FCC 15B TEST REPORT

No. I21Z62182-EMC01

for

TCL Communication Ltd.

GSM/UMTS/LTE Mobile phone

Model Name: 6127A,6027A

FCC ID: 2ACCJH147

with

Hardware Version: 05

Software Version: NA52

Issued Date: 2021-12-22

Note:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I21Z62182-EMC01	Rev.0	1st edition	2021-12-22

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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, P. R. China100191

1.2. Testing Environment

Normal Temperature: 15-35℃

Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2021-11-20

Testing End Date: 2021-12-16

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)

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2. Client Information

2.1. Applicant Information

Company Name:	TCL Communication Ltd.
Address /Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
City:	Hong Kong
Postal Code:	/
Country:	China
Telephone:	0086-755-36611722
Fax:	0086-755-36612000-81722

2.2. Manufacturer Information

Company Name:	TCL Communication Ltd.
Address /Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
City:	Hong Kong
Postal Code:	/
Country:	China
Telephone:	0086-755-36611722
Fax:	0086-755-36612000-81722

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

3.1. About EUT

Description	GSM/UMTS/LTE Mobile phone
Model Name	6127A,6027A
FCC ID	2ACCJH147

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	/	05	1A50
EUT2	354105430000017	05	NA52

*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
AE1-1	Adapter	/
AE1-2	Adapter	/
AE1-3	Adapter	/
AE1-4	Adapter	/
AE2-1	USB Cable	/
AE2-2	USB Cable	/
AE3-1	Battery	/
AE3-2	Battery	/
AE4-1	Headset	/
AE4-2	Headset	/
AE4-3	Headset	/

AE1-1

Model	CBA0059AGTC1
Manufacturer	BYD
Length	/

AE1-2

Model	CBA0059AGAC5
Manufacturer	PUAN
Length	/

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AE1-3

Model	CBA0059AGAC7
Manufacturer	CHENYANG
Length	/

AE1-4

Model	CBA0059AGTC5
Manufacturer	PUAN
Length	/

AE2-1

Model	CDA0000123C8
Manufacturer	PUAN
Length	/

AE2-2

Model	CDA0000123C1
Manufacturer	JUWEI
Length	/

AE3-1

Model	TLp048A7
Manufacturer	VEKEN
Capacitance	4850mAh
Nominal voltage	/

AE3-2

Model	TLp048A1
Manufacturer	BYD
Capacitance	4850mAh
Nominal voltage	/

AE4-1

Model	CCB0046A15C1
Manufacturer	JUWEI
Length	/

AE4-2

Model	CCB0049A12C1
Manufacturer	JUWEI
Length	/

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AE4-3

Model	CCB0076A10C1
Manufacturer	JUWEI
Length	/

*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+AE1-1+AE2-1/AE2-2+ AE3-1/AE3-2+AE4-1	Charger+ Real Camera+ + GSM850 idle
Set.1-2	EUT1+AE1-2+AE2-1/AE2-2+ AE3-1/AE3-2+AE4-2	Charger+ Real Camera+ + GSM850 idle
Set.2	EUT1+AE1-2+AE2-1/AE2-2+ AE3-1/AE3-2	Charger+MP4
Set.3	EUT1+AE1-2+AE2-1/AE2-2+ AE3-1/AE3-2+AE4-2	Charger+FM
Set.4	EUT1+AE2-1/AE2-2+ AE3-1/AE3-2	USB SD TO PC+ Front Camera
Set.5	EUT2+AE1-3+AE2-1/AE2-2+ AE3-1/AE3-2	Charger+ Real Camera+ + GSM850 idle
Set.6	EUT1+AE1-3+AE2-1/AE2-2+ AE3-1/AE3-2+AE4-2	Charger+FM
Set.7	EUT2+AE2-1/AE2-2+ AE3-1/AE3-2	USB SD TO PC+ Front Camera

The device contains receivers which tune and operate between 30MHz-960MHz in the following bands: GSM 850MHz,WCDMA Band5, LTE Bands 5/12/13/17/26. The measurement results showed here are worst cases of different bands.

3.5. General Description

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

It supports

GSM Frequency Band	GSM 900/GSM 1800/GSM 1900/GSM 850
UMTS Frequency Band	FDD Bands 1/2/4/5/8
LTE Frequency Band	LTE FDD Bands 2/3/4/5/7/8/12/13/17/26/28/66.

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

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

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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.

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5. LABORATORY ENVIRONMENT

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

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

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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)**

Note: I21Z62182 is a variant model based on I21Z62363, According to the declaration of changes provided by the applicant and FCC KDB publication 178919 D01, the following test items and test modes were performed:

Test Item	Mode or Feature	EUT Set-up
Conducted Continuous Emission	Chargering, USB	Set.5, Set.6
Radiated Continuous Emission	Chargering, USB	Set.5, Set.6

Other results are cited from the initial model. The report number for initial model is I21Z62363-EMC01 (FCC ID: 2ACCJH147).

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7. Test Equipments Utilized

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	LISN	ENV216	101200	R & S	2022-05-03	1 year
2	Test Receiver	ESCI	100344	R & S	2022-02-23	1 year
3	Universal Radio Communication Tester	CMW500	163975	R&S	2022-01-11	1 Year
4	Universal Radio Communication Tester	CMW500	116588	R&S	2021-12-07	1 Year
5	Test Receiver	ESU26	100235	R & S	2022-02-23	1 year
6	Test Receiver	ESW44	103023	R & S	2022-02-23	1 year
7	BiLog Antenna	VULB9163	9163-1223	Schwarzbeck	2022-03-22	1 year
8	Dual-Ridge Waveguide Horn Antenna	3115	6914	ETS-Lindgren	2022-02-03	1 year
9	FM Signal Source	SMBV100A	260613	R & S	2022-01-06	1 year

Note: The test dates were before the calibration due dates of equipment used (the Universal Radio Communication Tester which series number is 116588).

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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 3 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.

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

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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：5.16dB, 1GHz-18GHz：5.44dB, *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.

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Measurement results for Set.1-1:

EUT1 Charger1-1+Back Camera+GSM 850MHz idle Mode/QP detector

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
38.245000	10.71	29.54	18.83	2000.0	120.000	300.0	V	89.0
73.068000	10.90	29.54	18.64	2000.0	120.000	283.0	V	-10.0
121.762000	10.37	33.06	22.69	2000.0	120.000	100.0	V	10.0
170.650000	8.62	33.06	24.44	2000.0	120.000	101.0	V	281.0
197.034000	10.34	33.06	22.72	2000.0	120.000	125.0	V	210.0
212.748000	14.80	33.06	18.26	2000.0	120.000	100.0	V	171.0

EUT1 Charger1-1+Back Camera+GSM 850MHz idle 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)
17945.033	46.6	-28.9	46.7	28.883	H	54.00	7.40
17984.133	46.4	-29.1	46.7	28.798	V	54.00	7.60
17941.067	46.3	-28.9	46.7	28.583	V	54.00	7.70
17969.400	46.3	-29.1	46.7	28.701	V	54.00	7.70
17997.733	46.1	-29.1	46.7	28.498	V	54.00	7.90
17939.933	46.1	-29.4	46.7	28.839	H	54.00	7.90

EUT1 Charger1-1+Back Camera+GSM 850MHz idle 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)
17988.667	56.0	-29.1	46.7	38.398	V	74.00	18.00
17978.467	55.7	-29.1	46.7	38.101	V	74.00	18.30
17977.900	55.6	-29.1	46.7	38.001	H	74.00	18.40
17385.733	55.6	-29.8	43.4	42.072	V	74.00	18.40
17932.567	55.6	-29.4	46.7	38.339	V	74.00	18.40
17819.800	55.6	-29.6	46.0	39.276	H	74.00	18.40

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Measurement results for Set.1-2:

EUT1 Charger1-2+Back Camera+GSM 850MHz idle Mode/QP detector

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
53.086000	18.81	29.54	10.73	2000.0	120.000	125.0	V	-29.0
63.465000	13.30	29.54	16.24	2000.0	120.000	176.0	V	279.0
71.904000	13.26	29.54	16.28	2000.0	120.000	182.0	V	260.0
110.510000	13.15	33.06	19.91	2000.0	120.000	276.0	V	-30.0
168.904000	11.42	33.06	21.64	2000.0	120.000	183.0	V	300.0
214.397000	15.91	33.06	17.15	2000.0	120.000	125.0	V	170.0

EUT1 Charger1-2+Back Camera+GSM 850MHz idle Mode/Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)	Limit (dBμV/m)	Margin (dB)
17981.867	46.4	-29.1	46.7	28.798	H	54.00	7.60
17929.167	46.3	-29.4	46.7	29.039	V	54.00	7.70
17955.233	46.1	-28.9	46.7	28.383	H	54.00	7.90
17990.367	45.9	-29.1	46.7	28.298	V	54.00	8.10
17957.500	45.9	-28.9	46.7	28.183	H	54.00	8.10
17996.600	45.9	-29.1	46.7	28.298	V	54.00	8.10

EUT1 Charger1-2+Back Camera+GSM 850MHz idle Mode/Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)	Limit (dBμV/m)	Margin (dB)
17148.300	56.5	-29.9	42.4	44.014	H	74.00	17.50
17434.467	55.7	-29.7	44.4	41.060	V	74.00	18.30
17865.700	55.5	-29.4	46.0	38.939	H	74.00	18.50
17958.633	55.5	-28.9	46.7	37.783	V	74.00	18.50
17957.500	55.1	-28.9	46.7	37.383	V	74.00	18.90
17969.967	55.1	-29.1	46.7	37.501	H	74.00	18.90

