08 | 6.31 | 5.91 | 6.04 | 5.90 | 6.19 |
| CH 155 | 5775 | 0+1(1) | **4.85** | CH 155 | 4.79 | 4.68 | 4.49 | 4.61 | 4.72 | 4.54 | 4.49 | 4.72 | 4.74 |
| CH 155 | 5775 | 0+1 | **8.99** | CH 155 | 8.62 | 8.66 | 8.33 | 8.42 | 8.60 | 8.29 | 8.35 | 8.36 | 8.54 |

**Note:** Chain Port 0+1 is a calculated result from sum of the power Chain Port 0+1 (0) and Chain Port 0+1 (1).

## 2.3 Test Mode

**Final results of test modes, data rates and test channels are shown as following table.**

| Test Cases | | | | |
|---|---|---|---|---|
| | Test Items | Mode | Data rate | Test Channel |
| Conducted TCs | 6dB Bandwidth Power Spectral Density | 802.11a | 6 Mbps | L/M/H |
| | | 802.11n HT20 | MCS8 | L/M/H |
| | | 802.11n HT40 | MCS8 | L/H |
| | | 802.11ac VHT20 | MCS0 | L/M/H |
| | | 802.11ac VHT40 | MCS0 | L/H |
| | | 802.11ac VHT80 | MCS0 | M |
| | Output Power | 802.11a | 6 Mbps | L/M/H |
| | | 802.11n HT20 | MCS8 | L/M/H |
| | | 802.11n HT40 | MCS8 | L/H |
| | | 802.11ac VHT20 | MCS0 | L/M/H |
| | | 802.11ac VHT40 | MCS0 | L/H |
| | | 802.11ac VHT80 | MCS0 | M |
| | Frequency Stability | 802.11a | 6 Mbps | L |

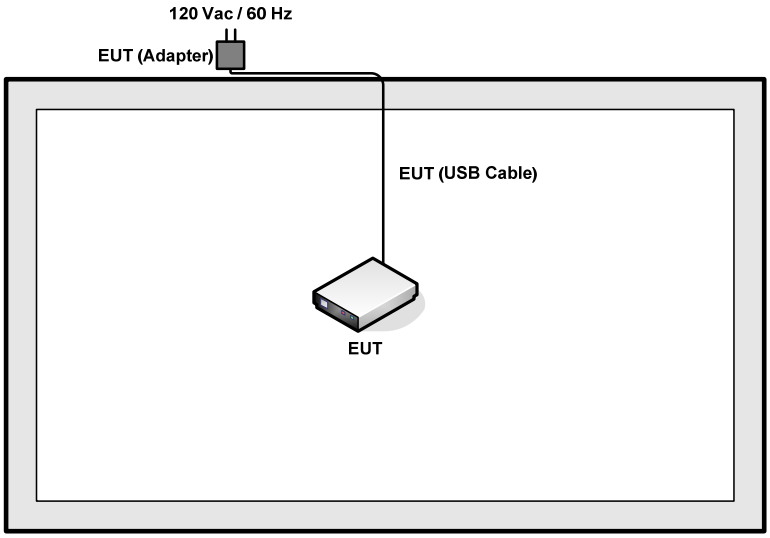
| Test Cases | | | | |
|---|---|---|---|---|
| Radiated TCs | Test Items | Mode | Data rate | Test Channel |
| | Radiated Band Edge | 802.11a | 6 Mbps | L/H |
| | | 802.11n HT20 | MCS8 | L/H |
| | | 802.11n HT40 | MCS8 | L/H |
| | | 802.11ac VHT20 | MCS0 | L/H |
| | | 802.11ac VHT40 | MCS0 | L/H |
| | | 802.11ac VHT80 | MCS0 | M |
| | Radiated Spurious Emission | 802.11a | 6 Mbps | L/M/H |
| | | 802.11n HT20 | MCS8 | L/M/H |
| | | 802.11n HT40 | MCS8 | L/H |
| | | 802.11ac VHT20 | MCS0 | L/M/H |
| | | 802.11ac VHT40 | MCS0 | L/H |
| | | 802.11ac VHT80 | MCS0 | M |
| AC Conducted Emission | Mode 1 : CDMA2000 BC1 + WLAN Link (5G) + USB Cable (Charging from Adapter) | | | |
| **Remark:** For Radiated, the test cases were performed with adapter and USB cable. | | | | |

| Ch. # | | Band IV：5725-5850 MHz | | |
|---|---|---|---|---|
| | | 802.11a | 802.11n HT20 | 802.11n HT40 |
| L | Low | 149 | 149 | 151 |
| M | Middle | 157 | 157 | - |
| H | High | 165 | 165 | 159 |

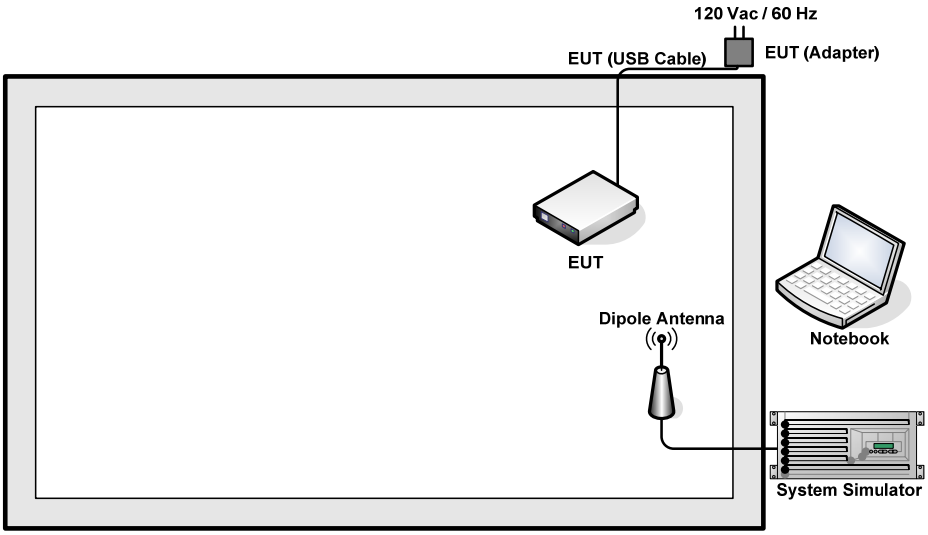
| Ch. # | | Band IV：5725-5850 MHz | | |
|---|---|---|---|---|
| | | 802.11ac VHT20 | 802.11ac VHT40 | 802.11ac VHT80 |
| L | Low | 149 | 151 | - |
| M | Middle | 157 | - | 155 |
| H | High | 165 | 159 | - |

## 2.4 Connection Diagram of Test System

**<WLAN Tx Mode>**




**<AC Conducted Emission Mode>**



## 2.5 Support Unit used in test configuration and system

| Item | Equipment | Trade Name | Model Name | FCC ID | Data Cable | Power Cord |
|---|---|---|---|---|---|---|
| 1. | System Simulator | R&S | CMU 200 | N/A | N/A | Unshielded, 1.8 m |
| 2. | Notebook | Lenovo | G480 | N/A | N/A | AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m |

## 2.6 EUT Operation Test Setup

For WLAN function, the engineering test program was provided and enabled to make EUT continuous transmit/receive.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

## 2.7 Measurement Results Explanation Example

**For all conducted test items:**

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
*Offset = RF cable loss + attenuator factor.*
Following shows an offset computation example with cable loss 7.3 dB and 10dB attenuator.

*Offset(dB) = RF cable loss(dB) + attenuator factor(dB).*
= 7.3 + 10 = 17.3 (dB)

# 3 Test Result

## 3.1 6dB Bandwidth Measurement

### 3.1.1 Description of 6dB Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

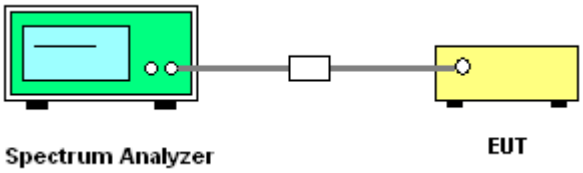
### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01. Section C) Emission bandwidth for the band 5.725-5.85GHz
2. Set RBW = 100kHz.
3. Set the VBW ≥ 3 x RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
7. Measure and record the results in the test report.

### 3.1.4 Test Setup

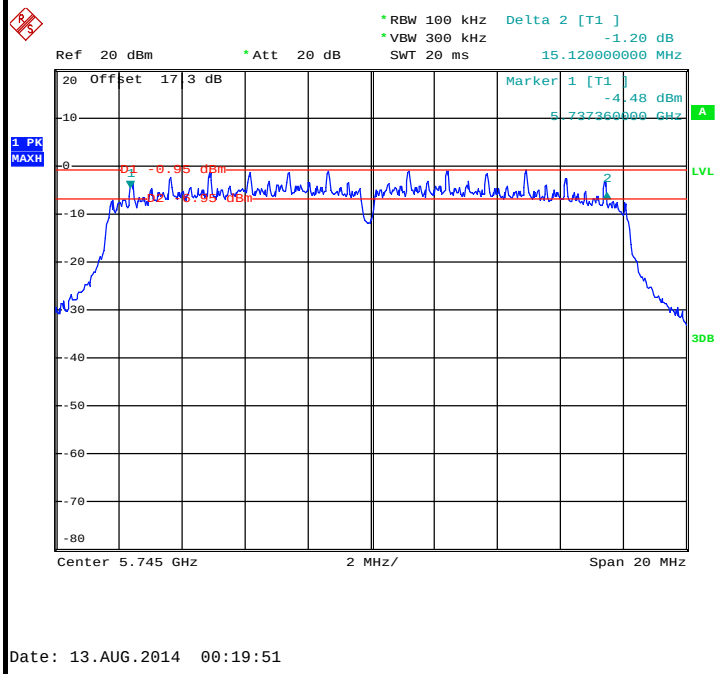


### 3.1.5 Test Result of 6dB Bandwidth

| Test Band : | 5GHz band 4 | Temperature : | 24~25℃ |
|---|---|---|---|
| Test Engineer : | Issac Song | Relative Humidity : | 49~51% |

| Mod. | Data Rate | NTX | Channel | Freq. (MHz) | 6 dB Bandwidth (MHz) | | FCC 6 dB Bandwidth Min. Limit (MHz) | | Pass/Fail |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Chain Port 0 | Chain Port 1 | Chain Port 0 | Chain Port 1 | |
| 11a | 6Mbps | 2 | 149 | 5745 | 15.34 | 15.12 | 0.5 | 0.5 | Pass |
| 11a | 6Mbps | 2 | 157 | 5785 | 15.32 | 15.12 | 0.5 | 0.5 | Pass |
| 11a | 6Mbps | 2 | 165 | 5825 | 15.32 | 15.12 | 0.5 | 0.5 | Pass |
| HT20 | MCS8 | 2 | 149 | 5745 | 15.14 | 15.12 | 0.5 | 0.5 | Pass |
| HT20 | MCS8 | 2 | 157 | 5785 | 15.12 | 15.36 | 0.5 | 0.5 | Pass |
| HT20 | MCS8 | 2 | 165 | 5825 | 15.12 | 15.12 | 0.5 | 0.5 | Pass |
| HT40 | MCS8 | 2 | 151 | 5755 | 35.08 | 35.08 | 0.5 | 0.5 | Pass |
| HT40 | MCS8 | 2 | 159 | 5795 | 35.12 | 35.08 | 0.5 | 0.5 | Pass |
| VHT20 | MCS0 | 2 | 149 | 5745 | 15.12 | 15.12 | 0.5 | 0.5 | Pass |
| VHT20 | MCS0 | 2 | 157 | 5785 | 15.46 | 15.14 | 0.5 | 0.5 | Pass |
| VHT20 | MCS0 | 2 | 165 | 5825 | 15.12 | 15.12 | 0.5 | 0.5 | Pass |
| VHT40 | MCS0 | 2 | 151 | 5755 | 35.08 | 35.08 | 0.5 | 0.5 | Pass |
| VHT40 | MCS0 | 2 | 159 | 5795 | 35.12 | 35.08 | 0.5 | 0.5 | Pass |
| VHT80 | MCS0 | 2 | 155 | 5775 | 75.04 | 75.04 | 0.5 | 0.5 | Pass |

## Minimum 6dB Bandwidth

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**Note:** The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

## 3.2 Maximum Conducted Output Power Measurement

### 3.2.1 Limit of Maximum Conducted Output Power

**<FCC 14-30 CFR 15.407>**

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

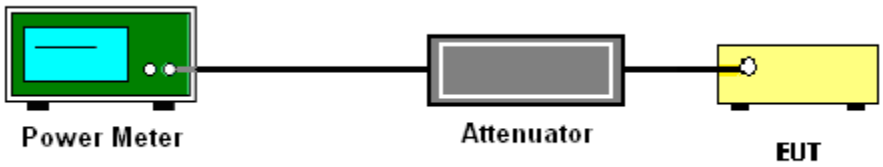
### 3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, 10 log(1/x), where x is the duty cycle.

