



## 47 CFR PART 24 SUBPART E

# TEST REPORT

of

### GSM FWP

Model Name: FX855P  
Brand Name: MOTOROLA  
Report No.: SZ07050045E2  
FCC ID: VKO-FX855P

*prepared for*

### Brightstar Corporate

2010 NW 84th Avenue, Miami – Florida 33122

*prepared by*  
**Shenzhen Electronic Product Quality Testing Center**

**Morlab Laboratory**

3/F, Electronic Testing Building, Shabe Road, Xili,  
Nanshan District, Shenzhen, 518055 P. R. China

Tel: +86 755 86130398

Fax: +86 755 86130218



**NOTE:** This test report can be duplicated completely for the legal use with the approval of the applicant; it shall not be reproduced except in full, without the written approval of Shenzhen Electronic Product Quality Testing Center Morlab Laboratory. Any objections should be raised to us within thirty workdays since the date of issue.

## TABLE OF CONTENTS

<b>2.1</b>	<b>EUT Description .....</b>	<b>5</b>
<b>2.2</b>	<b>Test Standards and Results .....</b>	<b>6</b>
	NOTE: .....	6
<b>2.3</b>	<b>Facilities and Accreditations .....</b>	<b>7</b>
2.3.1	Facilities .....	7
2.3.2	Test Equipments .....	7
2.3.3	Test Environment Conditions .....	8
<b>3.1</b>	<b>General Information .....</b>	<b>9</b>
3.1.1	Test Mode .....	9
3.1.2	Test Setup: .....	10
3.1.2.1	Conducted Emission Test: .....	10
3.1.2.2	Radiated Emission Test Setup: .....	11
<b>3.2</b>	<b>Conducted Emission .....</b>	<b>11</b>
3.2.1	Requirement .....	11
3.2.2	Test Description .....	12
3.2.3	Test Result .....	12
<b>3.3</b>	<b>Radiated Emission .....</b>	<b>14</b>
3.3.1	Requirement .....	14
3.3.2	Test Description .....	14
3.3.3	Test Result .....	14
<b>4.1</b>	<b>Frequencies .....</b>	<b>16</b>
4.1.1	Requirement .....	16
4.1.2	Test Description .....	16
4.1.3	Test Result .....	17
<b>4.2</b>	<b>Conducted RF Output Power .....</b>	<b>19</b>
4.2.1	Requirement .....	19
4.2.2	Test Description .....	19
4.2.3	Test Result .....	19
<b>4.3</b>	<b>20dB Occupied Bandwidth .....</b>	<b>22</b>
4.3.1	Definition .....	22
4.3.2	Test Description .....	22

4.3.3	Test Verdict.....	22
<b>4.4</b>	<b>Frequency Stability.....</b>	<b>25</b>
4.4.1	Requirement .....	25
4.4.2	Test Description .....	25
4.4.3	Test Verdict.....	25
<b>4.5</b>	<b>Conducted Out of Band Emissions .....</b>	<b>27</b>
4.5.1	Requirement .....	27
4.5.2	Test Description .....	27
4.5.3	Test Result.....	27
<b>4.6</b>	<b>Band Edge .....</b>	<b>31</b>
4.6.1	Requirement .....	31
4.6.2	Test Description .....	31
4.6.3	Test Result.....	31
<b>4.7</b>	<b>Transmitter Radiated Power (EIRP/ERP).....</b>	<b>33</b>
4.7.1	Requirement .....	33
4.7.2	Test Description .....	33
4.7.3	Test Result.....	34
<b>4.8</b>	<b>Radiated Out of Band Emissions .....</b>	<b>36</b>
4.8.1	Requirement .....	36
4.8.2	Test Description .....	36
4.8.3	Test Result.....	36



## 1. TEST CERTIFICATION

Equipment under Test: GSM FWP

Brand Name: MOTOROLA

Model Name: FX855P

FCC ID: VKO-FX855P

Applicant: Brightstar Corporate

2010 NW 84th Avenue, Miami – Florida 33122

Manufacturer: TeleEpoch Limited

5A,B1 Building, Digital Tech Zone South section, High-Tech park,  
Nanshan, Shenzhen, Guangdong Province, China

Test Standards: 47 CFR Part 2

47 CFR Part 15 Subpart B

47 CFR Part 24 Subpart E

Emission Designator 300KGXW

Test Date(s): August 23, 2007 – September 19, 2007

Test Result: PASS

### \* We Hereby Certify That:

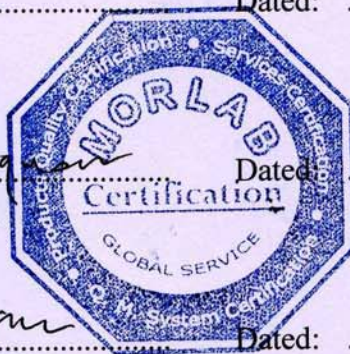
The equipment under test was tested by Shenzhen Electronic Product Quality Testing Center Morlab Laboratory. The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the requirement of related FCC rules.

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: Ni Yong Dated: 2007.09.19  
Ni Yong

Reviewed by: Wei Yanquan Dated: 2007.09.19  
Wei Yanquan

Approved by: Shu Luan Dated: 2007.09.19  
Shu Luan



## 2. GENERAL INFORMATION

### 2.1 EUT Description

EUT Type .....: GSM Wireless telephone  
Model Name .....: FX855P  
Serial No.....: (n.a, marked #1 by test site)  
IMEI .....: 123456789012347  
Hardware Version .....: V1.3  
Software Version .....: 52.80.00  
Modulation Type.....: GMSK  
Frequency Range .....: Tx: 1850.20 – 1909.80MHz (at intervals of 200kHz);  
Rx: 1930.20 - 1980.80MHz (at intervals of 200kHz)  
Power Supply .....: Battery  
Mode no.: B0173A  
Capacitance: 900mAh/0.2C mA  
Rated voltage: 3.6V  
Manufacturer: EVE BATTERY CO.,LTD  
Manufacturer Address: HUICHENG BLDG. HUITAI INDUSTRIAL  
ZONE,HUIZHOU,GUANGDONG,CHINA  
Ancillary Equipments1 .....: AC Adapter (Charger for Battery)  
Model Name: HY0181-A  
Serial No.: (n.a. marked #1 by test site)  
Rated Input: ~ 100-240V, 0.2A,47-63Hz  
Rated Output: = 4.25-4.75V, 500mA  
Manufacturer: SHENZHEN HUAYE NEW TECHNOLOGY  
INDUSTRY CO. LTD  
Manufacturer Address: NO, 4-7#, Tongfuyu, Industrial, AiqunRoad,  
Shiyan, town, Baoan District, Shenzhen  
Wire Length: 143cm

*Note 1:* The transmitter (Tx) frequency arrangement of the PCS 1900MHz band used by the EUT can be represented with the formula  $F(n)=1850.2+0.2*(n-512)$ ,  $512 \leq n \leq 810$ ; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 512 (1850.2MHz), 661 (1880.0MHz) and 810 (1909.8MHz).

*Note 2:* The EUT is equipped with a special USB interface which can be connected to computer by the common USB Adapter Cable, but no USB Adapter will be sold with the phone to the consumer, and the USB interface was just used in the factory with a USB Adapter for program-loading on the assembly line.

*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 2, Part 24 for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 2 (10-1-05 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 15 (10-1-05 Edition)	Radio Frequency Devices
3	47 CFR Part 24 (10-1-05 Edition)	Personal Communications Services

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

No.	Section	Description	Result	Test date
FCC Part 15 Requirement				
1	§15.107	Conducted Emissions	PASS	2007-8-24
2	§15.109	Radiated Emissions	PASS	2007-9-7
FCC Part 24 Requirement				
1	§2.106 §24.229	Frequencies	PASS	2007-9-3
2	§2.1046	Conducted RF Output Power	PASS	2007-9-3
3	§2.1049	20dB Occupied Bandwidth	PASS	2007-9-3
4	§2.1055 §24.235	Frequency Stability	PASS	2007-9-3
5	§2.1051 §2.1057 §24.238	Conducted Out of Band Emissions	PASS	2007-9-3
6	§2.1051 §2.1057 §24.238	Band Edge	PASS	2007-9-4
7	§24.232	Transmitter Radiated Power (EIPR/ERP)	PASS	2007-9-19
8	§2.1053 §2.1057 §24.238	Radiated Out of Band Emissions	PASS	2007-9-2

NOTE:

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



## 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 Equipments

No.	Description	Specification
1	System Simulator	Manufacturer: Rohde&Schwarz Model No.: CMU200 Serial No.: 100448
2	System Simulator	Manufacturer: Agilent Model No.: E5515C Serial No.: GB43130131
3	Spectrum Analyzer	Manufacturer: Agilent Model No.: E7405A Serial No.: US44210471
4	Telecommunication Antenna	Manufacturer: European Antennas Model No.: PSA-45010R/356 Serial No.: 403688-001
5	Trilogy Antenna	Manufacturer: Schwarzbeck Model No.: VULB 9163 Serial No.: 9163-274
6	Horn Antenna	Manufacturer: Schwarzbeck Model No.: BBHA 9120C Serial No.: 9120C-384
7	Power Splitter	Manufacturer: WEINSCHEL Model No.: 1506A Serial No.: NW521
8	Anechoic Chamber	Manufacturer: Albatross Projects GmbH
9	DC Power Supply	Manufacturer: Good Will Instrument Co., Ltd.
10	Temperature Chamber	Manufacturer: Chongqing YinHe Experimental Equip. Co., Ltd.

**NOTE:**

1. Equipments listed above have been calibrated and are in the period of validation.

**2.3.3 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):	96



### 3. 47 CFR PART 15B REQUIREMENTS

#### 3.1 General Information

##### 3.1.1 Test Mode

According to the functions of the EUT, several Test Modes listed below should be tested (also refer to section **Error! Reference source not found.** for the test setup information):

##### "CALL\_\_MS\_BTHS " Test Mode:

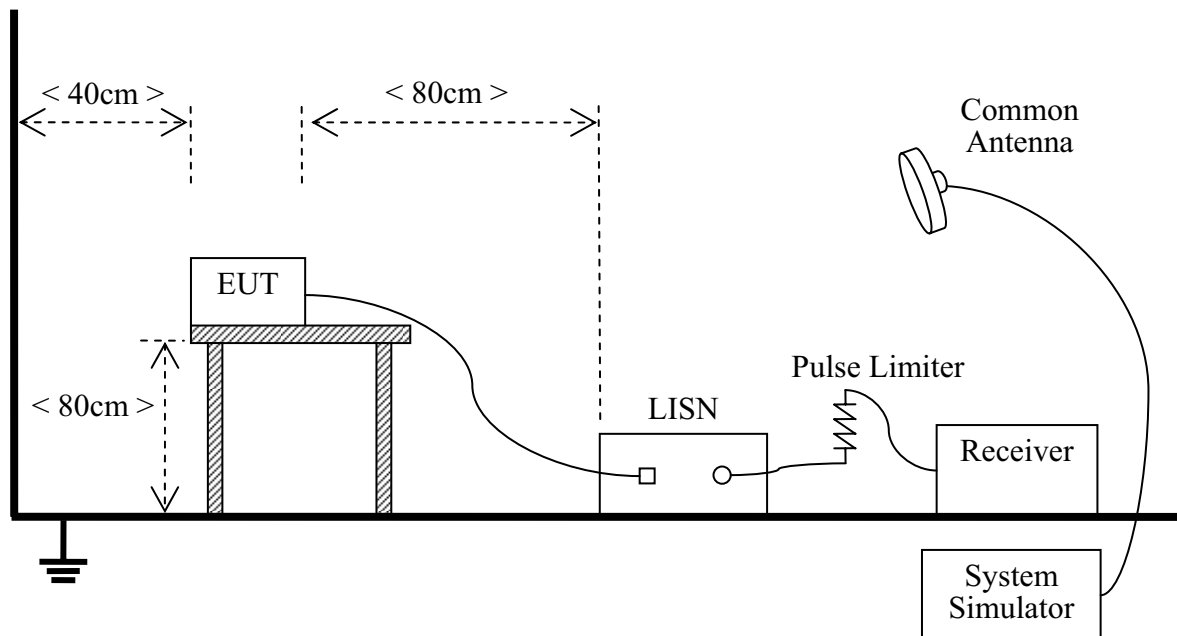
The EUT serves mainly as a mobile phone.

The EUT configuration is MS + Battery + Charger. During the measurement, the Charger which is powered by 220V 50Hz AC mains supply keeps charging the emptied Battery.

The EUT is commanded via a System Simulator to operate at GSM 1900MHz band, and to work at the maximum output power i.e. Power Control Level (PCL) = 0, Power Class = 1; the operating channel number is set to middle ARFCN 661. A call is established between the EUT and the System Simulator.

