



TEST REPORT

No. I19Z62374-EMC02

for

SAMSUNG Electronics Co., Ltd.

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

Model Name: SM-S215DL

FCC ID: ZCASMA215U

with

Hardware Version: REV1.0

Software Version: S215DL.001

Issued Date: 2020-03-20

Note:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I19Z62374-EMC02	Rev.0	1 st edition	2020-03-20

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

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1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2005 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: 2020-01-15
Testing End Date: 2020-03-17

1.5. Signature



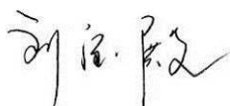
Li Yan

(Prepared this test report)



Zhang Ying

(Reviewed this test report)



Liu Baodian

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 Road, Building D, Pine Brook New Jersey United States,
07058
City: /
Postal Code: /
Country: /
Contact: Jenni Chun
Email: j1.chun@samsung.com
Telephone: 1-973-808-6375

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: JP KIM
Email: jp426.kim@samsung.com
Telephone: /

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-S215DL
FCC ID	ZCasma215U
Extreme vol. Limits	3.5VDC to 4.4VDC (nominal: 3.8VDC)

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
EUT3	/	/	/

*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	Battery	/	/
AE2	Charger	/	/
AE3	Charger	/	/
AE4	USB Cable	/	/
AE5	USB Cable	/	/
AE6	USB Cable	/	/
AE7	Headset	/	/
AE8	Headset	/	/
AE9	Headset	/	/

AE1

Model	NVT-WT-N6
Manufacturer	Dongguan NVT Technology Co., Ltd.
Capacitance	3900mAh
Nominal voltage	3.82V

AE2

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

AE3

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

AE4

Model	GH39-01999A
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Manufacturer	RFTECH
Length of cable	/
AE5	
Model	GH39-01999A
Manufacturer	Broad
Length of cable	/
AE6	
Model	GH39-01999A
Manufacturer	KSD
Length of cable	/
AE7	
Model	GH59-15054A
Manufacturer	Yuenchang
Length of cable	/
AE8	
Model	GH59-15054A
Manufacturer	Almusglobal
Length of cable	/
AE9	
Model	GH59-15054A
Manufacturer	ESTEC
Length of cable	/

Note: The USB cables are shielded.

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT3+ AE1 + AE2+ AE4/AE5/AE6	Charger+MP3
Set.2	EUT3+ AE1 + AE2+ AE4/AE5/AE6+AE7	Charger+MP4
Set.3	EUT3+ AE1 + AE3+ AE4/AE5/AE6	Charger+Front Camera
Set.4	EUT3+ AE1 + AE2+ AE4/AE5/AE6+AE8	Charger+Rear Camera
Set.5	EUT3+ AE1 + AE4/AE5/AE6+ AE8	USB mode +FM (Mid Ch.)
Set.6	EUT3+ AE1 + AE4/AE5/AE6	USB (SD) mode +Rear Camera
Set.7	EUT3+ AE1 + AE2 + AE4/AE5/AE6+ AE9	FM (Low Ch.)/ FM (High Ch.)
Set.8	EUT3+ AE1 + AE3 + AE4/AE5/AE6+ AE9	FM (High Ch.)
Set.9	EUT3+ AE1 + AE2+ AE4	License RX mode

Note:

SM-S215DL is a variant product of SM-A215U, according to the declaration of changes provided by the applicant and FCC KDB publication 178919 D01; all results are cited from the initial model. The report number for initial model is I19Z62374-EMC01.
For detail differences between two models please refer the Declaration of Changes document.

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-1 (23 meters×17 meters×10 meters) 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	< 4Ω
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
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

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 3000 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	BR	CTTL(BDA)
2	Conducted Emission	15.107(a)	A.2	BR	CTTL(BDA)

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESU26	100376	R&S	2020-10-30	1 year
2	Test Receiver	ESCI7	100948	R&S	2020-07-17	1 year
3	Universal Radio Communication Tester	CMW500	127406	R&S	2021-02-18	1 year
	Universal Radio Communication Tester	CMU200	111792	R&S	2021-01-05	1 year
4	LISN	ENV216	101459	R&S	2020-04-10	1 year
5	BiLog Antenna	VULB9163	01176	Schwarzbeck	2020-03-14	1 year
6	EMI Antenna	3117	00139065	ETS-Lindgren	2020-11-10	1 year
7	Signal Generator	SMF100A	101295	R&S	2020-11-06	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

Test Item	Test Software and Version	Software Vendor
Radiated Continuous Emission	EMC32 V9.01.00	R&S
Conducted Emission	EMC32 V8.52.0	R&S

Note: The BiLog Antenna which series number is 01176 was before Cal Due Date when used.

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, MP3, MP4, CAMERA, SD, FM and License RX band mode.

The FM radio mode radiated testing was performed with the Low/Mid/High channel.

The test mode of License RX band mode:

GSM850, WCDMA BAND 5, LTE BAND 5, LTE BAND 12, LTE BAND 13, LTE BAND 26, LTE BAND 71.

The model of the PC is Lenovo M4000e-17, and the serial number of the PC is M706RMW2. 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 ($\mu\text{V/m}$)		
	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: 5.40dB, 1GHz-18GHz: 4.32dB, $k=2$.

Measurement results for Set.1:

Charging Mode+ MP3 /Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17893.500	42.2	-26.2	41.3	27.095	54.0	11.8	H
17014.500	42.2	-26.6	41.7	27.099	54.0	11.8	V
17011.500	42.2	-26.6	41.7	27.113	54.0	11.8	V
17008.500	42.1	-26.7	41.7	27.104	54.0	11.9	V
17088.500	42.1	-26.1	41.6	26.650	54.0	11.9	V
17029.000	42.1	-26.5	41.7	26.974	54.0	11.9	V

Charging Mode+ MP3 /Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17986.000	55.2	-25.8	41.3	39.72	74.0	18.8	H
17943.000	54.8	-26.0	41.3	39.50	74.0	19.2	V
17587.500	54.5	-26.4	41.2	39.76	74.0	19.5	V
17894.000	54.5	-26.2	41.3	39.45	74.0	19.5	H
17694.500	54.4	-26.5	41.2	39.72	74.0	19.6	V
17885.000	54.4	-26.2	41.3	39.40	74.0	19.6	V

Measurement results for Set.2:
Charging Mode+ MP4 /Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17047.500	41.52	-26.4	41.7	26.27	54.0	12.5	V
17005.000	41.48	-26.7	41.7	26.47	54.0	12.5	V
17057.000	41.48	-26.3	41.6	26.18	54.0	12.5	H
17094.000	41.43	-26.1	41.6	25.93	54.0	12.6	V
17100.000	41.41	-26.1	41.6	25.87	54.0	12.6	V
17087.000	41.40	-26.1	41.6	25.94	54.0	12.6	H

Charging Mode+ MP4 /Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17024.000	53.9	-26.6	41.7	38.83	74.0	20.1	V
16997.000	53.8	-26.7	41.7	38.86	74.0	20.2	H
17553.000	53.6	-26.4	41.2	38.75	74.0	20.4	H
16943.000	53.5	-27.1	41.7	38.93	74.0	20.5	H
17496.500	53.5	-26.3	41.2	38.58	74.0	20.5	H
16214.000	53.4	-27.0	41.0	39.51	74.0	20.6	V

Measurement results for Set.3:
Charger+Front 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)
17005.500	42.3	-26.7	41.7	27.28	54.0	11.7	H
16971.500	42.2	-26.9	41.7	27.45	54.0	11.8	V
17008.500	42.2	-26.7	41.7	27.19	54.0	11.8	H
17012.500	42.2	-26.6	41.7	27.14	54.0	11.8	H
17893.000	42.2	-26.2	41.3	27.11	54.0	11.8	H
17050.000	42.2	-26.4	41.6	26.91	54.0	11.8	V

Charger+Front 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)
17458.000	55.4	-26.3	41.2	40.39	74.0	18.6	H
17959.500	55.3	-25.9	41.3	39.91	74.0	18.7	V
17032.000	55.1	-26.5	41.7	39.92	74.0	18.9	H
16926.000	54.8	-27.0	41.6	40.15	74.0	19.2	H
17625.500	54.7	-26.5	41.2	39.91	74.0	19.3	V
17694.500	54.7	-26.5	41.2	39.93	74.0	19.3	H

Measurement results for Set.5:
USB mode +FM (Mid Ch.) /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)
5999.500	45.0	-33.7	35.2	43.53	54.0	9.0	H
6000.000	44.7	-33.7	35.2	43.28	54.0	9.3	H
17039.500	42.4	-26.5	41.7	27.22	54.0	11.6	H
17032.000	42.4	-26.5	41.7	27.24	54.0	11.6	H
17037.500	42.4	-26.5	41.7	27.16	54.0	11.6	H
17050.500	42.3	-26.4	41.6	27.06	54.0	11.7	V

USB mode +FM (Mid Ch.) /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)
16945.000	54.8	-27.1	41.7	40.17	74.0	19.2	V
17826.500	54.7	-26.5	41.3	39.96	74.0	19.3	H
17865.000	54.7	-26.3	41.3	39.71	74.0	19.3	V
17042.500	54.7	-26.4	41.7	39.43	74.0	19.3	V
17058.500	54.6	-26.3	41.6	39.34	74.0	19.4	H
17059.500	54.6	-26.3	41.6	39.26	74.0	19.4	V

Measurement results for Set.6:
USB (SD) mode +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)
17092.000	41.70	-26.1	41.6	26.21	54.0	12.3	V
17062.000	41.64	-26.3	41.6	26.31	54.0	12.4	V
17867.500	41.61	-26.3	41.3	26.65	54.0	12.4	V
17087.000	41.61	-26.1	41.6	26.14	54.0	12.4	V
17105.000	41.61	-26.0	41.6	26.04	54.0	12.4	V
17048.000	41.60	-26.4	41.7	26.35	54.0	12.4	H

USB (SD) mode +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)
17870.000	53.9	-26.3	41.3	38.93	74.0	20.1	V
17041.000	53.7	-26.4	41.7	38.50	74.0	20.3	V
17110.000	53.7	-26.0	41.6	38.12	74.0	20.3	V
17891.000	53.6	-26.2	41.3	38.56	74.0	20.4	H
17284.000	53.5	-26.9	41.4	38.94	74.0	20.5	H
17934.000	53.4	-26.0	41.3	38.16	74.0	20.6	V

Charging Mode+ MP3, Set.1

15B RE 30MHz-1GHz

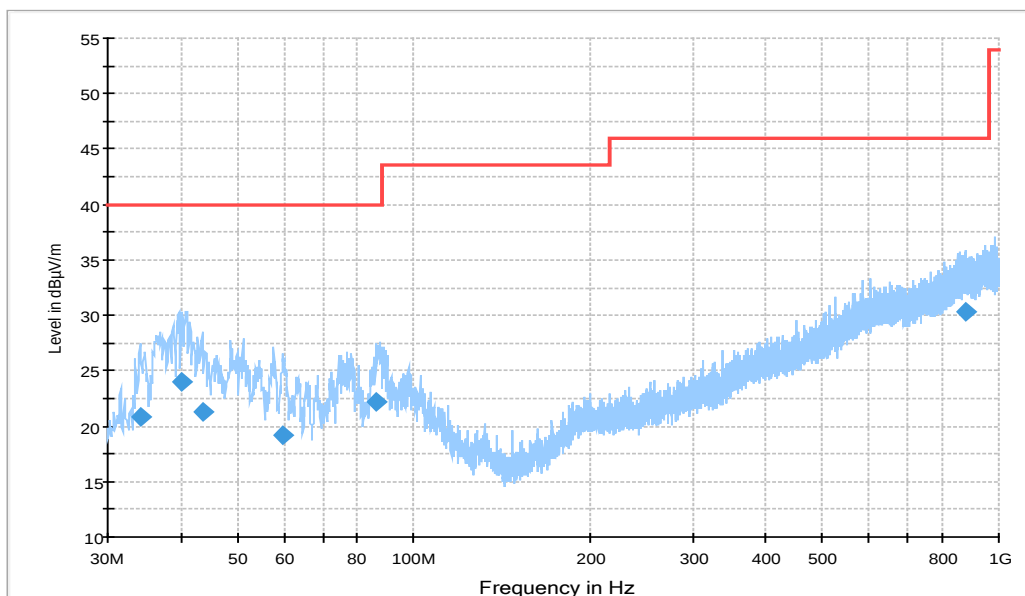


Figure A.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
34.074000	20.9	110.0	V	45.0	-3.5	19.1	40.0
40.282000	24.0	100.0	V	7.0	-2.7	16.0	40.0
43.580000	21.3	100.0	V	7.0	-1.5	18.7	40.0
59.876000	19.2	100.0	V	-38.0	-1.6	20.8	40.0
86.454000	22.2	119.0	V	-17.0	-4.9	17.8	40.0
874.67600	30.3	125.0	H	3.0	11.4	15.7	46.0

15B RE - 1GHz-3GHz

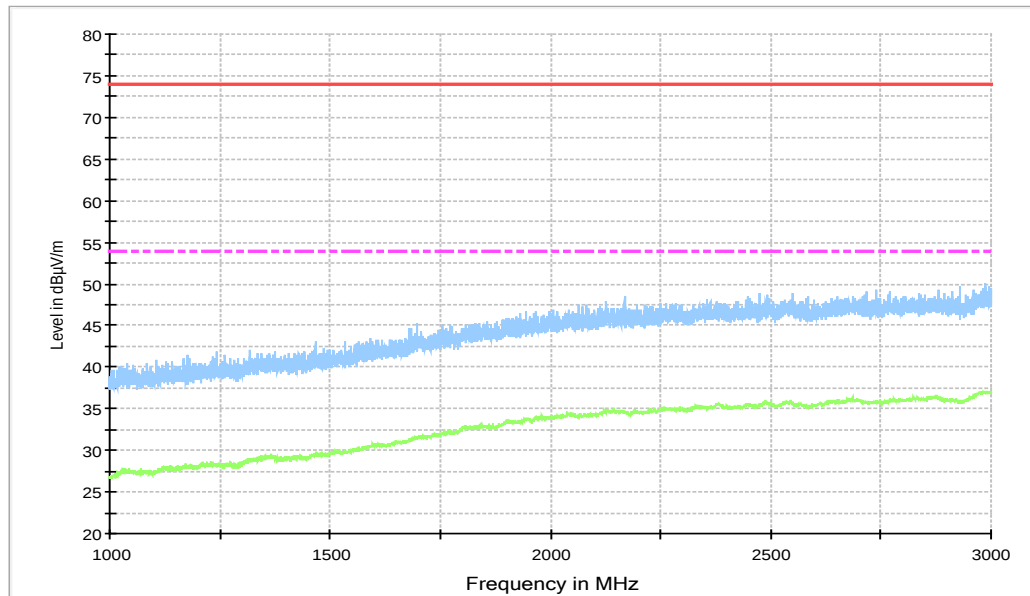


Figure A.2 Radiated Emission from 1GHz to 3GHz

RE - 3GHz-18GHz

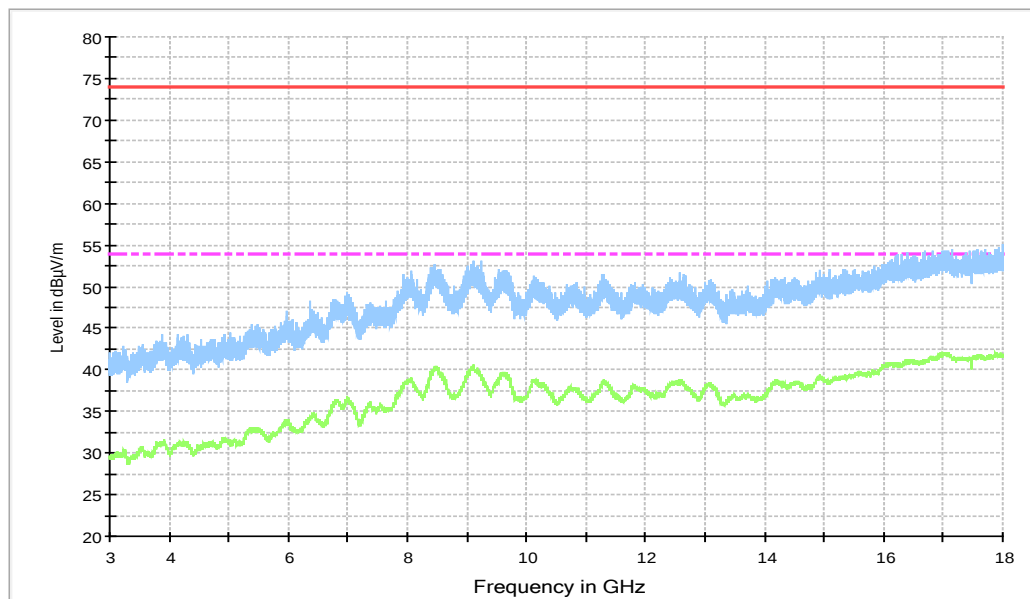


Figure A.3 Radiated Emission from 3GHz to 18GHz

Note: The measurement results showed here are worst cases of the combinations of different cables.

Charger+MP4, Set.2

RE 30MHz-1GHz

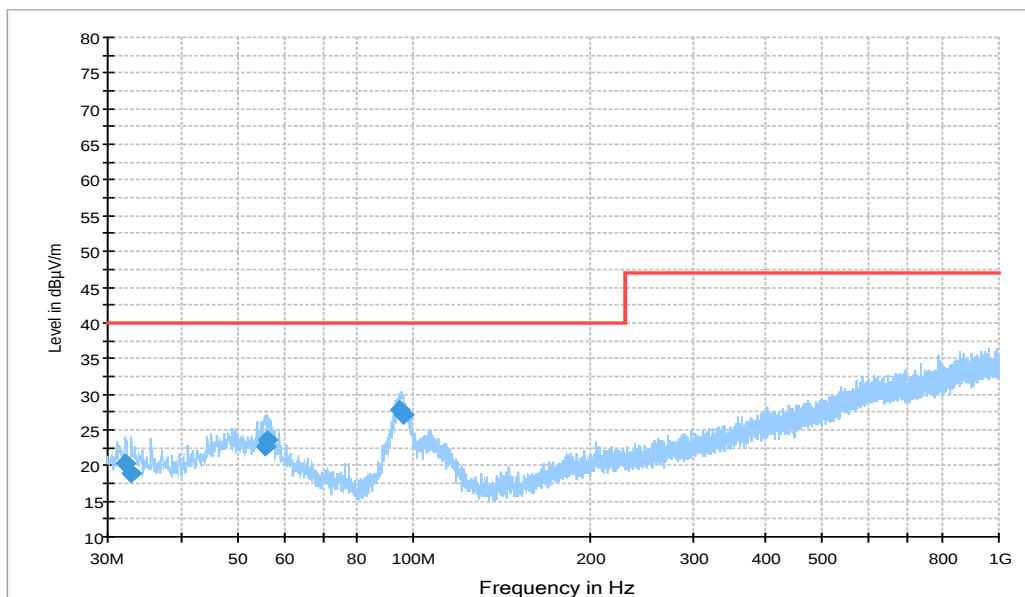


Figure A.4 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
32.231000	20.3	100.0	V	15.0	-3.8	19.7	40.0
33.007000	18.8	125.0	V	9.0	-3.7	21.2	40.0
55.608000	22.8	110.0	V	-4.0	-0.8	17.2	40.0
56.384000	23.7	100.0	V	-22.0	-0.9	16.3	40.0
94.505000	27.7	119.0	V	-15.0	-3.7	12.3	40.0
95.863000	27.1	110.0	V	-22.0	-3.6	12.9	40.0

15B RE - 1GHz-3GHz

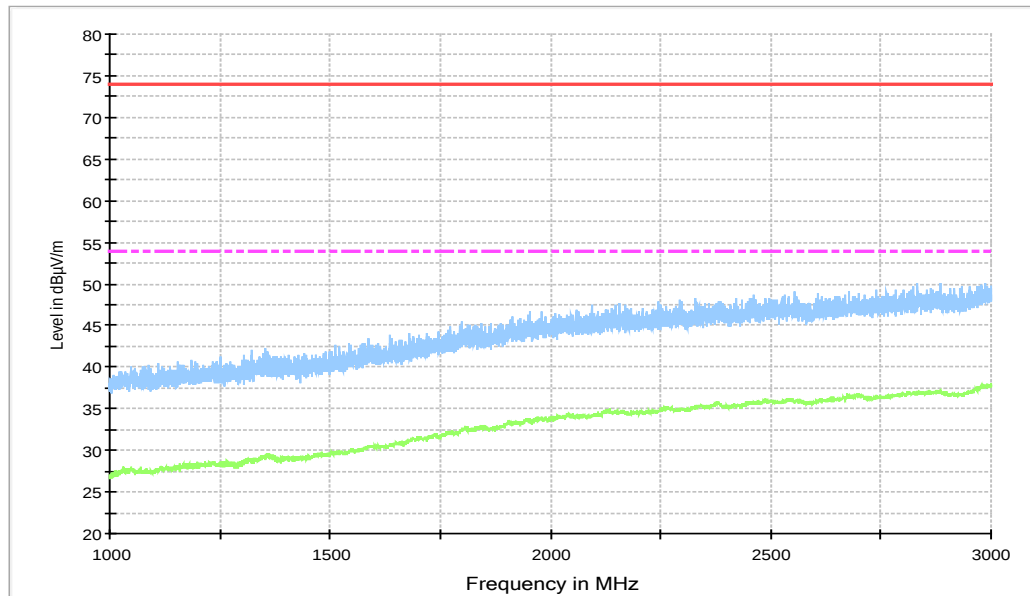


Figure A.5 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

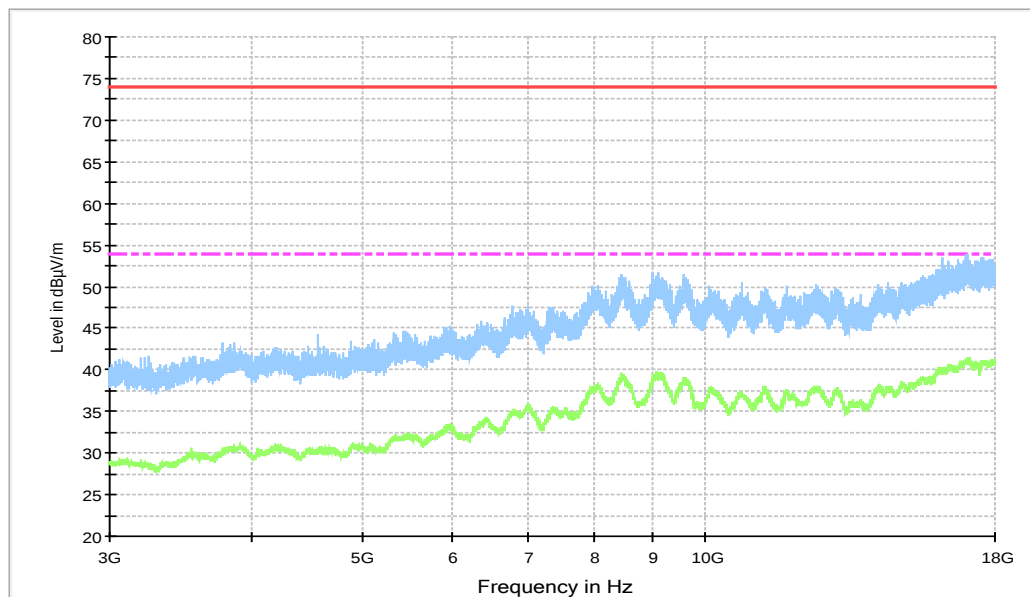


Figure A.6 Radiated Emission from 3GHz to 18GHz

Note: The measurement results showed here are worst cases of the combinations of different cables.

