



FCC RF Test Report

APPLICANT : TP-Link Technologies Co., Ltd.
EQUIPMENT : AC1200 Wi-Fi Range Extender with Smart Plug
BRAND NAME : TP-Link
MODEL NAME : RE370K
FCC ID : TE7RE370K
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Sep. 28, 2016 and testing was completed on Nov. 09, 2016. 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.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR692804B	Rev. 01	Initial issue of report	Nov. 22, 2016



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	2.1049 15.403(i)	RSS-247 Section 6	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	RSS-247 Section 6	Maximum Conducted Output Power	FCC ≤ 30 dBm (depend on band) IC RSS-247 Section 6 Limit	Pass	-
3.3	15.407(a)	RSS-247 Section 6	Power Spectral Density	FCC ≤ 17 dBm/MHz (depend on band) IC RSS-247 Section 6 Limit	Pass	-
3.4	15.407(b)	RSS-247 Section 6	Unwanted Emissions	$\leq -17, -27$ dBm (depend on band)&15.209(a)	Pass	Under limit 0.26 dB at 5461.840 MHz
3.5	15.207	RSS-Gen 8.8	AC Conducted Emission	15.207(a)	Pass	Under limit 15.71 dB at 0.640 MHz
3.6	15.407(g)	-	Frequency Stability	Within Operation Band	Pass	-
3.7	15.407(c)	RSS-247 6.4(2)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.203 & 15.407(a)	N/A	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

TP-Link Technologies Co., Ltd.

Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd,
Nanshan, Shenzhen, China

1.2 Manufacturer

TP-Link Technologies Co., Ltd.

uilding 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd,
Nanshan, Shenzhen, China

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	AC1200 Wi-Fi Range Extender with Smart Plug
Brand Name	TP-Link
Model Name	RE370K
FCC ID	TE7RE370K
EUT supports Radios application	WLAN2.4GHz 802.11b/g/n HT20/HT40 WLAN5GHz 802.11a/n HT20/HT40 WLAN5GHz 80211ac VHT20/VHT40/VHT80
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 ~ 5580 MHz and 5660 MHz ~ 5700 MHz
Maximum Output Power to Antenna	<5180 MHz ~ 5240 MHz> MIMO <Ant. 1+2> 802.11a : 27.62 dBm / 0.5781 W 802.11n HT20 : 27.82 dBm / 0.6053 W 802.11n HT40 : 26.08 dBm / 0.4055 W 802.11ac VHT20 : 27.81 dBm / 0.6039 W 802.11ac VHT40 : 25.86 dBm / 0.3855 W 802.11ac VHT80 : 19.31 dBm / 0.0853 W <5260 MHz ~ 5320 MHz> MIMO <Ant. 1+2> 802.11a : 21.67 dBm / 0.1469 W 802.11n HT20 : 22.03 dBm / 0.1596 W 802.11n HT40 : 23.94 dBm / 0.2477 W 802.11ac VHT20 : 21.96 dBm / 0.1570 W 802.11ac VHT40 : 23.87 dBm / 0.2438 W 802.11ac VHT80 : 19.11 dBm / 0.0815 W <5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz> MIMO <Ant. 1+2> 802.11a : 21.94 dBm / 0.1563 W 802.11n HT20 : 21.80 dBm / 0.1514 W 802.11n HT40 : 23.59 dBm / 0.2286 W 802.11ac VHT20 : 21.77 dBm / 0.1503 W 802.11ac VHT40 : 23.57 dBm / 0.2275 W 802.11ac VHT80 : 17.97 dBm / 0.0627 W
99% Occupied Bandwidth	<5180 MHz ~ 5240 MHz> 802.11a : 28.97 MHz 802.11n HT20 : 33.32 MHz 802.11n HT40 : 39.96 MHz 802.11ac VHT80 : 75.04 MHz <5260 MHz ~ 5320 MHz> 802.11a : 18.03 MHz 802.11n HT20 : 18.58 MHz 802.11n HT40 : 36.66 MHz 802.11ac VHT80 : 75.04 MHz <5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz> 802.11a : 18.08 MHz 802.11n HT20 : 19.03 MHz 802.11n HT40 : 37.26 MHz 802.11ac VHT80 : 75.04 MHz
Antenna Type / Gain	<5180 MHz ~ 5240 MHz> Ant. 1 : Dipole Antenna with gain 1.85 dBi Ant. 2 : Dipole Antenna with gain 1.95 dBi <5260 MHz ~ 5320 MHz> Ant. 1 : Dipole Antenna with gain 1.92 dBi Ant. 2 : Dipole Antenna with gain 1.96 dBi <5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz> Ant. 1 : Dipole Antenna with gain 1.92 dBi Ant. 2 : Dipole Antenna with gain 1.92 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: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

1.5 Modification of EUT

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

1.6 Testing Location

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.	
Test Site Location	1F & 2F, Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595	
Test Site No.	Sporton Site No.	
	TH01-SZ	CO01-SZ

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.	
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755- 3320-2398	
Test Site No.	Sporton Site No.	FCC Registration No.
	03CH03-SZ	565805

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 v01r03
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01
- ♦ ANSI C63.10-2013
- ♦ IC RSS-247 Issue 1
- ♦ IC RSS-Gen Issue 4

Remark:

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

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

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)
5500-5720 MHz Band 3 (U-NII-2C)	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	106 [#]	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700

Note:

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

2.2 Test Mode

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

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 : WLAN (5G) Link (Client) + WLAN (5G) Link (Master) + AC Load + RJ45 Link



Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500 ~ 5580 MHz and 5660 ~ 5700 MHz
		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 ~ 5580 MHz and 5660 ~ 5700 MHz
		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 ~ 5580 MHz and 5660 ~ 5700 MHz
		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 ~ 5580 MHz and 5660 ~ 5700 MHz
		802.11ac VHT20	802.11ac VHT20	802.11ac VHT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

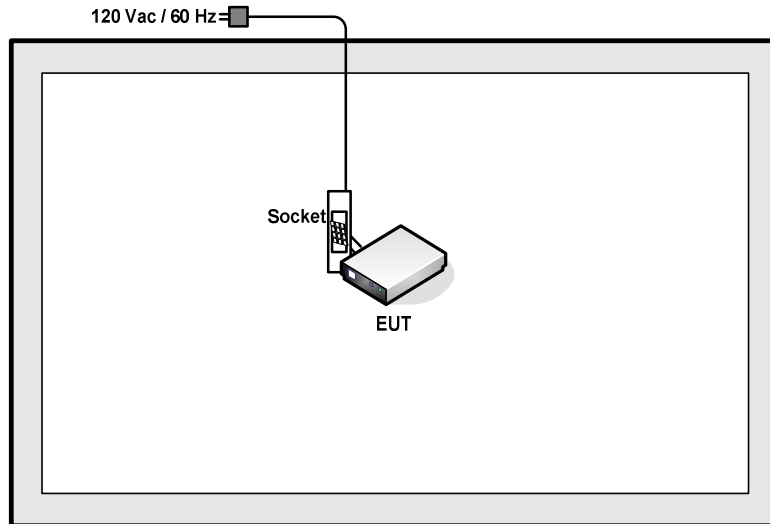


Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500 ~ 5580 MHz and 5660 ~ 5700 MHz
		802.11ac VHT40	802.11ac VHT40	802.11ac VHT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134

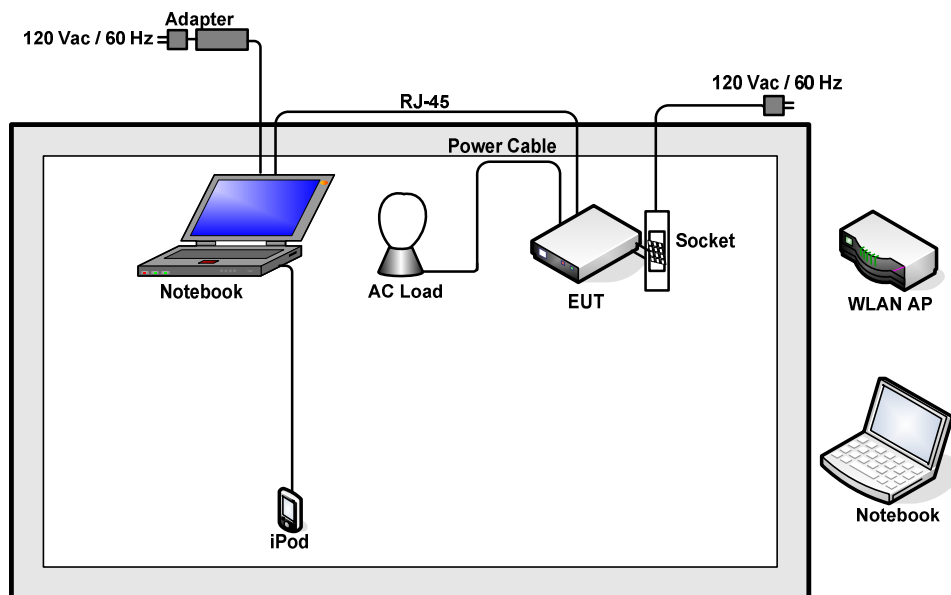
Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500 ~ 5580 MHz and 5660 ~ 5700 MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	-
M	Middle	42	58	106
H	High	-	-	-

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>





2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-820L	KA2IR820LA1	N/A	Unshielded, 1.8 m
2.	Notebook	Lenovo	E450	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	iPod nano 8GB	Apple	MC690ZP/A	FCC DoC	Shielded, 1.2m	N/A
5.	MicroSD Card	SanDisk	8G class 4	FCC DoC	N/A	N/A
6.	DC Power Supply	GWINSTEK	AnritsuGPS-3030D	N/A	N/A	Unshielded, 1.8 m
7.	AC Load	N/A	N/A	N/A	N/A	N/A
8.	Socket	N/A	N/A	N/A	N/A	N/A
9.	Power Cable	N/A	N/A	N/A	N/A	N/A

2.5 EUT Operation Test Setup

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

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



2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example :

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

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 6.30 dB and 10dB attenuator.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 6.30 + 10 = 16.30 \text{ (dB)}\end{aligned}$$

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.

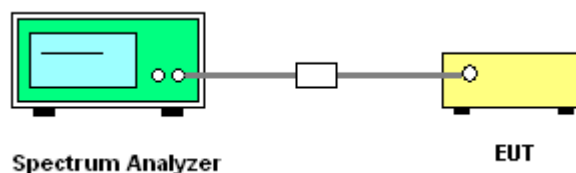
3.1.2 Measuring Instruments

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 v01r03.
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.

