



# PCTEST ENGINEERING LABORATORY, INC.

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http://www.pctestlab.com



## MEASUREMENT REPORT

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

**Applicant Name:**

LG Electronics MobileComm U.S.A., Inc.  
10101 Old Grove Road,  
San Diego, CA 92131  
USA

**Date of Testing:**

December 19-21, 2011

**Test Site/Location:**

PCTEST Lab., Columbia, MD, USA

**Test Report Serial No.:**

0Y1112192172.ZNF

**FCC ID:**

**ZNFMS695**

**APPLICANT:**

**LG ELECTRONICS MOBILECOMM U.S.A., INC.**

**Application Type:**

Class II Permissive Change

**FCC Classification:**

PCS Licensed Transmitter Held to Ear (PCE)

**FCC Rule Part(s):**

§2; §22(H), §24(E), §27(C)

**EUT Type:**

Portable Handset

**Model(s):**

MS695, LG-MS695

**Test Device Serial No.:**

*identical prototype* [S/N: 268435460900376072]

**Class II Permissive Change:**

Please see Change Document.

**Original Grant Date:**

11/16/2011

Mode	Tx Frequency (MHz)	ERP/EIRP	
		Max. Power (W)	Max. Power (dBm)
CDMA850	824.70 - 848.31	0.219	23.40
CDMA1700	1711.25 - 1753.75	0.423	26.26
CDMA1900	1851.25 - 1908.75	0.465	26.68

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



<b>FCC ID:</b> ZNFMS695	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</b>		<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y1112192172.ZNF	<b>Test Dates:</b> December 19-21, 2011	<b>EUT Type:</b> Portable Handset		Page 1 of 23

## T A B L E O F C O N T E N T S

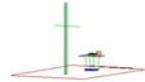
FCC PART 22, 24 & 27 MEASUREMENT REPORT.....		3
1.0 INTRODUCTION.....		4
1.1 SCOPE .....		4
1.2 TESTING FACILITY.....		4
2.0 PRODUCT INFORMATION.....		5
2.1 EQUIPMENT DESCRIPTION .....		5
2.2 DEVICE CAPABILITIES.....		5
2.3 EMI SUPPRESSION DEVICE(S)/MODIFICATIONS .....		5
2.4 LABELING REQUIREMENTS.....		5
3.0 DESCRIPTION OF TESTS .....		6
3.1 MEASUREMENT PROCEDURE .....		6
3.2 CELLULAR - BASE FREQUENCY BLOCKS.....		6
3.3 CELLULAR - MOBILE FREQUENCY BLOCKS.....		6
3.4 AWS - BASE FREQUENCY BLOCKS .....		7
3.5 AWS - MOBILE FREQUENCY BLOCKS .....		7
3.6 PCS - BASE FREQUENCY BLOCKS .....		7
3.7 PCS - MOBILE FREQUENCY BLOCKS.....		8
3.8 RADIATED POWER AND RADIATED SPURIOUS EMISSIONS .....		8
4.0 TEST EQUIPMENT CALIBRATION DATA .....		9
5.0 SAMPLE CALCULATIONS .....		10
6.0 TEST RESULTS.....		11
6.1 SUMMARY.....		11
6.2 EFFECTIVE RADIATED POWER OUTPUT DATA .....		12
6.3 EQUIVALENT ISOTROPIC RADIATED POWER OUTPUT DATA.....		13
6.4 CELLULAR CDMA RADIATED MEASUREMENTS.....		14
6.5 AWS CDMA RADIATED MEASUREMENTS .....		17
6.6 PCS CDMA RADIATED MEASUREMENTS.....		20
7.0 CONCLUSION.....		23

<b>FCC ID:</b> ZNFMS695		<b>FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</b>		<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y1112192172.ZNF	<b>Test Dates:</b> December 19-21, 2011	<b>EUT Type:</b> Portable Handset	Page 2 of 23	



# MEASUREMENT REPORT

## FCC Part 22, 24, & 27

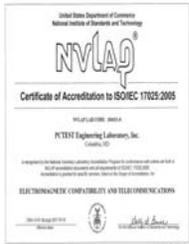
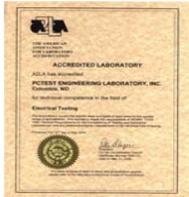


