TEST REPORT

No. I21Z70432-EMC01

for

Samsung Electronics Co., Ltd.

Multi-band GSM/WCDMA/LTE phone with Bluetooth, WLAN

Model Name: SM-A035M/DS, SM-A035M

FCC ID: ZCASMA035M

with

Hardware Version: REV1.0

Software Version: A035M.001

Issued Date: 2021-10-15

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
I21Z70432-EMC01	Rev.0	1st edition	2021-10-15

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, 100176, P.R. China

1.3. Testing Environment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

1.4. Project data

Testing Start Date: 2021-08-31

Testing End Date: 2021-10-14

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	Multi-band GSM/WCDMA/LTE phone with Bluetooth, WLAN
Model Name	SM-A035M/DS, SM-A035M
FCC ID	ZCASMA035M
Extreme vol. Limits	3.6VDC to 4.4VDC (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
UT09a	2170432UT09a	REV1.0	A035M.001	2021.08.26

*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	Adapter1	/	/
AE2	Adapter2	/	/
AE3	Adapter3	/	/
AE4	Adapter4	/	/
AE5	Adapter5	/	/
AE6	Adapter6	/	/
AE7	Adapter7	/	/
AE8	Adapter8	/	/
AE9	USB Cable	/	/
AE10	Headset1	/	/
AE11	Headset2	/	/
AE12	Battery1	/	/
AE13	Battery2	/	/

AE1

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

AE2

Model	EP-TA50JWS
Manufacturer	HAMEN
Length of cable	/

AE3

Model	EP-TA50EWE
Manufacturer	DY

Length of cable	/
AE4	
Model	EP-TA50EWE
Manufacturer	HAMEN
Length of cable	/
AE5	
Model	EP-TA50EWE
Manufacturer	Salcomp
Length of cable	/
AE6	
Model	EP-TA50UWE
Manufacturer	DY
Length of cable	/
AE7	
Model	EP-TA50UWE
Manufacturer	HAMEN
Length of cable	/
AE8	
Model	EP- TA50UWE
Manufacturer	Salcomp
Length of cable	/
AE9	
Model	ECB-DU68WE
Manufacturer	Samsung Electronics Co., Ltd.
Length	/ /
AE10	
Model	EHS61ASFWE
Manufacturer	CRESYN HANOI Co., Ltd
Length	/
AE11	
Model	EHS61ASFWE
Manufacturer	DONGGUAN YOUNGBO ELECTRONICS CO.,LTD
Length	/
AE12	
TYPE	Secondary Li-ion Battery
SN	HQ-50SD
Manufacturer	SCUD (Fujian) Electronics CO.,LTD
AE13	
TYPE	Secondary Li-ion Battery
SN	HQ-50N
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: GSM850, WCDMA BAND 5, LTE BAND 5, LTE BAND 12, and LTE BAND 17.

3.5. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	UT09a + AE1 + AE9 + AE10	Adapter1+ R Camera+ Headset1
Set.2	UT09a + AE2 + AE9	Adapter2+ F Camera
Set.3	UT09a + AE3 + AE9 + AE11	Adapter3+ FM+ Headset2
Set.4	UT09a + AE4 + AE9	Adapter4+ MP4+ RX mode
Set.5	UT09a + AE5 + AE9	Adapter5+ MP3+ RX mode
Set.6	UT09a + AE6 + AE9	Adapter6+ RX mode
Set.7	UT09a + AE7 + AE9 + AE10	Adapter7+ RX mode
Set.8	UT09a + AE8 + AE9 + AE11	Adapter8+ RX mode
Set.9	UT09a + AE9 + AE10	USB SD TO PC + Headset1+FM
Set.10	UT09a + AE9 + AE11	USB PC TO SD + Headset2+FM

Note: All the set-ups above were tested but only the worst test data of worst set-up showed in this report.

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

Note: The only difference between SM-A035M/DS and SM-A035M is Dual SIM slot rack and Single SIM slot rack, the tests were performed on SM-A035M/DS and SM-A035M shared the SM-A035M/DS results.

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESU26	100376	R&S	2022-09-15	1 year
2	Test Receiver	ESCI	100766	R&S	2022-03-09	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	00119024	ETS-Lindgren	2022-4-11	1 year
6	Universal Radio Communication Tester	CMW500	167943	R&S	2022-04-05	1 year
7	Signal Generator	SMF100A	R&S	101295	2021-11-06	1 year
8	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
9	Keyboard	KU-1601	2048361	Lenovo	N/A	N/A
10	Mouse	EMS-537A	8021S3MC	Lenovo	N/A	N/A
11	PC	M4000e-17	M706RMW2	Lenovo	N/A	N/A

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, MP3, CAMERA, FM, 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 FM radio 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

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: all the set-up lists in section 3.5 were tested and only the worst test data of worst set-up showed in this section.

Measurement results for Set.1:

Adapter1+ Headset1+ 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)
17994.000	43.57	-22.8	41.3	25.04	54.0	10.4	V
17986.500	43.55	-22.8	41.3	25.05	54.0	10.5	V
17985.500	43.51	-22.8	41.3	25.01	54.0	10.5	V
17981.500	43.46	-22.8	41.3	24.95	54.0	10.5	H
17980.500	43.46	-22.8	41.3	24.95	54.0	10.5	V
17987.500	43.46	-22.8	41.3	24.96	54.0	10.5	V

Adapter1+ Headset1+ 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)
17989.000	55.6	-22.8	41.3	37.06	74.0	18.4	V
17043.000	55.5	-23.0	41.7	36.90	74.0	18.5	V
17855.500	55.5	-22.5	41.3	36.77	74.0	18.5	V
17001.000	55.3	-23.0	41.7	36.67	74.0	18.7	H
17907.500	55.3	-22.6	41.3	36.67	74.0	18.7	V
17033.500	55.3	-23.0	41.7	36.65	74.0	18.7	V

Measurement results for Set.2:

Adapter2+ 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)
17984.000	43.59	-22.8	41.3	25.08	54.0	10.4	V
17977.500	43.54	-22.8	41.3	25.02	54.0	10.5	V
17978.000	43.52	-22.8	41.3	25.01	54.0	10.5	V
17989.000	43.52	-22.8	41.3	25.01	54.0	10.5	V
17905.000	43.48	-22.6	41.3	24.83	54.0	10.5	V
17985.000	43.46	-22.8	41.3	24.96	54.0	10.5	V

Adapter2+ 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)
17952.000	55.68	-22.7	41.3	37.11	74.0	18.3	H
17694.500	55.64	-22.2	41.2	36.56	74.0	18.4	V
17734.500	55.43	-22.3	41.2	36.44	74.0	18.6	V
17992.000	55.37	-22.8	41.3	36.85	74.0	18.6	V
17756.500	55.34	-22.3	41.3	36.39	74.0	18.7	V
17634.500	55.33	-22.0	41.2	36.13	74.0	18.7	V

Measurement results for Set.3:

Adapter3+ Headset2+ FM 88MHz /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)
17987.500	43.55	-22.8	41.3	25.05	54.0	10.4	V
17988.500	43.53	-22.8	41.3	25.02	54.0	10.5	V
17979.000	43.49	-22.8	41.3	24.98	54.0	10.5	V
17980.500	43.48	-22.8	41.3	24.97	54.0	10.5	V
17982.000	43.46	-22.8	41.3	24.95	54.0	10.5	V
17986.000	43.46	-22.8	41.3	24.95	54.0	10.5	H

Adapter3+ Headset2+ FM 88MHz /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)
16999.500	56.6	-23.0	41.7	37.91	74.0	17.4	V
16960.500	56.0	-23.0	41.7	37.38	74.0	18.0	V
17866.000	55.6	-22.5	41.3	36.87	74.0	18.4	H
17918.000	55.6	-22.7	41.3	36.93	74.0	18.4	V
16970.500	55.4	-23.0	41.7	36.69	74.0	18.6	H
17606.500	55.2	-22.2	41.2	36.22	74.0	18.8	H

