TEST REPORT

No. I20Z70402-EMC01

for

Samsung Electronics Co., Ltd.

Smart Phone

Model Name: SM-A025V

FCC ID: ZCASMA025V

with

Hardware Version: REV1.0

Software Version: A025V.001

Issued Date: 2021-02-09

Note:

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Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

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

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

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I20Z70402-EMC01	Rev.0	1st edition	2021-02-09

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

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 (BDA)

Address: No.18A, Kangding Street, Beijing Economic-Technology Development Area, Beijing, P. R. China 100176

1.3. Testing Environment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

1.4. Project data

Testing Start Date: 2020-11-23

Testing End Date: 2020-12-25

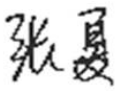
1.5. Signature

Li Yan

(Prepared this test report)

Zhang Ying

(Reviewed this test report)



Zhang Xia

Deputy Director of the laboratory

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	Samsung Electronics Co., Ltd.
Address:	19 Chapin Rd.,Building D Pine Brook, NJ 07058
City:	/
Postal Code:	/
Country:	/
Contact:	Jenni Chun
Email:	j1.chun@samsung.com
Telephone:	+1-201-937-4203

2.2. Manufacturer Information

Company Name:	Samsung Electronics. Co., Ltd.
Address:	Samsung R5, Maetan dong 129, Samsung ro Youngtong gu, Suwon city 443 742, Korea
City:	/
Postal Code:	/
Country:	/
Contact:	조성훈(Sunghoon Cho)
Email:	ggobi.cho@samsung.com
Telephone:	+82-10-2722-4159

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

3.1. About EUT

Description	Smart Phone
Model Name	SM-A025V
FCC ID	ZCASMA025V
Extreme vol. Limits	3.6VDC to 4.2VDC (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*	IME/SNI	HW Version	SW Version	Date of receipt
UT08a	2070402UT08a	REV1.0	A025V.001	2020.11.23

*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	Charger1	/	/
AE2	Charger2	/	/
AE3	Charger3	/	/
AE4	Charger4	/	/
AE5	Charger5	/	/
AE6	USB cable	/	/
AE7	Headset1	/	/
AE8	Headset2	/	/
AE9	battery	/	/

AE1

Model	EP-TA50JWE
Manufacturer	HAEM Co.,Ltd
Length of cable	/

AE2

Model	EP-TA50JWE
Manufacturer	RFTech Electronics(HuiZhou)Co.,LTD
Length of cable	/

AE3

Model	EP-TA200
Manufacturer	HAEM Co.,Ltd
Length of cable	/

AE4

Model	EP-TA200
Manufacturer	RFTech Electronics(HuiZhou)Co.,LTD

Length of cable	/
AE5	
Model	EP-TA200
Manufacturer	SoluM Co.,Ltd
Length of cable	/
AE6	
Model	EP-DR140AWE
Manufacturer	Samsung Electronics Co., Ltd.
Length of cable	/
AE7	
Model	EHS61ASFWE
Manufacturer	DONGGUAN YOUNGBO ELECTRONICS CO.,LTD
Length of cable	/
AE8	
Model	EHS61ASFWE
Manufacturer	WATA ELECTRONICS CO.,LTD
Length of cable	/
AE9	
Type	HQ-50S
Manufacturer	SUCD(FUJIAN) Electronics Co.,Ltd
Capacitance	/
Nominal voltage	/

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: GSM850, WCDMA BAND 5, LTE BAND 5, LTE BAND 12, and LTE BAND 13.

3.5. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	UT08a + AE1 + AE6+ AE7	Charger1+ Rear Camera+ Headset1
Set.2	UT08a + AE2 + AE6+ AE8	Charger2+MP4+Headset2
Set.3	UT08a + AE3 + AE6	Charger3+Front camera
Set.4	UT08a + AE4 + AE6+ AE7	Charger4+MP3
Set.5	UT08a + AE5 + AE6	Charger5
Set.6	UT08a + AE6 + AE7	USB SD TO PC + Headset1

Note:

The Equipment Under Test model SM-A025V (FCC ID: ZCASMA025V) is a variant product of SM-A025U (FCC ID: ZCASMA025U), according to the declaration of changes provided by the applicant and FCC KDB publication 484596 D01, all results are cited from the initial model. The report number for initial model is I20Z70377-EMC01 (FCC ID: ZCASMA025U).

For detail differences between two models please refer the Declaration of Changes document.

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
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

Semi-anechoic chamber SAC-2 (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 MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ± 4 dB, 3m distance, from 30 to 1000 MHz
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
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 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	BR	**CTTL(BDA)**
2	Conducted Emission	15.107(a)	A.2	BR	**CTTL(BDA)**

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESU26	100376	R&S	2021-09-04	1 year
2	Test Receiver	ESCI	100766	R&S	2021-03-10	1 year
3	Universal Radio Communication Tester	CMW500	127406	R&S	2021-02-18	1 year
4	LISN	ENV216	101459	R&S	2021-03-17	1 year
5	BiLog Antenna	VULB9163	9163-514	Schwarzbeck	2021-02-24	1 year
6	EMI Antenna	3117	00058888	ETS-Lindgren	2021-04-18	1 year
7	Signal Generator	SMF100A	101295	R&S	2021-11-05	1 year
8	Universal Radio Communication Tester	CMW500	159408	R&S	2021-03-03	1 year
9	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
10	Keyboard	KU-1601	2048361	Lenovo	N/A	N/A
11	Mouse	EMS-537A	8021S3MC	Lenovo	N/A	N/A
12	PC	M4000e-17	M706RMW2	Lenovo	N/A	N/A

Test 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 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 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, charging mode, MP4, CAMERA, SD and License RX band 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.

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 for Set.1:

Charger1+ Rear Camera /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)
17700.000	40.0	-22.2	41.2	20.913	54.0	14.0	H
17696.000	39.9	-22.2	41.2	20.852	54.0	14.1	V
17705.500	39.9	-22.2	41.2	20.843	54.0	14.1	H
17693.000	39.9	-22.2	41.2	20.803	54.0	14.1	V
17679.000	39.9	-22.1	41.2	20.746	54.0	14.1	H
17695.500	39.8	-22.2	41.2	20.776	54.0	14.2	H

Charger1+ Rear Camera /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)
16667.500	52.3	-23.2	41.5	34.04	74.0	21.7	V
17027.000	52.0	-23.0	41.7	33.39	74.0	22.0	V
17743.000	51.9	-22.3	41.2	32.97	74.0	22.1	H
16870.000	51.9	-23.0	41.6	33.25	74.0	22.1	V
17723.000	51.9	-22.2	41.2	32.85	74.0	22.1	H
17715.500	51.8	-22.2	41.2	32.78	74.0	22.2	V

Measurement results for Set.2:

Charger2+ MP4 /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)
17703.000	40.0	-22.2	41.2	20.91	54.0	14.0	H
17694.500	40.0	-22.2	41.2	20.89	54.0	14.0	V
17685.500	39.9	-22.1	41.2	20.83	54.0	14.1	V
17682.500	39.9	-22.1	41.2	20.80	54.0	14.1	H
17768.000	39.9	-22.3	41.3	20.97	54.0	14.1	V
17681.500	39.9	-22.1	41.2	20.77	54.0	14.1	H

Charger2+ MP4 /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)
17772.500	52.8	-22.3	41.3	33.92	74.0	21.2	H
16663.500	52.3	-23.2	41.5	34.03	74.0	21.7	V
17709.500	52.2	-22.2	41.2	33.17	74.0	21.8	H
17759.000	52.2	-22.3	41.3	33.23	74.0	21.8	H
17393.500	52.1	-23.0	41.3	33.80	74.0	21.9	V
17883.000	52.1	-22.6	41.3	33.36	74.0	21.9	V

Measurement results for Set.3:

Charger3+ Front Camera /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)
17689.000	40.0	-22.2	41.2	20.94	54.0	14.0	H
17700.000	40.0	-22.2	41.2	20.91	54.0	14.0	V
17687.000	40.0	-22.1	41.2	20.87	54.0	14.0	H
17899.500	40.0	-22.6	41.3	21.29	54.0	14.0	V
17704.500	39.9	-22.2	41.2	20.86	54.0	14.1	V
17708.500	39.9	-22.2	41.2	20.87	54.0	14.1	H

Charger3+ Front Camera /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)
17906.500	52.7	-22.6	41.3	34.01	74.0	21.3	V
17272.000	52.6	-22.8	41.4	33.97	74.0	21.4	H
16391.500	52.5	-23.1	41.3	34.29	74.0	21.5	H
17788.000	52.2	-22.4	41.3	33.33	74.0	21.8	H
17731.000	52.2	-22.3	41.2	33.15	74.0	21.8	H
17585.000	52.0	-22.3	41.2	33.15	74.0	22.0	V

Measurement results for Set.4:

Charger4+ MP3 /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)
17687.500	40.1	-22.1	41.2	21.04	54.0	13.9	V
17702.000	40.0	-22.2	41.2	20.96	54.0	14.0	V
17698.500	40.0	-22.2	41.2	20.91	54.0	14.0	V
17692.000	40.0	-22.2	41.2	20.88	54.0	14.0	V
17646.000	40.0	-22.1	41.2	20.78	54.0	14.0	V
17685.000	39.9	-22.1	41.2	20.85	54.0	14.1	H

