



# TEST REPORT

No. I14Z45272-EMC01

for

**VSN Technologies Inc.**

**Quad GSM/Dual WCDMA Smart Phone**

**Model Name: V1000**

**Marketing Name: R.35**

**FCC ID: 2AA9WV1000**

with

**Hardware Version: P3**

**Software Version: TBW972618\_9007\_V006119**

**Issued Date: Mar. 14<sup>th</sup>, 2013**

**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. D-PL-12123-01-01**

**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

#### Location D

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT  
Address: No.18A, Kangding Street, Beijing Economic-Technological  
Development Area, Beijing, China  
Postal Code: 100176

### 1.2. Testing Environment

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

### 1.3. Project data

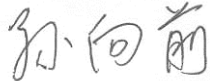
Testing Start Date: Feb. 26<sup>th</sup>, 2013  
Testing End Date: Feb. 28<sup>th</sup>, 2013

### 1.4. Signature



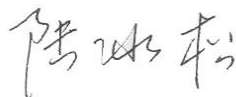
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Qu Pengfei  
(Prepared this test report)



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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: VSN Technologies Inc.  
Address /Post: 1975 E. Sunrise Blvd., #400 Fort Lauderdale, FL  
City: fort lauderdale  
Postal Code: 33323  
Country: United States  
Contact Person: Donghailun  
Contact Email: amit.verma@vsnmobil.com  
Telephone: 9546094912  
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### **2.2. Manufacturer Information**

Company Name: Beijing Benywave Technology Co. Ltd.  
Address /Post: NO.55 Jiachang 2 Road, OPTO-Mechatronics  
Industrial Park, Tongzhou District  
City: Beijing  
Postal Code: 100111  
Country: China  
Telephone: +86-10-58928917  
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### **3. Equipment Under Test (EUT) and Ancillary Equipment (AE)**

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

Description	Quad GSM/Dual WCDMA Smart Phone
Model Name	V1000
Marketing Name	R.35
FCC ID	2AA9WV1000
Extreme vol. Limits	3.6VDC to 4.2VDC (nominal: 3.8VDC)

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	862955020000511	P3	TBW972618_9007_V006119
EUT2	862955020000537	P3	TBW972618_9007_V006119
EUT3	862955020000552	P3	TBW972618_9007_V006119
EUT4	862955020000610	P3	TBW972618_9007_V006119

\*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*	描述	序列号	备注
AE1	Battery	/	1445272BA003
AE2	Battery	/	1445272BA004
AE3	Battery	/	1445272BA005
AE4	Battery	/	1445272BA006
AE5	Travel charger	/	1445272CH001
AE6	Travel charger	/	1445272CH004
AE7	Travel charger	/	1445272CH005
AE8	USB cable	/	1445272DC002
AE9	USB cable	/	1445272DC003
AE10	USB cable	/	1445272DC004

AE1, AE2, AE3, AE4

Model	TBW5913
Manufacturer	REVEL
Capacitance	1420mAh
Nominal voltage	3.7V

AE5, AE6, AE7

Model	/
Manufacturer	REVEL
Length of cable	/

AE8, AE9, AE10

Model	/
Manufacturer	REVEL
Length of cable	98cm

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

### 3.4. EUT set-ups

<b>EUT set-up No.</b>	<b>Combination of EUT and AE</b>	<b>Remarks</b>
Set.1	EUT1+ AE1+ AE5 + AE8	Charging mode
Set.3	EUT1+ AE1+ AE8	USB mode

## **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	10-1-13 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	2009

## 5. LABORATORY ENVIRONMENT

**Semi-anechoic chamber SAC-1** (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4Ω
Normalised site attenuation (NSA)	< ± 4 dB, 3m/10m distance, from 30 to 1000 MHz
Site voltage standing-wave ratio ( $S_{VSWR}$ )	Between 0 and 6 dB, from 1GHz to 18GHz
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. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz -1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Site voltage standing-wave ratio ( $S_{VSWR}$ )	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

