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# FCC Part 24E TEST REPORT

*of*

## GSM900/1800/1900 GPRS Mobile Phone

FCC ID: S5D-KMP6J1CE1  
Model No.: NEC N8605  
Serial No.: 1331605000004674  
Report No.: FCC06-8055  
Date: August 29, 2006

*Prepared for*

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*Prepared by*

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# 1 Test Report Certification

**Product:** GSM900/1800/1900 GPRS Mobile Phone

**FCC ID:** S5D-KMP6J1CE1

**Model No.:** NEC N8605

**Applicant:** Wuhan NEC Mobile Communication Co., Ltd.

**Applicant Address:** Building No.3, Optics Valley Construction & Industrial Park, East Lake New Technology Development Zone, Wuhan, Hubei 430223, China

**Manufacturer:** Wuhan NEC Mobile Communication Co., Ltd.

**Manufacturer Address:** Building No.3, Optics Valley Construction & Industrial Park, East Lake New Technology Development Zone, Wuhan, Hubei 430223, China

**Test Standards:** 47 CFR Part 2  
47 CFR Part 24, Subpart E

**Test Result:** PASS

We, Shenzhen Electronic Product Quality Testing Center, hereby certify that the submitted samples of the above item, as detailed in chapter 2.1 of this report, has been tested in our facility. The test record, data evaluation and test configuration represented herein are true and accurate accounts of measurements of the sample's EMC characteristics under the conditions herein specified.

Tested by: Lin Xingsun Date: Aug. 29, 2006  
Lin Xingsun

Checked by: Smart Li Date: Aug 30 2006  
Smart Li

Approved by: Wu Li An Date: Aug. 30, 2006  
Wu Li An



## 2 General Information

### 2.1 Description of EUT

<b>Description:</b>	GSM900/1800/1900 GPRS Mobile Phone
<b>Model No.:</b>	NEC N8605
<b>Emission Designator:</b>	300KGXW
<b>Modulation:</b>	GSM
<b>Frequency:</b>	Tx: 1850.20-1909.80MHz; Rx: 1930.20MHz-1989.80MHz
<b>Power:</b>	1W
<b>Serial No.:</b>	1331605000004674
<b>Hardware Version:</b>	EP4
<b>Software Version:</b>	TF-DF-MODULE-VER-01.06_7

#### NOTE:

1. The EUT is tri-band GSM mobile phone which supports GSM 900MHz, 1800 MHz and 1900 MHz bands. Only PCS 1900MHz band was tested in this report.
2. Please refer to Appendix I for the photographs of the EUT. For a more detailed features description about the EUT, please refer to User's Manual.

### 2.2 Objective

Perform EMC test according to FCC rules Part 2 and Part 24 for FCC ID Certification.

## 2.3 Test Standards and Results

The EUT has been tested according to 47 CFR

- Part 2 Frequency Allocations and Radio Treaty Matters: General Rules and Regulations (10-1-05 Edition)
- Part 24 Personal Communications Services (10-1-05 Edition)

Test items and the results are as bellow:

No	FCC Rules	Test Type	Result	Test Date
1	§2.106 §24.229	Frequencies	PASS	2006.07.19
2	§2.1046	Conducted RF Output Power at Antenna Terminal	PASS	2006.07.19
3	§2.1049	Occupied Bandwidth	PASS	2006.07.19
4	§2.1051 §2.1057 §24.238	Conducted Spurious Emission at Antenna Terminal	PASS	2006.07.19
5	§24.232	Transmitter Radiated Power (EIRP/ERP)	PASS	2006.07.22
6	§2.1053 §2.1057 §24.238	Radiated Spurious Emission	PASS	2006.07.22
7	§2.1055 §24.235	Frequency Stability	PASS	2006.07.24

## 2.4 List of Equipments Used

Description	Manufacturer	Model No.	Cal. Due Date	Serial No.
Test Receiver	Rohde & Schwarz	ESIB26	2007.06.05	A0304218
Loop Antenna	Rohde & Schwarz	HFH2-Z2	2007.06.05	A0304220
Ultra Broadband Ant.	Rohde & Schwarz	HL562	2007.06.05	A0304224
Horn Ant.	Rohde & Schwarz	HF906	2007.06.05	100150
Universal Radio Communication Tester	Rohde & Schwarz	CMU200	2007.06.05	A0304212
Mobile Phone Tester	Willtek	4403	2007.02.10	0811211
3G Communication Antenna	European Antennas	PSA 75301R/170	2007.05.10	A0304213
Temperature Chamber	JAPANTABAI	PSL-4G	2007.02.05	A8708056
Regulated DC Power Supply	Jiangbo	JB-305	--	A0412374
Shield Room	Nanbo Tech	Site 1	2007.01.17	A0304188
Anechoic Chamber	Albatross	EMC12.8×6.8×6.4(m)	2007.04.10	A0304210

## 2.5 Test Facility

Shenzhen Electronic Product Quality Testing Center (SET) is a third party testing organization accredited by China National Accreditation Board for Laboratories (CNAL) according to ISO/IEC 17025. The accreditation certificate number is **L1659**.

The EMC chamber site No.1 (EMC12.8×6.8×6.4(m)), and the radiated and conducted Emission test equipments of SET are constructed and calibrated to meet the FCC requirements ANSI C63.4:2001 and CISPR 22/EN 55022. The FCC Registration Number is **261302**.

The EMC chamber site No.1 (EMC12.8×6.8×6.4(m)) also complies with Canada standard RSS 212, and acceptable to Industry Canada for the performance of radiated measurements. The Industry Canada Registration Number is **IC 5915**.

