FCC RF Test Report

APPLICANT	:	**Lenovo(Shanghai) Electronics Technology Co., Ltd.**
EQUIPMENT	:	**Portable Tablet Computer**
BRAND NAME	:	**Lenovo**
MODEL NAME	:	**Lenovo TB-X704L**
FCC ID	:	**O57TBX704L**
STANDARD	:	**FCC Part 15 Subpart E §15.407**
CLASSIFICATION	:	**(NII) Unlicensed National Information Infrastructure**

The product was completed on Jul. 31, 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.

Eric Shih

Approved by: Eric Shih / Manager

TESTING
NVLAP LAB CODE 600156-0

Sporton International (Shenzhen) Inc.
1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City Guangdong Province 518055 China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR771306D	Rev. 01	Initial issue of report	Aug. 21, 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/MHz (depend on band)	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) 15.209(a)	Pass	Under limit 5.19 dB at 5149.76 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 5.46 dB at 0.15 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

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-X704L
FCC ID	O57TBX704L
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/ HSPA+ (16QAM uplink is not supported)/LTE/ WLAN 2.4G 802.11b/g/n HT20/HT40/ WLAN 5G 802.11a/n HT20/HT40/ WLAN 5G 802.11ac VHT20/VHT40/VHT80/ Bluetooth V3.0 + EDR/ Bluetooth V4.0 LE/ Bluetooth v4.1 LE / Bluetooth v4.2 LE
IMEI Code	Conducted: 86383803000180 Radiation: 863838030007719 Conduction: 86383803003809
HW Version	Lenovo Tablet TB-X704L
SW Version	TB-X704L_RF01_ 20170331
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 : 11.23 dBm / 0.0133 W 802.11n HT20 : 10.83 dBm / 0.0121 W 802.11n HT40 : 10.93 dBm / 0.0124 W 802.11ac VHT80 : 9.43 dBm / 0.0088 W **<5260 MHz ~ 5320 MHz>** 802.11a : 11.07 dBm / 0.0128 W 802.11n HT20 : 10.72 dBm / 0.0118 W 802.11n HT40 : 10.88 dBm / 0.0122 W 802.11ac VHT80 : 9.40 dBm / 0.0087 W **<5500 MHz ~ 5700 MHz >** 802.11a : 10.07 dBm / 0.0102 W 802.11n HT20 : 9.67 dBm / 0.0093 W 802.11n HT40 : 9.65 dBm / 0.0092 W 802.11ac VHT80 : 8.09 dBm / 0.0064 W
99% Occupied Bandwidth	**<5180 MHz ~ 5240 MHz>** 802.11a : 18.88 MHz 802.11n HT20 : 19.53 MHz 802.11n HT40 : 36.96 MHz 802.11ac VHT80 : 74.69 MHz **<5260 MHz ~ 5320 MHz>** 802.11a : 18.73 MHz 802.11n HT20 : 19.48 MHz 802.11n HT40 : 37.06 MHz 802.11ac VHT80 : 74.81 MHz **<5500 MHz ~ 5700 MHz >** 802.11a : 18.98 MHz 802.11n HT20 : 19.38 MHz 802.11n HT40 : 36.96 MHz 802.11ac VHT80 : 74.69 MHz
Antenna Gain / Gain	**<5150 MHz ~ 5250 MHz>** PIFA Antenna with gain 0.62 dBi **<5250 MHz ~ 5350 MHz>** PIFA Antenna with gain 0.62 dBi **<5470 MHz ~ 5725 MHz>** PIFA Antenna with gain 0.74 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. For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing has assessed only 802.11an HT20/ HT40 by referring to their maximum conducted power.

1.5 Specification of Accessory

Specification of Accessory				
AC Adapter 1	**Brand Name**	Lenovo (AcBel)	**Model Name**	C-P35
	Power Rating	I/P: 100-240Vac, 300mA, O/P: 5.2Vdc, 2000mA		
AC Adapter 2	**Brand Name**	Lenovo (huntkey)	**Model Name**	C-P35
	Power Rating	I/P: 100-240Vac, 500mA, O/P: 5.2Vdc, 2000mA		
Battery 1	**Brand Name**	Lenovo(SCUD)	**Model Name**	L16D2P31
	Power Rating	3.85Vdc,7000mAh	**Type**	Li-ion
Battery 2	**Brand Name**	Lenovo(Celxpert)	**Model Name**	L16D2P31
	Power Rating	3.85Vdc,7000mAh	**Type**	Li-ion
USB Cable 1	**Brand Name**	Lenovo(LI QI)	**Model Name**	N/A
	Signal Line Type	1.0 meter, shielded cable, without core		
USB Cable 2	**Brand Name**	Lenovo(saibao)	**Model Name**	N/A
	Signal Line Type	1.0 meter, shielded cable, without core		

1.6 Modification of EUT

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

1.7 Component List

Note: There are four types of EUT, sample 1, sample 2, sample 3 and sample 4, please refer to the following table for the differences between them. According to the differences, only choose the worse configuration sample 1 and sample 2 to perform test. The sample 2 is verified worse case of the sample 1.

Component	Sample 1	Sample 2
CPU	Qualcomm MSM-8953-2-857NSP-TR-01-0-AB	Qualcomm MSM-8953-2-857NSP-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	4G+64G Samsung KMRC10014M-B809 MCP_64GB-eMMC_32Gb-LPDDR3	4G+64G Hynix H9TQ52ACLTMCUR-KUM MCP_64GB-eMMC_32Gb-LPDDR3
Camera front	Hua quan: G7P2-A6500FHQ	Hua quan: G7P2-A6500FHQ
Camera rear	Q Tech: FX219BH	film: L8856A10
LCD	BOE: TV101WUM-NL1	INX: P101KDA-AF0
Battery	SCUD L16D2P31 3.85V/7000mAh	Celxpert L16D2P31 3.85V/7000mAh

Component	Sample 3	Sample 4
CPU	Qualcomm MSM-8953-2-857NSP-TR-01-0-AB	Qualcomm MSM-8953-2-857NSP-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	3G+16G Samsung KMRE1000BM-B512 MCP_16GB-eMMC_24Gb-LPDDR3	3G+16G Hynix H9TQ17ADFTACUR-KUM MCP_EMMC-16 GB_LPDDR3-3 GB
Camera front	Hua quan: G7P2-A6500FHQ	Hua quan: G7P2-A6500FHQ
Camera rear	Q Tech: FX219BH	film: L8856A10
LCD	BOE: TV101WUM-NL1	INX: P101KDA-AF0
Battery	SCUD L16D2P31 3.85V/7000mAh	Celxpert L16D2P31 3.85V/7000mAh

1.8 Testing Location

Sporton Lab is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600156-0) and the FCC designation No are CN5018 and CN5019.

Test Site	Sporton International (Shenzhen) Inc.		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City Guangdong Province 518055 China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595		
Test Site No.	**Sporton Site No.**		**FCC Test Firm Registration No.**
	TH01-SZ	CO01-SZ	251365

Test Site	Sporton International (Shenzhen) Inc.	
Test Site Location	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan District Shenzhen City Guangdong Province 518055 China TEL: +86-755-3320-2398	
Test Site No.	**Sporton Site No.**	**FCC Test Firm Registration No.**
	03CH03-SZ	577730

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

1.9 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

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 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: The worst case of conducted emission is mode 1; 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

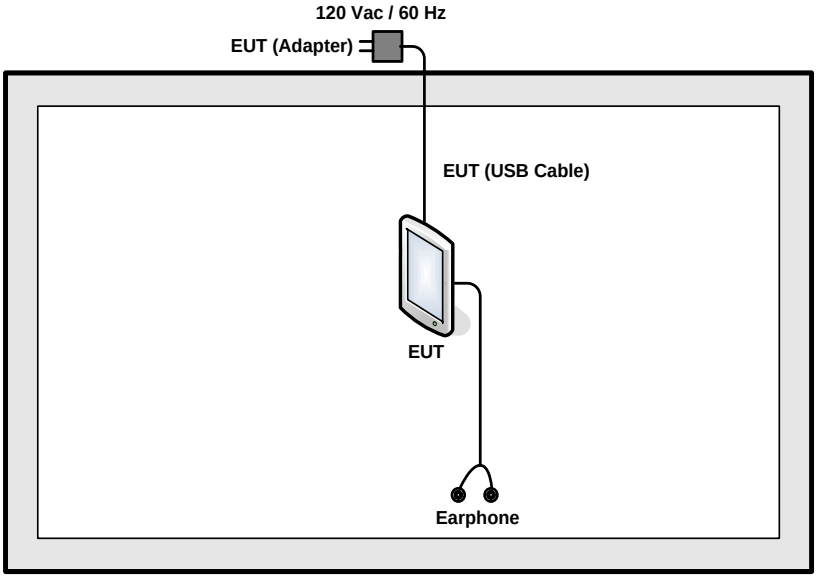
Ch. #		Band I：5180-5240 MHz	Band II：5260-5320 MHz	Band III：5500-5700MHz
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

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

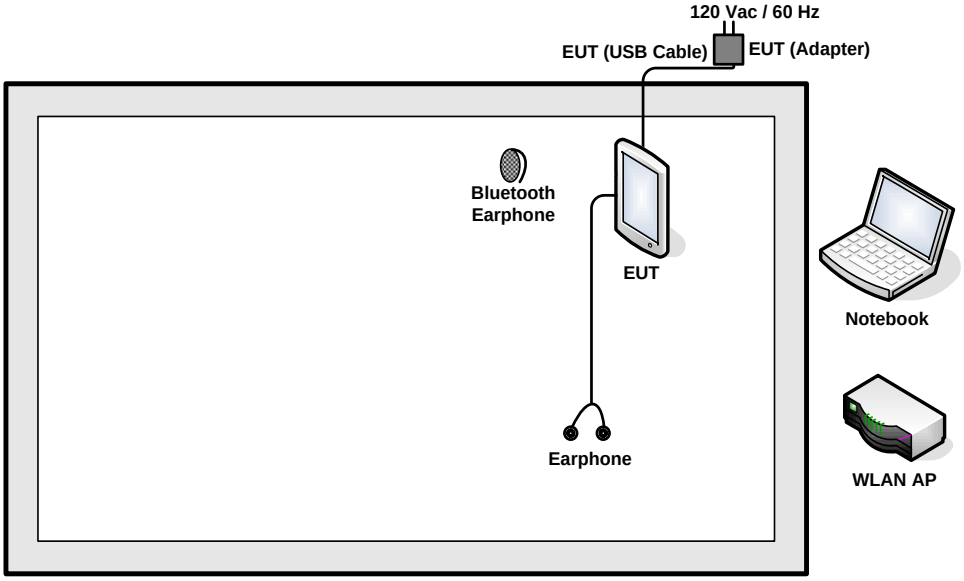
Ch. #		Band I：5180-5240 MHz	Band II：5260-5320 MHz	Band III：5500-5700MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	-
M	Middle	42	58	106
H	High	-	-	-

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-865L	KA2IR865LA1	N/A	Unshielded,1.8m
2.	Notebook	Lenovo	E450	N/A	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Bluetooth Earphone	Nokia	BH-108	N/A	N/A	N/A
4.	Earphone	Lenovo	SH100	N/A	N/A	N/A

2.5 EUT Operation Test Setup

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

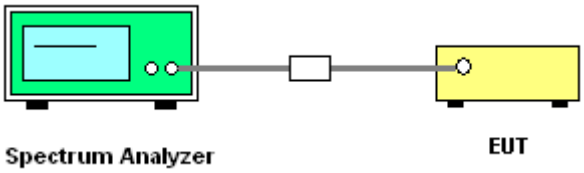
3.1.2 Measuring Instruments

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.