**Shielded room** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz—1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω



## 6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:		
Verdict Column	P	Pass
	NA	Not applicable
	F	Fail
Location Column	A/B/C/D	The test is performed in test location A, B, C or D which are described in section 1.1 of this report

Items	Test Name	Clause in FCC rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	B.1	P	A
2	Conducted Emission	15.107(a)	B.2	P	A

## 7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE
1	LISN	ESH2-Z5	829991/012	R&S	2014-04-14
2	Universal Radio Communication Tester	CMU200	109914	R&S	2014-04-21
3	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A
4	Monitor	E178FPc	CN-OWR979-6 4180-7AJ-D2M S	DELL	N/A
5	Printer	P1606dn	VNC3L52122	HP	N/A
6	Keyboard	L100	CN0RH659658 907ATOI40	DELL	N/A
7	Mouse	M-UAE119	LZ935220ZRC	Lenovo	N/A
8	Test Receiver	ESCI 7	100948	R&S	2014-07-18
9	EMI Antenna	VULB 9163	9163-234	Schwarzbeck	2016-09-15
10	EMI Antenna	3115	6914	ETS-Lindgren	2014-12-15
11	Test Receiver	FSV	101047	R&S	2014-06-30

## **ANNEX A: MEASUREMENT RESULTS**

### **A.1 Radiated Emission**

#### **Reference**

FCC: CFR Part 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 (above 1GHz) and 10 meters (below 1GHz) is tested. Tested in accordance with the procedures of ANSI C63.4 - 2009, section 8.3.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters (above 1GHz) and 10 meters (below 1GHz) 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 OPTIPLEX 380, and the serial number of the PC is 2X1YV2X. 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 range (MHz)	Field strength limit ( $\mu\text{V}/\text{m}$ )		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

#### **A.1.4 Test Condition**

Frequency range (MHz)	RBW/VBW	Sweep Time (s)	Detector
30-1000	120kHz (IF Bandwidth)	5	Peak/Quasi-peak
Above 1000	1MHz/1MHz	15	Peak, Average

### 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.

Measurement uncertainty (worst case):  $U = 4.3 \text{ dB}$ ,  $k=2$ .

#### Measurement result for Set.1:

##### Charging Mode/Average detector

Frequency(MHz)	Result(dB $\mu$ V/m)	$G_{\text{PL}}$ (dB)	$G_A$ (dB/m)	$P_{\text{Mea}}$ (dB $\mu$ V)	Polarity
5652.813	30.4	-34.2	35.1	29.500	H
5654.844	30.4	-34.2	35.1	29.500	H
5650.938	30.4	-34.2	35.1	29.500	V
5657.188	30.4	-34.2	35.1	29.500	V
5656.406	30.4	-34.2	35.1	29.500	H
5660.313	30.3	-34.2	35.1	29.400	V

##### Charging Mode/Peak detector

Frequency(MHz)	Result(dB $\mu$ V/m)	$G_{\text{PL}}$ (dB)	$G_A$ (dB/m)	$P_{\text{Mea}}$ (dB $\mu$ V)	Polarity
5910.469	43.2	-34.1	35.1	42.200	H
5338.438	42.8	-34.8	34.6	43.000	H
5651.406	42.7	-34.2	35.1	41.800	V
5655.313	42.6	-34.2	35.1	41.700	V
5640.781	42.6	-34.4	35.1	41.900	H
5673.281	42.6	-34.2	35.1	41.700	V

**Measurement result for Set.3:**

**USB Mode/Average detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>mea</sub> (dB $\mu$ V)	Polarity
1874.844	40.3	-35.6	25.3	50.600	H
1925.000	34.5	-34.6	25.3	43.800	V
1797.031	34.3	-37.7	25.3	46.700	V
1924.844	34.3	-34.6	25.3	43.600	H
1794.375	34.2	-37.7	25.3	46.600	H
1794.063	34.1	-37.7	25.3	46.500	V