## 2.6 Environmental conditions

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

- Temperature: 15-35°C
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa



### 3 Frequencies

#### 3.1 Frequency Blocks Available for Broadband PCS

According to FCC §24.229, the frequencies available in the Broadband PCS service are listed as bellow, in accordance with the frequency allocations table of FCC §2.106.

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

Block A: Mobile 1850–1865 MHz, Base 1930–1945 MHz;

Block B: Mobile 1870–1885 MHz, Base 1950–1965 MHz.

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

Block C: Mobile 1895–1910 MHz, Base 1975–1990 MHz;

Block D: Mobile 1865–1870 MHz, Base 1945–1950 MHz;

Block E: Mobile 1885–1890 MHz, Base 1965–1970 MHz;

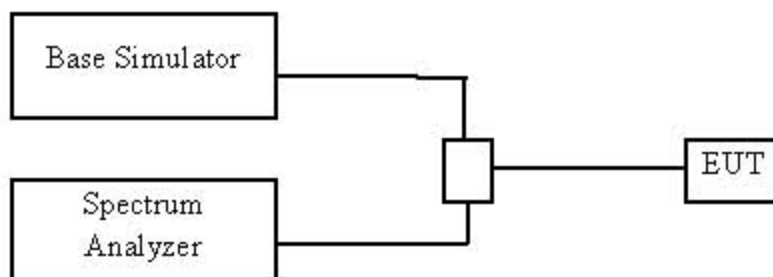
Block F: Mobile 1890–1895 MHz, Base 1970–1975 MHz.

#### 3.2 Test Procedure

- a. The EUT was coupled to the spectrum analyzer and the base station simulator through a power divider. The lost of the cables the test system is calibrated to correct the reading.
- b. The spectrum analyzer was set to Maxpeak Detector function and Maximum Hold mode.
- c. The resolution bandwidth of the spectrum analyzer was set to at least 1% of the emission bandwidth of the fundamental emission of the transmitter. For GSM signal, VBW=RBW=3 kHz; for CDMA signal, VBW=RBW=30 kHz.



### 3.3 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

### 3.4 EUT Setup and Operating Conditions

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

A communication link was established between the MS and a System Simulator (SS).

The MS operated at the maximum output power.

The PCS band channel No.512 (lowest) and 810 (highest) were measured respectively.

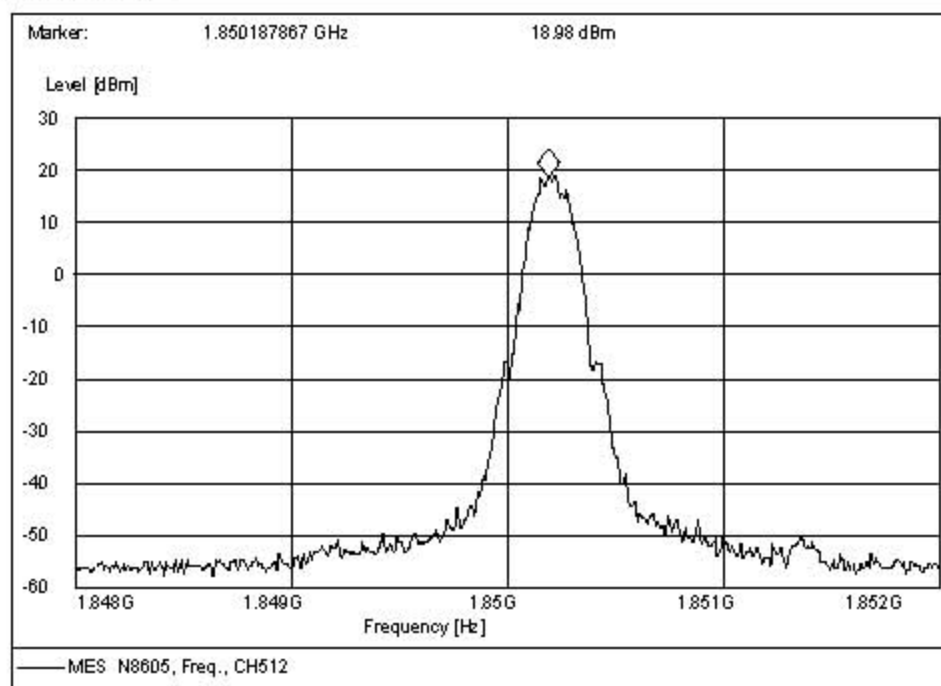
### 3.5 Test Results

The mobile transmitter frequency arrangement of the PCS1900 band is

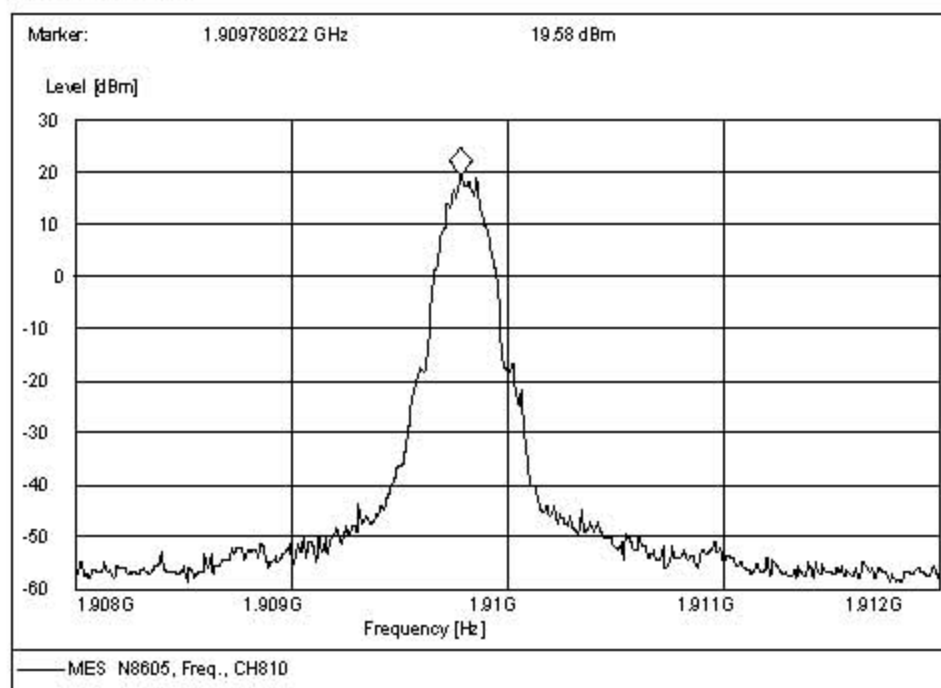
$$F(n) = 1850.2 + 0.2 \cdot (n - 512), 512 \leq n \leq 810$$

