



TEST REPORT

No. 2013TAR203

for

TCT Mobile Limited

WCDMA Digital Mobile Handset

Model Name: ZTE V865M

FCC ID : Q78-V865M

with

Hardware Version: V865M_V1AMB_A

Software Version: V865M_SACCommon_1.05

Issued Date: 2013-03-18

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:

DAkks 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℃
Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: Mar. 07th, 2013
Testing End Date: Mar. 07th, 2013

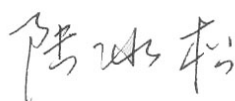
1.4. Signature



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: +86-755-86360200
Fax: +86-755-86360298

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: +86-755-86360200
Fax: +86-755-86360298

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

3.1. About EUT

Description	WCDMA Digital Mobile Handset
Model Name	ZTE V865M
FCC ID	Q78-V865M
Extreme vol. Limits	3.4VDC 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	864339010002092	V865M_V1AMB_A	V865M_SACCommon_1.05

*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	/
AE2	Travel charger	/
AE3	USB cable	/

AE1

Model	Li3725T42P3h796342
Manufacturer	ZTE
Capacitance	2500mAh
Nominal voltage	3.7V

AE2

Model	STC-A22O50I1000USBA-C
Manufacturer	ZTE
Length of cable	\

AE3

Model	
Manufacturer	
Length of cable	120cm

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

EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT1+ AE1 + AE3	USB Mode
Set.2	EUT1+ AE1 + AE3+AE2	Charger

Note: SIM card was installed in slot 1 during testing. MicroSD card was installed in the device during the test. An new battery was used during the test under charging 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	10-1-11 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 DATE	CAL DUE DATE
1	LISN	ESH2-Z5	829991/012	R&S	2012-04-17	2013-04-16
2	Test Receiver	ESCI	100344	R&S	2013-03-29	2014-03-28
3	EMI Antenna	VULB 9163	514	Schwarzbeck	2011-11-11	2014-11-10
4	Test Receiver	ESU26	100376	R&S	2012-11-08	2013-11-07
5	EMI Antenna	3117	00139065	ETS-Lindgren	2011-08-01	2014-07-31
6	Universal Radio Communication Tester	CMU200	100680	R&S	2012-09-05	2013-09-05
7	Universal Radio Communication Tester	E5515C	MY48361083	Agilent	2013-03-17	2014-03-16

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 Set.2

Frequency(MHz)	Result(dBuV/m)	GPL (dB)	GA (dB/m)	PMea(dBuV)	Polarity
3000.000	42.4	-28.4	34.1	36.672	VERTICAL
2999.200	42.3	-29.0	33.8	37.479	HORIZONTAL
2998.800	42.2	-29.0	33.8	37.379	VERTICAL
2989.400	42.2	-29.0	33.8	37.379	VERTICAL
2998.400	42.2	-29.0	33.8	37.379	HORIZONTAL
2993.400	42.2	-29.0	33.8	37.379	HORIZONTAL

USB Mode Set.1

Frequency(MHz)	Result(dBuV/m)	GPL (dB)	GA (dB/m)	PMea(dBuV)	Polarity
2999.600	42.3	-29.0	33.8	37.479	VERTICAL
3000.000	42.3	-28.4	34.1	36.572	HORIZONTAL
2998.000	42.3	-29.0	33.8	37.479	HORIZONTAL
2999.800	42.3	-29.0	33.8	37.479	HORIZONTAL
2988.800	42.2	-29.0	33.8	37.379	HORIZONTAL
2994.600	42.2	-29.0	33.8	37.379	VERTICAL

