FCC CFR47 PART 22H, 24E, AND 27L
CLASS II PERMISSIVE CHANGE
CERTIFICATION TEST REPORT

FOR

DUAL BAND CELL PHONE WITH LTE +WIFI+BT 3.0; HOTSPOT SUPPORTS

MODEL NUMBER: LG-VS950

ADDITIONAL MODEL NUMBERS: VS950, LGVS950

FCC ID: ZNFVS950

REPORT NUMBER: 12U14455-4

ISSUE DATE: JUNE 19, 2012

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

Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
---	06/19/12	Initial Issue	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.
1000 SYLVAN AVENUE
ENGLEWOOD CLIFFS, NEW JERSEY 07632

EUT DESCRIPTION: DUAL BAND CELL PHONE WITH LTE +WIFI+BT 3.0; HOTSPOT SUPPORT

MODEL: LG-VS950, VS950 and LGVS950

SERIAL NUMBER: 990001510004799

DATE TESTED: JUNE 6 TO 17, 2012

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 22H, 24E, and 27L	Pass

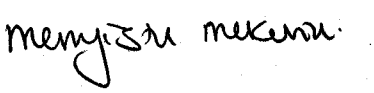
Compliance Certification Services (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties 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:

THU CHAN
ENGINEERING MANAGER
UL CCS

Tested By:



MENGISTU MEKURIA
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 2, FCC CFR 47 Part 22, FCC CFR Part 24, and FCC Part 27.

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:

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

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 Dual band Cell phone with LTE +WIFI+BT 3.0 HOTSPOT supported.

5.2. MAXIMUM OUTPUT POWER

The RF conducted measurement passed within ± 0.5dBm of the original output power.

The RF radiated measurement with maximum peak ERP / EIRP output powers are as follows:

Part 22 Cellular Band

Frequency range (MHz)	Modulation	ERP	
		dBm	mW
824.2 – 848.8	GSM	30.44	1106.6
824.2 – 848.8	GPRS	30.50	1122.0
824.2 – 848.8	EGPRS	28.15	653.1
824.7 – 848.31	1XRTT	27.15	518.8
824.7 – 848.31	EVDO	23.92	246.6

Part 24 PCS Band

Frequency range (MHz)	Modulation	EIRP	
		dBm	mW
1850.2-1909.8	GSM	30.02	1004.6
1850.2-1909.8	GPRS	30.51	1124.6
1850.2-1909.8	EGPRS	30.19	1044.7
1851.25-1908.75	1xRTT	29.68	929.0
1851.25-1908.75	EVDO	26.53	449.8
1852.4-1907.6	REL 99	28.84	765.6
1852.4-1907.6	HSDPA	28.68	737.9

Part 27 LTE Band 13

Frequency range (MHz)	Modulation	ERP	
		dBm	mW
782	QPSK	25.84	383.7
782	16QAM	26.16	413.0

5.3. 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)

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was.VS9500Ca.

The EUT is linked with Agilent 8960 and CMW500 Communication Test Set.

5.5. WORST-CASE CONFIGURATION AND MODE

Based on the investigation results, the highest peak power and enhanced data rate is the worst-case scenario for all measurements.

Worst-case modes:
- GPRS (GMSK)
- EGPRS (8PSK)
- For Cellular and PCS band: 1xRTT (RC1 SO2), EVDO REV A.
- For PCS band UMTS REL 99, HSDPA
- LTE BAND 13

Since the EUT is a portable device the three orientations; X, Y and Z, and the worst among them with an AC Adapter and headset have been investigated to determine the worst case. After the investigations worst case were found to be at X-position with AC/DC adapter and headset for all modes on PCS band, Y position with charger for EVDO on cell band, Z-position with headset for all other modes on cell band and LTE band 13.

5.6. DESCRIPTION OF TEST SETUP

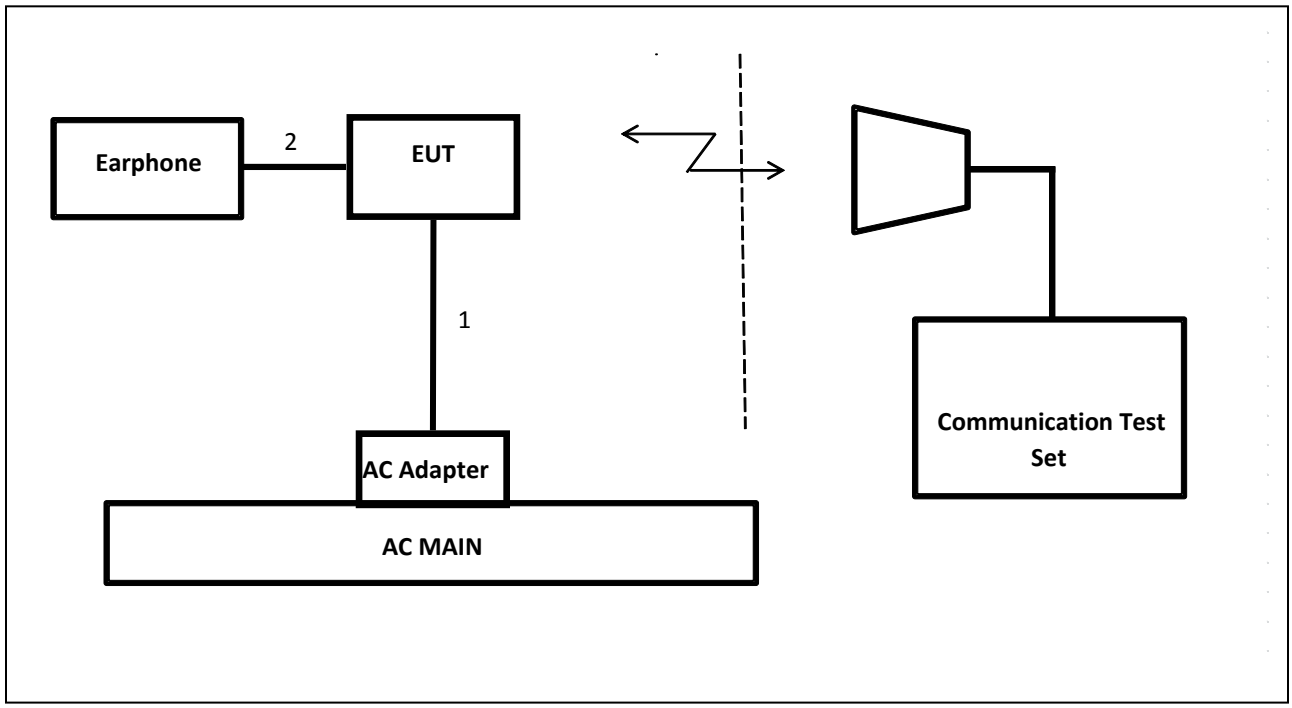
RADIATED TESTS SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	MCS-01WR	RA1Z0057345	N/A
Headset	LG	I-SOUND	EAB62209201	N/A

