TEST REPORT

No. I21Z70098-EMC01

for

Samsung Electronics Co., Ltd.

Tablet PC

Model Name: SM-T227U

FCC ID: ZCASMT227U

ISED Number: 25314-SMT227U

with

Hardware Version: REV1.0

Software Version: T227U.001

Issued Date: 2021-05-14

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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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I21Z70098-EMC01	Rev.0	1st edition	2021-04-29
I21Z70098-EMC01	Rev.1	Remove GSM mode	2021-05-14

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: 2021-03-26

Testing End Date: 2021-04-26

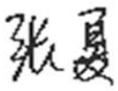
1.5. Signature

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	Tablet PC
Model Name	SM-T227U
FCC ID	ZCASMT227U
ISED Number	25314-SMT227U
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
UT12a	2170098UT12a	REV1.0	T227U.001

*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	Charger6	/	/
AE7	USB cable	/	/
AE8	Headset1	/	/
AE9	Headset2	/	/
AE10	battery	/	/

AE1

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

AE2

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

AE3

Model	EP-TA200
Manufacturer	DongYang E&P Inc.
Length of cable	/

AE4

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

AE5

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

AE6

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

AE7

Model	EP-DT725BWE
Manufacturer	Samsung Electronics Co., Ltd.
Length of cable	/

AE8

Model	EHS61ASFWE
Manufacturer	ALMUS
Length of cable	/

AE9

Model	EHS61ASFWE
Manufacturer	Cresyn
Length of cable	/

AE10

Type	Secondary Li-ion Battery
SN	HQ-3565S
Manufacturer	SCUD (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: WCDMA BAND 5, LTE BAND 5, LTE BAND 12, LTE BAND 13, LTE BAND 14, LTE BAND 17, LTE BAND 26, and LTE BAND 71.

3.5. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	UT12a + AE1 + AE7+ AE8	Charger1+ Rear Camera + Headset1
Set.2	UT12a + AE2 + AE7+ AE8	Charger2+MP4+ Headset1
Set.3	UT12a + AE3 + AE7+ AE9	Charger3+ Front camera + Headset2
Set.4	UT12a + AE4 + AE7+ AE9	Charger4+MP3+Headset2
Set.5	UT12a + AE5 + AE7	Charger5+ charging mode
Set.6	UT12a + AE6 + AE7	Charger6+ RX mode
Set.7	UT12a + AE7 + AE8	USB SD TO PC + Headset1

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC 47 CFR Part 15, Subpart B	Radio frequency devices - Unintentional Radiators	2019
ICES-003	Information Technology Equipment (including Digital Apparatus)	Issue 7 2020
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-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	Clause in ISED rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	Section 3	A.1	P	**CTTL(BDA)**
2	Conducted Emission	15.107(a)	Section 3	A.2	P	**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	2022-03-09	1 year
3	LISN	ENV216	101459	R&S	2022-03-22	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

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission

Reference

FCC: CFR Part 15.109(a).

ISED: ICES-003 Section 3.2.2.

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator 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 EUT is operating in the USB mode, charging mode, MP4, CAMERA and SD 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.

Note: Test data in this section has been taken against the FCC 15.109(a) limit as it is the most stringent limit. By complying with more restrictive FCC 15.109 limit compliance with the ICES-003 Issue 7 limit also demonstrated.

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)
17698.500	38.4	-22.2	41.2	19.33	54.0	15.6	H
17700.000	38.4	-22.2	41.2	19.31	54.0	15.6	V
17686.000	38.3	-22.1	41.2	19.23	54.0	15.7	H
17687.000	38.3	-22.1	41.2	19.18	54.0	15.7	V
17690.000	38.3	-22.2	41.2	19.18	54.0	15.7	V
17583.500	38.3	-22.3	41.2	19.39	54.0	15.7	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)
16827.000	52.0	-23.0	41.6	33.38	74.0	22.0	H
17991.000	51.1	-22.8	41.3	32.57	74.0	22.9	H
17718.000	51.0	-22.2	41.2	31.98	74.0	23.0	V
16953.000	50.9	-23.0	41.7	32.29	74.0	23.1	V
17816.000	50.9	-22.4	41.3	32.05	74.0	23.1	V
17606.000	50.8	-22.2	41.2	31.77	74.0	23.2	H

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)
17644.000	38.5	-22.0	41.2	19.36	54.0	15.5	H
17690.000	38.5	-22.2	41.2	19.44	54.0	15.5	V
17687.500	38.5	-22.1	41.2	19.37	54.0	15.5	V
17703.000	38.4	-22.2	41.2	19.39	54.0	15.6	V
17696.500	38.4	-22.2	41.2	19.36	54.0	15.6	V
17688.500	38.4	-22.2	41.2	19.33	54.0	15.6	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)
17057.500	51.3	-23.0	41.6	32.65	74.0	22.7	V
17624.000	51.0	-22.1	41.2	31.82	74.0	23.0	V
16590.000	50.8	-23.3	41.5	32.68	74.0	23.2	V
16964.500	50.8	-23.0	41.7	32.14	74.0	23.2	V
17712.500	50.8	-22.2	41.2	31.77	74.0	23.2	H
17774.000	50.8	-22.4	41.3	31.87	74.0	23.2	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)
17692.500	38.7	-22.2	41.2	19.65	54.0	15.3	V
17691.000	38.6	-22.2	41.2	19.48	54.0	15.4	V
17701.000	38.6	-22.2	41.2	19.50	54.0	15.4	V
17689.000	38.6	-22.2	41.2	19.47	54.0	15.4	H
17690.500	38.6	-22.2	41.2	19.47	54.0	15.4	H
17704.000	38.5	-22.2	41.2	19.47	54.0	15.5	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)
17637.000	51.8	-22.0	41.2	32.63	74.0	22.2	V
17053.500	51.6	-23.0	41.6	32.97	74.0	22.4	V
16965.000	51.4	-23.0	41.7	32.70	74.0	22.6	V
17766.000	51.3	-22.3	41.3	32.42	74.0	22.7	V
17222.500	51.1	-22.9	41.5	32.46	74.0	22.9	H
16932.500	50.9	-23.0	41.7	32.24	74.0	23.1	H

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	38.7	-22.1	41.2	19.62	54.0	15.3	H
17700.500	38.7	-22.2	41.2	19.61	54.0	15.3	V
17705.000	38.7	-22.2	41.2	19.60	54.0	15.3	V
17695.500	38.6	-22.2	41.2	19.57	54.0	15.4	V
17697.500	38.6	-22.2	41.2	19.56	54.0	15.4	V
17644.500	38.6	-22.0	41.2	19.41	54.0	15.4	V

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)
17684.000	51.7	-22.1	41.2	32.61	74.0	22.3	V
17863.500	51.3	-22.5	41.3	32.57	74.0	22.7	H
17801.000	51.1	-22.4	41.3	32.27	74.0	22.9	V
17853.500	51.0	-22.5	41.3	32.24	74.0	23.0	H
17705.000	50.9	-22.2	41.2	31.87	74.0	23.1	H
17033.000	50.7	-23.0	41.7	32.07	74.0	23.3	H

Measurement results for Set.7:

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)
17700.000	39.1	-22.2	41.2	20.00	54.0	14.9	V
17704.500	39.0	-22.2	41.2	19.99	54.0	15.0	V
17695.500	39.0	-22.2	41.2	19.96	54.0	15.0	V
17704.000	39.0	-22.2	41.2	19.97	54.0	15.0	V
17693.000	39.0	-22.2	41.2	19.89	54.0	15.0	V
17904.500	39.0	-22.6	41.3	20.30	54.0	15.0	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)
16938.500	52.3	-23.0	41.7	33.63	74.0	21.7	V
16792.000	51.5	-23.0	41.6	32.93	74.0	22.5	V
17069.500	51.3	-23.0	41.6	32.75	74.0	22.7	H
17039.500	51.3	-23.0	41.7	32.66	74.0	22.7	V
17735.000	51.2	-22.3	41.2	32.21	74.0	22.8	H
17933.000	51.2	-22.7	41.3	32.56	74.0	22.8	V

Measurement results for Set.5

Charger5, charging mode /Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17704.500	38.8	-22.2	41.2	19.75	54.0	15.2	V
17742.500	38.7	-22.3	41.2	19.77	54.0	15.3	V
17645.500	38.7	-22.1	41.2	19.54	54.0	15.3	V
17695.000	38.7	-22.2	41.2	19.64	54.0	15.3	V
17697.500	38.7	-22.2	41.2	19.64	54.0	15.3	H
17696.500	38.7	-22.2	41.2	19.63	54.0	15.3	V

Charger5, charging mode /Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17659.000	51.4	-22.1	41.2	32.28	74.0	22.6	V
17642.500	51.3	-22.0	41.2	32.08	74.0	22.7	H
17720.000	51.2	-22.2	41.2	32.19	74.0	22.8	V
16964.000	51.1	-23.0	41.7	32.43	74.0	22.9	V
17906.500	50.8	-22.6	41.3	32.18	74.0	23.2	H
17646.500	50.8	-22.1	41.2	31.64	74.0	23.2	H

Measurement results for Set.6

RX mode WCDMA 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)
17690.000	39.0	-22.2	41.2	19.87	54.0	15.0	V
17713.500	38.9	-22.2	41.2	19.92	54.0	15.1	V
17693.500	38.8	-22.2	41.2	19.74	54.0	15.2	V
17701.500	38.8	-22.2	41.2	19.70	54.0	15.2	V
17740.000	38.8	-22.3	41.2	19.78	54.0	15.2	H
17703.500	38.8	-22.2	41.2	19.70	54.0	15.2	H

RX mode WCDMA 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)
16975.000	51.4	-23.0	41.7	32.68	74.0	22.6	V
17027.500	50.8	-23.0	41.7	32.18	74.0	23.2	V
17714.500	50.8	-22.2	41.2	31.74	74.0	23.2	V
17802.000	50.7	-22.4	41.3	31.90	74.0	23.3	V
17740.000	50.7	-22.3	41.2	31.77	74.0	23.3	V
17091.000	50.6	-23.0	41.6	32.03	74.0	23.4	H

