



## 47 CFR PART 15 SUBPART B

# TEST REPORT

of

### GSM Dual Band GPRS Function Digital Mobile Phone

Model Name: T710  
Brand Name: HUAWEI  
Report No.: SH09010003E03  
FCC ID: QIST710

*prepared for*

### HUAWEI TECHNOLOGIES CO.,LTD.

Administration Building, Huawei Base,  
Bantian, Longgang District, Shenzhen 518129, P.R.China

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## 1 TEST CERTIFICATION

Equipment under Test: GSM Dual Band GPRS Function Digital Mobile Phone

Brand Name: HUAWEI  
Model Name: T710  
FCC ID: QIST710  
Applicant: HUAWEI TECHNOLOGIES CO.,LTD.  
Administration Building , Huawei Base, Bantian, Longgang  
District, Shenzhen 518129, P.R.China  
Manufacturer: HUAWEI TECHNOLOGIES CO.,LTD.  
Administration Building , Huawei Base, Bantian, Longgang  
District, Shenzhen 518129, P.R.China

Test Standards: 47 CFR Part 15 Subpart B

Test Date(s): Jan 6 ,2009 –Jan 12 , 2009

Test Result: PASS

### \* We Hereby Certify That:

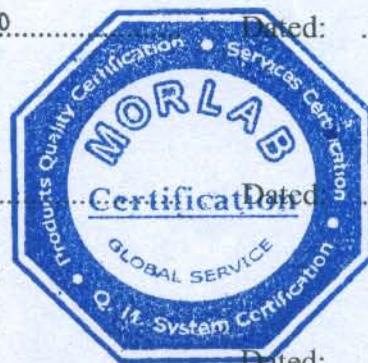
The equipment under test was tested by Shenzhen Electronic Product Quality Testing Center Morlab Laboratory. The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the requirement of related FCC rules.

The test results of this report only apply for the tested sample equipment identified above. The test report shall be invalid without all the signatures of the test engineer, the reviewer and the approver.

Tested by: ..... *Huang Quanbo* ..... Dated: ..... *2009.1.15* .....  
Huang Quanbo

Reviewed by: ..... *Lou Qinchao* ..... Dated: ..... *2009.1.15* .....  
Lou Qinchao

Approved by: ..... *Su Feng* ..... Dated: ..... *2009.1.15* .....  
Su Feng



## 2 GENERAL INFORMATION

### 2.1 EUT Description

EUT Type.....: GSM Dual Band GPRS Function Digital Mobile Phone  
Model Name.....: T710  
Serial No.....: (n.a)  
IMEI.....: 0000000000000000  
Hardware Version.....: V2.0  
Software Version.....: T710CA.P00.M11.00.12  
Modulation Type.....: GMSK  
Power Supply.....: Battery  
Brand name: HUAWEI  
Mode no.: HB5E1  
Capacitance: 700mAh  
Rated voltage: 3.7V  
Charge limited: 4.2+/-0.03V  
Manufacturer: HUAWEI TECHNOLOGIES CO.,LTD.  
Manufacturer Address: Administration Building, Huawei Base,  
Bantian, Longgang District, Shenzhen 518129, P.R.China  
Ancillary Equipment 1.....: AC Adapter (Charger for Battery)  
Model Name: HS-050040U2  
Brand Name: HUAWEI  
Serial No.: (n.a)  
Rated Input: ~ 100/240V,200mA,50/60Hz  
Rated Output: DC 5V,400mA,Max 2W  
Manufacturer: HUAWEI TECHNOLOGIES CO.,LTD.  
Wire Length: (n.a)

Note 1: The EUT is a model of GSM 850/1900 mobile phone and GSM850/1900 are tested in the report.

Note 2: The normal configuration for the EUT is the MS associated with ancillary equipments e.g.theBattery and/or the AC Adapter(Charger).

Note 3: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

## 2.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

No.	Identity	Document Title
1	47 CFR Part 15 (10-1-05 Edition)	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	15.107	Conducted Emission	PASS
2	15.109	Radiated Emission	PASS

## 2.3 Facilities and Accreditations

### 2.3.1 Facilities

Shenzhen Electronic Product Quality Testing Center Morlab Laboratory is a testing organization accredited by China National Accreditation Service for Laboratories (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

All measurement facilities used to collect the measurement data are located at Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen 518055 CHINA. The test site is constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22; the FCC registration number is 741109.

