



Report No.: SZ11030122E06

TESTING  
CNAS L3572

# FCC TEST REPORT

Issued to

**Huawei Technologies Co., Ltd**

For

**Mobile Phone**

Model Name HUAWEI U8650NFC -1/U8650NFC -1/TURKCELL T20/T20  
Trade Name HUAWEI / TURKCELL  
Brand Name HUAWEI / TURKCELL  
FCC ID QISU8650NFC-1  
Standard 47 CFR Part 15 Subpart B  
Test date April 12, 2011 – May 16, 2011  
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by

**Shenzhen Morlab Communications Technology Co., Ltd.**

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Date 2011.6.9

CTIA Authorized Test Lab  
LAB CODE 20081223-00  
IEEE 1725

OFTA  
電訊管理局



GCF  
Official Observer of  
Global Certification Forum

Bluetooth  
BQTF

FCC  
Reg. No.  
741109

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Change History		
Issue	Date	Reason for change
1.0	March 17, 2011	First edition
2.0	June 9, 2011	Second edition

## 1. GENERAL INFORMATION

### 1.1 EUT Description

EUT Type ..... Mobile Phone  
Serial No. .... (n.a, marked #1 by test site)  
Hardware Version..... HD1U865M  
Software Version ..... HUAWEI U8650-1 V100R001C00B820  
Applicant..... Huawei Technologies Co., Ltd  
Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China  
Manufacturer ..... Huawei Technologies Co., Ltd  
Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China  
Modulation Type ..... GPRS/GSM Mode with GMSK Modulation  
EDGE Mode with 8PSK Modulation  
Power Supply ..... Battery  
Brand Name: HUAWEI  
Model No.: HB5K1H  
Serial No.: (n.a. marked #1 by test site)  
Capacitance: 1400mAh  
Rated Voltage: 3.7V  
Charge Limit: 4.2V  
Ancillary Equipment 1 ... AC Adapter (Charger for Battery)  
Model Name: HW-050100U1W  
Brand Name: HUAWEI  
Serial No.: (n.a. marked #1 by test site)  
Rated Input: ~ 100-240V, 200mA, 50/60Hz  
Rated Output: = 5V, 1000mA

*Note 1:* The EUT is a Mobile Phone; it supports GSM 900MHz, 1800MHz, 1900MHz, GPRS, EDGE, WCDMA 900MHz, WCDMA 2100MHz, HSDPA, GPS, NFC, ISM 2.4GHz Bluetooth and 2.4GHz WIFI module. GSM 1900MHz, GPRS and EDGE module are tested in this report.

*Note 2:* The EUT is equipped with a T-Flash card slot; equipped with a special port which can be connected to the ancillary equipments supplied by the manufacturer e.g. the AC Adapter and the USB Adapter Cable. The EUT outfits an inner Camera.

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

## 1.2 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 (10-1-09 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

NOTE: The tests were performed according to the method of measurements prescribed in ANSI C63.4 2003.

## 1.3 Facilities and Accreditations

### 1.3.1 Facilities

Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L3572.

All measurement facilities used to collect the measurement data are located at 3/F, Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen, 518055 P. R. 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.

### 1.3.2 Test Environment Conditions

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

Temperature (°C):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86-106

### 1.3.3 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Uncertainty of Conducted Emission:	±1.8dB
Uncertainty of Radiated Emission:	±3.1dB

## **2. TEST CONDITIONS SETTING**

### **2.1 Test Mode**

#### **1. GSM Test Mode**

- (1) The first test mode (GSM-1900MHz)

The EUT configuration of the emission tests is EUT + Battery + AC Adapter.

During the measurement of Traffic operating mode, a communication link was established between the EUT and a System Simulator (SS). The EUT operated at GSM 1900MHz mid ARFCN (661) and maximum output power (level 0).

- (2) The second test mode (GPRS-1900MHz)

The EUT configuration of the emission tests is EUT + Battery + AC Adapter.

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.

- (3) The third test mode (EDGE-1900MHz)

The EUT configuration of the emission tests is EUT + Battery + AC Adapter.

In this test mode, an EDGE 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.

