



## 47 CFR PART 15 SUBPART B

# TEST REPORT

of

### GPS TRACKER

Model Name: GT100  
Brand Name: QUECTEL  
Report No.: SH10010037E01  
FCC ID: XMR-16182010002

*prepared for*

Quectel Wireless Solutions Co.,Ltd  
Room 801, Building E, No.4618 Yishan Road, Shanghai, China, 201103



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CTIA Authorized Test Lab

LAB CODE 20081223-00

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## 1. TEST CERTIFICATION

Equipment under Test: GPS TRACKER

Brand Name: QUECTEL

Model Name: GT100

FCC ID: XMR-16182010002

Applicant: Quectel Wireless Solutions Co.,Ltd

Room 801, Building E, No 1618 Yishan Road,  
Shanghai, China, 201103

Manufacturer: Quectel Wireless Solutions Co.,Ltd

Room 801, Building E, No 1618 Yishan Road,  
Shanghai, China, 201103

Test Standards: 47 CFR Part 15 Subpart B

Test Date(s): Jan,25 2010 –Feb, 1, 2010

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:

Huangyunlong

Dated: 2010.2.3

Huangyunlong

Reviewed by:

Zhang Jun

Dated: 2010.2.3

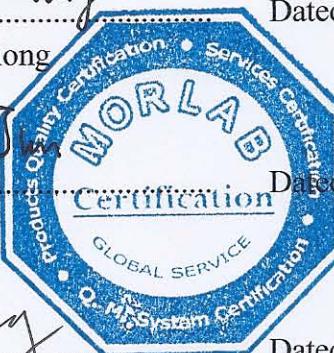
Zhang Jun

Approved by:

Su Feng

Dated: 2010.2.3

Su Feng



## 2. GENERAL INFORMATION

### 2.1 EUT Description

EUT Type .....: GPS TRACKER  
Model Name .....: GT100  
Serial No.....: (n.a., marked #1 by test site)  
Hardware Version .....: V1.03  
Software Version .....: B03  
Modulation Type.....: GMSK  
Ancillary Equipment 1 .....: Battery  
Model Name: GT100  
Brand Name: Jiade  
Capacitance: 950mAh  
Rated Voltage: 3.7V  
Charge Limit: 4.2V  
Manufacturer: Jiade Energy Technology(ZHUHAI)Co.,Ltd  
Ancillary Equipment 2 .....: AC Adapter  
Model Name: P-051B-050050  
Brand Name: SOMETHING  
Rated Input: ~100-240V, 0.2A,50/60Hz  
Rated Output: == 5V, 500mA  
Manufacturer: SOMETHING HIGH ELECTRIC (XIAMEN) Co.,Ltd.

Note 1: A communication link between the EUT and a System Simulator (SS) is established at the start of the test, and maintained during the all test in this report.

Note 2: 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 GSM Test Mode

1. During the measurement, the GSM radio is working. The test modes of the EUT are showed as below:

- (1) Traffic operating mode

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

A communication link was established between the EUT and a System Simulator (SS). The EUT operated at GSM 850MHz mid ARFCN (190) and maximum output power (level 5).

- (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); date was transmitted between EUT and System Simulator (SS), and maintained during the measurement. the EUT operated at GPRS 900 mid ARFCN (62) and maximum output power (level 5) 1down 4 up , and operated at GPRS 1800 mid ARFCN (698) and maximum output power (level 0) 1 down 4 up.

- (3) Idle operating mode

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

The EUT was registered to the base station simulator but no call was set up.

- (4) The PC test mode

The EUT configuration of the emission test is EUT + Battery + USB+PC

In this test mode ,a Data transmitted was established between the EUT and PC,

Data was transmitted between EUT and PC ,and maintained during the measurement.

