



FCC 15B TEST REPORT

No. I20Z62070-EMC01

for

TCL Communication Ltd.

GSM/UMTS/LTE mobile phone

Model Name: T7730

FCC ID: 2ACCJN045

with

Hardware Version: 03

Software Version: v3.0.9D1Y

Issued Date: 2021-01-10

Note:

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Test Laboratory:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I20Z62070-EMC01	Rev.0	1 st edition	2021-01-10

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 (ISED#: 24849). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Location 1: 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℃

Relative Humidity: 20-75%

1.4. Project data

Testing Start Date: 2020-12-22

Testing End Date: 2020-12-27

1.5. Signature



Zhang Ying
(Prepared this test report)



An Hui
(Reviewed this test report)



Zhang Xia
(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.
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Park, Shatin, NT, Hong Kong
City: Hong Kong
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3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	GSM/UMTS/LTE mobile phone
Model Name	T7730
FCC ID	2ACCJN045
Power Supply	3.85V DC by Battery

This device contains the receivers which tune and operate between 30MHz-960MHz in the following bands:

GSM850MHz, WCDMA850MHz, LTE bands 5/12/13/71.

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL, Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT8	015888000200411/01	03	v3.0.9D1Y

*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	/	Inbuilt
AE2	battery	/	Inbuilt
AE3	Travel charger	/	/
AE4	Travel charger	/	/
AE5	Travel charger	/	/
AE6	Travel charger	/	/
AE7	USB Cable	/	/
AE8	USB Cable	/	/
AE9	HeasSet	/	/
AE10	HeasSet	/	/

AE1

Model	TLp048A1
Manufacturer	BYD
Capacitance	
Nominal voltage	3.85V

AE2

Model	TLp048A7
Manufacturer	VEKEN

Length of cable	3.85V
AE3	
Model	QC13US
Manufacturer	BYD
Length of cable	/
AE4	
Model	QC13US
Manufacturer	PUAN
Length of cable	/
AE5	
Model	UC13US
Manufacturer	PUAN
Length of cable	/
AE6	
Model	UC13US
Manufacturer	Chen Yang
Length of cable	/
AE7	
Model	CDA0000128C1
Manufacturer	Juwei
Length of cable	/
AE8	
Model	CDA0000128C2
Manufacturer	shenghua
Length of cable	/
AE9	
Model	WH35
Manufacturer	Juwei
Length of cable	/
AE10	
Model	WH70
Manufacturer	Lianchuang
Length of cable	/

*AE ID: is used to identify the test sample in the lab internally.

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.8-1	EUT8 + AE1/AE2 + AE3 + AE7	Charger
Set.8-2	EUT8 + AE1/AE2 + AE4 + AE7	Charger
Set.8-3	EUT8 + AE1/AE2 + AE5 + AE8	Charger
Set.8-4	EUT8 + AE1/AE2 + AE6 + AE8	Charger
Set.8-5	EUT8 + AE1/AE2 + AE7 + AE9	USB + FM
Set.8-6	EUT8 + AE1/AE2 + AE8 + AE10	USB + FM

4. Reference Documents

4.1. Documents supplied by applicant

EUT parameters, referring to chapter 3 for detailed information, are supplied by the client or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

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

	Title	Version
Reference		
FCC Part 15, Subpart B	Radio frequency devices - Unintentional Radiators	10-1-19 Edition
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 MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 10 m distance
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 6GHz
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
Location Column	1/2/4	The test is performed in test location 1/2/4 which is described in section 1.1 of this report

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

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESCI 3	100344	Rohde & Schwarz	2021-02-26	1 year
2	LISN	ENV216	101200	Rohde & Schwarz	2021-05-19	1 year
3	EMI Antenna	VULB 9163	9163-1223	Schwarzbeck	2021-03-18	1 year
4	EMI Antenna	3115	6914	ETS-Lindgren	2021-01-14	1 year
5	Test Receiver	ESU26	100235	Rohde & Schwarz	2021-03-03	1 year
6	Universal Radio Communication Tester	CMW500	116588	Rohde & Schwarz	2021-12-07	1 year
8	Signal generator	SMBV100A	260613	Rohde & Schwarz	2020-12-30	1 year
9	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A	N/A
10	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
11	Keyboard	L100	CN0RH6596589 07ATOI40	DELL	N/A	N/A
12	Mouse	M-UAE119	LZ935220ZRC	Lenovo	N/A	N/A

Test Item	Test Software and Version	Software Vendor
Radiated Continuous Emission	EMC32 V9.01.0	R&S
Conducted 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 (charging mode and FM mode of MS) at distances of 10 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 3/10 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 charging mode and FM mode. During the test MS is connected to a charger.

The EUT was tested while operating in licensed band Rx mode. All licensed band receivers that tune in the range of 30MHz-960MHz, as listed in Section 3.1, are investigated. Only the worst case emissions are reported.

All equipment is placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions.

A.1.3 Measurement Limit

Frequency range (MHz)	Field strength limit ($\mu\text{V}/\text{m}$)		
	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.

$$\text{Limit}(10\text{m}) = \text{limit}(3\text{m}) + 20(\log(3/10))$$

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:

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

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Measurement uncertainty (worst case): 30MHz-1GHz: 5.16dB, 1GHz-18GHz: 5.44dB, $k=2$.

Measurement results for Set.8-1:

Charger AE3 and USB cable AE7, GSM850MHz idle QP detector

Frequency (MHz)	QP (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
39.035000	12.20	30.00	17.80	211.0	V	77.0
54.717000	18.42	30.00	11.58	114.0	V	85.0
86.990000	12.71	30.00	17.29	125.0	V	65.0
93.272000	11.87	33.50	21.65	198.0	V	22.0
187.302000	19.35	33.50	14.17	106.0	V	-18.0
389.246000	13.18	36.00	22.84	106.0	V	102.0

Charger AE3 and USB cable AE7, GSM850MHz idle PK detector

Frequency (MHz)	Result(d B μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17945.033	56.7	-17.7	45.6	28.8	74.0	17.3	H
17939.933	56.6	-17.7	45.6	28.7	74.0	17.4	H
17944.467	56.5	-17.7	45.6	28.6	74.0	17.5	V
17936.533	56.4	-17.7	45.6	28.5	74.0	17.6	H
17937.100	56.4	-17.7	45.6	28.5	74.0	17.6	H
17946.167	56.3	-17.7	45.6	28.4	74.0	17.7	H

Charger AE3 and USB cable AE7, GSM850MHz idle AV detector

Frequency (MHz)	Result(d B μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17934.833	48.3	-17.7	45.6	20.4	54.0	5.7	H
17949.567	48.2	-17.7	45.6	20.3	54.0	5.8	H
17925.767	48.2	-17.7	45.6	20.3	54.0	5.8	V
17979.033	48.0	-17.7	45.6	20.1	54.0	6.0	H
17990.933	47.9	-17.7	45.6	20.0	54.0	6.1	H
17959.767	47.9	-17.7	45.6	20.0	54.0	6.1	H

Measurement results for Set.8-2:
Charger AE4 and USB cable AE7, WCDMA band 5 idle QP detector

Frequency (MHz)	QP (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
38.494000	12.02	30.00	17.98	121.0	V	60.0
56.342000	18.79	30.00	11.21	102.0	V	16.0
92.302000	13.28	33.50	20.24	125.0	V	67.0
174.119000	20.87	33.50	12.65	117.0	V	-21.0
195.186000	18.19	33.50	15.33	103.0	V	-30.0
660.906000	18.25	36.00	17.77	101.0	V	18.0

Charger AE4 and USB cable AE7, WCDMA band 5 idle PK detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17973.933	56.9	-17.7	45.6	29.0	74.0	17.1	H
17812.433	56.9	-18.5	45.6	29.8	74.0	17.1	H
17998.300	56.9	-17.7	45.6	29.0	74.0	17.1	V
17951.833	56.9	-17.7	45.6	29.0	74.0	17.1	H
17977.333	56.8	-17.7	45.6	28.9	74.0	17.2	H
17935.400	56.8	-17.7	45.6	28.9	74.0	17.2	H

Charger AE4 and USB cable AE7, WCDMA band 5 idle AV detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17921.233	48.5	-17.7	45.6	20.6	54.0	5.5	H
17947.300	48.3	-17.7	45.6	20.4	54.0	5.7	H
17952.967	48.2	-17.7	45.6	20.3	54.0	5.8	V
17971.667	48.1	-17.7	45.6	20.2	54.0	5.9	H
17851.533	48.1	-18.5	45.6	21.0	54.0	5.9	H
17922.367	48.0	-17.7	45.6	20.1	54.0	6.0	H

Measurement results for Set.8-3:
Charger AE5 and USB cable AE8, LTE band 5 idle QP detector

Frequency (MHz)	QP (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
51.368000	17.91	30.00	12.09	102.0	V	96.0
74.237000	17.51	30.00	12.49	225.0	V	26.0
83.202000	20.26	30.00	9.74	118.0	V	210.0
86.750000	20.73	30.00	9.27	188.0	V	70.0
166.031000	22.49	33.50	11.03	114.0	V	-30.0
179.454000	21.21	33.50	12.31	115.0	V	-29.0

