TEST REPORT

No. I21Z61101-EMC01

For

Smart Phone

Model Name: Wiko U316AT

FCC ID: XD6U316AT

with

Hardware Version:V1.0

Software Version: U316ATV01.09.10

Issued Date: 2021-07-29

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

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:

CTTL-Telecommunication Technology Labs, CAICT

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

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: cttl_terminals@caict.ac.cn, website: www.caict.ac.cn

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I21Z61101-EMC01	Rev.0	1st edition	2021-7-9
I21Z61101-EMC01	Rev.1	2nd edition, add 71 in the description in 3.4.	2021-7-29

CONTENTS

1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0, and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (ISED#:24849). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

CTTL(Huayuan North Road)

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

1.3. Testing Environment

Normal Temperature: 15-35°C

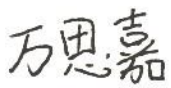
Relative Humidity: 20-75%

1.4. Project data

Testing Start Date: 2021-06-15

Testing End Date: 2021-07-07

1.5. Signature

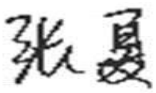


Wan Sijia

(Prepared this test report)

Zhang Ying

(Reviewed this test report)



Zhang Xia

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	Shenzhen Tinno Mobile Technology Corp.
Address:	TINNO Building, No.33, Xiandong Rd, Xili, Nanshan District, Shenzhen, PRC
Contact:	xiaoping.li
Email:	xiaoping.li@tinno.com
Telephone:	0086-755-86095550

2.2. Manufacturer Information

Company Name:	Shenzhen Tinno Mobile Technology Corp.
Address:	TINNO Building, No.33, Xiandong Rd, Xili, Nanshan District, Shenzhen, PRC
Contact:	xiaoping.li
Email:	xiaoping.li@tinno.com
Telephone:	0086-755-86095550

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	Smart Phone
Model Name	Wiko U316AT
FCC ID	XD6U316AT
Extreme vol. Limits	3.5VDC to 4.4VDC (nominal: 3.85VDC)

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

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
UT65a	860107050015462	V1.0	U316ATV01.09.10

*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	Remarks
AE1	charger	/	/

AE 1

Model	TN-050120U9
Manufacturer	Chongqing Lianmao Electronic Co., LTD.

Note: The USB cables are shielded.

3.4. General Description

The device contains receivers which tune and operate between 30MHz-960MHz in the following bands: GSM 850,WCDMA850，LTE Band 5/12/13/26/71, MP3, Camera, USB, memory card,Power reduction.

3.5. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	UT65a+ AE1	Charger
Set.2	UT65a+ PC	USB mode (Data link with PC)

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	2019
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×17 meters×10 meters) 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	< 4Ω
Normalised site attenuation (NSA)	< ± 4 dB, 3m/10m distance, from 30 to 1000 MHz
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz

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	100235	R&S	2022-02-23	1 year
2	LISN	ENV216	101200	R&S	2022-05-30	1 year
3	BiLog Antenna	VULB9163	9163-1223	Schwarzbeck	2022-03-22	1 year
4	EMI Antenna	3115	6914	ETS-Lindgren	2022-02-03	1 year
5	Universal Radio Communication Tester	CMW500	116588	R&S	2021-12-07	1 year
6	Test Receiver	ESCI	100344	R&S	2022-02-23	1 year
7	Signal Generator	SMBV100A	260613	R&S	2022-01-06	1 year

Test Item	Test Software and Version	Software Vendor
Radiated Continuous Emission	EMC32 V9.01.00	R&S
Conducted Emission	EMC32 V8.52.0	R&S

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 (USB mode of MS and charging mode of MS) 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 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 and USB 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 the 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.

Note：I/O information：Printer – USB, Mouse – PS/2, Keyboard – USB.

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.

Limit (10m) = limit (3m) + 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/3MHz	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:

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

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.

Measurement results

Charging, and camera mode /Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17979.033	47.0	-29.1	46.7	29.401	54	5.5	V
17975.633	46.8	-29.1	46.7	29.201	54	5.7	V
17964.300	46.8	-29.1	46.7	29.201	54	6.1	V
17983.000	46.5	-29.1	46.7	28.898	54	6.4	H
17984.700	46.5	-29.1	46.7	28.898	54	6.4	V
17969.400	46.5	-29.1	46.7	28.901	54	6.5	H

Charging, and camera mode /Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17942.767	56.0	-28.9	46.7	38.283	74	16.6	V
17948.433	55.5	-28.9	46.7	37.783	74	17.3	H
17962.033	55.4	-29.1	46.7	37.801	74	18.3	V
17997.733	55.4	-29.1	46.7	37.798	74	18.3	V
17979.033	55.2	-29.1	46.7	37.601	74	18.3	V
17998.300	55.1	-29.1	46.7	37.498	74	18.3	V

Charging and GSM 850 RX mode /Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17963.167	47.2	-29.1	46.7	29.601	54	5.1	H
17955.800	47.0	-28.9	46.7	29.283	54	5.4	V
17973.933	46.6	-29.1	46.7	29.001	54	5.9	V
17981.300	46.6	-29.1	46.7	28.998	54	6.1	H
17933.700	46.6	-29.4	46.7	29.339	54	6.3	V
17989.233	46.5	-29.1	46.7	28.898	54	6.4	V

Charging and GSM 850 RX mode /Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17955.233	56.7	-28.9	46.7	38.983	74	17.4	H
17938.233	55.3	-29.4	46.7	38.039	74	17.6	V
17885.533	55.2	-29.5	46.0	38.780	74	18.1	H
17933.700	55.1	-29.4	46.7	37.839	74	18.3	V
17934.833	55.1	-29.4	46.7	37.839	74	18.4	H
17979.033	55.1	-29.1	46.7	37.501	74	18.4	V

USB and MP3 mode /Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17993.200	46.9	-29.1	46.7	29.298	54	5.5	V
17976.200	46.8	-29.1	46.7	29.201	54	5.8	H
17965.433	46.8	-29.1	46.7	29.201	54	5.9	V
17993.767	46.5	-29.1	46.7	28.898	54	6.2	H
17991.500	46.4	-29.1	46.7	28.798	54	6.2	H
17966.000	46.3	-29.1	46.7	28.701	54	6.3	V

USB and MP3 mode /Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17963.167	55.0	-29.1	46.7	37.401	74	17.1	H
17917.833	55.0	-29.3	46.7	37.665	74	17.3	H
17980.733	54.8	-29.1	46.7	37.198	74	17.4	H
17996.033	54.4	-29.1	46.7	36.798	74	17.4	V
17972.233	54.4	-29.1	46.7	36.801	74	17.5	H
17999.433	54.4	-29.1	46.7	36.798	74	17.5	H

