FCC REPORT
(WIFI)

Applicant:	b mobile HK Limited
Address of Applicant:	Flat 18; 14/F Block 1; Golden Industrial Building; 16-26 Kwai Tak Street; Kwai Chung; New Territories; Hong Kong

Equipment Under Test (EUT)

Product Name:	Mobile Phone
Model No.:	AX1078
Trade mark:	Bmobile
FCC ID:	ZSW-30-097
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247
Date of sample receipt:	27 Jul., 2020
Date of Test:	28 Jul., to 03 Sep., 2020
Date of report issued:	08 Sep., 2020
Test Result:	PASS*

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

Authorized Signature:

Bruce Zhang
Laboratory Manager

2 Version

Version No.	Date	Description
00	*08 Sep., 2020*	*Original*

Tested by: Yoyo Wu ***Date:*** *08 Sep., 2020*

Test Engineer

Reviewed by: Winner Zhang ***Date:*** *08 Sep., 2020*

Project Engineer

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4 General Information

4.1 Client Information

Applicant:	b mobile HK Limited
Address:	Flat 18; 14/F Block 1; Golden Industrial Building; 16-26 Kwai Tak Street; Kwai Chung; New Territories; Hong Kong
Manufacturer:	b mobile HK Limited
Address:	Flat 18; 14/F Block 1; Golden Industrial Building; 16-26 Kwai Tak Street; Kwai Chung; New Territories; Hong Kong

4.2 General Description of E.U.T.

Product Name:	Mobile Phone
Model No.:	AX1078
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(HT20))
Channel numbers:	11 for 802.11b/802.11g/802.11(HT20)
Channel separation:	5MHz
Modulation technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)
Modulation technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
Data speed (IEEE 802.11n):	Up to 72.2Mbps
Antenna Type:	Internal Antenna
Antenna gain:	1.55dBi
Power supply:	Rechargeable Li-ion Battery DC3.8V-2000mAh
AC adapter:	Input: AC100-240V, 50/60Hz, 0.15A Output: DC 5.0V, 500mA
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

4.3 Test environment and mode, and test samples plans

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Transmitting mode	Keep the EUT in continuous transmitting with modulation

Radiated Emission: The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.
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, the follow list were the worst case.	
Mode	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(HT20)	6.5Mbps

4.4 Description of Support Units

The EUT has been tested as an independent unit.

4.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.16 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±3.20 dB (k=2)

4.6 Laboratory Facility

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

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

Shenzhen Zhongjian Nanfang Testing 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 Shenzhen Zhongjian Nanfang Testing 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

4.7 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No.110~116, Building B, Jinyuan Business Building, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

4.8 Test Instruments list

Radiated Emission:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
3m SAC	SAEMC	9m*6m*6m	966	07-21-2020	07-20-2023
Loop Antenna	SCHWARZBECK	FMZB1519B	044	03-07-2020	03-06-2021
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-07-2020	03-06-2021
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-07-2020	03-06-2021
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-20-2020	06-19-2021
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-18-2019	11-17-2020
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Pre-amplifier	HP	8447D	2944A09358	03-07-2020	03-06-2021
Pre-amplifier	CD	PAP-1G18	11804	03-07-2020	03-06-2021
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-05-2020	03-04-2021
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-18-2019	11-17-2020
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-05-2020	03-04-2021
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-07-2020	03-06-2021
Cable	MICRO-COAX	MFR64639	K10742-5	03-07-2020	03-06-2021
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-07-2020	03-06-2021
RF Switch Unit	MWRFTEST	MW200	N/A	N/A	N/A
Test Software	MWRFTEST	MTS8200	Version: 2.0.0.0		

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	03-05-2020	03-04-2021
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-05-2020	03-04-2021
LISN	CHASE	MN2050D	1447	03-05-2020	03-04-2021
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	06-18-2020	07-17-2021
Cable	HP	10503A	N/A	03-05-2020	03-04-2021
EMI Test Software	AUDIX	E3	Version: 6.110919b		

5 Test results and Measurement Data

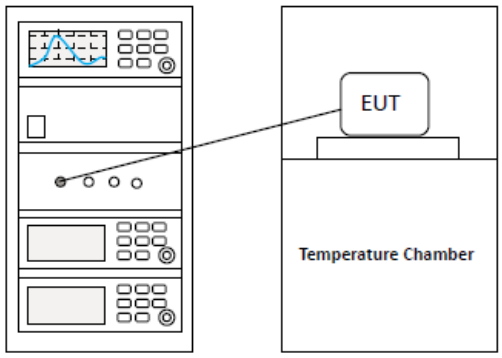
5.1 Test Configuration of EUT

Operation Frequency each of channel for 802.11b/g/n(HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

Note:

1. *For 802.11n-HT40 mode, the channel number is from 3 to 9;*
2. *Channel 1, 6 & 11 selected for 802.11b/g/n-HT20 as Lowest, Middle and Highest channel.*

5.2 Test Setup Block



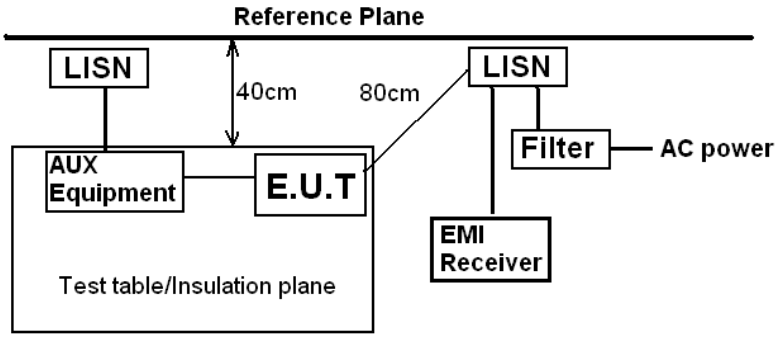
5.3 Test Result Summary

Test Items		Section in CFR 47	Test Data	Result
Antenna requirement		15.203 & 15.247 (b)	See Section 5.4	Pass
AC Power Line Conducted Emission		15.207	See Section 5.5	Pass
Conducted Peak Output Power		15.247 (b)(3)	Appendix A – 2.4G Wi-Fi	Pass
6dB Emission Bandwidth 99% Occupied Bandwidth		15.247 (a)(2)	Appendix A – 2.4G Wi-Fi	Pass
Power Spectral Density		15.247 (e)	Appendix A – 2.4G Wi-Fi	Pass
Band Edge	Conducted Emission Method	15.247 (d)	Appendix A – 2.4G Wi-Fi	Pass
	Radiated Emission Method		See Section 5.6.1	
Spurious Emission	Conducted Emission Method	15.205 & 15.209	Appendix A – 2.4G Wi-Fi	Pass
	Radiated Emission Method		See Section 5.7.1	
Remark:	*1. Pass: The EUT complies with the essential requirements in the standard.* *2. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).*			
Test Method:	*1. ANSI C63.10-2013* *2. KDB 558074 D01 15.247 Meas Guidance v05r02*			

5.4 Antenna requirement

Standard requirement:	FCC Part 15 C Section 15.203 /247(b)
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. 15.247(b) (4) requirement: (4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	
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 1.55 dBi.	

