



FCC RF Test Report

APPLICANT : Lenovo (Shanghai) Electronics Technology Co., Ltd.
EQUIPMENT : Tablet PC
BRAND NAME : Lenovo
MODEL NAME : Lenovo Miix 630-12Q35; 81F1
FCC ID : O57MIIX630
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Dec. 12, 2017 and testing was completed on Mar. 07, 2018. 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.

This report contains data that were produced under subcontract by Laboratory SPORTON INTERNATIONAL INC.

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

Sporton International (Kunshan) Inc.

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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	≤ 24 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 11 dBm	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 0.63 dB at 5350.32 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 12.30 dB at 0.180 MHz
3.6	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.7	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Lenovo (Shanghai) Electronics Technology Co., Ltd.
NO.68 BUILDING, 199 FENJU RD, China (Shanghai) 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	Tablet PC
Brand Name	Lenovo
Model Name	Lenovo Miix 630-12Q35; 81F1
FCC ID	O57MIIX630
EUT supports Radios application	WCDMA/HSPA/DC-HSDPA/ HSPA+ (16QAM uplink is not supported)/LTE WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth v3.0+EDR/ Bluetooth v4.0 LE/ Bluetooth v4.1 LE/ Bluetooth v 4.2 LE
HW Version	81835_1_14
SW Version	16299.192 windows 10S
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> SISO<Ant. 1> 802.11a : 16.91 dBm / 0.0491 W SISO<Ant. 2> 802.11a : 16.93 dBm / 0.0493 W MIMO <Ant. 1+2> 802.11n HT20 : 17.45 dBm / 0.0556 W 802.11n HT40 : 17.48 dBm / 0.0560 W 802.11ac VHT80 : 17.48 dBm / 0.0560 W</p> <p><5260 MHz ~ 5320 MHz> SISO<Ant. 1> 802.11a : 17.12 dBm / 0.0515 W SISO<Ant. 2> 802.11a : 17.04 dBm / 0.0506 W MIMO <Ant. 1+2> 802.11n HT20 : 16.95 dBm / 0.0495 W 802.11n HT40 : 16.80 dBm / 0.0479 W 802.11ac VHT80 : 16.88 dBm / 0.0488 W</p> <p><5500 MHz ~ 5720 MHz > SISO<Ant. 1> 802.11a : 16.75 dBm / 0.0473 W SISO<Ant. 2> 802.11a : 16.59 dBm / 0.0456 W MIMO <Ant. 1+2> 802.11n HT20 : 16.21 dBm / 0.0418 W 802.11n HT40 : 15.73 dBm / 0.0374 W 802.11ac VHT80 : 15.47 dBm / 0.0352 W</p>
99% Occupied Bandwidth	<p><5180 MHz ~ 5240 MHz> SISO<Ant. 2> 802.11a : 17.53 MHz MIMO <Ant. 1+2> 802.11n HT20 : 18.73 MHz 802.11n HT40 : 36.46 MHz 802.11ac VHT80 : 75.76 MHz</p> <p><5260 MHz ~ 5320 MHz> SISO<Ant. 1> 802.11a : 17.58 MHz MIMO <Ant. 1+2> 802.11n HT20 : 18.73 MHz 802.11n HT40 : 36.56 MHz 802.11ac VHT80 : 75.76 MHz</p> <p><5500 MHz ~ 5720 MHz > SISO<Ant. 1> 802.11a : 17.63 MHz MIMO <Ant. 1+2> 802.11n HT20 : 18.78 MHz 802.11n HT40 : 36.56 MHz 802.11ac VHT80 : 75.76 MHz</p>



Antenna Type	Monopole Antenna		
Antenna Gain	<5180 MHz ~ 5240 MHz> Ant. 1 : 0 dBi Ant. 2 : -2.00 dBi <5260 MHz ~ 5320 MHz> Ant. 1 : 0.70 dBi Ant. 2 : -2.10 dBi <5500 MHz ~ 5720 MHz > Ant. 1 : 0.50 dBi Ant. 2 : 1.40 dBi		
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)		
Antenna Function Description		Ant. 1	Ant. 2
	802.11 a/n/ac SISO	V	V
	802.11 n/ac MIMO	V	V

Note:

1. WLAN operation in 5600 MHz ~ 5650 MHz is notched.
2. For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing is assessed only 802.11n HT20/ HT40 by referring to their higher conducted power.

1.5 Modification of EUT

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



1.6 Testing Location

Sporton 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 INC. is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW0007 under the FCC-recognized accredited testing laboratories by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No.58, Aly. 75, Ln. 564 Wenhua 3rd Rd. Guishan Dist. TEL: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	Sporton Site No.		FCC Test Firm Registration No.
	03CH07-HY		214511

Note:

1. The test site complies with ANSI C63.4 2014 requirement.
2. Test data subcontracted: radiated spurious emissions for section 3.4 of this report.



1.7 Applicable Standards

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

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

Remark:

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



2 Test Configuration of Equipment Under Test

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

2.1 Carrier Frequency and Channel

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

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

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5725 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)
Straddle Channel	138 [#]	5690	144	5720
	142*	5710	-	-

Note:

1. The above Frequency and Channel in "*" were 802.11n HT40/11ac VHT40.
2. The above Frequency and Channel in "[#]" were 802.11ac VHT80.



2.2 Test Mode

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

SISO Mode

Modulation	Data Rate
802.11a	6 Mbps

MIMO Mode

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

Test Cases	
AC Conducted Emission	Mode 1 : Bluetooth Link + WLAN (5 G) Link + Camera Front + SD Card Data Copy + Keyboard + Play H Plane + Pen + Earphone + Adapter 1 With Type C for Sample 1
Remark: For Radiated Test Cases, The tests were performance with Adapter 1 and Earphone for Sample 1.	



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

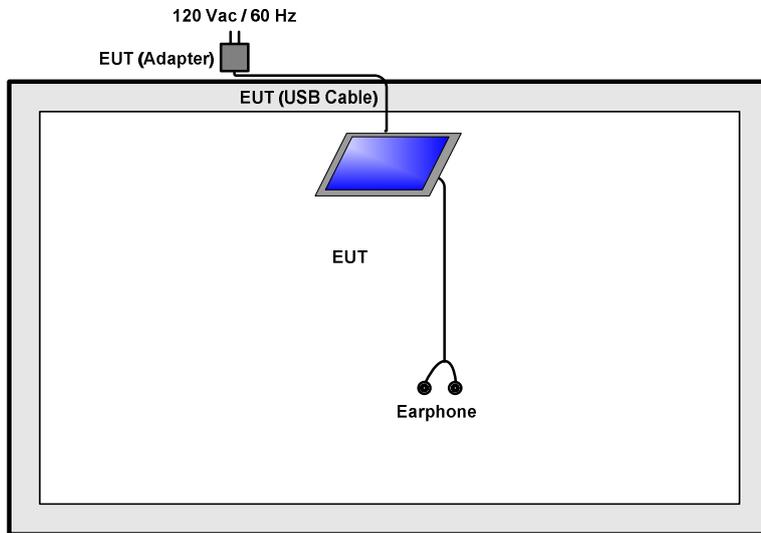
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

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

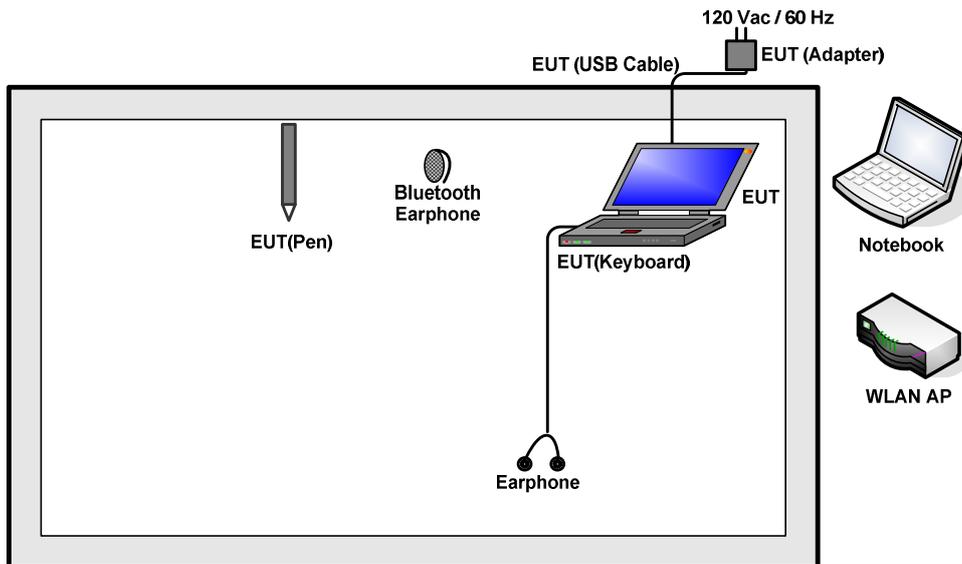
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	106
M	Middle	42	58	-
H	High	-	-	-
Straddle		-	-	138

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.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
2.	WLAN AP	D-link	DIR-855	KA2DIR855A2	N/A	Unshielded,1.8m
3.	Earphone	Lenovo	P121	N/A	N/A	Unshielded,1.2m
4.	Notebook	Lenovo	E41	N/A	N/A	Unshielded,1.5m
5.	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 Notebook under large package sizes transmission.

2.6 Measurement Results Explanation Example

For all conducted test items:

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

$$\begin{aligned}
 \text{Offset}(dB) &= \text{RF cable loss}(dB). \\
 &= 6.8 \text{ (dB)}
 \end{aligned}$$

3 Test Result

3.1 26dB & 99% Occupied Bandwidth Measurement

3.1.1 Description of 26dB & 99% Occupied Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

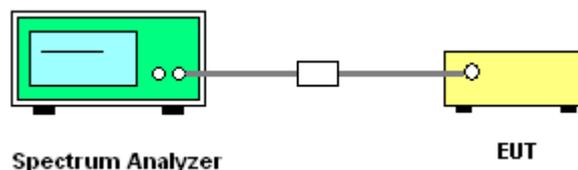
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

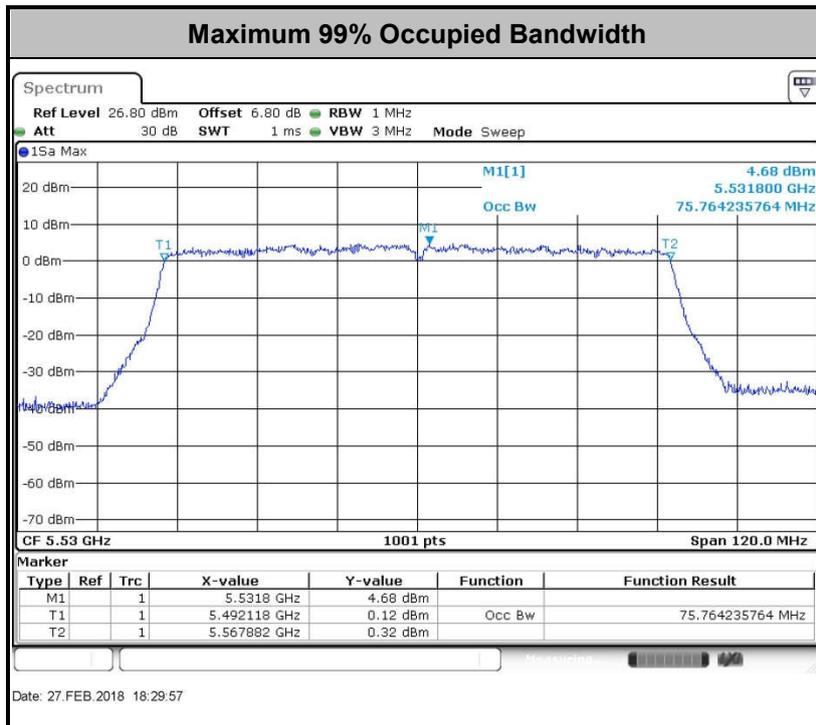
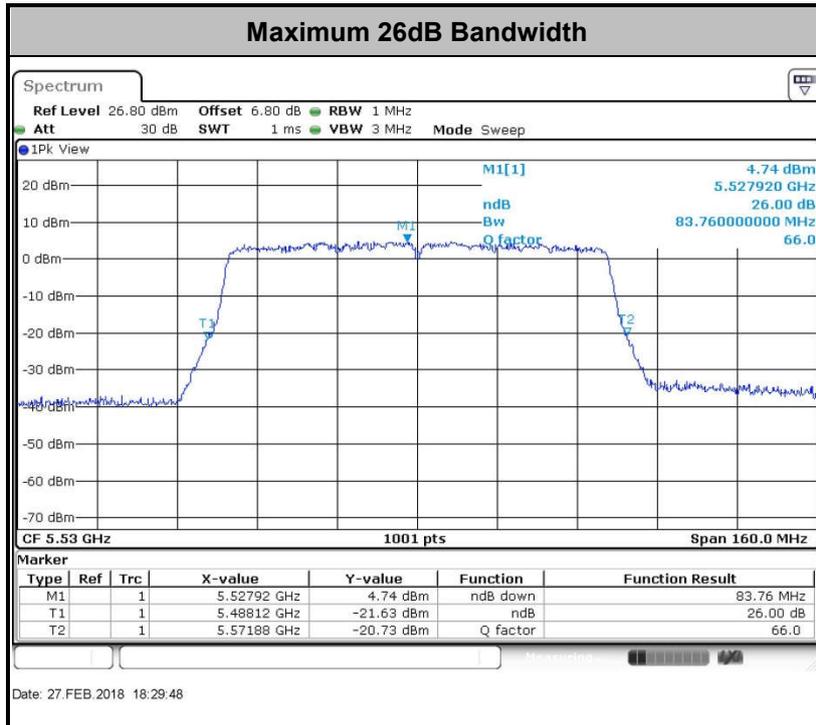
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB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

