FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E
FCC CFR47 PART 27 SUBPART E
FCC CFR47 PART 27 SUBPART L

C2PC CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + Bluetooth & DTS b/g/n

MODEL NUMBER: LGL31L, L31L, LG-L31L

FCC ID: ZNFL31L

REPORT NUMBER: 14U17021-1

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Prepared for

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NVLAP LAB CODE 200065-0

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: GSM/WCDMA/LTE Phone + Bluetooth & DTS b/g/n

MODEL: LGL31L, L31L, LG-L31L

SERIAL NUMBER: 1839205

DATE TESTED: MARCH 21-28, 2014

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

UL Verification Services Inc. 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 Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. 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.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 22, FCC CFR Part 24, FCC CFR 47 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 Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ul.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:

EIRP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss(between the SG and substitution antenna) + Substitution Antenna Factor (dBi)

ERP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss(between the SG and substitution antenna)

(Path loss = Signal generator output – PSA reading with substitution antenna)

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 18000 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 GSM/WCDMA/LTE Phone + Bluetooth & DTS b/g/n capability that is manufactured by (LG)

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted and radiated ERP / EIRP output powers as follows:

FCC Part 22/2 4/27						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
		Peak	Peak (dBm)	Peak (mW)	Peak (dBm)	Peak (mW)
GSM850	824~849	GMSK	33.70	2344.23		
	824~849	GPRS	33.70	2344.23	27.96	625.32
	824~849	EGPRS	27.50	562.34	23.84	242.61
GSM1900	1850~1910	GMSK	30.70	1174.90		
	1850~1910	GPRS	30.70	1174.90	29.11	814.7
	1850~1910	EGPRS	25.70	371.54	27.32	539.51
Band 5	824~849	REL99	23.70	234.42	19.76	94.62
	824~849	HSDPA	23.70	234.42	20.12	102.80
	824~849	HSUPA	23.70	234.42		
Band 2	1850~1910	REL99	23.70	234.42	25.57	360.58
	1850~1910	HSDPA	23.70	234.42	24.4	275.42
	1850~1910	HSUPA	23.70	234.42		

5.3. MAXIMUM OUTPUT POWER (LTE)

The transmitter has a maximum peak conducted and radiated ERP/EIRP output powers as follows:

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Peak (dBm)	Peak (mW)	Peak (dBm)	Peak (mW)
LTE17	704~716	10MHz	QPSK	24.20	263.03	18.08	64.28
			16QAM	23.10	204.17	17.53	56.64

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Peak (dBm)	Peak (mW)	Peak (dBm)	Peak (mW)
LTE17	704~716	5MHz	QPSK	24.20	263.03	18.16	65.48
			16QAM	23.10	204.17	17.45	55.6

FCC Part27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Peak (dBm)	Peak (mW)	Peak (dBm)	Peak (mW)
LTE4	1710~1755	10MHz	QPSK	24.20	263.00	22.68	185.35
			16QAM	23.20	208.90	22.39	173.38

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Peak (dBm)	Peak (mW)	Peak (dBm)	Peak (mW)
LTE4	1710~1755	5MHz	QPSK	24.20	263.03	22.68	185.35
			16QAM	23.20	208.93	22.41	174.18

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna for the [List the bands supported] with a maximum peak gain as follow:

Frequency (MHz)	Peak Gain (dBi)
Band 5 824~849MHz	-1.94
Band2 1850~1910MHz	-1.36
LTE4, 1710~1755MHz	-1.41
LTE17, 704~716MHz	-4.48

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	LGL31L	N/A	N/A
Headset	LG	N/A	N/A	N/A

I/O CABLES (CONDUCTED SETUP)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	RF Out	1	Spectrum Analyzer	Shielded	None	NA
2	Antenna Port	1	EUT	Shielded	0.1m	NA
3	RF In/Out	1	Communication Test Set	Shielded	1m	NA