Charger mode +Front Camera, Set.3

15B RE 30MHz-1GHz

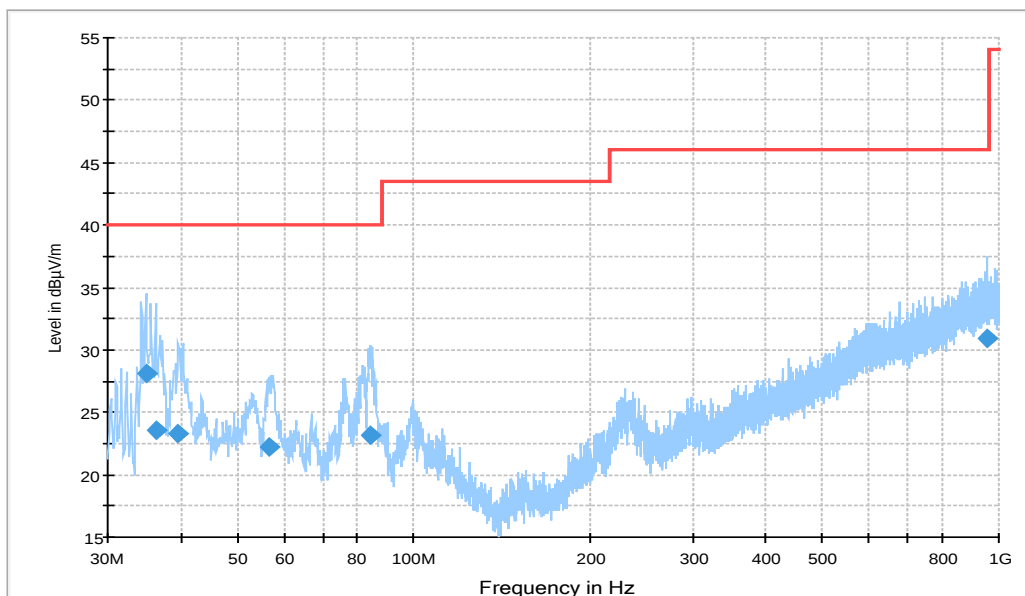


Figure A.7 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
34.850000	28.1	100.0	V	0.0	-3.4	11.9	40.0
36.208000	23.6	125.0	V	45.0	-3.2	16.4	40.0
39.603000	23.3	125.0	V	4.0	-2.8	16.7	40.0
56.675000	22.2	125.0	V	37.0	-1.0	17.8	40.0
84.223000	23.2	119.0	V	-10.0	-5.5	16.8	40.0
957.22300	30.9	119.0	V	-7.0	11.9	15.1	46.0

15B RE - 1GHz-3GHz

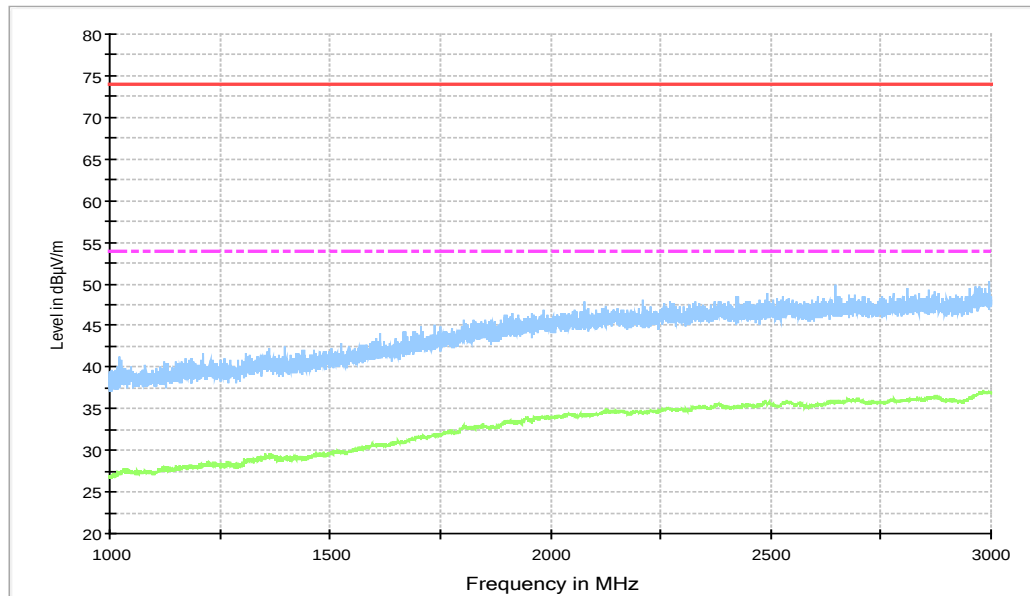


Figure A.8 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

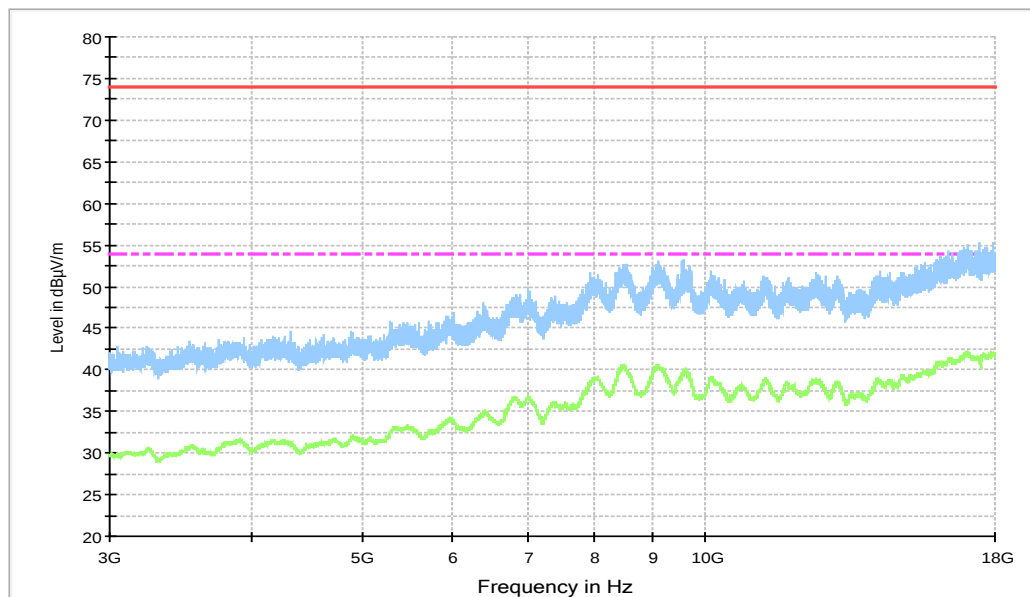


Figure A.9 Radiated Emission from 3GHz to 18GHz

Note: The measurement results showed here are worst cases of the combinations of different cables.

USB mode +FM (Mid Ch.), Set.5

15B RE 30MHz-1GHz

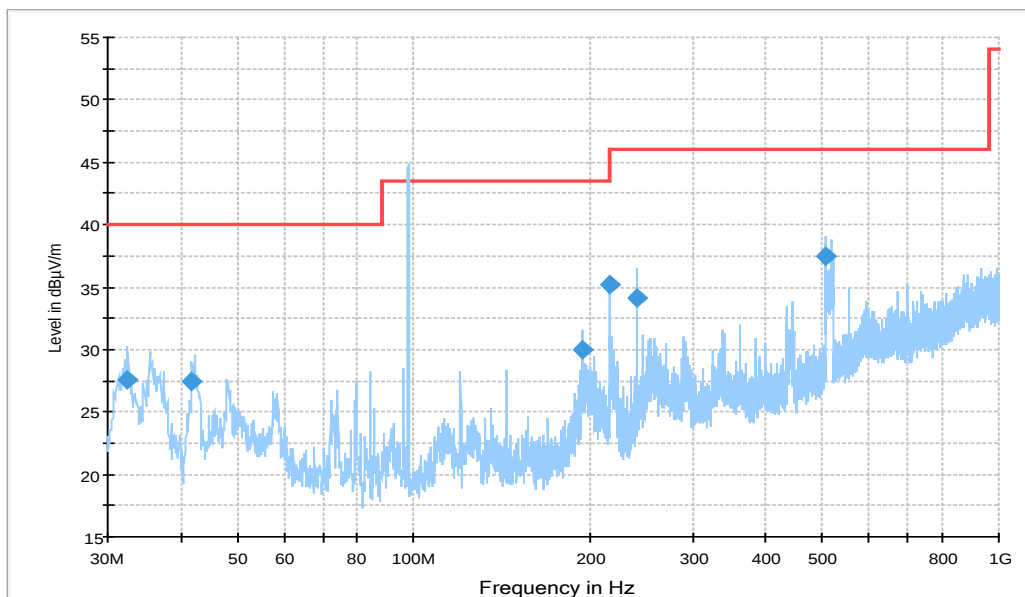


Figure A.10 Radiated Emission from 30MHz to 1GHz

Note: the spike (98MHz) over the limit is coming from FM signal source.

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
32.425000	27.6	100.0	V	176.0	-3.7	12.4	40.0
41.834000	27.5	100.0	V	225.0	-2.1	12.5	40.0
194.70600	30.0	100.0	H	173.0	-2.1	13.5	43.5
216.53100	35.2	100.0	H	162.0	-1.4	10.8	46.0
240.68400	34.1	125.0	H	220.0	-0.5	11.9	46.0
505.68800	37.5	125.0	V	138.0	6.2	8.5	46.0

15B RE - 1GHz-3GHz

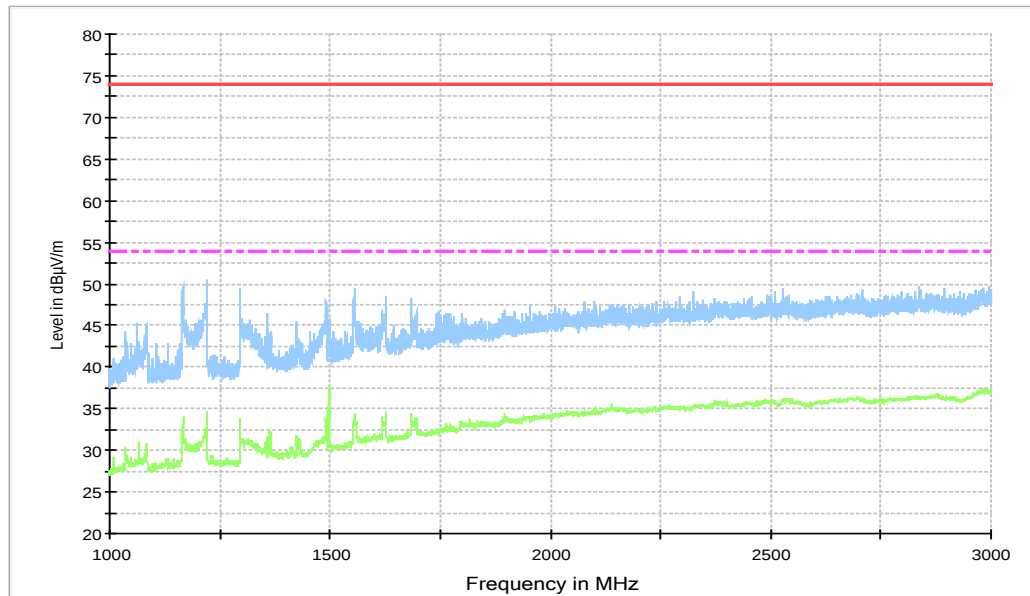


Figure A.11 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

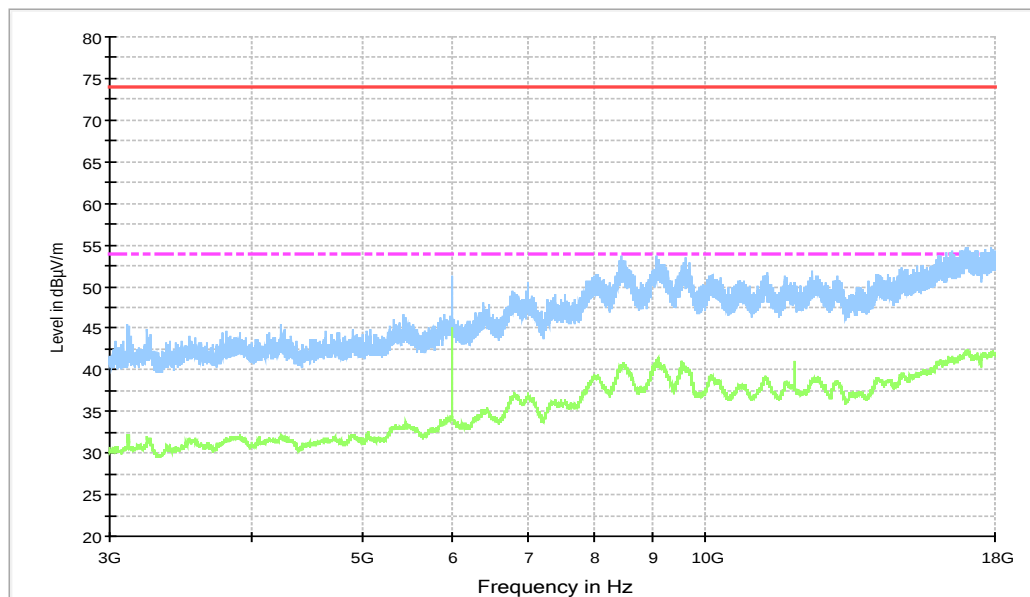


Figure A.12 Radiated Emission from 3GHz to 18GHz

Note: The measurement results showed here are worst cases of the combinations of different cables.

USB (SD) mode +Rear camera, Set.6

RE 30MHz-1GHz

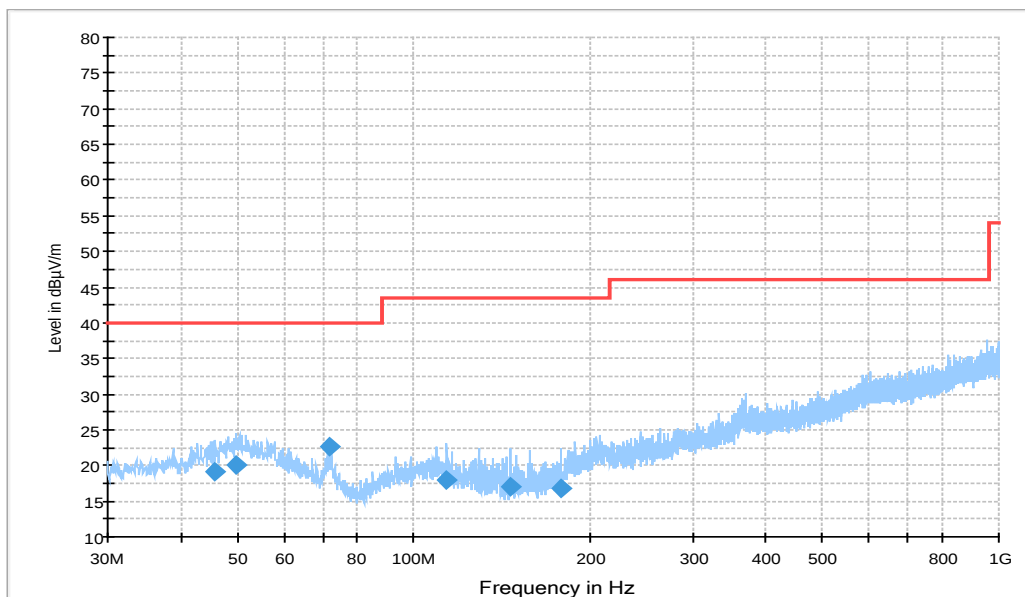


Figure A.13 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
45.811000	19.1	100.0	V	-11.0	-0.8	20.9	40.0
49.788000	20.0	100.0	V	-5.0	0.4	20.0	40.0
71.904000	22.7	100.0	H	5.0	-5.2	17.3	40.0
114.09900	18.0	100.0	V	22.0	-3.2	25.5	43.5
146.59400	17.1	100.0	V	-5.0	-5.7	26.4	43.5
178.11900	16.9	100.0	V	2.0	-3.7	26.6	43.5

15B RE - 1GHz-3GHz

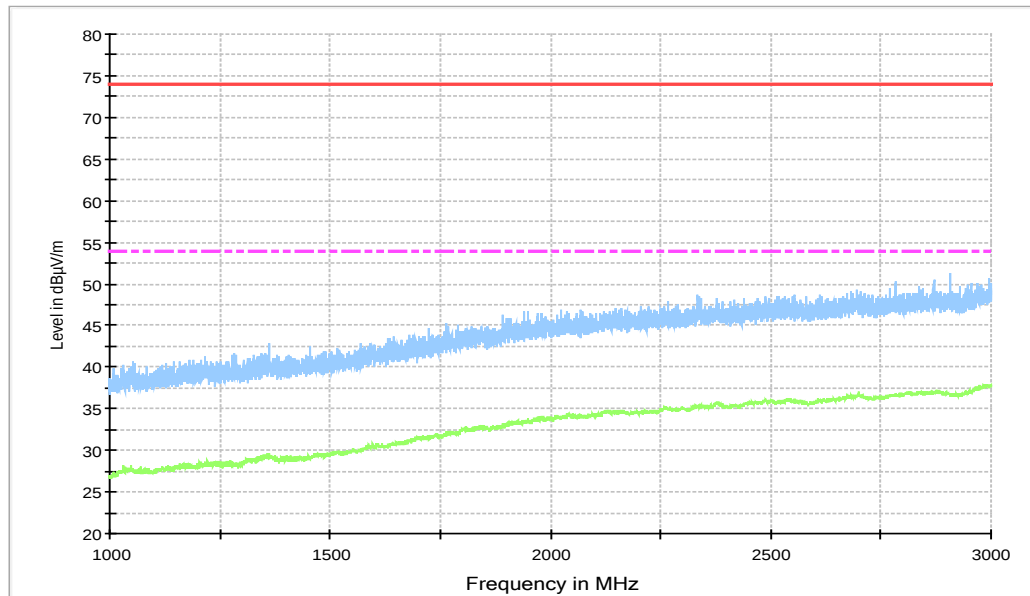


Figure A.14 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

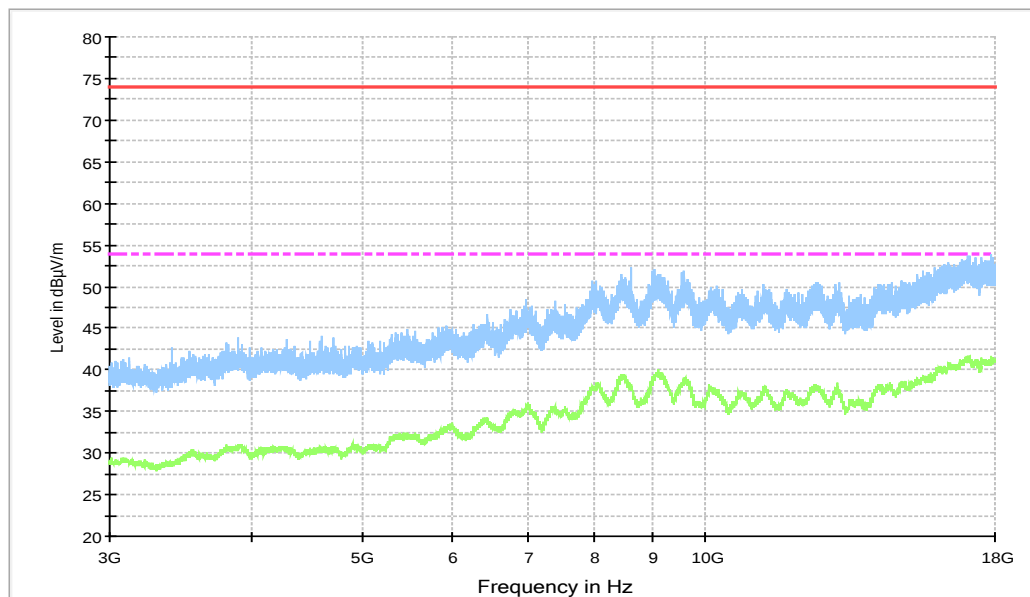


Figure A.15 Radiated Emission from 3GHz to 18GHz

Note: The measurement results showed here are worst cases of the combinations of different cables.

FM (Low Ch.), Set.7

15B RE 30MHz-1GHz

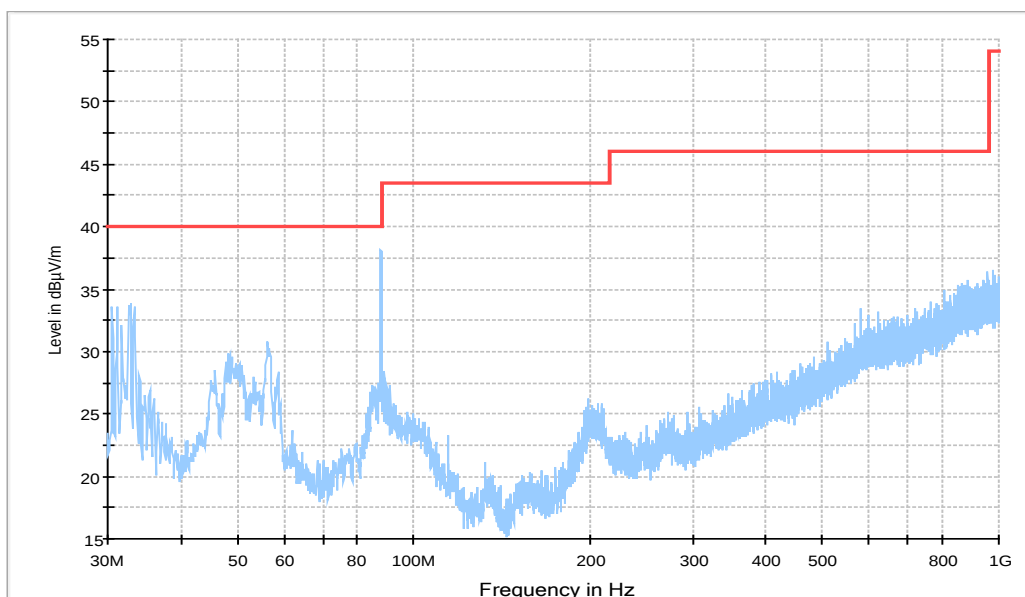


Figure A.16 Radiated Emission from 30MHz to 1GHz

Note: the spike (88MHz) is coming from FM signal source.

FM (High Ch.), Set.7

15B RE 30MHz-1GHz

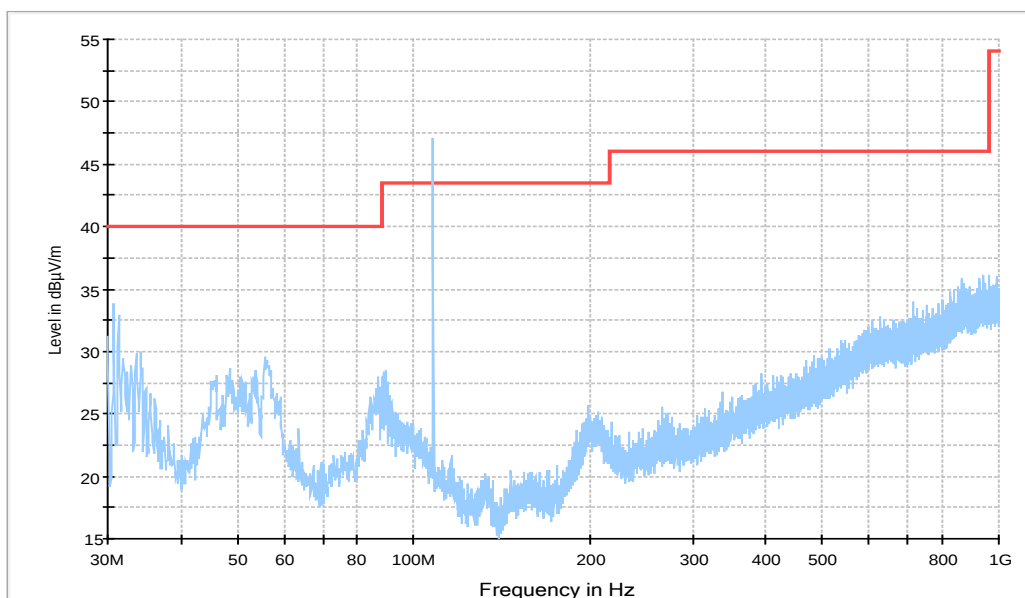


Figure A.17 Radiated Emission from 30MHz to 1GHz

Note: the spike (108MHz) over the limit is coming from FM signal source.

