



# FCC RF Test Report

**APPLICANT** : Bullitt Group  
**EQUIPMENT** : Rugged Smart Phone  
**BRAND NAME** : Motorola  
**MODEL NAME** : XT2083-8  
**FCC ID** : ZL5MDFL  
**STANDARD** : FCC Part 15 Subpart E §15.407  
**CLASSIFICATION** : (NII) Unlicensed National Information Infrastructure

The product was received on Jan. 20, 2021 and testing was completed on Mar. 24, 2021. We, Sporton International (Shenzhen) 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 (Shenzhen) Inc., the test report shall not be reproduced except in full.

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Approved by: Eric Shih / Manager



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People's Republic of China**



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### SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	2.1049 & 15.403(i)	26dB & 99% Bandwidth	-	N/A	Report only
3.2	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 11 dBm	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 1.50 dB at 5459.760 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 12.77 dB at 0.250 MHz
3.6	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.7	15.203 & 15.407(a)	Antenna Requirement	N/A	N/A	-

<b>Declaration of Conformity:</b>
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
<b>Comments and Explanations:</b>
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



# 1 General Description

## 1.1 Applicant

**Bullitt Group**

One Valpy Valpy Street, Reading, United Kingdom, RG1 1AR

## 1.2 Product Feature of Equipment Under Test

Product Feature	
<b>Equipment</b>	Rugged Smart Phone
<b>Brand Name</b>	Motorola
<b>Model Name</b>	XT2083-8
<b>FCC ID</b>	ZL5MDFL
<b>EUT supports Radios application</b>	GSM/WCDMA/LTE WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE FM Receiver / GNSS / NFC
<b>IMEI Code</b>	Conducted: 356261340044914/356261340044922 Conduction: 356261340006996/356261340007002 Radiation: 356261340006954/356261340006962
<b>HW Version</b>	V1.0
<b>SW Version</b>	HA10_11.167.03.03R
<b>EUT Stage</b>	Production Unit

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



### 1.3 Product Specification of Equipment Under Test

Standards-related Product Specification	
<b>Tx/Rx Frequency Range</b>	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5720 MHz
<b>Maximum Output Power to Antenna</b>	<p><b>&lt;5180 MHz ~ 5240 MHz&gt;</b>  802.11a : 17.93 dBm / 0.0621 W  802.11n HT20 : 16.99 dBm / 0.0500 W  802.11n HT40 : 15.88 dBm / 0.0387 W  802.11ac VHT20 : 16.80 dBm / 0.0479 W  802.11ac VHT40 : 15.78 dBm / 0.0378 W  802.11ac VHT80 : 14.94 dBm / 0.0312 W</p> <p><b>&lt;5260 MHz ~ 5320 MHz&gt;</b>  802.11a : 17.90 dBm / 0.0617 W  802.11n HT20 : 16.93 dBm / 0.0493 W  802.11n HT40 : 15.98 dBm / 0.0396 W  802.11ac VHT20 : 16.80 dBm / 0.0479 W  802.11ac VHT40 : 15.83 dBm / 0.0383 W  802.11ac VHT80 : 14.78 dBm / 0.0301 W</p> <p><b>&lt;5500 MHz ~ 5720 MHz &gt;</b>  802.11a : 17.84 dBm / 0.0608 W  802.11n HT20 : 16.96 dBm / 0.0497 W  802.11n HT40 : 15.99 dBm / 0.0397 W  802.11ac VHT20 : 16.89 dBm / 0.0489 W  802.11ac VHT40 : 15.83 dBm / 0.0383 W  802.11ac VHT80 : 16.11 dBm / 0.0408 W</p>
<b>99% Occupied Bandwidth</b>	<p><b>&lt;5180 MHz ~ 5240 MHz&gt;</b>  802.11a : 16.78 MHz  802.11n HT20 : 17.93 MHz  802.11n HT40 : 36.66 MHz  802.11ac VHT80 : 76.24 MHz</p> <p><b>&lt;5260 MHz ~ 5320 MHz&gt;</b>  802.11a : 16.73 MHz  802.11n HT20 : 17.93 MHz  802.11n HT40 : 36.66 MHz  802.11ac VHT80 : 76.36 MHz</p> <p><b>&lt;5500 MHz ~ 5720 MHz &gt;</b>  802.11a : 16.78 MHz  802.11n HT20 : 17.93 MHz  802.11n HT40 : 36.66 MHz  802.11ac VHT80 : 76.48 MHz</p>
<b>Antenna Type / Gain</b>	<p><b>&lt;5180 MHz ~ 5240 MHz &gt;</b>  PIFA Antenna with gain -0.40 dBi</p> <p><b>&lt;5260 MHz ~ 5320 MHz &gt;</b>  PIFA Antenna with gain -0.50 dBi</p> <p><b>&lt;5500 MHz ~ 5720 MHz &gt;</b>  PIFA Antenna with gain -0.60 dBi</p>
<b>Type of Modulation</b>	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)

**Note:** For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing have



assessed only 802.11n HT20/ HT40 by referring to the higher conducted power.

### 1.4 Modification of EUT

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

### 1.5 Testing Location

Sporton International (Shenzhen) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

<b>Test Firm</b>	Sporton International (Shenzhen) Inc.		
<b>Test Site Location</b>	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC Designation No.</b>	<b>FCC Test Firm Registration No.</b>
	CO01-SZ TH01-SZ	CN1256	421272

<b>Test Firm</b>	Sporton International (Shenzhen) Inc.		
<b>Test Location Site</b>	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province China 518103 TEL: +86-755-33202398		
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC Designation No.</b>	<b>FCC Test Firm Registration No.</b>
	03CH01-SZ	CN1256	421272

### 1.6 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH01-SZ	AUDIX	E3	6.2009-8-24
2.	CO01-SZ	AUDIX	E3	6.120613b



### 1.7 Applicable Standards

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

- ♦ 47 CFR Part 15 Subpart E
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- ♦ ANSI C63.10-2013

**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.

### 1.8 Specification of Accessory

Specification of Accessory				
<b>AC Adapter</b>	<b>Brand Name</b>	Motorola (Chenyang)	<b>Model Name</b>	MC-201
<b>Battery</b>	<b>Brand Name</b>	Motorola (Sunwoda)	<b>Model Name</b>	JK50
<b>Earphone</b>	<b>Brand Name</b>	Motorola (Ju wei)	<b>Model Name</b>	JWEP1123-T03
<b>USB Cable</b>	<b>Brand Name</b>	Motorola (Yihuaxing)	<b>Model Name</b>	T365-008





## 2 Test Configuration of Equipment Under Test

- a. 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: conduction emission (150 kHz to 30 MHz), radiation 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 (Y plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

### 2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5180-5240 MHz Band 1 (U-NII-1)	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240
	42 <sup>#</sup>	5210		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5260-5320 MHz Band 2 (U-NII-2A)	52	5260	60	5300
	54*	5270	62*	5310
	56	5280	64	5320
	58 <sup>#</sup>	5290		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5500-5720 MHz Band 3 (U-NII-2C)	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	106 <sup>#</sup>	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700



Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
TDWR Channel	118*	5590	124	5620
	120	5600	126*	5630
	122 <sup>#</sup>	5610	128	5640

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channel	138 <sup>#</sup>	5690	144	5720
	142*	5710		

**Note:**

1. The above Frequency and Channel in "\*" were 802.11n HT40 and 802.11ac VHT40.
2. The above Frequency and Channel in "<sup>#</sup>" were 802.11ac VHT80.



## 2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link(5G) + USB Cable(Charging from Adapter) + Battery + Earphone
<b>Remark:</b> For Radiated Test Cases, The tests were performed with Adapter, Battery, Earphone and USB Cable.	



Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5720MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

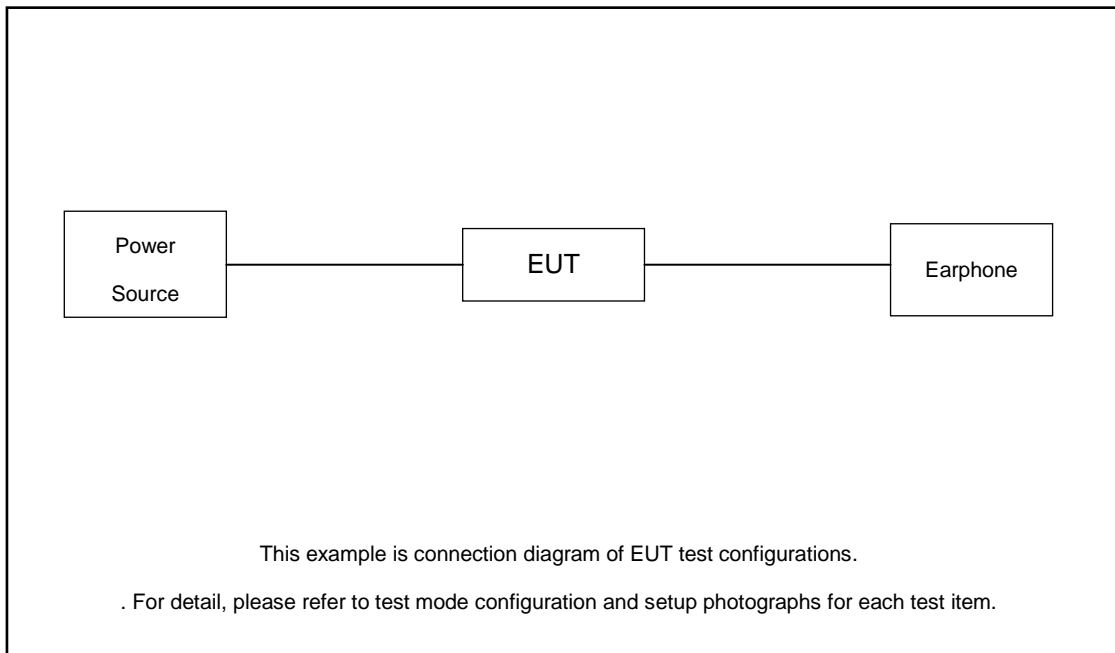
Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5720MHz
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5720MHz
		802.11n HT40	802.11n HT40	802.11n HT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134
Straddle		-	-	142

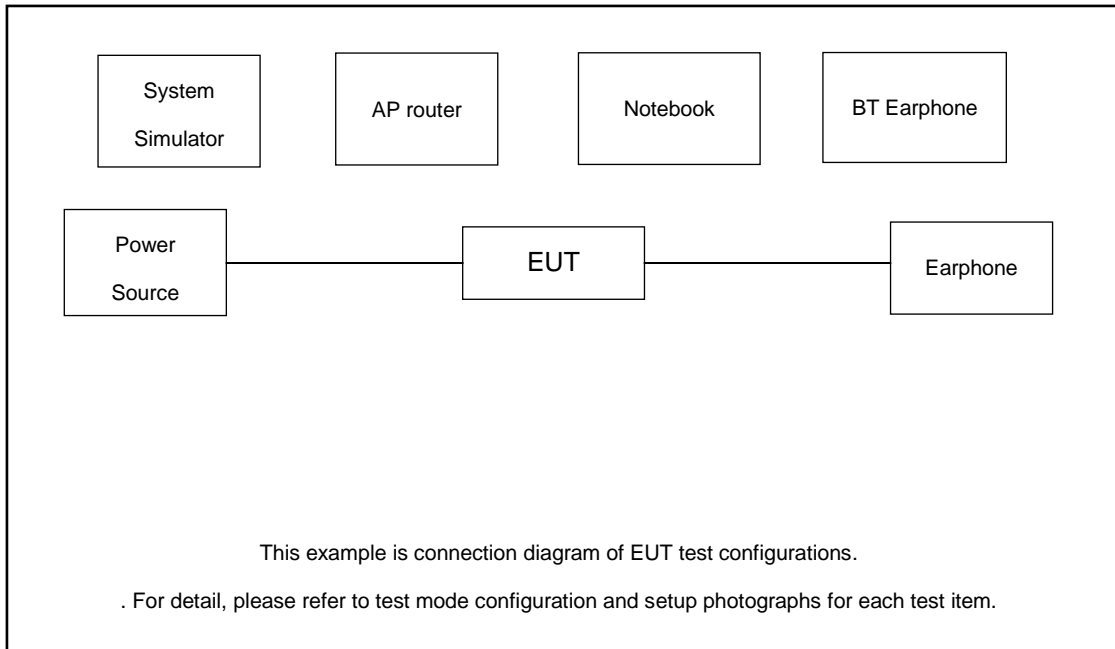
Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5720MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	106
M	Middle	42	58	-
H	High	-	-	122
Straddle		-	-	138

## 2.3 Connection Diagram of Test System

<Radiation>



<Conduction>



## 2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8m
2.	WLAN AP	D-Link	DIR-820L	KA2IR820LA1	N/A	Unshielded, 1.8m
3.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Samsung	EO-MG900	N/A	N/A	N/A

## 2.5 EUT Operation Test Setup

For WLAN RF test items, an 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.

