



FCC RF Test Report

APPLICANT : LENOVO (SHANGHAI) ELECTRONICS
TECHNOLOGY CO LTD.
EQUIPMENT : Lenovo Mobile Phone
BRAND NAME : Lenovo
MODEL NAME : Lenovo PB2-670Y
FCC ID : O57PB2670Y
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on May 13, 2016 and testing was completed on Jun. 19, 2016. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	RSS-247 Section 6	6dB, 26dB and 99% Occupied Bandwidth	> 500kHz	Pass	-
3.2	15.407(a)	RSS-247 Section 6	Maximum Conducted Output Power	≤ 30 dBm	Pass	-
3.3	15.407(a)	RSS-247 Section 6	Power Spectral Density	≤ 30 dBm/500kHz	Pass	-
3.4	15.407(b)	RSS-247 Section 6	Unwanted Emissions	15.407(b)(4)(i) ≤ -17, -27 dBm/MHz & 15.209(a)	Pass	Under limit 9.05 dB at 17475.000 MHz
3.5	15.207	RSS-Gen 8.8	AC Conducted Emission	15.207(a)	Pass	Under limit 11.66 dB at 17.940 MHz
3.6	15.407(g)	-	Frequency Stability	Within Operation Band	Pass	-
3.7	15.407(c)	RSS-247 6.4(2)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.203 & 15.407(a)	N/A	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

LENOVO (SHANGHAI) ELECTRONICS TECHNOLOGY CO LTD.

NO 68 BUILDING 199 FENJU RD, CHINA (SHANGHAI) PILOT FREE TRADE ZONE, SHANGHAI, 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	Lenovo Mobile Phone
Brand Name	Lenovo
Model Name	Lenovo PB2-670Y
FCC ID	O57PB2670Y
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/HSPA+/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
IMEI Code	Conducted: NA Radiation: Sample 1:860995030005458/860995030006654 Conduction: Sample 1:860995030006266/860995030007462 Sample 2:860995030005292/860995030006498
HW Version	LenovoPad PB2_670Y
SW Version	PB2-670Y_160904
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 Channel Frequency Range	5745 MHz ~ 5825 MHz
Maximum Output Power	802.11a : 15.55 dBm / 0.0359 W 802.11n HT20 : 14.47 dBm / 0.0280 W 802.11n HT40 : 14.64 dBm / 0.0291 W 802.11ac VHT20: 11.40 dBm / 0.0138 W 802.11ac VHT40: 11.50 dBm / 0.0141 W 802.11ac VHT80: 11.21 dBm / 0.0132 W
99% Occupied Bandwidth	802.11a : 17.88 MHz 802.11n HT20 : 18.48 MHz 802.11n HT40 : 36.86 MHz 802.11ac VHT20 : 18.03 MHz 802.11ac VHT40 : 36.26 MHz 802.11ac VHT80 : 75.04 MHz
Antenna Type / Gain	PIFA Antenna with gain -5.00 dBi
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)

1.5 Component List

Note: There are two types of EUT, the details refer the following table. According to the difference, we evaluate is not affect RF performance, so only choose sample 1 to perform RF test.

Component	Sample 1	Sample 2
LCM	Tianma	Oflim
	TL064VVXP02-00IPS(Golden)	MCF-065-2517-02 IPS(Golden)
	TL064VVXP01-00IPS(Black)	MCF-065-2517-01 IPS(Black)
Back_camera	Sunny Y13S03A-200	GuangBao 2-52-13147-00A
Battery	SUCD+ATL L16D1P32	XWD+Coslight L16D1P32

1.6 Modification of EUT

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



1.7 Testing Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.	
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958	
Test Site No.	Sporton Site No.	
	TH01-KS	CO01-KS

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.	
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755- 3320-2398	
Test Site No.	Sporton Site No.	FCC/IC Registration No.
	03CH03-SZ	565805/4086F

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

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 v01r02
- ♦ ANSI C63.10-2013
- ♦ IC RSS-247 Issue 1
- ♦ IC RSS-Gen Issue 4

Remark:

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



2 Test Configuration of Equipment Under Test

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

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4 (U-NII-3)	149	5745	157	5785
	151	5755	159	5795
	153	5765	161	5805
	155	5775	165	5825

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



2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and data rate associated with the highest power were chosen for full test in the following tables.

WLAN 5GHz 802.11a Average Power (dBm)										
Power vs. Channel			Power vs. Data Rate							
Channel	Frequency (MHz)	Data Rate	Channel	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps								
CH 149	5745	15.33	CH 165	15.49	15.46	15.49	15.51	15.45	15.32	15.33
CH 157	5785	15.28								
CH 165	5825	15.55								

WLAN 5GHz 802.11n-HT20 Average Power (dBm)										
Power vs. Channel			Power vs. Data Rate							
Channel	Frequency (MHz)	MCS Index	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
		MCS0								
CH 149	5745	14.27	CH 165	14.28	14.24	14.32	14.44	14.33	14.26	14.43
CH 157	5785	14.16								
CH 165	5825	14.47								

WLAN 5GHz 802.11n-HT40 Average Power (dBm)										
Power vs. Channel			Power vs. Data Rate							
Channel	Frequency (MHz)	MCS Index	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
		MCS0								
CH 151	5755	14.64	CH 151	14.60	14.46	14.49	14.41	14.44	14.42	14.23
CH 159	5795	14.36								

WLAN 5GHz 802.11ac VHT20 Average Power (dBm)											
Power vs. Channel			Power vs. Data Rate								
Channel	Frequency (MHz)	MCS Index	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
		MCS0									
CH 149	5745	11.15	CH 165	11.32	11.25	11.35	11.29	11.23	11.26	11.15	11.05
CH 157	5785	11.25									
CH 165	5825	11.40									

WLAN 5GHz 802.11ac VHT40 Average Power (dBm)												
Power vs. Channel			Power vs. Data Rate									
Channel	Frequency (MHz)	MCS Index	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
		MCS0										
CH 151	5755	11.50	CH 151	11.42	11.33	11.39	11.21	11.24	11.12	11.18	11.01	10.90
CH 159	5795	11.26										

WLAN 5GHz 802.11n-HT80 Average Power (dBm)												
Power vs. Channel			Power vs. Data Rate									
Channel	Frequency (MHz)	MCS Index	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
		MCS0										
CH 155	5775	11.21	CH 155	11.08	11.07	10.97	10.83	11.06	10.87	10.91	11.11	10.99



2.3 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
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

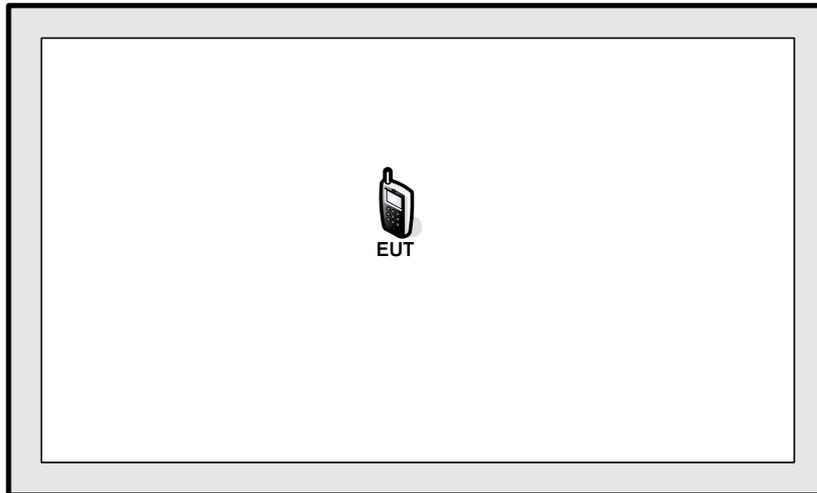
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link (5GHz) + Earphone + USB Cable (Charging from Adapter 1) + Battery 1 + SIM1 for Sample 1
	Mode 2 : GSM850 Idle + Bluetooth Link + WLAN Link (5GHz) + Earphone + USB Cable (Charging from Adapter 2) + Battery 2 + SIM1 for Sample 2
Remark:	
1. For Radiated TCs, the tests were performed with Adapter 1, Earphone, Battery 1, SIM1 and USB Cable for Sample 1.	
2. The worst case of conducted emission is mode 2; only the test data of it was reported.	

Ch. #	Band IV : 5725-5850 MHz		
	802.11a	802.11n HT20	802.11n HT40
L Low	149	149	151
M Middle	157	157	-
H High	165	165	159

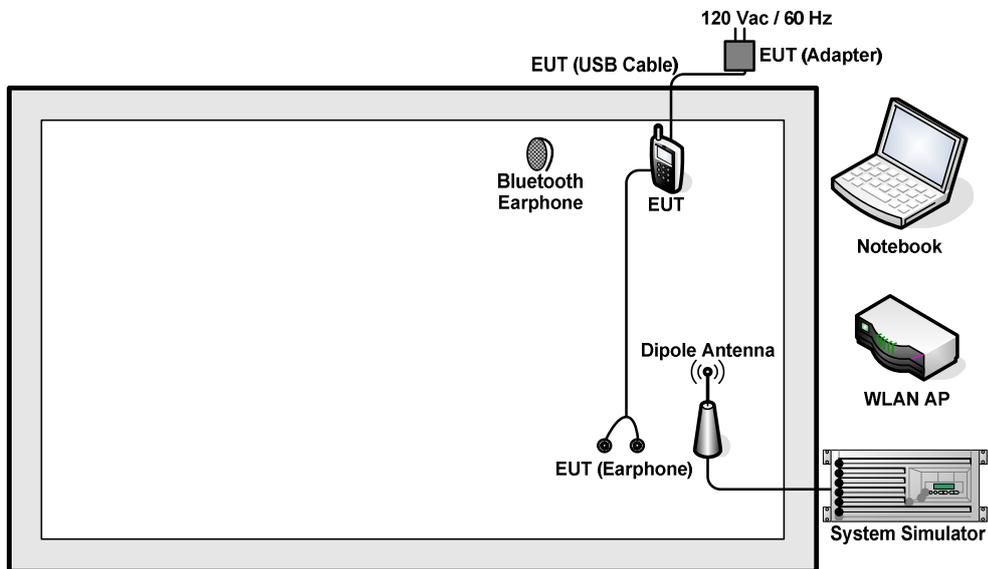
Ch. #	Band IV : 5725-5850 MHz		
	802.11ac VHT20	802.11ac VHT40	802.11ac VHT80
L Low	149	151	-
M Middle	157	-	155
H High	165	159	-

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>





2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
2.	WLAN AP	LINKSYS	WRT600N	Q87-WRT600NV11	N/A	Unshielded, 1.8 m
3.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Lenovo	LBH 505	N/A	N/A	N/A
5.	DC Power Supply	GW INSTEK	GPD-2303S	N/A	N/A	Unshielded, 1.8 m

2.6 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.