### 3.1.2 Test Setup:

### 3.1.2.1 Conducted Emission Test:

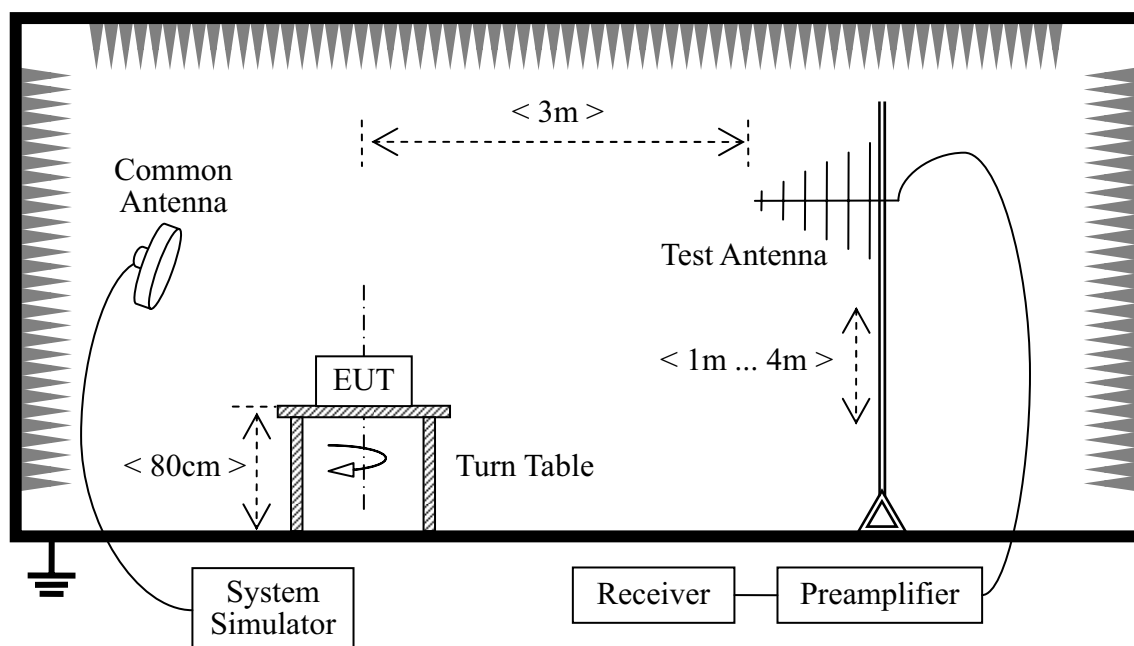


The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides  $50\Omega/50\mu\text{H}$  of coupling impedance for the measuring instrument. 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.

### Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Agilent	E7405A	US44210471	2007.07	1year
LISN	Schwarzbeck	NSLK 8127	812744	2007.08	1year
Pulse Limiter (20dB)	Schwarzbeck	VTSD 9561-D	9391	(n.a.)	(n.a.)
System Simulator	Agilent	E5515C	GB43130131	2007.06	1year

### 3.1.2.2 Radiated Emission 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).

#### Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Agilent	E7405A	US44210471	2007.07	1year
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2006.08	2year
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2007.07	1year
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2007.07	1year
System Simulator	Agilent	E5515C	GB43130131	2007.06	1year

## 3.2 Conducted Emission

### 3.2.1 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:

- 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.

### 3.2.2 Test Description

See section 3.1.2.1 of this report.

### 3.2.3 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.

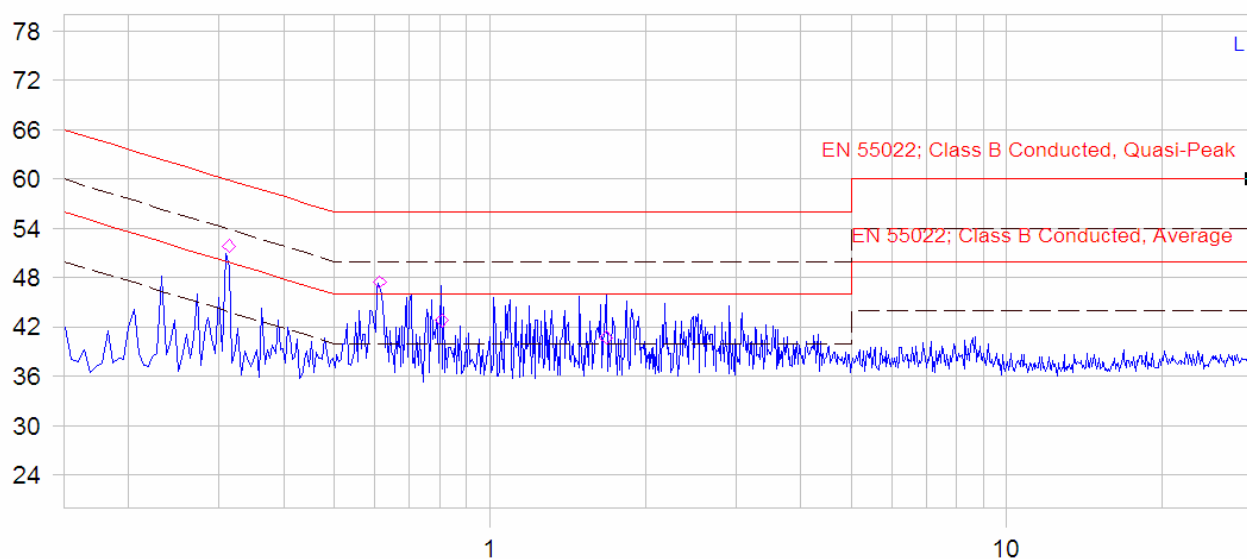
#### Test Verdict Recorded for Suspicious Points

No.	@Frequency (MHz)	Measured Emission Level (dB $\mu$ V)				Limit (dB $\mu$ V)		Verdict
		PK	QP	AV	Phase	QP	AV	
1	0.314	51.9	46.7	31.2	L	59.9	49.9	PASS
2	0.612	47.5	44.4	33.6	L	56.0	46.0	PASS
3	0.809	42.8	34.5	22.7	L	56.0	46.0	PASS
4	1.680	40.7	35.1	22.0	L	56.0	46.0	PASS
5	0.279	50.9	43.0	24.3	N	60.9	50.9	PASS
6	0.417	40.3	31.9	24.0	N	57.5	47.5	PASS
7	0.725	43.8	37.6	23.2	N	56.0	46.0	PASS
8	0.984	46.6	35.3	22.5	N	56.00	46.00	PASS
9	1.700	43.7	35.9	22.4	N	56.00	46.00	PASS
10	2.726	40.8	32.9	21.9	N	56.00	46.00	PASS

#### Test Plot



dBuV

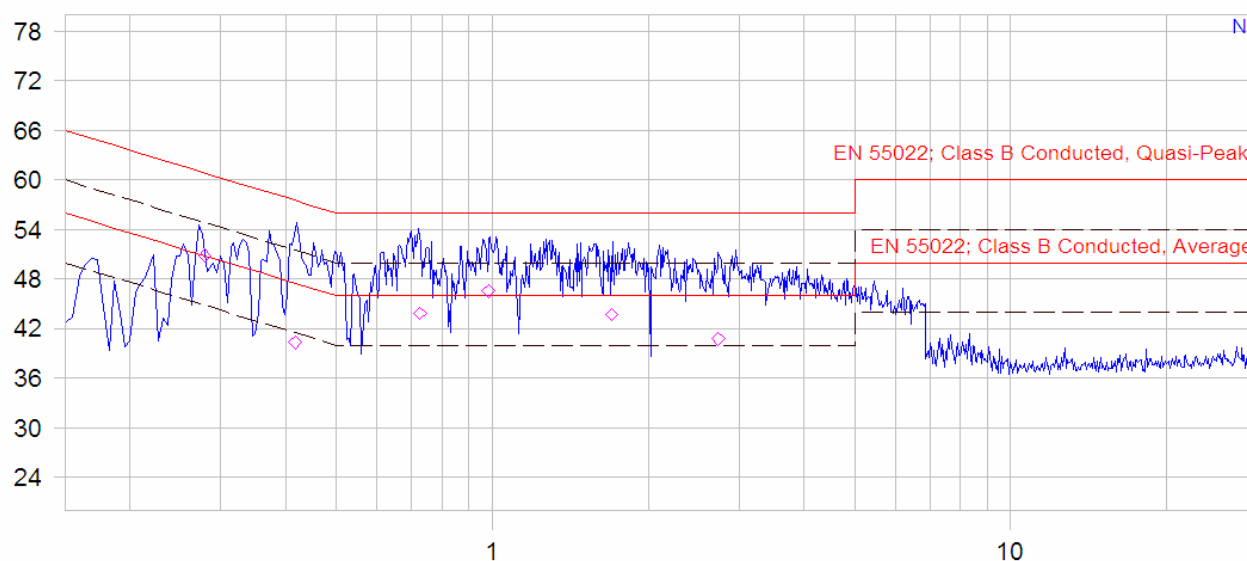


2007-8-24 12:05:42

(Start = 0.15, Stop = 30.00) MHz

(Plot A: L Phase)

dBuV



2007-8-24 11:59:12

(Start = 0.15, Stop = 30.00) MHz

(Plot B: N Phase)

### 3.3 Radiated Emission

#### 3.3.1 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:

- 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.

#### 3.3.2 Test Description

See section 3.1.2.2 of this report.

#### 3.3.3 Test Result

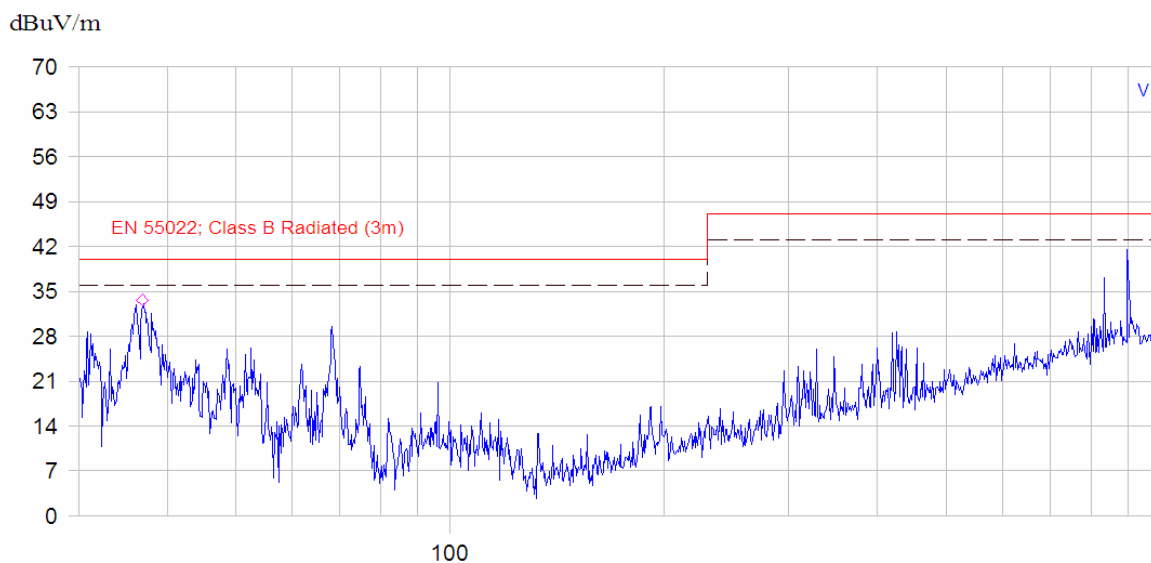
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform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

##### 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	QK	Antenna Polarization		
1	36.881	33.6	----	Vertical	40.0	PASS
2	198.262	33.2	30.3	Horizontal	40.0	PASS

##### Test Plot

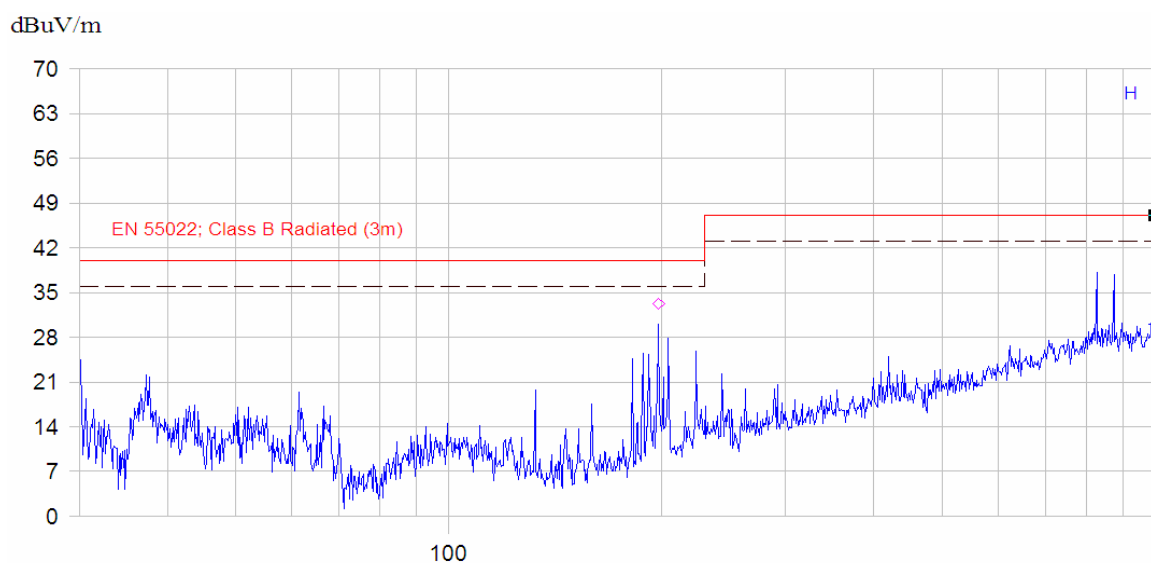
Note: Following is the plots for emission measurement; please note that marked spikes with circle should be ignored because they are MS and SS carrier frequency.



