



FCC RF Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT1924-6,XT1924-8
FCC ID : IHDT56XA1
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Dec. 29, 2017 and testing was completed on Jan. 28, 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.

**No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335
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 7.41 dB at 5751.720 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 10.58 dB at 0.202 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

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT1924-6,XT1924-8
FCC ID	IHDT56XA1
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/CDMA/EV-DO/HSPA/DC-HSDPA/HSPA+(16QAM uplink is not supported)/LTE/WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/ HT40 Bluetooth v3.0 + EDR/ Bluetooth v 4.0 LE Bluetooth v4.1 LE/ Bluetooth v4.2 LE
IMEI Code	Conducted: 351892090018859 Conduction: 351892090020962 Radiation: 351892090021226
HW Version	DVT 1B
SW Version	hannah-userdebug 8.0.0 OPP27.66 1466 intcfg,test-keys
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	<5180 MHz ~ 5240 MHz> 802.11a : 14.45 dBm / 0.0279 W 802.11n HT20 : 14.96 dBm / 0.0313 W 802.11n HT40 : 14.47 dBm / 0.0280 W <5260 MHz ~ 5320 MHz> 802.11a : 16.20 dBm / 0.0417 W 802.11n HT20 : 14.90 dBm / 0.0309 W 802.11n HT40 : 14.86 dBm / 0.0306 W <5500 MHz ~ 5720 MHz > 802.11a : 16.05 dBm / 0.0403 W 802.11n HT20 : 14.93 dBm / 0.0311 W 802.11n HT40 : 15.09 dBm / 0.0323 W
99% Occupied Bandwidth	<5180 MHz ~ 5240 MHz> 802.11a : 18.63 MHz 802.11n HT20 : 19.18 MHz 802.11n VHT40 : 36.56 MHz <5260 MHz ~ 5320 MHz> 802.11a : 18.48 MHz 802.11n HT20 : 19.28 MHz 802.11n VHT40 : 36.66 MHz <5500 MHz ~ 5720 MHz > 802.11a : 18.63 MHz 802.11n HT20 : 19.28 MHz 802.11n HT40 : 36.86 MHz
Antenna Type / Gain	<5180 MHz ~ 5240 MHz> IFA Antenna with gain -2.54 dBi <5260 MHz ~ 5320 MHz> IFA Antenna with gain -2.94 dBi <5500 MHz ~ 5720 MHz> IFA Antenna with gain -0.99 dBi
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

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	Brand Name	Motorola (Salom)	Model Name	SPN5970A SC-22
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5 Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
AC Adapter 2	Brand Name	Motorola (Chenyang)	Model Name	SPN5993A SC-22
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5 Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
Earphone	Brand Name	Motorola (NEW Leaders)	Model Name	NLD-EM300V-01SF
	Signal Line	1.25 meter, non-shielded cable, without ferrite core		
Battery	Brand Name	Motorola (Amperex)	Model Name	HE50
	Power Rating	3.8Vdc,4850/5000mAh	Type	Li-ion
USB Cable (Black/White)	Brand Name	Motorola (SaiBao)	Model Name	SLQ-A081A
	Signal Line	1.02 meter, shielded cable, without ferrite core		



1.7 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 Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	Sporton Site No.		
	03CH10-HY		

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.



1.8 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
- ♦ 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 (X plane) 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
	-	-	-	-

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
	-	-	-	-

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

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channel	-	-	144	5720
	-	-		

Note: The above Frequency and Channel in "*" were 802.11n HT40.



2.2 Test Mode

Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates from the power table described in section 2.2.

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

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

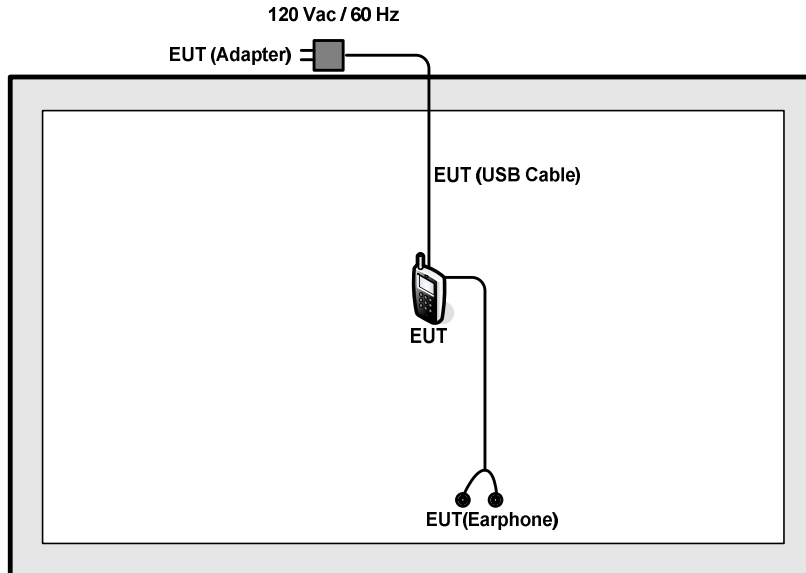
Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5720MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5720MHz
		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

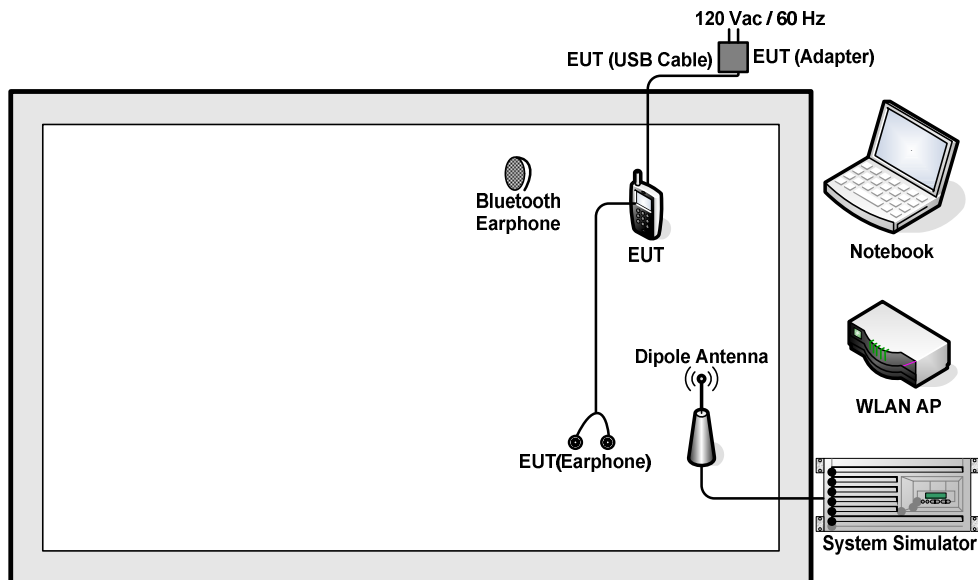
Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5720MHz
		802.11n HT40	802.11n HT40	802.11n HT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134

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.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
2.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
3.	WLAN AP	Cisco	Air-CAP3702E-A-K9	LDK102087	N/A	Unshielded, 1.8 m
4.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
5.	Notebook	Lenovo	Edge E335	PPD-AR5B95	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
6.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
7.	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 6.5 dB.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 6.5 \text{ (dB)} \end{aligned}$$

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.

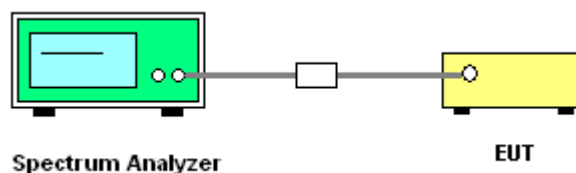
3.1.2 Measuring Instruments

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.

