



FCC PART 15B TEST REPORT

No. I21Z62863-EMC01

for

TCL Communication Ltd.

UMTS/LTE mobile phone

Model Name: 4058E

FCC ID: 2ACCJN063

with

Hardware Version: 03

Software Version: QK1F

Issued Date: 2022-02-11

Note:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I21Z62863-EMC01	Rev.0	1 st edition	2022-02-11
I21Z62863-EMC01	Rev.1	2 nd edition	2022-03-02

Note: the latest revision of the test report supersedes all previous version.



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1. Test Laboratory

1.1. Testing Location

CTTL (huayuan North Road)

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

1.2. Testing Environment

Normal Temperature: 15-35° C

Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2022-01-13

Testing End Date: 2022-01-30


1.4. Signature



Wang Xue
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(Reviewed this test report)



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2. Client Information

2.1. Applicant Information

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

3.1. About EUT

Description	UMTS/LTE Mobile phone
Model Name	4058E
FCC ID:	2ACCJN063

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
EUT1	016144000013878	/	/
EUT2	016182000200624	03	QK1F

*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	Battery	/	/
AE2	USB Cable	/	/
AE3	Charger	/	/

AE1

Model	TLi017C7
Manufacturer	VEKEN
Capacity	1780mAh
Nominal Voltage	3.85

AE2

Model	CDA0000162C1
Manufacturer	JUWEI
Length of cable	/

AE3

Model	UC11US
Manufacturer	PUAN
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.1-1	EUT1 + AE1/3 + AE4 + AE6	Charger
Set.1-2	EUT1+ AE1/3 + AE5 + AE7	Charger
Set.2	EUT1 + AE1/3 + AE6/7/8/9/10	USB + Camera
Set.3-1	EUT2 + AE3 + AE4 + AE8	Charger + WCDMA 850 idle
Set.3-2	EUT2 + AE3 + AE4 + AE8	Charger + LTE B5 idle



Note:

Equipment Under Test (EUT) is a model of UMTS/LTE Mobile phone with integrated antenna.

It supports

UMTS Frequency Band FDD Band II(W1900) /FDD Band IV(W1700)/FDD Band V(W850)

LTE Frequency Band LTE FDD Bands 2/4/5/7/12/13/17/66/71.

It has MP3, Camera, USB memory, Bluetooth 4.2, Wi-Fi (802.11b/g/n, 802.11n supports 20MHz and 40MHz bandwidth , GNSS functions.

The device contains receivers which tune and operate between 30MHz-960MHz in the following bands: WCDMA850, LTE Band 5/12/13/17/71. All licensed band receivers that tune in the range of 30MHz-960MHz are investigated. Only the worst-case emissions are reported.

I21Z62863 is a variant model based on I21Z62522 for conformance test. According to the declaration of changes, the following test items and test modes were performed:

Test Item	Mode or Feature	EUT Set-up
Radiated Continuous Emission	USB	Set.3-1/Set.3-2

Other test results are derived from test report of I21Z62522-EMC01.

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 (10 meters×6.7meters×6.1meters) 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 M
Ground system resistance	< 4
Normalised site attenuation (NSA)	< ±4 dB, 3m 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 6000 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 M
Ground system resistance	< 4

6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:		
Verdict Column	P	Pass
	NA	Not applicable
	F	Fail

Items	Test Name	Clause in FCC rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	B.1	P	CTTL (huayuan North Road)
2	Conducted Emission	15.107(a)	B.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	Universal Radio Communication Tester	CMW500	116588	R&S	2022-12-20	1 year
3	EMI Antenna	VULB 9163	01223	Schwarzbeck	2022-03-22	1 year
4	EMI Antenna	3115	6914	ETS-Lindgren	2022-02-03	1 year

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 3 meters 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 USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and 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.

The model of the PC is M4000E-17, and the serial number of the PC is M706GWXD. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

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

A.1.3 Measurement Limit

Frequency range (MHz)	Field strength limit ($\mu\text{V}/\text{m}$)		
	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.

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:

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

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Measurement uncertainty (worst case): $U = 4.74 \text{ dB}$, $k=2$.

Measurement results for Set.1-1, GSM850 idle, charger UC11US(PUAN):

Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
31.649000	21.09	29.54	8.45	175.0	V	120.0	-14.7
34.947000	20.21	29.54	9.33	295.0	V	300.0	-13.5
62.495000	18.64	29.54	10.90	195.0	V	-29.0	-12.9
93.729000	21.43	33.06	11.63	125.0	V	240.0	-13.6
109.249000	22.05	33.06	11.01	183.0	V	261.0	-12.8
192.087000	18.99	33.06	14.07	100.0	V	150.0	-12.5

Charging Mode/Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17929.167	46.9	-29.4	46.7	29.6	54.0	7.1	H
17964.867	46.5	-29.1	46.7	28.9	54.0	7.5	H
17992.633	46.4	-29.1	46.7	28.8	54.0	7.6	H
17950.133	46.2	-28.9	46.7	28.5	54.0	7.8	H
17980.167	46.2	-29.1	46.7	28.6	54.0	7.8	H
18000.000	46.2	-29.2	47.0	28.4	54.0	7.8	H

Charging Mode/Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17964.300	56.1	-29.1	46.7	38.501	74.0	17.9	V
17949.000	55.9	-28.9	46.7	38.183	74.0	18.1	H
17976.767	55.7	-29.1	46.7	38.101	74.0	18.3	V
17963.167	55.5	-29.1	46.7	37.901	74.0	18.5	V
17956.933	55.3	-28.9	46.7	37.583	74.0	18.7	H
17159.067	55.3	-29.9	42.4	42.814	74.0	18.7	V

Measurement results for Set.1-2, WCDMA 850 idle, charger UC11US(Chenyang):
Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
44.453000	9.77	29.54	19.77	200.0	V	0.0	-11.6
59.100000	8.82	29.54	20.72	300.0	V	210.0	-11.8
101.198000	8.68	33.06	24.38	124.0	V	118.0	-12.5
110.898000	7.87	33.06	25.19	176.0	V	170.0	-13.0
213.233000	11.21	33.06	21.85	100.0	V	210.0	-11.4
302.958000	10.30	35.56	25.26	108.0	V	106.0	-8.8

Charging Mode/Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17974.500	46.9	-29.1	46.7	29.3	54.0	7.1	V
17973.933	46.3	-29.1	46.7	28.7	54.0	7.7	V
17999.433	46.2	-29.1	46.7	28.6	54.0	7.8	H
17942.767	46.0	-28.9	46.7	28.3	54.0	8.0	V
17953.533	45.9	-28.9	46.7	28.2	54.0	8.1	V
17993.200	45.8	-29.1	46.7	28.2	54.0	8.2	H

Charging Mode/Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17607.300	55.7	-29.5	45.2	39.972	74.0	18.3	H
17997.733	55.6	-29.1	46.7	37.998	74.0	18.4	V
17905.933	55.4	-29.3	46.0	38.772	74.0	18.6	V
17953.533	55.4	-28.9	46.7	37.683	74.0	18.6	V
17954.667	55.4	-28.9	46.7	37.683	74.0	18.6	H
17951.833	55.2	-28.9	46.7	37.483	74.0	18.8	V

Measurement results for Set.1-1, LTE band 12 idle, charger UC11US(PUAN):
Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
31.261000	20.98	29.54	8.56	210.0	V	240.0	-14.8
34.559000	20.91	29.54	8.63	108.0	V	80.0	-13.6
62.398000	18.98	29.54	10.56	276.0	V	-30.0	-12.9
92.662000	21.59	33.06	11.47	125.0	V	279.0	-13.8
108.764000	20.42	33.06	12.64	122.0	V	211.0	-12.8
208.383000	18.56	33.06	14.50	125.0	V	30.0	-11.5

Charging 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)
17261.067	46.1	-29.7	43.4	32.5	54.0	7.9	H
17968.267	46.1	-29.1	46.7	28.5	54.0	7.9	V
17962.600	46.0	-29.1	46.7	28.4	54.0	8.0	H
17145.467	46.0	-29.9	42.4	33.5	54.0	8.0	H
17587.467	45.8	-29.7	45.2	30.2	54.0	8.2	H
17817.533	45.8	-29.6	46.0	29.5	54.0	8.2	H

Charging 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)
17937.100	55.9	-29.4	46.7	38.639	74.0	18.1	V
17594.833	55.8	-29.7	45.2	40.249	74.0	18.2	H
17974.500	55.7	-29.1	46.7	38.101	74.0	18.3	H
17134.133	55.6	-29.7	42.4	42.892	74.0	18.4	V
17970.533	55.4	-29.1	46.7	37.801	74.0	18.6	V
17586.333	55.4	-29.7	45.2	39.849	74.0	18.6	H

