



**FCC CFR47 PART 15 SUBPART C  
CLASS II PERMISSIVE CHANGE**

**CERTIFICATION TEST REPORT**

**FOR**

**DUAL BAND PHONE WITH BT & WLAN**

**MODEL NUMBER: LG-P769, LGP769, P769**

**FCC ID: ZNFP769**

**REPORT NUMBER: 12U14595-1**

**ISSUE DATE: AUGUST 24, 2012**

*Prepared for*  
**LG ELECTRONICS MOBILECOMM U.S.A., INC.  
1000 SYLVAN AVENUE  
ENGLEWOOD CLIFFS, NJ 07632**

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**NVLAP LAB CODE 200065-0**

Revision History

| <u>Rev.</u> | <u>Issue Date</u> | <u>Revisions</u> | <u>Revised By</u> |
|-------------|-------------------|------------------|-------------------|
| --          | 08/24/2012        | Initial Issue    | T. LEE            |

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** LG ELECTRONICS MOBLILECOMM USA,INC.  
1000 SYLVAN AVENUE  
ENGLEWOOD, NJ 07632, USA

**EUT DESCRIPTION:** DUAL BAND PHONE WITH BT & WLAN

**MODEL:** LG-P769, LGP769, P769

**SERIAL NUMBER:** 208KPTM229281 (Conducted)  
205KPYR203930 (Radiated)

**DATE TESTED:** AUGUST 21<sup>ST</sup> TO 24<sup>TH</sup>, 2012

| APPLICABLE STANDARDS     |              |
|--------------------------|--------------|
| STANDARD                 | TEST RESULTS |
| CFR 47 Part 15 Subpart C | PASS         |

UL CCS tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By:

Tested By:



TIM LEE  
STAFF ENGINEER  
UL CCS

STEVE AGUILAR  
EMC ENGINEER  
UL CCS

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER                             | UNCERTAINTY |
|---------------------------------------|-------------|
| Conducted Disturbance, 0.15 to 30 MHz | 3.52 dB     |
| Radiated Disturbance, 30 to 1000 MHz  | 4.94 dB     |

Uncertainty figures are valid to a confidence level of 95%.

## **5. EQUIPMENT UNDER TEST**

### **5.1. DESCRIPTION OF EUT**

The EUT is a Bluetooth transceiver.

The radio module is manufactured by Broadcom with Chipset: BCM4330X.

### **5.2. MAXIMUM OUTPUT POWER**

The measured average power values were within  $\pm 0.5$  dB of the original values. Refer to original report number 12U14516 for exact output power values and for all antenna port results.

### **5.3. DESCRIPTION OF CLASS II PERMISSIVE CHANGE**

The change filed under this application has the following changes.

Antenna pattern shape and length changed to improve RF performance.

### **5.4. DESCRIPTION OF AVAILABLE ANTENNAS**

The radio utilizes a PIFA antenna, with a maximum gain of -0.45 dBi.

### **5.5. SOFTWARE AND FIRMWARE**

The Baseband version was LGP769AT-00-V08k\_310-260-JUL 9-2012+0.  
The Kernel version was 3.0.21. The HW version was Rev. 1.0.

The firmware installed in the EUT during testing was Version 4.0.4.

The EUT software version installed during testing LGP769-V08k.

The test utility software used during testing was BT Test.

### **5.6. MODEL DIFFERENCES**

Model P769 is identical to Models LGP769 and LG-P769 except for model designation.

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## 5.7. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power.

It was determined that DH5 produced the worse-case data rate and that the x-axis yielded the worse-case orientation.

## 5.8. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

| Support Equipment List |                |          |               |        |
|------------------------|----------------|----------|---------------|--------|
| Description            | Manufacturer   | Model    | Serial Number | FCC ID |
| USB Travel Adapter     | LG Electronics | MCS-02WR | RA250126222   | N/A    |
| Headphones             | LG Electronics | N/A      | N/A           | N/A    |

### I/O CABLES

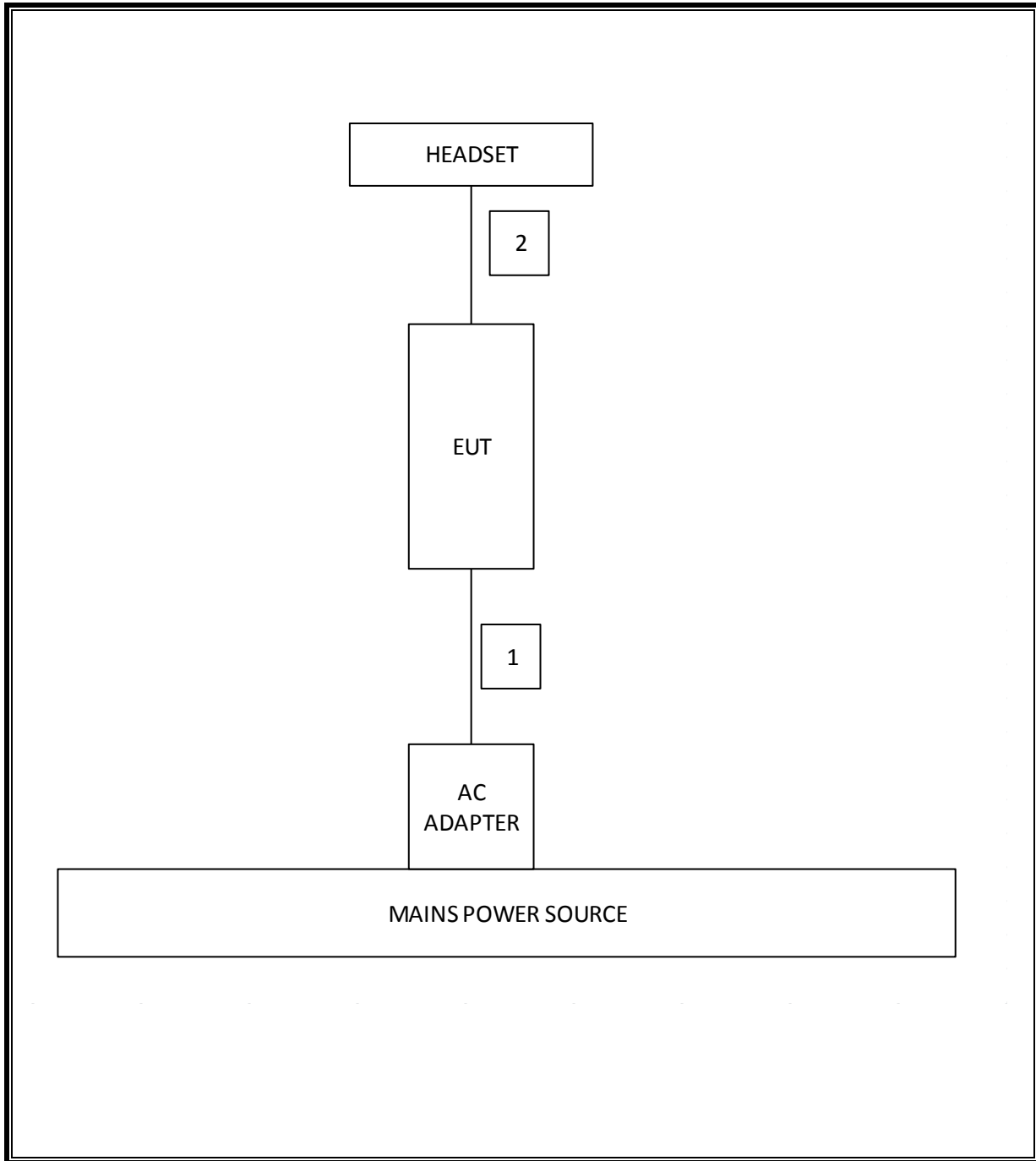
| I/O Cable List |           |                      |                |            |                  |         |
|----------------|-----------|----------------------|----------------|------------|------------------|---------|
| Cable No       | Port      | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1              | USB       | 1                    | USB            | Shielded   | 1.2m             | None.   |
| 2              | Headphone | 1                    | Audio          | Unshielded | 1.15m            | None.   |

### TEST SETUP

The EUT is a stand-alone device.



**SETUP DIAGRAM FOR TESTS**



## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| Test Equipment List         |                |            |        |            |            |
|-----------------------------|----------------|------------|--------|------------|------------|
| Description                 | Manufacturer   | Model      | Asset  | Cal Date   | Cal Due    |
| Spectrum Analyzer, 44 GHz   | Agilent / HP   | E4446A     | C01012 | 9/2/2011   | 9/2/2012   |
| Spectrum Analyzer, 44 GHz   | Agilent / HP   | E4446A     | C00986 | 3/22/2012  | 3/22/2013  |
| Power Meter                 | Agilent / HP   | E4416A     | C00963 | 12/13/2011 | 12/13/2012 |
| Peak / Average Power Sensor | Agilent / HP   | E9327A     | C00964 | 12/13/2011 | 12/13/2012 |
| Antenna, Horn, 18 GHz       | EMCO           | 3115       | C00872 | 9/20/2011  | 9/20/2012  |
| Antenna, Horn, 26.5 GHz     | ARA            | MWH-1826/B | C00589 | 7/28/2011  | 10/28/2012 |
| Antenna, Bilog, 30MHz-1 GHz | Sunol Sciences | JB1        | C01011 | 3/23/2012  | 3/23/2013  |
| Preamplifier, 1300 MHz      | Agilent / HP   | 8447D      | C00580 | 11/11/2011 | 11/11/2012 |
| CBT Bluetooth Tester        | R & S          | CBT        | --     | 5/15/2012  | 5/15/2013  |
| EMI Test Receiver, 30 MHz   | R & S          | ESHS 20    | N02396 | 8/8/2012   | 8/8/2013   |

## 7. RADIATED TEST RESULTS

### 7.1. LIMITS AND PROCEDURE

#### LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

| Frequency Range (MHz) | Field Strength Limit (uV/m) at 3 m | Field Strength Limit (dBuV/m) at 3 m |
|-----------------------|------------------------------------|--------------------------------------|
| 30 - 88               | 100                                | 40                                   |
| 88 - 216              | 150                                | 43.5                                 |
| 216 - 960             | 200                                | 46                                   |
| Above 960             | 500                                | 54                                   |

#### TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

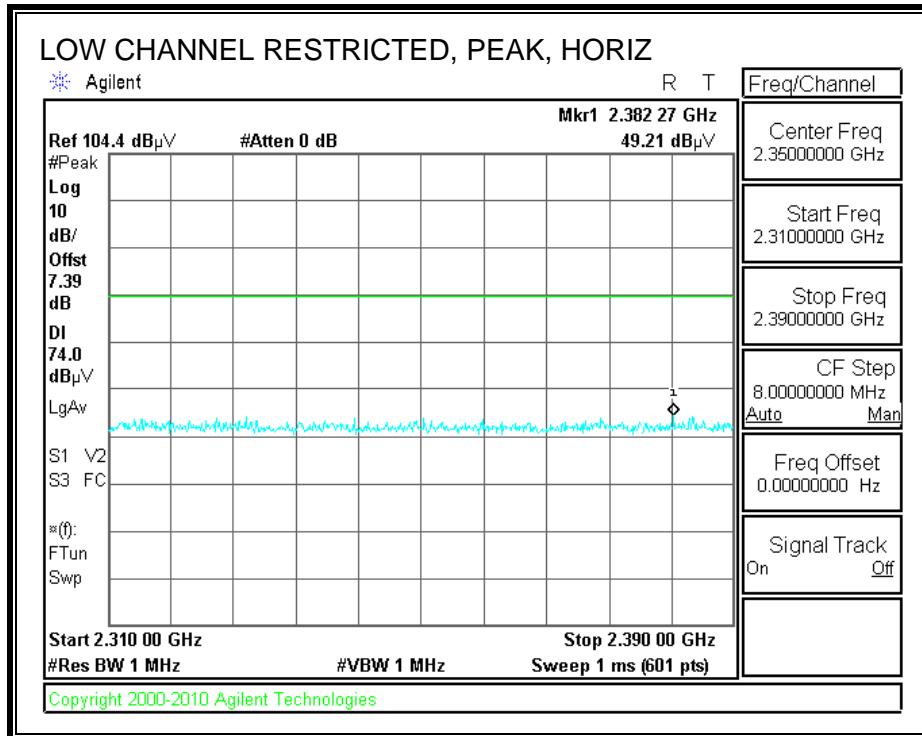
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

