



# TEST REPORT

No.I15N00961-EMC02

for

**Shenzhen Sang Fei Consumer Communications Co.,Ltd**

**WCDMA/GSM digital mobile phone**

**Model Name: Philips S307**

**FCC ID: VQRCTS307**

with

**Hardware Version: FS068-MB-V0.2**

**Software Version: S307\_T7731K\_1534\_V02A\_MX**

**Issued Date: 2015-09-15**

**Test Laboratory:**

**FCC 2.948 Listed: No.342690**

**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 CTTL.

**Test Laboratory:**

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## **REPORT HISTORY**

Report Number	Revision	Description	Issue Date
I15N00961-EMC02	Rev.0	1st edition	2015-09-15

## **CONTENTS**

<b>1. TEST LABORATORY .....</b>	<b>4</b>
<b>1.1. TESTINGLOCATION .....</b>	<b>4</b>
<b>1.2. TESTINGENVIRONMENT .....</b>	<b>4</b>
<b>1.3. PROJECT DATA .....</b>	<b>4</b>
<b>1.4. SIGNATURE .....</b>	<b>4</b>
<b>2. CLIENTINFORMATION.....</b>	<b>5</b>
<b>2.1. APPLICANT INFORMATION .....</b>	<b>5</b>
<b>2.2. MANUFACTURER INFORMATION .....</b>	<b>5</b>
<b>3. EQUIPMENT UNDERTEST (EUT) AND ANCILLARY EQUIPMENT (AE) .....</b>	<b>6</b>
<b>3.1. ABOUT EUT .....</b>	<b>6</b>
<b>3.2. INTERNAL IDENTIFICATION OF EUT .....</b>	<b>6</b>
<b>3.3. INTERNAL IDENTIFICATION OF AE .....</b>	<b>6</b>
<b>3.4. EUT SET-UPS .....</b>	<b>7</b>
<b>4. REFERENCE DOCUMENTS .....</b>	<b>8</b>
<b>4.1. REFERENCE DOCUMENTS FOR TESTING .....</b>	<b>8</b>
<b>5. LABORATORY ENVIRONMENT .....</b>	<b>9</b>
<b>6. SUMMARY OF TEST RESULTS .....</b>	<b>10</b>
<b>7. TEST FACILITIES UTILIZED .....</b>	<b>11</b>
<b>ANNEX A: MEASUREMENT RESULTS.....</b>	<b>12</b>

## **1. Test Laboratory**

### **1.1. Testing Location**

Address: TCL International E city No. 1001 Zhongshanyuan Road, Nanshan District, Shenzhen, Guangdong, China  
Postal Code: 518048  
Telephone: +86(755)33322000  
Fax: +86(755)33322000

### **1.2. Testing Environment**

Normal Temperature: 15-35℃  
Relative Humidity: 20-75%

### **1.3. Project data**

Testing Start Date: 2015-08-26  
Testing End Date: 2015-08-30

### **1.4. Signature**



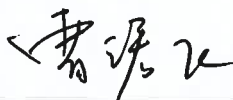
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Liang Yong  
(Prepared this test report)



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Du Zhaoxuan  
(Reviewed this test report)



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Cao Junfei  
Director of the laboratory  
(Approved this test report)



## **2. ClientInformation**

### **2.1. Applicant Information**

Company Name: Shenzhen Sang Fei Consumer Communications Co.,Ltd  
Address: 11 Science And Technology Road, shenzhen Hi-tech Industrial Park  
Nanshan District, Shenzhen 518057 PRC

### **2.2. Manufacturer Information**

Company Name: Shenzhen FortuneShip Technology Co., Ltd  
Address: 6-7th Floor, Kingson Building, New energy and innovation industrial  
park, Chuangsheng Road 1st , Xili town, Nanshan District, Shenzhen

### **3. Equipment UnderTest (EUT) and Ancillary Equipment (AE)**

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

Description	WCDMA/GSM digital mobile phone
Model Name	Philips S307
FCC ID	VQRCTS307
TX Band	GSM850/1900,LWCDMA Band II/V
RX Band	GSM850/1900,LWCDMA Band II/V

The Equipment Under Test(EUT)are a model of Smart Phone with integrated antenna.

