



FCC RF Test Report

APPLICANT : Lenovo(Shanghai) Electronics Technology Co., Ltd.
EQUIPMENT : Standalone VR Headset
BRAND NAME : Lenovo
MODEL NAME : Lenovo VR-1541F
FCC ID : O57VR1541F
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Sep. 01, 2017 and testing was completed on Dec. 11, 2017. We, Sporton International (Kunshan) 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 (Kunshan) Inc., the test report shall not be reproduced except in full.



Approved by: James Huang / Manager

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China



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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 3.05 dB at 5352.24 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 10.79 dB at 0.156 MHz
3.6	15.407(g)	Frequency Stability	Within Operation Band	Pass	-
3.7	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Lenovo(Shanghai) Electronics Technology Co., Ltd.
NO.68 BUILDING, 199 FENJU RD, Pilot Free Trade Zone, 200131, China

1.2 Manufacturer

Lenovo PC HK Limited
23/F, Lincoln House, Taikoo Place, 979 King's Road, Quarry Bay, Hong Kong

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Standalone VR Headset
Brand Name	Lenovo
Model Name	Lenovo VR-1541F
FCC ID	O57VR1541F
EUT supports Radios application	WLAN 2.4GHz 802.11b/g/n HT20/ WLAN 5GHz 802.11a/n HT20/HT40/ WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/ Bluetooth v2.0 + EDR/ Bluetooth v 4.0 LE/ Bluetooth v4.2 LE/ Bluetooth v5.0 LE
HW Version	R5
SW Version	OVR2.170822.001
EUT Stage	Identical Prototype

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



1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5720 MHz
Maximum Output Power to Antenna	<p><5180 MHz ~ 5240 MHz> <Ant. 1> 802.11a : 16.97 dBm / 0.0498 W MIMO <Ant. 1 + 2> 802.11n HT20 : 16.10 dBm / 0.0407 W 802.11n HT40 : 18.86 dBm / 0.0769 W 802.11ac VHT80 : 14.89 dBm / 0.0308 W</p> <p><5260 MHz ~ 5320 MHz> <Ant. 1> 802.11a : 16.99 dBm / 0.0500 W MIMO <Ant. 1 + 2> 802.11n HT20 : 19.87 dBm / 0.0971 W 802.11n HT40 : 19.63 dBm / 0.0918 W 802.11ac VHT80 : 13.20 dBm / 0.0209 W</p> <p><5500 MHz ~ 5720 MHz > <Ant. 1> 802.11a : 16.95 dBm / 0.0495 W MIMO <Ant. 1 + 2> 802.11n HT40 : 19.67 dBm / 0.0927 W 802.11ac VHT20 : 19.66 dBm / 0.0925 W 802.11ac VHT80 : 18.73 dBm / 0.0746 W</p>
99% Occupied Bandwidth	<p><5180 MHz ~ 5240 MHz> <Ant. 2> 802.11a : 20.78 MHz <Ant. 1+2> 802.11n HT20 : 19.28 MHz 802.11n HT40 : 37.66 MHz 802.11ac VHT80 : 76.12 MHz</p> <p><5260 MHz ~ 5320 MHz> <Ant. 1> 802.11a : 20.03 MHz <Ant. 1+2> 802.11n HT20 : 21.43 MHz 802.11n HT40 : 40.76 MHz 802.11ac VHT80 : 76.00 MHz</p> <p><5500 MHz ~ 5720 MHz > <Ant. 1> 802.11a : 18.38 MHz <Ant. 1+2> 802.11n HT40 : 37.86 MHz 802.11ac VHT20 : 19.83 MHz 802.11ac VHT80 : 76.12 MHz</p>



Antenna Type / Gain	<p><5180 MHz ~ 5240 MHz> Ant. 1 : Dipole Antenna with gain 1.20 dBi Ant. 2 : Dipole Antenna with gain 1.10 dBi <5260 MHz ~ 5320 MHz> Ant. 1 : Dipole Antenna with gain 1.60 dBi Ant. 2 : Dipole Antenna with gain 1.60 dBi <5500 MHz ~ 5720 MHz > Ant. 1 : Dipole Antenna with gain 1.70 dBi Ant. 2 : Dipole Antenna with gain 1.70 dBi</p>									
Type of Modulation	<p>802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)</p>									
Antenna Function Description	<table border="1"> <thead> <tr> <th></th> <th>Ant. 1</th> <th>Ant. 2</th> </tr> </thead> <tbody> <tr> <td>802.11a/n/ac SISO</td> <td>V</td> <td>V</td> </tr> <tr> <td>802.11n/ac MIMO</td> <td>V</td> <td>V</td> </tr> </tbody> </table>		Ant. 1	Ant. 2	802.11a/n/ac SISO	V	V	802.11n/ac MIMO	V	V
	Ant. 1	Ant. 2								
802.11a/n/ac SISO	V	V								
802.11n/ac MIMO	V	V								

Note:

1. 802.11a only support SISO mode, 802.11n/ac support SISO & MIMO mode.
2. For 802.11a SISO mode, we only test one Antenna by referring to its higher conducted power.
3. For 802.11n/ac mode, we only test MIMO mode because the MIMO power is higher than SIMO power.
4. MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.
5. For 11n HT20 & 11ac VHT20 mode, the whole testing has assessed only one by referring to their higher conducted power.
6. For 11n HT40 & 11ac VHT40 mode, the whole testing has assessed only one 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 Specification of Accessory

Specification of Accessory			
AC Adapter 1 (US)	Brand Name	Lenovo (Huntkey)	Model Name C-P35
	Power Rating	I/P: 100-240Vac, 500mA, O/P: 5.2V/ 2000 mA	
AC Adapter 1 (EU)	Brand Name	Lenovo (Huntkey)	Model Name C-P36
	Power Rating	I/P: 100-240Vac, 500mA, O/P: 5.2V/ 2000 mA	
AC Adapter 1 (UK)	Brand Name	Lenovo (Huntkey)	Model Name C-P37
	Power Rating	I/P: 100-240Vac, 500mA, O/P: 5.2V/ 2000 mA	
AC Adapter 1 (Korea)	Brand Name	Lenovo (Huntkey)	Model Name C-P46
	Power Rating	I/P: 100-240Vac, 500mA, O/P: 5.2V/ 2000 mA	
AC Adapter 1 (AU)	Brand Name	Lenovo (Huntkey)	Model Name C-P48
	Power Rating	I/P: 100-240Vac, 500mA, O/P: 5.2V/ 2000 mA	
AC Adapter 2 (US)	Brand Name	Lenovo (Acbel)	Model Name C-P35
	Power Rating	I/P: 100-240Vac, 300mA, O/P: 5.2V/ 2000 mA	
AC Adapter 2 (EU)	Brand Name	Lenovo (Acbel)	Model Name C-P36
	Power Rating	I/P: 100-240Vac, 300mA, O/P: 5.2V/ 2000 mA	
AC Adapter 2 (UK)	Brand Name	Lenovo (Acbel)	Model Name C-P37
	Power Rating	I/P: 100-240Vac, 300mA, O/P: 5.2V/ 2000 mA	
Battery	Brand Name	Lenovo (SCUD)	Model Name L17D1P33
	Power Rating	3.85Vdc, 4000mAh	Type Li-ion
USB cable	Brand Name	Lenovo (Saibao)	Model Name SGA-A016A
	Signal Line	1.0 meter, shielded cable, without ferrite core	
Controller	Brand Name	Lenovo (Daydream)	Model Name DG1CA
Earphone	Brand Name	Lenovo	Model Name CE-1601T
	Signal Line	0.5 meter, Unshielded cable, without ferrite core	

1.7 Component List

Note: There are two types of EUT, the details refer the following table. According to the difference, we choose the sample 1 to full test.

Component	Sample 1		Sample 2	
	UFS(64G)	THGAF4G9N4LBAIR	Toshiba	KLUCG4J1ED-B0C1



1.8 Testing Location

Sporton International (Kunshan) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600155-0) and the FCC designation No is CN5013.

Test Site	Sporton International (Kunshan) Inc.		
Test Site Location	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.		FCC Test Firm Registration No.
	TH01-KS	CO01-KS	630927

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

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.
	03CH04-SZ		577730

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

1.9 Applicable Standards

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

- ♦ FCC Part 15 Subpart E
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules v02
- ♦ 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 were recorded in this report.

2.1 Carrier Frequency Channel

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

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

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5500-5720 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



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

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channel	138 [#]	5690	144	5720
	142*	5710	-	-

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.

Single 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

MIMO Antenna

Modulation	Data Rate
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 : Bluetooth Link + WLAN Link(5G) + USB Cable (Charging from Adapter 1) + Earphone Mode 2 : Bluetooth Link + WLAN Link(5G) + USB Cable (Charging from Adapter 2) + Earphone

Remark:

1. The worst case of conducted emission is mode 1; only the test data of it was reported.
2. For Radiated Test Cases, The tests were performed with Adapter 1, USB Cable and Earphone.
3. For 11n HT20 & 11ac VHT20 mode, 11n HT40 & 11ac VHT40 mode, the whole testing has assessed only one by referring to their higher conducted power.



Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

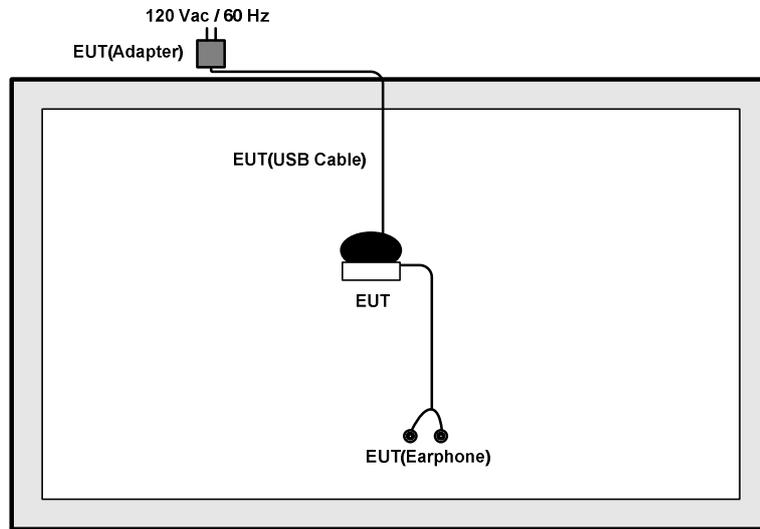
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11n HT20	802.11n HT20	802.11n VHT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11n HT40	802.11n HT40	802.11n HT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134
Straddle		-	-	142

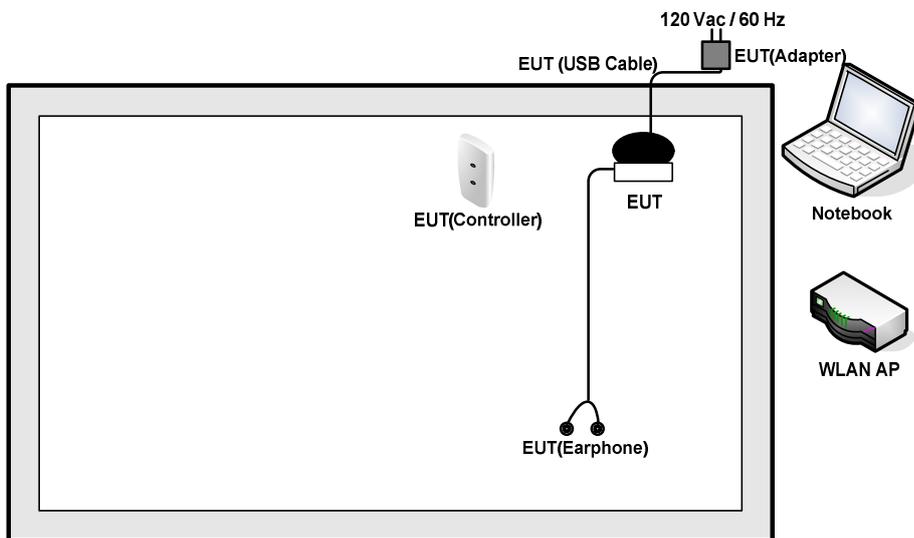
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	106
M	Middle	42	58	-
H	High	-	-	122
Straddle		-	-	138

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-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
2.	Notebook	Lenovo	G480	PRC4	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
3.	SD Card	Kingston	8GB	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 WLAN AP under large package sizes transmission.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss 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.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 6.8 dB.

Offset(dB) = RF cable loss(dB) = 6.8 (dB)

3 Test Result

3.1 26dB & 99% Occupied Bandwidth Measurement

3.1.1 Description of 26dB & 99% Occupied Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

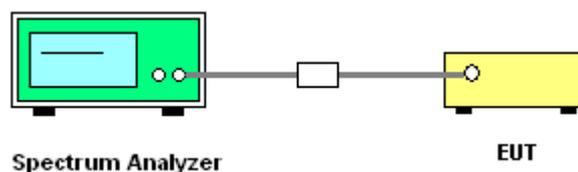
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02.
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) $\geq 3 * RBW$.
8. Measure and record the results in the test report.