Charger4+MP3 /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)
17755.000	52.5	-22.3	41.3	33.56	74.0	21.5	H
17776.000	52.3	-22.4	41.3	33.40	74.0	21.7	V
17839.000	52.3	-22.5	41.3	33.51	74.0	21.7	H
17835.000	52.3	-22.5	41.3	33.47	74.0	21.7	H
17030.500	52.3	-23.0	41.7	33.61	74.0	21.7	H
17490.500	52.1	-23.0	41.2	33.89	74.0	21.9	V

Measurement results for Set.6:

USB (SD) 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)
17688.500	40.1	-22.2	41.2	21.01	54.0	13.9	V
17698.500	40.0	-22.2	41.2	20.94	54.0	14.0	H
17740.000	40.0	-22.3	41.2	20.98	54.0	14.0	V
17690.000	39.9	-22.2	41.2	20.87	54.0	14.1	H
17704.500	39.9	-22.2	41.2	20.90	54.0	14.1	V
17898.500	39.9	-22.6	41.3	21.26	54.0	14.1	V

USB (SD) 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)
17950.000	52.5	-22.7	41.3	33.93	74.0	21.5	H
17176.000	52.2	-22.9	41.5	33.64	74.0	21.8	V
17878.500	52.1	-22.6	41.3	33.35	74.0	21.9	H
17011.000	52.0	-23.0	41.7	33.37	74.0	22.0	V
17685.000	52.0	-22.1	41.2	32.93	74.0	22.0	V
17737.500	52.0	-22.3	41.2	32.98	74.0	22.0	V

Measurement results for Set.5

RX mode GSM850MHz /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)
17692.000	40.0	-22.2	41.2	20.95	54.0	14.0	V
17901.000	40.0	-22.6	41.3	21.36	54.0	14.0	V
17688.500	40.0	-22.2	41.2	20.87	54.0	14.0	H
17690.500	40.0	-22.2	41.2	20.87	54.0	14.0	V
17695.500	40.0	-22.2	41.2	20.88	54.0	14.0	H
17685.500	39.9	-22.1	41.2	20.85	54.0	14.1	V

RX mode GSM850MHz /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)
17912.500	52.1	-22.6	41.3	33.46	74.0	21.9	H
17031.500	52.1	-23.0	41.7	33.43	74.0	21.9	H
17642.500	52.0	-22.0	41.2	32.85	74.0	22.0	H
16704.000	52.0	-23.1	41.5	33.62	74.0	22.0	H
17717.500	52.0	-22.2	41.2	32.93	74.0	22.0	H
17065.000	51.9	-23.0	41.6	33.27	74.0	22.1	H

Charger1+ Rear Camera, Set.1

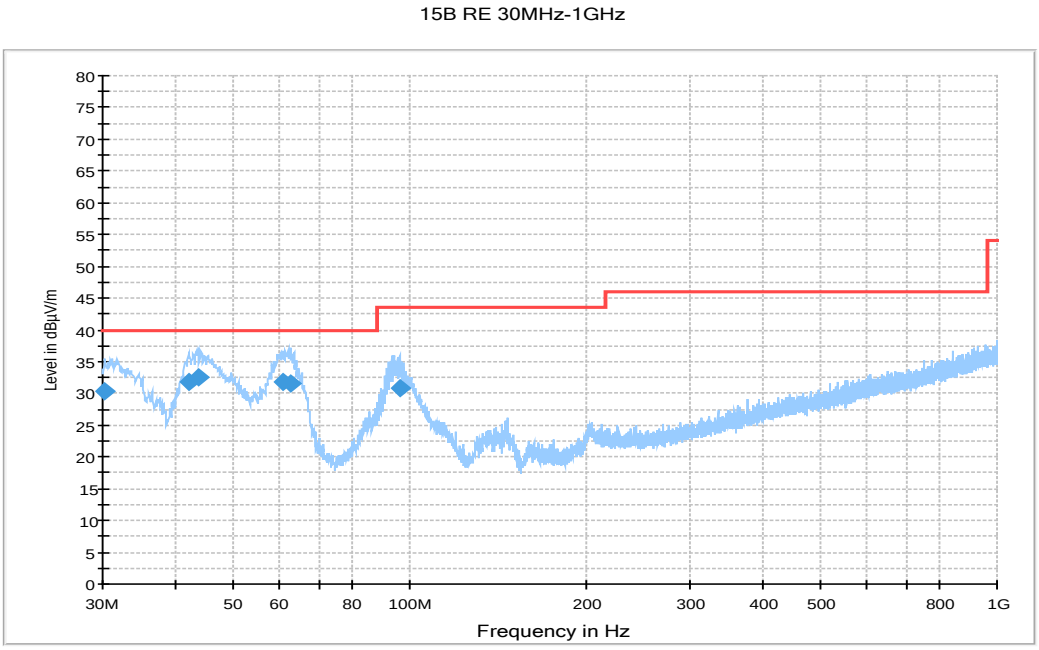


Figure A.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.291000	30.2	100.0	V	105.0	-2.4	9.8	40.0
42.028000	31.8	100.0	V	101.0	-0.6	8.2	40.0
43.580000	32.5	100.0	V	90.0	-0.6	7.5	40.0
60.846000	31.9	100.0	V	296.0	-1.2	8.1	40.0
62.689000	31.6	100.0	V	274.0	-1.9	8.4	40.0
95.960000	30.9	110.0	V	198.0	-2.3	12.6	43.5