2007-9-6 17:43:16

(Start = 30.00, Stop = 1000.00) MHz

(Plot A: Test Antenna Vertical)



2007-9-6 17:54:10

(Start = 30.00, Stop = 1000.00) MHz

(Plot B: Test Antenna Horizontal)

## 4. 47 CFR PART 2, PART 24E REQUIREMENTS

### 4.1 Frequencies

#### 4.1.1 Requirement

According to FCC section 24.229, the frequencies available in the Broadband PCS services are listed as below, in accordance with the frequency allocations table of FCC section 2.106.

(a) The following frequency blocks are available for assignment on an MTA basis:

Block A: 1850 - 1865MHz paired with 1930 - 1945MHz;

Block B: 1870 - 1885MHz paired with 1950 - 1965MHz.

(b) The following frequency blocks are available for assignment on a BTA basis:

Block C: 1895 - 1910 MHz paired with 1975 - 1990MHz;

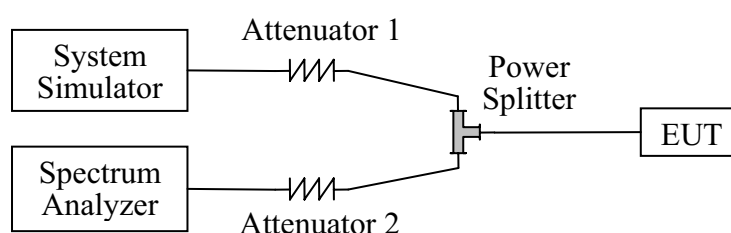
Block D: 1865 - 1870 MHz paired with 1945 - 1950MHz;

Block E: 1885 - 1890 MHz paired with 1965 - 1970MHz;

Block F: 1890 - 1895 MHz paired with 1970 - 1975MHz.

#### 4.1.2 Test Description

##### 1. Test Setup:



The EUT, which is powered by the Battery, is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 0 and Power Class = 1. A call is established between the EUT and the SS.

##### 2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2007.06	1year
Spectrum Analyzer	Agilent	E7405A	US44210471	2007.07	1year



Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Power Splitter	Weinschel	1506A	NW521	(n.a.)	(n.a.)
Attenuator 1	Resnet	20dB	(n.a.)	(n.a.)	(n.a.)
Attenuator 2	Resnet	3dB	(n.a.)	(n.a.)	(n.a.)

### 4.1.3 Test Result

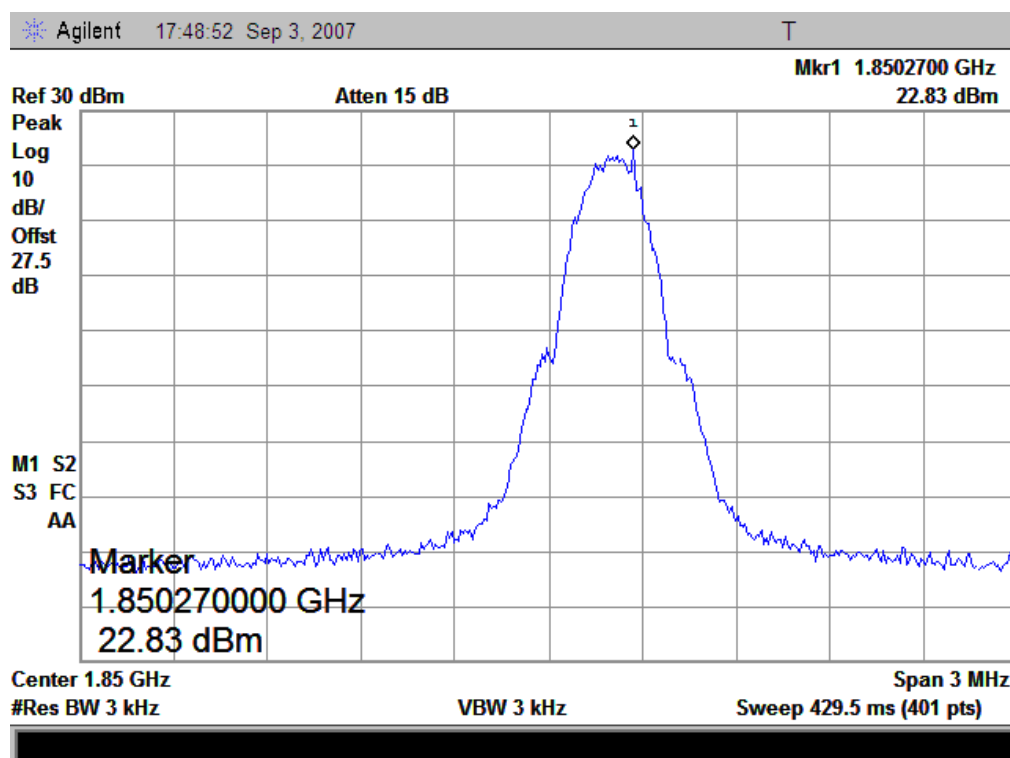
The Tx frequency arrangement of the PCS 1900MHz band employed by the EUT should be from 1850.2MHz to 1909.8MHz (the corresponding frequency block is from 1850MHz to 1910MHz). Here the lowest and highest channels are tested to verify the EUT's using the frequency block required.

#### 1. Test Verdict:

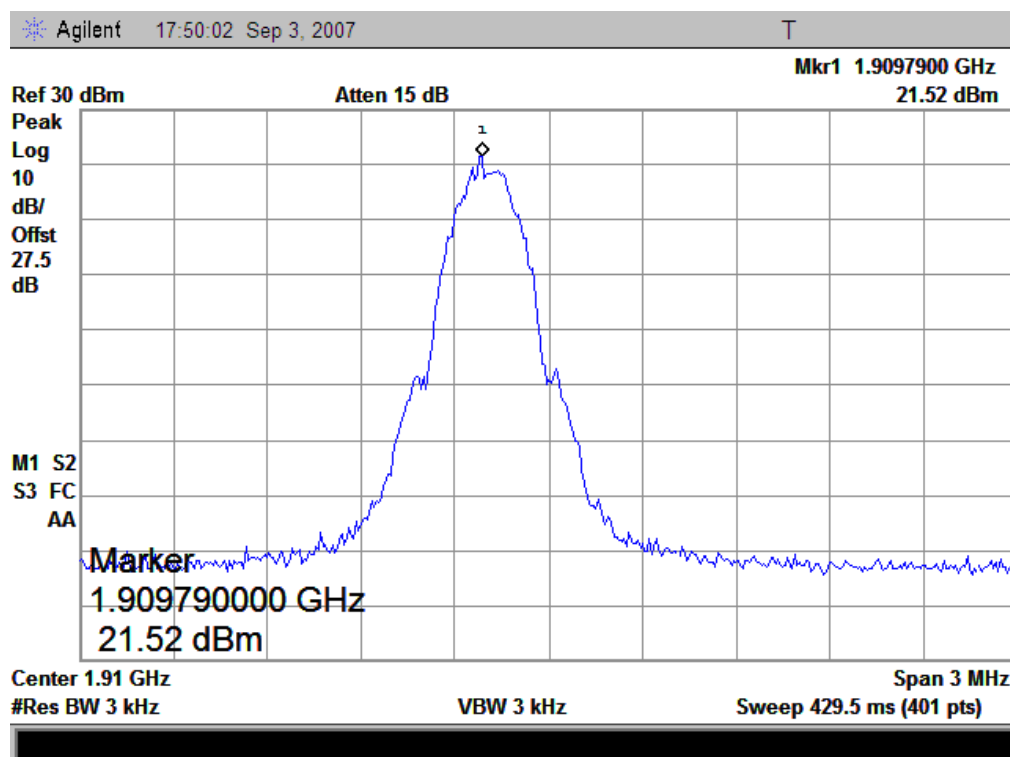
The required frequency block is employed legally, the verdict is PASS.

Channel	Frequency (MHz)	Measured Carrier (dBm)	Refer to Plot
512	1850.2	22.83	Plot A
810	1909.8	21.52	Plot B

#### 2. Test Plot:



(Plot A: Channel = 512)



(Plot B: Channel = 810)

## 4.2 Conducted RF Output Power

### 4.2.1 Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

### 4.2.2 Test Description

See section 4.1.2 of this report.

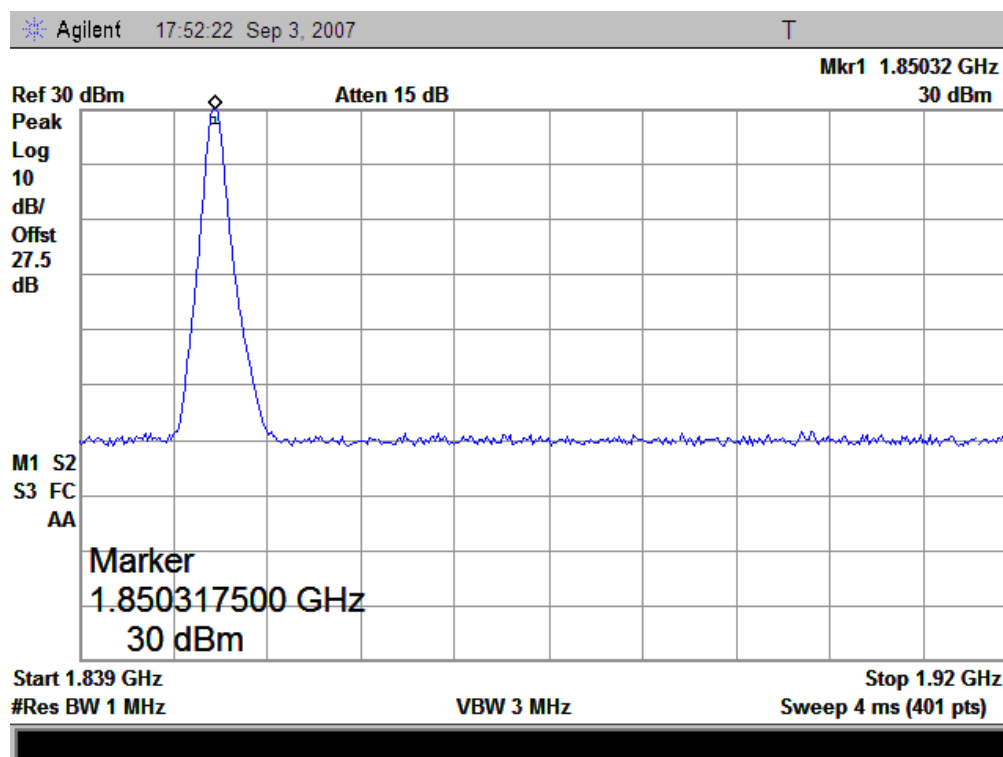
### 4.2.3 Test Result

Here the lowest, middle and highest channels are selected to perform testing to verify the conducted RF output power of the EUT. For the mobile phone operates at PCL=0 (when Power Class is 1), the rated conducted RF output power is 30dBm within the tolerance of  $\pm 3$ dB.

