



PCTEST ENGINEERING LABORATORY, INC.

6660-B Dobbin Road, Columbia, MD 21045 USA
Tel. 410.290.6652 / Fax 410.290.6654
http://www.pctestlab.com



MEASUREMENT REPORT FCC PART 15.247 / IC RSS-210 Bluetooth (Low Energy)

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

Date of Testing:
Feb 15, 2013
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Test Report Serial No.:
0Y1302130276.ZNF

FCC ID:	ZNFE980
APPLICANT:	LG Electronics MobileComm U.S.A

Application Type: Class II Permissive Change
Model: E980, LGE980, LG-E980
EUT Type: Portable Handset
Frequency Range: 2402 - 2480 MHz
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
Class II Permissive Change: Please see FCC change documents.
Original Grant Date: 3/21/2013

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. 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 Ortanez
 President







FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset		Page 1 of 16

TABLE OF CONTENTS

FCC PART 15.247 MEASUREMENT REPORT.....	3
1.0 INTRODUCTION.....	4
1.1 SCOPE.....	4
1.2 PCTEST TEST LOCATION.....	4
2.0 PRODUCT INFORMATION.....	5
2.1 EQUIPMENT DESCRIPTION.....	5
2.2 DEVICE CAPABILITIES.....	5
2.3 TEST CONFIGURATION.....	5
2.4 EMI SUPPRESSION DEVICE(S)/MODIFICATIONS.....	5
2.5 LABELING REQUIREMENTS.....	5
3.0 DESCRIPTION OF TEST.....	6
3.1 EVALUATION PROCEDURE.....	6
3.2 RADIATED EMISSIONS.....	6
4.0 ANTENNA REQUIREMENTS.....	7
5.0 TEST EQUIPMENT CALIBRATION DATA.....	8
6.0 TEST RESULTS.....	9
6.1 SUMMARY.....	9
6.2 RADIATED SPURIOUS EMISSION MEASUREMENTS.....	10
6.3 RADIATED RESTRICTED BAND EDGE MEASUREMENTS.....	15
7.0 CONCLUSION.....	16

FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset	Page 2 of 16	



MEASUREMENT REPORT

FCC Part 15.247

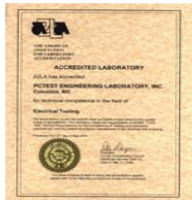


§ 2.1033 General Information



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
FCC ID: ZNFE980
Test Device Serial No.: 301KPUU000320 Production Pre-Production Engineering
FCC CLASSIFICATION: Digital Transmission System (DTS)
DATE(S) OF TEST: Feb 15, 2013
TEST REPORT S/N: 0Y1302130276.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.

FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset	Page 3 of 16	

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 area, the Baltimore-Washington Internrt'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.

