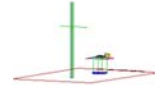




# PCTEST ENGINEERING LABORATORY, INC.

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## MEASUREMENT REPORT FCC PART 15.247 / IC RSS-210 WLAN 802.11a/b/g/n

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

**Date of Testing:**  
January 17 - 22, 2013  
**Test Site/Location:**  
PCTEST Lab, Columbia, MD, USA  
**Test Report Serial No.:**  
0Y1301150082.ZNF

<b>FCC ID:</b>	<b>ZNFVS870</b>
<b>APPLICANT:</b>	<b>LG Electronics MobileComm U.S.A</b>

**Application Type:** Class II Permissive Change  
**Model(s):** VS870, LG-VS870, LGVS870, LG-AS870, LGAS870, AS870  
**EUT Type:** Portable Handset  
**FCC Classification:** Digital Transmission System (DTS)  
**FCC Rule Part(s):** Part 15.247  
**IC Specification(s):** RSS-210 Issue 8  
**Test Procedure(s):** ANSI C63.10-2009, KDB 558074 v02  
**Class II Permissive Change:** Please see FCC change documents.  
**Original Grant Date:** January 22, 2013

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 ANSI C63.10-2009 and KDB 558074. 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.

Randy Ortañez  
President





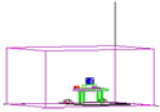
<b>FCC ID:</b> ZNFVS870		<b>FCC Pt. 15.247 802.11a/b/g/n MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</b>		<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y1301150082.ZNF	<b>Test Dates:</b> January 17 - 22, 2013	<b>EUT Type:</b> Portable Handset		Page 1 of 19

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<b>Test Report S/N:</b> 0Y1301150082.ZNF	<b>Test Dates:</b> January 17 - 22, 2013	<b>EUT Type:</b> Portable Handset	Page 2 of 19	



# MEASUREMENT REPORT

## FCC Part 15.247

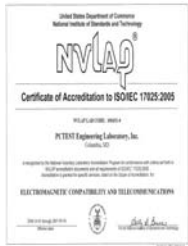
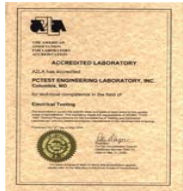


### § 2.1033 General Information



**APPLICANT:** LG Electronics MobileComm U.S.A  
**APPLICANT ADDRESS:** 1000 Sylvan Avenue  
 Englewood Cliffs, NJ 07632, United States  
**TEST SITE:** PCTEST ENGINEERING LABORATORY, INC.  
**TEST SITE ADDRESS:** 6660-B Dobbin Road, Columbia, MD 21045 USA  
**FCC RULE PART(S):** Part 15.247  
**IC SPECIFICATION(S):** RSS-210 Issue 8  
**MODEL NAME:** VS870  
**FCC ID:** ZNFVS870  
**Test Device Serial No.:** N/A       Production     Pre-Production     Engineering  
**FCC CLASSIFICATION:** Digital Transmission System (DTS)  
**DATE(S) OF TEST:** January 17 - 22, 2013  
**TEST REPORT S/N:** 0Y1301150082.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> ZNFVS870	 <b>FCC Pt. 15.247 802.11a/b/g/n MEASUREMENT REPORT</b> <b>(CLASS II PERMISSIVE CHANGE)</b>			<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y1301150082.ZNF	<b>Test Dates:</b> January 17 - 22, 2013	<b>EUT Type:</b> Portable Handset		Page 3 of 19

# 1.0 INTRODUCTION

## 1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) 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 PCTEST Test Location

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity, 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 C63.4-2009 on January 10, 2012.

