FCC RF Test Report

APPLICANT	:	OnePlus Technology (shenzhen) Co., Ltd
EQUIPMENT	:	Smart Phone
BRAND NAME	:	ONEPLUS
MODEL NAME	:	ONEPLUS A5000
FCC ID	:	2ABZ2-A5000
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure

The product was received on Jan. 22, 2017 and testing was completed on Apr. 29, 2017. 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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Prepared by: Eric Shih / Manager

Jones Tsai

Approved by: Jones Tsai / Manager

Testing Laboratory
2353

SPORTON International (ShenZhen) INC.
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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR712206E	Rev. 01	Initial issue of report	May 26, 2017

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	2.1049 15.403(i)	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	FCC ≤ 24 dBm (depend on band)	Pass	-
3.3	15.407(a)	Power Spectral Density	FCC ≤ 11 dBm (depend on band)	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) 15.209(a)	Pass	Under limit 2.22 dB at 5350.800 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 15.06 dB at 0.150 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

OnePlus Technology (shenzhen) Co., Ltd
18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen

1.2 Manufacturer

OnePlus Technology (shenzhen) Co., Ltd
18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Smart Phone
Brand Name	ONEPLUS
Model Name	ONEPLUS A5000
FCC ID	2ABZ2-A5000
EUT supports Radios application	CDMA/EVDO/GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/HSPA+/LTE/NFC WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN2.4GHz 802.11ac VHT20/VHT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN5GHz 802.11ac VHT20/VHT40/VHT80/ Bluetooth v3.0 + EDR/ Bluetooth v 4.0 LE/ Bluetooth v4.1 LE/ Bluetooth v4.2 LE/ Bluetooth v5.0 LE
IMEI Code	Conducted: 001001228348725/001001228348725 Conduction: 001001227890453/001001227890453 Radiation: NA
HW Version	EB101
SW Version	H2OS V3.5
EUT Stage	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.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5700 MHz
Maximum Output Power to Antenna	**<5180 MHz ~ 5240 MHz>** **MIMO <Ant. 1+2>** 802.11a : 18.31 dBm / 0.0678 W 802.11n HT20 : 18.20 dBm / 0.0661 W 802.11n HT40 : 18.16 dBm / 0.0655 W 802.11ac VHT20: 18.14 dBm / 0.0652 W 802.11ac VHT40: 17.92 dBm / 0.0619 W 802.11ac VHT80: 17.15 dBm / 0.0519 W **<5260 MHz ~ 5320 MHz>** **MIMO <Ant. 1+2>** 802.11a : 18.15 dBm / 0.0653 W 802.11n HT20 : 18.05 dBm / 0.0638 W 802.11n HT40 : 18.14 dBm / 0.0652 W 802.11ac VHT20: 17.98 dBm / 0.0628 W 802.11ac VHT40: 17.85 dBm / 0.0610 W 802.11ac VHT80: 16.96 dBm / 0.0497 W **<5500 MHz ~ 5700 MHz >** **MIMO <Ant. 1+2>** 802.11a : 18.19 dBm / 0.0659 W 802.11n HT20 : 18.13 dBm / 0.0650 W 802.11n HT40 : 18.16 dBm / 0.0655 W 802.11ac VHT20: 18.10 dBm / 0.0646 W 802.11ac VHT40: 17.92 dBm / 0.0619 W 802.11ac VHT80: 17.26 dBm / 0.0532 W
99% Occupied Bandwidth	**<5180 MHz ~ 5240 MHz>** **MIMO <Ant. 1+2>** 802.11a : 17.53 MHz 802.11n HT20 : 18.68 MHz 802.11n HT40 : 36.46 MHz 802.11ac VHT20 : 18.68 MHz 802.11ac VHT40 : 36.46 MHz 802.11ac VHT80 : 75.64 MHz **<5260 MHz ~ 5320 MHz>** **MIMO <Ant. 1+2>** 802.11a : 17.58 MHz 802.11n HT20 : 18.58 MHz 802.11n HT40 : 36.46 MHz 802.11ac VHT20 : 18.78 MHz 802.11ac VHT40 : 36.46 MHz 802.11ac VHT80 : 75.64 MHz **<5500 MHz ~ 5700 MHz >** **MIMO <Ant. 1+2>** 802.11a : 17.53 MHz 802.11n HT20 : 18.73 MHz 802.11n HT40 : 36.66 MHz 802.11ac VHT20 : 18.68 MHz 802.11ac VHT40 : 36.56 MHz 802.11ac VHT80 : 75.64 MHz

<table>
<tr><td>Antenna Type</td><td>Ant. 1 : PIFA Antenna
Ant. 2 : PIFA Antenna</td></tr>
<tr><td>Antenna Gain</td><td><5180 MHz ~ 5240 MHz>
Ant. 1 : -3.00 dBi
Ant. 2 : -3.00 dBi
<5260 MHz ~ 5320 MHz>
Ant. 1 : -3.00 dBi
Ant. 2 : -3.00 dBi
<5500 MHz ~ 5700 MHz >
Ant. 1 : -3.00 dBi
Ant. 2 : -3.00 dBi</td></tr>
<tr><td>Type of Modulation</td><td>802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)</td></tr>
<tr><td>Antenna Function Description</td><td><table><tr><td></td><td>Ant. 1</td><td>Ant. 2</td></tr><tr><td>802.11 a/n/ac MIMO</td><td>V</td><td>V</td></tr></table></td></tr>
</table>

1.5 Modification of EUT

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

1.6 Testing Location

Test Site	SPORTON International (ShenZhen) INC.	
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan District, Shenzhen City, Guangdong Province, China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595	
Test Site No.	**Sporton Site No.**	
	TH01-SZ	CO01-SZ

Test Site	SPORTON International (ShenZhen) INC.	
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755- 3320-2398	
Test Site No.	**Sporton Site No.**	**FCC Registration No.**
	03CH03-SZ	565805

Note: The test site complies with ANSI C63.4 2014 requirement.

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 v01r04
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- FCC KDB 644545 D03 Guidance for IEEE 802.11ac v01
- 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.

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 were recorded in this report.

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#	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#	5290		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5500-5700 MHz Band 3 (U-NII-2C)	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	106#	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#	5610	128	5640

Note:

1. The above Frequency and Channel in "*" were 802.11n HT40 and 802.11ac VHT40.
2. The above Frequency and Channel in "#" were 802.11ac VHT80.

2.2 Test Mode

Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates as below table.

MIMO Antenna

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link (5G) + USB Cable (Charging from Adapter) + Earphone + SIM 1

Ch. #		Band I：5180-5240 MHz	Band II：5260-5320 MHz	Band III：5500-5700MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		Band I：5180-5240 MHz	Band II：5260-5320 MHz	Band III：5500-5700MHz
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		Band I：5180-5240 MHz	Band II：5260-5320 MHz	Band III：5500-5700MHz
		802.11n HT40	802.11n HT40	802.11n HT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134

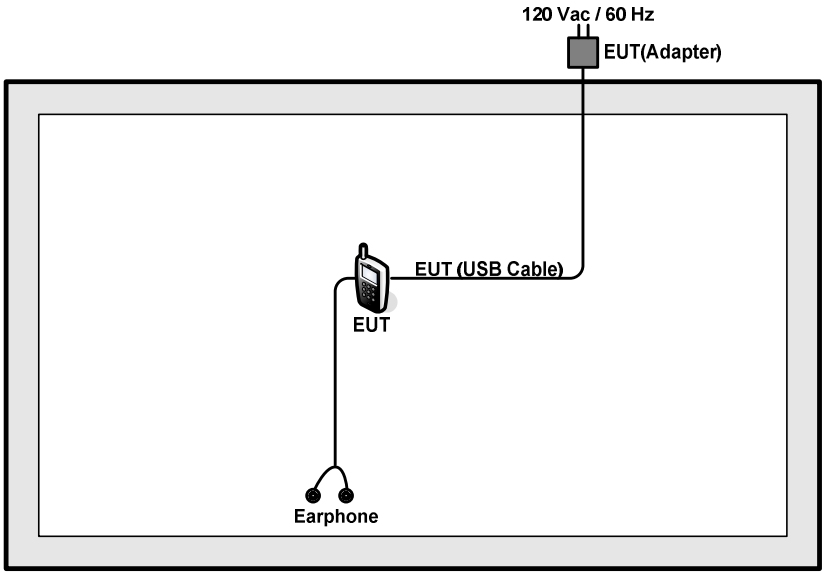
Ch. #		Band I：5180-5240 MHz	Band II：5260-5320 MHz	Band III：5500-5700MHz
		802.11ac VHT20	802.11ac VHT20	802.11ac VHT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		Band I：5180-5240 MHz	Band II：5260-5320 MHz	Band III：5500-5700MHz
		802.11ac VHT40	802.11ac VHT40	802.11ac VHT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134

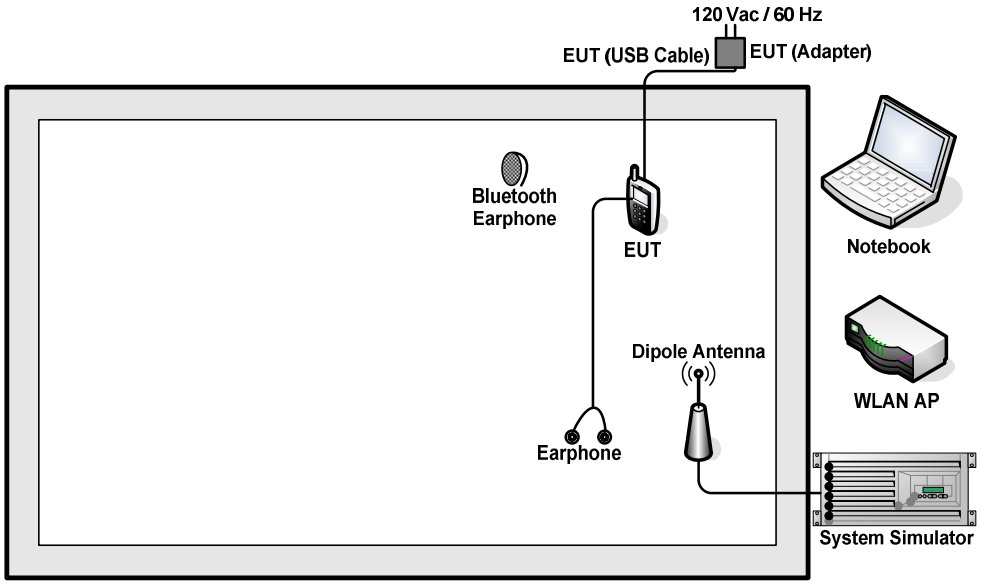
Ch. #		Band I：5180-5240 MHz	Band II：5260-5320 MHz	Band III：5500-5700MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	106
M	Middle	42	58	-
H	High	-	-	122

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-820L	KA2IR820LA1	N/A	Unshielded, 1.8 m
2.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
3.	Notebook	Lenovo	E450	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-108	PYAHS-107W	N/A	N/A
5.	Earphone	Apple	MC690ZP/A	N/A	Unshielded,1.6m	N/A

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuously transmit/receive.

For AC power line conducted emissions, the EUT was set to connect with the Notebook 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 6.3 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 6.3 + 10 = 16.3 (dB)

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.

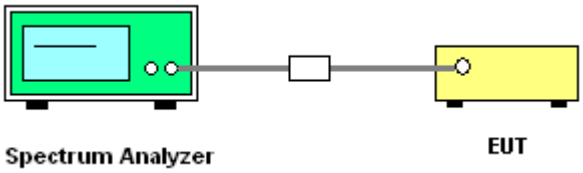
3.1.2 Measuring Instruments

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 v01r04. 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 1MHz and set the Video bandwidth (VBW) ≥ 3 * RBW.
8. Measure and record the results in the test report.

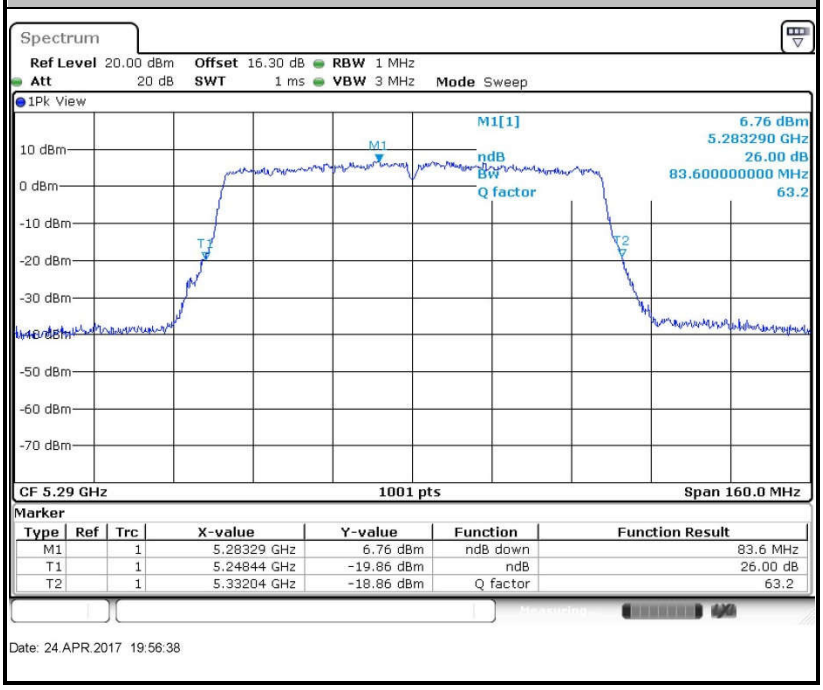
3.1.4 Test Setup



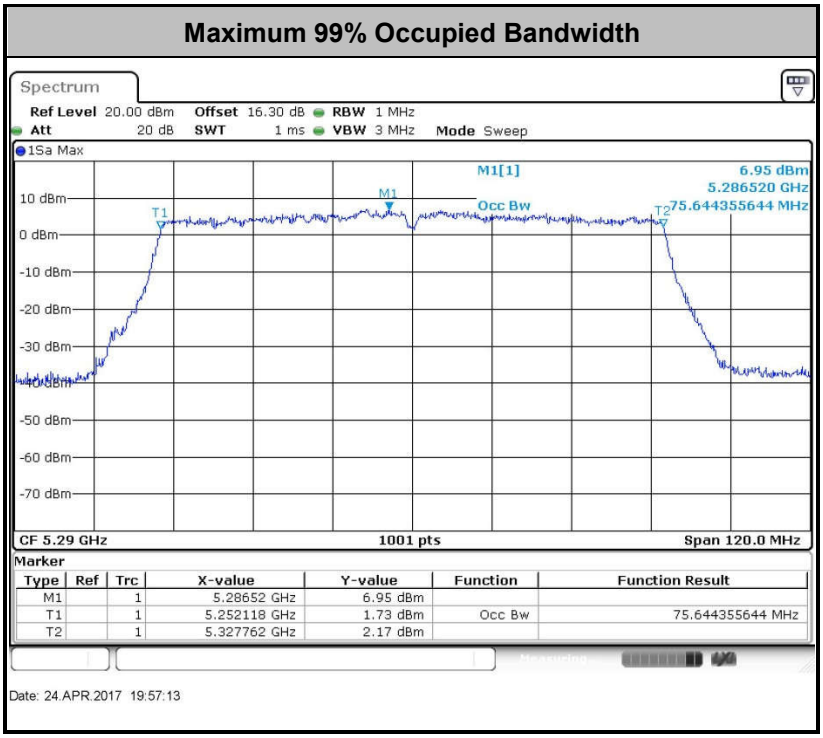
3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.