Charger1+ Rear Camera, Set.1

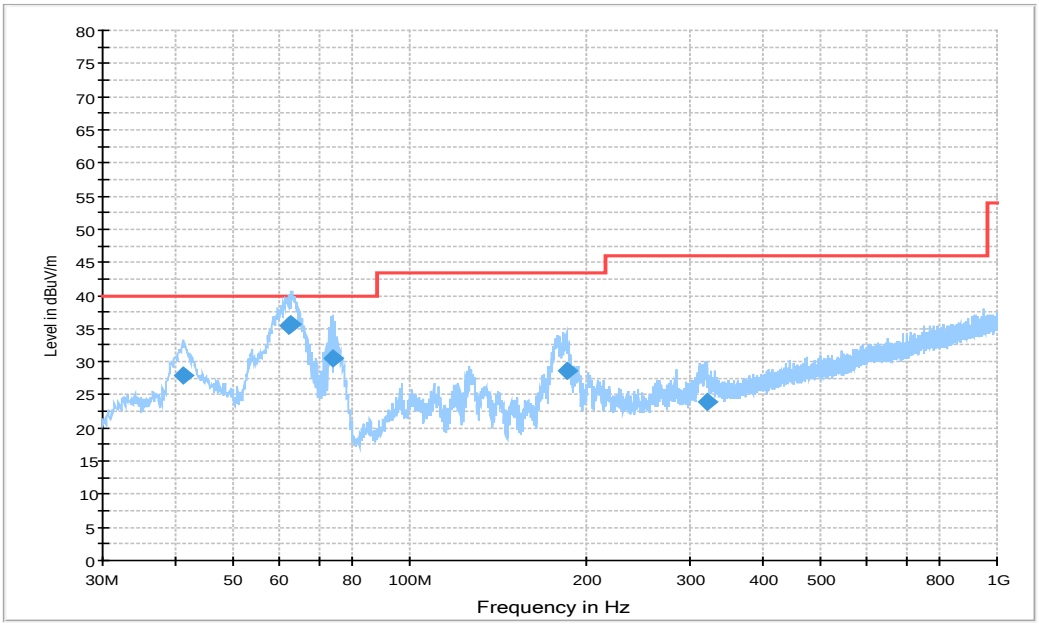


Figure A.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
41.058000	27.8	100.0	V	69.0	-0.6	12.2	40.0
62.204000	35.5	100.0	V	249.0	-1.9	4.5	40.0
62.883000	35.7	100.0	V	260.0	-2.1	4.3	40.0
74.038000	30.6	100.0	V	270.0	-5.8	9.4	40.0
184.71500	28.7	100.0	V	3.0	-3.1	14.8	43.5
319.83600	23.9	100.0	H	183.0	1.3	22.1	46.0

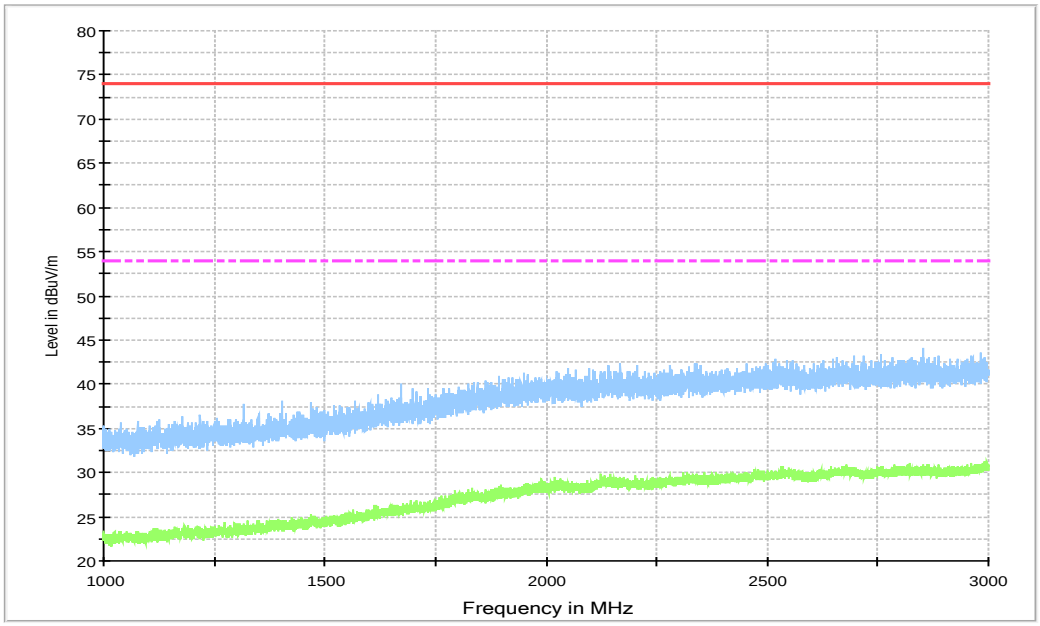


Figure A.2 Radiated Emission from 1GHz to 3GHz

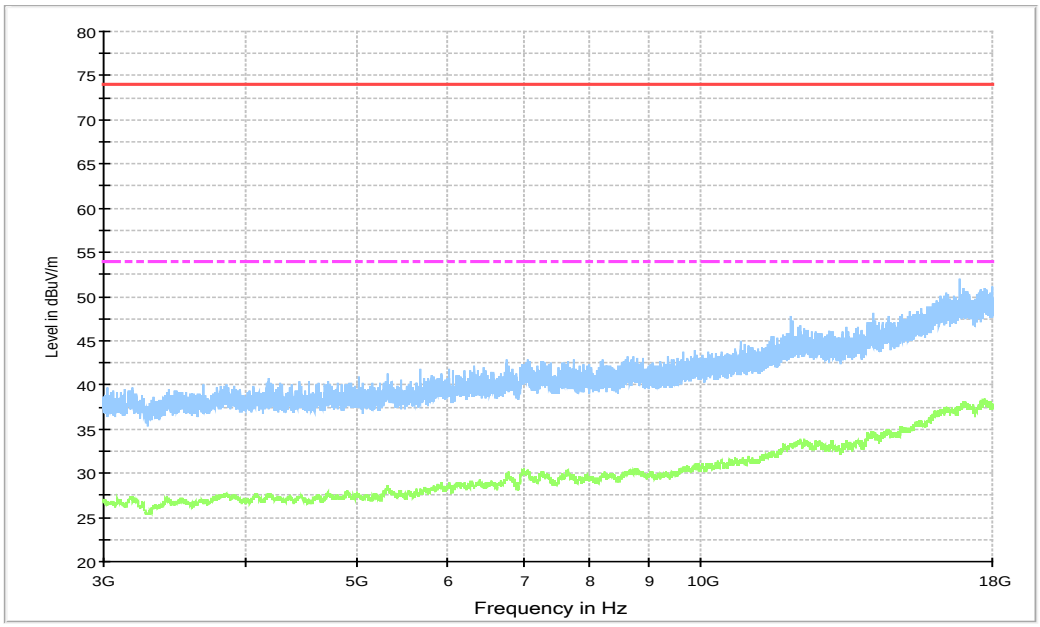


Figure A.3 Radiated Emission from 3GHz to 18GHz

Charger2+MP4, Set.2

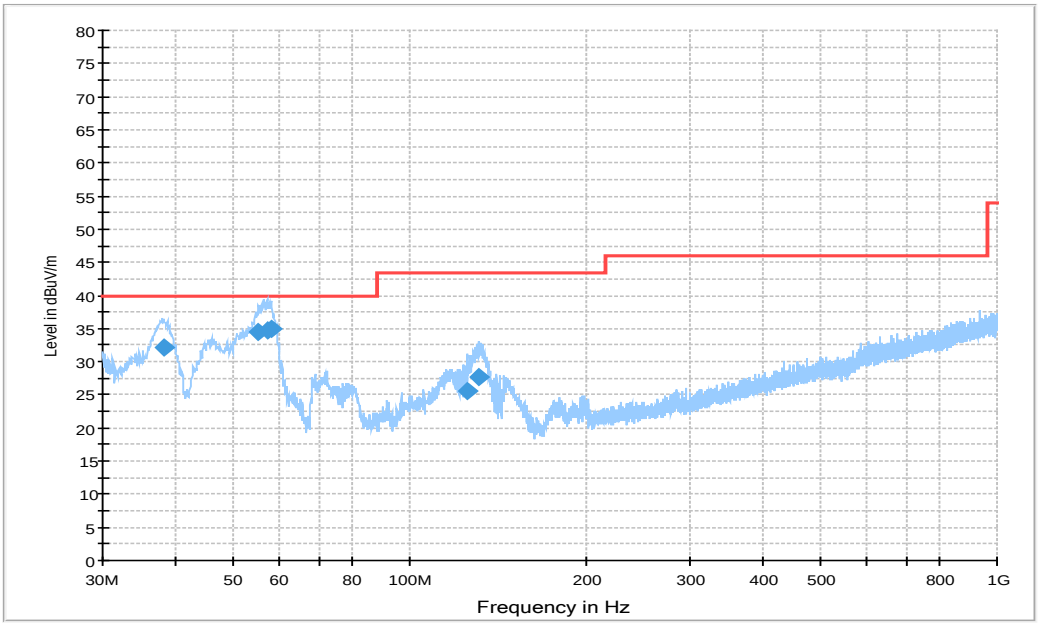


Figure A.4 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
38.051000	32.1	100.0	V	40.0	-1.1	8.0	40.0
55.317000	34.6	100.0	V	245.0	-0.8	5.4	40.0
57.160000	34.8	119.0	V	257.0	-0.8	5.2	40.0
58.033000	35.0	100.0	V	242.0	-0.9	5.0	40.0
125.54500	25.6	100.0	V	190.0	-4.9	17.9	43.5
131.36500	27.7	100.0	V	187.0	-5.3	15.8	43.5