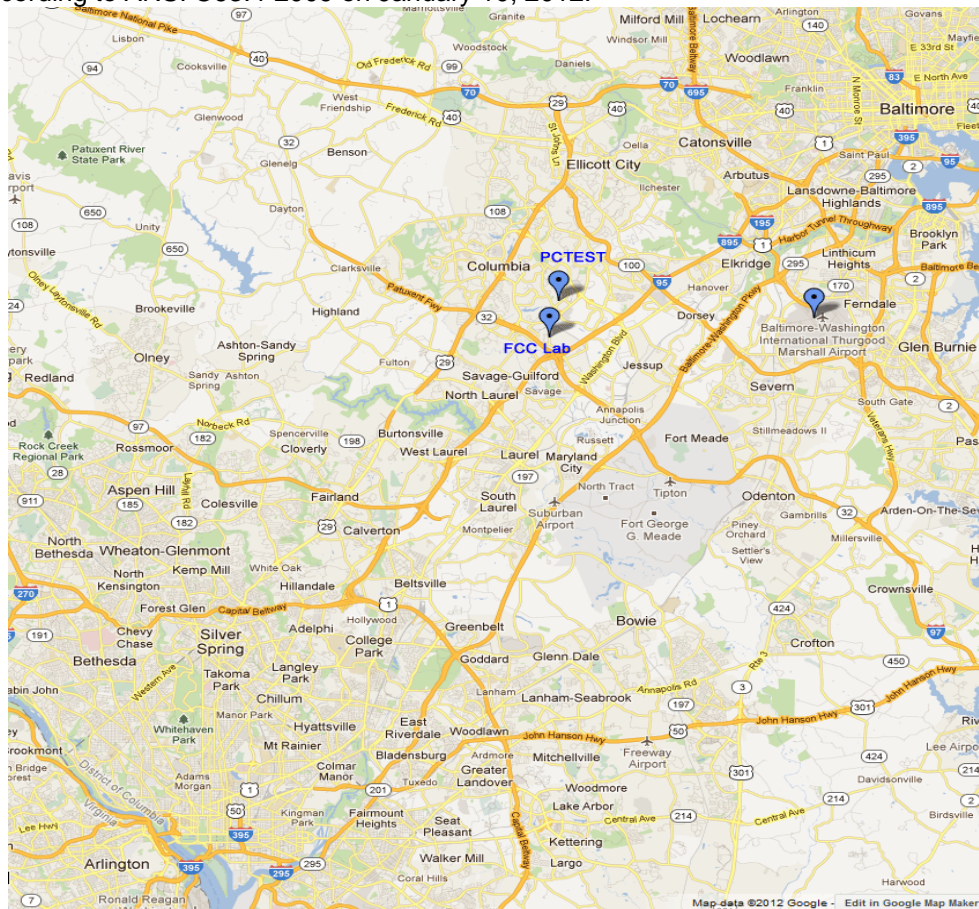

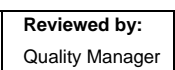


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFVS870**. The test data contained in this report pertains only to the emissions due to the EUT's WLAN (DTS) transmitter.

### 2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A (BC0, BC1), Band 13 LTE, 802.11a/b/g/n WLAN (DTS/NII), Bluetooth (1x,EDR,LE)

**Note:** 5GHz WLAN (DTS/NII) operation is possible in 20MHz and 40MHz channel bandwidths.

### 2.3 Test Configuration

The LG Portable Handset FCC ID: ZNFVS870 was tested per the guidance of ANSI C63.10-2009 and KDB 558074. KDB 558074 was used in its entirety throughout the testing for this device. See Section 6.2 of this test report for a description of the radiated emissions test setup.

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



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

### 2.5 Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

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(a)(5).

Please see attachment for FCC ID label and label location.



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## 3.0 DESCRIPTION OF TEST

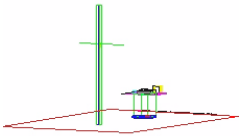
### 3.1 Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2009), and the guidance provided in KDB 558074 were used in the measurement of the **LG Portable Handset FCC ID: ZNFVS870**.

Deviation from measurement procedure.....None

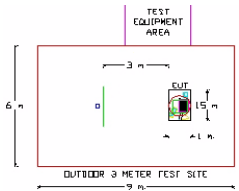
<b>FCC ID:</b> ZNFVS870		<b>FCC Pt. 15.247 802.11a/b/g/n MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</b>		<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y1301150082.ZNF	<b>Test Dates:</b> January 17 - 22, 2013	<b>EUT Type:</b> Portable Handset	Page 6 of 19	

### 3.2 Radiated Emissions



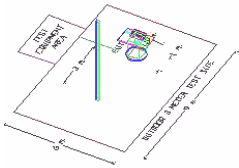
**Figure 3-1. 3-Meter Test Site**

The radiated test facilities consisted of an indoor semi-anechoic chamber used for exploratory measurements and an open area test site (OATS) used for final measurements. For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies higher than the upper frequency range of the broadband antenna used for testing, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used.



