

47 CFR PART 15 SUBPART B

# TEST REPORT

of

**Cell phone**

Model Name: GPFM88/GPFM89  
GPRS88/GPRS89  
Brand Name: UTSTARCOM  
Report No.: SZ08040137E01  
FCC ID: T38UT5016I

*prepared for*

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13/F, Skyworth Building C Gaoxin S. Ave. 1st,  
High-Techindustrial Park NanShan, ShenZhen

*prepared by*  
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## TABLE OF CONTENTS

<b>1.</b>	<b>TEST CERTIFICATION .....</b>	<b>3</b>
<b>2.</b>	<b>GENERAL INFORMATION .....</b>	<b>4</b>
<b>2.1</b>	<b>EUT Description .....</b>	<b>4</b>
<b>2.2</b>	<b>Test Standards and Results .....</b>	<b>6</b>
<b>2.3</b>	<b>Facilities and Accreditations .....</b>	<b>7</b>
2.3.1	Facilities .....	7
2.3.2	Test Environment Conditions .....	7
<b>3.</b>	<b>TEST CONDITIONS SETTING .....</b>	<b>8</b>
<b>3.1</b>	<b>Test Mode .....</b>	<b>8</b>
<b>3.2</b>	<b>Test Setup and Equipments List .....</b>	<b>9</b>
3.2.1	Conducted Emission .....	9
3.2.2	Radiated Emission .....	10
<b>4.</b>	<b>47 CFR PART 15B REQUIREMENTS .....</b>	<b>11</b>
<b>4.1</b>	<b>Conducted Emission .....</b>	<b>11</b>
4.1.1	Requirement .....	11
4.1.2	Test Description .....	11
4.1.3	Test Result .....	11
<b>4.2</b>	<b>Radiated Emission .....</b>	<b>14</b>
4.2.1	Requirement .....	14
4.2.2	Test Description .....	14
4.2.3	Test Result .....	14



## 1. TEST CERTIFICATION

Equipment under Test: Cell phone

Brand Name: UTSTARCOM

Model Name: GPFM88/GPFM89/GPRS88/GPRS89

FCC ID: T38UT5016I

Applicant: Cellon Communications Technology (ShenZhen) Co., Ltd.  
13/F, Skyworth Building C Gaoxin S. Ave. 1st, High-Techindustrial Park  
NanShan, ShenZhen

Manufacturer: Cellon Communications Technology (ShenZhen)Co., Ltd.  
13/F, Skyworth Building C Gaoxin S. Ave. 1st, High-Techindustrial Park  
NanShan, ShenZhen

Test Standards: 47 CFR Part 15 Subpart B

Test Date(s): May 20, 2008 – May 30, 2008

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: Luo Biao Dated: 2008.05.30  
Luo Biao

Reviewed by: Wei Yanquan Dated: 2008.05.30  
Wei Yanquan

Approved by: Shu Luan Dated: 2008.05.30  
Shu Luan



## 2. GENERAL INFORMATION

### 2.1 EUT Description

EUT Type.....: Cell phone  
Model Name .....: GPFM88/GPFM89/GPRS88/GPRS89  
Serial No. ....: (n.a, marked #1 by test site)  
IMEI.....: 351842020072870  
Hardware Version .....: P1  
Software Version.....: 0380000102000000  
Modulation Type.....: GMSK  
Power Supply.....: Battery  
Brand name: UTSTARCOM  
Mode no.: BTR1218  
Capacitance: 680mAh  
Rated voltage: 3.8V  
Manufacturer: ShenZhen XWODA Group Co.,Ltd  
Manufacturer Address: Building C, Tong Fu Kang Industrial Zone,  
Shiyan Town, Baoan District, ShenZhen, China  
Ancillary Equipment 1.....: AC Adapter (Charger for Battery)  
Model Name: DSA-5W-05 FUS 050065  
Brand Name: UTSTARCOM  
Serial No.: (n.a. marked #1 by test site)  
Rated Input: ~ 100-240V, 200mA, 48W, 50/60Hz  
Rated Output: = 5V, 650mA, 3.25W  
Manufacturer: DEE VAN Electronics(ShenZhen) CO., LTD.  
Manufacturer Address: 5<sup>th</sup> industrial District, Gong Ming Town,  
Baoan county, Shen Zhen, Guang Dong, CHINA  
Wire Length: 120cm

