FCC Test Report

FCC ID: ZSW-30-086

Product:	Smart phone
Trade Mark:	Bmobile
Model Number:	AX1077+
Family Model:	AX1076+, AX1078
Report No.:	S20120705501006

Prepared for

b mobile HK Limited
Flat 18; 14/F Block 1; Golden Industrial Building;16-26 KwaiTak Street; Kwai Chung;New Territories; Hong Kong, China

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name ..... :	b mobile HK Limited
Address..... :	Flat 18; 14/F Block 1; Golden Industrial Building;16-26 KwaiTak Street; Kwai Chung;New Territories; Hong Kong, China
Manufacturer's Name ..... :	b mobile HK Limited
Address..... :	Flat 18; 14/F Block 1; Golden Industrial Building;16-26 KwaiTak Street; Kwai Chung;New Territories; Hong Kong, China

Product description

Product name.....:	Smart phone
Model and/or type reference :	AX1077+
Family Model..... :	AX1076+, AX1078
Standards ..... :	FCC Part15B ANSI C63.4:2014

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with Part 15 of FCC Rules. And it is applicable only to the tested sample identified in the report.

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Date of Test .....:	
Date (s) of performance of tests.....:	Dec. 08, 2020 ~ Jan 05, 2021
Date of Issue .....:	Jan 05, 2021
Test Result.....:	**Pass**

Testing Engineer : (Allen Liu)

Technical Manager : (Jason Chen)

Authorized Signatory : (Alex Li)

Table of Contents **Page**

1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part15B ANSI C63.4: 2014	Conducted Emission	Class B	PASS	
	Radiated Emission	Class B	PASS	

NOTE:

(1) 'N/A' denotes test is not applicable in this Test Report

(2) For client's request and manual description, the test will not be executed.

1.1 TEST FACILITY

Shenzhen NTEK Testing Technology Co., Ltd
Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.
FCC Registration Number:463705; IC Registration Number:9270A-1
CNAS Registration Number:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
NTEKC01	ANSI	150 KHz ~ 30MHz	3.2	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
NTEKA01	ANSI	30MHz ~ 1000MHz	4.7	
		1GHz ~12.4GHz	5.0	

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart phone
Trade Mark	Bmobile
Model Name	AX1077+
Family Model	AX1076+, AX1078
Model Difference	All models are the same circuit and RF module, except the software update from android 8 to android 10 and appearance difference
Product Description	The EUT is a Smart phone. Connecting I/O port: Micro USB, Earphone Operation Frequency: 2.568GHz Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.
Power Source	DC 3.8V from Battery or DC 5V from USB Port.
Adapter	Input: 100-240V~50-60Hz 0.2A Output: 5V ⎓ 1000mA
Battery	DC 3.8V/2000mAh
HW Version	V1.0
SW Version	Bmobile_AX1078_TIGO_LTM_V002

Revision History

Report No.	Version	Description	Issued Date
S19050604703001	Rev.01	Initial issue of report	May 18, 2019
S20081703801006	Rev.02	Add a model	Aug 21, 2020
S20120705501006	Rev.03	Update the HW Version and SW Version, screen	Jan 05, 2021

2.1.1 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	USB Data Transmission
Mode 2	TF card Playing
Mode 3	REC
Mode 4	FM

