



TEST REPORT

No. I14Z47594-EMC01

for

ZTE CORPORATION

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

Model Name: 302ZT

FCC ID: SRQ-302ZT

with

Hardware Version: wmmB

Software Version: alpha1.0

Issued Date: Sep.18th, 2014

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 TMC Beijing.

Test Laboratory:

FCC 2.948 Listed: No.733176

IC O.A.T.S listed: No.6629A-1

TMC Beijing, Telecommunication Metrology Center of Ministry of Industry and Information Technology

No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China 100191

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1. Test Laboratory

1.1. Testing Location

Location A

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
Address: No 52, Huayuan Bei Road, Haidian District, Beijing, P.R. China
Postal Code: 100191

1.2. Testing Environment

Normal Temperature: 15-35°C
Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: Sep. 9th, 2014
Testing End Date: Sep. 12th, 2014

1.4. Signature



Qu Pengfei
(Prepared this test report)



Sun Xiangqian
(Reviewed this test report)



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

2. Client Information

2.1. Applicant Information

Company Name: ZTE CORPORATION
Address /Post: ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R. China
City: Shenzhen
Postal Code: 518057
Country: China
Telephone: +86-21-68897541
Fax: +86-21-50801070

2.2. Manufacturer Information

Company Name: ZTE CORPORATION
Address /Post: ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R. China
City: Shenzhen
Postal Code: 518057
Country: China
Telephone: +86-21-68897541
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3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	WCDMA/GSM (GPRS) Dual-Mode Digital Mobile Phone
Model Name	302ZT
FCC ID	SRQ-302ZT
Extreme vol. Limits	3.5VDC to 4.35VDC (nominal: 3.8VDC)

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	864183022006885	wmmB	alpha1.0

*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	/	1447594BA001
AE2	Battery	/	1447594BA002
AE3	USB cable	/	1447594DC001
AE4	USB cable	/	1447594DC002
AE5	Travel	/	1447594CH004
AE6	Travel	/	1447594CH003

AE1,AE2

Model	ZEBAT1
Manufacturer	ZTE CORPORATION
Capacitance	1100 mAh
Nominal voltage	3.7 V

AE3,AE4

Model	/
Manufacturer	/
Length of cable	118cm

AE5,AE6

Model	STC-A51A-Z
Manufacturer	RUIDE
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.1	EUT1+ AE1+ AE3 + AE5	Charger
Set.2	EUT1+ AE1+ AE3	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 TEST RESULTS

Abbreviations used in this clause:		
Verdict Column	P	Pass
	NA	Not applicable
	F	Fail
Location Column	A/B/C/D	The test is performed in test location A, B, C or D 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	A
2	Conducted Emission	15.107(a)	Section 5	B.2	P	A

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESCI	100344	R&S	2015-03-03	1 year
2	Test Receiver	ESCI 7	100948	R&S	2015-07-16	1 year
3	Universal Radio Communication Tester	CMU200	109914	R&S	2015-04-13	1 year
4	Test Receiver	FSV	101047	R&S	2015-07-03	1 year
5	LISN	ENY216	101200	R&S	2015-07-07	1 year
6	EMI Antenna	VULB 9163	9163-234	Schwarzbeck	2016-09-15	3 years
7	EMI Antenna	3115	6914	ETS-Lindgren	2014-12-15	3 years
8	Universal Radio Communication Tester	CMW500	143008	R&S	2014-12-09	1 year
9	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A	N/A
10	Monitor	E178FPc	CN-OWR979-6 4180-7AJ-D2M S	DELL	N/A	N/A
11	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
12	Keyboard	L100	CN0RH659658 907ATOI40	DELL	N/A	N/A
13	Mouse	M-UAE119	LZ935220ZRC	Lenovo	N/A	N/A

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 ($\mu\text{V}/\text{m}$)		
	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.

