



FCC RF Test Report

APPLICANT : Lenovo(Shanghai) Electronics Technology Co., Ltd.
EQUIPMENT : Portable Tablet Computer
BRAND NAME : Lenovo
MODEL NAME : Lenovo TB-X704Y
FCC ID : O57TBX704Y
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Feb. 22, 2017 and testing was completed on Jun. 10, 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.

Prepared by: Eric Shih / Manager

Approved by: Jones Tsai / Manager



SPORTON International (ShenZhen) INC.

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan District, Shenzhen City,
Guangdong Province, China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR722203-01D	Rev. 01	Initial issue of report	Jun. 26, 2017



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	2.1049 15.403(i)	RSS-247 Section 6	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	RSS-247 Section 6	Maximum Conducted Output Power	FCC ≤ 24 dBm (depend on band)	Pass	-
3.3	15.407(a)	RSS-247 Section 6	Power Spectral Density	FCC ≤ 11 dBm (depend on band)	Pass	-
3.4	15.407(b)	RSS-247 Section 6	Unwanted Emissions	15.407(b) 15.209(a)	Pass	Under limit 4.02 dB at 5149.760 MHz
3.5	15.207	RSS-Gen 8.8	AC Conducted Emission	15.207(a)	Pass	Under limit 7.82 dB at 0.150 MHz
3.6	15.407(g)	-	Frequency Stability	Within Operation Band	Pass	-
3.7	15.407(c)	RSS-247 6.4(a)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.203 & 15.407(a)	N/A	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Lenovo(Shanghai) Electronics Technology Co., Ltd.

NO.68 BUILDING, 199 FENJU RD, China (Shanghai) Pilot Free Trade Zone, 200131, CHINA

1.2 Manufacturer

Lenovo PC HK Limited

23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Portable Tablet Computer
Brand Name	Lenovo
Model Name	Lenovo TB-X704Y
FCC ID	O57TBX704Y
EUT supports Radios application	WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth v3.0 + EDR/ v4.0 LE/ v4.1 LE/ v4.2 LE
HW Version	Lenovo Tablet TB-X704Y
SW Version	TB-X704Y_RF01_20170420
EUT Stage	Identical Prototype

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

1.4 Product Specification of Equipment Under Test

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> 802.11a : 13.47 dBm / 0.0222 W 802.11n HT20 : 13.37 dBm / 0.0217 W 802.11n HT40 : 13.36 dBm / 0.0217 W 802.11ac VHT20 : 12.55 dBm / 0.0180 W 802.11ac VHT40 : 12.53 dBm / 0.0179 W 802.11ac VHT80 : 12.70 dBm / 0.0186 W <5260 MHz ~ 5320 MHz> 802.11a : 13.49 dBm / 0.0223 W 802.11n HT20 : 13.39 dBm / 0.0218 W 802.11n HT40 : 13.33 dBm / 0.0215 W 802.11ac VHT20 : 12.49 dBm / 0.0177 W 802.11ac VHT40 : 12.42 dBm / 0.0175 W 802.11ac VHT80 : 12.69 dBm / 0.0186 W <5500 MHz ~ 5700 MHz > 802.11a : 13.39 dBm / 0.0218 W 802.11n HT20 : 13.21 dBm / 0.0209 W 802.11n HT40 : 13.20 dBm / 0.0209 W 802.11ac VHT20 : 12.18 dBm / 0.0165 W 802.11ac VHT40 : 12.08 dBm / 0.0161 W 802.11ac VHT80 : 12.39 dBm / 0.0173 W
99% Occupied Bandwidth	<5180 MHz ~ 5240 MHz> 802.11a : 18.53 MHz 802.11n HT20 : 19.18 MHz 802.11n HT40 : 36.56 MHz 802.11ac VHT80 : 74.57 MHz <5260 MHz ~ 5320 MHz> 802.11a : 18.48 MHz 802.11n HT20 : 19.13 MHz 802.11n HT40 : 36.56 MHz 802.11ac VHT80 : 74.57 MHz <5500 MHz ~ 5700 MHz > 802.11a : 18.48 MHz 802.11n HT20 : 19.33 MHz 802.11n HT40 : 36.76 MHz 802.11ac VHT80 : 74.69 MHz
Antenna Gain / Gain	<5150 MHz ~ 5250 MHz> PIFA Antenna with gain 0.38 dBi <5250 MHz ~ 5350 MHz> PIFA Antenna with gain 0.41 dBi <5470 MHz ~ 5725 MHz> PIFA Antenna with gain 0.37 dBi
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)

Note:



1. WLAN operation in 5600 MHz ~ 5650 MHz is notched.
2. 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 their maximum conducted power.

1.5 Component List

Note: There are two types of EUT, please refer to the following table for the difference between them.

According to the difference, we choose sample 1 to perform full test, and sample 2 to verify worst case.

Component	Sample 1	Sample 2
CPU	Qualcomm APQ-8053-1-857NSP-TR-01-0-AB	Qualcomm APQ-8053-1-857NSP-TR-01-0-AB
BT/WIFI Module	Qualcomm WCN-3680B-0-79BWLNSP-TR-05-1	Qualcomm WCN-3680B-0-79BWLNSP-TR-05-1
RAM/EMMC	2G+16G Samsung KMQE10013M-B318 MCP_16GB+16Gb,LPDDR3	2G+16G Hynix H9TQ17ABJTBCUR-KUM MCP_16GB+16Gb,LPDDR3
LCD	INX: P101KDA-AF0	BOE: TV101WUM-NL1
Battery	SCUD: L16D2P31, 3.85V/7000mAh	Celxpert: L16D2P31, 3.85V/7000mAh
Camera front	Q Tech: F5695AK	AVC: BFL05006
Camera rear	Q Tech: FX219BH	film: L8856A10

1.6 Modification of EUT

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



1.7 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/IC Registration No.
	03CH03-SZ	565805/4086F

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



1.8 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 644545 D03 Guidance for IEEE 802.11ac New Rules v01
- ♦ ANSI C63.10-2013
- ♦ IC RSS-247 Issue 2
- ♦ IC RSS-Gen Issue 4

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 (Y plane) were recorded in this report.

2.1 Carrier Frequency 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

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.

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 : Bluetooth Link + WLAN Link (5G) + USB Cable 1(Charging from Adapter 1) + Earphone for Sample 1 Mode 2 : Bluetooth Link + WLAN Link (5G) + USB Cable 2(Charging from Adapter 2) + Earphone for Sample 2
Remark: 1. For Radiated Test Cases, The tests were performance with Earphone, Adapter and USB Cable. 2. The worst case of conducted emission is mode 2; only the test data of it was reported.	



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

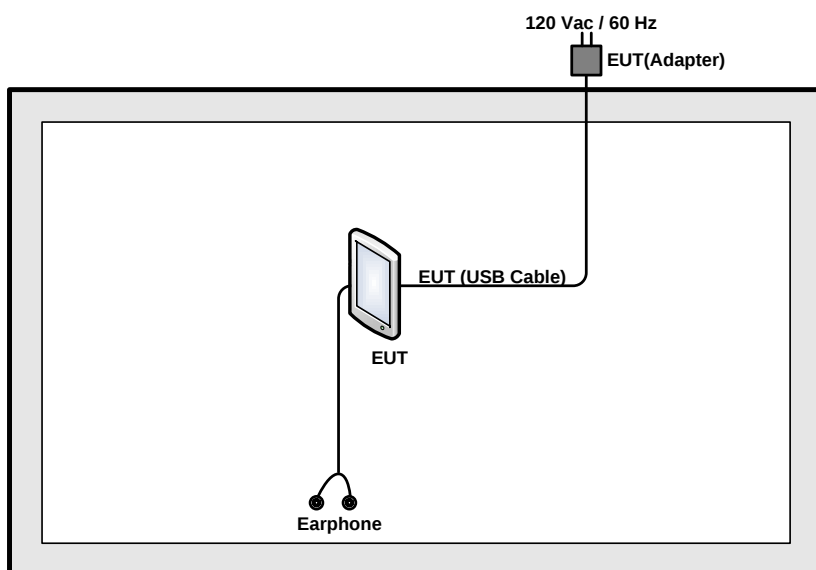
Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5700MHz
		802.11ac VHT20	802.11ac VHT20	802.11ac VHT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

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

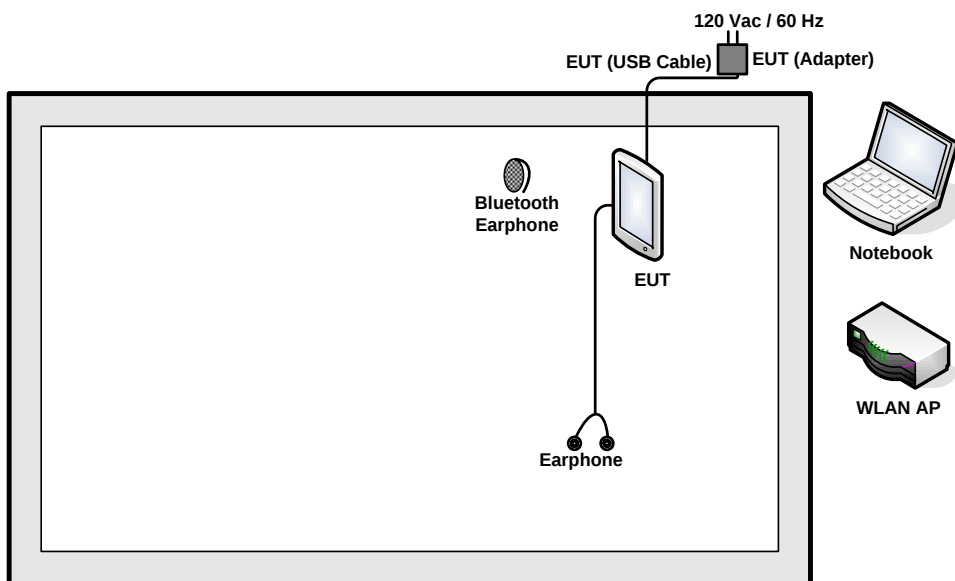
Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5700MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	-
M	Middle	42	58	106
H	High	-	-	-

2.3 Connection Diagram of Test System

< Radiated Emission 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.	Notebook	Lenovo	E450	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Bluetooth Earphone	Nokia	BH-108	PYAHS-107W	N/A	N/A
4.	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.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 6.3 + 10 = 16.3 \text{ (dB)}\end{aligned}$$

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.

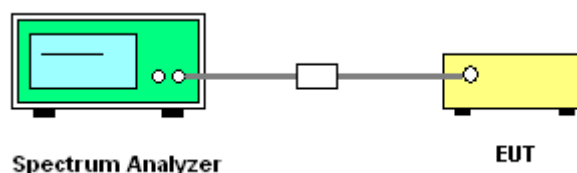
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

