

FCC RF Test Report

APPLICANT : XIAOMI COMMUNICATIONS CO., LTD.
EQUIPMENT : Mobile Phone
BRAND NAME : POCOPHONE
MODEL NAME : M1805E10A
FCC ID : 2AFZZ-XMSE10A
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information
Infrastructure

The product was received on May 08, 2018 and testing was completed on Jun. 14, 2018. We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.



TABLE OF CONTENTS

REVISION HISTORY.....	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant.....	5
1.2 Manufacturer.....	5
1.3 Product Feature of Equipment Under Test.....	5
1.4 Product Specification of Equipment Under Test.....	6
1.5 Modification of EUT	8
1.6 Testing Location	8
1.7 Applicable Standards.....	9
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	10
2.1 Carrier Frequency and Channel	10
2.2 Test Mode.....	12
2.3 Connection Diagram of Test System.....	14
2.4 Support Unit used in test configuration and system	14
2.5 EUT Operation Test Setup	15
2.6 Measurement Results Explanation Example.....	15
3 TEST RESULT	16
3.1 26dB & 99% Occupied Bandwidth Measurement	16
3.2 Maximum Conducted Output Power Measurement	18
3.3 Power Spectral Density Measurement	20
3.4 Unwanted Emissions Measurement.....	23
3.5 AC Conducted Emission Measurement.....	28
3.6 Automatically Discontinue Transmission	30
3.7 Antenna Requirements.....	31
4 LIST OF MEASURING EQUIPMENT	32
5 UNCERTAINTY OF EVALUATION	33
APPENDIX A. CONDUCTED TEST RESULTS	
APPENDIX B. AC CONDUCTED EMISSION TEST RESULT	
APPENDIX C. RADIATED SPURIOUS EMISSION	
APPENDIX D. DUTY CYCLE PLOTS	
APPENDIX E. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR850814D	Rev. 01	Initial issue of report	Jun. 20, 2018



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	≤ 24 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 11 dBm	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 2.30 dB at 5725.320 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 12.14 dB at 0.152 MHz
3.6	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.7	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Xiaomi Communications Co., Ltd.

The Rainbow City of China Resources, NO.68, Qinghe Middle Street, Haidian District, Beijing, China

1.2 Manufacturer

Xiaomi Communications Co., Ltd.

The Rainbow City of China Resources, NO.68, Qinghe Middle Street, Haidian District, Beijing, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	POCOPHONE
Model Name	M1805E10A
FCC ID	2AFZZ-XMSE10A
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/DC-HSUPA/ HSPA+/LTE/ WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
IMEI Code	Conducted: N/A Conduction: 868703030040513/868703030040521 Radiation: 868703030049035/868703030049043
HW Version	P2
SW Version	MIUI 9
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. There are two types of EUT, the difference between two samples is for memory, the sample 1 is 6+64GB capacity and the sample 2 is 6+128GB capacity. According to the difference, we only choose sample 1 to perform full test.



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> <Ant. 1> 802.11a : 16.83 dBm / 0.0482 W 802.11n HT20 : 16.75 dBm / 0.0473 W 802.11n HT40 : 16.46 dBm / 0.0443 W 802.11ac VHT20 : 16.65 dBm / 0.0462 W 802.11ac VHT40 : 16.39 dBm / 0.0436 W 802.11ac VHT80 : 11.69 dBm / 0.0148 W <Ant. 2> 802.11a : 17.48 dBm / 0.0560 W 802.11n HT20 : 17.36 dBm / 0.0545 W 802.11n HT40 : 16.97 dBm / 0.0498 W 802.11ac VHT20 : 17.24 dBm / 0.0530 W 802.11ac VHT40 : 16.93 dBm / 0.0493 W 802.11ac VHT80 : 11.14 dBm / 0.0130 W MIMO <Ant. 1+2> 802.11a : 20.49 dBm / 0.1119 W 802.11n HT20 : 20.46 dBm / 0.1112 W 802.11n HT40 : 19.95 dBm / 0.0989 W 802.11ac VHT20 : 20.41 dBm / 0.1099 W 802.11ac VHT40 : 19.93 dBm / 0.0984 W 802.11ac VHT80 : 14.66 dBm / 0.0292 W <5260 MHz ~ 5320 MHz> <Ant. 1> 802.11a : 16.98 dBm / 0.0499 W 802.11n HT20 : 16.79 dBm / 0.0478 W 802.11n HT40 : 16.46 dBm / 0.0443 W 802.11ac VHT20 : 16.76 dBm / 0.0474 W 802.11ac VHT40 : 16.44 dBm / 0.0441 W 802.11ac VHT80 : 12.86 dBm / 0.0193 W <Ant. 2> 802.11a : 17.39 dBm / 0.0548 W 802.11n HT20 : 17.32 dBm / 0.0540 W 802.11n HT40 : 16.96 dBm / 0.0497 W 802.11ac VHT20 : 17.24 dBm / 0.0530 W 802.11ac VHT40 : 16.76 dBm / 0.0474 W 802.11ac VHT80 : 13.21 dBm / 0.0209 W MIMO <Ant. 1+2> 802.11a : 20.49 dBm / 0.1119 W 802.11n HT20 : 20.48 dBm / 0.1117 W 802.11n HT40 : 19.95 dBm / 0.0989 W 802.11ac VHT20 : 20.43 dBm / 0.1104 W 802.11ac VHT40 : 19.93 dBm / 0.0984 W 802.11ac VHT80 : 16.18 dBm / 0.0415 W <5500 MHz ~ 5700 MHz > <Ant. 1> 802.11a : 16.45 dBm / 0.0442 W 802.11n HT20 : 16.37 dBm / 0.0434 W



	802.11n HT40 : 15.95 dBm / 0.0394 W 802.11ac VHT20 : 16.30 dBm / 0.0427 W 802.11ac VHT40 : 15.90 dBm / 0.0389 W 802.11ac VHT80 : 15.81 dBm / 0.0381 W <Ant. 2> 802.11a : 16.43 dBm / 0.0440 W 802.11n HT20 : 16.36 dBm / 0.0433 W 802.11n HT40 : 15.94 dBm / 0.0393 W 802.11ac VHT20 : 16.32 dBm / 0.0429 W 802.11ac VHT40 : 15.92 dBm / 0.0391 W 802.11ac VHT80 : 15.98 dBm / 0.0396 W MIMO <Ant. 1+2> 802.11a : 19.49 dBm / 0.0889 W 802.11n HT20 : 19.41 dBm / 0.0873 W 802.11n HT40 : 18.99 dBm / 0.0793 W 802.11ac VHT20 : 19.40 dBm / 0.0871 W 802.11ac VHT40 : 18.97 dBm / 0.0789 W 802.11ac VHT80 : 18.98 dBm / 0.0791 W		
99% Occupied Bandwidth	<5180 MHz ~ 5240 MHz> 802.11a : 17.55 MHz 802.11n HT20 : 18.65 MHz 802.11n HT40 : 36.80 MHz 802.11ac VHT80 : 75.72 MHz <5260 MHz ~ 5320 MHz> 802.11a : 17.55 MHz 802.11n HT20 : 18.75 MHz 802.11n HT40 : 36.80 MHz 802.11ac VHT80 : 75.72 MHz <5500 MHz ~ 5700 MHz > 802.11a : 17.50 MHz 802.11n HT20 : 18.60 MHz 802.11n HT40 : 36.70 MHz 802.11ac VHT80 : 75.84 MHz		
Antenna Type	Ant. 1 : LDS Antenna Ant. 2 : LDS Antenna		
Antenna Gain	<5180 MHz ~ 5240 MHz> Ant. 1 : 0.85 dBi Ant. 2 : -2.49 dBi <5260 MHz ~ 5320 MHz> Ant. 1 : -0.53 dBi Ant. 2 : -1.05 dBi <5500 MHz ~ 5700 MHz> Ant. 1 : -1.31 dBi Ant. 2 : -0.73 dBi		
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)		
Antenna Function Description		Ant. 1	Ant. 2
	802.11 a/n/ac SISO	V	V
	802.11 a/n/ac MIMO	V	V

Note:

1. MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

2. For SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to their higher conducted power.
3. For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing have assessed only 802.11n HT20/ HT40 by referring to their maximum conducted power.
4. For 802.11a / an HT20 MIMO mode, the whole testing has assessed only 802.11a mode by referring to their higher conducted power for RSE testing.

1.5 Modification of EUT

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

1.6 Testing Location

SPORTON INTERNATIONAL INC. is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and under the FCC-recognized accredited testing laboratories by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist. Taoyuan City Taiwan Tel: 886-3-327-3456 FAX: +886-3-327-0978		
Test Site No.	Sporton Site No.		
	TH05-HY	CO05-HY	

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

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No.58, Aly. 75, Ln. 564 Wenhua 3rd Rd. Guishan Dist. Taoyuan City Taiwan TEL: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	Sporton Site No.	FCC designation No.	FCC Test Firm Registration No.
	03CH12-HY	TW0007	214511

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



1.7 Applicable Standards

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

- ♦ FCC Part 15 Subpart E
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules 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). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5180-5240 MHz Band 1 (U-NII-1)	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240
	42 [#]	5210		
Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5260-5320 MHz Band 2 (U-NII-2A)	52	5260	60	5300
	54*	5270	62*	5310
	56	5280	64	5320
	58 [#]	5290		
Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5500-5700 MHz Band 3 (U-NII-2C)	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	106 [#]	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700



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

Note:

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

2.2 Test Mode

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

Single Antenna

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

MIMO Antenna

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

Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link(5GHz) + Camera(Rear) + USB Cable 1(Charging from Adapter1) + SIM 1
Remark: For Radiated Test Cases, The tests were performed with Adapter 1, Earphone and USB Cable 1.	

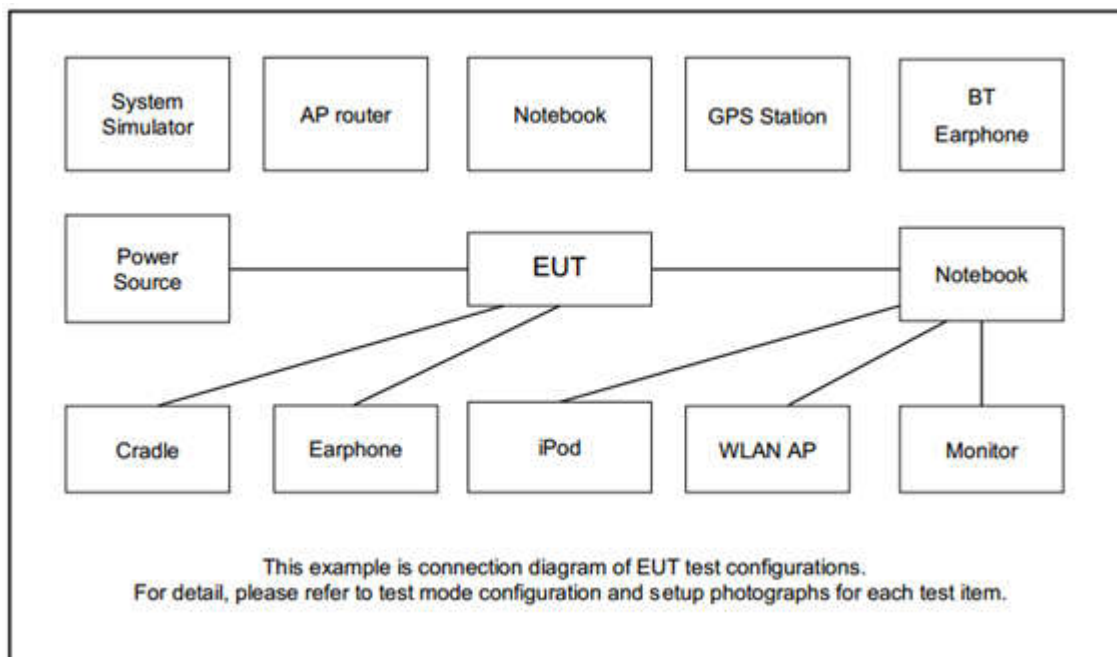


Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5700MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

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
Straddle		-	-	142

Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5700MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	106
M	Middle	42	58	122
H	High	-	-	-
Straddle		-	-	138

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.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8m
3.	NOTE BOOK	Dell	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Sony Ericsson	MW600	PY700A2029	N/A	N/A
5.	iPod Earphone	Apple	A1285	DoC	Unshielded, 1.2m	N/A
6.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A