License RX band mode, Set.9

GSM850MHz LOW CHANNEL (869.2MHz)

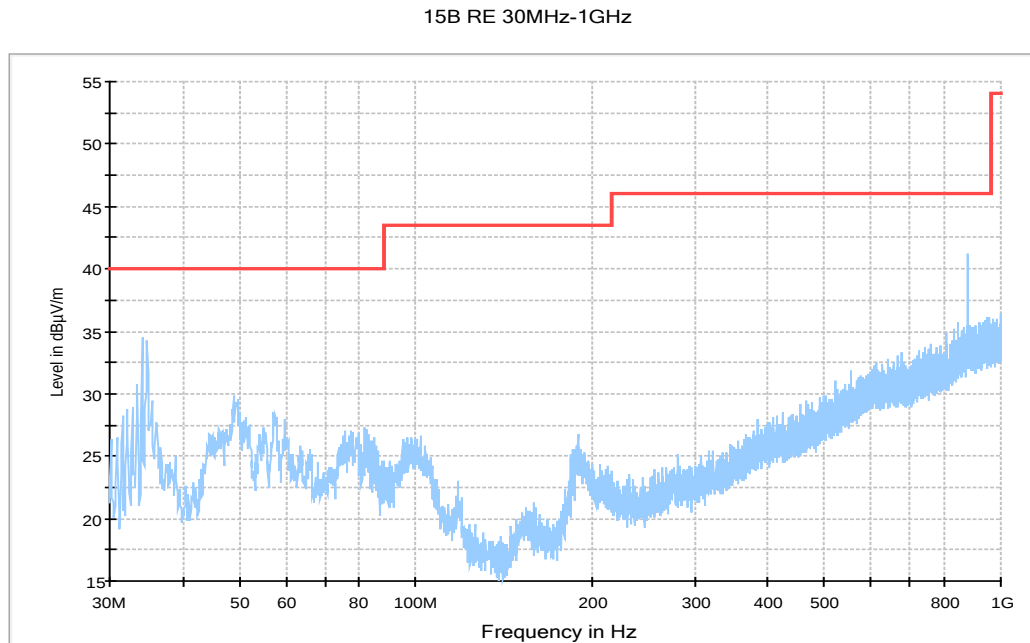


Figure A.18 Radiated Emission from 30MHz to 1GHz

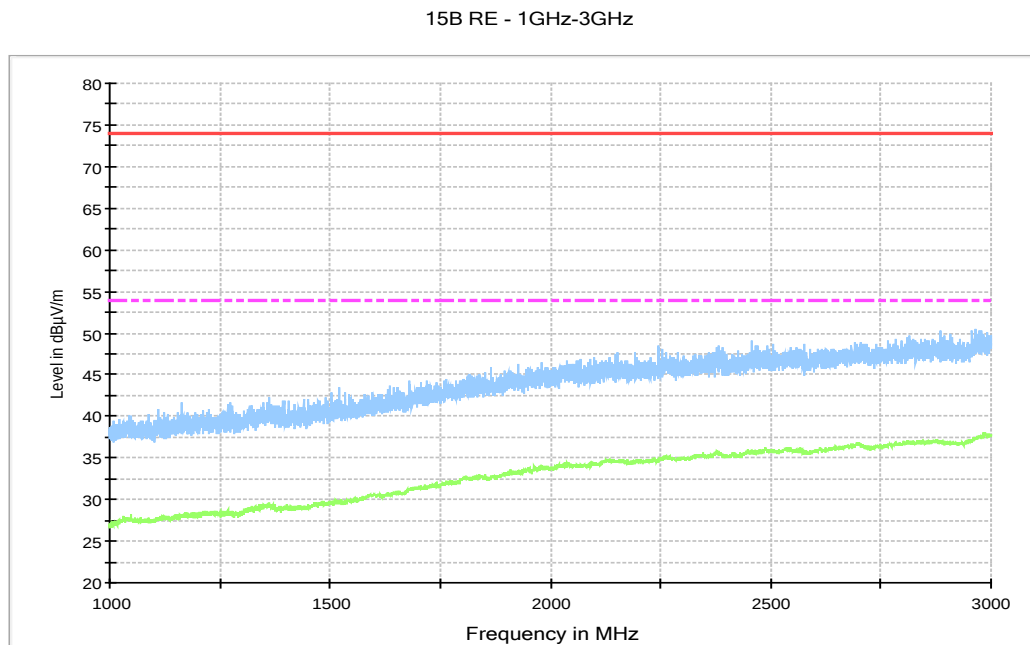


Figure A.19 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

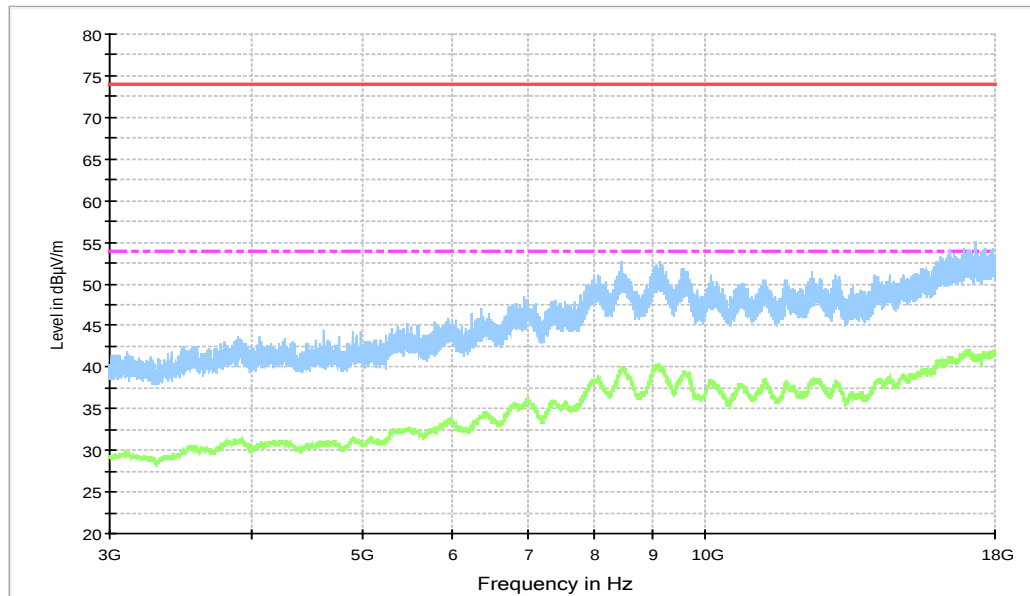


Figure A.20 Radiated Emission from 3GHz to 18GHz

GSM850MHz MID CHANNEL (881.6MHz)

15B RE 30MHz-1GHz

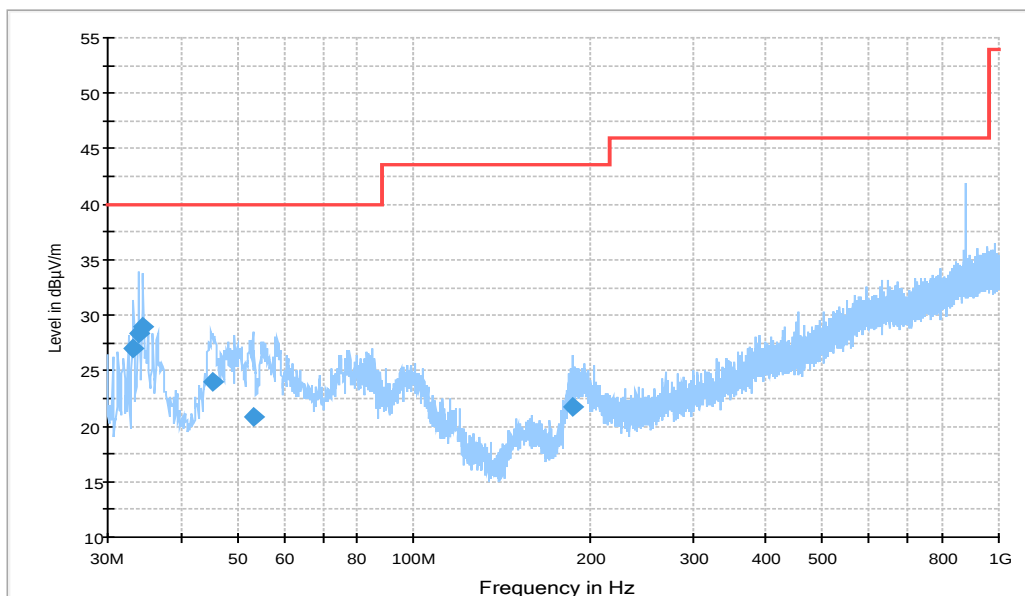


Figure A.21 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
33.201000	27.0	100.0	V	45.0	-3.6	13.0	40.0
33.880000	28.4	100.0	V	45.0	-3.5	11.6	40.0
34.462000	28.9	110.0	V	45.0	-3.5	11.1	40.0
45.326000	23.9	100.0	V	-28.0	-0.9	16.1	40.0
53.086000	20.9	125.0	V	25.0	-0.2	19.1	40.0
187.23700	21.7	125.0	H	-10.0	-2.7	21.8	43.5

15B RE - 1GHz-3GHz

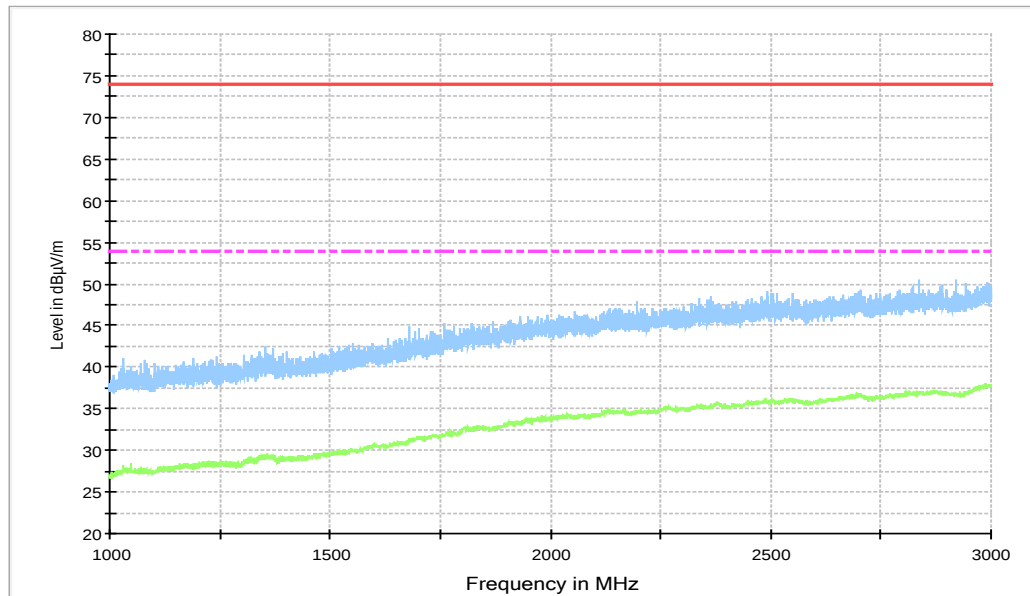


Figure A.22 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

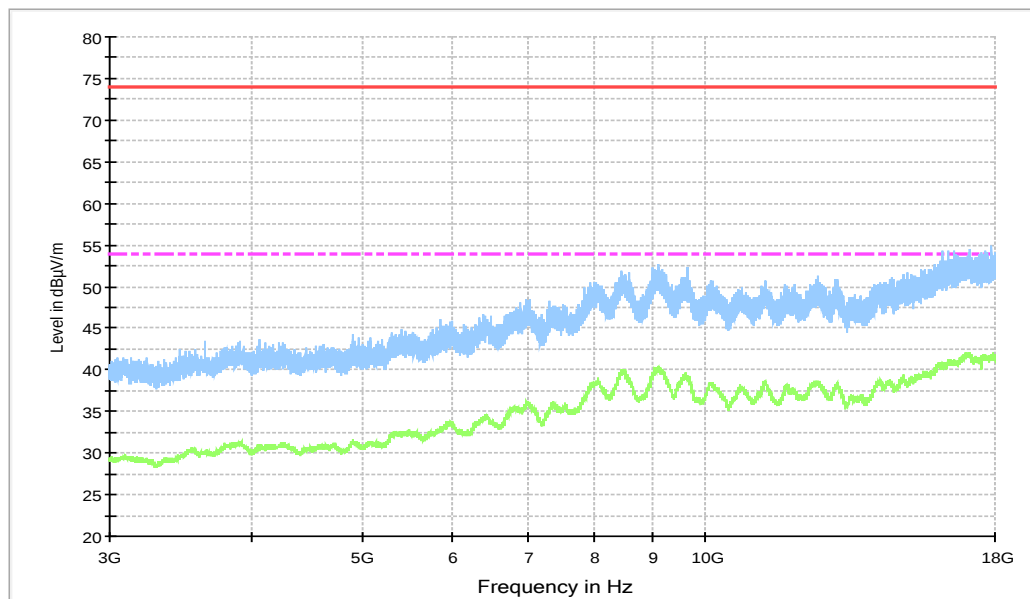


Figure A.23 Radiated Emission from 3GHz to 18GHz

GSM850MHz HIGH CHANNEL (893.8MHz)

15B RE 30MHz-1GHz

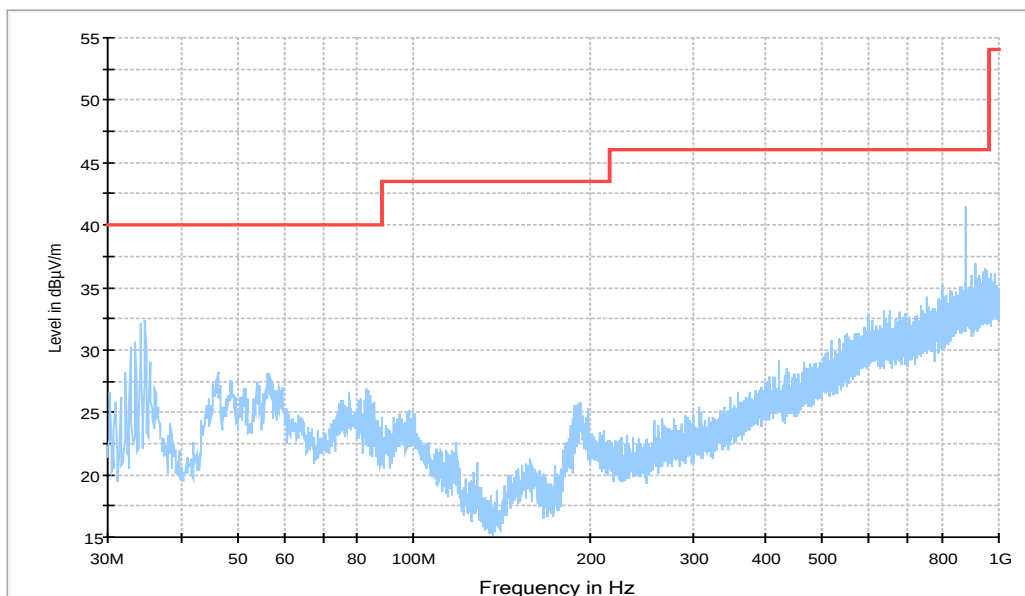


Figure A.24 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

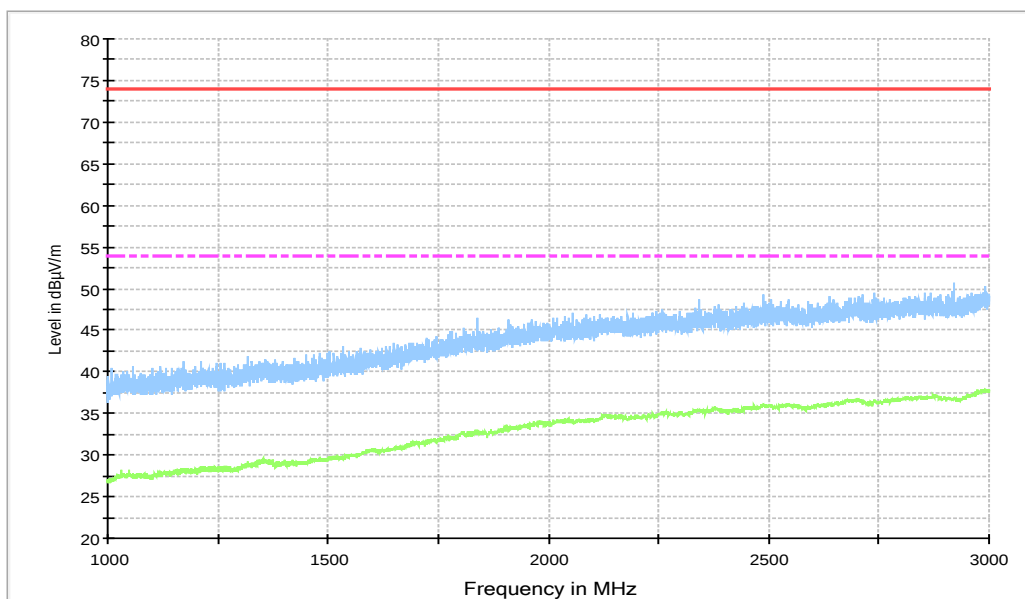


Figure A.25 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

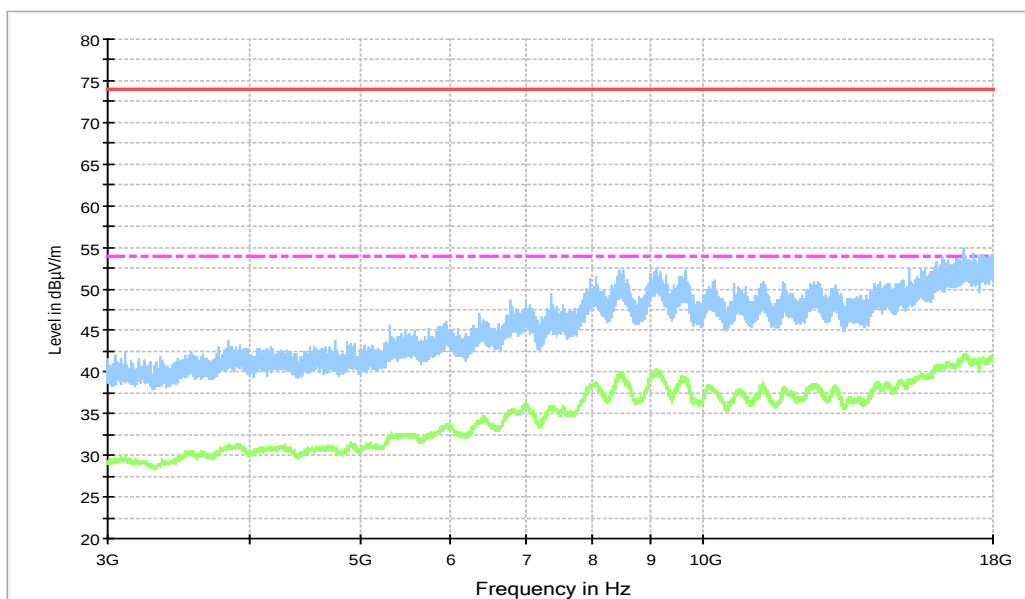


Figure A.26 Radiated Emission from 3GHz to 18GHz

WCDMA Band 5 LOW CHANNEL (871.4MHz)

RE - IDLE - UMTS BAND I +QP+PK_30MHz-1GHz

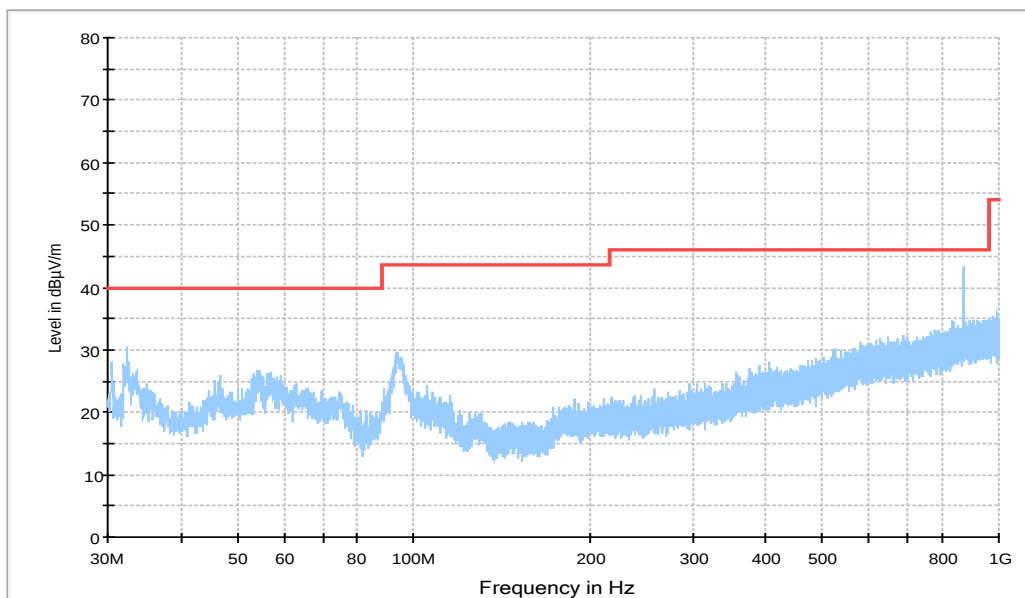


Figure A.27 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

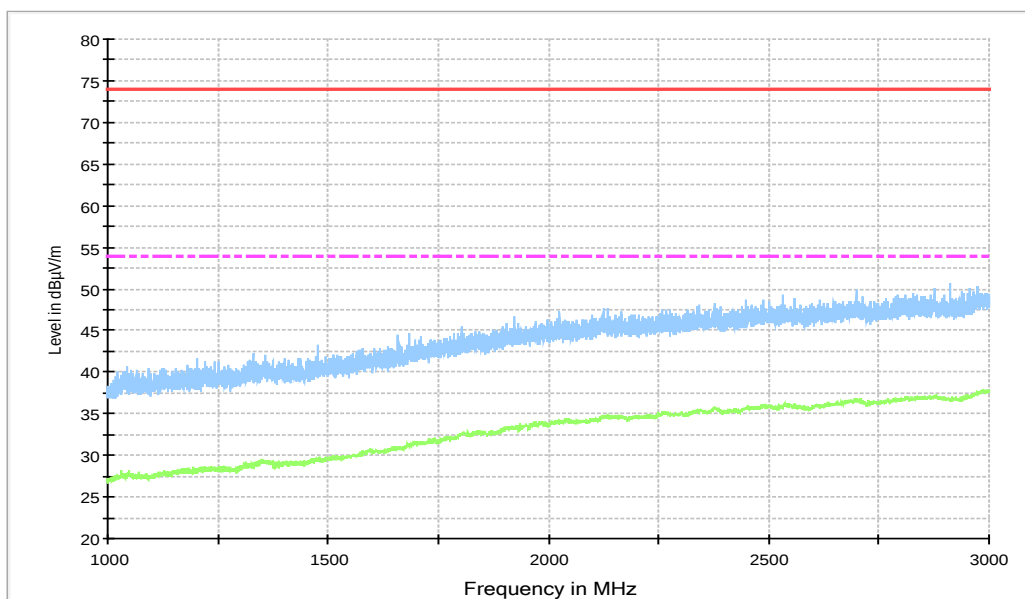


Figure A.28 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

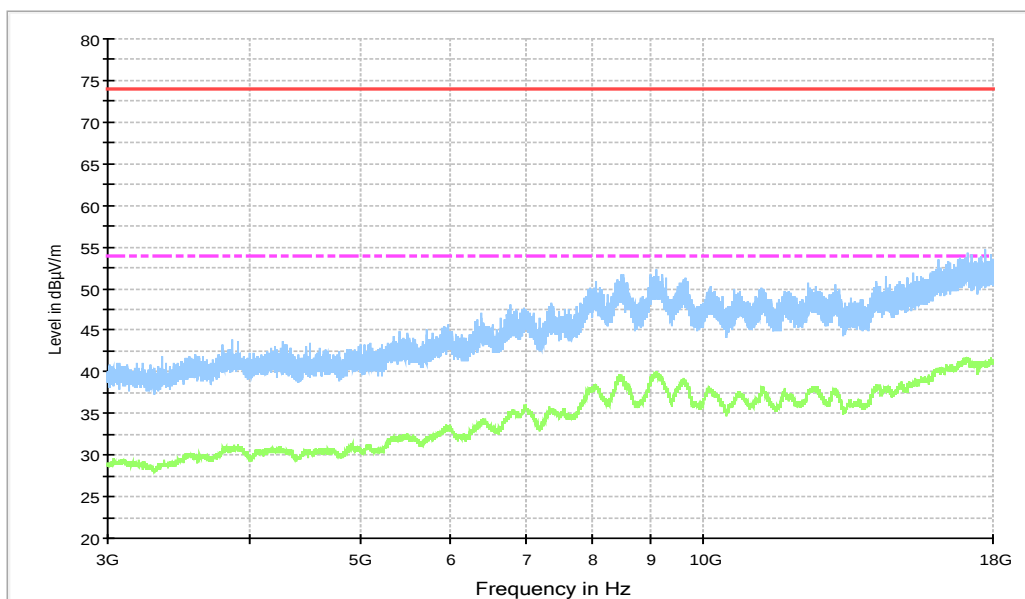


Figure A.29 Radiated Emission from 3GHz to 18GHz

WCDMA Band 5 MID CHANNEL (881.6MHz)

RE - IDLE - UMTS BAND I +QP+PK_30MHz-1GHz

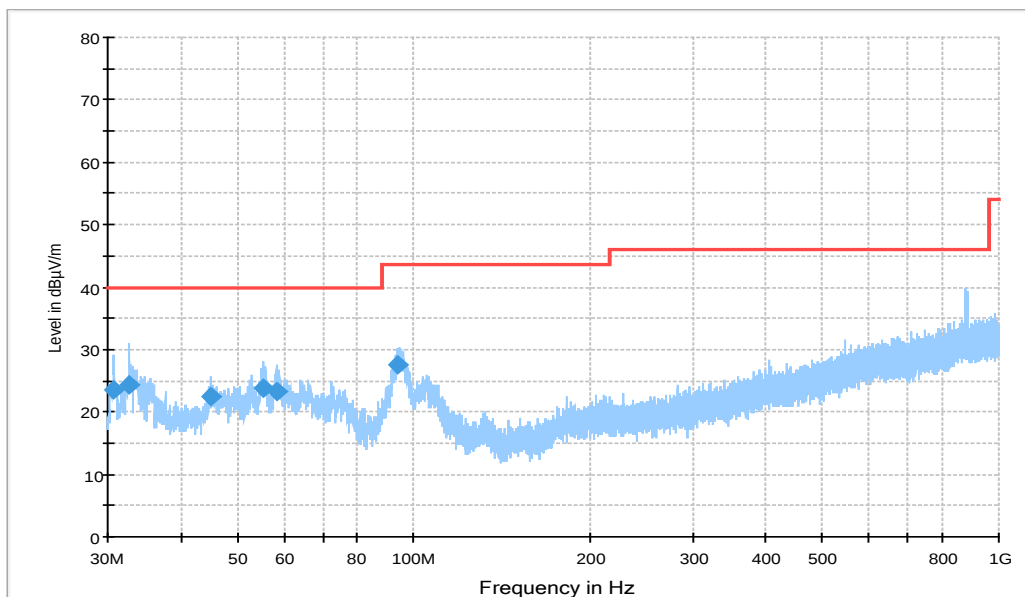


Figure A.30 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.743667	23.5	100.0	V	31.0	-4.0	16.5	40.0
32.651333	24.3	118.0	V	45.0	-3.7	15.7	40.0
44.970333	22.4	100.0	V	5.0	-1.1	17.6	40.0
55.349333	23.7	118.0	V	-10.0	-0.7	16.3	40.0
58.453333	23.4	100.0	V	16.0	-1.3	16.6	40.0
93.955333	27.6	100.0	V	-45.0	-3.8	15.9	43.5