I/O CABLES (RADIATED TEST)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	USB	UN-SHELDED	1.0m	N/A
2	Audio	0	Earphone	UN-SHELDED	1.0m	NA

RADIATED 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 Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	03/22/13
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01161	12/16/12
Antenna, Horn, 18 GHz	EMCO	3115	C00872	09/20/12
Antenna, Horn, 18 GHz	EMCO	3115	C00945	10/06/12
Antenna, Horn, 18 GHz	EMCO	3115	C00943	CNR
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	C01011	03/23/13
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	07/12/12
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	07/13/12
Communications Test Set	Agilent / HP	E5515C	1000732	09/27/12
Communication Test Set	R & S	CMW500	None	12/16/12
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02689`	CNR
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Directional Coupler, 4.2 GHz, 40 dB	A-R	DC7144A	C00983	CNR
Sleeve Dipole 1730~2030 MHz	ETS	3126-1880	C01157	08/01/12
Signal Generator, 20 GHz	Agilent / HP	83732B	C00774	07/14/12
Antenna, Tuned Dipole 400~1000 MHz	ETS	3121C DB4	C00993	7/16/2012

7. RADIATED TEST RESULTS

7.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232

LIMITS

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

27.50 (c)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17.

MODES TESTED

- GSM, GPRS and EGPRS
- 1xRTT – RC1, SO2
- WCDMA REL. 99, HSDPA
- LTE BAND 13

RESULTS

CELLULAR BAND (ERP)

Mode	Channel	f (MHz)	ERP	
			dBm	mW
GSM	128	824.20	28.57	719.45
	192	836.60	30.44	1106.62
	251	848.80	29.68	928.97
GPRS	128	824.20	28.58	721.11
	192	836.60	30.50	1122.02
	251	848.80	29.95	988.55
EGPRS	128	824.20	25.69	370.68
	192	836.60	28.15	653.13
	251	848.80	27.72	591.56
1xRTT	1013	824.70	25.30	338.84
	384	836.52	27.15	518.80
	777	848.31	26.21	417.83
EVDO, REV A	1013	824.70	23.52	224.91
	384	836.52	23.92	246.60
	777	848.31	23.07	202.77

PCS BAND (EIRP)

Mode	Channel	f (MHz)	EIRP	
			dBm	mW
GSM	512	1850.20	28.48	704.69
	661	1880.00	29.32	855.07
	810	1909.80	30.02	1004.62
GPRS	512	1850.20	29.08	809.10
	661	1880.00	29.19	829.85
	810	1909.80	30.51	1124.60
EGPRS	512	1850.20	28.48	704.69
	661	1880.00	29.03	799.83
	810	1909.80	30.19	1044.72
1xRTT	25	1851.25	29.43	877.00
	600	1880.00	29.52	895.36
	1175	1908.75	29.68	928.97
EVDO, REV A	25	1851.25	24.91	309.74
	600	1880.00	26.53	449.78
	1175	1908.75	25.55	358.92
REL 99	9662	1852.40	28.47	703.07
	9800	1880.00	28.84	765.60
	9938	1906.80	27.56	570.16
HSDPA	9662	1852.40	28.63	729.46
	9800	1880.00	28.68	737.90
	9938	1906.80	27.56	570.16

LTE BAND 13 (ERP)

Mode	RB/RB SIZE	f (MHz)	ERP	
			dBm	mW
10 MHZ BAND QPSK	1/0	782.0	24.47	279.90
	1/49		25.74	374.97
	25/12		25.13	325.84
	50/0		25.84	383.71
10 MHz BAND 16QAM	1/0		24.58	287.08
	1/49		25.82	381.94
	25/12		25.04	319.15
	50/0		26.16	413.05

GSM850 BAND

High Frequency Substitution Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/07/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 850MHz BAND GSM MODE

Test Equipment:
Receiving: Sunol T122 and Chamber A N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	29.07	V	0.5	0.0	28.57	38.5	-9.9	
824.20	21.10	H	0.5	0.0	20.60	38.5	-17.8	
Mid Ch								
836.60	30.94	V	0.5	0.0	30.44	38.5	-8.0	
836.60	23.18	H	0.5	0.0	22.68	38.5	-15.8	
High Ch								
848.80	30.18	V	0.5	0.0	29.68	38.5	-8.8	
848.80	23.34	H	0.5	0.0	22.84	38.5	-15.6	

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GPRS850 BAND

High Frequency Substitution Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/07/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 850MHz BAND GPRS MODE

Test Equipment:
Receiving: Sunol T122, and Chamber A N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
824.20	29.08	V	0.5	0.0	28.58	38.5	-9.9	
824.20	22.55	H	0.5	0.0	22.05	38.5	-16.4	
836.60	31.00	V	0.5	0.0	30.50	38.5	-8.0	
836.60	23.43	H	0.5	0.0	22.93	38.5	-15.5	
848.80	30.45	V	0.5	0.0	29.95	38.5	-8.5	
848.80	23.99	H	0.5	0.0	23.49	38.5	-15.0	

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EGPRS850 BAND

High Frequency Substitution Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/07/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 850MHz band, EGPRS

