



FCC RF Test Report

APPLICANT : OnePlus Technology (shenzhen) Co., Ltd
EQUIPMENT : Smart Phone
BRAND NAME : ONEPLUS
MODEL NAME : ONEPLUS A5010
MARKETING NAME : ONEPLUS 5T
FCC ID : 2ABZ2-A5010
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Aug. 25, 2017 and testing was completed on Oct. 16, 2017. We, Sporton International (Shenzhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (Shenzhen) Inc., the test report shall not be reproduced except in full.

Approved by: Eric Shih / Manager



Sporton International (Shenzhen) Inc.

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Guangdong Province 518055 China**



TABLE OF CONTENTS

1	GENERAL DESCRIPTION	5
1.1	Applicant	5
1.2	Manufacturer	5
1.3	Feature of Equipment Under Test	5
1.4	Product Specification of Equipment Under Test	6
1.5	Modification of EUT	7
1.6	Testing Location	8
1.7	Applicable Standards	8
2	TEST CONFIGURATION OF EQUIPMENT UNDER TEST	9
2.1	Carrier Frequency and Channel	9
2.2	Test Mode	11
2.3	Connection Diagram of Test System	13
2.4	Support Unit used in test configuration and system	14
2.5	EUT Operation Test Setup	14
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	29
3.6	Frequency Stability Measurement	33
3.7	Automatically Discontinue Transmission	34
3.8	Antenna Requirements	35
4	LIST OF MEASURING EQUIPMENT	36
5	UNCERTAINTY OF EVALUATION	37
APPENDIX A. CONDUCTED TEST RESULTS		
APPENDIX B. RADIATED SPURIOUS EMISSION		
APPENDIX C. DUTY CYCLE PLOTS		
APPENDIX D. SETUP PHOTOGRAPHS		



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR782510-01E	Rev. 01	Initial issue of report	Oct. 19, 2017

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	2.1049 15.403(i)	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	FCC ≤ 24 dBm (depend on band)	Pass	-
3.3	15.407(a)	Power Spectral Density	FCC ≤ 11 dBm (depend on band)	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) 15.209(a)	Pass	Under limit 3.49 dB at 5353.68 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 12.09 dB at 0.21 MHz
3.6	15.407(g)	Frequency Stability	Within Operation Band	Pass	-
3.7	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

OnePlus Technology (shenzhen) Co., Ltd

18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen

1.2 Manufacturer

OnePlus Technology (shenzhen) Co., Ltd

18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Smart Phone
Brand Name	ONEPLUS
Model Name	ONEPLUS A5010
Marketing Name	ONEPLUS 5T
FCC ID	2ABZ2-A5010
EUT supports Radios application	CDMA/EVDO/GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/HSPA+/LTE/NFC WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ac VHT20/VHT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/ Bluetooth v3.0 + EDR/ Bluetooth v 4.0 LE/ Bluetooth v4.1 LE/ Bluetooth v4.2 LE/ Bluetooth v5.0 LE
IMEI Code	Conducted: 866817030000889/866817030000889 Conduction: 866817030000988/866817030000988 Radiation: 866817030000947/866817030000947
HW Version	EC017
SW Version	oxygen version 4.7
EUT Stage	Production Unit

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

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5700 MHz
Maximum Output Power to Antenna	<5180 MHz ~ 5240 MHz> MIMO <Ant. 1+2> 802.11a : 18.04 dBm / 0.0637 W 802.11n HT20 : 17.91 dBm / 0.0618 W 802.11n HT40 : 17.70 dBm / 0.0589 W 802.11ac VHT20: 17.80 dBm / 0.0603 W 802.11ac VHT40: 17.65 dBm / 0.0582 W 802.11ac VHT80: 17.50 dBm / 0.0562 W <5260 MHz ~ 5320 MHz> MIMO <Ant. 1+2> 802.11a : 17.93 dBm / 0.0621 W 802.11n HT20 : 17.75 dBm / 0.0596 W 802.11n HT40 : 17.57 dBm / 0.0571 W 802.11ac VHT20: 17.72 dBm / 0.0592 W 802.11ac VHT40: 17.49 dBm / 0.0561 W 802.11ac VHT80: 17.14 dBm / 0.0518 W <5500 MHz ~ 5700 MHz > MIMO <Ant. 1+2> 802.11a : 17.90 dBm / 0.0617 W 802.11n HT20 : 17.80 dBm / 0.0603 W 802.11n HT40 : 17.45 dBm / 0.0556 W 802.11ac VHT20: 17.78 dBm / 0.0600 W 802.11ac VHT40: 17.43 dBm / 0.0553 W 802.11ac VHT80: 17.25 dBm / 0.0531 W
99% Occupied Bandwidth	<5180 MHz ~ 5240 MHz> MIMO <Ant. 1+2> 802.11a : 17.68 MHz 802.11n HT20 : 18.88 MHz 802.11n HT40 : 36.66 MHz 802.11ac VHT80 : 75.76 MHz <5260 MHz ~ 5320 MHz> MIMO <Ant. 1+2> 802.11a : 17.63 MHz 802.11n HT20 : 18.88 MHz 802.11n HT40 : 36.56 MHz 802.11ac VHT80 : 75.64 MHz <5500 MHz ~ 5700 MHz > MIMO <Ant. 1+2> 802.11a : 17.68 MHz 802.11n HT20 : 18.98 MHz 802.11n HT40 : 36.66 MHz 802.11ac VHT80 : 75.64 MHz
Antenna Type	PIFA Antenna

Antenna Gain	<5180 MHz ~ 5240 MHz> Ant. 1 : -3.00 dBi Ant. 2 : -3.00 dBi <5260 MHz ~ 5320 MHz> Ant. 1 : -3.00 dBi Ant. 2 : -3.00 dBi <5500 MHz ~ 5700 MHz > Ant. 1 : -3.00 dBi Ant. 2 : -3.00 dBi		
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 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 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing is assessed only 802.11n HT20/ HT40 by referring to their higher conducted power.

1.5 Modification of EUT

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



1.6 Testing Location

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

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

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

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

1.7 Applicable Standards

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

- ♦ FCC Part 15 Subpart E
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ ANSI C63.10-2013

Remark:

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

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane) were recorded in this report.

2.1 Carrier Frequency and Channel

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

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

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



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

Note:

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

2.2 Test Mode

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

MIMO Antenna

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

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

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

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

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



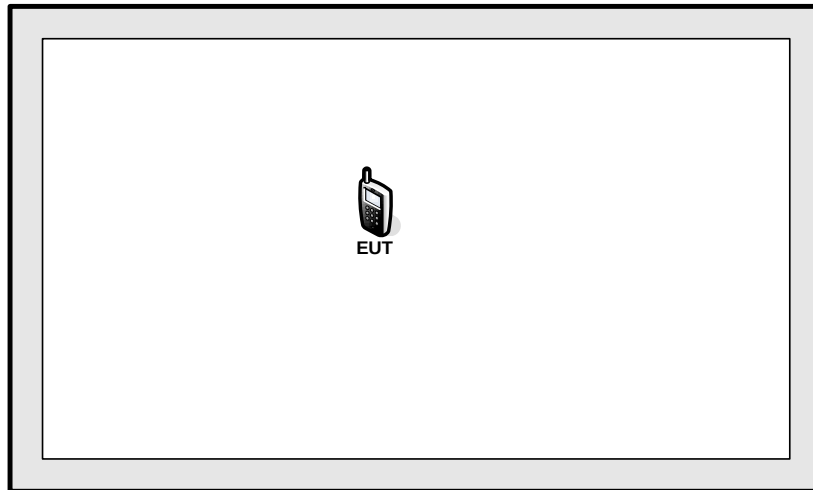
Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5700MHz
		802.11ac VHT20	802.11ac VHT20	802.11ac VHT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

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

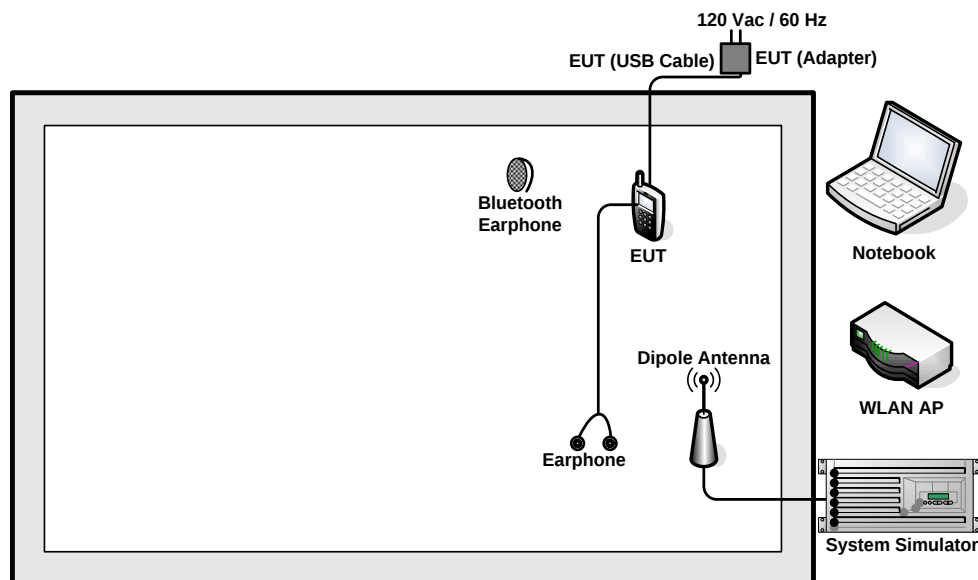
Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5700MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	106
M	Middle	42	58	-
H	High	-	-	122

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	Dlink	DIR-820L	KA2IR820LA1	N/A	Unshielded,1.8m
2.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
3.	Notebook	Lenovo	E450	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Samsung	EO-MG900	PYAHS-107W	N/A	N/A
5.	Earphone	Apple	MC690ZP/A	N/A	Unshielded,1.6m	N/A
6.	SD Card	N/A	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 continuously transmit/receive.

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



2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example :

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

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 6.3 dB and 10dB attenuator.

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

3 Test Result

3.1 26dB & 99% Occupied Bandwidth Measurement

3.1.1 Description of 26dB & 99% Occupied Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

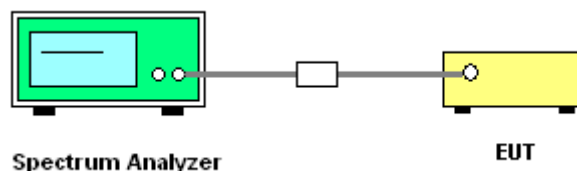
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

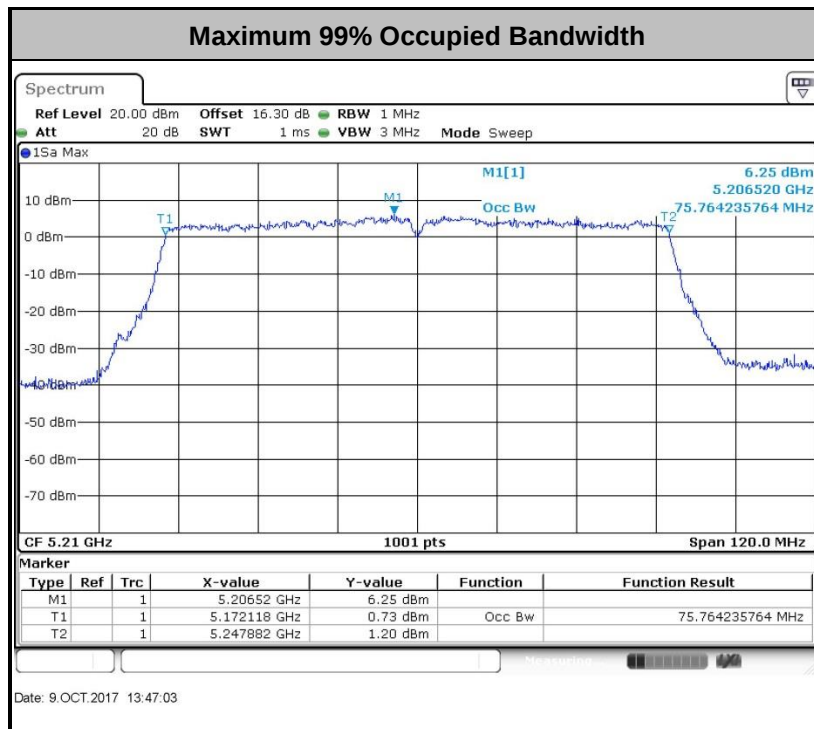
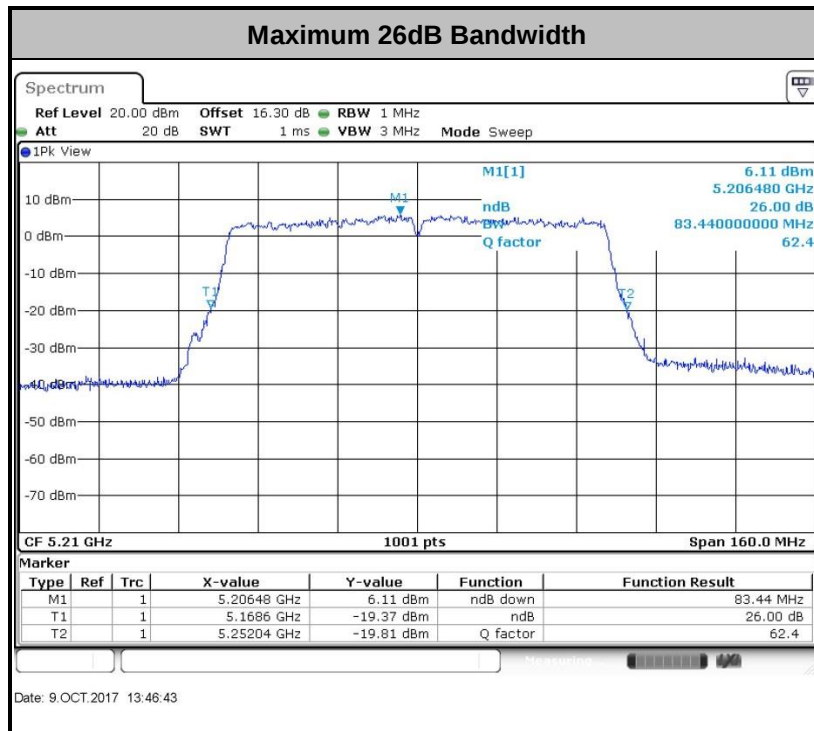
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04. Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1MHz and set the Video bandwidth (VBW) $\geq 3 * \text{RBW}$.
8. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.