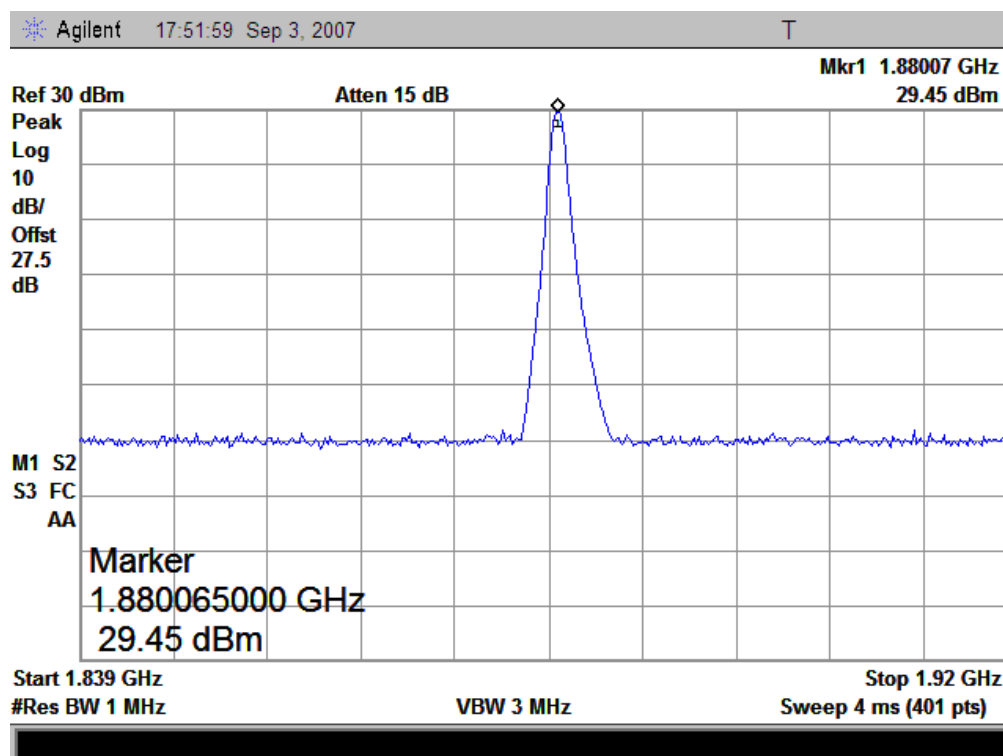
#### 1. Test Verdict:

Channel	Frequency (MHz)	Measured Output Power		Rated Output Power		Verdict
		dBm	Refer to Plot	dBm	Tolerance (dB)	
512	1850.2	30.00	Plot A	30	$\pm 3$	PASS
661	1880.0	29.45	Plot B			PASS
810	1909.8	28.57	Plot C			PASS

#### 2. Test Plot:

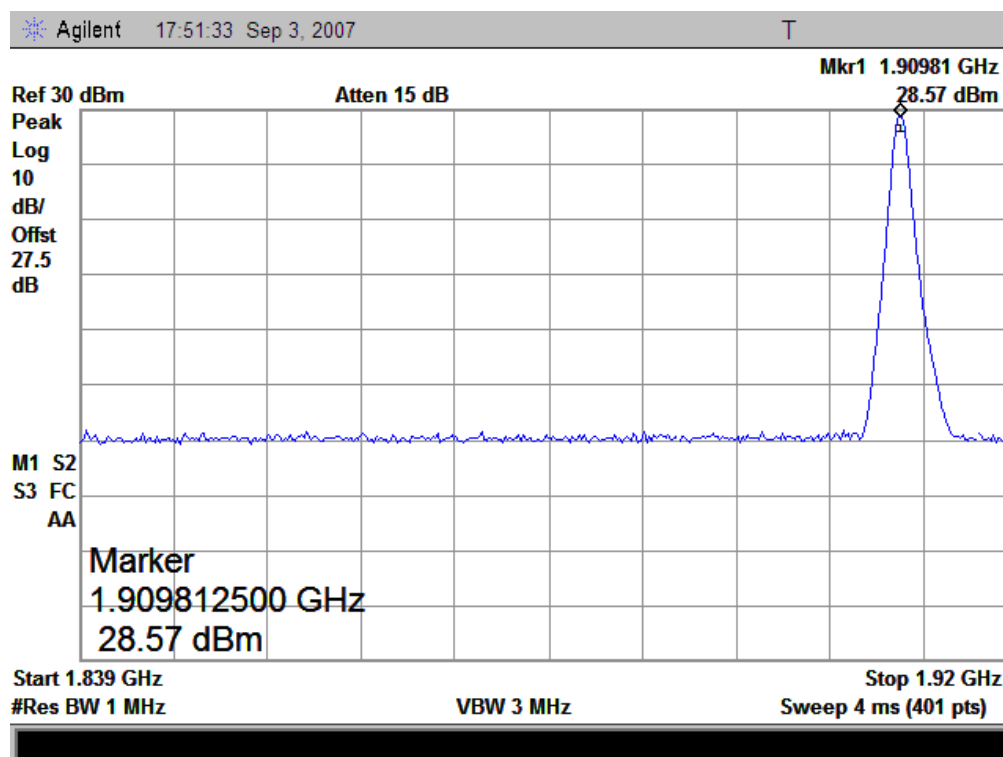


(Plot A: Channel = 512)



(Plot B: Channel = 661)





(Plot C: Channel = 810)

## 4.3 20dB Occupied Bandwidth

### 4.3.1 Definition

According to FCC section 2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

Occupied bandwidth is also known as the 99% emission bandwidth, or 20dB bandwidth ( $10 \cdot \log 1\% = 20\text{dB}$ ) taking the total RF output power as reference.

### 4.3.2 Test Description

See section 4.1.2 of this report.

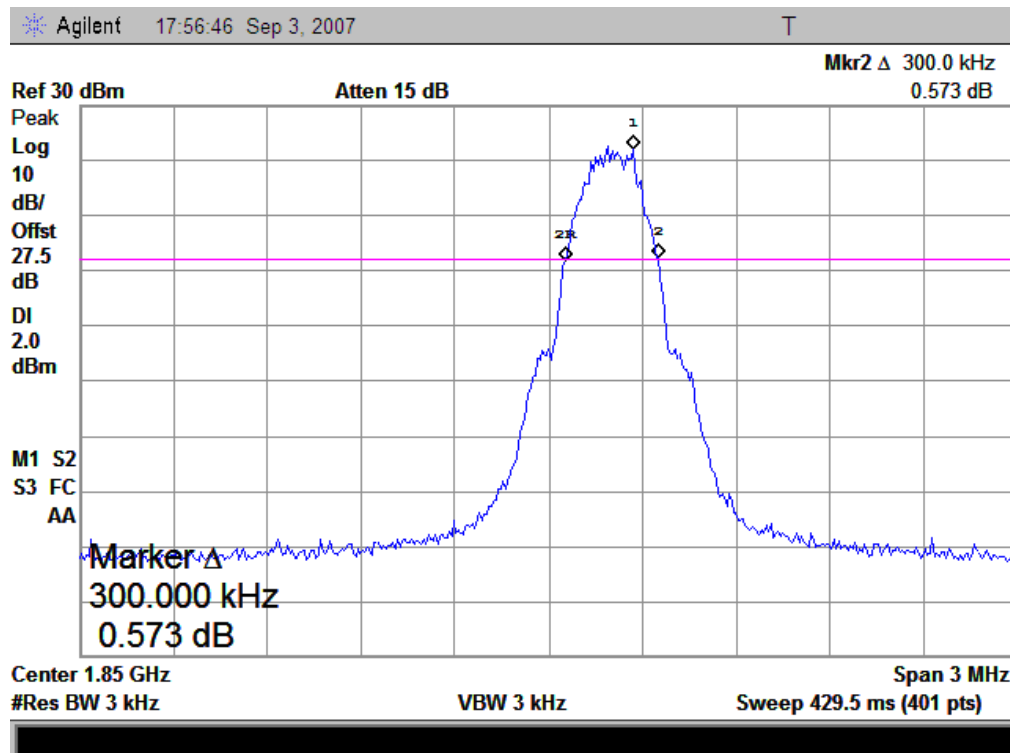
### 4.3.3 Test Verdict

Here the lowest, middle and highest channels are tested to record the 20dB occupied bandwidth, it's about 300kHz.

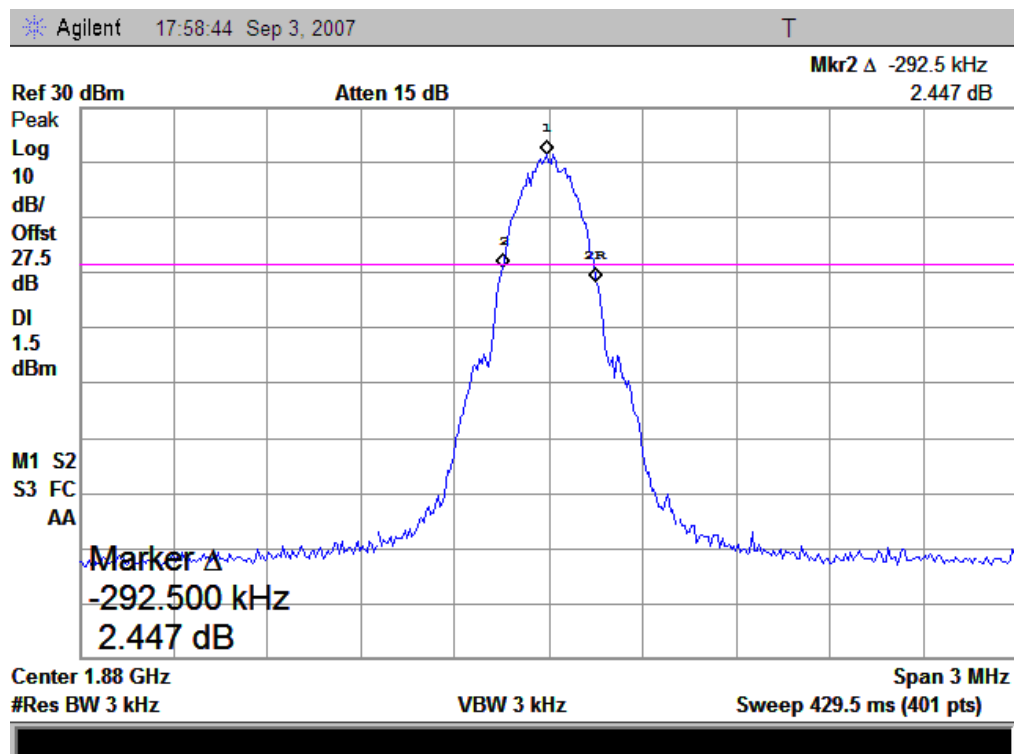
1. Test Verdict:

Channel	Frequency (MHz)	Measured 20dB Occupied Bandwidth (kHz)	Refer to Plot
512	1850.2	300.0	Plot A
661	1880.0	292.5	Plot B
810	1909.8	292.5	Plot C

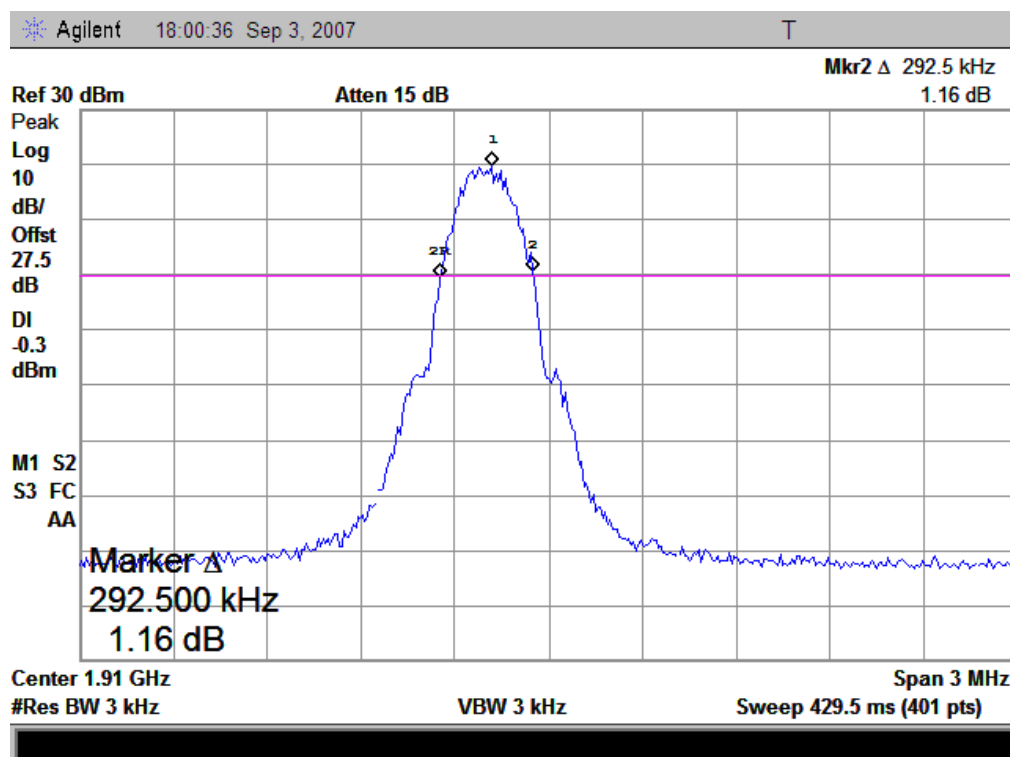
2. Test Plot:



(Plot A: Channel = 512)



(Plot B: Channel = 661)



(Plot C: Channel = 810)



## 4.4 Frequency Stability

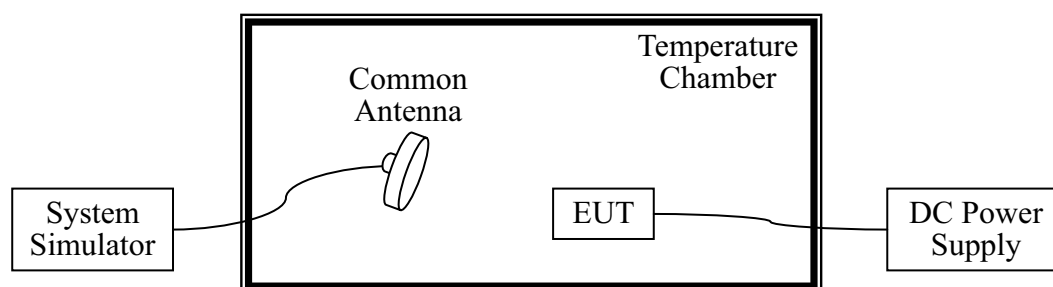
### 4.4.1 Requirement

According to FCC section 24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

- (a) The temperature is varied from  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  at intervals of not more than  $10^{\circ}\text{C}$ .
- (b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

### 4.4.2 Test Description

#### 1. Test Setup:



The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power i.e. Power Control Level (PCL) = 0 and Power Class = 1. A call is established between the EUT and the SS via a Common Antenna.

