FCC Test Report

FCC ID: ZSW-10-039

Product:	Mobile Phone
Trade Mark:	Bmobile
Model Number:	T102
Family Model:	N/A
Report No.:	S21010400207001

Prepared for

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

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 Kwai Tak Street; Kwai Chung;New Territories; Hong Kong
Manufacturer's Name.....	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

Product description

Product name	Mobile Phone
Model and/or type reference	T102
Family Model.....	N/A
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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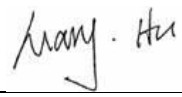
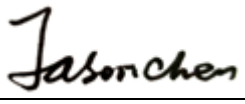
Date of Test.....:	
Date (s) of performance of tests.....:	04 Jan. 2021 ~ 02 Mar. 2021
Date of Issue.....:	02 Mar. 2021
Test Result.....:	**Pass**

Testing Engineer : 

(Mary Hu)

Technical Manager : 

(Jason Chen)

Authorized Signatory : 

(Alex Li)

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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** %.

Test Item	Measurement Frequency Range	K	U(dB)
AC Mains Conducted Emission	0.009kHz ~ 0.15MHz	2	2.66
AC Mains Conducted Emission	0.15MHz ~ 30MHz	2	2.80
Telecom Conducted Emission (Cat 3)	0.15MHz ~ 30MHz	2	2.40
Telecom Conducted Emission (Cat 5)	0.15MHz ~ 30MHz	2	2.58
Radiated Emission	30MHz ~ 1000MHz	2	2.64
Radiated Emission	1000MHz ~ 6000MHz	2	5.10
Radiated Emission	6000MHz ~ 18000MHz	2	2.52
Power Clamp	30MHz ~ 300MHz	2	2.20

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Mobile Phone
Trade Mark	Bmobile
Model Name	T102
Family Model	N/A
Model Difference	N/A
Product Description	The EUT is a Mobile Phone . Connecting I/O port: Micro USB, Earphone Operation Frequency: 2.570GHz 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 3.7V/2500mAh from battery or DC 5V from Adapter.
Adapter	Input: AC 120-240V~50/60Hz 0.15A Output: DC 5.0V ⎓ 1A
HW Version	Bmobile_T102_HW_V1.0
SW Version	Bmobile_T102_OM_LATAM_V001_20201228_1546

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
Mode 5	GPS

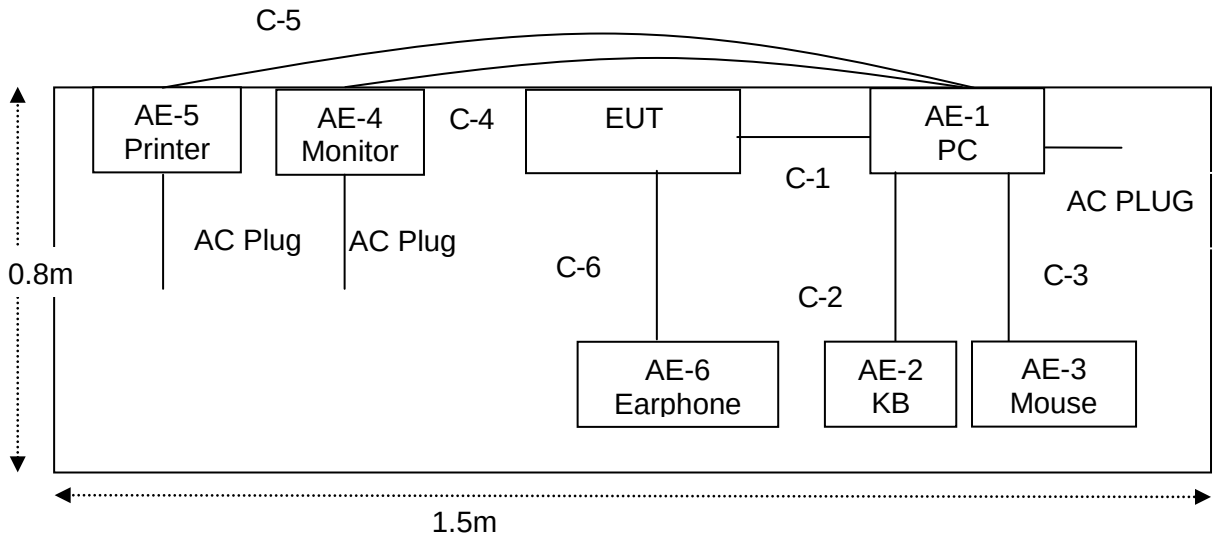
For Conducted Test	
Final Test Mode	Description
Mode 1	USB Data Transmission

