



FCC RF Test Report

APPLICANT : Acer Incorporated
EQUIPMENT : Notebook computer
BRAND NAME : acer
MODEL NAME : N17H2
FCC ID : Contains FCC ID :HLZ9560D2W
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was installed a module during the test: WLAN and BT, 2*2 PCIe M.2 1216 SD adapter card (Brand Name: acer, Model Name: 9560D2W, FCC ID: HLZ9560D2W) during test.

The product was received on Aug. 03, 2018 and testing was completed on Sep. 13, 2018. 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.



Approved by: Eric Shih / Manager

Sporton International (Shenzhen) Inc.

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Guangdong Province 518055 China**



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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
-	2.1049 & 15.403(i)	26dB & 99% Bandwidth	-	Pass	1
3.1	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	Pass	-
-	15.407(a)	Power Spectral Density	≤ 11 dBm	Pass	1
3.2	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 1.1 dB at 5147.42 MHz
3.3	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 5.80 dB at 0.52 MHz
3.4	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.5	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-

Remark: Test items were leveraged from module RF report "170919-03.TR01/02".



1 General Description

1.1 Applicant

Acer Incorporated

8F ,88, Sec.1 Xintai 5th Rd. Xizhi, New Taipei City 221, Taiwan, R.O.C

1.2 Manufacturer

Acer Incorporated

8F ,88, Sec.1 Xintai 5th Rd. Xizhi, New Taipei City 221, Taiwan, R.O.C

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Notebook computer
Brand Name	acer
Model Name	N17H2
FCC ID	Contains FCC ID :HLZ9560D2W
EUT supports Radios application	WLAN2.4GHz 802.11b/g/n HT20/HT40 WLAN5GHz 802.11a/n HT20/HT40 WLAN5GHz 802.11ac VHT20/VHT40/VHT80/VHT160 Bluetooth BR/EDR/LE
EUT Stage	Identical Prototype

Module Feature & Specification	
Equipment	WLAN and BT, 2*2 PCIe M.2 1216 SD adapter card
Brand Name	acer
Model Name	9560D2W
FCC ID	HLZ9560D2W

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	<p>Ant.1</p> <p><5180 MHz ~ 5240 MHz> 802.11a : 14.46 dBm / 0.0279 W 802.11n HT20 : 12.96 dBm / 0.0198 W 802.11n HT40 : 14.05 dBm / 0.0254 W 802.11n VHT20 : 12.94 dBm / 0.0197 W 802.11n VHT40 : 14.03 dBm / 0.0253 W 802.11n VHT80 : 8.56 dBm / 0.0072 W</p> <p><5260 MHz ~ 5320 MHz> 802.11a : 14.97 dBm / 0.0314 W 802.11n HT20 : 15.06 dBm / 0.0321 W 802.11n HT40 : 15.06 dBm / 0.0321 W 802.11n VHT20 : 15.02 dBm / 0.0318 W 802.11n VHT40 : 15.05 dBm / 0.0320 W 802.11n VHT80 : 11.24 dBm / 0.0133 W</p> <p><5180 MHz ~ 5320 MHz> 802.11n VHT160 : 11.76 dBm / 0.0150 W</p> <p><5500 MHz ~ 5700 MHz > 802.11a : 13.16 dBm / 0.0207 W 802.11n HT20 : 13.26 dBm / 0.0212 W 802.11n HT40 : 13.17 dBm / 0.0207 W 802.11n VHT20 : 13.22 dBm / 0.0210 W 802.11n VHT40 : 13.16 dBm / 0.0207 W 802.11n VHT80 : 13.20 dBm / 0.0209 W 802.11n VHT160 : 10.59 dBm / 0.0115 W</p> <p>Ant.2</p> <p><5180 MHz ~ 5240 MHz> 802.11a : 14.77 dBm / 0.0300 W 802.11n HT20 : 13.23 dBm / 0.0210 W 802.11n HT40 : 14.18 dBm / 0.0262 W 802.11n VHT20 : 13.22 dBm / 0.0210 W 802.11n VHT40 : 14.15 dBm / 0.0260 W 802.11n VHT80 : 8.94 dBm / 0.0078 W</p> <p><5260 MHz ~ 5320 MHz> 802.11a : 15.29 dBm / 0.0338 W 802.11n HT20 : 15.26 dBm / 0.0336 W 802.11n HT40 : 15.27 dBm / 0.0337 W 802.11n VHT20 : 15.21 dBm / 0.0332 W 802.11n VHT40 : 15.23 dBm / 0.0333 W 802.11n VHT80 : 10.92 dBm / 0.0124 W</p> <p><5180 MHz ~ 5320 MHz> 802.11n VHT160 : 12.21 dBm / 0.0166 W</p> <p><5500 MHz ~ 5700 MHz > 802.11a : 13.48 dBm / 0.0223 W 802.11n HT20 : 13.46 dBm / 0.0222 W 802.11n HT40 : 13.47 dBm / 0.0222 W 802.11n VHT20 : 13.43 dBm / 0.0220 W 802.11n VHT40 : 13.44 dBm / 0.0221 W</p>



	<p>802.11n VHT80 : 13.34 dBm / 0.0216 W 802.11n VHT160 : 10.10 dBm / 0.0102 W Ant.1+2 <5180 MHz ~ 5240 MHz> 802.11n HT20 : 16.15 dBm / 0.0412 W 802.11n HT40 : 17.16 dBm / 0.0520 W 802.11n VHT20 : 16.13 dBm / 0.0410 W 802.11n VHT40 : 17.13 dBm / 0.0516 W 802.11n VHT80 : 11.83 dBm / 0.0152 W <5260 MHz ~ 5320 MHz> 802.11n HT20 : 18.19 dBm / 0.0659 W 802.11n HT40 : 18.19 dBm / 0.0659 W 802.11n VHT20 : 18.18 dBm / 0.0658 W 802.11n VHT40 : 18.18 dBm / 0.0658 W 802.11n VHT80 : 14.18 dBm / 0.0262 W <5180 MHz ~ 5320 MHz> 802.11n VHT160 : 15.52 dBm / 0.0356 W <5500 MHz ~ 5700 MHz > 802.11n HT20 : 16.41 dBm / 0.0438 W 802.11n HT40 : 16.37 dBm / 0.0434 W 802.11n VHT20 : 16.39 dBm / 0.0436 W 802.11n VHT40 : 16.34 dBm / 0.0431 W 802.11n VHT80 : 16.42 dBm / 0.0439 W 802.11n VHT160 : 13.83 dBm / 0.0242 W</p>									
Antenna Gain / Gain	<p><5150 MHz ~ 5250 MHz> <Ant. 1> : PIFA Antenna with gain 1.20 dBi <Ant. 2> : PIFA Antenna with gain 2.20 dBi <5250 MHz ~ 5350 MHz> <Ant. 1> : PIFA Antenna with gain 2.60 dBi <Ant. 2> : PIFA Antenna with gain 1.40 dBi <5470 MHz ~ 5700 MHz> <Ant. 1> : PIFA Antenna with gain 1.60 dBi <Ant. 2> : PIFA Antenna with gain 1.80 dBi</p>									
Type of Modulation	<p>802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)</p>									
Antenna Function Description	<table border="1"> <thead> <tr> <th></th> <th>Ant. 1</th> <th>Ant. 2</th> </tr> </thead> <tbody> <tr> <td>802.11 a/n/ac SISO</td> <td>V</td> <td>V</td> </tr> <tr> <td>802.11 n/ac MIMO</td> <td>V</td> <td>V</td> </tr> </tbody> </table>		Ant. 1	Ant. 2	802.11 a/n/ac SISO	V	V	802.11 n/ac MIMO	V	V
	Ant. 1	Ant. 2								
802.11 a/n/ac SISO	V	V								
802.11 n/ac MIMO	V	V								



1.5 Component List

There are three types of EUT. The differences are shown as follow table, according the difference, we choose sample 1 to perform full test, and sample 2/3 to verify the worst case of Sample 1.

Component	Sample 1 SKUC	Sample 2 SKUA	Sample 3 SKUB
CPU	N5000	N5000	N4000
BT/WIFI Module	9560D2W	9560D2W	9560D2W
RAM	HYNIX LPD4_2GB(200b_D4x32) H9HCNNBPUMLHR-NME	HYNIX LPD4_2GB(200b_D4x32) H9HCNNBPUMLHR-NME	MICRON LPD4_2GB(200b_D2x32) MT53E512M32D2NP-046 WT:E
EMMC	SANDISK NAND 128GB SDINADF4-128G-1220	SANDISK NAND 64GB SDINBDA4-64-1220V	SANDISK NAND 64GB SDINBDA4-64-1220V
Camera front	6SF009N2	6SF009N2	6SF009N2
LCD	ZC-116A-1227BT	ZC-116A-1227BT	ZC-116A-1227BT
Battery	AP16L5J	AP16L5J	AP16L5J

1.6 Modification of EUT

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



1.7 Testing Location

Sporton Lab is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600156-0).

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 designation No.	FCC Test Firm Registration No.
	TH01-SZ CO01-SZ	CN5018	337463

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 designation No.	FCC Test Firm Registration No.
	03CH03-SZ	CN5019	577730

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 v02r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark:

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



2 Test Configuration of Equipment Under Test

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).
- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5150-5250 MHz Band 1 (U-NII-1)	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240
	42 [#]	5210	50 [@]	5250

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5250-5350 MHz Band 2 (U-NII-2A)	52	5260	60	5300
	54*	5270	62*	5310
	56	5280	64	5320
	58 [#]	5290	50 [@]	5250

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5725 MHz Band 3 (U-NII-2C)	100	5500	114 [@]	5570
	102*	5510	116	5580
	104	5520	132	5660
	106 [#]	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700
	112	5560	-	-



Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
TDWR Channel	118*	5590	124	5620
	120	5600	126*	5630
	122 [#]	5610	128	5640

Note:

1. The above Frequency and Channel in "*" were 802.11n HT40 and 802.11ac VHT40.
2. The above Frequency and Channel in "#n" were 802.11ac VHT80.
3. The above Frequency and Channel in "@n" were 802.11ac VHT160.



2.2 Test Mode

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

RSE test items:

1. For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing has assessed only 802.11n HT20/HT40 by referring to the higher conducted power.
2. For 802.11a SISO mode, the whole testing has assessed only Antenna 2 by referring to the higher conducted power.
3. For 802.11n/ac SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to the higher conducted power.

Single Mode

Modulation	Data Rate
802.11a	6 Mbps

MIMO Mode

Modulation	Data Rate
802.11n HT20	MCS8
802.11n HT40	MCS8
802.11ac VHT80	MCS0
802.11ac VHT160	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : WLAN(5G) Link + Bluetooth Link + Earphone + Adapter 1 for Sample 1
	Mode 2 : WLAN(5G) Link + Bluetooth Link + Earphone + Adapter 2 for Sample 1
	Mode 3 : WLAN(5G) Link + Bluetooth Link + Earphone + Adapter 3 for Sample 1
	Mode 4 : WLAN(5G) Link + Bluetooth Link + Earphone + Adapter 4 for Sample 1
	Mode 5 : WLAN(5G) Link + Bluetooth Link + Earphone + Adapter 5 for Sample 1
Remark:	
1. The worst case of conducted emission is mode 2; only the test data of it was reported.	
2. For Radiated Test Cases, The tests were performance with Adapter, Earphone.	



Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

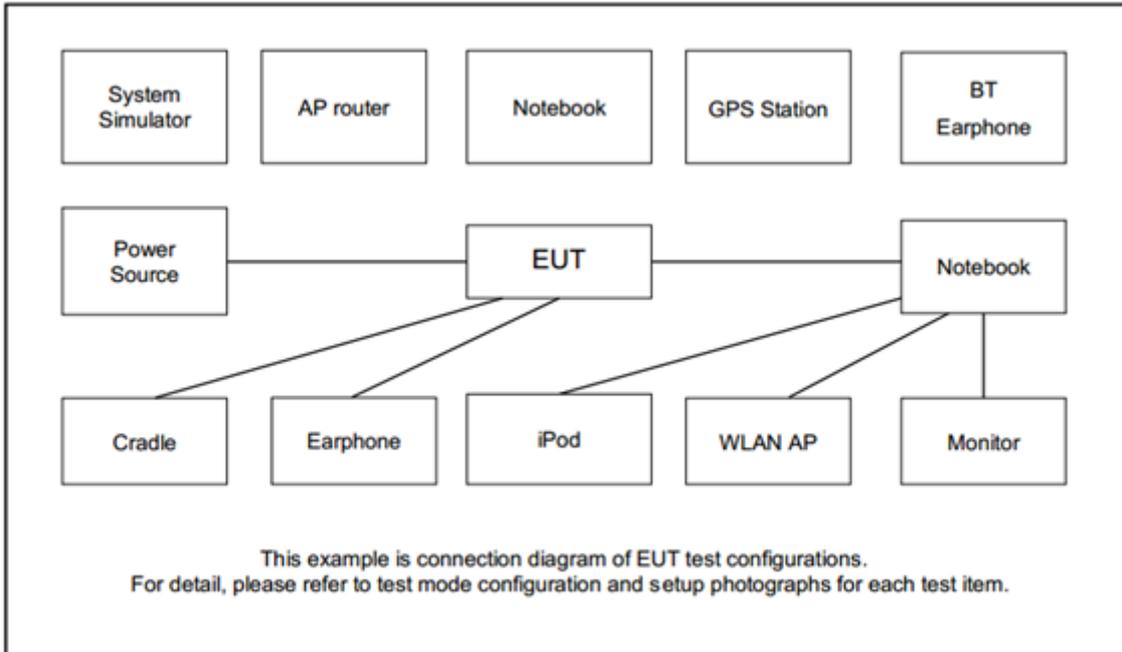
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		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 : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	106
M	Middle	42	58	-
H	High	-	-	122

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ac VHT160		802.11ac VHT160
L	Low	-		-
M	Middle	50		114
H	High	-		-

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Samsung	EO-MG900	PYAHS-107W	N/A	N/A
2.	WLAN AP	D-Link	DIR-820L	KA2IR820LA1	N/A	Unshielded,1.8m
3.	SD Card	N/A	MicroSD HC	FCC DoC	N/A	N/A
4.	Earphone	apple	DCAY1V-A9007ZJW3-000	N/A	N/A	Unshielded,1.8m
5.	Monitor	DELL	P2715QT	FCC DoC	N/A	N/A
6.	ipod	apple	MC69029/A	N/A	N/A	Unshielded,1.8m

2.5 EUT Operation Test Setup

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

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



3 Test Result

3.1 Maximum Conducted Output Power Measurement

3.1.1 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.

3.1.2 Measuring Instruments

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

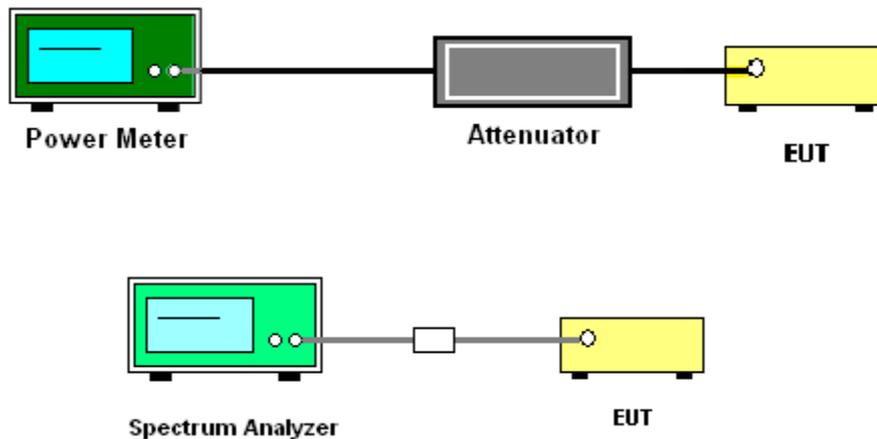
3.1.3 Test Procedures

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

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

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

3.1.4 Test Setup



3.1.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



3.2 Unwanted Emissions Measurement

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

3.2.1 Limit of Unwanted Emissions

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

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

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

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

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



EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27	68.2

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

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

where

EIRP is the equivalent isotropically radiated power, in dBm

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

d_{Meas} is the measurement distance, in m

3.2.2 Measuring Instruments

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

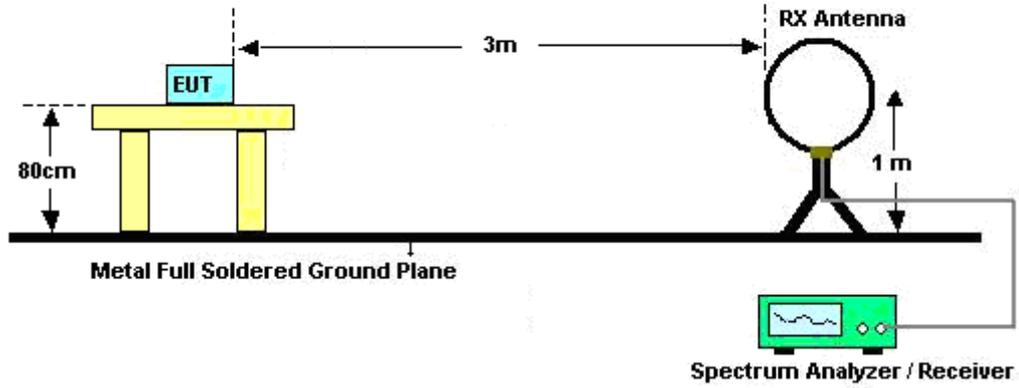


3.2.3 Test Procedures

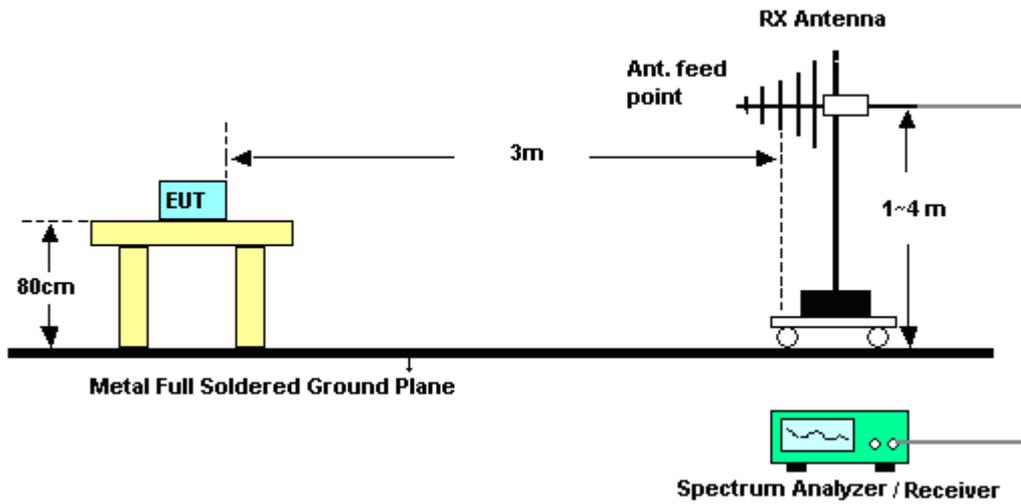
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW \geq 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than 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.

3.2.4 Test Setup

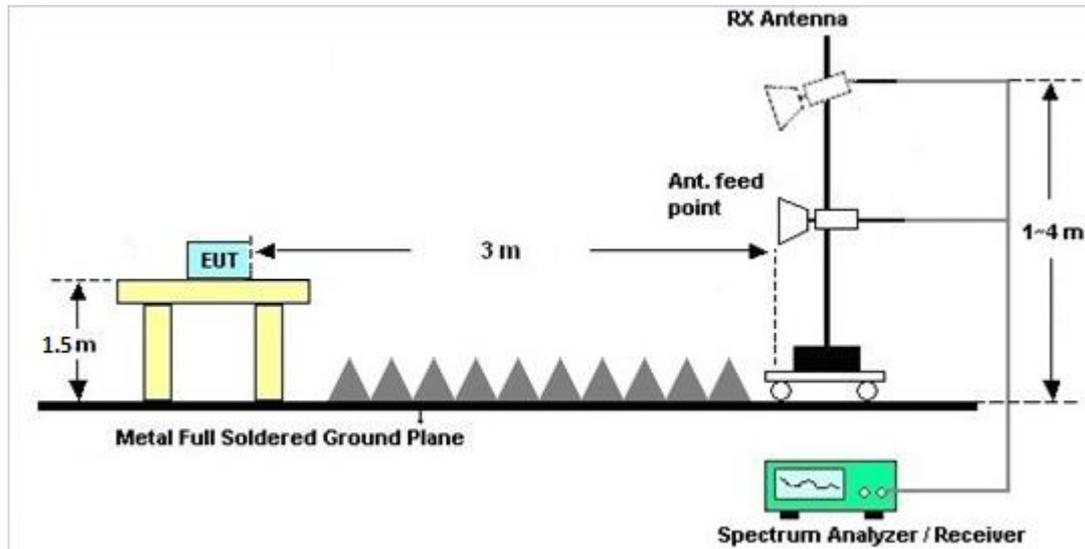
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.2.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

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

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

3.2.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.2.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix C.



3.3 AC Conducted Emission Measurement

3.3.1 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.

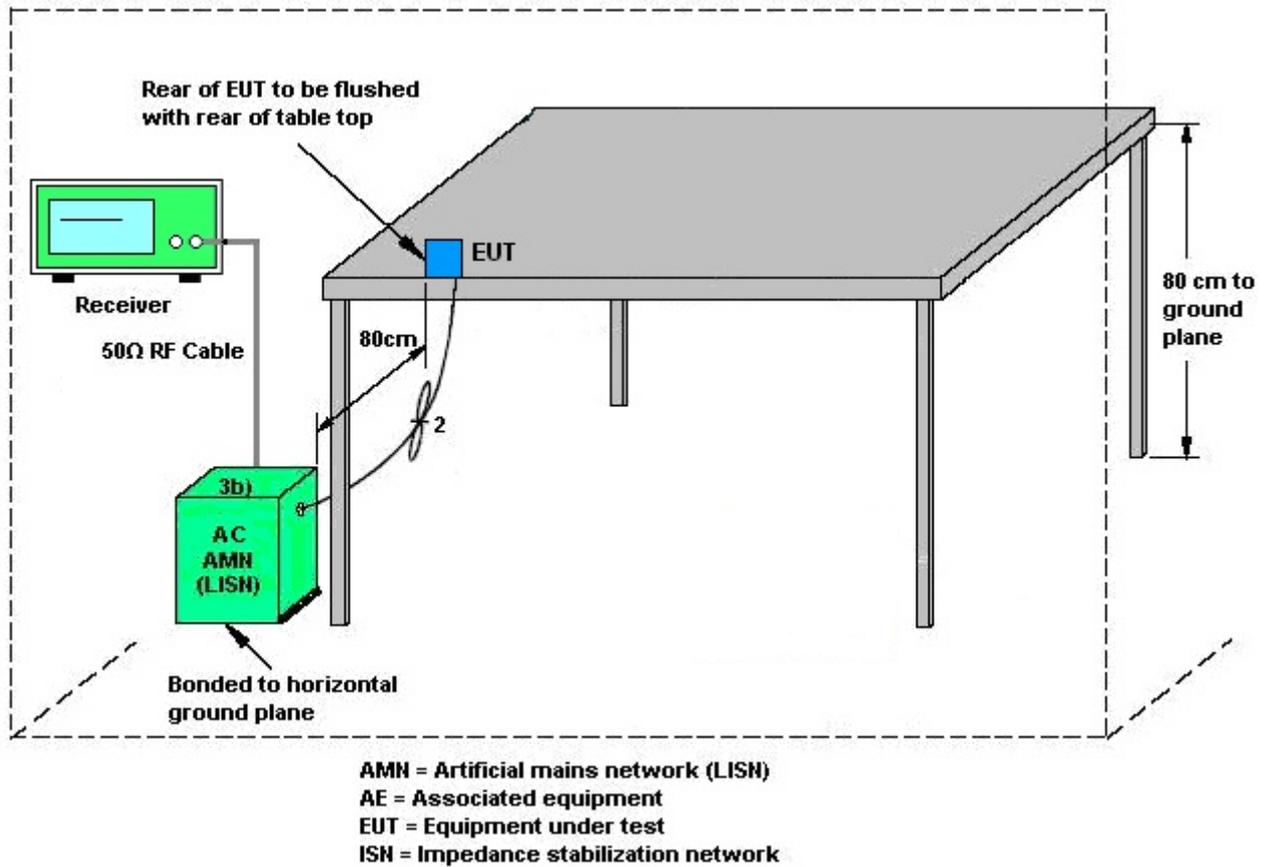
3.3.2 Measuring Instruments

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

3.3.3 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.