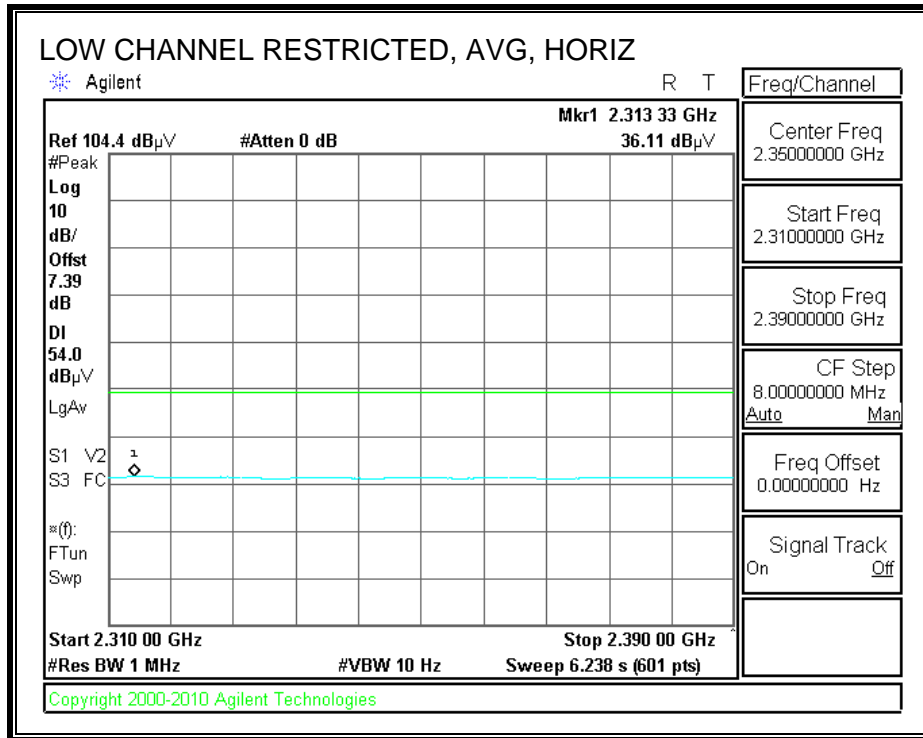
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

## 7.2. TRANSMITTER ABOVE 1 GHz

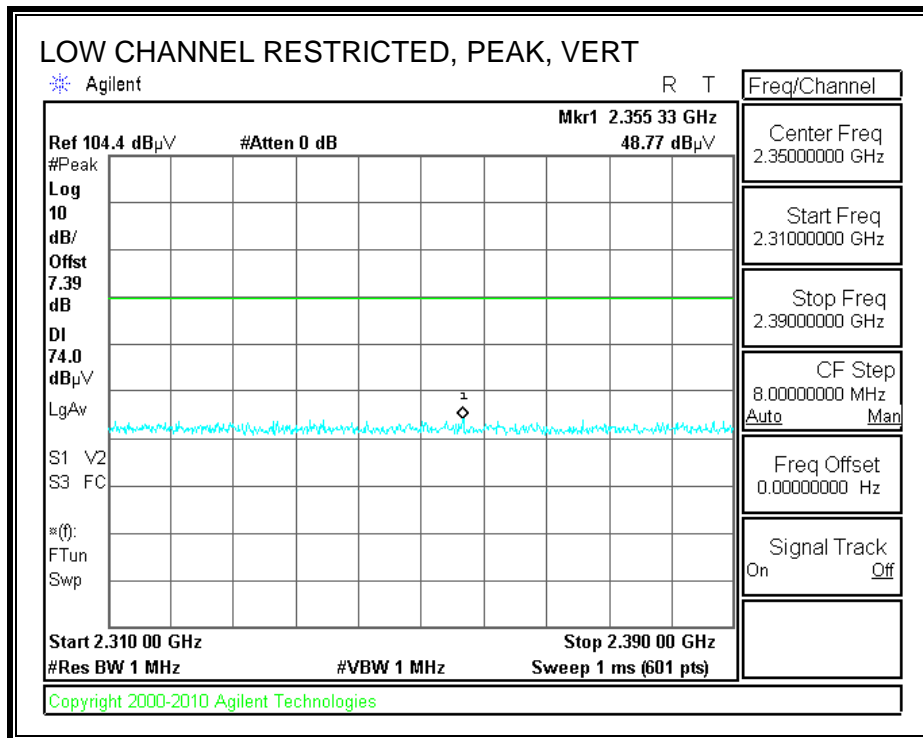
### 7.2.1. BASIC DATA RATE GFSK MODULATION

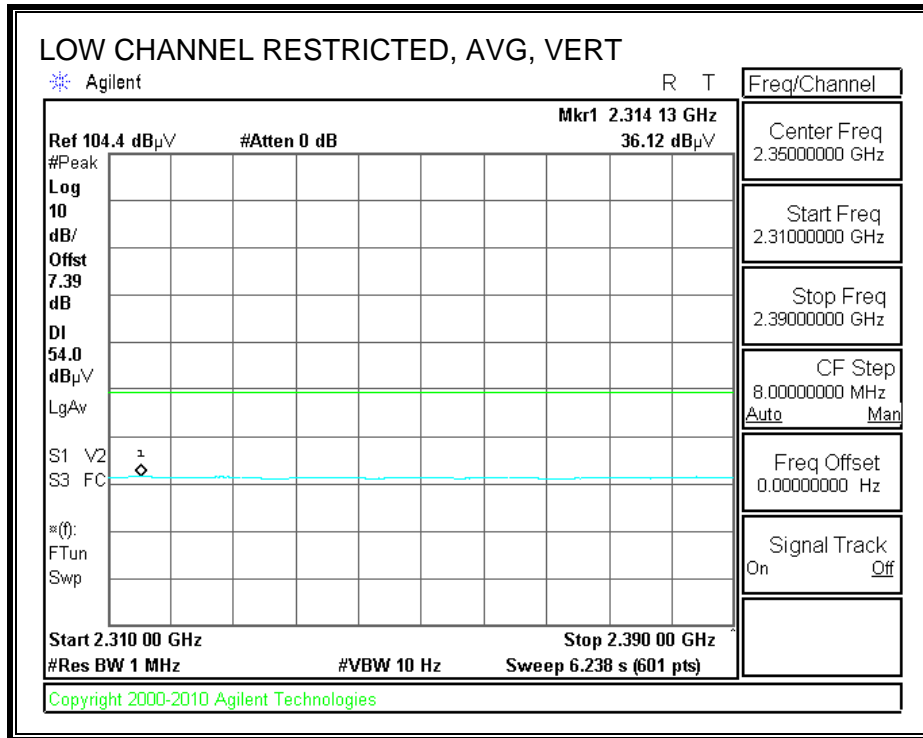
#### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



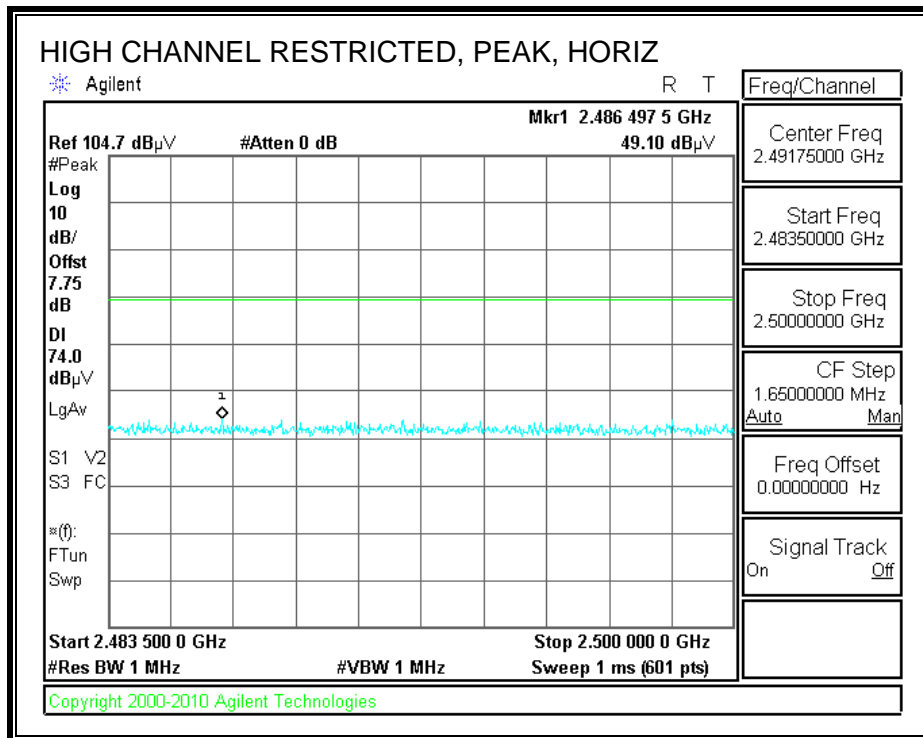


**RESTRICTED BANEDGE (LOW CHANNEL, VERTICAL)**

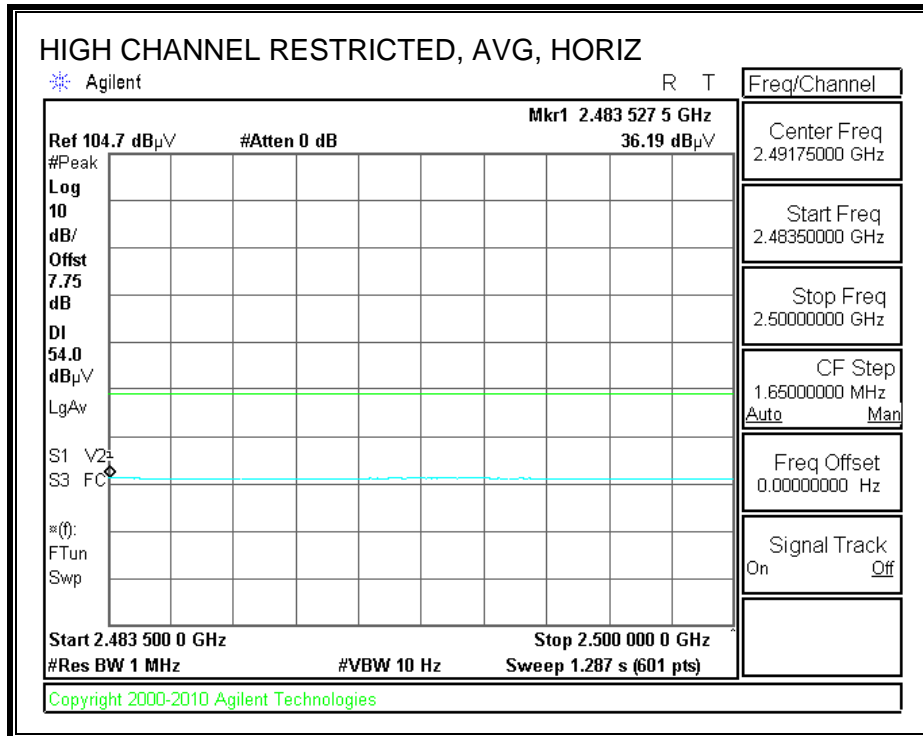




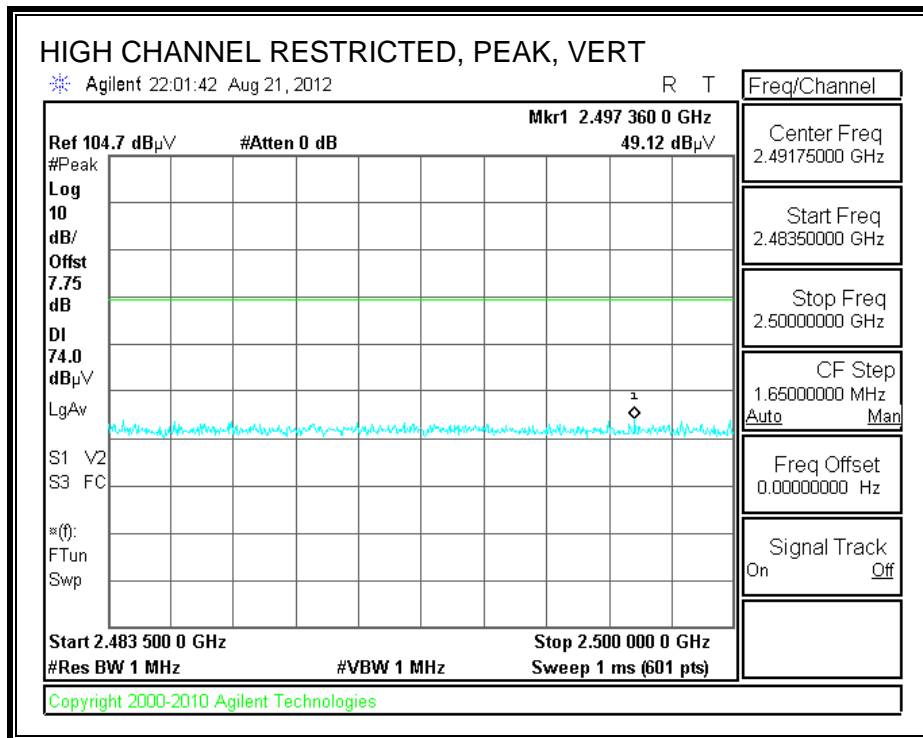
**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**