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
17991.500	46.3	-17.7	45.6	18.400	VERTICAL
17979.600	46.3	-17.7	45.6	18.400	HORIZONTAL
17988.100	46.3	-17.7	45.6	18.400	VERTICAL
17977.900	46.3	-17.7	45.6	18.400	HORIZONTAL
17972.800	46.2	-17.7	45.6	18.300	HORIZONTAL
17998.300	46.2	-17.7	45.6	18.300	VERTICAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
17989.800	58.7	-17.7	45.6	30.800	HORIZONTAL
17991.500	57.7	-17.7	45.6	29.800	VERTICAL
17960.900	57.6	-17.7	45.6	29.700	HORIZONTAL
17964.300	57.4	-17.7	45.6	29.500	HORIZONTAL
18000.000	57.3	-45.6	44.5	58.366	HORIZONTAL
17972.800	57.3	-17.7	45.6	29.400	VERTICAL

Measurement result for Set.2:

USB Mode/Average detector

Frequency(MHz)	Result(dB μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{mea} (dB μ V)	Polarity
17996.600	46.4	-17.7	45.6	18.500	VERTICAL
17988.100	46.3	-17.7	45.6	18.400	HORIZONTAL
17991.500	46.3	-17.7	45.6	18.400	HORIZONTAL
17989.800	46.3	-17.7	45.6	18.400	HORIZONTAL
17986.400	46.2	-17.7	45.6	18.300	VERTICAL
17981.300	46.2	-17.7	45.6	18.300	HORIZONTAL

USB Mode/ Peak detector

Frequency(MHz)	Result(dB μ V/m)	G _{PL} (dB)	G _A (dB/m)	P _{mea} (dB μ V)	Polarity
17909.900	58.4	-18.5	45.6	31.300	VERTICAL
18000.000	58.0	-45.6	44.5	59.066	HORIZONTAL
17835.100	57.9	-18.5	45.6	30.800	VERTICAL
17966.000	57.9	-17.7	45.6	30.000	HORIZONTAL
17988.100	57.7	-17.7	45.6	29.800	VERTICAL
17981.300	57.6	-17.7	45.6	29.700	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

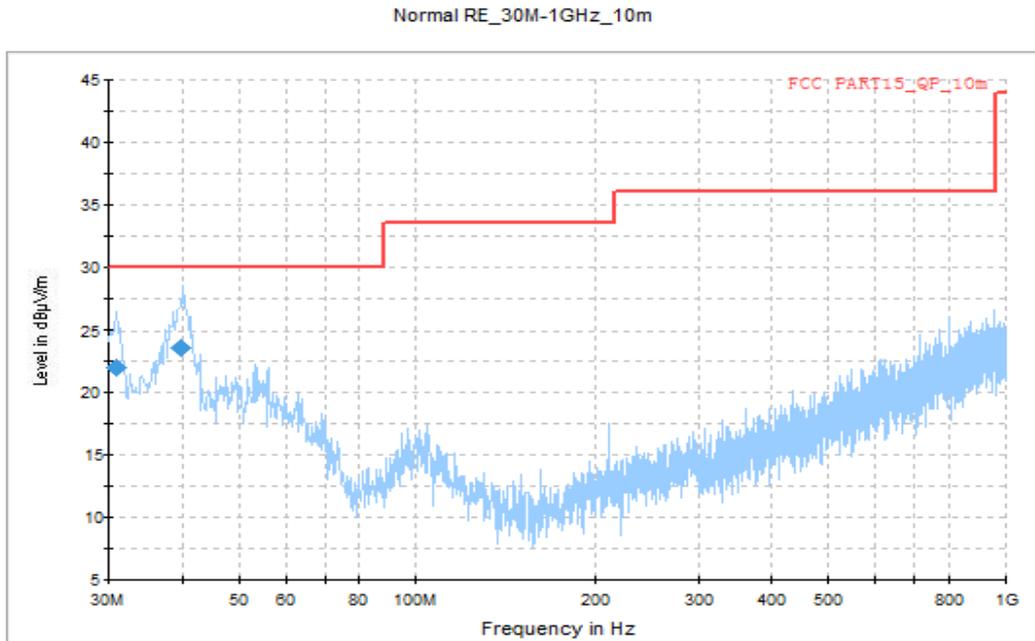


Figure A.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.970000	22.0	109.0	V	150.0	-19.5	8.0	30.0
39.945000	23.7	119.0	V	158.0	-17.5	6.3	30.0