For Radiated Test	
Final Test Mode	Description
Mode 1	USB Data Transmission

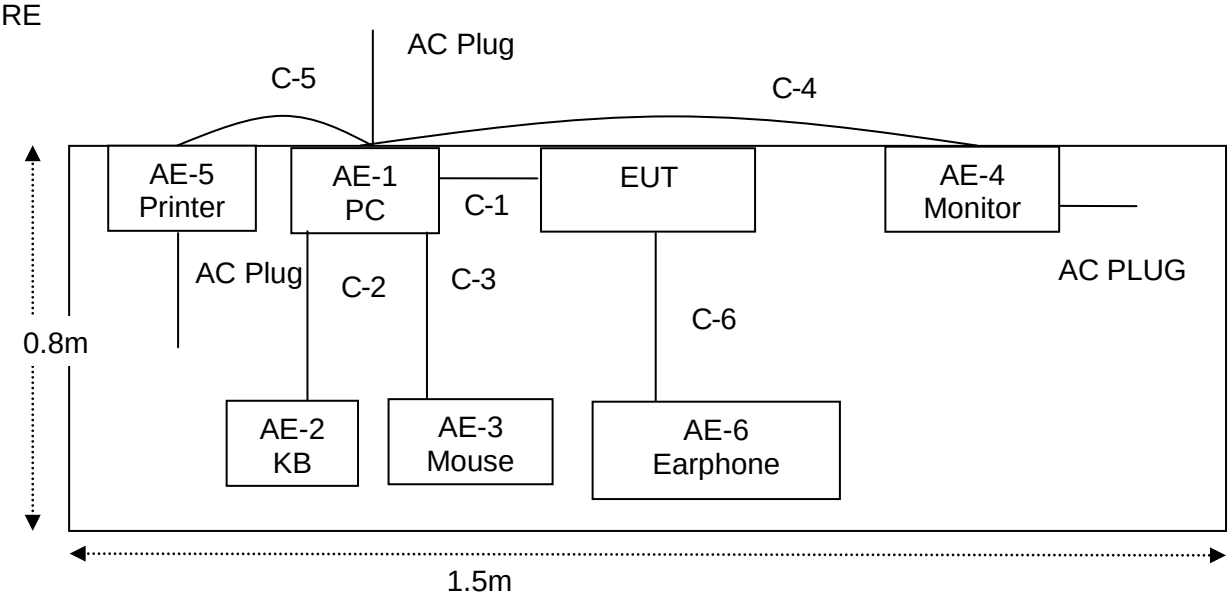
Note: Final Test Mode: Through Pre-scan, find the mode 1 is the worst case.
Only the worst case mode is recorded in the report.

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	N/A	N/A	Peripherals
AE-2	KB	HP	N/A	N/A	Peripherals
AE-3	Mouse	DELL	N/A	N/A	Peripherals
AE-4	Monitor	MI	N/A	N/A	Peripherals
AE-5	Printer	Canon	N/A	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	0.8m	
C-2	USB Cable	NO	NO	1.2m	
C-3	USB 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	1.2m	

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.