### 3.2.4 Test Setup



### 3.2.5 Test Result of Maximum Conducted Output Power

| Test Band : | 5GHz band 4 | Temperature : | 24~25℃ |
|---|---|---|---|
| Test Engineer : | Issac Song | Relative Humidity : | 49~51% |

| Mod. | Data Rate | N TX | Channel | Freq. (MHz) | Duty Factor (dB) | | Average Conducted Power (dBm) | | | FCC Conducted Power Limit (dBm) | | DG (dBi) | | Pass /Fail |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Chain Port 0 | Chain Port 1 | Chain Port 0 | Chain Port 1 | SUM | Chain Port 0 | Chain Port 1 | Chain Port 0 | Chain Port 1 | |
| 11a | 6Mbps | 2 | 149 | 5745 | 0.18 | 0.20 | 10.29 | 9.25 | 12.81 | 30 | | 5.56 | | Pass |
| 11a | 6Mbps | 2 | 157 | 5785 | 0.18 | 0.20 | 10.99 | 8.98 | 13.11 | 30 | | 5.56 | | Pass |
| 11a | 6Mbps | 2 | 165 | 5825 | 0.18 | 0.20 | 10.69 | 8.81 | 12.86 | 30 | | 5.56 | | Pass |
| HT20 | MCS8 | 2 | 149 | 5745 | 0.22 | 0.23 | 9.84 | 8.67 | 12.30 | 30 | | 5.56 | | Pass |
| HT20 | MCS8 | 2 | 157 | 5785 | 0.22 | 0.23 | 10.16 | 8.88 | 12.58 | 30 | | 5.56 | | Pass |
| HT20 | MCS8 | 2 | 165 | 5825 | 0.22 | 0.23 | 10.28 | 8.92 | 12.66 | 30 | | 5.56 | | Pass |
| HT40 | MCS8 | 2 | 151 | 5755 | 0.38 | 0.36 | 8.62 | 7.10 | 10.93 | 30 | | 5.56 | | Pass |
| HT40 | MCS8 | 2 | 159 | 5795 | 0.38 | 0.36 | 8.82 | 7.31 | 11.14 | 30 | | 5.56 | | Pass |
| VHT20 | MCS0 | 2 | 149 | 5745 | 0.17 | 0.17 | 12.06 | 10.13 | 14.21 | 30 | | 5.56 | | Pass |
| VHT20 | MCS0 | 2 | 157 | 5785 | 0.17 | 0.17 | 10.84 | 9.15 | 13.09 | 30 | | 5.56 | | Pass |
| VHT20 | MCS0 | 2 | 165 | 5825 | 0.17 | 0.17 | 10.86 | 8.98 | 13.03 | 30 | | 5.56 | | Pass |
| VHT40 | MCS0 | 2 | 151 | 5755 | 0.40 | 0.40 | 7.48 | 6.45 | 10.01 | 30 | | 5.56 | | Pass |
| VHT40 | MCS0 | 2 | 159 | 5795 | 0.40 | 0.40 | 7.58 | 6.67 | 10.16 | 30 | | 5.56 | | Pass |
| VHT80 | MCS0 | 2 | 155 | 5775 | 0.70 | 0.70 | 6.87 | 4.85 | 8.99 | 30 | | 5.56 | | Pass |

## 3.3 Power Spectral Density Measurement

### 3.3.1 Limit of Power Spectral Density

**<FCC 14-30 CFR 15.407>**

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.
Section F) Maximum power spectral density.

**# Method SA-2 #**

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

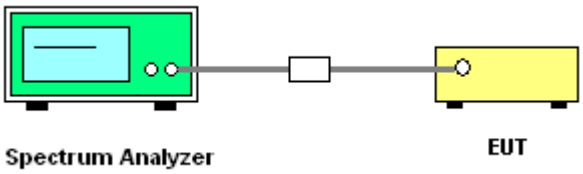
1. The testing follows Method SA-2 of FCC KDB 789033 D01 General UNII Test Procedures v01r03.
   - Measure the duty cycle.
   - Set span to encompass the entire emission bandwidth (EBW) of the signal.
   - Set RBW = 300 kHz.
   - Set VBW ≥ 1 MHz.
   - Number of points in sweep ≥ 2 Span / RBW.
   - Sweep time = auto.
   - Detector = RMS
   - Trace average at least 100 traces in power averaging mode.
   - Add 10 log(500kHz/RBW) to the test result.
   - Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.

2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
4. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

   Method (1): Measure and sum the spectra across the outputs.

   The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

### 3.3.4 Test Setup

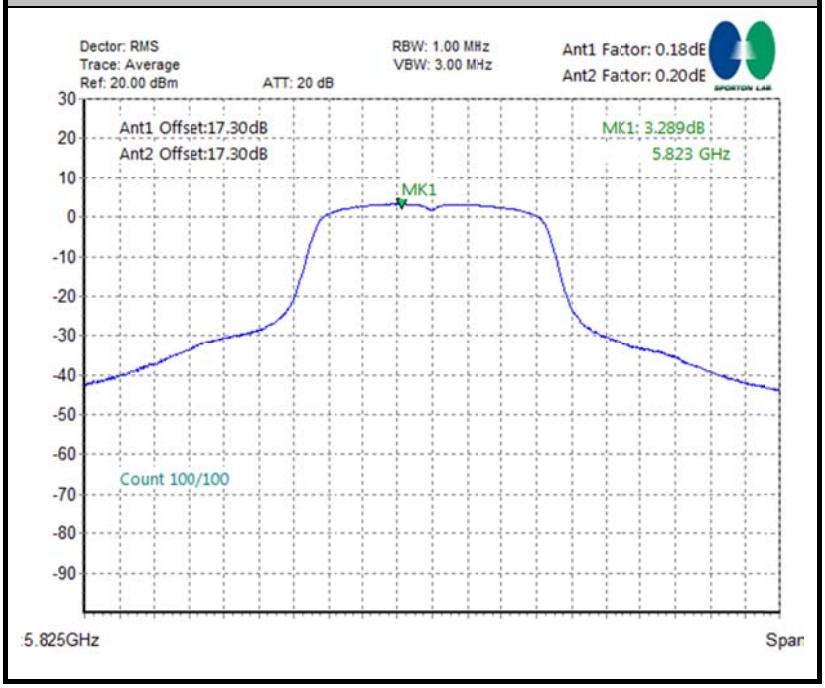


### 3.3.5 Test Result of Power Spectral Density

| Test Band : | 5GHz band 4 | Temperature : | 24~25℃ |
|---|---|---|---|
| Test Engineer : | Issac Song | Relative Humidity : | 49~51% |

| Mod. | Data Rate | NTX | Channel | Freq. (MHz) | Duty Factor (dB) | | 10log (500kHz /RBW) Factor (dB) | | Average Power Density (dBm/500kHz) | | | Average PSD Limit (dBm/500kHz) | | DG (dBi) | | Pass /Fail |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Chain Port 0 | Chain Port 1 | Chain Port 0 | Chain Port 1 | Chain Port 0 | Chain Port 1 | SUM | Chain Port 0 | Chain Port 1 | Chain Port 0 | Chain Port 1 | |
| 11a | 6Mbps | 2 | 149 | 5745 | 0.18 | 0.20 | 2.22 | | - | | 4.54 | 30 | | 5.56 | | Pass |
| 11a | 6Mbps | 2 | 157 | 5785 | 0.18 | 0.20 | 2.22 | | | | 4.95 | 30 | | 5.56 | | Pass |
| 11a | 6Mbps | 2 | 165 | 5825 | 0.18 | 0.20 | 2.22 | | | | 5.51 | 30 | | 5.56 | | Pass |
| HT20 | MCS8 | 2 | 149 | 5745 | 0.22 | 0.23 | 2.22 | | | | 4.66 | 30 | | 5.56 | | Pass |
| HT20 | MCS8 | 2 | 157 | 5785 | 0.22 | 0.23 | 2.22 | | | | 5.04 | 30 | | 5.56 | | Pass |
| HT20 | MCS8 | 2 | 165 | 5825 | 0.22 | 0.23 | 2.22 | | | | 5.19 | 30 | | 5.56 | | Pass |
| HT40 | MCS8 | 2 | 151 | 5755 | 0.38 | 0.36 | 2.22 | | | | -0.44 | 30 | | 5.56 | | Pass |
| HT40 | MCS8 | 2 | 159 | 5795 | 0.38 | 0.36 | 2.22 | | | | -0.02 | 30 | | 5.56 | | Pass |
| VHT20 | MCS0 | 2 | 149 | 5745 | 0.17 | 0.17 | 2.22 | | | | 4.61 | 30 | | 5.56 | | Pass |
| VHT20 | MCS0 | 2 | 157 | 5785 | 0.17 | 0.17 | 2.22 | | | | 4.92 | 30 | | 5.56 | | Pass |
| VHT20 | MCS0 | 2 | 165 | 5825 | 0.17 | 0.17 | 2.22 | | | | 5.13 | 30 | | 5.56 | | Pass |
| VHT40 | MCS0 | 2 | 151 | 5755 | 0.40 | 0.40 | 2.22 | | | | -2.68 | 30 | | 5.56 | | Pass |
| VHT40 | MCS0 | 2 | 159 | 5795 | 0.40 | 0.40 | 2.22 | | | | -2.40 | 30 | | 5.56 | | Pass |
| VHT80 | MCS0 | 2 | 155 | 5775 | 0.70 | 0.70 | 2.22 | | | | -7.87 | 30 | | 5.56 | | Pass |

**Worst Case Power Density (dBm/300kHz)**



## 3.4 Unwanted Emissions Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part15.205.

### 3.4.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 5725-5850 MHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz (78.3dBμV/m); for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz (68.3dBμV/m).

(2) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table.

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

**Note:** The following formula is used to convert the EIRP to field strength.

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

| EIRP (dBm) | Field Strength at 3m (dBμV/m) |
|---|---|
| -17 | 78.3 |
| - 27 | 68.3 |

(3) KDB789033 v01r03 H)2)c)(i) As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.