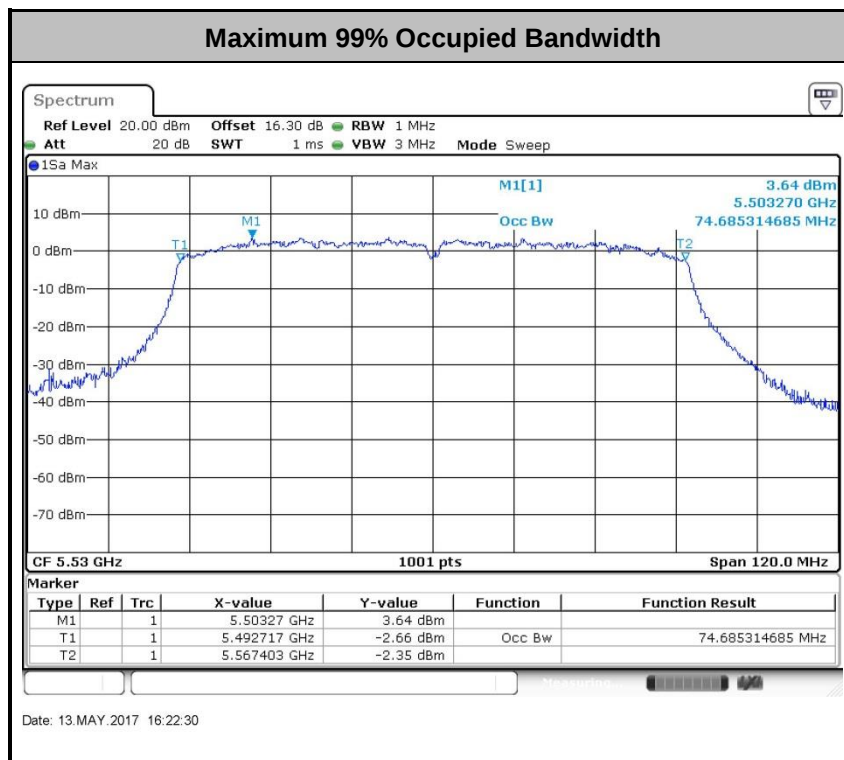
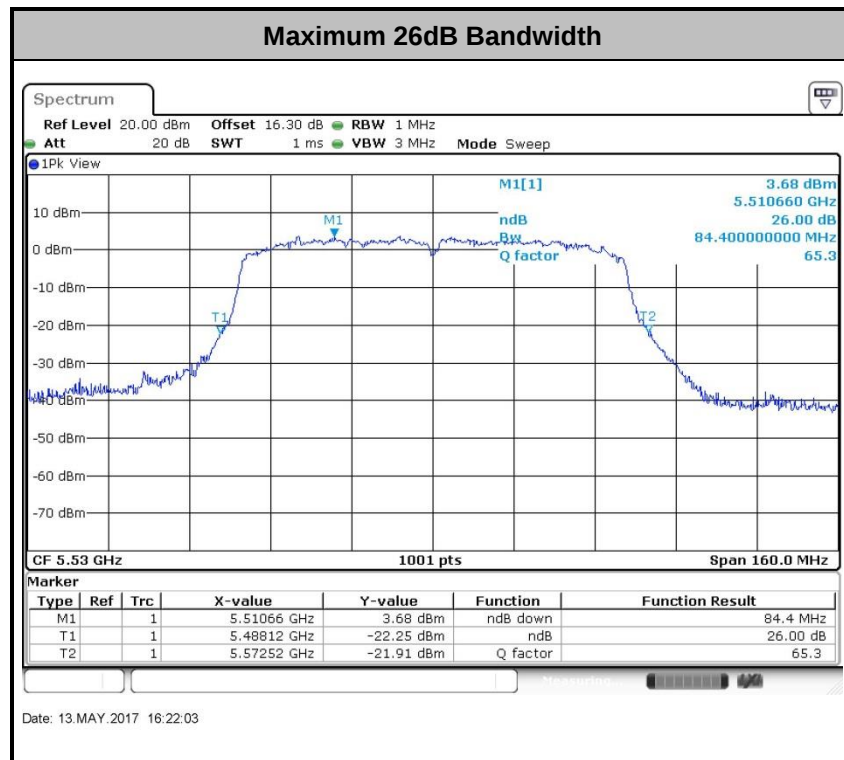
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.
Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB 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) $\geq 3 * \text{RBW}$.
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 Plots

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.

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

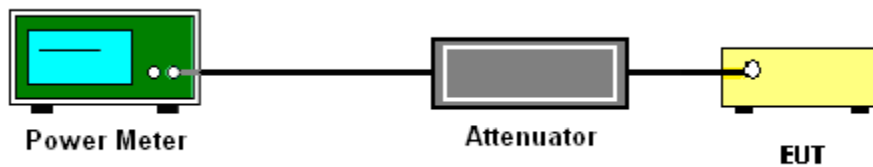
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.

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.

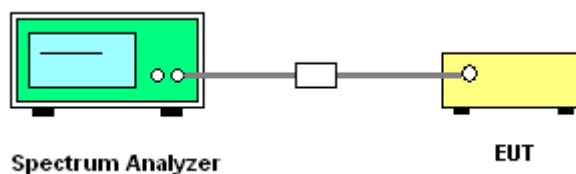
Section F) Maximum power spectral density.

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 $\geq$ 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.
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.

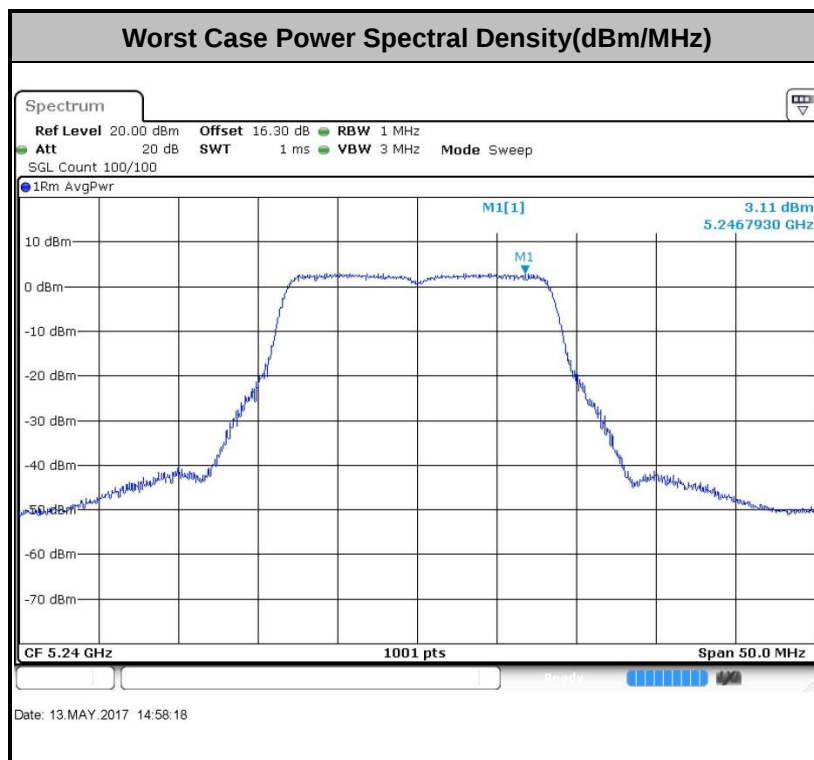
3.3.4 Test Setup





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 Radiated Emission 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 5470-5725MHz band: all emissions outside of the 5470-5725MHz 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.

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



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

(3) KDB789033 D01 v01r04 G)2)c)

- (i) Section 15.407(b)(1) to (b)(3) specify the unwanted emission limits for the U-NII-1 and U-NII-2 bands. As specified, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz.³
- (ii) Section 15.407(b)(4) specifies the unwanted emission limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). The emission limits are in terms of a Peak detector. An alternative to the band emissions mask is specified in Section 15.407(b)(4)(ii). The alternative limits are based on the highest antenna gain specified in the filing. There are also marketing and importation restrictions for the devices using the alternative limit.⁴

Note 3: An out-of-band emission that complies with both the average and peak limits of Section 15.209 is not required to satisfy the -27 dBm/MHz peak emission limit.

Note 4: Only devices with antenna gains of 10 dBi or less may be approved using the emission limits specified in Section 15.247(d) till March 2, 2018; all other devices operating in this band must use the mask specified in Section 15.407(b)(4)(i).



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 $\geq$ 3 MHz
- Detector = Peak
- Sweep time = auto
- Trace mode = max hold

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

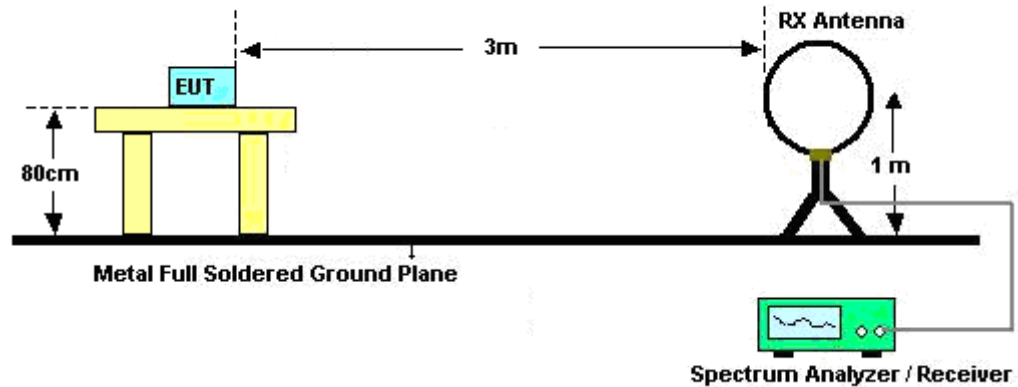
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW $\geq$ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.



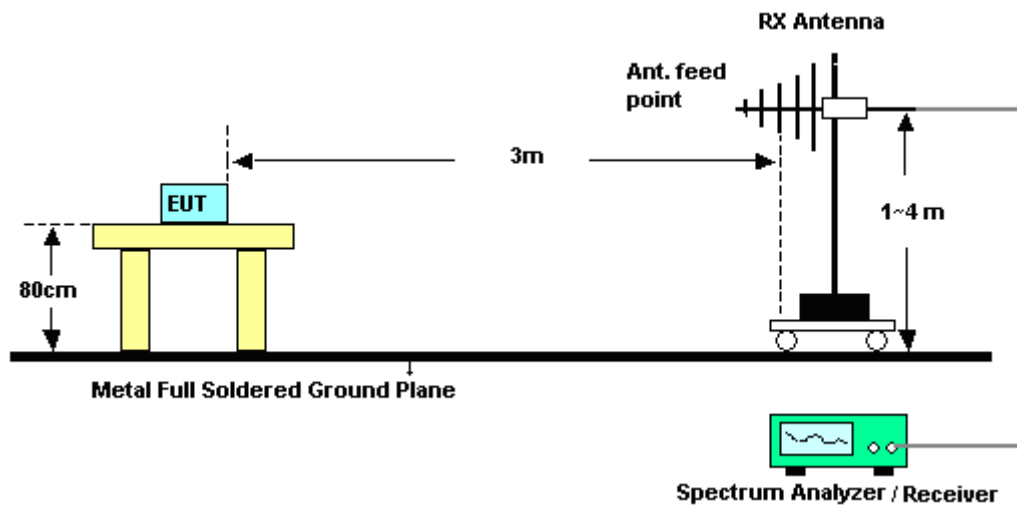
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband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

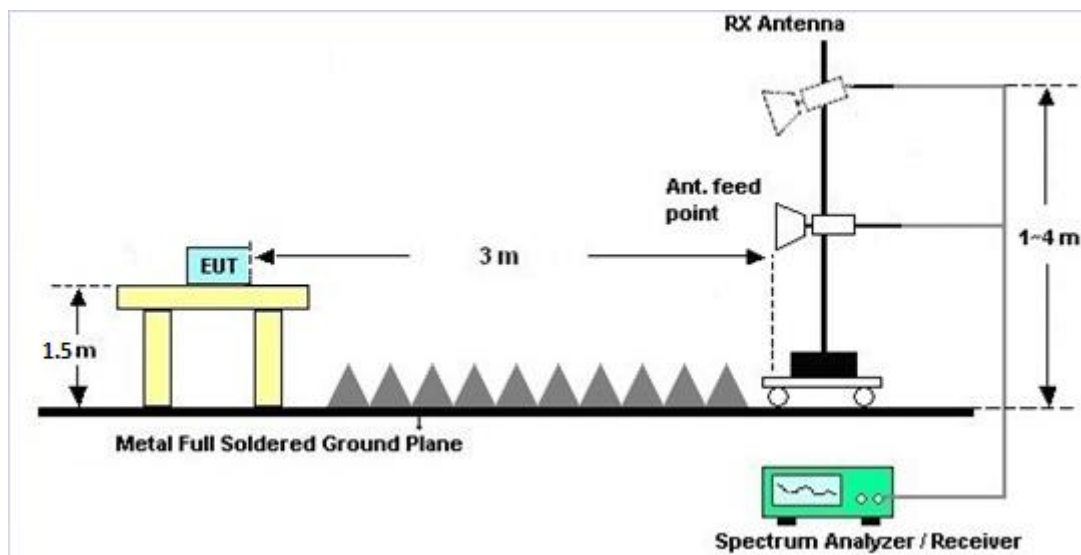
For radiated emissions below 30MHz



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 Emission (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 (dB μ V)	
	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.