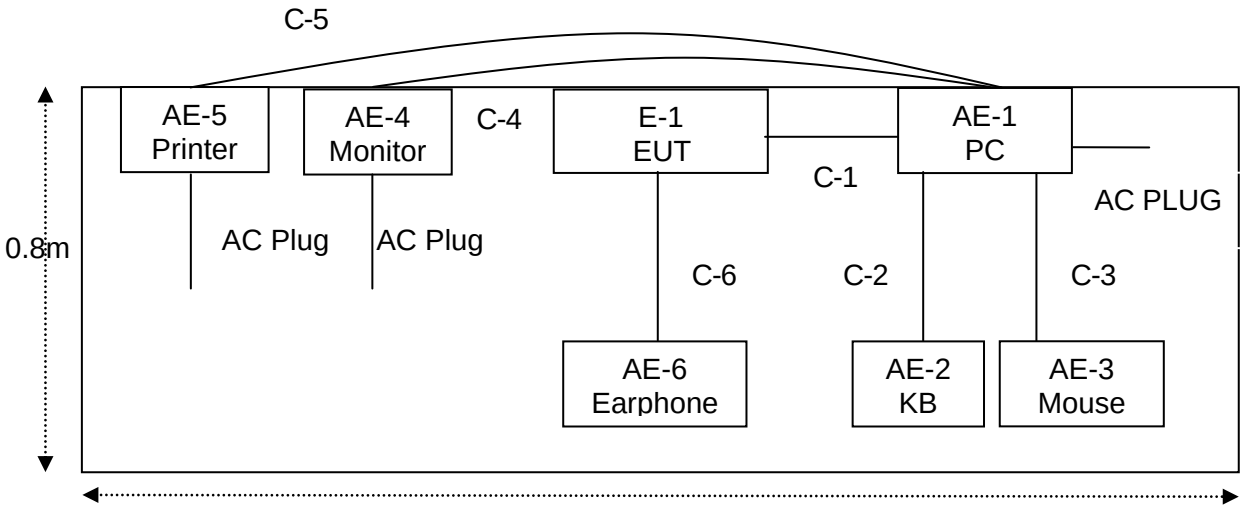
For Conducted Test	
Final Test Mode	Description
Mode 1	USB Data Transmission
Mode 2	TF card Playing
Mode 3	REC
Mode 4	FM

For Radiated Test	
Final Test Mode	Description
Mode 1	USB Data Transmission
Mode 2	TF card Playing
Mode 3	REC
Mode 4	FM

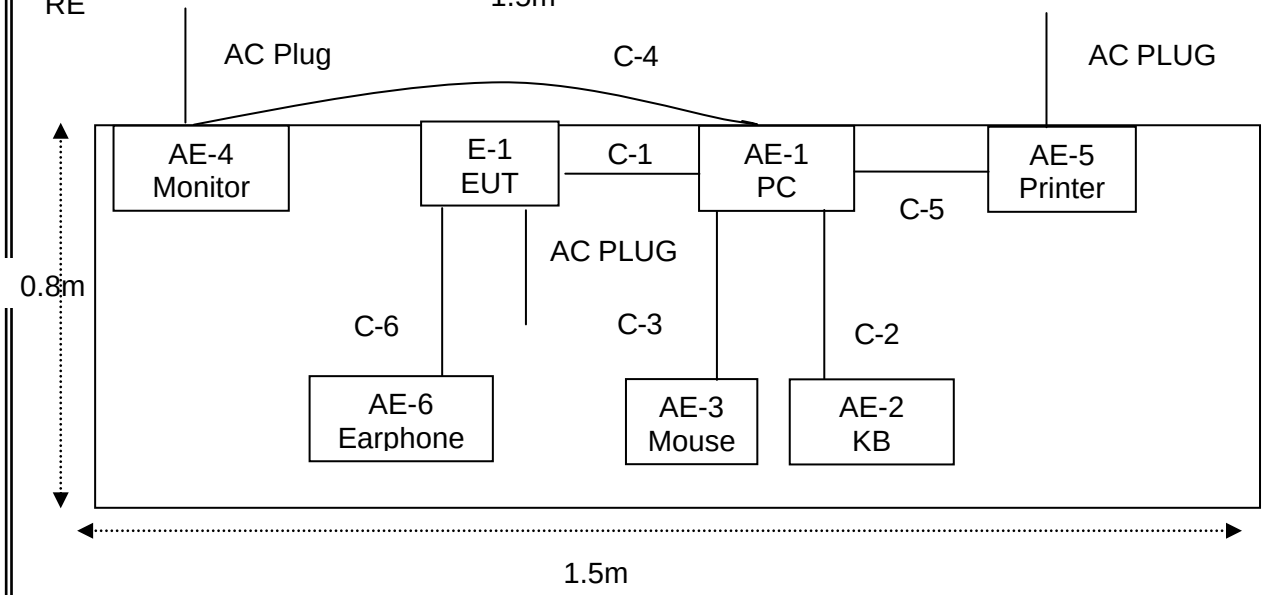
Note: Final Test Mode: Through Pre-scan, find the mode 1 is the worst case.
Only the worst case mode is recorded in the report.