### 2.3.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	20 – 25
Relative Humidity (%):	40 – 60
Atmospheric Pressure (kPa):	960

### 3 TEST CONDITIONS SETTING

#### 3.1 Test Mode

1. The test modes of the EUT are showed as below:

(1) The first test mode (GSM)

The EUT configuration of the emission tests is EUT + Battery + Charger.

During the measurement, the lithium battery was installed into the EUT, and the charger was connected to the EUT. A communication link was established between the EUT and a System Simulator (SS).

(2) The second test mode (GPRS)

The EUT configuration of the emission tests is EUT + Battery + Charger.

In this test mode, a GPRS link was established between the EUT and a System Simulator (SS); data was transmitted between EUT and System Simulator (SS), and maintained during the measurement.

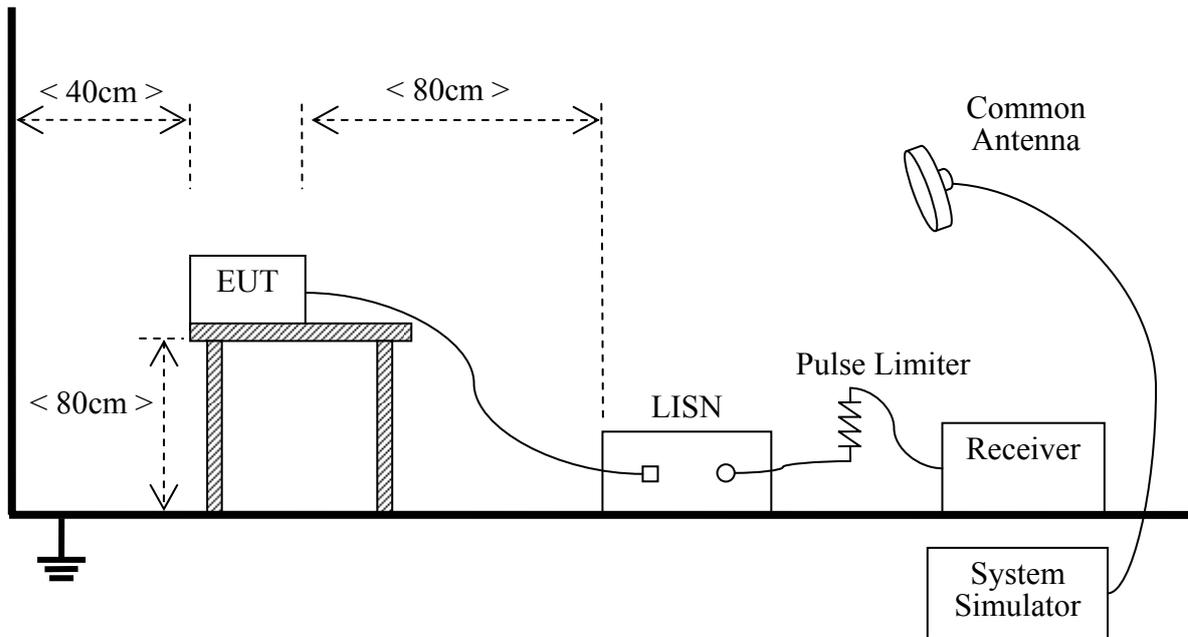
NOTE:

All test modes are performed, only the worst cases are recorded in this report.

