



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

#### **CERTIFICATION TEST REPORT**

**FOR** 

# Cellular/PCS CDMA/EVDO/GSM/GPRS/EDGE, PCS WCDMA/HSPA and AWS LTE Phone with Bluetooth&WLAN&NFC

MODEL NUMBER: VS950, LG-VS950, LGVS950

FCC ID: ZNFVS950

**REPORT NUMBER: 12U14455-1,** 

**ISSUE DATE: JUNE 18, 2012** 

Prepared for

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

Prepared by

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NVLAP LAB CODE 200065-0

# **Revision History**

Rev.	Issue Date	Revisions	Revised By
	06/16/12	Initial Issue	T. LEE

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#### ATTESTATION OF TEST RESULTS

**COMPANY NAME:** LG ELECTRONICS MOBILECOMM U.S.A., INC.

1000 SYLVAN AVENUE

ENGLEWOOD CLIFFS, NJ 07632

**EUT DESCRIPTION:** Cellular/PCS CDMA, GSM, WCDMA and LTE Phone

With Bluetooth & WLAN + NFC

**MODEL:** VS950, LG-VS950, LGVS950

**SERIAL NUMBER:** 990001510000722 (Radiated), 990001510000714 (Conducted),

**DATE TESTED:** JUNE 10~17, 2012

#### **APPLICABLE STANDARDS**

STANDARD

**TEST RESULTS** 

CFR 47 Part 15 Subpart C

Pass

Compliance Certification Services (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** 

TOM CHEN EMC ENGINEER

UL CCS

#### 1. 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.

# 2. 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 <a href="http://www.ccsemc.com">http://www.ccsemc.com</a>.

### 3. CALIBRATION AND UNCERTAINTY

#### 3.1. 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.

#### 3.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB) 36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

#### 3.3. 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%.

### 4. EQUIPMENT UNDER TEST

#### 4.1. DESCRIPTION OF EUT

The EUT is an Cellular/PCS CDMA, GSM, WCDMA and LTE Phone with Bluetooth & WLAN + NFC

#### 4.2. MAXIMUM OUTPUT POWER

The measured average power values were within  $\pm$  0.5 dB of the original values. Refer to original report number "12U14390-1B FCC IC DTS WLAN Report" for exact output power values and for all antenna port results.

#### 4.3. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The change filed under this application has the following changes.

- Hardware Changes (Antenna Pattern and PCB Adjustments)
- Software Changes (Fixed Bugs and User Interface)

#### 4.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a Monopole antenna, with a maximum gain of -1.1 dBi.

#### 4.5. MODEL DIFFERNECE

Model LG-VS950 is identical to Models LGVS950 and VS950 except for model designation.

#### 4.6. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Android Version 4.0.3

The test utility software used during testing was VS9500CA

#### 4.7. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that Y orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y orientation.

Based on the manufacturer's attestation that the nominal output power is reduced as the data rate increases, the data rates tested represent the highest power and worst-case with respect to EMC performance.

Worst-case data rates were:

802.11b mode: 1 Mbps 802.11g mode: 6 Mbps 802.11n HT20mode: MCS0

### 4.8. DESCRIPTION OF TEST SETUP

#### **SUPPORT EQUIPMENT**

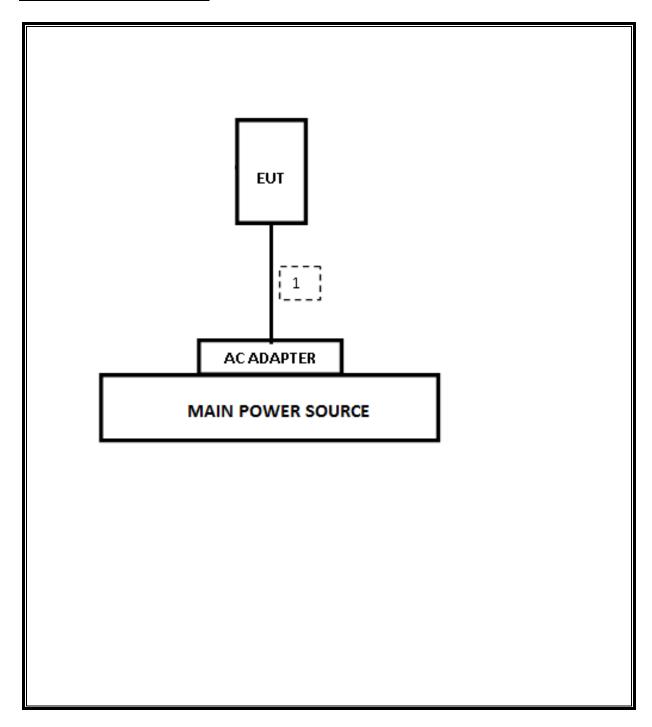
Support Equipment List									
Description Manufacturer Model Serial Number									
AC ADAPTER	LG ELECTRONICS	MCS-01WR	RA1Z0051473						