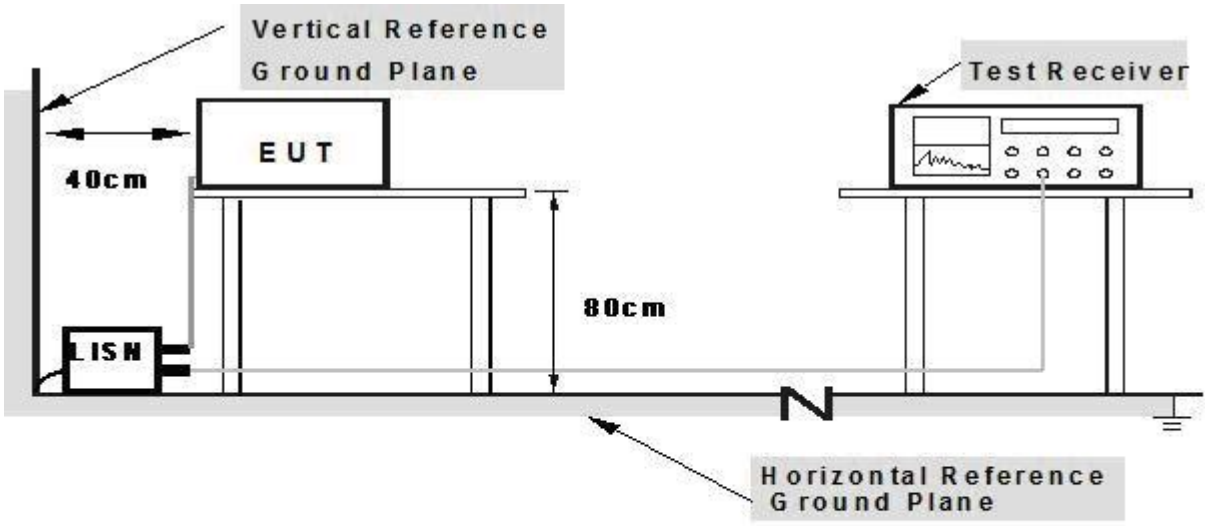
The following table is the setting of the receiver

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.