3.1.4 Test Setup



3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.



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



3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

<FCC 14-30 CFR 15.407>

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

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

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

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

3.2.2 Measuring Instruments

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

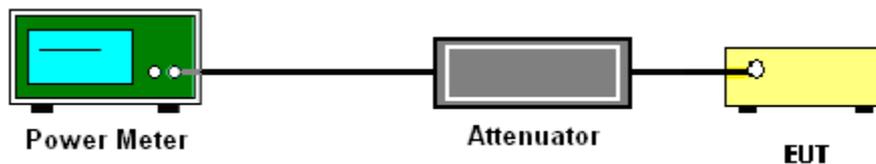
3.2.3 Test Procedures

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

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

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

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

<FCC 14-30 CFR 15.407>

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

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

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

3.3.2 Measuring Instruments

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



3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
Section F) Maximum power spectral density.

Method SA-2

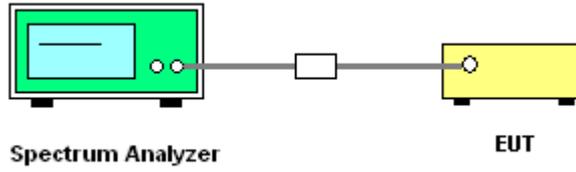
(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

- 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.
1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
 2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
 3. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

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

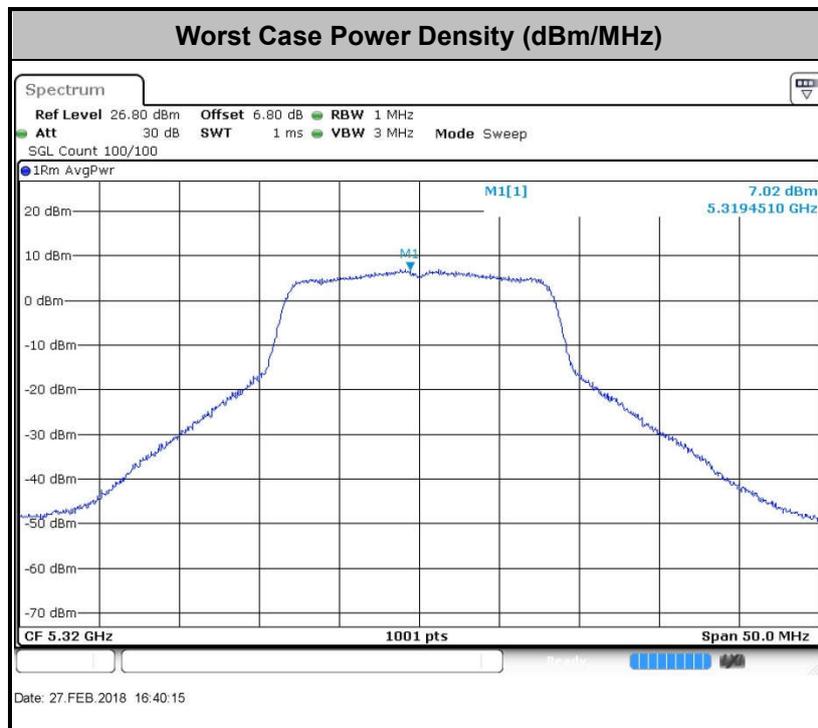
The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of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

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.





3.4 Unwanted Emissions Measurement

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

3.4.1 Limit of Unwanted Emissions

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

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

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

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

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

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

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



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

(3) KDB789033 D02 v02r01 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 v02r01.

Section G) Unwanted emissions measurement.

(1) Procedure for Unwanted Emissions Measurements Below 1000MHz

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

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

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

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

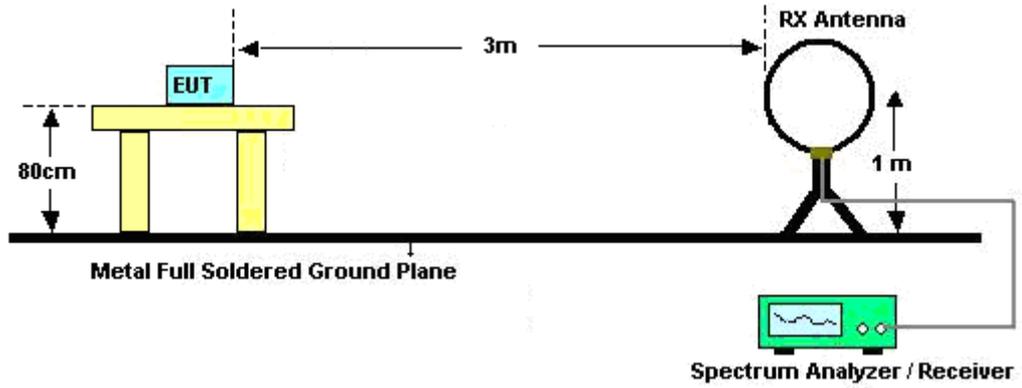
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW \geq $1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.



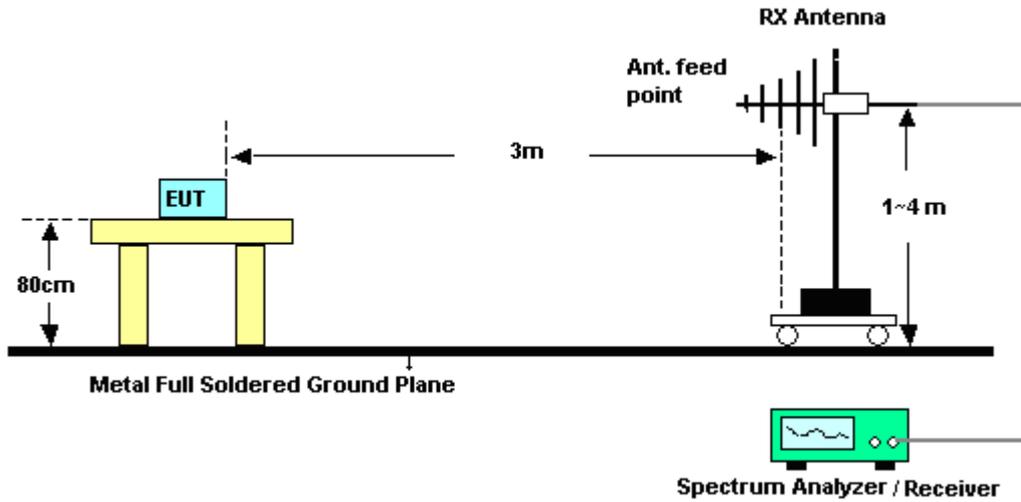
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband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

3.4.4 Test Setup

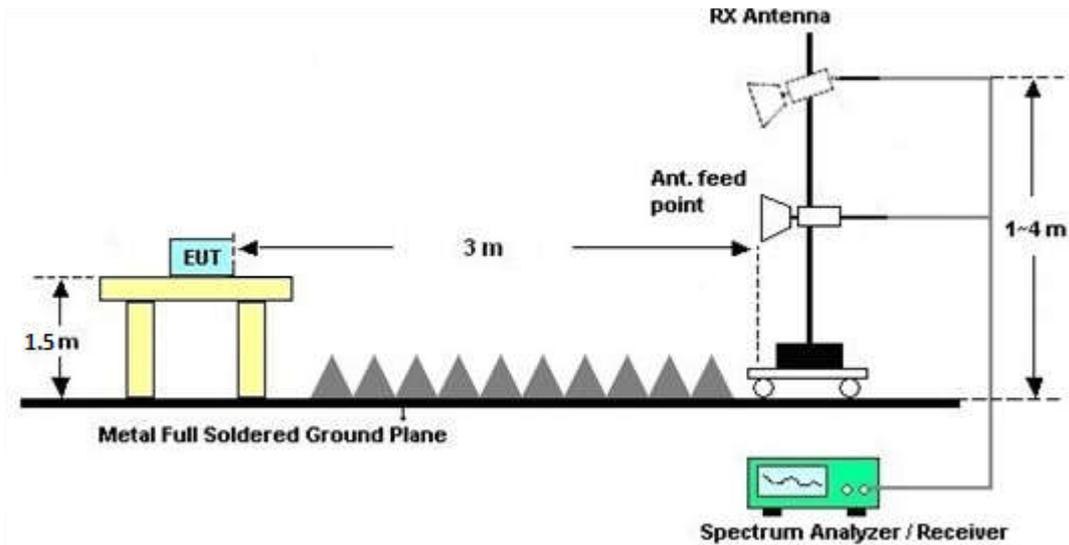
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B.

3.4.7 Duty Cycle

Please refer to Appendix C.

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

Please refer to Appendix B.



3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

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

Frequency of emission (MHz)	Conducted limit (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.