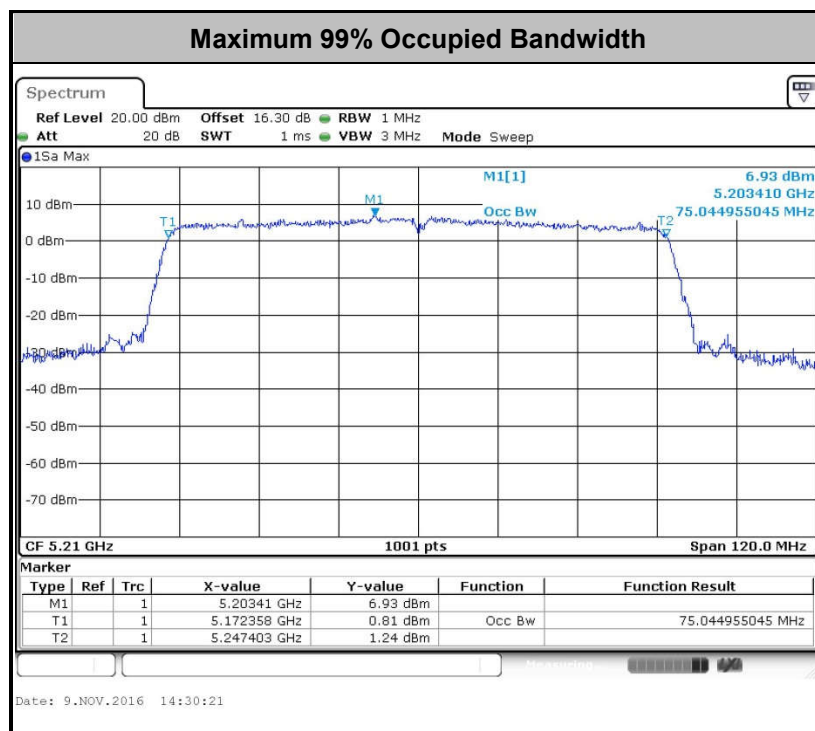
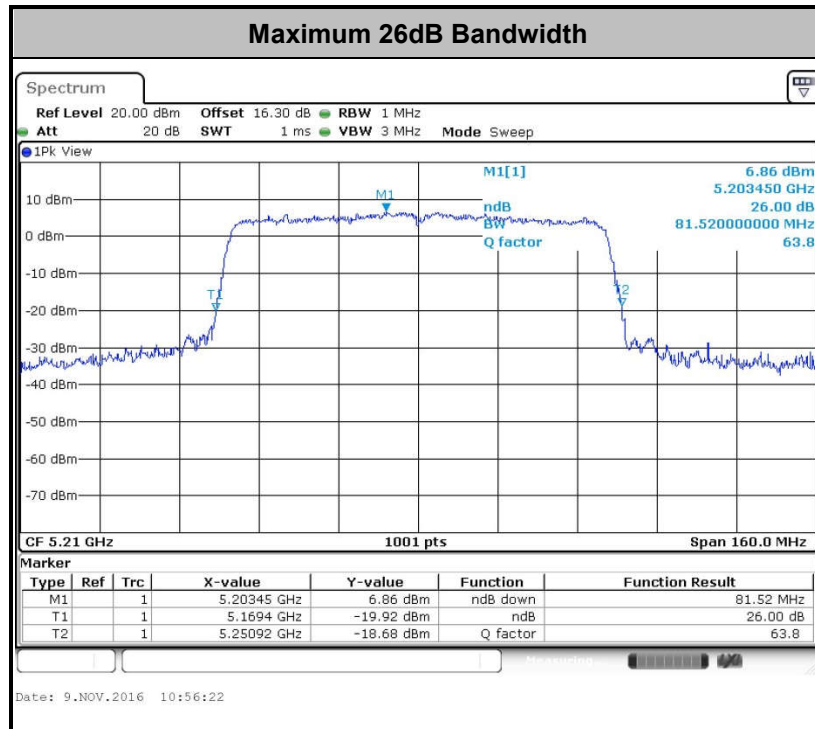
3.1.4 Test Setup





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

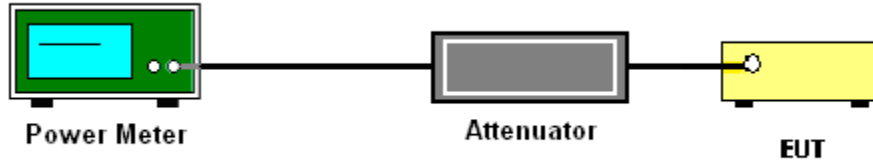
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03 for CDD modes.

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

For normal channel:



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

<FCC 14-30 CFR 15.407>

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

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

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

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03.

Section F) Maximum power spectral density.

Method SA-2

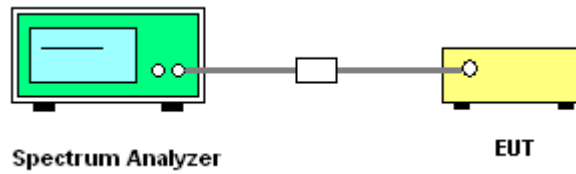
(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

1. The testing follows Method SA-2 of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03.
 - 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.

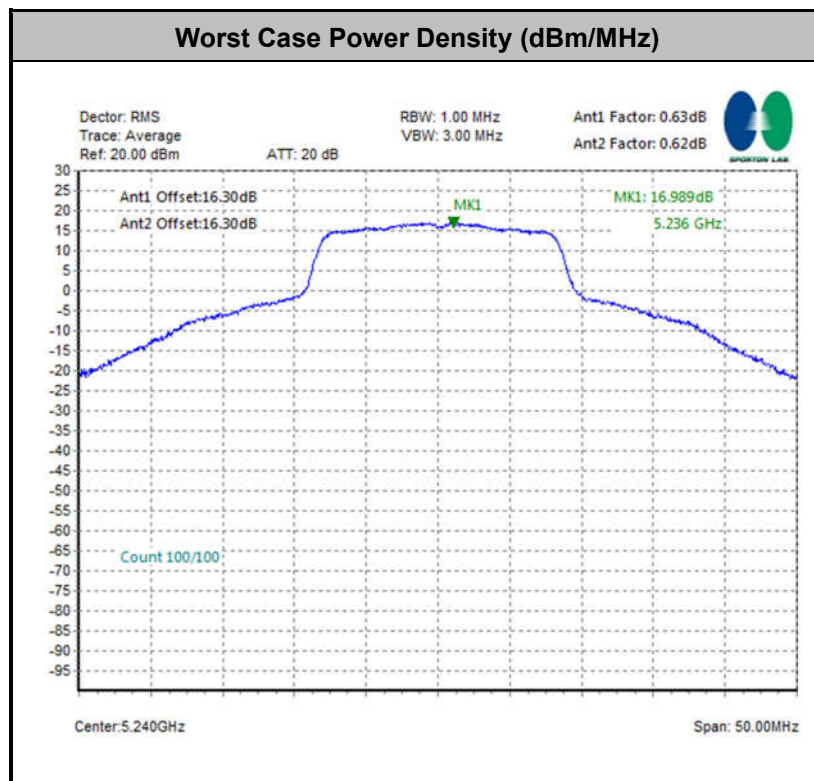
The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of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



Note: Average Power Density (dB) = Measured value+ Duty Factor

3.4 Unwanted Emissions Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part 15.205.

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 per FCC Part 15.205 shall comply with the general field strength limits set forth in § 15.209 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)
-17	78.3
- 27	68.3

- (3) KDB789033 D02 v01r03 G)2)c) As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.

3.4.2 Measuring Instruments

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

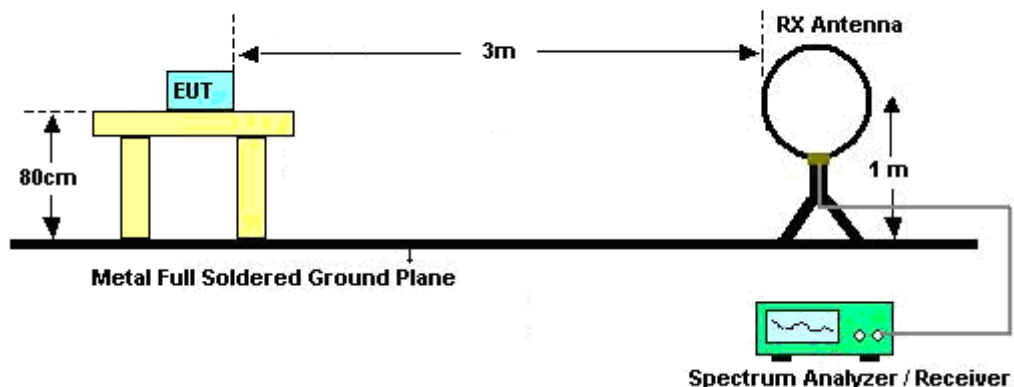
3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03. Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW ≥ 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - $VBW \geq 1/T$, 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.

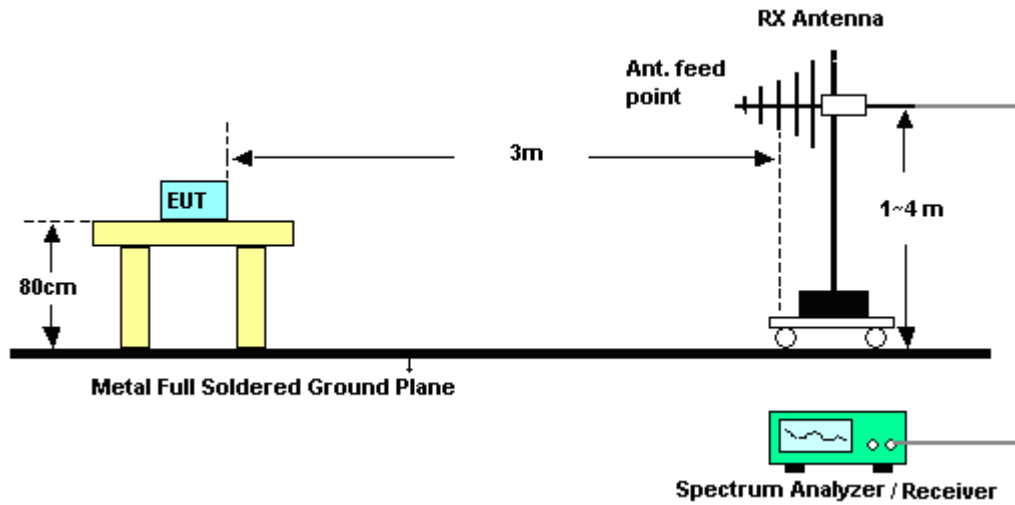
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband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

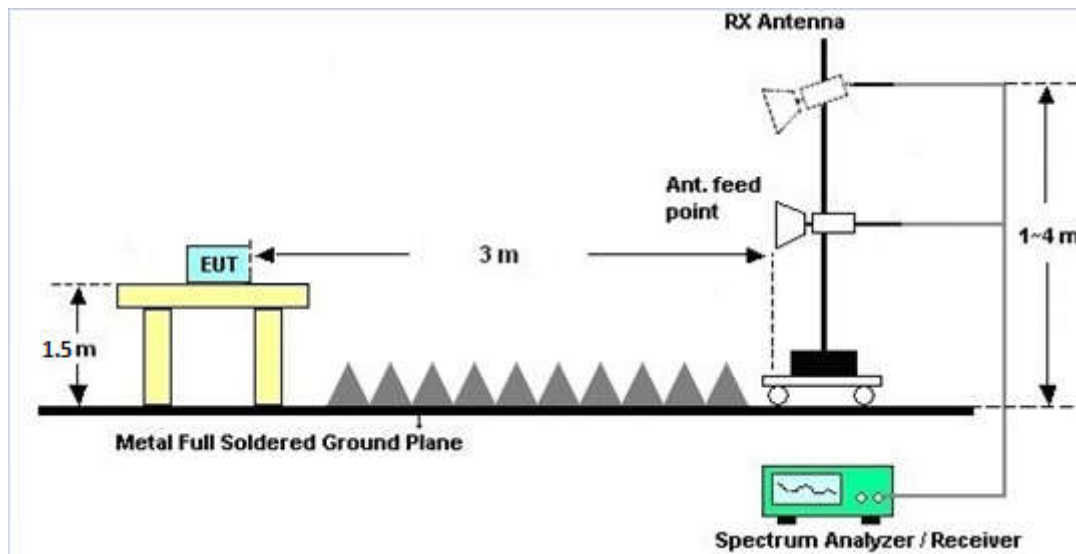
For radiated emissions below 30MHz



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 per 15.31(o) 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.