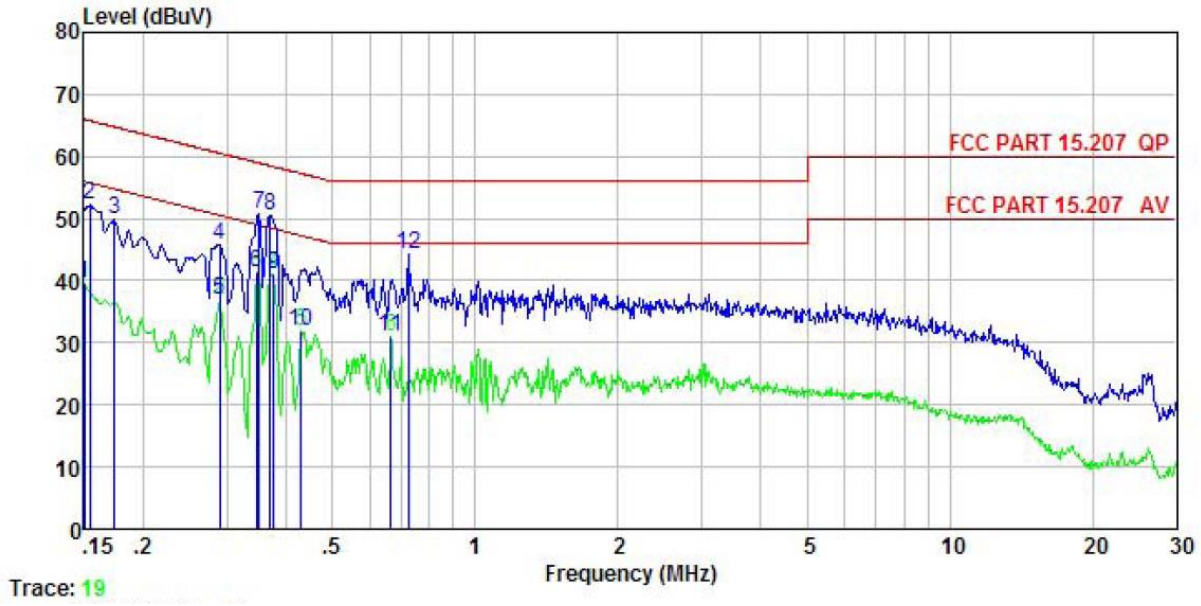
5.5 Conducted Emission

<table>
<tr><td>Test Requirement:</td><td colspan="3">FCC Part 15 C Section 15.207</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="3">150 kHz to 30 MHz</td></tr>
<tr><td>Class / Severity:</td><td colspan="3">Class B</td></tr>
<tr><td>Receiver setup:</td><td colspan="3">RBW=9 kHz, VBW=30 kHz</td></tr>
<tr><td rowspan="5">Limit:</td><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
<tr><td colspan="3">* Decreases with the logarithm of the frequency.</td></tr>
<tr><td>Test procedure</td><td colspan="3">1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which 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.</td></tr>
<tr><td>Test setup:</td><td colspan="3"> 

Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m</td></tr>
<tr><td>Test Instruments:</td><td colspan="3">Refer to section 5.9 for details</td></tr>
<tr><td>Test mode:</td><td colspan="3">Refer to section 5.3 for details</td></tr>
<tr><td>Test results:</td><td colspan="3">Passed</td></tr>
</table>

Measurement Data:

Product name:	Mobile Phone	Product model:	AX1078
Test by:	Yaro	Test mode:	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%

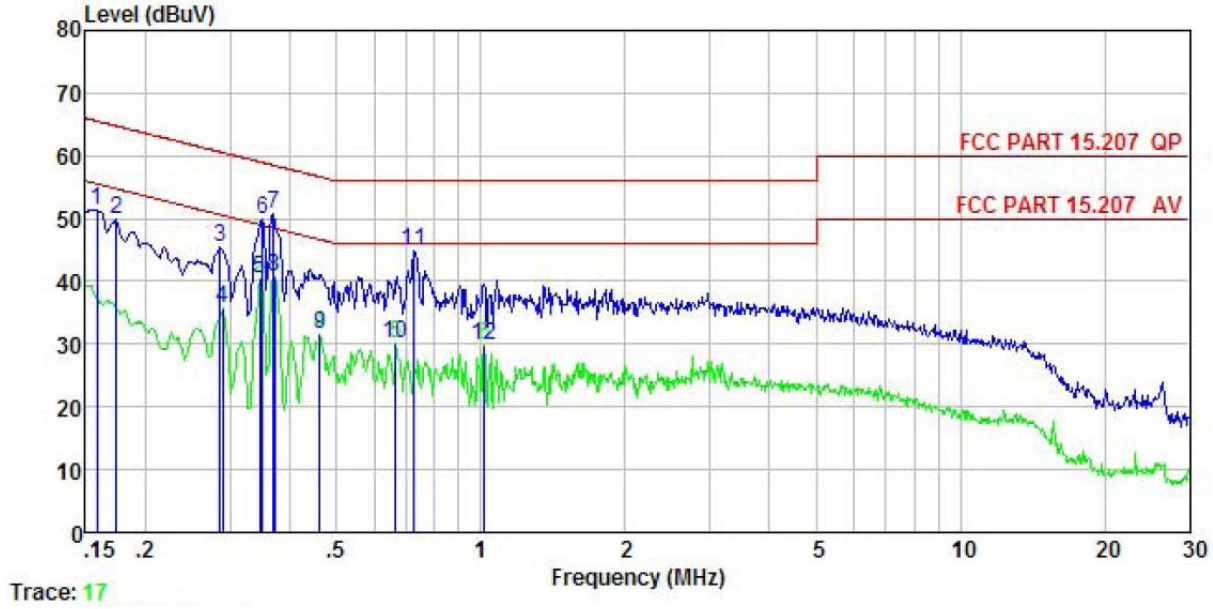


	Freq	Read Level	LISN Factor	Cable Loss	Aux Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.150	29.49	-0.57	10.78	-0.05	39.65	56.00	-16.35	Average
2	0.154	42.04	-0.57	10.78	-0.06	52.19	65.78	-13.59	QP
3	0.174	39.79	-0.58	10.77	-0.11	49.87	64.77	-14.90	QP
4	0.289	35.85	-0.55	10.74	-0.25	45.79	60.54	-14.75	QP
5	0.289	27.04	-0.55	10.74	-0.25	36.98	50.54	-13.56	Average
6	0.346	31.05	-0.51	10.73	0.08	41.35	49.05	-7.70	Average
7	0.350	40.37	-0.51	10.73	0.10	50.69	58.96	-8.27	QP
8	0.369	40.10	-0.50	10.73	0.23	50.56	58.52	-7.96	QP
9	0.377	30.44	-0.50	10.72	0.27	40.93	48.34	-7.41	Average
10	0.431	21.51	-0.46	10.73	0.16	31.94	47.24	-15.30	Average
11	0.665	21.01	-0.51	10.77	-0.39	30.88	46.00	-15.12	Average
12	0.724	34.33	-0.54	10.78	-0.32	44.25	56.00	-11.75	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:	AX1078
Test by:	Yaro	Test mode:	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%



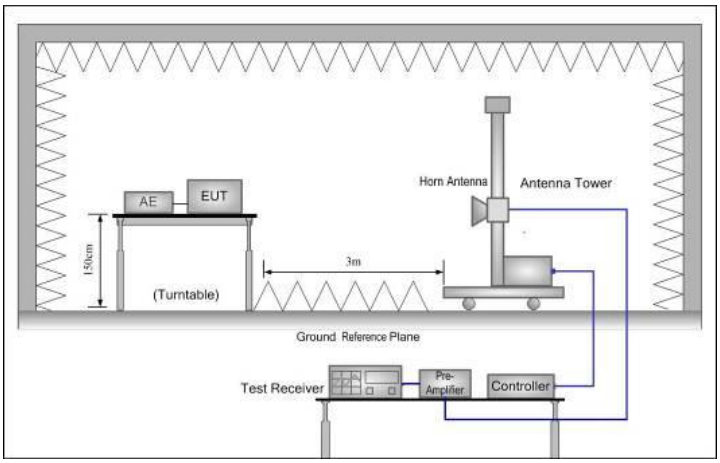
	Freq	Read Level	LISN Factor	Cable Loss	Aux Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.158	41.32	-0.69	10.77	0.01	51.41	65.56	-14.15	QP
2	0.174	39.68	-0.68	10.77	0.00	49.77	64.77	-15.00	QP
3	0.286	35.25	-0.67	10.74	0.01	45.33	60.63	-15.30	QP
4	0.289	25.61	-0.67	10.74	0.01	35.69	50.54	-14.85	Average
5	0.346	30.52	-0.65	10.73	-0.03	40.57	49.05	-8.48	Average
6	0.350	39.92	-0.65	10.73	-0.03	49.97	58.96	-8.99	QP
7	0.369	40.67	-0.64	10.73	-0.04	50.72	58.52	-7.80	QP
8	0.371	30.75	-0.64	10.73	-0.04	40.80	48.47	-7.67	Average
9	0.461	21.52	-0.64	10.74	0.00	31.62	46.67	-15.05	Average
10	0.665	19.80	-0.64	10.77	0.04	29.97	46.00	-16.03	Average
11	0.724	34.72	-0.64	10.78	0.04	44.90	56.00	-11.10	QP
12	1.016	19.60	-0.68	10.87	0.08	29.87	46.00	-16.13	Average

