FCC RF Test Report

APPLICANT	:	Motorola Mobility, LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	3600
FCC ID	:	IHDT56QD2
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure

The product was received on Sep. 11, 2014. We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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APPENDIX A. ORIGINAL REPORT

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR491144F	Rev. 01	The Bluetooth and WLAN circuitry of this variant model (3600) is identical to that of the parent product (3604), based on the product equality declaration by the manufacturer	Oct. 10, 2014

1 General Description

1.1 Applicant

Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.2 Manufacturer

Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	3600
FCC ID	IHDT56QD2
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/NFC 2.4GHz: WLAN 11b/g/n HT20 2.4GHz: WLAN 11ac VHT20 5GHz: WLAN 11a/n HT20/HT40 5GHz: WLAN 11ac VHT20/VHT40/VHT80 Bluetooth v3.0 + EDR Bluetooth v4.0 - LE
HW Version	P2
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

Product Specification subjective to this standard	
Tx/Rx Channel Frequency Range	5725 MHz ~ 5850 MHz
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Antenna Type & Antenna Gain	Monopole(IFA) Antenna type with gain -4.30 dBi

1.5 Modification of EUT

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

Appendix A. Original Report

Please refer to Sporton report number FR480670F as below.

FCC RF Test Report

APPLICANT	:	Motorola Mobility, LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	4054
FCC ID	:	IHDT56QD1
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure

The product was received on Aug. 06, 2014 and testing was completed on Sep. 15, 2014. We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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APPENDIX A. TEST RESULT OF RADIATED EMISSION

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR480670F	Rev. 01	Initial issue of report	Sep. 30, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	6dB Bandwidth	> 500kHz	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 30 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 30 dBm/500kHz	Pass	-
3.4	15.407(b)	Unwanted Emissions	≤ -17, -27 dBm/MHz &15.209(a)	Pass	Under limit 0.12 dB at 5706.760 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 12.70 dB at 3.550 MHz
3.6	15.407(g)	Frequency Stability	Within Operation Band	Pass	-
3.7	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.2 Manufacturer

Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	4054
FCC ID	IHDT56QD1
IMEI	990005300017812 990005300016731
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE/NFC 2.4GHz WLAN 11b/g/n HT20 WLAN 11ac VHT20 5GHz WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth v3.0 EDR Bluetooth v4.0 - LE
HW Version	P2
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.

Accessory List	
AC Adapter	Brand Name : Motorola
	Model Name : SPN5864A
USB Cable	Brand Name : Motorola
	Model Name : SKN6448A
Earphone	Brand Name : Motorola
	Model Name : SJYN1305A
Battery	Brand Name : LG
	Model Name : EZ30

1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx/Rx Channel Frequency Range	5725 MHz ~ 5850 MHz
Maximum Output Power	**<5725 MHz ~ 5850 MHz>** **CDD <Ant. Port 1 + 2>** 802.11a : 21.95 dBm / 0.1567 W 802.11n HT20 : 22.13 dBm / 0.1633 W 802.11n HT40 : 20.10 dBm / 0.1023 W 802.11ac VHT20: 22.18 dBm / 0.1652 W 802.11ac VHT40: 21.57 dBm / 0.1435 W 802.11ac VHT80: 18.61 dBm / 0.0726 W
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Antenna Type	**<5725 MHz ~ 5850 MHz>** Main Antenna : Monopole(IFA) Antenna Aux. Antenna : Monopole(ILA) Antenna
Antenna Gain	**<5725 MHz ~ 5850 MHz>** Main Antenna : -4.30 dBi Aux. Antenna : -5.20 dBi
Antenna Function Description	

	Ant. 1	Ant. 2
802.11 a MIMO	V	V
802.11 n/ac MIMO	V	V

1.5 Modification of EUT

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

1.6 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 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 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	**Sporton Site No.**		
	TH02-HY	CO05-HY	03CH06-HY

1.7 Applicable Standards

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

- FCC Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v01
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01
- KDB 648474 D03 Handset Wireless Chargers Battery Covers v01r02
- ANSI C63.4-2003

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. Final Output Power equals to Measured Output Power adds the duty factor.

CDD <Ant. 1+2>

Channel	Frequency	5GHz 802.11a Average Power (dBm) (800ns)							
		Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 149	5745MHz	20.81	20.71	20.68	20.77	20.69	20.71	20.80	20.14
CH 157	5785MHz	**21.95**	21.87	21.56	21.77	21.70	21.41	21.22	20.04
CH 165	5825MHz	21.73	21.60	21.45	21.71	21.49	21.57	21.23	20.06

Channel	Frequency	5GHz 802.11a Peak Power (dBm) (800ns)							
		Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 149	5745MHz	26.05	25.77	25.77	25.81	25.91	26.03	26.01	25.85
CH 157	5785MHz	25.97	25.41	25.44	25.51	25.80	25.71	25.72	25.38
CH 165	5825MHz	**26.61**	26.46	26.42	26.54	26.57	26.55	26.49	26.35

Channel	Frequency	5GHz 802.11n HT20 Average Power (dBm) (800ns)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 149	5745MHz	20.72	20.65	20.67	20.68	20.67	20.68	20.64	20.14
CH 157	5785MHz	**22.13**	22.12	22.12	22.10	21.90	22.07	20.78	19.96
CH 165	5825MHz	21.65	21.64	21.58	21.58	21.58	21.51	21.55	20.09

Channel	Frequency	5GHz 802.11n HT20 Peak Power (dBm) (800ns)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 149	5745MHz	26.00	25.77	25.77	26.08	26.00	25.89	25.85	25.95
CH 157	5785MHz	**26.21**	25.83	25.86	25.95	25.89	25.74	25.66	25.79
CH 165	5825MHz	26.09	25.75	25.91	26.04	25.93	25.91	25.78	25.86

Channel	Frequency	5GHz 802.11n HT40 Average Power (dBm) (800ns)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 151	5755MHz	17.87	17.58	17.53	17.77	17.71	17.80	17.82	18.24
CH 159	5795MHz	**20.10**	20.07	20.00	20.04	20.07	20.07	18.92	19.15

Channel	Frequency	5GHz 802.11n HT40 Peak Power (dBm) (800ns)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 151	5755MHz	25.02	24.97	25.01	24.81	24.89	24.81	24.88	24.80
CH 159	5795MHz	**25.60**	25.42	25.39	25.39	25.48	25.41	25.22	25.28

Channel	Frequency	5GHz 802.11ac VHT20 Average Power (dBm) (800ns)								
		Data Rate								
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
CH 149	5745MHz	20.50	20.35	20.38	20.46	20.48	20.41	20.00	20.06	18.96
CH 157	5785MHz	**22.18**	21.66	21.66	21.60	21.50	21.03	19.92	19.82	18.72
CH 165	5825MHz	21.46	21.37	21.31	21.37	21.45	20.60	19.77	19.83	18.75

Channel	Frequency	5GHz 802.11ac VHT20 Peak Power (dBm) (800ns)								
		Data Rate								
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
CH 149	5745MHz	25.66	25.26	25.30	25.59	25.61	25.62	25.55	25.61	25.37
CH 157	5785MHz	25.81	25.68	25.66	25.79	25.79	25.72	25.63	25.64	25.53
CH 165	5825MHz	**25.85**	25.29	25.35	25.57	25.60	25.61	25.43	25.43	25.30

Channel	Frequency	5GHz 802.11ac VHT40 Average Power (dBm) (800ns)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
CH 151	5755MHz	17.95	17.88	17.83	17.84	17.91	17.90	18.20	18.06	18.04	17.07
CH 159	5795MHz	**21.57**	21.50	21.51	21.49	21.48	19.04	19.04	18.04	17.98	16.93

Channel	Frequency	5GHz 802.11ac VHT40 Peak Power (dBm) (800ns)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
CH 151	5755MHz	24.93	24.87	24.91	24.89	24.87	24.85	24.78	24.70	24.87	24.74
CH 159	5795MHz	**25.88**	25.86	25.83	25.83	25.87	25.67	25.87	25.63	25.61	25.48

Channel	Frequency	5GHz 802.11ac VHT80 Average Power (dBm) (800ns)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
CH 155	5775MHZ	**18.61**	18.42	18.44	18.44	18.44	18.40	18.38	17.66	17.76	17.81

Channel	Frequency	5GHz 802.11ac VHT80 Peak Power (dBm) (800ns)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
CH 155	5775MHZ	**25.02**	24.49	24.41	24.43	24.45	24.38	24.48	24.41	24.28	24.50

Note: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

2.3 Test Mode

Final results of test modes, data rates and test channels are shown as following table.

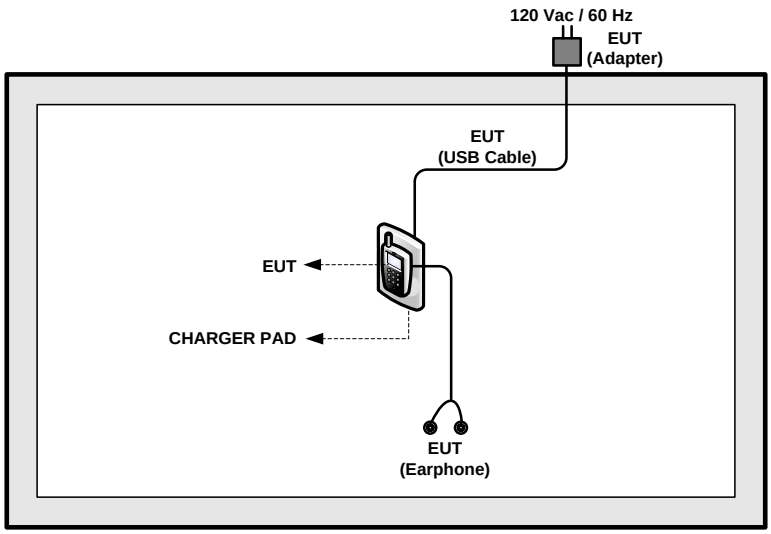
Test Cases				
Conducted TCs	Test Items	Mode	Data rate	Test Channel
	6dB Bandwidth Power Spectral Density	802.11a	6 Mbps	L/M/H/Straddle
		802.11n HT20	MCS0/ MCS8	L/M/H/Straddle
		802.11n HT40	MCS0/ MCS8	L/M/H/Straddle
		802.11ac VHT20	MCS0	L/M/H/Straddle
		802.11ac VHT40	MCS0	L/M/H/Straddle
		802.11ac VHT80	MCS0	M/Straddle
	Output Power	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0/ MCS8	L/M/H
		802.11n HT40	MCS0/ MCS8	L/M/H
		802.11ac VHT20	MCS0	L/M/H
		802.11ac VHT40	MCS0	L/M/H
		802.11ac VHT80	MCS0	M
	Frequency Stability	802.11a	6 Mbps	L/M/H
Radiated TCs	Test Items	Mode	Data rate	Test Channel
	Radiated Band Edge	802.11a	6 Mbps	L/M/H
		802.11n HT20	MCS0/ MCS8	L/M/H
		802.11n HT40	MCS0/ MCS8	L/H
		802.11ac VHT80	MCS0	M
	Radiated Spurious Emission	802.11a	6 Mbps	L/M/H/Straddle
		802.11n HT20	MCS0/ MCS8	L/M/H/Straddle
		802.11n HT40	MCS0/ MCS8	L/M/H/Straddle
		802.11ac VHT80	MCS0	M/Straddle
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + Earphone + MP3 + USB Cable (Charging from Adapter)			
Remark: All modes and data rates and positions were investigated, and the wireless charger configuration was evaluated.				

