TEST REPORT

No. I21Z70369-EMC01

for

Samsung Electronics Co., Ltd.

Multi-band GSM/WCDMA/LTE Mobile Phone with Bluetooth, WLAN

Model Name: SM-A037G/DSN

FCC ID: ZCASMA037G

with

Hardware Version: REV1.0

Software Version: A037G.001

Issued Date: 2021-08-13

Note:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I21Z70369-EMC01	Rev.0	1st edition	2021-08-13
I21Z70369-EMC01	Rev.1	Delete FM information which is a typo	2021-08-13

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

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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: 2021-07-15

Testing End Date: 2021-08-10

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)

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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

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

3.1. About EUT

Description	Multi-band GSM/WCDMA/LTE phone with Bluetooth, WLAN
Model Name	SM-A037G/DSN
FCC ID	ZCASMA037G
Extreme vol. Limits	3.6VDC to 4.4VDC (nominal: 4.0VDC)

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
UT06a	2170369UT06a	REV1.0	A037G.001	2021.07.15

*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	/	/
AE10	Charger6	/	No test
AE11	Charger7	/	No test
AE12	Charger8	/	No test
AE13	Charger9	/	No test
AE14	Charger10	/	No test
AE15	Battery1	/	/
AE16	Battery2	/	/

AE1

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

AE2

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

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AE3

Model	EP-TA50UWE
Manufacturer	Dong Yang
Length of cable	/

AE4

Model	EP-TA50UWE
Manufacturer	HAEM Co.,Ltd
Length of cable	/

AE5

Model	EP-TA50UWE
Manufacturer	Salcomp
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	/

AE10

Model	EP-TA50JWS
Manufacturer	HAEM Co.,Ltd
Length of cable	/

AE11

Model	EP-TA50JWS
Manufacturer	RFTech Electronics(HuiZhou)Co.,LTD
Length of cable	/

AE12

Model	EP-TA50UWS
Manufacturer	Dong Yang
Length of cable	/

AE13

Model	EP-TA50JWE
Manufacturer	Dong Yang
Length of cable	/

AE14

Model	EP-TA50UWE
Manufacturer	RFTech Electronics(HuiZhou)Co.,LTD

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Length of cable	/
AE15	
Type	Secondary Li-ion Battery
SN	HQ-50S
Manufacturer	SUCD(FUJIAN) Electronics Co.,Ltd
AE16	
Type	Secondary Li-ion Battery
SN	HQ-50SD
Manufacturer	SUCD(FUJIAN) Electronics Co.,Ltd

Note: The USB cables are shielded.

3.4. General Description

The device contains receivers which tune and operate between 30MHz-960MHz in the following bands: GSM850, WCDMA BAND 5, and LTE BAND 5.

3.5. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	UT06a + AE1 + AE6+ AE7	Charger1+ Rear Camera+ Headset1
Set.2	UT06a + AE2 + AE6	Charger2+ MP4+RX mode
Set.3	UT06a + AE3 + AE6	Charger3+ Front Camera+ RX mode
Set.4	UT06a + AE4 + AE6+ AE7	Charger4+ Headset1+ RX mode
Set.5	UT06a + AE5 + AE6+ AE8	Charger5+ Headset2+ RX mode
Set.6	UT06a + AE6 + AE8	USB SD TO PC +MP3 +RX mode+ Headset2

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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-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

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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(BDA)**
2	Conducted Emission	15.107(a)	A.2	P	**CTTL(BDA)**

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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	2022-03-16	1 year
3	LISN	ENV216	101459	R&S	2022-03-09	1 year
4	BiLog Antenna	VULB9163	9163-482	Schwarzbeck	2021-11-04	1 year
5	EMI Antenna	3117	00139065	ETS-Lindgren	2021-10-11	1 year
6	Universal Radio Communication Tester	CMW500	159408	R&S	2022-03-08	1 year
7	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
8	Keyboard	KU-1601	2048361	Lenovo	N/A	N/A
9	Mouse	EMS-537A	8021S3MC	Lenovo	N/A	N/A
10	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

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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 (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.

The RX mode radiated testing was performed with the Low/Mid/High channel. Only the worst cases 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

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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：5.40dB, 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)
17430.500	39.8	-23.1	41.3	21.61	54.0	14.2	H
17291.500	39.7	-22.8	41.4	21.12	54.0	14.3	H
17290.500	39.7	-22.8	41.4	21.11	54.0	14.3	H
17166.500	39.7	-23.0	41.5	21.14	54.0	14.3	H
17428.500	39.7	-23.1	41.3	21.54	54.0	14.3	V
17429.500	39.7	-23.1	41.3	21.54	54.0	14.3	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)
17054.000	52.7	-23.0	41.6	34.05	74.0	21.3	V
17888.500	52.4	-22.6	41.3	33.76	74.0	21.6	V
17814.500	52.4	-22.4	41.3	33.56	74.0	21.6	V
17729.500	52.3	-22.2	41.2	33.32	74.0	21.7	H
17129.500	52.1	-23.0	41.6	33.57	74.0	21.9	H
17415.000	52.1	-23.1	41.3	33.88	74.0	21.9	H

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Measurement results for Set.2:

Charger2+ MP4 + RX mode GSM850 HIGH Channel/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)
16991.000	40.01	-23.0	41.7	21.34	54.0	14.0	H
17425.000	39.99	-23.1	41.3	21.82	54.0	14.0	V
17266.000	39.98	-22.8	41.4	21.35	54.0	14.0	H
17252.000	39.91	-22.8	41.4	21.29	54.0	14.1	H
17044.500	39.91	-23.0	41.7	21.28	54.0	14.1	H
17250.500	39.88	-22.8	41.4	21.26	54.0	14.1	V

Charger2+ MP4+ RX mode GSM850 HIGH Channel /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)
17581.500	53.27	-22.4	41.2	34.42	74.0	20.7	V
17162.500	52.68	-23.0	41.5	34.11	74.0	21.3	H
17972.500	52.58	-22.8	41.3	34.05	74.0	21.4	V
17059.000	52.18	-23.0	41.6	33.57	74.0	21.8	H
17764.000	52.16	-22.3	41.3	33.23	74.0	21.8	H
17214.500	52.12	-22.9	41.5	33.52	74.0	21.9	V

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Measurement results for Set.3:

Charger3+ Front Camera+ RX mode GSM850 LOW Channel /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)
17041.500	40.19	-23.0	41.7	21.56	54.0	13.8	V
17431.000	40.08	-23.1	41.3	21.92	54.0	13.9	V
17165.000	40.06	-23.0	41.5	21.49	54.0	13.9	H
17168.500	40.06	-23.0	41.5	21.49	54.0	13.9	V
17429.000	40.04	-23.1	41.3	21.88	54.0	14.0	V
17270.500	40.04	-22.8	41.4	21.40	54.0	14.0	V

Charger3+ Front Camera+ RX mode GSM850 LOW Channel /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)
17291.500	52.4	-22.8	41.4	33.81	74.0	21.6	H
17831.000	52.4	-22.5	41.3	33.60	74.0	21.6	V
16949.500	52.4	-23.0	41.7	33.72	74.0	21.6	H
17933.500	52.3	-22.7	41.3	33.74	74.0	21.7	H
17963.500	52.3	-22.7	41.3	33.78	74.0	21.7	V
17765.000	52.3	-22.3	41.3	33.34	74.0	21.7	V

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Measurement results for Set.4:

Charger4+ Headset1+ GSM850 MIDDLE Channel /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)
17166.000	40.14	-23.0	41.5	21.56	54.0	13.9	H
17284.500	40.13	-22.8	41.4	21.49	54.0	13.9	V
17286.000	40.08	-22.8	41.4	21.44	54.0	13.9	V
17057.000	40.05	-23.0	41.6	21.44	54.0	14.0	H
17033.000	40.04	-23.0	41.7	21.40	54.0	14.0	H
17445.500	40.02	-23.1	41.3	21.91	54.0	14.0	V

Charger4+ Headset1+ GSM850 MIDDLE Channel /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)
16880.500	52.9	-23.0	41.6	34.32	74.0	21.1	V
17124.500	52.6	-23.0	41.6	34.08	74.0	21.4	V
17458.500	52.3	-23.2	41.2	34.27	74.0	21.7	H
16849.500	52.3	-23.0	41.6	33.67	74.0	21.7	H
17212.500	52.1	-22.9	41.5	33.52	74.0	21.9	V
16882.500	52.0	-23.0	41.6	33.42	74.0	22.0	H

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Measurement results for Set.5

Charger5+ Headset2+ WCMDA B5 /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)
17166.000	40.14	-23.0	41.5	21.56	54.0	13.9	H
17284.500	40.13	-22.8	41.4	21.49	54.0	13.9	V
17286.000	40.08	-22.8	41.4	21.44	54.0	13.9	V
17057.000	40.05	-23.0	41.6	21.44	54.0	14.0	H
17033.000	40.04	-23.0	41.7	21.40	54.0	14.0	H
17445.500	40.02	-23.1	41.3	21.91	54.0	14.0	V