Measurement results for Set.1-2, LTE band 13 idle, charger UC11US(Chenyang):
Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
44.938000	9.96	29.54	19.58	125.0	V	300.0	-11.5
49.594000	9.80	29.54	19.74	300.0	V	50.0	-11.0
60.458000	8.55	29.54	20.99	225.0	V	105.0	-12.2
91.886000	7.28	33.06	25.78	276.0	V	241.0	-14.0
301.891000	10.00	35.56	25.56	211.0	V	280.0	-8.8
896.210000	20.33	35.56	15.23	125.0	V	260.0	4.4

Charging Mode/Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17986.400	46.2	-29.1	46.7	28.6	54.0	7.8	V
17925.200	46.1	-29.4	46.7	28.8	54.0	7.9	H
17900.267	45.9	-29.3	46.0	29.3	54.0	8.1	H
17378.933	45.9	-30.0	43.4	32.5	54.0	8.1	H
17622.600	45.7	-29.4	45.2	29.9	54.0	8.3	V
17229.900	45.7	-29.6	43.4	31.9	54.0	8.3	H

Charging Mode/ Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17972.800	56.3	-29.1	46.7	38.701	74.0	17.7	V
17981.867	56.0	-29.1	46.7	38.398	74.0	18.0	H
17781.267	55.4	-29.9	46.0	39.332	74.0	18.6	H
17395.933	55.4	-29.8	44.4	40.876	74.0	18.6	H
17177.767	55.3	-29.8	42.4	42.717	74.0	18.7	H
17815.833	55.2	-29.6	46.0	38.876	74.0	18.8	V

Measurement results for Set.1-1, LTE band 26 idle, charger UC11US(PUAN):
Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
36.111000	16.60	29.54	12.94	119.0	V	240.0	-13.1
63.368000	15.74	29.54	13.80	103.0	V	300.0	-13.2
93.535000	16.64	33.06	16.42	111.0	V	279.0	-13.7
108.570000	16.97	33.06	16.09	176.0	V	260.0	-12.7
188.110000	20.29	33.06	12.77	101.0	V	151.0	-13.0
315.568000	17.08	35.56	18.48	101.0	V	153.0	-8.3

Charging 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)
17667.367	46.1	-29.9	45.2	30.7	54.0	7.9	V
17991.500	46.1	-29.1	46.7	28.5	54.0	7.9	V
17453.167	45.9	-29.9	44.4	31.4	54.0	8.1	H
17971.100	45.9	-29.1	46.7	28.3	54.0	8.1	H
17935.400	45.8	-29.4	46.7	28.5	54.0	8.2	V
17934.267	45.8	-29.4	46.7	28.5	54.0	8.2	V

Charging 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)
17944.467	55.7	-28.9	46.7	37.983	74.0	18.3	H
17995.467	55.3	-29.1	46.7	37.698	74.0	18.7	H
17078.600	55.3	-29.8	42.4	42.706	74.0	18.7	V
17996.600	55.3	-29.1	46.7	37.698	74.0	18.7	H
17953.533	55.2	-28.9	46.7	37.483	74.0	18.8	H
17964.867	55.2	-29.1	46.7	37.601	74.0	18.8	V

Measurement results for Set.1-2, LTE band 71 idle, charger UC11US(Chenyang):
Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
42.901000	9.27	29.54	20.27	108.0	V	120.0	-11.4
48.915000	9.67	29.54	19.87	325.0	V	189.0	-11.2
55.802000	10.33	29.54	19.21	100.0	V	120.0	-11.3
204.309000	8.08	33.06	24.98	287.0	V	80.0	-11.6
451.756000	13.51	35.56	22.05	125.0	V	260.0	-4.9
865.364000	19.76	35.56	15.80	107.0	V	-30.0	3.6

Charging Mode/Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17900.267	46.3	-29.3	46.0	29.7	54.0	7.7	H
17950.133	46.3	-28.9	46.7	28.6	54.0	7.7	H
17341.533	45.9	-30.0	43.4	32.5	54.0	8.1	V
17899.133	45.9	-29.5	46.0	29.5	54.0	8.1	H
17977.333	45.8	-29.1	46.7	28.2	54.0	8.2	V
17933.700	45.8	-29.4	46.7	28.5	54.0	8.2	H

Charging Mode/Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17942.200	56.8	-28.9	46.7	39.083	74.0	17.2	V
17929.733	55.6	-29.4	46.7	38.339	74.0	18.4	H
17062.167	55.6	-29.8	42.4	43.006	74.0	18.4	V
17976.200	55.4	-29.1	46.7	37.801	74.0	18.6	V
17654.333	55.3	-29.6	45.2	39.653	74.0	18.7	V
17990.933	55.2	-29.1	46.7	37.598	74.0	18.8	H

Measurement results for Set.2, USB + Camera:
USB Mode/QP detector

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
41.446000	20.14	29.54	9.40	180.0	V	210.0
62.010000	14.07	29.54	15.47	125.0	V	169.0
288.117000	19.68	35.56	15.88	100.0	V	189.0
503.942000	23.57	35.56	11.99	100.0	V	-10.0
593.570000	26.82	35.56	8.74	230.0	V	-29.0
673.013000	29.78	35.56	5.78	205.0	V	0.0

USB Mode/Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17903.100	47.0	-29.3	46.0	30.4	54.0	7.0	H
17908.767	46.6	-29.3	46.0	30.0	54.0	7.4	V
17926.900	46.6	-29.4	46.7	29.3	54.0	7.4	H
17174.933	46.5	-29.8	42.4	33.9	54.0	7.5	V
17177.767	46.4	-29.8	42.4	33.8	54.0	7.6	H
17258.800	46.4	-30.0	43.4	33.1	54.0	7.6	H

USB Mode/Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17927.467	56.3	-29.4	46.7	39.039	74.0	17.7	H
17916.133	56.3	-29.3	46.7	38.965	74.0	17.7	V
17355.700	56.3	-30.0	43.4	42.912	74.0	17.7	V
17165.867	56.1	-29.8	42.4	43.517	74.0	17.9	H
17347.200	56.0	-30.0	43.4	42.612	74.0	18.0	H
17980.167	56.0	-29.1	46.7	38.398	74.0	18.0	H

Measurement results for Set.3-1:
Charing Mode/Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17978.240	43.9	-29.1	46.7	26.3	54.0	10.1	V
17946.620	43.9	-28.9	46.7	26.2	54.0	10.1	V
17925.880	43.9	-29.4	46.7	26.6	54.0	10.1	H

17982.660	43.8	-29.1	46.7	26.2	54.0	10.2	H
17951.380	43.8	-28.9	46.7	26.1	54.0	10.2	H
17983.000	43.8	-29.1	46.7	26.2	54.0	10.2	H

Charging Mode/Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17885.420	55.9	-29.5	46.0	39.5	74.0	18.1	V
17983.680	55.7	-29.1	46.7	38.1	74.0	18.3	V
17960.560	55.4	-29.1	46.7	37.8	74.0	18.6	V
17959.880	55.2	-28.9	46.7	37.5	74.0	18.8	V
17945.940	55.1	-28.9	46.7	37.4	74.0	18.9	H
17905.480	55.0	-29.3	46.0	38.4	74.0	19.0	V

Measurement results for Set.3-2:
Charing Mode/Average detector

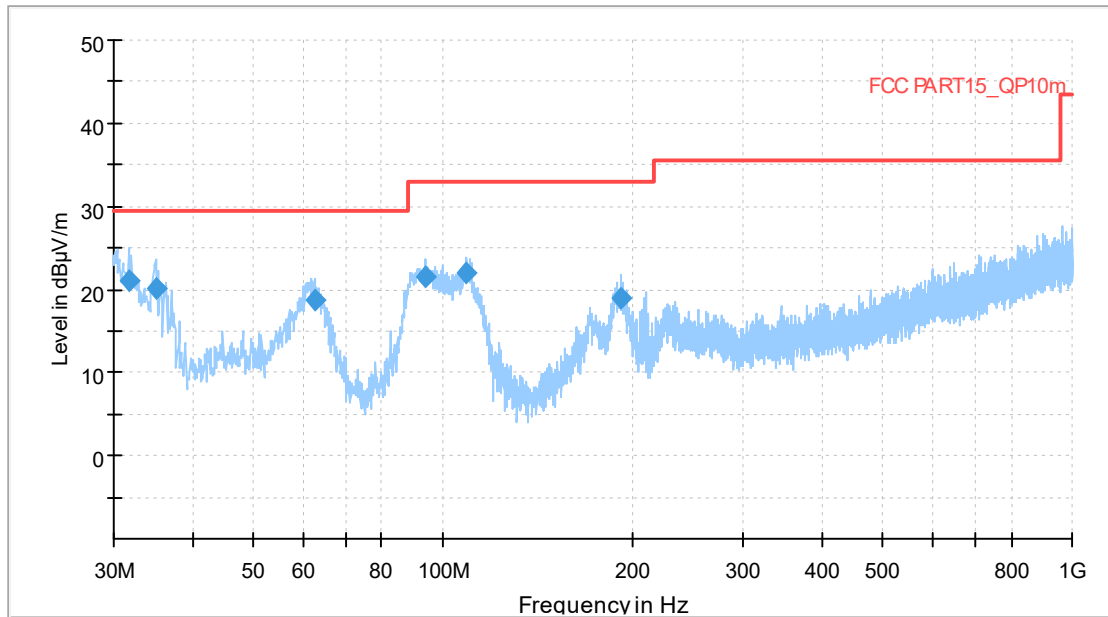
Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17984.700	46.3	-29.1	46.7	28.7	54.0	7.7	H
17931.433	46.3	-29.4	46.7	29.0	54.0	7.7	H
17152.267	46.1	-29.9	42.4	33.6	54.0	7.9	H
17996.033	46.1	-29.1	46.7	28.5	54.0	7.9	V
17990.367	46.0	-29.1	46.7	28.4	54.0	8.0	H
17950.700	46.0	-28.9	46.7	28.3	54.0	8.0	V