2.7 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 7.0 dB.

Offset (dB) = RF cable loss(dB).
= 7.0 (dB)

3 Test Result

3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

3.1.1 Description of 6dB and 26dB and 99% Occupied Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

26dB and 99% Occupied bandwidth are reporting only.

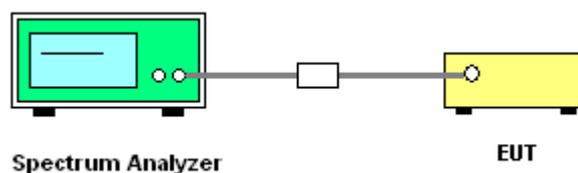
3.1.2 Measuring Instruments

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 v01r02.
Section C) Emission bandwidth for the band 5.725-5.85GHz
2. Set RBW = 100kHz.
3. Set the VBW $\geq 3 \times$ RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
7. Measure and record the results in the test report.

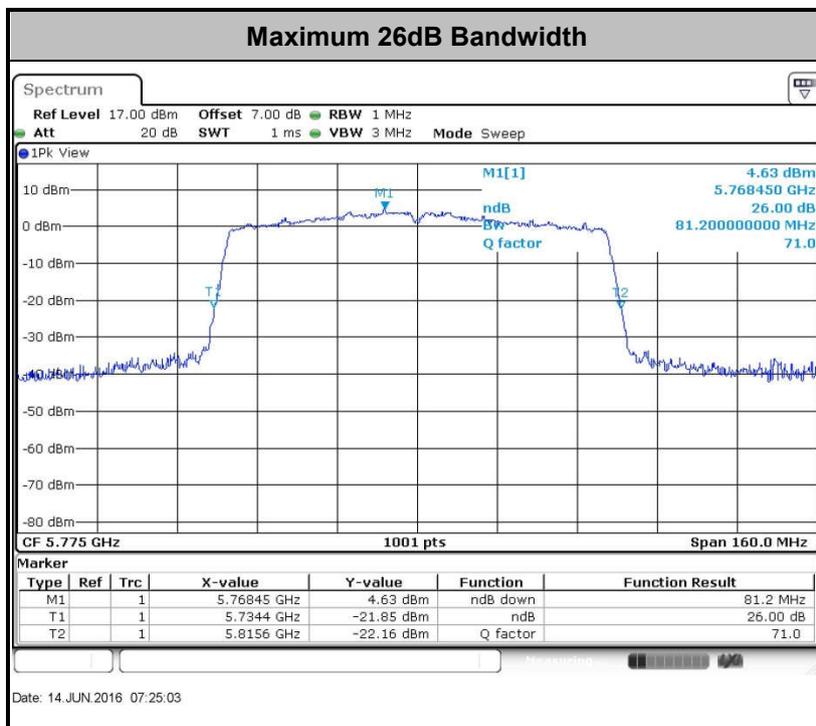
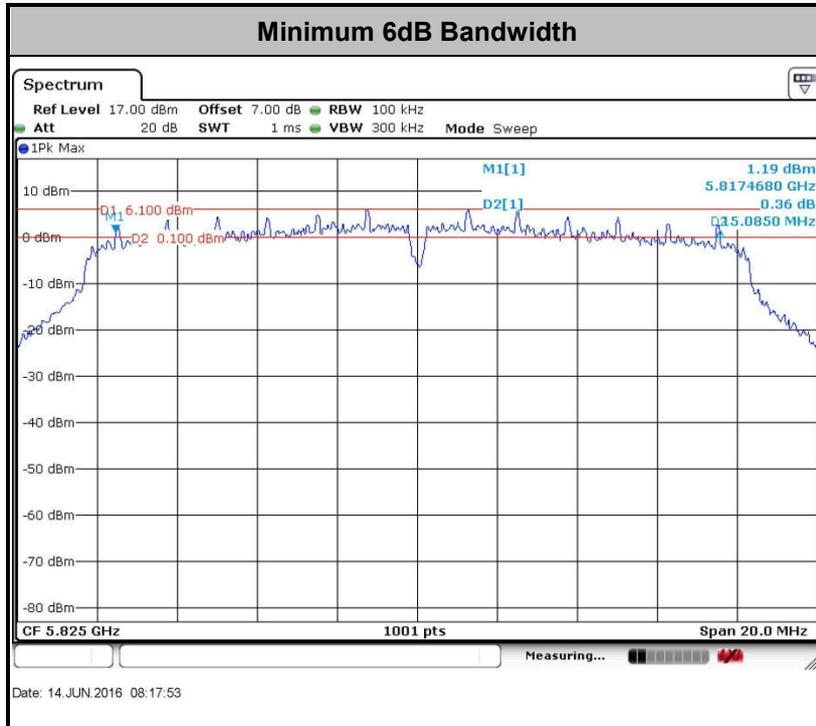
3.1.4 Test Setup

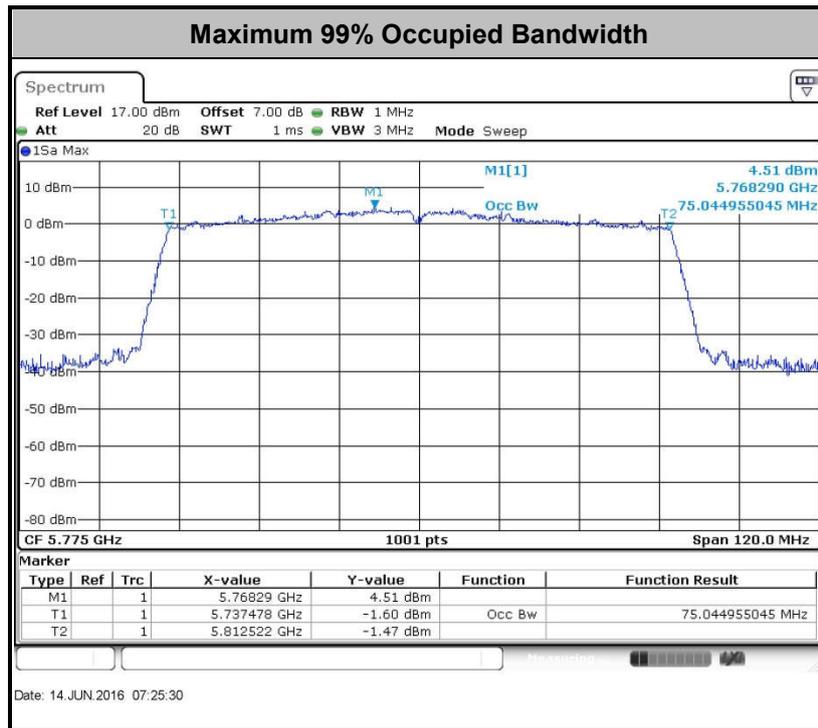




3.1.5 Test Result of 6dB Bandwidth

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

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

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.

3.2.2 Measuring Instruments

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

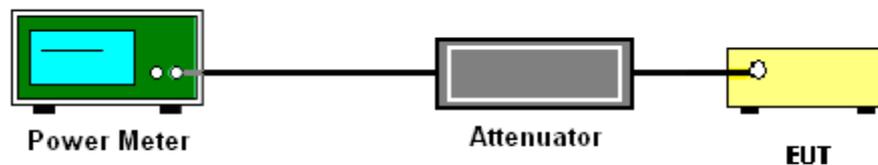
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02.

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

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz 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 v01r02. Section F) Maximum power spectral density.

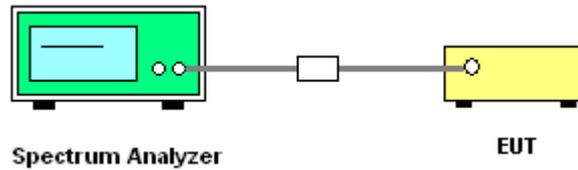
Method SA-2

(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 v01r02.
 - Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 300 kHz.
 - Set VBW \geq 1 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 $10 \log(500\text{kHz}/\text{RBW})$ to the test result.
 - 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.

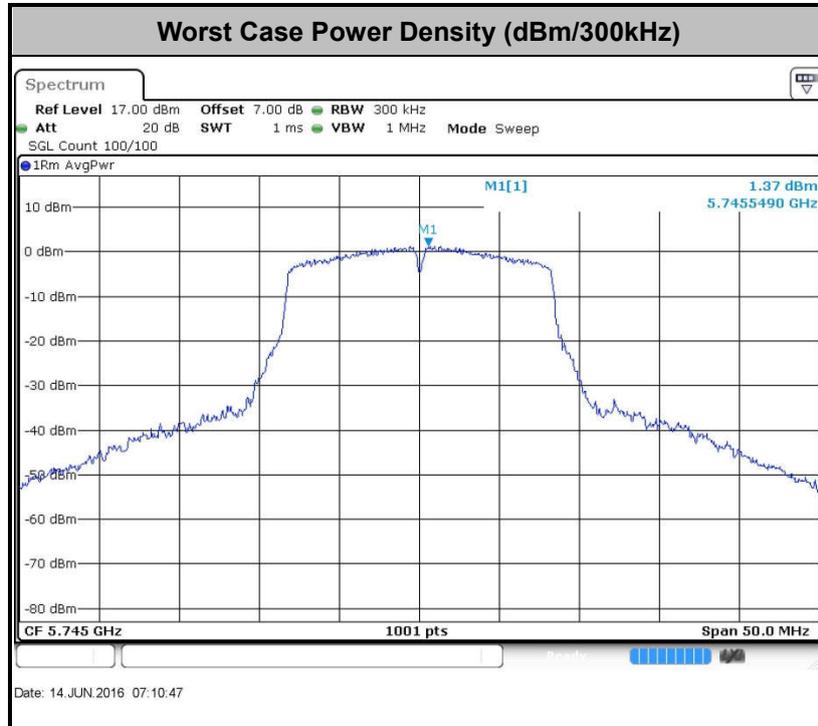
3.3.4 Test Setup





3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.