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Measurement results for Set.2:

EUT1 Charger1-2+MP4 Mode/QP detector

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
37.469000	9.64	29.54	19.90	2000.0	120.000	200.0	V	0.0
56.772000	19.90	29.54	9.64	2000.0	120.000	320.0	V	-30.0
90.140000	8.16	33.06	24.90	2000.0	120.000	200.0	V	0.0
177.052000	9.72	33.06	23.34	2000.0	120.000	195.0	V	-11.0
214.009000	14.23	33.06	18.83	2000.0	120.000	175.0	V	30.0
261.927000	12.07	35.56	23.49	2000.0	120.000	175.0	V	101.0

EUT1 Charger1-2+MP4 Mode/Average detector

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)	Limit (dBµV/m)	Margin (dB)
17988.667	46.0	-29.1	46.7	28.398	H	54.00	8.00
17982.433	45.8	-29.1	46.7	28.198	V	54.00	8.20
17962.600	45.7	-29.1	46.7	28.101	V	54.00	8.30
17958.067	45.7	-28.9	46.7	27.983	V	54.00	8.30
17969.967	45.7	-29.1	46.7	28.101	V	54.00	8.30
17963.167	45.7	-29.1	46.7	28.101	V	54.00	8.30

EUT1 Charger1-2+MP4 Mode/Peak detector

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)	Limit (dBµV/m)	Margin (dB)
17593.700	55.5	-29.7	45.2	39.949	V	74.00	18.50
17912.733	55.3	-29.3	46.0	38.672	H	74.00	18.70
17926.900	55.2	-29.4	46.7	37.939	V	74.00	18.80
17239.533	55.2	-29.6	43.4	41.409	H	74.00	18.80
17636.200	55.1	-29.4	45.2	39.252	H	74.00	18.90
17968.833	55.1	-29.1	46.7	37.501	H	74.00	18.90

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Measurement results for Set.3:

EUT1 Charger1-2+FM Mode/QP detector

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
34.462000	9.82	29.54	19.72	2000.0	120.000	320.0	V	-30.0
52.310000	15.45	29.54	14.09	2000.0	120.000	100.0	V	280.0
73.068000	11.99	29.54	17.55	2000.0	120.000	182.0	V	30.0
110.025000	12.98	33.06	20.08	2000.0	120.000	125.0	V	152.0
185.200000	13.85	33.06	19.21	2000.0	120.000	100.0	V	8.0
211.778000	15.73	33.06	17.33	2000.0	120.000	100.0	V	154.0

EUT1 Charger1-2+FM Mode/Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)	Limit (dBμV/m)	Margin (dB)
17985.833	46.4	-29.1	46.7	28.798	H	54.00	7.60
17981.867	46.3	-29.1	46.7	28.698	V	54.00	7.70
17983.000	46.0	-29.1	46.7	28.398	V	54.00	8.00
17939.933	45.9	-29.4	46.7	28.639	H	54.00	8.10
17926.333	45.9	-29.4	46.7	28.639	V	54.00	8.10
17975.067	45.8	-29.1	46.7	28.201	H	54.00	8.20

EUT1 Charger1-2+FM Mode/Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)	Limit (dBμV/m)	Margin (dB)
17891.767	56.5	-29.5	46.0	40.080	V	74.00	17.50
17950.133	55.4	-28.9	46.7	37.683	V	74.00	18.60
17928.033	55.3	-29.4	46.7	38.039	H	74.00	18.70
17965.433	55.2	-29.1	46.7	37.601	V	74.00	18.80
17981.867	55.2	-29.1	46.7	37.598	V	74.00	18.80
17517.767	55.1	-29.3	44.4	40.003	V	74.00	18.90

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Measurement results for Set.4:

EUT1 USB + SD + Front Camera Mode/QP detector

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
31.067000	22.07	29.54	7.47	2000.0	120.000	230.0	V	61.0
35.335000	22.09	29.54	7.45	2000.0	120.000	321.0	V	240.0
68.218000	15.18	29.54	14.36	2000.0	120.000	181.0	V	300.0
144.363000	17.65	33.06	15.41	2000.0	120.000	181.0	V	170.0
227.686000	17.14	35.56	18.42	2000.0	120.000	100.0	V	152.0
673.207000	30.40	35.56	5.16	2000.0	120.000	180.0	V	-10.0

EUT1 USB + SD + Front Camera Mode/Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)	Limit (dBμV/m)	Margin (dB)
17958.067	46.2	-28.9	46.7	28.483	H	54.00	7.80
17448.067	46.0	-29.9	44.4	31.517	H	54.00	8.00
17997.167	45.8	-29.1	46.7	28.198	H	54.00	8.20
17968.267	45.7	-29.1	46.7	28.101	H	54.00	8.30
17168.133	45.7	-29.8	42.4	33.117	V	54.00	8.30
17594.833	45.6	-29.7	45.2	30.049	V	54.00	8.40

EUT1 USB + SD + Front Camera Mode/Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)	Limit (dBμV/m)	Margin (dB)
17930.867	56.5	-29.4	46.7	39.239	H	74.00	17.50
17966.000	56.0	-29.1	46.7	38.401	V	74.00	18.00
17426.533	55.8	-29.7	44.4	41.160	H	74.00	18.20
17946.733	55.8	-28.9	46.7	38.083	H	74.00	18.20
17951.833	55.7	-28.9	46.7	37.983	V	74.00	18.30
17959.767	55.2	-28.9	46.7	37.483	H	74.00	18.80

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Measurement results for Set.5:

EUT2 Charger1-3+Back Camera+GSM 850MHz idle Mode/QP detector

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
40.767000	11.01	29.54	18.53	2000.0	120.000	117.0	V	120.0
50.370000	13.97	29.54	15.57	2000.0	120.000	118.0	V	60.0
163.763000	9.55	33.06	23.51	2000.0	120.000	180.0	V	-28.0
175.985000	14.86	33.06	18.20	2000.0	120.000	325.0	V	-9.0
226.328000	16.14	35.56	19.42	2000.0	120.000	227.0	V	30.0
383.953000	16.77	35.56	18.79	2000.0	120.000	325.0	V	189.0

EUT1 Charger1-3+Back Camera+GSM 850MHz idle Mode/Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)	Limit (dBμV/m)	Margin (dB)
17989.233	46.7	-29.1	46.7	29.098	H	54	7.3
17918.400	46.0	-29.3	46.7	28.665	V	54	8.0
17878.167	45.8	-29.4	46.0	29.239	H	54	8.2
17998.867	45.8	-29.1	46.7	28.198	H	54	8.2
17942.767	45.7	-28.9	46.7	27.983	V	54	8.3
17957.500	45.6	-28.9	46.7	27.883	H	54	8.4

EUT1 Charger1-3+Back Camera+GSM 850MHz idle Mode/Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)	Limit (dBμV/m)	Margin (dB)
17998.867	57.3	-29.1	46.7	39.698	V	74	16.7
17908.767	55.1	-29.3	46.0	38.472	H	74	18.9
17949.000	55.0	-28.9	46.7	37.283	H	74	19.0
17939.933	54.9	-29.4	46.7	37.639	H	74	19.1
17982.433	54.4	-29.1	46.7	36.798	H	74	19.6
17926.900	54.2	-29.4	46.7	36.939	V	74	19.8

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Measurement results for Set.6:

EUT1 Charger1-3+FM Mode/QP detector

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
39.797000	11.22	29.54	18.32	2000.0	120.000	180.0	V	170.0
49.885000	13.43	29.54	16.11	2000.0	120.000	187.0	V	30.0
102.265000	9.93	33.06	23.13	2000.0	120.000	125.0	V	-10.0
171.329000	12.98	33.06	20.08	2000.0	120.000	118.0	V	-30.0
225.261000	18.61	35.56	16.95	2000.0	120.000	118.0	V	60.0
945.195000	20.73	35.56	14.83	2000.0	120.000	125.0	V	300.0

EUT1 Charger1-3+FM Mode/Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)	Limit (dBμV/m)	Margin (dB)
17537.600	46.3	-29.3	44.4	31.267	V	54	7.7
17988.667	46.1	-29.1	46.7	28.498	H	54	7.9
17560.833	45.9	-29.8	44.4	31.340	V	54	8.1
17948.433	45.8	-28.9	46.7	28.083	H	54	8.2
17935.400	45.8	-29.4	46.7	28.539	V	54	8.2
17999.433	45.7	-29.1	46.7	28.098	H	54	8.3

EUT1 Charger1-3+FM Mode/Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)	Limit (dBμV/m)	Margin (dB)
17885.0	54.8	-29.5	46.0	38.380	V	74	19.2
17893.5	54.8	-29.5	46.0	38.380	V	74	19.2
17943.3	54.5	-28.9	46.7	36.783	H	74	19.5
17356.3	54.3	-30.0	43.4	40.912	H	74	19.7
17356.8	54.2	-30.0	43.4	40.812	V	74	19.8
17823.2	54.2	-29.7	46.0	37.924	H	74	19.8

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Measurement results for Set.7:

EUT1 USB + SD + Front Camera Mode/QP detector

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
83.932000	17.73	29.54	11.81	2000.0	120.000	180.0	V	99.0
125.545000	13.46	33.06	19.60	2000.0	120.000	101.0	V	151.0
137.864000	16.20	33.06	16.86	2000.0	120.000	100.0	V	60.0
215.949000	22.44	33.06	10.62	2000.0	120.000	125.0	V	81.0
240.005000	23.51	35.56	12.05	2000.0	120.000	101.0	V	170.0
528.386000	24.67	35.56	10.89	2000.0	120.000	300.0	V	-20.0

