



TEST REPORT

No. I20Z60986-EMC01

for

TCL Communication Ltd.

LTE/UMTS/GSM mobile phone

Model Name: T766A

FCC ID: 2ACCJH126

with

Hardware Version: PIO

Software Version: 6J57

Issued Date: 2020-07-17

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

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I20Z60986-EMC01	Rev.0	1 st edition	2020-07-17

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

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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

CTTL (huayuan North Road)

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

1.3. Testing Environment

Normal Temperature: 15-35° C

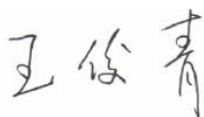
Relative Humidity: 20-75%

1.4. Project data

Testing Start Date: 2020-05-29

Testing End Date: 2020-07-17

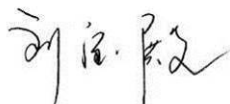
1.5. Signature



Wang Junqing
(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: TCL Communication Ltd.
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2.2. Manufacturer Information

Company Name: TCL Communication Ltd.
Address: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science
Park, Shatin, NT, Hong Kong
Contact Person Gong Zhizhou
Contact Email zhizhou.gong@tcl.com
Telephone: 0086-755-36611722
Fax: /

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

3.1. About EUT

Description	LTE/UMTS/GSM mobile phone
Model Name	T766A
FCC ID	2ACCJH126
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
UT06a	356303110205125	PIO	6J57
UT03a	354841190000363	PIO	6J57

*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
AE1-1	Battery	/	inbuilt
AE1-2	Battery	/	inbuilt
AE2	Charger	/	/
AE3-1	USB Cable	/	/
AE3-2	USB Cable	/	/
AE4	Headset	/	/
AE4-1	Headset	/	add

AE1-1

Model	CAC3860025C7
Manufacturer	VEKEN
Capacitance	3860mAh
Nominal voltage	/

AE1-2

Model	CAC3860024C1
Manufacturer	BYD
Capacitance	3860mAh
Nominal voltage	/

AE2

Model	CBA0059BGTC5
Manufacturer	PUAN
Length of cable	/

AE3-1

Model	CDA0000128C1
Manufacturer	JUWEI

Length of cable /

AE3-2

Model CDA0000128C2
Manufacturer JUWEI
Length of cable /

AE4

Model /
Manufacturer /
Length of cable /

AE4-1

Model CCB0070B10C1
Manufacturer JUWEI
Length of cable /

*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.F1	UT06a + AE1+ AE2+AE3 +AE4	Charger+FM+GSM850 Receiver mode
Set.F2	UT06a + AE1+ AE2+AE3 +AE4	Charger+Camera+WCDMA Band5 Receiver mode
Set.F3	UT06a + AE1+ AE2+AE3 +AE4	Charger+MP3+LTE Band5/12/13/17 Receiver mode
Set.F4	UT06a + AE1+ AE3	USB Mode
Set.F11	EUT03a + AE1+ AE2+AE3 + AE4-1	Charger +FM+GSM850 Receiver mode
Set.F14	EUT03a + AE1+ AE3	USB + Camera

Note1:

The device contains receivers which tune and operate between 30MHz-960MHz in the following bands: GSM850, WCDMA850 and LTE Band 5/12/13/17. All licensed band receivers that tune in the range of 30MHz-960MHz are investigated, only the worst case emissions are reported.

Note2: LTE/UMTS/GSM mobile phone T766A manufactured by TCL Communication Ltd. is a variant model based on T766 for conformance test. According to the declaration of changes, the following items are tested on Set.F11 and Set.F14.

Mode or Feature	EUT set-up No	Test Item
Charger + FM	Set.F11	Radiated Emission
USB mode	Set.F14	Radiated Emission

Other results are inherited from the initial model. The report number of initial model is I20Z60652-EMC01.

4. Reference Documents

4.1. Reference Documents for testing

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

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices - Unintentional Radiators	2019
ANSI C63.4	American National Standard for Methods of Measurement of Radio- Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014

Note: The test methods have no deviation with standards.

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber SAC-2 (10 meters×6.7meters×6.1meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 3m distance, from 30 to 1000 MHz
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

Shielded room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz—1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω

6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:		
Verdict Column	P	Pass
	NA	Not applicable
	F	Fail

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) CTTL (huayuan North Road)
2	Conducted Emission	15.107(a)	B.2	P	CTTL(BDA)

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATI ON INTERVAL
1	Test Receiver	ESU26	100376	R&S	2020-10-30	1 Year
2	LISN	ENV216	101459	R&S	2021-03-17	1 year
3	Universal Radio Communication Tester	CMW500	159408	R&S	2021-03-04	1 year
4	Test Receiver	ESCI	100766	R&S	2021-03-10	1 Year
5	EMI Antenna	VULB 9163	9163-482	Schwarzbeck	2020-09-16	1 year
6	EMI Antenna	3117	00139065	ETS-Lindgren	2020-11-10	1 year
7	Signal Power	SMF100A	101295	R&S	2020-11-06	1 year
8	EMI Antenna	VULB 9163	9163-483	Schwarzbeck	2020-09-17	1 Year
9	Test Receiver	ESU26	100235	R&S	2021-03-03	1 Year
10	Universal Radio Communication Tester	CMW500	150344	R&S	2020-11-17	1 Year
11	Signal Generator	SMB 100A	102063	R&S	2021-02-26	1 Year
12	EMI Antenna	3115	6914	ETS-Lindgren	2021-01-14	1 Year

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 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 FM/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 ($\mu\text{V/m}$)		
	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/1MHz	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:

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

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Measurement uncertainty (worst case): $U = 4.74 \text{ dB}$, $k=2$.