The EUT supports GPRS service with multi-slots class 12.It has MP3,camera,USB memory, FM radio, GPS receiver ,Bluetooth and WLAN functions.

Remark: The above EUT's information is declared by manufacturer. Please refer to the specifications or user's manual for more detailed information.

#### **3.2. Internal Identification of EUT**

<b>EUT ID*</b>	<b>SN or IMEI</b>
N0.1	866636020006056

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

#### **3.3. Internal Identification of AE**

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

##### **AE1**

Model	AB1630DWMT
Manufacturer	Zhongshan TIANMAO Battery Co., Ltd
Capacitance	1630mAh
Nominal voltage	3.7V

##### **AE2**

Model	SKL-05E10
Manufacturer	SHENZHEN CYCLELONG POWER-TECH CO.,LTD
Length of cable	/
SN	/

##### **AE3**

Model	LQ-0380009
Manufacturer	Xiamen Li Qi Electronics Co., Ltd.
Length of cable	71cm

\*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 + AE3	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.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices	10-1-2014 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	2014



## 5. LABORATORY ENVIRONMENT

**Semi-anechoic chamber** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	0.014MHz-1MHz,>60dB; 1MHz-1000MHz,>90dB
Electrical insulation	> 2M $\Omega$
Ground system resistance	< 4 $\Omega$
Normalised site attenuation (NSA)	< $\pm 4$ dB, 3 m distance, from 30 to 1000 MHz
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. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	0.014MHz-1MHz,>60dB; 1MHz-1000MHz,>90dB
Electrical insulation	> 2M $\Omega$
Ground system resistance	< 4 $\Omega$

**Fully-anechoic chamber** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	0.014MHz-1MHz,>60dB; 1MHz-1000MHz,>90dB
Electrical insulation	> 2M $\Omega$
Ground system resistance	< 4 $\Omega$
Voltage Standing Wave Ratio (VSWR)	$\leq 6$ dB, from 1 to 6 GHz, 3 m distance

## 6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:	
P	Pass
NA	Not applicable
F	Fail

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

**7. Test Facilities Utilized**

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER	CALDUE DATE	CAL PERIOD
1.	Test Receiver	ESCI	100701	R&S	2016.08.10	1 year
2.	Test Receiver	ESCI	100702	R&S	2016.05.30	1 year
3.	Spectrum Analyzer	FSP 40	100378	R&S	2015.12.19	1 year
4.	BiLog Antenna	VULB9163	9163 329	Schwarzbeck	2017.01.20	3 years
5.	LISN	ESH2-Z5	100196	R&S	2016.01.13	1 year
6.	Horn Antenna	3117	00066577	ETS-Lindgren	2016.04.01	3 years
7.	Universal Radio Communication Tester	E5515C	GB44051324	Agilent	2016.05.19	1 year
8.	PC	M4099t	SA08850737	Lenovo	/	/
9.	Monitor	L1710d	0M04340B10 01010	Lenovo	/	/
10.	Printer	P1008	VNF6C12491	HP	/	/
11.	Keyboard	KB-0225	0723779	Lenovo	/	/
12.	Mouse	MO28UOL	44B39412	Lenovo	/	/

## **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 - 2014, 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 range (MHz)	Field strength limit ( $\mu\text{V/m}$ )		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

\*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
Above 1000	1MHz/3MHz	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.

Note: the result contains vertical part and Horizontal part

**RE Measurement uncertainty:** 30M-1GHz: 5.08dB (K=2);  
1GHz-18GHz: 4.56 dB (K=2)

#### Set.1 Charging mode / Peak detector

Frequency(MHz)	Result(dBuV/m)	Polarity	$A_{Rpl}$ (dB)	Margin(dB)	Limit (dB $\mu$ V/m)
14125.000000	54.7	V	11.2	19.3	74.0
15069.000000	55.5	H	12.0	18.5	74.0
15687.000000	57.6	H	12.8	16.4	74.0
16276.000000	56.7	H	13.4	17.3	74.0
16837.000000	57.4	H	14.0	16.6	74.0
17321.000000	57.3	H	14.2	16.7	74.0