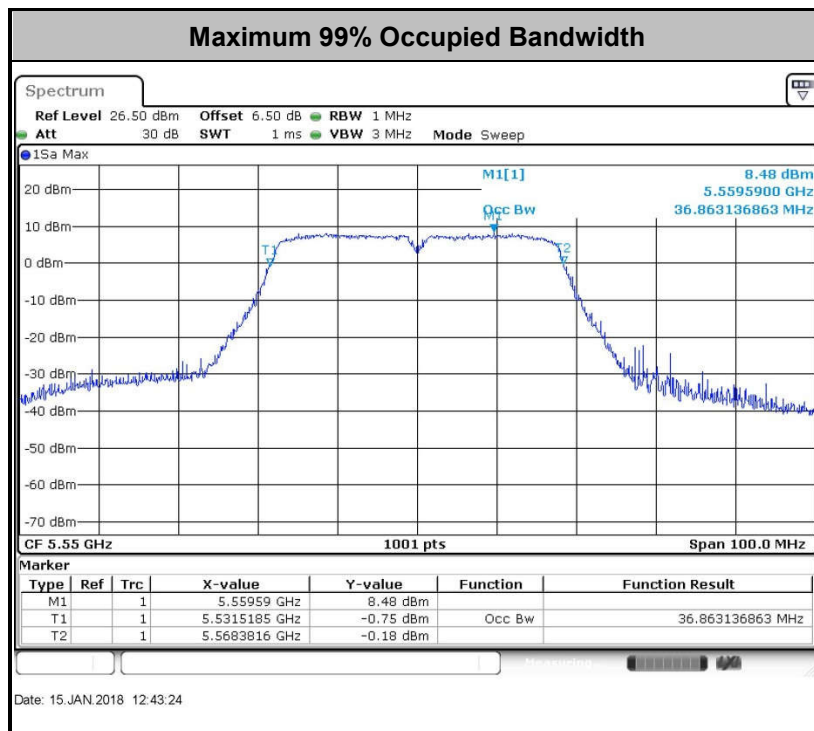
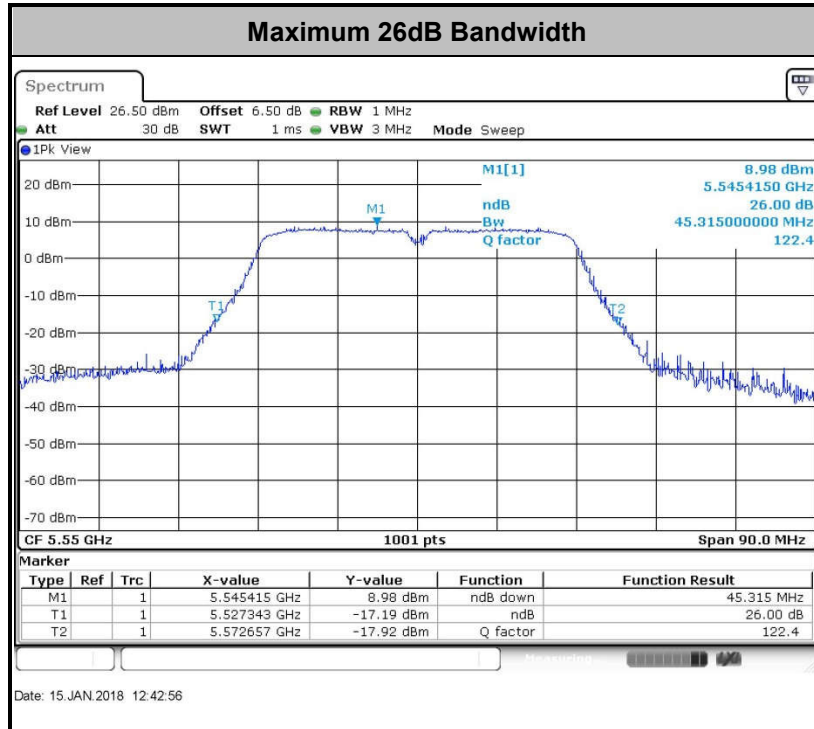
3.1.4 Test Setup





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

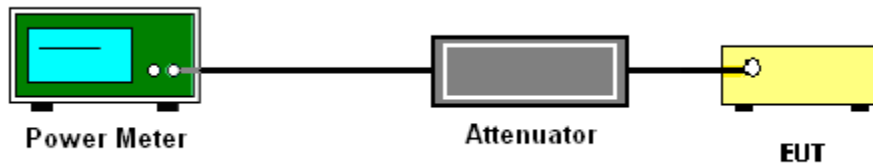
3.2.3 Test Procedures

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

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

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

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

<FCC 14-30 CFR 15.407>

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

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

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

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

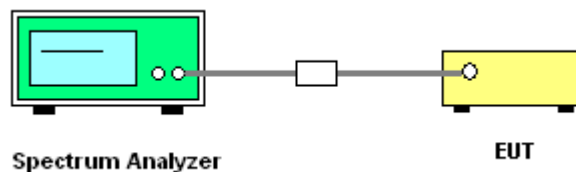
The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
Section F) Maximum power spectral density.

Method SA-2

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

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

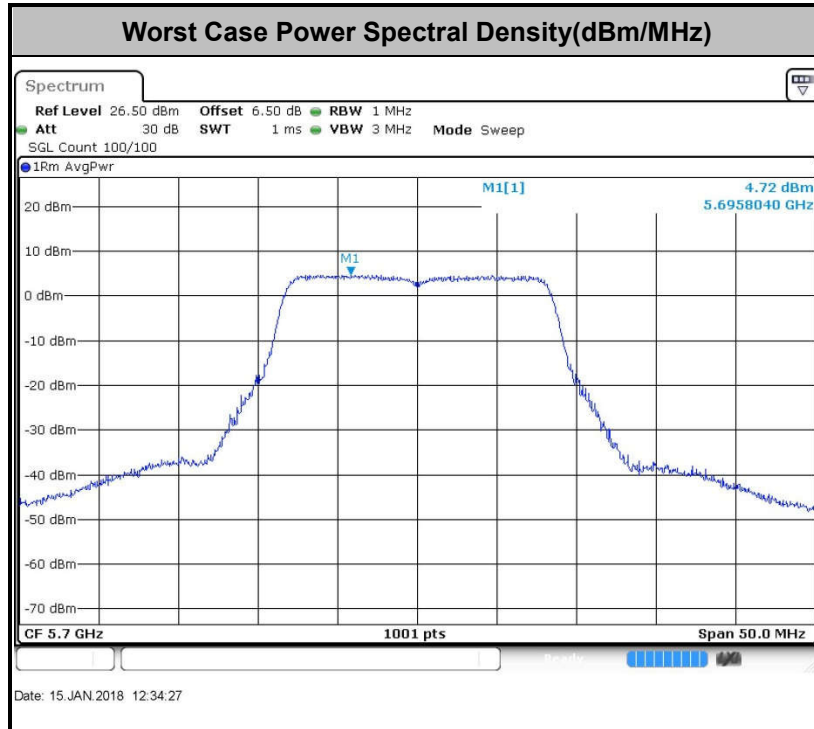
3.3.4 Test Setup





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 D02 v01r04 G)2)c)

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

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

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



3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

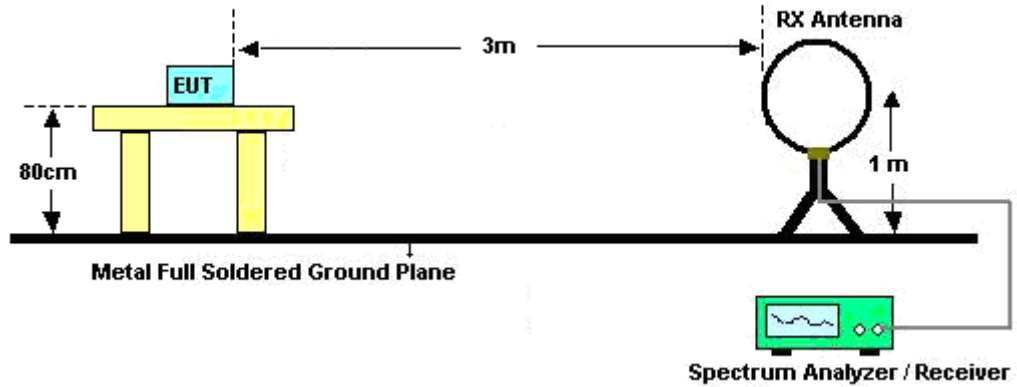
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.



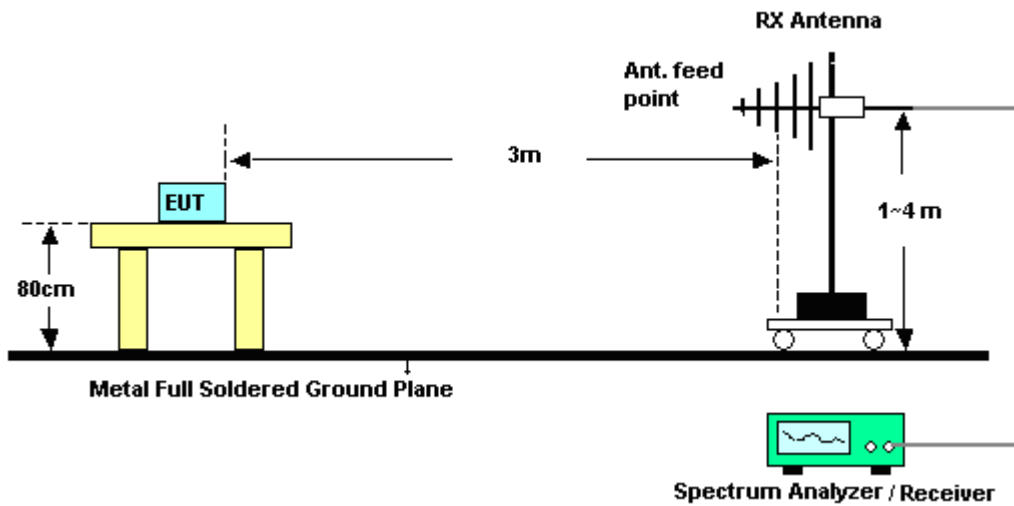
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband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

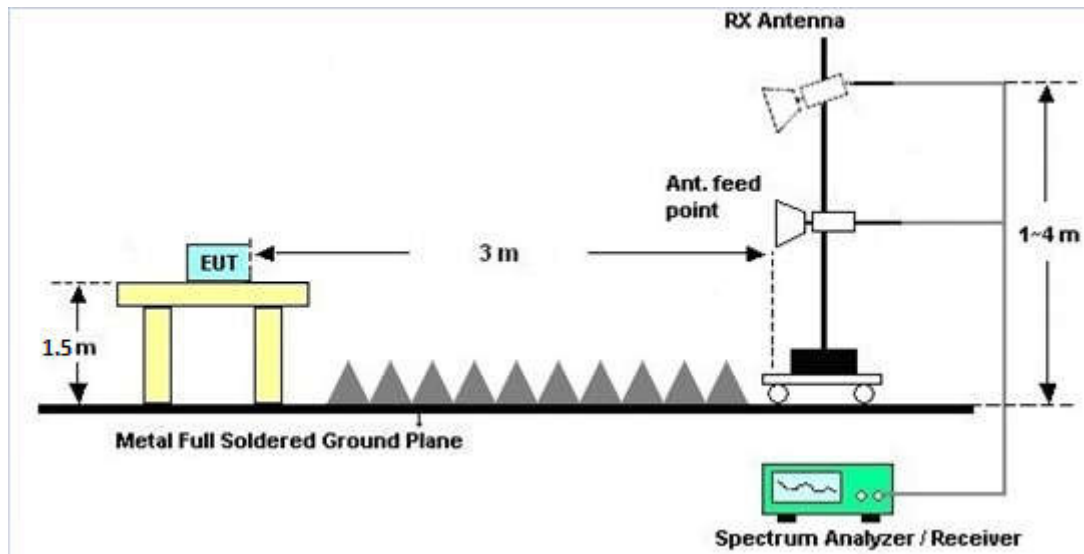
For radiated emissions below 30MHz



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.

