



# PCTEST ENGINEERING LABORATORY, INC.

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## MEASUREMENT REPORT

### FCC Part 22, 24, & 27 / IC RSS-132/RSS-133/RSS-139

**Applicant Name:**  
LG Electronics MobileComm U.S.A  
1000 Sylvan Avenue  
Englewood Cliffs, NJ 07632  
United States

**Date of Testing:**  
11/12-11/14/2012  
**Test Site/Location:**  
PCTEST Lab., Columbia, MD, USA  
**Test Report Serial No.:**  
0Y1211051592.ZNF

<b>FCC ID:</b>	<b>ZNFMS870</b>
<b>APPLICANT:</b>	<b>LG ELECTRONICS MOBILECOMM U.S.A</b>

**Application Type:** Class II Permissive Change  
**Model(s):** MS870, LG-MS870, LGMS870, LG-LW870, LGLW870, LW870  
**EUT Type:** Portable Handset  
**FCC Classification:** PCS Licensed Transmitter Held to Ear (PCE)  
**FCC Rule Part(s):** §2; §22(H), §24(E), §27(C)  
**Test Procedure(s):** ANSI/TIA-603-C-2004, KDB 971168  
**Test Device Serial No.:** *identical prototype* [S/N: EMC 1]  
**Class II Permissive Change:** Please see FCC change documents.  
**Original Grant Date:** 11/09/2012

Mode	Tx Frequency (MHz)	ERP/EIRP	
		Max. Power (W)	Max. Power (dBm)
CDMA850	824.70 - 848.31	0.143	21.56
CDMA1700	1711.25 - 1753.75	0.224	23.51
CDMA1900	1851.25 - 1908.75	0.229	23.60

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

*PCTEST certifies that no party to this application has been subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.*



Randy Ortanez  
President

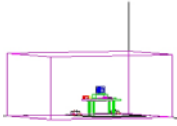


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<b>Test Report S/N:</b> 0Y1211051592.ZNF	<b>Test Dates:</b> 11/12-11/14/2012	<b>EUT Type:</b> Portable Handset		Page 1 of 23

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# MEASUREMENT REPORT

## FCC Part 22, 24, & 27



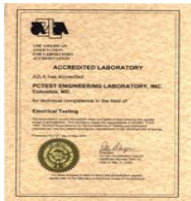
### §2.1033 General Information



**APPLICANT:** LG Electronics MobileComm U.S.A  
**APPLICANT ADDRESS:** 1000 Sylvan Avenue  
 Englewood Cliffs, NJ 07632  
**TEST SITE:** PCTEST ENGINEERING LABORATORY, INC.  
**TEST SITE ADDRESS:** 7185 Oakland Mills Road, Columbia, MD 21046 USA  
**FCC RULE PART(S):** §2; §22(H), §24(E), §27(C)(L)  
**IC SPECIFICATION(S):** RSS-132 Issue 2; RSS-133 Issue 5; RSS-139 Issue 2  
**BASE MODEL:** MS870  
**FCC ID:** ZNFMS870  
**FCC CLASSIFICATION:** PCS Licensed Transmitter Held to Ear (PCE)  
**MODE:** CDMA / EvDO  
**FREQUENCY TOLERANCE:** ±0.00025 % (2.5 ppm)  
**Test Device Serial No.:** EMC 1       Production     Pre-Production     Engineering  
**DATE(S) OF TEST:** 11/12-11/14/2012  
**TEST REPORT S/N:** 0Y1211051592.ZNF

### Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab. located in Columbia, MD 21046, U.S.A.

- PCTEST facility is an FCC registered (PCTEST Reg. No. 159966) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451B-1).
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (2451B-1) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.



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<b>Test Report S/N:</b> 0Y1211051592.ZNF	<b>Test Dates:</b> 11/12-11/14/2012	<b>EUT Type:</b> Portable Handset	Page 3 of 23	

## 1.0 INTRODUCTION

### 1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

### 1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity, the Baltimore-Washington Intern't'l (BWI) airport, the city of Baltimore and the Washington, DC area. (See Figure 1-1).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The site coordinates are 39° 10'23" N latitude and 76° 49'50" W longitude. The facility is 0.4 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on February 15, 2012.

