



FCC 15B TEST REPORT

No. I22Z62463-EMC01

for

Shenzhen Tinno Mobile Technology Corp.

Mobile Phone

Model Name: U1030AA, U1030AC

FCC ID: XD6U1030AA

with

Hardware Version: V1.0

Software Version: U1030AAV01.02.10

Issued Date: 2023-03-09

Note:

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The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Test Laboratory:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z62463-EMC01	Rev.0	1 st edition	2023-02-14
I22Z62463-EMC01	Rev.1	2 nd edition.Update the information of signal generator in page 11.	2023-03-09

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1. Test Laboratory

1.1. Testing Location

Location 1: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
100191, P. R. China

1.2. Testing Environment

Normal Temperature: 15-35℃
Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2023-02-01
Testing End Date: 2023-02-09

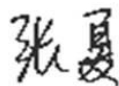
1.4. Signature



An Hui
(Prepared this test report)



Zhang Ying
(Reviewed this test report)



Zhang Xia
Deputy Director of the laboratory
(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: Shenzhen Tinno Mobile Technology Corp.
27-001, South Side of Tianlong Mobile Headquarters Building,
Address /Post: Tongfa South Road, Xili Community, Xili Street, Nanshan District,
Shenzhen ,PRC
City: Shenzhen
Postal Code: /
Country: China
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2.2. Manufacturer Information

Company Name: Shenzhen Tinno Mobile Technology Corp.
27-001, South Side of Tianlong Mobile Headquarters Building,
Address /Post: Tongfa South Road, Xili Community, Xili Street, Nanshan District,
Shenzhen ,PRC
City: Shenzhen
Postal Code: /
Country: China
Telephone: 0755-86095550
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3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	Mobile Phone
Model Name	U1030AA, U1030AC
FCC ID	XD6U1030AA

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL, Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1(U1030AA)	864732060013086	V1.0	U1030AAV01.02.10

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN	Note
AE1	Battery	/	/
AE2	USB Cable	/	/
AE3	Charger	/	/
AE4	Headset	/	Not in box

AE1

Model	LT25H426271B
Manufacturer	GUANGDONG FENGHUA NEW ENERGY CO.,LTD.
Capacity	1450mAh
Nominal Voltage	3.8V

AE2

Model	336275
Manufacturer	SUNTOPS (SHENZHEN) ELECTRONICS CO., LTD.
Length of cable	/

AE3

Model	TN-050120U9
Manufacturer	Chongqing Lianmao Electronics Co., Ltd.
Length of cable	/

*AE ID: is used to identify the test sample in the lab internally.

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT1 + AE1 + AE2 + AE3	/
Set.2	EUT1 + AE1 + AE2 + AE3	/
Set.3	EUT1 + AE1 + AE2 + AE4	/

Note:

The device contains receivers which tune and operate between 30MHz-960MHz in the following



bands: WCDMA Band 5, LTE Band 5/12/14. The measurement results showed here are worst cases of different bands.

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices - Unintentional Radiators	2020
ANSI C63.4	American National Standard for Methods of Measurement of Radio- Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014

Note: The test methods have no deviation with standards.

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber SAC-1 (23 meters × 17meters × 10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 10 m distance
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 6GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

Shielded room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz—1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω

6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:		
Verdict Column	P	Pass
	NA	Not applicable
	F	Fail
	BR	Re-use test data from basic model report.

Items	Test Name	Clause in FCC rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	A.1	P	CTTL(huayuan North Road)
2	Conducted Emission	15.107(a)	A.2	P	CTTL(huayuan North Road)

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESU26	100344	R&S	2023-03-21	1 Year
2	LISN	ENV216	101200	R&S	2023-06-29	1 year
3	Universal Radio Communication Tester	CMW500	150344	R&S	2024-01-03	1 year
4	Test Receiver	ESW44	103144	R&S	2023-10-25	1 Year
6	EMI Antenna	3115	00167250	ETS-Lindgren	2023-06-20	1 year
7	EMI Antenna	VULB 9613	01223	SCHWARZBECK	2023-07-25	1 year
8	Signal Generator	SMBV100A	256585	R&S	2024-02-09	1 year
9	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
10	Keyboard	KU-1601	2048361	Lenovo	N/A	N/A
11	Mouse	EMS-537A	8021S3MC	Lenovo	N/A	N/A
12	PC	M4000e-17	M706RMW2	Lenovo	N/A	N/A

Test Software

Radiated Emission	EMC32 V10.60.20
Conducted Emission	EMC32 V8.53.0

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission

Reference

FCC: CFR Part 15.109(a).

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (charging mode) at distances of 10 meters(for 30MHz-1GHz) and 3 meters (for above 1GHz) is tested. Tested in accordance with the procedures of ANSI C63.4 – 2014, section 8.3.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3/10 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

A.1.2 EUT Operating Mode:

The MS is operating in the charging mode. During the test MS is connected to a charger in the case of charging mode.