#### **2. Amusement Test Mode**

- (1) The first test mode (USB)

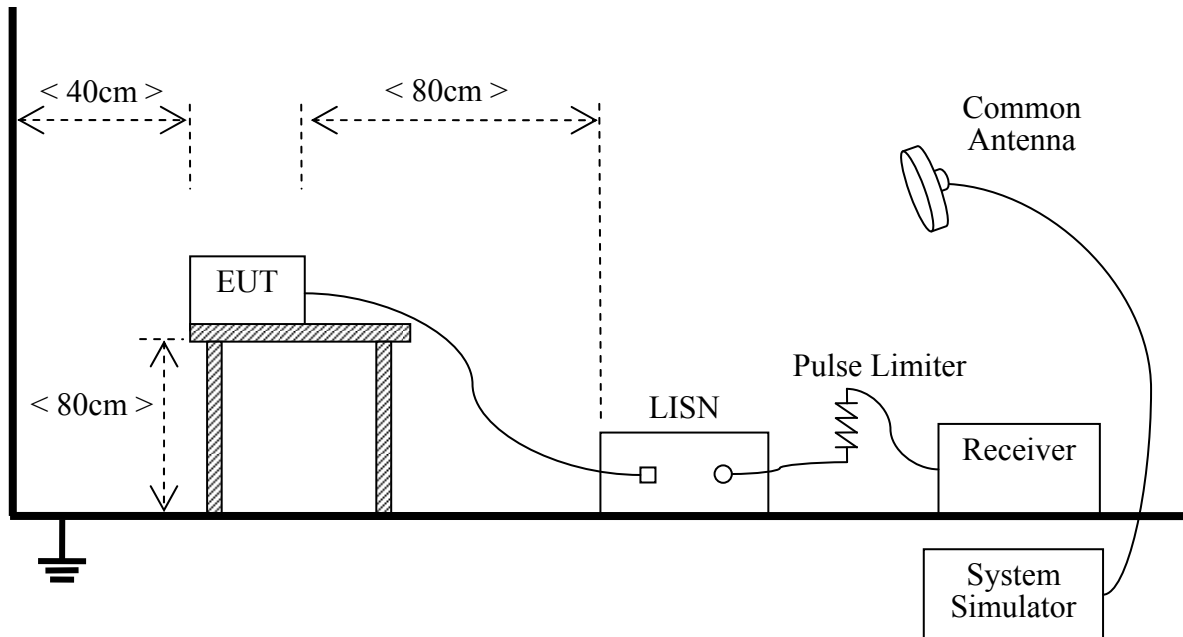
The EUT configuration of the emission tests is TransFlash Card + EUT + Battery + PC.

In this test mode, the EUT with a TransFlash Card embedded is connected with a PC via a special USB cable supplied by applicant. During the measurement, a communication link was established between the EUT and a System Simulator (SS), simultaneity, the data is transmitting between the PC and the TransFlash Card of the EUT.

## 2.2 Test Setup and Equipments List

### 2.2.1 Conducted Emission

#### A. Test Setup:



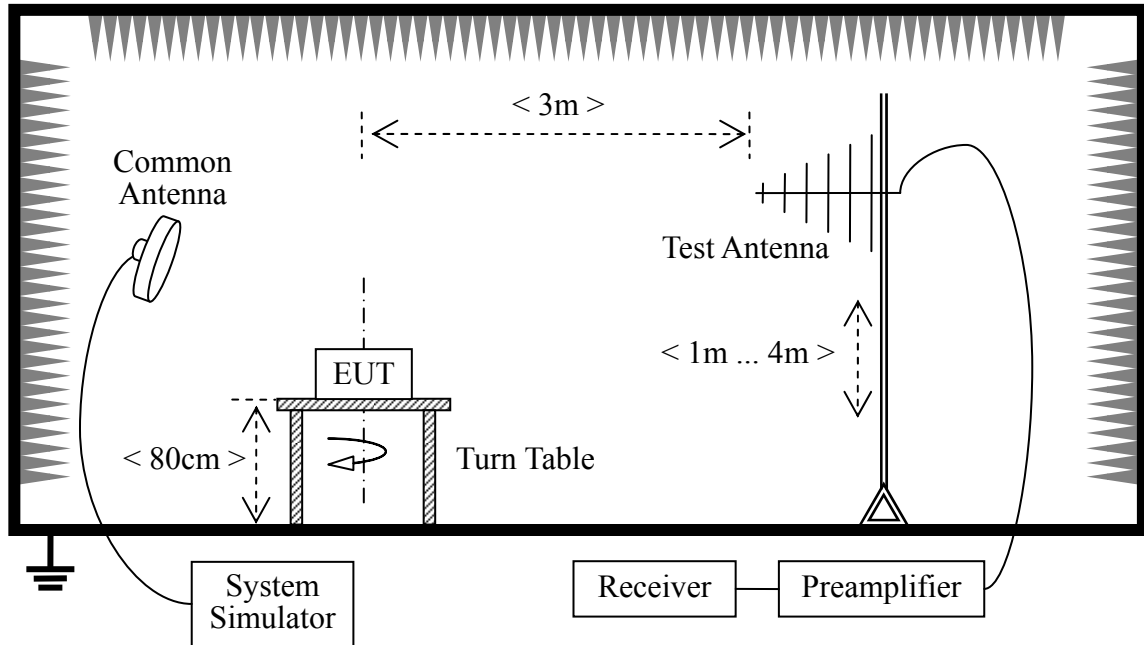
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides 50 $\Omega$ /50 $\mu$ H of coupling impedance for the measuring instrument. The 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
Receiver	Agilent	E7405A	US44210471	2010.09
LISN	Schwarzbeck	NSLK 8127	812744	2010.09
Pulse Limiter (20dB)	Schwarzbeck	VTSD 9561-D	9391	(n.a.)
System Simulator	Agilent	E5515C	GB43130131	2010.09
Personal Computer	IBM	IBM_T20	(n.a.)	(n.a.)
Bluetooth-Headset	Nokia	HS-36W	(n.a.)	(n.a.)
T-Flash Card	SanDisk	256MB	(n.a.)	(n.a.)