Charger AE5 and USB cable AE8, LTE band 5 idle PK detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17805.067	57.9	-18.5	45.6	30.8	74.0	16.1	H
17954.667	57.0	-17.7	45.6	29.1	74.0	17.0	H
17949.567	56.8	-17.7	45.6	28.9	74.0	17.2	V
17831.133	56.3	-18.5	45.6	29.2	74.0	17.7	H
17927.467	56.3	-17.7	45.6	28.4	74.0	17.7	H
17980.167	56.3	-17.7	45.6	28.4	74.0	17.7	H

Charger AE5 and USB cable AE8, LTE band 5 idle AV detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17993.200	48.6	-17.7	45.6	20.7	54.0	5.4	H
17962.600	48.5	-17.7	45.6	20.6	54.0	5.5	H
17964.867	48.3	-17.7	45.6	20.4	54.0	5.7	V
17934.833	48.2	-17.7	45.6	20.3	54.0	5.8	H
17976.200	48.1	-17.7	45.6	20.2	54.0	5.9	H
17822.067	48.0	-18.5	45.6	20.9	54.0	6.0	H

Measurement results for Set.8-4:
Charger AE6 and USB cable AE8, LTE band 12 idle QP detector

Frequency (MHz)	QP (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
49.677000	18.48	30.00	11.52	106.0	V	97.0
55.188000	16.62	30.00	13.38	125.0	V	168.0
77.013000	18.67	30.00	11.33	178.0	V	30.0
87.212000	23.51	30.00	6.49	125.0	V	-29.0
170.391000	24.88	33.50	8.64	125.0	V	-25.0
183.542000	19.56	33.50	13.96	102.0	V	-30.0

Charger AE6 and USB cable AE8, LTE band 12 idle PK detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17973.933	57.1	-17.7	45.6	29.2	74.0	16.9	H
17960.900	56.7	-17.7	45.6	28.8	74.0	17.3	H
17980.167	56.6	-17.7	45.6	28.7	74.0	17.4	V
17989.800	56.2	-17.7	45.6	28.3	74.0	17.8	H
17937.100	56.2	-17.7	45.6	28.3	74.0	17.8	H
17741.033	56.1	-18.5	45.6	29.0	74.0	17.9	H

Charger AE6 and USB cable AE8, LTE band 12 idle AV detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17984.700	48.0	-17.7	45.6	20.1	54.0	6.0	H
17964.867	47.9	-17.7	45.6	20.0	54.0	6.1	H
17973.933	47.8	-17.7	45.6	19.9	54.0	6.2	V
17939.933	47.8	-17.7	45.6	19.9	54.0	6.2	H
17988.667	47.8	-17.7	45.6	19.9	54.0	6.2	H
17912.167	47.6	-18.5	45.6	20.5	54.0	6.4	H

Measurement results for Set.8-5:
USB cable AE7 and HeasSet AE9, data transfer and FM, QP detector

Frequency (MHz)	QP (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
30.360000	21.84	30.00	8.16	180.0	V	210.0
83.350000	23.87	30.00	6.13	176.0	V	65.0
99.161000	20.29	33.50	13.23	100.0	V	174.0
148.298000	20.12	33.50	13.40	121.0	V	11.0
485.803000	24.23	36.00	11.79	225.0	V	-3.0
673.184000	28.62	36.00	7.40	199.0	V	3.0

USB cable AE7 and HeasSet AE9, data transfer and FM, PK detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17904.233	56.7	-18.5	45.6	29.6	74.0	17.3	H
17991.500	56.5	-17.7	45.6	28.6	74.0	17.5	H
17966.567	56.0	-17.7	45.6	28.1	74.0	18.0	V
17994.900	55.9	-17.7	45.6	28.0	74.0	18.1	H
17946.167	55.8	-17.7	45.6	27.9	74.0	18.2	H
17968.267	55.8	-17.7	45.6	27.9	74.0	18.2	H

USB cable AE7 and HeasSet AE9, data transfer and FM, AV detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17890.633	48.4	-18.5	45.6	21.3	54.0	5.6	H
17956.933	48.1	-17.7	45.6	20.2	54.0	5.9	H
17943.900	48.0	-17.7	45.6	20.1	54.0	6.0	V
17913.300	47.9	-18.5	45.6	20.8	54.0	6.1	H
17971.100	47.2	-17.7	45.6	19.3	54.0	6.8	H
17995.467	47.1	-17.7	45.6	19.2	54.0	6.9	H

Measurement results for Set.8-6:
USB cable AE8 and HeasSet AE10, data transfer and FM, QP detector

Frequency (MHz)	QP (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)

USB cable AE8 and HeasSet AE10, data transfer and FM, PK detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17968.833	57.1	-17.7	45.6	29.2	74.0	16.9	H
17955.800	56.5	-17.7	45.6	28.6	74.0	17.5	H
17991.500	56.3	-17.7	45.6	28.4	74.0	17.7	V
17943.900	56.1	-17.7	45.6	28.2	74.0	17.9	H
17988.667	56.0	-17.7	45.6	28.1	74.0	18.0	H
17990.367	55.9	-17.7	45.6	28.0	74.0	18.1	H

USB cable AE8 and HeasSet AE10, data transfer and FM, AV detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17994.333	48.2	-17.7	45.6	20.3	54.0	5.8	H
17981.867	47.9	-17.7	45.6	20.0	54.0	6.1	H
17885.533	47.7	-18.5	45.6	20.6	54.0	6.3	V
17984.700	47.6	-17.7	45.6	19.7	54.0	6.4	H
17979.600	47.6	-17.7	45.6	19.7	54.0	6.4	H
17988.100	47.4	-17.7	45.6	19.5	54.0	6.6	H

Measurement results for Set.8-1:
Charger AE3 and USB cable AE7, LTE band 13 idle QP detector

Frequency (MHz)	QP (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
51.705000	17.50	30.00	12.50	112.0	V	159.0
75.909000	18.41	30.00	11.59	177.0	V	71.0
86.038000	22.15	30.00	7.85	125.0	V	76.0
90.754000	20.89	33.50	12.63	116.0	V	-7.0
165.269000	22.05	33.50	11.47	119.0	V	-30.0
196.032000	19.88	33.50	13.64	101.0	V	-30.0

Charger AE3 and USB cable AE7, LTE band 13 idle PK detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17972.800	57.0	-17.7	45.6	29.1	74.0	17.0	H
17961.467	57.0	-17.7	45.6	29.1	74.0	17.0	H
17977.333	56.8	-17.7	45.6	28.9	74.0	17.2	V
17895.167	56.7	-18.5	45.6	29.6	74.0	17.3	H
17971.100	56.3	-17.7	45.6	28.4	74.0	17.7	H
17998.300	56.2	-17.7	45.6	28.3	74.0	17.8	H

Charger AE3 and USB cable AE7, LTE band 13 AV detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17818.100	48.2	-18.5	45.6	21.1	54.0	5.8	H
17982.433	48.1	-17.7	45.6	20.2	54.0	5.9	H
17924.633	48.0	-17.7	45.6	20.1	54.0	6.0	V
17975.633	48.0	-17.7	45.6	20.1	54.0	6.0	H
17858.333	47.9	-18.5	45.6	20.8	54.0	6.1	H
17983.000	47.9	-17.7	45.6	20.0	54.0	6.1	H

Measurement results for Set.8-1:
Charger AE3 and USB cable AE7, LTE band 71 idle QP detector

Frequency (MHz)	QP (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
52.860000	17.99	30.00	12.01	105.0	V	89.0
75.419000	18.83	30.00	11.17	182.0	V	67.0
85.096000	25.25	30.00	4.75	117.0	V	61.0
90.449000	21.90	33.50	11.62	202.0	V	-19.0
166.317000	18.85	33.50	14.67	125.0	V	-17.0
194.258000	14.76	33.50	18.76	198.0	V	-15.0

Charger AE3 and USB cable AE7, LTE band 71 idle PK detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17972.800	57.0	-17.7	45.6	29.1	74.0	17.0	H
17994.333	56.4	-17.7	45.6	28.5	74.0	17.6	H
17946.733	56.4	-17.7	45.6	28.5	74.0	17.6	V
17958.067	56.3	-17.7	45.6	28.4	74.0	17.7	H
17983.000	56.2	-17.7	45.6	28.3	74.0	17.8	H
17993.767	56.0	-17.7	45.6	28.1	74.0	18.0	H

Charger AE3 and USB cable AE7, LTE band 71 idle AV detector

Frequency (MHz)	Result(d B μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{Mea} (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarity
17888.933	47.8	-18.5	45.6	20.7	54.0	6.2	H
17882.700	47.6	-18.5	45.6	20.5	54.0	6.4	H
17972.800	47.6	-17.7	45.6	19.7	54.0	6.4	V
17985.267	47.4	-17.7	45.6	19.5	54.0	6.6	H
17994.333	47.4	-17.7	45.6	19.5	54.0	6.6	H
17993.200	47.3	-17.7	45.6	19.4	54.0	6.7	H