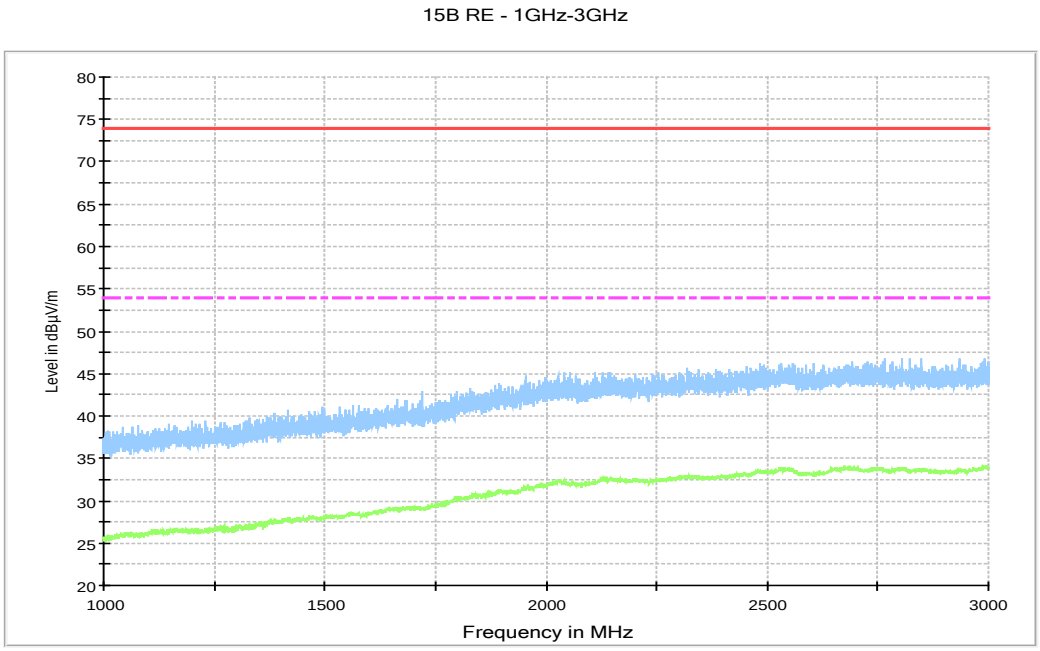


Figure A.2 Radiated Emission from 1GHz to 3GHz

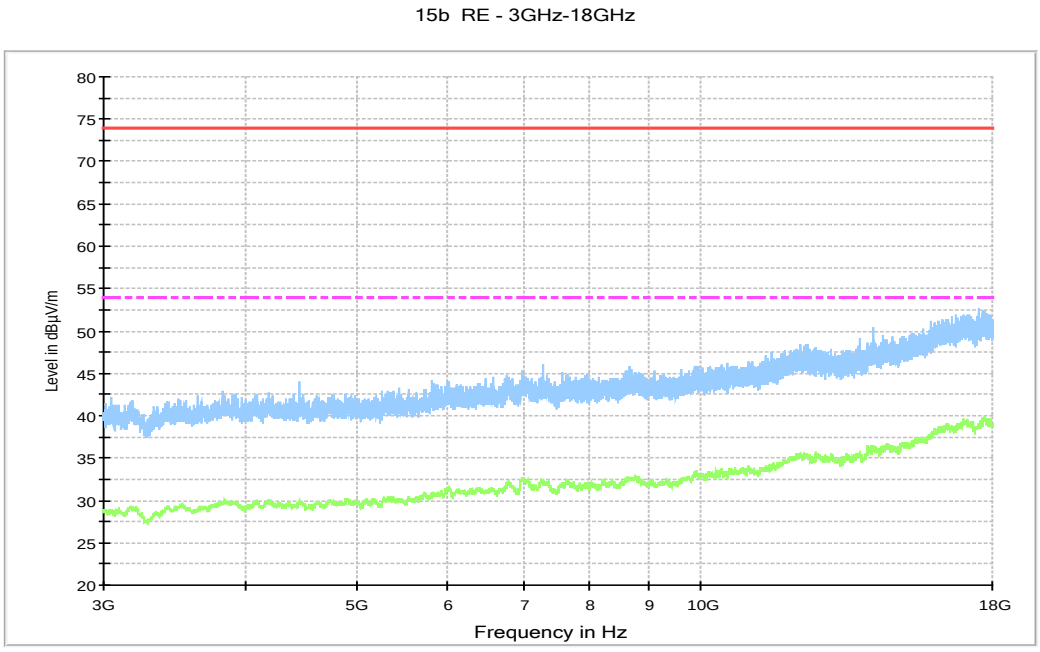


Figure A.3 Radiated Emission from 3GHz to 18GHz

Charger2+MP4, Set.2

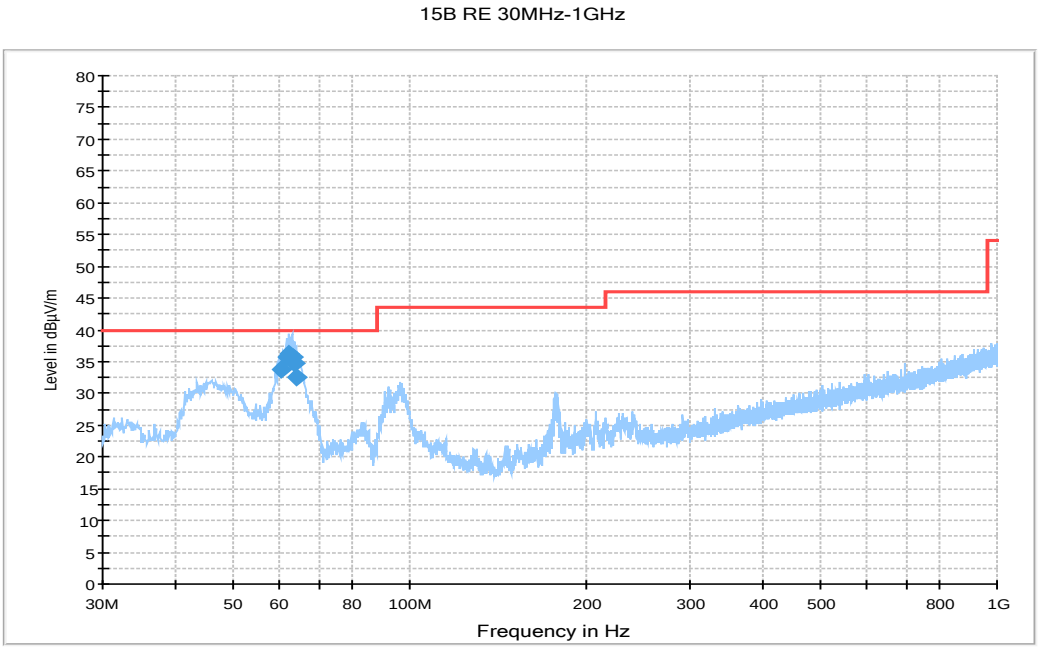


Figure A.4 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
60.458000	33.8	100.0	V	270.0	-1.1	6.2	40.0
61.719000	35.8	100.0	V	281.0	-1.5	4.2	40.0
62.301000	36.3	100.0	V	284.0	-1.8	3.7	40.0
62.980000	35.7	100.0	V	277.0	-2.0	4.3	40.0
63.562000	34.6	100.0	V	299.0	-2.2	5.4	40.0
64.338000	32.6	100.0	V	303.0	-2.5	7.4	40.0

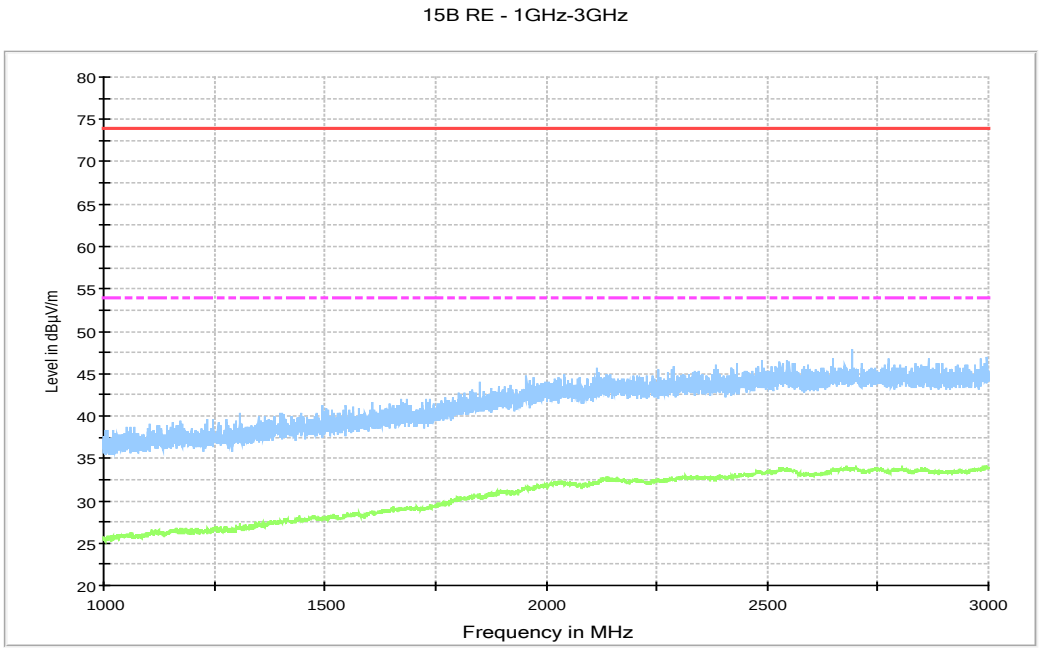


Figure A.5 Radiated Emission from 1GHz to 3GHz

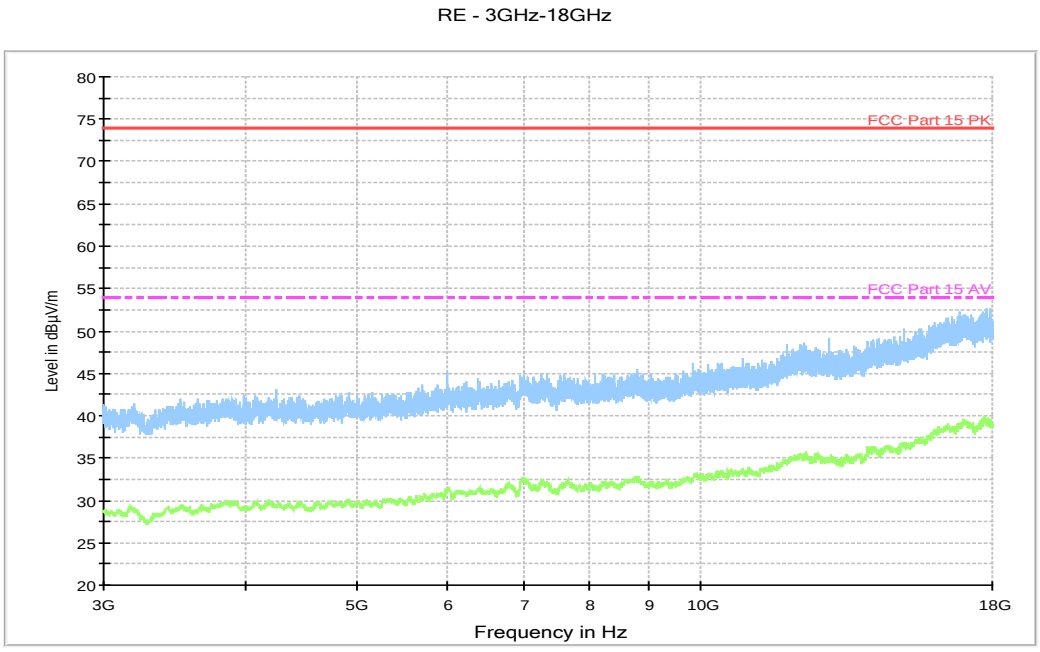


Figure A.6 Radiated Emission from 3GHz to 18GHz

Charger3+Front Camera, Set.3

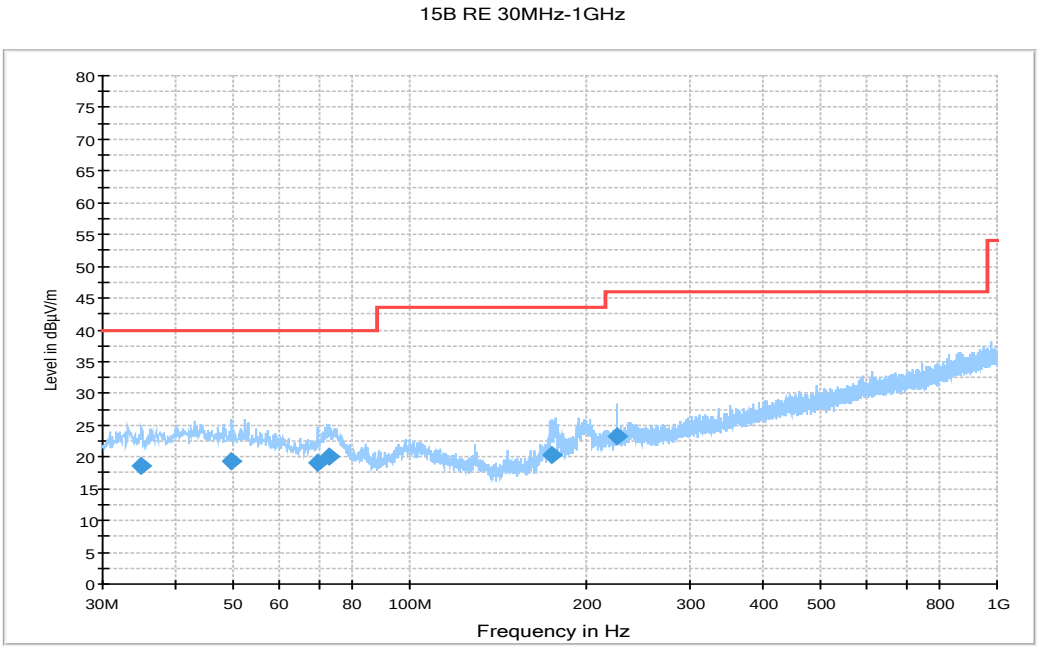


Figure A.7 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
34.947000	18.6	100.0	H	-14.0	-1.5	21.4	40.0
49.788000	19.2	125.0	H	235.0	-0.4	20.8	40.0
69.770000	19.1	100.0	V	225.0	-4.4	20.9	40.0
73.165000	20.0	125.0	V	315.0	-5.3	20.0	40.0
174.04500	20.3	100.0	V	-7.0	-3.8	23.2	43.5
226.03700	23.3	125.0	H	90.0	-0.9	22.7	46.0