## 2.6 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 2.8 dB and 20dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 2.8 + 20 = 22.8 \text{ (dB)} \end{aligned}$$

### 3 Test Result

#### 3.1 26dB & 99% Occupied Bandwidth Measurement

##### 3.1.1 Description of 26dB & 99% Occupied Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

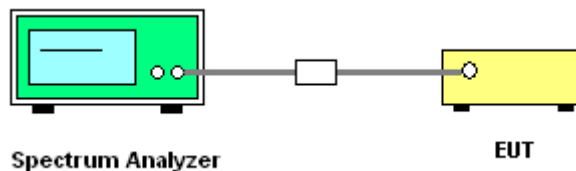
##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedures

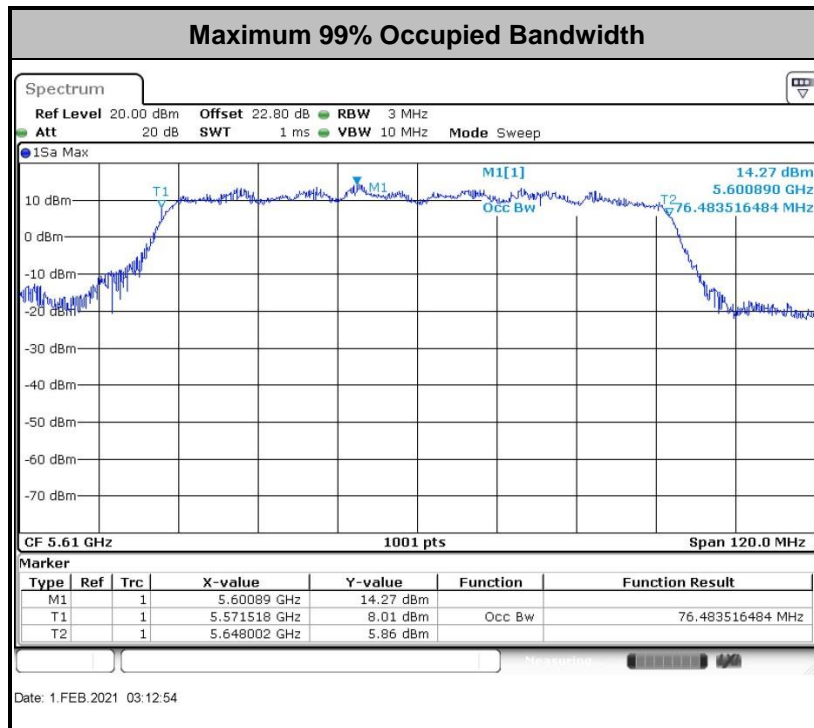
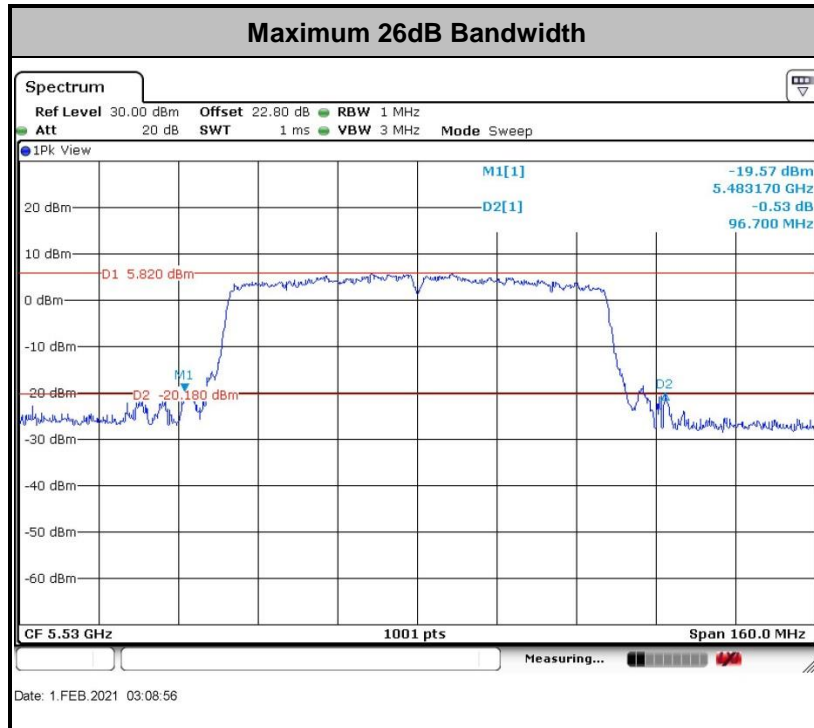
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 3MHz and set the Video bandwidth (VBW)  $\geq 3 * RBW$ .
8. Measure and record the results in the test report.

##### 3.1.4 Test Setup



##### 3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.



**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 mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW.

For the 5.25–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

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.

Note that U-NII-2 band, devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

### 3.2.2 Measuring Instruments

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

### 3.2.3 Test Procedures

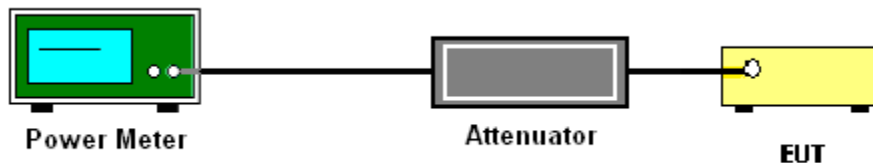
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

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.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

### 3.2.4 Test Setup



### 3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



### 3.3 Power Spectral Density Measurement

#### 3.3.1 Limit of Power Spectral Density

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

For the 5.25–5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

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

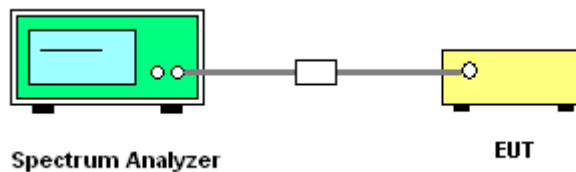
The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.  
Section F) Maximum power spectral density.

#### # Method SA-2 #

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

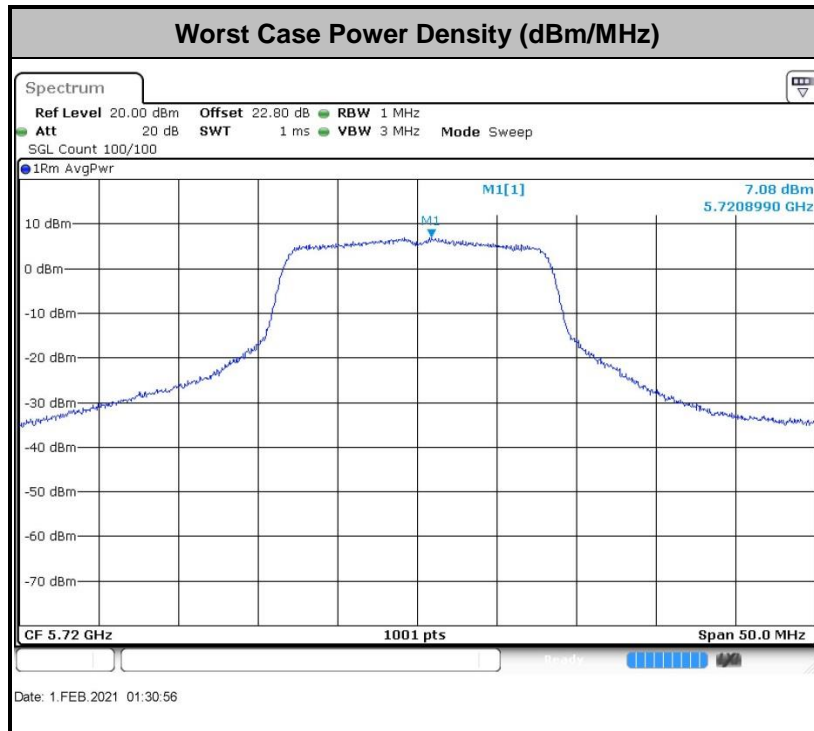
- Measure the duty cycle.
  - Set span to encompass the entire emission bandwidth (EBW) of the signal.
  - Set RBW = 1 MHz.
  - Set VBW  $\geq$  3 MHz.
  - Number of points in sweep  $\geq$  2 Span / RBW.
  - Sweep time = auto.
  - Detector = RMS
  - Trace average at least 100 traces in power averaging mode.
  - 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.
1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
  2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

### 3.3.4 Test Setup



### 3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



**Note:** Average Power Density (dB) = Measured value+ Duty Factor



### 3.4 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

#### 3.4.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27dBm/MHz.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5600 MHz and 5650-5725MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725MHz band shall not exceed an EIRP of -27 dBm/MHz.

- (2) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits 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



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

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

$$EIRP = E_{Meas} + 20\log (d_{Meas}) - 104.7$$

where

EIRP is the equivalent isotropically radiated power, in dBm

$E_{Meas}$  is the field strength of the emission at the measurement distance, in dBµV/m

$d_{Meas}$  is the measurement distance, in m

### 3.4.2 Measuring Instruments

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



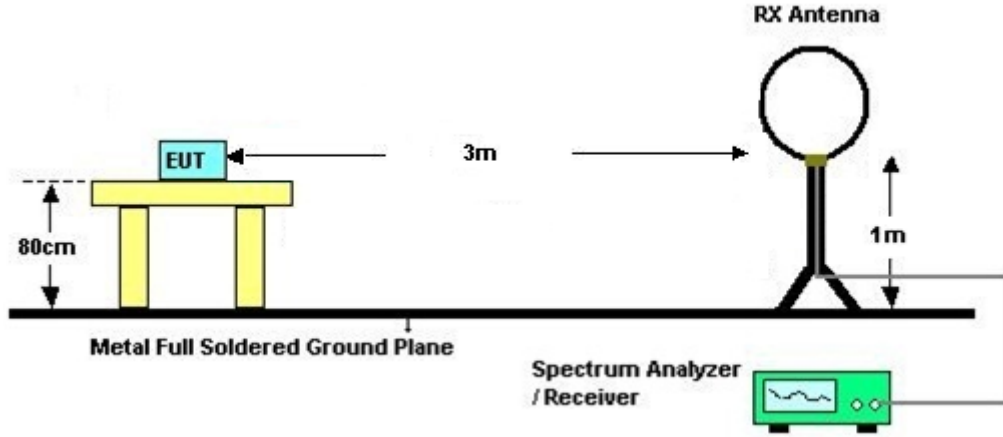
### 3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. 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  $\geq$  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  $\geq$  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.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively 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 peak 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.

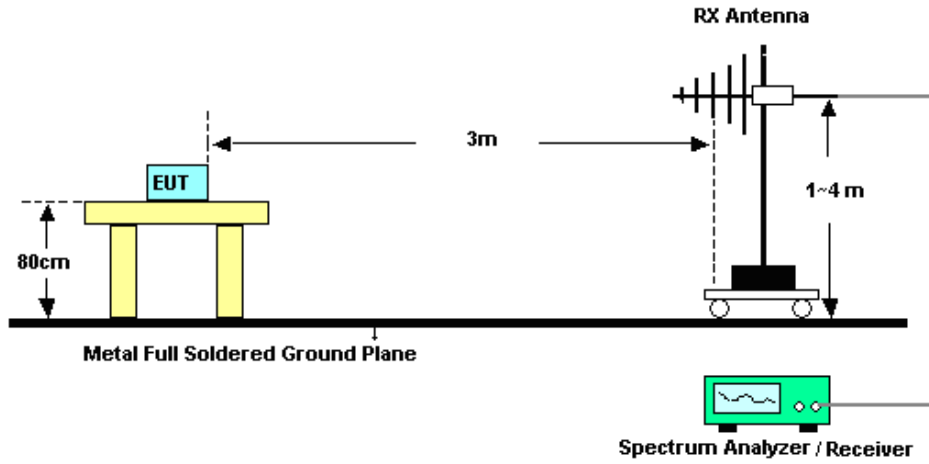


### 3.4.4 Test Setup

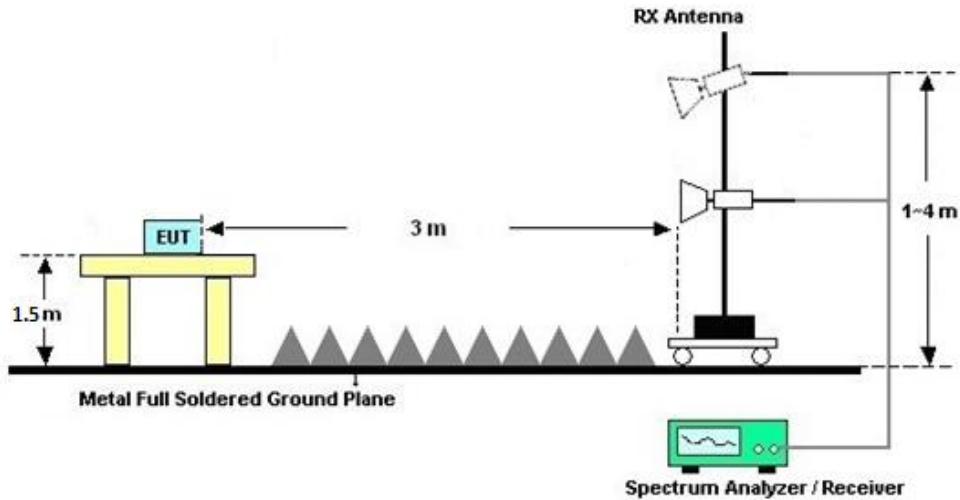
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



### 3.4.5 Test Results of Radiated Spurious 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 was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

### 3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

### 3.4.7 Duty Cycle

Please refer to Appendix D.