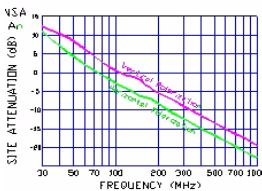
**Figure 3-2. Dimensions of Outdoor Test Site**

Exploratory measurements were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of a 0.8 meter high non-metallic 1 x 1.5 meter table (see Figure 3-3). The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, turntable azimuth, and receive antenna height was noted for each frequency found. To record the exploratory measurements, the analyzers' detector function was set to peak mode and the bandwidth was set to 100kHz.



**Figure 3-3. Turntable and System Setup**

Final measurements were made on the OATS at 3 meter test range using calibrated, linearly polarized broadband or horn antennas (see Figure 3-1). The measurement area is situated on an 18 meter x 20 meter galvanized 1/2" hardware cloth as the conducting ground plane. This material is sewn together in sections 4 feet wide and 60 feet long. A total of eighteen sections are required to cover the entire measurement area. Sections are laid across the width of the pad, overlapped 1" and sewn and soldered together at intervals of 3" (7.6 cm.) The terrain of the test site is reasonably flat and level. Power and cable to the test site are buried 18" deep into the ground outside the perimeter of the site. An all-weather non-metallic housing is situated on a 2 x 3 meter area adjacent to the measurement area to house the test equipment (see Figure 3-2). The test set-up was again placed on top of the same a 0.8 meter high non-metallic 1 x 1.5 meter table on the OATS as used for exploratory measurements in the indoor chamber. The test set-up was re-configured to the same setup that was previously determined through exploratory measurements to have produced the worst case emissions. The spectrum analyzer was set to the frequencies found to have caused the highest radiated disturbances with respect to the limit during preliminary radiated measurements. The turntable containing the system was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was re-maximized by varying: the mode of operation or resolution, clock or data exchange speed, scrolling H pattern to the EUT and/or support equipment, powering the monitor from the floor mounted outlet box and the computer aux AC outlet, if applicable, and changing the polarity of the receive antenna, whichever produced the worst-case emissions. The Theoretical Normalized Site Attenuation Curves for both horizontal and vertical polarization are shown in Figure 3-4.



**Figure 3-4. Normalized Site Attenuation Curves (H&V)**

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## 4.0 ANTENNA REQUIREMENTS

**Excerpt from §15.203 of the FCC Rules/Regulations:**

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antennas of the Portable Handset are **permanently attached**.
- There are no provisions for connection to an external antenna.

**Conclusion:**

The **LG Portable Handset FCC ID: ZNFVS870** unit complies with the requirement of §15.203.

Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437		

Ch.	BW (MHz)	Frequency (MHz)
149	20	5745
151	20 / 40	5755
153	20	5765
155	20	5775
157	20	5785

Ch.	BW (MHz)	Frequency (MHz)
159	20 / 40	5795
161	20	5805
163	20	5815
165	20	5825

