



# TEST REPORT

No. 2012TAR328

for

**ZTE Corporation**

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

**Model Name: Movistar Novus/ZTE V877P**

**FCC ID : Q78-MOVISTARNOVUS**

with

**Hardware Version: p8kB**

**Software Version: MOVISTAR\_P772A21V1.0.0B03**

**Issued Date: 2012-07-02**

**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 Bei Road, Haidian District, Beijing, P. R. China  
Postal Code: 100191  
Telephone: 00861062304633-2678  
Fax: 00861062304633-2504

### 1.2. Testing Environment

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

### 1.3. Project data

Testing Start Date: Jun. 15<sup>th</sup>, 2012  
Testing End Date: Jun. 26<sup>th</sup>, 2012

### 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: 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	WCDMA/GSM (GPRS) Dual-Mode Digital Mobile Phone
Model Name	Movistar Novus/ZTE V877P
FCC ID	Q78-MOVISTARNOVUS
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	004401782400002	p8kB	MOVISTAR_P772A21V1.0.0B03

\*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	90021204118017501
AE2	Battery	90021204118017499
AE3	Battery	90021204118008589
AE4	Travel charger	/
AE6	USB cable	/

AE1, AE2, AE3

Model	Li3716T42P3h594650
Manufacturer	ZTE
Capacitance	1600mAh
Nominal voltage	3.7V

AE4

Model	STC-A22O50I700USBA-Z
Manufacturer	DOKOCOM
Length of cable	120cm (length of USB cable)

AE6

Model	/
Manufacturer	ZTE
Length of cable	120cm

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

## **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	10-1-10 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

**Control room/ conducted chamber** 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

**Fully-anechoic chamber FAC-3** (8.6 meters×6.1 meters×3.85 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
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 4000 MHz

**Semi-anechoic chamber SAC-2** (10 meters×6.7 meters×6.15 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	> 100 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.5 dB, 3 m distance
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

## 6. SUMMARY OF TEST RESULTS

<b>Abbreviations used in this clause:</b>	
P	Pass
NA	Not applicable
F	Fail

<b>Clause</b>	<b>List</b>	<b>Clause in FCC rules</b>	<b>Verdict</b>
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	100376	R&S	2012-11-08
2	EMI Antenna	VULB 9163	514	Schwarzbeck	2014-11-10
3	EMI Antenna	3117	00139065	ETS-Lindgren	2014-07-31
4	LISN	ESH2-Z5	829991/012	R&S	2013-04-16
5	Test Receiver	ESCI	100344	R&S	2013-03-28
6	Universal Radio Communication Tester	E5515C	MY48363198	Agilent	2012-07-09
7	Universal Radio Communication Tester	CMU200	116455	R&S	2013-05-20
9	PC	OPTIPLEX 755	3908243625	DELL	N/A
10	Monitor	E178FPc	CN-OWR979-6 4180-7AJ-D2M S	DELL	N/A
11	Printer	DeskJet D2368	TH72E12G7Q	HP	N/A
12	Keyboard	L100	CN0RH659658 907ATOI40	DELL	N/A
13	Mouse	VR-301	692722550019 8	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 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.

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 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
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:

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

Where

$G_A$ : Antenna factor of receive antenna

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

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

### Charging Mode

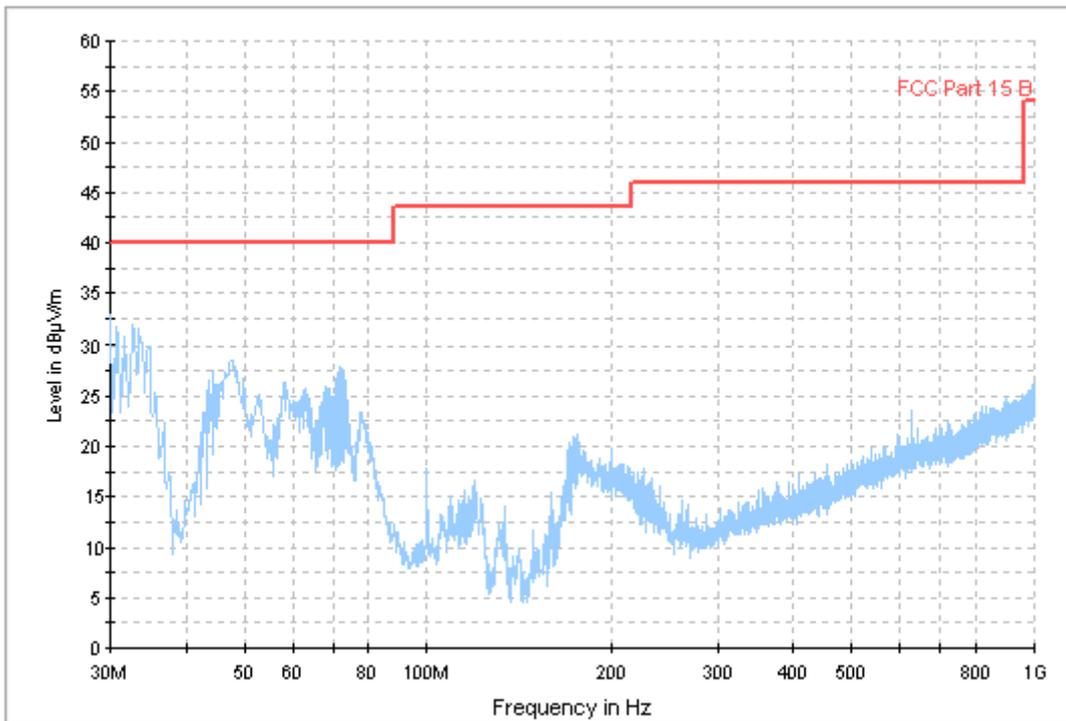
Frequency(MHz)	Result(dBuV/m)	$G_{\text{PL}}$ (dB)	$G_A$ (dB/m)	$P_{\text{Mea}}$ (dBuV)	Polarity
2771.800	39.0	-26.3	33.8	31.484	VERTICAL
2769.800	38.8	-26.3	33.8	31.335	VERTICAL
2761.600	38.8	-26.3	33.8	31.328	HORIZONTAL
2772.000	38.8	-26.3	33.8	31.310	VERTICAL
2770.600	38.8	-26.3	33.8	31.305	VERTICAL
2771.400	38.8	-26.3	33.8	31.299	VERTICAL

### USB Mode

Frequency(MHz)	Result(dBuV/m)	$G_{\text{PL}}$ (dB)	$G_A$ (dB/m)	$P_{\text{mea}}$ (dBuV)	Polarity
2780.600	39.0	-27.8	33.8	33.013	VERTICAL
2770.200	39.0	-26.3	33.8	31.471	HORIZONTAL
2775.000	39.0	-26.3	33.8	31.452	HORIZONTAL
2772.600	38.9	-26.3	33.8	31.438	VERTICAL
2771.200	38.9	-26.3	33.8	31.397	HORIZONTAL
2771.600	38.9	-26.3	33.8	31.380	HORIZONTAL