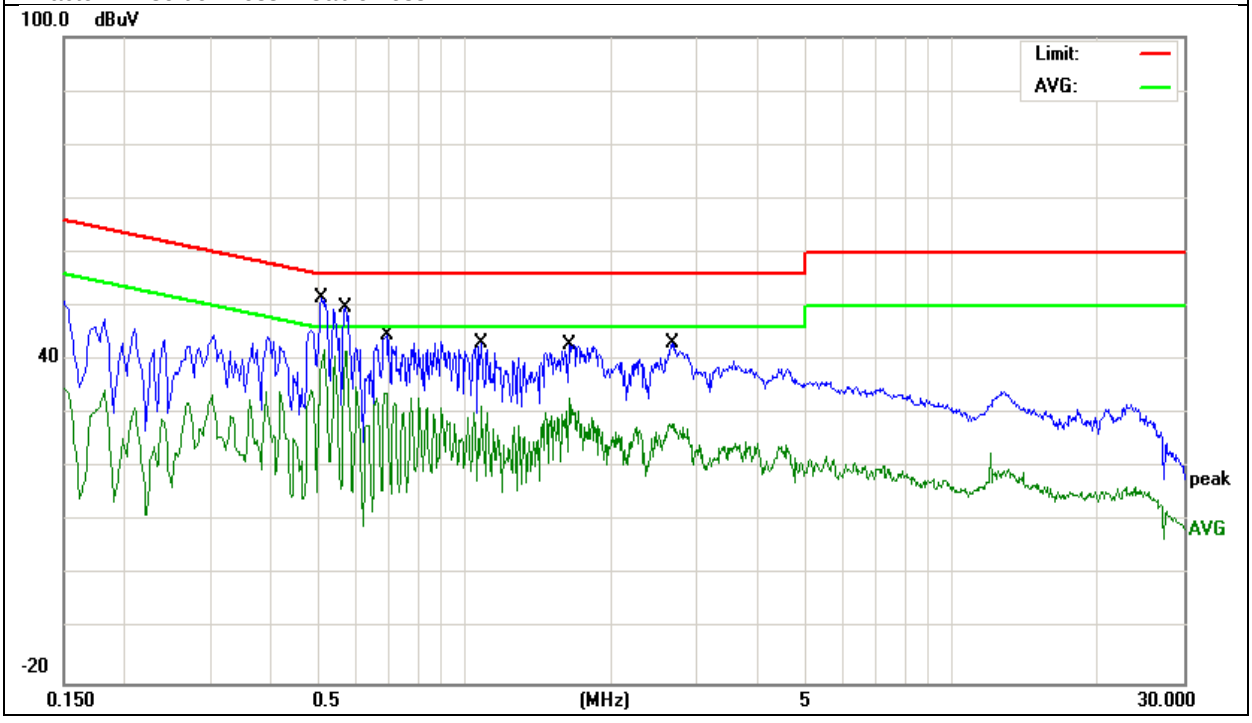
3.1.5 TEST RESULTS

EUT:	Mobile Phone	Model Name. :	T102
Temperature:	22.8 ℃	Relative Humidity:	51%
Pressure:	1010hPa	Test Date:	2021-03-10
Test Mode:	Mode 1	Phase :	L
Test Voltage:	DC 5V from PC (AC 120V/60Hz)		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.5100	41.91	9.55	51.46	56.00	-4.54	QP
0.5100	32.39	9.55	41.94	46.00	-4.06	AVG
0.5700	40.30	9.55	49.85	56.00	-6.15	QP
0.5700	32.07	9.55	41.62	46.00	-4.38	AVG
0.6900	35.05	9.55	44.60	56.00	-11.40	QP
0.6900	24.43	9.55	33.98	46.00	-12.02	AVG
1.0859	33.60	9.56	43.16	56.00	-12.84	QP
1.0859	21.80	9.56	31.36	46.00	-14.64	AVG
1.6420	33.27	9.58	42.85	56.00	-13.15	QP
1.6420	23.25	9.58	32.83	46.00	-13.17	AVG
2.6660	33.56	9.59	43.15	56.00	-12.85	QP
2.6660	18.60	9.59	28.19	46.00	-17.81	AVG

Remark:

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

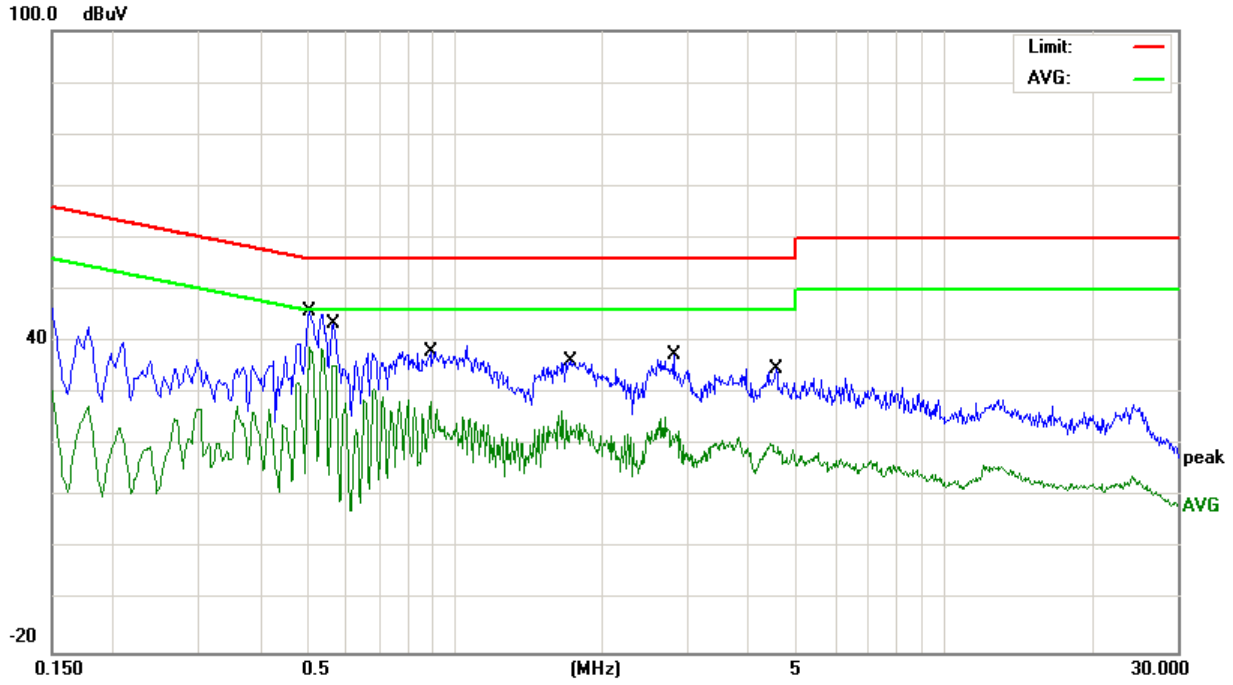


EUT:	Mobile Phone	Model Name. :	T102
Temperature:	22.8 ℃	Relative Humidity:	51%
Pressure:	1010hPa	Test Date:	2021-03-10
Test Mode:	Mode 1	Phase :	N
Test Voltage:	DC 5V from PC(AC 120V/60Hz)		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.5060	36.42	9.54	45.96	56.00	-10.04	QP
0.5060	29.29	9.54	38.83	46.00	-7.17	AVG
0.5660	33.84	9.54	43.38	56.00	-12.62	QP
0.5660	28.51	9.54	38.05	46.00	-7.95	AVG
0.8940	28.60	9.54	38.14	56.00	-17.86	QP
0.8940	18.91	9.54	28.45	46.00	-17.55	AVG
1.7180	26.81	9.57	36.38	56.00	-19.62	QP
1.7180	17.03	9.57	26.60	46.00	-19.40	AVG
2.8060	27.84	9.59	37.43	56.00	-18.57	QP
2.8060	15.75	9.59	25.34	46.00	-20.66	AVG
4.5379	25.09	9.61	34.70	56.00	-21.30	QP
4.5379	10.81	9.61	20.42	46.00	-25.58	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.

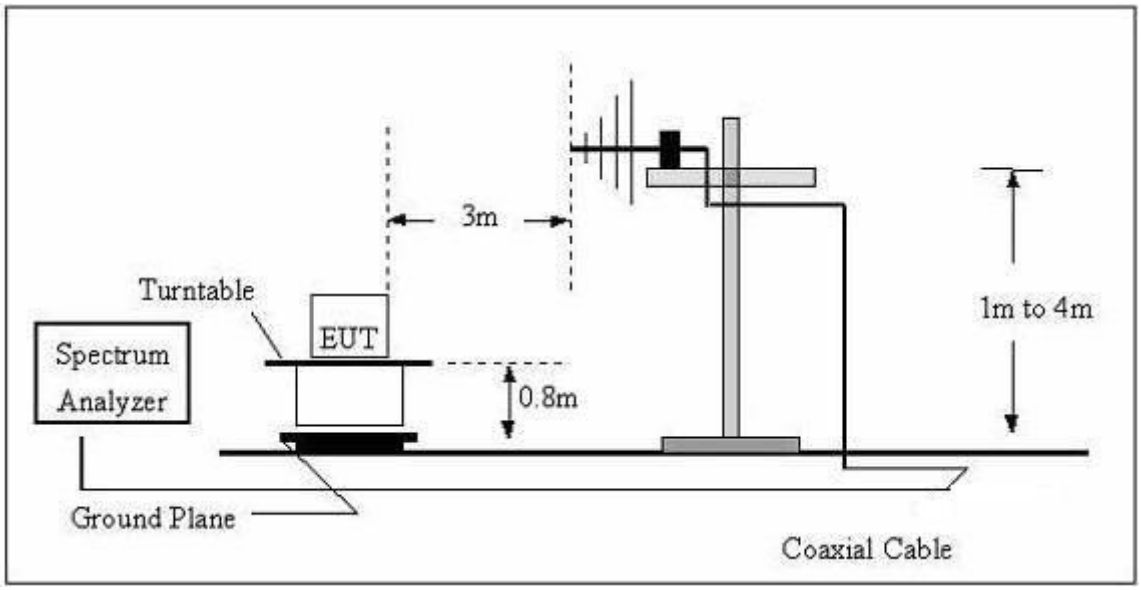
Note：For the hand-held device, the EUT should be measured for all 3 axes and only the