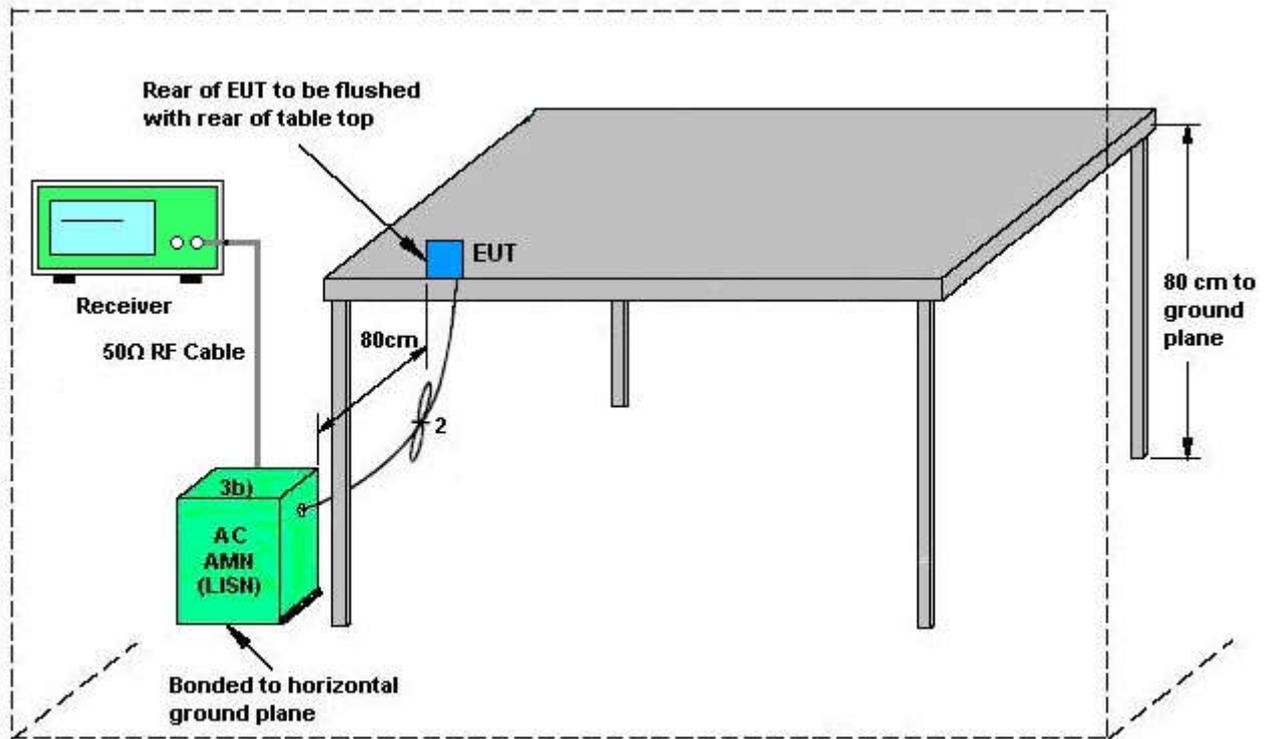
3.5.2 Measuring Instruments

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

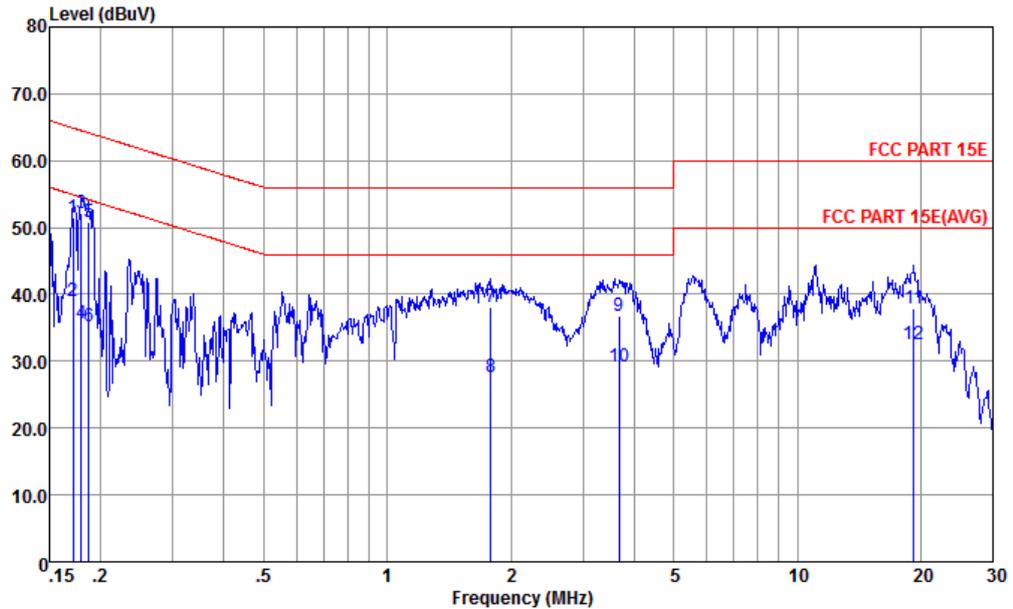


AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network



3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	24~25°C
Test Engineer :	Amos Zhang	Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	Bluetooth Link + WLAN (5 G) Link + Camera Front + SD Card Data Copy + Keyboard + Play H Plane + Pen + Earphone + Adapter 1 With Type C for Sample 1		

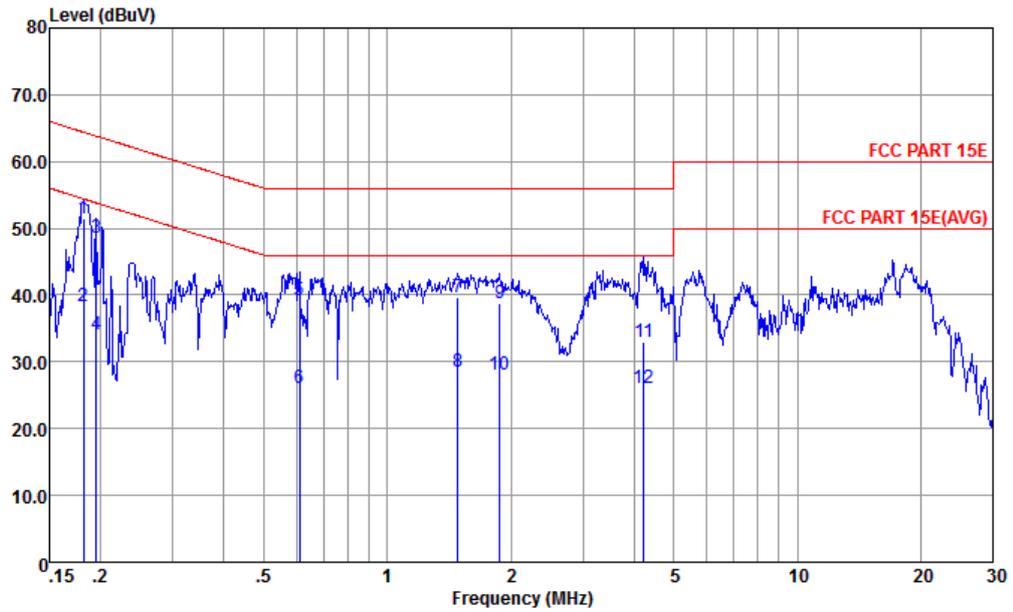


Site : CO01-KS
 Condition : FCC PART 15E LISN-L-171013-060103 LINE
 mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.171	51.42	-13.48	64.90	40.69	0.18	10.55	QP
2	0.171	39.02	-15.88	54.90	28.29	0.18	10.55	Average
3 *	0.180	52.20	-12.30	64.50	41.49	0.19	10.52	QP
4	0.180	35.60	-18.90	54.50	24.89	0.19	10.52	Average
5	0.187	50.88	-13.27	64.15	40.20	0.19	10.49	QP
6	0.187	35.28	-18.87	54.15	24.60	0.19	10.49	Average
7	1.790	38.07	-17.93	56.00	27.59	0.28	10.20	QP
8	1.790	27.67	-18.33	46.00	17.19	0.28	10.20	Average
9	3.681	36.81	-19.19	56.00	26.30	0.34	10.17	QP
10	3.681	29.11	-16.89	46.00	18.60	0.34	10.17	Average
11	19.224	37.86	-22.14	60.00	27.20	0.19	10.47	QP
12	19.224	32.56	-17.44	50.00	21.90	0.19	10.47	Average



Test Mode :	Mode 1	Temperature :	24~25°C
Test Engineer :	Amos Zhang	Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	Bluetooth Link + WLAN (5 G) Link + Camera Front + SD Card Data Copy + Keyboard + Play H Plane + Pen + Earphone + Adapter 1 With Type C for Sample 1		



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 *	0.182	51.39	-13.03	64.42	40.60	0.28	10.51	QP
2	0.182	38.29	-16.13	54.42	27.50	0.28	10.51	Average
3	0.195	48.65	-15.15	63.80	37.90	0.28	10.47	QP
4	0.195	34.05	-19.75	53.80	23.30	0.28	10.47	Average
5	0.611	39.32	-16.68	56.00	28.80	0.30	10.22	QP
6	0.611	26.12	-19.88	46.00	15.60	0.30	10.22	Average
7	1.487	39.68	-16.32	56.00	29.19	0.32	10.17	QP
8	1.487	28.58	-17.42	46.00	18.09	0.32	10.17	Average
9	1.878	38.82	-17.18	56.00	28.30	0.32	10.20	QP
10	1.878	28.12	-17.88	46.00	17.60	0.32	10.20	Average
11	4.224	33.02	-22.98	56.00	22.50	0.34	10.18	QP
12	4.224	26.12	-19.88	46.00	15.60	0.34	10.18	Average



3.6 Automatically Discontinue Transmission

3.6.1 Limit of Automatically Discontinue Transmission

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

3.6.2 Measuring Instruments

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

3.6.3 Test Result of Automatically Discontinue Transmission

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



3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

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

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

For power measurements on IEEE 802.11 devices,

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

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

The EUT supports CDD mode.

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

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

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

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

<CDD Modes>						
	Ant. 1	Ant. 2	DG for Power	DG for PSD	Power Limit Reduction	PSD Limit Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
Band I	0.00	-2.00	0.00	2.07	0.00	0.00
Band II	0.70	-2.10	0.70	2.42	0.00	0.00
Band III	0.50	1.40	1.40	3.97	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	Feb. 27, 2018	Aug. 07, 2018	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 18, 2018	Feb. 27, 2018	Jan. 17, 2019	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 18, 2018	Feb. 27, 2018	Jan. 17, 2019	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Oct. 12, 2017	Feb. 27, 2018	Oct. 11, 2018	Conducted (TH01-KS)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Nov. 10, 2017	Mar. 06, 2018~ Mar. 07, 2018	Nov. 09, 2019	Radiation (03CH07-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800 N1D01N-06	35419&03	30MHz to 1GHz	Dec. 18, 2017	Mar. 06, 2018~ Mar. 07, 2018	Dec. 17, 2018	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 23, 2017	Mar. 06, 2018~ Mar. 07, 2018	Aug. 22, 2018	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	18GHz- 40GHz	Nov. 10, 2017	Mar. 06, 2018~ Mar. 07, 2018	Nov. 09, 2018	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10MHz-1GHz	Mar. 14, 2017	Mar. 06, 2018~ Mar. 07, 2018	Mar. 13, 2018	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590075	1GHz ~ 18GHz	Apr. 25, 2017	Mar. 06, 2018~ Mar. 07, 2018	Apr. 24, 2018	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Oct. 30, 2017	Mar. 06, 2018~ Mar. 07, 2018	Oct. 29, 2018	Radiation (03CH07-HY)
Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz, VSWR : 2.5:1 max	Jul. 18, 2017	Mar. 06, 2018~ Mar. 07, 2018	Jul. 17, 2018	Radiation (03CH07-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz to 26.5GHz	Jan. 16, 2018	Mar. 06, 2018~ Mar. 07, 2018	Jan. 15, 2019	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Apr. 17, 2017	Mar. 06, 2018~ Mar. 07, 2018	Apr. 16, 2018	Radiation (03CH07-HY)
Controller	ChainTek	Chaintek 3000	N/A	Control Turn table	N/A	Mar. 06, 2018~ Mar. 07, 2018	N/A	Radiation (03CH07-HY)
Controller	Max-Full	MF7802	MF780208368	Control Ant Mast	N/A	Mar. 06, 2018~ Mar. 07, 2018	N/A	Radiation (03CH07-HY)
Antenna Mast	Max-Full	MFA520BS	N/A	1m~4m	N/A	Mar. 06, 2018~ Mar. 07, 2018	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Mar. 06, 2018~ Mar. 07, 2018	N/A	Radiation (03CH07-HY)
Software	Audix	E3 6.2009-8-24	RK-001042	N/A	N/A	Mar. 06, 2018~ Mar. 07, 2018	N/A	Radiation (03CH07-HY)
EMI Receiver	R&S	ESC17	100768	9kHz~7GHz;	Apr. 20, 2017	Feb. 02, 2018	Apr. 19, 2018	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2017	Feb. 02, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2017	Feb. 02, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000811	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2017	Feb. 02, 2018	Oct. 11, 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% ($U = 2Uc(y)$)	5.7dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.5dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.2dB
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Appendix A. Conducted Test Results