Charging Mode Set.2

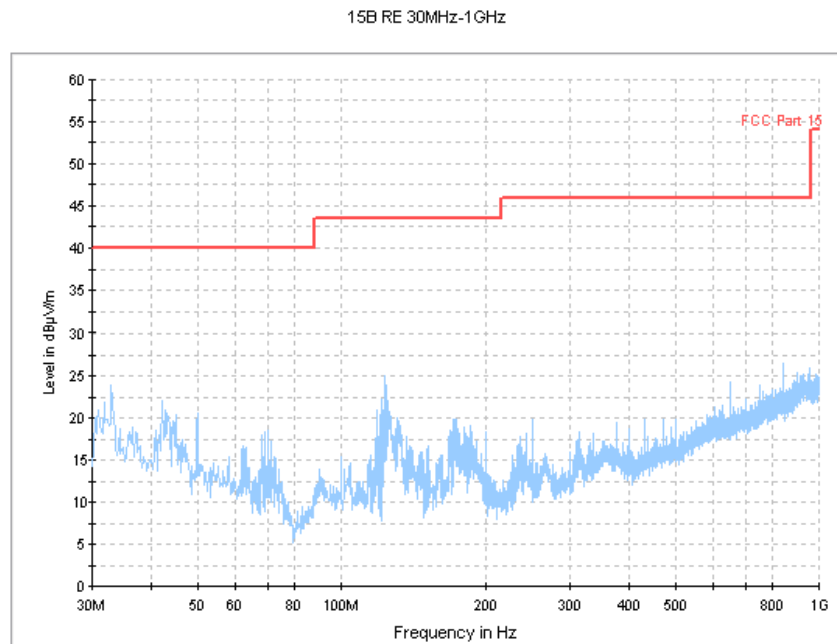


Figure A.1 Radiated Emission from 30MHz to 1GHz

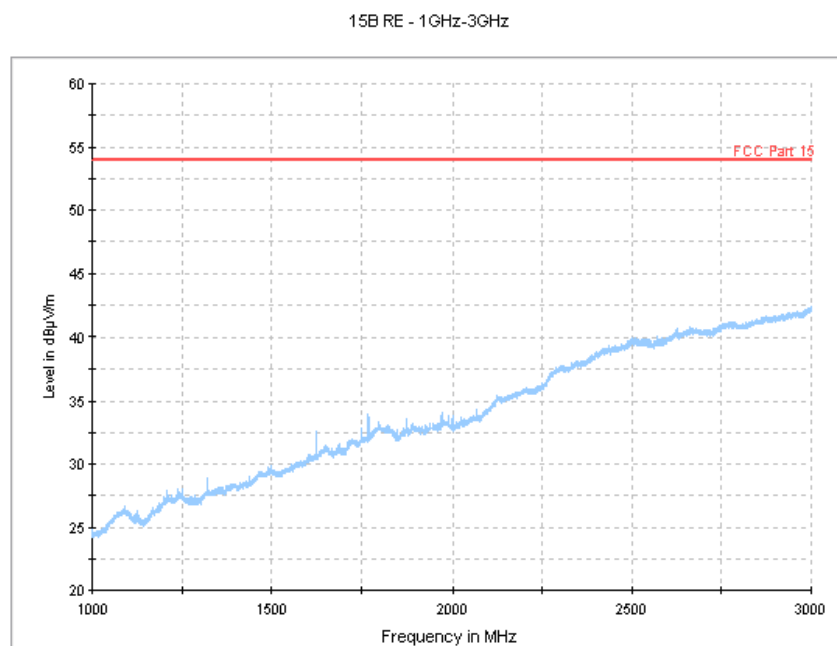


Figure A.2 Radiated Emission from 1GHz to 3GHz

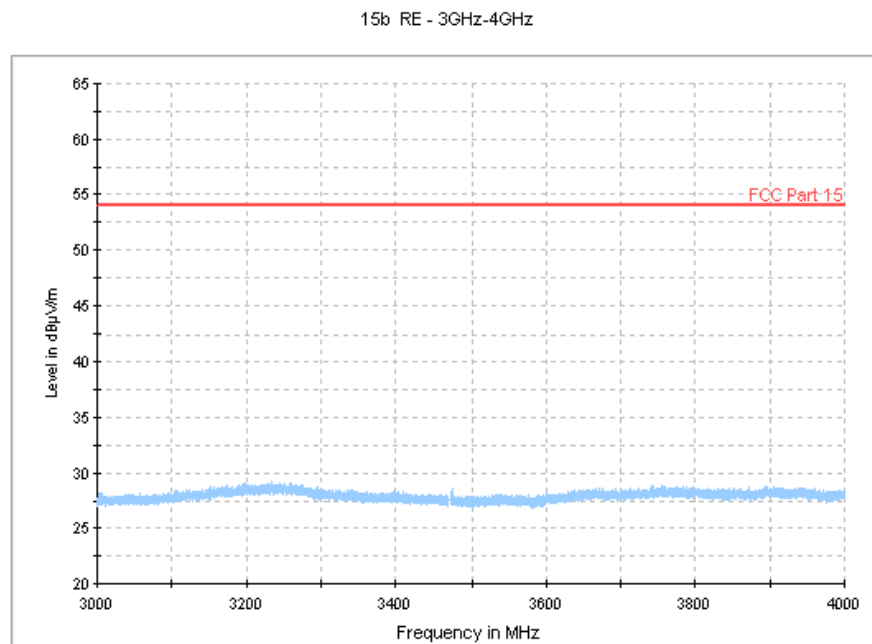