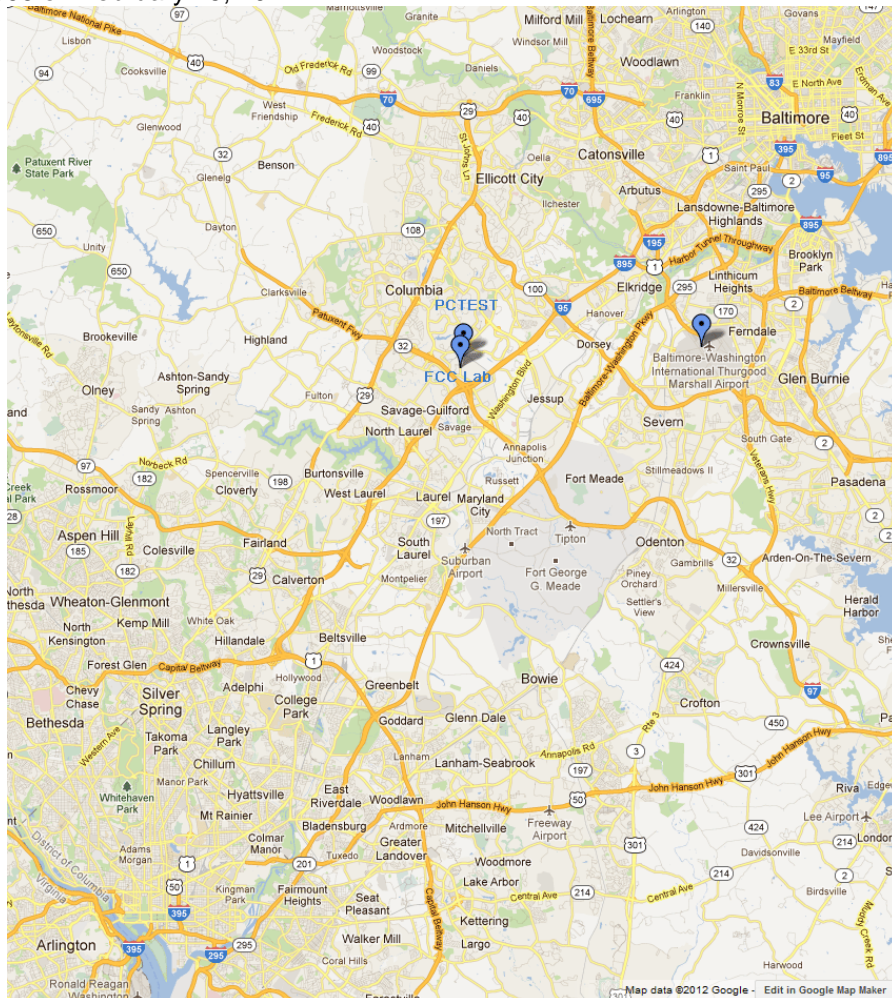




Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFMS870**. The test data contained in this report pertains only to the emissions due to the EUT's licensed transmitter.

### 2.2 Device Capabilities

This device contains the following capabilities:



850/1700/1900 CDMA/EvDO Rev0/A (BC0, BC15, BC1), Band 2 (1.4, 3, 5, 10 Mhz), Band 4 (1.4, 3, 5, 10 Mhz), Band 25 (5, 10 Mhz) LTE, 802.11b/g/n WLAN, Bluetooth (1x, EDR, LE)

### 2.3 Test Configuration

The LG Portable Handset FCC ID: ZNFMS870 was tested per the guidance of ANSI/TIA-603-C-2004 and KDB 971168. See Section 3.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

### 2.4 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

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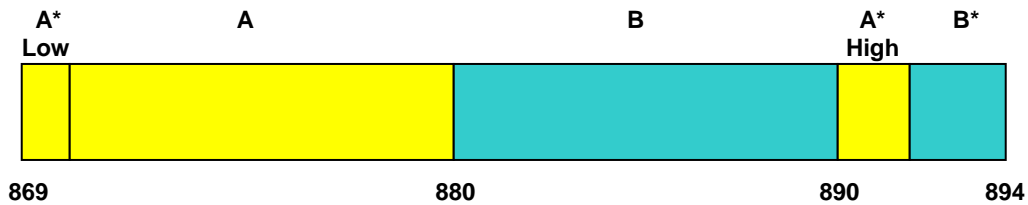
### 3.0 DESCRIPTION OF TESTS

#### 3.1 Evaluation Procedure

The measurement procedures described in the “Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards” (ANSI/TIA-603-C-2004) and “Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems” were used in the measurement of the measurement of the **LG Portable Handset FCC ID: ZNFMS870**.

