



TEST REPORT

No. I14Z49143-EMC01

for

ZTE Corporation

WCDMA/GSM (GPRS) Dual-Mode Digital Mobile Phone

Model Name: ZTE Blade L3/Blade L3

FCC ID: SRQ-ZTEBLADEL3

with

Hardware Version: WMBX

Software Version: ZTE_CN_QB125S_P182A20V1.0.0

Issued Date: 2015-01-19

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.

Test Laboratory:

FCC 2.948 Listed: No.525429

CTTL, Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I14Z49143-EMC01	Rev.1	2st edition	2015-01-19

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1. Test Laboratory

1.1. Testing Location

Location 1: CTTL(huayuan North Road)

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

1.2. Testing Environment

Normal Temperature: 15-35℃

Relative Humidity: 20-75%

1.3. Project data

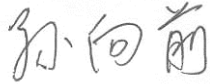
Testing Start Date: 2014-12-22

Testing End Date: 2015-01-14

1.4. Signature



Qu Pengfei
(Prepared this test report)



Sun Xiangqian
(Reviewed this test report)



Lu Bingsong
Director of the laboratory
(Approved this test report)



2. Client Information

2.1. Applicant Information

Company Name: ZTE Corporation
Address /Post: J0411, No.889 Bibo Road, Zhangjiang Hi-Tech Park, Shanghai, China
City: Shanghai
Postal Code: 201203
Country: China
Contact Person: Zhang Min
Contact Email: /
Telephone: 0086-21-68897541
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2.2. Manufacturer Information

Company Name: ZTE Corporation
Address /Post: J0411, No.889 Bibo Road, Zhangjiang Hi-Tech Park, Shanghai, China
City: Shanghai
Postal Code: 201203
Country: China
Telephone: 0086-21-68897541
Fax: /

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

3.1. About EUT

Description	WCDMA/GSM (GPRS) Dual-Mode Digital Mobile Phone
Model Name	ZTE Blade L3/Blade L3
FCC ID	SRQ-ZTEBLADEL3
Extreme vol. Limits	3.5VDC to 4.35VDC (nominal: 3.7VDC)

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
EUT1	866254020016255	WMBX	ZTE_CN_QB125S_P182A20 V1.0.0
EUT2	866254020016230	WMBX	ZTE_CN_QB125S_P182A20 V1.0.0

*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	A0171411200016060	1449143BA004
AE2	Battery	A0171411200035229	1449143BA006
AE11	Travel charger	/	1449143CH006
AE12	Travel charger	/	1449143CH003
AE17	USB cable	/	1449143DC001
AE18	USB cable	/	1449143DC005

AE1, AE2

Model	Li3820T43P3h785439
Manufacturer	BAK
Capacitance	2000mAh
Nominal voltage	3.8V

AE11, AE12

Model	STC-A51-A
Manufacturer	RUIDE
Length of cable	/

AE17

Model	/
Manufacturer	/
Length of cable	68cm

AE18

Model /
 Manufacturer /
 Length of cable 68cm

*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.1	EUT1 + AE1/AE2 + AE11 +AE17/AE18	Charger
Set.2	EUT1 + AE1/AE2 + AE17/AE18	USB

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	10-1-13 Edition
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low - Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2009

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 错误!未找到引用源。

Abbreviations used in this clause:		
Verdict Column	P	Pass
	NA	Not applicable
	F	Fail
Location Column	1/2/3/4	The test is performed in test location 1, 2, 3 or 4 which are described in section 1.1 of this report

Items	Test Name	Clause in FCC rules	Clause in IC rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	Section 5	B.1	P	1
2	Conducted Emission	15.107(a)	Section 5	B.2	P	1