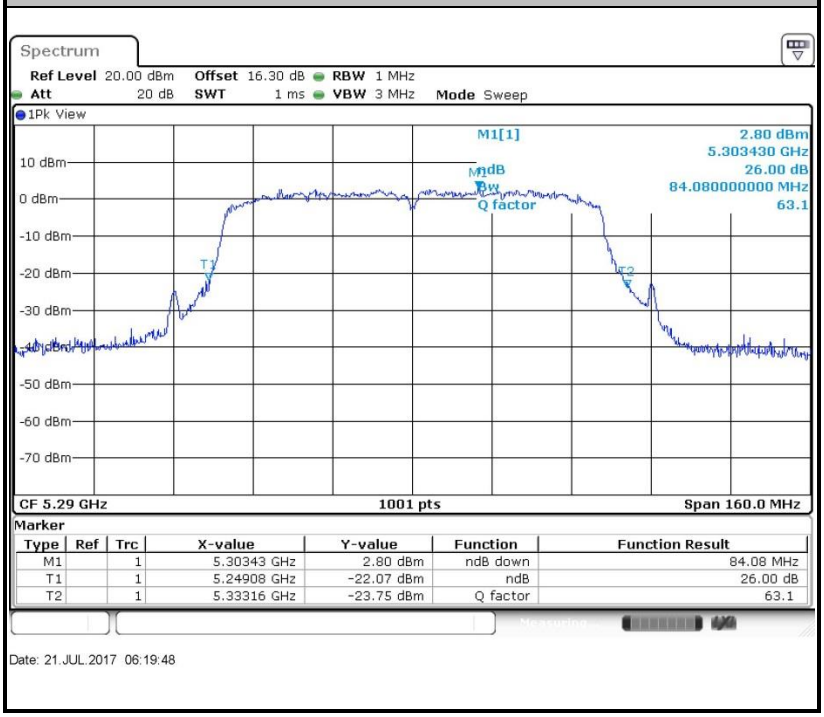
3.1.4 Test Setup



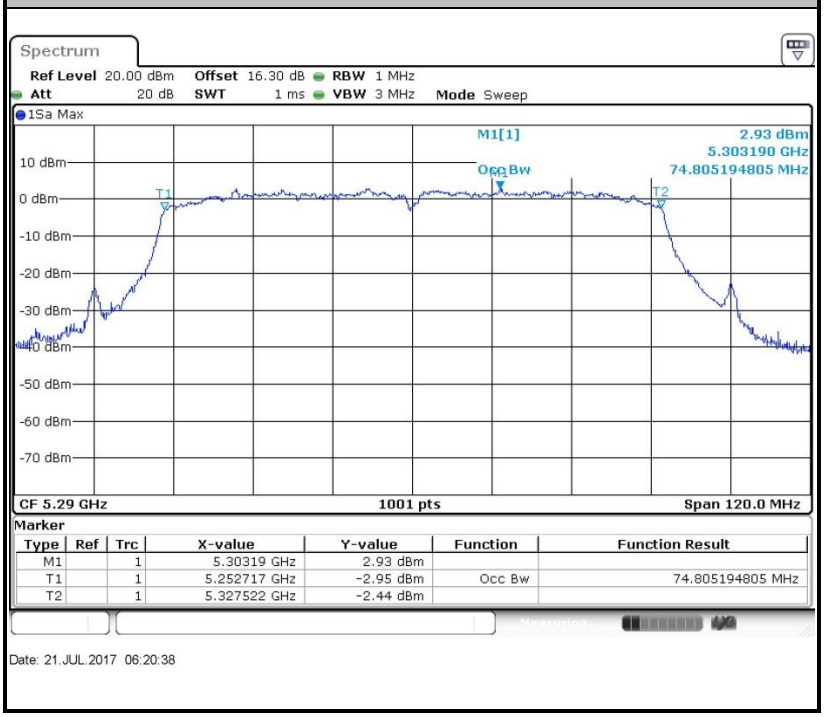
3.1.5 Test Result of 26dB & 99% Occupied Bandwidth Plots

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.

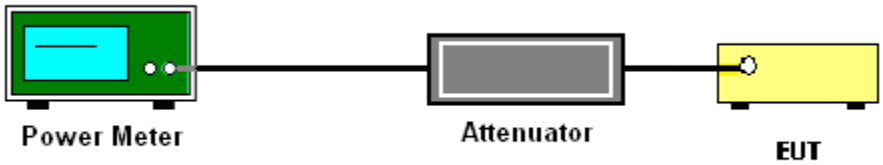
3.2.3 Test Procedures

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

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

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

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

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

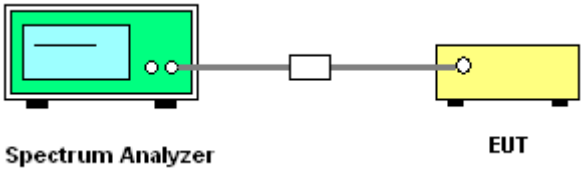
The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04. Section F) Maximum power spectral density.

 # 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.

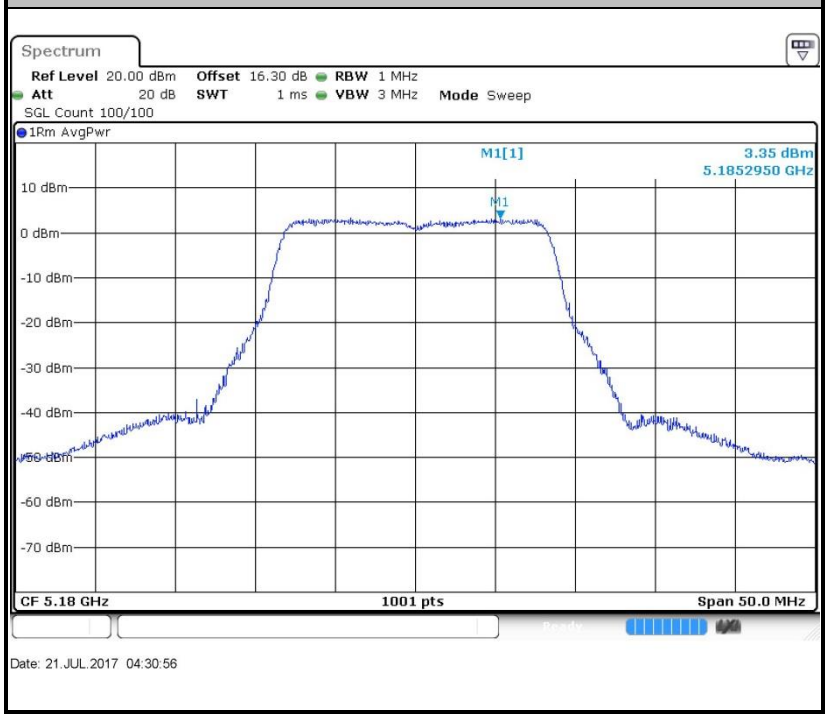
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Spectral Density(dBm/MHz)



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.

$$E=\frac{1000000\sqrt{30P}}{3}$$ μV/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 ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

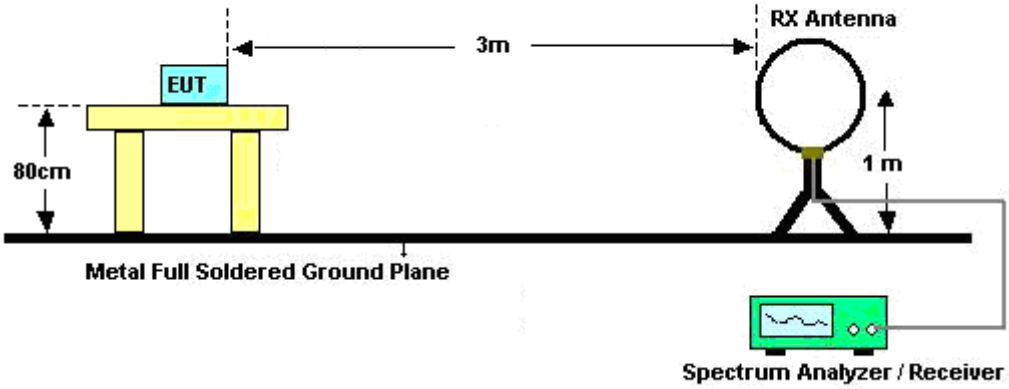
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

   - 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.

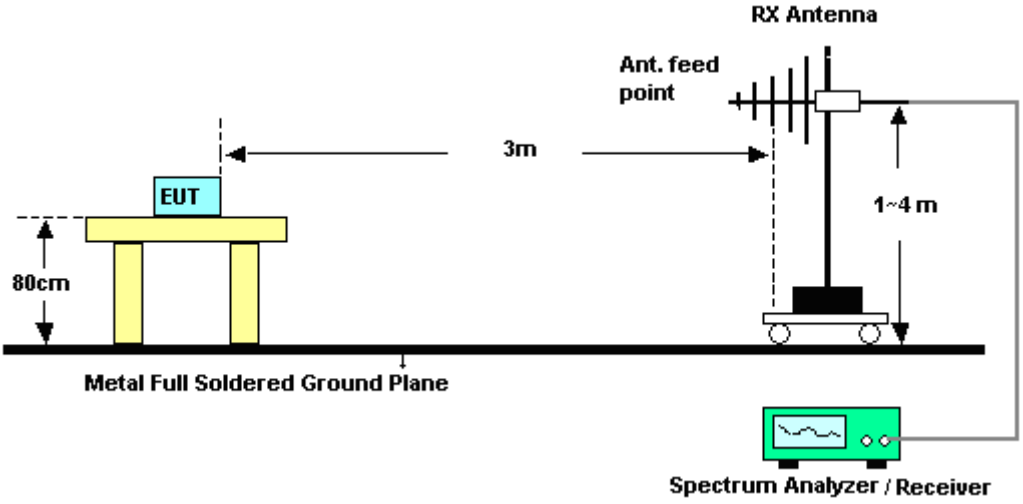
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband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

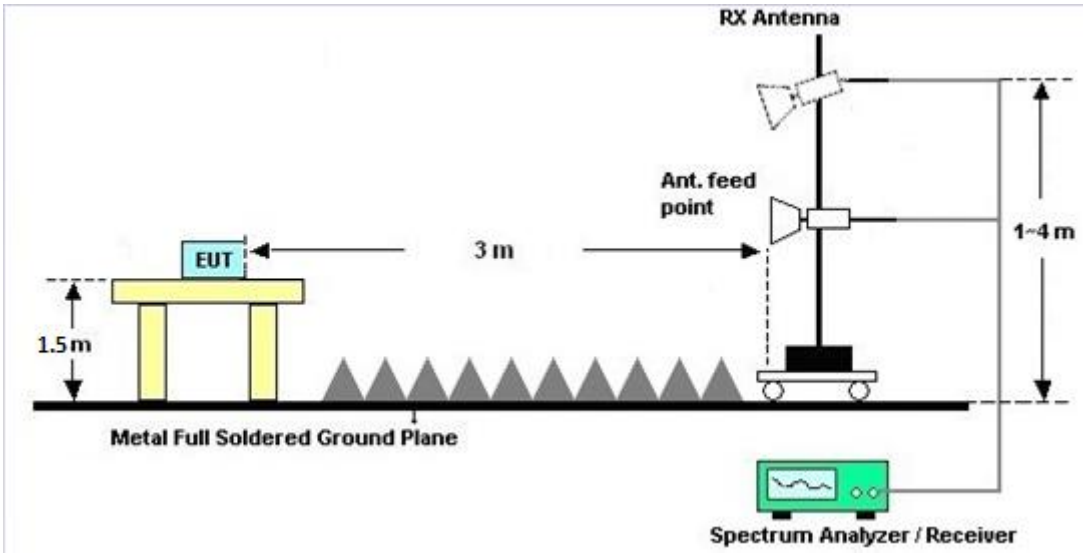
For radiated emissions below 30MHz



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 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 (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.