Charging, and camera mode

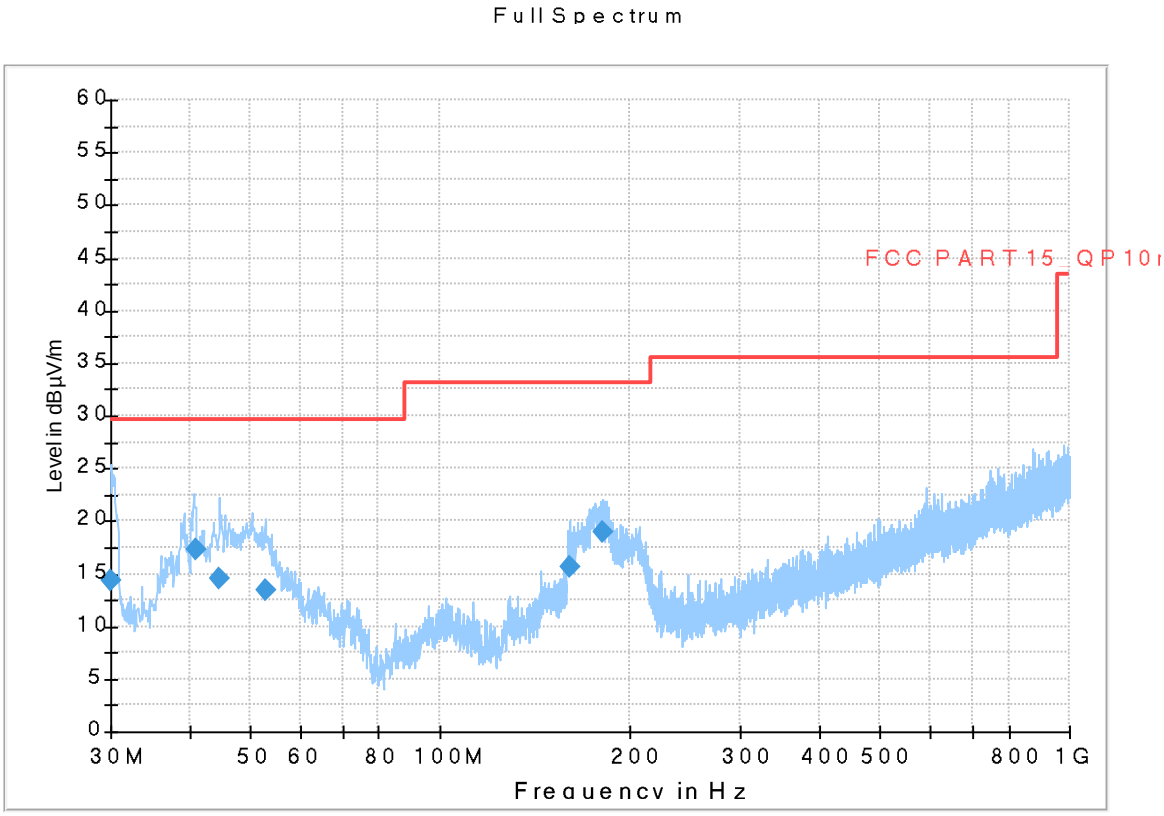


Figure A.1 Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.097000	14.44	29.50	15.10	1000.0	120.000	125.0	V	72.0	-13.2
40.864000	17.36	29.50	12.18	1000.0	120.000	235.0	V	-30.0	-11.4
44.550000	14.46	29.50	15.08	1000.0	120.000	119.0	V	-9.0	-11.6
52.795000	13.36	29.50	16.18	1000.0	120.000	102.0	V	-4.0	-11.5
160.950000	15.58	33.10	17.48	1000.0	120.000	102.0	V	300.0	-15.1
181.514000	18.93	33.10	14.13	1000.0	120.000	185.0	V	-30.0	-13.8