2.2 DESCRIPTION OF TEST SETUP

CE



RE



2.3 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Brand	Model/Type No.	Series No.	Note
AE-1	PC	DELL	FT4Y23X	N/A	Peripherals
AE-2	KB	DELL	SK-8185	N/A	Peripherals
AE-3	Mouse	DELL	MS111-P	N/A	Peripherals
AE-4	Monitor	SHARP	LCD-32MS46A	N/A	Peripherals
AE-5	Printer	Canon	L11121E	N/A	Peripherals
AE-6	Earphone	N/A	N/A	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length	Note
C-1	USB Cable	NO	NO	1.0m	
C-2	KB Cable	NO	NO	1.2m	
C-3	Mouse Cable	NO	NO	1.2m	
C-4	HDMI Cable	YES	YES	1.0m	
C-5	USB Cable	NO	NO	1.2m	
C-6	Earphone Cable	NO	NO	1.0m	

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.
(3) “YES” means “shielded” “with core”; “NO” means “unshielded” “without core”.

2.4 MEASUREMENT INSTRUMENTS LIST

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2020.05.11	2021.05.10	1 year
2	Test Receiver	R&S	ESPI	101318	2020.05.11	2021.05.10	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2020.04.11	2021.04.10	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2020.05.11	2023.05.10	3 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2020.05.11	2021.05.10	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2020.04.11	2021.04.10	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2020.05.11	2021.05.10	1 year
8	Amplifier	EMC	EMC051835SE	980246	2020.07.13	2021.07.12	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2020.05.11	2021.05.10	1 year
10	Power Meter	DARE	RPR3006W	15I00041SNO84	2020.07.13	2021.07.12	1 year
11	Power Sensor	R&S	URV4-Z4	0395.1619.05	2020.05.11	2021.05.10	1 year
12	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2019.06.28	2022.06.27	3 year
13	High Test Cable(1G-40GHz)	N/A	R-03	N/A	2019.06.28	2022.06.27	3 year
14	High Test Cable(1G-40GHz)	N/A	R-04	N/A	2019.06.28	2022.06.27	3 year

AC Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2020.05.11	2021.05.10	1 year
2	LISN	R&S	ENV216	101313	2020.04.11	2021.04.10	1 year
3	LISN	SCHWARZBECK	NNLK 8129	8129245	2020.05.11	2021.05.10	1 year
4	50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200983704	2020.05.11	2023.05.10	3 year
5	Test Cable (9KHz-30MHz)	N/A	C01	N/A	2020.05.11	2023.05.10	3 year
6	Test Cable (9KHz-30MHz)	N/A	C02	N/A	2020.05.11	2023.05.10	3 year
7	Test Cable (9KHz-30MHz)	N/A	C03	N/A	2020.05.11	2023.05.10	3 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable which is scheduled for calibration every 3 years.

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

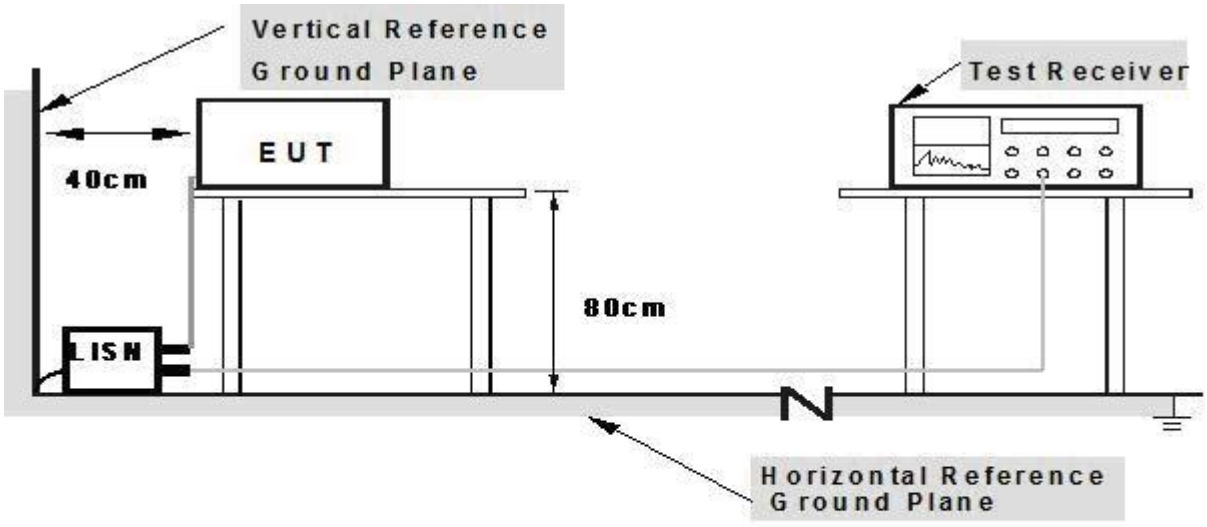
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