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

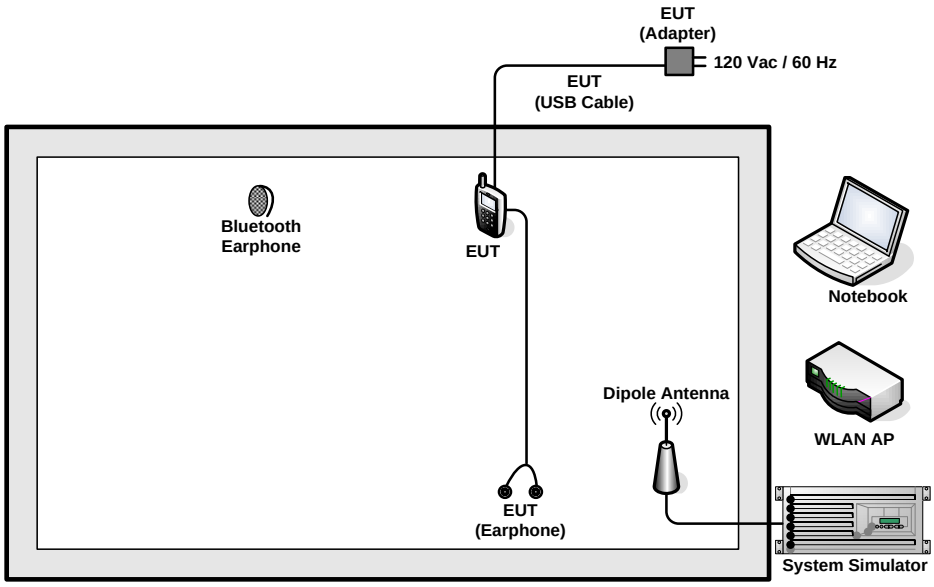
Ch. #		Band IV：5725-5850 MHz		
		802.11ac VHT20	802.11ac VHT40	802.11ac VHT80
L	Low	149	151	-
M	Middle	157	-	155
H	High	165	159	-

2.4 Connection Diagram of Test System

<WLAN Tx with CHARGER PAD 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.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	CHARGER PAD	SAMSUNG	EP-P100IEWE	A3LEPP100IJWU	N/A	shielded, 1.5 m

2.6 EUT Operation Test Setup

For WLAN function, programmed RF utility, “cmd” installed in the notebook make the EUT provide functions like channel selection and power level for continuous transmitting and receiving signals.

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 and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

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

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Description of 6dB Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

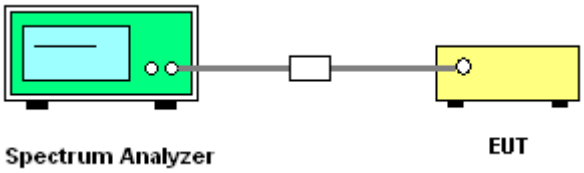
3.1.2 Measuring Instruments

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 v01. Section C) Emission bandwidth for the band 5.725-5.85GHz
2. Set RBW = 100kHz.
3. Set the VBW ≥ 3 x 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

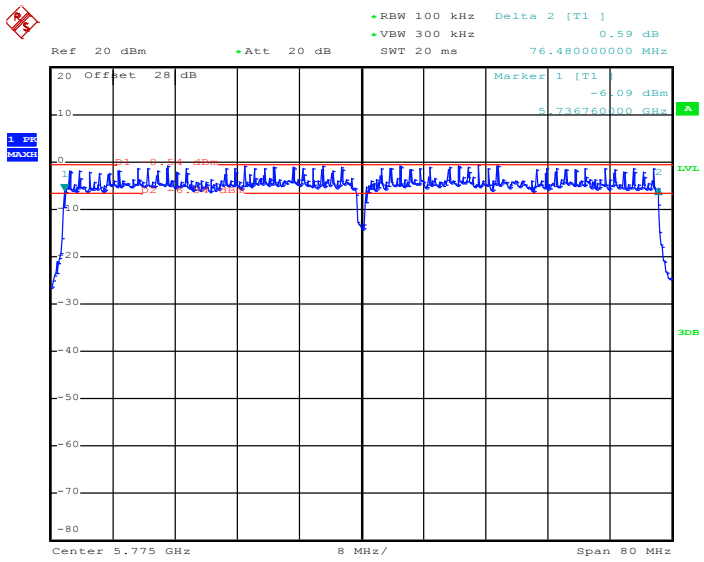


3.1.5 Test Result of 6dB Bandwidth

Test Band :	5GHz band 4	Temperature :	21~26℃
Test Engineer :	Alex Lee	Relative Humidity :	45~54%

Mod.	Data Rate	NTX	Channel	Freq. (MHz)	6 dB Bandwidth (MHz)		FCC 6 dB Bandwidth Min. Limit (MHz)		Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	16.32	16.32	0.5	0.5	Pass
11a	6Mbps	2	157	5785	16.32	16.32	0.5	0.5	Pass
11a	6Mbps	2	165	5825	16.32	16.32	0.5	0.5	Pass
HT20	MCS0	2	149	5745	17.56	17.56	0.5	0.5	Pass
HT20	MCS0	2	157	5785	17.58	17.56	0.5	0.5	Pass
HT20	MCS0	2	165	5825	17.60	17.60	0.5	0.5	Pass
HT40	MCS0	2	151	5755	36.36	36.40	0.5	0.5	Pass
HT40	MCS0	2	159	5795	36.36	36.36	0.5	0.5	Pass
VHT20	MCS0	2	149	5745	17.56	17.60	0.5	0.5	Pass
VHT20	MCS0	2	157	5785	17.56	17.60	0.5	0.5	Pass
VHT20	MCS0	2	165	5825	17.60	17.60	0.5	0.5	Pass
VHT40	MCS0	2	151	5755	36.32	36.36	0.5	0.5	Pass
VHT40	MCS0	2	159	5795	36.32	36.08	0.5	0.5	Pass
VHT80	MCS0	2	155	5775	76.16	76.48	0.5	0.5	Pass

Maximum 6dB Bandwidth



Date: 14.SEP.2014 15:45:39

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 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.

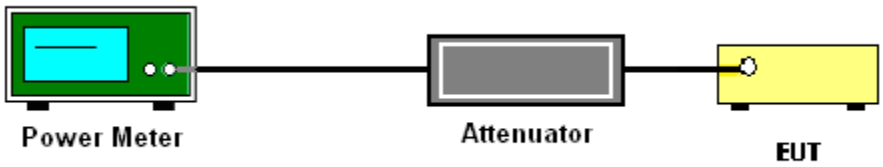
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.

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

Test Band :	5GHz band 4	Temperature :	21~26℃
Test Engineer :	Alex Lee	Relative Humidity :	45~54%

Mod.	Data Rate	NTX	Channel	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	0.10	0.10	18.10	17.46	20.81	30.00		-1.73		Pass
11a	6Mbps	2	157	5785	0.10	0.10	18.82	19.04	21.95	30.00		-1.73		Pass
11a	6Mbps	2	165	5825	0.10	0.10	19.27	18.09	21.73	30.00		-1.73		Pass
HT20	MCS0	2	149	5745	0.11	0.11	18.10	17.27	20.72	30.00		-1.73		Pass
HT20	MCS0	2	157	5785	0.11	0.11	19.20	19.03	22.13	30.00		-1.73		Pass
HT20	MCS0	2	165	5825	0.11	0.11	19.21	17.98	21.65	30.00		-1.73		Pass
HT40	MCS0	2	151	5755	0.23	0.23	15.03	14.70	17.87	30.00		-1.73		Pass
HT40	MCS0	2	159	5795	0.23	0.23	17.41	16.76	20.10	30.00		-1.73		Pass
VHT20	MCS0	2	149	5745	0.11	0.11	17.96	16.95	20.50	30.00		-1.73		Pass
VHT20	MCS0	2	157	5785	0.11	0.11	18.92	19.41	22.18	30.00		-1.73		Pass
VHT20	MCS0	2	165	5825	0.11	0.11	19.02	17.80	21.46	30.00		-1.73		Pass
VHT40	MCS0	2	151	5755	0.22	0.22	15.18	14.69	17.95	30.00		-1.73		Pass
VHT40	MCS0	2	159	5795	0.22	0.22	19.14	17.89	21.57	30.00		-1.73		Pass
VHT80	MCS0	2	155	5775	0.43	0.48	15.82	15.37	18.61	30.00		-1.73		Pass

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

<FCC 14-30 CFR 15.407>

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 v01.
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).

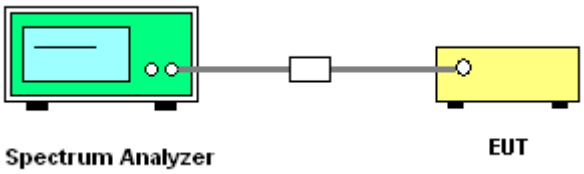
1. The testing follows Method SA-2 of FCC KDB 789033 D01 General UNII Test Procedures v01r03.
   - Measure the duty cycle.
   - Set span to encompass the entire emission bandwidth (EBW) of the signal.
   - Set RBW = 300 kHz.
   - Set VBW ≥ 1 MHz.
   - Number of points in sweep ≥ 2 Span / RBW.
   - Sweep time = auto.
   - Detector = RMS
   - Trace average at least 100 traces in power averaging mode.
   - Add 10 log(500kHz/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.
4. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

   Method (1): Measure and sum the spectra across the outputs.