Maximum 26dB Bandwidth



Maximum 99% Occupied Bandwidth



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 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz.

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

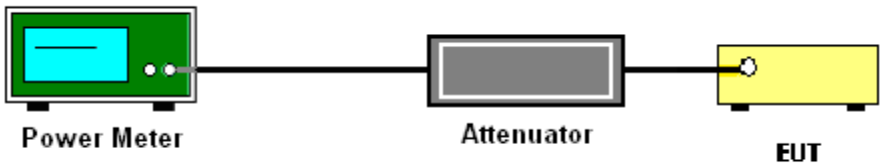
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04 for CDD modes.

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

For normal channel:



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.

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 v01r04. Section F) Maximum power spectral density.

 # Method SA-2 #

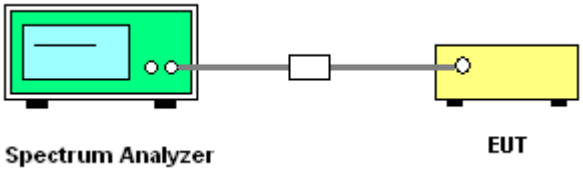
(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

1. The testing follows Method SA-2 of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.
   - Measure the duty cycle.
   - Set span to encompass the entire emission bandwidth (EBW) of the signal.
   - Set RBW = 1 MHz.
   - Set VBW ≥ 3 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(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 (a): 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.

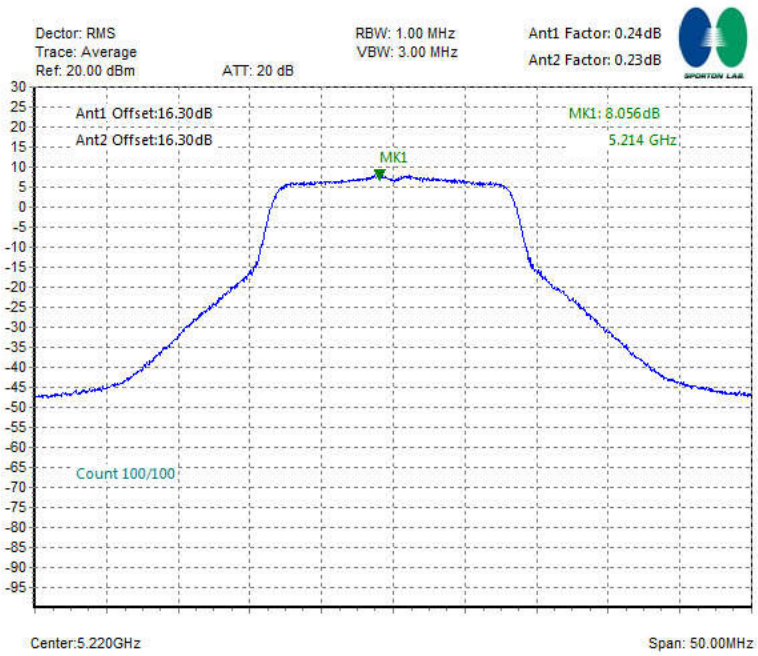
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/MHz)



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 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

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 D02 v01r04 G)2)c) 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 v01r04. 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

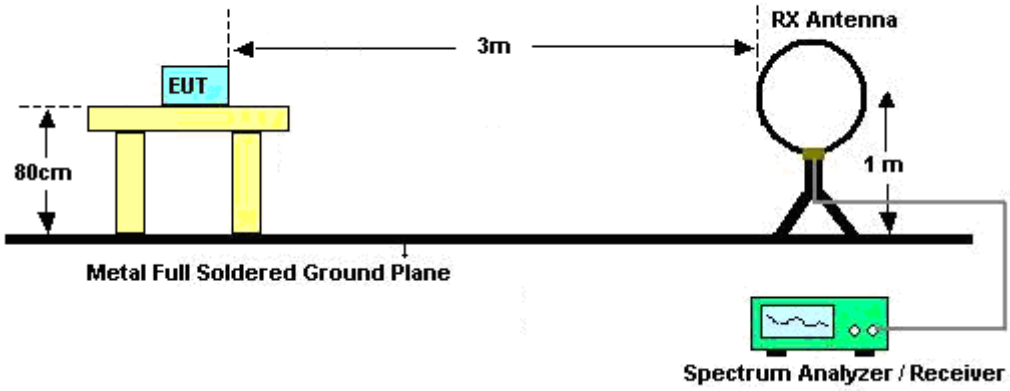
   (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

   (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.

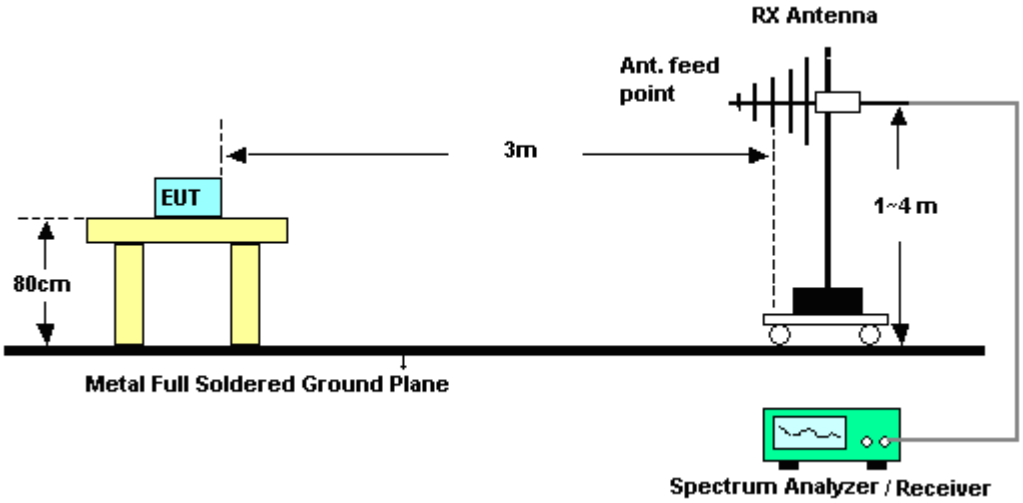
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband 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 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

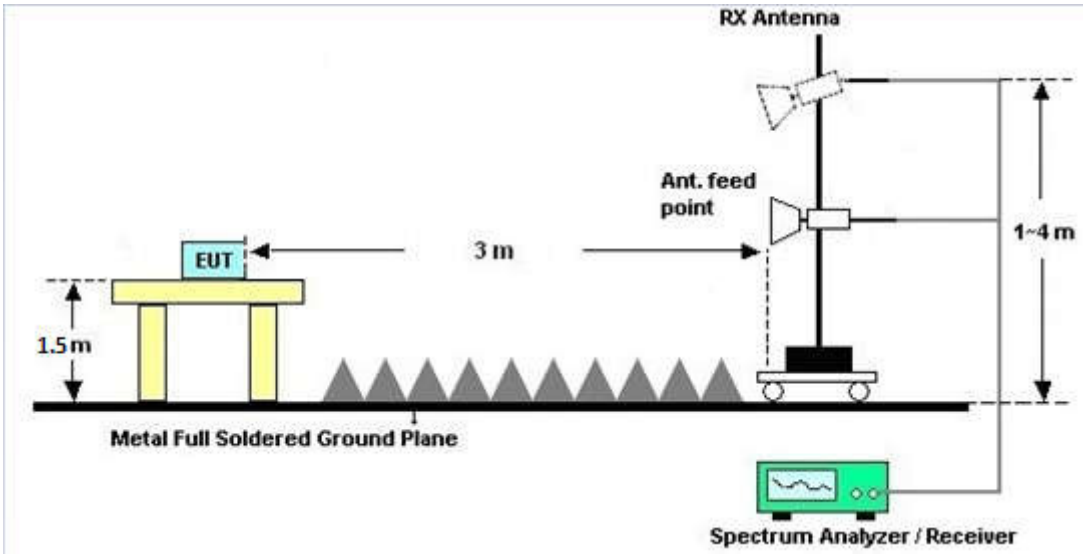
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Results of Radiated 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.

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B.

3.4.7 Duty Cycle

Please refer to Appendix C.

3.4.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

Please refer to Appendix B.

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.

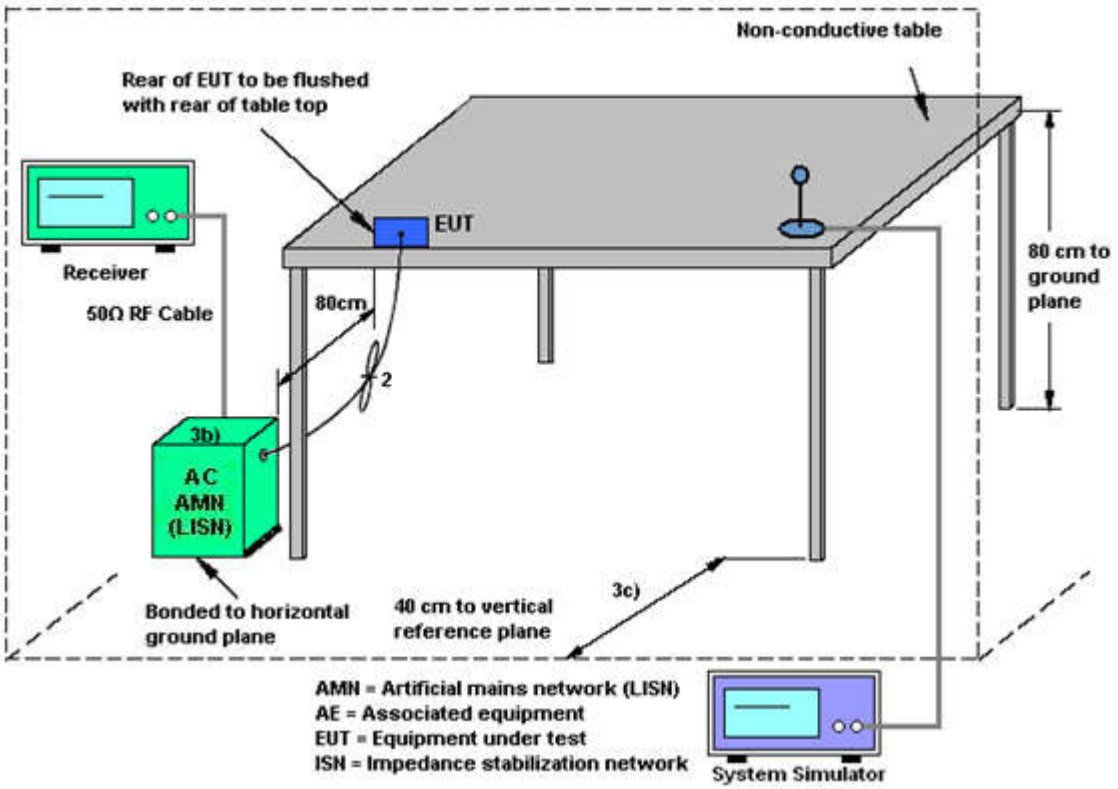
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

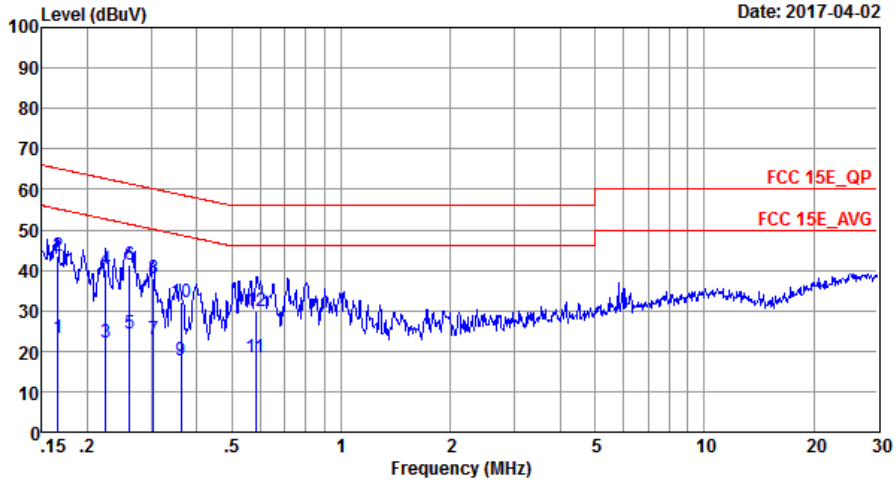
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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