Measurement results for Set.F1:

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)
17753.500	40.08	-22.3	41.3	21.13	54.0	13.9	V
17778.500	39.99	-22.4	41.3	21.10	54.0	14.0	V
17700.000	39.99	-22.2	41.2	20.93	54.0	14.0	V
17695.000	39.99	-22.2	41.2	20.92	54.0	14.0	H
17683.000	39.98	-22.1	41.2	20.88	54.0	14.0	V
17773.000	39.97	-22.3	41.3	21.06	54.0	14.0	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)
17621.000	52.4	-22.1	41.2	33.24	74.0	21.6	H
16662.000	52.4	-23.2	41.5	34.09	74.0	21.6	V
17551.500	52.3	-22.6	41.2	33.65	74.0	21.7	V
17795.000	52.2	-22.4	41.3	33.31	74.0	21.8	V
17785.500	52.1	-22.4	41.3	33.18	74.0	21.9	H
17194.000	51.9	-22.9	41.5	33.36	74.0	22.1	V

Measurement results for Set.F2:
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)
17695.000	40.16	-22.2	41.2	21.09	54.0	13.8	H
17690.000	40.07	-22.2	41.2	20.98	54.0	13.9	V
17699.000	40.03	-22.2	41.2	20.96	54.0	14.0	H
17709.500	39.97	-22.2	41.2	20.93	54.0	14.0	H
17760.000	39.96	-22.3	41.3	21.03	54.0	14.0	V
17779.000	39.94	-22.4	41.3	21.04	54.0	14.1	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)
16622.500	52.45	-23.3	41.5	34.29	74.0	21.6	V
16787.500	52.22	-23.0	41.6	33.65	74.0	21.8	V
17585.000	52.17	-22.3	41.2	33.29	74.0	21.8	V
17296.000	52.16	-22.8	41.4	33.55	74.0	21.8	V
16774.000	52.11	-23.0	41.6	33.54	74.0	21.9	V
16970.500	52.03	-23.0	41.7	33.36	74.0	22.0	V

Measurement results for Set.F3:
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)
17708.500	40.02	-22.2	41.2	20.97	54.0	14.0	V
17685.500	39.99	-22.1	41.2	20.90	54.0	14.0	H
17753.500	39.95	-22.3	41.3	21.01	54.0	14.0	V
17705.000	39.93	-22.2	41.2	20.88	54.0	14.1	H
17689.500	39.92	-22.2	41.2	20.84	54.0	14.1	V
17696.000	39.92	-22.2	41.2	20.85	54.0	14.1	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)
17706.000	53.7	-22.2	41.2	34.64	74.0	20.3	V
17009.000	52.8	-23.0	41.7	34.13	74.0	21.2	V
16940.000	52.7	-23.0	41.7	34.07	74.0	21.3	H
17811.000	52.5	-22.4	41.3	33.62	74.0	21.5	H
17625.500	52.2	-22.1	41.2	33.00	74.0	21.8	V
17073.500	52.1	-23.0	41.6	33.55	74.0	21.9	V

Measurement results for Set.F4:
USB 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)
17706.500	40.39	-22.2	41.2	21.34	54.0	13.6	V
17748.000	40.38	-22.3	41.2	21.42	54.0	13.6	V
17784.000	40.33	-22.4	41.3	21.45	54.0	13.7	V
17678.500	40.32	-22.1	41.2	21.21	54.0	13.7	V
17774.500	40.32	-22.4	41.3	21.41	54.0	13.7	V
17689.500	40.30	-22.2	41.2	21.21	54.0	13.7	V

USB 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)
17065.500	53.0	-23.0	41.6	34.43	74.0	21.0	V
17701.500	53.0	-22.2	41.2	33.94	74.0	21.0	V
16933.000	53.0	-23.0	41.7	34.35	74.0	21.0	V
17714.500	52.9	-22.2	41.2	33.86	74.0	21.1	V
17062.000	52.8	-23.0	41.6	34.22	74.0	21.2	V
17894.500	52.7	-22.6	41.3	34.04	74.0	21.3	V

Measurement results for Set.F11:
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)
17895.167	48.8	-18.5	45.6	21.700	54.0	5.2	H
17899.133	48.7	-18.5	45.6	21.600	54.0	5.3	H
17938.800	48.2	-17.7	45.6	20.300	54.0	5.8	V
17901.400	48.2	-18.5	45.6	21.100	54.0	5.8	H
17998.867	48.1	-17.7	45.6	20.200	54.0	5.9	H
17956.367	48.1	-17.7	45.6	20.200	54.0	5.9	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)
17999.433	57.5	-17.7	45.6	29.600	74.0	16.5	H
17998.867	57.0	-17.7	45.6	29.100	74.0	17.0	H
17973.367	56.8	-17.7	45.6	28.900	74.0	17.2	V
17935.967	56.6	-17.7	45.6	28.700	74.0	17.4	H
17854.367	56.5	-18.5	45.6	29.400	74.0	17.5	H
17990.933	56.5	-17.7	45.6	28.600	74.0	17.5	H

Measurement results for Set.F14:
USB 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)
17975.067	47.7	-17.7	45.6	19.800	54.0	6.3	H
17993.200	47.7	-17.7	45.6	19.800	54.0	6.3	H
17994.900	47.7	-17.7	45.6	19.800	54.0	6.3	V
17992.633	47.7	-17.7	45.6	19.800	54.0	6.3	H
17977.900	47.5	-17.7	45.6	19.600	54.0	6.5	H
17985.267	47.4	-17.7	45.6	19.500	54.0	6.6	H

USB 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)
17993.200	56.2	-17.7	45.6	28.300	74.0	17.8	H
17954.100	56.1	-17.7	45.6	28.200	74.0	17.9	H
17994.900	56.1	-17.7	45.6	28.200	74.0	17.9	V
17995.467	56.0	-17.7	45.6	28.100	74.0	18.0	H
17991.500	55.8	-17.7	45.6	27.900	74.0	18.2	H
17882.133	55.7	-18.5	45.6	28.600	74.0	18.3	H

Measurement results for Set.F1:

15B RE 30MHz-1GHz

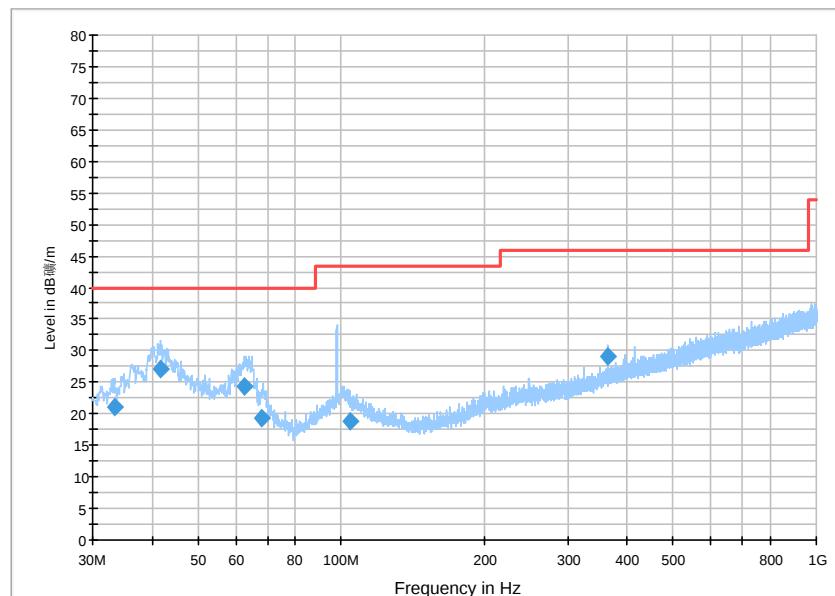


Fig A.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
33.395000	21.1	100.0	V	135.0	-1.4	18.9	40.0	
41.737000	27.2	100.0	V	102.0	-0.2	12.8	40.0	
62.495000	24.4	100.0	V	289.0	-1.4	15.6	40.0	
67.927000	19.3	100.0	V	309.0	-3.3	20.7	40.0	
104.399000	18.9	100.0	V	225.0	-1.4	24.6	43.5	
363.971000	29.0	110.0	H	305.0	3.1	17.0	46.0	

15B RE - 1GHz-3GHz

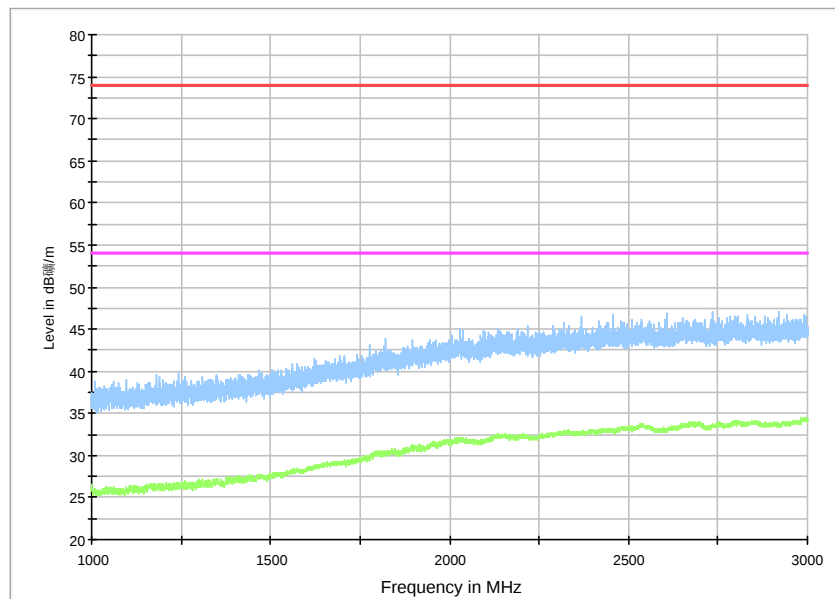


Fig A.2 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

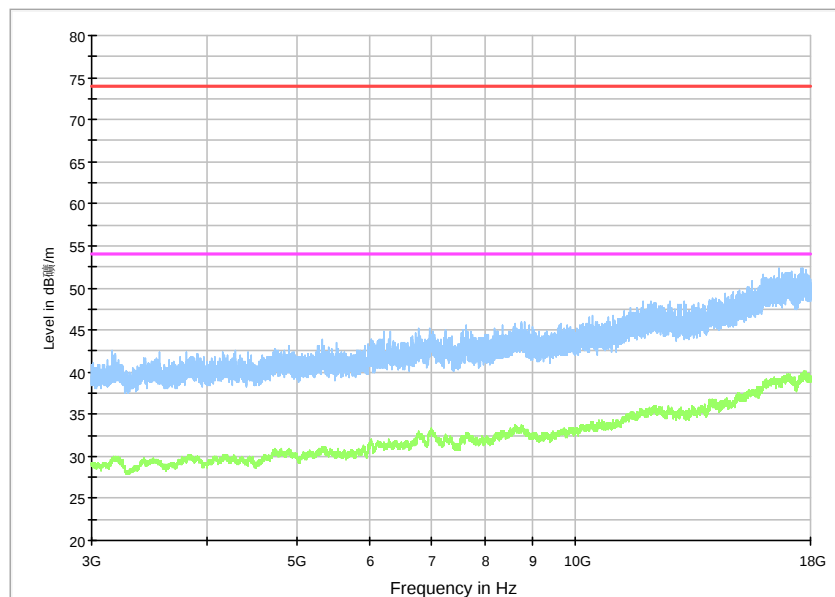


Fig A.3 Radiated Emission from 3GHz to 18GHz

Measurement results for Set.F2:

15B RE 30MHz-1GHz

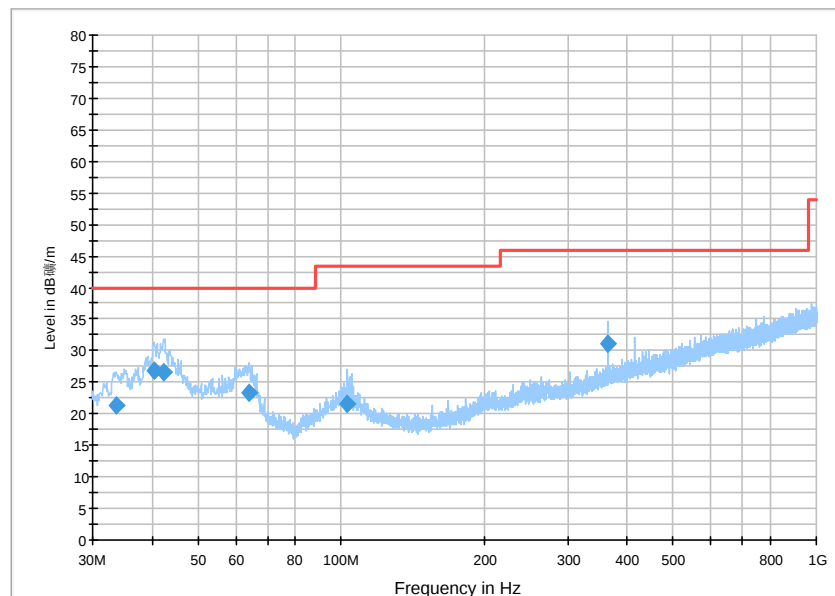


Fig A.4 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
33.686000	21.2	119.0	V	135.0	-1.3	18.8	40.0	
40.379000	26.7	100.0	V	148.0	-0.2	13.3	40.0	
42.222000	26.7	100.0	V	48.0	-0.2	13.3	40.0	
64.047000	23.2	100.0	V	310.0	-1.9	16.8	40.0	
103.235000	21.5	100.0	V	255.0	-1.3	22.0	43.5	
363.971000	31.2	100.0	H	282.0	3.1	14.8	46.0	

15B RE - 1GHz-3GHz

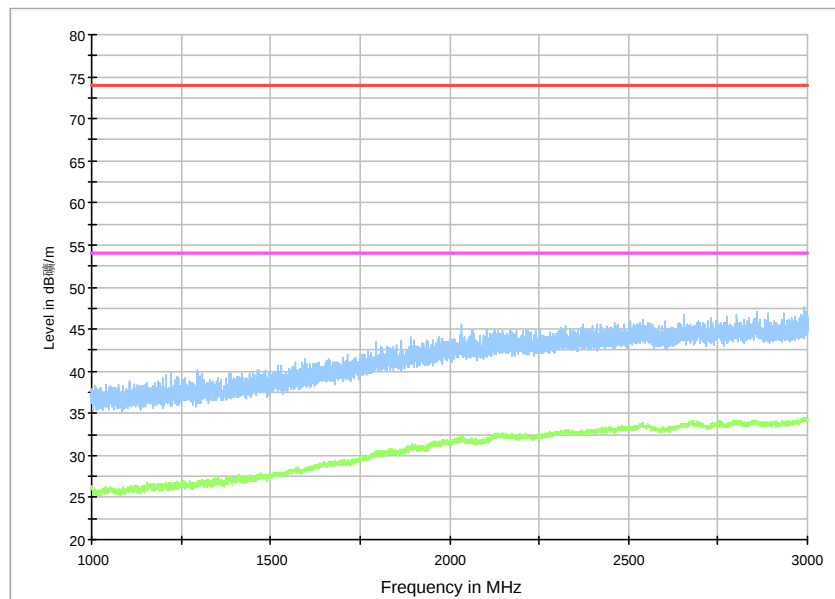


Fig A.5 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

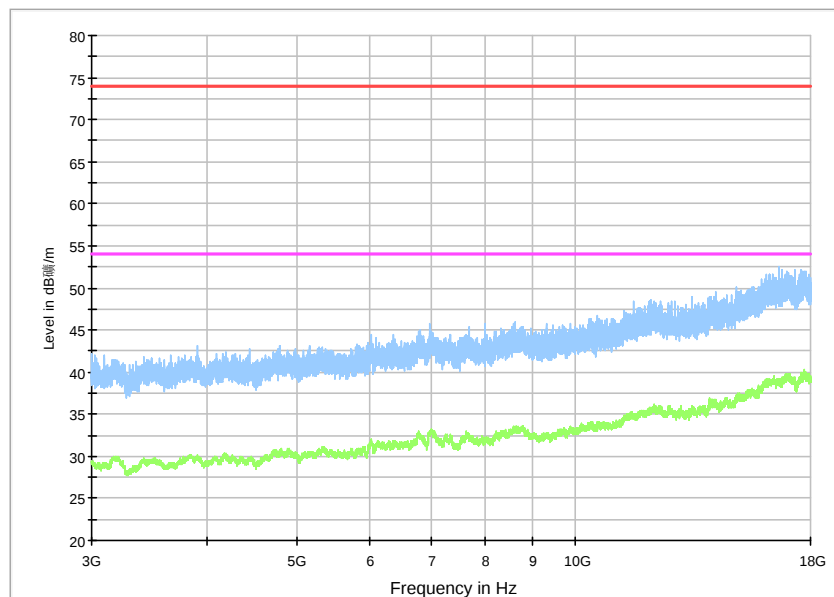


Fig A.6 Radiated Emission from 3GHz to 18GHz

Measurement results for Set.F3:

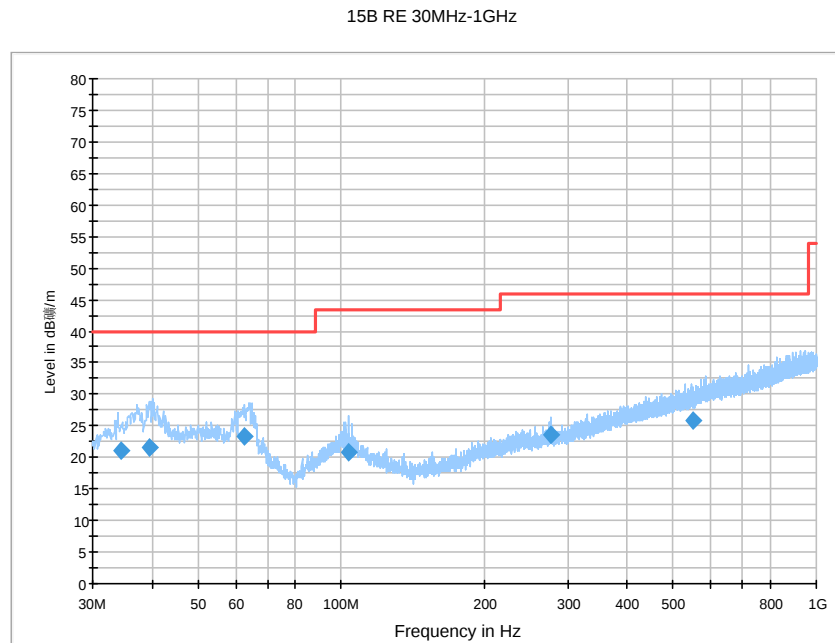


Fig A.7 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
34.365000	21.1	110.0	V	120.0	-1.2	18.9	40.0	
39.409000	21.7	110.0	V	290.0	-0.3	18.4	40.0	
62.592000	23.2	100.0	V	272.0	-1.4	16.8	40.0	
103.817000	20.8	100.0	V	206.0	-1.3	22.7	43.5	
276.962000	23.6	110.0	H	99.0	0.1	22.4	46.0	
552.151000	25.7	125.0	H	129.0	7.1	20.3	46.0	