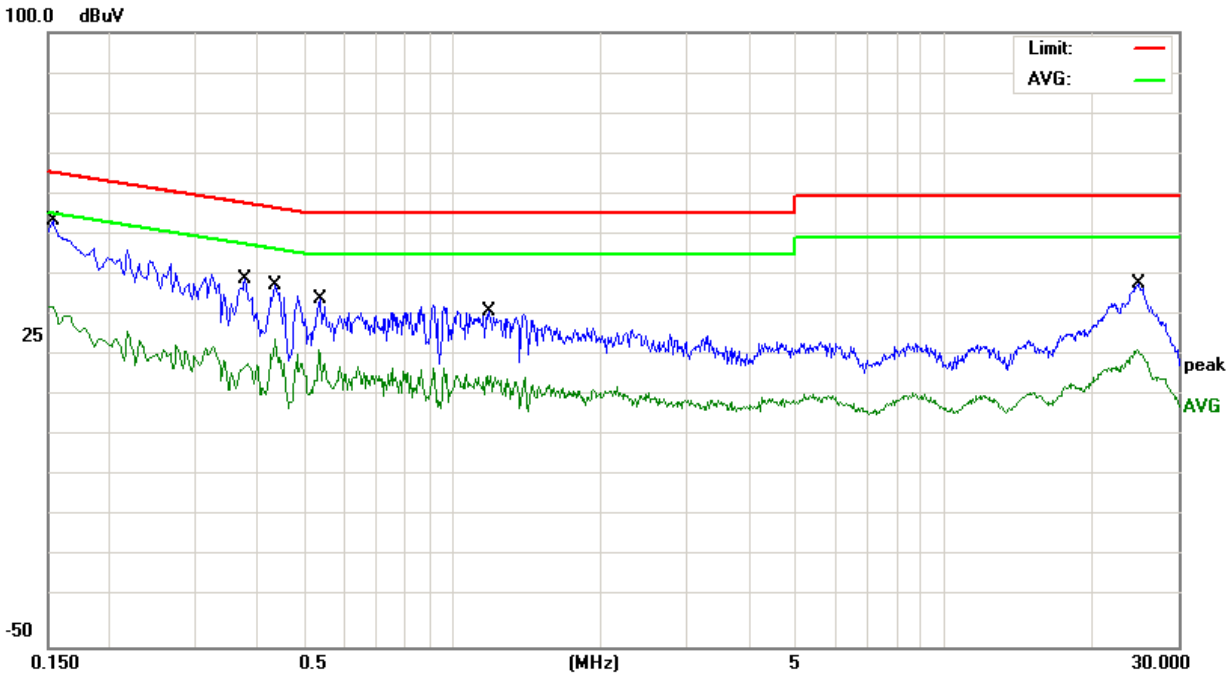
3.1.5 TEST RESULTS

EUT:	Smart phone	Model Name. :	AX1077+
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2021-01-04
Test Mode:	Mode 1	Phase :	L
Test Voltage:	DC 5V from PC AC120V/60Hz		

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1539	44.41	9.56	53.97	65.78	-11.81	QP
0.1539	23.53	9.56	33.09	55.78	-22.69	AVG
0.3780	30.30	9.55	39.85	58.32	-18.47	QP
0.3780	15.79	9.55	25.34	48.32	-22.98	AVG
0.4340	28.85	9.55	38.40	57.18	-18.78	QP
0.4340	19.11	9.55	28.66	47.18	-18.52	AVG
0.5380	25.29	9.55	34.84	56.00	-21.16	QP
0.5380	14.78	9.55	24.33	46.00	-21.67	AVG
1.1900	22.38	9.56	31.94	56.00	-24.06	QP
1.1900	6.86	9.56	16.42	46.00	-29.58	AVG
24.9340	28.82	9.94	38.76	60.00	-21.24	QP
24.9340	12.78	9.94	22.72	50.00	-27.28	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