**Table 4-1. Frequency/ Channel Operations**





## 5.0 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
-	WL25-1	Conducted WLAN Cable Set (25GHz)	2/13/2012	Annual	2/13/2013	N/A
-	RE2	Radiated Emissions Cable Set (VHF/UHF)	2/13/2012	Annual	2/13/2013	N/A
-	40G-1R	40GHz Radiated Cable Set	2/23/2012	Annual	2/23/2013	N/A
-	WL40-1	Conducted WLAN Cable Set (40GHz)	2/24/2012	Annual	2/24/2013	N/A
Agilent	8447D	Broadband Amplifier	5/8/2012	Annual	5/8/2013	2443A01900
Agilent	E4448A	PSA (3Hz-50GHz) Spectrum Analyzer	2/15/2012	Annual	2/15/2013	US42510244
Agilent	N9030A	PXA Signal Analyzer	2/23/2012	Annual	2/23/2013	MY49432391
Anritsu	MA2411B	Power Sensor	3/5/2012	Annual	3/5/2013	846215
Anritsu	ML2495A	Power Meter	10/13/2012	Annual	10/13/2013	1039008
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	Annual	5/30/2013	135427
ETS Lindgren	3160-10	26.5 - 40 GHz Standard Gain Horn	6/6/2012	Biennial	6/6/2014	130993
Mini-Circuits	VHF-3100+	High Pass Filter	1/15/2012	Annual	1/15/2014	30841
Mini-Circuits	VHF-3100+	High Pass Filter	2/7/2012	Annual	2/7/2013	31144
Mini-Circuits	VHF-8400+	3.4GHz - 9.9GHz High Pass Filter	2/28/2012	Annual	2/28/2013	31048
Rohde & Schwarz	RS-PR18	1-18 GHz Pre-Amplifier	6/26/2012	Annual	6/26/2013	100071
Rohde & Schwarz	RS-PR26	18-26.5 GHz Pre-Amplifier	5/30/2012	Annual	5/30/2013	100040
Rohde & Schwarz	RS-PR40	26.5-40GHz Pre-Amplifier	6/6/2012	Annual	6/6/2013	100037
Rohde & Schwarz	ESU26	EMI Test Receiver	12/15/2012	Annual	1/15/2014	100342
Solar Electronics	8012-50-R-24-BNC	LISN	6/23/2011	Biennial	6/23/2013	310233
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	1/26/2012	Biennial	1/26/2014	A051107

**Table 5-1. Annual Test Equipment Calibration Schedule**

<b>FCC ID:</b> ZNFVS870		<b>FCC Pt. 15.247 802.11a/b/g/n MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</b>		<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y1301150082.ZNF	<b>Test Dates:</b> January 17 - 22, 2013	<b>EUT Type:</b> Portable Handset	Page 9 of 19	

## 6.0 TEST RESULTS

### 6.1 Summary



Company Name: LG Electronics MobileComm U.S.A  
 FCC ID: ZNFVS870  
 FCC Classification: Digital Transmission System (DTS)  
 Data Rate(s) Tested: 1Mbps, 2Mbps, 5.5Mbps, 11Mbps (b)  
6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps (a/g)  
6.5/7.2Mbps, 13/14.4Mbps, 19.5/21.7Mbps, 26/28.9Mbps, 39/43.3Mbps,  
52/57.8Mbps, 58.5/65Mbps, 65/72.2Mbps (n – 20MHz)  
13.5/15Mbps, 27/30Mbps, 40.5/45Mbps, 54/60Mbps, 81/90Mbps, 108/120Mbps,  
121.5/135Mbps, 135/150Mbps (n – 40MHz)

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
<b>TRANSMITTER MODE (TX)</b>						
15.205 15.209	RSS-210 [A8.5]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	RADIATED	PASS	Sections 6.2, 6.3

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

**Notes:**

- All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.

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## 6.2 Radiated Spurious Emission Measurements

§15.247(d) / §15.205 & §15.209; RSS-210 [A8.5]

### Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle (>98%), at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

**All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table 6-2 per Section 15.209.**

Frequency	Field Strength [ $\mu\text{V/m}$ ]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

**Table 6-2. Radiated Limits**

### Test Procedures Used

ANSI C63.10-2009



KDB 558074 v02 – Section 10.2.3.3 (average power measurements)

KDB 558074 v02 – Section 10.2.3.2 (peak power measurements)

### Test Settings

#### Average Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz (per KDB 558074 v02 Section 10.2.3.3)
3. RBW = 1MHz
4. VBW = 3MHz
5. Detector = power average (RMS)
6. Number of measurement points = 1001 (Number of points must be  $\geq 2 \times \text{span/RBW}$ )