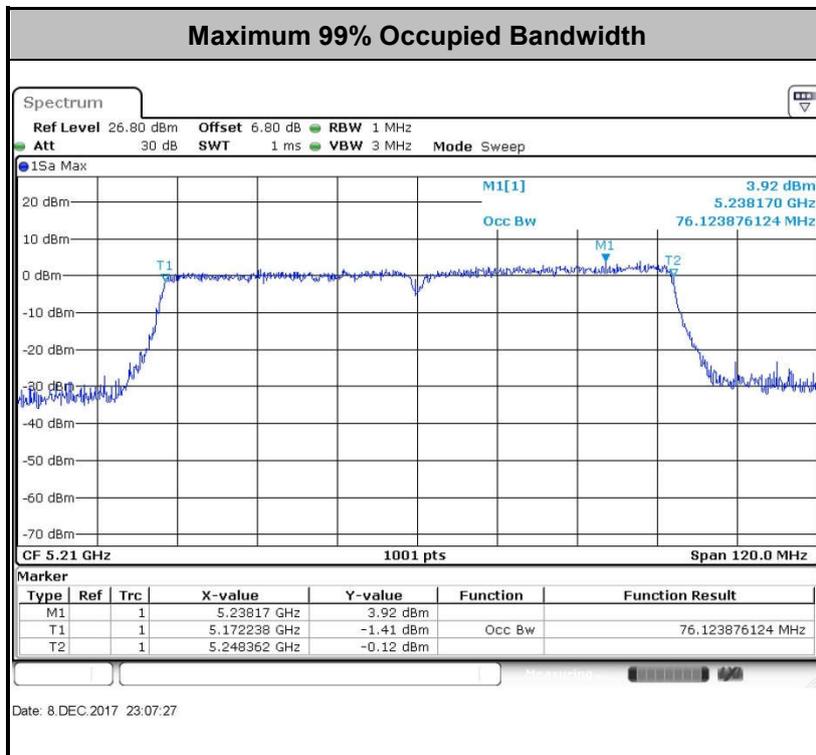
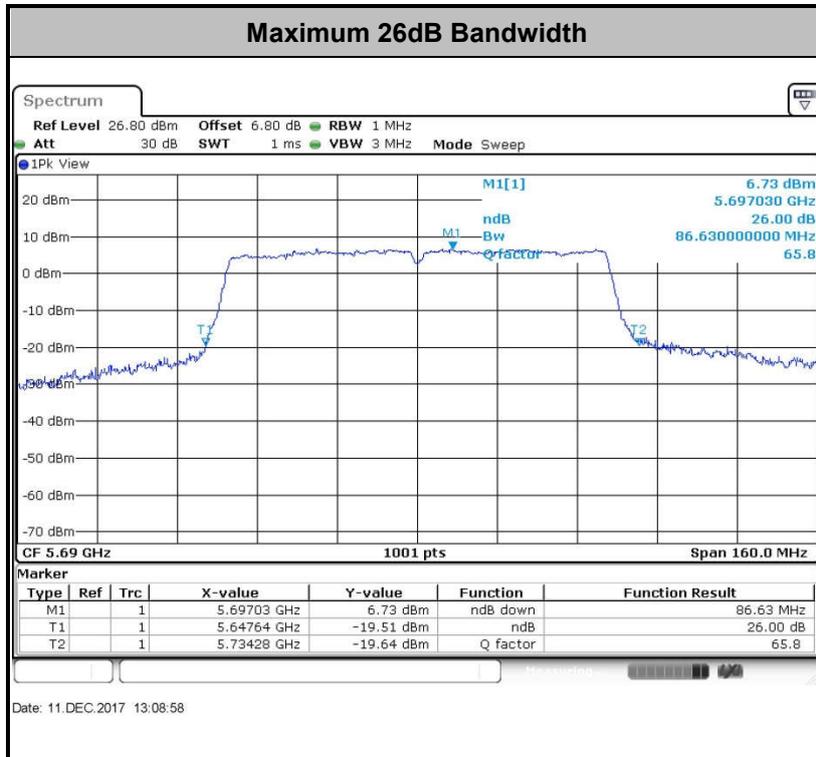
3.1.4 Test Setup





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

Please refer to Appendix A.



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.

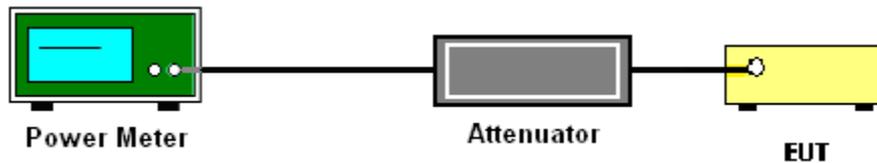
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02.

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 v02.
Section F) Maximum power spectral density.

Method SA-2

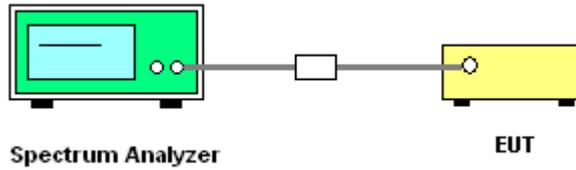
(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

1. The testing follows Method SA-2 of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02.
 - 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.

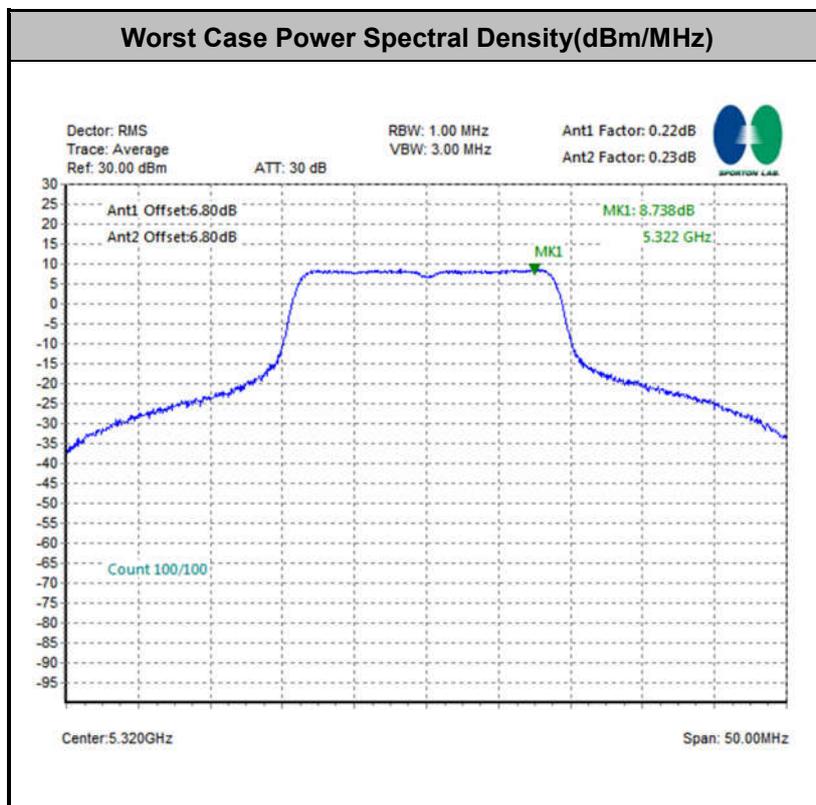
The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of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

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

3.4.1 Limit of Unwanted Emissions

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

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

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

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

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

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

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



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

(3) KDB789033 D01 v02 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 v02. Section G) Unwanted emissions measurement.

(1) Procedure for Unwanted Emissions Measurements Below 1000MHz

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

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

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

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

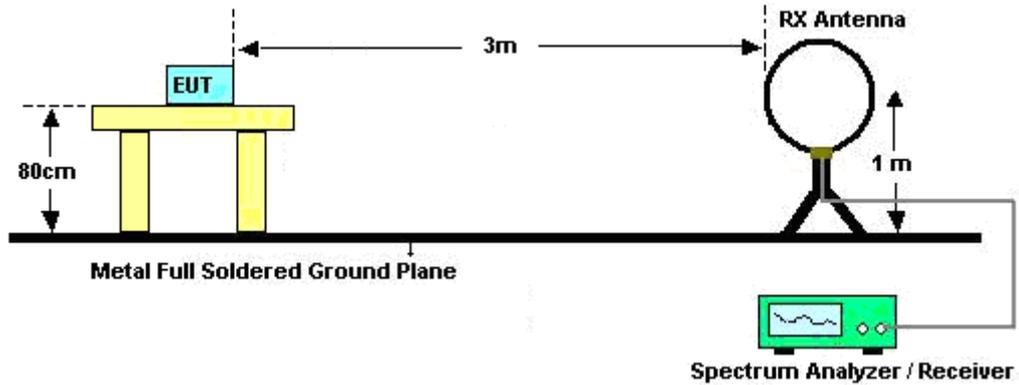
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.



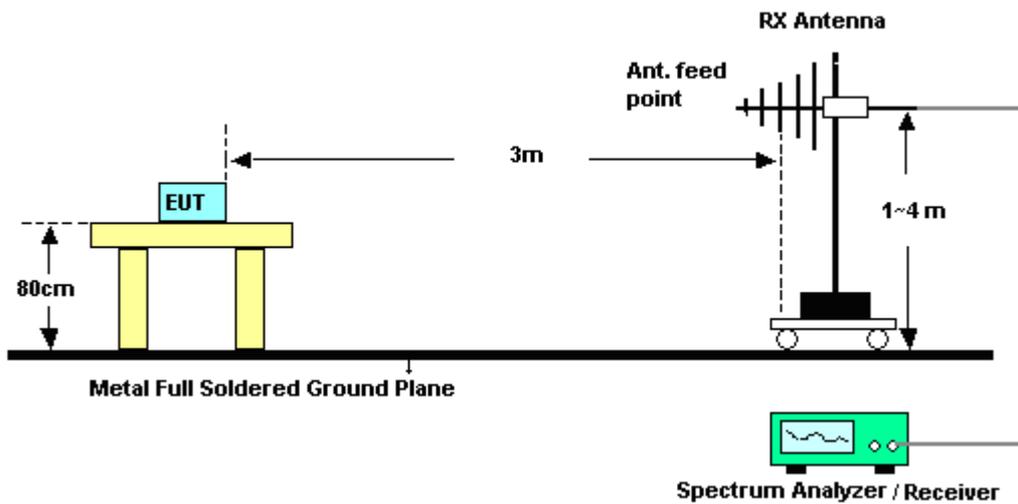
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband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

3.4.4 Test Setup

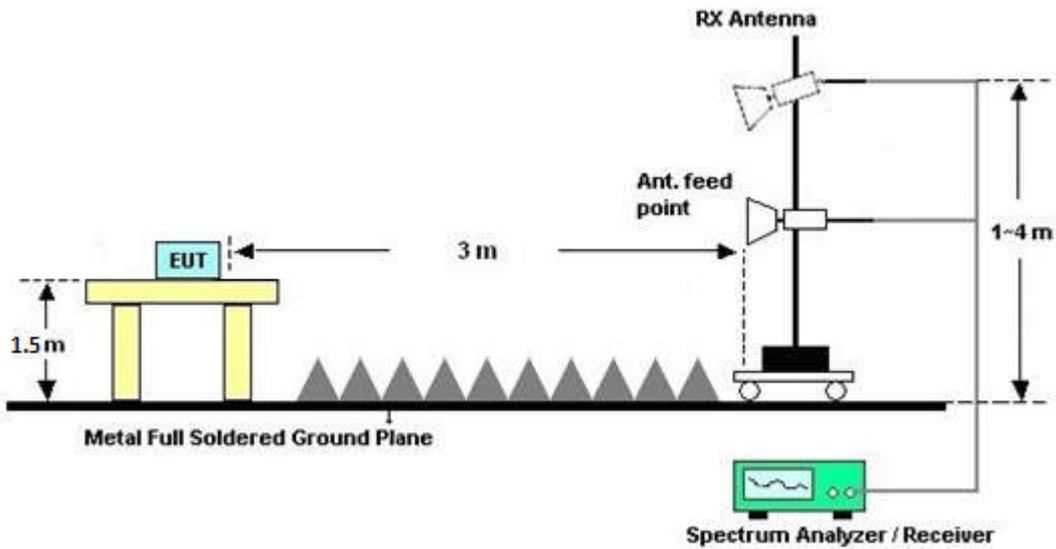
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B.

3.4.7 Duty Cycle

Please refer to Appendix C.

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

Please refer to Appendix B.



3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

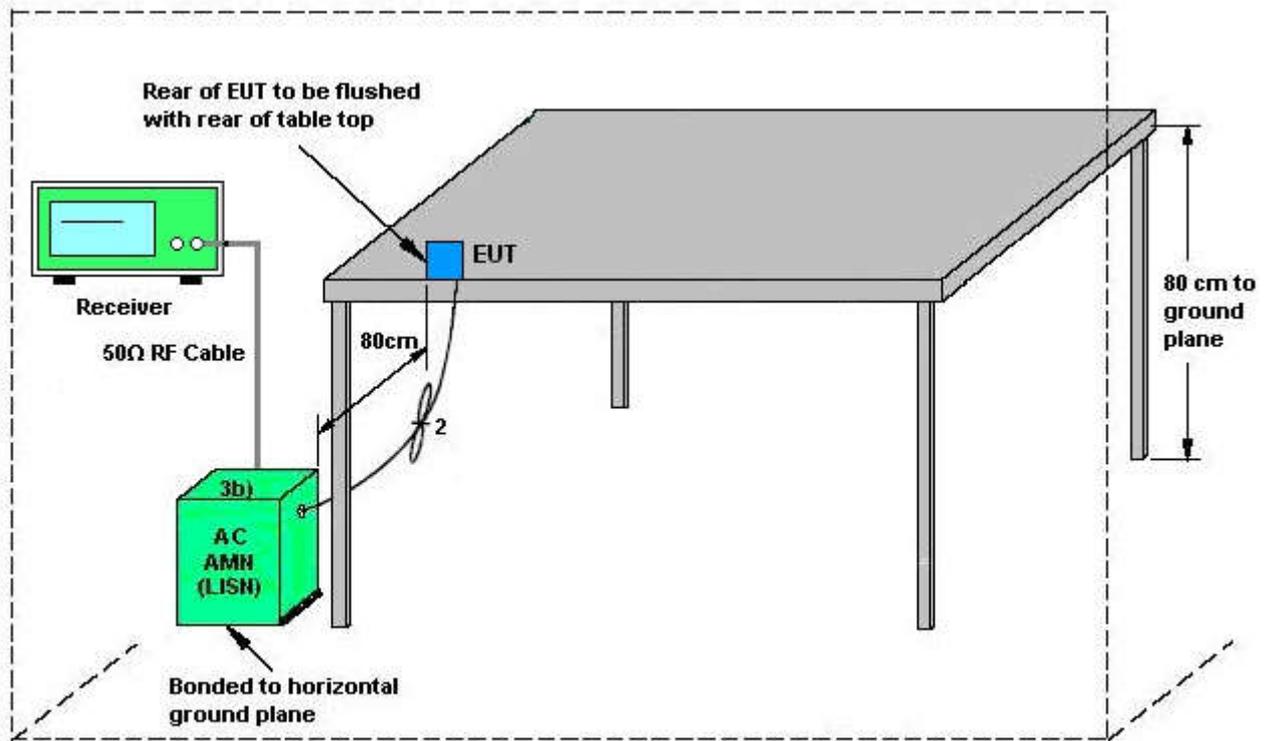
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup