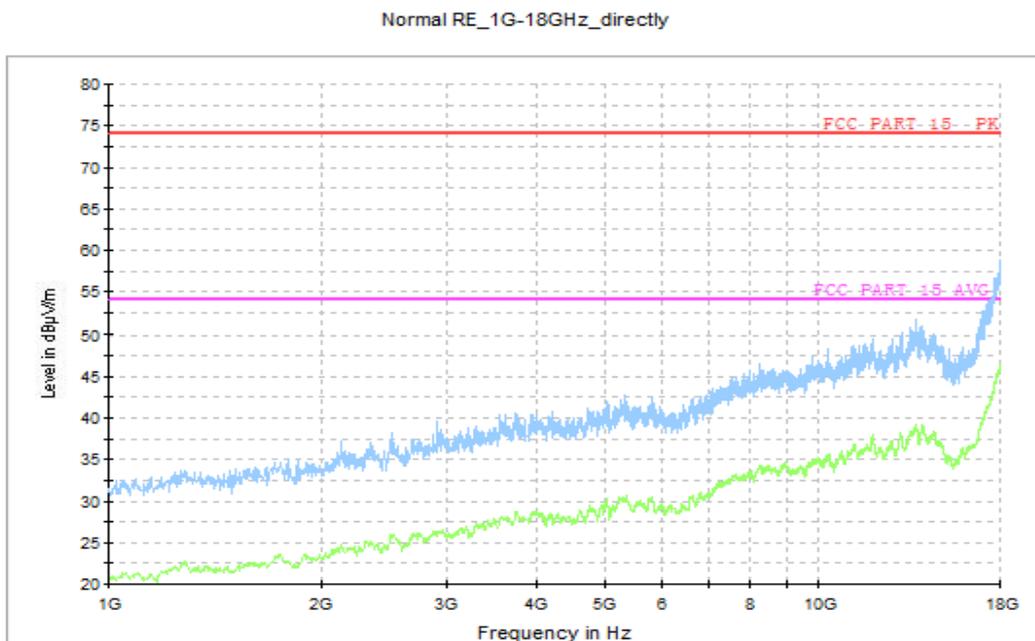


Figure A.2 Radiated Emission from 1GHz to 18GHz

USB Mode, Set.2

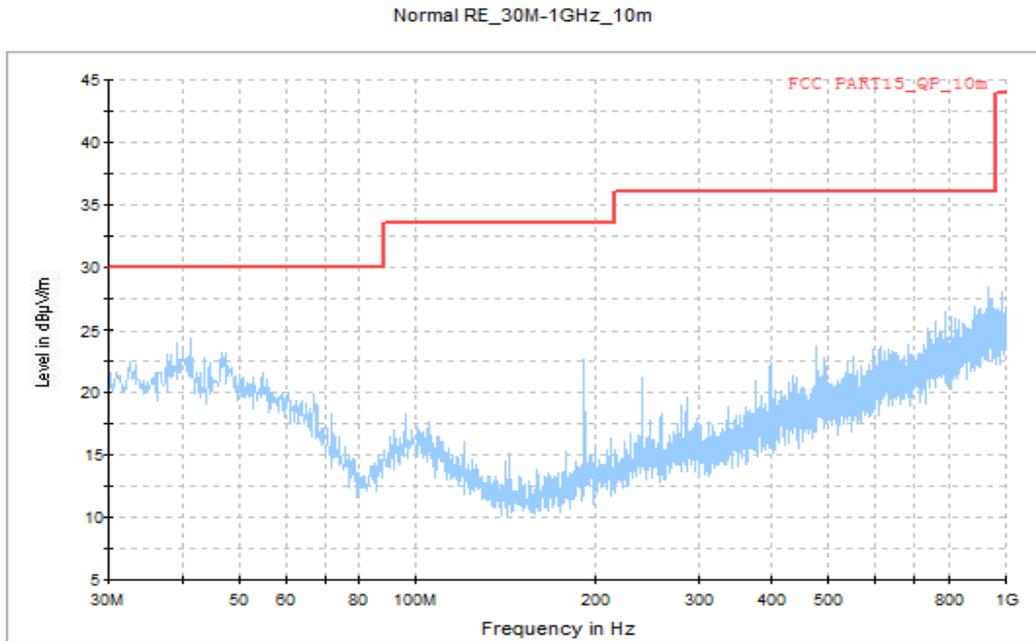


Figure A.3 Radiated Emission from 30MHz to 1GHz