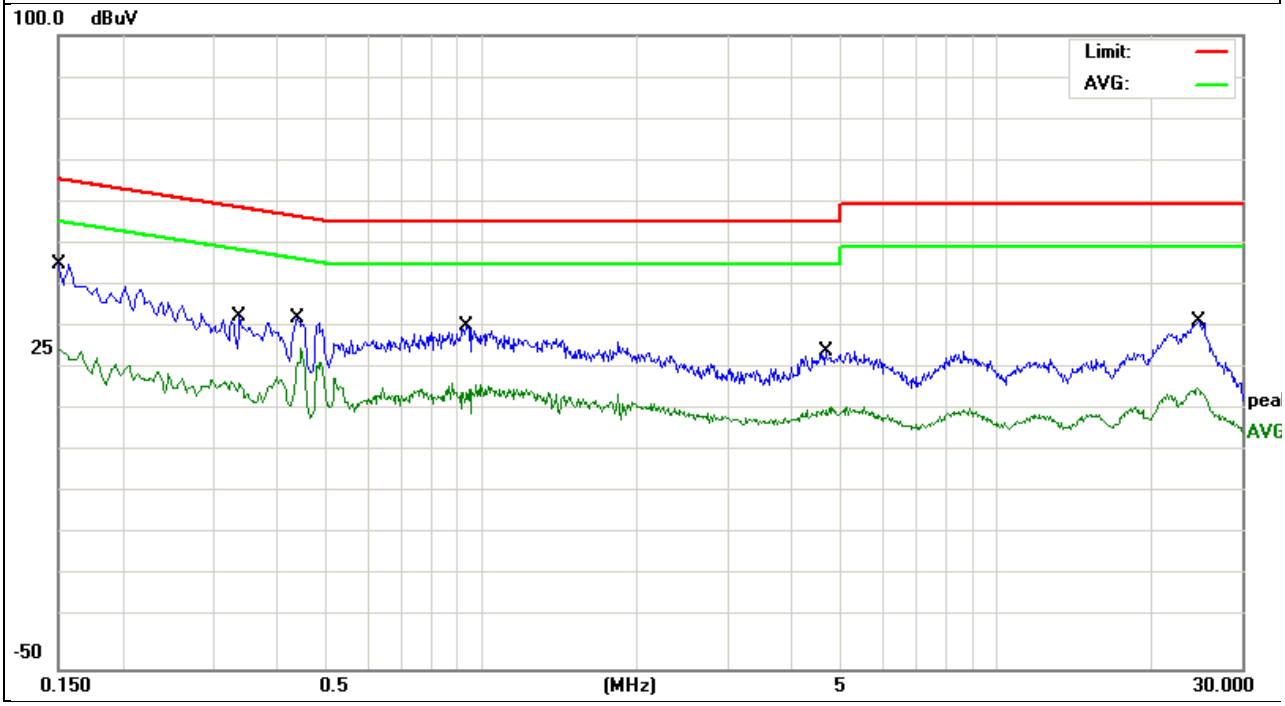


EUT:	Smart phone	Model Name. :	AX1077+
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2021-01-04
Test Mode:	Mode 1	Phase :	N
Test Voltage:	DC 5V from PC AC120V/60Hz		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1500	36.34	9.55	45.89	65.99	-20.10	QP
0.1500	14.17	9.55	23.72	55.99	-32.27	AVG
0.3379	24.08	9.53	33.61	59.25	-25.64	AVG
0.3379	16.51	9.53	26.04	49.25	-23.21	QP
0.4380	23.56	9.54	33.10	57.10	-24.00	AVG
0.4380	14.15	9.54	23.69	47.10	-23.41	QP
0.9380	21.71	9.55	31.26	56.00	-24.74	QP
0.9380	8.11	9.55	17.66	46.00	-28.34	AVG
4.6700	15.53	9.61	25.14	56.00	-30.86	QP
4.6700	2.51	9.61	12.12	46.00	-33.88	AVG
24.7139	22.53	9.91	32.44	60.00	-27.56	QP
24.7139	6.51	9.91	16.42	50.00	-33.58	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

Notes:

(1) The limit for radiated test was performed according to as following: FCC PART 15B /ICES-003.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 TEST PROCEDURE

Test Arrangement for Radiated Emissions up to 1 GHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited test facility. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its 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.

d. 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 table was turned from 0 degrees to 360 degrees to find the maximum reading.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for quasi-peak detection (QP) at frequency below 1GHz.

Test Arrangement for Radiated Emissions above 1 GHz.