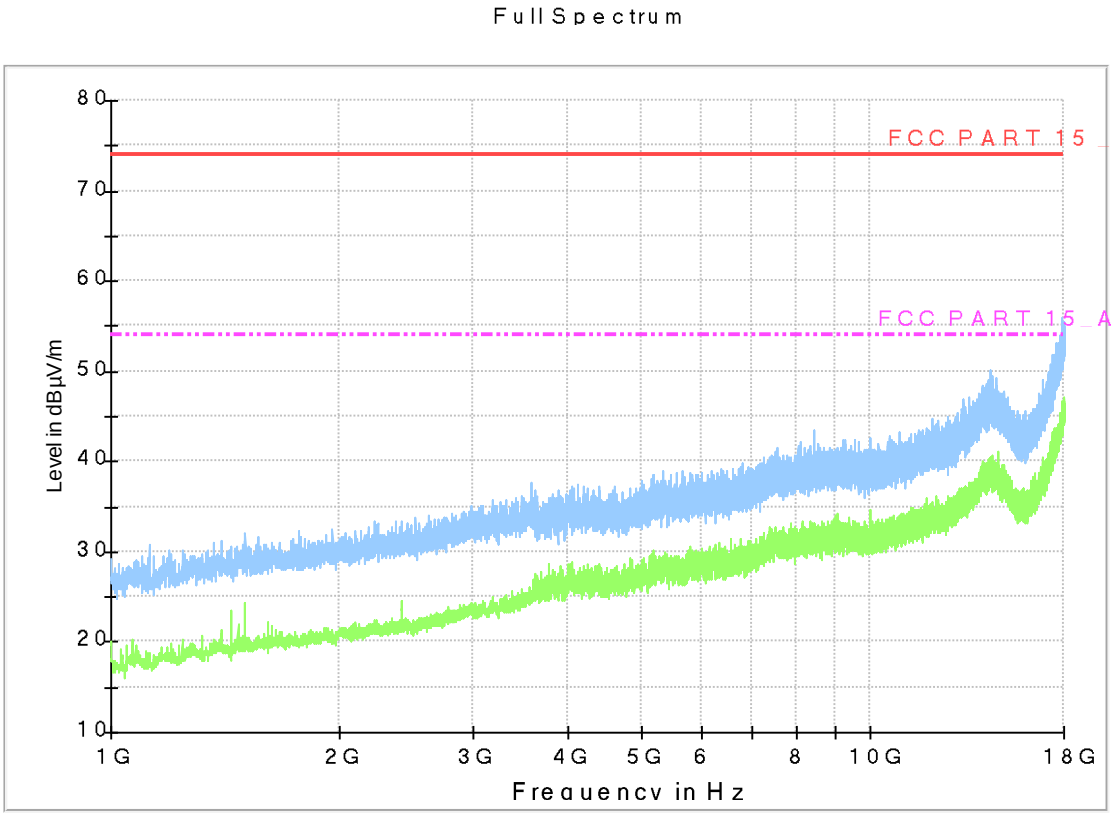


Figure A.2 Radiated Emission from 1GHz to 18GHz

Charging and GSM 850 RX mode

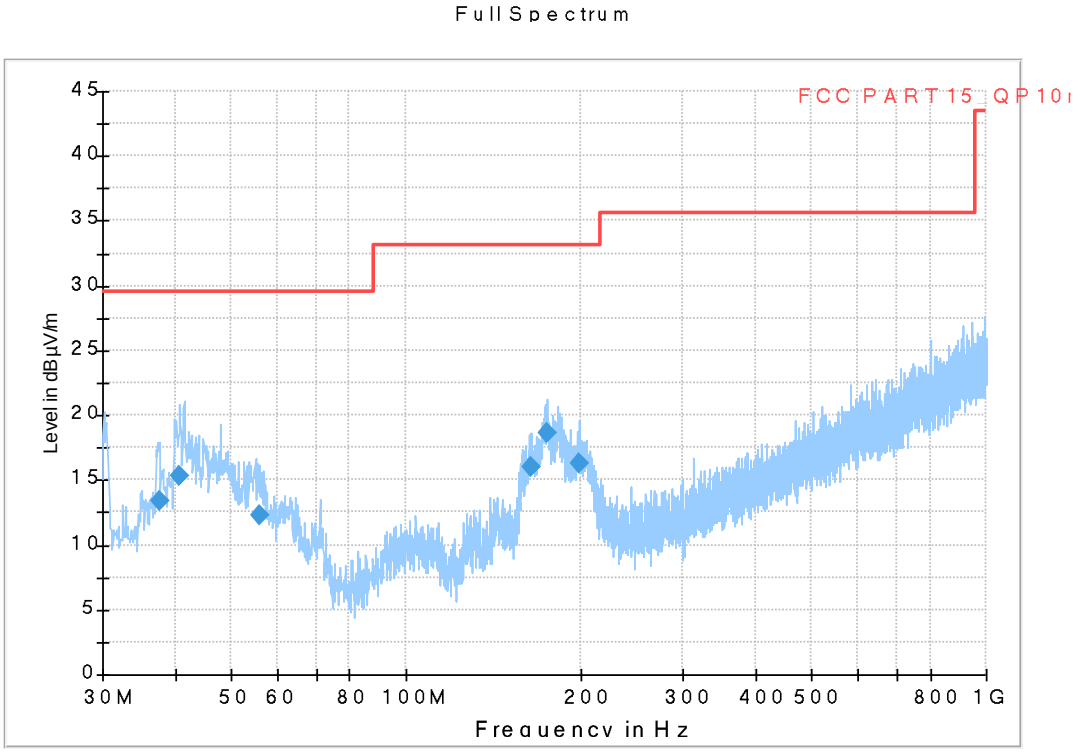


Figure A.3 Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
37.566000	13.42	29.50	16.12	1000.0	120.000	125.0	V	-10.0	-11.7
40.670000	15.29	29.50	14.25	1000.0	120.000	299.0	V	210.0	-11.4
55.899000	12.34	29.50	17.20	1000.0	120.000	125.0	V	-17.0	-11.1
163.666000	16.04	33.10	17.02	1000.0	120.000	103.0	V	-30.0	-15.0
175.209000	18.64	33.10	14.42	1000.0	120.000	107.0	V	300.0	-14.3
198.586000	16.26	33.10	16.80	1000.0	120.000	119.0	V	-30.0	-12.3