Test Equipment:
Receiving: Sunol T122 and Chamber A N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
824.20	26.19	V	0.5	0.0	25.69	38.5	-12.8	
824.20	18.79	H	0.5	0.0	18.29	38.5	-20.2	
836.60	28.65	V	0.5	0.0	28.15	38.5	-10.3	
836.60	19.35	H	0.5	0.0	18.85	38.5	-19.6	
848.80	28.22	V	0.5	0.0	27.72	38.5	-10.7	
848.80	20.26	H	0.5	0.0	19.76	38.5	-18.7	

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CDMA2000 1xRTT CELL BAND

High Frequency Substitution Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/07/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 850 MHz BAND, CDMA 1xRTT MODE

Test Equipment:
Receiving: Sunol T122 and Chamber A N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
824.70	25.80	V	0.5	0.0	25.30	38.5	-13.1	
824.70	18.50	H	0.5	0.0	18.00	38.5	-20.4	
836.52	27.65	V	0.5	0.0	27.15	38.5	-11.3	
836.52	20.74	H	0.5	0.0	20.24	38.5	-18.2	
848.31	26.71	V	0.5	0.0	26.21	38.5	-12.2	
848.31	20.09	H	0.5	0.0	19.59	38.5	-18.9	

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CDMA2000 EVDO Rev A, CELL BAND

High Frequency Substitution Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/07/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 850 MHz BAND, CDMA EVDO REV. A MODE

Test Equipment:
Receiving: Sunol T122 and Chamber A N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
824.70	24.02	V	0.5	0.0	23.52	38.5	-14.9	
824.70	21.31	H	0.5	0.0	20.81	38.5	-17.6	
836.52	24.42	V	0.5	0.0	23.92	38.5	-14.5	
836.52	20.73	H	0.5	0.0	20.23	38.5	-18.2	
848.31	23.57	V	0.5	0.0	23.07	38.5	-15.4	
848.31	19.00	H	0.5	0.0	18.50	38.5	-19.9	

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GSM1900 BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/07/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 1900 MHz BAND, GSM

Test Equipment:
Receiving: Horn T73, and Camber A SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low CH								
1.850	15.4	V	0.85	8.62	23.20	33.0	-9.8	
1.850	20.9	H	0.85	8.47	28.48	33.0	-4.5	
1.880	15.1	V	0.85	8.46	22.70	33.0	-10.3	
1.880	21.8	H	0.85	8.36	29.32	33.0	-3.7	
1.910	16.1	V	0.85	8.30	23.55	33.0	-9.5	
1.910	22.6	H	0.85	8.25	30.02	33.0	-3.0	

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GPRS1900 BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/07/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 1900 MHz BAND, GPRS

Test Equipment:
Receiving: Horn T73, and Camber A SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
1.850	15.8	V	0.85	8.62	23.54	33.0	-9.5	
1.850	21.5	H	0.85	8.47	29.08	33.0	-3.9	
1.880	15.2	V	0.85	8.46	22.84	33.0	-10.2	
1.880	21.7	H	0.85	8.36	29.19	33.0	-3.8	
1.910	16.1	V	0.85	8.30	23.58	33.0	-9.4	
1.910	23.1	H	0.85	8.25	30.51	33.0	-2.5	

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EGPRS1900 BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/07/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 1900 MHz BAND, EGPRS

Test Equipment:
Receiving: Horn T73, and Camber A SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
1.850	15.1	V	0.85	8.62	22.88	33.0	-10.1	
1.850	20.9	H	0.85	8.47	28.48	33.0	-4.5	
1.880	15.1	V	0.85	8.46	22.69	33.0	-10.3	
1.880	21.5	H	0.85	8.36	29.03	33.0	-4.0	
1.910	15.4	V	0.85	8.30	22.81	33.0	-10.2	
1.910	22.8	H	0.85	8.25	30.19	33.0	-2.8	

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CDMA2000 1xRTT PCS BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/07/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 1900 MHz BAND, CDMA2000, 1xRTT

Test Equipment:
Receiving: Horn T73, and Camber A SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.851	16.7	V	0.85	8.62	24.49	33.0	-8.5	
1.851	21.8	H	0.85	8.47	29.43	33.0	-3.6	
1.880	15.9	V	0.85	8.46	23.48	33.0	-9.5	
1.880	22.0	H	0.85	8.36	29.52	33.0	-3.5	
1.909	15.6	V	0.85	8.30	23.06	33.0	-9.9	
1.909	22.3	H	0.85	8.25	29.68	33.0	-3.3	

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CDMA2000 EVDO REV A, PCS BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/07/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 1900 MHz BAND, EVDO Rev A

Test Equipment:
Receiving: Horn T73, and Camber A SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
1.851	10.8	V	0.85	8.62	18.56	33.0	-14.4	
1.851	17.3	H	0.85	8.47	24.91	33.0	-8.1	
1.880	12.4	V	0.85	8.46	20.05	33.0	-13.0	
1.880	19.0	H	0.85	8.36	26.53	33.0	-6.5	
1.909	12.2	V	0.85	8.30	19.69	33.0	-13.3	
1.909	18.2	H	0.85	8.25	25.55	33.0	-7.5	

Rev. 3.17.11

WCDMA REL. 99 PCS BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/07/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, WCDMA1900, Rel 99

Test Equipment:
Receiving: Horn T73, and Camber A SMA Cables
Substitution: Horn T60 Substitution, 4ft SMA Cable (SN # 245182002) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
1.852	14.2	V	0.85	8.62	21.95	33.0	-11.1	
1.852	20.9	H	0.85	8.47	28.47	33.0	-4.5	
1.880	14.2	V	0.85	8.46	21.78	33.0	-11.2	
1.880	21.3	H	0.85	8.36	28.84	33.0	-4.2	
1.908	15.6	V	0.85	8.30	23.07	33.0	-9.9	
1.908	20.2	H	0.85	8.25	27.56	33.0	-5.4	

Rev. 3.17.11

WCDMA HSDPA, PCS BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/07/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, WCDMA1900, HSDPA