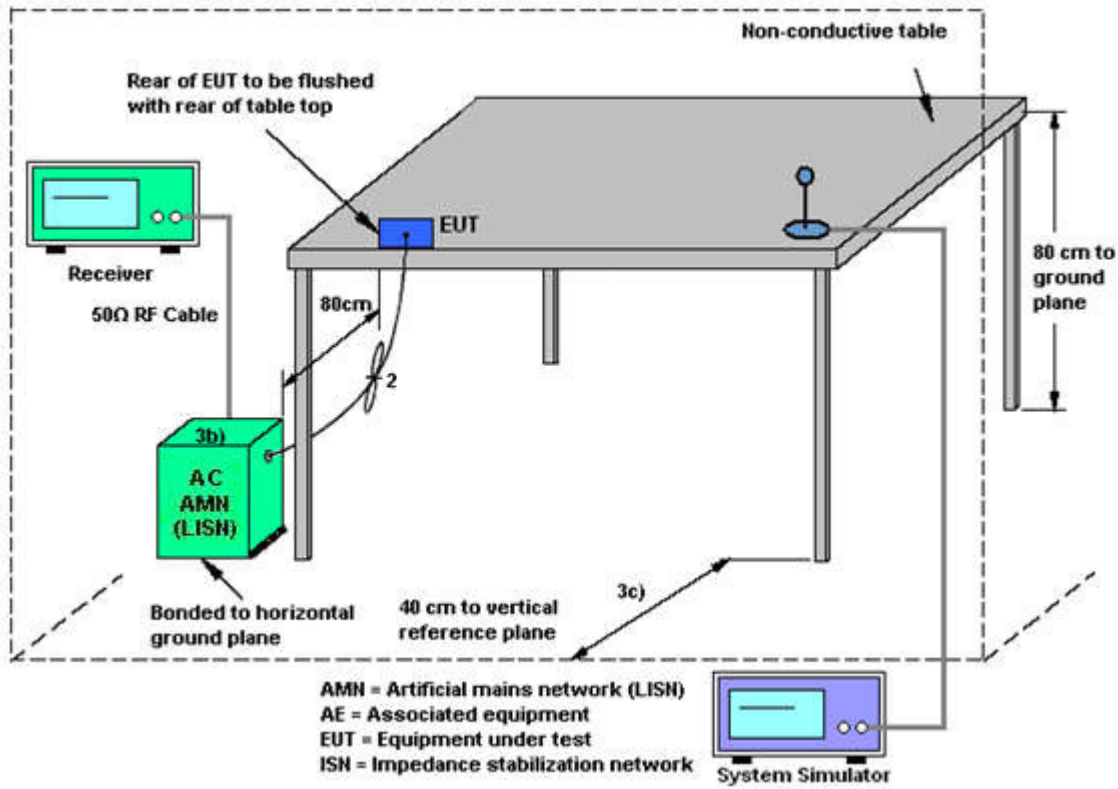
3.5.2 Measuring Instruments

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.

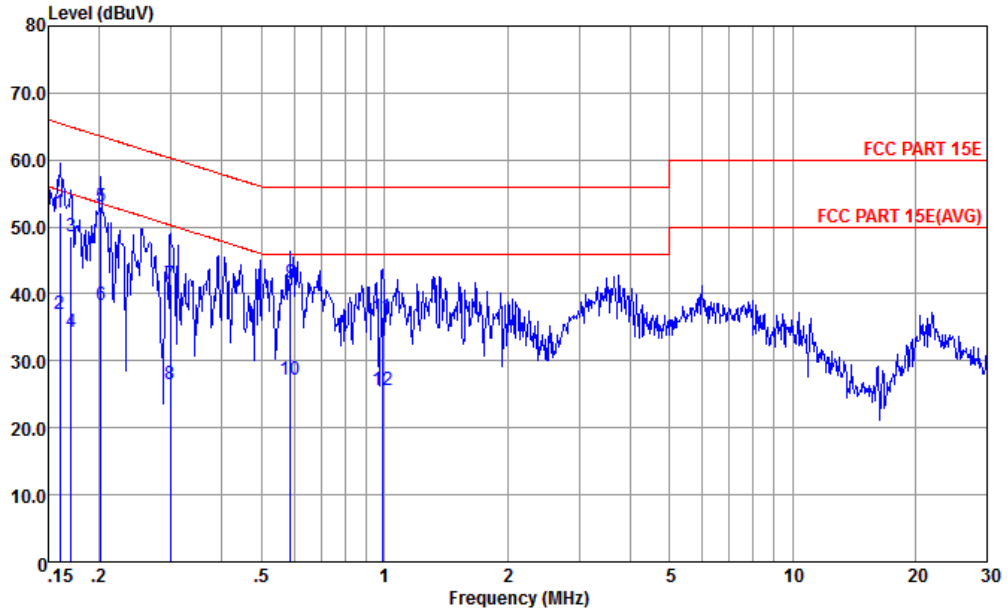
3.5.4 Test Setup





3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Amos Zhang	Relative Humidity :	43~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link (5G) + USB Cable (Charging from Adapter 1) + Earphone		



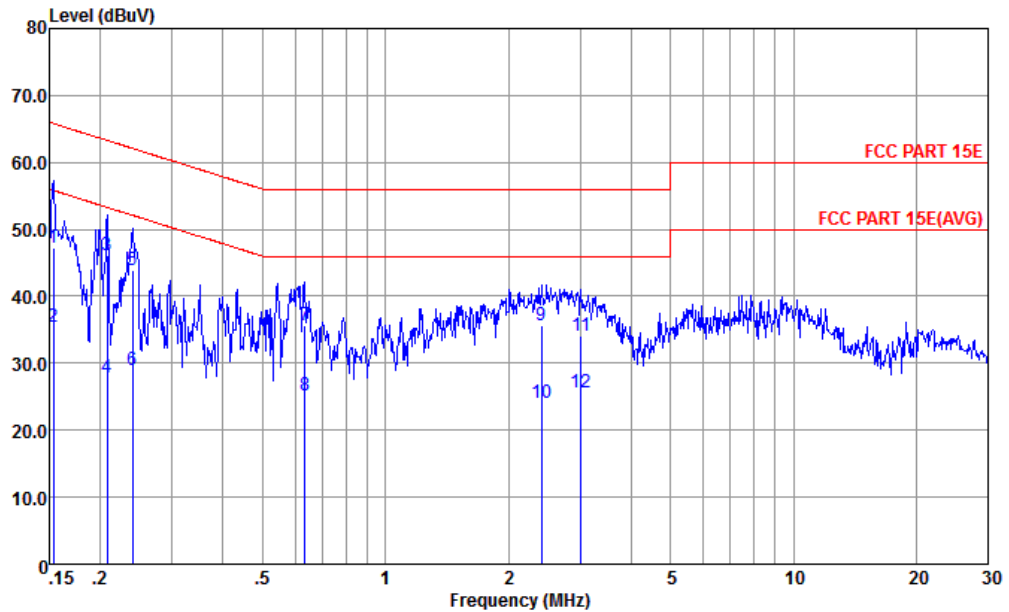
Site : CO01-KS
 Condition : FCC PART 15E LISN-L-171013-060103 LINE

mode : Mode 1
 : 351892090020962 #8

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.160	52.25	-13.22	65.47	41.50	0.17	10.58	QP
2	0.160	36.95	-18.52	55.47	26.20	0.17	10.58	Average
3	0.170	48.53	-16.41	64.94	37.80	0.18	10.55	QP
4	0.170	34.33	-20.61	54.94	23.60	0.18	10.55	Average
5 *	0.202	52.96	-10.58	63.54	42.31	0.20	10.45	QP
6	0.202	38.26	-15.28	53.54	27.61	0.20	10.45	Average
7	0.299	41.45	-18.83	60.28	30.79	0.23	10.43	QP
8	0.299	26.45	-23.83	50.28	15.79	0.23	10.43	Average
9	0.589	41.70	-14.30	56.00	31.20	0.26	10.24	QP
10	0.589	27.10	-18.90	46.00	16.60	0.26	10.24	Average
11	0.989	36.57	-19.43	56.00	26.20	0.26	10.11	QP
12	0.989	25.57	-20.43	46.00	15.20	0.26	10.11	Average



Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Amos Zhang	Relative Humidity :	43~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + 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
 : 351892090020962 #8

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.153	47.19	-18.63	65.82	36.30	0.28	10.61	QP
2	0.153	35.39	-20.43	55.82	24.50	0.28	10.61	Average
3 *	0.208	46.23	-17.04	63.27	35.50	0.28	10.45	QP
4	0.208	27.93	-25.34	53.27	17.20	0.28	10.45	Average
5	0.240	43.92	-18.16	62.08	33.20	0.28	10.44	QP
6	0.240	28.92	-23.16	52.08	18.20	0.28	10.44	Average
7	0.634	35.70	-20.30	56.00	25.20	0.30	10.20	QP
8	0.634	25.10	-20.90	46.00	14.60	0.30	10.20	Average
9	2.409	35.72	-20.28	56.00	25.20	0.32	10.20	QP
10	2.409	24.02	-21.98	46.00	13.50	0.32	10.20	Average
11	3.009	34.11	-21.89	56.00	23.59	0.33	10.19	QP
12	3.009	25.71	-20.29	46.00	15.19	0.33	10.19	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