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

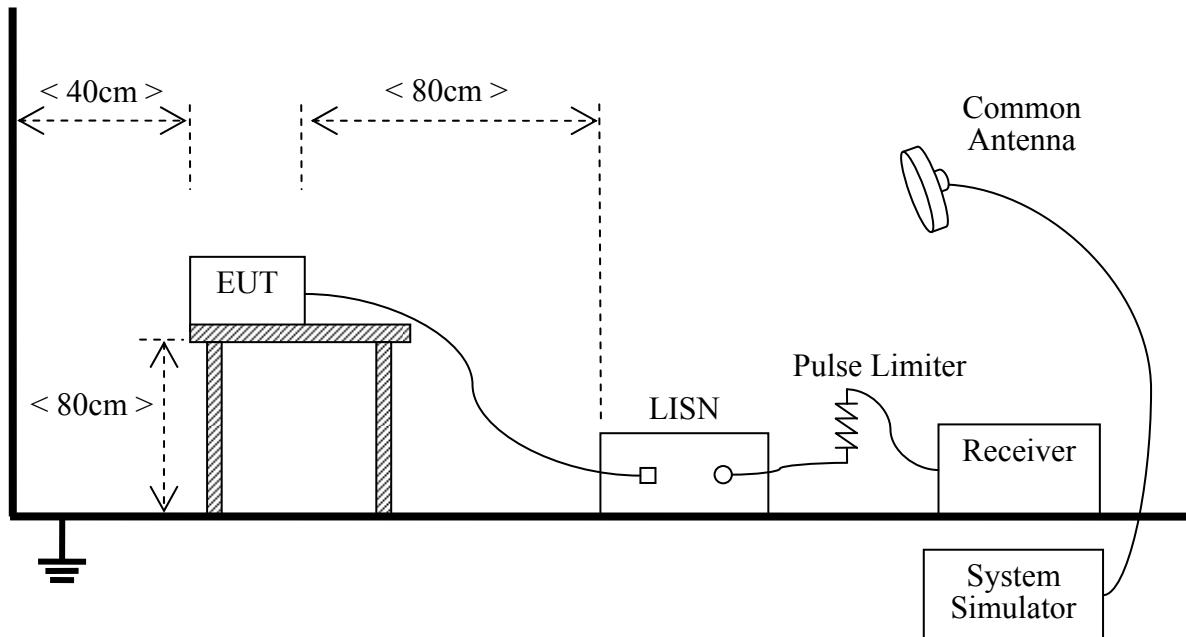
Note: In the Conducted Emission, the worst cases are operated at GSM 850