Test Equipment:
Receiving: Horn T73, and Camber A SMA Cables
Substitution: Horn T60 Substitution, 4ft SMA Cable (SN # 245182002) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
1.852	14.6	V	0.85	8.62	22.40	33.0	-10.6	
1.852	21.0	H	0.85	8.47	28.63	33.0	-4.4	
1.880	14.6	V	0.85	8.46	22.23	33.0	-10.8	
1.880	21.2	H	0.85	8.36	28.68	33.0	-4.3	
1.908	15.4	V	0.85	8.30	22.86	33.0	-10.1	
1.908	20.2	H	0.85	8.25	27.56	33.0	-5.4	

Rev. 3.17.11

LTE BAND 13 QPSK

High Frequency Substitution Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/06/12
Test Engineer: MENGSITU MEKURIA
Configuration: EUT only
Mode: TX, LTE BAND 13, 10MHz BW, QPSK

Test Equipment:
Receiving: Sunol T122 and ChamberA N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
RB=1 & SRB=0, QPSK								
782.00	24.97	V	0.5	0.0	24.47	34.8	-10.3	
782.00	16.95	H	0.5	0.0	16.45	34.8	-18.4	
RB=1 & SRB=49, QPSK								
782.00	26.24	V	0.5	0.0	25.74	34.8	-9.1	
782.00	18.57	H	0.5	0.0	18.07	34.8	-16.7	
RB=25 & SRB=12, QPSK								
782.00	25.63	V	0.5	0.0	25.13	34.8	-9.7	
782.00	19.04	H	0.5	0.0	18.54	34.8	-16.3	
RB=50 & SRB=0 QPSK								
782.00	26.34	V	0.5	0.0	25.84	34.8	-9.0	
782.00	19.85	H	0.5	0.0	19.35	34.8	-15.5	

Rev. 3.17.11

LTE BAND 13 16QAM

High Frequency Substitution Measurement
Compliance Certification Services Chamber A

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/06/12
Test Engineer: MENGSITU MEKURIA
Configuration: EUT only
Mode: TX, LTE BAND 13, 10 MHz BW, 16 QAM

Test Equipment:
Receiving: Sunol T122 and Chamber A N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
RB=1 & SRB=0, 16QAM								
782.00	25.08	V	0.5	0.0	24.58	34.8	-10.2	
782.00	17.00	H	0.5	0.0	16.50	34.8	-18.3	
RB=1 & SRB=49, 16QAM								
782.00	26.32	V	0.5	0.0	25.82	34.8	-9.0	
782.00	18.63	H	0.5	0.0	18.13	34.8	-16.7	
RB=25 & SRB=12, 16QAM								
782.00	25.54	V	0.5	0.0	25.04	34.8	-9.8	
782.00	19.09	H	0.5	0.0	18.59	34.8	-16.2	
RB=50 & SRB=0 16QAM								
782.00	26.66	V	0.5	0.0	26.16	34.8	-8.6	
782.00	20.45	H	0.5	0.0	19.95	34.8	-14.9	

Rev. 3.17.11

7.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, & §27.53

LIMIT

§22.917 (e) and §24.238 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

(c) For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(f) For operations in the 746–763 MHz, 775–793 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

MODES TESTED

- GSM, GPRS and EGPRS
- 1xRTT – RC1, SO2
- EVDO, Rev A.
- WCDMA REL. 99 and HSDPA
- LTE BAND 13

RESULTS

GSM850 BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/15/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, CELL BAND, GSM MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (824.2MHz)									
1.648	-4.1	V	3.0	35.5	1.0	-38.7	-13.0	-25.7	
2.473	-6.8	V	3.0	35.4	1.0	-41.2	-13.0	-28.2	
3.297	-20.6	V	3.0	35.5	1.0	-55.2	-13.0	-42.2	
1.648	-8.5	H	3.0	35.5	1.0	-43.1	-13.0	-30.1	
2.473	-4.8	H	3.0	35.4	1.0	-39.2	-13.0	-26.2	
3.297	-20.6	H	3.0	35.5	1.0	-55.1	-13.0	-42.1	
Mid Ch, (836.6MHz)									
1.673	-1.7	V	3.0	35.5	1.0	-36.2	-13.0	-23.2	
2.510	-10.1	V	3.0	35.4	1.0	-44.5	-13.0	-31.5	
3.346	-21.4	V	3.0	35.5	1.0	-55.9	-13.0	-42.9	
1.673	-5.9	H	3.0	35.5	1.0	-40.4	-13.0	-27.4	
2.510	-10.2	H	3.0	35.4	1.0	-44.6	-13.0	-31.6	
3.346	-21.4	H	3.0	35.5	1.0	-55.9	-13.0	-42.9	
4.183	-18.9	H	3.0	35.2	1.0	-53.2	-13.0	-40.2	
High Ch, (848.8MHz)									
1.698	2.7	V	3.0	35.5	1.0	-31.8	-13.0	-18.8	
2.546	-15.1	V	3.0	35.4	1.0	-49.5	-13.0	-36.5	
3.395	-20.1	V	3.0	35.5	1.0	-54.6	-13.0	-41.6	
1.698	-0.1	H	3.0	35.5	1.0	-34.6	-13.0	-21.6	
2.546	-13.6	H	3.0	35.4	1.0	-48.0	-13.0	-35.0	
3.395	-20.4	H	3.0	35.5	1.0	-54.9	-13.0	-41.9	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

