



PCTEST ENGINEERING LABORATORY, INC.

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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.:

0707240762.BEJ

FCC ID: BEJLTGEN80L

APPLICANT: LG Electronics USA

EUT Type: Cellular/PCS AMPS/CDMA Transceiver with Bluetooth

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





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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: Gen8.0L 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: Gen8.0L



Grantee: LG Electronics USA

FCC ID: BEJLTGEN80L

External Antenna Manufacturer: AC Delco

External Antenna Gain: 2dBi (max)

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

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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:

- **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.
- **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.
- **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:

- **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.
- **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 with Bluetooth FCC ID: BEJLTGEN80L with external antenna is evaluated to the Mobile Device requirements and is considered a device to be used by the General Population/Uncontrolled Exposure.

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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 with Bluetooth 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.

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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.

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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. Kumbler

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

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Figure 3-1. Calibration Certificate, EMR-300

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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

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

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