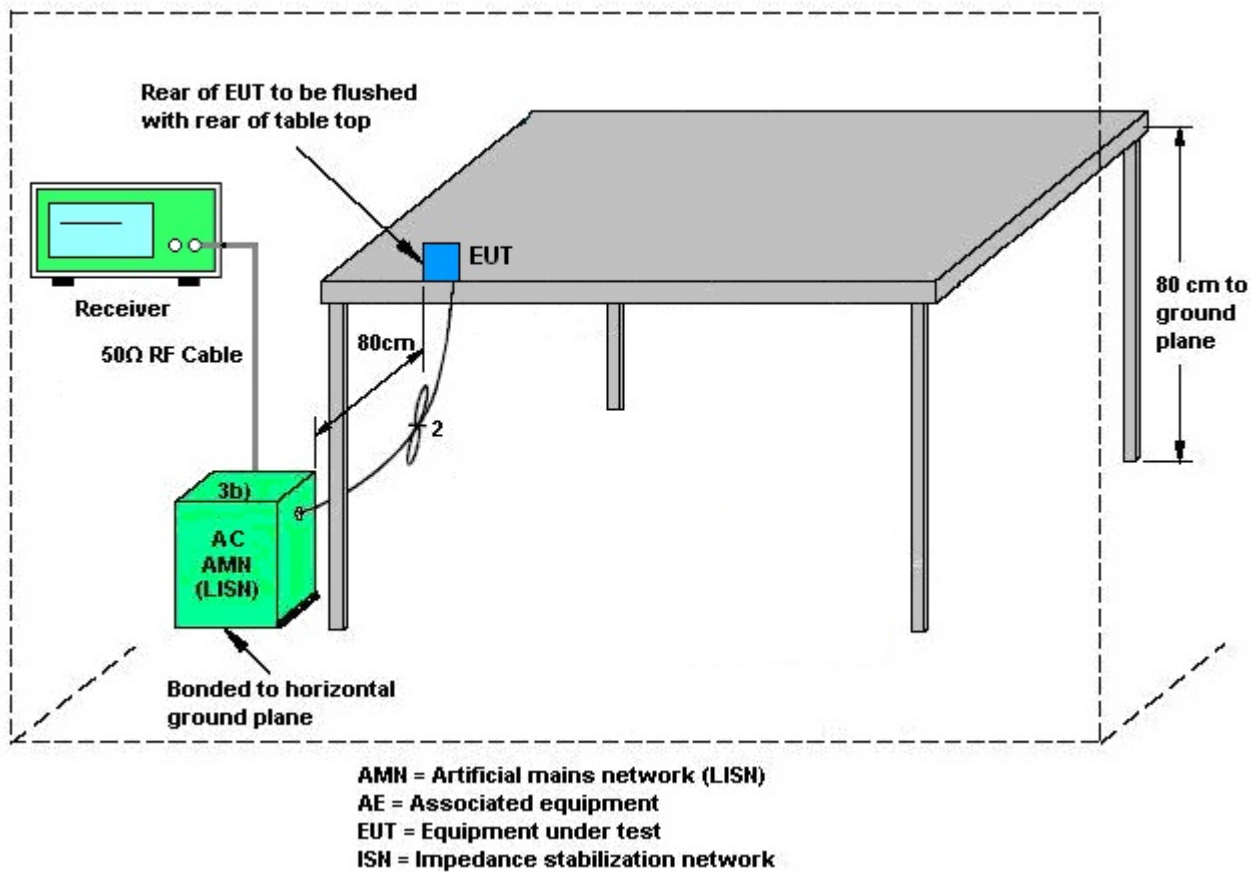
3.5.2 Measuring Instruments

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.

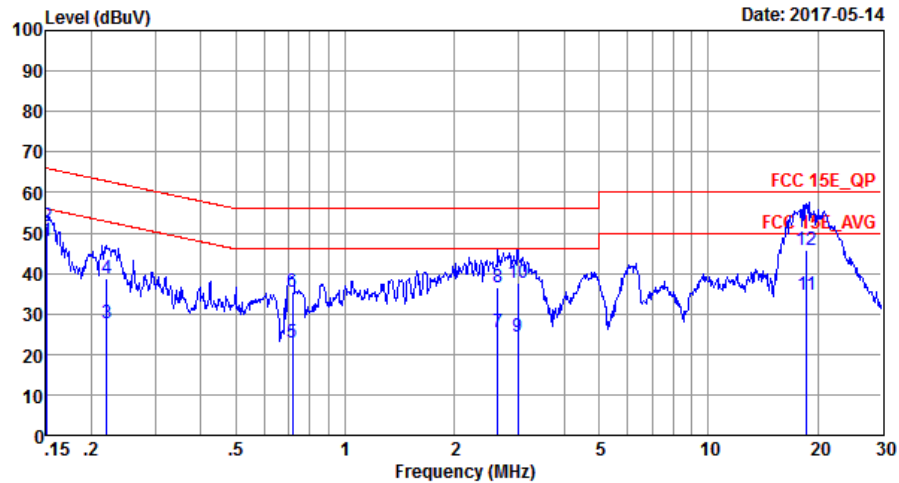
3.5.4 Test Setup





3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode 2	Temperature :	21~23℃
Test Engineer :	Tao Cheng	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	Bluetooth Link + WLAN Link (5G) + USB Cable 2(Charging from Adapter 2) + Earphone for Sample 2		



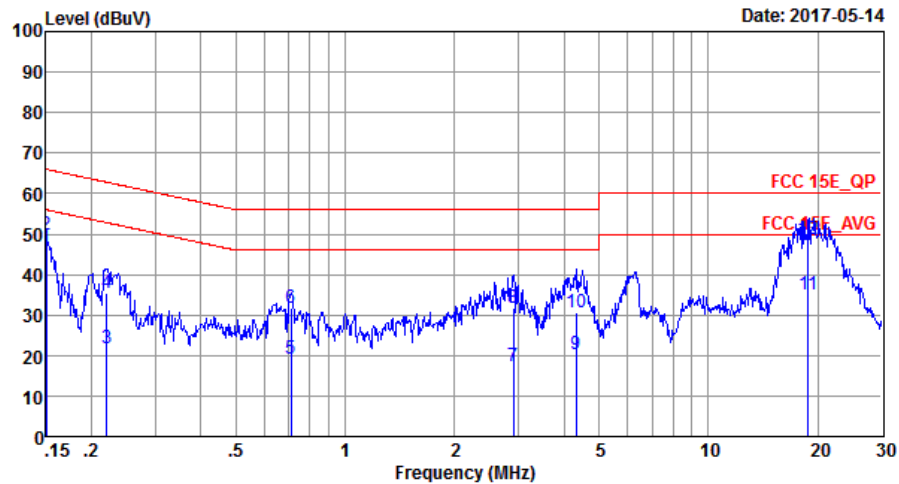
Site : CO01-SZ
Condition: FCC 15E QP LISN 20170301_L LINE

Mode : Mode 2

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.15	48.14	-7.82	55.96	37.70	0.03	10.41	Average
2	0.15	51.74	-14.22	65.96	41.30	0.03	10.41	QP
3	0.22	27.85	-24.94	52.79	17.60	0.03	10.22	Average
4	0.22	38.75	-24.04	62.79	28.50	0.03	10.22	QP
5	0.72	22.79	-23.21	46.00	12.61	0.02	10.16	Average
6	0.72	35.29	-20.71	56.00	25.11	0.02	10.16	QP
7	2.64	25.34	-20.66	46.00	15.00	0.14	10.20	Average
8	2.64	36.44	-19.56	56.00	26.10	0.14	10.20	QP
9	2.99	24.37	-21.63	46.00	14.00	0.16	10.21	Average
10	2.99	37.67	-18.33	56.00	27.30	0.16	10.21	QP
11	18.62	34.77	-15.23	50.00	23.10	1.10	10.57	Average
12	18.62	45.87	-14.13	60.00	34.20	1.10	10.57	QP



Test Mode :	Mode 2	Temperature :	21~23°C
Test Engineer :	Tao Cheng	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	Bluetooth Link + WLAN Link (5G) + USB Cable 2(Charging from Adapter 2) + Earphone for Sample 2		



Site : C001-SZ
Condition: FCC 15E OP LISN 20170301_N NEUTRAL

Mode : Mode 2

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.15	46.34	-9.66	56.00	35.90	0.03	10.41	Average
2	0.15	49.74	-16.26	66.00	39.30	0.03	10.41	QP
3	0.22	21.85	-30.94	52.79	11.60	0.03	10.22	Average
4	0.22	35.35	-27.44	62.79	25.10	0.03	10.22	QP
5	0.71	19.09	-26.91	46.00	8.90	0.02	10.17	Average
6	0.71	31.59	-24.41	56.00	21.40	0.02	10.17	QP
7	2.90	17.24	-28.76	46.00	7.00	0.03	10.21	Average
8	2.90	31.74	-24.26	56.00	21.50	0.03	10.21	QP
9	4.31	20.42	-25.58	46.00	10.10	0.06	10.26	Average
10	4.31	30.52	-25.48	56.00	20.20	0.06	10.26	QP
11	18.82	35.21	-14.79	50.00	24.10	0.53	10.58	Average
12	18.82	48.81	-11.19	60.00	37.70	0.53	10.58	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.

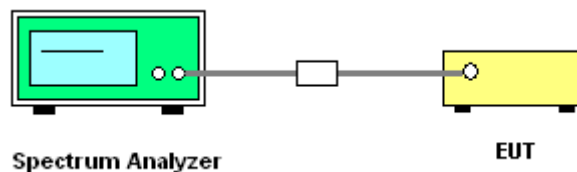
3.6.2 Measuring Instruments

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

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



4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	9kHz~40GHz	Apr. 20. 2017	May 13, 2017	Apr. 19. 2018	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1207253	30MHz~40GHz	Jan. 06, 2017	May 13, 2017	Jan. 05, 2018	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Jan. 06, 2017	May 13, 2017	Jan. 05, 2018	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 16, 2016	May 13, 2017	Jul. 15, 2017	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr. 20, 2017	Jun. 06, 2017~Jun. 10, 2017	Apr. 19, 2018	Radiation (03CH03-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr. 20, 2017	Jun. 06, 2017~Jun. 10, 2017	Apr.19, 2018	Radiation (03CH03-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 14, 2017	Jun. 06, 2017~Jun. 10, 2017	May.13, 2018	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	May. 14, 2017	Jun. 06, 2017~Jun. 10, 2017	May. 13, 2018	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1285	1GHz~18GHz	Jan. 12, 2017	Jun. 06, 2017~Jun. 10, 2017	Jan. 11, 2018	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 16. 2016	Jun. 06, 2017~Jun. 10, 2017	Jul. 15. 2017	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Aug.10, 2016	Jun. 06, 2017~Jun. 10, 2017	Aug. 09, 2017	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102210	0.01Hz~3000MHz	Oct. 11, 2016	Jun. 06, 2017~Jun. 10, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-0010 1800-30-10P-R	1943528	1GHz~18GHz	Oct. 11, 2016	Jun. 06, 2017~Jun. 10, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Jan. 06, 2017	Jun. 06, 2017~Jun. 10, 2017	Jan. 05, 2018	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Jun. 06, 2017~Jun. 10, 2017	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jun. 06, 2017~Jun. 10, 2017	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jun. 06, 2017~Jun. 10, 2017	NCR	Radiation (03CH03-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Jan.06, 2017	May 14, 2017	Jan. 05, 2018	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Jan.05, 2017	May 14, 2017	Jan. 04, 2018	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103892	9kHz~30MHz	Jan.05, 2017	May 14, 2017	Jan. 04, 2018	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 16, 2016	May 14, 2017	Jul. 15, 2017	Conduction (CO01-SZ)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.5dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0 dB
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Appendix A. Conducted Test Results

Test Engineer:	Wilson Chen	Temperature:	24~26	°C
Test Date:	2017/5/13	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)		
11a	6Mbps	1	36	5180	18.33	23.13	-	22.63		
11a	6Mbps	1	44	5220	18.53	23.53	-	22.68		
11a	6Mbps	1	48	5240	18.53	23.28	-	22.68		
HT20	MCS0	1	36	5180	19.13	23.73	-	22.82		
HT20	MCS0	1	44	5220	19.13	23.78	-	22.82		
HT20	MCS0	1	48	5240	19.18	23.83	-	22.83		
HT40	MCS0	1	38	5190	36.56	44.42	-	23.01		
HT40	MCS0	1	46	5230	36.56	44.51	-	23.01		
VHT80	MCS0	1	42	5210	74.57	83.92	-	23.01		

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
11a	6Mbps	1	36	5180	0.58	13.19	23.98	0.38		Pass
11a	6Mbps	1	44	5220	0.58	12.99	23.98	0.38		Pass
11a	6Mbps	1	48	5240	0.58	13.47	23.98	0.38		Pass
HT20	MCS0	1	36	5180	0.62	13.37	23.98	0.38		Pass
HT20	MCS0	1	44	5220	0.62	13.04	23.98	0.38		Pass
HT20	MCS0	1	48	5240	0.62	13.22	23.98	0.38		Pass
HT40	MCS0	1	38	5190	1.18	13.36	23.98	0.38		Pass
HT40	MCS0	1	46	5230	1.18	13.33	23.98	0.38		Pass
VHT20	MCS0	1	36	5180	0.81	12.54	23.98	0.38		Pass
VHT20	MCS0	1	44	5220	0.81	12.52	23.98	0.38		Pass
VHT20	MCS0	1	48	5240	0.81	12.55	23.98	0.38		Pass
VHT40	MCS0	1	38	5190	1.48	12.53	23.98	0.38		Pass
VHT40	MCS0	1	46	5230	1.48	12.45	23.98	0.38		Pass
VHT80	MCS0	1	42	5210	2.58	12.70	23.98	0.38		Pass