#### **I/O CABLES**

	I/O Cable List										
Cable No		# of identical ports	Connector Type	Cable Type	Remarks						
1	DC	1	MINI USB	UN-SHELDED	1.0m	LG-DLC300 (BA21)					

#### **TEST SETUP**

#### **SETUP DIAGRAM FOR TESTS**



# 5. 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 Due					
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	07/14/12					
Antenna, Horn, 18 GHz	EMCO	3115	C00945	06/29/12					
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	11/11/12					
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	07/12/12					
Horn Antenna, 26.5 GHz	ARA	MWH-1826/B	C00589	07/28/12					
Horn Antenna, 40 GHz	ARA	MWH-2640/B	C00981	5/10/13					
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	03/14/13					
Reject Filter, 2.0-2.9 GHz	Micro-Tronics	BRM50702	N02684	CNR					
High Pass Filter, 7.6 GHz	Micro-Tronics	HPM13195	N02682	CNR					
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01159	04/09/13					
Peak Power Meter	Agilent	N1911A	1260847C	08/04/12					
Peak Power Sensor	Agilent	E9323A	1244073F	08/04/12					
Reject Filter, 5.725-5.825 GHz	Micro-Tronics	BRC13192	N02676	CNR					
Reject Filter, 2.4-2.5 GHz	Micro-Tronics	BRM50702	N02685	CNR					
Highpass Filter, 7.6 GHz	Micro-Tronics	HPM13195	N02682	CNR					
EMI Test Receiver, 30MHz	R&S	ESHS 20	N02396	08/19/13					
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	12/13/12					

#### 6. RADIATED TEST RESULTS

#### 6.1. 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.

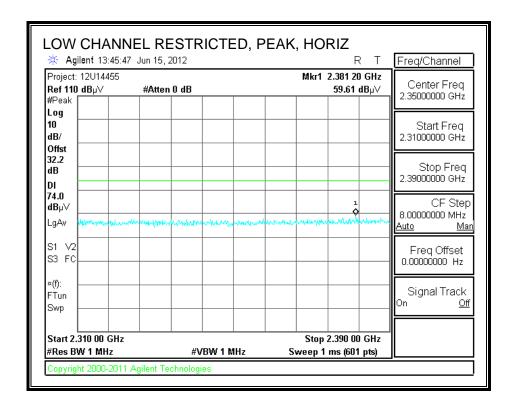
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

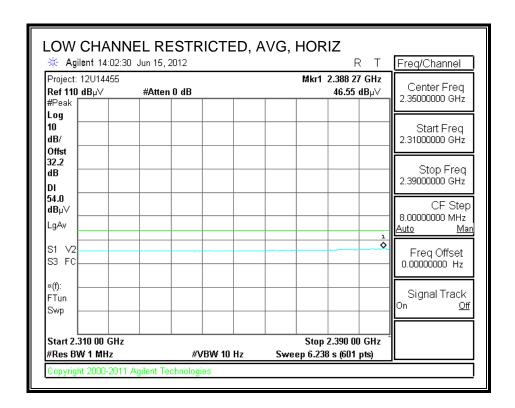
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

#### 6.2. TRANSMITTER ABOVE 1 GHz

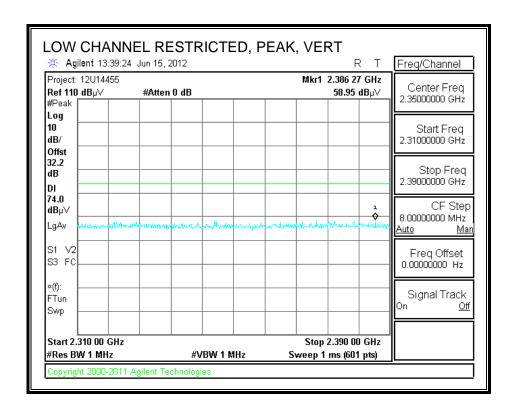
#### 6.2.1. TX ABOVE 1 GHz FOR 802.11b 1TX MODE IN THE 2.4 GHz BAND

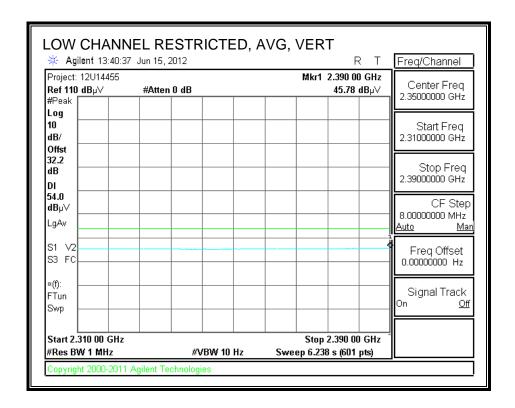
#### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