2.5 EUT Operation Test Setup

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

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

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 8.2 dB and 20dB attenuator.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 8.2 + 20 = 28.2 \text{ (dB)}\end{aligned}$$

3 Test Result

3.1 26dB & 99% Occupied Bandwidth Measurement

3.1.1 Description of 26dB & 99% Occupied Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

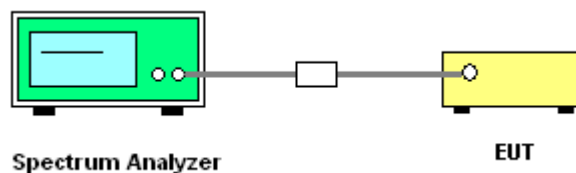
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

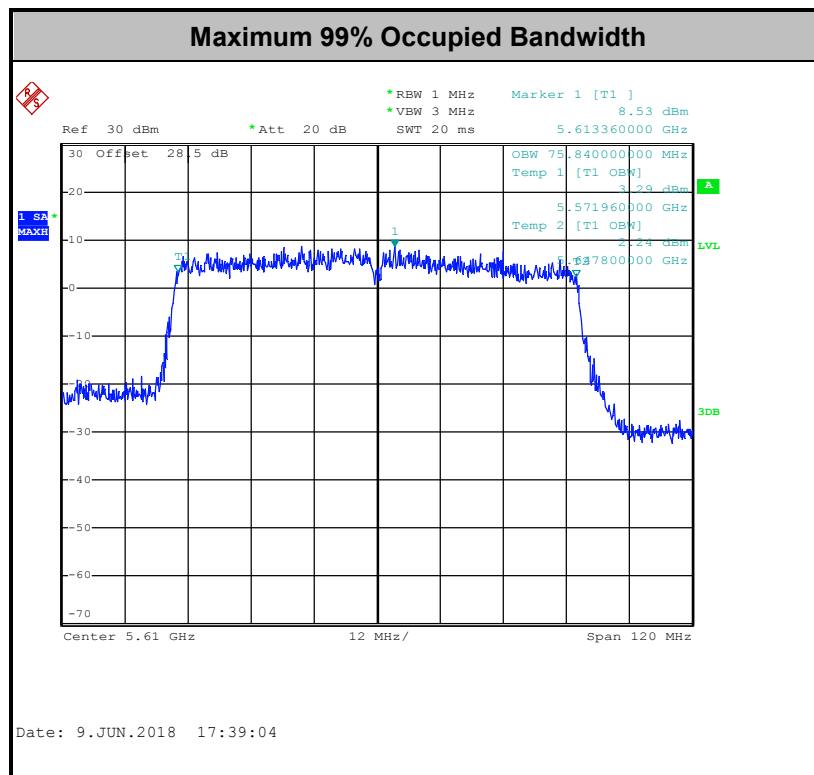
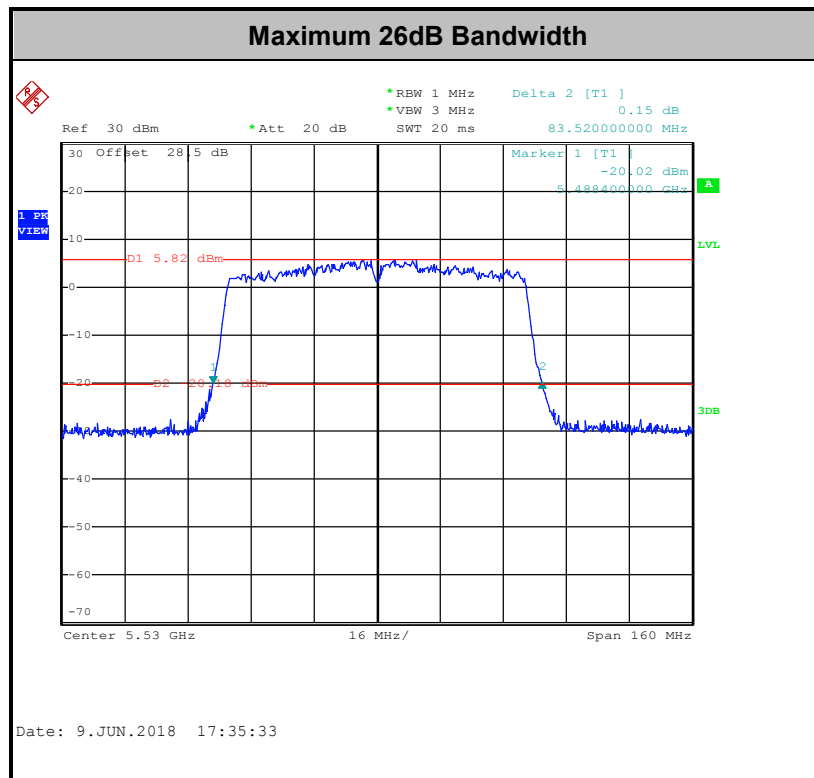
3.1.4 Test Setup





3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.



3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

<FCC 14-30 CFR 15.407>

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

For the 5.25–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 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.

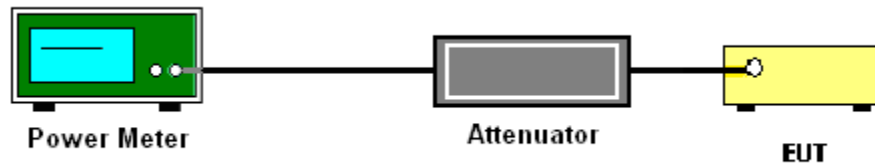
3.2.3 Test Procedures

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

3.2.4 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 v02r01.

Section F) Maximum power spectral density.

Method SA-2

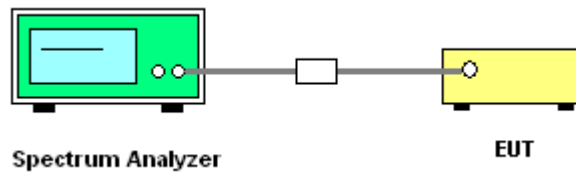
(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

1. The testing follows Method SA-2 of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
 - Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 1 MHz.
 - Set VBW $\geq$ 3 MHz.
 - Number of points in sweep $\geq$ 2 Span / RBW.
 - Sweep time = auto.
 - Detector = RMS
 - Trace average at least 100 traces in power averaging mode.
 - Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
4. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

Method (a): Measure and sum the spectra across the outputs.

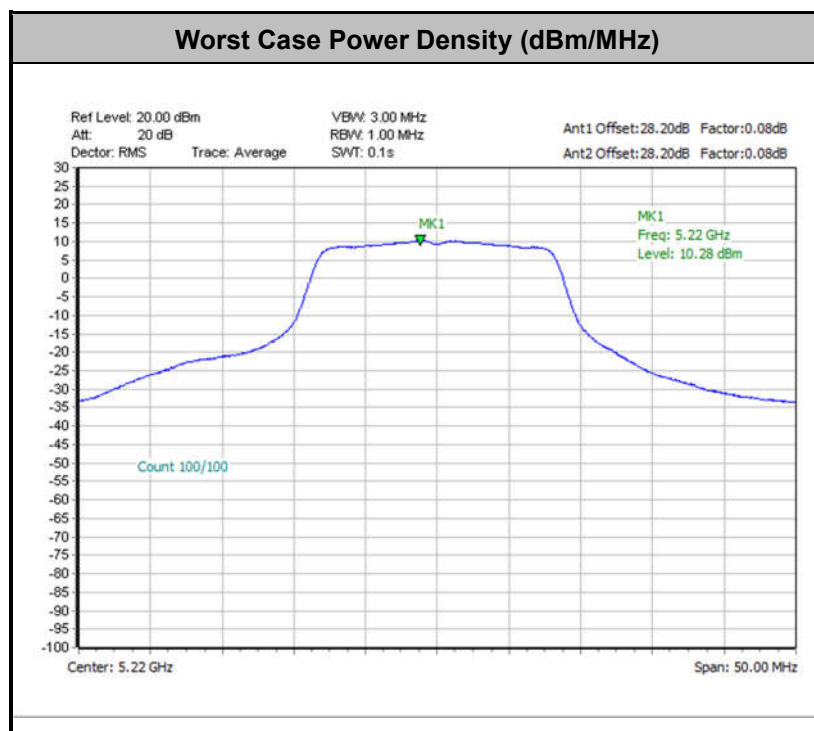
The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



3.4 Unwanted Emissions Measurement

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

3.4.1 Limit of Unwanted Emissions

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

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

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

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

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



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

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

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

where

EIRP is the equivalent isotropically radiated power, in dBm

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

d_{Meas} is the measurement distance, in m

3.4.2 Measuring Instruments

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

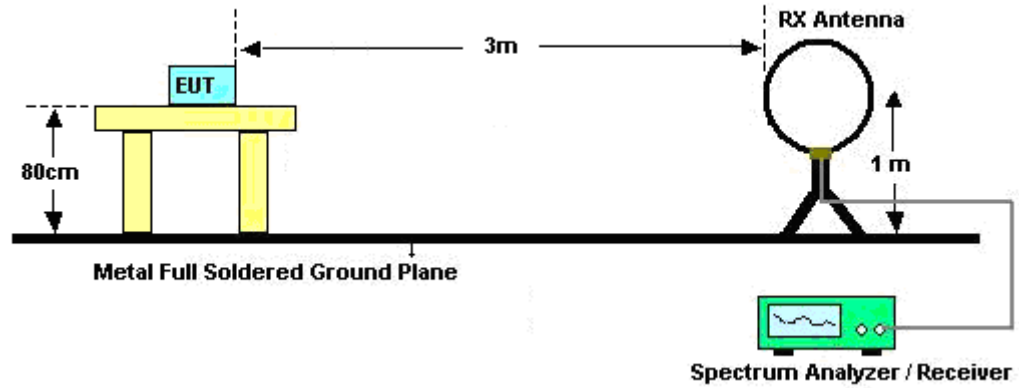


3.4.3 Test Procedures

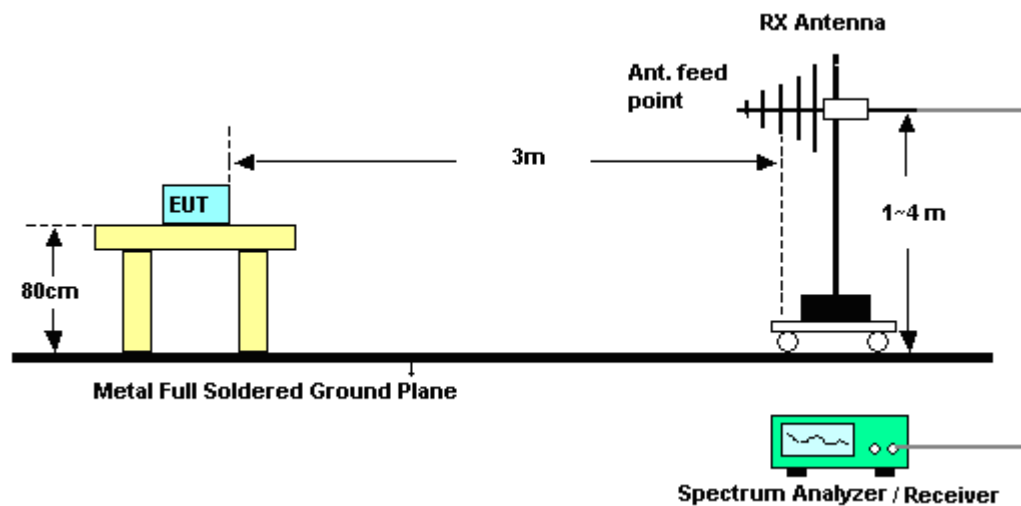
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak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

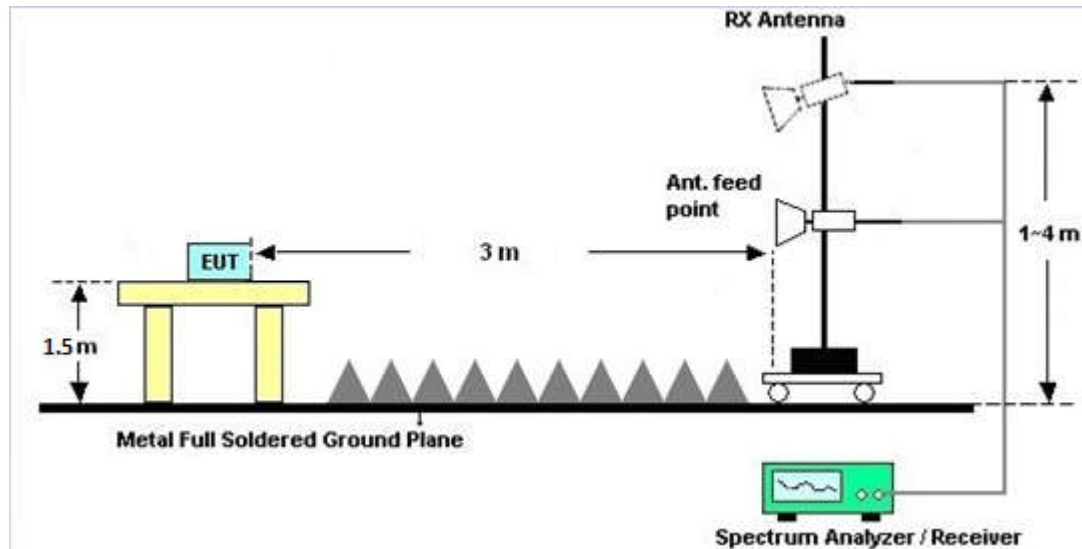
For radiated emissions below 30MHz



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.