3.4 Unwanted Emissions Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part15.205.

3.4.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5.725-5.85 GHz band:
15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
- (2) For transmitters operating in the 5725-5850 MHz band:
all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz (78.3dBμV/m); for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz (68.3dBμV/m).
- (3) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

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

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

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

EIRP (dBm)	Field Strength at 3m (dBμV/m)
-17	78.3
- 27	68.3



- (4) KDB 789033 D02 General UNII Test Procedures New Rules v01r02 G)2)c) As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.



3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02. 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

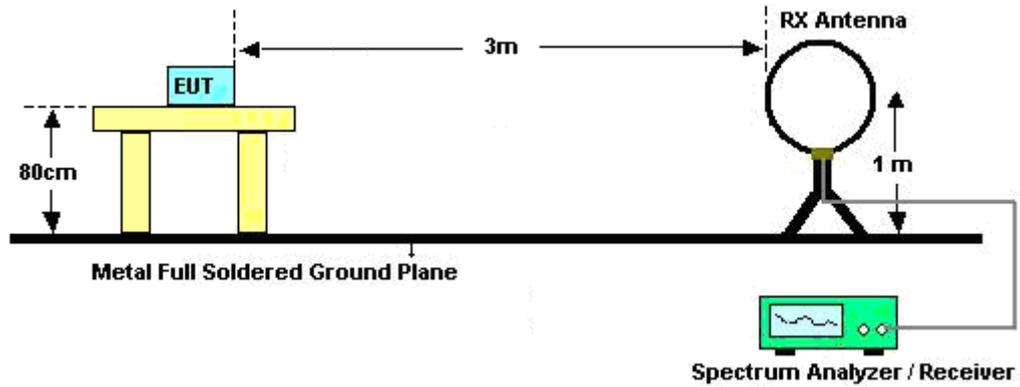
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.



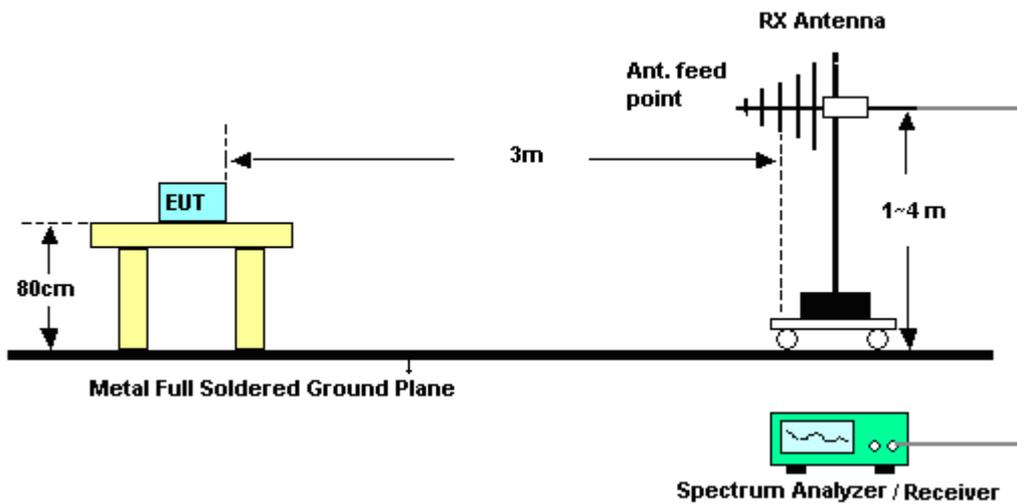
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband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

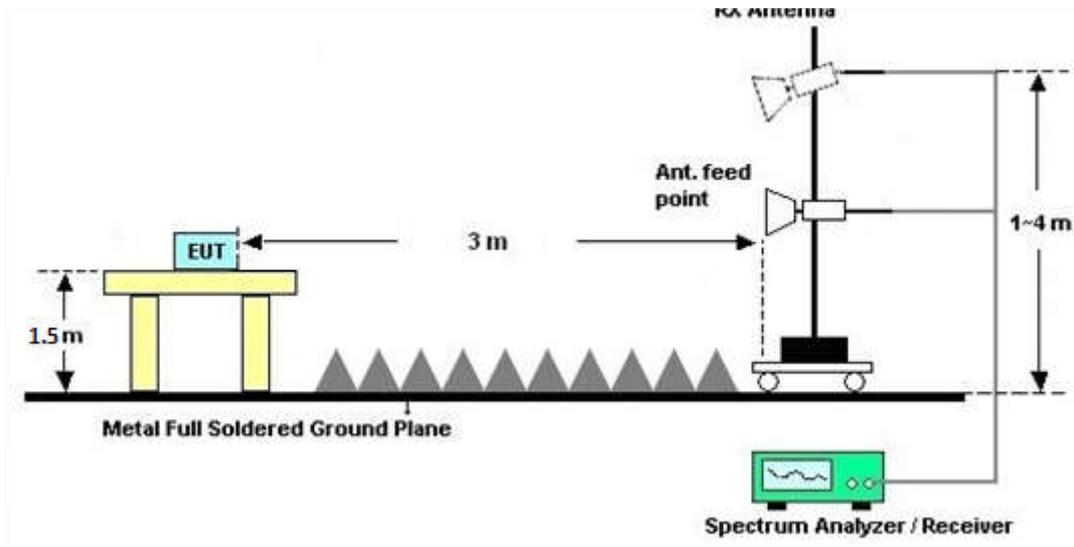
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.4.6 Test Result of Radiated Band Edges

Please refer to Appendix B.

3.4.7 Duty Cycle

Please refer to Appendix C.

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

Please refer to Appendix B.



3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

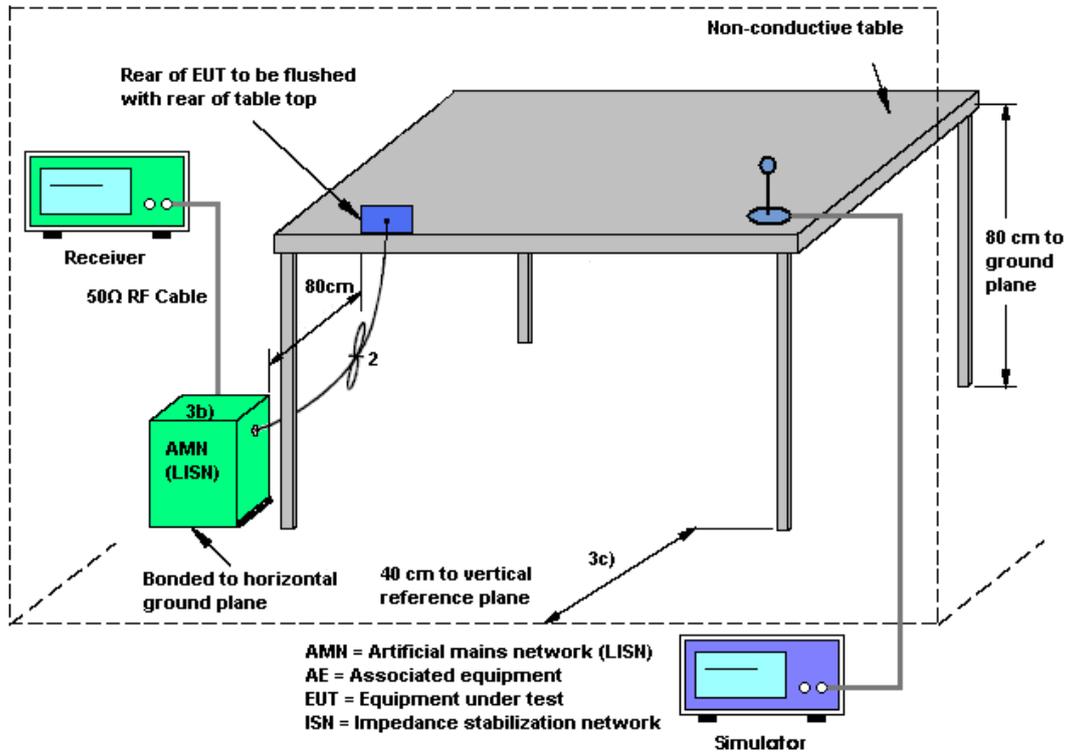
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

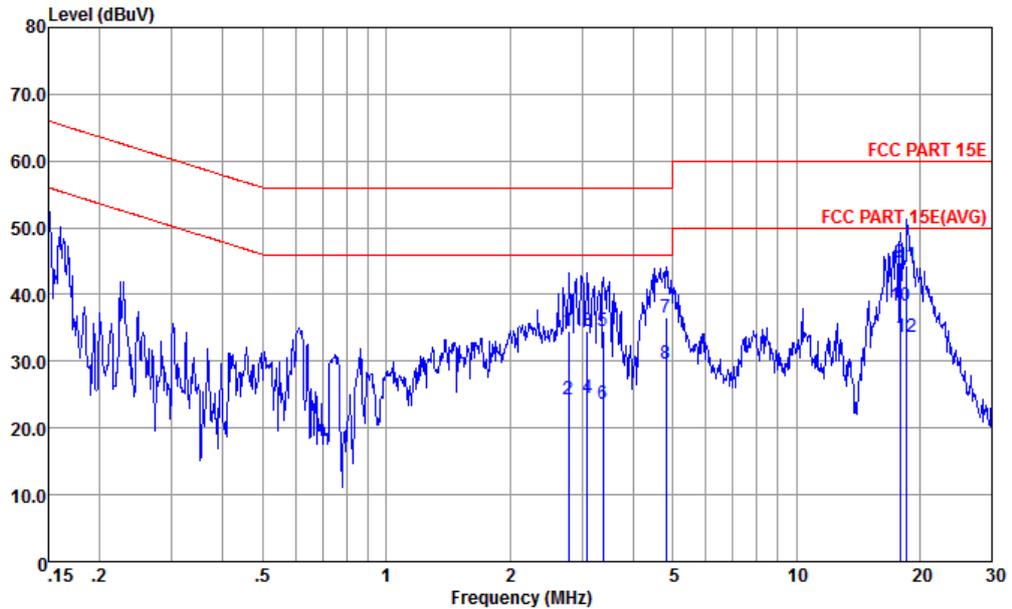
3.5.4 Test Setup





3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode 2	Temperature :	22~24°C
Test Engineer :	Amos Zhang	Relative Humidity :	43~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link (5GHz) + Earphone + USB Cable (Charging from Adapter 2) + Battery 2 + SIM1 for Sample 2		