The EUT was tested while operating in licensed band Rx mode. All licensed band receivers that tune in the range of 30MHz-960MHz, as listed in Section 3.4, are investigated. Only the worst case emissions are reported.

All equipment is placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions.

A.1.3 Measurement Limit

Frequency range (MHz)	Field strength limit (μV/m)		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

Note: the above limit is for 3 meters test distance. 10 meters' limit is got by converting.

$$\text{Limit}(10\text{m})=\text{Limit}(3\text{m})+20[\log(3/10)]$$

A.1.4 Test Condition

Frequency range (MHz)	RBW/VBW	Sweep Time (s)	Detector
30-1000	120kHz (IF Bandwidth)	5	Peak/Quasi-peak
Above 1000	1MHz/1MHz	15	Peak, Average

A.1.5 Measurement Results

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss". It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{Rpl} = P_{\text{Mea}} + G_A + G_{PL}$$

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Measurement uncertainty (worst case): 30MHz-1GHz: 5.40dB, 1GHz-18GHz: 4.32dB, $k=2$.

Note: The measurement results showed here are worst cases of the combinations of different Battery, cables and Headset.

Note: The measurement results showed here are worst cases.

Measurement results for Set.1:

EUT1 Charger + REAR Camera Mode/QP detector

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
42.513000	10.40	29.54	19.14	125.0	V	45.0
54.541000	10.65	29.54	18.89	202.0	V	176.0
76.075000	9.88	29.54	19.66	100.0	V	135.0
106.048000	8.11	33.06	24.95	108.0	V	-5.0
166.770000	13.50	33.06	19.56	100.0	V	-4.0
198.586000	12.42	33.06	20.64	125.0	V	72.0

EUT1 Charger + REAR Camera Mode/Average detector

Frequency (MHz)	Result (dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dBμV)	Polarity	Limit (dBμV/m)	Margin (dB)
17998.980	41.5	-29.1	46.7	23.898	H	54	12.5
17994.220	41.2	-29.1	46.7	23.598	V	54	12.8
17997.960	41.1	-29.1	46.7	23.498	V	54	12.9
17991.160	41.0	-29.1	46.7	23.398	V	54	13.0
17994.560	41.0	-29.1	46.7	23.398	H	54	13.0
17896.980	40.9	-29.5	46.0	24.480	V	54	13.1

EUT1 Charger + REAR Camera Mode/Peak detector

Frequency (MHz)	Result (dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dBμV)	Polarity	Limit (dBμV/m)	Margin (dB)
17626.340	52.0	-29.4	45.2	36.152	V	74	22.0
17999.660	52.0	-29.1	46.7	34.398	V	74	22.0
17928.940	51.9	-29.4	46.7	34.639	H	74	22.1
17560.040	51.8	-29.8	44.4	37.240	H	74	22.2
17981.300	51.8	-29.1	46.7	34.198	V	74	22.2
17977.220	51.5	-29.1	46.7	33.901	H	74	22.5

Measurement results for Set.2:
EUT1 Charger +MP4 + WCDMA 850MHz idle Mode /QP detector

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
39.312000	6.94	29.54	22.60	225.0	V	315.0
48.139000	10.25	29.54	19.29	125.0	V	-17.0
63.077000	8.43	29.54	21.11	302.0	H	215.0
108.473000	8.96	33.06	24.10	100.0	V	227.0
174.336000	7.86	33.06	25.20	203.0	V	-5.0
196.840000	8.19	33.06	24.87	275.0	H	-31.0

EUT1 Charger +MP4 + WCDMA 850MHz idle Mode /Average detector

Frequency (MHz)	Result (dBμV/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dBμV)	Polarity	Limit (dBμV/m)	Margin (dB)
17994.560	41.6	-29.1	46.7	23.998	V	54	12.4
17994.220	41.3	-29.1	46.7	23.698	V	54	12.7
17907.520	41.1	-29.3	46.0	24.472	V	54	12.9
17986.060	41.1	-29.1	46.7	23.498	H	54	12.9
17898.680	41.1	-29.5	46.0	24.680	H	54	12.9
17999.660	41.1	-29.1	46.7	23.498	H	54	12.9

EUT1 Charger +MP4 + WCDMA 850MHz idle Mode /Peak detector

Frequency (MHz)	Result (dBμV/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dBμV)	Polarity	Limit (dBμV/m)	Margin (dB)
17442.400	52.1	-29.9	44.4	37.617	V	74	21.9
17913.300	51.8	-29.3	46.0	35.172	V	74	22.2
17986.060	51.6	-29.1	46.7	33.998	V	74	22.4
17901.400	51.6	-29.3	46.0	34.972	H	74	22.4
17432.540	51.5	-29.7	44.4	36.860	V	74	22.5
17884.060	51.5	-29.5	46.0	35.080	V	74	22.5