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

3.3.4 Test Setup

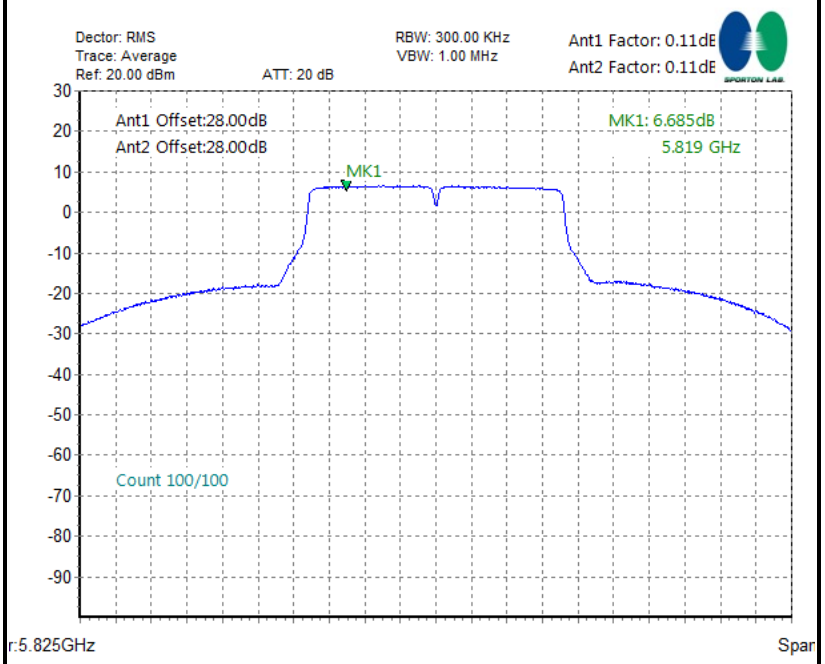


3.3.5 Test Result of Power Spectral Density

Test Band :	5GHz band 4	**Temperature :**	21~26℃
Test Engineer :	Alex Lee	**Relative Humidity :**	45~54%

Mod.	Data Rate	NTX	Channel	Freq. (MHz)	Duty Factor (dB)		10log (500kHz /RBW) Factor (dB)		Average Power Density (dBm/500kHz)			Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	0.10	0.10	2.22		-		7.34	30.00		-1.73		Pass
11a	6Mbps	2	157	5785	0.10	0.10	2.22				8.78	30.00		-1.73		Pass
11a	6Mbps	2	165	5825	0.10	0.10	2.22				8.21	30.00		-1.73		Pass
HT20	MCS0	2	149	5745	0.11	0.11	2.22				7.19	30.00		-1.73		Pass
HT20	MCS0	2	157	5785	0.11	0.11	2.22				8.36	30.00		-1.73		Pass
HT20	MCS0	2	165	5825	0.11	0.11	2.22				8.90	30.00		-1.73		Pass
HT40	MCS0	2	151	5755	0.23	0.23	2.22				1.38	30.00		-1.73		Pass
HT40	MCS0	2	159	5795	0.23	0.23	2.22				3.71	30.00		-1.73		Pass
VHT20	MCS0	2	149	5745	0.11	0.11	2.22				7.14	30.00		-1.73		Pass
VHT20	MCS0	2	157	5785	0.11	0.11	2.22				8.48	30.00		-1.73		Pass
VHT20	MCS0	2	165	5825	0.11	0.11	2.22				8.28	30.00		-1.73		Pass
VHT40	MCS0	2	151	5755	0.22	0.22	2.22				1.35	30.00		-1.73		Pass
VHT40	MCS0	2	159	5795	0.22	0.22	2.22				4.92	30.00		-1.73		Pass
VHT80	MCS0	2	155	5775	0.43	0.48	2.22				3.62	30.00		-1.73		Pass

Worst Case Power Density (dBm/300kHz)



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 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).

(2) 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,

Note: Wireless charger configuration was evaluated

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.

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

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

(3) KDB789033 v01r03 H)2)c)(i) 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 v01. Section G) Unwanted emissions measurement.

   (1) Procedure for Unwanted Emissions Measurements Below 1000MHz

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

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

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

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

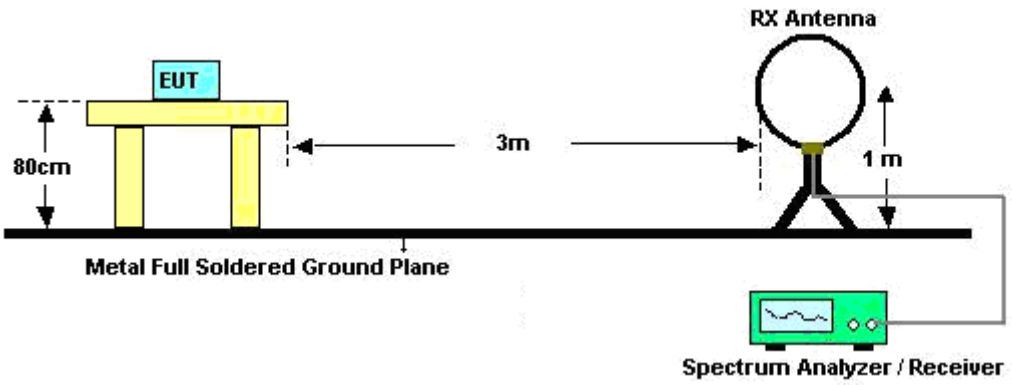
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1+2	802.11a ANT 1	97.64	2070	0.48	1kHz
1+2	802.11a ANT 2	97.64	2070	0.48	
1+2	5GHz 802.11n HT20 for Ant 1	97.46	1920	0.52	1kHz
1+2	5GHz 802.11n HT20 for Ant 2	97.46	1920	0.52	
1+2	5GHz 802.11n HT40 for Ant 1	94.95	940	1.06	3kHz
1+2	5GHz 802.11n HT40 for Ant 2	94.95	940	1.06	
1+2	5GHz 802.11ac VHT20 for Ant 1	97.49	1940	0.52	1kHz
1+2	5GHz 802.11ac VHT20 for Ant 2	97.47	1930	0.52	
1+2	5GHz 802.11ac VHT40 for Ant 1	95	950	1.05	3kHz
1+2	5GHz 802.11ac VHT40 for Ant 2	95	950	1.05	
1+2	5GHz 802.11ac VHT80 for Ant 1	90.59	462	2.16	3kHz
1+2	5GHz 802.11ac VHT80 for Ant 2	89.53	462	2.16	

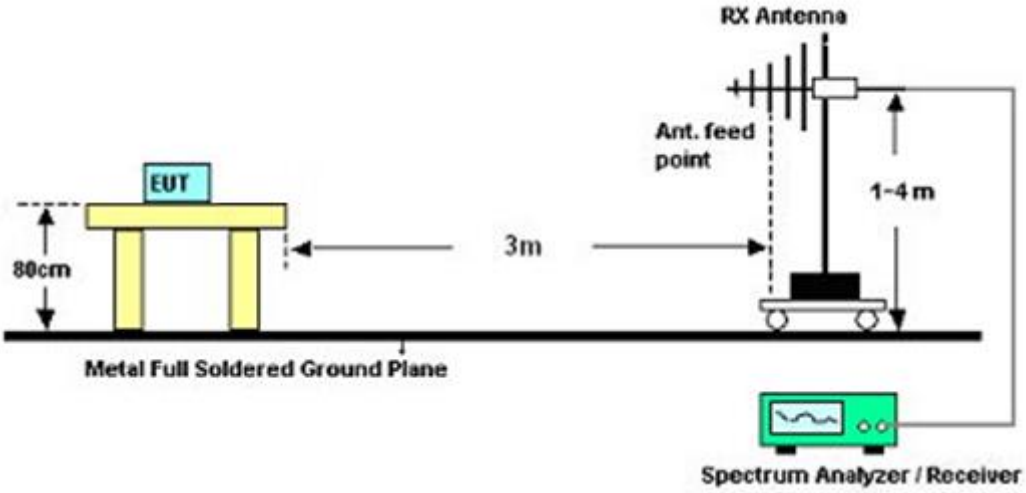
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters 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

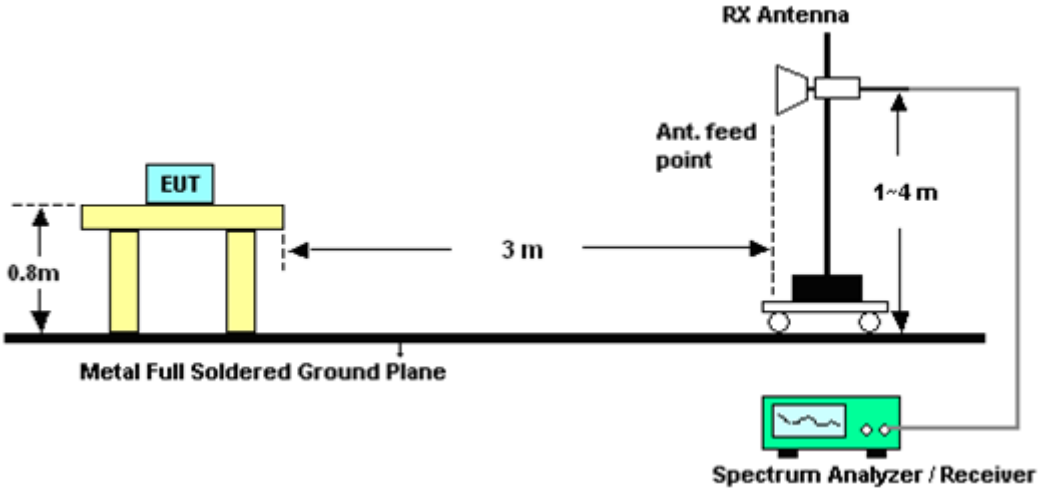
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Result

Please refer to appendix A as below.

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.

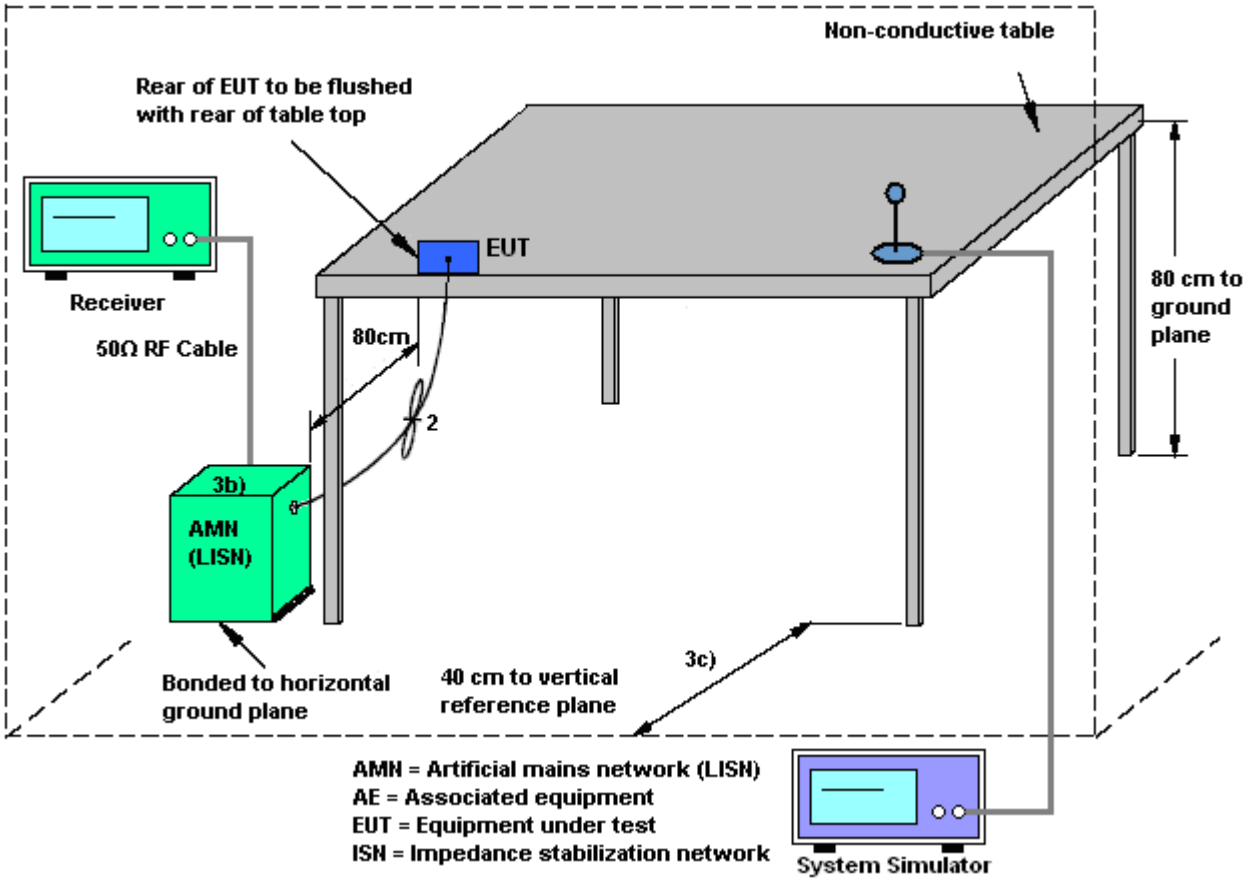
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