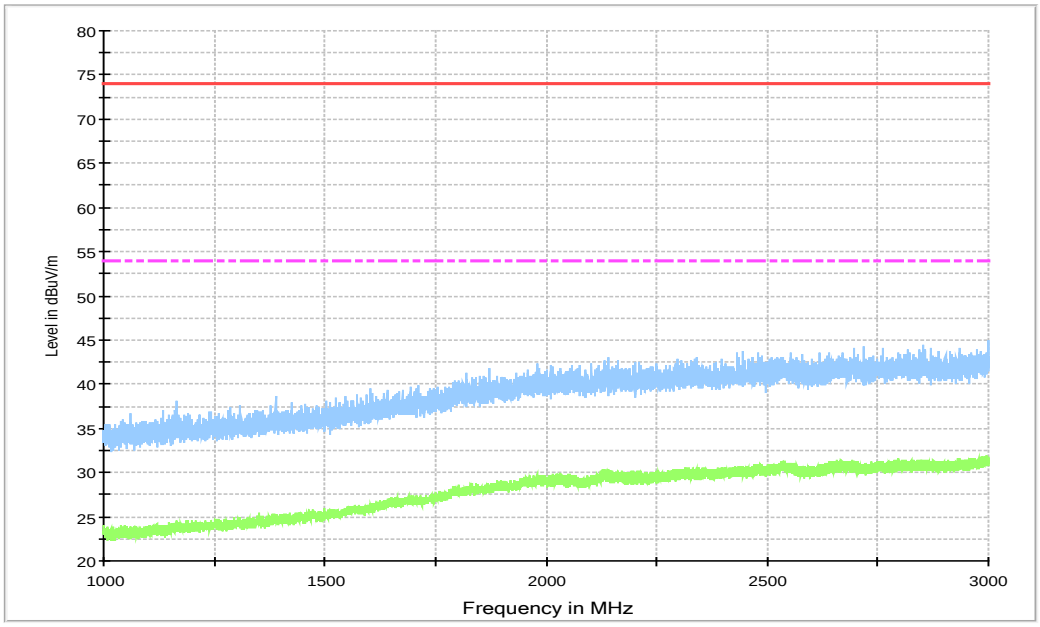


Figure A.5 Radiated Emission from 1GHz to 3GHz

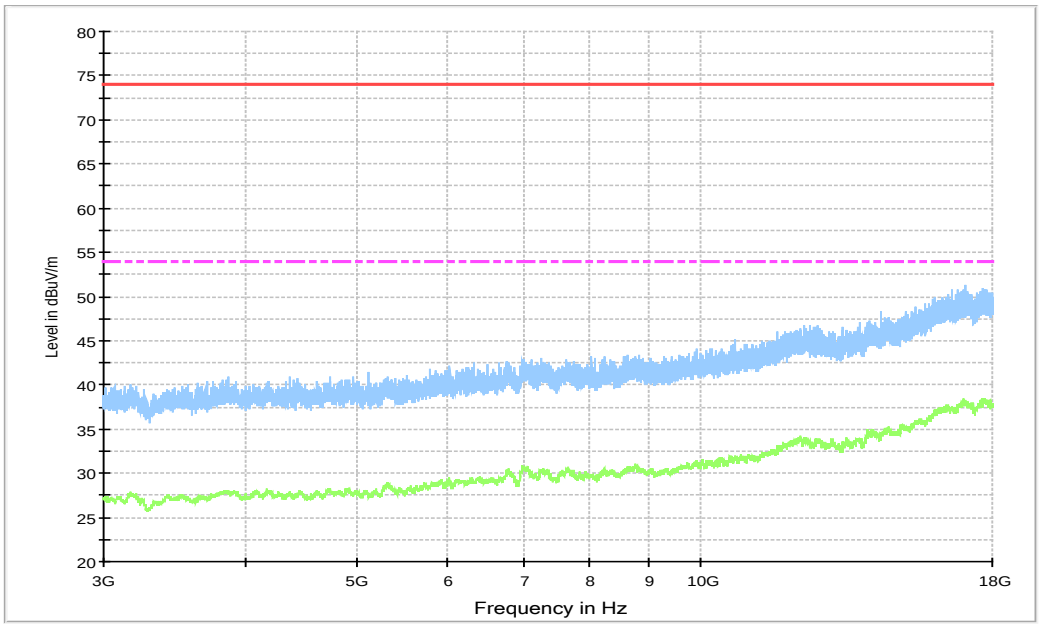


Figure A.6 Radiated Emission from 3GHz to 18GHz

Charger3+Front Camera, Set.3

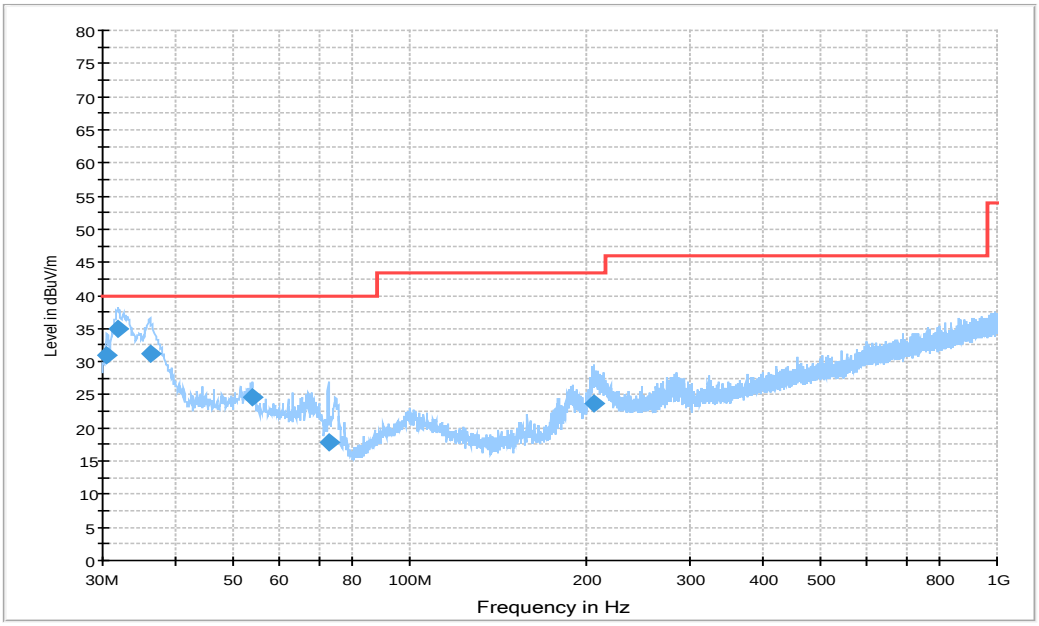


Figure A.7 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.485000	31.0	100.0	V	152.0	-3.0	9.0	40.0
31.843000	35.0	100.0	V	170.0	-2.6	5.0	40.0
36.208000	31.2	100.0	V	93.0	-1.5	8.8	40.0
53.959000	24.5	100.0	V	267.0	-0.7	15.5	40.0
72.680000	17.7	125.0	V	135.0	-5.5	22.3	40.0
206.54000	23.6	100.0	V	202.0	-2.0	19.9	43.5