Charging Mode/Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17958.520	56.1	-28.9	46.7	38.4	74.0	17.9	V
17961.240	55.6	-29.1	46.7	38.0	74.0	18.4	H
17957.840	55.6	-28.9	46.7	37.9	74.0	18.4	H
17900.720	55.5	-29.3	46.0	38.9	74.0	18.5	V
17974.160	55.5	-29.1	46.7	37.9	74.0	18.5	V
17972.120	55.4	-29.1	46.7	37.8	74.0	18.6	H

Measurement results for Set.1-1, GSM850 idle, charger UC11US(PUAN):

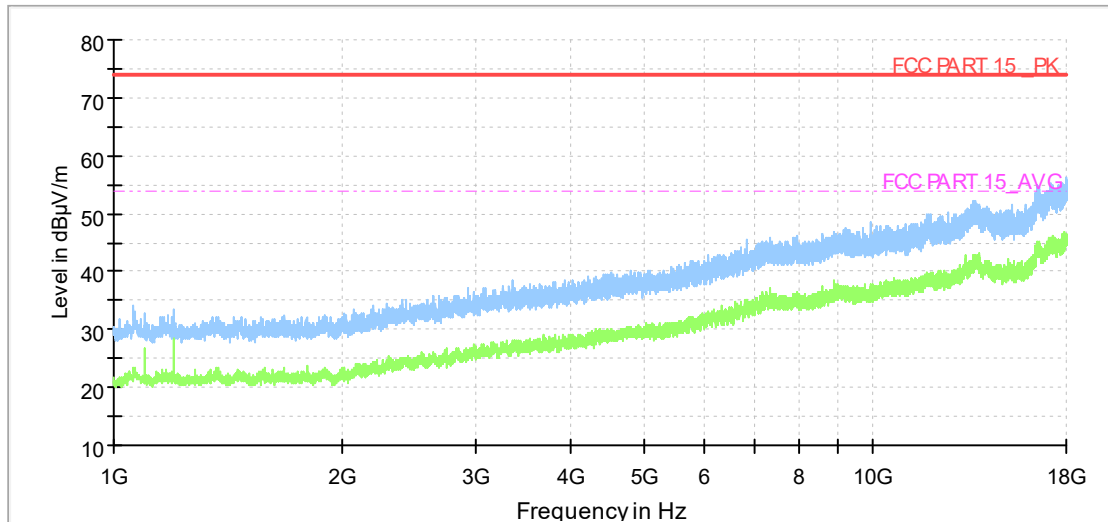
Full Spectrum



- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART15_QP10m [..]
- ◆ Final_Result QPK [Final_Result.Result:4]

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

Full Spectrum

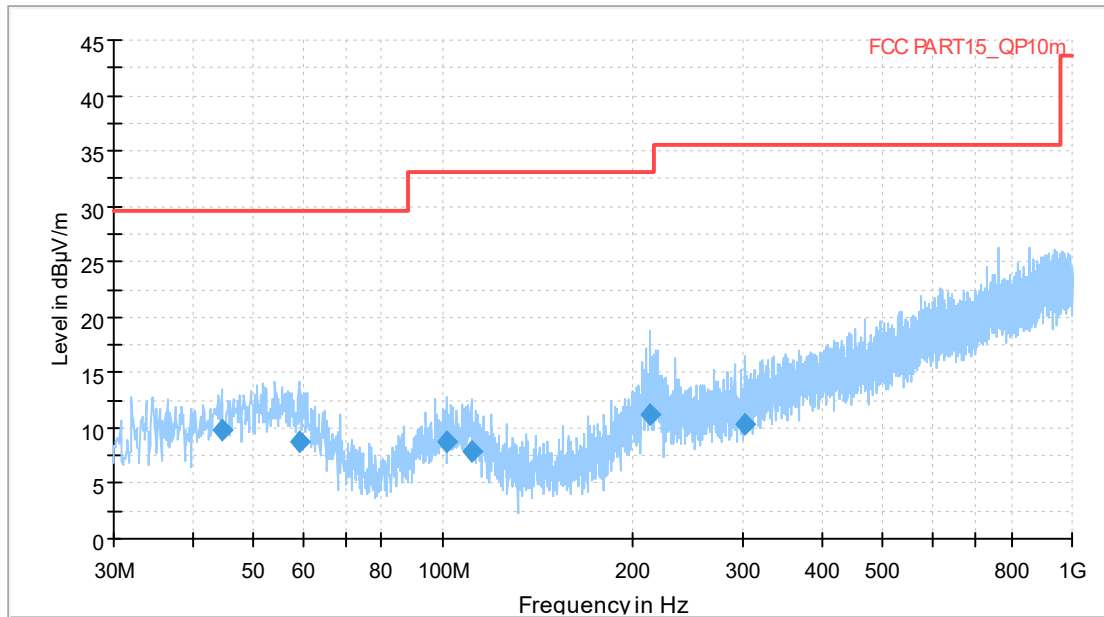


- Preview Result 2-AVG [Preview Result 2.Result:2]
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs AVG [Critical_Freqs.Result:5]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART 15_PK [..]
- - - FCC PART 15_AVG [..]
- ◆ Final_Result PK+ [Final_Result.Result:4]
- ◆ Final_Result AVG [Final_Result.Result:5]

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

Measurement results for Set.1-2, WCDMA 850 idle, charger UC11US(Chenyang):

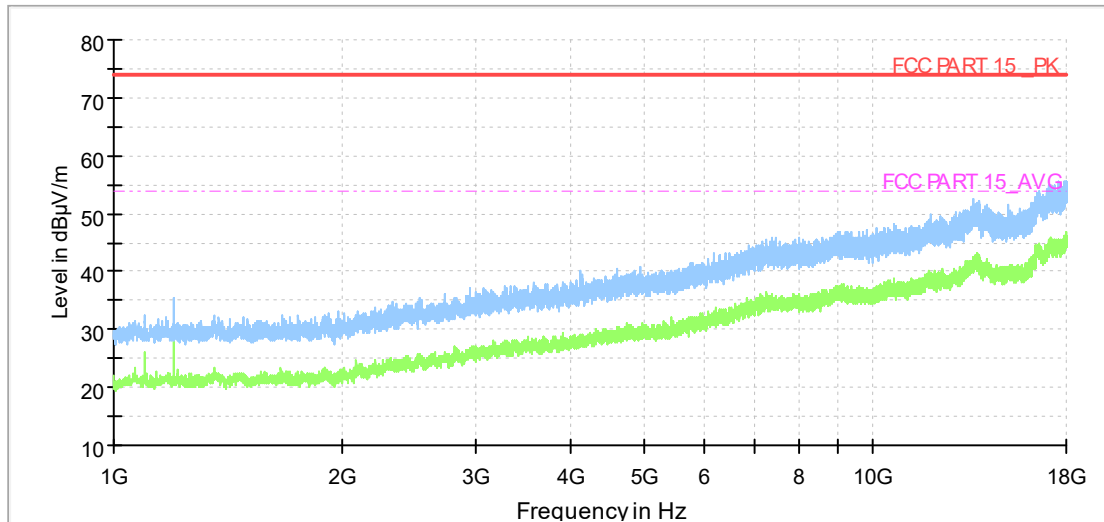
Full Spectrum



- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART15_QP10m [..]
- ◆ Final_Result QPK [Final_Result.Result:4]