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna can be varied from one meter to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength.Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

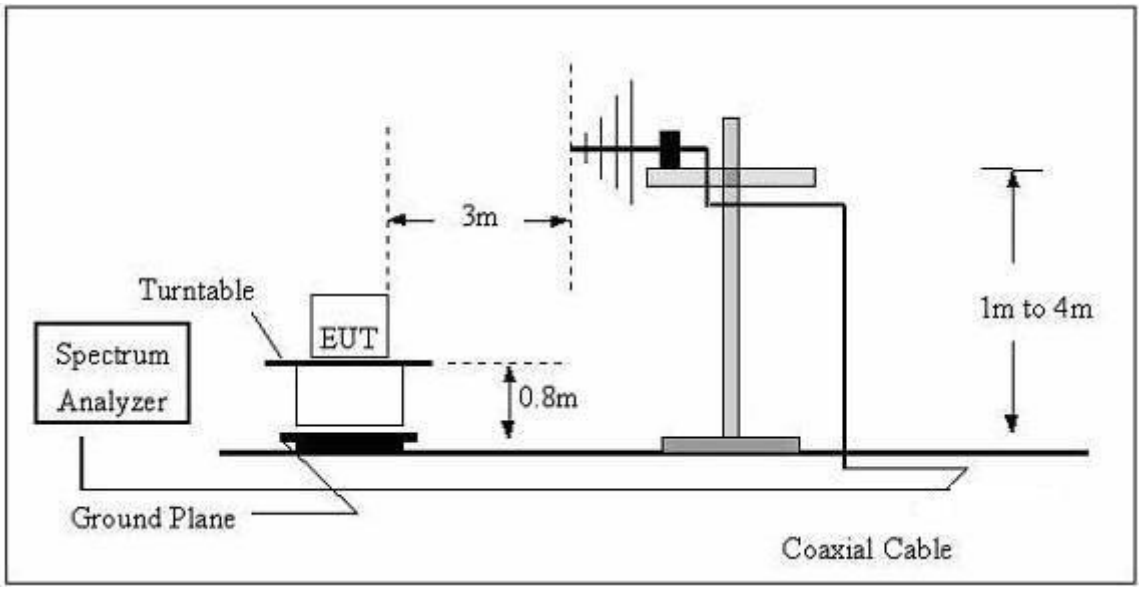
Note： For the hand-held device, the EUT should be measured for all 3 axes and only the worst case is recorded in the report

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

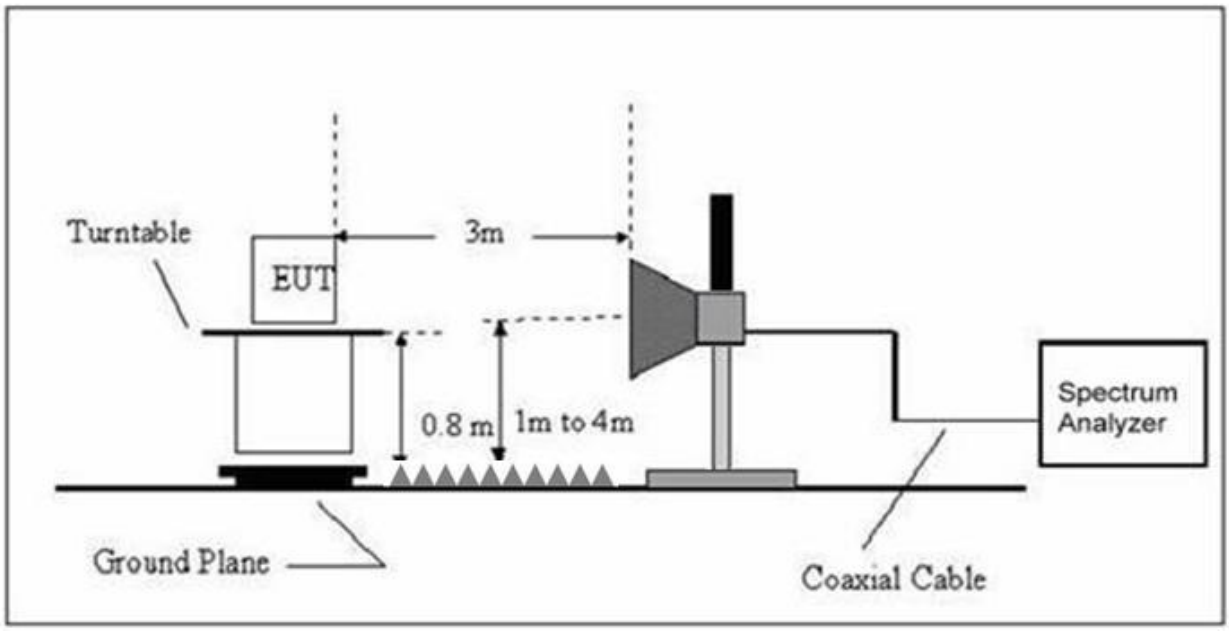
Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Avg	1 MHz	10 Hz