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
11a	6Mbps	1	36	5180	0.58	3.53	11.00	0.38		Pass
11a	6Mbps	1	44	5220	0.58	3.34	11.00	0.38		Pass
11a	6Mbps	1	48	5240	0.58	3.69	11.00	0.38		Pass
HT20	MCS0	1	36	5180	0.62	3.37	11.00	0.38		Pass
HT20	MCS0	1	44	5220	0.62	3.25	11.00	0.38		Pass
HT20	MCS0	1	48	5240	0.62	3.28	11.00	0.38		Pass
HT40	MCS0	1	38	5190	1.18	0.65	11.00	0.38		Pass
HT40	MCS0	1	46	5230	1.18	0.48	11.00	0.38		Pass
VHT80	MCS0	1	42	5210	2.58	-3.43	11.00	0.38		Pass

TEST RESULTS DATA
26dB and 99% OBW

Band II										
Mod.	Data Rate	N _{TX}	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	18.38	23.33	23.64	29.64	23.98	
11a	6M bps	1	60	5300	18.48	23.53	23.67	29.67	23.98	
11a	6M bps	1	64	5320	18.43	23.53	23.66	29.66	23.98	
HT20	MCS 0	1	52	5260	19.13	23.68	23.82	29.82	23.98	
HT20	MCS 0	1	60	5300	19.13	23.78	23.82	29.82	23.98	
HT20	MCS 0	1	64	5320	19.13	23.58	23.82	29.82	23.98	
HT40	MCS 0	1	54	5270	36.56	44.69	23.98	30.00	23.98	
HT40	MCS 0	1	62	5310	36.46	44.42	23.98	30.00	23.98	
VHT80	MCS 0	1	58	5290	74.57	83.92	23.98	30.00	23.98	

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
11a	6M bps	1	52	5260	0.58	13.01	23.98	0.41	26.99	Pass
11a	6M bps	1	60	5300	0.58	13.49	23.98	0.41	26.99	Pass
11a	6M bps	1	64	5320	0.58	13.09	23.98	0.41	26.99	Pass
HT20	MCS 0	1	52	5260	0.62	12.92	23.98	0.41	26.99	Pass
HT20	MCS 0	1	60	5300	0.62	13.39	23.98	0.41	26.99	Pass
HT20	MCS 0	1	64	5320	0.62	13.00	23.98	0.41	26.99	Pass
HT40	MCS 0	1	54	5270	1.18	13.24	23.98	0.41	26.99	Pass
HT40	MCS 0	1	62	5310	1.18	13.33	23.98	0.41	26.99	Pass
VHT20	MCS 0	1	52	5260	0.81	12.49	23.98	0.41	26.99	Pass
VHT20	MCS 0	1	60	5300	0.81	12.42	23.98	0.41	26.99	Pass
VHT20	MCS 0	1	64	5320	0.81	12.35	23.98	0.41	26.99	Pass
VHT40	MCS 0	1	54	5270	1.48	12.42	23.98	0.41	26.99	Pass
VHT40	MCS 0	1	62	5310	1.48	12.24	23.98	0.41	26.99	Pass
VHT80	MCS 0	1	58	5290	2.58	12.69	23.98	0.41	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
11a	6M bps	1	52	5260	0.58	3.45	11.00	0.41		Pass
11a	6M bps	1	60	5300	0.58	3.50	11.00	0.41		Pass
11a	6M bps	1	64	5320	0.58	3.15	11.00	0.41		Pass
HT20	MCS 0	1	52	5260	0.62	3.36	11.00	0.41		Pass
HT20	MCS 0	1	60	5300	0.62	3.09	11.00	0.41		Pass
HT20	MCS 0	1	64	5320	0.62	2.97	11.00	0.41		Pass
HT40	MCS 0	1	54	5270	1.18	0.61	11.00	0.41		Pass
HT40	MCS 0	1	62	5310	1.18	0.35	11.00	0.41		Pass
VHT80	MCS 0	1	58	5290	2.58	-3.59	11.00	0.41		Pass

TEST RESULTS DATA
26dB and 99% OBW

Band III										
Mod.	Data Rate	N _{TX}	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	18.33	23.28	23.63	29.63	23.98	
11a	6M bps	1	116	5580	18.48	23.68	23.67	29.67	23.98	
11a	6M bps	1	140	5700	18.38	23.53	23.64	29.64	23.98	
HT20	MCS 0	1	100	5500	19.18	23.63	23.83	29.83	23.98	
HT20	MCS 0	1	116	5580	19.18	23.88	23.83	29.83	23.98	
HT20	MCS 0	1	140	5700	19.33	23.78	23.86	29.86	23.98	
HT40	MCS 0	1	102	5510	36.56	44.78	23.98	30.00	23.98	
HT40	MCS 0	1	110	5550	36.66	44.69	23.98	30.00	23.98	
HT40	MCS 0	1	134	5670	36.76	44.69	23.98	30.00	23.98	
VHT80	MCS 0	1	106	5530	74.69	84.40	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
11a	6M bps	1	100	5500	0.58	13.39	23.98	0.37	26.99	Pass
11a	6M bps	1	116	5580	0.58	12.98	23.98	0.37	26.99	Pass
11a	6M bps	1	140	5700	0.58	12.51	23.98	0.37	26.99	Pass
HT20	MCS 0	1	100	5500	0.62	13.21	23.98	0.37	26.99	Pass
HT20	MCS 0	1	116	5580	0.62	12.90	23.98	0.37	26.99	Pass
HT20	MCS 0	1	140	5700	0.62	12.55	23.98	0.37	26.99	Pass
HT40	MCS 0	1	102	5510	1.18	13.19	23.98	0.37	26.99	Pass
HT40	MCS 0	1	110	5550	1.18	13.19	23.98	0.37	26.99	Pass
HT40	MCS 0	1	134	5670	1.18	13.20	23.98	0.37	26.99	Pass
VHT20	MCS 0	1	100	5500	0.81	12.18	23.98	0.37	26.99	Pass
VHT20	MCS 0	1	116	5580	0.81	12.08	23.98	0.37	26.99	Pass
VHT20	MCS 0	1	140	5700	0.81	11.83	23.98	0.37	26.99	Pass
VHT40	MCS 0	1	102	5510	1.48	12.08	23.98	0.37	26.99	Pass
VHT40	MCS 0	1	110	5550	1.48	11.95	23.98	0.37	26.99	Pass
VHT40	MCS 0	1	134	5670	1.48	12.07	23.98	0.37	26.99	Pass
VHT80	MCS 0	1	106	5530	2.58	12.39	23.98	0.37	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
11a	6M bps	1	100	5500	0.58	3.34	11.00	0.37		Pass
11a	6M bps	1	116	5580	0.58	2.76	11.00	0.37		Pass
11a	6M bps	1	140	5700	0.58	2.94	11.00	0.37		Pass
HT20	MCS 0	1	100	5500	0.62	2.88	11.00	0.37		Pass
HT20	MCS 0	1	116	5580	0.62	2.95	11.00	0.37		Pass
HT20	MCS 0	1	140	5700	0.62	2.82	11.00	0.37		Pass
HT40	MCS 0	1	102	5510	1.18	-0.03	11.00	0.37		Pass
HT40	MCS 0	1	110	5550	1.18	-0.17	11.00	0.37		Pass
HT40	MCS 0	1	134	5670	1.18	0.20	11.00	0.37		Pass
VHT80	MCS 0	1	106	5530	2.58	-4.08	11.00	0.37		Pass

TEST RESULTS DATA
Frequency Stability

Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	50	3.85	
11a	6Mbps	1	36	5180	5180.075	0.075	14.48	-30	3.85	
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	20	4.2	
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	20	3.5	
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	20	3.85	

Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	64	5320	5320.050	0.050	9.40	50	3.85	
11a	6Mbps	1	64	5320	5320.050	0.050	9.40	-30	3.85	
11a	6Mbps	1	64	5320	5320.050	0.050	9.40	20	4.2	
11a	6Mbps	1	64	5320	5320.050	0.050	9.40	20	3.5	
11a	6Mbps	1	64	5320	5320.050	0.050	9.40	20	3.85	

Band III										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	50	3.85	
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	-30	3.85	
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	20	4.2	
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	20	3.5	
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	20	3.85	



Appendix B. 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		5023.14	48.24	-25.76	74	39.56	32.01	8.67	32	150	320	P	H
		5069.42	39.56	-14.44	54	30.88	32.01	8.7	32.03	150	320	A	H
	*	5180	89.13	-	-	80.38	32.04	8.81	32.1	150	320	P	H
	*	5180	82.32	-	-	73.57	32.04	8.81	32.1	150	320	A	H
		5149.76	49.16	-24.84	74	40.44	32.03	8.77	32.08	166	81	P	V
		5127.4	42.76	-11.24	54	34.02	32.03	8.77	32.06	166	81	A	V
	*	5180	103.21	-	-	94.46	32.04	8.81	32.1	166	81	P	V
	*	5180	94.57	-	-	85.82	32.04	8.81	32.1	166	81	A	V
802.11a CH 44 5220MHz		5041.34	47.86	-26.14	74	39.15	32.01	8.7	32	179	359	P	H
		5131.3	39.51	-14.49	54	30.77	32.03	8.77	32.06	179	359	A	H
	*	5220	92.6	-	-	83.83	32.04	8.84	32.11	179	359	P	H
	*	5220	83.75	-	-	74.98	32.04	8.84	32.11	179	359	A	H
		5399.76	47.05	-26.95	74	38.16	32.08	9.06	32.25	179	359	P	H
		5430.24	38.39	-15.61	54	29.48	32.09	9.09	32.27	179	359	A	H
		5037.18	48.65	-25.35	74	39.94	32.01	8.7	32	150	81	P	V
		5120.38	39.52	-14.48	54	30.79	32.02	8.77	32.06	150	81	A	V
	*	5220	102.07	-	-	93.3	32.04	8.84	32.11	150	81	P	V
	*	5220	94.26	-	-	85.49	32.04	8.84	32.11	150	81	A	V
		5412.48	47.34	-26.66	74	38.45	32.08	9.06	32.25	150	81	P	V
		5455.2	38.35	-15.65	54	29.45	32.09	9.09	32.28	150	81	A	V



802.11a CH 48 5240MHz		5137.28	47.95	-26.05	74	39.21	32.03	8.77	32.06	205	358	P	H
		5066.56	39.63	-14.37	54	30.93	32.01	8.7	32.01	205	358	A	H
	*	5240	92.8	-	-	84	32.05	8.88	32.13	205	358	P	H
	*	5240	84.03	-	-	75.23	32.05	8.88	32.13	205	358	A	H
		5397.84	48.46	-25.54	74	39.55	32.08	9.06	32.23	205	358	P	H
		5454.72	38.26	-15.74	54	29.36	32.09	9.09	32.28	205	358	A	H
		5033.02	48.11	-25.89	74	39.43	32.01	8.67	32	150	82	P	V
		5041.86	39.64	-14.36	54	30.94	32.01	8.7	32.01	150	82	A	V
	*	5240	102.55	-	-	93.75	32.05	8.88	32.13	150	82	P	V
	*	5240	94.38	-	-	85.58	32.05	8.88	32.13	150	82	A	V
		5383.68	46.48	-27.52	74	37.61	32.08	9.02	32.23	150	82	P	V
		5437.2	38.3	-15.7	54	29.39	32.09	9.09	32.27	150	82	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	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	47.19	-26.81	74	57.62	38.79	11.63	60.85	152	260	P	H
		15540	45.39	-28.61	74	54.72	38.92	13.9	62.15	189	238	P	H
		10360	48	-26	74	58.43	38.79	11.63	60.85	152	260	P	V
		15540	45.09	-28.91	74	54.42	38.92	13.9	62.15	189	238	P	V
802.11a CH 44 5220MHz		10440	47.16	-26.84	74	57.45	38.85	11.66	60.8	150	230	P	H
		15660	46.47	-27.53	74	56.08	38.63	13.96	62.2	160	225	P	H
		10440	47.32	-26.68	74	57.61	38.85	11.66	60.8	150	230	P	V
		15660	47.06	-26.94	74	56.67	38.63	13.96	62.2	160	225	P	V
802.11a CH 48 5240MHz		10480	47.96	-26.04	74	58.16	38.89	11.67	60.76	150	289	P	H
		15720	47.12	-26.88	74	56.92	38.46	13.98	62.24	150	291	P	H
		10480	47.48	-26.52	74	57.68	38.89	11.67	60.76	150	289	P	V
		15720	46.66	-27.34	74	56.46	38.46	13.98	62.24	150	291	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		5090.22	48.62	-25.38	74	39.89	32.02	8.74	32.03	180	360	P	H
		5044.2	39.9	-14.1	54	31.2	32.01	8.7	32.01	180	360	A	H
	*	5180	92.77	-	-	84.02	32.04	8.81	32.1	180	360	P	H
	*	5180	84.15	-	-	75.4	32.04	8.81	32.1	180	360	A	H
		5125.32	50.56	-23.44	74	41.82	32.03	8.77	32.06	166	85	P	V
		5128.7	42.95	-11.05	54	34.21	32.03	8.77	32.06	166	85	A	V
	*	5180	103.34	-	-	94.59	32.04	8.81	32.1	166	85	P	V
	*	5180	94.01	-	-	85.26	32.04	8.81	32.1	166	85	A	V
802.11n HT20 CH 44 5220MHz		5044.72	48.32	-25.68	74	39.62	32.01	8.7	32.01	191	360	P	H
		5044.2	39.47	-14.53	54	30.77	32.01	8.7	32.01	191	360	A	H
	*	5220	92.46	-	-	83.69	32.04	8.84	32.11	191	360	P	H
	*	5220	84.28	-	-	75.51	32.04	8.84	32.11	191	360	A	H
		5367.84	47.84	-26.16	74	38.97	32.07	9.02	32.22	191	360	P	H
		5440.08	38.31	-15.69	54	29.4	32.09	9.09	32.27	191	360	A	H
		5076.7	48.34	-25.66	74	39.61	32.02	8.74	32.03	232	35	P	V
		5029.64	39.6	-14.4	54	30.92	32.01	8.67	32	232	35	A	V
	*	5220	102	-	-	93.23	32.04	8.84	32.11	232	35	P	V
	*	5220	93.68	-	-	84.91	32.04	8.84	32.11	232	35	A	V
		5408.64	47.3	-26.7	74	38.41	32.08	9.06	32.25	232	35	P	V
		5441.76	38.43	-15.57	54	29.52	32.09	9.09	32.27	232	35	A	V