15B RE - 1GHz-3GHz

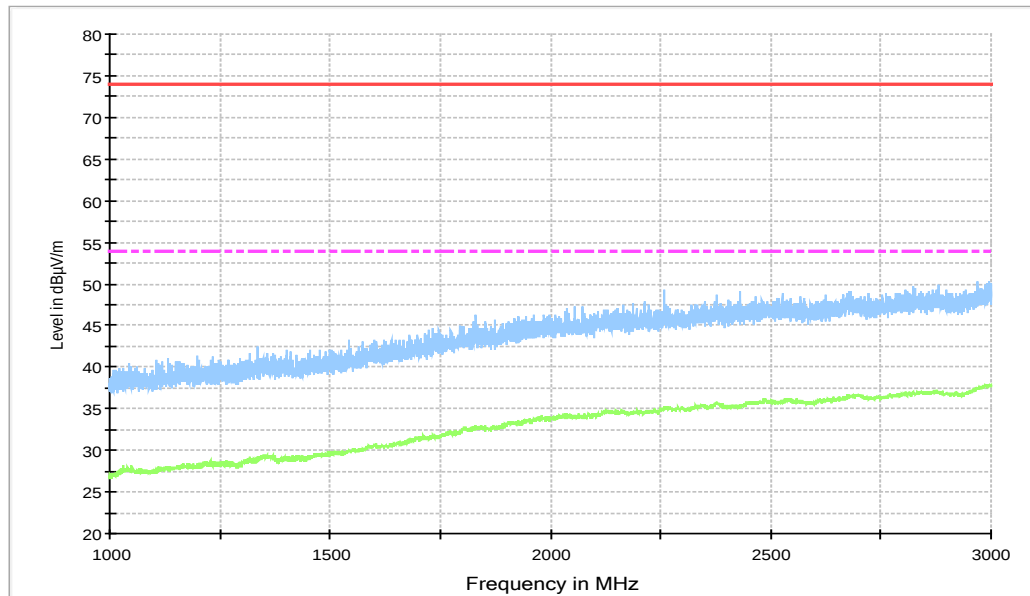


Figure A.31 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

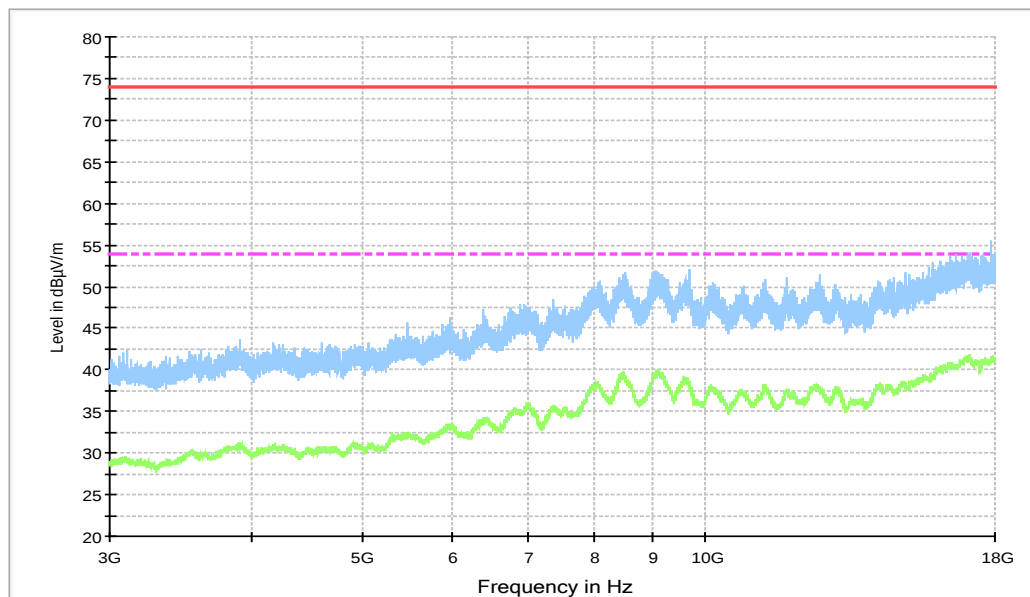


Figure A.32 Radiated Emission from 3GHz to 18GHz

WCDMA Band 5 HIGH CHANNEL (891.6MHz)

RE - IDLE - UMTS BAND I +QP+PK_30MHz-1GHz

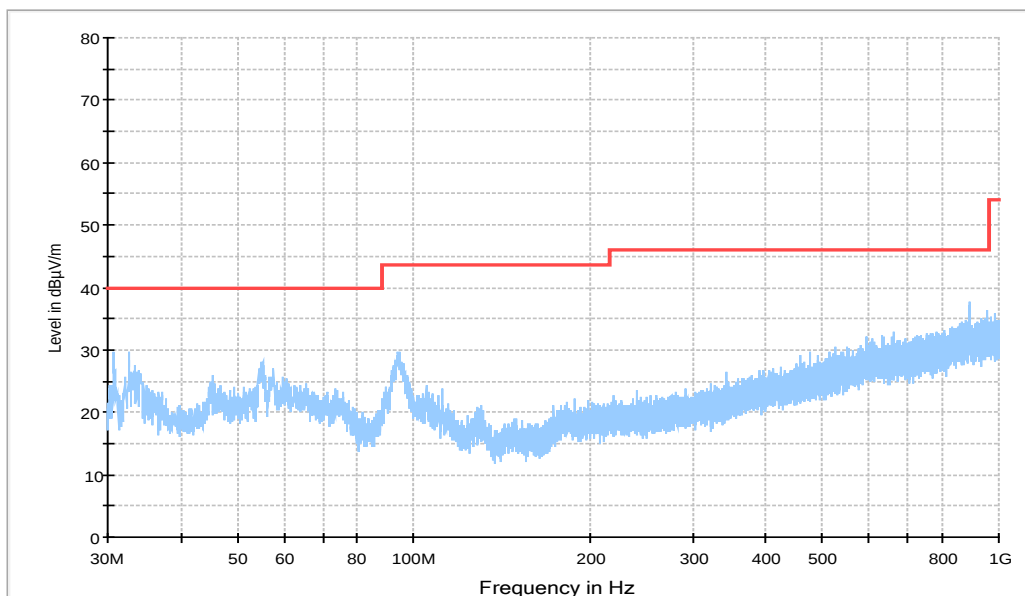


Figure A.33 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

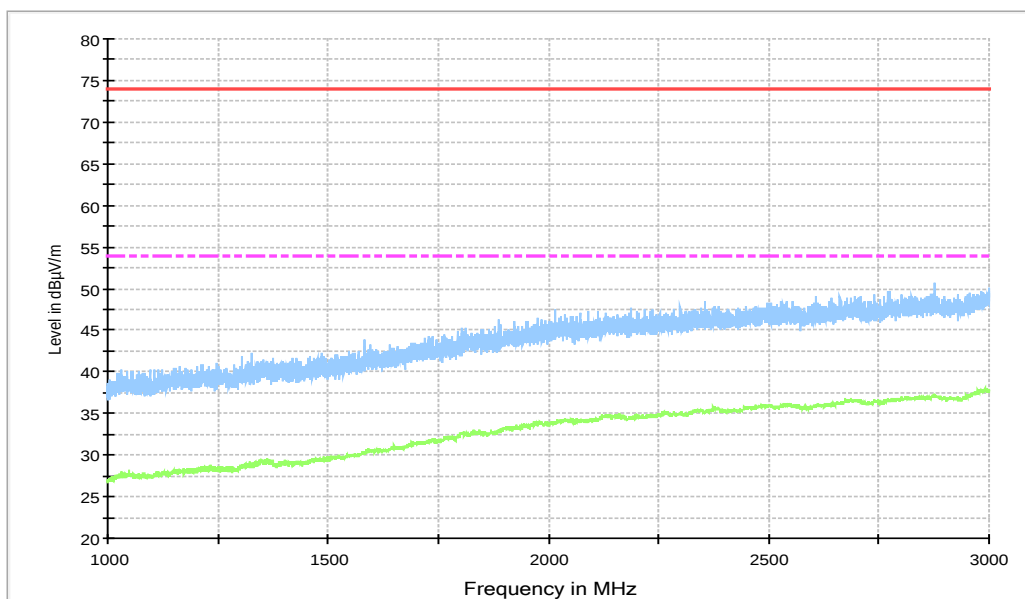


Figure A.34 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

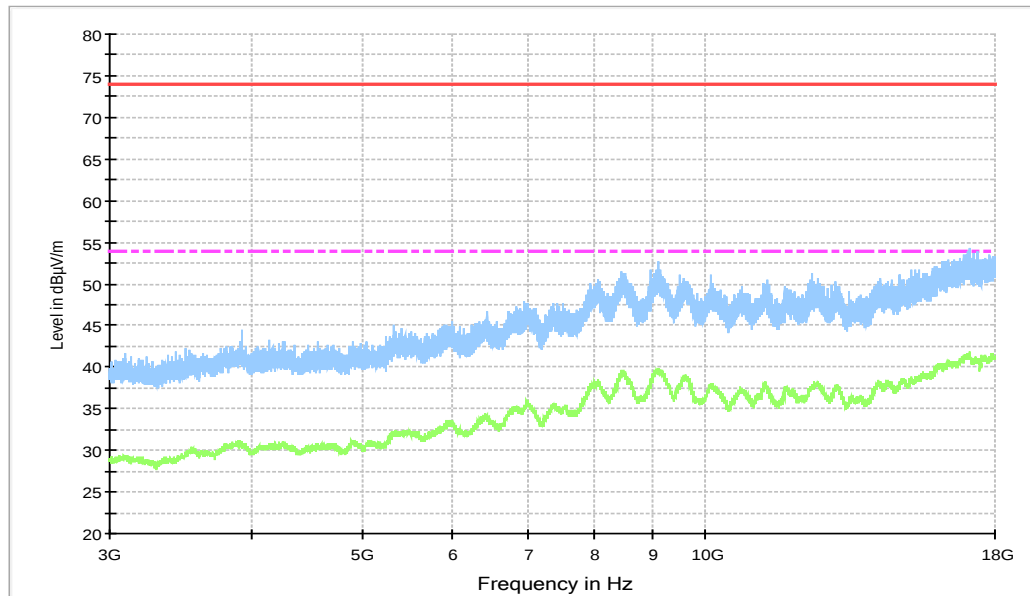


Figure A.35 Radiated Emission from 3GHz to 18GHz

LTE Band 5 LOW CHANNEL (869.7MHz)

15B RE 30MHz-1GHz

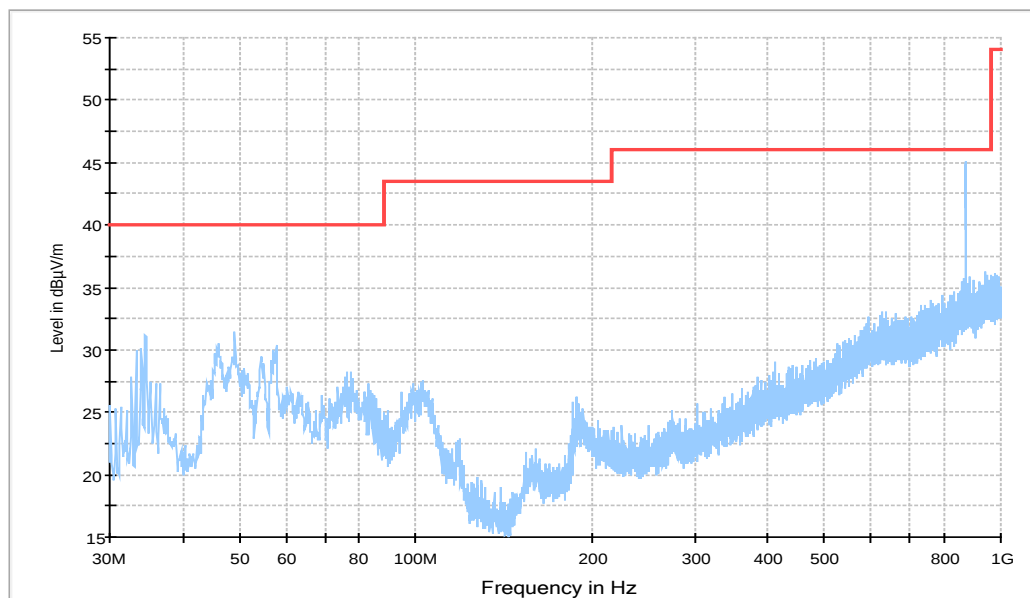


Figure A.36 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

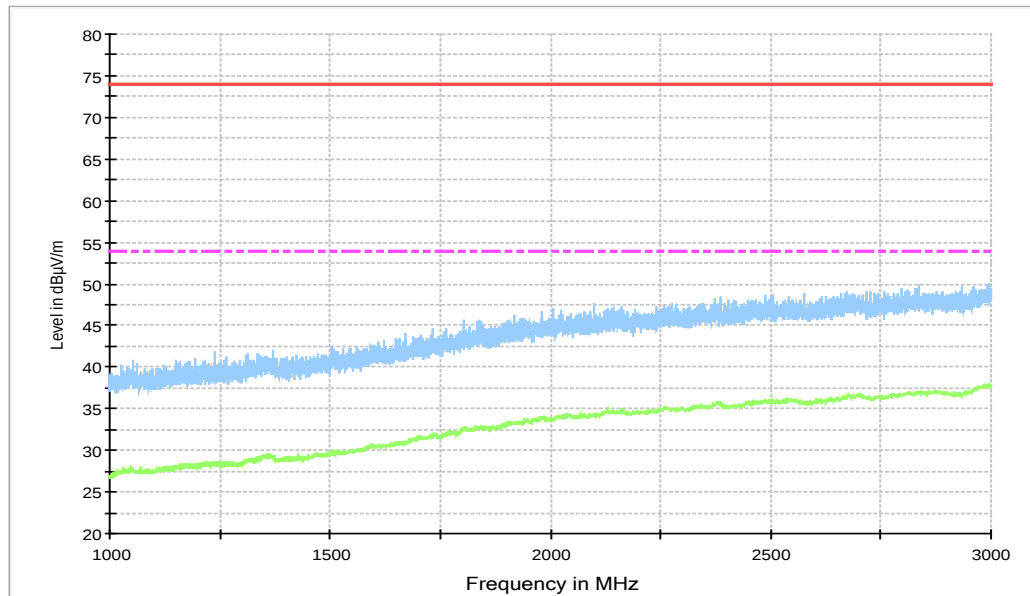


Figure A.37 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

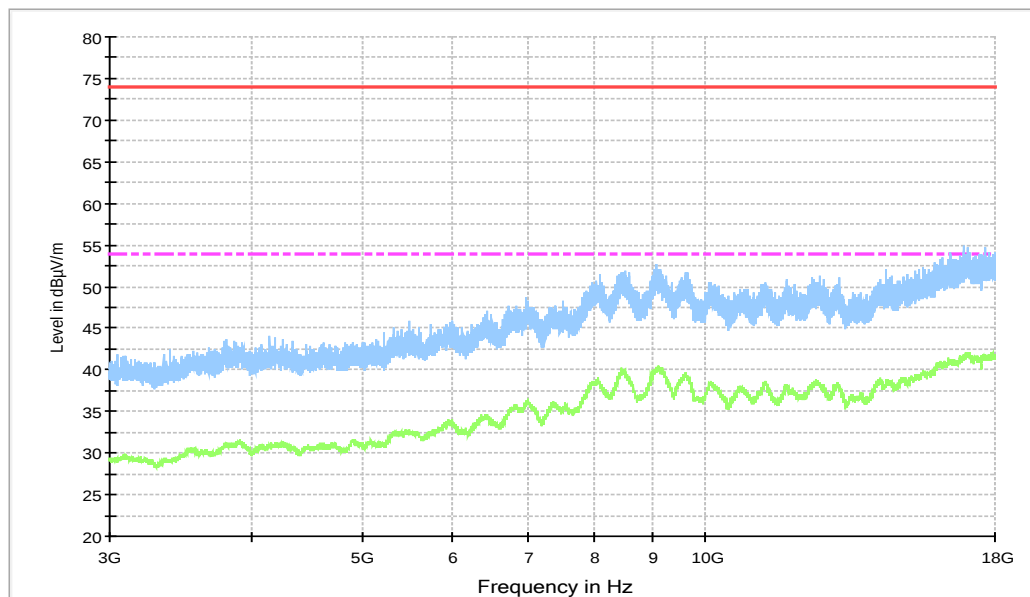


Figure A.38 Radiated Emission from 3GHz to 18GHz

LTE Band 5 MID CHANNEL (881.5MHz)

15B RE 30MHz-1GHz

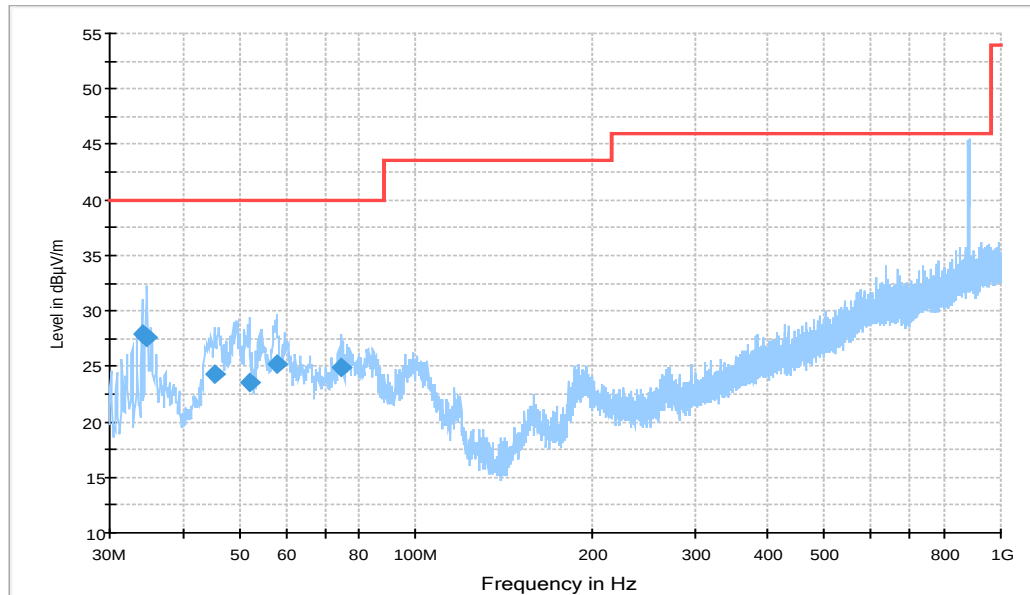


Figure A.39 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
34.074000	27.9	100.0	V	45.0	-3.5	12.1	40.0
34.753000	27.5	110.0	V	45.0	-3.4	12.5	40.0
45.326000	24.4	100.0	V	26.0	-0.9	15.6	40.0
52.019000	23.5	100.0	V	-31.0	0.0	16.5	40.0
57.839000	25.1	100.0	V	-20.0	-1.2	14.9	40.0
74.426000	25.0	100.0	V	-45.0	-5.6	15.0	40.0

15B RE - 1GHz-3GHz

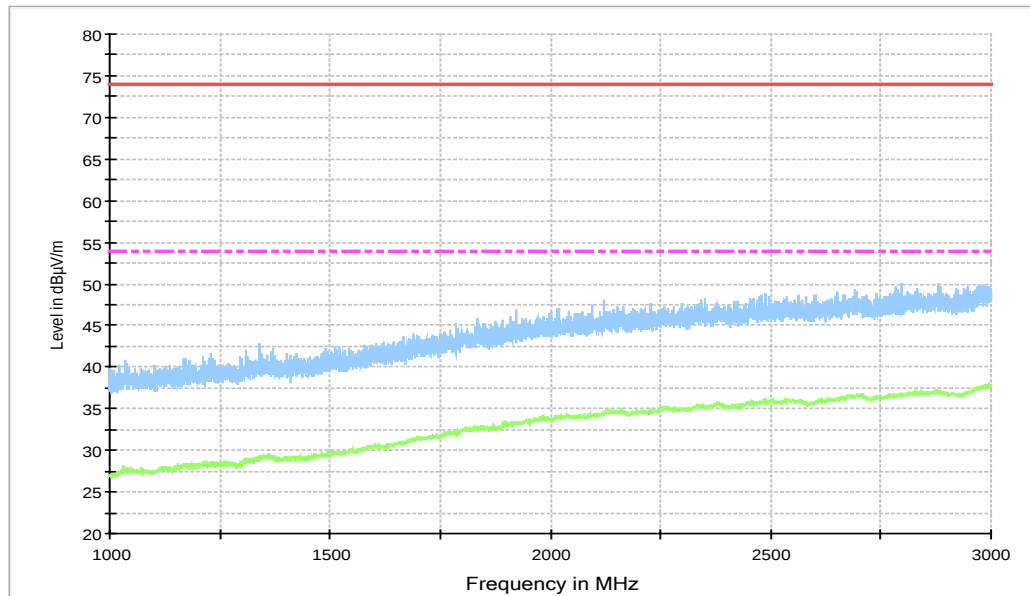


Figure A.40 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

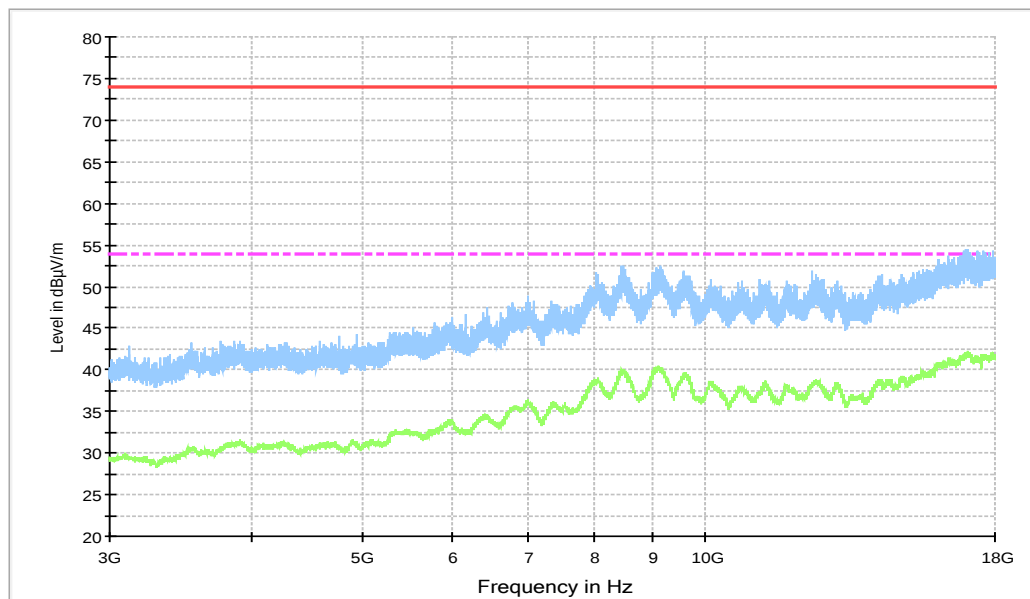


Figure A.41 Radiated Emission from 3GHz to 18GHz

LTE Band 5 HIGH CHANNEL (893.3MHz)