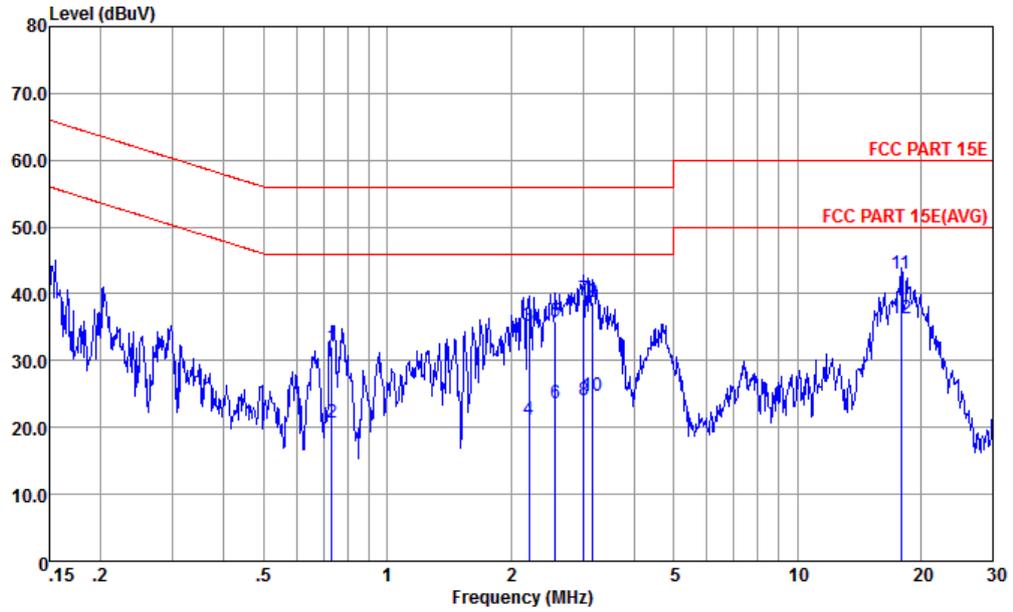


Site : CO01-KS
 Condition : FCC PART 15E LISN-L-20151024 LINE
 mode : Mode 2
 : 860995030005292/860995030006498 #9

	Freq	Level	Over Limit	Limit	Read	LISN	Cable	Remark
	MHz	dBuV		dB	dBuV	dB	dB	
1	2.78	34.63	-21.37	56.00	24.30	0.18	10.15	QP
2	2.78	24.23	-21.77	46.00	13.90	0.18	10.15	Average
3	3.09	34.54	-21.46	56.00	24.21	0.18	10.15	QP
4	3.09	24.44	-21.56	46.00	14.11	0.18	10.15	Average
5	3.38	34.64	-21.36	56.00	24.29	0.19	10.16	QP
6	3.38	23.64	-22.36	46.00	13.29	0.19	10.16	Average
7	4.82	36.57	-19.43	56.00	26.20	0.19	10.18	QP
8	4.82	29.67	-16.33	46.00	19.30	0.19	10.18	Average
9	17.94	44.84	-15.16	60.00	34.10	0.27	10.47	QP
10 *	17.94	38.34	-11.66	50.00	27.60	0.27	10.47	Average
11	18.62	44.36	-15.64	60.00	33.59	0.27	10.50	QP
12	18.62	33.66	-16.34	50.00	22.89	0.27	10.50	Average



Test Mode :	Mode 2	Temperature :	22~24°C
Test Engineer :	Amos Zhang	Relative Humidity :	43~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link (5GHz) + Earphone + USB Cable (Charging from Adapter 2) + Battery 2 + SIM1 for Sample 2		



Site : CO01-KS
Condition : FCC PART 15E LISN-N-20151024 NEUTRAL

mode : Mode 2
: 860995030005292/860995030006498 #9

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.73	32.09	-23.91	56.00	21.60	0.34	10.15	QP
2	0.73	20.79	-25.21	46.00	10.30	0.34	10.15	Average
3	2.21	35.12	-20.88	56.00	24.60	0.38	10.14	QP
4	2.21	21.12	-24.88	46.00	10.60	0.38	10.14	Average
5	2.57	35.82	-20.18	56.00	25.30	0.37	10.15	QP
6	2.57	23.72	-22.28	46.00	13.20	0.37	10.15	Average
7	3.01	39.13	-16.87	56.00	28.61	0.37	10.15	QP
8	3.01	24.13	-21.87	46.00	13.61	0.37	10.15	Average
9	3.17	38.73	-17.27	56.00	28.20	0.37	10.16	QP
10	3.17	24.83	-21.17	46.00	14.30	0.37	10.16	Average
11	17.94	42.93	-17.07	60.00	32.20	0.26	10.47	QP
12 *	17.94	36.33	-13.67	50.00	25.60	0.26	10.47	Average

3.6 Frequency Stability Measurement

3.6.1 Limit of Frequency Stability

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

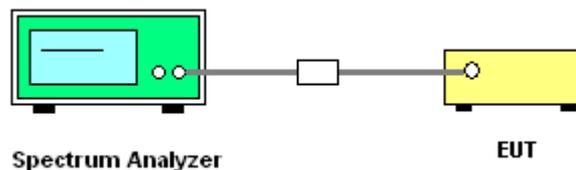
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

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

3.6.4 Test Setup



3.6.5 Test Result of Frequency Stability

Please refer to Appendix A.



3.7 Automatically Discontinue Transmission

3.7.1 Limit of Automatically Discontinue Transmission

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

3.7.2 Measuring Instruments

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

3.7.3 Test Result of Automatically Discontinue Transmission

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



3.8 Antenna Requirements

3.8.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,if transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.8.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.8.3 Antenna Gain

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



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	Sep. 10, 2015	Jun. 14, 2016~ Jun. 20, 2016	Sep. 09, 2016	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Oct. 24, 2015	Jun. 14, 2016~ Jun. 20, 2016	Oct. 23, 2016	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	30MHz~40GHz	Jan. 20, 2016	Jun. 14, 2016~ Jun. 20, 2016	Jan. 19, 2017	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 20, 2016	Jun. 14, 2016~ Jun. 20, 2016	Jan. 19, 2017	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Oct. 24, 2015	Jun. 14, 2016~ Jun. 20, 2016	Oct. 23, 2016	Conducted (TH01-KS)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	May 07, 2016	Jun. 19, 2016~ Jun. 20, 2016	May 06, 2017	Radiation (03CH03-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	May 07, 2016	Jun. 19, 2016~ Jun. 20, 2016	May 06, 2017	Radiation (03CH03-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 07, 2016	Jun. 19, 2016~ Jun. 20, 2016	May 06, 2017	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz~2GHz	May 21, 2016	Jun. 19, 2016~ Jun. 20, 2016	May 20, 2017	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	May 07, 2016	Jun. 19, 2016~ Jun. 20, 2016	May 06, 2017	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Aug. 19, 2015	Jun. 19, 2016~ Jun. 20, 2016	Aug. 18, 2016	Radiation (03CH03-SZ)
Amplifier	PREAMPLIFIER	BPA-530	102210	0.01Hz~3000MHz	Oct. 20, 2015	Jun. 19, 2016~ Jun. 20, 2016	Oct. 19, 2016	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Jan. 12, 2016	Jun. 19, 2016~ Jun. 20, 2016	Jan. 11, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 18, 2015	Jun. 19, 2016~ Jun. 20, 2016	Jul. 17, 2016	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Jun. 19, 2016~ Jun. 20, 2016	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jun. 19, 2016~ Jun. 20, 2016	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jun. 19, 2016~ Jun. 20, 2016	NCR	Radiation (03CH03-SZ)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Sep. 10, 2015	Jun. 03, 2016	Sep. 09, 2016	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 24, 2015	Jun. 03, 2016	Oct. 23, 2016	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 24, 2015	Jun. 03, 2016	Oct. 23, 2016	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 24, 2015	Jun. 03, 2016	Oct. 23, 2016	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% ($U = 2Uc(y)$)	5.0dB
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Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.8dB
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Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

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

Test Engineer:	Ivan Zhang	Temperature:	24~25	°C
Test Date:	2016/6/14~2016/6/20	Relative Humidity:	54~55	%

TEST RESULTS DATA
6dB and 26dB EBW and 99% OBW

Band IV									
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	6 dB Bandwidth (MHz)	6dB Bandwidth min. Limit (MHz)	Pass/Fail
11a	6M bps	1	149	5745	17.83	21.48	15.13	0.5	Pass
11a	6Mbps	1	157	5785	17.88	21.58	15.11	0.5	Pass
11a	6Mbps	1	165	5825	17.73	21.03	15.09	0.5	Pass
HT20	MCS 0	1	149	5745	18.38	21.63	15.13	0.5	Pass
HT20	MCS 0	1	157	5785	18.48	21.48	15.11	0.5	Pass
HT20	MCS 0	1	165	5825	18.18	21.38	15.09	0.5	Pass
HT40	MCS 0	1	151	5755	36.46	41.54	35.05	0.5	Pass
HT40	MCS 0	1	159	5795	36.86	42.89	35.09	0.5	Pass
VHT20	MCS 0	1	149	5745	18.03	21.33	15.13	0.5	Pass
VHT20	MCS 0	1	157	5785	17.98	21.38	15.11	0.5	Pass
VHT20	MCS 0	1	165	5825	17.93	21.33	15.09	0.5	Pass
VHT40	MCS 0	1	151	5755	36.06	41.54	35.05	0.5	Pass
VHT40	MCS 0	1	159	5795	36.26	41.81	35.13	0.5	Pass
VHT80	MCS 0	1	155	5775	75.04	81.20	75.05	0.5	Pass