#### NOTE:

1. The Model GPFM88, GPFM89, GPRS88 and GPRS89 are series of modules having the same electric circuit structure and critical components, thus they are considered to have the same EMC performance. The different is that the GPFM88 and GPFM89 support GSM 850MHz and 1900MHz bands, but the GPRS88 and GPRS89 support GSM 900MHz and 1800MHz bands. The Model GPFM88 and GPRS88 have FM function, but the GPFM89 and GPRS89 have not. According to the requirements of the applicant, the tests in this report were performed for the Model GPFM88, and the test results in this report should also be applicable for that of the Model GPFM88.
2. The MS is a Mobile phone, they support the Cellular 850MHz, PCS1900MHz, GPRS and EDGE

model were tested in this report.

3. The EUT provides Bluetooth wireless interface operating at 2.4GHz ISM band. There wideband transmission function was also tested according the standard requirements.
4. The normal configuration for the EUT is the Mobile Phone (MS) associated with ancillary equipments e.g. the Battery and/or the AC Adapter (Charger). The normal, high and low voltage supply for the Battery of the EUT is separately 3.7V, 4.2V and 3.6V, which are specified by the applicant.
5. 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	Test date
1	15.107	Conducted Emission	PASS	2008-5-29
2	15.109	Radiated Emission	PASS	2008-5-29

## **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 Conformity Assessment (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):	86-106

### 3. TEST CONDITIONS SETTING

#### 3.1 Test Mode

The test modes of the EUT are showed as below:

(1) Call Mode

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

During the measurement, 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). The Bluetooth function of the EUT was activated. A communication link was established between the MS and Bluetooth headset.

(2) USB Mode

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 date is transmitting between the PC and the TransFlash Card of the EUT.

(3) GPRS/EDGE Mode

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

During the measurement, The EUT was synchronized to the System Simulator (SS). A transferring was established between the MS and a System Simulator (SS).

(4) FM Mode

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

During the measurement, the earphone connected the EUT and the FM function of the MS was activated.

(5) Idle Mode

The EUT configuration of the emission tests was MS + Battery + Charger.

The EUT was synchronized to the BCCH, listening to the CCCH and able to respond to paging message. Periodic location updating was disabled.

NOTE:

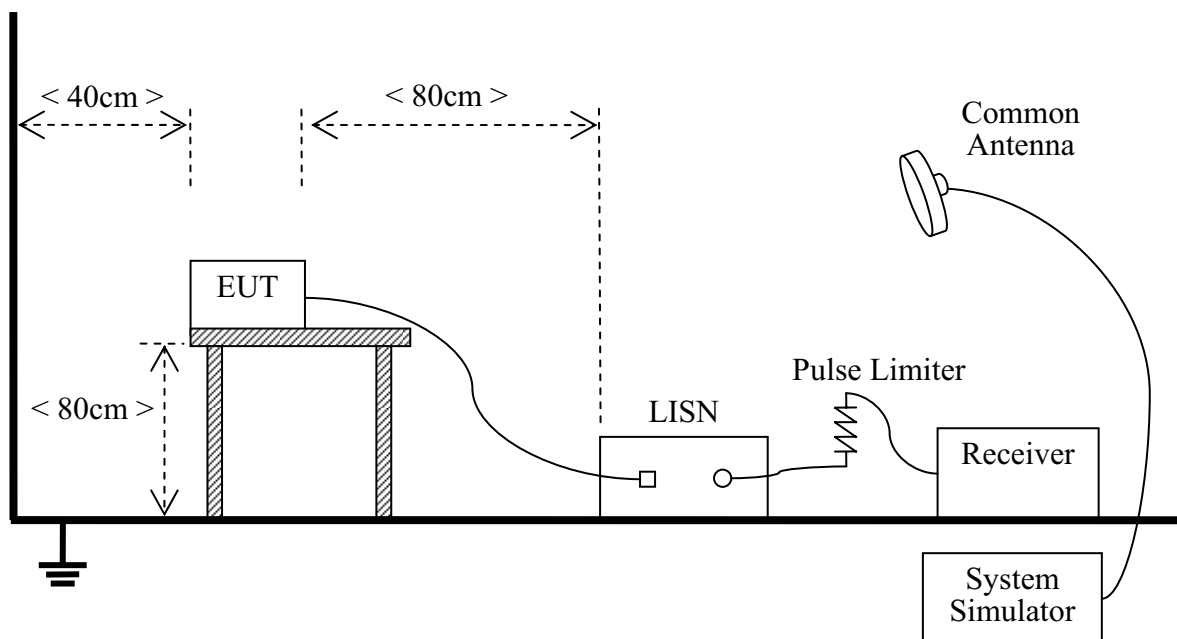
1. All test modes are performed, only the worst cases are recorded in this report.