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.*

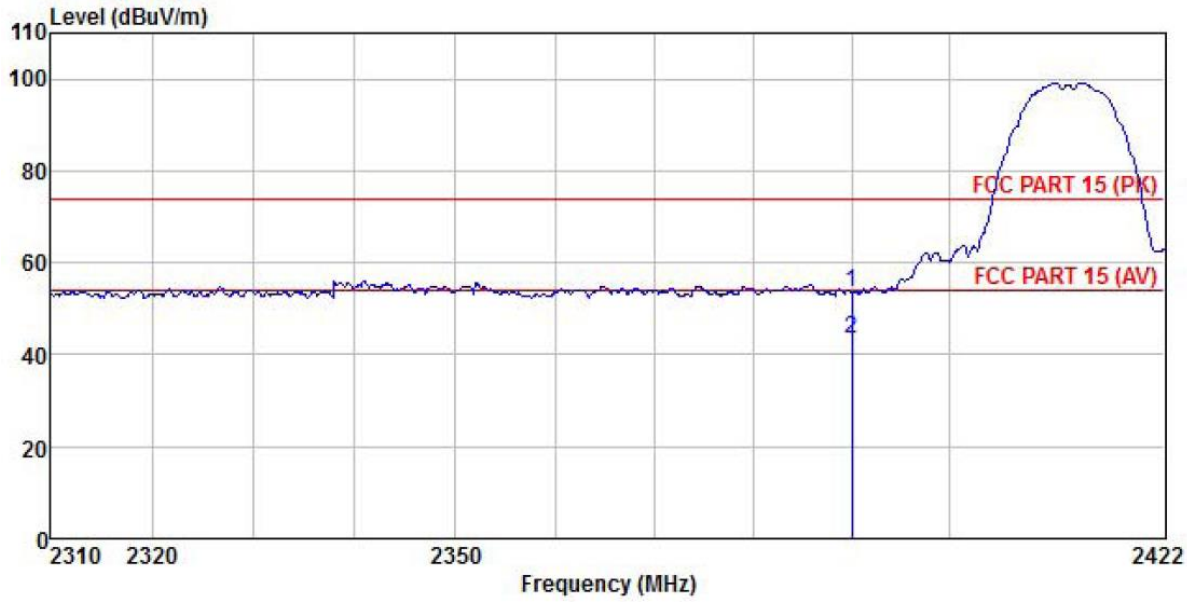
5.6 Band Edge

5.6.1 Radiated Emission Method

<table>
<tr><td>Test Requirement:</td><td colspan="5">FCC Part 15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="5">2310 MHz to 2390 MHz and 2483.5 MHz to 2500 MHz</td></tr>
<tr><td>Test Distance:</td><td colspan="5">3m</td></tr>
<tr><td rowspan="4">Receiver setup:</td><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>RMS</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td rowspan="3">Limit:</td><td colspan="2">Frequency</td><td colspan="2">Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td colspan="2" rowspan="2">Above 1GHz</td><td colspan="2">54.00</td><td>Average Value</td></tr>
<tr><td colspan="2">74.00</td><td>Peak Value</td></tr>
<tr><td>Test Procedure:</td><td colspan="5">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.</td></tr>
<tr><td>Test setup:</td><td colspan="5"> 
</td></tr>
<tr><td>Test Instruments:</td><td colspan="5">Refer to section 5.9 for details</td></tr>
<tr><td>Test mode:</td><td colspan="5">Refer to section 5.3 for details</td></tr>
<tr><td>Test results:</td><td colspan="5">Passed</td></tr>
</table>

802.11b mode:

Product Name:	Mobile Phone	**Product Model:**	AX1078
Test By:	Yaro	**Test mode:**	802.11b Tx mode
Test Channel:	Lowest channel	**Polarization:**	Vertical
Test Voltage:	AC 120/60Hz	**Environment:**	Temp: 24℃ Huni: 57%

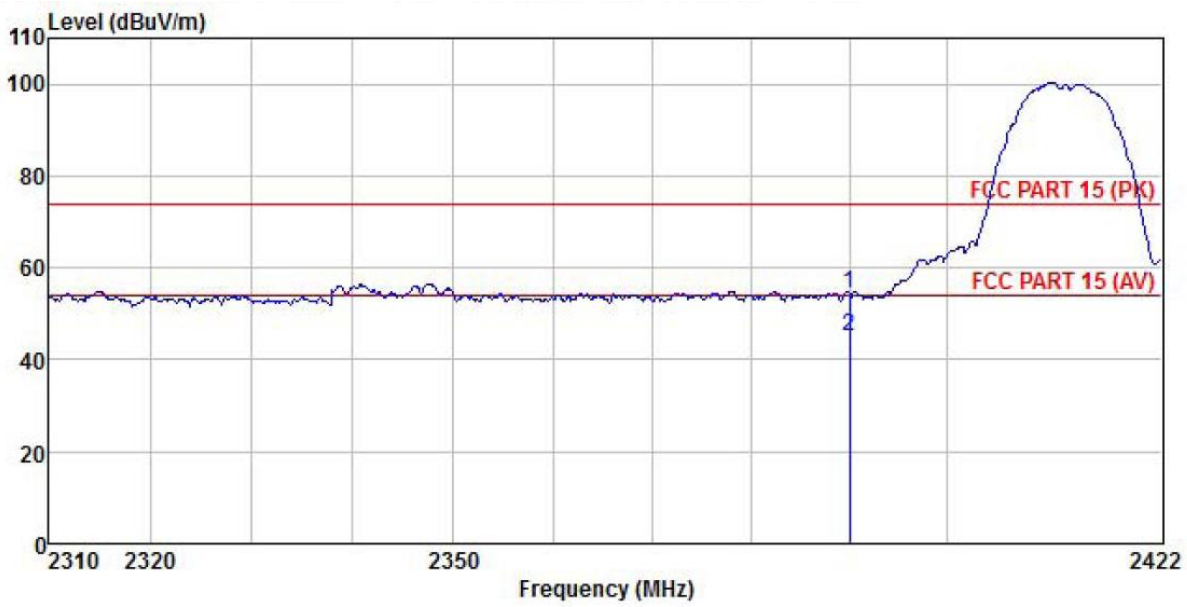


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	20.49	27.03	4.28	1.68	0.00	53.48	74.00	-20.52	Peak
2	2390.000	10.53	27.03	4.28	1.68	0.00	43.52	54.00	-10.48	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Mobile Phone	Product Model:	AX1078
Test By:	Yaro	Test mode:	802.11b Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%