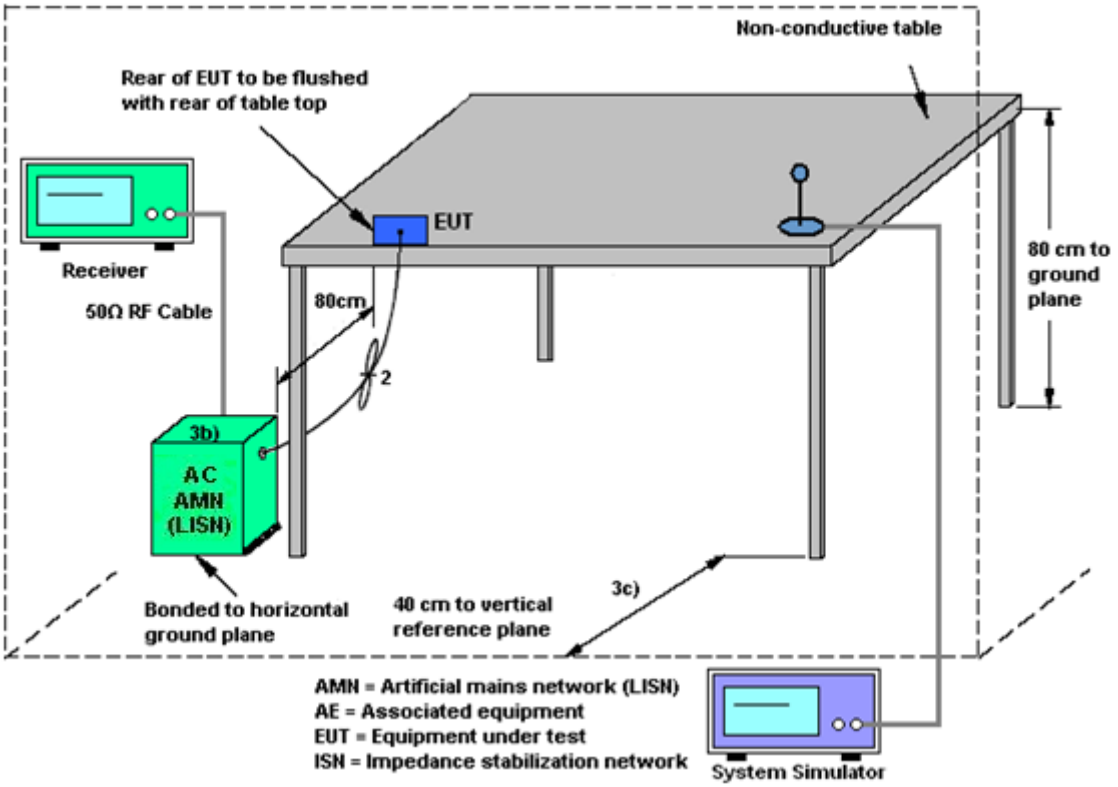
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

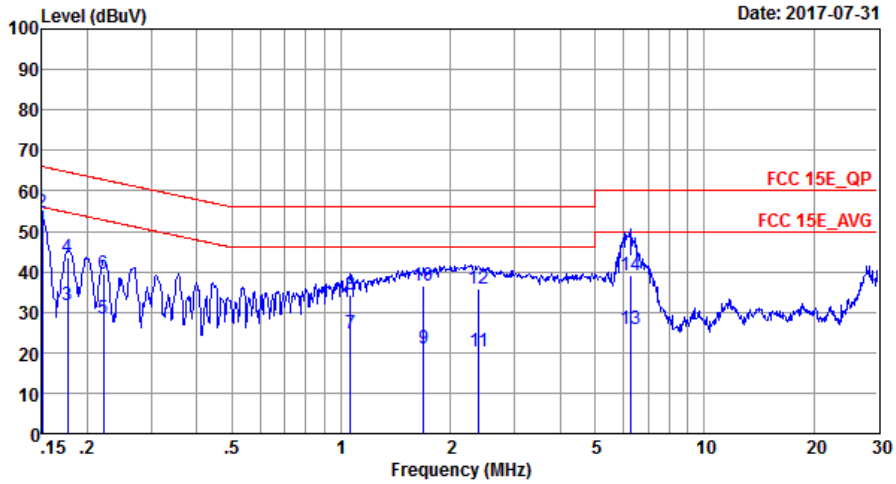
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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 :**	24~25℃
Test Engineer :	HaoHai Ye	**Relative Humidity :**	50~55%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	Bluetooth Link + WLAN Link (5G) + USB Cable 1 (Charging from Adapter 1) + Earphone for Sample 1		

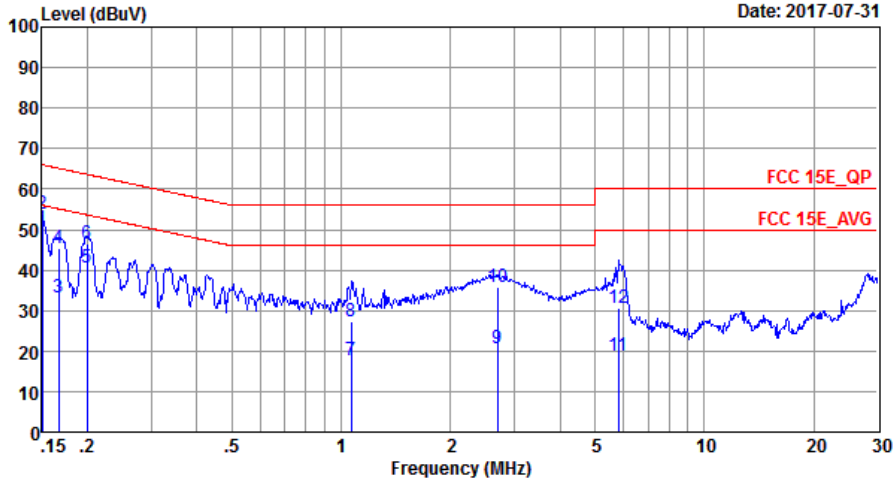


Site : CO01-SZ
Condition: FCC 15E_QP LISN_20170301_L LINE

Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.15	50.54	-5.46	56.00	40.10	0.03	10.41	Average
2	0.15	54.44	-11.56	66.00	44.00	0.03	10.41	QP
3	0.18	31.63	-23.01	54.64	21.30	0.03	10.30	Average
4	0.18	43.43	-21.21	64.64	33.10	0.03	10.30	QP
5	0.22	28.25	-24.49	52.74	18.00	0.03	10.22	Average
6	0.22	39.65	-23.09	62.74	29.40	0.03	10.22	QP
7	1.06	24.62	-21.38	46.00	14.40	0.07	10.15	Average
8	1.06	34.32	-21.68	56.00	24.10	0.07	10.15	QP
9	1.69	21.06	-24.94	46.00	10.80	0.10	10.16	Average
10	1.69	36.56	-19.44	56.00	26.30	0.10	10.16	QP
11	2.40	20.32	-25.68	46.00	10.01	0.13	10.18	Average
12	2.40	35.82	-20.18	56.00	25.51	0.13	10.18	QP
13	6.25	25.72	-24.28	50.00	15.19	0.22	10.31	Average
14	6.25	39.22	-20.78	60.00	28.69	0.22	10.31	QP

Test Mode :	Mode 1	**Temperature :**	24~25℃
Test Engineer :	HaoHai Ye	**Relative Humidity :**	50~55%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	Bluetooth Link + WLAN Link (5G) + USB Cable 1 (Charging from Adapter 1) + Earphone for Sample 1		



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

Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.15	50.04	-5.96	56.00	39.60	0.03	10.41	Average
2	0.15	53.74	-12.26	66.00	43.30	0.03	10.41	QP
3	0.17	33.27	-21.85	55.12	22.90	0.03	10.34	Average
4	0.17	45.47	-19.65	65.12	35.10	0.03	10.34	QP
5	0.20	40.65	-12.97	53.62	30.40	0.03	10.22	Average
6	0.20	46.45	-17.17	63.62	36.20	0.03	10.22	QP
7	1.07	17.70	-28.30	46.00	7.50	0.05	10.15	Average
8	1.07	27.40	-28.60	56.00	17.20	0.05	10.15	QP
9	2.69	20.73	-25.27	46.00	10.49	0.04	10.20	Average
10	2.69	35.73	-20.27	56.00	25.49	0.04	10.20	QP
11	5.80	18.77	-31.23	50.00	8.40	0.07	10.30	Average
12	5.80	30.47	-29.53	60.00	20.10	0.07	10.30	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.

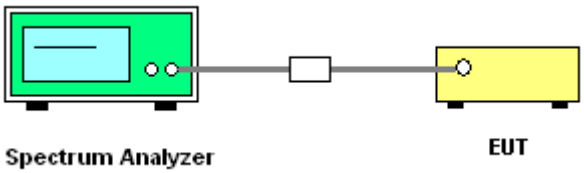
3.6.2 Measuring Instruments

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
Pulse Power Senor	Anritsu	MA2411B	1207253	30MHz~40GHz	Jan. 06, 2017	Jun. 30, 2017~ Jul. 21, 2017	Jan. 05, 2018	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Jan. 06, 2017	Jun. 30, 2017~ Jul. 21, 2017	Jan. 05, 2018	Conducted (TH01-SZ)
DC Power Supply	GWINSTEK	AnritsuGPS-3030D	EM882636	Max 30V	May 12, 2017	Jun. 30, 2017~ Jul. 21, 2017	May 11, 2018	Conducted (TH01-SZ)
Thermal Chamber	Hongzhan	LP-150U	HZ014011440	-40~+150°C 20%~95%RH	Apr.18, 2017	Jun. 30, 2017~ Jul. 21, 2017	Apr. 17, 2018	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr. 20, 2017	Jun. 30, 2017~ Jul. 23, 2017	Apr. 19, 2018	Radiation (03CH03-SZ)
EXA Spectrum Anaiyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr. 20, 2017	Jun. 30, 2017~ Jul. 23, 2017	Apr. 19, 2018	Radiation (03CH03-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 14, 2017	Jun. 30, 2017~ Jul. 23, 2017	May 13, 2018	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	May 14, 2017	Jun. 30, 2017~ Jul. 23, 2017	May 13, 2018	Radiation (03CH03-SZ)
Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1285	1GHz~18GHz	Jan. 12, 2017	Jun. 30, 2017~ Jul. 23, 2017	Jan. 11, 2018	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Aug. 10, 2016	Jun. 30, 2017~ Jul. 23, 2017	Aug. 09, 2017	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102210	0.01Hz ~3000MHz	Oct. 11, 2016	Jun. 30, 2017~ Jul. 23, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 11, 2016	Jun. 30, 2017~ Jul. 23, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Jan. 06, 2017	Jun. 30, 2017~ Jul. 23, 2017	Jan. 05, 2018	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1988315	18GHz~40GHz	Jun. 27, 2017	Jun. 30, 2017~ Jul. 23, 2017	Jun. 26, 2018	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Jun. 30, 2017~ Jul. 23, 2017	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jun. 30, 2017~ Jul. 23, 2017	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jun. 30, 2017~ Jul. 23, 2017	NCR	Radiation (03CH03-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Jan. 06, 2017	Jul. 31, 2017	Jan. 05, 2018	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Jan. 05, 2017	Jul. 31, 2017	Jan. 04, 2018	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103892	9kHz~30MHz	Jan. 05, 2017	Jul. 31, 2017	Jan. 04, 2018	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 19, 2017	Jul. 31, 2017	Jul. 18, 2018	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))	2.5dB

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

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

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

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

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

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

Appendix A. Conducted Test Results

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Wilson Chen	Temperature:	24~26	°C
Test Date:	2017/6/30~2017/7/21	Relative Humidity:	50~53	%

Report Number : FR771306D

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	18.73	23.63	-	22.73		
11a	6Mbps	1	44	5220	18.88	23.53	-	22.76		
11a	6Mbps	1	48	5240	18.78	23.93	-	22.74		
HT20	MCS0	1	36	5180	19.23	23.58	-	22.84		
HT20	MCS0	1	44	5220	19.53	23.83	-	22.91		
HT20	MCS0	1	48	5240	19.43	23.68	-	22.88		
HT40	MCS0	1	38	5190	36.96	44.60	-	23.01		
HT40	MCS0	1	46	5230	36.76	44.51	-	23.01		
VHT80	MCS0	1	42	5210	74.69	83.76	-	23.01		