### 3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01. Section G) Unwanted emissions measurement.

   (1) Procedure for Unwanted Emissions Measurements Below 1000MHz

   - RBW = 120 kHz
   - VBW = 300 kHz
   - Detector = Peak
   - Trace mode = max hold

   (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

(3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

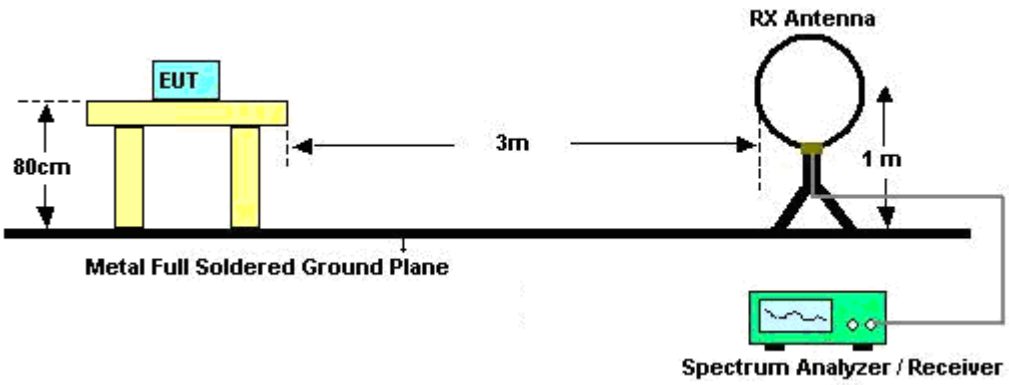
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

| Antenna | Band | Duty Cycle(%) | T(us) | 1/T(kHz) | VBW Setting |
|---|---|---|---|---|---|
| 0+1 | 802.11a | 95.83 | 2.07 | 0.48 | 1kHz |
| 0+1 | 802.11n HT20 | 95.16 | 1.93 | 0.52 | 1kHz |
| 0+1 | 802.11n HT40 | 92.05 | 0.95 | 1.05 | 3kHz |
| 0+1 | 802.11ac VHT20 | 96.23 | 1.94 | 0.52 | 1kHz |
| 0+1 | 802.11ac VHT40 | 91.29 | 0.96 | 1.04 | 3kHz |
| 0+1 | 802.11ac VHT80 | 85.14 | 0.47 | 2.13 | 3kHz |

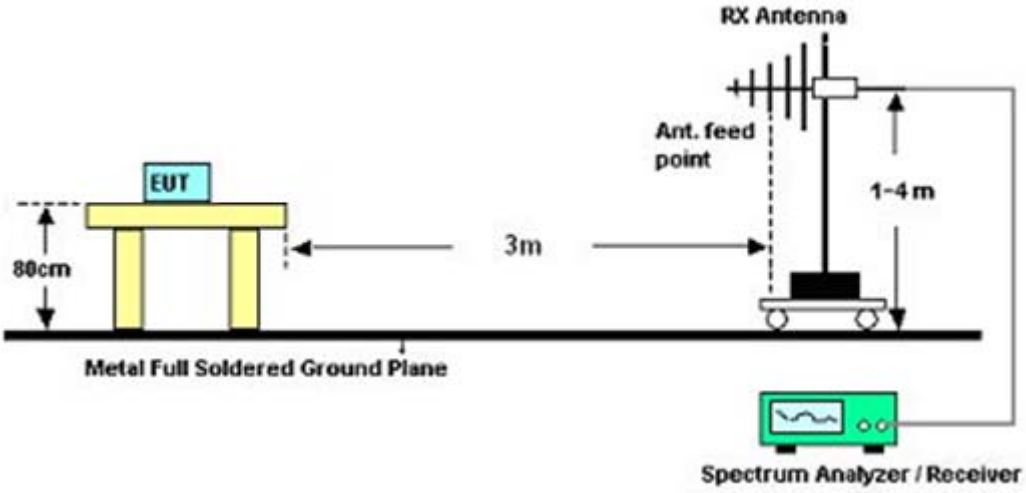
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

### 3.4.4 Test Setup

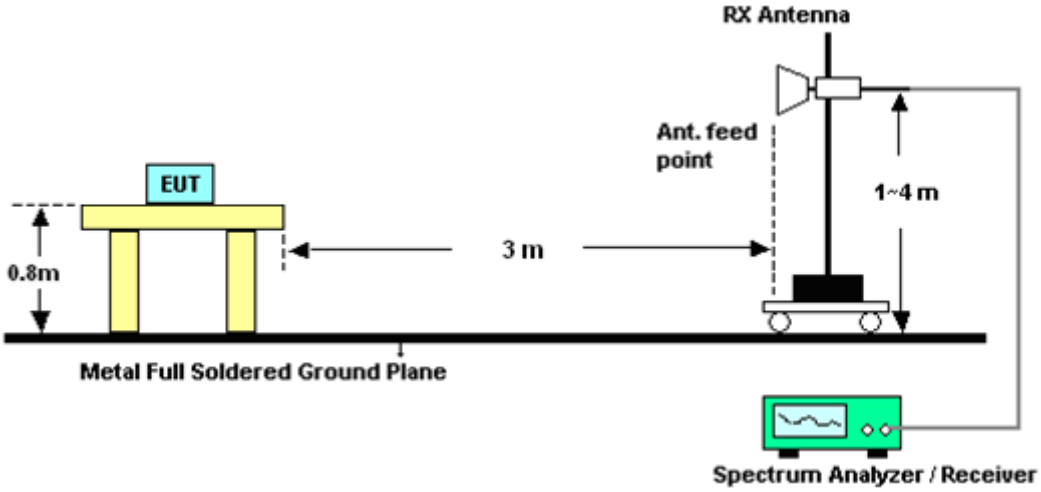
**For radiated emissions below 30MHz**




**For radiated emissions from 30MHz to 1GHz**



**For radiated emissions above 1GHz**




### 3.4.5 Test Results of Radiated Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

### 3.4.6 Test Result of Radiated Band Edges

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11a - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 149 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | | |

| ANTENNA POLARITY : HORIZONTAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5714.36 | 60.16 | -8.14 | 68.3 | 60.06 | 34.57 | 4.13 | 38.6 | 101 | 336 | Peak |
| 5724.2 | 71.42 | -6.88 | 78.3 | 71.32 | 34.59 | 4.15 | 38.64 | 101 | 336 | Peak |

| ANTENNA POLARITY : VERTICAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5713.72 | 57.78 | -10.52 | 68.3 | 57.68 | 34.57 | 4.13 | 38.6 | 100 | 40 | Peak |
| 5724.12 | 69.44 | -8.86 | 78.3 | 69.34 | 34.59 | 4.15 | 38.64 | 100 | 40 | Peak |

**Remark:**

1. 5714.36/5713.72 MHz is not within a restricted band, and satisfies 68.3 dBμV /m peak emission limit.
2. 5724.2/5724.12 MHz is not within a restricted band, and satisfies 78.3 dBμV /m peak emission limit.

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11a - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 165 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | | |

| ANTENNA POLARITY : HORIZONTAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5850.56 | 63.76 | -14.54 | 78.3 | 63.68 | 34.76 | 4.24 | 38.92 | 100 | 161 | Peak |
| 5860.08 | 60.56 | -7.74 | 68.3 | 60.49 | 34.79 | 4.24 | 38.96 | 100 | 161 | Peak |

| ANTENNA POLARITY : VERTICAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5850.56 | 61.27 | -17.03 | 78.3 | 61.19 | 34.76 | 4.24 | 38.92 | 100 | 122 | Peak |
| 5860.4 | 57.3 | -11 | 68.3 | 57.23 | 34.79 | 4.24 | 38.96 | 100 | 122 | Peak |

**Remark:**

1. 5850.56MHz is not within a restricted band, and satisfies 78.3 dBμV /m peak emission limit.
2. 5860.08/5860.4 MHz is not within a restricted band, and satisfies 68.3 dBμV /m peak emission limit.

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 149 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | | |

| ANTENNA POLARITY : HORIZONTAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5714.2 | 59.4 | -8.9 | 68.3 | 59.3 | 34.57 | 4.13 | 38.6 | 101 | 340 | Peak |
| 5724.84 | 70.45 | -7.85 | 78.3 | 70.35 | 34.59 | 4.15 | 38.64 | 101 | 340 | Peak |

| ANTENNA POLARITY : VERTICAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5714.6 | 56.97 | -11.33 | 68.3 | 56.87 | 34.57 | 4.13 | 38.6 | 100 | 279 | Peak |
| 5724.84 | 65.65 | -12.65 | 78.3 | 65.55 | 34.59 | 4.15 | 38.64 | 100 | 279 | Peak |

**Remark:**

1. 5714.2/5714.6MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.
2. 5724.84 MHz is not within a restricted band, and satisfies 78.3 dBµV /m peak emission limit.

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 165 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | | |

| ANTENNA POLARITY : HORIZONTAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5850.32 | 54.25 | -24.05 | 78.3 | 54.17 | 34.76 | 4.24 | 38.92 | 154 | 85 | Peak |
| 5861.04 | 53.12 | -15.18 | 68.3 | 53.05 | 34.79 | 4.24 | 38.96 | 154 | 85 | Peak |

| ANTENNA POLARITY : VERTICAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5850.32 | 61.99 | -16.31 | 78.3 | 61.91 | 34.76 | 4.24 | 38.92 | 193 | 283 | Peak |
| 5860.4 | 55.27 | -13.03 | 68.3 | 55.2 | 34.79 | 4.24 | 38.96 | 193 | 283 | Peak |

**Remark:**

1. 5850.32MHz is not within a restricted band, and satisfies 78.3 dBµV /m peak emission limit.
2. 5861.04/5860.4MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT40 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 151 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | | |

| ANTENNA POLARITY : HORIZONTAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5714.76 | 60.73 | -7.57 | 68.3 | 60.63 | 34.57 | 4.13 | 38.6 | 100 | 244 | Peak |
| 5722.6 | 64.99 | -13.31 | 78.3 | 64.89 | 34.59 | 4.15 | 38.64 | 100 | 244 | Peak |

| ANTENNA POLARITY : VERTICAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5714.92 | 59.91 | -8.39 | 68.3 | 59.81 | 34.57 | 4.13 | 38.6 | 100 | 278 | Peak |
| 5723.56 | 60.74 | -17.56 | 78.3 | 60.64 | 34.59 | 4.15 | 38.64 | 100 | 278 | Peak |

**Remark:**

1. 5714.76/5714.92MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.
2. 5722.6/5723.56 MHz is not within a restricted band, and satisfies 78.3 dBµV /m peak emission limit.

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT40 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 159 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | | |

| ANTENNA POLARITY : HORIZONTAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5853.76 | 54.83 | -23.47 | 78.3 | 54.76 | 34.79 | 4.24 | 38.96 | 100 | 0 | Peak |
| 5869.04 | 54.14 | -14.16 | 68.3 | 54.07 | 34.79 | 4.24 | 38.96 | 100 | 0 | Peak |

| ANTENNA POLARITY : VERTICAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5858.8 | 52.36 | -25.94 | 78.3 | 52.29 | 34.79 | 4.24 | 38.96 | 193 | 266 | Peak |
| 5871.68 | 51.2 | -17.1 | 68.3 | 51.14 | 34.81 | 4.24 | 38.99 | 193 | 266 | Peak |

**Remark:**

1. 5853.76/5858.8MHz is not within a restricted band, and satisfies 78.3 dBµV /m peak emission limit.
2. 5869.04/5871.68MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 149 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | | |

| ANTENNA POLARITY : HORIZONTAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5714.6 | 61.81 | -6.49 | 68.3 | 61.71 | 34.57 | 4.13 | 38.6 | 100 | 255 | Peak |
| 5724.04 | 73.39 | -4.91 | 78.3 | 73.29 | 34.59 | 4.15 | 38.64 | 100 | 255 | Peak |

| ANTENNA POLARITY : VERTICAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5714.68 | 61.82 | -6.48 | 68.3 | 61.72 | 34.57 | 4.13 | 38.6 | 100 | 51 | Peak |
| 5724.92 | 75.47 | -2.83 | 78.3 | 75.37 | 34.59 | 4.15 | 38.64 | 100 | 51 | Peak |

**Remark:**

1. 5714.6/5714.68MHz is not within a restricted band, and satisfies 68.3 dBμV /m peak emission limit.
2. 5724.04/5724.92 MHz is not within a restricted band, and satisfies 78.3 dBμV /m peak emission limit.

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 165 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | | |

| ANTENNA POLARITY : HORIZONTAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5850 | 62.59 | -15.71 | 78.3 | 62.51 | 34.76 | 4.24 | 38.92 | 100 | 162 | Peak |
| 5860.56 | 56.44 | -11.86 | 68.3 | 56.37 | 34.79 | 4.24 | 38.96 | 100 | 162 | Peak |

| ANTENNA POLARITY : VERTICAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5852.08 | 62.23 | -16.07 | 78.3 | 62.15 | 34.76 | 4.24 | 38.92 | 176 | 269 | Peak |
| 5863.2 | 53.33 | -14.97 | 68.3 | 53.26 | 34.79 | 4.24 | 38.96 | 176 | 269 | Peak |

**Remark:**

1. 5850/5852.08MHz is not within a restricted band, and satisfies 78.3 dBμV /m peak emission limit.
2. 5860.56/5863.2MHz is not within a restricted band, and satisfies 68.3 dBμV /m peak emission limit.