Measurement results for Set.4

Adapter4+ MP4+ 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)
17982.500	43.65	-22.8	41.3	25.14	54.0	10.4	V
17989.500	43.63	-22.8	41.3	25.12	54.0	10.4	V
17985.000	43.54	-22.8	41.3	25.03	54.0	10.5	H
17986.500	43.53	-22.8	41.3	25.03	54.0	10.5	V
17983.500	43.53	-22.8	41.3	25.02	54.0	10.5	V
17981.000	43.50	-22.8	41.3	24.99	54.0	10.5	V

Adapter4+ MP4+ 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)
17989.500	55.9	-22.8	41.3	37.42	74.0	18.1	H
17985.000	55.6	-22.8	41.3	37.14	74.0	18.4	H
17962.000	55.6	-22.7	41.3	37.03	74.0	18.4	V
17966.000	55.5	-22.8	41.3	36.96	74.0	18.5	V
17636.000	55.5	-22.0	41.2	36.30	74.0	18.5	V
16931.000	55.5	-23.0	41.7	36.80	74.0	18.5	V

Measurement results for Set.6

Adapter6+RX mode WB5/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)
17982.500	43.65	-22.8	41.3	25.14	54.0	10.4	V
17989.500	43.63	-22.8	41.3	25.12	54.0	10.4	V
17985.000	43.54	-22.8	41.3	25.03	54.0	10.5	H
17986.500	43.53	-22.8	41.3	25.03	54.0	10.5	V
17983.500	43.53	-22.8	41.3	25.02	54.0	10.5	V
17981.000	43.50	-22.8	41.3	24.99	54.0	10.5	V

Adapter6+RX mode WB5 /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)
17989.500	55.9	-22.8	41.3	37.42	74.0	18.1	H
17985.000	55.6	-22.8	41.3	37.14	74.0	18.4	H
17962.000	55.6	-22.7	41.3	37.03	74.0	18.4	V
17966.000	55.5	-22.8	41.3	36.96	74.0	18.5	V
17636.000	55.5	-22.0	41.2	36.30	74.0	18.5	V
16931.000	55.5	-23.0	41.7	36.80	74.0	18.5	V

Measurement results for Set.9:

USB (SD) mode+ Headset1+FM /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)
17984.500	43.74	-22.8	41.3	25.23	54.0	10.3	V
17988.500	43.72	-22.8	41.3	25.22	54.0	10.3	V
17987.000	43.70	-22.8	41.3	25.20	54.0	10.3	V
17985.000	43.70	-22.8	41.3	25.19	54.0	10.3	V
17978.000	43.66	-22.8	41.3	25.14	54.0	10.3	V
17989.500	43.65	-22.8	41.3	25.14	54.0	10.3	V

USB (SD) mode + Headset1+FM /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)
17599.500	56.9	-22.2	41.2	37.96	74.0	17.1	H
17986.000	56.8	-22.8	41.3	38.34	74.0	17.2	V
17501.500	56.0	-22.9	41.2	37.65	74.0	18.0	V
17809.000	55.9	-22.4	41.3	37.07	74.0	18.1	V
17975.500	55.9	-22.8	41.3	37.33	74.0	18.1	V
17961.000	55.8	-22.7	41.3	37.29	74.0	18.2	V

Adapter1+ Headset1+ Rear Camera, Set.1

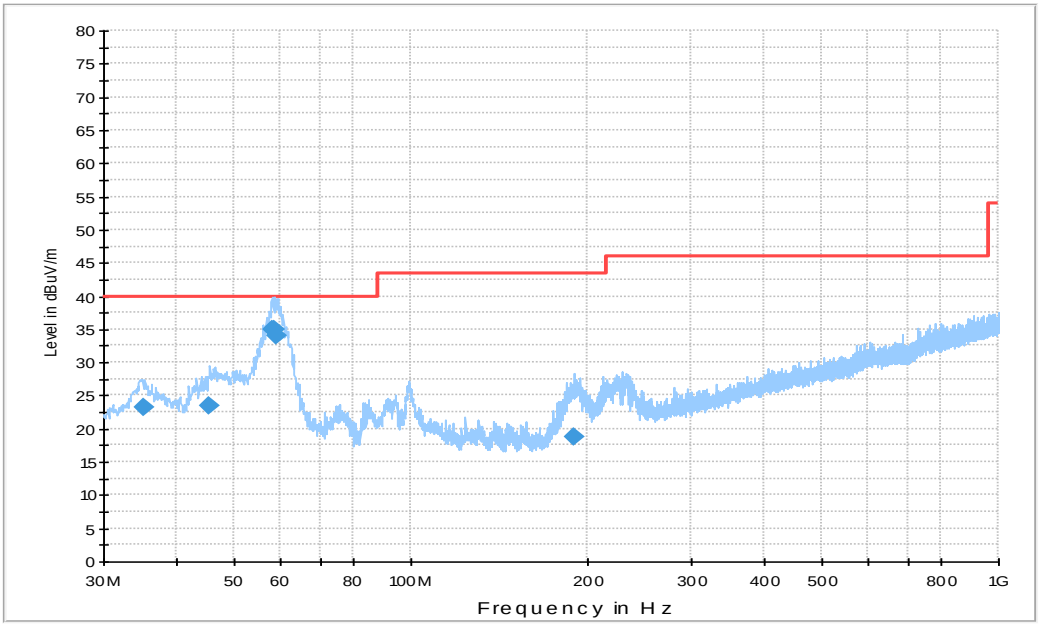

Figure A.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
35.238000	23.3	100.0	V	75.0	-1.5	16.7	40.0
45.520000	23.5	100.0	V	106.0	-0.3	16.5	40.0
58.033000	35.0	100.0	V	240.0	-0.6	5.0	40.0
58.615000	35.0	100.0	V	270.0	-0.7	5.0	40.0
59.197000	34.0	113.0	V	240.0	-0.7	6.0	40.0
189.66200	18.7	112.0	V	0.0	-2.0	24.8	43.5