## 3.2 Test Setup and Equipments List

### 3.2.1 Conducted Emission

#### A. Test Setup:



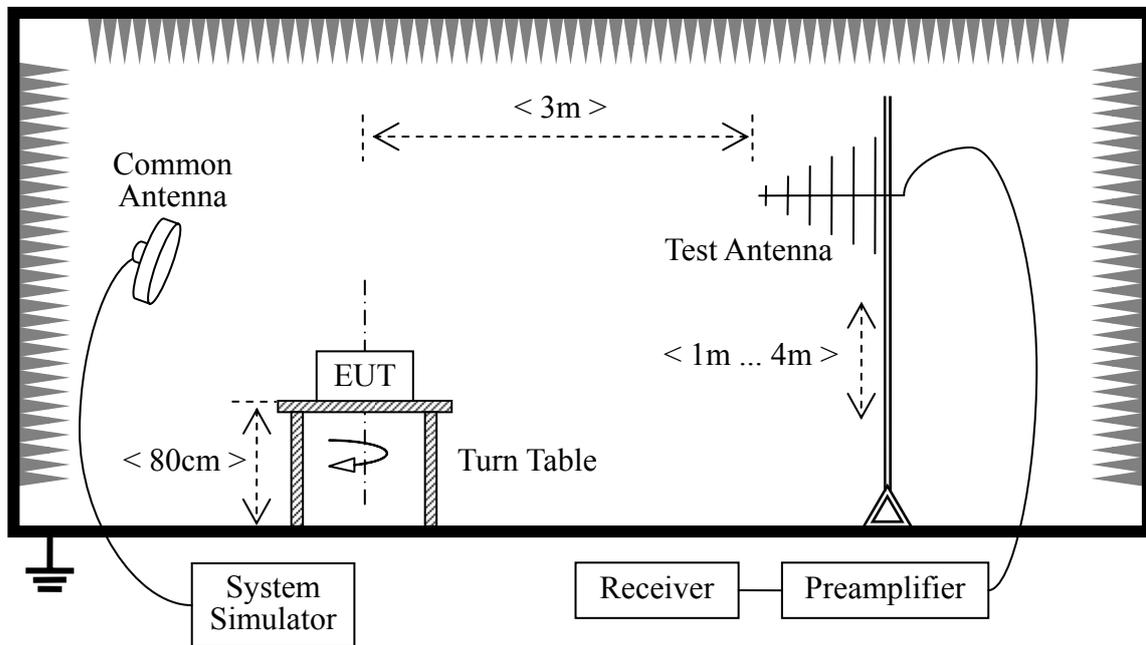
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides  $50\Omega/50\mu\text{H}$  of coupling impedance for the measuring instrument. The Common Antenna is used for the call between the EUT and the System Simulator (SS). A Pulse Limiter is used to protect the measuring instrument. The factors of the whole test system are calibrated to correct the reading.

#### B. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Rohde&Schwarz	ESCI3	100666	2008.11	1year
LISN	Rohde&Schwarz	ENV216	812744	2008.11	1year
System Simulator	Rohde&Schwarz	CMU200	105571	2008.12.	1year
Personal Computer	Lenovo	(n.a.)	(n.a.)	(n.a.)	(n.a.)

### 3.2.2 Radiated Emission

#### C. Test Setup:



The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower. The Common Antenna is used for the call between the EUT and the System Simulator (SS).

#### D. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Rohde&Schwarz	ESCI3	100666	2008.11	1year
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2008.11	1year
Test Antenna - Bi-Log	Rohde&Schwarz	HL562	100385	2008.11	1year
System Simulator	Rohde&Schwarz	CMU200	105571	2008.12	1year
Personal Computer	Lenovo	(n.a.)	(n.a.)	(n.a.)	(n.a.)

## 47 CFR PART 15B REQUIREMENTS

### 4 Conducted Emission

#### 4.1 Requirement

According to FCC section 15.107, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50 $\mu$ H/50 $\Omega$  line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB $\mu$ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5- 30	60	50

NOTE:

- The limit subjects to the Class B digital device.
- The lower limit shall apply at the band edges.
- The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

#### 4.2 Test Description

See section 3.2.1 of this report.

#### 4.3 Test Result

The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. All test modes are considered, refer to recorded points and plots below.