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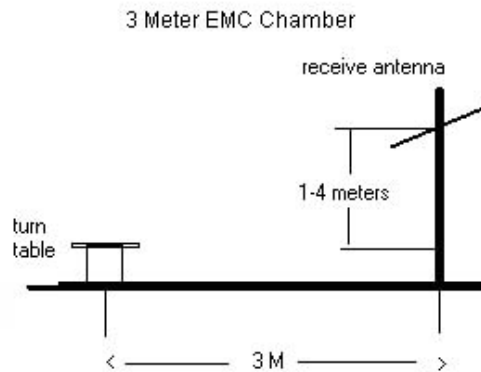
7. Sweep time = 1 second (Sweep time must be  $\geq 10 \times$  (number of measurement points in sweep)  $\times$  (transmission symbol period), where the transmission symbol period (in seconds) is defined as the reciprocal of the symbol rate (in bauds or symbols per second). See "Sample Calculations" section below for sample calculations on determining the minimum sweep time based on the EUT transmission data rate)
8. Measurement was performed over a single sweep

**Peak Measurements**



1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 1MHz (per KDB 558074 v02 Section 10.2.3.2)
4. VBW = 3MHz
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Trace was allowed to stabilize

**Test Setup**

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 6-1. Test Instrument & Measurement Setup**

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## Test Notes

1. The optional test procedures for antenna port conducted measurements of unwanted emissions per the guidance of KDB 558074 v02 were not used to evaluate this device.
2. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 6-10.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
6. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. Average levels at -135dBm and peak levels at -125dBm represent the analyzer noise floor and signify that no emission was detected.

## Sample Calculations

### Determining Spurious Emissions Levels

- Field Strength Level  $_{[dB\mu V/m]} = \text{Analyzer Level}_{[dBm]} + 107 + \text{AFCL}_{[dB/m]}$
- $\text{AFCL}_{[dB/m]} = \text{Antenna Factor}_{[dB/m]} + \text{Cable Loss}_{[dB]}$
- $\text{Margin}_{[dB]} = \text{Field Strength Level}_{[dB\mu V/m]} - \text{Limit}_{[dB\mu V/m]}$



### Determining Minimum Sweep Times

- “Transmission Symbol Period” is defined as the reciprocal of the symbol rate,  $R_s$
- An 802.11b signal operating at 1Mbps uses BPSK modulation which uses 2 bits/symbol and, thus, has a symbol rate,  $R_s$ , of 0.5Msps
- $\text{Transmission Symbol Period} = 1/R_s = 2\mu s$
- $\text{Minimum sweep time} = 10 \times (\text{number of measurement points in sweep}) \times (\text{transmission symbol period}) = 10 \times 1001 \text{ points} \times 2\mu s = 20ms$

### Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots in Section 6.8 was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + 10 \text{ dB Attenuator}) - \text{Preamplifier Gain}$$

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## Radiated Spurious Emission Measurements (Cont'd)

§15.247(d) / §15.205 & §15.209; RSS-210 [A8.5]

Worst Case Mode: 802.11b  
 Worst Case Transfer Rate: 1 Mbps  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 2412MHz  
 Channel: 01



Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
4824.00	-104.08	Avg	H	42.17	45.10	53.98	-8.88
4824.00	-95.43	Peak	H	42.17	53.75	73.98	-20.23
12060.00	-135.00	Avg	H	66.72	38.72	53.98	-15.26
12060.00	-125.00	Peak	H	66.72	48.72	73.98	-25.26

**Table 6-3. Radiated Measurements**

Worst Case Mode: 802.11b  
 Worst Case Transfer Rate: 1 Mbps  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 2437MHz  
 Channel: 06

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
4874.00	-100.97	Avg	H	42.26	48.29	53.98	-5.69
4874.00	-94.36	Peak	H	42.26	54.90	73.98	-19.08
7311.00	-135.00	Avg	H	48.89	20.89	53.98	-33.09
7311.00	-125.00	Peak	H	48.89	30.89	73.98	-43.09
12185.00	-135.00	Avg	H	68.94	40.94	53.98	-13.04
12185.00	-125.00	Peak	H	68.94	50.94	73.98	-23.04

**Table 6-4. Radiated Measurements**

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## Radiated Spurious Emission Measurements (Cont'd)

§15.247(d) / §15.205 & §15.209; RSS-210 [A8.5]