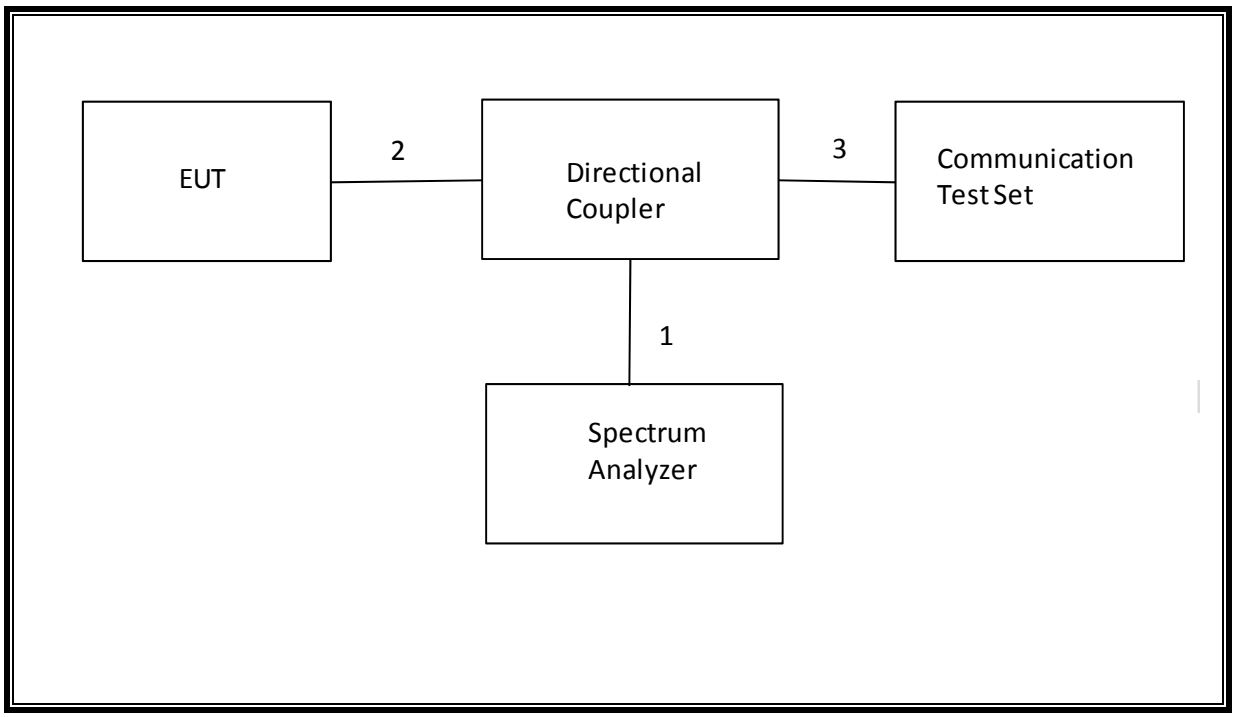
I/O CABLES (RADIATED SETUP)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	USB	1	AC Adapter	Un-shielded	1.2m	No
2	Jack	1	Headset	Shielded	1m	No
3	RF In/out	1	Communication Test Set	Un-shielded	2m	Yes