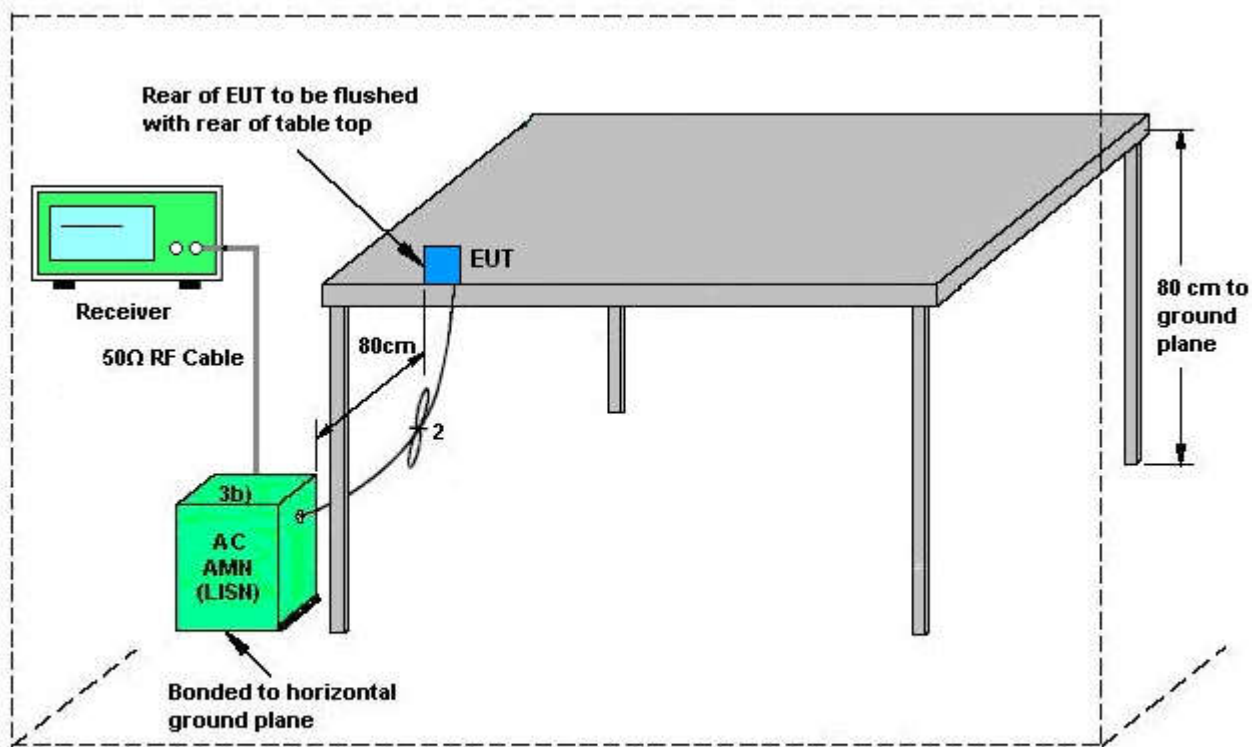
3.5.2 Measuring Instruments

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.

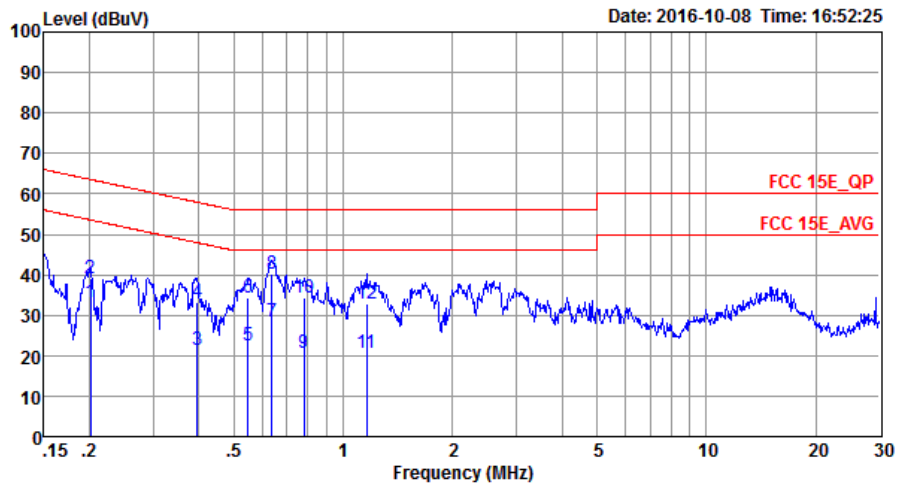
3.5.4 Test Setup



AMN = Artificial mains network (LISN)
 AE = Associated equipment
 EUT = Equipment under test
 ISN = Impedance stabilization network

3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Tao Cheng	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN 5G Link (Client) + WLAN 5G Link (Master) + AC Load + RJ45 Link		

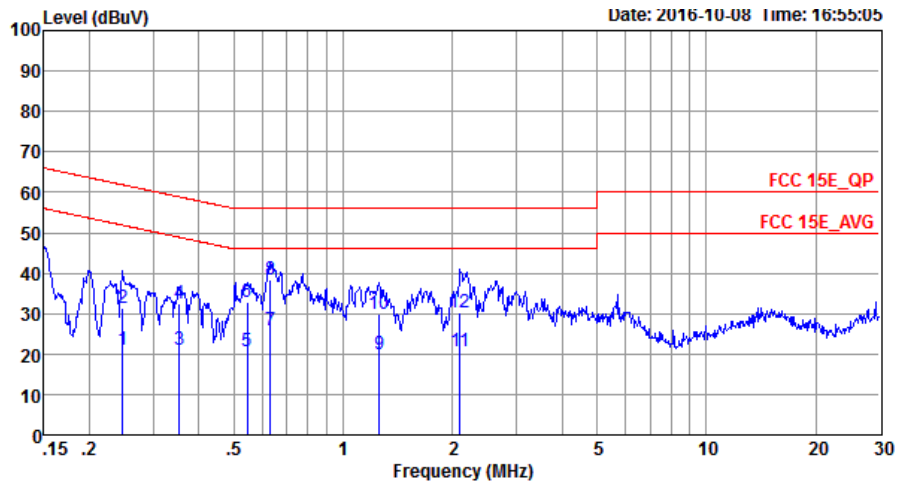


Site : C001-SZ
Condition: FCC 15E_QP LISN_20160509 LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.20	33.11	-20.43	53.54	22.50	0.11	10.50	Average
2	0.20	39.21	-24.33	63.54	28.60	0.11	10.50	QP
3	0.40	21.57	-26.38	47.95	11.20	0.11	10.26	Average
4	0.40	33.17	-24.78	57.95	22.80	0.11	10.26	QP
5	0.55	22.51	-23.49	46.00	12.20	0.11	10.20	Average
6	0.55	34.21	-21.79	56.00	23.90	0.11	10.20	QP
7	0.64	28.29	-17.71	46.00	18.00	0.11	10.18	Average
8 *	0.64	40.29	-15.71	56.00	30.00	0.11	10.18	QP
9	0.78	20.77	-25.23	46.00	10.50	0.11	10.16	Average
10	0.78	34.17	-21.83	56.00	23.90	0.11	10.16	QP
11	1.16	20.57	-25.43	46.00	10.30	0.11	10.16	Average
12	1.16	32.77	-23.23	56.00	22.50	0.11	10.16	QP



Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Tao Cheng	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN 5G Link (Client) + WLAN 5G Link (Master) + AC Load + RJ45 Link		



Site : CO01-SZ
Condition: FCC 15E_QP LISN_20160509 NEUTRAL

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.25	21.07	-30.79	51.86	10.50	0.11	10.46	Average
2	0.25	31.47	-30.39	61.86	20.90	0.11	10.46	QP
3	0.35	21.03	-27.84	48.87	10.60	0.11	10.32	Average
4	0.35	32.33	-26.54	58.87	21.90	0.11	10.32	QP
5	0.54	20.82	-25.18	46.00	10.51	0.11	10.20	Average
6	0.54	32.81	-23.19	56.00	22.50	0.11	10.20	QP
7	0.63	25.69	-20.31	46.00	15.40	0.11	10.18	Average
8 *	0.63	38.29	-17.71	56.00	28.00	0.11	10.18	QP
9	1.26	19.77	-26.23	46.00	9.50	0.11	10.16	Average
10	1.26	29.97	-26.03	56.00	19.70	0.11	10.16	QP
11	2.10	20.58	-25.42	46.00	10.30	0.11	10.17	Average
12	2.10	30.38	-25.62	56.00	20.10	0.11	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.

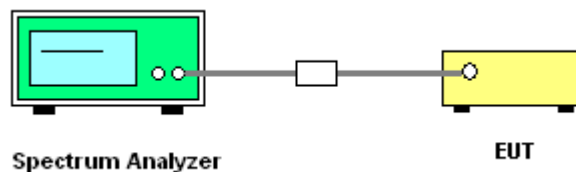
3.6.2 Measuring Instruments

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

According to FCC 47 CFR Section 15.407(a)(1)(2) ,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	1.85	1.95	1.95	4.91	0.00	0.00
Band II	1.92	1.96	1.96	4.95	0.00	0.00
Band III	1.92	1.92	1.92	4.93	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	May 07, 2016	Nov. 09, 2016	May 06, 2017	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1207253	30MHz~40GHz	Jan. 12, 2016	Nov. 09, 2016	Jan. 11, 2017	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Jan. 12, 2016	Nov. 09, 2016	Jan. 11, 2017	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhonggroup	LP-150U	H2014081803	-40~+150°C	Jul. 16, 2016	Nov. 09, 2016	Jul. 15, 2017	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	May 07, 2016	Nov. 09, 2016	May 06, 2017	Radiation (03CH03-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz	May 07, 2016	Nov. 09, 2016	May 06, 2017	Radiation (03CH03-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 07, 2016	Nov. 09, 2016	May 06, 2017	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz~2GHz	May 21, 2016	Nov. 09, 2016	May 20, 2017	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	May 07, 2016	Nov. 09, 2016	May 06, 2017	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Aug. 10, 2016	Nov. 09, 2016	Aug. 09, 2017	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102210	0.01Hz ~3000MHz	Oct. 11, 2016	Nov. 09, 2016	Oct. 10, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-001 01800-30-10 P-R	1943528	1GHz~18GHz	Oct. 11, 2016	Nov. 09, 2016	Oct. 10, 2017	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5G Hz	Jan. 12, 2016	Nov. 09, 2016	Jan. 11, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 16, 2016	Nov. 09, 2016	Jul. 15, 2017	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Nov. 09, 2016	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Nov. 09, 2016	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Nov. 09, 2016	NCR	Radiation (03CH03-SZ)
EMI Receiver	R&S	ESCI7	100724	9kHz~3GHz	Nov. 23, 2015	Oct. 08, 2016	Nov. 22, 2016	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103892	9kHz~30MHz	Jan. 12, 2016	Oct. 08, 2016	Jan. 11, 2017	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103912	9kHz~30MHz	Jan. 12, 2016	Oct. 08, 2016	Jan. 11, 2017	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 16, 2016	Oct. 08, 2016	Jul. 15, 2017	Conduction (CO01-SZ)
Pulse Limiter	COM-POWER	LIT-153 Transient Limiter	53139	150kHz~30MHz	Oct. 20, 2015	Oct. 08, 2016	Oct. 19, 2016	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% ($U = 2U_c(y)$)	2.5 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