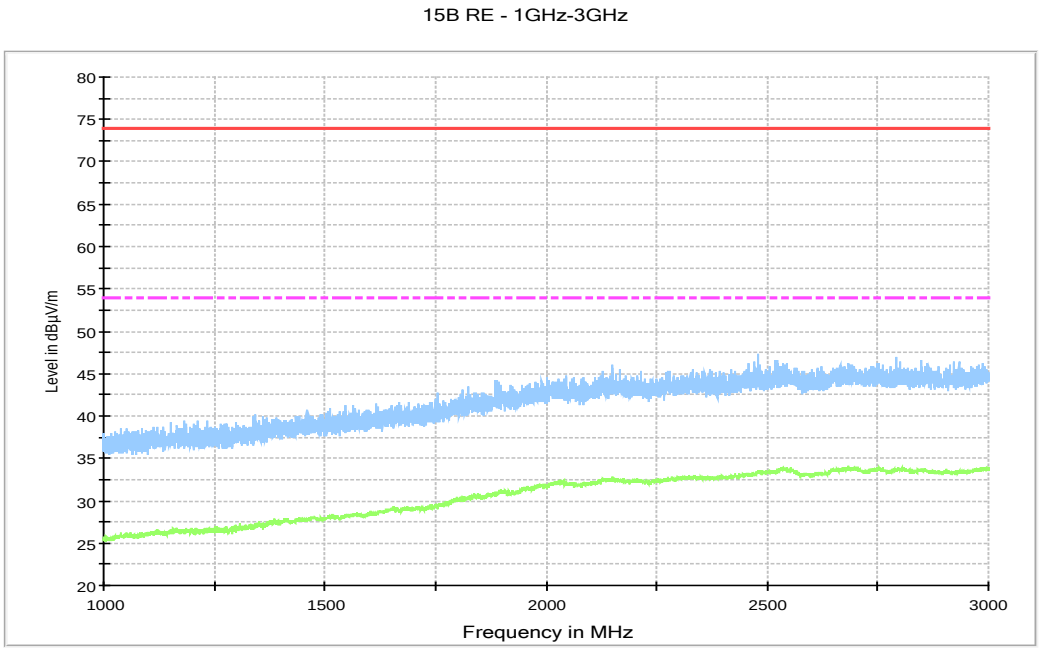


Figure A.8 Radiated Emission from 1GHz to 3GHz

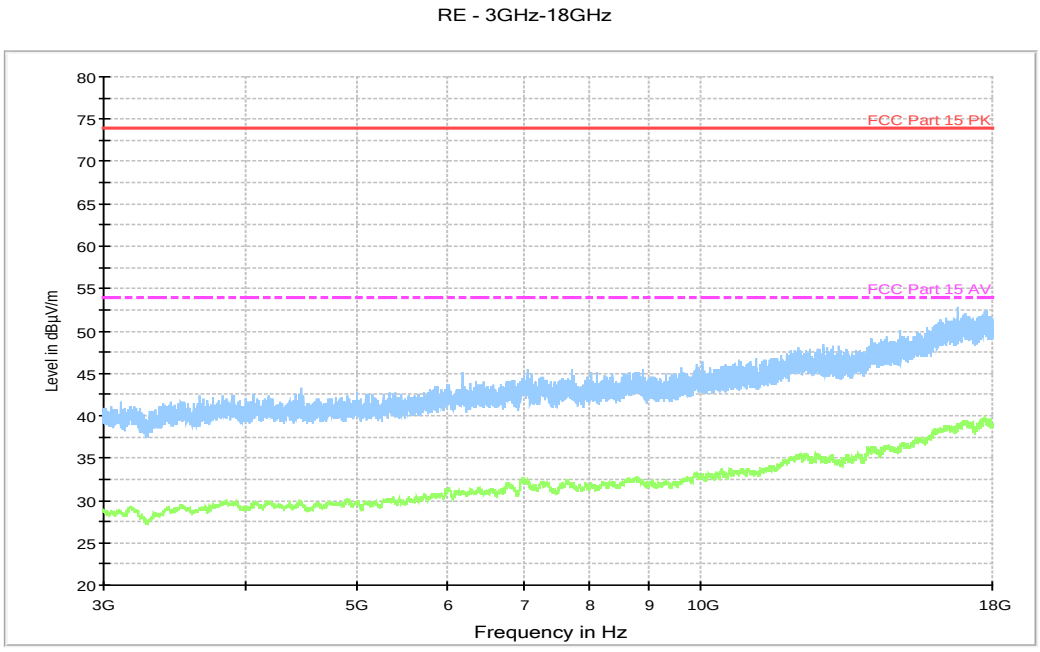


Figure A.9 Radiated Emission from 3GHz to 18GHz

Charger4+MP3, Set.4

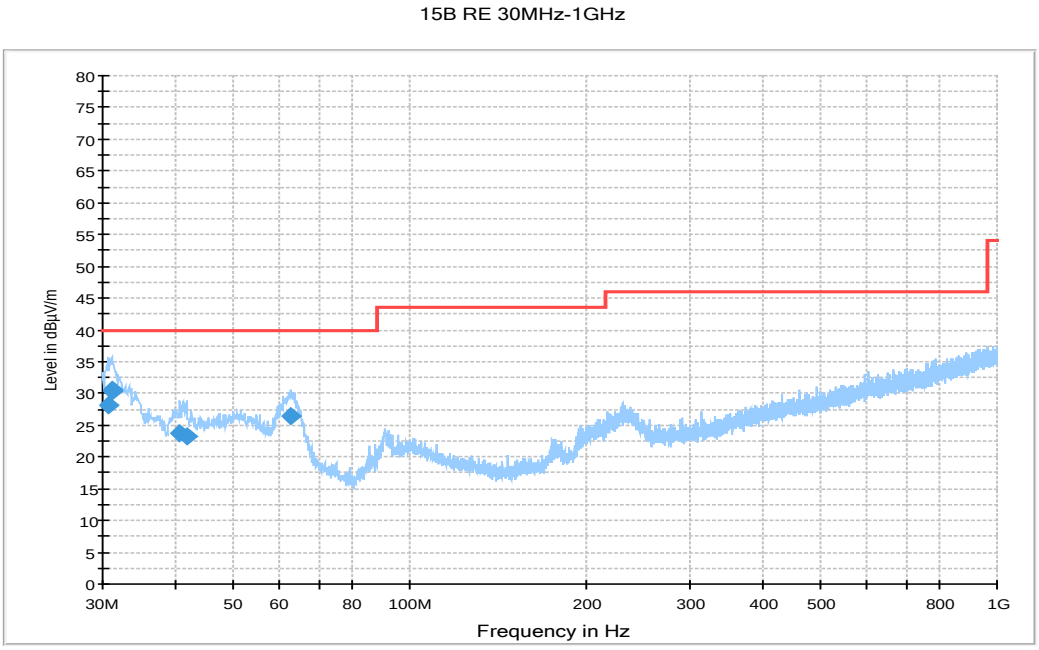


Figure A.10 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.679000	28.1	100.0	V	141.0	-2.4	11.9	40.0
31.067000	30.5	100.0	V	122.0	-2.3	9.5	40.0
31.261000	30.4	100.0	V	122.0	-2.2	9.6	40.0
40.670000	23.8	125.0	V	11.0	-0.6	16.2	40.0
41.834000	23.2	100.0	V	129.0	-0.6	16.8	40.0
62.786000	26.5	100.0	V	273.0	-1.9	13.5	40.0