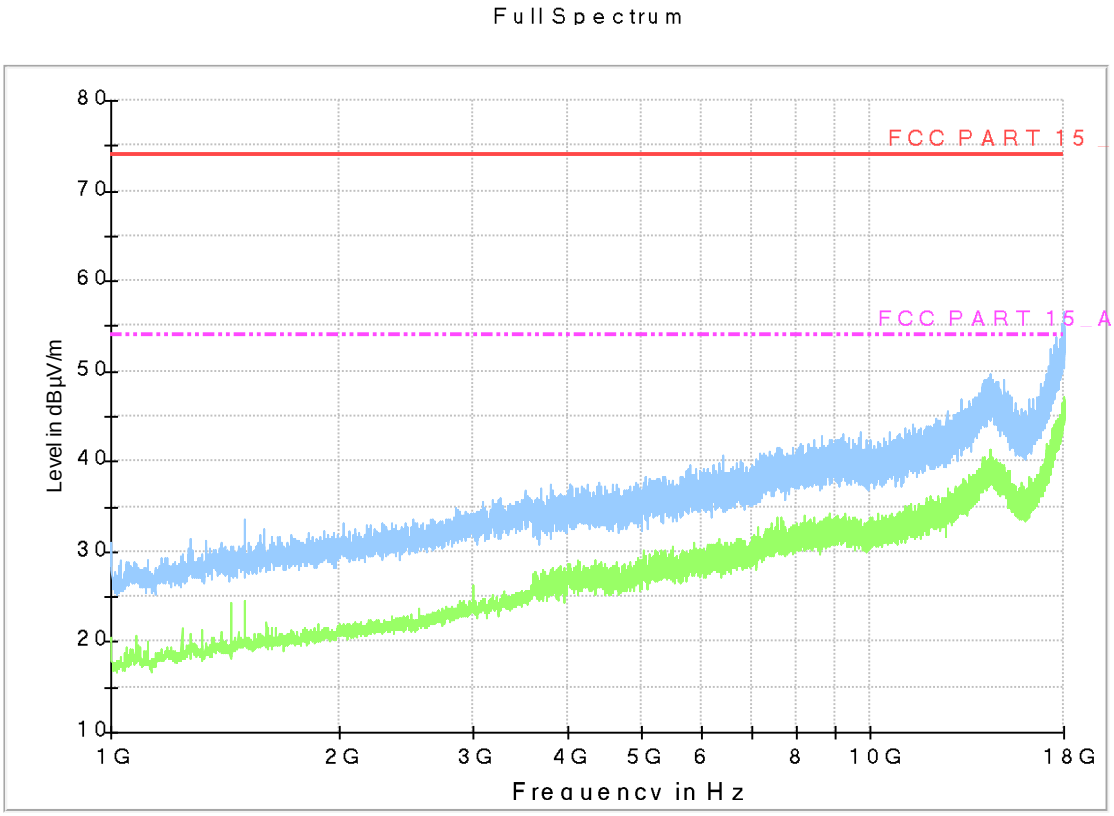


Figure A.4 Radiated Emission from 1GHz to 18GHz

Charging and WCDMA 850 mode

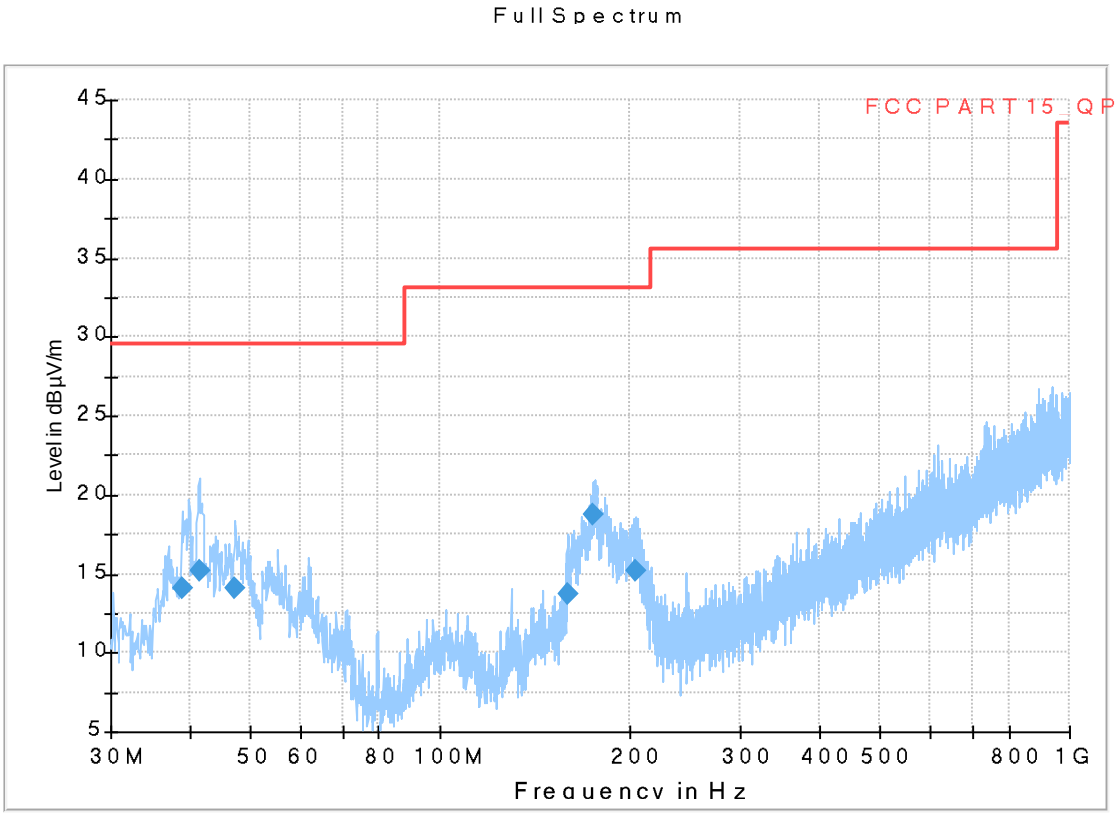


Figure A.5 Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.924000	14.02	29.50	15.52	1000.0	120.000	109.0	V	-30.0	-11.5
41.446000	15.15	29.50	14.39	1000.0	120.000	235.0	V	16.0	-11.3
47.169000	14.03	29.50	15.51	1000.0	120.000	115.0	V	-7.0	-11.5
159.204000	13.77	33.10	19.29	1000.0	120.000	125.0	V	300.0	-15.1
175.015000	18.71	33.10	14.35	1000.0	120.000	109.0	V	300.0	-14.3
205.279000	15.19	33.10	17.87	1000.0	120.000	125.0	V	-15.0	-12.0