15B RE - 1GHz-3GHz

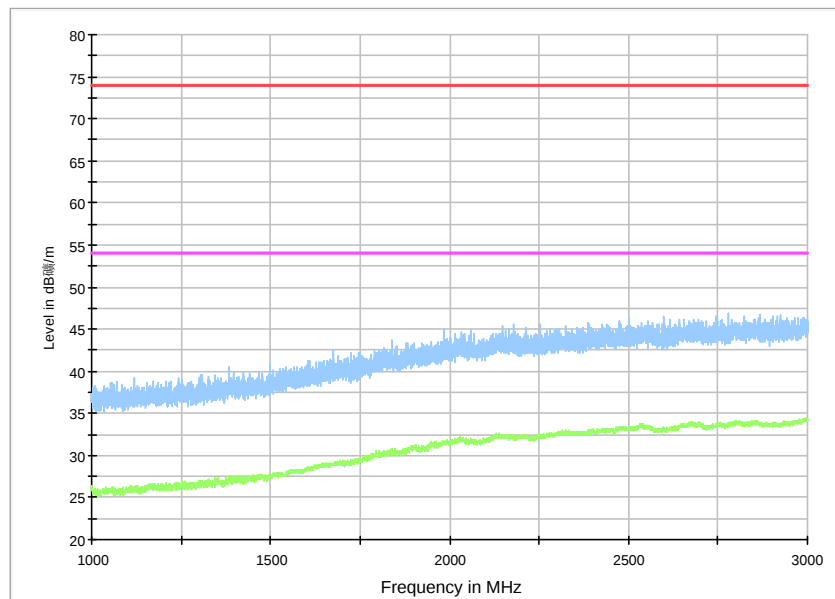


Fig A.8 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

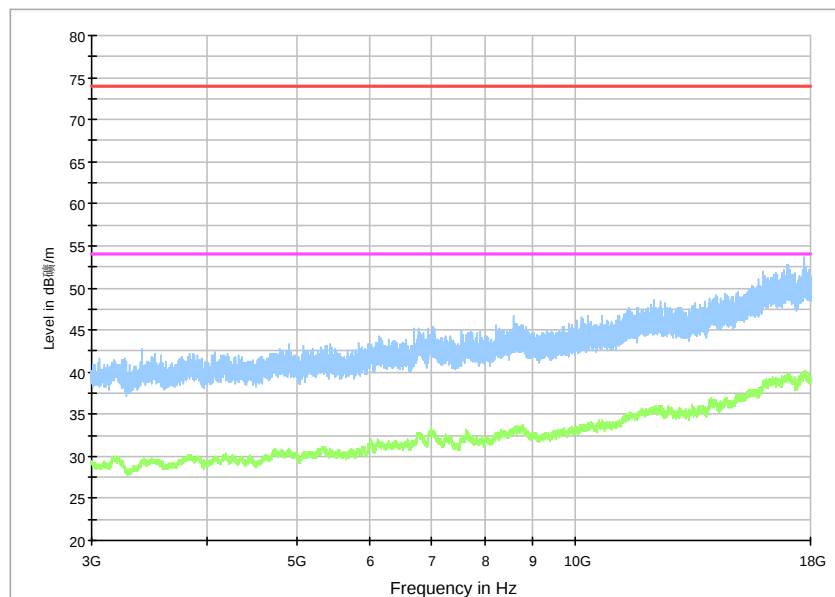


Fig A.9 Radiated Emission from 3GHz to 18GHz

Measurement results for Set.F4:

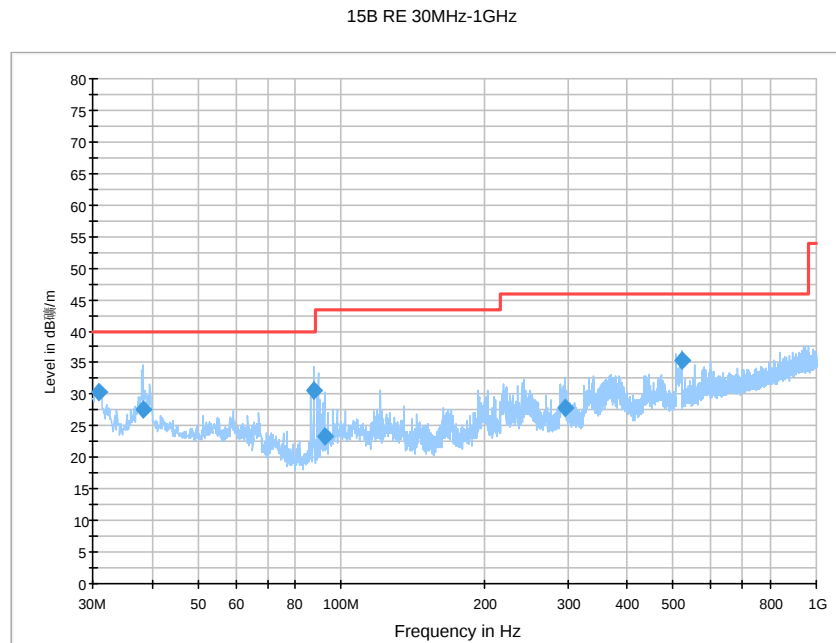


Fig A.10 Radiated Emission from 30MHz to 1GHz

Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
30.970000	30.3	100.0	V	315.0	-1.9	9.7	40.0	
38.342000	27.5	100.0	V	86.0	-0.5	12.5	40.0	
87.812000	30.6	125.0	H	286.0	-3.9	9.4	40.0	
92.177000	23.2	119.0	V	51.0	-2.7	20.3	43.5	
297.041000	27.7	100.0	H	-4.0	0.6	18.3	46.0	
520.141000	35.4	100.0	V	310.0	6.3	10.6	46.0	

