FCC REPORT
(UNII)

Applicant: INFINIX MOBILITY LIMITED

Address of Applicant: FLAT 39 8/F BLOCK D WAH LOK INDUSTRIAL CENTRE 31-35 SHAN MEI STREET FOTAN NT

Equipment Under Test (EUT)

Product Name: Mobile Phone

Model No.: X688B

Trade mark: Infinix

FCC ID: 2AIZN-X688B

Applicable standards: FCC CFR Title 47 Part 15 Subpart E Section 15.407

Date of sample receipt: 29 Jun., 2021

Date of Test: 29 Jun., to 21 Jul., 2021

Date of report issued: 29Jul., 2021

Test Result: PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

2 Version

Version No.	Date	Description
00	*22 Jul., 2021*	*Original*
01	*29 Jul., 2021*	*Update Page 18 to 26*

Tested by: Mike.ou ***Date:*** *29Jul., 2021*

Test Engineer

Reviewed by: Winner zhang ***Date:*** *29Jul., 2021*

Project Engineer

3 Contents

Page

1 COVER PAGE 1

2 VERSION 2

3 CONTENTS 3

4 TEST SUMMARY 4

5 GENERAL INFORMATION 5

5.1 CLIENT INFORMATION 5
5.2 GENERAL DESCRIPTION OF E.U.T 5
5.3 TEST ENVIRONMENT AND MODE 7
5.4 DESCRIPTION OF SUPPORT UNITS 7
5.5 MEASUREMENT UNCERTAINTY 7
5.6 ADDITIONS TO, DEVIATIONS, OR EXCLUSIONS FROM THE METHOD 7
5.7 RELATED SUBMITTAL(S) / GRANT (S) 7
5.8 LABORATORY FACILITY 8
5.9 LABORATORY LOCATION 8
5.10 TEST INSTRUMENTS LIST 9

6 TEST RESULTS AND MEASUREMENT DATA 10

6.1 ANTENNA REQUIREMENT 10
6.2 CONDUCTED EMISSION 11
6.3 CONDUCTED OUTPUT POWER 14
6.4 OCCUPY BANDWIDTH 15
6.5 POWER SPECTRAL DENSITY 16
6.6 BAND EDGE 17
6.7 SPURIOUS EMISSION 27
6.7.1 Restricted Band 27
6.7.2 Unwanted Emissions out of the Restricted Bands 28
6.8 FREQUENCY STABILITY 38

7 TEST SETUP PHOTO 39

8 EUT CONSTRUCTIONAL DETAILS 40

4 Test Summary

Test Item	Section in CFR 47	Test Data	Test Result
Antenna requirement	15.203 & 15.407 (a)	See Section 6.1	Pass
AC Power Line Conducted Emission	15.207	See Section 6.2	Pass
Duty Cycle	ANSI C63.10-2013	Appendix A – 5G Wi-Fi	Pass
Conducted Peak Output Power	15.407 (a) (1) (iv) & (a) (3)	Appendix A – 5G Wi-Fi	Pass
26dB Occupied Bandwidth	15.407 (a) (12)	Appendix A – 5G Wi-Fi	Pass
6dB Emission Bandwidth	15.407(e)	Appendix A – 5G Wi-Fi	Pass
Power Spectral Density	15.407 (a) (1) (iv) & (a) (3)	Appendix A – 5G Wi-Fi	Pass
Band Edge	15.407(b)	See Section 6.6	Pass
Spurious Emission	15.407 (b) & 15.205 & 15.209	See Section 6.7	Pass
Frequency Stability	15.407(g)	Appendix A – 5G Wi-Fi	Pass

Remark:

1. *Pass: The EUT complies with the essential requirements in the standard.*
2. *N/A: Not Applicable.*
3. *The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).*

Test Method:	*ANSI C63.10-2013* *KDB 789033 D02 General UNII Test Procedures New Rules v02r01*

5 General Information

5.1 Client Information

Applicant:	INFINIX MOBILITY LIMITED
Address:	FLAT 39 8/F BLOCK D WAH LOK INDUSTRIAL CENTRE 31-35 SHAN MEI STREET FOTAN NT
Manufacturer:	INFINIX MOBILITY LIMITED
Address:	FLAT 39 8/F BLOCK D WAH LOK INDUSTRIAL CENTRE 31-35 SHAN MEI STREET FOTAN NT
Factory:	SHENZHEN TECNO TECHNOLOGY CO., LTD.
Address:	101, Building 24, Waijing Industrial Park, Fumin Community, Fucheng Street, Longhua District, Shenzhen City, P.R.China

5.2 General Description of E.U.T.

Product Name:	Mobile Phone			
Model No.:	X688B			
Operation Frequency:	Band 1: 5150MHz-5250MHz		Band 4: 5725MHz-5825MHz	
Channel numbers:	Band 1:	802.11a/802.11n/ac20: 4	802.11n/ac40: 2	802.11a80c: 1
	Band 4:	802.11a/802.11n/ac20: 5	802.11n/ac40: 2	802.11ac80: 1
Channel separation:	20MHz:	802.11a/802.11n-HT20/802.11ac-HT20		
	40MHz:	802.11n-HT40/802.11ac-HT40		
	80MHz:	802.11ac-HT80		
Modulation technology (IEEE 802.11a):	BPSK, QPSK, 16-QAM, 64-QAM			
Modulation technology (IEEE 802.11n):	BPSK, QPSK, 16-QAM, 64-QAM			
Modulation technology (IEEE 802.11ac):	BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM			
Data speed (IEEE 802.11a):	6Mbps, 9Mbps,12Mbps,18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps			
Data speed (IEEE 802.11n20):	MCS0: 6.5Mbps, MCS1:13Mbps,MCS2:19.5Mbps, MCS3:26Mbps, MCS4:39Mbps, MCS5:52Mbps, MCS6:58.5Mbps, MCS7:65Mbps			
Data speed (IEEE 802.11n40):	MCS0:15Mbps, MCS1:30Mbps, MCS2:45Mbps, MCS3:60Mbps, MCS4:90Mbps, MCS5:120Mbps, MCS6:135Mbps, MCS7:150Mbps			
Data speed (IEEE 802.11ac):	Up to 433.3Mbps			
Antenna Type:	Internal Antenna			
Antenna gain:	0.9 dBi			
Power supply:	Rechargeable Li-ion Polymer Battery DC3.85V, 5850mAh			
AC adapter:	Model: U100XSA Input: AC100-240V, 50/60Hz, 0.3A Output: DC 5.0V, 2.0A			
Test Sample Condition:	The test samples were provided in good working order with no visible defects.			

Operation Frequency each of channel					
Band 1					
802.11a/802.11n/ac-HT20		802.11n/ac-HT40		802.11ac-HT80	
Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	38	5190MHz	42	5210MHz
40	5200MHz	46	5230MHz		
44	5220MHz				
48	5240MHz				
Band 4					
802.11a/802.11n/ac-HT20		802.11n/ac-HT40		802.11ac-HT80	
Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	151	5755MHz	155	5775MHz
153	5765MHz	159	5795MHz		
157	5785MHz				
161	5805MHz				
165	5825MHz				

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Band 1					
802.11a/802.11n/ac-HT20		802.11n/ac-HT40		802.11ac-HT80	
Channel	Frequency	Channel	Frequency	Channel	Frequency
Lowest	5180MHz	Lowest	5190MHz	Middle	5210MHz
Middle	5200MHz	Highest	5230MHz		
Highest	5240MHz				
Band 4					
802.11a/802.11n/ac-HT20		802.11n/ac-HT40		802.11ac-HT80	
Channel	Frequency	Channel	Frequency	Channel	Frequency
Lowest	5745MHz	Lowest	5755MHz	Middle	5775MHz
Middle	5785MHz	Highest	5795MHz		
Highest	5825MHz				

5.3 Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Continuously transmitting mode	Keep the EUT in 100% duty cycle transmitting with modulation.
We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:	
Per-scan all kind of data rate, and found the follow list were the worst case.	
Mode	Data rate
802.11a	6 Mbps
802.11n/ac20	6.5 Mbps
802.11n/ac40	13.5 Mbps
802.11ac80	29.3 Mbps

5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
The EUT has been tested as an independent unit.				

