



PCTEST ENGINEERING LABORATORY, INC.

6660-B Dobbin Road, Columbia, MD 21045 USA
Tel. 410.290.6652 / Fax 410.290.6554
<http://www.pctestlab.com>



RF EXPOSURE EVALUATION (MAXIMUM PERMISSIBLE EXPOSURE)

Applicant Name:

LG Electronics USA
1000 Sylvan Avenue
Englewood Cliffs, NJ 07632
United States

Date of Testing:

August 3 - 6, 2007

Test Site/Location:

PCTEST Lab, Columbia, MD, USA

Test Report Serial No.:

0708070861.BEJ

FCC ID: BEJLTGEN80LNB

APPLICANT: LG Electronics USA

EUT Type: Cellular/PCS AMPS/CDMA Transceiver

FCC Rule Part(s): FCC Part 1 (§1.1310) and Part 2 (§2.1091)

FCC Classification: PCS Licensed Transmitter (PCB)

Test Procedure: OET Bulletin 65

The device bearing the FCC Identifier specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and has been tested in accordance with the measurement procedures specified in FCC OET Bulletin 65 (See Test Report). These measurements were performed with no deviation from the standards.

I authorize and 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.

NVLAP accreditation does not constitute any product endorsement by NVLAP or any agency of the United States Government. PCTEST certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.


Randy Ortanez
President

NVLAP[®]
Lab Code 100431-0

FCC ID: BEJLTGEN80LNB		MAXIMUM PERMISSIBLE EXPOSURE (MPE) DATA REPORT		Reviewed by: Quality Manager
Test Report S/N: 0708070861.BEJ	Test Dates: August 3 - 6, 2007	EUT Type: Cellular/PCS AMPS/CDMA Transceiver		Page 1 of 8

TABLE OF CONTENTS

1.0	RF EXPOSURE EVALUATION – MAXIMUM PERMISSIBLE EXPOSURE (MPE).....	3
1.1	INTRODUCTION	3
1.2	EUT DESCRIPTION	3
1.3	MPE REQUIREMENTS OVERVIEW.....	4
1.4	PROCEDURE.....	5
2.0	CONCLUSION.....	6
3.0	EQUIPMENT CALIBRATION CERTIFICATES.....	7

FCC ID: BEJLTGEN80LNB		MAXIMUM PERMISSIBLE EXPOSURE (MPE) DATA REPORT		Reviewed by: Quality Manager
Test Report S/N: 0708070861.BEJ	Test Dates: August 3 - 6, 2007	EUT Type: Cellular/PCS AMPS/CDMA Transceiver		Page 2 of 8

1.0 RF EXPOSURE EVALUATION – MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 Introduction

This document is prepared on behalf of LG Electronics USA to show compliance with the RF Exposure requirements as required in §1.1310 of the FCC Rules and Regulations and RSS-102 of Industry Canada.

The limit for Maximum Permissible Exposure (MPE), specified in FCC §1.1310, is listed in Table 1-1. According to FCC §1.1310 and RSS-102: the criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b).

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits For Occupational / Control Exposures (f = frequency)				
30-300	61.4	0.163	1.0	6
300-1500	...	...	f/300	6
1500-100,000	...	...	5.0	6
(B) Limits For General Population / Uncontrolled Exposure (f = frequency)				
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

Table 1-1. Limits for Maximum Permissible Exposure (MPE)

1.2 EUT Description

The LGE Model: Gen8.0LNB is an AMPS/CDMA device with Bluetooth for vehicle use. The device contains a port for an external antenna. For the MPE evaluation the device is connected to the external accessory antenna.

EUT:

Model: Gen8.0LNB

Grantee: LG Electronics USA

FCC ID: BEJLTGEN80LNB

External Antenna Manufacturer: AC Delco

The EUT was evaluated at the low, mid, and high channel of operation in each band of operation with the maximum transmit power.