#### 2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2007.06	1year
DC Power Supply	Good Will	GPS-3030DD	EF920938	2007.06	2year
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2007.03	1year

### 4.4.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 3.7VDC, 4.2VDC and 3.6VDC, which are specified by the applicant; the normal temperature here used is  $25^{\circ}\text{C}$ . The frequency

deviation limit is  $\pm 1$ ppm.

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 512 (1850.2MHz)		Channel = 661 (1880.0MHz)		Channel = 810 (1909.8MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.7	-30	20.34	±1850.2	-11.56	±1880.0	13.46	±1909.8	PASS
	-20	16.29		16.41		-10.75		
	-10	-13.16		-9.47		-10.11		
	0	15.88		6.54		-8.42		
	+10	-12.59		10.52		14.52		
	+20	-10.08		-11.85		10.52		
	+30	15.85		1.85		-17.31		
	+40	-16.32		5.84		18.56		
	+50	-13.58		-8.76		9.45		
4.2	+25	16.09		6.75		14.23		
3.6	+25	12.25		-7.12		-15.75		

## 4.5 Conducted Out of Band Emissions

### 4.5.1 Requirement

According to FCC section 24.238(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43+10*\log(P)$ dB. This calculated to be -13dBm.

### 4.5.2 Test Description

See section 4.1.2 of this report.

### 4.5.3 Test Result

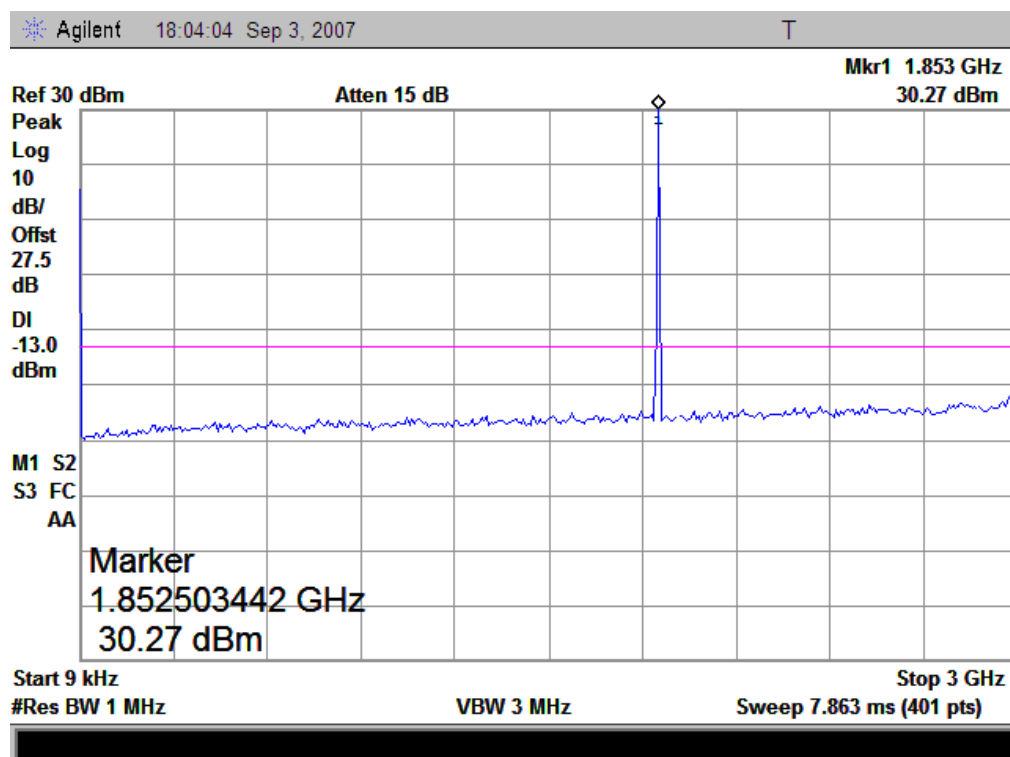
The measurement frequency range is from 30MHz to the 10<sup>th</sup> harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.

#### 1. Test Verdict:

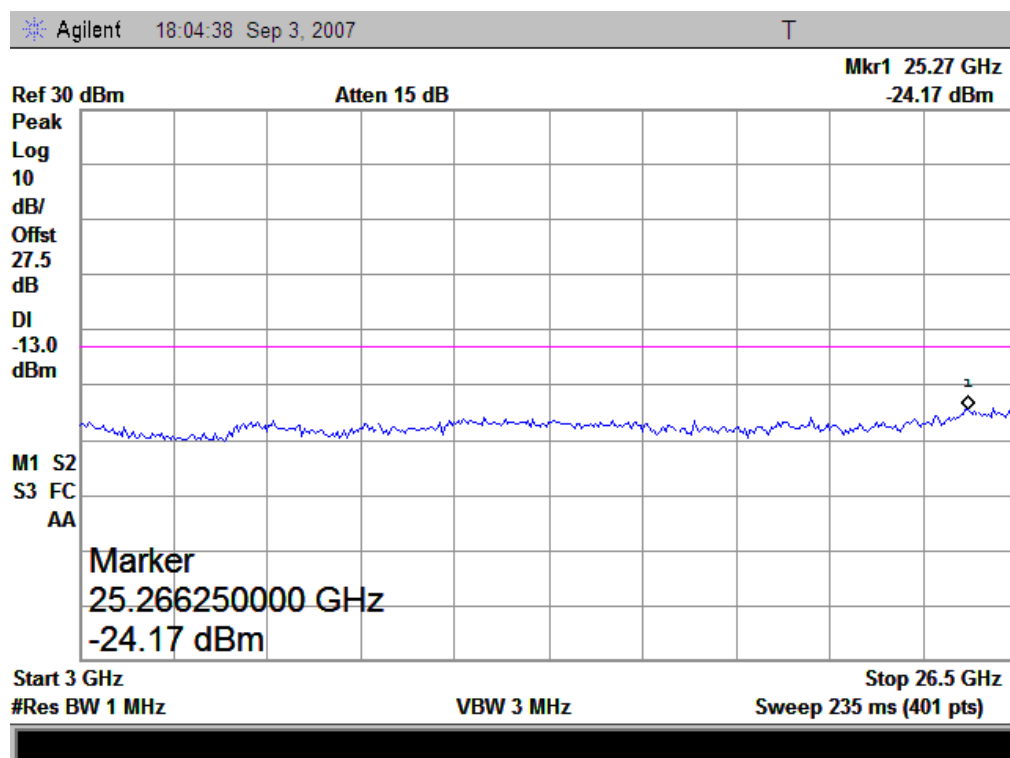
Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
512	1850.2	---	Plot A.1/A.2	-13	PASS
661	1880.0	---	Plot B.1/B.2		PASS
810	1909.8	---	Plot C.1/C.2		PASS

#### 2. Test Plot for the Whole Measurement Frequency Range:

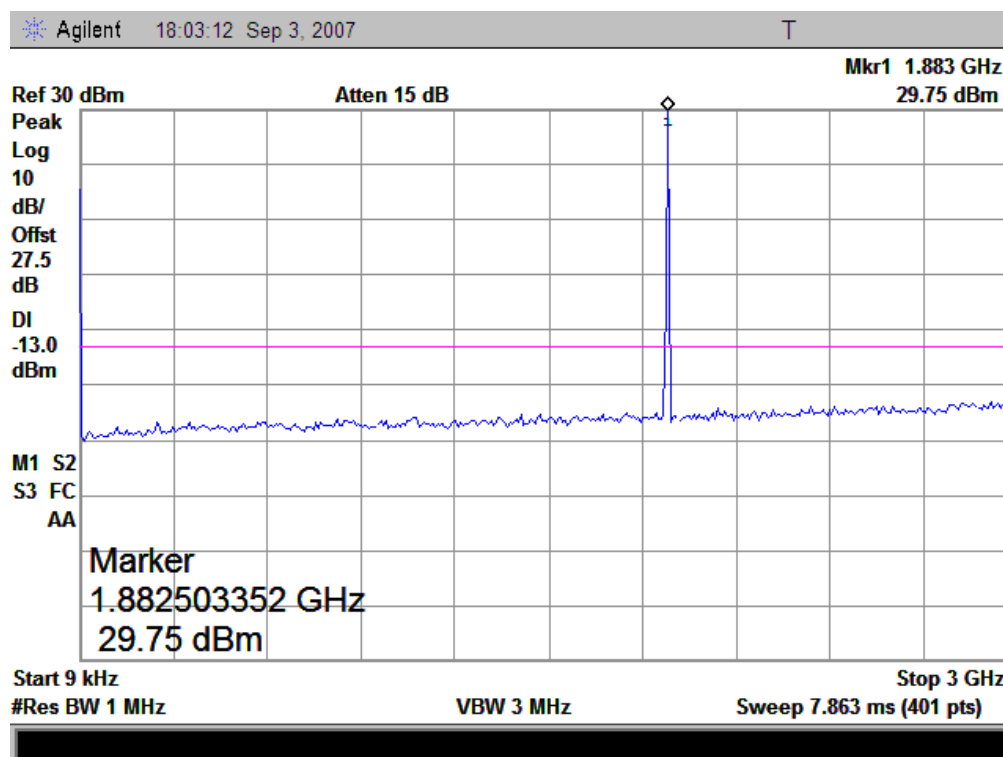
Note: the power of the EUT transmitting frequency should be ignored.