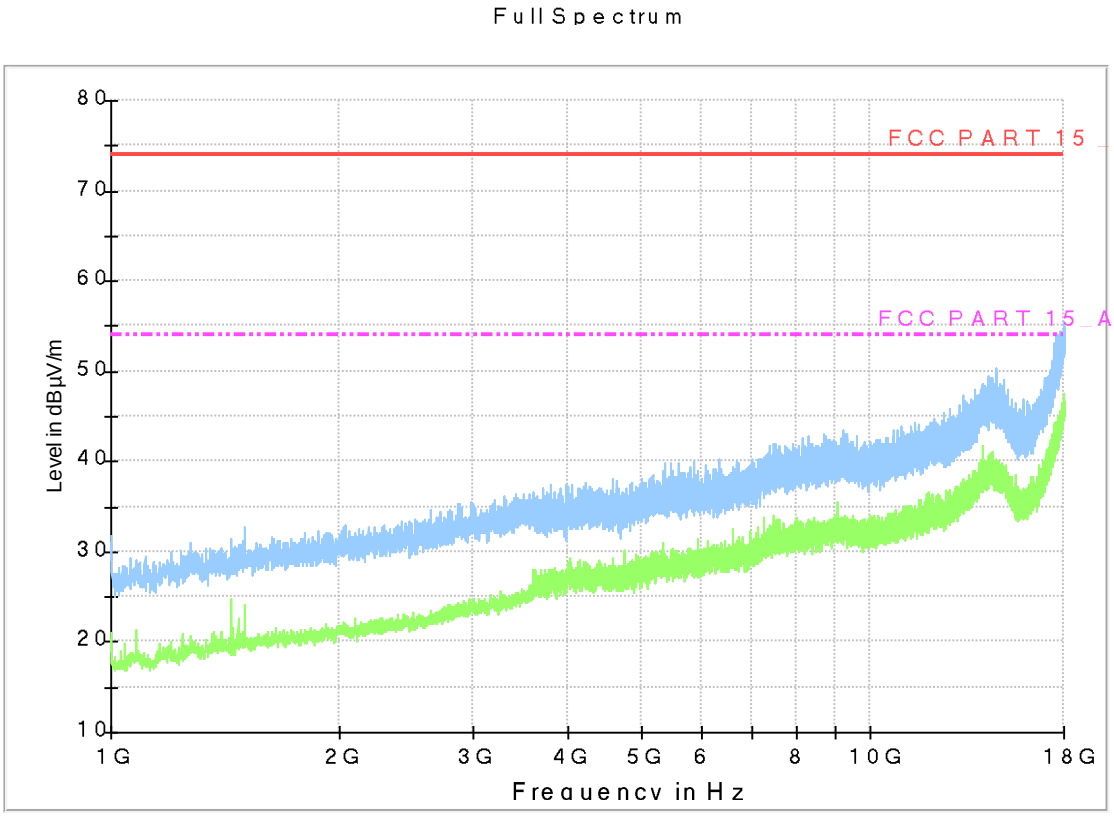


Figure A.6 Radiated Emission from 1GHz to 18GHz

USB and MP3 mode

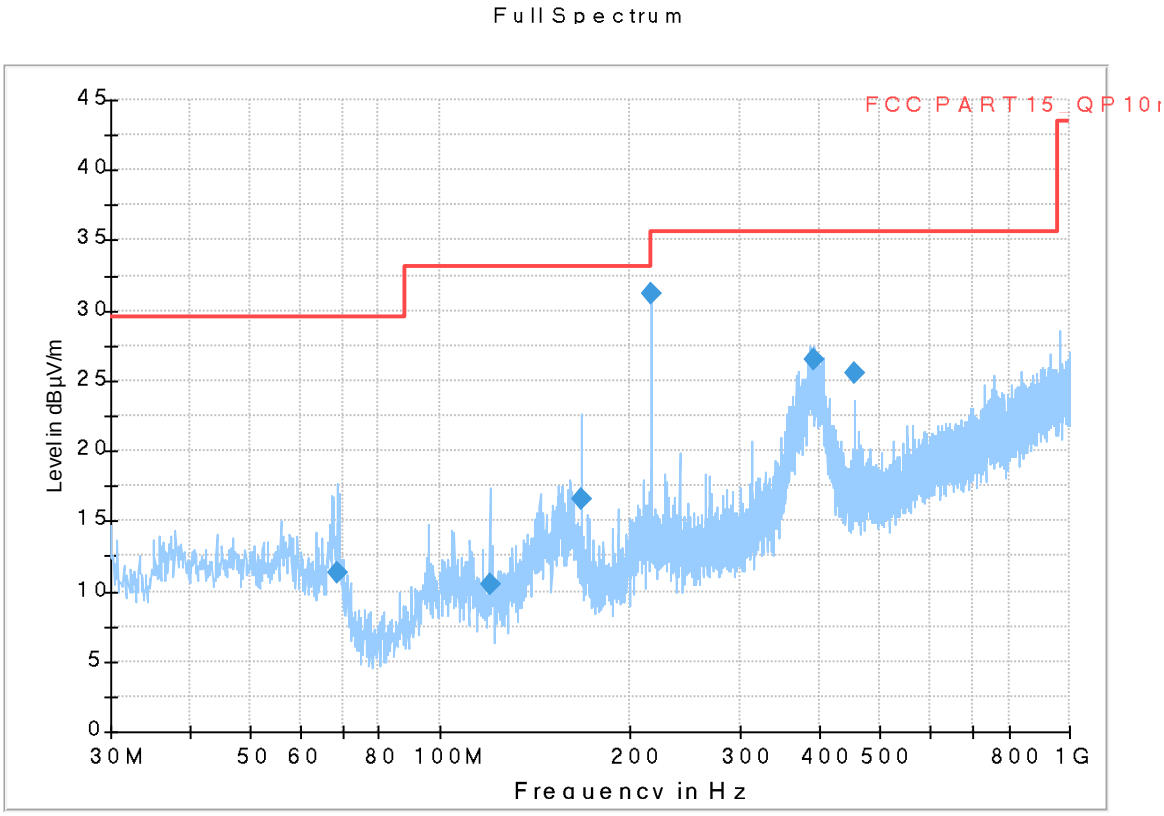


Figure A.7 Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
68.800000	11.28	29.50	18.26	1000.0	120.000	222.0	V	30.0	-14.8
119.919000	10.48	33.10	22.58	1000.0	120.000	125.0	V	77.0	-14.4
167.934000	16.52	33.10	16.54	1000.0	120.000	103.0	V	160.0	-14.9
215.949000	31.16	33.10	1.90	1000.0	120.000	101.0	V	60.0	-11.7
393.071000	26.45	35.60	9.11	1000.0	120.000	102.0	V	-28.0	-6.1
456.024000	25.48	35.60	10.08	1000.0	120.000	345.0	V	-30.0	-4.7