Note: In the Radiated Emission, the worst cases are operated at GSM 850

## 3.2 Test Setup and Equipments List

### 3.2.1 Conducted Emission

#### A. Test Setup:



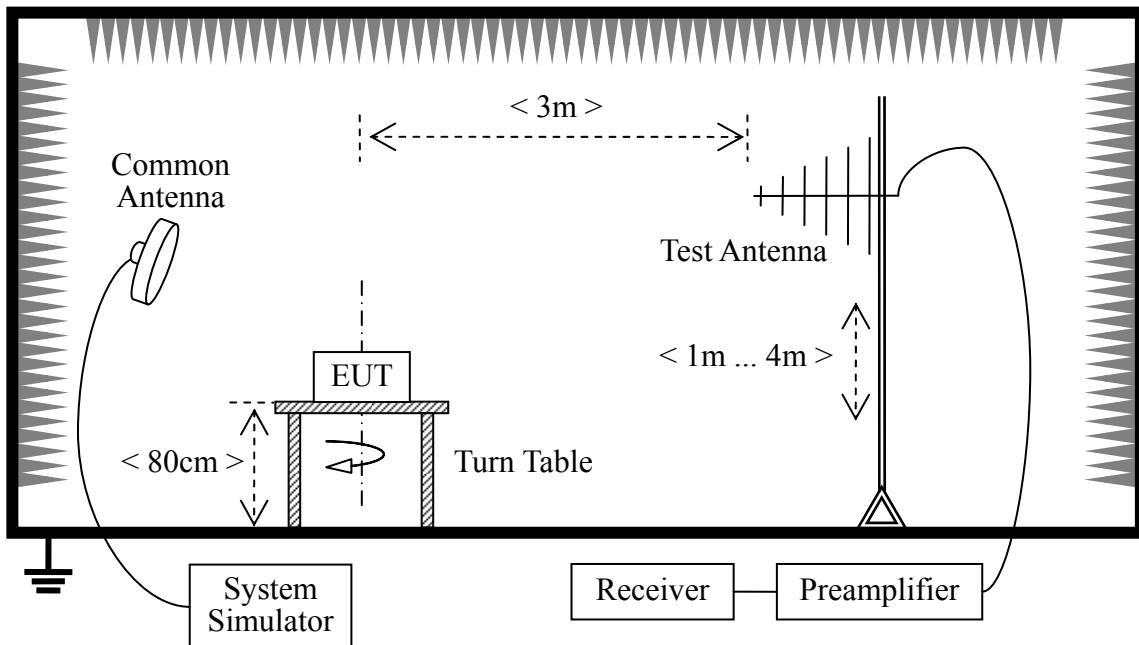
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides  $50\Omega/50\mu\text{H}$  of coupling impedance for the measuring instrument. 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	2009.10	1year
LISN	Rohde&Schwarz	ENV216	812744	2009.10	1year
System Simulator	Rohde&Schwarz	CMU200	105571	2009.10	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	2009.10	1year
Full-Anechoic Chamber	ETS • LINDGREN	9m*6m*6m	(n.a.)	2009.10	1year
Test Antenna - Bi-Log	Rohde&Schwarz	HL562	100385	2009.10	1year
System Simulator	Rohde&Schwarz	CMU200	105571	2009.10	1year
Personal Computer	Lenovo	(n.a.)	(n.a.)	(n.a.)	(n.a.)

## 4. 47 CFR Part 15B Requirements

### 4.1 Conducted Emission

#### 4.1.1 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)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

NOTE:

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

#### 4.1.2 Test Description

See section 2.3.1 of this report.