5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	± 2.40 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±4.14 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.45 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±4.25 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±3.38 dB (k=2)

5.6 Additions to, deviations, or exclusions from the method

No

5.7 Related Submittal(s) / Grant (s)

This is an original grant, no related submittals and grants.

5.8 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.9 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://www.ccis-cb.com

5.10 Test Instruments list

Radiated method:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
3m SAC	ETS	9m*6m*6m	966	01-19-2021	01-18-2024
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-03-2021	03-02-2022
Biconical Antenna	SCHWARZBECK	VUBA9117	359	06-18-2020	06-17-2021
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-03-2021	03-02-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-17-2021	06-16-2022
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-18-2020	11-17-2021
Test Software	Tonscend	TS+	Version: 3.0.0.1		
Pre-amplifier	HP	8447D	2944A09358	03-03-2021	03-02-2022
Pre-amplifier	CD	PAP-1G18	11804	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-18-2020	11-17-2021
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-03-2021	03-02-2022
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-03-2021	03-02-2022
Cable	MICRO-COAX	MFR64639	K10742-5	03-03-2021	03-02-2022
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-03-2021	03-02-2022
DC Power Supply	XinNuoEr	WYK-10020K	1409050110020	09-25-2020	09-24-2021
Temperature Humidity Chamber	HengPu	HPGDS-500	20140828008	11-01-2020	10-31-2021

Conducted Emission:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	03-03-2021	03-02-2022
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-03-2021	03-02-2022
LISN	CHASE	MN2050D	1447	03-03-2021	03-02-2022
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	06-18-2021	06-17-2022
Cable	HP	10503A	N/A	03-03-2021	03-02-2022
EMI Test Software	AUDIX	E3	Version: 6.110919b		

Conducted method:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
Spectrum Analyzer	Keysight	N9010B	MY60240202	11-27-2020	11-26-2021
Vector Signal Generator	Keysight	N5182B	MY59101009	11-27-2020	11-26-2021
Analog Signal Generator	Keysight	N5173B	MY59100765	11-27-2020	11-26-2021
Power Detector Box	MWRF-test	MW100-PSB	MW201020JYT	11-27-2020	11-26-2021
Simulated Station	Rohde & Schwarz	CMW270	102335	11-27-2020	11-26-2021
RF Control Box	MWRF-test	MW100-RFCB	MW200927JYT	N/A	N/A
PDU	MWRF-test	XY-G10	N/A	N/A	N/A
Test Software	MWRF-tes	MTS 8310	Version: 2.0.0.0		
DC Power Supply	Keysight	E3642A	MY60296194	11-27-2020	11-26-2021

6 Test results and Measurement Data

6.1 Antenna requirement

Standard requirement:	FCC Part15 E Section 15.203 /407(a)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.	
E.U.T Antenna:	
The Wi-Fi antenna is an Internal antenna which cannot replace by end-user, the best case gain of the antenna is -0.9 dBi.	

6.2 Conducted Emission

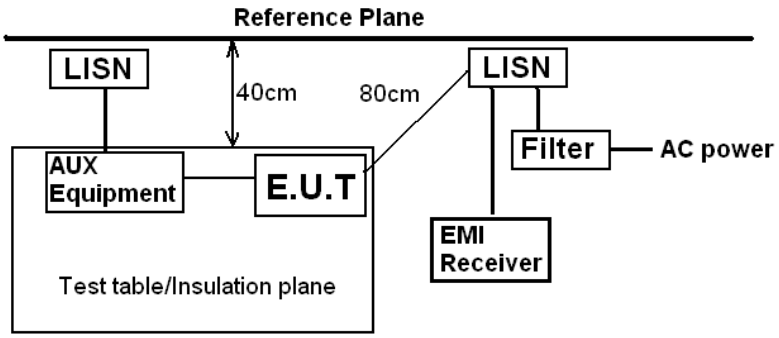
Test Requirement:	FCC Part15 C Section 15.207
Test Frequency Range:	150kHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9kHz, VBW=30kHz
Limit:	

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	
0.15-0.5	66 to 56*	0.15-0.5
0.5-5	56	0.5-5
5-30	60	5-30
* Decreases with the logarithm of the frequency.		

Test procedure

1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). It provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10(latest version) on conducted measurement.

Test setup:

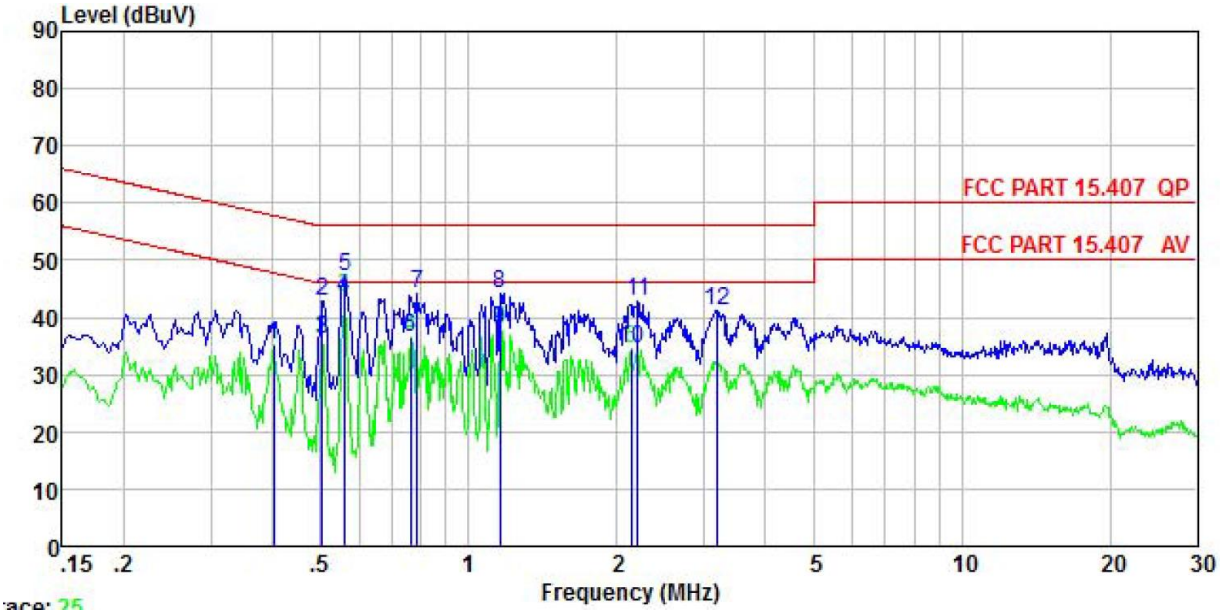


Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details.
Test results:	Passed

Measurement Data:

Product name:	Mobile Phone	**Product model:**	X688B
Test by:	Mike	**Test mode:**	5G Wi-Fi Tx mode
Test frequency:	150 kHz ~ 30 MHz	**Phase:**	Line
Test voltage:	AC 120 V/60 Hz	**Environment:**	Temp: 22.5℃ Huni: 55%