## 2.2.2 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
Receiver	Agilent	E7405A	US44210471	2010.09
Semi-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2010.09
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2010.09
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2010.09
System Simulator	Agilent	E5515C	GB43130131	2010.09
Personal Computer	IBM	IBM_T20	(n.a.)	(n.a.)
Bluetooth-Headset	Nokia	HS-36W	(n.a.)	(n.a.)
T-Flash Card	SanDisk	256MB	(n.a.)	(n.a.)



### 3. 47 CFR PART 15B REQUIREMENTS

#### 3.1 Conducted Emission

##### 3.1.1 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
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.

##### 3.1.2 Test Description

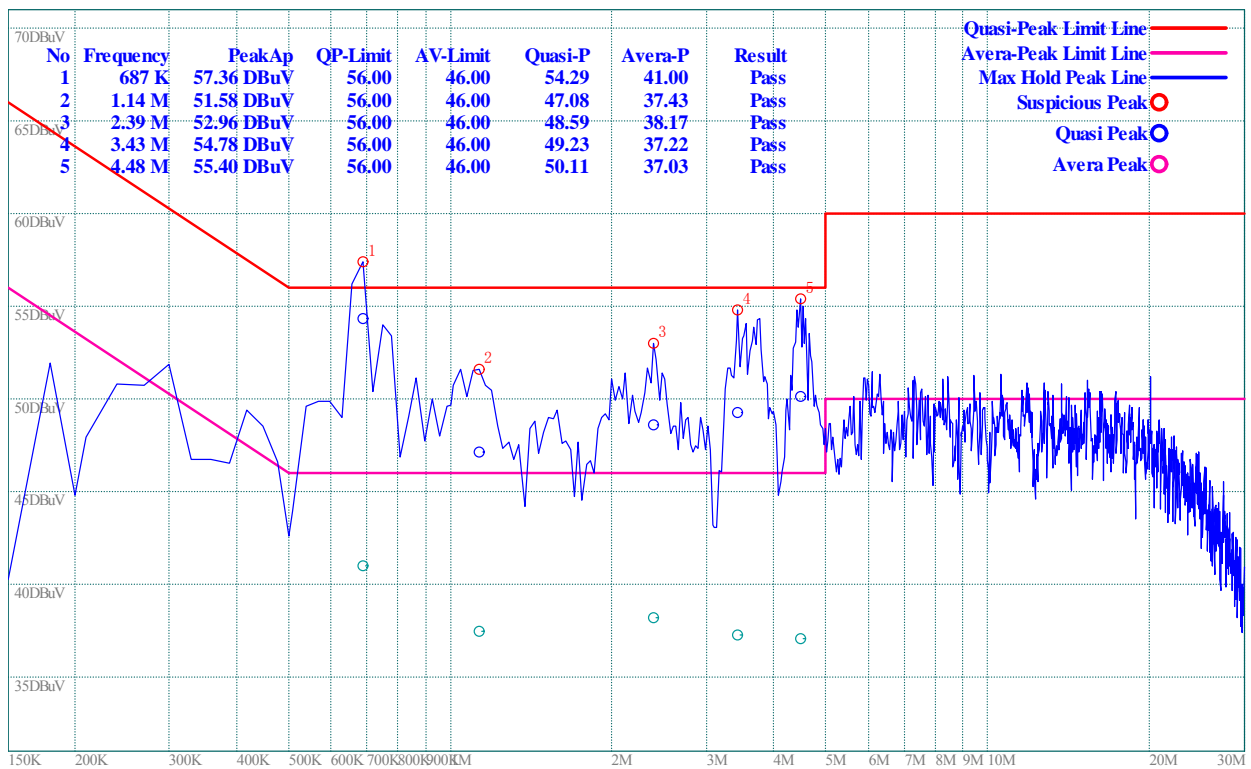
See section 2.2.1 of this report.