TEST RESULTS DATA
Average Power Table

Band IV										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
11a	6M bps	1	149	5745	0.33	15.33	30.00	-5.00		Pass
11a	6Mbps	1	157	5785	0.33	15.28	30.00	-5.00		Pass
11a	6Mbps	1	165	5825	0.33	15.55	30.00	-5.00		Pass
HT20	MCS 0	1	149	5745	0.35	14.27	30.00	-5.00		Pass
HT20	MCS 0	1	157	5785	0.35	14.16	30.00	-5.00		Pass
HT20	MCS 0	1	165	5825	0.35	14.47	30.00	-5.00		Pass
HT40	MCS 0	1	151	5755	0.68	14.64	30.00	-5.00		Pass
HT40	MCS 0	1	159	5795	0.68	14.36	30.00	-5.00		Pass
VHT20	MCS 0	1	149	5745	0.34	11.15	30.00	-5.00		Pass
VHT20	MCS 0	1	157	5785	0.34	11.25	30.00	-5.00		Pass
VHT20	MCS 0	1	165	5825	0.34	11.40	30.00	-5.00		Pass
VHT40	MCS 0	1	151	5755	0.66	11.50	30.00	-5.00		Pass
VHT40	MCS 0	1	159	5795	0.66	11.26	30.00	-5.00		Pass
VHT80	MCS 0	1	155	5775	1.25	11.21	30.00	-5.00		Pass

TEST RESULTS DATA
Power Spectral Density

Band IV										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	10log (500kHz /RBW) Factor (dB)	Average Power Density (dBm/500kHz)	Average PSD Limit (dBm/500kHz)	DG (dBi)	Pass/Fail
11a	6M bps	1	149	5745	0.33	2.22	3.92	30.00	-5.00	Pass
11a	6Mbps	1	157	5785	0.33	2.22	3.45	30.00	-5.00	Pass
11a	6Mbps	1	165	5825	0.33	2.22	3.80	30.00	-5.00	Pass
HT20	MCS 0	1	149	5745	0.35	2.22	2.56	30.00	-5.00	Pass
HT20	MCS 0	1	157	5785	0.35	2.22	2.04	30.00	-5.00	Pass
HT20	MCS 0	1	165	5825	0.35	2.22	2.52	30.00	-5.00	Pass
HT40	MCS 0	1	151	5755	0.68	2.22	0.61	30.00	-5.00	Pass
HT40	MCS 0	1	159	5795	0.68	2.22	-0.49	30.00	-5.00	Pass
VHT20	MCS 0	1	149	5745	0.34	2.22	-0.35	30.00	-5.00	Pass
VHT20	MCS 0	1	157	5785	0.34	2.22	-0.73	30.00	-5.00	Pass
VHT20	MCS 0	1	165	5825	0.34	2.22	-0.66	30.00	-5.00	Pass
VHT40	MCS 0	1	151	5755	0.66	2.22	-2.94	30.00	-5.00	Pass
VHT40	MCS 0	1	159	5795	0.66	2.22	-3.57	30.00	-5.00	Pass
VHT80	MCS 0	1	155	5775	1.25	2.22	-5.48	30.00	-5.00	Pass

TEST RESULTS DATA
Frequency Stability

Band IV										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6M bps	1	149	5745	5745.025	0.025	4.35	20	3.7	
11a	6M bps	1	149	5745	5745.025	0.025	4.35	20	4.2	
11a	6M bps	1	149	5745	5745.025	0.025	4.35	20	3.8	
11a	6M bps	1	149	5745	5745.025	0.025	4.35	-30	3.8	
11a	6M bps	1	149	5745	5745.025	0.025	4.35	50	3.8	



Appendix B. Radiated Spurious Emission

Band 4 - 5725~5850MHz 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 149 5745MHz		5634	47.43	-20.87	68.3	41.43	32.22	7.27	33.49	150	265	P	H
		5699	47.47	-57.09	104.56	41.32	32.3	7.36	33.51	150	265	P	H
		5719.6	51.19	-59.6	110.79	44.99	32.36	7.36	33.52	150	265	P	H
		5723.2	55.6	-62.6	118.2	49.4	32.36	7.36	33.52	150	265	P	H
		5745	100.87	-	-	94.6	32.39	7.41	33.53	150	265	P	H
		5745	93.44	-	-	87.17	32.39	7.41	33.53	150	265	A	H
		5608	44.22	-24.08	68.3	38.27	32.17	7.27	33.49	174	60	P	V
		5690.8	45.93	-52.59	98.52	39.78	32.3	7.36	33.51	174	60	P	V
		5718.6	45.24	-65.27	110.51	39.04	32.36	7.36	33.52	174	60	P	V
		5725	47.96	-74.34	122.3	41.76	32.36	7.36	33.52	174	60	P	V
		5745	89.91	-	-	83.64	32.39	7.41	33.53	174	60	P	V
		5745	82.77	-	-	76.5	32.39	7.41	33.53	174	60	A	V
802.11a CH 157 5785MHz		5621.8	47.73	-20.57	68.3	41.76	32.19	7.27	33.49	153	276	P	H
		5692.6	46.73	-53.11	99.84	40.58	32.3	7.36	33.51	153	276	P	H
		5718	45.66	-64.68	110.34	39.46	32.36	7.36	33.52	153	276	P	H
		5724.2	45.4	-75.08	120.48	39.2	32.36	7.36	33.52	153	276	P	H
		5785	100.59	-	-	94.24	32.44	7.45	33.54	153	276	P	H
		5785	92.15	-	-	85.8	32.44	7.45	33.54	153	276	A	H
		5851.4	46.14	-72.97	119.11	39.64	32.55	7.51	33.56	153	276	P	H
		5866.4	47.35	-60.36	107.71	40.82	32.58	7.51	33.56	153	276	P	H
		5882.2	46.85	-53.1	99.95	40.29	32.61	7.51	33.56	153	276	P	H
		5935.2	47.08	-21.22	68.3	40.41	32.69	7.56	33.58	153	276	P	H
		5604.8	47.07	-21.23	68.3	41.16	32.17	7.23	33.49	177	58	P	V
		5668.6	47.32	-34.78	82.1	41.22	32.28	7.32	33.5	177	58	P	V
		5707.6	45.94	-61.49	107.43	39.77	32.33	7.36	33.52	177	58	P	V
		5720.2	46.88	-64.48	111.36	40.68	32.36	7.36	33.52	177	58	P	V
	5785	90.9	-	-	84.55	32.44	7.45	33.54	177	58	P	V	



		5785	84.15	-	-	77.8	32.44	7.45	33.54	177	58	A	V
		5850.2	44.98	-76.86	121.84	38.48	32.55	7.51	33.56	177	58	P	V
		5873.8	47.01	-58.63	105.64	40.45	32.61	7.51	33.56	177	58	P	V
		5881.6	47.64	-52.76	100.4	41.08	32.61	7.51	33.56	177	58	P	V
		5927	46.54	-21.76	68.3	39.87	32.69	7.56	33.58	177	58	P	V
802.11a CH 165 5825MHz		5825	100.25	-	-	93.8	32.52	7.48	33.55	150	243	P	H
		5825	92.61	-	-	86.16	32.52	7.48	33.55	150	243	A	H
		5851.4	54.75	-64.36	119.11	48.25	32.55	7.51	33.56	150	243	P	H
		5855	50.53	-60.37	110.9	44	32.58	7.51	33.56	150	243	P	H
		5912.4	47.95	-29.64	77.59	41.34	32.66	7.53	33.58	150	243	P	H
		5946.2	46.52	-21.78	68.3	39.82	32.72	7.56	33.58	150	243	P	H
		5825	90.08	-	-	83.63	32.52	7.48	33.55	161	59	P	V
		5825	83.35	-	-	76.9	32.52	7.48	33.55	161	59	A	V
		5851.4	45.22	-73.89	119.11	38.72	32.55	7.51	33.56	161	59	P	V
		5869	45.7	-61.28	106.98	39.17	32.58	7.51	33.56	161	59	P	V
		5918	45.09	-28.37	73.46	38.48	32.66	7.53	33.58	161	59	P	V
		5937.2	45.65	-22.65	68.3	38.98	32.69	7.56	33.58	161	59	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

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 149 5745MHz		11490	48.33	-25.67	74	57.97	39.06	11.05	59.75	250	0	P	H
		17235	53.57	-14.73	68.3	55.78	41.39	14.65	58.25	150	0	P	H
		11490	47.94	-26.06	74	57.58	39.06	11.05	59.75	250	0	P	V
		17235	54.41	-13.89	68.3	56.62	41.39	14.65	58.25	150	117	P	V
802.11a CH 157 5785MHz		11570	49.15	-24.85	74	58.99	38.98	11.01	59.83	250	0	P	H
		17355	55.99	-12.31	68.3	56.83	42.18	14.78	57.8	150	0	P	H
		11570	48.22	-25.78	74	58.06	38.98	11.01	59.83	250	0	P	V
		17355	56.59	-11.71	68.3	57.43	42.18	14.78	57.8	150	0	P	V
802.11a CH 165 5825MHz		11650	47.65	-26.35	74	57.66	38.92	10.97	59.9	250	0	P	H
		17475	57.35	-10.95	68.3	56.82	42.98	14.9	57.35	150	0	P	H
		11650	47.78	-26.22	74	57.79	38.92	10.97	59.9	250	0	P	V
		17475	59.25	-9.05	68.3	58.72	42.98	14.9	57.35	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz
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 149 5745MHz		5624.6	46.31	-21.99	68.3	40.34	32.19	7.27	33.49	172	244	P	H
		5660.2	46.84	-29.03	75.87	40.77	32.25	7.32	33.5	172	244	P	H
		5714	53.31	-55.91	109.22	47.14	32.33	7.36	33.52	172	244	P	H
		5725	60.79	-61.51	122.3	54.59	32.36	7.36	33.52	172	244	P	H
		5745	99.87	-	-	93.6	32.39	7.41	33.53	172	244	P	H
		5745	92.77	-	-	86.5	32.39	7.41	33.53	172	244	A	H
		5636	44.41	-23.89	68.3	38.41	32.22	7.27	33.49	165	61	P	V
		5690	44.98	-52.95	97.93	38.83	32.3	7.36	33.51	165	61	P	V
		5716.2	45.11	-64.73	109.84	38.94	32.33	7.36	33.52	165	61	P	V
		5724.8	47.7	-74.14	121.84	41.5	32.36	7.36	33.52	165	61	P	V
		5745	89.44	-	-	83.17	32.39	7.41	33.53	165	61	P	V
	5745	82.47	-	-	76.2	32.39	7.41	33.53	165	61	A	V	
802.11n HT20 CH 157 5785MHz		5625.4	47.72	-20.58	68.3	41.75	32.19	7.27	33.49	177	247	P	H
		5664.6	47.64	-31.5	79.14	41.57	32.25	7.32	33.5	177	247	P	H
		5708.6	47.9	-59.81	107.71	41.73	32.33	7.36	33.52	177	247	P	H
		5720.4	46.48	-65.33	111.81	40.28	32.36	7.36	33.52	177	247	P	H
		5785	100.16	-	-	93.81	32.44	7.45	33.54	177	247	P	H
		5785	93.15	-	-	86.8	32.44	7.45	33.54	177	247	A	H
		5854.8	47.21	-64.15	111.36	40.68	32.58	7.51	33.56	177	247	P	H
		5856	47.63	-62.99	110.62	41.1	32.58	7.51	33.56	177	247	P	H
		5883.4	47.38	-51.68	99.06	40.83	32.61	7.51	33.57	177	247	P	H
		5950	47.97	-20.33	68.3	41.27	32.72	7.56	33.58	177	247	P	H
		5600.4	44.42	-23.88	68.3	38.5	32.17	7.23	33.48	150	59	P	V
		5684.8	44.64	-49.45	94.09	38.53	32.3	7.32	33.51	150	59	P	V
		5715.2	43.97	-65.59	109.56	37.8	32.33	7.36	33.52	150	59	P	V
		5723.2	44.17	-74.03	118.2	37.97	32.36	7.36	33.52	150	59	P	V
		5785	89.52	-	-	83.17	32.44	7.45	33.54	150	59	P	V
	5785	80.16	-	-	73.81	32.44	7.45	33.54	150	59	A	V	
	5853	44.57	-70.89	115.46	38.07	32.55	7.51	33.56	150	59	P	V	
	5869	44.72	-62.26	106.98	38.19	32.58	7.51	33.56	150	59	P	V	