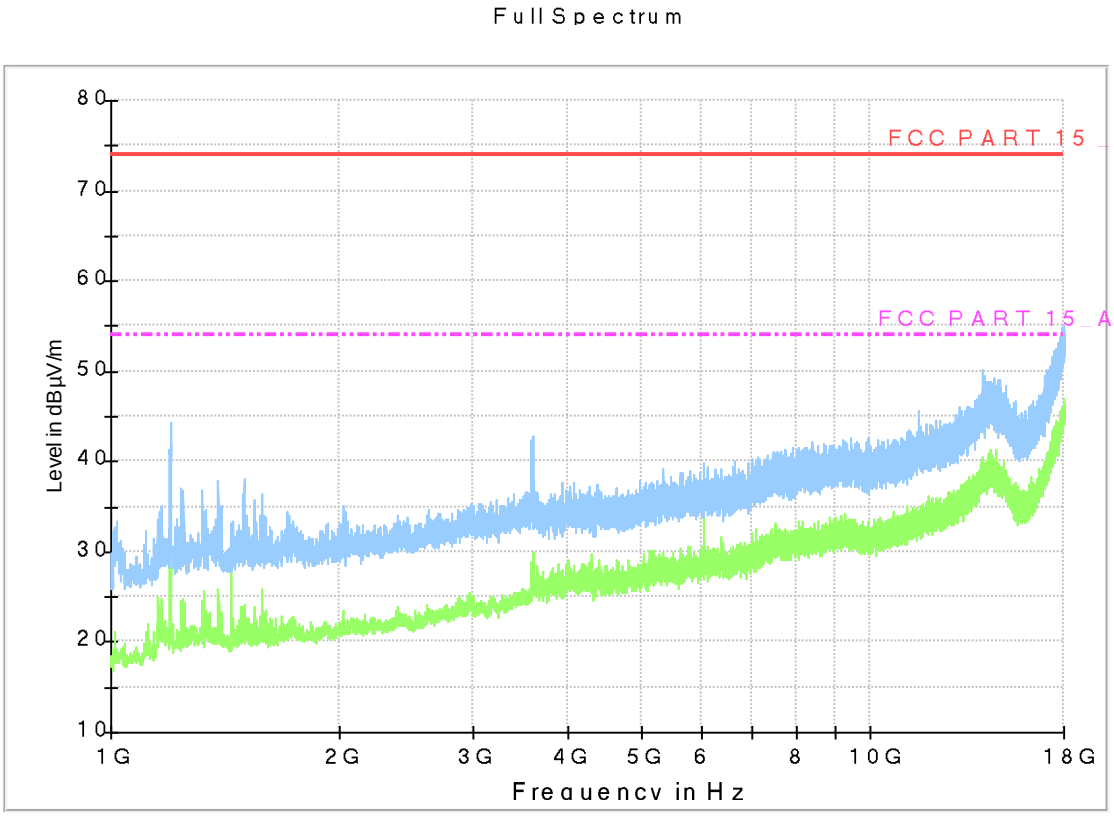


Figure A.8 Radiated Emission from 1GHz to 18GHz

LTE BAND12 mode

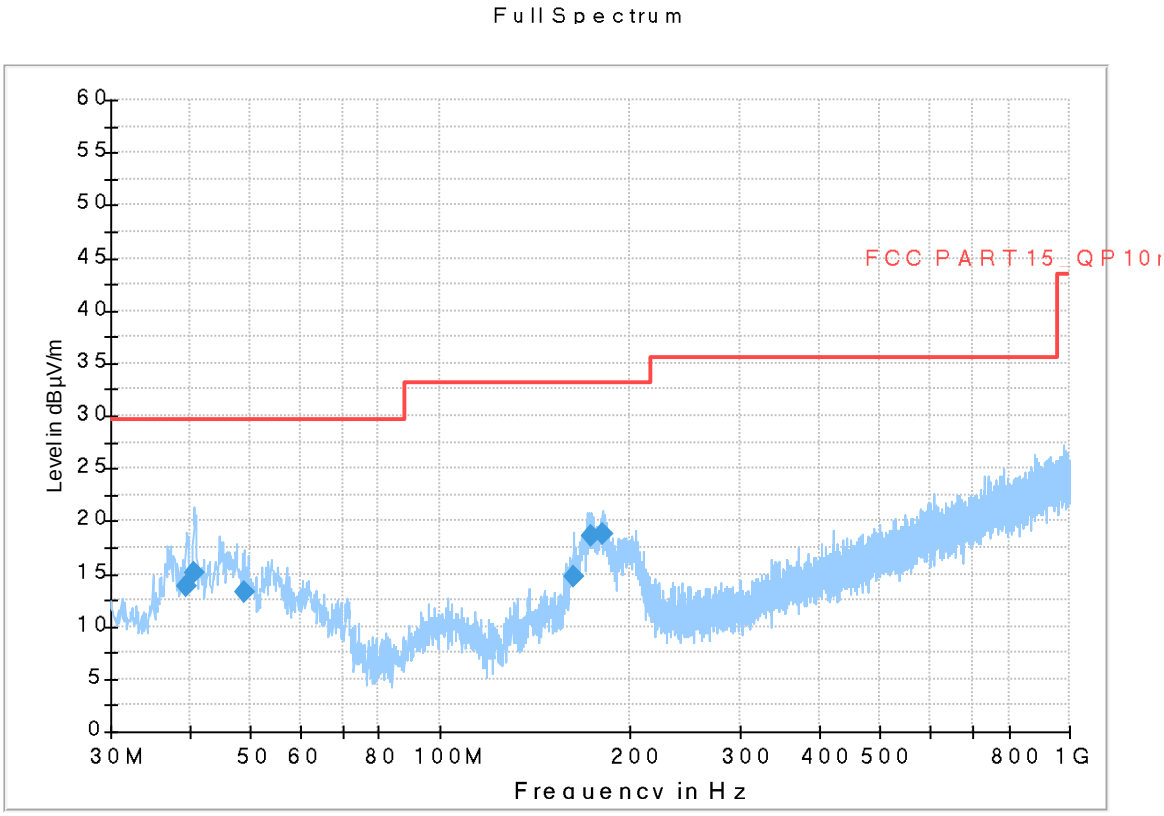


Figure A.9 Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
39.603000	13.88	29.50	15.66	1000.0	120.000	297.0	V	156.0	-11.5
40.670000	15.04	29.50	14.50	1000.0	120.000	235.0	V	249.0	-11.4
48.818000	13.20	29.50	16.34	1000.0	120.000	102.0	V	286.0	-11.6
163.278000	14.77	33.10	18.29	1000.0	120.000	209.0	V	-28.0	-15.0
173.754000	18.64	33.10	14.42	1000.0	120.000	120.0	V	300.0	-14.4
181.805000	18.77	33.10	14.29	1000.0	120.000	114.0	V	300.0	-13.8