Sample calculation: AV detector, 17888.933MHz

Result =P_{Mea} (20.7 dB μ V)+ G_A (45.6dB/m)+ G_{PL}(-18.5dB) =47.8dB μ V/m

Charger AE3 and USB cable AE7, GSM850MHz idle, Set.8-1

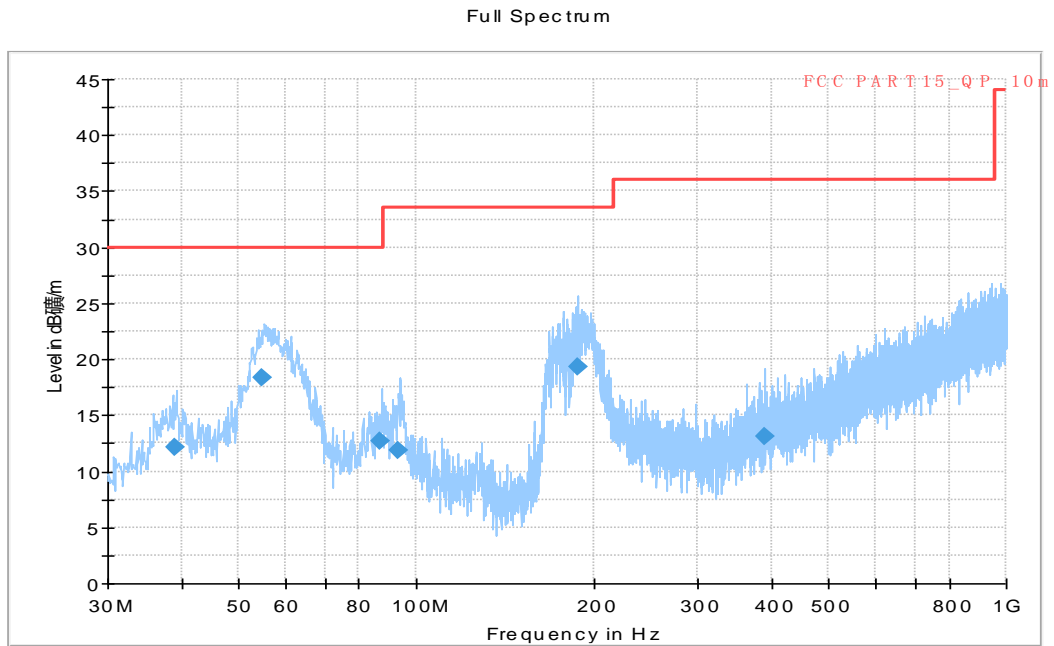


Figure A.1 Radiated Emission from 30MHz to 1GHz

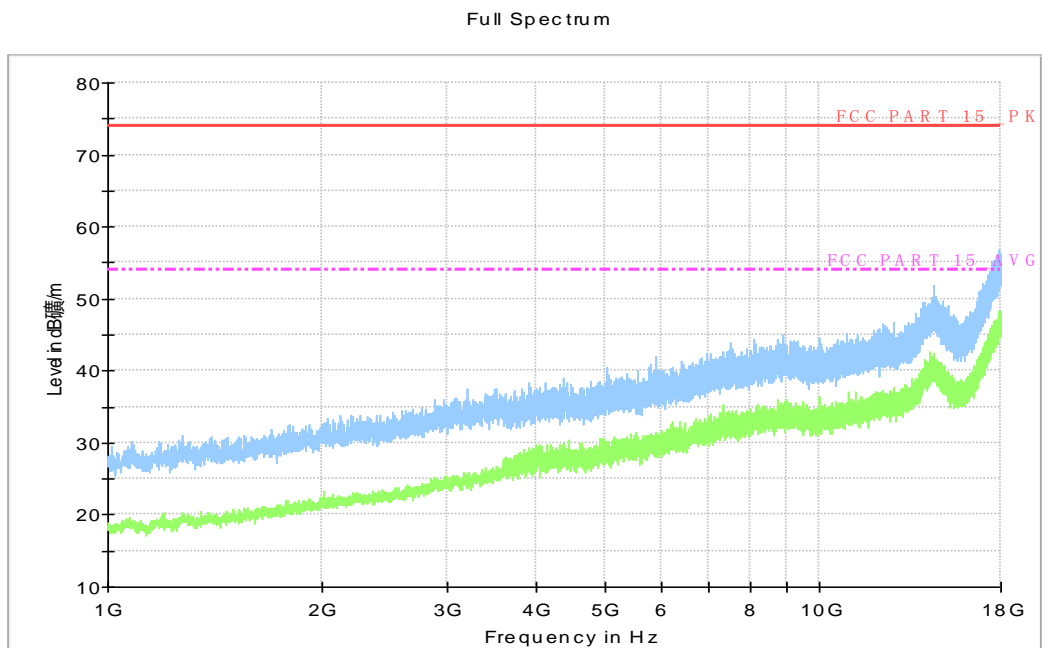


Figure A.2 Radiated Emission from 1GHz to 18GHz

Charger AE4 and USB cable AE7, WCDMA band 5 idle, Set.8-2

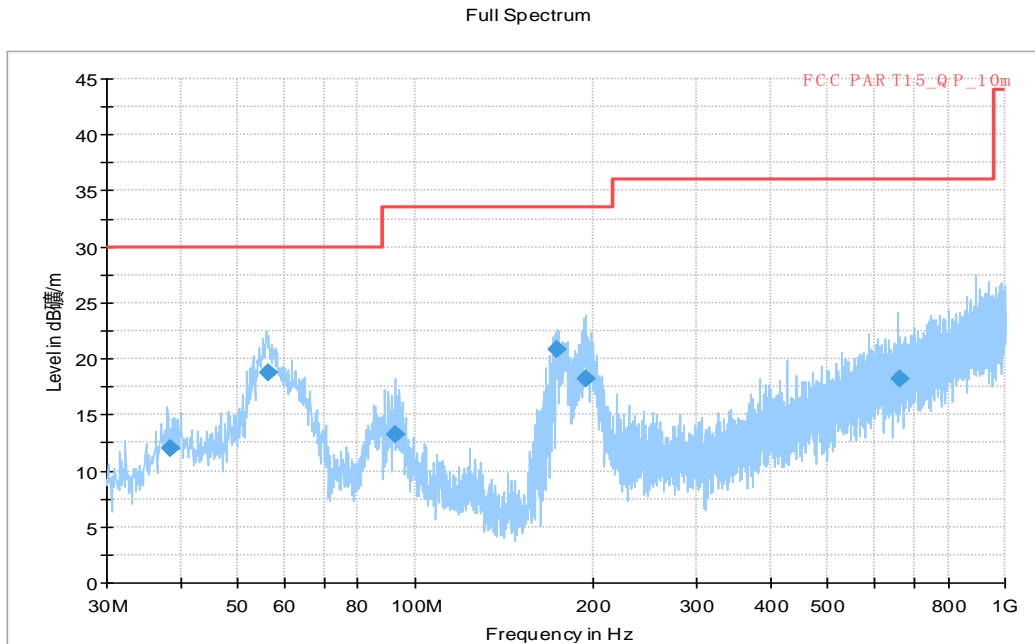


Figure A.3 Radiated Emission from 30MHz to 1GHz

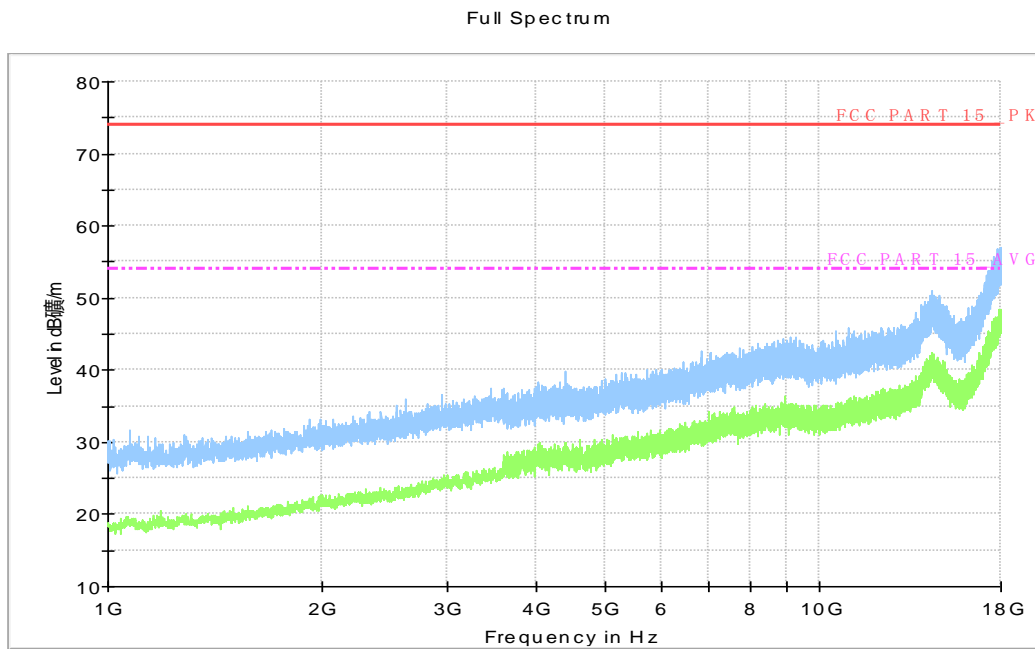


Figure A.4 Radiated Emission from 1GHz to 18GHz