Figure A.3 Radiated Emission from 3GHz to 4GHz

USB Mode Set.1

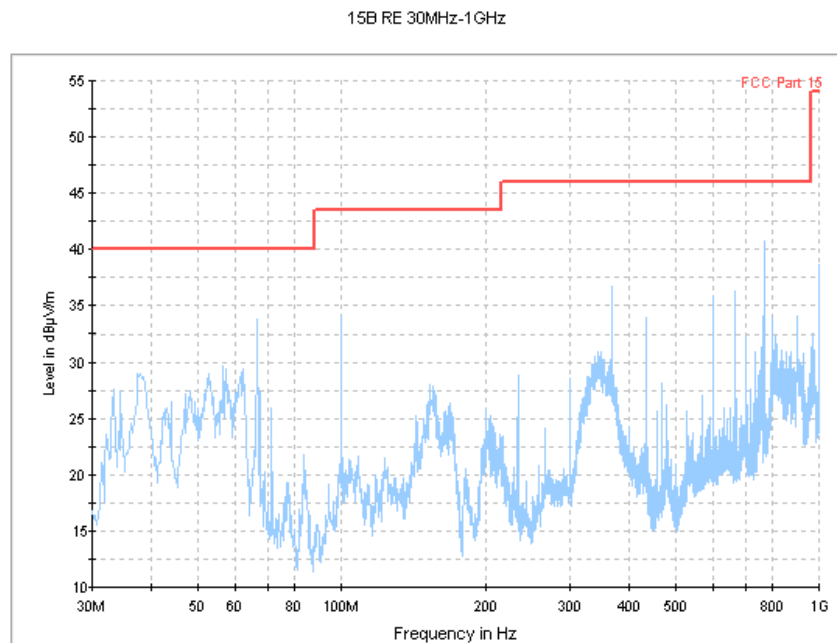


Figure A.4 Radiated Emission from 30MHz to 1GHz

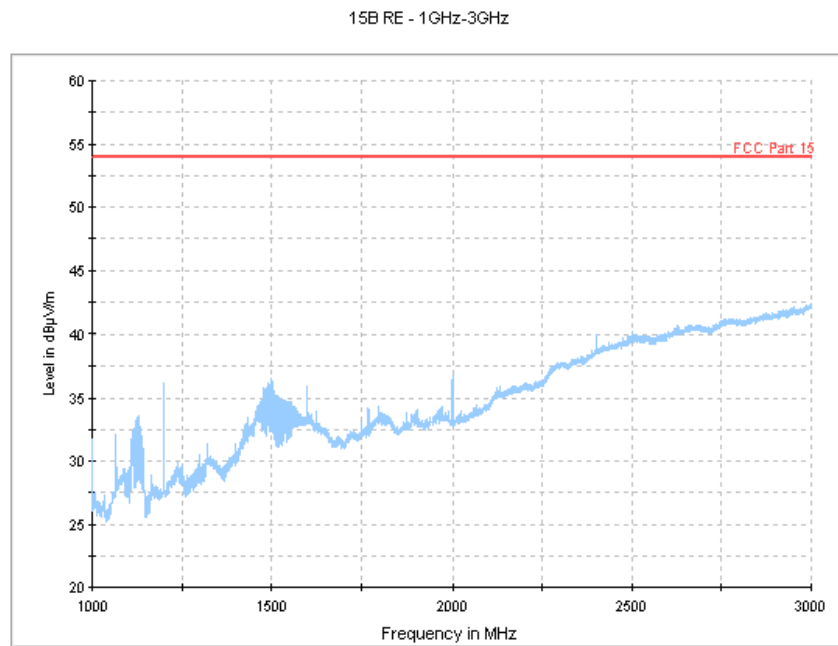


Figure A.5 Radiated Emission from 1GHz to 3GHz