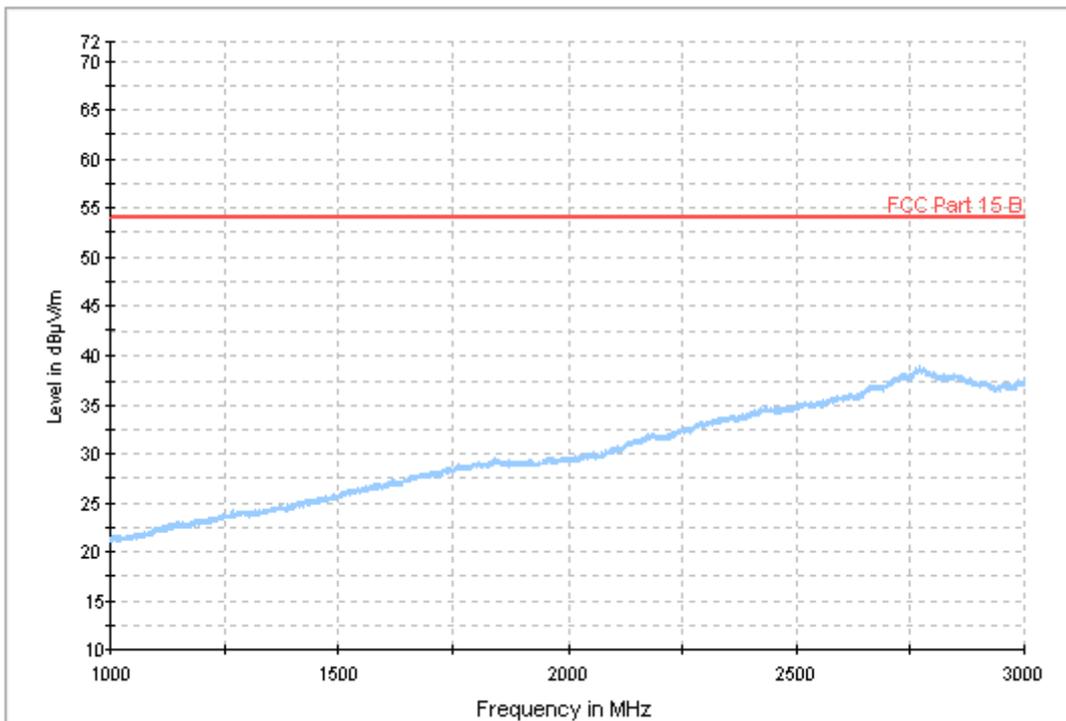
**Charging Mode**

RE 30MHz-1GHz



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

15B RE - 1GHz-3GHz



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

15b RE - 3GHz-4GHz

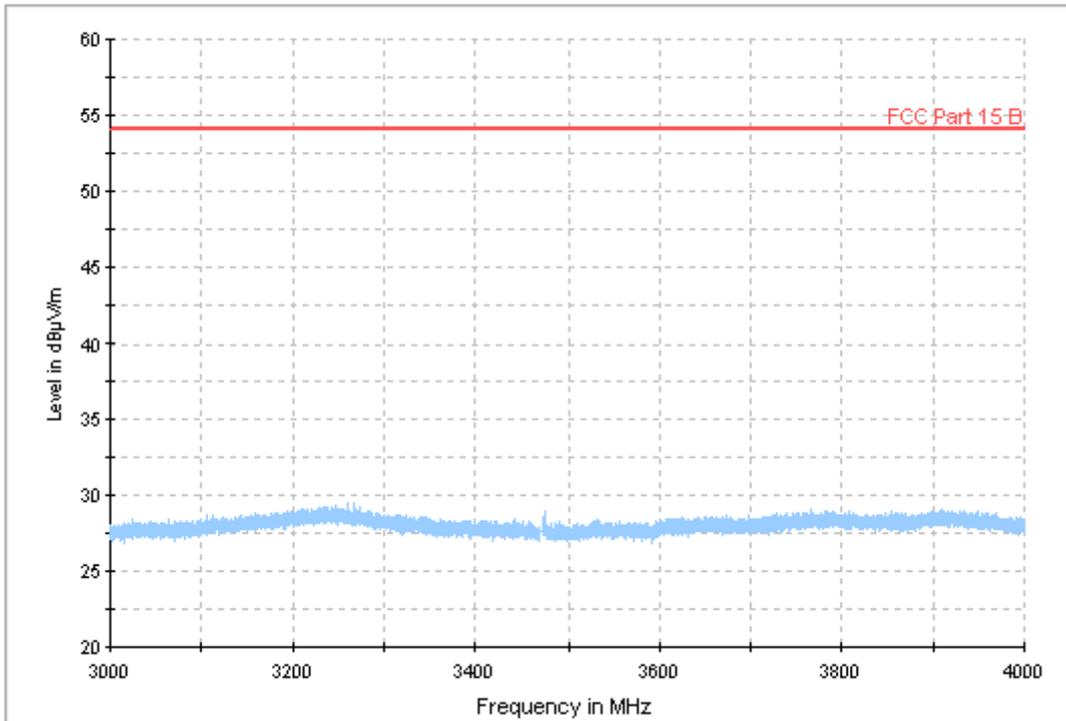


Figure A.3 Radiated Emission from 3GHz to 4GHz

USB Mode

RE 30MHz-1GHz

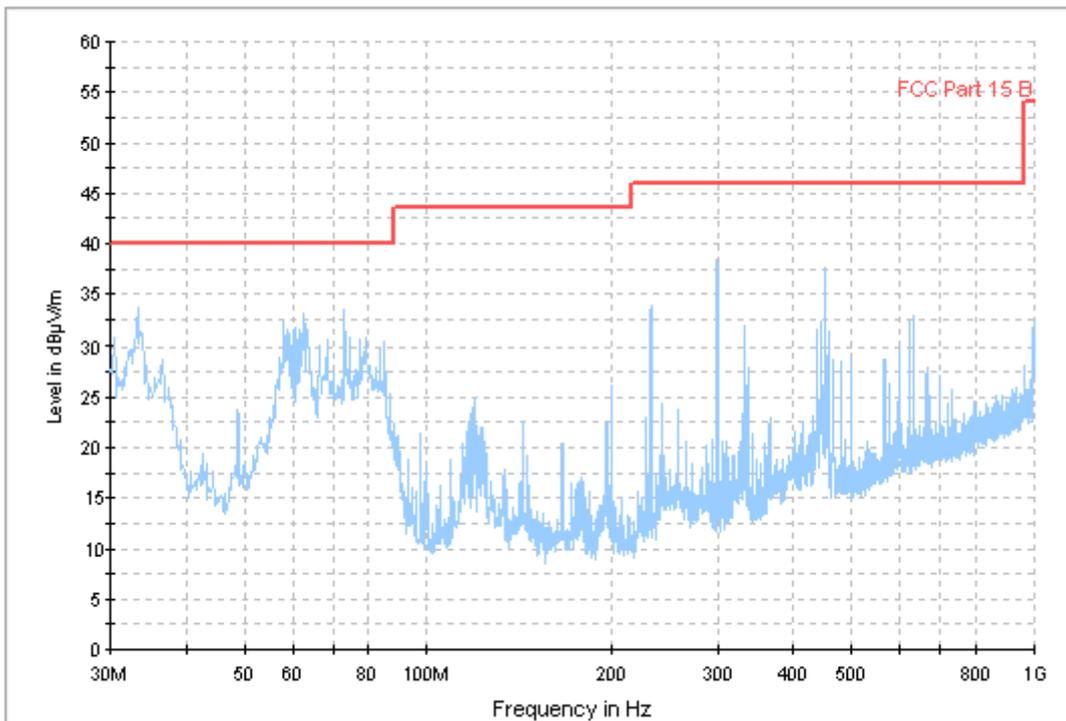


Figure A.4 Radiated Emission from 30MHz to 1GHz

15B RE - 1GHz-3GHz

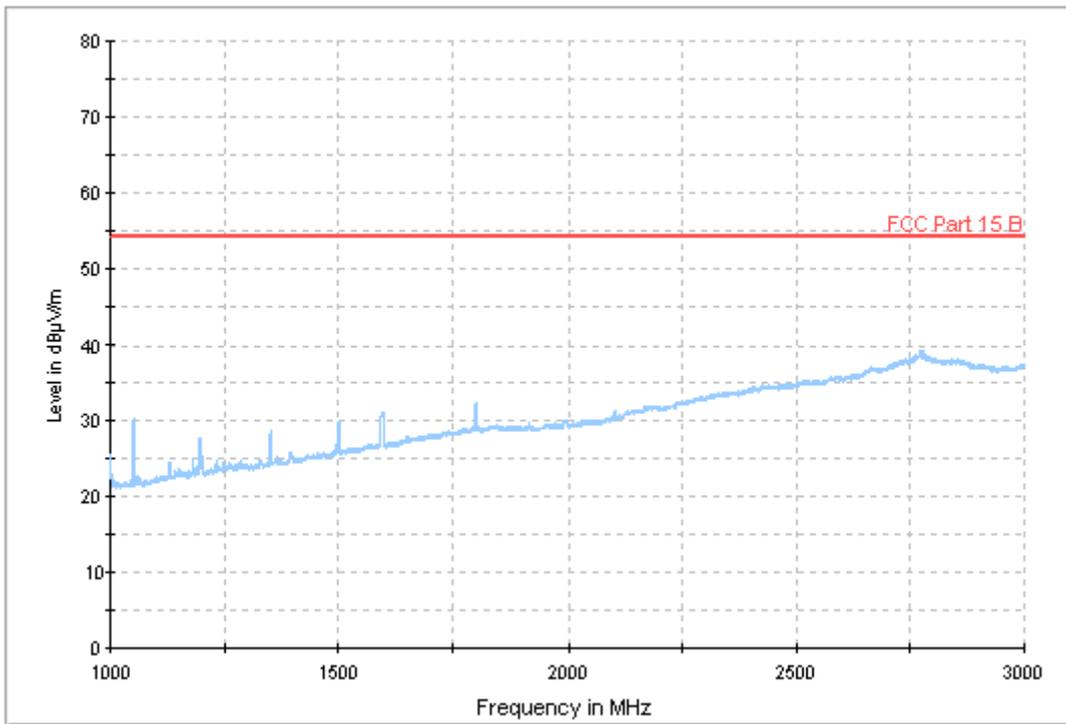


Figure A.5 Radiated Emission from 1GHz to 3GHz