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

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

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

Report Number : FR692804B

Test Engineer:	Sam Zheng	Temperature:	24~26	°C
Test Date:	2016/11/9	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	18.18	18.18	23.18	23.73	-	-	22.60	-	
11a	6Mbps	2	44	5220	28.97	27.27	37.71	37.01	-	-	23.01	-	
11a	6Mbps	2	48	5240	28.57	26.77	38.31	36.71	-	-	23.01	-	
HT20	MCS0	2	36	5180	19.03	18.78	28.07	22.53	-	-	22.74	-	
HT20	MCS0	2	44	5220	33.32	32.77	44.46	42.56	-	-	23.01	-	
HT20	MCS0	2	48	5240	32.97	29.62	42.51	42.31	-	-	23.01	-	
HT40	MCS0	2	38	5190	36.46	36.56	41.63	41.90	-	-	23.01	-	
HT40	MCS0	2	46	5230	39.96	37.66	71.93	70.40	-	-	23.01	-	
VHT80	MCS0	2	42	5210	74.93	75.04	81.52	81.20	-	-	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	0.57	0.58	20.85	20.95	23.91	30.00		1.95			Pass
11a	6Mbps	2	44	5220	0.57	0.58	24.57	24.65	27.62	30.00		1.95			Pass
11a	6Mbps	2	48	5240	0.57	0.58	24.49	24.48	27.50	30.00		1.95			Pass
HT20	MCS0	2	36	5180	0.63	0.62	20.63	20.67	23.66	30.00		1.95			Pass
HT20	MCS0	2	44	5220	0.63	0.62	24.85	24.78	27.82	30.00		1.95			Pass
HT20	MCS0	2	48	5240	0.63	0.62	24.69	24.62	27.66	30.00		1.95			Pass
HT40	MCS0	2	38	5190	1.16	1.16	20.16	19.98	23.08	30.00		1.95			Pass
HT40	MCS0	2	46	5230	1.16	1.16	23.24	22.89	26.08	30.00		1.95			Pass
VHT20	MCS0	2	36	5180	0.60	0.61	20.58	20.64	23.62	30.00		1.95			Pass
VHT20	MCS0	2	44	5220	0.60	0.61	24.84	24.75	27.81	30.00		1.95			Pass
VHT20	MCS0	2	48	5240	0.60	0.61	24.62	24.23	27.44	30.00		1.95			Pass
VHT40	MCS0	2	38	5190	1.14	1.15	19.96	19.97	22.98	30.00		1.95			Pass
VHT40	MCS0	2	46	5230	1.14	1.15	22.82	22.88	25.86	30.00		1.95			Pass
VHT80	MCS0	2	42	5210	2.08	2.07	15.76	16.77	19.31	30.00		1.95			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	0.57	0.58			13.23	17.00		4.91		Pass	
11a	6Mbps	2	44	5220	0.57	0.58			16.81	17.00		4.91		Pass	
11a	6Mbps	2	48	5240	0.57	0.58			16.74	17.00		4.91		Pass	
HT20	MCS0	2	36	5180	0.63	0.62			12.95	17.00		4.91		Pass	
HT20	MCS0	2	44	5220	0.63	0.62			16.90	17.00		4.91		Pass	
HT20	MCS0	2	48	5240	0.63	0.62			16.99	17.00		4.91		Pass	
HT40	MCS0	2	38	5190	1.16	1.16			8.93	17.00		4.91		Pass	
HT40	MCS0	2	46	5230	1.16	1.16			11.64	17.00		4.91		Pass	
VHT80	MCS0	2	42	5210	2.08	2.07			1.63	17.00		4.91		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	17.93	17.98	20.93	21.48	23.54		29.54		23.98		
11a	6Mbps	2	60	5300	17.93	17.98	20.88	20.98	23.54		29.54		23.98		
11a	6Mbps	2	64	5320	17.93	18.03	22.18	21.98	23.54		29.54		23.98		
HT20	MCS0	2	52	5260	18.43	18.58	21.53	21.83	23.66		29.66		23.98		
HT20	MCS0	2	60	5300	18.48	18.48	21.43	21.68	23.67		29.67		23.98		
HT20	MCS0	2	64	5320	18.48	18.58	21.58	21.83	23.67		29.67		23.98		
HT40	MCS0	2	54	5270	36.56	36.66	41.90	42.26	23.98		30.00		23.98		
HT40	MCS0	2	62	5310	36.26	36.16	41.45	41.45	23.98		30.00		23.98		
VHT80	MCS0	2	58	5290	75.04	75.04	81.20	81.36	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	0.57	0.58	17.82	19.33	21.65	23.98		1.96		30	Pass
11a	6Mbps	2	60	5300	0.57	0.58	17.80	19.38	21.67	23.98		1.96		30	Pass
11a	6Mbps	2	64	5320	0.57	0.58	17.78	19.16	21.54	23.98		1.96		30	Pass
HT20	MCS0	2	52	5260	0.63	0.62	18.28	19.66	22.03	23.98		1.96		30	Pass
HT20	MCS0	2	60	5300	0.63	0.62	18.08	19.44	21.82	23.98		1.96		30	Pass
HT20	MCS0	2	64	5320	0.63	0.62	18.12	19.55	21.90	23.98		1.96		30	Pass
HT40	MCS0	2	54	5270	1.16	1.16	20.54	21.29	23.94	23.98		1.96		30	Pass
HT40	MCS0	2	62	5310	1.16	1.16	16.75	17.85	20.35	23.98		1.96		30	Pass
VHT20	MCS0	2	52	5260	0.60	0.61	18.27	19.53	21.96	23.98		1.96		30	Pass
VHT20	MCS0	2	60	5300	0.60	0.61	18.03	19.38	21.77	23.98		1.96		30	Pass
VHT20	MCS0	2	64	5320	0.60	0.61	18.11	19.33	21.78	23.98		1.96		30	Pass
VHT40	MCS0	2	54	5270	1.14	1.15	20.42	21.26	23.87	23.98		1.96		30	Pass
VHT40	MCS0	2	62	5310	1.14	1.15	16.74	17.84	20.34	23.98		1.96		30	Pass
VHT80	MCS0	2	58	5290	2.08	2.07	15.53	16.60	19.11	23.98		1.96		30	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	0.57	0.58			10.98	11.00		4.95		Pass	
11a	6Mbps	2	60	5300	0.57	0.58			10.56	11.00		4.95		Pass	
11a	6Mbps	2	64	5320	0.57	0.58			10.59	11.00		4.95		Pass	
HT20	MCS0	2	52	5260	0.63	0.62			10.94	11.00		4.95		Pass	
HT20	MCS0	2	60	5300	0.63	0.62			10.34	11.00		4.95		Pass	
HT20	MCS0	2	64	5320	0.63	0.62			10.57	11.00		4.95		Pass	
HT40	MCS0	2	54	5270	1.16	1.16			9.20	11.00		4.95		Pass	
HT40	MCS0	2	62	5310	1.16	1.16			5.56	11.00		4.95		Pass	
VHT80	MCS0	2	58	5290	2.08	2.07			1.39	11.00		4.95		Pass	

TEST RESULTS DATA
26dB and 99% OBW

Band III															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)		Note
					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	18.03	18.08	21.28	21.83	23.56		29.56		23.98		
11a	6Mbps	2	116	5580	17.98	18.08	20.98	23.53	23.55		29.55		23.98		
11a	6Mbps	2	140	5700	17.93	18.08	21.03	25.77	23.54		29.54		23.98		
HT20	MCS0	2	100	5500	18.48	18.73	21.78	22.23	23.67		29.67		23.98		
HT20	MCS0	2	116	5580	18.48	18.73	21.58	23.28	23.67		29.67		23.98		
HT20	MCS0	2	140	5700	18.58	19.03	21.83	26.07	23.69		29.69		23.98		
HT40	MCS0	2	102	5510	36.26	36.36	41.90	41.45	23.98		30.00		23.98		
HT40	MCS0	2	110	5550	36.66	37.26	42.62	57.18	23.98		30.00		23.98		
HT40	MCS0	2	134	5670	36.56	37.06	41.90	56.91	23.98		30.00		23.98		
VHT80	MCS0	2	106	5530	75.04	75.04	81.36	81.20	23.98		30.00		23.98		

TEST RESULTS DATA
Average Power Table

FCC Band III															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	100	5500	0.57	0.58	18.33	19.46	21.94	23.98		1.92		30	Pass
11a	6Mbps	2	116	5580	0.57	0.58	17.55	19.00	21.35	23.98		1.92		30	Pass
11a	6Mbps	2	140	5700	0.57	0.58	17.68	18.96	21.38	23.98		1.92		30	Pass
HT20	MCS0	2	100	5500	0.63	0.62	18.29	19.24	21.80	23.98		1.92		30	Pass
HT20	MCS0	2	116	5580	0.63	0.62	18.25	19.15	21.73	23.98		1.92		30	Pass
HT20	MCS0	2	140	5700	0.63	0.62	17.91	19.48	21.77	23.98		1.92		30	Pass
HT40	MCS0	2	102	5510	1.16	1.16	16.68	17.64	20.20	23.98		1.92		30	Pass
HT40	MCS0	2	110	5550	1.16	1.16	20.25	20.89	23.59	23.98		1.92		30	Pass
HT40	MCS0	2	134	5670	1.16	1.16	19.48	20.34	22.94	23.98		1.92		30	Pass
VHT20	MCS0	2	100	5500	0.60	0.61	18.24	19.22	21.77	23.98		1.92		30	Pass
VHT20	MCS0	2	116	5580	0.60	0.61	18.22	19.13	21.71	23.98		1.92		30	Pass
VHT20	MCS0	2	140	5700	0.60	0.61	17.83	19.46	21.73	23.98		1.92		30	Pass
VHT40	MCS0	2	102	5510	1.14	1.15	16.66	17.54	20.14	23.98		1.92		30	Pass
VHT40	MCS0	2	110	5550	1.14	1.15	20.23	20.86	23.57	23.98		1.92		30	Pass
VHT40	MCS0	2	134	5670	1.14	1.15	19.45	20.32	22.92	23.98		1.92		30	Pass
VHT80	MCS0	2	106	5530	2.08	2.07	14.37	15.47	17.97	23.98		1.92		30	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	0.57	0.58			10.95	11.00	4.93			Pass	
11a	6Mbps	2	116	5580	0.57	0.58			10.57	11.00	4.93			Pass	
11a	6Mbps	2	140	5700	0.57	0.58			10.42	11.00	4.93			Pass	
HT20	MCS0	2	100	5500	0.63	0.62			10.98	11.00	4.93			Pass	
HT20	MCS0	2	116	5580	0.63	0.62			10.77	11.00	4.93			Pass	
HT20	MCS0	2	140	5700	0.63	0.62			10.60	11.00	4.93			Pass	
HT40	MCS0	2	102	5510	1.16	1.16			5.34	11.00	4.93			Pass	
HT40	MCS0	2	110	5550	1.16	1.16			9.46	11.00	4.93			Pass	
HT40	MCS0	2	134	5670	1.16	1.16			8.44	11.00	4.93			Pass	
VHT80	MCS0	2	106	5530	2.08	2.07			0.39	11.00	4.93			Pass	

TEST RESULTS DATA
Frequency Stability

Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	36	5180	5180.025	0.025	4.83	20	90	
11a	6Mbps	1	36	5180	5180.025	0.025	4.83	20	135	
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	20	120	
11a	6Mbps	1	36	5180	5180.025	0.025	4.83	-30	120	
11a	6Mbps	1	36	5180	5180.025	0.025	4.83	50	120	

Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	64	5320	5320.025	0.025	4.70	20	90	
11a	6Mbps	1	64	5320	5320.025	0.025	4.70	20	135	
11a	6Mbps	1	64	5320	5320.050	0.050	9.40	20	120	
11a	6Mbps	1	64	5320	5320.025	0.025	4.70	-30	120	
11a	6Mbps	1	64	5320	5320.025	0.025	4.70	50	120	

Band III										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	100	5500	5500.025	0.025	4.55	20	90	
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	20	135	
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	20	120	
11a	6Mbps	1	100	5500	5500.025	0.025	4.55	-30	120	
11a	6Mbps	1	100	5500	5500.025	0.025	4.55	50	120	



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		5145.34	60.34	-13.66	74	53.82	32.93	7.26	33.67	161	258	P	H
		5150	46.94	-7.06	54	40.42	32.93	7.26	33.67	161	258	A	H
	*	5180	109.16	-	-	102.5	32.94	7.37	33.65	161	258	P	H
	*	5180	100.3	-	-	93.64	32.94	7.37	33.65	161	258	A	H
		5150	66.85	-7.15	74	60.33	32.93	7.26	33.67	240	260	P	V
		5150	52.8	-1.2	54	46.28	32.93	7.26	33.67	240	260	A	V
	*	5180	115.99	-	-	109.33	32.94	7.37	33.65	240	260	P	V
	*	5180	106.54	-	-	99.88	32.94	7.37	33.65	240	260	A	V
802.11a CH 44 5220MHz		5149.76	49.72	-24.28	74	43.2	32.93	7.26	33.67	155	79	P	H
		5147.94	38.82	-15.18	54	32.3	32.93	7.26	33.67	155	79	A	H
	*	5220	108.23	-	-	101.56	32.94	7.37	33.64	155	79	P	H
	*	5220	100.89	-	-	94.22	32.94	7.37	33.64	155	79	A	H
		5452.32	47.85	-26.15	74	40.86	32.99	7.47	33.47	155	79	P	H
		5409.84	36.57	-17.43	54	29.66	32.98	7.43	33.5	155	79	A	H
		5149.76	57.9	-16.1	74	51.38	32.93	7.26	33.67	152	91	P	V
		5144.82	45.82	-8.18	54	39.3	32.93	7.26	33.67	152	91	A	V
	*	5220	116.77	-	-	110.1	32.94	7.37	33.64	152	91	P	V
	*	5220	108.94	-	-	102.27	32.94	7.37	33.64	152	91	A	V
		5351.76	52.64	-21.36	74	45.81	32.97	7.39	33.53	152	91	P	V
		5350.08	41.7	-12.3	54	34.87	32.97	7.39	33.53	152	91	A	V