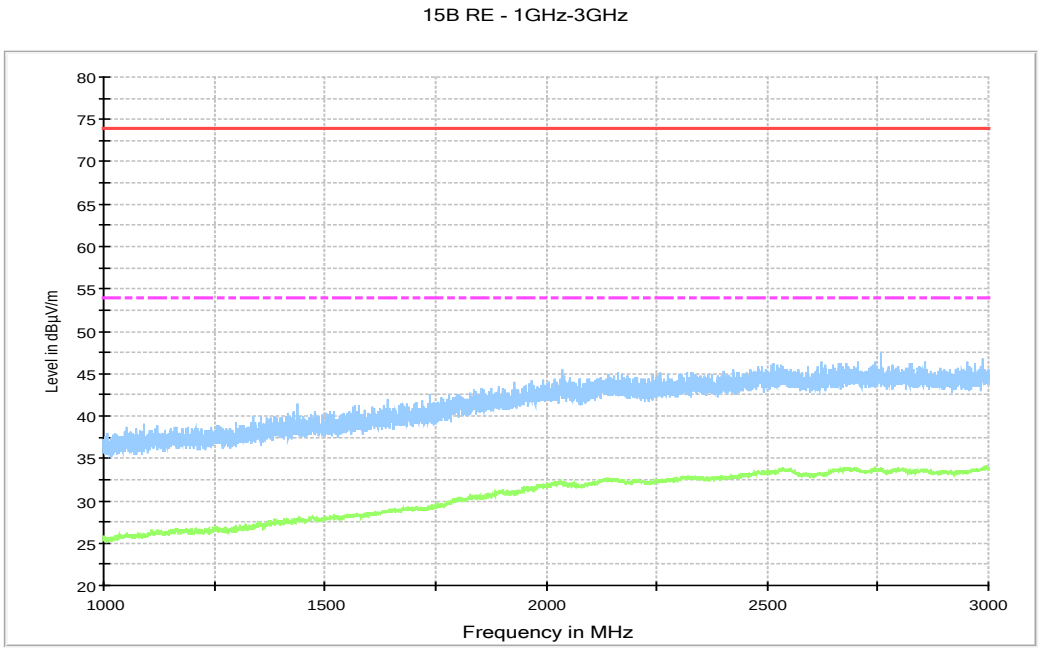


Figure A.11 Radiated Emission from 1GHz to 3GHz

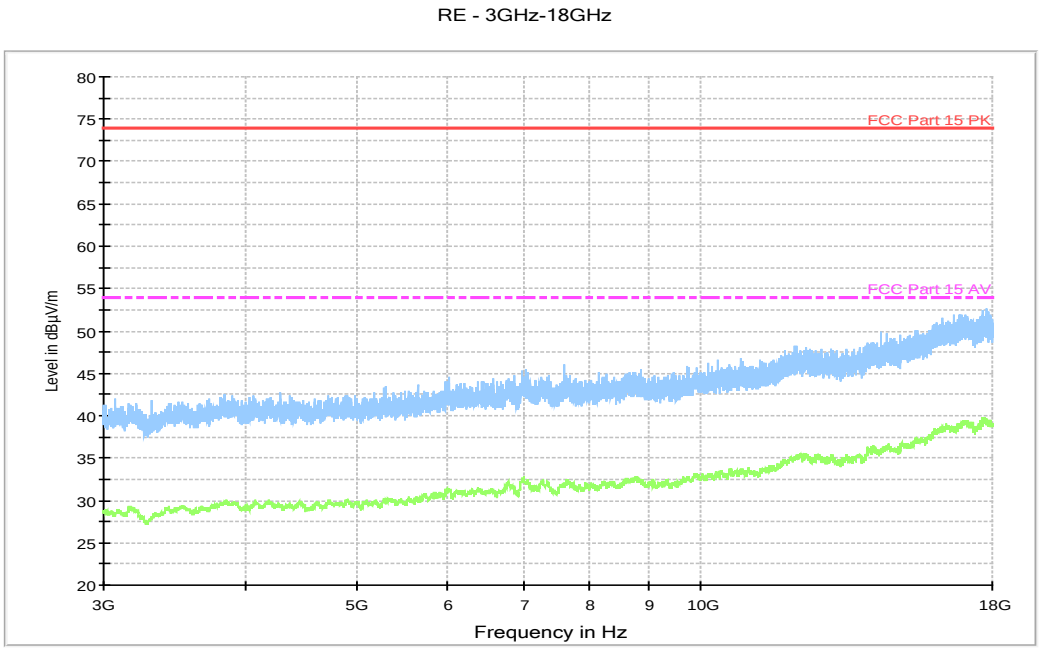


Figure A.12 Radiated Emission from 3GHz to 18GHz

USB (SD) mode, Set.6

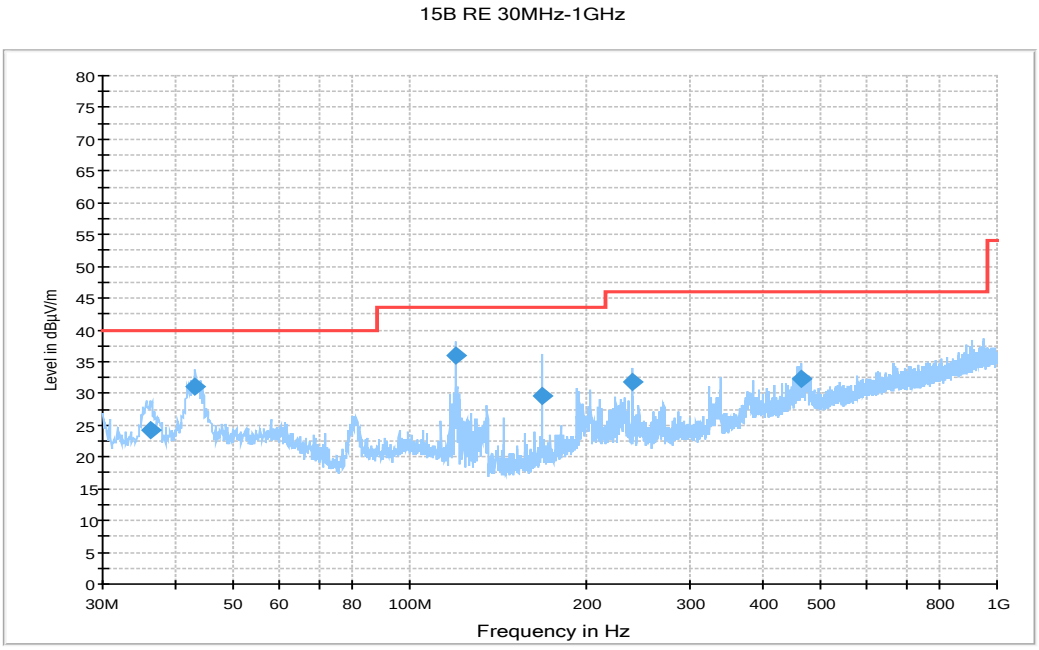


Figure A.13 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
36.111000	24.3	119.0	V	16.0	-1.3	15.7	40.0
43.192000	31.1	100.0	V	172.0	-0.6	8.9	40.0
120.01600	36.0	125.0	H	286.0	-3.8	7.5	43.5
167.93400	29.7	119.0	H	-45.0	-4.1	13.8	43.5
240.00500	31.7	110.0	H	90.0	-0.1	14.3	46.0
463.39600	32.2	100.0	V	-5.0	5.5	13.8	46.0