Report Number : FR771306D

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	0.60	11.23	24.00	0.62		Pass
11a	6Mbps	1	44	5220	0.60	11.01	24.00	0.62		Pass
11a	6Mbps	1	48	5240	0.60	11.18	24.00	0.62		Pass
HT20	MCS0	1	36	5180	0.64	10.83	24.00	0.62		Pass
HT20	MCS0	1	44	5220	0.64	10.66	24.00	0.62		Pass
HT20	MCS0	1	48	5240	0.64	10.75	24.00	0.62		Pass
HT40	MCS0	1	38	5190	1.42	10.70	24.00	0.62		Pass
HT40	MCS0	1	46	5230	1.42	10.93	24.00	0.62		Pass
VHT20	MCS0	1	36	5180	0.84	9.19	24.00	0.62		Pass
VHT20	MCS0	1	44	5220	0.84	9.22	24.00	0.62		Pass
VHT20	MCS0	1	48	5240	0.84	9.50	24.00	0.62		Pass
VHT40	MCS0	1	38	5190	1.77	8.59	24.00	0.62		Pass
VHT40	MCS0	1	46	5230	1.77	8.72	24.00	0.62		Pass
VHT80	MCS0	1	42	5210	3.15	9.43	24.00	0.62		Pass

Report Number : FR771306D

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	0.60	3.95	11.00	0.62		Pass
11a	6Mbps	1	44	5220	0.60	3.62	11.00	0.62		Pass
11a	6Mbps	1	48	5240	0.60	3.37	11.00	0.62		Pass
HT20	MCS0	1	36	5180	0.64	3.01	11.00	0.62		Pass
HT20	MCS0	1	44	5220	0.64	2.66	11.00	0.62		Pass
HT20	MCS0	1	48	5240	0.64	2.87	11.00	0.62		Pass
HT40	MCS0	1	38	5190	1.42	0.69	11.00	0.62		Pass
HT40	MCS0	1	46	5230	1.42	0.40	11.00	0.62		Pass
VHT80	MCS0	1	42	5210	3.15	-4.15	11.00	0.62		Pass

Report Number : FR771306D

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
11a	6M bps	1	52	5260	18.73	23.68	23.73	29.73	23.98	
11a	6M bps	1	60	5300	18.63	23.73	23.70	29.70	23.98	
11a	6M bps	1	64	5320	18.58	23.63	23.69	29.69	23.98	
HT20	MCS 0	1	52	5260	19.48	23.88	23.90	29.90	23.98	
HT20	MCS 0	1	60	5300	19.33	23.78	23.86	29.86	23.98	
HT20	MCS 0	1	64	5320	19.48	23.63	23.90	29.90	23.98	
HT40	MCS 0	1	54	5270	36.66	44.69	23.98	30.00	23.98	
HT40	MCS 0	1	62	5310	37.06	44.33	23.98	30.00	23.98	
VHT80	MCS 0	1	58	5290	74.81	84.08	23.98	30.00	23.98	

Report Number : FR771306D

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	0.60	11.07	23.98	0.62	26.99	Pass
11a	6M bps	1	60	5300	0.60	11.01	23.98	0.62	26.99	Pass
11a	6M bps	1	64	5320	0.60	11.05	23.98	0.62	26.99	Pass
HT20	MCS 0	1	52	5260	0.64	10.72	23.98	0.62	26.99	Pass
HT20	MCS 0	1	60	5300	0.64	10.66	23.98	0.62	26.99	Pass
HT20	MCS 0	1	64	5320	0.64	10.72	23.98	0.62	26.99	Pass
HT40	MCS 0	1	54	5270	1.42	10.77	23.98	0.62	26.99	Pass
HT40	MCS 0	1	62	5310	1.42	10.88	23.98	0.62	26.99	Pass
VHT20	MCS 0	1	52	5260	0.84	9.42	23.98	0.62	26.99	Pass
VHT20	MCS 0	1	60	5300	0.84	9.07	23.98	0.62	26.99	Pass
VHT20	MCS 0	1	64	5320	0.84	9.29	23.98	0.62	26.99	Pass
VHT40	MCS 0	1	54	5270	1.77	8.30	23.98	0.62	26.99	Pass
VHT40	MCS 0	1	62	5310	1.77	8.42	23.98	0.62	26.99	Pass
VHT80	MCS 0	1	58	5290	3.15	9.40	23.98	0.62	26.99	Pass

Report Number : FR771306D

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	0.60	3.29	11.00	0.62		Pass
11a	6M bps	1	60	5300	0.60	3.32	11.00	0.62		Pass
11a	6M bps	1	64	5320	0.60	3.64	11.00	0.62		Pass
HT20	MCS 0	1	52	5260	0.64	2.62	11.00	0.62		Pass
HT20	MCS 0	1	60	5300	0.64	2.61	11.00	0.62		Pass
HT20	MCS 0	1	64	5320	0.64	2.49	11.00	0.62		Pass
HT40	MCS 0	1	54	5270	1.42	0.26	11.00	0.62		Pass
HT40	MCS 0	1	62	5310	1.42	0.34	11.00	0.62		Pass
VHT80	MCS 0	1	58	5290	3.15	-4.36	11.00	0.62		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
11a	6M bps	1	100	5500	18.98	23.78	23.78	29.78	23.98	
11a	6M bps	1	116	5580	18.83	23.73	23.75	29.75	23.98	
11a	6M bps	1	140	5700	18.68	23.38	23.71	29.71	23.98	
HT20	MCS 0	1	100	5500	19.38	23.88	23.87	29.87	23.98	
HT20	MCS 0	1	116	5580	19.38	24.03	23.87	29.87	23.98	
HT20	MCS 0	1	140	5700	19.33	23.93	23.86	29.86	23.98	
HT40	MCS 0	1	102	5510	36.96	44.06	23.98	30.00	23.98	
HT40	MCS 0	1	110	5550	36.96	44.78	23.98	30.00	23.98	
HT40	MCS 0	1	134	5670	36.96	45.05	23.98	30.00	23.98	
VHT80	MCS 0	1	106	5530	74.69	83.60	23.98	30.00	23.98	

Report Number : FR771306D

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	0.60	9.76	23.98	0.74	26.99	Pass
11a	6M bps	1	116	5580	0.60	10.07	23.98	0.74	26.99	Pass
11a	6M bps	1	140	5700	0.60	9.94	23.98	0.74	26.99	Pass
HT20	MCS 0	1	100	5500	0.64	9.33	23.98	0.74	26.99	Pass
HT20	MCS 0	1	116	5580	0.64	9.67	23.98	0.74	26.99	Pass
HT20	MCS 0	1	140	5700	0.64	9.42	23.98	0.74	26.99	Pass
HT40	MCS 0	1	102	5510	1.42	9.53	23.98	0.74	26.99	Pass
HT40	MCS 0	1	110	5550	1.42	9.65	23.98	0.74	26.99	Pass
HT40	MCS 0	1	134	5670	1.42	9.63	23.98	0.74	26.99	Pass
VHT20	MCS 0	1	100	5500	0.84	7.60	23.98	0.74	26.99	Pass
VHT20	MCS 0	1	116	5580	0.84	7.85	23.98	0.74	26.99	Pass
VHT20	MCS 0	1	140	5700	0.84	7.75	23.98	0.74	26.99	Pass
VHT40	MCS 0	1	102	5510	1.77	7.28	23.98	0.74	26.99	Pass
VHT40	MCS 0	1	110	5550	1.77	7.46	23.98	0.74	26.99	Pass
VHT40	MCS 0	1	134	5670	1.77	7.48	23.98	0.74	26.99	Pass
VHT80	MCS 0	1	106	5530	3.15	8.09	23.98	0.74	26.99	Pass

Report Number : FR771306D

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	0.60	3.35	11.00	0.74		Pass
11a	6M bps	1	116	5580	0.60	3.15	11.00	0.74		Pass
11a	6M bps	1	140	5700	0.60	2.97	11.00	0.74		Pass
HT20	MCS 0	1	100	5500	0.64	2.68	11.00	0.74		Pass
HT20	MCS 0	1	116	5580	0.64	2.60	11.00	0.74		Pass
HT20	MCS 0	1	140	5700	0.64	2.37	11.00	0.74		Pass
HT40	MCS 0	1	102	5510	1.42	-0.09	11.00	0.74		Pass
HT40	MCS 0	1	110	5550	1.42	0.16	11.00	0.74		Pass
HT40	MCS 0	1	134	5670	1.42	0.69	11.00	0.74		Pass
VHT80	MCS 0	1	106	5530	3.15	-4.45	11.00	0.74		Pass

Report Number : FR771306D

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	1	36	5180	5180.025	0.025	4.83	50	3.85	
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	-30	3.85	
11a	6Mbps	1	36	5180	5180.025	0.025	4.83	20	4.2	
11a	6Mbps	1	36	5180	5180.025	0.025	4.83	20	3.5	
11a	6Mbps	1	36	5180	5180.025	0.025	4.83	20	3.85	

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	1	64	5320	5320.025	0.025	4.70	50	3.85	
11a	6Mbps	1	64	5320	5320.025	0.025	4.70	-30	3.85	
11a	6Mbps	1	64	5320	5320.025	0.025	4.70	20	4.2	
11a	6Mbps	1	64	5320	5320.025	0.025	4.70	20	3.5	
11a	6Mbps	1	64	5320	5320.025	0.025	4.70	20	3.85	

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	1	100	5500	5500.025	0.025	4.55	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	5500.025	0.025	4.55	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		5127.4	50.85	-23.15	74	42.11	32.03	8.77	32.06	100	328	P	H
		5127.92	45.37	-8.63	54	36.63	32.03	8.77	32.06	100	328	A	H
	*	5180	106.46	-	-	97.71	32.04	8.81	32.1	100	328	P	H
		5180	97.54	-	-	88.79	32.04	8.81	32.1	100	328	A	H
		5128.44	49.31	-24.69	74	40.57	32.03	8.77	32.06	360	211	P	V
		5127.66	42.37	-11.63	54	33.63	32.03	8.77	32.06	360	211	A	V
	*	5180	100.97	-	-	92.22	32.04	8.81	32.1	360	211	P	V
	*	5180	92.95	-	-	84.2	32.04	8.81	32.1	360	211	A	V
802.11a CH 44 5220MHz		5017.94	49.53	-24.47	74	40.86	32	8.67	32	306	344	P	H
		5066.56	40.05	-13.95	54	31.35	32.01	8.7	32.01	306	344	A	H
	*	5220	107.13	-	-	98.36	32.04	8.84	32.11	306	344	P	H
	*	5220	98.31	-	-	89.54	32.04	8.84	32.11	306	344	A	H
		5418.24	47.09	-26.91	74	38.2	32.08	9.06	32.25	306	344	P	H
		5407.44	38.74	-15.26	54	29.85	32.08	9.06	32.25	306	344	A	H
		5144.56	48.47	-25.53	74	39.75	32.03	8.77	32.08	360	237	P	V
		5047.32	39.96	-14.04	54	31.26	32.01	8.7	32.01	360	237	A	V
	*	5220	103.41	-	-	94.64	32.04	8.84	32.11	360	237	P	V
	*	5220	94.33	-	-	85.56	32.04	8.84	32.11	360	237	A	V
		5373.36	47.21	-26.79	74	38.35	32.07	9.02	32.23	360	237	P	V
		5446.8	38.49	-15.51	54	29.58	32.09	9.09	32.27	360	237	A	V

