TEST REPORT

No. I22Z61923-EMC01

for

Honor Device Co., Ltd.

Smart Phone

Model Name: VNA-LX3

FCC ID: 2AYGCVNA-LX3

with

Hardware Version: HL2VNEM

Software Version: VNA-LX3 6.1.0.29(C605E1R1P1)

Issued Date: 2022-10-28

Note:

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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

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z61923-EMC01	Rev.0	1st edition	2022-10-28

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

CONTENTS

1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2005 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 (CN0066). 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: 2022-10-26

Testing End Date: 2022-10-28

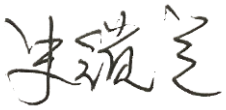
1.5. Signature

Zhang Ying

(Prepared this test report)

An Hui

(Reviewed this test report)



Shi Suolan

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: Honor Device Co., Ltd.

Address /Post: Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, China

2.2. Manufacturer Information

Company Name: Honor Device Co., Ltd.

Address /Post: Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, China

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

3.1. About EUT

Description	Smart Phone
Model Name	VNA-LX3
FCC ID	2AYGCVNA-LX3
Extreme vol. Limits	3.6VDC to 4.45VDC (Normal: 3.87VDC)

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*	SN or IMEI	HW Version	SW Version
UT03a	868254060009606/ 868254060025008	HL2VNEM	VNA-LX3 6.1.0.29(C605E1R1P1)
UT20a	868254060006966/ 868254060022369	HL2VNEM	VNA-LX3 6.1.0.29(C605E1R1P1)
UT11a	868254060008533/ 868254060023938	HL2VNEM	VNA-LX3 6.1.0.29(C605E1R1P1)
UT06a	868254060008129/ 868254060023524	HL2VNEM	VNA-LX3 6.1.0.29(C605E1R1P1)

*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*	Name	Model	Manufacturer
AE1	Charger	HW-050200B02	Huntkey
AE2	Charger	HW-050200U02	Huntkey
AE3	Charger	HW-050200B02	BYD
AE4	Charger	HW-050200U02	BYD
AE5	Charger	HW-050200E02	Huntkey
AE6	Charger	HW-050200E02	BYD
AE7	Charger	HW-050100E01	Huntkey
AE8	Charger	HW-050100B01	Huntkey
AE9	Charger	HN-050100U01	Huntkey
AE10	Charger	HW-050100E01	BYD
AE11	Charger	HW-050100B01	BYD
AE12	Charger	HN-050100U01	BYD
AE13	Battery	HB496590EFW	SCUD
AE14	Battery	HB496590EFW	NVT
AE15	Battery	HB496590EFW-F	SCUD
AE16	Battery	HB496590EFW-F	NVT
AE17	Headset	MEND1532B528C00	Hongsheng
AE18	Headset	1293-3283-3.5MM-339	QUANCHENG

AE19	USB	04072297(NB)	/

*AE ID: is used to identify the test sample in the lab internally.
Note: The USB cables are shielded.

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	UT03a + AE2 + AE17 + AE13 + AE19	
Set.2	UT20a + AE4 + AE18 + AE14 + AE19	
Set.3	UT11a + AE5 + AE17 + AE15 + AE19	
Set.4	UT06a + AE6 + AE18 + AE16 + AE19	
Set.5	UT03a + AE9 + AE17 + AE13 + AE19	
Set.6	UT20a + AE12 + AE18 + AE14 + AE19	
Set.7	UT11a + AE15 + AE19	
Set.8	UT06a + AE2 + AE17 + AE14 + AE19	

3.5. Test summary

EUT set-up No.	Test mode	Test result	
		Radiated Emission	Conducted Emission
Set.1	GSM 850 + Real Camera	Pass	Pass
Set.2	WCDMA 850 + Real Camera	Pass	Pass
Set.3	LTE band5 + mp4	Pass	Pass
Set.4	LTE band13 + mp4	Pass	Pass
Set.5	LTE band26 + FM	Pass	Pass
Set.6	FM	Pass	Pass
Set.7	USB TO PC + Front Camera	Pass	Pass
Set.8	Black screen	Pass	Pass

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-1 (23 meters×17meters×10meters) 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 M
Ground system resistance	< 4
Normalised site attenuation (NSA)	< ± 4 dB, 3m/10m distance, from 30 to 1000 MHz
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz

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

Items	Test Name	Clause in FCC rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	B.1	P	**CTTL (BDA)**
2	Conducted Emission	15.107(a)	B.2	P	**CTTL (BDA)**

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	LISN	ENV216	101459	Rohde & Schwarz	2023-03-16	1 year
2	Test Receiver	ESCI	100766	Rohde & Schwarz	2023-03-02	1 Year
3	Test Receiver	ESU26	100376	R&S	2023-09-22	1 year
4	EMI Antenna	VULB 9163	01177	Schwarzbeck	2023-08-03	1 Year
5	EMI Antenna	3117	00119024	Schwarzbeck	2023-06-07	1 Year
6	Universal Radio Communication Tester	CMW500	159408	R&S	2023-03-02	1 Year
7	Universal Radio Communication Tester	CMW500	167943	R&S	2023-04-13	1 Year
8	PC	E500-1042	2140770010640901850	Tsinghua Tongfang	N/A	N/A
9	Printer	1160	33740	HP	N/A	N/A
10	Keyboard	/	/	/	N/A	N/A
11	Mouse	/	/	/	N/A	N/A

Test Item	Test Software and Version	Software Vendor
Conducted Emission	EMC32 V8.52.0	R&S
Radiated Emission	EMC32 V8.52.0	R&S

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission

Reference

FCC: CFR Part 15.109(a).

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (USB mode of MS and charging mode of MS) at distances of 3/10 meters 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 3/10 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 and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode.

The EUT was tested while operating in licensed band Rx mode with Camera/MP3. All licensed band receivers that tune in the range of 30MHz-960MHz, as listed in section 3.4, are investigated. Only the worst case emissions are reported.

The model of the PC is M4000E-17, and the serial number of the PC is M706GWXD. 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.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:

Frequency range	Measurement uncertainty
30MHz-1GHz	5.73dB, k=2
1GHz-18GHz	5.58dB, k=2

Measurement results for Set.1, Real Camera + WCDMA 850MHz idle:

Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
38.342000	27.3	40.0	12.7	100.0	V	-1.0
39.021000	24.5	40.0	15.5	125.0	V	89.0
50.661000	22.1	40.0	17.9	100.0	V	18.0
93.923000	18.5	43.5	25.0	125.0	V	204.0
200.817000	21.5	43.5	22.0	100.0	V	-1.0
954.022000	32.6	46.0	13.4	100.0	H	108.0

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)
17033.000	38.52	-27.0	41.0	24.52	54.0	15.5	V
17035.500	38.51	-27.0	41.0	24.51	54.0	15.5	H
16947.500	38.44	-27.1	41.3	24.32	54.0	15.6	V
17501.000	38.41	-26.7	40.8	24.34	54.0	15.6	H
17495.500	38.36	-26.7	40.8	24.30	54.0	15.6	V
17519.000	38.35	-26.7	40.8	24.32	54.0	15.6	H

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)
17146.500	50.9	-26.9	40.9	36.90	74.0	23.1	V
17137.000	50.8	-26.9	40.9	36.79	74.0	23.2	V
16880.000	50.6	-27.2	41.4	36.46	74.0	23.4	V
17607.000	50.6	-26.7	40.6	36.66	74.0	23.4	V
16353.000	50.5	-27.5	40.6	37.49	74.0	23.5	V
17058.000	50.4	-27.0	41.0	36.45	74.0	23.6	H

Measurement results for Set.2, Real Camera + WCDMA 850MHz idle:

Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
38.536000	35.8	40.0	4.2	100.0	V	101.0
39.603000	34.8	40.0	5.2	100.0	V	63.0
48.818000	22.8	40.0	17.2	100.0	V	5.0
64.144000	25.0	40.0	15.0	100.0	V	282.0
93.050000	27.3	43.5	16.2	100.0	V	160.0
202.660000	23.9	43.5	19.6	100.0	V	-1.0

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)
17494.500	38.66	-26.7	40.8	24.59	54.0	15.3	V
16820.000	38.51	-27.3	41.3	24.46	54.0	15.5	V
17030.000	38.50	-27.0	41.0	24.50	54.0	15.5	V
16822.000	38.46	-27.3	41.3	24.41	54.0	15.5	V
17499.500	38.46	-26.7	40.8	24.39	54.0	15.5	V
17032.000	38.45	-27.0	41.0	24.45	54.0	15.6	V

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)
17522.000	51.8	-26.7	40.8	37.72	74.0	22.2	V
16874.500	51.6	-27.2	41.4	37.41	74.0	22.4	V
16869.000	51.2	-27.2	41.4	37.09	74.0	22.8	V
16739.000	51.2	-27.4	41.2	37.37	74.0	22.8	V
17250.000	51.2	-26.9	40.9	37.18	74.0	22.8	V
16760.500	51.0	-27.4	41.3	37.10	74.0	23.0	H

Measurement results for Set.3, MP4+ LTE band 5 idle:

Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
34.559000	24.1	40.0	15.9	100.0	V	70.0
35.626000	23.8	40.0	16.2	100.0	V	18.0
47.363000	22.0	40.0	18.0	100.0	V	76.0
104.981000	21.2	43.5	22.3	125.0	H	204.0
158.040000	24.9	43.5	18.6	100.0	V	192.0
944.128000	32.4	46.0	13.6	100.0	V	225.0

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)
17037.000	38.56	-27.0	41.0	24.57	54.0	15.4	H
16930.500	38.45	-27.2	41.3	24.29	54.0	15.6	V
17036.000	38.44	-27.0	41.0	24.45	54.0	15.6	V
17491.500	38.42	-26.7	40.8	24.36	54.0	15.6	V
17521.500	38.41	-26.7	40.8	24.38	54.0	15.6	V
17526.500	38.39	-26.7	40.7	24.36	54.0	15.6	V

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)
17032.000	50.9	-27.0	41.0	36.88	74.0	23.1	H
16809.500	50.7	-27.3	41.3	36.71	74.0	23.3	V
17286.000	50.6	-26.9	40.8	36.65	74.0	23.4	V
17783.500	50.5	-26.5	40.3	36.68	74.0	23.5	V
16835.000	50.5	-27.3	41.3	36.38	74.0	23.5	H
17923.000	50.4	-26.2	40.2	36.40	74.0	23.6	H

Measurement results for Set.4, MP4+ LTE band 13 idle:

Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
35.432000	25.7	40.0	14.3	100.0	V	315.0
41.640000	30.0	40.0	10.0	100.0	V	6.0
89.364000	24.9	43.5	18.6	125.0	V	-45.0
109.346000	25.5	43.5	18.0	125.0	H	-7.0
158.040000	21.4	43.5	22.1	113.0	V	186.0
204.212000	22.0	43.5	21.5	100.0	V	0.0

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)
17489.500	38.43	-26.7	40.8	24.37	54.0	15.6	V
17257.000	38.41	-26.9	40.9	24.42	54.0	15.6	H
17129.500	38.38	-26.9	40.9	24.39	54.0	15.6	H
17521.000	38.32	-26.7	40.8	24.28	54.0	15.7	V
17495.500	38.31	-26.7	40.8	24.25	54.0	15.7	V
16817.000	38.31	-27.3	41.3	24.28	54.0	15.7	V

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)
17119.500	50.9	-26.9	40.9	36.91	74.0	23.1	V
16632.500	50.7	-27.6	41.1	37.17	74.0	23.3	H
17489.500	50.7	-26.7	40.8	36.62	74.0	23.3	V
16948.000	50.6	-27.1	41.3	36.52	74.0	23.4	V
17812.500	50.5	-26.4	40.3	36.67	74.0	23.5	H
17938.000	50.5	-26.1	40.2	36.45	74.0	23.5	V

Measurement results for Set.5, FM+ LTE band 26 idle:

Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
30.679000	22.7	40.0	17.3	125.0	V	282.0
39.409000	26.2	40.0	13.8	100.0	V	315.0
45.229000	29.7	40.0	10.3	100.0	V	282.0
54.250000	24.3	40.0	15.7	100.0	V	19.0
60.555000	23.3	40.0	16.7	113.0	V	64.0
934.040000	32.3	46.0	13.7	100.0	H	315.0

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)
17509.000	38.38	-26.7	40.8	24.33	54.0	15.6	V
17498.500	38.35	-26.7	40.8	24.29	54.0	15.6	V
17504.000	38.35	-26.7	40.8	24.29	54.0	15.6	H
17038.500	38.35	-27.0	41.0	24.36	54.0	15.7	V
17494.500	38.34	-26.7	40.8	24.27	54.0	15.7	V
17249.500	38.33	-26.9	40.9	24.33	54.0	15.7	H