Test Engineer:	Silent Hai	Temperature:	21~25	°C
Test Date:	2018/2/27	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		17.53		23.78	-			22.44	
11a	6Mbps	1	44	5220		17.48		23.68	-			22.43	
11a	6Mbps	1	48	5240		17.48		24.38	-			22.43	
HT20	MCS0	2	36	5180	18.73	18.68	24.33	24.33	-			22.71	
HT20	MCS0	2	44	5220	18.73	18.68	25.28	24.53	-			22.71	
HT20	MCS0	2	48	5240	18.68	18.68	25.18	24.48	-			22.71	
HT40	MCS0	2	38	5190	36.46	36.46	41.63	41.81	-			23.01	
HT40	MCS0	2	46	5230	36.46	36.46	41.45	41.81	-			23.01	
VHT80	MCS0	2	42	5210	75.64	75.76	83.12	82.64	-			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	0.20	0.22	16.69	16.67		24.00	24.00	0.00	-2.00	Pass
11a	6Mbps	1	44	5220	0.20	0.22	16.63	16.64		24.00	24.00	0.00	-2.00	Pass
11a	6Mbps	1	48	5240	0.20	0.22	16.91	16.93		24.00	24.00	0.00	-2.00	Pass
HT20	MCS0	2	36	5180	0.23	0.25	13.59	14.81	17.26	24.00		0.00		Pass
HT20	MCS0	2	44	5220	0.23	0.25	13.28	14.86	17.15	24.00		0.00		Pass
HT20	MCS0	2	48	5240	0.23	0.25	13.60	15.14	17.45	24.00		0.00		Pass
HT40	MCS0	2	38	5190	0.42	0.43	13.91	14.84	17.41	24.00		0.00		Pass
HT40	MCS0	2	46	5230	0.42	0.43	13.79	15.07	17.48	24.00		0.00		Pass
VHT80	MCS0	2	42	5210	0.78	0.78	13.83	15.03	17.48	24.00		0.00		Pass

TEST RESULTS DATA
Power Spectral Density

FCC Band I														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	36	5180	0.20	0.22		5.86		11.00	11.00	0.00	-2.00	Pass
11a	6Mbps	1	44	5220	0.20	0.22		5.76		11.00	11.00	0.00	-2.00	Pass
11a	6Mbps	1	48	5240	0.20	0.22		6.16		11.00	11.00	0.00	-2.00	Pass
HT20	MCS0	2	36	5180	0.23	0.25			6.17	11.00		2.07		Pass
HT20	MCS0	2	44	5220	0.23	0.25			6.20	11.00		2.07		Pass
HT20	MCS0	2	48	5240	0.23	0.25			6.36	11.00		2.07		Pass
HT40	MCS0	2	38	5190	0.42	0.43			4.05	11.00		2.07		Pass
HT40	MCS0	2	46	5230	0.42	0.43			4.36	11.00		2.07		Pass
VHT80	MCS0	2	42	5210	0.78	0.78			5.21	11.00		2.07		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	17.53		23.93		23.44		29.44		23.98		
11a	6Mbps	1	60	5300	17.58		24.08		23.45		29.45		23.98		
11a	6Mbps	1	64	5320	17.53		24.28		23.44		29.44		23.98		
HT20	MCS0	2	52	5260	18.73	18.63	24.93	24.33	23.70		29.70		23.98		
HT20	MCS0	2	60	5300	18.68	18.73	24.53	24.23	23.71		29.71		23.98		
HT20	MCS0	2	64	5320	18.68	18.73	24.48	24.88	23.71		29.71		23.98		
HT40	MCS0	2	54	5270	36.56	36.46	41.90	41.81	23.98		30.00		23.98		
HT40	MCS0	2	62	5310	36.46	36.46	41.72	41.90	23.98		30.00		23.98		
VHT80	MCS0	2	58	5290	75.64	75.76	82.96	82.96	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	0.20	0.22	16.55	16.37		23.98		0.70	-2.10	26.99	Pass
11a	6Mbps	1	60	5300	0.20	0.22	17.06	17.04		23.98		0.70	-2.10	26.99	Pass
11a	6Mbps	1	64	5320	0.20	0.22	17.12	16.97		23.98		0.70	-2.10	26.99	Pass
HT20	MCS0	2	52	5260	0.23	0.25	12.78	14.04	16.47	23.98		0.70		26.99	Pass
HT20	MCS0	2	60	5300	0.23	0.25	13.10	14.64	16.95	23.98		0.70		26.99	Pass
HT20	MCS0	2	64	5320	0.23	0.25	13.05	14.51	16.85	23.98		0.70		26.99	Pass
HT40	MCS0	2	54	5270	0.42	0.43	13.11	14.24	16.72	23.98		0.70		26.99	Pass
HT40	MCS0	2	62	5310	0.42	0.43	13.17	14.34	16.80	23.98		0.70		26.99	Pass
VHT80	MCS0	2	58	5290	0.78	0.78	13.27	14.40	16.88	23.98		0.70		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	0.20	0.22	6.29			11.00	11.00	0.70	-2.10	Pass
11a	6Mbps	1	60	5300	0.20	0.22	6.69			11.00	11.00	0.70	-2.10	Pass
11a	6Mbps	1	64	5320	0.20	0.22	7.22			11.00	11.00	0.70	-2.10	Pass
HT20	MCS0	2	52	5260	0.23	0.25			5.52	11.00		2.42		Pass
HT20	MCS0	2	60	5300	0.23	0.25			5.76	11.00		2.42		Pass
HT20	MCS0	2	64	5320	0.23	0.25			5.75	11.00		2.42		Pass
HT40	MCS0	2	54	5270	0.42	0.43			2.79	11.00		2.42		Pass
HT40	MCS0	2	62	5310	0.42	0.43			2.59	11.00		2.42		Pass
VHT80	MCS0	2	58	5290	0.78	0.78			-0.06	11.00		2.42		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	17.58		24.28		23.45		29.45		23.98		
11a	6Mbps	1	116	5580	17.53		24.68		23.44		29.44		23.98		
11a	6Mbps	1	140	5700	17.63		24.13		23.46		29.46		23.98		
11a	6Mbps	1	144	5720	17.58		24.88		23.45		29.45		23.98		
HT20	MCS0	2	100	5500	18.63	18.63	24.63	24.48	23.70		29.70		23.98		
HT20	MCS0	2	116	5580	18.73	18.73	25.43	24.43	23.73		29.73		23.98		
HT20	MCS0	2	140	5700	18.73	18.68	25.18	24.48	23.71		29.71		23.98		
HT20	MCS0	2	144	5720	18.63	18.78	25.23	24.73	23.70		29.70		23.98		
HT40	MCS0	2	102	5510	36.46	36.36	41.72	41.54	23.98		30.00		23.98		
HT40	MCS0	2	110	5550	36.56	36.46	41.72	42.08	23.98		30.00		23.98		
HT40	MCS0	2	134	5670	36.56	36.46	41.90	41.81	23.98		30.00		23.98		
HT40	MCS0	2	142	5710	36.46	36.46	41.81	42.17	23.98		30.00		23.98		
VHT80	MCS0	2	106	5530	75.64	75.76	83.44	83.76	23.98		30.00		23.98		
VHT80	MCS0	2	138	5690	75.64	75.64	83.44	82.80	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	0.20	0.22	15.68	15.44		23.98		0.50	1.40	26.99	Pass
11a	6Mbps	1	116	5580	0.20	0.22	16.01	16.37		23.98		0.50	1.40	26.99	Pass
11a	6Mbps	1	140	5700	0.20	0.22	16.75	16.59		23.98		0.50	1.40	26.99	Pass
11a	6Mbps	1	144	5720	0.20	0.22	17.03	17.21		23.98		0.50	1.40	26.99	Pass
HT20	MCS0	2	100	5500	0.23	0.25	11.92	12.06	15.00	23.98		1.40		26.99	Pass
HT20	MCS0	2	116	5580	0.23	0.25	12.36	12.99	15.70	23.98		1.40		26.99	Pass
HT20	MCS0	2	140	5700	0.23	0.25	13.01	13.38	16.21	23.98		1.40		26.99	Pass
HT20	MCS0	2	144	5720	0.23	0.25	13.21	14.18	16.73	23.98		1.40		26.99	Pass
HT40	MCS0	2	102	5510	0.42	0.43	11.87	11.90	14.89	23.98		1.40		26.99	Pass
HT40	MCS0	2	110	5550	0.42	0.43	12.37	12.74	15.57	23.98		1.40		26.99	Pass
HT40	MCS0	2	134	5670	0.42	0.43	12.50	12.93	15.73	23.98		1.40		26.99	Pass
HT40	MCS0	2	142	5710	0.42	0.43	12.99	13.60	16.31	23.98		1.40		26.99	Pass
VHT80	MCS0	2	106	5530	0.78	0.78	12.43	12.49	15.47	23.98		1.40		26.99	Pass
VHT80	MCS0	2	138	5690	0.78	0.78	12.73	13.22	15.99	23.98		1.40		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	0.20	0.22	6.03			11.00	11.00	0.50	1.40	Pass
11a	6Mbps	1	116	5580	0.20	0.22	6.65			11.00	11.00	0.50	1.40	Pass
11a	6Mbps	1	140	5700	0.20	0.22	6.86			11.00	11.00	0.50	1.40	Pass
11a	6Mbps	1	144	5720	0.20	0.22	6.90			11.00	11.00	0.50	1.40	Pass
HT20	MCS0	2	100	5500	0.23	0.25			4.90	11.00		3.97		Pass
HT20	MCS0	2	116	5580	0.23	0.25			5.52	11.00		3.97		Pass
HT20	MCS0	2	140	5700	0.23	0.25			6.19	11.00		3.97		Pass
HT20	MCS0	2	144	5720	0.23	0.25			6.28	11.00		3.97		Pass
HT40	MCS0	2	102	5510	0.42	0.43			2.10	11.00		3.97		Pass
HT40	MCS0	2	110	5550	0.42	0.43			2.11	11.00		3.97		Pass
HT40	MCS0	2	134	5670	0.42	0.43			2.72	11.00		3.97		Pass
HT40	MCS0	2	142	5710	0.42	0.43			3.05	11.00		3.97		Pass
VHT80	MCS0	2	106	5530	0.78	0.78			-0.15	11.00		3.97		Pass
VHT80	MCS0	2	138	5680	0.78	0.78			1.03	11.00		3.97		Pass



Appendix B. Radiated Spurious Emission

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		5147.42	52.9	-21.1	74	41.64	34.41	11.99	35.14	230	115	P	H
		5150	45.02	-8.98	54	33.76	34.41	11.99	35.14	230	115	A	H
	*	5180	106.92	-	-	95.61	34.46	11.99	35.14	230	115	P	H
	*	5180	99.56	-	-	88.25	34.46	11.99	35.14	230	115	A	H
		5112.58	50.2	-23.8	74	39.03	34.36	11.95	35.14	100	95	P	V
		5149.5	41.93	-12.07	54	30.67	34.41	11.99	35.14	100	95	A	V
	*	5180	96.67	-	-	85.36	34.46	11.99	35.14	100	95	P	V
	*	5180	89.56	-	-	78.25	34.46	11.99	35.14	100	95	A	V
802.11a CH 44 5220MHz		5130	50.77	-23.23	74	39.57	34.39	11.95	35.14	226	112	P	H
		5148.46	42.13	-11.87	54	30.87	34.41	11.99	35.14	226	112	A	H
	*	5220	105.61	-	-	94.21	34.5	12.04	35.14	226	112	P	H
	*	5220	97.35	-	-	85.95	34.5	12.04	35.14	226	112	A	H
		5422.2	50.35	-23.65	74	38.1	34.78	12.63	35.16	226	112	P	H
		5379.64	42.21	-11.79	54	30.09	34.74	12.53	35.15	226	112	A	H
		5077.74	52.07	-21.93	74	40.98	34.32	11.9	35.13	100	94	P	V
		5133.9	41.89	-12.11	54	30.69	34.39	11.95	35.14	100	94	A	V
	*	5220	95.26	-	-	83.86	34.5	12.04	35.14	100	94	P	V
	*	5220	86.15	-	-	74.75	34.5	12.04	35.14	100	94	A	V
		5440.12	50.07	-23.93	74	37.79	34.81	12.63	35.16	100	94	P	V
	5437.6	41.92	-12.08	54	29.64	34.81	12.63	35.16	100	94	A	V	



