



# TEST REPORT

**No. 2012EEB00247**

**for**

**Emporia Telecom USA Inc.**

**GSM dual band mobile phone**

**Model Name: V20mbu**

**Marketing Name: emporiaTALKcomfort**

**FCC ID: ZVP-V20M**

**IC ID: 10262A-V20M**

**with**

**Hardware Version: V20m-MB-V5.0**

**Software Version: V20mini\_USA\_ULC2\_NW\_R024**

**Issued Date: 2012-05-30**

**Test Laboratory:**

**FCC 2.948 Listed: No.733176**

**IC O.A.T.S listed: No.6629A-1**

**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.

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## **CONTENTS**

<b>1. TEST LABORATORY .....</b>	<b>3</b>
<b>1.1. TESTING LOCATION .....</b>	<b>3</b>
<b>1.2. TESTING ENVIRONMENT .....</b>	<b>3</b>
<b>1.3. PROJECT DATA .....</b>	<b>3</b>
<b>1.4. SIGNATURE .....</b>	<b>3</b>
<b>2. CLIENT INFORMATION .....</b>	<b>4</b>
<b>2.1. APPLICANT INFORMATION .....</b>	<b>4</b>
<b>2.2. MANUFACTURER INFORMATION .....</b>	<b>4</b>
<b>3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) .....</b>	<b>5</b>
<b>3.1. ABOUT EUT .....</b>	<b>5</b>
<b>3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST .....</b>	<b>5</b>
<b>3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST .....</b>	<b>5</b>
<b>3.4. EUT SET-UPS .....</b>	<b>5</b>
<b>4. REFERENCE DOCUMENTS .....</b>	<b>6</b>
<b>4.1. REFERENCE DOCUMENTS FOR TESTING .....</b>	<b>6</b>
<b>5. LABORATORY ENVIRONMENT .....</b>	<b>7</b>
<b>6. SUMMARY OF TEST RESULTS .....</b>	<b>8</b>
<b>7. TEST EQUIPMENTS UTILIZED .....</b>	<b>9</b>
<b>ANNEX A: MEASUREMENT RESULTS .....</b>	<b>10</b>

## 1. Test Laboratory

### 1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT  
Address: No 52 Hua Yuanbei Road, Haidian District, Beijing, P.R.China  
Postal Code: 100191  
Telephone: +86(0)10-62304633-2678  
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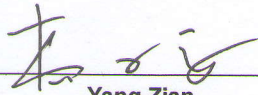
### 1.2. Testing Environment

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

### 1.3. Project data

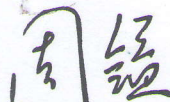
Testing Start Date: May. 23, 2012  
Testing End Date: May. 29, 2012

### 1.4. Signature



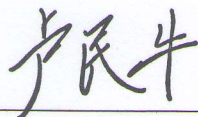
Yang Zian

(Prepared this test report)



Zhou Yi

(Reviewed this test report)



Lu Minniu

Director of the laboratory  
(Approved this test report)

## **2. Client Information**

### **2.1. Applicant Information**

Company Name: Emporia Telecom USA Inc.  
Address /Post: 321 E. Glen Ave, Ridgewood  
City: New Jersey  
Postal Code: /  
Country: United States  
Telephone: (201) 962-5550  
Fax: (201) 962-5550

### **2.2. Manufacturer Information**

Company Name: Emporia Telecom USA Inc.  
Address /Post: 321 E. Glen Ave, Ridgewood  
City: New Jersey  
Postal Code: /  
Country: United States  
Telephone: (201) 962-5550  
Fax: (201) 962-5550

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

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

Description	GSM dual band mobile phone
Model Name	V20mbu
Marketing Name	emporiaTALKcomfort
FCC ID	ZVP-V20M
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	350123456789110	V20m-MB-V5.0	V20mini_USA_ULC2_NW_R024

\*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	AK-RL2
Manufacturer	Sunwoda Electronics Co., Ltd.
Capacitance	1000mAh
Nominal voltage	3.7V