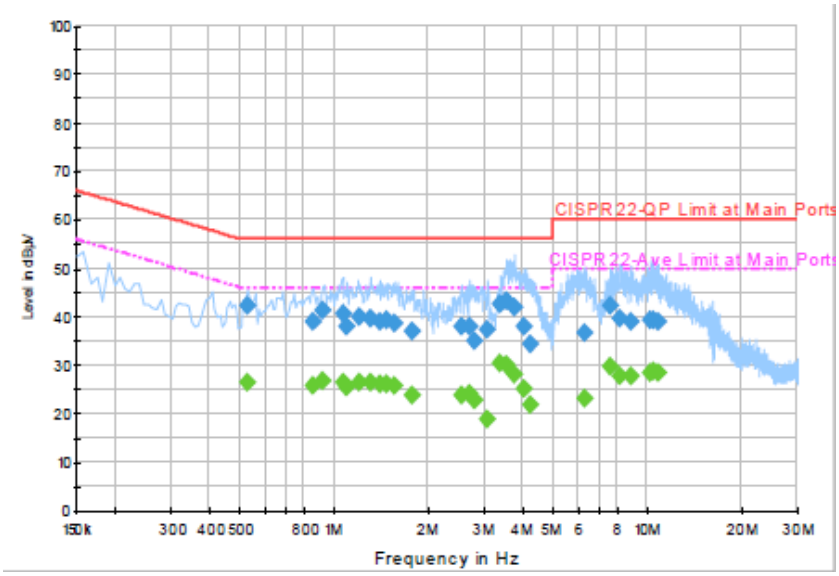
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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

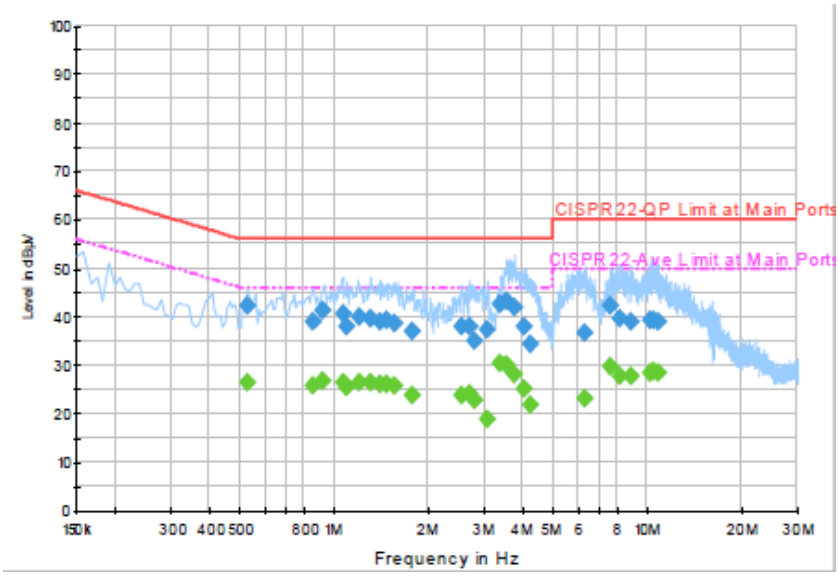
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + Earphone + MP3 + USB Cable (Charging from Adapter)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.526000	42.2	Off	L1	19.4	13.8	56.0
0.854000	38.8	Off	L1	19.6	17.2	56.0
0.918000	41.2	Off	L1	19.4	14.8	56.0
1.062000	40.7	Off	L1	19.5	15.3	56.0
1.094000	38.1	Off	L1	19.5	17.9	56.0
1.206000	39.8	Off	L1	19.5	16.2	56.0
1.302000	39.5	Off	L1	19.5	16.5	56.0
1.390000	39.1	Off	L1	19.5	16.9	56.0
1.462000	39.3	Off	L1	19.6	16.7	56.0
1.550000	38.6	Off	L1	19.4	17.4	56.0
1.758000	37.0	Off	L1	19.6	19.0	56.0
2.534000	37.8	Off	L1	19.5	18.2	56.0
2.702000	37.8	Off	L1	19.5	18.2	56.0
2.806000	34.9	Off	L1	19.6	21.1	56.0

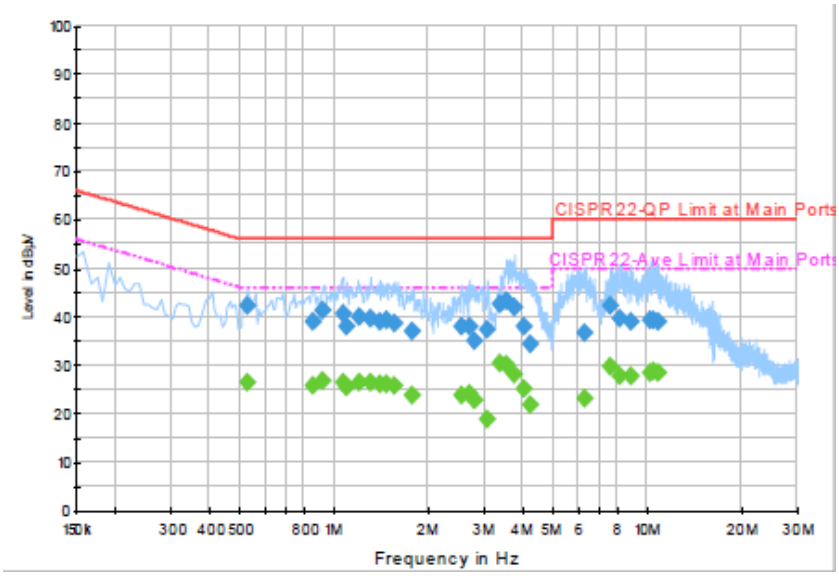
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + Earphone + MP3 + USB Cable (Charging from Adapter)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
3.086000	37.2	Off	L1	19.5	18.8	56.0
3.382000	42.7	Off	L1	19.6	13.3	56.0
3.550000	43.3	Off	L1	19.6	12.7	56.0
3.742000	41.8	Off	L1	19.6	14.2	56.0
4.046000	37.9	Off	L1	19.6	18.1	56.0
4.238000	34.4	Off	L1	19.6	21.6	56.0
6.318000	36.6	Off	L1	19.6	23.4	60.0
7.622000	42.4	Off	L1	19.6	17.6	60.0
8.190000	39.5	Off	L1	19.7	20.5	60.0
8.790000	38.9	Off	L1	19.7	21.1	60.0
10.230000	39.3	Off	L1	19.6	20.7	60.0
10.438000	39.2	Off	L1	19.7	20.8	60.0
10.790000	38.8	Off	L1	19.7	21.2	60.0

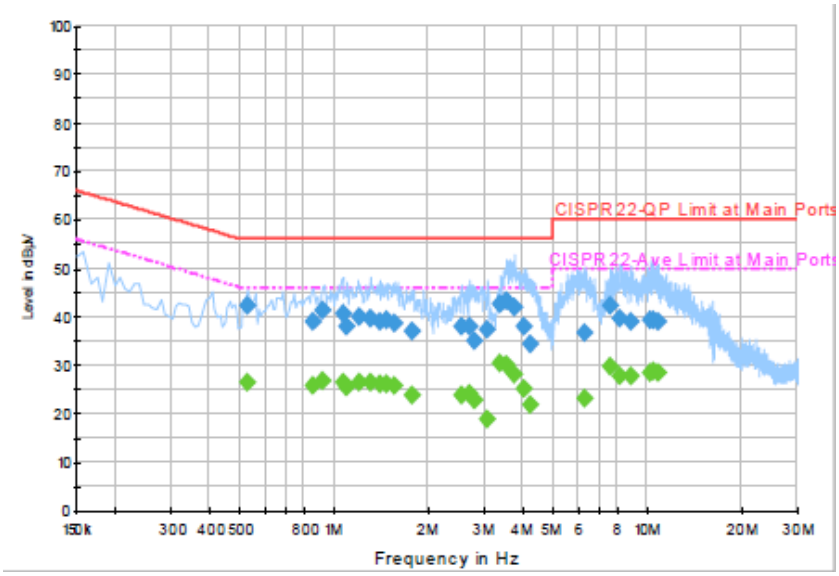
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + Earphone + MP3 + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.526000	26.4	Off	L1	19.4	19.6	46.0
0.854000	25.7	Off	L1	19.6	20.3	46.0
0.918000	26.6	Off	L1	19.4	19.4	46.0
1.062000	26.5	Off	L1	19.5	19.5	46.0
1.094000	25.6	Off	L1	19.5	20.4	46.0
1.206000	26.3	Off	L1	19.5	19.7	46.0
1.302000	26.4	Off	L1	19.5	19.6	46.0
1.390000	26.0	Off	L1	19.5	20.0	46.0
1.462000	26.1	Off	L1	19.6	19.9	46.0
1.550000	25.7	Off	L1	19.4	20.3	46.0
1.758000	23.7	Off	L1	19.6	22.3	46.0
2.534000	23.6	Off	L1	19.5	22.4	46.0
2.702000	24.0	Off	L1	19.5	22.0	46.0

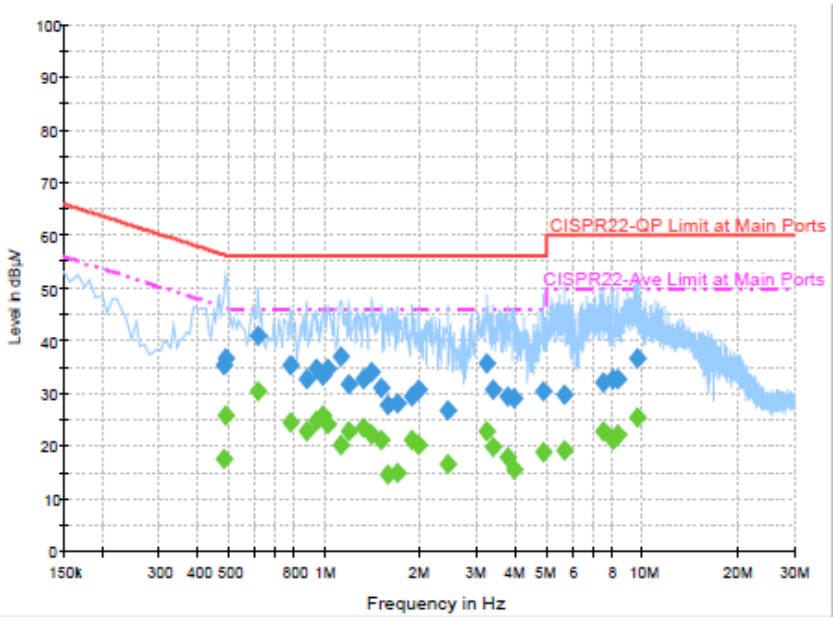
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + Earphone + MP3 + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.806000	22.8	Off	L1	19.6	23.2	46.0
3.086000	18.9	Off	L1	19.5	27.1	46.0
3.382000	30.4	Off	L1	19.6	15.6	46.0
3.550000	29.9	Off	L1	19.6	16.1	46.0
3.742000	28.1	Off	L1	19.6	17.9	46.0
4.046000	25.1	Off	L1	19.6	20.9	46.0
4.238000	21.8	Off	L1	19.6	24.2	46.0
6.318000	23.0	Off	L1	19.6	27.0	50.0
7.622000	29.6	Off	L1	19.6	20.4	50.0
8.190000	27.6	Off	L1	19.7	22.4	50.0
8.790000	27.6	Off	L1	19.7	22.4	50.0
10.230000	28.5	Off	L1	19.6	21.5	50.0
10.438000	28.8	Off	L1	19.7	21.2	50.0
10.790000	28.4	Off	L1	19.7	21.6	50.0