Test Mode :	Mode 1	**Temperature :**	21~23℃
Test Engineer :	Tao Cheng	**Relative Humidity :**	41~42%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link (5G) + USB Cable (Charging from Adapter) + Earphone + SIM 1		

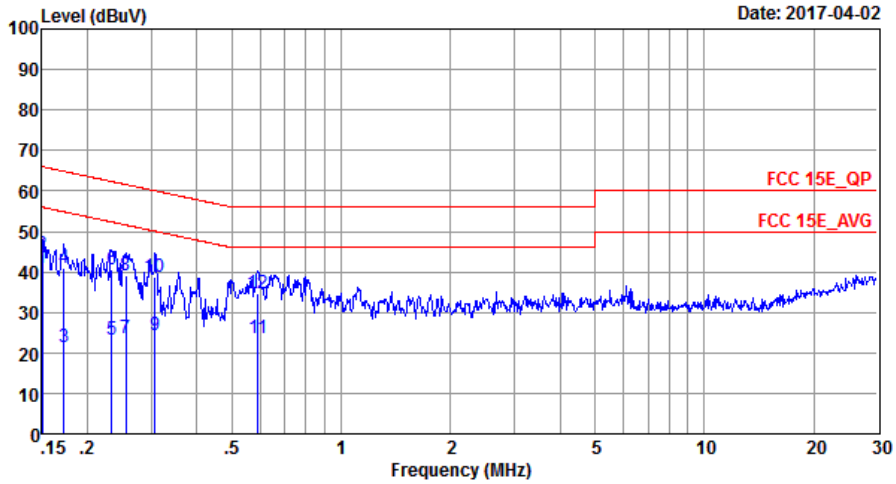


Site : CO01-SZ
Condition: FCC 15E_QP LISN_20170301_L LINE

Mode : Mode 1
IMEI : 001001227890453/001001227890453

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17	23.27	-31.89	55.16	12.90	0.03	10.34	Average
2	0.17	43.67	-21.49	65.16	33.30	0.03	10.34	QP
3	0.22	22.15	-30.51	52.66	11.90	0.03	10.22	Average
4	0.22	40.05	-22.61	62.66	29.80	0.03	10.22	QP
5	0.26	24.25	-27.13	51.38	14.00	0.03	10.22	Average
6 *	0.26	41.25	-20.13	61.38	31.00	0.03	10.22	QP
7	0.30	23.05	-27.10	50.15	12.80	0.03	10.22	Average
8	0.30	38.15	-22.00	60.15	27.90	0.03	10.22	QP
9	0.36	17.83	-30.86	48.69	7.60	0.03	10.20	Average
10	0.36	31.93	-26.76	58.69	21.70	0.03	10.20	QP
11	0.58	18.49	-27.51	46.00	8.30	0.02	10.17	Average
12	0.58	29.99	-26.01	56.00	19.80	0.02	10.17	QP

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Tao Cheng	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link (5G) + USB Cable (Charging from Adapter) + Earphone + SIM 1		



Site : CO01-SZ
Condition: FCC 15E_QP LISN_20170301_N NEUTRAL

Mode : Mode 1
IMEI : 001001227890453/001001227890453

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	*	0.15	40.94	-15.06	56.00	30.50	0.03	10.41	Average
2		0.15	44.44	-21.56	66.00	34.00	0.03	10.41	QP
3		0.17	21.35	-33.51	54.86	11.00	0.03	10.32	Average
4		0.17	40.95	-23.91	64.86	30.60	0.03	10.32	QP
5		0.23	23.25	-29.10	52.35	13.00	0.03	10.22	Average
6		0.23	40.55	-21.80	62.35	30.30	0.03	10.22	QP
7		0.25	23.65	-27.95	51.60	13.40	0.03	10.22	Average
8		0.25	38.95	-22.65	61.60	28.70	0.03	10.22	QP
9		0.31	24.25	-25.81	50.06	14.00	0.03	10.22	Average
10		0.31	38.85	-21.21	60.06	28.60	0.03	10.22	QP
11		0.59	23.79	-22.21	46.00	13.60	0.02	10.17	Average
12		0.59	34.79	-21.21	56.00	24.60	0.02	10.17	QP

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.

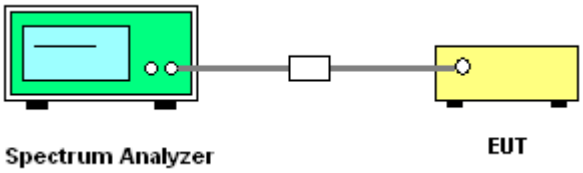
3.6.2 Measuring Instruments

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

Please refer to Appendix A.

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

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

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log(N_{ANT}/N_{SS}=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

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 I	-3.00	-3.00	-3.00	0.01	0.00	0.00
Band II	-3.00	-3.00	-3.00	0.01	0.00	0.00
Band III	-3.00	-3.00	-3.00	0.01	0.00	0.00

Power limit reduction = Composite gain – 6dBi, (min = 0)

PSD limit reduction = Composite gain + PSD Array gain – 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	FSV40	101078	9kHz~40GHz	May 07, 2016	Mar. 13, 2017~ Apr. 24, 2017	May 06, 2017	Conducted (TH01-SZ)
Pulse Power Senor	Anritsu	MA2411B	1207253	30MHz~40GHz	Jan. 06, 2017	Mar. 13, 2017~ Apr. 24, 2017	Jan. 05, 2018	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Jan. 06, 2017	Mar. 13, 2017~ Apr. 24, 2017	Jan. 05, 2018	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 16, 2016	Mar. 13, 2017~ Apr. 24, 2017	Jul. 15, 2017	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	May 07, 2016	Mar. 13, 2017~ Apr. 29, 2017	May 06, 2017	Radiation (03CH03-SZ)
EXA Spectrum Anaiyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz	May 07, 2016	Mar. 13, 2017~ Apr. 29, 2017	May 06, 2017	Radiation (03CH03-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 07, 2016	Mar. 13, 2017~ Apr. 29, 2017	May 06, 2017	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz~2GHz	May 21, 2016	Mar. 13, 2017~ Apr. 29, 2017	May 20, 2017	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	May 07, 2016	Mar. 13, 2017~ Apr. 29, 2017	May 06, 2017	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Aug. 10, 2016	Mar. 13, 2017~ Apr. 29, 2017	Aug. 09, 2017	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102210	0.01Hz ~3000MHz	Oct. 11, 2016	Mar. 13, 2017~ Apr. 29, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 11, 2016	Mar. 13, 2017~ Apr. 29, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Jan. 06, 2017	Mar. 13, 2017~ Apr. 29, 2017	Jan. 05, 2018	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 16, 2016	Mar. 13, 2017~ Apr. 29, 2017	Jul. 15, 2017	Radiation (03CH03-SZ
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Mar. 13, 2017~ Apr. 29, 2017	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Mar. 13, 2017~ Apr. 29, 2017	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Mar. 13, 2017~ Apr. 29, 2017	NCR	Radiation (03CH03-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Jan. 06, 2017	Apr. 02, 2017	Jan. 05, 2018	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103892	9kHz~30MHz	Jan. 05, 2017	Apr. 02, 2017	Jan. 04, 2018	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103912	9kHz~30MHz	Jan. 05, 2017	Apr. 02, 2017	Jan. 04, 2018	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 16, 2016	Apr. 02, 2017	Jul. 15, 2017	Conduction (CO01-SZ)

NCR: No Calibration Required

5 Uncertainty of Evaluation

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.1 dB

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.0 dB

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.0 dB

Appendix A. Conducted Test Results

Report Number : FR712206E

Test Engineer:	Bruce Huang	Temperature:	24~26	°C
Test Date:	2017/3/13~2017/4/24	Relative Humidity:	50~53	%

TEST RESULTS DATA
26dB and 99% OBW

Band I														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)			Note
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	36	5180	17.43	17.33	23.08	22.43	-		22.39			
11a	6Mbps	2	44	5220	17.48	17.33	23.78	22.63	-		22.39			
11a	6Mbps	2	48	5240	17.53	17.43	23.88	22.08	-		22.41			
HT20	MCS0	2	36	5180	18.68	18.63	24.48	24.28	-		22.70			
HT20	MCS0	2	44	5220	18.58	18.63	24.53	24.48	-		22.69			
HT20	MCS0	2	48	5240	18.58	18.58	25.08	24.43	-		22.69			
HT40	MCS0	2	38	5190	36.46	36.46	41.72	41.90	-		23.01			
HT40	MCS0	2	46	5230	36.46	36.46	41.81	41.81	-		23.01			
VHT20	MCS0	2	36	5180	18.63	18.53	23.78	23.58	-		22.68			
VHT20	MCS0	2	44	5220	18.68	18.48	24.33	23.18	-		22.67			
VHT20	MCS0	2	48	5240	18.58	18.48	23.98	23.43	-		22.67			
VHT40	MCS0	2	38	5190	36.46	36.46	41.90	41.63	-		23.01			
VHT40	MCS0	2	46	5230	36.46	36.36	41.45	41.54	-		23.01			
VHT80	MCS0	2	42	5210	75.64	75.64	83.44	82.64	-		23.01			

Report Number : FR712206E

TEST RESULTS DATA
Average Power Table

FCC Band I															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)			Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	36	5180	0.24	0.23	15.38	14.98	18.19	24.00		-3.00			Pass
11a	6Mbps	2	44	5220	0.24	0.23	15.63	14.94	18.31	24.00		-3.00			Pass
11a	6Mbps	2	48	5240	0.24	0.23	15.66	14.90	18.30	24.00		-3.00			Pass
HT20	MCS0	2	36	5180	0.24	0.24	15.33	14.87	18.12	24.00		-3.00			Pass
HT20	MCS0	2	44	5220	0.24	0.24	15.49	14.82	18.18	24.00		-3.00			Pass
HT20	MCS0	2	48	5240	0.24	0.24	15.57	14.78	18.20	24.00		-3.00			Pass
HT40	MCS0	2	38	5190	0.48	0.47	15.53	14.72	18.16	24.00		-3.00			Pass
HT40	MCS0	2	46	5230	0.48	0.47	15.60	14.65	18.16	24.00		-3.00			Pass
VHT20	MCS0	2	36	5180	0.25	0.23	15.33	14.69	18.03	24.00		-3.00			Pass
VHT20	MCS0	2	44	5220	0.25	0.23	15.51	14.64	18.11	24.00		-3.00			Pass
VHT20	MCS0	2	48	5240	0.25	0.23	15.62	14.58	18.14	24.00		-3.00			Pass
VHT40	MCS0	2	38	5190	0.50	0.45	15.21	14.47	17.87	24.00		-3.00			Pass
VHT40	MCS0	2	46	5230	0.50	0.45	15.37	14.39	17.92	24.00		-3.00			Pass
VHT80	MCS0	2	42	5210	0.86	0.88	14.44	13.83	17.15	24.00		-3.00			Pass

Report Number : FR712206E

TEST RESULTS DATA
Power Spectral Density

FCC Band I																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)				Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2			
11a	6Mbps	2	36	5180	0.24	0.23			7.86	11.00		0.01				Pass
11a	6Mbps	2	44	5220	0.24	0.23			8.06	11.00		0.01				Pass
11a	6Mbps	2	48	5240	0.24	0.23			7.71	11.00		0.01				Pass
HT20	MCS0	2	36	5180	0.24	0.24			6.89	11.00		0.01				Pass
HT20	MCS0	2	44	5220	0.24	0.24			7.22	11.00		0.01				Pass
HT20	MCS0	2	48	5240	0.24	0.24			7.61	11.00		0.01				Pass
HT40	MCS0	2	38	5190	0.48	0.47			4.62	11.00		0.01				Pass
HT40	MCS0	2	46	5230	0.48	0.47			4.71	11.00		0.01				Pass
VHT20	MCS0	2	36	5180	0.25	0.23			6.97	11.00		0.01				Pass
VHT20	MCS0	2	44	5220	0.25	0.23			7.48	11.00		0.01				Pass
VHT20	MCS0	2	48	5240	0.25	0.23			7.22	11.00		0.01				Pass
VHT40	MCS0	2	38	5190	0.50	0.45			4.42	11.00		0.01				Pass
VHT40	MCS0	2	46	5230	0.50	0.45			4.83	11.00		0.01				Pass
VHT80	MCS0	2	42	5210	0.86	0.88			0.03	11.00		0.01				Pass

TEST RESULTS DATA
26dB and 99% OBW

Band II															
Mod.	Data Rate	NTX	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
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	52	5260	17.48	17.48	23.53	22.48	23.43		29.43		23.98		
11a	6Mbps	2	60	5300	17.53	17.43	23.68	22.73	23.41		29.41		23.98		
11a	6Mbps	2	64	5320	17.58	17.38	23.08	22.58	23.40		29.40		23.98		
HT20	MCS0	2	52	5260	18.58	18.53	24.68	24.23	23.68		29.68		23.98		
HT20	MCS0	2	60	5300	18.58	18.58	24.58	24.13	23.69		29.69		23.98		
HT20	MCS0	2	64	5320	18.53	18.58	24.68	24.23	23.68		29.68		23.98		
HT40	MCS0	2	54	5270	36.46	36.46	41.72	41.90	23.98		30.00		23.98		
HT40	MCS0	2	62	5310	36.46	36.36	41.54	41.81	23.98		30.00		23.98		
VHT20	MCS0	2	52	5260	18.78	18.53	24.13	23.68	23.68		29.68		23.98		
VHT20	MCS0	2	60	5300	18.63	18.53	24.28	23.63	23.68		29.68		23.98		
VHT20	MCS0	2	64	5320	18.73	18.53	23.83	23.93	23.68		29.68		23.98		
VHT40	MCS0	2	54	5270	36.36	36.36	41.54	41.90	23.98		30.00		23.98		
VHT40	MCS0	2	62	5310	36.46	36.36	41.63	41.81	23.98		30.00		23.98		
VHT80	MCS0	2	58	5290	75.64	75.64	83.60	82.64	23.98		30.00		23.98		