worst case is recorded in the report
During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

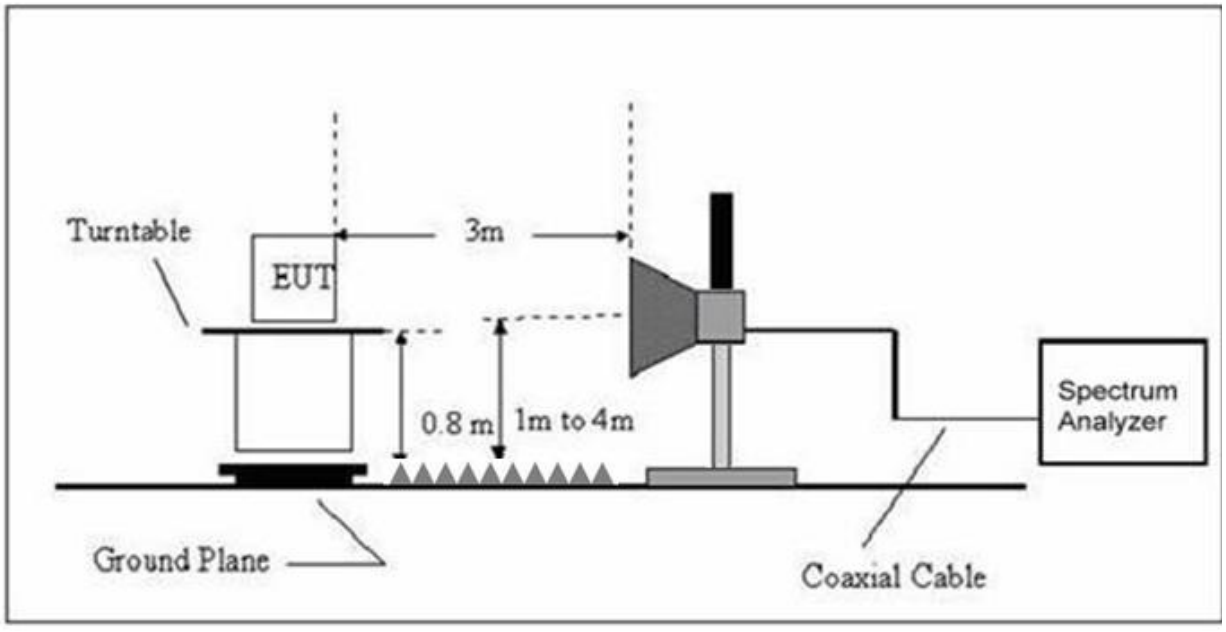
Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Avg	1 MHz	1 MHz