Charger5+ Headset2+ WCMDA B5 /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)
16880.500	52.9	-23.0	41.6	34.32	74.0	21.1	V
17124.500	52.6	-23.0	41.6	34.08	74.0	21.4	V
17458.500	52.3	-23.2	41.2	34.27	74.0	21.7	H
16849.500	52.3	-23.0	41.6	33.67	74.0	21.7	H
17212.500	52.1	-22.9	41.5	33.52	74.0	21.9	V
16882.500	52.0	-23.0	41.6	33.42	74.0	22.0	H

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Measurement results for Set.6:

USB (SD) mode+ RX mode LTE B5 /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)
6000.000	40.8	-31.4	35.2	37.02	54.0	13.2	H
18000.000	40.8	-22.7	41.3	22.21	54.0	13.2	H
17160.500	40.5	-23.0	41.5	21.90	54.0	13.5	V
17284.000	40.4	-22.8	41.4	21.80	54.0	13.6	H
17073.500	40.4	-23.0	41.6	21.83	54.0	13.6	V
17426.000	40.4	-23.1	41.3	22.25	54.0	13.6	V

USB (SD) mode + RX mode LTE B5 /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)
17737.000	53.5	-22.3	41.2	34.56	74.0	20.5	H
17260.000	53.4	-22.8	41.4	34.76	74.0	20.6	H
17433.000	53.1	-23.1	41.3	35.00	74.0	20.9	V
17139.500	53.1	-23.0	41.6	34.52	74.0	20.9	H
17165.000	53.1	-23.0	41.5	34.50	74.0	20.9	V
17017.500	53.0	-23.0	41.7	34.30	74.0	21.0	H

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Charger1+ Rear Camera, Set.1

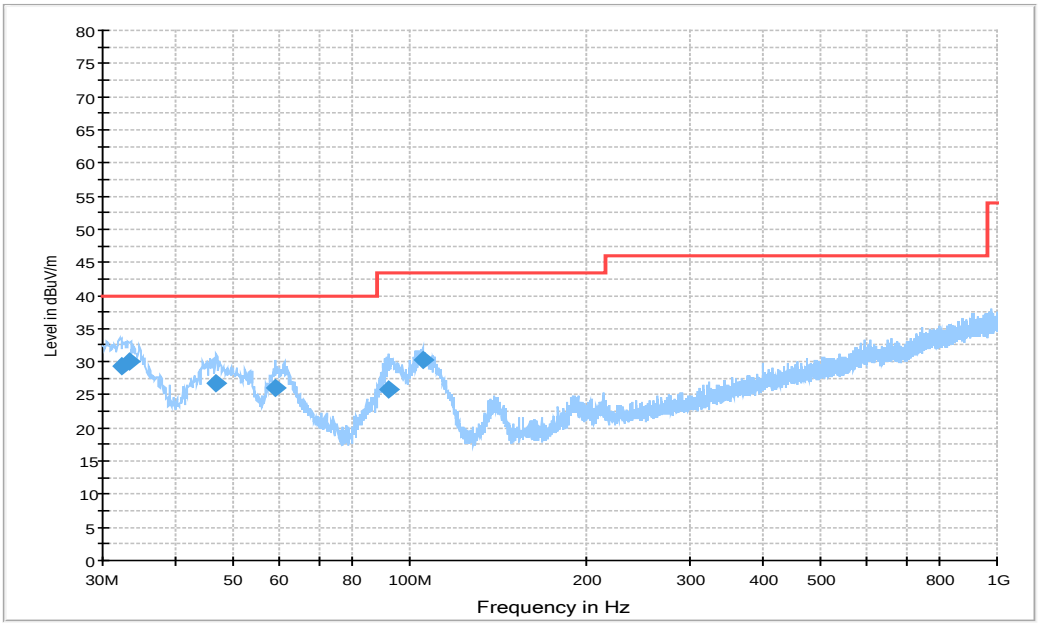

Figure A.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
32.231000	29.4	112.0	V	-45.0	-2.2	10.6	40.0
33.298000	30.0	100.0	V	0.0	-1.9	10.0	40.0
46.878000	26.7	100.0	V	120.0	-0.2	13.3	40.0
59.100000	26.0	100.0	V	90.0	-0.7	14.0	40.0
92.177000	25.9	125.0	V	195.0	-3.3	17.6	43.5
105.07800	30.2	100.0	V	210.0	-2.0	13.3	43.5

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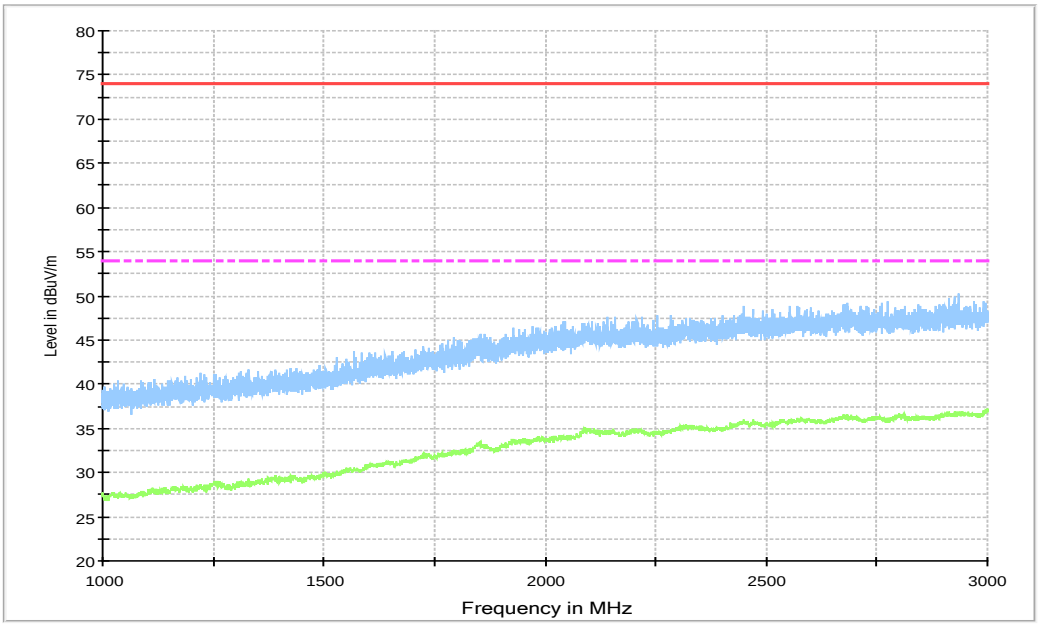

Figure A.2 Radiated Emission from 1GHz to 3GHz

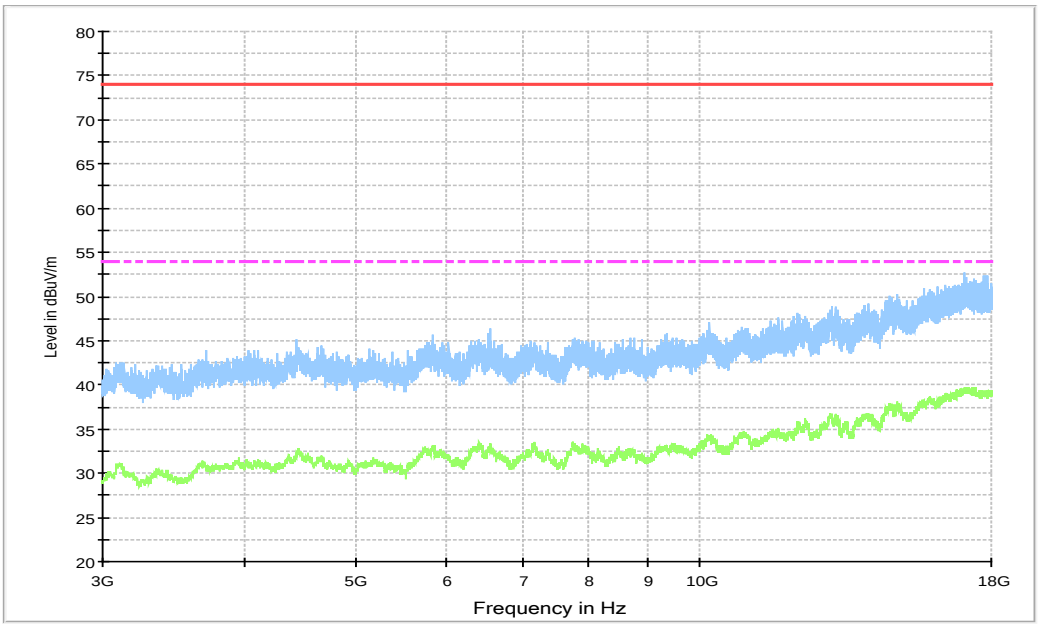

Figure A.3 Radiated Emission from 3GHz to 18GHz

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Charger2+ MP4+ RX mode GSM850 HIGH Channel, Set.2