## 3.2 Test Setup and Equipments List

### 3.2.1 Conducted Emission

#### A. Test Setup:



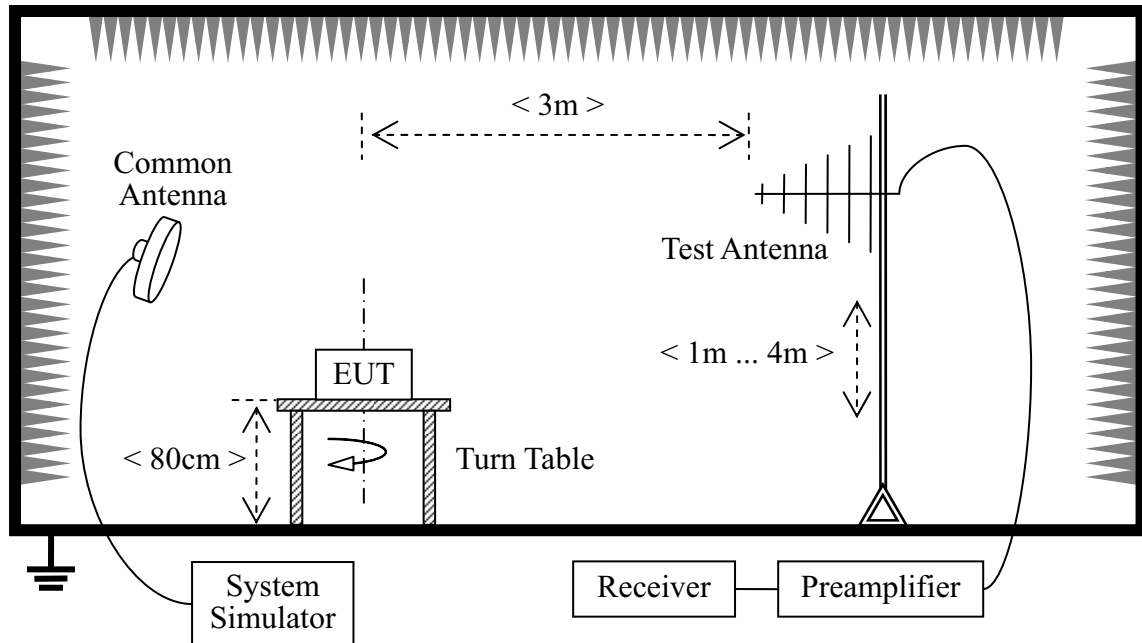
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides  $50\Omega/50\mu\text{H}$  of coupling impedance for the measuring instrument.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

### 3.2.2 Radiated Emission

#### A. 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).

#### B. Equipments List:

Description	Manufacturer	Model	Serial No.
Receiver	Agilent	E7405A	US44210471
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384
System Simulator	Agilent	E5515C	GB43130131
Personal Computer	IBM	T20	(n.a.)
Bluetooth-Headset	Nokia	HS-36W	(n.a.)
T-Flash Card	SanDisk	256MB	(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)	
	Quai-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 3.2.1 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.