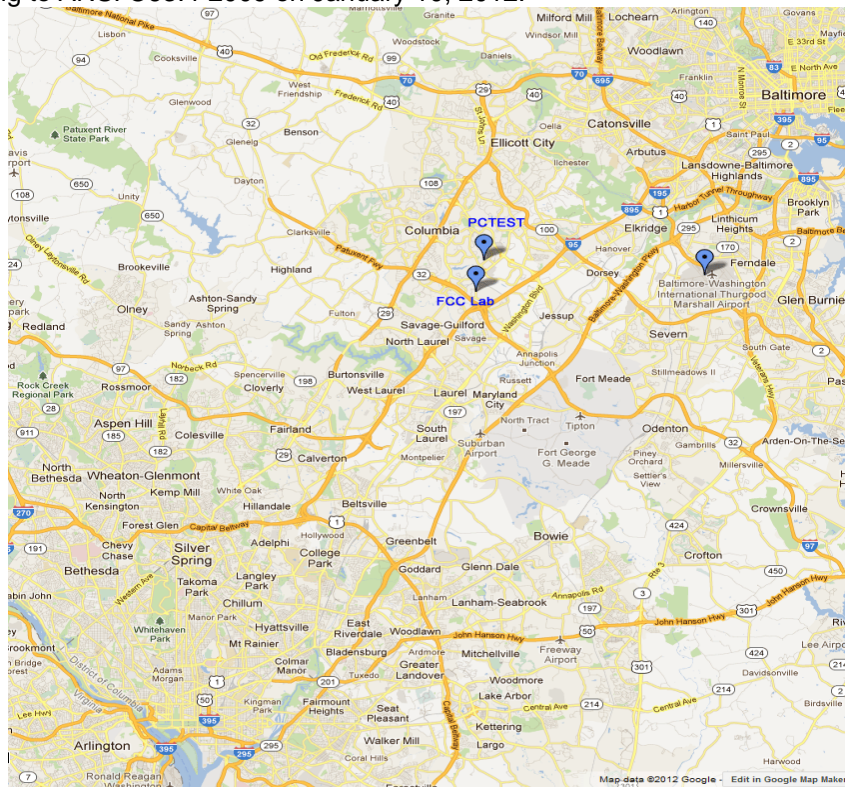


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset		Page 4 of 16

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFE980**. The data found in this test report was taken with the EUT operating in Bluetooth low energy mode. While in low energy mode, the Bluetooth transmitter hops pseudo-randomly between 40 channels, three of which are “advertising channels”. When the transmitter is hopping only between the three advertising channels, the EUT does not fall under the category of a “hopper” as defined in 15.247(a)(iii) which states that a “frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.” As operation on only the advertising channels does not qualify the EUT as a hopper, the EUT is certified as a DTS device in this mode. The data found in this report is representative of the device when it transmits on its advertising channels. Typical Bluetooth operation is covered under the DSS report found with this application.

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1900 WCDMA/HSPA, Band 2, 4, 5, 17 LTE with 5 and 10MHz Bandwidth, 802.11a/b/g/n WLAN (DTS/NIJ), Bluetooth (1x,EDR, LE), NFC

2.3 Test Configuration

The LG Portable Handset FCC ID: ZNFE980 was tested per the guidance of ANSI C63.10-2009. See Sections 3.2 of this test report for a description of the radiated emissions test setups.

Note: The EUT was tested while wirelessly charging via a representative charging pad (the LG Nexus 4 Wireless Charger Model: WCP-300). Worst case emissions from the EUT did not occur during wireless charging.

In addition, the EUT was also tested with a Folio Cover (LG-F240). Worst case emissions from the EUT did not occur this time either.

The data contained in this report represent worst case emissions.

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 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.

FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset	Page 5 of 16	

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) was used in the measurement of the **LG Portable Handset** FCC ID: ZNFE980.

Deviation from measurement procedure.....None

3.2 Radiated Emissions

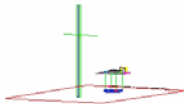


Figure 3-1. 3-Meter Test Site

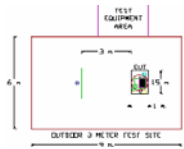


Figure 3-2. Dimensions of Outdoor Test Site

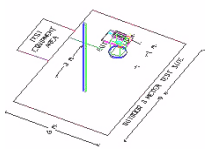


Figure 3-3. Turntable and System Setup

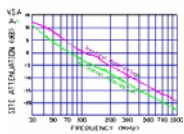


Figure 3-4. Normalized Site Attenuation Curves (H&V)

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.

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 7). 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.

Final measurements were made on the OATS at 3 meter test range using calibrated, linearly polarized broadband or horn antennas (see Figure 3 5). 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 6). 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. To record the final measurements, the analyzer detector function was set to CISPR quasi-peak mode and the bandwidth of the spectrum analyzer was set to 100kHz for frequencies below 1GHz or 1MHz for frequencies above 1GHz. For average measurements above 1GHz, the analyzer was set to peak detector with a reduced VBW setting (RBW = 1MHz, VBW = 1/THz, Where T = pulse width). Each emission reported was calibrated using a signal generator. The Theoretical Normalized Site Attenuation Curves for both horizontal and vertical polarization are shown in Figure 3 8.

FCC ID: ZNFE980	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)	LG	Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset		Page 6 of 16

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 antenna(s) of the Portable Handset are **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The **LG Portable Handset FCC ID: ZNFE980** unit complies with the requirement of §15.203.

