



TEST REPORT

No. 2012TAR406

for

ZTE Corporation

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

Model Name: ZTE V791

FCC ID : Q78-V791

with

Hardware Version: WMAK

Software Version: CLA-UNI-QB25S-P175A40V1.0.0

Issued Date: 2012-08-13

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: 0086-10-62304633-2561
Fax: 0086-10-62304633-2504

1.2. Testing Environment

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

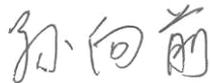
1.3. Project data

Testing Start Date: Aug. 2nd, 2012
Testing End Date: Aug. 3rd, 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: 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
Fax: +86-21-50801070

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 V791
FCC ID	Q78-V791
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	867525010001202	WMAK	CLA-UNI-QB25S-P175A40V1.0.0
EUT2	867525010001244	WMAK	CLA-UNI-QB25S-P175A40V1.0.01
EUT3	867525010001160	WMAK	CLA-UNI-QB25S-P175A40V1.0.0

*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
AE1	Battery	10091206090000705
AE2	Battery	10091206090000716
AE3	Battery	10091206090000671
AE4	Travel Charger	/
AE5	Travel Charger	/
AE6	Travel Charger	/
AE7	USB Cable	/
AE8	USB Cable	/
AE9	USB Cable	/

AE1/AE2/AE3

Model	Li3712T42P3h654246h
Manufacturer	ZTE Corporation
Capacitance	1200mAh
Nominal voltage	3.7V

AE4/AE5/AE6

Model	STC-A22O50I700USBA-Z
Manufacturer	ZTE Corporation
Length of cable	/

AE7/AE8/AE9

Model	/
Manufacturer	ZTE Corporation
Length of cable	71cm

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

EUT set-ups

EUT set-up No.

Set.1

Set.2

Combination of EUT and AE

EUT1+ AE1 + AE4+AE7

EUT1+ AE1 + AE7

Remarks

Charging Mode

USB Mode

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 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	2003

5. LABORATORY ENVIRONMENT

Conducted chamber/ 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

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. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.5 dB, 3 m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

Fully-anechoic chamber FAC-3 (9 meters×6.5 meters×4 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	LISN	ESH2-Z5	829991/012	R&S	2013-04-16
2	Test Receiver	ESCI	100344	R&S	2013-03-28
3	EMI Antenna	VULB 9163	514	Schwarzbeck	2014-11-10
4	Test Receiver	ESU26	100376	R&S	2012-11-08
5	EMI Antenna	3117	00139065	ETS-Lindgren	2014-07-31
6	Universal Radio Communication Tester	CMU200	100680	R&S	2012-09-05
7	Universal Radio Communication Tester	E5515C	MY48361083	Agilent	2013-03-16

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.

A.1.2 EUT Operating Mode:

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.

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
960-4000	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:

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

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Charging Mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dBuV)	Polarity
2771.200	38.9	-27.1	33.3	32.716	HORIZONTAL
2776.800	38.8	-26.3	33.3	31.824	HORIZONTAL
2775.400	38.8	-27.1	33.3	32.560	HORIZONTAL
2772.400	38.8	-27.1	33.3	32.559	VERTICAL
2784.600	38.8	-26.3	33.3	31.789	VERTICAL
2773.600	38.8	-27.1	33.3	32.535	VERTICAL

USB Mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dBuV)	Polarity
3000.000	40.6	-28.4	34.1	34.894	VERTICAL
2999.800	39.1	-29.0	33.8	34.275	VERTICAL
2776.600	39.0	-26.3	33.3	32.006	VERTICAL
2777.400	38.9	-26.3	33.3	31.973	HORIZONTAL
2776.400	38.8	-26.3	33.3	31.872	VERTICAL
2772.000	38.8	-27.1	33.3	32.618	VERTICAL