##### AE2

Model	RL_V170US
Manufacturer	Kuantech Co., Ltd
Length of cable	154cm

##### AE3

Model	/
Manufacturer	/
Length of cable	/

\*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 + AE2	Charging mode
Set.2	EUT1+ AE1 + AE3	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	10-1-10 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
ICES-003	Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard Digital Apparatus	Issue 4

## 5. LABORATORY ENVIRONMENT

**Semi-anechoic chamber** (11.20 meters×6.10meters×5.60meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 70 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 1 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

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

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. =35 %, Max. = 80 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 1 Ω

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

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. =35 %, Max. = 80 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 1 Ω

**Fully-anechoic chamber** (11.20 meters×6.10 meters×6.60 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 70 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 1 Ω
Voltage Standing Wave Ratio (VSWR)	≤ 6 dB, from 1 to 6 GHz, 3 m distance

## 6. SUMMARY OF TEST RESULTS

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

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



## 7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE
1	Test Receiver	ESCI	100701	R&S	2012.12.29
2	Test Receiver	ESCI	100702	R&S	2012.12.29
3	Test Receiver	FSU 26	200679	R&S	2013.01.17
4	BiLog Antenna	VULB9163	9163 330	Schwarzbeck	2014.02.23
5	LISN	ESH2-Z5	100196	R&S	2012.12.30
6	Universal Radio Communication Tester	CMU200	114544	R&S	2013.01.17
7	Dual-Ridge Waveguide Horn Antenna	3117	00066585	ETS-Lindgren	2013.04
8	PC	M4099t	SA08850737	Lenovo	N/A
9	Monitor	9227-AE1	V1AZ943	Lenovo	N/A
10	Printer	P1008	VNF6C12491	HP	N/A
11	Keyboard	SK-8825	02333613	Lenovo	N/A
12	Mouse	MO28UOL	44P3704	Lenovo	N/A

## **ANNEX A: MEASUREMENT RESULTS**

### **A.1 Radiated Emission (§15.109(a))**

#### **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 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 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 Lenovo Thinkcentre M4099t, and the serial number of the PC is SA08850737. 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**

Limit from CFR Part 15.109(a)

Frequency of emission (MHz)	Field strength (microvolts/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

Limit from ICES-003 Section 5.5

Frequency range (MHz)	Field strength limits* (dB $\mu$ V/m)
30 to 230	40
230 to 1000	47

\*Note: The original limit is defined at 10m test distance. This limit is calculated according to CISPR requirements.

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

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	120kHz (IF bandwidth)	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

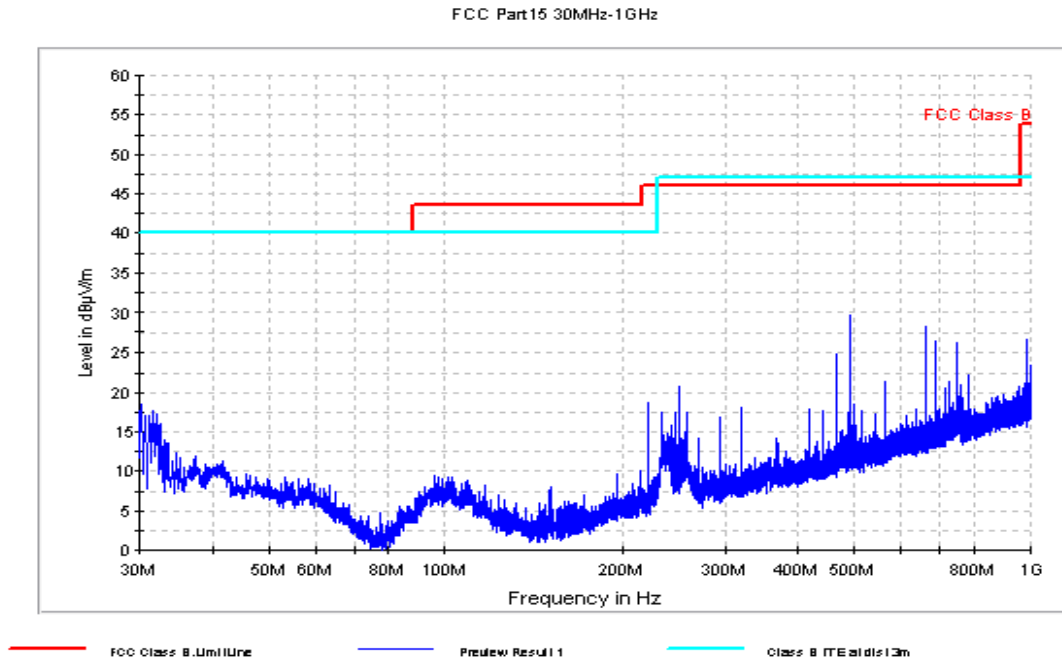
$P_{\text{Mea}}$ : Measurement result on receiver.