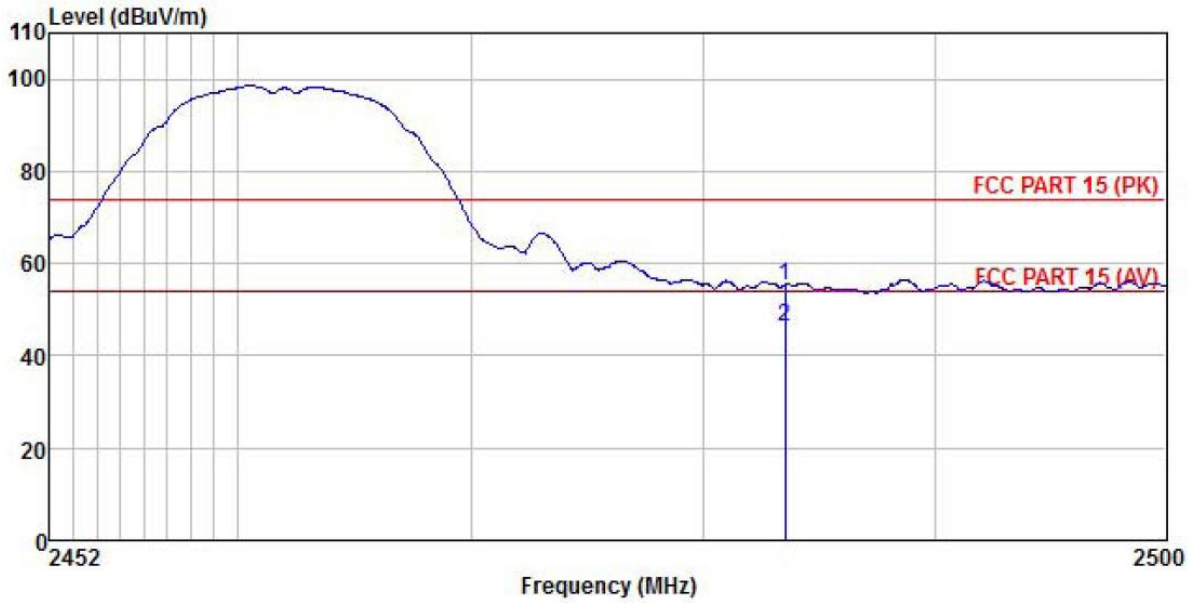


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	21.49	27.03	4.28	1.68	0.00	54.48	74.00	-19.52	Peak
2	2390.000	11.91	27.03	4.28	1.68	0.00	44.90	54.00	-9.10	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Mobile Phone	Product Model:	AX1078
Test By:	Yaro	Test mode:	802.11b Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%

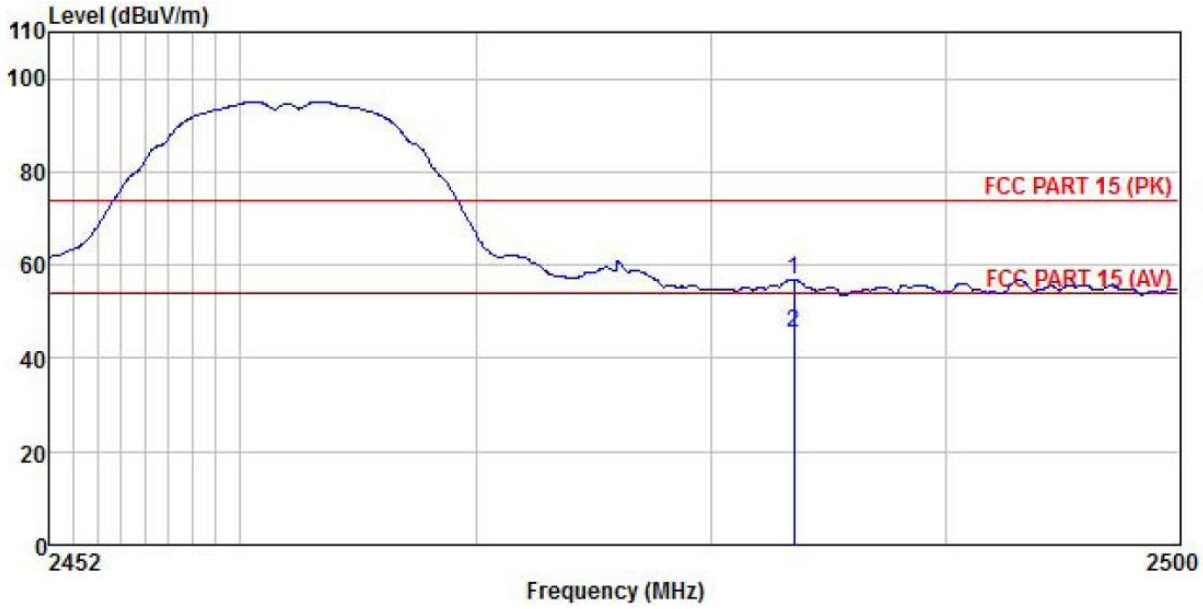


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	21.95	27.27	4.38	1.70	0.00	55.30	74.00	-18.70	Peak
2	2483.500	12.89	27.27	4.38	1.70	0.00	46.24	54.00	-7.76	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Mobile Phone	Product Model:	AX1078
Test By:	Yaro	Test mode:	802.11b Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%



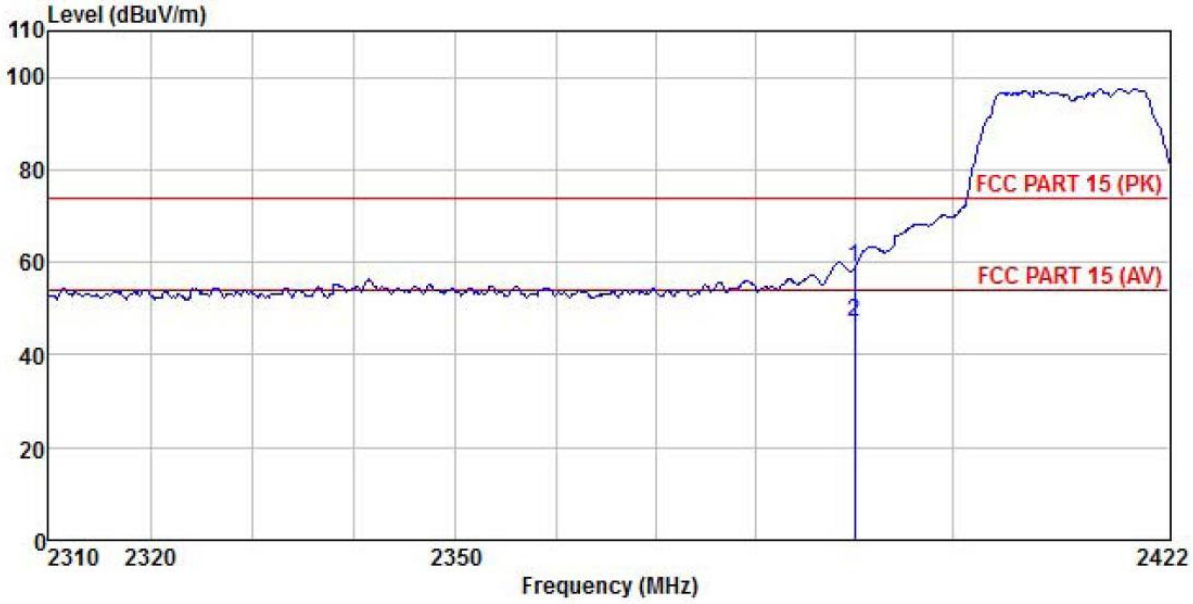
	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	23.60	27.27	4.38	1.70	0.00	56.95	74.00	-17.05	Peak
2	2483.500	12.11	27.27	4.38	1.70	0.00	45.46	54.00	-8.54	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

802.11g mode:

Product Name:	Mobile Phone	Product Model:	AX1078
Test By:	Yaro	Test mode:	802.11g Tx mode
Test Channel:	Lowest channel	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%