##### 3.1.3 Test Result

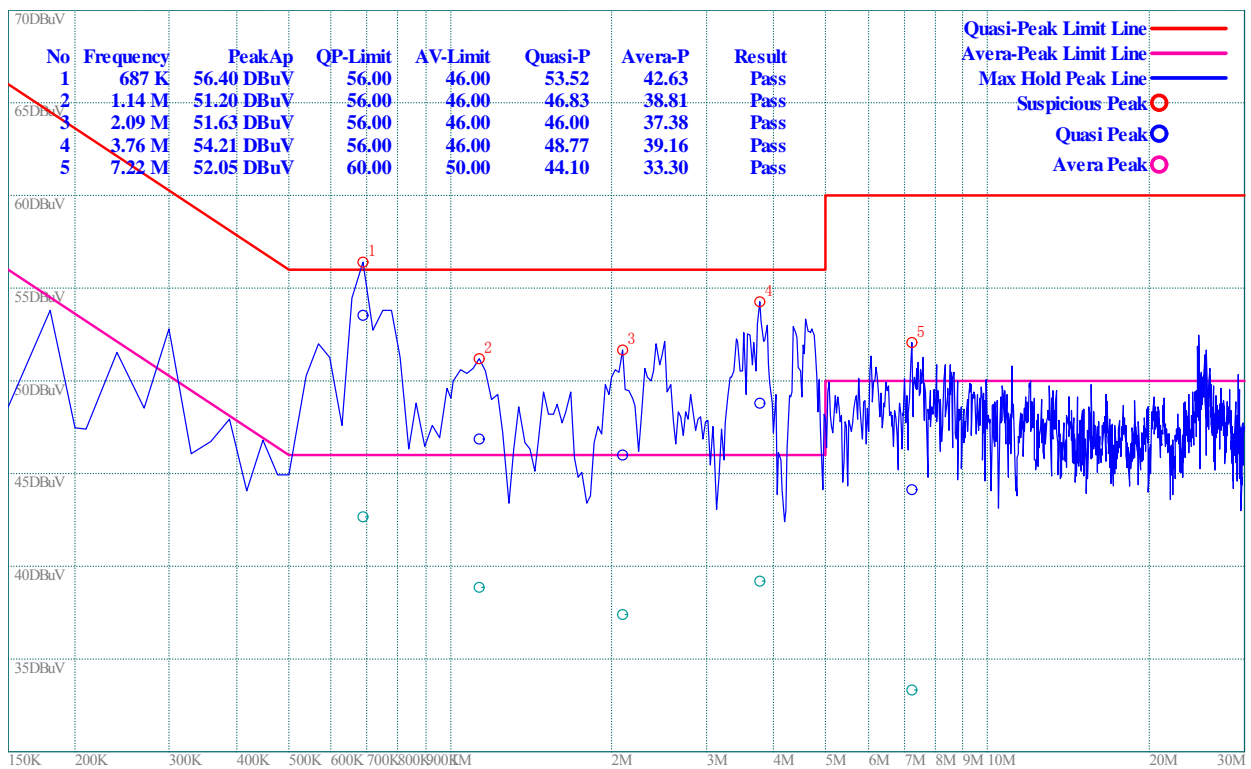
The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines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

###### 3.1.3.1 GSM Test Mode

###### A. Test Plot and Suspicious Points:



(Plot A: L Phase)