#### Set.1 Charging mode / Average detector

Frequency(MHz)	Result(dBuV/m)	Polarity	$A_{Rpl}$ (dB)	Margin(dB)	Limit (dB $\mu$ V/m)
14529.000000	42.6	H	11.7	11.4	54.0
15176.000000	43.5	H	12.1	10.5	54.0
15747.000000	45.1	H	12.9	8.9	54.0
16218.000000	45.0	H	13.3	9.0	54.0
16790.000000	45.4	V	14.0	8.6	54.0
17354.000000	45.1	H	14.2	8.9	54.0

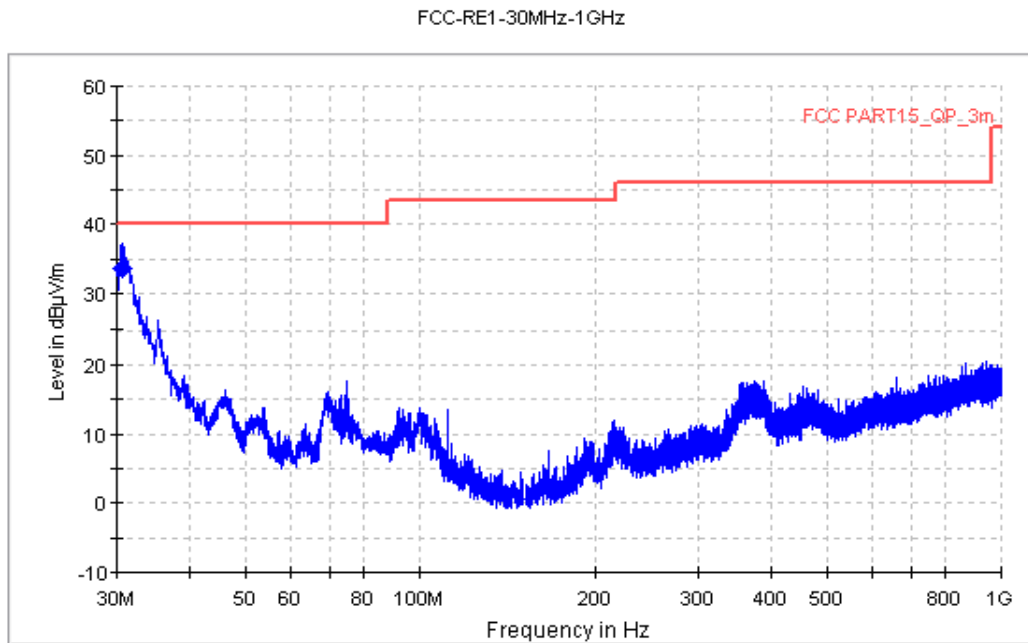
**Set.2 USB mode / Peak detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dB $\mu$ V/m)
14140.000000	54.3	V	11.2	19.7	74.0
15132.000000	55.7	H	12.1	18.3	74.0
15773.000000	57.3	H	12.9	16.7	74.0
16231.000000	58.0	H	13.3	16.0	74.0
16777.000000	58.2	V	14.0	15.8	74.0
17311.000000	57.4	H	14.2	16.6	74.0

**Set.2 USB mode / Average detector**

Frequency(MHz)	Result(dBuV/m)	Polarity	A <sub>Rpl</sub> (dB)	Margin(dB)	Limit (dB $\mu$ V/m)
14166.000000	42.5	V	11.3	11.5	54.0
15126.000000	43.5	V	12.1	10.5	54.0
15767.000000	45.2	V	12.9	8.8	54.0
16205.000000	45.0	H	13.3	9.0	54.0
16790.000000	45.5	H	14.0	8.5	54.0
17382.000000	45.0	H	14.3	9.0	54.0