The antenna gain is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



4 List of Measuring Equipments

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	Jan. 09, 2018~ Jan. 15, 2018	Aug. 07, 2018	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 19, 2017	Jan. 09, 2018~ Jan. 15, 2018	Jan. 18, 2018	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 19, 2017	Jan. 09, 2018~ Jan. 15, 2018	Jan. 18, 2018	Conducted (TH01-KS)
Amplifier	SONOMA	310N	187311	9kHz~1GHz	Oct. 19, 2017	Jan. 09, 2018~ Jan. 28, 2018	Oct. 18, 2018	Radiation (03CH10-HY)
Amplifier	MITEQ	TTA1840-35-H G	1871923	18GHz~40GHz, VSWR : 2.5:1 max	Jul. 18, 2017	Jan. 09, 2018~ Jan. 28, 2018	Jul. 17, 2018	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800 N1D01N-06	35413&02	30MHz~1GHz	Dec. 18, 2017	Jan. 09, 2018~ Jan. 28, 2018	Dec. 17, 2018	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1325	1GHz ~ 18GHz	Sep. 27, 2017	Jan. 09, 2018~ Jan. 28, 2018	Sep. 26, 2018	Radiation (03CH10-HY)
Preamplifier	Keysight	83017A	MY53270078	1GHz~26.5GHz	Oct. 25, 2017	Jan. 09, 2018~ Jan. 28, 2018	Oct. 24, 2018	Radiation (03CH10-HY)
Preamplifier	Jet-Power	JAP00101800- 30-10P	16011855000 4	1GHz~18GHz	Apr. 13, 2017	Jan. 09, 2018~ Jan. 28, 2018	Apr. 12, 2018	Radiation (03CH10-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz ~ 44GHz	Oct. 31, 2017	Jan. 09, 2018~ Jan. 28, 2018	Oct. 30, 2018	Radiation (03CH10-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Jan. 09, 2018~ Jan. 28, 2018	N/A	Radiation (03CH10-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Jan. 09, 2018~ Jan. 28, 2018	N/A	Radiation (03CH10-HY)
Turn Table	EMEC	TT 2200	N/A	0~360 Degree	N/A	Jan. 09, 2018~ Jan. 28, 2018	N/A	Radiation (03CH10-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Nov. 23, 2017	Jan. 09, 2018~ Jan. 28, 2018	Nov. 22, 2019	Radiation (03CH10-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz to 26.5GHz	Jan. 18, 2017 Jan. 16, 2018	Jan. 09, 2018~ Jan. 28, 2018	Jan. 17, 2018 Jan. 15, 2019	Radiation (03CH10-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA917058 4	18GHz- 40GHz	Nov. 27, 2017	Jan. 09, 2018~ Jan. 28, 2018	Nov. 26, 2018	Radiation (03CH10-HY)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 20, 2017	Jan. 08, 2018	Apr. 19, 2018	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2017	Jan. 08, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2017	Jan. 08, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2017	Jan. 08, 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% ($U = 2Uc(y)$)	5.6dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.9dB
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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:	2018/1/9~2018/1/15	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)		
11a	6Mbps	1	36	5180	18.63	23.58	-	22.70		
11a	6Mbps	1	44	5220	18.48	23.53	-	22.67		
11a	6Mbps	1	48	5240	18.58	23.53	-	22.69		
HT20	MCS0	1	36	5180	19.08	23.83	-	22.81		
HT20	MCS0	1	44	5220	19.18	23.93	-	22.83		
HT20	MCS0	1	48	5240	19.13	23.63	-	22.82		
HT40	MCS0	1	38	5190	36.56	44.51	-	23.01		
HT40	MCS0	1	46	5230	36.56	45.23	-	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
11a	6Mbps	1	36	5180	0.57	14.32	24.00	-2.54		Pass
11a	6Mbps	1	44	5220	0.57	14.45	24.00	-2.54		Pass
11a	6Mbps	1	48	5240	0.57	14.32	24.00	-2.54		Pass
HT20	MCS0	1	36	5180	0.65	14.96	24.00	-2.54		Pass
HT20	MCS0	1	44	5220	0.65	14.83	24.00	-2.54		Pass
HT20	MCS0	1	48	5240	0.65	14.88	24.00	-2.54		Pass
HT40	MCS0	1	38	5190	0.65	14.41	24.00	-2.54		Pass
HT40	MCS0	1	46	5230	0.65	14.47	24.00	-2.54		Pass

TEST RESULTS DATA
Power Spectral Density

FCC Band I										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)	-	Pass/Fail
11a	6Mbps	1	36	5180	0.57	4.96	11.00	-2.54		Pass
11a	6Mbps	1	44	5220	0.57	4.80	11.00	-2.54		Pass
11a	6Mbps	1	48	5240	0.57	5.01	11.00	-2.54		Pass
HT20	MCS0	1	36	5180	0.65	3.95	11.00	-2.54		Pass
HT20	MCS0	1	44	5220	0.65	3.96	11.00	-2.54		Pass
HT20	MCS0	1	48	5240	0.65	3.82	11.00	-2.54		Pass
HT40	MCS0	1	38	5190	0.65	0.57	11.00	-2.54		Pass
HT40	MCS0	1	46	5230	0.65	0.73	11.00	-2.54		Pass

TEST RESULTS DATA
26dB and 99% OBW

Band II										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)	Note
11a	6M bps	1	52	5260	18.48	23.78	23.67	29.67	23.98	
11a	6M bps	1	60	5300	18.43	23.58	23.66	29.66	23.98	
11a	6M bps	1	64	5320	18.43	23.58	23.66	29.66	23.98	
HT20	MCS 0	1	52	5260	19.28	23.88	23.85	29.85	23.98	
HT20	MCS 0	1	60	5300	19.28	23.58	23.85	29.85	23.98	
HT20	MCS 0	1	64	5320	19.13	23.63	23.82	29.82	23.98	
HT40	MCS 0	1	54	5270	36.66	44.33	23.98	30.00	23.98	
HT40	MCS 0	1	62	5310	36.66	44.87	23.98	30.00	23.98	

TEST RESULTS DATA
Average Power Table

FCC Band II										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	52	5260	0.57	16.20	23.98	-2.94	26.99	Pass
11a	6M bps	1	60	5300	0.57	16.10	23.98	-2.94	26.99	Pass
11a	6M bps	1	64	5320	0.57	16.01	23.98	-2.94	26.99	Pass
HT20	MCS 0	1	52	5260	0.65	14.90	23.98	-2.94	26.99	Pass
HT20	MCS 0	1	60	5300	0.65	14.76	23.98	-2.94	26.99	Pass
HT20	MCS 0	1	64	5320	0.65	14.68	23.98	-2.94	26.99	Pass
HT40	MCS 0	1	54	5270	0.65	14.77	23.98	-2.94	26.99	Pass
HT40	MCS 0	1	62	5310	0.65	14.86	23.98	-2.94	26.99	Pass

TEST RESULTS DATA
Power Spectral Density

Band II										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)		Pass/Fail
11a	6M bps	1	52	5260	0.57	5.23	11.00	-2.94		Pass
11a	6M bps	1	60	5300	0.57	5.18	11.00	-2.94		Pass
11a	6M bps	1	64	5320	0.57	5.01	11.00	-2.94		Pass
HT20	MCS 0	1	52	5260	0.65	3.37	11.00	-2.94		Pass
HT20	MCS 0	1	60	5300	0.65	3.35	11.00	-2.94		Pass
HT20	MCS 0	1	64	5320	0.65	3.18	11.00	-2.94		Pass
HT40	MCS 0	1	54	5270	0.65	0.51	11.00	-2.94		Pass
HT40	MCS 0	1	62	5310	0.65	0.37	11.00	-2.94		Pass

TEST RESULTS DATA
26dB and 99% OBW

Band III										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)	Note
11a	6M bps	1	100	5500	18.53	23.63	23.68	29.68	23.98	
11a	6M bps	1	116	5580	18.53	23.68	23.68	29.68	23.98	
11a	6M bps	1	140	5700	18.63	23.33	23.70	29.70	23.98	
HT20	MCS 0	1	100	5500	19.03	23.83	23.79	29.79	23.98	
HT20	MCS 0	1	116	5580	19.18	23.73	23.83	29.83	23.98	
HT20	MCS 0	1	140	5700	19.28	23.73	23.85	29.85	23.98	
HT40	MCS 0	1	102	5510	36.66	44.42	23.98	30.00	23.98	
HT40	MCS 0	1	110	5550	36.86	45.32	23.98	30.00	23.98	
HT40	MCS 0	1	134	5670	36.86	44.78	23.98	30.00	23.98	

TEST RESULTS DATA
Average Power Table

FCC Band III										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	100	5500	0.57	14.49	23.98	-0.99	26.99	Pass
11a	6M bps	1	116	5580	0.57	14.21	23.98	-0.99	26.99	Pass
11a	6M bps	1	140	5700	0.57	16.05	23.98	-0.99	26.99	Pass
HT20	MCS 0	1	100	5500	0.65	13.67	23.98	-0.99	26.99	Pass
HT20	MCS 0	1	116	5580	0.65	13.19	23.98	-0.99	26.99	Pass
HT20	MCS 0	1	140	5700	0.65	14.93	23.98	-0.99	26.99	Pass
HT40	MCS 0	1	102	5510	0.65	15.09	23.98	-0.99	26.99	Pass
HT40	MCS 0	1	110	5550	0.65	14.24	23.98	-0.99	26.99	Pass
HT40	MCS 0	1	134	5670	0.65	14.68	23.98	-0.99	26.99	Pass

TEST RESULTS DATA
Power Spectral Density

Band III										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)		Pass/Fail
11a	6M bps	1	100	5500	0.57	3.86	11.00	-0.99		Pass
11a	6M bps	1	116	5580	0.57	3.81	11.00	-0.99		Pass
11a	6M bps	1	140	5700	0.57	5.29	11.00	-0.99		Pass
HT20	MCS 0	1	100	5500	0.65	2.99	11.00	-0.99		Pass
HT20	MCS 0	1	116	5580	0.65	2.15	11.00	-0.99		Pass
HT20	MCS 0	1	140	5700	0.65	3.85	11.00	-0.99		Pass
HT40	MCS 0	1	102	5510	0.65	0.73	11.00	-0.99		Pass
HT40	MCS 0	1	110	5550	0.65	-0.08	11.00	-0.99		Pass
HT40	MCS 0	1	134	5670	0.65	0.36	11.00	-0.99		Pass



Appendix B. Radiated Spurious Emission

Test Engineer :	Daniel · Yun · JC	Temperature :	23°C
		Relative Humidity :	53%



Band 1 - 5150~5250MHz
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 802.11a channels 36 and 44.