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT40 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 151 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | | |

| ANTENNA POLARITY : HORIZONTAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5713.72 | 63.34 | -4.96 | 68.3 | 63.24 | 34.57 | 4.13 | 38.6 | 100 | 254 | Peak |
| 5721.56 | 63.29 | -15.01 | 78.3 | 63.19 | 34.59 | 4.15 | 38.64 | 100 | 254 | Peak |

| ANTENNA POLARITY : VERTICAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5714.28 | 61.83 | -6.47 | 68.3 | 61.73 | 34.57 | 4.13 | 38.6 | 100 | 48 | Peak |
| 5724.92 | 63.03 | -15.27 | 78.3 | 62.93 | 34.59 | 4.15 | 38.64 | 100 | 48 | Peak |

**Remark:**

1. 5713.72/5714.28MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.
2. 5721.56/5724.92MHz is not within a restricted band, and satisfies 78.3 dBµV /m peak emission limit.

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT40 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 159 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | | |

| ANTENNA POLARITY : HORIZONTAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5858.16 | 54.6 | -23.7 | 78.3 | 54.53 | 34.79 | 4.24 | 38.96 | 100 | 164 | Peak |
| 5860.4 | 53.29 | -15.01 | 68.3 | 53.22 | 34.79 | 4.24 | 38.96 | 100 | 164 | Peak |

| ANTENNA POLARITY : VERTICAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5853.92 | 54.2 | -24.1 | 78.3 | 54.13 | 34.79 | 4.24 | 38.96 | 100 | 330 | Peak |
| 5864.16 | 51.69 | -16.61 | 68.3 | 51.62 | 34.79 | 4.24 | 38.96 | 100 | 330 | Peak |

**Remark:**

1. 5858.16/5853.92MHz is not within a restricted band, and satisfies 78.3 dBµV /m peak emission limit.
2. 5860.4/5864.16MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n VHT80 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 155 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | | |

| ANTENNA POLARITY : HORIZONTAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5710.76 | 62.32 | -5.98 | 68.3 | 62.07 | 34.72 | 4.13 | 38.6 | 110 | 351 | Peak |
| 5724.76 | 66.08 | -12.22 | 78.3 | 65.84 | 34.73 | 4.15 | 38.64 | 110 | 351 | Peak |
| 5852 | 56.71 | -21.59 | 78.3 | 56.58 | 34.81 | 4.24 | 38.92 | 110 | 351 | Peak |
| 5860.88 | 54.83 | -13.47 | 68.3 | 54.73 | 34.82 | 4.24 | 38.96 | 110 | 351 | Peak |

| ANTENNA POLARITY : VERTICAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency ( MHz ) | Level ( dBµV/m ) | Over Limit ( dB ) | Limit Line ( dBµV/m ) | Read Level (dBµV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
| 5710.6 | 58.1 | -10.2 | 68.3 | 57.85 | 34.72 | 4.13 | 38.6 | 100 | 104 | Peak |
| 5724.6 | 60.52 | -17.78 | 78.3 | 60.28 | 34.73 | 4.15 | 38.64 | 100 | 104 | Peak |
| 5850.48 | 53.55 | -24.75 | 78.3 | 53.42 | 34.81 | 4.24 | 38.92 | 100 | 104 | Peak |
| 5861.04 | 52.65 | -15.65 | 68.3 | 52.55 | 34.82 | 4.24 | 38.96 | 100 | 104 | Peak |

**Remark:**

1. 5710.76/5860.88/5710.6/5861.04MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.
2. 5724.76/5852/5724.6/5850.48MHz is not within a restricted band, and satisfies 78.3 dBµV /m peak emission limit.

### 3.4.7 Test Result of Unwanted Radiated Emission (30MHz ~ 10th Harmonic)

**Note:** Pre-scanned all test modes and only choose the worst case mode recorded in the test report for radiated spurious emission below 1GHz.

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11a - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 149 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5745 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5745 | 108.35 | - | - | 108.25 | 34.6 | 4.18 | 38.68 | 102 | 336 | Peak |
| 5745 | 97.72 | - | - | 97.62 | 34.6 | 4.18 | 38.68 | 102 | 336 | Average |
| 11490 | 24.44 | -49.56 | 74 | 50.01 | 4.47 | 6.32 | 36.36 | 100 | 8 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11a - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 149 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5745 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5745 | 103.5 | - | - | 103.4 | 34.6 | 4.18 | 38.68 | 100 | 40 | Peak |
| 5745 | 93.14 | - | - | 93.04 | 34.6 | 4.18 | 38.68 | 100 | 40 | Average |
| 11490 | 24.16 | -49.84 | 74 | 49.73 | 4.47 | 6.32 | 36.36 | 125 | 46 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11a - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 157 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5785 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5785 | 107.38 | - | - | 107.26 | 34.65 | 4.24 | 38.77 | 101 | 86 | Peak |
| 5785 | 96.75 | - | - | 96.63 | 34.65 | 4.24 | 38.77 | 101 | 86 | Average |
| 11571 | 26.06 | -47.94 | 74 | 51.43 | 4.38 | 6.35 | 36.1 | 136 | 42 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11a - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 157 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5785 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5785 | 104.73 | - | - | 104.61 | 34.65 | 4.24 | 38.77 | 100 | 119 | Peak |
| 5785 | 94.28 | - | - | 94.16 | 34.65 | 4.24 | 38.77 | 100 | 119 | Average |
| 11571 | 26.25 | -47.75 | 74 | 51.62 | 4.38 | 6.35 | 36.1 | 100 | 52 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11a - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 165 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5825 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5825 | 106.03 | - | - | 105.92 | 34.73 | 4.26 | 38.88 | 100 | 161 | Peak |
| 5825 | 95.48 | - | - | 95.37 | 34.73 | 4.26 | 38.88 | 100 | 161 | Average |
| 11649 | 30.22 | -43.78 | 74 | 55.52 | 4.2 | 6.38 | 35.88 | 100 | 96 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11a - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 165 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5825 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5825 | 103.48 | - | - | 103.37 | 34.73 | 4.26 | 38.88 | 100 | 122 | Peak |
| 5825 | 92.75 | - | - | 92.64 | 34.73 | 4.26 | 38.88 | 100 | 122 | Average |
| 11649 | 29.43 | -44.57 | 74 | 54.73 | 4.2 | 6.38 | 35.88 | 159 | 53 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 149 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5745 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5745 | 105.92 | - | - | 105.82 | 34.6 | 4.18 | 38.68 | 101 | 340 | Peak |
| 5745 | 95.59 | - | - | 95.49 | 34.6 | 4.18 | 38.68 | 101 | 340 | Average |
| 11490 | 23.46 | -50.54 | 74 | 49.03 | 4.47 | 6.32 | 36.36 | 100 | 35 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 149 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5745 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5745 | 103.47 | - | - | 103.37 | 34.6 | 4.18 | 38.68 | 100 | 279 | Peak |
| 5745 | 92.84 | - | - | 92.74 | 34.6 | 4.18 | 38.68 | 100 | 279 | Average |
| 11490 | 23.35 | -50.65 | 74 | 48.92 | 4.47 | 6.32 | 36.36 | 145 | 21 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 157 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5785 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5785 | 105.52 | - | - | 105.4 | 34.65 | 4.24 | 38.77 | 100 | 114 | Peak |
| 5785 | 94.55 | - | - | 94.43 | 34.65 | 4.24 | 38.77 | 100 | 114 | Average |
| 11571 | 27 | -47 | 74 | 52.37 | 4.38 | 6.35 | 36.1 | 158 | 13 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 157 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5785 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5785 | 103.57 | - | - | 103.45 | 34.65 | 4.24 | 38.77 | 100 | 125 | Peak |
| 5785 | 92.45 | - | - | 92.33 | 34.65 | 4.24 | 38.77 | 100 | 125 | Average |
| 11571 | 25.33 | -48.67 | 74 | 50.7 | 4.38 | 6.35 | 36.1 | 123 | 52 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 165 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5825 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5825 | 104.11 | - | - | 104 | 34.73 | 4.26 | 38.88 | 100 | 355 | Peak |
| 5825 | 94.2 | - | - | 94.09 | 34.73 | 4.26 | 38.88 | 100 | 355 | Average |
| 11649 | 29.58 | -44.42 | 74 | 54.88 | 4.2 | 6.38 | 35.88 | 145 | 36 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 165 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5825 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5825 | 102.7 | - | - | 102.59 | 34.73 | 4.26 | 38.88 | 193 | 283 | Peak |
| 5825 | 92.36 | - | - | 92.25 | 34.73 | 4.26 | 38.88 | 193 | 283 | Average |
| 11649 | 30.04 | -43.96 | 74 | 55.34 | 4.2 | 6.38 | 35.88 | 101 | 112 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT40 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 151 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5755 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5755 | 100.09 | - | - | 99.97 | 34.63 | 4.21 | 38.72 | 100 | 244 | Peak |
| 5755 | 90.69 | - | - | 90.57 | 34.63 | 4.21 | 38.72 | 100 | 244 | Average |
| 11511 | 24.76 | -49.24 | 74 | 50.21 | 4.53 | 6.33 | 36.31 | 141 | 98 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT40 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 151 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5755 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5755 | 99.33 | - | - | 99.21 | 34.63 | 4.21 | 38.72 | 100 | 278 | Peak |
| 5755 | 88.92 | - | - | 88.8 | 34.63 | 4.21 | 38.72 | 100 | 278 | Average |
| 11511 | 24.53 | -49.47 | 74 | 49.98 | 4.53 | 6.33 | 36.31 | 100 | 25 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT40 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 159 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5795 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5795 | 101.16 | - | - | 101.02 | 34.68 | 4.27 | 38.81 | 100 | 352 | Peak |
| 5795 | 90.63 | - | - | 90.49 | 34.68 | 4.27 | 38.81 | 100 | 352 | Average |
| 11589 | 26.56 | -47.44 | 74 | 51.92 | 4.34 | 6.35 | 36.05 | 198 | 22 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11n HT40 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 159 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5795 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5795 | 97.8 | - | - | 97.66 | 34.68 | 4.27 | 38.81 | 194 | 266 | Peak |
| 5795 | 88.22 | - | - | 88.08 | 34.68 | 4.27 | 38.81 | 194 | 266 | Average |
| 11589 | 26.12 | -47.88 | 74 | 51.48 | 4.34 | 6.35 | 36.05 | 107 | 23 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 149 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5745 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 95.96 | 27.27 | -16.23 | 43.5 | 49.49 | 9.95 | 0.43 | 32.6 | - | - | Peak |
| 119.24 | 27.61 | -15.89 | 43.5 | 47.79 | 11.88 | 0.58 | 32.64 | - | - | Peak |
| 240.49 | 34.18 | -11.82 | 46 | 54.82 | 11 | 0.84 | 32.48 | 100 | 0 | Peak |
| 299.66 | 28.42 | -17.58 | 46 | 46.99 | 13 | 0.81 | 32.38 | - | - | Peak |
| 721.61 | 30.94 | -15.06 | 46 | 42.01 | 19.58 | 1.35 | 32 | - | - | Peak |
| 960.23 | 33.17 | -20.83 | 54 | 42.4 | 20.76 | 1.72 | 31.71 | - | - | Peak |
| 5745 | 107.03 | - | - | 106.93 | 34.6 | 4.18 | 38.68 | 100 | 255 | Peak |
| 5745 | 96.76 | - | - | 96.66 | 34.6 | 4.18 | 38.68 | 100 | 255 | Average |
| 11490 | 24.31 | -49.69 | 74 | 49.88 | 4.47 | 6.32 | 36.36 | 101 | 87 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 149 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5745 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 30 | 29.58 | -10.42 | 40 | 44.05 | 18 | 0.19 | 32.66 | - | - | Peak |
| 54.25 | 28.64 | -11.36 | 40 | 54.53 | 6.4 | 0.31 | 32.6 | - | - | Peak |
| 239.52 | 27.07 | -18.93 | 46 | 47.86 | 10.85 | 0.84 | 32.48 | - | - | Peak |
| 720.64 | 25.95 | -20.05 | 46 | 37.05 | 19.55 | 1.35 | 32 | - | - | Peak |
| 848.68 | 29.69 | -16.31 | 46 | 39.66 | 20.27 | 1.6 | 31.84 | - | - | Peak |
| 898.15 | 40.04 | -5.96 | 46 | 49.53 | 20.42 | 1.8 | 31.71 | 200 | 0 | Peak |
| 5745 | 105.81 | - | - | 105.71 | 34.6 | 4.18 | 38.68 | 100 | 51 | Peak |
| 5745 | 95.34 | - | - | 95.24 | 34.6 | 4.18 | 38.68 | 100 | 51 | Average |
| 11490 | 23.46 | -50.54 | 74 | 49.03 | 4.47 | 6.32 | 36.36 | 147 | 20 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 157 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5785 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5785 | 105.38 | - | - | 105.26 | 34.65 | 4.24 | 38.77 | 100 | 0 | Peak |
| 5785 | 94.74 | - | - | 94.62 | 34.65 | 4.24 | 38.77 | 100 | 0 | Average |
| 11571 | 26.3 | -47.7 | 74 | 51.67 | 4.38 | 6.35 | 36.1 | 100 | 200 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 157 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5785 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5785 | 101.83 | - | - | 101.71 | 34.65 | 4.24 | 38.77 | 151 | 0 | Peak |
| 5785 | 90.46 | - | - | 90.34 | 34.65 | 4.24 | 38.77 | 151 | 0 | Average |
| 11571 | 24.75 | -49.25 | 74 | 50.12 | 4.38 | 6.35 | 36.1 | 100 | 99 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 165 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5825 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5825 | 104.53 | - | - | 104.42 | 34.73 | 4.26 | 38.88 | 100 | 162 | Peak |
| 5825 | 94.15 | - | - | 94.04 | 34.73 | 4.26 | 38.88 | 100 | 162 | Average |
| 11649 | 28.68 | -45.32 | 74 | 53.98 | 4.2 | 6.38 | 35.88 | 106 | 52 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT20 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 165 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5825 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5825 | 102.34 | - | - | 102.23 | 34.73 | 4.26 | 38.88 | 176 | 269 | Peak |
| 5825 | 92.47 | - | - | 92.36 | 34.73 | 4.26 | 38.88 | 176 | 269 | Average |
| 11649 | 30.49 | -43.51 | 74 | 55.79 | 4.2 | 6.38 | 35.88 | 180 | 0 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT40 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 151 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5755 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5755 | 100.53 | - | - | 100.41 | 34.63 | 4.21 | 38.72 | 100 | 254 | Peak |
| 5755 | 90.95 | - | - | 90.83 | 34.63 | 4.21 | 38.72 | 100 | 254 | Average |
| 11511 | 24.56 | -49.44 | 74 | 50.01 | 4.53 | 6.33 | 36.31 | 100 | 162 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT40 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 151 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5755 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5755 | 98.79 | - | - | 98.67 | 34.63 | 4.21 | 38.72 | 100 | 48 | Peak |
| 5755 | 88.78 | - | - | 88.66 | 34.63 | 4.21 | 38.72 | 100 | 48 | Average |
| 11511 | 25.03 | -48.97 | 74 | 50.48 | 4.53 | 6.33 | 36.31 | 165 | 245 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT40 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 159 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5795 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5795 | 100.04 | - | - | 99.9 | 34.68 | 4.27 | 38.81 | 100 | 164 | Peak |
| 5795 | 88.79 | - | - | 88.65 | 34.68 | 4.27 | 38.81 | 100 | 164 | Average |
| 11589 | 25.87 | -48.13 | 74 | 51.23 | 4.34 | 6.35 | 36.05 | 104 | 85 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT40 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 159 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5795 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5795 | 96.8 | - | - | 96.66 | 34.68 | 4.27 | 38.81 | 100 | 330 | Peak |
| 5795 | 86.49 | - | - | 86.35 | 34.68 | 4.27 | 38.81 | 100 | 330 | Average |
| 11589 | 25.03 | -48.97 | 74 | 50.39 | 4.34 | 6.35 | 36.05 | 189 | 24 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT80 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 155 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Horizontal |
| **Remark :** | 1. 5775 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5775 | 98.12 | - | - | 97.88 | 34.77 | 4.24 | 38.77 | 110 | 351 | Peak |
| 5775 | 85.63 | - | - | 85.39 | 34.77 | 4.24 | 38.77 | 110 | 351 | Average |
| 11550 | 32.42 | -41.58 | 74 | 57.81 | 4.42 | 6.34 | 36.15 | 128 | 302 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | 802.11ac VHT80 - Chain Port 0+1 | **Temperature :** | 22~23°C |
| **Test Channel :** | 155 | **Relative Humidity :** | 42~43% |
| **Test Engineer :** | Simon Lu | **Polarization :** | Vertical |
| **Remark :** | 1. 5775 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. | | |

| Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level (dBμV) | Antenna Factor ( dB ) | Cable Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 5775 | 92.97 | - | - | 92.73 | 34.77 | 4.24 | 38.77 | 100 | 104 | Peak |
| 5775 | 82.13 | - | - | 81.89 | 34.77 | 4.24 | 38.77 | 100 | 104 | Average |
| 11550 | 31.93 | -42.07 | 74 | 57.32 | 4.42 | 6.34 | 36.15 | 100 | 247 | Peak |

## 3.5 AC Conducted Emission Measurement

### 3.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

| Frequency of emission (MHz) | Conducted limit (dBμV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

*Decreases with the logarithm of the frequency.

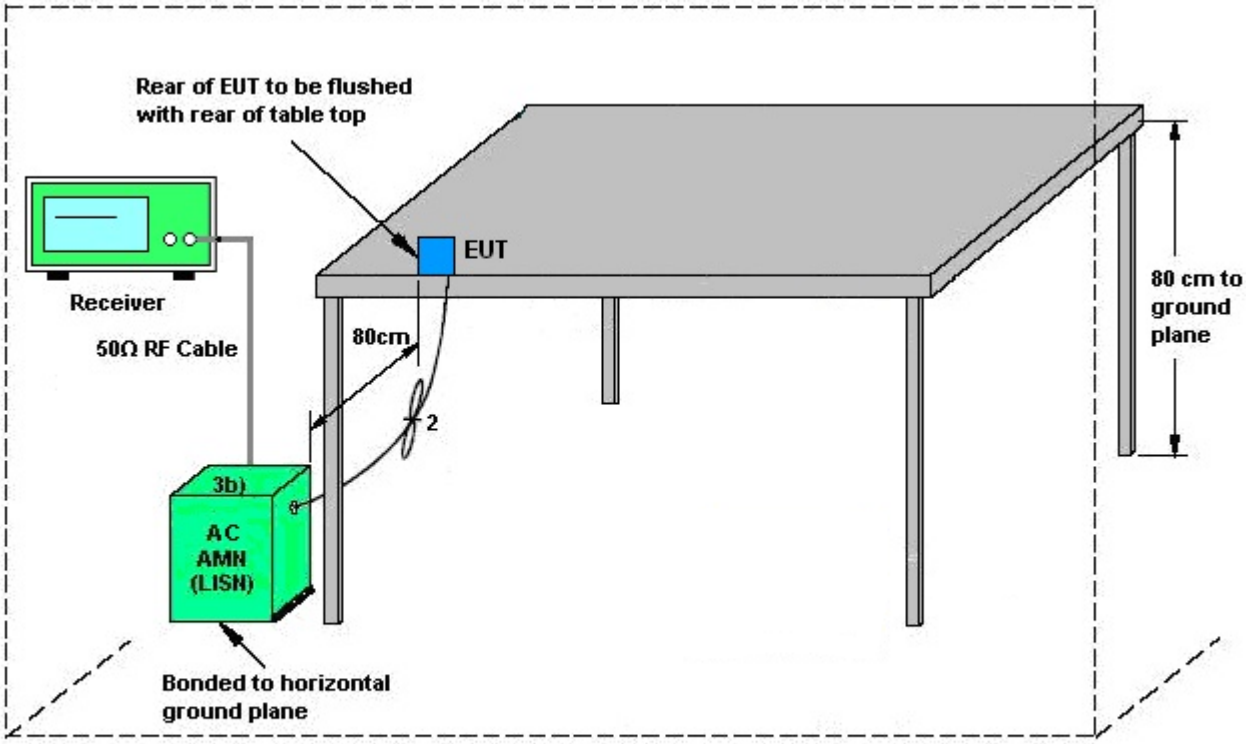
### 3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.5.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

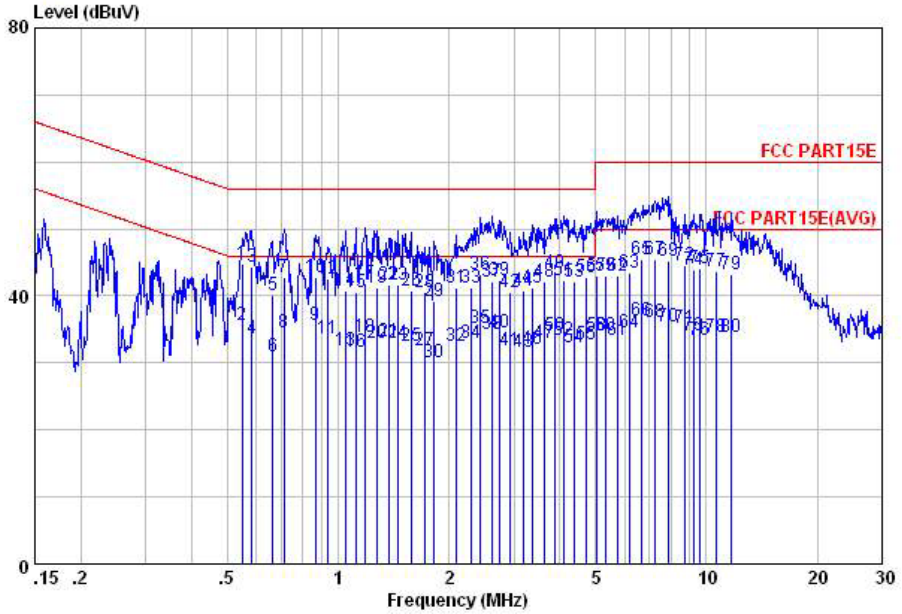
### 3.5.4 Test Setup




AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

### 3.5.5 Test Result of AC Conducted Emission

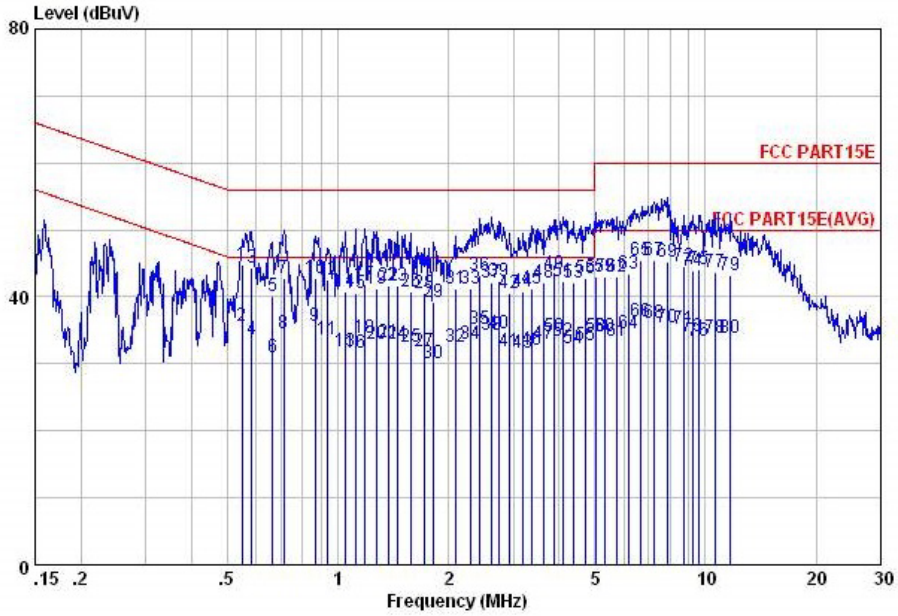
| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 1 | **Temperature :** | 22~24℃ |
| **Test Engineer :** | Eligah Wang | **Relative Humidity :** | 37~39% |
| **Test Voltage :** | 120Vac / 60Hz | **Phase :** | Line |
| **Function Type :** | CDMA2000 BC1 + WLAN Link (5G) + USB Cable (Charging from Adapter) | | |