802.11n HT20 CH 48 5240MHz		5090.74	47.92	-26.08	74	39.19	32.02	8.74	32.03	204	359	P	H
		5028.86	39.7	-14.3	54	31.02	32.01	8.67	32	204	359	A	H
	*	5240	93.22	-	-	84.42	32.05	8.88	32.13	204	359	P	H
	*	5240	83.95	-	-	75.15	32.05	8.88	32.13	204	359	A	H
		5417.76	47.3	-26.7	74	38.41	32.08	9.06	32.25	204	359	P	H
		5426.88	38.22	-15.78	54	29.32	32.08	9.09	32.27	204	359	A	H
		5100.62	49.15	-24.85	74	40.44	32.02	8.74	32.05	150	45	P	V
		5113.1	39.68	-14.32	54	30.97	32.02	8.74	32.05	150	45	A	V
	*	5240	102.5	-	-	93.7	32.05	8.88	32.13	150	45	P	V
	*	5240	94.2	-	-	85.4	32.05	8.88	32.13	150	45	A	V
		5419.92	47.3	-26.7	74	38.41	32.08	9.06	32.25	150	45	P	V
		5438.64	38.35	-15.65	54	29.44	32.09	9.09	32.27	150	45	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	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		10360	49.3	-24.7	74	59.73	38.79	11.63	60.85	152	260	P	H
HT20		15540	45.85	-28.15	74	55.18	38.92	13.9	62.15	189	238	P	H
CH 36		10360	48.51	-25.49	74	58.94	38.79	11.63	60.85	152	260	P	V
5180MHz		15540	46.77	-27.23	74	56.1	38.92	13.9	62.15	189	238	P	V
802.11n		10440	48.08	-25.92	74	58.37	38.85	11.66	60.8	150	230	P	H
HT20		15660	47.1	-26.9	74	56.71	38.63	13.96	62.2	160	225	P	H
CH 44		10440	47.48	-26.52	74	57.77	38.85	11.66	60.8	150	230	P	V
5220MHz		15660	46.59	-27.41	74	56.2	38.63	13.96	62.2	160	225	P	V
802.11n		10480	47.74	-26.26	74	57.94	38.89	11.67	60.76	150	289	P	H
HT20		15720	46.22	-27.78	74	56.02	38.46	13.98	62.24	150	291	P	H
CH 48		10480	48.18	-25.82	74	58.38	38.89	11.67	60.76	150	289	P	V
5240MHz		15720	46.66	-27.34	74	56.46	38.46	13.98	62.24	150	291	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	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		5058.76	48.37	-25.63	74	39.67	32.01	8.7	32.01	150	324	P	H
		5140.14	40.14	-13.86	54	31.4	32.03	8.77	32.06	150	324	A	H
	*	5190	89.2	-	-	80.45	32.04	8.81	32.1	150	324	P	H
	*	5190	80.82	-	-	72.07	32.04	8.81	32.1	150	324	A	H
		5424.16	46.47	-27.53	74	37.58	32.08	9.06	32.25	150	324	P	H
		5450.48	38.86	-15.14	54	29.96	32.09	9.09	32.28	150	324	A	H
		5059.28	48.37	-25.63	74	39.67	32.01	8.7	32.01	159	25	P	V
		5149.5	40.61	-13.39	54	31.89	32.03	8.77	32.08	159	25	A	V
	*	5190	101.37	-	-	92.62	32.04	8.81	32.1	159	25	P	V
	*	5190	92.65	-	-	83.9	32.04	8.81	32.1	159	25	A	V
		5386.64	47.14	-26.86	74	38.27	32.08	9.02	32.23	159	25	P	V
		5366.2	38.82	-15.18	54	29.95	32.07	9.02	32.22	159	25	A	V
802.11n HT40 CH 46 5230MHz		5001.3	47.8	-26.2	74	39.11	32	8.67	31.98	175	348	P	H
		5063.18	40.16	-13.84	54	31.46	32.01	8.7	32.01	175	348	A	H
	*	5230	87.31	-	-	78.55	32.05	8.84	32.13	175	348	P	H
	*	5230	81.83	-	-	73.07	32.05	8.84	32.13	175	348	A	H
		5390.64	46.75	-27.25	74	37.84	32.08	9.06	32.23	175	348	P	H
		5457.6	38.89	-15.11	54	29.99	32.09	9.09	32.28	175	348	A	H
		5074.36	48.42	-25.58	74	39.73	32.02	8.7	32.03	150	50	P	V
		5126.1	41.22	-12.78	54	32.48	32.03	8.77	32.06	150	50	A	V
	*	5230	98.69	-	-	89.93	32.05	8.84	32.13	150	50	P	V
	*	5230	91.48	-	-	82.72	32.05	8.84	32.13	150	50	A	V
		5431.2	46.51	-27.49	74	37.6	32.09	9.09	32.27	150	50	P	V
		5458.32	38.86	-15.14	54	29.96	32.09	9.09	32.28	150	50	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	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		10380	47.56	-26.44	74	57.95	38.81	11.64	60.84	150	360	P	H
		15570	46.93	-27.07	74	56.34	38.83	13.92	62.16	155	360	P	H
		10380	47.01	-26.99	74	57.4	38.81	11.64	60.84	150	360	P	V
		15570	47.15	-26.85	74	56.56	38.83	13.92	62.16	155	360	P	V
802.11n HT40 CH 46 5230MHz		10460	48.04	-25.96	74	58.3	38.86	11.67	60.79	150	360	P	H
		15690	46.85	-27.15	74	56.55	38.54	13.98	62.22	150	225	P	H
		10460	47.36	-26.64	74	57.62	38.86	11.67	60.79	150	360	P	V
		15690	47.77	-26.23	74	57.47	38.54	13.98	62.22	150	225	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	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		5051.74	48.53	-25.47	74	39.83	32.01	8.7	32.01	150	343	P	H
		5146.12	42.38	-11.62	54	33.66	32.03	8.77	32.08	150	343	A	H
		5210	85.09	-	-	76.32	32.04	8.84	32.11	150	343	P	H
		5210	77.55	-	-	68.78	32.04	8.84	32.11	150	343	A	H
		5379.84	47.59	-26.41	74	38.72	32.08	9.02	32.23	150	343	P	H
		5424.96	40.55	-13.45	54	31.68	32.08	9.06	32.27	150	343	A	H
		5121.68	55.65	-18.35	74	46.92	32.02	8.77	32.06	150	70	P	V
		5149.76	49.98	-4.02	54	41.26	32.03	8.77	32.08	150	70	A	V
		5210	95.86	-	-	87.09	32.04	8.84	32.11	150	70	P	V
		5210	88.66	-	-	79.89	32.04	8.84	32.11	150	70	A	V
		5459.04	48.13	-25.87	74	39.23	32.09	9.09	32.28	150	70	P	V
		5366.4	40.75	-13.25	54	31.88	32.07	9.02	32.22	150	70	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		10420	46.58	-27.42	74	56.9	38.83	11.66	60.81	162	360	P	H
VHT80		15630	47.44	-26.56	74	57.03	38.67	13.94	62.2	162	0	P	H
CH 42		10420	46.58	-27.42	74	56.9	38.83	11.66	60.81	162	360	P	V
5210MHz		15630	46.92	-27.08	74	56.51	38.67	13.94	62.2	162	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. 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		5022.62	49.19	-24.81	74	40.51	32.01	8.67	32	150	243	P	H
		5121.16	43.24	-10.76	54	34.51	32.02	8.77	32.06	150	243	A	H
		5210	84.61	-	-	75.84	32.04	8.84	32.11	150	243	P	H
		5210	76.13	-	-	67.36	32.04	8.84	32.11	150	243	A	H
		5450.16	48.6	-25.4	74	39.7	32.09	9.09	32.28	150	243	P	H
		5407.68	40.87	-13.13	54	31.98	32.08	9.06	32.25	150	243	A	H
		5150.02	56.45	-93.55	150	47.73	32.03	8.77	32.08	150	84	P	V
		5147.42	49.44	-4.56	54	40.72	32.03	8.77	32.08	150	84	A	V
		5210	97.29	-	-	88.52	32.04	8.84	32.11	150	84	P	V
		5210	89.03	-	-	80.26	32.04	8.84	32.11	150	84	A	V
		5353.92	46.84	-27.16	74	37.97	32.07	9.02	32.22	150	84	P	V
		5434.32	40.84	-13.16	54	31.93	32.09	9.09	32.27	150	84	A	V
Remark	3. No other spurious found. 4. 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		10420	46.58	-27.42	74	56.9	38.83	11.66	60.81	162	360	P	H
VHT80		15630	47.44	-26.56	74	57.03	38.67	13.94	62.2	162	0	P	H
CH 42		10420	46.58	-27.42	74	56.9	38.83	11.66	60.81	162	360	P	V
5210MHz		15630	46.92	-27.08	74	56.51	38.67	13.94	62.2	162	0	P	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												



Band 2 - 5250~5350MHz
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 52 5260MHz		5148.98	49.04	-24.96	74	40.32	32.03	8.77	32.08	150	297	P	H
		5036.14	39.57	-14.43	54	30.89	32.01	8.67	32	150	297	A	H
	*	5260	90.67	-	-	81.89	32.05	8.88	32.15	150	297	P	H
	*	5260	81.79	-	-	73.01	32.05	8.88	32.15	150	297	A	H
		5363.76	46.77	-27.23	74	37.9	32.07	9.02	32.22	150	297	P	H
		5450.4	38.37	-15.63	54	29.47	32.09	9.09	32.28	150	297	A	H
		5070.46	48.2	-25.8	74	39.52	32.01	8.7	32.03	161	69	P	V
		5066.56	39.74	-14.26	54	31.04	32.01	8.7	32.01	161	69	A	V
	*	5260	103.18	-	-	94.4	32.05	8.88	32.15	161	69	P	V
	*	5260	93.96	-	-	85.18	32.05	8.88	32.15	161	69	A	V
		5356.32	46.68	-27.32	74	37.81	32.07	9.02	32.22	161	69	P	V
		5405.04	38.59	-15.41	54	29.7	32.08	9.06	32.25	161	69	A	V
802.11a CH 60 5300MHz		5126.35	48.84	-25.16	74	40.1	32.03	8.77	32.06	153	321	P	H
		5042.35	39.67	-14.33	54	30.97	32.01	8.7	32.01	153	321	A	H
	*	5300	91	-	-	82.19	32.06	8.93	32.18	153	321	P	H
	*	5300	82.47	-	-	73.66	32.06	8.93	32.18	153	321	A	H
		5391.36	47.25	-26.75	74	38.34	32.08	9.06	32.23	153	321	P	H
		5352.24	38.55	-15.45	54	29.68	32.07	9.02	32.22	153	321	A	H
		5061.25	48.48	-25.52	74	39.78	32.01	8.7	32.01	150	86	P	V
		5067.9	39.69	-14.31	54	31.01	32.01	8.7	32.03	150	86	A	V
	*	5300	103.31	-	-	94.5	32.06	8.93	32.18	150	86	P	V
	*	5300	94.25	-	-	85.44	32.06	8.93	32.18	150	86	A	V
		5352.48	48.07	-25.93	74	39.2	32.07	9.02	32.22	150	86	P	V
		5352.24	42.2	-11.8	54	33.33	32.07	9.02	32.22	150	86	A	V