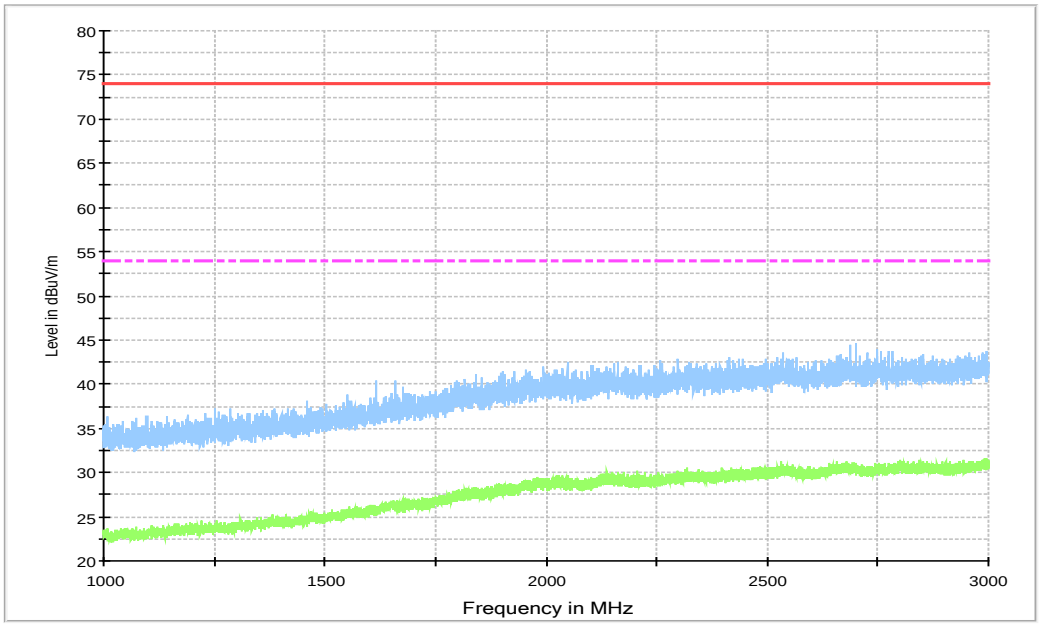


Figure A.8 Radiated Emission from 1GHz to 3GHz

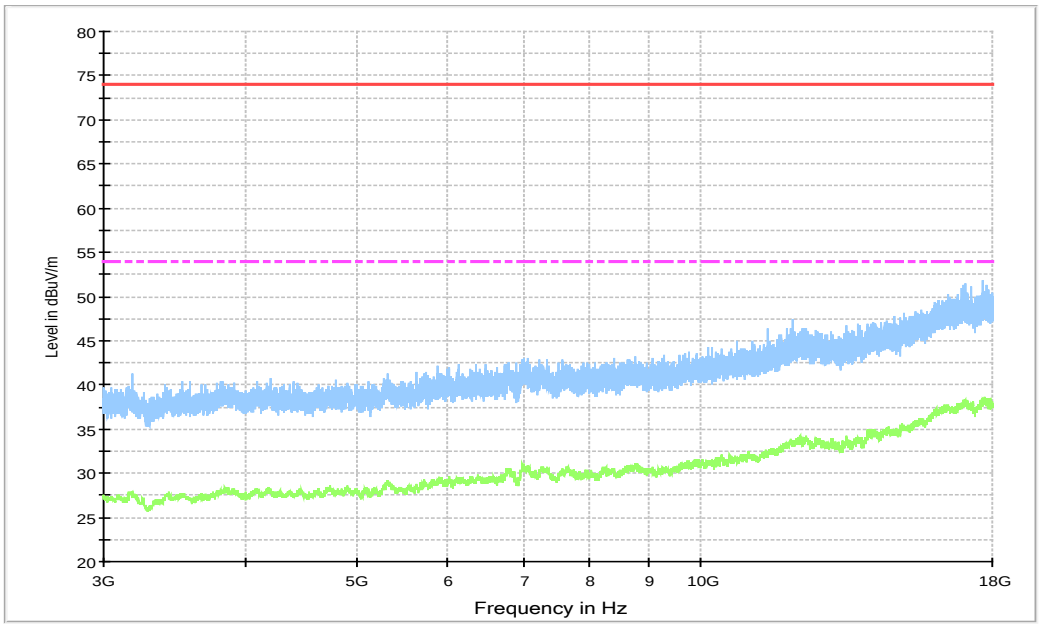


Figure A.9 Radiated Emission from 3GHz to 18GHz

Charger4+MP3, Set.4

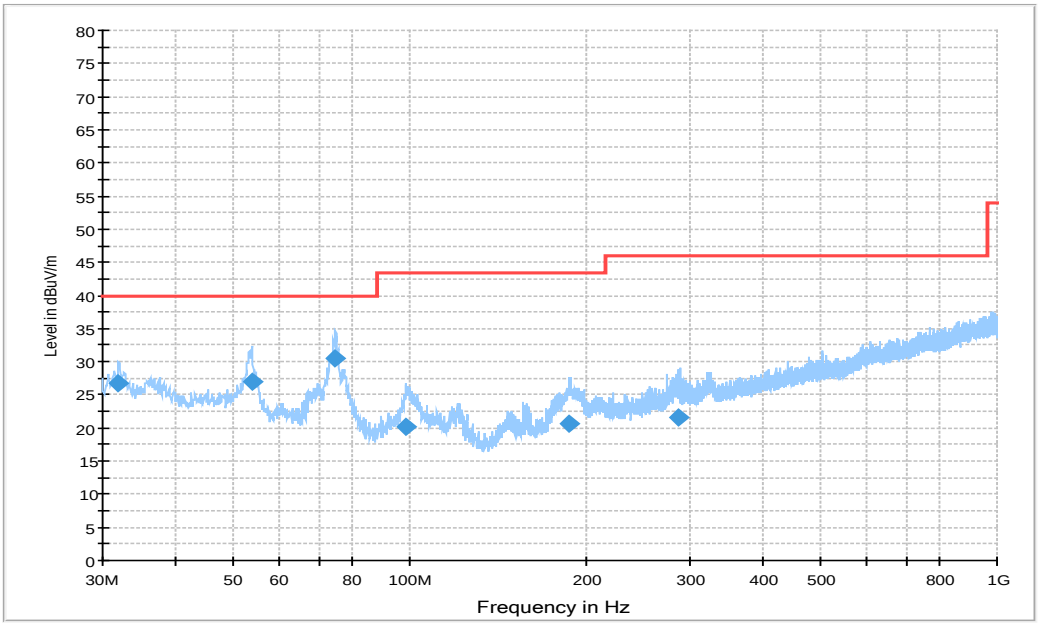


Figure A.10 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
31.940000	26.8	100.0	V	8.0	-2.6	13.2	40.0
53.765000	26.9	100.0	V	263.0	-0.7	13.1	40.0
74.814000	30.6	100.0	V	225.0	-6.0	9.4	40.0
98.579000	20.2	100.0	V	315.0	-2.2	23.3	43.5
187.33400	20.5	110.0	V	22.0	-2.7	23.0	43.5
286.75900	21.6	125.0	H	116.0	0.2	24.4	46.0

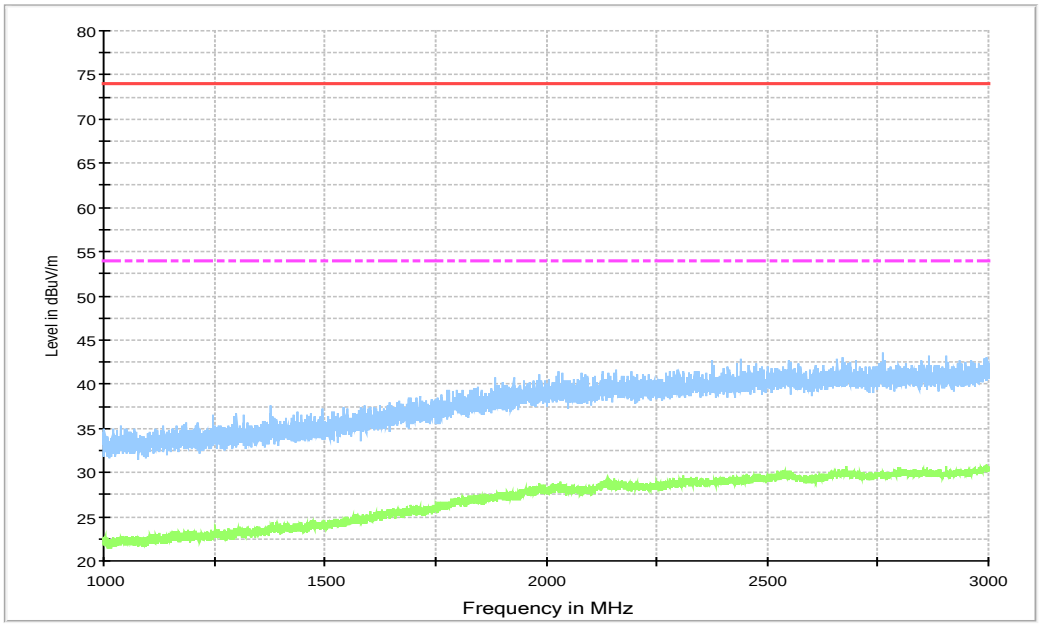


Figure A.11 Radiated Emission from 1GHz to 3GHz

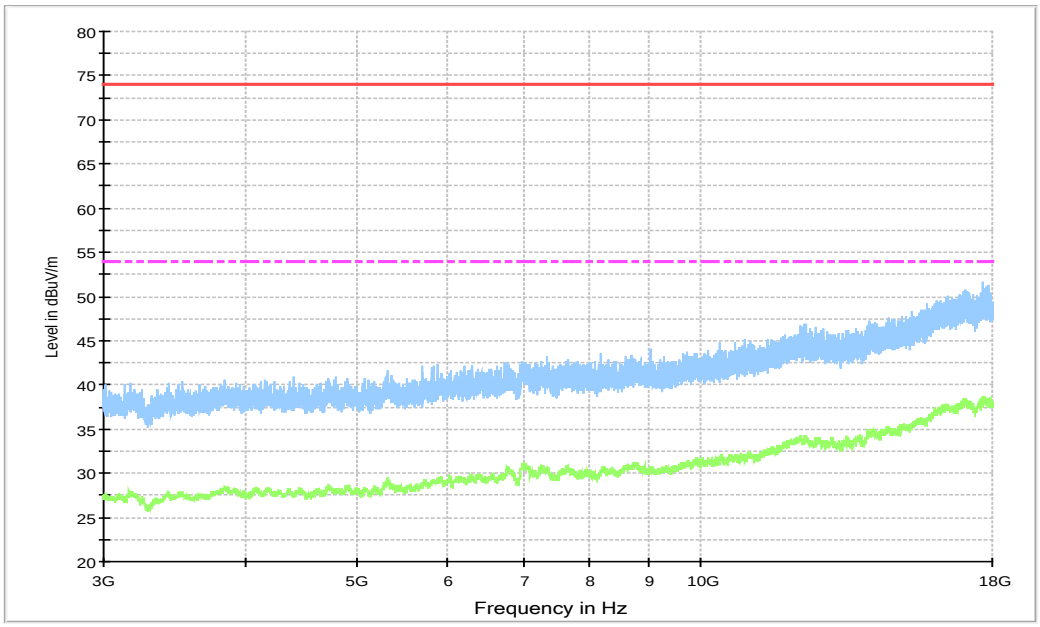


Figure A.12 Radiated Emission from 3GHz to 18GHz

USB (SD) mode, Set.7

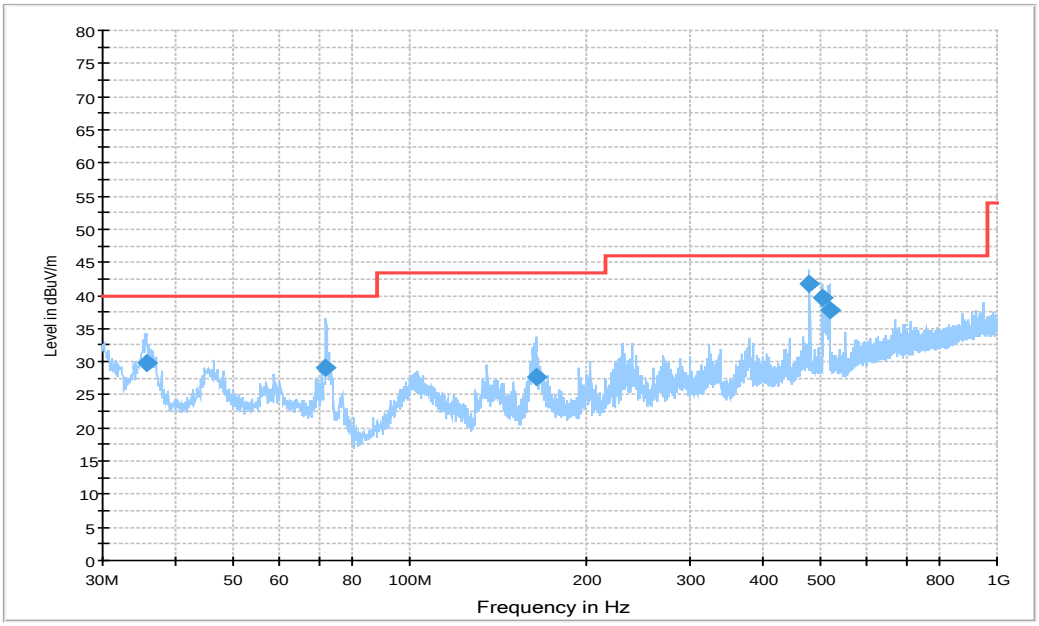


Figure A.13 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
35.626000	29.7	100.0	V	292.0	-1.7	10.3	40.0
72.001000	29.0	100.0	V	270.0	-5.3	11.0	40.0
163.95700	27.8	119.0	H	135.0	-4.8	15.7	43.5
479.98300	41.9	100.0	V	198.0	5.8	4.1	46.0
503.55400	39.7	125.0	V	-24.0	6.1	6.3	46.0
518.29800	37.7	125.0	V	-14.0	6.3	8.3	46.0