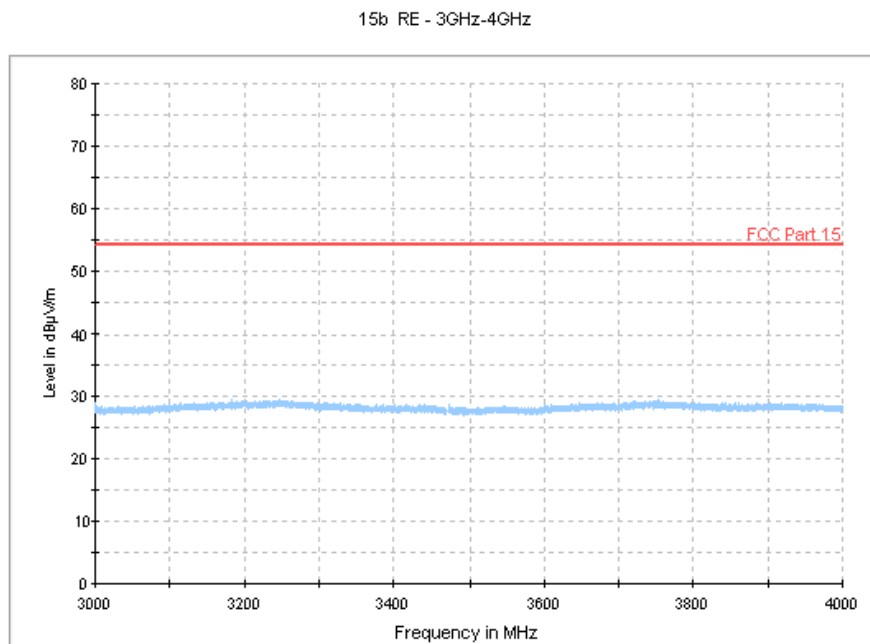


Figure A.6 Radiated Emission from 3GHz to 4GHz

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 (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	Sweep Time(s)
9kHz	1

