TEST REPORT

No. 2012TAR203

for

ZTE Corporation

LTE uFi hotspot

Model Name: MF91

with

FCC ID : Q78-ZTEMF91

Hardware Version: xk1B

Software Version: BD MF91 Telstra V1.0.0B05

Issued Date: May 10th, 2012

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
No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China 100191
Tel:+86(0)10-62304633-2678 , Fax:+86(0)10-62304633-2504 Email:welcome@emcite.com. www.emcite.com

CONTENTS

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℃
Relative Humidity:	20-75%

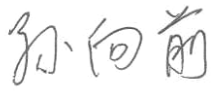
1.3. Project data

Testing Start Date:	Apr. 15th, 2012
Testing End Date:	Apr. 19th, 2012

1.4. Signature

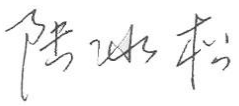
Qu Pengfei

(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	LTE uFi hotspot
Model Name	MF91
FCC ID	Q78-ZTEMF91
Antenna	Internal
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	864644010001774	xk1B	BD MF91 Telstra V1.0.0B05

*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	Note
AE1	Battery	60201108210052693	/
AE2	Battery	60201108210054022	/
AE3	Travel Adapter	/	/
AE4	Travel Adapter	/	/
AE5	USB Cable	/	/

AE1, AE2

Model	Li3723T42P3h704572
Manufacturer	ZTE
Capacitance	2300mAh
Nominal Voltage	3.7V

AE3, AE3

Model	STC-A22O50I1500M5
Manufacturer	RUIDE
Length of cable	120cm (Length of USB cable)

AE5

Model	/
Manufacturer	ZTE
Length of headset line	120cm

*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	Charging mode
Set.2	EUT1 + AE5	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

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

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2MΩ
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 3000 MHz

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

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

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

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2MΩ
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 ℃, Max. = 30 ℃
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2MΩ
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 ℃, Max. = 30 ℃
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 1Ω
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	2012-12-06
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	2012-06-15
6	Universal Radio Communication Tester	CMU200	100680	R&S	2012-09-05
7	Universal Radio Communication Tester	CMU200	116455	R&S	2012-05-21
8	Dual-Ridge Waveguide Horn Antenna	3115	6914	EMCO	2012-12-16
9	PC	OPTIPLEX 755	3908243625	DELL	N/A
10	Monitor	E178FPc	CN-OWR979-64 180-7AJ-D2MS	DELL	N/A
11	Printer	DeskJet D2368	TH72E12G7Q	HP	N/A
12	Keyboard	L100	CN0RH6596589 07ATOI40	DELL	N/A
13	Mouse	VR-301	6927225500198	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 EUT and charging mode of EUT) 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 EUT is operating in the USB mode and charging mode. During the test EUT 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 EUT, reading and erasing the data after copy action was finished.

The EUT is also under WLAN idle mode and GSM850MHz idle mode.

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:

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

Where

G_A: Antenna factor of receive antenna

G_{PL}: Path Loss

P_{Mea}: Measurement result on receiver.

Set.1 Charging Mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBuV)	Polarity
3701.403	39.07	-19.4	33.4	25.07	VERTICAL
3699.399	39.05	-19.5	33.4	25.15	HORIZONTAL
3697.395	39.00	-19.5	33.4	25.10	VERTICAL
3703.407	38.99	-19.4	33.4	24.99	VERTICAL
3695.391	38.98	-19.5	33.4	25.08	HORIZONTAL
3691.383	38.95	-19.5	33.4	25.05	VERTICAL

Set.2 USB Mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBuV)	Polarity
2991.984	40.08	-19.5	29.2	30.38	VERTICAL
2995.992	39.55	-19.5	29.2	29.85	VERTICAL
3699.399	39.42	-19.5	33.4	25.52	VERTICAL
3697.395	39.37	-19.5	33.4	25.47	VERTICAL
3695.391	39.35	-19.5	33.4	25.45	VERTICAL
3701.403	39.35	-19.4	33.4	25.35	VERTICAL