Deviation from Measurement Procedure.....None

#### 3.2 Cellular - Base Frequency Blocks



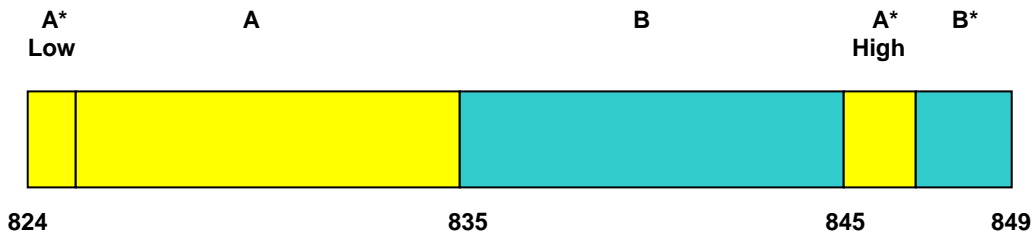
BLOCK 1: 869 – 880 MHz (A\* Low + A)

BLOCK 3: 890 – 891.5 MHz (A\* High)

BLOCK 2: 880 – 890 MHz (B)

BLOCK 4: 891.5 – 894 MHz (B\*)

#### 3.3 Cellular - Mobile Frequency Blocks



BLOCK 1: 824 – 835 MHz (A\* Low + A)

BLOCK 3: 845 – 846.5 MHz (A\* High)

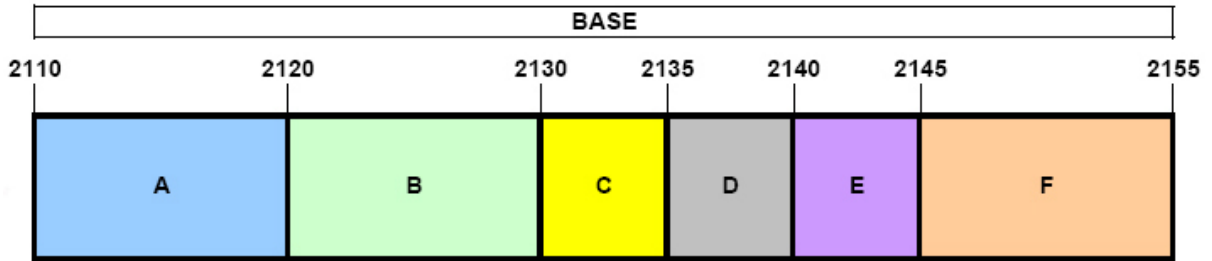
BLOCK 2: 835 – 845 MHz (B)

BLOCK 4: 846.5 – 849 MHz (B\*)

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### 3.4 AWS - Base Frequency Blocks

§27.5(h)



BLOCK 1: 2110 – 2120 MHz (A)

BLOCK 4: 2135 – 2140 MHz (D)

BLOCK 2: 2120 – 2130 MHz (B)

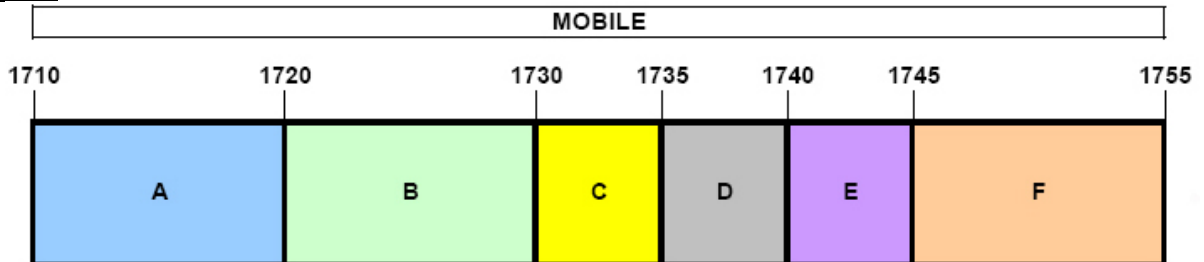
BLOCK 5: 2140 – 2145 MHz (E)