GPRS850 BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/15/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, CELL BAND, GPRS MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (824.2MHz)									
1.648	-6.3	V	3.0	35.5	1.0	-40.9	-13.0	-27.9	
2.473	-8.9	V	3.0	35.4	1.0	-43.3	-13.0	-30.3	
3.297	-21.0	H	3.0	35.5	1.0	-55.5	-13.0	-42.5	
1.648	-2.9	V	3.0	35.5	1.0	-37.4	-13.0	-24.4	
2.473	-10.8	V	3.0	35.4	1.0	-45.2	-13.0	-32.2	
3.297	-21.4	H	3.0	35.5	1.0	-55.9	-13.0	-42.9	
Mid Ch, (836.6MHz)									
1.673	-1.8	V	3.0	35.5	1.0	-36.3	-13.0	-23.3	
2.510	-10.8	V	3.0	35.4	1.0	-45.2	-13.0	-32.2	
3.346	-23.2	H	3.0	35.5	1.0	-57.7	-13.0	-44.7	
1.673	-3.1	V	3.0	35.5	1.0	-37.6	-13.0	-24.6	
2.510	-6.1	V	3.0	35.4	1.0	-40.5	-13.0	-27.5	
3.346	-23.0	H	3.0	35.5	1.0	-57.6	-13.0	-44.6	
High Ch, (848.8MHz)									
1.698	2.5	V	3.0	35.5	1.0	-32.0	-13.0	-19.0	
2.546	-13.5	V	3.0	35.4	1.0	-48.0	-13.0	-35.0	
3.395	-21.0	H	3.0	35.5	1.0	-55.5	-13.0	-42.5	
1.698	-1.8	V	3.0	35.5	1.0	-36.3	-13.0	-23.3	
2.546	-12.4	V	3.0	35.4	1.0	-46.8	-13.0	-33.8	
3.395	-20.6	H	3.0	35.5	1.0	-55.1	-13.0	-42.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

EGPRS850 BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/15/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, CELL BAND, EGPRS MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (824.2MHz)									
1.648	-16.2	V	3.0	35.5	1.0	-50.8	-13.0	-37.8	
2.473	-18.1	V	3.0	35.4	1.0	-52.5	-13.0	-39.5	
1.648	-17.0	H	3.0	35.5	1.0	-51.6	-13.0	-38.6	
2.473	-17.0	H	3.0	35.4	1.0	-51.4	-13.0	-38.4	
Mid Ch, (836.6MHz)									
1.673	-13.2	V	3.0	35.5	1.0	-47.7	-13.0	-34.7	
2.510	-18.1	V	3.0	35.4	1.0	-52.5	-13.0	-39.5	
1.673	-9.1	H	3.0	35.5	1.0	-43.7	-13.0	-30.7	
2.510	-22.4	H	3.0	35.4	1.0	-56.8	-13.0	-43.8	
High Ch, (848.8MHz)									
1.698	-10.0	V	3.0	35.5	1.0	-44.5	-13.0	-31.5	
2.546	-20.9	V	3.0	35.4	1.0	-55.3	-13.0	-42.3	
1.698	-11.9	H	3.0	35.5	1.0	-46.4	-13.0	-33.4	
2.546	-23.5	H	3.0	35.4	1.0	-57.9	-13.0	-44.9	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

CDMA2000 1xRTT CELL BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/14/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 850 MHz BAND, CDMA 1xRTT MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.70MHz									
1.649	-12.3	V	3.0	35.5	1.0	-46.8	-13.0	-33.8	
8.247	-10.5	V	3.0	35.6	1.0	-45.2	-13.0	-32.2	
9.072	-9.6	V	3.0	35.6	1.0	-44.2	-13.0	-31.2	
9.896	-9.0	V	3.0	35.5	1.0	-43.5	-13.0	-30.5	
1.649	-13.6	H	3.0	35.5	1.0	-48.2	-13.0	-35.2	
7.422	-10.8	H	3.0	35.7	1.0	-45.5	-13.0	-32.5	
8.247	-8.4	H	3.0	35.6	1.0	-43.0	-13.0	-30.0	
Mid Ch, 836.52MHz									
1.673	-15.2	V	3.0	35.5	1.0	-49.7	-13.0	-36.7	
7.529	-12.2	V	3.0	35.7	1.0	-46.9	-13.0	-33.9	
8.365	-9.8	V	3.0	35.6	1.0	-44.4	-13.0	-31.4	
9.202	-9.1	V	3.0	35.6	1.0	-43.6	-13.0	-30.6	
1.673	-18.9	H	3.0	35.5	1.0	-53.5	-13.0	-40.5	
7.529	-7.3	H	3.0	35.7	1.0	-42.0	-13.0	-29.0	
8.365	-7.2	H	3.0	35.6	1.0	-41.9	-13.0	-28.9	
9.202	-8.7	H	3.0	35.6	1.0	-43.2	-13.0	-30.2	
High Ch, 848.31MHz									
1.697	-12.3	V	3.0	35.5	1.0	-46.8	-13.0	-33.8	
8.483	-9.7	V	3.0	35.6	1.0	-44.3	-13.0	-31.3	
9.331	-8.9	V	3.0	35.6	1.0	-43.4	-13.0	-30.4	
1.697	-13.3	H	3.0	35.5	1.0	-47.9	-13.0	-34.9	
7.635	-9.6	H	3.0	35.7	1.0	-44.3	-13.0	-31.3	
8.483	-5.3	H	3.0	35.6	1.0	-40.0	-13.0	-27.0	
9.331	-9.6	H	3.0	35.6	1.0	-44.2	-13.0	-31.2	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

CDMA2000 EVDO REV A, CELL BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/17/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, Cell Band, EVDO Rev A MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.25MHz									
1.649	-14.3	V	3.0	35.5	1.0	-48.9	-13.0	-35.9	
2.474	-6.7	V	3.0	35.4	1.0	-41.1	-13.0	-28.1	
1.649	-12.6	H	3.0	35.5	1.0	-47.1	-13.0	-34.1	
2.474	-8.8	H	3.0	35.4	1.0	-43.3	-13.0	-30.3	
Mid Ch, 836.52MHz									
1.672	-13.8	V	3.0	35.5	1.0	-48.3	-13.0	-35.3	
2.510	-10.2	V	3.0	35.4	1.0	-44.6	-13.0	-31.6	
1.672	-13.4	H	3.0	35.5	1.0	-47.9	-13.0	-34.9	
2.510	-12.1	H	3.0	35.4	1.0	-46.5	-13.0	-33.5	
High Ch, 1908.75MHz									
1.697	-11.0	V	3.0	35.5	1.0	-45.5	-13.0	-32.5	
2.545	-7.3	V	3.0	35.4	1.0	-41.7	-13.0	-28.7	
1.697	-11.9	H	3.0	35.5	1.0	-46.4	-13.0	-33.4	
2.545	-10.9	H	3.0	35.4	1.0	-45.4	-13.0	-32.4	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