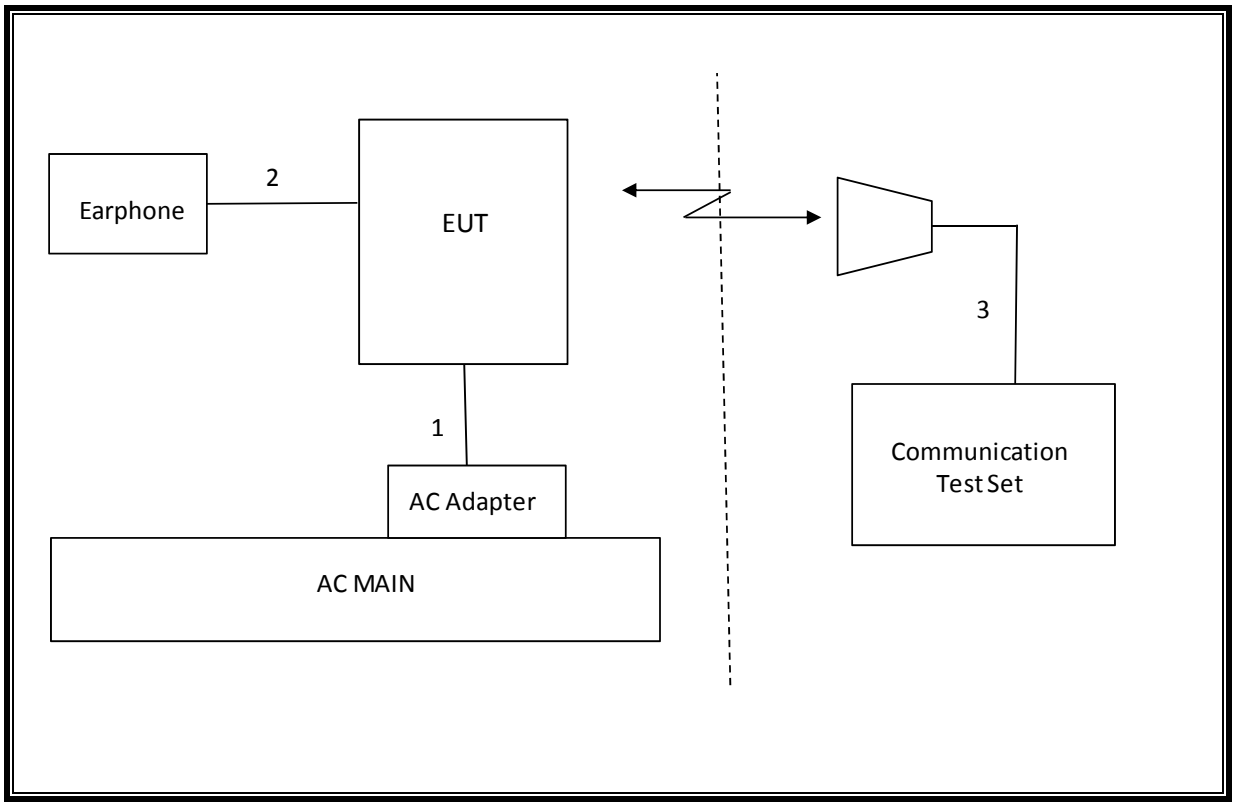
TEST SETUP

The EUT is continuously communicated to the call box during the tests.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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	C01179	02/26/14
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	08/14/14
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/14
Antenna, Horn, 18 GHz	EMCO	3115	C00784	09/25/14
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	01/09/15
Communications Test Set	R&S	CMW500	T159	07/02/14
DC power supply, 8 V @ 3 A or 15 V	Agilent / HP	E3610A	None	CNR
Vector signal generator, 6 GHz	Agilent / HP	E4438C	None	07/06/14
Antenna, Tuned Dipole 400~1000	ETS	3121C DB4	C00993	02/14/14
Directional Coupler	RF-Lambda	RFDC5M06G15	None	CNR

7. Summary Table

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
2.1049	N/A	Occupied Band width (99%)	N/A	Conducted	Pass	See original
22.917(a) 24.238(a) 27.53(g) 90.691	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Band Edge / Conducted Spurious Emission	-13dBm		Pass	See original
2.1046	N/A	Conducted output power	N/A		Pass	See original
22.355 24.235 27.54 90.213	RSS-132(4.3) RSS-133(6.3) RSS-139(6.3) RSS-199(4.3)	Frequency Stability	2.5PPM		Pass	See original
22.913(a)(2)	RSS-132(4.4)	Effective Radiated Power	38 dBm	Radiated	Pass	27.96 dBm
27.50(b)(10)	N/A		34.77 dBm		Pass	
24.232(c) 27.50(d)(4)	RSS-133(6.4) RSS-139(6.4)	Equivalent Isotropic Radiated Power	33dBm 30dBm		Pass	29.11 dBm
22.917(a) 24.238(a) 27.53(g)	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Radiated Spurious Emission	-13dBm		Pass	-40.3 dBm