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

Full Spectrum

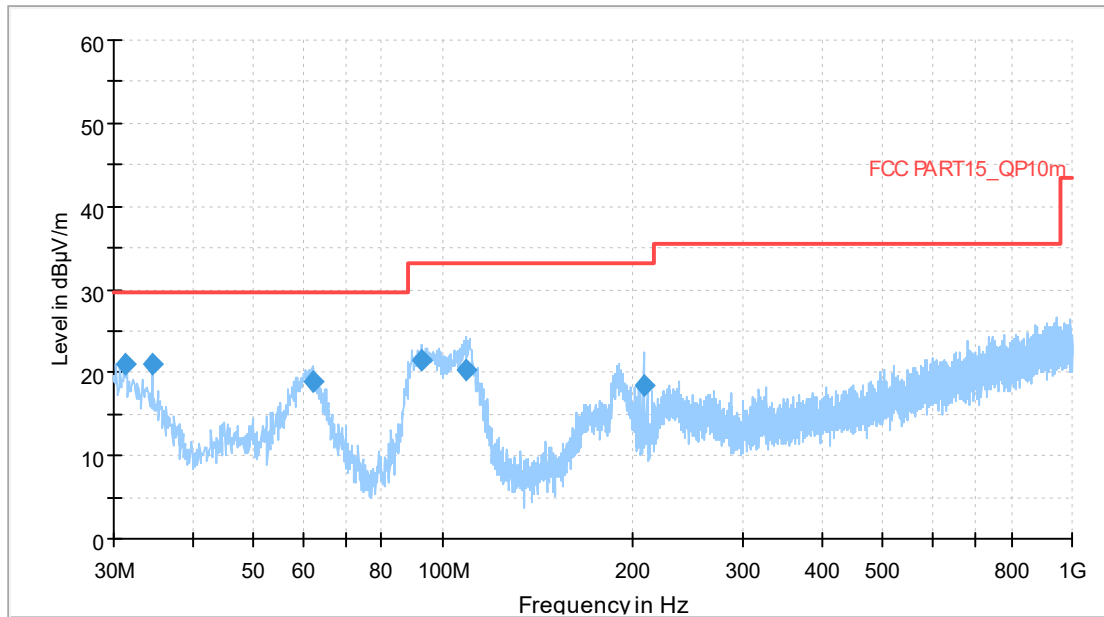


- Preview Result 2-AVG [Preview Result 2.Result:2]
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs AVG [Critical_Freqs.Result:5]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART 15_PK [..]
- - - FCC PART 15_AVG [..]
- ◆ Final_Result PK+ [Final_Result.Result:4]
- ◆ Final_Result AVG [Final_Result.Result:5]

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

Measurement results for Set.1-1, LTE band 12 idle, charger UC11US(PUAN):

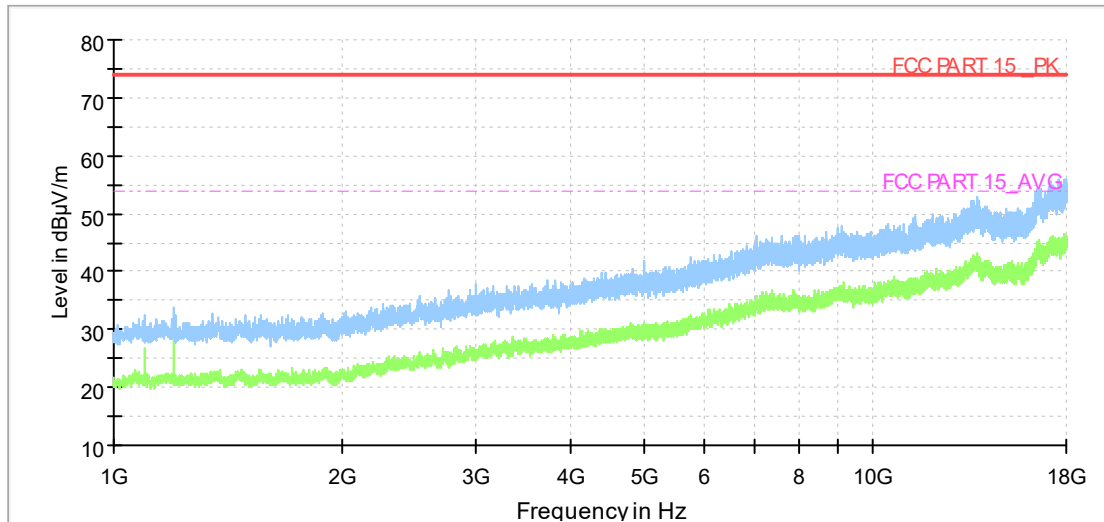
Full Spectrum



- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART15_QP10m [..]
- ◆ Final_Result QPK [Final_Result.Result:4]

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

Full Spectrum

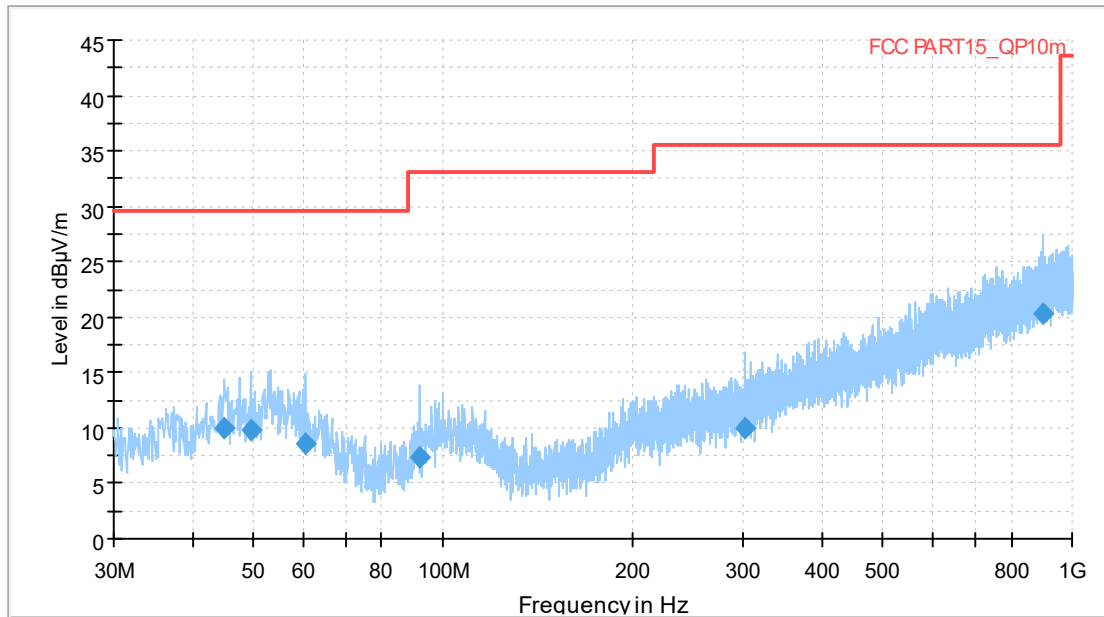


- Preview Result 2-AVG [Preview Result 2.Result:2]
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs AVG [Critical_Freqs.Result:5]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART 15_PK [..]
- - - FCC PART 15_AVG [..]
- ◆ Final_Result PK+ [Final_Result.Result:4]
- ◆ Final_Result AVG [Final_Result.Result:5]

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

Measurement results for Set.1-2, LTE band 13 idle, charger UC11US(Chenyang):

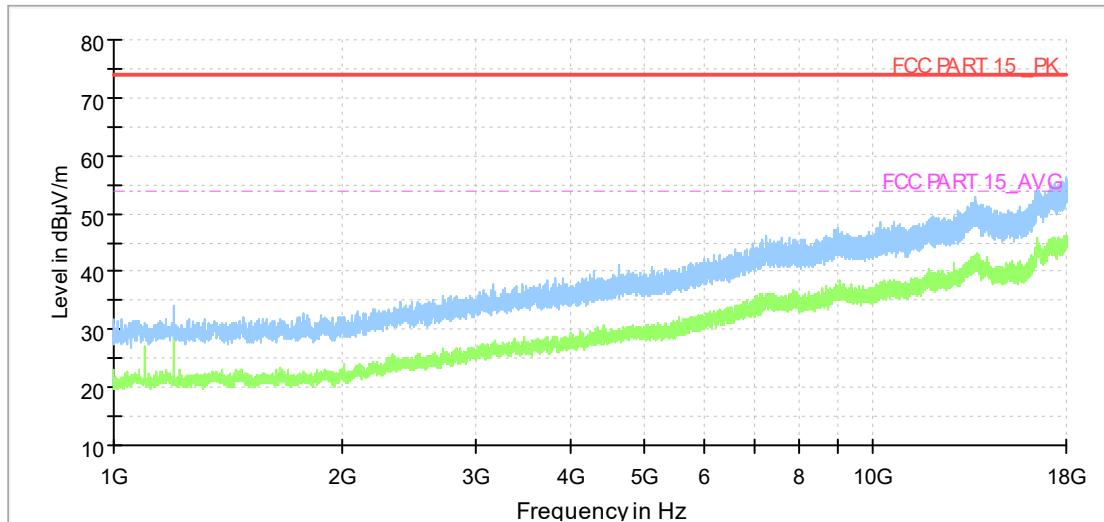
Full Spectrum



- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART15_QP10m [..]
- ◆ Final_Result QPK [Final_Result.Result:4]