**USB Mode/ Peak detector**

Frequency(MHz)	Result(dB $\mu$ V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>mea</sub> (dB $\mu$ V)	Polarity
1995.313	55.9	-35.7	25.3	66.300	H
1993.281	54.8	-35.7	25.3	65.200	H
1993.906	51.5	-35.7	25.3	61.900	V
1867.188	48.6	-35.9	25.3	59.200	V
1891.406	48.6	-35.0	25.3	58.300	H
1993.594	48.3	-35.7	25.3	58.700	V

Charging Mode, Set.1

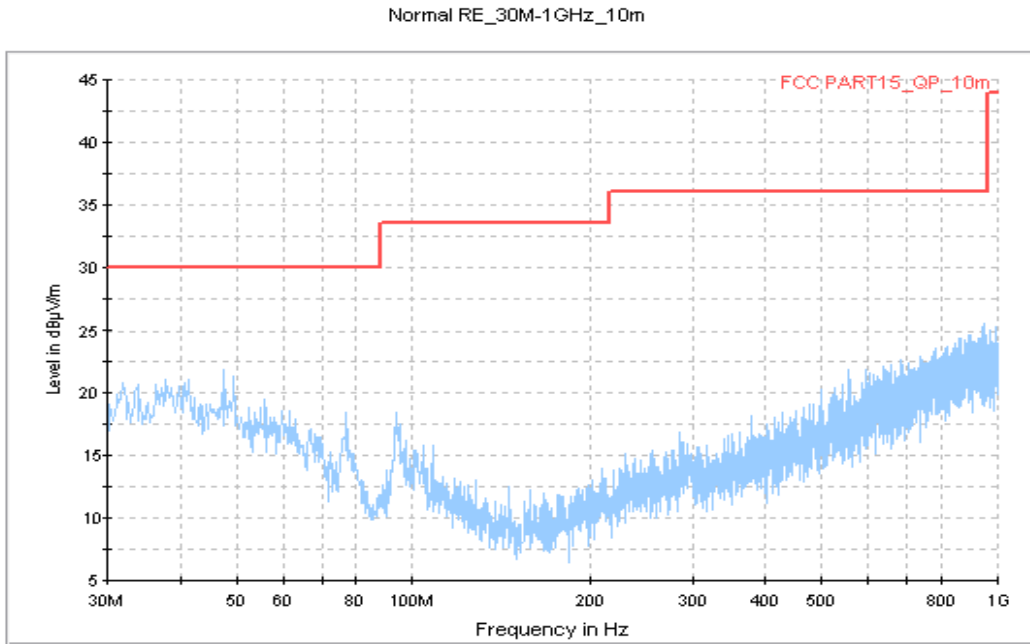


Figure A.1 Radiated Emission from 30MHz to 1GHz

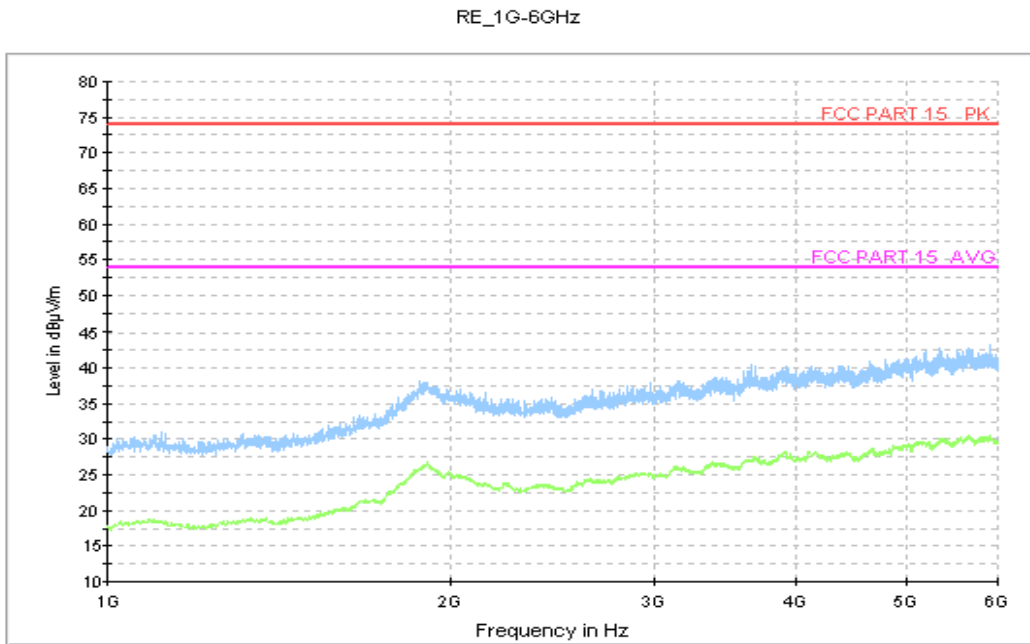