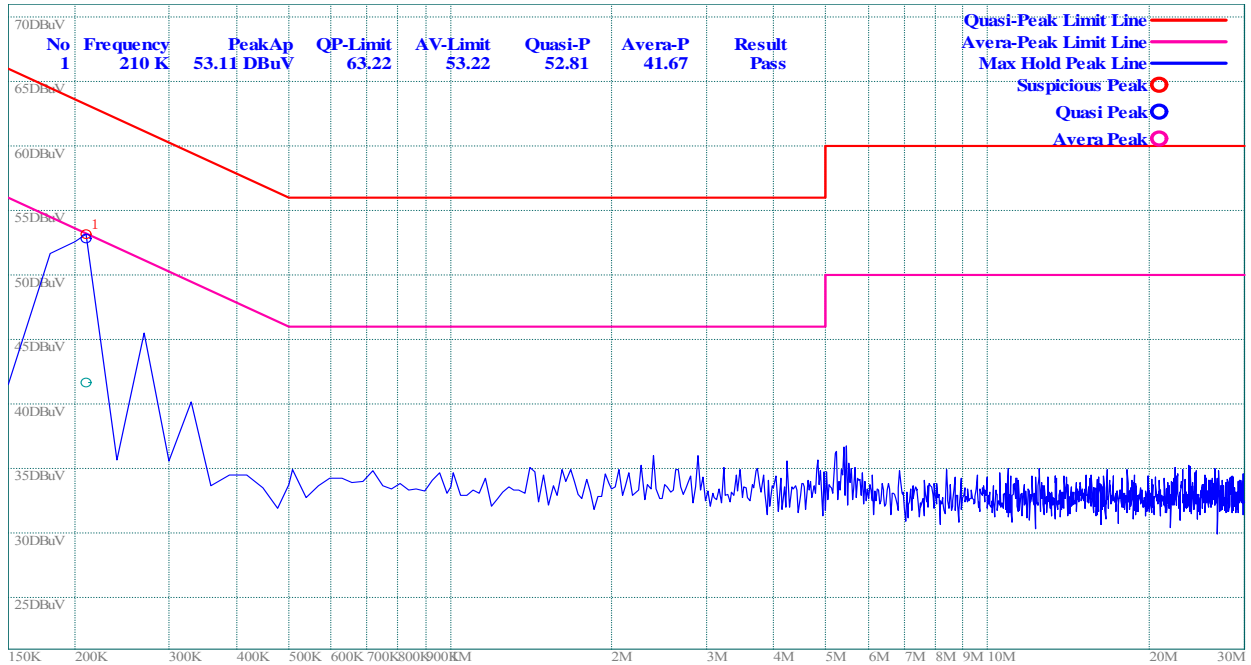


(Plot B: N Phase)

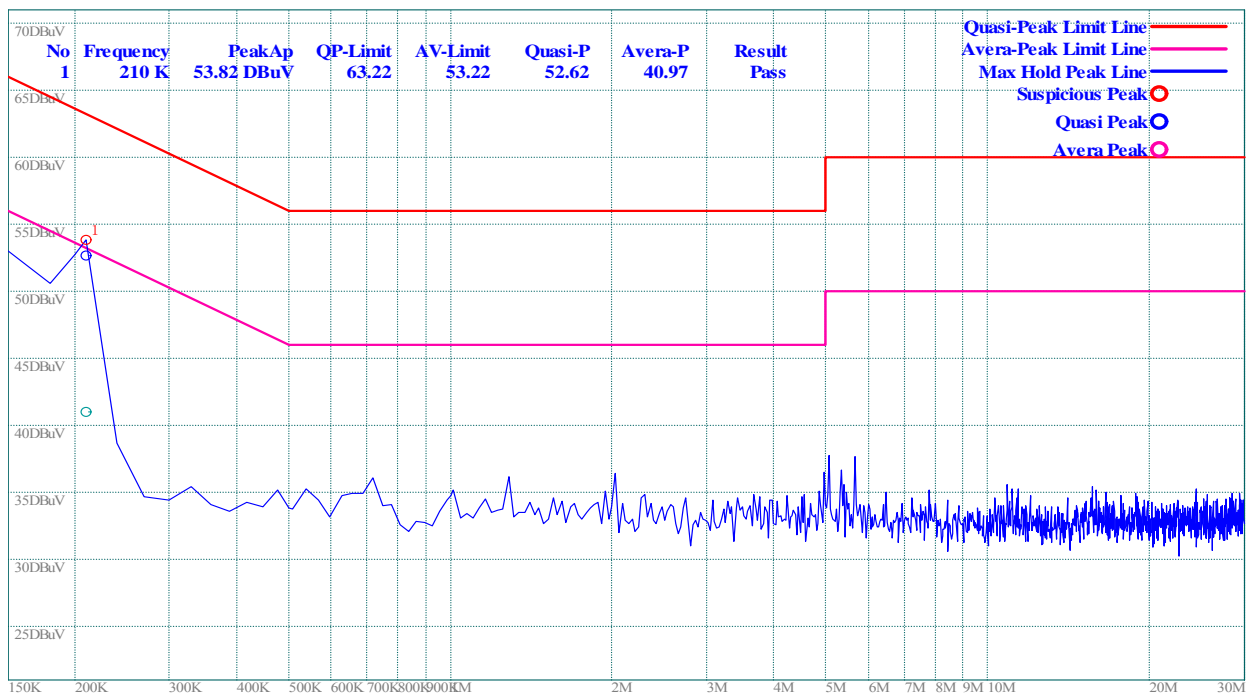
**Test Result :PASS**

### 3.1.3.2 Amusement Test Mode

#### A. Test Plot and Suspicious Points:



(Plot A: L Phase)