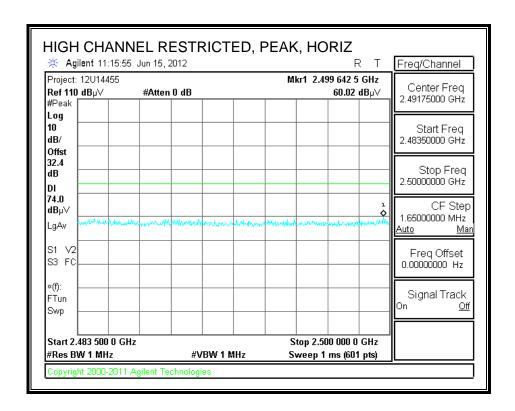


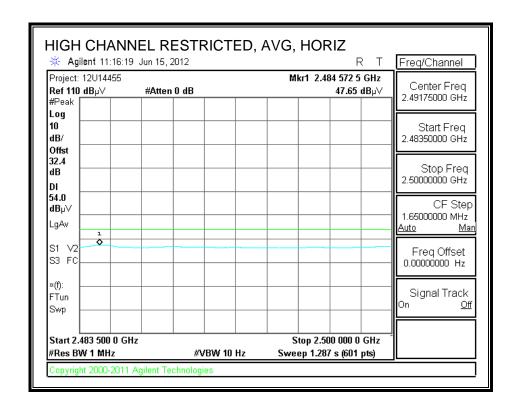
#### RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



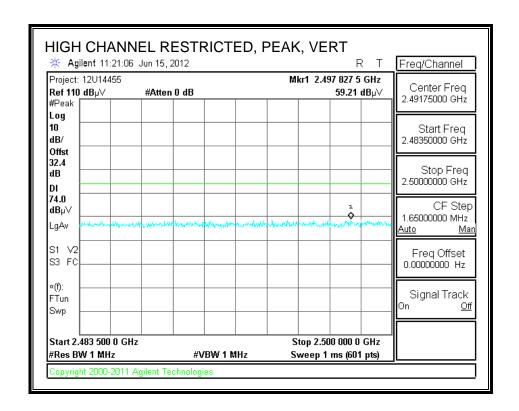


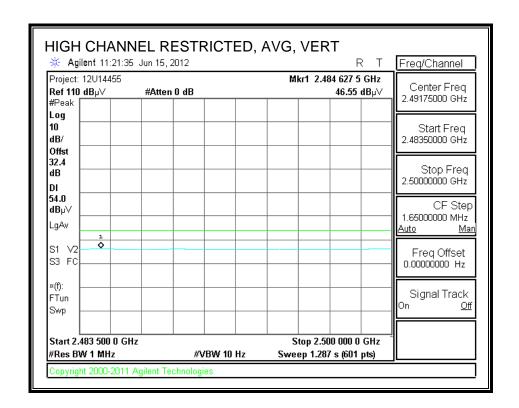
#### RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





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





#### **HARMONICS AND SPURIOUS EMISSIONS**

**High Frequency Measurement** 

Compliance Certification Services, Fremont 5m Chamber

 Test Engr:
 Tom Chen

 Date:
 06/14/12

 Project #:
 12U14455

Company: LG Electronics Inc.
Test Target: FCC Class B
Mode Oper: 802.11b TX mode

 f
 Measurement Frequency
 Amp
 Preamp Gain
 Average Field Strength Limit

 Dist
 Distance to Antenna
 D Corr
 Distance Correct to 3 meters
 Peak Field Strength Limit

 Read
 Analyzer Reading
 Avg
 Average Field Strength @ 3 m
 Margin vs. Average Limit

 AF
 Antenna Factor
 Peak
 Calculated Peak Field Strength
 Margin vs. Peak Limit

CL Cable Loss HPF High Pass Filter

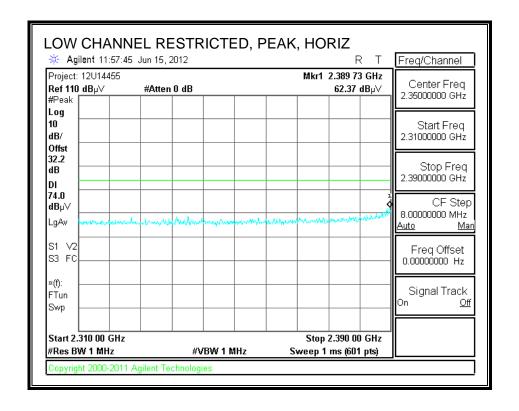
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	
2412 MHz	11b												
4.824	3.0	49.9	33.1	6.3	-34.8	0.0	0.0	54.4	74.0	-19.6	V	P	
4.824	3.0	47.4	33.1	6.3	-34.8	0.0	0.0	51.9	54.0	-2.1	V	A	
4.824	3.0	47.9	33.1	6.3	-34.8	0.0	0.0	52.5	74.0	-21.5	H	P	
4.824	3.0	44.3	33.1	6.3	-34.8	0.0	0.0	48.9	54.0	-5.1	H	A	
2437 MHz	11b												
4.874	3.0	48.4	33.1	6.3	-34.8	0.0	0.0	53.0	74.0	-21.0	H	P	
4.874	3.0	45.5	33.1	6.3	-34.8	0.0	0.0	50.2	54.0	-3.8	H	A	
4.874	3.0	50.4	33.1	6.3	-34.8	0.0	0.0	55.0	74.0	-19.0	V	P	
4.874	3.0	47.9	33.1	6.3	-34.8	0.0	0.0	52.5	54.0	-1.5	V	A	
2462 MHz	11b												
4.924	3.0	51.7	33.2	6.3	-34.8	0.0	0.0	56.4	74.0	<b>-17.6</b>	V	P	
4.924	3.0	49.1	33.2	6.3	-34.8	0.0	0.0	53.8	54.0	-0.2	V	A	
4.924	3.0	49.8	33.2	6.3	-34.8	0.0	0.0	54.5	74.0	-19.5	H	P	
4.924	3.0	46.3	33.2	6.3	-34.8	0.0	0.0	51.0	54.0	-3.0	H	A	