802.11a CH 48 5240MHz		5138.06	50.87	-23.13	74	44.37	32.93	7.26	33.69	150	63	P	H
		5148.98	39.81	-14.19	54	33.29	32.93	7.26	33.67	150	63	A	H
	*	5240	113.02	-	-	106.32	32.95	7.37	33.62	150	63	P	H
	*	5240	103.2	-	-	96.5	32.95	7.37	33.62	150	63	A	H
		5352.48	48.23	-25.77	74	41.4	32.97	7.39	33.53	150	63	P	H
		5354.16	37.97	-16.03	54	31.14	32.97	7.39	33.53	150	63	A	H
		5145.08	52.64	-21.36	74	46.12	32.93	7.26	33.67	160	142	P	V
		5148.98	42.51	-11.49	54	35.99	32.93	7.26	33.67	160	142	A	V
	*	5240	115.39	-	-	108.69	32.95	7.37	33.62	160	142	P	V
	*	5240	108.17	-	-	101.47	32.95	7.37	33.62	160	142	A	V
		5359.92	50.64	-23.36	74	43.81	32.97	7.39	33.53	160	142	P	V
		5351.28	41.04	-12.96	54	34.21	32.97	7.39	33.53	160	142	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	50.12	-23.88	74	58.83	39.71	10.58	59	250	0	P	H
		15540	50.61	-23.39	74	59.29	37.97	13.04	59.69	150	0	P	H
		10360	50.98	-23.02	74	59.69	39.71	10.58	59	250	0	P	V
		15738	50.34	-23.66	74	59.1	37.81	13.23	59.8	150	0	P	V
802.11a CH 44 5220MHz		10440	54.11	-19.89	74	62.7	39.85	10.58	59.02	125	230	P	H
		10440	44.94	-9.06	54	53.53	39.85	10.58	59.02	125	230	A	H
		15660	56.33	-17.67	74	65.05	37.88	13.15	59.75	125	230	P	H
		15660	47.97	-6.03	54	56.69	37.88	13.15	59.75	125	230	A	H
		10440	53.35	-20.65	74	61.94	39.85	10.58	59.02	125	230	P	V
		10440	44.1	-9.9	54	52.69	39.85	10.58	59.02	125	230	A	V
		15660	52.78	-21.22	74	61.5	37.88	13.15	59.75	125	230	P	V
		15660	47.97	-6.03	54	56.69	37.88	13.15	59.75	125	230	A	V
802.11a CH 48 5240MHz		10480	50.51	-23.49	74	58.99	39.96	10.59	59.03	149	289	P	H
		15720	55.44	-18.56	74	64.18	37.82	13.23	59.79	139	291	P	H
		15720	46.84	-7.16	54	55.58	37.82	13.23	59.79	139	291	A	H
		10480	50.27	-23.73	74	58.75	39.96	10.59	59.03	149	289	P	V
		15720	56.79	-17.21	74	65.53	37.82	13.23	59.79	139	291	P	V
		15720	48.22	-5.78	54	56.96	37.82	13.23	59.79	139	291	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 (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		5146.38	58.85	-15.15	74	52.33	32.93	7.26	33.67	183	41	P	H
		5150	47.3	-6.7	54	40.78	32.93	7.26	33.67	183	41	A	H
	*	5180	107.7	-	-	101.04	32.94	7.37	33.65	183	41	P	H
	*	5180	98.46	-	-	91.8	32.94	7.37	33.65	183	41	A	H
		5149.24	64.27	-9.73	74	57.75	32.93	7.26	33.67	220	66	P	V
		5150	53.47	-0.53	54	46.95	32.93	7.26	33.67	220	66	A	V
	*	5180	115.02	-	-	108.36	32.94	7.37	33.65	220	66	P	V
	*	5180	105.38	-	-	98.72	32.94	7.37	33.65	220	66	A	V
802.11n HT20 CH 44 5220MHz		5149.24	53.11	-20.89	74	46.59	32.93	7.26	33.67	210	98	P	H
		5148.98	38.29	-15.71	54	31.77	32.93	7.26	33.67	210	98	A	H
	*	5220	109.8	-	-	103.13	32.94	7.37	33.64	210	98	P	H
	*	5220	101.24	-	-	94.57	32.94	7.37	33.64	210	98	A	H
		5354.88	48.06	-25.94	74	41.23	32.97	7.39	33.53	210	98	P	H
		5352.96	37.39	-16.61	54	30.56	32.97	7.39	33.53	210	98	A	H
		5148.2	57.37	-16.63	74	50.85	32.93	7.26	33.67	153	88	P	V
		5146.64	45.78	-8.22	54	39.26	32.93	7.26	33.67	153	88	A	V
	*	5220	116.89	-	-	110.22	32.94	7.37	33.64	153	88	P	V
	*	5220	106.93	-	-	100.26	32.94	7.37	33.64	153	88	A	V
		5350.56	52.05	-21.95	74	45.22	32.97	7.39	33.53	153	88	P	V
		5350.32	42.11	-11.89	54	35.28	32.97	7.39	33.53	153	88	A	V



802.11n HT20 CH 48 5240MHz		5027.56	50.22	-23.78	74	43.91	32.91	7.15	33.75	150	335	P	H
		5148.98	39.62	-14.38	54	33.1	32.93	7.26	33.67	150	335	A	H
	*	5240	109.86	-	-	103.16	32.95	7.37	33.62	150	335	P	H
	*	5240	99.95	-	-	93.25	32.95	7.37	33.62	150	335	A	H
		5352.48	48.88	-25.12	74	42.05	32.97	7.39	33.53	150	335	P	H
		5365.68	38.61	-15.39	54	31.78	32.97	7.39	33.53	150	335	A	H
		5137.02	53.06	-20.94	74	46.56	32.93	7.26	33.69	150	296	P	V
		5148.46	43.44	-10.56	54	36.92	32.93	7.26	33.67	150	296	A	V
	*	5240	116.16	-	-	109.46	32.95	7.37	33.62	150	296	P	V
	*	5240	106.65	-	-	99.95	32.95	7.37	33.62	150	296	A	V
		5351.52	50.94	-23.06	74	44.11	32.97	7.39	33.53	150	296	P	V
		5354.88	42.34	-11.66	54	35.51	32.97	7.39	33.53	150	296	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	50.42	-23.58	74	59.13	39.71	10.58	59	250	0	P	H
		15540	49.4	-24.6	74	58.08	37.97	13.04	59.69	150	0	P	H
		10360	50.71	-23.29	74	59.42	39.71	10.58	59	250	0	P	V
		15540	49.64	-24.36	74	58.32	37.97	13.04	59.69	150	0	P	V
802.11n HT20 CH 44 5220MHz		10440	50.15	-23.85	74	58.74	39.85	10.58	59.02	250	0	P	H
		15660	54.85	-19.15	74	63.57	37.88	13.15	59.75	164	122	P	H
		15660	45.53	-8.47	54	54.25	37.88	13.15	59.75	164	122	A	H
		10440	50.39	-23.61	74	58.98	39.85	10.58	59.02	250	0	P	V
		15660	54.37	-19.63	74	63.09	37.88	13.15	59.75	179	211	P	V
		15660	46.29	-7.71	54	55.01	37.88	13.15	59.75	179	211	A	V
802.11n HT20 CH 48 5240MHz		10480	50.3	-23.7	74	58.78	39.96	10.59	59.03	250	0	P	H
		15720	53.54	-20.46	74	62.28	37.82	13.23	59.79	178	154	P	H
		15720	44.52	-9.48	54	53.26	37.82	13.23	59.79	178	154	A	H
		10480	50.85	-23.15	74	59.33	39.96	10.59	59.03	250	0	P	V
		15720	52.29	-21.71	74	61.03	37.82	13.23	59.79	164	210	P	V
		15720	43.42	-10.58	54	52.16	37.82	13.23	59.79	164	210	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11n 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		5145.6	66.78	-7.22	74	60.26	32.93	7.26	33.67	156	59	P	H
		5150.02	51.36	-2.64	54	44.84	32.93	7.26	33.67	156	59	A	H
	*	5190	102.67	-	-	96.01	32.94	7.37	33.65	156	59	P	H
	*	5190	96.52	-	-	89.86	32.94	7.37	33.65	156	59	A	H
		5380.8	47.87	-26.13	74	41.02	32.98	7.39	33.52	156	59	P	H
		5354.88	37.23	-16.77	54	30.4	32.97	7.39	33.53	156	59	A	H
		5144.04	69.72	-4.28	74	63.2	32.93	7.26	33.67	159	162	P	V
		5149.76	53.31	-0.69	54	46.79	32.93	7.26	33.67	159	162	A	V
	*	5190	106.42	-	-	99.76	32.94	7.37	33.65	159	162	P	V
	*	5190	98.06	-	-	91.4	32.94	7.37	33.65	159	162	A	V
		5367.6	48.33	-25.67	74	41.5	32.97	7.39	33.53	159	162	P	V
		5350.56	38.06	-15.94	54	31.23	32.97	7.39	33.53	159	162	A	V
802.11n HT40 CH 46 5230MHz		5146.64	57.91	-16.09	74	51.39	32.93	7.26	33.67	151	22	P	H
		5149.76	48.19	-5.81	54	41.67	32.93	7.26	33.67	151	22	A	H
	*	5230	107.32	-	-	100.62	32.95	7.37	33.62	151	22	P	H
	*	5230	99.88	-	-	93.18	32.95	7.37	33.62	151	22	A	H
		5354.64	53.58	-20.42	74	46.75	32.97	7.39	33.53	151	22	P	H
		5350.56	40.87	-13.13	54	34.04	32.97	7.39	33.53	151	22	A	H
		5150.02	63.02	-10.98	74	56.5	32.93	7.26	33.67	203	71	P	V
		5150.02	52.36	-1.64	54	45.84	32.93	7.26	33.67	203	71	A	V
	*	5230	115.25	-	-	108.55	32.95	7.37	33.62	203	71	P	V
	*	5230	106.25	-	-	99.55	32.95	7.37	33.62	203	71	A	V
		5352.24	61.4	-12.6	74	54.57	32.97	7.39	33.53	203	71	P	V
		5351.52	47.25	-6.75	54	40.42	32.97	7.39	33.53	203	71	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	53.88	-20.12	74	62.57	39.74	10.58	59.01	150	360	P	H
		10380	46.19	-7.81	54	54.88	39.74	10.58	59.01	150	360	A	H
		15570	49.19	-24.81	74	57.88	37.94	13.08	59.71	100	360	P	H
		10380	53.7	-20.3	74	62.39	39.74	10.58	59.01	150	360	P	V
		10380	46.47	-7.53	54	55.16	39.74	10.58	59.01	150	360	A	V
		15570	50.26	-23.74	74	58.95	37.94	13.08	59.71	100	360	P	V
802.11n HT40 CH 46 5230MHz		10460	49.74	-24.26	74	58.29	39.89	10.59	59.03	250	0	P	H
		15690	50.27	-23.73	74	59	37.85	13.19	59.77	150	0	P	H
		10460	50.04	-23.96	74	58.59	39.89	10.59	59.03	250	0	P	V
		15690	50.37	-23.63	74	59.1	37.85	13.19	59.77	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 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		5150.02	52.92	-21.08	74	46.4	32.93	7.26	33.67	161	33	P	H
		5147.68	44.03	-9.97	54	37.51	32.93	7.26	33.67	161	33	A	H
	*	5210	95.87	-	-	89.2	32.94	7.37	33.64	161	33	P	H
	*	5210	86.98	-	-	80.31	32.94	7.37	33.64	161	33	A	H
		5440.32	46.66	-27.34	74	39.72	32.99	7.43	33.48	161	33	P	H
		5450.64	38.09	-15.91	54	31.1	32.99	7.47	33.47	161	33	A	H
		5142.22	61.41	-12.59	74	54.91	32.93	7.26	33.69	232	69	P	V
		5141.18	53.33	-0.67	54	46.83	32.93	7.26	33.69	232	69	A	V
	*	5210	105.39	-	-	98.72	32.94	7.37	33.64	232	69	P	V
	*	5210	96.44	-	-	89.77	32.94	7.37	33.64	232	69	A	V
		5357.04	49.58	-24.42	74	42.75	32.97	7.39	33.53	232	69	P	V
		5352	40.24	-13.76	54	33.41	32.97	7.39	33.53	232	69	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	50.24	-23.76	74	58.85	39.82	10.58	59.01	250	0	P	H
VHT80		15630	49.5	-24.5	74	58.23	37.89	13.12	59.74	150	0	P	H
CH 42		10420	50.3	-23.7	74	58.91	39.82	10.58	59.01	250	0	P	V
5210MHz		15630	49	-25	74	57.73	37.89	13.12	59.74	150	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 802.11a (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		5120.9	49.82	-24.18	74	43.43	32.92	7.16	33.69	150	76	P	H
		5148.98	38.62	-15.38	54	32.1	32.93	7.26	33.67	150	76	A	H
	*	5260	109.39	-	-	102.66	32.95	7.38	33.6	150	76	P	H
	*	5260	102.69	-	-	95.96	32.95	7.38	33.6	150	76	A	H
		5350.32	49	-25	74	42.17	32.97	7.39	33.53	150	76	P	H
		5350.56	38.42	-15.58	54	31.59	32.97	7.39	33.53	150	76	A	H
		5146.12	51.42	-22.58	74	44.9	32.93	7.26	33.67	151	99	P	V
		5145.34	39.74	-14.26	54	33.22	32.93	7.26	33.67	151	99	A	V
	*	5260	113.09	-	-	106.36	32.95	7.38	33.6	151	99	P	V
	*	5260	106.74	-	-	100.01	32.95	7.38	33.6	151	99	A	V
		5370.96	50.2	-23.8	74	43.37	32.97	7.39	33.53	151	99	P	V
		5353.44	39.45	-14.55	54	32.62	32.97	7.39	33.53	151	99	A	V
802.11a CH 60 5300MHz		5018.46	48.56	-25.44	74	42.26	32.9	7.15	33.75	156	4	P	H
		5029.9	37.08	-16.92	54	30.77	32.91	7.15	33.75	156	4	A	H
	*	5300	105.51	-	-	98.74	32.96	7.38	33.57	156	4	P	H
	*	5300	97.31	-	-	90.54	32.96	7.38	33.57	156	4	A	H
		5378.88	48.3	-25.7	74	41.45	32.98	7.39	33.52	156	4	P	H
		5351.76	37.05	-16.95	54	30.22	32.97	7.39	33.53	156	4	A	H
		5109.98	48.81	-25.19	74	42.43	32.92	7.16	33.7	154	284	P	V
		5148.46	38	-16	54	31.48	32.93	7.26	33.67	154	284	A	V
	*	5300	111.37	-	-	104.6	32.96	7.38	33.57	154	284	P	V
	*	5300	104.57	-	-	97.8	32.96	7.38	33.57	154	284	A	V
		5372.64	50.83	-23.17	74	44	32.97	7.39	33.53	154	284	P	V
		5353.68	40.7	-13.3	54	33.87	32.97	7.39	33.53	154	284	A	V