EUT1 USB + SD + Front Camera Mode/Average detector

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)	Limit (dBµV/m)	Margin (dB)
17956.933	46.8	-28.9	46.7	29.083	V	54	7.2
17996.033	46.1	-29.1	46.7	28.498	H	54	7.9
17986.400	46.1	-29.1	46.7	28.498	H	54	7.9
17459.400	46.1	-29.9	44.4	31.617	V	54	7.9
17351.733	46.0	-30.0	43.4	32.612	V	54	8.0
17199.867	45.9	-29.5	42.4	33.024	V	54	8.1

EUT1 USB + SD + Front Camera Mode/Peak detector

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)	Limit (dBµV/m)	Margin (dB)
17453.733	55.8	-29.9	44.4	41.317	H	74	18.2
17976.200	55.6	-29.1	46.7	38.001	H	74	18.4
17930.300	55.4	-29.4	46.7	38.139	H	74	18.6
17799.400	55.4	-29.9	46.0	39.332	H	74	18.6
17799.967	55.4	-29.9	46.0	39.332	H	74	18.6
17129.600	55.1	-29.7	42.4	42.392	V	74	18.9

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EUT1 Charger1-1+Back Camera+GSM 850MHz idle Mode, Set.1-1

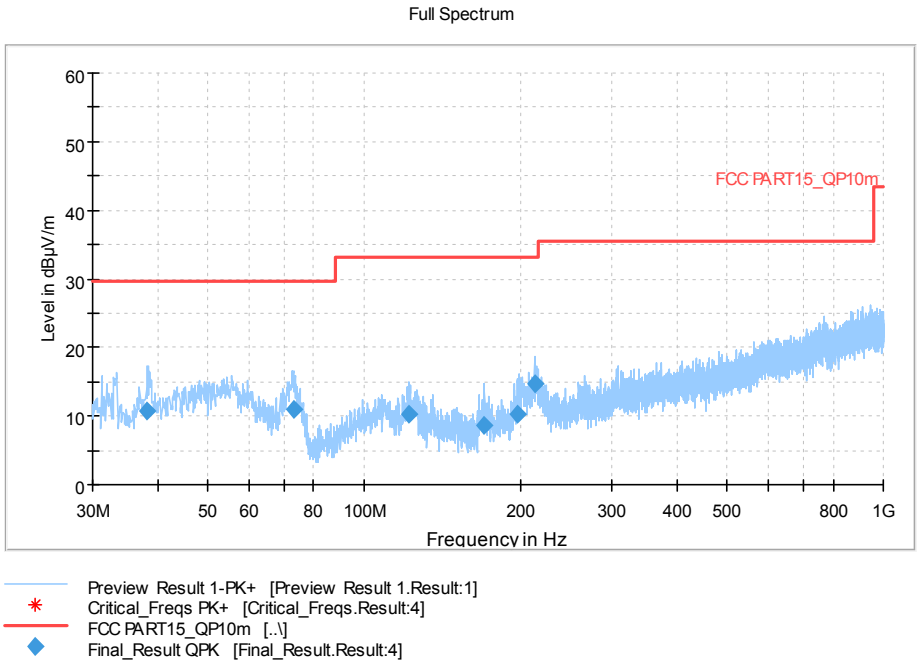

Figure A.1 Radiated Emission from 30MHz to 1GHz

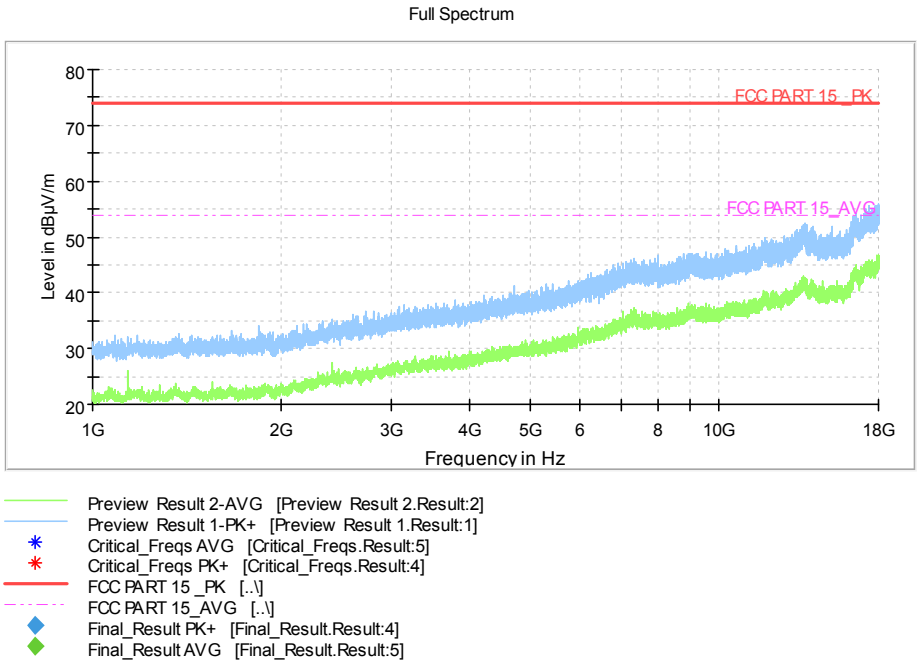

Figure A.2 Radiated Emission from 1GHz to 18GHz

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EUT1 Charger1-2+Back Camera+GSM 850MHz idle Mode, Set.1-2

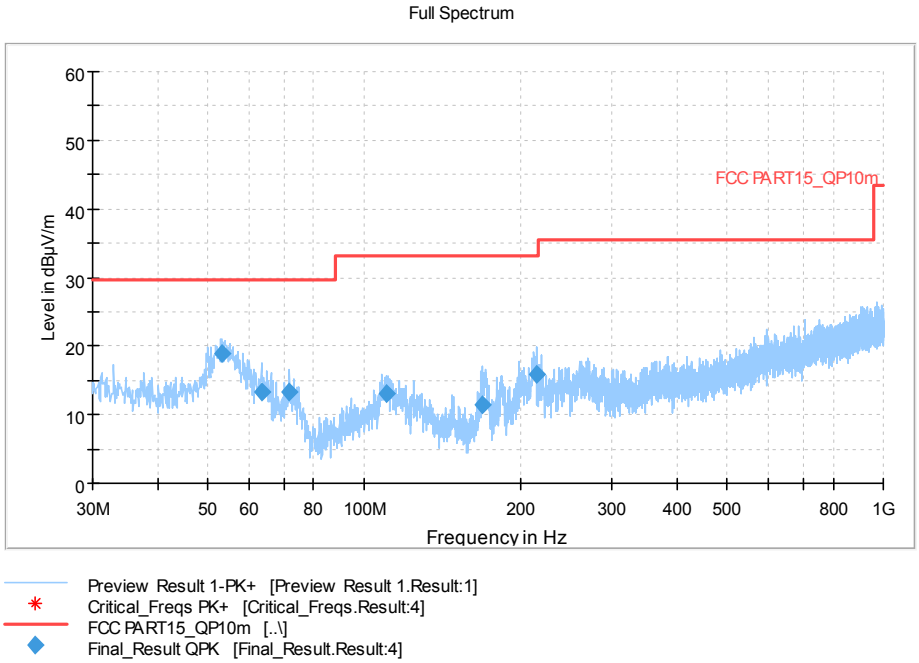

Figure A.3 Radiated Emission from 30MHz to 1GHz

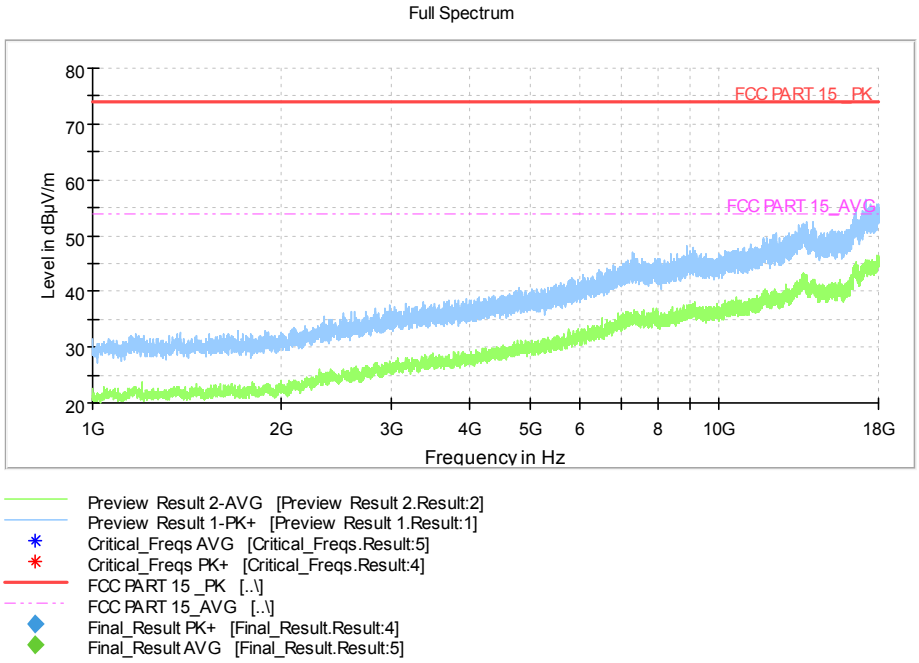

Figure A.4 Radiated Emission from 1GHz to 18GHz

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EUT1 Charger1-2+MP4 Mode, Set.2