### 3.4.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix C.



### 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.

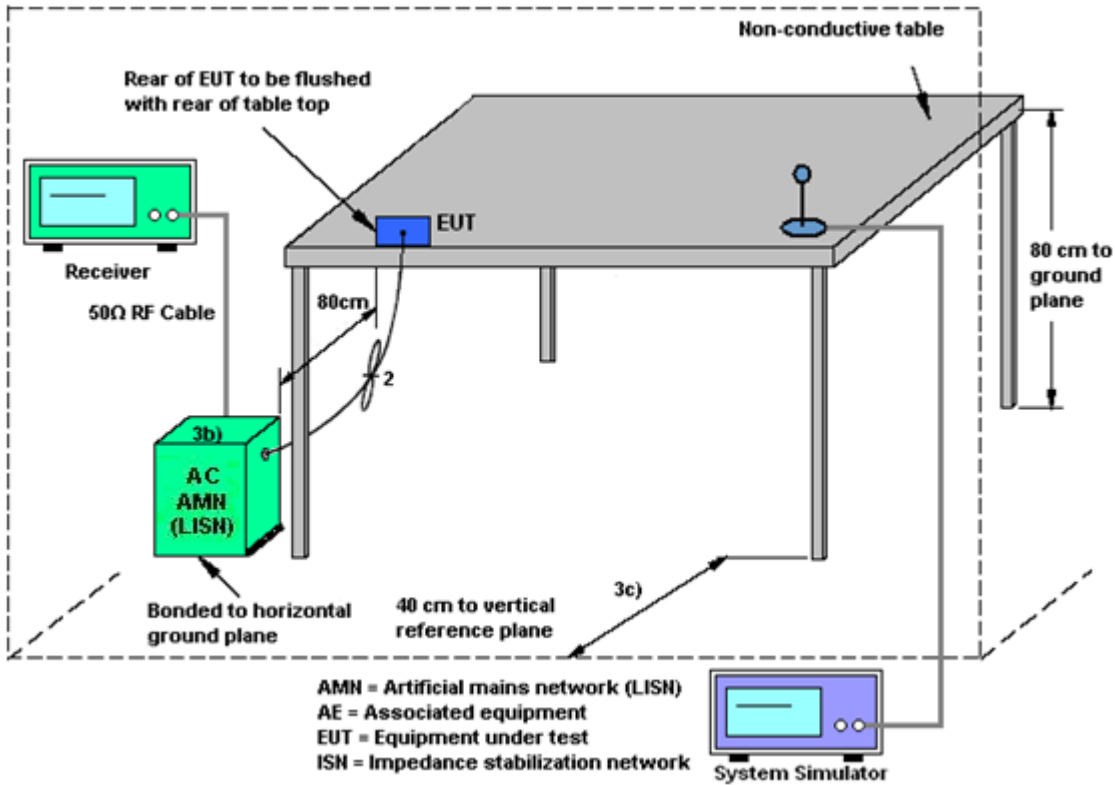
#### 3.5.2 Measuring Instruments

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



### 3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



## **3.6 Automatically Discontinue Transmission**

### **3.6.1 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.

### **3.6.2 Measuring Instruments**

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

### **3.6.3 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.



## **3.7 Antenna Requirements**

### **3.7.1 Standard Applicable**

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.

### **3.7.2 Antenna Anti-Replacement Construction**

An embedded-in antenna design is used.

### **3.7.3 Antenna Gain**

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 17, 2020	Feb. 01, 2021	Apr. 16, 2021	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1207253	30MHz~40GHz	Dec. 25, 2020	Feb. 01, 2021	Dec. 24, 2021	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Dec. 25, 2020	Feb. 01, 2021	Dec. 24, 2021	Conducted (TH01-SZ)
EMI Test Receiver&SA	Agilent	N9038A	MY52260185	20Hz~26.5GHz	Jul. 21, 2020	Mar. 10, 2021~ Mar. 24, 2021	Jul. 20, 2021	Radiation (03CH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 21, 2020	Mar. 10, 2021~ Mar. 24, 2021	Jul. 20, 2021	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 22, 2020	Mar. 10, 2021~ Mar. 24, 2021	Jun. 21, 2021	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Jul. 15, 2020	Mar. 10, 2021~ Mar. 24, 2021	Jul. 14, 2021	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 25, 2020	Mar. 10, 2021~ Mar. 24, 2021	Jul. 24, 2021	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 23, 2020	Mar. 10, 2021~ Mar. 24, 2021	Apr. 22, 2021	Radiation (03CH01-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000Mhz	Apr. 17, 2020	Mar. 10, 2021~ Mar. 24, 2021	Apr. 16, 2021	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	AMF-7D-0010 1800-30-10P-R	1943528	1GHz~18GHz	Oct. 17, 2020	Mar. 10, 2021~ Mar. 24, 2021	Oct. 16, 2021	Radiation (03CH01-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270104	0.5GHz~26.5GHz	Dec. 27, 2020	Mar. 10, 2021~ Mar. 24, 2021	Dec. 26, 2021	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 21, 2020	Mar. 10, 2021~ Mar. 24, 2021	Jul. 20, 2021	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Mar. 10, 2021~ Mar. 24, 2021	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Mar. 10, 2021~ Mar. 24, 2021	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Mar. 10, 2021~ Mar. 24, 2021	NCR	Radiation (03CH01-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Dec. 25, 2020	Mar. 02, 2021	Dec. 24, 2021	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2 LISN	00103912	9kHz~30MHz	Dec. 25, 2020	Mar. 02, 2021	Dec. 24, 2021	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 15, 2020	Mar. 02, 2021	Oct. 14, 2021	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 21, 2020	Mar. 02, 2021	Jul. 20, 2021	Conduction (CO01-SZ)

NCR: No Calibration Required



## 5 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.7dB
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### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.7dB
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### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.0dB
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### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.3dB
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## **Appendix A. Conducted Test Results**

Test Engineer:	Zhang Xue Yi	Temperature:	21~25	°C
Test Date:	2021/2/1	Relative Humidity:	51~54	%

**TEST RESULTS DATA**  
**26dB and 99% OBW**

Band I										
Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)		
11a	6Mbps	1	36	5180	16.78	24.63	-	22.25		
11a	6Mbps	1	44	5220	16.78	24.78	-	22.25		
11a	6Mbps	1	48	5240	16.78	24.78	-	22.25		
HT20	MCS0	1	36	5180	17.93	26.17	-	22.54		
HT20	MCS0	1	44	5220	17.93	26.12	-	22.54		
HT20	MCS0	1	48	5240	17.93	25.52	-	22.54		
HT40	MCS0	1	38	5190	36.66	41.90	-	23.01		
HT40	MCS0	1	46	5230	36.56	41.54	-	23.01		
VHT80	MCS0	1	42	5210	76.24	92.71	-	23.01		

**TEST RESULTS DATA**  
**Average Power Table**

FCC Band I										
Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
11a	6Mbps	1	36	5180	0.08	17.93	24.00	-0.40		Pass
11a	6Mbps	1	44	5220	0.08	17.89	24.00	-0.40		Pass
11a	6Mbps	1	48	5240	0.08	17.90	24.00	-0.40		Pass
HT20	MCS0	1	36	5180	0.08	16.80	24.00	-0.40		Pass
HT20	MCS0	1	44	5220	0.08	16.89	24.00	-0.40		Pass
HT20	MCS0	1	48	5240	0.08	16.99	24.00	-0.40		Pass
HT40	MCS0	1	38	5190	0.16	15.84	24.00	-0.40		Pass
HT40	MCS0	1	46	5230	0.16	15.88	24.00	-0.40		Pass
VHT20	MCS0	1	36	5180	0.08	16.63	24.00	-0.40		Pass
VHT20	MCS0	1	44	5220	0.08	16.70	24.00	-0.40		Pass
VHT20	MCS0	1	48	5240	0.08	16.80	24.00	-0.40		Pass
VHT40	MCS0	1	38	5190	0.15	15.70	24.00	-0.40		Pass
VHT40	MCS0	1	46	5230	0.15	15.78	24.00	-0.40		Pass
VHT80	MCS0	1	42	5210	0.31	14.94	24.00	-0.40		Pass

**TEST RESULTS DATA**  
**Power Spectral Density**

FCC Band I										
Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)	-	Pass/Fail
11a	6Mbps	1	36	5180	0.08	6.86	11.00	-0.40		Pass
11a	6Mbps	1	44	5220	0.08	7.08	11.00	-0.40		Pass
11a	6Mbps	1	48	5240	0.08	7.04	11.00	-0.40		Pass
HT20	MCS0	1	36	5180	0.08	5.88	11.00	-0.40		Pass
HT20	MCS0	1	44	5220	0.08	6.05	11.00	-0.40		Pass
HT20	MCS0	1	48	5240	0.08	6.08	11.00	-0.40		Pass
HT40	MCS0	1	38	5190	0.16	1.51	11.00	-0.40		Pass
HT40	MCS0	1	46	5230	0.16	1.86	11.00	-0.40		Pass
VHT80	MCS0	1	42	5210	0.31	-1.51	11.00	-0.40		Pass

**TEST RESULTS DATA**  
**26dB and 99% OBW**

Band II										
Mod.	Data Rate	N <sub>Tx</sub>	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)	Note
11a	6M bps	1	52	5260	16.73	24.63	23.24	29.24	23.98	
11a	6M bps	1	60	5300	16.73	24.48	23.24	29.24	23.98	
11a	6M bps	1	64	5320	16.73	24.48	23.24	29.24	23.98	
HT20	MCS 0	1	52	5260	17.93	25.72	23.54	29.54	23.98	
HT20	MCS 0	1	60	5300	17.88	25.72	23.52	29.52	23.98	
HT20	MCS 0	1	64	5320	17.88	25.43	23.52	29.52	23.98	
HT40	MCS 0	1	54	5270	36.56	41.90	23.98	30.00	23.98	
HT40	MCS 0	1	62	5310	36.66	41.99	23.98	30.00	23.98	
VHT80	MCS 0	1	58	5290	76.36	92.55	23.98	30.00	23.98	

**TEST RESULTS DATA**  
**Average Power Table**

FCC Band II										
Mod.	Data Rate	N <sub>Tx</sub>	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	52	5260	0.08	17.85	23.98	-0.50	26.99	Pass
11a	6M bps	1	60	5300	0.08	17.87	23.98	-0.50	26.99	Pass
11a	6M bps	1	64	5320	0.08	17.90	23.98	-0.50	26.99	Pass
HT20	MCS 0	1	52	5260	0.08	16.91	23.98	-0.50	26.99	Pass
HT20	MCS 0	1	60	5300	0.08	16.93	23.98	-0.50	26.99	Pass
HT20	MCS 0	1	64	5320	0.08	16.86	23.98	-0.50	26.99	Pass
HT40	MCS 0	1	54	5270	0.16	15.95	23.98	-0.50	26.99	Pass
HT40	MCS 0	1	62	5310	0.16	15.98	23.98	-0.50	26.99	Pass
VHT20	MCS 0	1	52	5260	0.08	16.71	23.98	-0.50	26.99	Pass
VHT20	MCS 0	1	60	5300	0.08	16.79	23.98	-0.50	26.99	Pass
VHT20	MCS 0	1	64	5320	0.08	16.80	23.98	-0.50	26.99	Pass
VHT40	MCS 0	1	54	5270	0.15	15.80	23.98	-0.50	26.99	Pass
VHT40	MCS 0	1	62	5310	0.15	15.83	23.98	-0.50	26.99	Pass
VHT80	MCS 0	1	58	5290	0.31	14.78	23.98	-0.50	26.99	Pass

**TEST RESULTS DATA**  
**Power Spectral Density**

Band II										
Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)		Pass/Fail
11a	6M bps	1	52	5260	0.08	7.04	11.00	-0.50		Pass
11a	6M bps	1	60	5300	0.08	7.09	11.00	-0.50		Pass
11a	6M bps	1	64	5320	0.08	6.93	11.00	-0.50		Pass
HT20	MCS 0	1	52	5260	0.08	6.22	11.00	-0.50		Pass
HT20	MCS 0	1	60	5300	0.08	6.15	11.00	-0.50		Pass
HT20	MCS 0	1	64	5320	0.08	5.90	11.00	-0.50		Pass
HT40	MCS 0	1	54	5270	0.16	1.87	11.00	-0.50		Pass
HT40	MCS 0	1	62	5310	0.16	1.91	11.00	-0.50		Pass
VHT80	MCS 0	1	58	5290	0.31	-1.08	11.00	-0.50		Pass