15b RE - 3GHz-4GHz

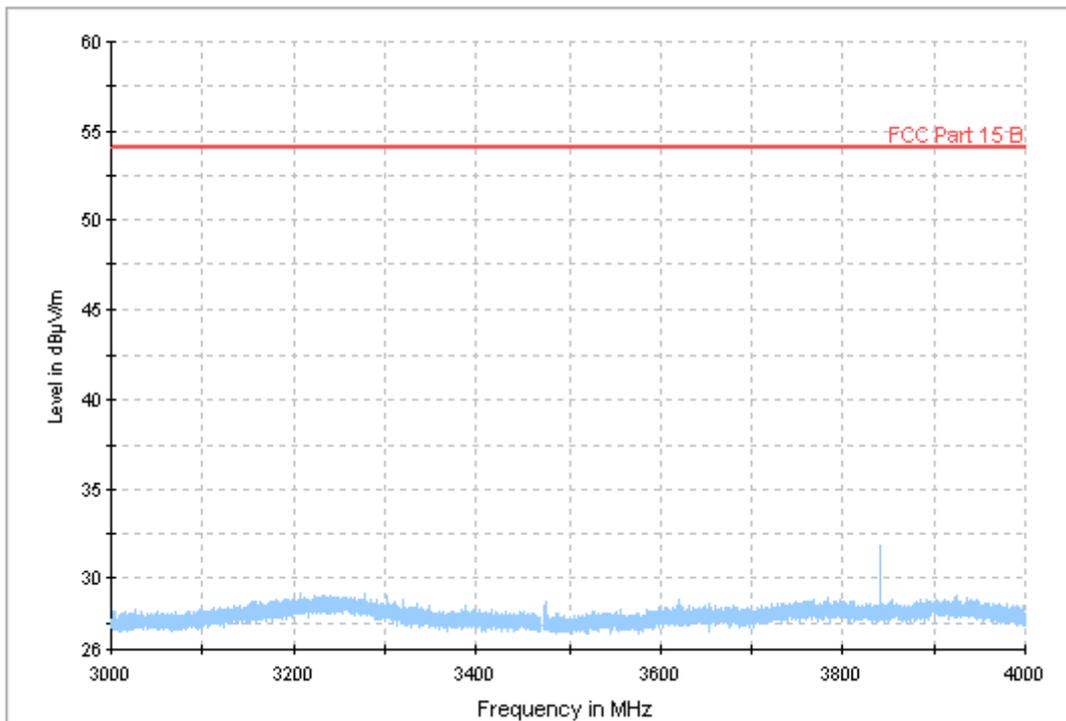


Figure A.6 Radiated Emission from 3GHz to 4GHz

## 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 $\mu$ 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

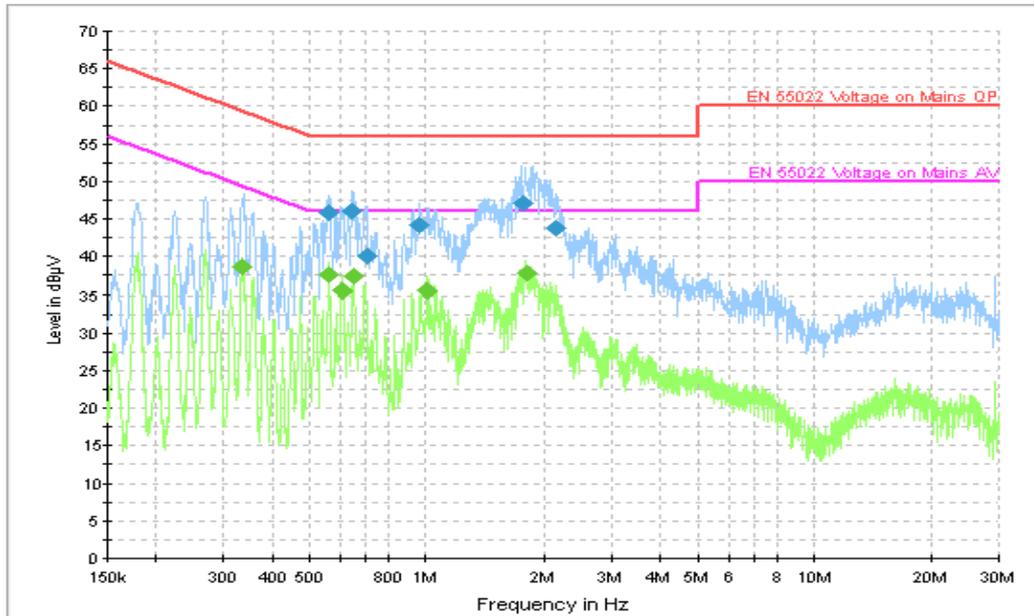


Figure A.7 Conducted Emission

#### Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.560405	45.9	GND	L1	10.3	10.1	56.0
0.647063	46.0	GND	L1	10.3	10.0	56.0
0.701571	40.1	GND	L1	10.3	15.9	56.0
0.963764	44.1	GND	L1	10.3	11.9	56.0
1.759779	47.1	GND	L1	10.3	8.9	56.0