Measurement results for Set.3:
EUT1 USB +FM + LTE Band 5 idle Mode/QP detector

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
33.104000	21.53	29.54	8.01	125.0	V	189.0
59.876000	13.20	29.54	16.34	275.0	V	72.0
216.046000	25.52	35.56	10.04	283.0	H	135.0
403.159000	24.42	35.56	11.14	275.0	H	104.0
528.871000	26.71	35.56	8.85	223.0	V	-18.0
673.207000	28.66	35.56	6.90	175.0	V	-17.0

EUT1 USB +FM+ LTE Band 5 idle Mode/Average detector

Frequency (MHz)	Result (dBμV/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dBμV)	Polarity	Limit (dBμV/m)	Margin (dB)
6054.780	43.2	-37.8	34.4	46.617	H	54	10.8
17998.640	42.7	-29.1	46.7	25.098	V	54	11.3
6054.440	42.6	-37.8	34.4	46.017	H	54	11.4
17990.140	42.3	-29.1	46.7	24.698	H	54	11.7
17997.960	41.9	-29.1	46.7	24.298	V	54	12.1
17533.520	41.8	-29.3	44.4	26.767	H	54	12.2

EUT1 USB +FM+ LTE Band 5 idle Mode/Peak detector

Frequency (MHz)	Result (dBμV/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dBμV)	Polarity	Limit (dBμV/m)	Margin (dB)
17792.260	52.9	-29.9	46.0	36.832	H	74	21.1
17893.920	52.6	-29.5	46.0	36.180	V	74	21.4
17985.720	52.4	-29.1	46.7	34.798	V	74	21.6
17467.560	52.3	-30.1	44.4	38.005	V	74	21.7
17982.660	52.3	-29.1	46.7	34.698	H	74	21.7
17996.260	52.2	-29.1	46.7	34.598	V	74	21.8