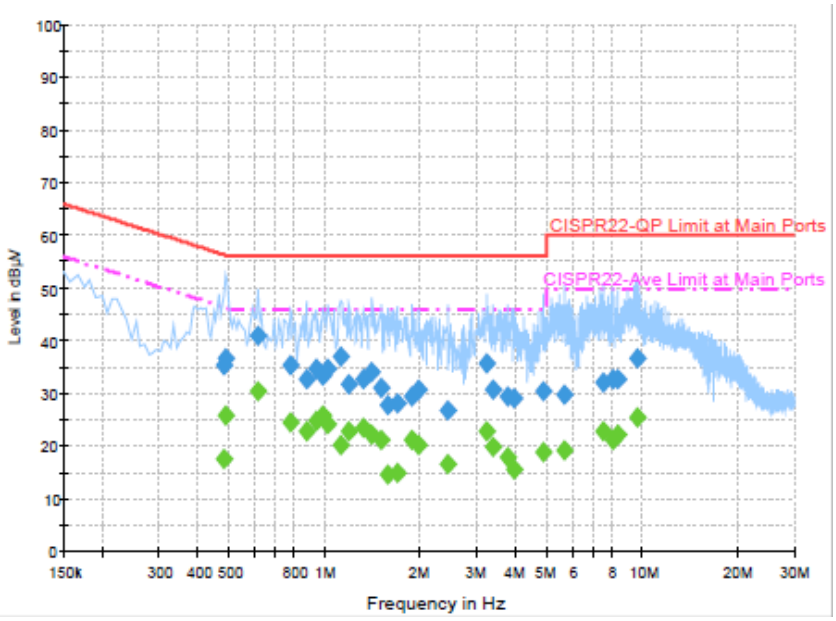
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + Earphone + MP3 + USB Cable (Charging from Adapter)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.478000	35.2	Off	N	19.5	21.2	56.4
0.486000	36.8	Off	N	19.4	19.4	56.2
0.614000	40.8	Off	N	19.4	15.2	56.0
0.774000	35.4	Off	N	19.5	20.6	56.0
0.870000	32.7	Off	N	19.5	23.3	56.0
0.934000	34.7	Off	N	19.5	21.3	56.0
0.982000	33.4	Off	N	19.5	22.6	56.0
1.022000	34.5	Off	N	19.5	21.5	56.0
1.118000	36.9	Off	N	19.5	19.1	56.0
1.190000	31.8	Off	N	19.5	24.2	56.0
1.318000	32.8	Off	N	19.5	23.2	56.0
1.406000	33.9	Off	N	19.5	22.1	56.0
1.502000	30.9	Off	N	19.5	25.1	56.0
1.574000	27.7	Off	N	19.5	28.3	56.0

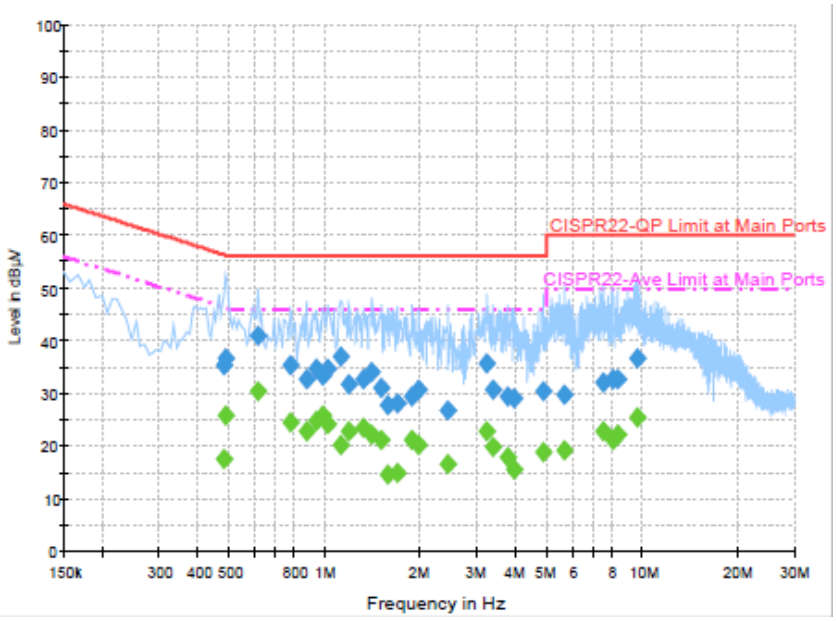
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + Earphone + MP3 + USB Cable (Charging from Adapter)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.678000	28.0	Off	N	19.6	28.0	56.0
1.886000	29.3	Off	N	19.5	26.7	56.0
1.974000	30.6	Off	N	19.6	25.4	56.0
2.430000	26.7	Off	N	19.6	29.3	56.0
3.222000	35.6	Off	N	19.6	20.4	56.0
3.374000	30.5	Off	N	19.6	25.5	56.0
3.758000	29.3	Off	N	19.6	26.7	56.0
3.934000	29.2	Off	N	19.5	26.8	56.0
4.846000	30.4	Off	N	19.6	25.6	56.0
5.654000	29.6	Off	N	19.6	30.4	60.0
7.470000	32.1	Off	N	19.6	27.9	60.0
8.014000	32.8	Off	N	19.7	27.2	60.0
8.358000	32.8	Off	N	19.7	27.2	60.0
9.558000	36.6	Off	N	19.7	23.4	60.0

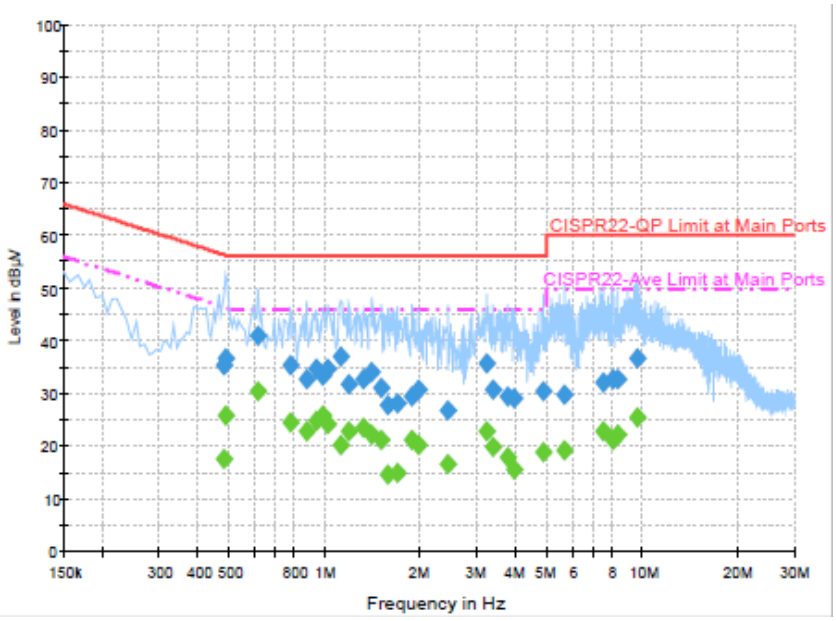
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + Earphone + MP3 + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.478000	17.4	Off	N	19.5	29.0	46.4
0.486000	25.7	Off	N	19.4	20.5	46.2
0.614000	30.4	Off	N	19.4	15.6	46.0
0.774000	24.6	Off	N	19.5	21.4	46.0
0.870000	22.9	Off	N	19.5	23.1	46.0
0.934000	24.9	Off	N	19.5	21.1	46.0
0.982000	25.6	Off	N	19.5	20.4	46.0
1.022000	24.2	Off	N	19.5	21.8	46.0
1.118000	20.2	Off	N	19.5	25.8	46.0
1.190000	22.8	Off	N	19.5	23.2	46.0
1.318000	23.4	Off	N	19.5	22.6	46.0
1.406000	22.2	Off	N	19.5	23.8	46.0
1.502000	21.1	Off	N	19.5	24.9	46.0
1.574000	14.5	Off	N	19.5	31.5	46.0

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + Earphone + MP3 + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.678000	14.7	Off	N	19.6	31.3	46.0
1.886000	21.0	Off	N	19.5	25.0	46.0
1.974000	20.3	Off	N	19.6	25.7	46.0
2.430000	16.5	Off	N	19.6	29.5	46.0
3.222000	22.9	Off	N	19.6	23.1	46.0
3.374000	19.9	Off	N	19.6	26.1	46.0
3.758000	17.8	Off	N	19.6	28.2	46.0
3.934000	15.5	Off	N	19.5	30.5	46.0
4.846000	18.9	Off	N	19.6	27.1	46.0
5.654000	19.0	Off	N	19.6	31.0	50.0
7.470000	22.7	Off	N	19.6	27.3	50.0
8.014000	21.0	Off	N	19.7	29.0	50.0
8.358000	22.1	Off	N	19.7	27.9	50.0
9.558000	25.5	Off	N	19.7	24.5	50.0

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.

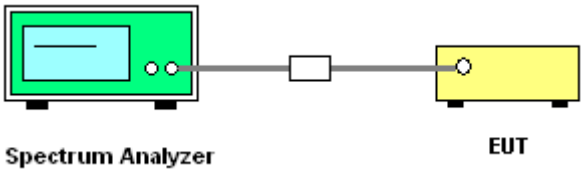
3.6.2 Measuring Instruments

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

Test Band :	5GHz band 4	Test Engineer :	Alex Lee

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (˚C)	Voltage (V)
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	20	3.4
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	20	4.35
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	20	3.8
11a	6Mbps	1	149	5745	5745.050	0.050	8.70	-30	3.8
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	50	3.8

Note:

1. Center Frequency = (Low Frequency + High Frequency) / 2.

3.7 Automatically Discontinue Transmission

3.7.1 Limit of Automatically Discontinue Transmission

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

3.7.2 Measuring Instruments

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

3.7.3 Test Result of Automatically Discontinue Transmission

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

3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.8.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k/20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

The EUT supports CDD mode.

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

The directional gain “DG” is calculated as following table.