FCC ID: BEJLTGEN80LNB		MAXIMUM PERMISSIBLE EXPOSURE (MPE) DATA REPORT		Reviewed by: Quality Manager
Test Report S/N: 0708070861.BEJ	Test Dates: August 3 - 6, 2007	EUT Type: Cellular/PCS AMPS/CDMA Transceiver		Page 3 of 8

1.3 MPE Requirements Overview

Three different categories of transmitters are defined by the FCC in OET Bulletin 65. These categories are fixed installation, mobile, and portable and are defined as follows:

- o **Fixed Installations:** fixed location means that the device, including its antenna, is physically secured at a permanent location and is not able to be easily moved to another location. Additionally, distance to humans from the antenna is maintained to at least 2 meters.
- o **Mobile Devices:** a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to be generally used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structures and the body of the user or nearby persons. Transmitters designed to be used by consumers or workers that can be easily re-located, such as a wireless modem operating in a laptop computer, are considered mobile devices if they meet the 20 centimeter separation requirement. The FCC rules for evaluating mobile devices for RF compliance are found in 47 CFR §2.1091.
- o **Portable Devices:** a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user. Portable device requirements are found in Section 2.1093 of the FCC's Rules (47 CFR§2.1093).

The FCC also categorizes the use of the device as based upon the user's awareness and ability to exercise control over his or her exposure. The two categories defined are Occupational/ Controlled Exposure and General Population/Uncontrolled Exposure. These two categories are defined as follows:

- o **Occupational/Controlled Exposure:** In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. Awareness of the potential for RF exposure in a workplace or similar environment can be provided through specific training as part of a RF safety program. If appropriate, warning signs and labels can also be used to establish such awareness by providing prominent information on the risk of potential exposure and instructions on methods to minimize such exposure risks.
- o **General Population/Uncontrolled Exposure:** The general population / uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

The LGE Cellular/PCS AMPS/CDMA Transceiver FCC ID: BEJLTGEN80LNB with external antenna is evaluated to the Mobile Device requirements and is considered a device to be used by the General Population/Uncontrolled Exposure.

FCC ID: BEJLTGEN80LNB		MAXIMUM PERMISSIBLE EXPOSURE (MPE) DATA REPORT		Reviewed by: Quality Manager
Test Report S/N: 0708070861.BEJ	Test Dates: August 3 - 6, 2007	EUT Type: Cellular/PCS AMPS/CDMA Transceiver		Page 4 of 8

1.4 Procedure

The procedure used to determine the RF power density was based upon measurements taken with a near field probe at a distance of 20cm from the device while it is transmitting. Measurements were taken in the AMPS, Cellular CDMA, and PCS CDMA modes.

The LGE Cellular/PCS AMPS/CDMA Transceiver unit was setup inside a shielded anechoic chamber and set to transmit at the maximum power. A near field probe was placed 20cm from the antenna and the maximum power density was measured and recorded. The probe was moved completely around the antenna in order to capture the maximum level.

The following table lists the results of the power density measurements.

Band	Channel Frequency (MHz)	Max P _d (at 20cm) (mW/cm ²)	MPE Limit at 20cm (mW/cm ²)	Test Result
AMPS	824.04	0.1183	0.5494	PASS
	836.52	0.1336	0.5577	PASS
	848.97	0.0986	0.5660	PASS
Cellular CDMA	824.7	0.0934	0.5498	PASS
	836.52	0.0755	0.5577	PASS
	848.31	0.0891	0.5655	PASS
PCS CDMA	1851.25	0.0772	1.000	PASS
	1880	0.0810	1.000	PASS
	1908.75	0.0845	1.000	PASS

Table 2. MPE Measurement Data

Test Equipment:

Device	Manufacturer	Model	Calibration Due Date
Near field probe meter	Wandel & Goltermann	EMR-300	6/22/2008
Electric field probe	Wandel & Goltermann	Type 9.2	7/27/2008

Table 3. Test Equipment List

The first page of the calibration certificates for the E-field probe and meter are located at the end of this document.

FCC ID: BEJLTGEN80LNB		MAXIMUM PERMISSIBLE EXPOSURE (MPE) DATA REPORT		Reviewed by: Quality Manager
Test Report S/N: 0708070861.BEJ	Test Dates: August 3 - 6, 2007	EUT Type: Cellular/PCS AMPS/CDMA Transceiver		Page 5 of 8

2.0 CONCLUSION

The device meets the mobile RF exposure limit at a 20cm separation distance as specified in §2.1091 of the FCC Rules and Regulations and Health Canada Safety Code 6. An appropriate RF exposure compliance statement will be placed in the user's manual.