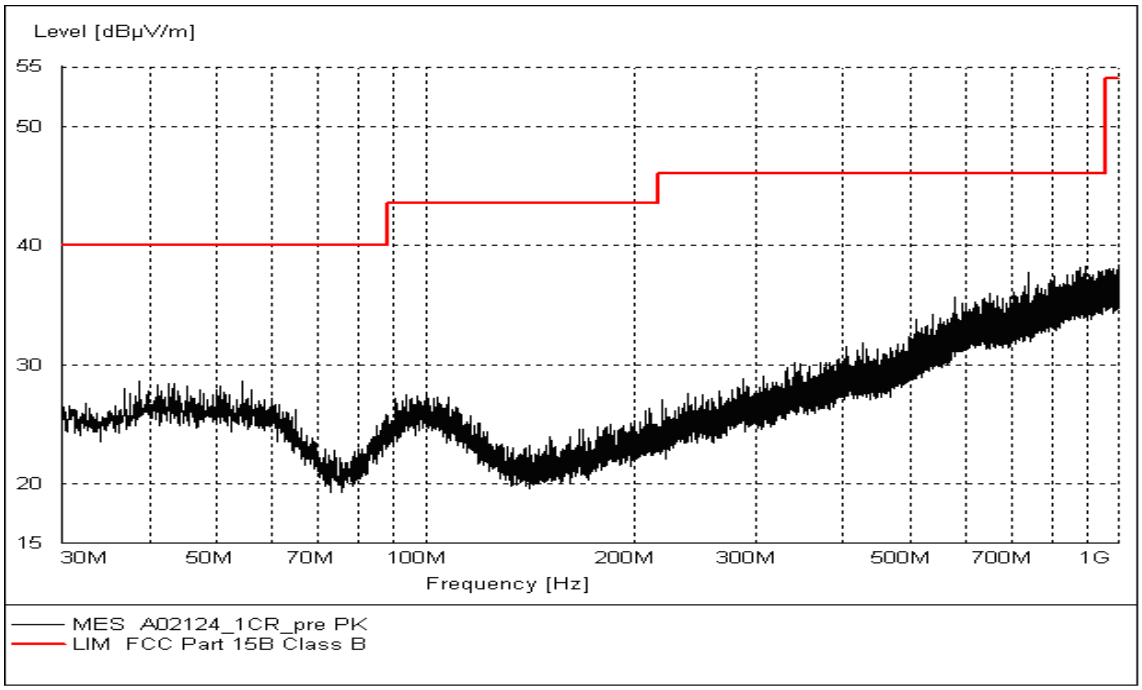


Figure A.1 Radiated Emission from 30MHz to 1GHz (Set.1, charging mode)