#### 4.1.3 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.

##### GSM Test Mode

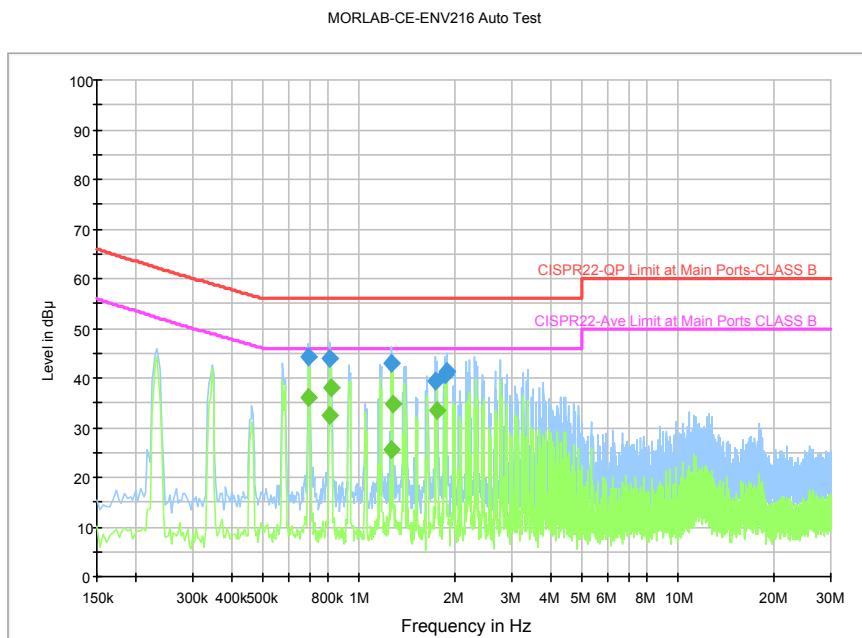
###### (1) Traffic operating mode

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

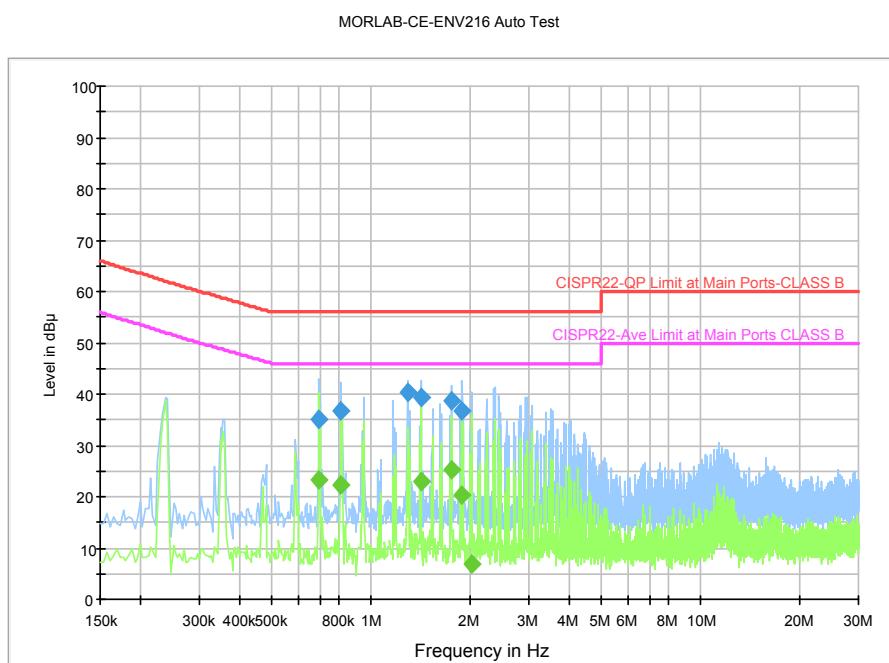
A communication link was established between the EUT and a System Simulator (SS). The EUT operated at GSM 850MHz mid ARFCN (190) and maximum output power (level 5).

**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	0.691031	46.1	44.4	36.0	L	56.0	46.0	PASS
2	0.806700	46.4	44.0	32.4	L	56.0	46.0	PASS
3	1.258181	45.4	42.9	25.5	L	56.0	46.0	PASS
4	1.724588	43.6	39.2	33.3	L	56.0	46.0	PASS
5	1.843988	43.2	40.6	34.1	L	56.0	46.0	PASS
6	1.870106	45.0	41.5	33.3	L	56.0	46.0	PASS
7	0.691031	43.8	34.9	23.2	N	56.0	46.0	PASS
8	0.806700	43.1	36.8	22.5	N	56.0	46.0	PASS
9	1.280569	43.0	40.4	23.1	N	56.0	46.0	PASS
10	1.411162	43.0	39.3	25.2	N	56.0	46.0	PASS
11	1.746975	42.1	38.6	20.4	N	56.0	46.0	PASS
12	1.885031	43.3	36.6	20.3	N	56.0	46.0	PASS

**B. Test Plot:**

(Plot A: L Phase)



(Plot B: N Phase)

## 4.2 Radiated Emission

### 4.2.1 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	
	µV/m	dBµV/m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

NOTE:

- Field Strength (dBµV/m) =  $20 \log_{10} [\text{Field Strength} (\mu\text{V/m})]$ .
- In the emission tables above, the tighter limit applies at the band edges.

### 4.2.2 Test Description

See section 2.3.2 of this report.