802.11a CH 48 5240MHz		5094.9	48.69	-25.31	74	39.98	32.02	8.74	32.05	350	313	P	H
		5067.34	40.16	-13.84	54	31.48	32.01	8.7	32.03	350	313	A	H
	*	5240	106.98	-	-	98.18	32.05	8.88	32.13	350	313	P	H
	*	5240	98	-	-	89.2	32.05	8.88	32.13	350	313	A	H
		5453.76	47.49	-26.51	74	38.59	32.09	9.09	32.28	350	313	P	H
		5350.8	38.58	-15.42	54	29.71	32.07	9.02	32.22	350	313	A	H
		5025.22	48.08	-25.92	74	39.4	32.01	8.67	32	323	210	P	V
		5038.48	39.94	-14.06	54	31.23	32.01	8.7	32	323	210	A	V
	*	5240	102.62	-	-	93.82	32.05	8.88	32.13	323	210	P	V
	*	5240	94.56	-	-	85.76	32.05	8.88	32.13	323	210	A	V
		5350.08	48.07	-25.93	74	39.2	32.07	9.02	32.22	323	210	P	V
		5440.56	38.59	-15.41	54	29.68	32.09	9.09	32.27	323	210	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	49.02	-24.98	74	59.45	38.79	11.63	60.85	152	260	P	H
		15540	44.47	-29.53	74	53.8	38.92	13.9	62.15	189	238	P	H
		10360	48.69	-25.31	74	59.12	38.79	11.63	60.85	152	260	P	V
		15540	45.27	-28.73	74	54.6	38.92	13.9	62.15	189	238	P	V
802.11a CH 44 5220MHz		10440	48.68	-25.32	74	58.97	38.85	11.66	60.8	150	230	P	H
		15660	45.87	-28.13	74	55.48	38.63	13.96	62.2	160	225	P	H
		10440	48.78	-25.22	74	59.07	38.85	11.66	60.8	150	230	P	V
		15660	46.68	-27.32	74	56.29	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	46.7	-27.3	74	56.5	38.46	13.98	62.24	150	291	P	H
		10480	48.85	-25.15	74	59.05	38.89	11.67	60.76	150	289	P	V
		15720	46.47	-27.53	74	56.27	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		5148.72	51.59	-22.41	74	42.87	32.03	8.77	32.08	100	320	P	H
		5128.44	45.71	-8.29	54	36.97	32.03	8.77	32.06	100	320	A	H
	*	5180	106.61	-	-	97.86	32.04	8.81	32.1	100	320	P	H
	*	5180	97.17	-	-	88.42	32.04	8.81	32.1	100	320	A	H
		5127.66	49.36	-24.64	74	40.62	32.03	8.77	32.06	329	216	P	V
		5128.18	43.35	-10.65	54	34.61	32.03	8.77	32.06	329	216	A	V
	*	5180	102.29	-	-	93.54	32.04	8.81	32.1	329	216	P	V
	*	5180	93.33	-	-	84.58	32.04	8.81	32.1	329	216	A	V
802.11n HT20 CH 44 5220MHz		5112.32	49.62	-24.38	74	40.91	32.02	8.74	32.05	360	314	P	H
		5034.32	40.09	-13.91	54	31.41	32.01	8.67	32	360	314	A	H
	*	5220	105.45	-	-	96.68	32.04	8.84	32.11	360	314	P	H
	*	5220	97.13	-	-	88.36	32.04	8.84	32.11	360	314	A	H
		5451.84	46.69	-27.31	74	37.79	32.09	9.09	32.28	360	314	P	H
		5445.6	38.67	-15.33	54	29.76	32.09	9.09	32.27	360	314	A	H
		5094.64	48.22	-25.78	74	39.51	32.02	8.74	32.05	360	237	P	V
		5077.74	39.72	-14.28	54	30.99	32.02	8.74	32.03	360	237	A	V
	*	5220	103.3	-	-	94.53	32.04	8.84	32.11	360	237	P	V
	*	5220	93.97	-	-	85.2	32.04	8.84	32.11	360	237	A	V
		5399.28	47.81	-26.19	74	38.92	32.08	9.06	32.25	360	237	P	V
		5440.56	38.55	-15.45	54	29.64	32.09	9.09	32.27	360	237	A	V

802.11n HT20 CH 48 5240MHz		5085.02	49.02	-24.98	74	40.29	32.02	8.74	32.03	360	343	P	H
		5021.06	39.94	-14.06	54	31.26	32.01	8.67	32	360	343	A	H
	*	5240	105.54	-	-	96.74	32.05	8.88	32.13	360	343	P	H
	*	5240	97.62	-	-	88.82	32.05	8.88	32.13	360	343	A	H
		5361.12	46.51	-27.49	74	37.64	32.07	9.02	32.22	360	343	P	H
		5457.36	38.72	-15.28	54	29.82	32.09	9.09	32.28	360	343	A	H
		5015.86	48.72	-25.28	74	40.03	32	8.67	31.98	353	237	P	V
		5069.16	39.8	-14.2	54	31.12	32.01	8.7	32.03	353	237	A	V
	*	5240	102.76	-	-	93.96	32.05	8.88	32.13	353	237	P	V
	*	5240	93.77	-	-	84.97	32.05	8.88	32.13	353	237	A	V
		5442	47.18	-26.82	74	38.27	32.09	9.09	32.27	353	237	P	V
		5453.52	38.64	-15.36	54	29.74	32.09	9.09	32.28	353	237	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	48.56	-25.44	74	58.99	38.79	11.63	60.85	152	260	P	H
HT20		15540	45.41	-28.59	74	54.74	38.92	13.9	62.15	189	238	P	H
CH 36		10360	47.66	-26.34	74	58.09	38.79	11.63	60.85	152	260	P	V
5180MHz		15540	45.28	-28.72	74	54.61	38.92	13.9	62.15	189	238	P	V
802.11n		10440	48.51	-25.49	74	58.8	38.85	11.66	60.8	150	230	P	H
HT20		15660	45.89	-28.11	74	55.5	38.63	13.96	62.2	160	225	P	H
CH 44		10440	48.65	-25.35	74	58.94	38.85	11.66	60.8	150	230	P	V
5220MHz		15660	46.9	-27.1	74	56.51	38.63	13.96	62.2	160	225	P	V
802.11n		10480	47.14	-26.86	74	57.34	38.89	11.67	60.76	150	289	P	H
HT20		15720	46.74	-27.26	74	56.54	38.46	13.98	62.24	150	291	P	H
CH 48		10480	48.16	-25.84	74	58.36	38.89	11.67	60.76	150	289	P	V
5240MHz		15720	47.39	-26.61	74	57.19	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		5146.9	55.94	-18.06	74	47.22	32.03	8.77	32.08	119	330	P	H
		5149.76	48.81	-5.19	54	40.09	32.03	8.77	32.08	119	330	A	H
	*	5190	104.69	-	-	95.94	32.04	8.81	32.1	119	330	P	H
	*	5190	96.86	-	-	88.11	32.04	8.81	32.1	119	330	A	H
		5413.24	47	-27	74	38.11	32.08	9.06	32.25	119	330	P	H
		5372.64	39.18	-14.82	54	30.31	32.07	9.02	32.22	119	330	A	H
		5146.64	51.86	-22.14	74	43.14	32.03	8.77	32.08	321	205	P	V
		5149.76	44.83	-9.17	54	36.11	32.03	8.77	32.08	321	205	A	V
	*	5190	98.52	-	-	89.74	32.04	8.84	32.1	321	205	P	V
	*	5190	90.74	-	-	81.96	32.04	8.84	32.1	321	205	A	V
		5361.44	47.11	-26.89	74	38.24	32.07	9.02	32.22	321	205	P	V
		5379.36	38.92	-15.08	54	30.05	32.08	9.02	32.23	321	205	A	V
802.11n HT40 CH 46 5230MHz		5124.8	49.77	-24.23	74	41.03	32.03	8.77	32.06	231	331	P	H
		5127.4	43.24	-10.76	54	34.5	32.03	8.77	32.06	231	331	A	H
	*	5230	103.48	-	-	94.72	32.05	8.84	32.13	231	331	P	H
	*	5230	96.62	-	-	87.86	32.05	8.84	32.13	231	331	A	H
		5356.08	48.3	-25.7	74	39.43	32.07	9.02	32.22	231	331	P	H
		5379.12	39.32	-14.68	54	30.45	32.08	9.02	32.23	231	331	A	H
		5061.62	48.18	-25.82	74	39.48	32.01	8.7	32.01	354	215	P	V
		5127.66	41.11	-12.89	54	32.37	32.03	8.77	32.06	354	215	A	V
	*	5230	98.99	-	-	90.23	32.05	8.84	32.13	354	215	P	V
	*	5230	91.2	-	-	82.44	32.05	8.84	32.13	354	215	A	V
		5434.32	46.94	-27.06	74	38.03	32.09	9.09	32.27	354	215	P	V
		5440.08	39.03	-14.97	54	30.12	32.09	9.09	32.27	354	215	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 (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 Adapter 2		5148.2	53.78	-20.22	74	45.06	32.03	8.77	32.08	100	322	P	H
		5149.76	46.35	-7.65	54	37.63	32.03	8.77	32.08	100	322	A	H
	*	5190	104.18	-	-	95.43	32.04	8.81	32.1	100	322	P	H
	*	5190	97.79	-	-	89.04	32.04	8.81	32.1	100	322	A	H
		5424.44	46.71	-27.29	74	37.84	32.08	9.06	32.27	100	322	P	H
		5371.24	39.16	-14.84	54	30.29	32.07	9.02	32.22	100	322	A	H
		5149.5	48.87	-25.13	74	40.15	32.03	8.77	32.08	355	254	P	V
		5149.76	42.06	-11.94	54	33.34	32.03	8.77	32.08	355	254	A	V
	*	5190	100.71	-	-	91.96	32.04	8.81	32.1	355	254	P	V
	*	5190	92	-	-	83.25	32.04	8.81	32.1	355	254	A	V
		5361.72	46.18	-27.82	74	37.31	32.07	9.02	32.22	355	254	P	V
		5458.88	39.18	-14.82	54	30.28	32.09	9.09	32.28	355	254	A	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

WIFI 802.11n 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		10380	48.17	-25.83	74	58.56	38.81	11.64	60.84	150	360	P	H
HT40		15570	45.13	-28.87	74	54.54	38.83	13.92	62.16	155	360	P	H
CH 38		10380	47.43	-26.57	74	57.82	38.81	11.64	60.84	150	360	P	V
5190MHz		15570	45.54	-28.46	74	54.95	38.83	13.92	62.16	155	360	P	V
802.11n		10460	47.81	-26.19	74	58.07	38.86	11.67	60.79	150	360	P	H
HT40		15690	46.29	-27.71	74	55.99	38.54	13.98	62.22	150	225	P	H
CH 46		10460	47.74	-26.26	74	58	38.86	11.67	60.79	150	360	P	V
5230MHz		15690	46.95	-27.05	74	56.65	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 802.11n 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 Adapter 2		10380	47.83	-26.17	74	58.22	38.81	11.64	60.84	150	360	P	H
		15570	46.31	-27.69	74	55.72	38.83	13.92	62.16	155	360	P	H
		10380	50.13	-23.87	74	60.52	38.81	11.64	60.84	150	360	P	V
		15570	46.23	-27.77	74	55.64	38.83	13.92	62.16	155	360	P	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 (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		5143.26	54.98	-19.02	74	46.24	32.03	8.77	32.06	101	349	P	H
		5147.42	42.82	-11.18	54	34.1	32.03	8.77	32.08	101	349	A	H
	*	5210	98.19	-	-	89.42	32.04	8.84	32.11	101	349	P	H
	*	5210	89.56	-	-	80.79	32.04	8.84	32.11	101	349	A	H
		5424	46.72	-27.28	74	37.83	32.08	9.06	32.25	101	349	P	H
		5460	37.66	-16.34	54	28.76	32.09	9.09	32.28	101	349	A	H
		5040.56	48.94	-25.06	74	40.23	32.01	8.7	32	358	100	P	V
		5148.98	38.68	-15.32	54	29.96	32.03	8.77	32.08	358	100	A	V
	*	5210	86.21	-	-	77.44	32.04	8.84	32.11	358	100	P	V
	*	5210	78.45	-	-	69.68	32.04	8.84	32.11	358	100	A	V
		5451.36	46.42	-27.58	74	37.52	32.09	9.09	32.28	358	100	P	V
		5459.52	37.5	-16.5	54	28.6	32.09	9.09	32.28	358	100	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	48.35	-25.65	74	58.67	38.83	11.66	60.81	150	360	P	H
VHT80		15630	46.66	-27.34	74	56.25	38.67	13.94	62.2	150	225	P	H
CH 42		10420	47.47	-26.53	74	57.79	38.83	11.66	60.81	150	360	P	V
5210MHz		15630	46.96	-27.04	74	56.55	38.67	13.94	62.2	150	225	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	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		5010.92	48.69	-25.31	74	40	32	8.67	31.98	308	317	P	H
		5066.56	40.07	-13.93	54	31.37	32.01	8.7	32.01	308	317	A	H
	*	5260	107.19	-	-	98.41	32.05	8.88	32.15	308	317	P	H
	*	5260	97.74	-	-	88.96	32.05	8.88	32.15	308	317	A	H
		5404.8	47.79	-26.21	74	38.9	32.08	9.06	32.25	308	317	P	H
		5455.2	39.02	-14.98	54	30.12	32.09	9.09	32.28	308	317	A	H
		5031.72	48.52	-25.48	74	39.84	32.01	8.67	32	350	237	P	V
		5064.74	40.05	-13.95	54	31.35	32.01	8.7	32.01	350	237	A	V
	*	5260	102.68	-	-	93.9	32.05	8.88	32.15	350	237	P	V
	*	5260	93.36	-	-	84.58	32.05	8.88	32.15	350	237	A	V
		5445.84	46.81	-27.19	74	37.9	32.09	9.09	32.27	350	237	P	V
		5446.56	38.64	-15.36	54	29.73	32.09	9.09	32.27	350	237	A	V
802.11a CH 60 5300MHz		5100.8	49.01	-24.99	74	40.3	32.02	8.74	32.05	323	314	P	H
		5046.9	40.35	-13.65	54	31.65	32.01	8.7	32.01	323	314	A	H
	*	5300	107.61	-	-	98.8	32.06	8.93	32.18	323	314	P	H
	*	5300	98.37	-	-	89.56	32.06	8.93	32.18	323	314	A	H
		5352.96	51.56	-22.44	74	42.69	32.07	9.02	32.22	323	314	P	H
		5352.48	45.73	-8.27	54	36.86	32.07	9.02	32.22	323	314	A	H
		5053.2	48.72	-25.28	74	40.02	32.01	8.7	32.01	334	211	P	V
		5038.5	40.03	-13.97	54	31.32	32.01	8.7	32	334	211	A	V
	*	5300	103.27	-	-	94.46	32.06	8.93	32.18	334	211	P	V
	*	5300	94.72	-	-	85.91	32.06	8.93	32.18	334	211	A	V
		5352	48.79	-25.21	74	39.92	32.07	9.02	32.22	334	211	P	V
		5352.24	42.35	-11.65	54	33.48	32.07	9.02	32.22	334	211	A	V