The frequencies of the lowest channel and the highest channel are as the following figures.

#### 1. Lowest channel No.512



#### 2. Highest channel No.810



## 4 Conducted RF Output Power Test

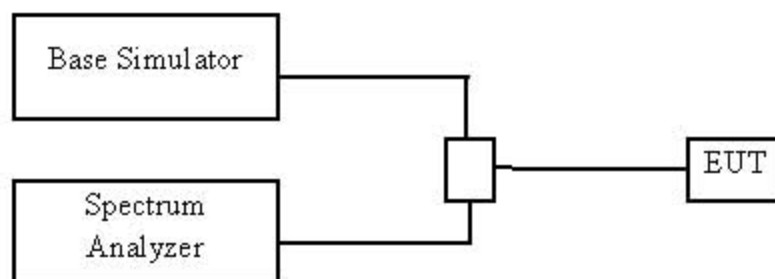
### 4.1 RF Power Output Test Requirement

According to FCC §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 § 2.1033(c)(8). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

### 4.2 Test Procedure

- The EUT was coupled to the spectrum analyzer and the base station simulator through a power divider. The radio frequency load attached to the EUT antenna terminal was 50 Ohm. The loss of the cables the test system is calibrated to correct the reading.
- The spectrum analyzer was set to Maxpeak Detector function and Maximum Hold mode.
- The resolution bandwidth of the spectrum analyzer was comparable to the emission bandwidth. For GSM signal, VBW=RBW=1 MHz; for CDMA signal, VBW=RBW=3 MHz.

### 4.3 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

### 4.4 EUT Setup and Operating Conditions

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

A communication link was established between the MS and a System Simulator (SS).

The MS operated at the maximum output power.

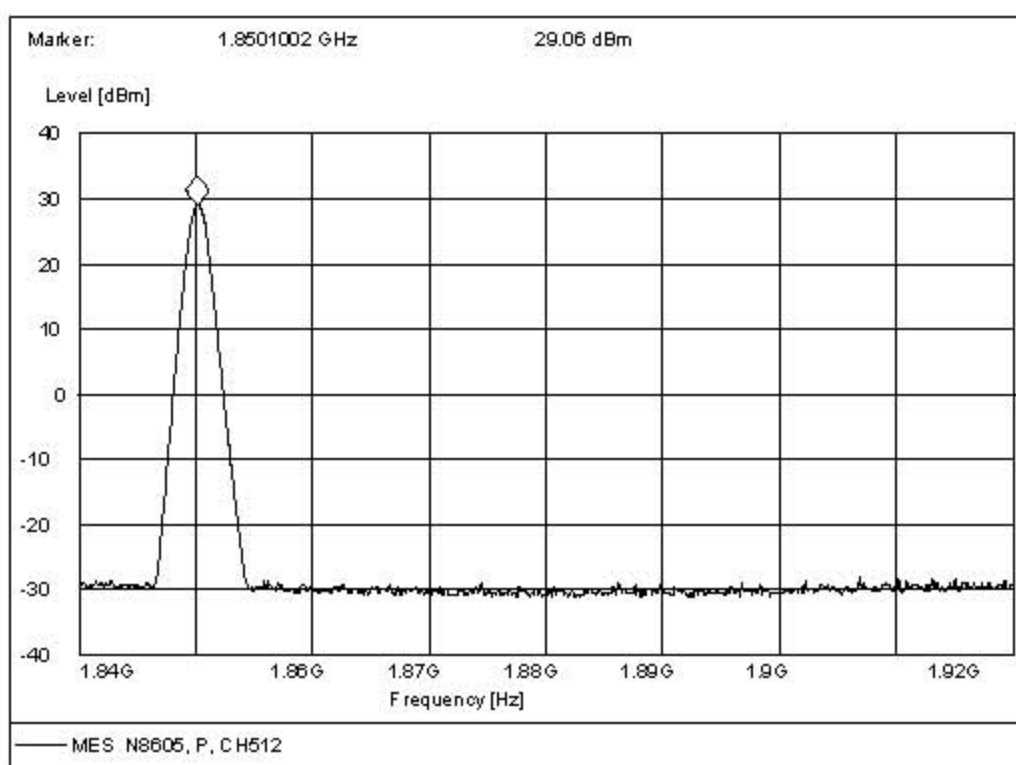
The PCS 1900MHz band channel No.512 (lowest), 661 (middle) and 810 (highest) were measured respectively.