8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900

Press Connection control to choose the different menus

Press RESET > choose all to reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM+GPRS or GSM+EGPRS

Main Service > Packet Data

Service selection > Test Mode A – Auto Slot Config. off

MS Signal Press Slot Config bottom on the right twice to select and change the number of time slots and power setting

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850/900

> 30 dBm for GPRS1800/1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)

BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off

P0> 4 dB

Slot Config > Unchanged (if already set under MS Signal)

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3 (Default)

Network Coding Scheme > CS4 (GPRS) and MCS5 ~ MCS9 (EGPRS)

Bit Stream > 2E9-1PSR Bit Pattern

AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input

Connection Press Signal On to turn on the signal and change settings

8.1.1. GSM OUTPUT POWER RESULT

Band	Mode	Ch.	f(MHz)	1 time slot	2 time slot
				Peak	Peak
GSM850	GMSK	128	824.2	33.7	
		190	836.6	33.7	
		251	848.8	33.6	
	GPRS	128	824.2	33.7	31.2
		190	836.6	33.7	31.1
		251	848.8	33.6	30.9
	EGPRS	128	824.2	27.5	26.6
		190	836.6	27.4	26.5
		251	848.8	27.4	26.5
GSM1900	GMSK	512	1850.2	30.5	
		661	1880	30.7	
		810	1909.8	30.7	
	GPRS	512	1850.2	30.5	28.4
		661	1880	30.7	28.6
		810	1909.8	30.7	28.7
	EGPRS	512	1850.2	25.6	24.5
		661	1880	25.7	24.5
		810	1909.8	25.7	24.5

8.2. UMTS REL 99

TEST PROCEDURE

The following summary of these settings are illustrated below:

	Mode	Rel99
	Subtest	-
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	HSDPA FRC	Not Applicable
	HSUPA Test	Not Applicable
	Power Control Algorithm	Algorithm2
	βc	Not Applicable
	βd	Not Applicable
	βec	Not Applicable
	βc/βd	8/15
	βhs	Not Applicable
	βed	Not Applicable

8.2.1. UMTS REL 99 OUTPUT POWER RESULT

Band	Mode	Ch.	f(MHz)	Conducted Power (dBm) Avg (dBm)
Band 5	REL99	4132	826.4	23.7
		4183	836.6	23.7
		4233	846.6	23.6
Band 2	REL99	9262	1852.4	23.7
		9400	1880	23.7
		9538	1907.6	23.5

8.3. UMTS HSDPA

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	Rel5 HSDPA			
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs =βhs/βc	30/15			

8.3.1. UMTS HSDPA OUTPUT POWER RESULT

Band	Mode	Subset	Ch.	f(MHz)	Conducted Power (dBm) Avg (dBm)
Band 5	HSDPA	1	4132	826.4	23.5
			4183	836.6	23.7
			4233	846.6	23.5
		2	4132	826.4	23.6
			4183	836.6	23.6
			4233	846.6	23.6
		3	4132	826.4	23.1
			4183	836.6	23.1
			4233	846.6	23.1
		4	4132	826.4	23.2
			4183	836.6	23.1
			4233	846.6	23.1
Band 2	HSDPA	1	9262	1852.4	23.6
			9400	1880	23.7
			9538	1907.6	23.5
		2	9262	1852.4	23.7
			9400	1880	23.7
			9538	1907.6	23.7
		3	9262	1852.4	23.1
			9400	1880	23.2
			9538	1907.6	23.1
		4	9262	1852.4	23.2
			9400	1880	23.2
			9538	1907.6	23.1

8.3.2. UMTS HSUPA

TEST PROCEDURE

The following summary of these settings are illustrated below: (ETSI TS 134.121-1 Table C.11.1)