3.2.3 TEST SETUP

For Radiated Emission 30~1000MHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



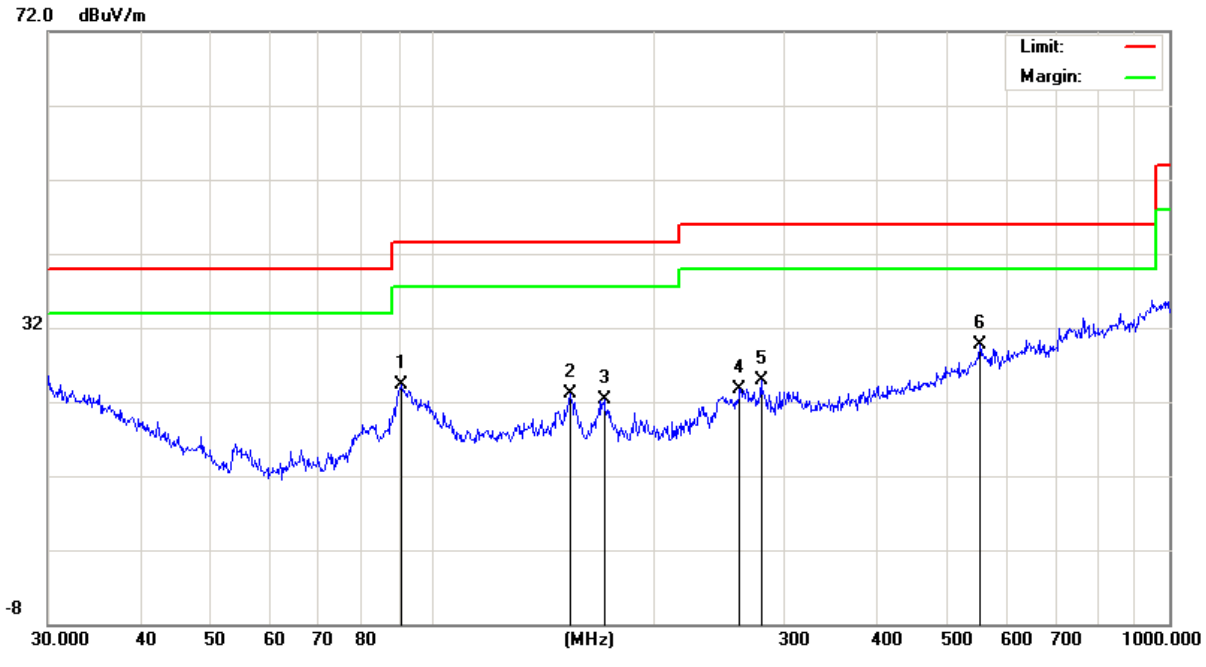
3.2.4 TEST RESULTS

TEST RESULTS (30~1000 MHz)

EUT:	Smart phone	Model Name:	AX1077+
Temperature:	24 ℃	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2021-01-04
Test Mode :	Mode 1	Polarization :	Horizontal
Test Power :	DC 5V from PC AC120V/60Hz		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	90.5374	14.42	9.83	24.25	43.50	-19.25	QP
H	153.7385	11.36	11.76	23.12	43.50	-20.38	QP
H	170.7925	11.62	10.71	22.33	43.50	-21.17	QP
H	261.0582	8.91	14.85	23.76	46.00	-22.24	QP
H	279.0436	9.22	15.72	24.94	46.00	-21.06	QP
H	552.8832	7.23	22.54	29.77	46.00	-16.23	QP

Remark:
Factor = Antenna Factor + Cable Loss - Amplifier.