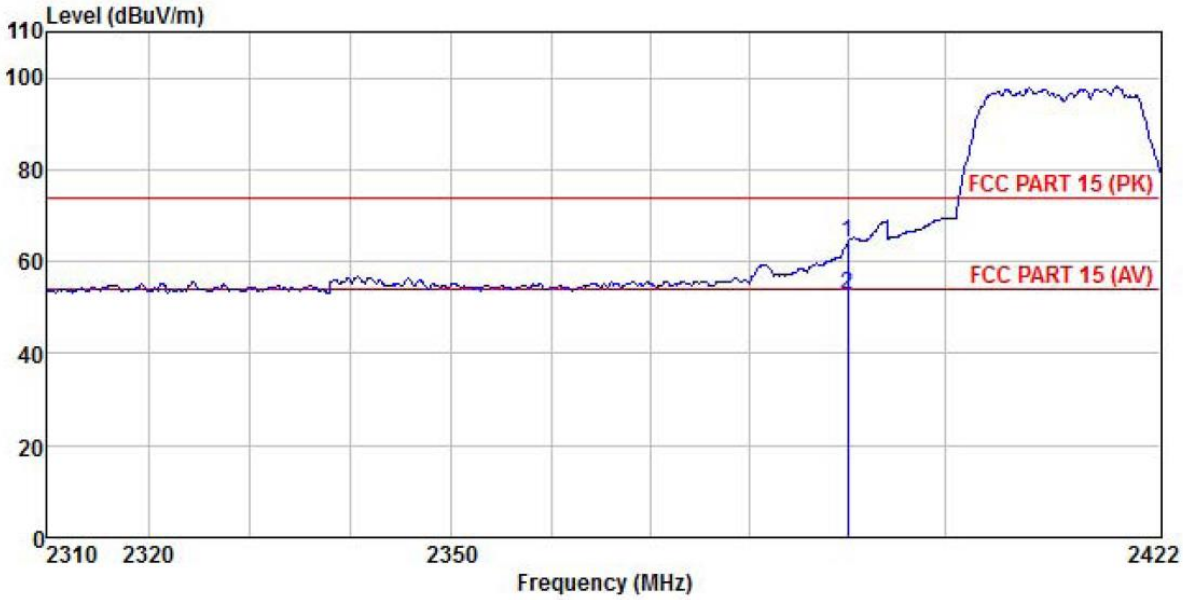


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	25.90	27.03	4.28	1.68	0.00	58.89	74.00	-15.11	Peak
2	2390.000	14.23	27.03	4.28	1.68	0.00	47.22	54.00	-6.78	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Mobile Phone	Product Model:	AX1078
Test By:	Yaro	Test mode:	802.11g Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%

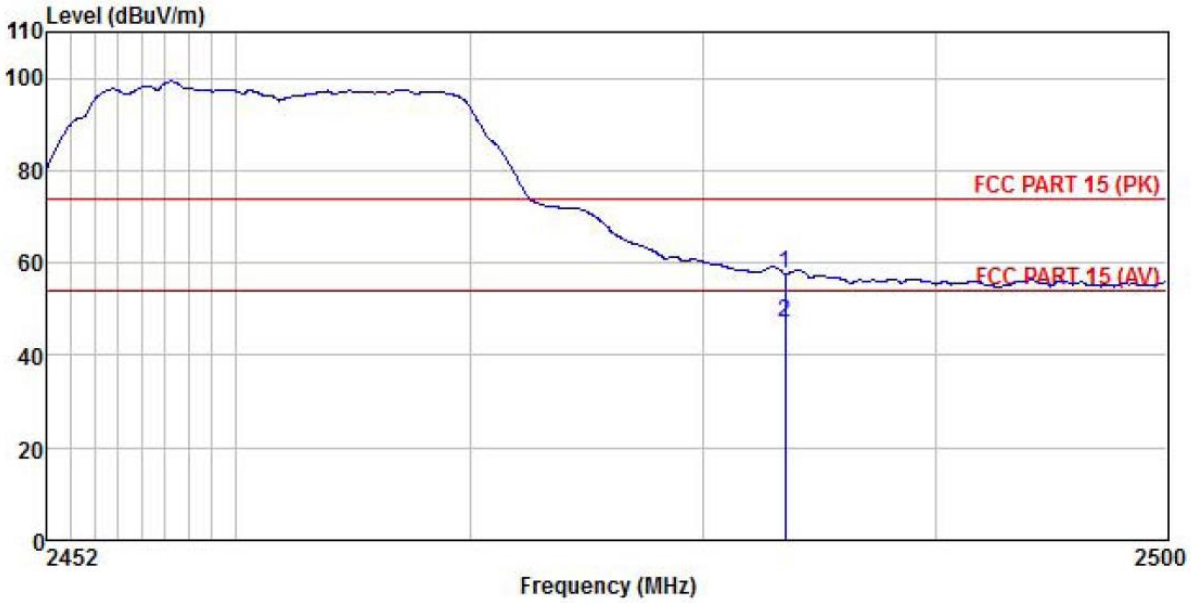


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	31.17	27.03	4.28	1.68	0.00	64.16	74.00	-9.84	Peak
2	2390.000	19.61	27.03	4.28	1.68	0.00	52.60	54.00	-1.40	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Mobile Phone	Product Model:	AX1078
Test By:	Yaro	Test mode:	802.11g Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%

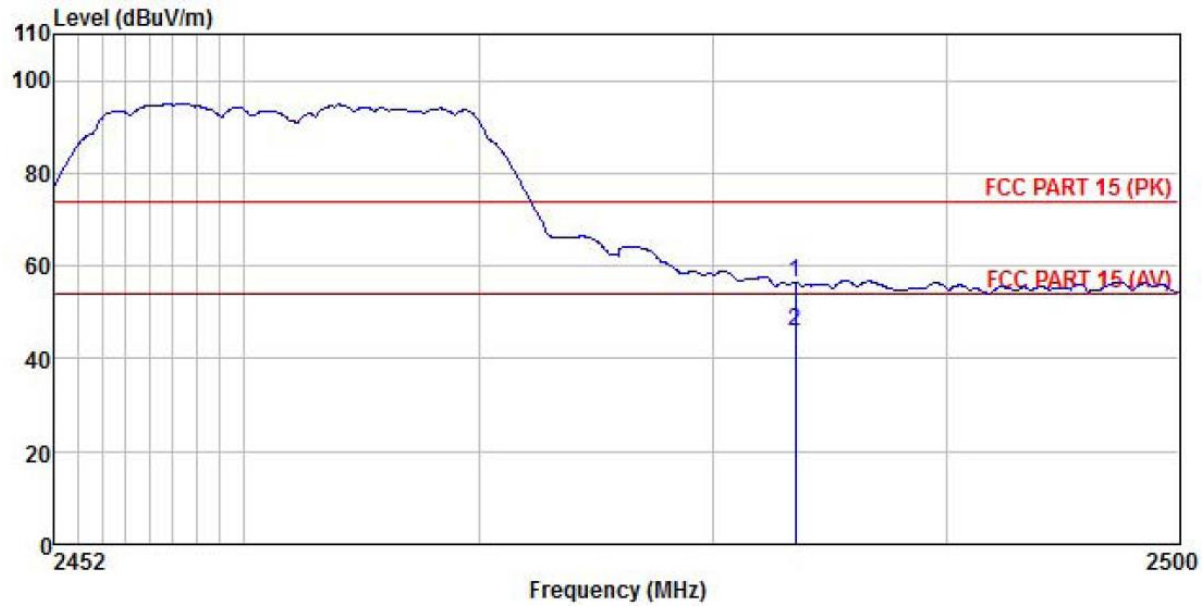


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	24.21	27.27	4.38	1.70	0.00	57.56	74.00	-16.44	Peak
2	2483.500	13.62	27.27	4.38	1.70	0.00	46.97	54.00	-7.03	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Mobile Phone	Product Model:	AX1078
Test By:	Yaro	Test mode:	802.11g Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%