## 4.5 Test Results

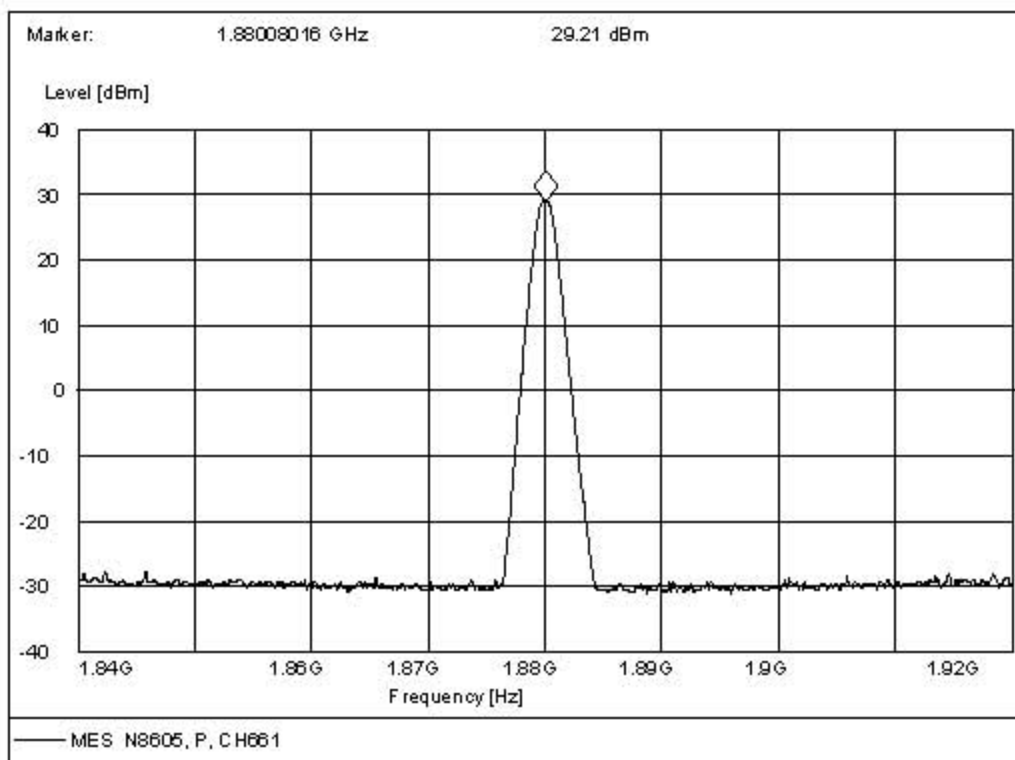
No.	PCS 1900 Channel No.	Frequency (MHz)	Measured Power (dBm)	Rated Power (dBm)
1	512	1850.20	29.06	30
2	661	1880.00	29.21	30
3	810	1909.80	29.28	30

### Test Plots

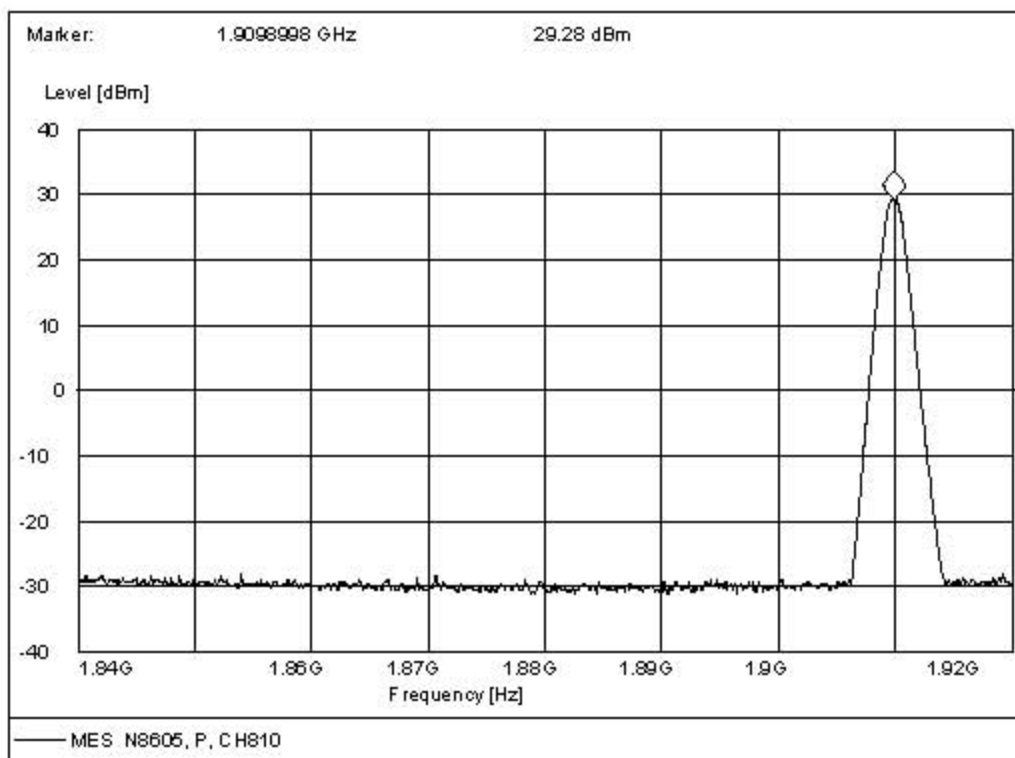
#### 1. Lowest channel No.512



## 2. Middle channel No.661



## 3. Highest channel No.810



## 5 Occupied Bandwidth Test

### 5.1 Definition

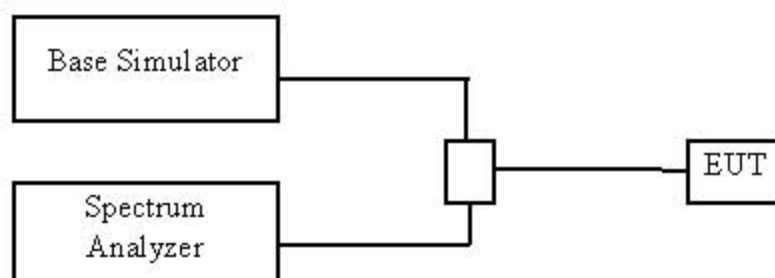
According to FCC §2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