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

Full Spectrum

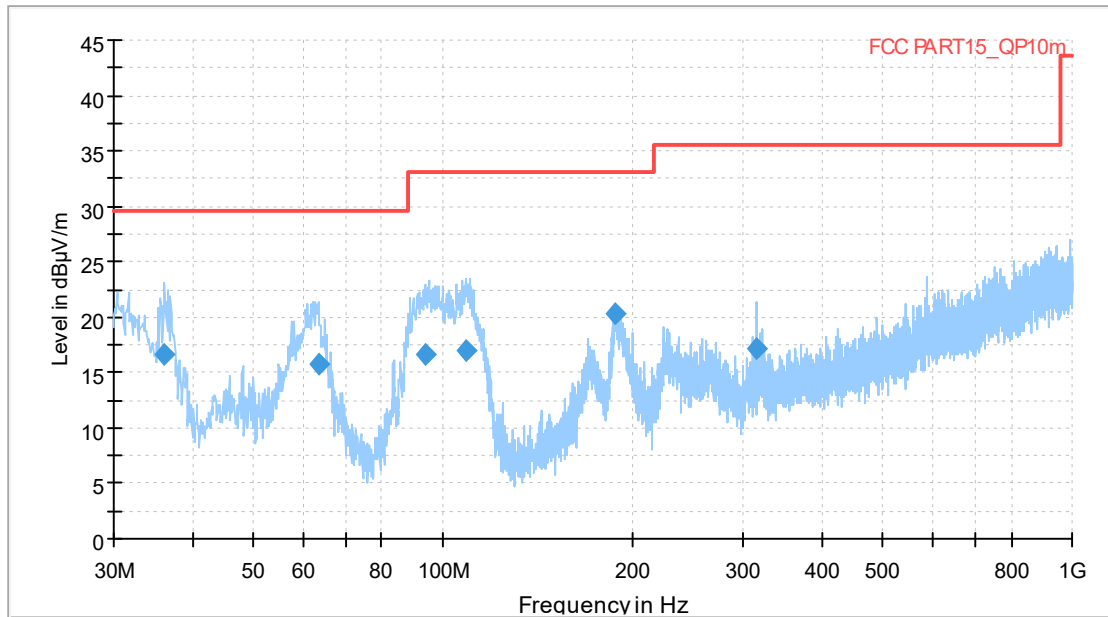


- Preview Result 2-AVG [Preview Result 2.Result:2]
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs AVG [Critical_Freqs.Result:5]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART 15_PK [..]
- - - FCC PART 15_AVG [..]
- ◆ Final_Result PK+ [Final_Result.Result:4]
- ◆ Final_Result AVG [Final_Result.Result:5]

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

Measurement results for Set.1-1, LTE band 26 idle, charger UC11US(PUAN):

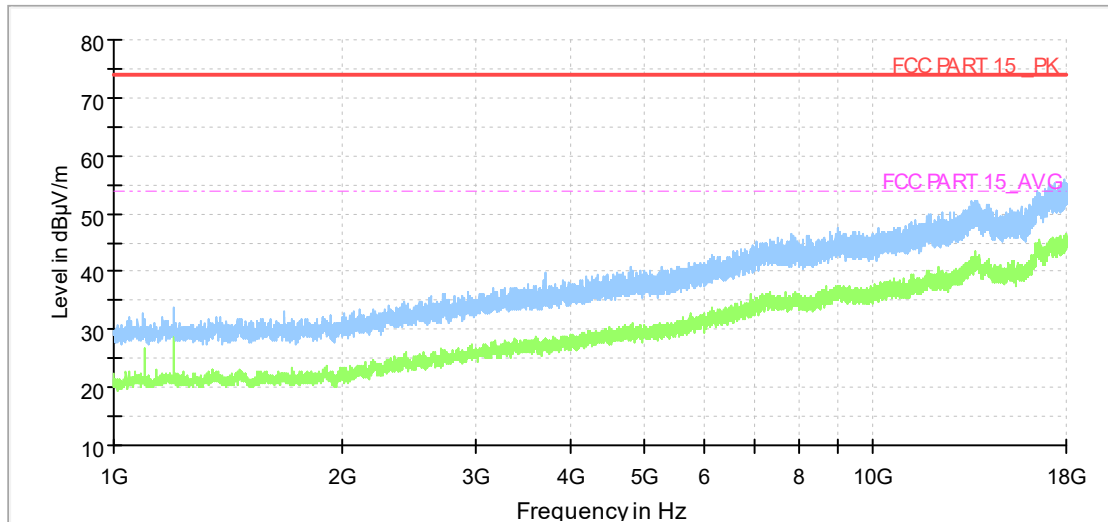
Full Spectrum



- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART15_QP10m [..]
- ◆ Final_Result QPK [Final_Result.Result:4]

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

Full Spectrum

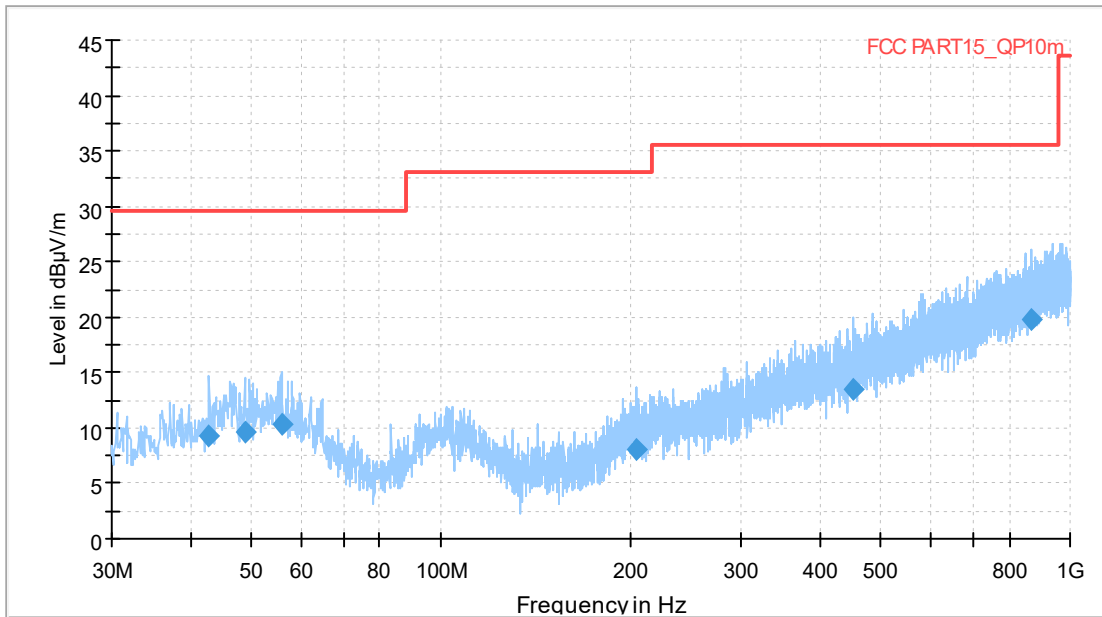


- Preview Result 2-AVG [Preview Result 2.Result:2]
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs AVG [Critical_Freqs.Result:5]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART 15_PK [..]
- - - FCC PART 15_AVG [..]
- ◆ Final_Result PK+ [Final_Result.Result:4]
- ◆ Final_Result AVG [Final_Result.Result:5]

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

Measurement results for Set.1-2, LTE band 71 idle, charger UC11US(Chenyang):