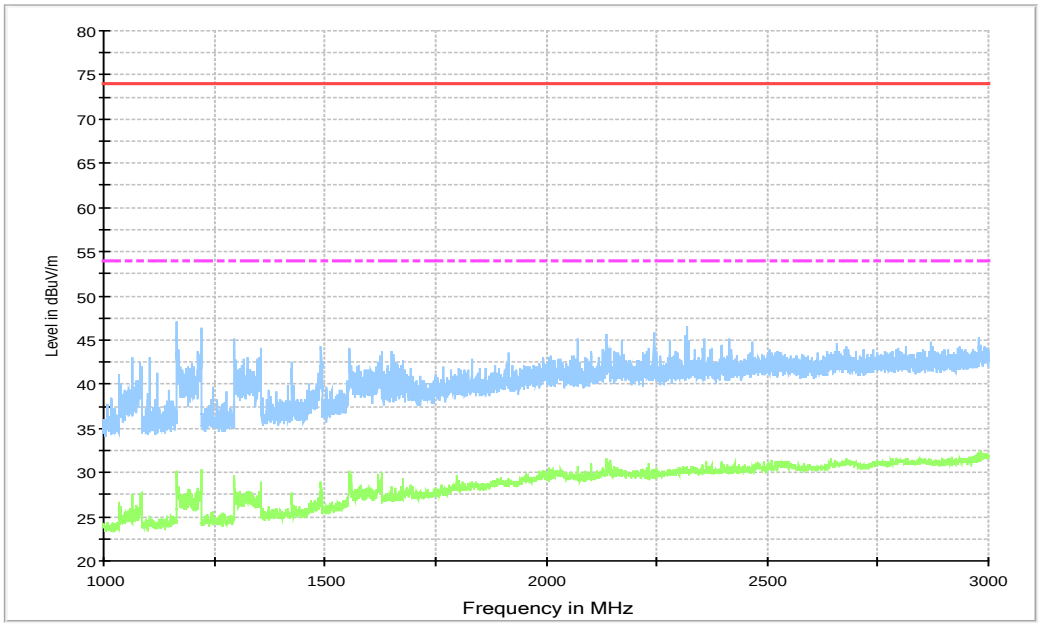


Figure A.14 Radiated Emission from 1GHz to 3GHz

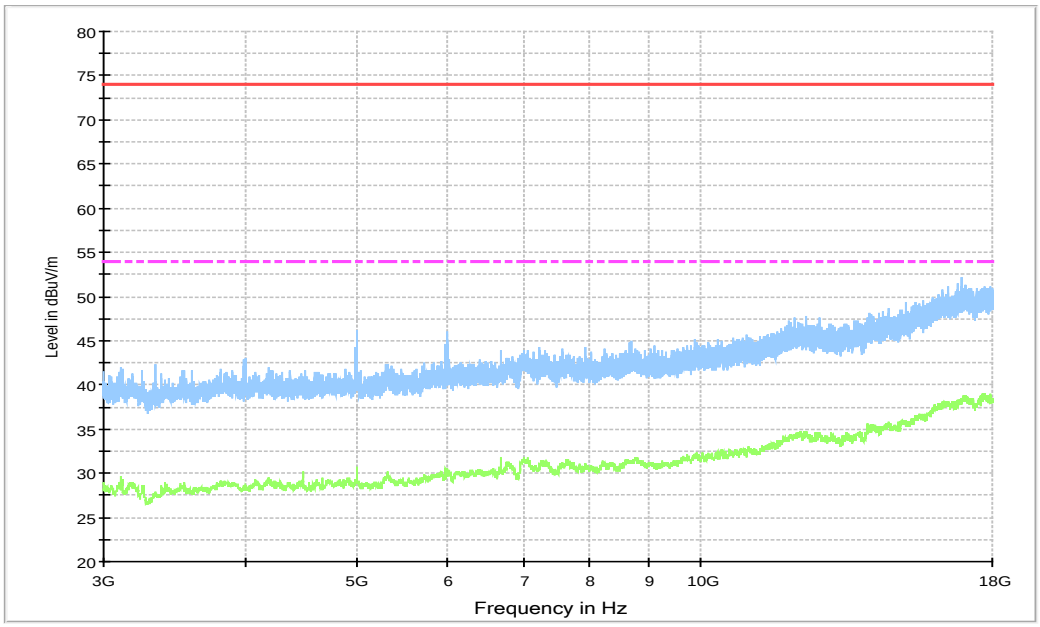


Figure A.15 Radiated Emission from 3GHz to 18GHz

Charger5, Charging mode, Set.5

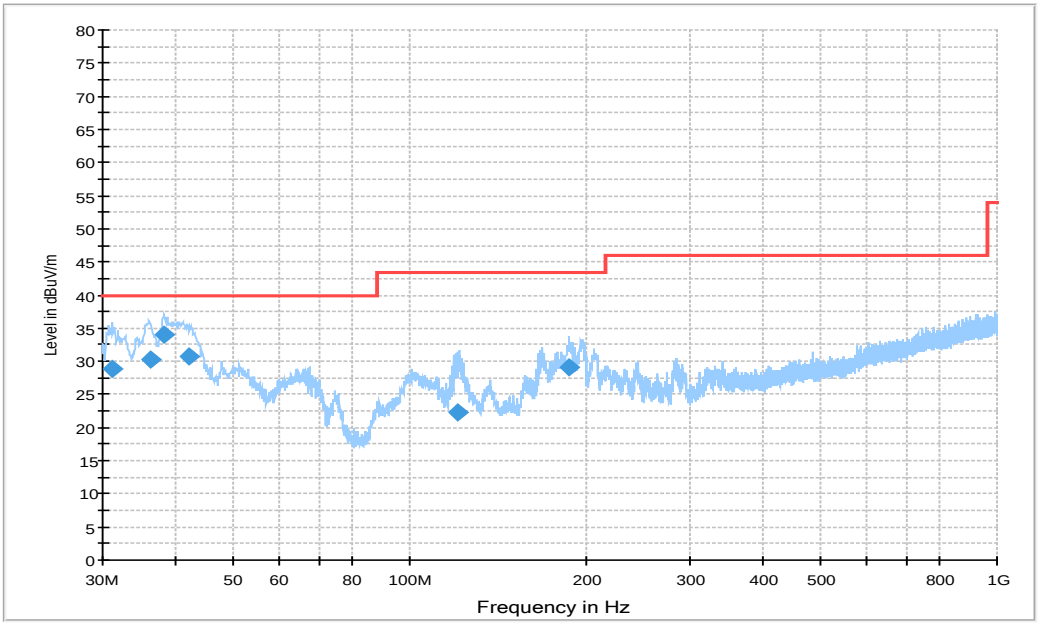


Figure A.16 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
31.164000	28.9	100.0	V	51.0	-2.8	11.1	40.0
36.305000	30.3	100.0	V	173.0	-1.5	9.7	40.0
38.245000	34.1	121.0	V	152.0	-1.0	5.9	40.0
42.028000	30.8	100.0	V	177.0	-0.6	9.2	40.0
120.50100	22.3	111.0	V	22.0	-4.5	21.2	43.5
186.94600	29.1	100.0	V	-7.0	-2.8	14.4	43.5