802.11a CH 64 5320MHz	*	5320	107.73	-	-	98.88	32.06	8.97	32.18	350	341	P	H
	*	5320	98.36	-	-	89.51	32.06	8.97	32.18	350	341	A	H
		5352.48	52.19	-21.81	74	43.32	32.07	9.02	32.22	350	341	P	H
		5372.64	45.34	-8.66	54	36.47	32.07	9.02	32.22	350	341	A	H
	*	5320	102.52	-	-	93.67	32.06	8.97	32.18	335	224	P	V
	*	5320	92.08	-	-	83.23	32.06	8.97	32.18	335	224	A	V
		5372	48.59	-25.41	74	39.72	32.07	9.02	32.22	335	224	P	V
		5372.32	42.66	-11.34	54	33.79	32.07	9.02	32.22	335	224	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	47.9	-26.1	74	57.99	38.93	11.69	60.71	150	220	P	H
		15780	46.82	-27.18	74	56.71	38.34	14.03	62.26	159	345	P	H
		10520	48.34	-25.66	74	58.43	38.93	11.69	60.71	150	220	P	V
		15780	46.8	-27.2	74	56.69	38.34	14.03	62.26	159	345	P	V
802.11a CH 60 5300MHz		10600	49	-25	74	58.7	39.11	11.71	60.52	185	215	P	H
		15900	45.76	-28.24	74	55.94	38.05	14.09	62.32	196	190	P	H
		10600	48.69	-25.31	74	58.39	39.11	11.71	60.52	185	215	P	V
		15900	47.47	-26.53	74	57.65	38.05	14.09	62.32	196	190	P	V
802.11a CH 64 5320MHz		10640	48.44	-25.56	74	57.98	39.18	11.73	60.45	152	135	P	H
		15960	45.93	-28.07	74	56.27	37.88	14.13	62.35	173	245	P	H
		10640	48.68	-25.32	74	58.22	39.18	11.73	60.45	152	135	P	V
		15960	45.8	-28.2	74	56.14	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		5026.78	48.32	-25.68	74	39.64	32.01	8.67	32	360	342	P	H
		5074.36	39.81	-14.19	54	31.12	32.02	8.7	32.03	360	342	A	H
	*	5260	105.42	-	-	96.64	32.05	8.88	32.15	360	342	P	H
	*	5260	97.41	-	-	88.63	32.05	8.88	32.15	360	342	A	H
		5370.96	46.97	-27.03	74	38.1	32.07	9.02	32.22	360	342	P	H
		5458.32	38.97	-15.03	54	30.07	32.09	9.09	32.28	360	342	A	H
		5001.56	49.1	-24.9	74	40.41	32	8.67	31.98	358	212	P	V
		5033.8	39.74	-14.26	54	31.06	32.01	8.67	32	358	212	A	V
	*	5260	101.29	-	-	92.51	32.05	8.88	32.15	358	212	P	V
	*	5260	92.58	-	-	83.8	32.05	8.88	32.15	358	212	A	V
		5365.44	46.85	-27.15	74	37.98	32.07	9.02	32.22	358	212	P	V
		5446.56	38.59	-15.41	54	29.68	32.09	9.09	32.27	358	212	A	V
802.11n HT20 CH 60 5300MHz		5112	48.65	-25.35	74	39.94	32.02	8.74	32.05	356	345	P	H
		5072.1	40.1	-13.9	54	31.41	32.02	8.7	32.03	356	345	A	H
	*	5300	106.83	-	-	98.02	32.06	8.93	32.18	356	345	P	H
	*	5300	98.15	-	-	89.34	32.06	8.93	32.18	356	345	A	H
		5351.52	50.48	-23.52	74	41.61	32.07	9.02	32.22	356	345	P	H
		5351.76	45.63	-8.37	54	36.76	32.07	9.02	32.22	356	345	A	H
		5054.6	48.92	-25.08	74	40.22	32.01	8.7	32.01	120	108	P	V
		5010.85	39.87	-14.13	54	31.18	32	8.67	31.98	120	108	A	V
	*	5300	99.11	-	-	90.3	32.06	8.93	32.18	120	108	P	V
	*	5300	90.65	-	-	81.84	32.06	8.93	32.18	120	108	A	V
		5351.76	47.04	-26.96	74	38.17	32.07	9.02	32.22	120	108	P	V
		5351.52	40.38	-13.62	54	31.51	32.07	9.02	32.22	120	108	A	V

802.11n HT20 CH 64 5320MHz	*	5320	106.13	-	-	97.28	32.06	8.97	32.18	358	351	P	H
	*	5320	97.97	-	-	89.12	32.06	8.97	32.18	358	351	A	H
		5371.84	52.43	-21.57	74	43.56	32.07	9.02	32.22	358	351	P	H
		5371.52	46.08	-7.92	54	37.21	32.07	9.02	32.22	358	351	A	H
	*	5320	102.17	-	-	93.32	32.06	8.97	32.18	345	229	P	V
	*	5320	93.36	-	-	84.51	32.06	8.97	32.18	345	229	A	V
		5372.96	48.35	-25.65	74	39.48	32.07	9.02	32.22	345	229	P	V
		5371.84	41.86	-12.14	54	32.99	32.07	9.02	32.22	345	229	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	47.62	-26.38	74	57.71	38.93	11.69	60.71	150	220	P	H
HT20		15780	47.04	-26.96	74	56.93	38.34	14.03	62.26	159	345	P	H
CH 52		10520	47.75	-26.25	74	57.84	38.93	11.69	60.71	150	220	P	V
5260MHz		15780	48.1	-25.9	74	57.99	38.34	14.03	62.26	159	345	P	V
802.11n		10600	48.07	-25.93	74	57.77	39.11	11.71	60.52	185	215	P	H
HT20		15900	47.31	-26.69	74	57.49	38.05	14.09	62.32	196	190	P	H
CH 60		10600	48.62	-25.38	74	58.32	39.11	11.71	60.52	185	215	P	V
5300MHz		15900	47.29	-26.71	74	57.47	38.05	14.09	62.32	196	190	P	V
802.11n		10640	48.34	-25.66	74	57.88	39.18	11.73	60.45	150	360	P	H
HT20		15960	47.39	-26.61	74	57.73	37.88	14.13	62.35	150	225	P	H
CH 64		10640	48.52	-25.48	74	58.06	39.18	11.73	60.45	150	360	P	V
5320MHz		15960	47.43	-26.57	74	57.77	37.88	14.13	62.35	150	225	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		5067.86	48.34	-25.66	74	39.66	32.01	8.7	32.03	360	343	P	H
		5093.86	40.52	-13.48	54	31.81	32.02	8.74	32.05	360	343	A	H
	*	5270	104.21	-	-	95.43	32.05	8.88	32.15	360	343	P	H
	*	5270	96.11	-	-	87.33	32.05	8.88	32.15	360	343	A	H
		5371.92	48.69	-25.31	74	39.82	32.07	9.02	32.22	360	343	P	H
		5372.88	41.65	-12.35	54	32.78	32.07	9.02	32.22	360	343	A	H
		5118.82	48.25	-25.75	74	39.52	32.02	8.77	32.06	333	211	P	V
		5055.12	40.42	-13.58	54	31.72	32.01	8.7	32.01	333	211	A	V
	*	5270	99.75	-	-	90.97	32.05	8.88	32.15	333	211	P	V
	*	5270	92.03	-	-	83.25	32.05	8.88	32.15	333	211	A	V
		5372.4	47.14	-26.86	74	38.27	32.07	9.02	32.22	333	211	P	V
		5372.16	39.93	-14.07	54	31.06	32.07	9.02	32.22	333	211	A	V
802.11n HT40 CH 62 5310MHz		5127.05	48.83	-25.17	74	40.09	32.03	8.77	32.06	152	338	P	H
		5056	40.86	-13.14	54	32.16	32.01	8.7	32.01	152	338	A	H
	*	5310	103.73	-	-	94.88	32.06	8.97	32.18	152	338	P	H
	*	5310	95.67	-	-	86.82	32.06	8.97	32.18	152	338	A	H
		5356.8	52.9	-21.1	74	44.03	32.07	9.02	32.22	152	338	P	H
		5350.08	45.85	-8.15	54	36.98	32.07	9.02	32.22	152	338	A	H
		5113.05	48.26	-25.74	74	39.55	32.02	8.74	32.05	307	207	P	V
		5119	40.4	-13.6	54	31.67	32.02	8.77	32.06	307	207	A	V
	*	5310	98.17	-	-	89.32	32.06	8.97	32.18	307	207	P	V
	*	5310	90.09	-	-	81.24	32.06	8.97	32.18	307	207	A	V
		5351.76	51.84	-22.16	74	42.97	32.07	9.02	32.22	307	207	P	V
		5352	41.81	-12.19	54	32.94	32.07	9.02	32.22	307	207	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	47.68	-26.32	74	57.68	38.97	11.7	60.67	150	220	P	H
HT40		15810	46.86	-27.14	74	56.83	38.26	14.05	62.28	168	345	P	H
CH 54		10540	47.38	-26.62	74	57.38	38.97	11.7	60.67	150	220	P	V
5270MHz		15810	46.98	-27.02	74	56.95	38.26	14.05	62.28	168	345	P	V
802.11n		10620	47.9	-26.1	74	57.52	39.14	11.73	60.49	150	220	P	H
HT40		15930	46.13	-27.87	74	56.39	37.97	14.11	62.34	160	100	P	H
CH 62		10620	48.32	-25.68	74	57.94	39.14	11.73	60.49	150	220	P	V
5310MHz		15930	45.36	-28.64	74	55.62	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		5027.56	48.35	-25.65	74	39.67	32.01	8.67	32	180	348	P	H
		5073.84	38.71	-15.29	54	30.02	32.02	8.7	32.03	180	348	A	H
	*	5290	99.14	-	-	90.32	32.06	8.93	32.17	180	348	P	H
	*	5290	90.07	-	-	81.25	32.06	8.93	32.17	180	348	A	H
		5373.36	51.62	-22.38	74	42.76	32.07	9.02	32.23	180	348	P	H
		5351.04	39.14	-14.86	54	30.27	32.07	9.02	32.22	180	348	A	H
		5120.9	48.33	-25.67	74	39.6	32.02	8.77	32.06	308	214	P	V
		5039.26	38.68	-15.32	54	29.97	32.01	8.7	32	308	214	A	V
	*	5290	94	-	-	85.18	32.06	8.93	32.17	308	214	P	V
	*	5290	86.79	-	-	77.97	32.06	8.93	32.17	308	214	A	V
		5393.52	47.22	-26.78	74	38.31	32.08	9.06	32.23	308	214	P	V
		5350.8	37.97	-16.03	54	29.1	32.07	9.02	32.22	308	214	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		10480	46.14	-27.86	74	56.34	38.89	11.67	60.76	162	360	P	H
VHT80		15870	45.86	-28.14	74	56.01	38.09	14.07	62.31	162	0	P	H
CH 58		10480	46.5	-27.5	74	56.7	38.89	11.67	60.76	162	360	P	V
5290MHz		15870	45.55	-28.45	74	55.7	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 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 100 5500MHz		5447.28	52.46	-21.54	74	43.55	32.09	9.09	32.27	345	348	P	H
		5447.76	45.72	-8.28	54	36.81	32.09	9.09	32.27	345	348	A	H
	*	5500	107.11	-	-	98.19	32.1	9.12	32.3	345	348	P	H
	*	5500	98.77	-	-	89.85	32.1	9.12	32.3	345	348	A	H
		5355.28	47.04	-26.96	74	38.17	32.07	9.02	32.22	344	218	P	V
		5447.92	40.68	-13.32	54	31.77	32.09	9.09	32.27	344	218	A	V
	*	5500	101.23	-	-	92.31	32.1	9.12	32.3	344	218	P	V
	*	5500	92.33	-	-	83.41	32.1	9.12	32.3	344	218	A	V
802.11a CH 116 5580MHz		5354.08	46.85	-27.15	74	37.98	32.07	9.02	32.22	347	358	P	H
		5467.6	38.96	-15.04	54	30.03	32.09	9.12	32.28	347	358	A	H
	*	5580	108.7	-	-	99.3	32.39	9.17	32.16	347	358	P	H
	*	5580	99.84	-	-	90.44	32.39	9.17	32.16	347	358	A	H
		5728.46	49.17	-24.83	74	38.83	33.04	9.28	31.98	347	358	P	H
		5730.98	40.83	-13.17	54	30.45	33.04	9.28	31.94	347	358	A	H
		5413.6	46.63	-27.37	74	37.74	32.08	9.06	32.25	338	223	P	V
		5465.44	38.67	-15.33	54	29.77	32.09	9.09	32.28	338	223	A	V
	*	5580	99.75	-	-	90.35	32.39	9.17	32.16	338	223	P	V
	*	5580	90.82	-	-	81.42	32.39	9.17	32.16	338	223	A	V
		5763.11	49.26	-24.74	74	38.67	33.19	9.3	31.9	338	223	P	V
		5750.51	40.58	-13.42	54	30.11	33.11	9.3	31.94	338	223	A	V