Charger AE5 and USB cable AE8, LTE band 5 idle, Set.8-3

Full Spectrum

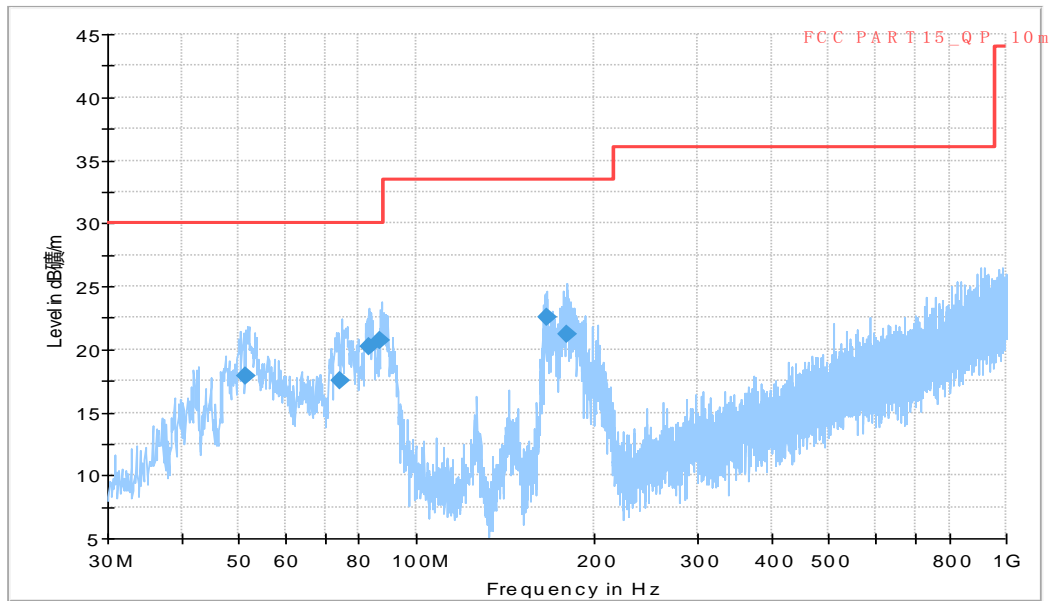


Figure A.5 Radiated Emission from 30MHz to 1GHz

Full Spectrum

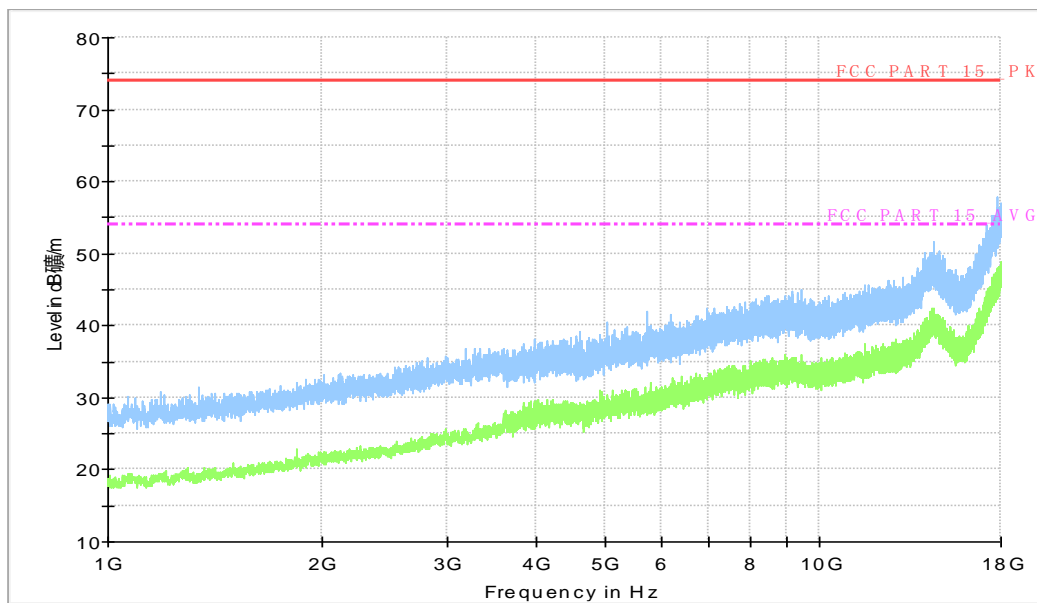


Figure A.6 Radiated Emission from 1GHz to 18GHz

Charger AE6 and USB cable AE8, LTE band 12 idle, Set.8-4

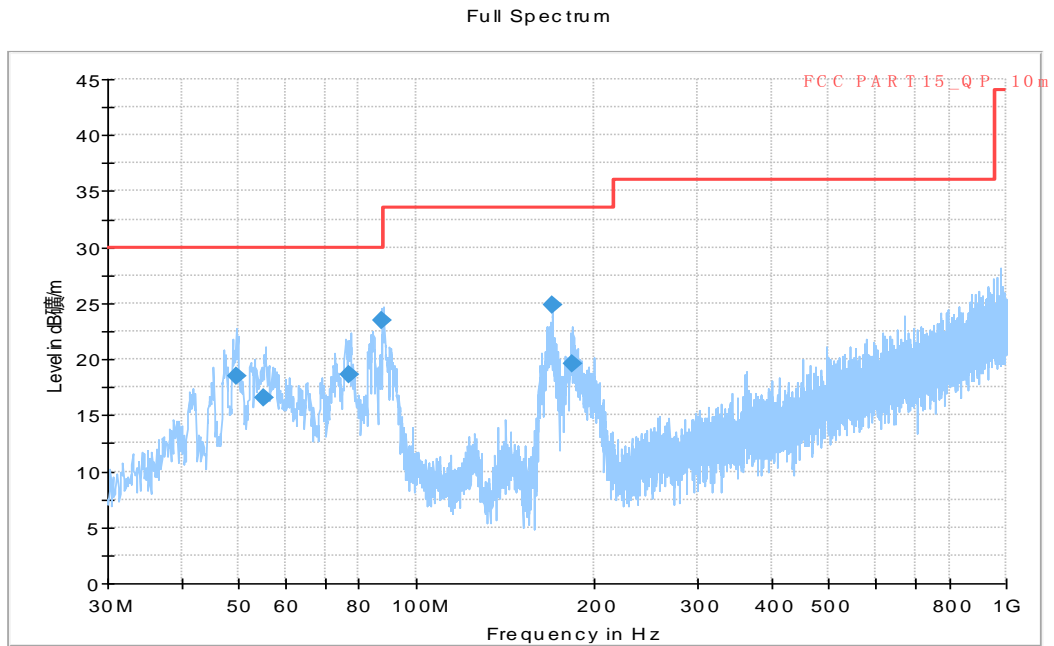


Figure A.7 Radiated Emission from 30MHz to 1GHz

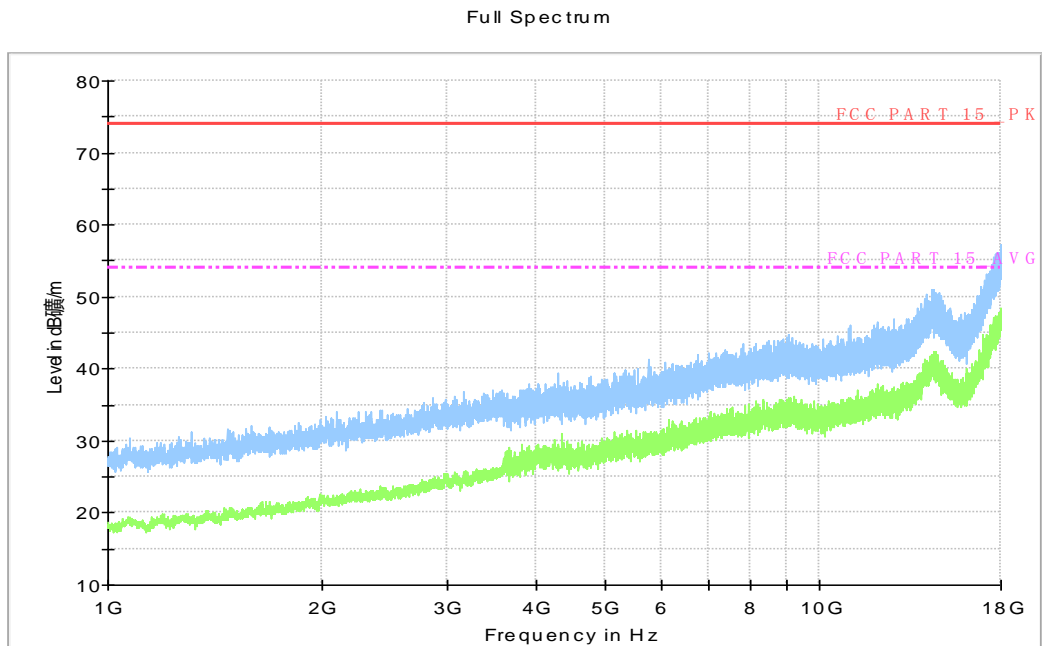


Figure A.8 Radiated Emission from 1GHz to 18GHz

USB cable AE7 and HeasSet AE9, data transfer and FM, Set.8-5

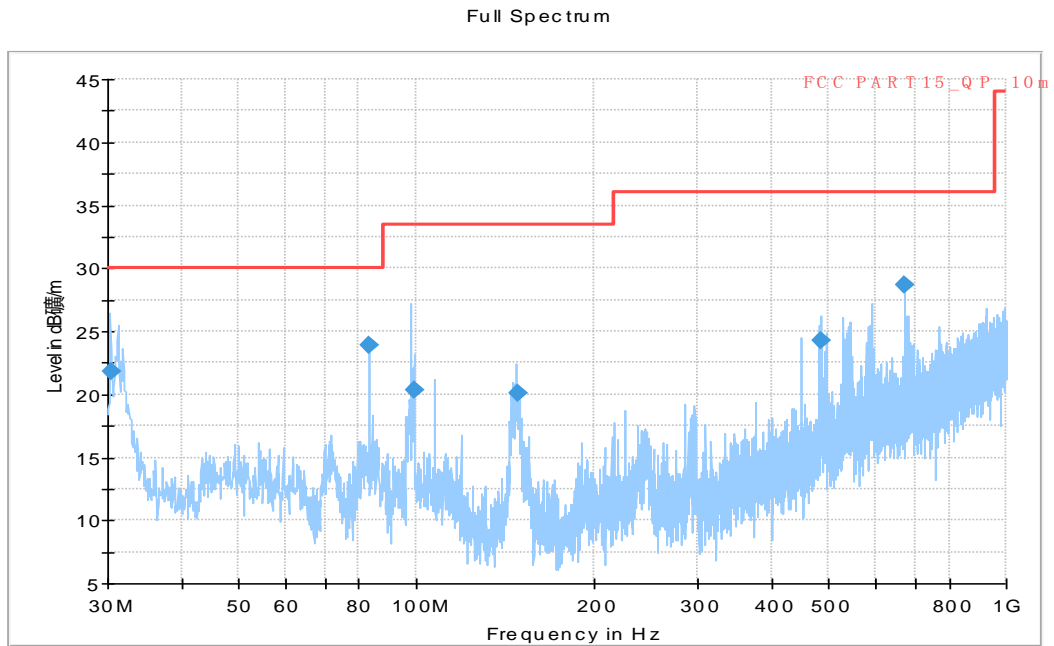