15B RE - 1GHz-3GHz

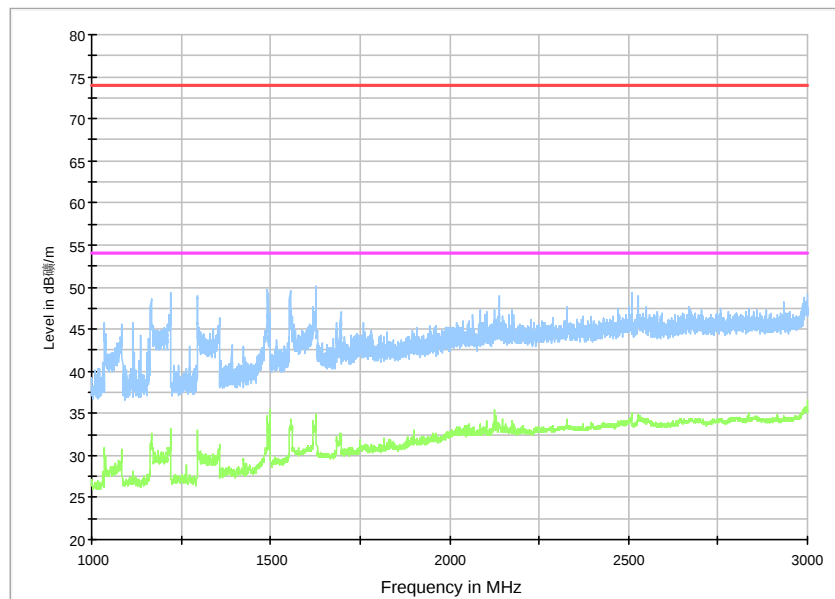


Fig A.11 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-18GHz

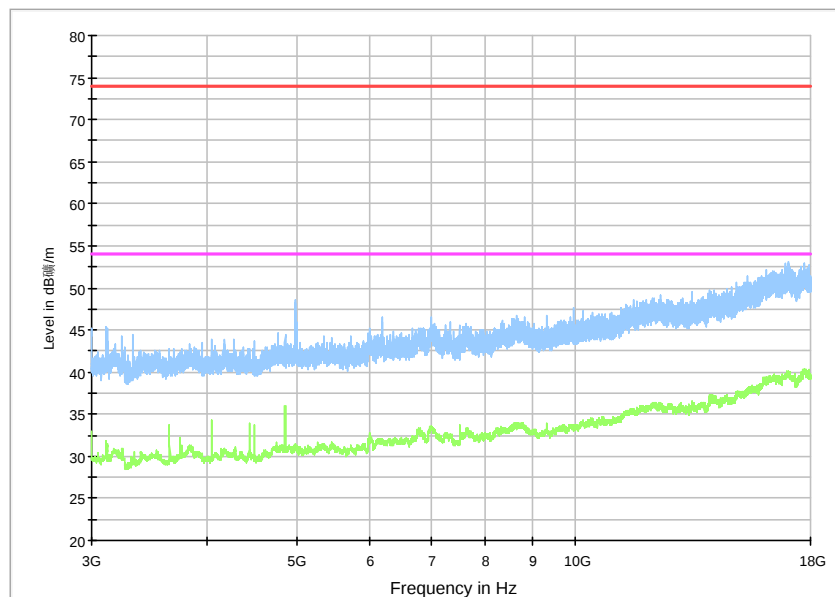


Fig A.12 Radiated Emission from 3GHz to 18GHz

Measurement results for Set.F11:

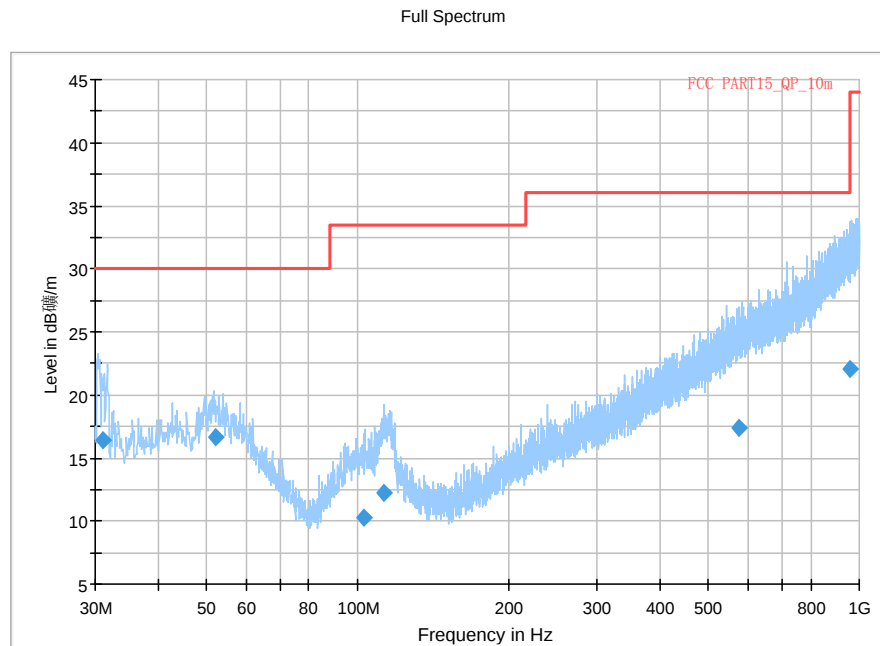


Fig A.13 Radiated Emission from 30MHz to 1GHz

Final Result

Frequency (MHz)	QuasiPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
31.146000	16.38	30.00	13.62	1000.0	120.000	177.0	V	30.0
51.991000	16.67	30.00	13.33	1000.0	120.000	325.0	V	83.0
102.598000	10.28	33.50	23.24	1000.0	120.000	108.0	V	63.0
113.018000	12.29	33.50	21.23	1000.0	120.000	125.0	V	281.0
575.708000	17.36	36.00	18.66	1000.0	120.000	217.0	H	170.0
956.886000	22.09	36.00	13.93	1000.0	120.000	317.0	V	30.0