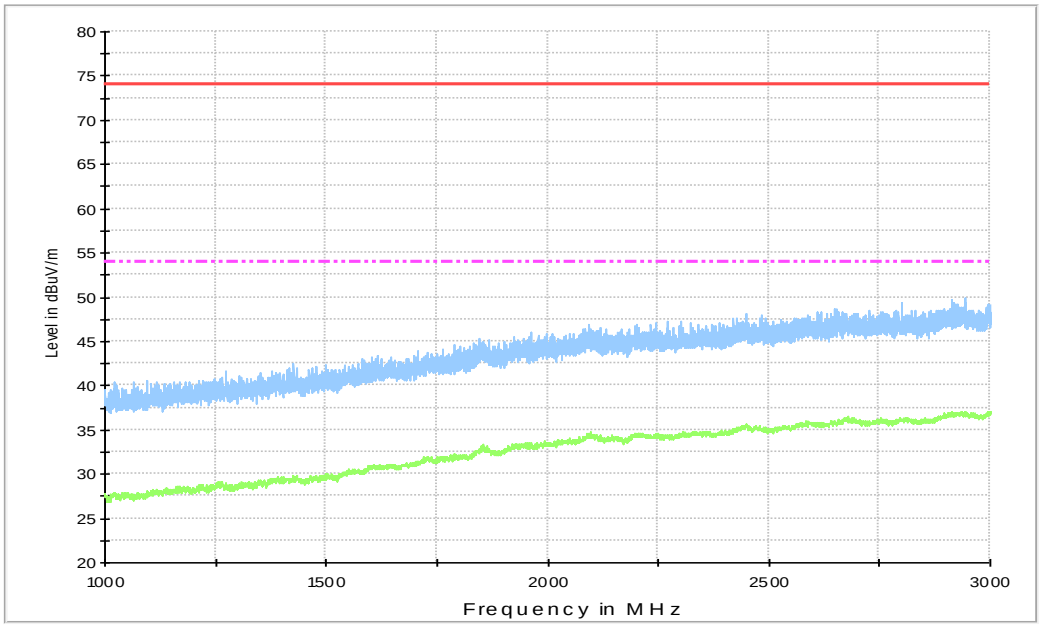

Figure A.2 Radiated Emission from 1GHz to 3GHz

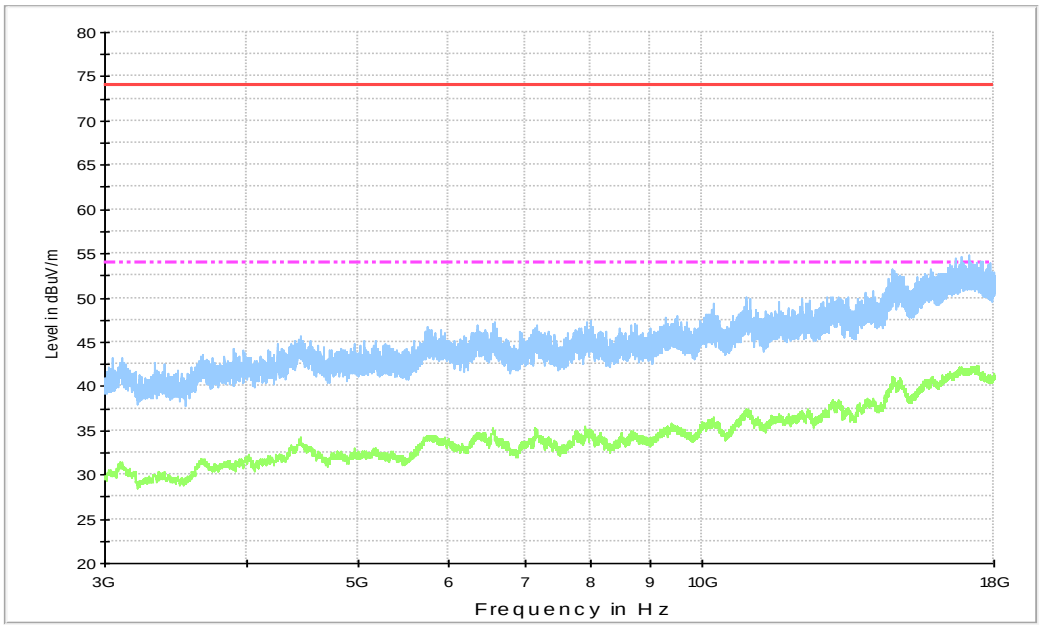

Figure A.3 Radiated Emission from 3GHz to 18GHz

Adapter2+ Front Camera, Set.2

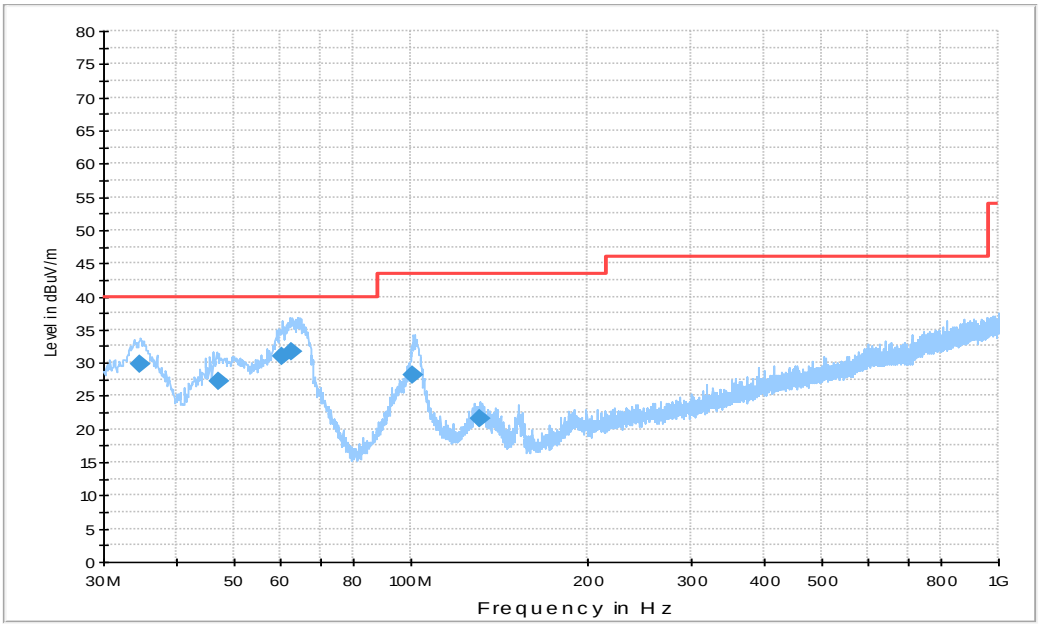

Figure A.4 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
34.656000	29.7	100.0	V	120.0	-1.6	10.3	40.0
46.975000	27.3	100.0	V	74.0	-0.2	12.7	40.0
60.361000	31.0	100.0	V	195.0	-0.9	9.0	40.0
62.786000	31.8	100.0	V	195.0	-1.8	8.2	40.0
101.10100	28.0	100.0	V	30.0	-1.7	15.5	43.5
130.97700	21.6	125.0	H	210.0	-5.1	21.9	43.5