	Ant 1 (dBi)	Ant 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
Band IV	-4.30	-5.20	-1.73	-1.73	0.00	0.00

Power Limit Reduction = DG(Power) – 6dBi, (min = 0)

PSD Limit Reduction = DG(PSD) – 6dBi, (min = 0)

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 09, 2014	Aug. 15, 2014~ Sep. 15, 2014	Jun. 08, 2015	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Aug. 09, 2014	Aug. 15, 2014~ Sep. 15, 2014	Aug. 08, 2015	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 09, 2014	Aug. 15, 2014~ Sep. 15, 2014	Aug. 08, 2015	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP30	101067	9kHz ~ 30GHz	Nov. 20, 2013	Aug. 30, 2014~ Sep. 08, 2014	Nov. 19, 2014	Radiation (03CH06-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211030	9kHz ~ 26.5GHz	Dec. 02, 2013	Aug. 30, 2014~ Sep. 08, 2014	Dec. 01, 2014	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/0003	20MHz ~ 1000MHz	May 06, 2014	Aug. 30, 2014~ Sep. 08, 2014	May 05, 2015	Radiation (03CH06-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100330	9 kHz~30 MHz	Nov. 15, 2012	Aug. 30, 2014~ Sep. 08, 2014	Nov. 14, 2014	Radiation (03CH06-HY)
Bilog Antenna	Schaffner	CBL6112B	2885	30MHz ~ 2GHz	Oct. 10, 2013	Aug. 30, 2014~ Sep. 08, 2014	Oct. 09, 2014	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz ~ 18GHz	Jul. 24, 2014	Aug. 30, 2014~ Sep. 08, 2014	Jul. 23, 2015	Radiation (03CH06-HY)
Amplifier	SONOMA	310N	186713	9kHz ~ 1GHz	Apr. 16, 2014	Aug. 30, 2014~ Sep. 08, 2014	Apr. 15, 2015	Radiation (03CH06-HY)
Preamplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 17, 2014	Aug. 30, 2014~ Sep. 08, 2014	Jul. 16, 2015	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Oct. 03, 2013	Aug. 30, 2014~ Sep. 08, 2014	Oct. 02, 2014	Radiation (03CH06-HY)
Preamplifier	Agilent	8449B	3008A01917	1GHz ~ 26.5GHz	Apr. 10, 2014	Aug. 30, 2014~ Sep. 08, 2014	Apr. 09, 2015	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0 ~ 360 degree	N/A	Aug. 30, 2014~ Sep. 08, 2014	N/A	Radiation (03CH06-HY)
Antenna Mast	MF	MF-7802	MF780208212	1 m ~ 4 m	N/A	Aug. 30, 2014~ Sep. 08, 2014	N/A	Radiation (03CH06-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 15, 2013	Aug. 19, 2014	Nov. 14, 2014	Conduction (CO05-HY)
LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2013	Aug. 19, 2014	Dec. 11, 2014	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 04, 2013	Aug. 19, 2014	Dec. 03, 2014	Conduction (CO05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Aug. 19, 2014	N/A	Conduction (CO05-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.50**

Appendix A. Radiated Spurious Emission

Test Engineer :	Kai Wang	Temperature :	23~24°C
		Relative Humidity :	45~46%

15E Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz		5713.56	62.61	-11.39	74	52.32	35.12	9.16	33.99	100	260	P	H
		5722.6	68.91	-9.39	78.3	58.61	35.13	9.16	33.99	100	260	P	H
		5713.64	46.49	-7.51	54	36.2	35.12	9.16	33.99	100	260	A	H
	*	5747	104.59	-	-	94.22	35.14	9.22	33.99	100	260	P	H
	*	5747	95.37	-	-	85	35.14	9.22	33.99	100	260	A	H
		5712.6	66.74	-7.26	74	56.45	35.12	9.16	33.99	103	220	P	V
		5723.56	75.89	-2.41	78.3	65.59	35.13	9.16	33.99	103	220	P	V
		5714.52	52.07	-1.93	54	41.78	35.12	9.16	33.99	103	220	A	V
	*	5747	109.85	-	-	99.48	35.14	9.22	33.99	103	220	P	V
	*	5747	99.78	-	-	89.41	35.14	9.22	33.99	103	220	A	V

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 157 5785MHz		5714.6	55.49	-18.51	74	45.2	35.12	9.16	33.99	104	48	P	H
		5724.76	58.02	-20.28	78.3	47.72	35.13	9.16	33.99	104	48	P	H
		5714.92	44.24	-9.76	54	33.95	35.12	9.16	33.99	104	48	A	H
	*	5783	111.42	-	-	100.93	35.17	9.32	34	104	48	P	H
	*	5783	101.27	-	-	90.78	35.17	9.32	34	104	48	A	H
		5858.24	56.92	-21.38	78.3	46.34	35.22	9.36	34	104	48	P	H
		5860.96	55.49	-18.51	74	44.91	35.22	9.36	34	104	48	P	H
		5860	43.69	-10.31	54	33.11	35.22	9.36	34	104	48	A	H
		5698.12	53.82	-20.18	74	43.59	35.11	9.11	33.99	117	353	P	V
		5724.52	54.94	-23.36	78.3	44.64	35.13	9.16	33.99	117	353	P	V
		5714.6	43.04	-10.96	54	32.75	35.12	9.16	33.99	117	353	A	V
	*	5783	107.23	-	-	96.74	35.17	9.32	34	117	353	P	V
	*	5783	97.06	-	-	86.57	35.17	9.32	34	117	353	A	V
		5850.56	54.57	-23.73	78.3	44.01	35.21	9.35	34	117	353	P	V
		5861.12	54.28	-19.72	74	43.7	35.22	9.36	34	117	353	P	V
		5860.88	43.39	-10.61	54	32.81	35.22	9.36	34	117	353	A	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 165 5825MHz	*	5824	103.5	-	-	92.96	35.2	9.34	34	100	30	P	H
	*	5824	93.5	-	-	82.96	35.2	9.34	34	100	30	A	H
		5850.8	67.08	-11.22	78.3	56.52	35.21	9.35	34	100	30	P	H
		5860.88	57.65	-16.35	74	47.07	35.22	9.36	34	100	30	P	H
		5860.88	45.55	-8.45	54	34.97	35.22	9.36	34	100	30	A	H
	*	5823	109.29	-	-	98.75	35.2	9.34	34	101	237	P	V
	*	5823	99.16	-	-	88.62	35.2	9.34	34	101	237	A	V
		5850.08	70.73	-7.57	78.3	60.17	35.21	9.35	34	101	237	P	V
		5860	66.73	-11.57	78.3	56.15	35.22	9.36	34	101	237	P	V
		5860	51.97	-2.03	54	41.39	35.22	9.36	34	101	237	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15E Band 4 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 149 5745MHz		11490	42.36	-31.64	74	48.34	38.09	14.45	58.52	100	0	P	H
		17232	47.55	-26.45	74	47.03	41.11	18.01	58.6	100	0	P	H
		11490	44.85	-29.15	74	50.83	38.09	14.45	58.52	100	0	P	V
		17232	47.56	-26.44	74	47.04	41.11	18.01	58.6	100	0	P	V
802.11a CH 157 5785MHz		11570	43.95	-30.05	74	49.71	38.2	14.58	58.54	100	0	P	H
		17352	48.38	-25.62	74	47.87	41.02	18.09	58.6	100	0	P	H
		11570	45.55	-28.45	74	51.31	38.2	14.58	58.54	100	0	P	V
		17352	48.88	-25.12	74	48.37	41.02	18.09	58.6	100	0	P	V
802.11a CH 165 5825MHz		11650	45.23	-28.77	74	50.83	38.29	14.69	58.58	100	0	P	H
		17472	47.72	-26.28	74	47.2	40.93	18.19	58.6	100	0	P	H
		11650	45.31	-28.69	74	50.91	38.29	14.69	58.58	100	0	P	V
		17472	49.08	-24.92	74	48.56	40.93	18.19	58.6	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15E Band 4 5725~5850MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 149 5745MHz		5713.32	65	-9	74	54.71	35.12	9.16	33.99	100	263	P	H
		5724.04	71.64	-6.66	78.3	61.34	35.13	9.16	33.99	100	263	P	H
		5714.2	48.28	-5.72	54	37.99	35.12	9.16	33.99	100	263	A	H
	*	5746	104.23	-	-	93.86	35.14	9.22	33.99	100	263	P	H
	*	5746	94.67	-	-	84.3	35.14	9.22	33.99	100	263	A	H
		5714.36	68.52	-5.48	74	58.23	35.12	9.16	33.99	103	226	P	V
		5724.04	77.52	-0.78	78.3	67.22	35.13	9.16	33.99	103	226	P	V
		5714.28	51.11	-2.89	54	40.82	35.12	9.16	33.99	103	226	A	V
	*	5746	108.13	-	-	97.76	35.14	9.22	33.99	103	226	P	V
	*	5746	98.19	-	-	87.82	35.14	9.22	33.99	103	226	A	V

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 157 5785MHz		5709.48	55.7	-18.3	74	45.41	35.12	9.16	33.99	103	53	P	H
		5724.84	58.04	-20.26	78.3	47.74	35.13	9.16	33.99	103	53	P	H
		5715	44.05	-9.95	54	33.76	35.12	9.16	33.99	103	53	A	H
	*	5787	109.89	-	-	99.39	35.18	9.32	34	103	53	P	H
	*	5787	100.48	-	-	89.98	35.18	9.32	34	103	53	A	H
		5857.2	57.36	-20.94	78.3	46.79	35.22	9.35	34	103	53	P	H
		5886.72	55.68	-18.32	74	45.07	35.23	9.38	34	103	53	P	H
		5860.08	43.97	-10.03	54	33.39	35.22	9.36	34	103	53	A	H
		5714.6	54.08	-19.92	74	43.79	35.12	9.16	33.99	116	359	P	V
		5718.2	54.5	-23.8	78.3	44.2	35.13	9.16	33.99	116	359	P	V
		5714.68	43.21	-10.79	54	32.92	35.12	9.16	33.99	116	359	A	V
	*	5787	105.49	-	-	94.99	35.18	9.32	34	116	359	P	V
	*	5787	95.84	-	-	85.34	35.18	9.32	34	116	359	A	V
		5854.56	54.32	-23.98	78.3	43.75	35.22	9.35	34	116	359	P	V
		5860.48	54.43	-19.57	74	43.85	35.22	9.36	34	116	359	P	V
		5862.16	43.42	-10.58	54	32.84	35.22	9.36	34	116	359	A	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 165 5825MHz	*	5824	101.98	-	-	91.44	35.2	9.34	34	100	34	P	H
	*	5824	92.72	-	-	82.18	35.2	9.34	34	100	34	A	H
		5850.56	67.52	-10.78	78.3	56.96	35.21	9.35	34	100	34	P	H
		5860.16	61.67	-12.33	74	51.09	35.22	9.36	34	100	34	P	H
		5860.48	47.08	-6.92	54	36.5	35.22	9.36	34	100	34	A	H
	*	5824	109.23	-	-	98.69	35.2	9.34	34	102	164	P	V
	*	5824	98.9	-	-	88.36	35.2	9.34	34	102	164	A	V
		5851.12	72.26	-6.04	78.3	61.7	35.21	9.35	34	102	164	P	V
		5863.52	68.99	-5.01	74	58.41	35.22	9.36	34	102	164	P	V
		5860	51.83	-2.17	54	41.25	35.22	9.36	34	102	164	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15E Band 4 5725~5850MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 149 5745MHz		11490	44.3	-29.7	74	50.28	38.09	14.45	58.52	100	0	P	H
		17232	48.2	-25.8	74	47.68	41.11	18.01	58.6	100	0	P	H
		11490	45.17	-28.83	74	51.15	38.09	14.45	58.52	100	0	P	V
		17232	48.2	-25.8	74	47.68	41.11	18.01	58.6	100	0	P	V
802.11n HT20 CH 157 5785MHz		11570	44.67	-29.33	74	50.43	38.2	14.58	58.54	100	0	P	H
		17352	48.73	-25.27	74	48.22	41.02	18.09	58.6	100	0	P	H
		11570	46.05	-27.95	74	51.81	38.2	14.58	58.54	100	0	P	V
		17352	48.84	-25.16	74	48.33	41.02	18.09	58.6	100	0	P	V
802.11n HT20 CH 165 5825MHz		11650	43.16	-30.84	74	48.76	38.29	14.69	58.58	100	0	P	H
		17472	47.16	-26.84	74	46.64	40.93	18.19	58.6	100	0	P	H
		11650	45.36	-28.64	74	50.96	38.29	14.69	58.58	100	0	P	V
		17472	48.43	-25.57	74	47.91	40.93	18.19	58.6	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15E Band 4 5725~5850MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 151 5755MHz		5710.6	62.7	-11.3	74	52.41	35.12	9.16	33.99	100	260	P	H
		5715.8	63.28	-15.02	78.3	52.99	35.12	9.16	33.99	100	260	P	H
		5714.12	48.3	-5.7	54	38.01	35.12	9.16	33.99	100	260	A	H
	*	5753	97.66	-	-	87.27	35.16	9.22	33.99	100	260	P	H
	*	5753	88.39	-	-	78	35.16	9.22	33.99	100	260	A	H
		5853.12	53.16	-25.14	78.3	42.6	35.21	9.35	34	100	260	P	H
		5860.64	53.52	-20.48	74	42.94	35.22	9.36	34	100	260	P	H
		5861.52	43.07	-10.93	54	32.49	35.22	9.36	34	100	260	A	H
		5711.88	66.06	-7.94	74	55.77	35.12	9.16	33.99	102	233	P	V
		5721.8	68.58	-9.72	78.3	58.28	35.13	9.16	33.99	102	233	P	V
		5714.04	52.7	-1.3	54	42.41	35.12	9.16	33.99	102	233	A	V
	*	5757	102.32	-	-	91.89	35.16	9.27	34	102	233	P	V
	*	5757	92.99	-	-	82.56	35.16	9.27	34	102	233	A	V
		5854.4	53.52	-24.78	78.3	42.95	35.22	9.35	34	102	233	P	V
		5864	53.58	-20.42	74	43	35.22	9.36	34	102	233	P	V
		5865.44	43.34	-10.66	54	32.76	35.22	9.36	34	102	233	A	V

