



# TEST REPORT

No. 2013TAR427

for

**TCT Mobile Limited**

**HSUPA/HSDPA/UMTS dualband / GSM quadband mobile phone**

**Model Name: Telsa A**

**Marketing Name: ONE TOUCH 6010A**

**FCC ID : RAD325**

with

**Hardware Version: PIO03**

**Software Version: VFAG-1-US**

**Issued Date: 2013-06-05**

**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***

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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**

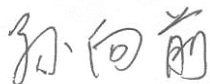
Testing Start Date: May. 10<sup>th</sup>, 2013  
Testing End Date: May. 14<sup>th</sup>, 2013

### **1.4. Signature**



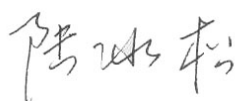
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**Qu Pengfei**  
**(Prepared this test report)**



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**Sun Xiangqian**  
**(Reviewed this test report)**



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

## **2. Client Information**

### **2.1. Applicant Information**

Company Name: TCT Mobile Limite  
Address /Post: 5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,  
Pudong Area Shanghai, P.R. China. 201203  
City: Shanghai  
Postal Code: 201203  
Country: China  
Telephone: 0086-21-61460890  
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### **2.2. Manufacturer Information**

Company Name: TCT Mobile Limited  
Address /Post: 5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,  
Pudong Area Shanghai, P.R. China. 201203  
City: Shanghai  
Postal Code: 201203  
Country: China  
Telephone: 0086-21-61460890  
Fax: 0086-21-61460602

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

#### **3.1. About EUT**

Description	HSUPA/HSDPA/UMTS dualband / GSM quadband mobile phone
Model Name	Telsa A
FCC ID	RAD325
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**

<b>EUT ID*</b>	<b>SN or IMEI</b>	<b>HW Version</b>	<b>SW Version</b>
EUT1	013486000100426	PIO03	VFAG-1-US

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

#### **3.3. Internal Identification of AE used during the test**

<b>AE ID*</b>	<b>Description</b>	<b>SN</b>
AE1	Battery	/
AE2	Battery	/
AE3	Travel charger	/
AE4	USB cable	/
AE5	USB cable	/

##### AE1

Model	CAB32A0000C1
Manufacturer	BYD
Capacitance	1500mAh
Nominal voltage	3.7V

##### AE2

Model	CAB32A0000C2
Manufacturer	SCUD
Capacitance	1500mAh
Nominal voltage	3.7V

##### AE3

Model	CBA0003AG0C1
Manufacturer	ACE
Length of cable	\

##### AE4

Model	CDA0000025C1
Manufacturer	Shenhua

Length of cable                      100cm

**AE5**

Model                                      CDA0000025C2  
Manufacturer                              Juwei  
Length of cable                              100cm

\*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.4	EUT1+ AE1 + AE4	USB Mode
Set.5	EUT1+ AE1 + AE3+AE4	Charger

Note: MicroSD card was installed in the device during the test.

## **4. Reference Documents**

### **4.1. Reference Documents for testing**

The following documents listed in this section are referred for testing.

<b>Reference</b>	<b>Title</b>	<b>Version</b>
FCC Part 15, Subpart B	Radio frequency devices	10-1-12 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**

<b>NO.</b>	<b>Description</b>	<b>TYPE</b>	<b>SERIES NUMBER</b>	<b>MANUFACTURE</b>	<b>CAL DUE DATE</b>
1	LISN	ESH2-Z5	829991/012	R&S	2014-04-16
2	Test Receiver	ESCI	100344	R&S	2014-03-28
3	EMI Antenna	VULB 9163	514	Schwarzbeck	2014-11-10
4	Test Receiver	ESU26	100376	R&S	2013-11-07
5	EMI Antenna	3117	00139065	ETS-Lindgren	2014-07-31
6	Universal Radio Communication Tester	CMU200	100680	R&S	2013-09-05
7	Universal Radio Communication Tester	E5515C	MY48361083	Agilent	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

$G_{\text{PL}}$ : Path Loss

$P_{\text{Mea}}$ : Measurement result on receiver.