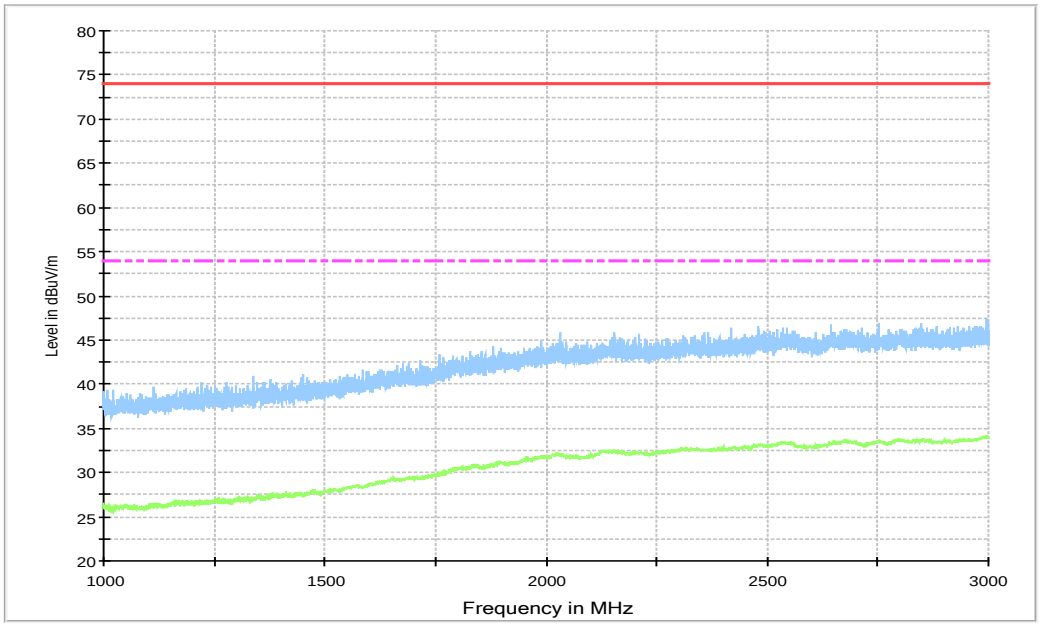


Figure A.17 Radiated Emission from 1GHz to 3GHz

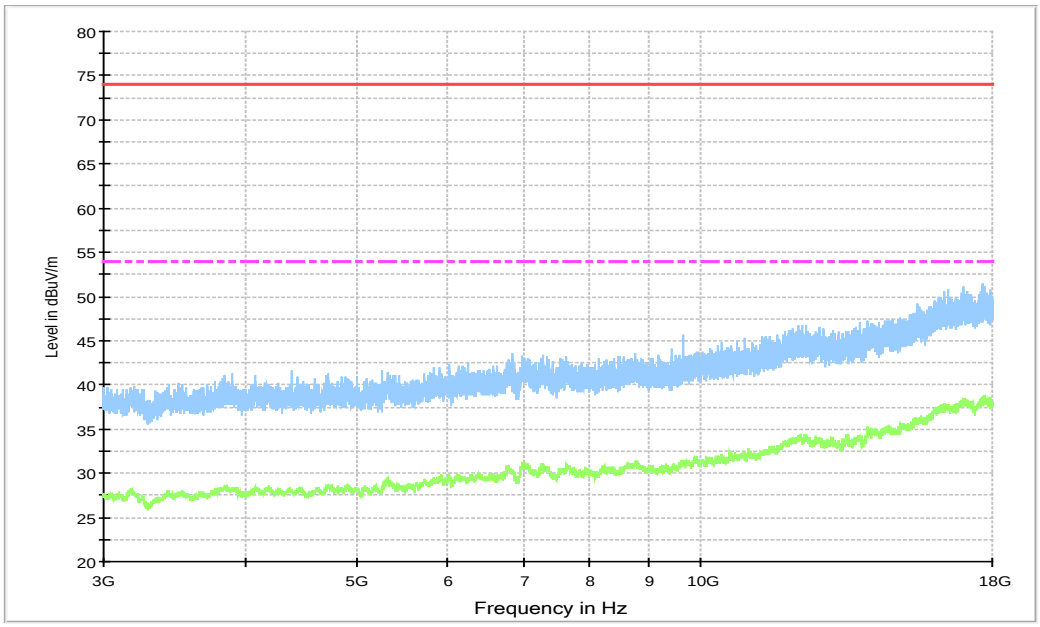


Figure A.18 Radiated Emission from 3GHz to 18GHz

License RX band mode, Set.6

WCDMA B5 MID CHANNEL

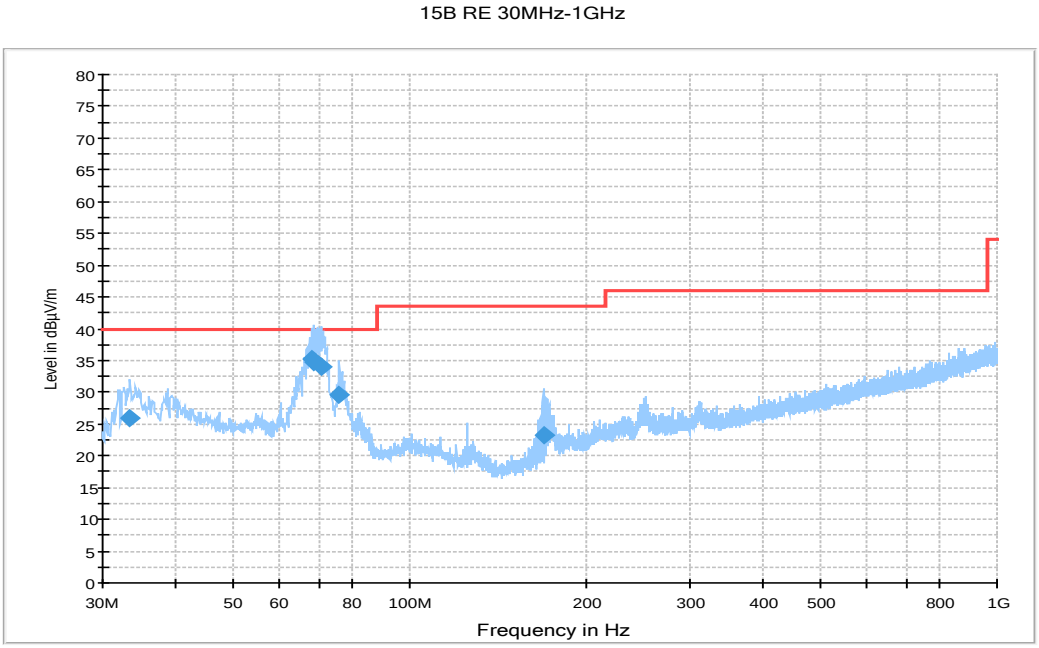


Figure A.19 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
33.395000	25.8	100.0	V	150.0	-1.8	14.2	40.0
68.218000	35.1	100.0	V	271.0	-3.9	4.9	40.0
68.800000	34.8	100.0	V	228.0	-4.1	5.2	40.0
70.837000	33.9	110.0	V	238.0	-4.7	6.1	40.0
75.881000	29.7	100.0	V	276.0	-5.9	10.3	40.0
168.71000	23.3	100.0	V	2.0	-4.1	20.2	43.5

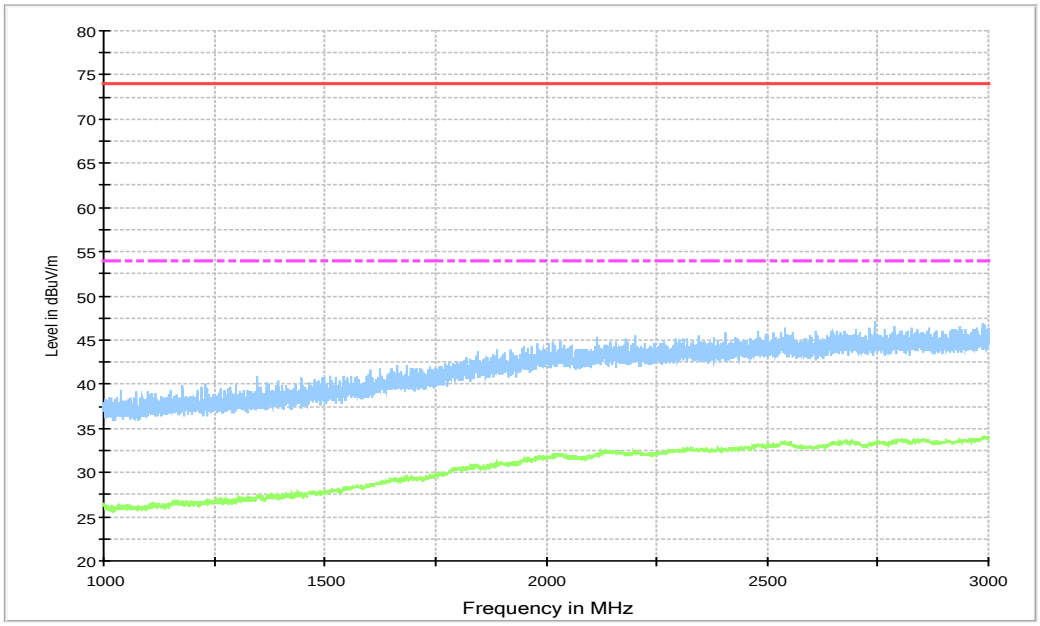


Figure A.20 Radiated Emission from 1GHz to 3GHz

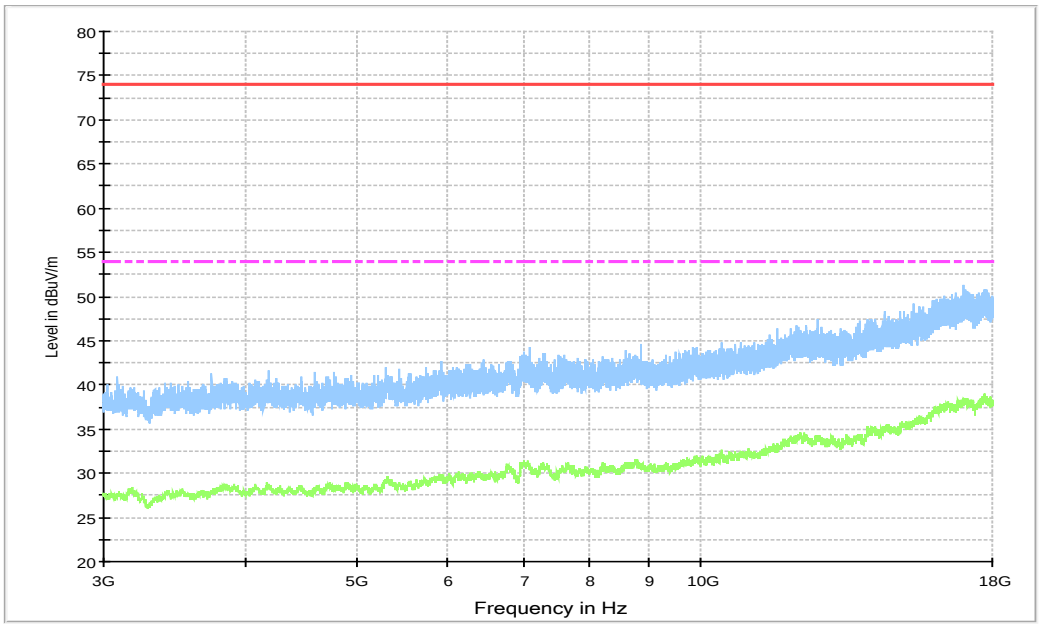


Figure A.21 Radiated Emission from 3GHz to 18GHz

A.2 Conducted Emission

Reference

FCC: CFR Part 15.107(a).

ISED: ICES-003 Section 3.2.1

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 EUT 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 EUT, 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

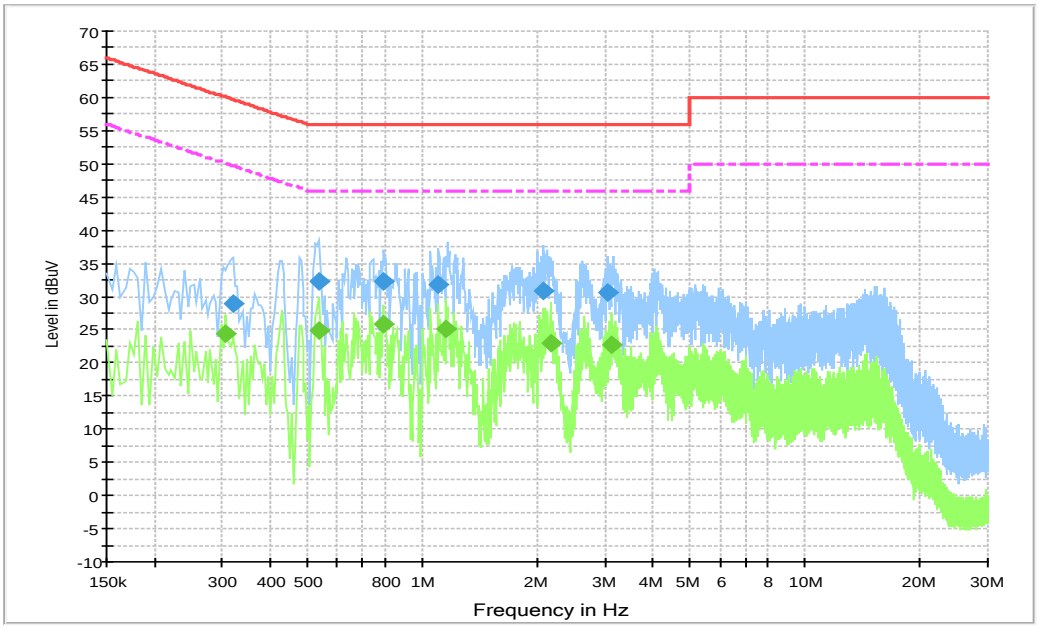


Figure A.22 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.321000	28.8	1000.0	9.000	On	L1	9.9	30.9	59.7
0.537000	32.3	1000.0	9.000	On	L1	9.9	23.7	56.0
0.793500	32.3	1000.0	9.000	On	L1	9.8	23.7	56.0
1.104000	31.8	1000.0	9.000	On	L1	9.8	24.2	56.0
2.067000	30.9	1000.0	9.000	On	L1	9.7	25.1	56.0
3.057000	30.6	1000.0	9.000	On	L1	9.7	25.4	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.307500	24.3	1000.0	9.000	On	L1	9.9	25.7	50.0
0.537000	24.9	1000.0	9.000	On	L1	9.9	21.1	46.0
0.789000	25.8	1000.0	9.000	On	L1	9.8	20.2	46.0
1.153500	25.0	1000.0	9.000	On	L1	9.8	21.0	46.0
2.161500	22.9	1000.0	9.000	On	L1	9.7	23.1	46.0
3.133500	22.6	1000.0	9.000	On	L1	9.7	23.4	46.0