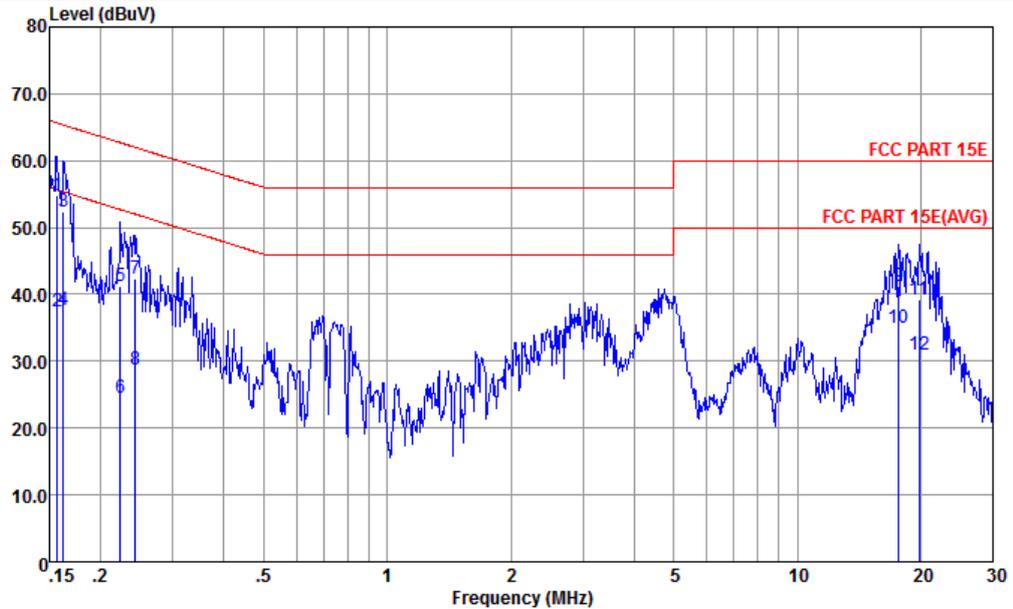


AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network



3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Amos Zhang	Relative Humidity :	42~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	Bluetooth Link + WLAN Link(5G) + USB Cable (Charging from Adapter 1) + Earphone		

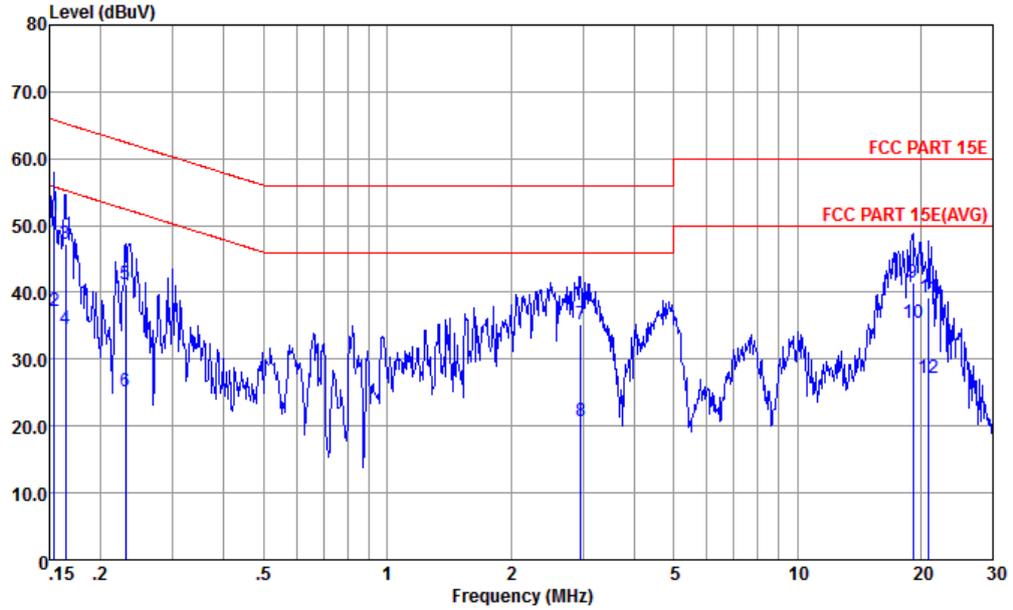


Site : CO01-KS
 Condition : FCC PART 15E LISN-L-171013-060103 LINE
 mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.156	54.86	-10.79	65.65	44.10	0.17	10.59	QP
2	0.156	37.36	-18.29	55.65	26.60	0.17	10.59	Average
3	0.162	52.35	-12.99	65.34	41.61	0.17	10.57	QP
4	0.162	37.65	-17.69	55.34	26.91	0.17	10.57	Average
5	0.223	41.25	-21.45	62.70	30.59	0.21	10.45	QP
6	0.223	24.45	-28.25	52.70	13.79	0.21	10.45	Average
7	0.243	42.25	-19.75	62.00	31.60	0.21	10.44	QP
8	0.243	28.85	-23.15	52.00	18.20	0.21	10.44	Average
9	17.661	41.26	-18.74	60.00	30.60	0.21	10.45	QP
10	17.661	34.96	-15.04	50.00	24.30	0.21	10.45	Average
11	19.845	39.26	-20.74	60.00	28.60	0.18	10.48	QP
12	19.845	30.96	-19.04	50.00	20.30	0.18	10.48	Average



Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Amos Zhang	Relative Humidity :	42~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	Bluetooth Link + WLAN Link(5G) + USB Cable (Charging from Adapter 1) + Earphone		



Site : CO01-KS
 Condition : FCC PART 15E LISN-N-171013-060103 NEUTRAL
 mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.154	51.48	-14.30	65.78	40.60	0.28	10.60	QP
2	0.154	37.18	-18.60	55.78	26.30	0.28	10.60	Average
3	0.164	47.15	-18.10	65.25	36.30	0.28	10.57	QP
4	0.164	34.45	-20.80	55.25	23.60	0.28	10.57	Average
5	0.230	41.33	-21.11	62.44	30.60	0.28	10.45	QP
6	0.230	25.23	-27.21	52.44	14.50	0.28	10.45	Average
7	2.962	35.11	-20.89	56.00	24.59	0.33	10.19	QP
8	2.962	20.81	-25.19	46.00	10.29	0.33	10.19	Average
9	19.122	41.50	-18.50	60.00	30.90	0.13	10.47	QP
10	19.122	35.50	-14.50	50.00	24.90	0.13	10.47	Average
11	20.924	39.16	-20.84	60.00	28.50	0.16	10.50	QP
12	20.924	27.26	-22.74	50.00	16.60	0.16	10.50	Average

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.

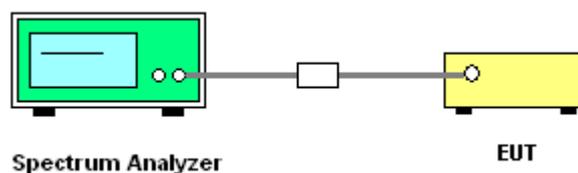
3.6.2 Measuring Instruments

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

CDD modes

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

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

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.

	Ant 1 (dBi)	Ant 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
Band I	1.20	1.10	1.20	4.16	0.00	0.00
Band II	1.60	1.60	1.60	4.61	0.00	0.00
Band III	1.70	1.70	1.70	4.71	0.00	0.00

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

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



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Aug. 08, 2017	Nov. 20, 2017~ Dec. 11, 2017	Aug. 07, 2018	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 19, 2017	Nov. 20, 2017~ Dec. 11, 2017	Jan. 19, 2018	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 19, 2017	Nov. 20, 2017~ Dec. 11, 2017	Jan. 19, 2018	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Oct. 12, 2017	Nov. 20, 2017~ Dec. 11, 2017	Oct. 11, 2018	Conducted (TH01-KS)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Apr. 20, 2017	Nov. 20, 2017~ Dec. 09, 2017	Apr. 19, 2018	Radiation (03CH04-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 14, 2017	Nov. 20, 2017~ Dec. 09, 2017	May 13, 2018	Radiation (03CH04-SZ)
Bilog Antenna	TeseQ	CBL6111D	41909	30MHz~1GHz	May 16, 2017	Nov. 20, 2017~ Dec. 09, 2017	May 15, 2018	Radiation (03CH04-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1474	1GHz~18GHz	Jan. 12, 2017	Nov. 20, 2017~ Dec. 09, 2017	Jan. 11, 2018	Radiation (03CH04-SZ)
Horn Antenna	SCHWARZBECK	BBHA9170	9170#679	15GHz~40GHz	May 17, 2017	Nov. 20, 2017~ Dec. 09, 2017	May 16, 2018	Radiation (03CH04-SZ)
Amplifier	Burgeon	BPA-530	102211	0.01Hz ~3000MHz	Oct. 19, 2017	Nov. 20, 2017~ Dec. 09, 2017	Oct. 18, 2018	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	AMF-7D-0010 1800-30-10P-R	1989346	1GHz~18GHz	Jul. 27, 2017	Nov. 20, 2017~ Dec. 09, 2017	Jul. 26, 2018	Radiation (03CH04-SZ)
Amplifier	Agilent Technologies	83017A	MY53270156	500MHz~26.5GHz	Apr. 20, 2017	Nov. 20, 2017~ Dec. 09, 2017	Apr. 19, 2018	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1988315	18GHz~40GHz	Jul. 27, 2017	Nov. 20, 2017~ Dec. 09, 2017	Jul. 26, 2018	Radiation (03CH04-SZ)
AC Power Source	Chroma	61601	N/A	N/A	NCR	Nov. 20, 2017~ Dec. 09, 2017	NCR	Radiation (03CH04-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Nov. 20, 2017~ Dec. 09, 2017	NCR	Radiation (03CH04-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Nov. 20, 2017~ Dec. 09, 2017	NCR	Radiation (03CH04-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Jan. 06, 2017	Dec. 07, 2017	Jan. 05, 2018	Conduction (CO01-KS)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Jan. 05, 2017	Dec. 07, 2017	Jan. 04, 2018	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103892	9kHz~30MHz	Jan. 05, 2017	Dec. 07, 2017	Jan. 04, 2018	Conduction (CO01-KS)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 19, 2017	Dec. 07, 2017	Jul. 18, 2018	Conduction (CO01-KS)
Pulse Limiter	SCHWARZBECK MESS-ELEKTRONIK	VTSD9561-FN	9561-F N00294	150kHz~30MHz	Oct. 18, 2017	Dec. 07, 2017	Oct. 17, 2018	Conduction (CO01-KS)

NCR: No Calibration Required



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.3dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

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

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.1dB
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Appendix A. Conducted Test Results

Test Engineer:	Silent Hai	Temperature:	21~25	°C
Test Date:	2017/11/20~2017/12/11	Relative Humidity:	51~55	%

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	1	36	5180	19.18	19.63	30.52	32.32	-	-	22.83	22.93	
11a	6Mbps	1	44	5220	20.03	20.78	33.77	34.57	-	-	23.01	23.01	
11a	6Mbps	1	48	5240	19.28	19.78	33.27	34.22	-	-	22.85	22.96	
HT20	MCS0	2	36	5180	19.23	19.08	26.42	25.18	-	-	22.81		
HT20	MCS0	2	44	5220	19.28	19.28	26.57	25.28	-	-	22.85		
HT20	MCS0	2	48	5240	19.28	19.23	25.97	25.33	-	-	22.84		
HT40	MCS0	2	38	5190	37.46	37.16	43.52	42.98	-	-	23.01		
HT40	MCS0	2	46	5230	37.66	37.66	56.10	52.87	-	-	23.01		
VHT80	MCS0	2	42	5210	76.12	76.12	85.51	84.88	-	-	23.01		

TEST RESULTS DATA
Average Power Table

FCC Band I														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	36	5180	0.23	0.21	16.24	16.04		24.00	24.00	1.20	1.10	Pass
11a	6Mbps	1	44	5220	0.23	0.21	16.18	16.14		24.00	24.00	1.20	1.10	Pass
11a	6Mbps	1	48	5240	0.23	0.21	16.97	16.95		24.00	24.00	1.20	1.10	Pass
HT20	MCS0	2	36	5180	0.22	0.23	12.68	11.81	15.28	24.00		1.20		Pass
HT20	MCS0	2	44	5220	0.22	0.23	12.70	11.89	15.33	24.00		1.20		Pass
HT20	MCS0	2	48	5240	0.22	0.23	13.35	12.80	16.10	24.00		1.20		Pass
HT40	MCS0	2	38	5190	0.44	0.41	13.22	12.58	15.92	24.00		1.20		Pass
HT40	MCS0	2	46	5230	0.44	0.41	16.07	15.62	18.86	24.00		1.20		Pass
VHT20	MCS0	2	36	5180	0.25	0.22	12.44	11.64	15.07	24.00		1.20		Pass
VHT20	MCS0	2	44	5220	0.25	0.22	12.58	11.80	15.22	24.00		1.20		Pass
VHT20	MCS0	2	48	5240	0.25	0.22	13.26	12.65	15.98	24.00		1.20		Pass
VHT40	MCS0	2	38	5190	0.46	0.41	15.89	15.08	18.52	24.00		1.20		Pass
VHT40	MCS0	2	46	5230	0.46	0.41	16.03	15.57	18.82	24.00		1.20		Pass
VHT80	MCS0	2	42	5210	0.78	0.78	12.34	11.36	14.89	24.00		1.20		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	1	36	5180	0.23	0.21	5.32			11.00	11.00	1.20	1.10	Pass
11a	6Mbps	1	44	5220	0.23	0.21	6.07			11.00	11.00	1.20	1.10	Pass
11a	6Mbps	1	48	5240	0.23	0.21	6.42			11.00	11.00	1.20	1.10	Pass
HT20	MCS0	2	36	5180	0.22	0.23			3.87	11.00		4.16		Pass
HT20	MCS0	2	44	5220	0.22	0.23			4.07	11.00		4.16		Pass
HT20	MCS0	2	48	5240	0.22	0.23			4.73	11.00		4.16		Pass
HT40	MCS0	2	38	5190	0.44	0.41			1.93	11.00		4.16		Pass
HT40	MCS0	2	46	5230	0.44	0.41			4.69	11.00		4.16		Pass
VHT80	MCS0	2	42	5210	0.78	0.78			-0.95	11.00		4.16		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	1	52	5260	20.03	19.68	34.67	31.27	23.98	23.94	30.00	29.94	23.98	23.98	
11a	6Mbps	1	60	5300	19.68	19.43	34.37	33.92	23.94	23.88	29.94	29.88	23.98	23.98	
11a	6Mbps	1	64	5320	18.98	18.88	29.97	28.32	23.78	23.76	29.78	29.76	23.98	23.98	
HT20	MCS0	2	52	5260	21.43	20.73	37.26	36.86	23.98		30.00		23.98		
HT20	MCS0	2	60	5300	21.18	20.43	37.71	31.77	23.98		30.00		23.98		
HT20	MCS0	2	64	5320	20.28	19.83	33.42	29.82	23.97		29.97		23.98		
HT40	MCS0	2	54	5270	40.76	38.56	69.86	55.03	23.98		30.00		23.98		
HT40	MCS0	2	62	5310	37.46	36.96	42.53	42.89	23.98		30.00		23.98		
VHT80	MCS0	2	58	5290	76.00	76.00	85.51	84.72	23.98		30.00		23.98		

