



TEST REPORT

No. 2012TAR161

for

ZTE Corporation

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

Model Name: ZTE V768

FCC ID : Q78-ZTEV768

with

Hardware Version: gcnb

Software Version: V768V1.0.0B01

Issued Date: 2012-04-23

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:

DAR accreditation (DIN EN ISO/IEC 17025): No. DGA-PL-114/01-02

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

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1. Test Laboratory

1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
Address: No 52, Huayuan beilu, Haidian District, Beijing, P. R. China
Postal Code: 100191
Telephone: 00861062304633
Fax: 00861062304633

1.2. Testing Environment

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

1.3. Project data

Testing Start Date: Mar. 27th, 2012
Testing End Date: Apr. 07th, 2012

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: #68 Zijin Hua Road, Nanjing, Jiangsu Province, P. R. China
City: Nan Jing
Postal Code: 210012
Country: China
Telephone: +86-25-52878232
Fax: +86-25-68897541

2.2. Manufacturer Information

Company Name: ZTE Corporation
Address /Post: #68 Zijin Hua Road, Nanjing, Jiangsu Province, P. R. China
City: Nan Jing
Postal Code: 210012
Country: China
Telephone: +86-25-52878232
Fax: +86-25-68897541

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 V768
FCC ID	Q78-ZTEV768
Extreme vol. Limits	3.5VDC to 4.2VDC (nominal: 3.7VDC)

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	004401782382937	gcnb	V768V1.0.0B01

*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
AE1	Battery	10101112282579370
AE2	Battery	10101112282592555
AE3	Travel charger	/
AE4	USB cable	/
AE1, AE2		
Model	Li3715T42P3h504857	
Manufacturer	ZTE	
Capacitance	3400mAh	
Nominal voltage	3.7V	
AE3		
Model	STC-A22O50I700M5-C	
Manufacturer	RUIDE	
Length of cable	182.5cm	
AE4		
Model	/	
Manufacturer	ZTE	
Length of cable	120cm	

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

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	10-1-10
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	Edition 2003

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.2 dB, 10 m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 2000 MHz

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

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 80 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 0.5 Ω

Conducted chamber did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 0.5 Ω

Fully-anechoic chamber1 (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

Fully-anechoic chamber2 (8.6 meters×6.1 meters×3.85 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 1 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80 to 4000 MHz

6. SUMMARY OF TEST RESULTS

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

Clause	List	Clause in FCC rules	Verdict
1	Radiated Emission	15.109(a)	P
2	Conducted Emission	15.107(a)	P

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE
1	Test Receiver	ESU26	100235	R&S	2013-01-05
2	Test Receiver	ESCI	100766	R&S	2013-02-09
3	Test Receiver	ESI40	831564/002	R&S	2013-02-12
4	BiLog Antenna	VUL9163	302	Schwarzbeck	2014-02-10
5	LISN	ESH3-Z5	825562/028	R&S	2013-02-15
6	Universal Radio Communication Tester	E5515C	MY48363198	Agilent	2013-02-09
7	Universal Radio Communication Tester	CMU200	109914	R&S	2013-02-19
8	Dual-Ridge Waveguide Horn Antenna	3115	6914	EMCO	2013-02-16
9	PC	OPTIPLEX 755	3908243625	DELL	N/A
10	Monitor	E178FPc	CN-OWR979-6 4180-7AJ-D2M S	DELL	N/A
11	Printer	DeskJet D2368	TH72E12G7Q	HP	N/A
12	Keyboard	L100	CN0RH659658 907ATOI40	DELL	N/A
13	Mouse	VR-301	692722550019 8	XINGYU	N/A

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission (§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 a distance of 3 meters is tested. Tested in accordance with the procedures of ANSI C63.4 - 2003, 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 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 755, and the serial number of the PC is 3908243625. 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 of emission (MHz)	Field strength (microvolts/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

A.1.4 Test Condition

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100kHz/300kHz	5
1000-4000	1MHz/1MHz	15