802.11a CH 64 5320MHz	*	5320	108.05	-	-	101.28	32.96	7.38	33.57	150	346	P	H
	*	5320	98.59	-	-	91.82	32.96	7.38	33.57	150	346	A	H
		5352.16	56.97	-17.03	74	50.14	32.97	7.39	33.53	150	346	P	H
		5350.08	44.94	-9.06	54	38.11	32.97	7.39	33.53	150	346	A	H
	*	5320	115.12	-	-	108.35	32.96	7.38	33.57	246	99	P	V
	*	5320	105.9	-	-	99.13	32.96	7.38	33.57	246	99	A	V
		5352.96	68.5	-5.5	74	61.67	32.97	7.39	33.53	246	99	P	V
		5350.24	52.21	-1.79	54	45.38	32.97	7.39	33.53	246	99	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	50.55	-23.45	74	59.03	39.99	10.59	59.06	110	220	P	H
		15780	50.63	-23.37	74	59.4	37.78	13.27	59.82	109	345	P	H
		10520	52.22	-21.78	74	60.7	39.99	10.59	59.06	110	220	P	V
		10520	44.03	-9.97	54	52.51	39.99	10.59	59.06	110	220	A	V
		15780	50.44	-23.56	74	59.21	37.78	13.27	59.82	109	345	P	V
802.11a CH 60 5300MHz		10600	50.22	-23.78	74	58.76	39.96	10.65	59.15	185	215	P	H
		15900	50.67	-23.33	74	59.49	37.68	13.38	59.88	196	190	P	H
		10600	49.55	-24.45	74	58.09	39.96	10.65	59.15	185	215	P	V
		15900	50.53	-23.47	74	59.35	37.68	13.38	59.88	196	190	P	V
802.11a CH 64 5320MHz		10640	50.51	-23.49	74	59.07	39.94	10.68	59.18	250	0	P	H
		15960	50.79	-23.21	74	59.62	37.63	13.46	59.92	150	0	P	H
		10640	50.39	-23.61	74	58.95	39.94	10.68	59.18	250	0	P	V
		15960	50.35	-23.65	74	59.18	37.63	13.46	59.92	150	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 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		5122.72	48.62	-25.38	74	42.22	32.93	7.16	33.69	250	102	P	H
		5002.6	38.44	-15.56	54	32.17	32.9	7.14	33.77	250	102	A	H
	*	5260	104.58	-	-	97.85	32.95	7.38	33.6	250	102	P	H
	*	5260	95.74	-	-	89.01	32.95	7.38	33.6	250	102	A	H
		5438.88	47.79	-26.21	74	40.85	32.99	7.43	33.48	250	102	P	H
		5437.2	37.87	-16.13	54	30.93	32.99	7.43	33.48	250	102	A	H
		5113.62	51.52	-22.48	74	45.14	32.92	7.16	33.7	155	103	P	V
		5147.94	41.51	-12.49	54	34.99	32.93	7.26	33.67	155	103	A	V
	*	5260	113.81	-	-	107.08	32.95	7.38	33.6	155	103	P	V
	*	5260	104.79	-	-	98.06	32.95	7.38	33.6	155	103	A	V
		5375.52	50.55	-23.45	74	43.71	32.97	7.39	33.52	155	103	P	V
		5350.56	41.89	-12.11	54	35.06	32.97	7.39	33.53	155	103	A	V
802.11n HT20 CH 60 5300MHz		5081.9	48.21	-25.79	74	41.86	32.92	7.15	33.72	150	321	P	H
		5015.86	38.2	-15.8	54	31.92	32.9	7.15	33.77	150	321	A	H
	*	5300	100.1	-	-	93.33	32.96	7.38	33.57	150	321	P	H
	*	5300	91.47	-	-	84.7	32.96	7.38	33.57	150	321	A	H
		5436.96	47.98	-26.02	74	41.04	32.99	7.43	33.48	150	321	P	H
		5456.88	37.69	-16.31	54	30.7	32.99	7.47	33.47	150	321	A	H
		5059.54	49.89	-24.11	74	43.57	32.91	7.15	33.74	150	93	P	V
		5148.98	40.2	-13.8	54	33.68	32.93	7.26	33.67	150	93	A	V
	*	5300	112.98	-	-	106.21	32.96	7.38	33.57	150	93	P	V
	*	5300	104.53	-	-	97.76	32.96	7.38	33.57	150	93	A	V
		5362.32	51.32	-22.68	74	44.49	32.97	7.39	33.53	150	93	P	V
		5350.08	43.13	-10.87	54	36.3	32.97	7.39	33.53	150	93	A	V