**TEST RESULTS DATA**  
**26dB and 99% OBW**

Band III										
Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)	Note
11a	6M bps	1	100	5500	16.73	24.08	23.24	29.24	23.98	
11a	6M bps	1	116	5580	16.68	24.08	23.22	29.22	23.98	
11a	6M bps	1	140	5700	16.73	24.23	23.24	29.24	23.98	
11a	6Mbps	1	144	5720	16.78	24.78	23.25	29.25	23.98	
HT20	MCS 0	1	100	5500	17.88	25.38	23.52	29.52	23.98	
HT20	MCS 0	1	116	5580	17.83	25.03	23.51	29.51	23.98	
HT20	MCS 0	1	140	5700	17.93	25.33	23.54	29.54	23.98	
HT20	MCS0	1	144	5720	17.88	25.38	23.52	29.52	23.98	
HT40	MCS 0	1	102	5510	36.66	41.81	23.98	30.00	23.98	
HT40	MCS 0	1	110	5550	36.56	41.90	23.98	30.00	23.98	
HT40	MCS 0	1	134	5670	36.66	41.72	23.98	30.00	23.98	
HT40	MCS0	1	142	5710	36.66	41.99	23.98	30.00	23.98	
VHT80	MCS 0	1	106	5530	76.24	96.70	23.98	30.00	23.98	
VHT80	MCS 0	1	122	5610	76.48	90.79	23.98	30.00	23.98	
VHT80	MCS0	1	138	5690	76.36	91.11	23.98	30.00	23.98	

**TEST RESULTS DATA**  
**Average Power Table**

FCC Band III										
Mod.	Data Rate	N <sub>Tx</sub>	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	100	5500	0.08	12.00	23.98	-0.60	26.99	Pass
11a	6M bps	1	116	5580	0.08	17.84	23.98	-0.60	26.99	Pass
11a	6M bps	1	140	5700	0.08	17.72	23.98	-0.60	26.99	Pass
11a	6M bps	1	144	5720	0.08	17.73	23.98	-0.60	26.99	Pass
HT20	MCS 0	1	100	5500	0.08	16.83	23.98	-0.60	26.99	Pass
HT20	MCS 0	1	116	5580	0.08	16.82	23.98	-0.60	26.99	Pass
HT20	MCS 0	1	140	5700	0.08	16.96	23.98	-0.60	26.99	Pass
HT20	MCS 0	1	144	5720	0.08	16.91	23.98	-0.60	26.99	Pass
HT40	MCS 0	1	102	5510	0.16	12.24	23.98	-0.60	26.99	Pass
HT40	MCS 0	1	110	5550	0.16	15.88	23.98	-0.60	26.99	Pass
HT40	MCS 0	1	134	5670	0.16	15.99	23.98	-0.60	26.99	Pass
HT40	MCS 0	1	142	5710	0.16	15.80	23.98	-0.60	26.99	Pass
VHT20	MCS 0	1	100	5500	0.08	16.71	23.98	-0.60	26.99	Pass
VHT20	MCS 0	1	116	5580	0.08	16.64	23.98	-0.60	26.99	Pass
VHT20	MCS 0	1	140	5700	0.08	16.89	23.98	-0.60	26.99	Pass
VHT20	MCS 0	1	144	5720	0.08	16.85	23.98	-0.60	26.99	Pass
VHT40	MCS 0	1	102	5510	0.15	12.14	23.98	-0.60	26.99	Pass
VHT40	MCS 0	1	110	5550	0.15	15.67	23.98	-0.60	26.99	Pass
VHT40	MCS 0	1	134	5670	0.15	15.83	23.98	-0.60	26.99	Pass
VHT40	MCS 0	1	142	5710	0.15	15.73	23.98	-0.60	26.99	Pass
VHT80	MCS 0	1	106	5530	0.31	12.02	23.98	-0.60	26.99	Pass
VHT80	MCS 0	1	122	5610	0.31	16.11	23.98	-0.60	26.99	Pass
VHT80	MCS 0	1	138	5690	0.31	15.99	23.98	-0.60	26.99	Pass

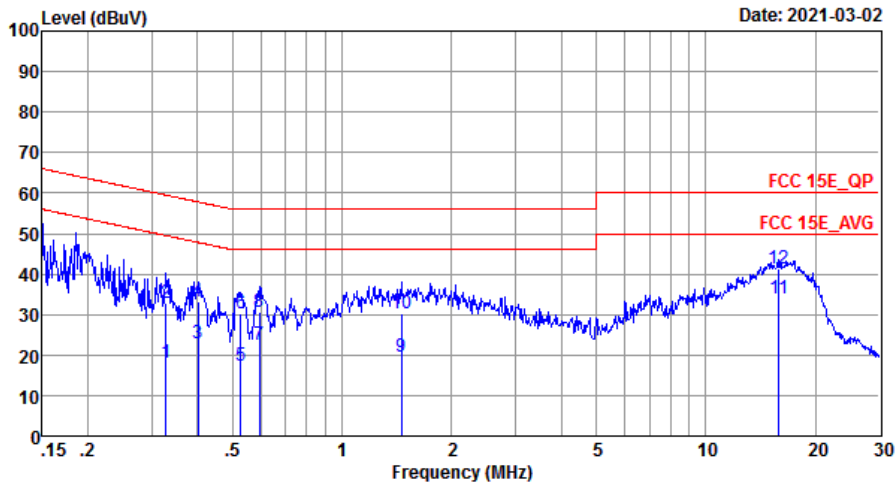
**TEST RESULTS DATA**  
**Power Spectral Density**

Band III										
Mod.	Data Rate	N <sub>Tx</sub>	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)		Pass/Fail
11a	6M bps	1	100	5500	0.08	6.88	11.00	-0.60		Pass
11a	6M bps	1	116	5580	0.08	6.81	11.00	-0.60		Pass
11a	6M bps	1	140	5700	0.08	6.79	11.00	-0.60		Pass
11a	6Mbps	1	144	5720	0.08	7.16	11.00	-0.60		Pass
HT20	MCS 0	1	100	5500	0.08	5.68	11.00	-0.60		Pass
HT20	MCS 0	1	116	5580	0.08	5.62	11.00	-0.60		Pass
HT20	MCS 0	1	140	5700	0.08	6.06	11.00	-0.60		Pass
HT20	MCS0	1	144	5720	0.08	5.87	11.00	-0.60		Pass
HT40	MCS 0	1	102	5510	0.16	1.68	11.00	-0.60		Pass
HT40	MCS 0	1	110	5550	0.16	1.62	11.00	-0.60		Pass
HT40	MCS 0	1	134	5670	0.16	1.56	11.00	-0.60		Pass
HT40	MCS0	1	142	5710	0.16	1.33	11.00	-0.60		Pass
VHT80	MCS 0	1	106	5530	0.31	-2.61	11.00	-0.60		Pass
VHT80	MCS 0	1	122	5610	0.31	-1.47	11.00	-0.60		Pass
VHT80	MCS0	1	138	5690	0.31	-1.41	11.00	-0.60		Pass



## Appendix B. AC Conducted Emission Test Results

Test Engineer :	Xie Yuqiang	Temperature :	22~25°C
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

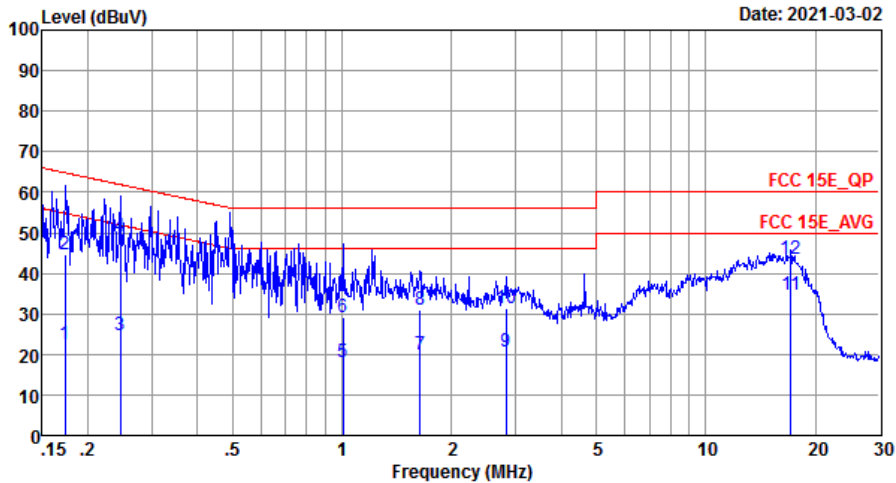


Site : C001-SZ  
Condition: FCC 15E\_QP LISN\_20200719\_L LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.33	18.04	-31.45	49.49	8.00	0.03	10.01	Average
2	0.33	32.94	-26.55	59.49	22.90	0.03	10.01	QP
3	0.40	22.94	-24.87	47.81	12.90	0.03	10.01	Average
4	0.40	33.04	-24.77	57.81	23.00	0.03	10.01	QP
5	0.53	17.18	-28.82	46.00	7.10	0.02	10.06	Average
6	0.53	30.08	-25.92	56.00	20.00	0.02	10.06	QP
7	0.59	22.49	-23.51	46.00	12.40	0.02	10.07	Average
8	0.59	30.69	-25.31	56.00	20.60	0.02	10.07	QP
9	1.46	19.44	-26.56	46.00	9.30	0.09	10.05	Average
10	1.46	30.24	-25.76	56.00	20.10	0.09	10.05	QP
11 *	15.89	33.96	-16.04	50.00	23.00	0.67	10.29	Average
12	15.89	41.16	-18.84	60.00	30.20	0.67	10.29	QP



Test Engineer :	Xie Yuqiang	Temperature :	22~25°C
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-SZ  
 Condition: FCC 15E\_QP LISN 20200719\_N NEUTRAL

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17	22.44	-32.37	54.81	12.40	0.03	10.01	Average
2	0.17	44.74	-20.07	64.81	34.70	0.03	10.01	QP
3	0.25	24.54	-27.37	51.91	14.50	0.03	10.01	Average
4 *	0.25	49.14	-12.77	61.91	39.10	0.03	10.01	QP
5	1.00	18.00	-28.00	46.00	7.90	0.05	10.05	Average
6	1.00	29.10	-26.90	56.00	19.00	0.05	10.05	QP
7	1.64	20.00	-26.00	46.00	9.90	0.05	10.05	Average
8	1.64	31.10	-24.90	56.00	21.00	0.05	10.05	QP
9	2.82	20.82	-25.18	46.00	10.71	0.03	10.08	Average
10	2.82	31.22	-24.78	56.00	21.11	0.03	10.08	QP
11	17.11	34.63	-15.37	50.00	23.90	0.44	10.29	Average
12	17.11	43.53	-16.47	60.00	32.80	0.44	10.29	QP

Note:

- Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
- Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)



## Appendix C. Radiated Spurious Emission

### Band 1 - 5150~5250MHz WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11a CH 36 5180MHz		5147.16	54.04	-19.96	74	42.8	31.62	12.15	32.53	104	338	P	H
		5150	44.63	-9.37	54	33.39	31.62	12.15	32.53	104	338	A	H
	*	5180	104.5	-	-	93.24	31.64	12.16	32.54	104	338	P	H
		5180	100.38	-	-	89.12	31.64	12.16	32.54	104	338	A	H
		5146.9	52.39	-21.61	74	41.15	31.62	12.15	32.53	229	180	P	V
		5150	43.9	-10.1	54	32.66	31.62	12.15	32.53	229	180	A	V
	*	5180	102.92	-	-	91.66	31.64	12.16	32.54	229	180	P	V
		5180	99.72	-	-	88.46	31.64	12.16	32.54	229	180	A	V
802.11a CH 44 5220MHz		5078	49.27	-24.73	74	38.1	31.56	12.13	32.52	101	342	P	H
		5124.02	39.83	-14.17	54	28.62	31.6	12.14	32.53	101	342	A	H
	*	5220	105.27	-	-	93.97	31.68	12.17	32.55	101	342	P	H
		5220	98.32	-	-	87.02	31.68	12.17	32.55	101	342	A	H
		5363.52	49.56	-24.44	74	38.13	31.79	12.21	32.57	101	342	P	H
		5354.4	38.95	-15.05	54	27.53	31.78	12.21	32.57	101	342	A	H
		5105.56	48.98	-25.02	74	37.78	31.58	12.14	32.52	244	164	P	V
		5149.76	39.58	-14.42	54	28.34	31.62	12.15	32.53	244	164	A	V
	*	5220	102.08	-	-	90.78	31.68	12.17	32.55	244	164	P	V
		5220	95.8	-	-	84.5	31.68	12.17	32.55	244	164	A	V
		5429.52	49.94	-24.06	74	38.46	31.84	12.23	32.59	244	164	P	V
	5457.84	38.79	-15.21	54	27.27	31.87	12.24	32.59	244	164	A	V	