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

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.4.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix C.

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

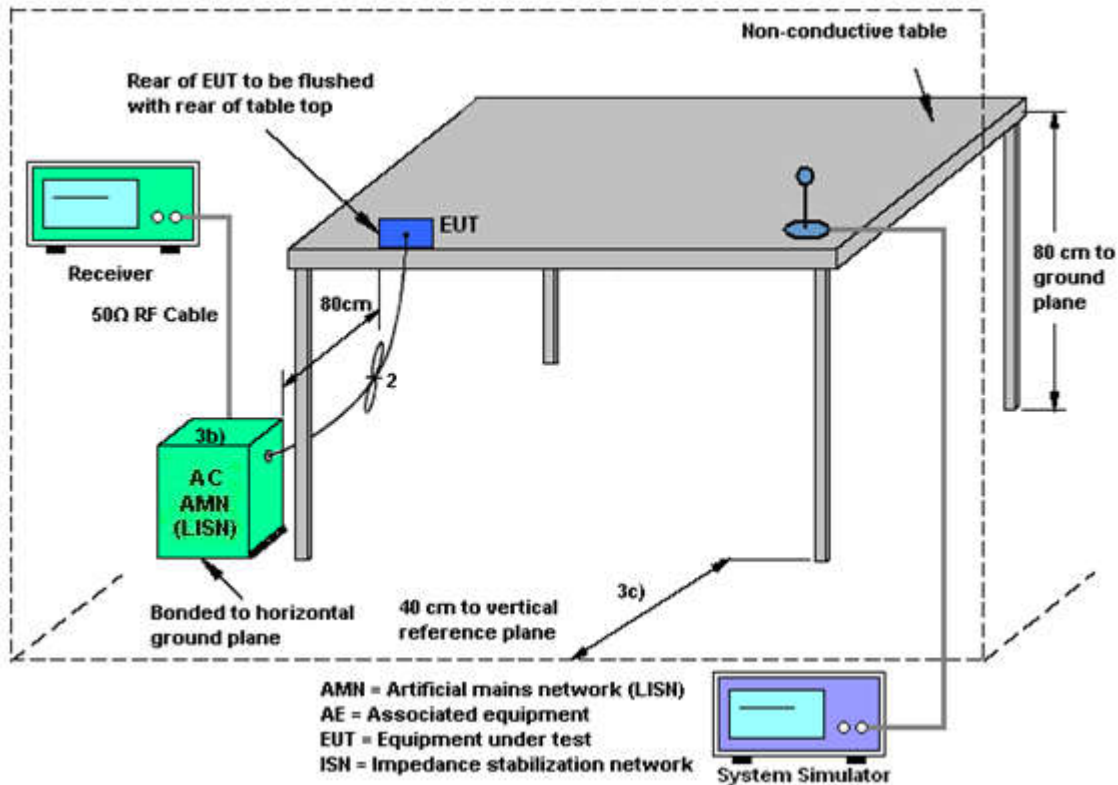
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.5.4 Test Setup



3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.6 Automatically Discontinue Transmission

3.6.1 Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

3.6.2 Measuring Instruments

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

3.6.3 Test Result of Automatically Discontinue Transmission

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

3.7 Antenna Requirements

3.7.1 Standard Applicable

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

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

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

For power measurements on IEEE 802.11 devices,

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

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

The EUT supports CDD mode.

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

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

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

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

			DG	DG	Power	PSD
	Ant 1	Ant 2	for	for	Limit	Limit
	(dBi)	(dBi)	Power	PSD	Reduction	Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
Band I	0.85	-2.49	0.85	2.35	0.00	0.00
Band II	-0.53	-1.05	-0.53	2.22	0.00	0.00
Band III	-1.31	-0.73	-0.73	2.00	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
Power Meter	Anritsu	ML2495A	1218006	N/A	Oct. 06, 2017	May 25, 2018~ Jun. 09, 2018	Oct. 05, 2018	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1207363	300MHz~40GHz	Oct. 06, 2017	May 25, 2018~ Jun. 09, 2018	Oct. 05, 2018	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 21, 2017	May 25, 2018~ Jun. 09, 2018	Nov. 20, 2018	Conducted (TH05-HY)
Hygrometer	Testo	DTM-303A	TP157075	N/A	Mar. 06, 2018	May 25, 2018~ Jun. 09, 2018	Mar. 05, 2019	Conducted (TH05-HY)
Switch Box & RF Cable	Burgeon	ETF-058	EC130048 4	N/A	Mar. 01, 2018	May 25, 2018~ Jun. 09, 2018	Feb. 28, 2019	Conducted (TH05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Nov. 23, 2017	Jun. 02, 2018~ Jun. 14, 2018	Nov. 22, 2018	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D&N-6-0 6	35414&AT- N0602	30MHz~1GHz	Oct. 14, 2017	Jun. 02, 2018~ Jun. 14, 2018	Oct. 13, 2018	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120D	9120D-132 8	1GHz ~ 18GHz	Oct. 20, 2017	Jun. 02, 2018~ Jun. 14, 2018	Oct. 19, 2018	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170 584	18GHz ~ 40GHz	Nov. 27, 2017	Jun. 02, 2018~ Jun. 14, 2018	Nov. 26, 2018	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 26, 2018	Jun. 02, 2018~ Jun. 14, 2018	Mar. 25, 2019	Radiation (03CH12-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590074	1GHz~18GHz	May 21, 2018	Jun. 02, 2018~ Jun. 14, 2018	May 20, 2019	Radiation (03CH12-HY)
Preamplifier	Keysight	83017A	MY532701 48	1GHz~26.5GHz	Jan. 15, 2018	Jun. 02, 2018~ Jun. 14, 2018	Jan. 14, 2019	Radiation (03CH12-HY)
Amplifier	MITEQ	TTA1840-35- HG	1871923	18GHz~40GHz, VSWR : 2.5:1 max	Jul. 18, 2017	Jun. 02, 2018~ Jun. 14, 2018	Jul. 17, 2018	Radiation (03CH12-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100390	20Hz~26.5GHz	Dec. 25, 2017	Jun. 02, 2018~ Jun. 14, 2018	Dec. 24, 2018	Radiation (03CH12-HY)
Spectrum Analyzer	Keysight	N9010A	MY542004 85	10Hz ~ 44GHz	Oct. 31, 2017	Jun. 02, 2018~ Jun. 14, 2018	Oct. 30, 2018	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500- B	N/A	1m~4m	NCR	Jun. 02, 2018~ Jun. 14, 2018	NCR	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	NCR	Jun. 02, 2018~ Jun. 14, 2018	NCR	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	NCR	Jun. 02, 2018~ Jun. 14, 2018	NCR	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP140349	N/A	Oct. 12, 2017	Jun. 02, 2018~ Jun. 14, 2018	Oct. 11, 2018	Radiation (03CH12-HY)
Filter	Wainwright	WLKS1200-1 2SS	SN2	1.2G Low Pass	Jul. 17, 2017	Jun. 02, 2018~ Jun. 14, 2018	Jul. 16, 2018	Radiation (03CH12-HY)
Filter	Woken	WHKX8-5272. 5-6750-18000 -40ST	SN2	6.75G High pass	Jul. 17, 2017	Jun. 02, 2018~ Jun. 14, 2018	Jul. 16, 2018	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30M-18G	Mar. 14, 2018	Jun. 02, 2018~ Jun. 14, 2018	Mar. 13, 2019	Radiation (03CH12-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	NCR	Jun. 10, 2018	NCR	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	3.6GHz	Dec. 08, 2017	Jun. 10, 2018	Dec. 07, 2018	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Mar. 06, 2018	Jun. 10, 2018	Mar. 05, 2019	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 30, 2017	Jun. 10, 2018	Nov. 29, 2018	Conduction (CO05-HY)

NCR: No Calibration Required



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.7dB
--	-------

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% ($U = 2Uc(y)$)	5.2dB
--	-------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.7dB
--	-------

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Kai Liao/Luffy Lin/Lena Lo/Shiang Wang/Derek Hsu/Tommy Lee	Temperature:	21~25	°C
Test Date:	2018/5/25~2018/6/09	Relative Humidity:	51~54	%

TEST RESULTS DATA
26dB and 99% OBW

Band I													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		Note
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	36	5180	17.40	17.40	23.40	23.70	-	-	22.41	-	
11a	6Mbps	2	44	5220	17.50	17.55	23.20	23.00	-	-	22.43	-	
11a	6Mbps	2	48	5240	17.45	17.50	23.40	23.50	-	-	22.42	-	
HT20	MCS0	2	36	5180	18.55	18.65	24.60	25.10	-	-	22.68	-	
HT20	MCS0	2	44	5220	18.55	18.60	25.00	24.80	-	-	22.68	-	
HT20	MCS0	2	48	5240	18.65	18.55	25.20	24.60	-	-	22.68	-	
HT40	MCS0	2	38	5190	36.50	36.50	41.58	41.94	-	-	23.01	-	
HT40	MCS0	2	46	5230	36.80	36.70	47.88	42.48	-	-	23.01	-	
VHT80	MCS0	2	42	5210	75.72	75.72	83.52	82.56	-	-	23.01	-	

TEST RESULTS DATA
Average Power Table

FCC Band I														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	36	5180	0.08	0.08	15.99	16.01		24.00	24.00	0.85	-2.49	Pass
11a	6Mbps	1	44	5220	0.08	0.08	16.83	17.48		24.00	24.00	0.85	-2.49	Pass
11a	6Mbps	1	48	5240	0.08	0.08	16.81	17.45		24.00	24.00	0.85	-2.49	Pass
HT20	MCS0	1	36	5180	0.09	0.09	16.71	17.35		24.00	24.00	0.85	-2.49	Pass
HT20	MCS0	1	44	5220	0.09	0.09	16.75	17.36		24.00	24.00	0.85	-2.49	Pass
HT20	MCS0	1	48	5240	0.09	0.09	16.74	17.32		24.00	24.00	0.85	-2.49	Pass
HT40	MCS0	1	38	5190	0.16	0.16	12.40	13.08		24.00	24.00	0.85	-2.49	Pass
HT40	MCS0	1	46	5230	0.16	0.16	16.46	16.97		24.00	24.00	0.85	-2.49	Pass
VHT20	MCS0	1	36	5180	0.09	0.09	16.61	17.23		24.00	24.00	0.85	-2.49	Pass
VHT20	MCS0	1	44	5220	0.09	0.09	16.65	17.24		24.00	24.00	0.85	-2.49	Pass
VHT20	MCS0	1	48	5240	0.09	0.09	16.64	17.20		24.00	24.00	0.85	-2.49	Pass
VHT40	MCS0	1	38	5190	0.18	0.18	12.39	13.06		24.00	24.00	0.85	-2.49	Pass
VHT40	MCS0	1	46	5230	0.18	0.18	16.39	16.93		24.00	24.00	0.85	-2.49	Pass
VHT80	MCS0	1	42	5210	0.36	0.36	11.69	11.14		24.00	24.00	0.85	-2.49	Pass
11a	6Mbps	2	36	5180	0.08	0.08	16.25	16.32	19.30	24.00		0.85		Pass
11a	6Mbps	2	44	5220	0.08	0.08	17.10	17.79	20.47	24.00		0.85		Pass
11a	6Mbps	2	48	5240	0.08	0.08	17.48	17.47	20.49	24.00		0.85		Pass
HT20	MCS0	2	36	5180	0.09	0.09	17.52	17.35	20.45	24.00		0.85		Pass
HT20	MCS0	2	44	5220	0.09	0.09	17.07	17.72	20.42	24.00		0.85		Pass
HT20	MCS0	2	48	5240	0.09	0.09	17.54	17.36	20.46	24.00		0.85		Pass
HT40	MCS0	2	38	5190	0.16	0.16	12.67	13.43	16.07	24.00		0.85		Pass
HT40	MCS0	2	46	5230	0.16	0.16	16.79	17.09	19.95	24.00		0.85		Pass
VHT20	MCS0	2	36	5180	0.17	0.17	17.13	17.26	20.21	24.00		0.85		Pass
VHT20	MCS0	2	44	5220	0.17	0.17	17.05	17.68	20.39	24.00		0.85		Pass
VHT20	MCS0	2	48	5240	0.17	0.17	17.52	17.27	20.41	24.00		0.85		Pass
VHT40	MCS0	2	38	5190	0.29	0.29	12.63	13.40	16.05	24.00		0.85		Pass
VHT40	MCS0	2	46	5230	0.29	0.29	16.77	17.05	19.93	24.00		0.85		Pass
VHT80	MCS0	2	42	5210	0.56	0.56	11.97	11.30	14.66	24.00		0.85		Pass