TEST RESULTS DATA
Average Power Table

FCC Band II															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	1	52	5260	0.23	0.21	16.95	16.92		23.98	23.98	1.60	1.60	26.99	Pass
11a	6Mbps	1	60	5300	0.23	0.21	16.92	16.94		23.98	23.98	1.60	1.60	26.99	Pass
11a	6Mbps	1	64	5320	0.23	0.21	16.99	16.96		23.98	23.98	1.60	1.60	26.99	Pass
HT20	MCS0	2	52	5260	0.22	0.23	16.93	16.61	19.79	23.98		1.60		26.99	Pass
HT20	MCS0	2	60	5300	0.22	0.23	16.78	16.81	19.81	23.98		1.60		26.99	Pass
HT20	MCS0	2	64	5320	0.22	0.23	16.95	16.77	19.87	23.98		1.60		26.99	Pass
HT40	MCS0	2	54	5270	0.44	0.41	16.78	16.44	19.63	23.98		1.60		26.99	Pass
HT40	MCS0	2	62	5310	0.44	0.41	13.28	12.42	15.88	23.98		1.60		26.99	Pass
VHT20	MCS0	2	52	5260	0.25	0.22	16.91	16.60	19.77	23.98		1.60		26.99	Pass
VHT20	MCS0	2	60	5300	0.25	0.22	16.77	16.70	19.75	23.98		1.60		26.99	Pass
VHT20	MCS0	2	64	5320	0.25	0.22	16.94	16.75	19.86	23.98		1.60		26.99	Pass
VHT40	MCS0	2	54	5270	0.46	0.41	16.44	15.88	19.18	23.98		1.60		26.99	Pass
VHT40	MCS0	2	62	5310	0.46	0.41	16.41	16.04	19.24	23.98		1.60		26.99	Pass
VHT80	MCS0	2	58	5290	0.78	0.78	10.75	9.55	13.20	23.98		1.60		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	1	52	5260	0.23	0.21	6.13			11.00	11.00	1.60	1.60	Pass
11a	6Mbps	1	60	5300	0.23	0.21	5.94			11.00	11.00	1.60	1.60	Pass
11a	6Mbps	1	64	5320	0.23	0.21	6.55			11.00	11.00	1.60	1.60	Pass
HT20	MCS0	2	52	5260	0.22	0.23			8.34	11.00		4.61		Pass
HT20	MCS0	2	60	5300	0.22	0.23			8.55	11.00		4.61		Pass
HT20	MCS0	2	64	5320	0.22	0.23			8.74	11.00		4.61		Pass
HT40	MCS0	2	54	5270	0.44	0.41			5.67	11.00		4.61		Pass
HT40	MCS0	2	62	5310	0.44	0.41			1.97	11.00		4.61		Pass
VHT80	MCS0	2	58	5290	0.78	0.78			-4.26	11.00		4.61		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	1	100	5500	18.23	18.28	25.77	25.97	23.61	23.62	29.61	29.62	23.98	23.98	
11a	6Mbps	1	116	5580	18.33	18.18	25.52	25.48	23.63	23.60	29.63	29.60	23.98	23.98	
11a	6Mbps	1	140	5700	18.38	18.28	25.87	26.02	23.64	23.62	29.64	29.62	23.98	23.98	
11a	6Mbps	1	144	5720	18.28	18.33	26.37	26.07	23.62	23.63	29.62	29.63	23.98	23.98	
HT40	MCS0	2	102	5510	37.26	37.16	43.79	44.06	23.98		30.00		23.98		
HT40	MCS0	2	110	5550	37.86	37.26	47.29	45.05	23.98		30.00		23.98		
HT40	MCS0	2	134	5670	37.36	36.96	45.85	43.61	23.98		30.00		23.98		
HT40	MCS0	2	142	5710	37.56	37.26	46.48	44.51	23.98		30.00		23.98		
VHT20	MCS0	2	100	5500	19.63	19.63	29.92	27.72	23.93		29.93		23.98		
VHT20	MCS0	2	116	5580	19.83	19.43	31.77	25.77	23.88		29.88		23.98		
VHT20	MCS0	2	140	5700	19.23	19.13	25.87	25.28	23.82		29.82		23.98		
VHT20	MCS0	2	144	5720	19.48	19.38	26.82	25.57	23.87		29.87		23.98		
VHT80	MCS0	2	106	5530	76.12	76.00	85.35	85.67	23.98		30.00		23.98		
VHT80	MCS0	2	122	5610	76.12	76.00	84.88	85.03	23.98		30.00		23.98		
VHT80	MCS0	2	138	5690	76.00	76.00	86.63	85.35	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	1	100	5500	0.23	0.21	15.64	15.22		23.98	23.98	1.70	1.70	26.99	Pass
11a	6Mbps	1	116	5580	0.23	0.21	15.15	15.35		23.98	23.98	1.70	1.70	26.99	Pass
11a	6Mbps	1	140	5700	0.23	0.21	16.95	16.92		23.98	23.98	1.70	1.70	26.99	Pass
11a	6Mbps	1	144	5720	0.23	0.21	16.89	16.90		23.98	23.98	1.70	1.70	26.99	Pass
HT20	MCS0	2	100	5500	0.22	0.23	16.81	15.79	19.34	23.98		1.70		26.99	Pass
HT20	MCS0	2	116	5580	0.22	0.23	16.54	15.82	19.21	23.98		1.70		26.99	Pass
HT20	MCS0	2	140	5700	0.22	0.23	16.03	15.25	18.67	23.98		1.70		26.99	Pass
HT20	MCS0	2	144	5720	0.22	0.23	16.88	16.31	19.62	23.98		1.70		26.99	Pass
HT40	MCS0	2	102	5510	0.44	0.41	14.19	13.90	17.06	23.98		1.70		26.99	Pass
HT40	MCS0	2	110	5550	0.44	0.41	15.71	15.02	18.39	23.98		1.70		26.99	Pass
HT40	MCS0	2	134	5670	0.44	0.41	16.57	16.38	19.49	23.98		1.70		26.99	Pass
HT40	MCS0	2	142	5710	0.44	0.41	16.91	16.40	19.67	23.98		1.70		26.99	Pass
VHT20	MCS0	2	100	5500	0.25	0.22	16.43	15.26	18.89	23.98		1.70		26.99	Pass
VHT20	MCS0	2	116	5580	0.25	0.22	16.53	15.46	19.04	23.98		1.70		26.99	Pass
VHT20	MCS0	2	140	5700	0.25	0.22	16.90	16.39	19.66	23.98		1.70		26.99	Pass
VHT20	MCS0	2	144	5720	0.25	0.22	16.87	16.30	19.60	23.98		1.70		26.99	Pass
VHT40	MCS0	2	102	5510	0.46	0.41	16.42	15.28	18.90	23.98		1.70		26.99	Pass
VHT40	MCS0	2	110	5550	0.46	0.41	15.69	14.77	18.27	23.98		1.70		26.99	Pass
VHT40	MCS0	2	134	5670	0.46	0.41	16.14	16.07	19.12	23.98		1.70		26.99	Pass
VHT40	MCS0	2	142	5710	0.46	0.41	16.49	16.18	19.35	23.98		1.70		26.99	Pass
VHT80	MCS0	2	106	5530	0.78	0.78	12.86	12.40	15.65	23.98		1.70		26.99	Pass
VHT80	MCS0	2	122	5610	0.78	0.78	14.99	14.57	17.80	23.98		1.70		26.99	Pass
VHT80	MCS0	2	138	5690	0.78	0.78	15.90	15.54	18.73	23.98		1.70		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	1	100	5500	0.23	0.21	3.67			11.00	11.00	1.70	1.70	Pass
11a	6Mbps	1	116	5580	0.23	0.21	2.83			11.00	11.00	1.70	1.70	Pass
11a	6Mbps	1	140	5700	0.23	0.21	4.68			11.00	11.00	1.70	1.70	Pass
11a	6Mbps	1	144	5720	0.23	0.21	5.13			11.00	11.00	1.70	1.70	Pass
HT40	MCS0	2	102	5510	0.44	0.41			2.73	11.00		4.71		Pass
HT40	MCS0	2	110	5550	0.44	0.41			3.42	11.00		4.71		Pass
HT40	MCS0	2	134	5670	0.44	0.41			5.24	11.00		4.71		Pass
HT40	MCS0	2	142	5710	0.44	0.41			5.06	11.00		4.71		Pass
VHT20	MCS0	2	100	5500	0.25	0.22			4.64	11.00		4.71		Pass
VHT20	MCS0	2	116	5580	0.25	0.22			5.03	11.00		4.71		Pass
VHT20	MCS0	2	140	5700	0.25	0.22			6.54	11.00		4.71		Pass
VHT20	MCS0	2	144	5720	0.25	0.22			5.68	11.00		4.71		Pass
VHT80	MCS0	2	106	5530	0.78	0.78			-1.62	11.00		4.71		Pass
VHT80	MCS0	2	122	5610	0.78	0.78			0.12	11.00		4.71		Pass
VHT80	MCS0	2	138	5690	0.78	0.78			1.35	11.00		4.71		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	5180.000	0.000	0.00	50	3.85	
11a	6Mbps	1	36	5180	5180.075	0.075	14.48	-30	3.85	
11a	6Mbps	1	36	5180	5180.025	0.025	4.83	20	4.4	
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	20	3.7	
11a	6Mbps	1	36	5180	5180.025	0.025	4.83	20	3.85	

Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	64	5320	5320.025	0.025	4.70	50	3.85	
11a	6Mbps	1	64	5320	5320.100	0.100	18.80	-30	3.85	
11a	6Mbps	1	64	5320	5320.000	0.000	0.00	20	4.4	
11a	6Mbps	1	64	5320	5320.025	0.025	4.70	20	3.7	
11a	6Mbps	1	64	5320	5320.000	0.000	0.00	20	3.85	

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	50	3.85	
11a	6Mbps	1	100	5500	5500.100	0.100	18.18	-30	3.85	
11a	6Mbps	1	100	5500	5500.025	0.025	4.55	20	4.4	
11a	6Mbps	1	100	5500	5500.025	0.025	4.55	20	3.7	
11a	6Mbps	1	100	5500	5500.025	0.025	4.55	20	3.85	



Appendix B. Radiated Spurious Emission

Antenna 1

Band 1 - 5150~5250MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 36 5180MHz		5011.44	51.28	-22.72	74	42.31	31.91	6.06	29	100	77	P	H
		5011.7	41.84	-12.16	54	32.87	31.91	6.06	29	100	77	A	H
	*	5180	92.63	-	-	83.67	31.97	6.04	29.05	100	77	P	H
	*	5180	86.08	-	-	77.12	31.97	6.04	29.05	100	77	A	H
		5149.24	51.81	-22.19	74	42.86	31.96	6.04	29.05	106	154	P	V
		5149.76	43.77	-10.23	54	34.82	31.96	6.04	29.05	106	154	A	V
	*	5180	104.34	-	-	95.38	31.97	6.04	29.05	106	154	P	V
	*	5180	96.52	-	-	87.56	31.97	6.04	29.05	106	154	A	V
802.11a CH 44 5220MHz		5005.2	51.43	-22.57	74	42.46	31.91	6.06	29	100	77	P	H
		5022.62	41.86	-12.14	54	32.9	31.91	6.06	29.01	100	77	A	H
	*	5220	92.95	-	-	83.99	31.99	6.03	29.06	100	77	P	H
	*	5220	86.27	-	-	77.31	31.99	6.03	29.06	100	77	A	H
		5447.28	51.52	-22.48	74	42.51	32.08	6.06	29.13	100	77	P	H
		5451.6	40.72	-13.28	54	31.72	32.08	6.06	29.14	100	77	A	H
		5105.3	50.83	-23.17	74	41.87	31.94	6.05	29.03	108	152	P	V
		5005.72	41.71	-12.29	54	32.74	31.91	6.06	29	108	152	A	V
	*	5220	103.96	-	-	95	31.99	6.03	29.06	108	152	P	V
	*	5220	96.27	-	-	87.31	31.99	6.03	29.06	108	152	A	V
		5413.44	49.93	-24.07	74	40.97	32.07	6.01	29.12	108	152	P	V
		5452.8	41.69	-12.31	54	32.69	32.08	6.06	29.14	108	152	A	V



802.11a CH 48 5240MHz		5048.88	50.44	-23.56	74	41.49	31.92	6.05	29.02	100	76	P	H
		5020.8	41.74	-12.26	54	32.78	31.91	6.06	29.01	100	76	A	H
	*	5240	94.01	-	-	85.06	31.99	6.03	29.07	100	76	P	H
	*	5240	87.16	-	-	78.21	31.99	6.03	29.07	100	76	A	H
		5436.24	49.9	-24.1	74	40.9	32.07	6.06	29.13	100	76	P	H
		5444.4	40.78	-13.22	54	31.78	32.07	6.06	29.13	100	76	A	H
		5014.82	50.94	-23.06	74	41.97	31.91	6.06	29	108	152	P	V
		5014.04	41.7	-12.3	54	32.73	31.91	6.06	29	108	152	A	V
	*	5240	104.15	-	-	95.2	31.99	6.03	29.07	108	152	P	V
	*	5240	96.27	-	-	87.32	31.99	6.03	29.07	108	152	A	V
		5453.04	49.79	-24.21	74	40.79	32.08	6.06	29.14	108	152	P	V
		5452.8	41.98	-12.02	54	32.98	32.08	6.06	29.14	108	152	A	V
Remark	<p>1. No other spurious found.</p> <p>2. All results are PASS against Peak and Average limit line.</p>												