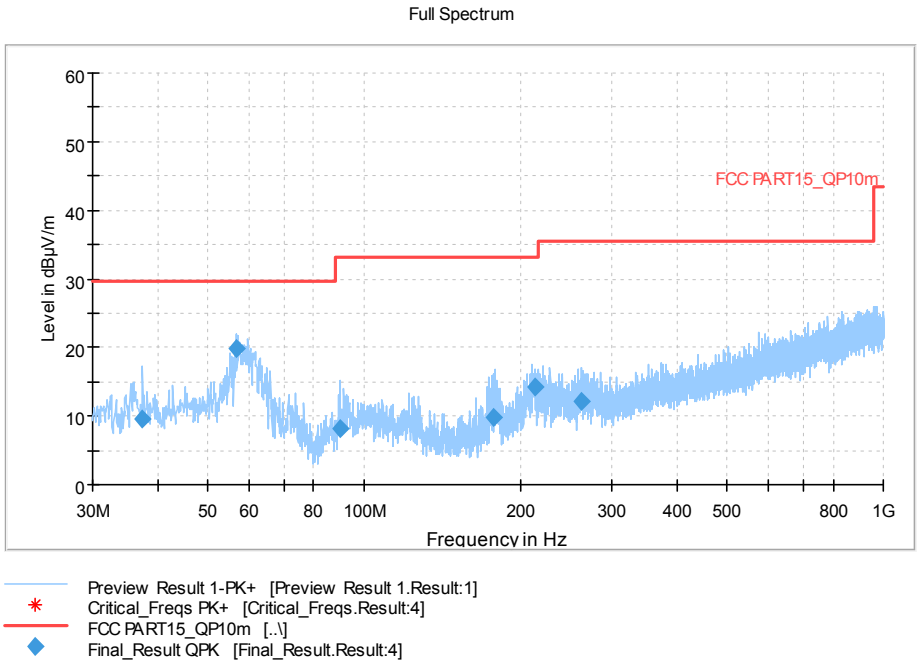

Figure A.5 Radiated Emission from 30MHz to 1GHz

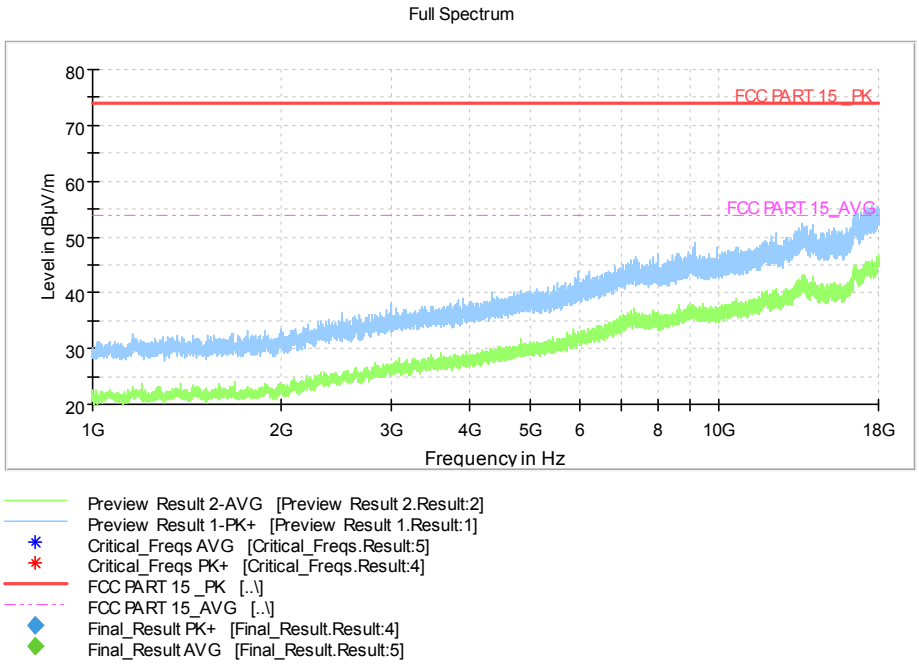

Figure A.6 Radiated Emission from 1GHz to 18GHz

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EUT1 Charger1-2+FM Mode, Set.3

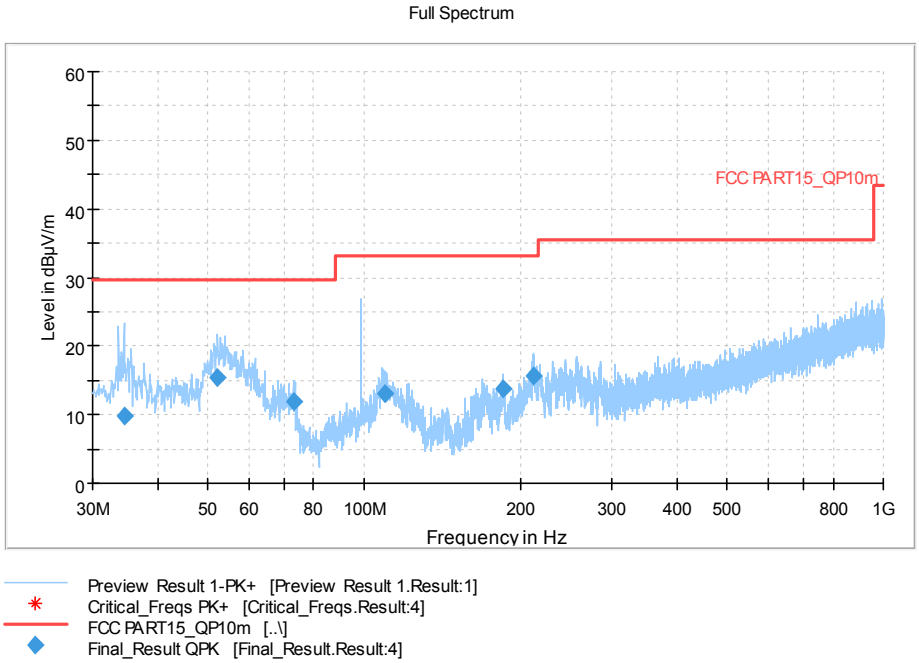

Figure A.7 Radiated Emission from 30MHz to 1GHz

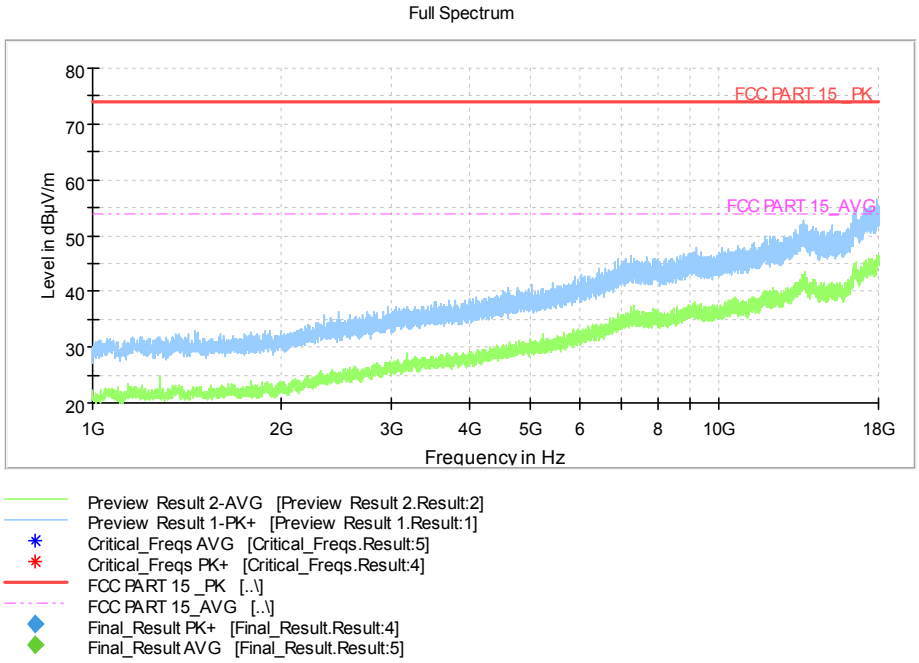

Figure A.8 Radiated Emission from 1GHz to 18GHz

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EUT1 USB + SD + Front Camera Mode, Set.4