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

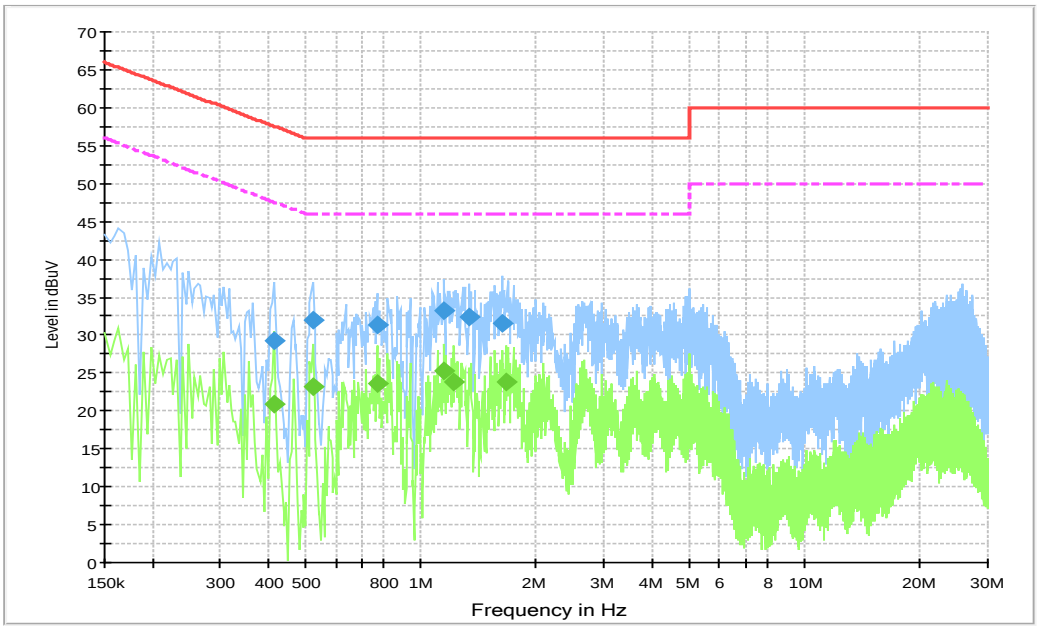


Figure A.23 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.415500	29.2	1000.0	9.000	On	L1	9.9	28.3	57.5
0.523500	31.9	1000.0	9.000	On	L1	9.9	24.1	56.0
0.771000	31.3	1000.0	9.000	On	L1	9.8	24.7	56.0
1.153500	33.3	1000.0	9.000	On	L1	9.8	22.7	56.0
1.333500	32.3	1000.0	9.000	On	L1	9.7	23.7	56.0
1.630500	31.7	1000.0	9.000	On	L1	9.7	24.3	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.415500	20.9	1000.0	9.000	On	L1	9.9	26.7	47.5
0.523500	23.1	1000.0	9.000	On	L1	9.9	22.9	46.0
0.771000	23.7	1000.0	9.000	On	L1	9.8	22.3	46.0
1.153500	25.2	1000.0	9.000	On	L1	9.8	20.8	46.0
1.221000	23.9	1000.0	9.000	On	L1	9.7	22.1	46.0
1.662000	23.8	1000.0	9.000	On	L1	9.7	22.2	46.0

Charger3+Front Camera, Set.3

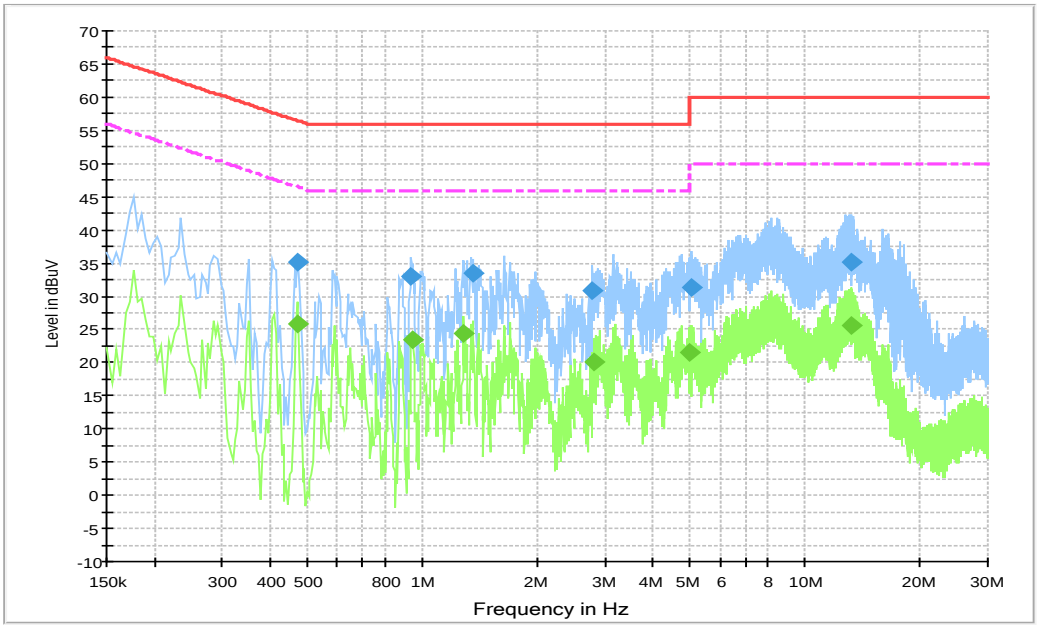


Figure A.24 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.474000	35.2	1000.0	9.000	On	L1	9.9	21.2	56.4
0.937500	33.0	1000.0	9.000	On	L1	9.8	23.0	56.0
1.356000	33.4	1000.0	9.000	On	L1	9.7	22.6	56.0
2.791500	30.8	1000.0	9.000	On	L1	9.7	25.2	56.0
5.037000	31.2	1000.0	9.000	On	L1	9.7	28.8	60.0
13.236000	35.2	1000.0	9.000	On	L1	9.7	24.8	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.474000	25.8	1000.0	9.000	On	L1	9.9	20.6	46.4
0.942000	23.4	1000.0	9.000	On	L1	9.8	22.6	46.0
1.288500	24.3	1000.0	9.000	On	L1	9.7	21.7	46.0
2.800500	20.1	1000.0	9.000	On	L1	9.7	25.9	46.0
5.014500	21.5	1000.0	9.000	On	L1	9.7	28.5	50.0
13.236000	25.5	1000.0	9.000	On	L1	9.7	24.5	50.0

Charger4+MP3, Set.4

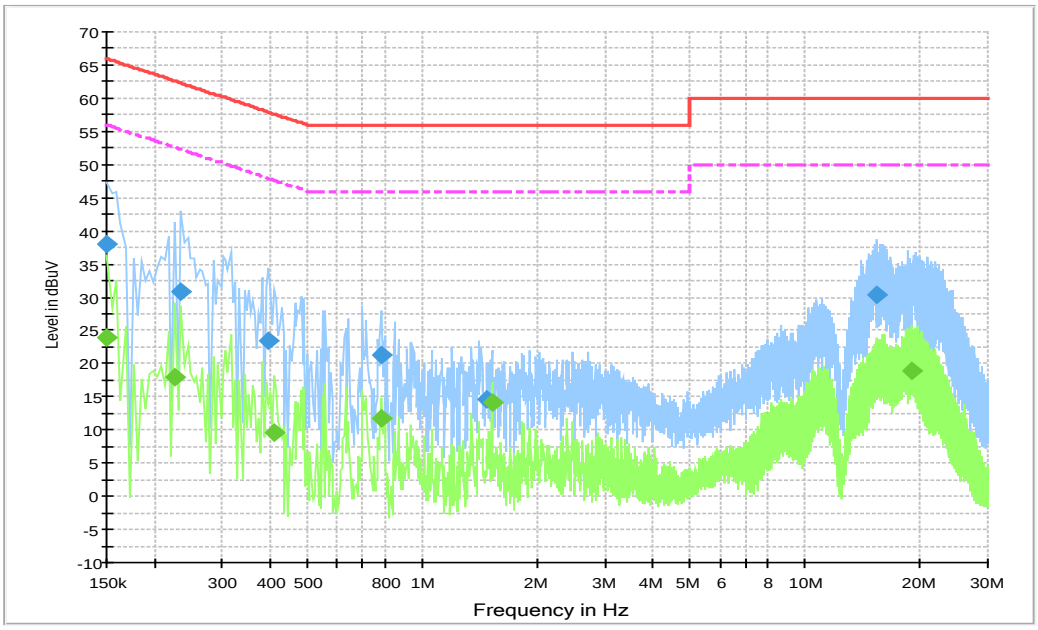


Figure A.25 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	38.1	1000.0	9.000	On	L1	9.8	27.9	66.0
0.235500	30.7	1000.0	9.000	On	L1	9.9	31.5	62.3
0.397500	23.4	1000.0	9.000	On	L1	9.9	34.5	57.9
0.780000	21.3	1000.0	9.000	On	L1	9.8	34.7	56.0
1.477500	14.7	1000.0	9.000	On	L1	9.7	41.3	56.0
15.355500	30.4	1000.0	9.000	On	L1	9.7	29.6	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	23.9	1000.0	9.000	On	L1	9.8	32.1	56.0
0.226500	18.0	1000.0	9.000	On	L1	9.9	34.6	52.6
0.411000	9.5	1000.0	9.000	On	L1	9.9	38.1	47.6
0.780000	11.8	1000.0	9.000	On	L1	9.8	34.2	46.0
1.522500	14.1	1000.0	9.000	On	L1	9.7	31.9	46.0
19.009500	18.9	1000.0	9.000	On	L1	9.7	31.1	50.0