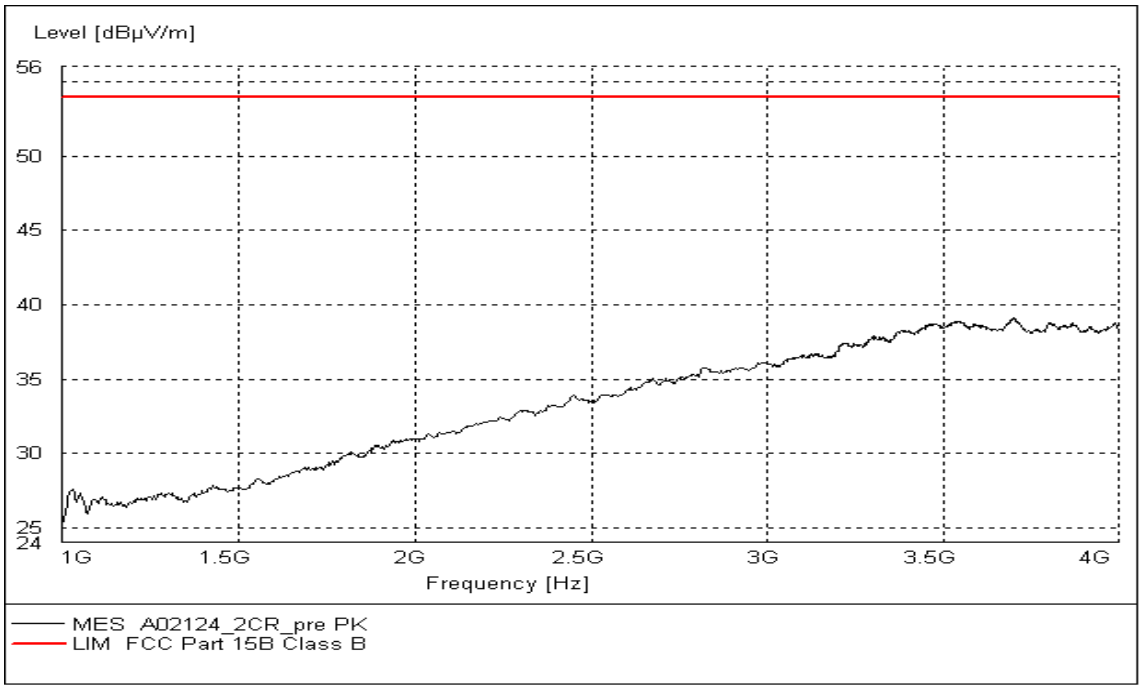


Figure A.2 Radiated Emission from 1GHz to 4GHz (Set.1, charging mode)

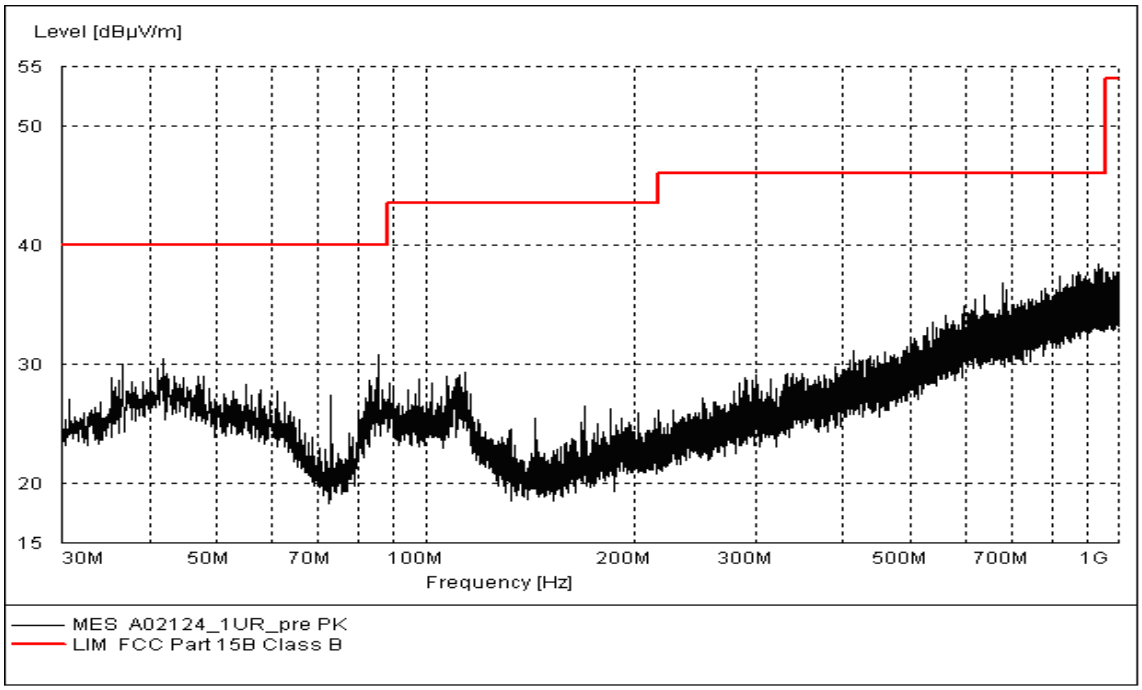


Figure A.3 Radiated Emission from 30MHz to 1GHz (Set.2, USB mode)