Figure A.9 Radiated Emission from 30MHz to 1GHz

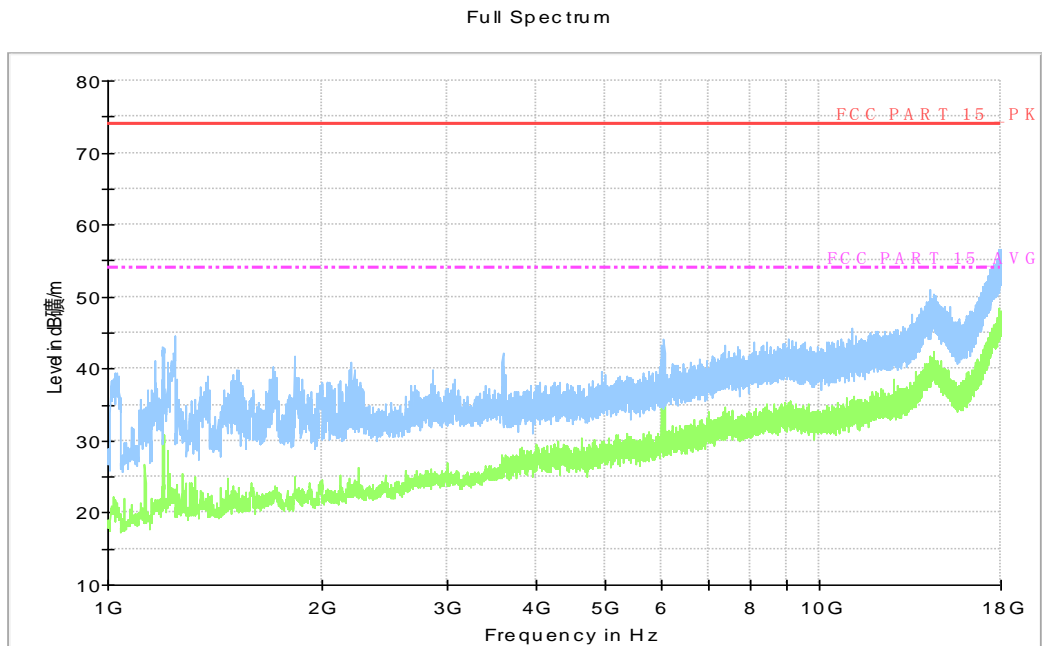


Figure A.10 Radiated Emission from 1GHz to 18GHz

USB cable AE8 and HeasSet AE10, data transfer and FM, Set.8-6

Figure A.11 Radiated Emission from 30MHz to 1GHz

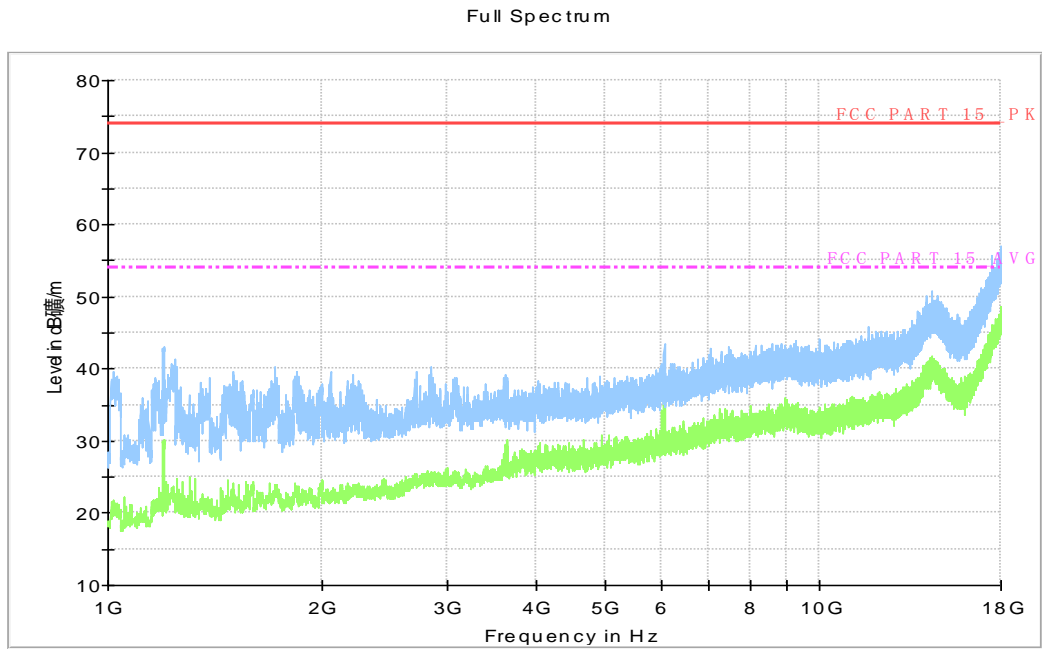


Figure A.12 Radiated Emission from 1GHz to 18GHz

Charger AE3 and USB cable AE7, LTE band 13 idle, Set.8-1

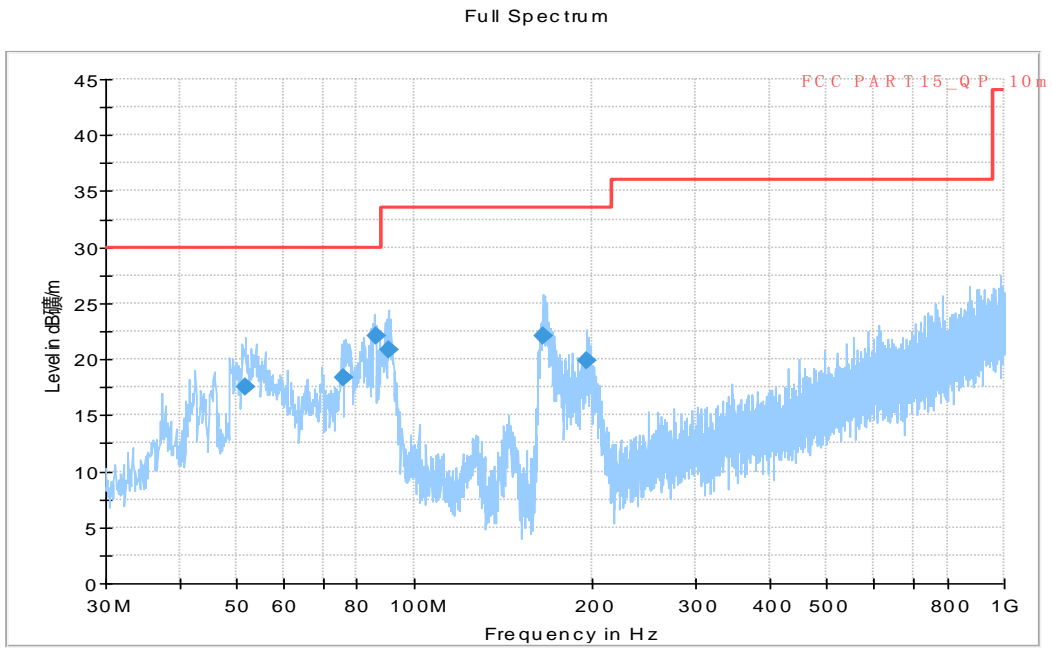


Figure A.13 Radiated Emission from 30MHz to 1GHz

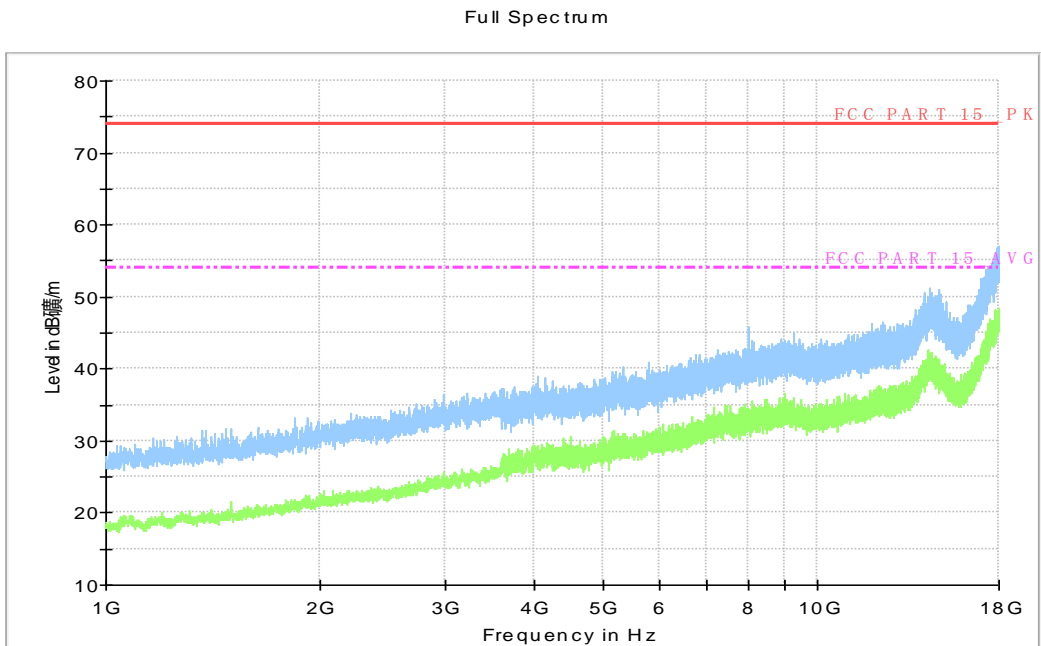


Figure A.14 Radiated Emission from 1GHz to 18GHz

Charger AE3 and USB cable AE7, LTE band 71 idle, Set.8-1