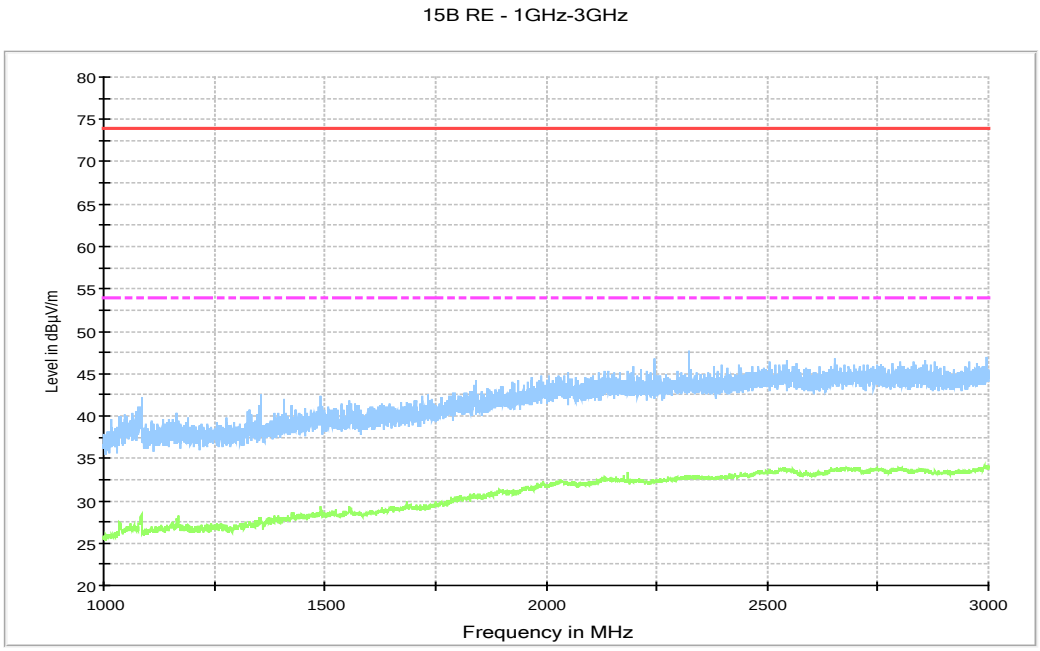


Figure A.14 Radiated Emission from 1GHz to 3GHz

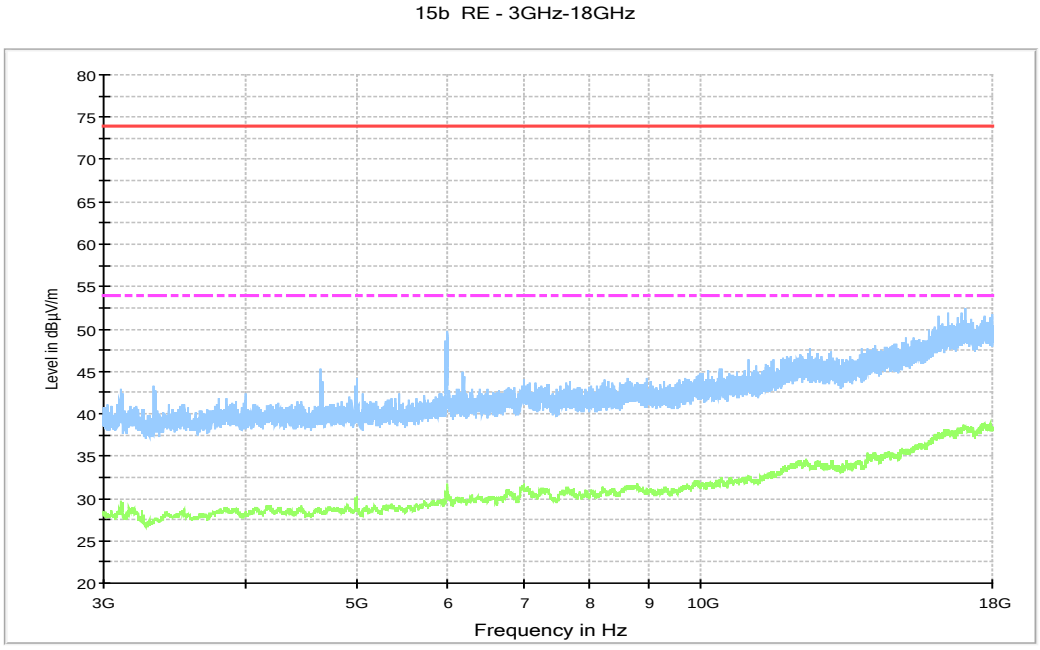


Figure A.15 Radiated Emission from 3GHz to 18GHz

License RX band mode, Set.5

GSM850MHz MID CHANNEL (881.6MHz)

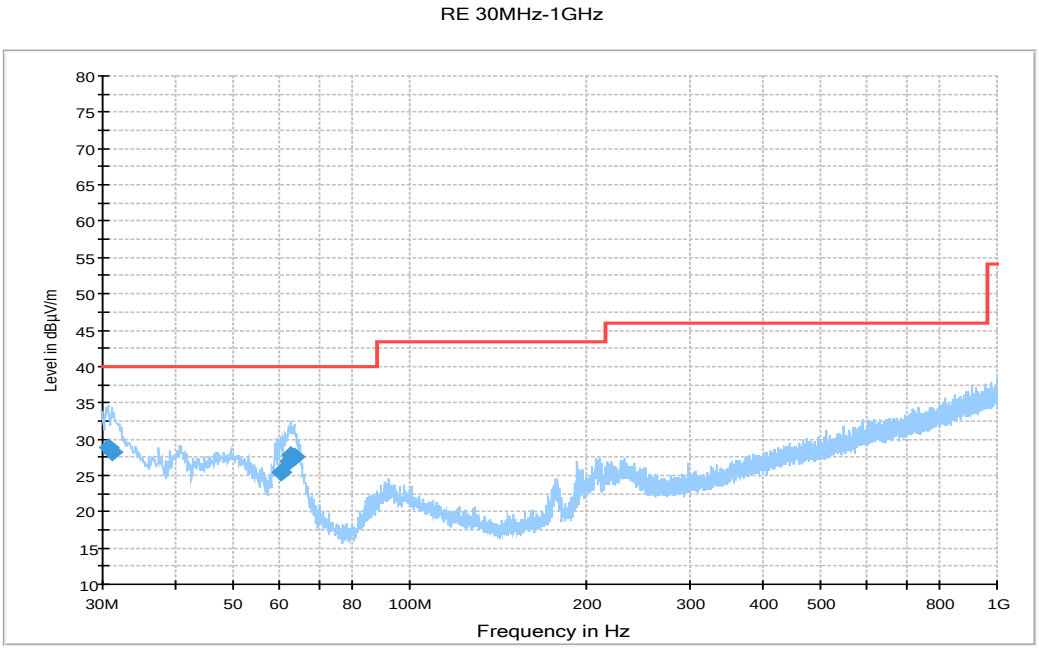


Figure A.16 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.679000	28.8	100.0	V	90.0	-2.4	11.2	40.0
31.067000	28.3	119.0	V	253.0	-2.3	11.7	40.0
60.264000	25.4	100.0	V	270.0	-1.0	14.6	40.0
62.107000	27.0	100.0	V	305.0	-1.7	13.0	40.0
62.786000	27.7	100.0	V	298.0	-1.9	12.3	40.0
63.562000	27.5	100.0	V	284.0	-2.2	12.5	40.0

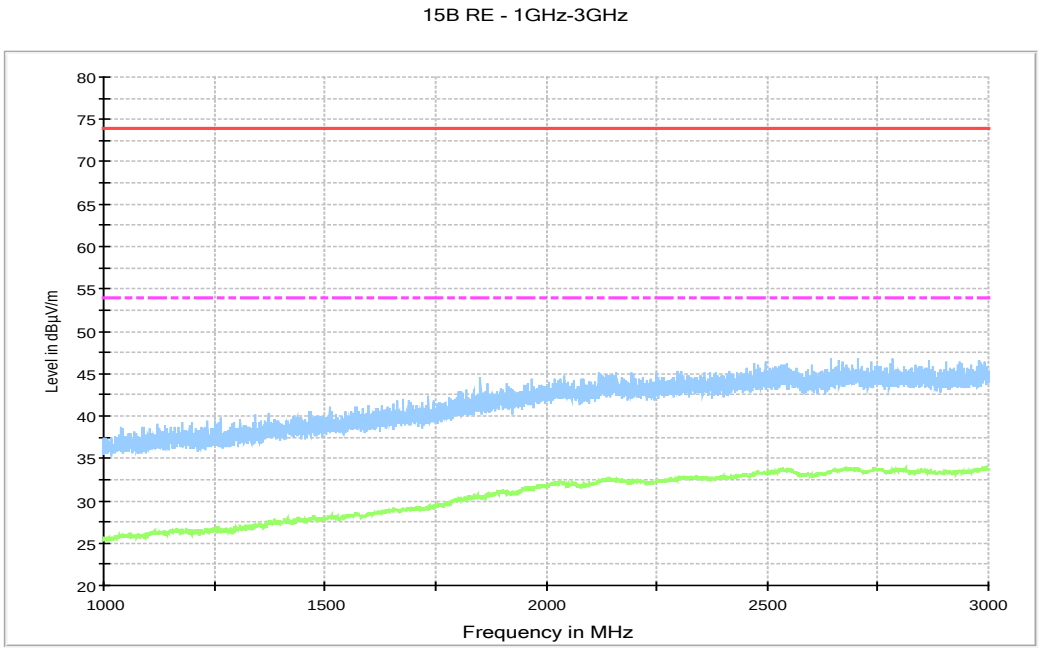


Figure A.17 Radiated Emission from 1GHz to 3GHz

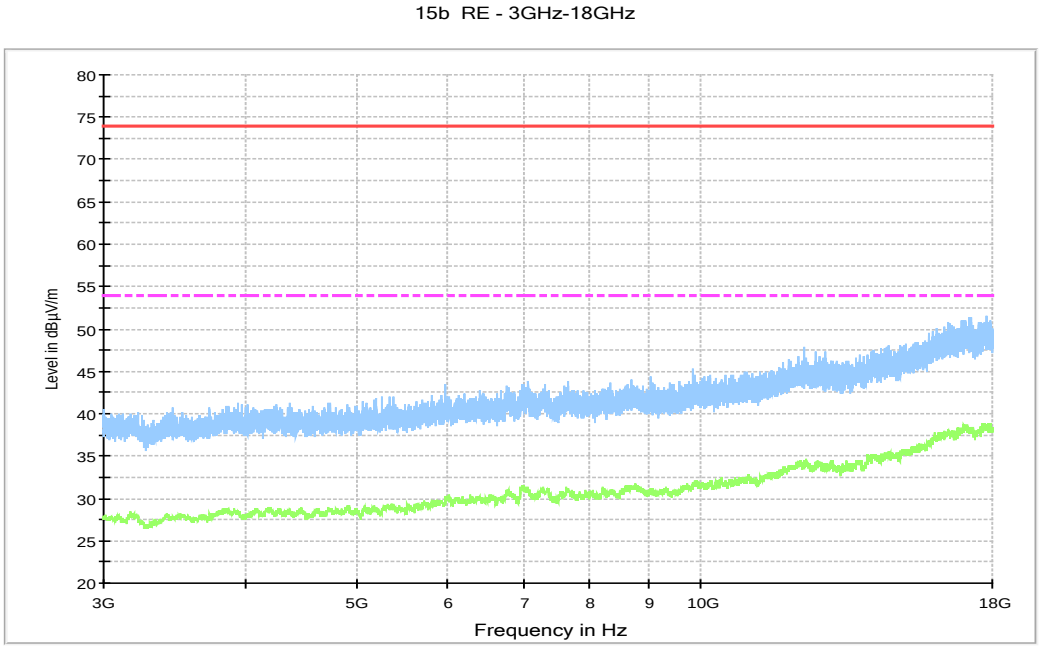


Figure A.18 Radiated Emission from 3GHz to 18GHz

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, charging mode, MP4, CAMERA and SD mode.

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 (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.