TEST RESULTS DATA
Power Spectral Density

FCC Band I															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)			Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	36	5180	0.08	0.08			9.27	11.00	2.35			Pass	
11a	6Mbps	2	44	5220	0.08	0.08			10.28	11.00	2.35			Pass	
11a	6Mbps	2	48	5240	0.08	0.08			10.15	11.00	2.35			Pass	
HT20	MCS0	2	36	5180	0.09	0.09			9.97	11.00	2.35			Pass	
HT20	MCS0	2	44	5220	0.09	0.09			9.76	11.00	2.35			Pass	
HT20	MCS0	2	48	5240	0.09	0.09			9.72	11.00	2.35			Pass	
HT40	MCS0	2	38	5190	0.16	0.16			2.49	11.00	2.35			Pass	
HT40	MCS0	2	46	5230	0.16	0.16			6.76	11.00	2.35			Pass	
VHT80	MCS0	2	42	5210	0.56	0.56			-1.30	11.00	2.35			Pass	

TEST RESULTS DATA
26dB and 99% OBW

Band II															
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)		Note
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	52	5260	17.50	17.55	23.70	23.40	23.43		29.43		23.98		
11a	6Mbps	2	60	5300	17.50	17.40	23.60	23.00	23.41		29.41		23.98		
11a	6Mbps	2	64	5320	17.50	17.45	23.60	23.50	23.42		29.42		23.98		
HT20	MCS0	2	52	5260	18.55	18.50	24.60	24.60	23.67		29.67		23.98		
HT20	MCS0	2	60	5300	18.55	18.55	25.00	24.80	23.68		29.68		23.98		
HT20	MCS0	2	64	5320	18.50	18.75	24.80	24.40	23.67		29.67		23.98		
HT40	MCS0	2	54	5270	36.80	36.70	45.36	43.02	23.98		30.00		23.98		
HT40	MCS0	2	62	5310	36.60	36.60	41.94	41.94	23.98		30.00		23.98		
VHT80	MCS0	2	58	5290	75.72	75.72	82.88	82.88	23.98		30.00		23.98		

TEST RESULTS DATA
Average Power Table

FCC Band II															
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	1	52	5260	0.08	0.08	16.82	17.39		23.98	23.98	-0.53	-1.05	26.99	Pass
11a	6Mbps	1	60	5300	0.08	0.08	16.78	17.38		23.98	23.98	-0.53	-1.05	26.99	Pass
11a	6Mbps	1	64	5320	0.08	0.08	16.98	17.37		23.98	23.98	-0.53	-1.05	26.99	Pass
HT20	MCS0	1	52	5260	0.09	0.09	16.76	17.32		23.98	23.98	-0.53	-1.05	26.99	Pass
HT20	MCS0	1	60	5300	0.09	0.09	16.71	17.29		23.98	23.98	-0.53	-1.05	26.99	Pass
HT20	MCS0	1	64	5320	0.09	0.09	16.79	17.30		23.98	23.98	-0.53	-1.05	26.99	Pass
HT40	MCS0	1	54	5270	0.16	0.16	16.46	16.96		23.98	23.98	-0.53	-1.05	26.99	Pass
HT40	MCS0	1	62	5310	0.16	0.16	15.01	15.09		23.98	23.98	-0.53	-1.05	26.99	Pass
VHT20	MCS0	1	52	5260	0.09	0.09	16.66	17.18		23.98	23.98	-0.53	-1.05	26.99	Pass
VHT20	MCS0	1	60	5300	0.09	0.09	16.61	17.24		23.98	23.98	-0.53	-1.05	26.99	Pass
VHT20	MCS0	1	64	5320	0.09	0.09	16.76	17.22	23.98	23.98	-0.53	-1.05	26.99	Pass	
VHT40	MCS0	1	54	5270	0.18	0.18	16.44	16.76	23.98	23.98	-0.53	-1.05	26.99	Pass	
VHT40	MCS0	1	62	5310	0.18	0.18	14.98	15.06	23.98	23.98	-0.53	-1.05	26.99	Pass	
VHT80	MCS0	1	58	5290	0.36	0.36	12.86	13.21	23.98	23.98	-0.53	-1.05	26.99	Pass	
11a	6Mbps	2	52	5260	0.08	0.08	17.51	17.40	20.47	23.98	-0.53		26.99	Pass	
11a	6Mbps	2	60	5300	0.08	0.08	17.48	17.48	20.49	23.98	-0.53		26.99	Pass	
11a	6Mbps	2	64	5320	0.08	0.08	17.41	17.52	20.48	23.98	-0.53		26.99	Pass	
HT20	MCS0	2	52	5260	0.09	0.09	17.47	17.37	20.43	23.98	-0.53		26.99	Pass	
HT20	MCS0	2	60	5300	0.09	0.09	17.47	17.48	20.48	23.98	-0.53		26.99	Pass	
HT20	MCS0	2	64	5320	0.09	0.09	17.40	17.47	20.44	23.98	-0.53		26.99	Pass	
HT40	MCS0	2	54	5270	0.16	0.16	16.85	17.04	19.95	23.98	-0.53		26.99	Pass	
HT40	MCS0	2	62	5310	0.16	0.16	15.02	15.12	18.08	23.98	-0.53		26.99	Pass	
VHT20	MCS0	2	52	5260	0.17	0.17	17.14	17.23	20.20	23.98	-0.53		26.99	Pass	
VHT20	MCS0	2	60	5300	0.17	0.17	17.39	17.45	20.43	23.98	-0.53		26.99	Pass	
VHT20	MCS0	2	64	5320	0.17	0.17	17.35	17.32	20.35	23.98	-0.53		26.99	Pass	
VHT40	MCS0	2	54	5270	0.29	0.29	16.79	17.03	19.93	23.98	-0.53		26.99	Pass	
VHT40	MCS0	2	62	5310	0.29	0.29	15.00	15.10	18.06	23.98	-0.53		26.99	Pass	
VHT80	MCS0	2	58	5290	0.56	0.56	12.96	13.37	16.18	23.98	-0.53		26.99	Pass	

TEST RESULTS DATA
Power Spectral Density

Band II															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)			Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	52	5260	0.08	0.08			10.12	11.00	2.22			Pass	
11a	6Mbps	2	60	5300	0.08	0.08			9.88	11.00	2.22			Pass	
11a	6Mbps	2	64	5320	0.08	0.08			9.73	11.00	2.22			Pass	
HT20	MCS0	2	52	5260	0.09	0.09			9.70	11.00	2.22			Pass	
HT20	MCS0	2	60	5300	0.09	0.09			9.39	11.00	2.22			Pass	
HT20	MCS0	2	64	5320	0.09	0.09			9.31	11.00	2.22			Pass	
HT40	MCS0	2	54	5270	0.16	0.16			6.17	11.00	2.22			Pass	
HT40	MCS0	2	62	5310	0.16	0.16			4.25	11.00	2.22			Pass	
VHT80	MCS0	2	58	5290	0.56	0.56			0.06	11.00	2.22			Pass	

TEST RESULTS DATA
26dB and 99% OBW

Band III																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth In U-NII 2C (MHz)		26 dB Bandwidth In U-NII 2C (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)		6 dB Bandwidth for Straddle Channel (MHz)	
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2
11a	6Mbps	2	100	5500	17.40	17.40	23.90	22.90	23.41		29.41		23.98		----	----
11a	6Mbps	2	116	5580	17.50	17.40	23.70	22.70	23.41		29.41		23.98		----	----
11a	6Mbps	2	140	5700	17.50	17.50	23.60	22.80	23.43		29.43		23.98		----	----
HT20	MCS0	2	100	5500	18.60	18.45	25.20	24.80	23.66		29.66		23.98		----	----
HT20	MCS0	2	116	5580	18.55	18.40	25.30	24.50	23.65		29.65		23.98		----	----
HT20	MCS0	2	140	5700	18.55	18.50	25.40	24.80	23.67		29.67		23.98		----	----
HT40	MCS0	2	102	5510	36.60	36.60	41.76	41.58	23.98		30.00		23.98		----	----
HT40	MCS0	2	110	5550	36.60	36.70	41.94	41.94	23.98		30.00		23.98		----	----
HT40	MCS0	2	134	5670	36.70	36.70	42.48	42.84	23.98		30.00		23.98		----	----
VHT80	MCS0	2	106	5530	75.60	75.72	83.52	82.88	23.98		30.00		23.98		----	----
VHT80	MCS0	2	122	5610	75.84	75.72	83.20	82.88	23.98		30.00		23.98		----	----

TEST RESULTS DATA
Average Power Table

FCC Band III															
Mod.	Data Rate	N _{TX}	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	0.08	0.08	16.40	16.43		23.98	23.98	-1.31	-0.73	26.99	Pass
11a	6Mbps	1	116	5580	0.08	0.08	16.36	16.42		23.98	23.98	-1.31	-0.73	26.99	Pass
11a	6Mbps	1	140	5700	0.08	0.08	16.45	16.41		23.98	23.98	-1.31	-0.73	26.99	Pass
HT20	MCS0	1	100	5500	0.09	0.09	16.37	16.36		23.98	23.98	-1.31	-0.73	26.99	Pass
HT20	MCS0	1	116	5580	0.09	0.09	16.30	16.31		23.98	23.98	-1.31	-0.73	26.99	Pass
HT20	MCS0	1	140	5700	0.09	0.09	14.19	14.41		23.98	23.98	-1.31	-0.73	26.99	Pass
HT40	MCS0	1	102	5510	0.16	0.16	12.88	13.56		23.98	23.98	-1.31	-0.73	26.99	Pass
HT40	MCS0	1	110	5550	0.16	0.16	15.94	15.94		23.98	23.98	-1.31	-0.73	26.99	Pass
HT40	MCS0	1	134	5670	0.16	0.16	15.95	15.91		23.98	23.98	-1.31	-0.73	26.99	Pass
VHT20	MCS0	1	100	5500	0.09	0.09	16.30	16.32		23.98	23.98	-1.31	-0.73	26.99	Pass
VHT20	MCS0	1	116	5580	0.09	0.09	16.17	16.26		23.98	23.98	-1.31	-0.73	26.99	Pass
VHT20	MCS0	1	140	5700	0.09	0.09	14.16	14.36		23.98	23.98	-1.31	-0.73	26.99	Pass
VHT40	MCS0	1	102	5510	0.18	0.18	12.83	13.53		23.98	23.98	-1.31	-0.73	26.99	Pass
VHT40	MCS0	1	110	5550	0.18	0.18	15.88	15.92		23.98	23.98	-1.31	-0.73	26.99	Pass
VHT40	MCS0	1	134	5670	0.18	0.18	15.90	15.84		23.98	23.98	-1.31	-0.73	26.99	Pass
VHT80	MCS0	1	106	5530	0.36	0.36	12.05	12.65		23.98	23.98	-1.31	-0.73	26.99	Pass
VHT80	MCS0	1	122	5610	0.36	0.36	15.81	15.98	23.98	23.98	-1.31	-0.73	26.99	Pass	
11a	6Mbps	2	100	5500	0.08	0.08	16.41	16.43	19.43	23.98		-0.73		26.99	Pass
11a	6Mbps	2	116	5580	0.08	0.08	16.37	16.44	19.42	23.98		-0.73		26.99	Pass
11a	6Mbps	2	140	5700	0.08	0.08	16.45	16.50	19.49	23.98		-0.73		26.99	Pass
HT20	MCS0	2	100	5500	0.09	0.09	16.40	16.41	19.41	23.98		-0.73		26.99	Pass
HT20	MCS0	2	116	5580	0.09	0.09	16.29	16.40	19.35	23.98		-0.73		26.99	Pass
HT20	MCS0	2	140	5700	0.09	0.09	14.21	14.51	17.37	23.98		-0.73		26.99	Pass
HT40	MCS0	2	102	5510	0.16	0.16	12.93	13.62	16.30	23.98		-0.73		26.99	Pass
HT40	MCS0	2	110	5550	0.16	0.16	15.97	15.97	18.98	23.98		-0.73		26.99	Pass
HT40	MCS0	2	134	5670	0.16	0.16	15.96	16.01	18.99	23.98		-0.73		26.99	Pass
VHT20	MCS0	2	100	5500	0.17	0.17	16.39	16.39	19.40	23.98		-0.73		26.99	Pass
VHT20	MCS0	2	116	5580	0.17	0.17	16.19	16.36	19.29	23.98		-0.73		26.99	Pass
VHT20	MCS0	2	140	5700	0.17	0.17	14.20	14.50	17.36	23.98		-0.73		26.99	Pass
VHT40	MCS0	2	102	5510	0.29	0.29	12.91	13.60	16.28	23.98		-0.73		26.99	Pass
VHT40	MCS0	2	110	5550	0.29	0.29	15.92	15.95	18.95	23.98		-0.73		26.99	Pass
VHT40	MCS0	2	134	5670	0.29	0.29	15.92	15.99	18.97	23.98		-0.73		26.99	Pass
VHT80	MCS0	2	106	5530	0.56	0.56	12.29	12.80	15.56	23.98		-0.73		26.99	Pass
VHT80	MCS0	2	122	5610	0.56	0.56	15.82	16.11	18.98	23.98		-0.73		26.99	Pass