GSM1900 BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/15/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, PCS BAND, GSM MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1850.2MHz)									
3.700	-14.2	V	3.0	35.4	1.0	-48.5	-13.0	-35.5	
5.551	-19.9	V	3.0	35.4	1.0	-54.3	-13.0	-41.3	
7.401	-15.8	H	3.0	35.7	1.0	-50.5	-13.0	-37.5	
9.251	-11.0	H	3.0	35.6	1.0	-45.5	-13.0	-32.5	
3.700	-16.1	V	3.0	35.4	1.0	-50.5	-13.0	-37.5	
5.551	-17.6	V	3.0	35.4	1.0	-52.0	-13.0	-39.0	
7.401	-14.6	H	3.0	35.7	1.0	-49.3	-13.0	-36.3	
9.251	-12.0	H	3.0	35.6	1.0	-46.5	-13.0	-33.5	
Mid Ch, (1880.0MHz)									
3.760	-15.7	V	3.0	35.3	1.0	-50.0	-13.0	-37.0	
5.640	-19.4	V	3.0	35.4	1.0	-53.9	-13.0	-40.9	
7.520	-14.9	H	3.0	35.7	1.0	-49.6	-13.0	-36.6	
9.400	-9.5	H	3.0	35.6	1.0	-44.1	-13.0	-31.1	
3.760	-15.0	V	3.0	35.3	1.0	-49.4	-13.0	-36.4	
5.640	-18.5	V	3.0	35.4	1.0	-52.9	-13.0	-39.9	
7.520	-14.2	H	3.0	35.7	1.0	-48.9	-13.0	-35.9	
9.400	-14.7	H	3.0	35.6	1.0	-49.3	-13.0	-36.3	
High Ch, (1909.8MHz)									
3.820	-11.9	V	3.0	35.3	1.0	-46.2	-13.0	-33.2	
5.729	-16.9	V	3.0	35.4	1.0	-51.3	-13.0	-38.3	
7.639	-15.4	V	3.0	35.7	1.0	-50.1	-13.0	-37.1	
9.549	-10.3	V	3.0	35.6	1.0	-44.9	-13.0	-31.9	
3.820	-18.5	H	3.0	35.3	1.0	-52.8	-13.0	-39.8	
5.729	-17.9	H	3.0	35.4	1.0	-52.3	-13.0	-39.3	
7.639	-15.6	H	3.0	35.7	1.0	-50.3	-13.0	-37.3	
9.549	-13.6	H	3.0	35.6	1.0	-48.1	-13.0	-35.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

GPRS1900 BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/15/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, PCS BAND, GPRS MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1850.2MHz)									
3.700	-13.2	V	3.0	35.4	1.0	-47.6	-13.0	-34.6	
5.551	-19.6	V	3.0	35.4	1.0	-54.0	-13.0	-41.0	
7.401	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
9.251	-10.8	V	3.0	35.6	1.0	-45.3	-13.0	-32.3	
3.700	-13.2	H	3.0	35.4	1.0	-47.5	-13.0	-34.5	
5.551	-17.9	H	3.0	35.4	1.0	-52.3	-13.0	-39.3	
7.401	-14.1	H	3.0	35.7	1.0	-48.8	-13.0	-35.8	
9.251	-11.6	H	3.0	35.6	1.0	-46.1	-13.0	-33.1	
Mid Ch, (1880.0MHz)									
3.760	-12.9	V	3.0	35.3	1.0	-47.3	-13.0	-34.3	
5.640	-18.1	V	3.0	35.4	1.0	-52.5	-13.0	-39.5	
7.520	-15.1	V	3.0	35.7	1.0	-49.8	-13.0	-36.8	
9.400	-9.4	V	3.0	35.6	1.0	-43.9	-13.0	-30.9	
3.760	-15.1	H	3.0	35.3	1.0	-49.5	-13.0	-36.5	
5.640	-16.7	H	3.0	35.4	1.0	-51.1	-13.0	-38.1	
7.520	-13.7	H	3.0	35.7	1.0	-48.4	-13.0	-35.4	
9.400	-12.9	H	3.0	35.6	1.0	-47.4	-13.0	-34.4	
High Ch, (1909.8MHz)									
3.820	-11.8	V	3.0	35.3	1.0	-46.1	-13.0	-33.1	
5.729	-17.9	V	3.0	35.4	1.0	-52.3	-13.0	-39.3	
7.639	-15.2	V	3.0	35.7	1.0	-49.9	-13.0	-36.9	
9.549	-10.4	V	3.0	35.6	1.0	-45.0	-13.0	-32.0	
3.820	-14.2	H	3.0	35.3	1.0	-48.5	-13.0	-35.5	
5.729	-17.0	H	3.0	35.4	1.0	-51.5	-13.0	-38.5	
7.639	-14.3	H	3.0	35.7	1.0	-49.0	-13.0	-36.0	
9.549	-11.2	H	3.0	35.6	1.0	-45.7	-13.0	-32.7	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

EGPRS1900 BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/15/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, PCS BAND, EGPRS MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T144 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1850.2MHz)									
3.700	-14.7	V	3.0	36.8	1.0	-50.5	-13.0	-37.5	
5.551	-16.9	V	3.0	36.3	1.0	-52.2	-13.0	-39.2	
3.700	-17.9	H	3.0	36.8	1.0	-53.8	-13.0	-40.8	
5.551	-15.3	H	3.0	36.3	1.0	-50.5	-13.0	-37.5	
Mid Ch, (1880.0MHz)									
3.760	-14.7	V	3.0	36.8	1.0	-50.4	-13.0	-37.4	
5.640	-17.6	V	3.0	36.3	1.0	-52.9	-13.0	-39.9	
3.760	-18.4	H	3.0	36.8	1.0	-54.1	-13.0	-41.1	
5.640	-16.5	H	3.0	36.3	1.0	-51.8	-13.0	-38.8	
High Ch, (1909.8MHz)									
3.820	-14.6	V	3.0	36.7	1.0	-50.3	-13.0	-37.3	
5.729	-16.4	V	3.0	36.3	1.0	-51.7	-13.0	-38.7	
3.820	-13.6	H	3.0	36.7	1.0	-49.4	-13.0	-36.4	
5.729	-16.3	H	3.0	36.3	1.0	-51.6	-13.0	-38.6	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