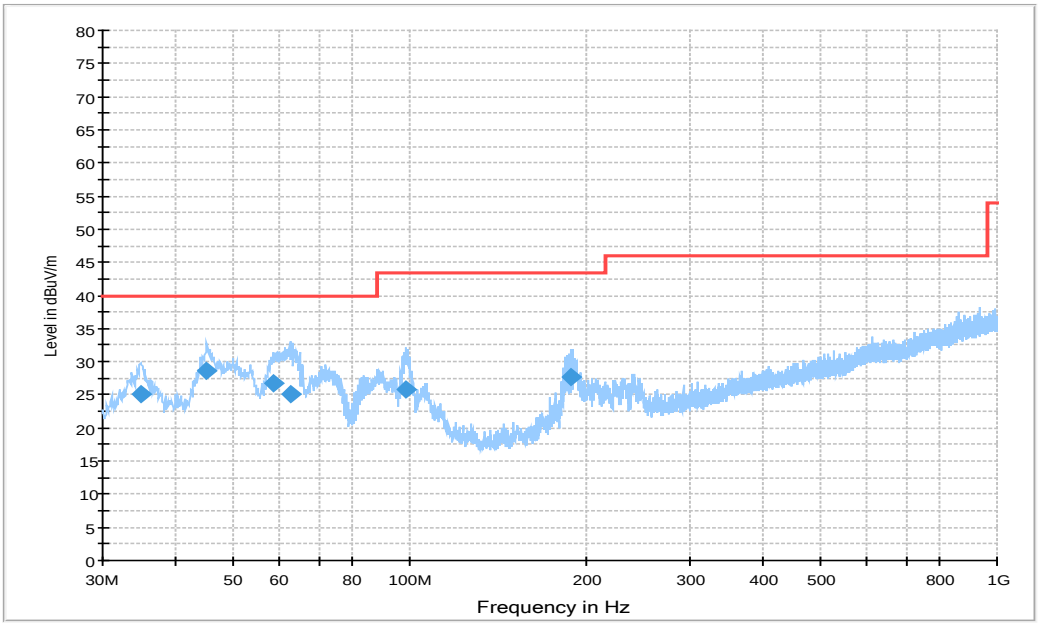

Figure A.4 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
34.753000	25.1	100.0	V	180.0	-1.6	15.0	40.0
45.132000	28.6	100.0	V	105.0	-0.3	11.4	40.0
58.712000	26.8	113.0	V	105.0	-0.7	13.2	40.0
62.495000	25.2	100.0	V	89.0	-1.7	14.8	40.0
98.579000	25.9	100.0	V	180.0	-1.9	17.6	43.5
188.49800	27.6	100.0	H	210.0	-2.2	15.9	43.5

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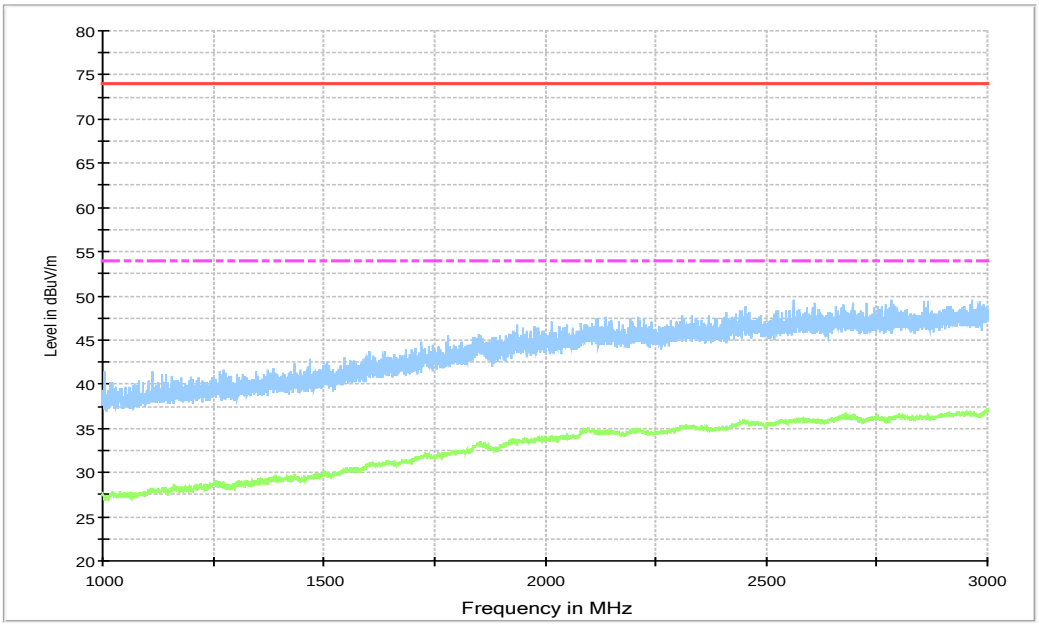

Figure A.5 Radiated Emission from 1GHz to 3GHz

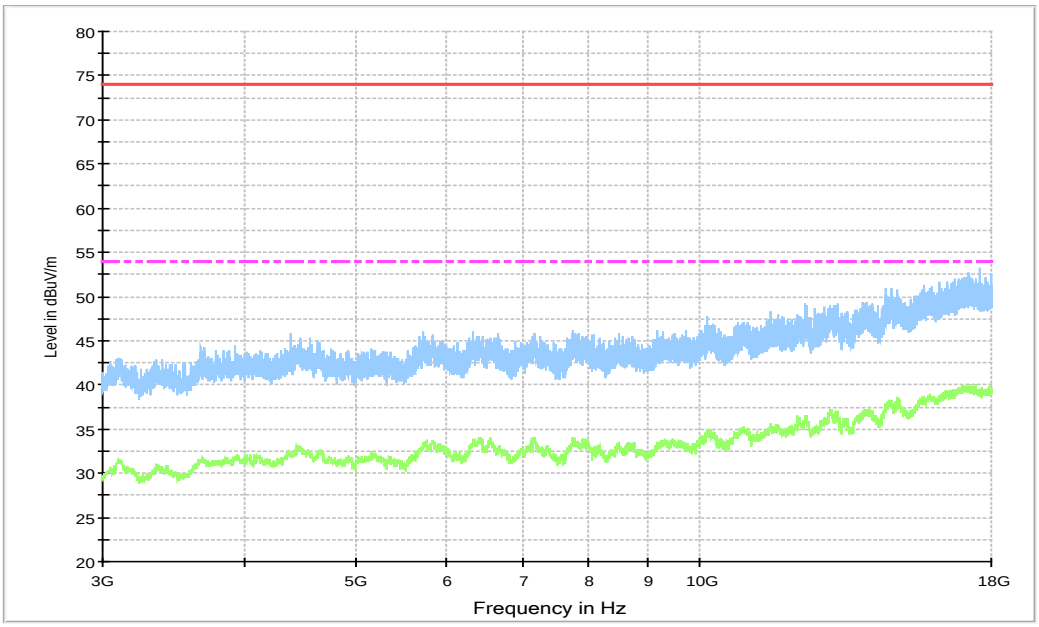

Figure A.6 Radiated Emission from 3GHz to 18GHz

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Charger3+ Front Camera+ RX mode GSM850 LOW Channel, Set.3

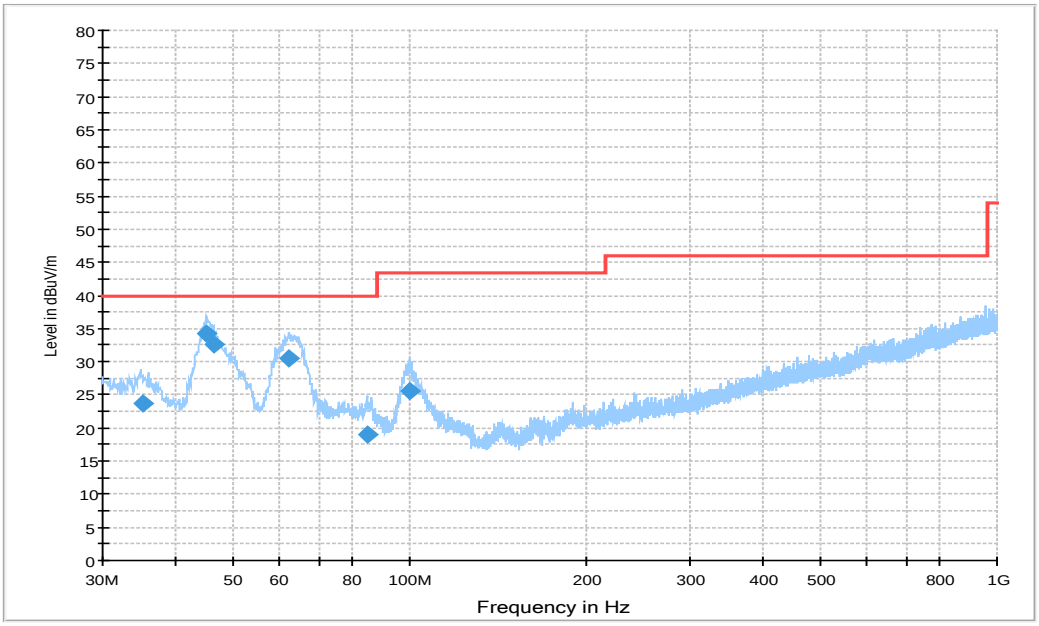

Figure A.7 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
35.141000	23.6	100.0	V	180.0	-1.5	16.4	40.0
45.132000	34.3	100.0	V	90.0	-0.3	5.7	40.0
46.490000	32.6	100.0	V	75.0	-0.2	7.4	40.0
62.301000	30.5	113.0	V	105.0	-1.6	9.5	40.0
84.514000	19.1	113.0	V	195.0	-5.4	20.9	40.0
99.743000	25.7	100.0	V	225.0	-1.6	17.8	43.5