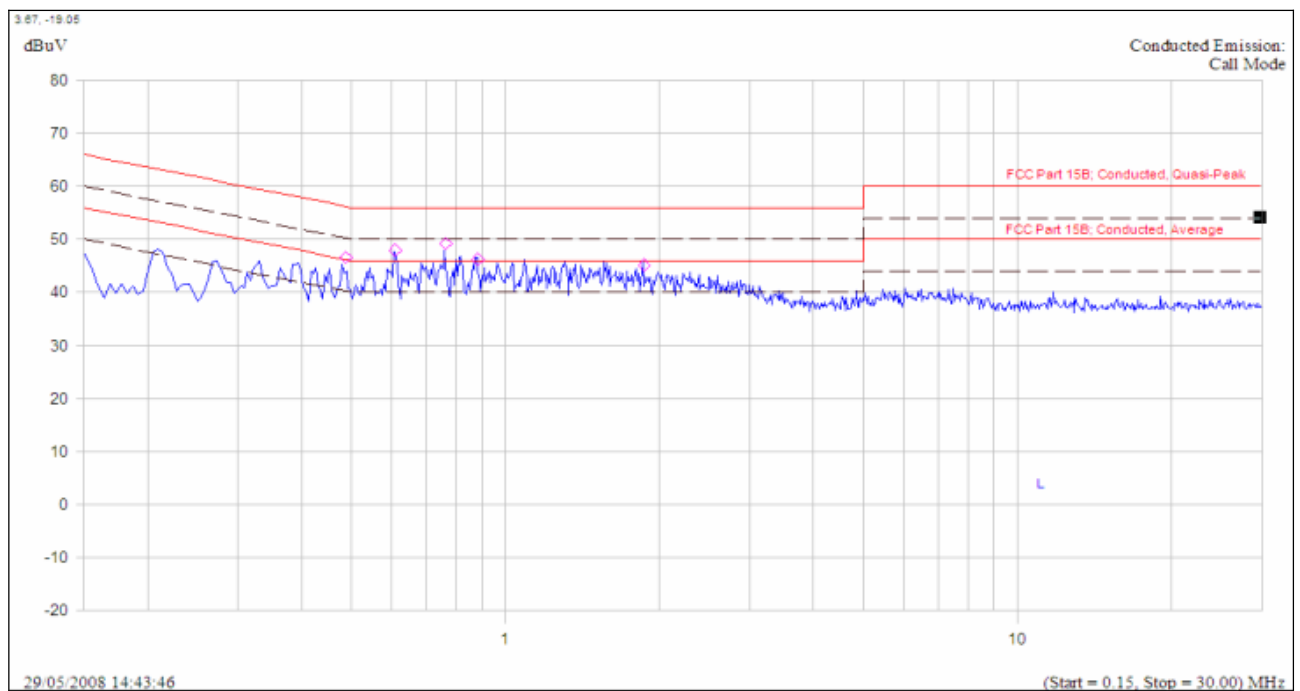
##### 4.1.3.1 Call Mode

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

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

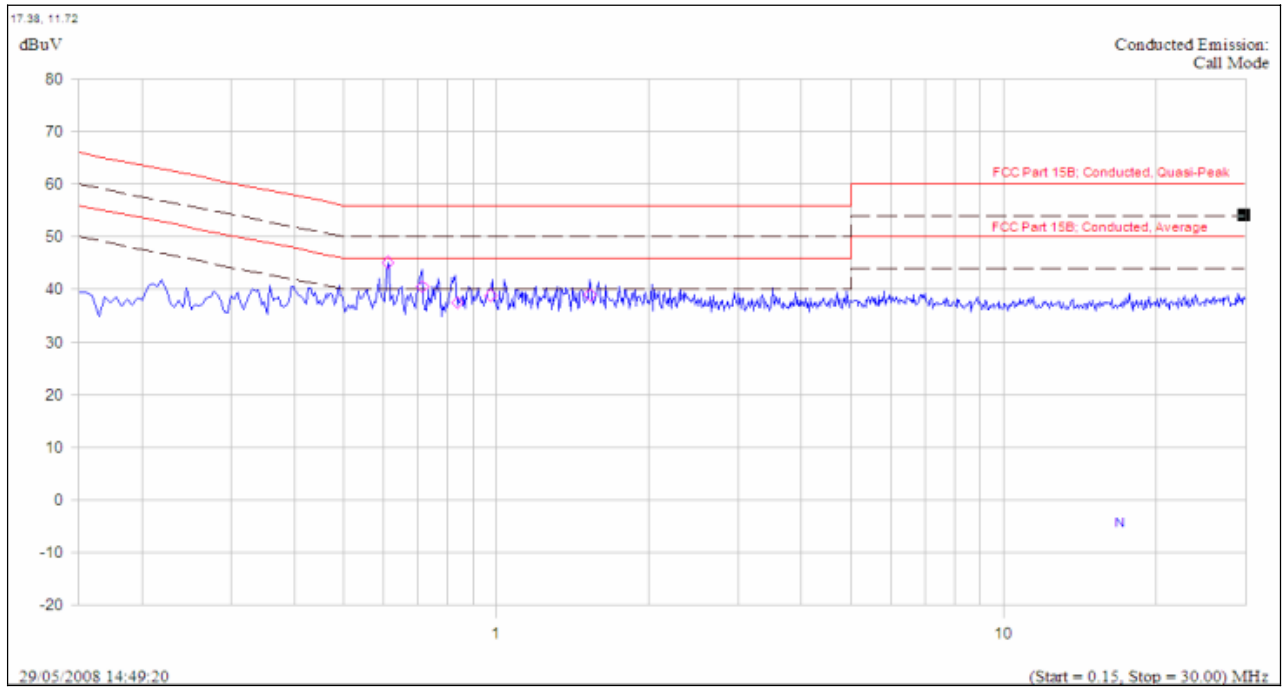
No.	@Frequency (MHz)	Measured Emission Level (dBμV)				Limit (dBμV)		Verdict
		PK	QP	AV	Phase	QP	AV	
1	0.488	46.6	43.7	35.6	L	56.2	46.2	PASS
2	0.609	48.0	44.5	36.7	L	56.0	46.0	PASS
3	0.766	49.2	46.7	36.9	L	56.0	46.0	PASS
4	0.884	46.2	43.2	35.1	L	56.0	46.0	PASS
5	1.867	45.2	41.4	31.1	L	56.0	46.0	PASS
6	(n.a.)	(n.a.)	(n.a.)	(n.a.)	L	(n.a.)	(n.a.)	(n.a.)
7	0.611	45.2	42.3	33.1	N	56.0	46.0	PASS