### Set.1 Charging mode

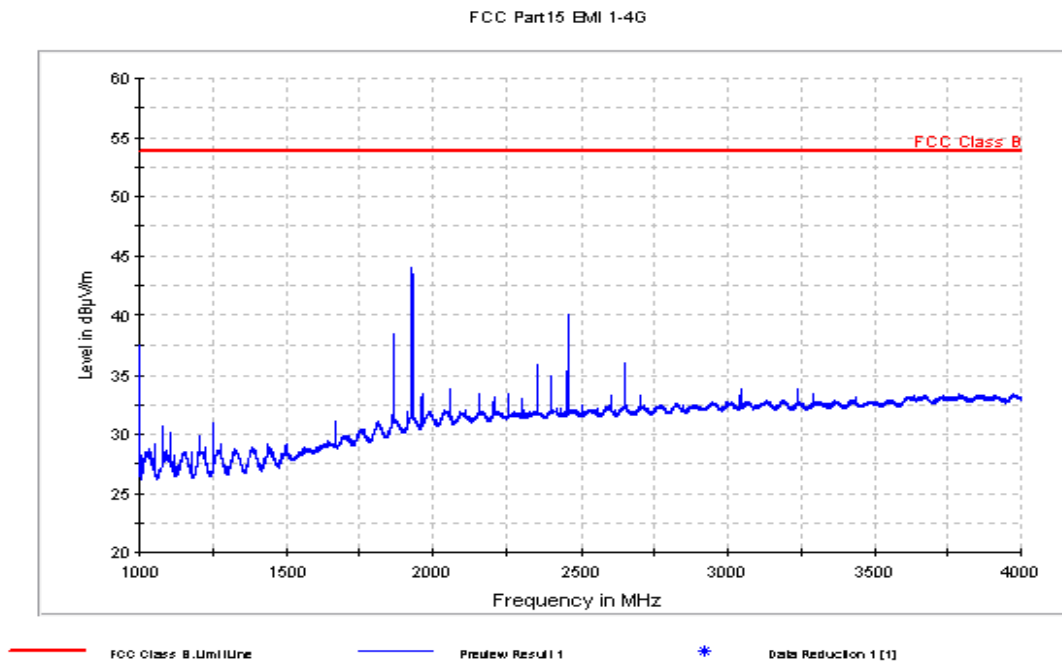
Frequency(MHz)	Result(dBuV/m)	$G_{\text{PL}}$ (dB)	$G_A$ (dB/m)	$P_{\text{Mea}}$ (dBuV)	Polarity
1865.6	38.29	-29.70	33.30	38.29	VERTICAL
1930.2	33.07	-29.70	33.30	43.87	VERTICAL
2356.2	33.50	-29.70	33.30	35.85	VERTICAL
2405.4	35.31	-29.50	33.30	34.87	VERTICAL
2454.6	40.01	-29.40	33.30	40.04	VERTICAL
2650.8	35.94	-29.30	33.30	35.98	VERTICAL