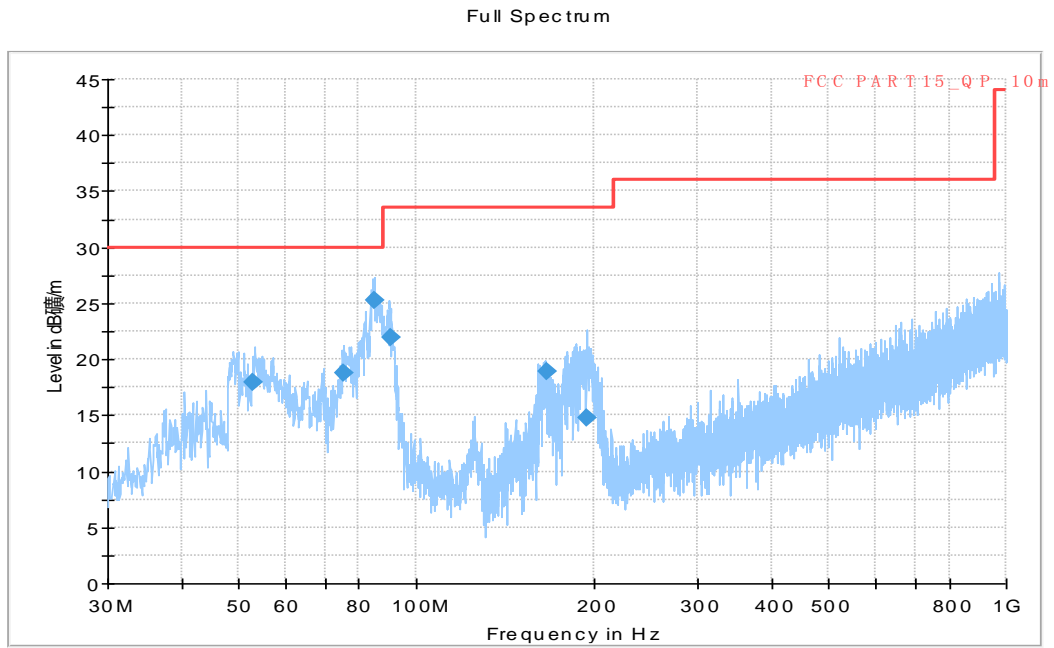


Figure A.15 Radiated Emission from 30MHz to 1GHz

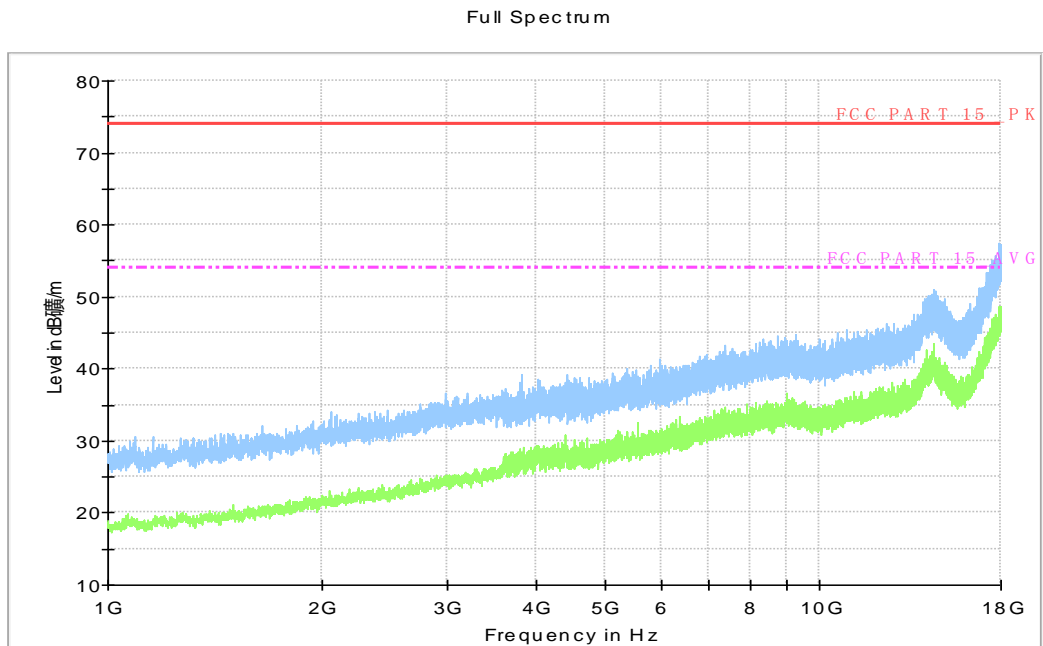


Figure A.16 Radiated Emission from 1GHz to 18GHz

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 charging mode and FM mode. During the test MS is connected to a charger in the case of charging mode.

A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency

A.2.4 Test Condition in charging mode

Voltage (V)	Frequency (Hz)
120	60

RBW/IF bandwidth	Sweep Time(s)
9kHz	1

A.2.5 Measurement Results

Measurement uncertainty: $U=3.08\text{dB}$, $k=2$.