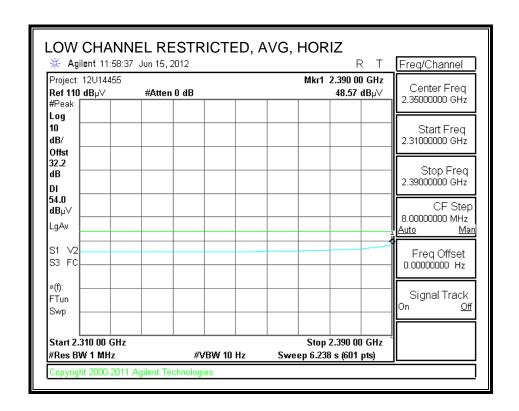
Rev. 4.1.2.7

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

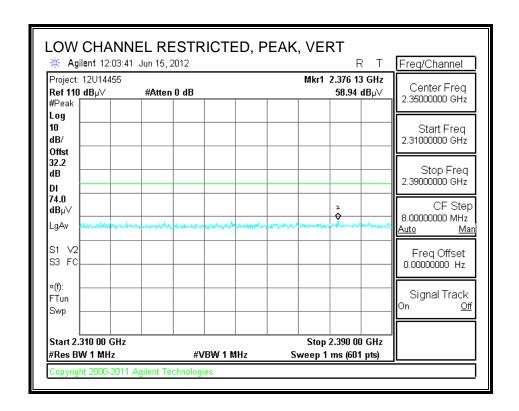
### 6.2.2. TX ABOVE 1 GHz FOR 802.11g 1TX MODE IN THE 2.4 GHz BAND

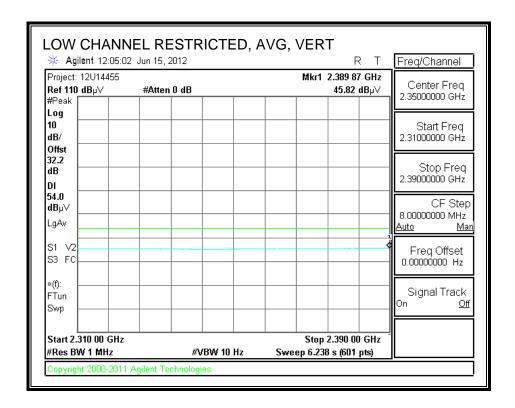
#### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



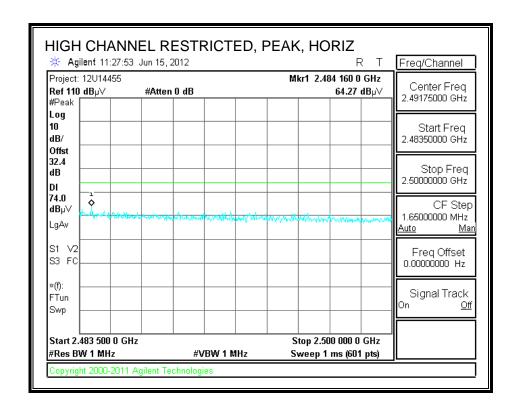


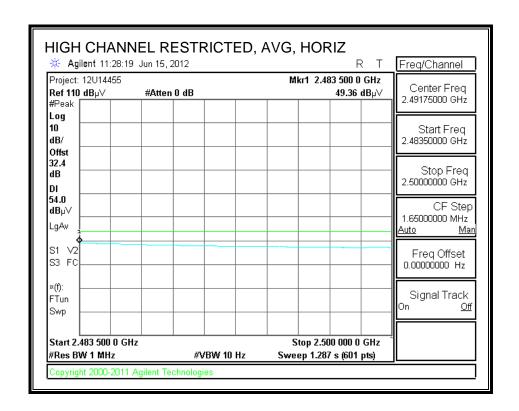
#### RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