BLOCK 3: 2130 – 2135 MHz (C)

BLOCK 6: 2145 – 2155 MHz (E)

### 3.5 AWS - Mobile Frequency Blocks

§27.5(h)



BLOCK 1: 1710 – 1720 MHz (A)



BLOCK 4: 1735 – 1740 MHz (D)

BLOCK 2: 1720 – 1730 MHz (B)

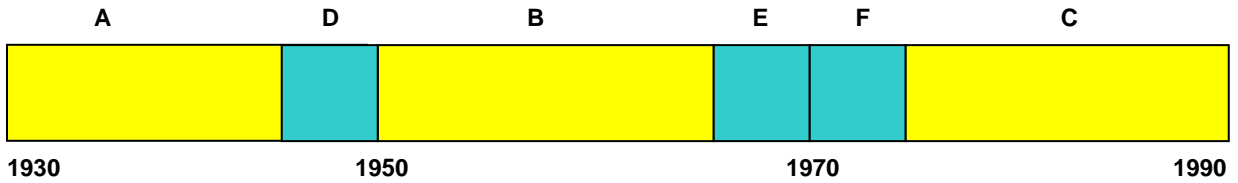
BLOCK 5: 1740 – 1745 MHz (E)

BLOCK 3: 1730 – 1735 MHz (C)

BLOCK 6: 1745 – 1755 MHz (F)

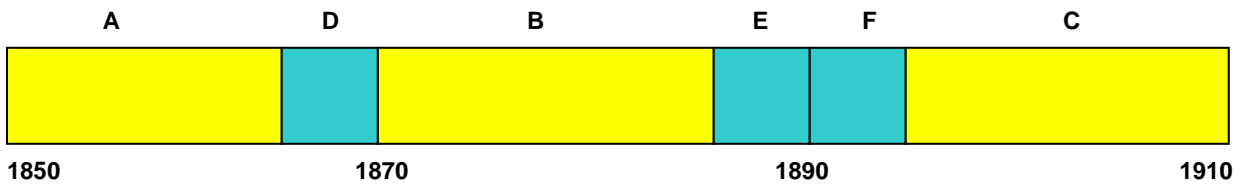
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### 3.6 PCS - Base Frequency Blocks





- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| <b>BLOCK 1:</b> 1930 – 1945 MHz (A) | <b>BLOCK 4:</b> 1965 – 1970 MHz (E) |
| <b>BLOCK 2:</b> 1945 – 1950 MHz (D) | <b>BLOCK 5:</b> 1970 – 1975 MHz (F) |
| <b>BLOCK 3:</b> 1950 – 1965 MHz (B) | <b>BLOCK 6:</b> 1975 – 1990 MHz (C) |

### 3.7 PCS - Mobile Frequency Blocks



- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| <b>BLOCK 1:</b> 1850 – 1865 MHz (A) | <b>BLOCK 4:</b> 1885 – 1890 MHz (E) |
| <b>BLOCK 2:</b> 1865 – 1870 MHz (D) | <b>BLOCK 5:</b> 1890 – 1895 MHz (F) |
| <b>BLOCK 3:</b> 1870 – 1885 MHz (B) | <b>BLOCK 6:</b> 1895 – 1910 MHz (C) |

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### 3.8 Radiated Power and Radiated Spurious Emissions

§2.1053, 22.917(a), 22., 24.232(c), 24.238(a), §27.53(h)

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. An ETS Lindgren Model 2188 raised turntable is used for radiated measurement. It is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. A 78cm high PVC support structure is placed on top of the turntable. A ¾" (~1.9cm) sheet of high density polyethylene is used as the table top and is placed on top of the PVC supports to bring the total height of the table to 80cm.



The equipment under test was transmitting while connected to its integral antenna and is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168.