Charger1+ Rear Camera, Set.1

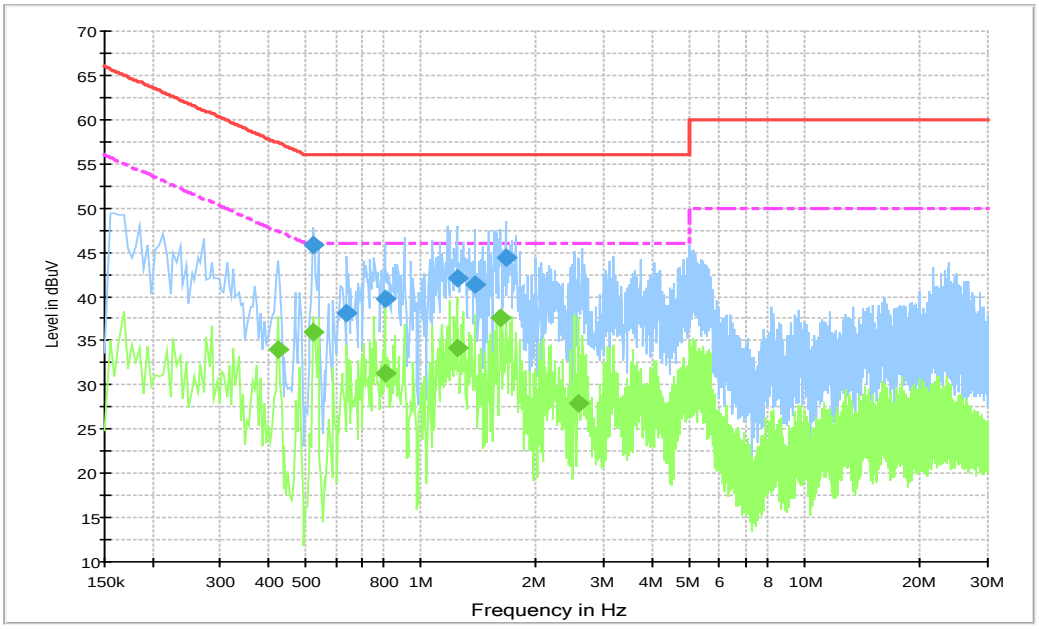


Figure A.19 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.523500	45.7	1000.0	9.000	On	L1	20.0	10.3	56.0
0.640500	38.2	1000.0	9.000	On	L1	19.9	17.8	56.0
0.807000	39.7	1000.0	9.000	On	L1	19.9	16.3	56.0
1.239000	42.0	1000.0	9.000	On	L1	19.8	14.0	56.0
1.387500	41.4	1000.0	9.000	On	L1	19.8	14.6	56.0
1.662000	44.4	1000.0	9.000	On	L1	19.8	11.6	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.424500	33.9	1000.0	9.000	On	L1	20.0	13.4	47.4
0.523500	36.0	1000.0	9.000	On	L1	20.0	10.0	46.0
0.807000	31.3	1000.0	9.000	On	L1	19.9	14.7	46.0
1.239000	34.2	1000.0	9.000	On	L1	19.8	11.8	46.0
1.612500	37.6	1000.0	9.000	On	L1	19.8	8.4	46.0
2.575500	27.9	1000.0	9.000	On	L1	19.8	18.1	46.0

. **Charger2+MP4, Set.2**

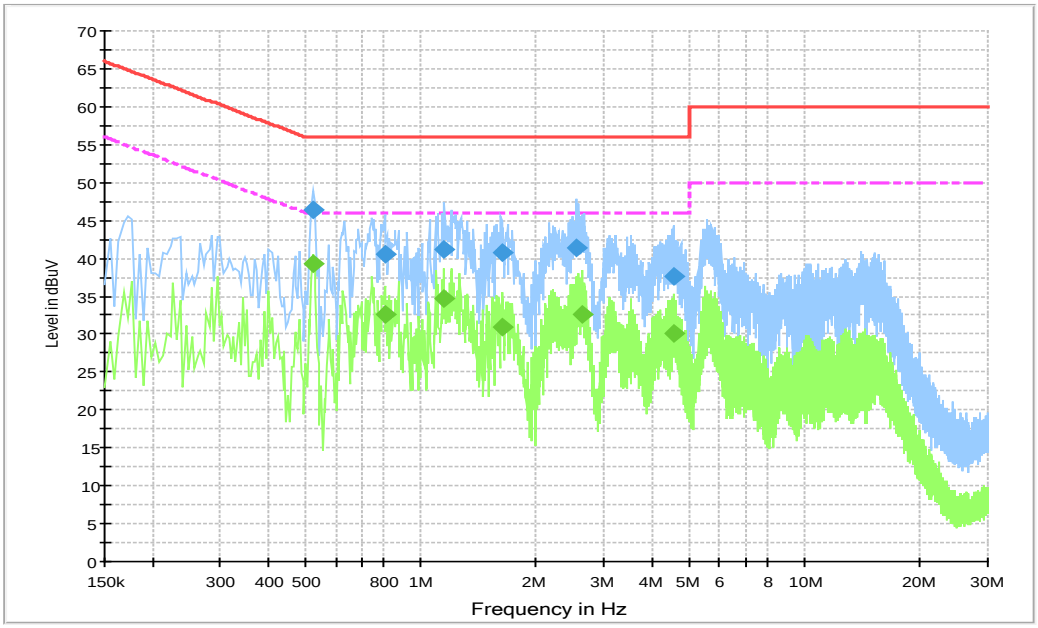


Figure A.20 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.523500	46.4	1000.0	9.000	On	L1	20.0	9.6	56.0
0.807000	40.6	1000.0	9.000	On	L1	19.9	15.4	56.0
1.153500	41.1	1000.0	9.000	On	L1	19.8	14.9	56.0
1.621500	40.8	1000.0	9.000	On	L1	19.8	15.2	56.0
2.535000	41.4	1000.0	9.000	On	L1	19.8	14.6	56.0
4.582500	37.6	1000.0	9.000	On	L1	19.8	18.4	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.523500	39.4	1000.0	9.000	On	L1	20.0	6.6	46.0
0.807000	32.6	1000.0	9.000	On	L1	19.9	13.4	46.0
1.149000	34.7	1000.0	9.000	On	L1	19.8	11.3	46.0
1.639500	31.0	1000.0	9.000	On	L1	19.8	15.0	46.0
2.629500	32.6	1000.0	9.000	On	L1	19.8	13.4	46.0
4.537500	30.1	1000.0	9.000	On	L1	19.8	15.9	46.0

Charger3+Front Camera, Set.3

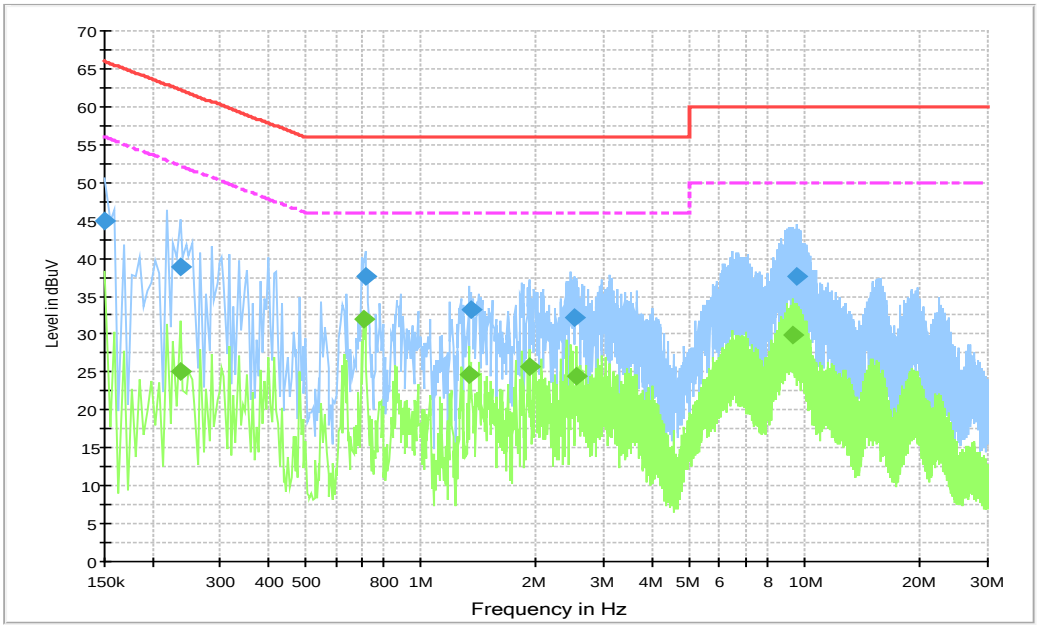


Figure A.21 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	44.9	1000.0	9.000	On	L1	19.8	21.1	66.0
0.235500	38.8	1000.0	9.000	On	L1	19.9	23.4	62.3
0.717000	37.5	1000.0	9.000	On	L1	19.9	18.5	56.0
1.347000	33.2	1000.0	9.000	On	L1	19.8	22.8	56.0
2.526000	32.1	1000.0	9.000	On	L1	19.8	23.9	56.0
9.586500	37.6	1000.0	9.000	On	L1	19.9	22.4	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.235500	25.2	1000.0	9.000	On	L1	19.9	27.1	52.3
0.708000	32.0	1000.0	9.000	On	L1	19.9	14.0	46.0
1.338000	24.7	1000.0	9.000	On	L1	19.8	21.3	46.0
1.909500	25.8	1000.0	9.000	On	L1	19.8	20.2	46.0
2.544000	24.4	1000.0	9.000	On	L1	19.8	21.6	46.0
9.289500	29.9	1000.0	9.000	On	L1	19.9	20.1	50.0