Charging Mode

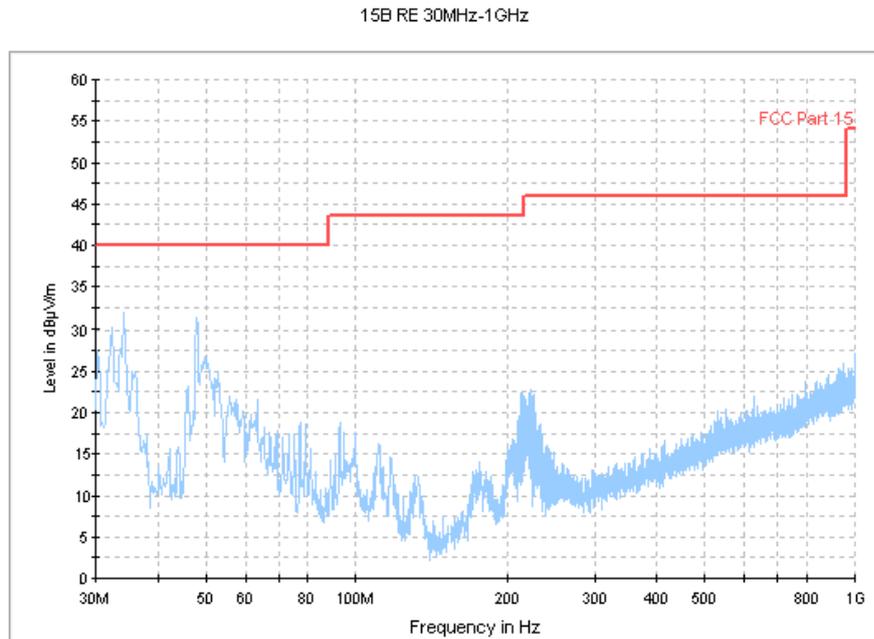


Figure A.1 Radiated Emission from 30MHz to 1GHz

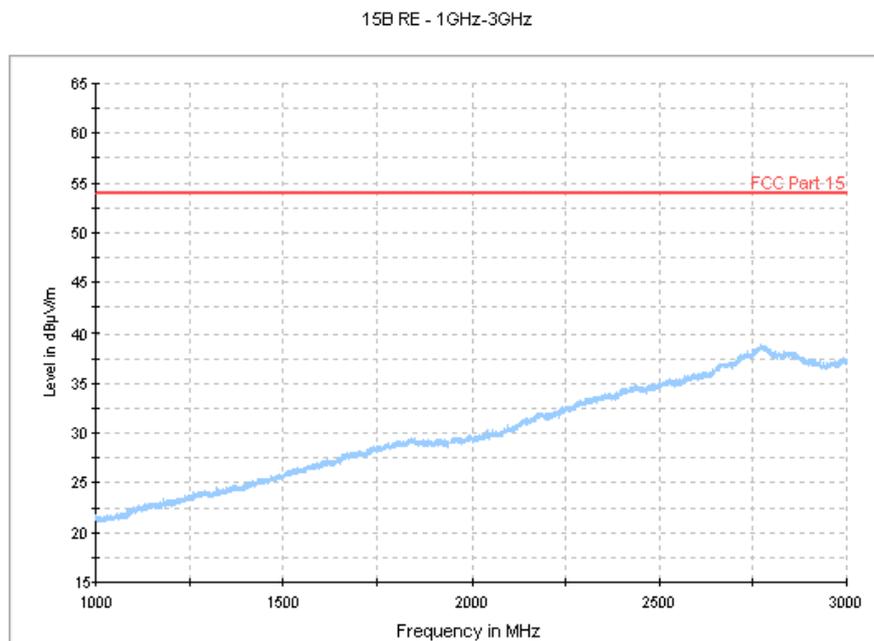


Figure A.2 Radiated Emission from 1GHz to 3GHz

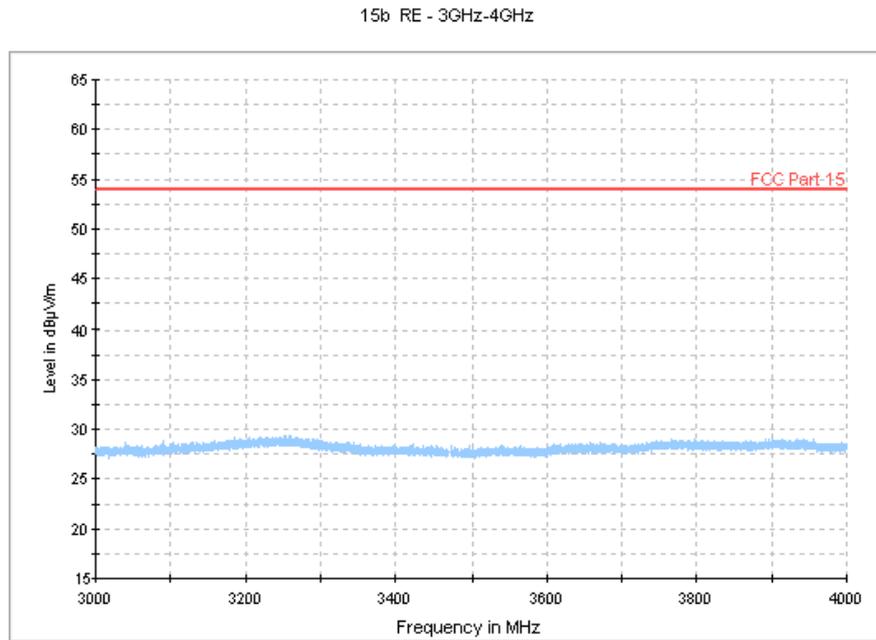


Figure A.3 Radiated Emission from 3GHz to 4GHz

USB Mode

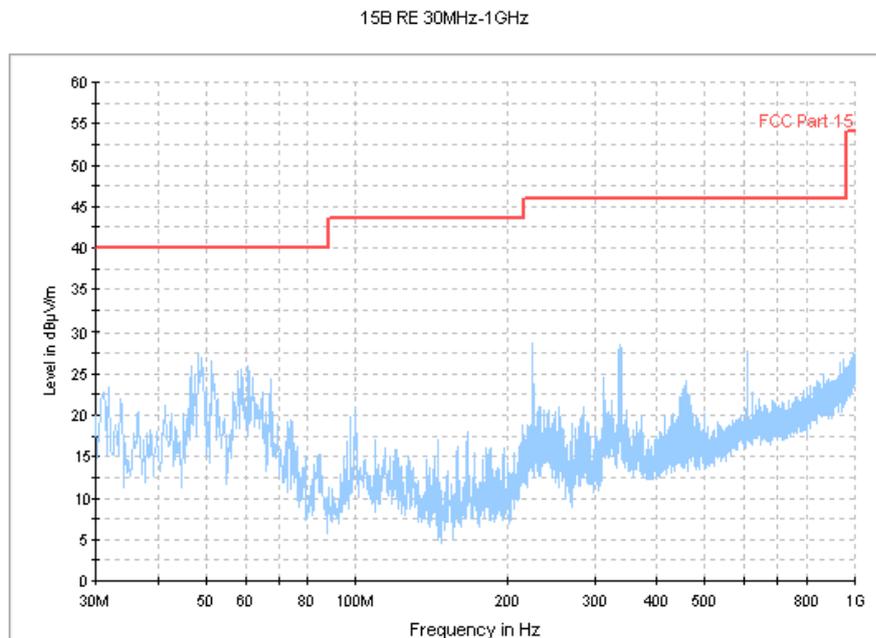


Figure A.4 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

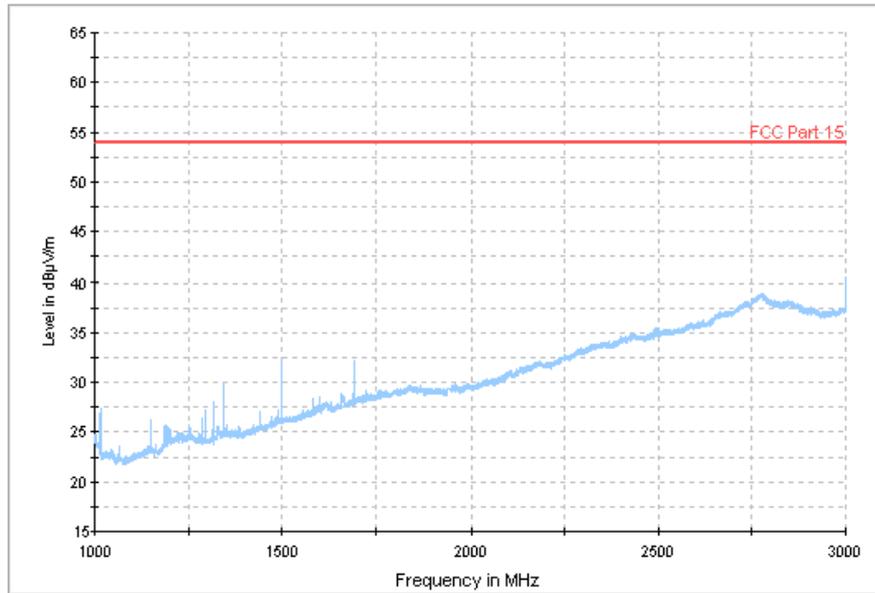