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

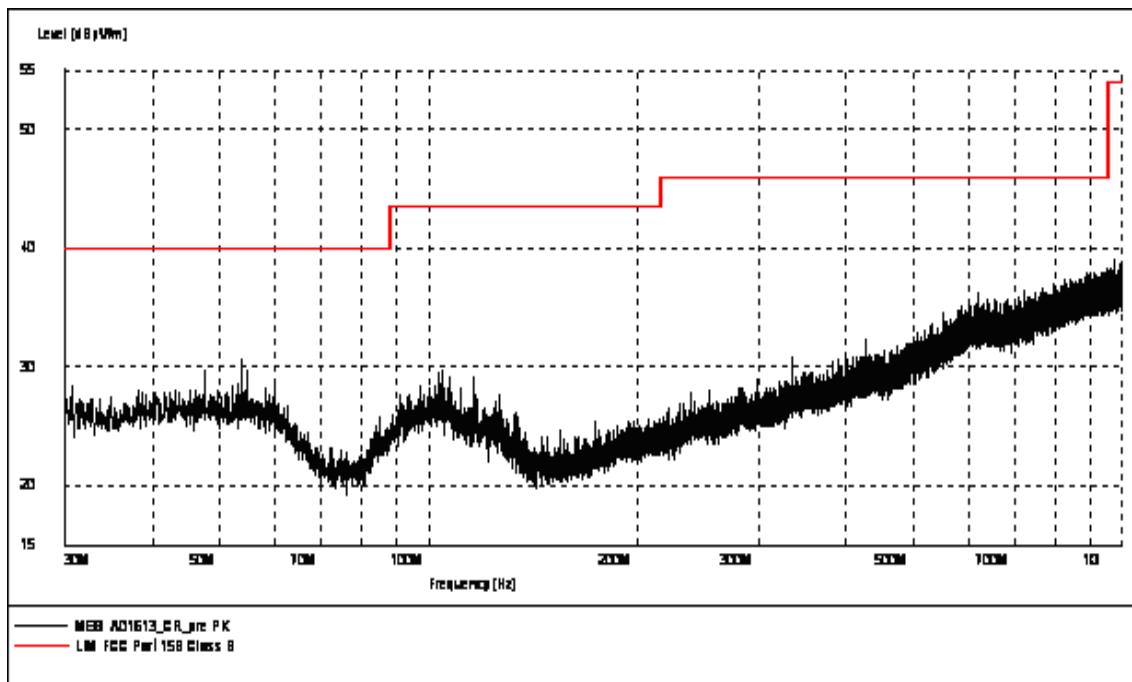
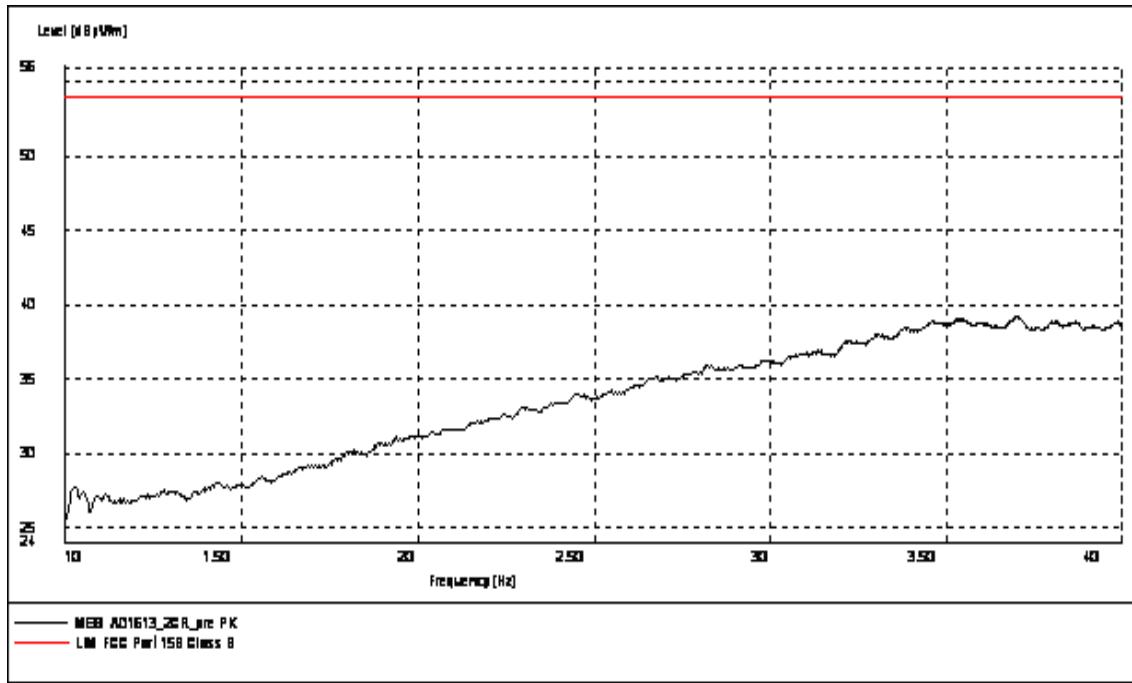
P_{Mea} : Measurement result on receiver.