Charger AE3 and USB cable AE7, GSM850MHz idle, Set.8-1

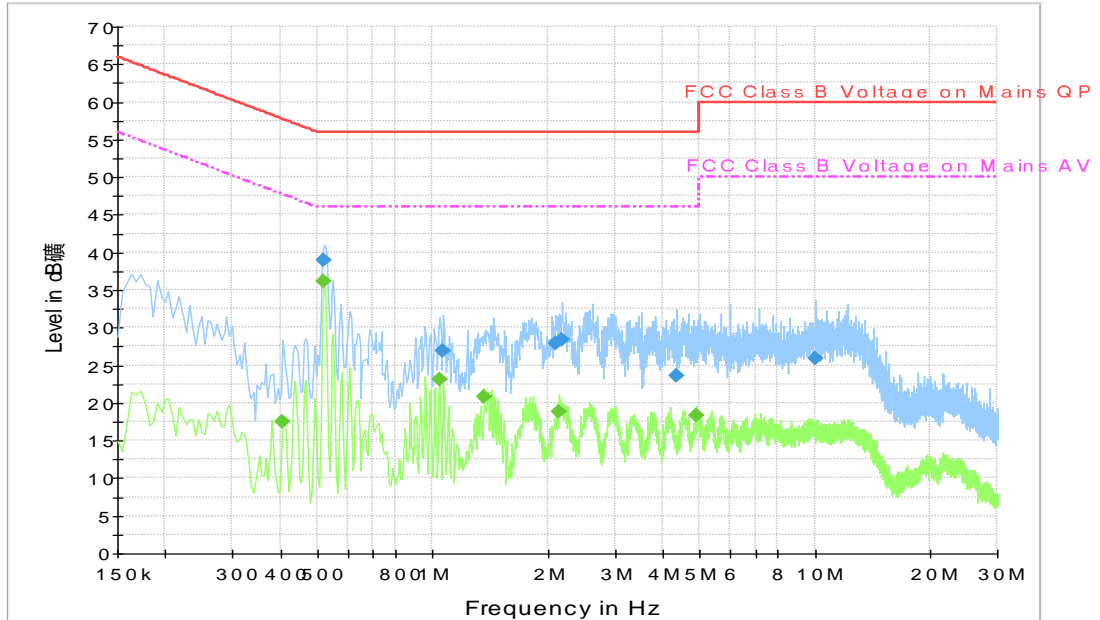


Figure A.23 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.519000	38.9	N	19.5	17.1	56.0
1.068000	26.9	N	19.6	29.1	56.0
2.098500	27.9	N	19.5	28.1	56.0
2.184000	28.3	N	19.5	27.7	56.0
4.348500	23.7	L1	19.8	32.3	56.0
10.081500	25.9	L1	19.9	34.1	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.406500	17.5	L1	19.6	30.3	47.7
0.519000	36.2	L1	19.6	9.8	46.0
1.041000	23.1	L1	19.6	22.9	46.0
1.365000	20.7	L1	19.6	25.3	46.0
2.148000	18.8	N	19.5	27.2	46.0
4.906500	18.3	N	19.7	27.7	46.0

Charger AE4 and USB cable AE7, WCDMA band 5 idle, Set.8-2

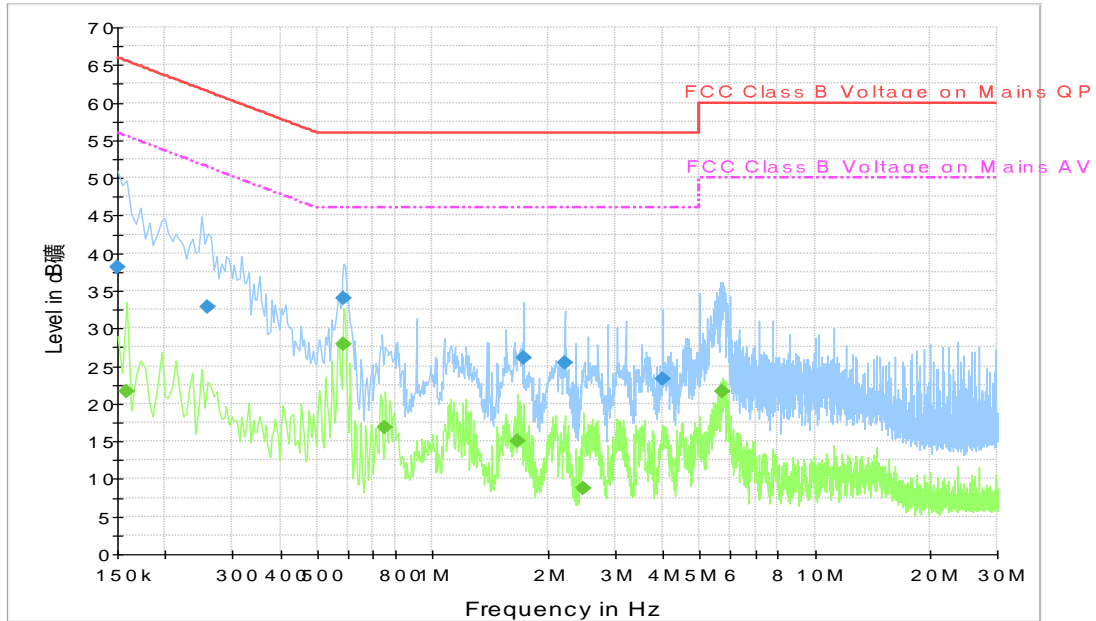


Figure A.24 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	38.1	L1	19.6	27.9	66.0
0.258000	32.8	L1	19.6	28.7	61.5
0.586500	34.1	L1	19.6	21.9	56.0
1.725000	26.1	L1	19.5	29.9	56.0
2.211000	25.5	L1	19.6	30.5	56.0
4.015500	23.3	L1	19.7	32.7	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.159000	21.6	L1	19.7	33.9	55.5
0.586500	27.9	L1	19.6	18.1	46.0
0.753000	16.8	L1	19.6	29.2	46.0
1.666500	15.0	L1	19.6	31.0	46.0
2.485500	8.8	L1	19.6	37.2	46.0
5.743500	21.6	L1	19.8	28.4	50.0