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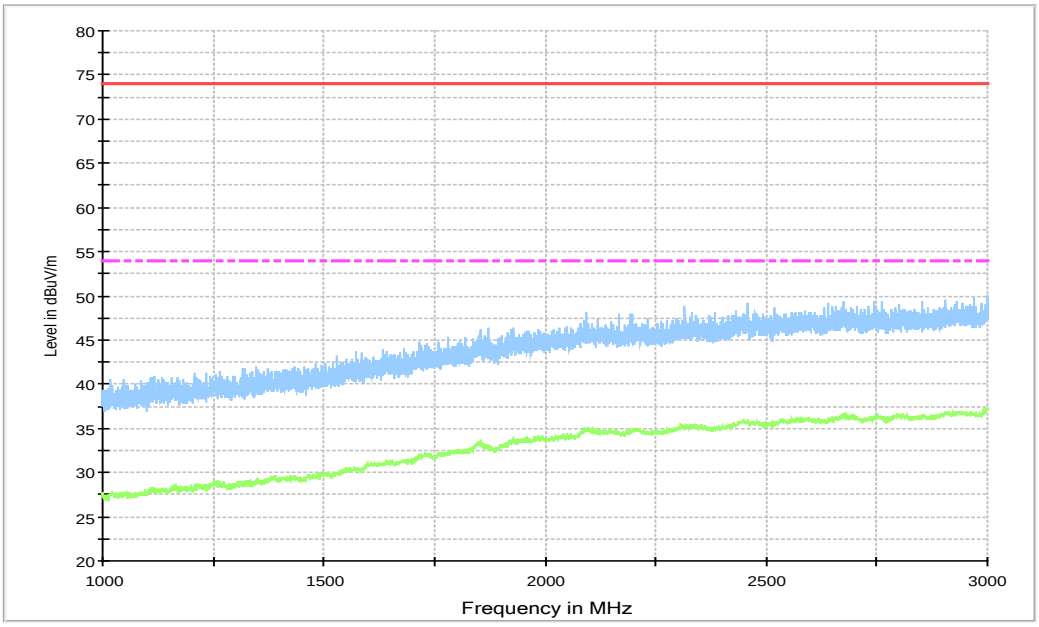

Figure A.8 Radiated Emission from 1GHz to 3GHz

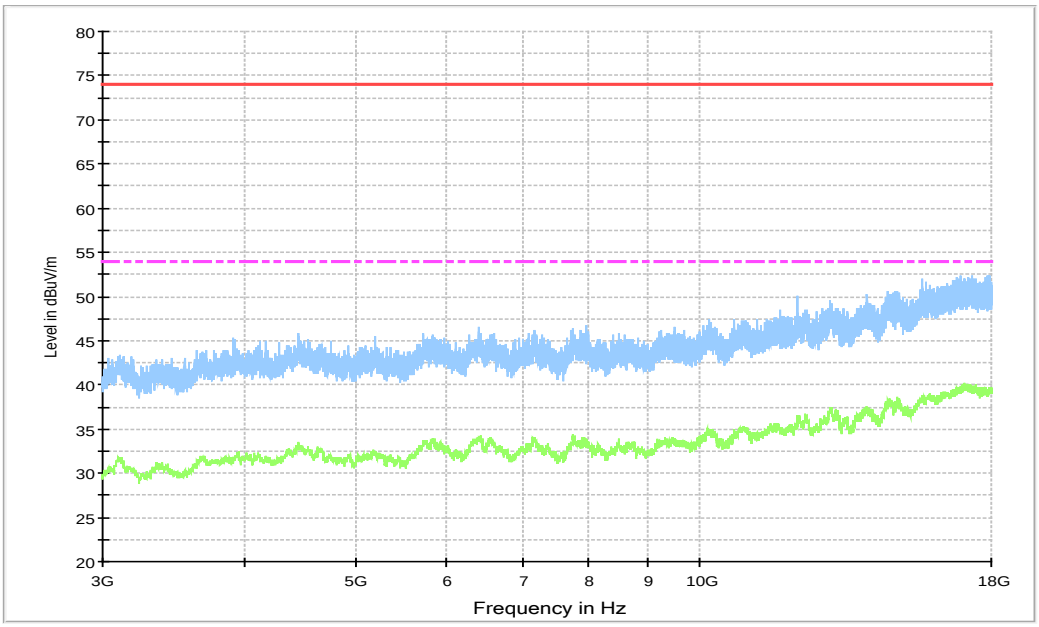

Figure A.9 Radiated Emission from 3GHz to 18GHz

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Charger4+ Headset1+ GSM850 MIDDLE Channel, Set.4

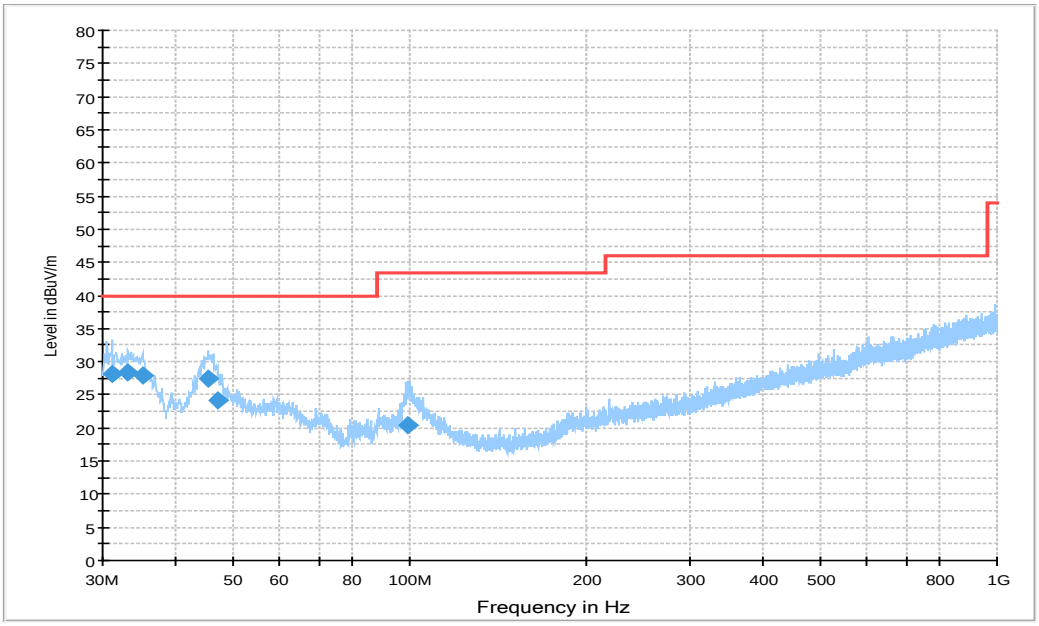

Figure A.10 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
31.164000	28.2	100.0	V	90.0	-2.5	11.8	40.0
33.201000	28.5	100.0	V	240.0	-2.0	11.5	40.0
35.044000	28.0	113.0	V	180.0	-1.5	12.0	40.0
45.326000	27.4	113.0	V	135.0	-0.3	12.6	40.0
46.975000	24.1	113.0	V	59.0	-0.2	15.9	40.0
99.258000	20.4	113.0	V	225.0	-1.7	23.1	43.5

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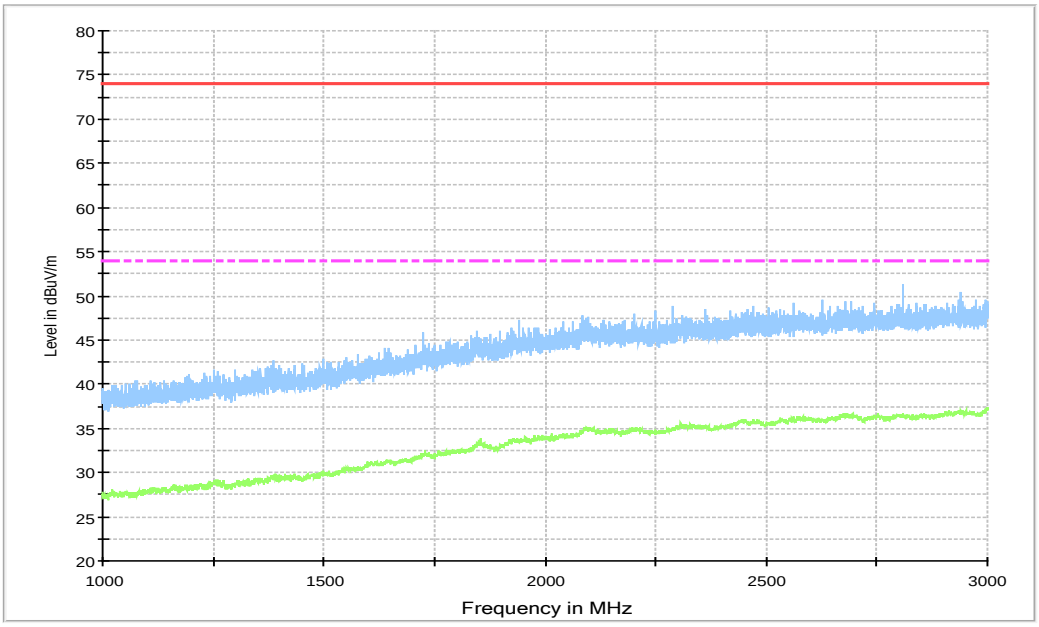