7. Test Equipments Utilized

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER	CAL. DUE DATE	CAL. INTERVAL
1.	EMI Antenna	VULB 9163	9163-234	Schwarzbeck	2016-09-15	3 Years
2.	Test Receiver	ESCI 7	100948	R&S	2015-07-16	1 Year
3.	Test Receiver	FSV	101047	R&S	2015-07-03	1 Year
4.	EMI Antenna	3115	6914	ETS-Lindgren	2016-12-15	3 Years
5.	Test Receiver	ESCI	100344	R&S	2015-03-03	1 Year
6.	LISN	ENV216	101200	R&S	2015-07-07	1 Year
7.	Universal Radio Communication Tester	CMU200	109914	R&S	2015-04-13	1 Year
8.	PC	OPTIPLEX 380	2X1YV2X	DELL	/	/
9.	Monitor	E1709Wc	CN-OJ672H-6 4180-9BF-1CR L	DELL	/	/
10.	Printer	P1606dn	VNC3L52122	HP	/	/
11.	Keyboard	L100	CN-ORH656-6 5890-03S-041 Y	DELL	/	/
12.	Mouse	M-UAR	LZ013HC1YLV	DELL	/	/

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 10 meters(for 30MHz-1GHz) and 3 meters (for above 1GHz) is tested. Tested in accordance with the procedures of ANSI C63.4 - 2009, 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 model of the PC is DELL OPTIPLEX 380, and the serial number of the PC is 2X1YV2X. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

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:

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

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Measurement uncertainty (worst case): $U = 4.3 \text{ dB}$, $k=2$.

Measurement results for Set.1:

Charging Mode/Average detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
9948.813	35.1	-24.9	38.0	22.000	HORIZONTAL
9964.563	35.1	-24.2	38.0	21.300	VERTICAL
9969.625	35.0	-24.2	38.0	21.200	VERTICAL
9992.125	35.0	-24.2	38.0	21.200	HORIZONTAL
9954.438	35.0	-24.9	38.0	21.900	VERTICAL
9993.250	34.9	-24.2	38.0	21.100	HORIZONTAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
9027.438	47.5	-26.7	38.4	35.800	HORIZONTAL
9890.313	46.9	-24.9	38.0	33.800	VERTICAL
9995.500	46.8	-24.2	38.0	33.000	VERTICAL
9979.188	46.7	-24.2	38.0	32.900	VERTICAL
9495.438	46.6	-25.5	38.4	33.700	HORIZONTAL
9704.125	46.6	-24.5	38.0	33.100	VERTICAL

Measurement result for Set.2:**USB Mode/Average detector**

Frequency(MHz)	Result(dBμV/m)	G _{PL} (dB)	G _A (dB/m)	P _{mea} (dBμV)	Polarity
9966.250	35.3	-24.2	38.0	21.500	VERTICAL
9983.688	35.1	-24.2	38.0	21.300	HORIZONTAL
9965.688	35.0	-24.2	38.0	21.200	VERTICAL
9956.125	35.0	-24.9	38.0	21.900	VERTICAL
9989.313	35.0	-24.2	38.0	21.200	HORIZONTAL
9971.875	35.0	-24.2	38.0	21.200	VERTICAL

USB Mode/ Peak detector

Frequency(MHz)	Result(dBμV/m)	G _{PL} (dB)	G _A (dB/m)	P _{mea} (dBμV)	Polarity
1464.063	53.3	-40.0	24.1	69.200	VERTICAL
1465.188	53.0	-40.0	24.1	68.900	HORIZONTAL
1452.250	52.0	-40.2	24.1	68.100	VERTICAL
1453.938	51.9	-40.2	24.1	68.000	HORIZONTAL
1457.875	51.7	-40.2	24.1	67.800	VERTICAL
1442.688	51.7	-40.4	24.1	68.000	HORIZONTAL

Note: The measurement results of Set.1, Set.2 showed here are worst cases of the combinations of different batteries and USB cables.