3.3.4 Test Setup



3.3.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.4 Automatically Discontinue Transmission

3.4.1 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.

3.4.2 Measuring Instruments

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

3.4.3 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.



3.5 Antenna Requirements

3.5.1 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.

3.5.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.5.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = GANT + Array Gain, where Array Gain is as follows.

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

Array Gain = 10 log(NANT/NSS=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4.

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

The EUT supports CDD mode.

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

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

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

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

<CDD Modes>						
			DG	DG	Power	PSD
	Ant. 1	Ant. 2	for	for	Limit	Limit
	(dBi)	(dBi)	Power	PSD	Reduction	Reduction
			(dBi)	(dBi)	(dB)	(dB)
Band I	1.20	2.20	2.20	4.72	0.00	0.00
Band II	2.60	1.40	2.60	5.03	0.00	0.00
Band III	1.60	1.80	1.80	4.71	0.00	0.00

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

PSD limit reduction = Composite gain + PSD Array gain – 6dBi, (min = 0)



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr.19, 2018	Sep. 11, 2018	Apr.18, 2019	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1207253	30MHz~40GHz	Dec. 26, 2017	Sep. 11, 2018	Dec. 25, 2018	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Dec. 26, 2017	Sep. 11, 2018	Dec. 25, 2018	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr.19, 2018	Sep. 13, 2018	Apr.18, 2019	Radiation (03CH03-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr.19, 2018	Sep. 13, 2018	Apr.18, 2019	Radiation (03CH03-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May. 14, 2018	Sep. 13, 2018	May.13, 2019	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	Apr. 19, 2018	Sep. 13, 2018	Apr. 18, 2019	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	Mar. 29, 2018	Sep. 13, 2018	Mar. 28, 2019	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Mar.30 2018	Sep. 13, 2018	Mar.29, 2019	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102210	0.01Hz ~3000MHz	Oct.19,2017	Sep. 13, 2018	Oct.18,2018	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct.19,2017	Sep. 13, 2018	Oct.18,2018	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Dec. 27, 2017	Sep. 13, 2018	Dec. 26, 2018	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 30. 2018	Sep. 13, 2018	Jul. 30. 2019	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Sep. 13, 2018	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Sep. 13, 2018	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Sep. 13, 2018	NCR	Radiation (03CH03-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Dec. 26, 2017	Aug. 23, 2018	Dec. 25, 2018	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Dec. 26, 2017	Aug. 23, 2018	Dec. 25, 2018	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103892	9kHz~30MHz	Nov. 01, 2017	Aug. 23, 2018	Oct. 31, 2018	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 18, 2018	Aug. 23, 2018	Jul. 17, 2019	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% ($U = 2Uc(y)$)	2.6 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.8dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.6dB
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Appendix A. Test Result of Conducted Test Items

Test Engineer:	Hayden Chen	Temperature:	21~25	°C
Test Date:	2018/9/11	Relative Humidity:	51~54	%

TEST RESULTS DATA
Average Power Table

FCC Band I														
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	36	5180	0.61	0.62	14.13	14.27		24.00	24.00	1.20	2.20	Pass
11a	6Mbps	1	44	5220	0.61	0.62	14.46	14.42		24.00	24.00	1.20	2.20	Pass
11a	6Mbps	1	48	5240	0.61	0.62	14.39	14.77		24.00	24.00	1.20	2.20	Pass
HT20	MCS0	1	36	5180	0.71	0.72	12.95	13.08		24.00	24.00	1.20	2.20	Pass
HT20	MCS0	1	44	5220	0.71	0.72	12.96	12.90		24.00	24.00	1.20	2.20	Pass
HT20	MCS0	1	48	5240	0.71	0.72	12.94	13.23		24.00	24.00	1.20	2.20	Pass
HT40	MCS0	1	38	5190	0.72	0.72	13.33	13.31		24.00	24.00	1.20	2.20	Pass
HT40	MCS0	1	46	5230	0.72	0.72	14.05	14.18		24.00	24.00	1.20	2.20	Pass
VHT20	MCS0	1	36	5180	0.71	0.72	12.92	13.07		24.00	24.00	1.20	2.20	Pass
VHT20	MCS0	1	44	5220	0.71	0.72	12.94	12.87		24.00	24.00	1.20	2.20	Pass
VHT20	MCS0	1	48	5240	0.71	0.72	12.91	13.22		24.00	24.00	1.20	2.20	Pass
VHT40	MCS0	1	38	5190	0.73	0.71	13.33	13.25		24.00	24.00	1.20	2.20	Pass
VHT40	MCS0	1	46	5230	0.73	0.71	14.03	14.15		24.00	24.00	1.20	2.20	Pass
VHT80	MCS0	1	42	5210	0.75	0.75	8.56	8.94		24.00	24.00	1.20	2.20	Pass
VHT160	MCS0	1	50	5250	0.78	0.78	11.76	12.21		24.00	24.00	1.20	2.20	Pass
HT20	MCS8	2	36	5180	0.62	0.63	12.98	13.11	16.06	24.00		2.20		Pass
HT20	MCS8	2	44	5220	0.62	0.63	13.02	12.91	15.98	24.00		2.20		Pass
HT20	MCS8	2	48	5240	0.62	0.63	12.99	13.28	16.15	24.00		2.20		Pass
HT40	MCS8	2	38	5190	0.67	0.66	13.36	13.46	16.42	24.00		2.20		Pass
HT40	MCS8	2	46	5230	0.67	0.66	14.10	14.21	17.16	24.00		2.20		Pass
VHT20	MCS0	2	36	5180	0.62	0.64	12.96	13.10	16.04	24.00		2.20		Pass
VHT20	MCS0	2	44	5220	0.62	0.64	12.99	12.89	15.95	24.00		2.20		Pass
VHT20	MCS0	2	48	5240	0.62	0.64	12.97	13.27	16.13	24.00		2.20		Pass
VHT40	MCS0	2	38	5190	0.66	0.66	13.35	13.44	16.40	24.00		2.20		Pass
VHT40	MCS0	2	46	5230	0.66	0.66	14.07	14.18	17.13	24.00		2.20		Pass
VHT80	MCS0	2	42	5210	0.73	0.77	8.60	9.03	11.83	24.00		2.20		Pass
VHT160	MCS0	2	50	5250	1.20	1.20	12.27	12.73	15.52	24.00		2.20		Pass

TEST RESULTS DATA
Average Power Table

FCC Band II															
Mod.	Data Rate	Nrx	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	1	52	5260	0.61	0.62	14.97	15.29		24.00	24.00	2.60	1.40	26.99	Pass
11a	6Mbps	1	60	5300	0.61	0.62	14.65	14.76		24.00	24.00	2.60	1.40	26.99	Pass
11a	6Mbps	1	64	5320	0.61	0.62	14.65	14.73		24.00	24.00	2.60	1.40	26.99	Pass
HT20	MCS0	1	52	5260	0.71	0.72	15.06	15.26		24.00	24.00	2.60	1.40	26.99	Pass
HT20	MCS0	1	60	5300	0.71	0.72	14.71	14.63		24.00	24.00	2.60	1.40	26.99	Pass
HT20	MCS0	1	64	5320	0.71	0.72	14.68	14.67		24.00	24.00	2.60	1.40	26.99	Pass
HT40	MCS0	1	54	5270	0.72	0.72	15.06	15.27		24.00	24.00	2.60	1.40	26.99	Pass
HT40	MCS0	1	62	5310	0.72	0.72	13.73	13.50		24.00	24.00	2.60	1.40	26.99	Pass
VHT20	MCS0	1	52	5260	0.71	0.72	15.02	15.21		24.00	24.00	2.60	1.40	26.99	Pass
VHT20	MCS0	1	60	5300	0.71	0.72	14.67	14.62		24.00	24.00	2.60	1.40	26.99	Pass
VHT20	MCS0	1	64	5320	0.71	0.72	14.66	14.65		24.00	24.00	2.60	1.40	26.99	Pass
VHT40	MCS0	1	54	5270	0.73	0.71	15.05	15.23		24.00	24.00	2.60	1.40	26.99	Pass
VHT40	MCS0	1	62	5310	0.73	0.71	13.69	13.47		24.00	24.00	2.60	1.40	26.99	Pass
VHT80	MCS0	1	58	5290	0.75	0.75	11.24	10.92		24.00	24.00	2.60	1.40	26.99	Pass
HT20	MCS8	2	52	5260	0.62	0.63	15.09	15.27	18.19	24.00		2.60		26.99	Pass
HT20	MCS8	2	60	5300	0.62	0.63	14.75	14.67	17.72	24.00		2.60		26.99	Pass
HT20	MCS8	2	64	5320	0.62	0.63	14.72	14.71	17.73	24.00		2.60		26.99	Pass
HT40	MCS8	2	54	5270	0.67	0.66	15.08	15.29	18.19	24.00		2.60		26.99	Pass
HT40	MCS8	2	62	5310	0.67	0.66	13.75	13.56	16.66	24.00		2.60		26.99	Pass
VHT20	MCS0	2	52	5260	0.62	0.64	15.08	15.25	18.18	24.00		2.60		26.99	Pass
VHT20	MCS0	2	60	5300	0.62	0.64	14.74	14.66	17.71	24.00		2.60		26.99	Pass
VHT20	MCS0	2	64	5320	0.62	0.64	14.70	14.69	17.71	24.00		2.60		26.99	Pass
VHT40	MCS0	2	54	5270	0.66	0.66	15.07	15.27	18.18	24.00		2.60		26.99	Pass
VHT40	MCS0	2	62	5310	0.66	0.66	13.72	13.52	16.63	24.00		2.60		26.99	Pass
VHT80	MCS0	2	58	5290	0.73	0.77	11.33	11.01	14.18	24.00		2.60		26.99	Pass