FCC ID: BEJLTGEN80LNB		MAXIMUM PERMISSIBLE EXPOSURE (MPE) DATA REPORT		Reviewed by: Quality Manager
Test Report S/N: 0708070861.BEJ	Test Dates: August 3 - 6, 2007	EUT Type: Cellular/PCS AMPS/CDMA Transceiver		Page 6 of 8

3.0 EQUIPMENT CALIBRATION CERTIFICATES

Narda Safety Test Solutions GmbH
Sandwiesenstrasse 7 · D-72793 Pfullingen · Germany
Phone: +49-7121-9732-0 · Fax: +49-7121-9732-790



Calibration Certificate

Narda Safety Test Solutions hereby certifies that the referenced equipment has been calibrated by qualified personnel to Narda's approved procedures. The calibration was carried out within a certified quality management system conforming to DIN EN ISO 9001:2000.

The metrological confirmation system for test equipment complies with ISO 10012-1.

Object	Electromagnetic Radiation Meter EMR-300
Type	2244/31
Serial Number	BC-0054
Manufacturer	Narda Safety Test Solutions
Customer	
Date of Calibration	22-Jun-2006
Confirmation interval (recommended)	24 months
Ambient conditions	23 °C ± 3 °C (20 ... 60) % rel. humidity
Calibration procedure	2244-8703.002

Pfullingen, 22-Jun-2006


Person in charge
Rilling


Quality management representative
W. Kumbier

This certificate may only be published in full, unless permission for the publication of an approved extract has been obtained in writing from the Managing Director.

MANAGEMENT
SYSTEM



Certified by DQS against
DIN EN ISO 9001:2000
(Reg.-No. 99379-QM)

Certificate No. 22443100-BC0054-060622

Date of issue: 22-Jun-06

Page 1 of 3

Figure 3-1. Calibration Certificate, EMR-300

FCC ID: BEJLTGEN80LNB		MAXIMUM PERMISSIBLE EXPOSURE (MPE) DATA REPORT		Reviewed by: Quality Manager
Test Report S/N: 0708070861.BEJ	Test Dates: August 3 - 6, 2007	EUT Type: Cellular/PCS AMPS/CDMA Transceiver		Page 7 of 8

Certificate of Calibration

Narda Safety Test Solutions hereby certifies that the referenced equipment has been calibrated by qualified personnel to Narda's approved procedures.

This calibration certificate confirms that all measurements lie within the limit values stated in the product specific calibration procedure and that the equipment meets, or exceeds, all published technical and functional specifications.

Description	Electric Field Probe Type 9.2
Model	2244/90.23
Serial No.	AL-0007
Manufacturer	Narda Safety Test Solutions
Customer	
Date of Calibration	27-Juli-2006
Confirmation interval recommended	24 Months
Ambient conditions	23°C +/-3K (40...60)% rel. humidity
Results filed under Certificate No.	22449023-AL0007-060727
Test procedure	2244-8705.000

The calibration was carried out within a certified quality management system conforming to **ISO 9001**.
The metrological confirmation system for test equipment complies with **ISO 10012-1**.

Pfullingen, 27-Juli-2006


Person in charge


Quality Management



Certified by DQS according to
DIN EN ISO 9001:2000
(Reg.-No. 99379-QM)

This certificate may only be published in full, unless permission for the publication of an approved extract has been obtained in writing from the Managing Director.

Certificate No. 22449023-AL0007-060727 Date of issue: 27-Juli-2006

Page 1 of 6

Figure 3-2. Calibration Certificate, E-Field Probe

FCC ID: BEJLTGEN80LNB		MAXIMUM PERMISSIBLE EXPOSURE (MPE) DATA REPORT		Reviewed by: Quality Manager
Test Report S/N: 0708070861.BEJ	Test Dates: August 3 - 6, 2007	EUT Type: Cellular/PCS AMPS/CDMA Transceiver		Page 8 of 8