15B RE 30MHz-1GHz

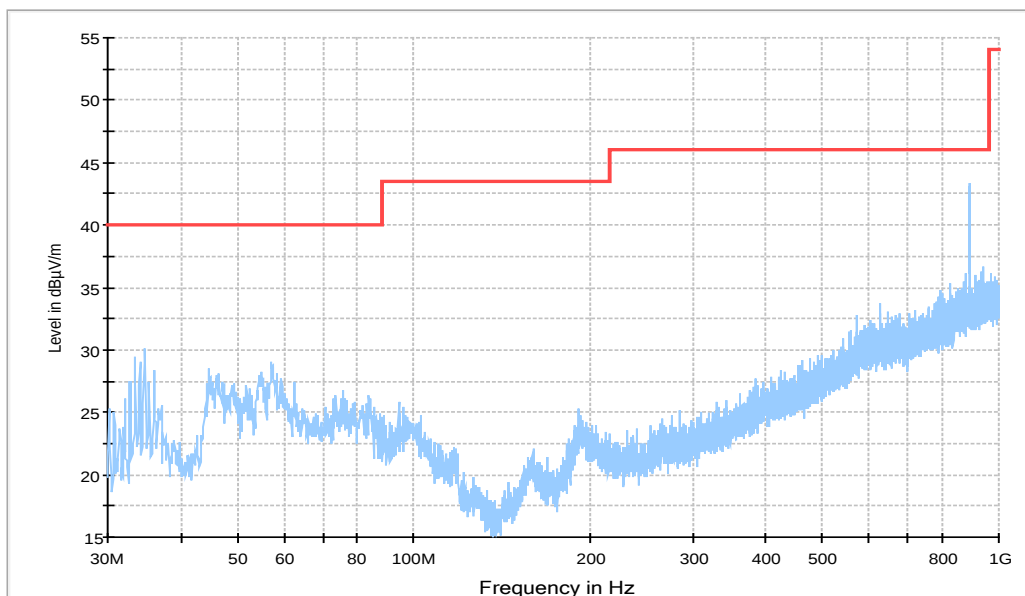


Figure A.42 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

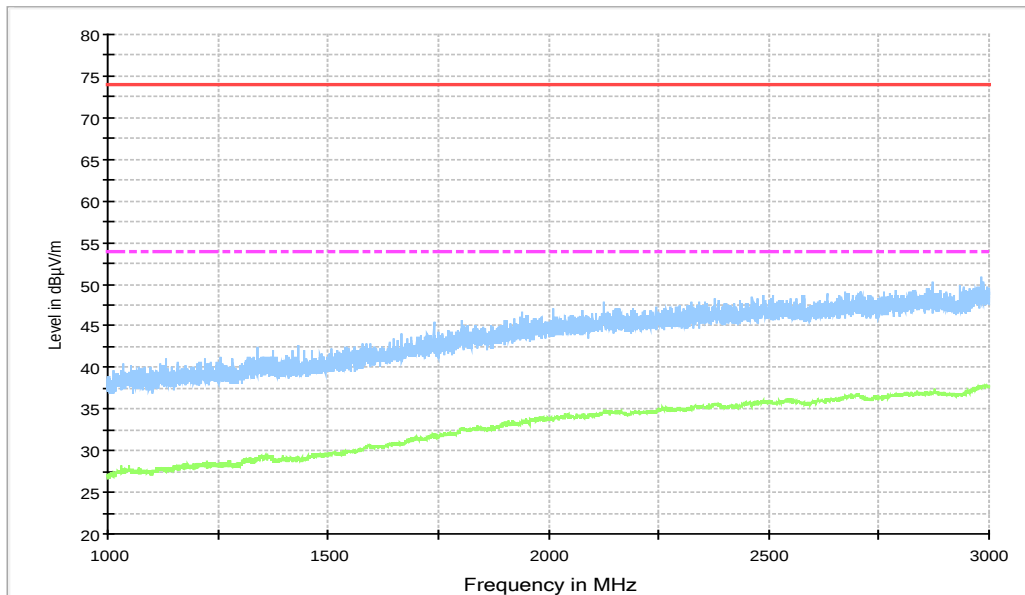


Figure A.43 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

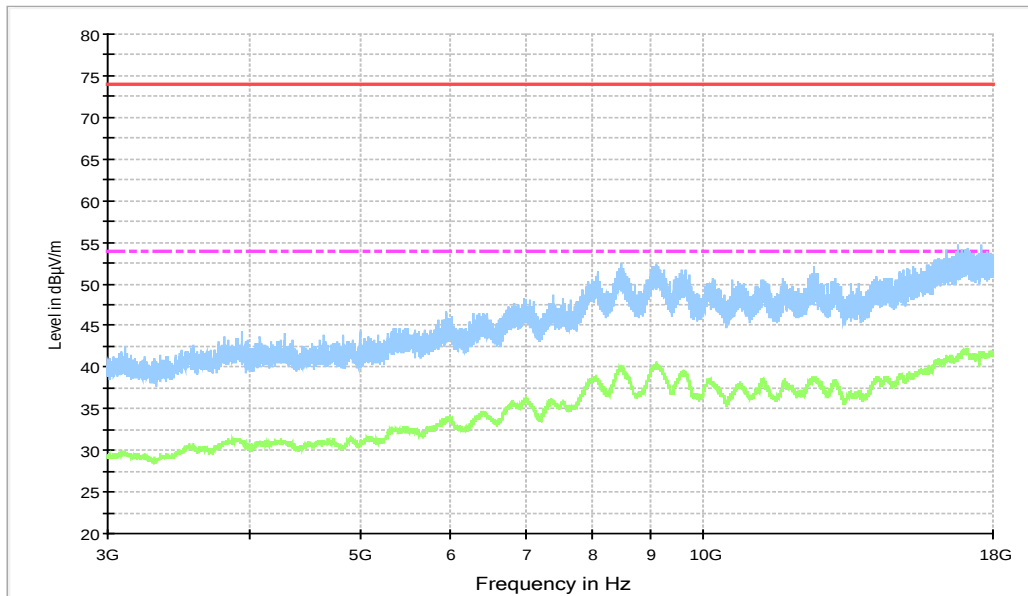


Figure A.44 Radiated Emission from 3GHz to 18GHz

LTE Band 12 LOW CHANNEL (729.7MHz)

15B RE 30MHz-1GHz

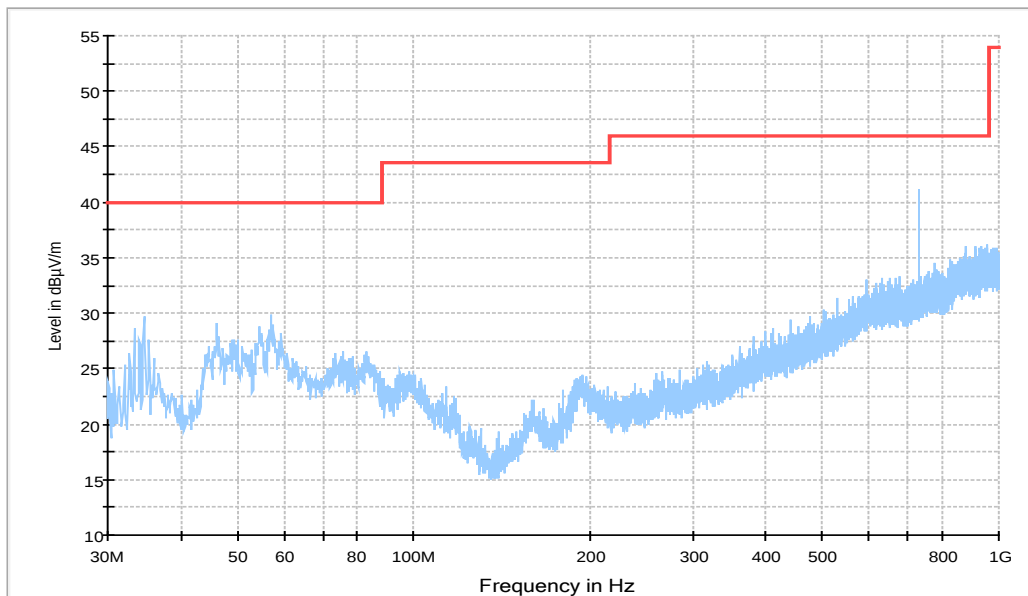


Figure A.45 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

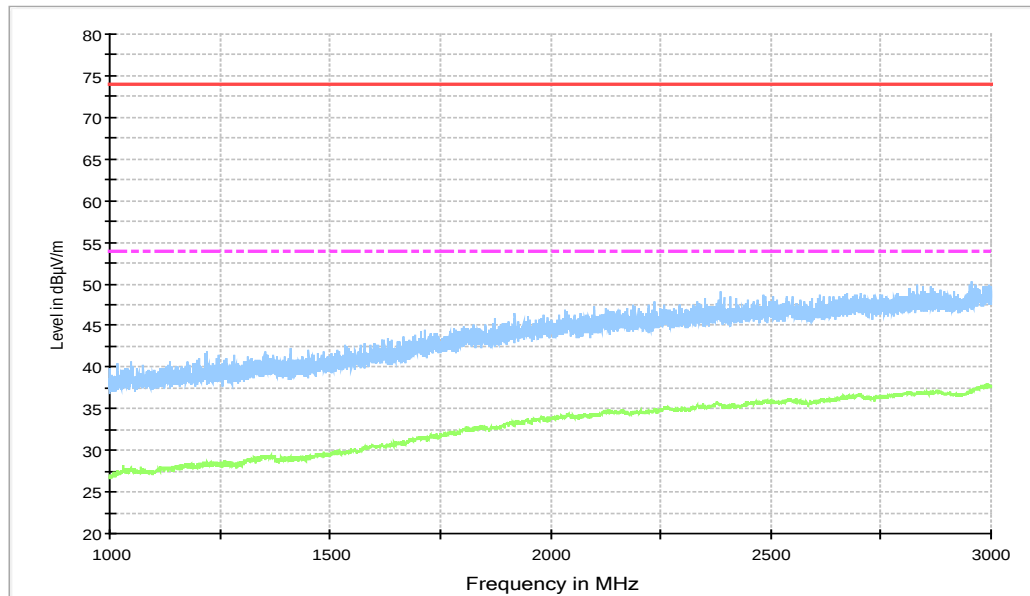


Figure A.46 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

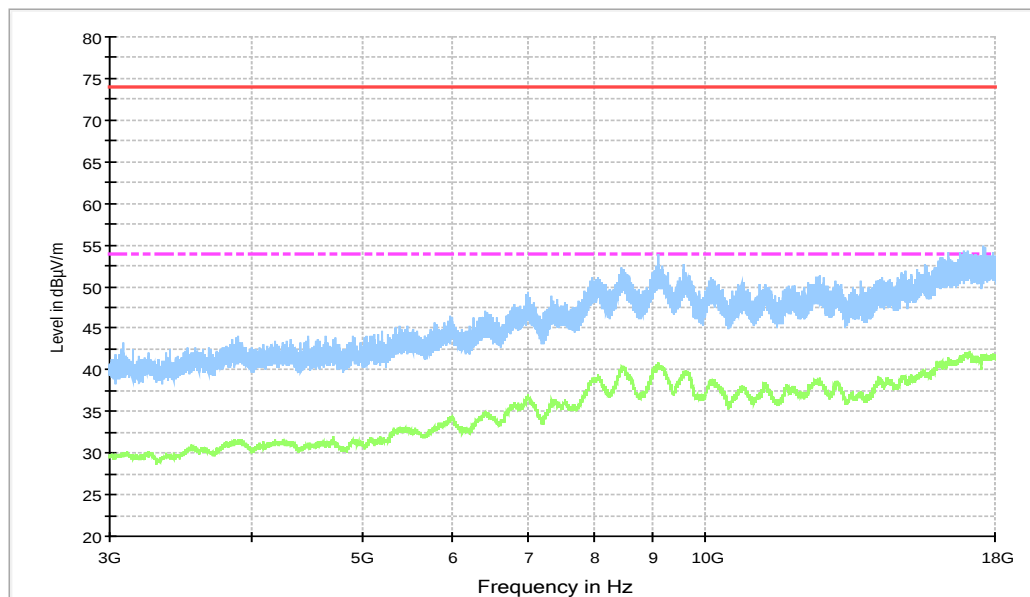


Figure A.47 Radiated Emission from 3GHz to 18GHz

LTE Band 12 MID CHANNEL (737.5MHz)

15B RE 30MHz-1GHz

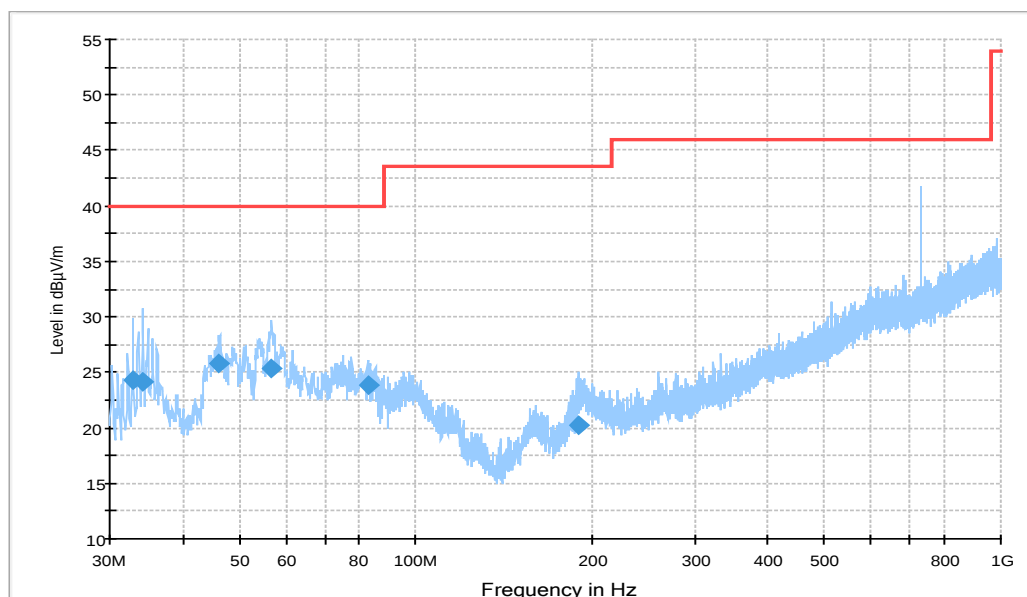


Figure A.48 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
32.910000	24.3	100.0	V	45.0	-3.7	15.7	40.0
34.171000	24.2	100.0	V	-24.0	-3.5	15.8	40.0
46.102000	25.8	100.0	V	-31.0	-0.7	14.2	40.0
56.772000	25.3	100.0	V	-42.0	-1.0	14.7	40.0
82.768000	23.8	125.0	H	-6.0	-5.8	16.2	40.0
189.27400	20.3	100.0	V	-7.0	-2.5	23.2	43.5

15B RE - 1GHz-3GHz

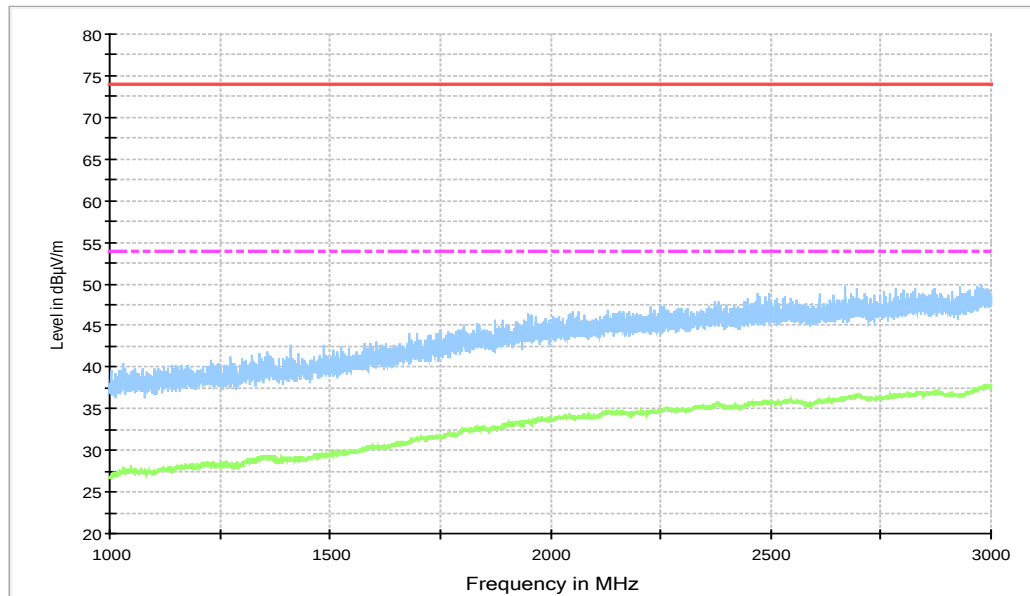


Figure A.49 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

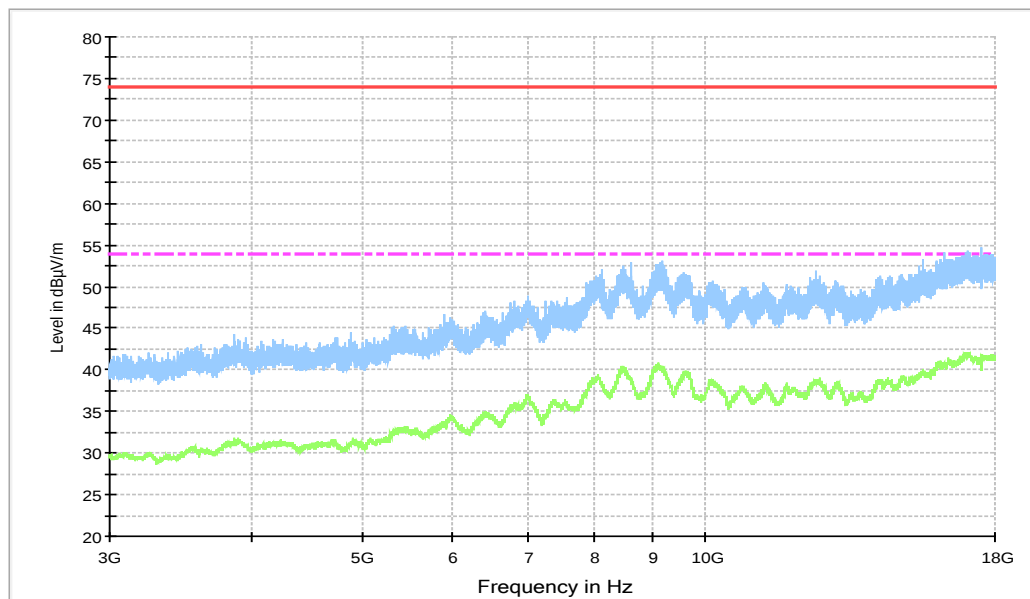


Figure A.50 Radiated Emission from 3GHz to 18GHz

LTE Band 12 HIGH CHANNEL (745.3MHz)

15B RE 30MHz-1GHz

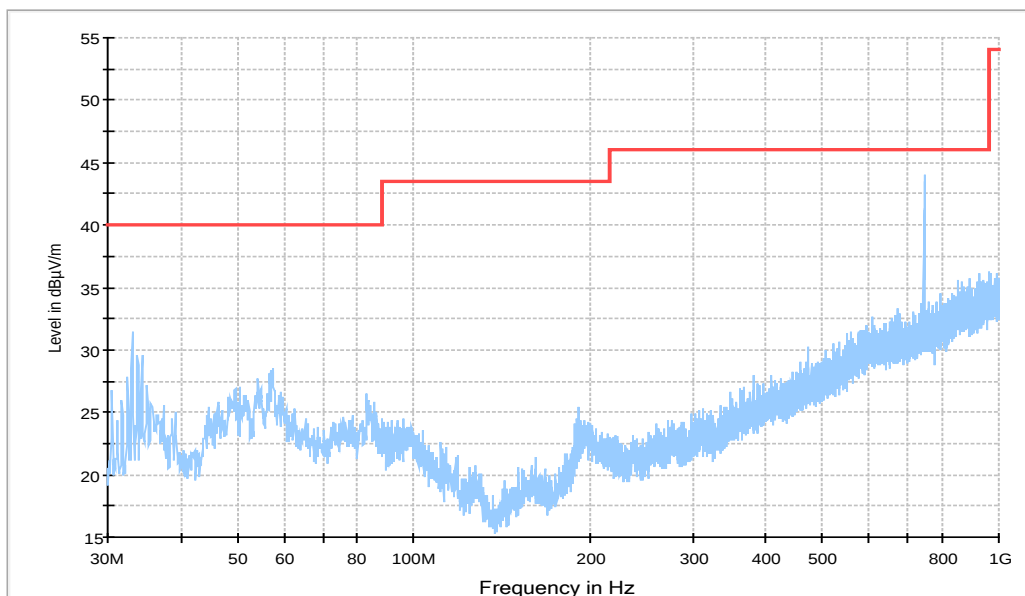


Figure A.51 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

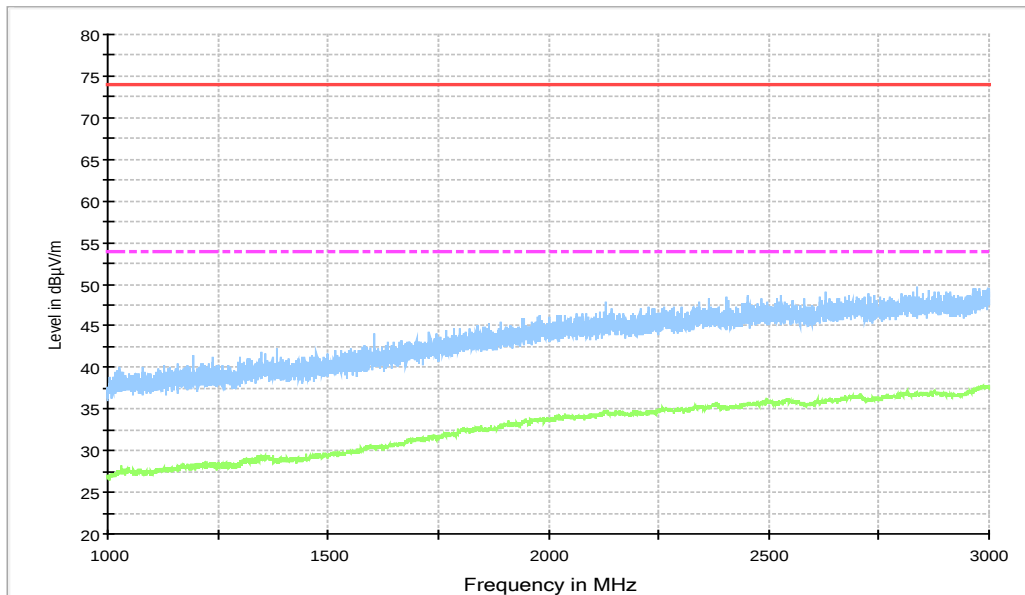


Figure A.52 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

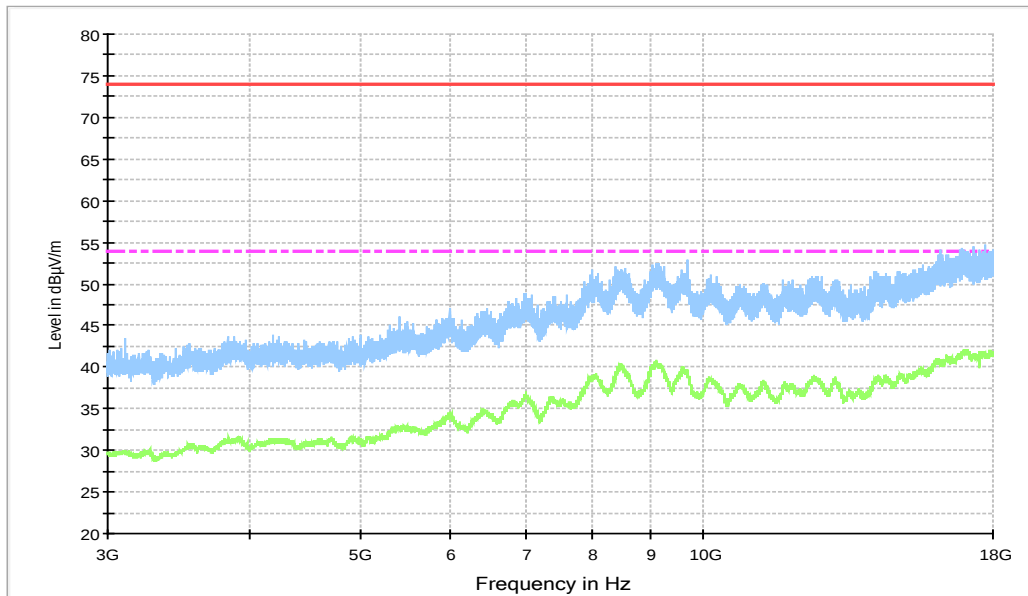


Figure A.53 Radiated Emission from 3GHz to 18GHz

LTE Band 13 LOW CHANNEL (748.5MHz)

15B RE 30MHz-1GHz

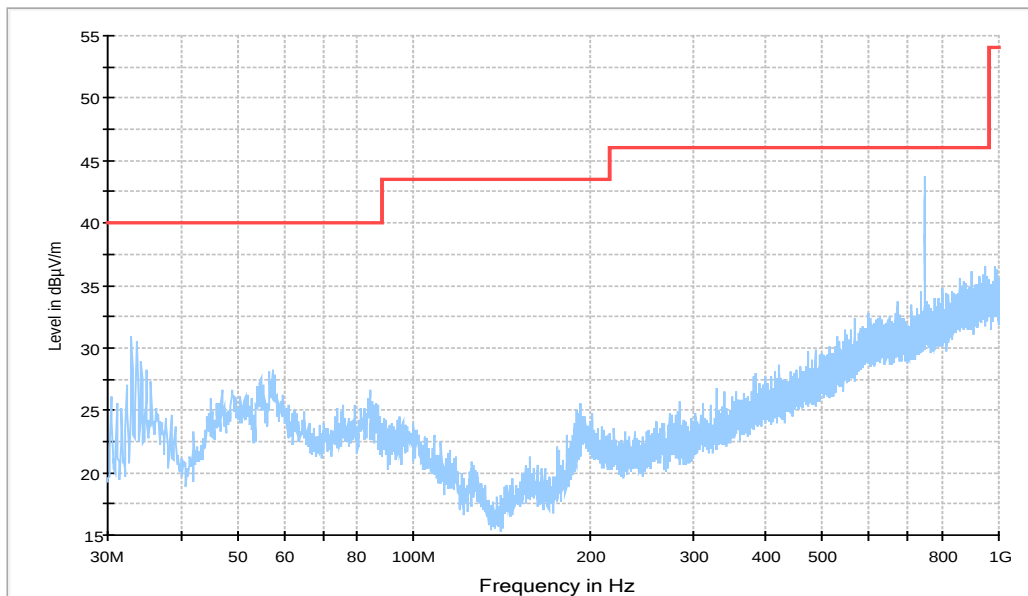


Figure A.54 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

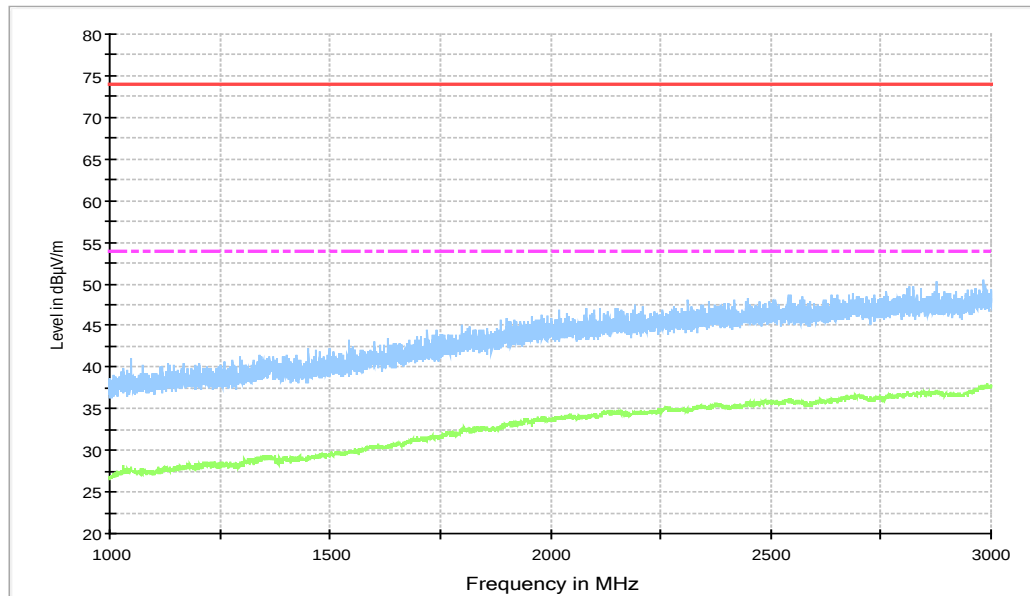


Figure A.55 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

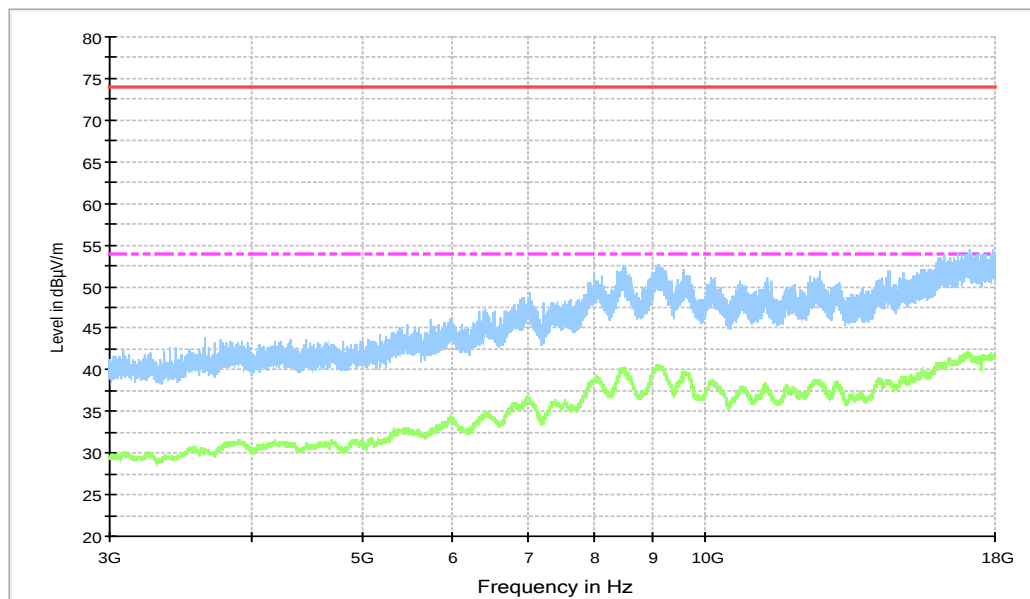


Figure A.56 Radiated Emission from 3GHz to 18GHz

LTE Band 13 MID CHANNEL (751MHz)