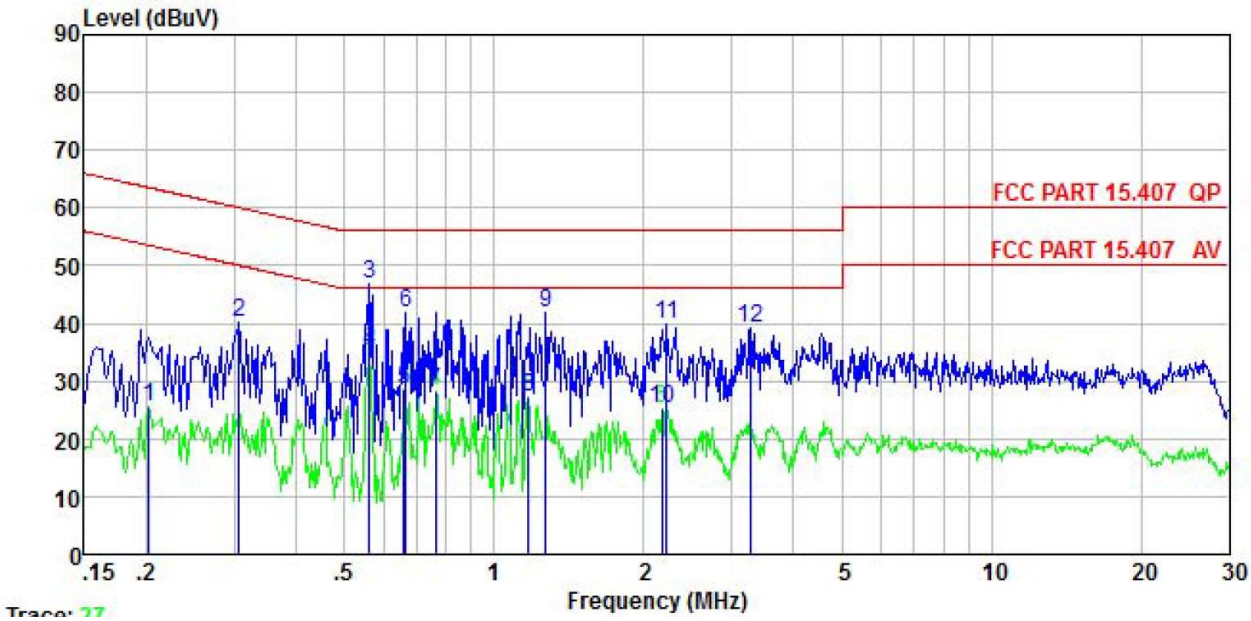


	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.402	24.43	10.28	0.42	0.04	35.17	47.81	-12.64	Average
2	0.505	32.96	10.34	-0.35	0.03	42.98	56.00	-13.02	QP
3	0.505	26.32	10.34	-0.35	0.03	36.34	46.00	-9.66	Average
4	0.558	33.50	10.36	-0.37	0.02	43.51	46.00	-2.49	Average
5	0.561	37.05	10.36	-0.37	0.02	47.06	56.00	-8.94	QP
6	0.763	26.29	10.43	-0.20	0.03	36.55	46.00	-9.45	Average
7	0.788	33.80	10.43	-0.13	0.03	44.13	56.00	-11.87	QP
8	1.160	33.43	10.49	0.29	0.08	44.29	56.00	-11.71	QP
9	1.160	27.13	10.49	0.29	0.08	37.99	46.00	-8.01	Average
10	2.133	23.95	10.55	-0.30	0.19	34.39	46.00	-11.61	Average
11	2.201	32.25	10.55	-0.29	0.18	42.69	56.00	-13.31	QP
12	3.190	30.60	10.59	-0.17	0.07	41.09	56.00	-14.91	QP

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Aux Factor + Cable Loss.*

Product name:	Mobile Phone	**Product model:**	X688B
Test by:	Mike	**Test mode:**	5G Wi-Fi Tx mode
Test frequency:	150 kHz ~ 30 MHz	**Phase:**	Neutral
Test voltage:	AC 120 V/60 Hz	**Environment:**	Temp: 22.5℃ Huni: 55%

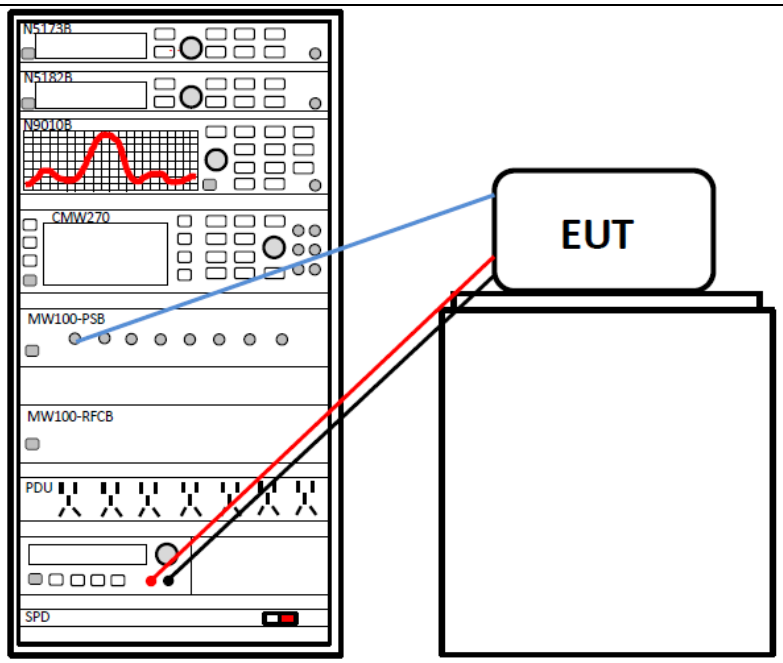


	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.202	15.53	9.92	0.00	0.04	25.49	53.54	-28.05	Average
2	0.307	30.27	10.02	0.00	0.03	40.32	60.06	-19.74	QP
3	0.561	36.58	10.26	0.03	0.02	46.89	56.00	-9.11	QP
4	0.561	24.75	10.26	0.03	0.02	35.06	46.00	-10.94	Average
5	0.658	18.15	10.34	0.04	0.03	28.56	46.00	-17.44	Average
6	0.665	31.57	10.34	0.04	0.03	41.98	56.00	-14.02	QP
7	0.763	17.58	10.41	0.05	0.03	28.07	46.00	-17.93	Average
8	1.172	16.36	10.61	0.10	0.09	27.16	46.00	-18.84	Average
9	1.269	30.92	10.64	0.11	0.10	41.77	56.00	-14.23	QP
10	2.178	14.03	10.82	0.20	0.18	25.23	46.00	-20.77	Average
11	2.225	28.54	10.83	0.21	0.17	39.75	56.00	-16.25	QP
12	3.276	27.71	10.92	0.37	0.07	39.07	56.00	-16.93	QP

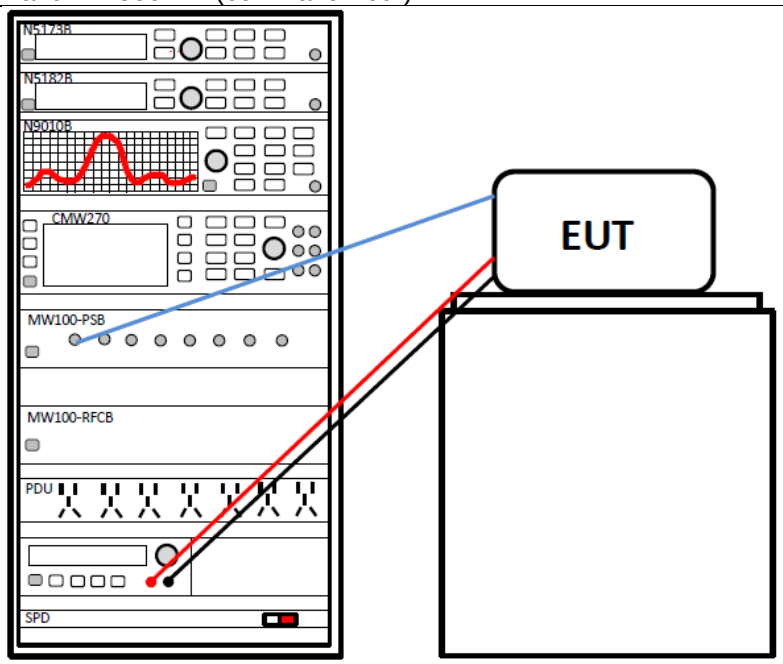
Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Aux Factor + Cable Loss.*