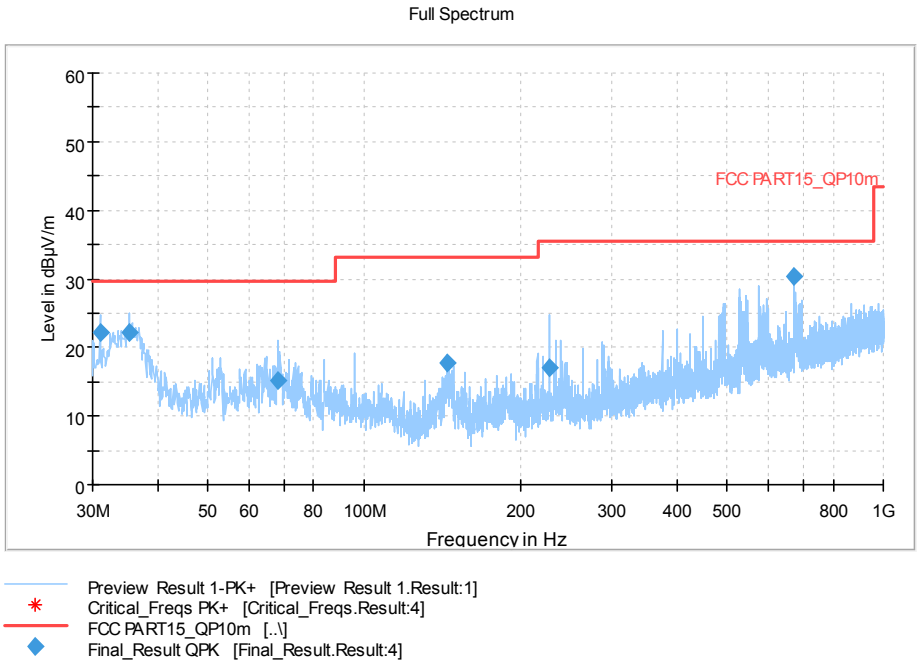

Figure A.9 Radiated Emission from 30MHz to 1GHz

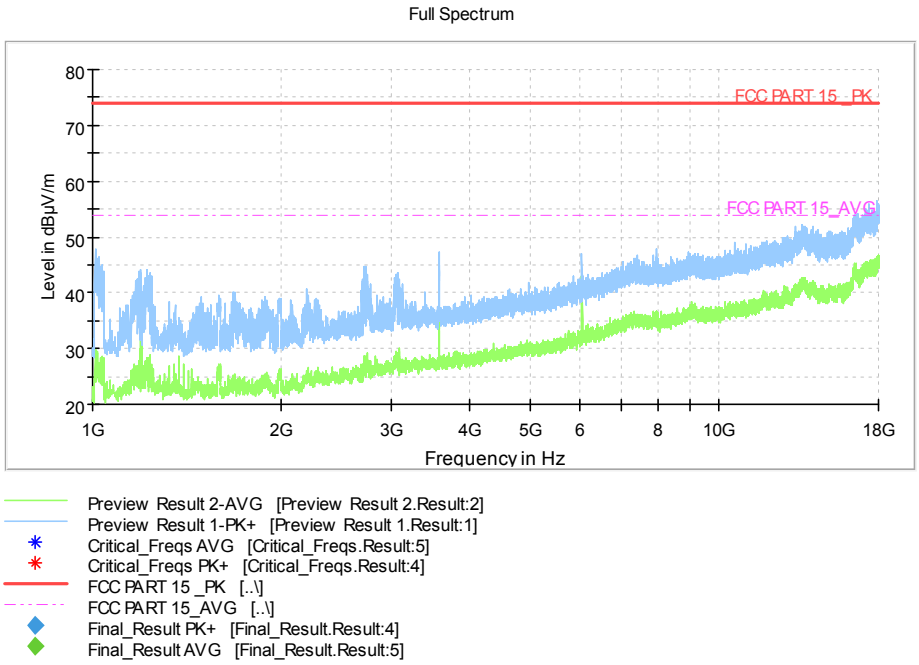

Figure A.10 Radiated Emission from 1GHz to 18GHz

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EUT2 Charger1-3+Back Camera+GSM 850MHz idle Mode, Set.5

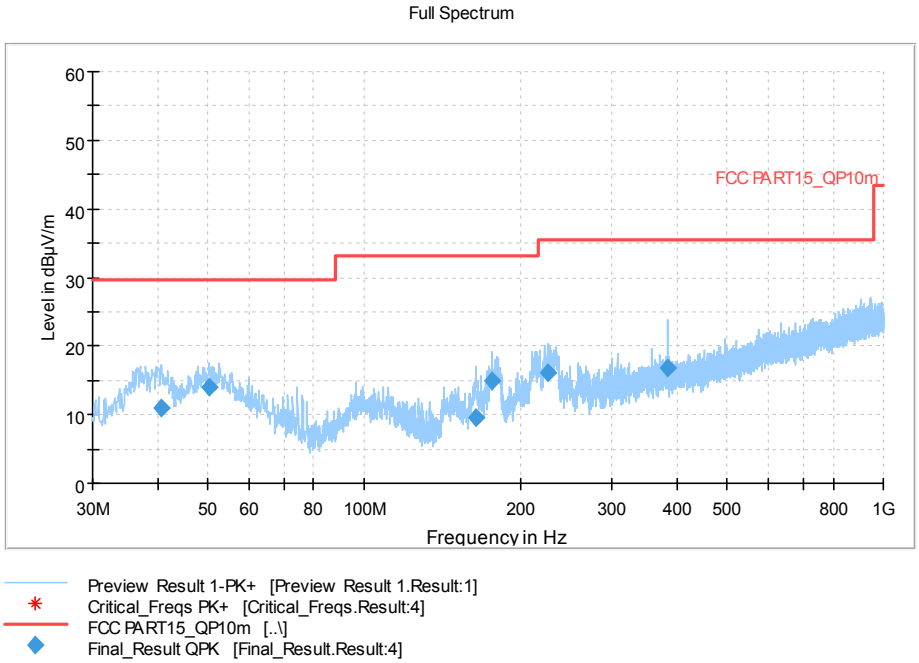

Figure A.11 Radiated Emission from 30MHz to 1GHz

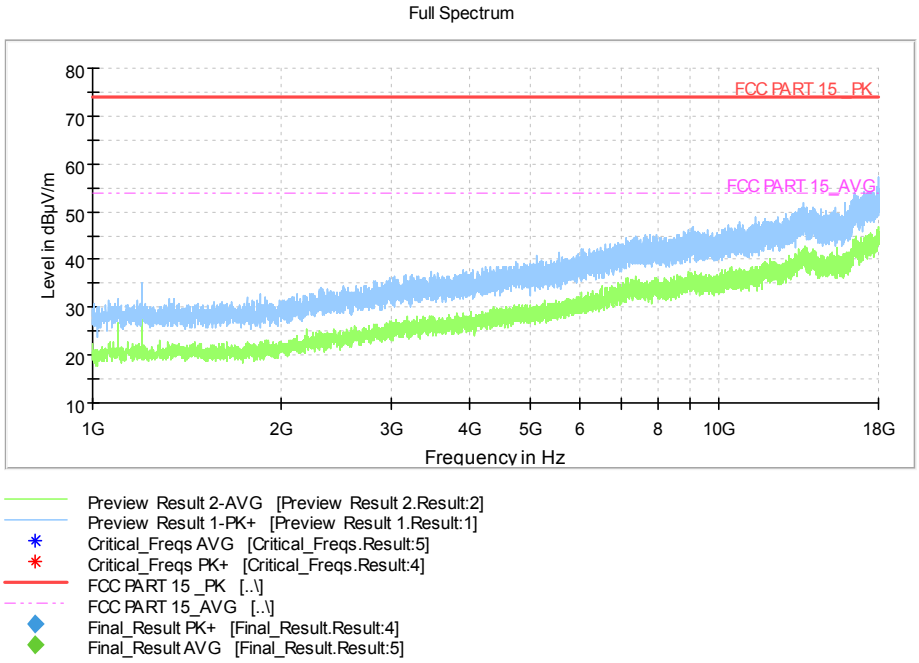

Figure A.12 Radiated Emission from 1GHz to 18GHz

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EUT2 Charger1-3+FM Mode, Set.6

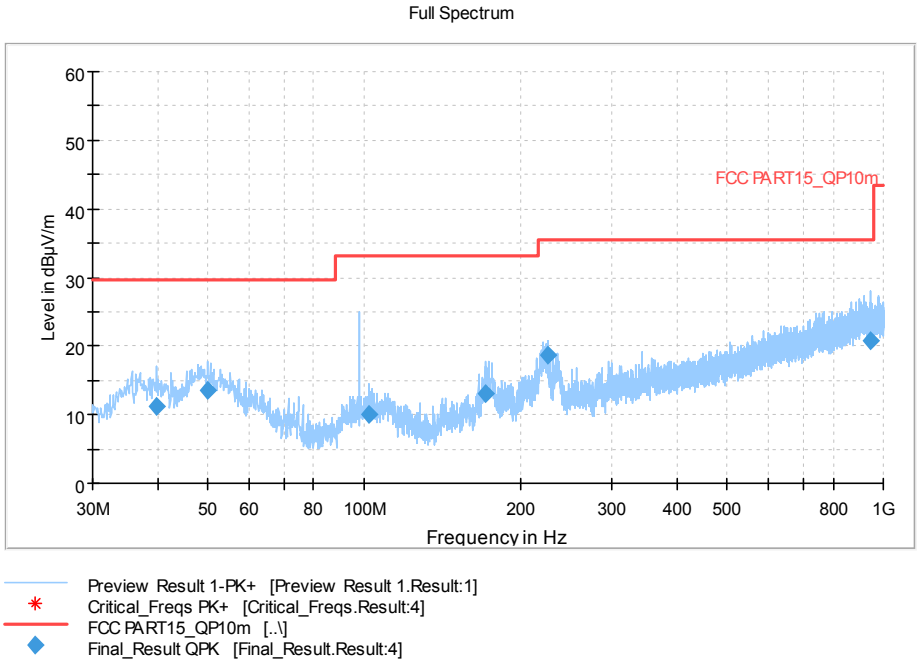

Figure A.13 Radiated Emission from 30MHz to 1GHz

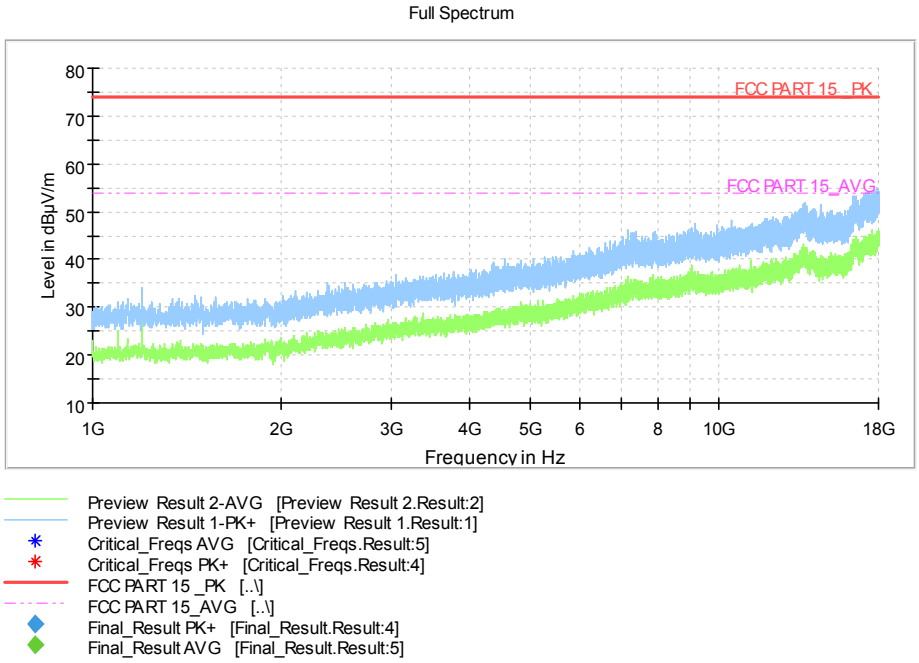

Figure A.14 Radiated Emission from 1GHz to 18GHz

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EUT2 USB + SD + Front Camera Mode, Set.7