Charger5, Set.5

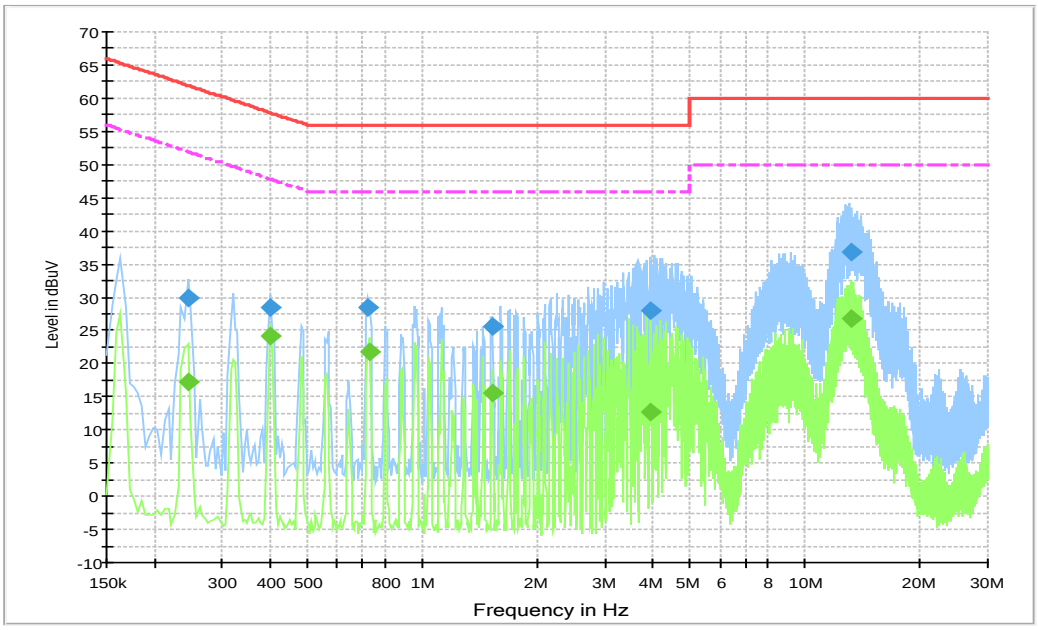


Figure A.26 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.244500	29.8	1000.0	9.000	On	L1	9.9	32.2	61.9
0.402000	28.4	1000.0	9.000	On	L1	9.9	29.5	57.8
0.721500	28.5	1000.0	9.000	On	L1	9.8	27.5	56.0
1.522500	25.6	1000.0	9.000	On	L1	9.7	30.4	56.0
3.948000	27.9	1000.0	9.000	On	L1	9.7	28.1	56.0
13.281000	36.7	1000.0	9.000	On	L1	9.7	23.3	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.244500	17.2	1000.0	9.000	On	N	9.9	34.7	51.9
0.402000	24.1	1000.0	9.000	On	L1	9.9	23.7	47.8
0.726000	21.8	1000.0	9.000	On	L1	9.8	24.2	46.0
1.522500	15.5	1000.0	9.000	On	N	9.7	30.5	46.0
3.948000	12.8	1000.0	9.000	On	L1	9.7	33.2	46.0
13.132500	26.7	1000.0	9.000	On	L1	9.7	23.3	50.0

Charger6, Set.6

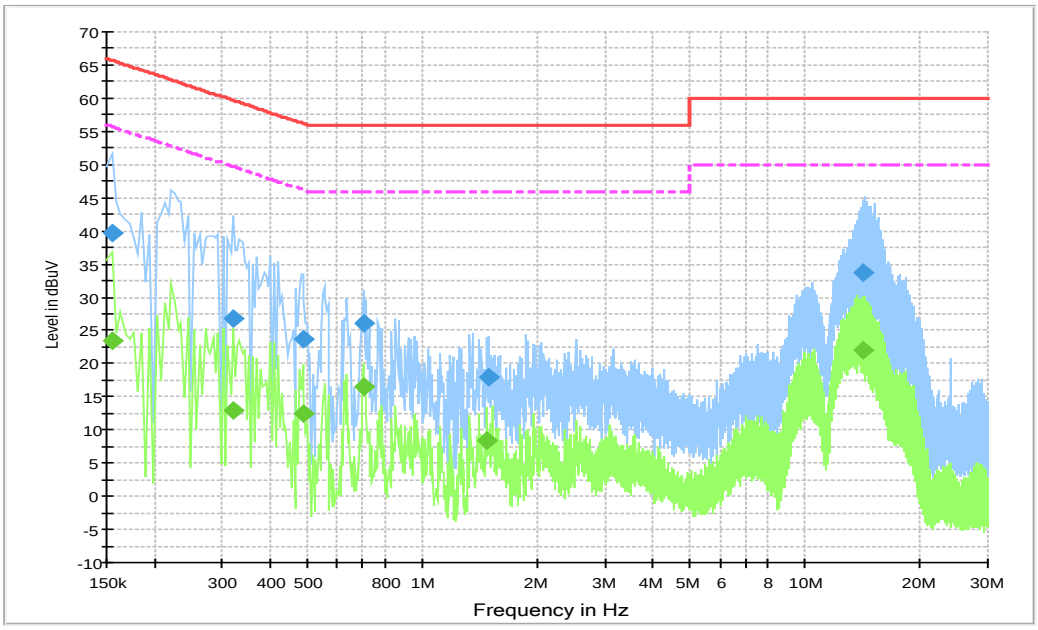


Figure A.27 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154500	39.7	1000.0	9.000	On	L1	9.8	26.0	65.8
0.321000	26.7	1000.0	9.000	On	L1	9.9	33.0	59.7
0.487500	23.6	1000.0	9.000	On	N	9.9	32.6	56.2
0.703500	26.1	1000.0	9.000	On	L1	9.8	29.9	56.0
1.491000	17.9	1000.0	9.000	On	L1	9.7	38.1	56.0
14.109000	33.6	1000.0	9.000	On	L1	9.7	26.4	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154500	23.4	1000.0	9.000	On	L1	9.8	32.3	55.8
0.321000	12.9	1000.0	9.000	On	L1	9.9	36.7	49.7
0.487500	12.4	1000.0	9.000	On	L1	9.9	33.8	46.2
0.703500	16.4	1000.0	9.000	On	L1	9.8	29.6	46.0
1.477500	8.4	1000.0	9.000	On	L1	9.7	37.6	46.0
14.158500	21.9	1000.0	9.000	On	L1	9.7	28.1	50.0

USB (SD) mode, Set.7

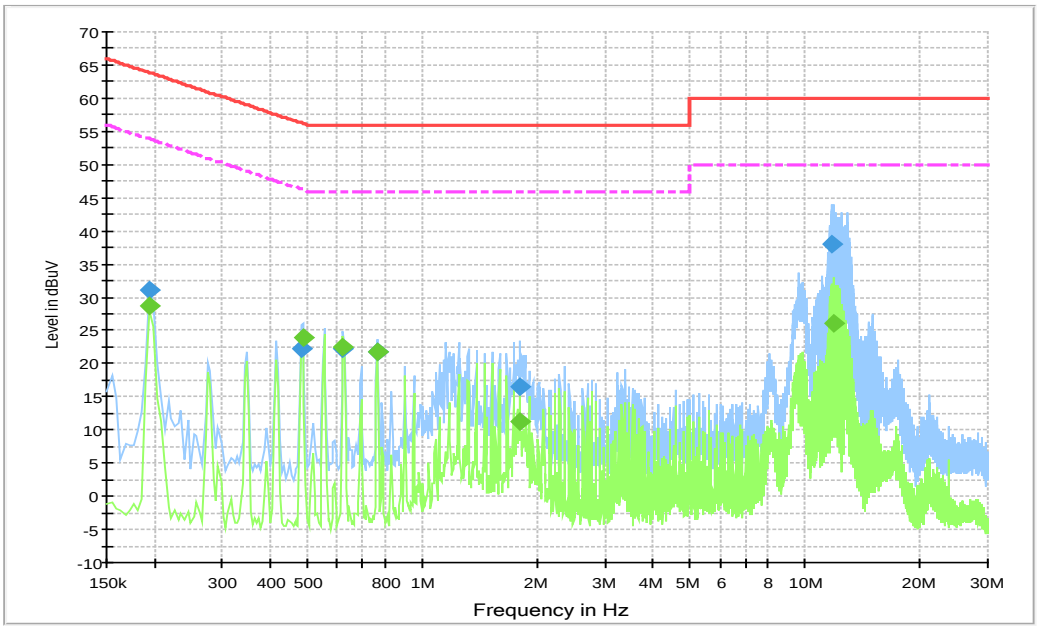


Figure A.28 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.195000	31.1	1000.0	9.000	On	L1	9.9	32.7	63.8
0.483000	22.2	1000.0	9.000	On	N	9.9	34.1	56.3
0.622500	22.2	1000.0	9.000	On	N	9.9	33.8	56.0
0.762000	21.7	1000.0	9.000	On	N	9.8	34.3	56.0
1.801500	16.6	1000.0	9.000	On	N	9.7	39.4	56.0
11.778000	38.0	1000.0	9.000	On	L1	9.7	22.0	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.195000	28.7	1000.0	9.000	On	N	9.9	25.2	53.8
0.487500	23.8	1000.0	9.000	On	N	9.9	22.4	46.2
0.622500	22.4	1000.0	9.000	On	N	9.9	23.6	46.0
0.762000	21.8	1000.0	9.000	On	L1	9.8	24.2	46.0
1.801500	11.2	1000.0	9.000	On	N	9.7	34.8	46.0
11.908500	26.2	1000.0	9.000	On	N	9.7	23.8	50.0

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ANNEX B: Persons involved in this testing

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

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