802.11a CH 48 5240MHz		5144.04	50.41	-23.59	74	39.17	31.62	12.15	32.53	101	342	P	H
		5144.04	39.67	-14.33	54	28.43	31.62	12.15	32.53	101	342	A	H
	*	5240	103.34	-	-	92.02	31.69	12.18	32.55	101	342	P	H
		5240	98.56	-	-	87.24	31.69	12.18	32.55	101	342	A	H
		5402.4	49.2	-24.8	74	37.74	31.82	12.22	32.58	101	342	P	H
		5374.32	39.12	-14.88	54	27.68	31.8	12.21	32.57	101	342	A	H
		5135.98	48.58	-25.42	74	37.35	31.61	12.15	32.53	210	168	P	V
		5144.04	39.66	-14.34	54	28.42	31.62	12.15	32.53	210	168	A	V
	*	5240	102.42	-	-	91.1	31.69	12.18	32.55	210	168	P	V
		5240	98.98	-	-	87.66	31.69	12.18	32.55	210	168	A	V
		5367.84	48.91	-25.09	74	37.48	31.79	12.21	32.57	210	168	P	V
		5354.64	38.92	-15.08	54	27.5	31.78	12.21	32.57	210	168	A	V
Remark	<p>1. No other spurious found.</p> <p>2. All results are PASS against Peak and Average limit line.</p>												



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 36 5180MHz		10360	49.08	-19.22	68.3	26.15	39.78	15.31	32.16	155	121	P	H
		15540	49.29	-24.71	74	26.86	38.49	17.76	33.82	125	163	P	H
		10360	49.36	-18.94	68.3	26.43	39.78	15.31	32.16	155	121	P	V
		15540	49	-25	74	26.57	38.49	17.76	33.82	125	163	P	V
802.11a CH 44 5220MHz		10440	49.91	-18.39	68.3	26.82	39.9	15.32	32.13	100	124	P	H
		15660	49.42	-24.58	74	27.37	38.15	17.83	33.93	100	169	P	H
		10440	49.82	-18.48	68.3	26.73	39.9	15.32	32.13	100	154	P	V
		15660	48.77	-25.23	74	26.72	38.15	17.83	33.93	100	158	P	V
802.11a CH 48 5240MHz		10480	49.98	-18.32	68.3	26.8	39.97	15.32	32.11	200	141	P	H
		15720	49.08	-24.92	74	27.2	37.98	17.87	33.97	200	169	P	H
		10480	49.3	-19	68.3	26.12	39.97	15.32	32.11	200	112	P	V
		15720	49.77	-24.23	74	27.89	37.98	17.87	33.97	200	153	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												





**Band 1 5150~5250MHz**  
**WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11n HT20 CH 36 5180MHz		5144.04	51.53	-22.47	74	40.29	31.62	12.15	32.53	104	342	P	H
		5122.46	44.09	-9.91	54	32.88	31.6	12.14	32.53	104	342	A	H
	*	5180	102.26	-	-	91	31.64	12.16	32.54	104	342	P	H
		5180	96.06	-	-	84.8	31.64	12.16	32.54	104	342	A	H
		5144.82	53	-21	74	41.76	31.62	12.15	32.53	259	184	P	V
		5122.46	43.3	-10.7	54	32.09	31.6	12.14	32.53	259	184	A	V
	*	5180	101.74	-	-	90.48	31.64	12.16	32.54	259	184	P	V
		5180	94.87	-	-	83.61	31.64	12.16	32.54	259	184	A	V
802.11n HT20 CH 44 5220MHz		5131.04	49.19	-24.81	74	37.97	31.6	12.15	32.53	101	341	P	H
		5124.02	39.78	-14.22	54	28.57	31.6	12.14	32.53	101	341	A	H
	*	5220	102.83	-	-	91.53	31.68	12.17	32.55	101	341	P	H
		5220	96.5	-	-	85.2	31.68	12.17	32.55	101	341	A	H
		5423.76	49.75	-24.25	74	38.26	31.84	12.23	32.58	101	341	P	H
		5354.4	39.03	-14.97	54	27.61	31.78	12.21	32.57	101	341	A	H
		5148.72	49.55	-24.45	74	38.31	31.62	12.15	32.53	220	184	P	V
		5124.02	39.58	-14.42	54	28.37	31.6	12.14	32.53	220	184	A	V
	*	5220	101.44	-	-	90.14	31.68	12.17	32.55	220	184	P	V
		5220	94.86	-	-	83.56	31.68	12.17	32.55	220	184	A	V
		5382.24	50.07	-23.93	74	38.62	31.81	12.22	32.58	220	184	P	V
	5354.64	38.83	-15.17	54	27.41	31.78	12.21	32.57	220	184	A	V	



802.11n HT20 CH 48 5240MHz		5144.04	50.41	-23.59	74	39.17	31.62	12.15	32.53	101	342	P	H
		5144.04	39.67	-14.33	54	28.43	31.62	12.15	32.53	101	342	A	H
	*	5240	103.34	-	-	92.02	31.69	12.18	32.55	101	342	P	H
		5240	98.56	-	-	87.24	31.69	12.18	32.55	101	342	A	H
		5402.4	49.2	-24.8	74	37.74	31.82	12.22	32.58	101	342	P	H
		5374.32	39.12	-14.88	54	27.68	31.8	12.21	32.57	101	342	A	H
		5135.98	48.58	-25.42	74	37.35	31.61	12.15	32.53	210	168	P	V
		5144.04	39.66	-14.34	54	28.42	31.62	12.15	32.53	210	168	A	V
	*	5240	102.42	-	-	91.1	31.69	12.18	32.55	210	168	P	V
		5240	98.98	-	-	87.66	31.69	12.18	32.55	210	168	A	V
		5367.84	48.91	-25.09	74	37.48	31.79	12.21	32.57	210	168	P	V
		5354.64	38.92	-15.08	54	27.5	31.78	12.21	32.57	210	168	A	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 1 5150~5250MHz**  
**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 36		10360	51.05	-17.25	68.3	28.12	39.78	15.31	32.16	100	142	P	H
		15540	49.44	-24.56	74	27.01	38.49	17.76	33.82	100	126	P	H
5180MHz		10360	49.15	-19.15	68.3	26.22	39.78	15.31	32.16	100	196	P	V
		15540	49.75	-24.25	74	27.32	38.49	17.76	33.82	100	124	P	V
802.11n HT20 CH 44		10440	49.87	-18.43	68.3	26.78	39.9	15.32	32.13	100	12	P	H
		15660	49.84	-24.16	74	27.79	38.15	17.83	33.93	100	162	P	H
		10440	49.23	-19.07	68.3	26.14	39.9	15.32	32.13	100	182	P	V
		15660	49.58	-24.42	74	27.53	38.15	17.83	33.93	100	162	P	V
802.11n HT20 CH 48		10480	49.96	-18.34	68.3	26.78	39.97	15.32	32.11	100	162	P	H
		15720	49.33	-24.67	74	27.45	37.98	17.87	33.97	100	147	P	H
		10480	49.94	-18.36	68.3	26.76	39.97	15.32	32.11	100	251	P	V
		15720	49.08	-24.92	74	27.2	37.98	17.87	33.97	100	192	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 1 5150~5250MHz**  
**WIFI 802.11n HT40 (Band Edge @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11n HT40 CH 38 5190MHz		5145.08	54.43	-19.57	74	43.19	31.62	12.15	32.53	100	339	P	H
		5150	48.82	-5.18	54	37.58	31.62	12.15	32.53	100	339	A	H
	*	5190	100.32	-	-	89.05	31.65	12.16	32.54	100	339	P	H
		5190	91.5	-	-	80.23	31.65	12.16	32.54	100	339	A	H
		5362.28	49.35	-24.65	74	37.92	31.79	12.21	32.57	100	339	P	H
		5448.24	40.83	-13.17	54	29.32	31.86	12.24	32.59	100	339	A	H
		5146.9	55.2	-18.8	74	43.96	31.62	12.15	32.53	287	159	P	V
		5149.76	49.84	-4.16	54	38.6	31.62	12.15	32.53	287	159	A	V
	*	5190	100.41	-	-	89.14	31.65	12.16	32.54	287	159	P	V
		5190	93.64	-	-	82.37	31.65	12.16	32.54	287	159	A	V
		5420.8	48.75	-25.25	74	37.26	31.84	12.23	32.58	287	159	P	V
		5456.08	40.63	-13.37	54	29.12	31.86	12.24	32.59	287	159	A	V
802.11n HT40 CH 46 5230MHz		5089.96	49.76	-24.24	74	38.57	31.57	12.14	32.52	100	340	P	H
		5133.9	42.89	-11.11	54	31.66	31.61	12.15	32.53	100	340	A	H
	*	5230	100.72	-	-	89.42	31.68	12.17	32.55	100	340	P	H
		5230	93.37	-	-	82.07	31.68	12.17	32.55	100	340	A	H
		5352.72	49.12	-24.88	74	37.7	31.78	12.21	32.57	100	340	P	H
		5364.48	41.1	-12.9	54	29.67	31.79	12.21	32.57	100	340	A	H
		5026.26	51.14	-22.86	74	40.01	31.52	12.12	32.51	301	157	P	V
		5133.9	42.98	-11.02	54	31.75	31.61	12.15	32.53	301	157	A	V
	*	5230	99.96	-	-	88.66	31.68	12.17	32.55	301	157	P	V
		5230	91.52	-	-	80.22	31.68	12.17	32.55	301	157	A	V
	5459.52	49.84	-24.16	74	38.32	31.87	12.24	32.59	301	157	P	V	
	5459.28	41	-13	54	29.48	31.87	12.24	32.59	301	157	A	V	
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 1 5150~5250MHz**  
**WIFI 802.11n HT40 (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 38		10380	49.7	-18.6	68.3	26.72	39.81	15.32	32.15	301	157	P	H
		15570	49.4	-24.6	74	27.08	38.4	17.78	33.86	301	157	P	H
5190MHz		10380	49.9	-18.4	68.3	26.92	39.81	15.32	32.15	301	157	P	V
		15570	49.19	-24.81	74	26.87	38.4	17.78	33.86	301	157	P	V
802.11n HT40 CH 46		10460	49.96	-18.34	68.3	26.82	39.94	15.32	32.12	301	157	P	H
		15690	49.24	-24.76	74	27.27	38.07	17.85	33.95	301	157	P	H
5230MHz		10460	49.91	-18.39	68.3	26.77	39.94	15.32	32.12	301	157	P	V
		15690	49.37	-24.63	74	27.4	38.07	17.85	33.95	301	157	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 1 5150~5250MHz**  
**WIFI 802.11ac VHT80 (Band Edge @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11ac VHT80 CH 42 5210MHz		5146.12	55.3	-18.7	74	44.06	31.62	12.15	32.53	152	158	P	H
		5145.34	48.17	-5.83	54	36.93	31.62	12.15	32.53	152	158	A	H
		5210	92.05	-	-	80.75	31.67	12.17	32.54	152	158	P	H
		5210	86.44	-	-	75.14	31.67	12.17	32.54	152	158	A	H
		5361.84	48.53	-25.47	74	37.1	31.79	12.21	32.57	152	158	P	H
		5438.16	40.74	-13.26	54	29.25	31.85	12.23	32.59	152	158	A	H
		5135.72	58.76	-15.24	74	47.53	31.61	12.15	32.53	285	160	P	V
		5146.12	51.84	-2.16	54	40.6	31.62	12.15	32.53	285	160	A	V
		5210	96.25	-	-	84.95	31.67	12.17	32.54	285	160	P	V
		5210	89.88	-	-	78.58	31.67	12.17	32.54	285	160	A	V
	5457.12	48.14	-25.86	74	36.62	31.87	12.24	32.59	285	160	P	V	
	5454	40.59	-13.41	54	29.08	31.86	12.24	32.59	285	160	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 1 5150~5250MHz**  
**WIFI 802.11ac VHT80 (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11ac VHT80 CH 42 5210MHz		10420	49.31	-18.99	68.3	26.25	39.87	15.32	32.13	100	169	P	H
		15630	49.75	-24.25	74	27.6	38.24	17.82	33.91	100	152	P	H
		10420	49.26	-19.04	68.3	26.2	39.87	15.32	32.13	100	124	P	V
		15630	49.95	-24.05	74	27.8	38.24	17.82	33.91	100	196	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 2 - 5250~5350MHz**  
**WIFI 802.11a (Band Edge @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11a CH 52 5260MHz		5105.04	50.67	-23.33	74	39.47	31.58	12.14	32.52	100	341	P	H
		5049.92	40.47	-13.53	54	29.32	31.54	12.12	32.51	100	341	P	H
		5260	104.95	-	-	93.61	31.71	12.18	32.55	100	341	A	H
	*	5260	98.32	-	-	86.98	31.71	12.18	32.55	100	341	P	H
		5352	48.98	-25.02	74	37.56	31.78	12.21	32.57	100	341	A	H
		5355.84	39.91	-14.09	54	28.49	31.78	12.21	32.57	100	341	P	H
		5005.72	50.17	-23.83	74	39.06	31.5	12.11	32.5	150	179	P	V
		5041.08	40.4	-13.6	54	29.26	31.53	12.12	32.51	150	179	P	V
		5260	104.49	-	-	93.15	31.71	12.18	32.55	150	179	A	V
	*	5260	96.32	-	-	84.98	31.71	12.18	32.55	150	179	P	V
		5393.28	49.46	-24.54	74	38.01	31.81	12.22	32.58	150	179	A	V
		5356.08	39.57	-14.43	54	28.15	31.78	12.21	32.57	150	179	P	V
802.11a CH 60 5300MHz	*	5042	49.97	-24.03	74	38.83	31.53	12.12	32.51	166	334	P	H
		5052.85	40.51	-13.49	54	29.36	31.54	12.12	32.51	166	334	A	H
		5300	103.72	-	-	92.35	31.74	12.19	32.56	166	334	P	H
		5300	97.93	-	-	86.56	31.74	12.19	32.56	166	334	A	H
		5357.76	50.34	-23.66	74	38.91	31.79	12.21	32.57	166	334	P	H
		5357.52	45.12	-8.88	54	33.69	31.79	12.21	32.57	166	334	A	H
	*	5091.35	49.73	-24.27	74	38.54	31.57	12.14	32.52	148	155	P	V
		5051.8	40.5	-13.5	54	29.35	31.54	12.12	32.51	148	155	A	V
		5300	103.44	-	-	92.07	31.74	12.19	32.56	148	155	P	V
		5300	95.35	-	-	83.98	31.74	12.19	32.56	148	155	A	V
		5370.72	49.03	-24.97	74	37.59	31.8	12.21	32.57	148	155	P	V
	5357.52	44.4	-9.6	54	32.97	31.79	12.21	32.57	148	155	A	V	