Figure A.2 Radiated Emission from 1GHz to 6GHz

USB Mode, Set.3

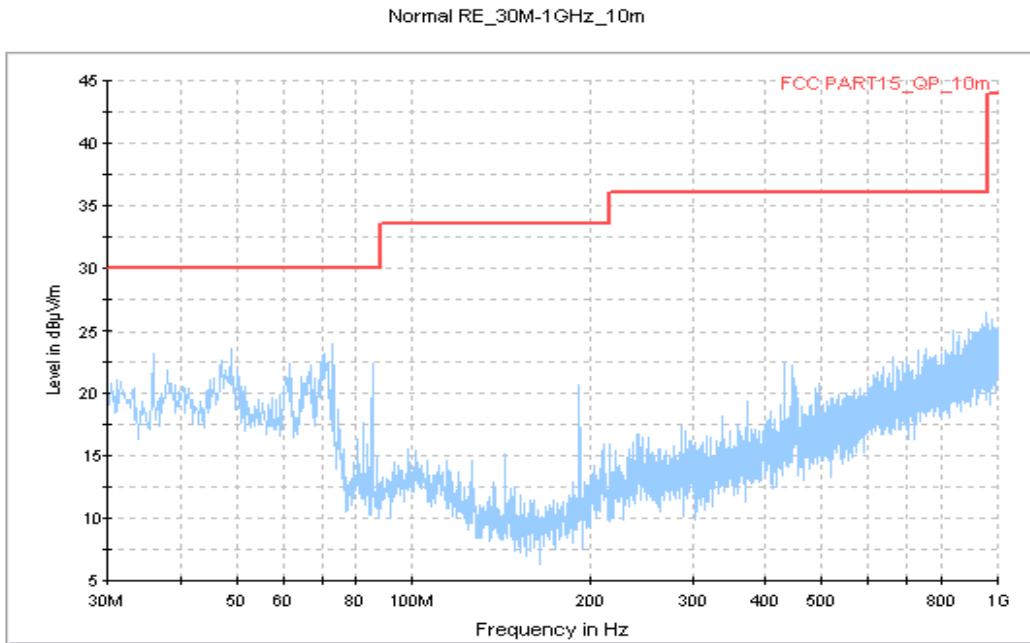


Figure A.3 Radiated Emission from 30MHz to 1GHz

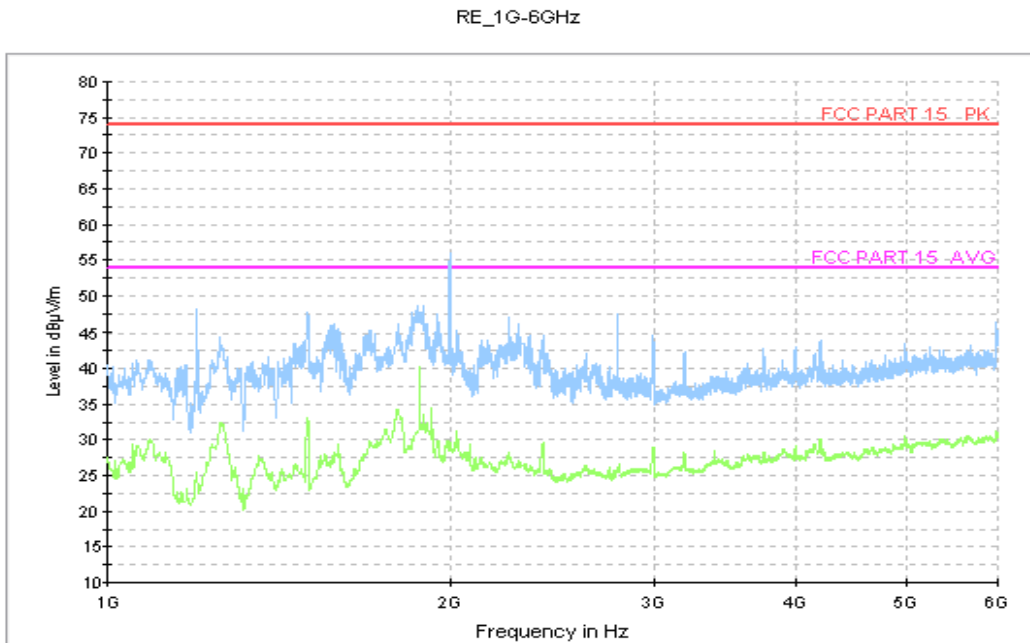


Figure A.4 Radiated Emission from 1GHz to 6GHz

## A.2 Conducted Emission

### Reference

FCC: CFR Part 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 - 2009, section 7.3.

### 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 OPTIPLEX 380, and the serial number of the PC is 2X1YV2X. 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/IF bandwidth	Sweep Time(s)
9kHz	1