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



3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

<FCC 14-30 CFR 15.407>

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

For the 5.25–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note that U-NII-2 band, devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

3.2.2 Measuring Instruments

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

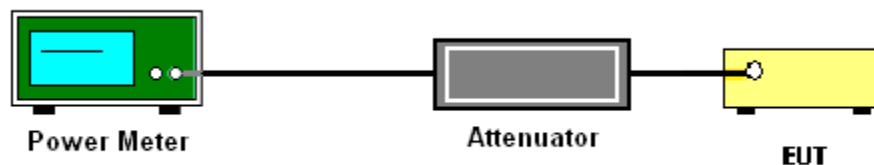
3.2.3 Test Procedures

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

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

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

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

For the 5.25–5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

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

Section F) Maximum power spectral density.

Method SA-2

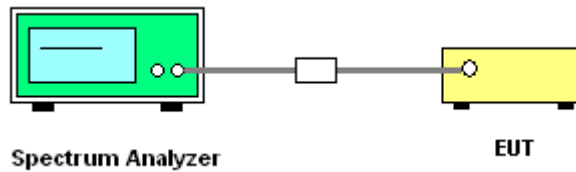
(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

1. The testing follows Method SA-2 of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.
 - Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 1 MHz.
 - Set VBW $\geq$ 3 MHz.
 - Number of points in sweep $\geq$ 2 Span / RBW.
 - Sweep time = auto.
 - Detector = RMS
 - Trace average at least 100 traces in power averaging mode.
 - Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
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.

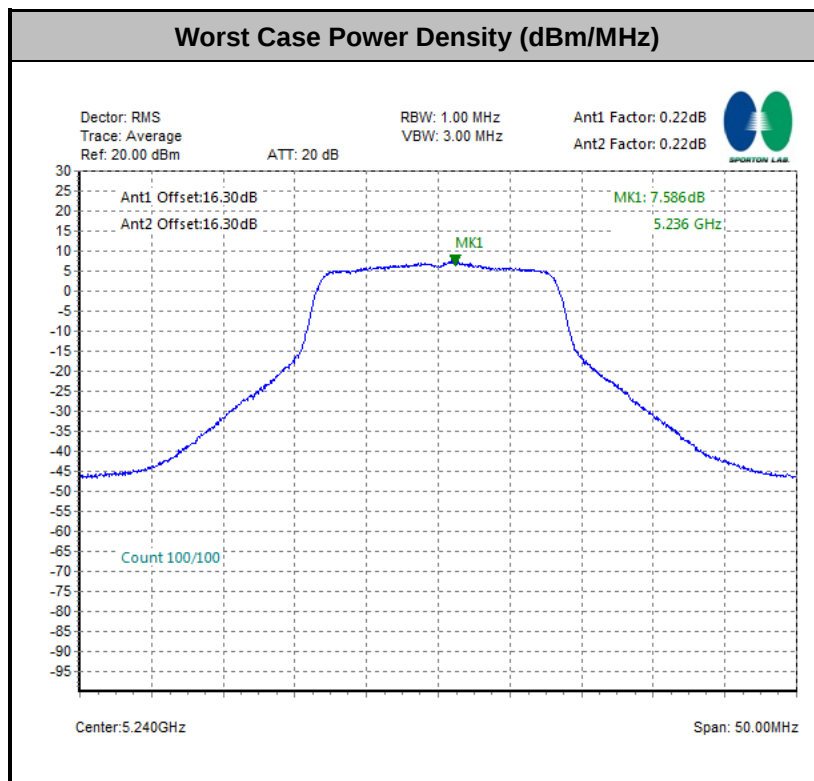
The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of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

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

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



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

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

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

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

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

3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.
Section G) Unwanted emissions measurement.

(1) Procedure for Unwanted Emissions Measurements Below 1000MHz

- RBW = 120 kHz
- VBW = 300 kHz
- Detector = Peak
- Trace mode = max hold

(2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

- RBW = 1 MHz
- VBW $\geq$ 3 MHz
- Detector = Peak
- Sweep time = auto
- Trace mode = max hold

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

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

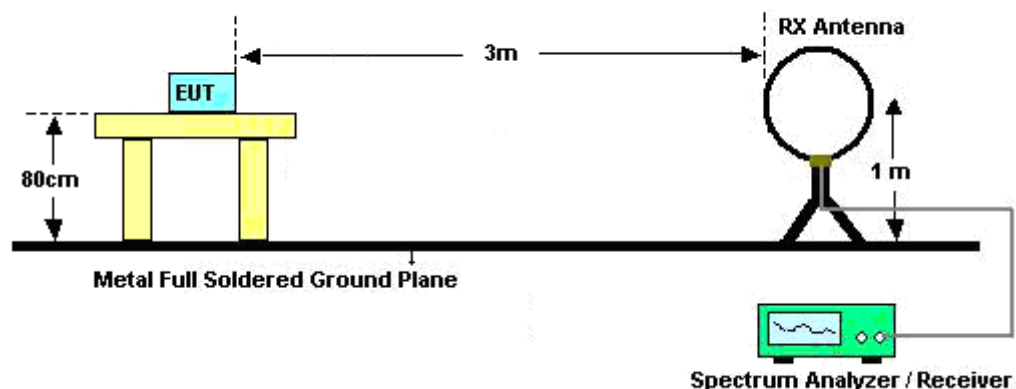
(4) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

- RBW = 1 MHz
- VBW = 3 MHz
- Detector = power averaging (rms), set sweep point $\geq$ 2 span / RBW.
- Averaging type = power averaging(RMS)
- The correction factor shall be offset is 10 log (1/x), where x is the duty cycle.

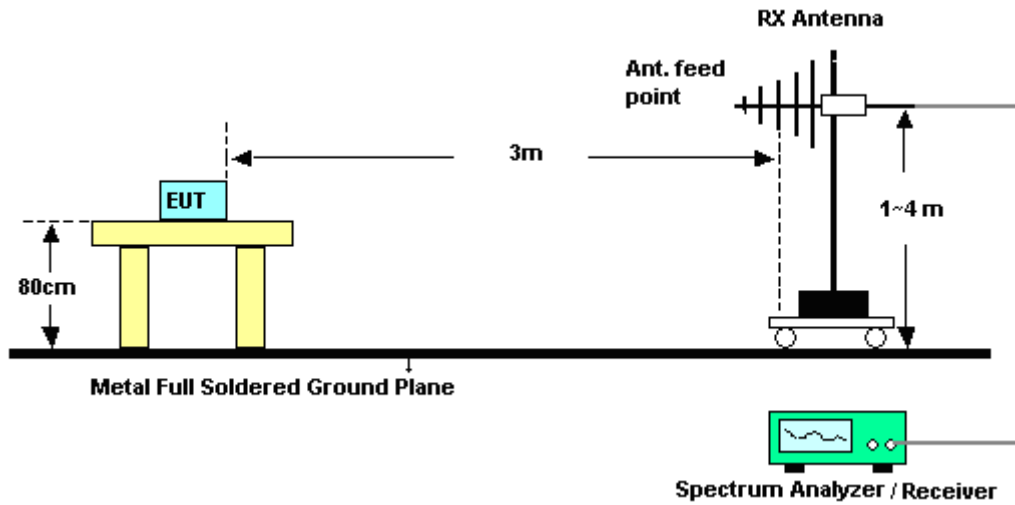
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.4.4 Test Setup

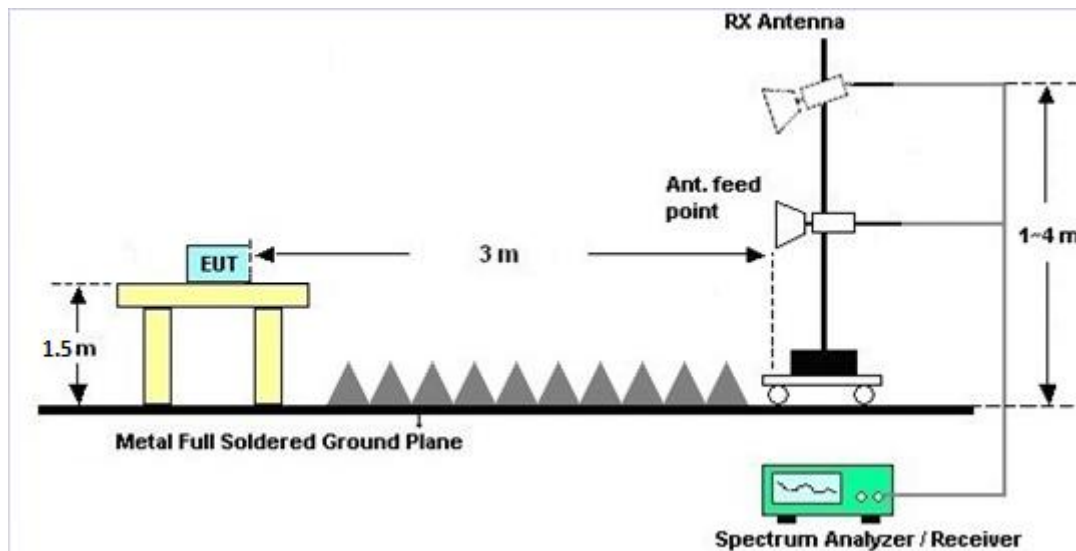
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B.

3.4.7 Duty Cycle

Please refer to Appendix C.

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

Please refer to Appendix B.

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

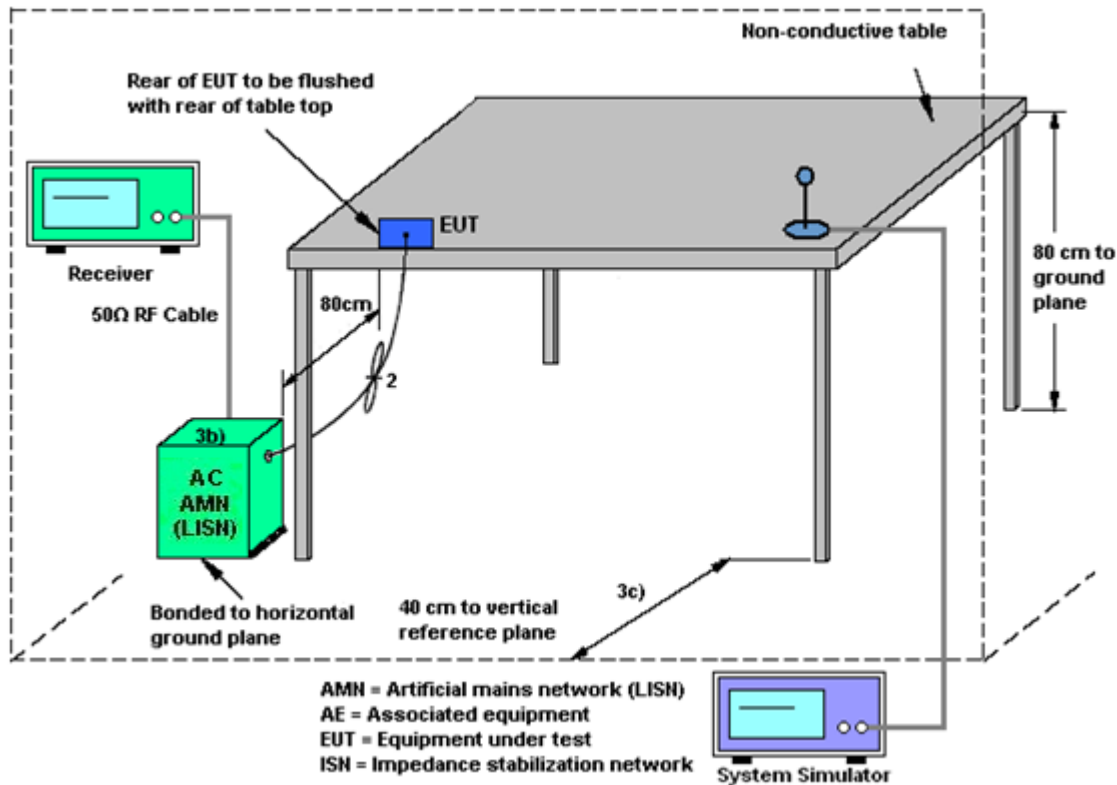
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