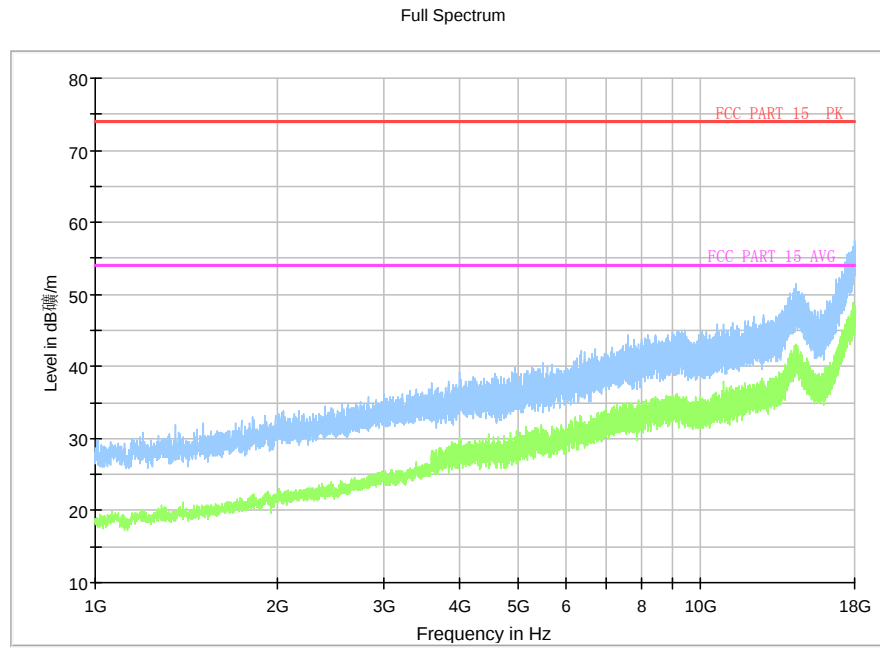


Fig A.14 Radiated Emission from 1GHz to 18GHz

Measurement results for Set.F14:

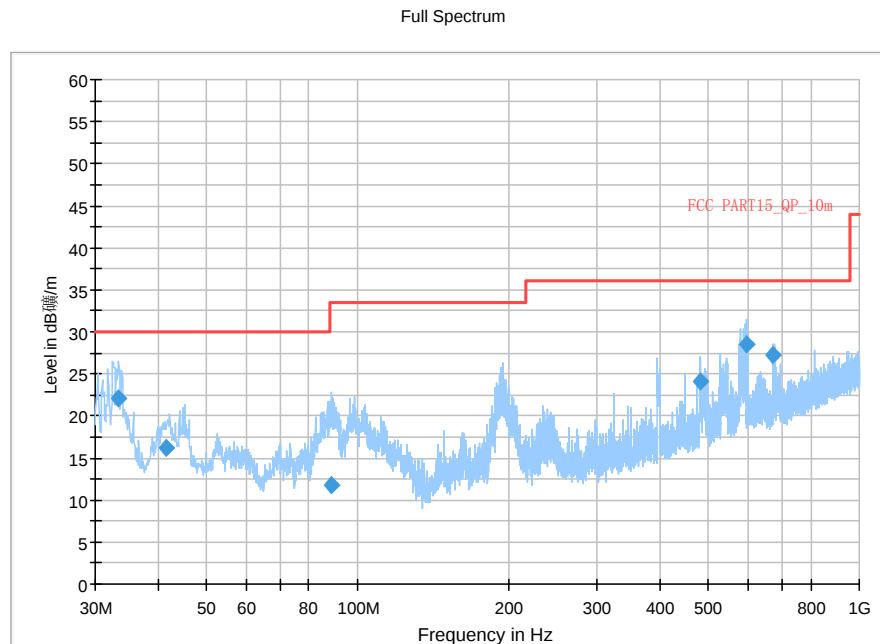


Fig A.15 Radiated Emission from 30MHz to 1GHz

Final Result

Frequency (MHz)	QuasiPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
33.335000	22.03	30.00	7.97	1000.0	120.000	225.0	V	-30.0
41.571000	16.28	30.00	13.72	1000.0	120.000	103.0	V	30.0
88.856000	11.85	33.50	21.67	1000.0	120.000	120.0	V	30.0
481.406000	24.06	36.00	11.96	1000.0	120.000	225.0	V	6.0
595.436000	28.48	36.00	7.54	1000.0	120.000	215.0	V	-12.0
673.142000	27.32	36.00	8.70	1000.0	120.000	188.0	V	18.0

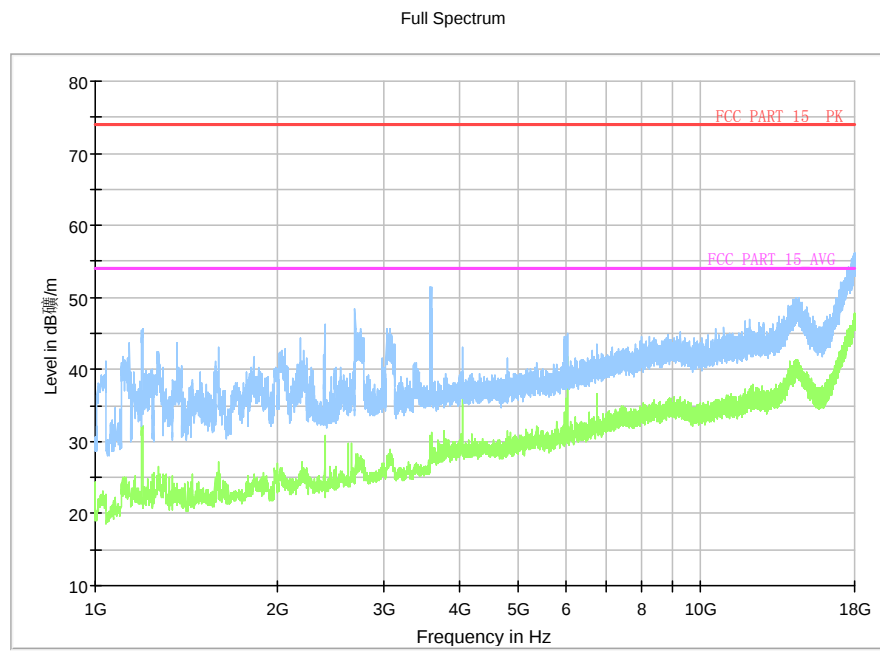


Fig A.16 Radiated Emission from 1GHz to 18GHz

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: $U= 3.1 \text{ dB}$, $k=2$.