(Plot B: N Phase)

**Test Result :PASS**

## 3.2 Radiated Emission

### 3.2.1 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	
	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

NOTE:

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

### 3.2.2 Test Description

See section 2.2.2 of this report.

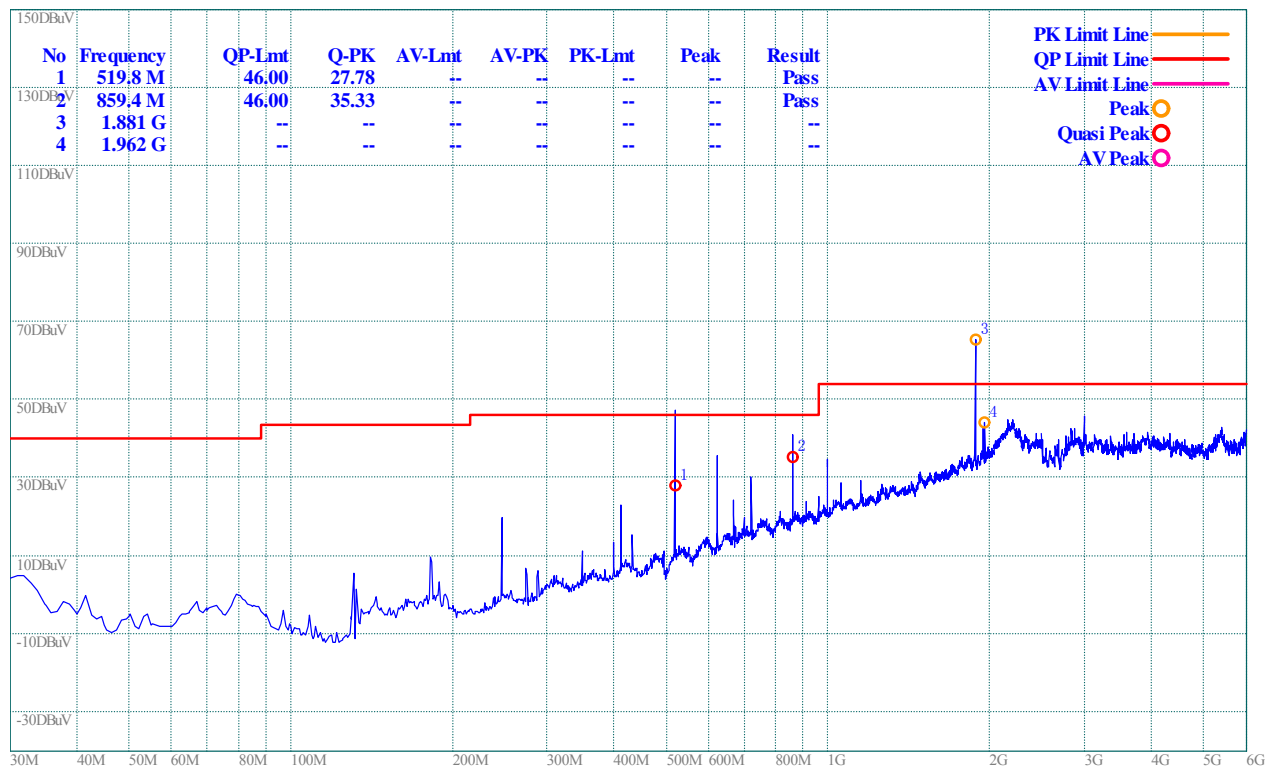
### 3.2.3 Test Result

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.