A.2.5 Measurement Results

Charging Mode Set.1

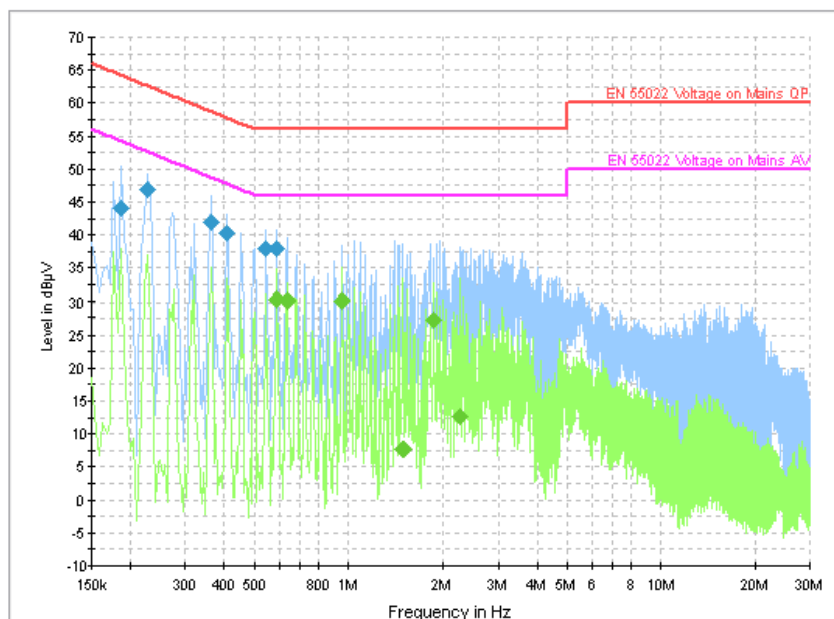


Figure A.7 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.186000	44.0	GND	L1	10.0	20.2	64.2
0.226500	47.0	GND	N	10.0	15.6	62.6
0.361500	41.9	GND	L1	10.0	16.8	58.7
0.406500	40.4	GND	N	10.0	17.4	57.7
0.546000	37.9	GND	N	10.0	18.1	56.0
0.591000	37.9	GND	N	10.0	18.1	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.591000	30.4	GND	L1	10.0	15.6	46.0
0.636000	30.1	GND	L1	10.0	15.9	46.0
0.951000	30.2	GND	L1	10.0	15.8	46.0
1.495500	7.7	GND	L1	10.0	38.3	46.0
1.855500	27.3	GND	L1	10.0	18.7	46.0
2.265000	12.6	GND	L1	10.0	33.4	46.0

USB mode Set.1

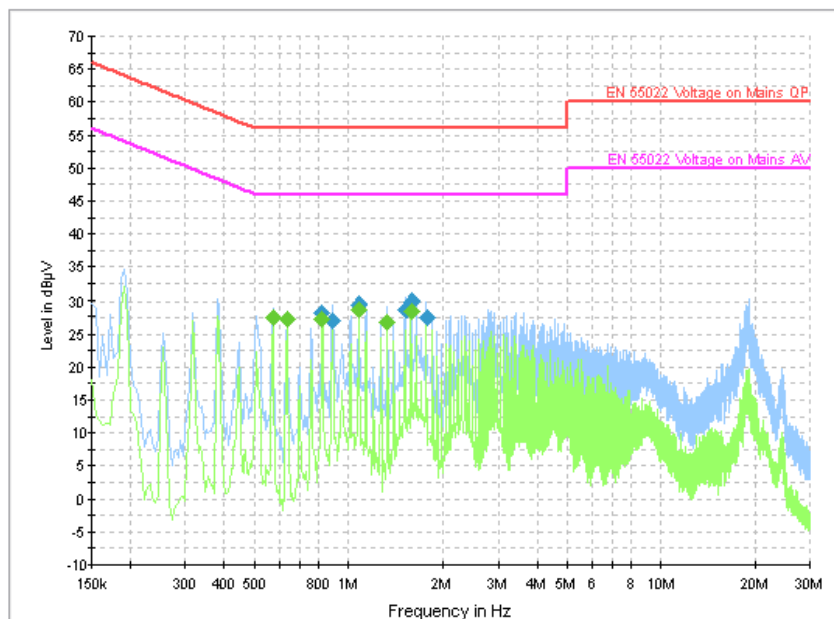


Figure A.8 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.825000	28.3	GND	N	10.0	27.7	56.0
0.892500	27.2	GND	N	10.0	28.8	56.0
1.081500	29.5	GND	N	10.0	26.5	56.0
1.527000	28.8	GND	N	10.0	27.2	56.0
1.590000	29.8	GND	N	10.0	26.2	56.0
1.779000	27.4	GND	N	10.0	28.6	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.573000	27.5	GND	N	10.0	18.5	46.0
0.636000	27.3	GND	N	10.0	18.7	46.0
0.825000	27.4	GND	N	10.0	18.6	46.0
1.081500	28.7	GND	N	10.0	17.3	46.0
1.333500	26.9	GND	N	10.0	19.1	46.0
1.590000	28.6	GND	N	10.0	17.4	46.0

END OF REPORT