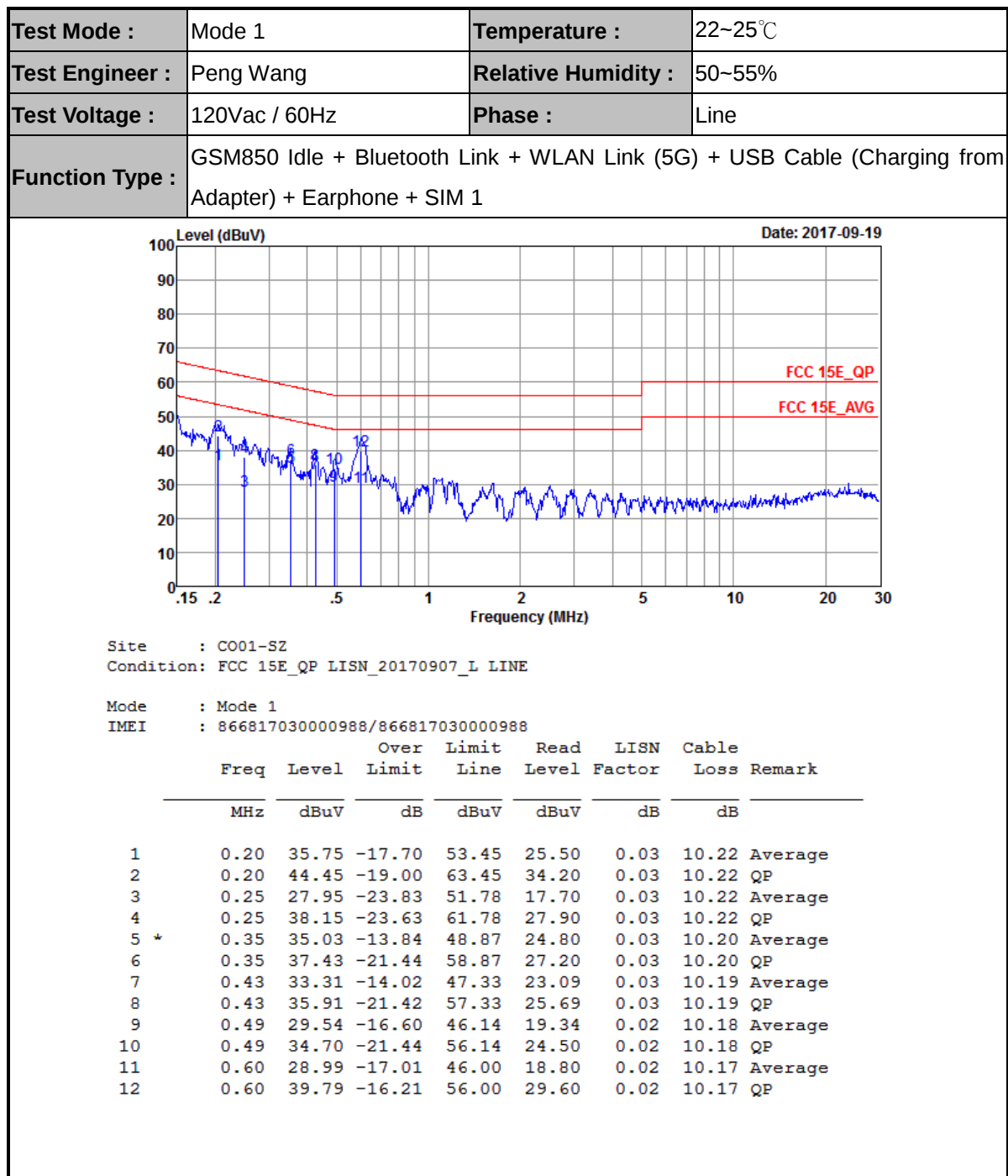
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

3.5.4 Test Setup



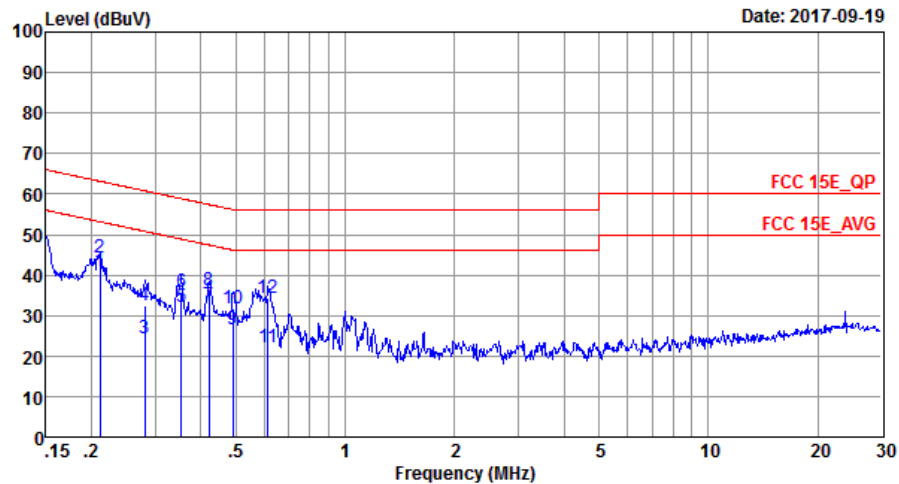


3.5.5 Test Result of AC Conducted Emission





Test Mode :	Mode 1	Temperature :	22~25℃
Test Engineer :	Peng Wang	Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link (5G) + USB Cable (Charging from Adapter) + Earphone + SIM 1		



Site : CO01-SZ
Condition: FCC 15E_QP LISN_20170907_N NEUTRAL

Mode : Mode 1
IMEI : 866817030000988/866817030000988

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.21	41.05	-12.09	53.14	30.80	0.03	10.22	Average
2	0.21	44.45	-18.69	63.14	34.20	0.03	10.22	QP
3	0.28	24.35	-26.46	50.81	14.10	0.03	10.22	Average
4	0.28	32.45	-28.36	60.81	22.20	0.03	10.22	QP
5	0.35	31.93	-16.94	48.87	21.71	0.02	10.20	Average
6	0.35	35.93	-22.94	58.87	25.71	0.02	10.20	QP
7	0.42	32.31	-15.11	47.42	22.10	0.02	10.19	Average
8	0.42	36.11	-21.31	57.42	25.90	0.02	10.19	QP
9	0.49	26.60	-19.54	46.14	16.40	0.02	10.18	Average
10	0.49	31.80	-24.34	56.14	21.60	0.02	10.18	QP
11	0.61	22.19	-23.81	46.00	12.00	0.02	10.17	Average
12	0.61	34.49	-21.51	56.00	24.30	0.02	10.17	QP

3.6 Frequency Stability Measurement

3.6.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

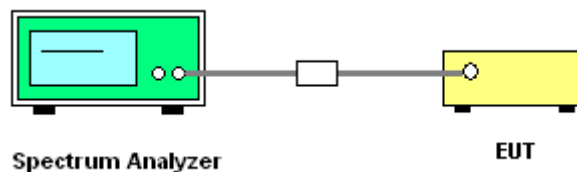
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

1. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

3.6.4 Test Setup



3.6.5 Test Result of Frequency Stability

Please refer to Appendix A.



3.7 Automatically Discontinue Transmission

3.7.1 Limit of Automatically Discontinue Transmission

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

3.7.2 Measuring Instruments

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

3.7.3 Test Result of Automatically Discontinue Transmission

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

3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.8.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

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

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

For power measurements on IEEE 802.11 devices,

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

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

The EUT supports CDD mode.

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

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

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

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

			DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
	Ant 1 (dBi)	Ant 2 (dBi)				
Band I	-3.00	-3.00	-3.00	0.01	0.00	0.00
Band II	-3.00	-3.00	-3.00	0.01	0.00	0.00
Band III	-3.00	-3.00	-3.00	0.01	0.00	0.00

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

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



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	9kHz~40GHz	Apr. 20. 2017	Oct. 09, 2017	Apr. 19. 2018	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1207253	30MHz~40GHz	Jan. 06, 2017	Oct. 09, 2017	Jan. 05, 2018	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Jan. 06, 2017	Oct. 09, 2017	Jan. 05, 2018	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 20, 2017	Oct. 09, 2017	Jul. 19, 2018	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr. 20, 2017	Oct. 14, 2017~Oct. 16, 2017	Apr. 19, 2018	Radiation (03CH03-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr. 20, 2017	Oct. 14, 2017~Oct. 16, 2017	Apr. 19, 2018	Radiation (03CH03-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May. 14, 2017	Oct. 14, 2017~Oct. 16, 2017	May.13, 2018	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	May. 14, 2017	Oct. 14, 2017~Oct. 16, 2017	May. 13, 2018	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	Jul. 09. 2017	Oct. 14, 2017~Oct. 16, 2017	Jul. 08, 2018	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Jun.16, 2017	Oct. 14, 2017~Oct. 16, 2017	Jun.15, 2018	Radiation (03CH03-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000Mhz	Apr. 20, 2017	Oct. 14, 2017~Oct. 16, 2017	Apr.19, 2018	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-0010 1800-30-10P-R	1989346	1GHz~18GHz	Jul. 27, 2017	Oct. 14, 2017~Oct. 16, 2017	Jul. 26, 2018	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5G Hz	Jan. 06, 2017	Oct. 14, 2017~Oct. 16, 2017	Jan. 05, 2018	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 21. 2017	Oct. 14, 2017~Oct. 16, 2017	Jul. 20. 2018	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Oct. 14, 2017~Oct. 16, 2017	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Oct. 14, 2017~Oct. 16, 2017	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Oct. 14, 2017~Oct. 16, 2017	NCR	Radiation (03CH03-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Jan. 06, 2017	Sep. 19, 2017	Jan. 05, 2018	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Jan. 05, 2017	Sep. 19, 2017	Jan. 04, 2018	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103892	9kHz~30MHz	Jan.05, 2017	Sep. 19, 2017	Jan. 04, 2018	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 19, 2017	Sep. 19, 2017	Jul. 18, 2018	Conduction (CO01-SZ)

NCR: No Calibration Required

5 Uncertainty of Evaluation

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

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.1 dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0 dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

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

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Sam Zheng	Temperature:	24~26	°C
Test Date:	2017/10/12	Relative Humidity:	50~53	%

TEST RESULTS DATA
26dB and 99% OBW

Band I													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		Note
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	36	5180	17.63	17.48	23.28	22.13	-		22.43		
11a	6Mbps	2	44	5220	17.68	17.48	23.63	23.03	-		22.43		
11a	6Mbps	2	48	5240	17.63	17.48	24.03	22.73	-		22.43		
HT20	MCS0	2	36	5180	18.78	18.68	24.38	23.63	-		22.71		
HT20	MCS0	2	44	5220	18.88	18.63	24.98	23.88	-		22.70		
HT20	MCS0	2	48	5240	18.83	18.78	24.38	24.68	-		22.74		
HT40	MCS0	2	38	5190	36.66	36.46	41.90	41.54	-		23.01		
HT40	MCS0	2	46	5230	36.66	36.56	41.45	41.90	-		23.01		
VHT80	MCS0	2	42	5210	75.76	75.52	83.44	83.12	-		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	2	36	5180	0.22	0.22	14.95	14.81	17.89	24.00		-3.00			Pass
11a	6Mbps	2	44	5220	0.22	0.22	15.09	14.96	18.04	24.00		-3.00			Pass
11a	6Mbps	2	48	5240	0.22	0.22	15.02	14.92	17.98	24.00		-3.00			Pass
HT20	MCS0	2	36	5180	0.24	0.24	14.82	14.80	17.82	24.00		-3.00			Pass
HT20	MCS0	2	44	5220	0.24	0.24	14.97	14.83	17.91	24.00		-3.00			Pass
HT20	MCS0	2	48	5240	0.24	0.24	14.90	14.73	17.82	24.00		-3.00			Pass
HT40	MCS0	2	38	5190	0.43	0.47	14.61	14.59	17.61	24.00		-3.00			Pass
HT40	MCS0	2	46	5230	0.43	0.47	14.72	14.65	17.70	24.00		-3.00			Pass
VHT20	MCS0	2	36	5180	0.45	0.42	14.81	14.68	17.75	24.00		-3.00			Pass
VHT20	MCS0	2	44	5220	0.45	0.42	14.90	14.67	17.80	24.00		-3.00			Pass
VHT20	MCS0	2	48	5240	0.45	0.42	14.88	14.62	17.76	24.00		-3.00			Pass
VHT40	MCS0	2	38	5190	0.79	0.83	14.49	14.58	17.55	24.00		-3.00			Pass
VHT40	MCS0	2	46	5230	0.79	0.83	14.65	14.63	17.65	24.00		-3.00			Pass
VHT80	MCS0	2	42	5210	1.43	1.45	14.43	14.55	17.50	24.00		-3.00			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	0.22	0.22		7.51	11.00	0.01			Pass		
11a	6Mbps	2	44	5220	0.22	0.22		7.10	11.00	0.01		Pass			
11a	6Mbps	2	48	5240	0.22	0.22		7.59	11.00	0.01		Pass			
HT20	MCS0	2	36	5180	0.24	0.24		7.00	11.00	0.01		Pass			
HT20	MCS0	2	44	5220	0.24	0.24		6.89	11.00	0.01		Pass			
HT20	MCS0	2	48	5240	0.24	0.24		6.89	11.00	0.01		Pass			
HT40	MCS0	2	38	5190	0.43	0.47		3.55	11.00	0.01		Pass			
HT40	MCS0	2	46	5230	0.43	0.47		3.89	11.00	0.01		Pass			
VHT80	MCS0	2	42	5210	1.43	1.45		0.62	11.00	0.01		Pass			