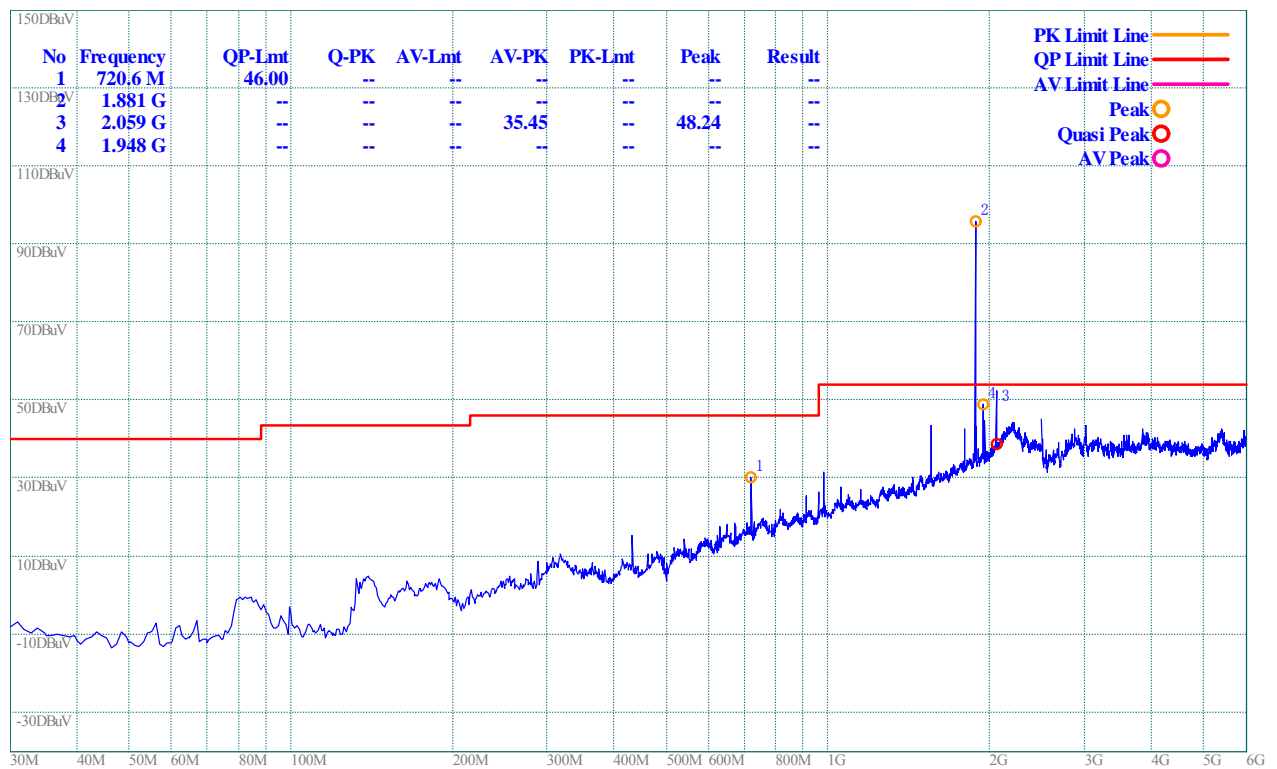
#### 3.2.3.1 GSM Test Mode

##### A. Test Plots and Suspicious Points:

Note: Following is the plots for emission measurement; please note that marked spikes near 1900MHz with circle should be ignored because they are MS and SS carrier frequency