EUT1 Charger + REAR Camera Mode, Set.1

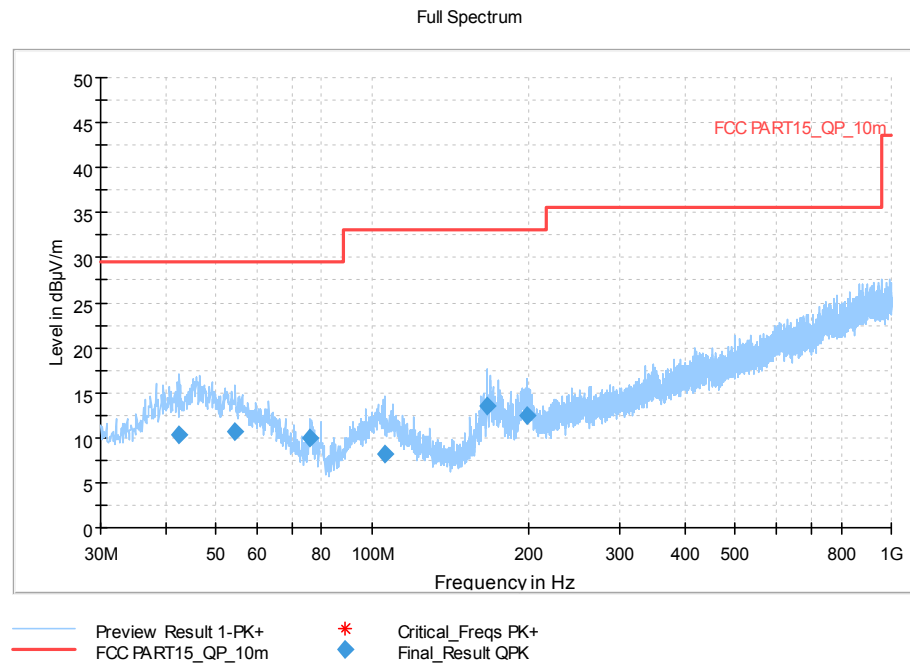


Figure A.1 Radiated Emission from 30MHz to 1GHz

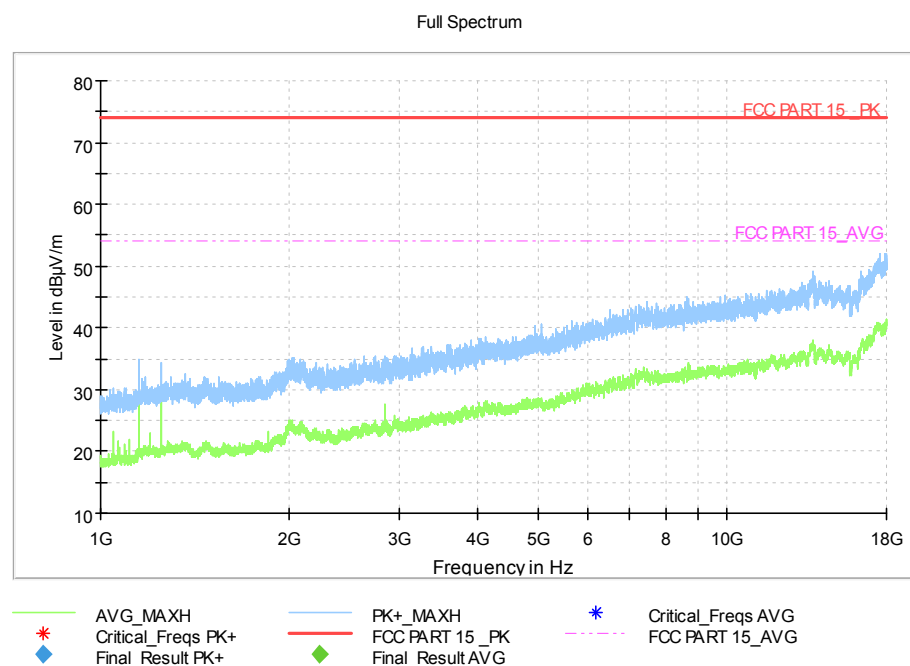


Figure A.2 Radiated Emission from 1GHz to 18GHz

EUT1 Charger +MP4 + WCDMA 850MHz idle Mode, Set.2

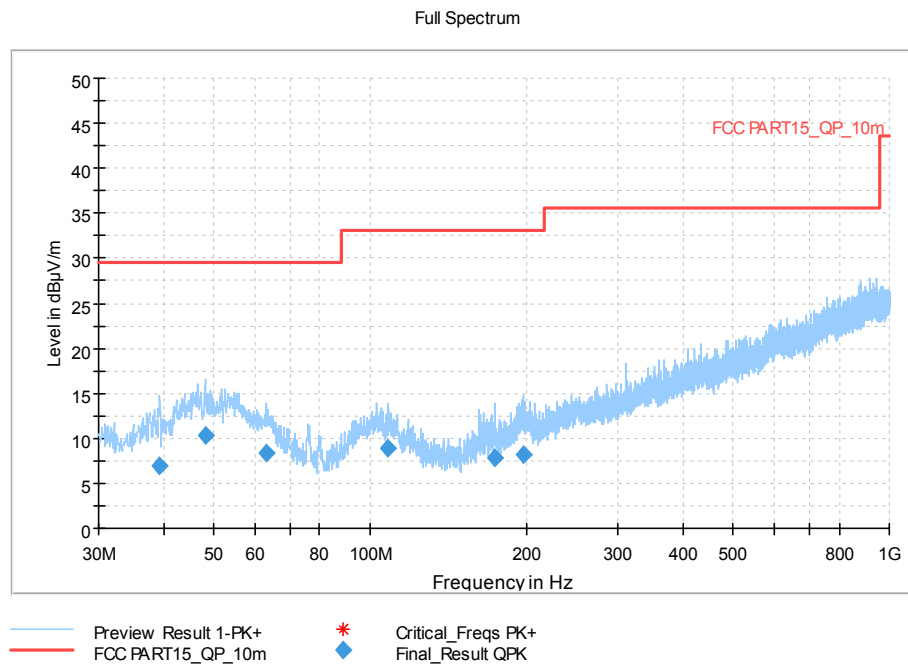


Figure A.3 Radiated Emission from 30MHz to 1GHz