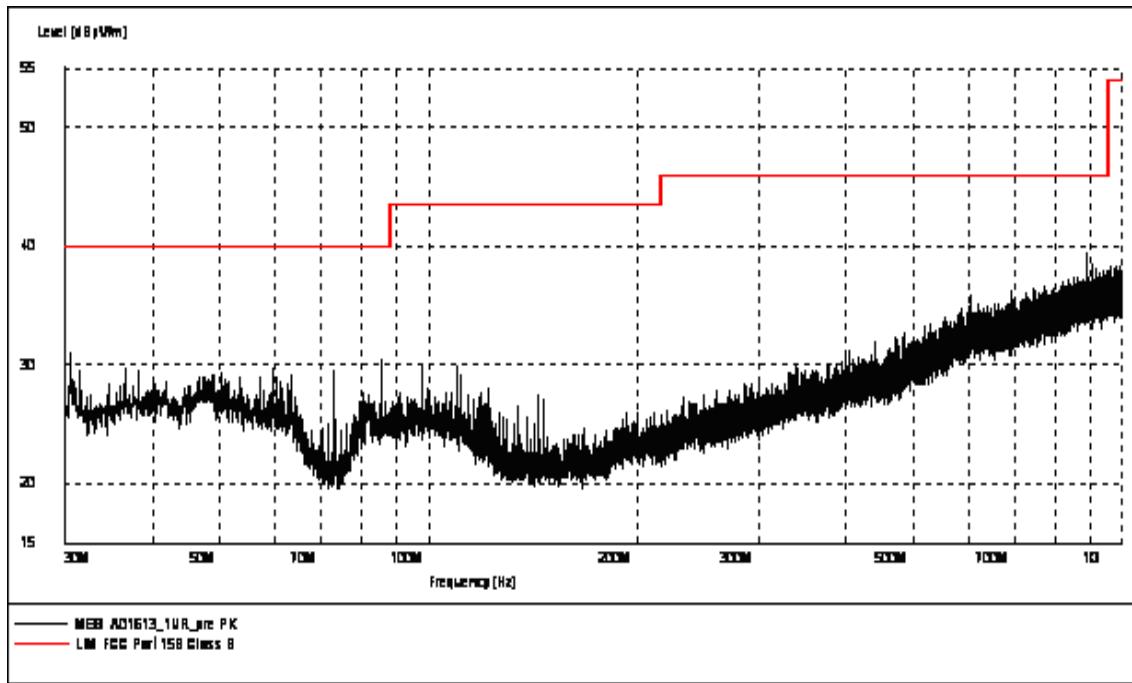
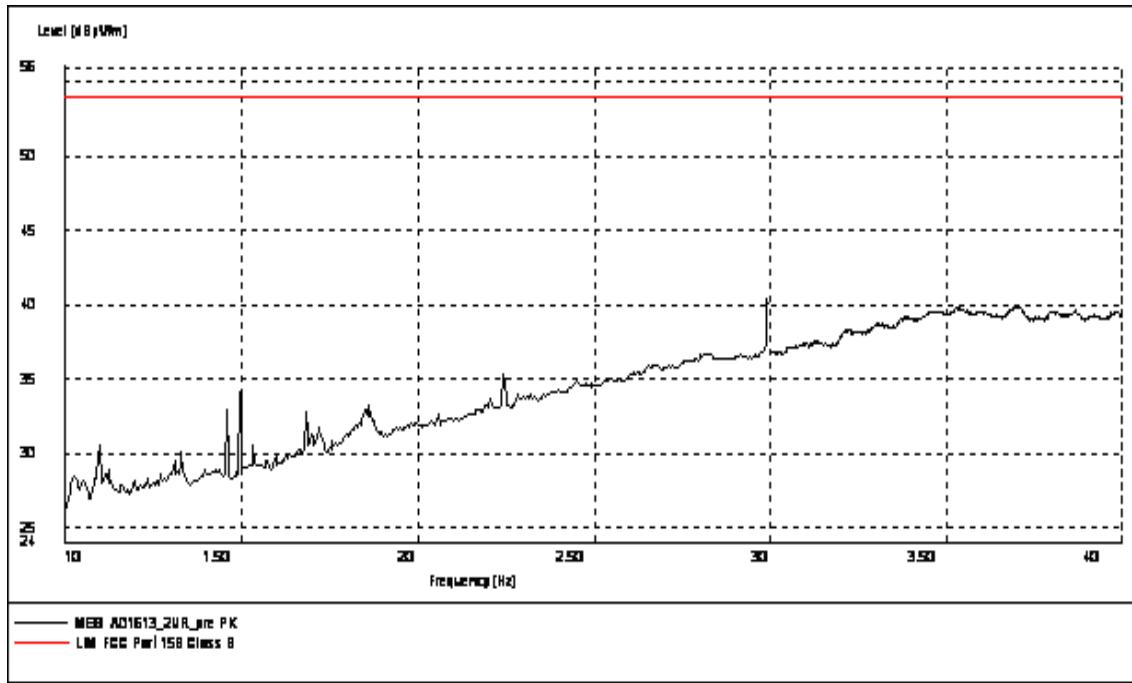
Charging Mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dBuV)	Polarity
3699.399	39.17	-19.5	33.4	25.27	VERTICAL
3701.403	39.16	-19.4	33.4	25.16	VERTICAL
3703.407	39.14	-19.4	33.4	25.14	HORIZONTAL
3697.395	39.13	-19.5	33.4	25.23	VERTICAL
3705.411	39.09	-19.4	33.4	25.09	VERTICAL
3695.391	39.08	-19.5	33.4	25.18	HORIZONTAL