802.11n HT20 CH 64 5320MHz	*	5320	109.15	-	-	102.38	32.96	7.38	33.57	165	353	P	H
	*	5320	100.48	-	-	93.71	32.96	7.38	33.57	165	353	P	H
		5350.4	65.21	-8.79	74	58.38	32.97	7.39	33.53	165	353	P	H
		5350.08	49	-5	54	42.17	32.97	7.39	33.53	165	353	A	H
	*	5320	114.83	-	-	108.06	32.96	7.38	33.57	237	257	P	V
	*	5320	106.19	-	-	99.42	32.96	7.38	33.57	237	257	A	V
		5350.72	69.72	-4.28	74	62.89	32.97	7.39	33.53	237	257	P	V
		5350.08	52.69	-1.31	54	45.86	32.97	7.39	33.53	237	257	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	50.64	-23.36	74	59.18	39.96	10.65	59.15	250	0	P	H
		15900	50.13	-23.87	74	58.95	37.68	13.38	59.88	196	190	P	H
		10600	50.02	-23.98	74	58.56	39.96	10.65	59.15	185	215	P	V
		15900	50.36	-23.64	74	59.18	37.68	13.38	59.88	196	190	P	V
802.11n HT20 CH 64 5320MHz		10640	50.85	-23.15	74	59.41	39.94	10.68	59.18	152	135	P	H
		15960	52.96	-21.04	74	61.79	37.63	13.46	59.92	173	245	P	H
		15960	44.15	-9.85	54	52.98	37.63	13.46	59.92	173	245	A	H
		10640	50.29	-23.71	74	58.85	39.94	10.68	59.18	152	135	P	V
		15960	50.64	-23.36	74	59.47	37.63	13.46	59.92	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		5107.38	49.91	-24.09	74	43.53	32.92	7.16	33.7	190	248	P	H
		5148.72	40.16	-13.84	54	33.64	32.93	7.26	33.67	190	248	A	H
	*	5270	108.21	-	-	101.48	32.95	7.38	33.6	190	248	P	H
	*	5270	99.4	-	-	92.67	32.95	7.38	33.6	190	248	A	H
		5361.36	59.08	-14.92	74	52.25	32.97	7.39	33.53	190	248	P	H
		5350.56	45.4	-8.6	54	38.57	32.97	7.39	33.53	190	248	A	H
		5135.72	55.41	-18.59	74	48.91	32.93	7.26	33.69	248	252	P	V
		5146.9	44.94	-9.06	54	38.42	32.93	7.26	33.67	248	252	A	V
	*	5270	115.91	-	-	109.18	32.95	7.38	33.6	248	252	P	V
	*	5270	106.49	-	-	99.76	32.95	7.38	33.6	248	252	A	V
		5354.88	63.75	-10.25	74	56.92	32.97	7.39	33.53	248	252	P	V
		5350.32	53.27	-0.73	54	46.44	32.97	7.39	33.53	248	252	A	V
802.11n HT40 CH 62 5310MHz		5099.06	48.52	-25.48	74	42.14	32.92	7.16	33.7	150	350	P	H
		5126.88	37.89	-16.11	54	31.39	32.93	7.26	33.69	150	350	A	H
	*	5310	101.99	-	-	95.22	32.96	7.38	33.57	150	350	P	H
	*	5310	94.54	-	-	87.77	32.96	7.38	33.57	150	350	A	H
		5358.24	56.32	-17.68	74	49.49	32.97	7.39	33.53	150	350	P	H
		5350.32	44.89	-9.11	54	38.06	32.97	7.39	33.53	150	350	A	H
		5129.74	49.35	-24.65	74	42.85	32.93	7.26	33.69	202	251	P	V
		5142.74	39.91	-14.09	54	33.41	32.93	7.26	33.69	202	251	A	V
	*	5310	109.61	-	-	102.84	32.96	7.38	33.57	202	251	P	V
	*	5310	100.79	-	-	94.02	32.96	7.38	33.57	202	251	A	V
		5354.64	66.94	-7.06	74	60.11	32.97	7.39	33.53	202	251	P	V
		5351.04	52.7	-1.3	54	45.87	32.97	7.39	33.53	202	251	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n		10540	50.03	-23.97	74	58.5	39.99	10.62	59.08	250	0	P	H
HT40		15810	50.49	-23.51	74	59.27	37.75	13.31	59.84	150	0	P	H
CH 54		10540	50.01	-23.99	74	58.48	39.99	10.62	59.08	250	0	P	V
5270MHz		15810	49.86	-24.14	74	58.64	37.75	13.31	59.84	150	0	P	V
802.11n		10620	50.74	-23.26	74	59.28	39.95	10.68	59.17	250	0	P	H
HT40		15930	50.84	-23.16	74	59.66	37.66	13.42	59.9	150	0	P	H
CH 62		10620	49.87	-24.13	74	58.41	39.95	10.68	59.17	250	0	P	V
5310MHz		15930	50.56	-23.44	74	59.38	37.66	13.42	59.9	150	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 802.11ac 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		5112.06	48.14	-25.86	74	41.76	32.92	7.16	33.7	150	346	P	H
		5129.74	37.56	-16.44	54	31.06	32.93	7.26	33.69	150	346	A	H
	*	5290	96.59	-	-	89.83	32.96	7.38	33.58	150	346	P	H
	*	5290	88.16	-	-	81.4	32.96	7.38	33.58	150	346	A	H
		5353.2	55.34	-18.66	74	48.51	32.97	7.39	33.53	150	346	P	H
		5358.96	44.9	-9.1	54	38.07	32.97	7.39	33.53	150	346	A	H
		5145.6	50.02	-23.98	74	43.5	32.93	7.26	33.67	250	87	P	V
		5145.34	39.81	-14.19	54	33.29	32.93	7.26	33.67	250	87	A	V
	*	5290	106.12	-	-	99.36	32.96	7.38	33.58	250	87	P	V
	*	5290	97.21	-	-	90.45	32.96	7.38	33.58	250	87	A	V
		5354.4	65.09	-8.91	74	58.26	32.97	7.39	33.53	250	87	P	V
		5350.08	53.53	-0.47	54	46.7	32.97	7.39	33.53	250	87	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 VHT80 CH 58 5290MHz		10580	50.43	-23.57	74	58.94	39.97	10.65	59.13	250	0	P	H
		15870	50.64	-23.36	74	59.46	37.7	13.35	59.87	150	0	P	H
		10580	51.13	-22.87	74	59.64	39.97	10.65	59.13	189	154	P	V
		10580	41.75	-12.25	54	50.26	39.97	10.65	59.13	189	154	A	V
		15870	50.53	-23.47	74	59.35	37.7	13.35	59.87	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - 5470~5725MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 100 5500MHz		5468.72	58.51	-15.49	74	51.52	32.99	7.47	33.47	153	332	P	H
		5470	43.97	-10.03	54	36.98	32.99	7.47	33.47	153	332	A	H
	*	5500	106.72	-	-	99.66	33	7.51	33.45	153	332	P	H
	*	5500	97.62	-	-	90.56	33	7.51	33.45	153	332	A	H
		5465.68	69.38	-4.62	74	62.39	32.99	7.47	33.47	228	113	P	V
		5470	52.75	-1.25	54	45.76	32.99	7.47	33.47	228	113	A	V
	*	5500	115.59	-	-	108.53	33	7.51	33.45	228	113	P	V
	*	5500	105.9	-	-	98.84	33	7.51	33.45	228	113	A	V
802.11a CH 116 5580MHz		5414.08	47.58	-26.42	74	40.67	32.98	7.43	33.5	150	49	P	H
		5468.8	36.93	-17.07	54	29.94	32.99	7.47	33.47	150	49	A	H
	*	5580	103.58	-	-	96.34	33.08	7.64	33.48	150	49	P	H
	*	5580	95.74	-	-	88.5	33.08	7.64	33.48	150	49	A	H
		5744	46.77	-27.23	74	39.27	33.29	7.74	33.53	150	49	P	H
		5741.55	36.62	-17.38	54	29.12	33.29	7.74	33.53	150	49	A	H
		5413.12	50.87	-23.13	74	43.96	32.98	7.43	33.5	151	113	P	V
		5467.36	40.59	-13.41	54	33.6	32.99	7.47	33.47	151	113	A	V
	*	5580	111.9	-	-	104.66	33.08	7.64	33.48	151	113	P	V
	*	5580	103.82	-	-	96.58	33.08	7.64	33.48	151	113	A	V
		5754.85	48.38	-25.62	74	40.86	33.31	7.74	33.53	151	113	P	V
		5760.275	38.8	-15.2	54	31.28	33.31	7.74	33.53	151	113	A	V



802.11a CH 140 5700MHz	*	5700	105.64	-	-	98.24	33.23	7.68	33.51	237	213	P	H
	*	5700	97.21	-	-	89.81	33.23	7.68	33.51	237	213	A	H
		5726.12	61.45	-12.55	74	53.96	33.27	7.74	33.52	237	213	P	H
		5725	45.9	-8.1	54	38.47	33.27	7.68	33.52	237	213	A	H
	*	5700	112.1	-	-	104.7	33.23	7.68	33.51	194	149	P	V
	*	5700	103.76	-	-	96.36	33.23	7.68	33.51	194	149	A	V
		5727.72	68.35	-5.65	74	60.86	33.27	7.74	33.52	194	149	P	V
		5725	53.49	-0.51	54	46.06	33.27	7.68	33.52	194	149	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	50.23	-23.77	74	59.03	39.8	10.96	59.56	163	230	P	H
		16500	50.67	-23.33	74	58.03	38.5	13.81	59.67	178	296	P	H
		11000	49.86	-24.14	74	58.66	39.8	10.96	59.56	163	230	P	V
		16500	50.02	-23.98	74	57.38	38.5	13.81	59.67	178	296	P	V
802.11a CH 116 5580MHz		11160	48.09	-25.91	74	56.95	39.77	11	59.63	170	200	P	H
		16740	50.28	-23.72	74	56.32	38.98	14.4	59.42	156	350	P	H
		11160	49.12	-24.88	74	57.98	39.77	11	59.63	170	200	P	V
		16740	50.18	-23.82	74	56.22	38.98	14.4	59.42	156	350	P	V
802.11a CH 140 5700MHz		11400	50.2	-23.8	74	59.13	39.72	11.07	59.72	147	285	P	H
		17100	50.99	-23.01	74	55.01	39.74	15.01	58.77	150	0	P	H
		11400	50.34	-23.66	74	59.27	39.72	11.07	59.72	147	285	P	V
		17100	50.72	-23.28	74	54.74	39.74	15.01	58.77	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		5469.84	57.48	-16.52	74	50.49	32.99	7.47	33.47	162	353	P	H
		5470	44.55	-9.45	54	37.56	32.99	7.47	33.47	162	353	A	H
	*	5500	107.11	-	-	100.05	33	7.51	33.45	162	353	P	H
	*	5500	99.06	-	-	92	33	7.51	33.45	162	353	A	H
		5470	66.58	-7.42	74	59.59	32.99	7.47	33.47	250	263	P	V
		5469.52	53	-1	54	46.01	32.99	7.47	33.47	250	263	A	V
	*	5500	113.54	-	-	106.48	33	7.51	33.45	250	263	P	V
	*	5500	104.9	-	-	97.84	33	7.51	33.45	250	263	A	V
802.11n HT20 CH 116 5580MHz		5376.64	48	-26	74	41.16	32.97	7.39	33.52	151	221	P	H
		5469.28	38.66	-15.34	54	31.67	32.99	7.47	33.47	151	221	A	H
	*	5580	104.49	-	-	97.25	33.08	7.64	33.48	151	221	P	H
	*	5580	96.28	-	-	89.04	33.08	7.64	33.48	151	221	A	H
		5756.775	48.57	-25.43	74	41.05	33.31	7.74	33.53	151	221	P	H
		5730.525	38.04	-15.96	54	30.56	33.27	7.74	33.53	151	221	A	H
		5462.8	51.29	-22.71	74	44.3	32.99	7.47	33.47	150	154	P	V
		5466.88	41.42	-12.58	54	34.43	32.99	7.47	33.47	150	154	A	V
	*	5580	112.28	-	-	105.04	33.08	7.64	33.48	150	154	P	V
	*	5580	102.67	-	-	95.43	33.08	7.64	33.48	150	154	A	V
		5760.45	47.63	-26.37	74	40.11	33.31	7.74	33.53	150	154	P	V
		5760.275	40.23	-13.77	54	32.71	33.31	7.74	33.53	150	154	A	V



802.11n HT20 CH 140 5700MHz	*	5700	103.02	-	-	95.62	33.23	7.68	33.51	153	209	P	H
	*	5700	94.91	-	-	87.51	33.23	7.68	33.51	153	209	A	H
		5725.16	58.89	-15.11	74	51.46	33.27	7.68	33.52	153	209	P	H
		5725.08	43.68	-10.32	54	36.25	33.27	7.68	33.52	153	209	A	H
	*	5700	111.78	-	-	104.38	33.23	7.68	33.51	209	291	P	V
	*	5700	103.07	-	-	95.67	33.23	7.68	33.51	209	291	A	V
		5725.96	69.09	-4.91	74	61.6	33.27	7.74	33.52	209	291	P	V
		5725.24	52.77	-1.23	54	45.34	33.27	7.68	33.52	209	291	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+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	50.81	-23.19	74	59.61	39.8	10.96	59.56	163	230	P	H
		16500	50.79	-23.21	74	58.15	38.5	13.81	59.67	178	296	P	H
		11000	50.58	-23.42	74	59.38	39.8	10.96	59.56	163	230	P	V
		16500	50.11	-23.89	74	57.47	38.5	13.81	59.67	178	296	P	V
802.11n HT20 CH 116 5580MHz		11160	49.1	-24.9	74	57.96	39.77	11	59.63	250	0	P	H
		16740	50.39	-23.61	74	56.43	38.98	14.4	59.42	150	0	P	H
		11160	48.89	-25.11	74	57.75	39.77	11	59.63	250	0	P	V
		16740	50.06	-23.94	74	56.1	38.98	14.4	59.42	150	0	P	V
802.11n HT20 CH 140 5700MHz		11400	49.63	-24.37	74	58.56	39.72	11.07	59.72	147	285	P	H
		17100	50.83	-23.17	74	54.85	39.74	15.01	58.77	165	246	P	H
		11400	49.27	-24.73	74	58.2	39.72	11.07	59.72	147	285	P	V
		17100	50.9	-23.1	74	54.92	39.74	15.01	58.77	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		5462.8	57.99	-16.01	74	51	32.99	7.47	33.47	150	330	P	H
		5469.52	45.55	-8.45	54	38.56	32.99	7.47	33.47	150	330	A	H
	*	5510	99.78	-	-	92.73	33	7.51	33.46	150	330	P	H
	*	5510	91.38	-	-	84.33	33	7.51	33.46	150	330	A	H
		5726.5	47.7	-26.3	74	40.21	33.27	7.74	33.52	150	330	P	H
		5746.625	37.29	-16.71	54	29.79	33.29	7.74	33.53	150	330	A	H
		5467.12	68.69	-5.31	74	61.7	32.99	7.47	33.47	235	106	P	V
		5470	52.79	-1.21	54	45.8	32.99	7.47	33.47	235	106	A	V
	*	5510	110.61	-	-	103.56	33	7.51	33.46	235	106	P	V
	*	5510	101.67	-	-	94.62	33	7.51	33.46	235	106	A	V
		5760.275	48.73	-25.27	74	41.21	33.31	7.74	33.53	235	106	P	V
		5760.1	41.06	-12.94	54	33.54	33.31	7.74	33.53	235	106	A	V
802.11n HT40 CH 110 5550MHz		5469.52	57.35	-16.65	74	50.36	32.99	7.47	33.47	150	205	P	H
		5469.04	43.66	-10.34	54	36.67	32.99	7.47	33.47	150	205	A	H
	*	5550	104.55	-	-	97.39	33.06	7.57	33.47	150	205	P	H
	*	5550	97.05	-	-	89.89	33.06	7.57	33.47	150	205	A	H
		5760.45	48.88	-25.12	74	41.36	33.31	7.74	33.53	150	205	P	H
		5750.3	37.86	-16.14	54	30.36	33.29	7.74	33.53	150	205	A	H
		5469.04	62.79	-11.21	74	55.8	32.99	7.47	33.47	250	111	P	V
		5469.76	51.92	-2.08	54	44.93	32.99	7.47	33.47	250	111	A	V
	*	5550	115.98	-	-	108.82	33.06	7.57	33.47	250	111	P	V
	*	5550	106.74	-	-	99.58	33.06	7.57	33.47	250	111	A	V
		5725.275	51.84	-22.16	74	44.41	33.27	7.68	33.52	250	111	P	V
		5726.675	41.97	-12.03	54	34.48	33.27	7.74	33.52	250	111	A	V