15B RE 30MHz-1GHz

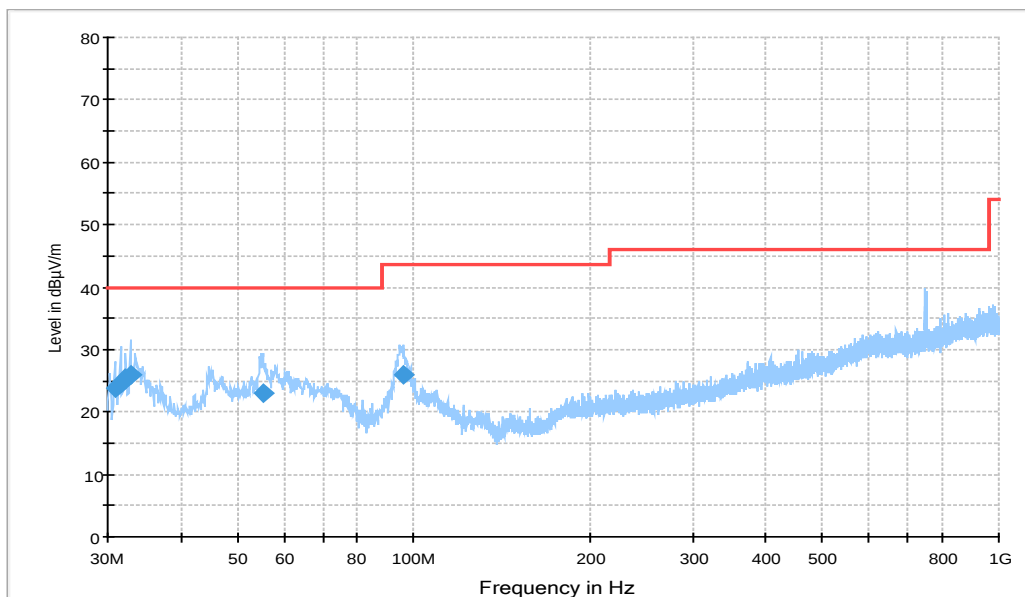


Figure A.57 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
30.873000	23.9	100.0	V	-25.0	-4.0	16.1	40.0
31.552000	24.7	100.0	V	6.0	-3.9	15.3	40.0
32.231000	25.5	110.0	V	21.0	-3.8	14.5	40.0
32.813000	25.9	100.0	V	45.0	-3.7	14.1	40.0
55.317000	23.0	100.0	V	0.0	-0.7	17.0	40.0
95.960000	25.9	110.0	V	-42.0	-3.6	17.6	43.5

15B RE - 1GHz-3GHz

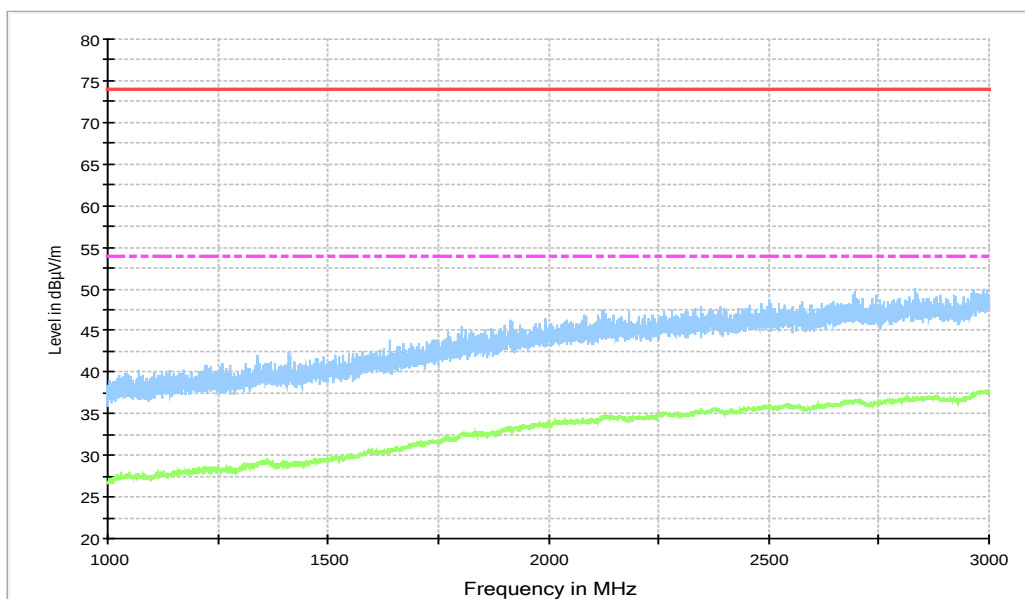


Figure A.58 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

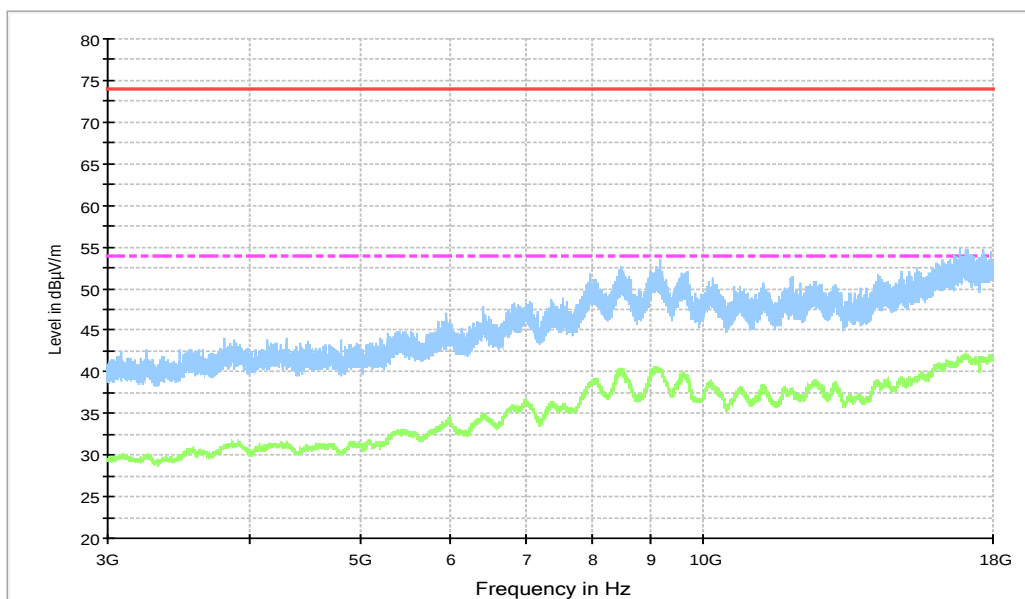


Figure A.59 Radiated Emission from 3GHz to 18GHz

LTE Band 13 HIGH CHANNEL (753.5MHz)

15B RE 30MHz-1GHz

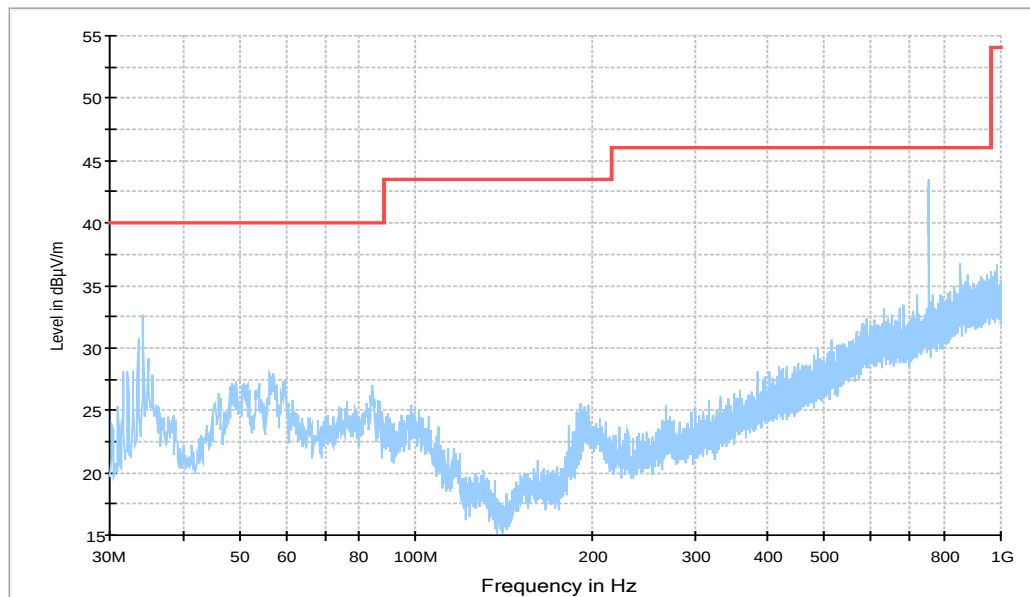


Figure A.60 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

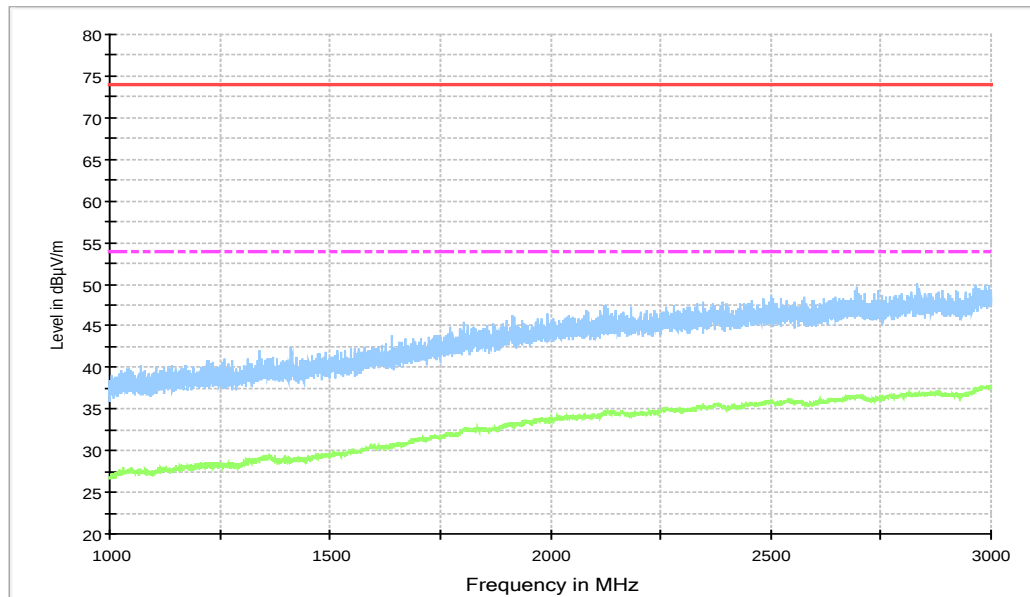


Figure A.61 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

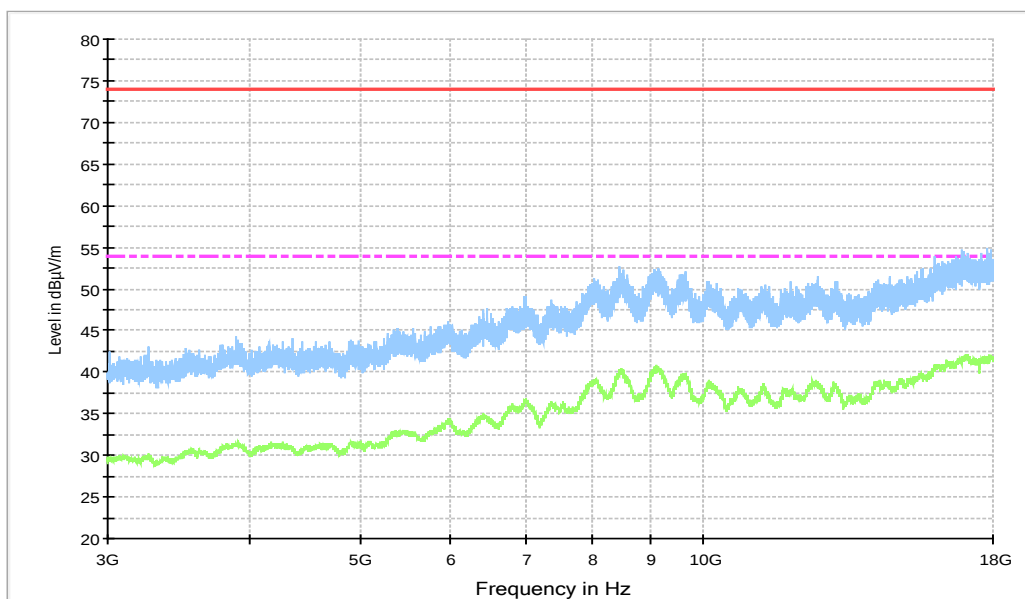


Figure A.62 Radiated Emission from 3GHz to 18GHz

LTE Band 26 LOW CHANNEL (859.7MHz)

15B RE 30MHz-1GHz

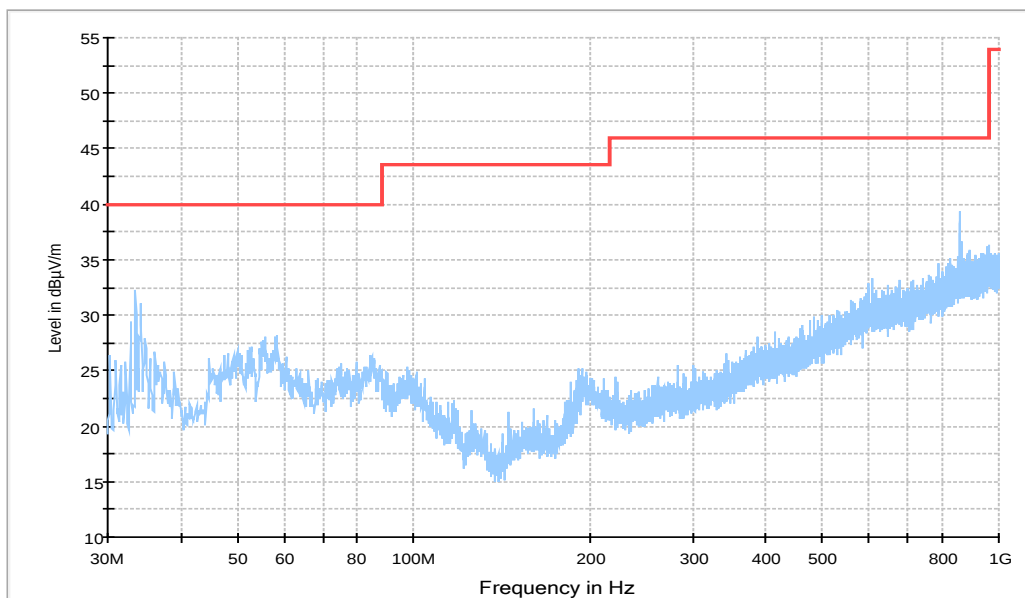


Figure A.63 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

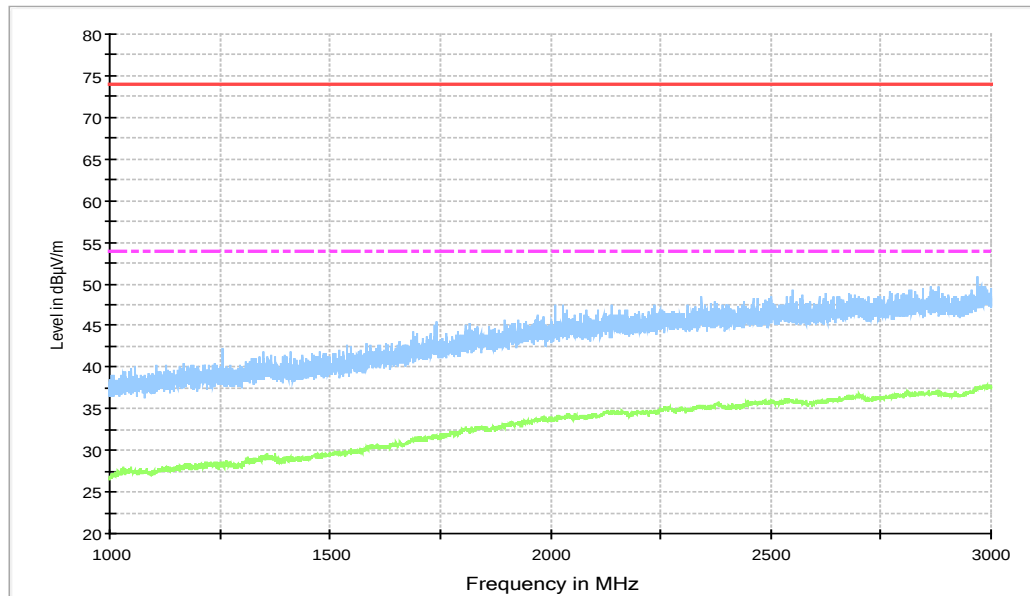


Figure A.64 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

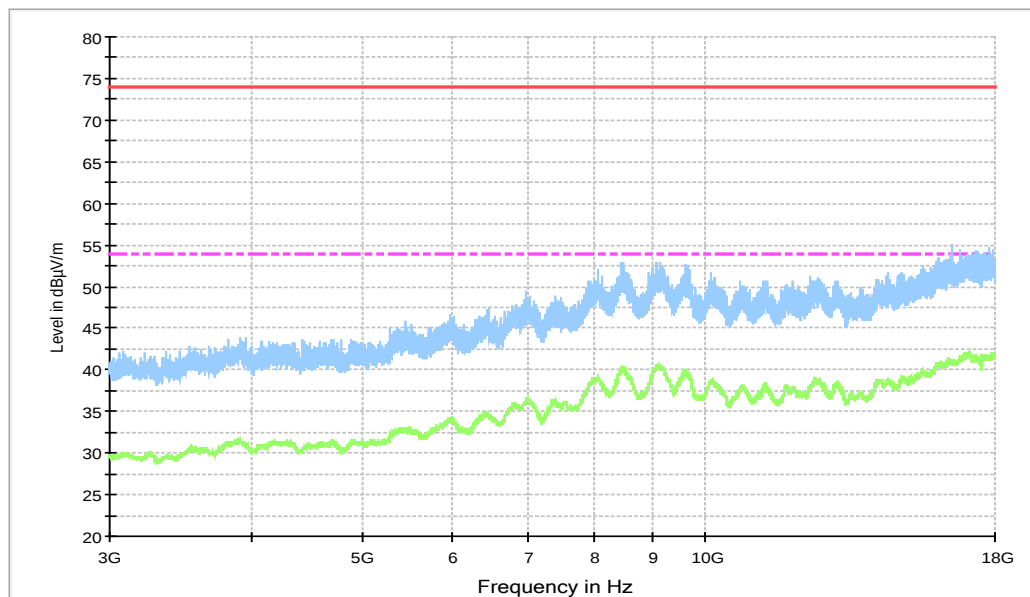


Figure A.65 Radiated Emission from 3GHz to 18GHz

LTE Band 26 MID CHANNEL (876.5MHz)

15B RE 30MHz-1GHz

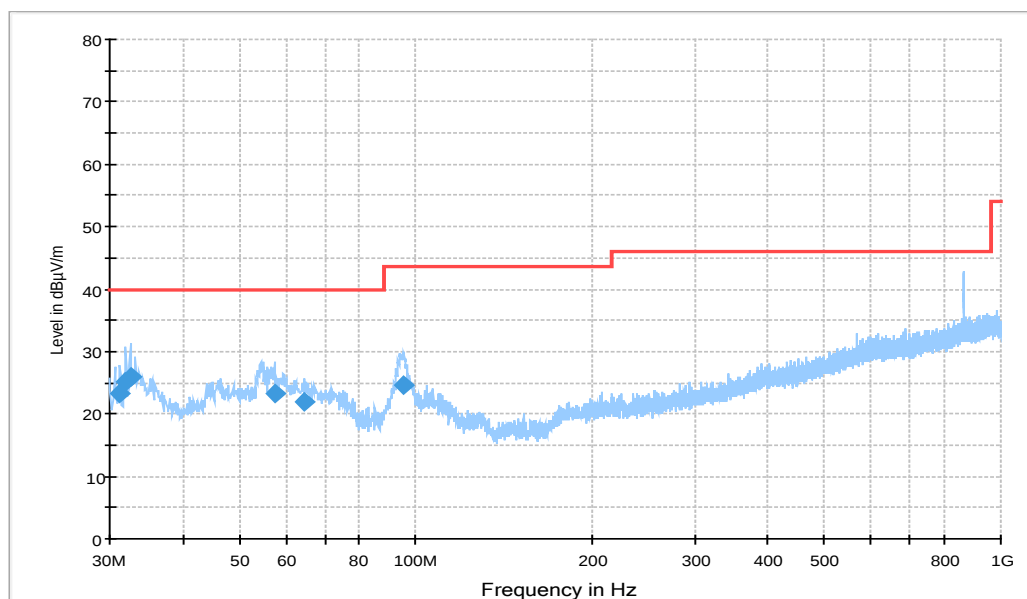


Figure A.66 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
31.261000	23.3	100.0	V	8.0	-3.9	16.7	40.0
31.940000	25.1	110.0	V	45.0	-3.8	14.9	40.0
32.522000	25.9	100.0	V	39.0	-3.7	14.1	40.0
57.354000	23.1	119.0	V	3.0	-1.1	16.9	40.0
64.532000	21.9	100.0	V	-32.0	-3.1	18.1	40.0
95.087000	24.5	100.0	V	-32.0	-3.7	19.0	43.5