	Mode	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	P-CPICH (dB)	-10				
	P-CCPCH (dB)	-12				
	SCH (dB)	-12				
	PICH(dB)	-15				
	DPCH (dB)	-9				
	HS-SCCH_1 (dB)	-8				
	HS-PDSCH (dB)	-3				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	Bc	11/15	6/15	15/15	2/15	15/15
	Bd	15/15	15/15	9/15	15/15	15/15
	Bec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	15/15
	Bhs	22/15	12/15	30/15	4/15	30/15
	βed (note1)	1309/225	94/75	47/15 47/15	56/75	134/15
	MPR	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	Reference E-TFCIs	5	5	2	5	5
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27	

Note1: βed cannot be set directly, it is set by Absolute Grant Value.

8.3.3. UMTS HSUPA OUTPUT POWER RESULT

Band	Mode	Subset	Ch.	f(MHz)	Conducted Power (dBm) Avg (dBm)
Band 5	HSUPA	1	4132	826.4	23.5
			4183	836.6	23.1
			4233	846.6	23.5
		2	4132	826.4	21.3
			4183	836.6	21.9
			4233	846.6	22.0
		3	4132	826.4	22.3
			4183	836.6	22.6
			4233	846.6	22.4
		4	4132	826.4	22.3
			4183	836.6	22.4
			4233	846.6	22.2
		5	4132	826.4	23.7
			4183	836.6	23.7
			4233	846.6	23.7
Band 2	HSUPA	1	9262	1852.4	23.1
			9400	1880	23.2
			9538	1907.6	23.2
		2	9262	1852.4	22.3
			9400	1880	22.3
			9538	1907.6	21.7
		3	9262	1852.4	22.4
			9400	1880	22.6
			9538	1907.6	22.5
		4	9262	1852.4	22.1
			9400	1880	22.4
			9538	1907.6	22.1
		5	9262	1852.4	23.7
			9400	1880	23.6
			9538	1907.6	23.6

8.4. LTE OUTPUT VERIFICATION

8.4.1. LTE OUTPUT RESULT

Band	Frequency	Modulation	BW (MHz)	RB Size	RB Offset	Average
LTE17	710	QPSK	10	1	0	24.0
				1	24	24.2
				1	49	24.2
				25	0	22.8
				25	11	23.0
				25	24	23.0
				50	0	23.1
	710	16QAM		1	0	22.9
				1	24	23.1
				1	49	23.1
				25	0	21.8
				25	11	21.9
				25	24	22.1
				50	0	22.0

Band	Frequency	Modulation	BW (MHz)	RB Size	RB Offset	Average
LTE17	710	QPSK	5	1	0	23.9
				1	11	24.2
				1	24	24.1
				12	0	23.0
				12	5	23.2
				12	11	23.0
				25	0	23.0
	710	16QAM		1	0	22.8
				1	11	23.0
				1	24	23.1
				12	0	21.9
				12	5	22.1
				12	11	22.0
				25	0	22.0

Band	Frequency	Modulation	BW (MHz)	RB Size	RB Offset	Average
LTE4	1715	QPSK	10	1	0	24.1
				1	24	24.0
				1	49	24.1
				25	0	23.0
				25	11	23.0
				25	24	23.0
				50	0	22.9
	1715	16QAM		1	0	23.1
				1	24	23.1
				1	49	23.1
				25	0	21.9
				25	11	21.8
				25	24	21.8
				50	0	21.8
	1732.5	QPSK		1	0	24.1
				1	24	24.0
				1	49	24.1
				25	0	22.9
				25	11	22.9
				25	24	22.9
				50	0	23.0
	1732.5	16QAM		1	0	23.2
				1	24	23.1
				1	49	23.1
				25	0	21.9
				25	11	22.0
				25	24	22.0
				50	0	21.9
	1750	QPSK		1	0	24.2
				1	24	24.1
				1	49	24.2
				25	0	22.8
				25	11	22.9
				25	24	22.9
				50	0	22.8
	1750	16QAM		1	0	23.1
				1	24	23.0
				1	49	23.1
				25	0	21.8
				25	11	21.8
				25	24	21.8
				50	0	21.8