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

### 5.2 Test Procedure

- The EUT was coupled to the spectrum analyzer and the base station simulator through a power divider. The loss of the cables the test system is calibrated to correct the reading.
- The spectrum analyzer was set to Maxpeak Detector function and Maximum Hold mode.
- The resolution bandwidth of the spectrum analyzer was set to at least 1% of the emission bandwidth. For GSM signal,  $\text{VBW}=\text{RBW}=3\text{ kHz}$ ; for CDMA signal,  $\text{VBW}=\text{RBW}=30\text{ kHz}$ .

### 5.3 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

### 5.4 EUT Setup and Operating Conditions

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

A communication link was established between the MS and a System Simulator (SS).

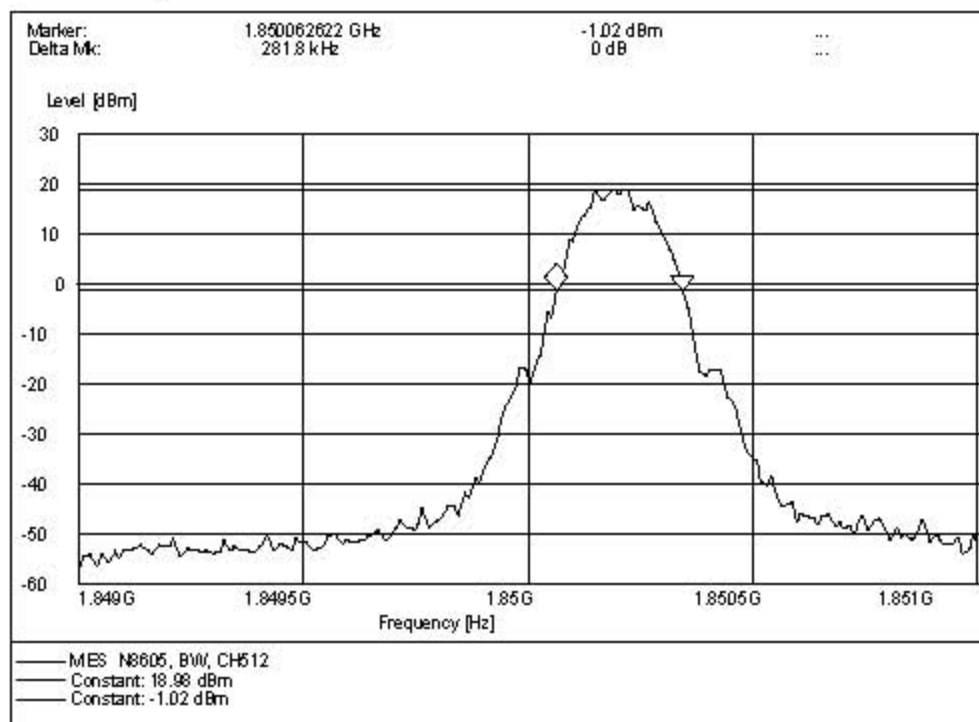
The MS operated at the maximum output power.

The PCS 1900MHz band channel No.512 (lowest), 661 (middle) and 810 (highest) were measured respectively.

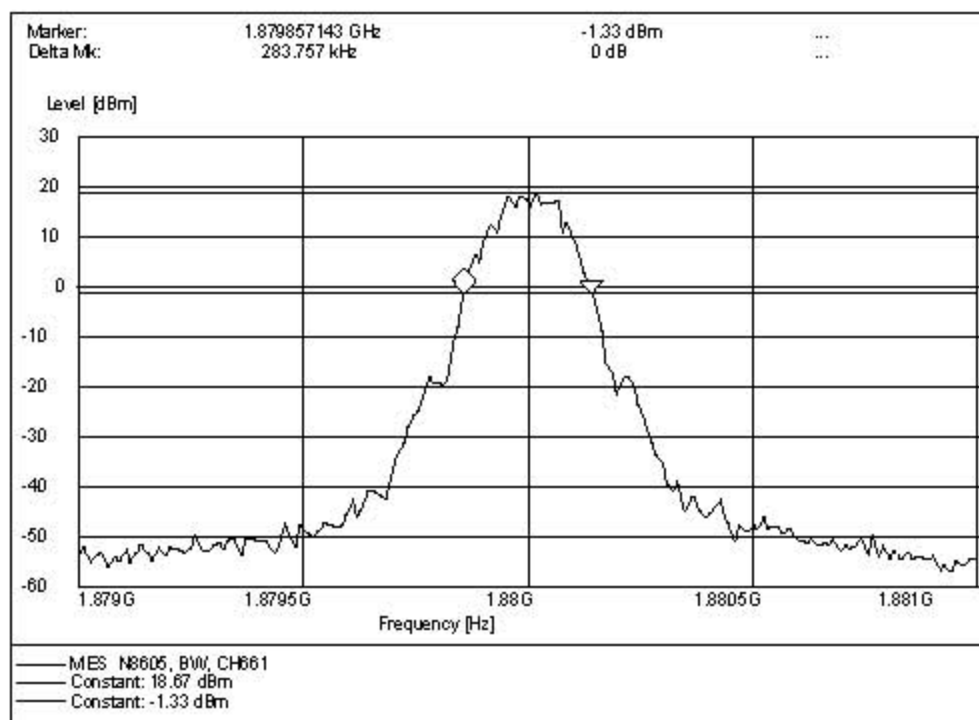
## 5.5 Test Results

The occupied bandwidth was measured to be about 300 kHz. Refer to the following plots.