Charging Mode, Set.F1:

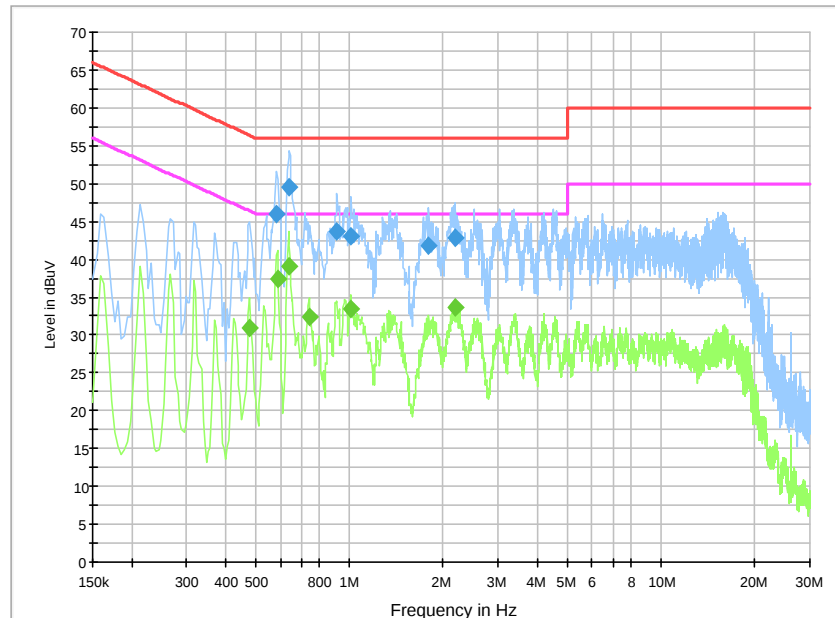


Fig A.17 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.582000	45.9	10000.0	9.000	On	L1	20.0	10.1	56.0	
0.640500	49.6	10000.0	9.000	On	L1	19.9	6.4	56.0	
0.910500	43.6	10000.0	9.000	On	L1	19.9	12.4	56.0	
1.014000	43.1	10000.0	9.000	On	L1	19.8	12.9	56.0	
1.797000	41.8	10000.0	9.000	On	L1	19.8	14.2	56.0	
2.184000	42.8	10000.0	9.000	On	L1	19.8	13.2	56.0	

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.478500	30.9	10000.0	9.000	On	N	20.0	15.4	46.4	
0.586500	37.3	10000.0	9.000	On	N	20.0	8.7	46.0	
0.636000	39.1	10000.0	9.000	On	L1	19.9	6.9	46.0	
0.744000	32.4	10000.0	9.000	On	L1	19.9	13.6	46.0	
1.005000	33.4	10000.0	9.000	On	L1	19.8	12.6	46.0	
2.193000	33.6	10000.0	9.000	On	L1	19.8	12.4	46.0	

USB Mode, Set.F4:

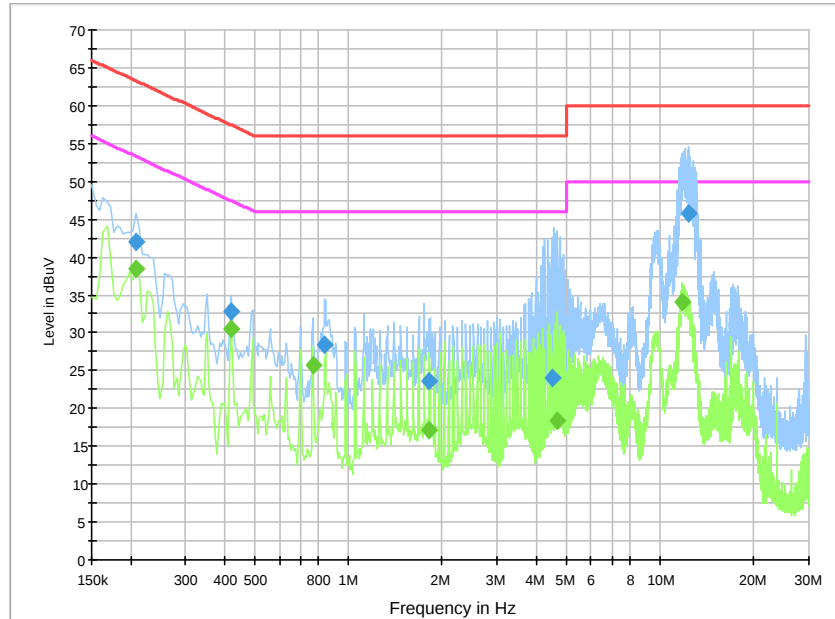


Fig A.18 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.208500	42.0	10000.	9.000	On	L1	19.9	21.2	63.3	
0.420000	32.7	10000.	9.000	On	L1	20.0	24.7	57.4	
0.838500	28.5	10000.	9.000	On	N	19.9	27.5	56.0	
1.815000	23.7	10000.	9.000	On	N	19.8	32.3	56.0	
4.488000	24.0	10000.	9.000	On	N	19.8	32.0	56.0	
12.291000	45.7	10000.	9.000	On	N	19.9	14.3	60.0	

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.208500	38.5	10000.	9.000	On	L1	19.9	14.8	53.3	
0.420000	30.6	10000.	9.000	On	L1	20.0	16.9	47.4	
0.771000	25.8	10000.	9.000	On	N	19.9	20.2	46.0	
1.819500	17.1	10000.	9.000	On	N	19.8	29.0	46.0	
4.695000	18.5	10000.	9.000	On	N	19.8	27.5	46.0	
11.760000	34.1	10000.	9.000	On	N	19.9	15.9	50.0	

ANNEX B: PERSONS INVOLVED IN THIS TESTING

Test Item	Test Software and Version	Software Vendor	Test operator
Conducted Emission	EMC32 V8.5.2	R&S	Guo Qian, Yan Hanchen
Radiated Emission	EMC32 V9.01.00	R&S	Zhao Wenhui

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