802.11a CH 140 5700MHz	*	5700	108.92	-	-	98.75	32.9	9.28	32.01	212	356	P	H
	*	5700	100.59	-	-	90.42	32.9	9.28	32.01	212	356	A	H
		5752.76	53.73	-20.27	74	43.18	33.19	9.3	31.94	212	356	P	H
		5752.28	46.92	-7.08	54	36.37	33.19	9.3	31.94	212	356	A	H
	*	5700	98.96	-	-	88.79	32.9	9.28	32.01	338	209	P	V
	*	5700	90.99	-	-	80.82	32.9	9.28	32.01	338	209	A	V
		5761.32	48.62	-25.38	74	38.03	33.19	9.3	31.9	338	209	P	V
		5752.28	41.07	-12.93	54	30.52	33.19	9.3	31.94	338	209	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	49.12	-24.88	74	57.02	39.9	11.86	59.66	163	230	P	H
		16500	46.24	-27.76	74	54.49	38.6	14.41	61.26	178	296	P	H
		11000	49.9	-24.1	74	57.8	39.9	11.86	59.66	163	230	P	V
		16500	46.52	-27.48	74	54.77	38.6	14.41	61.26	178	296	P	V
802.11a CH 116 5580MHz		11160	47.87	-26.13	74	55.89	39.7	11.93	59.65	170	200	P	H
		16740	46.91	-27.09	74	53.66	39.37	14.57	60.69	156	350	P	H
		11160	48.26	-25.74	74	56.28	39.7	11.93	59.65	170	200	P	V
		16740	47.26	-26.74	74	54.01	39.37	14.57	60.69	156	350	P	V
802.11a CH 140 5700MHz		11400	48.73	-25.27	74	56.93	39.42	12.02	59.64	157	285	P	H
		17100	49.32	-24.68	74	53.82	40.82	14.76	60.08	165	246	P	H
		11400	48.01	-25.99	74	56.21	39.42	12.02	59.64	157	285	P	V
		17100	49	-25	74	53.5	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		5447.44	50.49	-23.51	74	41.58	32.09	9.09	32.27	360	2	P	H
		5448.08	46	-8	54	37.09	32.09	9.09	32.27	360	2	A	H
	*	5500	106.46	-	-	97.54	32.1	9.12	32.3	360	2	P	H
	*	5500	98.08	-	-	89.16	32.1	9.12	32.3	360	2	A	H
		5407.6	47.83	-26.17	74	38.94	32.08	9.06	32.25	344	225	P	V
		5448.56	40.67	-13.33	54	31.76	32.09	9.09	32.27	344	225	A	V
	*	5500	99.5	-	-	90.58	32.1	9.12	32.3	344	225	P	V
	*	5500	90.37	-	-	81.45	32.1	9.12	32.3	344	225	A	V
802.11n HT20 CH 116 5580MHz		5469.52	47.02	-26.98	74	38.09	32.09	9.12	32.28	117	356	P	H
		5461.36	38.6	-15.4	54	29.7	32.09	9.09	32.28	117	356	A	H
	*	5580	107.43	-	-	98.03	32.39	9.17	32.16	117	356	P	H
	*	5580	98.53	-	-	89.13	32.39	9.17	32.16	117	356	A	H
		5729.72	48.34	-25.66	74	38	33.04	9.28	31.98	117	356	P	H
		5731.925	40.49	-13.51	54	30.11	33.04	9.28	31.94	117	356	A	H
		5463.04	46.63	-27.37	74	37.73	32.09	9.09	32.28	333	234	P	V
		5463.76	38.56	-15.44	54	29.66	32.09	9.09	32.28	333	234	A	V
	*	5580	99.42	-	-	90.02	32.39	9.17	32.16	333	234	P	V
	*	5580	90.66	-	-	81.26	32.39	9.17	32.16	333	234	A	V
		5765	48.34	-25.66	74	37.75	33.19	9.3	31.9	333	234	P	V
		5757.44	40.33	-13.67	54	29.74	33.19	9.3	31.9	333	234	A	V

802.11n HT20 CH 140 5700MHz	*	5700	107.08	-	-	96.91	32.9	9.28	32.01	182	358	P	H
	*	5700	99.72	-	-	89.55	32.9	9.28	32.01	182	358	A	H
		5751.72	53.81	-20.19	74	43.26	33.19	9.3	31.94	182	358	P	H
		5751.64	46.82	-7.18	54	36.27	33.19	9.3	31.94	182	358	A	H
	*	5700	97.55	-	-	87.38	32.9	9.28	32.01	360	236	P	V
	*	5700	89.99	-	-	79.82	32.9	9.28	32.01	360	236	A	V
		5752.04	48.68	-25.32	74	38.13	33.19	9.3	31.94	360	236	P	V
		5756.04	40.42	-13.58	54	29.83	33.19	9.3	31.9	360	236	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	49.07	-24.93	74	56.97	39.9	11.86	59.66	163	230	P	H
HT20		16500	47.27	-26.73	74	55.52	38.6	14.41	61.26	178	296	P	H
CH 100		11000	49.89	-24.11	74	57.79	39.9	11.86	59.66	163	230	P	V
5500MHz		16500	47.44	-26.56	74	55.69	38.6	14.41	61.26	178	296	P	V
802.11n		11160	48.61	-25.39	74	56.63	39.7	11.93	59.65	170	200	P	H
HT20		16740	47.97	-26.03	74	54.72	39.37	14.57	60.69	156	350	P	H
CH 116		11160	48.72	-25.28	74	56.74	39.7	11.93	59.65	170	200	P	V
5580MHz		16740	47.7	-26.3	74	54.45	39.37	14.57	60.69	156	350	P	V
802.11n		11400	48.79	-25.21	74	56.99	39.42	12.02	59.64	157	285	P	H
HT20		17100	49.49	-24.51	74	53.99	40.82	14.76	60.08	165	246	P	H
CH 140		11400	48.68	-25.32	74	56.88	39.42	12.02	59.64	157	285	P	V
5700MHz		17100	48.42	-25.58	74	52.92	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 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		5467.84	52.88	-21.12	74	43.95	32.09	9.12	32.28	190	344	P	H
		5470	47.45	-6.55	54	38.52	32.09	9.12	32.28	190	344	A	H
	*	5510	104.76	-	-	95.78	32.1	9.14	32.26	190	344	P	H
	*	5510	96.64	-	-	87.66	32.1	9.14	32.26	190	344	A	H
		5758.7	49.02	-24.98	74	38.43	33.19	9.3	31.9	190	344	P	H
		5754.92	41.08	-12.92	54	30.53	33.19	9.3	31.94	190	344	A	H
		5468.32	48.48	-25.52	74	39.55	32.09	9.12	32.28	360	219	P	V
		5469.52	41.11	-12.89	54	32.18	32.09	9.12	32.28	360	219	A	V
	*	5510	99.68	-	-	90.7	32.1	9.14	32.26	360	219	P	V
	*	5510	90.41	-	-	81.43	32.1	9.14	32.26	360	219	A	V
		5750.195	48.08	-25.92	74	37.61	33.11	9.3	31.94	360	219	P	V
		5740.745	40.85	-13.15	54	30.38	33.11	9.3	31.94	360	219	A	V
802.11n HT40 CH 110 5550MHz		5446	48.35	-25.65	74	39.44	32.09	9.09	32.27	183	359	P	H
		5447.44	42.35	-11.65	54	33.44	32.09	9.09	32.27	183	359	A	H
	*	5550	105.27	-	-	96.01	32.32	9.17	32.23	183	359	P	H
	*	5550	96.57	-	-	87.31	32.32	9.17	32.23	183	359	A	H
		5738.225	48.76	-25.24	74	38.31	33.11	9.28	31.94	183	359	P	H
		5759.645	41.42	-12.58	54	30.83	33.19	9.3	31.9	183	359	A	H
		5430.64	47.04	-26.96	74	38.13	32.09	9.09	32.27	335	216	P	V
		5444.8	39.81	-14.19	54	30.9	32.09	9.09	32.27	335	216	A	V
	*	5550	97.92	-	-	88.66	32.32	9.17	32.23	335	216	P	V
	*	5550	89.69	-	-	80.43	32.32	9.17	32.23	335	216	A	V
		5758.7	48.54	-25.46	74	37.95	33.19	9.3	31.9	335	216	P	V
		5757.44	41.18	-12.82	54	30.59	33.19	9.3	31.9	335	216	A	V