CDMA2000 1xRTT PCS BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/14/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 1900 MHz BAND, CDMA2000 1xRTT MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.25MHz									
3.703	-16.0	V	3.0	35.4	1.0	-50.4	-13.0	-37.4	
5.554	-15.1	V	3.0	35.4	1.0	-49.5	-13.0	-36.5	
3.703	-14.8	H	3.0	35.4	1.0	-49.1	-13.0	-36.1	
5.554	-13.7	H	3.0	35.4	1.0	-48.1	-13.0	-35.1	
Mid Ch, 1880.00MHz									
3.760	-12.2	V	3.0	35.3	1.0	-46.6	-13.0	-33.6	
5.640	-12.9	V	3.0	35.4	1.0	-47.3	-13.0	-34.3	
3.760	-14.7	H	3.0	35.3	1.0	-49.1	-13.0	-36.1	
5.640	-12.6	H	3.0	35.4	1.0	-47.0	-13.0	-34.0	
High Ch, 1908.75MHz									
3.818	-10.4	V	3.0	35.3	1.0	-44.7	-13.0	-31.7	
5.726	-14.7	V	3.0	35.4	1.0	-49.1	-13.0	-36.1	
3.818	-8.5	H	3.0	35.3	1.0	-42.8	-13.0	-29.8	
5.726	-14.0	H	3.0	35.4	1.0	-48.5	-13.0	-35.5	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

CDMA2000 EVDO Rev A, PCS BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/17/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, PCS Band, EVDO Rev A MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.25MHz									
3.702	1.2	V	3.0	35.4	1.0	-33.1	-13.0	-20.1	
5.554	-10.6	V	3.0	35.4	1.0	-45.1	-13.0	-32.1	
3.702	3.4	H	3.0	35.4	1.0	-31.0	-13.0	-18.0	
5.554	-10.7	H	3.0	35.4	1.0	-45.1	-13.0	-32.1	
Mid Ch, 1880MHz									
3.760	3.1	V	3.0	35.3	1.0	-31.2	-13.0	-18.2	
5.640	-1.4	V	3.0	35.4	1.0	-35.8	-13.0	-22.8	
3.760	6.4	H	3.0	35.3	1.0	-28.0	-13.0	-15.0	
5.640	-6.3	H	3.0	35.4	1.0	-40.7	-13.0	-27.7	
High Ch, 1908.75MHz									
3.818	2.7	V	3.0	35.3	1.0	-31.6	-13.0	-18.6	
5.726	-7.8	V	3.0	35.4	1.0	-42.2	-13.0	-29.2	
3.818	6.0	H	3.0	35.3	1.0	-28.3	-13.0	-15.3	
5.726	-10.6	H	3.0	35.4	1.0	-45.0	-13.0	-32.0	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

WCDMA REL 99, PCS BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG ELECTRONICS
Project #:	12U14455
Date:	06/17/12
Test Engineer:	MENGISTU MEKURIA
Configuration:	EUT with AC Adapter and Earphone
Mode:	TX, UMTS1900, WCDMA Rel 99 MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3.704	-17.7	V	3.0	35.4	1.0	-52.0	-13.0	-39.0	
5.557	-13.6	V	3.0	35.4	1.0	-48.0	-13.0	-35.0	
3.704	-17.5	H	3.0	35.4	1.0	-51.9	-13.0	-38.9	
5.557	-11.7	H	3.0	35.4	1.0	-46.2	-13.0	-33.2	
Mid Ch, 1880.0MHz									
3.760	-16.5	V	3.0	35.3	1.0	-50.8	-13.0	-37.8	
5.640	-12.9	V	3.0	35.4	1.0	-47.3	-13.0	-34.3	
3.760	-16.0	H	3.0	35.3	1.0	-50.3	-13.0	-37.3	
5.640	-11.2	H	3.0	35.4	1.0	-45.7	-13.0	-32.7	
High Ch, 1907.6MHz									
3.815	-10.3	V	3.0	35.3	1.0	-44.7	-13.0	-31.7	
5.723	-10.4	V	3.0	35.4	1.0	-44.9	-13.0	-31.9	
3.815	-9.3	H	3.0	35.3	1.0	-43.6	-13.0	-30.6	
5.723	-12.0	H	3.0	35.4	1.0	-46.4	-13.0	-33.4	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

WCDMA HSDPA, PCS BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/17/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter and Earphone
Mode: TX, UMTS1900 BAND, WCDMA HSDPA MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3.704	-14.7	V	3.0	35.4	1.0	-49.0	-13.0	-36.0	
5.557	-13.6	V	3.0	35.4	1.0	-48.0	-13.0	-35.0	
3.704	-14.5	H	3.0	35.4	1.0	-48.9	-13.0	-35.9	
5.557	-11.7	H	3.0	35.4	1.0	-46.2	-13.0	-33.2	
Mid Ch, 1880.0MHz									
3.760	-15.5	V	3.0	35.3	1.0	-49.8	-13.0	-36.8	
5.640	-14.9	V	3.0	35.4	1.0	-49.3	-13.0	-36.3	
3.760	-15.0	H	3.0	35.3	1.0	-49.3	-13.0	-36.3	
5.640	-13.2	H	3.0	35.4	1.0	-47.7	-13.0	-34.7	
High Ch, 1907.6MHz									
3.815	-10.3	V	3.0	35.3	1.0	-44.7	-13.0	-31.7	
5.723	-13.4	V	3.0	35.4	1.0	-47.9	-13.0	-34.9	
3.815	-9.3	H	3.0	35.3	1.0	-43.6	-13.0	-30.6	
5.723	-15.0	H	3.0	35.4	1.0	-49.4	-13.0	-36.4	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE BAND 13 QPSK

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/17/12
Test Engineer: MENGSITU MEKURIA
Configuration: EUT WITH HEADSET AND AC ADAPTER
Mode: TX, LTE BAND MODE, 10MHz BW, QPSK