##### 4.3.1.1 GSM Test Mode

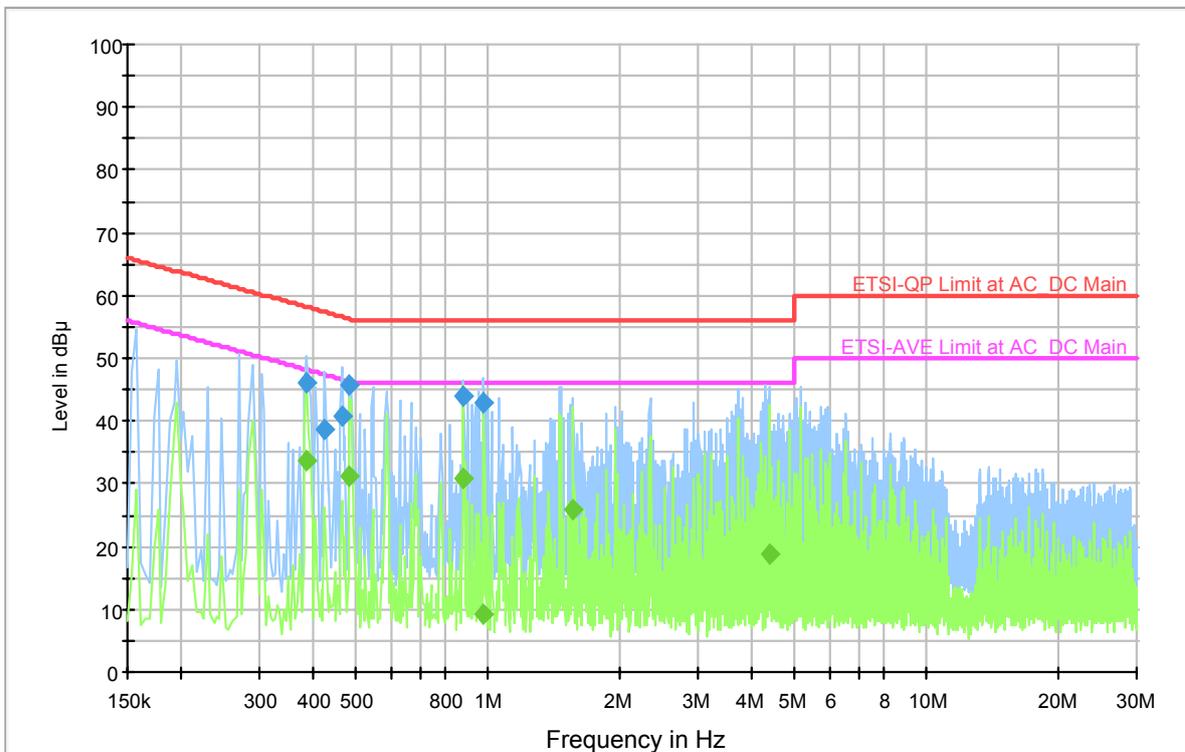
###### 4.3.1.1.1 The test mode

The EUT configuration of the emission tests is EUT + Battery + Charger.

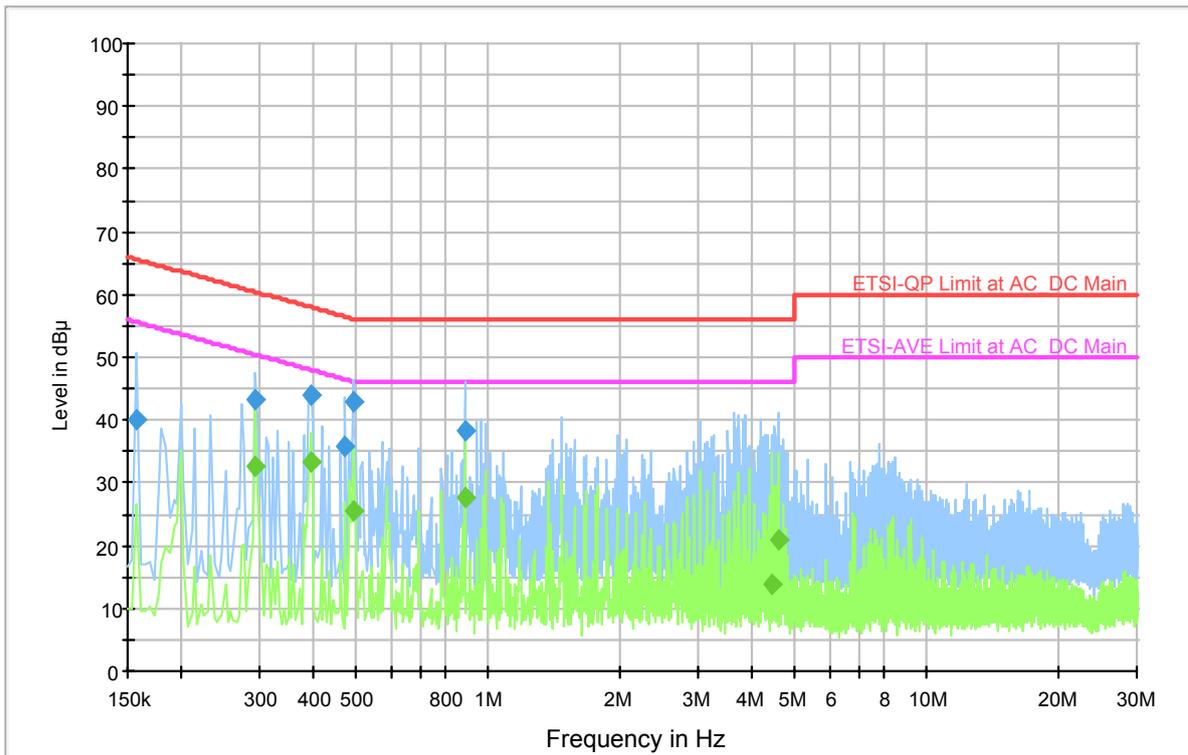
**A. Test Verdict Recorded for Suspicious Points:**