TEST RESULTS DATA
Power Spectral Density

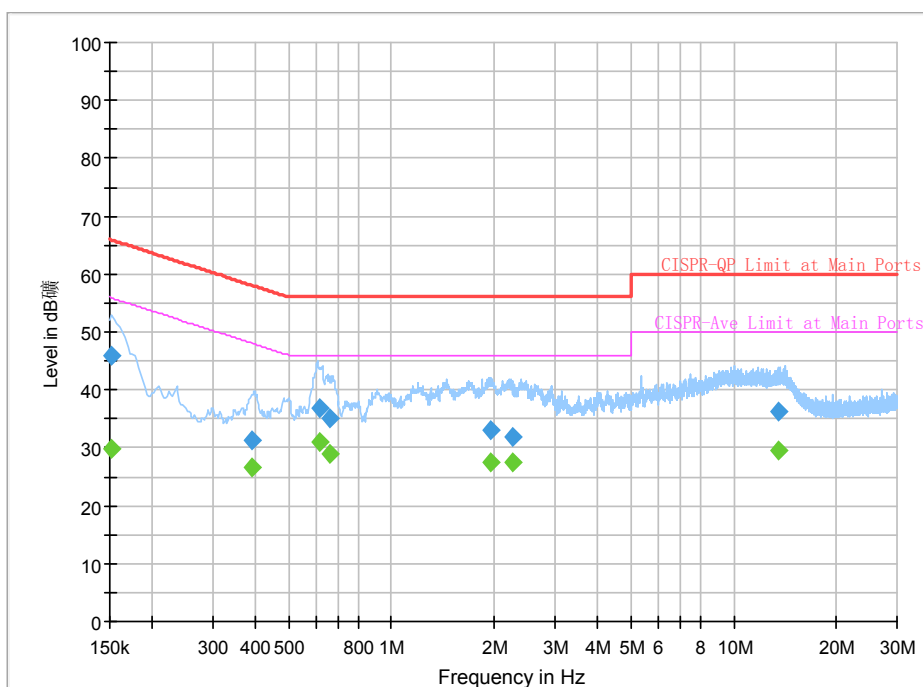
Band III															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)			Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	100	5500	0.08	0.08			9.55	11.00	2.00			Pass	
11a	6Mbps	2	116	5580	0.08	0.08			9.96	11.00	2.00			Pass	
11a	6Mbps	2	140	5700	0.08	0.08			9.29	11.00	2.00			Pass	
HT20	MCS0	2	100	5500	0.09	0.09			9.66	11.00	2.00			Pass	
HT20	MCS0	2	116	5580	0.09	0.09			10.02	11.00	2.00			Pass	
HT20	MCS0	2	140	5700	0.09	0.09			7.06	11.00	2.00			Pass	
HT40	MCS0	2	102	5510	0.16	0.16			3.60	11.00	2.00			Pass	
HT40	MCS0	2	110	5550	0.16	0.16			6.75	11.00	2.00			Pass	
HT40	MCS0	2	134	5670	0.16	0.16			6.29	11.00	2.00			Pass	
VHT80	MCS0	2	106	5530	0.56	0.56			0.31	11.00	2.00			Pass	
VHT80	MCS0	2	122	5610	0.56	0.56			4.02	11.00	2.00			Pass	



Appendix B. AC Conducted Emission Test Results

Test Engineer :	Arthur Hsieh	Temperature :	21~25°C
		Relative Humidity :	51~55%
Test Voltage :	120Vac / 60Hz	Phase :	Line

Full Spectrum



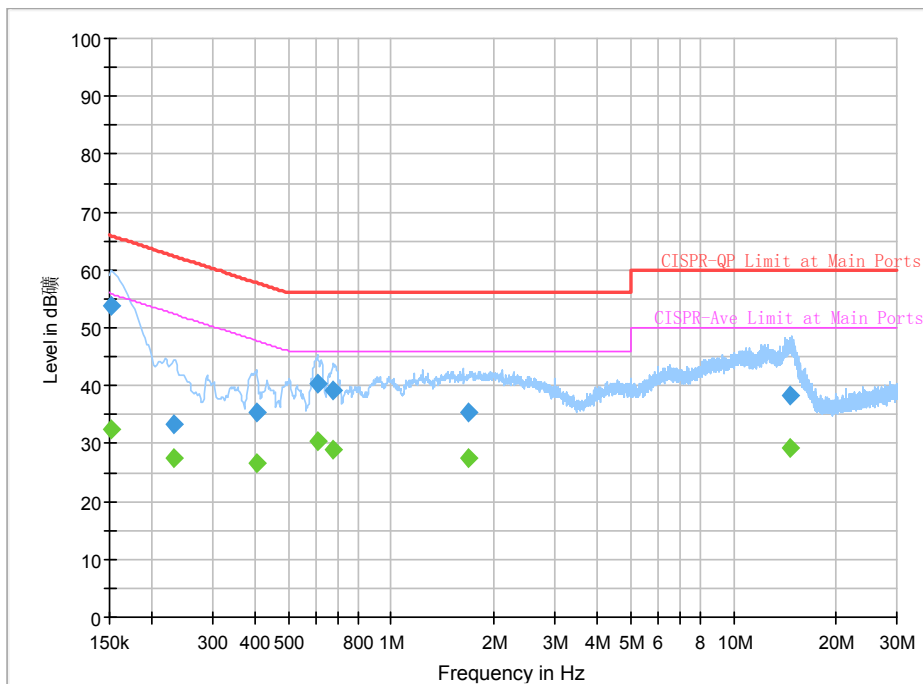
Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	29.77	55.88	26.11	L1	OFF	19.5
0.152250	45.89	---	65.88	19.99	L1	OFF	19.5
0.390750	---	26.69	48.05	21.36	L1	OFF	19.5
0.390750	31.25	---	58.05	26.80	L1	OFF	19.5
0.615750	---	31.11	46.00	14.89	L1	OFF	19.6
0.615750	36.98	---	56.00	19.02	L1	OFF	19.6
0.656250	---	29.03	46.00	16.97	L1	OFF	19.6
0.656250	35.06	---	56.00	20.94	L1	OFF	19.6
1.950000	---	27.54	46.00	18.46	L1	OFF	19.6
1.950000	33.00	---	56.00	23.00	L1	OFF	19.6
2.249250	---	27.51	46.00	18.49	L1	OFF	19.5
2.249250	31.88	---	56.00	24.12	L1	OFF	19.5
13.560000	---	29.61	50.00	20.39	L1	OFF	20.0
13.560000	36.20	---	60.00	23.80	L1	OFF	20.0



Test Engineer :	Arthur Hsieh	Temperature :	21~25°C
		Relative Humidity :	51~55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral

Full Spectrum

**Final_Result**

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	32.58	55.88	23.30	N	OFF	19.5
0.152250	53.74	---	65.88	12.14	N	OFF	19.5
0.231000	---	27.48	52.41	24.93	N	OFF	19.5
0.231000	33.36	---	62.41	29.05	N	OFF	19.5
0.404250	---	26.58	47.77	21.19	N	OFF	19.5
0.404250	35.41	---	57.77	22.36	N	OFF	19.5
0.609000	---	30.35	46.00	15.65	N	OFF	19.6
0.609000	40.36	---	56.00	15.64	N	OFF	19.6
0.676500	---	28.90	46.00	17.10	N	OFF	19.6
0.676500	39.31	---	56.00	16.69	N	OFF	19.6
1.682250	---	27.61	46.00	18.39	N	OFF	19.6
1.682250	35.35	---	56.00	20.65	N	OFF	19.6
14.642250	---	29.28	50.00	20.72	N	OFF	20.1
14.642250	38.27	---	60.00	21.73	N	OFF	20.1



Appendix C. Radiated Spurious Emission

Test Engineer :	Watt, Karl, Ken	Temperature :	22~25°C
		Relative Humidity :	62~65%



Band 1 - 5150~5250MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 36 5180MHz		5149.76	63.54	-10.46	74	52.91	31.79	9.98	31.14	100	233	P	H
		5150	50.98	-3.02	54	40.35	31.79	9.98	31.14	100	233	A	H
	*	5180	110	-	-	99.31	31.81	10.02	31.14	100	233	P	H
	*	5180	100.02	-	-	89.33	31.81	10.02	31.14	100	233	A	H
		5147.16	62.76	-11.24	74	52.13	31.79	9.98	31.14	100	144	P	V
		5147.42	48.2	-5.8	54	37.57	31.79	9.98	31.14	100	144	A	V
	*	5180	109.88	-	-	99.19	31.81	10.02	31.14	100	144	P	V
	*	5180	99.78	-	-	89.09	31.81	10.02	31.14	100	144	A	V
802.11a CH 44 5220MHz		5136.24	52.73	-21.27	74	42.13	31.78	9.96	31.14	142	64	P	H
		5150	40.94	-13.06	54	30.31	31.79	9.98	31.14	142	64	A	H
	*	5220	112.04	-	-	101.29	31.83	10.06	31.14	142	64	P	H
	*	5220	101.41	-	-	90.66	31.83	10.06	31.14	142	64	A	H
		5430.04	52.36	-21.64	74	41.32	31.96	10.23	31.15	142	64	P	H
		5454.12	40.52	-13.48	54	29.44	31.97	10.26	31.15	142	64	A	H
		5149.24	52.77	-21.23	74	42.14	31.79	9.98	31.14	100	143	P	V
		5150	40.65	-13.35	54	30.02	31.79	9.98	31.14	100	143	A	V
		5220	111.34	-	-	100.59	31.83	10.06	31.14	100	143	P	V
	*	5220	100.8	-	-	90.05	31.83	10.06	31.14	100	143	A	V
		5441.52	52.14	-21.86	74	41.08	31.96	10.25	31.15	100	143	P	V
		5452.44	40.53	-13.47	54	29.45	31.97	10.26	31.15	100	143	A	V