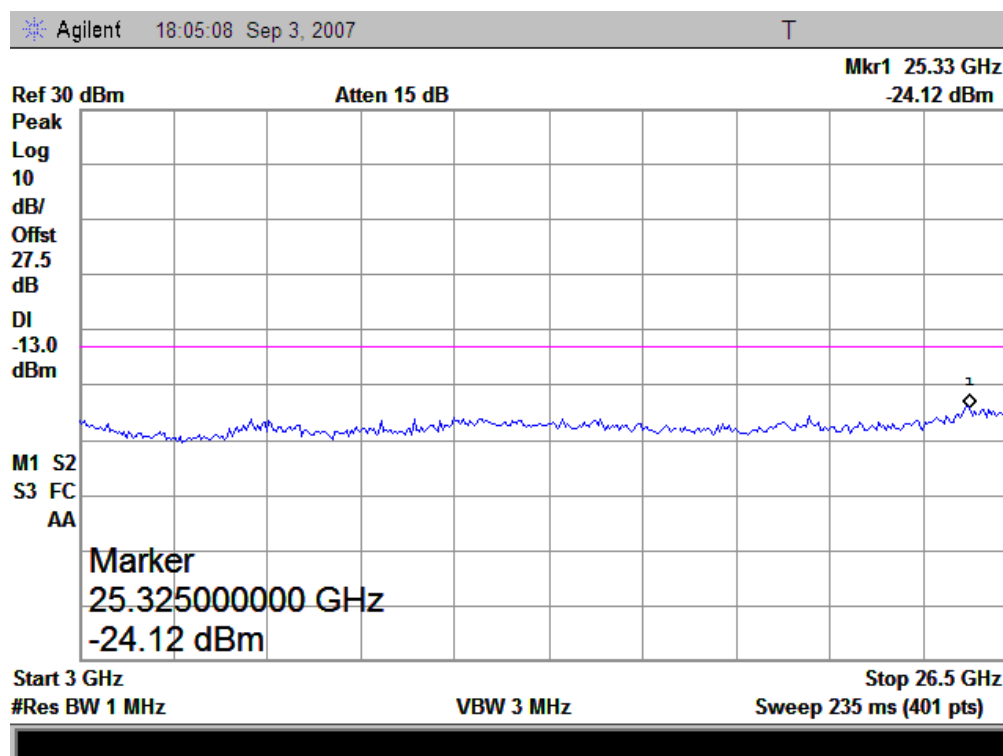
(Plot A.1: Channel = 512, 9 KHz to 3 GHz)



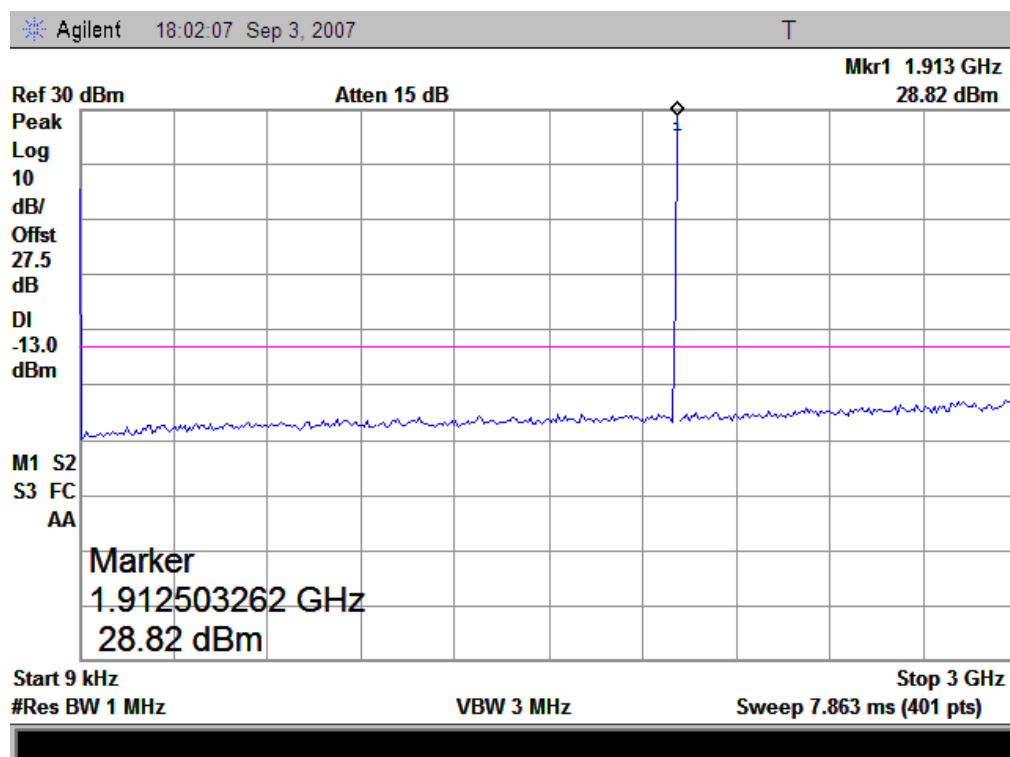
(Plot A.2: Channel = 512, 3 GHz to 26.5 GHz)



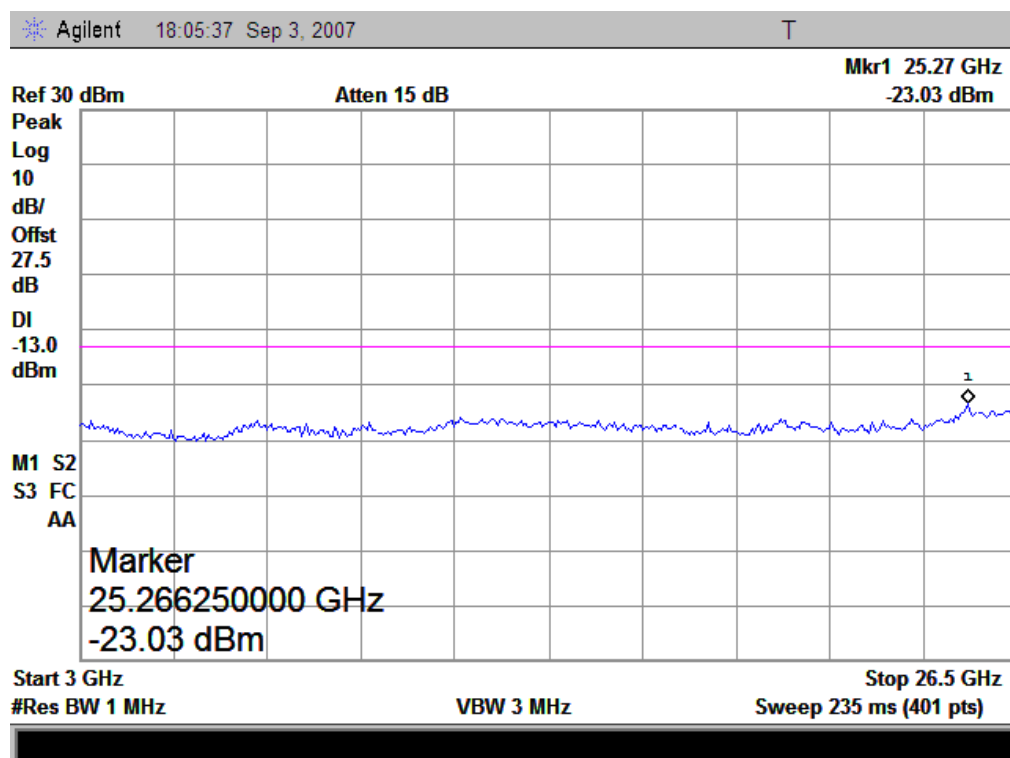
(Plot B.1: Channel = 661, 9 KHz to 3 GHz)



(Plot B.2: Channel = 661, 3 GHz to 26.5 GHz)



(Plot C.1: Channel = 810, 9 KHz to 3 GHz)



(Plot C.2: Channel = 810, 3GHz to 26.5GHz)

## 4.6 Band Edge

### 4.6.1 Requirement

According to FCC section 24.238(b), in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth (26dB emission bandwidth) of the fundamental emission of the transmitter may be employed.

### 4.6.2 Test Description

See section 4.1.2 of this report.

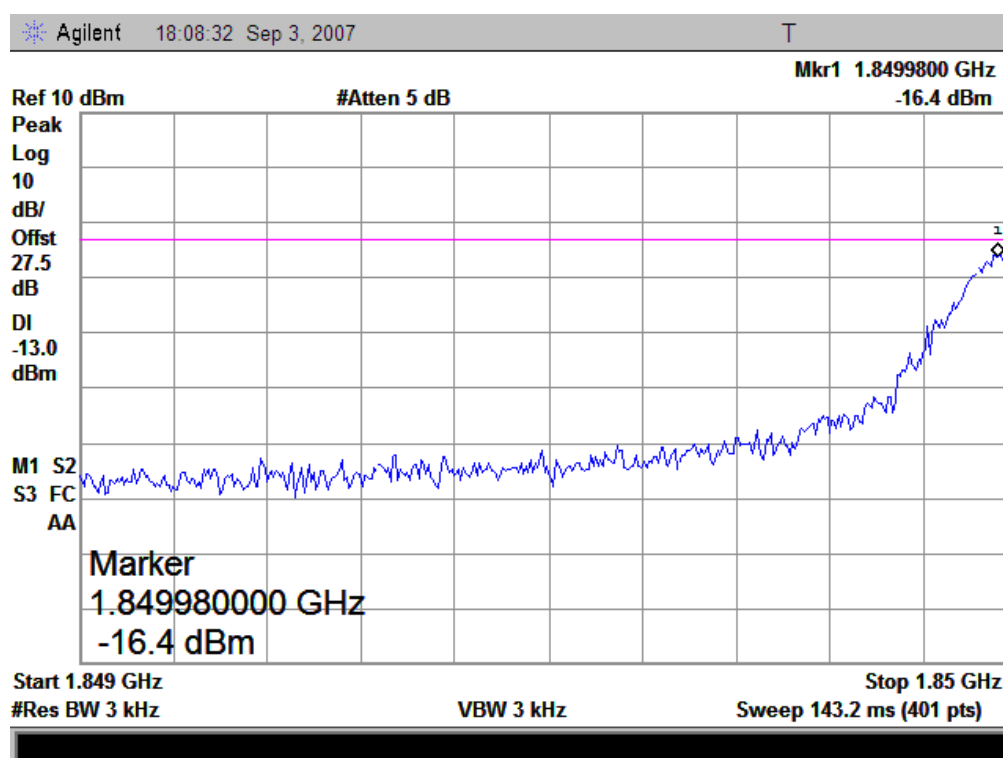
### 4.6.3 Test Result

The lowest and highest channels are tested to verify the band edge emissions.

#### 1. Test Verdict:

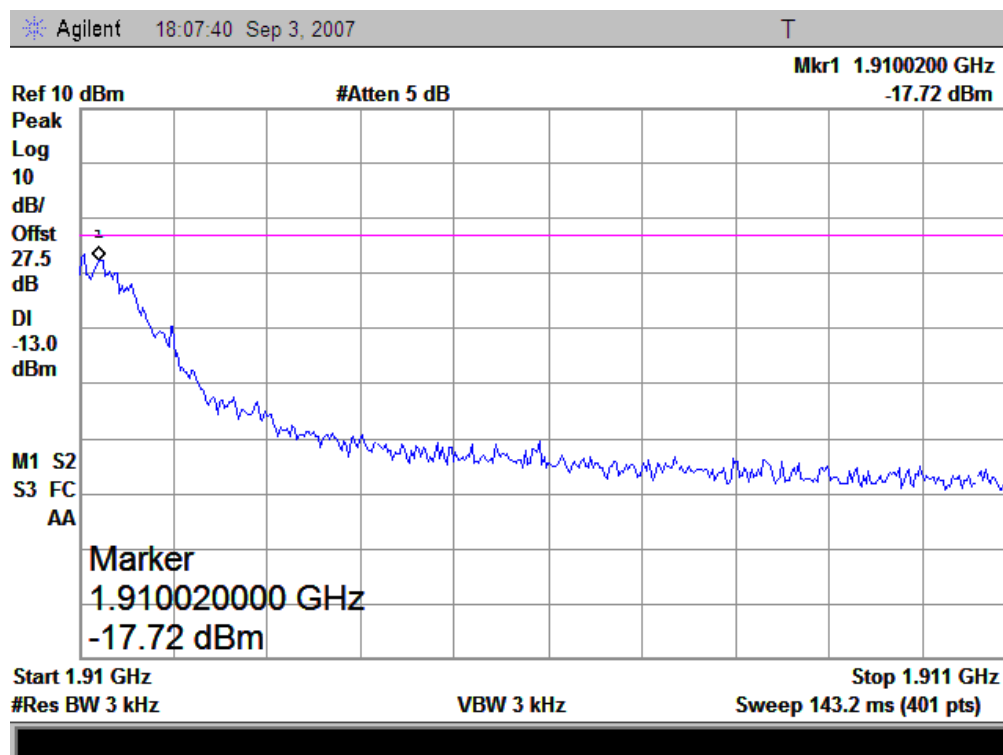
Channel	Frequency (MHz)	Measured Max. Band Edge Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
512	1850.2	-16.40	Plat A	-13	PASS
810	1909.8	-17.72	Plot B		PASS

#### 2. Test Plot:





(Plot A: Channel = 512)



(Plot B: Channel = 810)

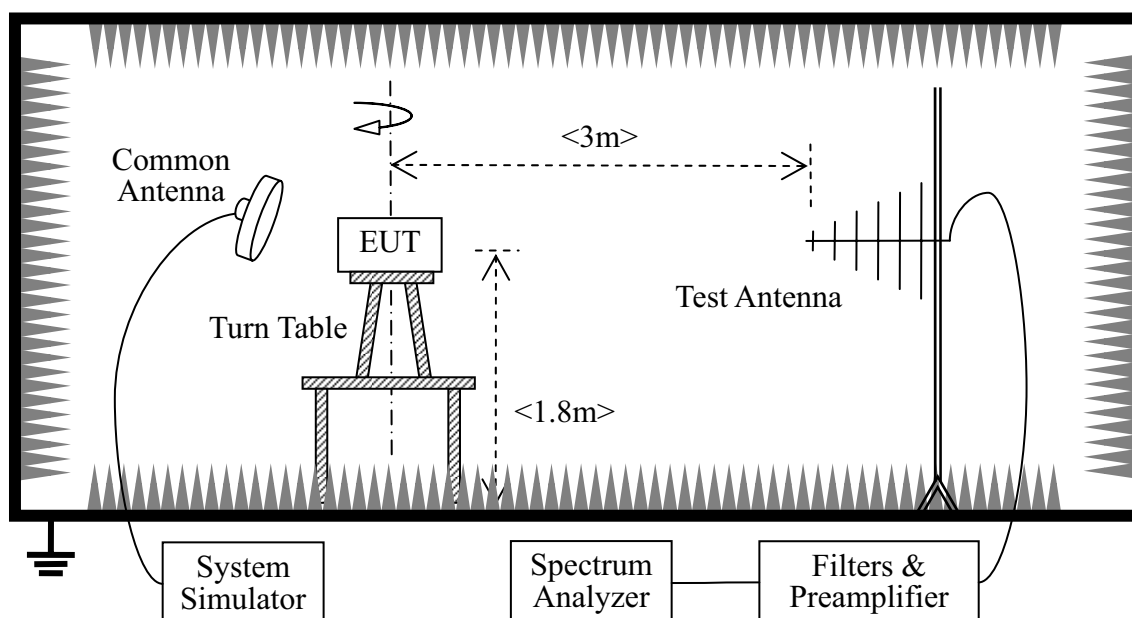
## 4.7 Transmitter Radiated Power (EIRP/ERP)

### 4.7.1 Requirement

According to FCC section 24.232, the broadband PCS mobile station is limited to 2Watts e.i.r.p. peak power.