### Set.2 USB mode

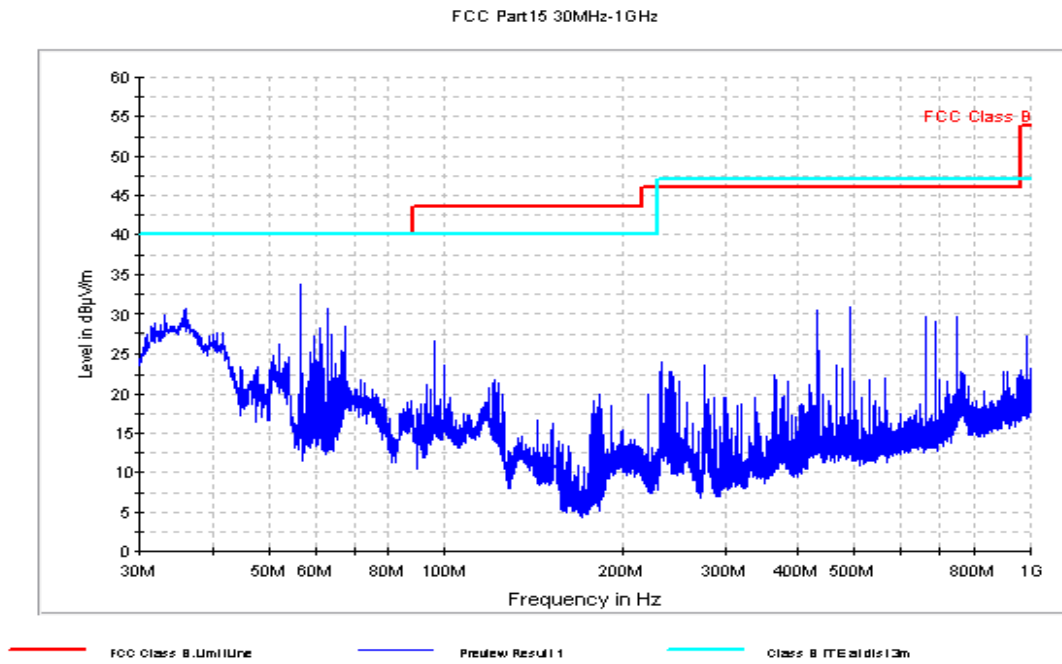
Frequency(MHz)	Result(dBuV/m)	$G_{\text{PL}}$ (dB)	$G_A$ (dB/m)	$P_{\text{mea}}$ (dBuV)	Polarity
1500.0	40.86	-32.30	28.70	37.58	VERTICAL
1865.6	37.84	-32.00	28.70	37.45	VERTICAL
1930.4	35.32	-31.10	32.10	37.46	VERTICAL
2356.4	35.60	-31.00	32.20	35.78	VERTICAL
2454.4	39.69	-30.60	32.40	38.72	VERTICAL
2651.8	44.74	-30.10	33.10	35.62	VERTICAL