2.138055	43.8	GND	L1	10.4	12.2	56.0

#### Final Result 2

Frequency (MHz)	Average (dB µ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.335770	38.6	GND	L1	10.2	10.7	49.3
0.560405	37.6	GND	L1	10.3	8.4	46.0
0.607613	35.5	GND	L1	10.3	10.5	46.0
0.650951	37.3	GND	L1	10.3	8.7	46.0
1.011080	35.4	GND	L1	10.3	10.6	46.0
1.807868	37.9	GND	L1	10.3	8.1	46.0

USB Mode

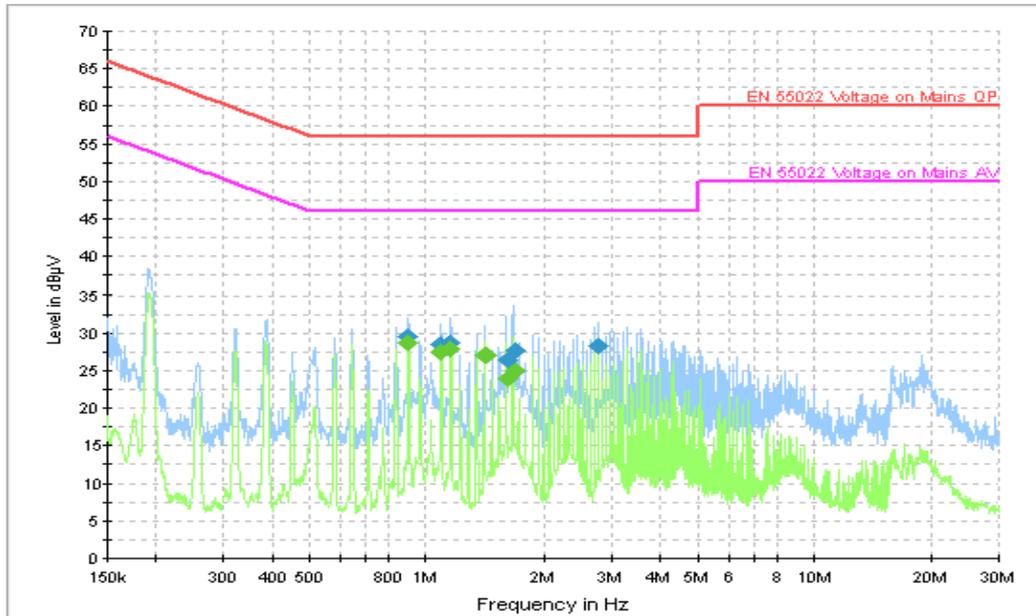


Figure A.8 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.902298	29.6	GND	L1	10.3	26.4	56.0
1.096253	28.4	GND	L1	10.3	27.6	56.0
1.160456	28.7	GND	L1	10.3	27.3	56.0
1.613359	26.4	GND	L1	10.3	29.6	56.0
1.677426	27.6	GND	L1	10.3	28.4	56.0
2.766299	28.3	GND	N	10.4	27.7	56.0

Final Result 2

Frequency (MHz)	Average (dB µ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.902298	28.6	GND	L1	10.3	17.4	46.0
1.096253	27.4	GND	L1	10.3	18.6	46.0
1.160456	28.0	GND	L1	10.3	18.0	46.0
1.418375	27.0	GND	L1	10.3	19.0	46.0
1.613359	24.0	GND	L1	10.3	22.0	46.0
1.677426	25.1	GND	L1	10.3	20.9	46.0

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