Figure A.11 Radiated Emission from 1GHz to 3GHz

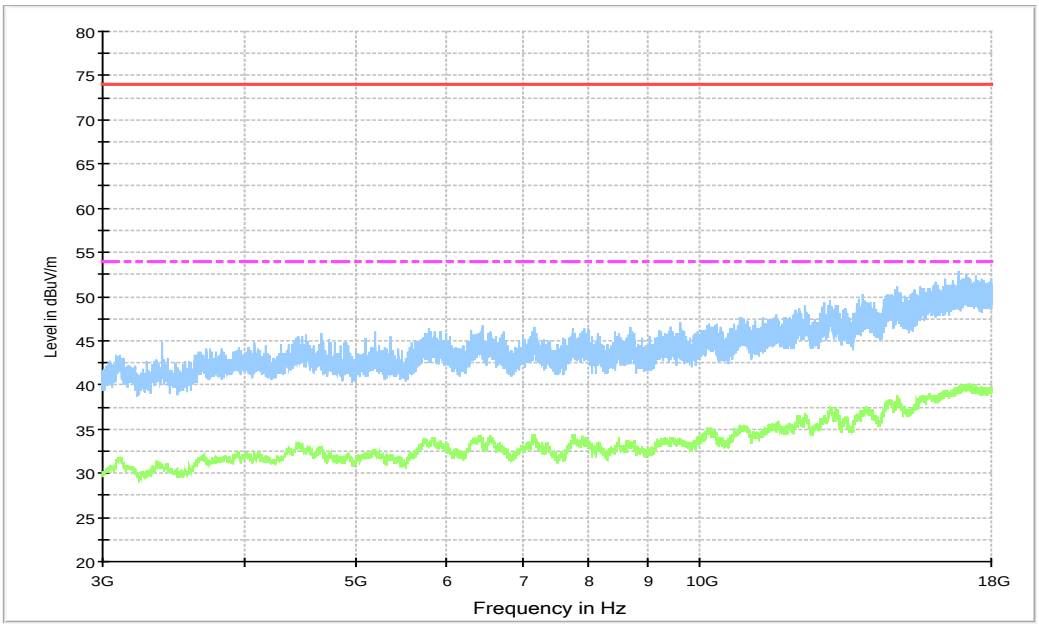

Figure A.12 Radiated Emission from 3GHz to 18GHz

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Charger5+ Headset2+ WCMDA B5, Set.5

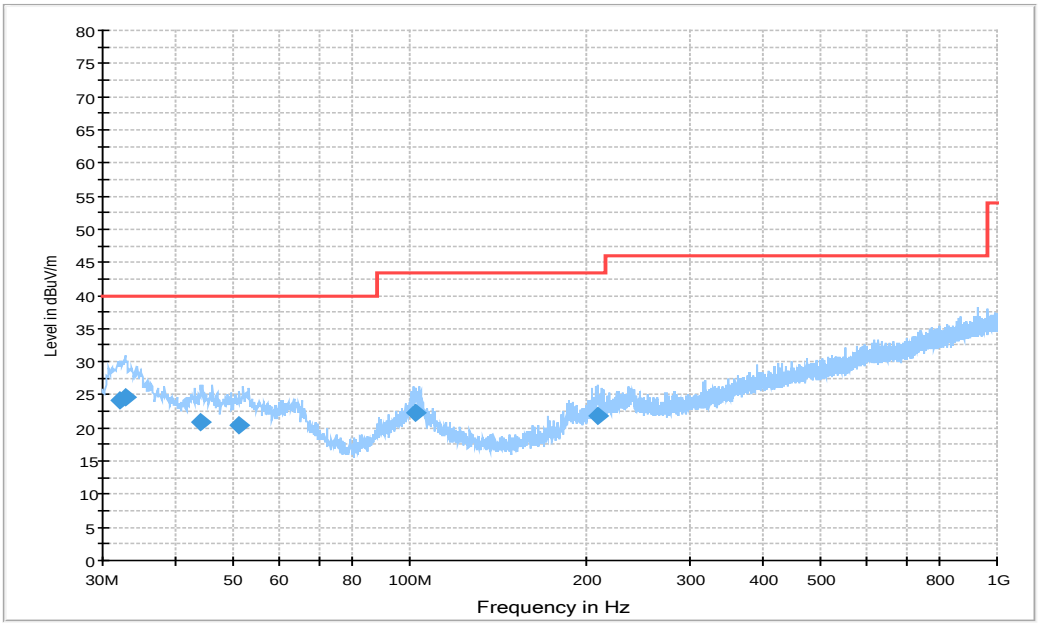

Figure A.13 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
32.134000	24.1	113.0	V	89.0	-2.2	15.9	40.0
32.716000	24.6	100.0	V	30.0	-2.1	15.4	40.0
44.162000	20.9	113.0	V	15.0	-0.3	19.1	40.0
51.340000	20.5	125.0	V	14.0	-0.2	19.5	40.0
102.26500	22.2	100.0	V	194.0	-1.7	21.3	43.5
209.64400	21.9	100.0	H	225.0	-1.5	21.6	43.5

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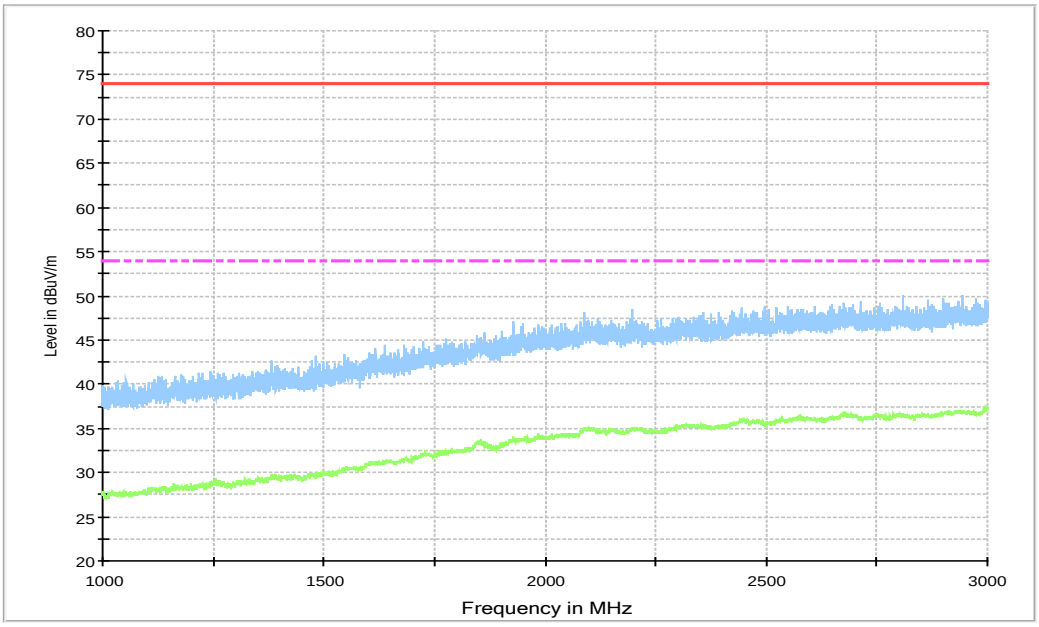

Figure A.14 Radiated Emission from 1GHz to 3GHz

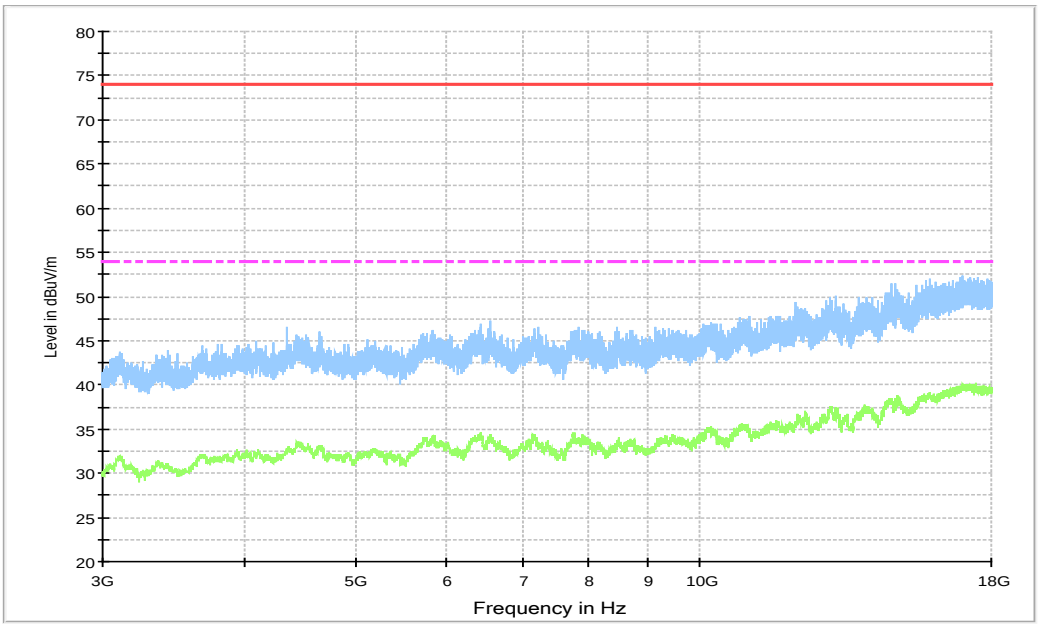

Figure A.15 Radiated Emission from 3GHz to 18GHz

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USB (SD) mode+ RX mode LTE B5, Set.6