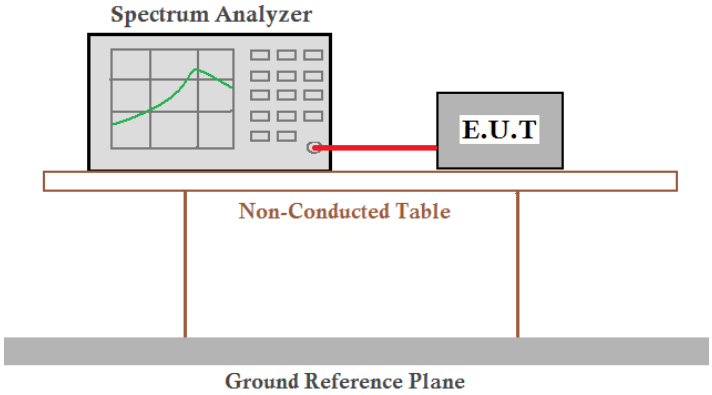
6.3 Conducted Output Power

Test Requirement:	FCC Part15 E Section 15.407 (a) (1) (iv) & (a) (3)
Limit:	Band 1: 24dBm Band 4: 30dBm
Test setup:	
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Measurement Data:	**Refer to Appendix A - 5G WIFI**

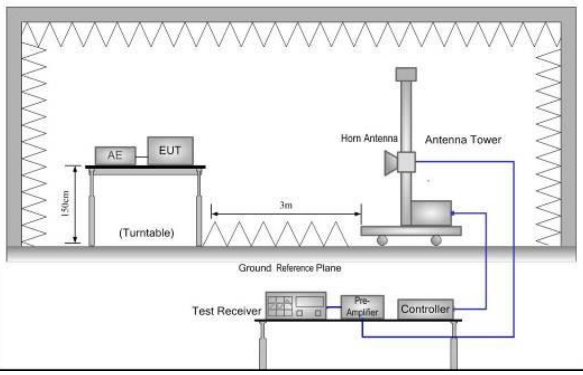
6.4 Occupy Bandwidth

Test Requirement:	FCC Part15 E Section 15.407 (a) (12) and Section 15.407 (e)
Limit:	Band 1/4: N/A (26dB Emission Bandwidth and 99% Occupy Bandwidth) Band 4: >500kHz (6dB Bandwidth)
Test setup:	
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Measurement Data:	**Refer to Appendix A - 5G WIFI**

6.5 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407 (a) (1) (iv) & (a)(3)
Limit:	Band 1: 11 dBm/MHz Band 4: 30 dBm/500kHz
Test setup:	
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Measurement Data:	**Refer to Appendix A - 5G WIFI**

6.6 Band Edge

Test Requirement:	FCC Part 15 E Section 15.407 (b)			
Receiver setup:	Detector	RBW	VBW	Remark
	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	RMS	1MHz	3MHz	Average Value
Limit:	Band	Limit (dBuV/m @3m)		Remark
	Band 1	68.20		Peak Value
		54.00		Average Value
	Band 4 limit: For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasinglinearly 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. Remark: 1. Band 1 limit: E[dBμV/m] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm. 2. Band 4 limit: E[dBμV/m] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm. E[dBμV/m] = EIRP[dBm] + 95.2=105.2 dBuV/m, for EIPR[dBm]=10dBm. E[dBμV/m] = EIRP[dBm] + 95.2=110.8 dBuV/m, for EIPR[dBm]=15.6dBm. E[dBμV/m] = EIRP[dBm] + 95.2=122.2 dBuV/m, for EIPR[dBm]=27dBm.			
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.			
Test setup:				
Test Instruments:	Refer to section 5.10 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Passed			

Measurement Data (worst case):

Band 1:

Band 1 – 802.11a							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Polarity
5150.00	39.73	-4.52	35.21	68.20	-32.99	Horizontal	Peak
5150.00	39.51	-4.52	34.99	68.20	-33.21	Vertical	Peak
5150.00	32.98	-4.52	28.46	54.00	-25.54	Horizontal	Average
5150.00	32.42	-4.52	27.90	54.00	-26.10	Vertical	Average
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Polarity
5350.00	38.39	-2.68	35.71	68.20	-32.49	Horizontal	Peak
5350.00	38.05	-2.68	35.37	68.20	-32.83	Vertical	Peak
5350.00	30.95	-2.68	28.27	54.00	-25.73	Horizontal	Average
5350.00	31.66	-2.68	28.98	54.00	-25.02	Vertical	Average

Band 1 – 802.11n(HT20)							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Polarity
5150.00	39.60	-4.52	35.08	68.20	-33.12	Horizontal	Peak
5150.00	39.94	-4.52	35.42	68.20	-32.78	Vertical	Peak
5150.00	32.88	-4.52	28.36	54.00	-25.64	Horizontal	Average
5150.00	31.93	-4.52	27.41	54.00	-26.59	Vertical	Average
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Polarity
5350.00	38.48	-2.68	35.80	68.20	-32.40	Horizontal	Peak
5350.00	38.53	-2.68	35.85	68.20	-32.35	Vertical	Peak
5350.00	31.41	-2.68	28.73	54.00	-25.27	Horizontal	Average
5350.00	31.46	-2.68	28.78	54.00	-25.22	Vertical	Average

Remark:

1. Final Level = Receiver Read level + Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Band 1 – 802.11n(HT40)							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Polarity
5150.00	43.41	-4.52	38.89	68.20	-29.31	Horizontal	Peak
5150.00	40.58	-4.52	36.06	68.20	-32.14	Vertical	Peak
5150.00	32.43	-4.52	27.91	54.00	-26.09	Horizontal	Average
5150.00	33.25	-4.52	28.73	54.00	-25.27	Vertical	Average
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Polarity
5350.00	39.68	-2.68	37.00	68.20	-31.20	Horizontal	Peak
5350.00	38.09	-2.68	35.41	68.20	-32.79	Vertical	Peak
5350.00	32.10	-2.68	29.42	54.00	-24.58	Horizontal	Average
5350.00	31.68	-2.68	29.00	54.00	-25.00	Vertical	Average
Band 1 – 802.11ac(HT20)							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Polarity
5150.00	39.61	-4.52	35.09	68.20	-33.11	Horizontal	Peak
5150.00	40.40	-4.52	35.88	68.20	-32.32	Vertical	Peak
5150.00	32.93	-4.52	28.41	54.00	-25.59	Horizontal	Average
5150.00	32.37	-4.52	27.85	54.00	-26.15	Vertical	Average
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Polarity
5350.00	38.52	-2.68	35.84	68.20	-32.36	Horizontal	Peak
5350.00	37.89	-2.68	35.21	68.20	-32.99	Vertical	Peak
5350.00	31.14	-2.68	28.46	54.00	-25.54	Horizontal	Average
5350.00	31.50	-2.68	28.82	54.00	-25.18	Vertical	Average

Remark:

1. Final Level = Receiver Read level + Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Band 1 – 802.11ac(HT40)							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Polarity
5150.00	43.62	-4.52	39.10	68.20	-29.10	Horizontal	Peak
5150.00	40.61	-4.52	36.09	68.20	-32.11	Vertical	Peak
5150.00	32.74	-4.52	28.22	54.00	-25.78	Horizontal	Average
5150.00	33.29	-4.52	28.77	54.00	-25.23	Vertical	Average
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Polarity
5350.00	40.09	-2.68	37.41	68.20	-30.79	Horizontal	Peak
5350.00	38.49	-2.68	35.81	68.20	-32.39	Vertical	Peak
5350.00	32.07	-2.68	29.39	54.00	-24.61	Horizontal	Average
5350.00	31.38	-2.68	28.70	54.00	-25.30	Vertical	Average