### §2.1033 General Information

**APPLICANT:** LG Electronics MobileComm U.S.A., Inc.  
**APPLICANT ADDRESS:** 10101 Old Grove Road,  
 San Diego, CA 92131  
**TEST SITE:** PCTEST ENGINEERING LABORATORY, INC.  
**TEST SITE ADDRESS:** 6660-B Dobbin Road, Columbia, MD 21045 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:** MS695  
**FCC ID:** ZNFMS695  
**FCC CLASSIFICATION:** PCS Licensed Transmitter Held to Ear (PCE)  
**MODE:** CDMA / EvDO  
**FREQUENCY TOLERANCE:** ±0.00025 % (2.5 ppm)  
**Test Device Serial No.:** 268435460900376072     Production     Pre-Production     Engineering  
**DATE(S) OF TEST:** December 19-21, 2011  
**TEST REPORT S/N:** 0Y1112192172.ZNF

### Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab. located in Columbia, MD 21045, U.S.A.



- PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) 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 (2451A-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 (2451A-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.

<b>FCC ID:</b> ZNFMS695		<b>FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</b>		<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y1112192172.ZNF	<b>Test Dates:</b> December 19-21, 2011	<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 area, the Baltimore-Washington Intern'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 in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on January 28, 2009.

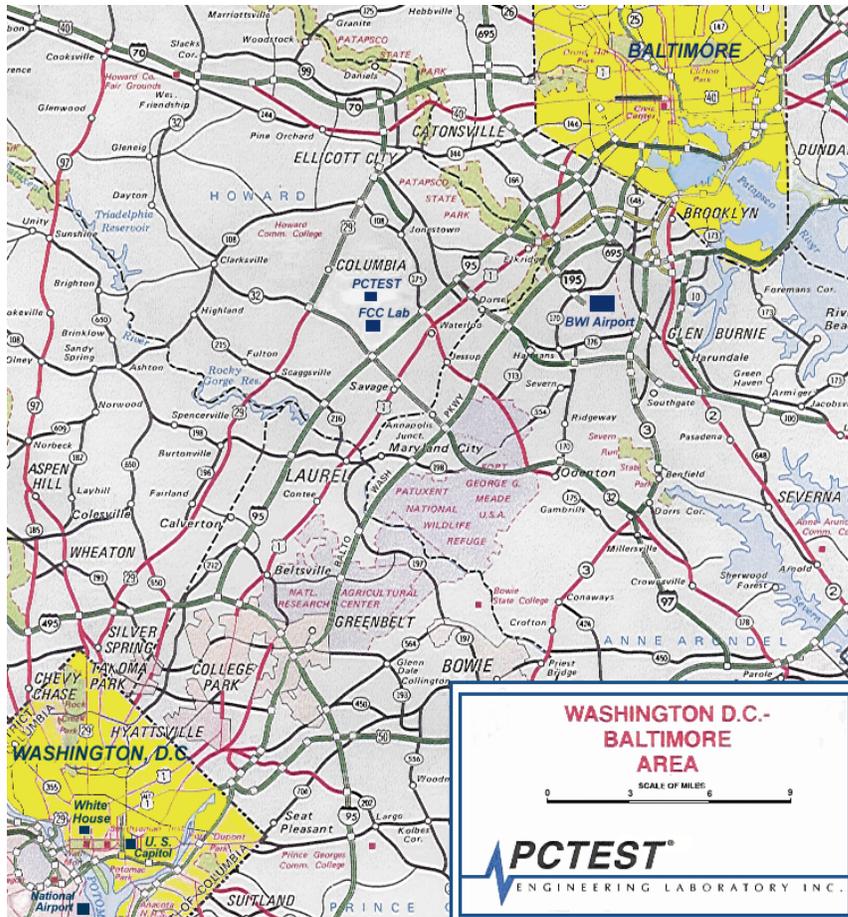


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

FCC ID: ZNFMS695	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / E-99 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset		Page 4 of 23

## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFMS695**. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
LG / Model: MS695	ZNFMS695	Portable Handset

**Table 2-1. EUT Equipment Description**

### 2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 CDMA/EvDO (BC0, BC15, BC1), 802.11b/g/n WLAN, Bluetooth

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

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

### 2.4 Labeling Requirements

Per 2.925

The FCC identifier shall be permanently affixed to the equipment and shall be readily visible to the purchaser at the time of purchase.

Per 15.19; Docket 95-19

In addition to this requirement, a device subject to certification shall be labeled as follows:

*This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(b)(2).

Please see attachment for FCC ID label and label location.

FCC ID: ZNFMS695		FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset	Page 5 of 23	

### 3.0 DESCRIPTION OF TESTS

#### 3.1 Measurement Procedure

The radiated spurious measurements were made outdoors at a 3-meter test range (See Figure 3-1). The equipment under test is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This power level was recorded using a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This level is recorded with the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.