TEST RESULTS DATA
26dB and 99% OBW

Band II															
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)		Note
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	52	5260	17.53	17.58	23.78	22.63	23.44		29.44		23.98		
11a	6Mbps	2	60	5300	17.63	17.53	24.08	22.58	23.44		29.44		23.98		
11a	6Mbps	2	64	5320	17.63	17.48	23.73	22.98	23.43		29.43		23.98		
HT20	MCS0	2	52	5260	18.73	18.88	24.88	24.68	23.73		29.73		23.98		
HT20	MCS0	2	60	5300	18.68	18.63	24.63	24.48	23.70		29.70		23.98		
HT20	MCS0	2	64	5320	18.73	18.83	24.73	24.98	23.73		29.73		23.98		
HT40	MCS0	2	54	5270	36.56	36.56	41.72	41.99	23.98		30.00		23.98		
HT40	MCS0	2	62	5310	36.56	36.56	41.81	41.54	23.98		30.00		23.98		
VHT80	MCS0	2	58	5290	75.64	75.52	83.28	82.80	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	2	52	5260	0.22	0.22	14.94	14.90	17.93	23.98		-3.00		26.99	Pass
11a	6Mbps	2	60	5300	0.22	0.22	14.60	14.78	17.70	23.98		-3.00		26.99	Pass
11a	6Mbps	2	64	5320	0.22	0.22	14.55	14.60	17.59	23.98		-3.00		26.99	Pass
HT20	MCS0	2	52	5260	0.24	0.24	14.82	14.67	17.75	23.98		-3.00		26.99	Pass
HT20	MCS0	2	60	5300	0.24	0.24	14.49	14.51	17.51	23.98		-3.00		26.99	Pass
HT20	MCS0	2	64	5320	0.24	0.24	14.41	14.34	17.38	23.98		-3.00		26.99	Pass
HT40	MCS0	2	54	5270	0.43	0.47	14.59	14.52	17.57	23.98		-3.00		26.99	Pass
HT40	MCS0	2	62	5310	0.43	0.47	14.22	14.25	17.25	23.98		-3.00		26.99	Pass
VHT20	MCS0	2	52	5260	0.45	0.42	14.81	14.61	17.72	23.98		-3.00		26.99	Pass
VHT20	MCS0	2	60	5300	0.45	0.42	14.48	14.45	17.47	23.98		-3.00		26.99	Pass
VHT20	MCS0	2	64	5320	0.45	0.42	14.40	14.32	17.37	23.98		-3.00		26.99	Pass
VHT40	MCS0	2	54	5270	0.79	0.83	14.49	14.48	17.49	23.98		-3.00		26.99	Pass
VHT40	MCS0	2	62	5310	0.79	0.83	14.05	14.23	17.15	23.98		-3.00		26.99	Pass
VHT80	MCS0	2	58	5290	1.43	1.45	14.13	14.13	17.14	23.98		-3.00		26.99	Pass

TEST RESULTS DATA
Power Spectral Density

Band II															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)			Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	52	5260	0.22	0.22			7.11	11.00	0.01			Pass	
11a	6Mbps	2	60	5300	0.22	0.22			6.83	11.00	0.01			Pass	
11a	6Mbps	2	64	5320	0.22	0.22			6.87	11.00	0.01			Pass	
HT20	MCS0	2	52	5260	0.24	0.24			6.56	11.00	0.01			Pass	
HT20	MCS0	2	60	5300	0.24	0.24			6.50	11.00	0.01			Pass	
HT20	MCS0	2	64	5320	0.24	0.24			6.46	11.00	0.01			Pass	
HT40	MCS0	2	54	5270	0.43	0.47			3.83	11.00	0.01			Pass	
HT40	MCS0	2	62	5310	0.43	0.47			3.20	11.00	0.01			Pass	
VHT80	MCS0	2	58	5290	1.43	1.45			0.52	11.00	0.01			Pass	

TEST RESULTS DATA
26dB and 99% OBW

Band III															
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)		Note
					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	17.53	17.58	24.13	22.68	23.44		29.44		23.98		
11a	6Mbps	2	116	5580	17.58	17.53	23.53	22.88	23.44		29.44		23.98		
11a	6Mbps	2	140	5700	17.68	17.53	23.73	23.03	23.44		29.44		23.98		
HT20	MCS0	2	100	5500	18.88	18.88	25.38	24.63	23.76		29.76		23.98		
HT20	MCS0	2	116	5580	18.73	18.78	25.08	24.98	23.73		29.73		23.98		
HT20	MCS0	2	140	5700	18.98	18.83	25.38	24.33	23.75		29.75		23.98		
HT40	MCS0	2	102	5510	36.66	36.56	41.72	42.08	23.98		30.00		23.98		
HT40	MCS0	2	110	5550	36.66	36.36	41.90	41.90	23.98		30.00		23.98		
HT40	MCS0	2	134	5670	36.56	36.46	41.72	41.90	23.98		30.00		23.98		
VHT80	MCS0	2	106	5530	75.64	75.52	83.12	82.64	23.98		30.00		23.98		
VHT80	MCS0	2	122	5610	75.64	75.52	83.12	83.12	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	2	100	5500	0.22	0.22	15.13	14.63	17.90	23.98		-3.00		26.99	Pass
11a	6Mbps	2	116	5580	0.22	0.22	14.82	14.54	17.70	23.98		-3.00		26.99	Pass
11a	6Mbps	2	140	5700	0.22	0.22	14.84	14.20	17.54	23.98		-3.00		26.99	Pass
HT20	MCS0	2	100	5500	0.24	0.24	15.03	14.54	17.80	23.98		-3.00		26.99	Pass
HT20	MCS0	2	116	5580	0.24	0.24	14.70	14.57	17.64	23.98		-3.00		26.99	Pass
HT20	MCS0	2	140	5700	0.24	0.24	14.78	14.04	17.43	23.98		-3.00		26.99	Pass
HT40	MCS0	2	102	5510	0.43	0.47	14.76	14.09	17.45	23.98		-3.00		26.99	Pass
HT40	MCS0	2	110	5550	0.43	0.47	14.61	14.09	17.37	23.98		-3.00		26.99	Pass
HT40	MCS0	2	134	5670	0.43	0.47	14.36	13.85	17.12	23.98		-3.00		26.99	Pass
VHT20	MCS0	2	100	5500	0.45	0.42	15.01	14.52	17.78	23.98		-3.00		26.99	Pass
VHT20	MCS0	2	116	5580	0.45	0.42	14.63	14.54	17.59	23.98		-3.00		26.99	Pass
VHT20	MCS0	2	140	5700	0.45	0.42	14.76	14.02	17.42	23.98		-3.00		26.99	Pass
VHT40	MCS0	2	102	5510	0.79	0.83	14.75	14.06	17.43	23.98		-3.00		26.99	Pass
VHT40	MCS0	2	110	5550	0.79	0.83	14.60	14.07	17.35	23.98		-3.00		26.99	Pass
VHT40	MCS0	2	134	5670	0.79	0.83	14.31	13.83	17.09	23.98		-3.00		26.99	Pass
VHT80	MCS0	2	106	5530	1.43	1.45	14.47	14.01	17.25	23.98		-3.00		26.99	Pass
VHT80	MCS0	2	122	5610	1.43	1.45	14.08	13.85	16.98	23.98		-3.00		26.99	Pass

TEST RESULTS DATA
Power Spectral Density

Band III														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	100	5500	0.22	0.22			7.07	11.00	0.01			Pass
11a	6Mbps	2	116	5580	0.22	0.22			7.36	11.00	0.01			Pass
11a	6Mbps	2	140	5700	0.22	0.22			7.27	11.00	0.01			Pass
HT20	MCS0	2	100	5500	0.24	0.24			6.56	11.00	0.01			Pass
HT20	MCS0	2	116	5580	0.24	0.24			6.84	11.00	0.01			Pass
HT20	MCS0	2	140	5700	0.24	0.24			6.78	11.00	0.01			Pass
HT40	MCS0	2	102	5510	0.43	0.47			3.51	11.00	0.01			Pass
HT40	MCS0	2	110	5550	0.43	0.47			3.63	11.00	0.01			Pass
HT40	MCS0	2	134	5670	0.43	0.47			3.55	11.00	0.01			Pass
VHT80	MCS0	2	106	5530	1.43	1.45			0.57	11.00	0.01			Pass
VHT80	MCS0	2	122	5610	1.43	1.45			0.62	11.00	0.01			Pass

TEST RESULTS DATA
Frequency Stability

Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	2	36	5180	5180.000	0.000	0.00	50	3.9	
11a	6Mbps	2	36	5180	5180.000	0.000	0.00	-30	3.9	
11a	6Mbps	2	36	5180	5179.975	-0.025	-4.83	20	4.2	
11a	6Mbps	2	36	5180	5179.975	-0.025	-4.83	20	3.8	
11a	6Mbps	2	36	5180	5179.950	-0.050	-9.65	20	3.9	

Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	2	64	5320	5319.975	-0.025	-4.70	50	3.9	
11a	6Mbps	2	64	5320	5319.975	-0.025	-4.70	-30	3.9	
11a	6Mbps	2	64	5320	5319.975	-0.025	-4.70	20	4.2	
11a	6Mbps	2	64	5320	5319.975	-0.025	-4.70	20	3.8	
11a	6Mbps	2	64	5320	5320.000	0.000	0.00	20	3.9	

Band III										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	2	100	5500	5499.975	-0.025	-4.55	50	3.9	
11a	6Mbps	2	100	5500	5499.975	-0.025	-4.55	-30	3.9	
11a	6Mbps	2	100	5500	5500.000	0.000	0.00	20	4.2	
11a	6Mbps	2	100	5500	5500.000	0.000	0.00	20	3.8	
11a	6Mbps	2	100	5500	5500.000	0.000	0.00	20	3.9	



Appendix B. Radiated Spurious Emission

Band 1 - 5150~5250MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 36 5180MHz		5147.16	50.82	-23.18	74	42.11	32.02	8.77	32.08	113	250	P	H
		5150	42.44	-11.56	54	33.73	32.02	8.77	32.08	113	250	A	H
	*	5180	110.88	-	-	102.12	32.05	8.81	32.1	113	250	P	H
	*	5180	101.99	-	-	93.23	32.05	8.81	32.1	113	250	A	H
		5125.32	49.59	-24.41	74	40.87	32.01	8.77	32.06	192	271	P	V
		5149.76	41.31	-12.69	54	32.6	32.02	8.77	32.08	192	271	A	V
	*	5180	107.14	-	-	98.38	32.05	8.81	32.1	192	271	P	V
	*	5180	99.8	-	-	91.04	32.05	8.81	32.1	192	271	A	V
802.11a CH 44 5220MHz		5133.9	49.14	-24.86	74	40.42	32.01	8.77	32.06	127	251	P	H
		5145.34	40.42	-13.58	54	31.71	32.02	8.77	32.08	127	251	A	H
	*	5220	110.63	-	-	101.83	32.07	8.84	32.11	127	251	P	H
	*	5220	101.96	-	-	93.16	32.07	8.84	32.11	127	251	A	H
		5357.24	46.78	-27.22	74	37.8	32.18	9.02	32.22	127	251	P	H
		5353.6	39.06	-14.94	54	30.08	32.18	9.02	32.22	127	251	A	H
		5143.52	48.37	-25.63	74	39.64	32.02	8.77	32.06	200	276	P	V
		5145.86	40.32	-13.68	54	31.61	32.02	8.77	32.08	200	276	A	V
	*	5220	109.45	-	-	100.65	32.07	8.84	32.11	200	276	P	V
	*	5220	101.81	-	-	93.01	32.07	8.84	32.11	200	276	A	V
		5372.64	49.32	-24.68	74	40.33	32.19	9.02	32.22	200	276	P	V
		5452.72	39.28	-14.72	54	30.21	32.26	9.09	32.28	200	276	A	V