802.11n HT40 CH 134 5670MHz		5350.24	48.26	-25.74	74	41.43	32.97	7.39	33.53	151	354	P	H
		5462.8	36.89	-17.11	54	29.9	32.99	7.47	33.47	151	354	A	H
	*	5670	102.9	-	-	95.52	33.21	7.67	33.5	151	354	P	H
	*	5670	92.51	-	-	85.13	33.21	7.67	33.5	151	354	A	H
		5726.5	58.08	-15.92	74	50.59	33.27	7.74	33.52	151	354	P	H
		5724.925	43.95	-10.05	54	36.52	33.27	7.68	33.52	151	354	A	H
		5434.96	49.33	-24.67	74	42.39	32.99	7.43	33.48	229	148	P	V
		5465.2	39.13	-14.87	54	32.14	32.99	7.47	33.47	229	148	A	V
	*	5670	111.7	-	-	104.32	33.21	7.67	33.5	229	148	P	V
	*	5670	102.24	-	-	94.86	33.21	7.67	33.5	229	148	A	V
		5727.025	66.62	-7.38	74	59.13	33.27	7.74	33.52	229	148	P	V
		5724.925	52.98	-1.02	54	45.55	33.27	7.68	33.52	229	148	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	49.13	-24.87	74	57.93	39.8	10.97	59.57	250	0	P	H
		16530	50.52	-23.48	74	57.67	38.57	13.91	59.63	150	0	P	H
		11020	50.15	-23.85	74	58.95	39.8	10.97	59.57	250	0	P	V
		16530	50.5	-23.5	74	57.65	38.57	13.91	59.63	150	0	P	V
802.11n HT40 CH 110 5550MHz		11100	50.98	-23.02	74	59.81	39.78	10.99	59.6	100	200	P	H
		16650	53.92	-20.08	74	60.42	38.81	14.2	59.51	100	350	P	H
		16650	45.24	-8.76	54	51.74	38.81	14.2	59.51	100	350	A	H
		11100	49.72	-24.28	74	58.55	39.78	10.99	59.6	100	200	P	V
		16650	53.24	-20.76	74	59.74	38.81	14.2	59.51	100	350	P	V
		16650	43.63	-10.37	54	50.13	38.81	14.2	59.51	100	350	A	V
802.11n HT40 CH 134 5670MHz		11340	49.82	-24.18	74	58.72	39.73	11.06	59.69	200	360	P	H
		17010	50.22	-23.78	74	54.7	39.54	15.08	59.1	200	360	P	H
		11340	50.15	-23.85	74	59.05	39.73	11.06	59.69	200	360	P	V
		17010	50.26	-23.74	74	54.74	39.54	15.08	59.1	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		5461.12	54.29	-19.71	74	47.3	32.99	7.47	33.47	150	330	P	H
		5461.6	43.01	-10.99	54	36.02	32.99	7.47	33.47	150	330	A	H
	*	5530	95.93	-	-	88.81	33.02	7.57	33.47	150	330	P	H
	*	5530	86.64	-	-	79.52	33.02	7.57	33.47	150	330	A	H
		5731.225	48.42	-25.58	74	40.94	33.27	7.74	33.53	150	330	P	H
		5744.525	37.26	-16.74	54	29.76	33.29	7.74	33.53	150	330	A	H
		5464.96	62.57	-11.43	74	55.58	32.99	7.47	33.47	234	113	P	V
		5461.84	53.74	-0.26	54	46.75	32.99	7.47	33.47	234	113	A	V
	*	5530	105.38	-	-	98.26	33.02	7.57	33.47	234	113	P	V
	*	5530	96.6	-	-	89.48	33.02	7.57	33.47	234	113	A	V
		5760.45	50.08	-23.92	74	42.56	33.31	7.74	33.53	234	113	P	V
		5760.1	41.64	-12.36	54	34.12	33.31	7.74	33.53	234	113	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	49.16	-24.84	74	57.98	39.79	10.98	59.59	250	0	P	H
VHT80		16590	50.49	-23.51	74	57.39	38.67	14.01	59.58	150	0	P	H
CH 106		11060	49.1	-24.9	74	57.92	39.79	10.98	59.59	250	0	P	V
5530MHz		16590	50.13	-23.87	74	57.03	38.67	14.01	59.58	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

WIFI 802.11ac VHT80 (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ac VHT80 LF		30.97	28.31	-11.69	40	33.19	26.28	0.62	31.78	-	-	P	H
		299.66	36.24	-9.76	46	46.87	19.1	1.6	31.33	-	-	P	H
		499.48	31.88	-14.12	46	38.22	22.74	2.07	31.15	-	-	P	H
		724.52	34.1	-11.9	46	35.38	27.5	2.44	31.22	-	-	P	H
		821.52	38.8	-7.2	46	39.7	27.7	2.65	31.25	100	0	P	H
		1000	36.99	-17.01	54	34.66	30.4	3.19	31.26	-	-	P	H
		30	30.06	-9.94	40	34.52	26.7	0.62	31.78	100	0	P	V
		183.26	28.59	-14.91	43.5	42.28	16.33	1.28	31.3	-	-	P	V
		499.48	34.46	-11.54	46	40.8	22.74	2.07	31.15	-	-	P	V
		697.36	34.6	-11.4	46	35.82	27.56	2.44	31.22	-	-	P	V
		877.78	34.54	-11.46	46	34.78	28.32	2.71	31.27	-	-	P	V
		998.06	37.79	-16.21	54	35.5	30.36	3.19	31.26	-	-	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)

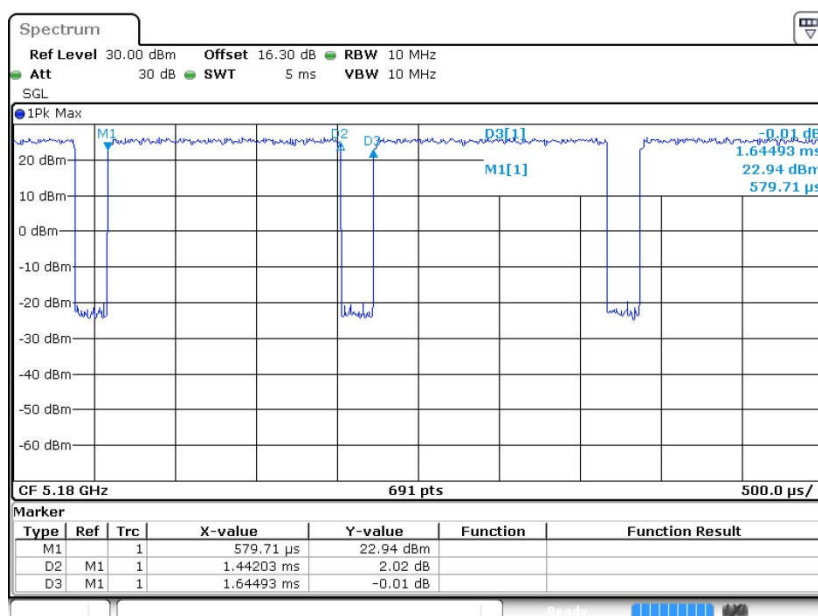
Both peak and average measured complies with the limit line, so test result is “PASS”.

Appendix C. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1+2	802.11a	87.67	1.44	0.69	1KHz
1+2	802.11n HT20	86.73	1.34	0.74	1KHz
1+2	802.11n HT40	76.53	0.67	1.49	3KHz
1+2	802.11ac VHT80	62.03	0.34	2.97	3KHz

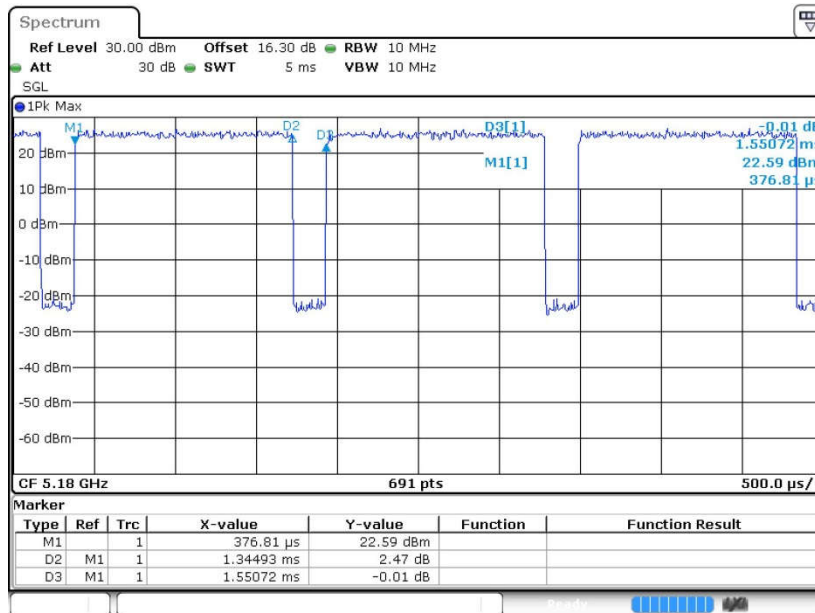
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802.11a

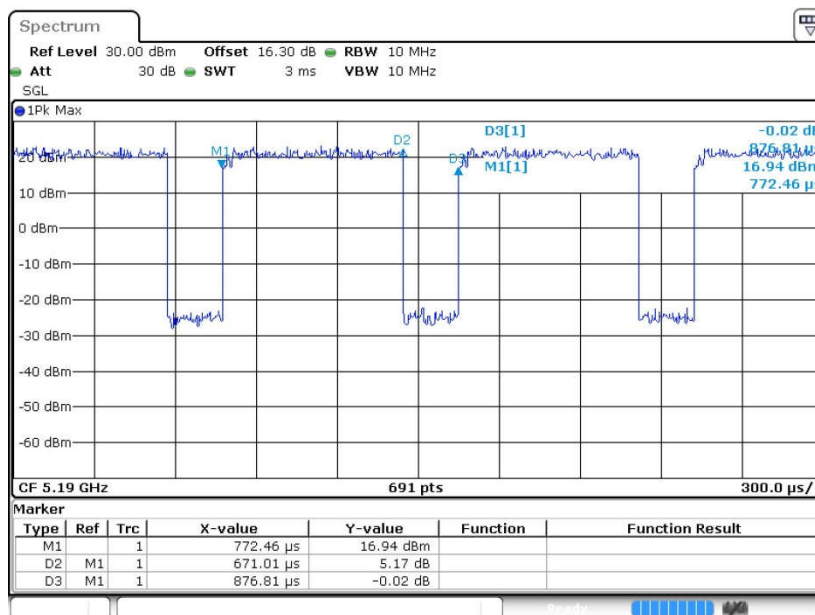




802.11n HT20



802.11n HT40





802.11ac VHT80