#### 4.2.3 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.

##### GSM Test Mode

###### (1) Traffic operating mode

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

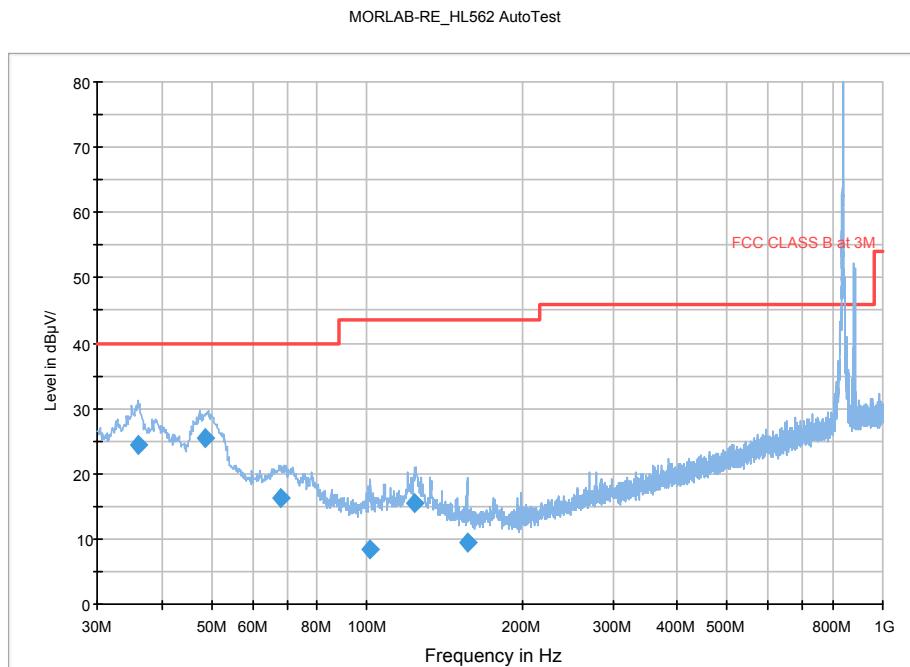
A communication link was established between the EUT and a System Simulator (SS). The EUT operated at GSM 850MHz mid ARFCN (190) and maximum output power (level 5).

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

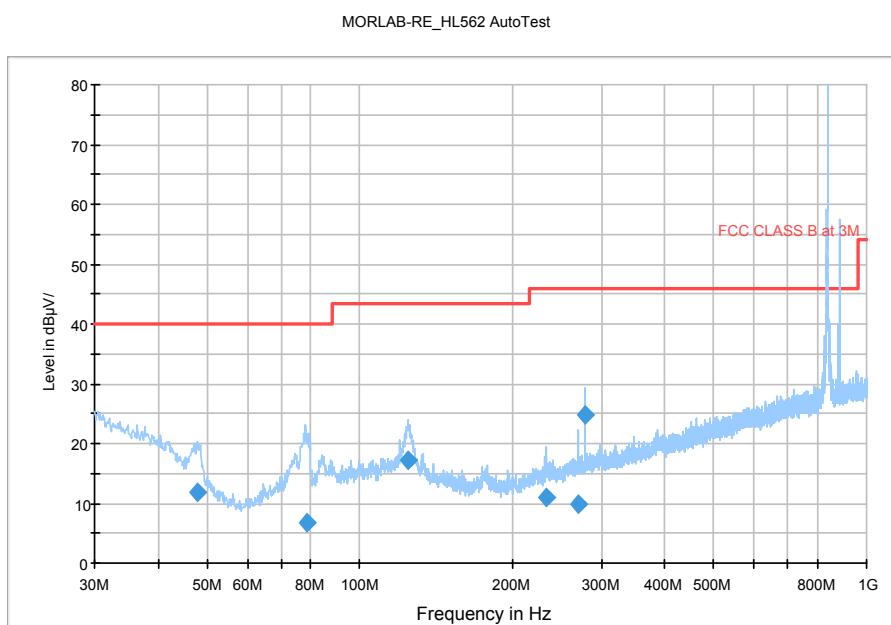
No.	@Frequency (MHz)	Emission Level (dB $\mu$ V/m)			Quasi-Peak Limit (dB $\mu$ V/m)	Result
		PK	QP	Antenna Polarization		
1	35.941250	31.2	24.5	Vertical	40.0	PASS
2	48.551250	30.0	25.5	Vertical	40.0	PASS
3	68.193750	23.3	16.3	Vertical	40.0	PASS
4	101.658750	18.9	8.4	Vertical	43.5	PASS
5	124.090000	22.1	15.5	Vertical	43.5	PASS
6	156.221250	19.8	9.5	Vertical	43.5	PASS
7	47.945000	20.0	11.9	Horizontal	40.0	PASS
8	78.621250	23.1	6.7	Horizontal	40.0	PASS
9	124.453750	28.2	17.3	Horizontal	43.5	PASS
10	232.972500	19.5	10.9	Horizontal	46.0	PASS
11	269.953750	23.7	10.0	Horizontal	46.0	PASS
12	279.168750	29.8	24.8	Horizontal	46.0	PASS