802.11a CH 48 5240MHz	*	5240	106.64	-	-	95.09	34.53	12.16	35.14	224	114	P	H
	*	5240	99.77	-	-	88.22	34.53	12.16	35.14	224	114	A	H
		5439	49.58	-24.42	74	37.3	34.81	12.63	35.16	224	114	P	H
		5398.12	42.06	-11.94	54	29.8	34.76	12.65	35.15	224	114	A	H
	*	5240	95.14	-	-	83.59	34.53	12.16	35.14	103	95	P	V
	*	5240	87.77	-	-	76.22	34.53	12.16	35.14	103	95	A	V
		5418.84	50.19	-23.81	74	37.92	34.78	12.65	35.16	103	95	P	V
		5460	41.93	-12.07	54	29.63	34.83	12.63	35.16	103	95	A	V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



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	42.19	-26.01	68.2	45.85	37.19	17.83	59.31	100	0	P	H
		15540	45.58	-28.42	74	39.44	40.43	22.16	56.87	100	0	P	H
		10360	43.1	-25.1	68.2	46.76	37.19	17.83	59.31	100	0	P	V
		15540	45.59	-28.41	74	39.45	40.43	22.16	56.87	100	0	P	V
802.11a CH 44 5220MHz		10440	43.36	-24.84	68.2	46.78	37.25	17.91	59.25	100	0	P	H
		15660	46.19	-27.81	74	39.74	40.52	22.29	56.78	100	0	P	H
		10440	43.53	-24.67	68.2	46.95	37.25	17.91	59.25	100	0	P	V
		15660	46.41	-27.59	74	39.96	40.52	22.29	56.78	100	0	P	V
802.11a CH 48 5240MHz		10480	43.1	-25.1	68.2	46.41	37.29	17.94	59.21	100	0	P	H
		15720	45.74	-28.26	74	39.12	40.58	22.37	56.72	100	0	P	H
		10480	43.38	-24.82	68.2	46.69	37.29	17.94	59.21	100	0	P	V
		15720	46.23	-27.77	74	39.61	40.58	22.37	56.72	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 - 5250~5350MHz
WiFi 802.11a (Band Edge @ 3m)

WiFi	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 52 5260MHz		5120.4	50.65	-23.35	74	39.48	34.36	11.95	35.14	100	351	P	H
		5129.85	41.7	-12.3	54	30.5	34.39	11.95	35.14	100	351	A	H
	*	5260	108.08	-	-	96.5	34.57	12.16	35.15	100	351	P	H
	*	5260	100	-	-	88.42	34.57	12.16	35.15	100	351	A	H
		5403.12	49.76	-24.24	74	37.54	34.76	12.62	35.16	100	92	P	H
		5460	41.28	-12.72	54	28.94	34.83	12.67	35.16	100	92	A	H
		5110.25	50.36	-23.64	74	39.19	34.36	11.95	35.14	317	159	P	V
		5120.75	41.82	-12.18	54	30.65	34.36	11.95	35.14	317	159	A	V
	*	5260	109.76	-	-	98.18	34.57	12.16	35.15	317	159	P	V
	*	5260	102.74	-	-	91.16	34.57	12.16	35.15	317	159	A	V
		5443.68	48.89	-25.11	74	36.57	34.81	12.67	35.16	399	184	P	V
		5458.56	40.88	-13.12	54	28.54	34.83	12.67	35.16	399	184	A	V
802.11a CH 60 5300MHz		5056	50.67	-23.33	74	39.66	34.29	11.85	35.13	100	351	P	H
		5089.95	41.7	-12.3	54	30.59	34.34	11.9	35.13	100	351	A	H
	*	5300	106.19	-	-	94.44	34.62	12.28	35.15	100	351	P	H
	*	5300	99.11	-	-	87.36	34.62	12.28	35.15	100	351	A	H
		5350.8	51.38	-22.62	74	39.31	34.69	12.53	35.15	100	351	P	H
		5350.8	42.89	-11.11	54	30.82	34.69	12.53	35.15	100	351	A	H
		5150	51.28	-22.72	74	40.02	34.41	11.99	35.14	313	159	P	V
		5127.75	41.82	-12.18	54	30.62	34.39	11.95	35.14	313	159	A	V
	*	5300	111.03	-	-	99.28	34.62	12.28	35.15	313	159	P	V
	*	5300	103.75	-	-	92	34.62	12.28	35.15	313	159	A	V
		5359.68	52.16	-21.84	74	40.09	34.69	12.53	35.15	313	159	P	V
		5350.56	44.9	-9.1	54	32.83	34.69	12.53	35.15	313	159	A	V



802.11a CH 64 5320MHz	*	5320	106.29	-	-	94.39	34.64	12.41	35.15	100	351	P	H
	*	5320	99.28	-	-	87.38	34.64	12.41	35.15	100	351	A	H
		5352.8	51.99	-22.01	74	39.92	34.69	12.53	35.15	100	351	P	H
		5350.08	45.15	-8.85	54	33.08	34.69	12.53	35.15	100	351	A	H
	*	5320	110.92	-	-	99.02	34.64	12.41	35.15	312	161	P	V
	*	5320	103.9	-	-	92	34.64	12.41	35.15	312	161	A	V
		5354.08	58.3	-15.7	74	46.23	34.69	12.53	35.15	312	161	P	V
		5350.24	48.69	-5.31	54	36.62	34.69	12.53	35.15	312	161	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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 52 5260MHz		10520	42.61	-25.59	68.2	45.81	37.32	17.98	59.18	100	0	P	H
		15780	46.94	-27.06	74	40.23	40.62	22.41	56.68	100	0	P	H
		10520	42.11	-26.09	68.2	45.31	37.32	17.98	59.18	100	0	P	V
		15780	47.13	-26.87	74	40.42	40.62	22.41	56.68	100	0	P	V
802.11a CH 60 5300MHz		10600	42.76	-31.24	74	45.67	37.42	18.06	59.08	100	0	P	H
		15900	45.82	-28.18	74	38.74	40.72	22.53	56.58	100	0	P	H
		10600	43.22	-30.78	74	46.13	37.42	18.06	59.08	100	0	P	V
		15900	45.54	-28.46	74	38.46	40.72	22.53	56.58	100	0	P	V
802.11a CH 64 5320MHz		10640	43.55	-30.45	74	46.34	37.47	18.09	59.03	100	0	P	H
		15960	47.84	-26.16	74	40.55	40.77	22.61	56.53	100	0	P	H
		10640	42.98	-31.02	74	45.77	37.47	18.09	59.03	100	0	P	V
		15960	47.29	-26.71	74	40	40.77	22.61	56.53	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - 5470~5725MHz
WIFI 802.11a (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 100 5500MHz		5413.2	52.16	-21.84	74	39.89	34.78	12.65	35.16	114	288	P	H
		5466.8	51.3	-16.9	68.2	39	34.85	12.61	35.16	114	288	P	H
		5455.92	43.91	-10.09	54	31.61	34.83	12.63	35.16	114	288	A	H
	*	5500	108.27	-	-	95.92	34.9	12.61	35.16	114	288	P	H
	*	5500	101.13	-	-	88.78	34.9	12.61	35.16	114	288	A	H
		5458.64	52.49	-21.51	74	40.19	34.83	12.63	35.16	301	160	P	V
		5465.04	53.32	-14.88	68.2	41.02	34.85	12.61	35.16	301	160	P	V
		5450.96	43.53	-10.47	54	31.23	34.83	12.63	35.16	301	160	A	V
	*	5500	107.22	-	-	94.87	34.9	12.61	35.16	301	160	P	V
	*	5500	100.46	-	-	88.11	34.9	12.61	35.16	301	160	A	V
802.11a CH 116 5580MHz		5449.6	49.79	-24.21	74	37.49	34.83	12.63	35.16	111	292	P	H
		5460.4	49.77	-18.43	68.2	37.49	34.83	12.61	35.16	111	292	P	H
		5452.72	42.18	-11.82	54	29.88	34.83	12.63	35.16	111	292	A	H
	*	5580	108.48	-	-	96.08	35	12.58	35.18	111	292	P	H
	*	5580	101.55	-	-	89.15	35	12.58	35.18	111	292	A	H
		5747.675	50.77	-17.43	68.2	37.95	35.24	12.79	35.21	111	292	P	H
		5418.16	49.67	-24.33	74	37.4	34.78	12.65	35.16	308	253	P	V
		5468.56	48.78	-19.42	68.2	36.48	34.85	12.61	35.16	308	253	P	V
		5452.72	42.12	-11.88	54	29.82	34.83	12.63	35.16	308	253	A	V
	*	5580	105.17	-	-	92.77	35	12.58	35.18	308	253	P	V
	*	5580	97.79	-	-	85.39	35	12.58	35.18	308	253	A	V
	5725.625	51.39	-16.81	68.2	38.65	35.21	12.73	35.2	308	253	P	V	



802.11a CH 140 5700MHz	*	5700	108.23	-	-	95.59	35.17	12.67	35.2	109	292	P	H
	*	5700	101.52	-	-	88.88	35.17	12.67	35.2	109	292	A	H
		5726.12	63.29	-4.91	68.2	50.55	35.21	12.73	35.2	109	292	P	H
	*	5700	106.4	-	-	93.76	35.17	12.67	35.2	306	249	P	V
	*	5700	98.98	-	-	86.34	35.17	12.67	35.2	306	249	A	V
		5727.4	57.93	-10.27	68.2	45.19	35.21	12.73	35.2	306	249	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1	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	43.91	-30.09	74	45.75	37.9	18.43	58.6	100	0	P	H
		16500	47.17	-21.03	68.2	38.24	41.8	22.93	56.1	100	0	P	H
		11000	43.46	-30.54	74	45.3	37.9	18.43	58.6	100	0	P	V
		16500	46.79	-21.41	68.2	37.86	41.8	22.93	56.1	100	0	P	V
802.11a CH 116 5580MHz		11160	44.47	-29.53	74	45.43	38.07	18.58	58.17	100	0	P	H
		16740	48.84	-19.36	68.2	39.51	41.94	23.07	55.96	100	0	P	H
		11160	43.69	-30.31	74	44.65	38.07	18.58	58.17	100	0	P	V
		16740	47.89	-20.31	68.2	38.56	41.94	23.07	55.96			P	V
802.11a CH 140 5700MHz		11400	43.11	-30.89	74	43.1	38.3	18.8	57.56	100	0	P	H
		17100	48.28	-19.92	68.2	38.49	41.96	23.28	55.8	100	0	P	H
		11400	43.35	-30.65	74	43.34	38.3	18.8	57.56	100	0	P	V
		17100	47.68	-20.52	68.2	37.89	41.96	23.28	55.8	100	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 (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 144 5720MHz	*	5720	108.64	-	-	95.9	35.21	12.73	35.2	100	358	P	H
	*	5720	101.72	-	-	88.98	35.21	12.73	35.2	100	358	A	H
	*	5720	105.75	-	-	93.01	35.21	12.73	35.2	330	224	P	V
	*	5720	98.4	-	-	85.66	35.21	12.73	35.2	330	224	A	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)

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 144 5720MHz		11440	44.42	-29.58	74	44.27	38.33	18.84	57.47	100	0	P	H
		17160	49.14	-19.06	68.2	39.34	41.87	23.33	55.8	100	0	P	H
		11440	45.06	-28.94	74	44.91	38.33	18.84	57.47	100	0	P	V
		17160	48.26	-19.94	68.2	38.46	41.87	23.33	55.8	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 - 5150~5250MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 36 5180MHz		5147.42	50.88	-23.12	74	39.62	34.41	11.99	35.14	138	25	P	H
		5141.7	42.58	-11.42	54	31.32	34.41	11.99	35.14	138	25	A	H
	*	5180	104.63	-	-	94.28	34.46	11.03	35.14	138	25	P	H
	*	5180	97.41	-	-	87.06	34.46	11.03	35.14	138	25	A	H
		5135.72	50.96	-23.04	74	39.76	34.39	11.95	35.14	300	162	P	V
		5147.94	42.69	-11.31	54	31.43	34.41	11.99	35.14	300	162	A	V
	*	5180	106.65	-	-	96.3	34.46	11.03	35.14	300	162	P	V
	5180	99.78	-	-	89.43	34.46	11.03	35.14	300	162	A	V	
802.11n HT20 CH 44 5220MHz		5147.16	51.06	-22.94	74	39.8	34.41	11.99	35.14	111	25	P	H
		5149.5	41.74	-12.26	54	30.48	34.41	11.99	35.14	111	25	A	H
	*	5220	104.05	-	-	92.65	34.5	12.04	35.14	111	25	P	H
	*	5220	95.57	-	-	84.17	34.5	12.04	35.14	111	25	A	H
		5448.24	49.17	-24.83	74	36.87	34.83	12.63	35.16	111	25	P	H
		5453.56	42.12	-11.88	54	29.82	34.83	12.63	35.16	111	25	A	H
		5095.68	50.08	-23.92	74	38.98	34.34	11.9	35.14	298	162	P	V
		5147.16	41.78	-12.22	54	30.52	34.41	11.99	35.14	298	162	A	V
	*	5220	107.84	-	-	96.44	34.5	12.04	35.14	298	162	P	V
	*	5220	99.61	-	-	88.21	34.5	12.04	35.14	298	162	A	V
	5362	50.33	-23.67	74	38.24	34.71	12.53	35.15	298	162	P	V	
	5452.72	42.47	-11.53	54	30.17	34.83	12.63	35.16	298	162	A	V	