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 36 5180MHz		10360	47.43	-26.57	74	55.36	38.69	9.23	55.85	152	260	P	H
		15540	49.52	-24.48	74	55.44	38.88	11.93	56.73	189	238	P	H
		10360	48.32	-25.68	74	56.25	38.69	9.23	55.85	152	260	P	V
		15540	50.05	-23.95	74	55.97	38.88	11.93	56.73	189	238	P	V
802.11a CH 44 5220MHz		10440	46.64	-27.36	74	54.52	38.75	9.25	55.88	150	230	P	H
		15660	49.2	-24.8	74	54.81	38.81	12.07	56.49	160	225	P	H
		10440	48.15	-25.85	74	56.03	38.75	9.25	55.88	150	230	P	V
		15660	49	-25	74	54.61	38.81	12.07	56.49	160	225	P	V
802.11a CH 48 5240MHz		10480	47	-27	74	54.85	38.79	9.26	55.9	150	289	P	H
		15720	49.41	-24.59	74	54.88	38.77	12.11	56.35	150	291	P	H
		10480	48.71	-25.29	74	56.56	38.79	9.26	55.9	150	289	P	V
		15720	48.9	-25.1	74	54.37	38.77	12.11	56.35	150	291	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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 52 5260MHz		5119.35	51.26	-22.74	74	42.31	31.95	6.04	29.04	159	305	P	H
		5001.4	41.73	-12.27	54	32.77	31.9	6.06	29	159	305	A	H
	*	5260	94.92	-	-	85.96	32.01	6.03	29.08	159	305	P	H
	*	5260	87.54	-	-	78.58	32.01	6.03	29.08	159	305	A	H
		5420.88	49.32	-24.68	74	40.36	32.07	6.01	29.12	159	305	P	H
		5449.68	40.65	-13.35	54	31.64	32.08	6.06	29.13	159	305	A	H
		5001.75	50.27	-23.73	74	41.31	31.9	6.06	29	110	152	P	V
		5039.9	41.61	-12.39	54	32.65	31.92	6.05	29.01	110	152	A	V
	*	5260	104.09	-	-	95.13	32.01	6.03	29.08	110	152	P	V
	*	5260	96.02	-	-	87.06	32.01	6.03	29.08	110	152	A	V
		5411.04	50.35	-23.65	74	41.4	32.06	6.01	29.12	110	152	P	V
		5452.8	41.99	-12.01	54	32.99	32.08	6.06	29.14	110	152	A	V
802.11a CH 60 5300MHz		5027.3	49.91	-24.09	74	40.95	31.91	6.06	29.01	213	302	P	H
		5004.55	41.72	-12.28	54	32.75	31.91	6.06	29	213	302	A	H
	*	5300	92.85	-	-	83.9	32.02	6.02	29.09	213	302	P	H
	*	5300	84.95	-	-	76	32.02	6.02	29.09	213	302	A	H
		5457.6	49.26	-24.74	74	40.26	32.08	6.06	29.14	213	302	P	H
		5439.6	40.73	-13.27	54	31.73	32.07	6.06	29.13	213	302	A	H
		5098	49.57	-24.43	74	40.61	31.94	6.05	29.03	113	152	P	V
		5002.8	41.7	-12.3	54	32.74	31.9	6.06	29	113	152	A	V
	*	5300	102.67	-	-	93.72	32.02	6.02	29.09	113	152	P	V
	*	5300	95.45	-	-	86.5	32.02	6.02	29.09	113	152	A	V
		5378.64	50.33	-23.67	74	41.39	32.05	6.01	29.12	113	152	P	V
		5351.28	42.71	-11.29	54	33.77	32.04	6.01	29.11	113	152	A	V



802.11a CH 64 5320MHz	*	5320	92.33	-	-	83.37	32.03	6.02	29.09	210	302	P	H
	*	5320	84.99	-	-	76.03	32.03	6.02	29.09	210	302	A	H
		5353.44	51	-23	74	42.06	32.04	6.01	29.11	210	302	P	H
		5452.64	40.56	-13.44	54	31.56	32.08	6.06	29.14	210	302	A	H
	*	5320	103.72	-	-	94.76	32.03	6.02	29.09	109	152	P	V
	*	5320	95.54	-	-	86.58	32.03	6.02	29.09	109	152	A	V
		5353.44	55.26	-18.74	74	46.32	32.04	6.01	29.11	109	152	P	V
		5350.08	46.85	-7.15	54	37.91	32.04	6.01	29.11	109	152	A	V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



Band 2 5250~5350MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 52 5260MHz		10520	48.63	-25.37	74	56.44	38.83	9.27	55.91	150	220	P	H
		15780	49.92	-24.08	74	55.24	38.73	12.2	56.25	159	345	P	H
		10520	48.98	-25.02	74	56.79	38.83	9.27	55.91	150	220	P	V
		15780	49.05	-24.95	74	54.37	38.73	12.2	56.25	159	345	P	V
802.11a CH 60 5300MHz		10600	47.39	-26.61	74	55.03	39.01	9.29	55.94	185	215	P	H
		15900	48.93	-25.07	74	53.94	38.66	12.34	56.01	196	190	P	H
		10600	48.08	-25.92	74	55.72	39.01	9.29	55.94	185	215	P	V
		15900	49.29	-24.71	74	54.3	38.66	12.34	56.01	196	190	P	V
802.11a CH 64 5320MHz		10640	47.12	-26.88	74	54.7	39.08	9.3	55.96	152	135	P	H
		15960	48.64	-25.36	74	53.46	38.62	12.43	55.87	173	245	P	H
		10640	47.01	-26.99	74	54.59	39.08	9.3	55.96	152	135	P	V
		15960	48.82	-25.18	74	53.64	38.62	12.43	55.87	173	245	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)

Table with 14 columns: WIFI, Note, Frequency, Level, Over, Limit, Read, Antenna, Cable, Preamp, Ant, Table, Peak, Pol. It contains two main sections of data for channels 100 and 116.



802.11a CH 140 5700MHz	*	5700	96.32	-	-	86.83	32.48	6.22	29.21	106	83	P	H
	*	5700	89.01	-	-	79.52	32.48	6.22	29.21	106	83	A	H
		5750.68	51.77	-22.23	74	42.21	32.58	6.2	29.22	106	83	P	H
		5725.96	42.21	-11.79	54	32.66	32.55	6.22	29.22	106	83	A	H
	*	5700	105.1	-	-	95.61	32.48	6.22	29.21	117	150	P	V
	*	5700	96.99	-	-	87.5	32.48	6.22	29.21	117	150	A	V
		5725.32	59.5	-14.5	74	49.95	32.55	6.22	29.22	117	150	P	V
		5725	47.47	-6.53	54	37.92	32.55	6.22	29.22	117	150	A	V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



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

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 100 5500MHz		11000	48.44	-25.56	74	55.36	39.8	9.38	56.1	163	230	P	H
		16500	49.31	-24.69	74	53.45	38.5	13.41	56.05	178	296	P	H
		11000	48.88	-25.12	74	55.8	39.8	9.38	56.1	163	230	P	V
		16500	49.39	-24.61	74	53.53	38.5	13.41	56.05	178	296	P	V
802.11a CH 116 5580MHz		11160	47.06	-26.94	74	53.88	39.6	9.43	55.85	170	200	P	H
		16740	50.23	-23.77	74	53.23	39.22	13.95	56.17	156	350	P	H
		11160	47.29	-26.71	74	54.11	39.6	9.43	55.85	170	200	P	V
		16740	49.93	-24.07	74	52.93	39.22	13.95	56.17	156	350	P	V
802.11a CH 140 5700MHz		11400	45.74	-28.26	74	52.43	39.32	9.48	55.49	157	285	P	H
		17100	50.91	-23.09	74	51.99	40.64	14.66	56.38	152	0	P	H
		11400	45.97	-28.03	74	52.66	39.32	9.48	55.49	157	285	P	V
		17100	50.41	-23.59	74	51.49	40.64	14.66	56.38	152	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - Straddle Channel
WIFI 802.11a (Harmonic @ 3m)

Table with 14 columns: WIFI Ant. 1, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include data for 802.11a CH 144 (5720MHz) and a Remark section.



Antenna 2 verify the worst mode of Antenna 1

Band 1 - 5150~5250MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 36 5180MHz		5015.6	50.85	-23.15	74	41.88	31.91	6.06	29	109	79	P	H
		5149.76	43.02	-10.98	54	34.07	31.96	6.04	29.05	109	79	A	H
	*	5180	98.76	-	-	89.8	31.97	6.04	29.05	109	79	P	H
	*	5180	91.36	-	-	82.4	31.97	6.04	29.05	109	79	A	H
		5148.98	56.21	-17.79	74	47.26	31.96	6.04	29.05	104	268	P	V
		5150	44.86	-9.14	54	35.91	31.96	6.04	29.05	104	268	A	V
	*	5180	102.5	-	-	93.54	31.97	6.04	29.05	104	268	P	V
	*	5180	95.46	-	-	86.5	31.97	6.04	29.05	104	268	A	V



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 36 5180MHz		10360	47.11	-26.89	74	55.04	38.69	9.23	55.85	152	260	P	H
		15540	48.52	-25.48	74	54.44	38.88	11.93	56.73	189	238	P	H
		10360	47.98	-26.02	74	55.91	38.69	9.23	55.85	152	260	P	V
		15540	50.97	-23.03	74	56.89	38.88	11.93	56.73	189	238	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.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 64 5320MHz	*	5320	100.18	-	-	91.22	32.03	6.02	29.09	100	60	P	H
	*	5320	92.54	-	-	83.58	32.03	6.02	29.09	100	60	A	H
		5350.24	56.15	-17.85	74	47.21	32.04	6.01	29.11	100	60	P	H
		5350.08	45.09	-8.91	54	36.15	32.04	6.01	29.11	100	60	A	H
	*	5320	103.12	-	-	94.16	32.03	6.02	29.09	133	264	P	V
	*	5320	96.49	-	-	87.53	32.03	6.02	29.09	133	264	A	V
		5351.68	59.44	-14.56	74	50.5	32.04	6.01	29.11	133	264	P	V
		5350.08	48.23	-5.77	54	39.29	32.04	6.01	29.11	133	264	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. 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 64 5320MHz		10640	47.9	-26.1	74	55.48	39.08	9.3	55.96	152	135	P	H
		15960	48.65	-25.35	74	53.47	38.62	12.43	55.87	173	245	P	H
		10640	49.36	-24.64	74	56.94	39.08	9.3	55.96	152	135	P	V
		15960	48.77	-25.23	74	53.59	38.62	12.43	55.87	173	245	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 140 5700MHz	*	5700	102.05	-	-	92.56	32.48	6.22	29.21	101	58	P	H
	*	5700	94.03	-	-	84.54	32.48	6.22	29.21	101	58	A	H
		5726.76	56.22	-17.78	74	46.67	32.55	6.22	29.22	101	58	P	H
		5725.24	46.63	-7.37	54	37.08	32.55	6.22	29.22	101	58	A	H
	*	5700	105.27	-	-	95.78	32.48	6.22	29.21	100	91	P	V
	*	5700	98.29	-	-	88.8	32.48	6.22	29.21	100	91	A	V
		5727.24	59.27	-14.73	74	49.72	32.55	6.22	29.22	100	91	P	V
		5725.08	48.52	-5.48	54	38.97	32.55	6.22	29.22	100	91	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. 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 140 5700MHz		11400	46.21	-27.79	74	52.9	39.32	9.48	55.49	157	285	P	H
		17100	50.28	-23.72	74	51.36	40.64	14.66	56.38	151	0	P	H
		11400	46.2	-27.8	74	52.89	39.32	9.48	55.49	157	285	P	V
		17100	50.54	-23.46	74	51.62	40.64	14.66	56.38	151	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - Straddle Channel
WIFI 802.11a (Harmonic @ 3m)

Table with 14 columns: WIFI Ant. 2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include data for 802.11a CH 144 at 5720MHz and a Remark section.