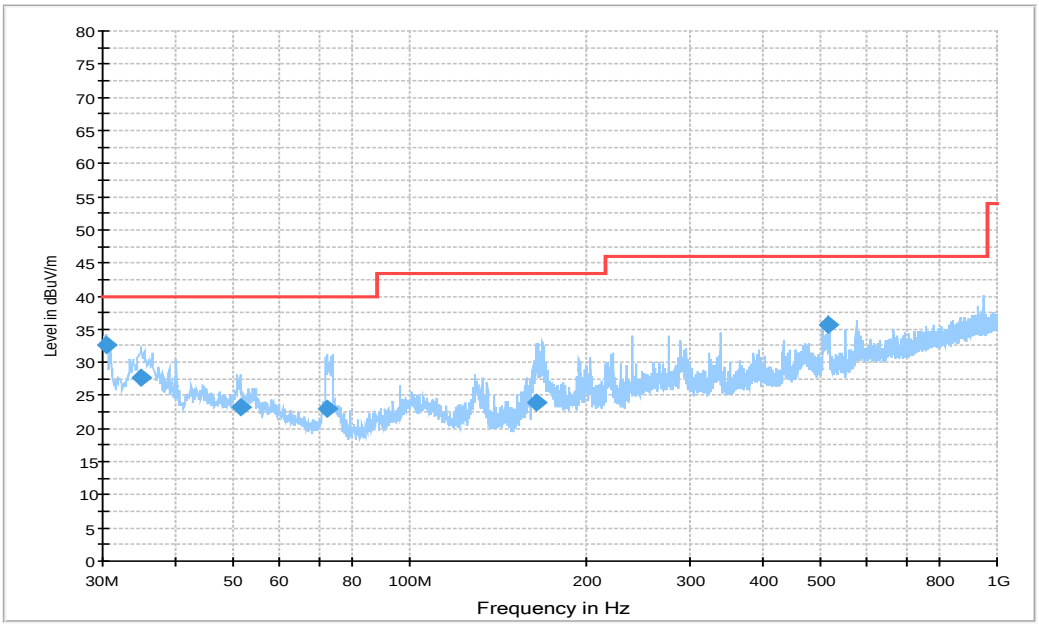

Figure A.16 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.388000	32.7	100.0	V	-30.0	-2.7	7.3	40.0
34.850000	27.6	100.0	V	225.0	-1.6	12.4	40.0
51.437000	23.3	113.0	V	90.0	-0.2	16.7	40.0
72.389000	23.0	113.0	V	240.0	-5.1	17.0	40.0
164.73300	23.8	125.0	V	135.0	-4.5	19.7	43.5
516.64900	35.6	112.0	H	315.0	6.6	10.4	46.0

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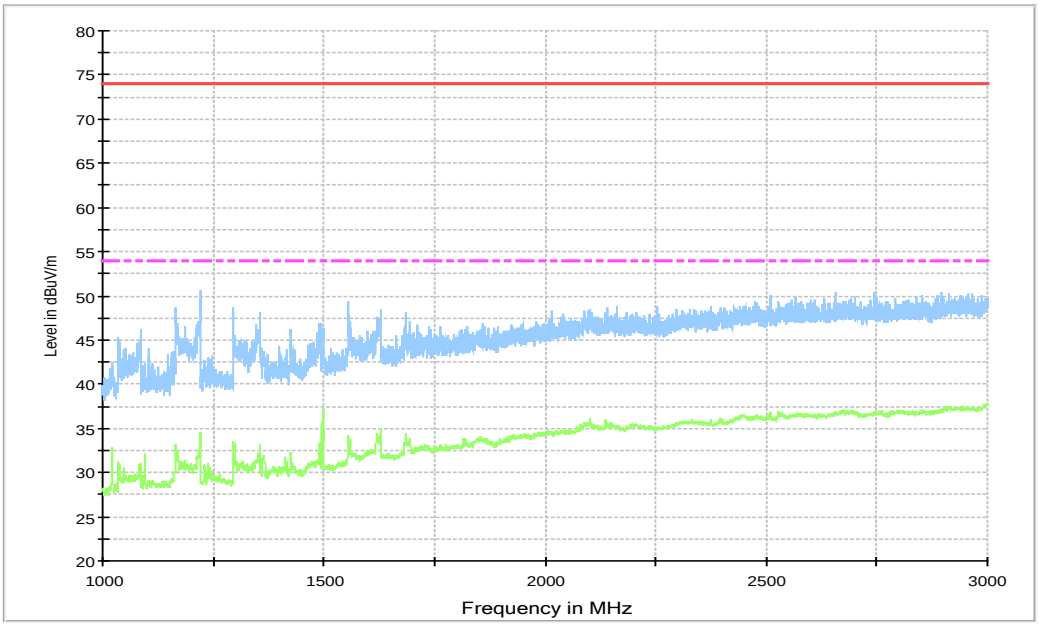

Figure A.17 Radiated Emission from 1GHz to 3GHz

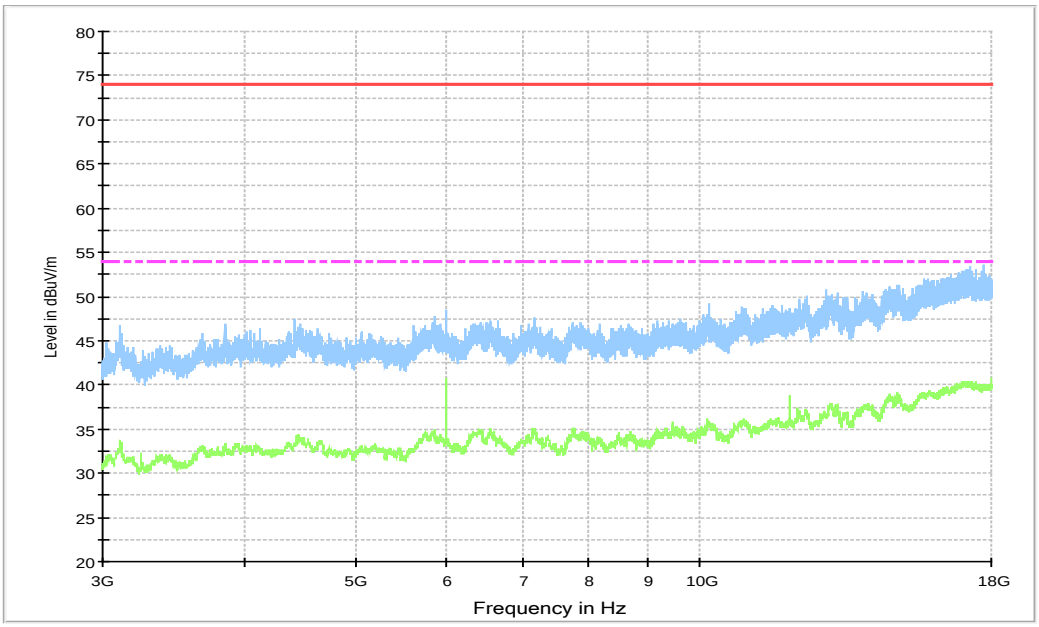

Figure A.18 Radiated Emission from 3GHz to 18GHz

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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 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

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A.2.5 Measurement Results

Measurement uncertainty: *U*= 3.10 dB, *k*=2.