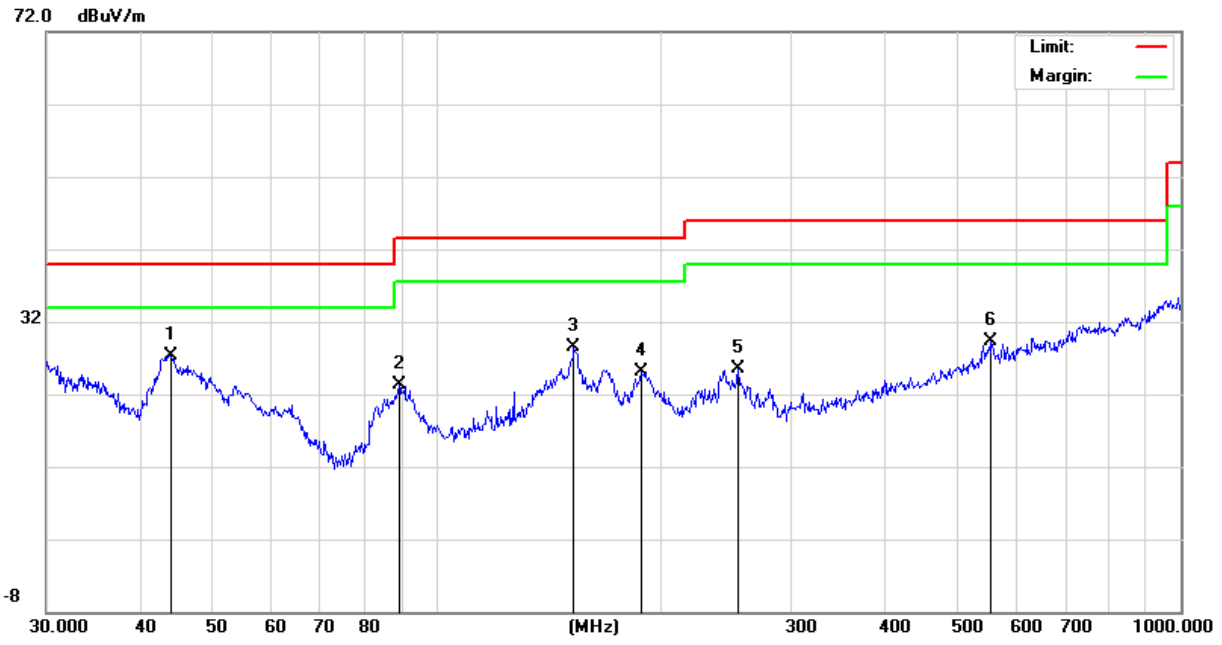


EUT:	Smart phone	Model Name :	AX1077+
Temperature:	24 ℃	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2021-01-04
Test Mode :	Mode 1	Polarization :	Vertical
Test Power :	DC 5V from PC AC120V/60Hz		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	44.1202	15.46	11.87	27.33	40.00	-12.67	QP
V	89.2764	13.73	9.54	23.27	43.50	-20.23	QP
V	153.2004	16.73	11.79	28.52	43.50	-14.98	QP
V	189.0742	15.86	9.29	25.15	43.50	-18.35	QP
V	254.7284	11.57	13.85	25.42	46.00	-20.58	QP
V	556.7744	6.79	22.44	29.23	46.00	-16.77	QP

Remark:

Factor = Antenna Factor + Cable Loss - Amplifier.



3.2.5 TEST RESULTS(1000~26500MHz)

EUT:	Smart phone	Model Name :	AX1077+
Temperature:	24 ℃	Relative Humidity:	54%
Pressure:	1010 hPa	Test Date :	2021-01-04
Test Mode :	Mode 1		
Test Power :	DC 5V from PC AC120V/60Hz		

All the modulation modes have been tested, and the worst result was report as below:

Polar (H/V)	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Remark
V	2105.00	64.37	-22.06	42.31	74.00	-31.69	peak
V	2487.50	65.81	-23.29	42.52	74.00	-31.48	peak
V	2955.00	64.96	-21.79	43.17	74.00	-30.83	peak
V	4145.00	60.75	-16.13	44.62	74.00	-29.38	peak
V	5717.50	60.32	-14.53	45.79	74.00	-28.21	peak
H	1807.50	64.36	-24.82	39.54	74.00	-34.46	peak
H	2147.50	64.48	-22.40	42.08	74.00	-31.92	peak
H	2487.50	65.80	-23.29	42.51	74.00	-31.49	peak
H	2955.00	64.23	-21.79	42.44	74.00	-31.56	peak
H	4400.00	61.46	-15.04	46.42	74.00	-27.58	peak

Remark:
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit
Note: Only the worst results data points are reported in the report.