		5877.8	45.28	-57.94	103.22	38.72	32.61	7.51	33.56	150	59	P	V
		5943	44.83	-23.47	68.3	38.13	32.72	7.56	33.58	150	59	P	V
802.11n HT20 CH 165 5825MHz		5825	100.63	-	-	94.18	32.52	7.48	33.55	150	268	P	H
		5825	91.13	-	-	84.68	32.52	7.48	33.55	150	268	A	H
		5850.2	56.08	-65.76	121.84	49.58	32.55	7.51	33.56	150	268	P	H
		5855.2	50.22	-60.62	110.84	43.69	32.58	7.51	33.56	150	268	P	H
		5893.6	47.26	-44.24	91.5	40.67	32.63	7.53	33.57	150	268	P	H
		5938.2	47.37	-20.93	68.3	40.7	32.69	7.56	33.58	150	268	P	H
		5825	89.01	-	-	82.56	32.52	7.48	33.55	172	298	P	V
		5825	79.45	-	-	73	32.52	7.48	33.55	172	298	A	V
		5851.8	45.95	-72.25	118.2	39.45	32.55	7.51	33.56	172	298	P	V
		5866	44.73	-63.09	107.82	38.2	32.58	7.51	33.56	172	298	P	V
		5878	45.08	-57.99	103.07	38.52	32.61	7.51	33.56	172	298	P	V
		5938.6	45.4	-22.9	68.3	38.7	32.72	7.56	33.58	172	298	P	V
	Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.											



Band 4 5725~5850MHz
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		11490	48.31	-25.69	74	57.95	39.06	11.05	59.75	250	0	P	H
		17235	54.11	-14.19	68.3	56.32	41.39	14.65	58.25	150	0	P	H
CH 149 5745MHz		11490	49.16	-24.84	74	58.8	39.06	11.05	59.75	250	0	P	V
		17235	54.93	-13.37	68.3	57.14	41.39	14.65	58.25	150	0	P	V
802.11n HT20		11570	48.47	-25.53	74	58.31	38.98	11.01	59.83	250	0	P	H
		17355	56.94	-11.36	68.3	57.78	42.18	14.78	57.8	150	0	P	H
CH 157 5785MHz		11570	48.91	-25.09	74	58.75	38.98	11.01	59.83	250	0	P	V
		17355	56.72	-11.58	68.3	57.56	42.18	14.78	57.8	150	0	P	V
802.11n HT20		11650	48.34	-25.66	74	58.35	38.92	10.97	59.9	250	0	P	H
		17475	57.7	-10.6	68.3	57.17	42.98	14.9	57.35	150	0	P	H
CH 165 5825MHz		11650	47.98	-26.02	74	57.99	38.92	10.97	59.9	250	0	P	V
		17475	57.15	-11.15	68.3	56.62	42.98	14.9	57.35	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz
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 frequency measurements from 5648.6 to 5945.6 MHz.



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)
		5632	45.7	-22.6	68.3	39.73	32.19	7.27	33.49	150	268	P	H
		5679.6	47.18	-43.06	90.24	41.09	32.28	7.32	33.51	150	268	P	H
		5706.6	46.03	-61.12	107.15	39.86	32.33	7.36	33.52	150	268	P	H
		5724.8	44.82	-77.02	121.84	38.62	32.36	7.36	33.52	150	268	P	H
		5795	96.9	-	-	90.52	32.47	7.45	33.54	150	268	P	H
		5795	85.62	-	-	79.24	32.47	7.45	33.54	150	268	A	H
		5852.8	46.99	-68.93	115.92	40.49	32.55	7.51	33.56	150	268	P	H
		5867.2	46.4	-61.08	107.48	39.87	32.58	7.51	33.56	150	268	P	H
		5895	48.23	-42.23	90.46	41.64	32.63	7.53	33.57	150	268	P	H
		5940.2	46.54	-21.76	68.3	39.84	32.72	7.56	33.58	150	268	P	H
802.11n		5625.6	45.03	-23.27	68.3	39.06	32.19	7.27	33.49	250	110	P	V
HT40		5685.8	44.5	-50.32	94.82	38.35	32.3	7.36	33.51	250	110	P	V
CH 159		5703.6	43.12	-63.19	106.31	36.94	32.33	7.36	33.51	250	110	P	V
5795MHz		5723.6	43.8	-75.31	119.11	37.6	32.36	7.36	33.52	250	110	P	V
		5795	82.74	-	-	76.36	32.47	7.45	33.54	250	110	P	V
		5795	72.58	-	-	66.2	32.47	7.45	33.54	250	110	A	V
		5850.2	44.32	-77.52	121.84	37.82	32.55	7.51	33.56	250	110	P	V
		5872.2	45.35	-60.73	106.08	38.79	32.61	7.51	33.56	250	110	P	V
		5908.2	45.04	-35.66	80.7	38.42	32.66	7.53	33.57	250	110	P	V
		5926.8	44.51	-23.79	68.3	37.84	32.69	7.56	33.58	250	110	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz
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 151		11510	48.09	-25.91	74	57.76	39.04	11.05	59.76	250	0	P	H
		17265	54.16	-14.14	68.3	55.98	41.62	14.69	58.13	150	0	P	H
5755MHz		11510	47.61	-26.39	74	57.28	39.04	11.05	59.76	250	0	P	V
		17265	54.31	-13.99	68.3	56.13	41.62	14.69	58.13	150	0	P	V
802.11n HT40 CH 159		11590	47.38	-26.62	74	57.25	38.97	11.01	59.85	250	0	P	H
		17385	57.46	-10.84	68.3	57.9	42.41	14.82	57.67	150	0	P	H
5795MHz		11590	47.18	-26.82	74	57.05	38.97	11.01	59.85	250	0	P	V
		17385	56.26	-12.04	68.3	56.7	42.41	14.82	57.67	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz
WIFI 802.11ac VHT20 (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)
802.11ac VHT20 CH 149 5745MHz		5629.4	45.57	-22.73	68.3	39.6	32.19	7.27	33.49	150	272	P	H
		5667	45.83	-35.09	80.92	39.73	32.28	7.32	33.5	150	272	P	H
		5716.8	45.81	-64.2	110.01	39.64	32.33	7.36	33.52	150	272	P	H
		5722.6	46.63	-70.2	116.83	40.43	32.36	7.36	33.52	150	272	P	H
		5745	97.03	-	-	90.76	32.39	7.41	33.53	150	272	P	H
		5745	87.39	-	-	81.12	32.39	7.41	33.53	150	272	A	H
		5624.4	44.75	-23.55	68.3	38.78	32.19	7.27	33.49	250	57	P	V
		5655	45.2	-26.81	72.01	39.13	32.25	7.32	33.5	250	57	P	V
		5701.2	43.94	-61.7	105.64	37.76	32.33	7.36	33.51	250	57	P	V
		5723.8	43.68	-75.88	119.56	37.48	32.36	7.36	33.52	250	57	P	V
		5745	86.04	-	-	79.77	32.39	7.41	33.53	250	57	P	V
	5745	76.22	-	-	69.95	32.39	7.41	33.53	250	57	A	V	
802.11ac VHT20 CH 157 5785MHz		5631.6	45.53	-22.77	68.3	39.56	32.19	7.27	33.49	150	276	P	H
		5694.6	45.76	-55.56	101.32	39.61	32.3	7.36	33.51	150	276	P	H
		5705.6	45.62	-61.25	106.87	39.45	32.33	7.36	33.52	150	276	P	H
		5722.4	44.25	-72.12	116.37	38.05	32.36	7.36	33.52	150	276	P	H
		5785	97.35	-	-	91	32.44	7.45	33.54	150	276	P	H
		5785	87.72	-	-	81.37	32.44	7.45	33.54	150	276	A	H
		5852.6	47.35	-69.02	116.37	40.85	32.55	7.51	33.56	150	276	P	H
		5861.6	46.52	-62.53	109.05	39.99	32.58	7.51	33.56	150	276	P	H
		5878	47.36	-55.71	103.07	40.8	32.61	7.51	33.56	150	276	P	H
		5929.8	46.42	-21.88	68.3	39.75	32.69	7.56	33.58	150	276	P	H
		5627.8	44.12	-24.18	68.3	38.15	32.19	7.27	33.49	207	56	P	V
		5657.8	45.1	-28.99	74.09	39.03	32.25	7.32	33.5	207	56	P	V
		5708.2	45.05	-62.55	107.6	38.88	32.33	7.36	33.52	207	56	P	V
		5721.8	43.09	-71.91	115	36.89	32.36	7.36	33.52	207	56	P	V
		5785	85.76	-	-	79.41	32.44	7.45	33.54	207	56	P	V
	5785	76.22	-	-	69.87	32.44	7.45	33.54	207	56	A	V	
	5851	44.3	-75.72	120.02	37.8	32.55	7.51	33.56	207	56	P	V	
	5859	45.11	-64.67	109.78	38.58	32.58	7.51	33.56	207	56	P	V	