Per the guidance of ANSI/TIA-603-C-2004, a half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_d \text{ [dBm]} = P_g \text{ [dBm]} - \text{cable loss [dB]} + \text{antenna gain [dBd/dBi]}$$

Where,  $P_d$  is the dipole equivalent power,  $P_g$  is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to  $P_g \text{ [dBm]} - \text{cable loss [dB]}$ .

The calculated  $P_d$  levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of  $43 + 10\log_{10}(\text{Power}_{\text{[Watts]}})$  specified in 22.917(a) and 24.238(a).

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## 4.0 TEST EQUIPMENT CALIBRATION DATA



Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	7/10/2012	Annual	7/10/2013	N/A
-	RE2	Radiated Emissions Cable Set (VHF/UHF)	2/13/2012	Annual	2/13/2013	N/A
Agilent	8447D	Broadband Amplifier	5/8/2012	Annual	5/8/2013	1937A03348
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/5/2012	Annual	4/5/2013	MY45470194
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	7/22/2011	Biennial	7/22/2013	125518
ETS Lindgren	3160-09	18-26.5 GHz Standard Gain Horn	5/30/2012	Biennial	5/30/2014	135427
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	12/1/2010	Biennial	12/1/2012	128337
Mini-Circuits	VHF-1200+	High Pass Filter	1/15/2012	Annual	1/15/2013	30923
Mini-Circuits	VHF-3100+	High Pass Filter	1/15/2012	Annual	1/15/2013	30841
Rohde & Schwarz	CMU200	Base Station Simulator	N/A		N/A	836536/0005
Rohde & Schwarz	TS-PR18	1-18 GHz Pre-Amplifier	6/26/2012	Annual	6/26/2013	100071
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	5/30/2012	Annual	5/30/2013	100040
Rohde & Schwarz	ESU26	EMI Test Receiver	12/15/2011	Annual	12/15/2012	100342
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Rx	11/14/2011	Biennial	11/14/2013	9105-2404
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	1/26/2012	Biennial	1/26/2014	A051107

**Table 4-1. Test Equipment**

**Note:**

Equipment used for signaling with a calibration date of "N/A" shown in this list was only used for maintaining a link between the piece of equipment and the EUT. This equipment was not used to make direct calibrated measurements.



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## 5.0 SAMPLE CALCULATIONS

### Spurious Radiated Emission - PCS Band

#### **Example: Channel 25 PCS Mode 2<sup>nd</sup> Harmonic (3702.50 MHz)**

The receive spectrum analyzer reading at 3 meters with the EUT on the turntable was  $-81.0$  dBm. The gain of the substituted antenna is  $8.1$  dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of  $-81.0$  dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is  $2.0$  dB at  $3702.50$  MHz. So  $6.1$  dB is added to the signal generator reading of  $-30.9$  dBm yielding  $-24.80$  dBm. The fundamental EIRP was  $25.50$  dBm so this harmonic was  $25.50$  dBm  $- (-24.80) = 50.3$  dBc.

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## 6.0 TEST RESULTS

### 6.1 Summary



Company Name: LG Electronics MobileComm U.S.A  
 FCC ID: ZNFMS870  
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)  
 Mode(s): CDMA / EvDO

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
<b>TRANSMITTER MODE (TX)</b>						
22.913(a)(2)	RSS-132 (4.4) [SRSP-503(5.1.3)]	Effective Radiated Power	< 7 Watts max. ERP	RADIATED	PASS	Section 6.2
24.232(c), 27.50(d)(4)	RSS-133 (6.4) [SRSP-510 (5.1.2)] RSS-139 (6.4)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP (PCS) < 1 Watt max. EIRP (AWS)		PASS	Section 6.3
2.1053, 22.917(a), 24.238(a), 27.53(g)	RSS-132 (4.5.1) RSS-133 (6.5.1) RSS-139 (6.5)	Undesirable Emissions	< 43 + 10log <sub>10</sub> (P[Watts]) for all out-of-band emissions		PASS	Sections 6.4, 6.5, 6.6

**Table 6-1. Summary of Test Results**

**Notes:**

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.