802.11a CH 48 5240MHz		5066.3	48.57	-25.43	74	41.12	31.58	8.34	32.47	297	360	P	H
		5102.7	39.74	-14.26	54	32.24	31.62	8.36	32.48	297	360	A	H
	*	5240	103.03	-	-	95.39	31.78	8.34	32.48	297	360	P	H
	*	5240	95.63	-	-	87.99	31.78	8.34	32.48	297	360	A	H
		5380.2	46.43	-27.57	74	38.88	31.96	8.08	32.49	297	360	P	H
		5459.16	38.69	-15.31	54	30.96	32.04	8.19	32.5	297	360	A	H
		5140.92	48.86	-25.14	74	41.29	31.68	8.37	32.48	306	40	P	V
		5140.4	39.65	-14.35	54	32.08	31.68	8.37	32.48	306	40	A	V
	*	5240	104.23	-	-	96.59	31.78	8.34	32.48	306	40	P	V
	*	5240	96.43	-	-	88.79	31.78	8.34	32.48	306	40	A	V
		5455.8	46.8	-27.2	74	39.07	32.04	8.19	32.5	306	40	P	V
		5452.16	38.64	-15.36	54	30.91	32.04	8.19	32.5	306	40	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	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	44.43	-29.57	74	59.65	39.49	11.78	66.49	100	0	P	H
		15540	42.64	-31.36	74	53.91	38.32	15.57	65.16	100	0	P	H
		10360	44.29	-29.71	74	59.51	39.49	11.78	66.49	100	0	P	V
		15540	41.65	-32.35	74	52.92	38.32	15.57	65.16	100	0	P	V
802.11a CH 44 5220MHz		10440	45.87	-28.13	74	60.83	39.59	11.84	66.39	100	0	P	H
		15660	42.3	-31.7	74	53.96	38.06	15.63	65.35	100	0	P	H
		10440	45.3	-28.7	74	60.26	39.59	11.84	66.39	100	0	P	V
		15660	42.46	-31.54	74	54.12	38.06	15.63	65.35	100	0	P	V
802.11a CH 48 5240MHz		10480	46.35	-27.65	74	61.11	39.67	11.89	66.32	100	0	P	H
		15720	41.43	-32.57	74	53.32	37.91	15.66	65.46	100	0	P	H
		10480	44.83	-29.17	74	59.59	39.67	11.89	66.32	100	0	P	V
		15720	41.53	-32.47	74	53.42	37.91	15.66	65.46	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 36 5180MHz		5125.32	48.83	-25.17	74	41.28	31.66	8.37	32.48	293	2	P	H
		5128.44	42.73	-11.27	54	35.18	31.66	8.37	32.48	293	2	A	H
	*	5180	103.23	-	-	95.6	31.72	8.39	32.48	293	2	P	H
	*	5180	95.53	-	-	87.9	31.72	8.39	32.48	293	2	A	H
		5127.92	49.04	-24.96	74	41.49	31.66	8.37	32.48	316	45	P	V
		5128.44	44.13	-9.87	54	36.58	31.66	8.37	32.48	316	45	A	V
	*	5180	103.13	-	-	95.5	31.72	8.39	32.48	316	45	P	V
	*	5180	96.03	-	-	88.4	31.72	8.39	32.48	316	45	A	V
802.11n HT20 CH 44 5220MHz		5081.12	48.13	-25.87	74	40.65	31.6	8.35	32.47	289	3	P	H
		5067.86	39.61	-14.39	54	32.16	31.58	8.34	32.47	289	3	A	H
	*	5220	103.25	-	-	95.6	31.76	8.37	32.48	289	3	P	H
	*	5220	95.55	-	-	87.9	31.76	8.37	32.48	289	3	A	H
		5456.08	46.62	-27.38	74	38.89	32.04	8.19	32.5	289	3	P	H
		5457.76	38.48	-15.52	54	30.75	32.04	8.19	32.5	289	3	A	H
		5138.84	47.79	-26.21	74	40.24	31.66	8.37	32.48	324	42	P	V
		5080.6	39.69	-14.31	54	32.21	31.6	8.35	32.47	324	42	A	V
	*	5220	102.85	-	-	95.2	31.76	8.37	32.48	324	42	P	V
	*	5220	95.65	-	-	88	31.76	8.37	32.48	324	42	A	V
	5366.76	46.32	-27.68	74	38.76	31.94	8.11	32.49	324	42	P	V	
	5458.6	38.45	-15.55	54	30.72	32.04	8.19	32.5	324	42	A	V	



802.11n HT20 CH 48 5240MHz		5037.7	48.32	-25.68	74	40.9	31.56	8.33	32.47	286	3	P	H
		5130	39.81	-14.19	54	32.26	31.66	8.37	32.48	286	3	A	H
	*	5240	101.93	-	-	94.29	31.78	8.34	32.48	286	3	P	H
	*	5240	94.73	-	-	87.09	31.78	8.34	32.48	286	3	A	H
		5443.48	47.11	-26.89	74	39.44	32.02	8.15	32.5	286	3	P	H
		5457.48	38.46	-15.54	54	30.73	32.04	8.19	32.5	286	3	A	H
		5100.62	47.97	-26.03	74	40.47	31.62	8.36	32.48	304	41	P	V
		5129.48	39.73	-14.27	54	32.18	31.66	8.37	32.48	304	41	A	V
	*	5240	102.53	-	-	94.89	31.78	8.34	32.48	304	41	P	V
	*	5240	95.23	-	-	87.59	31.78	8.34	32.48	304	41	A	V
		5397.84	46.46	-27.54	74	38.92	31.98	8.05	32.49	304	41	P	V
		5448.8	38.59	-15.41	54	30.86	32.04	8.19	32.5	304	41	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 802.11n HT20 (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)
802.11n HT20 CH 36		10360	45.08	-28.92	74	60.3	39.49	11.78	66.49	100	0	P	H
		15540	41.35	-32.65	74	52.62	38.32	15.57	65.16	100	0	P	H
5180MHz		10360	44.39	-29.61	74	59.61	39.49	11.78	66.49	100	0	P	V
		15540	42.24	-31.76	74	53.51	38.32	15.57	65.16	100	0	P	V
802.11n HT20 CH 44		10440	45.04	-28.96	74	60	39.59	11.84	66.39	100	0	P	H
		15660	41.63	-32.37	74	53.29	38.06	15.63	65.35	100	0	P	H
		10440	45.78	-28.22	74	60.74	39.59	11.84	66.39	100	0	P	V
		15660	41.27	-32.73	74	52.93	38.06	15.63	65.35	100	0	P	V
802.11n HT20 CH 48		10480	44.39	-29.61	74	59.15	39.67	11.89	66.32	100	0	P	H
		15720	42.5	-31.5	74	54.39	37.91	15.66	65.46	100	0	P	H
		10480	44.09	-29.91	74	58.85	39.67	11.89	66.32	100	0	P	V
		15720	42.67	-31.33	74	54.56	37.91	15.66	65.46	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)