		5904.2	47.13	-36.52	83.65	40.54	32.63	7.53	33.57	207	56	P	V
		5935	44.56	-23.74	68.3	37.89	32.69	7.56	33.58	207	56	P	V
802.11ac VHT20 CH 165 5825MHz		5825	97.8	-	-	91.35	32.52	7.48	33.55	243	271	P	H
		5825	87.39	-	-	80.94	32.52	7.48	33.55	243	271	A	H
		5851	45.75	-74.27	120.02	39.25	32.55	7.51	33.56	243	271	P	H
		5870.4	46.49	-60.1	106.59	39.96	32.58	7.51	33.56	243	271	P	H
		5908.2	46.13	-34.57	80.7	39.51	32.66	7.53	33.57	243	271	P	H
		5925	46.8	-21.5	68.3	40.16	32.69	7.53	33.58	243	271	P	H
		5825	85.14	-	-	78.69	32.52	7.48	33.55	150	300	P	V
		5825	75.8	-	-	69.35	32.52	7.48	33.55	150	300	A	V
		5852	44.41	-73.33	117.74	37.91	32.55	7.51	33.56	150	300	P	V
		5863.6	44.78	-63.71	108.49	38.25	32.58	7.51	33.56	150	300	P	V
		5900	45.74	-41.02	86.76	39.15	32.63	7.53	33.57	150	300	P	V
	5928.8	45.37	-22.93	68.3	38.7	32.69	7.56	33.58	150	300	P	V	
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



Band 4 5725~5850MHz
WIFI 802.11ac VHT20 (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)
802.11ac		11490	48.7	-25.3	74	58.34	39.06	11.05	59.75	250	0	P	H
VHT20		17235	53.97	-14.33	68.3	56.18	41.39	14.65	58.25	150	0	P	H
CH 149		11490	48.94	-25.06	74	58.58	39.06	11.05	59.75	250	0	P	V
5745MHz		17235	54.2	-14.1	68.3	56.41	41.39	14.65	58.25	150	0	P	V
802.11ac		11570	47.71	-26.29	74	57.55	38.98	11.01	59.83	250	0	P	H
VHT20		17355	56.12	-12.18	68.3	56.96	42.18	14.78	57.8	150	0	P	H
CH 157		11570	48.4	-25.6	74	58.24	38.98	11.01	59.83	250	0	P	V
5785MHz		17355	56.32	-11.98	68.3	57.16	42.18	14.78	57.8	150	0	P	V
802.11ac		11650	47.48	-26.52	74	57.49	38.92	10.97	59.9	250	0	P	H
VHT20		17475	57.54	-10.76	68.3	57.01	42.98	14.9	57.35	150	0	P	H
CH 165		11650	49	-25	74	59.01	38.92	10.97	59.9	250	0	P	V
5825MHz		17475	58.81	-9.49	68.3	58.28	42.98	14.9	57.35	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz
WIFI 802.11ac VHT40 (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)
802.11ac VHT40 CH 151 5755MHz		5644.2	46.64	-21.66	68.3	40.64	32.22	7.27	33.49	150	264	P	H
		5678.2	47.26	-41.95	89.21	41.16	32.28	7.32	33.5	150	264	P	H
		5714.6	47.49	-61.9	109.39	41.32	32.33	7.36	33.52	150	264	P	H
		5723.8	49.93	-69.63	119.56	43.73	32.36	7.36	33.52	150	264	P	H
		5755	97.12	-	-	90.83	32.41	7.41	33.53	150	264	P	H
		5755	86.21	-	-	79.92	32.41	7.41	33.53	150	264	A	H
		5853.6	46.11	-67.98	114.09	39.58	32.58	7.51	33.56	150	264	P	H
		5860.8	46.43	-62.84	109.27	39.9	32.58	7.51	33.56	150	264	P	H
		5924.6	46.76	-21.83	68.59	40.12	32.69	7.53	33.58	150	264	P	H
		5936	46.53	-21.77	68.3	39.86	32.69	7.56	33.58	150	264	P	H
		5634.4	44.74	-23.56	68.3	38.74	32.22	7.27	33.49	250	61	P	V
		5679.4	44.34	-45.76	90.1	38.25	32.28	7.32	33.51	250	61	P	V
		5708.8	44.52	-63.25	107.77	38.35	32.33	7.36	33.52	250	61	P	V
		5722	44.11	-71.35	115.46	37.91	32.36	7.36	33.52	250	61	P	V
		5755	84.06	-	-	77.77	32.41	7.41	33.53	250	61	P	V
		5755	74.01	-	-	67.72	32.41	7.41	33.53	250	61	A	V
		5852.2	43.84	-73.44	117.28	37.34	32.55	7.51	33.56	250	61	P	V
		5862.4	44.01	-64.82	108.83	37.48	32.58	7.51	33.56	250	61	P	V
	5909	45.13	-34.98	80.11	38.52	32.66	7.53	33.58	250	61	P	V	
	5935.6	45.25	-23.05	68.3	38.58	32.69	7.56	33.58	250	61	P	V	
802.11ac VHT40 CH 159 5795MHz		5608.6	46.5	-21.8	68.3	40.55	32.17	7.27	33.49	150	266	P	H
		5651.8	47.5	-22.14	69.64	41.42	32.25	7.32	33.49	150	266	P	H
		5712.8	47.73	-61.16	108.89	41.56	32.33	7.36	33.52	150	266	P	H
		5722.4	45.76	-70.61	116.37	39.56	32.36	7.36	33.52	150	266	P	H
		5795	96.02	-	-	89.64	32.47	7.45	33.54	150	266	P	H
		5795	84.94	-	-	78.56	32.47	7.45	33.54	150	266	A	H
		5851	46.53	-73.49	120.02	40.03	32.55	7.51	33.56	150	266	P	H
		5855.4	45.6	-65.19	110.79	39.07	32.58	7.51	33.56	150	266	P	H
		5916.4	46.97	-27.67	74.64	40.36	32.66	7.53	33.58	150	266	P	H
	5929	46.46	-21.84	68.3	39.79	32.69	7.56	33.58	150	266	P	H	



	5618.4	44.48	-23.82	68.3	38.51	32.19	7.27	33.49	150	64	P	V
	5656.4	44.48	-28.57	73.05	38.41	32.25	7.32	33.5	150	64	P	V
	5702.6	43.97	-62.06	106.03	37.79	32.33	7.36	33.51	150	64	P	V
	5720.6	43.91	-68.36	112.27	37.71	32.36	7.36	33.52	150	64	P	V
	5795	81.98	-	-	75.6	32.47	7.45	33.54	150	64	P	V
	5795	72.13	-	-	65.75	32.47	7.45	33.54	150	64	A	V
	5851	44.18	-75.84	120.02	37.68	32.55	7.51	33.56	150	64	P	V
	5869.8	44.92	-61.83	106.75	38.39	32.58	7.51	33.56	150	64	P	V
	5917.4	44.83	-29.07	73.9	38.22	32.66	7.53	33.58	150	64	P	V
	5936.4	44.71	-23.59	68.3	38.04	32.69	7.56	33.58	150	64	P	V

Remark

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



Band 4 5725~5850MHz
WIFI 802.11ac VHT40 (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)
802.11ac VHT40 CH 151 5755MHz		11510	48.49	-25.51	74	58.16	39.04	11.05	59.76	250	0	P	H
		17265	54.34	-13.96	68.3	56.16	41.62	14.69	58.13	150	0	P	H
		11510	47.69	-26.31	74	57.36	39.04	11.05	59.76	250	0	P	V
		17265	54.96	-13.34	68.3	56.78	41.62	14.69	58.13	150	0	P	V
802.11ac VHT40 CH 159 5795MHz		11590	47.43	-26.57	74	57.3	38.97	11.01	59.85	250	0	P	H
		17385	57.58	-10.72	68.3	58.02	42.41	14.82	57.67	150	0	P	H
		11590	47.36	-26.64	74	57.23	38.97	11.01	59.85	250	0	P	V
		17385	56.44	-11.86	68.3	56.88	42.41	14.82	57.67	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (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)
802.11ac VHT80 CH 155 5775MHz		5611	43.94	-24.36	68.3	37.99	32.17	7.27	33.49	183	252	P	H
		5674.6	44.16	-42.38	86.54	38.06	32.28	7.32	33.5	183	252	P	H
		5717	45.2	-64.86	110.06	39.03	32.33	7.36	33.52	183	252	P	H
		5721.2	43.37	-70.27	113.64	37.17	32.36	7.36	33.52	183	252	P	H
		5775	79.91	-	-	73.55	32.44	7.45	33.53	183	252	P	H
		5775	69.57	-	-	63.21	32.44	7.45	33.53	183	252	A	H
		5850.8	43.42	-77.06	120.48	36.92	32.55	7.51	33.56	183	252	P	H
		5864.4	44.87	-63.4	108.27	38.34	32.58	7.51	33.56	183	252	P	H
		5883.2	46.72	-52.49	99.21	40.16	32.61	7.51	33.56	183	252	P	H
		5944.2	45.11	-23.19	68.3	38.41	32.72	7.56	33.58	183	252	P	H
		5645.8	44.51	-23.79	68.3	38.46	32.22	7.32	33.49	244	61	P	V
		5663.4	44.39	-33.86	78.25	38.32	32.25	7.32	33.5	244	61	P	V
		5714.6	43.78	-65.61	109.39	37.61	32.33	7.36	33.52	244	61	P	V
		5720.8	43	-69.72	112.72	36.8	32.36	7.36	33.52	244	61	P	V
		5775	69.81	-	-	63.45	32.44	7.45	33.53	244	61	P	V
		5775	59.21	-	-	52.85	32.44	7.45	33.53	244	61	A	V
		5851	43.91	-76.11	120.02	37.41	32.55	7.51	33.56	244	61	P	V
		5868.6	45.59	-61.5	107.09	39.06	32.58	7.51	33.56	244	61	P	V
	5885	45.92	-51.95	97.87	39.37	32.61	7.51	33.57	244	61	P	V	
	5950	45.75	-22.55	68.3	39.05	32.72	7.56	33.58	244	61	P	V	