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
BAND 13 (782.0 MHz)									
RB1 0									
1.555	-24.7	V	3.0	35.6	1.0	-59.3	-13.0	-46.3	
2.333	-20.1	V	3.0	35.4	1.0	-54.5	-13.0	-41.5	
1.555	-20.5	H	3.0	35.6	1.0	-55.1	-13.0	-42.1	
2.333	-20.4	H	3.0	35.4	1.0	-54.9	-13.0	-41.9	
RB 1 49									
1.573	-23.4	V	3.0	35.6	1.0	-58.0	-13.0	-45.0	
2.359	-20.1	V	3.0	35.4	1.0	-54.5	-13.0	-41.5	
1.573	-22.9	H	3.0	35.6	1.0	-57.4	-13.0	-44.4	
2.358	-21.5	H	3.0	35.4	1.0	-55.9	-13.0	-42.9	
RB 25 12									
1.565	-25.1	V	3.0	35.6	1.0	-59.7	-13.0	-46.7	
2.347	-20.1	V	3.0	35.4	1.0	-54.5	-13.0	-41.5	
1.565	-23.4	H	3.0	35.6	1.0	-58.0	-13.0	-45.0	
2.347	-21.5	H	3.0	35.4	1.0	-55.9	-13.0	-42.9	
RB 50 0									
1.564	-24.4	V	3.0	35.6	1.0	-59.0	-13.0	-46.0	
2.346	-20.1	V	3.0	35.4	1.0	-54.5	-13.0	-41.5	
1.564	-23.4	H	3.0	35.6	1.0	-58.0	-13.0	-45.0	
2.346	-21.5	H	3.0	35.4	1.0	-55.9	-13.0	-42.9	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE QPSK Radiated Measurement in 1559 - 1610MHz Band

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG ELECTRONICS
Project #:	12U14455
Date:	06/17/12
Test Engineer:	MENGISTU MEKURIA
Configuration:	EUT with HEADSET AND AC Adapter
Mode:	TX, LTE Band 13
	782MHz, QPSK, 10MHz BW MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
(782MHz), RB1 0, QPSK									
1.559	-23.6	V	3.0	35.6	1.0	-58.2	-40.0	-18.2	
1.559	-25.0	H	3.0	35.6	1.0	-59.6	-40.0	-19.6	
(782MHz), RB1 49, QPSK									
1.600	-26.2	V	3.0	35.6	1.0	-60.8	-40.0	-20.8	
1.600	-25.5	H	3.0	35.6	1.0	-60.1	-40.0	-20.1	
(782MHz), RB25 12, QPSK									
1.564	-25.6	V	3.0	35.6	1.0	-60.2	-40.0	-20.2	
1.564	-22.0	H	3.0	35.6	1.0	-56.6	-40.0	-16.6	
(782MHz), RB50 0, QPSK									
1.596	-25.7	V	3.0	35.6	1.0	-60.3	-40.0	-20.3	
1.596	-25.2	H	3.0	35.6	1.0	-59.8	-40.0	-19.8	

Rev. 03.03.09

LTE BAND 13 16QAM

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/17/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT WITH HEADSET AND AC ADAPTER
Mode: TX, LTE BAND MODE, 10MHz BW, 16QAM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
BAND 13 (782.0 MHz)									
RB1 0									
1.564	-25.3	V	3.0	35.6	1.0	-59.9	-13.0	-46.9	
2.333	-21.8	V	3.0	35.4	1.0	-56.2	-13.0	-43.2	
1.564	-23.0	H	3.0	35.6	1.0	-57.5	-13.0	-44.5	
2.333	-23.5	H	3.0	35.4	1.0	-57.9	-13.0	-44.9	
RB 1 49									
1.555	-23.9	V	3.0	35.6	1.0	-58.5	-13.0	-45.5	
2.335	-20.8	V	3.0	35.4	1.0	-55.2	-13.0	-42.2	
1.555	-22.0	H	3.0	35.6	1.0	-56.6	-13.0	-43.6	
2.335	-22.5	H	3.0	35.4	1.0	-56.9	-13.0	-43.9	
RB 25 12									
1.565	-25.0	V	3.0	35.6	1.0	-59.6	-13.0	-46.6	
2.347	-21.8	V	3.0	35.4	1.0	-56.2	-13.0	-43.2	
1.565	-22.9	H	3.0	35.6	1.0	-57.5	-13.0	-44.5	
2.347	-22.5	H	3.0	35.4	1.0	-56.9	-13.0	-43.9	
RB 50 0									
1.564	-24.8	V	3.0	35.6	1.0	-59.4	-13.0	-46.4	
2.346	-21.3	V	3.0	35.4	1.0	-55.7	-13.0	-42.7	
1.564	-23.0	H	3.0	35.6	1.0	-57.5	-13.0	-44.5	
2.346	-23.5	H	3.0	35.4	1.0	-57.9	-13.0	-44.9	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE 16QAM Radiated Measurement in 1559 - 1610MHz Band

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS
Project #: 12U14455
Date: 06/17/12
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with HEADSET AND AC Adapter
Mode: TX, LTE Band 13
782MHz, 16QAM, 10MHz BW MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
(782MHz), RB1 0, QPSK									
1.596	-26.1	V	3.0	35.6	1.0	-60.7	-40.0	-20.7	
1.596	-25.6	H	3.0	35.6	1.0	-60.2	-40.0	-20.2	
(782MHz), RB1 49, QPSK									
1.560	-26.4	V	3.0	35.6	1.0	-61.0	-40.0	-21.0	
1.560	-25.2	H	3.0	35.6	1.0	-59.8	-40.0	-19.8	
(782MHz), RB25 12, QPSK									
1.580	-25.5	V	3.0	35.6	1.0	-60.1	-40.0	-20.1	
1.580	-24.8	H	3.0	35.6	1.0	-59.4	-40.0	-19.4	
(782MHz), RB50 0, QPSK									
1.599	-25.7	V	3.0	35.6	1.0	-60.3	-40.0	-20.3	
1.599	-25.1	H	3.0	35.6	1.0	-59.7	-40.0	-19.7	

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