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TEST RESULTS DATA
Average Power Table

FCC Band II															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	52	5260	0.24	0.23	15.53	14.71	18.15	23.98		-3.00		26.99	Pass
11a	6Mbps	2	60	5300	0.24	0.23	15.27	14.58	17.95	23.98		-3.00		26.99	Pass
11a	6Mbps	2	64	5320	0.24	0.23	15.00	14.75	17.88	23.98		-3.00		26.99	Pass
HT20	MCS0	2	52	5260	0.24	0.24	15.47	14.57	18.05	23.98		-3.00		26.99	Pass
HT20	MCS0	2	60	5300	0.24	0.24	15.32	14.50	17.94	23.98		-3.00		26.99	Pass
HT20	MCS0	2	64	5320	0.24	0.24	15.09	14.69	17.91	23.98		-3.00		26.99	Pass
HT40	MCS0	2	54	5270	0.48	0.47	15.63	14.55	18.14	23.98		-3.00		26.99	Pass
HT40	MCS0	2	62	5310	0.48	0.47	15.24	14.39	17.85	23.98		-3.00		26.99	Pass
VHT20	MCS0	2	52	5260	0.25	0.23	15.47	14.41	17.98	23.98		-3.00		26.99	Pass
VHT20	MCS0	2	60	5300	0.25	0.23	15.21	14.28	17.78	23.98		-3.00		26.99	Pass
VHT20	MCS0	2	64	5320	0.25	0.23	14.99	14.49	17.76	23.98		-3.00		26.99	Pass
VHT40	MCS0	2	54	5270	0.50	0.45	15.32	14.29	17.85	23.98		-3.00		26.99	Pass
VHT40	MCS0	2	62	5310	0.50	0.45	14.97	14.20	17.61	23.98		-3.00		26.99	Pass
VHT80	MCS0	2	58	5290	0.86	0.88	14.39	13.47	16.96	23.98		-3.00		26.99	Pass

TEST RESULTS DATA
Power Spectral Density

Band II															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)			Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	52	5260	0.24	0.23			7.83	11.00		0.01			Pass
11a	6Mbps	2	60	5300	0.24	0.23			7.49	11.00		0.01			Pass
11a	6Mbps	2	64	5320	0.24	0.23			7.28	11.00		0.01			Pass
HT20	MCS0	2	52	5260	0.24	0.24			7.27	11.00		0.01			Pass
HT20	MCS0	2	60	5300	0.24	0.24			6.93	11.00		0.01			Pass
HT20	MCS0	2	64	5320	0.24	0.24			7.05	11.00		0.01			Pass
HT40	MCS0	2	54	5270	0.48	0.47			4.63	11.00		0.01			Pass
HT40	MCS0	2	62	5310	0.48	0.47			4.45	11.00		0.01			Pass
VHT20	MCS0	2	52	5260	0.25	0.23			7.11	11.00		0.01			Pass
VHT20	MCS0	2	60	5300	0.25	0.23			7.05	11.00		0.01			Pass
VHT20	MCS0	2	64	5320	0.25	0.23			6.92	11.00		0.01			Pass
VHT40	MCS0	2	54	5270	0.50	0.45			4.00	11.00		0.01			Pass
VHT40	MCS0	2	62	5310	0.50	0.45			3.74	11.00		0.01			Pass
VHT80	MCS0	2	58	5290	0.86	0.88			-0.07	11.00		0.01			Pass

TEST RESULTS DATA
26dB and 99% OBW

Band III															
Mod.	Data Rate	NTX	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
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	100	5500	17.43	17.48	23.88	22.73	23.41		29.41		23.98		
11a	6Mbps	2	116	5580	17.53	17.48	23.63	22.73	23.43		29.43		23.98		
11a	6Mbps	2	140	5700	17.48	17.38	23.93	22.98	23.40		29.40		23.98		
HT20	MCS0	2	100	5500	18.58	18.68	24.58	24.23	23.69		29.69		23.98		
HT20	MCS0	2	116	5580	18.63	18.58	24.48	24.23	23.69		29.69		23.98		
HT20	MCS0	2	140	5700	18.73	18.58	24.78	24.63	23.69		29.69		23.98		
HT40	MCS0	2	102	5510	36.66	36.46	41.72	42.08	23.98		30.00		23.98		
HT40	MCS0	2	110	5550	36.56	36.46	41.63	41.90	23.98		30.00		23.98		
HT40	MCS0	2	134	5670	36.66	36.46	41.63	42.08	23.98		30.00		23.98		
VHT20	MCS0	2	100	5500	18.63	18.53	24.33	23.88	23.68		29.68		23.98		
VHT20	MCS0	2	116	5580	18.63	18.53	24.28	23.83	23.68		29.68		23.98		
VHT20	MCS0	2	140	5700	18.68	18.53	24.63	23.53	23.68		29.68		23.98		
VHT40	MCS0	2	102	5510	36.56	36.46	41.63	41.90	23.98		30.00		23.98		
VHT40	MCS0	2	110	5550	36.56	36.46	41.90	41.72	23.98		30.00		23.98		
VHT40	MCS0	2	134	5670	36.56	36.36	41.72	42.08	23.98		30.00		23.98		
VHT80	MCS0	2	106	5530	75.64	75.64	82.96	83.12	23.98		30.00		23.98		
VHT80	MCS0	2	122	5610	75.64	75.52	83.28	82.96	23.98		30.00		23.98		

TEST RESULTS DATA
Average Power Table

FCC Band III															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	100	5500	0.24	0.23	15.09	15.27	18.19	23.98		-3.00		26.99	Pass
11a	6Mbps	2	116	5580	0.24	0.23	15.36	14.59	18.00	23.98		-3.00		26.99	Pass
11a	6Mbps	2	140	5700	0.24	0.23	14.77	15.08	17.94	23.98		-3.00		26.99	Pass
HT20	MCS0	2	100	5500	0.24	0.24	15.11	15.12	18.13	23.98		-3.00		26.99	Pass
HT20	MCS0	2	116	5580	0.24	0.24	15.36	14.35	17.90	23.98		-3.00		26.99	Pass
HT20	MCS0	2	140	5700	0.24	0.24	14.66	15.13	17.91	23.98		-3.00		26.99	Pass
HT40	MCS0	2	102	5510	0.48	0.47	15.26	15.02	18.15	23.98		-3.00		26.99	Pass
HT40	MCS0	2	110	5550	0.48	0.47	15.49	14.77	18.16	23.98		-3.00		26.99	Pass
HT40	MCS0	2	134	5670	0.48	0.47	15.12	14.55	17.86	23.98		-3.00		26.99	Pass
VHT20	MCS0	2	100	5500	0.25	0.23	15.07	15.11	18.10	23.98		-3.00		26.99	Pass
VHT20	MCS0	2	116	5580	0.25	0.23	15.27	14.40	17.87	23.98		-3.00		26.99	Pass
VHT20	MCS0	2	140	5700	0.25	0.23	14.78	14.95	17.88	23.98		-3.00		26.99	Pass
VHT40	MCS0	2	102	5510	0.50	0.45	14.99	14.76	17.89	23.98		-3.00		26.99	Pass
VHT40	MCS0	2	110	5550	0.50	0.45	15.28	14.50	17.92	23.98		-3.00		26.99	Pass
VHT40	MCS0	2	134	5670	0.50	0.45	14.86	14.35	17.62	23.98		-3.00		26.99	Pass
VHT80	MCS0	2	106	5530	0.86	0.88	14.43	14.07	17.26	23.98		-3.00		26.99	Pass
VHT80	MCS0	2	122	5610	0.86	0.88	14.24	13.32	16.81	23.98		-3.00		26.99	Pass

TEST RESULTS DATA
Power Spectral Density

Band III																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)				Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2			
11a	6Mbps	2	100	5500	0.24	0.23			7.27	11.00		0.01				Pass
11a	6Mbps	2	116	5580	0.24	0.23			7.50	11.00		0.01				Pass
11a	6Mbps	2	140	5700	0.24	0.23			7.24	11.00		0.01				Pass
HT20	MCS0	2	100	5500	0.24	0.24			6.73	11.00		0.01				Pass
HT20	MCS0	2	116	5580	0.24	0.24			7.35	11.00		0.01				Pass
HT20	MCS0	2	140	5700	0.24	0.24			7.01	11.00		0.01				Pass
HT40	MCS0	2	102	5510	0.48	0.47			4.86	11.00		0.01				Pass
HT40	MCS0	2	110	5550	0.48	0.47			4.91	11.00		0.01				Pass
HT40	MCS0	2	134	5670	0.48	0.47			4.52	11.00		0.01				Pass
VHT20	MCS0	2	100	5500	0.25	0.23			7.50	11.00		0.01				Pass
VHT20	MCS0	2	116	5580	0.25	0.23			7.03	11.00		0.01				Pass
VHT20	MCS0	2	140	5700	0.25	0.23			6.98	11.00		0.01				Pass
VHT40	MCS0	2	102	5510	0.50	0.45			4.59	11.00		0.01				Pass
VHT40	MCS0	2	110	5550	0.50	0.45			4.83	11.00		0.01				Pass
VHT40	MCS0	2	134	5670	0.50	0.45			4.38	11.00		0.01				Pass
VHT80	MCS0	2	106	5530	0.86	0.88			-0.33	11.00		0.01				Pass
VHT80	MCS0	2	122	5610	0.86	0.88			-1.00	11.00		0.01				Pass

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TEST RESULTS DATA
Frequency Stability

Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stablility (ppm)	Temperature (˚C)	Voltage (V)	Note
11a	6Mbps	2	36	5180	5179.960	-0.040	-7.72	50	3.9	
11a	6Mbps	2	36	5180	5179.960	-0.040	-7.72	-30	3.9	
11a	6Mbps	2	36	5180	5179.980	-0.020	-3.86	20	4.2	
11a	6Mbps	2	36	5180	5179.980	-0.020	-3.86	20	3.8	
11a	6Mbps	2	36	5180	5179.940	-0.060	-11.58	20	3.9	

Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stablility (ppm)	Temperature (˚C)	Voltage (V)	Note
11a	6Mbps	2	64	5320	5319.985	-0.015	-2.82	50	3.9	
11a	6Mbps	2	64	5320	5319.965	-0.035	-6.58	-30	3.9	
11a	6Mbps	2	64	5320	5319.985	-0.015	-2.82	20	4.2	
11a	6Mbps	2	64	5320	5319.985	-0.015	-2.82	20	3.8	
11a	6Mbps	2	64	5320	5319.965	-0.035	-6.58	20	3.9	

Band III										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stablility (ppm)	Temperature (˚C)	Voltage (V)	Note
11a	6Mbps	2	100	5500	5499.940	-0.060	-10.91	50	3.9	
11a	6Mbps	2	100	5500	5499.960	-0.040	-7.27	-30	3.9	
11a	6Mbps	2	100	5500	5500.000	0.000	0.00	20	4.2	
11a	6Mbps	2	100	5500	5500.020	0.020	3.64	20	3.8	
11a	6Mbps	2	100	5500	5499.940	-0.060	-10.91	20	3.9	

Appendix B. Radiated Spurious Emission

Band 1 - 5150~5250MHz

WIFI 802.11a(Band Edge @ 3m)

WIFI Ant. 1+2	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		5150	54.67	-19.33	74	44.7	32.93	9.12	32.08	176	303	P	H
		5145.86	45.12	-8.88	54	35.15	32.93	9.12	32.08	176	303	A	H
	*	5180	111.53	-	-	101.45	32.94	9.24	32.1	176	303	P	H
	*	5180	104.04	-	-	93.96	32.94	9.24	32.1	176	303	A	H
		5149.5	53.02	-20.98	74	43.05	32.93	9.12	32.08	150	280	P	V
		5145.86	43.98	-10.02	54	34.01	32.93	9.12	32.08	150	280	A	V
	*	5180	111.68	-	-	101.6	32.94	9.24	32.1	150	280	P	V
	*	5180	102.94	-	-	92.86	32.94	9.24	32.1	150	280	A	V
802.11a CH 44 5220MHz		5142.22	51.35	-22.65	74	41.36	32.93	9.12	32.06	188	235	P	H
		5150	42.35	-11.65	54	32.38	32.93	9.12	32.08	188	235	A	H
	*	5220	111.67	-	-	101.47	32.94	9.37	32.11	188	235	P	H
	*	5220	103.56	-	-	93.36	32.94	9.37	32.11	188	235	A	H
		5362.08	49.92	-24.08	74	39.7	32.97	9.47	32.22	188	235	P	H
		5452.8	41.05	-12.95	54	30.92	32.99	9.42	32.28	188	235	A	H
		5138.32	50.82	-23.18	74	40.83	32.93	9.12	32.06	150	281	P	V
		5150	42.41	-11.59	54	32.44	32.93	9.12	32.08	150	281	A	V
	*	5220	112.84	-	-	102.64	32.94	9.37	32.11	150	281	P	V
	*	5220	103.53	-	-	93.33	32.94	9.37	32.11	150	281	A	V
		5433.6	48.34	-25.66	74	38.2	32.99	9.42	32.27	150	281	P	V
		5352	40.91	-13.09	54	30.69	32.97	9.47	32.22	150	281	A	V