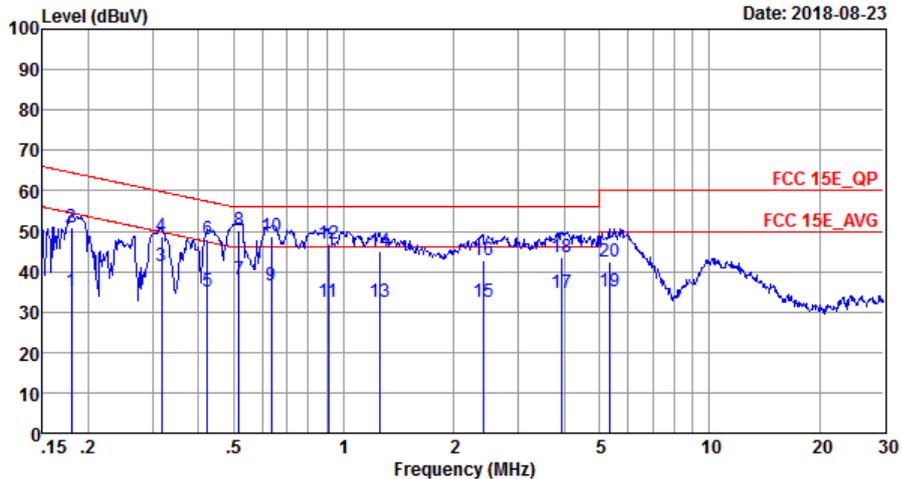
TEST RESULTS DATA
Average Power Table

FCC Band III															
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	1	100	5500	0.61	0.62	13.16	13.48		24.00	24.00	1.60	1.80	26.99	Pass
11a	6Mbps	1	120	5600	0.61	0.62	12.97	13.20		24.00	24.00	1.60	1.80	26.99	Pass
11a	6Mbps	1	140	5700	0.61	0.62	12.96	13.25		24.00	24.00	1.60	1.80	26.99	Pass
HT20	MCS0	1	100	5500	0.71	0.72	13.26	13.46		24.00	24.00	1.60	1.80	26.99	Pass
HT20	MCS0	1	120	5600	0.71	0.72	13.10	13.16		24.00	24.00	1.60	1.80	26.99	Pass
HT20	MCS0	1	140	5700	0.71	0.72	13.11	13.23		24.00	24.00	1.60	1.80	26.99	Pass
HT40	MCS0	1	102	5510	0.72	0.72	12.17	12.18		24.00	24.00	1.60	1.80	26.99	Pass
HT40	MCS0	1	118	5590	0.72	0.72	12.09	12.10		24.00	24.00	1.60	1.80	26.99	Pass
HT40	MCS0	1	134	5670	0.72	0.72	13.17	13.47		24.00	24.00	1.60	1.80	26.99	Pass
VHT20	MCS0	1	100	5500	0.71	0.72	13.22	13.43		24.00	24.00	1.60	1.80	26.99	Pass
VHT20	MCS0	1	120	5600	0.71	0.72	13.07	13.13		24.00	24.00	1.60	1.80	26.99	Pass
VHT20	MCS0	1	140	5700	0.71	0.72	13.06	13.22		24.00	24.00	1.60	1.80	26.99	Pass
VHT40	MCS0	1	102	5510	0.73	0.71	12.13	12.12		24.00	24.00	1.60	1.80	26.99	Pass
VHT40	MCS0	1	118	5590	0.73	0.71	12.07	12.06		24.00	24.00	1.60	1.80	26.99	Pass
VHT40	MCS0	1	134	5670	0.73	0.71	13.16	13.44		24.00	24.00	1.60	1.80	26.99	Pass
VHT80	MCS0	1	106	5530	0.75	0.75	10.15	10.22		24.00	24.00	1.60	1.80	26.99	Pass
VHT80	MCS0	1	122	5610	0.75	0.75	13.20	13.34		24.00	24.00	1.60	1.80	26.99	Pass
VHT160	MCS0	1	114	5570	0.78	0.78	10.59	10.10		24.00	24.00	1.60	1.80	26.99	Pass
HT20	MCS8	2	100	5500	0.62	0.63	13.28	13.51	16.41	24.00		1.80		26.99	Pass
HT20	MCS8	2	120	5600	0.62	0.63	13.14	13.18	16.17	24.00		1.80		26.99	Pass
HT20	MCS8	2	140	5700	0.62	0.63	13.12	13.25	16.20	24.00		1.80		26.99	Pass
HT40	MCS8	2	102	5510	0.67	0.66	12.19	12.19	15.20	24.00		1.80		26.99	Pass
HT40	MCS8	2	118	5590	0.67	0.66	12.10	12.13	15.12	24.00		1.80		26.99	Pass
HT40	MCS8	2	134	5670	0.67	0.66	13.21	13.50	16.37	24.00		1.80		26.99	Pass
VHT20	MCS0	2	100	5500	0.62	0.64	13.25	13.50	16.39	24.00		1.80		26.99	Pass
VHT20	MCS0	2	120	5600	0.62	0.64	13.12	13.16	16.15	24.00		1.80		26.99	Pass
VHT20	MCS0	2	140	5700	0.62	0.64	13.07	13.24	16.17	24.00		1.80		26.99	Pass
VHT40	MCS0	2	102	5510	0.66	0.66	12.18	12.16	15.18	24.00		1.80		26.99	Pass
VHT40	MCS0	2	118	5590	0.66	0.66	12.08	12.11	15.10	24.00		1.80		26.99	Pass
VHT40	MCS0	2	134	5670	0.66	0.66	13.17	13.48	16.34	24.00		1.80		26.99	Pass
VHT80	MCS0	2	106	5530	0.73	0.77	10.19	10.33	13.27	24.00		1.80		26.99	Pass
VHT80	MCS0	2	122	5610	0.73	0.77	13.28	13.54	16.42	24.00		1.80		26.99	Pass
VHT160	MCS0	2	114	5570	1.20	1.20	11.05	10.58	13.83	24.00		1.80		26.99	Pass



Appendix B. AC Conducted Emission Test Results

Test Engineer :	ZhangXu	Temperature :	22~25°C
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Line

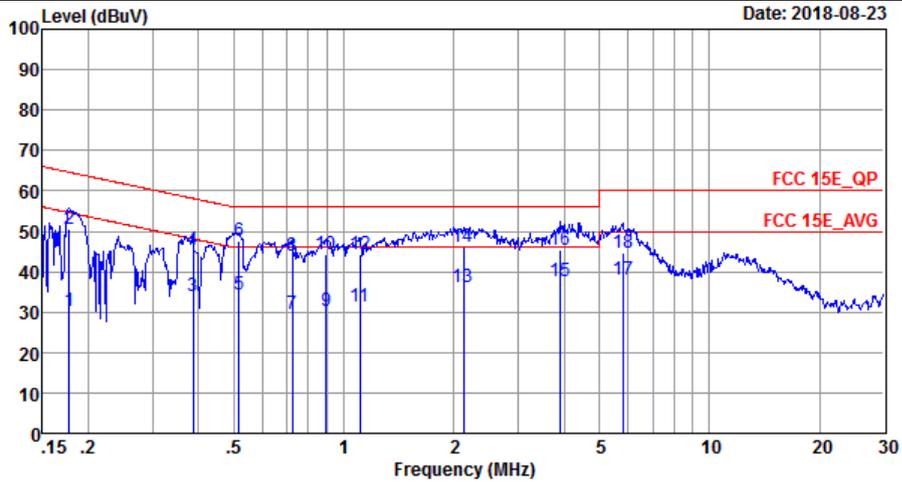


Site : CO01-SZ
 Condition: FCC 15E_QP LISN_20170907_L LINE
 Project : 880301
 Mode : mode 2

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.18	34.99	-19.51	54.50	24.89	0.03	10.07	Average
2	0.18	51.10	-13.40	64.50	41.00	0.03	10.07	QP
3	0.32	41.41	-8.39	49.80	31.30	0.03	10.08	Average
4	0.32	48.61	-11.19	59.80	38.50	0.03	10.08	QP
5	0.42	35.01	-12.36	47.37	24.90	0.03	10.08	Average
6	0.42	48.01	-9.36	57.37	37.90	0.03	10.08	QP
7	0.52	38.00	-8.00	46.00	27.90	0.02	10.08	Average
8 *	0.52	50.20	-5.80	56.00	40.10	0.02	10.08	QP
9	0.63	36.50	-9.50	46.00	26.40	0.02	10.08	Average
10	0.63	48.80	-7.20	56.00	38.70	0.02	10.08	QP
11	0.91	32.64	-13.36	46.00	22.49	0.06	10.09	Average
12	0.91	46.74	-9.26	56.00	36.59	0.06	10.09	QP
13	1.25	32.48	-13.52	46.00	22.30	0.08	10.10	Average
14	1.25	45.18	-10.82	56.00	35.00	0.08	10.10	QP
15	2.41	32.46	-13.54	46.00	22.21	0.13	10.12	Average
16	2.41	42.96	-13.04	56.00	32.71	0.13	10.12	QP
17	3.94	34.64	-11.36	46.00	24.30	0.18	10.16	Average
18	3.94	43.64	-12.36	56.00	33.30	0.18	10.16	QP
19	5.33	35.10	-14.90	50.00	24.70	0.20	10.20	Average
20	5.33	42.60	-17.40	60.00	32.20	0.20	10.20	QP



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



Site : CO01-SZ
 Condition: FCC 15E_QP LISN_20170907_N NEUTRAL
 Project : 880301
 Mode : mode 2

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.18	30.30	-24.29	54.59	20.20	0.03	10.07	Average
2	0.18	50.69	-13.90	64.59	40.59	0.03	10.07	QP
3	0.39	33.90	-14.22	48.12	23.80	0.02	10.08	Average
4	0.39	45.40	-12.72	58.12	35.30	0.02	10.08	QP
5	0.52	34.50	-11.50	46.00	24.40	0.02	10.08	Average
6	0.52	47.50	-8.50	56.00	37.40	0.02	10.08	QP
7	0.72	29.40	-16.60	46.00	19.30	0.02	10.08	Average
8	0.72	44.00	-12.00	56.00	33.90	0.02	10.08	QP
9	0.89	30.33	-15.67	46.00	20.20	0.04	10.09	Average
10	0.89	44.33	-11.67	56.00	34.20	0.04	10.09	QP
11	1.11	31.54	-14.46	46.00	21.40	0.05	10.09	Average
12	1.11	44.34	-11.66	56.00	34.20	0.05	10.09	QP
13	2.12	36.26	-9.74	46.00	26.10	0.05	10.11	Average
14	2.12	46.16	-9.84	56.00	36.00	0.05	10.11	QP
15 *	3.92	37.61	-8.39	46.00	27.40	0.05	10.16	Average
16	3.92	45.21	-10.79	56.00	35.00	0.05	10.16	QP
17	5.80	38.08	-11.92	50.00	27.80	0.07	10.21	Average
18	5.80	44.68	-15.32	60.00	34.40	0.07	10.21	QP



Appendix C. Radiated Spurious Emission

Test Engineer :	Xiangxiong Liang	Temperature :	23~25°C
		Relative Humidity :	48~52%

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

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 36 5180MHz		5069.42	46.16	-27.84	74	37.82	31.32	8.7	31.68	100	322	P	H
		5146.12	37.59	-16.41	54	29.13	31.36	8.77	31.67	100	322	A	H
	*	5180	98.45	-	-	89.92	31.38	8.81	31.66	100	322	P	H
	*	5180	92.53	-	-	84	31.38	8.81	31.66	100	322	A	H
		5096.72	46.32	-27.68	74	37.92	31.34	8.74	31.68	100	342	P	V
		5149.24	37.71	-16.29	54	29.25	31.36	8.77	31.67	100	342	A	V
	*	5180	102.81	-	-	94.28	31.38	8.81	31.66	100	342	P	V
	*	5180	94.56	-	-	86.03	31.38	8.81	31.66	100	342	A	V
802.11a CH 40 5200MHz		5076.96	45.98	-28.02	74	37.59	31.33	8.74	31.68	100	319	P	H
		5120.38	37.2	-16.8	54	28.75	31.35	8.77	31.67	100	319	A	H
	*	5200	99.54	-	-	90.97	31.39	8.84	31.66	100	319	P	H
	*	5200	93.67	-	-	85.1	31.39	8.84	31.66	100	319	A	H
		5454.24	48.88	-25.12	74	39.89	31.51	9.09	31.61	110	319	P	H
		5438.64	38.28	-15.72	54	29.3	31.5	9.09	31.61	110	319	A	H
		5050.7	46.64	-27.36	74	38.31	31.32	8.7	31.69	104	340	P	V
		5120.12	37.27	-16.73	54	28.82	31.35	8.77	31.67	104	340	A	V
	*	5200	101.88	-	-	93.31	31.39	8.84	31.66	104	340	P	V
	*	5200	94.61	-	-	86.04	31.39	8.84	31.66	104	340	A	V
		5418.96	48.26	-25.74	74	39.33	31.49	9.06	31.62	104	340	P	V
		5424.48	38.36	-15.64	54	29.43	31.49	9.06	31.62	104	340	A	V



802.11a CH 48 5240MHz		5142.74	46.32	-27.68	74	37.86	31.36	8.77	31.67	102	320	P	H
		5119.86	36.87	-17.13	54	28.42	31.35	8.77	31.67	102	320	A	H
	*	5240	98.78	-	-	90.14	31.41	8.88	31.65	102	320	P	H
	*	5240	93.73	-	-	85.09	31.41	8.88	31.65	102	320	A	H
		5417.76	46.16	-27.84	74	37.23	31.49	9.06	31.62	102	320	P	H
		5451.6	37.27	-16.73	54	28.28	31.51	9.09	31.61	102	320	A	H
		5115.18	45.87	-28.13	74	37.42	31.35	8.77	31.67	116	342	P	V
		5119.86	37.11	-16.89	54	28.66	31.35	8.77	31.67	116	342	A	V
	*	5240	102.88	-	-	94.24	31.41	8.88	31.65	116	342	P	V
	*	5240	95.84	-	-	87.2	31.41	8.88	31.65	116	342	A	V
		5398.56	46.66	-27.34	74	37.73	31.49	9.06	31.62	116	342	P	V
		5400.48	37.49	-16.51	54	28.56	31.49	9.06	31.62	116	342	A	V
Remark	<p>1. No other spurious found.</p> <p>2. All results are PASS against Peak and Average limit line.</p>												