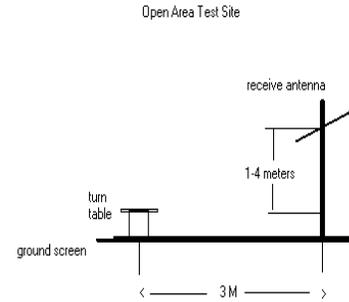


Figure 3-1. Diagram of 3-meter outdoor test range

Deviation from Measurement Procedure.....None

#### 3.2 Cellular - Base Frequency Blocks



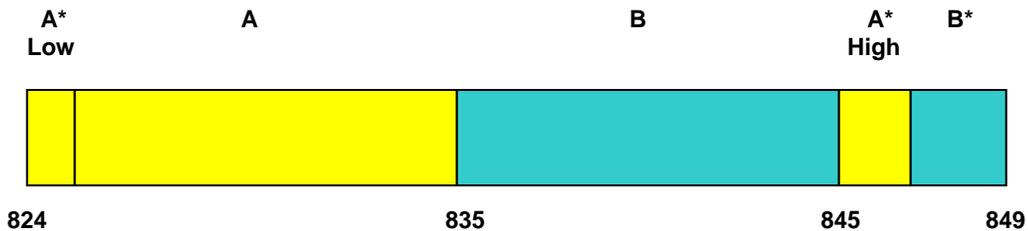
BLOCK 1: 869 – 880 MHz (A\* Low + A)

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)

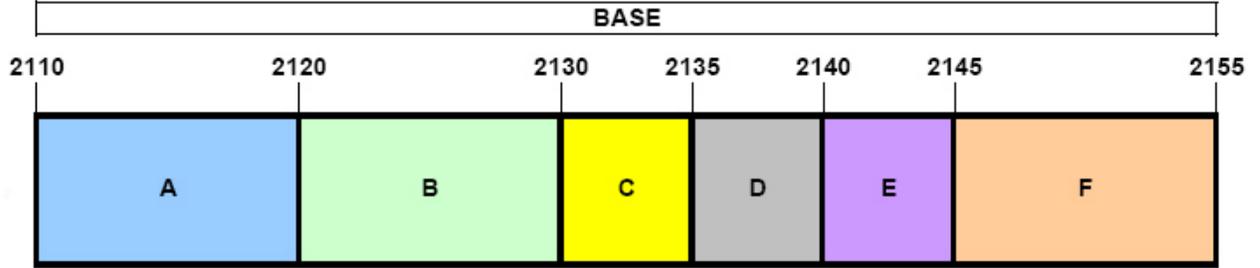
BLOCK 2: 835 – 845 MHz (B)

BLOCK 4: 846.5 – 849 MHz (B\*)

FCC ID: ZNFMS695	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset		Page 6 of 23

### 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)

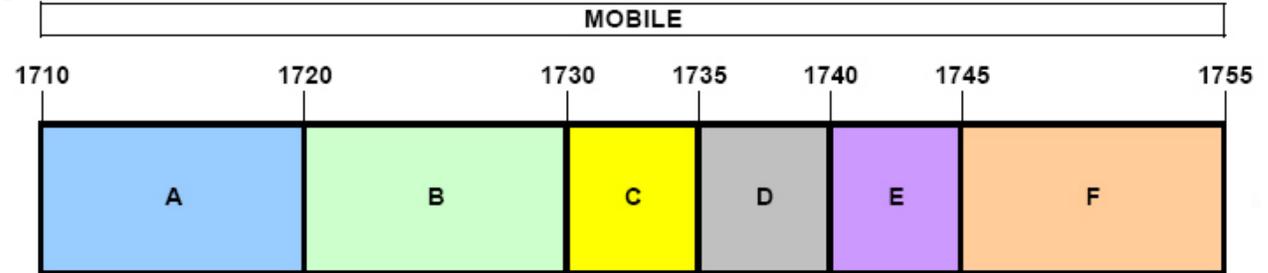
BLOCK 5: 2140 – 2145 MHz (E)

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)