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 test 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 802.11n HT40 (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)
802.11n HT40 CH 38 5190MHz		10380	44.46	-29.54	74	59.61	39.51	11.8	66.46	100	0	P	H
		15570	43.6	-30.4	74	54.97	38.25	15.59	65.21	100	0	P	H
		10380	44.82	-29.18	74	59.97	39.51	11.8	66.46	100	0	P	V
		15570	42.61	-31.39	74	53.98	38.25	15.59	65.21	100	0	P	V
802.11n HT40 CH 46 5230MHz		10460	45.43	-28.57	74	60.32	39.62	11.86	66.37	100	0	P	H
		15690	42.99	-31.01	74	54.77	37.98	15.64	65.4	100	0	P	H
		10460	44.48	-29.52	74	59.37	39.62	11.86	66.37	100	0	P	V
		15690	42.72	-31.28	74	54.5	37.98	15.64	65.4	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	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		5140.08	48.43	-25.57	74	40.86	31.68	8.37	32.48	310	329	P	H
		5111.86	39.69	-14.31	54	32.17	31.64	8.36	32.48	310	329	A	H
	*	5260	100.64	-	-	93.01	31.82	8.3	32.49	310	329	P	H
	*	5260	93.14	-	-	85.51	31.82	8.3	32.49	310	329	A	H
		5441.28	46.54	-27.46	74	38.87	32.02	8.15	32.5	310	329	P	H
		5458.56	38.54	-15.46	54	30.81	32.04	8.19	32.5	310	329	A	H
		5045.9	49.06	-24.94	74	41.64	31.56	8.33	32.47	321	40	P	V
		5124.44	39.82	-14.18	54	32.28	31.66	8.36	32.48	321	40	A	V
	*	5260	103.74	-	-	96.11	31.82	8.3	32.49	321	40	P	V
	*	5260	96.54	-	-	88.91	31.82	8.3	32.49	321	40	A	V
		5353.92	46.58	-27.42	74	39	31.92	8.15	32.49	321	40	P	V
		5456.88	38.48	-15.52	54	30.75	32.04	8.19	32.5	321	40	A	V
802.11a CH 60 5300MHz		5021.76	47.87	-26.13	74	40.47	31.54	8.33	32.47	286	330	P	H
		5064.94	39.59	-14.41	54	32.14	31.58	8.34	32.47	286	330	A	H
	*	5300	100.51	-	-	92.9	31.86	8.24	32.49	286	330	P	H
	*	5300	93.01	-	-	85.4	31.86	8.24	32.49	286	330	A	H
		5414.88	46.61	-27.39	74	39.01	32	8.1	32.5	286	330	P	H
		5352.48	40.4	-13.6	54	32.82	31.92	8.15	32.49	286	330	A	H
		5077.52	47.96	-26.04	74	40.48	31.6	8.35	32.47	319	40	P	V
		5108.12	39.81	-14.19	54	32.29	31.64	8.36	32.48	319	40	A	V
	*	5300	103.11	-	-	95.5	31.86	8.24	32.49	319	40	P	V
	*	5300	95.71	-	-	88.1	31.86	8.24	32.49	319	40	A	V
		5380.32	46.47	-27.53	74	38.92	31.96	8.08	32.49	319	40	P	V
		5352.24	41.09	-12.91	54	33.51	31.92	8.15	32.49	319	40	A	V



802.11a CH 64 5320MHz	*	5320	100.4	-	-	92.8	31.88	8.21	32.49	303	329	P	H
	*	5320	93.1	-	-	85.5	31.88	8.21	32.49	303	329	A	H
		5372.16	46.95	-27.05	74	39.39	31.94	8.11	32.49	303	329	P	H
		5372.32	40.25	-13.75	54	32.69	31.94	8.11	32.49	303	329	A	H
	*	5320	103.1	-	-	95.5	31.88	8.21	32.49	348	48	P	V
	*	5320	95.5	-	-	87.9	31.88	8.21	32.49	348	48	A	V
		5371.84	47.8	-26.2	74	40.24	31.94	8.11	32.49	348	48	P	V
		5372	41.35	-12.65	54	33.79	31.94	8.11	32.49	348	48	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	44.89	-29.11	74	59.57	39.71	11.92	66.31	100	0	P	H
		15780	42.72	-31.28	74	54.78	37.79	15.69	65.54	100	0	P	H
		10520	44.88	-29.12	74	59.56	39.71	11.92	66.31	100	0	P	V
		15780	41.42	-32.58	74	53.48	37.79	15.69	65.54	100	0	P	V
802.11a CH 60 5300MHz		10600	45.63	-28.37	74	60.21	39.78	11.98	66.34	100	0	P	H
		15900	42.11	-31.89	74	54.56	37.53	15.75	65.73	100	0	P	H
		10600	44.91	-29.09	74	59.49	39.78	11.98	66.34	100	0	P	V
		15900	41.02	-32.98	74	53.47	37.53	15.75	65.73	100	0	P	V
802.11a CH 64 5320MHz		10640	44.26	-29.74	74	58.8	39.81	12.01	66.36	100	0	P	H
		15960	41.68	-32.32	74	54.36	37.38	15.78	65.84	100	0	P	H
		10640	43.99	-30.01	74	58.53	39.81	12.01	66.36	100	0	P	V
		15960	41.16	-32.84	74	53.84	37.38	15.78	65.84	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 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)
802.11n HT20 CH 52 5260MHz		5130.56	47.46	-26.54	74	39.91	31.66	8.37	32.48	297	2	P	H
		5089.76	39.73	-14.27	54	32.22	31.62	8.36	32.47	297	2	A	H
	*	5260	101.94	-	-	94.31	31.82	8.3	32.49	297	2	P	H
	*	5260	94.34	-	-	86.71	31.82	8.3	32.49	297	2	A	H
		5420.64	46.58	-27.42	74	38.98	32	8.1	32.5	297	2	P	H
		5439.36	38.5	-15.5	54	30.83	32.02	8.15	32.5	297	2	A	H
		5060.52	48.68	-25.32	74	41.23	31.58	8.34	32.47	338	42	P	V
		5112.54	39.71	-14.29	54	32.19	31.64	8.36	32.48	338	42	A	V
	*	5260	102.54	-	-	94.91	31.82	8.3	32.49	338	42	P	V
	*	5260	95.34	-	-	87.71	31.82	8.3	32.49	338	42	A	V
		5447.04	47.1	-26.9	74	39.41	32.04	8.15	32.5	338	42	P	V
		5449.44	38.56	-15.44	54	30.83	32.04	8.19	32.5	338	42	A	V
802.11n HT20 CH 60 5300MHz		5119	48.64	-25.36	74	41.12	31.64	8.36	32.48	316	2	P	H
		5031.96	39.69	-14.31	54	32.29	31.54	8.33	32.47	316	2	A	H
	*	5300	100.21	-	-	92.6	31.86	8.24	32.49	316	2	P	H
	*	5300	92.81	-	-	85.2	31.86	8.24	32.49	316	2	A	H
		5352.24	48.04	-25.96	74	40.46	31.92	8.15	32.49	316	2	P	H
		5351.76	40.33	-13.67	54	32.75	31.92	8.15	32.49	316	2	A	H
		5095.88	49.11	-24.89	74	41.61	31.62	8.36	32.48	318	40	P	V
		5104.72	39.78	-14.22	54	32.28	31.62	8.36	32.48	318	40	A	V
	*	5300	101.81	-	-	94.2	31.86	8.24	32.49	318	40	P	V
	*	5300	94.01	-	-	86.4	31.86	8.24	32.49	318	40	A	V
	5351.52	47	-27	74	39.42	31.92	8.15	32.49	318	40	P	V	
	5351.76	41.01	-12.99	54	33.43	31.92	8.15	32.49	318	40	A	V	