Figure A.5 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-4GHz

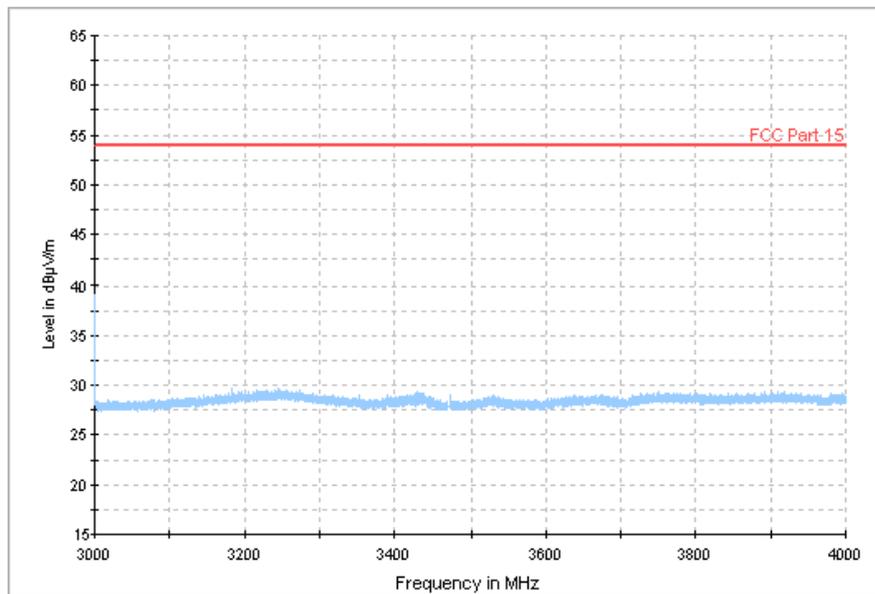


Figure A.6 Radiated Emission from 3GHz to 4GHz

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

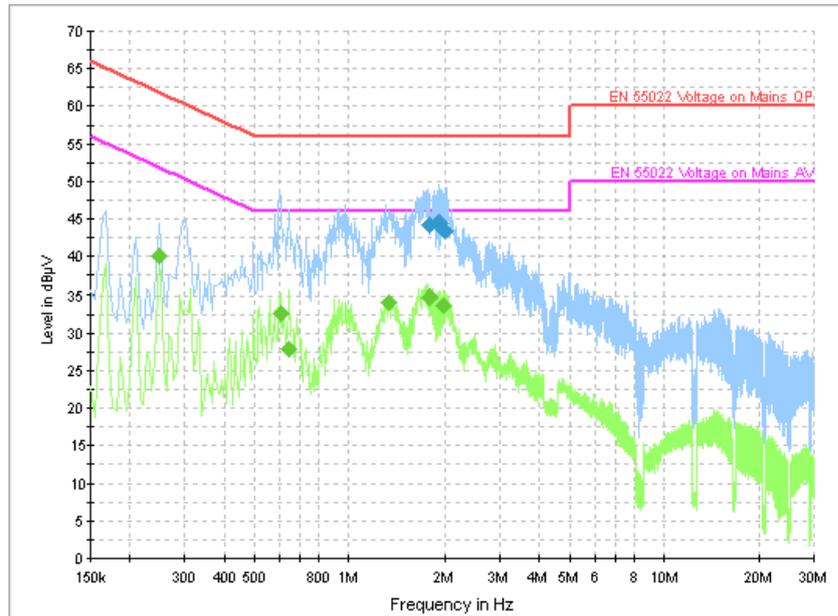


Figure A.7 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.783500	44.2	GND	L1	10.0	11.8	56.0
1.909500	44.5	GND	L1	10.0	11.5	56.0
1.923000	44.2	GND	L1	10.0	11.8	56.0
1.932000	44.5	GND	L1	10.0	11.5	56.0
1.945500	44.0	GND	L1	10.0	12.0	56.0