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 36 5180MHz		10360	49.17	-24.83	74	58.55	39.84	11.63	60.85	152	260	P	H
		15540	46.65	-27.35	74	56.05	38.85	13.9	62.15	189	238	P	H
		10360	49.47	-24.53	74	58.85	39.84	11.63	60.85	152	260	P	V
		15540	46.42	-27.58	74	55.82	38.85	13.9	62.15	189	238	P	V
802.11a CH 40 5200MHz		10400	48.54	-25.46	74	57.84	39.89	11.64	60.83	158	321	P	H
		15600	47.85	-26.15	74	57.57	38.54	13.92	62.18	114	298	P	H
		10400	49.41	-24.59	74	58.71	39.89	11.64	60.83	121	336	P	V
		15600	46.43	-27.57	74	56.15	38.54	13.92	62.18	165	254	P	V
802.11a CH 48 5240MHz		10480	49.14	-24.86	74	58.24	39.99	11.67	60.76	150	289	P	H
		15720	46.79	-27.21	74	57.04	38.01	13.98	62.24	150	291	P	H
		10480	48.09	-25.91	74	57.19	39.99	11.67	60.76	150	289	P	V
		15720	47.56	-26.44	74	57.81	38.01	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+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 36 5180MHz		5148.72	50.36	-23.64	74	41.9	31.36	8.77	31.67	152	56	P	H
		5149.5	42.34	-11.66	54	33.88	31.36	8.77	31.67	152	56	A	H
	*	5180	107.73	-	-	99.2	31.38	8.81	31.66	152	56	P	H
	*	5180	101.2	-	-	92.67	31.38	8.81	31.66	152	56	A	H
		5148.98	48.5	-25.5	74	40.04	31.36	8.77	31.67	164	224	P	V
		5150	40.73	-13.27	54	32.27	31.36	8.77	31.67	164	224	A	V
	*	5180	104.89	-	-	96.36	31.38	8.81	31.66	164	224	P	V
		5180	97.55	-	-	89.02	31.38	8.81	31.66	164	224	A	V
802.11n HT20 CH 40 5200MHz		5128.18	47.5	-26.5	74	39.04	31.36	8.77	31.67	177	57	P	H
		5102.44	38.48	-15.52	54	30.08	31.34	8.74	31.68	177	57	A	H
	*	5200	106.17	-	-	97.6	31.39	8.84	31.66	177	57	P	H
	*	5200	99.58	-	-	91.01	31.39	8.84	31.66	177	57	A	H
		5354.16	48.19	-25.81	74	39.34	31.46	9.02	31.63	177	57	P	H
		5362.08	40.28	-13.72	54	31.42	31.47	9.02	31.63	177	57	A	H
		5089.96	46.51	-27.49	74	38.11	31.34	8.74	31.68	178	224	P	V
		5119.86	38.14	-15.86	54	29.69	31.35	8.77	31.67	178	224	A	V
	*	5200	102.94	-	-	94.37	31.39	8.84	31.66	178	224	P	V
	*	5200	96.63	-	-	88.06	31.39	8.84	31.66	178	224	A	V
		5379.6	47.09	-26.91	74	38.21	31.48	9.02	31.62	178	224	P	V
	5439.12	39.24	-14.76	54	30.26	31.5	9.09	31.61	178	224	A	V	



802.11n HT20 CH 48 5240MHz		5044.72	46.86	-27.14	74	38.53	31.32	8.7	31.69	210	162	P	H
		5119.86	39.88	-14.12	54	31.43	31.35	8.77	31.67	210	162	A	H
	*	5240	107.92	-	-	99.28	31.41	8.88	31.65	210	162	P	H
	*	5240	100.74	-	-	92.1	31.41	8.88	31.65	210	162	A	H
		5426.4	47.38	-26.62	74	38.45	31.49	9.06	31.62	210	162	P	H
		5400	39.32	-14.68	54	30.39	31.49	9.06	31.62	210	162	A	H
		5078	48.85	-25.15	74	40.46	31.33	8.74	31.68	214	218	P	V
		5138.58	39.43	-14.57	54	30.97	31.36	8.77	31.67	214	218	A	V
	*	5240	103.6	-	-	94.96	31.41	8.88	31.65	214	218	P	V
	*	5240	97.69	-	-	89.05	31.41	8.88	31.65	214	218	A	V
		5359.2	46.41	-27.59	74	37.56	31.46	9.02	31.63	214	218	P	V
		5445.84	38.46	-15.54	54	29.47	31.51	9.09	31.61	214	218	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20		10360	48.52	-25.48	74	57.9	39.84	11.63	60.85	152	260	P	H
		15540	46.46	-27.54	74	55.86	38.85	13.9	62.15	189	238	P	H
CH 36 5180MHz		10360	50.39	-23.61	74	59.77	39.84	11.63	60.85	152	260	P	V
		15540	46.61	-27.39	74	56.01	38.85	13.9	62.15	189	238	P	V
802.11n HT20 CH 40 5200MHz		10400	49.2	-24.8	74	58.5	39.89	11.64	60.83	158	321	P	H
		15600	47.13	-26.87	74	56.85	38.54	13.92	62.18	114	298	P	H
		10400	50.05	-23.95	74	59.35	39.89	11.64	60.83	121	336	P	V
		15600	46.57	-27.43	74	56.29	38.54	13.92	62.18	165	254	P	V
802.11n HT20 CH 48 5240MHz		10480	49.3	-24.7	74	58.4	39.99	11.67	60.76	150	289	P	H
		15720	46.12	-27.88	74	56.37	38.01	13.98	62.24	150	291	P	H
		10480	48.34	-25.66	74	57.44	39.99	11.67	60.76	157	216	P	V
		15720	46.68	-27.32	74	56.93	38.01	13.98	62.24	187	219	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 38 5190MHz		5148.98	58.07	-15.93	74	49.61	31.36	8.77	31.67	166	215	P	H
		5150	51.5	-2.5	54	43.04	31.36	8.77	31.67	166	215	A	H
	*	5190	105.01	-	-	96.48	31.38	8.81	31.66	166	215	P	H
	*	5190	97.57	-	-	89.04	31.38	8.81	31.66	166	215	A	H
		5459.16	46.49	-27.51	74	37.5	31.51	9.09	31.61	166	215	P	H
		5443.2	38.39	-15.61	54	29.41	31.5	9.09	31.61	166	215	A	H
		5148.98	55.98	-18.02	74	47.52	31.36	8.77	31.67	200	212	P	V
		5150	49.56	-4.44	54	41.1	31.36	8.77	31.67	200	212	A	V
	*	5190	99.92	-	-	91.39	31.38	8.81	31.66	200	212	P	V
	*	5190	93.95			85.42	31.38	8.81	31.66	200	212	A	V
		5454.4	46.66	-27.34	74	37.67	31.51	9.09	31.61	200	212	P	V
		5437.6	38.44	-15.56	54	29.46	31.5	9.09	31.61	200	212	A	V
802.11n HT40 CH 46 5230MHz		5145.6	47.39	-26.61	74	38.93	31.36	8.77	31.67	163	181	P	H
		5150	39.32	-14.68	54	30.86	31.36	8.77	31.67	163	181	A	H
	*	5230	105.48	-	-	96.88	31.41	8.84	31.65	163	181	P	H
	*	5230	97.6	-	-	89	31.41	8.84	31.65	163	181	A	H
		5365.68	47.06	-26.94	74	38.2	31.47	9.02	31.63	163	181	P	H
		5398.32	38.93	-15.07	54	30	31.49	9.06	31.62	163	181	A	H
		5127.66	46.54	-27.46	74	38.08	31.36	8.77	31.67	136	227	P	V
		5148.72	38.36	-15.64	54	29.9	31.36	8.77	31.67	136	227	A	V
	*	5230	100.07	-	-	91.47	31.41	8.84	31.65	136	227	P	V
	*	5230	94.6	-	-	86	31.41	8.84	31.65	136	227	A	V
	5443.44	46.38	-27.62	74	37.4	31.5	9.09	31.61	136	227	P	V	
	5435.76	38.47	-15.53	54	29.49	31.5	9.09	31.61	136	227	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)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include data for 802.11n HT40 CH 38 (5190MHz) and 802.11n HT40 CH 46 (5230MHz).

- 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)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include test results for 802.11ac VHT80 CH 42 5210MHz and a Remark section.



Band 1 5150~5250MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		10420	49.48	-24.52	74	58.72	39.91	11.66	60.81	150	360	P	H
VHT80		15630	46.87	-27.13	74	56.74	38.39	13.94	62.2	150	225	P	H
CH 42		10420	48.12	-25.88	74	57.36	39.91	11.66	60.81	154	168	P	V
5210MHz		15630	46.78	-27.22	74	56.65	38.39	13.94	62.2	174	248	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 VHT160 (Band Edge @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include test data for 802.11ac VHT160 CH 50 5250MHz and a Remark section.



Band 1 5150~5250MHz

WIFI 802.11ac VHT160 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		10500	46.76	-27.24	74	55.81	40.01	11.69	60.75	161	360	P	H
VHT160		15750	46.14	-27.86	74	56.53	37.86	14	62.25	161	0	P	H
CH 50		10500	48.16	-25.84	74	57.21	40.01	11.69	60.75	164	201	P	V
5250MHz		15750	46.44	-27.56	74	56.83	37.86	14	62.25	154	149	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.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 52 5260MHz		5022.36	47.47	-26.53	74	39.18	31.31	8.67	31.69	113	326	P	H
		5119.86	38.89	-15.11	54	30.44	31.35	8.77	31.67	113	326	A	H
	*	5260	102.78	-	-	94.13	31.42	8.88	31.65	113	326	P	H
	*	5260	94.62	-	-	85.97	31.42	8.88	31.65	113	326	A	H
		5406	46.58	-27.42	74	37.65	31.49	9.06	31.62	113	326	P	H
		5440.08	38	-16	54	29.02	31.5	9.09	31.61	113	326	A	H
		5051.74	47.04	-26.96	74	38.71	31.32	8.7	31.69	128	339	P	V
		5120.12	39.34	-14.66	54	30.89	31.35	8.77	31.67	128	339	A	V
	*	5260	103.63	-	-	94.98	31.42	8.88	31.65	128	339	P	V
	*	5260	96.71	-	-	88.06	31.42	8.88	31.65	128	339	A	V
		5406.96	46.18	-27.82	74	37.25	31.49	9.06	31.62	128	339	P	V
		5416.32	38.02	-15.98	54	29.09	31.49	9.06	31.62	128	339	A	V
802.11a CH 56 5280MHz		5037.18	45.68	-28.32	74	37.36	31.31	8.7	31.69	263	321	P	H
		5119.86	37.63	-16.37	54	29.18	31.35	8.77	31.67	263	321	A	H
	*	5280	101.74	-	-	93.02	31.43	8.93	31.64	263	321	P	H
	*	5280	95.4	-	-	86.68	31.43	8.93	31.64	263	321	A	H
		5403.84	46.81	-27.19	74	37.88	31.49	9.06	31.62	263	321	P	H
		5441.76	37.65	-16.35	54	28.67	31.5	9.09	31.61	263	321	A	H
		5101.66	46.8	-27.2	74	38.4	31.34	8.74	31.68	182	343	P	V
		5119.86	37.99	-16.01	54	29.54	31.35	8.77	31.67	182	343	A	V
	*	5280	103.42	-	-	94.7	31.43	8.93	31.64	182	343	P	V
	*	5280	96.66	-	-	87.94	31.43	8.93	31.64	182	343	A	V
		5432.16	46.77	-27.23	74	37.79	31.5	9.09	31.61	182	343	P	V
		5438.64	37.87	-16.13	54	28.89	31.5	9.09	31.61	182	343	A	V



802.11a CH 64 5320MHz	*	5320	102.08	-	-	93.3	31.45	8.97	31.64	133	67	P	H
	*	5320	93.36	-	-	84.58	31.45	8.97	31.64	133	67	A	H
		5353.76	47.79	-26.21	74	38.94	31.46	9.02	31.63	133	67	P	H
		5352.32	38.75	-15.25	54	29.9	31.46	9.02	31.63	133	67	A	H
	*	5320	103.18	-	-	94.4	31.45	8.97	31.64	189	345	P	V
	*	5320	95.56	-	-	86.78	31.45	8.97	31.64	189	345	A	V
		5454.56	46.82	-27.18	74	37.83	31.51	9.09	31.61	189	345	P	V
		5350.24	38.94	-15.06	54	30.09	31.46	9.02	31.63	189	345	A	V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