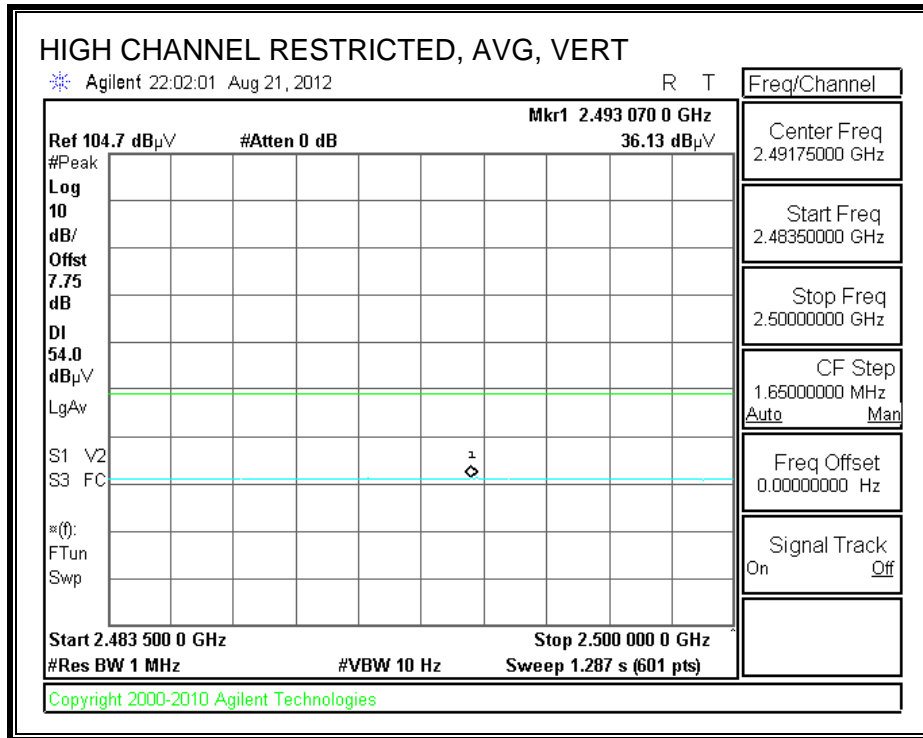






**RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**





**HARMONICS AND SPURIOUS EMISSIONS**

**High Frequency Measurement**

Compliance Certification Services, Fremont 3m Chamber

Company: LG  
 Project #: 12U14595  
 Date: 8/21/2012  
 Test Engineer: S.Aguilar  
 Configuration: Worst Case X axis Adapter + Headphone  
 Mode: BT, GFSK

**Test Equipment:**

|                    |                       |                        |              |            |
|--------------------|-----------------------|------------------------|--------------|------------|
| Horn 1-18GHz       | Pre-amplifier 1-26GHz | Pre-amplifier 26-40GHz | Horn > 18GHz | Limit      |
| T60; S/N: 2238 @3m | T34 HP 8449B          |                        |              | FCC 15.205 |

Hi Frequency Cables

|                   |                    |                    |     |               |   |
|-------------------|--------------------|--------------------|-----|---------------|---|
| 3' cable 22807700 | 12' cable 22807600 | 20' cable 22807500 | HPF | Reject Filter | Peak Measurements<br>RBW=VBW=1MHz           |
| 3' cable 22807700 | 12' cable 22807600 | 20' cable 22807500 |     | R_001         | Average Measurements<br>RBW=1MHz ; VBW=10Hz |

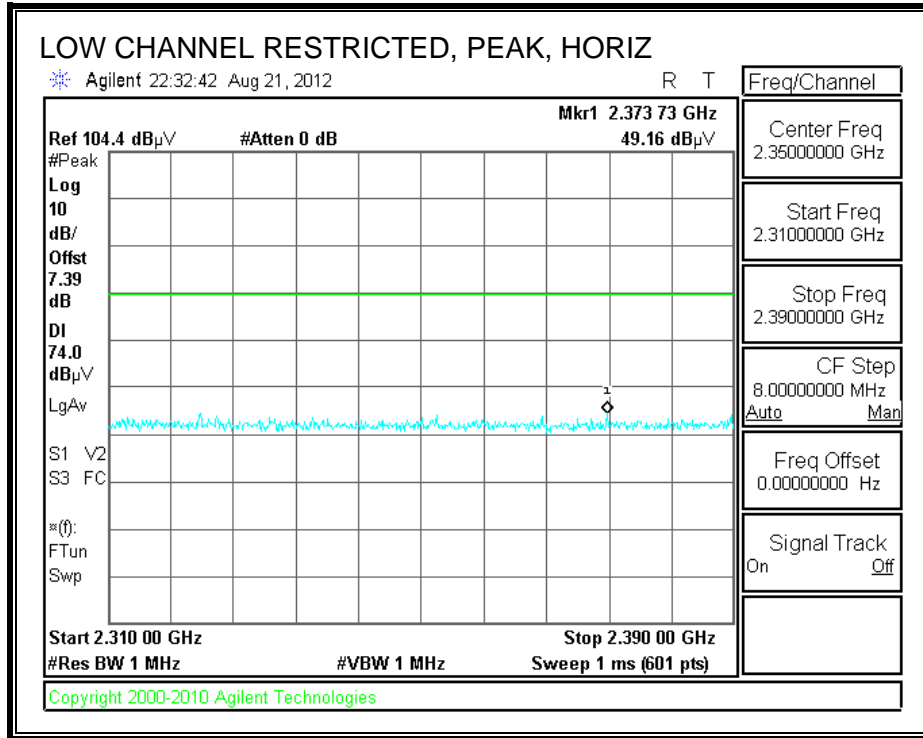
| f<br>GHz                       | Dist<br>(m) | Read Pk<br>dBuV | Read Avg.<br>dBuV | AF<br>dB/m | CL<br>dB | Amp<br>dB | D Corr<br>dB | Filtr<br>dB | Peak<br>dBuV/m | Avg<br>dBuV/m | Pk Lim<br>dBuV/m | Avg Lim<br>dBuV/m | Pk Mar<br>dB | Avg Mar<br>dB | Notes<br>(V/H) |
|--------------------------------|-------------|-----------------|-------------------|------------|----------|-----------|--------------|-------------|----------------|---------------|------------------|-------------------|--------------|---------------|----------------|
| <b>Low Channel (2402 MHz)</b>  |             |                 |                   |            |          |           |              |             |                |               |                  |                   |              |               |                |
| 4.804                          | 3.0         | 36.71           | 24.13             | 33.1       | 6.8      | -34.1     | 0.0          | 0.0         | 42.5           | 29.9          | 74               | 54                | -31.5        | -24.1         | H              |
| 4.804                          | 3.0         | 36.43           | 24.16             | 33.1       | 6.8      | -34.1     | 0.0          | 0.0         | 42.2           | 30.0          | 74               | 54                | -31.8        | -24.0         | V              |
| <b>Mid Channel (2441 MHz)</b>  |             |                 |                   |            |          |           |              |             |                |               |                  |                   |              |               |                |
| 4.882                          | 3.0         | 36.61           | 24.68             | 33.2       | 6.8      | -34.0     | 0.0          | 0.0         | 42.5           | 30.6          | 74               | 54                | -31.5        | -23.4         | H              |
| 4.882                          | 3.0         | 37.11           | 24.66             | 33.2       | 6.8      | -34.0     | 0.0          | 0.0         | 43.0           | 30.6          | 74               | 54                | -31.0        | -23.4         | V              |
| 7.323                          | 3.0         | 35.57           | 23.18             | 36.3       | 9.1      | -33.1     | 0.0          | 0.0         | 47.9           | 35.5          | 74               | 54                | -26.1        | -18.5         | H              |
| 7.323                          | 3.0         | 35.49           | 23.14             | 36.3       | 9.1      | -33.1     | 0.0          | 0.0         | 47.8           | 35.4          | 74               | 54                | -26.2        | -18.6         | V              |
| <b>High Channel (2480 MHz)</b> |             |                 |                   |            |          |           |              |             |                |               |                  |                   |              |               |                |
| 4.960                          | 3.0         | 36.08           | 24.01             | 33.2       | 6.9      | -34.0     | 0.0          | 0.0         | 42.2           | 30.1          | 74               | 54                | -31.8        | -23.9         | H              |
| 4.960                          | 3.0         | 36.10           | 24.15             | 33.2       | 6.9      | -34.0     | 0.0          | 0.0         | 42.2           | 30.2          | 74               | 54                | -31.8        | -23.8         | V              |
| 7.440                          | 3.0         | 35.04           | 22.83             | 36.5       | 9.1      | -33.0     | 0.0          | 0.0         | 47.6           | 35.4          | 74               | 54                | -26.4        | -18.6         | H              |
| 7.440                          | 3.0         | 35.59           | 22.86             | 36.5       | 9.1      | -33.0     | 0.0          | 0.0         | 48.1           | 35.4          | 74               | 54                | -25.9        | -18.6         | V              |

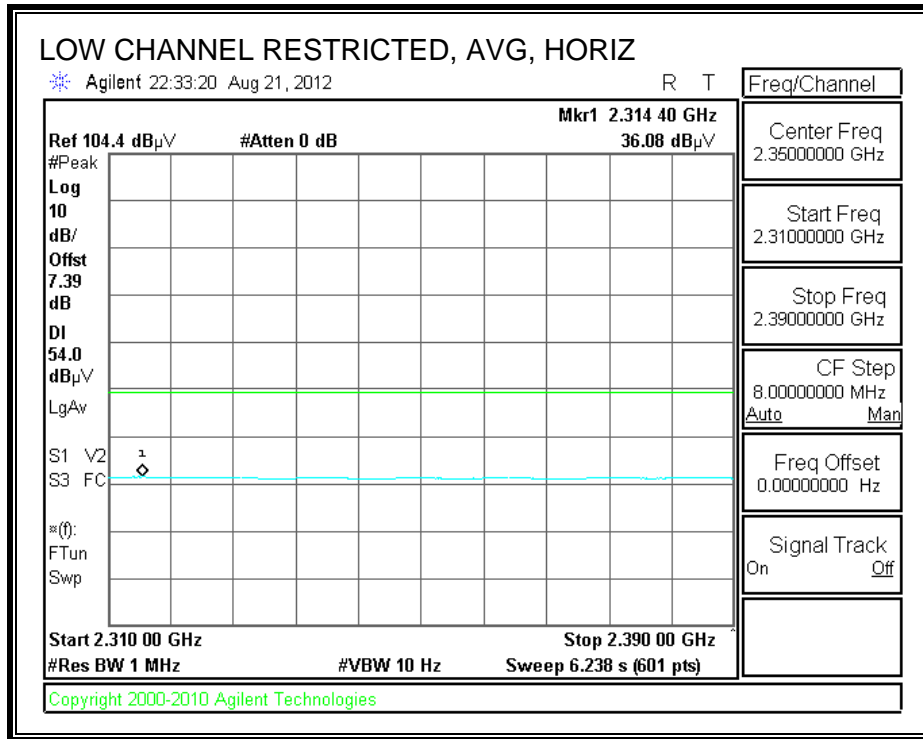
Rev. 11.10.11      Note: No other emissions were detected above the noise floor.