802.11a CH 48 5240MHz		5093.08	50.26	-23.74	74	41.59	31.98	8.74	32.05	129	249	P	H
		5126.62	40.77	-13.23	54	32.05	32.01	8.77	32.06	129	249	A	H
	*	5240	110.78	-	-	101.94	32.09	8.88	32.13	129	249	P	H
	*	5240	102.38	-	-	93.54	32.09	8.88	32.13	129	249	A	H
		5380.48	47.35	-26.65	74	38.35	32.21	9.02	32.23	129	249	P	H
		5452.72	39.36	-14.64	54	30.29	32.26	9.09	32.28	129	249	A	H
		5008.58	48.71	-25.29	74	40.11	31.91	8.67	31.98	131	271	P	V
		5144.82	40.06	-13.94	54	31.35	32.02	8.77	32.08	131	271	A	V
	*	5240	110.35	-	-	101.51	32.09	8.88	32.13	131	271	P	V
	*	5240	101.74	-	-	92.9	32.09	8.88	32.13	131	271	A	V
		5386.36	47.93	-26.07	74	38.93	32.21	9.02	32.23	131	271	P	V
		5452.44	39.94	-14.06	54	30.87	32.26	9.09	32.28	131	271	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 36 5180MHz		10360	47.85	-26.15	74	57.46	39.61	11.63	60.85	152	260	P	H
		15540	45.68	-28.32	74	56.12	37.81	13.9	62.15	189	238	P	H
		10360	48.13	-25.87	74	57.74	39.61	11.63	60.85	152	260	P	V
		15540	45.05	-28.95	74	55.49	37.81	13.9	62.15	189	238	P	V
802.11a CH 44 5220MHz		10440	48.95	-25.05	74	58.34	39.75	11.66	60.8	150	230	P	H
		15660	47.31	-26.69	74	58.05	37.5	13.96	62.2	160	225	P	H
		10440	48.84	-25.16	74	58.23	39.75	11.66	60.8	150	230	P	V
		15660	46.3	-27.7	74	57.04	37.5	13.96	62.2	160	225	P	V
802.11a CH 48 5240MHz		10480	48.84	-25.16	74	58.07	39.86	11.67	60.76	150	289	P	H
		15720	46.37	-27.63	74	57.31	37.32	13.98	62.24	150	291	P	H
		10480	49.41	-24.59	74	58.64	39.86	11.67	60.76	150	289	P	V
		15720	46.59	-27.41	74	57.53	37.32	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		5141.7	53.72	-20.28	74	44.99	32.02	8.77	32.06	129	249	P	H
		5145.6	43.65	-10.35	54	34.94	32.02	8.77	32.08	129	249	A	H
	*	5180	110.67	-	-	101.91	32.05	8.81	32.1	129	249	P	H
	*	5180	102.33	-	-	93.57	32.05	8.81	32.1	129	249	A	H
		5146.9	49.5	-24.5	74	40.79	32.02	8.77	32.08	139	274	P	V
		5148.98	42.71	-11.29	54	34	32.02	8.77	32.08	139	274	A	V
	*	5180	109.68	-	-	100.92	32.05	8.81	32.1	139	274	P	V
	*	5180	100.89	-	-	92.13	32.05	8.81	32.1	139	274	A	V
802.11n HT20 CH 44 5220MHz		5143.26	49.01	-24.99	74	40.28	32.02	8.77	32.06	135	251	P	H
		5147.94	40.99	-13.01	54	32.28	32.02	8.77	32.08	135	251	A	H
	*	5220	111.26	-	-	102.46	32.07	8.84	32.11	135	251	P	H
	*	5220	102.27	-	-	93.47	32.07	8.84	32.11	135	251	A	H
		5377.12	47.35	-26.65	74	38.37	32.19	9.02	32.23	135	251	P	H
		5452.72	39.69	-14.31	54	30.62	32.26	9.09	32.28	135	251	A	H
		5145.08	49.47	-24.53	74	40.76	32.02	8.77	32.08	142	271	P	V
		5145.6	40.81	-13.19	54	32.1	32.02	8.77	32.08	142	271	A	V
	*	5220	109.77	-	-	100.97	32.07	8.84	32.11	142	271	P	V
	*	5220	103.36	-	-	94.56	32.07	8.84	32.11	142	271	A	V
		5424.24	47.58	-26.42	74	38.54	32.23	9.06	32.25	142	271	P	V
		5360.88	39.68	-14.32	54	30.69	32.19	9.02	32.22	142	271	A	V



802.11n HT20 CH 48 5240MHz		5091	49.4	-24.6	74	40.71	31.98	8.74	32.03	136	249	P	H
		5145.34	40.51	-13.49	54	31.8	32.02	8.77	32.08	136	249	A	H
	*	5240	111.94	-	-	103.1	32.09	8.88	32.13	136	249	P	H
	*	5240	103.54	-	-	94.7	32.09	8.88	32.13	136	249	A	H
		5457.2	47.3	-26.7	74	38.23	32.26	9.09	32.28	136	249	P	H
		5375.72	40.03	-13.97	54	31.05	32.19	9.02	32.23	136	249	A	H
		5013	48.42	-25.58	74	39.82	31.91	8.67	31.98	148	275	P	V
		5149.76	39.81	-14.19	54	31.1	32.02	8.77	32.08	148	275	A	V
	*	5240	111.32	-	-	102.48	32.09	8.88	32.13	148	275	P	V
	*	5240	103.24	-	-	94.4	32.09	8.88	32.13	148	275	A	V
		5368.44	48.18	-25.82	74	39.19	32.19	9.02	32.22	148	275	P	V
		5352.2	39.72	-14.28	54	30.74	32.18	9.02	32.22	148	275	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 36 5180MHz		10360	47.9	-26.1	74	57.51	39.61	11.63	60.85	152	260	P	H
		15540	45.79	-28.21	74	56.23	37.81	13.9	62.15	189	238	P	H
		10360	47.53	-26.47	74	57.14	39.61	11.63	60.85	152	260	P	V
		15540	46.71	-27.29	74	57.15	37.81	13.9	62.15	189	238	P	V
802.11n HT20 CH 44 5220MHz		10440	48.31	-25.69	74	57.7	39.75	11.66	60.8	150	230	P	H
		15660	46.88	-27.12	74	57.62	37.5	13.96	62.2	160	225	P	H
		10440	48.71	-25.29	74	58.1	39.75	11.66	60.8	150	230	P	V
		15660	46.17	-27.83	74	56.91	37.5	13.96	62.2	160	225	P	V
802.11n HT20 CH 48 5240MHz		10480	49.51	-24.49	74	58.74	39.86	11.67	60.76	150	289	P	H
		15720	47.21	-26.79	74	58.15	37.32	13.98	62.24	150	291	P	H
		10480	50.05	-23.95	74	59.28	39.86	11.67	60.76	150	289	P	V
		15720	46.92	-27.08	74	57.86	37.32	13.98	62.24	150	291	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1+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		5146.9	57.07	-16.93	74	48.36	32.02	8.77	32.08	128	313	P	H
		5145.86	49.78	-4.22	54	41.07	32.02	8.77	32.08	128	313	P	H
	*	5190	108.56	-	-	99.8	32.05	8.81	32.1	128	313	P	H
	*	5190	100.33	-	-	91.57	32.05	8.81	32.1	128	313	A	H
		5443.2	47.47	-26.53	74	38.4	32.25	9.09	32.27	128	313	P	H
		5352.2	39.97	-14.03	54	30.99	32.18	9.02	32.22	128	313	A	H
		5150	53.92	-20.08	74	45.21	32.02	8.77	32.08	124	288	P	V
		5150	47.82	-6.18	54	39.11	32.02	8.77	32.08	124	288	A	V
	*	5190	107.84	-	-	99.08	32.05	8.81	32.1	124	288	P	V
	*	5190	101.1	-	-	92.34	32.05	8.81	32.1	124	288	A	V
		5398.4	47.87	-26.13	74	38.82	32.22	9.06	32.23	124	288	P	V
		5399.8	39.76	-14.24	54	30.73	32.22	9.06	32.25	124	288	A	V
802.11n HT40 CH 46 5230MHz		5131.3	51.32	-22.68	74	42.6	32.01	8.77	32.06	100	251	P	H
		5145.6	43.82	-10.18	54	35.11	32.02	8.77	32.08	100	251	A	H
	*	5230	111.25	-	-	102.45	32.09	8.84	32.13	100	251	P	H
		5230	105.45	-	-	96.65	32.09	8.84	32.13	100	251	A	H
		5373.84	48.93	-25.07	74	39.95	32.19	9.02	32.23	100	251	P	H
		5350.08	42.55	-11.45	54	33.57	32.18	9.02	32.22	100	251	A	H
		5120.9	48.89	-25.11	74	40.19	31.99	8.77	32.06	135	274	P	V
		5148.98	42.09	-11.91	54	33.38	32.02	8.77	32.08	135	274	A	V
	*	5230	108.94	-	-	100.14	32.09	8.84	32.13	135	274	P	V
	*	5230	103.06	-	-	94.26	32.09	8.84	32.13	135	274	A	V
		5358.48	50.15	-23.85	74	41.17	32.18	9.02	32.22	135	274	P	V
		5350.8	41.89	-12.11	54	32.91	32.18	9.02	32.22	135	274	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 38 5190MHz		10380	49.12	-24.88	74	58.68	39.64	11.64	60.84	150	360	P	H
		15570	46.66	-27.34	74	57.18	37.72	13.92	62.16	155	360	P	H
		10380	50.02	-23.98	74	59.58	39.64	11.64	60.84	150	360	P	V
		15570	46.32	-27.68	74	56.84	37.72	13.92	62.16	155	360	P	V
802.11n HT40 CH 46 5230MHz		10460	50.46	-23.54	74	59.79	39.79	11.67	60.79	150	360	P	H
		15690	47.32	-26.68	74	58.15	37.41	13.98	62.22	150	225	P	H
		10460	48.77	-25.23	74	58.1	39.79	11.67	60.79	150	360	P	V
		15690	46.93	-27.07	74	57.76	37.41	13.98	62.22	150	225	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 42 5210MHz		5143.78	53.54	-20.46	74	44.83	32.02	8.77	32.08	133	251	P	H
		5143.52	48.53	-5.47	54	39.8	32.02	8.77	32.06	133	251	A	H
	*	5210	100.69	-	-	91.89	32.07	8.84	32.11	133	251	P	H
	*	5210	92.3	-	-	83.5	32.07	8.84	32.11	133	251	A	H
		5436.2	47.38	-26.62	74	38.31	32.25	9.09	32.27	133	251	P	H
		5379.36	40.97	-13.03	54	31.97	32.21	9.02	32.23	133	251	A	H
		5143	53.53	-20.47	74	44.8	32.02	8.77	32.06	162	276	P	V
		5146.12	49.78	-4.22	54	41.07	32.02	8.77	32.08	162	276	A	V
	*	5210	101.64	-	-	92.84	32.07	8.84	32.11	162	276	P	V
	*	5210	93.39	-	-	84.59	32.07	8.84	32.11	162	276	A	V
		5350	47.45	-26.55	74	38.47	32.18	9.02	32.22	162	276	P	V
		5356.68	41.18	-12.82	54	32.2	32.18	9.02	32.22	162	276	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 1 5150~5250MHz****WIFI 802.11ac VHT80 (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		10420	49.21	-24.79	74	58.64	39.72	11.66	60.81	150	360	P	H
VHT80		15630	46.02	-27.98	74	56.74	37.54	13.94	62.2	150	225	P	H
CH 42		10420	49.05	-24.95	74	58.48	39.72	11.66	60.81	150	360	P	V
5210MHz		15630	47	-27	74	57.72	37.54	13.94	62.2	150	225	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 - 5250~5350MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 52 5260MHz		5135.8	48.54	-25.46	74	39.82	32.01	8.77	32.06	134	249	P	H
		5145.25	39.96	-14.04	54	31.25	32.02	8.77	32.08	134	249	A	H
	*	5260	111.95	-	-	103.11	32.11	8.88	32.15	134	249	P	H
	*	5260	103.09	-	-	94.25	32.11	8.88	32.15	134	249	A	H
		5387.28	47.38	-26.62	74	38.38	32.21	9.02	32.23	134	249	P	H
		5352.48	40.34	-13.66	54	31.36	32.18	9.02	32.22	134	249	A	H
		5082.25	49.78	-24.22	74	41.1	31.97	8.74	32.03	129	269	P	V
		5116.2	40.01	-13.99	54	31.3	31.99	8.77	32.05	129	269	A	V
	*	5260	109.49	-	-	100.65	32.11	8.88	32.15	129	269	P	V
	*	5260	100.99	-	-	92.15	32.11	8.88	32.15	129	269	A	V
		5421.12	47.9	-26.1	74	38.86	32.23	9.06	32.25	129	269	P	V
		5452.8	39.96	-14.04	54	30.89	32.26	9.09	32.28	129	269	A	V
802.11a CH 60 5300MHz		5057.05	48.7	-25.3	74	40.06	31.95	8.7	32.01	133	247	P	H
		5145.6	39.8	-14.2	54	31.09	32.02	8.77	32.08	133	247	A	H
	*	5300	109.74	-	-	100.85	32.14	8.93	32.18	133	247	P	H
	*	5300	101.1	-	-	92.21	32.14	8.93	32.18	133	247	A	H
		5354.64	51.52	-22.48	74	42.54	32.18	9.02	32.22	133	247	P	H
		5350.8	43.39	-10.61	54	34.41	32.18	9.02	32.22	133	247	A	H
		5083.65	48.01	-25.99	74	39.33	31.97	8.74	32.03	124	274	P	V
		5141.05	39.74	-14.26	54	31.01	32.02	8.77	32.06	124	274	A	V
	*	5300	109.1	-	-	100.21	32.14	8.93	32.18	124	274	P	V
	*	5300	101.39	-	-	92.5	32.14	8.93	32.18	124	274	A	V
		5362.56	49.58	-24.42	74	40.59	32.19	9.02	32.22	124	274	P	V
		5351.04	41.84	-12.16	54	32.86	32.18	9.02	32.22	124	274	A	V