No.	@Frequency (MHz)	Measured Emission Level (dB $\mu$ V)				Limit (dB $\mu$ V)		Verdict
		PK	QP	AV	Phase	QP	AV	
1	0.385069	50.0	46.2	33.7	L	59.3	49.3	PASS
2	0.422381	47.2	38.7	26.4	L	58.2	48.2	PASS
3	0.463425	47.8	40.9	28.1	L	57.0	47.0	PASS
4	0.482081	45.9	45.7	31.0	L	56.5	46.5	PASS
5	0.873862	46.2	43.9	12.5	L	56.0	46.0	PASS
6	0.970875	46.4	43.0	9.1	L	56.0	46.0	PASS
7	0.157462	50.8	40.0	23.1	N	65.8	55.8	PASS
8	0.291788	47.3	43.3	32.6	N	61.9	51.9	PASS
9	0.392531	44.2	44.0	33.2	N	59.1	49.1	PASS
10	0.470888	43.7	35.8	22.1	N	56.8	46.8	PASS
11	0.489544	46.3	42.8	25.7	N	56.3	46.3	PASS
12	0.881325	45.9	38.4	27.7	N	56.0	46.0	PASS

**B. Test Plot:**



(Plot A: L Phase)



(Plot B: N Phase)

## 5 Radiated Emission

### 5.1 Requirement

According to FCC section 15.109, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency range (MHz)	Field Strength	
	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

NOTE:

- Field Strength ( $\text{dB}\mu\text{V/m}$ ) =  $20 \cdot \log[\text{Field Strength } (\mu\text{V/m})]$ .
- In the emission tables above, the tighter limit applies at the band edges.

### 5.2 Test Description

See section 3.2.2 of this report.

### 5.3 Test Result

The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

#### 5.3.1.1 GSM test mode

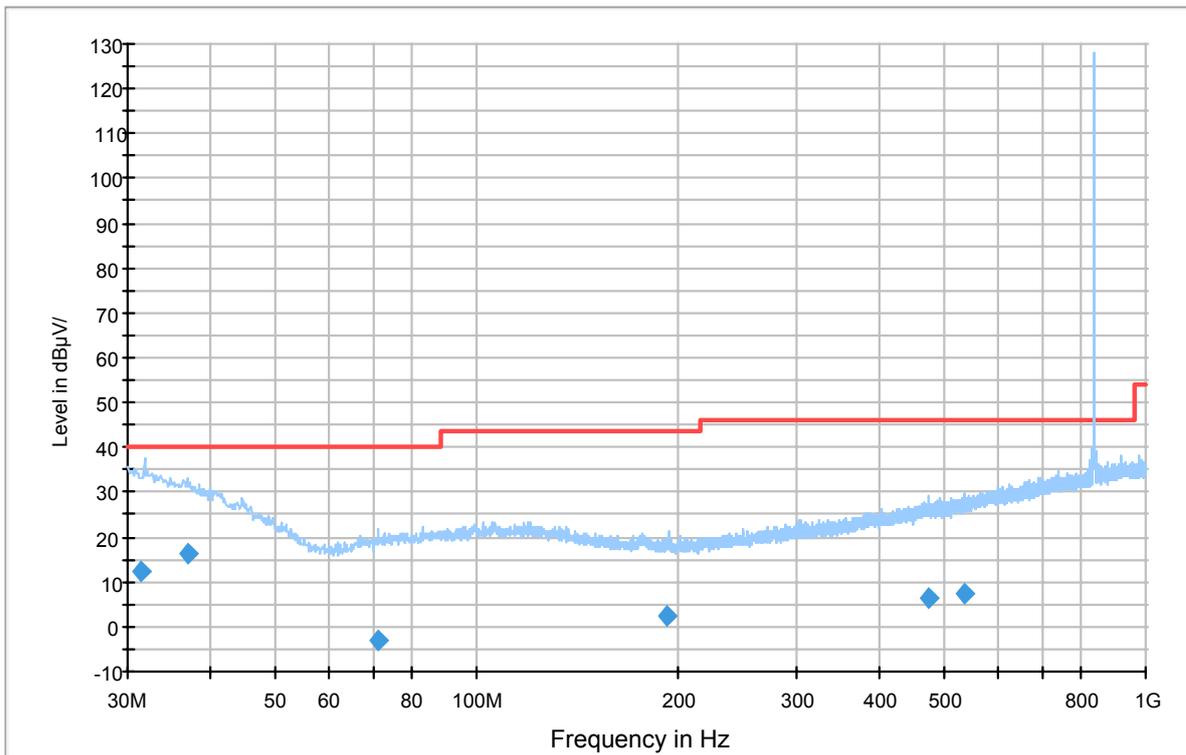
##### 5.3.1.1.1 The test mode

The EUT configuration of the emission tests is EUT + Battery + Charger.