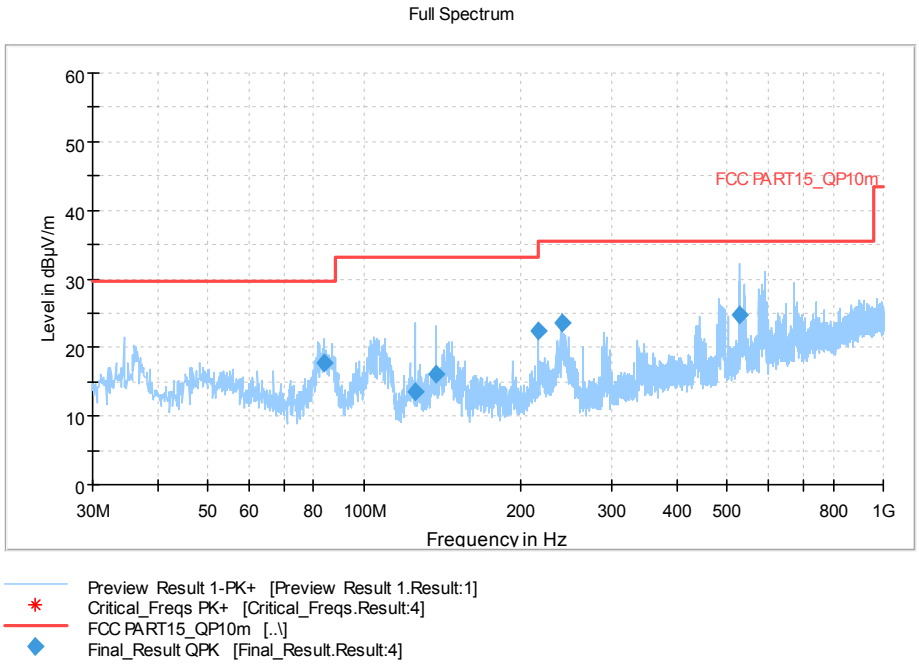

Figure A.15 Radiated Emission from 30MHz to 1GHz

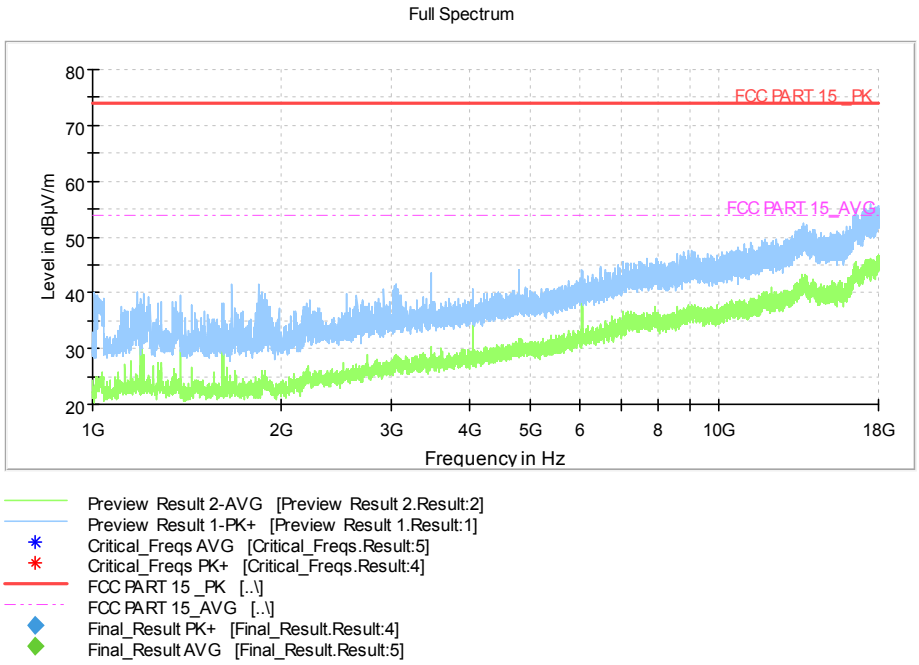

Figure A.16 Radiated Emission from 1GHz to 18GHz

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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.

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

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A.2.5 Measurement Results

Measurement uncertainty: *U*=3.08dB, *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 Charger1-1+Back Camera+GSM 850MHz idle Mode, Set.1-1

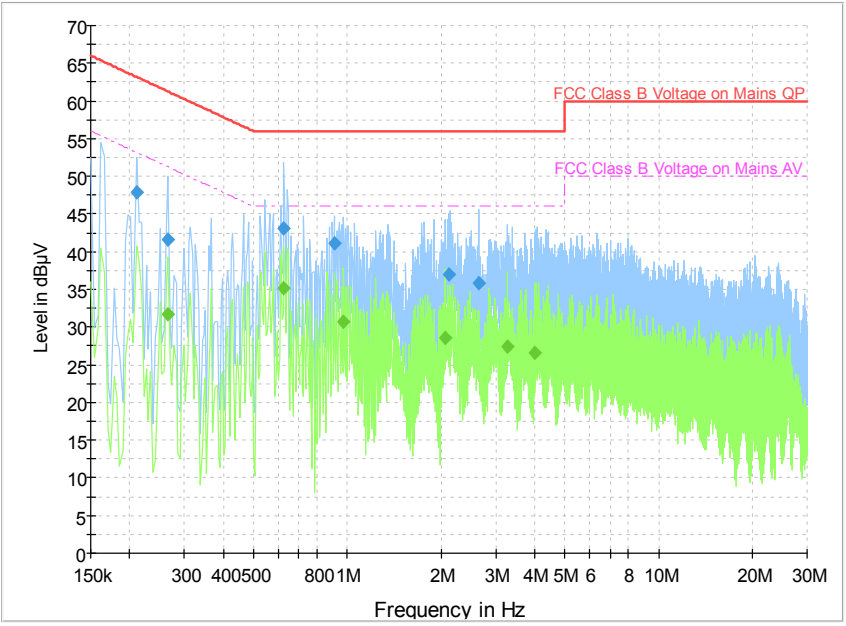

Figure A.17 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.210000	47.9	2000.0	9.000	On	N	19.8	15.3	63.2
0.266000	41.6	2000.0	9.000	On	L1	20.0	19.7	61.2
0.626000	43.1	2000.0	9.000	On	N	19.8	12.9	56.0
0.906000	41.1	2000.0	9.000	On	L1	19.6	14.9	56.0
2.114000	37.0	2000.0	9.000	On	N	19.8	19.0	56.0
2.638000	35.9	2000.0	9.000	On	N	19.7	20.1	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.266000	31.7	2000.0	9.000	On	L1	20.0	19.5	51.2
0.626000	35.2	2000.0	9.000	On	L1	19.7	10.8	46.0
0.974000	30.8	2000.0	9.000	On	L1	19.6	15.2	46.0
2.066000	28.5	2000.0	9.000	On	L1	19.5	17.5	46.0
3.262000	27.4	2000.0	9.000	On	L1	19.5	18.6	46.0
4.014000	26.6	2000.0	9.000	On	L1	19.6	19.4	46.0

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EUT1 Charger1-2+Back Camera+GSM 850MHz idle Mode, Set.1-2