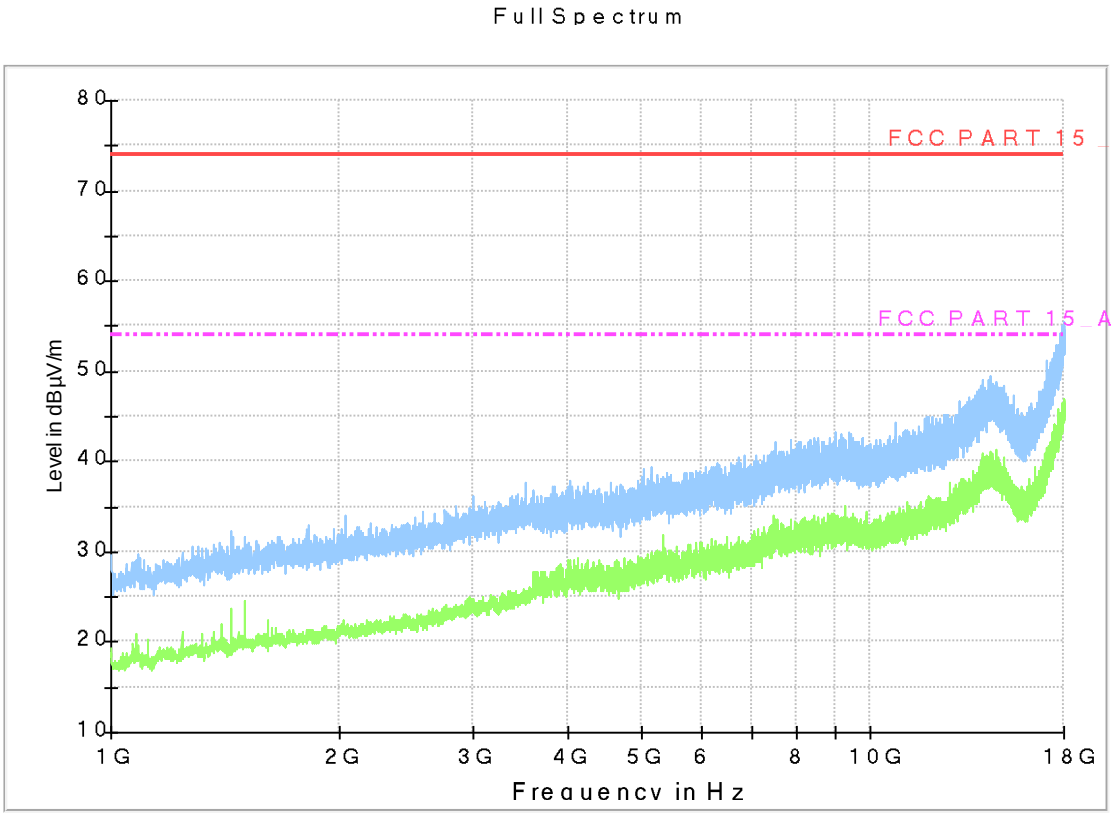


Figure A.10 Radiated Emission from 1GHz to 18GHz

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 and USB mode.

Note：I/O information：Printer – USB, Mouse – PS/2, Keyboard – USB.

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 dB, *k*=2.

Charging and camera mode

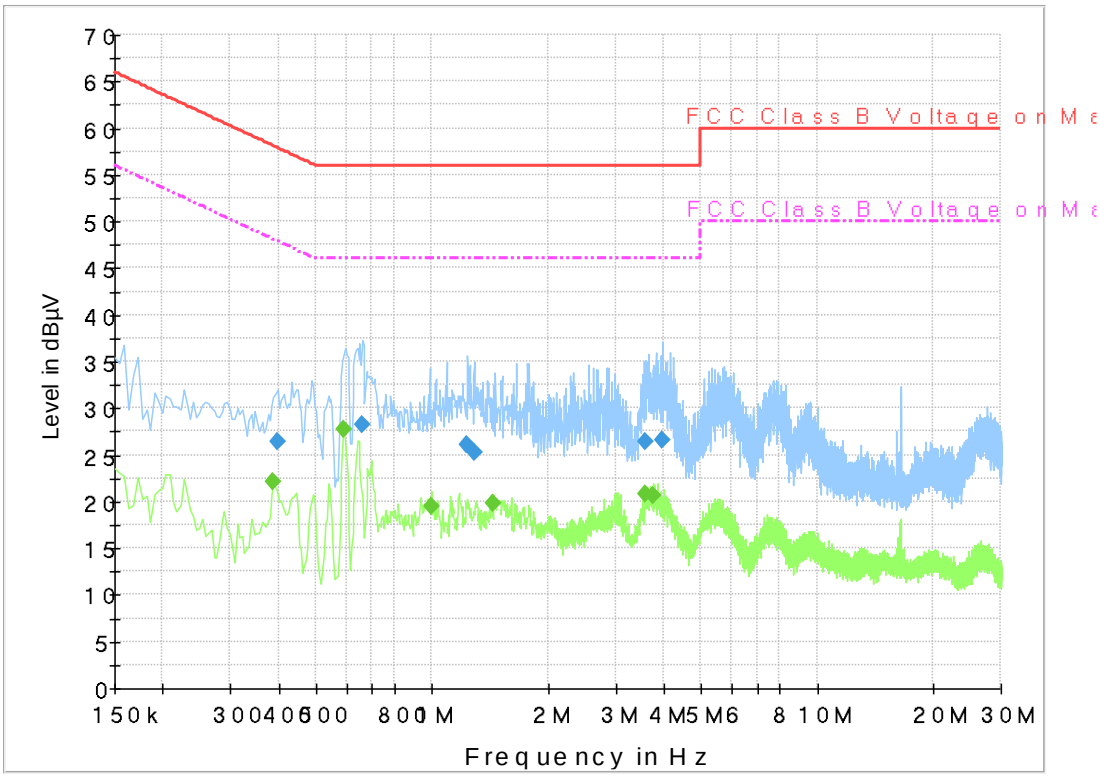


Figure A.11 Conducted Emission

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.397500	26.4	1000.0	9.000	On	N	19.9	31.5	57.9
0.658500	28.2	1000.0	9.000	On	N	19.8	27.8	56.0
1.234500	26.1	1000.0	9.000	On	N	19.8	29.9	56.0
1.288500	25.2	1000.0	9.000	On	N	19.8	30.8	56.0
3.579000	26.5	1000.0	9.000	On	N	19.7	29.5	56.0
3.966000	26.5	1000.0	9.000	On	N	19.7	29.5	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.388500	22.1	1000.0	9.000	On	L1	19.9	26.0	48.1
0.591000	27.7	1000.0	9.000	On	L1	19.8	18.3	46.0
0.996000	19.5	1000.0	9.000	On	L1	19.6	26.5	46.0
1.446000	19.9	1000.0	9.000	On	L1	19.5	26.1	46.0
3.588000	20.8	1000.0	9.000	On	L1	19.5	25.2	46.0
3.759000	20.6	1000.0	9.000	On	L1	19.5	25.4	46.0