### 1. PCS 1900MHz band, lowest channel No.512

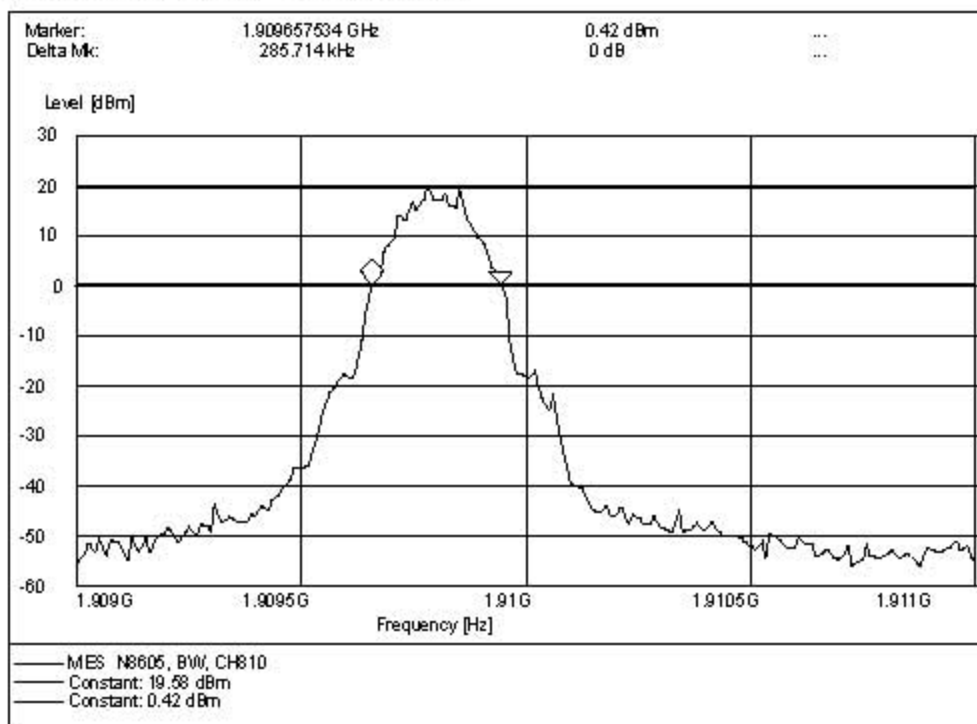


### 2. PCS 1900MHz band, middle channel No.661





## 3. PCS 1900MHz band, highest channel No.810



## 6 Conducted Spurious Emission Test

### 6.1 Limits of Conducted Spurious Emission

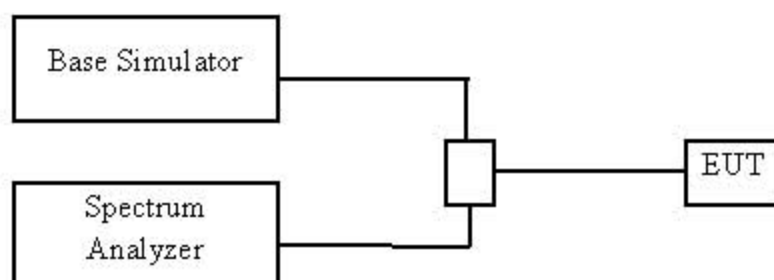
According to FCC §24.238 (a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  dB. This calculated to be -13dBm.

According to FCC §24.238 (b), in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. Thus the 26dB emission bandwidth is measurement for showing compliance at the band-edges

### 6.2 Test Procedure

- The EUT was coupled to the spectrum analyzer and the base station simulator through a power divider. The loss of the cables the test system is calibrated to correct the reading.
- The spectrum analyzer was set to Maxpeak Detector function and Maximum Hold mode. The resolution bandwidth was set to 1MHz. The measuring frequencies are from 9 kHz to 10th harmonic of the fundamental frequency.
- In the 1 MHz bands immediately outside and adjacent to the frequency block, the resolution bandwidth of the spectrum analyzer was set to at least 1% of the emission bandwidth of the fundamental emission of the transmitter. For GSM signal, the resolution bandwidth was 3 kHz; for CDMA signal, the resolution bandwidth was 30 kHz.

### 6.3 Test Setup



### 6.4 EUT Setup and Operating Conditions

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

A communication link was established between the MS and a System Simulator (SS).

The MS operated at the maximum output power. The PCS 1900MHz band channel No.512 (lowest) and 810 (highest) were measured respectively.