Site : C001-KS
Condition: FCC PART15E LISN-L20130306 LINE

| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | 0.55 | 44.75 | -11.25 | 56.00 | 34.30 | 0.20 | 10.25 | QP |
| 2 | 0.55 | 35.75 | -10.25 | 46.00 | 25.30 | 0.20 | 10.25 | Average |
| 3 | 0.58 | 44.25 | -11.75 | 56.00 | 33.80 | 0.20 | 10.25 | QP |
| 4 | 0.58 | 33.55 | -12.45 | 46.00 | 23.10 | 0.20 | 10.25 | Average |
| 5 | 0.66 | 40.02 | -15.98 | 56.00 | 29.60 | 0.20 | 10.22 | QP |
| 6 | 0.66 | 31.02 | -14.98 | 46.00 | 20.60 | 0.20 | 10.22 | Average |
| 7 | 0.71 | 42.71 | -13.29 | 56.00 | 32.30 | 0.20 | 10.21 | QP |
| 8 | 0.71 | 34.51 | -11.49 | 46.00 | 24.10 | 0.20 | 10.21 | Average |
| 9 | 0.87 | 35.62 | -10.38 | 46.00 | 25.30 | 0.13 | 10.19 | Average |
| 10 | 0.87 | 42.72 | -13.28 | 56.00 | 32.40 | 0.13 | 10.19 | QP |
| 11 | 0.93 | 33.60 | -12.40 | 46.00 | 23.31 | 0.11 | 10.18 | Average |
| 12 | 0.93 | 42.60 | -13.40 | 56.00 | 32.31 | 0.11 | 10.18 | QP |
| 13 | 1.04 | 31.88 | -14.12 | 46.00 | 21.60 | 0.10 | 10.18 | Average |
| 14 | 1.04 | 40.88 | -15.12 | 56.00 | 30.60 | 0.10 | 10.18 | QP |
| 15 | 1.12 | 40.58 | -15.42 | 56.00 | 30.30 | 0.10 | 10.18 | QP |
| 16 | 1.12 | 31.58 | -14.42 | 46.00 | 21.30 | 0.10 | 10.18 | Average |
| 17 | 1.18 | 41.88 | -14.12 | 56.00 | 31.60 | 0.10 | 10.18 | QP |
| 18 | 1.18 | 33.88 | -12.12 | 46.00 | 23.60 | 0.10 | 10.18 | Average |
| 19 | 1.27 | 41.18 | -14.82 | 56.00 | 30.90 | 0.10 | 10.18 | QP |
| 20 | 1.27 | 32.88 | -13.12 | 46.00 | 22.60 | 0.10 | 10.18 | Average |
| 21 | 1.37 | 33.18 | -12.82 | 46.00 | 22.90 | 0.10 | 10.18 | Average |
| 22 | 1.37 | 41.58 | -14.42 | 56.00 | 31.30 | 0.10 | 10.18 | QP |
| 23 | 1.45 | 41.59 | -14.41 | 56.00 | 31.30 | 0.10 | 10.19 | QP |
| 24 | 1.45 | 32.89 | -13.11 | 46.00 | 22.60 | 0.10 | 10.19 | Average |
| 25 | 1.58 | 32.59 | -13.41 | 46.00 | 22.30 | 0.10 | 10.19 | Average |
| 26 | 1.58 | 40.89 | -15.11 | 56.00 | 30.60 | 0.10 | 10.19 | QP |
| 27 | 1.73 | 31.89 | -14.11 | 46.00 | 21.60 | 0.10 | 10.19 | Average |
| 28 | 1.73 | 40.59 | -15.41 | 56.00 | 30.30 | 0.10 | 10.19 | QP |

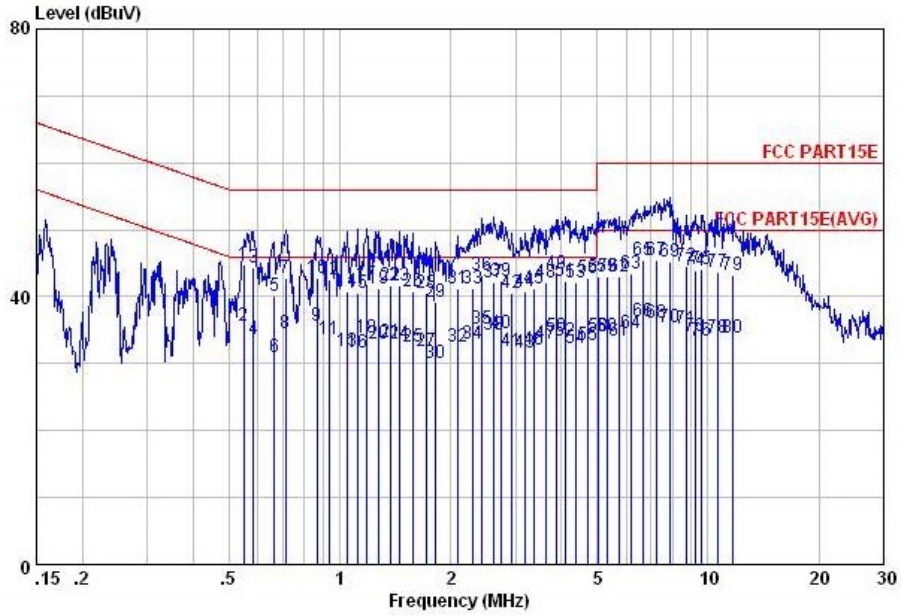
| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 1 | **Temperature :** | 22~24℃ |
| **Test Engineer :** | Eligah Wang | **Relative Humidity :** | 37~39% |
| **Test Voltage :** | 120Vac / 60Hz | **Phase :** | Line |
| **Function Type :** | CDMA2000 BC1 + WLAN Link (5G) + USB Cable (Charging from Adapter) | | |




Site : C001-KS
Condition: FCC PART15E LISN-L20130306 LINE

| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 29 | 1.82 | 39.19 | -16.81 | 56.00 | 28.90 | 0.10 | 10.19 | QP |
| 30 | 1.82 | 30.19 | -15.81 | 46.00 | 19.90 | 0.10 | 10.19 | Average |
| 31 | 2.10 | 41.19 | -14.81 | 56.00 | 30.90 | 0.10 | 10.19 | QP |
| 32 | 2.10 | 32.59 | -13.41 | 46.00 | 22.30 | 0.10 | 10.19 | Average |
| 33 | 2.30 | 41.21 | -14.79 | 56.00 | 30.90 | 0.11 | 10.20 | QP |
| 34 | 2.30 | 32.91 | -13.09 | 46.00 | 22.60 | 0.11 | 10.20 | Average |
| 35 | 2.43 | 35.21 | -10.79 | 46.00 | 24.90 | 0.11 | 10.20 | Average |
| 36 | 2.43 | 43.21 | -12.79 | 56.00 | 32.90 | 0.11 | 10.20 | QP |
| 37 | 2.62 | 42.13 | -13.87 | 56.00 | 31.80 | 0.12 | 10.21 | QP |
| 38 | 2.62 | 34.23 | -11.77 | 46.00 | 23.90 | 0.12 | 10.21 | Average |
| 39 | 2.75 | 42.24 | -13.76 | 56.00 | 31.91 | 0.12 | 10.21 | QP |
| 40 | 2.75 | 34.64 | -11.36 | 46.00 | 24.31 | 0.12 | 10.21 | Average |
| 41 | 2.93 | 31.95 | -14.05 | 46.00 | 21.60 | 0.13 | 10.22 | Average |
| 42 | 2.93 | 40.45 | -15.55 | 56.00 | 30.10 | 0.13 | 10.22 | QP |
| 43 | 3.19 | 31.68 | -14.32 | 46.00 | 21.30 | 0.15 | 10.23 | Average |
| 44 | 3.19 | 40.68 | -15.32 | 56.00 | 30.30 | 0.15 | 10.23 | QP |
| 45 | 3.38 | 41.20 | -14.80 | 56.00 | 30.81 | 0.16 | 10.23 | QP |
| 46 | 3.38 | 32.00 | -14.00 | 46.00 | 21.61 | 0.16 | 10.23 | Average |
| 47 | 3.62 | 33.01 | -12.99 | 46.00 | 22.61 | 0.17 | 10.23 | Average |
| 48 | 3.62 | 42.01 | -13.99 | 56.00 | 31.61 | 0.17 | 10.23 | QP |
| 49 | 3.86 | 43.52 | -12.48 | 56.00 | 33.10 | 0.18 | 10.24 | QP |
| 50 | 3.86 | 34.02 | -11.98 | 46.00 | 23.60 | 0.18 | 10.24 | Average |
| 51 | 4.11 | 42.33 | -13.67 | 56.00 | 31.90 | 0.19 | 10.24 | QP |
| 52 | 4.11 | 33.53 | -12.47 | 46.00 | 23.10 | 0.19 | 10.24 | Average |
| 53 | 4.36 | 42.04 | -13.96 | 56.00 | 31.60 | 0.19 | 10.25 | QP |
| 54 | 4.36 | 32.34 | -13.66 | 46.00 | 21.90 | 0.19 | 10.25 | Average |
| 55 | 4.72 | 32.75 | -13.25 | 46.00 | 22.30 | 0.20 | 10.25 | Average |

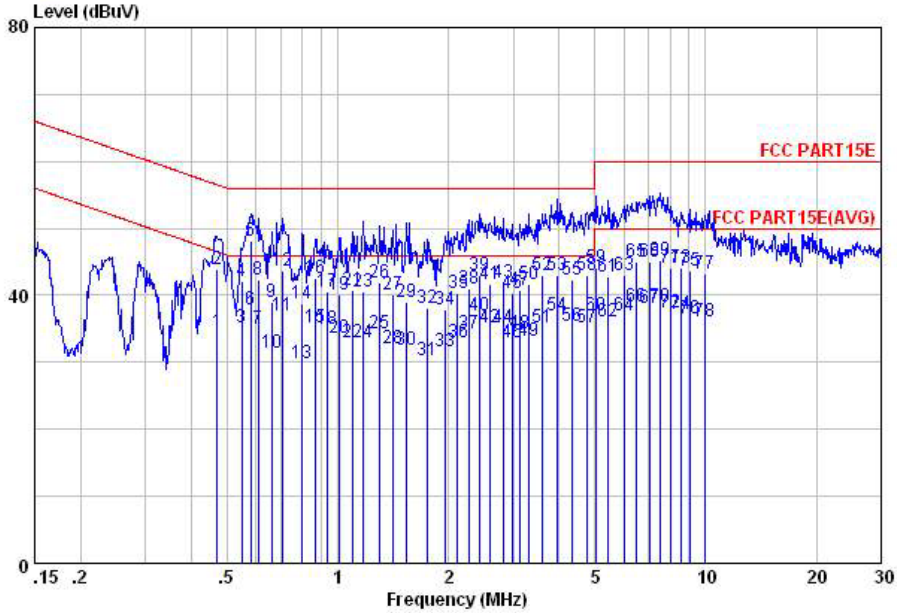
| Test Mode : | Mode 1 | Temperature : | 22~24℃ |
|---|---|---|---|
| Test Engineer : | Eligah Wang | Relative Humidity : | 37~39% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Line |
| Function Type : | CDMA2000 BC1 + WLAN Link (5G) + USB Cable (Charging from Adapter) | | |