### 4.7.2 Test Description

#### 1. Test Setup:



The EUT, which is powered by the Battery charged with the AC Adapter, is located in a 3m Full-Anechoic Chamber; the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and are calculated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 0 and Power Class = 1; and a call is established between the EUT and the SS via a Common Antenna.

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) or a Horn one (used for above 3GHz), and it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.

#### 2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2006.06	1year
Spectrum Analyzer	Agilent	E7405A	US44210471	2006.07	1year
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2006.08	2year

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2006.07	1year
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2006.07	1year

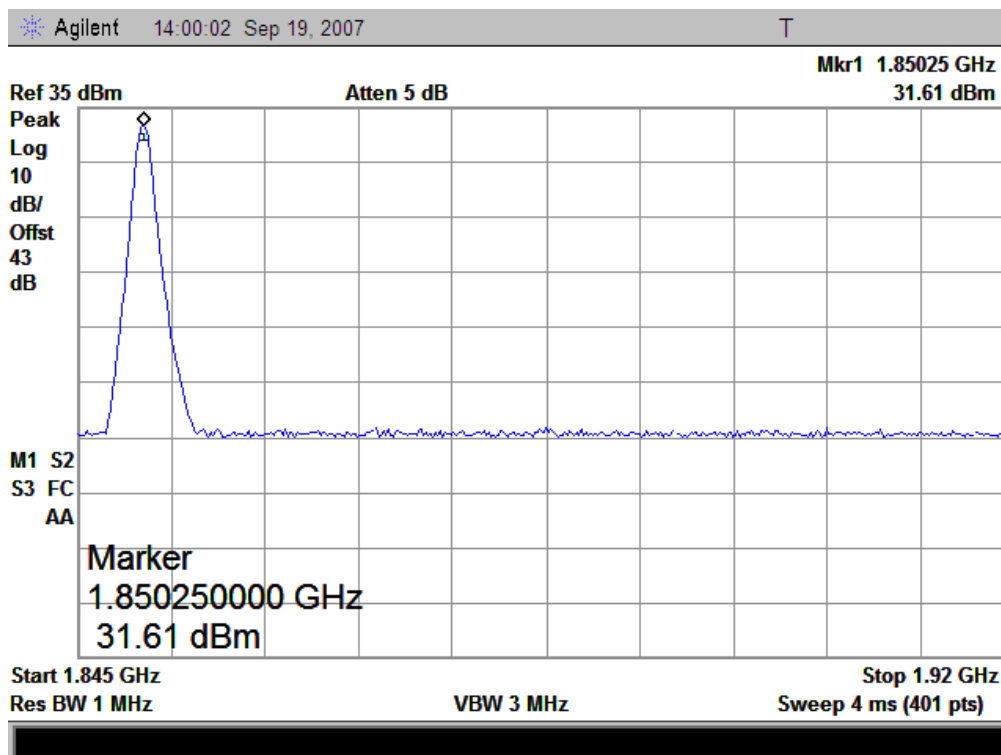
### 4.7.3 Test Result

The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested.

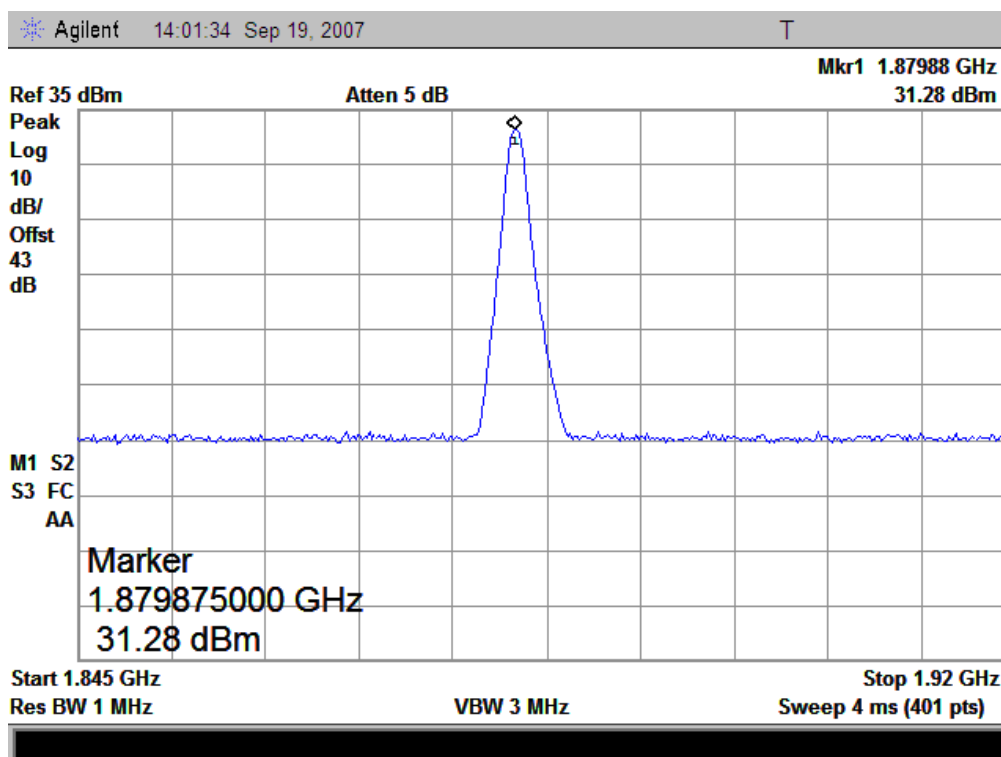
#### 1. Test Verdict:

Channel	Frequency (MHz)	Measured EIRP			Limit		Verdict
		dBm	W	Refer to Plot	dBm	W	
512	1850.2	31.61	1.448	Plot A	33	2	PASS
661	1880.0	31.28	1.343	Plot B			PASS
810	1909.8	29.25	0.841	Plot C			PASS

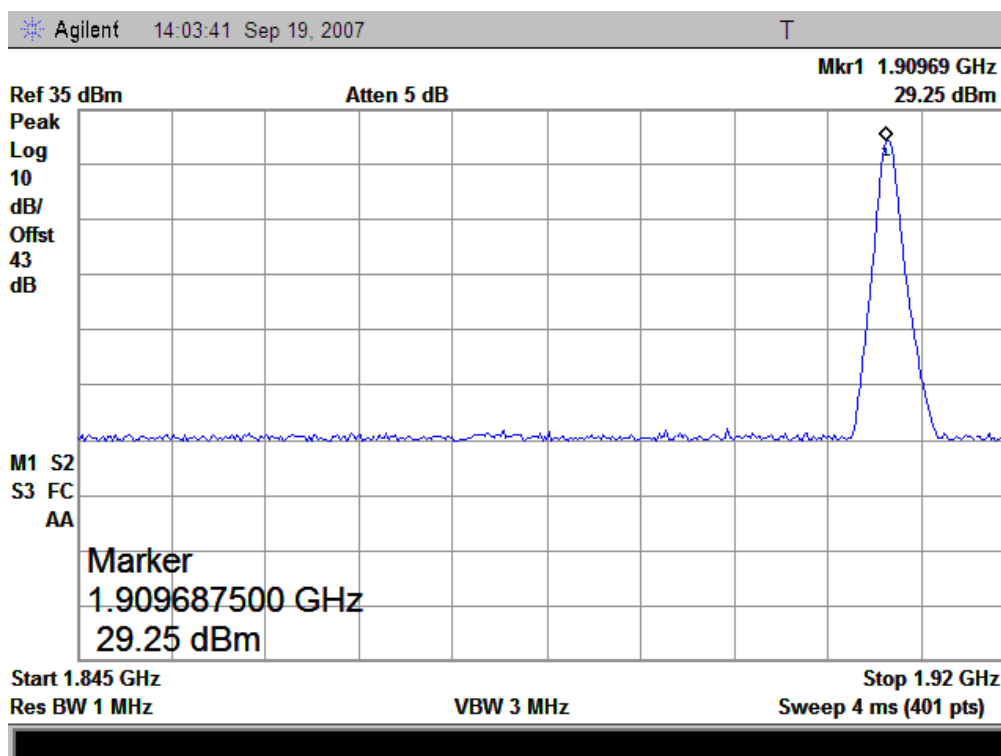
#### 2. Test Plot:



(Plot A: Channel = 512)



(Plot B: Channel = 661)



(Plot C: Channel = 810)

## 4.8 Radiated Out of Band Emissions

### 4.8.1 Requirement

According to FCC section 24.238(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43+10*\log(P)$ dB. This calculated to be -13dBm.

### 4.8.2 Test Description

See section 4.7.2 of this report.

### 4.8.3 Test Result

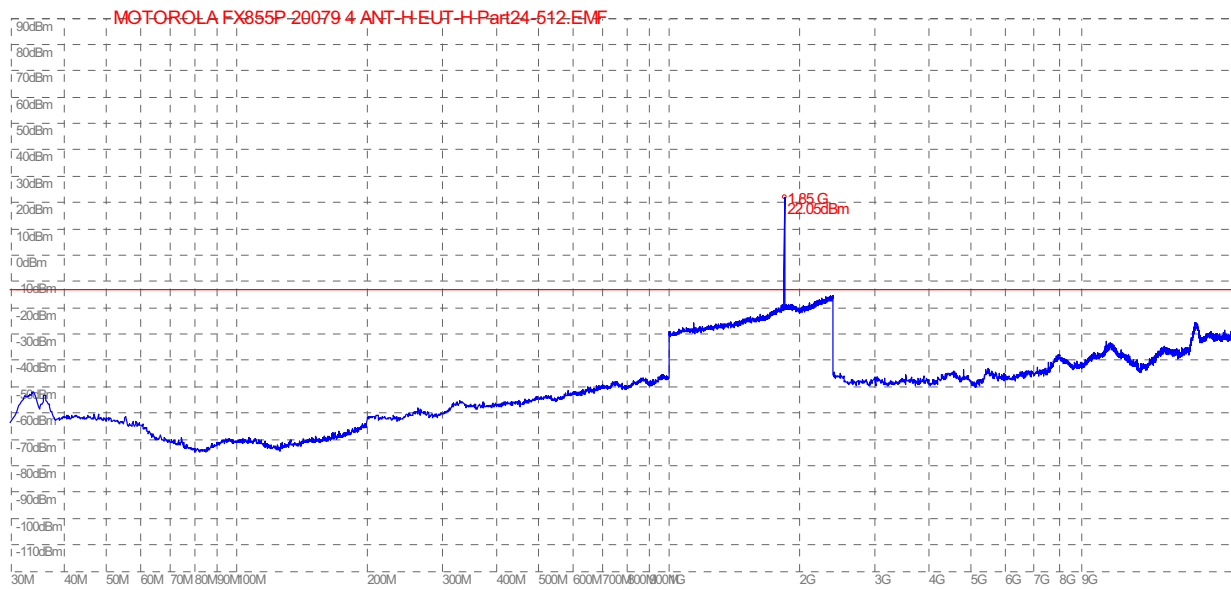
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested to verify the out of band emissions.

