



TEST REPORT

No. I22Z70093-EMC01

for

Samsung Electronics Co., Ltd.

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

Model Name: SM-A045F/DS, SM-A045F

FCC ID: ZCASMA045F

with

Hardware Version: REV1.0

Software Version: A045F.001

Issued Date: 2022-06-28

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

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

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

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



REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z70093-EMC01	Rev.0	1 st edition	2022-06-28

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

CONTENTS

1. TEST LABORATORY	4
1.1. INTRODUCTION & ACCREDITATION	4
1.2. TESTING LOCATION	4
1.3. TESTING ENVIRONMENT	4
1.4. PROJECT DATA	4
1.5. SIGNATURE.....	4
2. CLIENT INFORMATION	5
2.1. APPLICANT INFORMATION.....	5
2.2. MANUFACTURER INFORMATION.....	5
3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)	6
3.1. ABOUT EUT.....	6
3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST	6
3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST.....	6
3.4. GENERAL DESCRIPTION	7
3.5. EUT SET-UPS	8
4. REFERENCE DOCUMENTS.....	9
4.1. REFERENCE DOCUMENTS FOR TESTING.....	9
5. LABORATORY ENVIRONMENT.....	10
6. SUMMARY OF TEST RESULTS.....	11
7. TEST EQUIPMENTS UTILIZED.....	12
ANNEX A: MEASUREMENT RESULTS	13
ANNEX B: PERSONS INVOLVED IN THIS TESTING	30

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: 2022-05-26
Testing End Date: 2022-06-24

1.5. Signature



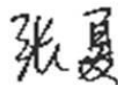
Li Yan

(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: 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-A045F/DS, SM-A045F
FCC ID	ZCASMA045F

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
UT15a	2270093UT15a	REV1.0	A045F.001	2022.05.26
UT16a	2270093UT16a	REV1.0	A045F.001	2022.05.26

*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	Data Cable1	/	/
AE5	Data Cable2	/	/
AE6	Headset1	/	/
AE7	Headset2	/	/
AE8	Battery	/	/
AE9	Data Cable	/	Type-C
AE10	Mobile HD	/	/

AE1

Model	EP-TA200JWE
Manufacturer	HAEM Co.,Ltd
Length of cable	/

AE2

Model	EP-TA200JWE
Manufacturer	SoluM Co.,Ltd.
Length of cable	/

AE3

Model	EP-TA200JWE
Manufacturer	RFTECH Co., Ltd.
Length of cable	/

AE4

Model	EP-DR140AWE
-------	-------------

Manufacturer	DONGGUAN KSD CO.,LTD
Length of cable	/
AE5	
Model	EP-DR140AWE
Manufacturer	CRESYN HANOI Co., Ltd
Length of cable	/
AE6	
Model	EHS61ASFWE
Manufacturer	DONGGUAN YOUNGBO ELECTRONICS CO.,LTD
Length of cable	/
AE7	
Model	EHS61ASFWE
Manufacturer	Shenzhen Grandsound Electronics Co.,Ltd
Length of cable	/
AE8	
Model	/
Manufacturer	/
Length of cable	/

Note:

1. The USB cables are shielded.
2. AE9 and AE10 are not the AE of EUT, which are provided by Lab for relevant testing.

3.4. General Description

The Equipment under Test (EUT) is a model of Tablet with Bluetooth, WLAN with integrated antenna and inbuilt battery.

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

Samples undergoing test were selected by the client.

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	UT15a + AE1 + AE4/AE5 + AE6/ AE7	Adapter1 +Headset + Rear Camera
Set.2	UT15a + AE2 + AE4/AE5	Adapter2 +MP4
Set.3	UT15a + AE3 + AE4/AE5 + AE6/ AE7	Adapter3 +Headset + FM
Set.4	UT15a + UT16a + AE6 + AE9	OTG + Headset+ Front camera+ RX
Set.5	UT15a + AE7 + AE10	OTG +MP4+ Headset+ RX
Set.6	UT15a + AE4/AE5 + AE6/ AE7	USB mode(SD) + Headset + RX
Set.7	UT15a + AE9 + AE6/AE7	Type-C PC TO SD +Front camera+ Headset

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	2021
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 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-A045F/DS and SM-A045F is Dual SIM slot rack and Single SIM slot rack, the tests were performed on SM-A045F/DS and SM-A045F shared the SM-A045F/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	2023-03-02	1 year
3	LISN	ENV216	101459	R&S	2023-03-16	1 year
4	BiLog Antenna	VULB9163	01176	Schwarzbeck	2022-11-15	1 year
5	EMI Antenna	3117	00167252	ETS-Lindgren	2022-12-26	1 year
7	Signal Generator	SMF100A	R&S	101295	2022-12-04	1 year
8	Universal Radio Communication Tester	CMW500	159408	R&S	2023-03-01	1 year
9	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
10	Keyboard	KU-1601	2048361	Lenovo	N/A	N/A
11	Mouse	EMS-537A	8021S3MC	Lenovo	N/A	N/A
12	PC	M4000e-17	M706RMW2	Lenovo	N/A	N/A

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, FM, MP4, MP3, CAMERA, OTG and SD mode.

The WIFI and BT function was on and worked in receiving 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 ($\mu\text{V/m}$)		
	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:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}} = P_{\text{Mea}} + G_A + G_{\text{PL}}$$

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Measurement uncertainty (worst case): 30MHz-1GHz: 5.37dB, 1GHz-18GHz: 5.58dB, $k=2$.

Note: all the set-up lists in section 3.5 and each operating mode were tested, only the worst test data are showed in this section.