8	0.715	40.6	36.3	26.6	N	56.0	46.0	PASS
9	0.838	37.5	32.5	24.4	N	56.0	46.0	PASS
10	0.975	38.9	34.4	25.9	N	56.0	46.0	PASS
11	1.532	38.9	32.1	24.1	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	
	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
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.

### 4.2.2 Test Description

See section 3.2.2 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.

#### 4.2.3.1 Call Mode

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

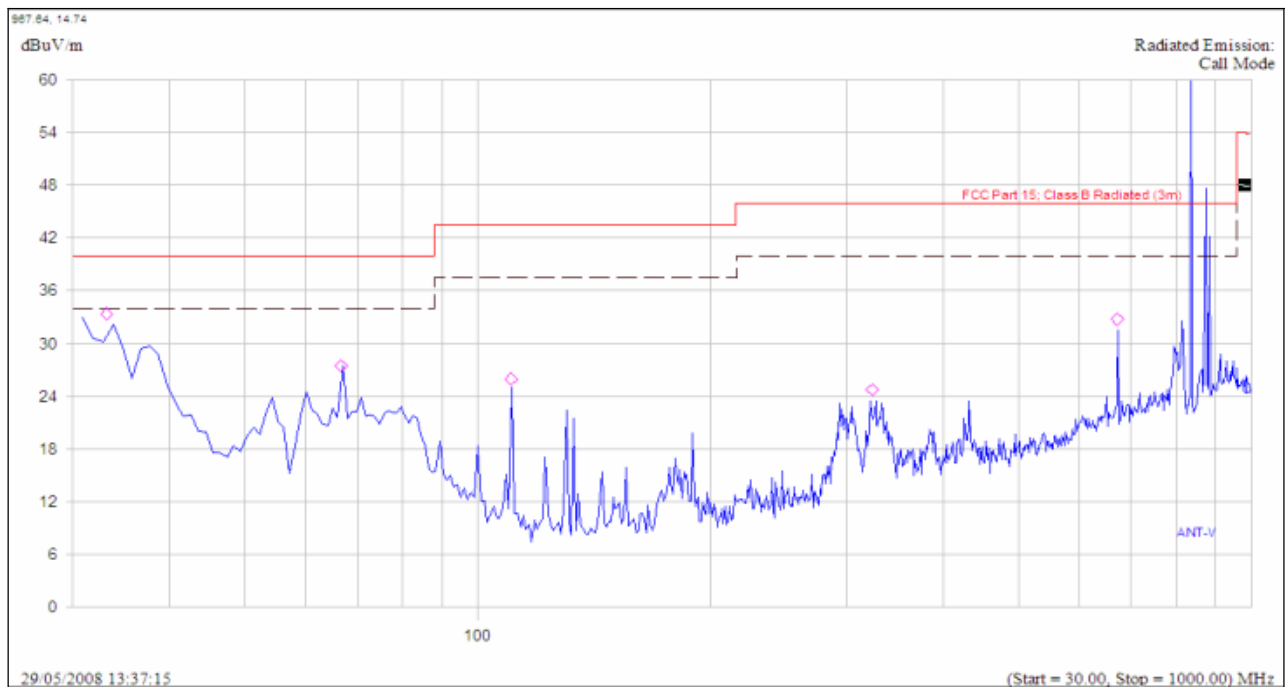
#### A. Test Verdict Recorded for Suspicious Points:

No.	@Frequency (MHz)	Emission Level ( $\text{dB}\mu\text{V/m}$ )			Quasi-Peak Limit ( $\text{dB}\mu\text{V/m}$ )	Result
		PK	QP	Antenna Polarization		
1	33.186	33.3	30.9	Vertical	40.0	PASS
2	66.585	27.5	24.1	Vertical	40.0	PASS
3	110.605	26.0	24.8	Vertical	43.5	PASS
4	323.937	24.7	17.6	Vertical	46.0	PASS
5	672.101	32.7	30.4	Vertical	46.0	PASS
6	(n.a)	(n.a)	(n.a)	Vertical	(n.a)	(n.a)

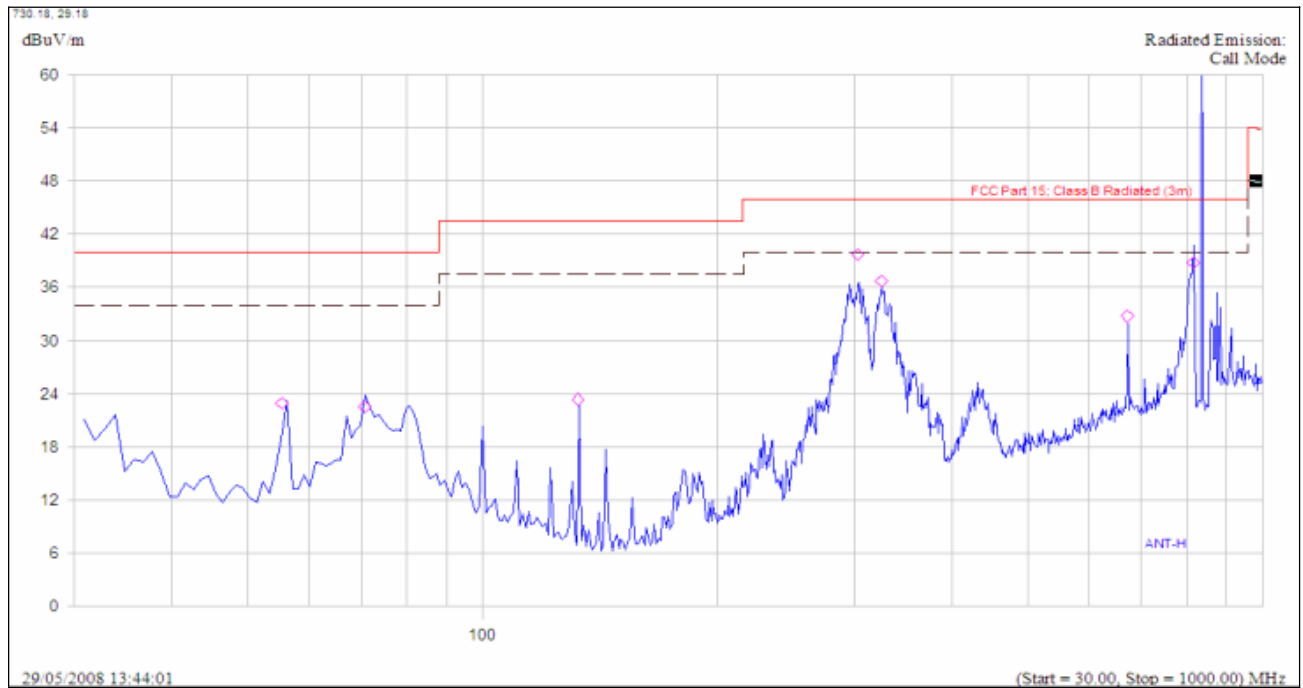
No.	@Frequency (MHz)	Emission Level (dB $\mu$ V/m)			Quasi-Peak Limit (dB $\mu$ V/m)	Result
		PK	QP	Antenna Polarization		
7	55.342	22.9	19.2	Horizontal	40.0	PASS
8	132.733	23.3	22.1	Horizontal	43.5	PASS
9	302.967	39.7	33.9	Horizontal	46.0	PASS
10	325.166	36.7	28.4	Horizontal	46.0	PASS
11	672.107	32.8	30.6	Horizontal	46.0	PASS
12	816.138	38.8	28.4	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)