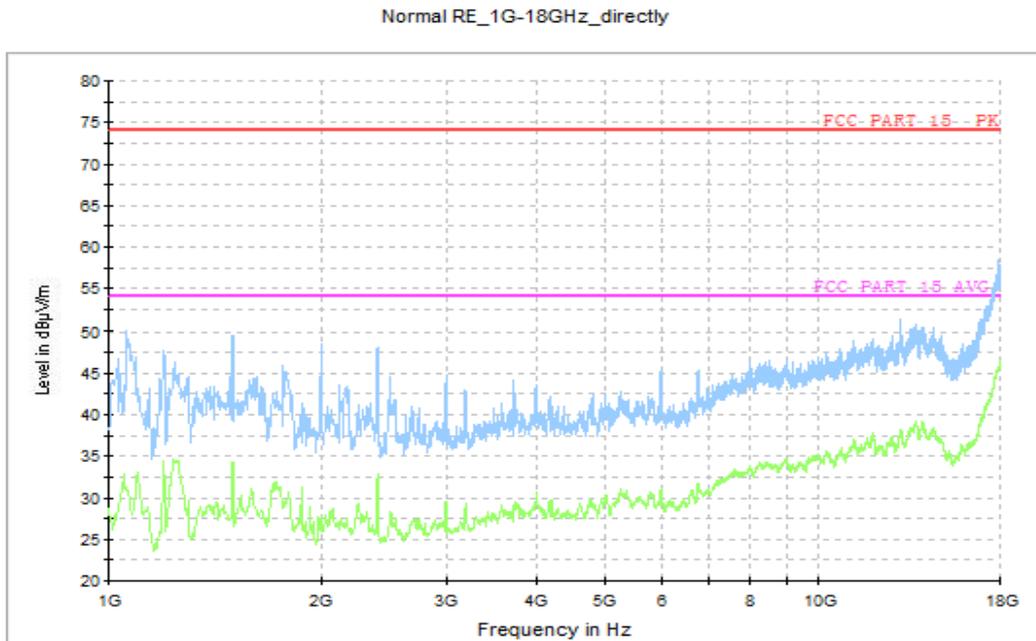


Figure A.4 Radiated Emission from 1GHz to18GHz

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 (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: $U= 2.9$ dB, $k=2$.