USB Mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea} (dBuV)	Polarity
2991.984	40.45	-19.5	29.2	30.75	HORIZONTAL
2995.992	39.92	-19.5	29.2	30.22	HORIZONTAL
3701.403	39.87	-19.4	33.4	25.87	VERTICAL
3703.407	39.85	-19.4	33.4	25.85	VERTICAL
3699.399	39.82	-19.5	33.4	25.92	VERTICAL
3705.411	39.80	-19.4	33.4	25.80	VERTICAL

Charging Mode**Figure A.1 Radiated Emission from 30MHz to 1GHz****Figure A.2 Radiated Emission from 1GHz to 4GHz**

USB Mode**Figure A.3 Radiated Emission from 30MHz to 1GHz****Figure A.4 Radiated Emission from 1GHz to 4GHz**

A.2 Conducted Emission (§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 - 2003, section 7.2.

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 755, and the serial number of the PC is 3908243625. 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

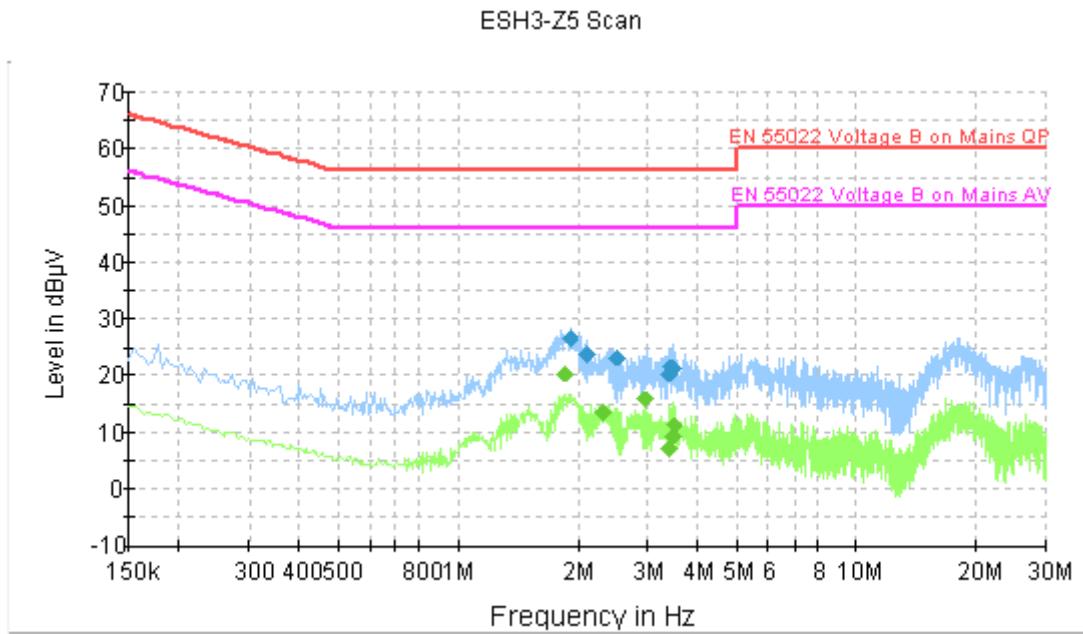
Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency