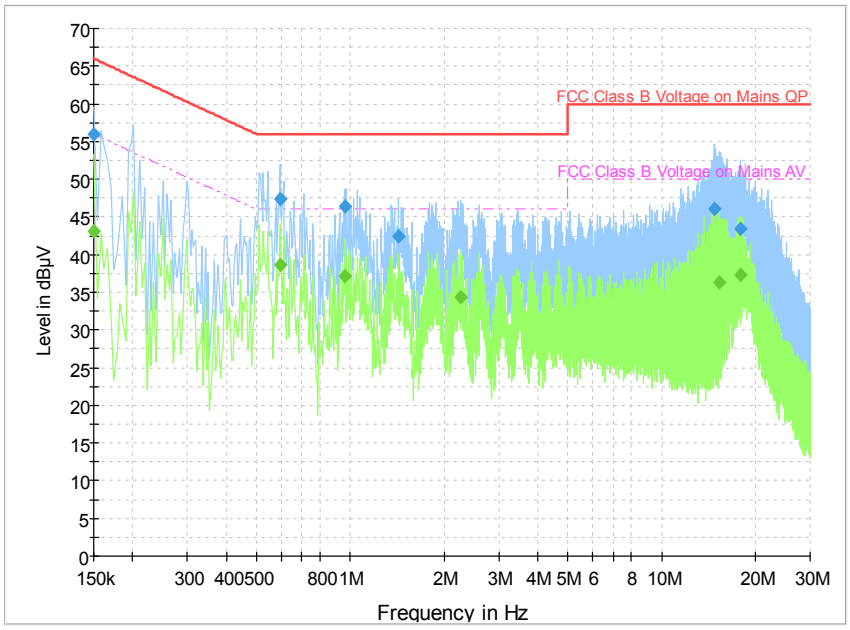

Figure A.18 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	56.0	2000.0	9.000	On	L1	20.2	10.0	66.0
0.594000	47.4	2000.0	9.000	On	L1	19.8	8.6	56.0
0.958000	46.4	2000.0	9.000	On	L1	19.5	9.6	56.0
1.426000	42.4	2000.0	9.000	On	L1	19.5	13.6	56.0
14.730000	46.1	2000.0	9.000	On	N	20.0	13.9	60.0
17.882000	43.4	2000.0	9.000	On	N	19.9	16.6	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	43.1	2000.0	9.000	On	L1	20.2	12.9	56.0
0.594000	38.6	2000.0	9.000	On	L1	19.8	7.4	46.0
0.958000	37.2	2000.0	9.000	On	L1	19.5	8.8	46.0
2.258000	34.3	2000.0	9.000	On	L1	19.5	11.7	46.0
15.366000	36.3	2000.0	9.000	On	L1	19.9	13.7	50.0
18.002000	37.3	2000.0	9.000	On	L1	19.9	12.7	50.0

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EUT1 Charger1-2+MP4 Mode, Set.2

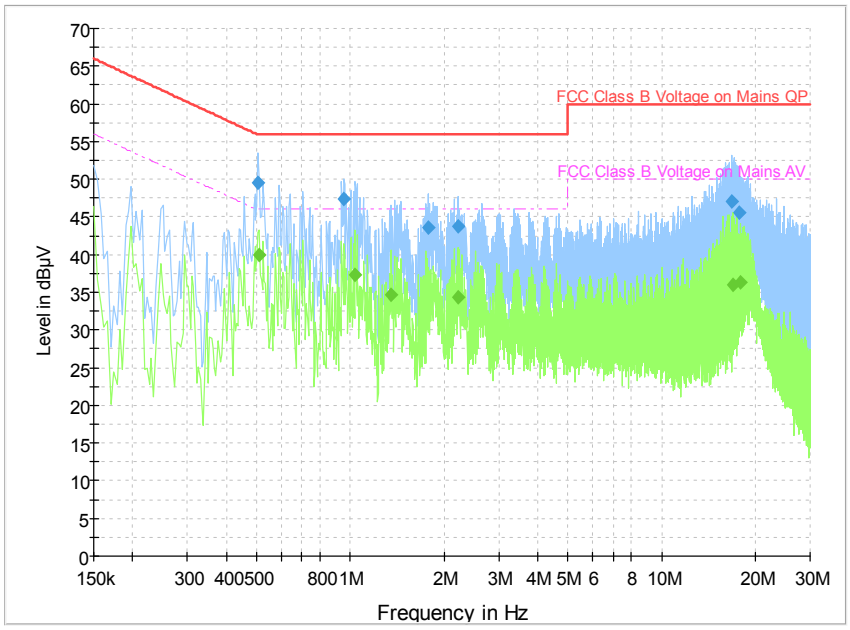

Figure A.19 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.506000	49.6	2000.0	9.000	On	L1	19.9	6.4	56.0
0.954000	47.3	2000.0	9.000	On	L1	19.6	8.7	56.0
1.782000	43.5	2000.0	9.000	On	L1	19.5	12.5	56.0
2.214000	43.8	2000.0	9.000	On	L1	19.5	12.2	56.0
16.758000	47.0	2000.0	9.000	On	L1	19.9	13.0	60.0
17.826000	45.5	2000.0	9.000	On	L1	19.9	14.5	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.510000	40.0	2000.0	9.000	On	L1	19.9	6.0	46.0
1.038000	37.3	2000.0	9.000	On	L1	19.6	8.7	46.0
1.354000	34.6	2000.0	9.000	On	L1	19.5	11.4	46.0
2.214000	34.4	2000.0	9.000	On	L1	19.5	11.6	46.0
17.022000	36.0	2000.0	9.000	On	L1	19.9	14.0	50.0
17.862000	36.3	2000.0	9.000	On	L1	19.9	13.7	50.0

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EUT1 Charger1-2+FM Mode, Set.3

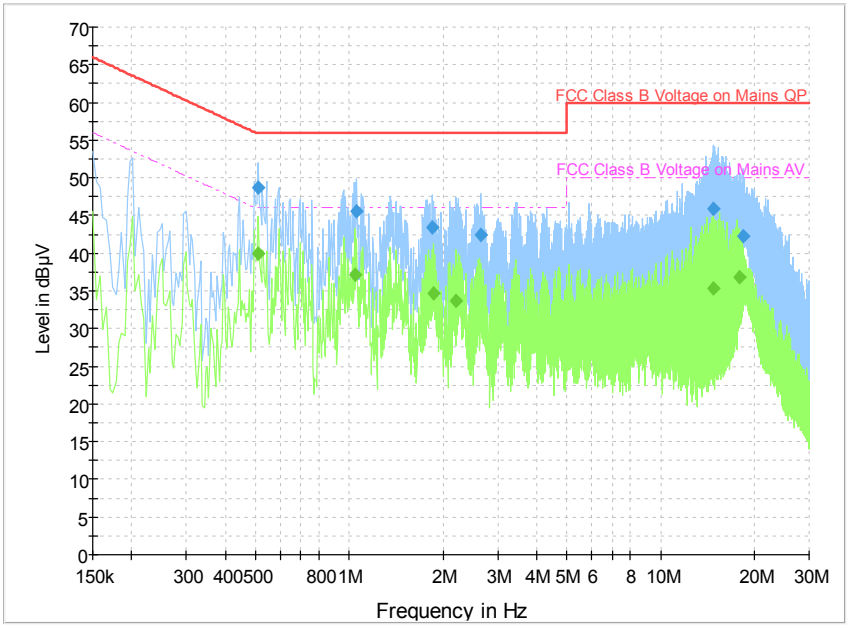

Figure A.20 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.510000	48.7	2000.0	9.000	On	L1	19.9	7.3	56.0
1.058000	45.5	2000.0	9.000	On	L1	19.6	10.5	56.0
1.850000	43.4	2000.0	9.000	On	L1	19.5	12.6	56.0
2.650000	42.5	2000.0	9.000	On	L1	19.5	13.5	56.0
14.730000	45.9	2000.0	9.000	On	N	20.0	14.1	60.0
18.362000	42.3	2000.0	9.000	On	N	19.9	17.7	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.510000	39.9	2000.0	9.000	On	L1	19.9	6.1	46.0
1.042000	37.2	2000.0	9.000	On	L1	19.6	8.8	46.0
1.866000	34.7	2000.0	9.000	On	L1	19.5	11.3	46.0
2.198000	33.6	2000.0	9.000	On	L1	19.5	12.4	46.0
14.714000	35.4	2000.0	9.000	On	L1	19.8	14.6	50.0
17.998000	36.8	2000.0	9.000	On	L1	19.9	13.2	50.0

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EUT1 USB + SD + Front Camera Mode, Set.4

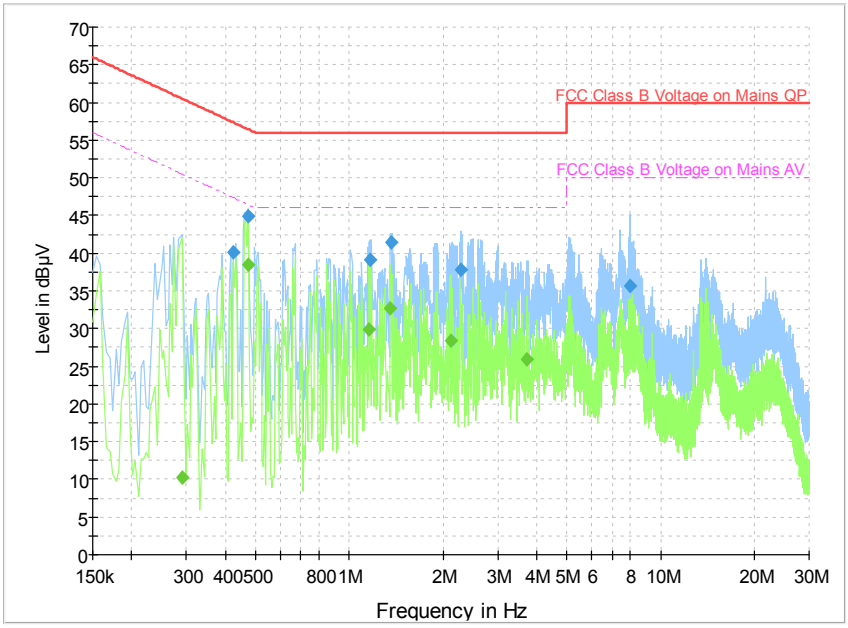

Figure A.21 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.426000	40.0	2000.0	9.000	On	L1	19.9	17.3	57.3
0.474000	45.0	2000.0	9.000	On	N	20.0	11.5	56.4
1.162000	39.2	2000.0	9.000	On	N	19.8	16.8	56.0
1.366000	41.4	2000.0	9.000	On	L1	19.5	14.6	56.0
2.282000	37.9	2000.0	9.000	On	N	19.8	18.1	56.0
8.010000	35.7	2000.0	9.000	On	L1	19.6	24.3	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.290000	10.2	2000.0	9.000	On	N	19.9	40.3	50.5
0.474000	38.4	2000.0	9.000	On	N	20.0	8.0	46.4
1.158000	29.9	2000.0	9.000	On	N	19.8	16.1	46.0
1.354000	32.6	2000.0	9.000	On	L1	19.5	13.4	46.0
2.130000	28.3	2000.0	9.000	On	L1	19.5	17.7	46.0
3.706000	26.0	2000.0	9.000	On	N	19.7	20.0	46.0