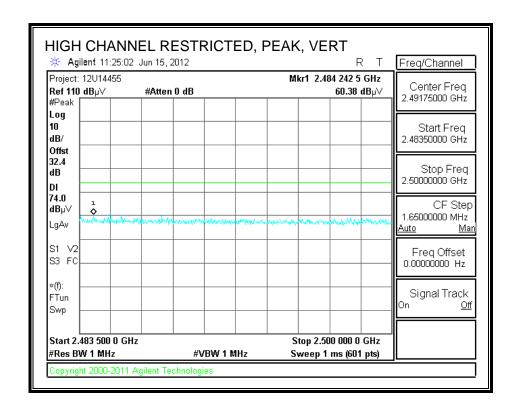


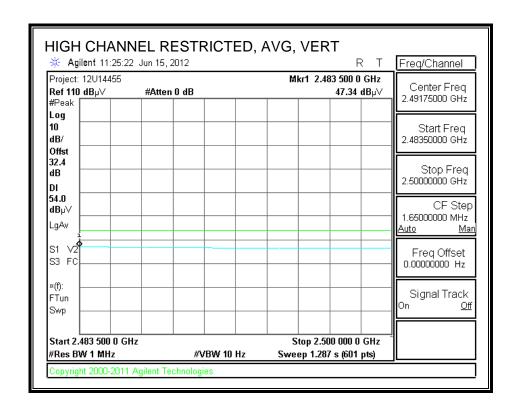
#### RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





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





#### **HARMONICS AND SPURIOUS EMISSIONS**

High Frequency Measurement

Compliance Certification Services, Fremont 5m Chamber

Test Engr: Tom Chen
Date: 06/15/12
Project #: 12U14455

Company: LG Electronics Inc.
Test Target: FCC Class B
Mode Oper: 802.11g TX mode

 f
 Measurement Frequency
 Amp
 Preamp Gain
 Average Field Strength Limit

 Dist
 Distance to Antenna
 D Corr
 Distance Correct to 3 meters
 Peak Field Strength Limit

 Read
 Analyzer Reading
 Avg
 Average Field Strength @ 3 m
 Margin vs. Average Limit

 AF
 Antenna Factor
 Peak
 Calculated Peak Field Strength
 Margin vs. Peak Limit

CL Cable Loss HPF High Pass Filter

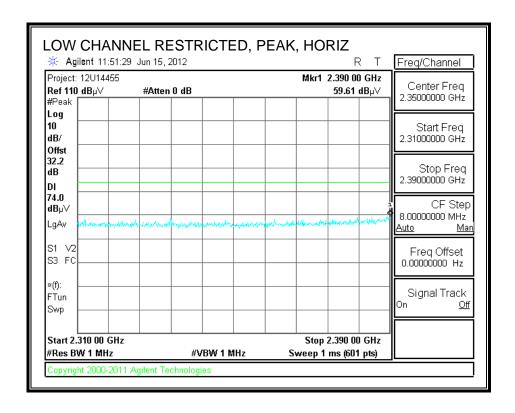
								_					
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	
2412 MHz	11g												
4.824	3.0	50.8	33.1	6.3	-34.8	0.0	0.0	55.3	74.0	-18.7	V	P	
4.824	3.0	36.3	33.1	6.3	-34.8	0.0	0.0	40.9	54.0	-13.1	V	A	
4.824	3.0	48.5	33.1	6.3	-34.8	0.0	0.0	53.0	74.0	-21.0	H	P	
4.824	3.0	33.4	33.1	6.3	-34.8	0.0	0.0	37.9	54.0	-16.1	H	A	
2437 MHz	11g												
4.874	3.0	48.1	33.1	6.3	-34.8	0.0	0.0	52.7	74.0	-21.3	H	P	
4.874	3.0	33.8	33.1	6.3	-34.8	0.0	0.0	38.4	54.0	-15.6	H	A	
4.874	3.0	52.7	33.1	6.3	-34.8	0.0	0.0	57.4	74.0	-16.6	V	P	
4.874	3.0	37.0	33.1	6.3	-34.8	0.0	0.0	41.7	54.0	-12.3	V	A	
2462 MHz	11g												
4.924	3.0	50.9	33.2	6.3	-34.8	0.0	0.0	55.6	74.0	-18.4	H	P	
4.924	3.0	35.6	33.2	6.3	-34.8	0.0	0.0	40.3	54.0	-13.7	H	A	
4.924	3.0	52.4	33.2	6.3	-34.8	0.0	0.0	57.2	74.0	-16.8	V	P	
4.924	3.0	38.2	33.2	6.3	-34.8	0.0	0.0	42.9	54.0	-11.1	V	A	