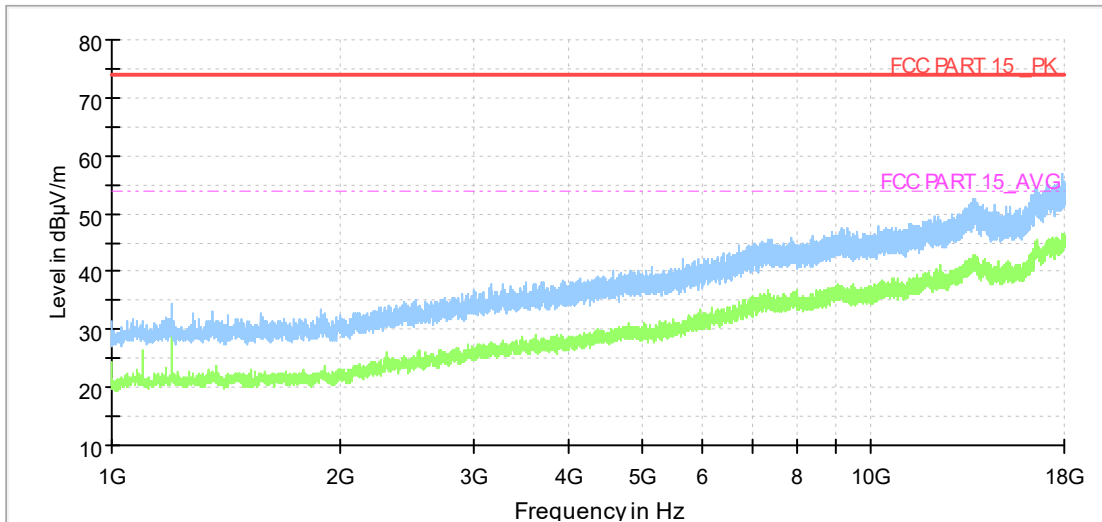
Full Spectrum



- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART15_QP10m [..]
- ◆ Final_Result QPK [Final_Result.Result:4]

Fig A.11 Radiated Emission from 30MHz to 1GHz

Full Spectrum



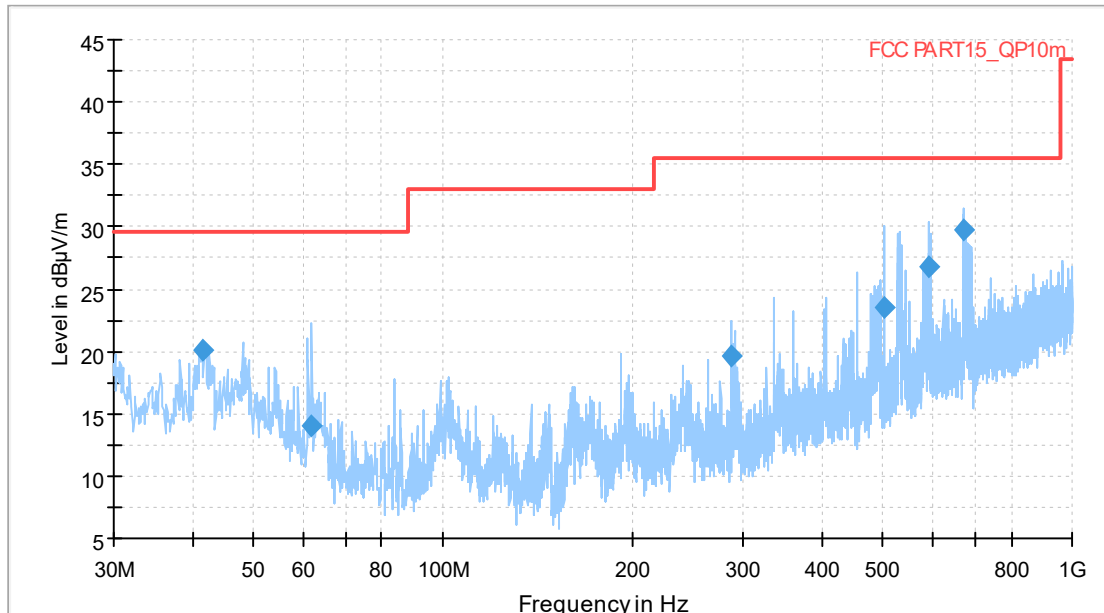
- Preview Result 2-AVG [Preview Result 2.Result:2]
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs AVG [Critical_Freqs.Result:5]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART 15_PK [..]
- FCC PART 15_AVG [..]
- ◆ Final_Result PK+ [Final_Result.Result:4]
- ◆ Final_Result AVG [Final_Result.Result:5]

Fig A.12 Radiated Emission from 1GHz to 18GHz

Measurement results for Set.2, USB + Camera:

Note: This is the worse USB + Camera case.

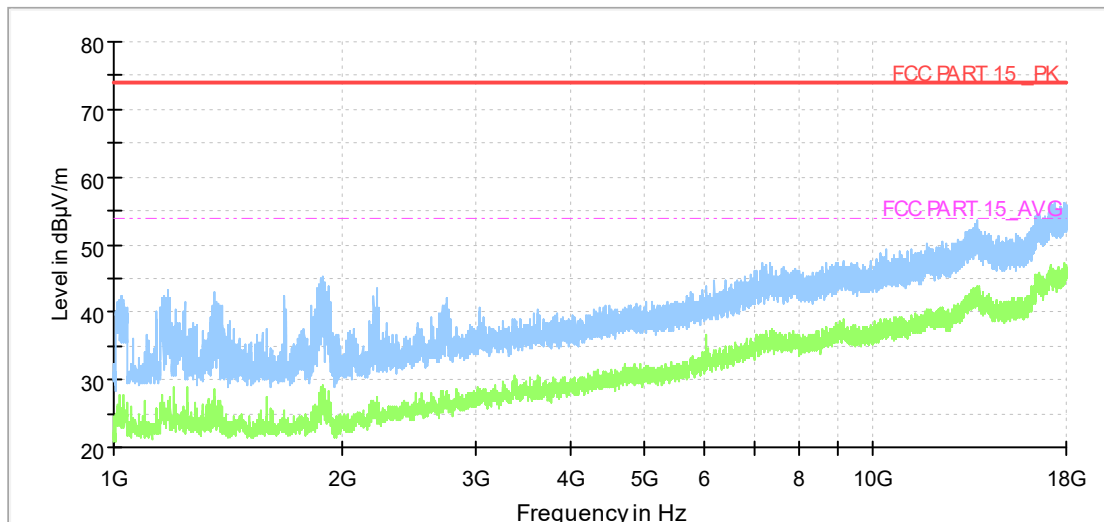
Full Spectrum



- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART15_QP10m [..]
- ◆ Final_Result QPK [Final_Result.Result:4]

Fig A.13 Radiated Emission from 30MHz to 1GHz

Full Spectrum

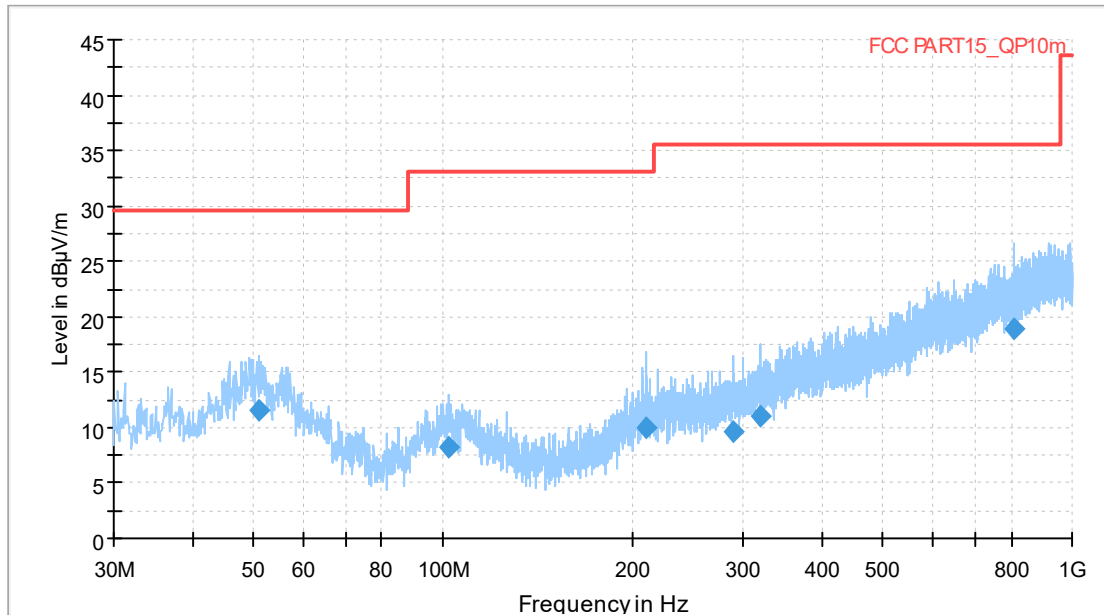


- Preview Result 2-AVG [Preview Result 2.Result:2]
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs AVG [Critical_Freqs.Result:5]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART 15_PK [..]
- - - FCC PART 15_AVG [..]
- ◆ Final_Result PK+ [Final_Result.Result:4]
- ◆ Final_Result AVG [Final_Result.Result:5]