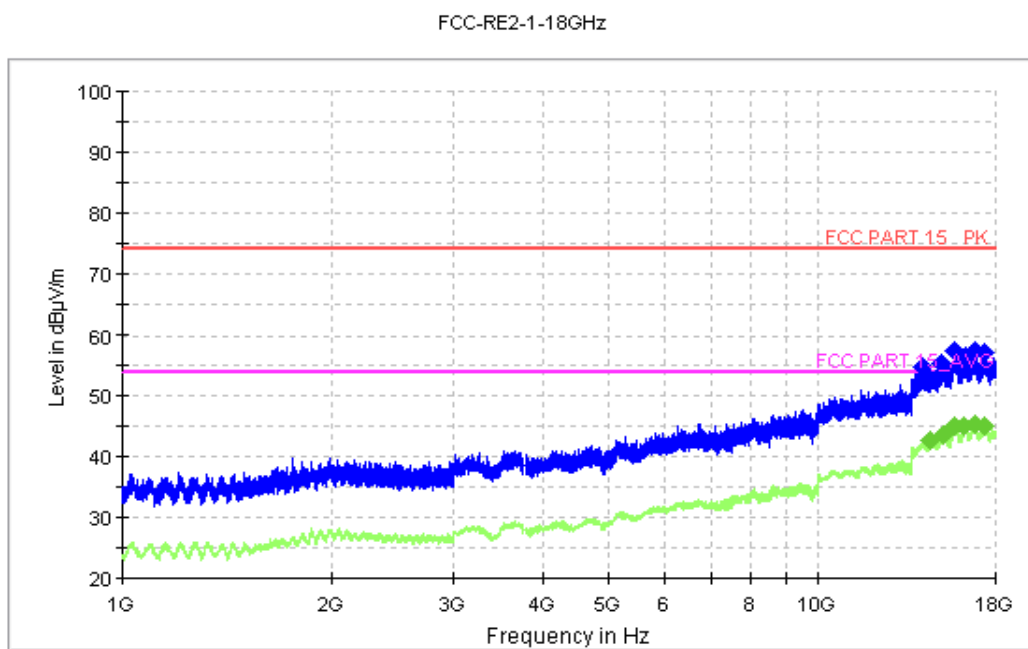
Charging mode: Set 1



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

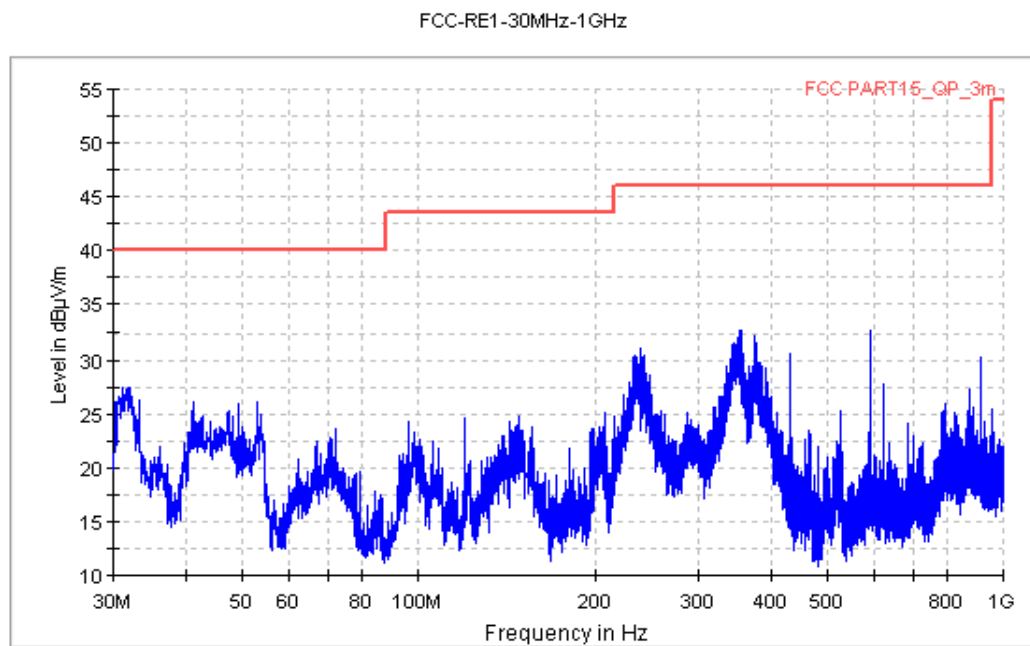
**Figure A.2 Final Result 1**

Frequency (MHz)	QuasiPeak (dB µV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB µV/m)
30.612500	33.6	5000.0	120.000	100.0	V	158.0	-36.7	6.4	40.0