802.11a CH 48 5240MHz		5114.14	52.36	-21.64	74	41.79	31.77	9.94	31.14	117	64	P	H
		5150	40.53	-13.47	54	29.9	31.79	9.98	31.14	117	64	A	H
	*	5240	112.09	-	-	101.32	31.84	10.07	31.14	117	64	P	H
	*	5240	101.38	-	-	90.61	31.84	10.07	31.14	117	64	A	H
		5437.88	52.55	-21.45	74	41.5	31.96	10.24	31.15	117	64	P	H
		5454.96	40.49	-13.51	54	29.41	31.97	10.26	31.15	117	64	A	H
		5127.14	52.69	-21.31	74	42.1	31.78	9.95	31.14	100	186	P	V
		5150	40.21	-13.79	54	29.58	31.79	9.98	31.14	100	186	A	V
	*	5240	111.27	-	-	100.5	31.84	10.07	31.14	100	186	P	V
	*	5240	100.87	-	-	90.1	31.84	10.07	31.14	100	186	A	V
		5421.64	52.64	-21.36	74	41.62	31.95	10.22	31.15	100	186	P	V
		5456.36	40.49	-13.51	54	29.41	31.97	10.26	31.15	100	186	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 36 5180MHz		10360	48.91	-25.09	74	50.41	39.86	15.6	56.96	100	0	P	H
		15540	47.2	-26.8	74	45.73	38.53	19.59	56.65	100	0	P	H
		10360	49.98	-24.02	74	51.48	39.86	15.6	56.96	100	0	P	V
		15540	47.28	-26.72	74	45.81	38.53	19.59	56.65	100	0	P	V
802.11a CH 44 5220MHz		10440	47.96	-26.04	74	49.23	39.98	15.67	56.92	100	0	P	H
		15660	47.14	-26.86	74	45.72	38.29	19.64	56.51	100	0	P	H
		10440	48.21	-25.79	74	49.48	39.98	15.67	56.92	100	0	P	V
		15660	47.22	-26.78	74	45.8	38.29	19.64	56.51	100	0	P	V
802.11a CH 48 5240MHz		10480	48.89	-25.11	74	50.03	40.07	15.7	56.91	100	0	P	H
		15720	46.95	-27.05	74	45.59	38.15	19.65	56.44	100	0	P	H
		10480	49.77	-24.23	74	50.91	40.07	15.7	56.91	100	0	P	V
		15720	47.41	-26.59	74	46.05	38.15	19.65	56.44	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 36 5180MHz		5149.24	63.34	-10.66	74	52.71	31.79	9.98	31.14	100	103	P	H
		5150	50.7	-3.3	54	40.07	31.79	9.98	31.14	100	103	A	H
	*	5180	111.74	-	-	101.05	31.81	10.02	31.14	100	103	P	H
	*	5180	100.85	-	-	90.16	31.81	10.02	31.14	100	103	A	H
		5146.9	62	-12	74	51.37	31.79	9.98	31.14	100	307	P	V
		5145.08	49.4	-4.6	54	38.78	31.79	9.97	31.14	100	307	A	V
	*	5180	110.99	-	-	100.3	31.81	10.02	31.14	100	307	P	V
	*	5180	99.92	-	-	89.23	31.81	10.02	31.14	100	307	A	V
802.11n HT20 CH 44 5220MHz		5064.48	52.75	-21.25	74	42.27	31.74	9.88	31.14	100	255	P	H
		5144.3	41.46	-12.54	54	30.84	31.79	9.97	31.14	100	255	A	H
	*	5220	112.06	-	-	101.31	31.83	10.06	31.14	100	255	P	H
	*	5220	101.28	-	-	90.53	31.83	10.06	31.14	100	255	A	H
		5412.68	52.7	-21.3	74	41.69	31.95	10.21	31.15	100	255	P	H
		5443.2	41.29	-12.71	54	30.23	31.96	10.25	31.15	100	255	A	H
		5135.46	52.08	-21.92	74	41.48	31.78	9.96	31.14	116	144	P	V
		5148.98	41.29	-12.71	54	30.66	31.79	9.98	31.14	116	144	A	V
	*	5220	111.21	-	-	100.46	31.83	10.06	31.14	116	144	P	V
	*	5220	101.29	-	-	90.54	31.83	10.06	31.14	116	144	A	V
		5373.2	53.2	-20.8	74	42.25	31.92	10.18	31.15	116	144	P	V
		5405.96	41.42	-12.58	54	30.42	31.94	10.21	31.15	116	144	A	V



802.11n HT20 CH 48 5240MHz		5143.26	52.76	-21.24	74	42.14	31.79	9.97	31.14	117	65	P	H
		5144.82	41.12	-12.88	54	30.5	31.79	9.97	31.14	117	65	A	H
	*	5240	111.87	-	-	101.1	31.84	10.07	31.14	117	65	P	H
	*	5240	101.06	-	-	90.29	31.84	10.07	31.14	117	65	A	H
		5374.04	52.28	-21.72	74	41.33	31.92	10.18	31.15	117	65	P	H
		5360.04	41.22	-12.78	54	30.29	31.91	10.17	31.15	117	65	A	H
		5021.32	52.32	-21.68	74	41.91	31.72	9.83	31.14	100	186	P	V
		5145.08	40.89	-13.11	54	30.27	31.79	9.97	31.14	100	186	A	V
	*	5240	111.37	-	-	100.6	31.84	10.07	31.14	100	186	P	V
	*	5240	100.67	-	-	89.9	31.84	10.07	31.14	100	186	A	V
		5356.68	52.6	-21.4	74	41.67	31.91	10.17	31.15	100	186	P	V
		5445.72	41.3	-12.7	54	30.23	31.97	10.25	31.15	100	186	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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 36 5180MHz		10360	49.29	-24.71	74	50.79	39.86	15.6	56.96	100	0	P	H
		15540	46.86	-27.14	74	45.39	38.53	19.59	56.65	100	0	P	H
		10360	49.41	-24.59	74	50.91	39.86	15.6	56.96	100	0	P	V
		15540	47.07	-26.93	74	45.6	38.53	19.59	56.65	100	0	P	V
802.11n HT20 CH 44 5220MHz		10440	49.23	-24.77	74	50.5	39.98	15.67	56.92	100	0	P	H
		15660	47.15	-26.85	74	45.73	38.29	19.64	56.51	100	0	P	H
		10440	49.84	-24.16	74	51.11	39.98	15.67	56.92	100	0	P	V
		15660	48.83	-25.17	74	47.41	38.29	19.64	56.51	100	0	P	V
802.11n HT20 CH 48 5240MHz		10480	49.16	-24.84	74	50.3	40.07	15.7	56.91	100	0	P	H
		15720	46.87	-27.13	74	45.51	38.15	19.65	56.44	100	0	P	H
		10480	49.19	-24.81	74	50.33	40.07	15.7	56.91	100	0	P	V
		15720	47.26	-26.74	74	45.9	38.15	19.65	56.44	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 38 5190MHz		5146.12	56.29	-17.71	74	45.66	31.79	9.98	31.14	136	99	P	H
		5141.96	45.12	-8.88	54	34.5	31.79	9.97	31.14	136	99	A	H
	*	5190	103.69	-	-	92.99	31.81	10.03	31.14	136	99	P	H
	*	5190	93.12	-	-	82.42	31.81	10.03	31.14	136	99	A	H
		5412.68	54.4	-19.6	74	43.39	31.95	10.21	31.15	136	99	P	H
		5413.8	44.25	-9.75	54	33.23	31.95	10.22	31.15	136	99	A	H
		5149.76	60.69	-13.31	74	50.06	31.79	9.98	31.14	100	144	P	V
		5150	50.39	-3.61	54	39.76	31.79	9.98	31.14	100	144	A	V
	*	5190	104.18	-	-	93.48	31.81	10.03	31.14	100	144	P	V
	*	5190	93.88	-	-	83.18	31.81	10.03	31.14	100	144	A	V
		5413.24	53.43	-20.57	74	42.42	31.95	10.21	31.15	100	144	P	V
		5412.4	43.84	-10.16	54	32.83	31.95	10.21	31.15	100	144	A	V
802.11n HT40 CH 46 5230MHz		5145.34	58.61	-15.39	74	47.99	31.79	9.97	31.14	100	253	P	H
		5147.42	47.55	-6.45	54	36.92	31.79	9.98	31.14	100	253	A	H
	*	5230	108.99	-	-	98.23	31.84	10.06	31.14	100	253	P	H
	*	5230	98.77	-	-	88.01	31.84	10.06	31.14	100	253	A	H
		5453.84	54.19	-19.81	74	43.11	31.97	10.26	31.15	100	253	P	H
		5452.44	44.51	-9.49	54	33.43	31.97	10.26	31.15	100	253	A	H
		5148.72	58.12	-15.88	74	47.49	31.79	9.98	31.14	100	200	P	V
		5147.68	47.6	-6.4	54	36.97	31.79	9.98	31.14	100	200	A	V
	*	5230	108.96	-	-	98.2	31.84	10.06	31.14	100	200	P	V
	*	5230	98.26	-	-	87.5	31.84	10.06	31.14	100	200	A	V
		5452.72	54.09	-19.91	74	43.01	31.97	10.26	31.15	100	200	P	V
		5452.44	44.31	-9.69	54	33.23	31.97	10.26	31.15	100	200	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 (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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 42 5210MHz		5146.38	58.37	-15.63	74	47.74	31.79	9.98	31.14	105	268	P	H
		5147.42	49.51	-4.49	54	38.88	31.79	9.98	31.14	105	268	A	H
	*	5210	102.09	-	-	91.35	31.83	10.05	31.14	105	268	P	H
	*	5210	90.95	-	-	80.21	31.83	10.05	31.14	105	268	A	H
		5443.48	52.66	-21.34	74	41.6	31.96	10.25	31.15	105	268	P	H
		5350.24	43.64	-10.36	54	32.72	31.91	10.16	31.15	105	268	A	H
		5146.64	57.01	-16.99	74	46.38	31.79	9.98	31.14	100	311	P	V
		5150	50.33	-3.67	54	39.7	31.79	9.98	31.14	100	311	A	V
	*	5210	102.45	-	-	91.71	31.83	10.05	31.14	100	311	P	V
	*	5210	91.52	-	-	80.78	31.83	10.05	31.14	100	311	A	V
		5425	52.5	-21.5	74	41.47	31.95	10.23	31.15	100	311	P	V
		5351.08	44.04	-9.96	54	33.12	31.91	10.16	31.15	100	311	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 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 52 5260MHz		5038.76	51.87	-22.13	74	41.43	31.73	9.85	31.14	113	64	P	H
		5149.94	40.31	-13.69	54	29.68	31.79	9.98	31.14	113	64	A	H
	*	5260	112.12	-	-	101.32	31.86	10.09	31.15	113	64	P	H
	*	5260	101.49	-	-	90.69	31.86	10.09	31.15	113	64	A	H
		5447.28	52.29	-21.71	74	41.22	31.97	10.25	31.15	113	64	P	H
		5351.76	40.73	-13.27	54	29.81	31.91	10.16	31.15	113	64	A	H
		5110.5	51.57	-22.43	74	41.01	31.77	9.93	31.14	100	145	P	V
		5149.26	40.23	-13.77	54	29.6	31.79	9.98	31.14	100	145	A	V
	*	5260	111.61	-	-	100.81	31.86	10.09	31.15	100	145	P	V
	*	5260	100.96	-	-	90.16	31.86	10.09	31.15	100	145	A	V
		5355.6	52.93	-21.07	74	42.01	31.91	10.16	31.15	100	145	P	V
		5350.8	40.65	-13.35	54	29.73	31.91	10.16	31.15	100	145	A	V
802.11a CH 60 5300MHz		5147.56	52.46	-21.54	74	41.83	31.79	9.98	31.14	122	62	P	H
		5147.56	40.24	-13.76	54	29.61	31.79	9.98	31.14	122	62	A	H
	*	5300	112.4	-	-	101.55	31.88	10.12	31.15	122	62	P	H
	*	5300	101.93	-	-	91.08	31.88	10.12	31.15	122	62	A	H
		5353.92	54.08	-19.92	74	43.16	31.91	10.16	31.15	122	62	P	H
		5350.08	42.82	-11.18	54	31.9	31.91	10.16	31.15	122	62	A	H
		5136	52.21	-21.79	74	41.61	31.78	9.96	31.14	100	202	P	V
		5147.22	40.14	-13.86	54	29.51	31.79	9.98	31.14	100	202	A	V
	*	5300	112.74	-	-	101.89	31.88	10.12	31.15	100	202	P	V
	*	5300	102.37	-	-	91.52	31.88	10.12	31.15	100	202	A	V
		5361.6	54	-20	74	43.06	31.92	10.17	31.15	100	202	P	V
		5350.08	42.26	-11.74	54	31.34	31.91	10.16	31.15	100	202	A	V