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT40 CH 159 5795MHz		5710.76	59.42	-14.58	74	49.13	35.12	9.16	33.99	104	49	P	H
		5725	63.26	-15.04	78.3	52.96	35.13	9.16	33.99	104	49	P	H
		5714.84	46.08	-7.92	54	35.79	35.12	9.16	33.99	104	49	A	H
	*	5793	105.08	-	-	94.58	35.18	9.32	34	104	49	P	H
	*	5793	95.67	-	-	85.17	35.18	9.32	34	104	49	A	H
		5854.56	63.45	-14.85	78.3	52.88	35.22	9.35	34	104	49	P	H
		5860.4	60.46	-13.54	74	49.88	35.22	9.36	34	104	49	P	H
		5860.08	47.63	-6.37	54	37.05	35.22	9.36	34	104	49	A	H
		5704.76	55.22	-18.78	74	44.93	35.12	9.16	33.99	116	358	P	V
		5722.28	58.37	-19.93	78.3	48.07	35.13	9.16	33.99	116	358	P	V
		5713.96	43.72	-10.28	54	33.43	35.12	9.16	33.99	116	358	A	V
	*	5793	100.27	-	-	89.77	35.18	9.32	34	116	358	P	V
	*	5793	91.14	-	-	80.64	35.18	9.32	34	116	358	A	V
		5851.36	59.74	-18.56	78.3	49.18	35.21	9.35	34	116	358	P	V
		5862.88	58.07	-15.93	74	47.49	35.22	9.36	34	116	358	P	V
		5860.4	45.7	-8.3	54	35.12	35.22	9.36	34	116	358	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15E Band 4 5725~5850MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 151 5755MHz		11510	42.8	-31.2	74	48.72	38.1	14.48	58.5	100	0	P	H
		17268	48.13	-25.87	74	47.61	41.09	18.03	58.6	100	0	P	H
		11510	45.24	-28.76	74	51.16	38.1	14.48	58.5	100	0	P	V
		17268	48.35	-25.65	74	47.83	41.09	18.03	58.6	100	0	P	V
802.11n HT40 CH 159 5795MHz		11590	44.35	-29.65	74	50.1	38.22	14.58	58.55	100	0	P	H
		17388	49.55	-24.45	74	49.03	40.99	18.13	58.6	100	0	P	H
		11590	45.6	-28.4	74	51.35	38.22	14.58	58.55	100	0	P	V
		17388	48.67	-25.33	74	48.15	40.99	18.13	58.6	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15E Band 4 5725~5850MHz

WIFI 802.11ac VHT20 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 149 5745MHz		5713.48	61.37	-12.63	74	51.08	35.12	9.16	33.99	100	261	P	H
		5723.56	67.69	-10.61	78.3	57.39	35.13	9.16	33.99	100	261	P	H
		5714.04	46.46	-7.54	54	36.17	35.12	9.16	33.99	100	261	A	H
	*	5744	102.79	-	-	92.42	35.14	9.22	33.99	100	261	P	H
	*	5744	93.35	-	-	82.98	35.14	9.22	33.99	100	261	A	H
		5713.64	69.07	-4.93	74	58.78	35.12	9.16	33.99	103	224	P	V
		5725	77.55	-0.75	78.3	67.25	35.13	9.16	33.99	103	224	P	V
		5714.36	51.88	-2.12	54	41.59	35.12	9.16	33.99	103	224	A	V
	*	5747	108.61	-	-	98.24	35.14	9.22	33.99	103	224	P	V
	*	5747	98.24	-	-	87.87	35.14	9.22	33.99	103	224	A	V

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ac VHT20 CH 157 5785MHz		5705.24	53.79	-20.21	74	43.5	35.12	9.16	33.99	100	60	P	H
		5723.8	56.15	-22.15	78.3	45.85	35.13	9.16	33.99	100	60	P	H
		5707	42.98	-11.02	54	32.69	35.12	9.16	33.99	100	60	A	H
	*	5784	104.48	-	-	93.99	35.17	9.32	34	100	60	P	H
	*	5784	94.31	-	-	83.82	35.17	9.32	34	100	60	A	H
		5851.52	55.35	-22.95	78.3	44.79	35.21	9.35	34	100	60	P	H
		5871.68	54.27	-19.73	74	43.68	35.23	9.36	34	100	60	P	H
		5860.56	43.34	-10.66	54	32.76	35.22	9.36	34	100	60	A	H
		5713.56	54.98	-19.02	74	44.69	35.12	9.16	33.99	101	232	P	V
		5724.76	58.09	-20.21	78.3	47.79	35.13	9.16	33.99	101	232	P	V
		5714.12	43.89	-10.11	54	33.6	35.12	9.16	33.99	101	232	A	V
	*	5783	108.84	-	-	98.35	35.17	9.32	34	101	232	P	V
	*	5783	99.23	-	-	88.74	35.17	9.32	34	101	232	A	V
		5850.64	58.11	-20.19	78.3	47.55	35.21	9.35	34	101	232	P	V
		5864.32	55.39	-18.61	74	44.81	35.22	9.36	34	101	232	P	V
		5861.2	44.09	-9.91	54	33.51	35.22	9.36	34	101	232	A	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 165 5825MHz	*	5823	102.09	-	-	91.55	35.2	9.34	34	100	59	P	H
	*	5823	91.96	-	-	81.42	35.2	9.34	34	100	59	A	H
		5850	68.21	-10.09	78.3	57.65	35.21	9.35	34	100	59	P	H
		5861.2	63.43	-10.57	74	52.85	35.22	9.36	34	100	59	P	H
		5860	47.07	-6.93	54	36.49	35.22	9.36	34	100	59	A	H
	*	5827	107.87	-	-	97.33	35.2	9.34	34	101	225	P	V
	*	5827	98.16	-	-	87.62	35.2	9.34	34	101	225	A	V
		5850.16	74.59	-3.71	78.3	64.03	35.21	9.35	34	101	225	P	V
		5862.08	69.66	-4.34	74	59.08	35.22	9.36	34	101	225	P	V
		5860	52.18	-1.82	54	41.6	35.22	9.36	34	101	225	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15E Band 4 5725~5850MHz

WIFI 802.11ac VHT20 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 149 5745MHz		11490	45.74	-28.26	74	51.72	38.09	14.45	58.52	100	0	P	H
		17235	47.69	-26.31	74	47.17	41.11	18.01	58.6	100	0	P	H
		11490	45.96	-28.04	74	51.94	38.09	14.45	58.52	100	0	P	V
		17235	47.32	-26.68	74	46.8	41.11	18.01	58.6	100	0	P	V
802.11ac VHT20 CH 157 5785MHz		11570	45.27	-28.73	74	51.03	38.2	14.58	58.54	100	0	P	H
		17355	48.73	-25.27	74	48.22	41.02	18.09	58.6	100	0	P	H
		11570	46.22	-27.78	74	51.98	38.2	14.58	58.54	100	0	P	V
		17355	48.52	-25.48	74	48.01	41.02	18.09	58.6	100	0	P	V
802.11ac VHT20 CH 165 5825MHz		11650	46.17	-27.83	74	51.77	38.29	14.69	58.58	100	0	P	H
		17475	47.38	-26.62	74	46.86	40.93	18.19	58.6	100	0	P	H
		11650	45.31	-28.69	74	50.91	38.29	14.69	58.58	100	0	P	V
		17475	48.51	-25.49	74	47.99	40.93	18.19	58.6	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15E Band 4 5725~5850MHz

WIFI 802.11ac VHT40 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 CH 151 5755MHz		5710.76	61.06	-12.94	74	50.77	35.12	9.16	33.99	100	238	P	H
		5724.04	64.35	-13.95	78.3	54.05	35.13	9.16	33.99	100	238	P	H
		5714.04	48.58	-5.42	54	38.29	35.12	9.16	33.99	100	238	A	H
	*	5753	97.06	-	-	86.67	35.16	9.22	33.99	100	238	P	H
	*	5753	87.22	-	-	76.83	35.16	9.22	33.99	100	238	A	H
		5855.92	53.49	-24.81	78.3	42.92	35.22	9.35	34	100	238	P	H
		5886.64	53.7	-20.3	74	43.09	35.23	9.38	34	100	238	P	H
		5888.48	43.19	-10.81	54	32.57	35.24	9.38	34	100	238	A	H
		5714.68	67.22	-6.78	74	56.93	35.12	9.16	33.99	102	233	P	V
		5724.44	69.18	-9.12	78.3	58.88	35.13	9.16	33.99	102	233	P	V
		5714.36	53.37	-0.63	54	43.08	35.12	9.16	33.99	102	233	A	V
	*	5756	102.47	-	-	92.04	35.16	9.27	34	102	233	P	V
	*	5756	93.15	-	-	82.72	35.16	9.27	34	102	233	A	V
		5853.44	54.03	-24.27	78.3	43.47	35.21	9.35	34	102	233	P	V
		5888.48	53.77	-20.23	74	43.15	35.24	9.38	34	102	233	P	V
		5888.24	43.33	-10.67	54	32.71	35.24	9.38	34	102	233	A	V