#### Charging Mode Set.5

Frequency(MHz)	Result(dBuV/m)	GPL (dB)	GA (dB/m)	PMea(dBuV)	Polarity
2998.600	42.2	-29.0	33.8	37.379	VERTICAL
2998.400	42.1	-29.0	33.8	37.279	HORIZONTAL
2998.000	42.1	-29.0	33.8	37.279	VERTICAL
2989.400	42.1	-29.0	33.8	37.279	HORIZONTAL
2997.800	42.1	-29.0	33.8	37.279	HORIZONTAL
2996.000	42.1	-29.0	33.8	37.279	VERTICAL

#### USB Mode Set.4

Frequency(MHz)	Result(dBuV/m)	GPL (dB)	GA (dB/m)	PMea(dBuV)	Polarity
3000.000	43.4	-28.4	34.1	37.672	HORIZONTAL
2999.800	43.2	-29.0	33.8	38.379	HORIZONTAL
2999.600	42.7	-29.0	33.8	37.879	HORIZONTAL
2999.400	42.3	-29.0	33.8	37.479	HORIZONTAL
2994.200	42.3	-29.0	33.8	37.479	HORIZONTAL
2993.400	42.2	-29.0	33.8	37.379	HORIZONTAL

Charging Mode Set.5

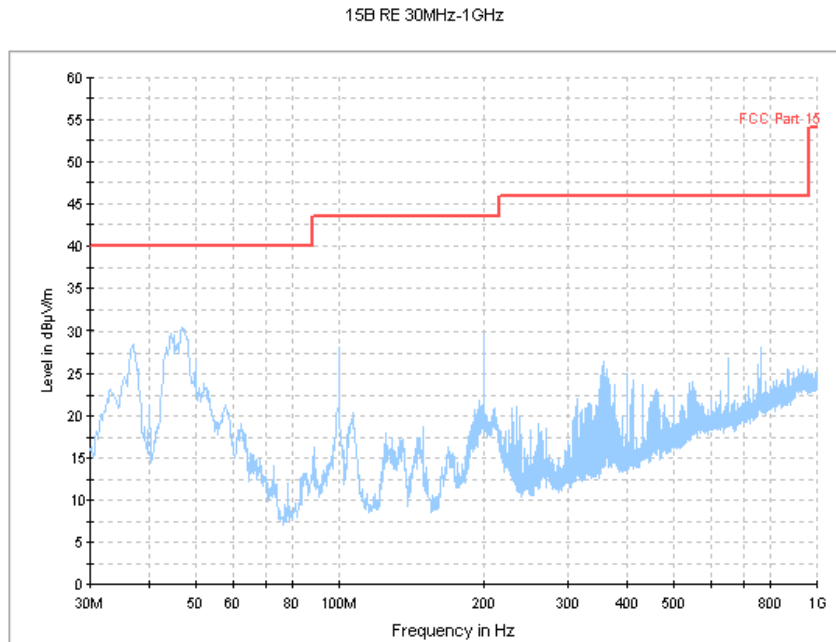


Figure A.1 Radiated Emission from 30MHz to 1GHz

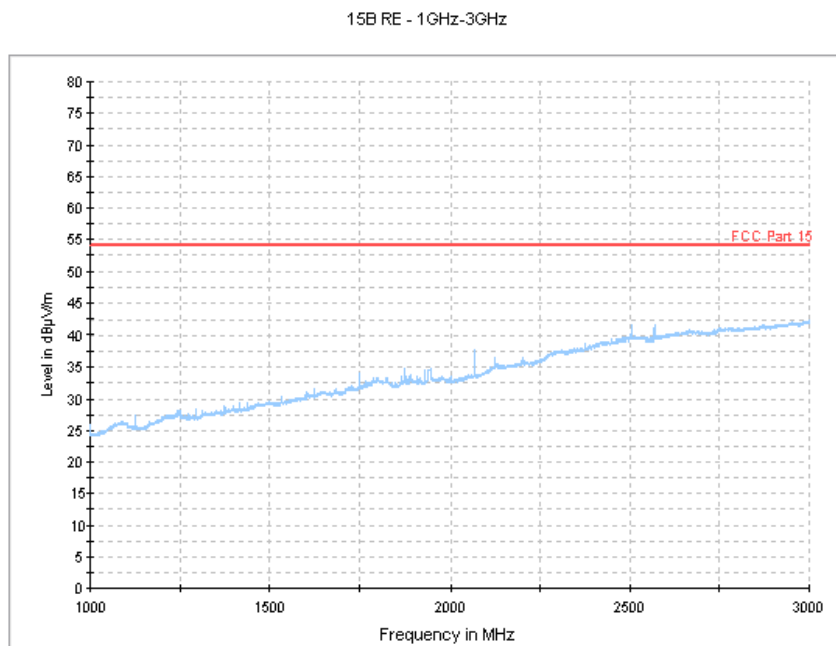
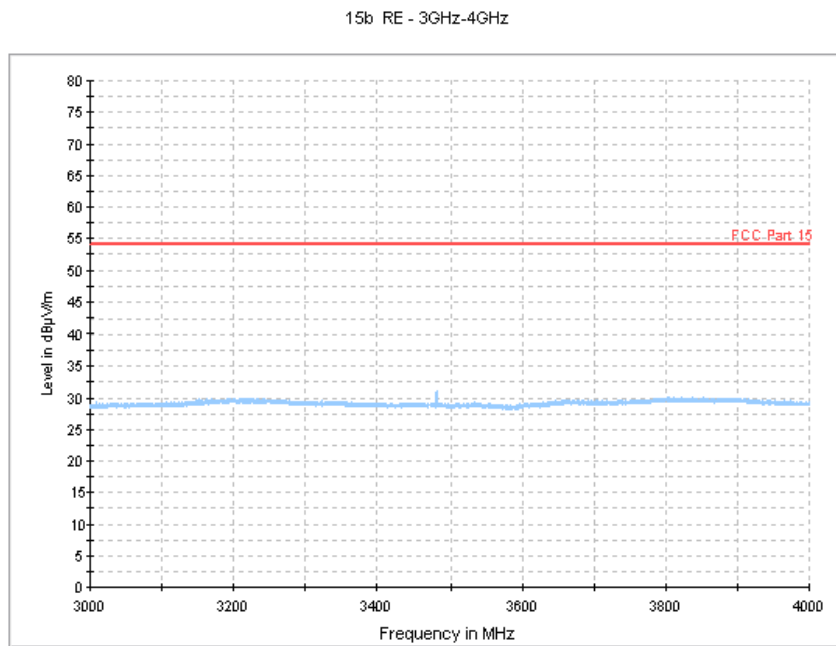
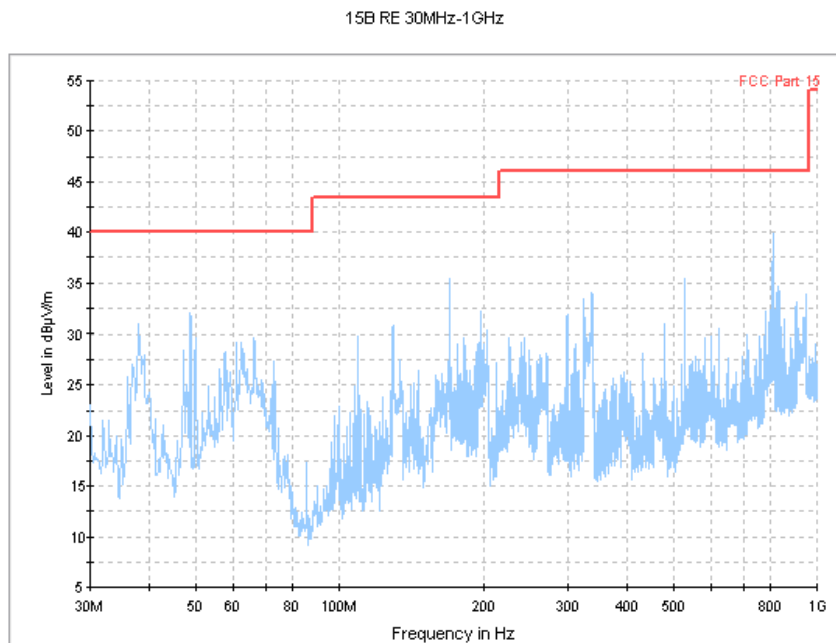