Band	Frequency	Modulation	BW (MHz)	RB Size	RB Offset	Max Peak	Average
LTE4	1712.5	QPSK	5	1	0		24.2
				1	11		24.2
				1	24		24.1
				12	0		23.2
				12	5		23.2
				12	11		23.2
				25	0		23.2
	1712.5	16QAM		1	0		23.2
				1	11		23.1
				1	24		23.2
				12	0		21.9
				12	5		22.0
				12	11		22.1
				25	0		22.0
	1732.5	QPSK		1	0		24.1
				1	11		24.1
				1	24		24.1
				12	0		23.1
				12	5		23.1
				12	11		23.1
				25	0		23.1
	1732.5	16QAM		1	0		23.1
				1	11		23.1
				1	24		23.2
				12	0		22.0
				12	5		22.0
				12	11		22.1
				25	0		22.0
	1752.5	QPSK		1	0		24.1
				1	11		24.2
				1	24		24.2
				12	0		23.1
				12	5		23.2
				12	11		23.1
				25	0		23.1
	1752.5	16QAM		1	0		23.1
				1	11		23.1
				1	24		23.1
				12	0		22.0
				12	5		22.1
				12	11		22.0
				25	0		22.1

9. RADIATED TEST RESULTS

9.1. 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.

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13dB.

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17

MODES TESTED

WCDMA Band 2 and Band 5
GSM 850 and 1900
LTE 4 and LTE 17

TEST RESULTS

9.1.1. ERP/EIRP Results

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 2	REL99	9262	1852.4	25.57	360.58
		9400	1880	22.88	194.09
		9538	1907.6	23.36	216.77
	HSDPA	9262	1852.4	24.4	275.42
		9400	1880	22.19	165.58
		9538	1907.6	23.23	210.38

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 5	REL99	4132	826.6	19.76	94.62
		4183	836.6	18.83	76.38
		4233	846.4	19.56	90.36
	HSDPA	4132	826.6	20.12	102.80
		4183	836.6	19.26	84.33
		4233	846.4	20.09	102.09

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM1900	GMSK	512	1850.2		
		661	1880		
		810	1909.8		
	GPRS	512	1850.2	29.11	814.7
		661	1880	27.08	510.5
		810	1909.8	28.07	641.21
	EGPRS	512	1850.2	27.32	539.51
		661	1880	25.3	338.84
		810	1909.8	26.98	498.88

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM850	GMSK	128	824.2		
		190	836.6		
		251	848.8		
	GPRS	128	824.2	27.251	531.01
		190	836.6	27.961	625.32
		251	848.8	27.651	582.24
	EGPRS	128	824.2	21.341	136.18
		190	836.6	23.434	220.5
		251	848.8	23.849	242.61

9.1.2. LTE ERP/EIRP Results

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE17	10	QPSK	1/0	709	17.161	52.01
			1/0	710	17.621	57.82
			1/0	711	18.081	64.28
		16QAM	1/0	709	16.411	43.76
			1/0	710	17.531	56.64
			1/0	711	16.981	49.9

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE17	5	QPSK	1/0	706.5	16.891	48.88
			1/0	710	16.911	49.1
			1/0	713.5	18.161	65.48
		16QAM	1/0	706.5	15.881	38.73
			1/0	710	16.881	48.76
			1/0	713.5	17.451	55.6

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	10	QPSK	1/0	1715	22.18	165.2
			1/0	1732.5	21.64	145.88
			1/0	1750	22.68	185.35
		16QAM	1/0	1715	21.57	143.55
			1/0	1732.5	20.7	117.49
			1/0	1750	22.39	173.38

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP

					dBm	mW
LTE4	5	QPSK	1/0	1712.5	22.16	164.44
			1/0	1732.5	22.63	183.23
			1/0	1752.5	22.76	188.80
		16QAM	1/0	1712.5	21.14	130.01
			1/0	1732.5	22.41	174.18
			1/0	1752.5	21.61	144.88