802.11a CH 48 5240MHz		5133.38	49.75	-24.25	74	39.76	32.93	9.12	32.06	204	234	P	H
		5145.6	41.65	-12.35	54	31.68	32.93	9.12	32.08	204	234	A	H
	*	5240	109.74	-	-	99.53	32.95	9.39	32.13	204	234	P	H
	*	5240	103.73	-	-	93.52	32.95	9.39	32.13	204	234	A	H
		5388.96	49.34	-24.66	74	39.1	32.98	9.49	32.23	204	234	P	H
		5356.56	41.03	-12.97	54	30.81	32.97	9.47	32.22	204	234	A	H
		5107.9	49.73	-24.27	74	39.87	32.92	8.99	32.05	150	279	P	V
		5148.46	41.56	-12.44	54	31.59	32.93	9.12	32.08	150	279	A	V
	*	5240	111.61	-	-	101.4	32.95	9.39	32.13	150	279	P	V
	*	5240	104.16	-	-	93.95	32.95	9.39	32.13	150	279	A	V
		5441.76	49.38	-24.62	74	39.24	32.99	9.42	32.27	150	279	P	V
		5352.96	40.94	-13.06	54	30.72	32.97	9.47	32.22	150	279	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

WIFI 802.11a(Harmonic @ 3m)

WIFI Ant. 1+2	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	48.01	-25.99	74	56.4	39.71	12.75	60.85	250	0	P	H
		15540	44.13	-29.87	74	53.1	37.97	15.21	62.15	150	0	P	H
		10360	48.07	-25.93	74	56.46	39.71	12.75	60.85	250	0	P	V
		15540	44.22	-29.78	74	53.19	37.97	15.21	62.15	150	0	P	V
802.11a CH 44 5220MHz		10440	48.68	-25.32	74	56.84	39.85	12.79	60.8	250	0	P	H
		15660	46.04	-27.96	74	55.06	37.88	15.3	62.2	150	0	P	H
		10440	48.17	-25.83	74	56.33	39.85	12.79	60.8	250	0	P	V
		15660	44.91	-29.09	74	53.93	37.88	15.3	62.2	150	0	P	V
802.11a CH 48 5240MHz		10480	47.98	-26.02	74	55.96	39.96	12.82	60.76	250	0	P	H
		15720	44.26	-29.74	74	53.35	37.82	15.33	62.24	150	0	P	H
		10480	47.33	-26.67	74	55.31	39.96	12.82	60.76	250	0	P	V
		15720	44.32	-29.68	74	53.41	37.82	15.33	62.24	150	0	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+2	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		5143.52	53.42	-20.58	74	43.43	32.93	9.12	32.06	150	246	P	H
		5148.2	44.64	-9.36	54	34.67	32.93	9.12	32.08	150	246	A	H
	*	5180	111.03	-	-	100.95	32.94	9.24	32.1	150	246	P	H
	*	5180	102.6	-	-	92.52	32.94	9.24	32.1	150	246	A	H
		5143.78	51.35	-22.65	74	41.38	32.93	9.12	32.08	150	282	P	V
		5147.94	43.54	-10.46	54	33.57	32.93	9.12	32.08	150	282	A	V
	*	5180	109.89	-	-	99.81	32.94	9.24	32.1	150	282	P	V
	*	5180	100.73	-	-	90.65	32.94	9.24	32.1	150	282	A	V
802.11n HT20 CH 44 5220MHz		5149.24	51.28	-22.72	74	41.31	32.93	9.12	32.08	150	239	P	H
		5148.72	43.19	-10.81	54	33.22	32.93	9.12	32.08	150	239	A	H
	*	5220	112.62	-	-	102.42	32.94	9.37	32.11	150	239	P	H
	*	5220	105.44	-	-	95.24	32.94	9.37	32.11	150	239	A	H
		5396.64	49.62	-24.38	74	39.38	32.98	9.49	32.23	150	239	P	H
		5452.8	40.85	-13.15	54	30.72	32.99	9.42	32.28	150	239	A	H
		5109.46	50.43	-23.57	74	40.57	32.92	8.99	32.05	150	283	P	V
		5149.5	42.07	-11.93	54	32.1	32.93	9.12	32.08	150	283	A	V
	*	5220	109.86	-	-	99.66	32.94	9.37	32.11	150	283	P	V
	*	5220	102.71	-	-	92.51	32.94	9.37	32.11	150	283	A	V
		5362.08	48.69	-25.31	74	38.47	32.97	9.47	32.22	150	283	P	V
		5354.4	40.52	-13.48	54	30.3	32.97	9.47	32.22	150	283	A	V

802.11n HT20 CH 48 5240MHz		5138.84	50.31	-23.69	74	40.32	32.93	9.12	32.06	150	247	P	H
		5145.6	42.03	-11.97	54	32.06	32.93	9.12	32.08	150	247	A	H
	*	5240	111.82	-	-	101.61	32.95	9.39	32.13	150	247	P	H
	*	5240	104.05	-	-	93.84	32.95	9.39	32.13	150	247	A	H
		5413.44	49.76	-24.24	74	39.54	32.98	9.49	32.25	150	247	P	H
		5350.32	41.11	-12.89	54	30.89	32.97	9.47	32.22	150	247	A	H
		5144.56	49.4	-24.6	74	39.43	32.93	9.12	32.08	150	282	P	V
		5148.72	41.53	-12.47	54	31.56	32.93	9.12	32.08	150	282	A	V
	*	5240	110.57	-	-	100.36	32.95	9.39	32.13	150	282	P	V
	*	5240	103.06	-	-	92.85	32.95	9.39	32.13	150	282	A	V
		5353.44	49.44	-24.56	74	39.22	32.97	9.47	32.22	150	282	P	V
		5350.32	40.71	-13.29	54	30.49	32.97	9.47	32.22	150	282	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1+2	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		10360	49.22	-24.78	74	57.61	39.71	12.75	60.85	250	0	P	H
		15540	47.43	-26.57	74	56.4	37.97	15.21	62.15	150	0	P	H
		10360	50.8	-23.2	74	59.19	39.71	12.75	60.85	250	0	P	V
		15540	45.73	-28.27	74	54.7	37.97	15.21	62.15	150	0	P	V
802.11n HT20 CH 44 5220MHz		10440	51	-23	74	59.16	39.85	12.79	60.8	250	0	P	H
		10440	43.47	-10.53	54	51.63	39.85	12.79	60.8	250	0	A	H
		15660	47.42	-26.58	74	56.44	37.88	15.3	62.2	150	0	P	H
		10440	49.72	-24.28	74	57.88	39.85	12.79	60.8	250	0	P	V
		15660	48.04	-25.96	74	57.06	37.88	15.3	62.2	150	0	P	V
802.11n HT20 CH 48 5240MHz		10480	48.07	-25.93	74	56.05	39.96	12.82	60.76	250	0	P	H
		15720	44.14	-29.86	74	53.23	37.82	15.33	62.24	150	0	P	H
		10480	48.65	-25.35	74	56.63	39.96	12.82	60.76	250	0	P	V
		15720	43.87	-30.13	74	52.96	37.82	15.33	62.24	150	0	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 HT40(Band Edge @ 3m)

WIFI Ant. 1+2	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		5150	55.71	-18.29	74	45.74	32.93	9.12	32.08	152	237	P	H
		5150	50.78	-3.22	54	40.81	32.93	9.12	32.08	152	237	A	H
	*	5190	109.93	-	-	99.85	32.94	9.24	32.1	152	237	P	H
	*	5190	101.34	-	-	91.26	32.94	9.24	32.1	152	237	A	H
		5379.08	49.19	-24.81	74	38.97	32.98	9.47	32.23	152	237	P	H
		5358.64	40.87	-13.13	54	30.65	32.97	9.47	32.22	152	237	A	H
		5149.24	56.63	-17.37	74	46.66	32.93	9.12	32.08	150	273	P	V
		5147.42	49.99	-4.01	54	40.02	32.93	9.12	32.08	150	273	A	V
	*	5190	107.18	-	-	97.1	32.94	9.24	32.1	150	273	P	V
	*	5190	99.34	-	-	89.26	32.94	9.24	32.1	150	273	A	V
		5414.08	48.25	-25.75	74	38.03	32.98	9.49	32.25	150	273	P	V
		5397.56	40.64	-13.36	54	30.4	32.98	9.49	32.23	150	273	A	V
802.11n HT40 CH 46 5230MHz		5144.3	52.42	-21.58	74	42.45	32.93	9.12	32.08	150	239	P	H
		5147.94	44.39	-9.61	54	34.42	32.93	9.12	32.08	150	239	A	H
	*	5230	111.38	-	-	101.19	32.95	9.37	32.13	150	239	P	H
	*	5230	98.2	-	-	88.01	32.95	9.37	32.13	150	239	A	H
		5357.52	50.29	-23.71	74	40.07	32.97	9.47	32.22	150	239	P	H
		5353.92	42.39	-11.61	54	32.17	32.97	9.47	32.22	150	239	A	H
		5131.82	50.05	-23.95	74	40.06	32.93	9.12	32.06	150	259	P	V
		5145.86	42.89	-11.11	54	32.92	32.93	9.12	32.08	150	259	A	V
	*	5230	107.36	-	-	97.17	32.95	9.37	32.13	150	259	P	V
	*	5230	100.7	-	-	90.51	32.95	9.37	32.13	150	259	A	V
		5431.44	49.31	-24.69	74	39.17	32.99	9.42	32.27	150	259	P	V
		5350.08	41.58	-12.42	54	31.36	32.97	9.47	32.22	150	259	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

WIFI 802.11n HT40(Harmonic @ 3m)

WIFI Ant. 1+2	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		10380	47.72	-26.28	74	56.05	39.74	12.77	60.84	250	0	P	H
HT40		15570	43.41	-30.59	74	52.39	37.94	15.24	62.16	150	0	P	H
CH 38		10380	48.7	-25.3	74	57.03	39.74	12.77	60.84	250	0	P	V
5190MHz		15570	43.7	-30.3	74	52.68	37.94	15.24	62.16	150	0	P	V
802.11n		10460	47.81	-26.19	74	55.89	39.89	12.82	60.79	250	0	P	H
HT40		15690	44.6	-29.4	74	53.64	37.85	15.33	62.22	150	0	P	H
CH 46		10460	48.45	-25.55	74	56.53	39.89	12.82	60.79	250	0	P	V
5230MHz		15690	44.93	-29.07	74	53.97	37.85	15.33	62.22	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

WIFI 802.11ac VHT80(Band Edge @ 3m)

WIFI Ant. 1+2	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		5146.9	58.64	-15.36	74	48.67	32.93	9.12	32.08	158	301	P	H
		5146.12	49.89	-4.11	54	39.92	32.93	9.12	32.08	158	301	A	H
	*	5210	104.42	-	-	94.22	32.94	9.37	32.11	158	301	P	H
	*	5210	94.75	-	-	84.55	32.94	9.37	32.11	158	301	A	H
		5404.56	49.2	-24.8	74	38.98	32.98	9.49	32.25	158	301	P	H
		5353.2	41.1	-12.9	54	30.88	32.97	9.47	32.22	158	301	A	H
		5148.72	55.69	-18.31	74	45.72	32.93	9.12	32.08	154	265	P	V
		5149.5	49.12	-4.88	54	39.15	32.93	9.12	32.08	154	265	A	V
	*	5210	103.31	-	-	93.11	32.94	9.37	32.11	154	265	P	V
	*	5210	93.69	-	-	83.49	32.94	9.37	32.11	154	265	A	V
		5353.92	48.88	-25.12	74	38.66	32.97	9.47	32.22	154	265	P	V
		5351.28	41.02	-12.98	54	30.8	32.97	9.47	32.22	154	265	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+2	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		10420	49.39	-24.61	74	57.59	39.82	12.79	60.81	250	0	P	H
VHT80		15630	45.58	-28.42	74	54.62	37.89	15.27	62.2	150	0	P	H
CH 42		10420	48.36	-25.64	74	56.56	39.82	12.79	60.81	250	0	P	V
5210MHz		15630	45.93	-28.07	74	54.97	37.89	15.27	62.2	150	0	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 Ant. 1+2	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		5131.3	50.45	-23.55	74	40.46	32.93	9.12	32.06	165	304	P	H
		5145.86	41.29	-12.71	54	31.32	32.93	9.12	32.08	165	304	A	H
	*	5260	111.02	-	-	100.83	32.95	9.39	32.15	165	304	P	H
	*	5260	103.87	-	-	93.68	32.95	9.39	32.15	165	304	A	H
		5365.2	49.86	-24.14	74	39.64	32.97	9.47	32.22	165	304	P	H
		5350.08	41.7	-12.3	54	31.48	32.97	9.47	32.22	165	304	A	H
		5112.06	49.22	-24.78	74	39.36	32.92	8.99	32.05	150	280	P	V
		5132.86	41.25	-12.75	54	31.26	32.93	9.12	32.06	150	280	A	V
	*	5260	110.88	-	-	100.69	32.95	9.39	32.15	150	280	P	V
	*	5260	103.25	-	-	93.06	32.95	9.39	32.15	150	280	A	V
		5413.44	48.94	-25.06	74	38.72	32.98	9.49	32.25	150	280	P	V
		5350.08	41.11	-12.89	54	30.89	32.97	9.47	32.22	150	280	A	V
802.11a CH 60 5300MHz		5126.35	49.78	-24.22	74	39.79	32.93	9.12	32.06	166	233	P	H
		5109.2	41.23	-12.77	54	31.37	32.92	8.99	32.05	166	233	A	H
	*	5300	111.63	-	-	101.43	32.96	9.42	32.18	166	233	P	H
	*	5300	103.24	-	-	93.04	32.96	9.42	32.18	166	233	A	H
		5352.24	53.21	-20.79	74	42.99	32.97	9.47	32.22	166	233	P	H
		5350.08	43.69	-10.31	54	33.47	32.97	9.47	32.22	166	233	A	H
		5102.55	49.49	-24.51	74	39.63	32.92	8.99	32.05	150	272	P	V
		5131.25	41.1	-12.9	54	31.11	32.93	9.12	32.06	150	272	A	V
	*	5300	112.31	-	-	102.6	32.96	8.93	32.18	150	272	P	V
	*	5300	103.27	-	-	93.56	32.96	8.93	32.18	150	272	A	V
		5352.72	50.81	-23.19	74	40.59	32.97	9.47	32.22	150	272	P	V
		5350.08	43.36	-10.64	54	33.14	32.97	9.47	32.22	150	272	A	V