Measurement results for Set.1:

Adapter1+ Headset+ Rear Camera /Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17913.500	39.88	-26.2	41.2	24.85	54.0	14.1	V
17919.500	39.80	-26.2	41.2	24.75	54.0	14.2	V
17919.000	39.78	-26.2	41.2	24.73	54.0	14.2	V
17934.000	39.76	-26.2	41.2	24.67	54.0	14.2	V
17912.000	39.73	-26.2	41.2	24.70	54.0	14.3	V
17915.500	39.73	-26.2	41.2	24.69	54.0	14.3	V

Adapter1+ Headset+ Rear Camera /Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17372.500	51.8	-26.8	41.1	37.55	74.0	22.2	H
17669.000	51.8	-26.6	41.0	37.40	74.0	22.2	H
16006.000	51.8	-27.8	40.7	38.86	74.0	22.2	V
17400.500	51.7	-26.8	41.1	37.44	74.0	22.3	H
17868.500	51.6	-26.3	41.2	36.68	74.0	22.4	V
17025.000	51.5	-27.0	41.7	36.92	74.0	22.5	V

Measurement results for Set.3

Adapter3 +Headset + FM /Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17915.500	39.82	-26.2	41.2	24.78	54.0	14.2	V
17912.000	39.79	-26.2	41.2	24.76	54.0	14.2	H
17916.000	39.75	-26.2	41.2	24.71	54.0	14.2	V
17919.000	39.69	-26.2	41.2	24.64	54.0	14.3	V
17918.000	39.69	-26.2	41.2	24.64	54.0	14.3	V
17915.000	39.68	-26.2	41.2	24.64	54.0	14.3	V

Adapter3 +Headset + FM /Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17820.500	51.9	-26.4	41.2	37.16	74.0	22.1	H
17829.000	51.8	-26.4	41.2	36.99	74.0	22.2	V
16372.000	51.6	-27.6	41.1	38.13	74.0	22.4	H
17984.000	51.6	-26.0	41.3	36.36	74.0	22.4	H
17904.500	51.5	-26.2	41.2	36.54	74.0	22.5	V
16946.500	51.5	-27.1	41.6	36.99	74.0	22.5	H

Measurement results for Set.4
OTG + Headset+ Front camera+ RX GSM850MHz /Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17916.500	39.76	-26.2	41.2	24.72	54.0	14.2	H
17914.500	39.75	-26.2	41.2	24.72	54.0	14.2	V
17910.500	39.67	-26.2	41.2	24.65	54.0	14.3	H
17909.000	39.67	-26.2	41.2	24.65	54.0	14.3	H
17918.000	39.67	-26.2	41.2	24.62	54.0	14.3	V
17917.000	39.66	-26.2	41.2	24.62	54.0	14.3	V

OTG + Headset+ Front camera+ RX GSM850MHz /Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17035.000	51.9	-27.0	41.6	37.32	74.0	22.1	H
17097.500	51.8	-27.0	41.5	37.23	74.0	22.2	H
16826.500	51.6	-27.3	41.5	37.37	74.0	22.4	V
17948.500	51.5	-26.1	41.3	36.39	74.0	22.5	H
17143.000	51.5	-26.9	41.5	37.00	74.0	22.5	V
17873.500	51.5	-26.3	41.2	36.59	74.0	22.5	V

Measurement results for Set.6
USB mode (SD) + Headset + RX LTE Band5 /Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17915.500	39.89	-26.2	41.2	24.85	54.0	14.1	V
17927.000	39.88	-26.2	41.2	24.81	54.0	14.1	V
17910.500	39.84	-26.2	41.2	24.82	54.0	14.2	H
17917.000	39.84	-26.2	41.2	24.80	54.0	14.2	V
17914.500	39.80	-26.2	41.2	24.76	54.0	14.2	H
17913.500	39.77	-26.2	41.2	24.73	54.0	14.2	V

USB mode (SD) + Headset + RX LTE Band5 /Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
16921.500	52.2	-27.2	41.6	37.73	74.0	21.8	H
17161.500	52.2	-26.9	41.4	37.68	74.0	21.8	V
17717.500	52.2	-26.6	41.1	37.65	74.0	21.8	H
17933.500	52.0	-26.2	41.2	36.92	74.0	22.0	V
17914.500	52.0	-26.2	41.2	36.97	74.0	22.0	H
17036.500	52.0	-27.0	41.6	37.36	74.0	22.0	H

Adapter1+ Headset+ Rear Camera, Set.1

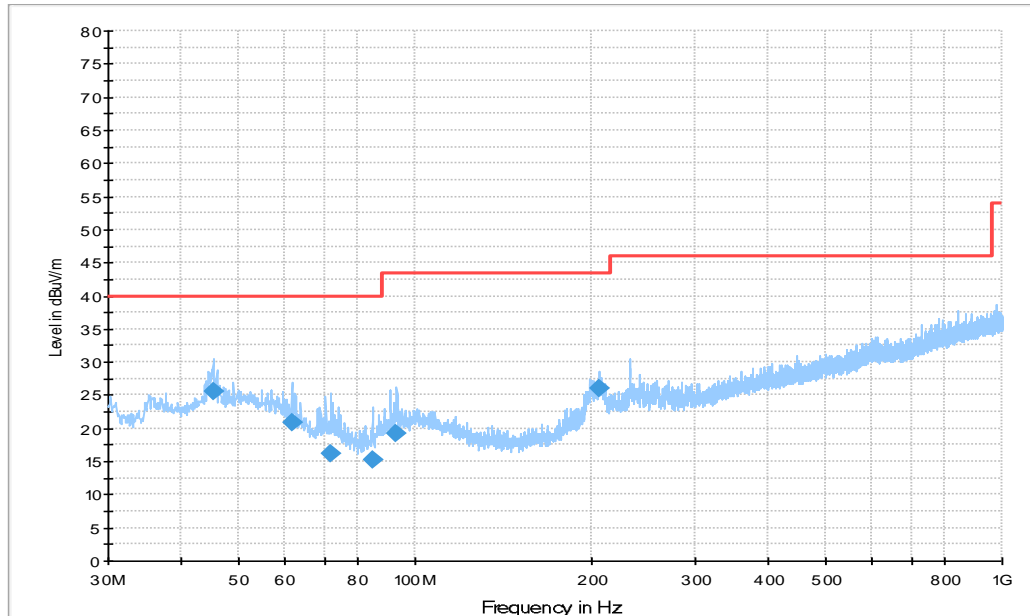


Figure A.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
45.326000	25.6	100.0	V	51.0	-0.1	14.4	40.0
61.622000	21.0	100.0	V	250.0	-1.8	19.0	40.0
71.807000	16.2	100.0	V	237.0	-4.7	23.8	40.0
84.611000	15.2	100.0	V	-26.0	-5.0	24.8	40.0
93.050000	19.2	100.0	V	212.0	-2.7	24.3	43.5
205.570000	26.1	125.0	H	225.0	-0.7	17.4	43.5