802.11a CH 64 5320MHz	*	5320	90.49	-	-	81.64	32.06	8.97	32.18	152	100	P	H
	*	5320	82.59	-	-	73.74	32.06	8.97	32.18	152	100	A	H
		5412.48	47.34	-26.66	74	38.45	32.08	9.06	32.25	152	100	P	H
		5423.52	38.27	-15.73	54	29.38	32.08	9.06	32.25	152	100	A	H
	*	5320	103.12	-	-	94.27	32.06	8.97	32.18	152	89	P	V
	*	5320	94.01	-	-	85.16	32.06	8.97	32.18	152	89	A	V
		5372.64	49.74	-24.26	74	40.87	32.07	9.02	32.22	152	89	P	V
		5372.48	42.08	-11.92	54	33.21	32.07	9.02	32.22	152	89	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	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	48.73	-25.27	74	58.82	38.93	11.69	60.71	150	220	P	H
		15780	46.84	-27.16	74	56.73	38.34	14.03	62.26	159	345	P	H
		10520	47.43	-26.57	74	57.52	38.93	11.69	60.71	150	220	P	V
		15780	47.09	-26.91	74	56.98	38.34	14.03	62.26	159	345	P	V
802.11a CH 60 5300MHz		10600	47.82	-26.18	74	57.52	39.11	11.71	60.52	185	215	P	H
		15900	46.99	-27.01	74	57.17	38.05	14.09	62.32	196	190	P	H
		10600	47.67	-26.33	74	57.37	39.11	11.71	60.52	185	215	P	V
		15900	46.63	-27.37	74	56.81	38.05	14.09	62.32	196	190	P	V
802.11a CH 64 5320MHz		10640	49.85	-24.15	74	59.39	39.18	11.73	60.45	152	135	P	H
		15960	45.2	-28.8	74	55.54	37.88	14.13	62.35	173	245	P	H
		10640	49.08	-24.92	74	58.62	39.18	11.73	60.45	152	135	P	V
		15960	45.42	-28.58	74	55.76	37.88	14.13	62.35	173	245	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		5130.78	49.39	-24.61	74	40.65	32.03	8.77	32.06	236	122	P	H
		5057.98	39.65	-14.35	54	30.95	32.01	8.7	32.01	236	122	A	H
	*	5260	90.46	-	-	81.68	32.05	8.88	32.15	236	122	P	H
	*	5260	82.33	-	-	73.55	32.05	8.88	32.15	236	122	A	H
		5397.12	45.96	-28.04	74	37.05	32.08	9.06	32.23	236	122	P	H
		5436.72	38.24	-15.76	54	29.33	32.09	9.09	32.27	236	122	A	H
		5085.02	48.22	-25.78	74	39.49	32.02	8.74	32.03	158	86	P	V
		5063.44	39.67	-14.33	54	30.97	32.01	8.7	32.01	158	86	A	V
	*	5260	102.75	-	-	93.97	32.05	8.88	32.15	158	86	P	V
	*	5260	94.17	-	-	85.39	32.05	8.88	32.15	158	86	A	V
		5456.88	47.19	-26.81	74	38.29	32.09	9.09	32.28	158	86	P	V
		5455.92	38.31	-15.69	54	29.41	32.09	9.09	32.28	158	86	A	V
802.11n HT20 CH 60 5300MHz		5022.4	49.4	-24.6	74	40.72	32.01	8.67	32	166	341	P	H
		5069.65	39.7	-14.3	54	31.02	32.01	8.7	32.03	166	341	A	H
	*	5300	89.99	-	-	81.18	32.06	8.93	32.18	166	341	P	H
	*	5300	80.76	-	-	71.95	32.06	8.93	32.18	166	341	A	H
		5375.76	47.42	-26.58	74	38.56	32.07	9.02	32.23	166	341	P	H
		5351.52	38.65	-15.35	54	29.78	32.07	9.02	32.22	166	341	A	H
		5052.15	48.7	-25.3	74	40	32.01	8.7	32.01	150	72	P	V
		5149.45	39.68	-14.32	54	30.96	32.03	8.77	32.08	150	72	A	V
	*	5300	102.47	-	-	93.66	32.06	8.93	32.18	150	72	P	V
	*	5300	94.01	-	-	85.2	32.06	8.93	32.18	150	72	A	V
		5351.76	48.59	-25.41	74	39.72	32.07	9.02	32.22	150	72	P	V
		5351.52	42.98	-11.02	54	34.11	32.07	9.02	32.22	150	72	A	V



802.11n HT20 CH 64 5320MHz	*	5320	91.52	-	-	82.67	32.06	8.97	32.18	233	123	P	H
	*	5320	82.63	-	-	73.78	32.06	8.97	32.18	233	123	A	H
		5389.92	46.72	-27.28	74	37.81	32.08	9.06	32.23	233	123	P	H
		5436.32	38.33	-15.67	54	29.42	32.09	9.09	32.27	233	123	A	H
	*	5320	101.46	-	-	92.61	32.06	8.97	32.18	150	94	P	V
	*	5320	94.09	-	-	85.24	32.06	8.97	32.18	150	94	A	V
		5372.16	49.28	-24.72	74	40.41	32.07	9.02	32.22	150	94	P	V
		5372	41.69	-12.31	54	32.82	32.07	9.02	32.22	150	94	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	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	48.56	-25.44	74	58.65	38.93	11.69	60.71	150	220	P	H
HT20		15780	47.59	-26.41	74	57.48	38.34	14.03	62.26	159	345	P	H
CH 52		10520	47.13	-26.87	74	57.22	38.93	11.69	60.71	150	220	P	V
5260MHz		15780	46.75	-27.25	74	56.64	38.34	14.03	62.26	159	345	P	V
802.11n		10600	48.67	-25.33	74	58.37	39.11	11.71	60.52	185	215	P	H
HT20		15900	47.58	-26.42	74	57.76	38.05	14.09	62.32	196	190	P	H
CH 60		10600	48.52	-25.48	74	58.22	39.11	11.71	60.52	185	215	P	V
5300MHz		15900	45.77	-28.23	74	55.95	38.05	14.09	62.32	196	190	P	V
802.11n		10640	49.25	-24.75	74	58.79	39.18	11.73	60.45	152	135	P	H
HT20		15960	45.84	-28.16	74	56.18	37.88	14.13	62.35	173	245	P	H
CH 64		10640	47.74	-26.26	74	57.28	39.18	11.73	60.45	152	135	P	V
5320MHz		15960	45.32	-28.68	74	55.66	37.88	14.13	62.35	173	245	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	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		5056.16	48.6	-25.4	74	39.9	32.01	8.7	32.01	238	245	P	H
		5032.76	40.07	-13.93	54	31.39	32.01	8.67	32	238	245	A	H
	*	5270	89.01	-	-	80.23	32.05	8.88	32.15	238	245	P	H
	*	5270	80.81	-	-	72.03	32.05	8.88	32.15	238	245	A	H
		5443.68	45.74	-28.26	74	36.83	32.09	9.09	32.27	238	245	P	H
		5456.16	38.83	-15.17	54	29.93	32.09	9.09	32.28	238	245	A	H
		5072.28	48.12	-25.88	74	39.43	32.02	8.7	32.03	153	78	P	V
		5029.9	40.26	-13.74	54	31.58	32.01	8.67	32	153	78	A	V
	*	5270	100.66	-	-	91.88	32.05	8.88	32.15	153	78	P	V
	*	5270	91.96	-	-	83.18	32.05	8.88	32.15	153	78	A	V
		5439.84	47.49	-26.51	74	38.58	32.09	9.09	32.27	153	78	P	V
		5372.16	40.33	-13.67	54	31.46	32.07	9.02	32.22	153	78	A	V
802.11n HT40 CH 62 5310MHz		5016.45	47.85	-26.15	74	39.18	32	8.67	32	176	324	P	H
		5073.15	40.17	-13.83	54	31.48	32.02	8.7	32.03	176	324	A	H
	*	5310	87.09	-	-	78.24	32.06	8.97	32.18	176	324	P	H
	*	5310	80.03	-	-	71.18	32.06	8.97	32.18	176	324	A	H
		5420.88	47.27	-26.73	74	38.38	32.08	9.06	32.25	176	324	P	H
		5355.84	38.93	-15.07	54	30.06	32.07	9.02	32.22	176	324	A	H
		5100.45	48.36	-25.64	74	39.65	32.02	8.74	32.05	152	36	P	V
		5018.2	40.42	-13.58	54	31.75	32	8.67	32	152	36	A	V
	*	5310	100.12	-	-	91.27	32.06	8.97	32.18	152	36	P	V
	*	5310	91.67	-	-	82.82	32.06	8.97	32.18	152	36	A	V
		5384.64	48.33	-25.67	74	39.46	32.08	9.02	32.23	152	36	P	V
		5350.32	43.82	-10.18	54	34.95	32.07	9.02	32.22	152	36	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	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	47.33	-26.67	74	57.33	38.97	11.7	60.67	150	220	P	H
HT40		15810	47.55	-26.45	74	57.52	38.26	14.05	62.28	168	345	P	H
CH 54		10540	48.16	-25.84	74	58.16	38.97	11.7	60.67	150	220	P	V
5270MHz		15810	47.3	-26.7	74	57.27	38.26	14.05	62.28	168	345	P	V
802.11n		10620	50.53	-23.47	74	60.15	39.14	11.73	60.49	150	220	P	H
HT40		15930	45.78	-28.22	74	56.04	37.97	14.11	62.34	160	100	P	H
CH 62		10620	47.85	-26.15	74	57.47	39.14	11.73	60.49	150	220	P	V
5310MHz		15930	47.07	-26.93	74	57.33	37.97	14.11	62.34	160	100	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	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		5008.06	48.78	-25.22	74	40.09	32	8.67	31.98	150	318	P	H
		5035.88	41.79	-12.21	54	33.11	32.01	8.67	32	150	318	A	H
	*	5290	83.52	-	-	74.7	32.06	8.93	32.17	150	318	P	H
	*	5290	77.08	-	-	68.26	32.06	8.93	32.17	150	318	A	H
		5441.52	46.24	-27.76	74	37.33	32.09	9.09	32.27	150	318	P	H
		5455.92	40.59	-13.41	54	31.69	32.09	9.09	32.28	150	318	A	H
		5086.32	48.47	-25.53	74	39.74	32.02	8.74	32.03	150	69	P	V
		5083.46	42.02	-11.98	54	33.29	32.02	8.74	32.03	150	69	A	V
	*	5290	96.3	-	-	87.48	32.06	8.93	32.17	150	69	P	V
	*	5290	88.38	-	-	79.56	32.06	8.93	32.17	150	69	A	V
		5355.36	49.69	-24.31	74	40.82	32.07	9.02	32.22	150	69	P	V
		5354.16	44.5	-9.5	54	35.63	32.07	9.02	32.22	150	69	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		10580	46.89	-27.11	74	56.67	39.07	11.71	60.56	162	360	P	H
VHT80		15870	45.62	-28.38	74	55.77	38.09	14.07	62.31	162	0	P	H
CH 58		10580	46.2	-27.8	74	55.98	39.07	11.71	60.56	162	360	P	V
5290MHz		15870	47.14	-26.86	74	57.29	38.09	14.07	62.31	162	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	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		5468.24	47.55	-26.45	74	38.62	32.09	9.12	32.28	150	319	P	H
		5466.48	38.73	-15.27	54	29.8	32.09	9.12	32.28	150	319	A	H
	*	5500	91.5	-	-	82.58	32.1	9.12	32.3	150	319	P	H
	*	5500	83.46	-	-	74.54	32.1	9.12	32.3	150	319	A	H
		5447.76	48.04	-25.96	74	39.13	32.09	9.09	32.27	232	73	P	V
		5447.76	42.63	-11.37	54	33.72	32.09	9.09	32.27	232	73	A	V
	*	5500	103.26	-	-	94.34	32.1	9.12	32.3	232	73	P	V
	*	5500	94.51	-	-	85.59	32.1	9.12	32.3	232	73	A	V
802.11a CH 116 5580MHz		5422	47.16	-26.84	74	38.27	32.08	9.06	32.25	151	321	P	H
		5468.08	38.36	-15.64	54	29.43	32.09	9.12	32.28	151	321	A	H
	*	5580	93.07	-	-	83.67	32.39	9.17	32.16	151	321	P	H
	*	5580	95	-	-	85.6	32.39	9.17	32.16	151	321	A	H
		5752.715	49.15	-24.85	74	38.6	33.19	9.3	31.94	151	321	P	H
		5747.675	40.42	-13.58	54	29.95	33.11	9.3	31.94	151	321	A	H
		5443.12	47.15	-26.85	74	38.24	32.09	9.09	32.27	250	71	P	V
		5468.32	38.4	-15.6	54	29.47	32.09	9.12	32.28	250	71	A	V
	*	5580	103.95	-	-	94.55	32.39	9.17	32.16	250	71	P	V
	*	5580	95.13	-	-	85.73	32.39	9.17	32.16	250	71	A	V
		5752.085	48.88	-25.12	74	38.33	33.19	9.3	31.94	250	71	P	V
		5764.055	40.48	-13.52	54	29.89	33.19	9.3	31.9	250	71	A	V