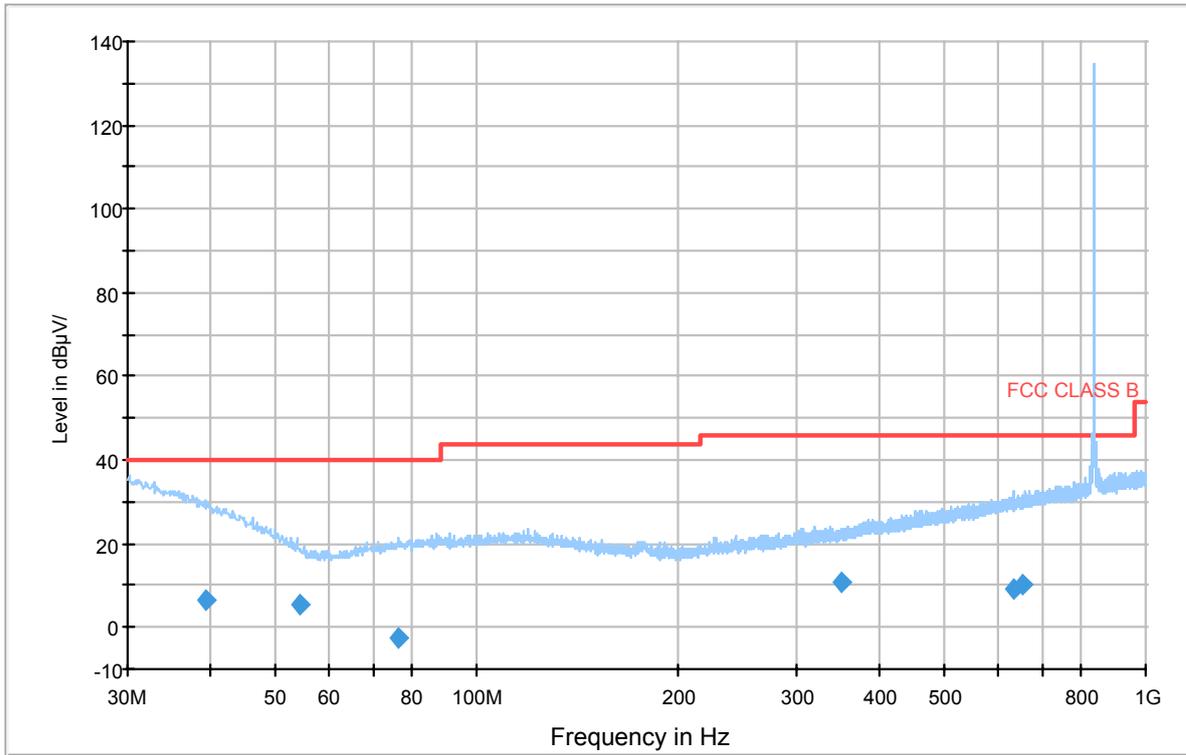
#### A. Test Plot:

Note: Following is the plots for emission measurement; please note that marked spikes with circle should be ignored because they are MS and SS carrier frequency.

No.	@Frequency (MHz)	Measured Emission Level (dB $\mu$ V)			Limit (dB $\mu$ V)	Verdict
		PK	QP	Polarity		
1	31.445875	38.1	12.3	V	40.0	PASS
2	37.023750	33.4	16.3	V	40.0	PASS
3	71.348625	22.6	-2.8	V	40.0	PASS
4	192.921625	21.3	2.4	V	43.5	PASS
5	472.967750	28.1	6.6	V	46.0	PASS
6	537.210000	30.1	7.6	V	46.0	PASS
7	39.411625	29.0	6.6	H	40.0	PASS
8	54.325400	21.8	5.3	H	40.0	PASS
9	76.110750	20.7	-2.3	H	40.0	PASS
10	351.797500	24.3	11.0	H	46.0	PASS
11	634.936000	30.1	9.4	H	46.0	PASS
12	655.000000	33.2	10.0	H	46.0	PASS



(Plot A: Test Antenna Vertical)



(Plot B: Test Antenna Horizontal)

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