Fig A.14 Radiated Emission from 1GHz to 18GHz

Measurement results for Set.3-1:

Full Spectrum



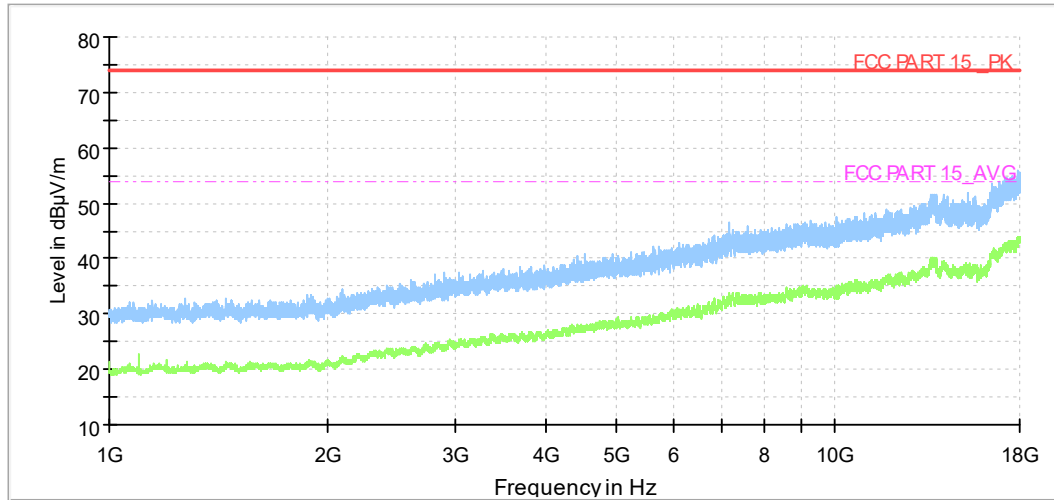
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART15_QP10m [..]
- ◆ Final_Result QPK [Final_Result.Result:4]

Fig A.15 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
51.049000	11.47	29.54	18.07	2000.0	120.000	95.0	V	260.0
102.071000	8.25	33.06	24.81	2000.0	120.000	325.0	V	62.0
211.099000	9.99	33.06	23.07	2000.0	120.000	303.0	H	241.0
288.796000	9.59	35.56	25.97	2000.0	120.000	283.0	V	171.0
320.612000	11.02	35.56	24.54	2000.0	120.000	103.0	V	30.0
809.783000	18.95	35.56	16.61	2000.0	120.000	201.0	H	210.0

Full Spectrum

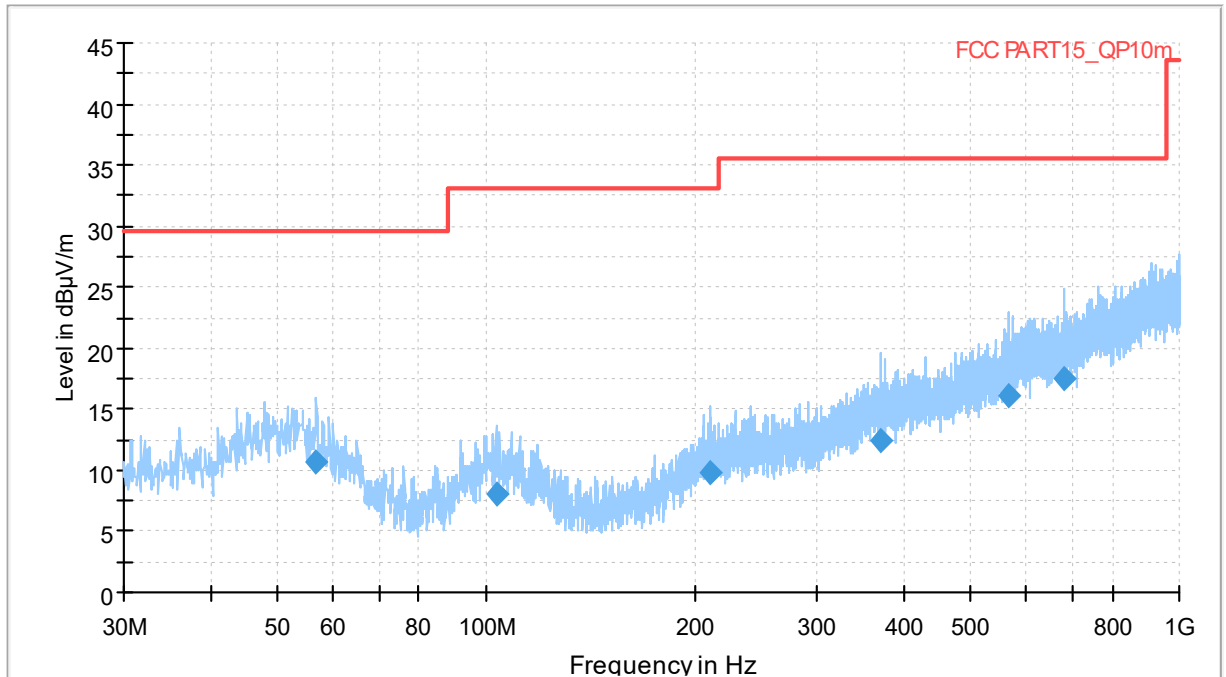


- Preview Result 2-AVG [Preview Result 2.Result:2]
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs AVG [Critical_Freqs.Result:5]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART 15_PK [..]
- - - FCC PART 15_AVG [..]
- ◆ Final_Result PK+ [Final_Result.Result:4]
- ◆ Final_Result AVG [Final_Result.Result:5]

Fig A.16 Radiated Emission from 1GHz to 18GHz

Measurement results for Set.3-2:

Full Spectrum



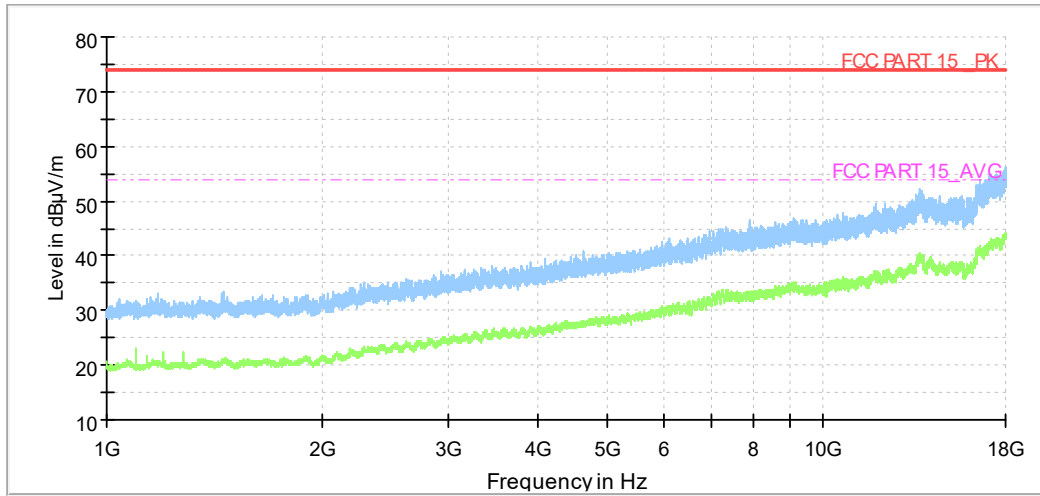
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART15_QP10m [..]
- ◆ Final_Result QPK [Final_Result.Result:4]

Fig A.17 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
56.772000	10.73	29.54	18.81	2000.0	120.000	325.0	V	-10.0
103.332000	7.99	33.06	25.07	2000.0	120.000	103.0	H	30.0
211.099000	9.82	33.06	23.24	2000.0	120.000	275.0	H	30.0
371.343000	12.44	35.56	23.12	2000.0	120.000	103.0	H	151.0
566.313000	16.05	35.56	19.51	2000.0	120.000	189.0	V	240.0
683.586000	17.57	35.56	17.99	2000.0	120.000	283.0	H	150.0

Full Spectrum



- Preview Result 2-AVG [Preview Result 2.Result:2]
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs AVG [Critical_Freqs.Result:5]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC PART 15_PK [..]
- - - FCC PART 15_AVG [..]
- ◆ Final_Result PK+ [Final_Result.Result:4]
- ◆ Final_Result AVG [Final_Result.Result:5]

Fig A.18 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 USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode. The model of the PC is DELL M4000E-17, and the serial number of the PC is M706GWXD. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

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

A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	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: $U= 3.08$ dB, $k=2$.