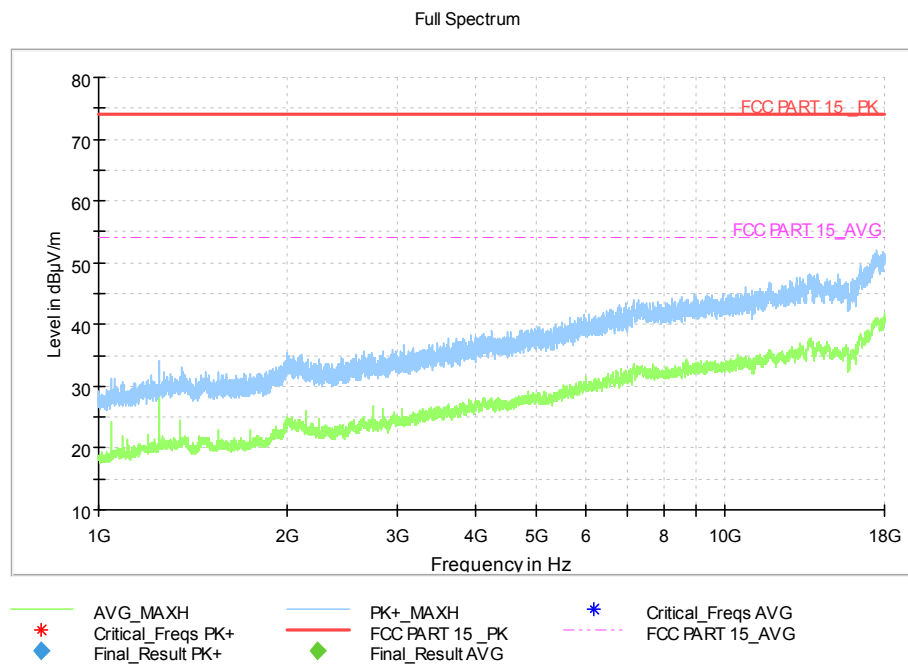


Figure A.4 Radiated Emission from 1GHz to 18GHz

EUT1 USB +FM + LTE Band 5 idle Mode, Set.3

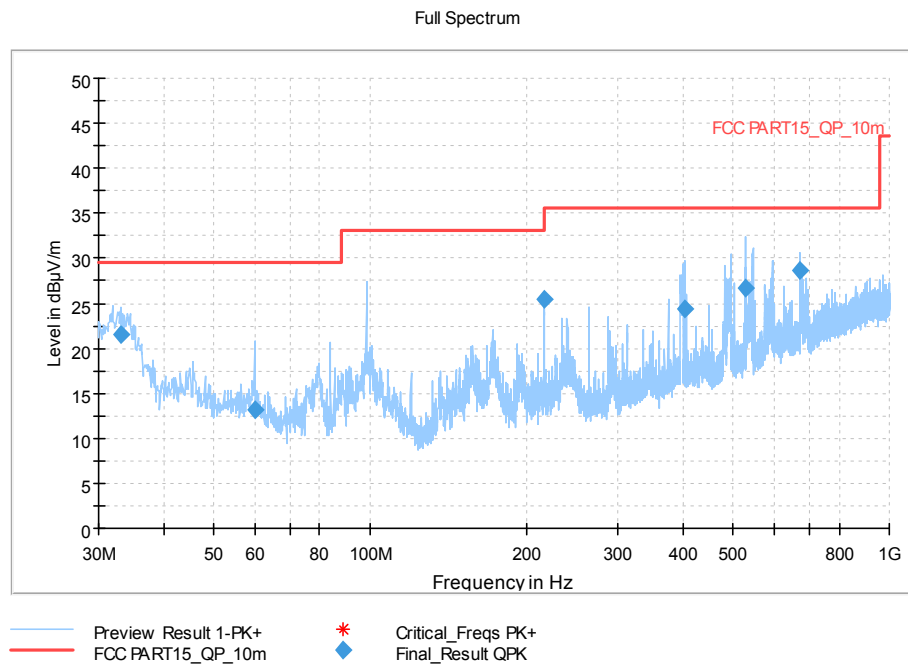


Figure A.5 Radiated Emission from 30MHz to 1GHz

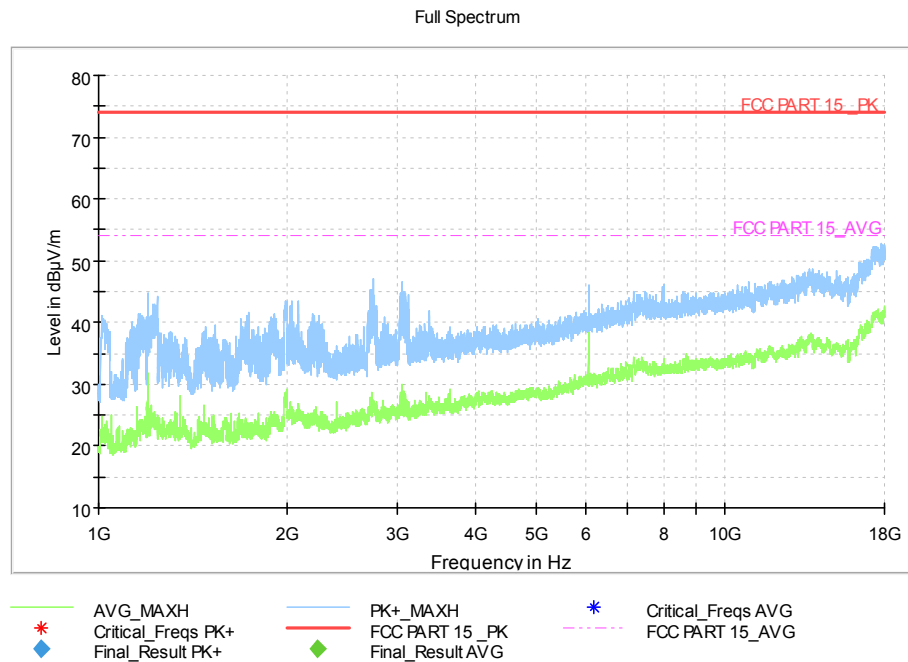


Figure A.6 Radiated Emission from 1GHz to 18GHz

A.2 Conducted Emission

Reference

FCC: CFR Part 15.107(a).