#### 1. Test Verdict:

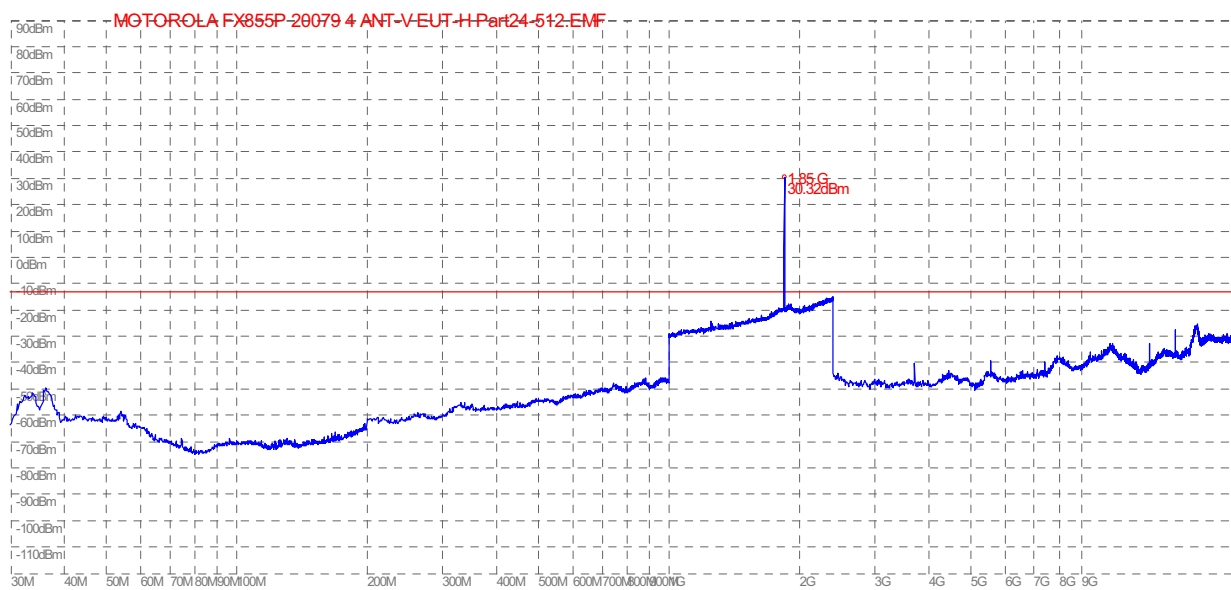
Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)		Refer to Plot	Limit (dBm)	Verdict
		Test Antenna Horizontal	Test Antenna Vertical			
512	1850.2	< -25	< -25	Plot A.1/A.2	-13	PASS
661	1880.0	< -25	< -25	Plot B.1/B.2		PASS
810	1909.8	< -25	< -25	Plot C.1/C.2		PASS

#### 2. Test Plot for the Whole Measurement Frequency Range:

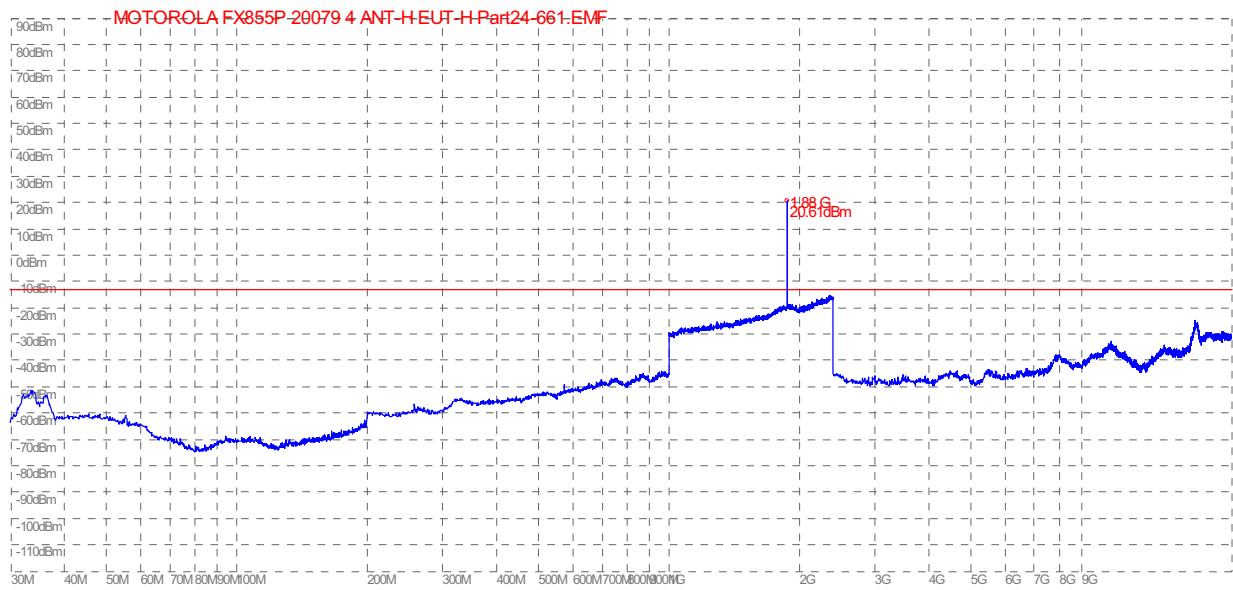
Note: the power of the EUT transmitting frequency should be ignored.



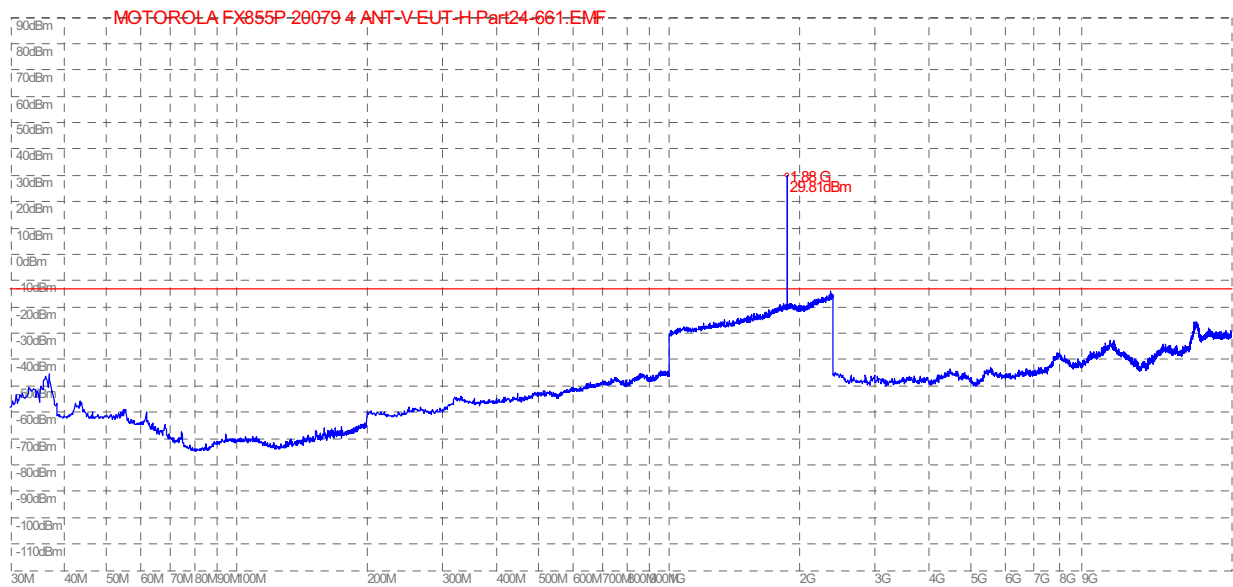
(Plot A.1: Channel = 512, Test Antenna Horizontal)



(Plot A.2: Channel = 512, Test Antenna Vertical)

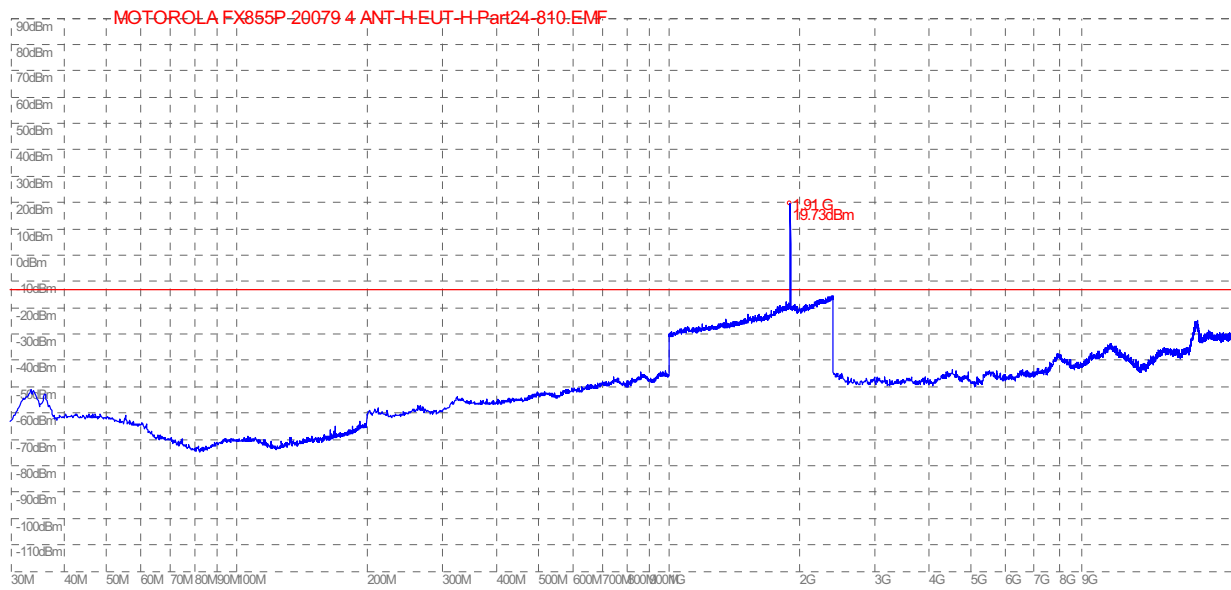


(Plot B.1: Channel = 661, Test Antenna Horizontal)

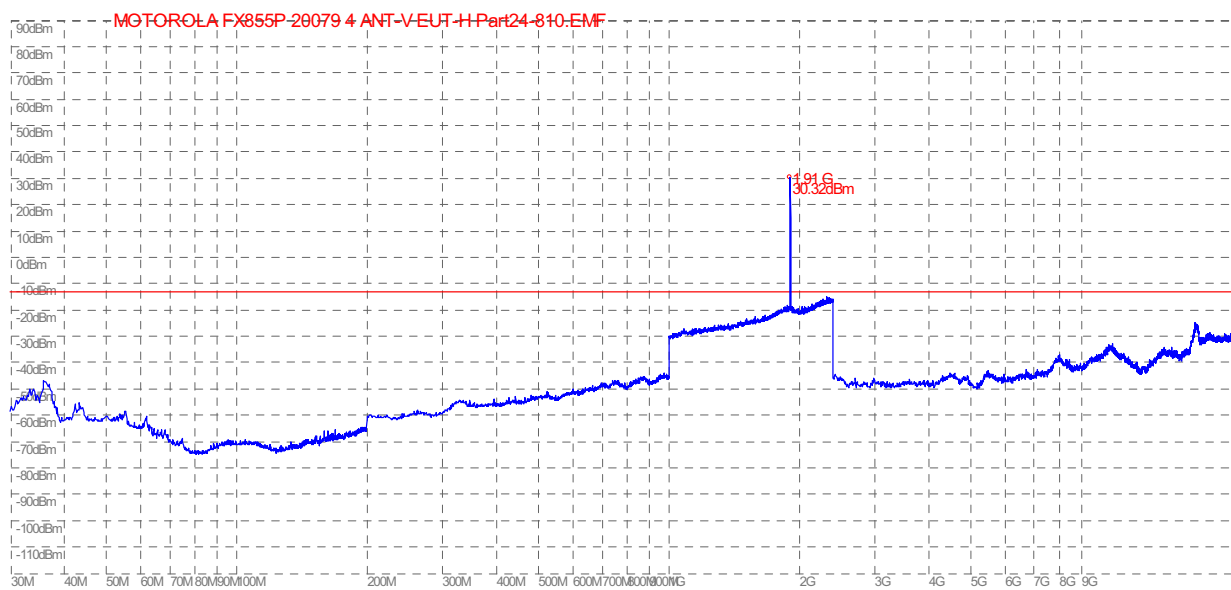


(Plot B.2: Channel = 661, Test Antenna Vertical)





(Plot C.1: Channel = 810, Test Antenna Horizontal)



(Plot C.2: Channel = 810, Test Antenna Vertical)

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