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## 6.2 Effective Radiated Power Output Data

§22.913(a)(2); RSS-132 (4.4) [SRSP-503(5.1.3)]

Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.70	CDMA850	Standard	16.19	4.60	H	20.79	0.120	38.45	-17.66
836.52	CDMA850	Standard	16.74	4.82	H	21.56	0.143	38.45	-16.89
848.31	CDMA850	Standard	15.75	5.04	H	20.79	0.120	38.45	-17.66

**Table 6-2. Effective Radiated Power Output Data (Cellular Band)**

## 6.3 Equivalent Isotropic Radiated Power Output Data

§24.232(c), §27.50(d)(2); RSS-133 (6.4) [SRSP-510 (5.1.2)], RSS-139 (6.4)

Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1711.25	CDMA1700	Standard	13.17	8.47	H	21.64	0.146	30.00	-8.36
1732.50	CDMA1700	Standard	13.84	8.54	H	22.38	0.173	30.00	-7.62
1753.75	CDMA1700	Standard	14.91	8.60	H	23.51	0.224	30.00	-6.49



**Table 6-3. Equivalent Isotropic Radiated Power Output Data (AWS Band)**

Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1851.25	CDMA1900	Standard	14.45	8.56	H	23.01	0.200	33.01	-10.00
1880.00	CDMA1900	Standard	15.05	8.55	H	23.60	0.229	33.01	-9.41
1908.75	CDMA1900	Standard	13.64	8.53	H	22.17	0.165	33.01	-10.84

**Table 6-4. Equivalent Isotropic Radiated Power Output Data (PCS Band)**

### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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## 6.4 Cellular CDMA Radiated Measurements

### §2.1053, 22.917(a); RSS-132 (4.5.1)

#### Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 824.70 MHz  
 CHANNEL: 1013  
 MEASURED OUTPUT POWER: 20.79 dBm = 0.120 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  33.79 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1649.40	-58.01	2.59	-55.43	H	76.2
2474.10	-57.33	2.89	-54.44	H	75.2
3298.80	-92.79	5.45	-87.33	H	108.1
4123.50	-92.43	7.05	-85.38	H	106.2
4948.20	-92.56	7.87	-84.69	H	105.5

**Table 6-5. Radiated Spurious Data (Cellular CDMA Mode – Ch. 1013)**

#### **NOTES:**

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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**Cellular CDMA Radiated Measurements (Cont'd)**  
§2.1053, 22.917(a)

**Field Strength of SPURIOUS Radiation**



OPERATING FREQUENCY: 836.52 MHz  
 CHANNEL: 384  
 MEASURED OUTPUT POWER: 21.56 dBm = 0.143 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  34.56 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1673.04	-58.19	2.34	-55.85	H	77.4
2509.56	-48.62	2.84	-45.78	H	67.3
3346.08	-93.08	5.64	-87.43	H	109.0
4182.60	-92.63	7.14	-85.48	H	107.0
5019.12	-92.54	7.97	-84.57	H	106.1

**Table 6-6. Radiated Spurious Data (Cellular CDMA Mode – Ch. 384)**

**NOTES:**

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS870	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	 LG	Reviewed by: Quality Manager
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**Cellular CDMA Radiated Measurements (Cont'd)**  
§2.1053, 22.917(a)

**Field Strength of SPURIOUS Radiation**



OPERATING FREQUENCY: 848.31 MHz  
 CHANNEL: 777  
 MEASURED OUTPUT POWER: 20.79 dBm = 0.120 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  33.79 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1696.62	-54.19	2.09	-52.10	H	72.9
2544.93	-50.32	3.16	-47.16	H	67.9
3393.24	-93.36	5.83	-87.53	H	108.3
4241.55	-92.82	7.24	-85.58	H	106.4
5089.86	-92.45	8.02	-84.43	H	105.2

**Table 6-7. Radiated Spurious Data (Cellular CDMA Mode – Ch. 777)**

**NOTES:**

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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## 6.5 AWS CDMA Radiated Measurements §2.1053, 27.53(g)

### Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 1711.25 MHz  
 CHANNEL: 25  
 MEASURED OUTPUT POWER: 21.64 dBm = 0.146 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  34.64 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3422.50	-60.35	8.10	-52.24	H	73.9
5133.75	-62.90	10.21	-52.69	H	74.3
6845.00	-64.02	11.32	-52.70	H	74.3
8556.25	-57.75	13.02	-44.73	H	66.4
10267.50	-60.84	13.02	-47.82	H	69.5