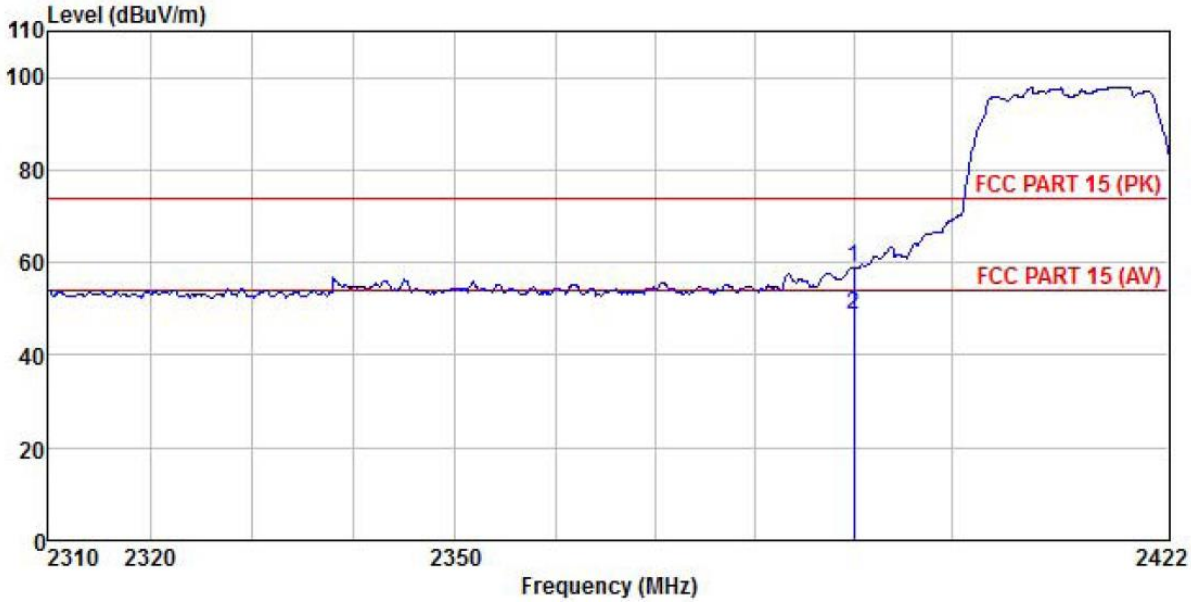
	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	23.12	27.27	4.38	1.70	0.00	56.47	74.00	-17.53	Peak
2	2483.500	12.33	27.27	4.38	1.70	0.00	45.68	54.00	-8.32	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

802.11n(HT20):

Product Name:	Mobile Phone	**Product Model:**	AX1078
Test By:	Yaro	**Test mode:**	802.11n(HT20) Tx mode
Test Channel:	Lowest channel	**Polarization:**	Vertical
Test Voltage:	AC 120/60Hz	**Environment:**	Temp: 24℃ Huni: 57%

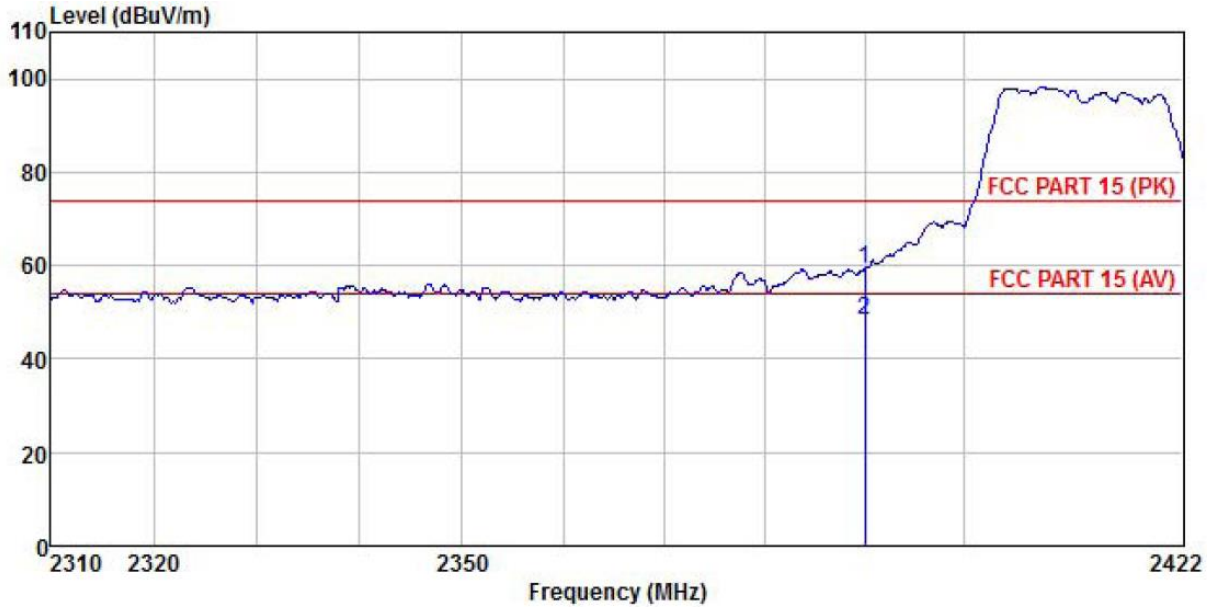


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	26.00	27.03	4.28	1.68	0.00	58.99	74.00	-15.01	Peak
2	2390.000	15.73	27.03	4.28	1.68	0.00	48.72	54.00	-5.28	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Mobile Phone	Product Model:	AX1078
Test By:	Yaro	Test mode:	802.11n(HT20) Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%

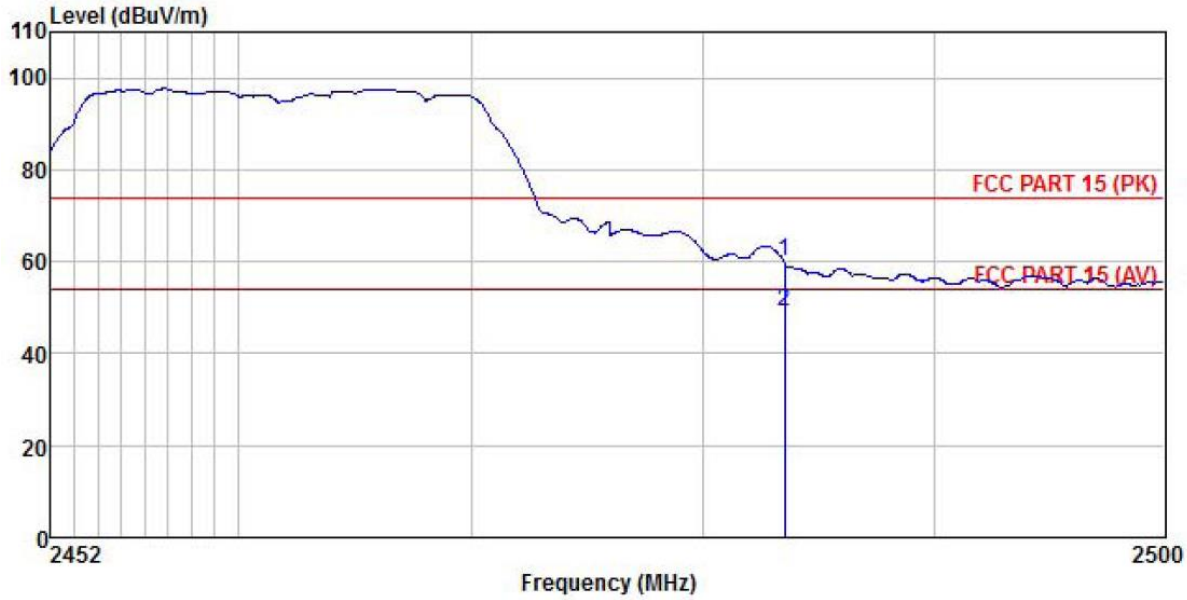


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	26.41	27.03	4.28	1.68	0.00	59.40	74.00	-14.60	Peak
2	2390.000	15.41	27.03	4.28	1.68	0.00	48.40	54.00	-5.60	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Mobile Phone	Product Model:	AX1078
Test By:	Yaro	Test mode:	802.11n(HT20) Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%