A.2.1 Method of measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 – 2014, section 7.3.

A.2.2 EUT Operating Mode

The MS is operating in the charging mode. During the test MS is connected to a charger in the case of charging mode.

A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency		

A.2.4 Test Condition in charging mode

Voltage (V)	Frequency (Hz)
120	60

RBW/IF bandwidth	Sweep Time(s)
9kHz	1

A.2.5 Measurement Results

Measurement uncertainty: $U=3.10\text{dB}$, $k=2$.

Note: The measurement results showed here are worst cases of the combinations of different Battery, cables and Headset.

Note: The measurement results showed here are worst cases.

EUT1 Charger+REAR Camera Mode, Set.1

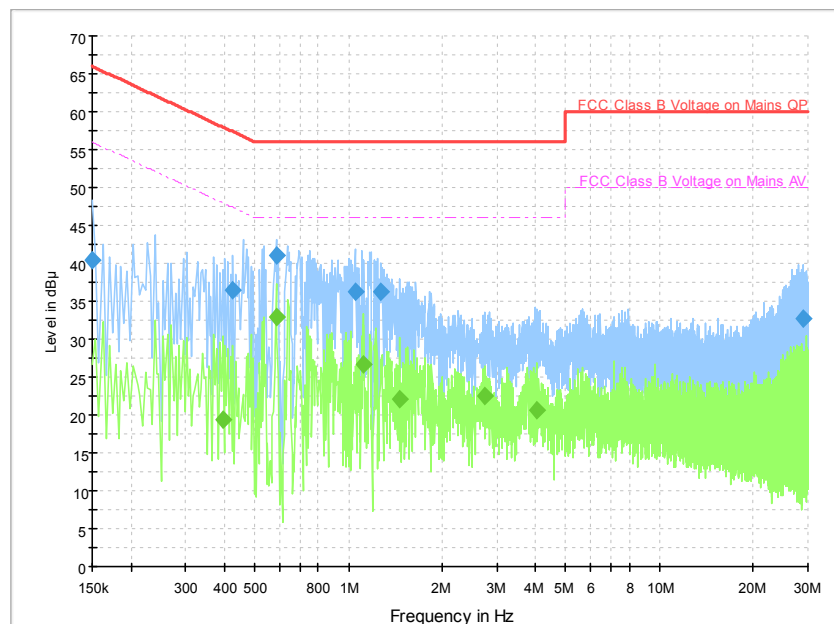


Figure A.7 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	40.5	2000.0	9.000	On	N	20.0	25.5	66.0
0.426000	36.4	2000.0	9.000	On	N	19.7	20.9	57.3
0.586000	41.1	2000.0	9.000	On	L1	19.7	14.9	56.0
1.050000	36.2	2000.0	9.000	On	L1	19.7	19.8	56.0
1.270000	36.2	2000.0	9.000	On	N	19.6	19.8	56.0
28.846000	32.8	2000.0	9.000	On	N	19.8	27.2	60.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.394000	19.5	2000.0	9.000	On	N	19.7	28.5	48.0
0.586000	32.9	2000.0	9.000	On	L1	19.7	13.1	46.0
1.114000	26.6	2000.0	9.000	On	L1	19.6	19.4	46.0
1.462000	22.2	2000.0	9.000	On	L1	19.7	23.8	46.0
2.758000	22.5	2000.0	9.000	On	L1	19.6	23.5	46.0
4.010000	20.6	2000.0	9.000	On	L1	19.6	25.4	46.0