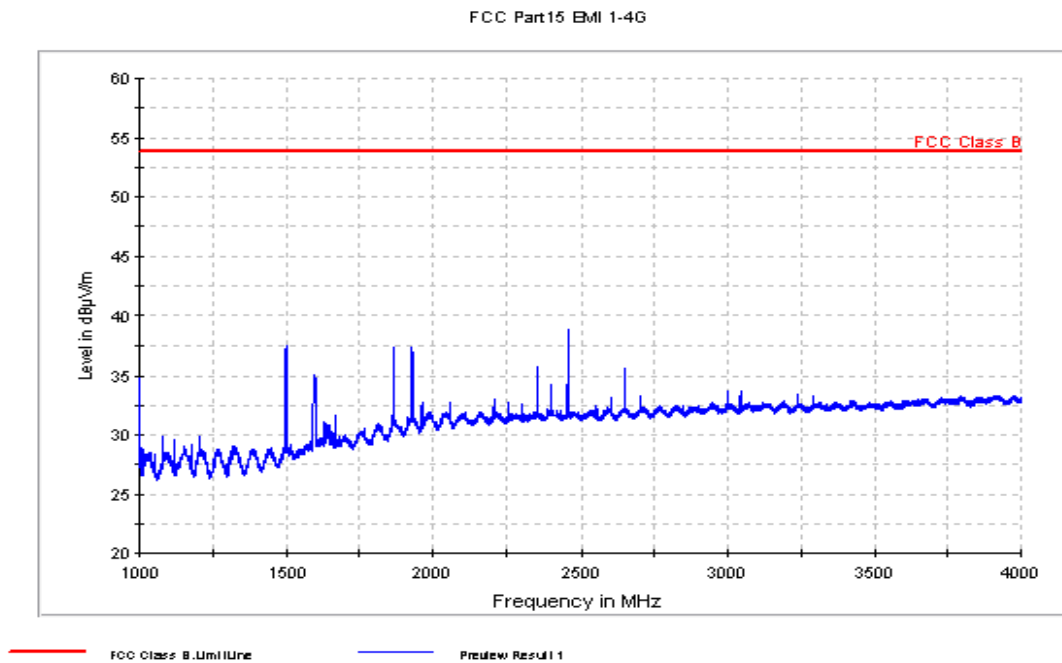
**Figure A.1 Radiated Emission from 30MHz to 1GHz (Set.1, Charging mode)**



**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))

### 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 7.2.

### 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 Lenovo Thinkcentre M4099t, and the serial number of the PC is SA08850737. 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