802.11a CH 64 5320MHz	*	5320	112.11	-	-	101.23	31.89	10.14	31.15	111	99	P	H
	*	5320	102.03	-	-	91.15	31.89	10.14	31.15	111	99	A	H
		5350.08	60.52	-13.48	74	49.6	31.91	10.16	31.15	111	99	P	H
		5350.08	50.05	-3.95	54	39.13	31.91	10.16	31.15	111	99	A	H
	*	5320	111.99	-	-	101.11	31.89	10.14	31.15	100	203	P	V
	*	5320	101.78	-	-	90.9	31.89	10.14	31.15	100	203	A	V
		5350.4	61.15	-12.85	74	50.23	31.91	10.16	31.15	100	203	P	V
		5350.08	50	-4	54	39.08	31.91	10.16	31.15	100	203	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 52 5260MHz		10520	48.73	-25.27	74	49.77	40.11	15.73	56.88	100	0	P	H
		15780	47.85	-26.15	74	46.48	38.05	19.68	56.36	100	0	P	H
		10520	48.81	-25.19	74	49.85	40.11	15.73	56.88	100	0	P	V
		15780	48.77	-25.23	74	47.4	38.05	19.68	56.36	100	0	P	V
802.11a CH 60 5300MHz		10600	48.21	-25.79	74	49.05	40.18	15.8	56.82	100	0	P	H
		15900	46.98	-27.02	74	45.66	37.81	19.73	56.22	100	0	P	H
		10600	48.17	-25.83	74	49.01	40.18	15.8	56.82	100	0	P	V
		15900	46.46	-27.54	74	45.14	37.81	19.73	56.22	100	0	P	V
802.11a CH 64 5320MHz		10640	49.75	-24.25	74	50.51	40.21	15.82	56.79	100	0	P	H
		15960	46.89	-27.11	74	45.63	37.67	19.74	56.15	100	0	P	H
		10640	49	-25	74	49.76	40.21	15.82	56.79	100	0	P	V
		15960	46.44	-27.56	74	45.18	37.67	19.74	56.15	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 54 5270MHz		5149.26	52.14	-21.86	74	41.51	31.79	9.98	31.14	100	255	P	H
		5147.56	41.95	-12.05	54	31.32	31.79	9.98	31.14	100	255	A	H
	*	5270	109.47	-	-	98.66	31.86	10.1	31.15	100	255	P	H
	*	5270	97.99	-	-	87.18	31.86	10.1	31.15	100	255	A	H
		5351.28	56.21	-17.79	74	45.29	31.91	10.16	31.15	100	255	P	H
		5350.56	46.69	-7.31	54	35.77	31.91	10.16	31.15	100	255	A	H
		5045.9	52.55	-21.45	74	42.1	31.73	9.86	31.14	100	143	P	V
		5047.26	43.9	-10.1	54	33.45	31.73	9.86	31.14	100	143	A	V
	*	5270	108.81	-	-	98	31.86	10.1	31.15	100	143	P	V
	*	5270	97.87	-	-	87.06	31.86	10.1	31.15	100	143	A	V
		5350.08	55.85	-18.15	74	44.93	31.91	10.16	31.15	100	143	P	V
		5350.08	46.45	-7.55	54	35.53	31.91	10.16	31.15	100	143	A	V
802.11n HT40 CH 62 5310MHz		5086.36	52.38	-21.62	74	41.87	31.75	9.9	31.14	116	103	P	H
		5087.38	43.6	-10.4	54	33.09	31.75	9.9	31.14	116	103	A	H
	*	5310	107.98	-	-	97.11	31.89	10.13	31.15	116	103	P	H
	*	5310	97.57	-	-	86.7	31.89	10.13	31.15	116	103	A	H
		5351.04	59.58	-14.42	74	48.66	31.91	10.16	31.15	116	103	P	H
		5350.08	50.52	-3.48	54	39.6	31.91	10.16	31.15	116	103	A	H
		5087.38	53.65	-20.35	74	43.14	31.75	9.9	31.14	100	204	P	V
		5087.38	43.9	-10.1	54	33.39	31.75	9.9	31.14	100	204	A	V
	*	5310	107.54	-	-	96.67	31.89	10.13	31.15	100	204	P	V
	*	5310	96.67	-	-	85.8	31.89	10.13	31.15	100	204	A	V
		5354.4	60.23	-13.77	74	49.31	31.91	10.16	31.15	100	204	P	V
		5350.08	49.53	-4.47	54	38.61	31.91	10.16	31.15	100	204	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 (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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 58 5290MHz		5019.04	52.3	-21.7	74	41.91	31.71	9.82	31.14	100	314	P	H
		5143.82	43.67	-10.33	54	33.05	31.79	9.97	31.14	100	314	A	H
	*	5290	104.31	-	-	93.48	31.87	10.11	31.15	100	314	P	H
	*	5290	93.58	-	-	82.75	31.87	10.11	31.15	100	314	A	H
		5354.4	59.03	-14.97	74	48.11	31.91	10.16	31.15	100	314	P	H
		5354.64	50.64	-3.36	54	39.72	31.91	10.16	31.15	100	314	A	H
		5090.1	53.25	-20.75	74	42.72	31.76	9.91	31.14	100	312	P	V
		5144.16	43.45	-10.55	54	32.83	31.79	9.97	31.14	100	312	A	V
	*	5290	104.8	-	-	93.97	31.87	10.11	31.15	100	312	P	V
	*	5290	93.45	-	-	82.62	31.87	10.11	31.15	100	312	A	V
		5356.8	58.87	-15.13	74	47.94	31.91	10.17	31.15	100	312	P	V
		5353.68	50.68	-3.32	54	39.76	31.91	10.16	31.15	100	312	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 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 100 5500MHz		5459.92	57.8	-16.2	74	46.71	31.97	10.27	31.15	113	62	P	H
		5469.04	62.42	-5.78	68.2	51.31	31.98	10.28	31.15	113	62	P	H
		5460	45.21	-8.79	54	34.12	31.97	10.27	31.15	113	62	A	H
	*	5500	112.36	-	-	101.2	32	10.31	31.15	113	62	P	H
	*	5500	100.26	-	-	89.1	32	10.31	31.15	113	62	A	H
		5460.08	55.51	-12.69	68.2	44.42	31.97	10.27	31.15	107	173	P	V
		5468.72	62.55	-5.65	68.2	51.44	31.98	10.28	31.15	107	173	P	V
	*	5500	111.54	-	-	100.38	32	10.31	31.15	107	173	P	V
	*	5500	99.33	-	-	88.17	32	10.31	31.15	107	173	A	V
802.11a CH 116 5580MHz		5432.56	53.14	-20.86	74	42.09	31.96	10.24	31.15	101	90	P	H
		5462.32	51.86	-16.34	68.2	40.77	31.97	10.27	31.15	101	90	P	H
		5452.72	40.62	-13.38	54	29.54	31.97	10.26	31.15	101	90	A	H
	*	5580	112.34	-	-	101.04	32.1	10.4	31.2	101	90	P	H
	*	5580	99.92	-	-	88.62	32.1	10.4	31.2	101	90	A	H
		5742.635	52.38	-15.82	68.2	40.78	32.34	10.53	31.27	101	90	P	H
		5412.16	52.5	-21.5	74	41.49	31.95	10.21	31.15	113	102	P	V
		5462.08	51.83	-16.37	68.2	40.74	31.97	10.27	31.15	113	102	P	V
		5453.2	40.65	-13.35	54	29.57	31.97	10.26	31.15	113	102	A	V
	*	5580	112.55	-	-	101.25	32.1	10.4	31.2	113	102	P	V
	*	5580	100.45	-	-	89.15	32.1	10.4	31.2	113	102	A	V
		5742.32	52.75	-15.45	68.2	41.15	32.34	10.53	31.27	113	102	P	V



802.11a CH 140 5700MHz	*	5700	112.01	-	-	100.49	32.27	10.5	31.25	105	93	P	H
	*	5700	99.93	-	-	88.41	32.27	10.5	31.25	105	93	A	H
		5725.32	65.9	-2.3	68.2	54.33	32.31	10.52	31.26	105	93	P	H
	*	5700	112.47	-	-	100.95	32.27	10.5	31.25	100	205	P	V
	*	5700	100.55	-	-	89.03	32.27	10.5	31.25	100	205	A	V
		5725.4	64.14	-4.06	68.2	52.57	32.31	10.52	31.26	100	205	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 100 5500MHz		11000	48.94	-25.06	74	48.84	40.5	16.1	56.5	100	0	P	H
		16500	47.57	-20.63	68.2	43.49	39.6	20.18	55.7	100	0	P	H
		11000	49.82	-24.18	74	49.72	40.5	16.1	56.5	100	0	P	V
		16500	47.28	-20.92	68.2	43.2	39.6	20.18	55.7	100	0	P	V
802.11a CH 116 5580MHz		11160	49.21	-24.79	74	49.05	40.37	16.23	56.44	100	0	P	H
		16740	48.33	-19.87	68.2	43.72	40.13	20.37	55.89	100	0	P	H
		11160	48.67	-25.33	74	48.51	40.37	16.23	56.44	100	0	P	V
		16740	47.93	-20.27	68.2	43.32	40.13	20.37	55.89	100	0	P	V
802.11a CH 140 5700MHz		11400	49.1	-24.9	74	48.84	40.18	16.42	56.34	100	0	P	H
		17100	49.48	-18.72	68.2	44.05	41.06	20.67	56.3	100	0	P	H
		11400	49.85	-24.15	74	49.59	40.18	16.42	56.34	100	0	P	V
		17100	48.85	-19.35	68.2	43.42	41.06	20.67	56.3	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 100 5500MHz		5459.92	58.95	-15.05	74	47.86	31.97	10.27	31.15	100	188	P	H
		5470	60.09	-8.11	68.2	48.98	31.98	10.28	31.15	100	188	P	H
		5459.92	46.02	-7.98	54	34.93	31.97	10.27	31.15	100	188	A	H
	*	5500	112.65	-	-	101.49	32	10.31	31.15	100	188	P	H
	*	5500	101.58	-	-	90.42	32	10.31	31.15	100	188	A	H
		5460.08	57.65	-10.55	68.2	46.56	31.97	10.27	31.15	100	268	P	V
		5467.12	63.95	-4.25	68.2	52.85	31.98	10.27	31.15	100	268	P	V
	*	5500	112.11	-	-	100.95	32	10.31	31.15	100	268	P	V
	*	5500	101.25	-	-	90.09	32	10.31	31.15	100	268	A	V
802.11n HT20 CH 116 5580MHz		5376.64	52.55	-21.45	74	41.6	31.92	10.18	31.15	100	90	P	H
		5463.52	51.91	-16.29	68.2	40.81	31.98	10.27	31.15	100	90	P	H
		5439.52	41.36	-12.64	54	30.31	31.96	10.24	31.15	100	90	A	H
	*	5580	112.96	-	-	101.66	32.1	10.4	31.2	100	90	P	H
	*	5580	102.05	-	-	90.75	32.1	10.4	31.2	100	90	A	H
		5728.775	52.44	-15.76	68.2	40.87	32.31	10.52	31.26	100	90	P	H
		5446.96	52.77	-21.23	74	41.7	31.97	10.25	31.15	100	339	P	V
		5470	52.01	-16.19	68.2	40.9	31.98	10.28	31.15	100	339	P	V
		5456.56	41.31	-12.69	54	30.23	31.97	10.26	31.15	100	339	A	V
	*	5580	112.95	-	-	101.65	32.1	10.4	31.2	100	339	P	V
	*	5580	101.76	-	-	90.46	32.1	10.4	31.2	100	339	A	V
		5732.24	53.04	-15.16	68.2	41.47	32.31	10.53	31.27	100	339	P	V