802.11a CH 64 5320MHz	*	5320	112.02	-	-	103.08	32.15	8.97	32.18	142	249	P	H
	*	5320	103.8	-	-	94.86	32.15	8.97	32.18	142	249	A	H
		5358.24	53.39	-20.61	74	44.41	32.18	9.02	32.22	142	249	P	H
		5351.52	44.73	-9.27	54	35.75	32.18	9.02	32.22	142	249	A	H
	*	5320	110.03	-	-	101.09	32.15	8.97	32.18	103	268	P	V
	*	5320	101.43	-	-	92.49	32.15	8.97	32.18	103	268	A	V
		5353.6	49.73	-24.27	74	40.75	32.18	9.02	32.22	103	268	P	V
		5350.08	42.14	-11.86	54	33.16	32.18	9.02	32.22	103	268	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 52 5260MHz		10520	49.91	-24.09	74	59.03	39.9	11.69	60.71	150	220	P	H
		15780	47.26	-26.74	74	58.31	37.18	14.03	62.26	159	345	P	H
		10520	48.91	-25.09	74	58.03	39.9	11.69	60.71	150	220	P	V
		15780	46.68	-27.32	74	57.73	37.18	14.03	62.26	159	345	P	V
802.11a CH 60 5300MHz		10600	49.45	-24.55	74	58.34	39.92	11.71	60.52	185	215	P	H
		15900	45.18	-28.82	74	56.54	36.87	14.09	62.32	196	190	P	H
		10600	49.58	-24.42	74	58.47	39.92	11.71	60.52	185	215	P	V
		15900	45.86	-28.14	74	57.22	36.87	14.09	62.32	196	190	P	V
802.11a CH 64 5320MHz		10640	49.69	-24.31	74	58.48	39.93	11.73	60.45	152	135	P	H
		15960	46.59	-27.41	74	58.12	36.69	14.13	62.35	173	245	P	H
		10640	48.81	-25.19	74	57.6	39.93	11.73	60.45	152	135	P	V
		15960	45.99	-28.01	74	57.52	36.69	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		5149.45	48.96	-25.04	74	40.25	32.02	8.77	32.08	123	250	P	H
		5145.6	40.15	-13.85	54	31.44	32.02	8.77	32.08	123	250	A	H
	*	5260	112.16	-	-	103.32	32.11	8.88	32.15	123	250	P	H
	*	5260	103.99	-	-	95.15	32.11	8.88	32.15	123	250	A	H
		5356.32	48.33	-25.67	74	39.35	32.18	9.02	32.22	123	250	P	H
		5352.96	40.78	-13.22	54	31.8	32.18	9.02	32.22	123	250	A	H
		5130.9	48.89	-25.11	74	40.17	32.01	8.77	32.06	161	285	P	V
		5139.3	39.95	-14.05	54	31.23	32.01	8.77	32.06	161	285	A	V
	*	5260	112.2	-	-	103.36	32.11	8.88	32.15	161	285	P	V
	*	5260	103.01	-	-	94.17	32.11	8.88	32.15	161	285	A	V
		5352.96	48.19	-25.81	74	39.21	32.18	9.02	32.22	161	285	P	V
		5350.08	40.25	-13.75	54	31.27	32.18	9.02	32.22	161	285	A	V
802.11n HT20 CH 60 5300MHz		5123.2	49	-25	74	40.28	32.01	8.77	32.06	121	248	P	H
		5145.6	39.95	-14.05	54	31.24	32.02	8.77	32.08	121	248	A	H
	*	5300	111.53	-	-	102.64	32.14	8.93	32.18	121	248	P	H
	*	5300	102.79	-	-	93.9	32.14	8.93	32.18	121	248	A	H
		5356.56	50.56	-23.44	74	41.58	32.18	9.02	32.22	121	248	P	H
		5352.72	44.02	-9.98	54	35.04	32.18	9.02	32.22	121	248	A	H
		5070.7	47.91	-26.09	74	39.29	31.95	8.7	32.03	157	275	P	V
		5077	39.64	-14.36	54	30.96	31.97	8.74	32.03	157	275	A	V
	*	5300	110.37	-	-	101.48	32.14	8.93	32.18	157	275	P	V
	*	5300	101.36	-	-	92.47	32.14	8.93	32.18	157	275	A	V
		5353.44	53.35	-20.65	74	44.37	32.18	9.02	32.22	157	275	P	V
		5350.32	43.65	-10.35	54	34.67	32.18	9.02	32.22	157	275	A	V



802.11n HT20 CH 64 5320MHz	*	5320	110.56	-	-	101.62	32.15	8.97	32.18	100	244	P	H
	*	5320	101.81	-	-	92.87	32.15	8.97	32.18	100	244	A	H
		5369.92	52.19	-21.81	74	43.2	32.19	9.02	32.22	100	244	P	H
		5351.04	43.86	-10.14	54	34.88	32.18	9.02	32.22	100	244	A	H
	*	5320	112.18	-	-	103.24	32.15	8.97	32.18	165	271	P	V
	*	5320	103.96	-	-	95.02	32.15	8.97	32.18	165	271	A	V
		5356.32	51.35	-22.65	74	42.37	32.18	9.02	32.22	165	271	P	V
		5350.32	44.41	-9.59	54	35.43	32.18	9.02	32.22	165	271	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 52 5260MHz		10520	50.09	-23.91	74	58.57	39.99	10.59	59.06	110	220	P	H
		15780	50.74	-23.26	74	59.51	37.78	13.27	59.82	109	345	P	H
		10520	50.26	-23.74	74	58.74	39.99	10.59	59.06	110	220	P	V
		15780	50.03	-23.97	74	58.8	37.78	13.27	59.82	150	0	P	V
802.11n HT20 CH 60 5300MHz		10600	49.67	-24.33	74	58.56	39.92	11.71	60.52	185	215	P	H
		15900	46.96	-27.04	74	58.32	36.87	14.09	62.32	196	190	P	H
		10600	48.99	-25.01	74	57.88	39.92	11.71	60.52	185	215	P	V
		15900	47.16	-26.84	74	58.52	36.87	14.09	62.32	196	190	P	V
802.11n HT20 CH 64 5320MHz		10640	50.03	-23.97	74	58.82	39.93	11.73	60.45	152	135	P	H
		15960	44.77	-29.23	74	56.3	36.69	14.13	62.35	173	245	P	H
		10640	49.36	-24.64	74	58.15	39.93	11.73	60.45	152	135	P	V
		15960	45.64	-28.36	74	57.17	36.69	14.13	62.35	173	245	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1+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		5010.4	48.72	-25.28	74	40.12	31.91	8.67	31.98	130	305	P	H
		5141.96	41.03	-12.97	54	32.3	32.02	8.77	32.06	130	305	A	H
	*	5270	110.3	-	-	101.46	32.11	8.88	32.15	130	305	P	H
	*	5270	104.26	-	-	95.42	32.11	8.88	32.15	130	305	A	H
		5360.88	50.66	-23.34	74	41.67	32.19	9.02	32.22	130	305	P	H
		5351.04	44.27	-9.73	54	35.29	32.18	9.02	32.22	130	305	A	H
		5107.38	49.39	-24.61	74	40.71	31.99	8.74	32.05	113	273	P	V
		5132.86	40.88	-13.12	54	32.16	32.01	8.77	32.06	113	273	A	V
	*	5270	110.33	-	-	101.49	32.11	8.88	32.15	113	273	P	V
	*	5270	104.52	-	-	95.68	32.11	8.88	32.15	113	273	A	V
		5364.48	51.4	-22.6	74	42.41	32.19	9.02	32.22	113	273	P	V
		5350.56	44.49	-9.51	54	35.51	32.18	9.02	32.22	113	273	A	V
		5027.65	49.5	-24.5	74	40.9	31.93	8.67	32	142	250	P	H
802.11n HT40 CH 62 5310MHz		5145.6	42.17	-11.83	54	33.46	32.02	8.77	32.08	142	250	A	H
	*	5310	110.18	-	-	101.24	32.15	8.97	32.18	142	250	P	H
	*	5310	104.21	-	-	95.27	32.15	8.97	32.18	142	250	A	H
		5350.32	53.79	-20.21	74	44.81	32.18	9.02	32.22	142	250	P	H
		5350.08	48.55	-5.45	54	39.57	32.18	9.02	32.22	142	250	P	H
		5136.85	49.09	-24.91	74	40.37	32.01	8.77	32.06	112	274	P	V
		5150	40.6	-13.4	54	31.89	32.02	8.77	32.08	112	274	A	V
	*	5310	108.31	-	-	99.37	32.15	8.97	32.18	112	274	P	V
	*	5310	102.15	-	-	93.21	32.15	8.97	32.18	112	274	A	V
		5353.68	56.29	-17.71	74	47.31	32.18	9.02	32.22	112	274	P	V
		5350.56	49.04	-4.96	54	40.06	32.18	9.02	32.22	112	274	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 (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 CH 54 5270MHz		10540	50.12	-23.88	74	59.18	39.91	11.7	60.67	150	220	P	H
		15810	46.34	-27.66	74	57.48	37.09	14.05	62.28	168	345	P	H
		10540	48.94	-25.06	74	58	39.91	11.7	60.67	150	220	P	V
		15810	47.1	-26.9	74	58.24	37.09	14.05	62.28	168	345	P	V
802.11n HT40 CH 62 5310MHz		10620	49.86	-24.14	74	58.7	39.92	11.73	60.49	150	220	P	H
		15930	45.14	-28.86	74	56.59	36.78	14.11	62.34	160	100	P	H
		10620	49.2	-24.8	74	58.04	39.92	11.73	60.49	150	220	P	V
		15930	46.65	-27.35	74	58.1	36.78	14.11	62.34	160	100	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 58 5290MHz		5009.45	49.55	-24.45	74	40.95	31.91	8.67	31.98	150	257	P	H
		5145.95	42.27	-11.73	54	33.56	32.02	8.77	32.08	150	257	A	H
	*	5290	100.08	-	-	91.19	32.13	8.93	32.17	150	257	P	H
	*	5290	92.35	-	-	83.46	32.13	8.93	32.17	150	257	A	H
		5350.32	53.56	-20.44	74	44.58	32.18	9.02	32.22	150	257	P	H
		5353.68	50.51	-3.49	54	41.53	32.18	9.02	32.22	150	257	A	H
		5052.5	48.29	-25.71	74	39.66	31.94	8.7	32.01	107	273	P	V
		5086.8	42.33	-11.67	54	33.65	31.97	8.74	32.03	107	273	A	V
	*	5290	99.97	-	-	91.08	32.13	8.93	32.17	107	273	P	V
	*	5290	91.9	-	-	83.01	32.13	8.93	32.17	107	273	A	V
		5368.08	52.77	-21.23	74	43.78	32.19	9.02	32.22	107	273	P	V
		5351.52	47.92	-6.08	54	38.94	32.18	9.02	32.22	107	273	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 2 5250~5350MHz****WIFI 802.11ac VHT80 (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		10580	49.34	-24.66	74	58.27	39.92	11.71	60.56	185	215	P	H
VHT80		15870	46.84	-27.16	74	58.17	36.91	14.07	62.31	196	190	P	H
CH 58		10580	49.98	-24.02	74	58.91	39.92	11.71	60.56	185	215	P	V
5290MHz		15870	47.09	-26.91	74	58.42	36.91	14.07	62.31	196	190	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - 5470~5725MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 100 5500MHz		5455.44	50.86	-23.14	74	41.79	32.26	9.09	32.28	143	251	P	H
		5466.8	43.29	-10.71	54	34.18	32.27	9.12	32.28	143	251	A	H
	*	5500	109.32	-	-	100.2	32.3	9.12	32.3	143	251	P	H
	*	5500	101.62	-	-	92.5	32.3	9.12	32.3	143	251	A	H
		5464.24	49.81	-24.19	74	40.73	32.27	9.09	32.28	220	273	P	V
		5452.88	40.77	-13.23	54	31.7	32.26	9.09	32.28	220	273	A	V
	*	5500	108.27	-	-	99.15	32.3	9.12	32.3	220	273	P	V
	*	5500	100.26	-	-	91.14	32.3	9.12	32.3	220	273	A	V
802.11a CH 116 5580MHz		5460.88	48.37	-25.63	74	39.3	32.26	9.09	32.28	146	252	P	H
		5452.72	39.79	-14.21	54	30.72	32.26	9.09	32.28	146	252	A	H
	*	5580	110.12	-	-	100.81	32.3	9.17	32.16	146	252	P	H
	*	5580	101.79	-	-	92.48	32.3	9.17	32.16	146	252	A	H
		5730.98	49.14	-24.86	74	39.5	32.3	9.28	31.94	146	252	P	H
		5765	39.93	-14.07	54	30.23	32.3	9.3	31.9	146	252	A	H
		5434.24	47.77	-26.23	74	38.7	32.25	9.09	32.27	161	282	P	V
		5452.96	39.97	-14.03	54	30.9	32.26	9.09	32.28	161	282	A	V
	*	5580	110	-	-	100.69	32.3	9.17	32.16	161	282	P	V
	*	5580	101.82	-	-	92.51	32.3	9.17	32.16	161	282	A	V
		5737.91	47.84	-26.16	74	38.2	32.3	9.28	31.94	161	282	P	V
		5759.96	40.32	-13.68	54	30.62	32.3	9.3	31.9	161	282	A	V