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)
16730.000	50.8	-27.4	41.2	37.02	74.0	23.2	H
17689.500	50.8	-26.6	40.4	36.95	74.0	23.2	H
16763.000	50.7	-27.3	41.3	36.78	74.0	23.3	V
16731.000	50.4	-27.4	41.2	36.58	74.0	23.6	V
17466.500	50.3	-26.8	40.8	36.24	74.0	23.7	H
16820.500	50.3	-27.3	41.3	36.24	74.0	23.7	V

Measurement results for Set.6, FM:

Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
37.275000	27.7	40.0	12.3	113.0	V	288.0
39.215000	29.3	40.0	10.7	100.0	V	270.0
44.453000	25.7	40.0	14.3	100.0	V	295.0
45.714000	26.0	40.0	14.0	100.0	V	269.0
195.191000	21.9	43.5	21.6	100.0	V	-20.0
285.983000	28.7	46.0	17.3	100.0	H	25.0

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)
16927.000	38.50	-27.2	41.3	24.33	54.0	15.5	V
16818.500	38.39	-27.3	41.3	24.35	54.0	15.6	V
16925.500	38.36	-27.2	41.3	24.19	54.0	15.6	H
17039.000	38.34	-27.0	41.0	24.35	54.0	15.7	H
17037.500	38.34	-27.0	41.0	24.35	54.0	15.7	V
16822.500	38.33	-27.3	41.3	24.28	54.0	15.7	V

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)
16969.500	51.3	-27.1	41.2	37.18	74.0	22.7	V
17600.500	50.8	-26.7	40.6	36.84	74.0	23.2	H
17195.000	50.6	-26.9	41.0	36.54	74.0	23.4	V
17247.000	50.6	-26.9	40.9	36.61	74.0	23.4	H
17804.000	50.6	-26.4	40.3	36.73	74.0	23.4	H
17675.500	50.5	-26.6	40.4	36.68	74.0	23.5	V

Measurement results for Set.7, USB +Front camera:

Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
30.388000	32.8	40.0	7.2	113.0	V	51.0
39.409000	29.2	40.0	10.8	100.0	V	31.0
78.015000	24.2	40.0	15.8	125.0	H	263.0
270.269000	32.2	46.0	13.8	115.0	H	108.0
589.787000	42.2	46.0	3.8	113.0	V	199.0
902.612000	35.9	46.0	10.1	100.0	V	12.0

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)
16819.000	38.60	-27.3	41.3	24.55	54.0	15.4	H
17034.000	38.59	-27.0	41.0	24.60	54.0	15.4	V
17032.500	38.57	-27.0	41.0	24.57	54.0	15.4	V
17035.000	38.52	-27.0	41.0	24.53	54.0	15.5	V
17497.000	38.48	-26.7	40.8	24.41	54.0	15.5	V
17493.500	38.48	-26.7	40.8	24.41	54.0	15.5	H

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)
15998.000	51.7	-27.8	40.3	39.19	74.0	22.3	H
16628.500	51.7	-27.6	41.1	38.09	74.0	22.3	H
16938.000	51.6	-27.1	41.3	37.47	74.0	22.4	H
3891.000	51.4	-36.3	33.3	54.46	74.0	22.6	H
17851.000	51.3	-26.3	40.2	37.38	74.0	22.7	V
16623.000	51.2	-27.6	41.1	37.69	74.0	22.8	V

Measurement results for Set.8, Black screen:

Charging Mode/QP detector

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
39.991000	27.7	40.0	12.3	100.0	V	-33.0
40.961000	27.7	40.0	12.3	100.0	V	114.0
52.698000	22.4	40.0	17.6	100.0	V	114.0
58.906000	21.5	40.0	18.5	113.0	V	275.0
180.641000	18.5	43.5	25.0	113.0	V	0.0
943.255000	32.4	46.0	13.6	100.0	H	173.0

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)
17501.500	38.59	-26.7	40.8	24.53	54.0	15.4	V
17512.000	38.54	-26.7	40.8	24.49	54.0	15.5	H
16822.500	38.50	-27.3	41.3	24.45	54.0	15.5	V
16932.000	38.48	-27.1	41.3	24.32	54.0	15.5	V
16931.000	38.44	-27.1	41.3	24.28	54.0	15.6	H
17011.000	38.42	-27.1	41.1	24.41	54.0	15.6	V

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)
17599.500	51.4	-26.7	40.6	37.44	74.0	22.6	H
17471.000	51.2	-26.7	40.8	37.12	74.0	22.8	V
16671.500	50.8	-27.5	41.2	37.08	74.0	23.2	V
17250.500	50.6	-26.9	40.9	36.60	74.0	23.4	V
17875.000	50.6	-26.3	40.2	36.65	74.0	23.4	V
17562.500	50.6	-26.7	40.7	36.61	74.0	23.4	H

Measurement results for Set.1, Rear Camera + GSM 850MHz idle:

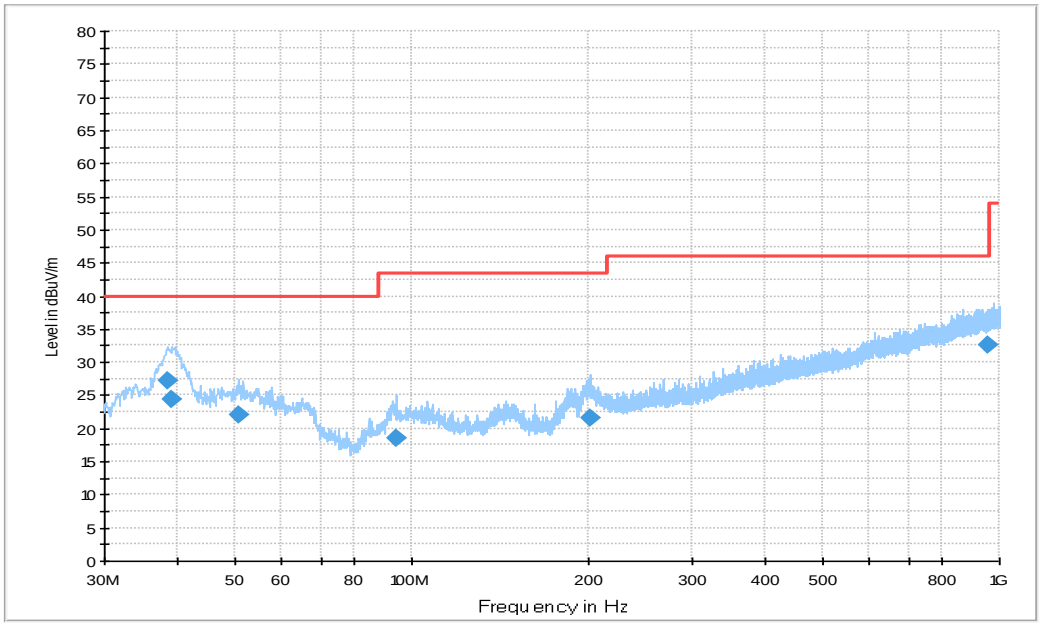


Fig A.1 Radiated Emission from 30MHz to 1GHz

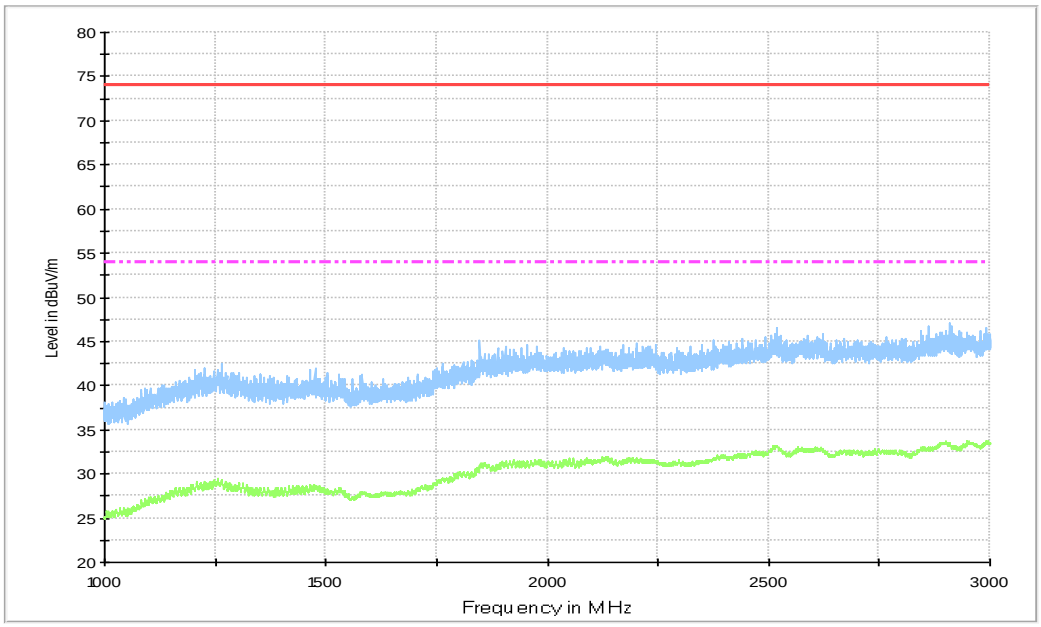


Fig A.2 Radiated Emission from 1GHz to 3GHz

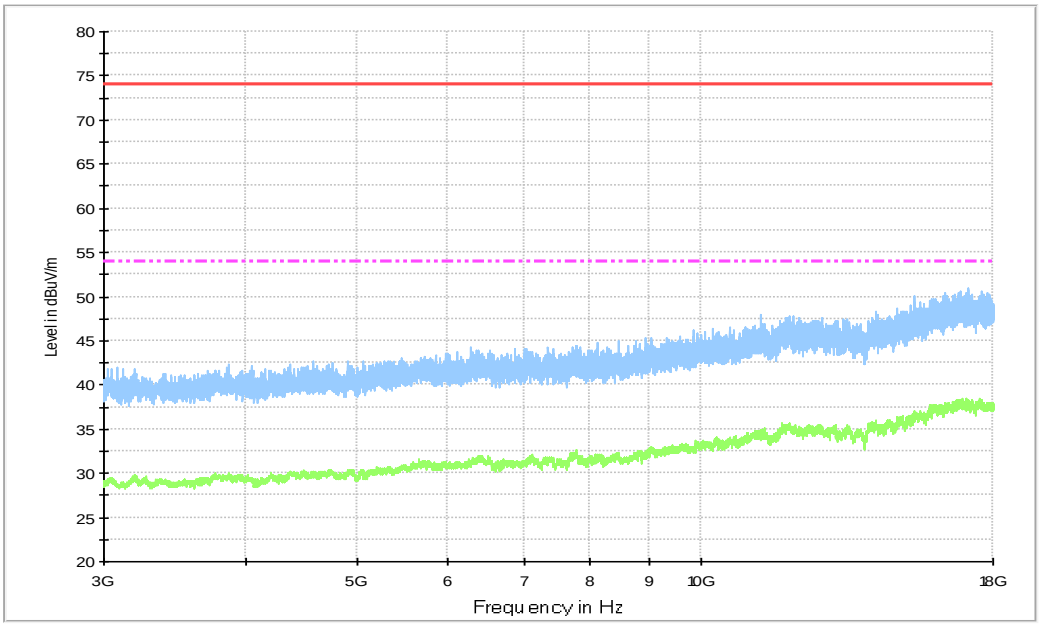


Fig A.3 Radiated Emission from 3GHz to 18GHz

Measurement results for Set.2, Rear Camera + WCDMA 850MHz idle:

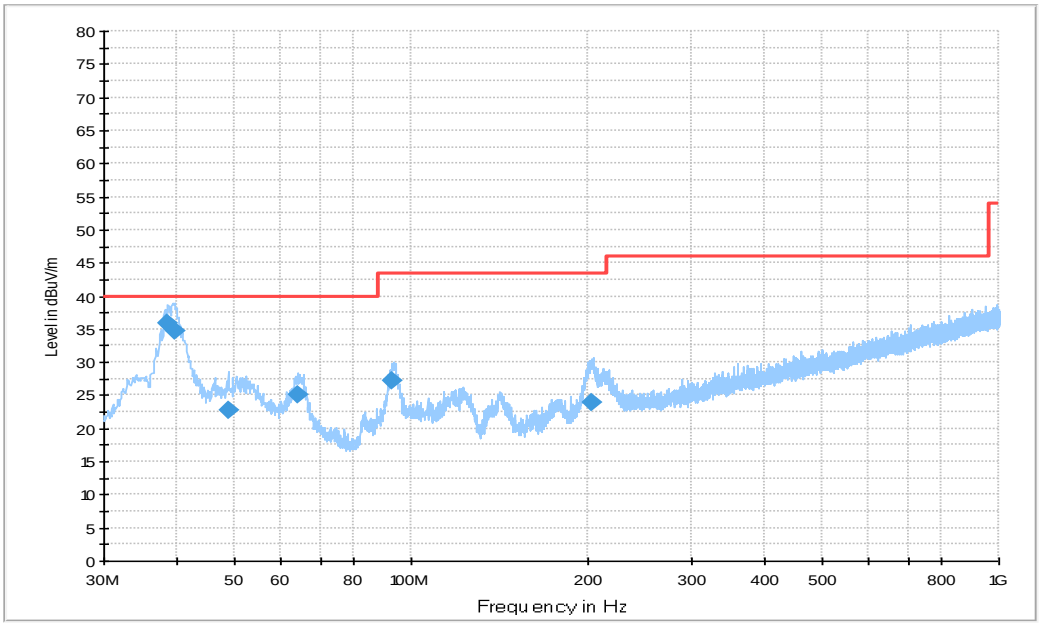


Fig A.4 Radiated Emission from 30MHz to 1GHz

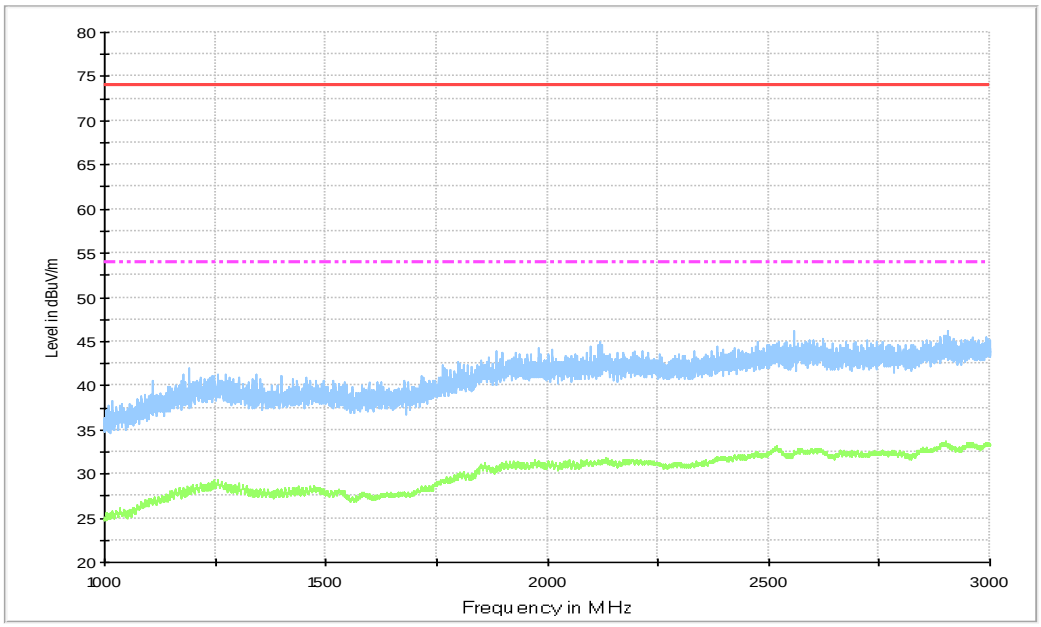


Fig A.5 Radiated Emission from 1GHz to 3GHz

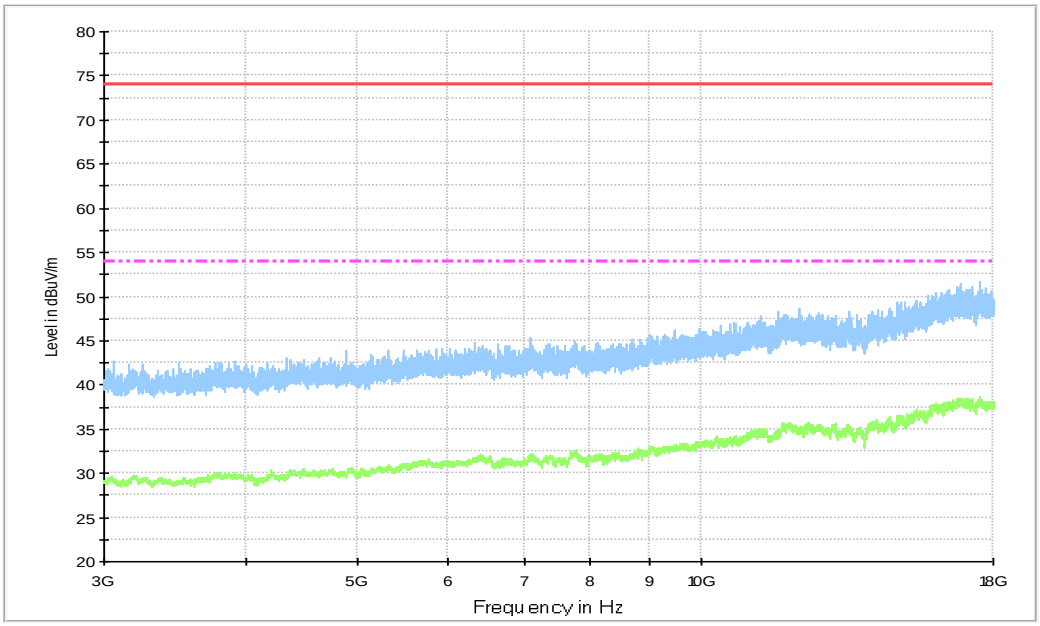


Fig A.6 Radiated Emission from 3GHz to 18GHz

Measurement results for Set.3, MP4+ LTE band 5 idle:

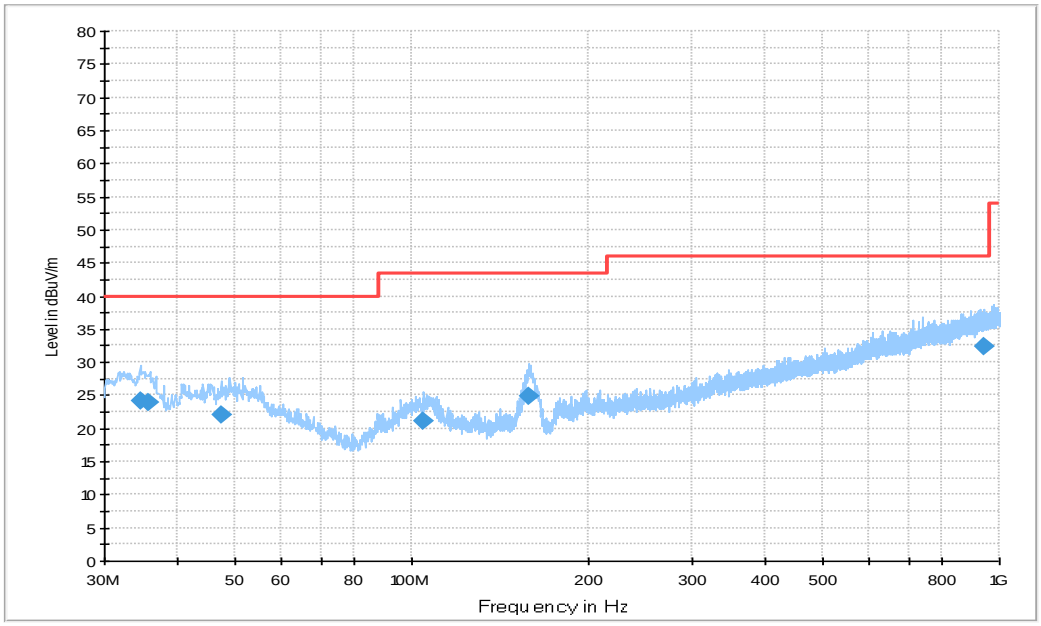


Fig A.7 Radiated Emission from 30MHz to 1GHz

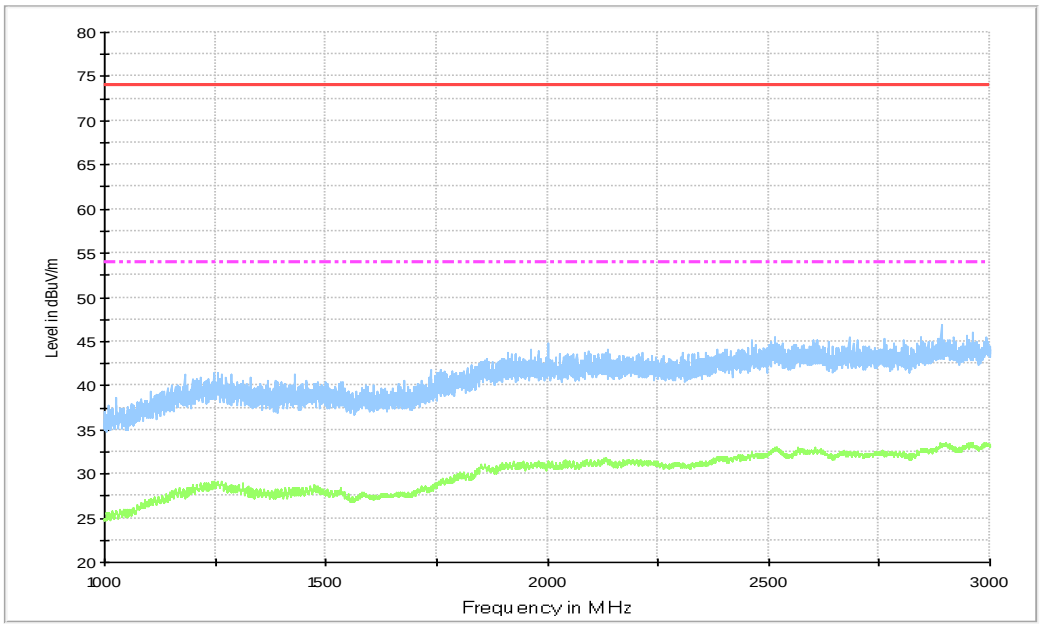


Fig A.8 Radiated Emission from 1GHz to 3GHz

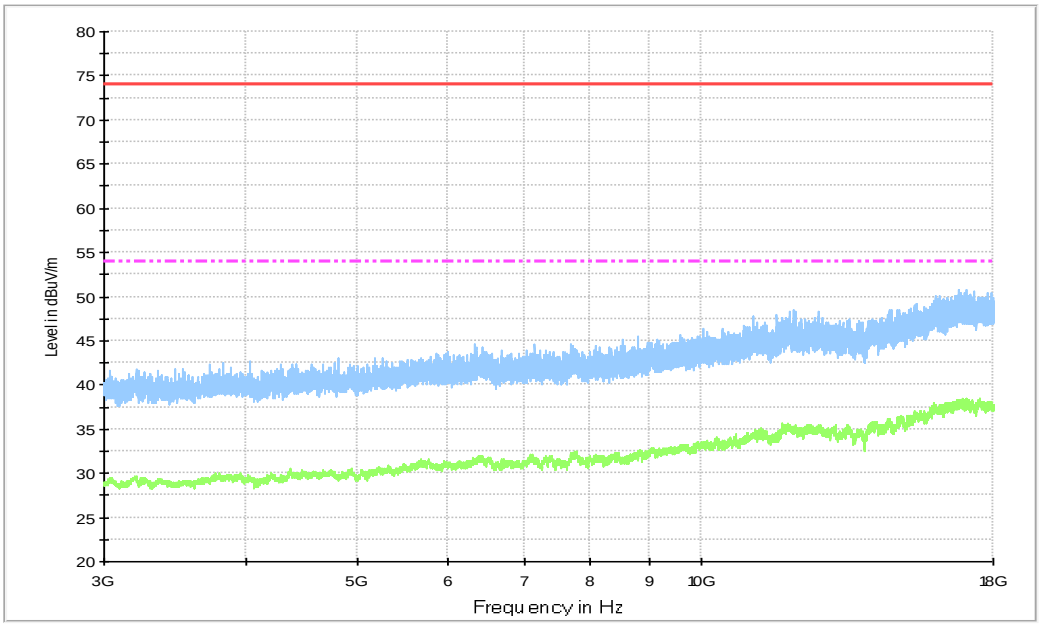


Fig A.9 Radiated Emission from 3GHz to 18GHz

Measurement results for Set.4, MP4+ LTE band 13 idle:

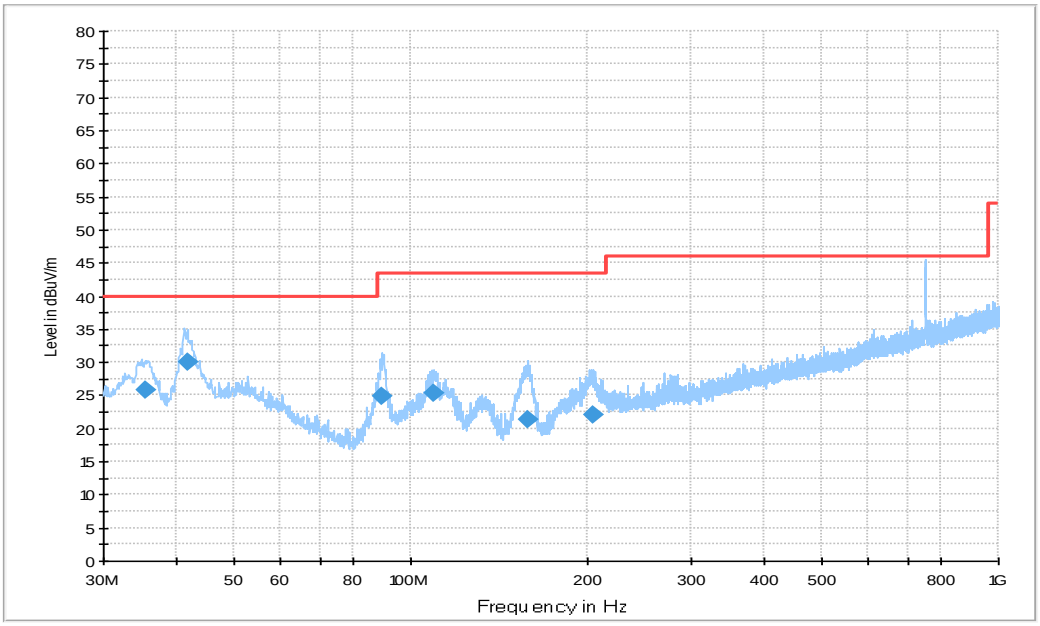


Fig A.10 Radiated Emission from 30MHz to 1GHz

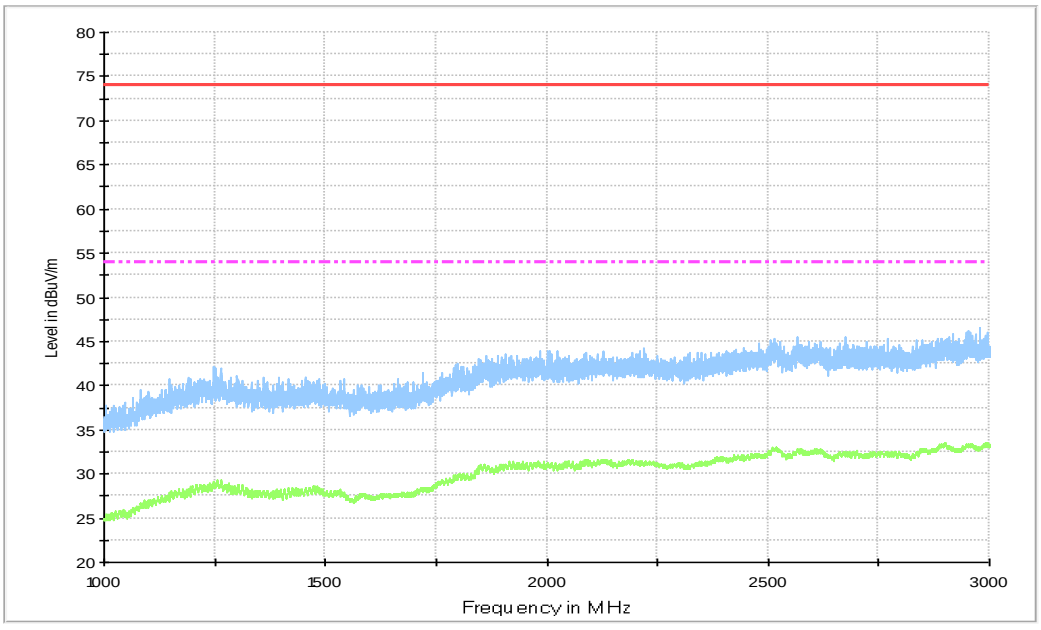


Fig A.11 Radiated Emission from 1GHz to 3GHz

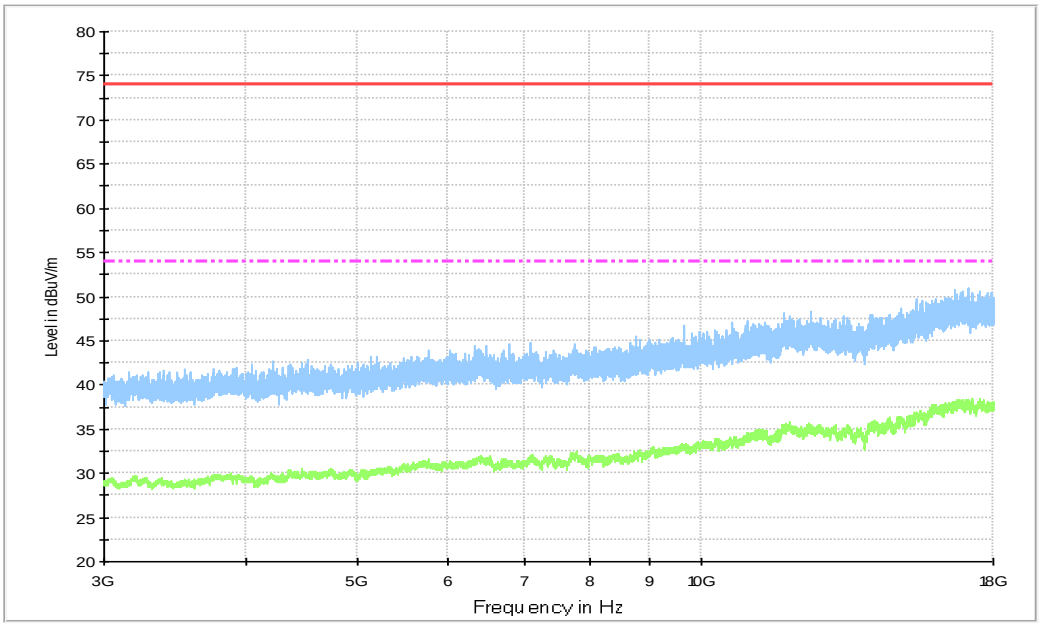


Fig A.12 Radiated Emission from 3GHz to 18GHz

Measurement results for Set.5, MP4+ LTE band26 idle:

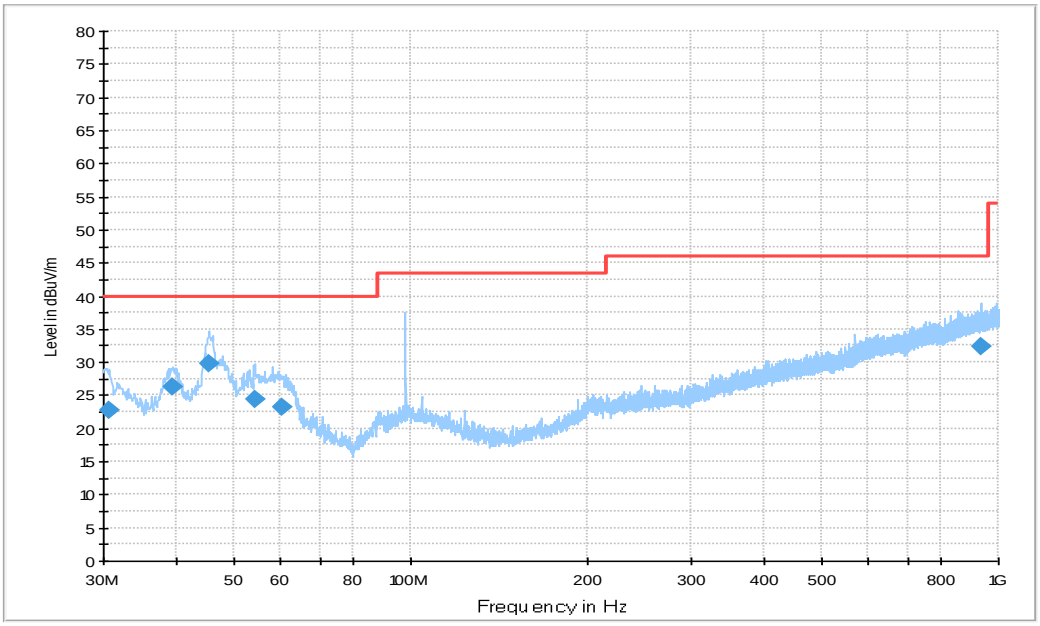


Fig A.13 Radiated Emission from 30MHz to 1GHz

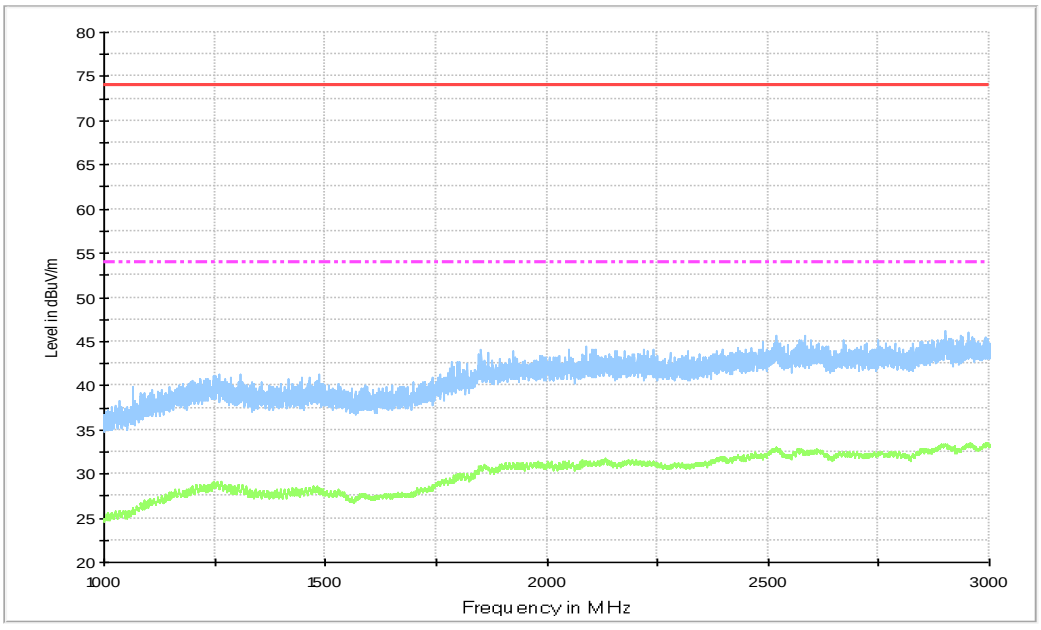


Fig A.14 Radiated Emission from 1GHz to 3GHz

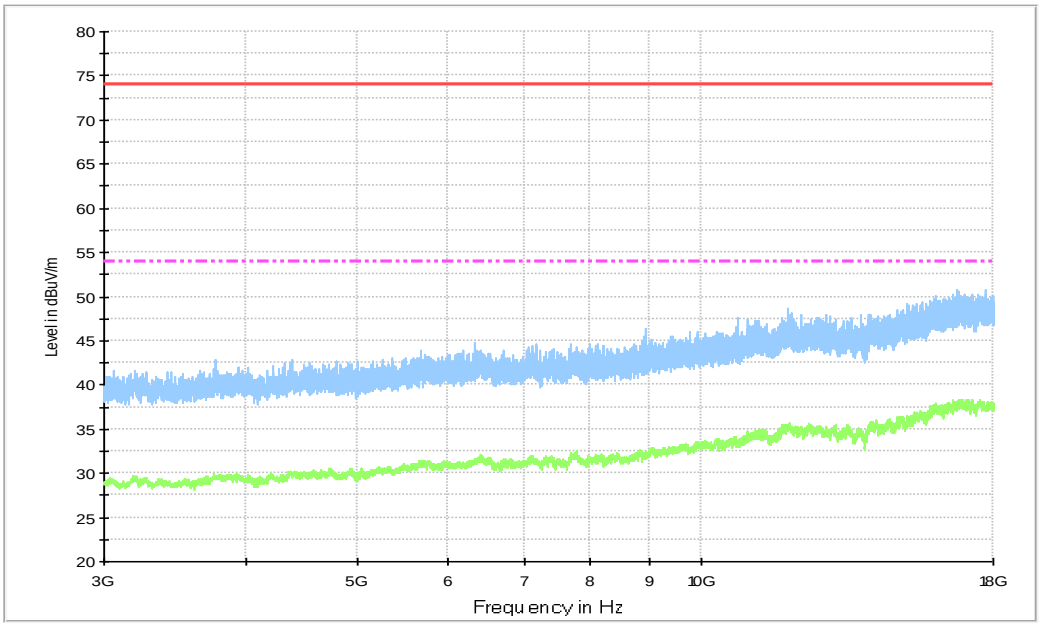


Fig A.15 Radiated Emission from 3GHz to 18GHz

Measurement results for Set.6, FM:

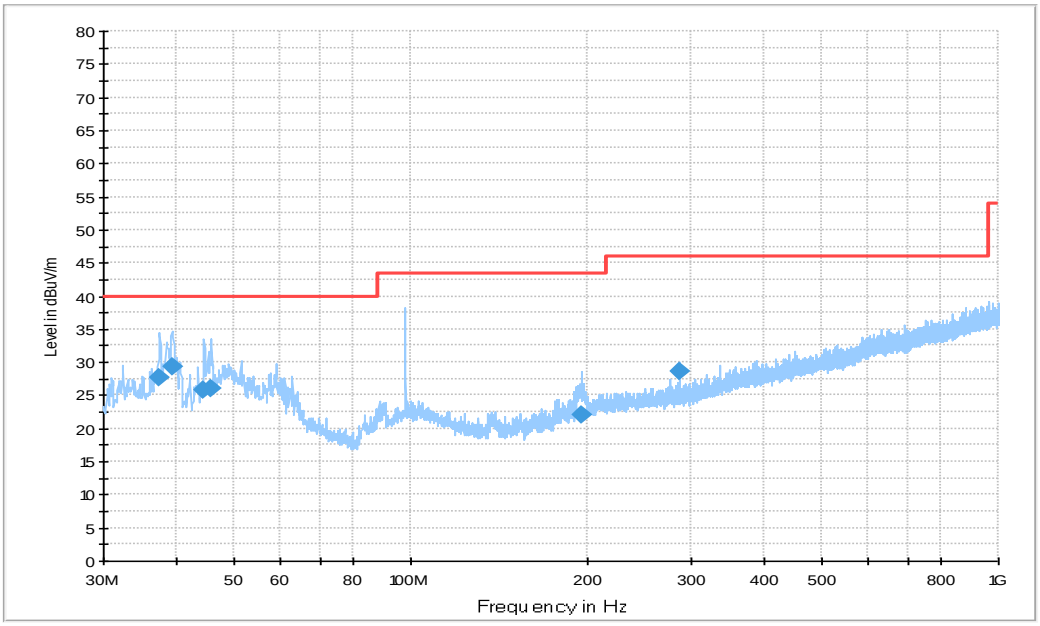


Fig A.16 Radiated Emission from 30MHz to 1GHz

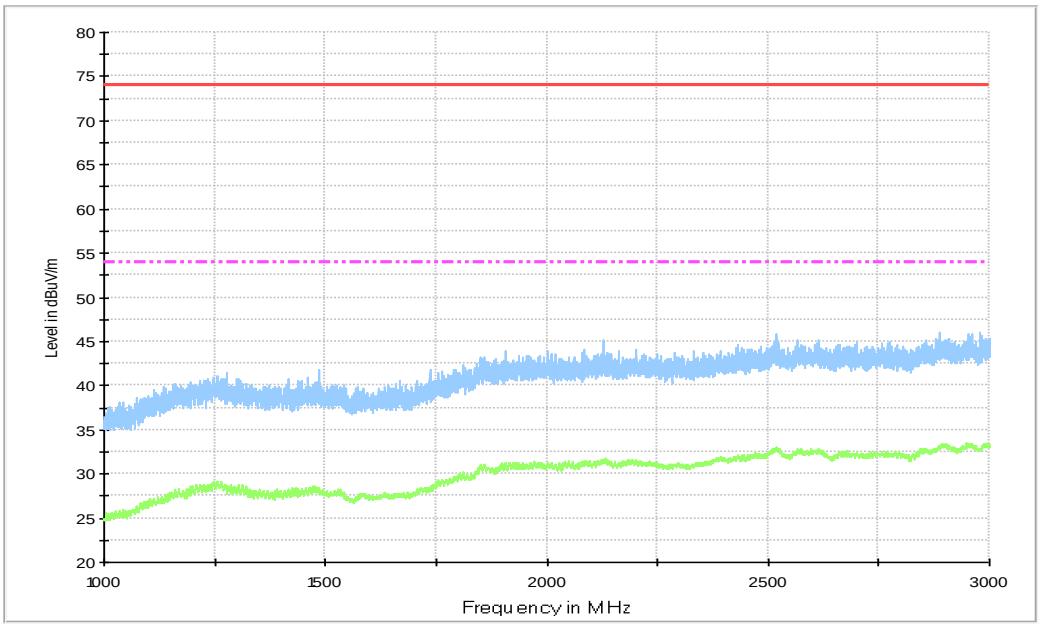


Fig A.17 Radiated Emission from 1GHz to 3GHz

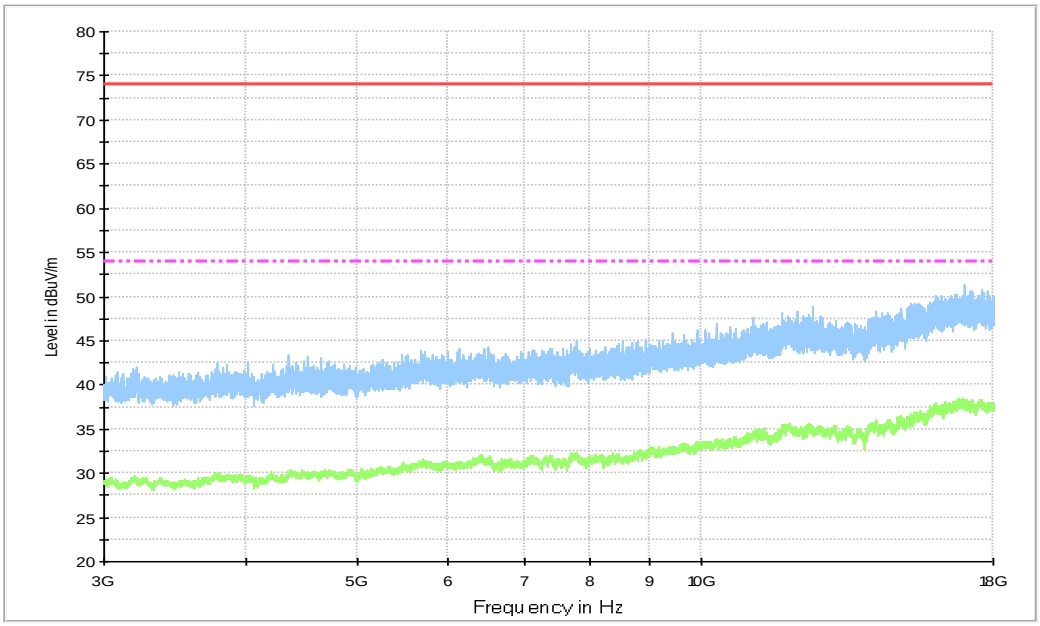


Fig A.18 Radiated Emission from 3GHz to 18GHz

Measurement results for Set.7, USB + Front camera:

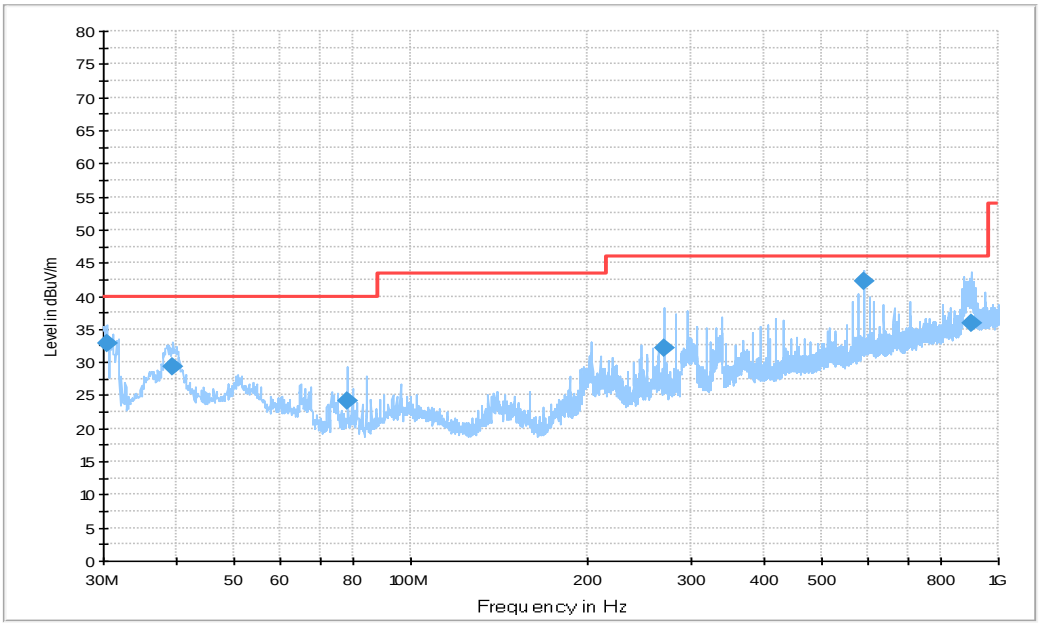


Fig A.19 Radiated Emission from 30MHz to 1GHz

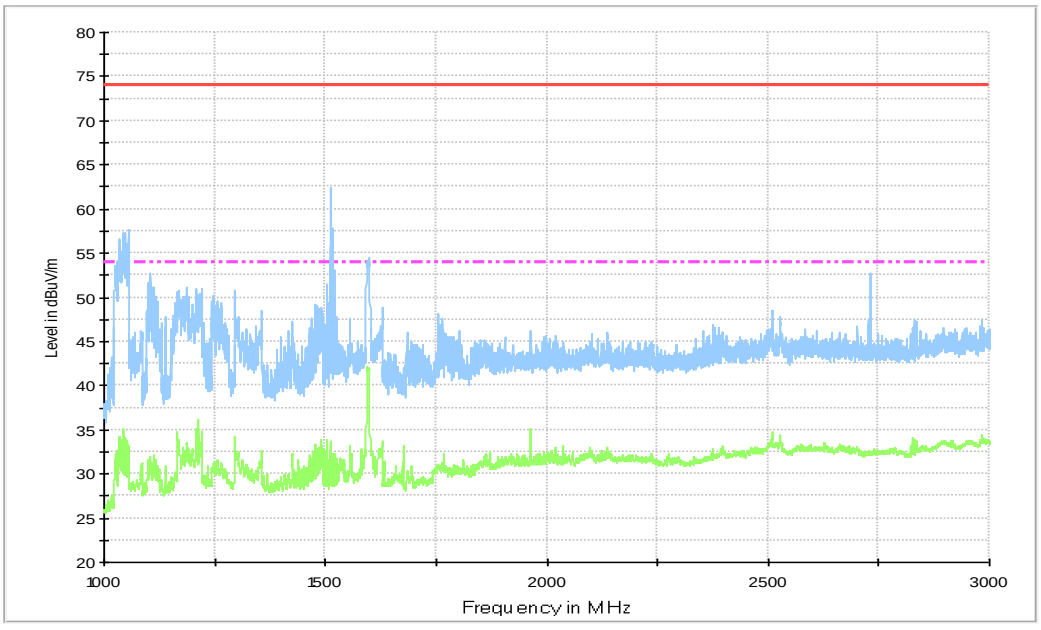


Fig A.20 Radiated Emission from 1GHz to 3GHz

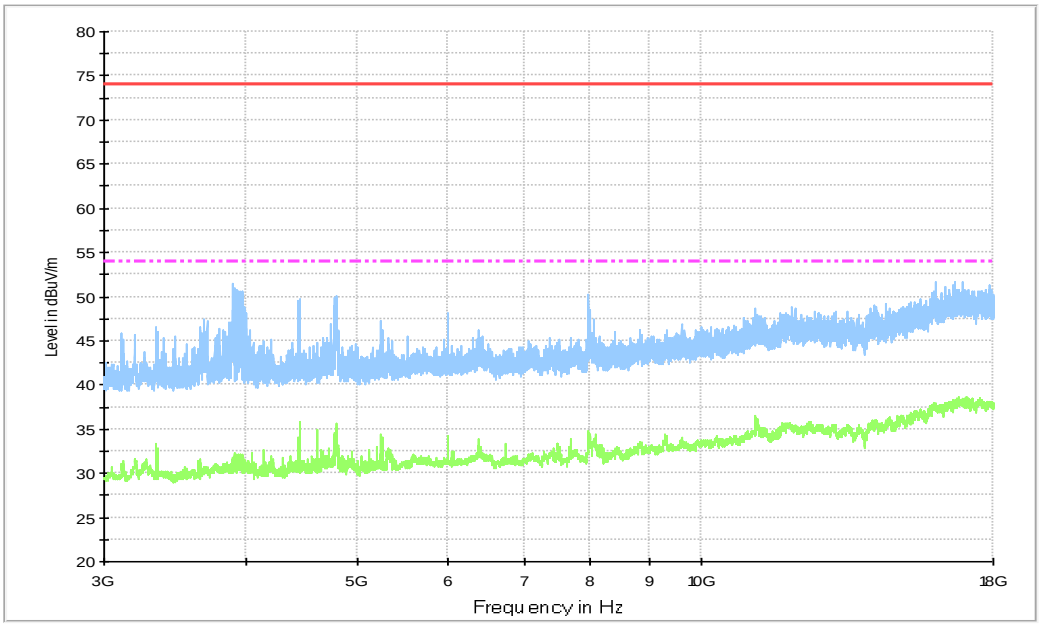


Fig A.21 Radiated Emission from 3GHz to 18GHz

Measurement results for Set.8, Black screen:

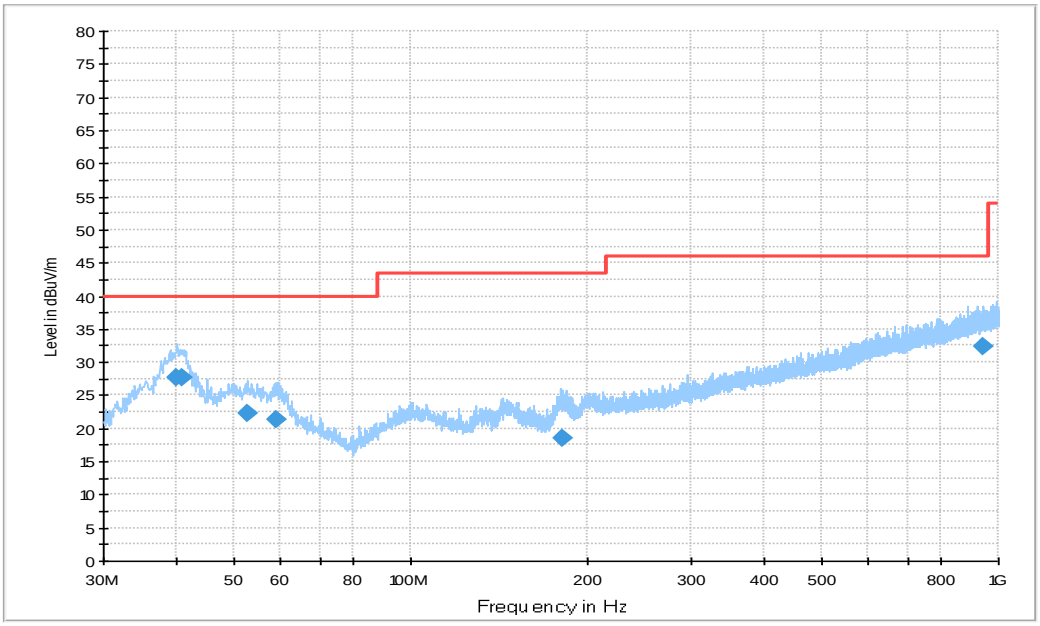


Fig A.22 Radiated Emission from 30MHz to 1GHz

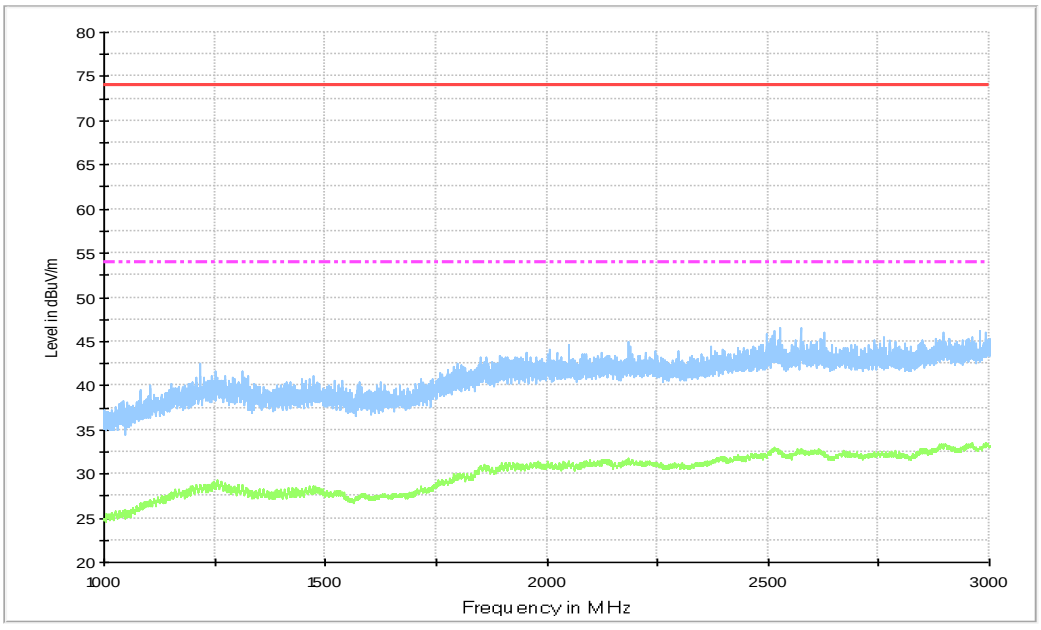


Fig A.23 Radiated Emission from 1GHz to 3GHz

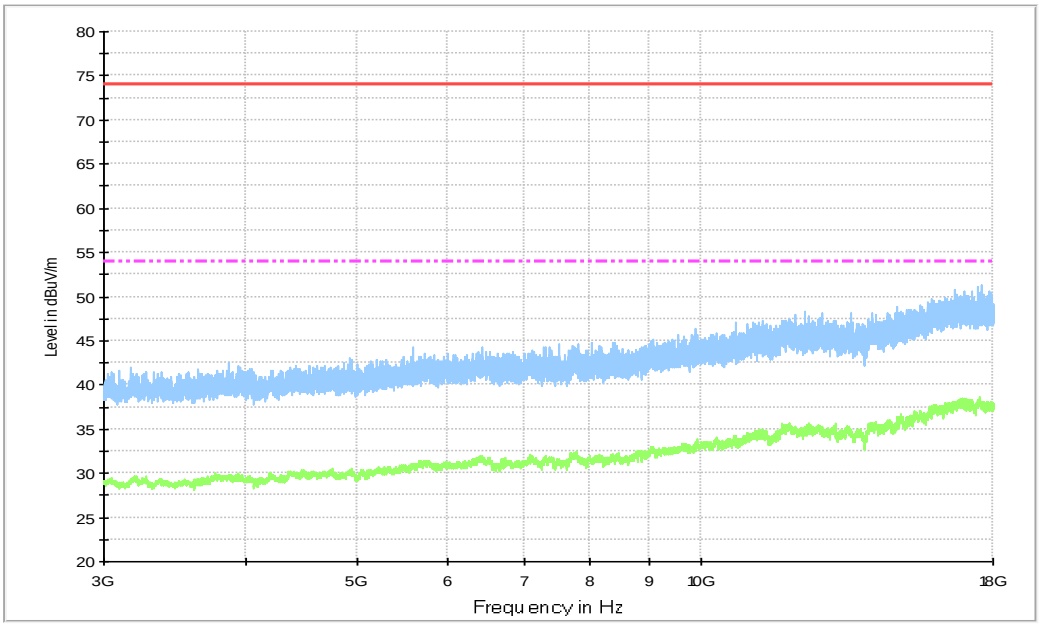


Fig A.24 Radiated Emission from 3GHz to 18GHz

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 and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode. The model of the PC is DELL M4000E-17, and the serial number of the PC is M706GWXD. 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.

Set.1, Real Camera + WCDMA 850MHz idle:

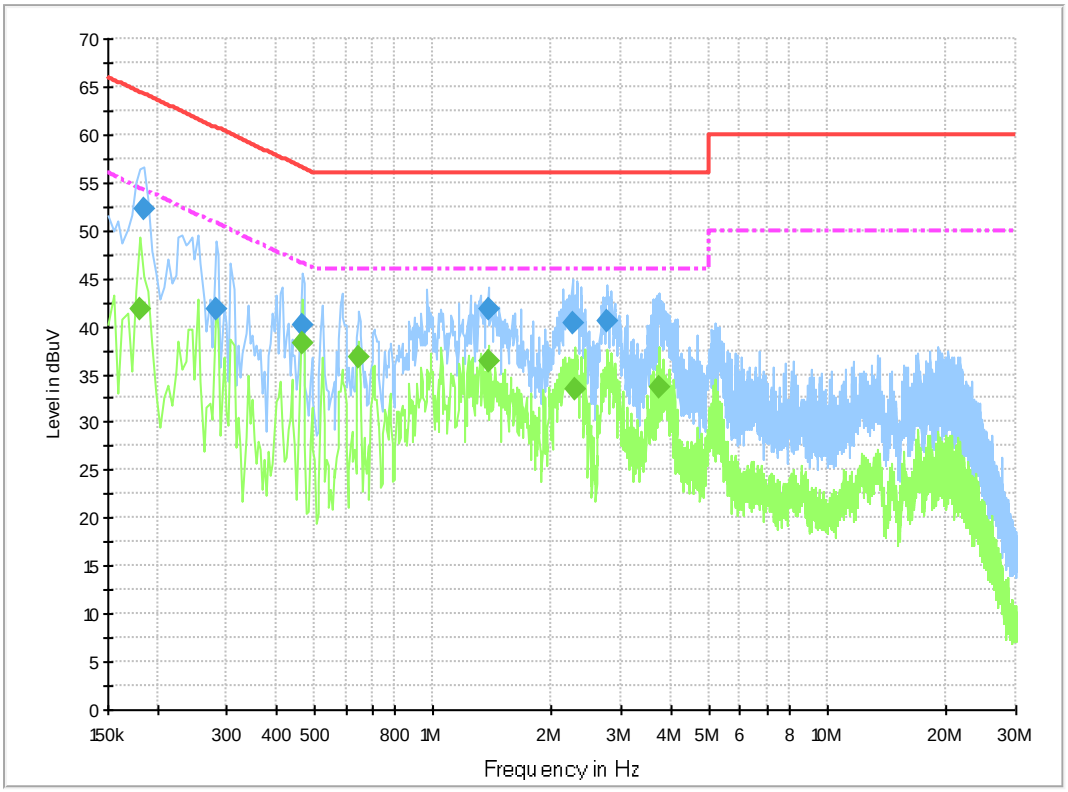


Fig A.25 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.186000	52.2	3000.0	9.000	On	L1	19.8	12.0	64.2
0.280500	41.9	3000.0	9.000	On	N	19.7	18.9	60.8
0.465000	40.1	3000.0	9.000	On	N	19.8	16.6	56.6
1.378500	41.8	3000.0	9.000	On	L1	19.6	14.2	56.0
2.251500	40.3	3000.0	9.000	On	L1	19.6	15.7	56.0
2.760000	40.5	3000.0	9.000	On	L1	19.6	15.5	56.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.181500	41.7	3000.0	9.000	On	L1	19.8	12.7	54.4
0.465000	38.2	3000.0	9.000	On	L1	19.8	8.4	46.6
0.649500	36.8	3000.0	9.000	On	L1	19.8	9.2	46.0
1.378500	36.4	3000.0	9.000	On	L1	19.6	9.6	46.0
2.296500	33.5	3000.0	9.000	On	L1	19.6	12.5	46.0
3.754500	33.6	3000.0	9.000	On	L1	19.6	12.4	46.0

Set.2, Real Camera + WCDMA 850MHz idle:

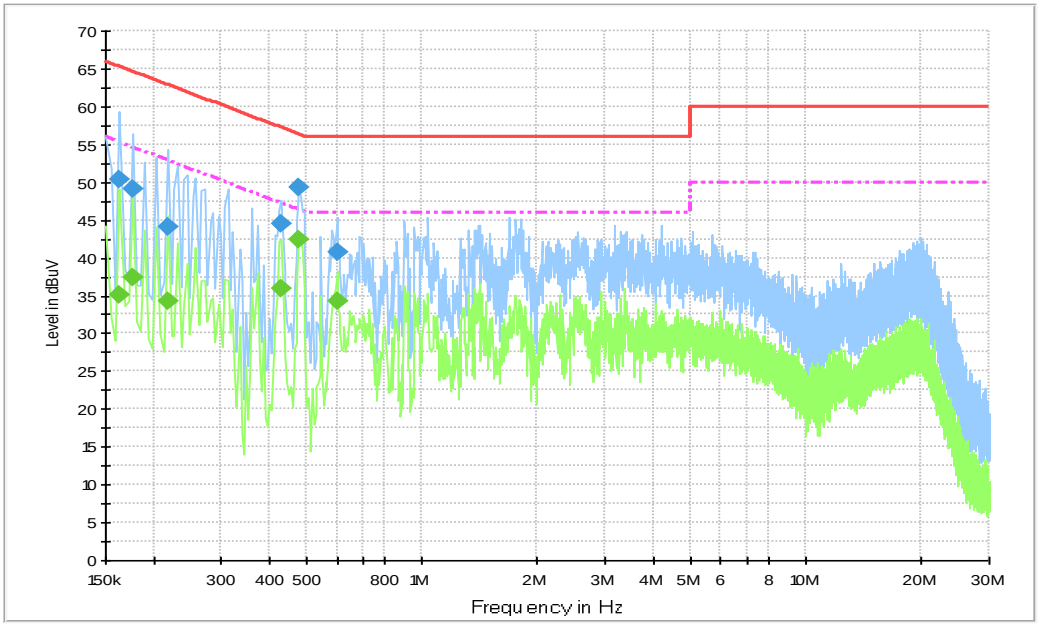


Fig A.26 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.163500	50.4	3000.0	9.000	On	L1	19.9	14.9	65.3
0.177000	49.1	3000.0	9.000	On	N	19.8	15.5	64.6
0.217500	44.0	3000.0	9.000	On	L1	19.8	18.9	62.9
0.429000	44.4	3000.0	9.000	On	L1	19.8	12.9	57.3
0.478500	49.3	3000.0	9.000	On	N	19.8	7.1	56.4
0.600000	40.8	3000.0	9.000	On	N	19.7	15.2	56.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.163500	35.0	3000.0	9.000	On	L1	19.9	20.3	55.3
0.177000	37.4	3000.0	9.000	On	N	19.8	17.2	54.6
0.217500	34.3	3000.0	9.000	On	N	19.8	18.6	52.9
0.429000	35.9	3000.0	9.000	On	L1	19.8	11.4	47.3
0.478500	42.3	3000.0	9.000	On	N	19.8	4.0	46.4
0.600000	34.3	3000.0	9.000	On	N	19.7	11.7	46.0

Set.3, MP4+ LTE band 5 idle:

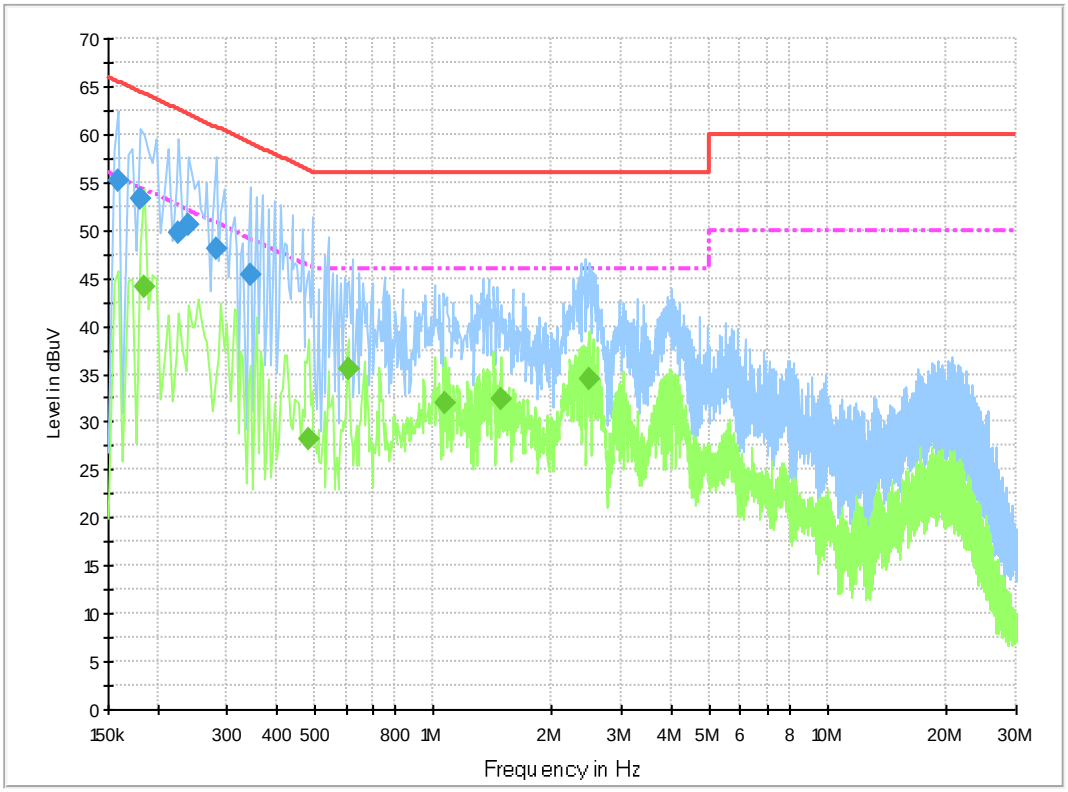


Fig A.27 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.159000	55.1	3000.0	9.000	On	L1	19.9	10.4	65.5
0.181500	53.4	3000.0	9.000	On	N	19.8	11.1	64.4
0.226500	49.7	3000.0	9.000	On	N	19.8	12.9	62.6
0.240000	50.5	3000.0	9.000	On	L1	19.8	11.6	62.1
0.280500	48.2	3000.0	9.000	On	L1	19.7	12.6	60.8
0.343500	45.4	3000.0	9.000	On	L1	19.8	13.7	59.1

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.186000	44.2	3000.0	9.000	On	L1	19.8	10.0	54.2
0.483000	28.3	3000.0	9.000	On	N	19.8	18.0	46.3
0.609000	35.6	3000.0	9.000	On	L1	19.7	10.4	46.0
1.072500	31.9	3000.0	9.000	On	L1	19.7	14.1	46.0
1.486500	32.4	3000.0	9.000	On	L1	19.6	13.6	46.0
2.472000	34.4	3000.0	9.000	On	L1	19.6	11.6	46.0

Set.4, MP4+ LTE band 13 idle:

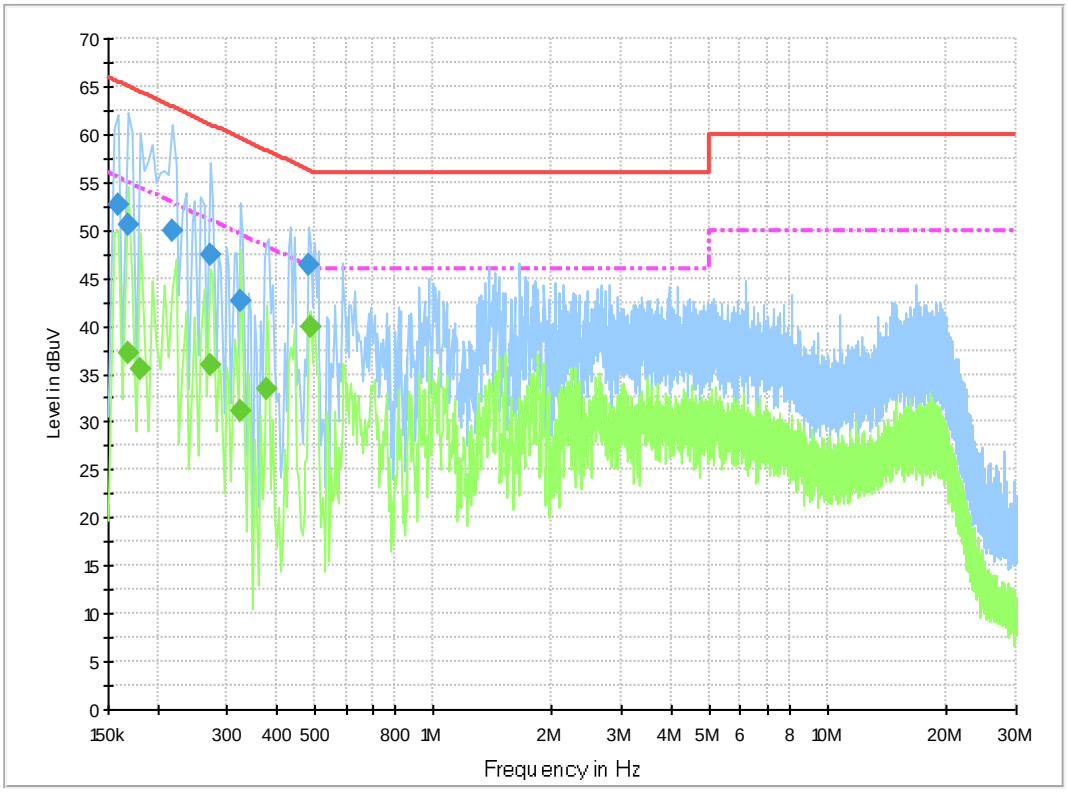


Fig A.28 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.159000	52.8	3000.0	9.000	On	N	19.9	12.8	65.5
0.168000	50.6	3000.0	9.000	On	N	19.9	14.4	65.1
0.217500	49.9	3000.0	9.000	On	N	19.8	13.0	62.9
0.271500	47.3	3000.0	9.000	On	L1	19.8	13.7	61.1
0.325500	42.7	3000.0	9.000	On	L1	19.7	16.8	59.6
0.483000	46.3	3000.0	9.000	On	L1	19.8	10.0	56.3

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.168000	37.2	3000.0	9.000	On	L1	19.9	17.9	55.1
0.181500	35.6	3000.0	9.000	On	L1	19.8	18.9	54.4
0.271500	35.9	3000.0	9.000	On	N	19.8	15.2	51.1
0.325500	31.2	3000.0	9.000	On	L1	19.7	18.3	49.6
0.379500	33.5	3000.0	9.000	On	L1	19.8	14.8	48.3
0.487500	40.0	3000.0	9.000	On	N	19.8	6.2	46.2

Set.5, FM+ LTE band 26 idle:

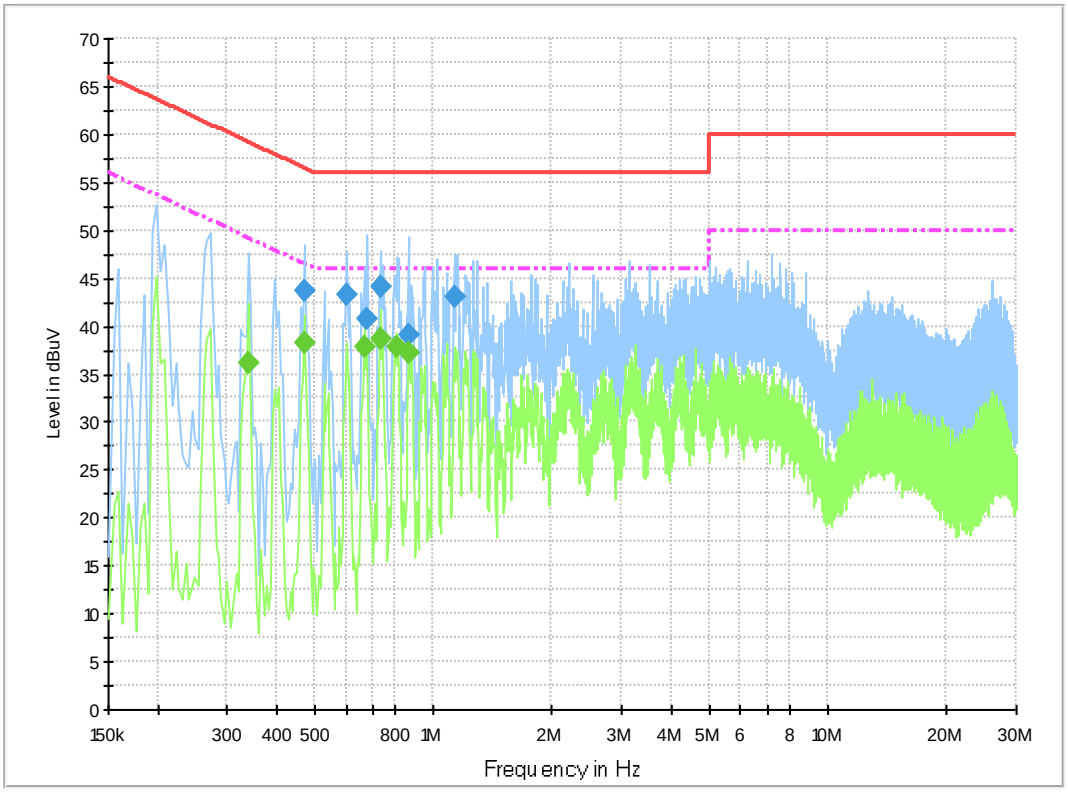


Fig A.29 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.469500	43.7	3000.0	9.000	On	L1	19.8	12.8	56.5
0.600000	43.3	3000.0	9.000	On	L1	19.7	12.7	56.0
0.681000	40.8	3000.0	9.000	On	L1	19.8	15.2	56.0
0.735000	44.1	3000.0	9.000	On	L1	19.7	11.9	56.0
0.865500	39.1	3000.0	9.000	On	N	19.7	16.9	56.0
1.131000	43.0	3000.0	9.000	On	L1	19.7	13.0	56.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.339000	36.1	3000.0	9.000	On	L1	19.8	13.1	49.2
0.469500	38.3	3000.0	9.000	On	L1	19.8	8.2	46.5
0.667500	37.7	3000.0	9.000	On	L1	19.8	8.3	46.0
0.735000	38.6	3000.0	9.000	On	L1	19.7	7.4	46.0
0.811500	37.7	3000.0	9.000	On	L1	19.7	8.3	46.0
0.865500	37.1	3000.0	9.000	On	L1	19.7	8.9	46.0