Charger1+ Rear Camera, Set.1

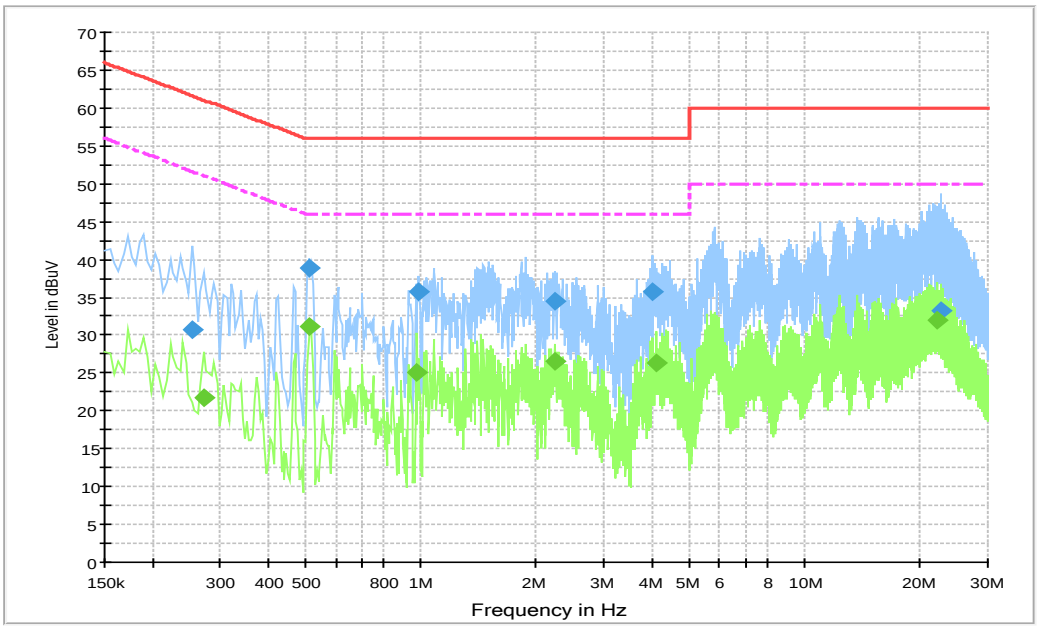

Figure A.19 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.253500	30.8	3000.0	9.000	On	L1	19.7	30.8	61.6
0.510000	38.8	3000.0	9.000	On	L1	19.8	17.2	56.0
0.987000	35.8	3000.0	9.000	On	L1	19.7	20.2	56.0
2.247000	34.5	3000.0	9.000	On	L1	19.6	21.5	56.0
4.024500	35.8	3000.0	9.000	On	L1	19.7	20.2	56.0
22.758000	33.3	3000.0	9.000	On	N	19.9	26.7	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.271500	21.7	3000.0	9.000	On	L1	19.7	29.3	51.1
0.514500	31.1	3000.0	9.000	On	L1	19.8	14.9	46.0
0.978000	25.1	3000.0	9.000	On	L1	19.7	20.9	46.0
2.224500	26.5	3000.0	9.000	On	L1	19.6	19.5	46.0
4.119000	26.3	3000.0	9.000	On	L1	19.7	19.7	46.0
22.056000	32.0	3000.0	9.000	On	L1	19.8	18.0	50.0

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

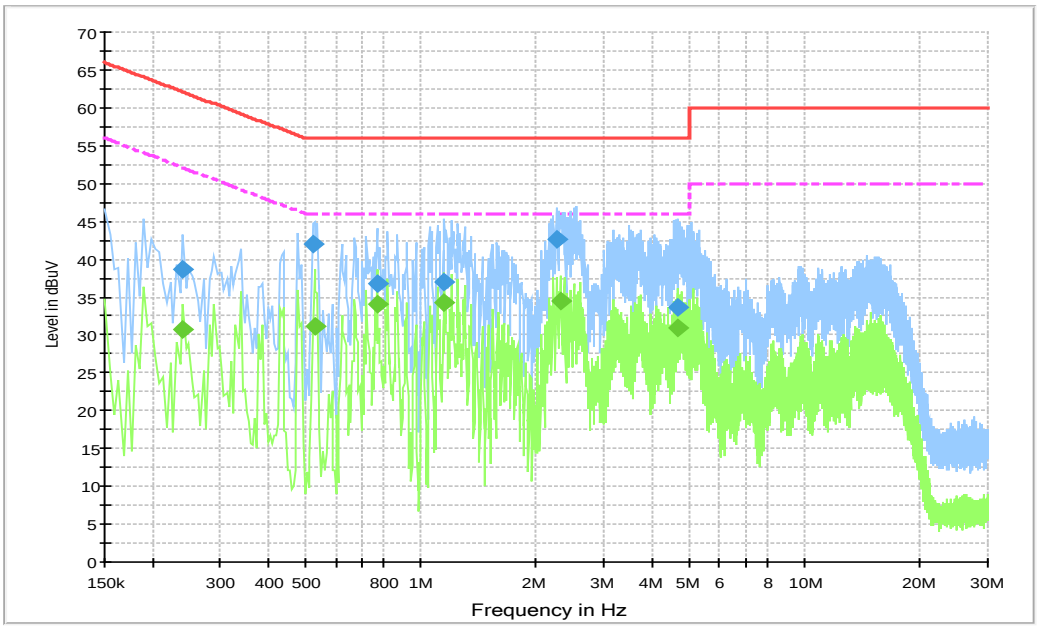

Figure A.20 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.240000	38.6	3000.0	9.000	On	L1	19.7	23.5	62.1
0.523500	41.9	3000.0	9.000	On	L1	19.8	14.1	56.0
0.771000	36.8	3000.0	9.000	On	N	19.7	19.2	56.0
1.153500	37.0	3000.0	9.000	On	N	19.6	19.0	56.0
2.251500	42.6	3000.0	9.000	On	L1	19.6	13.4	56.0
4.659000	33.7	3000.0	9.000	On	N	19.6	22.3	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.240000	30.7	3000.0	9.000	On	L1	19.7	21.4	52.1
0.528000	31.2	3000.0	9.000	On	N	19.8	14.8	46.0
0.771000	34.1	3000.0	9.000	On	L1	19.7	11.9	46.0
1.153500	34.2	3000.0	9.000	On	L1	19.7	11.8	46.0
2.305500	34.4	3000.0	9.000	On	L1	19.6	11.6	46.0
4.645500	31.0	3000.0	9.000	On	L1	19.7	15.0	46.0

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Charger3+Front Camera, Set.3

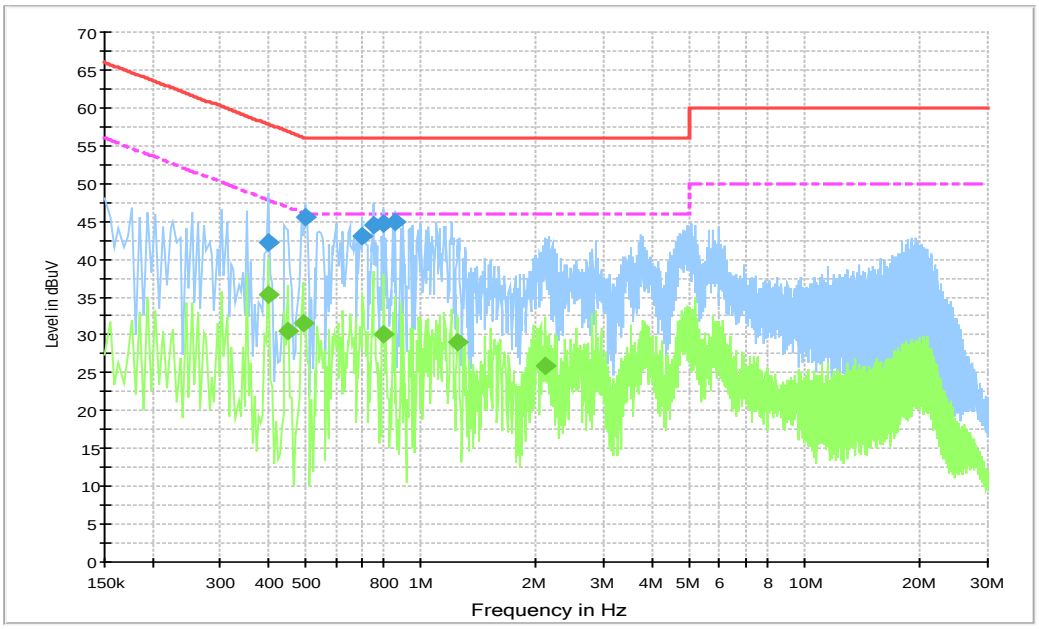

Figure A.21 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.402000	42.1	3000.0	9.000	On	L1	19.8	15.7	57.8
0.501000	45.6	3000.0	9.000	On	N	19.8	10.4	56.0
0.703500	43.1	3000.0	9.000	On	N	19.7	12.9	56.0
0.753000	44.6	3000.0	9.000	On	N	19.7	11.4	56.0
0.802500	44.6	3000.0	9.000	On	N	19.7	11.4	56.0
0.852000	44.9	3000.0	9.000	On	N	19.7	11.1	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.402000	35.3	3000.0	9.000	On	N	19.8	12.5	47.8
0.451500	30.5	3000.0	9.000	On	L1	19.8	16.4	46.8
0.492000	31.5	3000.0	9.000	On	L1	19.8	14.7	46.1
0.802500	30.0	3000.0	9.000	On	L1	19.7	16.0	46.0
1.252500	29.0	3000.0	9.000	On	N	19.6	17.0	46.0
2.098500	25.9	3000.0	9.000	On	N	19.6	20.1	46.0