2.004000	43.4	GND	L1	10.0	12.6	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.249000	40.1	GND	N	10.0	11.7	51.8
0.604500	32.7	GND	L1	10.0	13.3	46.0
0.645000	27.8	GND	L1	10.0	18.2	46.0
1.347000	34.0	GND	L1	10.0	12.0	46.0
1.783500	34.8	GND	L1	10.0	11.2	46.0
1.972500	33.6	GND	L1	10.0	12.4	46.0

USB mode

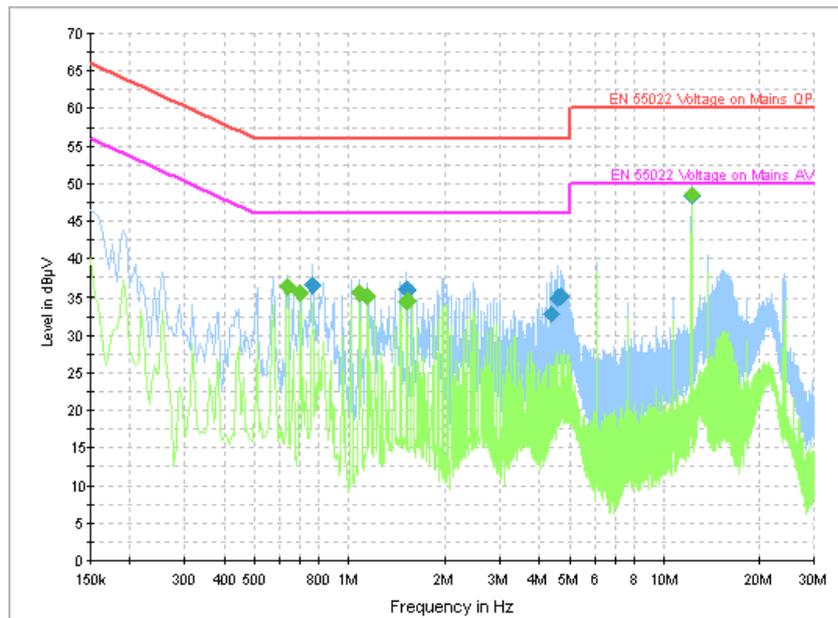


Figure A.8 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.766500	36.5	GND	L1	10.0	19.5	56.0
1.527000	36.0	GND	N	10.0	20.0	56.0
4.375500	32.9	GND	N	10.0	23.1	56.0
4.591500	35.0	GND	N	10.0	21.0	56.0
4.663500	35.0	GND	N	10.0	21.0	56.0
12.201000	48.4	GND	N	9.9	11.6	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.636000	36.2	GND	N	10.0	9.8	46.0
0.699000	35.4	GND	N	10.0	10.6	46.0
1.081500	35.5	GND	N	10.0	10.5	46.0
1.144500	35.2	GND	N	10.0	10.8	46.0
1.527000	34.4	GND	N	10.0	11.6	46.0
12.201000	48.5	GND	N	9.9	1.5	50.0

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