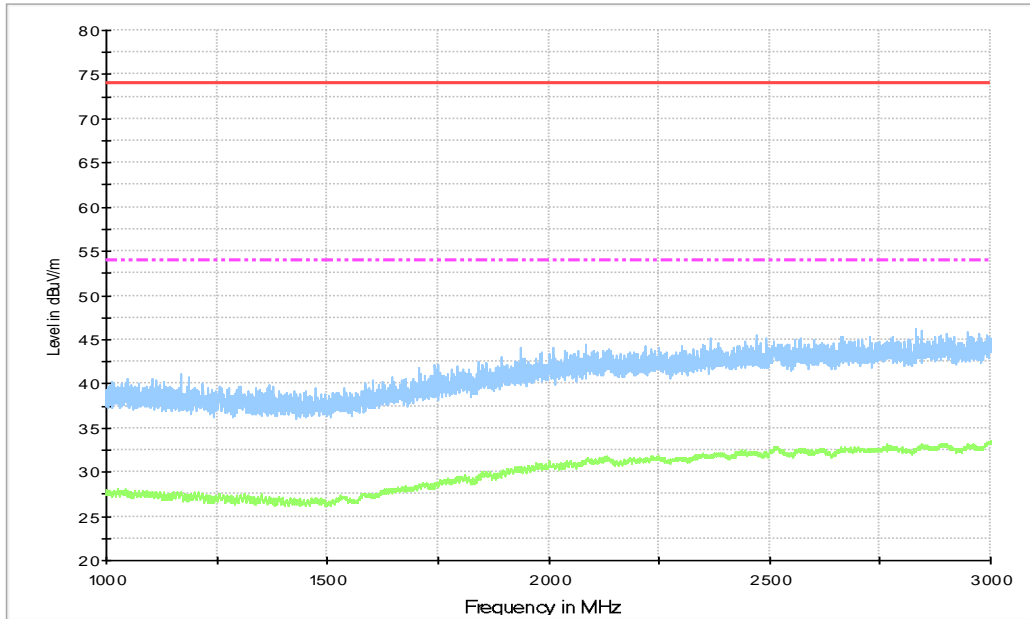


Figure A.2 Radiated Emission from 1GHz to 3GHz

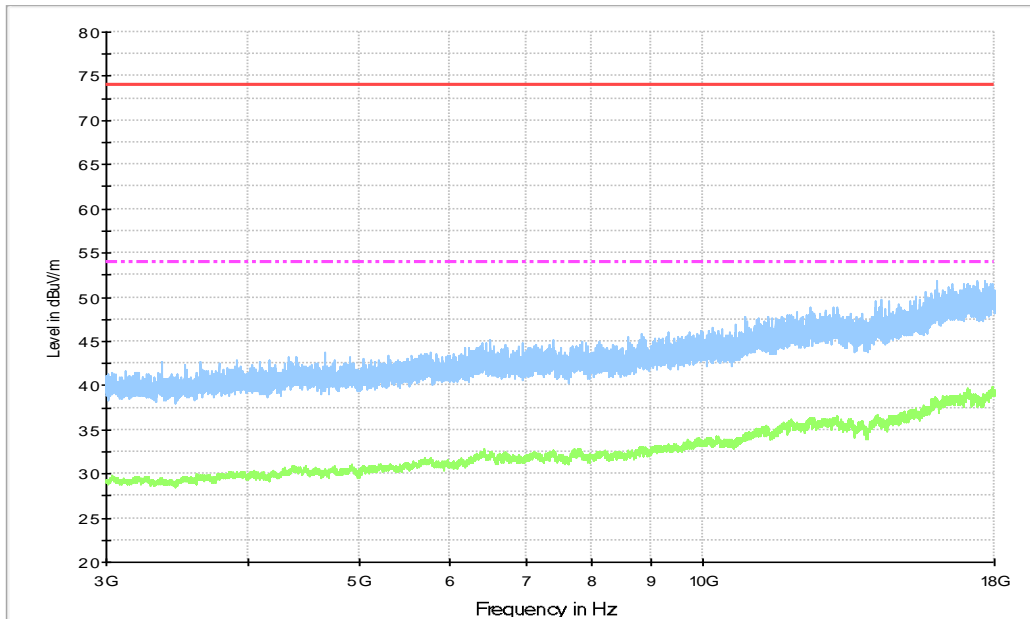


Figure A.3 Radiated Emission from 3GHz to 18GHz

Adapter3 +Headset + FM, Set.3

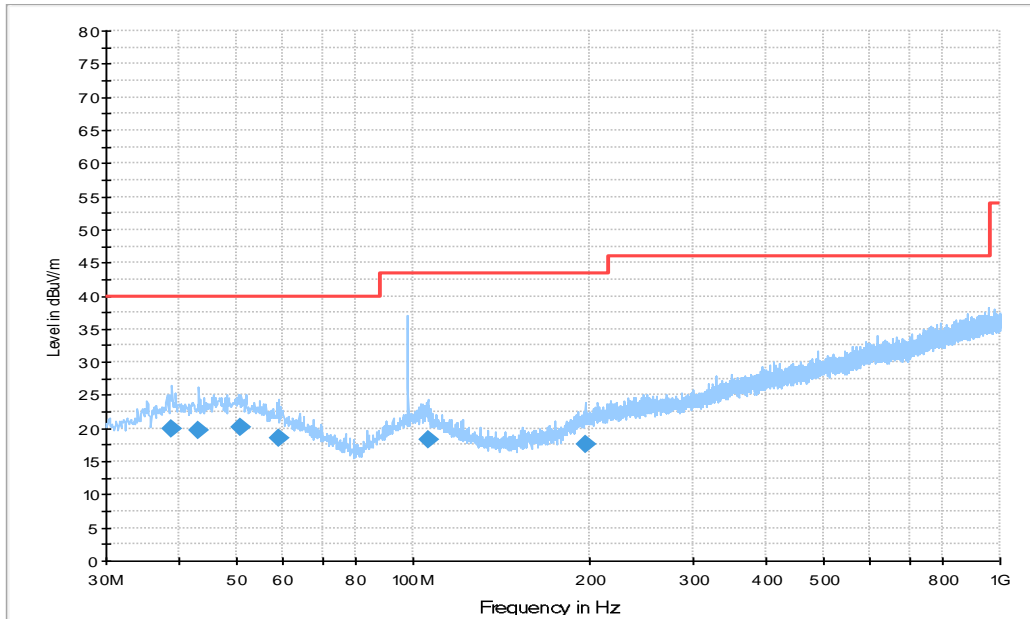


Figure A.4 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
38.827000	19.8	125.0	V	225.0	-1.0	20.2	40.0
43.192000	19.6	113.0	H	-45.0	-0.3	20.4	40.0
50.952000	20.3	125.0	H	180.0	0.3	19.7	40.0
59.100000	18.6	125.0	V	90.0	-1.2	21.4	40.0
105.85400	18.3	125.0	V	57.0	-1.8	25.2	43.5
196.16100	17.7	113.0	H	135.0	-1.3	25.8	43.5