A.2.4 Test Condition in charging mode

Voltage (V)	Frequency (Hz)
120	60

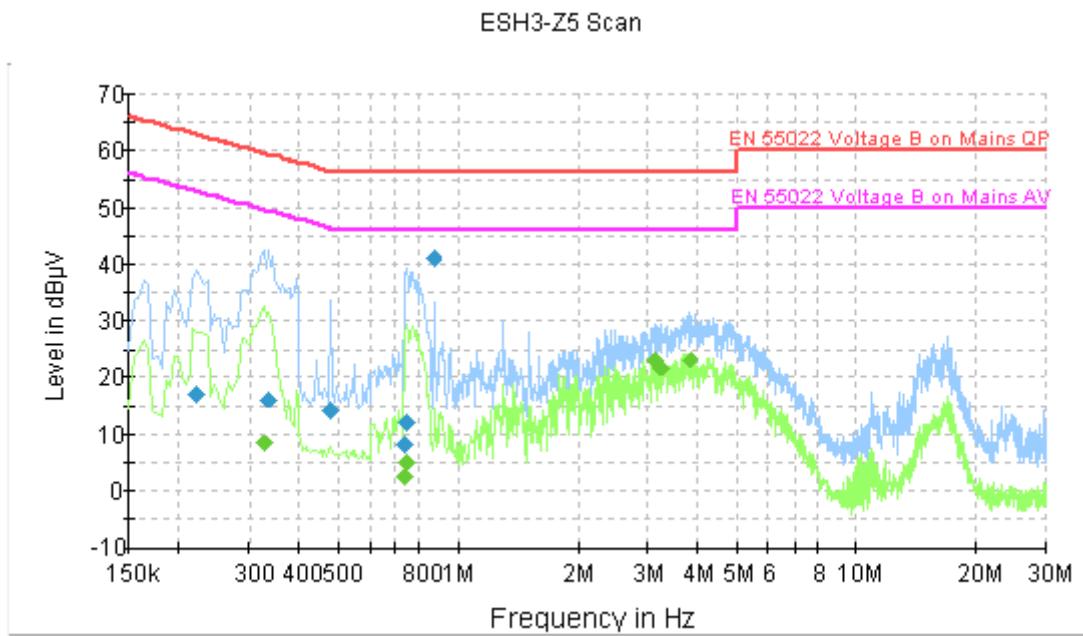
RBW	Sweep Time(s)
9kHz	1

A.2.5 Measurement Results
Charging Mode

Figure A.5 Conducted Emission
Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
1.914000	26.6	GND	L1	9.8	29.4	56.0
2.115077	23.9	GND	L1	9.8	32.1	56.0
2.501582	23.1	GND	L1	9.8	32.9	56.0
3.389288	20.2	GND	L1	9.8	35.8	56.0
3.423317	21.6	GND	L1	9.8	34.4	56.0
3.457687	21.2	GND	L1	9.8	34.8	56.0

Final Result 2

Frequency (MHz)	Average (dB µ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
1.869000	20.3	GND	L1	9.8	25.7	46.0
2.327967	13.5	GND	N	9.8	32.5	46.0
2.952811	15.9	GND	N	9.8	30.1	46.0
3.389288	6.9	GND	L1	9.8	39.1	46.0
3.457687	9.3	GND	N	9.8	36.7	46.0
3.492403	11.3	GND	N	9.8	34.7	46.0

USB Mode

Figure A.6 Conducted Emission
Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.222000	17.1	GND	N	9.0	45.7	62.7
0.334500	16.0	GND	L1	9.2	43.3	59.3
0.483000	14.0	GND	L1	9.7	42.2	56.3
0.735000	8.2	GND	L1	9.8	47.8	56.0
0.744000	12.2	GND	L1	9.8	43.8	56.0
0.870000	41.2	GND	L1	9.8	14.8	56.0

Final Result 2

Frequency (MHz)	Average (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.325500	8.5	GND	L1	9.2	41.1	49.6
0.735000	2.6	GND	N	9.9	43.4	46.0
0.744000	5.1	GND	N	9.9	40.9	46.0
3.116479	23.1	GND	N	9.8	22.9	46.0
3.237061	21.8	GND	L1	9.8	24.2	46.0
3.843925	23.2	GND	N	9.8	22.8	46.0

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