802.11a CH 64 5320MHz	*	5320	111.87	-	-	101.65	32.96	9.44	32.18	170	304	P	H
	*	5320	103.12	-	-	92.9	32.96	9.44	32.18	170	304	A	H
		5360.48	52.53	-21.47	74	42.31	32.97	9.47	32.22	170	304	P	H
		5364.48	44.48	-9.52	54	34.26	32.97	9.47	32.22	170	304	A	H
	*	5320	111.35	-	-	101.13	32.96	9.44	32.18	150	281	P	V
	*	5320	103.11	-	-	92.89	32.96	9.44	32.18	150	281	A	V
		5353.28	51.5	-22.5	74	41.28	32.97	9.47	32.22	150	281	P	V
		5351.04	44.01	-9.99	54	33.79	32.97	9.47	32.22	150	281	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 2 5250~5350MHz

WIFI 802.11a(Harmonic @ 3m)

WIFI Ant. 1+2	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	47.94	-26.06	74	55.82	39.99	12.84	60.71	250	0	P	H
		15780	44.9	-29.1	74	53.99	37.78	15.39	62.26	150	0	P	H
		10520	48.09	-25.91	74	55.97	39.99	12.84	60.71	250	0	P	V
		15780	44.97	-29.03	74	54.06	37.78	15.39	62.26	150	0	P	V
802.11a CH 60 5300MHz		10600	47.84	-26.16	74	55.52	39.96	12.88	60.52	250	0	P	H
		15900	44.51	-29.49	74	53.67	37.68	15.48	62.32	150	0	P	H
		10600	47.66	-26.34	74	55.34	39.96	12.88	60.52	250	0	P	V
		15900	44.43	-29.57	74	53.59	37.68	15.48	62.32	150	0	P	V
802.11a CH 64 5320MHz		10640	47.73	-26.27	74	55.33	39.94	12.91	60.45	250	0	P	H
		15960	43.97	-30.03	74	53.15	37.63	15.54	62.35	150	0	P	H
		10640	46.97	-27.03	74	54.57	39.94	12.91	60.45	250	0	P	V
		15960	44.56	-29.44	74	53.74	37.63	15.54	62.35	150	0	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+2	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		5122.98	50.16	-23.84	74	40.17	32.93	9.12	32.06	150	239	P	H
		5145.6	41.81	-12.19	54	31.84	32.93	9.12	32.08	150	239	A	H
	*	5260	112.84	-	-	102.65	32.95	9.39	32.15	150	239	P	H
	*	5260	103.88	-	-	93.69	32.95	9.39	32.15	150	239	A	H
		5398.8	49.74	-24.26	74	39.52	32.98	9.49	32.25	150	239	P	H
		5354.88	41.91	-12.09	54	31.69	32.97	9.47	32.22	150	239	A	H
		5094.12	50.1	-23.9	74	40.24	32.92	8.99	32.05	150	267	P	V
		5128.18	41.23	-12.77	54	31.24	32.93	9.12	32.06	150	267	A	V
	*	5260	110.87	-	-	100.68	32.95	9.39	32.15	150	267	P	V
	*	5260	102.63	-	-	92.44	32.95	9.39	32.15	150	267	A	V
		5401.68	49.62	-24.38	74	39.4	32.98	9.49	32.25	150	267	P	V
		5352.72	41.11	-12.89	54	30.89	32.97	9.47	32.22	150	267	A	V
802.11n HT20 CH 60 5300MHz		5130.52	49.32	-24.68	74	39.33	32.93	9.12	32.06	150	240	P	H
		5145.6	41.3	-12.7	54	31.33	32.93	9.12	32.08	150	240	A	H
	*	5300	112.08	-	-	102.37	32.96	8.93	32.18	150	240	P	H
	*	5300	103.6	-	-	93.89	32.96	8.93	32.18	150	240	A	H
		5357.52	53.25	-20.75	74	43.03	32.97	9.47	32.22	150	240	P	H
		5350.56	44.39	-9.61	54	34.17	32.97	9.47	32.22	150	240	A	H
		5029.64	50.22	-23.78	74	40.57	32.91	8.74	32	150	259	P	V
		5124.28	41.21	-12.79	54	31.22	32.93	9.12	32.06	150	259	A	V
	*	5300	110	-	-	100.29	32.96	8.93	32.18	150	259	P	V
	*	5300	100.97	-	-	91.26	32.96	8.93	32.18	150	259	A	V
		5351.28	51.24	-22.76	74	41.02	32.97	9.47	32.22	150	259	P	V
		5351.28	43.4	-10.6	54	33.18	32.97	9.47	32.22	150	259	A	V

802.11n HT20 CH 64 5320MHz	*	5320	111.56	-	-	101.34	32.96	9.44	32.18	150	240	P	H
	*	5320	103.47	-	-	93.25	32.96	9.44	32.18	150	240	A	H
		5353.28	53.14	-20.86	74	42.92	32.97	9.47	32.22	150	240	P	H
		5351.36	45.04	-8.96	54	34.82	32.97	9.47	32.22	150	240	A	H
	*	5320	110.41	-	-	100.66	32.96	8.97	32.18	150	259	P	V
	*	5320	100.44	-	-	90.69	32.96	8.97	32.18	150	259	A	V
		5350.4	53.75	-20.25	74	43.53	32.97	9.47	32.22	150	259	P	V
		5352.8	43.91	-10.09	54	33.69	32.97	9.47	32.22	150	259	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 2 5250~5350MHz

WIFI 802.11n HT20(Harmonic @ 3m)

WIFI Ant. 1+2	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	48.32	-25.68	74	56.2	39.99	12.84	60.71	250	0	P	H
HT20		15780	45.17	-28.83	74	54.26	37.78	15.39	62.26	150	0	P	H
CH 52		10520	48.49	-25.51	74	56.37	39.99	12.84	60.71	250	0	P	V
5260MHz		15780	46.58	-27.42	74	55.67	37.78	15.39	62.26	150	0	P	V
802.11n		10600	48.96	-25.04	74	56.64	39.96	12.88	60.52	250	0	P	H
HT20		15900	44.5	-29.5	74	53.66	37.68	15.48	62.32	150	0	P	H
CH 60		10600	47.97	-26.03	74	55.65	39.96	12.88	60.52	250	0	P	V
5300MHz		15900	45.2	-28.8	74	54.36	37.68	15.48	62.32	150	0	P	V
802.11n		10640	47.8	-26.2	74	55.4	39.94	12.91	60.45	250	0	P	H
HT20		15960	45.01	-28.99	74	54.19	37.63	15.54	62.35	150	0	P	H
CH 64		10640	47.87	-26.13	74	55.47	39.94	12.91	60.45	250	0	P	V
5320MHz		15960	44.3	-29.7	74	53.48	37.63	15.54	62.35	150	0	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 HT40(Band Edge @ 3m)

WIFI Ant. 1+2	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		5119.08	49.33	-24.67	74	39.35	32.92	9.12	32.06	164	239	P	H
		5147.68	42.48	-11.52	54	32.51	32.93	9.12	32.08	164	239	A	H
	*	5270	111.1	-	-	100.91	32.95	9.39	32.15	164	239	P	H
	*	5270	101.55	-	-	91.36	32.95	9.39	32.15	164	239	A	H
		5358.48	51.66	-22.34	74	41.44	32.97	9.47	32.22	164	239	P	H
		5352.96	44.97	-9.03	54	34.75	32.97	9.47	32.22	164	239	A	H
		5027.04	49.68	-24.32	74	40.03	32.91	8.74	32	150	261	P	V
		5122.98	41.92	-12.08	54	31.93	32.93	9.12	32.06	150	261	A	V
	*	5270	108.26	-	-	98.07	32.95	9.39	32.15	150	261	P	V
	*	5270	100.73	-	-	90.54	32.95	9.39	32.15	150	261	A	V
		5353.92	51.88	-22.12	74	41.66	32.97	9.47	32.22	150	261	P	V
		5351.28	43.39	-10.61	54	33.17	32.97	9.47	32.22	150	261	A	V
802.11n HT40 CH 62 5310MHz		5148.98	50.1	-23.9	74	40.13	32.93	9.12	32.08	150	238	P	H
		5145.6	42.21	-11.79	54	32.24	32.93	9.12	32.08	150	238	A	H
	*	5310	111.24	-	-	101.02	32.96	9.44	32.18	150	238	P	H
	*	5310	102.53	-	-	92.31	32.96	9.44	32.18	150	238	A	H
		5350.56	57.46	-16.54	74	47.24	32.97	9.47	32.22	150	238	P	H
		5350.8	51.78	-2.22	54	41.56	32.97	9.47	32.22	150	238	A	H
		5135.2	49.77	-24.23	74	39.78	32.93	9.12	32.06	150	261	P	V
		5127.92	41.74	-12.26	54	31.75	32.93	9.12	32.06	150	261	A	V
	*	5310	107.71	-	-	97.49	32.96	9.44	32.18	150	261	P	V
	*	5310	99.49	-	-	89.27	32.96	9.44	32.18	150	261	A	V
		5358.48	53.26	-20.74	74	43.04	32.97	9.47	32.22	150	261	P	V
		5350.32	47.09	-6.91	54	36.87	32.97	9.47	32.22	150	261	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 2 5250~5350MHz

WIFI 802.11n HT40(Harmonic @ 3m)

WIFI Ant. 1+2	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		10540	48.14	-25.86	74	55.96	39.99	12.86	60.67	250	0	P	H
HT40		15810	45.04	-28.96	74	54.15	37.75	15.42	62.28	150	0	P	H
CH 54		10540	48.42	-25.58	74	56.24	39.99	12.86	60.67	250	0	P	V
5270MHz		15810	45	-29	74	54.11	37.75	15.42	62.28	150	0	P	V
802.11n		10620	47.71	-26.29	74	55.34	39.95	12.91	60.49	250	0	P	H
HT40		15930	43.96	-30.04	74	53.13	37.66	15.51	62.34	150	0	P	H
CH 62		10620	48.18	-25.82	74	55.81	39.95	12.91	60.49	250	0	P	V
5310MHz		15930	44.34	-29.66	74	53.51	37.66	15.51	62.34	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 2 5250~5350MHz

WIFI 802.11ac VHT80(Band Edge @ 3m)

WIFI Ant. 1+2	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		5130	50.19	-23.81	74	40.2	32.93	9.12	32.06	150	247	P	H
		5148.72	41.95	-12.05	54	31.98	32.93	9.12	32.08	150	247	A	H
	*	5290	105.48	-	-	95.27	32.96	9.42	32.17	150	247	P	H
	*	5290	98.51	-	-	88.3	32.96	9.42	32.17	150	247	A	H
		5356.08	57.67	-16.33	74	47.45	32.97	9.47	32.22	150	247	P	H
		5353.44	51.22	-2.78	54	41	32.97	9.47	32.22	150	247	A	H
		5046.8	49.47	-24.53	74	39.7	32.91	8.87	32.01	150	261	P	V
		5145.86	41.86	-12.14	54	31.89	32.93	9.12	32.08	150	261	A	V
	*	5290	103.31	-	-	93.1	32.96	9.42	32.17	150	261	P	V
	*	5290	95.92	-	-	85.71	32.96	9.42	32.17	150	261	A	V
		5355.36	55.85	-18.15	74	45.63	32.97	9.47	32.22	150	261	P	V
		5355.36	49.53	-4.47	54	39.31	32.97	9.47	32.22	150	261	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+2	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		10580	48.68	-25.32	74	56.39	39.97	12.88	60.56	250	0	P	H
VHT80		15870	46.11	-27.89	74	55.27	37.7	15.45	62.31	150	0	P	H
CH 58		10580	48.58	-25.42	74	56.29	39.97	12.88	60.56	250	0	P	V
5290MHz		15870	47.39	-26.61	74	56.55	37.7	15.45	62.31	150	0	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 Ant. 1+2	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		5452.56	53.16	-20.84	74	43.03	32.99	9.42	32.28	150	240	P	H
		5469.68	44.73	-9.27	54	34.67	32.99	9.35	32.28	150	240	A	H
	*	5500	112.3	-	-	102.25	33	9.35	32.3	150	240	P	H
	*	5500	105.67	-	-	95.62	33	9.35	32.3	150	240	A	H
		5447.44	51.2	-22.8	74	41.06	32.99	9.42	32.27	150	282	P	V
		5442.64	42.69	-11.31	54	32.55	32.99	9.42	32.27	150	282	A	V
	*	5500	111.02	-	-	100.97	33	9.35	32.3	150	282	P	V
	*	5500	102.01	-	-	91.96	33	9.35	32.3	150	282	A	V
802.11a CH 116 5580MHz		5469.28	49.54	-24.46	74	39.48	32.99	9.35	32.28	150	249	P	H
		5452.72	41.37	-12.63	54	31.24	32.99	9.42	32.28	150	249	A	H
	*	5580	110.55	-	-	100.41	33.08	9.22	32.16	150	249	P	H
	*	5580	103.66	-	-	93.52	33.08	9.22	32.16	150	249	A	H
		5742.95	50.86	-23.14	74	39.97	33.29	9.54	31.94	150	249	P	H
		5759.96	42.02	-11.98	54	31.07	33.31	9.54	31.9	150	249	A	H
		5458.96	50.67	-23.33	74	40.54	32.99	9.42	32.28	150	269	P	V
		5469.76	40.53	-13.47	54	30.47	32.99	9.35	32.28	150	269	A	V
	*	5580	108.32	-	-	98.18	33.08	9.22	32.16	150	269	P	V
	*	5580	101.39	-	-	91.25	33.08	9.22	32.16	150	269	A	V
		5750.825	50.65	-23.35	74	39.76	33.29	9.54	31.94	150	269	P	V
		5747.36	41.33	-12.67	54	30.44	33.29	9.54	31.94	150	269	A	V