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Charger4, Set.4

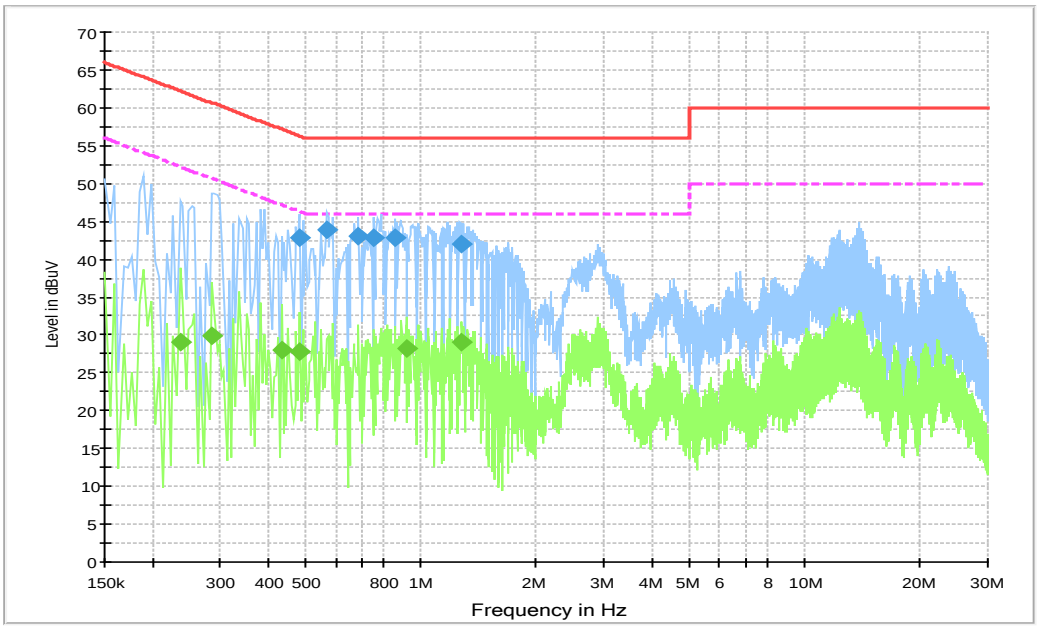

Figure A.22 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.483000	42.8	3000.0	9.000	On	L1	19.8	13.5	56.3
0.568500	43.9	3000.0	9.000	On	L1	19.8	12.1	56.0
0.690000	43.0	3000.0	9.000	On	N	19.7	13.0	56.0
0.757500	42.9	3000.0	9.000	On	N	19.7	13.1	56.0
0.856500	42.8	3000.0	9.000	On	N	19.7	13.2	56.0
1.270500	42.0	3000.0	9.000	On	N	19.6	14.0	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.235500	29.1	3000.0	9.000	On	L1	19.7	23.1	52.3
0.285000	30.0	3000.0	9.000	On	L1	19.7	20.7	50.7
0.433500	28.0	3000.0	9.000	On	L1	19.8	19.2	47.2
0.483000	27.8	3000.0	9.000	On	L1	19.8	18.5	46.3
0.915000	28.1	3000.0	9.000	On	L1	19.7	17.9	46.0
1.279500	29.0	3000.0	9.000	On	L1	19.7	17.0	46.0

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Charger5, Set.5

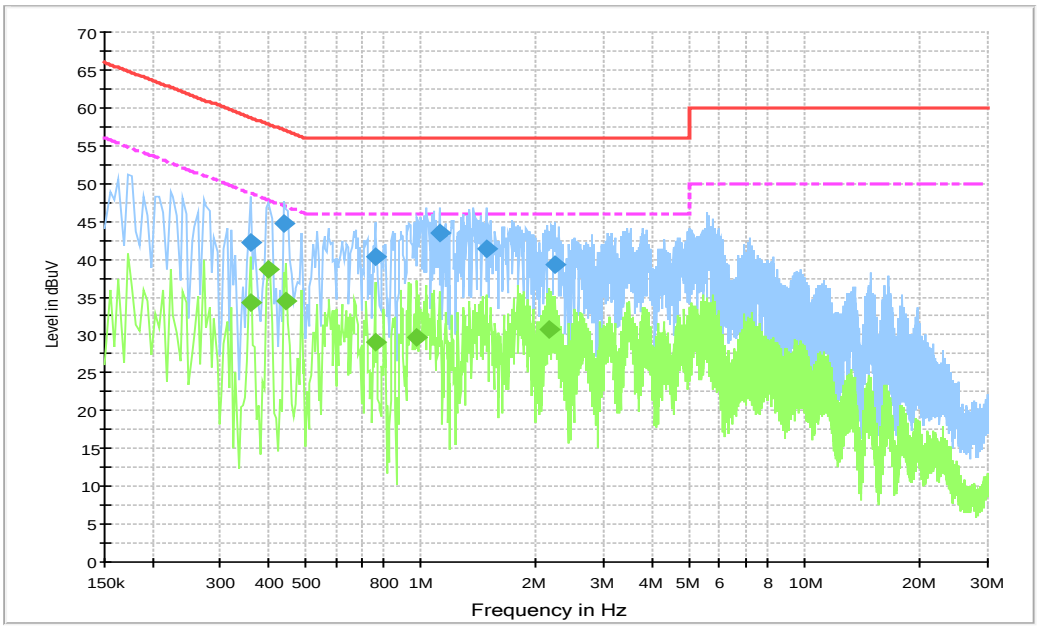

Figure A.23 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.361500	42.2	3000.0	9.000	On	L1	19.7	16.5	58.7
0.438000	44.8	3000.0	9.000	On	L1	19.8	12.3	57.1
0.762000	40.3	3000.0	9.000	On	N	19.7	15.7	56.0
1.117500	43.5	3000.0	9.000	On	N	19.7	12.5	56.0
1.477500	41.3	3000.0	9.000	On	N	19.6	14.7	56.0
2.233500	39.3	3000.0	9.000	On	L1	19.6	16.7	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.361500	34.2	3000.0	9.000	On	L1	19.7	14.5	48.7
0.402000	38.7	3000.0	9.000	On	L1	19.8	9.2	47.8
0.447000	34.6	3000.0	9.000	On	L1	19.8	12.4	46.9
0.762000	29.1	3000.0	9.000	On	L1	19.7	16.9	46.0
0.978000	29.8	3000.0	9.000	On	N	19.7	16.2	46.0
2.152500	30.7	3000.0	9.000	On	L1	19.7	15.3	46.0

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USB (SD) mode, Set.6

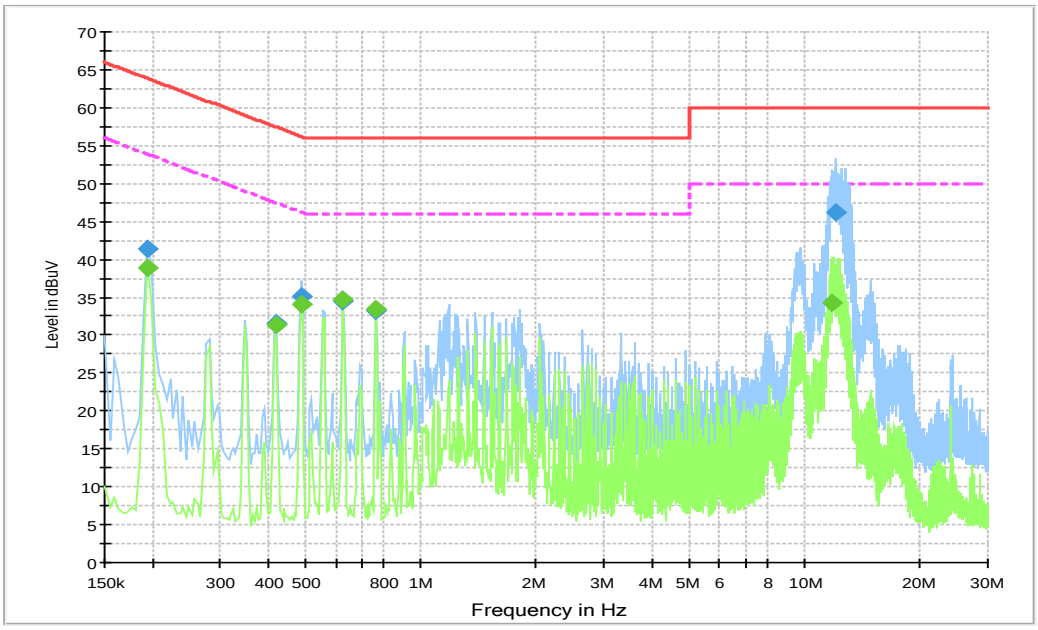

Figure A.24 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.195000	41.4	3000.0	9.000	On	L1	19.6	22.4	63.8
0.420000	31.5	3000.0	9.000	On	L1	19.8	25.9	57.4
0.487500	35.0	3000.0	9.000	On	L1	19.8	21.2	56.2
0.627000	34.5	3000.0	9.000	On	N	19.7	21.5	56.0
0.766500	33.2	3000.0	9.000	On	L1	19.7	22.8	56.0
12.003000	46.1	3000.0	9.000	On	L1	19.8	13.9	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.195000	38.9	3000.0	9.000	On	N	19.6	14.9	53.8
0.420000	31.4	3000.0	9.000	On	N	19.8	16.0	47.4
0.487500	34.0	3000.0	9.000	On	L1	19.8	12.2	46.2
0.627000	34.7	3000.0	9.000	On	L1	19.7	11.3	46.0
0.766500	33.4	3000.0	9.000	On	N	19.7	12.6	46.0
11.836500	34.3	3000.0	9.000	On	N	19.8	15.7	50.0

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ANNEX B: Persons involved in this testing

Test Item	Tester
Radiated Emission	Li Zongliang
Conducted Emission	Guo Qian

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

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