EUT1 Charger +MP4 + WCDMA 850MHz idle Mode, Set.2

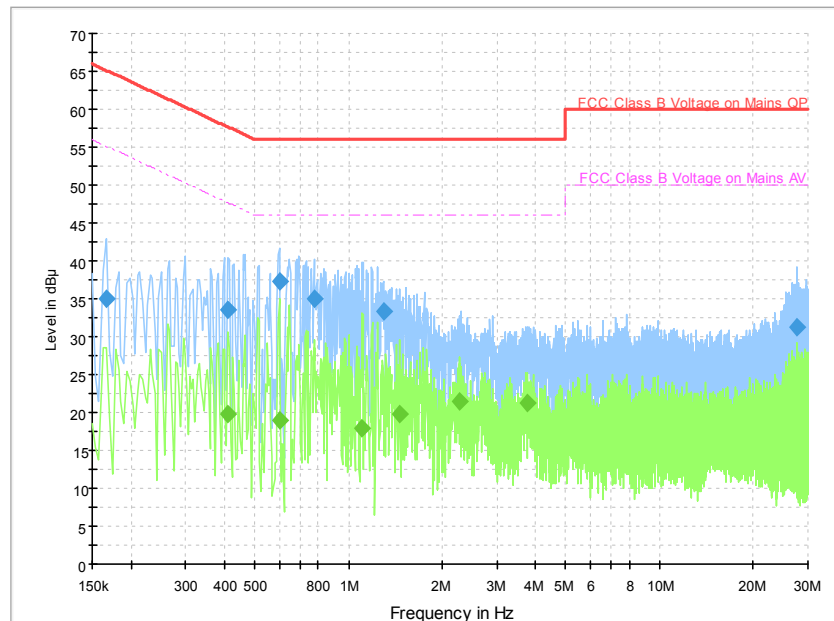


Figure A.8 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.166000	35.0	2000.0	9.000	On	N	19.7	30.1	65.2
0.410000	33.6	2000.0	9.000	On	L1	19.7	24.1	57.6
0.598000	37.4	2000.0	9.000	On	N	19.6	18.6	56.0
0.774000	35.0	2000.0	9.000	On	L1	19.7	21.0	56.0
1.294000	33.3	2000.0	9.000	On	N	19.6	22.7	56.0
27.602000	31.3	2000.0	9.000	On	N	19.8	28.7	60.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.410000	19.8	2000.0	9.000	On	L1	19.7	27.9	47.6
0.598000	18.9	2000.0	9.000	On	N	19.6	27.1	46.0
1.106000	17.9	2000.0	9.000	On	L1	19.6	28.1	46.0
1.458000	19.8	2000.0	9.000	On	L1	19.7	26.2	46.0
2.282000	21.5	2000.0	9.000	On	L1	19.6	24.5	46.0
3.766000	21.3	2000.0	9.000	On	L1	19.6	24.7	46.0

EUT1 USB +FM + LTE Band 5 idle Mode, Set.3

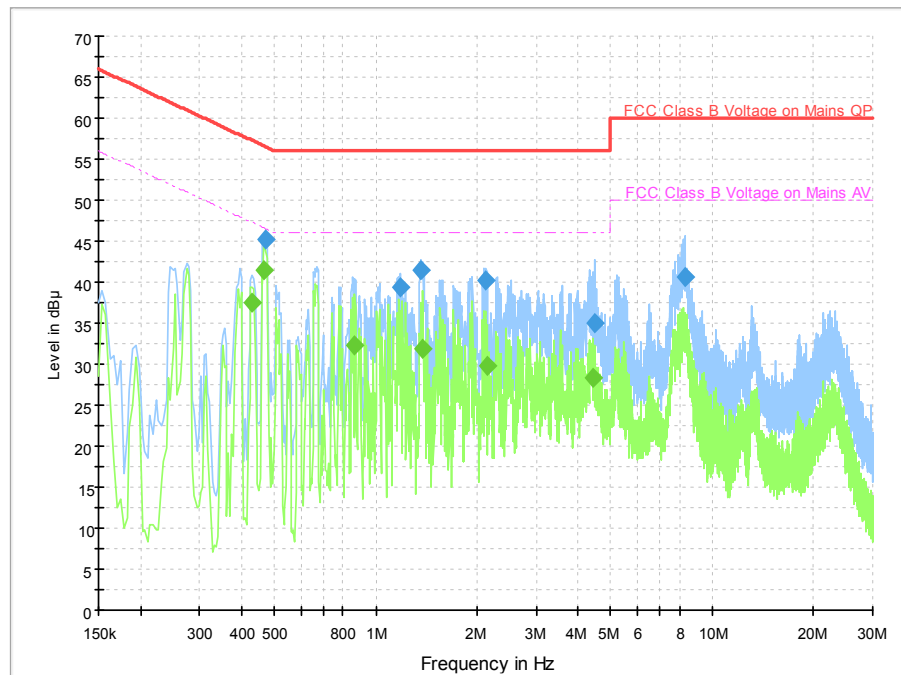


Figure A.9 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.470000	45.2	2000.0	9.000	On	L1	19.7	11.3	56.5
1.182000	39.3	2000.0	9.000	On	N	19.6	16.7	56.0
1.362000	41.4	2000.0	9.000	On	L1	19.6	14.6	56.0
2.130000	40.1	2000.0	9.000	On	N	19.6	15.9	56.0
4.482000	35.0	2000.0	9.000	On	N	19.6	21.0	56.0
8.286000	40.7	2000.0	9.000	On	N	19.6	19.3	60.0