#### 4.2.3.2 USB Mode

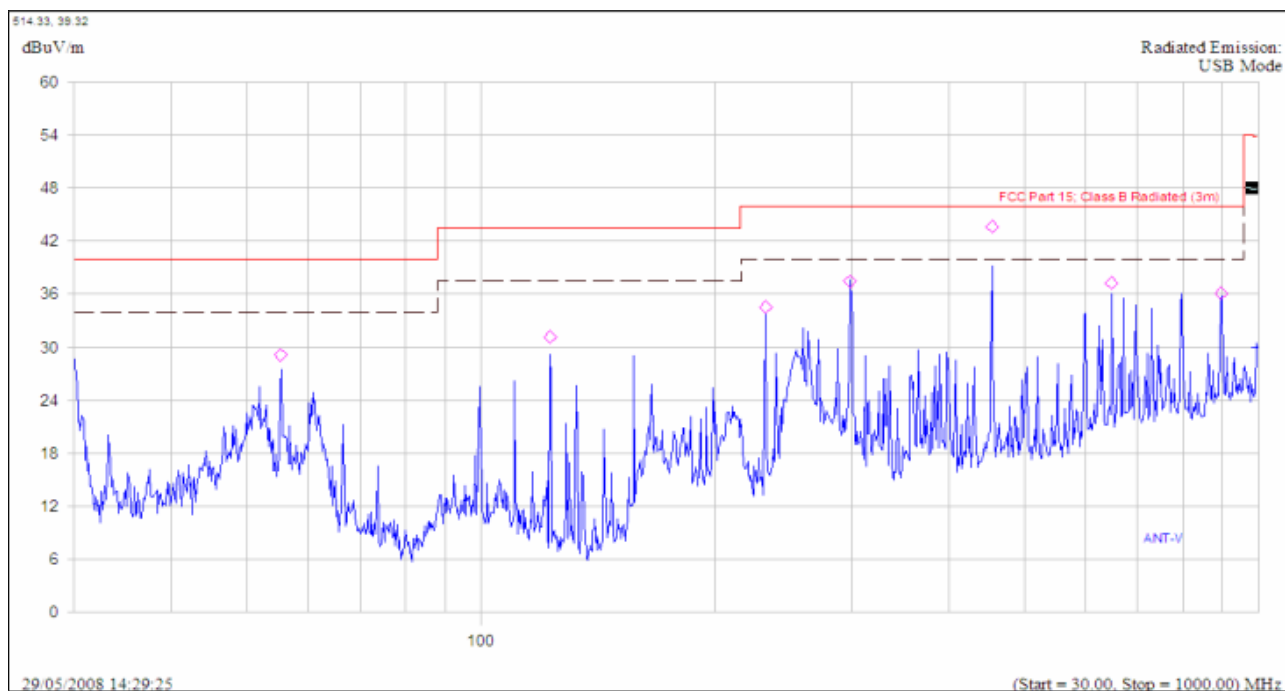
The EUT configuration of the emission tests is TransFlash Card + EUT + Battery + PC.