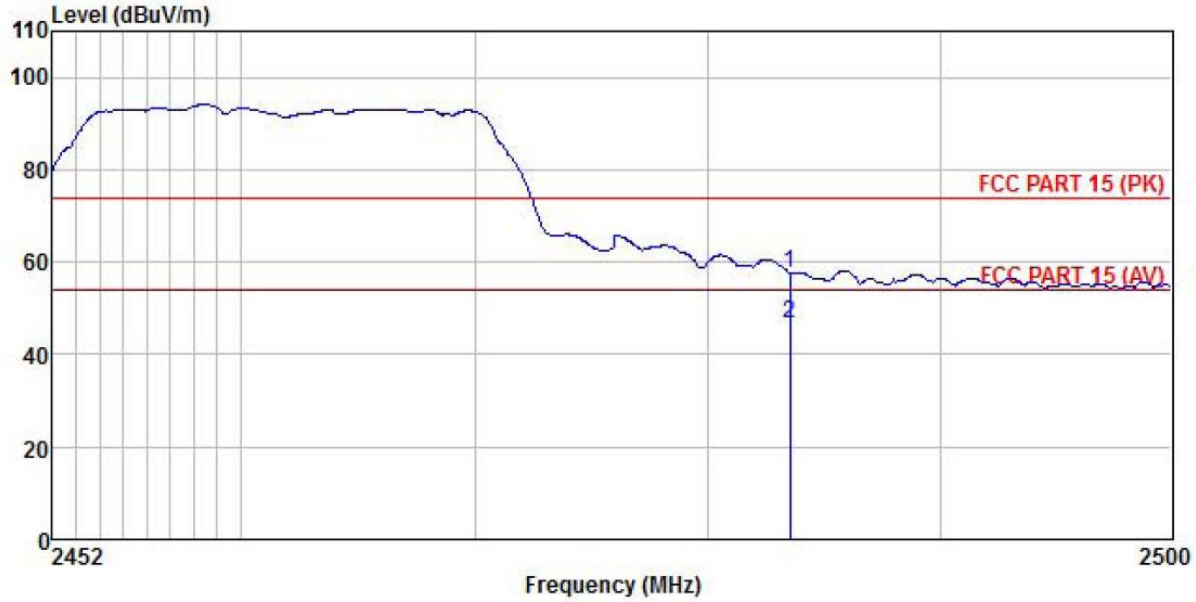


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	26.58	27.27	4.38	1.70	0.00	59.93	74.00	-14.07	Peak
2	2483.500	15.91	27.27	4.38	1.70	0.00	49.26	54.00	-4.74	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Mobile Phone	Product Model:	AX1078
Test By:	Yaro	Test mode:	802.11n(HT20) Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%



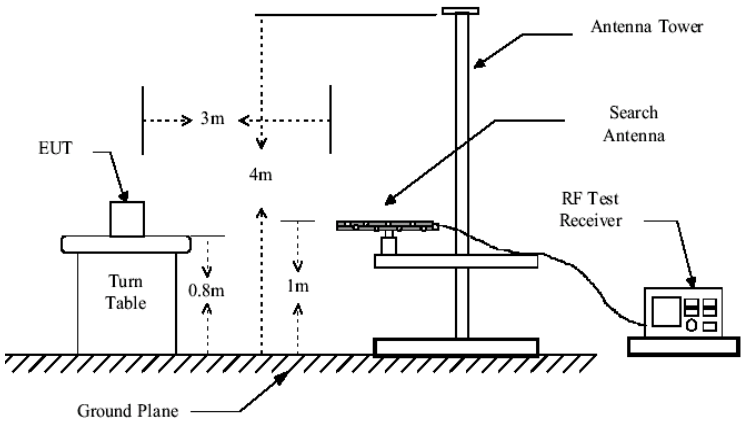
	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	24.27	27.27	4.38	1.70	0.00	57.62	74.00	-16.38	Peak
2	2483.500	13.28	27.27	4.38	1.70	0.00	46.63	54.00	-7.37	Average

Remark:

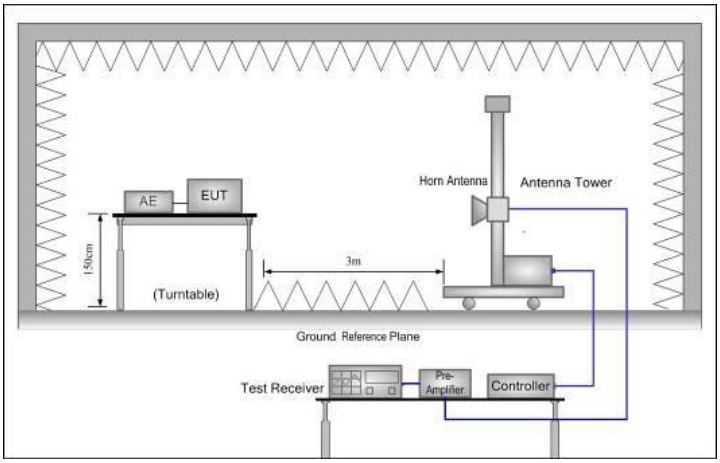
1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

5.7 Spurious Emission

5.7.1 Radiated Emission Method

<table>
<tr><td>Test Requirement:</td><td colspan="5">FCC Part 15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="5">9kHz to 25GHz</td></tr>
<tr><td>Test Distance:</td><td colspan="5">3m</td></tr>
<tr><td>Receiver setup:</td><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td></td><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td></td><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td></td><td>RMS</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
<tr><td>Limit:</td><td colspan="2">Frequency</td><td colspan="2">Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td></td><td colspan="2">30MHz-88MHz</td><td colspan="2">40.0</td><td>Quasi-peak Value</td></tr>
<tr><td></td><td colspan="2">88MHz-216MHz</td><td colspan="2">43.5</td><td>Quasi-peak Value</td></tr>
<tr><td></td><td colspan="2">216MHz-960MHz</td><td colspan="2">46.0</td><td>Quasi-peak Value</td></tr>
<tr><td></td><td colspan="2">960MHz-1GHz</td><td colspan="2">54.0</td><td>Quasi-peak Value</td></tr>
<tr><td></td><td colspan="2" rowspan="2">Above 1GHz</td><td colspan="2">54.0</td><td>Average Value</td></tr>
<tr><td></td><td colspan="2">74.0</td><td>Peak Value</td></tr>
<tr><td>Test Procedure:</td><td colspan="5">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 chamber. 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.</td></tr>
<tr><td>Test setup:</td><td colspan="5">Below 1GHz
 

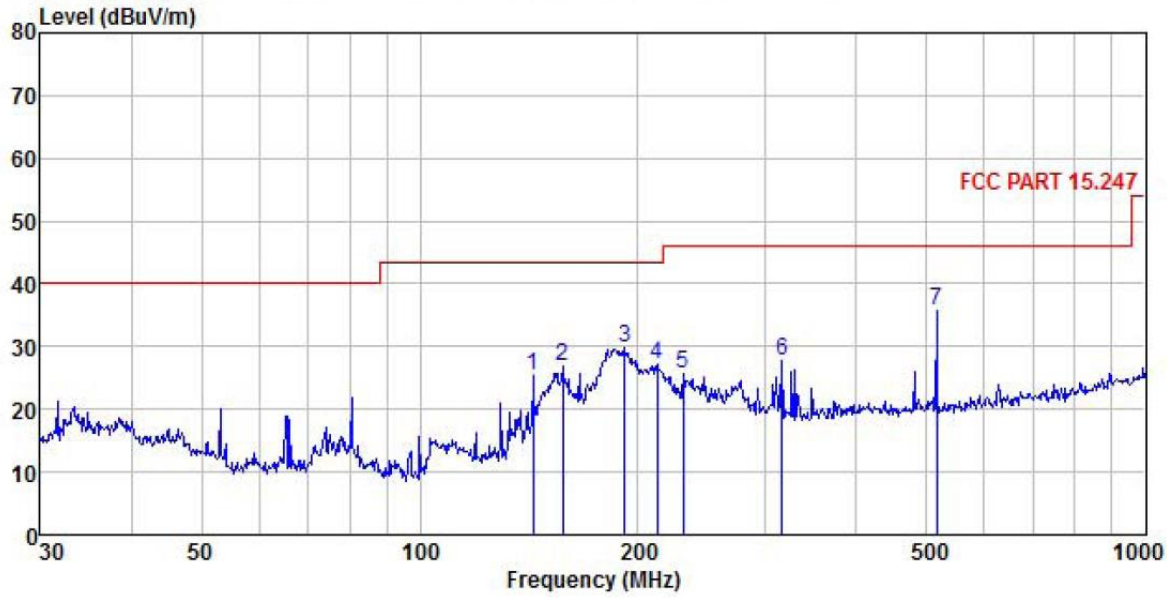
Above 1GHz</td></tr>
</table>

	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case. 2. 9 kHz to 30MHz is lower than the limit 20dB, so only shows the data of above 30MHz in this report.