Site : C001-KS
Condition: FCC PART15E LISN-L20130306 LINE

| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 56 | 4.72 | 42.75 | -13.25 | 56.00 | 32.30 | 0.20 | 10.25 | QP |
| 57 | 5.03 | 43.06 | -16.94 | 60.00 | 32.60 | 0.20 | 10.26 | QP |
| 58 | 5.03 | 34.06 | -15.94 | 50.00 | 23.60 | 0.20 | 10.26 | Average |
| 59 | 5.30 | 43.07 | -16.93 | 60.00 | 32.60 | 0.20 | 10.27 | QP |
| 60 | 5.30 | 34.07 | -15.93 | 50.00 | 23.60 | 0.20 | 10.27 | Average |
| 61 | 5.74 | 33.38 | -16.62 | 50.00 | 22.90 | 0.20 | 10.28 | Average |
| 62 | 5.74 | 43.08 | -16.92 | 60.00 | 32.60 | 0.20 | 10.28 | QP |
| 63 | 6.19 | 43.39 | -16.61 | 60.00 | 32.90 | 0.20 | 10.29 | QP |
| 64 | 6.19 | 34.59 | -15.41 | 50.00 | 24.10 | 0.20 | 10.29 | Average |
| 65 | 6.66 | 45.41 | -14.59 | 60.00 | 34.90 | 0.20 | 10.31 | QP |
| 66 | 6.66 | 36.41 | -13.59 | 50.00 | 25.90 | 0.20 | 10.31 | Average |
| 67 | 7.25 | 45.43 | -14.57 | 60.00 | 34.90 | 0.20 | 10.33 | QP |
| 68 | 7.25 | 36.13 | -13.87 | 50.00 | 25.60 | 0.20 | 10.33 | Average |
| 69 | 7.85 | 45.14 | -14.86 | 60.00 | 34.60 | 0.20 | 10.34 | QP |
| 70 | 7.85 | 35.44 | -14.56 | 50.00 | 24.90 | 0.20 | 10.34 | Average |
| 71 | 8.78 | 35.15 | -14.85 | 50.00 | 24.60 | 0.20 | 10.35 | Average |
| 72 | 8.78 | 44.65 | -15.35 | 60.00 | 34.10 | 0.20 | 10.35 | QP |
| 73 | 9.20 | 34.15 | -15.85 | 50.00 | 23.60 | 0.20 | 10.35 | Average |
| 74 | 9.20 | 43.85 | -16.15 | 60.00 | 33.30 | 0.20 | 10.35 | QP |
| 75 | 9.60 | 44.16 | -15.84 | 60.00 | 33.60 | 0.20 | 10.36 | QP |
| 76 | 9.60 | 33.46 | -16.54 | 50.00 | 22.90 | 0.20 | 10.36 | Average |
| 77 | 10.62 | 43.66 | -16.34 | 60.00 | 33.10 | 0.20 | 10.36 | QP |
| 78 | 10.62 | 33.86 | -16.14 | 50.00 | 23.30 | 0.20 | 10.36 | Average |
| 79 | 11.68 | 43.15 | -16.85 | 60.00 | 32.60 | 0.20 | 10.35 | QP |
| 80 | 11.68 | 33.85 | -16.15 | 50.00 | 23.30 | 0.20 | 10.35 | Average |

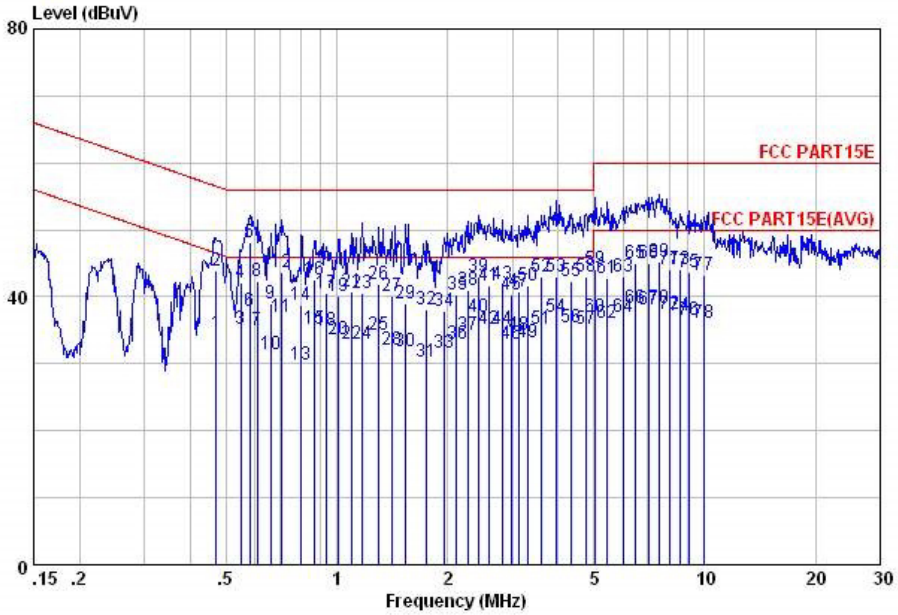
| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 1 | **Temperature :** | 22~24℃ |
| **Test Engineer :** | Eligah Wang | **Relative Humidity :** | 37~39% |
| **Test Voltage :** | 120Vac / 60Hz | **Phase :** | Neutral |
| **Function Type :** | CDMA2000 BC1 + WLAN Link (5G) + USB Cable (Charging from Adapter) | | |




Site : C001-KS
Condition: FCC PART15E LISN-N20130306 NEUTRAL

| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | 0.47 | 34.49 | -12.00 | 46.49 | 23.90 | 0.32 | 10.27 | Average |
| 2 | 0.47 | 43.89 | -12.60 | 56.49 | 33.30 | 0.32 | 10.27 | QP |
| 3 | 0.55 | 35.13 | -10.87 | 46.00 | 24.60 | 0.28 | 10.25 | Average |
| 4 | 0.55 | 42.13 | -13.87 | 56.00 | 31.60 | 0.28 | 10.25 | QP |
| 5 | 0.58 | 48.11 | -7.89 | 56.00 | 37.60 | 0.26 | 10.25 | QP |
| 6 | 0.58 | 37.81 | -8.19 | 46.00 | 27.30 | 0.26 | 10.25 | Average |
| 7 | 0.61 | 35.08 | -10.92 | 46.00 | 24.60 | 0.24 | 10.24 | Average |
| 8 | 0.61 | 42.38 | -13.62 | 56.00 | 31.90 | 0.24 | 10.24 | QP |
| 9 | 0.66 | 39.03 | -16.97 | 56.00 | 28.60 | 0.21 | 10.22 | QP |
| 10 | 0.66 | 31.33 | -14.67 | 46.00 | 20.90 | 0.21 | 10.22 | Average |
| 11 | 0.71 | 37.01 | -8.99 | 46.00 | 26.60 | 0.20 | 10.21 | Average |
| 12 | 0.71 | 43.71 | -12.29 | 56.00 | 33.30 | 0.20 | 10.21 | QP |
| 13 | 0.80 | 29.96 | -16.04 | 46.00 | 19.59 | 0.17 | 10.20 | Average |
| 14 | 0.80 | 38.66 | -17.34 | 56.00 | 28.29 | 0.17 | 10.20 | QP |
| 15 | 0.87 | 35.22 | -10.78 | 46.00 | 24.90 | 0.13 | 10.19 | Average |
| 16 | 0.87 | 42.62 | -13.38 | 56.00 | 32.30 | 0.13 | 10.19 | QP |
| 17 | 0.93 | 40.60 | -15.40 | 56.00 | 30.31 | 0.11 | 10.18 | QP |
| 18 | 0.93 | 34.90 | -11.10 | 46.00 | 24.61 | 0.11 | 10.18 | Average |
| 19 | 1.01 | 40.18 | -15.82 | 56.00 | 29.90 | 0.10 | 10.18 | QP |
| 20 | 1.01 | 33.68 | -12.32 | 46.00 | 23.40 | 0.10 | 10.18 | Average |
| 21 | 1.09 | 40.88 | -15.12 | 56.00 | 30.60 | 0.10 | 10.18 | QP |
| 22 | 1.09 | 32.88 | -13.12 | 46.00 | 22.60 | 0.10 | 10.18 | Average |
| 23 | 1.17 | 40.58 | -15.42 | 56.00 | 30.30 | 0.10 | 10.18 | QP |
| 24 | 1.17 | 32.88 | -13.12 | 46.00 | 22.60 | 0.10 | 10.18 | Average |
| 25 | 1.30 | 34.38 | -11.62 | 46.00 | 24.10 | 0.10 | 10.18 | Average |
| 26 | 1.30 | 41.88 | -14.12 | 56.00 | 31.60 | 0.10 | 10.18 | QP |
| 27 | 1.42 | 40.19 | -15.81 | 56.00 | 29.91 | 0.10 | 10.18 | QP |
| 28 | 1.42 | 32.19 | -13.81 | 46.00 | 21.91 | 0.10 | 10.18 | Average |

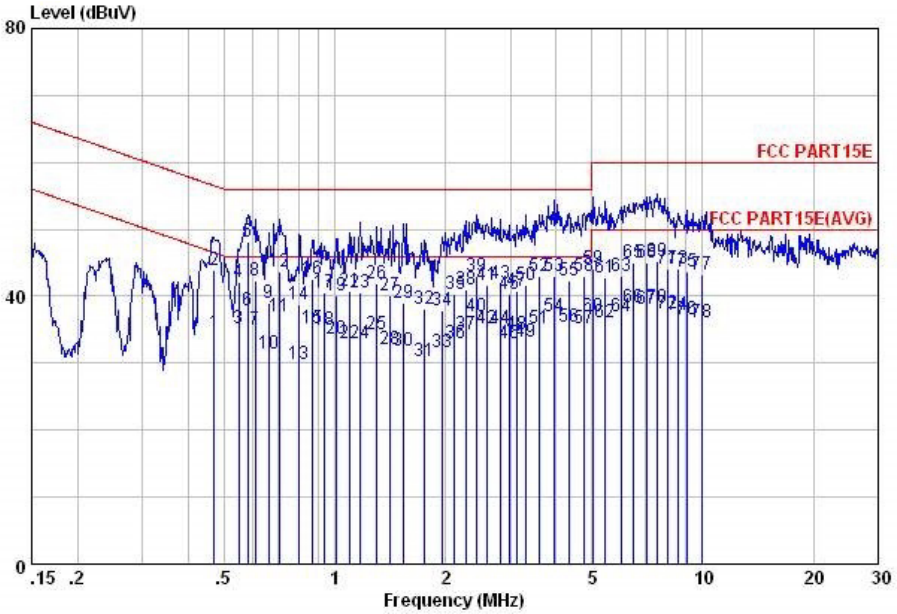
| Test Mode : | Mode 1 | Temperature : | 22~24℃ |
|---|---|---|---|
| Test Engineer : | Eligah Wang | Relative Humidity : | 37~39% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Neutral |
| Function Type : | CDMA2000 BC1 + WLAN Link (5G) + USB Cable (Charging from Adapter) | | |




Site : C001-KS
Condition: FCC PART15E LISN-N20130306 NEUTRAL

| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 29 | 1.54 | 38.89 | -17.11 | 56.00 | 28.60 | 0.10 | 10.19 | QP |
| 30 | 1.54 | 31.89 | -14.11 | 46.00 | 21.60 | 0.10 | 10.19 | Average |
| 31 | 1.74 | 30.39 | -15.61 | 46.00 | 20.10 | 0.10 | 10.19 | Average |
| 32 | 1.74 | 38.19 | -17.81 | 56.00 | 27.90 | 0.10 | 10.19 | QP |
| 33 | 1.96 | 31.59 | -14.41 | 46.00 | 21.30 | 0.10 | 10.19 | Average |
| 34 | 1.96 | 37.89 | -18.11 | 56.00 | 27.60 | 0.10 | 10.19 | QP |
| 35 | 2.12 | 40.40 | -15.60 | 56.00 | 30.11 | 0.10 | 10.19 | QP |
| 36 | 2.12 | 32.90 | -13.10 | 46.00 | 22.61 | 0.10 | 10.19 | Average |
| 37 | 2.27 | 34.40 | -11.60 | 46.00 | 24.09 | 0.11 | 10.20 | Average |
| 38 | 2.27 | 40.90 | -15.10 | 56.00 | 30.59 | 0.11 | 10.20 | QP |
| 39 | 2.42 | 42.91 | -13.09 | 56.00 | 32.60 | 0.11 | 10.20 | QP |
| 40 | 2.42 | 36.91 | -9.09 | 46.00 | 26.60 | 0.11 | 10.20 | Average |
| 41 | 2.59 | 41.62 | -14.38 | 56.00 | 31.29 | 0.12 | 10.21 | QP |
| 42 | 2.59 | 35.22 | -10.78 | 46.00 | 24.89 | 0.12 | 10.21 | Average |
| 43 | 2.81 | 41.94 | -14.06 | 56.00 | 31.60 | 0.13 | 10.21 | QP |
| 44 | 2.81 | 35.24 | -10.76 | 46.00 | 24.90 | 0.13 | 10.21 | Average |
| 45 | 2.98 | 40.26 | -15.74 | 56.00 | 29.90 | 0.14 | 10.22 | QP |
| 46 | 2.98 | 32.96 | -13.04 | 46.00 | 22.60 | 0.14 | 10.22 | Average |
| 47 | 3.14 | 40.67 | -15.33 | 56.00 | 30.29 | 0.15 | 10.23 | QP |
| 48 | 3.14 | 34.27 | -11.73 | 46.00 | 23.89 | 0.15 | 10.23 | Average |
| 49 | 3.29 | 33.29 | -12.71 | 46.00 | 22.90 | 0.16 | 10.23 | Average |
| 50 | 3.29 | 41.69 | -14.31 | 56.00 | 31.30 | 0.16 | 10.23 | QP |
| 51 | 3.60 | 35.31 | -10.69 | 46.00 | 24.91 | 0.17 | 10.23 | Average |
| 52 | 3.60 | 43.01 | -12.99 | 56.00 | 32.61 | 0.17 | 10.23 | QP |
| 53 | 3.96 | 43.02 | -12.98 | 56.00 | 32.60 | 0.18 | 10.24 | QP |
| 54 | 3.96 | 37.02 | -8.98 | 46.00 | 26.60 | 0.18 | 10.24 | Average |
| 55 | 4.34 | 42.24 | -13.76 | 56.00 | 31.80 | 0.19 | 10.25 | QP |

| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 1 | **Temperature :** | 22~24℃ |
| **Test Engineer :** | Eligah Wang | **Relative Humidity :** | 37~39% |
| **Test Voltage :** | 120Vac / 60Hz | **Phase :** | Neutral |
| **Function Type :** | CDMA2000 BC1 + WLAN Link (5G) + USB Cable (Charging from Adapter) | | |