802.11n HT20 CH 48 5240MHz		5143.26	50.09	-23.91	74	39.79	34.41	11.03	35.14	100	25	P	H
		5150	40.88	-13.12	54	30.58	34.41	11.03	35.14	100	25	A	H
	*	5240	104.19	-	-	92.64	34.53	12.16	35.14	100	25	P	H
	*	5240	95.82	-	-	84.27	34.53	12.16	35.14	100	25	A	H
		5403.72	49.8	-24.2	74	37.55	34.76	12.65	35.16	100	25	P	H
		5457.48	42.23	-11.77	54	29.93	34.83	12.63	35.16	100	25	A	H
		5054.6	49.14	-24.86	74	39.15	34.29	10.83	35.13	313	161	P	V
		5147.68	40.73	-13.27	54	30.43	34.41	11.03	35.14	313	161	A	V
	*	5240	109.13	-	-	97.58	34.53	12.16	35.14	313	161	P	V
	*	5240	100.16	-	-	88.61	34.53	12.16	35.14	313	161	A	V
		5381.32	50.1	-23.9	74	37.86	34.74	12.65	35.15	313	161	P	V
		5359.48	42.9	-11.1	54	30.83	34.69	12.53	35.15	313	161	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 36		10360	42.46	-25.74	68.2	46.12	37.19	17.83	59.31	100	0	P	H
		15540	47.2	-26.8	74	41.06	40.43	22.16	56.87	100	0	P	H
5180MHz		10360	42.99	-25.21	68.2	46.65	37.19	17.83	59.31	100	0	P	V
		15540	45.3	-28.7	74	39.16	40.43	22.16	56.87	100	0	P	V
802.11n HT20 CH 44		10440	43.45	-24.75	68.2	46.87	37.25	17.91	59.25	100	0	P	H
		15660	45.99	-28.01	74	39.54	40.52	22.29	56.78	100	0	P	H
5220MHz		10440	44.41	-23.79	68.2	47.83	37.25	17.91	59.25	100	0	P	V
		15660	46.71	-27.29	74	40.26	40.52	22.29	56.78	100	0	P	V
802.11n HT20 CH 48		10480	42.4	-25.8	68.2	45.71	37.29	17.94	59.21	100	0	P	H
		15720	46.07	-27.93	74	39.45	40.58	22.37	56.72	100	0	P	H
5240MHz		10480	43.23	-24.97	68.2	46.54	37.29	17.94	59.21	100	0	P	V
		15720	46	-28	74	39.38	40.58	22.37	56.72	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 - 5250~5350MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 52 5260MHz		5017.85	50.48	-23.52	74	39.58	34.22	11.81	35.13	103	80	P	H
		5129.85	41.63	-12.37	54	30.43	34.39	11.95	35.14	103	80	A	H
	*	5260	100.71	-	-	89.13	34.57	12.16	35.15	103	80	P	H
	*	5260	94.66	-	-	83.08	34.57	12.16	35.15	103	80	A	H
		5356.08	48.06	-25.94	74	37.38	34.69	11.14	35.15	103	80	P	H
		5380.08	41.18	-12.82	54	30.44	34.74	11.15	35.15	103	80	A	H
		5123.2	50.53	-23.47	74	39.33	34.39	11.95	35.14	308	164	P	V
		5109.2	41.9	-12.1	54	30.73	34.36	11.95	35.14	308	164	A	V
	*	5260	106.54	-	-	94.96	34.57	12.16	35.15	308	164	P	V
	*	5260	98.84	-	-	87.26	34.57	12.16	35.15	308	164	A	V
		5459.76	48.15	-25.85	74	37.28	34.83	11.2	35.16	308	164	P	V
		5452.8	40.09	-13.91	54	29.22	34.83	11.2	35.16	308	164	A	V
802.11n HT20 CH 60 5300MHz		5114.8	49.99	-24.01	74	38.82	34.36	11.95	35.14	121	80	P	H
		5126	42.01	-11.99	54	30.81	34.39	11.95	35.14	121	80	A	H
	*	5300	104.63	-	-	94.04	34.62	11.12	35.15	121	80	P	H
	*	5300	96.06	-	-	85.47	34.62	11.12	35.15	121	80	A	H
		5399.28	50.7	-23.3	74	38.45	34.76	12.65	35.16	121	80	P	H
		5371.68	43.05	-10.95	54	30.96	34.71	12.53	35.15	121	80	A	H
		5120.75	49.77	-24.23	74	38.6	34.36	11.95	35.14	307	163	P	V
		5105.7	41.94	-12.06	54	30.77	34.36	11.95	35.14	307	163	A	V
	*	5300	106.05	-	-	95.46	34.62	11.12	35.15	307	163	P	V
	*	5300	99.47	-	-	88.88	34.62	11.12	35.15	307	163	A	V
		5420.4	50.86	-23.14	74	38.61	34.78	12.63	35.16	307	163	P	V
		5353.2	42.8	-11.2	54	30.73	34.69	12.53	35.15	307	163	A	V



802.11n HT20 CH 64 5320MHz	*	5320	104.36	-	-	92.46	34.64	12.41	35.15	100	69	P	H
	*	5320	96.45	-	-	84.55	34.64	12.41	35.15	100	69	A	H
		5388	50.88	-23.12	74	38.64	34.74	12.65	35.15	100	69	P	H
		5368	43.31	-10.69	54	31.22	34.71	12.53	35.15	100	69	A	H
	*	5320	104.9	-	-	93	34.64	12.41	35.15	300	159	P	V
	*	5320	99.17	-	-	87.27	34.64	12.41	35.15	300	159	A	V
		5354.88	51.84	-22.16	74	39.77	34.69	12.53	35.15	300	159	P	V
		5367.84	44.16	-9.84	54	32.07	34.71	12.53	35.15	300	159	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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20		10520	42.78	-25.42	68.2	45.98	37.32	17.98	59.18	100	0	P	H
		15780	47.78	-26.22	74	41.07	40.62	22.41	56.68	100	0	P	H
CH 52 5260MHz		10520	42.73	-25.47	68.2	45.93	37.32	17.98	59.18	100	0	P	V
		15780	46.8	-27.2	74	40.09	40.62	22.41	56.68	100	0	P	V
802.11n HT20		10600	43.07	-30.93	74	45.98	37.42	18.06	59.08	100	0	P	H
		15900	45.68	-28.32	74	38.6	40.72	22.53	56.58	100	0	P	H
		10600	43.06	-30.94	74	45.97	37.42	18.06	59.08	100	0	P	V
CH 60 5300MHz		15900	45.17	-28.83	74	38.09	40.72	22.53	56.58	100	0	P	V
802.11n HT20		10640	42.02	-31.98	74	44.81	37.47	18.09	59.03	100	0	P	H
		15960	46.63	-27.37	74	39.34	40.77	22.61	56.53	100	0	P	H
		10640	42.23	-31.77	74	45.02	37.47	18.09	59.03	100	0	P	V
		15960	45.66	-28.34	74	38.37	40.77	22.61	56.53	100	0	P	V
CH 64 5320MHz													
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	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 100 5500MHz		5453.04	51.04	-22.96	74	38.74	34.83	12.63	35.16	111	0	P	H
		5470	51.09	-17.11	68.2	38.79	34.85	12.61	35.16	111	0	P	H
		5458.32	42.56	-11.44	54	30.26	34.83	12.63	35.16	111	0	A	H
	*	5500	105.95	-	-	93.6	34.9	12.61	35.16	111	0	P	H
	*	5500	97.98	-	-	85.63	34.9	12.61	35.16	111	0	A	H
		5384.4	50.85	-23.15	74	38.61	34.74	12.65	35.15	316	161	P	V
		5466	50.02	-18.18	68.2	37.72	34.85	12.61	35.16	316	161	P	V
		5456.24	42.42	-11.58	54	30.12	34.83	12.63	35.16	316	161	A	V
	*	5500	104.54	-	-	92.19	34.9	12.61	35.16	316	161	P	V
*	5500	97.2	-	-	84.85	34.9	12.61	35.16	316	161	A	V	
802.11n HT20 CH 116 5580MHz		5438.56	50.34	-23.66	74	38.06	34.81	12.63	35.16	100	0	P	H
		5464.72	49.66	-18.54	68.2	37.36	34.85	12.61	35.16	100	0	P	H
		5415.04	41.99	-12.01	54	29.72	34.78	12.65	35.16	100	0	A	H
	*	5580	106.38	-	-	93.98	35	12.58	35.18	100	0	P	H
	*	5580	98.53	-	-	86.13	35	12.58	35.18	100	0	A	H
		5750.825	52.07	-16.13	68.2	39.25	35.24	12.79	35.21	100	0	P	H
		5382.16	50.29	-23.71	74	38.05	34.74	12.65	35.15	311	162	P	V
		5468.56	49.24	-18.96	68.2	36.94	34.85	12.61	35.16	311	162	P	V
		5426.32	42.14	-11.86	54	29.89	34.78	12.63	35.16	311	162	A	V
	*	5580	103.7	-	-	91.3	35	12.58	35.18	311	162	P	V
	*	5580	95.24	-	-	82.84	35	12.58	35.18	311	162	A	V
	5743.265	51.91	-16.29	68.2	39.09	35.24	12.79	35.21	311	162	P	V	



802.11n	*	5700	106.55	-	-	95.12	35.17	11.46	35.2	100	0	P	H
	*	5700	99.83	-	-	88.4	35.17	11.46	35.2	100	0	A	H
HT20		5734.2	55.39	-12.81	68.2	43.89	35.21	11.5	35.21	100	0	P	H
CH 140	*	5700	103.54	-	-	92.11	35.17	11.46	35.2	312	159	P	V
5700MHz	*	5700	96.19	-	-	84.76	35.17	11.46	35.2	312	159	A	V
		5725	52.19	-16.01	68.2	40.68	35.21	11.5	35.2	312	159	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20		11000	42.69	-31.31	74	44.53	37.9	18.43	58.6	100	0	P	H
		16500	46.96	-21.24	68.2	38.03	41.8	22.93	56.1	100	0	P	H
CH 100 5500MHz		11000	42.81	-31.19	74	44.65	37.9	18.43	58.6	100	0	P	V
		16500	46.32	-21.88	68.2	37.39	41.8	22.93	56.1	100	0	P	V
802.11n HT20 CH 116 5580MHz		11160	42.46	-31.54	74	43.42	38.07	18.58	58.17	100	0	P	H
		16740	47.9	-20.3	68.2	38.57	41.94	23.07	55.96	100	0	P	H
		11160	43	-31	74	43.96	38.07	18.58	58.17	100	0	P	V
		16740	48.64	-19.56	68.2	39.31	41.94	23.07	55.96	100	0	P	V
802.11n HT20 CH 140 5700MHz		11400	43.27	-30.73	74	43.26	38.3	18.8	57.56	100	0	P	H
		17100	47.64	-20.56	68.2	37.85	41.96	23.28	55.8	100	0	P	H
		11400	43.13	-30.87	74	43.12	38.3	18.8	57.56	100	0	P	V
		17100	47.51	-20.69	68.2	37.72	41.96	23.28	55.8	100	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 802.11n HT20 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n	*	5720	109.95	-	-	97.21	35.21	12.73	35.2	100	0	P	H
HT20	*	5720	102.82	-	-	90.08	35.21	12.73	35.2	100	0	A	H
CH 144	*	5720	105.01	-	-	92.27	35.21	12.73	35.2	333	176	P	V
5720MHz	*	5720	98.82	-	-	86.08	35.21	12.73	35.2	333	176	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - Straddle Channel