Band 2 5250~5350MHz

WIFI 802.11a (Harmonic @ 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)
802.11a CH 52 5260MHz		10520	48.98	-25.02	74	57.97	40.03	11.69	60.71	150	220	P	H
		15780	46.64	-27.36	74	57.08	37.79	14.03	62.26	159	345	P	H
		10520	49.41	-24.59	74	58.4	40.03	11.69	60.71	150	220	P	V
		15780	47.15	-26.85	74	57.59	37.79	14.03	62.26	159	345	P	V
802.11a CH 56 5280MHz		10560	48.23	-25.77	74	57.1	40.07	11.7	60.64	150	220	P	H
		15840	47.05	-26.95	74	57.8	37.48	14.07	62.3	168	345	P	H
		10560	48.51	-25.49	74	57.38	40.07	11.7	60.64	161	120	P	V
		15840	46.25	-27.75	74	57	37.48	14.07	62.3	122	322	P	V
802.11a CH 64 5320MHz		10640	49.72	-24.28	74	58.27	40.17	11.73	60.45	152	135	P	H
		15960	45.93	-28.07	74	57.2	36.95	14.13	62.35	173	245	P	H
		10640	49.27	-24.73	74	57.82	40.17	11.73	60.45	152	135	P	V
		15960	46.14	-27.86	74	57.41	36.95	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+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 52 5260MHz		5145.6	46.49	-27.51	74	38.03	31.36	8.77	31.67	130	147	P	H
		5103.22	38.39	-15.61	54	29.99	31.34	8.74	31.68	130	147	A	H
	*	5260	108.81	-	-	100.16	31.42	8.88	31.65	130	147	P	H
	*	5260	101.01	-	-	92.36	31.42	8.88	31.65	130	147	A	H
		5452.56	47.85	-26.15	74	38.86	31.51	9.09	31.61	130	147	P	H
		5418.96	39.56	-14.44	54	30.63	31.49	9.06	31.62	130	147	A	H
		5136.76	46.49	-27.51	74	38.03	31.36	8.77	31.67	172	217	P	V
		5057.2	38.01	-15.99	54	29.68	31.32	8.7	31.69	172	217	A	V
	*	5260	103.28	-	-	94.63	31.42	8.88	31.65	172	217	P	V
	*	5260	97.67	-	-	89.02	31.42	8.88	31.65	172	217	A	V
		5374.32	46.06	-27.94	74	37.2	31.47	9.02	31.63	172	217	P	V
		5407.2	38.7	-15.3	54	29.77	31.49	9.06	31.62	172	217	A	V
802.11n HT20 CH 56 5280MHz		5045.76	47.59	-26.41	74	39.26	31.32	8.7	31.69	132	163	P	H
		5120.12	39.76	-14.24	54	31.31	31.35	8.77	31.67	132	163	A	H
	*	5280	108.89	-	-	100.17	31.43	8.93	31.64	132	163	P	H
	*	5280	101.78	-	-	93.06	31.43	8.93	31.64	132	163	A	H
		5397.6	47	-27	74	38.07	31.49	9.06	31.62	132	163	P	H
		5440.56	40.52	-13.48	54	31.54	31.5	9.09	31.61	132	163	A	H
		5122.46	46.94	-27.06	74	38.49	31.35	8.77	31.67	131	226	P	V
		5119.86	39.57	-14.43	54	31.12	31.35	8.77	31.67	131	226	A	V
	*	5280	104.23	-	-	95.51	31.43	8.93	31.64	131	226	P	V
	*	5280	97.73	-	-	89.01	31.43	8.93	31.64	131	226	A	V
	5362.8	45.76	-28.24	74	36.9	31.47	9.02	31.63	131	226	P	V	
	5425.44	38.87	-15.13	54	29.94	31.49	9.06	31.62	131	226	A	V	



802.11n HT20 CH 64 5320MHz	*	5320	108.62	-	-	99.84	31.45	8.97	31.64	134	162	P	H
	*	5320	100.81	-	-	92.03	31.45	8.97	31.64	134	162	A	H
		5350.72	50.87	-23.13	74	42.02	31.46	9.02	31.63	134	162	P	H
		5350.72	43.18	-10.82	54	34.33	31.46	9.02	31.63	134	162	A	H
	*	5320	103.9	-	-	95.12	31.45	8.97	31.64	106	237	P	V
	*	5320	103.9	-	-	95.12	31.45	8.97	31.64	106	237	A	V
		5356.96	49.16	-24.84	74	40.31	31.46	9.02	31.63	106	237	P	V
		5350.56	40.83	-13.17	54	31.98	31.46	9.02	31.63	106	237	A	V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 52		10520	48.65	-25.35	74	57.64	40.03	11.69	60.71	150	220	P	H
		15780	47.02	-26.98	74	57.46	37.79	14.03	62.26	159	345	P	H
5260MHz		10520	49.2	-24.8	74	58.19	40.03	11.69	60.71	150	220	P	V
		15780	47.91	-26.09	74	58.35	37.79	14.03	62.26	159	345	P	V
802.11n HT20 CH 56		10560	48.72	-25.28	74	57.59	40.07	11.7	60.64	150	220	P	H
		15840	46.04	-27.96	74	56.79	37.48	14.07	62.3	168	345	P	H
5280MHz		10560	48.51	-25.49	74	57.38	40.07	11.7	60.64	161	120	P	V
		15840	47.03	-26.97	74	57.78	37.48	14.07	62.3	122	322	P	V
802.11n HT20 CH 64		10640	48.99	-25.01	74	57.54	40.17	11.73	60.45	152	135	P	H
		15960	46.66	-27.34	74	57.93	36.95	14.13	62.35	173	245	P	H
5320MHz		10640	49.3	-24.7	74	57.85	40.17	11.73	60.45	164	201	P	V
		15960	46.39	-27.61	74	57.66	36.95	14.13	62.35	114	287	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 54 5270MHz		5016.12	46.58	-27.42	74	38.3	31.3	8.67	31.69	128	147	P	H
		5120.12	38.56	-15.44	54	30.11	31.35	8.77	31.67	128	147	A	H
	*	5270	106.6	-	-	97.95	31.42	8.88	31.65	128	147	P	H
	*	5270	98.56	-	-	89.91	31.42	8.88	31.65	128	147	A	H
		5371.44	47.77	-26.23	74	38.91	31.47	9.02	31.63	128	147	P	H
		5436	39.5	-14.5	54	30.52	31.5	9.09	31.61	128	147	A	H
		5038.48	46.52	-27.48	74	38.19	31.32	8.7	31.69	209	237	P	V
		5094.12	37.9	-16.1	54	29.5	31.34	8.74	31.68	209	237	A	V
	*	5270	100.6	-	-	91.95	31.42	8.88	31.65	209	237	P	V
	*	5270	94.97	-	-	86.32	31.42	8.88	31.65	209	237	A	V
		5355.36	47.44	-26.56	74	38.59	31.46	9.02	31.63	209	237	P	V
		5421.6	38.64	-15.36	54	29.71	31.49	9.06	31.62	209	237	A	V
802.11n HT40 CH 62 5310MHz		5106.05	46.87	-27.13	74	38.46	31.35	8.74	31.68	174	179	P	H
		5147.7	38.09	-15.91	54	29.63	31.36	8.77	31.67	174	179	A	H
	*	5310	105.25	-	-	96.47	31.45	8.97	31.64	174	179	P	H
	*	5310	97.88	-	-	89.1	31.45	8.97	31.64	174	179	A	H
		5350.08	56.29	-17.71	74	47.44	31.46	9.02	31.63	174	179	P	H
		5350.08	45.94	-8.06	54	37.09	31.46	9.02	31.63	174	179	A	H
		5041.3	46.32	-27.68	74	37.99	31.32	8.7	31.69	206	226	P	V
		5122.15	37.7	-16.3	54	29.25	31.35	8.77	31.67	206	226	A	V
	*	5310	100.04	-	-	91.26	31.45	8.97	31.64	206	226	P	V
	*	5310	94.88	-	-	86.1	31.45	8.97	31.64	206	226	A	V
	5350.8	50.51	-23.49	74	41.66	31.46	9.02	31.63	206	226	P	V	
	5353.44	42.54	-11.46	54	33.69	31.46	9.02	31.63	206	226	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40		10540	48.7	-25.3	74	57.62	40.05	11.7	60.67	150	220	P	H
		15810	46.64	-27.36	74	57.24	37.63	14.05	62.28	168	345	P	H
CH 54 5270MHz		10540	48.46	-25.54	74	57.38	40.05	11.7	60.67	167	215	P	V
		15810	46.64	-27.36	74	57.24	37.63	14.05	62.28	198	201	P	V
802.11n HT40 CH 62 5310MHz		10620	49.71	-24.29	74	58.32	40.15	11.73	60.49	150	220	P	H
		15930	46.06	-27.94	74	57.19	37.1	14.11	62.34	160	100	P	H
		10620	48.62	-25.38	74	57.23	40.15	11.73	60.49	156	215	P	V
		15930	48	-26	74	59.13	37.1	14.11	62.34	171	240	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)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include test results for 802.11ac VHT80 CH 58 5290MHz and a Remark section.



Band 2 5250~5350MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		10580	49.55	-24.45	74	58.29	40.11	11.71	60.56	185	215	P	H
VHT80		15870	47.24	-26.76	74	58.15	37.33	14.07	62.31	196	190	P	H
CH 58		10580	49	-25	74	57.74	40.11	11.71	60.56	170	232	P	V
5290MHz		15870	46.49	-27.51	74	57.4	37.33	14.07	62.31	190	130	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.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 100 5500MHz		5367.28	47.56	-26.44	74	38.7	31.47	9.02	31.63	100	21	P	H
		5468.56	38.61	-15.39	54	29.58	31.52	9.12	31.61	100	21	A	H
	*	5500	97.33	-	-	88.27	31.54	9.12	31.6	100	21	P	H
	*	5500	90.59	-	-	81.53	31.54	9.12	31.6	100	21	A	H
		5460.56	47.11	-26.89	74	38.12	31.51	9.09	31.61	158	346	P	V
		5470	39.33	-14.67	54	30.3	31.52	9.12	31.61	158	346	A	V
	*	5500	101.31	-	-	92.25	31.54	9.12	31.6	158	346	P	V
	*	5500	92.69	-	-	83.63	31.54	9.12	31.6	158	346	A	V
802.11a CH 120 5600MHz		5402.08	46.32	-27.68	74	37.39	31.49	9.06	31.62	125	80	P	H
		5467.6	37.88	-16.12	54	28.85	31.52	9.12	31.61	125	80	A	H
	*	5600	99.34	-	-	90.16	31.58	9.2	31.6	125	80	P	H
	*	5600	92.28	-	-	83.1	31.58	9.2	31.6	125	80	A	H
		5738.925	46.66	-27.34	74	36.99	31.97	9.3	31.6	125	80	P	H
		5750.65	38.99	-15.01	54	29.32	31.97	9.3	31.6	125	80	A	H
		5422.24	46.64	-27.36	74	37.71	31.49	9.06	31.62	148	347	P	V
		5464.48	38.11	-15.89	54	29.11	31.52	9.09	31.61	148	347	A	V
	*	5600	101.86	-	-	92.68	31.58	9.2	31.6	148	347	P	V
	*	5600	97.58	-	-	88.4	31.58	9.2	31.6	148	347	A	V
		5763.6	47.07	-26.93	74	37.34	32.03	9.3	31.6	148	347	P	V
		5756.25	38.85	-15.15	54	29.12	32.03	9.3	31.6	148	347	A	V



802.11a CH 140 5700MHz	*	5700	98.05	-	-	88.59	31.78	9.28	31.6	290	300	P	H
	*	5700	91.8	-	-	82.34	31.78	9.28	31.6	290	300	A	H
		5737.48	47.91	-26.09	74	38.26	31.97	9.28	31.6	290	300	P	H
		5727.8	40.13	-13.87	54	30.54	31.91	9.28	31.6	290	300	A	H
	*	5700	101.88	-	-	92.42	31.78	9.28	31.6	100	352	P	V
	*	5700	91.97	-	-	82.51	31.78	9.28	31.6	100	352	A	V
		5730.76	48.01	-25.99	74	38.42	31.91	9.28	31.6	100	352	P	V
		5725.8	39.58	-14.42	54	29.99	31.91	9.28	31.6	100	352	A	V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



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

Table with 14 columns: 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). Rows include channels 100, 120, and 140 with various frequency and level measurements.

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)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include data for 802.11n HT20 CH 100 (5500MHz) and 802.11n HT20 CH 120 (5600MHz).