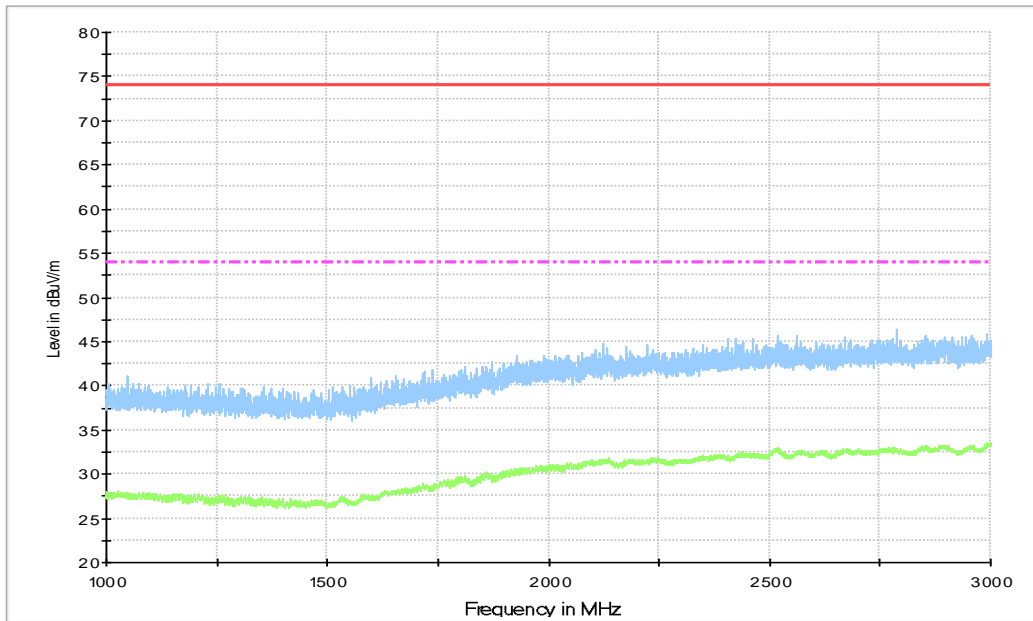


Figure A.5 Radiated Emission from 1GHz to 3GHz

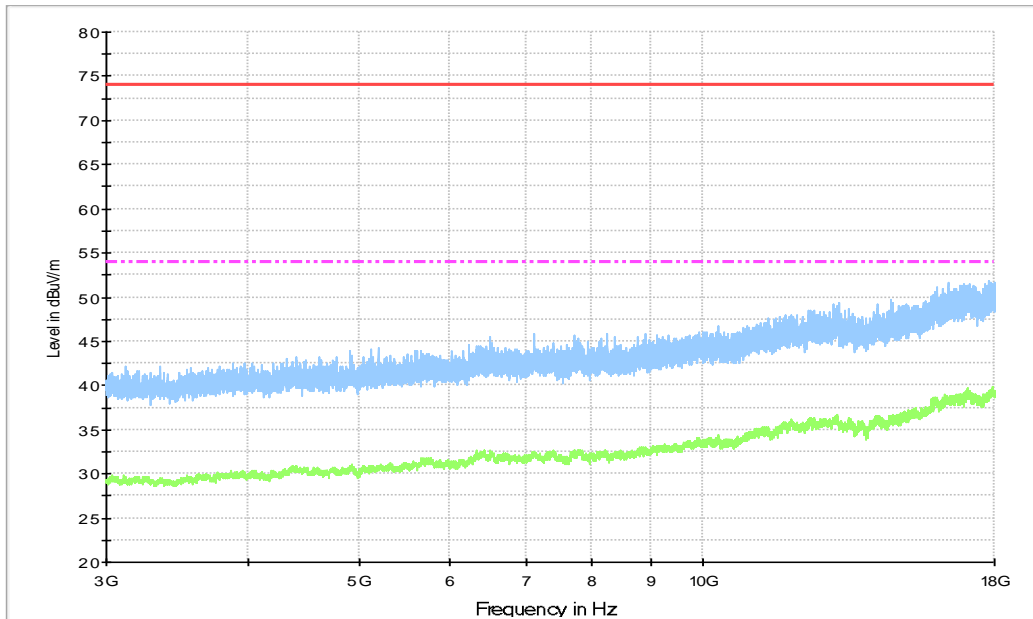


Figure A.6 Radiated Emission from 3GHz to 18GHz

OTG + Headset+ Front camera+ RX GSM850MHz, Set.4

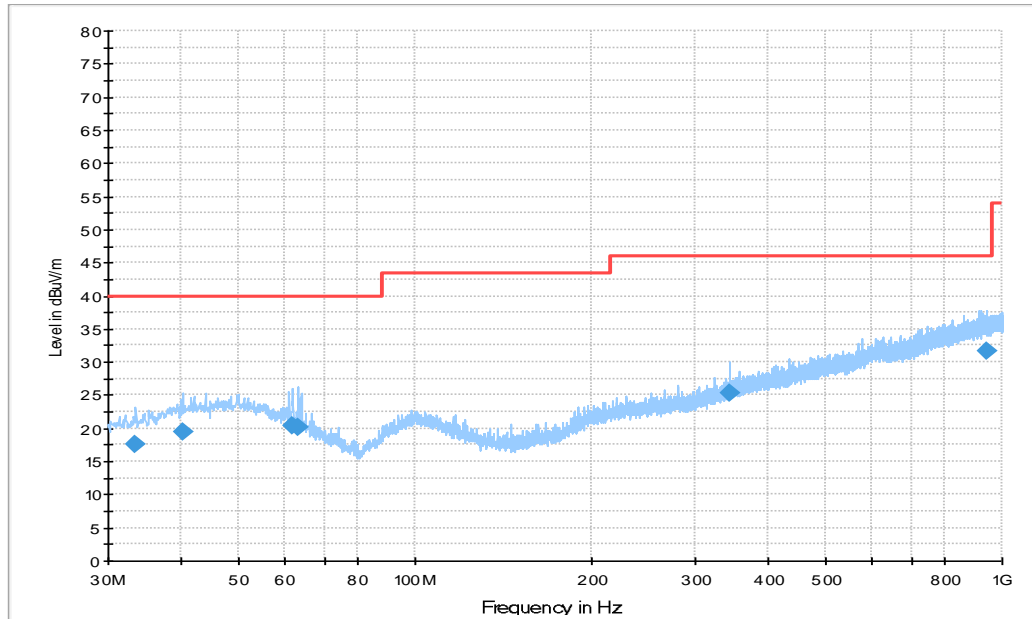


Figure A.7 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
33.395000	17.6	125.0	V	186.0	-2.8	22.4	40.0
40.185000	19.4	100.0	V	45.0	-0.6	20.6	40.0
61.816000	20.5	125.0	H	180.0	-1.9	19.5	40.0
63.174000	20.3	113.0	V	243.0	-2.3	19.7	40.0
343.69800	25.3	100.0	H	256.0	3.3	20.7	46.0
940.24800	31.8	113.0	V	45.0	12.6	14.2	46.0