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n		11440	43.82	-30.18	74	43.67	38.33	18.84	57.47	100	0	P	H
HT20		17160	46.78	-21.42	68.2	36.98	41.87	23.33	55.8	100	0	P	H
CH 144		11440	42.1	-31.9	74	41.95	38.33	18.84	57.47	100	0	P	V
5720MHz		17160	46.73	-21.47	68.2	36.93	41.87	23.33	55.8	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 38 5190MHz		5146.38	56.69	-17.31	74	45.43	34.41	11.99	35.14	115	24	P	H
		5149.76	48.35	-5.65	54	37.09	34.41	11.99	35.14	115	24	A	H
	*	5190	103.04	-	-	91.68	34.46	12.04	35.14	115	24	P	H
	*	5190	95.56	-	-	84.2	34.46	12.04	35.14	115	24	A	H
		5393.92	50.46	-23.54	74	38.22	34.74	12.65	35.15	115	24	P	H
		5408.76	42.7	-11.3	54	30.45	34.76	12.65	35.16	115	24	A	H
		5149.5	57.02	-16.98	74	45.76	34.41	11.99	35.14	317	160	P	V
		5150	51.05	-2.95	54	39.79	34.41	11.99	35.14	317	160	A	V
	*	5190	104.54	-	-	93.18	34.46	12.04	35.14	317	160	P	V
	*	5190	98.09	-	-	86.73	34.46	12.04	35.14	317	160	A	V
		5445.44	51.1	-22.9	74	38.82	34.81	12.63	35.16	317	160	P	V
		5412.68	44.71	-9.29	54	32.44	34.78	12.65	35.16	317	160	A	V
802.11n HT40 CH 46 5230MHz		5066.04	51.4	-22.6	74	40.34	34.29	11.9	35.13	100	25	P	H
		5109.98	44.13	-9.87	54	32.96	34.36	11.95	35.14	100	25	A	H
	*	5230	102.28	-	-	90.73	34.53	12.16	35.14	100	25	P	H
	*	5230	94.27	-	-	82.72	34.53	12.16	35.14	100	25	A	H
		5452.72	50.36	-23.64	74	38.06	34.83	12.63	35.16	100	25	P	H
		5350	47.43	-6.57	54	35.36	34.69	12.53	35.15	100	25	A	H
		5150	50.63	-23.37	74	39.37	34.41	11.99	35.14	298	163	P	V
		5109.98	44.05	-9.95	54	32.88	34.36	11.95	35.14	298	163	A	V
	*	5230	105.82	-	-	94.27	34.53	12.16	35.14	298	163	P	V
	*	5230	98.32	-	-	86.77	34.53	12.16	35.14	298	163	A	V
		5420.24	50.48	-23.52	74	38.23	34.78	12.63	35.16	298	163	P	V
		5350	51.88	-2.12	54	39.81	34.69	12.53	35.15	298	163	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 38		10380	42.35	-25.85	68.2	45.96	37.21	17.83	59.29	100	0	P	H
		15570	44.78	-29.22	74	38.53	40.46	22.2	56.84	100	0	P	H
5190MHz		10380	41.65	-26.55	68.2	45.26	37.21	17.83	59.29	100	0	P	V
		15570	45.79	-28.21	74	39.54	40.46	22.2	56.84	100	0	P	V
802.11n HT40 CH 46		10460	42.3	-25.9	68.2	45.7	37.26	17.91	59.24	100	0	P	H
		15690	45.39	-28.61	74	38.86	40.55	22.33	56.75	100	0	P	H
5230MHz		10460	42.3	-25.9	68.2	45.7	37.26	17.91	59.24	100	0	P	V
		15690	45.23	-28.77	74	38.7	40.55	22.33	56.75	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 54 5270MHz		5127.75	50.84	-23.16	74	39.64	34.39	11.95	35.14	281	302	P	H
		5149.8	46.12	-7.88	54	34.86	34.41	11.99	35.14	281	302	A	H
	*	5270	102.28	-	-	90.58	34.57	12.28	35.15	281	302	P	H
	*	5270	95.19	-	-	83.49	34.57	12.28	35.15	281	302	A	H
		5366.16	55.05	-18.95	74	42.96	34.71	12.53	35.15	281	302	P	H
		5390.16	44.97	-9.03	54	32.73	34.74	12.65	35.15	281	302	A	H
		5095.55	50.95	-23.05	74	39.85	34.34	11.9	35.14	309	162	P	V
		5149.8	44.63	-9.37	54	33.37	34.41	11.99	35.14	309	162	A	V
	*	5270	106.05	-	-	94.35	34.57	12.28	35.15	309	162	P	V
	*	5270	98.61	-	-	86.91	34.57	12.28	35.15	309	162	A	V
		5376	51.5	-22.5	74	39.41	34.71	12.53	35.15	309	162	P	V
		5389.92	49.76	-4.24	54	37.52	34.74	12.65	35.15	309	162	A	V
802.11n HT40 CH 62 5310MHz		5126	50.46	-23.54	74	39.26	34.39	11.95	35.14	281	302	P	H
		5087.5	42.72	-11.28	54	31.63	34.32	11.9	35.13	281	302	A	H
	*	5310	102.43	-	-	90.53	34.64	12.41	35.15	281	302	P	H
	*	5310	95.42	-	-	83.52	34.64	12.41	35.15	281	302	A	H
		5353.92	59.87	-14.13	74	47.8	34.69	12.53	35.15	281	302	P	H
		5351.04	50.26	-3.74	54	38.19	34.69	12.53	35.15	281	302	A	H
		5112.35	50.72	-23.28	74	39.55	34.36	11.95	35.14	320	162	P	V
		5107.1	42.68	-11.32	54	31.51	34.36	11.95	35.14	320	162	A	V
	*	5310	105.83	-	-	93.93	34.64	12.41	35.15	320	162	P	V
	*	5310	98.91	-	-	87.01	34.64	12.41	35.15	320	162	A	V
	5350.56	61.92	-12.08	74	49.85	34.69	12.53	35.15	320	162	P	V	
	5350.32	53.37	-0.63	54	41.3	34.69	12.53	35.15	320	162	P	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 54		10540	42.08	-26.12	68.2	45.24	37.34	17.98	59.16	100	0	P	H
		15810	46.59	-27.41	74	39.78	40.65	22.45	56.65	100	0	P	H
5270MHz		10540	42.73	-25.47	68.2	45.89	37.34	17.98	59.16	100	0	P	V
		15810	47.27	-26.73	74	40.46	40.65	22.45	56.65	100	0	P	V
802.11n HT40 CH 62 5310MHz		10620	41.57	-32.43	74	44.44	37.44	18.06	59.06	100	0	P	H
		15930	45.13	-28.87	74	37.96	40.74	22.57	56.56	100	0	P	H
		10620	42.03	-31.97	74	44.9	37.44	18.06	59.06	100	0	P	V
		15930	45.15	-28.85	74	37.98	40.74	22.57	56.56	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 102 5510MHz		5411.2	49.87	-24.13	74	37.62	34.76	12.65	35.16	332	358	P	H
		5463.52	51.84	-16.36	68.2	39.54	34.85	12.61	35.16	332	358	P	H
		5436.16	42.9	-11.1	54	30.62	34.81	12.63	35.16	332	358	A	H
	*	5510	103.31	-	-	90.99	34.9	12.59	35.17	332	358	P	H
	*	5510	96.24	-	-	83.92	34.9	12.59	35.17	332	358	A	H
		5734.13	50.21	-17.99	68.2	37.48	35.21	12.73	35.21	332	358	P	H
		5390.32	54.53	-19.47	74	42.29	34.74	12.65	35.15	325	162	P	V
		5466.64	49.85	-18.35	68.2	37.55	34.85	12.61	35.16	325	162	P	V
		5390.08	45.3	-8.7	54	33.06	34.74	12.65	35.15	325	162	A	V
	*	5510	102.49	-	-	90.17	34.9	12.59	35.17	325	162	P	V
	*	5510	95.55	-	-	83.23	34.9	12.59	35.17	325	162	A	V
		5759.96	53.43	-14.77	68.2	40.6	35.26	12.79	35.22	325	162	P	V
802.11n HT40 CH 110 5550MHz		5439.76	50.04	-23.96	74	37.76	34.81	12.63	35.16	294	356	P	H
		5465.2	49.17	-19.03	68.2	36.87	34.85	12.61	35.16	294	356	P	H
		5429.92	43.53	-10.47	54	31.25	34.81	12.63	35.16	294	356	A	H
	*	5550	103.27	-	-	90.89	34.97	12.58	35.17	294	356	P	H
	*	5550	96.36	-	-	83.98	34.97	12.58	35.17	294	356	A	H
		5764.055	51.39	-16.81	68.2	38.56	35.26	12.79	35.22	294	356	P	H
		5458.96	50.35	-23.65	74	38.05	34.83	12.63	35.16	308	162	P	V
		5460.16	50.01	-18.19	68.2	37.73	34.83	12.61	35.16	308	162	P	V
		5453.92	43.46	-10.54	54	31.16	34.83	12.63	35.16	308	162	A	V
	*	5550	102.45	-	-	90.07	34.97	12.58	35.17	308	162	P	V
	*	5550	95.54	-	-	83.16	34.97	12.58	35.17	308	162	A	V
		5751.14	51.24	-16.96	68.2	38.42	35.24	12.79	35.21	308	162	P	V



802.11n HT40 CH 134 5670MHz		5450.45	49.49	-24.51	74	37.19	34.83	12.63	35.16	294	344	P	H
		5467.95	48.53	-19.67	68.2	36.23	34.85	12.61	35.16	294	344	P	H
		5454.3	42.75	-11.25	54	30.45	34.83	12.63	35.16	294	344	A	H
	*	5670	103.48	-	-	90.86	35.14	12.67	35.19	294	344	P	H
	*	5670	96.65	-	-	84.03	35.14	12.67	35.19	294	344	A	H
		5758.35	51.96	-16.24	68.2	39.13	35.26	12.79	35.22	294	344	P	H
		5403.9	49.64	-24.36	74	37.39	34.76	12.65	35.16	294	173	P	V
		5465.5	48.65	-19.55	68.2	36.35	34.85	12.61	35.16	294	173	P	V
		5447.65	42.96	-11.04	54	30.66	34.83	12.63	35.16	294	173	A	V
	*	5670	102.83	-	-	90.21	35.14	12.67	35.19	294	173	P	V
	*	5670	96.12	-	-	83.5	35.14	12.67	35.19	294	173	A	V
		5726.85	51.63	-16.57	68.2	38.89	35.21	12.73	35.2	294	173	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 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 102		11020	43.28	-30.72	74	45.05	37.92	18.43	58.56	100	0	P	H
		16530	46.19	-22.01	68.2	37.19	41.82	22.96	56.08	100	0	P	H
5510MHz		11020	42.5	-31.5	74	44.27	37.92	18.43	58.56	100	0	P	V
		16530	47.28	-20.92	68.2	38.28	41.82	22.96	56.08	100	0	P	V
802.11n HT40 CH 110		11100	43.87	-30.13	74	45.21	38	18.5	58.34	100	0	P	H
		16650	47.17	-21.03	68.2	37.96	41.89	23.03	56.01	100	0	P	H
		11100	43.47	-30.53	74	44.81	38	18.5	58.34	100	0	P	V
		16650	47.48	-20.72	68.2	38.27	41.89	23.03	56.01	100	0	P	V
802.11n HT40 CH 134		11340	42.52	-31.48	74	42.79	38.23	18.73	57.73	100	0	P	H
		17010	46.98	-21.22	68.2	37.18	42.08	23.24	55.8	100	0	P	H
		11340	43.34	-30.66	74	43.61	38.23	18.73	57.73	100	0	P	V
		17010	47.52	-20.68	68.2	37.72	42.08	23.24	55.8	100	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 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n	*	5710	106.02	-	-	93.3	35.19	12.73	35.2	100	0	P	H
HT40	*	5710	99.7	-	-	86.98	35.19	12.73	35.2	100	0	A	H
CH 142	*	5710	103.86	-	-	91.14	35.19	12.73	35.2	305	174	P	V
5710MHz	*	5710	96.59	-	-	83.87	35.19	12.73	35.2	305	174	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - Straddle Channel
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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n		11420	43.59	-30.41	74	43.53	38.32	18.8	57.52	100	0	P	H
HT40		17130	46.45	-21.75	68.2	36.66	41.91	23.31	55.8	100	0	P	H
CH 142		11420	42.51	-31.49	74	42.45	38.32	18.8	57.52	100	0	P	V
5710MHz		17130	47.44	-20.76	68.2	37.65	41.91	23.31	55.8	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

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



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

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), Path Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include 802.11ac, VHT80, CH 42, 5210MHz and a Remark section.