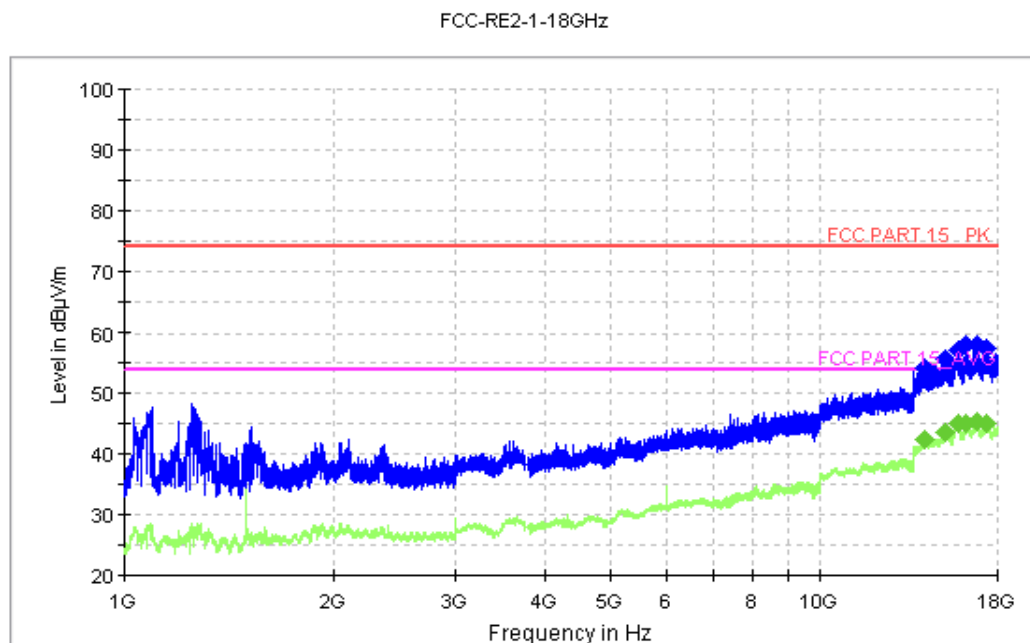


**Figure A.3 Radiated Emission from 1GHz to 18GHz**

USB mode: Set.2



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



**Figure A.5 Radiated Emission from 1GHz to 18GHz**



**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 - 2014, 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 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 (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