802.11n HT20 CH 64 5320MHz	*	5320	100.2	-	-	92.6	31.88	8.21	32.49	312	360	P	H
	*	5320	93	-	-	85.4	31.88	8.21	32.49	312	360	A	H
		5375.2	46.72	-27.28	74	39.16	31.94	8.11	32.49	312	360	P	H
		5371.68	40.58	-13.42	54	33.02	31.94	8.11	32.49	312	360	A	H
	*	5320	101.1	-	-	93.5	31.88	8.21	32.49	331	58	P	V
	*	5320	93.9	-	-	86.3	31.88	8.21	32.49	331	58	A	V
		5369.44	48.49	-25.51	74	40.93	31.94	8.11	32.49	331	58	P	V
		5371.36	40.86	-13.14	54	33.3	31.94	8.11	32.49	331	58	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	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		10520	45.22	-28.78	74	59.9	39.71	11.92	66.31	100	0	P	H
		15780	42.09	-31.91	74	54.15	37.79	15.69	65.54	100	0	P	H
5260MHz CH 52		10520	45.24	-28.76	74	59.92	39.71	11.92	66.31	100	0	P	V
		15780	43.19	-30.81	74	55.25	37.79	15.69	65.54	100	0	P	V
5300MHz 802.11n HT20 CH 60		10600	45.06	-28.94	74	59.64	39.78	11.98	66.34	100	0	P	H
		15900	41.76	-32.24	74	54.21	37.53	15.75	65.73	100	0	P	H
		10600	45.68	-28.32	74	60.26	39.78	11.98	66.34	100	0	P	V
		15900	41.71	-32.29	74	54.16	37.53	15.75	65.73	100	0	P	V
5320MHz 802.11n HT20 CH 64		10640	44.44	-29.56	74	58.98	39.81	12.01	66.36	100	0	P	H
		15960	41.67	-32.33	74	54.35	37.38	15.78	65.84	100	0	P	H
		10640	45.66	-28.34	74	60.2	39.81	12.01	66.36	100	0	P	V
		15960	42	-32	74	54.68	37.38	15.78	65.84	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	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		5087.38	48.38	-25.62	74	40.9	31.6	8.35	32.47	100	122	P	H
		5113.22	39.87	-14.13	54	32.35	31.64	8.36	32.48	100	122	A	H
	*	5270	100.43	-	-	92.83	31.82	8.27	32.49	100	122	P	H
	*	5270	92.14	-	-	84.54	31.82	8.27	32.49	100	122	A	H
		5432.88	47.45	-26.55	74	39.78	32.02	8.15	32.5	100	122	P	H
		5373.84	38.61	-15.39	54	31.05	31.94	8.11	32.49	100	122	A	H
		5012.92	49.9	-24.1	74	42.53	31.52	8.32	32.47	338	43	P	V
		5135.66	39.86	-14.14	54	32.31	31.66	8.37	32.48	338	43	A	V
	*	5270	99.95	-	-	92.35	31.82	8.27	32.49	338	43	P	V
	*	5270	92.49	-	-	84.89	31.82	8.27	32.49	338	43	A	V
		5446.56	47.49	-26.51	74	39.8	32.04	8.15	32.5	338	43	P	V
		5373.12	38.94	-15.06	54	31.38	31.94	8.11	32.49	338	43	A	V
802.11n HT40 CH 62 5310MHz		5000	48.73	-25.27	74	41.38	31.5	8.32	32.47	100	119	P	H
		5095.2	39.76	-14.24	54	32.26	31.62	8.36	32.48	100	119	A	H
	*	5310	98.71	-	-	91.11	31.88	8.21	32.49	100	119	P	H
	*	5310	91.33	-	-	83.73	31.88	8.21	32.49	100	119	A	H
		5359.68	49.63	-24.37	74	42.09	31.92	8.11	32.49	100	119	P	H
		5351.04	39.65	-14.35	54	32.07	31.92	8.15	32.49	100	119	A	H
		5088.4	47.91	-26.09	74	40.43	31.6	8.35	32.47	332	41	P	V
		5049.64	39.72	-14.28	54	32.3	31.56	8.33	32.47	332	41	A	V
	*	5310	98.76	-	-	91.16	31.88	8.21	32.49	332	41	P	V
	*	5310	91.32	-	-	83.72	31.88	8.21	32.49	332	41	A	V
	5350.08	51.28	-22.72	74	43.7	31.92	8.15	32.49	332	41	P	V	
	5350.32	40.29	-13.71	54	32.71	31.92	8.15	32.49	332	41	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	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 54 5270MHz		10540	45.39	-28.61	74	60.04	39.73	11.93	66.31	100	0	P	H
		15810	42.65	-31.35	74	54.82	37.72	15.71	65.6	100	0	P	H
		10540	44.07	-29.93	74	58.72	39.73	11.93	66.31	100	0	P	V
		15810	42.4	-31.6	74	54.57	37.72	15.71	65.6	100	0	P	V
802.11n HT40 CH 62 5310MHz		10620	44.64	-29.36	74	59.2	39.8	11.99	66.35	100	0	P	H
		15930	42.08	-31.92	74	54.65	37.45	15.77	65.79	100	0	P	H
		10620	44.8	-29.2	74	59.36	39.8	11.99	66.35	100	0	P	V
		15930	41.83	-32.17	74	54.4	37.45	15.77	65.79	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		5461.04	48.14	-25.86	74	40.41	32.04	8.19	32.5	300	329	P	H
		5447.44	40.25	-13.75	54	32.56	32.04	8.15	32.5	300	329	A	H
	*	5500	100.79	-	-	92.9	32.1	8.29	32.5	300	329	P	H
	*	5500	93.59	-	-	85.7	32.1	8.29	32.5	300	329	A	H
		5365.84	46.41	-27.59	74	38.85	31.94	8.11	32.49	328	41	P	V
		5448.08	40.47	-13.53	54	32.74	32.04	8.19	32.5	328	41	A	V
	*	5500	100.69	-	-	92.8	32.1	8.29	32.5	328	41	P	V
	*	5500	92.49	-	-	84.6	32.1	8.29	32.5	328	41	A	V
802.11a CH 116 5580MHz		5464.48	47.16	-26.84	74	39.41	32.06	8.19	32.5	277	326	P	H
		5469.52	38.37	-15.63	54	30.57	32.06	8.24	32.5	277	326	A	H
	*	5580	102.66	-	-	94.5	32.17	8.53	32.54	277	326	P	H
	*	5580	94.66	-	-	86.5	32.17	8.53	32.54	277	326	A	H
		5756.81	48.85	-25.15	74	39.95	32.36	9.14	32.6	277	326	P	H
		5743.265	40.43	-13.57	54	31.61	32.34	9.07	32.59	277	326	A	H
		5468.56	46.87	-27.13	74	39.07	32.06	8.24	32.5	335	41	P	V
		5443.84	38.56	-15.44	54	30.89	32.02	8.15	32.5	335	41	A	V
	*	5580	101.46	-	-	93.3	32.17	8.53	32.54	335	41	P	V
	*	5580	93.66	-	-	85.5	32.17	8.53	32.54	335	41	A	V
		5757.755	48.02	-25.98	74	39.12	32.36	9.14	32.6	335	41	P	V
		5751.14	40.57	-13.43	54	31.75	32.34	9.07	32.59	335	41	A	V



802.11a CH 140 5700MHz	*	5700	105.57	-	-	96.9	32.29	8.95	32.57	283	316	P	H
	*	5700	98.27	-	-	89.6	32.29	8.95	32.57	283	316	A	H
		5725	51.76	-22.24	74	43.01	32.32	9.01	32.58	283	316	P	H
		5752.36	44.44	-9.56	54	35.6	32.36	9.07	32.59	283	316	A	H
	*	5700	104.47	-	-	95.8	32.29	8.95	32.57	309	62	P	V
	*	5700	97.27	-	-	88.6	32.29	8.95	32.57	309	62	A	V
		5753.32	50.05	-23.95	74	41.21	32.36	9.07	32.59	309	62	P	V
		5752.28	42.99	-11.01	54	34.15	32.36	9.07	32.59	309	62	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	44.87	-29.13	74	58.96	40.1	12.31	66.5	100	0	P	H
		16500	43.54	-30.46	74	54.94	38.8	16.2	66.4	100	0	P	H
		11000	44	-30	74	58.09	40.1	12.31	66.5	100	0	P	V
		16500	42.35	-31.65	74	53.75	38.8	16.2	66.4	100	0	P	V
802.11a CH 116 5580MHz		11160	45.77	-28.23	74	59.72	40	12.45	66.4	100	0	P	H
		16740	43.49	-30.51	74	54.13	39.33	16.38	66.35	100	0	P	H
		11160	44.69	-29.31	74	58.64	40	12.45	66.4	100	0	P	V
		16740	42.98	-31.02	74	53.62	39.33	16.38	66.35	100	0	P	V
802.11a CH 140 5700MHz		11400	44.44	-29.56	74	58.18	39.86	12.66	66.26	100	0	P	H
		17100	45.51	-28.49	74	54.65	40.38	16.66	66.18	100	0	P	H
		11400	44.69	-29.31	74	58.43	39.86	12.66	66.26	100	0	P	V
		17100	45.22	-28.78	74	54.36	40.38	16.66	66.18	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1	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		5377.04	47.12	-26.88	74	39.59	31.94	8.08	32.49	100	317	P	H
		5448.08	40.43	-13.57	54	32.7	32.04	8.19	32.5	100	317	A	H
	*	5500	100.19	-	-	92.3	32.1	8.29	32.5	100	317	P	H
	*	5500	92.69	-	-	84.8	32.1	8.29	32.5	100	317	A	H
		5451.44	47.43	-26.57	74	39.7	32.04	8.19	32.5	328	41	P	V
		5448.4	40.6	-13.4	54	32.87	32.04	8.19	32.5	328	41	A	V
	*	5500	99.09	-	-	91.2	32.1	8.29	32.5	328	41	P	V
	5500	91.29	-	-	83.4	32.1	8.29	32.5	328	41	A	V	
802.11n HT20 CH 116 5580MHz		5371.6	46.7	-27.3	74	39.14	31.94	8.11	32.49	100	318	P	H
		5467.84	38.43	-15.57	54	30.63	32.06	8.24	32.5	100	318	A	H
	*	5580	102.66	-	-	94.5	32.17	8.53	32.54	100	318	P	H
	*	5580	94.96	-	-	86.8	32.17	8.53	32.54	100	318	A	H
		5733.815	48.2	-25.8	74	39.46	32.32	9.01	32.59	100	318	P	H
		5753.345	40.55	-13.45	54	31.71	32.36	9.07	32.59	100	318	A	H
		5368.24	47.56	-26.44	74	40	31.94	8.11	32.49	335	36	P	V
		5469.76	38.48	-15.52	54	30.68	32.06	8.24	32.5	335	36	A	V
	*	5580	99.86	-	-	91.7	32.17	8.53	32.54	335	36	P	V
	*	5580	92.06	-	-	83.9	32.17	8.53	32.54	335	36	A	V
	5765	47.74	-26.26	74	38.84	32.36	9.14	32.6	335	36	P	V	
	5753.03	40.44	-13.56	54	31.6	32.36	9.07	32.59	335	36	A	V	



802.11n HT20 CH 140 5700MHz	*	5700	107.47	-	-	98.8	32.29	8.95	32.57	100	312	P	H
	*	5700	99.87	-	-	91.2	32.29	8.95	32.57	100	312	A	H
		5752.76	51.81	-22.19	74	42.97	32.36	9.07	32.59	100	312	P	H
		5751.72	46.59	-7.41	54	37.75	32.36	9.07	32.59	100	312	A	H
	*	5700	104.57	-	-	95.9	32.29	8.95	32.57	396	32	P	V
	*	5700	97.27	-	-	88.6	32.29	8.95	32.57	396	32	A	V
		5751.48	49.5	-24.5	74	40.68	32.34	9.07	32.59	396	32	P	V
		5751.48	42.75	-11.25	54	33.93	32.34	9.07	32.59	396	32	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	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	44.78	-29.22	74	58.87	40.1	12.31	66.5	100	0	P	H
		16500	42.74	-31.26	74	54.14	38.8	16.2	66.4	100	0	P	H
CH 100 5500MHz		11000	44.43	-29.57	74	58.52	40.1	12.31	66.5	100	0	P	V
		16500	43.14	-30.86	74	54.54	38.8	16.2	66.4	100	0	P	V
802.11n HT20 CH 116 5580MHz		11160	46.03	-27.97	74	59.98	40	12.45	66.4	100	0	P	H
		16740	43.73	-30.27	74	54.37	39.33	16.38	66.35	100	0	P	H
		11160	45.28	-28.72	74	59.23	40	12.45	66.4	100	0	P	V
		16740	43.85	-30.15	74	54.49	39.33	16.38	66.35	100	0	P	V
802.11n HT20 CH 140 5700MHz		11400	45.22	-28.78	74	58.96	39.86	12.66	66.26	100	0	P	H
		17100	45.73	-28.27	74	54.87	40.38	16.66	66.18	100	0	P	H
		11400	44.76	-29.24	74	58.5	39.86	12.66	66.26	100	0	P	V
		17100	44.85	-29.15	74	53.99	40.38	16.66	66.18	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)

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 802.11n HT40 CH 102 (5510MHz) and 802.11n HT40 CH 110 (5550MHz).