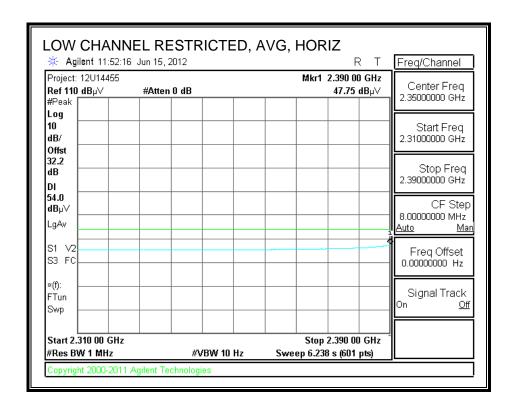
Rev. 4.1.2.7

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

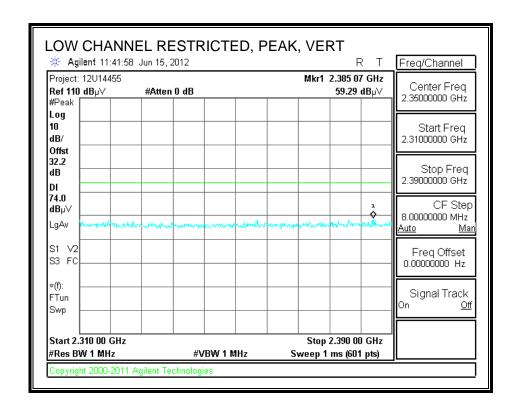
# 6.2.3. TX ABOVE 1 GHz FOR 802.11n HT20 1TX MODE IN THE 2.4 GHz BAND

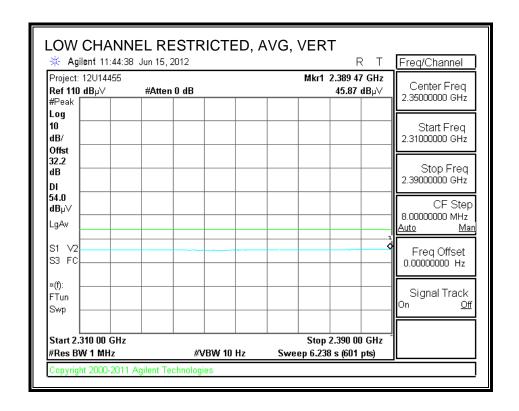
#### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



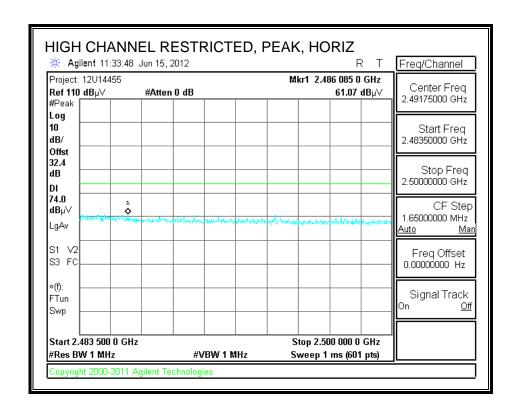


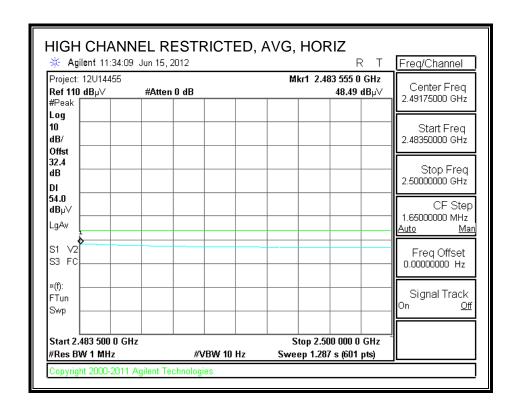
#### RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



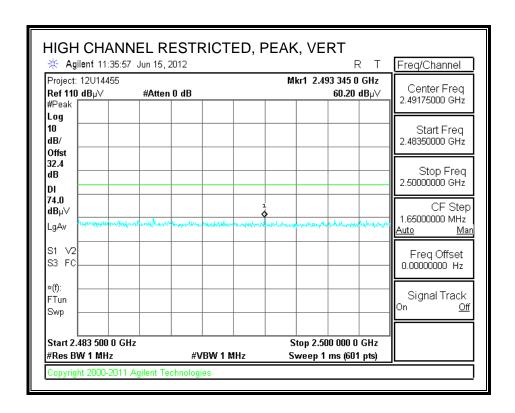


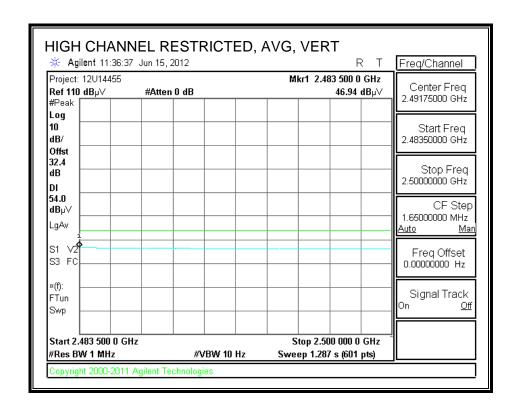
#### RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





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





#### **HARMONICS AND SPURIOUS EMISSIONS**

High Frequency Measurement

Compliance Certification Services, Fremont 5m Chamber

Tom Chen Test Engr: Date: 06/15/12 Project #: 12U14455 Company: LG Electronics Inc. Test Target: FCC Class B Mode Oper: 802.11n TX mode