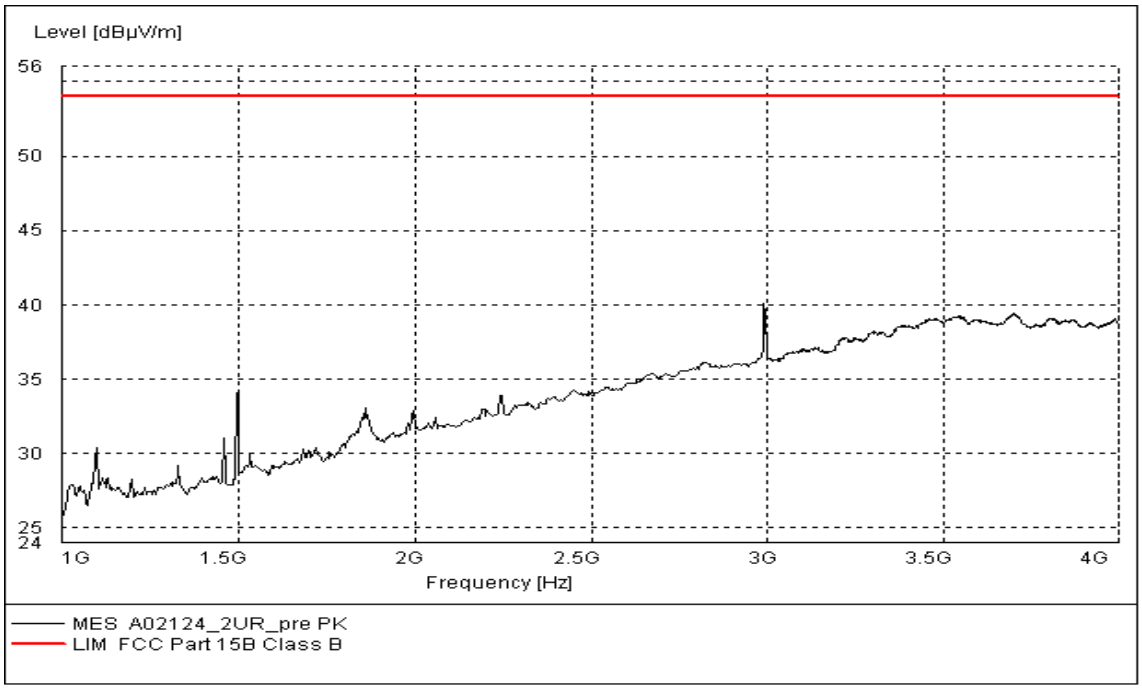


Figure A.4 Radiated Emission from 1GHz to 4GHz (Set.2, USB mode)

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 EUT is operating in the USB Mode and charging mode. During the test EUT 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 EUT, reading and erasing the data after copy action was finished.

The EUT is also under WLAN idle mode and GSM850MHz idle mode.