Antenna 1+2

Band 1 5150~5250MHz

WIFI 802.11n HT20 (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)
802.11n HT20 CH 36 5180MHz		5057.46	49.86	-24.14	74	40.9	31.93	6.05	29.02	100	90	P	H
		5033.02	41.87	-12.13	54	32.91	31.91	6.06	29.01	100	90	A	H
	*	5180	96.87	-	-	87.91	31.97	6.04	29.05	100	90	P	H
	*	5180	90.08	-	-	81.12	31.97	6.04	29.05	100	90	A	H
		5113.88	50.66	-23.34	74	41.69	31.95	6.05	29.03	181	93	P	V
		5148.46	42.14	-11.86	54	33.19	31.96	6.04	29.05	181	93	A	V
	*	5180	103.31	-	-	94.35	31.97	6.04	29.05	181	93	P	V
		5180	96.82	-	-	87.86	31.97	6.04	29.05	181	93	A	V
802.11n HT20 CH 44 5220MHz		5061.88	50.18	-23.82	74	41.22	31.93	6.05	29.02	101	89	P	H
		5010.66	41.77	-12.23	54	32.8	31.91	6.06	29	101	89	A	H
	*	5220	96.5	-	-	87.54	31.99	6.03	29.06	101	89	P	H
	*	5220	90.09	-	-	81.13	31.99	6.03	29.06	101	89	A	H
		5405.4	49.66	-24.34	74	40.71	32.06	6.01	29.12	101	89	P	H
		5440.12	40.88	-13.12	54	31.88	32.07	6.06	29.13	101	89	A	H
		5081.38	50.26	-23.74	74	41.3	31.93	6.05	29.02	176	92	P	V
		5019.5	41.76	-12.24	54	32.8	31.91	6.06	29.01	176	92	A	V
	*	5220	103.23	-	-	94.27	31.99	6.03	29.06	176	92	P	V
	*	5220	96.1	-	-	87.14	31.99	6.03	29.06	176	92	A	V
	5442.36	49.96	-24.04	74	40.96	32.07	6.06	29.13	176	92	P	V	
	5453	41.09	-12.91	54	32.09	32.08	6.06	29.14	176	92	A	V	



802.11n HT20 CH 48 5240MHz		5028.08	51.16	-22.84	74	42.2	31.91	6.06	29.01	100	75	P	H
		5023.4	41.79	-12.21	54	32.83	31.91	6.06	29.01	100	75	A	H
	*	5240	96.52	-	-	87.57	31.99	6.03	29.07	100	75	P	H
	*	5240	90.4	-	-	81.45	31.99	6.03	29.07	100	75	A	H
		5442.36	50.42	-23.58	74	41.42	32.07	6.06	29.13	100	75	P	H
		5457.48	40.82	-13.18	54	31.82	32.08	6.06	29.14	100	75	A	H
		5059.02	50.4	-23.6	74	41.44	31.93	6.05	29.02	190	95	P	V
		5002.6	41.85	-12.15	54	32.89	31.9	6.06	29	190	95	A	V
	*	5240	103.9	-	-	94.95	31.99	6.03	29.07	190	95	P	V
	*	5240	97.05	-	-	88.1	31.99	6.03	29.07	190	95	A	V
		5400.36	49.78	-24.22	74	40.83	32.06	6.01	29.12	190	95	P	V
		5453	41.2	-12.8	54	32.2	32.08	6.06	29.14	190	95	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		10360	48.04	-25.96	74	55.97	38.69	9.23	55.85	152	260	P	H
		15540	48.87	-25.13	74	54.79	38.88	11.93	56.73	189	238	P	H
5180MHz		10360	48.71	-25.29	74	56.64	38.69	9.23	55.85	152	260	P	V
		15540	48.56	-25.44	74	54.48	38.88	11.93	56.73	189	238	P	V
802.11n HT20 CH 44		10440	48.64	-25.36	74	56.52	38.75	9.25	55.88	150	230	P	H
		15660	50.35	-23.65	74	55.96	38.81	12.07	56.49	160	225	P	H
		10440	48.04	-25.96	74	55.92	38.75	9.25	55.88	150	230	P	V
		15660	50.83	-23.17	74	56.44	38.81	12.07	56.49	160	225	P	V
802.11n HT20 CH 48		10480	47.76	-26.24	74	55.61	38.79	9.26	55.9	150	289	P	H
		15720	49.99	-24.01	74	55.46	38.77	12.11	56.35	150	291	P	H
		10480	47.68	-26.32	74	55.53	38.79	9.26	55.9	150	289	P	V
		15720	50.01	-23.99	74	55.48	38.77	12.11	56.35	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	54.64	-19.36	74	45.69	31.96	6.04	29.05	100	56	P	H
		5150	44.35	-9.65	54	35.4	31.96	6.04	29.05	100	56	A	H
	*	5190	90.88	-	-	81.92	31.97	6.04	29.05	100	56	P	H
	*	5190	83.41	-	-	74.45	31.97	6.04	29.05	100	56	A	H
		5430.6	48.78	-25.22	74	39.78	32.07	6.06	29.13	100	56	P	H
		5441.24	41.15	-12.85	54	32.15	32.07	6.06	29.13	100	56	A	H
		5149.76	55.49	-18.51	74	46.54	31.96	6.04	29.05	164	105	P	V
		5150	49.26	-4.74	54	40.31	31.96	6.04	29.05	164	105	A	V
	*	5190	99.04	-	-	90.08	31.97	6.04	29.05	164	105	P	V
	*	5190	92.06	-	-	83.1	31.97	6.04	29.05	164	105	A	V
		5414.64	49.7	-24.3	74	40.74	32.07	6.01	29.12	164	105	P	V
		5444.88	41.21	-12.79	54	32.21	32.07	6.06	29.13	164	105	A	V
802.11n HT40 CH 46 5230MHz		5148.46	50.65	-23.35	74	41.7	31.96	6.04	29.05	100	56	P	H
		5026	42.05	-11.95	54	33.09	31.91	6.06	29.01	100	56	A	H
	*	5230	93.18	-	-	84.23	31.99	6.03	29.07	100	56	P	H
	*	5230	87.19	-	-	78.24	31.99	6.03	29.07	100	56	A	H
		5455.68	50.18	-23.82	74	41.18	32.08	6.06	29.14	100	56	P	H
		5453.28	41.22	-12.78	54	32.22	32.08	6.06	29.14	100	56	A	H
		5142.74	51.27	-22.73	74	42.31	31.96	6.04	29.04	200	89	P	V
		5137.8	41.62	-12.38	54	32.67	31.95	6.04	29.04	200	89	P	V
	*	5230	102.16	-	-	93.21	31.99	6.03	29.07	200	89	P	V
	*	5230	95.91	-	-	86.96	31.99	6.03	29.07	200	89	A	V
	5432.4	48.88	-25.12	74	39.88	32.07	6.06	29.13	200	89	P	V	
	5450.16	40.94	-13.06	54	31.94	32.08	6.06	29.14	200	89	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

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

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



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

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	55.77	-18.23	74	46.82	31.96	6.04	29.05	106	88	P	H
		5150	47.47	-6.53	54	38.52	31.96	6.04	29.05	106	88	A	H
	*	5210	93.01	-	-	84.05	31.99	6.03	29.06	106	88	P	H
	*	5210	85.76	-	-	76.8	31.99	6.03	29.06	106	88	A	H
		5426.68	50.14	-23.86	74	41.14	32.07	6.06	29.13	106	88	P	H
		5447.96	41.25	-12.75	54	32.24	32.08	6.06	29.13	106	88	A	H
		5146.9	58.71	-15.29	74	49.76	31.96	6.04	29.05	121	162	P	V
		5145.08	50.07	-3.93	54	41.12	31.96	6.04	29.05	121	162	A	V
	*	5210	97.06	-	-	88.1	31.99	6.03	29.06	121	162	P	V
	*	5210	90.36	-	-	81.4	31.99	6.03	29.06	121	162	A	V
		5417.16	51.76	-22.24	74	42.8	32.07	6.01	29.12	121	162	P	V
	5452.72	43.35	-10.65	54	34.35	32.08	6.06	29.14	121	162	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)

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



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		5055.65	51.1	-22.9	74	42.14	31.93	6.05	29.02	100	77	P	H
		5024.85	41.76	-12.24	54	32.8	31.91	6.06	29.01	100	77	A	H
	*	5260	101.66	-	-	92.7	32.01	6.03	29.08	100	77	P	H
	*	5260	94.46	-	-	85.5	32.01	6.03	29.08	100	77	A	H
		5384.4	50.2	-23.8	74	41.26	32.05	6.01	29.12	100	77	P	H
		5441.52	40.8	-13.2	54	31.8	32.07	6.06	29.13	100	77	A	H
		5001.05	50.59	-23.41	74	41.63	31.9	6.06	29	125	156	P	V
		5008.4	41.77	-12.23	54	32.8	31.91	6.06	29	125	156	A	V
	*	5260	107.06	-	-	98.1	32.01	6.03	29.08	125	156	P	V
	*	5260	99.06	-	-	90.1	32.01	6.03	29.08	125	156	A	V
		5354.88	49.76	-24.24	74	40.82	32.04	6.01	29.11	125	156	P	V
		5452.8	41.09	-12.91	54	32.09	32.08	6.06	29.14	125	156	A	V
802.11n HT20 CH 60 5300MHz		5017.85	50.33	-23.67	74	41.37	31.91	6.06	29.01	100	77	P	H
		5007.35	41.78	-12.22	54	32.81	31.91	6.06	29	100	77	A	H
	*	5300	100.07	-	-	91.12	32.02	6.02	29.09	100	77	P	H
	*	5300	92.75	-	-	83.8	32.02	6.02	29.09	100	77	A	H
		5457.6	49.71	-24.29	74	40.71	32.08	6.06	29.14	100	77	P	H
		5452.8	40.94	-13.06	54	31.94	32.08	6.06	29.14	100	77	A	H
		5075.95	50	-24	74	41.04	31.93	6.05	29.02	109	156	P	V
		5015.75	41.66	-12.34	54	32.69	31.91	6.06	29	109	156	A	V
	*	5300	106.28	-	-	97.33	32.02	6.02	29.09	109	156	P	V
	*	5300	98.45	-	-	89.5	32.02	6.02	29.09	109	156	A	V
		5350.08	50.88	-23.12	74	41.94	32.04	6.01	29.11	109	156	P	V
		5350.08	42.17	-11.83	54	33.23	32.04	6.01	29.11	109	156	A	V



802.11n HT20 CH 64 5320MHz	*	5320	101.8	-	-	92.84	32.03	6.02	29.09	100	77	P	H
	*	5320	94.95	-	-	85.99	32.03	6.02	29.09	100	77	A	H
		5355.52	54.81	-19.19	74	45.87	32.04	6.01	29.11	100	77	P	H
		5352.8	43.11	-10.89	54	34.17	32.04	6.01	29.11	100	77	A	H
	*	5320	106.18	-	-	97.22	32.03	6.02	29.09	100	157	P	V
	*	5320	98.35	-	-	89.39	32.03	6.02	29.09	100	157	A	V
		5360	59.28	-14.72	74	50.34	32.04	6.01	29.11	100	157	P	V
		5356.64	45.55	-8.45	54	36.61	32.04	6.01	29.11	100	157	A	V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 52		10520	48.06	-25.94	74	55.87	38.83	9.27	55.91	150	220	P	H
		15780	49.55	-24.45	74	54.87	38.73	12.2	56.25	159	345	P	H
5260MHz		10520	47.8	-26.2	74	55.61	38.83	9.27	55.91	150	220	P	V
		15780	49.15	-24.85	74	54.47	38.73	12.2	56.25	159	345	P	V
802.11n HT20 CH 60		10600	47.84	-26.16	74	55.48	39.01	9.29	55.94	185	215	P	H
		15900	49.52	-24.48	74	54.53	38.66	12.34	56.01	196	190	P	H
		10600	48.76	-25.24	74	56.4	39.01	9.29	55.94	185	215	P	V
		15900	48.62	-25.38	74	53.63	38.66	12.34	56.01	196	190	P	V
802.11n HT20 CH 64		10640	49.62	-24.38	74	57.2	39.08	9.3	55.96	152	135	P	H
		15960	49.46	-24.54	74	54.28	38.62	12.43	55.87	173	245	P	H
		10640	47.47	-26.53	74	55.05	39.08	9.3	55.96	152	135	P	V
		15960	48.03	-25.97	74	52.85	38.62	12.43	55.87	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		5063.18	49.95	-24.05	74	40.99	31.93	6.05	29.02	100	56	P	H
		5097.24	42.04	-11.96	54	33.08	31.94	6.05	29.03	100	56	A	H
	*	5270	94.84	-	-	85.88	32.01	6.03	29.08	100	56	P	H
	*	5270	87.19	-	-	78.23	32.01	6.03	29.08	100	56	A	H
		5449.44	49.22	-24.78	74	40.21	32.08	6.06	29.13	100	56	P	H
		5435.52	41.09	-12.91	54	32.09	32.07	6.06	29.13	100	56	A	H
		5082.42	50.29	-23.71	74	41.33	31.93	6.05	29.02	200	89	P	V
		5000.52	42.11	-11.89	54	33.15	31.9	6.06	29	200	89	A	V
	*	5270	103.8	-	-	94.84	32.01	6.03	29.08	200	89	P	V
	*	5270	96.85	-	-	87.89	32.01	6.03	29.08	200	89	A	V
		5351.28	51.97	-22.03	74	43.03	32.04	6.01	29.11	200	89	P	V
		5350.8	42.9	-11.1	54	33.96	32.04	6.01	29.11	200	89	A	V
802.11n HT40 CH 62 5310MHz		5077.7	50.7	-23.3	74	41.74	31.93	6.05	29.02	100	56	P	H
		5032.9	42	-12	54	33.04	31.91	6.06	29.01	100	56	A	H
	*	5310	89.13	-	-	80.17	32.03	6.02	29.09	100	56	P	H
	*	5310	82.4	-	-	73.44	32.03	6.02	29.09	100	56	A	H
		5350.56	51.8	-22.2	74	42.86	32.04	6.01	29.11	100	56	P	H
		5350.56	44.77	-9.23	54	35.83	32.04	6.01	29.11	100	56	A	H
		5125.65	51.15	-22.85	74	42.2	31.95	6.04	29.04	186	87	P	V
		5001.75	42.04	-11.96	54	33.08	31.9	6.06	29	186	87	A	V
	*	5310	99	-	-	90.04	32.03	6.02	29.09	186	87	P	V
	*	5310	93.16	-	-	84.2	32.03	6.02	29.09	186	87	A	V
	5354.64	62.03	-11.97	74	53.09	32.04	6.01	29.11	186	87	P	V	
	5352.24	50.95	-3.05	54	42.01	32.04	6.01	29.11	186	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 802.11n 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	47.84	-26.16	74	55.61	38.87	9.28	55.92	150	220	P	H
HT40		15810	49.81	-24.19	74	55.03	38.71	12.25	56.18	168	345	P	H
CH 54		10540	47.88	-26.12	74	55.65	38.87	9.28	55.92	150	220	P	V
5270MHz		15810	49.94	-24.06	74	55.16	38.71	12.25	56.18	168	345	P	V
802.11n		10620	47.85	-26.15	74	55.46	39.04	9.3	55.95	150	220	P	H
HT40		15930	50.02	-23.98	74	54.94	38.64	12.38	55.94	160	100	P	H
CH 62		10620	48.47	-25.53	74	56.08	39.04	9.3	55.95	150	220	P	V
5310MHz		15930	49.94	-24.06	74	54.86	38.64	12.38	55.94	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		5121.8	50.87	-23.13	74	41.92	31.95	6.04	29.04	100	86	P	H
		5018.9	42.15	-11.85	54	33.19	31.91	6.06	29.01	100	86	A	H
	*	5290	89.27	-	-	80.32	32.01	6.02	29.08	100	86	P	H
	*	5290	81.55	-	-	72.6	32.01	6.02	29.08	100	86	A	H
		5352	55.13	-18.87	74	46.19	32.04	6.01	29.11	100	86	P	H
		5350.8	47.21	-6.79	54	38.27	32.04	6.01	29.11	100	86	A	H
		5088.9	50.48	-23.52	74	41.51	31.94	6.05	29.02	117	165	P	V
		5030.8	42.38	-11.62	54	33.42	31.91	6.06	29.01	117	165	A	V
	*	5290	94.63	-	-	85.68	32.01	6.02	29.08	117	165	P	V
	*	5290	87.55	-	-	78.6	32.01	6.02	29.08	117	165	A	V
		5359.2	58.75	-15.25	74	49.81	32.04	6.01	29.11	117	165	P	V
		5361.84	50.52	-3.48	54	41.57	32.05	6.01	29.11	117	165	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	47.49	-26.51	74	55.17	38.97	9.29	55.94	150	360	P	H
VHT80		15870	48.41	-25.59	74	53.49	38.67	12.29	56.04	150	0	P	H
CH 58		10580	47.07	-26.93	74	54.75	38.97	9.29	55.94	150	360	P	V
5290MHz		15870	48.32	-25.68	74	53.4	38.67	12.29	56.04	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 802.11n 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		5468.56	51.55	-22.45	74	42.49	32.09	6.11	29.14	100	94	P	H
		5469.2	42.49	-11.51	54	33.43	32.09	6.11	29.14	100	94	A	H
	*	5500	100.57	-	-	91.51	32.1	6.11	29.15	100	94	P	H
	*	5500	93.47	-	-	84.41	32.1	6.11	29.15	100	94	A	H
		5466.16	60.43	-13.57	74	51.37	32.09	6.11	29.14	100	148	P	V
		5468.08	46.23	-7.77	54	37.17	32.09	6.11	29.14	100	148	A	V
	*	5500	106.92	-	-	97.86	32.1	6.11	29.15	100	148	P	V
	*	5500	99.08	-	-	90.02	32.1	6.11	29.15	100	148	A	V
802.11n HT20 CH 116 5580MHz		5426.56	48.69	-25.31	74	39.69	32.07	6.06	29.13	103	58	P	H
		5462.8	40.94	-13.06	54	31.93	32.09	6.06	29.14	103	58	A	H
	*	5580	101.61	-	-	92.33	32.24	6.22	29.18	103	58	P	H
	*	5580	94.88	-	-	85.6	32.24	6.22	29.18	103	58	A	H
		5761.22	50.46	-23.54	74	40.87	32.62	6.2	29.23	103	58	P	H
		5750.51	41.14	-12.86	54	31.58	32.58	6.2	29.22	103	58	A	H
		5466.4	49.8	-24.2	74	40.74	32.09	6.11	29.14	100	149	P	V
		5452.96	41.61	-12.39	54	32.61	32.08	6.06	29.14	100	149	A	V
	*	5580	107.68	-	-	98.4	32.24	6.22	29.18	100	149	P	V
	*	5580	99.29	-	-	90.01	32.24	6.22	29.18	100	149	A	V
	5733.185	49.78	-24.22	74	40.23	32.55	6.22	29.22	100	149	P	V	
	5759.96	41.32	-12.68	54	31.73	32.62	6.2	29.23	100	149	A	V	