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

f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Notes
GHz	(m)	dBuV	dB/m	dΒ	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	
2412 MH2	lln												
4.824	3.0	47.3	33.1	6.3	-34.8	0.0	0.0	51.8	74.0	-22.2	V	P	
4.824	3.0	33.8	33.1	6.3	-34.8	0.0	0.0	38.3	54.0	-15.7	V	A	
4.824	3.0	43.7	33.1	6.3	-34.8	0.0	0.0	48.3	74.0	-25.7	H	P	
4.824	3.0	30.4	33.1	6.3	-34.8	0.0	0.0	35.0	54.0	-19.0	H	A	
2437 MH <sub>2</sub>	lln												
4.874	3.0	45.3	33.1	6.3	-34.8	0.0	0.0	49.9	74.0	-24.1	H	P	
4.874	3.0	31.5	33.1	6.3	-34.8	0.0	0.0	36.2	54.0	-17.8	H	A	
4.874	3.0	48.4	33.1	6.3	-34.8	0.0	0.0	53.0	74.0	-21.0	V	P	
4.874	3.0	34.4	33.1	6.3	-34.8	0.0	0.0	39.1	54.0	-14.9	V	A	
2462 MH <sub>2</sub>	lln												
4.924	3.0	49.1	33.2	6.3	-34.8	0.0	0.0	53.8	74.0	-20.2	V	P	
4.924	3.0	35.1	33.2	6.3	-34.8	0.0	0.0	39.8	54.0	-14.2	V	A	
4.924	3.0	46.3	33.2	6.3	-34.8	0.0	0.0	51.1	74.0	-22.9	H	P	
4.924	3.0	32.6	33.2	6.3	-34.8	0.0	0.0	37.3	54.0	-16.7	H	A	

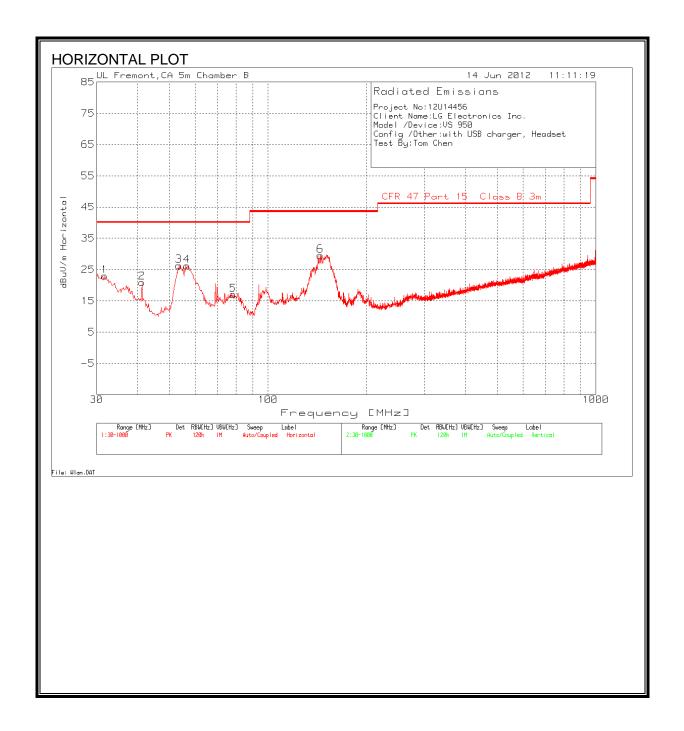
Rev. 4.1.2.7

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

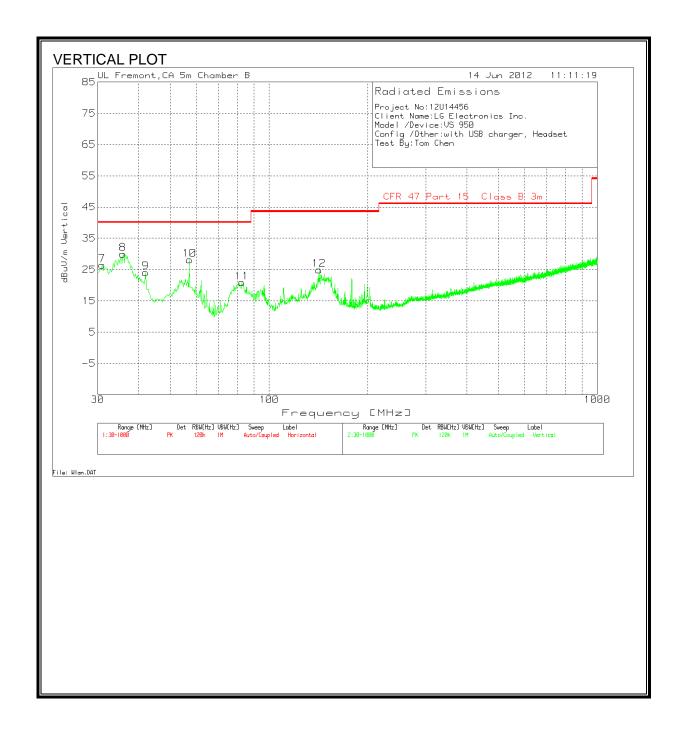
TEL: (510) 771-1000

# 6.3. 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)



73 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL CCS.