Figure A.2 Radiated Emission from 1GHz to 3GHz

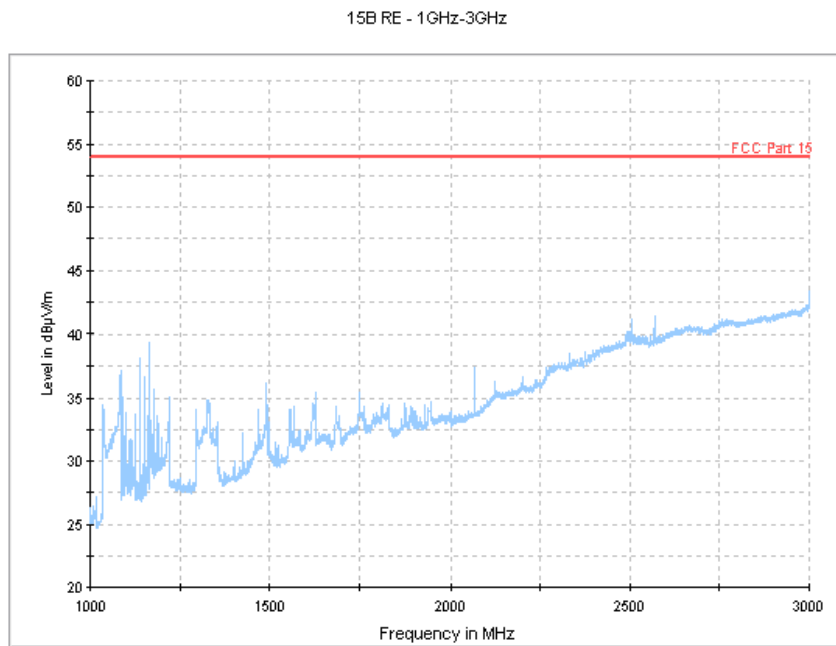


**Figure A.3 Radiated Emission from 3GHz to 4GHz**

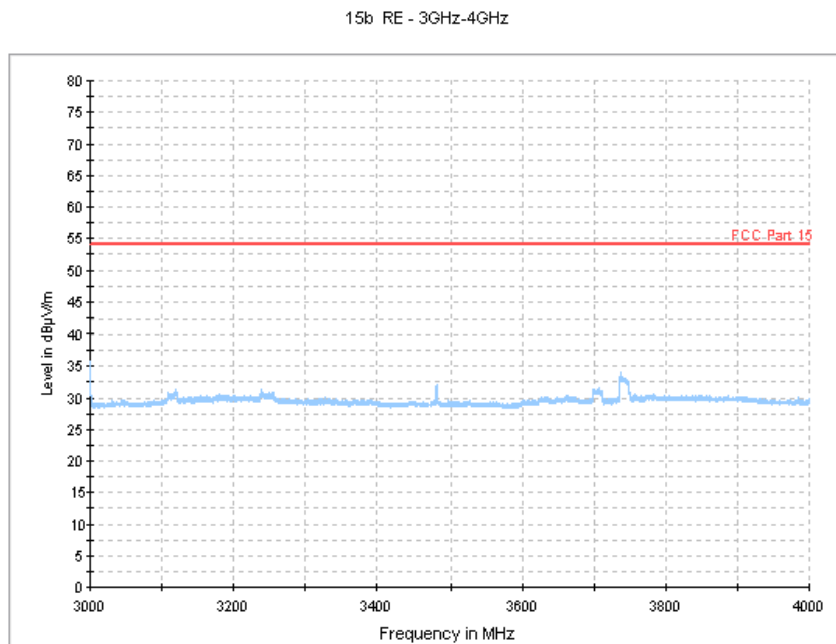
**USB Mode Set.4**



**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 (dB $\mu$ 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

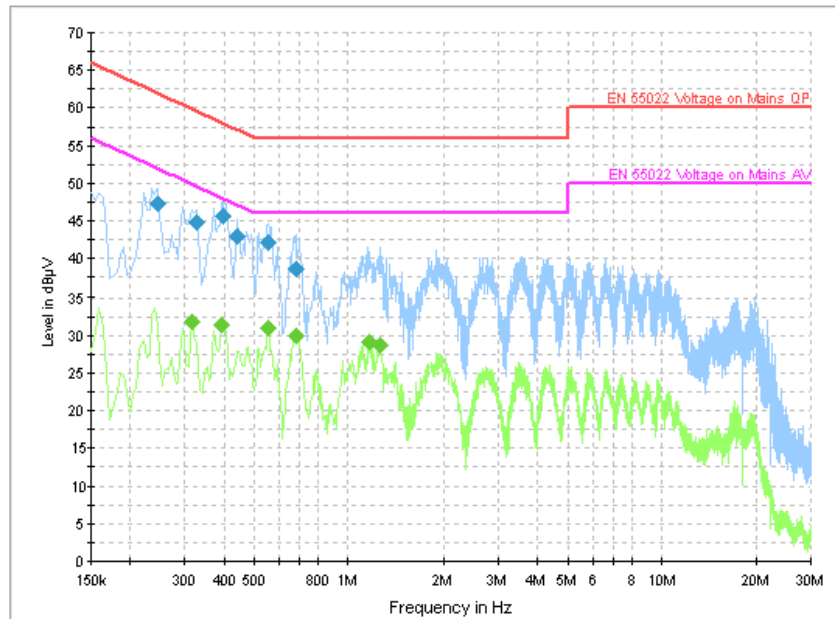
Voltage (V)	Frequency (Hz)
120	60

RBW	Sweep Time(s)
9kHz	1



**A.2.5 Measurement Results**  
**Charging Mode Set.5**



**Figure A.7 Conducted Emission**

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.244501	47.3	GND	L1	8.9	14.7	61.9
0.325501	44.7	GND	L1	9.2	14.8	59.6
0.397501	45.5	GND	L1	9.4	12.4	57.9
0.442501	42.9	GND	L1	9.5	14.1	57.0
0.555001	42.2	GND	L1	9.9	13.8	56.0
0.681001	38.7	GND	L1	9.8	17.3	56.0

**Final Result 2**

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.316501	31.9	GND	N	9.2	17.9	49.8