802.11a CH 64 5320MHz	5320	105.36	-	-	93.96	31.76	12.2	32.56	100	341	P	H
	5320	98.67	-	-	87.27	31.76	12.2	32.56	100	341	A	H
	5350.88	54.75	-19.25	74	43.33	31.78	12.21	32.57	100	341	P	H
	5377.6	46.84	-7.16	54	35.4	31.8	12.22	32.58	100	341	A	H
	5320	103.9	-	-	92.5	31.76	12.2	32.56	222	183	P	V
	5320	96.99	-	-	85.59	31.76	12.2	32.56	222	183	A	V
	5350.88	54.46	-19.54	74	43.04	31.78	12.21	32.57	222	183	P	V
	5377.6	44.7	-9.3	54	33.26	31.8	12.22	32.58	222	183	A	V
Remark	<ol style="list-style-type: none"> <li>No other spurious found.</li> <li>All results are PASS against Peak and Average limit line.</li> </ol>											





Band 2 5250~5350MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 52 5260MHz		10520	49.47	-18.83	68.3	26.18	40.02	15.37	32.1	100	162	P	H
		15780	49.8	-24.2	74	28.11	37.82	17.9	34.03	100	154	P	H
		10520	49.41	-18.89	68.3	26.12	40.02	15.37	32.1	100	124	P	V
		15780	49.35	-24.65	74	27.66	37.82	17.9	34.03	100	263	P	V
802.11a CH 60 5300MHz		10600	49.11	-24.89	74	25.52	40.12	15.55	32.08	100	124	P	H
		15900	49.35	-24.65	74	28.02	37.48	17.97	34.12	100	169	P	H
		10600	49.32	-24.68	74	25.73	40.12	15.55	32.08	100	112	P	V
		15900	49.48	-24.52	74	28.15	37.48	17.97	34.12	100	148	P	V
802.11a CH 64 5320MHz		10640	49.08	-24.92	74	25.33	40.17	15.65	32.07	100	154	P	H
		15960	49.99	-24.01	74	28.85	37.31	18.01	34.18	100	169	P	H
		10640	49.46	-24.54	74	25.71	40.17	15.65	32.07	100	115	P	V
		15960	49.73	-24.27	74	28.59	37.31	18.01	34.18	100	142	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 2 5250~5350MHz**  
**WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11n HT20 CH 52 5260MHz		5105.04	50.67	-23.33	74	39.47	31.58	12.14	32.52	100	341	P	H
		5049.92	40.47	-13.53	54	29.32	31.54	12.12	32.51	100	341	A	H
	*	5260	104.95	-	-	93.61	31.71	12.18	32.55	100	341	P	H
		5260	98.32	-	-	86.98	31.71	12.18	32.55	100	341	A	H
		5352	48.98	-25.02	74	37.56	31.78	12.21	32.57	100	341	P	H
		5355.84	39.91	-14.09	54	28.49	31.78	12.21	32.57	100	341	A	H
		5005.72	50.17	-23.83	74	39.06	31.5	12.11	32.5	150	179	P	V
		5041.08	40.4	-13.6	54	29.26	31.53	12.12	32.51	150	179	A	V
	*	5260	104.49	-	-	93.15	31.71	12.18	32.55	150	179	P	V
		5260	96.32	-	-	84.98	31.71	12.18	32.55	150	179	A	V
		5393.28	49.46	-24.54	74	38.01	31.81	12.22	32.58	150	179	P	V
		5356.08	39.57	-14.43	54	28.15	31.78	12.21	32.57	150	179	A	V
802.11n HT20 CH 60 5300MHz		5042	49.97	-24.03	74	38.83	31.53	12.12	32.51	166	334	P	H
		5052.85	40.51	-13.49	54	29.36	31.54	12.12	32.51	166	334	A	H
	*	5300	103.72	-	-	92.35	31.74	12.19	32.56	166	334	P	H
		5300	97.93	-	-	86.56	31.74	12.19	32.56	166	334	A	H
		5357.76	50.34	-23.66	74	38.91	31.79	12.21	32.57	166	334	P	H
		5357.52	45.12	-8.88	54	33.69	31.79	12.21	32.57	166	334	A	H
		5091.35	49.73	-24.27	74	38.54	31.57	12.14	32.52	148	155	P	V
		5051.8	40.5	-13.5	54	29.35	31.54	12.12	32.51	148	155	A	V
	*	5300	103.44	-	-	92.07	31.74	12.19	32.56	148	155	P	V
		5300	95.35	-	-	83.98	31.74	12.19	32.56	148	155	A	V
		5370.72	49.03	-24.97	74	37.59	31.8	12.21	32.57	148	155	P	V
		5357.52	44.4	-9.6	54	32.97	31.79	12.21	32.57	148	155	A	V



802.11n HT20 CH 64 5320MHz	*	5320	106.98	-	-	95.58	31.76	12.2	32.56	163	334	P	H
		5320	98.6	-	-	87.2	31.76	12.2	32.56	163	334	A	H
		5357.12	52.41	-21.59	74	40.98	31.79	12.21	32.57	163	334	P	H
		5377.6	44.01	-9.99	54	32.57	31.8	12.22	32.58	163	334	A	H
	*	5320	105.54	-	-	94.14	31.76	12.2	32.56	177	172	P	V
		5320	98.6	-	-	87.2	31.76	12.2	32.56	177	172	A	V
		5350.72	52.11	-21.89	74	40.69	31.78	12.21	32.57	177	172	P	V
		5377.6	43.97	-10.03	54	32.53	31.8	12.22	32.58	177	172	A	V
Remark	<ol style="list-style-type: none"> <li>No other spurious found.</li> <li>All results are PASS against Peak and Average limit line.</li> </ol>												



**Band 2 5250~5350MHz**  
**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11n		10520	49.84	-18.46	68.3	26.55	40.02	15.37	32.1	100	169	P	H
HT20		15780	49	-25	74	27.31	37.82	17.9	34.03	100	124	P	H
CH 52		10520	49.95	-18.35	68.3	26.66	40.02	15.37	32.1	100	114	P	V
5260MHz		15780	49.07	-24.93	74	27.38	37.82	17.9	34.03	100	215	P	V
802.11n		10600	49.72	-24.28	74	52.78	40.12	15.55	58.73	185	215	P	H
HT20		15900	49.89	-24.11	74	53.74	37.48	17.97	59.3	196	190	P	H
CH 60		10600	49.25	-24.75	74	52.31	40.12	15.55	58.73	185	215	P	V
5300MHz		15900	49.25	-24.75	74	53.1	37.48	17.97	59.3	196	190	P	V
802.11n		10640	49.97	-24.03	74	52.84	40.17	15.65	58.69	152	135	P	H
HT20		15960	49.25	-24.75	74	53.3	37.31	18.01	59.37	173	245	P	H
CH 64		10640	49.49	-24.51	74	52.36	40.17	15.65	58.69	152	135	P	V
5320MHz		15960	49.94	-24.06	74	53.99	37.31	18.01	59.37	173	245	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 2 5250~5350MHz**  
**WIFI 802.11n HT40 (Band Edge @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11n HT40 CH 54 5270MHz		5114.1	50.51	-23.49	74	39.3	31.59	12.14	32.52	102	340	P	H
		5069.3	42.46	-11.54	54	31.29	31.56	12.13	32.52	102	340	A	H
	*	5270	101.26	-	-	89.9	31.72	12.19	32.55	102	340	P	H
		5270	92.61	-----	-----	81.25	31.72	12.19	32.55	102	340	A	H
		5364	49.1	-24.9	74	37.67	31.79	12.21	32.57	102	340	P	H
		5366.16	43.86	-10.14	54	32.43	31.79	12.21	32.57	102	340	A	H
		5094.85	49.9	-24.1	74	38.7	31.58	12.14	32.52	104	181	P	V
		5045.5	42.53	-11.47	54	31.38	31.54	12.12	32.51	104	181	A	V
	*	5270	100.23	-	-	88.87	31.72	12.19	32.55	104	181	P	V
		5270	92.71	-----	-----	81.35	31.72	12.19	32.55	104	181	A	V
		5438.16	48.84	-25.16	74	37.35	31.85	12.23	32.59	104	181	P	V
		5365.68	41.85	-12.15	54	30.42	31.79	12.21	32.57	104	181	A	V
802.11n HT40 CH 62 5310MHz		5061.95	50.5	-23.5	74	39.33	31.55	12.13	32.51	108	344	P	H
		5070	42.28	-11.72	54	31.11	31.56	12.13	32.52	108	344	A	H
	*	5310	100.9	-	-	89.51	31.75	12.2	32.56	108	344	P	H
		5310	93.07	-----	-----	81.68	31.75	12.2	32.56	108	344	A	H
		5355.6	54.18	-19.82	74	42.76	31.78	12.21	32.57	108	344	P	H
		5350.08	47.46	-6.54	54	36.04	31.78	12.21	32.57	108	344	A	H
		5040.95	49.34	-24.66	74	38.2	31.53	12.12	32.51	123	181	P	V
		5041.3	42.54	-11.46	54	31.4	31.53	12.12	32.51	123	181	A	V
	*	5310	99.22	-	-	87.83	31.75	12.2	32.56	123	181	P	V
		5310	90.74	-----	-----	79.35	31.75	12.2	32.56	123	181	A	V
	5352.48	52.17	-21.83	74	40.75	31.78	12.21	32.57	123	181	P	V	
	5350.08	45.98	-8.02	54	34.56	31.78	12.21	32.57	123	181	A	V	
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

Table with 14 columns: WIFI Ant. 1, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include test results for 802.11n HT40 CH 54 at 5270MHz and 802.11n HT40 CH 62 at 5310MHz. A Remark section at the bottom states: 1. No other spurious found. 2. All results are PASS against Peak and Average limit line.