9.1.3. ERP/EIRP PLOTS

Band

LTE17

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT, X position
Mode: LTE Band 17_10MHz_16QAM

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) 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								
709.00	13.50	V	0.9	0.0	12.60	38.5	-25.8	
709.00	17.31	H	0.9	0.0	16.41	38.5	-22.0	
Mid Ch								
710.00	13.57	V	0.9	0.0	12.67	38.5	-25.8	
710.00	18.43	H	0.9	0.0	17.53	38.5	-20.9	
High Ch								
711.00	14.46	V	0.9	0.0	13.56	38.5	-24.9	
711.00	17.88	H	0.9	0.0	16.98	38.5	-21.5	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

Band

LTE17

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT, X position
Mode: LTE Band 17_10MHz_QPSK

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) 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								
709.00	13.85	V	0.9	0.0	12.95	38.5	-25.5	
709.00	18.06	H	0.9	0.0	17.16	38.5	-21.3	
Mid Ch								
710.00	14.77	V	0.9	0.0	13.87	38.5	-24.6	
710.00	18.52	H	0.9	0.0	17.62	38.5	-20.8	
High Ch								
711.00	15.60	V	0.9	0.0	14.70	38.5	-23.7	
711.00	18.98	H	0.9	0.0	18.08	38.5	-20.4	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

Band

LTE17

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT, X position
Mode: LTE Band 17_5MHz_16QAM

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) 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								
706.50	13.45	V	0.9	0.0	12.55	38.5	-25.9	
706.50	16.78	H	0.9	0.0	15.88	38.5	-22.6	
Mid Ch								
710.00	14.39	V	0.9	0.0	13.49	38.5	-25.0	
710.00	17.78	H	0.9	0.0	16.88	38.5	-21.6	
High Ch								
713.50	14.25	V	0.9	0.0	13.35	38.5	-25.1	
713.50	18.35	H	0.9	0.0	17.45	38.5	-21.0	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

Band

LTE17

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT, X position
Mode: LTE Band 17_5MHz_QPSK

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) 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								
706.50	13.93	V	0.9	0.0	13.03	38.5	-25.4	
706.50	17.79	H	0.9	0.0	16.89	38.5	-21.6	
Mid Ch								
710.00	15.66	V	0.9	0.0	14.76	38.5	-23.7	
710.00	17.81	H	0.9	0.0	16.91	38.5	-21.5	
High Ch								
713.50	15.50	V	0.9	0.0	14.60	38.5	-23.8	
713.50	19.06	H	0.9	0.0	18.16	38.5	-20.3	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

Band

LTE4

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/25/14
Test Engineer: R. Alegre
Configuration: EUT only, Z position
Mode: LTE_B4_10MHz_16QAM

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1715.00	12.95	V	0.85	8.29	20.39	33.0	-12.6	
1715.00	14.13	H	0.85	8.29	21.57	33.0	-11.4	
Mid Ch								
1732.50	11.84	V	0.85	8.29	19.28	33.0	-13.7	
1732.50	13.26	H	0.85	8.29	20.70	33.0	-12.3	
High Ch								
1750.00	14.49	V	0.85	7.92	21.56	33.0	-11.4	
1750.00	15.32	H	0.85	7.92	22.39	33.0	-10.6	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

Band

LTE4

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/25/14
Test Engineer: R. Alegre
Configuration: EUT only, Z position
Mode: LTE_B4_10MHz_QPSK

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1715.00	14.29	V	0.85	8.29	21.73	33.0	-11.3	
1715.00	14.74	H	0.85	8.29	22.18	33.0	-10.8	
Mid Ch								
1732.50	12.49	V	0.85	8.29	19.93	33.0	-13.1	
1732.50	14.20	H	0.85	8.29	21.64	33.0	-11.4	
High Ch								
1750.00	14.85	V	0.85	7.92	21.92	33.0	-11.1	
1750.00	15.61	H	0.85	7.92	22.68	33.0	-10.3	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