HORIZON <sup>-</sup>	TAL AND	) VERTIC	CAL DATA						
Project No:12U14456									
Client Name	::LG Electro	onics Inc.							
Model /Devi	ice:VS 950								
Config /Othe	er:with US	B charger, I	Headset						
Test By:Tom	Chen								
Horizontal 3	0 - 1000MF	lz							
				1					
				'					
				5mB Amp		CFR 47 Part			
	Meter		- 0	Path 30-		15 Class B			
Frequency			(dB)	1000MHz (dB)	dBuV/m		Margin	Polarity	
31.7446	32.09	PK	20.1	-29.2	22.99	40	-17.01	Horz	
41.243			12.8	-29.2					
53.4552			7.4						
56.5568			7.3						
78.2674			8		16.93	40			
144.3685	44.79	PK	12.8	-28.1	29.49	43.5	-14.01	Horz	
Vertical 30 -	1000MHz								
				<b> </b>					
				<u> </u>					
				5mB Amp		CFR 47 Part			
	Meter			Path 30-		15 Class B			
			(dB)	1000MHz (dB)			Margin	Polarity	
30.9692			20.7			40			
35.8153			16.9	1					
42.0184			12.3						
57.1383			7.3	t					
82.532			7.7	t					
141.8485	40	PK	13	-28.1	24.9	43.5	-18.6	Vert	

# 7. 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**

**ANSI C63.4** 

#### **RESULTS**

### **6 WORST EMISSIONS**

Project No:12U14455			
Client Name:LG Electronics Inc.			
Model/Device:VS950/USB charger & He	eadset		
Test Volt/Freq:115 VAC / 60 HZ			
Test By:Tom Chen			
ling 11 15 20MHz			

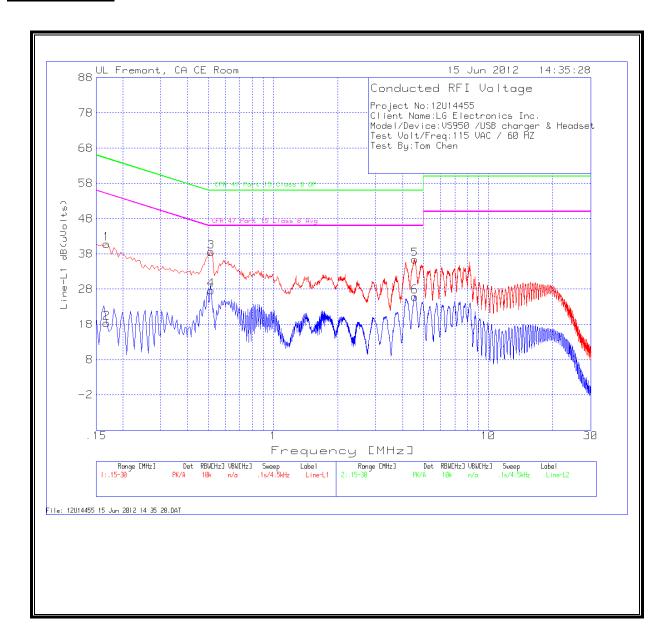
Li	ne-	L1	.15 -	30MHz
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			T24 IL	LC Cables		CFR 47 Part		CFR 47 Part	
Test	Meter		L1.TXT	1&3.TXT	dB(uVolt	15 Class B		15 Class B	
Frequency	Reading	Detector	(dB)	(dB)	s)	QP	Margin	Avg	Margin
0.168	40.76	PK	0.1	0	40.86	65.1	-24.24	-	-
0.168	18.29	Av	0.1	0	18.39	1	ı	55.1	-36.71
0.5145	38.46	PK	0.1	0	38.56	56	-17.44	ı	-
0.5145	27.59	Av	0.1	0	27.69	1	-	46	-18.31
4.56	36.17	PK	0.1	0.1	36.37	56	-19.63	-	-
4.56	25.7	Av	0.1	0.1	25.9	-	-	46	-20.1

Line-L2 .15 - 30MHz

			T24 IL	LC Cables		CFR 47 Part		CFR 47 Part	
Test	Meter		L2.TXT	2&3.TXT	dB(uVolt	15 Class B		15 Class B	
Frequency	Reading	Detector	(dB)	(dB)	s)	QP	Margin	Avg	Margin
0.15	36.49	PK	0.1	0	36.59	66	-29.41	-	-
0.15	13.18	Av	0.1	0	13.28	-	-	56	-42.72
0.5055	30.46	PK	0.1	0	30.56	56	-25.44	=	-
0.5055	14.51	Av	0.1	0	14.61	=	=	46	-31.39
4.2315	28.66	PK	0.1	0.1	28.86	56	-27.14	-	-
4.2315	16.37	Av	0.1	0.1	16.57	-	-	46	-29.43

#### **LINE 1 RESULTS**



#### **LINE 2 RESULTS**