|      |                       |        |                                |         |                              |
|------|-----------------------|--------|--------------------------------|---------|------------------------------|
| f    | Measurement Frequency | Amp    | Preamp Gain                    | Avg Lim | Average Field Strength Limit |
| Dist | Distance to Antenna   | D Corr | Distance Correct to 3 meters   | Pk Lim  | Peak Field Strength Limit    |
| Read | Analyzer Reading      | Avg    | Average Field Strength @ 3 m   | Avg Mar | Margin vs. Average Limit     |
| AF   | Antenna Factor        | Peak   | Calculated Peak Field Strength | Pk Mar  | Margin vs. Peak Limit        |
| CL   | Cable Loss            | HPF    | High Pass Filter               |         |                              |

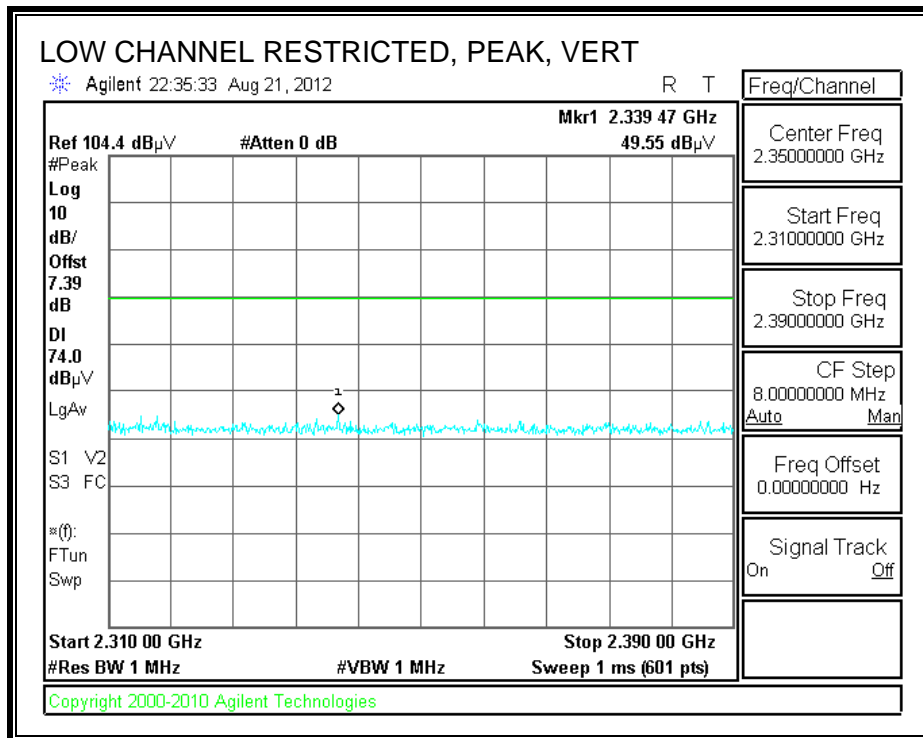
### 7.2.2. ENHANCED DATA RATE QPSK MODULATION

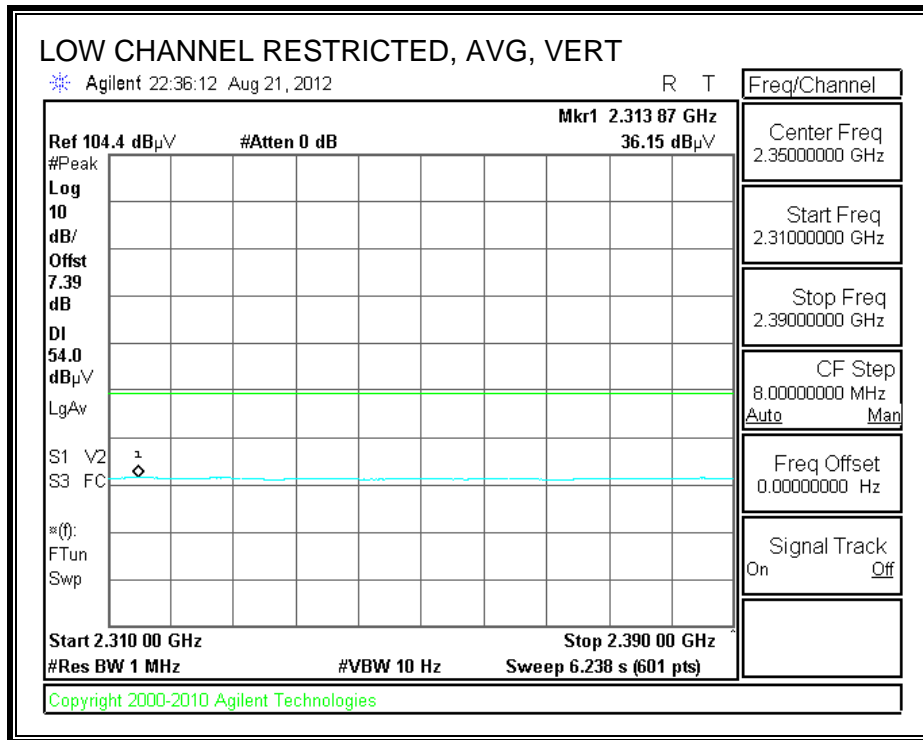
#### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





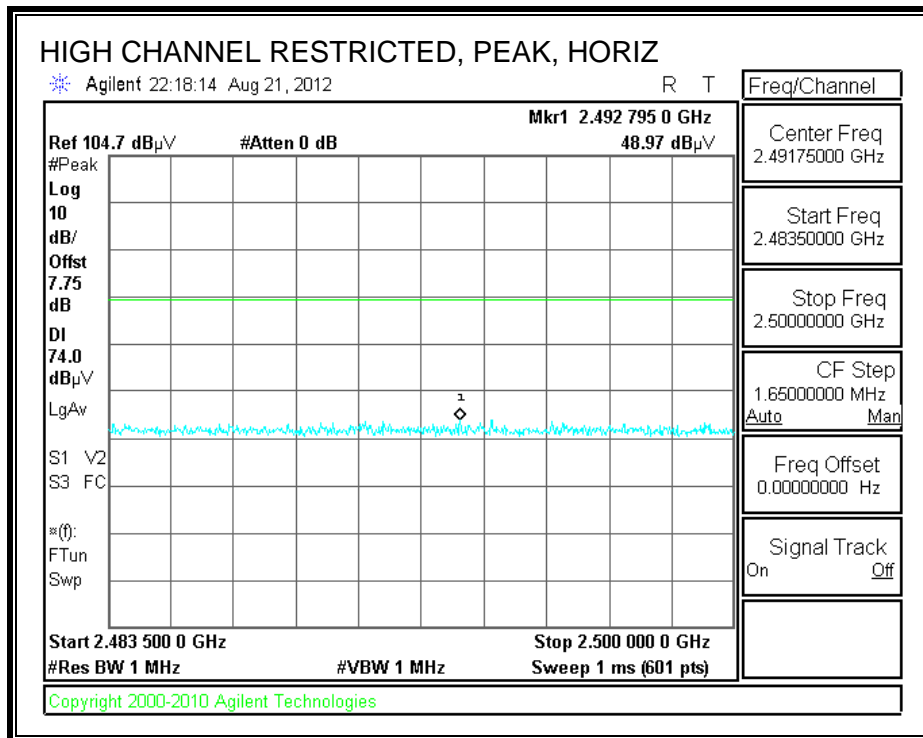
**RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