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

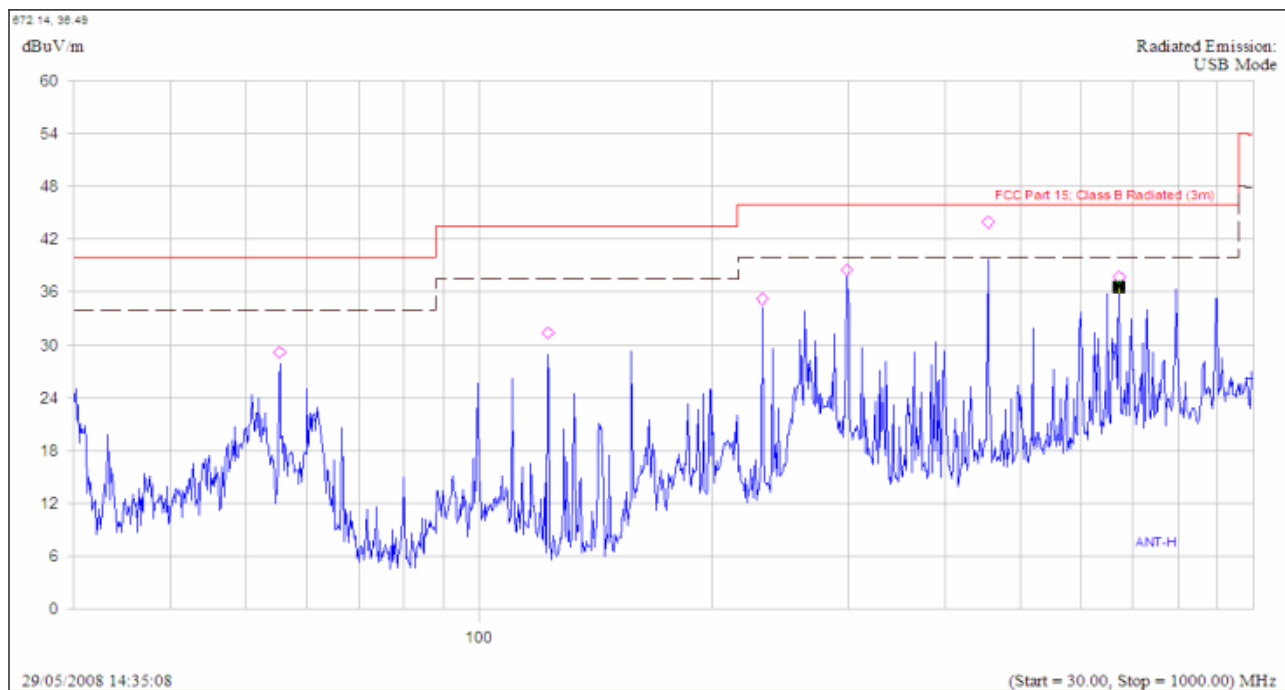
No.	@Frequency (MHz)	Emission Level (dB $\mu$ V/m)			Quasi-Peak Limit (dB $\mu$ V/m)	Result
		PK	QK	Antenna Polarization		
1	55.314	29.1	26.7	Vertical	40	PASS
2	122.901	31.1	28.3	Vertical	43.5	PASS
3	232.661	34.5	32.1	Vertical	46.0	PASS
4	298.666	37.5	33.8	Vertical	46.0	PASS
5	454.878	43.6	40.6	Vertical	46.0	PASS
6	648.098	37.3	35.7	Vertical	46.0	PASS
7	(n.a)	(n.a)	(n.a)	Vertical	(n.a)	(n.a)
8	55.304	29.1	26.9	Horizontal	40.0	PASS
9	122.883	31.4	28.1	Horizontal	43.5	PASS
10	232.455	35.2	32.9	Horizontal	46.0	PASS
11	298.937	38.5	35.8	Horizontal	46.0	PASS
12	454.872	43.9	41.0	Horizontal	46.0	PASS
13	672.097	37.7	35.9	Horizontal	46.0	PASS



## B. Test Plot:



(Plot A: Test Antenna Vertical)



(Plot B: Test Antenna Horizontal)

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