0.393001	31.5	GND	N	9.5	16.5	48.0
0.555001	31.0	GND	L1	9.9	15.0	46.0
0.681001	29.9	GND	L1	9.8	16.1	46.0
1.167001	29.0	GND	L1	9.8	17.0	46.0
1.261501	28.7	GND	L1	9.8	17.3	46.0

USB mode Set.4

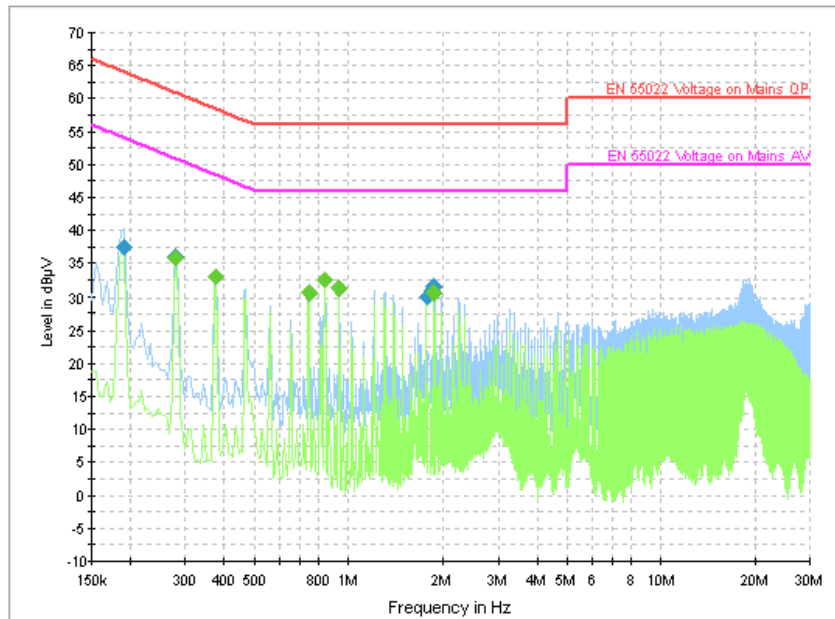


Figure A.8 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190501	37.5	GND	N	8.9	26.5	64.0
0.280501	36.0	GND	L1	9.0	24.8	60.8
0.843001	32.6	GND	L1	9.8	23.4	56.0
0.933001	31.3	GND	L1	9.8	24.7	56.0
1.774501	30.1	GND	N	9.9	25.9	56.0
1.869001	31.6	GND	N	9.9	24.4	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.280501	35.7	GND	L1	9.0	15.1	50.8
0.375001	33.0	GND	L1	9.3	15.4	48.4
0.748501	30.6	GND	L1	9.8	15.4	46.0
0.843001	32.5	GND	L1	9.8	13.5	46.0
0.933001	31.3	GND	L1	9.8	14.7	46.0
1.869001	30.7	GND	N	9.9	15.3	46.0

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