Charger AE5 and USB cable AE8, LTE band 5 idle, Set.8-3

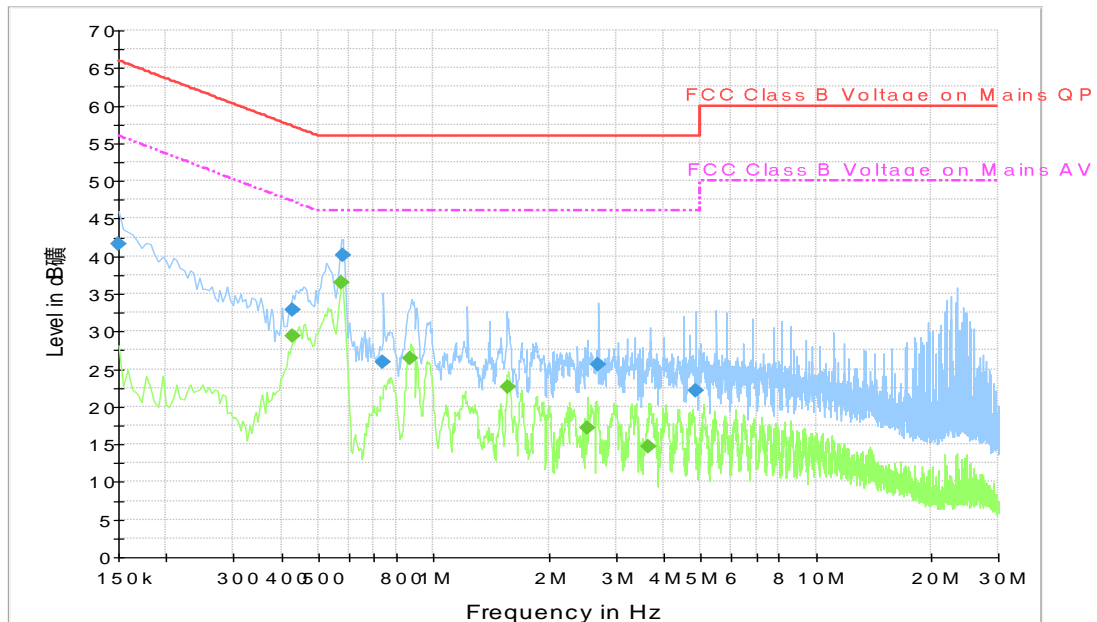


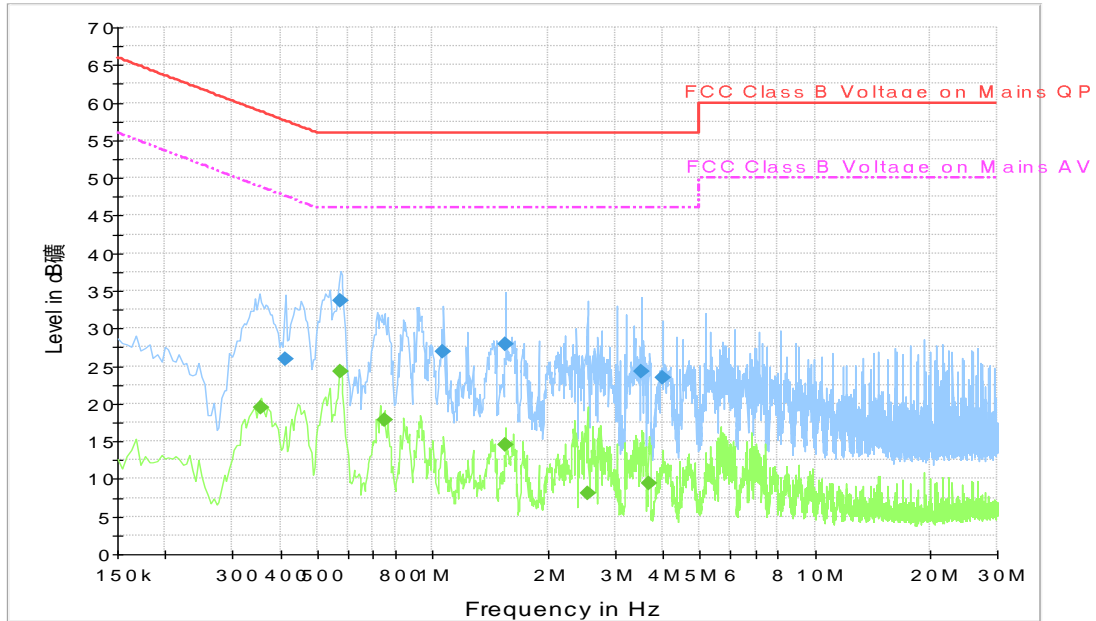
Figure A.25 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	41.7	L1	19.6	24.3	66.0
0.429000	32.8	N	19.6	24.4	57.3
0.577500	40.2	N	19.5	15.8	56.0
0.739500	25.9	L1	19.6	30.1	56.0
2.706000	25.6	L1	19.6	30.4	56.0
4.839000	22.1	L1	19.8	33.9	56.0

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.429000	29.3	N	19.6	18.0	47.3
0.573000	36.4	N	19.5	9.6	46.0
0.870000	26.4	N	19.5	19.6	46.0
1.572000	22.7	N	19.6	23.3	46.0
2.521500	17.2	N	19.6	28.8	46.0
3.660000	14.6	N	19.6	31.4	46.0

Charger AE6 and USB cable AE8, LTE band 12 idle, Set.8-4

Figure A.26 Conducted Emission
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.411000	25.9	L1	19.6	31.7	57.6
0.573000	33.6	L1	19.6	22.4	56.0
1.068000	26.9	L1	19.6	29.1	56.0
1.554000	27.9	L1	19.6	28.1	56.0
3.529500	24.3	L1	19.7	31.7	56.0
4.011000	23.4	L1	19.7	32.6	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.357000	19.5	L1	19.6	29.3	48.8
0.573000	24.3	L1	19.6	21.7	46.0
0.748500	17.9	L1	19.6	28.1	46.0
1.554000	14.5	L1	19.6	31.5	46.0
2.539500	8.1	L1	19.6	37.9	46.0
3.687000	9.5	L1	19.7	36.5	46.0

USB cable AE7 and HeasSet AE9, data transfer and FM, Set.8-5

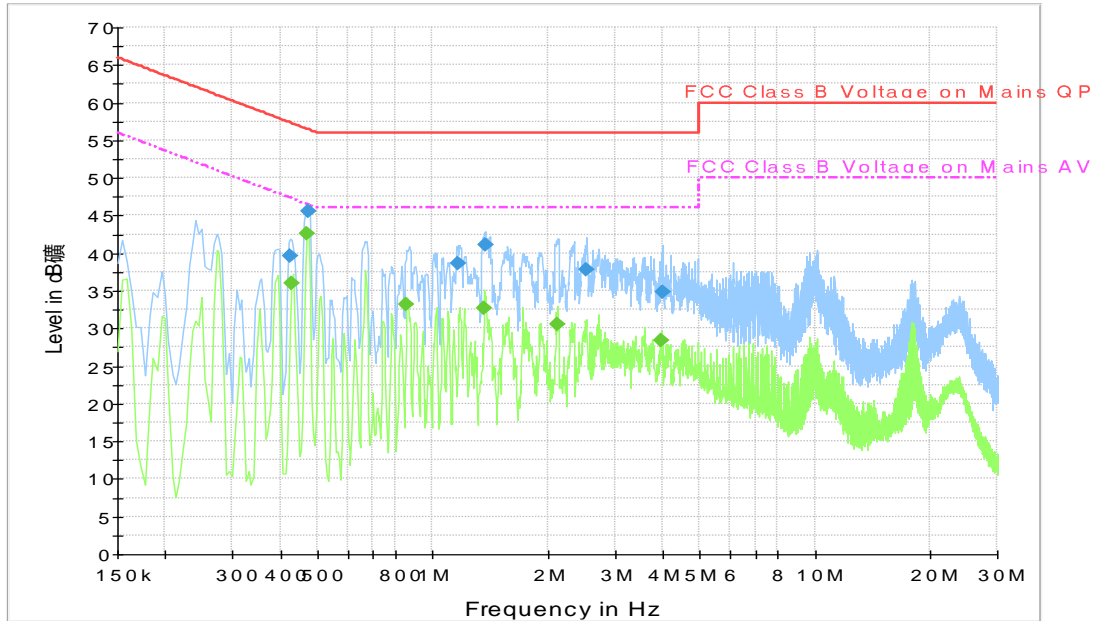


Figure A.27 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.424500	39.6	L1	19.6	17.7	57.4
0.474000	45.5	L1	19.6	10.9	56.4
1.167000	38.7	N	19.6	17.3	56.0
1.374000	41.2	L1	19.6	14.8	56.0
2.521500	37.8	N	19.6	18.2	56.0
3.993000	34.8	N	19.7	21.2	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.429000	36.0	N	19.6	11.3	47.3
0.469500	42.5	N	19.6	4.0	46.5
0.856500	33.1	N	19.5	12.9	46.0
1.369500	32.7	N	19.6	13.3	46.0
2.125500	30.6	N	19.5	15.4	46.0
3.979500	28.4	N	19.7	17.6	46.0

USB cable AE8 and HeasSet AE10, data transfer and FM, Set.8-6

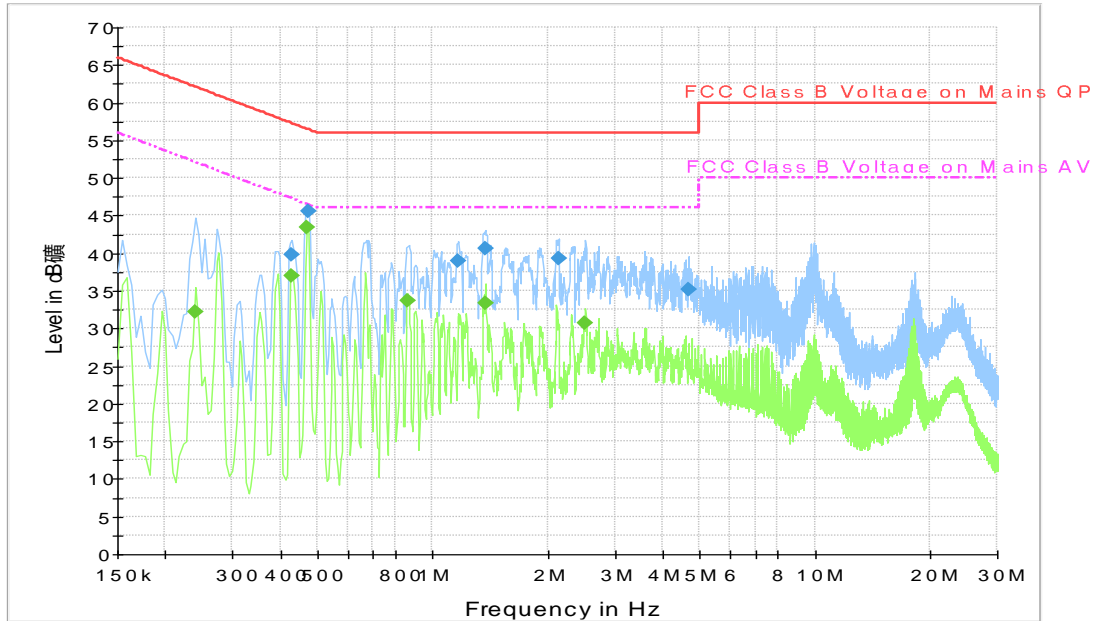


Figure A.27 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.429000	39.8	L1	19.6	17.5	57.3
0.474000	45.5	L1	19.6	10.9	56.4
1.171500	39.0	L1	19.6	17.0	56.0
1.374000	40.7	N	19.6	15.3	56.0
2.139000	39.3	N	19.5	16.7	56.0
4.659000	35.2	N	19.7	20.8	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.240000	32.1	N	19.6	20.0	52.1
0.429000	36.9	L1	19.6	10.3	47.3
0.469500	43.5	L1	19.6	3.0	46.5
0.861000	33.7	N	19.5	12.3	46.0
1.374000	33.4	L1	19.6	12.6	46.0
2.512500	30.7	L1	19.6	15.3	46.0



ANNEX B: Persons involved in this testing

Test Item	Tester
Conducted Continuous Emission	Wang Huan
Radiated Continuous Emission	Wang Huan, Ding Zai, Zhang Tianli

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