802.11a CH 140 5700MHz	*	5700	95.77	-	-	85.6	32.9	9.28	32.01	180	208	P	H
	*	5700	87.01	-	-	76.84	32.9	9.28	32.01	180	208	A	H
		5735.16	49.7	-24.3	74	39.25	33.11	9.28	31.94	180	208	P	H
		5752.12	40.72	-13.28	54	30.17	33.19	9.3	31.94	180	208	A	H
	*	5700	104.47	-	-	94.3	32.9	9.28	32.01	150	150	P	V
	*	5700	95.98	-	-	85.81	32.9	9.28	32.01	150	150	A	V
		5725.24	50.88	-23.12	74	40.54	33.04	9.28	31.98	150	150	P	V
		5752.12	44.1	-9.9	54	33.55	33.19	9.3	31.94	150	150	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	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	49.17	-24.83	74	57.07	39.9	11.86	59.66	163	230	P	H
		16500	46.83	-27.17	74	55.08	38.6	14.41	61.26	178	296	P	H
		11000	50.06	-23.94	74	57.96	39.9	11.86	59.66	163	230	P	V
		16500	46.39	-27.61	74	54.64	38.6	14.41	61.26	178	296	P	V
802.11a CH 116 5580MHz		11160	49.11	-24.89	74	57.13	39.7	11.93	59.65	170	200	P	H
		16740	46.53	-27.47	74	53.28	39.37	14.57	60.69	156	350	P	H
		11160	48.62	-25.38	74	56.64	39.7	11.93	59.65	170	200	P	V
		16740	47.57	-26.43	74	54.32	39.37	14.57	60.69	156	350	P	V
802.11a CH 140 5700MHz		11400	47.98	-26.02	74	56.18	39.42	12.02	59.64	157	285	P	H
		17100	47.96	-26.04	74	52.46	40.82	14.76	60.08	165	246	P	H
		11400	47.75	-26.25	74	55.95	39.42	12.02	59.64	157	285	P	V
		17100	48.82	-25.18	74	53.32	40.82	14.76	60.08	165	246	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	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		5372.72	46.7	-27.3	74	37.83	32.07	9.02	32.22	150	318	P	H
		5448.4	38.58	-15.42	54	29.67	32.09	9.09	32.27	150	318	A	H
	*	5500	90.96	-	-	82.04	32.1	9.12	32.3	150	318	P	H
	*	5500	83.45	-	-	74.53	32.1	9.12	32.3	150	318	A	H
		5448.56	48.64	-25.36	74	39.73	32.09	9.09	32.27	224	64	P	V
		5448.24	42.51	-11.49	54	33.6	32.09	9.09	32.27	224	64	A	V
	*	5500	102.39	-	-	93.47	32.1	9.12	32.3	224	64	P	V
	*	5500	93.98	-	-	85.06	32.1	9.12	32.3	224	64	A	V
802.11n HT20 CH 116 5580MHz		5435.92	46.4	-27.6	74	37.49	32.09	9.09	32.27	150	85	P	H
		5462.32	38.34	-15.66	54	29.44	32.09	9.09	32.28	150	85	A	H
	*	5580	84.53	-	-	75.13	32.39	9.17	32.16	150	85	QP	H
	*	5580	93.11	-	-	83.71	32.39	9.17	32.16	150	85	A	H
		5739.17	47.63	-26.37	74	37.16	33.11	9.3	31.94	150	85	P	H
		5753.975	40.25	-13.75	54	29.7	33.19	9.3	31.94	150	85	A	H
		5408.08	46.7	-27.3	74	37.81	32.08	9.06	32.25	152	179	P	V
		5446.72	38.51	-15.49	54	29.6	32.09	9.09	32.27	152	179	A	V
	*	5580	103.86	-	-	94.46	32.39	9.17	32.16	152	179	P	V
	*	5580	94.78	-	-	85.38	32.39	9.17	32.16	152	179	A	V
		5730.665	48.71	-25.29	74	38.33	33.04	9.28	31.94	152	179	P	V
		5726.885	40.27	-13.73	54	29.93	33.04	9.28	31.98	152	179	A	V



802.11n HT20 CH 140 5700MHz	*	5700	99.66	-	-	89.49	32.9	9.28	32.01	175	250	P	H
	*	5700	90.84	-	-	80.67	32.9	9.28	32.01	175	250	A	H
		5730.76	50.42	-23.58	74	40.04	33.04	9.28	31.94	175	250	P	H
		5751.8	42.33	-11.67	54	31.78	33.19	9.3	31.94	175	250	A	H
	*	5700	105.57	-	-	95.4	32.9	9.28	32.01	150	132	P	V
	*	5700	96.67	-	-	86.5	32.9	9.28	32.01	150	132	A	V
		5753.32	52.31	-21.69	74	41.76	33.19	9.3	31.94	150	132	P	V
		5751.88	45.04	-8.96	54	34.49	33.19	9.3	31.94	150	132	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	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	49.65	-24.35	74	57.55	39.9	11.86	59.66	163	230	P	H
HT20		16500	46.42	-27.58	74	54.67	38.6	14.41	61.26	178	296	P	H
CH 100		11000	48.69	-25.31	74	56.59	39.9	11.86	59.66	163	230	P	V
5500MHz		16500	48.99	-25.01	74	57.24	38.6	14.41	61.26	163	0	P	V
802.11n		11160	49.29	-24.71	74	57.31	39.7	11.93	59.65	170	200	P	H
HT20		16740	48.4	-25.6	74	55.15	39.37	14.57	60.69	156	350	P	H
CH 116		11160	48.43	-25.57	74	56.45	39.7	11.93	59.65	170	200	P	V
5580MHz		16740	48.41	-25.59	74	55.16	39.37	14.57	60.69	156	350	P	V
802.11n		11400	47.81	-26.19	74	56.01	39.42	12.02	59.64	158	360	P	H
HT20		17100	47.96	-26.04	74	52.46	40.82	14.76	60.08	158	0	P	H
CH 140		11400	47.77	-26.23	74	55.97	39.42	12.02	59.64	158	360	P	V
5700MHz		17100	48.29	-25.71	74	52.79	40.82	14.76	60.08	158	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	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		5386.24	46.72	-27.28	74	37.85	32.08	9.02	32.23	183	247	P	H
		5468.32	40.26	-13.74	54	31.33	32.09	9.12	32.28	183	247	A	H
	*	5510	92.33	-	-	83.35	32.1	9.14	32.26	183	247	P	H
	*	5510	84.14	-	-	75.16	32.1	9.14	32.26	183	247	A	H
		5759.33	47.86	-26.14	74	37.27	33.19	9.3	31.9	183	247	P	H
		5727.2	40.85	-13.15	54	30.51	33.04	9.28	31.98	183	247	A	H
		5468.56	54.72	-19.28	74	45.79	32.09	9.12	32.28	175	107	P	V
		5469.28	45.85	-8.15	54	36.92	32.09	9.12	32.28	175	107	A	V
	*	5510	100.25	-	-	91.27	32.1	9.14	32.26	175	107	P	V
	*	5510	91.2	-	-	82.22	32.1	9.14	32.26	175	107	A	V
		5753.345	49.7	-24.3	74	39.15	33.19	9.3	31.94	175	107	P	V
		5743.895	41.12	-12.88	54	30.65	33.11	9.3	31.94	175	107	A	V
802.11n HT40 CH 110 5550MHz		5351.2	47.33	-26.67	74	38.46	32.07	9.02	32.22	189	247	P	H
		5459.68	38.85	-15.15	54	29.95	32.09	9.09	32.28	189	247	A	H
	*	5550	92.86	-	-	83.6	32.32	9.17	32.23	189	247	P	H
	*	5550	85.22	-	-	75.96	32.32	9.17	32.23	189	247	A	H
		5725.31	48.65	-25.35	74	38.31	33.04	9.28	31.98	189	247	P	H
		5744.84	40.93	-13.07	54	30.46	33.11	9.3	31.94	189	247	A	H
		5447.2	47.78	-26.22	74	38.87	32.09	9.09	32.27	151	77	P	V
		5447.68	40.4	-13.6	54	31.49	32.09	9.09	32.27	151	77	A	V
	*	5550	100.48	-	-	91.22	32.32	9.17	32.23	151	77	P	V
	*	5550	92.51	-	-	83.25	32.32	9.17	32.23	151	77	A	V
		5758.385	47.69	-26.31	74	37.1	33.19	9.3	31.9	151	77	P	V
		5739.8	41.09	-12.91	54	30.62	33.11	9.3	31.94	151	77	A	V



802.11n HT40 CH 134 5670MHz	-	5351.05	47.28	-26.72	74	38.41	32.07	9.02	32.22	175	249	P	H
	-	5466.55	39	-15	54	30.07	32.09	9.12	32.28	175	249	A	H
	*	5670	96.67	-	-	86.65	32.82	9.25	32.05	175	249	P	H
	*	5670	88.18	-	-	78.16	32.82	9.25	32.05	175	249	A	H
		5734.2	48.61	-25.39	74	38.23	33.04	9.28	31.94	175	249	P	H
		5728.25	41.2	-12.8	54	30.86	33.04	9.28	31.98	175	249	A	H
		5368.2	47.04	-26.96	74	38.17	32.07	9.02	32.22	150	136	P	V
		5469.35	38.98	-15.02	54	30.05	32.09	9.12	32.28	150	136	A	V
	*	5670	103.45			93.43	32.82	9.25	32.05	150	136	P	V
	*	5670	95.52			85.5	32.82	9.25	32.05	150	136	A	V
		5734.025	50.51	-23.49	74	40.13	33.04	9.28	31.94	150	136	P	V
		5725.275	42.93	-11.07	54	32.59	33.04	9.28	31.98	150	136	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	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	50.31	-23.69	74	58.22	39.88	11.87	59.66	170	230	P	H
HT40		16530	48.42	-25.58	74	56.45	38.71	14.44	61.18	160	300	P	H
CH 102		11020	48.99	-25.01	74	56.9	39.88	11.87	59.66	170	230	P	V
5510MHz		16530	47.26	-26.74	74	55.29	38.71	14.44	61.18	160	300	P	V
802.11n		11100	49.49	-24.51	74	57.46	39.78	11.9	59.65	150	200	P	H
HT40		16650	47.49	-26.51	74	54.78	39.1	14.5	60.89	180	350	P	H
CH 110		11100	48.37	-25.63	74	56.34	39.78	11.9	59.65	162	360	P	V
5550MHz		16650	47.56	-26.44	74	54.85	39.1	14.5	60.89	180	350	P	V
802.11n		11340	48.29	-25.71	74	56.44	39.5	11.99	59.64	200	360	P	H
HT40		17010	49.18	-24.82	74	54.23	40.3	14.72	60.07	200	360	P	H
CH 134		11340	48.04	-25.96	74	56.19	39.5	11.99	59.64	200	360	P	V
5670MHz		17010	48.58	-25.42	74	53.63	40.3	14.72	60.07	200	360	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	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		5438.08	46.74	-27.26	74	37.83	32.09	9.09	32.27	222	7	P	H
		5462.56	38.09	-15.91	54	29.19	32.09	9.09	32.28	222	7	A	H
	*	5530	83.39	-	-	74.31	32.17	9.14	32.23	222	7	P	H
	*	5530	76.98	-	-	67.9	32.17	9.14	32.23	222	7	A	H
		5747.675	49.21	-24.79	74	38.74	33.11	9.3	31.94	222	7	P	H
		5745.785	39.71	-14.29	54	29.24	33.11	9.3	31.94	222	7	A	H
		5465.92	53.79	-20.21	74	44.86	32.09	9.12	32.28	150	64	P	V
		5469.76	47.5	-6.5	54	38.57	32.09	9.12	32.28	150	64	A	V
	*	5530	96.18	-	-	87.1	32.17	9.14	32.23	150	64	P	V
	*	5530	88.26	-	-	79.18	32.17	9.14	32.23	150	64	A	V
		5730.98	49.06	-24.94	74	38.68	33.04	9.28	31.94	150	64	P	V
		5756.495	42.48	-11.52	54	31.89	33.19	9.3	31.9	150	64	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	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	49.23	-24.77	74	57.18	39.82	11.89	59.66	162	360	P	H
VHT80		16590	47.95	-26.05	74	55.64	38.88	14.48	61.05	162	0	P	H
CH 106		11060	47.58	-26.42	74	55.53	39.82	11.89	59.66	162	360	P	V
5530MHz		16590	48.44	-25.56	74	56.13	38.88	14.48	61.05	162	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