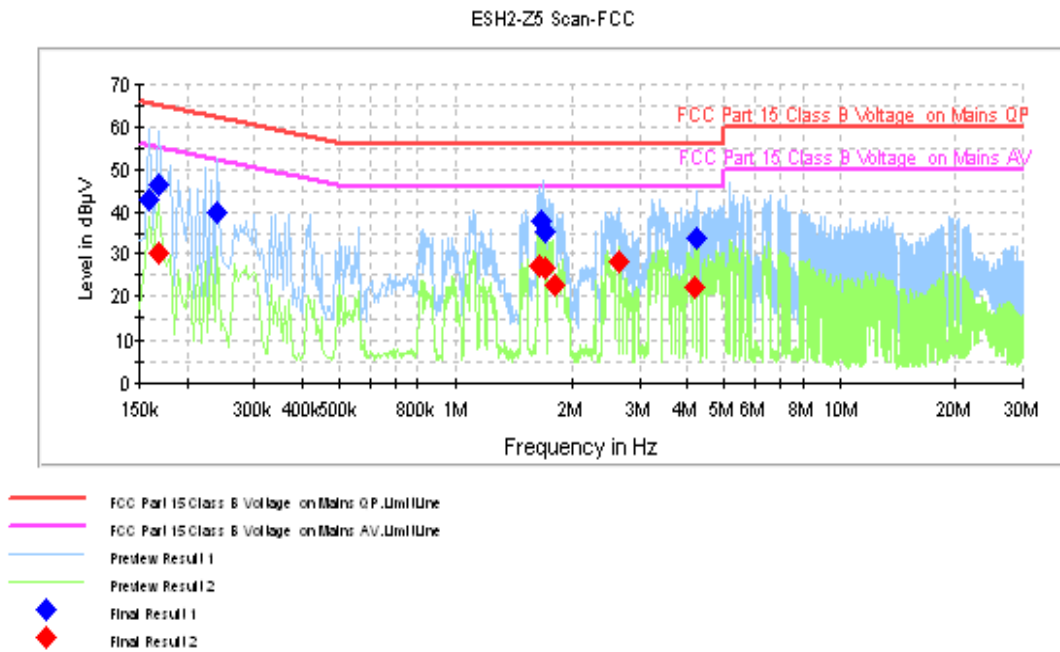


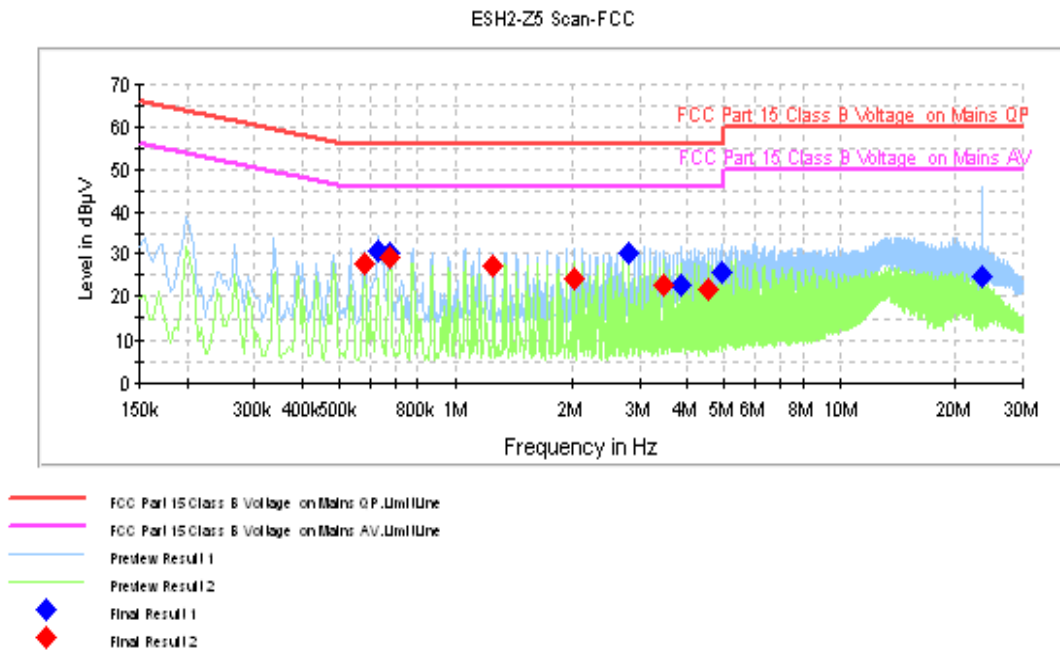
Figure A.5 Conducted Emission (Set.1, Charging mode)

#### Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.159000	42.7	FLO	N	10.1	22.8	65.5
0.168000	46.4	FLO	L1	10.0	18.7	65.1
0.240000	40.0	FLO	L1	10.0	22.1	62.1
1.653000	37.6	FLO	L1	10.1	18.4	56.0
1.702500	35.1	FLO	L1	10.1	20.9	56.0
4.218000	33.7	FLO	L1	10.2	22.3	56.0

#### Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.168000	30.2	FLO	L1	10.0	24.9	55.1
1.644000	27.2	FLO	L1	10.1	18.8	46.0
1.702500	26.9	FLO	L1	10.1	19.1	46.0
1.801500	22.7	FLO	L1	10.1	23.3	46.0
2.634000	28.2	FLO	L1	10.2	17.8	46.0
4.155000	22.3	FLO	L1	10.2	23.7	46.0



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

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.631500	30.8	FLO	N	10.0	25.2	56.0
0.676500	30.3	FLO	L1	10.0	25.7	56.0
2.800500	30.2	FLO	L1	10.1	25.8	56.0
3.867000	22.9	FLO	N	10.2	33.1	56.0
4.929000	25.7	FLO	L1	10.2	30.3	56.0
23.491500	24.7	FLO	L1	10.5	35.3	60.0

**Final Measurement Detector 2**

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.582000	27.6	FLO	L1	10.1	18.4	46.0
0.676500	29.1	FLO	N	10.0	16.9	46.0
1.257000	27.0	FLO	N	10.1	19.0	46.0
2.031000	24.2	FLO	N	10.1	21.8	46.0
3.480000	22.5	FLO	L1	10.2	23.5	46.0
4.542000	21.6	FLO	L1	10.2	24.4	46.0

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