Site : C001-KS
Condition: FCC PART15E LISN-N20130306 NEUTRAL

| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 56 | 4.34 | 35.34 | -10.66 | 46.00 | 24.90 | 0.19 | 10.25 | Average |
| 57 | 4.75 | 35.25 | -10.75 | 46.00 | 24.80 | 0.20 | 10.25 | Average |
| 58 | 4.75 | 43.05 | -12.95 | 56.00 | 32.60 | 0.20 | 10.25 | QP |
| 59 | 5.06 | 44.06 | -15.94 | 60.00 | 33.60 | 0.20 | 10.26 | QP |
| 60 | 5.06 | 37.06 | -12.94 | 50.00 | 26.60 | 0.20 | 10.26 | Average |
| 61 | 5.45 | 42.77 | -17.23 | 60.00 | 32.30 | 0.20 | 10.27 | QP |
| 62 | 5.45 | 36.07 | -13.93 | 50.00 | 25.60 | 0.20 | 10.27 | Average |
| 63 | 5.99 | 43.09 | -16.91 | 60.00 | 32.60 | 0.20 | 10.29 | QP |
| 64 | 5.99 | 37.09 | -12.91 | 50.00 | 26.60 | 0.20 | 10.29 | Average |
| 65 | 6.49 | 45.11 | -14.89 | 60.00 | 34.60 | 0.20 | 10.31 | QP |
| 66 | 6.49 | 38.41 | -11.59 | 50.00 | 27.90 | 0.20 | 10.31 | Average |
| 67 | 7.02 | 38.12 | -11.88 | 50.00 | 27.60 | 0.20 | 10.32 | Average |
| 68 | 7.02 | 45.12 | -14.88 | 60.00 | 34.60 | 0.20 | 10.32 | QP |
| 69 | 7.53 | 45.13 | -14.87 | 60.00 | 34.60 | 0.20 | 10.33 | QP |
| 70 | 7.53 | 38.43 | -11.57 | 50.00 | 27.90 | 0.20 | 10.33 | Average |
| 71 | 8.02 | 44.14 | -15.86 | 60.00 | 33.60 | 0.20 | 10.34 | QP |
| 72 | 8.02 | 37.44 | -12.56 | 50.00 | 26.90 | 0.20 | 10.34 | Average |
| 73 | 8.59 | 44.15 | -15.85 | 60.00 | 33.60 | 0.20 | 10.35 | QP |
| 74 | 8.59 | 37.15 | -12.85 | 50.00 | 26.60 | 0.20 | 10.35 | Average |
| 75 | 9.11 | 43.65 | -16.35 | 60.00 | 33.10 | 0.20 | 10.35 | QP |
| 76 | 9.11 | 36.65 | -13.35 | 50.00 | 26.10 | 0.20 | 10.35 | Average |
| 77 | 9.97 | 43.16 | -16.84 | 60.00 | 32.60 | 0.20 | 10.36 | QP |
| 78 | 9.97 | 36.16 | -13.84 | 50.00 | 25.60 | 0.20 | 10.36 | Average |

## 3.6 Frequency Stability Measurement

### 3.6.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

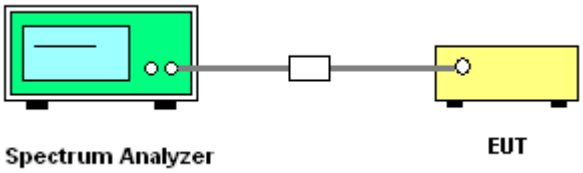
### 3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.6.3 Test Procedures

1. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

### 3.6.4 Test Setup



### 3.6.5 Test Result of Frequency Stability

| Test Band : | 5GHz band 4 | Test Engineer : | Issac Song |
|---|---|---|---|

| Mod. | Data Rate | $N_{TX}$ | Channel | Freq. (MHz) | Center Frequency (MHz) | Frequency Deviation (MHz) | Frequency Stability (ppm) | Temperature (˚C) | Voltage (V) |
|---|---|---|---|---|---|---|---|---|---|
| 11a | 6Mbps | 1 | 149 | 5745 | 5744.900 | -0.100 | -17.41 | 20 | 3.5 |
| 11a | 6Mbps | 1 | 149 | 5745 | 5744.900 | -0.100 | -17.41 | 20 | 4.2 |
| 11a | 6Mbps | 1 | 149 | 5745 | 5744.900 | -0.100 | -17.41 | 20 | 3.7 |
| 11a | 6Mbps | 1 | 149 | 5745 | 5744.900 | -0.100 | -17.41 | -30 | 3.7 |
| 11a | 6Mbps | 1 | 149 | 5745 | 5744.900 | -0.100 | -17.41 | 55 | 3.7 |

**Note:** Center Frequency = (Low Frequency + High Frequency) / 2.

## 3.7 Automatically Discontinue Transmission

### 3.7.1 Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

### 3.7.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.7.3 Test Result of Automatically Discontinue Transmission

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

## 3.8 Antenna Requirements

### 3.8.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,if transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 3.8.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

### 3.8.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

*where*

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

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

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

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

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

The EUT supports CDD mode.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain "DG" is calculated as following table.

| | Ant 1 (dBi) | Ant 2 (dBi) | DG for Power (dBi) | DG for PSD (dBi) | Power Limit Reduction (dB) | PSD Limit Reduction (dB) |
|---|---|---|---|---|---|---|
| **Band IV** | 2.60 | 2.50 | 5.56 | 5.56 | 0.00 | 0.00 |

*Power Limit Reduction = DG(Power) – 6dBi, ( min = 0 )*

*PSD Limit Reduction = DG(PSD) – 6dBi, ( min = 0 )*

# 4 List of Measuring Equipment

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Test Date | Due Date | Remark |
|---|---|---|---|---|---|---|---|---|
| Spectrum Analyzer | R&S | FSP40 | 100319 | 9kHz~40GHz | Dec. 28, 2013 | Aug. 13, 2014~ Aug. 22, 2014 | Dec. 27, 2014 | Conducted (TH01-KS) |
| Pulse Power Senor | Anritsu | MA2411B | 0917070 | 30MHz~40GHz | Feb. 27, 2014 | Aug. 13, 2014~ Aug. 22, 2014 | Feb. 26, 2015 | Conducted (TH01-KS) |
| Power Meter | Anritsu | ML2495A | 1005002 | 50MHz Bandwidth | Feb. 27, 2014 | Aug. 13, 2014~ Aug. 22, 2014 | Feb. 26, 2015 | Conducted (TH01-KS) |
| Thermal Chamber | Ten Billion | TTC-B3S | TBN-9605 02 | -40~+150°C | Dec. 10, 2013 | Aug. 13, 2014~ Aug. 22, 2014 | Dec. 09, 2014 | Conducted (TH01-KS) |
| EMI Test Receiver | R&S | ESCI | 100534 | 9kHz~3GHz | Nov. 05, 2013 | Aug. 01, 2014~ Aug. 14, 2014 | Nov. 04, 2014 | Radiation (03CH01-KS) |
| Spectrum Analyzer | R&S | FSP40 | 100319 | 9kHz~40GHz | Dec. 28, 2013 | Aug. 01, 2014~ Aug. 14, 2014 | Dec. 27, 2014 | Radiation (03CH01-KS) |
| Loop Antenna | R&S | HFH2-Z2 | 100321 | 9kHz~30MHz | Oct. 09, 2013 | Aug. 01, 2014~ Aug. 14, 2014 | Oct. 08, 2014 | Radiation (03CH01-KS) |
| Bilog Antenna | SCHAFFNER | CBL6112D | 23182 | 25MHz~2GHz | Jan. 08, 2014 | Aug. 01, 2014~ Aug. 14, 2014 | Jan. 07, 2015 | Radiation (03CH01-KS) |
| Double Ridge Horn Antenna | ETS-Lindgren | 3117 | 75959 | 1GHz~18GHz | Jan. 08, 2014 | Aug. 01, 2014~ Aug. 14, 2014 | Jan. 07, 2015 | Radiation (03CH01-KS) |
| Active Horn Antenna | com-power | AHA-118 | 701030 | 1GHz~18GHz | Nov. 18, 2013 | Aug. 01, 2014~ Aug. 14, 2014 | Nov. 17, 2014 | Radiation (03CH01-KS) |
| SHF-EHF Horn | Schwarzbeck | BBHA 9170 | BBHA1702 49 | 15GHz~40GHz | Mar. 10, 2014 | Aug. 01, 2014~ Aug. 14, 2014 | Mar. 09, 2015 | Radiation (03CH01-KS) |
| Amplifier | com-power | PA-103A | 161073 | 1MHz~1GHz | May 04, 2014 | Aug. 01, 2014~ Aug. 14, 2014 | May 03, 2015 | Radiation (03CH01-KS) |
| Amplifier | Agilent | 8449B | 3008A023 71 | 1GHz~26.5GHz | Dec. 10, 2013 | Aug. 01, 2014~ Aug. 14, 2014 | Dec. 09, 2014 | Radiation (03CH01-KS) |
| AC Power Source | Chroma | 61601 | F1040900 04 | N/A | NCR | Aug. 01, 2014~ Aug. 14, 2014 | NCR | Radiation (03CH01-KS) |
| Turn Table | MF | MF7802 | N/A | 0~360 degree | NCR | Aug. 01, 2014~ Aug. 14, 2014 | NCR | Radiation (03CH01-KS) |
| Antenna Mast | MF | MF7802 | N/A | 1 m~4 m | NCR | Aug. 01, 2014~ Aug. 14, 2014 | NCR | Radiation (03CH01-KS) |
| EMI Receiver | R&S | ESCI7 | 100768 | 9kHz~7GHz; | May 04, 2014 | Jul. 31, 2014 | May 03, 2015 | Conduction (CO01-KS) |
| AC LISN | MessTec | AN3016 | 060103 | 9kHz~30MHz | Dec. 10, 2013 | Jul. 31, 2014 | Dec. 09, 2014 | Conduction (CO01-KS) |
| AC LISN (for auxiliary equipment) | MessTec | AN3016 | 060105 | 9kHz~30MHz | Dec. 10, 2013 | Jul. 31, 2014 | Dec. 09, 2014 | Conduction (CO01-KS) |
| AC Power Source | Chroma | 61602 | ABP00000 0811 | AC 0V~300V, 45Hz~1000Hz | Nov. 12, 2013 | Jul. 31, 2014 | Nov. 11, 2014 | Conduction (CO01-KS) |

# 5 Uncertainty of Evaluation

**Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)**

| | |
|---|---|
| Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y)) | 2.3 |

**Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)**

| | |
|---|---|
| Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y)) | 2.5 |