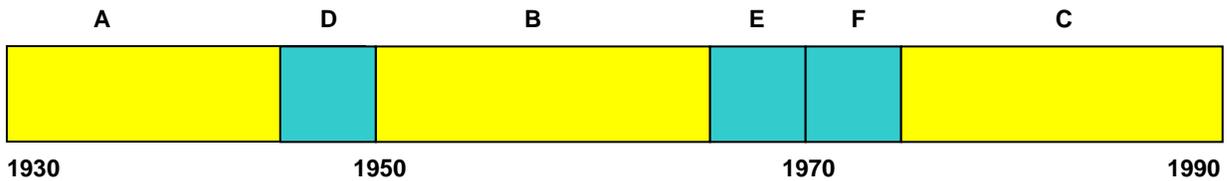
BLOCK 2: 1720 – 1730 MHz (B)

BLOCK 5: 1740 – 1745 MHz (E)

BLOCK 3: 1730 – 1735 MHz (C)

BLOCK 6: 1745 – 1755 MHz (F)

### 3.6 PCS - Base Frequency Blocks



BLOCK 1: 1930 – 1945 MHz (A)

BLOCK 4: 1965 – 1970 MHz (E)

BLOCK 2: 1945 – 1950 MHz (D)

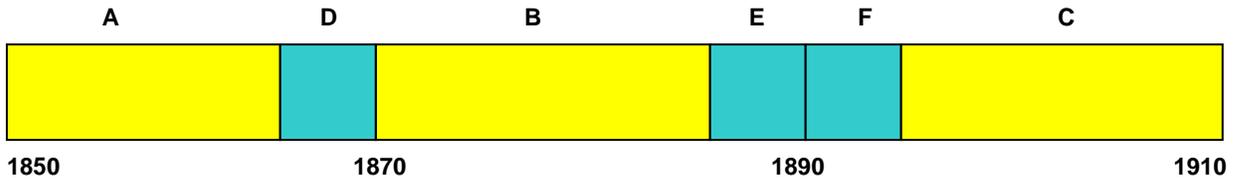
BLOCK 5: 1970 – 1975 MHz (F)

BLOCK 3: 1950 – 1965 MHz (B)

BLOCK 6: 1975 – 1990 MHz (C)

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset		Page 7 of 23

### 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) |

### 3.8 Radiated Power and Radiated Spurious Emissions

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

Radiated power and radiated spurious emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This level is then measured with a broadband average power meter. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive average power meter reading. This spurious level is recorded with the power meter. For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration. 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.

<b>FCC ID:</b> ZNFMS695		<b>FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</b>		<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y1112192172.ZNF	<b>Test Dates:</b> December 19-21, 2011	<b>EUT Type:</b> Portable Handset		Page 8 of 23

## 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
-	263-10dB	(DC-18GHz) 10 dB Attenuator	N/A		N/A	N/A
-	No. 166	(1000-26500MHz) Microwave RF Cable	N/A		N/A	N/A
-	No. 167	(100kHz - 100MHz) RG58 Coax Cable	N/A		N/A	N/A
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	2/8/2011	Annual	2/8/2012	3008A00985
Agilent	85650A	Quasi-Peak Adapter	4/7/2011	Annual	4/7/2012	3303A01872
Agilent	85650A	Quasi-Peak Adapter	4/7/2011	Annual	4/7/2012	2043A00301
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	4/7/2011	Annual	4/7/2012	3638A08713
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/10/2011	Annual	10/10/2012	3613A00315
Agilent	E4407B	ESA Spectrum Analyzer	4/5/2011	Annual	4/5/2012	US39210313
Agilent	E5515C	Wireless Communications Test Set	10/10/2011	Annual	10/10/2012	GB46110872
Agilent	E5515C	Wireless Communications Test Set	7/6/2011	Annual	7/6/2012	GB41450275
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/8/2011	Annual	4/8/2012	MY45470194
Agilent	E8267C	Vector Signal Generator	10/10/2011	Annual	10/10/2012	US42340152
Agilent	N9020A	MXA Signal Analyzer	10/10/2011	Annual	10/10/2012	US46470561
Agilent	E5515C	Wireless Communications Test Set	2/8/2011	Annual	2/8/2012	GB45360985
Agilent	N9038A	MXE EMI Receiver	8/5/2011	Annual	8/5/2012	MY51210133
Anritsu	MA2411B	Pulse Sensor	10/13/2011	Annual	10/13/2012	1027293
Anritsu	ML2495A	Power Meter	10/13/2011	Annual	10/13/2012	1039008
Compliance Design	Roberts	Dipole Set	4/7/2010	Biennial	4/7/2012	146
Compliance Design	Roberts	Dipole Set	4/7/2010	Biennial	4/7/2012	147
Emco	3115	Horn Antenna (1-18GHz)	4/8/2010	Biennial	4/8/2012	9205-3874
Espec	ESX-2CA	Environmental Chamber	4/21/2011	Annual	4/21/2012	17620
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	7/22/2011	Annual	7/22/2012	125518
ETS Lindgren	3160-09	18-26.5 GHz Standard Gain Horn	5/31/2011	Annual	5/31/2012	135427
Gigatronics	80701A	(0.05-18GHz) Power Sensor	10/12/2011	Annual	10/12/2012	1833460
Gigatronics	8651A	Universal Power Meter	10/12/2011	Annual	10/12/2012	8650319
K & L	11SH10	Band Pass Filter	N/A		N/A	1300/4000
K & L	11SH10	Band Pass Filter	N/A		N/A	4000/12000
MiniCircuits	VHF-1300+	High Pass Filter	N/A		N/A	30716
MiniCircuits	VHF-3100+	High Pass Filter	N/A		N/A	30721
Pasternack	PE2208-6	Bidirectional Coupler	N/A		N/A	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	6/1/2011	Annual	6/1/2012	833855/0010
Rohde & Schwarz	CMU200	Base Station Simulator	4/19/2011	Annual	4/19/2012	107826
Rohde & Schwarz	CMU200	Base Station Simulator	N/A		N/A	836536/0005
Rohde & Schwarz	RS-PR18	1-18 GHz Pre-Amplifier	6/9/2011	Annual	6/9/2012	100071
Rohde & Schwarz	RS-PR26	18-26.5 GHz Pre-Amplifier	6/9/2011	Annual	6/9/2012	100040
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Tx	10/3/2011	Biennial	10/3/2013	91052522TX
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Rx	10/3/2011	Biennial	10/3/2013	91052523RX
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	7/5/2011	Biennial	7/5/2013	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	12/30/2009	Biennial	12/30/2011	A051107
Sunol	DRH-118	Horn Antenna (1-18 GHz)	6/17/2011	Biennial	6/17/2013	A042511