802.11a CH 140 5700MHz	*	5700	109.7	-	-	99.04	33.23	9.44	32.01	150	249	P	H
	*	5700	102.18	-	-	91.52	33.23	9.44	32.01	150	249	A	H
		5729.72	52.54	-21.46	74	41.81	33.27	9.44	31.98	150	249	P	H
		5726.2	44.22	-9.78	54	33.49	33.27	9.44	31.98	150	249	A	H
	*	5700	107.35	-	-	96.69	33.23	9.44	32.01	150	283	P	V
	*	5700	99.27	-	-	88.61	33.23	9.44	32.01	150	283	A	V
		5751.72	52.75	-21.25	74	41.84	33.31	9.54	31.94	150	283	P	V
		5727.8	43.61	-10.39	54	32.88	33.27	9.44	31.98	150	283	A	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+2	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	49.21	-24.79	74	55.96	39.8	13.11	59.66	250	0	P	H
		16500	45.21	-28.79	74	52.12	38.5	15.85	61.26	150	0	P	H
		11000	48.12	-25.88	74	54.87	39.8	13.11	59.66	250	0	P	V
		16500	45.51	-28.49	74	52.42	38.5	15.85	61.26	150	0	P	V
802.11a CH 116 5580MHz		11160	47.16	-26.84	74	53.81	39.77	13.23	59.65	250	0	P	H
		16740	47.73	-26.27	74	53.43	38.98	16.01	60.69	150	0	P	H
		11160	48.34	-25.66	74	54.99	39.77	13.23	59.65	250	0	P	V
		16740	46.28	-27.72	74	51.98	38.98	16.01	60.69	150	0	P	V
802.11a CH 140 5700MHz		11400	47.51	-26.49	74	54.06	39.72	13.37	59.64	250	0	P	H
		17100	46.2	-27.8	74	50.32	39.74	16.22	60.08	150	0	P	H
		11400	47.08	-26.92	74	53.63	39.72	13.37	59.64	250	0	P	V
		17100	45.53	-28.47	74	49.65	39.74	16.22	60.08	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - 5470~5725MHz

WIFI 802.11n HT20(Band Edge @ 3m)

WIFI Ant. 1+2	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		5468.4	53.23	-20.77	74	43.17	32.99	9.35	32.28	150	239	P	H
		5470	44.42	-9.58	54	34.36	32.99	9.35	32.28	150	239	A	H
	*	5500	112.01	-	-	101.96	33	9.35	32.3	150	239	P	H
	*	5500	103.05	-	-	93	33	9.35	32.3	150	239	A	H
		5469.52	51.19	-22.81	74	41.13	32.99	9.35	32.28	152	259	P	V
		5468.4	42.77	-11.23	54	32.71	32.99	9.35	32.28	152	259	A	V
	*	5500	109.36	-	-	99.31	33	9.35	32.3	152	259	P	V
	*	5500	99.74	-	-	89.69	33	9.35	32.3	152	259	A	V
802.11n HT20 CH 116 5580MHz		5398	49.05	-24.95	74	38.81	32.98	9.49	32.23	150	240	P	H
		5452.72	41.25	-12.75	54	31.12	32.99	9.42	32.28	150	240	A	H
	*	5580	111.46	-	-	101.32	33.08	9.22	32.16	150	240	P	H
	*	5580	102.83	-	-	92.69	33.08	9.22	32.16	150	240	A	H
		5730.525	51.41	-22.59	74	40.64	33.27	9.44	31.94	150	240	P	H
		5760.1	41.55	-12.45	54	30.6	33.31	9.54	31.9	150	240	A	H
		5385.28	48.52	-25.48	74	38.3	32.98	9.47	32.23	150	261	P	V
		5468.56	40.31	-13.69	54	30.25	32.99	9.35	32.28	150	261	A	V
	*	5580	107.32	-	-	97.18	33.08	9.22	32.16	150	261	P	V
	*	5580	98.83	-	-	88.69	33.08	9.22	32.16	150	261	A	V
		5737.175	49.55	-24.45	74	38.76	33.29	9.44	31.94	150	261	P	V
		5759.925	41.69	-12.31	54	30.74	33.31	9.54	31.9	150	261	A	V

802.11n HT20 CH 140 5700MHz	*	5700	110.39	-	-	99.73	33.23	9.44	32.01	150	249	P	H
	*	5700	100.63	-	-	89.97	33.23	9.44	32.01	150	249	A	H
		5745	52.75	-21.25	74	41.86	33.29	9.54	31.94	150	249	P	H
		5725.16	44.43	-9.57	54	33.7	33.27	9.44	31.98	150	249	A	H
	*	5700	107.11	-	-	96.45	33.23	9.44	32.01	150	262	P	V
	*	5700	99.22	-	-	88.56	33.23	9.44	32.01	150	262	A	V
		5728.12	51.87	-22.13	74	41.14	33.27	9.44	31.98	150	262	P	V
		5726.12	43.54	-10.46	54	32.81	33.27	9.44	31.98	150	262	A	V
Remark	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+2	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		11000	48.64	-25.36	74	55.39	39.8	13.11	59.66	250	0	P	H
HT20		16500	44.78	-29.22	74	51.69	38.5	15.85	61.26	150	0	P	H
CH 100		11000	48.29	-25.71	74	55.04	39.8	13.11	59.66	250	0	P	V
5500MHz		16500	45.25	-28.75	74	52.16	38.5	15.85	61.26	150	0	P	V
802.11n		11160	46.65	-27.35	74	53.3	39.77	13.23	59.65	250	0	P	H
HT20		16740	47.69	-26.31	74	53.39	38.98	16.01	60.69	150	0	P	H
CH 116		11160	46.75	-27.25	74	53.4	39.77	13.23	59.65	250	0	P	V
5580MHz		16740	46.12	-27.88	74	51.82	38.98	16.01	60.69	150	0	P	V
802.11n		11400	46.69	-27.31	74	53.24	39.72	13.37	59.64	250	0	P	H
HT20		17100	46.29	-27.71	74	50.41	39.74	16.22	60.08	150	0	P	H
CH 140		11400	46.26	-27.74	74	52.81	39.72	13.37	59.64	250	0	P	V
5700MHz		17100	46.45	-27.55	74	50.57	39.74	16.22	60.08	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - 5470~5725MHz

WIFI 802.11n HT40(Band Edge @ 3m)

WIFI Ant. 1+2	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		5468.32	57.01	-16.99	74	46.95	32.99	9.35	32.28	150	240	P	H
		5470	50.09	-3.91	54	40.03	32.99	9.35	32.28	150	240	A	H
	*	5510	110.24	-	-	100.21	33	9.29	32.26	150	240	P	H
	*	5510	101.37	-	-	91.34	33	9.29	32.26	150	240	A	H
		5746.73	49.57	-24.43	74	38.68	33.29	9.54	31.94	150	240	P	H
		5759.96	41.71	-12.29	54	30.76	33.31	9.54	31.9	150	240	A	H
		5465.44	52.37	-21.63	74	42.24	32.99	9.42	32.28	150	270	P	V
		5465.44	45.9	-8.1	54	35.77	32.99	9.42	32.28	150	270	A	V
	*	5510	106.32	-	-	96.29	33	9.29	32.26	150	270	P	V
	*	5510	98.23	-	-	88.2	33	9.29	32.26	150	270	A	V
		5741.375	48.63	-25.37	74	37.74	33.29	9.54	31.94	150	270	P	V
		5742.635	41.98	-12.02	54	31.09	33.29	9.54	31.94	150	270	A	V
802.11n HT40 CH 110 5550MHz		5430.88	50.88	-23.12	74	40.74	32.99	9.42	32.27	150	249	P	H
		5466.64	43.65	-10.35	54	33.59	32.99	9.35	32.28	150	249	A	H
	*	5550	109.09	-	-	99.04	33.06	9.22	32.23	150	249	P	H
	*	5550	100.27	-	-	90.22	33.06	9.22	32.23	150	249	A	H
		5760.905	49.26	-24.74	74	38.31	33.31	9.54	31.9	150	249	P	H
		5759.645	42.03	-11.97	54	31.08	33.31	9.54	31.9	150	249	A	H
		5439.04	49.67	-24.33	74	39.53	32.99	9.42	32.27	150	273	P	V
		5467.36	41.97	-12.03	54	31.91	32.99	9.35	32.28	150	273	A	V
	*	5550	105.54	-	-	95.49	33.06	9.22	32.23	150	273	P	V
	*	5550	97.75	-	-	87.7	33.06	9.22	32.23	150	273	A	V
		5739.17	49.72	-24.28	74	38.83	33.29	9.54	31.94	150	273	P	V
		5752.715	41.72	-12.28	54	30.81	33.31	9.54	31.94	150	273	A	V

802.11n HT40 CH 134 5670MHz		5380.1	48.27	-25.73	74	38.05	32.98	9.47	32.23	150	250	P	H
		5452.9	40.85	-13.15	54	30.72	32.99	9.42	32.28	150	250	A	H
	*	5670	107.36	-	-	96.85	33.21	9.35	32.05	150	250	P	H
	*	5670	98.87	-	-	88.36	33.21	9.35	32.05	150	250	A	H
		5726.85	53.14	-20.86	74	42.41	33.27	9.44	31.98	150	250	P	H
		5727.55	44.55	-9.45	54	33.82	33.27	9.44	31.98	150	250	A	H
		5355.25	49.14	-24.86	74	38.92	32.97	9.47	32.22	150	259	P	V
		5417.9	40.76	-13.24	54	30.54	32.98	9.49	32.25	150	259	A	V
	*	5670	106.09	-	-	95.58	33.21	9.35	32.05	150	259	P	V
	*	5670	97.71	-	-	87.2	33.21	9.35	32.05	150	259	A	V
		5740.85	52.22	-21.78	74	41.33	33.29	9.54	31.94	150	259	P	V
		5726.85	43.84	-10.16	54	33.11	33.27	9.44	31.98	150	259	A	V
Remark	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+2	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	48.88	-25.12	74	55.6	39.8	13.14	59.66	250	0	P	H
HT40		16530	47.21	-26.79	74	53.95	38.57	15.87	61.18	150	0	P	H
CH 102		11020	48.97	-25.03	74	55.69	39.8	13.14	59.66	250	0	P	V
5510MHz		16530	46.17	-27.83	74	52.91	38.57	15.87	61.18	150	0	P	V
802.11n		11100	49.44	-24.56	74	56.13	39.78	13.18	59.65	250	0	P	H
HT40		16650	48.3	-25.7	74	54.44	38.81	15.94	60.89	150	0	P	H
CH 110		11100	49.3	-24.7	74	55.99	39.78	13.18	59.65	250	0	P	V
5550MHz		16650	47.37	-26.63	74	53.51	38.81	15.94	60.89	150	0	P	V
802.11n		11340	48.08	-25.92	74	54.67	39.73	13.32	59.64	250	0	P	H
HT40		17010	47.34	-26.66	74	51.69	39.54	16.18	60.07	150	0	P	H
CH 134		11340	48.69	-25.31	74	55.28	39.73	13.32	59.64	250	0	P	V
5670MHz		17010	48.82	-25.18	74	53.17	39.54	16.18	60.07	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 5470~5725MHz

WIFI 802.11ac VHT80(Band Edge @ 3m)

WIFI Ant. 1+2	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		5458.48	55.42	-18.58	74	45.29	32.99	9.42	32.28	176	299	P	H
		5454.88	48.18	-5.82	54	38.05	32.99	9.42	32.28	176	299	A	H
	*	5530	102.9	-	-	92.82	33.02	9.29	32.23	176	299	P	H
	*	5530	92.4	-	-	82.32	33.02	9.29	32.23	176	299	A	H
		5759.96	49.43	-24.57	74	38.48	33.31	9.54	31.9	176	299	P	H
		5756.495	41.77	-12.23	54	30.82	33.31	9.54	31.9	176	299	A	H
		5467.84	53.31	-20.69	74	43.25	32.99	9.35	32.28	150	272	P	V
		5458.72	46.8	-7.2	54	36.67	32.99	9.42	32.28	150	272	A	V
	*	5530	102.36	-	-	92.28	33.02	9.29	32.23	150	272	P	V
	*	5530	92.42	-	-	82.34	33.02	9.29	32.23	150	272	A	V
		5751.77	49.58	-24.42	74	38.67	33.31	9.54	31.94	150	272	P	V
		5747.99	41.65	-12.35	54	30.76	33.29	9.54	31.94	150	272	A	V
802.11ac VHT80 CH 122 5610MHz		5350.72	48.71	-25.29	74	38.94	32.97	9.02	32.22	175	297	P	H
		5452.72	41.14	-12.86	54	31.34	32.99	9.09	32.28	175	297	A	H
		5610	103.23	-	-	93.03	33.12	9.2	32.12	175	297	P	H
		5610	94.79	-	-	84.59	33.12	9.2	32.12	175	297	A	H
		5729.825	50.24	-23.76	74	39.67	33.27	9.28	31.98	175	297	P	H
		5759.925	42.63	-11.37	54	31.92	33.31	9.3	31.9	175	297	A	H
		5460.64	48.07	-25.93	74	38.27	32.99	9.09	32.28	150	285	P	V
		5442.16	40.45	-13.55	54	30.64	32.99	9.09	32.27	150	285	A	V
		5610	100.41	-	-	90.21	33.12	9.2	32.12	150	285	P	V
		5610	91.46	-	-	81.26	33.12	9.2	32.12	150	285	A	V
		5759.4	50.59	-23.41	74	39.88	33.31	9.3	31.9	150	285	P	V
		5759.75	41.84	-12.16	54	31.13	33.31	9.3	31.9	150	285	A	V
Remark	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+2	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		11060	49.77	-24.23	74	56.48	39.79	13.16	59.66	250	0	P	H
VHT80		16590	47.2	-26.8	74	53.66	38.67	15.92	61.05	150	0	P	H
CH 106		11060	48.96	-25.04	74	55.67	39.79	13.16	59.66	250	0	P	V
5530MHz		16590	46.81	-27.19	74	53.27	38.67	15.92	61.05	150	0	P	V
802.11ac		11220	49.16	-24.84	74	57.11	39.76	11.94	59.65	250	0	P	H
VHT80		16830	45.93	-28.07	74	52.64	39.16	14.61	60.48	150	0	P	H
CH 122		11220	48.7	-25.3	74	56.65	39.76	11.94	59.65	250	0	P	V
5610MHz		16830	46.21	-27.79	74	52.92	39.16	14.61	60.48	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