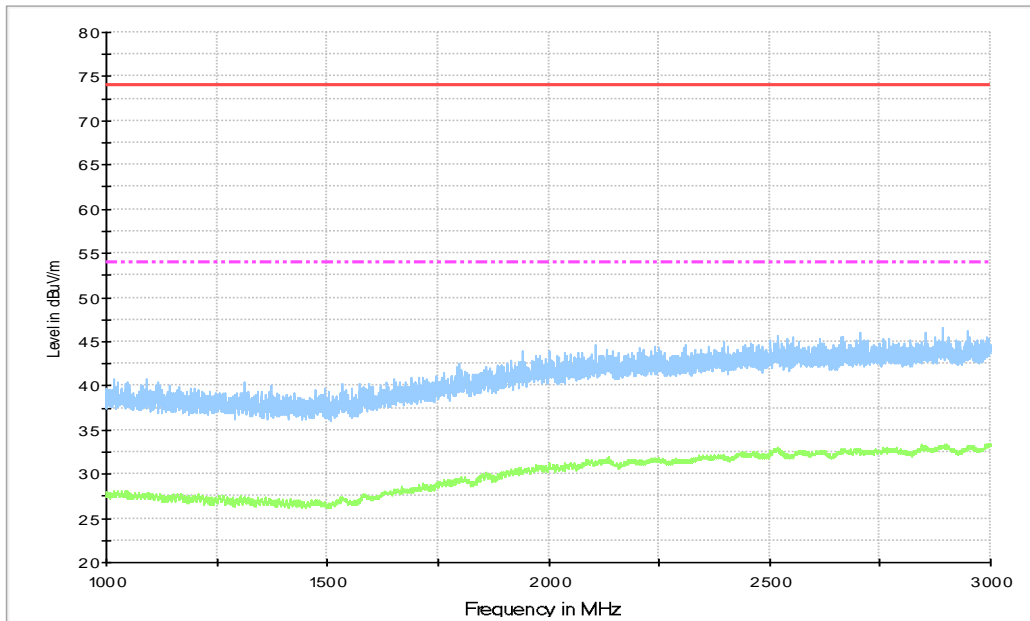


Figure A.8 Radiated Emission from 1GHz to 3GHz

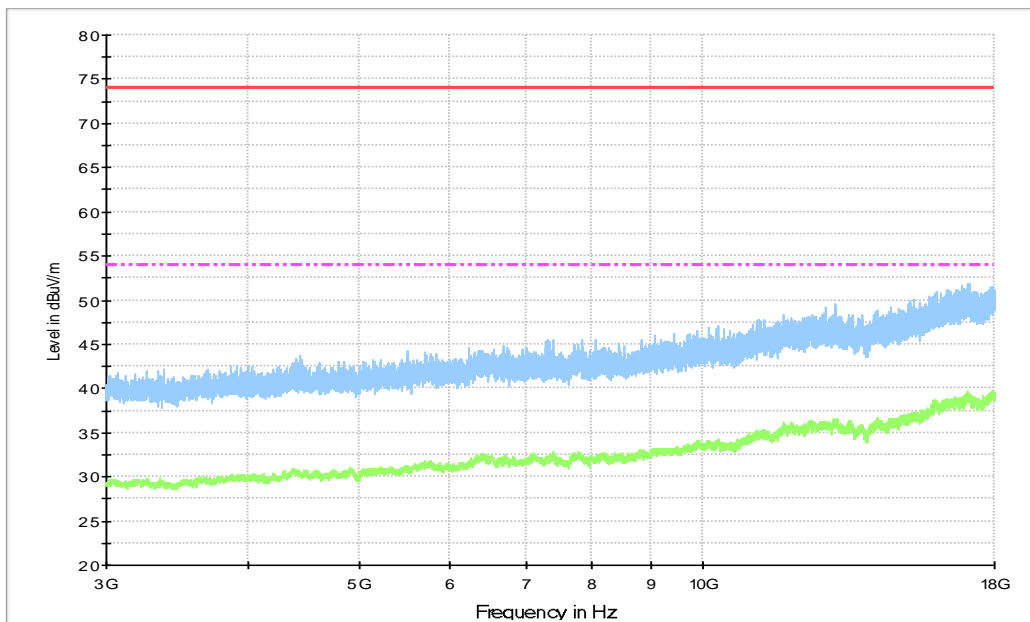


Figure A.9 Radiated Emission from 3GHz to 18GHz

USB mode (SD) + Headset + RX LTE Band5, Set.6

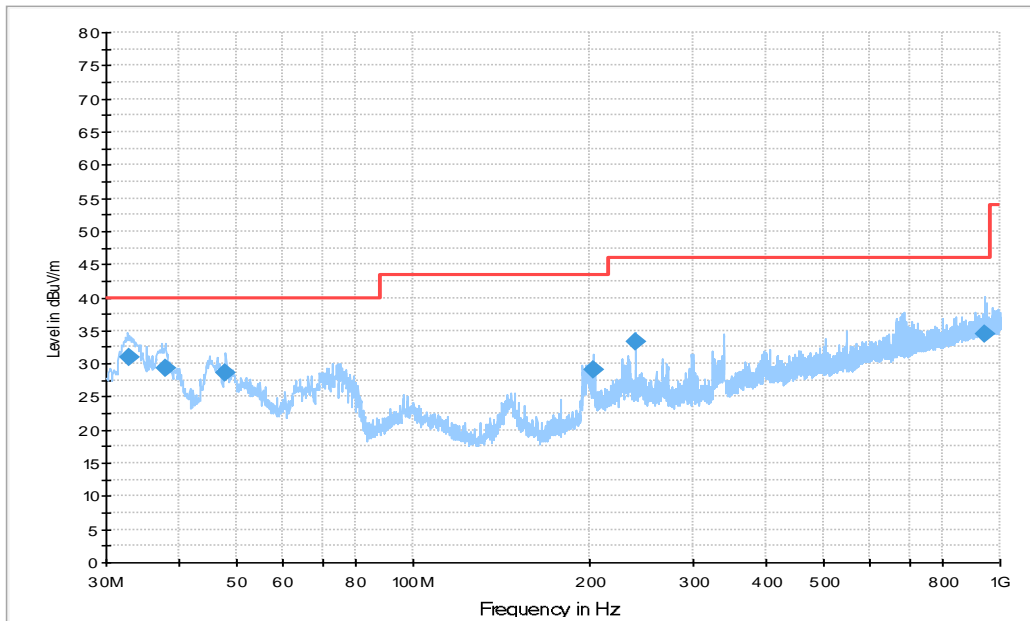


Figure A.10 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
32.813000	30.9	100.0	V	289.0	-2.9	9.1	40.0
37.857000	29.3	100.0	V	237.0	-1.3	10.7	40.0
47.945000	28.7	125.0	V	192.0	0.2	11.3	40.0
203.24200	29.0	113.0	H	0.0	-0.9	14.5	43.5
240.00500	33.4	100.0	H	77.0	0.6	12.6	46.0
942.67300	34.5	113.0	V	-1.0	12.6	11.5	46.0