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 58 5290MHz		5041.3	50.68	-23.32	74	39.69	34.27	11.85	35.13	298	31	P	H
		5142.45	42.39	-11.61	54	31.13	34.41	11.99	35.14	298	31	A	H
	*	5290	96.89	-	-	85.16	34.6	12.28	35.15	298	31	P	H
	*	5290	89.47	-	-	77.74	34.6	12.28	35.15	298	31	A	H
		5359.2	55.02	-18.98	74	42.95	34.69	12.53	35.15	298	31	P	H
		5357.04	48.49	-5.51	54	36.42	34.69	12.53	35.15	298	31	A	H
		5136.85	50.85	-23.15	74	39.65	34.39	11.95	35.14	313	161	P	V
		5105.7	42.59	-11.41	54	31.42	34.36	11.95	35.14	313	161	A	V
	*	5290	100.56	-	-	88.83	34.6	12.28	35.15	313	161	P	V
	*	5290	92.27	-	-	80.54	34.6	12.28	35.15	313	161	A	V
		5370.72	60.85	-13.15	74	48.76	34.71	12.53	35.15	313	161	P	V
		5350.08	53.21	-0.79	54	41.14	34.69	12.53	35.15	313	161	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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 58 5290MHz		10580	42.81	-25.39	68.2	45.8	37.4	18.02	59.1	100	0	P	H
		15870	45.48	-28.52	74	38.46	40.7	22.53	56.6	100	0	P	H
		10580	42.09	-26.11	68.2	45.08	37.4	18.02	59.1	100	0	P	V
		15870	45.37	-28.63	74	38.35	40.7	22.53	56.6	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 106 5530MHz		5437.36	55.15	-18.85	74	42.87	34.81	12.63	35.16	100	1	P	H
		5460.16	56.48	-11.72	68.2	44.2	34.83	12.61	35.16	100	1	P	H
		5459.92	49.77	-4.23	54	37.47	34.83	12.63	35.16	100	1	A	H
	*	5530	101.43	-	-	89.09	34.92	12.59	35.17	100	1	P	H
	*	5530	94.69	-	-	82.35	34.92	12.59	35.17	100	1	A	H
		5764.37	51.26	-16.94	68.2	38.43	35.26	12.79	35.22	100	1	P	H
		5457.04	57.58	-16.42	74	45.28	34.83	12.63	35.16	295	162	P	V
		5460.16	57.99	-10.21	68.2	45.71	34.83	12.61	35.16	295	162	P	V
		5459.68	51.01	-2.99	54	38.71	34.83	12.63	35.16	295	162	A	V
	*	5530	100.24	-	-	87.9	34.92	12.59	35.17	295	162	P	V
	*	5530	93.38	-	-	81.04	34.92	12.59	35.17	295	162	A	V
		5748.935	50.95	-17.25	68.2	38.13	35.24	12.79	35.21	295	162	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 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 106 5530MHz		11060	42.73	-31.27	74	44.25	37.97	18.47	58.43	100	0	P	H
		16590	48.16	-20.04	68.2	39.05	41.85	23	56.05	100	0	P	H
		11060	43.48	-30.52	74	45	37.97	18.47	58.43	100	0	P	V
		16590	48.04	-20.16	68.2	38.93	41.85	23	56.05	100	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 802.11ac VHT80 (Band Edge @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Path 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 with various test results.

Remark

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

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), Path 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 with various test results.

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)

Table with 14 columns: WIFI, Note, Frequency, Level, Over, Limit, Read, Antenna, Path, Preamp, Ant, Table, Peak, Pol. It contains 12 rows of test data for 802.11n HT40 LF and a Remark section at the bottom.



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

- Level(dBμV/m) = Antenna Factor(dB/m) + Path 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) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
 - = 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
 - = 55.45 (dBμV/m)
- 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) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
 - = 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
 - = 43.54 (dBμV/m)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)
 - = 43.54(dBμV/m) – 54(dBμV/m)
 - = -10.46(dB)

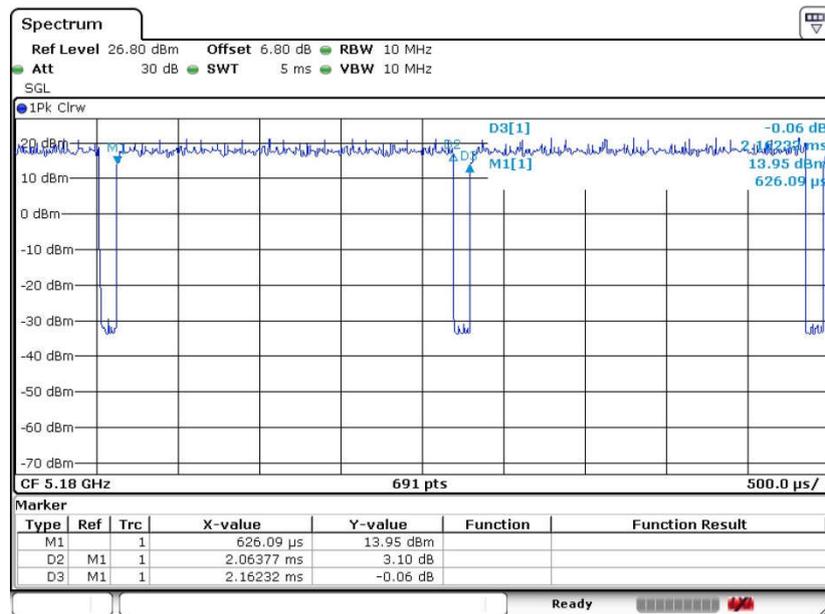
Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix C. Duty Cycle Plots

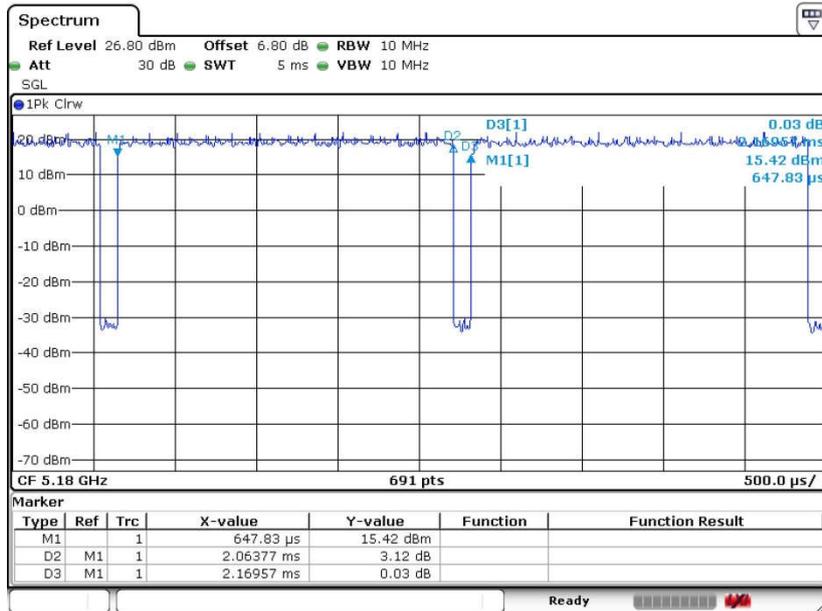
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a for Ant 1	95.44	2.064	0.485	1 kHz
802.11a for Ant 2	95.12	2.064	0.485	1 kHz
802.11n HT20 for Ant 1+2	94.79	1.926	0.519	1 kHz
802.11n HT40 for Ant 1+2	90.83	0.948	1.055	3 kHz
802.11ac VHT80 for Ant 1+2	83.55	0.464	2.156	3 KHz

802.11a for Ant 1

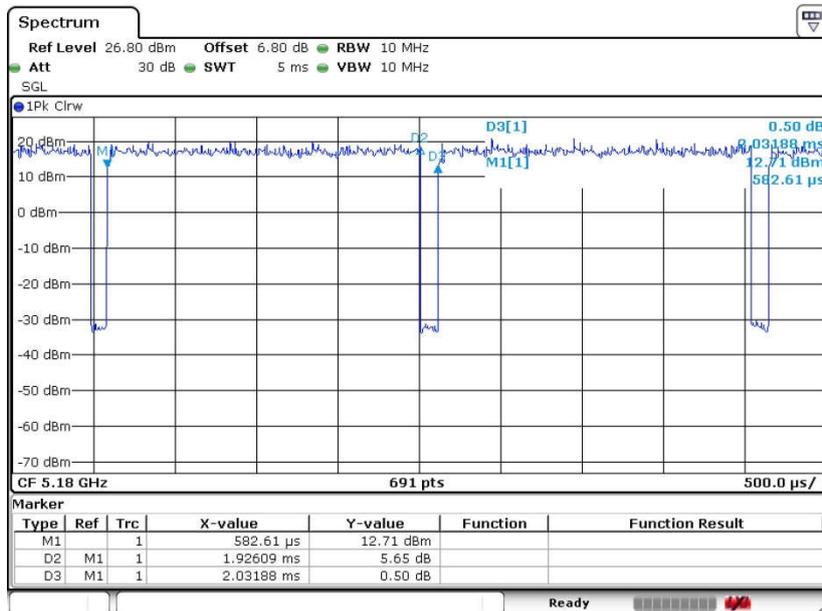




802.11a for Ant 2

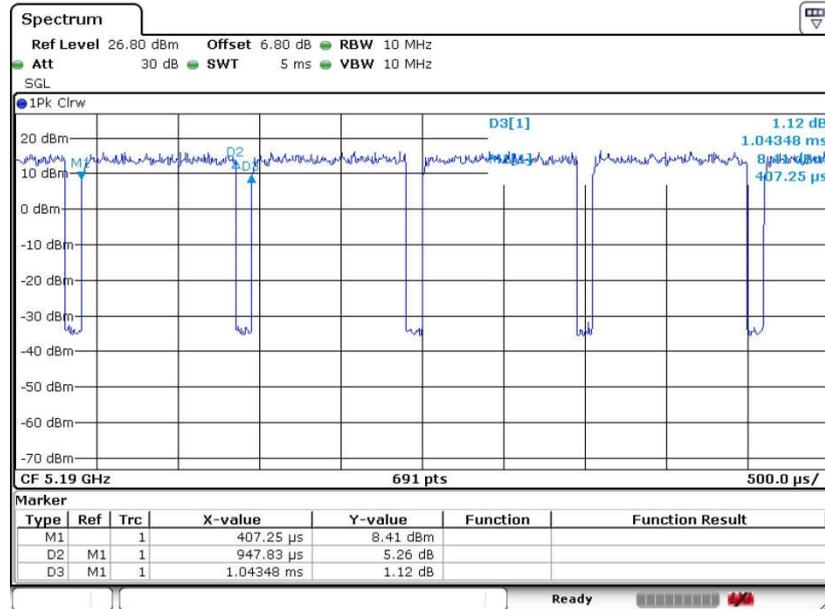


802.11n HT20 for Ant 1+2





802.11n HT40 for Ant 1+2



802.11ac VHT80 for Ant 1+2