802.11n HT20 CH 140 5700MHz	*	5700	105.14	-	-	95.68	31.78	9.28	31.6	147	142	P	H
	*	5700	98.56	-	-	89.1	31.78	9.28	31.6	147	142	A	H
		5725	53.63	-20.37	74	44.04	31.91	9.28	31.6	147	142	P	H
		5725	43.55	-10.45	54	33.96	31.91	9.28	31.6	147	142	A	H
	*	5700	100.57	-	-	91.11	31.78	9.28	31.6	105	180	P	V
	*	5700	95.58	-	-	86.12	31.78	9.28	31.6	105	180	A	V
		5725.48	50.82	-23.18	74	41.23	31.91	9.28	31.6	105	180	P	V
		5725	42.51	-11.49	54	32.92	31.91	9.28	31.6	105	180	A	V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20		11000	50.05	-23.95	74	57.26	40.59	11.86	59.66	163	230	P	H
		16500	47.68	-26.32	74	55.59	38.94	14.41	61.26	196	273	P	H
CH 100 5500MHz		11000	49.94	-24.06	74	57.15	40.59	11.86	59.66	155	212	P	V
		16500	47.25	-26.75	74	55.16	38.94	14.41	61.26	178	296	P	V
802.11n HT20 CH 120 5600MHz		11200	48.6	-25.4	74	55.47	40.84	11.94	59.65	161	360	P	H
		16800	47.75	-26.25	74	53.57	40.15	14.59	60.56	161	0	P	H
		11200	49.12	-24.88	74	55.99	40.84	11.94	59.65	156	149	P	V
		16800	48.54	-25.46	74	54.36	40.15	14.59	60.56	174	184	P	V
802.11n HT20 CH 140 5700MHz		11400	49.53	-24.47	74	56.07	41.08	12.02	59.64	157	285	P	H
		17100	50.72	-23.28	74	54.44	41.6	14.76	60.08	165	246	P	H
		11400	49.43	-24.57	74	55.97	41.08	12.02	59.64	122	291	P	V
		17100	49.77	-24.23	74	53.49	41.6	14.76	60.08	153	102	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 102 5510MHz		5464.96	55.9	-18.1	74	46.9	31.52	9.09	31.61	129	177	P	H
		5464.96	46.03	-7.97	54	37.03	31.52	9.09	31.61	129	177	A	H
	*	5510	103.52	-	-	94.44	31.54	9.14	31.6	129	177	P	H
	*	5510	95.18	-	-	86.1	31.54	9.14	31.6	129	177	A	H
		5759.96	47.53	-26.47	74	37.8	32.03	9.3	31.6	129	177	P	H
		5744.84	38.87	-15.13	54	29.2	31.97	9.3	31.6	129	177	A	H
		5466.88	50.82	-23.18	74	41.79	31.52	9.12	31.61	100	213	P	V
		5469.52	43.79	-10.21	54	34.76	31.52	9.12	31.61	100	213	A	V
	*	5510	98.41	-	-	89.33	31.54	9.14	31.6	100	213	P	V
	*	5510	92.18	-	-	83.1	31.54	9.14	31.6	100	213	A	V
		5752.715	46.15	-27.85	74	36.42	32.03	9.3	31.6	100	213	P	V
		5735.075	38.92	-15.08	54	29.27	31.97	9.28	31.6	100	213	A	V
802.11n HT40 CH 118 5590MHz		5437.84	46.74	-27.26	74	37.76	31.5	9.09	31.61	121	161	P	H
		5465.2	39.56	-14.44	54	30.56	31.52	9.09	31.61	121	161	A	H
	*	5590	103.03	-	-	93.85	31.58	9.2	31.6	121	161	P	H
	*	5590	95.23	-	-	86.05	31.58	9.2	31.6	121	161	A	H
		5759.225	47.7	-26.3	74	37.97	32.03	9.3	31.6	121	161	P	H
		5725.45	39.47	-14.53	54	29.88	31.91	9.28	31.6	121	161	A	H
		5422.72	45.94	-28.06	74	37.01	31.49	9.06	31.62	100	212	P	V
		5462.8	38.57	-15.43	54	29.57	31.52	9.09	31.61	100	212	A	V
	*	5590	97.72	-	-	88.54	31.58	9.2	31.6	100	212	P	V
	*	5590	89.32	-	-	80.14	31.58	9.2	31.6	100	212	A	V
	5756.775	47.58	-26.42	74	37.85	32.03	9.3	31.6	100	212	P	V	
	5743.475	39.43	-14.57	54	29.76	31.97	9.3	31.6	100	212	A	V	



802.11n HT40 CH 134 5670MHz		5468.3	47.15	-26.85	74	38.12	31.52	9.12	31.61	196	175	P	H
		5443.8	38.36	-15.64	54	29.38	31.5	9.09	31.61	196	175	A	H
	*	5670	103.05	-	-	93.68	31.72	9.25	31.6	196	175	P	H
	*	5670	95.78	-	-	86.41	31.72	9.25	31.6	196	175	A	H
		5725.8	49.09	-24.91	74	39.5	31.91	9.28	31.6	196	175	P	H
		5726.5	40.52	-13.48	54	30.93	31.91	9.28	31.6	196	175	A	H
		5467.95	46.77	-27.23	74	37.74	31.52	9.12	31.61	100	210	P	V
		5433.65	38.5	-15.5	54	29.52	31.5	9.09	31.61	100	210	A	V
	*	5670	97.15	-	-	87.78	31.72	9.25	31.6	100	210	P	V
	*	5670	91.48	-	-	82.11	31.72	9.25	31.6	100	210	A	V
		5737.875	47.62	-26.38	74	37.97	31.97	9.28	31.6	100	210	P	V
		5725	39.62	-14.38	54	30.03	31.91	9.28	31.6	100	210	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)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include test results for 802.11n HT40 CH 102 (5510MHz) and CH 118 (5590MHz), and 802.11n HT40 CH 134 (5670MHz).

Remark

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



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 106 5530MHz		5467.84	48.53	-25.47	74	39.5	31.52	9.12	31.61	235	162	P	H
		5468.8	42.65	-11.35	54	33.62	31.52	9.12	31.61	235	162	A	H
	*	5530	98.41	-	-	89.33	31.54	9.14	31.6	235	162	P	H
	*	5530	89.18	-	-	80.1	31.54	9.14	31.6	235	162	A	H
		5739.485	46.39	-27.61	74	36.72	31.97	9.3	31.6	235	162	P	H
		5741.69	39.86	-14.14	54	30.19	31.97	9.3	31.6	235	162	A	H
		5468.08	47.76	-26.24	74	38.73	31.52	9.12	31.61	226	240	P	V
		5466.16	41.5	-12.5	54	32.47	31.52	9.12	31.61	226	240	A	V
	*	5530	92.3	-	-	83.22	31.54	9.14	31.6	226	240	P	V
	*	5530	84.69	-	-	75.61	31.54	9.14	31.6	226	240	A	V
		5745.47	46.29	-27.71	74	36.62	31.97	9.3	31.6	226	240	P	V
		5763.74	39.61	-14.39	54	29.88	32.03	9.3	31.6	226	240	A	V
802.11ac VHT80 CH 122 5610MHz		5456.32	47.43	-26.57	74	38.44	31.51	9.09	31.61	231	189	P	H
		5449.84	40.91	-13.09	54	31.92	31.51	9.09	31.61	231	189	A	H
	*	5610	100.6	-	-	91.42	31.58	9.2	31.6	231	189	P	H
	*	5610	90.21	-	-	81.03	31.58	9.2	31.6	231	189	A	H
		5730.175	47.78	-26.22	74	38.19	31.91	9.28	31.6	231	189	P	H
		5727.725	41.13	-12.87	54	31.54	31.91	9.28	31.6	231	189	A	H
		5469.52	47.46	-26.54	74	38.43	31.52	9.12	31.61	236	151	P	V
		5460.64	40.3	-13.7	54	31.31	31.51	9.09	31.61	236	151	A	V
	*	5610	95.29	-	-	86.11	31.58	9.2	31.6	236	151	P	V
	*	5610	86.27	-	-	77.09	31.58	9.2	31.6	236	151	A	V
	5754.85	48.04	-25.96	74	38.31	32.03	9.3	31.6	236	151	P	V	
	5727.9	40.46	-13.54	54	30.87	31.91	9.28	31.6	236	151	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 5470~5725MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		11060	49.51	-24.49	74	56.61	40.67	11.89	59.66	170	230	P	H
VHT80		16590	48.55	-25.45	74	55.83	39.29	14.48	61.05	155	305	P	H
CH 106		11060	48.76	-25.24	74	55.86	40.67	11.89	59.66	166	212	P	V
5530MHz		16590	49.05	-24.95	74	56.33	39.29	14.48	61.05	132	343	P	V
802.11ac		11220	50.22	-23.78	74	57.07	40.86	11.94	59.65	200	360	P	H
VHT80		16830	49.43	-24.57	74	55.01	40.29	14.61	60.48	170	315	P	H
CH 122		11220	50.33	-23.67	74	57.18	40.86	11.94	59.65	155	260	P	V
5610MHz		16830	48.28	-25.72	74	53.86	40.29	14.61	60.48	180	220	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 VHT160 (Band Edge @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include test results for 802.11ac VHT160 CH 114 5570MHz and a Remark section.



Band 3 5470~5725MHz

WIFI 802.11ac VHT160 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		11140	48.44	-25.56	74	55.41	40.76	11.92	59.65	161	360	P	H
VHT160		16710	47.64	-26.36	74	54.07	39.79	14.55	60.77	161	0	P	H
CH 114		11140	49.1	-24.9	74	56.07	40.76	11.92	59.65	154	167	P	V
5570MHz		16710	48.02	-25.98	74	54.45	39.79	14.55	60.77	162	139	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Verify data

The above test data are performed with Sample 1 and Adapter 1, and the following test data are verified with Sample 1/2/3 and Adapter 2/3/4/5 for the worst case.

Band 1 5150~5250MHz

WIFI 802.11ac VHT160 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant. 1+2		(MHz)	(dBμV/m)	(dB)	Line (dBμV/m)	Level (dBμV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	(H/V)
802.11ac VHT160 CH 50 5250MHz (Sample 1+Adapter 2)		5142.48	58.31	-15.69	74	49.85	31.36	8.77	31.67	159	194	P	H
		5147.42	52.9	-1.1	54	44.44	31.36	8.77	31.67	159	194	A	H
	*	5250	98.33	-	-	89.69	31.41	8.88	31.65	159	194	P	H
	*	5250	90.66	-	-	82.02	31.41	8.88	31.65	159	194	A	H
		5399.04	57.29	-16.71	74	48.36	31.49	9.06	31.62	159	194	P	H
		5383.68	52.4	-1.6	54	43.52	31.48	9.02	31.62	159	194	A	H
		5146.64	53.44	-20.56	74	44.98	31.36	8.77	31.67	156	326	P	V
		5147.42	47.06	-6.94	54	38.6	31.36	8.77	31.67	156	326	A	V
	*	5250	92.61	-	-	83.97	31.41	8.88	31.65	156	326	P	V
	*	5250	85.74	-	-	77.1	31.41	8.88	31.65	156	326	A	V
		5402.4	55.54	-18.46	74	46.61	31.49	9.06	31.62	156	326	P	V
		5377.44	50.33	-3.67	54	41.46	31.47	9.02	31.62	156	326	A	V
802.11ac VHT160 CH 50 5250MHz (Sample 2+Adapter 3)		5135.46	54.4	-19.6	74	45.94	31.36	8.77	31.67	142	162	P	H
		5143.78	50.18	-3.82	54	41.72	31.36	8.77	31.67	142	162	A	H
	*	5250	97.62	-	-	88.98	31.41	8.88	31.65	142	162	P	H
	*	5250	89.65	-	-	81.01	31.41	8.88	31.65	142	162	A	H
		5403.84	56.14	-17.86	74	47.21	31.49	9.06	31.62	142	162	P	H
		5398.56	50.91	-3.09	54	41.98	31.49	9.06	31.62	142	162	A	H
		5143.78	51.11	-22.89	74	42.65	31.36	8.77	31.67	104	238	P	V
		5143.78	45.1	-8.9	54	36.64	31.36	8.77	31.67	104	238	A	V
	*	5250	92.57	-	-	83.93	31.41	8.88	31.65	104	238	P	V
	*	5250	84.68	-	-	76.04	31.41	8.88	31.65	104	238	A	V
		5394	55.86	-18.14	74	46.94	31.48	9.06	31.62	104	238	P	V
		5402.4	49.75	-4.25	54	40.82	31.49	9.06	31.62	104	238	A	V