## B. Test Plot:

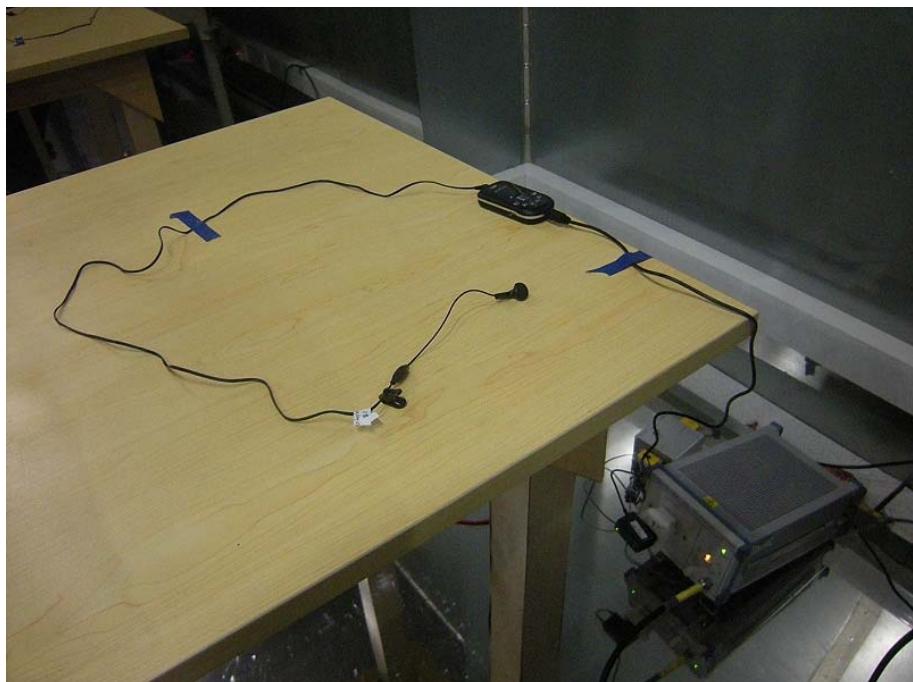
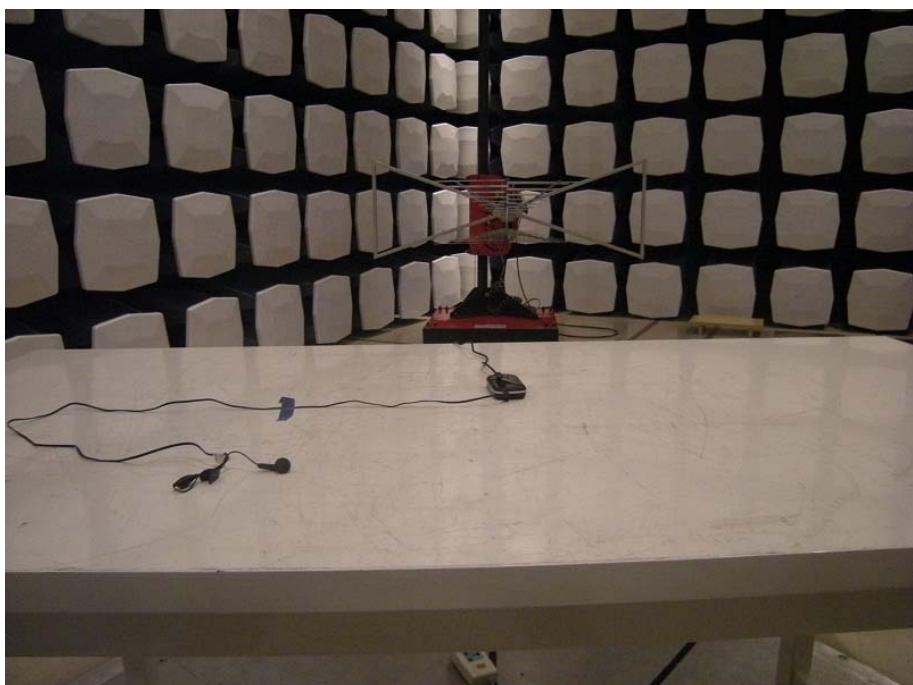
Note: Following is the plots for emission measurement; please note that marked spikes with circle should be ignored because they are MS and SS carrier frequency.