**Band 2 5250~5350MHz**  
**WIFI 802.11ac VHT80 (Band Edge @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11ac VHT80 CH 58 5290MHz		5142.8	50.24	-23.76	74	39.01	31.61	12.15	32.53	102	341	P	H
		5037.1	42.27	-11.73	54	31.13	31.53	12.12	32.51	102	341	A	H
	*	5290	96.83	-	-	85.47	31.73	12.19	32.56	102	341	P	H
		5290	90.06	-	-	78.7	31.73	12.19	32.56	102	341	A	H
		5351.04	59.4	-14.6	74	47.98	31.78	12.21	32.57	102	341	P	H
		5361.6	50.52	-3.48	54	39.09	31.79	12.21	32.57	102	341	A	H
		5114.1	49.01	-24.99	74	37.8	31.59	12.14	32.52	109	182	P	V
		5066.5	42.23	-11.77	54	31.07	31.55	12.13	32.52	109	182	A	V
	*	5290	94.79	-	-	83.43	31.73	12.19	32.56	109	182	P	V
		5290	86.49	-	-	75.13	31.73	12.19	32.56	109	182	A	V
		5368.32	55.47	-18.53	74	44.04	31.79	12.21	32.57	109	182	P	V
	5350.32	48.43	-5.57	54	37.01	31.78	12.21	32.57	109	182	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 2 5250~5350MHz**  
**WIFI 802.11ac VHT80 (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11ac VHT80 CH 58 5290MHz		10580	49.05	-19.25	68.3	25.52	40.1	15.51	32.08	100	124	P	H
		15870	49.42	-24.58	74	28	37.56	17.95	34.09	100	155	P	H
		10580	49.55	-18.75	68.3	26.02	40.1	15.51	32.08	100	147	P	V
		15870	49.64	-24.36	74	28.22	37.56	17.95	34.09	100	162	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - 5470~5725MHz**  
**WIFI 802.11a (Band Edge @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
802.11a CH 100 5500MHz		5457.68	63.05	-10.95	74	51.53	31.87	12.24	32.59	107	347	P	H
		5462.16	65.61	-2.69	68.3	54.09	31.87	12.24	32.59	107	347	P	H
		5459.76	52.5	-1.5	54	40.98	31.87	12.24	32.59	107	347	A	H
		5500	103.85	-	-	92.3	31.9	12.25	32.6	107	347	P	H
		5500	97.57	-	-	86.02	31.9	12.25	32.6	107	347	A	H
		5455.28	61.4	-12.6	74	49.89	31.86	12.24	32.59	126	164	P	V
		5468.88	64.89	-3.41	68.3	53.36	31.88	12.24	32.59	126	164	P	V
		5459.76	51.72	-2.28	54	40.2	31.87	12.24	32.59	126	164	A	V
		5500	103.18	-	-	91.63	31.9	12.25	32.6	126	164	P	V
		5500	96.75	-	-	85.2	31.9	12.25	32.6	126	164	A	V
802.11a CH 116 5580MHz		5450.32	48.69	-25.31	74	37.18	31.86	12.24	32.59	103	343	P	H
		5470	48.22	-20.08	68.3	36.69	31.88	12.24	32.59	103	343	P	H
		5458.96	38.93	-15.07	54	27.41	31.87	12.24	32.59	103	343	A	H
		5580	99.78	-	-	88.13	31.98	12.27	32.6	103	343	P	H
		5580	93.1	-	-	81.45	31.98	12.27	32.6	103	343	A	H
		5729.405	49.28	-19.02	68.3	37.45	32.13	12.3	32.6	103	343	P	H
		5393.68	48.43	-25.57	74	36.98	31.81	12.22	32.58	122	171	P	V
		5468.32	47.54	-20.76	68.3	36.02	31.87	12.24	32.59	122	171	P	V
		5458.72	38.9	-15.1	54	27.38	31.87	12.24	32.59	122	171	A	V
		5580	101.26	-	-	89.61	31.98	12.27	32.6	122	171	P	V
		5580	95.05	-	-	83.4	31.98	12.27	32.6	122	171	A	V
	5733.185	48.57	-19.73	68.3	36.74	32.13	12.3	32.6	122	171	P	V	





802.11a CH 140 5700MHz	5700	98.64	-	-	86.85	32.1	12.29	32.6	110	33	P	H
	5700	92.35	-	-	80.56	32.1	12.29	32.6	110	33	A	H
	5725.8	56.02	-12.28	68.3	44.19	32.13	12.3	32.6	110	33	P	H
	5700	99.42	-	-	87.63	32.1	12.29	32.6	100	29	P	V
	5700	93.29	-	-	81.5	32.1	12.29	32.6	100	29	A	V
	5725.56	57.54	-10.76	68.3	45.71	32.13	12.3	32.6	100	29	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.											



**Band 3 - 5470~5725MHz**  
**WIFI 802.11a (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 100 5500MHz		11000	49.96	-24.04	74	51.17	40.6	16.49	58.3	163	230	P	H
		16500	49.96	-18.34	68.3	52	38.6	18.2	58.84	178	296	P	H
		11000	49.83	-24.17	74	51.04	40.6	16.49	58.3	163	230	P	V
		16500	49.21	-19.09	68.3	51.25	38.6	18.2	58.84	178	296	P	V
802.11a CH 116 5580MHz		11160	49.92	-24.08	74	50.96	40.57	16.5	58.11	170	200	P	H
		16740	49.82	-18.48	68.3	50.46	39.66	18.28	58.58	156	350	P	H
		11160	49.91	-24.09	74	50.95	40.57	16.5	58.11	170	200	P	V
		16740	49.36	-18.94	68.3	50	39.66	18.28	58.58	156	350	P	V
802.11a CH 140 5700MHz		11400	49.24	-24.76	74	50.05	40.52	16.52	57.85	157	285	P	H
		17100	49.51	-18.79	68.3	48.18	41.08	18.41	58.16	165	246	P	H
		11400	49.33	-24.67	74	50.14	40.52	16.52	57.85	157	285	P	V
		17100	49.39	-18.91	68.3	48.06	41.08	18.41	58.16	165	246	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - 5470~5725MHz**  
**WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11n HT20 CH 100 5500MHz		5457.68	50.93	-23.07	74	39.41	31.87	12.24	32.59	100	354	P	H
		5466.48	54.07	-14.23	68.3	42.55	31.87	12.24	32.59	100	354	P	H
		5442.32	43.24	-10.76	54	31.75	31.85	12.23	32.59	100	354	A	H
	*	5500	102.8	-	-	91.25	31.9	12.25	32.6	100	354	P	H
		5500	95.24	-	-	83.69	31.9	12.25	32.6	100	354	A	H
		5456.88	52.8	-21.2	74	41.28	31.87	12.24	32.59	152	165	P	V
		5467.92	54.53	-13.77	68.3	43.01	31.87	12.24	32.59	152	165	P	V
		5442.32	43.61	-10.39	54	32.12	31.85	12.23	32.59	152	165	A	V
	*	5500	104.62	-	-	93.07	31.9	12.25	32.6	152	165	P	V
	5500	96.24	-	-	84.69	31.9	12.25	32.6	152	165	A	V	
802.11n HT20 CH 116 5580MHz		5429.92	49.03	-24.97	74	37.55	31.84	12.23	32.59	104	360	P	H
		5467.36	47.7	-20.6	68.3	36.18	31.87	12.24	32.59	104	360	P	H
		5457.76	39.39	-14.61	54	27.87	31.87	12.24	32.59	104	360	A	H
	*	5580	99.06	-	-	87.41	31.98	12.27	32.6	104	360	P	H
		5580	91.91	-	-	80.26	31.98	12.27	32.6	104	360	A	H
		5728.145	48.48	-19.82	68.3	36.65	32.13	12.3	32.6	104	360	P	H
		5434.72	48.15	-25.85	74	36.66	31.85	12.23	32.59	120	169	P	V
		5465.92	48.15	-20.15	68.3	36.63	31.87	12.24	32.59	120	169	P	V
		5458.24	39.38	-14.62	54	27.86	31.87	12.24	32.59	120	169	A	V
	*	5580	103.17	-	-	91.52	31.98	12.27	32.6	120	169	P	V
	5580	96.34	-	-	84.69	31.98	12.27	32.6	120	169	A	V	
	5742.95	49.44	-18.86	68.3	37.6	32.14	12.3	32.6	120	169	P	V	



<b>802.11n</b>	*	5700	97.54	-	-	85.75	32.1	12.29	32.6	108	33	P	H
		5700	90.85	-	-	79.06	32.1	12.29	32.6	108	33	A	H
<b>HT20</b>		5725	51.22	-17.08	68.3	39.4	32.12	12.3	32.6	108	33	P	H
<b>CH 140</b>	*	5700	98.65	-	-	86.86	32.1	12.29	32.6	108	33	P	V
<b>5700MHz</b>		5700	92	-	-	80.21	32.1	12.29	32.6	108	33	A	V
		5730.6	50.85	-17.45	68.3	39.02	32.13	12.3	32.6	108	33	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - 5470~5725MHz**  
**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20		11000	49.64	-24.36	74	50.85	40.6	16.49	58.3	163	230	P	H
		16500	49.89	-18.41	68.3	51.93	38.6	18.2	58.84	178	296	P	H
CH 100 5500MHz		11000	49.92	-24.08	74	51.13	40.6	16.49	58.3	163	230	P	V
		16500	49	-19.3	68.3	51.04	38.6	18.2	58.84	178	296	P	V
802.11n HT20 CH 116 5580MHz		11160	49.77	-24.23	74	50.81	40.57	16.5	58.11	170	200	P	H
		16740	49.06	-19.24	68.3	49.7	39.66	18.28	58.58	156	350	P	H
		11160	49.63	-24.37	74	50.67	40.57	16.5	58.11	170	200	P	V
		16740	49.89	-18.41	68.3	50.53	39.66	18.28	58.58	156	350	P	V
802.11n HT20 CH 140 5700MHz		11400	49.7	-24.3	74	50.51	40.52	16.52	57.85	157	285	P	H
		17100	49.76	-18.54	68.3	48.43	41.08	18.41	58.16	165	246	P	H
		11400	49.71	-24.29	74	50.52	40.52	16.52	57.85	157	285	P	V
		17100	49.95	-18.35	68.3	48.62	41.08	18.41	58.16	165	246	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - 5470~5725MHz**  
**WIFI 802.11n HT40 (Band Edge @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11n HT40 CH 102 5510MHz		5459.44	55.76	-18.24	74	44.24	31.87	12.24	32.59	102	345	P	H
		5469.52	60.73	-7.57	68.3	49.2	31.88	12.24	32.59	102	345	P	H
		5452.24	49.72	-4.28	54	38.21	31.86	12.24	32.59	102	345	A	H
	*	5510	98.17	-	-	86.61	31.91	12.25	32.6	102	345	P	H
		5510	91.77	-	-	80.21	31.91	12.25	32.6	102	345	A	H
		5754.92	50.31	-17.99	68.3	38.46	32.15	12.3	32.6	102	345	P	H
		5456.32	56.83	-17.17	74	45.31	31.87	12.24	32.59	119	173	P	V
		5469.28	59.6	-8.7	68.3	48.07	31.88	12.24	32.59	119	173	P	V
		5459.44	48.43	-5.57	54	36.91	31.87	12.24	32.59	119	173	A	V
	*	5510	97.97	-	-	86.41	31.91	12.25	32.6	119	173	P	V
		5510	90.77	-	-	79.21	31.91	12.25	32.6	119	173	A	V
		5732.87	48.57	-19.73	68.3	36.74	32.13	12.3	32.6	119	173	P	V
802.11n HT40 CH 110 5550MHz		5453.92	49.28	-24.72	74	37.77	31.86	12.24	32.59	100	355	P	H
		5470	49.31	-18.99	68.3	37.78	31.88	12.24	32.59	100	355	P	H
		5454.16	42.96	-11.04	54	31.45	31.86	12.24	32.59	100	355	A	H
	*	5550	98.45	-	-	86.84	31.95	12.26	32.6	100	355	P	H
		5550	91.75	-	-	80.14	31.95	12.26	32.6	100	355	A	H
		5741.06	48.2	-20.1	68.3	36.36	32.14	12.3	32.6	100	355	P	H
		5403.52	49.08	-24.92	74	37.62	31.82	12.22	32.58	128	237	P	V
		5467.12	50.29	-18.01	68.3	38.77	31.87	12.24	32.59	128	237	P	V
		5453.92	43.37	-10.63	54	31.86	31.86	12.24	32.59	128	237	A	V
	*	5550	99.36	-	-	87.75	31.95	12.26	32.6	128	237	P	V
	5550	92.85	-	-	81.24	31.95	12.26	32.6	128	237	A	V	
	5727.2	48.92	-19.38	68.3	37.09	32.13	12.3	32.6	128	237	P	V	



802.11n HT40 CH 134 5670MHz		5436.45	48.42	-25.58	74	36.93	31.85	12.23	32.59	130	249	P	H
		5469	48.36	-19.94	68.3	36.83	31.88	12.24	32.59	130	249	P	H
		5454.65	40.83	-13.17	54	29.32	31.86	12.24	32.59	130	249	A	H
	*	5670	97.6	-	-	85.85	32.07	12.28	32.6	130	249	P	H
		5670	90.7	-	-	78.95	32.07	12.28	32.6	130	249	A	H
		5727.9	52.12	-16.18	68.3	40.29	32.13	12.3	32.6	130	249	P	H
		5434.35	48.34	-25.66	74	36.85	31.85	12.23	32.59	103	29	P	V
		5463.05	47.8	-20.5	68.3	36.28	31.87	12.24	32.59	103	29	P	V
		5459.55	40.93	-13.07	54	29.41	31.87	12.24	32.59	103	29	A	V
	*	5670	95.96	-	-	84.21	32.07	12.28	32.6	103	29	P	V
		5670	89.31	-	-	77.56	32.07	12.28	32.6	103	29	A	V
		5725.975	51.99	-16.31	68.3	40.16	32.13	12.3	32.6	103	29	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - 5470~5725MHz**  
**WIFI 802.11n HT40 (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11n		11020	49.35	-24.65	74	50.54	40.6	16.49	58.28	170	230	P	H
HT40		16530	49.44	-18.86	68.3	51.3	38.73	18.21	58.8	160	300	P	H
CH 102		11020	49.32	-24.68	74	50.51	40.6	16.49	58.28	170	230	P	V
5510MHz		16530	49.66	-18.64	68.3	51.52	38.73	18.21	58.8	160	300	P	V
802.11n		11100	49.08	-24.92	74	50.19	40.58	16.5	58.19	150	200	P	H
HT40		16650	49.01	-19.29	68.3	50.17	39.26	18.25	58.67	180	350	P	H
CH 110		11100	49.96	-24.04	74	51.07	40.58	16.5	58.19	150	200	P	V
5550MHz		16650	49.72	-18.58	68.3	50.88	39.26	18.25	58.67	180	350	P	V
802.11n		11340	49.64	-24.36	74	50.52	40.53	16.52	57.93	200	360	P	H
HT40		17010	49.05	-19.25	68.3	48.13	40.83	18.37	58.28	200	360	P	H
CH 134		11340	49.61	-24.39	74	50.49	40.53	16.52	57.93	200	360	P	V
5670MHz		17010	49.92	-18.38	68.3	49	40.83	18.37	58.28	200	360	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												