Measurement results for Set.1-1, GSM850 idle, charger UC11US(PUAN):

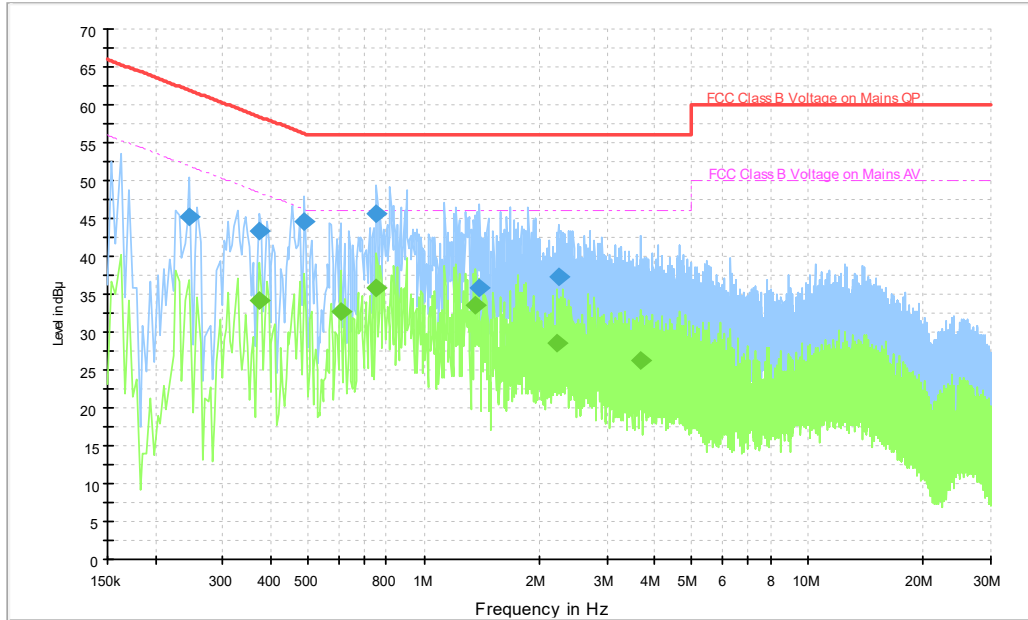


Fig A.19 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.246000	45.1	L1	20.0	16.8	61.9
0.374000	43.4	L1	19.9	15.0	58.4
0.490000	44.6	L1	19.9	11.6	56.2
0.754000	45.7	L1	19.7	10.3	56.0
1.398000	35.9	L1	19.5	20.1	56.0
2.238000	37.3	L1	19.5	18.7	56.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.374000	34.2	L1	19.9	14.2	48.4
0.606000	32.7	L1	19.7	13.3	46.0
0.754000	35.8	L1	19.7	10.2	46.0
1.366000	33.5	L1	19.5	12.5	46.0
2.222000	28.6	L1	19.5	17.4	46.0
3.658000	26.2	L1	19.5	19.8	46.0

Measurement results for Set.1-2, WCDMA 850 idle, charger UC11US(Chenyang):

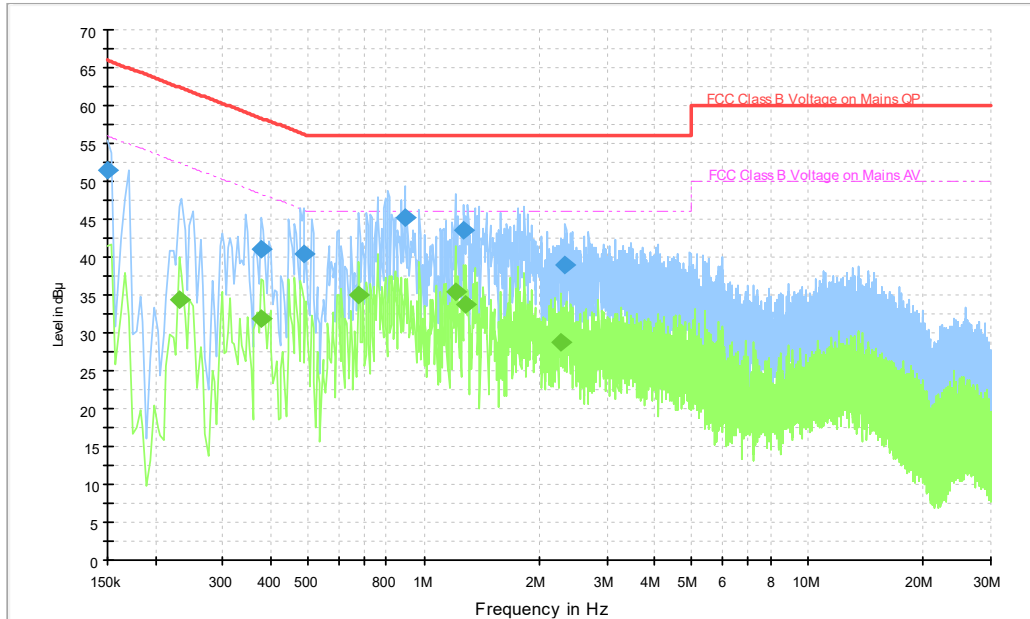


Fig A.20 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	51.5	L1	20.2	14.5	66.0
0.378000	41.1	L1	20.0	17.3	58.3
0.486000	40.3	N	20.0	15.9	56.2
0.890000	45.1	L1	19.6	10.9	56.0
1.270000	43.6	L1	19.5	12.4	56.0
2.342000	39.0	L1	19.5	17.0	56.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.230000	34.3	L1	20.0	18.2	52.4
0.378000	32.0	L1	20.0	16.4	48.3
0.678000	34.9	L1	19.7	11.1	46.0
1.206000	35.4	L1	19.5	10.6	46.0
1.290000	33.7	L1	19.5	12.3	46.0
2.286000	28.8	L1	19.5	17.2	46.0

Measurement results for Set.2, USB + Camera:

Note: This is the worse USB + Camera case.

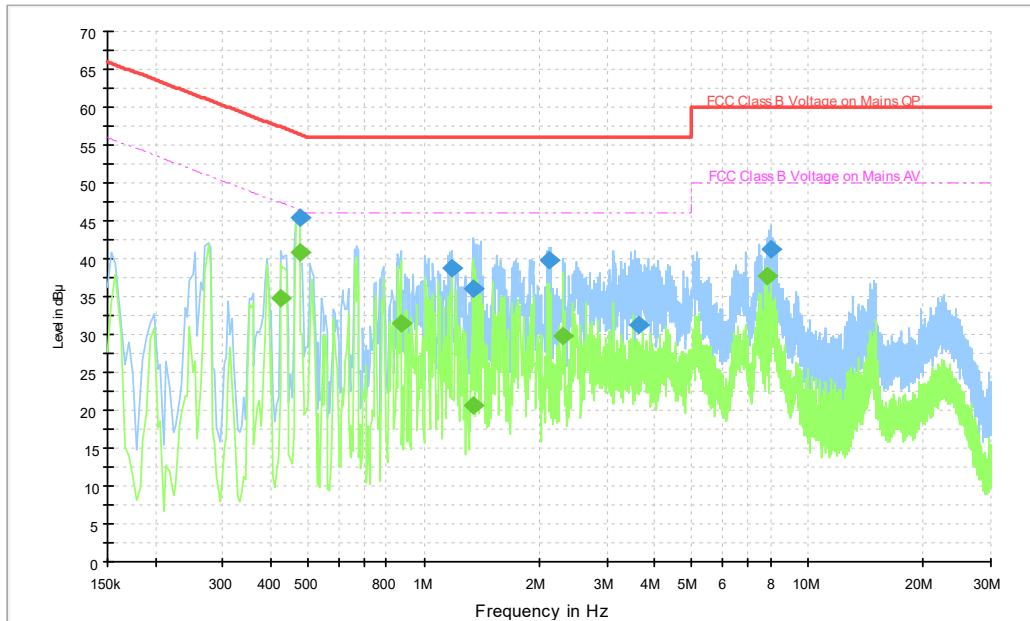


Fig A.21 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.474000	45.5	L1	19.9	11.0	56.4
1.186000	38.8	N	19.8	17.2	56.0
1.342000	36.0	L1	19.5	20.0	56.0
2.126000	39.8	N	19.8	16.2	56.0
3.630000	31.3	N	19.7	24.7	56.0
8.014000	41.2	L1	19.6	18.8	60.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.426000	34.8	L1	19.9	12.5	47.3
0.474000	40.9	N	20.0	5.5	46.4
0.870000	31.4	N	19.8	14.6	46.0
1.338000	20.6	L1	19.5	25.4	46.0
2.294000	29.7	N	19.8	16.3	46.0
7.822000	37.7	N	19.8	12.3	50.0



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