**CE Measurement uncertainty:** 2.7 dB (K=2)

## A.2.5 Measurement Results

Charging mode:Set.1

ESH2-Z5 Scan-FCC

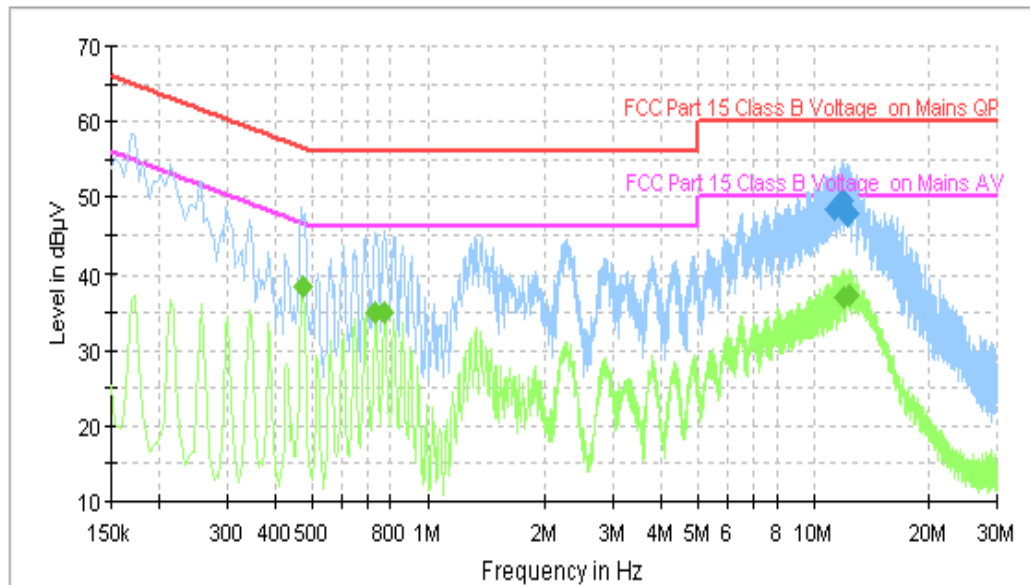


Figure A.6 Conducted Emission

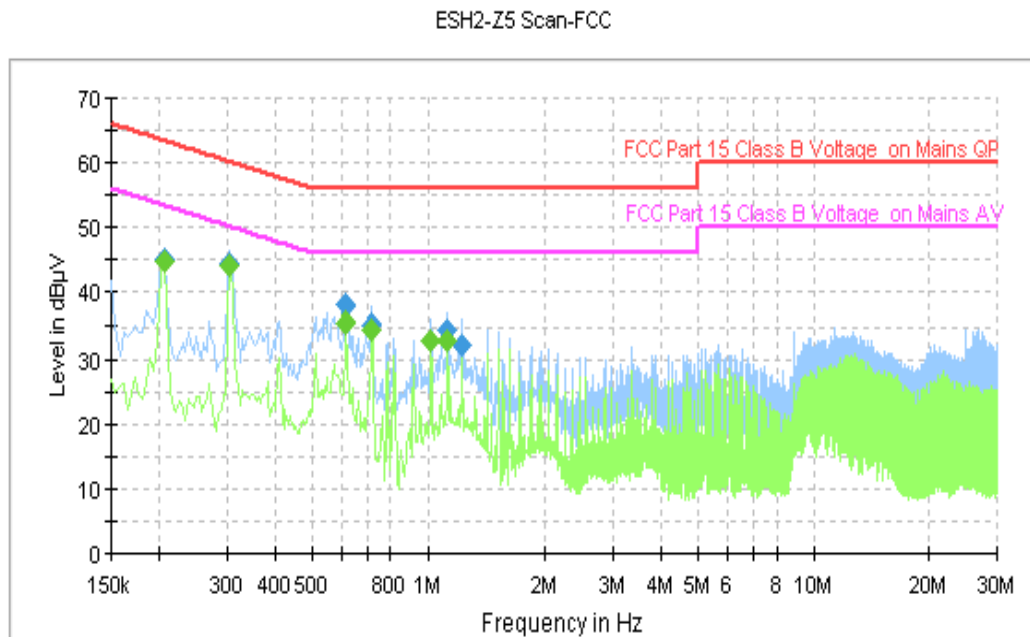
### Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB μV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μV)
11.346000	48.4	GND	L1	10.3	11.6	60.0
11.790000	48.9	GND	L1	10.3	11.1	60.0
11.894000	49.5	GND	L1	10.4	10.5	60.0
11.926000	49.4	GND	L1	10.4	10.6	60.0
12.270000	47.6	GND	L1	10.4	12.4	60.0
12.362000	47.7	GND	L1	10.4	12.3	60.0

### Final Measurement Detector 2

Frequency (MHz)	Average (dB μV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μV)
0.474000	38.4	GND	L1	10.0	8.0	46.4
0.730000	34.9	GND	L1	10.0	11.1	46.0
0.774000	35.0	GND	L1	10.1	11.0	46.0
12.018000	37.0	GND	L1	10.4	13.0	50.0
12.026000	37.0	GND	L1	10.4	13.0	50.0
12.410000	37.2	GND	L1	10.4	12.8	50.0

USB mode: Set.2



**Figure A.7 Conducted Emission**

#### Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.206000	45.2	GND	N	10.1	18.2	63.4
0.306000	44.5	GND	N	10.1	15.6	60.1
0.614000	38.1	GND	N	10.0	17.9	56.0
0.714000	35.2	GND	N	10.0	20.8	56.0
1.126000	34.7	GND	N	10.1	21.3	56.0
1.226000	32.2	GND	N	10.1	23.8	56.0

#### Final Measurement Detector 2

Frequency (MHz)	Average (dB µV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.206000	44.9	GND	N	10.1	8.5	53.4
0.306000	44.1	GND	N	10.1	6.0	50.1
0.614000	35.6	GND	N	10.0	10.4	46.0
0.714000	34.4	GND	N	10.0	11.6	46.0
1.022000	32.7	GND	L1	10.0	13.3	46.0
1.126000	32.8	GND	N	10.1	13.2	46.0

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