802.11n HT20 CH 140 5700MHz	*	5700	110.75	-	-	99.23	32.27	10.5	31.25	109	95	P	H
	*	5700	100.1	-	-	88.58	32.27	10.5	31.25	109	95	A	H
		5725	63.69	-4.51	68.2	52.12	32.31	10.52	31.26	109	95	P	H
	*	5700	111.7	-	-	100.18	32.27	10.5	31.25	130	233	P	V
	*	5700	100.69	-	-	89.17	32.27	10.5	31.25	130	233	A	V
		5725	60.62	-7.58	68.2	49.05	32.31	10.52	31.26	130	233	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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 102 5510MHz		5458.24	60.66	-13.34	74	49.58	31.97	10.26	31.15	111	81	P	H
		5468.56	60.53	-7.67	68.2	49.42	31.98	10.28	31.15	111	81	P	H
		5458.72	49.03	-4.97	54	37.95	31.97	10.26	31.15	111	81	A	H
	*	5510	106.37	-	-	95.21	32	10.32	31.16	111	81	P	H
	*	5510	96	-	-	84.84	32	10.32	31.16	111	81	A	H
		5732.87	53.94	-14.26	68.2	42.37	32.31	10.53	31.27	111	81	P	H
		5457.28	57.57	-16.43	74	46.49	31.97	10.26	31.15	112	118	P	V
		5468.8	63.49	-4.71	68.2	52.38	31.98	10.28	31.15	112	118	P	V
		5456.56	47.85	-6.15	54	36.77	31.97	10.26	31.15	112	118	A	V
	*	5510	107.64	-	-	96.48	32	10.32	31.16	112	118	P	V
	*	5510	96.83	-	-	85.67	32	10.32	31.16	112	118	A	V
		5732.555	54.92	-13.28	68.2	43.35	32.31	10.53	31.27	112	118	P	V
802.11n HT40 CH 110 5550MHz		5447.68	53.31	-20.69	74	42.24	31.97	10.25	31.15	123	96	P	H
		5468.56	55.92	-12.28	68.2	44.81	31.98	10.28	31.15	123	96	P	H
		5458.72	43.95	-10.05	54	32.87	31.97	10.26	31.15	123	96	A	H
	*	5550	109.27	-	-	98.01	32.07	10.36	31.17	123	96	P	H
	*	5550	98.81	-	-	87.55	32.07	10.36	31.17	123	96	A	H
		5739.17	52.74	-15.46	68.2	41.14	32.34	10.53	31.27	123	96	P	H
		5449.84	54.12	-19.88	74	43.05	31.97	10.25	31.15	100	198	P	V
		5469.04	56.87	-11.33	68.2	45.76	31.98	10.28	31.15	100	198	P	V
		5453.44	44.14	-9.86	54	33.06	31.97	10.26	31.15	100	198	A	V
	*	5550	109.96	-	-	98.7	32.07	10.36	31.17	100	198	P	V
	*	5550	99.27	-	-	88.01	32.07	10.36	31.17	100	198	A	V
		5742.005	52.47	-15.73	68.2	40.87	32.34	10.53	31.27	100	198	P	V



802.11n HT40 CH 134 5670MHz		5413.7	53.68	-20.32	74	42.66	31.95	10.22	31.15	124	96	P	H
		5469.7	51.4	-16.8	68.2	40.29	31.98	10.28	31.15	124	96	P	H
		5414.75	44.15	-9.85	54	33.13	31.95	10.22	31.15	124	96	A	H
	*	5670	109.98	-	-	98.49	32.24	10.48	31.23	124	96	P	H
	*	5670	98.78	-	-	87.29	32.24	10.48	31.23	124	96	A	H
		5730.7	63.77	-4.43	68.2	52.21	32.31	10.52	31.27	124	96	P	H
		5446.6	55.18	-18.82	74	44.11	31.97	10.25	31.15	100	212	P	V
		5464.1	53.34	-14.86	68.2	42.24	31.98	10.27	31.15	100	212	P	V
		5447.3	44.39	-9.61	54	33.32	31.97	10.25	31.15	100	212	A	V
	*	5670	109.68	-	-	98.19	32.24	10.48	31.23	100	212	P	V
	*	5670	98.67	-	-	87.18	32.24	10.48	31.23	100	212	A	V
		5734.55	61.73	-6.47	68.2	50.13	32.34	10.53	31.27	100	212	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 106 5530MHz		5446.96	57.83	-16.17	74	46.76	31.97	10.25	31.15	125	90	P	H
		5464.24	59.45	-8.75	68.2	48.35	31.98	10.27	31.15	125	90	P	H
		5453.68	50.85	-3.15	54	39.77	31.97	10.26	31.15	125	90	A	H
	*	5530	102.63	-	-	91.44	32.02	10.34	31.17	125	90	P	H
	*	5530	91.64	-	-	80.45	32.02	10.34	31.17	125	90	A	H
		5735.39	53.38	-14.82	68.2	41.78	32.34	10.53	31.27	125	90	P	H
		5453.2	58.39	-15.61	74	47.31	31.97	10.26	31.15	105	133	P	V
		5467.36	59.7	-8.5	68.2	48.6	31.98	10.27	31.15	105	133	P	V
		5452.48	49.61	-4.39	54	38.53	31.97	10.26	31.15	105	133	A	V
	*	5530	101.76	-	-	90.57	32.02	10.34	31.17	105	133	P	V
	*	5530	91.74	-	-	80.55	32.02	10.34	31.17	105	133	A	V
		5760.59	52.15	-16.05	68.2	40.52	32.36	10.55	31.28	105	133	P	V
802.11ac VHT80 CH 122 5610MHz		5457.28	55.07	-18.93	74	43.99	31.97	10.26	31.15	100	69	P	H
		5468.08	56.27	-11.93	68.2	45.17	31.98	10.27	31.15	100	69	P	H
		5458.48	46.67	-7.33	54	35.59	31.97	10.26	31.15	100	69	A	H
	*	5610	105.72	-	-	94.36	32.14	10.43	31.21	100	69	P	H
	*	5610	95.4	-	-	84.04	32.14	10.43	31.21	100	69	A	H
		5726.57	56.76	-11.44	68.2	45.19	32.31	10.52	31.26	100	69	P	H
		5458.72	55.64	-18.36	74	44.56	31.97	10.26	31.15	100	166	P	V
		5467.6	56.88	-11.32	68.2	45.78	31.98	10.27	31.15	100	166	P	V
		5458.48	46.23	-7.77	54	35.15	31.97	10.26	31.15	100	166	A	V
	*	5610	106.26	-	-	94.9	32.14	10.43	31.21	100	166	P	V
	*	5610	95.75	-	-	84.39	32.14	10.43	31.21	100	166	A	V
		5736.65	57.36	-10.84	68.2	45.76	32.34	10.53	31.27	100	166	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

WIFI 802.11a (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a LF		41.61	24.5	-15.5	40	35.83	18.15	0.88	30.36	-	-	P	H
		59.7	22.41	-17.59	40	40.27	11.5	1.1	30.46	-	-	P	H
		159.33	24.48	-19.02	43.5	36.63	16.32	1.89	30.36	-	-	P	H
		571.6	28.92	-17.08	46	29.52	25.72	3.35	29.67	-	-	P	H
		689.2	30	-16	46	29.52	26.35	3.66	29.53	-	-	P	H
		736.8	32.28	-13.72	46	30.33	27.6	3.79	29.44	100	0	P	H
		33.78	34.11	-5.89	40	41.28	22.31	0.76	30.24	100	0	P	V
		41.07	33.61	-6.39	40	44.41	18.68	0.86	30.34	-	-	P	V
		86.7	29.78	-10.22	40	44.9	13.99	1.33	30.44	-	-	P	V
		475	26.76	-19.24	46	30.18	23.38	3.03	29.83	-	-	P	V
		555.5	29.02	-16.98	46	29.73	25.66	3.33	29.7	-	-	P	V
		656.3	29.75	-16.25	46	29.46	26.25	3.61	29.57	-	-	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	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)
 = Antenna Factor(dB/m) + Path 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) + Path 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”.

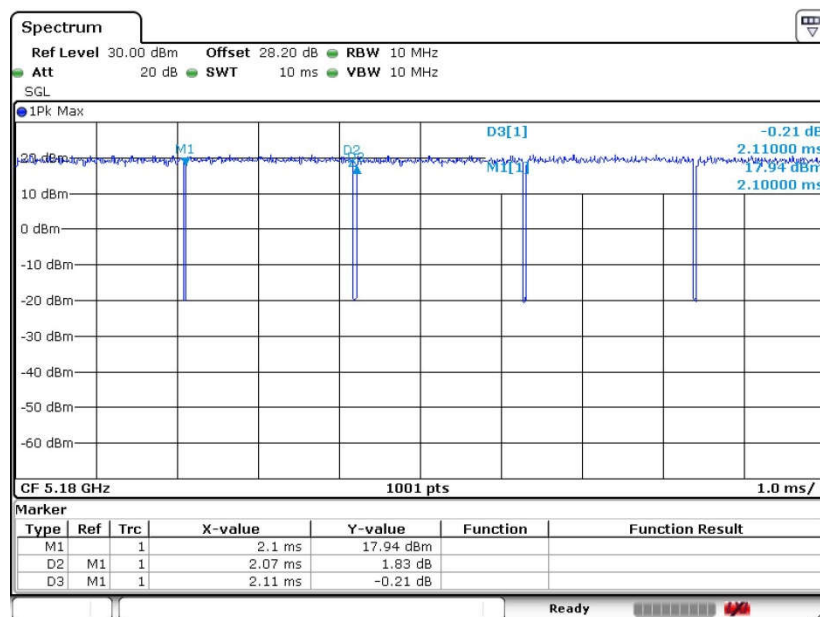


Appendix D. Duty Cycle Plots

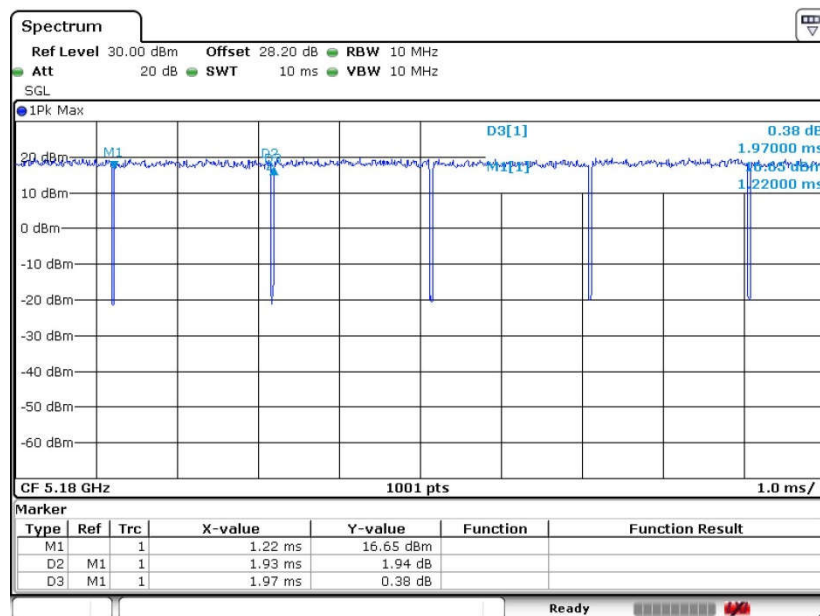
Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1+2	802.11a	98.10	-	-	10Hz
1+2	802.11n HT20	97.97	1.930	0.52	1kHz
1+2	802.11n HT40	96.45	0.950	1.05	3kHz
1+2	802.11ac VHT80	87.93	0.255	3.92	10kHz



802.11a

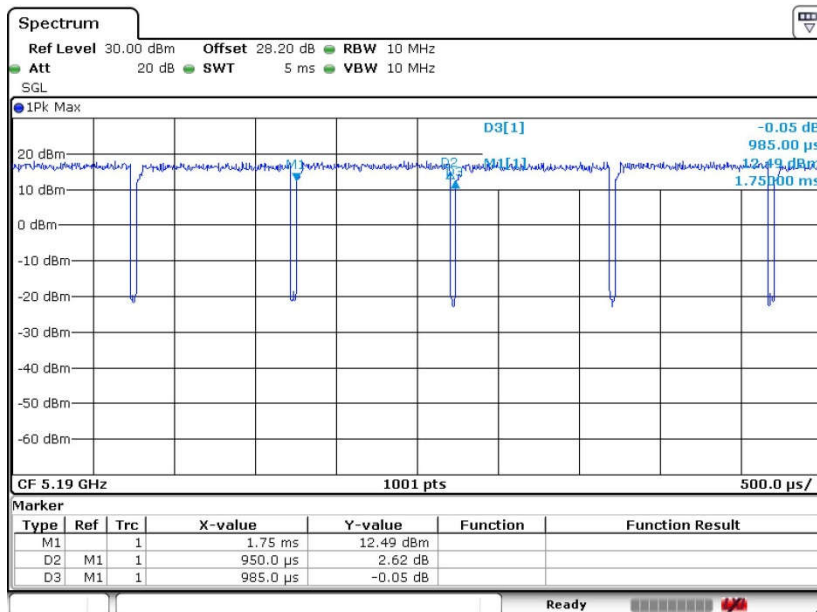


802.11n HT20





802.11n HT40



802.11ac VHT80