Ch.	Frequency (MHz)
0	2402
:	:
19	2440
:	:
39	2480

Table 4-1. Frequency / Channel Operations



FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset		Page 7 of 16

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
-	BT1	Bluetooth Cable Set	1/17/2013	Annual	1/17/2014	N/A
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	7/10/2012	Annual	7/10/2013	N/A
-	RE2	Radiated Emissions Cable Set (VHF/UHF)	3/13/2012	Annual	3/13/2013	N/A
-	BT2	Bluetooth Cable Set	1/17/2013	Annual	1/17/2014	N/A
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	2/15/2013	Annual	2/15/2014	3008A00985
Agilent	85650A	Quasi-Peak Adapter	4/4/2012	Annual	4/4/2013	2043A00301
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	4/4/2012	Annual	4/4/2013	2542A11898
Agilent	N9038A	MXE EMI Receiver	12/8/2012	Annual	12/8/2013	MY51210133
Agilent	N9030A	PXA Signal Analyzer (44GHz)	1/11/2013	Annual	1/11/2014	MY52350166
Anritsu	ML2495A	Power Meter	10/11/2012	Annual	10/11/2013	1039008
Emco	3816/2	LISN	2/12/2013	Biennial	2/12/2015	9707-1077
Emco	3816/2	LISN	2/12/2013	Biennial	2/12/2015	9707-1079
Mini-Circuits	VHF-3100+	High Pass Filter	1/21/2013	Annual	1/21/2014	31144
Rohde & Schwarz	CMU200	Base Station Simulator	N/A			836536/0005
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	7/5/2011	Biennial	7/5/2013	A050307

Table 5-1. Annual Test Equipment Calibration Schedule

FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset	Page 8 of 16	

6.0 TEST RESULTS

6.1 Summary



Company Name: LG Electronics MobileComm U.S.A
 FCC ID: ZNFE980
 FCC Classification: Digital Transmission System (DTS)
 Number of Channels: 40

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (TX)						
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 (RSS-210 table 3 limits)	RADIATED	PASS	Sections 6.2, 0

Table 6-1. Summary of Test Results

Notes:

1. All modes of operation were investigated. The test results shown in the following sections represent the worst case emissions.

FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset	Page 9 of 16	

6.2 Radiated Spurious Emission Measurements

§15.205, §15.209, §15.247(d); 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 maximum power and at the appropriate frequencies. 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

Test Settings

Average Field Strength Measurements

1. RBW = 1MHz
2. VBW = 3kHz (See Note 4 in “Test Notes” section below for reasoning)
3. Detector = peak
4. Sweep time = auto coupled
5. Number of points = 1001
6. Trace mode = max hold
7. Trace was allowed to stabilize

FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset		Page 10 of 16

Peak Field Strength Measurements

1. RBW = 1MHz
2. VBW = 3MHz
3. Detector = peak
4. Sweep time = auto couple
5. Number of points = 1001
6. Trace mode = max hold
7. Trace was allowed to stabilize

Test Setup

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

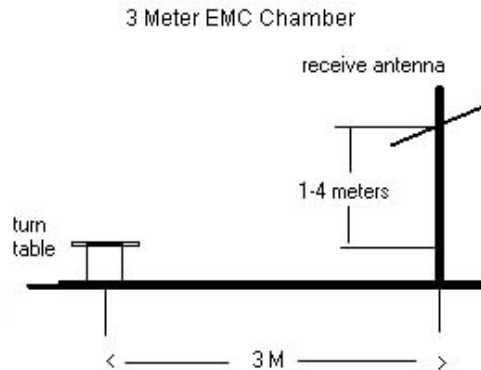




Figure 6-1. Test Instrument & Measurement Setup

Test Notes

1. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
2. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
3. 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.
4. Average measurements were recorded using a VBW of 3kHz. The rule of thumb used in order to avoid over-averaging is that the VBW must be $\geq 1/t$, where t = pulse width of emission. A VBW of 3kHz was found to be suitable to meet this guideline. Both average and peak measurements were made using a peak detector

FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset		Page 11 of 16

5. 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.
6. Average levels at -135dBm and peak levels at -125dBm represent the analyzer noise floor and signify that no emission was detected.
7. No significant radiated band edge emissions were found in the 2310 – 2390MHz restricted band.