3.2.3 TEST SETUP

For Radiated Emission 30~1000MHz



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



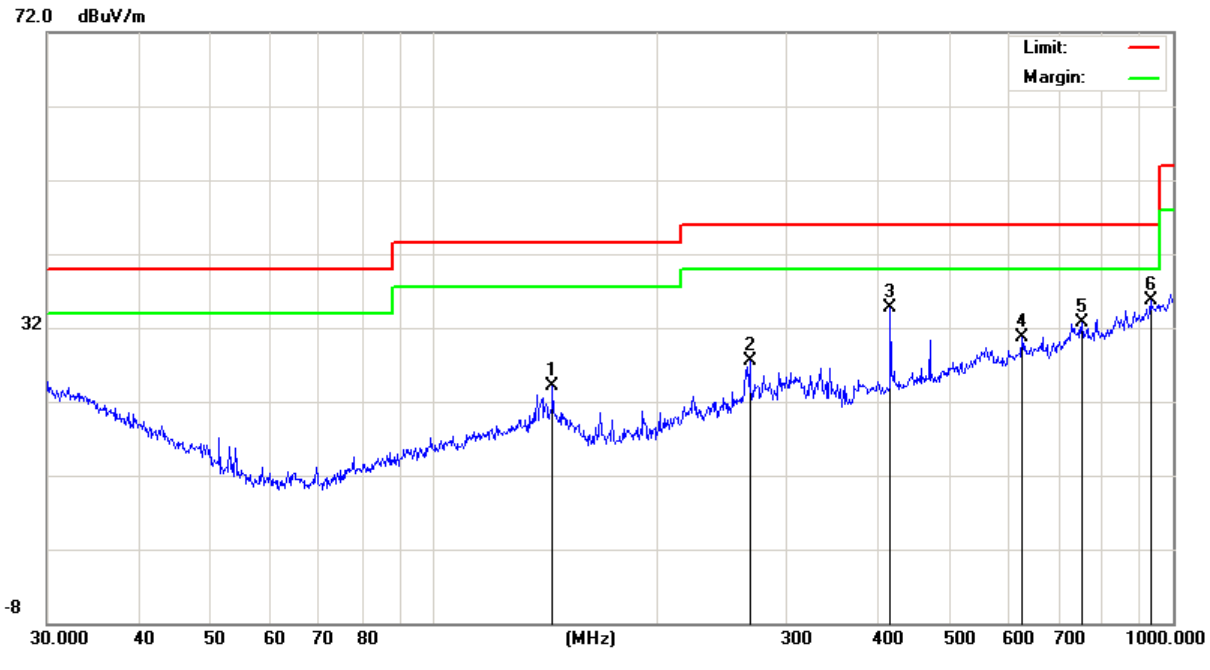
3.2.4 TEST RESULTS

TEST RESULTS (30~1000 MHz)

EUT:	Mobile Phone	Model Name:	T102
Temperature:	26.1 ℃	Relative Humidity:	51%
Pressure:	1010 hPa	Test Date :	2021-03-15
Test Mode :	Mode 1	Polarization :	Horizontal
Test Power :	DC 5V from PC (AC 120V/60Hz)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	144.8418	12.06	12.05	24.11	43.50	-19.39	QP
H	267.5455	13.19	14.34	27.53	46.00	-18.47	QP
H	414.7223	16.67	18.09	34.76	46.00	-11.24	QP
H	625.0778	8.42	22.30	30.72	46.00	-15.28	QP
H	752.7432	7.70	24.92	32.62	46.00	-13.38	QP
H	932.2713	7.82	27.82	35.64	46.00	-10.36	QP

Remark:
Emission Level= Meter Reading+ Factor, Margin= Emission Level- Limit.