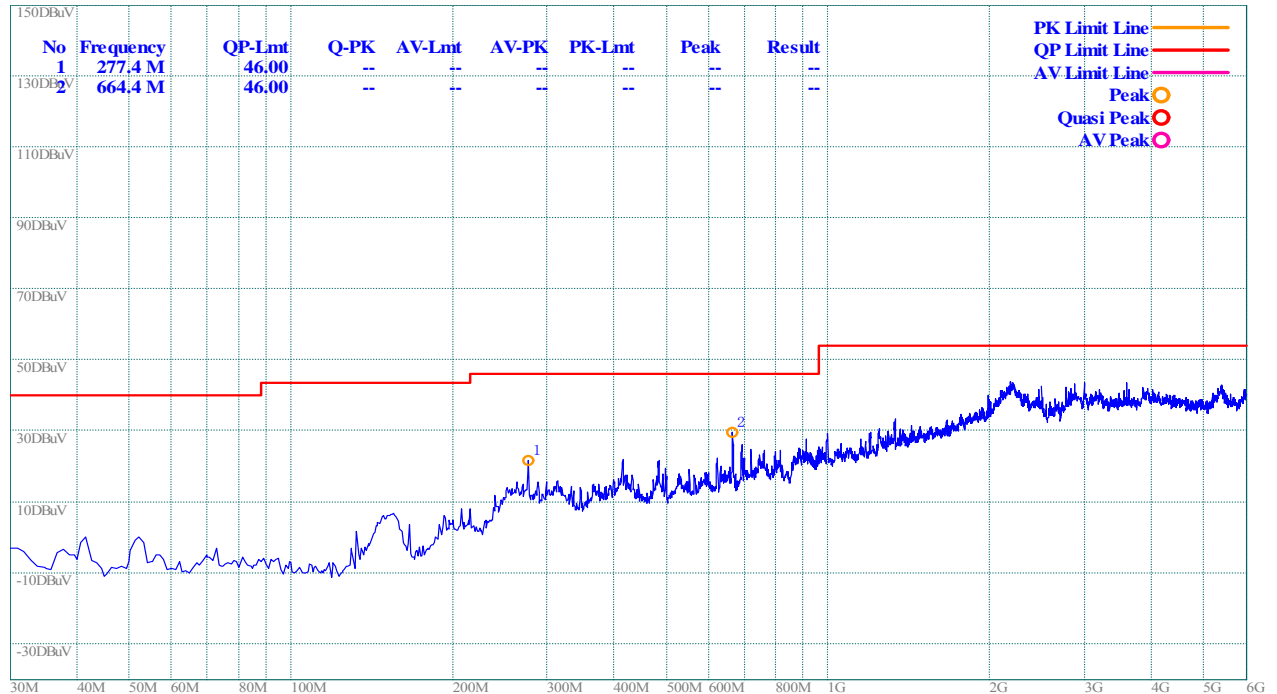
(Plot A: Test Antenna Vertical)



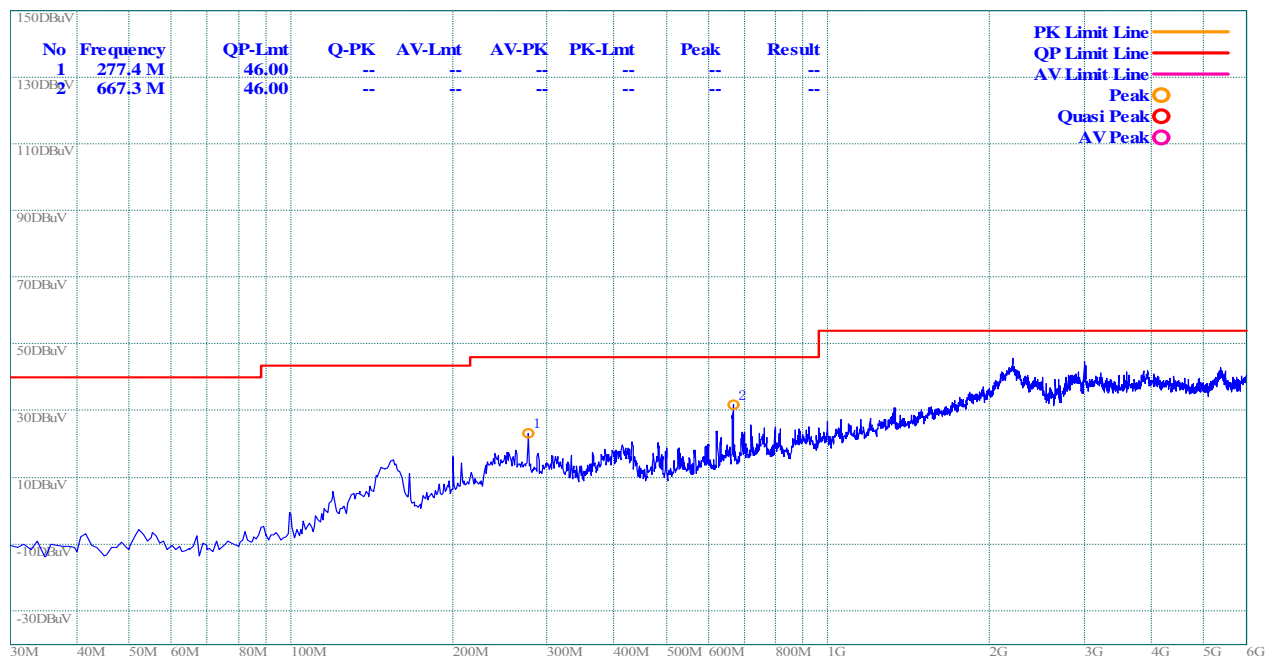
(Plot B: Test Antenna Horizontal)

### 3.2.3.2 Amusement Test Mode

#### A. Test Plots and Suspicious Points:



(Plot A: Test Antenna Vertical)



(Plot B: Test Antenna Horizontal)

**Test Result :PASS**

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