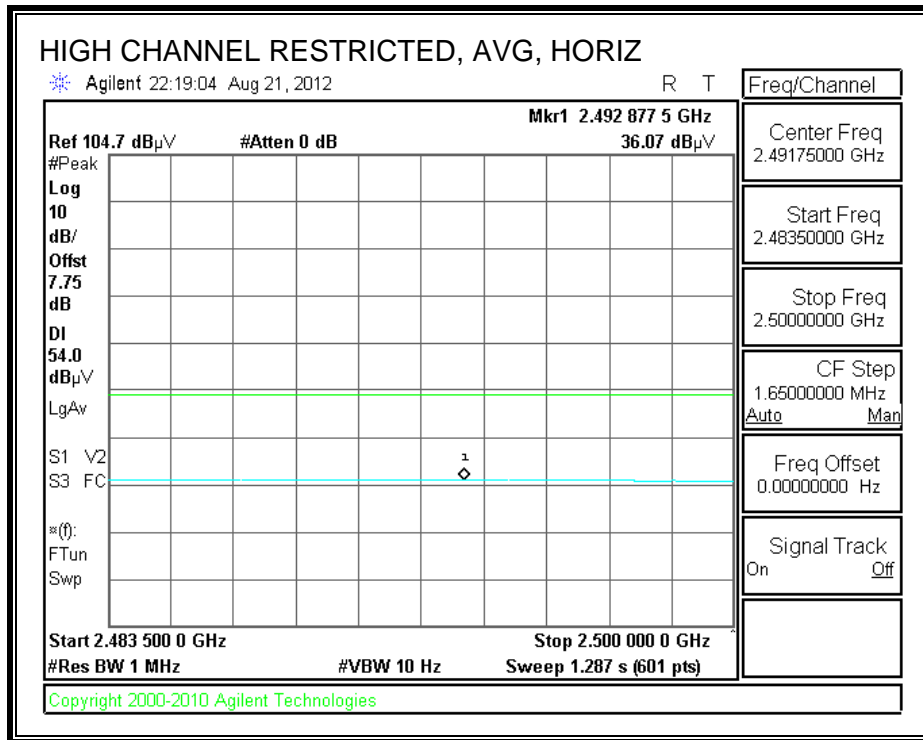




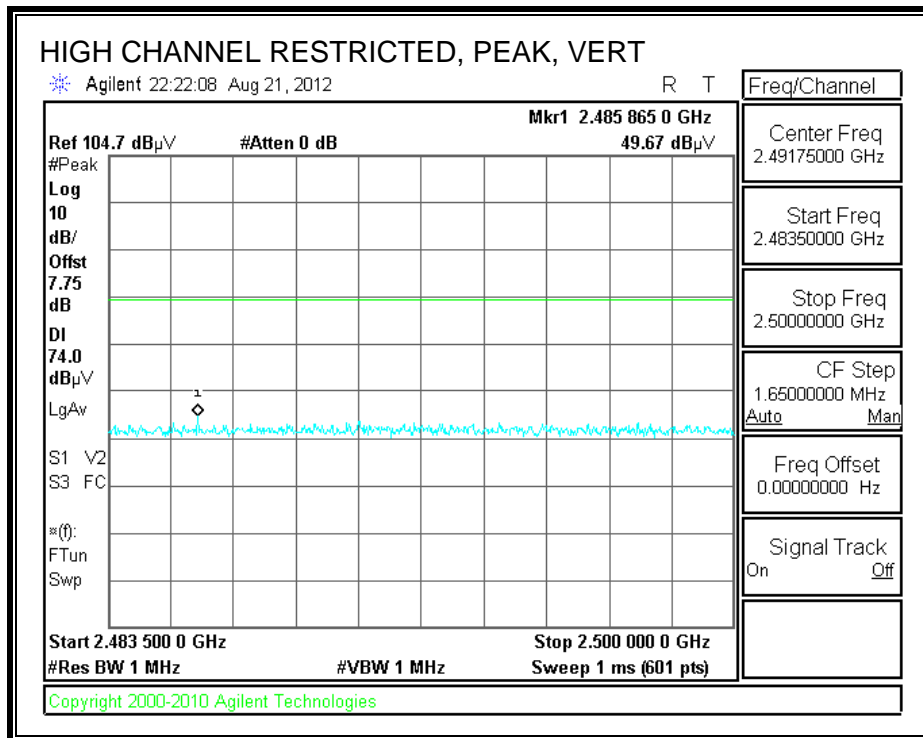


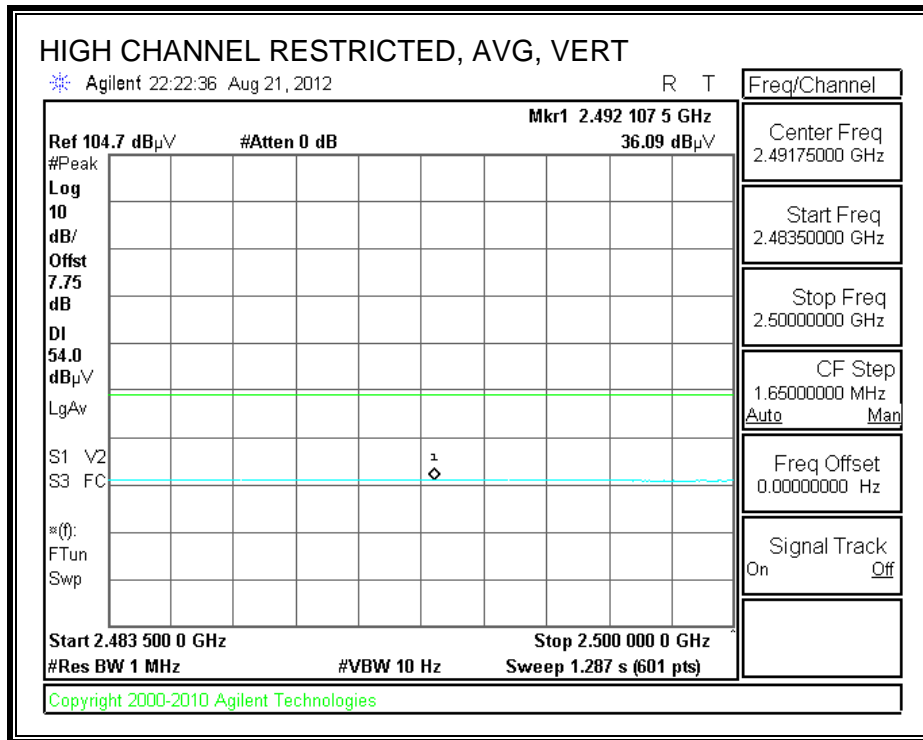
**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**





**RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**



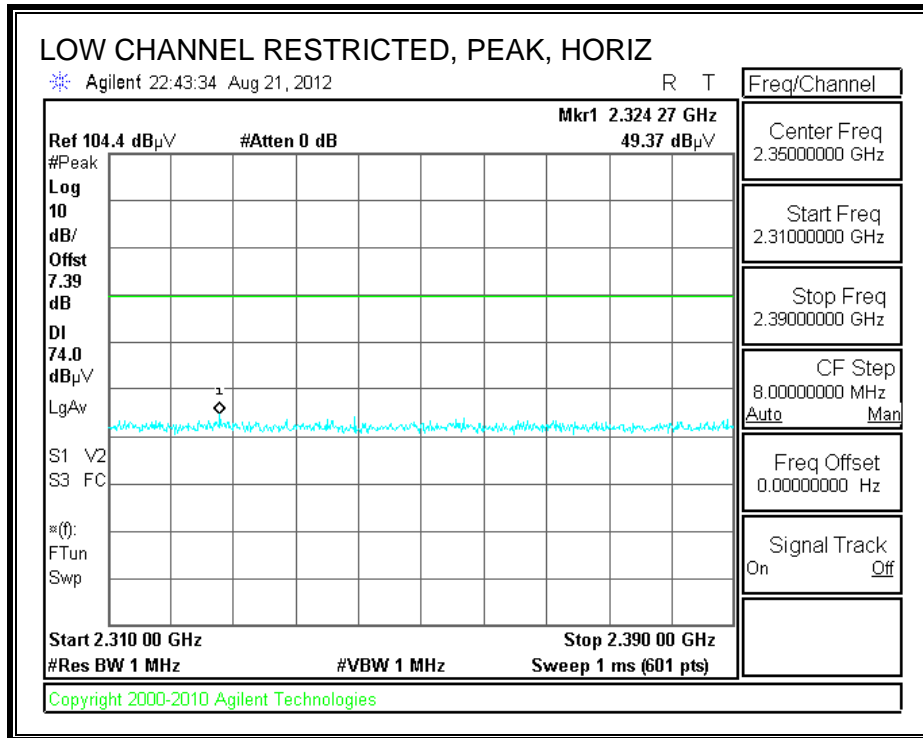


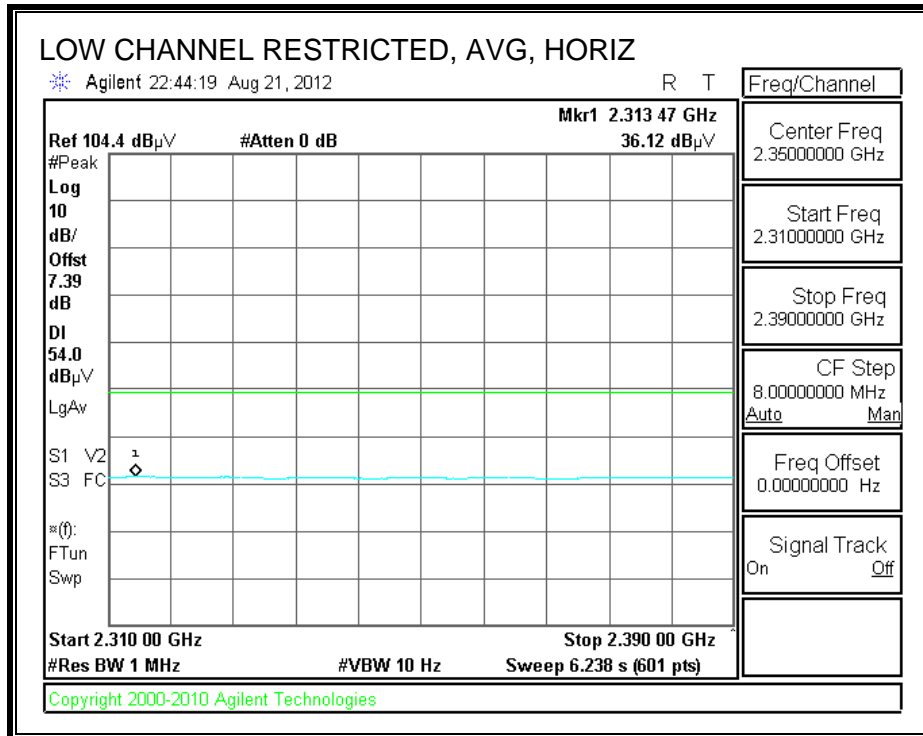
**HARMONICS AND SPURIOUS EMISSIONS**

| High Frequency Measurement   |                       |                                       |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
|--|-----------------------|---------------------------------------|-----------------------|--------------------------------|-----|------------------------|------------------------------|-------|--------------|--------|--------|---------------|--------|-------------------|-------|--|--|
| Compliance Certification Services, Fremont 3m Chamber  |                       |                                       |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| Company:   |                       | LG                                    |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| Project #:   |                       | 12U14595                              |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| Date:  |                       | 8/21/2012                             |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| Test Engineer:   |                       | S.Aguilar                             |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| Configuration:   |                       | Worst Case X axis Adapter + Headphone |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| Mode:  |                       | BT, QPSK                              |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| <b>Test Equipment:</b>   |                       |                                       |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| Horn 1-18GHz   |                       |                                       | Pre-amplifier 1-26GHz |                                |     | Pre-amplifier 26-40GHz |                              |       | Horn > 18GHz |        |        | Limit         |        |                   |       |  |  |
| T60; S/N: 2238 @3m   |                       |                                       | T34 HP 8449B          |                                |     |                        |                              |       |              |        |        | FCC 15.205    |        |                   |       |  |  |
| Hi Frequency Cables  |                       |                                       |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| 3' cable 22807700  |                       |                                       | 12' cable 22807600    |                                |     | 20' cable 22807500     |                              |       | HPF          |        |        | Reject Filter |        | Peak Measurements |       |  |  |
| 3' cable 22807700  |                       |                                       | 12' cable 22807600    |                                |     | 20' cable 22807500     |                              |       |              |        |        | R_001         |        | RBW=VBW=1MHz      |       |  |  |
| Average Measurements   |                       |                                       |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| RBW=1MHz ; VBW=10Hz  |                       |                                       |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| f  | Dist                  | Read Pk                               | Read Avg.             | AF                             | CL  | Amp                    | D Corr                       | Filtr | Peak         | Avg    | Pk Lim | Avg Lim       | Pk Mar | Avg Mar           | Notes |  |  |
| GHz  | (m)                   | dBuV                                  | dBuV                  | dB/m                           | dB  | dB                     | dB                           | dB    | dBuV/m       | dBuV/m | dBuV/m | dBuV/m        | dB     | dB                | (V/H) |  |  |
| <b>Low Channel (2402 MHz)</b>  |                       |                                       |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| 4.804  | 3.0                   | 37.37                                 | 24.69                 | 33.1                           | 6.8 | -34.1                  | 0.0                          | 0.0   | 43.2         | 30.5   | 74     | 54            | -30.8  | -23.5             | H     |  |  |
| 4.804  | 3.0                   | 36.91                                 | 24.66                 | 33.1                           | 6.8 | -34.1                  | 0.0                          | 0.0   | 42.7         | 30.5   | 74     | 54            | -31.3  | -23.5             | V     |  |  |
| <b>Mid Channel (2441 MHz)</b>  |                       |                                       |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| 4.882  | 3.0                   | 37.15                                 | 24.65                 | 33.2                           | 6.8 | -34.0                  | 0.0                          | 0.0   | 43.1         | 30.6   | 74     | 54            | -30.9  | -23.4             | H     |  |  |
| 4.882  | 3.0                   | 37.97                                 | 24.71                 | 33.2                           | 6.8 | -34.0                  | 0.0                          | 0.0   | 43.9         | 30.6   | 74     | 54            | -30.1  | -23.4             | V     |  |  |
| <b>High Channel (2480 MHz)</b>   |                       |                                       |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| 4.960  | 3.0                   | 36.24                                 | 23.97                 | 33.2                           | 6.9 | -34.0                  | 0.0                          | 0.0   | 42.3         | 30.0   | 74     | 54            | -31.7  | -24.0             | H     |  |  |
| 4.960  | 3.0                   | 36.68                                 | 24.03                 | 33.2                           | 6.9 | -34.0                  | 0.0                          | 0.0   | 42.8         | 30.1   | 74     | 54            | -31.2  | -23.9             | V     |  |  |
| Rev. 11.10.11 <span style="float: right;">Note: No other emissions were detected above the noise floor.</span> |                       |                                       |                       |                                |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |
| f  | Measurement Frequency |                                       | Amp                   | Preamp Gain                    |     | Avg Lim                | Average Field Strength Limit |       |              |        |        |               |        |                   |       |  |  |
| Dist   | Distance to Antenna   |                                       | D Corr                | Distance Correct to 3 meters   |     | Pk Lim                 | Peak Field Strength Limit    |       |              |        |        |               |        |                   |       |  |  |
| Read   | Analyzer Reading      |                                       | Avg                   | Average Field Strength @ 3 m   |     | Avg Mar                | Margin vs. Average Limit     |       |              |        |        |               |        |                   |       |  |  |
| AF   | Antenna Factor        |                                       | Peak                  | Calculated Peak Field Strength |     | Pk Mar                 | Margin vs. Peak Limit        |       |              |        |        |               |        |                   |       |  |  |
| CL   | Cable Loss            |                                       | HPF                   | High Pass Filter               |     |                        |                              |       |              |        |        |               |        |                   |       |  |  |