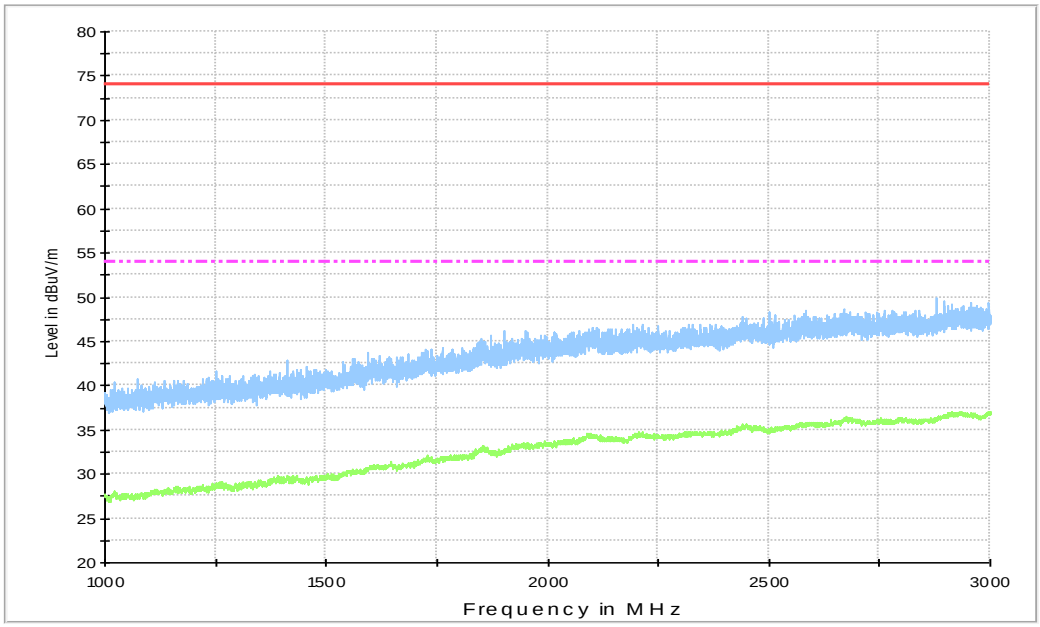

Figure A.5 Radiated Emission from 1GHz to 3GHz

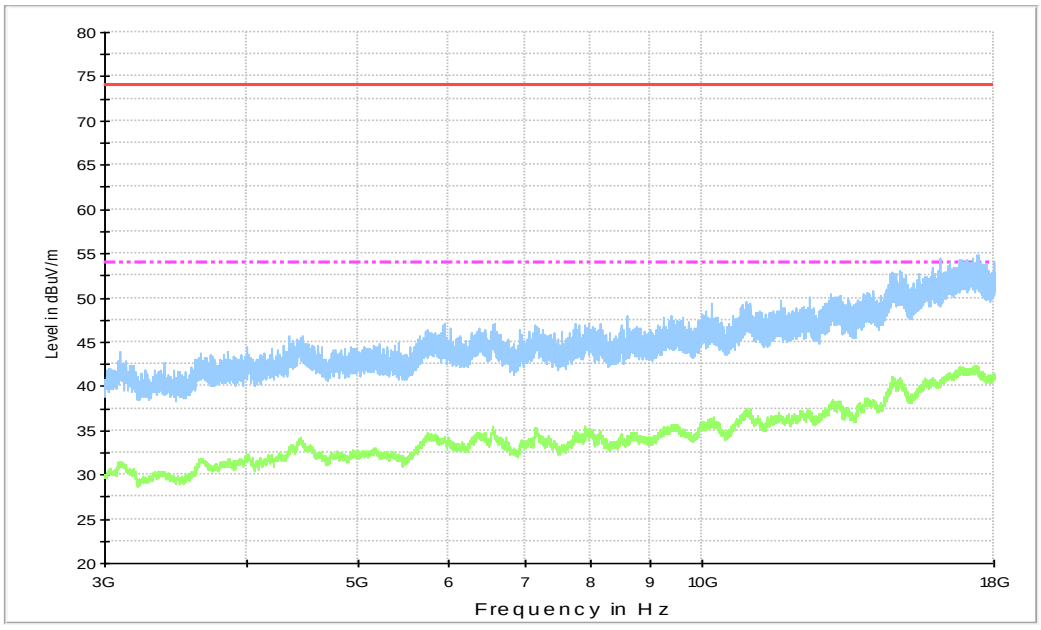

Figure A.6 Radiated Emission from 3GHz to 18GHz

Adapter3+ Headset1+ FM 88MHz, Set.3

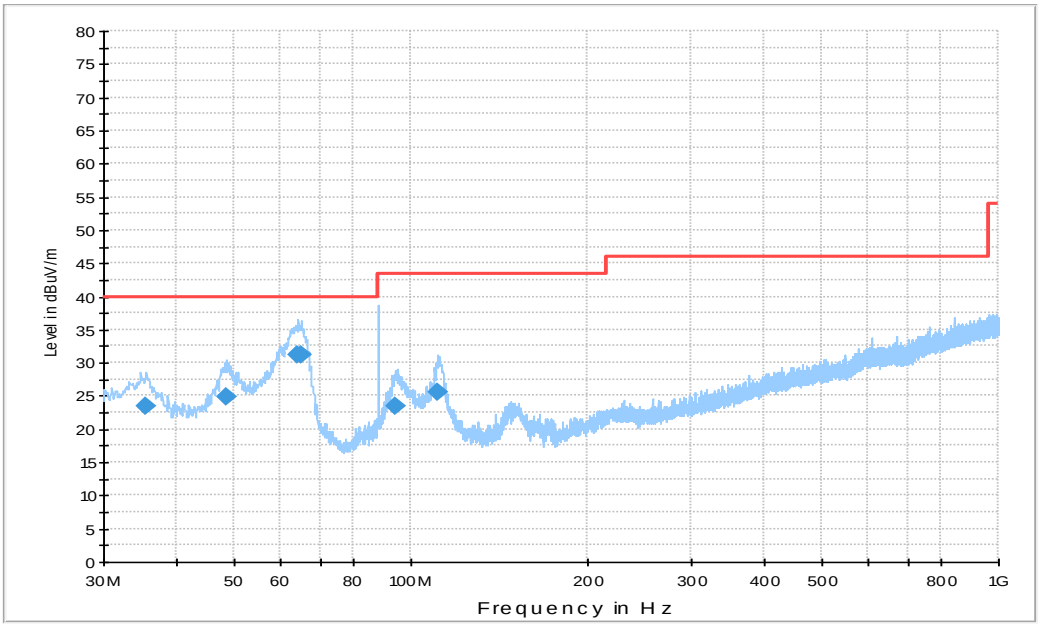

Figure A.7 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
35.529000	23.4	100.0	V	225.0	-1.4	16.6	40.0
48.430000	24.9	100.0	V	225.0	-0.2	15.1	40.0
64.338000	31.2	112.0	V	75.0	-2.4	8.8	40.0
65.017000	31.2	100.0	V	45.0	-2.7	8.8	40.0
94.214000	23.4	113.0	V	90.0	-2.8	20.1	43.5
110.99500	25.5	100.0	V	90.0	-2.5	18.0	43.5