Worst Case Mode: 802.11b  
 Worst Case Transfer Rate: 1 Mbps  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 2462MHz  
 Channel: 11



Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4924.00	-105.23	Avg	H	42.38	44.15	53.98	-9.83
4924.00	-95.77	Peak	H	42.38	53.61	73.98	-20.37
7386.00	-135.00	Avg	H	48.92	20.92	53.98	-33.06
7386.00	-125.00	Peak	H	48.92	30.92	73.98	-43.06
12310.00	-135.00	Avg	H	70.78	42.78	53.98	-11.20
12310.00	-125.00	Peak	H	70.78	52.78	73.98	-21.20

**Table 6-5. Radiated Measurements**

Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6 Mbps  
 Distance of Measurements: 1 Meter  
 Operating Frequency: 5745MHz  
 Channel: 149

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
11490.00	-70.05	Avg	H	56.81	-9.54	47.76	53.98	-6.22
11490.00	-60.07	Peak	H	56.81	-9.54	57.74	73.98	-16.24
22980.00	-135.00	Avg	H	44.44	0.00	16.44	53.98	-37.54
22980.00	-125.00	Peak	H	44.44	0.00	26.44	73.98	-47.54

**Table 6-6. Radiated Measurements**

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**Radiated Spurious Emission Measurements (Cont'd)**  
**§15.247(d) / §15.205 & §15.209; RSS-210 [A8.5]**

Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6 Mbps  
 Distance of Measurements: 1 Meter  
 Operating Frequency: 5785MHz  
 Channel: 157

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
11570.00	-71.20	Avg	H	56.32	-9.54	46.18	53.98	-7.80
11570.00	-60.25	Peak	H	56.32	-9.54	57.13	73.98	-16.85

**Table 6-7. Radiated Measurements**

Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6 Mbps  
 Distance of Measurements: 1 Meter  
 Operating Frequency: 5825MHz  
 Channel: 165

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
11650.00	-70.08	Avg	H	56.05	-9.54	47.09	53.98	-6.88
11650.00	-60.38	Peak	H	56.05	-9.54	56.79	73.98	-17.18

**Table 6-8. Radiated Measurements**





### 6.3 Radiated Restricted Band Edge Measurements §15.205 / §15.209; RSS-210 [A8.5]

The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.

Worst Case Mode: 802.11g  
 Worst Case Transfer Rate: 6Mbps  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 2412MHz  
 Channel: 1

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBmV/m]	Limit [dBmV/m]	Margin [dB]
2384.32	-97.57	Avg	H	36.29	45.71	53.98	-8.27
2384.32	-84.06	Peak	H	36.29	59.22	73.98	-14.76
2388.08	-96.28	Avg	H	36.29	47.01	53.98	-6.97
2388.08	-80.57	Peak	H	36.29	62.72	73.98	-11.26
2389.84	-93.59	Avg	H	36.29	49.70	53.98	-4.28
2389.84	-77.70	Peak	H	36.29	65.59	73.98	-8.39

Plot 6-1. Radiated Restricted Lower Band Edge Measurement

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**Radiated Restricted Band Edge Measurements (Cont'd)**  
§15.205 / §15.209; RSS-210 [A8.5]

Worst Case Mode: 802.11g

Worst Case Transfer Rate: 6Mbps



Distance of Measurements: 3 Meters

Operating Frequency: 2462MHz

Channel: 11



Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
2483.53	-95.45	Avg	H	36.29	47.83	53.98	-6.15
2483.53	-80.44	Peak	H	36.29	62.84	73.98	-11.14
2484.41	-96.80	Avg	H	36.29	46.49	53.98	-7.49
2484.41	-80.87	Peak	H	36.29	62.42	73.98	-11.56
2484.94	-98.27	Avg	H	36.29	45.02	53.98	-8.96
2484.94	-84.07	Peak	H	36.29	59.22	73.98	-14.76

**Plot 6-2. Radiated Restricted Upper Band Edge Measurement**

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## 7.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFVS870** is in compliance with Part 15C of the FCC Rules and RSS-210 of the Industry Canada Rules.

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