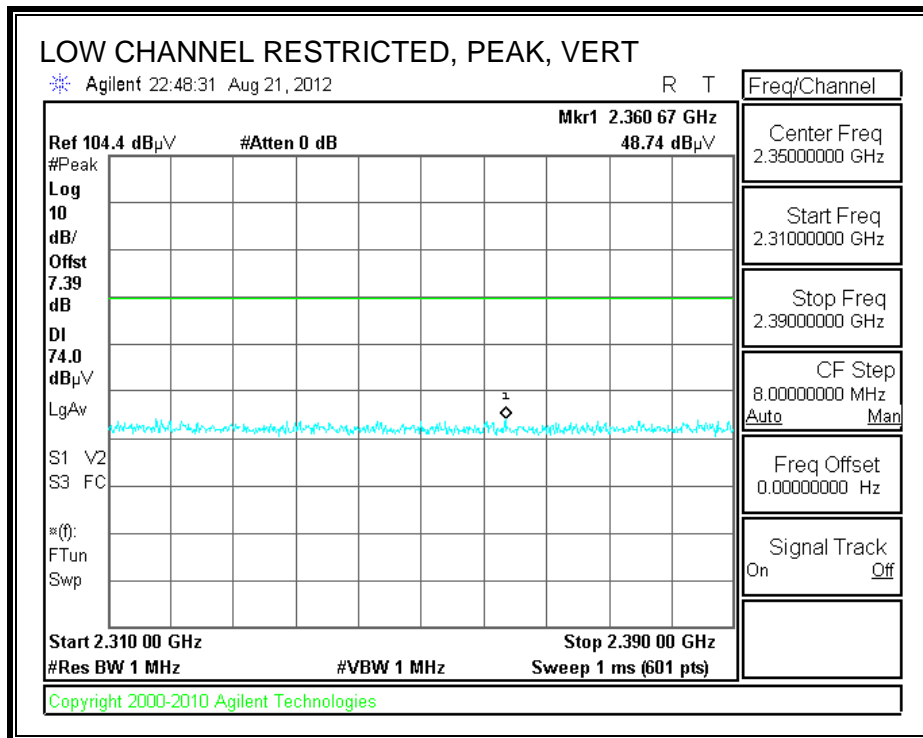
### 7.2.3. ENHANCED DATA RATE 8PSK MODULATION

#### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

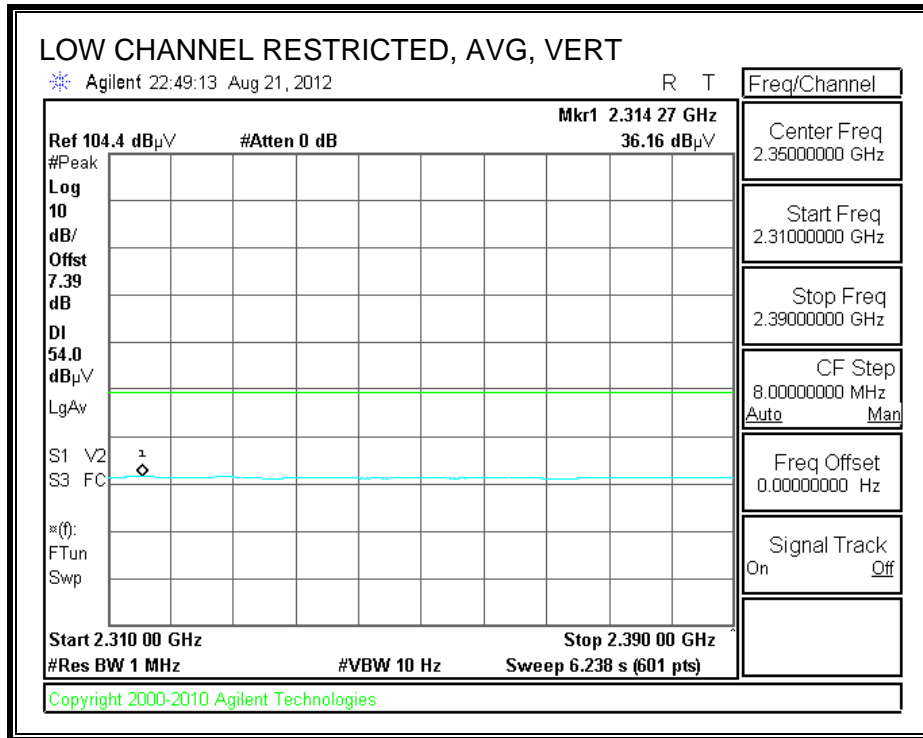




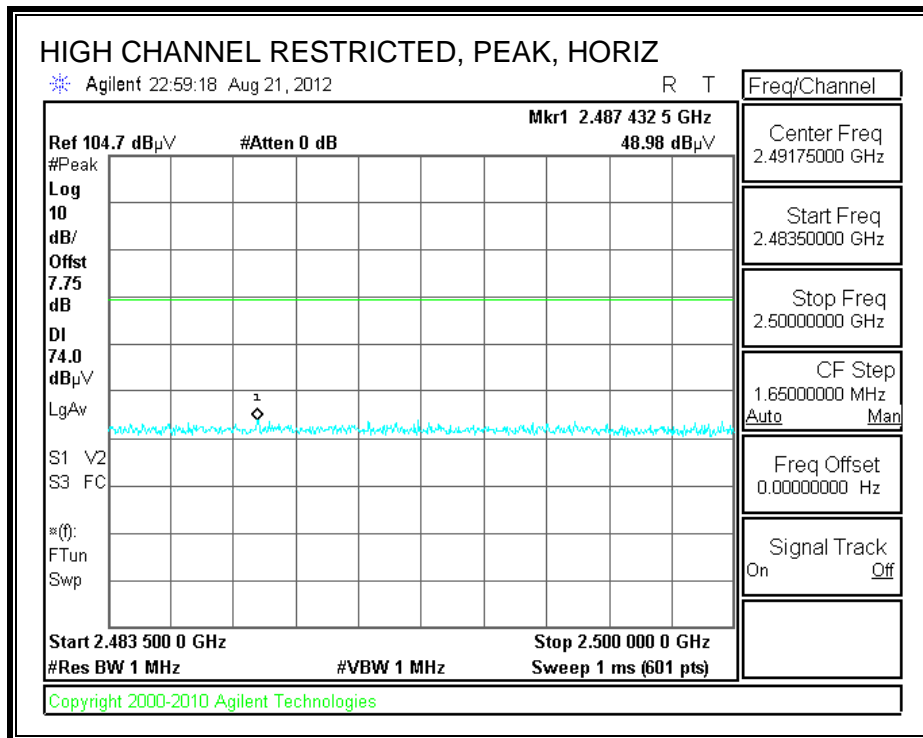
**RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

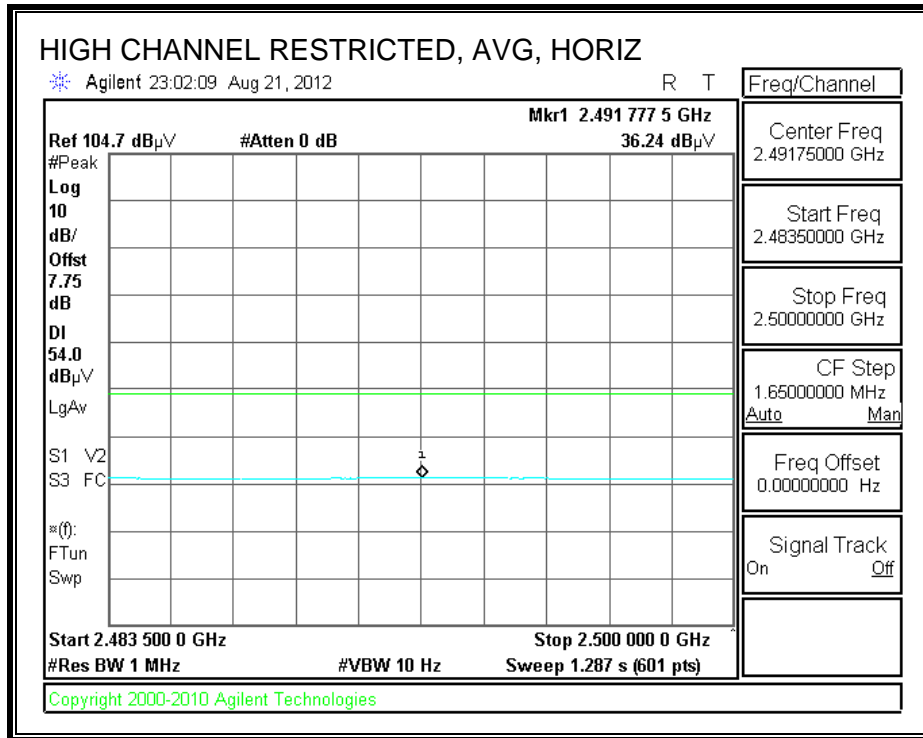




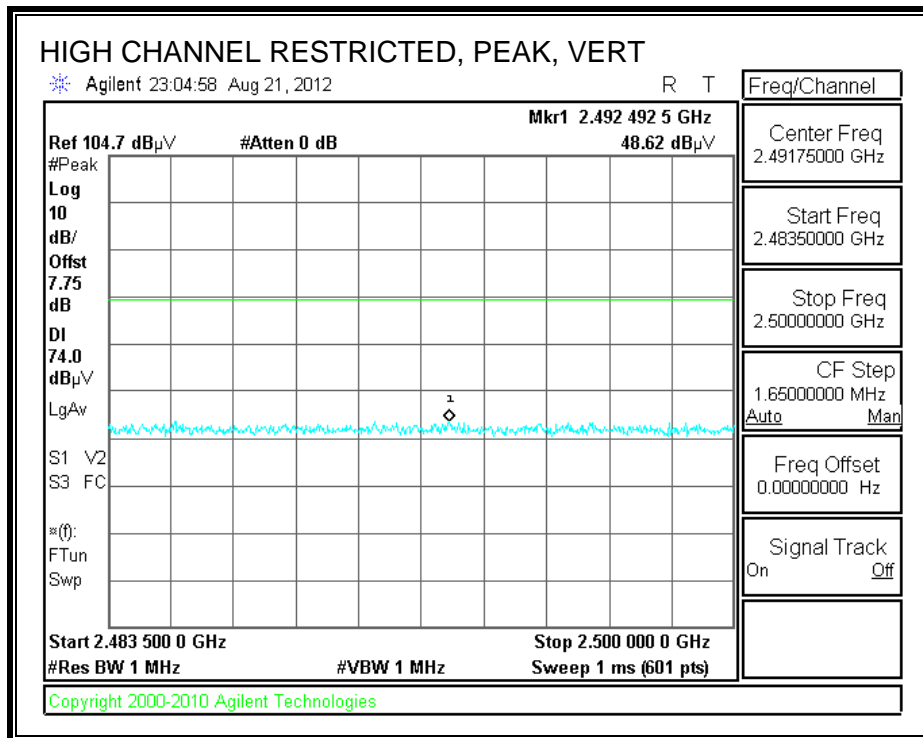


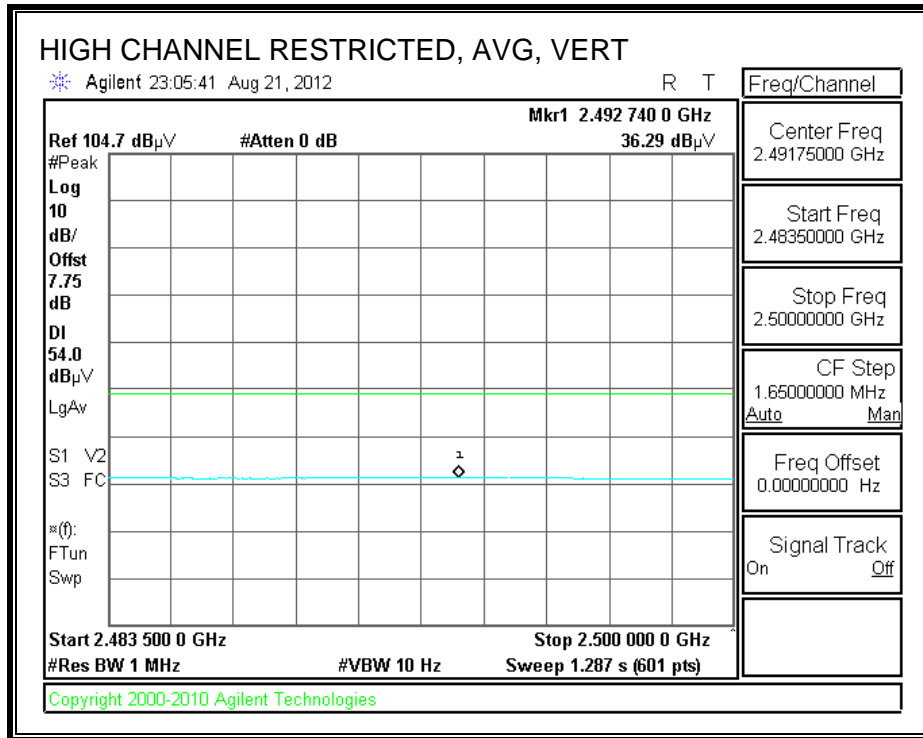
**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**





**RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**





**HARMONICS AND SPURIOUS EMISSIONS**

**High Frequency Measurement**

Compliance Certification Services, Fremont 3m Chamber

Company: LG  
 Project #: 12U14595  
 Date: 8/21/2012  
 Test Engineer: S.Aguilar  
 Configuration: Worst Case X axis Adapter + Headphone  
 Mode: BT, 8PSK

**Test Equipment:**

|                     |                              |                               |                        |              |
|---------------------|------------------------------|-------------------------------|------------------------|--------------|
| <b>Horn 1-18GHz</b> | <b>Pre-amplifier 1-26GHz</b> | <b>Pre-amplifier 26-40GHz</b> | <b>Horn &gt; 18GHz</b> | <b>Limit</b> |
| T60; S/N: 2238 @3m  | T34 HP 8449B                 |                               |                        | FCC 15.205   |

Hi Frequency Cables

|                          |                           |                           |            |                      |  |
|--------------------------|---------------------------|---------------------------|------------|----------------------|--|
| <b>3' cable 22807700</b> | <b>12' cable 22807600</b> | <b>20' cable 22807500</b> | <b>HPF</b> | <b>Reject Filter</b> | <b>Peak Measurements</b><br>RBW=VBW=1MHz           |
| 3' cable 22807700        | 12' cable 22807600        | 20' cable 22807500        |            | R_001                | <b>Average Measurements</b><br>RBW=1MHz ; VBW=10Hz |

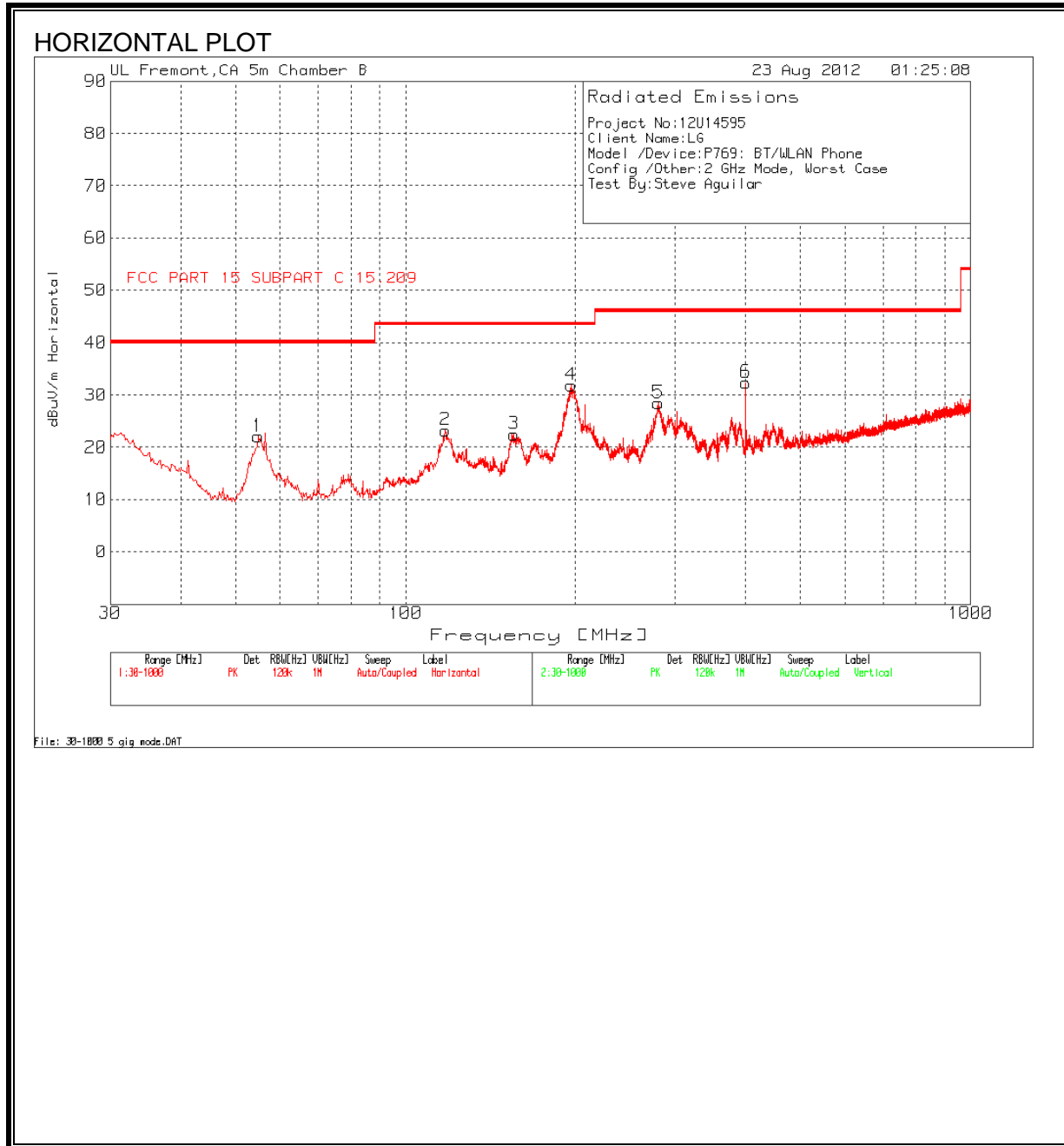
| f<br>GHz                      | Dist<br>(m) | Read Pk<br>dBuV | Read Avg.<br>dBuV | AF<br>dB/m | CL<br>dB | Amp<br>dB | D Corr<br>dB | Filtr<br>dB | Peak<br>dBuV/m | Avg<br>dBuV/m | Pk Lim<br>dBuV/m | Avg Lim<br>dBuV/m | Pk Mar<br>dB | Avg Mar<br>dB | Notes<br>(V/H) |
|-------------------------------|-------------|-----------------|-------------------|------------|----------|-----------|--------------|-------------|----------------|---------------|------------------|-------------------|--------------|---------------|----------------|
| <b>Low Channel (2402 MHz)</b> |             |                 |                   |            |          |           |              |             |                |               |                  |                   |              |               |                |
| 4.804                         | 3.0         | 37.24           | 24.59             | 33.1       | 6.8      | -34.1     | 0.0          | 0.0         | 43.0           | 30.4          | 74               | 54                | -31.0        | -23.6         | H              |
| 4.804                         | 3.0         | 37.21           | 24.62             | 33.1       | 6.8      | -34.1     | 0.0          | 0.0         | 43.0           | 30.4          | 74               | 54                | -31.0        | -23.6         | V              |
| <b>Mid Channel (2441MHz)</b>  |             |                 |                   |            |          |           |              |             |                |               |                  |                   |              |               |                |
| 4.882                         | 3.0         | 37.29           | 24.69             | 33.2       | 6.8      | -34.0     | 0.0          | 0.0         | 43.2           | 30.6          | 74               | 54                | -30.8        | -23.4         | H              |
| 4.882                         | 3.0         | 36.87           | 24.69             | 33.2       | 6.8      | -34.0     | 0.0          | 0.0         | 42.8           | 30.6          | 74               | 54                | -31.2        | -23.4         | V              |
| <b>High Channel (2480MHz)</b> |             |                 |                   |            |          |           |              |             |                |               |                  |                   |              |               |                |
| 4.960                         | 3.0         | 36.46           | 24.02             | 33.2       | 6.9      | -34.0     | 0.0          | 0.0         | 42.5           | 30.1          | 74               | 54                | -31.5        | -23.9         | H              |
| 4.960                         | 3.0         | 36.44           | 24.04             | 33.2       | 6.9      | -34.0     | 0.0          | 0.0         | 42.5           | 30.1          | 74               | 54                | -31.5        | -23.9         | V              |

Rev. 11.10.11 Note: No other emissions were detected above the noise floor.

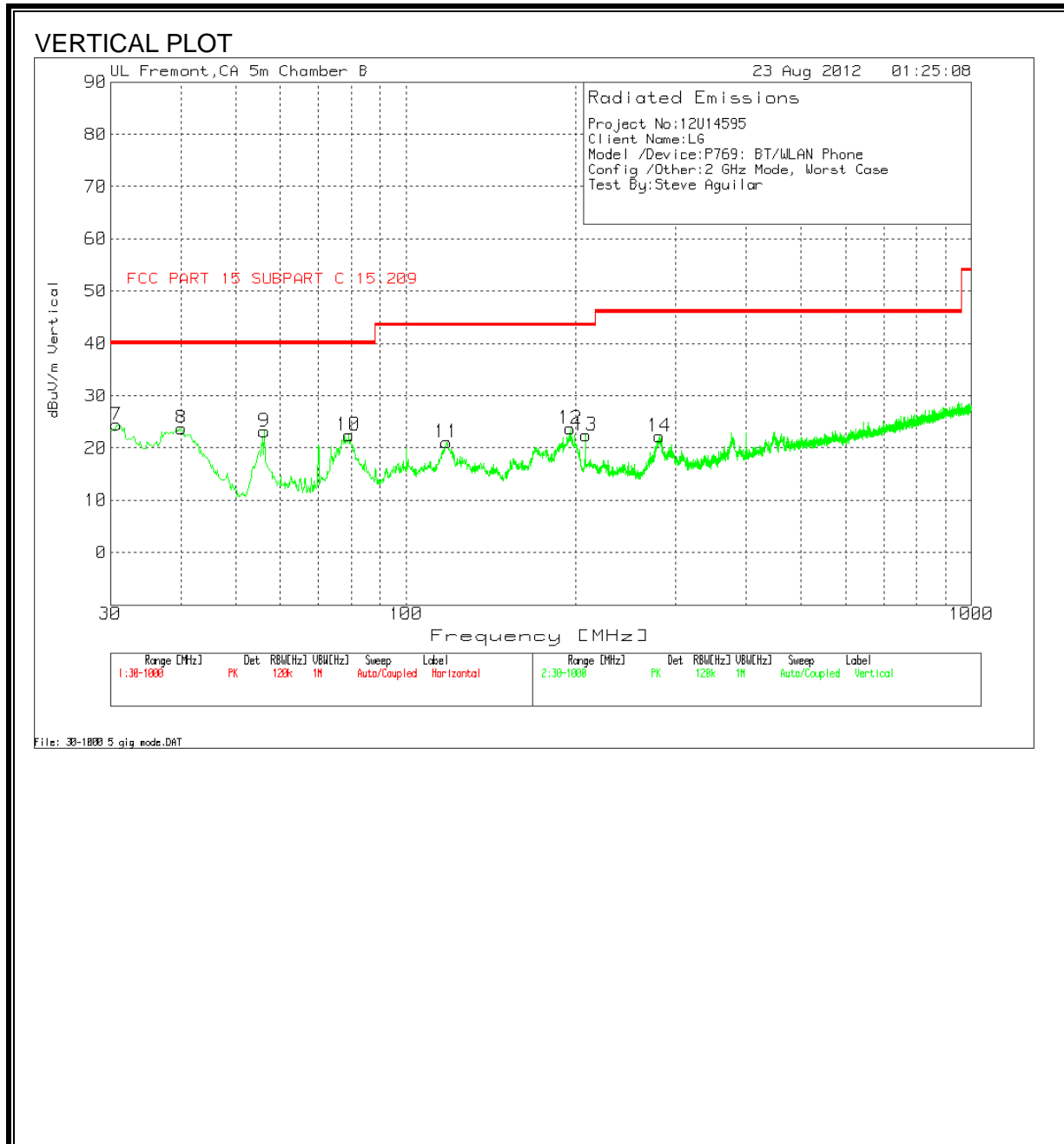
|      |                       |        |                                |         |                              |
|------|-----------------------|--------|--------------------------------|---------|------------------------------|
| f    | Measurement Frequency | Amp    | Preamp Gain                    | Avg Lim | Average Field Strength Limit |
| Dist | Distance to Antenna   | D Corr | Distance Correct to 3 meters   | Pk Lim  | Peak Field Strength Limit    |
| Read | Analyzer Reading      | Avg    | Average Field Strength @ 3 m   | Avg Mar | Margin vs. Average Limit     |
| AF   | Antenna Factor        | Peak   | Calculated Peak Field Strength | Pk Mar  | Margin vs. Peak Limit        |
| CL   | Cable Loss            | HPF    | High Pass Filter               |         |                              |