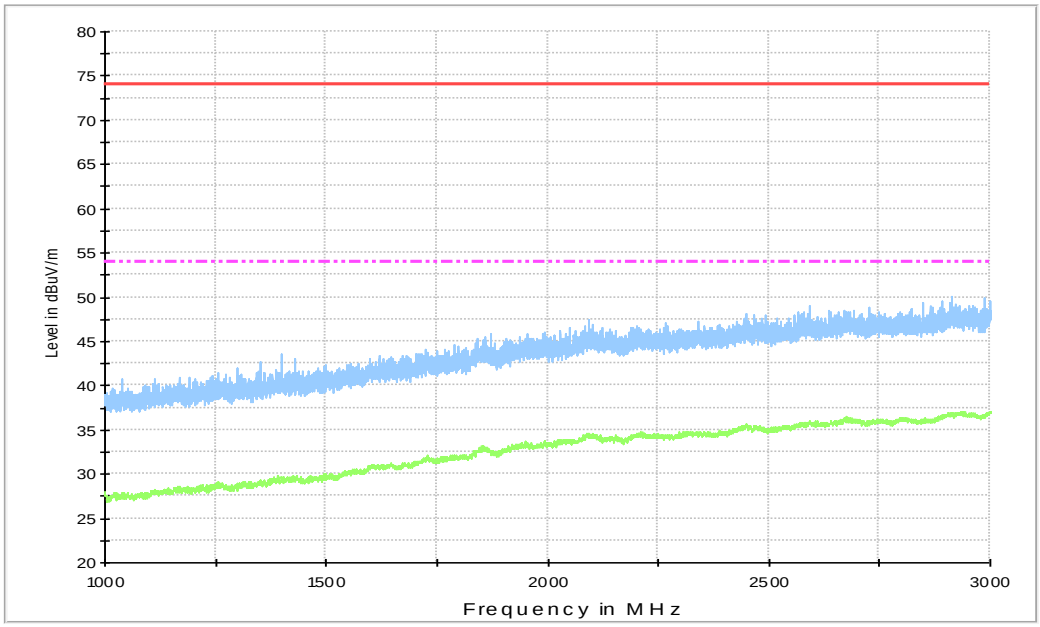

Figure A.8 Radiated Emission from 1GHz to 3GHz

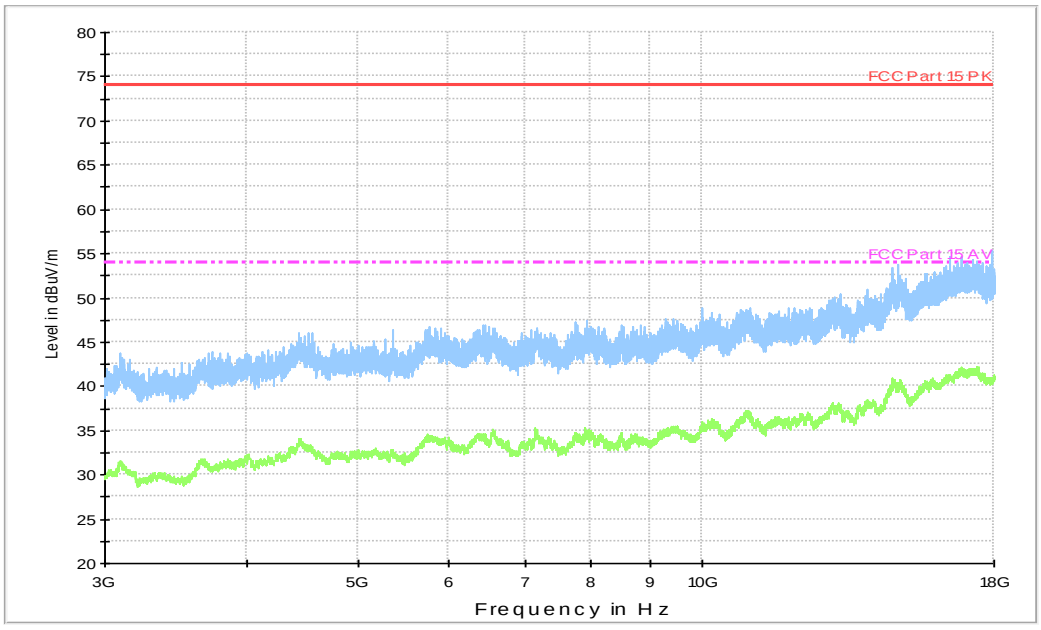

Figure A.9 Radiated Emission from 3GHz to 18GHz

Adapter4+ MP4+ RX mode LTE B5, Set.4

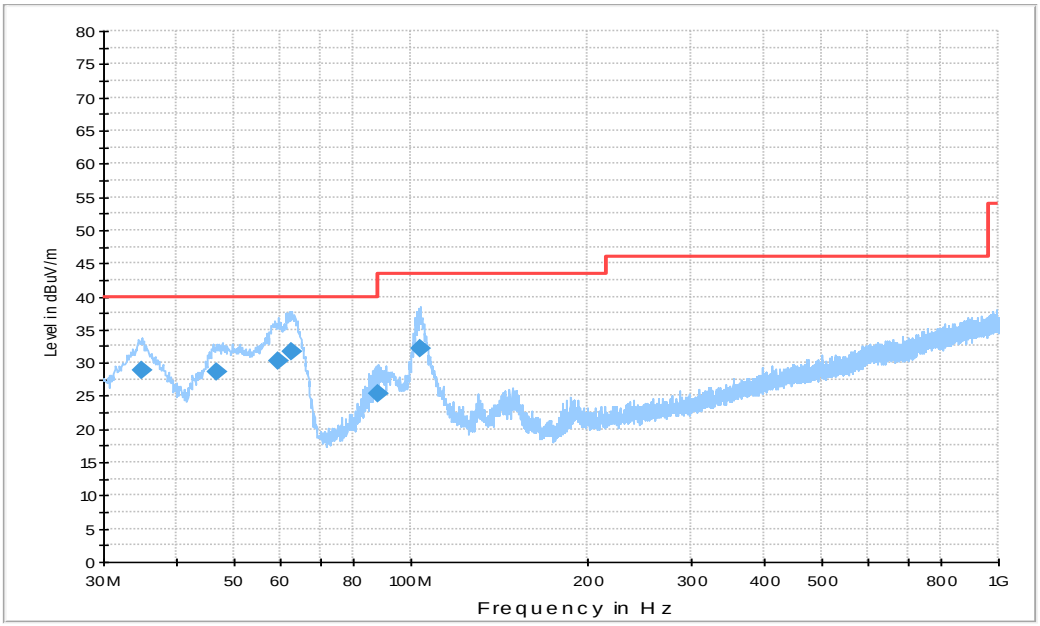

Figure A.10 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
34.850000	28.9	112.0	V	135.0	-1.6	11.1	40.0
46.684000	28.6	100.0	V	59.0	-0.2	11.4	40.0
59.391000	30.3	100.0	V	105.0	-0.7	9.7	40.0
62.786000	31.6	100.0	V	254.0	-1.8	8.4	40.0
87.715000	25.4	125.0	V	196.0	-4.5	14.6	40.0
103.72000	32.2	113.0	V	180.0	-1.9	11.3	43.5