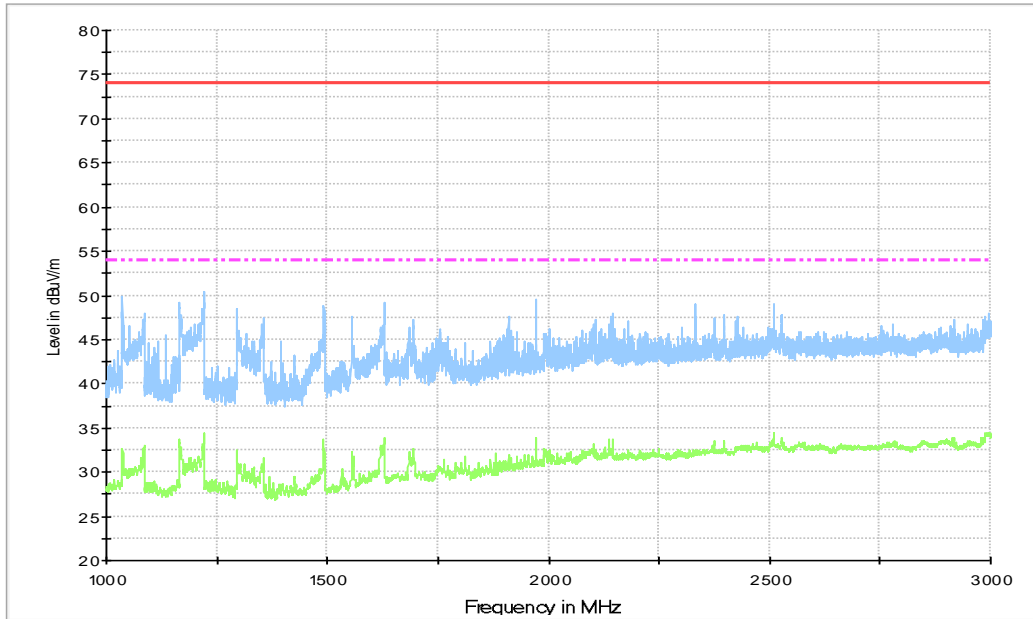


Figure A.11 Radiated Emission from 1GHz to 3GHz

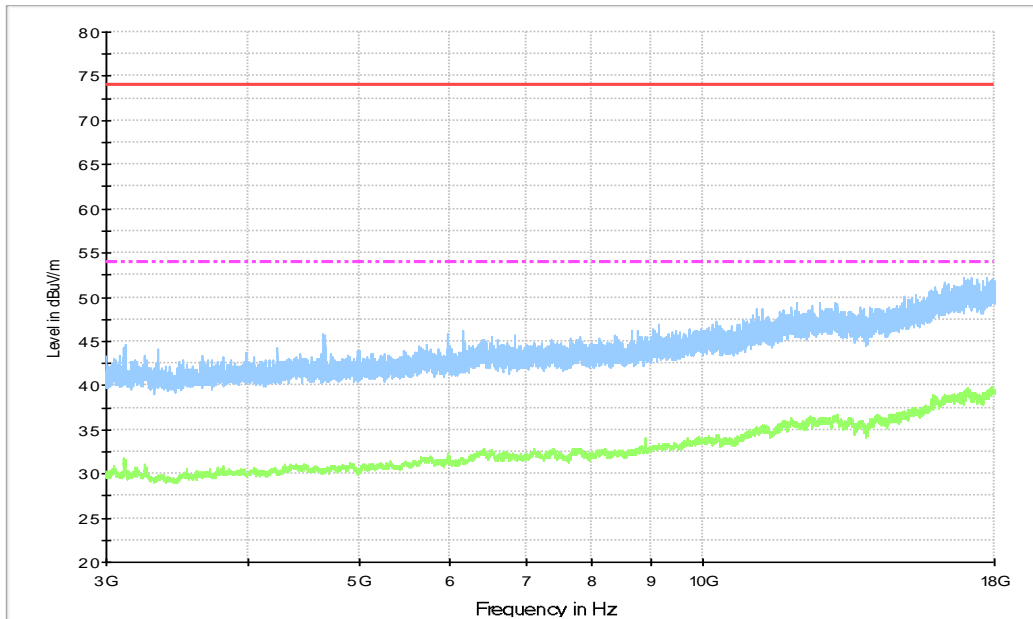


Figure A.12 Radiated Emission from 3GHz to 18GHz

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, FM, MP4, MP3, 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 (dB μ V)	
	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 and each operating mode were tested, only the worst test data are showed in this section.

Set.1

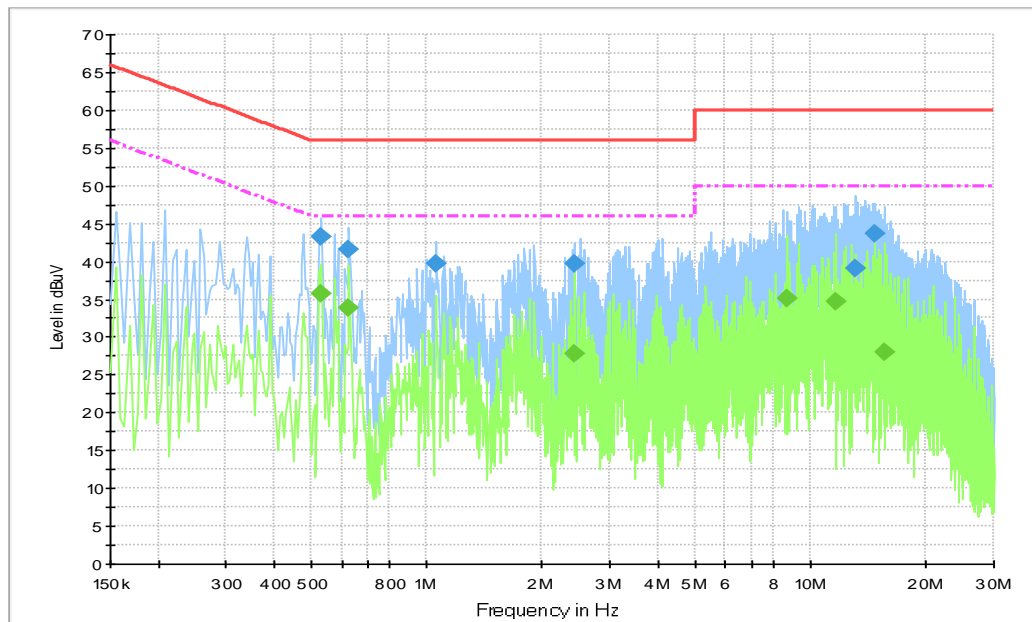


Figure A.13 Conducted Emission

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)
0.532500	43.3	5000.0	9.000	On	L1	19.5	12.7	56.0
0.627000	41.5	5000.0	9.000	On	L1	19.5	14.5	56.0
1.059000	39.8	5000.0	9.000	On	L1	19.5	16.2	56.0
2.436000	39.7	5000.0	9.000	On	L1	19.6	16.3	56.0
13.060500	39.1	5000.0	9.000	On	N	19.8	20.9	60.0
14.667000	43.7	5000.0	9.000	On	L1	19.9	16.3	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.532500	35.8	5000.0	9.000	On	L1	19.5	10.2	46.0
0.627000	33.9	5000.0	9.000	On	L1	19.5	12.1	46.0
2.422500	27.9	5000.0	9.000	On	L1	19.6	18.1	46.0
8.695500	35.1	5000.0	9.000	On	L1	19.7	14.9	50.0
11.656500	34.6	5000.0	9.000	On	N	19.8	15.4	50.0
15.625500	28.0	5000.0	9.000	On	N	19.8	22.0	50.0