802.11n HT40 CH 134 5670MHz		5410.9	47.56	-26.44	74	38.67	32.08	9.06	32.25	111	0	P	H
		5436.45	40.18	-13.82	54	31.27	32.09	9.09	32.27	111	0	A	H
	*	5670	106.95	-	-	96.93	32.82	9.25	32.05	111	0	P	H
	*	5670	99.46	-	-	89.44	32.82	9.25	32.05	111	0	A	H
		5725.45	50.82	-23.18	74	40.48	33.04	9.28	31.98	111	0	P	H
		5725	43.45	-10.55	54	33.11	33.04	9.28	31.98	111	0	A	H
		5407.4	47.45	-26.55	74	38.56	32.08	9.06	32.25	360	213	P	V
		5352.1	39.53	-14.47	54	30.66	32.07	9.02	32.22	360	213	A	V
	*	5670	99.17	-	-	89.15	32.82	9.25	32.05	360	213	P	V
	*	5670	90.42	-	-	80.4	32.82	9.25	32.05	360	213	A	V
		5753.975	50.35	-23.65	74	39.8	33.19	9.3	31.94	360	213	P	V
		5751.35	41.47	-12.53	54	31	33.11	9.3	31.94	360	213	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		10620	49.04	-24.96	74	58.66	39.14	11.73	60.49	150	220	P	H
HT40		15930	46.53	-27.47	74	56.79	37.97	14.11	62.34	160	100	P	H
CH 102		10620	48.07	-25.93	74	57.69	39.14	11.73	60.49	150	220	P	V
5510MHz		15930	46.17	-27.83	74	56.43	37.97	14.11	62.34	160	100	P	V
802.11n		11100	49.18	-24.82	74	57.15	39.78	11.9	59.65	150	200	P	H
HT40		16650	48.26	-25.74	74	55.55	39.1	14.5	60.89	180	350	P	H
CH 110		11100	49.35	-24.65	74	57.32	39.78	11.9	59.65	150	200	P	V
5550MHz		16650	47.28	-26.72	74	54.57	39.1	14.5	60.89	180	350	P	V
802.11n		11340	47.36	-26.64	74	55.51	39.5	11.99	59.64	162	360	P	H
HT40		17010	46.43	-27.57	74	51.48	40.3	14.72	60.07	162	0	P	H
CH 134		11340	47.91	-26.09	74	56.06	39.5	11.99	59.64	162	360	P	V
5670MHz		17010	47.26	-26.74	74	52.31	40.3	14.72	60.07	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 802.11ac 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		5461.6	53.02	-20.98	74	44.12	32.09	9.09	32.28	133	349	P	H
		5467.36	41.63	-12.37	54	32.7	32.09	9.12	32.28	133	349	A	H
	*	5530	98.73	-	-	89.65	32.17	9.14	32.23	133	349	P	H
	*	5530	90.84	-	-	81.76	32.17	9.14	32.23	133	349	A	H
		5735.39	49.58	-24.42	74	39.13	33.11	9.28	31.94	133	349	P	H
		5750.51	39.62	-14.38	54	29.15	33.11	9.3	31.94	133	349	A	H
		5464	48.26	-25.74	74	39.36	32.09	9.09	32.28	300	218	P	V
		5469.76	38.61	-15.39	54	29.68	32.09	9.12	32.28	300	218	A	V
	*	5530	93.29	-	-	84.21	32.17	9.14	32.23	300	218	P	V
	*	5530	85.64	-	-	76.56	32.17	9.14	32.23	300	218	P	V
		5759.015	48.65	-25.35	74	38.06	33.19	9.3	31.9	300	218	A	V
		5750.51	39.52	-14.48	54	29.05	33.11	9.3	31.94	300	218	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	-25	74	56.95	39.82	11.89	59.66	170	230	P	H
VHT80		16590	47.2	-26.8	74	54.89	38.88	14.48	61.05	160	300	P	H
CH 106		11060	51.07	-22.93	74	59.02	39.82	11.89	59.66	170	230	P	V
5530MHz		16590	47.23	-26.77	74	54.92	38.88	14.48	61.05	160	300	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.	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)
802.11n HT40 LF		30	25.91	-14.09	40	30.65	26.7	0.56	32	130	30	P	H
		147.37	24.23	-19.27	43.5	36.63	17.86	1.26	31.52	-	-	P	H
		242.43	26.98	-19.02	46	39.1	17.63	1.63	31.38	-	-	P	H
		394.72	28.16	-17.84	46	31.85	25.45	2.11	31.25	-	-	P	H
		485.9	28.05	-17.95	46	33.48	23.33	2.35	31.11	-	-	P	H
		1000	32.39	-21.61	54	29.75	30.4	3.48	31.24	-	-	P	H
		30	29.96	-10.04	40	34.7	26.7	0.56	32	115	120	P	V
		84.32	26.88	-13.12	40	41.32	16.44	0.95	31.83	-	-	P	V
		150.28	25.99	-17.51	43.5	38.43	17.8	1.28	31.52	-	-	P	V
		242.43	26.33	-19.67	46	38.45	17.63	1.63	31.38	-	-	P	V
		418.97	27.18	-18.82	46	30.64	25.58	2.17	31.21	-	-	P	V
		717.73	30.93	-15.07	46	31.71	27.56	2.9	31.24	-	-	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 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)

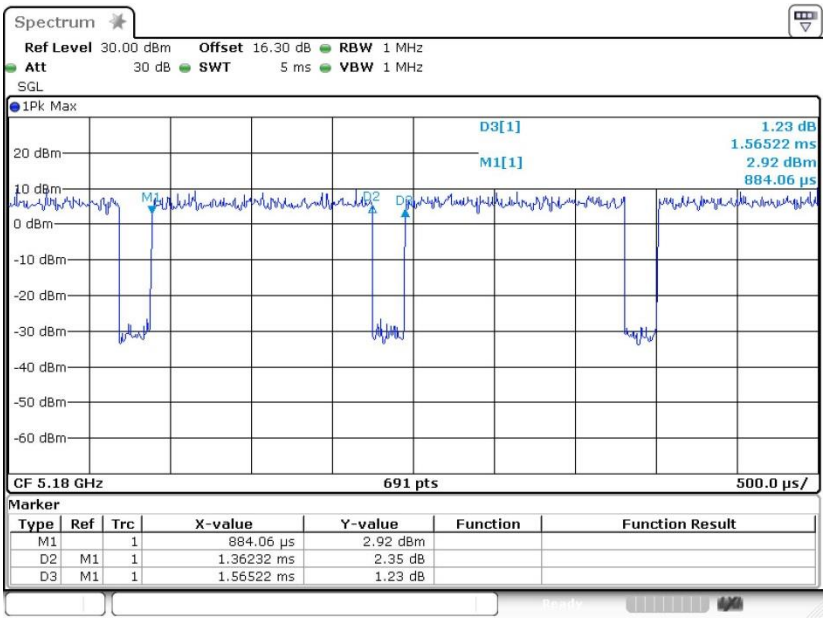
= -10.46(dB)

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

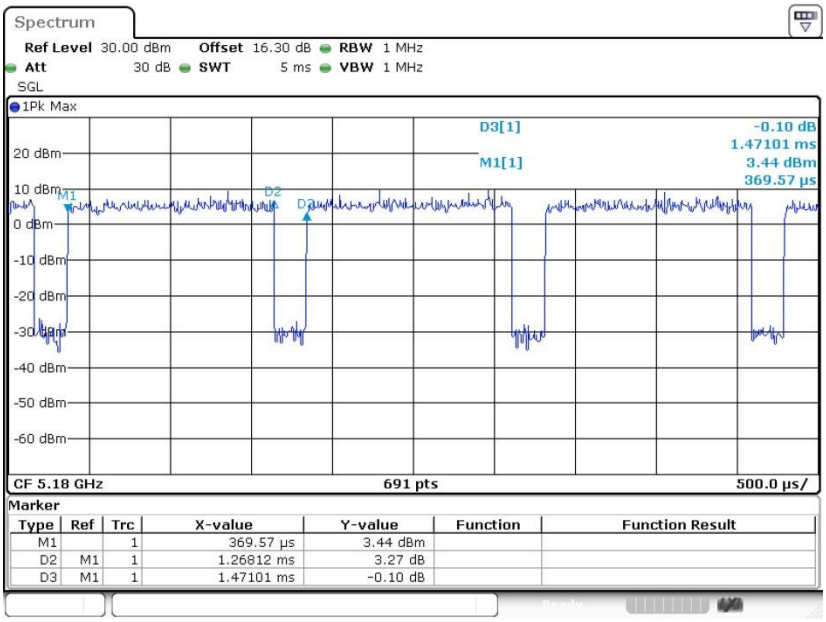
Appendix C. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	87.04	1.362	0.734	1kHz
802.11n HT20	86.21	1.268	0.789	1kHz
802.11n HT40	72.10	0.603	1.659	3kHz
802.11ac VHT80	48.39	0.217	4.600	10kHz

802.11a



802.11n HT20



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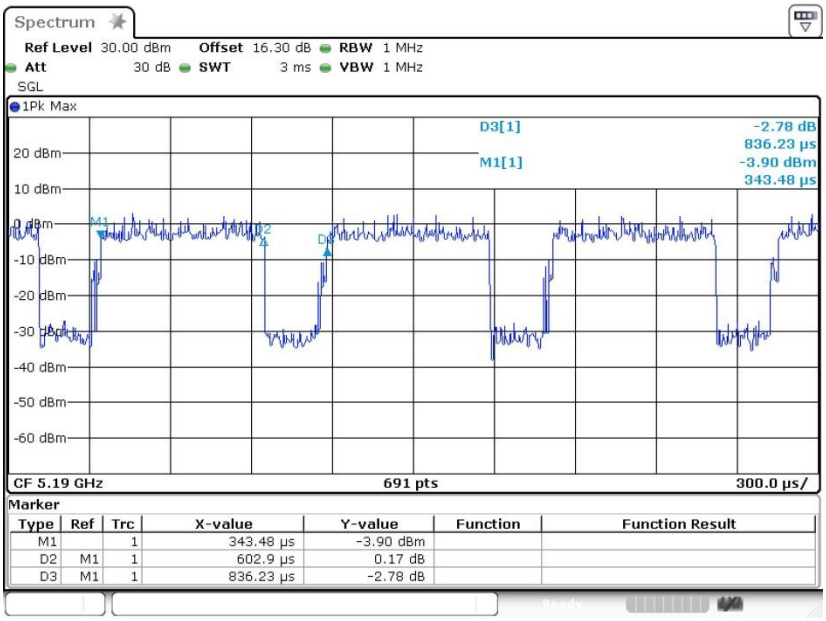
802.11n HT40



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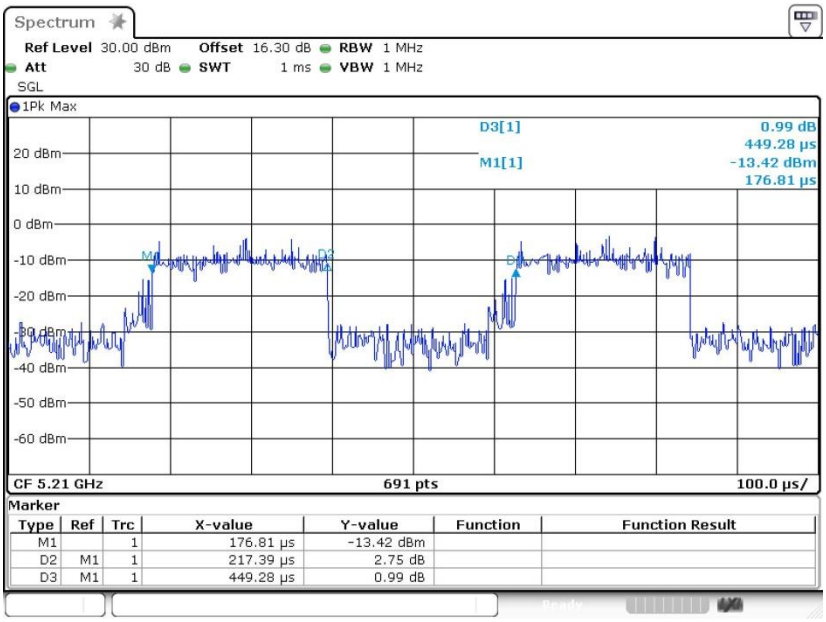
802.11ac VHT80



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