## 6.5 Test Results

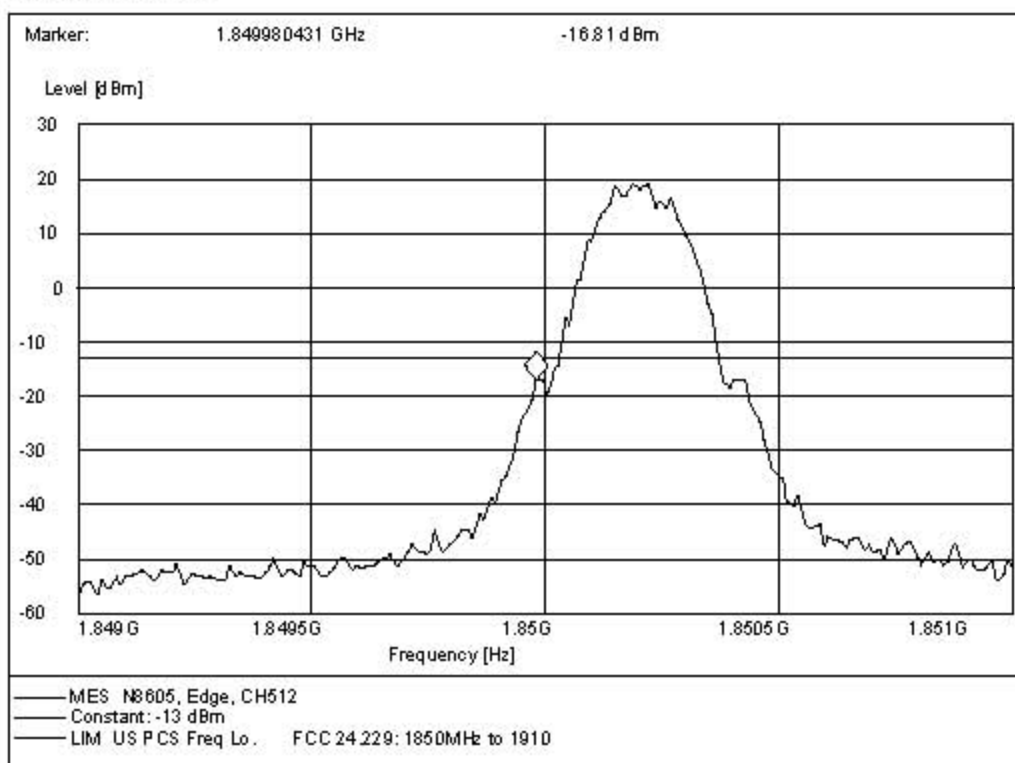
No.	Frequency (MHz)	Emission Power (dBm)	Limit (dBm)
<b>PCS 1900 MHz: Channel No. 512 (1850.20 MHz)</b>			
1	3700.40	-45.46	-13
2	5550.60	-39.43	-13
3	7400.80	--	-13
4	9251.00	--	-13
5	11101.20	--	-13
6	12951.40	--	-13
7	14801.60	--	-13
8	16651.80	--	-13
9	18502.00	--	-13
<b>PCS 1900 MHz: Channel No. 661 (1880.00 MHz)</b>			
10	3760.00	-43.20	-13
11	5640.00	-35.41	-13
12	7520.00	--	-13
13	9400.00	--	-13
14	11280.00	--	-13
15	13160.00	--	-13
16	15040.00	--	-13
17	16920.00	--	-13
18	18800.00	--	-13
<b>PCS 1900 MHz: Channel No. 810 (1909.80 MHz)</b>			
19	3819.60	-45.99	-13
20	5729.40	-32.45	-13
21	7639.20	--	-13
22	9549.00	--	-13
23	11458.80	--	-13
24	13368.60	--	-13
25	15278.40	--	-13
26	17188.20	--	-13
27	19098.00	--	-13

### NOTE:

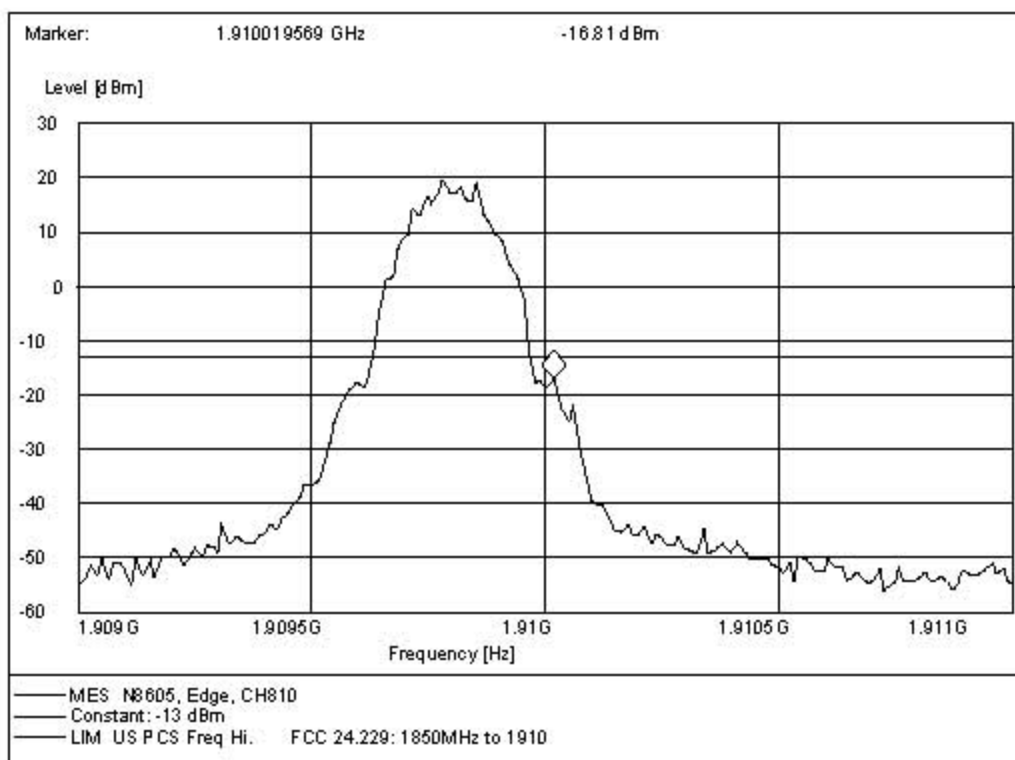
1. The spurious radiations from 9 kHz to 10th harmonic of the fundamental frequency are researched. Only the harmonics are record in the table above.
2. "--" in the table above means that the emissions are too small to be measured and are at least 12 dB below the limit.