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.2.4 Measurement Results

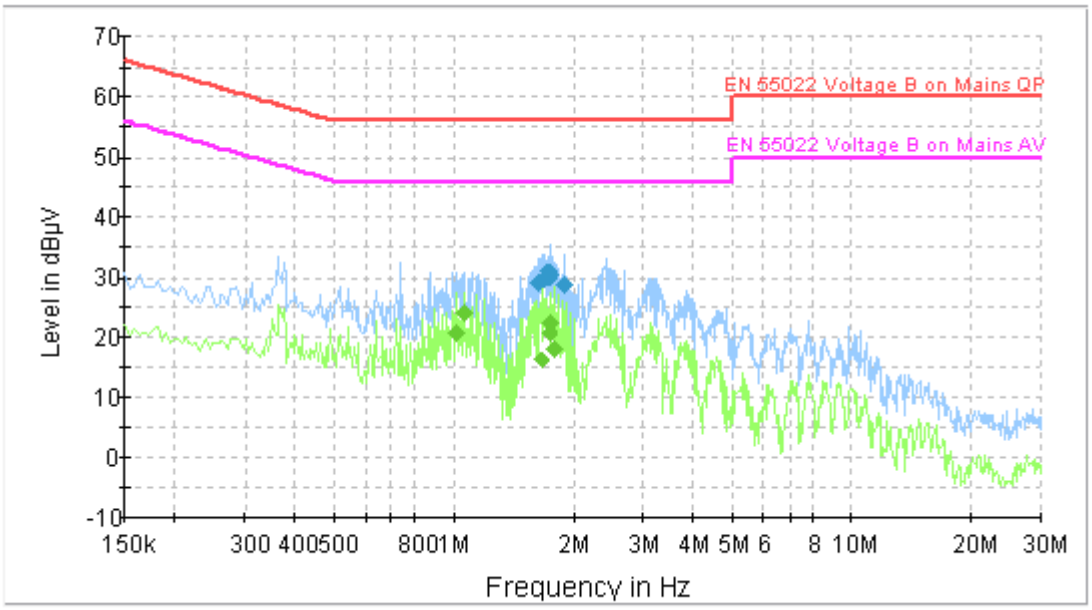


Figure A.5 Conducted Emission (Set.1, charging mode)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)
1.644000	29.1	GND	N	9.8	26.9	56.0
1.693500	29.6	GND	N	9.8	26.4	56.0
1.725000	30.9	GND	N	9.8	25.1	56.0
1.747500	29.9	GND	N	9.8	26.1	56.0
1.770000	30.4	GND	N	9.8	25.6	56.0
1.896000	28.8	GND	N	9.8	27.2	56.0

Final Result 2

Frequency (MHz)	Average (dBµ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)
1.018500	20.7	GND	N	9.8	25.3	46.0
1.068000	24.1	GND	N	9.8	21.9	46.0
1.671000	16.1	GND	N	9.8	29.9	46.0
1.747500	20.9	GND	N	9.8	25.1	46.0
1.770000	22.3	GND	L1	9.8	23.7	46.0
1.797000	18.2	GND	L1	9.8	27.8	46.0

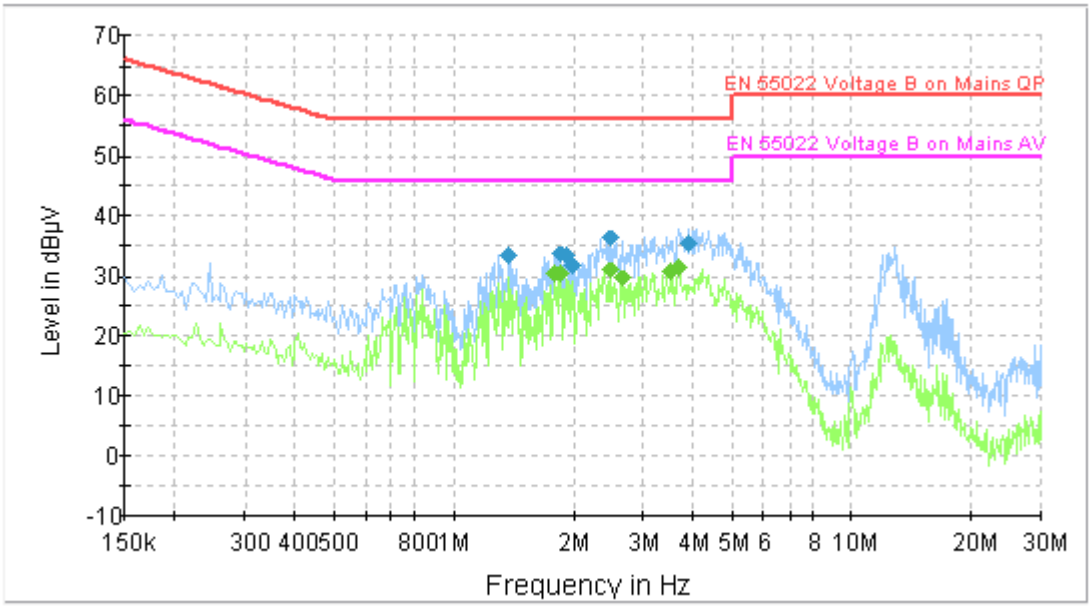


Figure A.6 Conducted Emission (Set.2, USB mode)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)
1.374000	33.3	GND	L1	9.8	22.7	56.0
1.864500	33.7	GND	L1	9.8	22.3	56.0
1.941000	33.3	GND	N	9.8	22.7	56.0
1.986000	31.9	GND	L1	9.8	24.1	56.0
2.478396	36.4	GND	N	9.8	19.6	56.0
3.921465	35.6	GND	N	9.8	20.4	56.0

Final Result 2

Frequency (MHz)	Average (dBµ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)
1.797000	30.3	GND	N	9.8	15.7	46.0
1.864500	30.5	GND	L1	9.8	15.5	46.0
2.478396	31.0	GND	L1	9.8	15.0	46.0
2.684279	29.7	GND	N	9.8	16.3	46.0
3.513945	30.6	GND	L1	9.8	15.4	46.0
3.712117	31.4	GND	L1	9.8	14.6	46.0

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