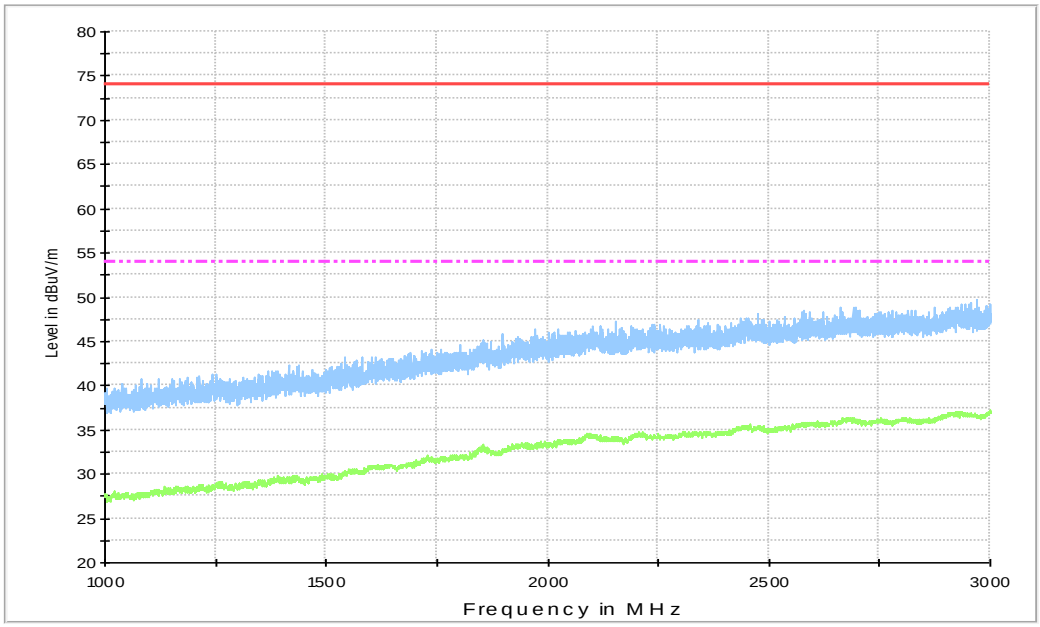

Figure A.11 Radiated Emission from 1GHz to 3GHz

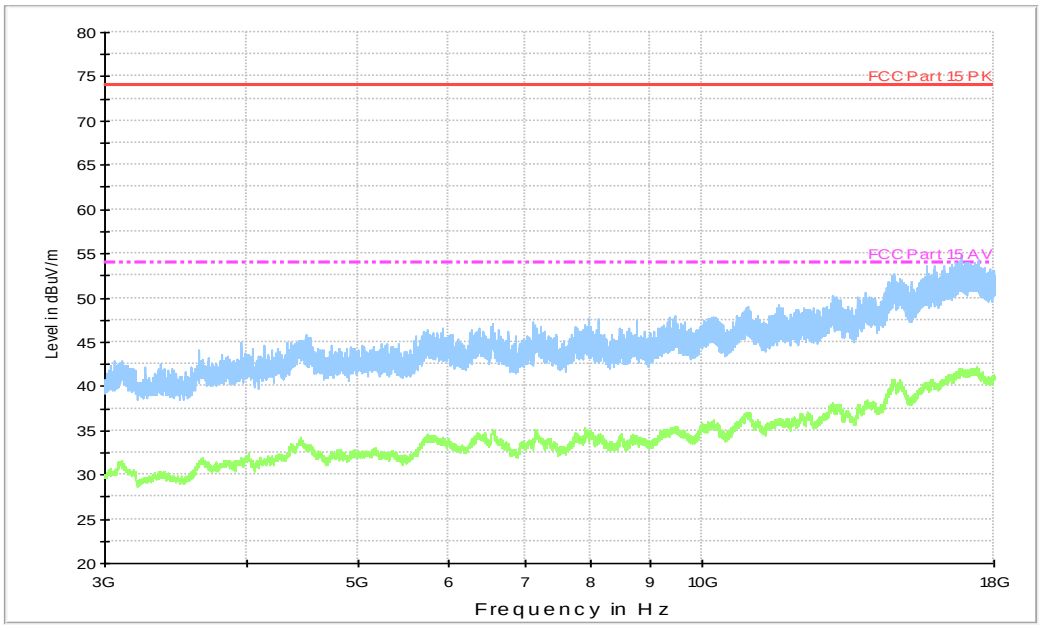

Figure A.12 Radiated Emission from 3GHz to 18GHz

Adapter6+ RX mode WCDMA B5, Set.6

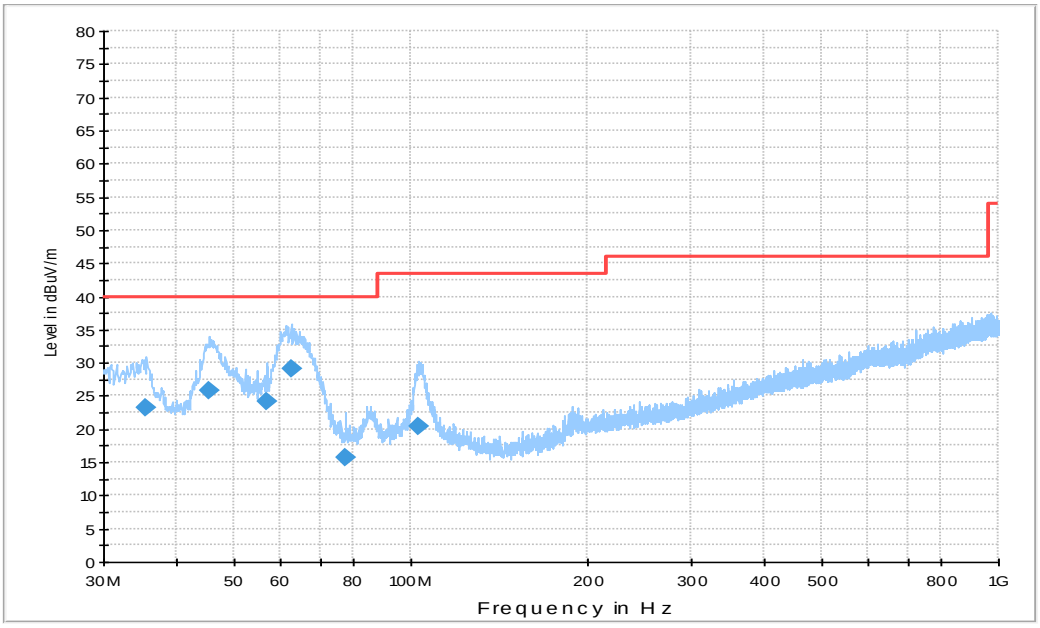

Figure A.13 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
35.529000	23.2	100.0	V	74.0	-1.4	16.8	40.0
45.423000	25.7	113.0	V	105.0	-0.3	14.3	40.0
56.869000	24.1	100.0	V	270.0	-0.6	15.9	40.0
62.495000	29.1	100.0	V	135.0	-1.7	10.9	40.0
77.530000	15.6	125.0	V	149.0	-6.3	24.4	40.0
103.23500	20.4	100.0	V	90.0	-1.8	23.1	43.5