802.11n HT40 CH 134 5670MHz		5449.75	46.88	-27.12	74	39.15	32.04	8.19	32.5	100	312	P	H
		5463.75	38.54	-15.46	54	30.79	32.06	8.19	32.5	100	312	A	H
	*	5670	103.63	-	-	95.09	32.27	8.83	32.56	100	312	P	H
	*	5670	95.85	-	-	87.31	32.27	8.83	32.56	100	312	A	H
		5746.975	48.93	-25.07	74	40.11	32.34	9.07	32.59	100	312	P	H
		5726.5	41.76	-12.24	54	33.01	32.32	9.01	32.58	100	312	A	H
		5402.85	46.41	-27.59	74	38.88	31.98	8.05	32.5	313	63	P	V
		5459.55	38.41	-15.59	54	30.68	32.04	8.19	32.5	313	63	A	V
	*	5670	99.39	-	-	90.85	32.27	8.83	32.56	313	63	P	V
	*	5670	92.15	-	-	83.61	32.27	8.83	32.56	313	63	A	V
		5751.175	47.34	-26.66	74	38.52	32.34	9.07	32.59	313	63	P	V
		5754.675	40.55	-13.45	54	31.64	32.36	9.14	32.59	313	63	A	V
Remark	<p>1. No other spurious found.</p> <p>2. All results are PASS against Peak and Average limit line.</p>												



Band 3 - 5470~5725MHz
WIFI 802.11n HT40 (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)
802.11n HT40 CH 102		11020	44.31	-29.69	74	58.37	40.09	12.34	66.49	100	0	P	H
		16530	43.73	-30.27	74	55.03	38.88	16.21	66.39	100	0	P	H
5510MHz		11020	44.06	-29.94	74	58.12	40.09	12.34	66.49	100	0	P	V
		16530	43.31	-30.69	74	54.61	38.88	16.21	66.39	100	0	P	V
802.11n HT40 CH 110		11100	43.91	-30.09	74	57.91	40.04	12.4	66.44	100	0	P	H
		16650	43.76	-30.24	74	54.68	39.14	16.31	66.37	100	0	P	H
		11100	44.45	-29.55	74	58.45	40.04	12.4	66.44	100	0	P	V
		16650	43.64	-30.36	74	54.56	39.14	16.31	66.37	100	0	P	V
802.11n HT40 CH 134		11340	45.04	-28.96	74	58.84	39.9	12.6	66.3	100	0	P	H
		17010	43.64	-30.36	74	53.35	39.98	16.59	66.28	100	0	P	H
		11340	44.34	-29.66	74	58.14	39.9	12.6	66.3	100	0	P	V
		17010	44.95	-29.05	74	54.66	39.98	16.59	66.28	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)

Table with 14 columns: WIFI, Note, Frequency, Level, Over, Limit, Read, Antenna, Cable, Preamp, Ant, Table, Peak, Pol. It contains test data for 802.11a CH 144 at 5720MHz and a Remark section.



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 at 11440 and 17160 MHz, and a Remark section.



Band 3 - Straddle Channel
WIFI 802.11n HT20 (Band Edge @ 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 802.11n HT20 CH 144 5720MHz and a Remark section.



Band 3 - Straddle Channel
WIFI 802.11n HT20 (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)
802.11n		11440	45.16	-28.84	74	58.87	39.84	12.69	66.24	100	0	P	H
HT20		17160	44.81	-29.19	74	53.51	40.7	16.7	66.1	100	0	P	H
CH 144		11440	44.04	-29.96	74	57.75	39.84	12.69	66.24	100	0	P	V
5720MHz		17160	44.9	-29.1	74	53.6	40.7	16.7	66.1	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz
WIFI 802.11n HT20 (LF @ 3m)

Table with 14 columns: WIFI, Note, Frequency, Level, Over, Limit, Read, Antenna, Cable, Preamp, Ant, Table, Peak, Pol. It contains 12 rows of test data for 802.11n HT20 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.	
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)

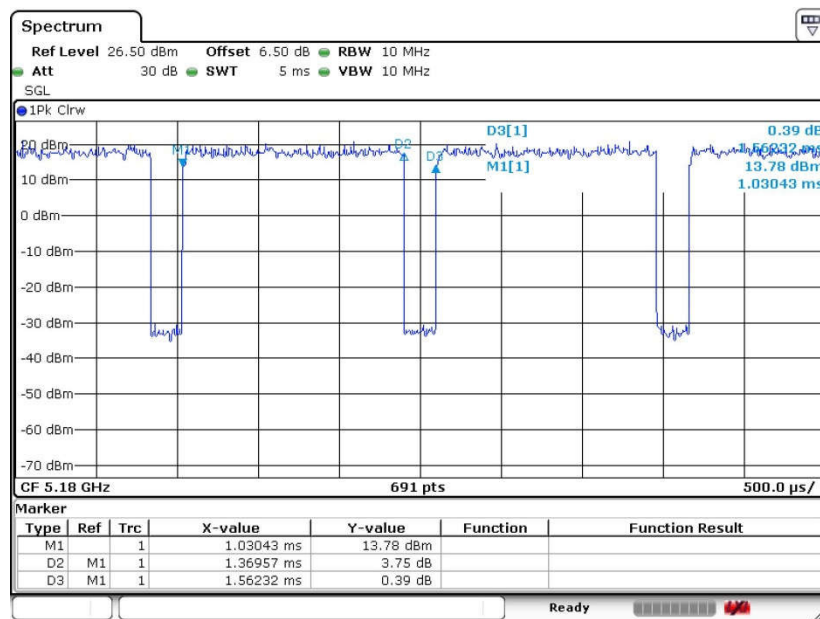
Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix C. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	87.66	1.370	0.730	1 kHz
802.11n HT20	86.09	1.274	0.785	1 kHz
802.11n HT40	86.13	1.233	0.811	1 kHz

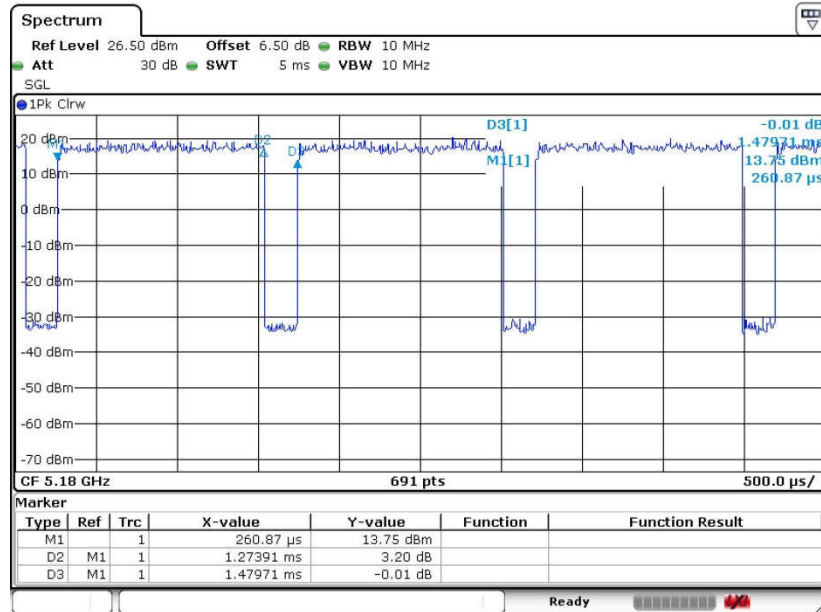
802.11a



Date: 9.JAN.2018 10:37:25

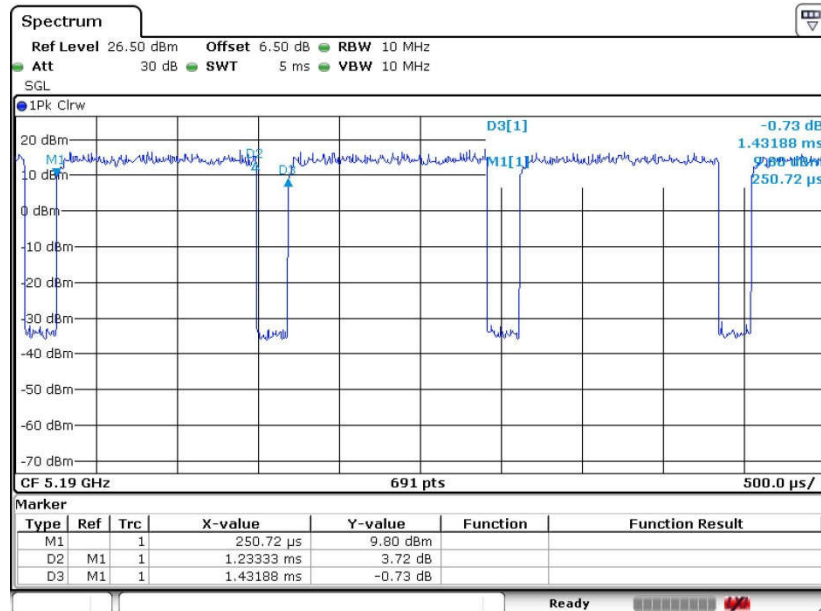


802.11n HT20



Date: 9.JAN.2018 10:44:34

802.11n HT40



Date: 9.JAN.2018 10:53:16