**Table 4-1. Test Equipment**

FCC ID: ZNFMS695		FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset	Page 9 of 23	

## 5.0 SAMPLE CALCULATIONS

### Emission Designator

**Emission Designator = 1M25F9W**

CDMA BW = 1.25 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data) (Measured at the 99.75% power bandwidth)

### Spurious Radiated Emission - PCS Band

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

The 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  $25.501$  dBm so this harmonic was  $25.501$  dBm  $- (-24.80) = 50.3$  dBc.

FCC ID: ZNFMS695		FCC Pt. 22/24/27 CDMA / EVDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset		Page 10 of 23

## 6.0 TEST RESULTS

### 6.1 Summary

Company Name: LG Electronics MobileComm U.S.A., Inc.  
 FCC ID: ZNFMS695  
 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)(2)	RSS-133 (6.4) [SRSP-510 (5.1.2)] RSS-139 (6.4)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP		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**

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	 LG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset	Page 11 of 23	

## 6.2 Effective Radiated Power Output Data

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

Frequency [MHz]	Mode	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Battery Type
824.70	CDMA850	-13.900	21.80	0.00	H	21.80	0.151	Standard
836.52	CDMA850	-12.300	23.40	0.00	H	23.40	0.219	Standard
848.31	CDMA850	-14.100	21.60	0.00	H	21.60	0.145	Standard

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

**NOTES:**

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This level is recorded using the power meter. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

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. This unit was tested with its standard battery. 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 horizontally flat setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset		Page 12 of 23

### 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	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
1711.25	CDMA1700	-14.000	17.80	8.46	H	26.26	0.423	Standard
1732.50	CDMA1700	-14.200	17.60	8.48	H	26.08	0.405	Standard
1753.75	CDMA1700	-14.100	17.70	8.49	H	26.19	0.416	Standard

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

Frequency [MHz]	Mode	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
1851.25	CDMA1900	-16.200	15.70	8.46	H	24.16	0.261	Standard
1880.00	CDMA1900	-13.700	18.20	8.48	H	26.68	0.465	Standard
1908.75	CDMA1900	-14.900	17.00	8.49	H	25.49	0.354	Standard

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

**NOTES:**

Equivalent Isotropic Radiated Power Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This level is recorded using the power meter. The conducted power at the terminals of the Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.