WIFI 802.11n HT40 (LF @ 3m)

WIFI Ant. 1+2	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 LF		30	26.72	-13.28	40	31.69	26.7	0.33	32	100	120	P	H
		95.96	29.51	-13.99	43.5	42.09	18.4	0.78	31.76	-	-	P	H
		127	29.56	-13.94	43.5	41.96	18.26	0.96	31.62	-	-	P	H
		163.86	30.08	-13.42	43.5	43.24	17.2	1.1	31.46	-	-	P	H
		403.45	28.01	-17.99	46	31.37	25.92	1.96	31.24	-	-	P	H
		869.05	31.8	-14.2	46	31.86	28.25	2.92	31.23	-	-	P	H
		30	32.54	-7.46	40	37.51	26.7	0.33	32	100	230	P	V
		42.61	26.52	-13.48	40	37.25	20.82	0.44	31.99	-	-	P	V
		63.95	26.21	-13.79	40	44.61	12.88	0.62	31.9	-	-	P	V
		95.96	24.36	-19.14	43.5	36.94	18.4	0.78	31.76	-	-	P	V
		162.89	24.89	-18.61	43.5	38.02	17.24	1.09	31.46	-	-	P	V
		971.87	33.01	-20.99	54	31.27	29.84	3.12	31.22	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is **over limit** line.
P/A	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. 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)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m)– 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. 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)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m)– 54(dBμV/m)

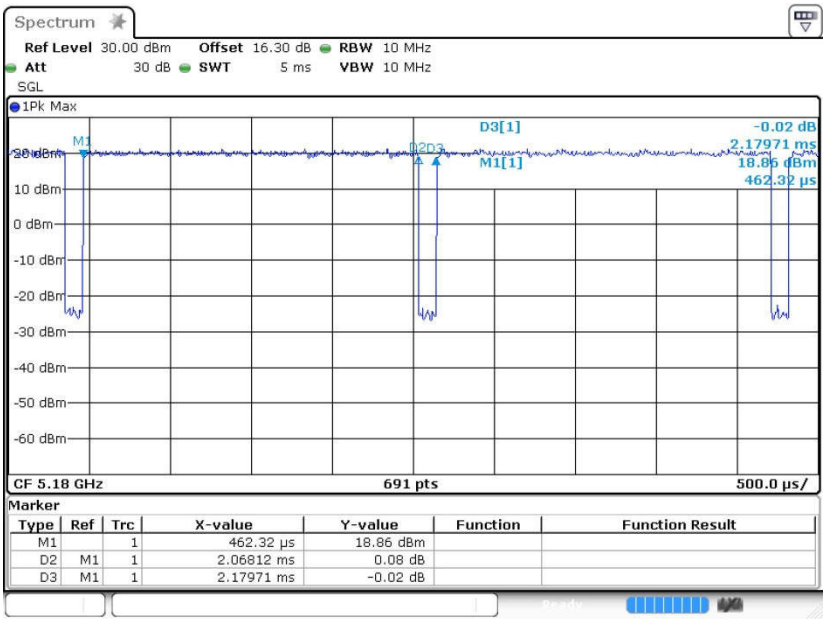
= -10.46(dB)

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

Appendix C. Duty Cycle Plots

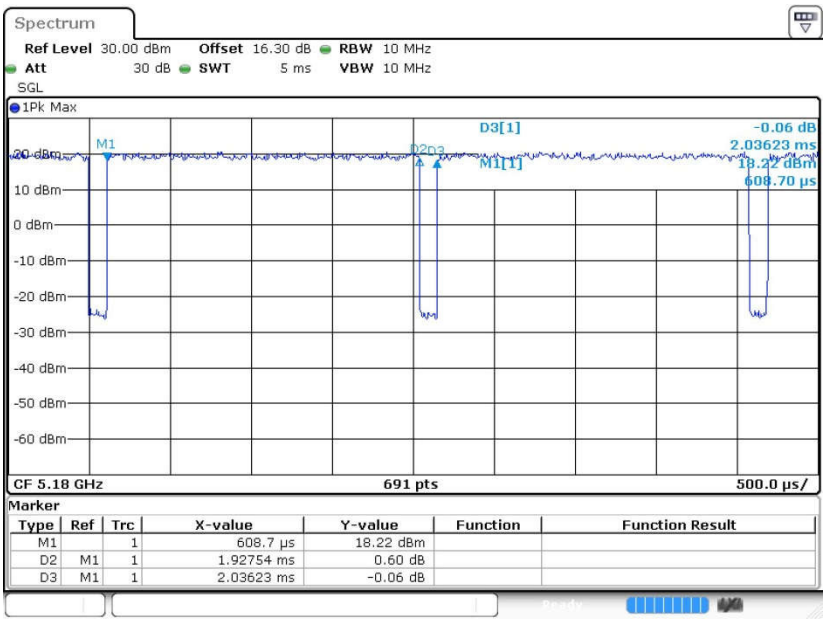
Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1+2	802.11a	94.88	2.068	0.484	1kHz
1+2	802.11n HT20	94.66	1.928	0.519	1kHz
1+2	802.11n HT40	89.74	0.952	1.050	3kHz
1+2	802.11ac VHT20	94.89	1.936	0.516	1kHz
1+2	802.11ac VHT40	90.12	0.952	1.050	3kHz
1+2	802.11ac VHT80	82.10	0.465	2.150	3kHz

802.11a for Ant.1+2



Date: 13.MAR.2017 10:43:07

802.11n HT20 for Ant.1+2



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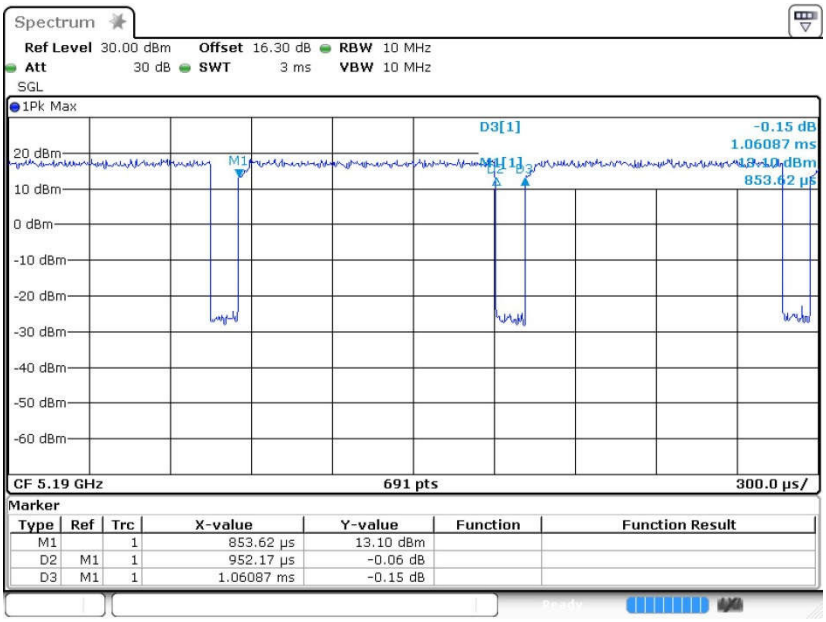
802.11n HT40 for Ant.1+2



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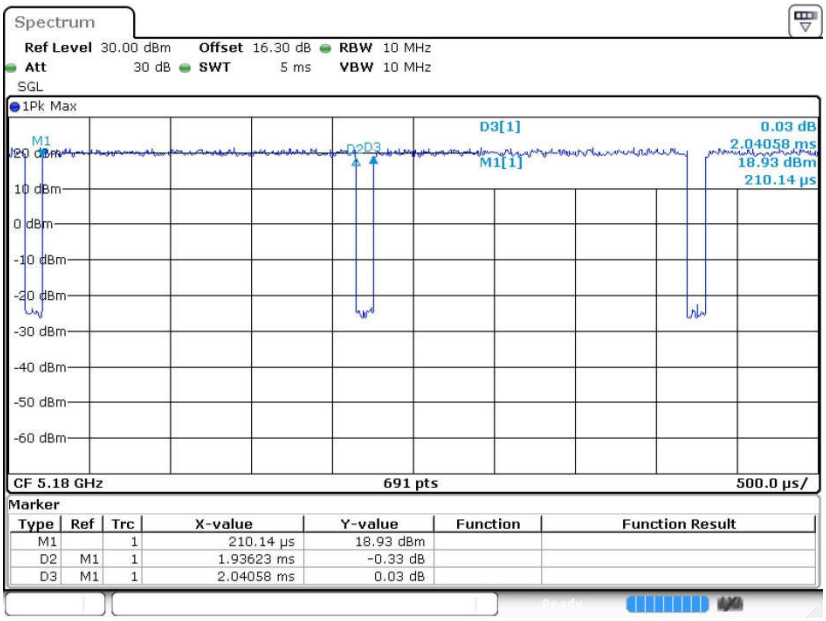
802.11ac VTH20 for Ant.1+2



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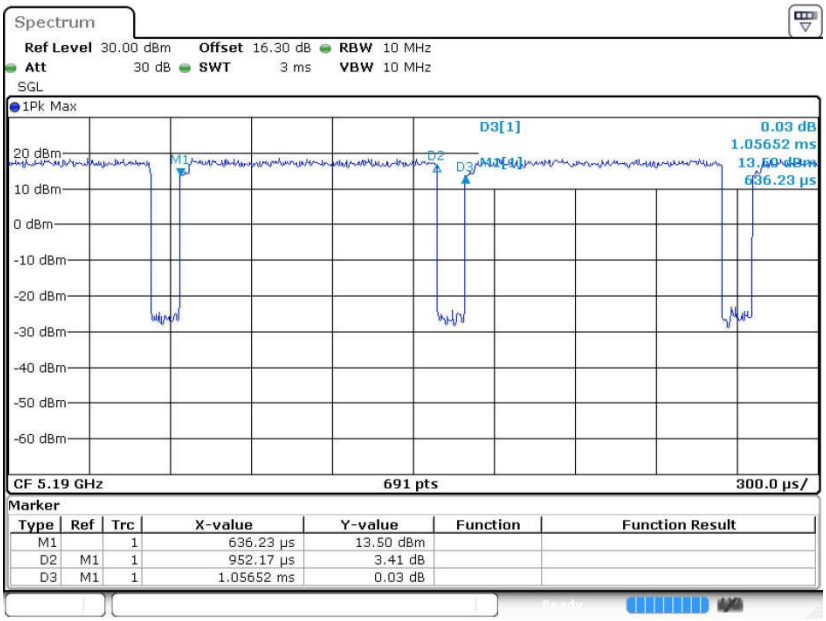

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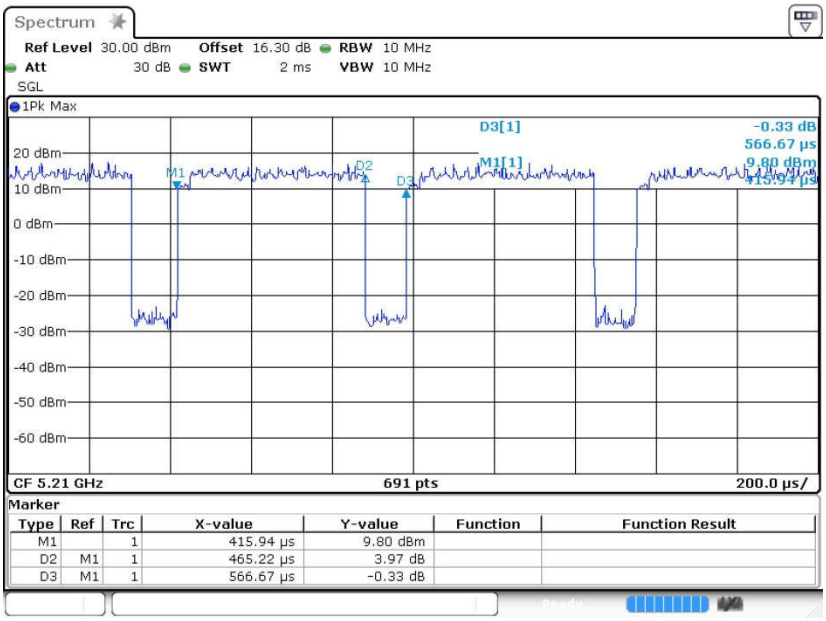
802.11ac VTH80 for Ant.1+2



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