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



Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (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)
802.11ac		11550	48.16	-25.84	74	57.94	39	11.03	59.81	250	0	P	H
VHT80		17325	55.84	-12.46	68.3	57.03	41.96	14.78	57.93	150	0	P	H
CH 155		11550	47.84	-26.16	74	57.62	39	11.03	59.81	250	0	P	V
5775MHz		17325	54.49	-13.81	68.3	55.68	41.96	14.78	57.93	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz
5GHz WIFI 802.11a (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11a LF		30	23.38	-16.62	40	31.54	24.2	1	33.36	100	200	P	H
		105.66	17.37	-26.13	43.5	31.17	18.17	1.38	33.35	-	-	P	H
		180.35	18.86	-24.64	43.5	33.95	16.53	1.57	33.19	-	-	P	H
		322.94	22.14	-23.86	46	32.75	20.43	1.94	32.98	-	-	P	H
		521.79	24.94	-21.06	46	30.85	24.09	2.41	32.41	-	-	P	H
		731.31	28.38	-17.62	46	31.61	25.72	2.85	31.8	-	-	P	H
		43.58	30.51	-9.49	40	45.45	17.45	1	33.39	100	200	P	V
		54.25	21.19	-18.81	40	39.54	13.86	1.14	33.35	-	-	P	V
		107.6	17.7	-25.8	43.5	31.54	18.13	1.38	33.35	-	-	P	V
		188.11	17.08	-26.42	43.5	32.33	16.36	1.57	33.18	-	-	P	V
		379.2	21.61	-24.39	46	30.37	21.95	2.12	32.83	-	-	P	V
		475.23	25.43	-20.57	46	32.13	23.55	2.31	32.56	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Note symbol

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



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

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

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

For Peak Limit @ 2390MHz:

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

For Average Limit @ 2390MHz:

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

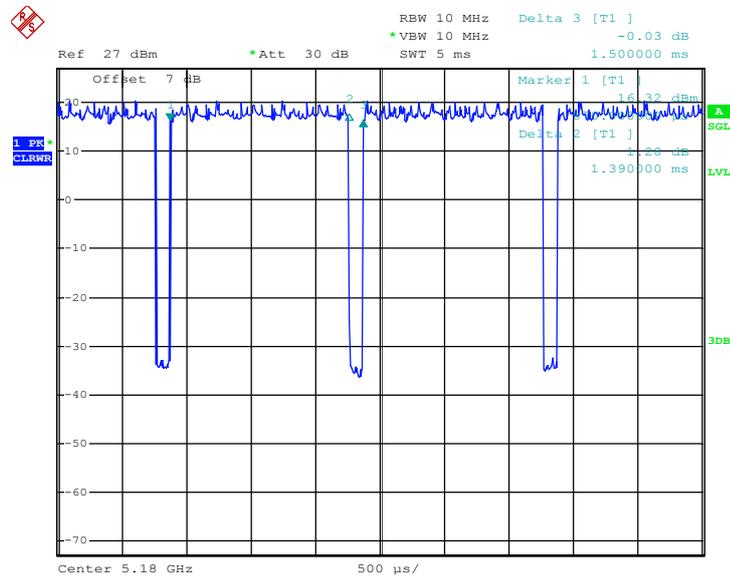
Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix C. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	92.67	1.390	0.719	1kHz
802.11n HT20	92.31	1.296	0.771	1kHz
802.11n HT40	85.56	0.640	1.562	3kHz
802.11ac VHT20	92.56	1.320	0.758	1kHz
802.11ac VHT40	85.86	0.656	1.524	3kHz
802.11ac VHT80	75.00	0.324	3.086	10kHz

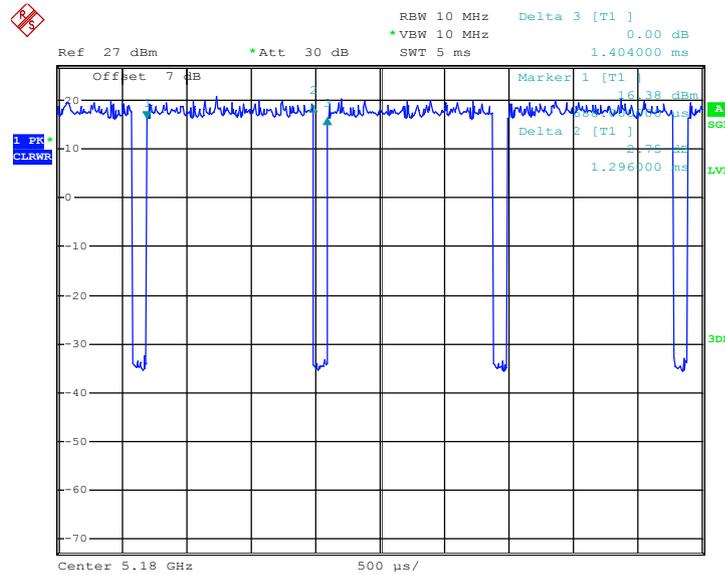
802.11a



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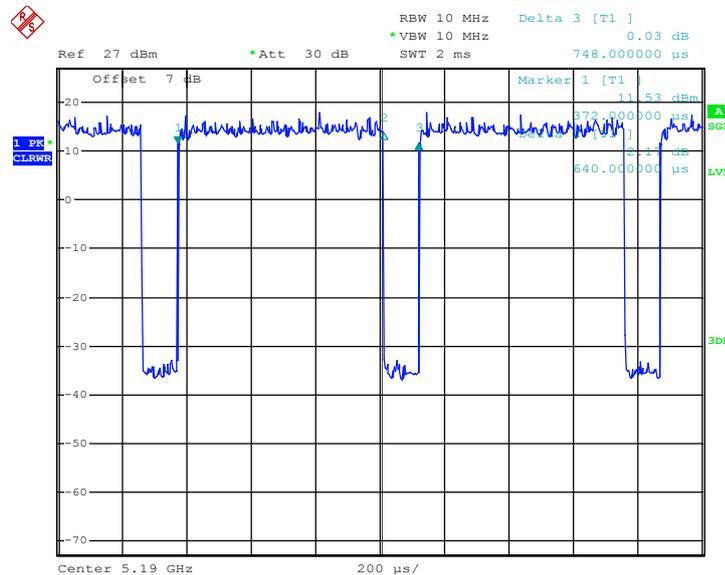


802.11n HT20



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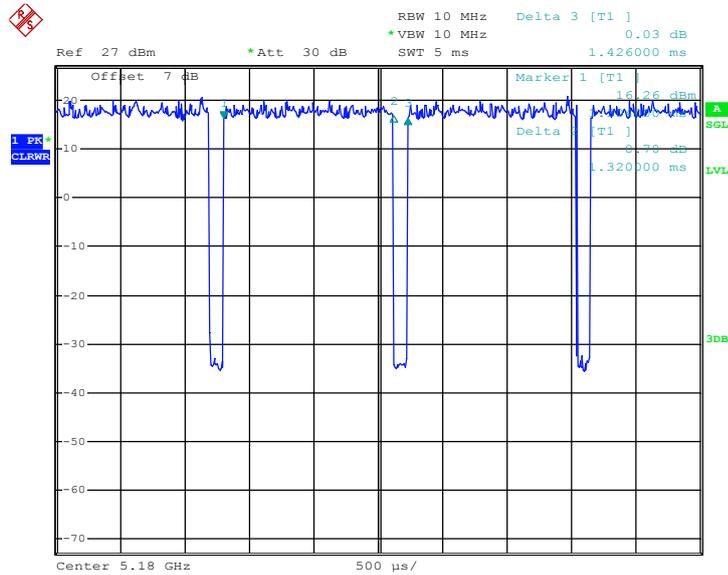
802.11n HT40



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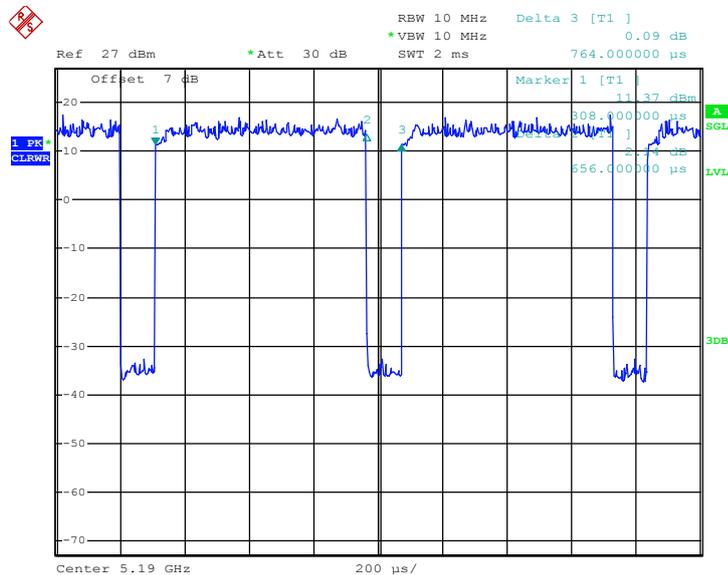


802.11ac VHT20



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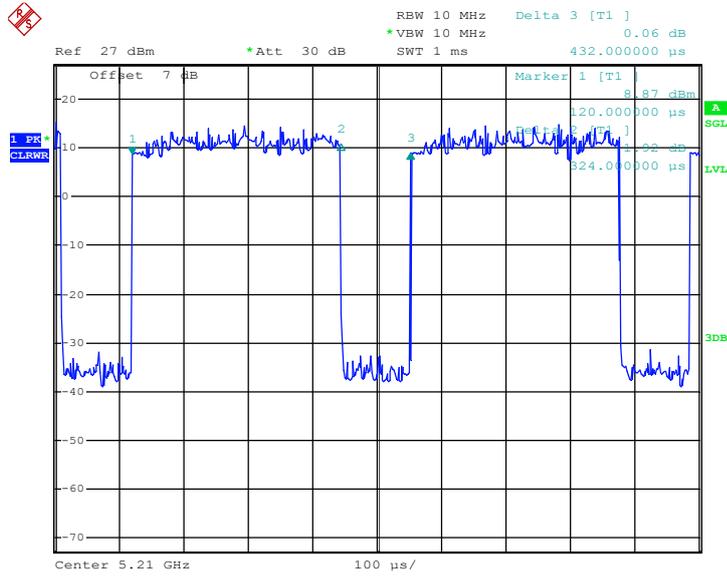
802.11ac VHT40



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802.11ac VHT80



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