Charging and GSM 850 RX mode

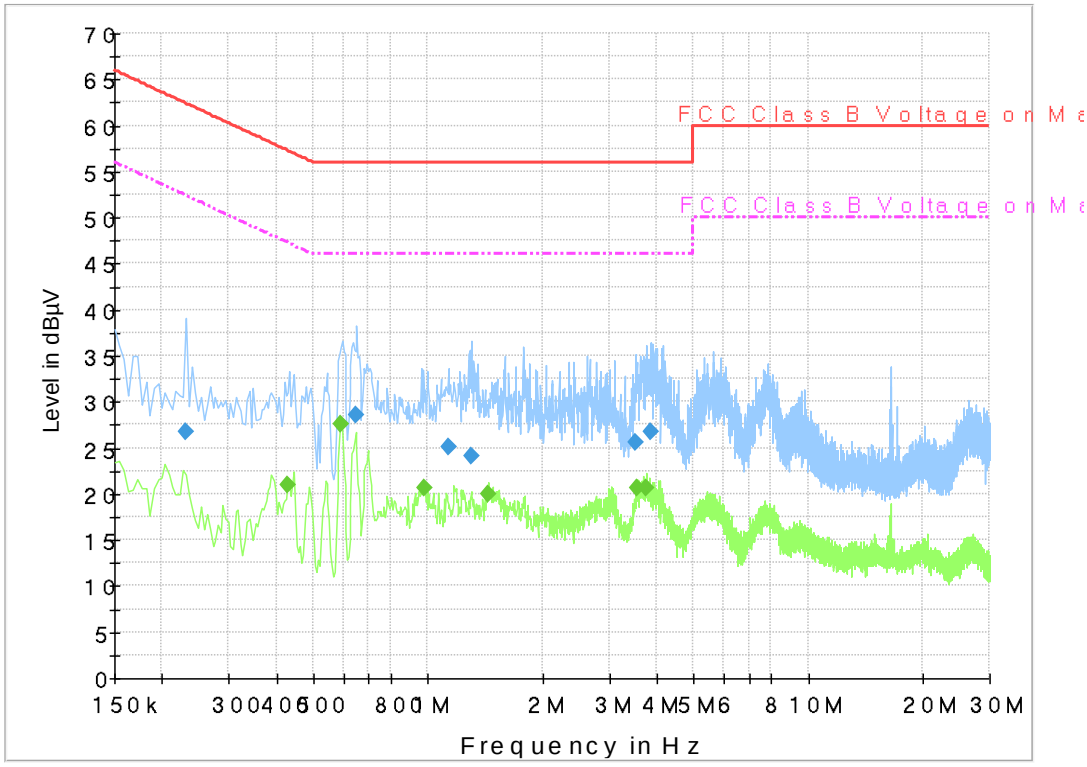


Figure A.12 Conducted Emission

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

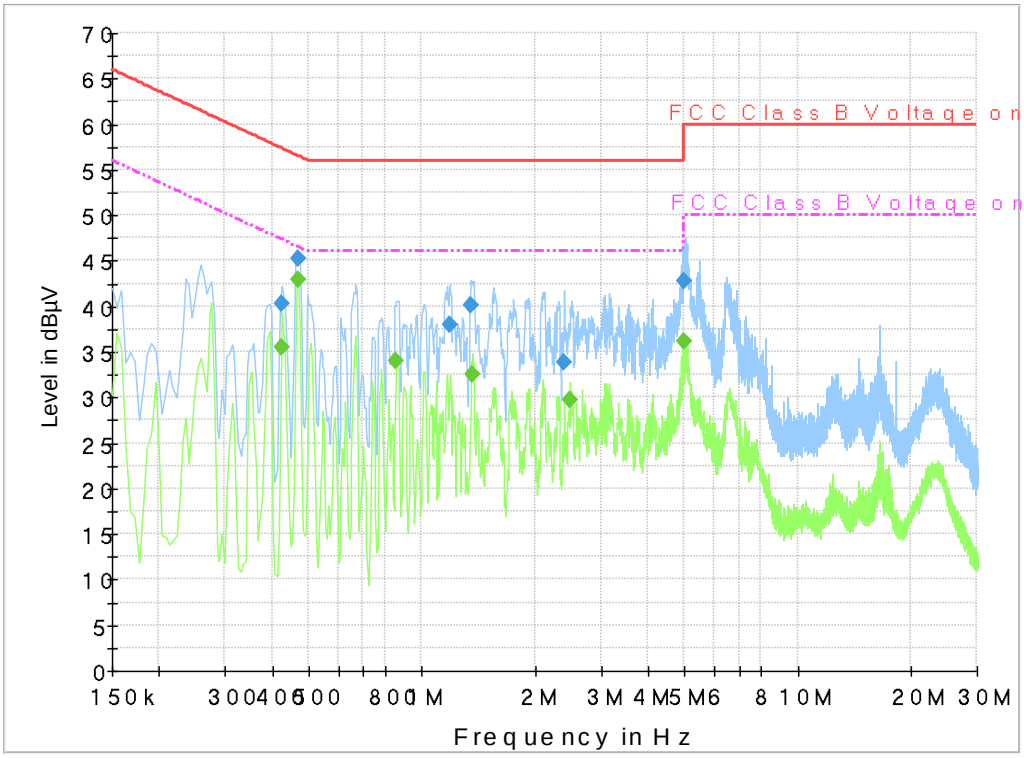
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.231000	26.7	1000.0	9.000	On	L1	20.0	35.7	62.4
0.649500	28.6	1000.0	9.000	On	N	19.8	27.4	56.0
1.131000	25.1	1000.0	9.000	On	N	19.8	30.9	56.0
1.297500	24.1	1000.0	9.000	On	N	19.8	31.9	56.0
3.516000	25.6	1000.0	9.000	On	N	19.7	30.4	56.0
3.840000	26.7	1000.0	9.000	On	N	19.7	29.3	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.429000	21.0	1000.0	9.000	On	L1	19.9	26.2	47.3
0.591000	27.6	1000.0	9.000	On	L1	19.8	18.4	46.0
0.978000	20.7	1000.0	9.000	On	L1	19.6	25.3	46.0
1.446000	20.0	1000.0	9.000	On	L1	19.5	26.0	46.0
3.538500	20.6	1000.0	9.000	On	L1	19.5	25.4	46.0
3.745500	20.7	1000.0	9.000	On	L1	19.5	25.3	46.0

USB mode



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.424500	40.2	1000.0	9.000	On	L1	19.9	17.1	57.4
0.469500	45.2	1000.0	9.000	On	N	20.0	11.4	56.5
1.185000	38.0	1000.0	9.000	On	N	19.8	18.0	56.0
1.347000	40.2	1000.0	9.000	On	L1	19.5	15.8	56.0
2.395500	33.8	1000.0	9.000	On	N	19.8	22.2	56.0
4.987500	42.8	1000.0	9.000	On	N	19.7	13.2	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.424500	35.4	1000.0	9.000	On	L1	19.9	11.9	47.4
0.469500	42.9	1000.0	9.000	On	N	20.0	3.6	46.5
0.856500	34.0	1000.0	9.000	On	N	19.8	12.0	46.0
1.365000	32.6	1000.0	9.000	On	L1	19.5	13.4	46.0
2.476500	29.8	1000.0	9.000	On	N	19.7	16.2	46.0
4.987500	36.1	1000.0	9.000	On	N	19.7	9.9	46.0

ANNEX B: Persons involved in this testing

Test Item	Tester
Radiated Emission	Wang Huan, Ding Zai
Conducted Emission	Yang Mengke

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