Band 1 – 802.11ac(HT80)							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Polarity
5150.00	40.61	-4.52	36.09	68.20	-32.11	Horizontal	Peak
5150.00	42.26	-4.52	37.74	68.20	-30.46	Vertical	Peak
5150.00	33.45	-4.52	28.93	54.00	-25.07	Horizontal	Average
5150.00	32.55	-4.52	28.03	54.00	-25.97	Vertical	Average
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Polarity
5350.00	39.37	-2.68	36.69	68.20	-31.51	Horizontal	Peak
5350.00	39.49	-2.68	36.81	68.20	-31.39	Vertical	Peak
5350.00	31.88	-2.68	29.20	54.00	-24.80	Horizontal	Average
5350.00	31.74	-2.68	29.06	54.00	-24.94	Vertical	Average

Remark:

1. *Final Level = Receiver Read level + Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Band 4:

Band 4 – 802.11a						
Test channel: Lowest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization
5650.00	40.41	17.02	57.43	68.20	-10.77	Horizontal
5700.00	39.32	17.13	56.45	105.20	-48.75	Horizontal
5720.00	40.07	17.21	57.28	110.80	-53.52	Horizontal
5725.00	43.33	17.23	60.56	122.20	-61.64	Horizontal
5650.00	38.78	17.02	55.80	68.20	-12.40	Vertical
5700.00	38.29	17.13	55.42	105.20	-49.78	Vertical
5720.00	39.75	17.21	56.96	110.80	-53.84	Vertical
5725.00	39.05	17.23	56.28	122.20	-65.92	Vertical
Test channel: Highest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization
5850.00	40.58	17.55	58.13	122.20	-64.07	Horizontal
5855.00	39.48	17.55	57.03	110.80	-53.77	Horizontal
5875.00	39.40	17.57	56.97	105.20	-48.23	Horizontal
5925.00	39.62	17.37	56.99	68.20	-11.21	Horizontal
5850.00	39.61	17.55	57.16	122.20	-65.04	Vertical
5855.00	39.97	17.55	57.52	110.80	-53.28	Vertical
5875.00	40.09	17.57	57.66	105.20	-47.54	Vertical
5925.00	40.47	17.37	57.84	68.20	-10.36	Vertical

Remark:

1. *Final Level = Receiver Read level + Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Band 4 – 802.11n(HT20)						
Test channel: Lowest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization
5650.00	40.33	17.02	57.35	68.20	-10.85	Horizontal
5700.00	39.18	17.13	56.31	105.20	-48.89	Horizontal
5720.00	39.91	17.21	57.12	110.80	-53.68	Horizontal
5725.00	43.83	17.23	61.06	122.20	-61.14	Horizontal
5650.00	39.05	17.02	56.07	68.20	-12.13	Vertical
5700.00	38.53	17.13	55.66	105.20	-49.54	Vertical
5720.00	39.94	17.21	57.15	110.80	-53.65	Vertical
5725.00	38.62	17.23	55.85	122.20	-66.35	Vertical
Test channel: Highest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization
5850.00	40.80	17.55	58.35	122.20	-63.85	Horizontal
5855.00	39.15	17.55	56.70	110.80	-54.10	Horizontal
5875.00	39.66	17.57	57.23	105.20	-47.97	Horizontal
5925.00	39.85	17.37	57.22	68.20	-10.98	Horizontal
5850.00	39.38	17.55	56.93	122.20	-65.27	Vertical
5855.00	39.82	17.55	57.37	110.80	-53.43	Vertical
5875.00	40.04	17.57	57.61	105.20	-47.59	Vertical
5925.00	40.32	17.37	57.69	68.20	-10.51	Vertical

Remark:

1. Final Level = Receiver Read level + Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Band 4 – 802.11n(HT40)						
Test channel: Lowest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization
5650.00	39.77	17.02	56.79	68.20	-11.41	Horizontal
5700.00	40.18	17.13	57.31	105.20	-47.89	Horizontal
5720.00	42.98	17.21	60.19	110.80	-50.61	Horizontal
5725.00	42.00	17.23	59.23	122.20	-62.97	Horizontal
5650.00	38.19	17.02	55.21	68.20	-12.99	Vertical
5700.00	39.77	17.13	56.90	105.20	-48.30	Vertical
5720.00	41.22	17.21	58.43	110.80	-52.37	Vertical
5725.00	41.63	17.23	58.86	122.20	-63.34	Vertical
Test channel: Highest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization
5850.00	39.69	17.55	57.24	122.20	-64.96	Horizontal
5855.00	39.24	17.55	56.79	110.80	-54.01	Horizontal
5875.00	39.27	17.57	56.84	105.20	-48.36	Horizontal
5925.00	40.65	17.37	58.02	68.20	-10.18	Horizontal
5850.00	39.60	17.55	57.15	122.20	-65.05	Vertical
5855.00	39.42	17.55	56.97	110.80	-53.83	Vertical
5875.00	38.97	17.57	56.54	105.20	-48.66	Vertical
5925.00	40.46	17.37	57.83	68.20	-10.37	Vertical

Remark:

1. Final Level = Receiver Read level + Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Band 4 – 802.11ac(HT20)						
Test channel: Lowest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization
5650.00	40.68	17.02	57.70	68.20	-10.50	Horizontal
5700.00	39.55	17.13	56.68	105.20	-48.52	Horizontal
5720.00	39.74	17.21	56.95	110.80	-53.85	Horizontal
5725.00	43.68	17.23	60.91	122.20	-61.29	Horizontal
5650.00	38.34	17.02	55.36	68.20	-12.84	Vertical
5700.00	38.25	17.13	55.38	105.20	-49.82	Vertical
5720.00	39.89	17.21	57.10	110.80	-53.70	Vertical
5725.00	39.15	17.23	56.38	122.20	-65.82	Vertical
Test channel: Highest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization
5850.00	40.27	17.55	57.82	122.20	-64.38	Horizontal
5855.00	39.28	17.55	56.83	110.80	-53.97	Horizontal
5875.00	39.58	17.57	57.15	105.20	-48.05	Horizontal
5925.00	39.44	17.37	56.81	68.20	-11.39	Horizontal
5850.00	40.05	17.55	57.60	122.20	-64.60	Vertical
5855.00	39.49	17.55	57.04	110.80	-53.76	Vertical
5875.00	40.48	17.57	58.05	105.20	-47.15	Vertical
5925.00	40.77	17.37	58.14	68.20	-10.06	Vertical

Remark:

1. Final Level = Receiver Read level + Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Band 4 – 802.11ac(HT40)						
Test channel: Lowest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization
5650.00	39.46	17.02	56.48	68.20	-11.72	Horizontal
5700.00	39.86	17.13	56.99	105.20	-48.21	Horizontal
5720.00	43.02	17.21	60.23	110.80	-50.57	Horizontal
5725.00	41.75	17.23	58.98	122.20	-63.22	Horizontal
5650.00	38.54	17.02	55.56	68.20	-12.64	Vertical
5700.00	39.54	17.13	56.67	105.20	-48.53	Vertical
5720.00	41.34	17.21	58.55	110.80	-52.25	Vertical
5725.00	41.96	17.23	59.19	122.20	-63.01	Vertical
Test channel: Highest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization
5850.00	40.14	17.55	57.69	122.20	-64.51	Horizontal
5855.00	39.26	17.55	56.81	110.80	-53.99	Horizontal
5875.00	39.10	17.57	56.67	105.20	-48.53	Horizontal
5925.00	40.81	17.37	58.18	68.20	-10.02	Horizontal
5850.00	39.87	17.55	57.42	122.20	-64.78	Vertical
5855.00	39.90	17.55	57.45	110.80	-53.35	Vertical
5875.00	38.74	17.57	56.31	105.20	-48.89	Vertical
5925.00	40.37	17.37	57.74	68.20	-10.46	Vertical

Remark:

1. Final Level = Receiver Read level + Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Band 4 – 802.11ac(HT80)						
Test channel: Lowest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization
5650.00	39.58	17.02	56.60	68.20	-11.60	Horizontal
5700.00	39.64	17.13	56.77	105.20	-48.43	Horizontal
5720.00	40.12	17.21	57.33	110.80	-53.47	Horizontal
5725.00	41.14	17.23	58.37	122.20	-63.83	Horizontal
5650.00	39.37	17.02	56.39	68.20	-11.81	Vertical
5700.00	39.56	17.13	56.69	105.20	-48.51	Vertical
5720.00	38.87	17.21	56.08	110.80	-54.72	Vertical
5725.00	40.37	17.23	57.60	122.20	-64.60	Vertical
Test channel: Highest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization
5850.00	39.14	17.55	56.69	122.20	-65.51	Horizontal
5855.00	38.54	17.55	56.09	110.80	-54.71	Horizontal
5875.00	42.12	17.57	59.69	105.20	-45.51	Horizontal
5925.00	41.80	17.37	59.17	68.20	-9.03	Horizontal
5850.00	41.01	17.55	58.56	122.20	-63.64	Vertical
5855.00	39.42	17.55	56.97	110.80	-53.83	Vertical
5875.00	40.09	17.57	57.66	105.20	-47.54	Vertical
5925.00	40.32	17.37	57.69	68.20	-10.51	Vertical

Remark:

1. Final Level = Receiver Read level + Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.

6.7 Spurious Emission

6.7.1 Restricted Band

Test Requirement:	FCC Part15 E Section 15.407(b)
Test Frequency Range:	4.5 GHz to 5.15 GHz and 5.35GHz to 5.46GHz
Test site:	Measurement Distance: 3m

Receiver setup:

Frequency	Detector	RBW	VBW	Remark
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	RMS	1MHz	3MHz	Average Value

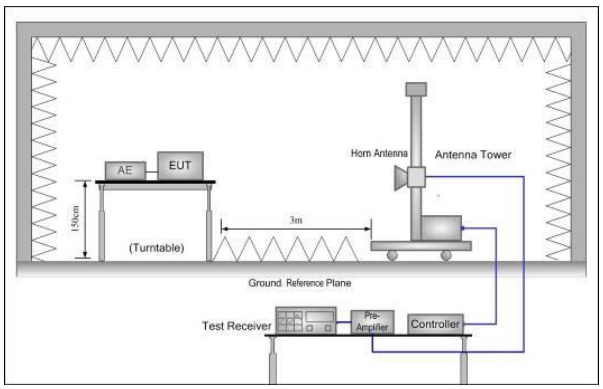
Limit:

Frequency	Limit (dBuV/m @3m)	Remark
Above 1GHz	74.00	Peak Value
	54.00	Average Value

Test Procedure:

1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test setup:



Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed(Refer to section 6.6)

6.7.2 Unwanted Emissions out of the Restricted Bands

Test Requirement:	FCC Part15 C Section 15.209 and 15.205
Test Frequency Range:	30MHz to 40GHz
Test site:	Measurement Distance: 3m

Receiver setup:

Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	100kHz	300kHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	RMS	1MHz	3MHz	Average Value

Limit:

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	68.20	Peak Value
	54.00	Average Value

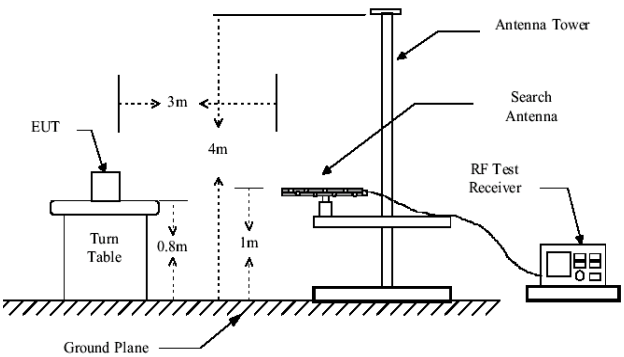
Remark:
Above 1GHz limit:
E[dBμV/m] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm.

Test Procedure:

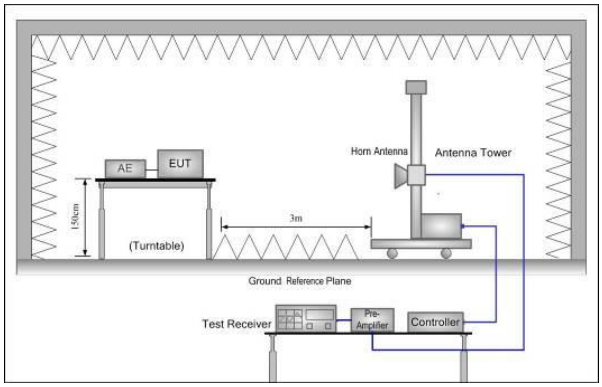
1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test setup:

Below 1GHz



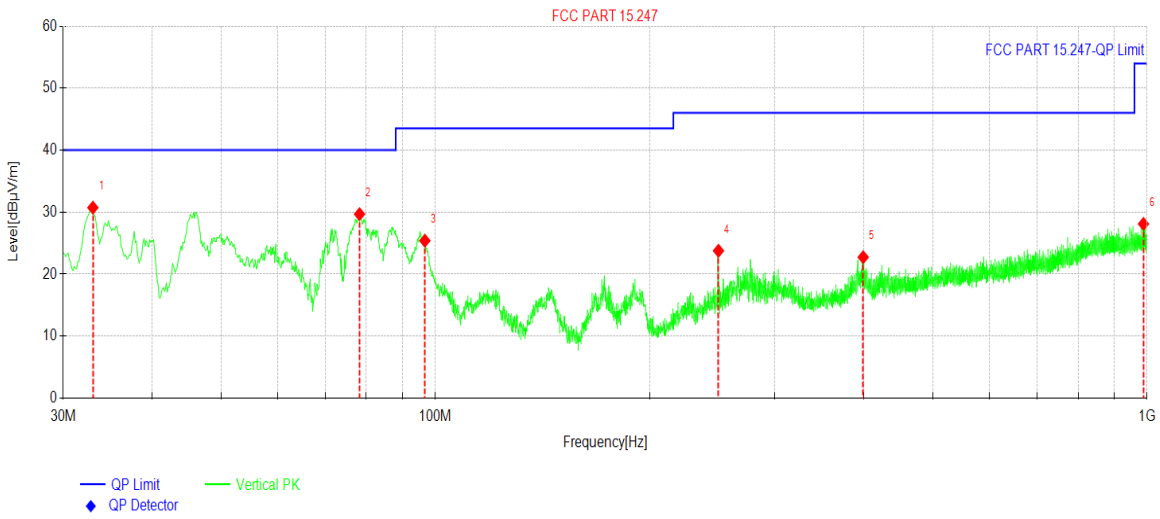
Above 1GHz

	
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data (worst case):

Below 1GHz

Product Name:	Mobile Phone	**Product Model:**	X688B
Test By:	Mike	**Test mode:**	5G Wi-Fi Tx mode
Test Frequency:	30 MHz ~ 1 GHz	**Polarization:**	Vertical
Test Voltage:	AC 120/60Hz	**Environment:**	Temp: 24℃ Huni: 57%