WIFI 802.11ac VHT80 (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)
802.11ac VHT80 LF		32.91	26.68	-13.32	40	32.64	25.44	0.6	32	-	-	P	H
		166.77	30.06	-13.44	43.5	43.11	17.07	1.33	31.45	-	-	P	H
		241.46	38.5	-7.5	46	50.67	17.58	1.63	31.38	124	246	P	H
		346.22	35.79	-10.21	46	44.8	20.3	1.97	31.28	-	-	P	H
		414.12	38.21	-7.79	46	41.6	25.68	2.16	31.23	-	-	P	H
		758.47	35.78	-10.22	46	36.68	27.32	3	31.22	-	-	P	H
		32.91	26.68	-13.32	40	32.64	25.44	0.6	32	-	-	P	H
		166.77	25.68	-17.82	43.5	38.73	17.07	1.33	31.45	-	-	P	V
		241.46	37.66	-8.34	46	49.83	17.58	1.63	31.38	182	86	P	V
		346.22	32.59	-13.41	46	41.6	20.3	1.97	31.28	-	-	P	V
		415.09	35.95	-10.05	46	39.35	25.66	2.16	31.22	-	-	P	V
		551.86	29.96	-16.04	46	33.62	25	2.55	31.21	-	-	P	V
		758.47	35.94	-10.06	46	36.84	27.32	3	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		(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

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)

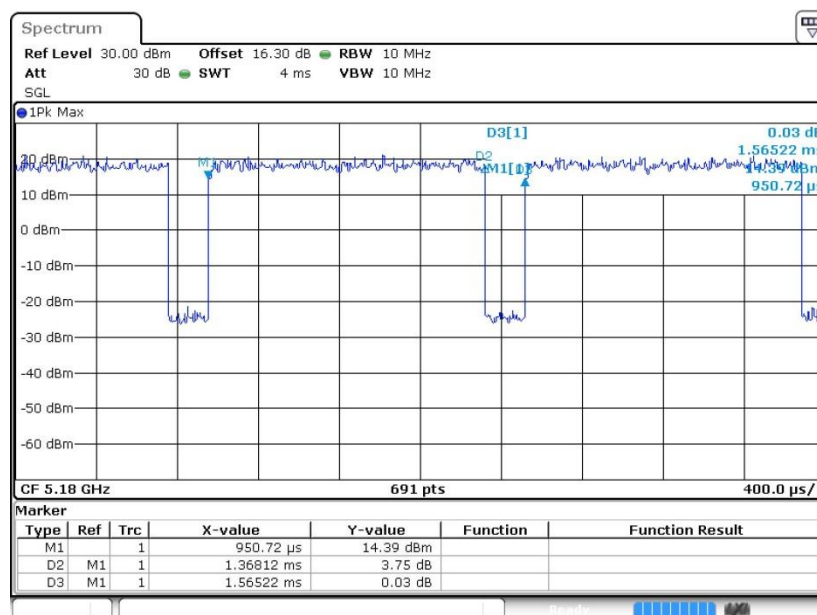
= -10.46(dB)

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

Appendix C. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	87.41	1.368	0.731	1KHz
802.11n HT20	86.67	1.281	0.781	1KHz
802.11n HT40	76.12	0.638	1.568	3KHz
802.11ac VHT20	83.03	0.978	1.022	3KHz
802.11ac VHT40	71.13	0.493	2.029	3KHz
802.11ac VHT80	55.16	0.248	4.035	10KHz

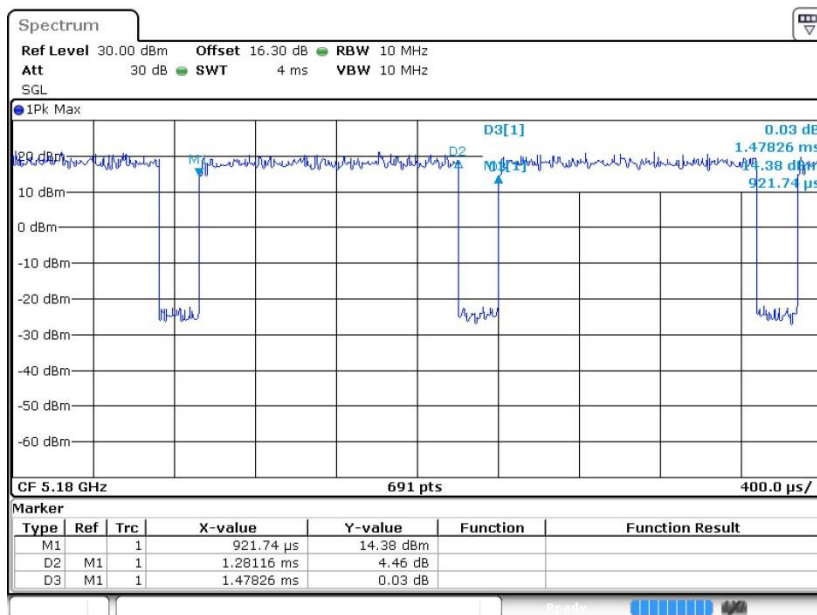
802.11a



Date: 6.MAY.2017 09:46:10

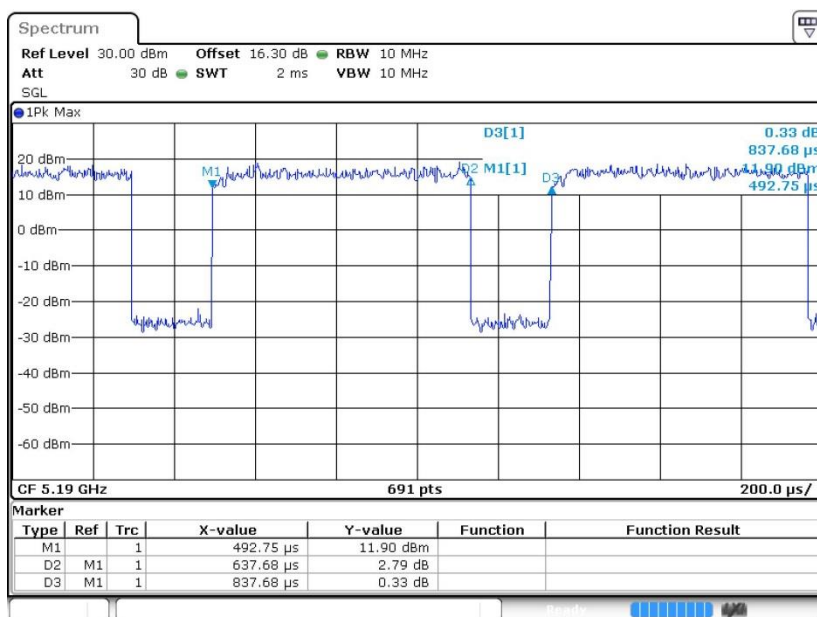


802.11n HT20



Date: 6.MAY.2017 10:06:50

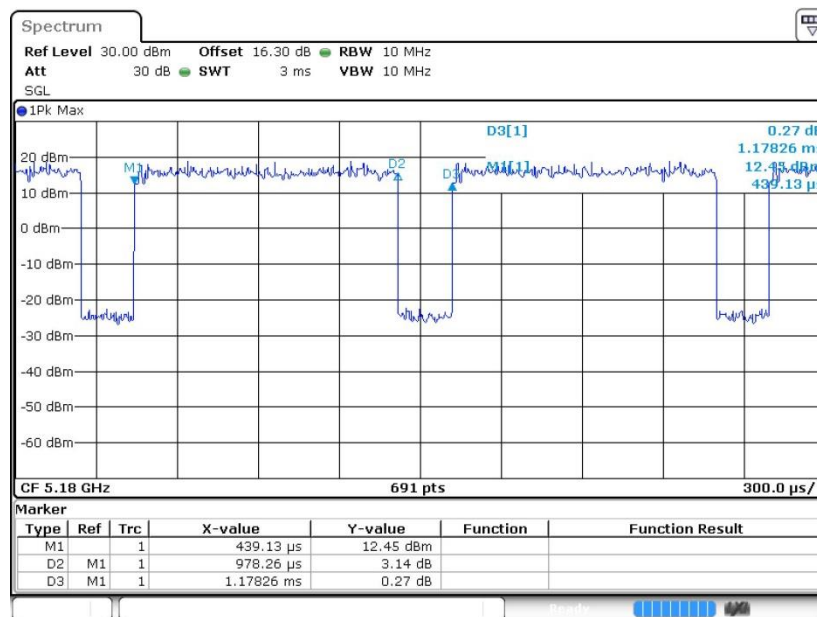
802.11n HT40



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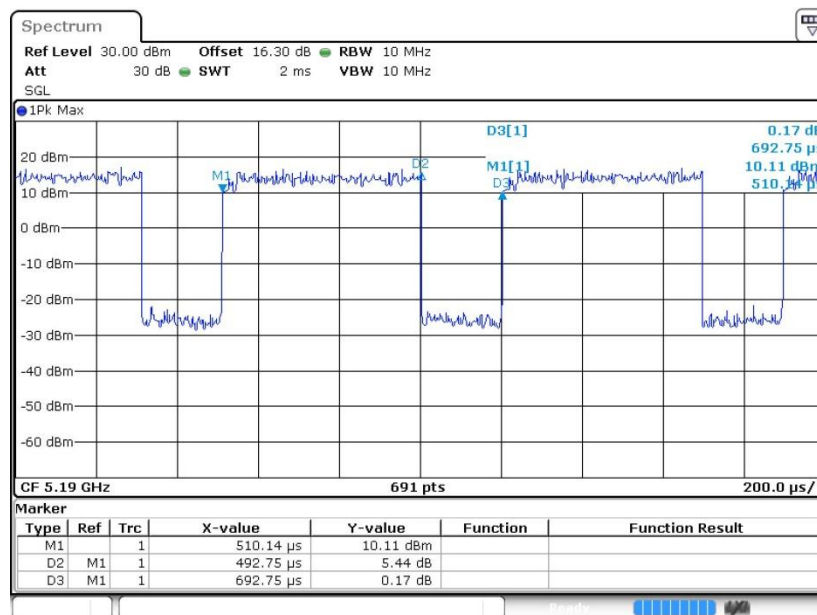


802.11ac VTH20



Date: 6.MAY.2017 10:37:25

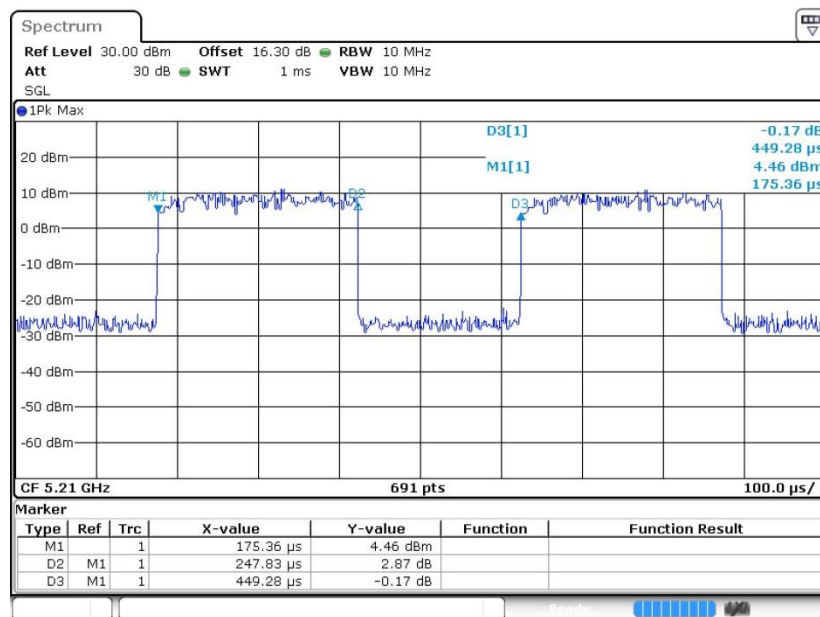
802.11ac VTH40



Date: 6.MAY.2017 10:45:04



802.11ac VTH80



Date: 6.MAY.2017 10:53:15