Charging Mode, Set.1

Normal RE_30M-1GHz_10m

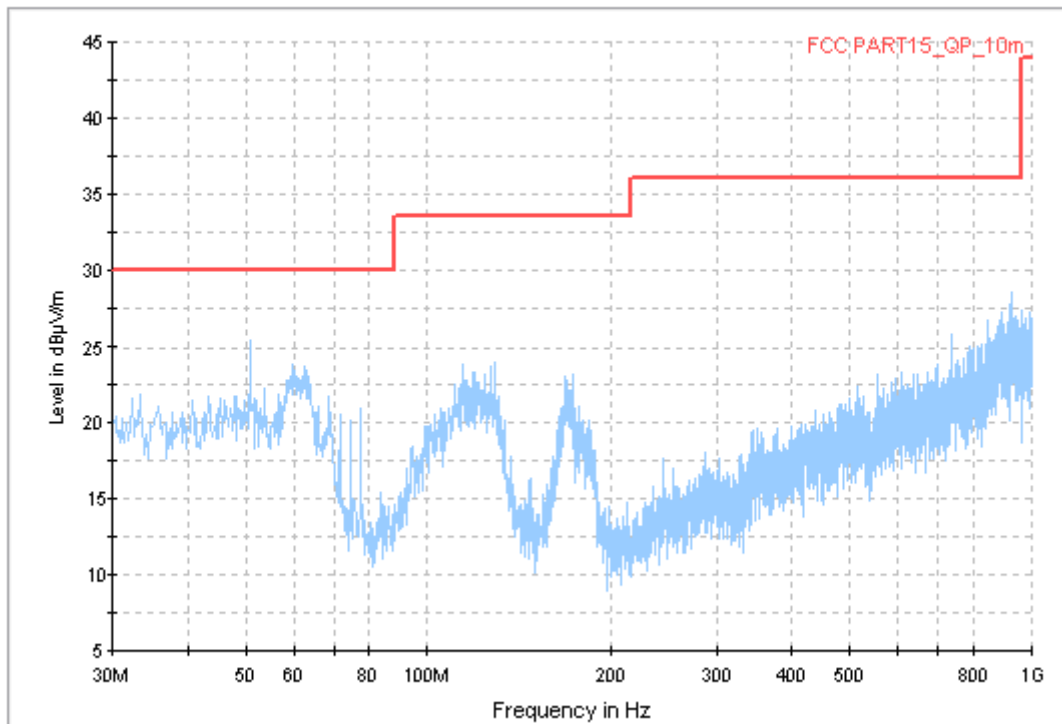


Figure A.1 Radiated Emission from 30MHz to 1GHz

Normal RE_1G-18GHz_directly

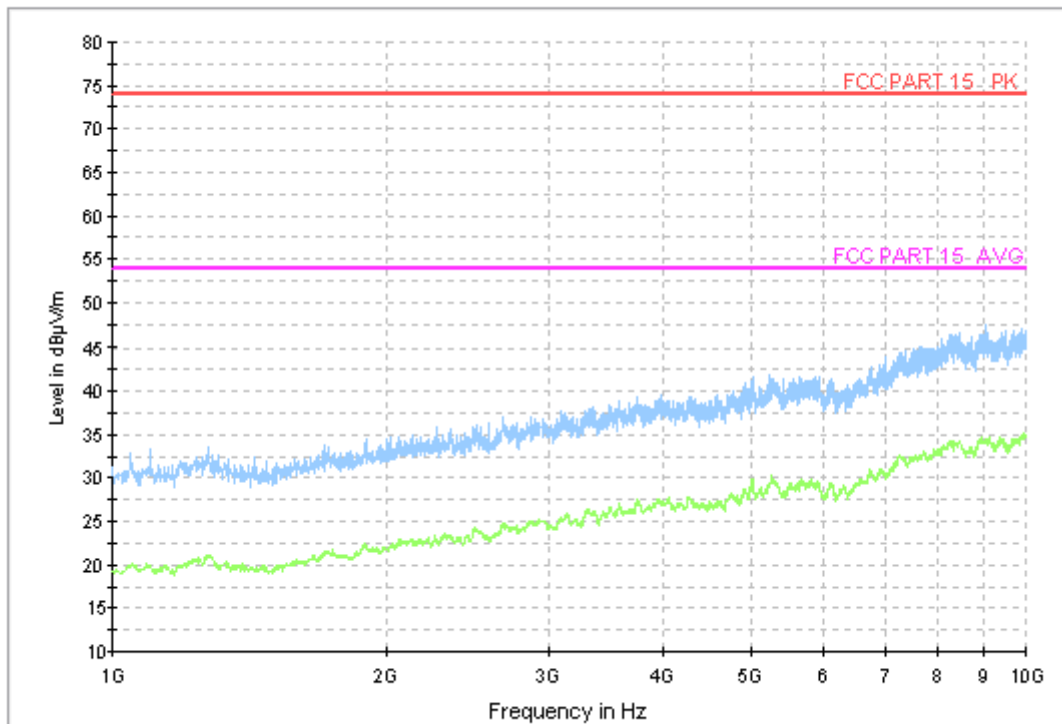


Figure A.2 Radiated Emission from 1GHz to 6GHz

USB Mode, Set.2