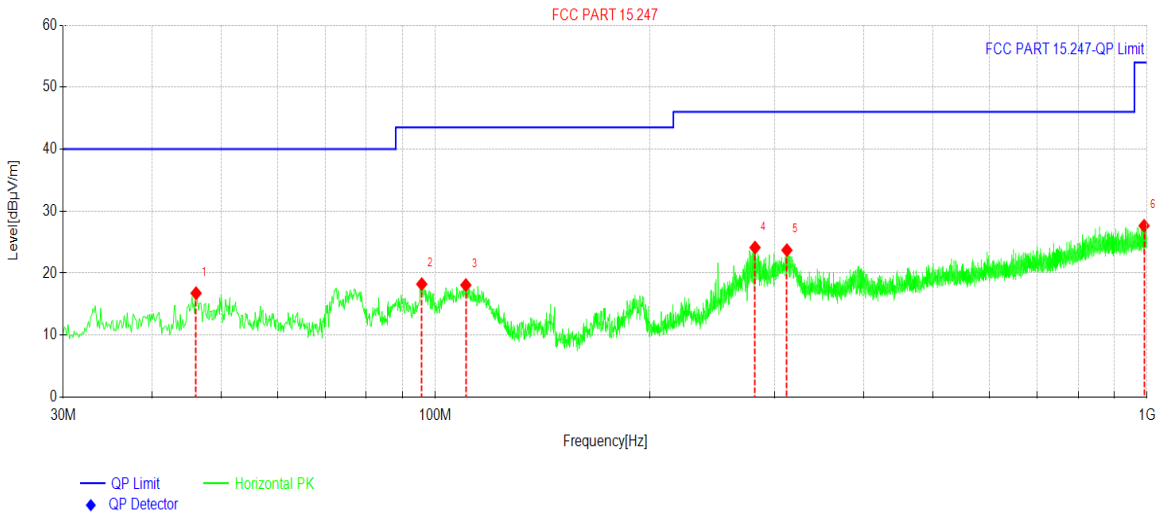


Suspected Data List								
NO.	Freq. [MHz]	Reading[dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	33.0313	48.50	30.73	-17.77	40.00	9.27	PK	Vertical
2	78.2575	49.06	29.68	-19.38	40.00	10.32	PK	Vertical
3	96.6875	44.23	25.40	-18.83	43.50	18.10	PK	Vertical
4	249.947	39.06	23.77	-15.29	46.00	22.23	PK	Vertical
5	399.206	35.13	22.73	-12.40	46.00	23.27	PK	Vertical
6	988.602	31.26	28.11	-3.15	54.00	25.89	PK	Vertical

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *The Aux Factor is a notch filter switch box loss, this item is not used.*

Product Name:	Mobile Phone	**Product Model:**	X688B
Test By:	Mike	**Test mode:**	5G Wi-Fi Tx mode
Test Frequency:	30 MHz ~ 1 GHz	**Polarization:**	Horizontal
Test Voltage:	AC 120/60Hz	**Environment:**	Temp: 24℃ Huni: 57%



Suspected Data List

NO.	Freq. [MHz]	Reading[dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	46.1263	34.11	16.76	-17.35	40.00	23.24	PK	Horizontal
2	95.7175	37.25	18.23	-19.02	43.50	25.27	PK	Horizontal
3	110.388	36.01	18.07	-17.94	43.50	25.43	PK	Horizontal
4	281.351	38.67	24.12	-14.55	46.00	21.88	PK	Horizontal
5	311.906	37.61	23.71	-13.90	46.00	22.29	PK	Horizontal
6	990.542	30.77	27.64	-3.13	54.00	26.36	PK	Horizontal

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *The Aux Factor is a notch filter switch box loss, this item is not used.*

Above 1GHz:
Band 1:

Band 1 – 802.11a							
Test channel: Lowest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10360.00	45.69	14.28	59.97	68.20	-8.23	Vertical	Peak
10360.00	44.67	14.28	58.95	68.20	-9.25	Horizontal	Peak
10360.00	36.48	14.28	50.76	54.00	-3.24	Vertical	Average
10360.00	35.47	14.28	49.75	54.00	-4.25	Horizontal	Average
Test channel: Middle channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10400.00	45.48	14.43	59.91	68.20	-8.29	Vertical	Peak
10400.00	44.98	14.43	59.41	68.20	-8.79	Horizontal	Peak
10400.00	36.43	14.43	50.86	54.00	-3.14	Vertical	Average
10400.00	35.62	14.43	50.05	54.00	-3.95	Horizontal	Average
Test channel: Highest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10480.00	45.12	14.10	59.22	68.20	-8.98	Vertical	Peak
10480.00	44.90	14.10	59.00	68.20	-9.20	Horizontal	Peak
10480.00	36.62	14.10	50.72	54.00	-3.28	Vertical	Average
10480.00	35.47	14.10	49.57	54.00	-4.43	Horizontal	Average

Band 1 – 802.11n(HT20)							
Test channel: Lowest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10360.00	45.27	14.28	59.55	68.20	-8.65	Vertical	Peak
10360.00	45.11	14.28	59.39	68.20	-8.81	Horizontal	Peak
10360.00	36.92	14.28	51.20	54.00	-2.80	Vertical	Average
10360.00	35.37	14.28	49.65	54.00	-4.35	Horizontal	Average
Test channel: Middle channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10400.00	45.53	14.43	59.96	68.20	-8.24	Vertical	Peak
10400.00	44.96	14.43	59.39	68.20	-8.81	Horizontal	Peak
10400.00	36.54	14.43	50.97	54.00	-3.03	Vertical	Average
10400.00	35.59	14.43	50.02	54.00	-3.98	Horizontal	Average
Test channel: Highest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10480.00	45.63	14.10	59.73	68.20	-8.47	Vertical	Peak
10480.00	44.77	14.10	58.87	68.20	-9.33	Horizontal	Peak
10480.00	36.16	14.10	50.26	54.00	-3.74	Vertical	Average
10480.00	35.35	14.10	49.45	54.00	-4.55	Horizontal	Average

Remark:
1. *Final Level = Receiver Read level + Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Band 1 – 802.11n(HT40)							
Test channel: Lowest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10380.00	45.21	14.41	59.62	68.20	-8.58	Vertical	Peak
10380.00	44.21	14.41	58.62	68.20	-9.58	Horizontal	Peak
10380.00	35.61	14.41	50.02	54.00	-3.98	Vertical	Average
10380.00	35.34	14.41	49.75	54.00	-4.25	Horizontal	Average
Test channel: Highest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10460.00	44.91	14.18	59.09	68.20	-9.11	Vertical	Peak
10460.00	44.21	14.18	58.39	68.20	-9.81	Horizontal	Peak
10460.00	35.59	14.18	49.77	54.00	-4.23	Vertical	Average
10460.00	35.61	14.18	49.79	54.00	-4.21	Horizontal	Average
Band 1 – 802.11ac(HT20)							
Test channel: Lowest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10360.00	46.11	14.28	60.39	68.20	-7.81	Vertical	Peak
10360.00	44.50	14.28	58.78	68.20	-9.42	Horizontal	Peak
10360.00	36.64	14.28	50.92	54.00	-3.08	Vertical	Average
10360.00	35.19	14.28	49.47	54.00	-4.53	Horizontal	Average
Test channel: Middle channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10400.00	46.39	14.43	60.82	68.20	-7.38	Vertical	Peak
10400.00	44.52	14.43	58.95	68.20	-9.25	Horizontal	Peak
10400.00	36.23	14.43	50.66	54.00	-3.34	Vertical	Average
10400.00	35.27	14.43	49.70	54.00	-4.30	Horizontal	Average
Test channel: Highest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10480.00	46.14	14.10	60.24	68.20	-7.96	Vertical	Peak
10480.00	44.99	14.10	59.09	68.20	-9.11	Horizontal	Peak
10480.00	36.08	14.10	50.18	54.00	-3.82	Vertical	Average
10480.00	35.42	14.10	49.52	54.00	-4.48	Horizontal	Average

Remark:
1. *Final Level = Receiver Read level + Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Band 1 – 802.11ac(HT40)							
Test channel: Lowest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10380.00	45.59	14.41	60.00	68.20	-8.20	Vertical	Peak
10380.00	45.05	14.41	59.46	68.20	-8.74	Horizontal	Peak
10380.00	36.38	14.41	50.79	54.00	-3.21	Vertical	Average
10380.00	35.12	14.41	49.53	54.00	-4.47	Horizontal	Average
Test channel: Highest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10460.00	45.56	14.18	59.74	68.20	-8.46	Vertical	Peak
10460.00	44.70	14.18	58.88	68.20	-9.32	Horizontal	Peak
10460.00	36.09	14.18	50.27	54.00	-3.73	Vertical	Average
10460.00	35.26	14.18	49.44	54.00	-4.56	Horizontal	Average

Band 1 – 802.11ac(HT80)							
Test channel: Middle channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
10420.00	45.85	14.35	60.20	68.20	-8.00	Vertical	Peak
10420.00	45.32	14.35	59.67	68.20	-8.53	Horizontal	Peak
10420.00	36.35	14.35	50.70	54.00	-3.30	Vertical	Average
10420.00	35.32	14.35	49.67	54.00	-4.33	Horizontal	Average