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. This unit was tested with its standard battery. 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 horizontally flat setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset	Page 13 of 23	

## 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: 21.80 dBm = 0.151 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  34.80 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1649.40	-37.94	6.16	-31.78	H	53.6
2474.10	-44.25	6.34	-37.90	H	59.7
3298.80	-52.49	6.71	-45.78	H	67.6
4123.50	-90.73	7.39	-83.34	H	105.1
4948.20	-90.57	8.91	-81.66	H	103.5

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

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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. This unit was tested with its standard battery. 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 horizontally flat setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset	Page 14 of 23	

**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: 23.40 dBm = 0.219 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  36.40 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1673.04	-38.50	6.09	-32.42	H	55.8
2509.56	-48.23	6.38	-41.85	H	65.3
3346.08	-52.96	6.90	-46.06	H	69.5
4182.60	-91.32	7.79	-83.53	H	106.9
5019.12	-90.16	8.83	-81.33	H	104.7

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

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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. This unit was tested with its standard battery. 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 horizontally flat setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset	Page 15 of 23	

**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: 21.60 dBm = 0.145 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  34.60 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1696.62	-35.67	6.01	-29.66	H	51.3
2544.93	-44.12	6.47	-37.64	H	59.2
3393.24	-52.64	7.10	-45.55	H	67.1
4241.55	-91.70	8.09	-83.61	H	105.2
5089.86	-89.85	8.86	-80.99	H	102.6

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

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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. This unit was tested with its standard battery. 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 horizontally flat setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset	Page 16 of 23	

## 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: 26.26 dBm = 0.423 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  39.26 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3422.50	-47.24	9.34	-37.90	H	64.2
5133.75	-27.42	10.96	-16.46	H	42.7
6845.00	-46.80	10.52	-36.28	H	62.5
8556.25	-82.54	11.07	-71.47	H	97.7
10267.50	-82.14	12.47	-69.67	H	95.9

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

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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. This unit was tested with its standard battery. 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 horizontally flat setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset	Page 17 of 23	

**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: 26.08 dBm = 0.405 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  39.08 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3465.00	-49.59	9.47	-40.13	H	66.2
5197.50	-30.60	10.87	-19.73	H	45.8
6930.00	-48.36	10.68	-37.68	H	63.8
8662.50	-82.60	11.25	-71.36	H	97.4
10395.00	-81.99	12.52	-69.47	H	95.5

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

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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. This unit was tested with its standard battery. 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 horizontally flat setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset		Page 18 of 23

**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: 26.19 dBm = 0.416 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  39.19 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3507.50	-47.09	9.58	-37.51	H	63.7
5261.25	-23.98	10.56	-13.41	H	39.6
7015.00	-47.52	10.86	-36.66	H	62.9
8768.75	-82.83	11.50	-71.32	H	97.5
10522.50	-81.78	12.55	-69.23	H	95.4

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

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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. This unit was tested with its standard battery. 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 horizontally flat setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset		Page 19 of 23

## 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: 24.16 dBm = 0.261 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  37.16 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3702.50	-33.47	9.62	-23.85	H	48.0
5553.75	-45.57	10.61	-34.96	H	59.1
7405.00	-47.87	10.84	-37.03	H	61.2
9256.25	-45.87	12.20	-33.67	H	57.8
11107.50	-79.91	12.86	-67.05	H	91.2

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

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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. This unit was tested with its standard battery. 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 horizontally flat setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset	Page 20 of 23	

**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: 26.68 dBm = 0.465 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  39.68 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-28.65	9.30	-19.35	H	46.0
5640.00	-51.34	10.89	-40.45	H	67.1
7520.00	-46.31	10.85	-35.46	H	62.1
9400.00	-45.47	12.17	-33.30	H	60.0
11280.00	-79.75	13.05	-66.70	H	93.4

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

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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. This unit was tested with its standard battery. 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 horizontally flat setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset	Page 21 of 23	

**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: 25.49 dBm = 0.354 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  38.49 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3817.50	-35.66	9.05	-26.61	H	52.1
5726.25	-52.73	11.07	-41.65	H	67.1
7635.00	-46.32	11.11	-35.21	H	60.7
9543.75	-45.22	12.36	-32.87	H	58.4
11452.50	-79.45	13.23	-66.22	H	91.7

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

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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. This unit was tested with its standard battery. 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 horizontally flat setup. The data reported in the table above was measured in this test setup.

FCC ID: ZNFMS695	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset		Page 22 of 23

## 7.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFMS695** complies with all the requirements of Parts 2, 22, 24, and 27 of the FCC rules and RSS-139 of the Industry Canada rules.

FCC ID: ZNFMS695		FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112192172.ZNF	Test Dates: December 19-21, 2011	EUT Type: Portable Handset		Page 23 of 23