Normal RE_30M-1GHz_10m

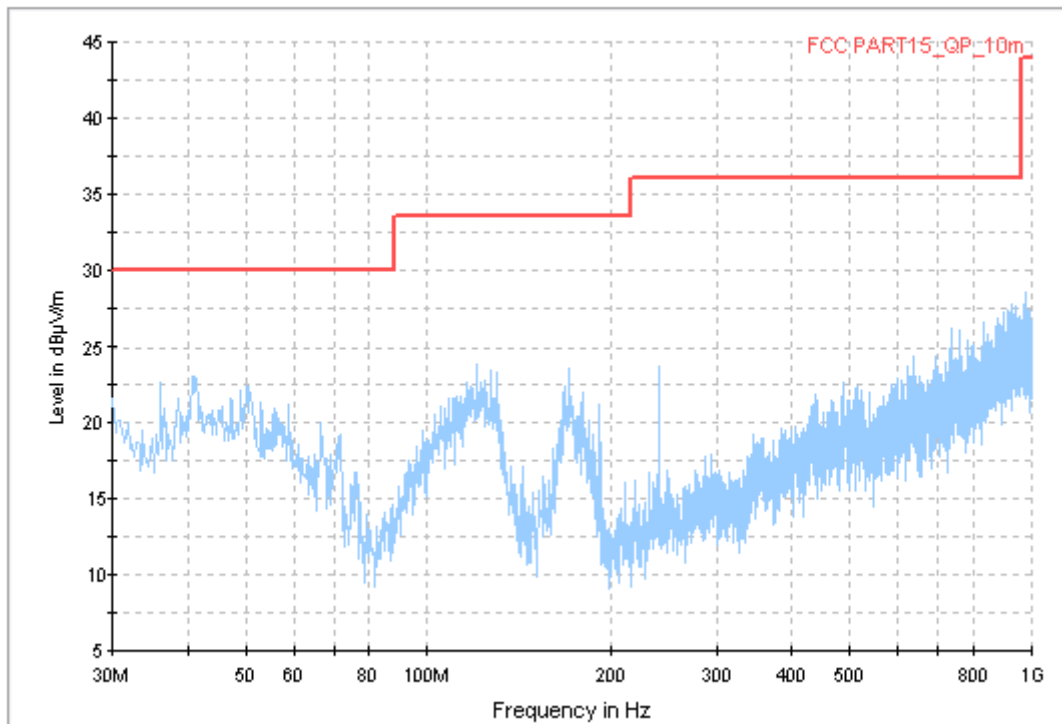


Figure A.3 Radiated Emission from 30MHz to 1GHz

RE_1G-10GHz

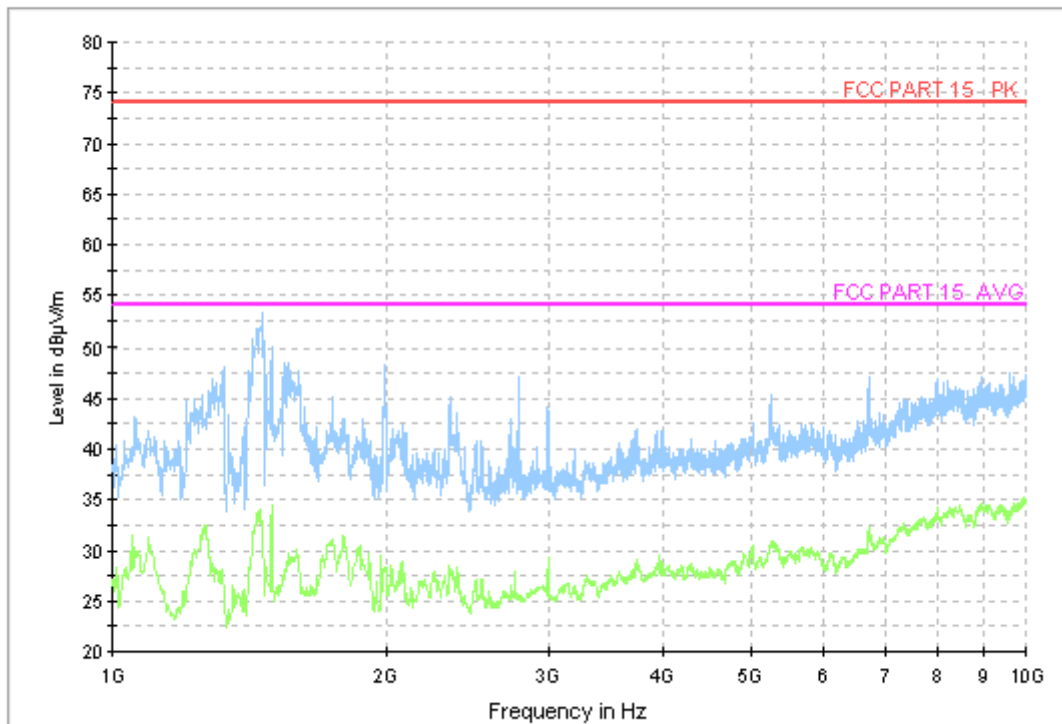


Figure A.4 Radiated Emission from 1GHz to 6GHz

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 - 2009, 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 OPTIPLEX 380, and the serial number of the PC is 2X1YV2X. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

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: $U = 2.9 \text{ dB}$, $k=2$.