Remark:
1. *Final Level = Receiver Read level + Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Band 4:

Band 4 – 802.11a							
Test channel: Lowest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11490.00	44.68	16.23	60.91	74.00	-13.09	Vertical	Peak
11490.00	44.45	16.23	60.68	74.00	-13.32	Horizontal	Peak
11490.00	35.67	16.23	51.90	54.00	-2.10	Vertical	Average
11490.00	36.01	16.23	52.24	54.00	-1.76	Horizontal	Average
Test channel: Middle channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11570.00	44.72	15.17	59.89	74.00	-14.11	Vertical	Peak
11570.00	44.73	15.17	59.90	74.00	-14.10	Horizontal	Peak
11570.00	35.21	15.17	50.38	54.00	-3.62	Vertical	Average
11570.00	35.68	15.17	50.85	54.00	-3.15	Horizontal	Average
Test channel: Highest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11650.00	44.93	15.92	60.85	74.00	-13.15	Vertical	Peak
11650.00	44.48	15.92	60.40	74.00	-13.60	Horizontal	Peak
11650.00	35.07	15.92	50.99	54.00	-3.01	Vertical	Average
11650.00	35.99	15.92	51.91	54.00	-2.09	Horizontal	Average
Band 4 – 802.11n(HT20)							
Test channel: Lowest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11490.00	45.00	16.23	61.23	74.00	-12.77	Vertical	Peak
11490.00	44.46	16.23	60.69	74.00	-13.31	Horizontal	Peak
11490.00	34.63	16.23	50.86	54.00	-3.14	Vertical	Average
11490.00	36.41	16.23	52.64	54.00	-1.36	Horizontal	Average
Test channel: Middle channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11570.00	44.77	15.17	59.94	74.00	-14.06	Vertical	Peak
11570.00	44.62	15.17	59.79	74.00	-14.21	Horizontal	Peak
11570.00	34.56	15.17	49.73	54.00	-4.27	Vertical	Average
11570.00	36.21	15.17	51.38	54.00	-2.62	Horizontal	Average
Test channel: Highest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11650.00	45.08	15.92	61.00	74.00	-13.00	Vertical	Peak
11650.00	44.83	15.92	60.75	74.00	-13.25	Horizontal	Peak
11650.00	34.95	15.92	50.87	54.00	-3.13	Vertical	Average
11650.00	36.28	15.92	52.20	54.00	-1.80	Horizontal	Average

Remark:
1. *Final Level = Receiver Read level + Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

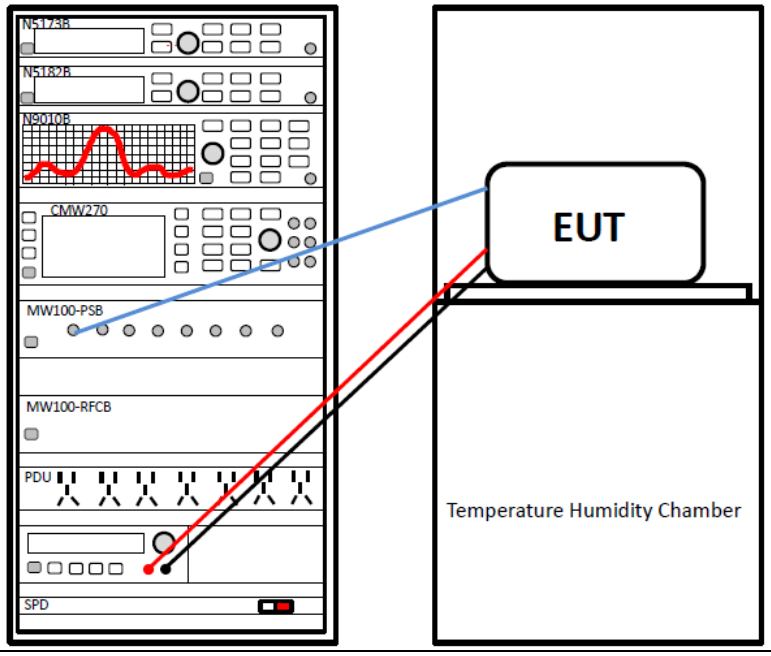
Band 4 – 802.11n(HT40)							
Test channel: Lowest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11510.00	44.33	16.18	60.51	74.00	-13.49	Vertical	Peak
11510.00	44.61	16.18	60.79	74.00	-13.21	Horizontal	Peak
11510.00	35.05	16.18	51.23	54.00	-2.77	Vertical	Average
11510.00	36.37	16.18	52.55	54.00	-1.45	Horizontal	Average
Test channel: Highest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11590.00	44.48	15.97	60.45	74.00	-13.55	Vertical	Peak
11590.00	45.03	15.97	61.00	74.00	-13.00	Horizontal	Peak
11590.00	35.23	15.97	51.20	54.00	-2.80	Vertical	Average
11590.00	36.72	15.97	52.69	54.00	-1.31	Horizontal	Average
Band 4 – 802.11ac(HT20)							
Test channel: Lowest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11490.00	44.76	16.23	60.99	74.00	-13.01	Vertical	Peak
11490.00	44.56	16.23	60.79	74.00	-13.21	Horizontal	Peak
11490.00	34.98	16.23	51.21	54.00	-2.79	Vertical	Average
11490.00	36.63	16.23	52.86	54.00	-1.14	Horizontal	Average
Test channel: Middle channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11570.00	44.82	15.17	59.99	74.00	-14.01	Vertical	Peak
11570.00	44.66	15.17	59.83	74.00	-14.17	Horizontal	Peak
11570.00	34.50	15.17	49.67	54.00	-4.33	Vertical	Average
11570.00	36.91	15.17	52.08	54.00	-1.92	Horizontal	Average
Test channel: Highest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11650.00	44.91	15.92	60.83	74.00	-13.17	Vertical	Peak
11650.00	44.89	15.92	60.81	74.00	-13.19	Horizontal	Peak
11650.00	34.93	15.92	50.85	54.00	-3.15	Vertical	Average
11650.00	36.63	15.92	52.55	54.00	-1.45	Horizontal	Average

Remark:
1. *Final Level = Receiver Read level + Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Band 4 – 802.11ac(HT40)							
Test channel: Lowest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11510.00	44.78	16.18	60.96	74.00	-13.04	Vertical	Peak
11510.00	44.87	16.18	61.05	74.00	-12.95	Horizontal	Peak
11510.00	34.97	16.18	51.15	54.00	-2.85	Vertical	Average
11510.00	36.37	16.18	52.55	54.00	-1.45	Horizontal	Average
Test channel: Highest channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11590.00	44.36	15.97	60.33	74.00	-13.67	Vertical	Peak
11590.00	44.88	15.97	60.85	74.00	-13.15	Horizontal	Peak
11590.00	35.05	15.97	51.02	54.00	-2.98	Vertical	Average
11590.00	36.00	15.97	51.97	54.00	-2.03	Horizontal	Average
Band 4 – 802.11ac(HT80)							
Test channel: Middle channel							
Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin [dB]	Polarization	Trace
11550.00	44.61	16.08	60.69	74.00	-13.31	Vertical	Peak
11550.00	44.83	16.08	60.91	74.00	-13.09	Horizontal	Peak
11550.00	35.22	16.08	51.30	54.00	-2.70	Vertical	Average
11550.00	36.87	16.08	52.95	54.00	-1.05	Horizontal	Average

Remark:
1. *Final Level = Receiver Read level + Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

6.8 Frequency stability

Test Requirement:	FCC Part15 E Section 15.407 (g)
Limit:	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.
Test setup:	
Test procedure:	1. The EUT is installed in an environment test chamber with external power source. 2. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT. 3. A sufficient stabilization period at each temperature is used prior to each frequency measurement. 4. When temperature is stabled, measure the frequency stability. 5. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	**Refer to Appendix A - 5G WIFI**