Sample Calculations

Determining Spurious Emissions Levels

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

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:
Offset (dB) = (Antenna Factor + Cable Loss + 10 dB Attenuator) – Pre-amplifier Gain

FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset		Page 12 of 16

Radiated Spurious Emission Measurements (Cont'd)

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

Bluetooth Mode: LE

Distance of Measurements: 3 Meters

Operating Frequency: 2402MHz

Channel: 0

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol [H/V]	AFCL [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4804.00	-109.25	Avg	H	42.14	39.89	53.98	-14.09
4804.00	-98.78	Peak	H	42.14	50.36	73.98	-23.62
12010.00	-135.00	Avg	H	65.78	37.78	53.98	-16.20
12010.00	-125.00	Peak	H	65.78	47.78	73.98	-26.20

Table 6-3. Radiated Measurements @ 3 meters

Bluetooth Mode: LE



Distance of Measurements: 3 Meters

Operating Frequency: 2440MHz

Channel: 19

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol [H/V]	AFCL [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4880.00	-109.28	Avg	H	42.28	39.99	53.98	-13.99
4880.00	-99.42	Peak	H	42.28	49.86	73.98	-24.12
7320.00	-135.00	Avg	H	48.89	20.89	53.98	-33.09
7320.00	-125.00	Peak	H	48.89	30.89	73.98	-43.09
12200.00	-135.00	Avg	H	69.28	41.28	53.98	-12.70
12200.00	-125.00	Peak	H	69.28	51.28	73.98	-22.70

Table 6-4. Radiated Measurements @ 3 meters



FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset		Page 13 of 16

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

Bluetooth Mode: LE
 Distance of Measurements: 3 Meters
 Operating Frequency: 2480MHz
 Channel: 39

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol [H/V]	AFCL [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
4960.00	-108.92	Avg	H	42.49	40.57	53.98	-13.41
4960.00	-97.81	Peak	H	42.49	51.68	73.98	-22.30
7440.00	-135.00	Avg	H	49.04	21.04	53.98	-32.94
7440.00	-125.00	Peak	H	49.04	31.04	73.98	-42.94
12400.00	-135.00	Avg	H	71.87	43.87	53.98	-10.11
12400.00	-125.00	Peak	H	71.87	53.87	73.98	-20.11

Table 6-5. Radiated Measurements @ 3 meters

FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset		Page 14 of 16

6.3 Radiated Restricted Band Edge Measurements

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

Bluetooth Mode: LE

Distance of Measurements: 3 Meters

Operating Frequency: 2402MHz

Channel: 0

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol [H/V]	AFCL [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
2376.04	-108.11	Avg	H	35.78	34.67	53.98	-19.31
2376.04	-97.32	Peak	H	35.78	45.46	73.98	-28.52
2383.78	-107.45	Avg	H	35.78	35.33	53.98	-18.64
2383.78	-97.24	Peak	H	35.78	45.54	73.98	-28.44
2390.00	-107.80	Avg	H	35.84	35.05	53.98	-18.93
2390.00	-97.95	Peak	H	35.84	44.89	73.98	-29.09

Table 6-6. Radiated Restricted Band Edge Measurements (2310 – 2390MHz)

Bluetooth Mode: LE



Distance of Measurements: 3 Meters

Operating Frequency: 2480MHz

Channel: 39



Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol [H/V]	AFCL [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
2483.50	-106.34	Avg	H	36.29	36.95	53.98	-17.03
2483.50	-91.68	Peak	H	36.29	51.61	73.98	-22.37
2484.52	-106.87	Avg	H	36.29	36.41	53.98	-17.57
2484.52	-94.60	Peak	H	36.29	48.69	73.98	-25.29
2485.58	-107.33	Avg	H	36.29	35.96	53.98	-18.02
2485.58	-96.81	Peak	H	36.29	46.48	73.98	-27.50

Table 6-7. Radiated Restricted Band Edge Measurements (2483.5 – 2500MHz)

FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset		Page 15 of 16

7.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFE980** is in compliance with Part 15C of the FCC Rules and RSS-210 of the Industry Canada Rules.

FCC ID: ZNFE980		FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1302130276.ZNF	Test Dates: Feb 15, 2013	EUT Type: Portable Handset		Page 16 of 16