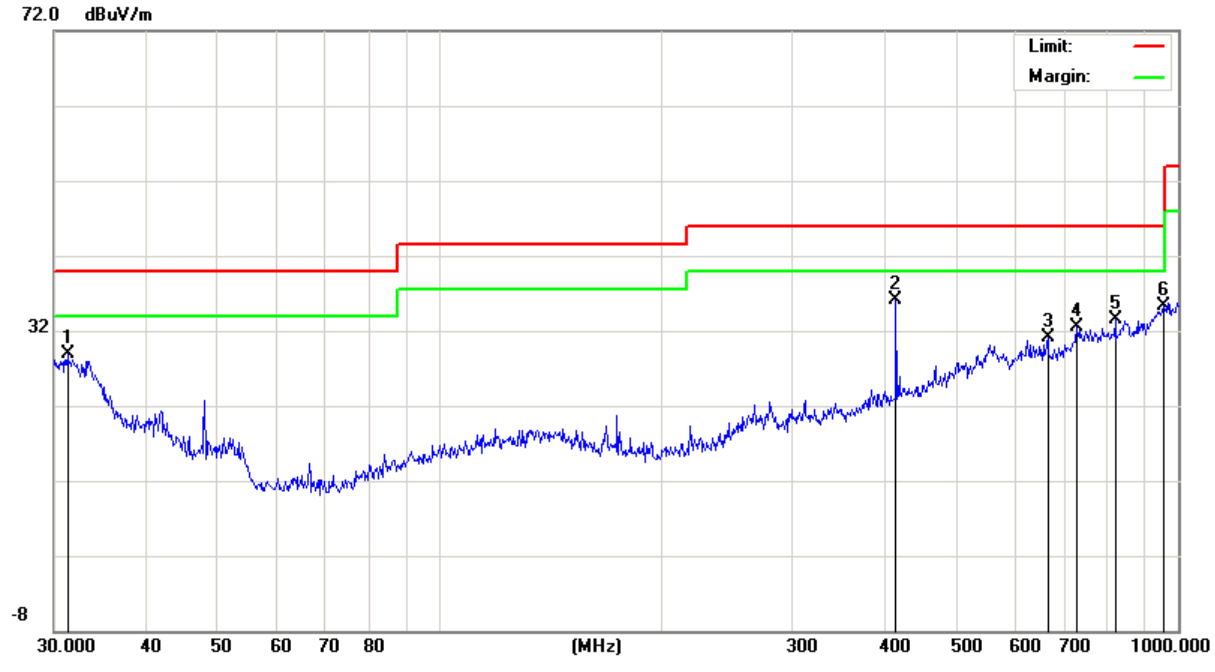


EUT:	Mobile Phone	Model Name :	T102
Temperature:	26.1 ℃	Relative Humidity:	51%
Pressure:	1010 hPa	Test Date :	2021-03-15
Test Mode :	Mode 1	Polarization :	Vertical
Test Power :	DC 5V from PC (AC 120V/60Hz)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	31.2893	10.65	18.16	28.81	40.00	-11.19	QP
V	414.7223	18.06	18.09	36.15	46.00	-9.85	QP
V	665.8034	8.59	22.49	31.08	46.00	-14.92	QP
V	729.3582	7.31	25.10	32.41	46.00	-13.59	QP
V	821.7103	8.12	25.30	33.42	46.00	-12.58	QP
V	955.4379	6.86	28.41	35.27	46.00	-10.73	QP

Remark:

Emission Level= Meter Reading+ Factor, Margin= Emission Level- Limit.



3.2.5 TEST RESULTS(1000~18000MHz)

EUT:	Mobile Phone	Model Name :	T102
Temperature:	25.3℃	Relative Humidity:	55%
Pressure:	1010 hPa	Test Date :	2021-01-12
Test Mode :	Mode 1		
Test Power :	DC 5V from PC(AC 120V/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	10095.000	61.46	-7.25	54.21	74.00	-19.79	peak
V	10095.000	47.48	-7.25	40.23	54.00	-13.77	peak
V	12092.500	61.11	-6.27	54.84	74.00	-19.16	peak
V	12092.500	46.63	-6.27	40.36	54.00	-13.64	peak
V	15832.500	58.30	-2.74	55.56	74.00	-18.44	peak
V	15832.500	43.32	-2.74	40.58	54.00	-13.42	peak
H	12007.500	59.87	-5.97	53.90	74.00	-20.10	peak
H	12007.500	46.91	-5.97	40.94	54.00	-13.06	AVG
H	13537.500	58.49	-4.09	54.40	74.00	-19.60	peak
H	13537.500	44.35	-4.09	40.26	54.00	-13.74	AVG
H	16640.000	52.36	3.34	55.70	74.00	-18.30	peak
H	16640.000	39.02	3.34	42.36	54.00	-11.64	AVG

Remark:
Result = Reading+ Correct, Over Limit = Result - Limit
Note: Only the worst results data points are reported in the report.
Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.

END OF REPORT