15B RE - 1GHz-3GHz

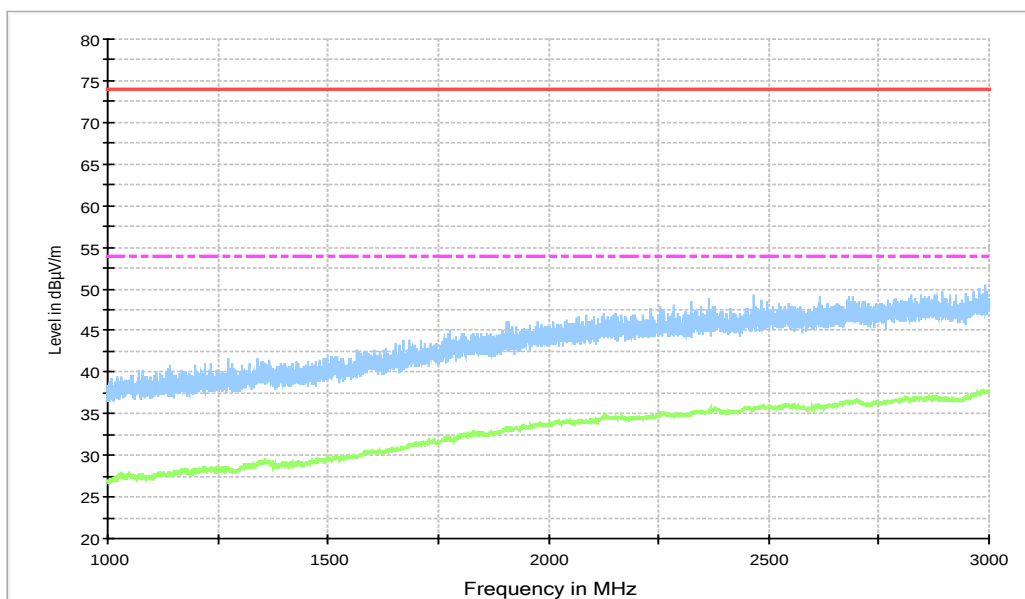


Figure A.67 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

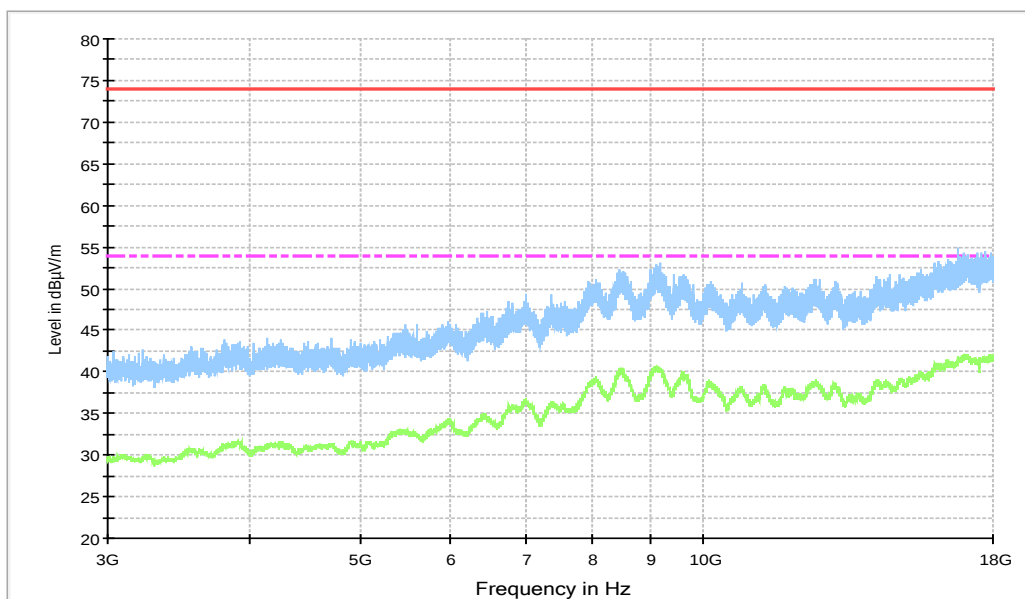


Figure A.68 Radiated Emission from 3GHz to 18GHz

LTE Band 26 HIGH CHANNEL (893.3MHz)

15B RE 30MHz-1GHz

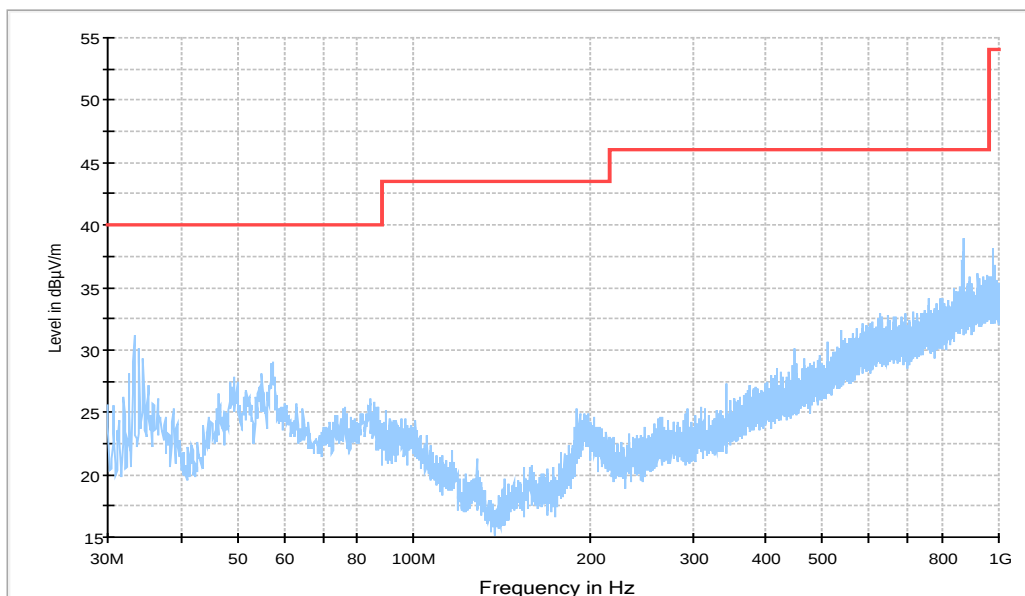


Figure A.69 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

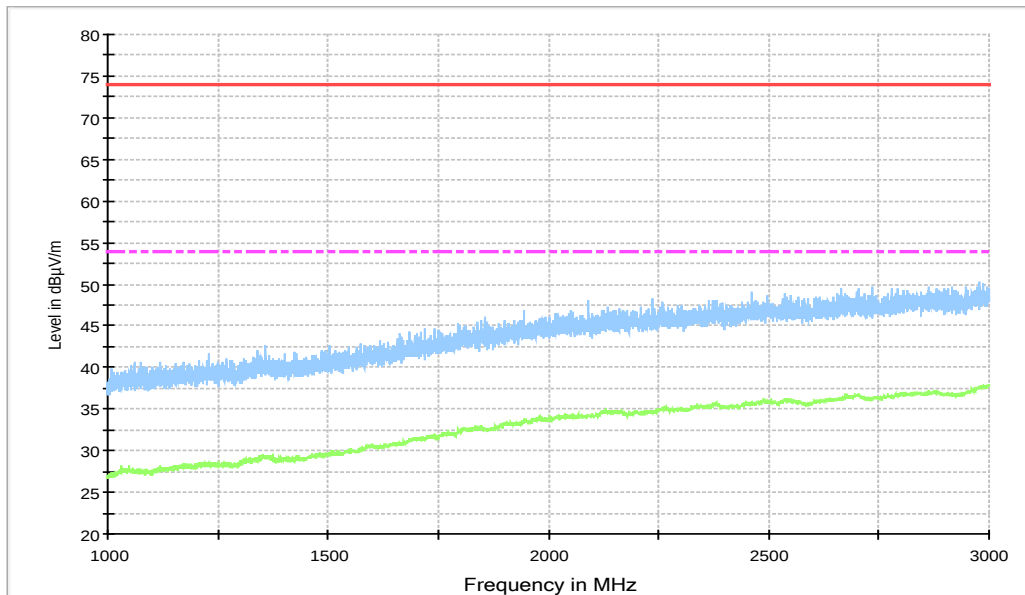


Figure A.70 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

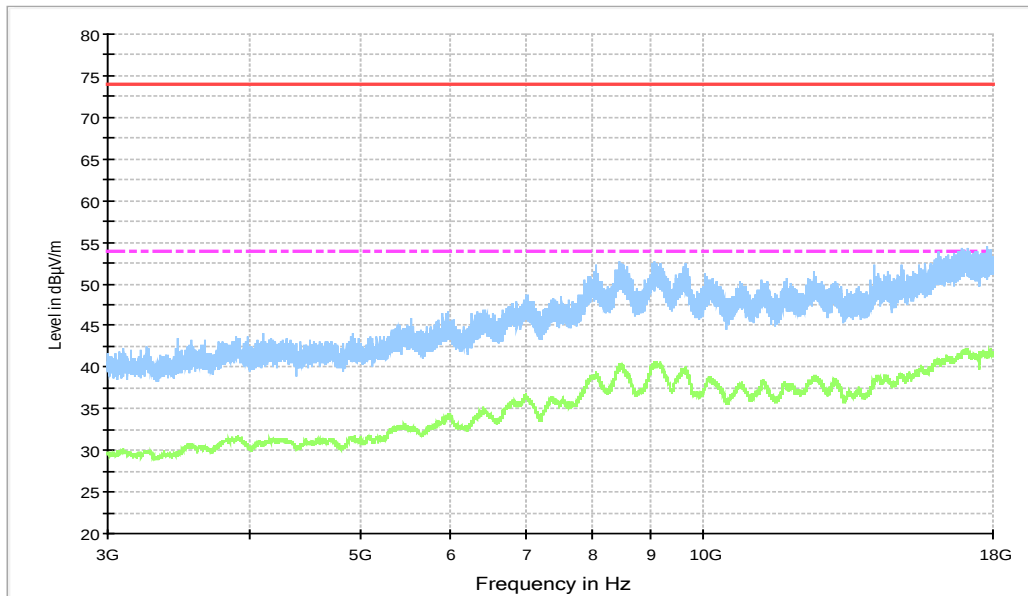


Figure A.71 Radiated Emission from 3GHz to 18GHz

LTE Band 71 LOW CHANNEL (619.5MHz)

15B RE 30MHz-1GHz

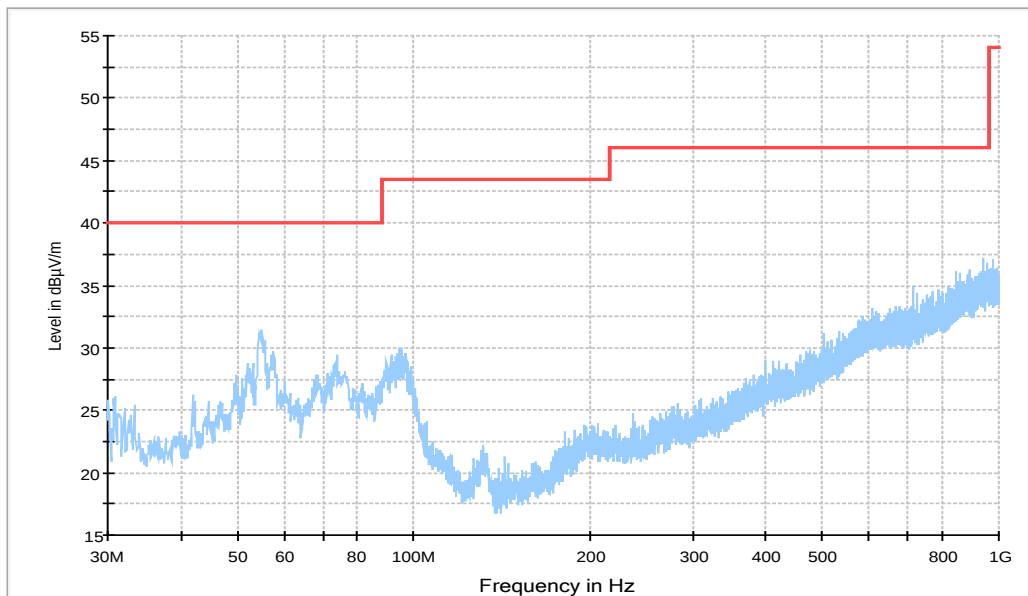


Figure A.72 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

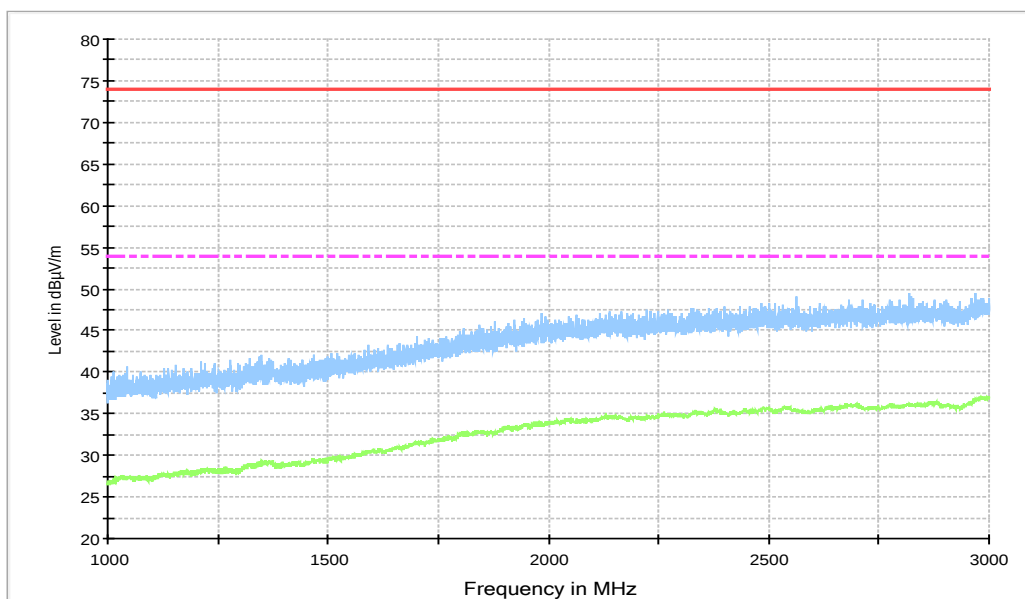


Figure A.73 Radiated Emission from 1GHz to 3GHz

RE - 3GHz-18GHz

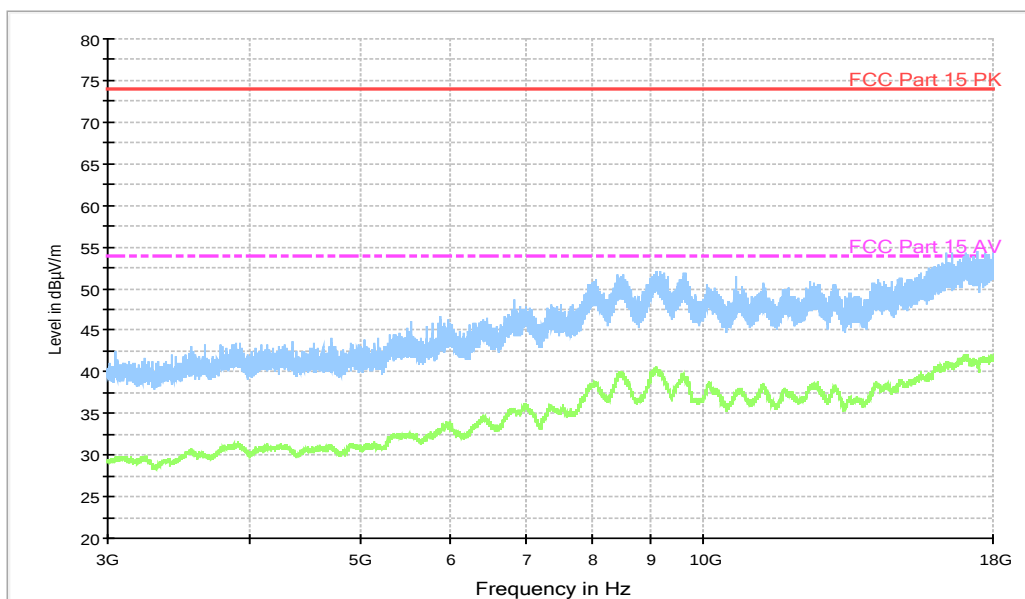


Figure A.74 Radiated Emission from 3GHz to 18GHz

LTE Band 71 MID CHANNEL (834.5MHz)

15B RE 30MHz-1GHz

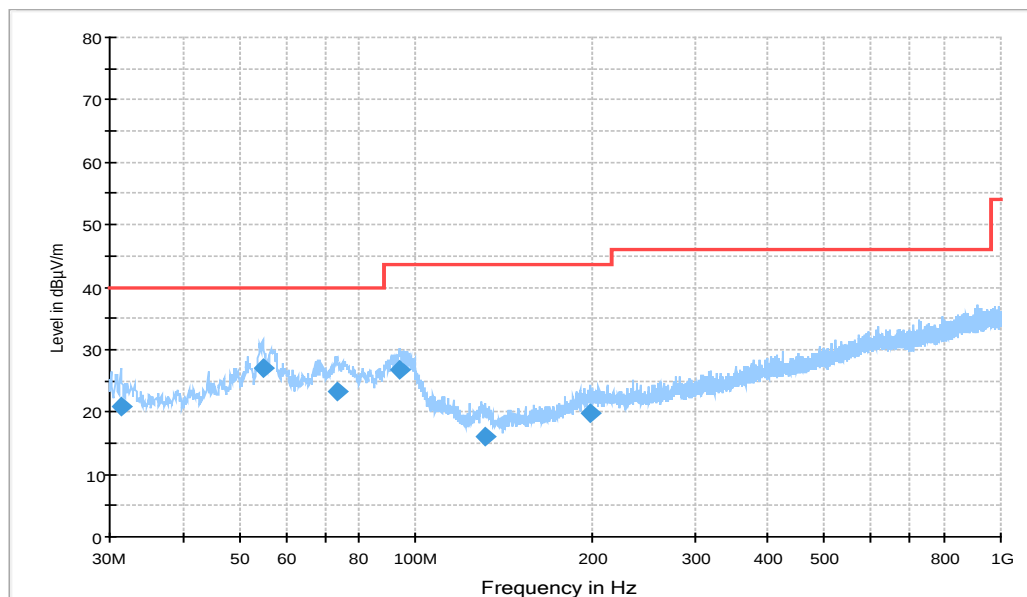


Figure A.75 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
31.358000	20.8	100.0	V	118.0	-3.9	19.2	40.0
54.735000	27.0	100.0	V	229.0	-0.6	13.0	40.0
73.456000	23.2	100.0	V	271.0	-5.4	16.8	40.0
93.632000	26.7	110.0	V	236.0	-3.8	16.8	43.5
131.36500	16.1	100.0	V	219.0	-5.3	27.4	43.5
31.358000	20.8	100.0	V	118.0	-3.9	19.2	40.0

15B RE - 1GHz-3GHz

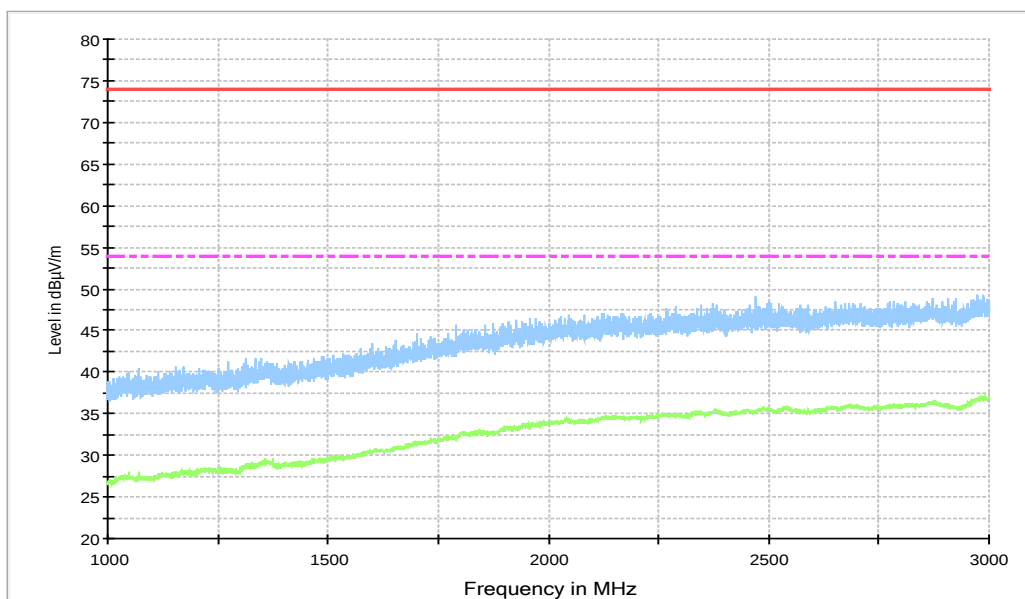


Figure A.76 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

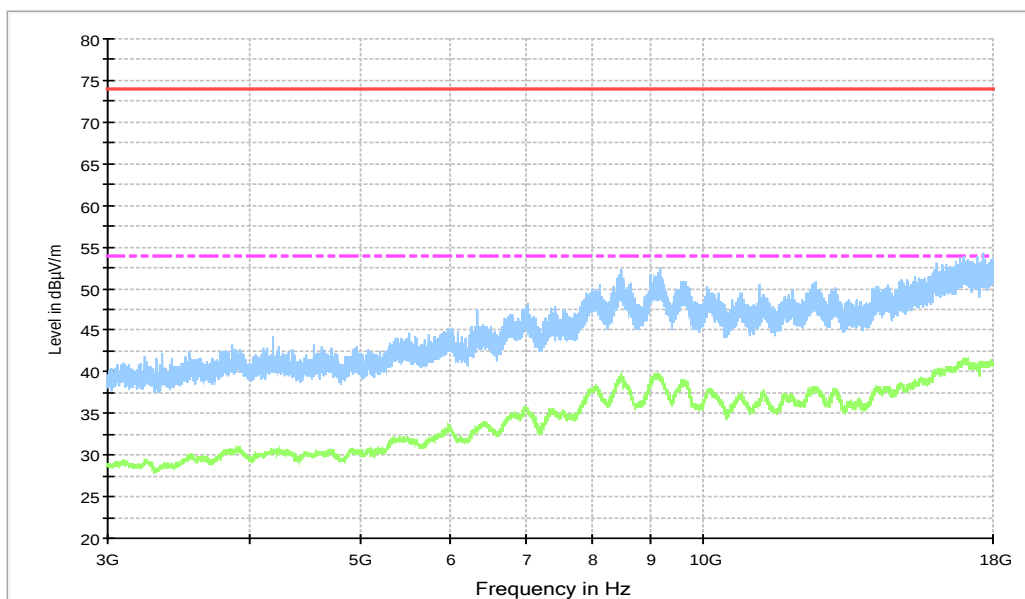


Figure A.77 Radiated Emission from 3GHz to 18GHz

LTE Band 71 HIGH CHANNEL (649.5MHz)

15B RE 30MHz-1GHz

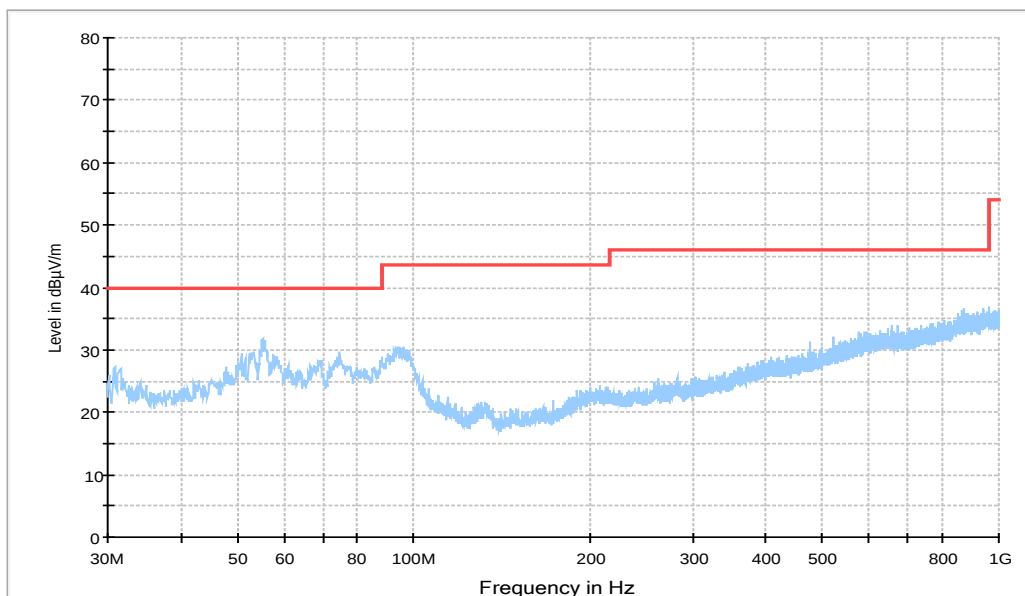


Figure A.78 Radiated Emission from 30MHz to 1GHz

15b RE - 3GHz-18GHz

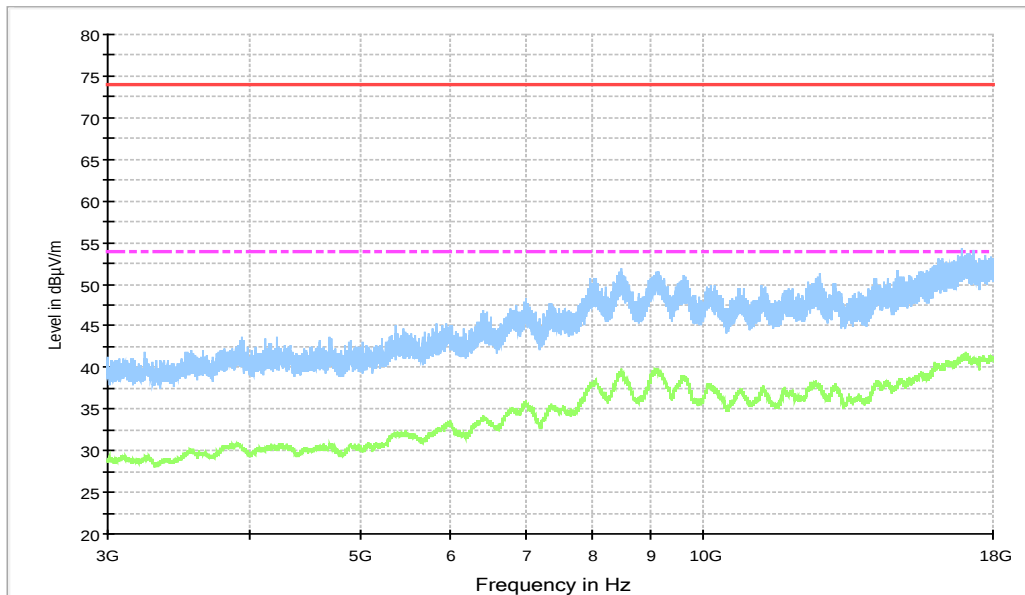


Figure A.79 Radiated Emission from 1GHz to 3GHz

RE - 3GHz-18GHz

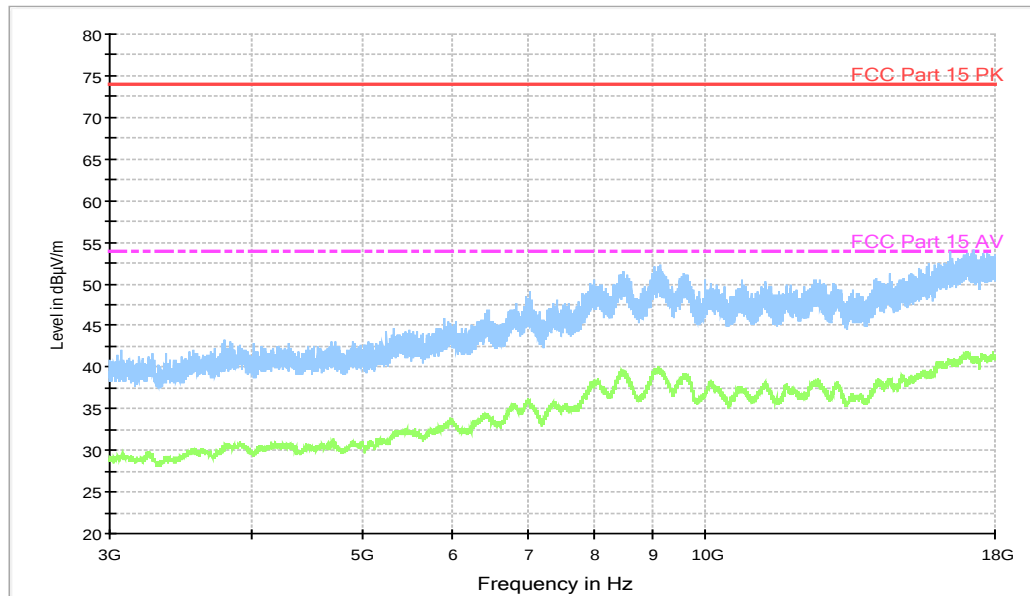


Figure A.80 Radiated Emission from 3GHz to 18GHz

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, MP3, MP4, CAMERA, FM mode.