802.11n HT20 CH 140 5700MHz	*	5700	99.6	-	-	90.11	32.48	6.22	29.21	100	50	P	H
	*	5700	92.03	-	-	82.54	32.48	6.22	29.21	100	50	A	H
		5725.8	53.34	-20.66	74	43.79	32.55	6.22	29.22	100	50	P	H
		5725	45.01	-8.99	54	35.46	32.55	6.22	29.22	100	50	A	H
	*	5700	106.85	-	-	97.36	32.48	6.22	29.21	100	151	P	V
	*	5700	99.39	-	-	89.9	32.48	6.22	29.21	100	151	A	V
		5725.8	59.43	-14.57	74	49.88	32.55	6.22	29.22	100	151	P	V
		5725	49.8	-4.2	54	40.25	32.55	6.22	29.22	100	151	A	V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20		11000	47.83	-26.17	74	54.75	39.8	9.38	56.1	163	230	P	H
		16500	49.14	-24.86	74	53.28	38.5	13.41	56.05	178	296	P	H
5500MHz CH 100		11000	47.67	-26.33	74	54.59	39.8	9.38	56.1	163	230	P	V
		16500	49.77	-24.23	74	53.91	38.5	13.41	56.05	178	296	P	V
802.11n HT20 CH 116		11160	46.47	-27.53	74	53.29	39.6	9.43	55.85	170	200	P	H
		16740	50.56	-23.44	74	53.56	39.22	13.95	56.17	156	350	P	H
		11160	47.43	-26.57	74	54.25	39.6	9.43	55.85	170	200	P	V
		16740	50.34	-23.66	74	53.34	39.22	13.95	56.17	156	350	P	V
802.11n HT20 CH 140		11400	46.83	-27.17	74	53.52	39.32	9.48	55.49	157	285	P	H
		17100	49.32	-24.68	74	50.4	40.64	14.66	56.38	152	0	P	H
		11400	45.4	-28.6	74	52.09	39.32	9.48	55.49	157	285	P	V
		17100	50.82	-23.18	74	51.9	40.64	14.66	56.38	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		5468.08	54.72	-19.28	74	45.66	32.09	6.11	29.14	100	56	P	H
		5469.76	46.61	-7.39	54	37.55	32.09	6.11	29.14	100	56	A	H
	*	5510	96.36	-	-	87.24	32.1	6.17	29.15	100	56	P	H
	*	5510	90.12	-	-	81	32.1	6.17	29.15	100	56	A	H
		5735.39	48.34	-25.66	74	38.76	32.58	6.22	29.22	100	56	P	H
		5743.265	41.49	-12.51	54	31.93	32.58	6.2	29.22	100	56	A	H
		5461.12	57.35	-16.65	74	48.35	32.08	6.06	29.14	186	87	P	V
		5468.8	49.53	-4.47	54	40.47	32.09	6.11	29.14	186	87	A	V
	*	5510	103.73	-	-	94.61	32.1	6.17	29.15	186	87	P	V
	*	5510	97.21	-	-	88.09	32.1	6.17	29.15	186	87	A	V
		5735.075	50.23	-23.77	74	40.65	32.58	6.22	29.22	186	87	P	V
		5737.28	41.83	-12.17	54	32.25	32.58	6.22	29.22	186	87	A	V
802.11n HT40 CH 110 5550MHz		5444.56	51.06	-22.94	74	42.06	32.07	6.06	29.13	100	55	P	H
		5468.32	41.56	-12.44	54	32.5	32.09	6.11	29.14	100	55	A	H
	*	5550	97.37	-	-	88.11	32.2	6.22	29.16	100	55	P	H
	*	5550	91.15	-	-	81.89	32.2	6.22	29.16	100	55	A	H
		5743.265	48.81	-25.19	74	39.25	32.58	6.2	29.22	100	55	P	H
		5750.51	41.4	-12.6	54	31.84	32.58	6.2	29.22	100	55	A	H
		5406.88	50.07	-23.93	74	41.12	32.06	6.01	29.12	186	87	P	V
		5469.76	42.67	-11.33	54	33.61	32.09	6.11	29.14	186	87	A	V
	*	5550	105.13	-	-	95.87	32.2	6.22	29.16	186	87	P	V
	*	5550	97.82	-	-	88.56	32.2	6.22	29.16	186	87	A	V
	5747.36	50.15	-23.85	74	40.59	32.58	6.2	29.22	186	87	P	V	
	5739.8	42.13	-11.87	54	32.57	32.58	6.2	29.22	186	87	A	V	



802.11n HT40 CH 134 5670MHz		5413.35	48.63	-25.37	74	39.67	32.07	6.01	29.12	100	55	P	H
		5448	41.21	-12.79	54	32.2	32.08	6.06	29.13	100	55	A	H
	*	5670	96.98	-	-	87.51	32.44	6.23	29.2	100	55	P	H
	*	5670	90.93	-	-	81.46	32.44	6.23	29.2	100	55	A	H
		5726.15	52.83	-21.17	74	43.28	32.55	6.22	29.22	100	55	P	H
		5726.85	43.15	-10.85	54	33.6	32.55	6.22	29.22	100	55	A	H
		5455	48.6	-25.4	74	39.6	32.08	6.06	29.14	186	87	P	V
		5452.9	41.25	-12.75	54	32.25	32.08	6.06	29.14	186	87	A	V
	*	5670	105.43	-	-	95.96	32.44	6.23	29.2	186	87	P	V
	*	5670	98.16	-	-	88.69	32.44	6.23	29.2	186	87	A	V
		5725	57.53	-16.43	74	47.98	32.55	6.22	29.22	186	87	P	V
		5728.6	48.41	-5.59	54	38.86	32.55	6.22	29.22	186	87	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		11020	47.25	-26.75	74	54.15	39.78	9.39	56.07	170	230	P	H
		16530	49.76	-24.24	74	53.75	38.6	13.48	56.07	160	300	P	H
5510MHz CH 102		11020	47.67	-26.33	74	54.57	39.78	9.39	56.07	170	230	P	V
		16530	49.84	-24.16	74	53.83	38.6	13.48	56.07	160	300	P	V
802.11n HT40 CH 110		11100	47.46	-26.54	74	54.32	39.68	9.41	55.95	150	200	P	H
		16650	50.64	-23.36	74	54.08	38.97	13.72	56.13	180	350	P	H
		11100	47.11	-26.89	74	53.97	39.68	9.41	55.95	150	200	P	V
		16650	49.77	-24.23	74	53.21	38.97	13.72	56.13	180	350	P	V
802.11n HT40 CH 134		11340	46.2	-27.8	74	52.93	39.4	9.46	55.59	200	360	P	H
		17010	49.78	-24.22	74	51.48	40.11	14.5	56.31	100	250	P	H
		11340	46.36	-27.64	74	53.09	39.4	9.46	55.59	200	360	P	V
		17010	50.93	-23.07	74	52.63	40.11	14.5	56.31	100	250	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		5458.24	51.82	-22.18	74	42.82	32.08	6.06	29.14	105	86	P	H
		5457.28	44.48	-9.52	54	35.48	32.08	6.06	29.14	105	86	A	H
	*	5530	93.37	-	-	84.23	32.13	6.17	29.16	105	86	P	H
	*	5530	85.64	-	-	76.5	32.13	6.17	29.16	105	86	A	H
		5747.99	49.43	-24.57	74	39.87	32.58	6.2	29.22	105	86	P	H
		5756.495	41.32	-12.68	54	31.73	32.62	6.2	29.23	105	86	A	H
		5469.04	59.44	-14.56	74	50.38	32.09	6.11	29.14	134	88	P	V
		5470	49.2	-4.8	54	40.14	32.09	6.11	29.14	134	88	A	V
	*	5530	99.13	-	-	89.99	32.13	6.17	29.16	134	88	P	V
	*	5530	90.54	-	-	81.4	32.13	6.17	29.16	134	88	A	V
		5735.705	49.55	-24.45	74	39.97	32.58	6.22	29.22	134	88	P	V
		5748.305	41.75	-12.25	54	32.19	32.58	6.2	29.22	134	88	A	V
802.11ac VHT80 CH 122 5610MHz		5416.96	49.25	-24.75	74	40.29	32.07	6.01	29.12	100	85	P	H
		5458.24	41.28	-12.72	54	32.28	32.08	6.06	29.14	100	85	A	H
	*	5610	95.27	-	-	85.87	32.31	6.27	29.18	100	85	P	H
	*	5610	86.39	-	-	76.99	32.31	6.27	29.18	100	85	A	H
		5727.83	49.51	-24.49	74	39.96	32.55	6.22	29.22	100	85	P	H
		5731.61	41.93	-12.07	54	32.38	32.55	6.22	29.22	100	85	A	H
		5429.68	49.49	-24.51	74	40.49	32.07	6.06	29.13	129	91	P	V
		5450.8	42	-12	54	33	32.08	6.06	29.14	129	91	A	V
	*	5610	101.64	-	-	92.24	32.31	6.27	29.18	129	91	P	V
	*	5610	93.89	-	-	84.49	32.31	6.27	29.18	129	91	A	V
	5726.885	52.69	-21.31	74	43.14	32.55	6.22	29.22	129	91	P	V	
	5729.09	44.83	-9.17	54	35.28	32.55	6.22	29.22	129	91	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)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include data for 802.11ac, VHT80, CH 106, 5530MHz, 802.11ac, VHT80, CH 122, 5610MHz, and a Remark section.



Band 3 - Straddle Channel
WIFI 802.11n HT20 (Harmonic @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include 802.11n HT20 CH 144 5720MHz and a Remark section.



Band 3 - Straddle Channel
WIFI 802.11n HT40 (Harmonic @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include 802.11n, HT40, CH 142, 5710MHz and a Remark section.



Band 3 - Straddle Channel
WIFI 802.11ac VHT80 (Harmonic @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include 802.11ac VHT80, CH 138, and 5690MHz.