Charging Mode, Set.1

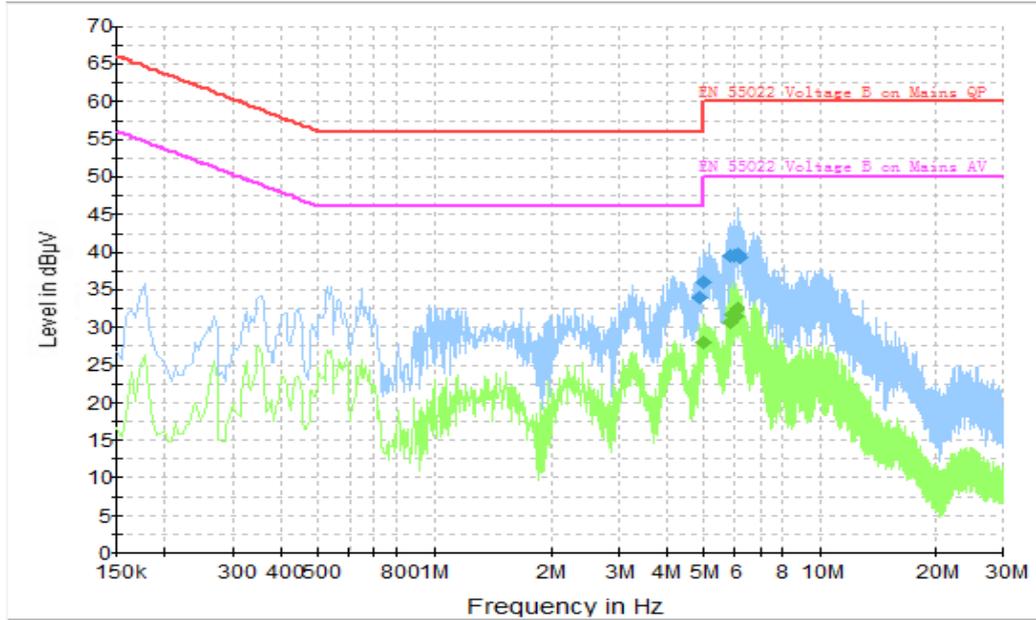


Figure A.5 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
4.920000	33.8	2000.0	9.000	On	N	9.7	22.2	56.0
4.992000	36.0	2000.0	9.000	On	L1	9.7	20.0	56.0
5.905500	39.5	2000.0	9.000	On	L1	9.7	20.5	60.0
5.977500	39.5	2000.0	9.000	On	N	9.7	20.5	60.0
6.139500	39.6	2000.0	9.000	On	N	9.7	20.4	60.0
6.225000	39.3	2000.0	9.000	On	L1	9.7	20.7	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
4.992000	27.9	2000.0	9.000	On	L1	9.7	18.1	46.0
5.905500	30.5	2000.0	9.000	On	L1	9.7	19.5	50.0
5.964000	31.7	2000.0	9.000	On	L1	9.7	18.3	50.0
6.009000	31.7	2000.0	9.000	On	N	9.7	18.3	50.0
6.081000	31.4	2000.0	9.000	On	N	9.7	18.6	50.0
6.130500	32.5	2000.0	9.000	On	L1	9.7	17.5	50.0

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

USB Mode, Set.2

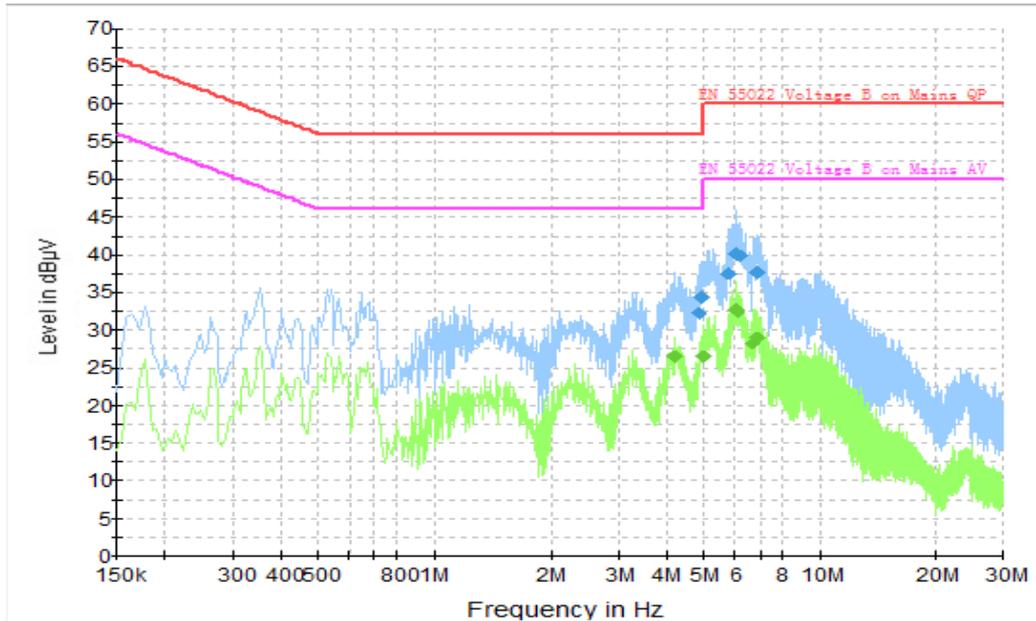


Figure A.6 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
4.839000	32.2	2000.0	9.000	On	L1	9.7
4.942500	34.3	2000.0	9.000	On	L1	9.7
5.797500	37.4	2000.0	9.000	On	L1	9.7
6.045000	40.1	2000.0	9.000	On	L1	9.7
6.211500	39.8	2000.0	9.000	On	L1	9.7
6.877500	37.6	2000.0	9.000	On	N	9.7

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
4.186500	26.4	2000.0	9.000	On	N	9.7
4.974000	26.4	2000.0	9.000	On	N	9.7
6.045000	32.7	2000.0	9.000	On	L1	9.7
6.135000	32.5	2000.0	9.000	On	N	9.7
6.724500	28.3	2000.0	9.000	On	N	9.7
6.900000	28.8	2000.0	9.000	On	N	9.7

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

END OF REPORT