Set.6, FM:

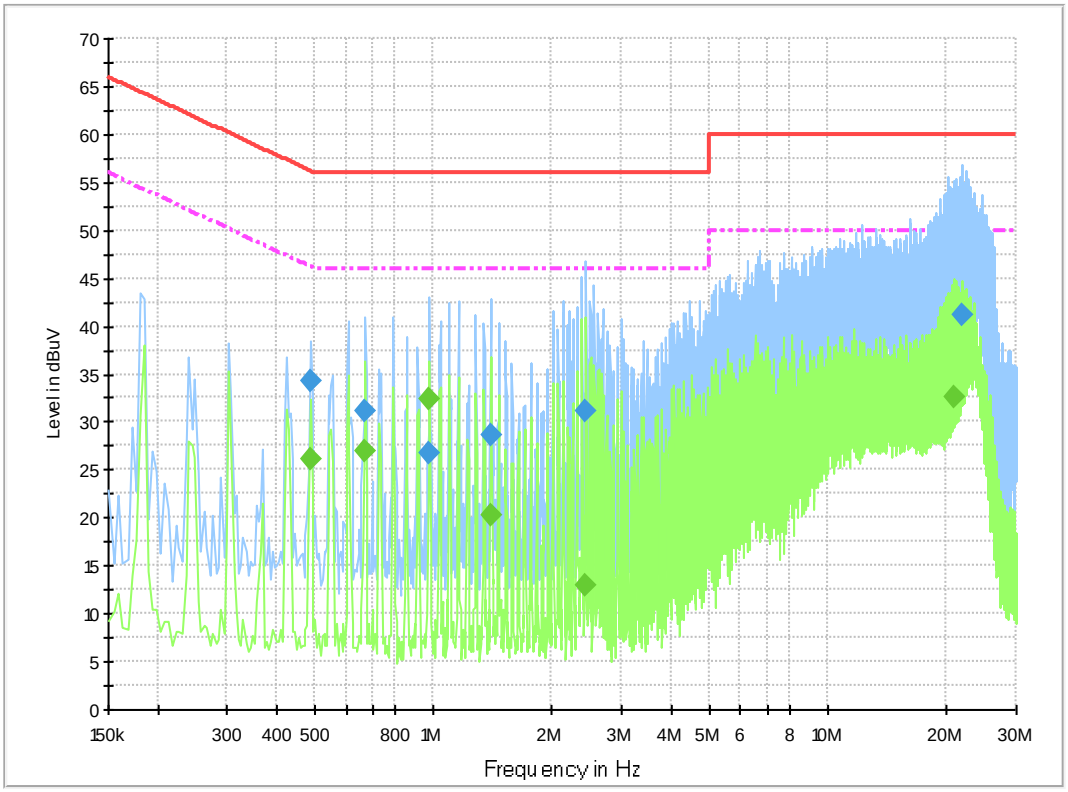


Fig A.30 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.487500	34.4	3000.0	9.000	On	L1	19.8	21.8	56.2
0.672000	31.1	3000.0	9.000	On	N	19.8	24.9	56.0
0.978000	26.6	3000.0	9.000	On	N	19.7	29.4	56.0
1.401000	28.6	3000.0	9.000	On	N	19.6	27.4	56.0
2.436000	31.1	3000.0	9.000	On	L1	19.6	24.9	56.0
21.970500	41.1	3000.0	9.000	On	N	20.0	18.9	60.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.487500	26.2	3000.0	9.000	On	N	19.8	20.0	46.2
0.672000	26.9	3000.0	9.000	On	L1	19.8	19.1	46.0
0.973500	32.4	3000.0	9.000	On	L1	19.7	13.6	46.0
1.401000	20.3	3000.0	9.000	On	N	19.6	25.7	46.0
2.440500	12.9	3000.0	9.000	On	N	19.6	33.1	46.0
20.980500	32.6	3000.0	9.000	On	N	20.0	17.4	50.0

Set.7, USB +Front camera:

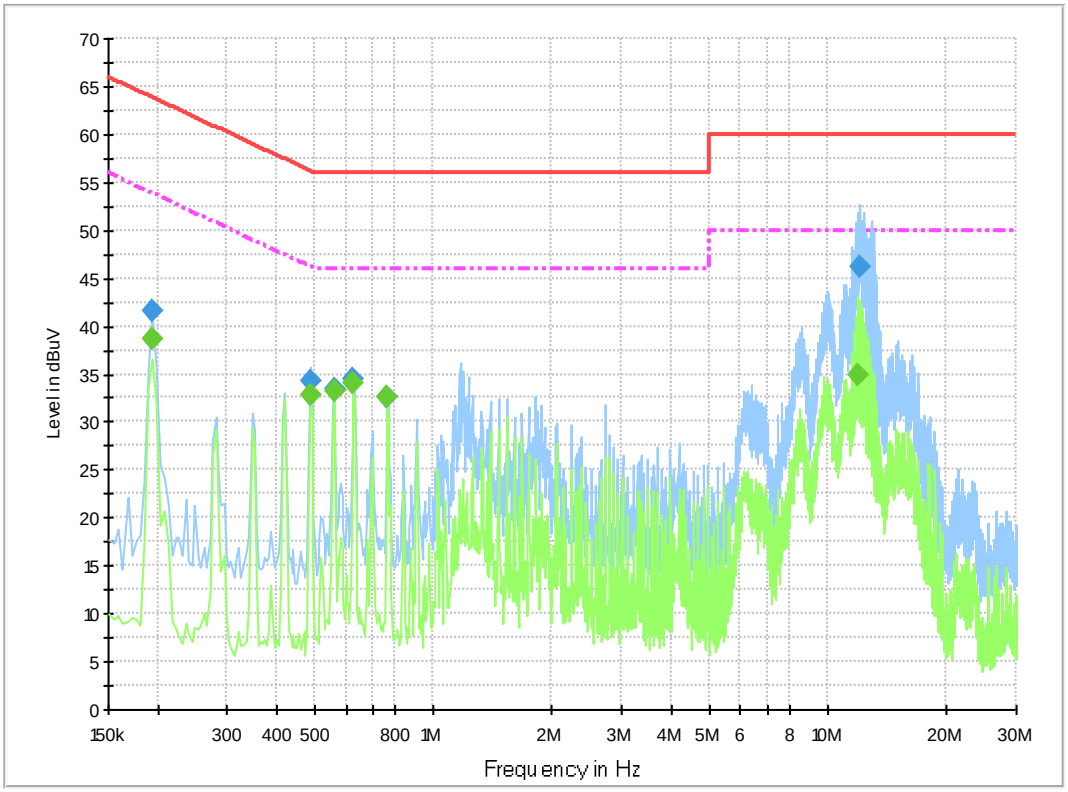


Fig A.31 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.195000	41.5	3000.0	9.000	On	L1	19.7	22.3	63.8
0.487500	34.2	3000.0	9.000	On	L1	19.8	22.0	56.2
0.559500	33.3	3000.0	9.000	On	N	19.8	22.7	56.0
0.627000	34.4	3000.0	9.000	On	N	19.7	21.6	56.0
0.766500	32.7	3000.0	9.000	On	N	19.7	23.3	56.0
12.021000	46.2	3000.0	9.000	On	N	19.8	13.8	60.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.195000	38.7	3000.0	9.000	On	L1	19.7	15.1	53.8
0.487500	32.7	3000.0	9.000	On	N	19.8	13.5	46.2
0.559500	33.3	3000.0	9.000	On	L1	19.8	12.7	46.0
0.627000	34.1	3000.0	9.000	On	L1	19.7	11.9	46.0
0.766500	32.7	3000.0	9.000	On	L1	19.7	13.3	46.0
11.962500	35.0	3000.0	9.000	On	L1	19.8	15.0	50.0

Set.8, Black screen:

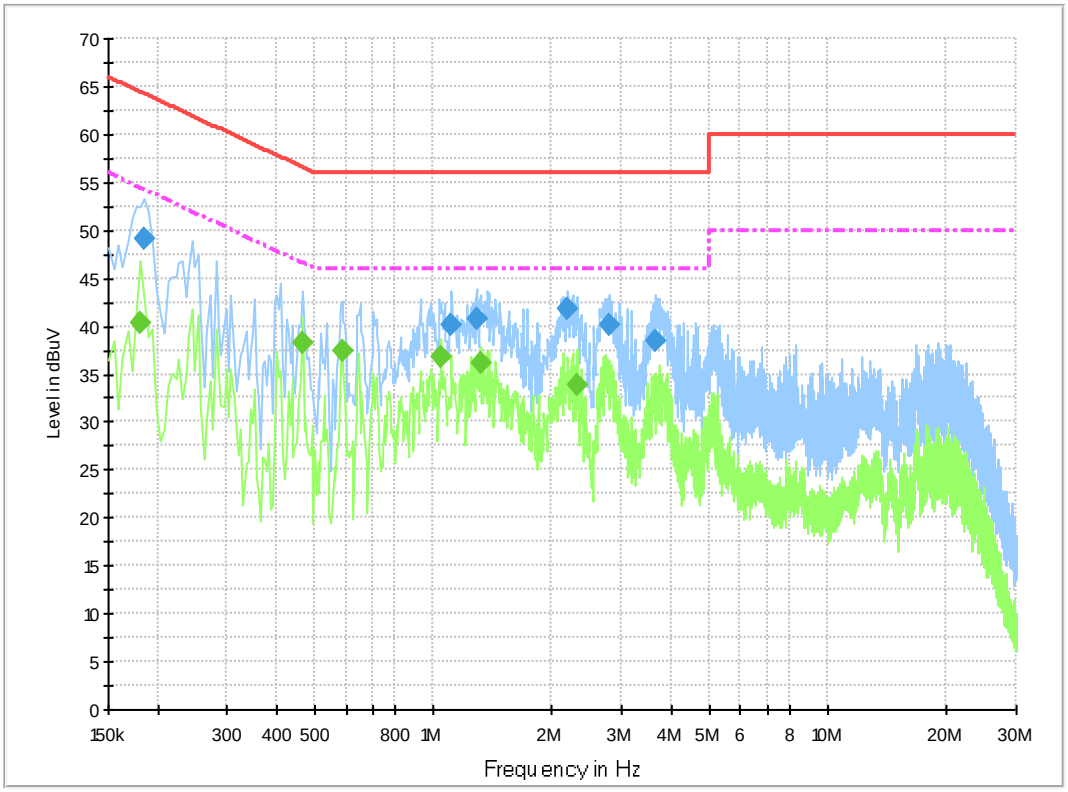


Fig A.32 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.186000	49.1	3000.0	9.000	On	N	19.8	15.1	64.2
1.113000	40.2	3000.0	9.000	On	N	19.7	15.8	56.0
1.284000	40.7	3000.0	9.000	On	N	19.6	15.3	56.0
2.193000	41.7	3000.0	9.000	On	N	19.6	14.3	56.0
2.787000	40.1	3000.0	9.000	On	N	19.6	15.9	56.0
3.660000	38.4	3000.0	9.000	On	N	19.6	17.6	56.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.181500	40.4	3000.0	9.000	On	N	19.8	14.0	54.4
0.465000	38.1	3000.0	9.000	On	N	19.8	8.5	46.6
0.586500	37.5	3000.0	9.000	On	N	19.7	8.5	46.0
1.045500	36.8	3000.0	9.000	On	N	19.6	9.2	46.0
1.315500	36.2	3000.0	9.000	On	N	19.6	9.8	46.0
2.319000	33.8	3000.0	9.000	On	N	19.6	12.2	46.0

ANNEX B: PERSONS INVOLVED IN THIS TESTING

Test Item	Test operator
Conducted Emission	Yan Xiaorui
Radiated Emission	Yin He

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