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ac VHT40 CH 159 5795MHz		5706.2	57.55	-16.45	74	47.26	35.12	9.16	33.99	100	260	P	H
		5721.72	61.44	-16.86	78.3	51.14	35.13	9.16	33.99	100	260	P	H
		5713.8	45.45	-8.55	54	35.16	35.12	9.16	33.99	100	260	A	H
	*	5793	99.35	-	-	88.85	35.18	9.32	34	100	260	P	H
	*	5793	90.21	-	-	79.71	35.18	9.32	34	100	260	A	H
		5852.88	60.19	-18.11	78.3	49.63	35.21	9.35	34	100	260	P	H
		5860.4	58.5	-15.5	74	47.92	35.22	9.36	34	100	260	P	H
		5861.04	46.64	-7.36	54	36.06	35.22	9.36	34	100	260	A	H
		5714.76	61.12	-12.88	74	50.83	35.12	9.16	33.99	101	235	P	V
		5723.8	64.3	-14	78.3	54	35.13	9.16	33.99	101	235	P	V
		5714.2	47.07	-6.93	54	36.78	35.12	9.16	33.99	101	235	A	V
	*	5797	105.53	-	-	95.03	35.18	9.32	34	101	235	P	V
	*	5797	95.57	-	-	85.07	35.18	9.32	34	101	235	A	V
		5852.4	65.65	-12.65	78.3	55.09	35.21	9.35	34	101	235	P	V
		5861.44	63.71	-10.29	74	53.13	35.22	9.36	34	101	235	P	V
		5860.96	51.2	-2.8	54	40.62	35.22	9.36	34	101	235	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15E Band 4 5725~5850MHz

WIFI 802.11ac VHT40 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 CH 151 5755MHz		11510	45.34	-28.66	74	51.26	38.1	14.48	58.5	100	0	P	H
		17265	47.63	-26.37	74	47.11	41.09	18.03	58.6	100	0	P	H
		11510	45.16	-28.84	74	51.08	38.1	14.48	58.5	100	0	P	V
		17265	48	-26	74	47.48	41.09	18.03	58.6	100	0	P	V
802.11ac VHT40 CH 159 5795MHz		11590	45.93	-28.07	74	51.68	38.22	14.58	58.55	100	0	P	H
		17385	49.11	-24.89	74	48.59	40.99	18.13	58.6	100	0	P	H
		11590	45.78	-28.22	74	51.53	38.22	14.58	58.55	100	0	P	V
		17385	48.93	-25.07	74	48.41	40.99	18.13	58.6	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15E Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 155 5775MHz		5708.52	62.4	-11.6	74	52.11	35.12	9.16	33.99	100	257	P	H
		5717.72	62.24	-16.06	78.3	51.94	35.12	9.16	33.99	100	257	P	H
		5714.04	49.93	-4.07	54	39.64	35.12	9.16	33.99	100	257	A	H
	*	5773	94.28	-	-	83.84	35.17	9.27	34	100	257	P	H
	*	5773	85.48	-	-	75.04	35.17	9.27	34	100	257	A	H
		5855.84	55.05	-23.25	78.3	44.48	35.22	9.35	34	100	257	P	H
		5863.2	55.33	-18.67	74	44.75	35.22	9.36	34	100	257	P	H
		5861.2	44.11	-9.89	54	33.53	35.22	9.36	34	100	257	A	H
		5706.76	66.62	-7.38	74	56.33	35.12	9.16	33.99	102	238	P	V
		5717.08	66.39	-11.91	78.3	56.1	35.12	9.16	33.99	102	238	P	V
		5706.76	53.88	-0.12	54	43.59	35.12	9.16	33.99	102	238	A	V
	*	5772	98.8	-	-	88.36	35.17	9.27	34	102	238	P	V
	*	5772	89.26	-	-	78.82	35.17	9.27	34	102	238	A	V
		5851.12	58.92	-19.38	78.3	48.36	35.21	9.35	34	102	238	P	V
		5866.56	58.56	-15.44	74	47.98	35.22	9.36	34	102	238	P	V
		5861.44	46.84	-7.16	54	36.26	35.22	9.36	34	102	238	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15E Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ac		11550	45.25	-28.75	74	51.06	38.17	14.55	58.53	100	0	P	H
VHT80		17325	47.87	-26.13	74	47.35	41.05	18.07	58.6	100	0	P	H
CH 155		11550	45.26	-28.74	74	51.07	38.17	14.55	58.53	100	0	P	V
5775MHz		17325	48.64	-25.36	74	48.12	41.05	18.07	58.6	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15E Emission below 1GHz

5GHz WIFI 802.11a (LF @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
5GHz 802.11a LF		62.4	23.53	-16.47	40	48.01	6.4	0.89	31.77			P	H
		168.24	36.1	-7.4	43.5	56.42	9.82	1.61	31.75	189	264	P	H
		187.95	35.59	-7.91	43.5	56.81	9.06	1.47	31.75			P	H
		475	21.53	-24.47	46	33.62	17.5	2.31	31.9			P	H
		711.6	22.79	-23.21	46	32.31	19.56	2.93	32.01			P	H
		902	24.86	-21.14	46	31.92	21.08	3.37	31.51			P	H
		35.94	31.02	-8.98	40	47.13	14.98	0.7	31.79	100	163	P	V
		44.04	29.76	-10.24	40	50.52	10.26	0.76	31.78			P	V
		162.3	33.01	-10.49	43.5	53.24	10.02	1.5	31.75			P	V
		427.4	19.84	-26.16	46	32.63	16.8	2.26	31.85			P	V
		604.5	22.17	-23.83	46	32.02	19.44	2.77	32.06			P	V
		903.4	24.6	-21.4	46	31.66	21.07	3.37	31.5			P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

15E Emission below 1GHz

5GHz WIFI 802.11n HT20 (LF @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11n HT20 LF		62.94	23.85	-16.15	40	48.43	6.3	0.89	31.77			P	H
		168.24	36.04	-7.46	43.5	56.36	9.82	1.61	31.75	137	318	P	H
		186.06	35.75	-7.75	43.5	57.01	9.02	1.47	31.75			P	H
		417.6	19.99	-26.01	46	32.89	16.7	2.24	31.84			P	H
		650	22.76	-23.24	46	32.5	19.5	2.8	32.04			P	H
		905.5	24.24	-21.76	46	31.31	21.04	3.37	31.48			P	H
		36.75	30.98	-9.02	40	47.6	14.46	0.71	31.79	100	305	P	V
		44.04	29.46	-10.54	40	50.22	10.26	0.76	31.78			P	V
		161.76	33.12	-10.38	43.5	53.35	10.02	1.5	31.75			P	V
		413.4	19.19	-26.81	46	32.35	16.45	2.22	31.83			P	V
		618.5	21.93	-24.07	46	31.61	19.59	2.78	32.05			P	V
		875.4	25.81	-20.19	46	33.25	20.9	3.3	31.64			P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

15E Emission below 1GHz

5GHz WIFI 802.11n HT40 (LF @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11n HT40 LF		62.94	23.96	-16.04	40	48.54	6.3	0.89	31.77			P	H
		168.24	36.21	-7.29	43.5	56.53	9.82	1.61	31.75	146	168	P	H
		186.06	35.62	-7.88	43.5	56.88	9.02	1.47	31.75			P	H
		483.4	19.72	-26.28	46	31.67	17.63	2.33	31.91			P	H
		632.5	22.46	-23.54	46	31.96	19.76	2.79	32.05			P	H
		867	24.95	-21.05	46	32.47	20.87	3.28	31.67			P	H
		36.75	30.96	-9.04	40	47.58	14.46	0.71	31.79	100	174	P	V
		43.5	30.24	-9.76	40	51.01	10.26	0.76	31.79			P	V
		161.76	32.66	-10.84	43.5	52.89	10.02	1.5	31.75			P	V
		454	19.61	-26.39	46	32.15	17.02	2.32	31.88			P	V
		629	22.28	-23.72	46	31.76	19.78	2.79	32.05			P	V
		832	24.71	-21.29	46	32.74	20.62	3.17	31.82			P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

15E Emission below 1GHz

5GHz WIFI 802.11ac VHT80 (LF @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11ac VHT80 LF		0.01318	34.6	-90.61	125.21	14.07	20.24	0.29				A	H
		0.07662	26.02	-83.9	109.92	5.72	20.01	0.29				A	H
		0.09666	21.85	-86.05	107.9	1.6	19.96	0.29				QP	H
		0.13384	50.11	-54.96	105.07	29.88	19.94	0.29				A	H
		0.14208	20.48	-84.07	104.55	0.27	19.92	0.29				A	H
		0.3999	41.47	-54.09	95.56	21.3	19.88	0.29				A	H
		1.496	47.55	-16.55	64.1	27.33	19.91	0.31		100	25	QP	H
		10.128	36.93	-33.07	70	16.51	20.03	0.39				QP	H
		20.185	37.91	-32.09	70	17.03	20.45	0.43				QP	H
		26.335	36.55	-33.45	70	15.4	20.68	0.47				QP	H
		62.4	23.98	-16.02	40	48.46	6.4	0.89	31.77			P	H
		169.86	35.73	-7.77	43.5	56.05	9.8	1.63	31.75	100	132	P	H
		186.6	35.41	-8.09	43.5	56.67	9.02	1.47	31.75			P	H
		434.4	19.99	-26.01	46	32.77	16.8	2.28	31.86			P	H
		681.5	22.13	-23.87	46	31.9	19.4	2.86	32.03			P	H
		893.6	24.84	-21.16	46	32.09	20.96	3.35	31.56			P	H
		0.01237	36.93	-88.83	125.76	16.38	20.26	0.29				A	V
		0.07665	27.39	-82.52	109.91	7.07	20.03	0.29				A	V
		0.0967	22.6	-85.3	107.9	2.32	19.99	0.29				QP	V
		0.13128	25.46	-79.78	105.24	5.21	19.96	0.29				A	V
		0.1424	52.02	-52.51	104.53	31.78	19.95	0.29				A	V
		0.4611	49.15	-45.18	94.33	28.96	19.9	0.29				A	V
		1.429	46.76	-17.75	64.51	26.52	19.93	0.31		100	48	QP	V
		13.824	36.77	-33.23	70	16.65	19.72	0.4				QP	V
		19.375	37.64	-32.36	70	17.35	19.86	0.43				QP	V
		27.575	36.96	-33.04	70	16.38	20.08	0.5				QP	V
		35.94	31.42	-8.58	40	47.53	14.98	0.7	31.79	100	246	P	V
		43.5	29.36	-10.64	40	50.13	10.26	0.76	31.79			P	V
		165	32.51	-10.99	43.5	52.81	9.9	1.55	31.75			P	V

		436.5	18.86	-27.14	46	31.64	16.8	2.28	31.86			P	V
		630.4	22.41	-23.59	46	31.87	19.8	2.79	32.05			P	V
		896.4	24.46	-21.54	46	31.63	21.02	3.36	31.55			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 per 15.209(c).
!	Test result is **over limit** line.
P/A	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

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