802.11a CH 140 5700MHz	*	5700	109.9	-	-	100.33	32.3	9.28	32.01	106	245	P	H
	*	5700	101.36	-	-	91.79	32.3	9.28	32.01	106	245	A	H
		5737	53.12	-20.88	74	43.48	32.3	9.28	31.94	106	245	P	H
		5725.08	44.75	-9.25	54	35.15	32.3	9.28	31.98	106	245	A	H
	*	5700	110.25	-	-	100.68	32.3	9.28	32.01	168	282	P	V
	*	5700	102.04	-	-	92.47	32.3	9.28	32.01	168	282	A	V
		5728.2	54.74	-19.26	74	45.14	32.3	9.28	31.98	168	282	P	V
		5725.16	46.36	-7.64	54	36.76	32.3	9.28	31.98	168	282	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - 5470~5725MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 100 5500MHz		11000	48.09	-25.91	74	55.89	40	11.86	59.66	163	230	P	H
		16500	46.13	-27.87	74	55.48	37.5	14.41	61.26	178	296	P	H
		11000	49.24	-24.76	74	57.04	40	11.86	59.66	163	230	P	V
		16500	46.91	-27.09	74	56.26	37.5	14.41	61.26	178	296	P	V
802.11a CH 116 5580MHz		11160	49.07	-24.93	74	56.69	40.1	11.93	59.65	170	200	P	H
		16740	48.93	-25.07	74	56.2	38.85	14.57	60.69	156	350	P	H
		11160	48.96	-25.04	74	56.58	40.1	11.93	59.65	170	200	P	V
		16740	47.65	-26.35	74	54.92	38.85	14.57	60.69	156	350	P	V
802.11a CH 140 5700MHz		11400	50.04	-23.96	74	57.42	40.24	12.02	59.64	157	285	P	H
		17100	50.1	-23.9	74	54.78	40.64	14.76	60.08	165	246	P	H
		11400	48.83	-25.17	74	56.21	40.24	12.02	59.64	157	285	P	V
		17100	49.6	-24.4	74	54.28	40.64	14.76	60.08	165	246	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 100 5500MHz		5457.36	51.9	-22.1	74	42.83	32.26	9.09	32.28	100	252	P	H
		5466.8	44.26	-9.74	54	35.15	32.27	9.12	32.28	100	252	A	H
	*	5500	112.4	-	-	103.28	32.3	9.12	32.3	100	252	P	H
	*	5500	105.72	-	-	96.6	32.3	9.12	32.3	100	252	A	H
		5467.44	52.84	-21.16	74	43.73	32.27	9.12	32.28	161	277	P	V
		5465.68	44.44	-9.56	54	35.33	32.27	9.12	32.28	161	277	A	V
	*	5500	113.3	-	-	104.18	32.3	9.12	32.3	161	277	P	V
	*	5500	107.33	-	-	98.21	32.3	9.12	32.3	161	277	A	V
802.11n HT20 CH 116 5580MHz		5470	47.95	-26.05	74	38.84	32.27	9.12	32.28	100	252	P	H
		5452.72	40.96	-13.04	54	31.89	32.26	9.09	32.28	100	252	A	H
		5580	110.8	-	-	101.49	32.3	9.17	32.16	100	252	P	H
	*	5580	105	-	-	95.69	32.3	9.17	32.16	100	252	A	H
		5726.885	48.23	-25.77	74	38.63	32.3	9.28	31.98	100	252	P	H
		5759.96	41.57	-12.43	54	31.87	32.3	9.3	31.9	100	252	A	H
		5466.64	49.31	-24.69	74	40.2	32.27	9.12	32.28	148	277	P	V
		5452.72	40.44	-13.56	54	31.37	32.26	9.09	32.28	148	277	A	V
	*	5580	112.15	-	-	102.84	32.3	9.17	32.16	148	277	P	V
	*	5580	103.47	-	-	94.16	32.3	9.17	32.16	148	277	A	V
		5730.665	48.32	-25.68	74	38.68	32.3	9.28	31.94	148	277	P	V
		5759.96	41.35	-12.65	54	31.65	32.3	9.3	31.9	148	277	A	V



802.11n HT20 CH 140 5700MHz	*	5700	107.89	-	-	98.32	32.3	9.28	32.01	100	244	P	H
	*	5700	101.13	-	-	91.56	32.3	9.28	32.01	100	244	A	H
		5725.48	58.13	-15.87	74	48.53	32.3	9.28	31.98	100	244	P	H
		5725	48.95	-5.05	54	39.35	32.3	9.28	31.98	100	244	A	H
	*	5700	110.1	-	-	100.53	32.3	9.28	32.01	118	272	P	V
	*	5700	103.22	-	-	93.65	32.3	9.28	32.01	118	272	A	V
		5725	54.69	-19.31	74	45.09	32.3	9.28	31.98	118	272	P	V
		5725	47.01	-6.99	54	37.41	32.3	9.28	31.98	118	272	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 (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 100 5500MHz		11000	49.23	-24.77	74	57.03	40	11.86	59.66	163	230	P	H
		16500	47.09	-26.91	74	56.44	37.5	14.41	61.26	178	296	P	H
		11000	48.48	-25.52	74	56.28	40	11.86	59.66	163	230	P	V
		16500	46.85	-27.15	74	56.2	37.5	14.41	61.26	178	296	P	V
802.11n HT20 CH 116 5580MHz		11160	49.36	-24.64	74	56.98	40.1	11.93	59.65	170	200	P	H
		16740	47.83	-26.17	74	55.1	38.85	14.57	60.69	156	350	P	H
		11160	49.58	-24.42	74	57.2	40.1	11.93	59.65	170	200	P	V
		16740	47.71	-26.29	74	54.98	38.85	14.57	60.69	156	350	P	V
802.11n HT20 CH 140 5700MHz		11400	49.79	-24.21	74	57.17	40.24	12.02	59.64	157	285	P	H
		17100	50.24	-23.76	74	54.92	40.64	14.76	60.08	165	246	P	H
		11400	49.8	-24.2	74	57.18	40.24	12.02	59.64	157	285	P	V
		17100	50.41	-23.59	74	55.09	40.64	14.76	60.08	165	246	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+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		5465.2	53.03	-20.97	74	43.95	32.27	9.09	32.28	100	313	P	H
		5466.64	46.81	-7.19	54	37.7	32.27	9.12	32.28	100	313	A	H
	*	5510	107.18	-	-	98	32.3	9.14	32.26	100	313	P	H
	*	5510	101.54	-	-	92.36	32.3	9.14	32.26	100	313	A	H
		5745.155	47.8	-26.2	74	38.14	32.3	9.3	31.94	100	313	P	H
		5759.96	40.68	-13.32	54	30.98	32.3	9.3	31.9	100	313	A	H
		5466.4	54.05	-19.95	74	44.94	32.27	9.12	32.28	113	275	P	V
		5469.76	49.52	-4.48	54	40.41	32.27	9.12	32.28	113	275	A	V
	*	5510	106.96	-	-	97.78	32.3	9.14	32.26	113	275	P	V
	*	5510	101.34	-	-	92.16	32.3	9.14	32.26	113	275	A	V
		5759.645	48.11	-25.89	74	38.41	32.3	9.3	31.9	113	275	P	V
		5759.96	41.5	-12.5	54	31.8	32.3	9.3	31.9	113	275	A	V
802.11n HT40 CH 110 5550MHz		5464.72	51.47	-22.53	74	42.39	32.27	9.09	32.28	102	251	P	H
		5469.76	44.22	-9.78	54	35.11	32.27	9.12	32.28	102	251	A	H
	*	5550	111.95	-	-	102.71	32.3	9.17	32.23	102	251	P	H
	*	5550	105.93	-	-	96.69	32.3	9.17	32.23	102	251	A	H
		5748.62	49.29	-24.71	74	39.63	32.3	9.3	31.94	102	251	P	H
		5759.96	42.09	-11.91	54	32.39	32.3	9.3	31.9	102	251	A	H
		5460.64	50.2	-23.8	74	41.13	32.26	9.09	32.28	122	277	P	V
		5467.36	43.19	-10.81	54	34.08	32.27	9.12	32.28	122	277	A	V
	*	5550	109.88	-	-	100.64	32.3	9.17	32.23	122	277	P	V
	*	5550	103.78	-	-	94.54	32.3	9.17	32.23	122	277	A	V
		5756.81	48.84	-25.16	74	39.14	32.3	9.3	31.9	122	277	P	V
		5759.96	41.55	-12.45	54	31.85	32.3	9.3	31.9	122	277	A	V



802.11n HT40 CH 134 5670MHz		5460.6	47.4	-26.6	74	38.33	32.26	9.09	32.28	106	254	P	H
		5452.55	40.07	-13.93	54	31	32.26	9.09	32.28	106	254	A	H
	*	5670	108.03	-	-	98.53	32.3	9.25	32.05	106	254	P	H
	*	5670	102.65	-	-	93.15	32.3	9.25	32.05	106	254	A	H
		5746.975	54.58	-19.42	74	44.92	32.3	9.3	31.94	106	254	P	H
		5732.975	46.77	-7.23	54	37.13	32.3	9.28	31.94	106	254	A	H
		5453.95	48.45	-25.55	74	39.38	32.26	9.09	32.28	136	279	P	V
		5464.8	40.08	-13.92	54	31	32.27	9.09	32.28	136	279	A	V
	*	5670	108.01	-	-	98.51	32.3	9.25	32.05	136	279	P	V
	*	5670	103.2	-	-	93.7	32.3	9.25	32.05	136	279	A	V
		5731.05	57.36	-16.64	74	47.72	32.3	9.28	31.94	136	279	P	V
		5725.45	48.51	-5.49	54	38.91	32.3	9.28	31.98	136	279	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 102 5510MHz		11020	48.49	-25.51	74	56.27	40.01	11.87	59.66	170	230	P	H
		16530	46.54	-27.46	74	55.59	37.69	14.44	61.18	160	300	P	H
		11020	49.85	-24.15	74	57.63	40.01	11.87	59.66	170	230	P	V
		16530	47.38	-26.62	74	56.43	37.69	14.44	61.18	160	300	P	V
802.11n HT40 CH 110 5550MHz		11100	49.83	-24.17	74	57.52	40.06	11.9	59.65	150	200	P	H
		16650	47.68	-26.32	74	55.7	38.37	14.5	60.89	180	350	P	H
		11100	49.38	-24.62	74	57.07	40.06	11.9	59.65	150	200	P	V
		16650	46.7	-27.3	74	54.72	38.37	14.5	60.89	180	350	P	V
802.11n HT40 CH 134 5670MHz		11340	49.28	-24.72	74	56.73	40.2	11.99	59.64	200	360	P	H
		17010	50.2	-23.8	74	55.19	40.36	14.72	60.07	200	360	P	H
		11340	49.32	-24.68	74	56.77	40.2	11.99	59.64	200	360	P	V
		17010	49.39	-24.61	74	54.38	40.36	14.72	60.07	200	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+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		5465.68	54.08	-19.92	74	44.97	32.27	9.12	32.28	112	248	P	H
		5452.24	49.66	-4.34	54	40.59	32.26	9.09	32.28	112	248	A	H
	*	5530	101.65	-	-	92.44	32.3	9.14	32.23	112	248	P	H
	*	5530	92.81	-	-	83.6	32.3	9.14	32.23	112	248	A	H
		5737.28	48.06	-25.94	74	38.42	32.3	9.28	31.94	112	248	P	H
		5759.96	41.67	-12.33	54	31.97	32.3	9.3	31.9	112	248	A	H
		5466.88	55.04	-18.96	74	45.93	32.27	9.12	32.28	127	278	P	V
		5466.16	49.76	-4.24	54	40.65	32.27	9.12	32.28	127	278	A	V
	*	5530	102.19	-	-	92.98	32.3	9.14	32.23	127	278	P	V
	*	5530	93.24	-	-	84.03	32.3	9.14	32.23	127	278	A	V
		5727.83	48.47	-25.53	74	38.87	32.3	9.28	31.98	127	278	P	V
		5733.5	41.8	-12.2	54	32.16	32.3	9.28	31.94	127	278	A	V
802.11ac VHT80 CH 122 5610MHz		5439.28	47.52	-26.48	74	38.45	32.25	9.09	32.27	103	250	P	H
		5445.04	41.53	-12.47	54	32.46	32.25	9.09	32.27	103	250	A	H
	*	5610	104.03	-	-	94.65	32.3	9.2	32.12	103	250	P	H
	*	5610	95.28	-	-	85.9	32.3	9.2	32.12	103	250	A	H
		5730.98	49.85	-24.15	74	40.21	32.3	9.28	31.94	103	250	P	H
		5733.815	42.91	-11.09	54	33.27	32.3	9.28	31.94	103	250	A	H
		5460.88	49.07	-24.93	74	40	32.26	9.09	32.28	126	274	P	V
		5461.6	42.14	-11.86	54	33.07	32.26	9.09	32.28	126	274	A	V
	*	5610	103.48	-	-	94.1	32.3	9.2	32.12	126	274	P	V
	*	5610	95.37	-	-	85.99	32.3	9.2	32.12	126	274	A	V
		5755.865	49.79	-24.21	74	40.09	32.3	9.3	31.9	126	274	P	V
		5725	43.33	-10.67	54	33.73	32.3	9.28	31.98	126	274	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	49.66	-24.34	74	57.39	40.04	11.89	59.66	170	230	P	H
VHT80		16590	47.78	-26.22	74	56.37	37.98	14.48	61.05	160	300	P	H
CH 106		11060	49.48	-24.52	74	57.21	40.04	11.89	59.66	170	230	P	V
5530MHz		16590	47.35	-26.65	74	55.94	37.98	14.48	61.05	160	300	P	V
802.11ac		11220	49.36	-24.64	74	56.94	40.13	11.94	59.65	200	360	P	H
VHT80		16830	48.32	-25.68	74	54.86	39.33	14.61	60.48	200	360	P	H
CH 122		11220	49.7	-24.3	74	57.28	40.13	11.94	59.65	200	360	P	V
5610MHz		16830	48.25	-25.75	74	54.79	39.33	14.61	60.48	200	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