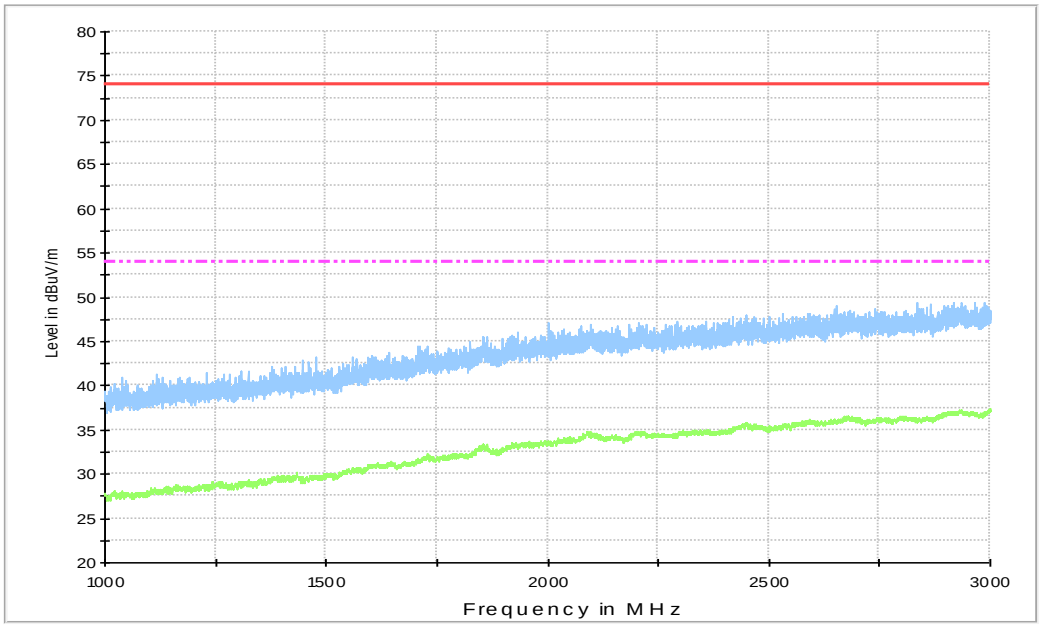

Figure A.14 Radiated Emission from 1GHz to 3GHz

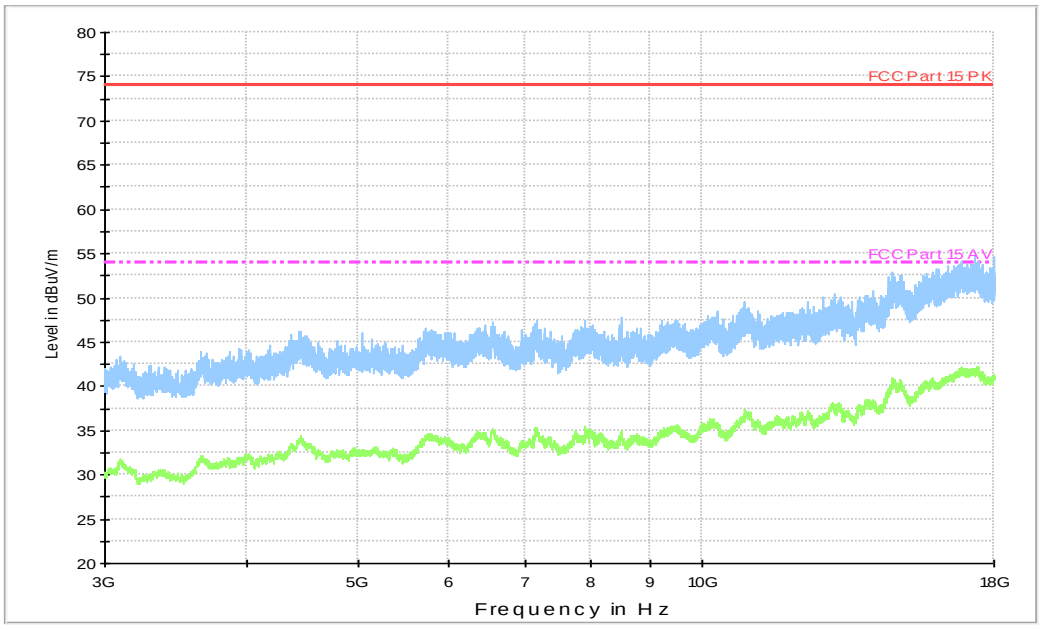

Figure A.15 Radiated Emission from 3GHz to 18GHz

USB (SD) mode+ Headset2+FM, Set.9

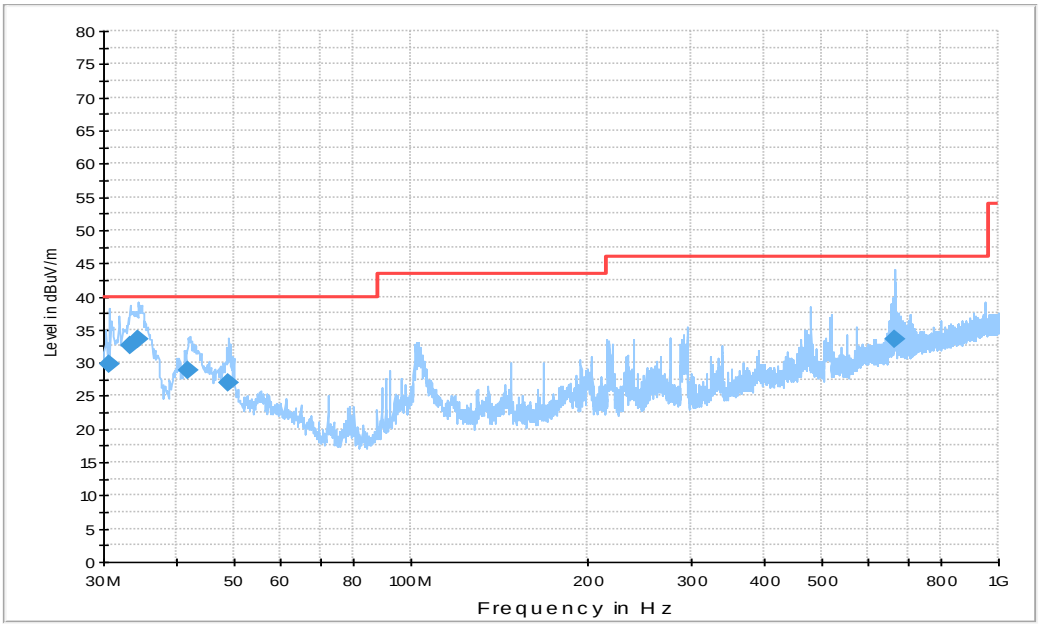

Figure A.16 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.679000	29.8	100.0	V	315.0	-2.6	10.2	40.0
33.298000	32.6	100.0	V	105.0	-1.9	7.4	40.0
34.365000	33.5	113.0	V	45.0	-1.7	6.5	40.0
41.834000	28.8	100.0	V	-31.0	-0.4	11.2	40.0
49.109000	26.9	113.0	V	74.0	-0.2	13.1	40.0
664.47700	33.6	112.0	H	270.0	8.9	12.4	46.0

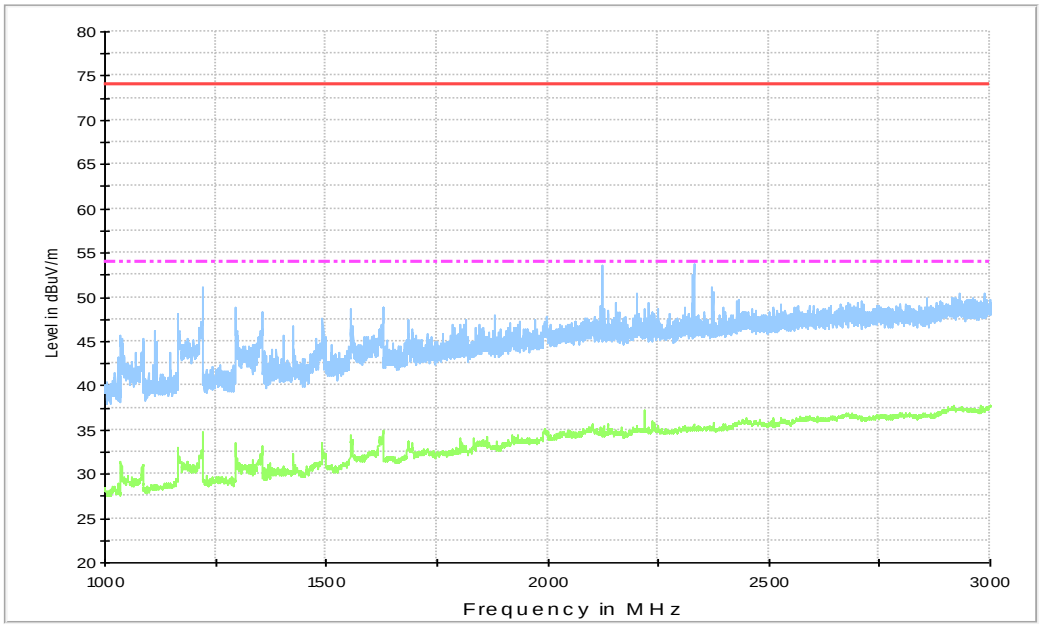

Figure A.17 Radiated Emission from 1GHz to 3GHz

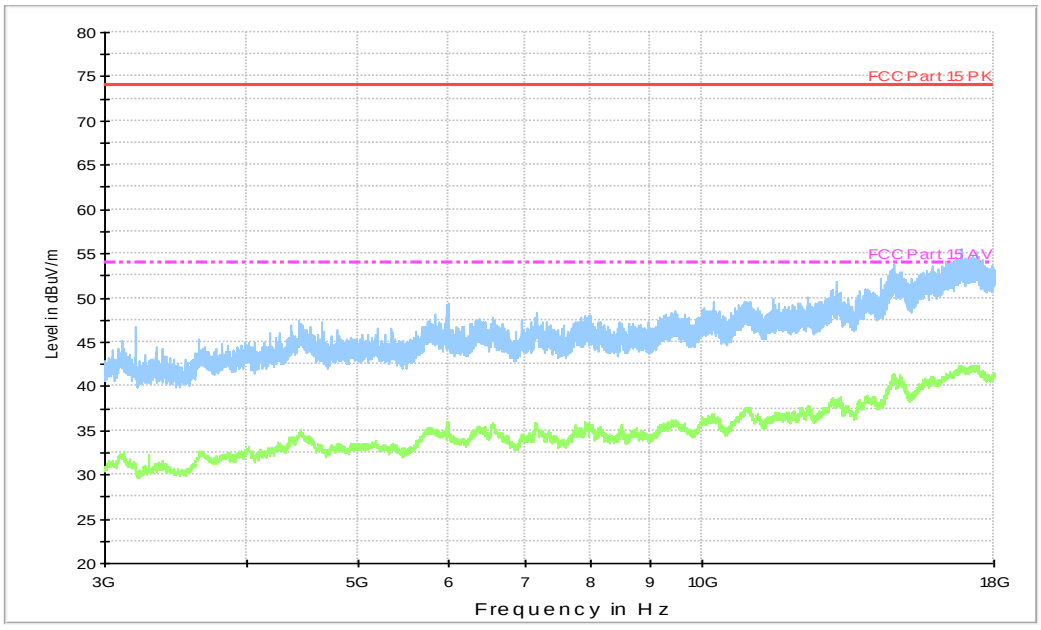

Figure A.18 Radiated Emission from 3GHz to 18GHz

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.

Note: all the set-up lists in section 3.5 were tested and only the worst test data of worst set-up showed in this section.