Set.3

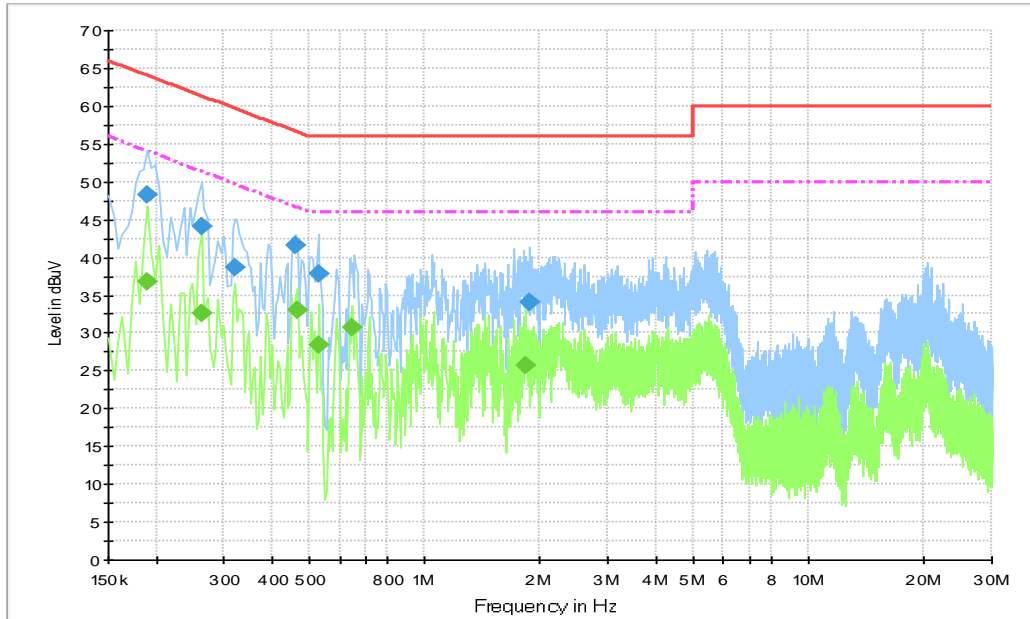


Figure A.14 Conducted Emission

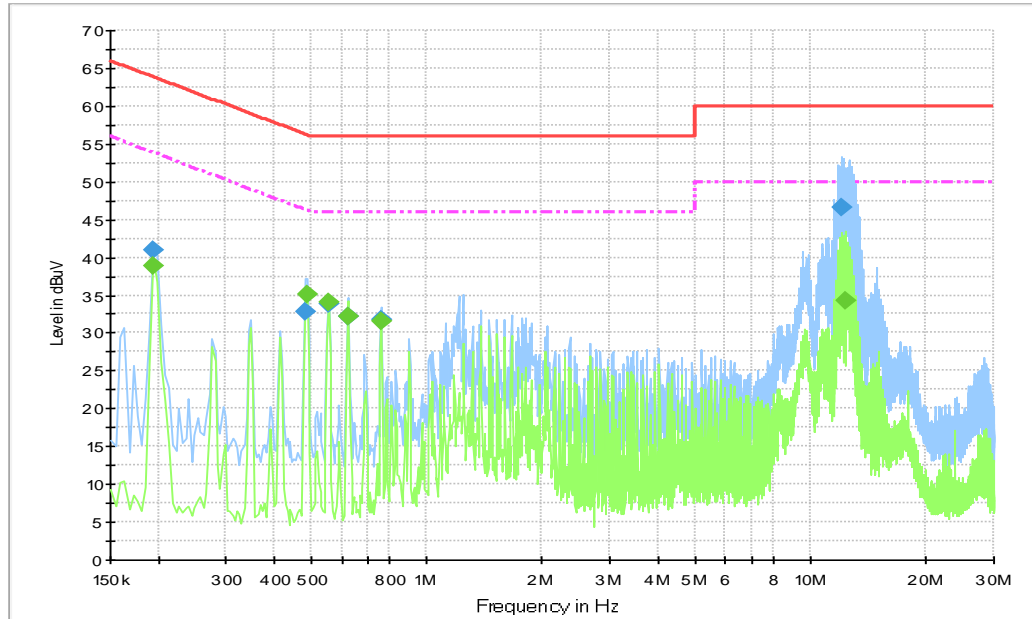
Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190500	48.3	5000.0	9.000	On	L1	19.5	15.8	64.0
0.262500	44.1	5000.0	9.000	On	L1	19.5	17.3	61.4
0.321000	38.6	5000.0	9.000	On	L1	19.5	21.1	59.7
0.460500	41.6	5000.0	9.000	On	L1	19.5	15.1	56.7
0.528000	37.9	5000.0	9.000	On	L1	19.5	18.1	56.0
1.882500	34.1	5000.0	9.000	On	N	19.6	21.9	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190500	36.8	5000.0	9.000	On	L1	19.5	17.2	54.0
0.262500	32.7	5000.0	9.000	On	L1	19.5	18.7	51.4
0.465000	33.1	5000.0	9.000	On	L1	19.5	13.5	46.6
0.532500	28.4	5000.0	9.000	On	L1	19.5	17.6	46.0
0.649500	30.7	5000.0	9.000	On	L1	19.5	15.3	46.0
1.833000	25.8	5000.0	9.000	On	N	19.6	20.2	46.0

USB (SD) mode, Set.6

Figure A.15 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 (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.195000	40.9	5000.0	9.000	On	N	19.7	22.9	63.8
0.483000	32.8	5000.0	9.000	On	L1	19.5	23.5	56.3
0.555000	33.8	5000.0	9.000	On	N	19.8	22.2	56.0
0.622500	32.2	5000.0	9.000	On	N	19.7	23.8	56.0
0.762000	31.7	5000.0	9.000	On	N	19.7	24.3	56.0
12.039000	46.6	5000.0	9.000	On	L1	19.8	13.4	60.0

Final Result 2

Frequency (MHz)	Average (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.195000	38.8	5000.0	9.000	On	N	19.7	15.0	53.8
0.487500	35.2	5000.0	9.000	On	N	19.8	11.1	46.2
0.555000	34.1	5000.0	9.000	On	N	19.8	11.9	46.0
0.622500	32.1	5000.0	9.000	On	N	19.7	13.9	46.0
0.762000	31.6	5000.0	9.000	On	N	19.7	14.4	46.0
12.358500	34.2	5000.0	9.000	On	N	19.8	15.8	50.0



ANNEX B: Persons involved in this testing

Test Item	Tester
Radiated Emission	Zhao Wenhui
Conducted Emission	Guo Qian

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