Charging Mode, Set.1

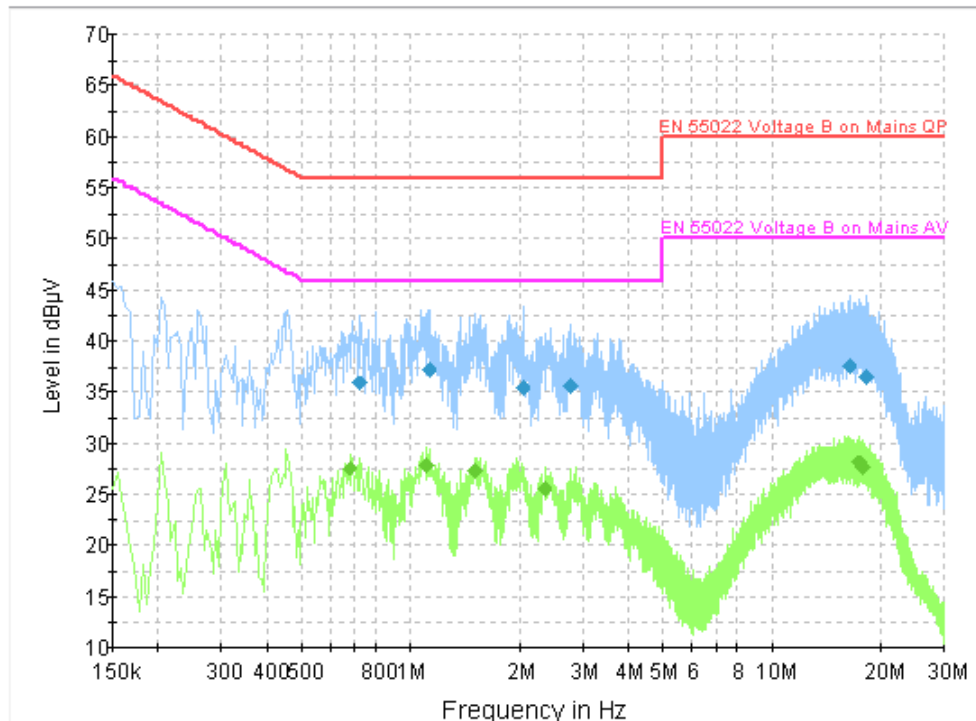


Figure A.7 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.721500	35.8	GND	L1	19.9	20.2	56.0
1.122000	37.1	GND	L1	19.8	18.9	56.0
2.040000	35.4	GND	L1	19.7	20.6	56.0
2.764500	35.5	GND	L1	19.7	20.5	56.0
16.413000	37.6	GND	L1	19.9	22.4	60.0
18.312000	36.5	GND	L1	19.9	23.5	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.681000	27.6	GND	L1	19.9	18.4	46.0
1.104000	27.8	GND	L1	19.8	18.2	46.0
1.509000	27.3	GND	L1	19.7	18.7	46.0
2.346000	25.5	GND	L1	19.7	20.5	46.0
17.358000	28.2	GND	L1	19.9	21.8	50.0
17.821500	27.7	GND	L1	19.9	22.3	50.0

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

USB Mode, Set.2

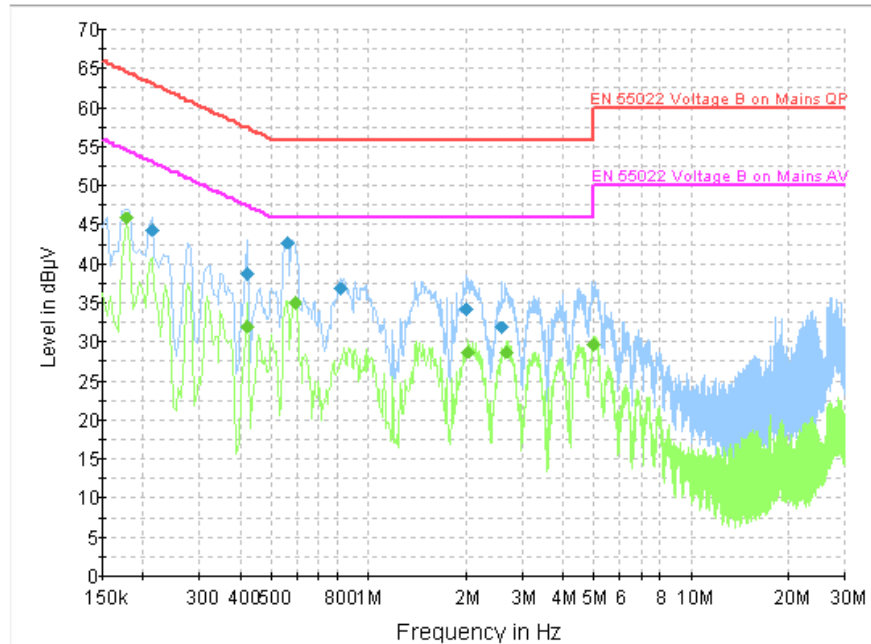


Figure A.8 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.213000	44.4	GND	N	19.9	18.7	63.1
0.420000	38.7	GND	L1	20.0	18.7	57.4
0.559500	42.8	GND	N	20.0	13.2	56.0
0.825000	36.9	GND	N	19.9	19.1	56.0
2.008500	34.1	GND	L1	19.7	21.9	56.0
2.593500	31.9	GND	N	19.7	24.1	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.177000	45.9	GND	N	19.9	8.7	54.6
0.420000	32.0	GND	L1	20.0	15.4	47.4
0.591000	35.0	GND	L1	20.0	11.0	46.0
2.031000	28.7	GND	N	19.7	17.3	46.0
2.665500	28.7	GND	L1	19.7	17.3	46.0
4.983000	29.8	GND	N	19.6	16.2	46.0

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

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