(Plot A: Test Antenna Vertical)



(Plot B: Test Antenna Horizontal)

**ANNEX I : PHOTOGRAPH OF THE TEST SETUP****1.CONDUCTED EMISSION TEST****2.RADIATED EMISSION TEST**

**ANNEX II: PHOTOGRAPH OF THE EUT**

## 1. Appearance of the MS

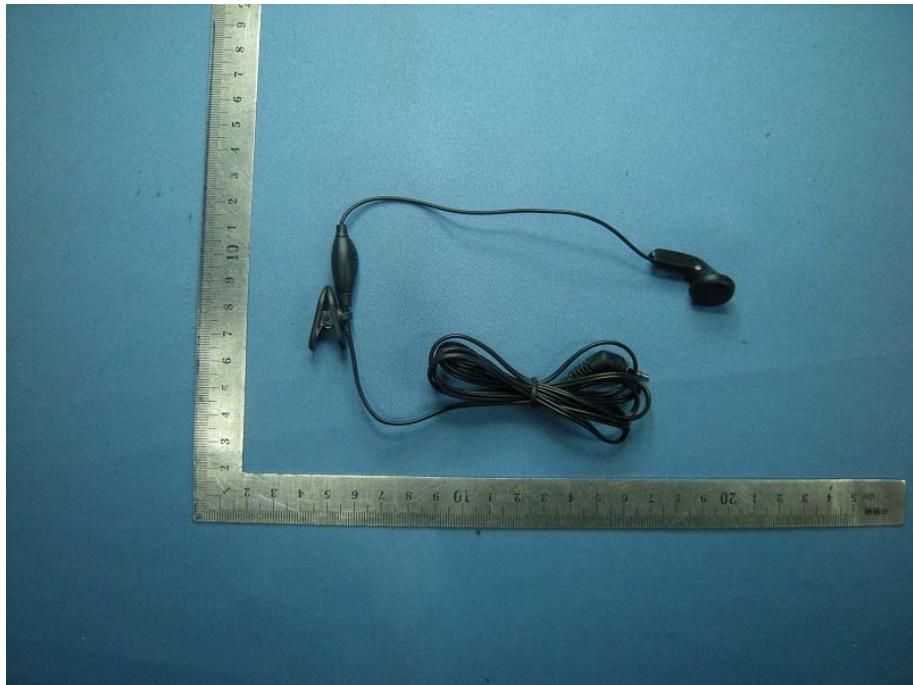


## 2. Appearance of the Charge



## 3. Appearance of the Cable and Earphone





\*\* END OF REPORT \*\*