**Band 3 - 5470~5725MHz**  
**WIFI 802.11ac VHT80 (Band Edge @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11ac VHT80 CH 106 5530MHz		5432.56	57.94	-16.06	74	46.45	31.85	12.23	32.59	142	248	P	H
		5468.8	55.04	-13.26	68.3	43.51	31.88	12.24	32.59	142	248	P	H
		5452.48	49.19	-4.81	54	37.68	31.86	12.24	32.59	142	248	A	H
	*	5530	96.28	-	-	84.69	31.93	12.26	32.6	142	248	P	H
		5530	88.82	-	-	77.23	31.93	12.26	32.6	142	248	A	H
		5732.24	50.63	-17.67	68.3	38.8	32.13	12.3	32.6	142	248	P	H
		5452.24	61.16	-12.84	74	49.65	31.86	12.24	32.59	142	245	P	V
		5460.16	57.81	-10.49	68.3	46.29	31.87	12.24	32.59	142	245	P	V
		5452.24	51.72	-2.28	54	40.21	31.86	12.24	32.59	142	245	A	V
	*	5530	98.97	-	-	87.38	31.93	12.26	32.6	142	245	P	V
		5530	90.05	-	-	78.46	31.93	12.26	32.6	142	245	A	V
		5733.815	49.62	-18.68	68.3	37.79	32.13	12.3	32.6	142	245	P	V
802.11ac VHT80 CH 122 5610MHz		5404.48	48.26	-25.74	74	36.8	31.82	12.22	32.58	100	18	P	H
		5469.76	47.37	-20.93	68.3	35.84	31.88	12.24	32.59	100	18	P	H
		5454.4	40.98	-13.02	54	29.47	31.86	12.24	32.59	100	18	A	H
	*	5610	97.5	-	-	85.82	32.01	12.27	32.6	100	18	P	H
		5610	90.36	-	-	78.68	32.01	12.27	32.6	100	18	A	H
		5761.675	49.3	-19	68.3	37.44	32.16	12.3	32.6	100	18	P	H
		5442.64	49.66	-24.34	74	38.17	31.85	12.23	32.59	130	166	P	V
		5468.8	49.36	-18.94	68.3	37.83	31.88	12.24	32.59	130	166	P	V
		5454.64	41.11	-12.89	54	29.6	31.86	12.24	32.59	130	166	A	V
	*	5610	97.09	-	-	85.41	32.01	12.27	32.6	130	166	P	V
	5610	89.63	-	-	77.95	32.01	12.27	32.6	130	166	A	V	
	5732.45	49.62	-18.68	68.3	37.79	32.13	12.3	32.6	130	166	P	V	
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 5470~5725MHz**

**WIFI 802.11ac VHT80 (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11ac VHT80		11060	49.72	-24.28	74	50.87	40.59	16.49	58.23	170	230	P	H
CH 106		16590	49.44	-18.86	68.3	50.96	39	18.23	58.75	160	300	P	H
5530MHz		11060	49.9	-24.1	74	51.05	40.59	16.49	58.23	170	230	P	V
		16590	49.2	-19.1	68.3	50.72	39	18.23	58.75	160	300	P	V
802.11ac VHT80		11220	49.77	-24.23	74	50.76	40.56	16.51	58.06	170	200	P	H
CH 122		16830	49.66	-18.64	68.3	49.79	40.05	18.31	58.49	156	350	P	H
5610MHz		11220	49.56	-24.44	74	50.55	40.56	16.51	58.06	170	200	P	V
		16830	49.64	-18.66	68.3	49.77	40.05	18.31	58.49	156	350	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 3 - Straddle Channel**

**WIFI 802.11a (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11a CH 144		11440	49.96	-24.04	74	50.74	40.51	16.53	57.82	157	285	P	H
5720MHz		17160	49.73	-18.57	68.3	48.11	41.25	18.43	58.06	165	246	P	H
		11440	49.14	-24.86	74	49.92	40.51	16.53	57.82	157	285	P	V
		17160	49.18	-19.12	68.3	47.56	41.25	18.43	58.06	165	246	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - Straddle Channel**  
**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11n HT20 CH 144 5720MHz		11440	49.88	-24.12	74	50.66	40.51	16.53	57.82	157	285	P	H
		17160	49.97	-18.33	68.3	48.35	41.25	18.43	58.06	165	246	P	H
		11440	49.06	-24.94	74	49.84	40.51	16.53	57.82	157	285	P	V
		17160	49.41	-18.89	68.3	47.79	41.25	18.43	58.06	165	246	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 3 - Straddle Channel**  
**WIFI 802.11n HT40 (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11n HT40 CH 142 5710MHz		11420	49.24	-24.76	74	50.03	40.52	16.52	57.83	157	285	P	H
		17130	49.36	-18.94	68.3	47.89	41.16	18.42	58.11	165	246	P	H
		11420	49.28	-24.72	74	50.07	40.52	16.52	57.83	157	285	P	V
		17130	49.12	-19.18	68.3	47.65	41.16	18.42	58.11	165	246	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - Straddle Channel
WIFI 802.11ac VHT80 (Harmonic @ 3m)

Table with 14 columns: WIFI Ant. 1, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include 802.11ac VHT80 and CH 138 5690MHz.

Remark
1. No other spurious found.
2. All results are PASS against Peak and Average limit line.



Emission below 1GHz

WIFI 802.11a (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11a LF		30	24.24	-15.76	40	29.63	24.9	1.01	31.3	-	-	P	H
		179.38	24.58	-18.92	43.5	38.04	15.45	2.43	31.34	-	-	P	H
		276.38	32.25	-13.75	46	41.76	19.03	3	31.54	100	147	P	H
		307.42	30.6	-15.4	46	39.31	19.52	3.16	31.39	-	-	P	H
		621.7	30.15	-15.85	46	31.95	25.22	4.5	31.52	-	-	P	H
		968.96	31.17	-22.83	54	29.63	27.19	5.61	31.26	-	-	P	H
		30	24.02	-15.98	40	29.41	24.9	1.01	31.3	-	-	P	V
		167.74	28.44	-15.06	43.5	41.49	15.96	2.35	31.36	100	142	P	V
		343.31	28.1	-17.9	46	35.76	20.32	3.34	31.32	-	-	P	V
		622.67	29.88	-16.12	46	31.66	25.23	4.5	31.51	-	-	P	V
		813.76	30.71	-15.29	46	30.49	26.43	5.12	31.33	-	-	P	V
		971.87	31.29	-22.71	54	29.72	27.22	5.61	31.26	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



**Note symbol**

*	<b>Fundamental Frequency</b> which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is <b>over limit</b> line.
P/A	<b>Peak</b> or <b>Average</b>
H/V	<b>Horizontal</b> or <b>Vertical</b>



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

- Level(dBμV/m) =  
Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

**For Peak Limit @ 2390MHz:**

- Level(dBμV/m)  
= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)  
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)  
= 55.45 (dBμV/m)
- Over Limit(dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 55.45(dBμV/m) – 74(dBμV/m)  
= -18.55(dB)

**For Average Limit @ 2390MHz:**

- Level(dBμV/m)  
= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)  
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)  
= 43.54 (dBμV/m)
- Over Limit(dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 43.54(dBμV/m) – 54(dBμV/m)  
= -10.46(dB)

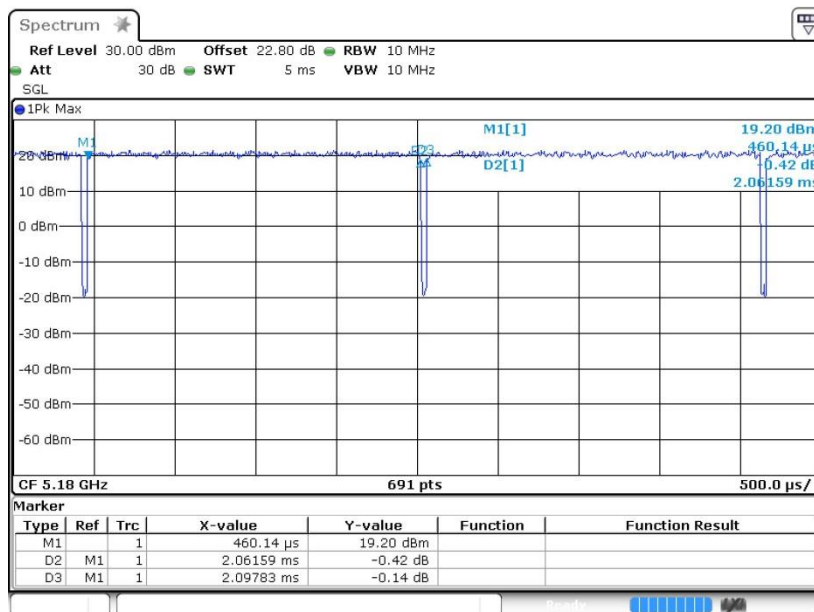
Both peak and average measured complies with the limit line, so test result is “PASS”.



## Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	98.27	-	-	10Hz
802.11n HT20	98.15	-	-	10Hz
802.11n HT40	96.48	0.953	1.049	3kHz
802.11ac VHT80	93.05	0.466	2.146	3kHz

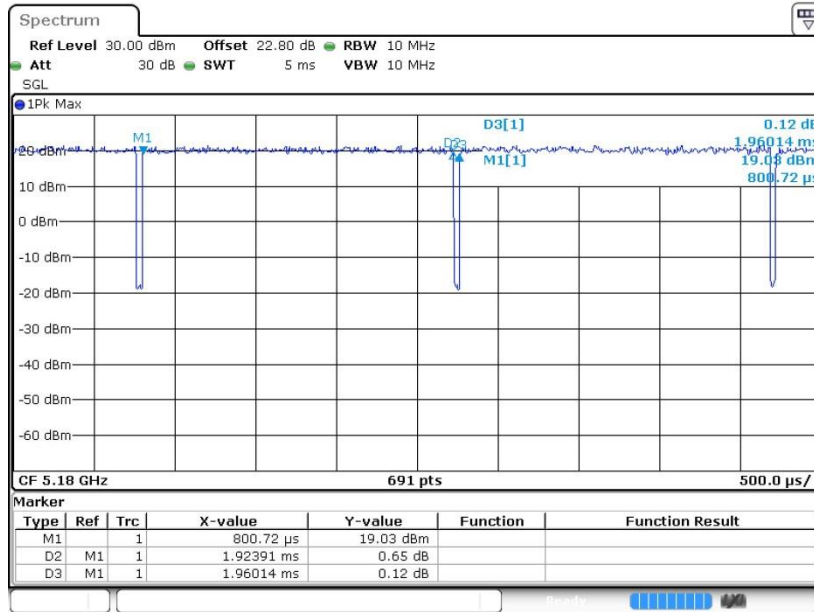
### 802.11a



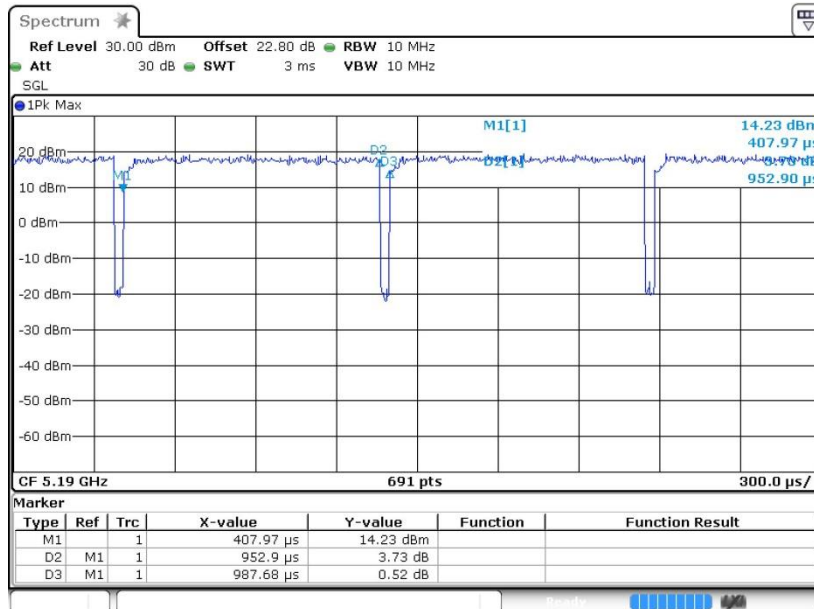




802.11n HT20



802.11n HT40





802.11ac VHT80