Set.6

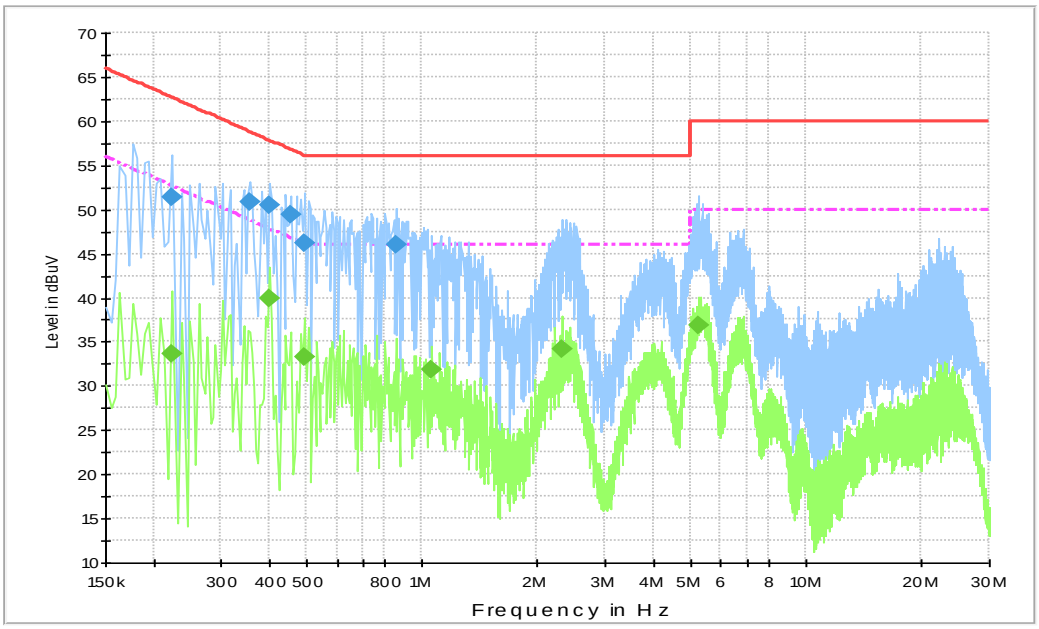

Figure A.19 Conducted Emission

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.222000	51.3	3000.0	9.000	On	L1	27.1	11.4	62.7
0.357000	50.8	3000.0	9.000	On	N	24.9	8.0	58.8
0.402000	50.6	3000.0	9.000	On	L1	24.4	7.2	57.8
0.456000	49.4	3000.0	9.000	On	L1	23.8	7.4	56.8
0.496500	46.2	3000.0	9.000	On	L1	23.4	9.8	56.1
0.856500	46.1	3000.0	9.000	On	N	20.9	9.9	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.222000	33.6	3000.0	9.000	On	L1	27.1	19.2	52.7
0.402000	39.9	3000.0	9.000	On	L1	24.4	7.9	47.8
0.492000	33.3	3000.0	9.000	On	N	23.5	12.9	46.1
1.063500	31.8	3000.0	9.000	On	L1	20.2	14.2	46.0
2.319000	34.3	3000.0	9.000	On	L1	19.9	11.7	46.0
5.257500	36.9	3000.0	9.000	On	N	19.7	13.1	50.0

Set.7

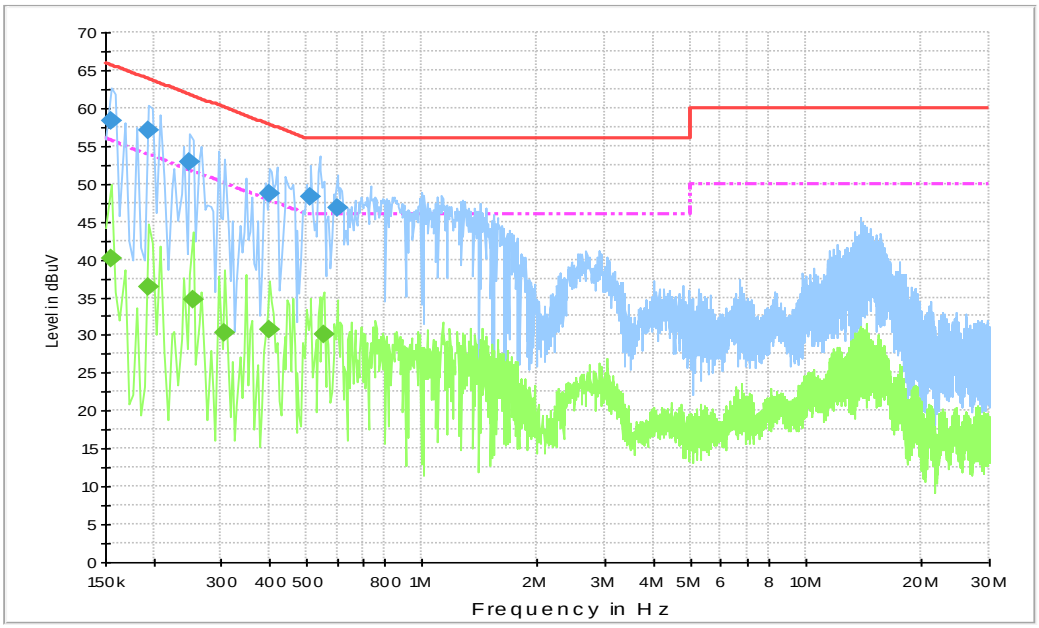

Figure A.20 Conducted Emission

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154500	58.4	3000.0	9.000	On	N	28.8	7.4	65.8
0.195000	57.0	3000.0	9.000	On	L1	27.7	6.9	63.8
0.249000	52.9	3000.0	9.000	On	N	26.6	8.9	61.8
0.402000	48.6	3000.0	9.000	On	L1	24.4	9.2	57.8
0.514500	48.3	3000.0	9.000	On	N	23.3	7.7	56.0
0.600000	46.7	3000.0	9.000	On	L1	22.5	9.3	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154500	40.0	3000.0	9.000	On	L1	28.8	15.7	55.8
0.195000	36.4	3000.0	9.000	On	N	27.7	17.4	53.8
0.253500	34.6	3000.0	9.000	On	L1	26.5	17.0	51.6
0.307500	30.4	3000.0	9.000	On	L1	25.6	19.6	50.0
0.402000	30.8	3000.0	9.000	On	N	24.4	17.0	47.8
0.555000	30.1	3000.0	9.000	On	L1	22.9	15.9	46.0

USB (SD) mode, Set.9

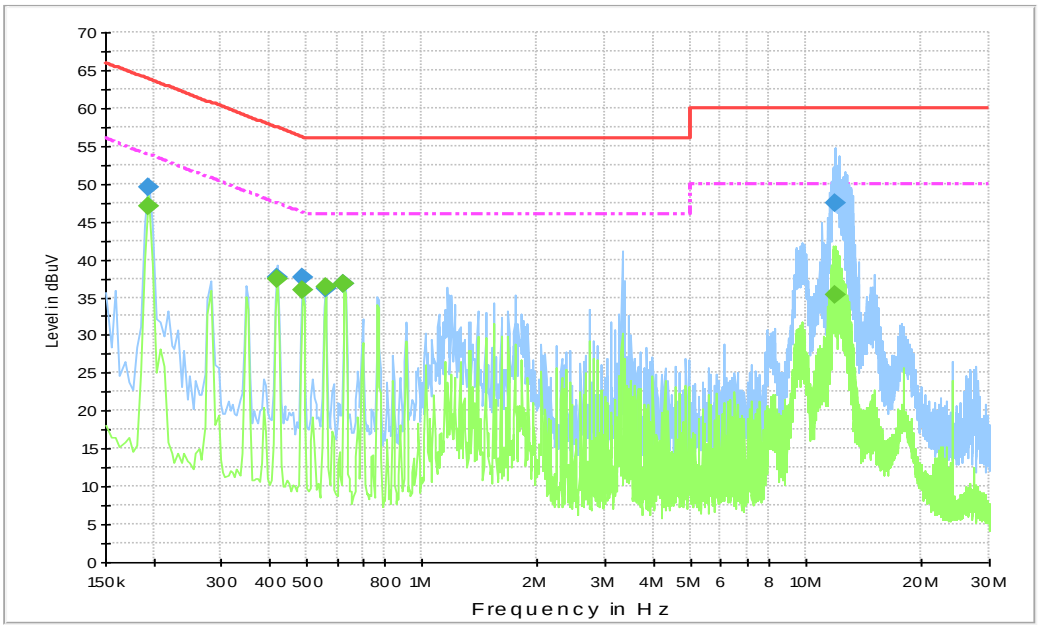

Figure A.21 Conducted Emission

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.195000	49.5	3000.0	9.000	On	N	27.7	14.3	63.8
0.420000	37.5	3000.0	9.000	On	L1	24.2	19.9	57.4
0.487500	37.6	3000.0	9.000	On	N	23.5	18.6	56.2
0.559500	36.1	3000.0	9.000	On	L1	22.9	19.9	56.0
0.627000	36.7	3000.0	9.000	On	L1	22.3	19.3	56.0
11.872500	47.4	3000.0	9.000	On	L1	20.1	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	47.0	3000.0	9.000	On	L1	27.7	6.8	53.8
0.420000	37.4	3000.0	9.000	On	N	24.2	10.0	47.4
0.487500	35.9	3000.0	9.000	On	L1	23.5	10.4	46.2
0.559500	36.4	3000.0	9.000	On	N	22.9	9.6	46.0
0.627000	36.7	3000.0	9.000	On	L1	22.3	9.3	46.0
11.886000	35.3	3000.0	9.000	On	N	20.1	14.7	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*****