### A.2.5 Measurement Results

Measurement uncertainty:  $U= 2.9$  dB,  $k=2$ .

#### Charging Mode, Set.1

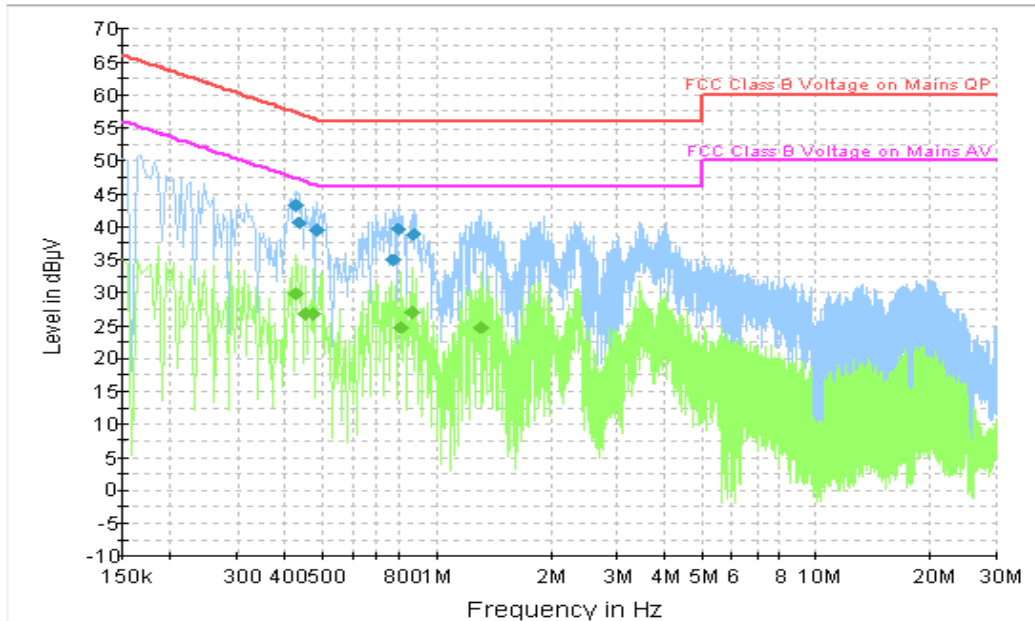


Figure A.5 Conducted Emission

#### Final Result 1

Frequency (MHz)	QuasiPeak (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.429000	43.2	GND	L1	9.8	14.1	57.3
0.433500	40.5	GND	L1	9.8	16.7	57.2
0.487500	39.5	GND	L1	9.8	16.8	56.2
0.775500	34.9	GND	N	9.8	21.1	56.0
0.793500	39.6	GND	L1	9.8	16.4	56.0
0.870000	38.8	GND	L1	9.8	17.2	56.0