### 7.3. WORST-CASE BELOW 1 GHz

#### SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



**SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)**





**HORIZONTAL AND VERTICAL DATA**

**Company Name:** LG  
**Project:** 12U14595  
**Date:** 8/23/2012  
**Configuraiton:** EUT + Adapter + Headset  
**Mode:** 2 GHz , Worst Case  
**Tested by:** S.Aguilar

| Test Frequency [MHz]        | Meter Reading [dB(μV)] | Detector | Pre Amp Factor [dB] | Antenna Factor [dB/m] | Corrected [dB(μV/m)] | Class C PK limit [dB(μV/m)] | QP Margin [dB] | Height [cm] | Polarity |
|-----------------------------|------------------------|----------|---------------------|-----------------------|----------------------|-----------------------------|----------------|-------------|----------|
| <b>Range 1 30 - 1000MHz</b> |                        |          |                     |                       |                      |                             |                |             |          |
| 54.8122                     | 43.78                  | PK       | 7.3                 | -29                   | 22.08                | 40                          | -17.92         | 400         | Horz     |
| 117.6179                    | 37.85                  | PK       | 13.8                | -28.4                 | 23.25                | 43.5                        | -20.25         | 300         | Horz     |
| 155.4177                    | 38.02                  | PK       | 12.5                | -28                   | 22.52                | 43.5                        | -20.98         | 200         | Horz     |
| 196.3189                    | 47.25                  | PK       | 12.2                | -27.6                 | 31.85                | 43.5                        | -11.65         | 200         | Horz     |
| 280.2538                    | 42.03                  | PK       | 13.3                | -26.9                 | 28.43                | 46                          | -17.57         | 100         | Horz     |
| 399.8561                    | 43.84                  | PK       | 15.5                | -27                   | 32.34                | 46                          | -13.66         | 100         | Horz     |
| <b>Range 2 30 - 1000MHz</b> |                        |          |                     |                       |                      |                             |                |             |          |
| 30.7754                     | 32.81                  | PK       | 20.9                | -29.3                 | 24.41                | 40                          | -15.59         | 100         | Vert     |
| 40.0799                     | 39.32                  | PK       | 13.7                | -29.2                 | 23.82                | 40                          | -16.18         | 100         | Vert     |
| 56.1691                     | 44.97                  | PK       | 7.2                 | -29                   | 23.17                | 40                          | -16.83         | 100         | Vert     |
| 79.2366                     | 43.36                  | PK       | 7.9                 | -28.8                 | 22.46                | 40                          | -17.54         | 100         | Vert     |
| 118.0056                    | 35.47                  | PK       | 13.9                | -28.3                 | 21.07                | 43.5                        | -22.43         | 100         | Vert     |
| 195.3497                    | 39.3                   | PK       | 12                  | -27.6                 | 23.7                 | 43.5                        | -19.8          | 200         | Vert     |
| 207.9496                    | 39.33                  | PK       | 10.6                | -27.5                 | 22.43                | 43.5                        | -21.07         | 200         | Vert     |
| 280.8353                    | 35.83                  | PK       | 13.3                | -26.9                 | 22.23                | 46                          | -23.77         | 200         | Vert     |

PK - Peak detector  
 QP - Quasi-peak detector

## 8. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

| Frequency of Emission (MHz) | Conducted Limit (dBuV) |           |
|-----------------------------|------------------------|-----------|
|                             | Quasi-peak             | Average   |
| 0.15-0.5                    | 66 to 56*              | 56 to 46* |
| 0.5-5                       | 56                     | 46        |
| 5-30                        | 60                     | 50        |

\*Decreases with the logarithm of the frequency.

### TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

### RESULTS

**6 WORST EMISSIONS**

Company Name: LG  
 Project: 12U14595  
 Date: 8/24/2012  
 Configuraiton: 120VAC / 60 Hz  
 Mode: 2GHz TX mode Worst Case  
 Tested by: S. Aguilar

Line-L1 .15 - 30MHz

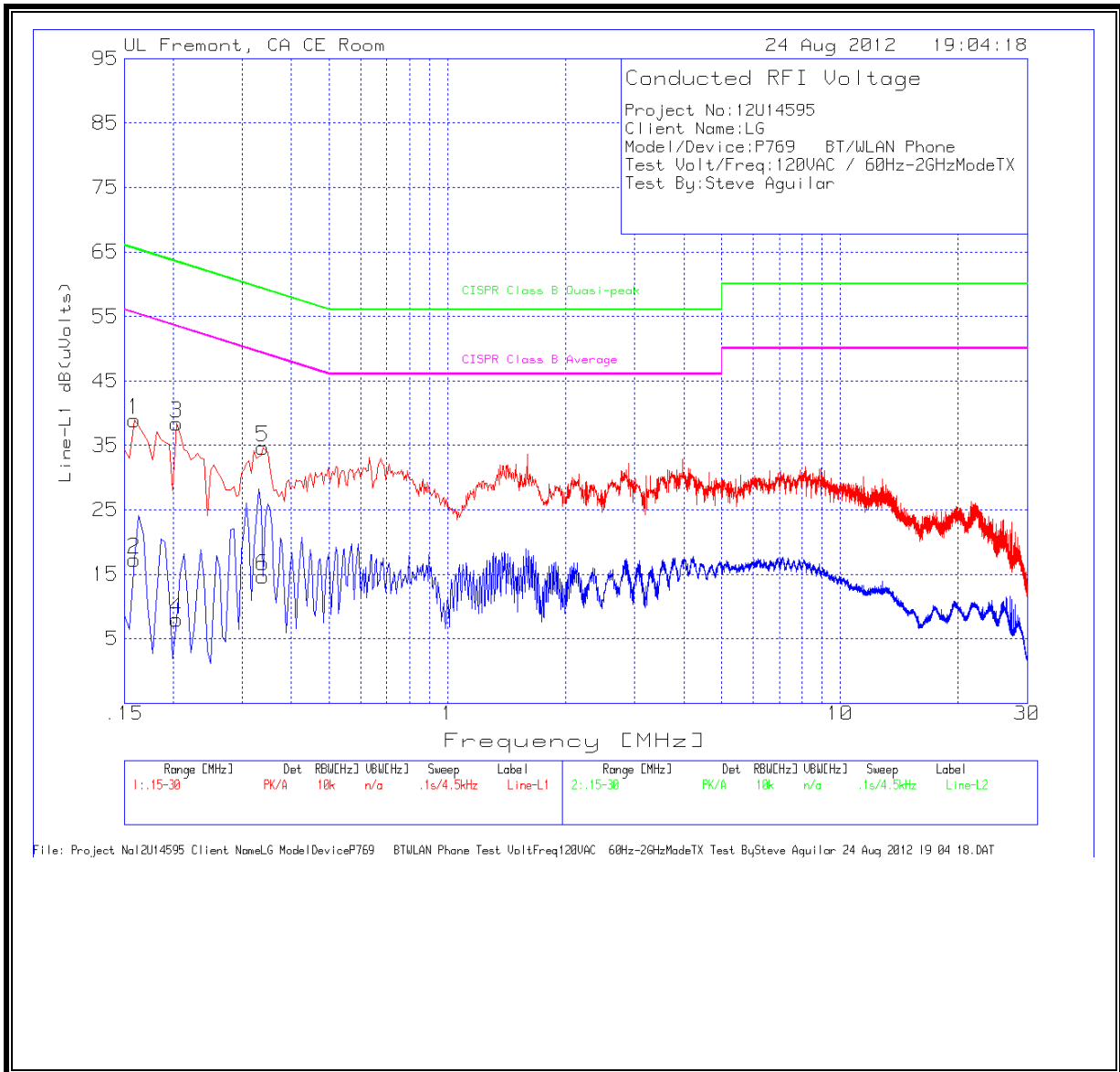
| Test Frequency [MHz] | Meter Reading [dBuV] | Detector Type | LISN [dB] | Cables [dB] | Corrected [dB(uV)] | Class B QP Limit | QP Margin | Class B Av Limit [dB(uV)] | Av Margin [dB] |
|----------------------|----------------------|---------------|-----------|-------------|--------------------|------------------|-----------|---------------------------|----------------|
| 0.159                | 38.76                | PK            | 0.1       | 0           | 38.86              | 65.5             | -26.64    | -                         | -              |
| 0.159                | 17.18                | Av            | 0.1       | 0           | 17.28              | -                | -         | 55.5                      | -38.22         |
| 0.204                | 38.28                | PK            | 0.1       | 0           | 38.38              | 63.4             | -25.02    | -                         | -              |
| 0.204                | 7.87                 | Av            | 0.1       | 0           | 7.97               | -                | -         | 53.4                      | -45.43         |
| 0.339                | 34.6                 | PK            | 0.1       | 0           | 34.7               | 59.2             | -24.5     | -                         | -              |
| 0.339                | 14.63                | Av            | 0.1       | 0           | 14.73              | -                | -         | 49.2                      | -34.47         |

Line-L2 .15 - 30MHz

| Test Frequency [MHz] | Meter Reading [dBuV] | Detector Type | LISN [dB] | Cables [dB] | Corrected [dB(uV)] | Class B QP Limit | QP Margin | Class B Av Limit [dB(uV)] | Av Margin [dB] |
|----------------------|----------------------|---------------|-----------|-------------|--------------------|------------------|-----------|---------------------------|----------------|
| 0.1545               | 40.87                | PK            | 0.1       | 0           | 40.97              | 65.8             | -24.83    | -                         | -              |
| 0.1545               | 12.88                | Av            | 0.1       | 0           | 12.98              | -                | -         | 55.8                      | -42.82         |
| 0.204                | 38.5                 | PK            | 0.1       | 0           | 38.6               | 63.4             | -24.8     | -                         | -              |
| 0.204                | 10.76                | Av            | 0.1       | 0           | 10.86              | -                | -         | 53.4                      | -42.54         |
| 0.339                | 37.35                | PK            | 0.1       | 0           | 37.45              | 59.2             | -21.75    | -                         | -              |
| 0.339                | 18.29                | Av            | 0.1       | 0           | 18.39              | -                | -         | 49.2                      | -30.81         |

PK - Peak detector  
 QP - Quasi-Peak detector  
 Av - Average detector

**LINE 1 RESULTS**



**LINE 2 RESULTS**