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EUT2 Charger1-3+Back Camera+GSM 850MHz idle Mode, Set.5

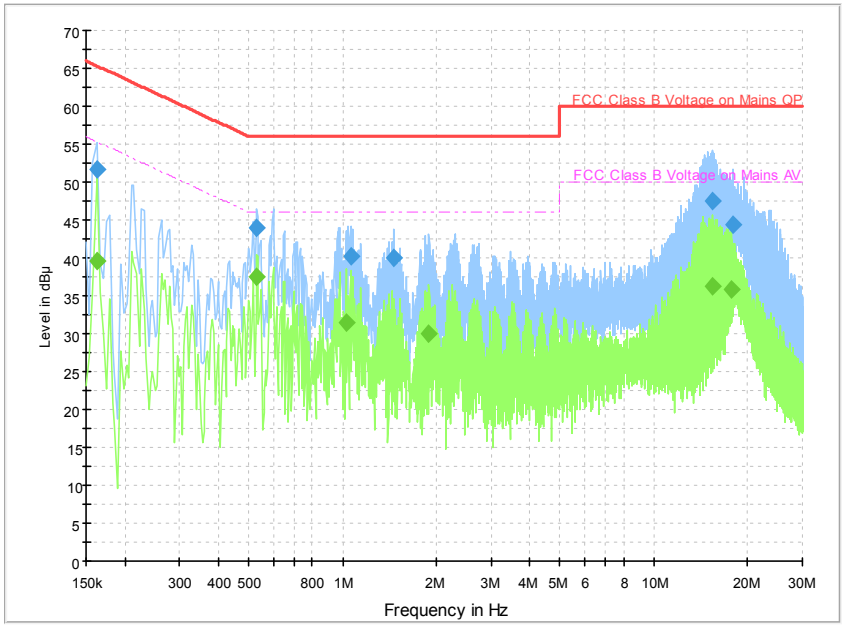

Figure A.22 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.162000	51.6	2000.0	9.000	On	L1	20.0	13.8	65.4
0.530000	43.9	2000.0	9.000	On	L1	19.9	12.1	56.0
1.062000	40.3	2000.0	9.000	On	L1	19.6	15.7	56.0
1.458000	40.0	2000.0	9.000	On	L1	19.5	16.0	56.0
15.346000	47.5	2000.0	9.000	On	L1	19.9	12.5	60.0
17.918000	44.4	2000.0	9.000	On	L1	19.9	15.6	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.162000	39.6	2000.0	9.000	On	L1	20.0	15.7	55.4
0.530000	37.4	2000.0	9.000	On	L1	19.9	8.6	46.0
1.030000	31.5	2000.0	9.000	On	L1	19.6	14.5	46.0
1.898000	29.9	2000.0	9.000	On	L1	19.4	16.1	46.0
15.410000	36.2	2000.0	9.000	On	L1	19.9	13.8	50.0
17.814000	35.8	2000.0	9.000	On	L1	19.9	14.2	50.0

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EUT2 Charger1-3+FM Mode, Set.6

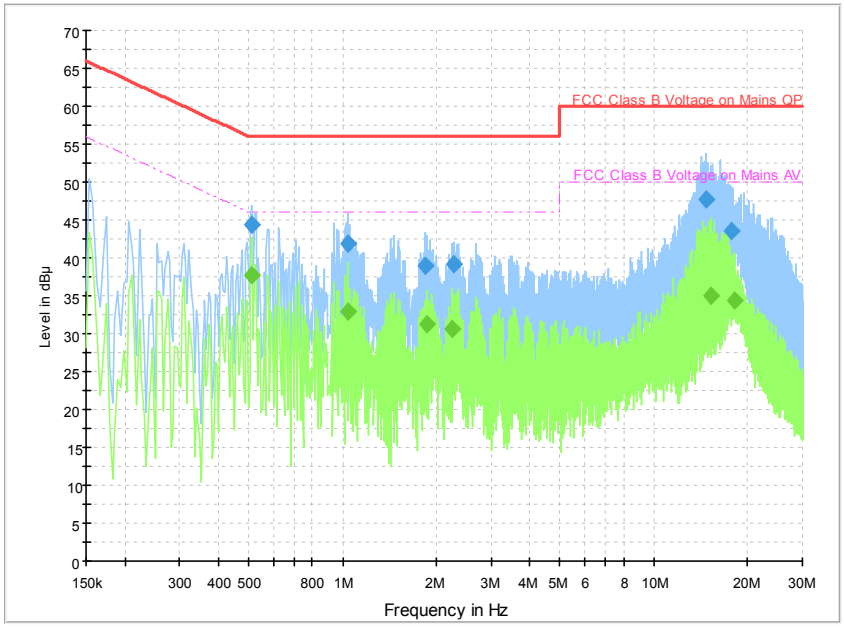

Figure A.23 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.510000	44.5	2000.0	9.000	On	L1	19.9	11.5	56.0
1.038000	41.8	2000.0	9.000	On	L1	19.6	14.2	56.0
1.850000	38.9	2000.0	9.000	On	L1	19.5	17.1	56.0
2.286000	39.1	2000.0	9.000	On	L1	19.5	16.9	56.0
14.714000	47.7	2000.0	9.000	On	L1	19.8	12.3	60.0
17.690000	43.5	2000.0	9.000	On	L1	19.9	16.5	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.510000	37.7	2000.0	9.000	On	L1	19.9	8.3	46.0
1.038000	33.0	2000.0	9.000	On	L1	19.6	13.0	46.0
1.866000	31.1	2000.0	9.000	On	L1	19.5	14.9	46.0
2.258000	30.6	2000.0	9.000	On	L1	19.5	15.4	46.0
15.166000	35.1	2000.0	9.000	On	L1	19.9	14.9	50.0
18.258000	34.4	2000.0	9.000	On	L1	19.9	15.6	50.0

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EUT2 USB + SD + Front Camera Mode, Set.7

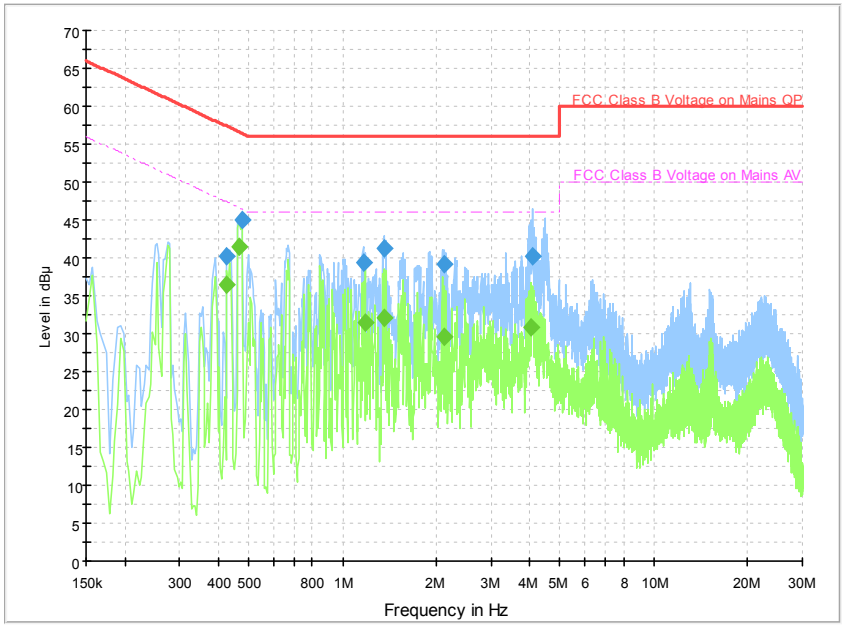

Figure A.24 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.426000	40.2	2000.0	9.000	On	L1	19.9	17.2	57.3
0.474000	45.0	2000.0	9.000	On	N	20.0	11.5	56.4
1.166000	39.4	2000.0	9.000	On	N	19.8	16.6	56.0
1.354000	41.2	2000.0	9.000	On	L1	19.5	14.8	56.0
2.122000	39.1	2000.0	9.000	On	N	19.8	16.9	56.0
4.078000	40.3	2000.0	9.000	On	L1	19.6	15.7	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.426000	36.5	2000.0	9.000	On	L1	19.9	10.9	47.3
0.466000	41.4	2000.0	9.000	On	N	20.0	5.2	46.6
1.182000	31.5	2000.0	9.000	On	L1	19.5	14.5	46.0
1.354000	32.2	2000.0	9.000	On	L1	19.5	13.8	46.0
2.126000	29.6	2000.0	9.000	On	N	19.8	16.4	46.0
4.046000	30.9	2000.0	9.000	On	L1	19.6	15.1	46.0

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ANNEX B: Persons involved in this testing

Test Item	Tester
Conducted Continuous Emission	Yan Hanchen, Zhang Tianli
Radiated Continuous Emission	Zhang Tianli,Yan Hanchen

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

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