Measurement Data (worst case):

Below 1GHz:

Product Name:	Mobile Phone	**Product Model:**	AX1078
Test By:	Yaro	**Test mode:**	Wi-Fi Tx mode
Test Frequency:	30 MHz ~ 1 GHz	**Polarization:**	Vertical
Test Voltage:	AC 120/60Hz	**Environment:**	Temp: 24℃ Huni: 57%

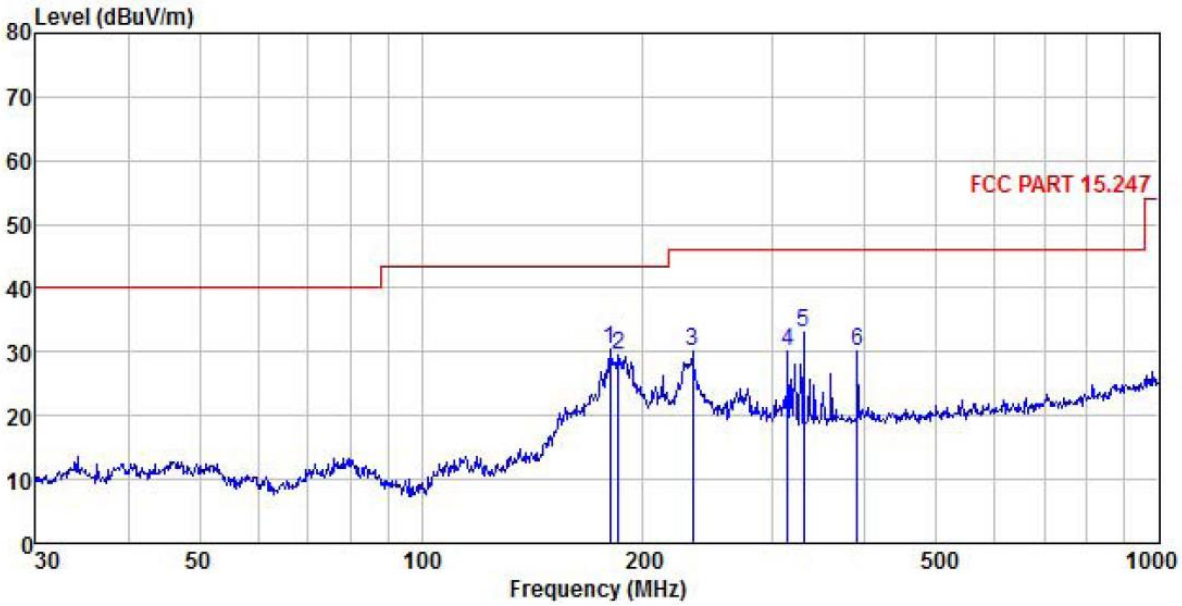


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	143.326	40.18	13.87	0.61	0.00	29.25	25.41	43.50	-18.09	QP
2	157.559	40.37	15.01	0.63	0.00	29.15	26.86	43.50	-16.64	QP
3	191.745	40.46	17.55	0.70	0.00	28.89	29.82	43.50	-13.68	QP
4	212.270	36.77	18.35	0.73	0.00	28.75	27.10	43.50	-16.40	QP
5	230.907	35.00	18.43	0.75	0.00	28.64	25.54	46.00	-20.46	QP
6	315.481	36.54	18.73	0.88	0.00	28.49	27.66	46.00	-18.34	QP
7	515.437	44.27	19.46	1.12	0.00	29.00	35.85	46.00	-10.15	QP

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB 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:	AX1078
Test By:	Yaro	Test mode:	Wi-Fi Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%



	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	180.017	41.73	16.90	0.68	0.00	28.97	30.34	43.50	-13.16	QP
2	185.138	40.64	17.20	0.69	0.00	28.93	29.60	43.50	-13.90	QP
3	233.349	39.50	18.44	0.75	0.00	28.63	30.06	46.00	-15.94	QP
4	314.377	38.97	18.73	0.88	0.00	28.48	30.10	46.00	-15.90	QP
5	330.195	41.95	18.76	0.90	0.00	28.52	33.09	46.00	-12.91	QP
6	390.723	38.69	19.04	0.98	0.00	28.74	29.97	46.00	-16.03	QP

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*
3. *The Aux Factor is a notch filter switch box loss, this item is not used.*

Above 1GHz

802.11b									
Test channel: Lowest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	55.47	30.81	6.81	2.46	41.82	53.73	74.00	-20.27	Vertical
4824.00	56.39	30.81	6.81	2.46	41.82	54.65	74.00	-19.35	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	53.71	30.81	6.81	2.46	41.82	51.97	54.00	-2.03	Vertical
4824.00	54.91	30.81	6.81	2.46	41.82	53.17	54.00	-0.83	Horizontal
Test channel: Middle channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	56.62	30.93	6.85	2.47	41.84	55.03	74.00	-18.97	Vertical
4874.00	56.14	30.93	6.85	2.47	41.84	54.55	74.00	-19.45	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	52.52	30.93	6.85	2.47	41.84	50.93	54.00	-3.07	Vertical
4874.00	53.13	30.93	6.85	2.47	41.84	51.54	54.00	-2.46	Horizontal
Test channel: Highest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	56.65	31.05	6.89	2.48	41.86	55.21	74.00	-18.79	Vertical
4924.00	57.17	31.05	6.89	2.48	41.86	55.73	74.00	-18.27	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	52.22	31.05	6.89	2.48	41.86	50.78	54.00	-3.22	Vertical
4924.00	51.49	31.05	6.89	2.48	41.86	50.05	54.00	-3.95	Horizontal

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

802.11g									
Test channel: Lowest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	55.26	30.81	6.81	2.46	41.82	53.52	74.00	-20.48	Vertical
4824.00	56.33	30.81	6.81	2.46	41.82	54.59	74.00	-19.41	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	53.17	30.81	6.81	2.46	41.82	51.43	54.00	-2.57	Vertical
4824.00	52.08	30.81	6.81	2.46	41.82	50.34	54.00	-3.66	Horizontal
Test channel: Middle channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	56.62	30.93	6.85	2.47	41.84	55.03	74.00	-18.97	Vertical
4874.00	55.95	30.93	6.85	2.47	41.84	54.36	74.00	-19.64	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	51.43	30.93	6.85	2.47	41.84	49.84	54.00	-4.16	Vertical
4874.00	52.69	30.93	6.85	2.47	41.84	51.10	54.00	-2.90	Horizontal
Test channel: Highest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	57.62	31.05	6.89	2.48	41.86	56.18	74.00	-17.82	Vertical
4924.00	56.39	31.05	6.89	2.48	41.86	54.95	74.00	-19.05	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	51.45	31.05	6.89	2.48	41.86	50.01	54.00	-3.99	Vertical
4924.00	52.29	31.05	6.89	2.48	41.86	50.85	54.00	-3.15	Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.

2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

802.11n(HT20)									
Test channel: Lowest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	54.53	30.81	6.81	2.46	41.82	52.79	74.00	-21.21	Vertical
4824.00	53.92	30.81	6.81	2.46	41.82	52.18	74.00	-21.82	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	53.02	30.81	6.81	2.46	41.82	51.28	54.00	-2.72	Vertical
4824.00	52.84	30.81	6.81	2.46	41.82	51.10	54.00	-2.90	Horizontal
Test channel: Middle channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	55.15	30.93	6.85	2.47	41.84	53.56	74.00	-20.44	Vertical
4874.00	54.91	30.93	6.85	2.47	41.84	53.32	74.00	-20.68	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	52.62	30.93	6.85	2.47	41.84	51.03	54.00	-2.97	Vertical
4874.00	51.37	30.93	6.85	2.47	41.84	49.78	54.00	-4.22	Horizontal
Test channel: Highest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	56.62	31.05	6.89	2.48	41.86	55.18	74.00	-18.82	Vertical
4924.00	57.14	31.05	6.89	2.48	41.86	55.70	74.00	-18.30	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	52.62	31.05	6.89	2.48	41.86	51.18	54.00	-2.82	Vertical
4924.00	52.17	31.05	6.89	2.48	41.86	50.73	54.00	-3.27	Horizontal

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*