**Table 6-8. Radiated Spurious Data (AWS CDMA Mode – Ch. 25)**

#### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS870	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	 LG	Reviewed by: Quality Manager
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**AWS CDMA Radiated Measurements (Cont'd)**  
**§2.1053, 27.53(g)**

**Field Strength of SPURIOUS Radiation**



OPERATING FREQUENCY: 1732.50 MHz  
 CHANNEL: 450  
 MEASURED OUTPUT POWER: 22.38 dBm = 0.173 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  35.38 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3465.00	-60.40	8.26	-52.14	H	74.5
5197.50	-62.02	10.26	-51.77	H	74.1
6930.00	-65.35	11.42	-53.93	H	76.3
8662.50	-52.64	13.07	-39.57	H	62.0
10395.00	-61.53	13.12	-48.42	H	70.8

**Table 6-9. Radiated Spurious Data (AWS CDMA Mode – Ch. 450)**

**NOTES:**

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS870	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
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**AWS CDMA Radiated Measurements (Cont'd)**  
**§2.1053, 27.53(g)**

**Field Strength of SPURIOUS Radiation**



OPERATING FREQUENCY: 1753.75 MHz  
 CHANNEL: 875  
 MEASURED OUTPUT POWER: 23.51 dBm = 0.224 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  36.51 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3507.50	-60.05	8.40	-51.65	H	75.2
5261.25	-59.33	10.31	-49.02	H	72.5
7015.00	-64.44	11.51	-52.93	H	76.4
8768.75	-53.34	13.11	-40.23	H	63.7
10522.50	-61.30	13.20	-48.10	H	71.6

**Table 6-10. Radiated Spurious Data (AWS CDMA Mode – Ch. 875)**

**NOTES:**

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS870	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	 LG	Reviewed by: Quality Manager
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## 6.6 PCS CDMA Radiated Measurements §2.1053, 24.238(a)

### Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 1851.25 MHz  
 CHANNEL: 25  
 MEASURED OUTPUT POWER: 23.01 dBm = 0.200 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  36.01 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3702.50	-65.16	8.40	-56.76	H	79.8
5553.75	-63.11	10.62	-52.49	H	75.5
7405.00	-50.14	11.82	-38.31	H	61.3
9256.25	-55.26	13.30	-41.96	H	65.0
11107.50	-52.56	13.50	-39.06	H	62.1

**Table 6-11. Radiated Spurious Data (PCS CDMA Mode – Ch. 25)**

#### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS870	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
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**PCS CDMA Radiated Measurements (Cont'd)**  
**§2.1053, 24.238(a)**

**Field Strength of SPURIOUS Radiation**



OPERATING FREQUENCY: 1880.00 MHz  
 CHANNEL: 600  
 MEASURED OUTPUT POWER: 23.60 dBm = 0.229 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  36.60 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-62.95	8.42	-54.53	H	78.1
5640.00	-66.08	10.66	-55.42	H	79.0
7520.00	-52.17	11.92	-40.25	H	63.8
9400.00	-59.74	13.24	-46.50	H	70.1
11280.00	-58.17	13.49	-44.68	H	68.3

**Table 6-12. Radiated Spurious Data (PCS CDMA Mode – Ch. 600)**

**NOTES:**

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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**PCS CDMA Radiated Measurements (Cont'd)**  
**§2.1053, 24.238(a)**

**Field Strength of SPURIOUS Radiation**



OPERATING FREQUENCY: 1908.75 MHz  
 CHANNEL: 1175  
 MEASURED OUTPUT POWER: 22.17 dBm = 0.165 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  35.17 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3817.50	-64.00	8.57	-55.43	H	77.6
5726.25	-66.39	10.69	-55.70	H	77.9
7635.00	-53.26	12.06	-41.20	H	63.4
9543.75	-61.00	13.20	-47.80	H	70.0
11452.50	-60.65	13.42	-47.23	H	69.4

**Table 6-13. Radiated Spurious Data (PCS CDMA Mode – Ch. 1175)**



**NOTES:**

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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## 7.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFMS870** complies with all the requirements of Parts 2, 22, 24, and 27 of the FCC rules and RSS-132, RSS-133, and RSS-139 of the Industry Canada rules.

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