## Plot of Band Edge

### 1. Lowest channel No.512

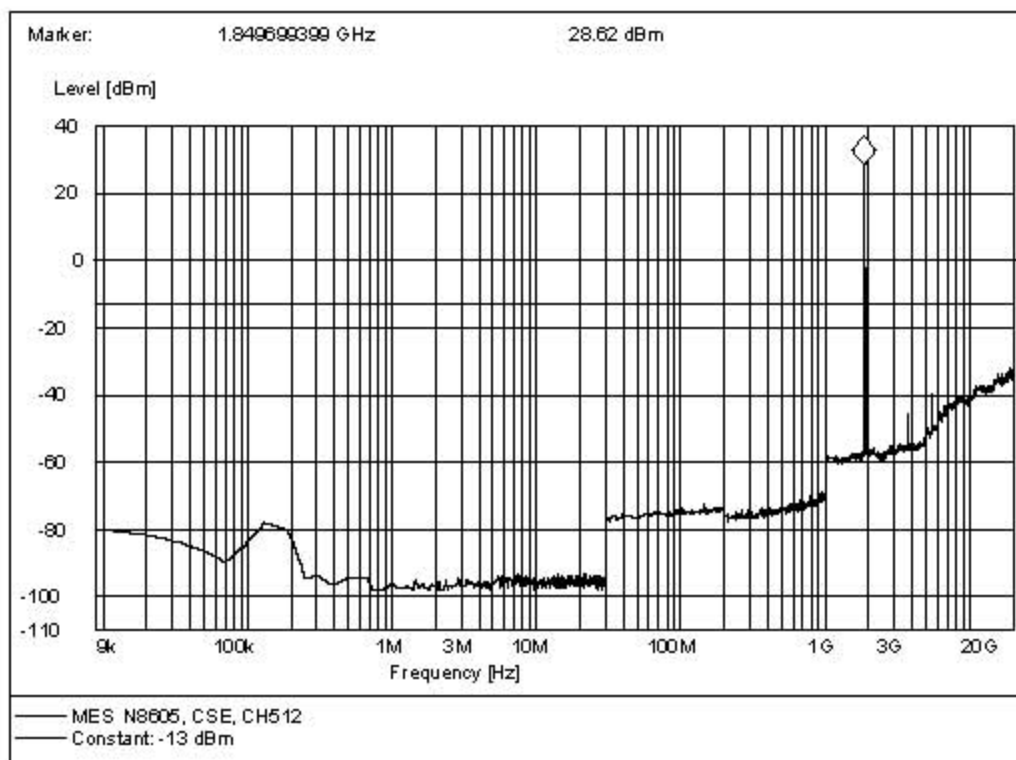
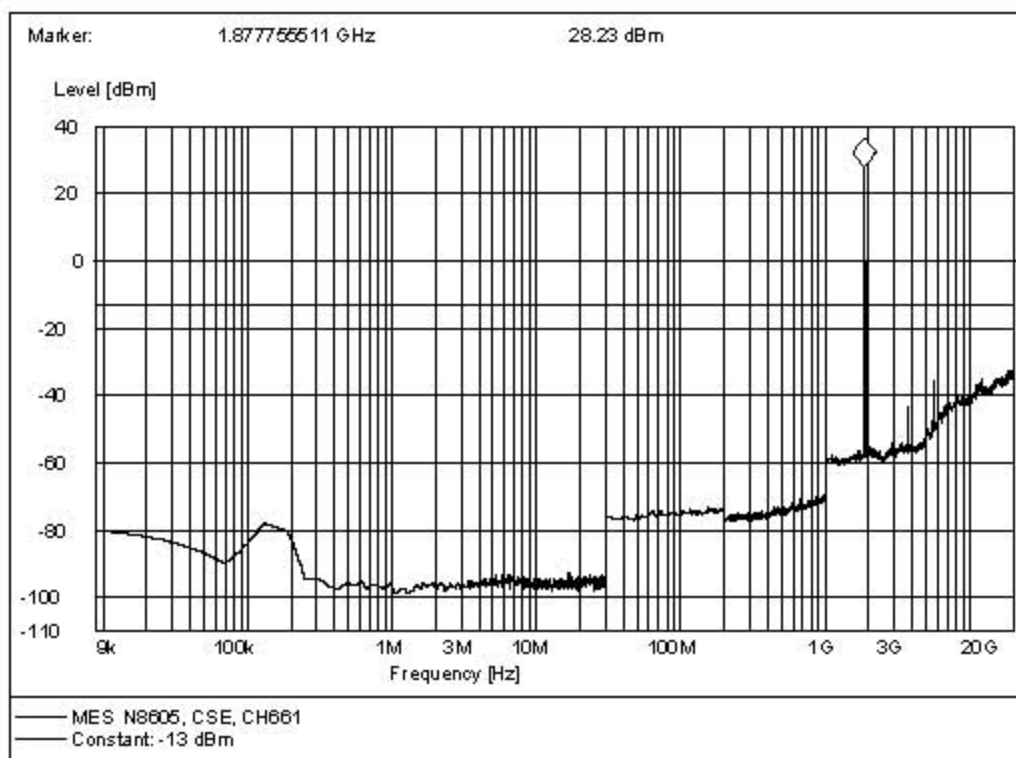


### 2. Highest channel No.810



**Plot of Spurious Emission**

(Note: The marker point is the MS transmitting frequency which should be ignored.)

**1. Lowest channel No.512****2. Middle channel No.661**

## 3. Highest channel No.810