The FM radio mode radiated testing was performed with the Low/Mid/High channel.

The model of the PC is Lenovo M4000e-17, and the serial number of the PC is M706RMW2. 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: $U = 3.10 \text{ dB}$, $k=2$.

Charger+MP3, Set.1

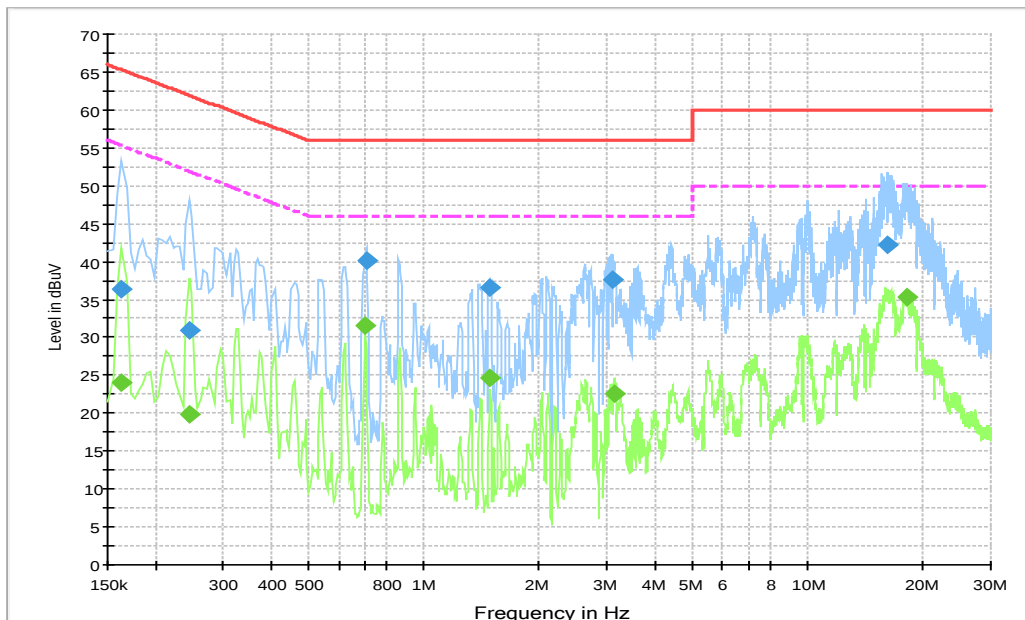


Figure A.81 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.163500	36.4	10000.0	9.000	Off	N	19.9	28.9	65.3
0.244500	31.0	10000.0	9.000	Off	N	20.0	31.0	61.9
0.708000	40.0	10000.0	9.000	Off	L1	20.0	16.0	56.0
1.477500	36.5	10000.0	9.000	Off	L1	19.8	19.5	56.0
3.115500	37.6	10000.0	9.000	Off	L1	19.8	18.4	56.0
16.084500	42.2	10000.0	9.000	Off	L1	20.0	17.8	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.163500	24.0	10000.0	9.000	Off	L1	19.9	31.3	55.3
0.244500	19.8	10000.0	9.000	Off	L1	20.0	32.2	51.9
0.703500	31.7	10000.0	9.000	Off	L1	20.0	14.3	46.0
1.486500	24.6	10000.0	9.000	Off	L1	19.8	21.4	46.0
3.142500	22.6	10000.0	9.000	Off	L1	19.8	23.4	46.0
18.226500	35.4	10000.0	9.000	Off	L1	20.1	14.6	50.0

. Charger+MP4, Set.2

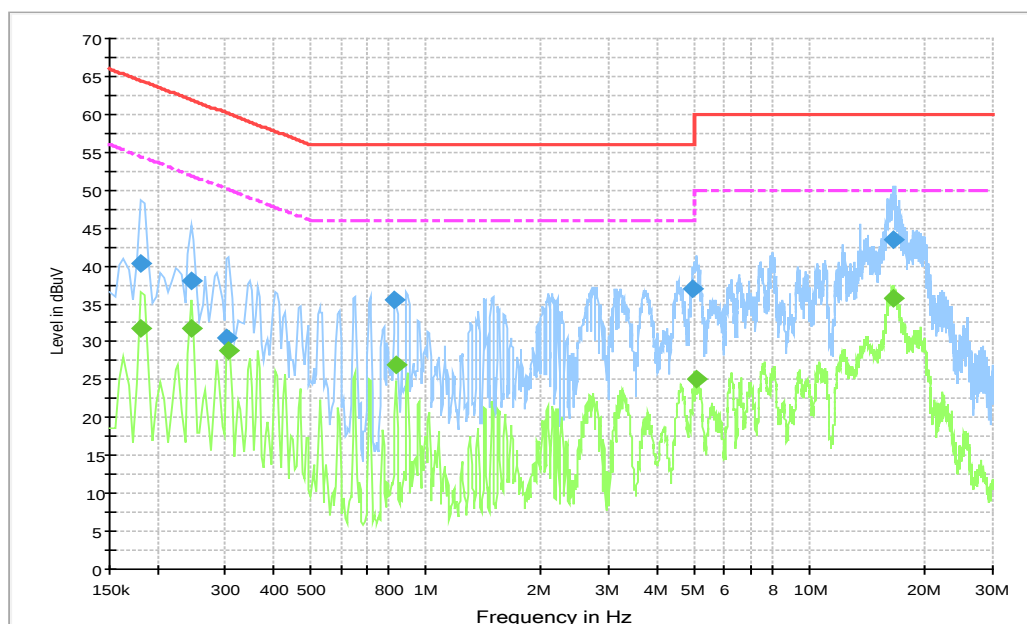


Figure A.82 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.181500	40.4	10000.0	9.000	Off	L1	19.9	24.0	64.4
0.244500	38.0	10000.0	9.000	Off	L1	20.0	23.9	61.9
0.303000	30.5	10000.0	9.000	Off	L1	20.0	29.7	60.2
0.829500	35.4	10000.0	9.000	Off	L1	19.9	20.6	56.0
4.974000	37.0	10000.0	9.000	Off	L1	19.8	19.0	56.0
16.543500	43.5	10000.0	9.000	Off	L1	20.0	16.5	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.181500	31.7	10000.0	9.000	Off	L1	19.9	22.8	54.4
0.244500	31.8	10000.0	9.000	Off	L1	20.0	20.1	51.9
0.307500	28.8	10000.0	9.000	Off	L1	20.0	21.3	50.0
0.834000	26.9	10000.0	9.000	Off	L1	19.9	19.1	46.0
5.082000	25.1	10000.0	9.000	Off	L1	19.8	24.9	50.0
16.467000	35.7	10000.0	9.000	Off	L1	20.0	14.3	50.0

Note: The measurement results showed here are worst cases of the combinations of different cables.

Charger+Front Camera, Set.3

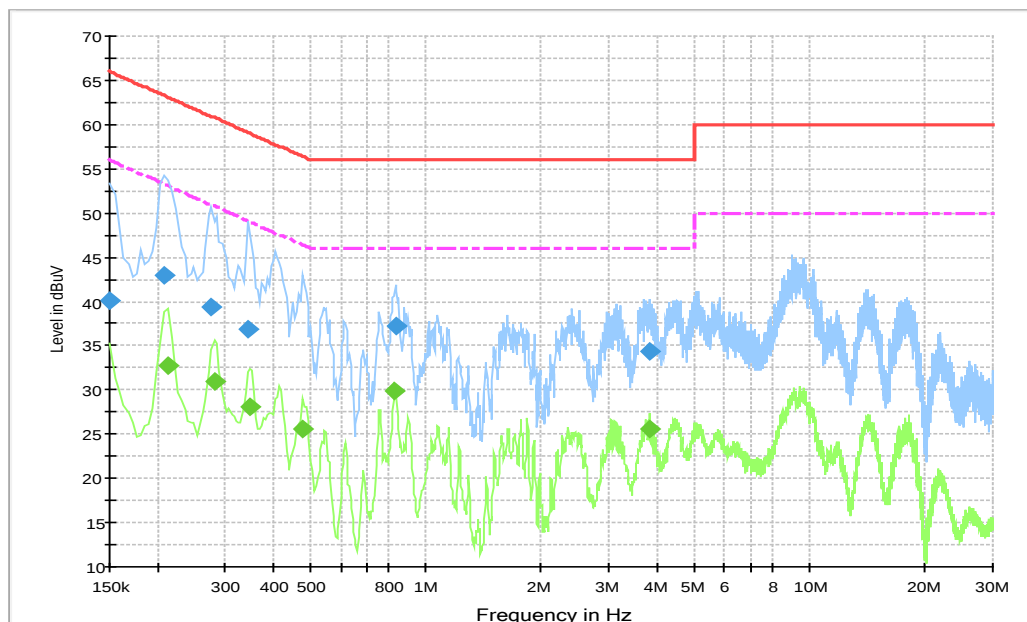


Figure A.83 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	40.1	10000.0	9.000	Off	L1	19.8	25.9	66.0
0.208500	42.9	10000.0	9.000	Off	L1	19.9	20.3	63.3
0.276000	39.4	10000.0	9.000	Off	L1	20.0	21.5	60.9
0.343500	36.9	10000.0	9.000	Off	L1	20.0	22.3	59.1
0.834000	37.2	10000.0	9.000	Off	L1	19.9	18.8	56.0
3.817500	34.4	10000.0	9.000	Off	L1	19.8	21.6	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.213000	32.8	10000.0	9.000	Off	L1	19.9	20.3	53.1
0.280500	31.0	10000.0	9.000	Off	L1	20.0	19.8	50.8
0.348000	28.1	10000.0	9.000	Off	L1	20.0	20.9	49.0
0.478500	25.6	10000.0	9.000	Off	L1	20.0	20.7	46.4
0.829500	29.9	10000.0	9.000	Off	L1	19.9	16.1	46.0
3.822000	25.6	10000.0	9.000	Off	L1	19.8	20.4	46.0

Note: The measurement results showed here are worst cases of the combinations of different cables.

. Charger+Rear camera, Set.4

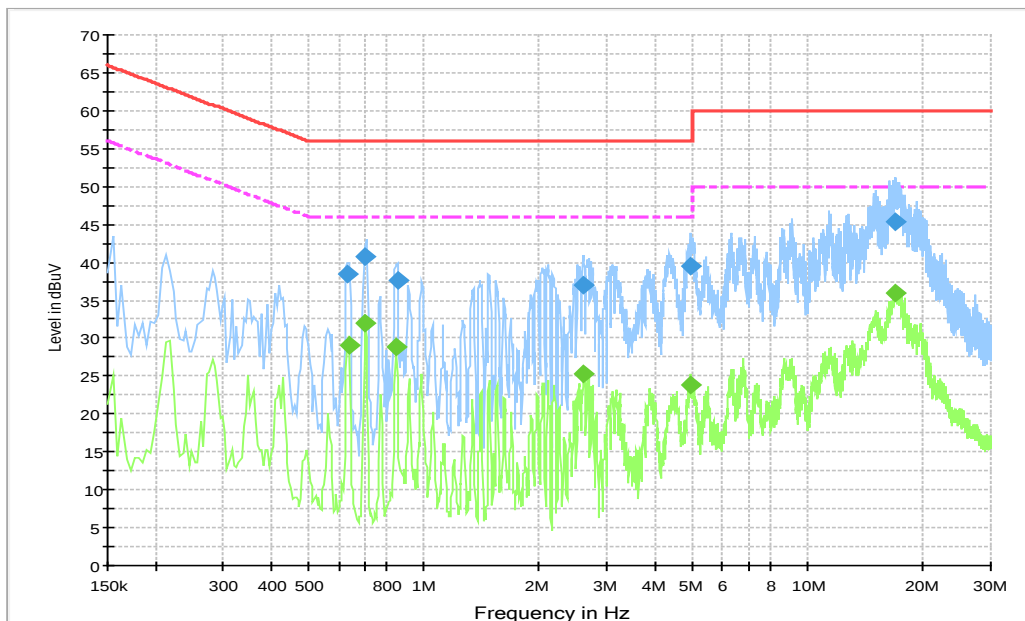


Figure A.84 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.631500	38.3	10000.0	9.000	Off	L1	20.0	17.7	56.0
0.703500	40.7	10000.0	9.000	Off	L1	20.0	15.3	56.0
0.852000	37.7	10000.0	9.000	Off	L1	19.9	18.3	56.0
2.598000	37.0	10000.0	9.000	Off	L1	19.8	19.0	56.0
4.960500	39.4	10000.0	9.000	Off	L1	19.8	16.6	56.0
16.881000	45.3	10000.0	9.000	Off	L1	20.0	14.7	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.636000	29.1	10000.0	9.000	Off	L1	20.0	16.9	46.0
0.703500	32.0	10000.0	9.000	Off	L1	20.0	14.0	46.0
0.847500	28.8	10000.0	9.000	Off	L1	19.9	17.2	46.0
2.611500	25.3	10000.0	9.000	Off	L1	19.8	20.7	46.0
4.960500	23.9	10000.0	9.000	Off	L1	19.8	22.1	46.0
16.917000	35.9	10000.0	9.000	Off	L1	20.0	14.1	50.0

Note: The measurement results showed here are worst cases of the combinations of different cables.

. USB mode +FM (Mid Ch.), Set.5

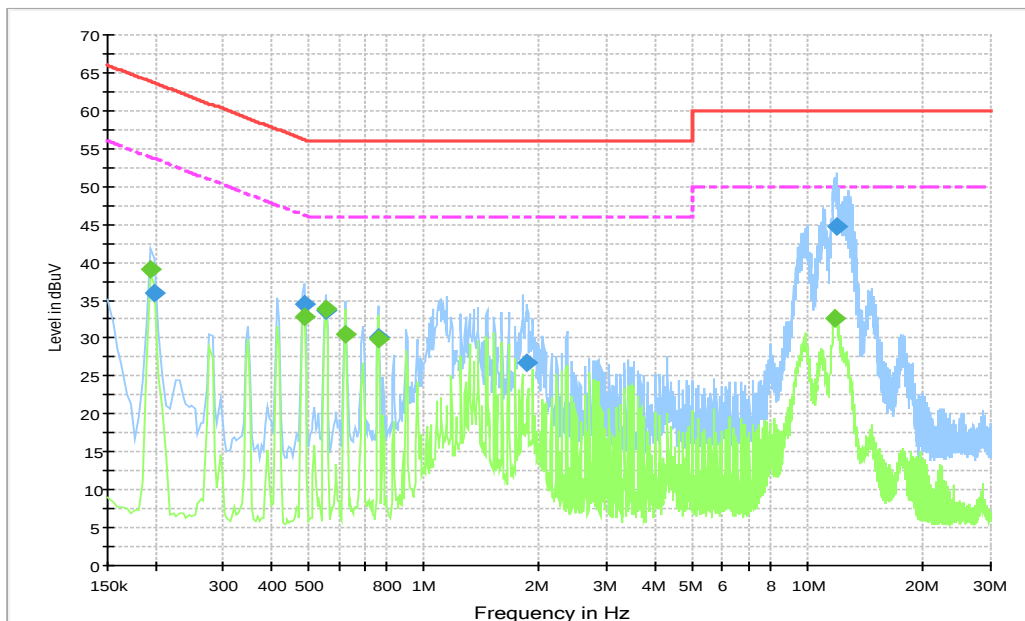


Figure A.85 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.199500	35.9	10000.0	9.000	Off	L1	20.0	27.7	63.6
0.487500	34.5	10000.0	9.000	Off	L1	20.0	21.7	56.2
0.555000	33.7	10000.0	9.000	Off	L1	20.0	22.3	56.0
0.762000	30.1	10000.0	9.000	Off	L1	20.0	25.9	56.0
1.860000	26.7	10000.0	9.000	Off	L1	19.8	29.3	56.0
11.908500	44.7	10000.0	9.000	Off	L1	19.9	15.3	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.195000	39.0	10000.0	9.000	Off	L1	20.0	14.8	53.8
0.487500	32.9	10000.0	9.000	Off	L1	20.0	13.3	46.2
0.555000	33.8	10000.0	9.000	Off	L1	20.0	12.2	46.0
0.622500	30.4	10000.0	9.000	Off	L1	20.0	15.6	46.0
0.762000	30.0	10000.0	9.000	Off	L1	20.0	16.0	46.0
11.778000	32.7	10000.0	9.000	Off	L1	19.9	17.3	50.0

Note: The measurement results showed here are worst cases of the combinations of different cables.

. FM (Low Ch.), Set.7

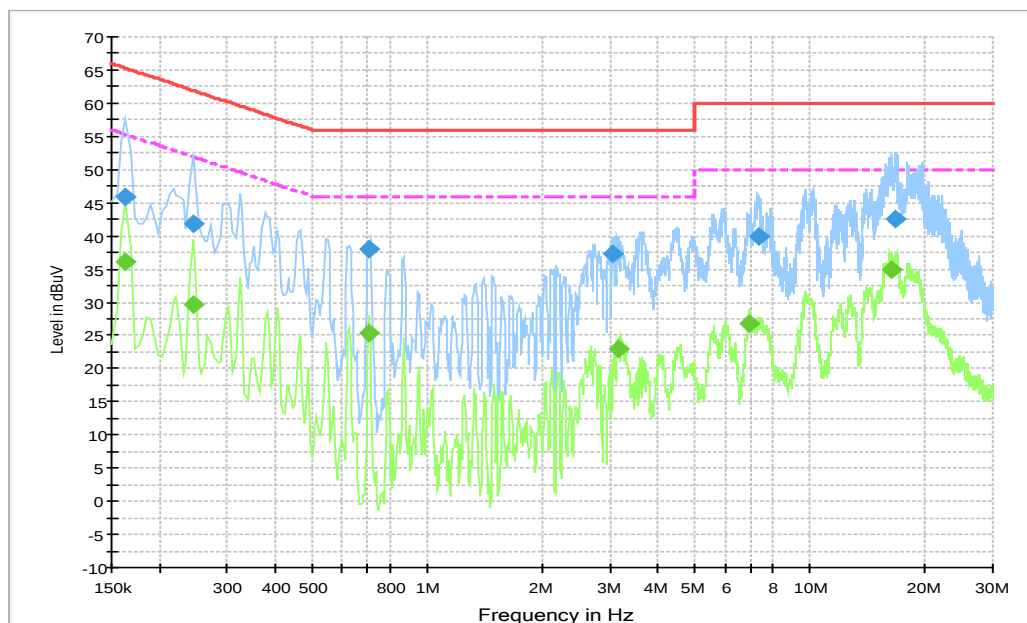


Figure A.86 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.163500	45.8	10000.0	9.000	N	10.2	19.5	65.3
0.244500	41.9	10000.0	9.000	N	10.2	20.0	61.9
0.708000	38.0	10000.0	9.000	L1	10.2	18.0	56.0
3.061500	37.4	10000.0	9.000	L1	10.3	18.6	56.0
7.323000	40.0	10000.0	9.000	L1	10.5	20.0	60.0
16.687500	42.6	10000.0	9.000	L1	11.0	17.4	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.163500	36.1	10000.0	9.000	L1	10.1	19.1	55.3
0.244500	29.5	10000.0	9.000	N	10.2	22.4	51.9
0.708000	25.4	10000.0	9.000	L1	10.2	20.6	46.0
3.160500	22.9	10000.0	9.000	L1	10.3	23.1	46.0
6.945000	26.7	10000.0	9.000	L1	10.5	23.3	50.0
16.278000	34.9	10000.0	9.000	L1	11.0	15.1	50.0

Note: The measurement results showed here are worst cases of the combinations of different cables.

. FM (High Ch.), Set.8

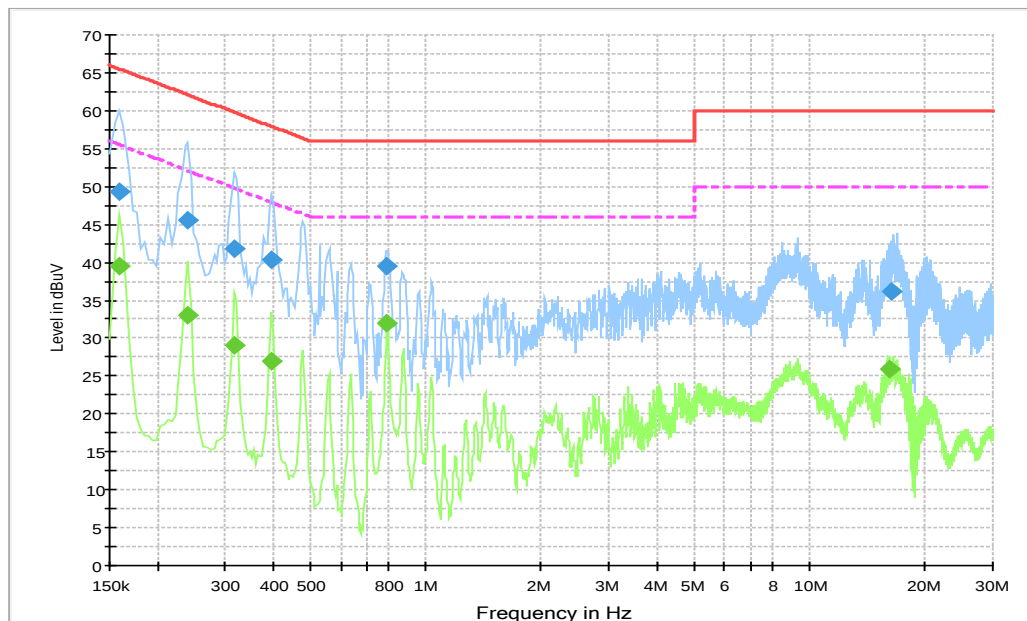


Figure A.87 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.159000	49.4	10000.0	9.000	N	10.2	16.2	65.5
0.240000	45.6	10000.0	9.000	N	10.2	16.5	62.1
0.316500	41.8	10000.0	9.000	N	10.2	18.0	59.8
0.397500	40.3	10000.0	9.000	N	10.2	17.6	57.9
0.789000	39.5	10000.0	9.000	L1	10.2	16.5	56.0
16.287000	36.3	10000.0	9.000	L1	11.0	23.7	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.159000	39.4	10000.0	9.000	L1	10.1	16.1	55.5
0.240000	33.1	10000.0	9.000	L1	10.2	19.0	52.1
0.316500	29.0	10000.0	9.000	L1	10.1	20.8	49.8
0.397500	26.9	10000.0	9.000	L1	10.2	21.0	47.9
0.793500	31.9	10000.0	9.000	L1	10.2	14.1	46.0
16.125000	25.8	10000.0	9.000	L1	11.0	24.2	50.0

Note: The measurement results showed here are worst cases of the combinations of different cables.

ANNEX B: Persons involved in this testing

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

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