802.11ac VHT160 CH 50 5250MHz (Sample 3+Adapter 4)		5147.16	57.32	-16.68	74	48.86	31.36	8.77	31.67	135	176	P	H	
		5147.42	52.49	-1.51	54	44.03	31.36	8.77	31.67	135	176	A	H	
	*	5250	98.57	-	-	89.93	31.41	8.88	31.65	135	176	P	H	
	*	5250	89.74	-	-	81.1	31.41	8.88	31.65	135	176	A	H	
		5382.24	57.91	-16.09	74	49.03	31.48	9.02	31.62	135	176	P	H	
		5402.4	52.79	-1.21	54	43.86	31.49	9.06	31.62	135	176	A	H	
		5142.48	54.23	-19.77	74	45.77	31.36	8.77	31.67	100	195	P	V	
		5147.42	49.19	-4.81	54	40.73	31.36	8.77	31.67	100	195	A	V	
	*	5250	93.62	-	-	84.98	31.41	8.88	31.65	100	195	P	V	
	*	5250	86.68	-	-	78.04	31.41	8.88	31.65	100	195	A	V	
		5402.64	56.3	-17.7	74	47.37	31.49	9.06	31.62	100	195	P	V	
		5402.4	50.65	-3.35	54	41.72	31.49	9.06	31.62	100	195	A	V	
	802.11ac VHT160 CH 50 5250MHz (Sample 1+Adapter 5)		5147.42	55.99	-18.01	74	47.53	31.36	8.77	31.67	168	194	P	H
			5147.68	51.33	-2.67	54	42.87	31.36	8.77	31.67	168	194	A	H
*		5250	97.67	-	-	89.03	31.41	8.88	31.65	168	194	P	H	
*		5250	89.7	-	-	81.06	31.41	8.88	31.65	168	194	A	H	
		5375.52	57.05	-16.95	74	48.18	31.47	9.02	31.62	168	194	P	H	
		5402.4	51.78	-2.22	54	42.85	31.49	9.06	31.62	168	194	A	H	
		5147.42	54.16	-19.84	74	45.7	31.36	8.77	31.67	218	237	P	V	
		5142.48	48.77	-5.23	54	40.31	31.36	8.77	31.67	218	237	A	V	
*		5250	93.7	-	-	85.06	31.41	8.88	31.65	218	237	P	V	
*		5250	86.71	-	-	78.07	31.41	8.88	31.65	218	237	A	V	
		5402.4	55.71	-18.29	74	46.78	31.49	9.06	31.62	218	237	P	V	
	5402.4	50.89	-3.11	54	41.96	31.49	9.06	31.62	218	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 802.11ac VHT160 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT160 CH 50		10500	46.86	-27.14	74	55.91	40.01	11.69	60.75	154	138	P	H
		15750	46.04	-27.96	74	56.43	37.86	14	62.25	157	124	P	H
5250MHz (Sample 1+Adapter 2)		10500	48.07	-25.93	74	57.12	40.01	11.69	60.75	151	201	P	V
		15750	46.58	-27.42	74	56.97	37.86	14	62.25	159	306	P	V
802.11ac VHT160 CH 50 5250MHz (Sample 2+Adapter 3)		10500	47.06	-26.94	74	56.11	40.01	11.69	60.75	164	219	P	H
		15750	46.18	-27.82	74	56.57	37.86	14	62.25	167	187	P	H
		10500	48.24	-25.76	74	57.29	40.01	11.69	60.75	199	206	P	V
		15750	46.73	-27.27	74	57.12	37.86	14	62.25	158	112	P	V
802.11ac VHT160 CH 50 5250MHz (Sample 3+Adapter 4)		10500	47.27	-26.73	74	56.32	40.01	11.69	60.75	157	129	P	H
		15750	46.28	-27.72	74	56.67	37.86	14	62.25	154	134	P	H
		10500	48.38	-25.62	74	57.43	40.01	11.69	60.75	187	134	P	V
		15750	46.74	-27.26	74	57.13	37.86	14	62.25	147	208	P	V
802.11ac VHT160 CH 50 5250MHz (Sample 1+Adapter 5)		10500	47.08	-26.92	74	56.13	40.01	11.69	60.75	153	102	P	H
		15750	46.04	-27.96	74	56.43	37.86	14	62.25	175	169	P	H
		10500	48.21	-25.79	74	57.26	40.01	11.69	60.75	157	123	P	V
		15750	46.63	-27.37	74	57.02	37.86	14	62.25	168	145	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 VHT160 (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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ac VHT160 LF(Sample 1+Adapter 2)		30.97	23.36	-16.64	40	30.77	24.62	0.57	32.6	-	-	P	H
		83.35	28.44	-11.56	40	45.95	13.84	0.95	32.3	-	-	P	H
		205.57	34.22	-9.28	43.5	48.62	15.5	1.49	31.39	162	30	P	H
		255.04	31.01	-14.99	46	41.97	19.45	1.68	32.09	-	-	P	H
		376.29	26.28	-19.72	46	34.89	21.24	2.05	31.9	-	-	P	H
		893.3	30	-16	46	31.33	26.76	3.3	31.39	-	-	P	H
		34.85	27.16	-12.84	40	36.83	22.3	0.63	32.6	-	-	P	V
		82.38	29.16	-10.84	40	46.86	13.66	0.94	32.3	152	40	P	V
		203.63	26.96	-16.54	43.5	41.33	15.5	1.48	31.35	-	-	P	V
		256.01	26.24	-19.76	46	37.05	19.6	1.68	32.09	-	-	P	V
		526.64	30.24	-15.76	46	34.83	24.39	2.47	31.45	-	-	P	V
	602.3	31.07	-14.93	46	35.08	24.91	2.68	31.6	-	-	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.
P/A	Peak or Average
H/V	Horizontal or Vertical



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

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

For Peak Limit @ 2390MHz:

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

For Average Limit @ 2390MHz:

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

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



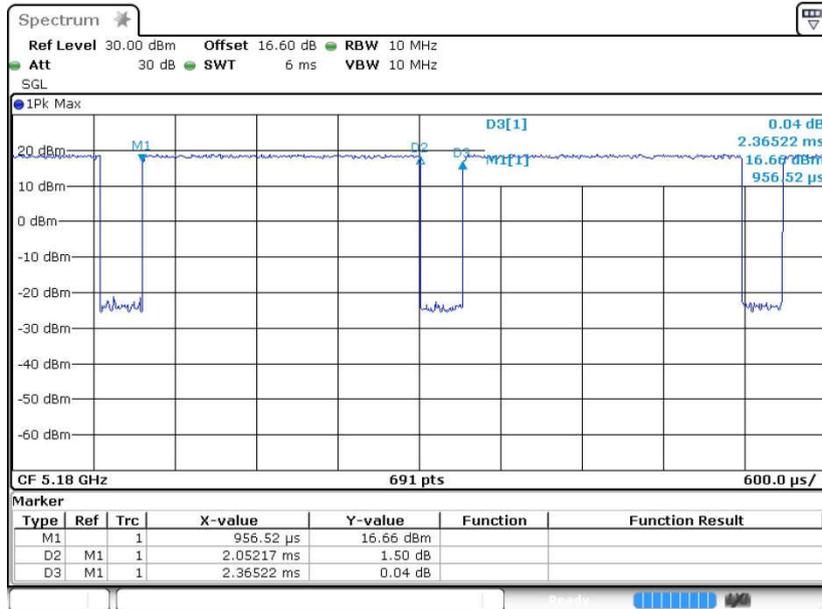
Appendix D. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
2	802.11a	86.76	2.052	0.487	1kHz
1+2	802.11n HT20	86.63	0.981	1.019	3kHz
1+2	802.11n HT40	85.89	0.494	2.023	3kHz
1+2	802.11ac VHT80	84.49	0.257	3.898	10kHz
1+2	802.11ac VHT160	75.81	0.152	6.571	10kHz



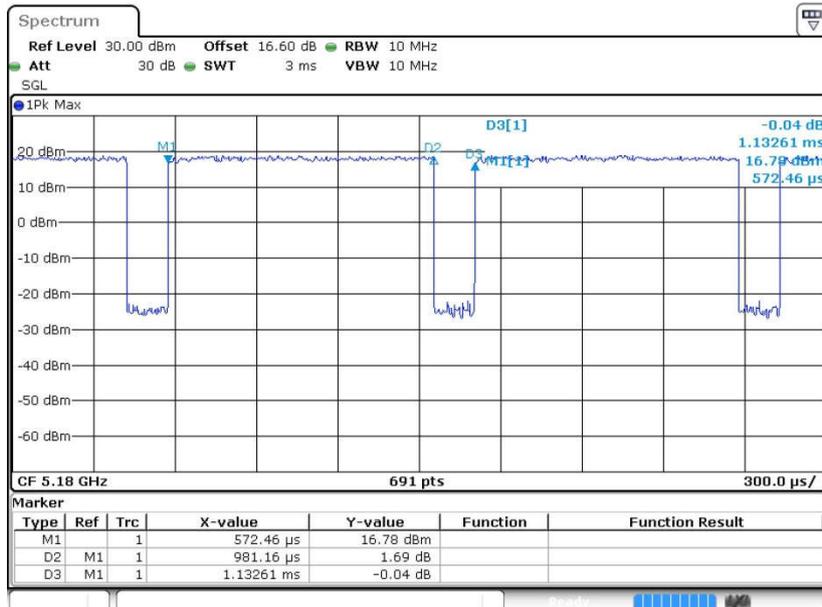
Ant.2

802.11a



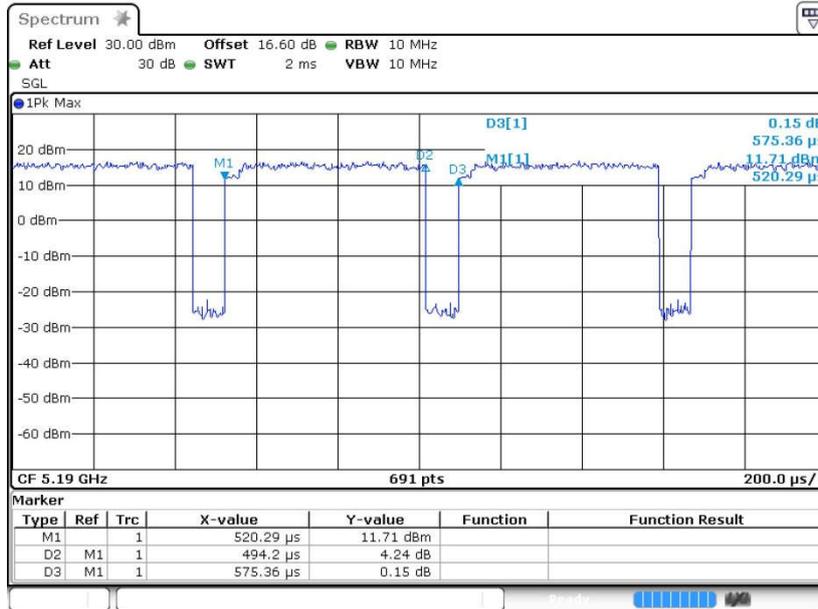
Ant.1+2

802.11n HT20

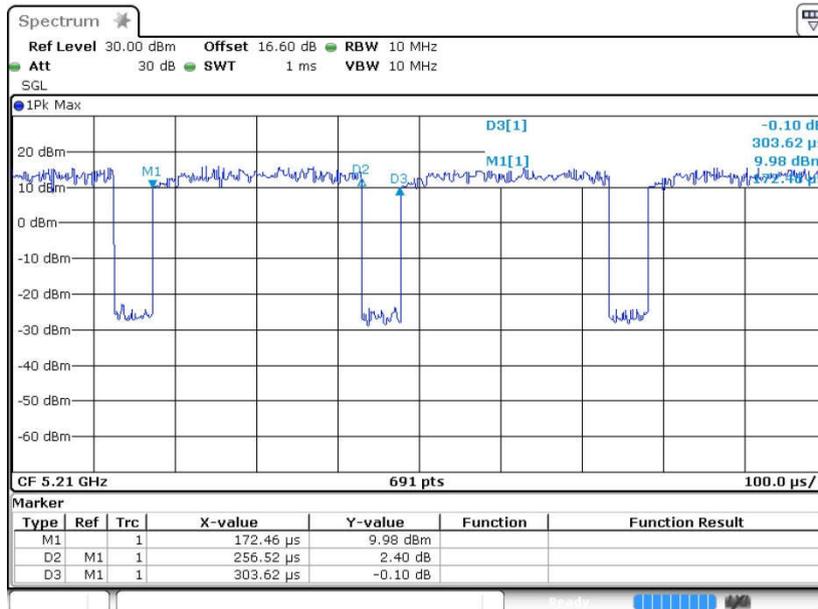




802.11n HT40



802.11ac VHT80





802.11ac VHT160