#### Final Result 2

Frequency (MHz)	Average (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.429000	29.7	GND	L1	9.8	17.5	47.3
0.451500	26.8	GND	L1	9.8	20.0	46.8
0.474000	26.7	GND	L1	9.8	19.7	46.4
0.811500	24.6	GND	L1	9.8	21.4	46.0
0.865500	27.0	GND	L1	9.8	19.0	46.0
1.306500	24.7	GND	L1	9.7	21.3	46.0

USB Mode, Set.3

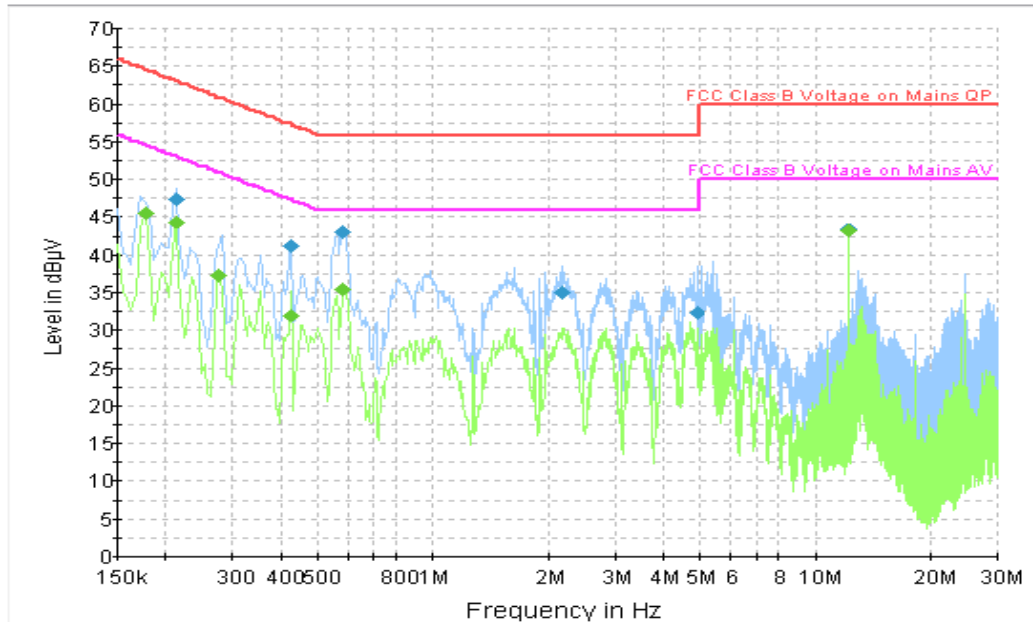


Figure A.6 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.213000	47.4	GND	N	9.8	15.6	63.1
0.424500	41.2	GND	L1	9.8	16.1	57.4
0.577500	43.1	GND	L1	9.8	12.9	56.0
2.188500	35.1	GND	N	9.7	20.9	56.0
4.920000	32.4	GND	N	9.8	23.6	56.0
12.201000	43.3	GND	N	9.6	16.7	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.177000	45.5	GND	N	9.8	9.1	54.6
0.213000	44.3	GND	N	9.8	8.7	53.1
0.276000	37.2	GND	N	9.8	13.7	50.9
0.424500	32.1	GND	L1	9.8	15.3	47.4
0.582000	35.5	GND	L1	9.8	10.5	46.0
12.201000	43.2	GND	N	9.6	6.8	50.0

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