Charger4+MP3, Set.4

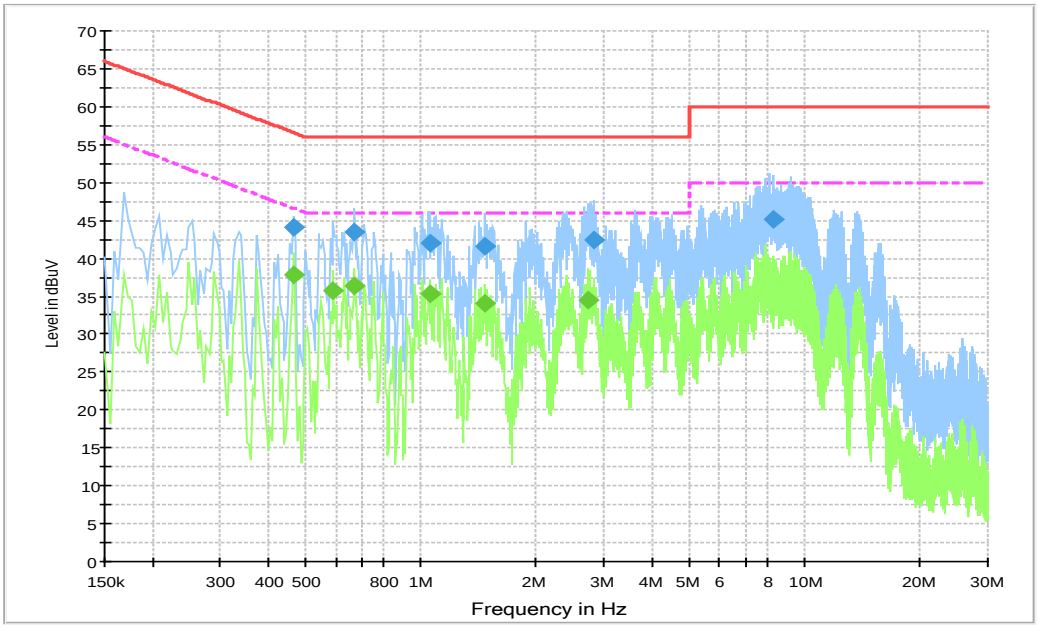


Figure A.22 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.465000	44.1	1000.0	9.000	On	L1	20.0	12.5	56.6
0.667500	43.5	1000.0	9.000	On	L1	19.9	12.5	56.0
1.054500	42.0	1000.0	9.000	On	L1	19.8	14.0	56.0
1.464000	41.6	1000.0	9.000	On	L1	19.8	14.4	56.0
2.823000	42.4	1000.0	9.000	On	L1	19.8	13.6	56.0
8.263500	45.1	1000.0	9.000	On	L1	19.8	14.9	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.465000	37.8	1000.0	9.000	On	L1	20.0	8.8	46.6
0.591000	35.7	1000.0	9.000	On	L1	20.0	10.3	46.0
0.672000	36.4	1000.0	9.000	On	L1	19.9	9.6	46.0
1.054500	35.3	1000.0	9.000	On	L1	19.8	10.7	46.0
1.464000	34.1	1000.0	9.000	On	L1	19.8	11.9	46.0
2.737500	34.5	1000.0	9.000	On	L1	19.8	11.5	46.0

Charger5, Set.5

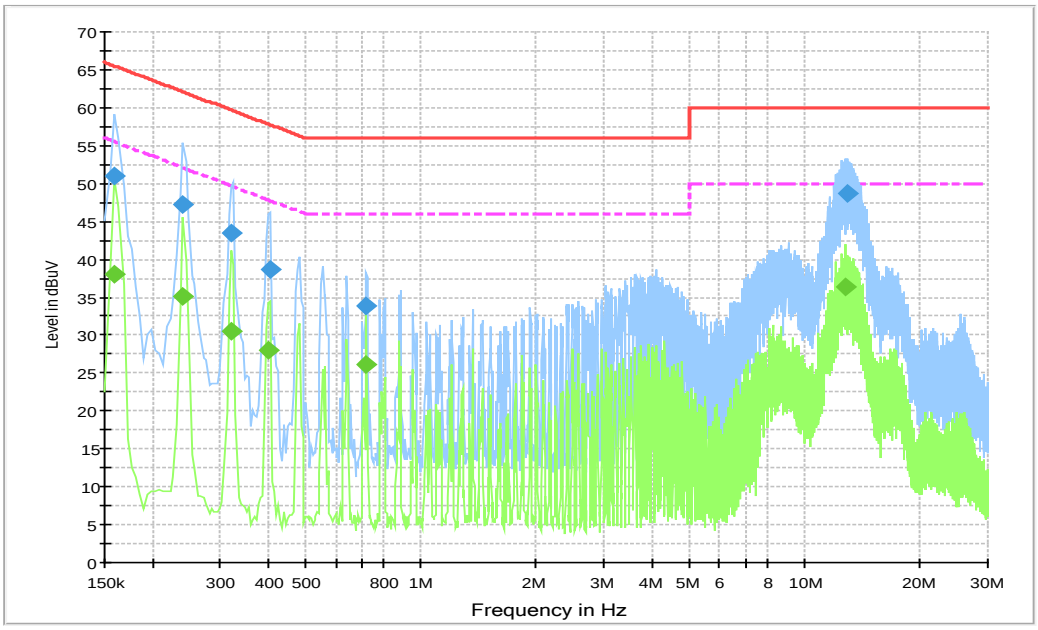


Figure A.23 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.159000	50.9	1000.0	9.000	On	L1	20.0	14.6	65.5
0.240000	47.3	1000.0	9.000	On	L1	19.9	14.8	62.1
0.321000	43.4	1000.0	9.000	On	L1	19.9	16.3	59.7
0.406500	38.6	1000.0	9.000	On	L1	20.0	19.1	57.7
0.721500	33.9	1000.0	9.000	On	L1	19.9	22.1	56.0
12.970500	48.7	1000.0	9.000	On	L1	19.9	11.3	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.159000	38.1	1000.0	9.000	On	L1	20.0	17.4	55.5
0.240000	35.1	1000.0	9.000	On	L1	19.9	17.0	52.1
0.321000	30.5	1000.0	9.000	On	L1	19.9	19.2	49.7
0.402000	28.0	1000.0	9.000	On	L1	20.0	19.8	47.8
0.721500	26.2	1000.0	9.000	On	L1	19.9	19.8	46.0
12.723000	36.3	1000.0	9.000	On	L1	19.9	13.7	50.0

USB (SD) mode, Set.6

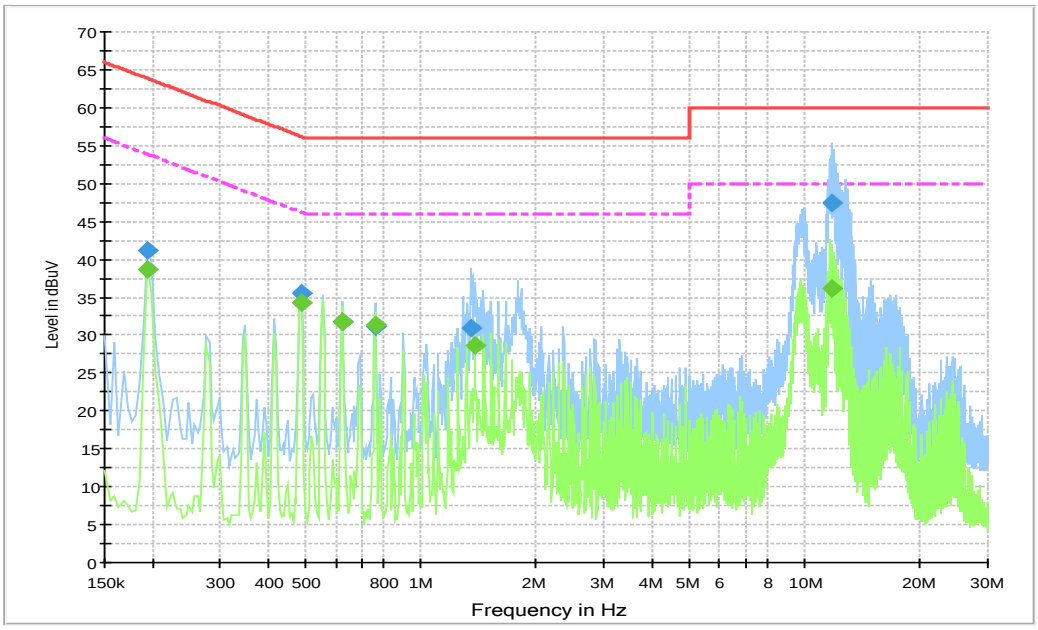


Figure A.24 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.195000	41.1	1000.0	9.000	On	L1	20.0	22.7	63.8
0.487500	35.5	1000.0	9.000	On	N	20.0	20.7	56.2
0.622500	31.8	1000.0	9.000	On	L1	19.9	24.2	56.0
0.762000	31.2	1000.0	9.000	On	L1	19.9	24.8	56.0
1.356000	30.9	1000.0	9.000	On	N	19.8	25.1	56.0
11.724000	47.4	1000.0	9.000	On	N	19.9	12.6	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.195000	38.7	1000.0	9.000	On	L1	20.0	15.1	53.8
0.487500	34.3	1000.0	9.000	On	N	20.0	11.9	46.2
0.622500	31.8	1000.0	9.000	On	L1	19.9	14.2	46.0
0.762000	31.3	1000.0	9.000	On	L1	19.9	14.7	46.0
1.387500	28.7	1000.0	9.000	On	L1	19.8	17.3	46.0
11.746500	36.2	1000.0	9.000	On	N	19.9	13.8	50.0

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ANNEX B: Persons involved in this testing

Test Item	Tester
Radiated Emission	Zhao Wenhui,Li Zongliang
Conducted Emission	Guo Qian

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