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



Emission below 1GHz
WIFI 802.11n HT40 (LF @ 3m)

WIFI	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)
802.11n HT40 LF		30.97	22.98	-17.02	40	30.04	24.43	0.29	31.78	-	-	P	H
		112.45	21.26	-22.24	43.5	34.65	17.04	1.11	31.54	-	-	P	H
		232.73	23.3	-22.7	46	36.16	16.73	1.69	31.28	-	-	P	H
		556.71	27.01	-18.99	46	30.64	25.01	2.56	31.2	-	-	P	H
		812.79	29.83	-16.17	46	29.27	28.6	3.21	31.25	-	-	P	H
		946.65	31.8	-14.2	46	29.76	29.86	3.45	31.27	100	321	P	H
		30.97	32	-8	40	39.08	24.43	0.27	31.78	100	214	P	V
		119.24	22.54	-20.96	43.5	35.48	17.44	1.14	31.52	-	-	P	V
		172.59	22.8	-20.7	43.5	36.08	16.69	1.37	31.34	-	-	P	V
		523.73	26.96	-19.04	46	31.22	24.42	2.49	31.17	-	-	P	V
		769.14	29.35	-16.65	46	29.56	27.94	3.08	31.23	-	-	P	V
		881.66	32.31	-13.69	46	32.06	28.18	3.34	31.27	-	-	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	Peak or Average
H/V	Horizontal or Vertical



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

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

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

For Peak Limit @ 2390MHz:

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

For Average Limit @ 2390MHz:

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

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

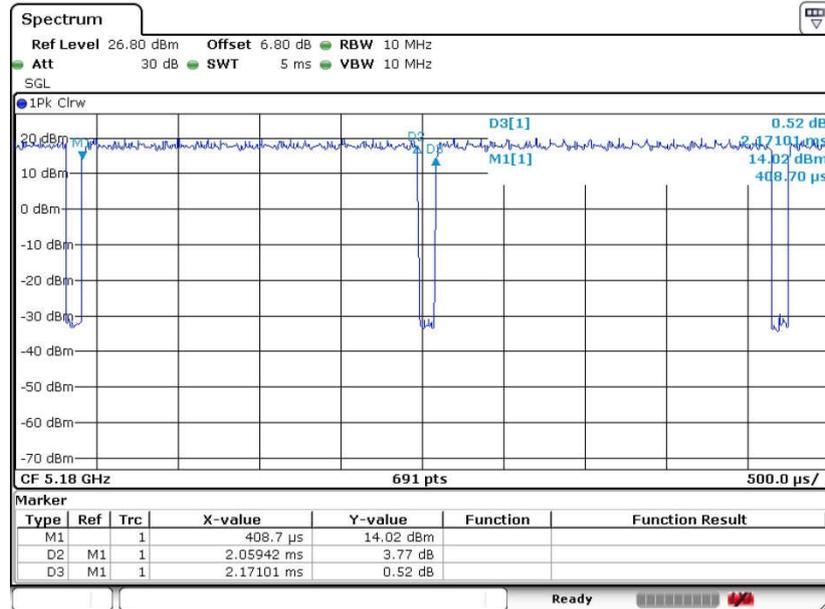


Appendix C. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1	802.11a	94.86	2.059	0.486	1kHz
2	802.11a	95.18	2.059	0.486	1kHz
1+2(1)	802.11n HT20	94.97	1.917	0.522	1kHz
1+2(2)	802.11n HT20	94.83	1.914	0.522	1kHz
1+2(1)	802.11n HT40	90.32	0.946	1.057	3kHz
1+2(2)	802.11n HT40	90.95	0.946	1.057	3kHz
1+2(1)	802.11ac VHT80	83.59	0.465	2.150	3kHz
1+2(2)	802.11ac VHT80	83.51	0.462	2.163	3kHz

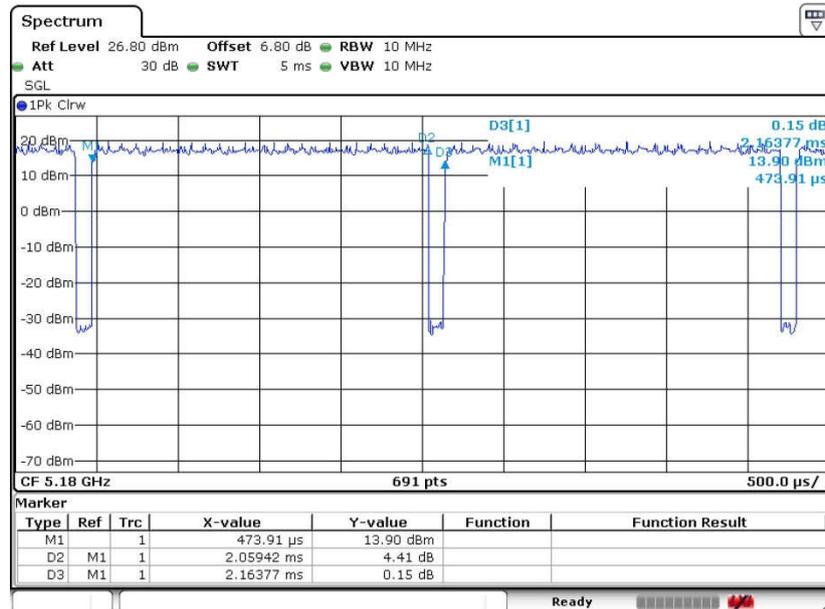


802.11a Ant.1



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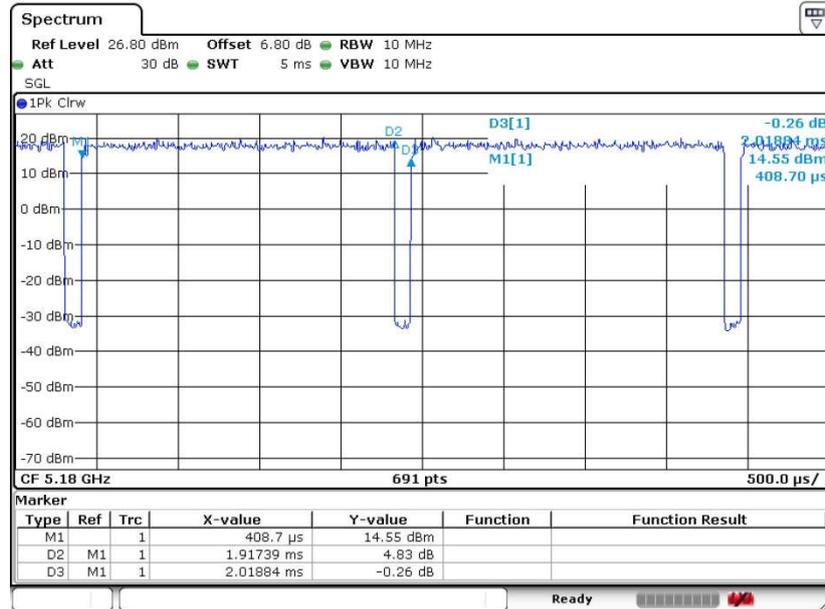
802.11a Ant.2



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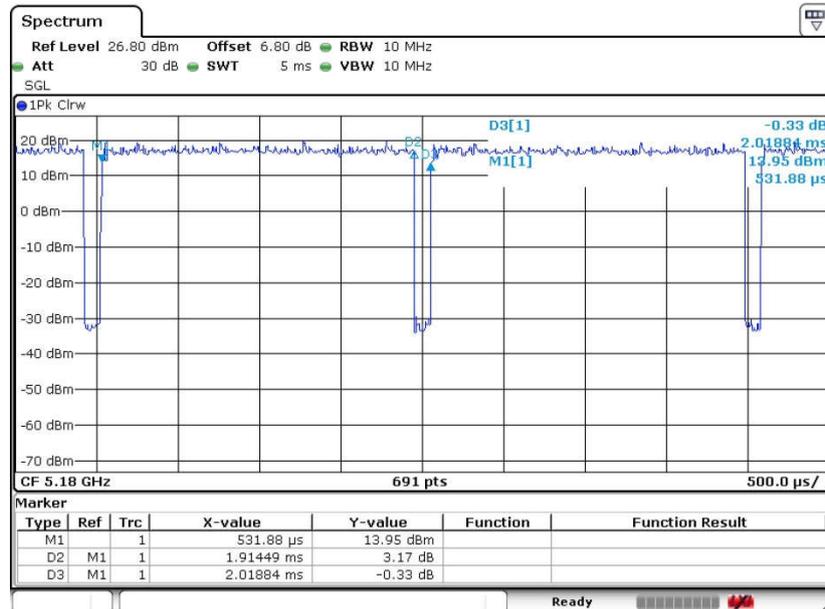


802.11n HT20 Ant.1+2(1)



Date: 20.NOV.2017 08:31:48

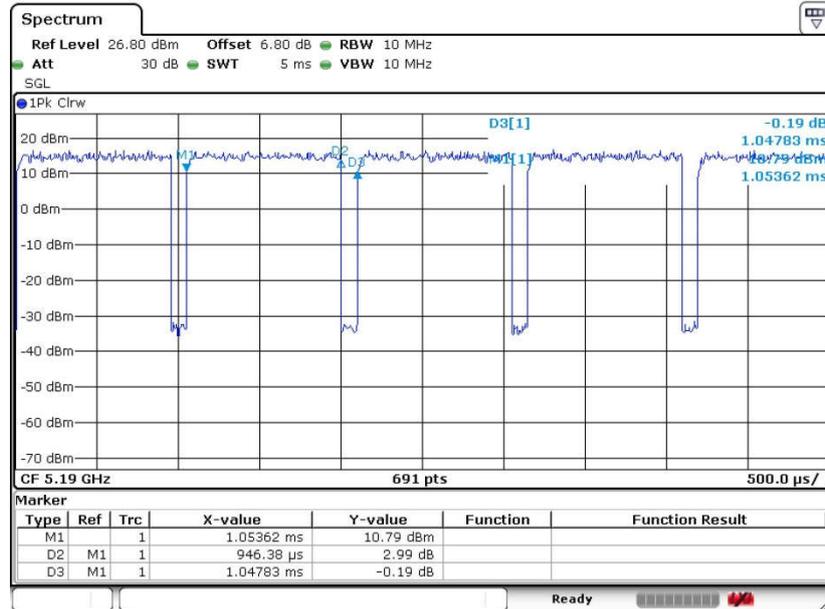
802.11n HT20 Ant.1+2(2)



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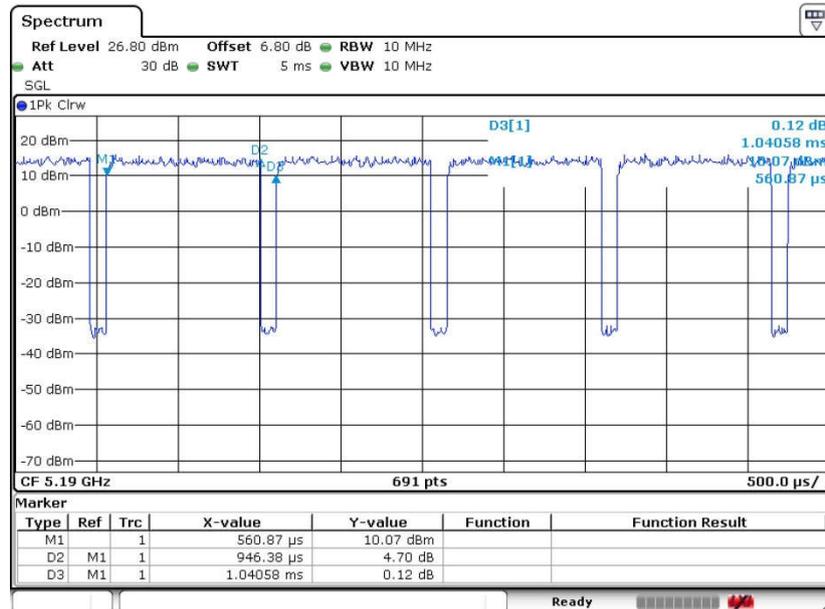


802.11n HT40 Ant.1+2(1)



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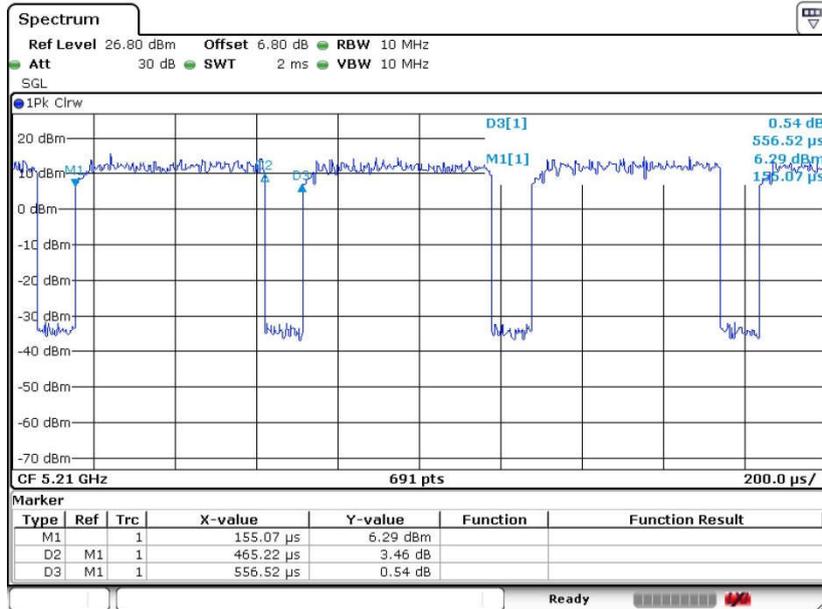
802.11n HT40 Ant.1+2(2)



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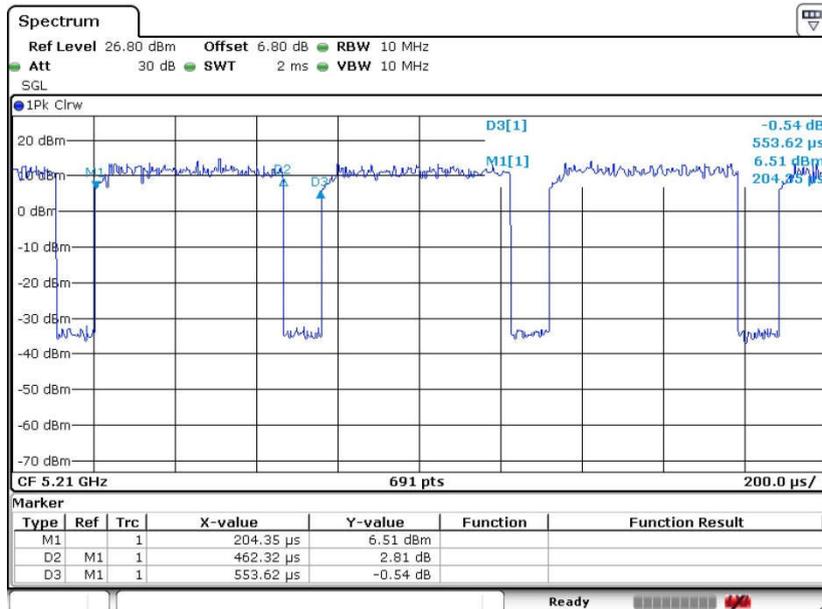


802.11ac VHT80 Ant.1+2(1)



Date: 20.NOV.2017 08:26:35

802.11ac VHT80 Ant.1+2(2)



Date: 20.NOV.2017 08:25:45