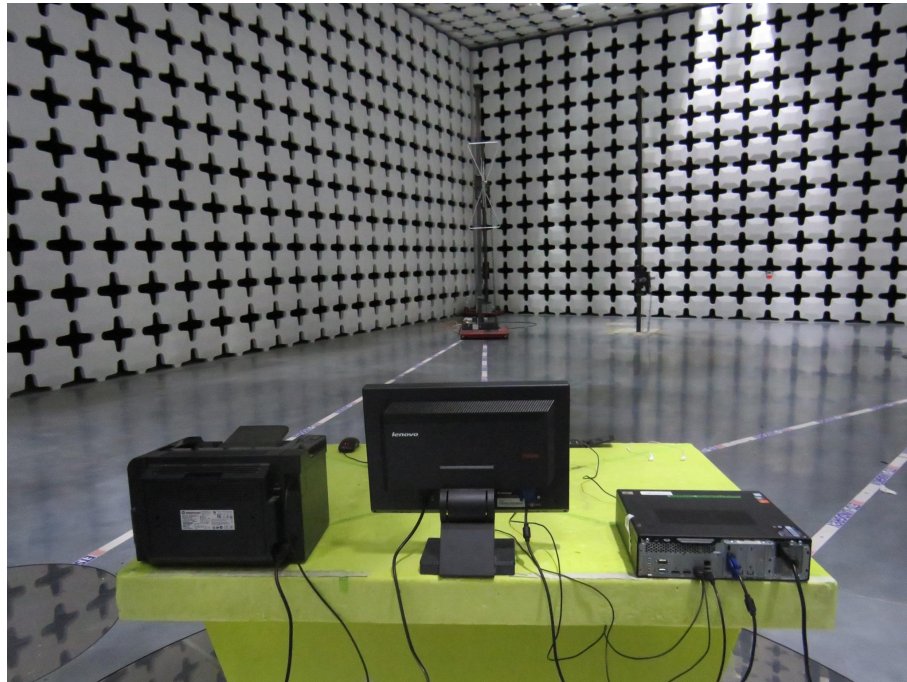
Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.430000	37.6	2000.0	9.000	On	L1	19.7	9.7	47.3
0.466000	41.4	2000.0	9.000	On	N	19.7	5.2	46.6
0.866000	32.3	2000.0	9.000	On	L1	19.7	13.7	46.0
1.382000	31.9	2000.0	9.000	On	N	19.6	14.1	46.0
2.134000	29.8	2000.0	9.000	On	N	19.6	16.2	46.0
4.418000	28.3	2000.0	9.000	On	L1	19.6	17.7	46.0

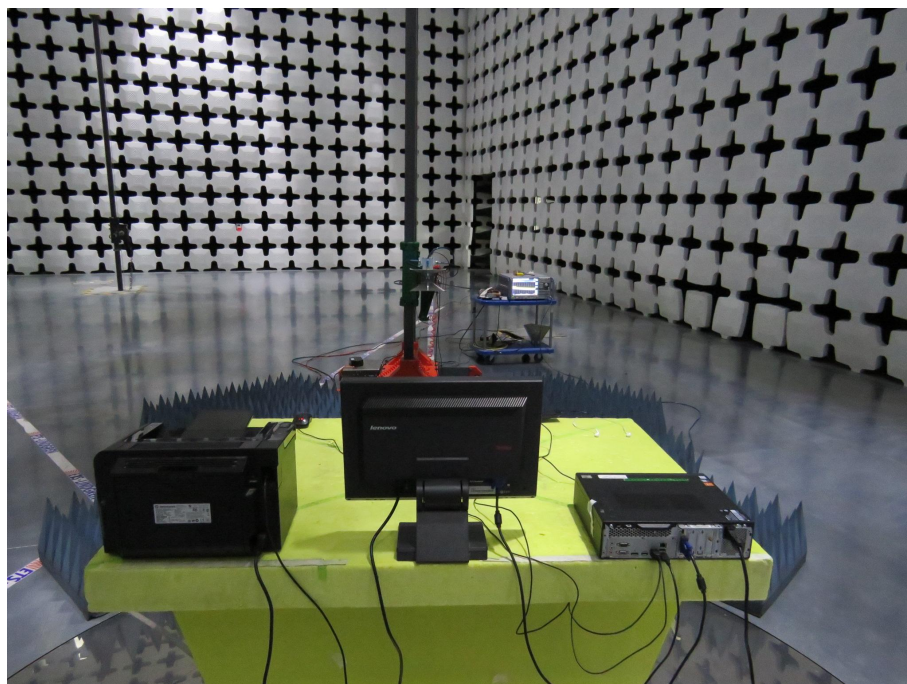
ANNEX B: Persons involved in this testing

Test Item	Tester
Conducted Continuous Emission	Li Pengfei
Radiated Continuous Emission	Zhang Tianli

ANNEX C: TEST LAYOUT



Radiated Continuous Emission(30MHz-1GHz)



Radiated Continuous Emission((1GHz-18GHz)



Conducted Continuous Emission

*****END OF REPORT*****