WIFI 11ac VHT80 (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
11ac VHT80 LF		30	23.55	-16.45	40	28.29	26.7	0.56	32	-	-	P	H
		97.9	27.97	-15.53	43.5	40.1	18.6	1.02	31.75	100	203	P	H
		233.7	23.52	-22.48	46	36.07	17.22	1.6	31.37	-	-	P	H
		400.54	29.17	-16.83	46	32.32	25.98	2.12	31.25	-	-	P	H
		760.41	30.27	-15.73	46	31.16	27.32	3.01	31.22	-	-	P	H
		994.18	32.65	-21.35	54	30.14	30.28	3.47	31.24	-	-	P	H
		30	27.18	-12.82	40	31.92	26.7	0.56	32	100	105	P	V
		96.93	23.85	-19.65	43.5	36.09	18.5	1.01	31.75	-	-	P	V
		243.4	23.13	-22.87	46	35.2	17.68	1.63	31.38	-	-	P	V
		400.54	28.16	-17.84	46	31.31	25.98	2.12	31.25	-	-	P	V
		706.09	31.11	-14.89	46	31.84	27.65	2.87	31.25	-	-	P	V
		985.45	32.39	-21.61	54	30.06	30.11	3.45	31.23	-	-	P	V
Remark		1. No other spurious found. 2. All results are PASS against limit line.											

**Note symbol**

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



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

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

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

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

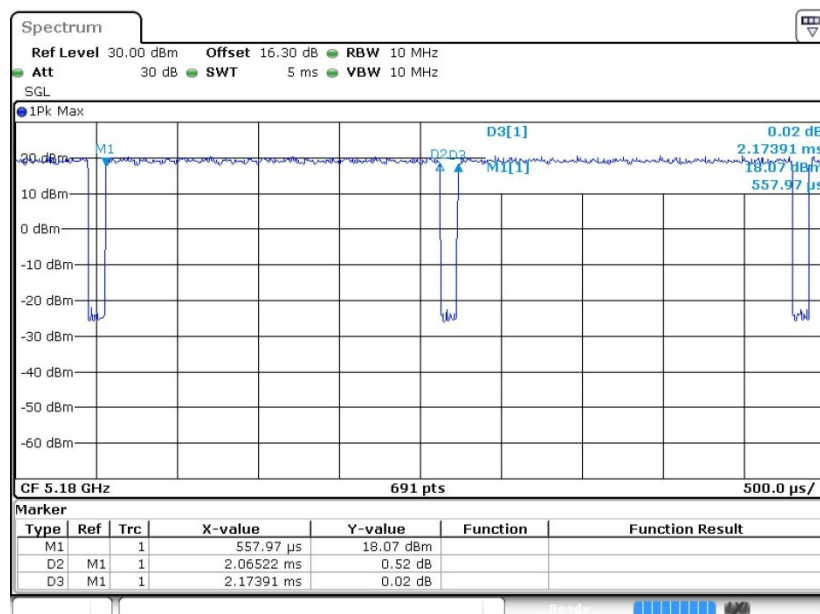
= -10.46(dB)

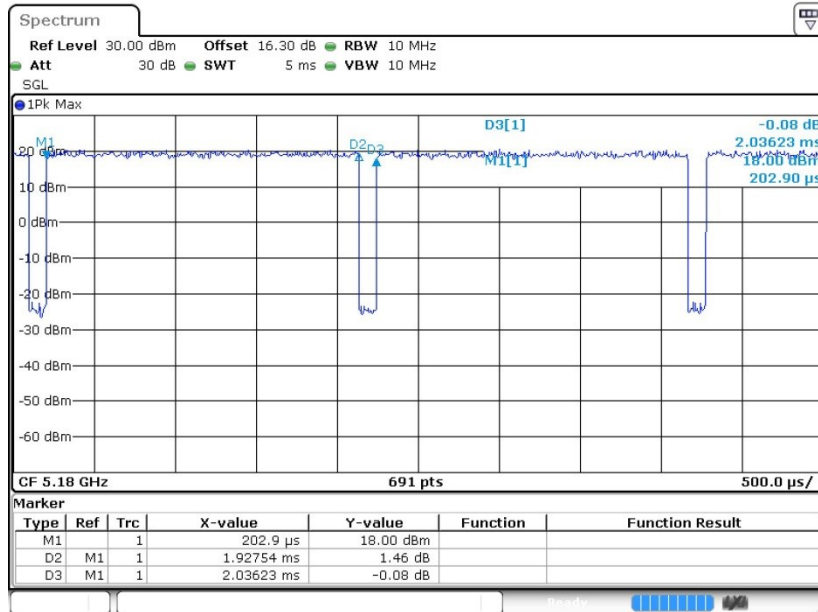
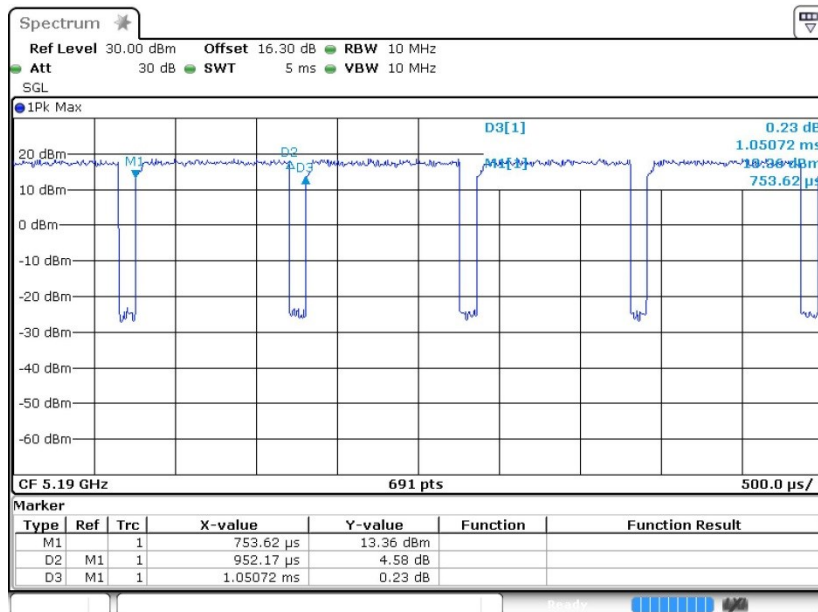
Both peak and average measured complies with the limit line, so test result is “PASS”.

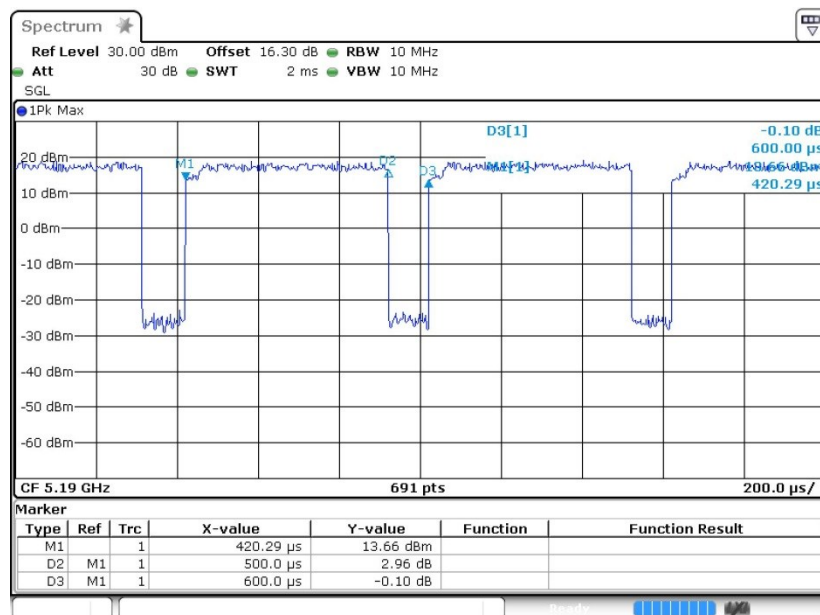
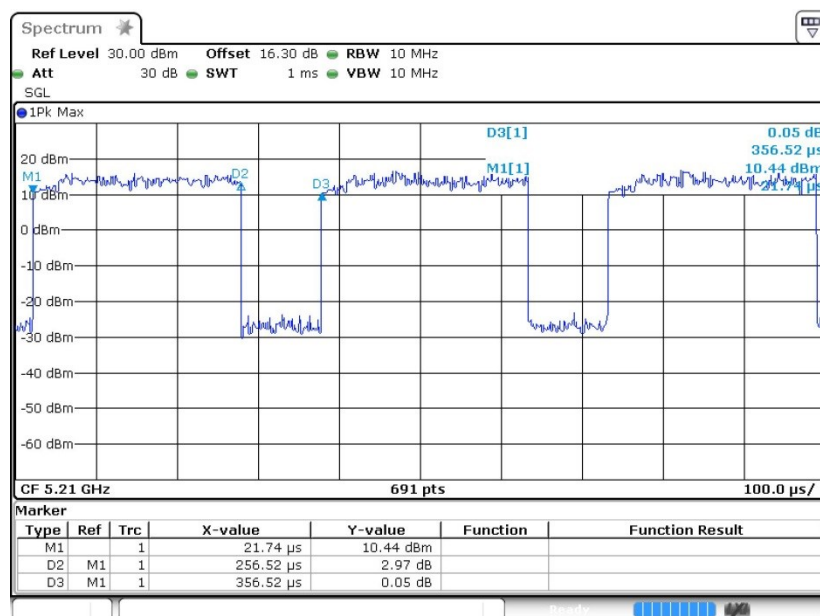
Appendix C. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1+2(1)	802.11a	95.00	2.065	0.484	1kHz
1+2(1)	802.11n HT20	94.66	1.928	0.519	1kHz
1+2(1)	802.11n HT40	90.62	0.952	1.050	3kHz
1+2(1)	802.11ac VHT40	83.33	0.500	2.000	3kHz
1+2(1)	802.11ac VHT80	71.95	0.257	3.891	10kHz
1+2(2)	802.11ac VHT20	90.85	0.993	1.007	3kHz

802.11a for Ant.1+2(1)



802.11n HT20 for Ant.1+2(1)

802.11n HT40 for Ant.1+2(1)


802.11ac VTH40 for Ant.1+2(1)

802.11ac VTH80 for Ant.1+2(1)


802.11ac VTH20 for Ant.1+2(2)