Band

LTE4

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/25/14
Test Engineer: R. Alegre
Configuration: EUT only, Z position
Mode: LTE_B4_5MHz_16QAM

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1712.00	11.39	V	0.85	8.29	18.83	33.0	-14.2	
1712.00	13.70	H	0.85	8.29	21.14	33.0	-11.9	
Mid Ch								
1732.00	13.65	V	0.85	8.29	21.09	33.0	-11.9	
1732.00	14.97	H	0.85	8.29	22.41	33.0	-10.6	
High Ch								
1752.00	14.71	V	0.85	7.92	21.78	33.0	-11.2	
1752.00	14.54	H	0.85	7.92	21.61	33.0	-11.4	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

Band

LTE4

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/25/14
Test Engineer: R. Alegre
Configuration: EUT only, Z position
Mode: LTE_B4_5MHz_QPSK

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1712.00	11.97	V	0.85	8.29	19.41	33.0	-13.6	
1712.00	14.72	H	0.85	8.29	22.16	33.0	-10.8	
Mid Ch								
1732.00	14.69	V	0.85	8.29	22.13	33.0	-10.9	
1732.00	15.19	H	0.85	8.29	22.63	33.0	-10.4	
High Ch								
1752.00	15.69	V	0.85	7.92	22.76	33.0	-10.2	
1752.00	15.49	H	0.85	7.92	22.56	33.0	-10.4	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

Band

Band 2

HSDPA

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/25/14
Test Engineer: R. Alegre
Configuration: X Position, EUT only
Mode: WCDMA_HSDPA_1900

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	8.13	V	0.85	7.9	15.13	33.0	-17.9	
1852.40	17.40	H	0.85	7.9	24.40	33.0	-8.6	
Mid Ch								
1880.00	7.13	V	0.85	7.9	14.20	33.0	-18.8	
1880.00	15.12	H	0.85	7.9	22.19	33.0	-10.8	
High Ch								
1907.60	7.87	V	0.85	7.9	14.87	33.0	-18.1	
1907.60	16.23	H	0.85	7.9	23.23	33.0	-9.8	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

Band

Band 2

REL99

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/25/14
Test Engineer: R. Alegre
Configuration: X Position, EUT only
Mode: WCDMA_Rel 99_1900

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	8.56	V	0.85	7.9	15.56	33.0	-17.4	
1852.40	18.57	H	0.85	7.9	25.57	33.0	-7.4	
Mid Ch								
1880.00	7.36	V	0.85	7.9	14.43	33.0	-18.6	
1880.00	15.81	H	0.85	7.9	22.88	33.0	-10.1	
High Ch								
1907.60	9.27	V	0.85	7.9	16.27	33.0	-16.7	
1907.60	16.36	H	0.85	7.9	23.36	33.0	-9.6	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

Band

Band 5

HSDPA

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/21/14
Test Engineer: R. Alegre
Configuration: EUT, Y Position
Mode: WCDMA_HSDPA_850

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) 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								
826.60	15.88	V	0.9	0.0	14.98	38.5	-23.5	
826.60	21.02	H	0.9	0.0	20.12	38.5	-18.3	
Mid Ch								
836.60	15.08	V	0.9	0.0	14.18	38.5	-24.3	
836.60	20.16	H	0.9	0.0	19.26	38.5	-19.2	
High Ch								
846.40	15.77	V	0.9	0.0	14.87	38.5	-23.6	
846.40	20.99	H	0.9	0.0	20.09	38.5	-18.4	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

Band

Band 5

REL99

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/21/14
Test Engineer: R. Alegre
Configuration: EUT, Y Position
Mode: WCDMA_Rel99_850

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) 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								
826.60	15.81	V	0.9	0.0	14.91	38.5	-23.5	
826.60	20.66	H	0.9	0.0	19.76	38.5	-18.7	
Mid Ch								
836.60	14.72	V	0.9	0.0	13.82	38.5	-24.6	
836.60	19.73	H	0.9	0.0	18.83	38.5	-19.6	
High Ch								
846.40	15.60	V	0.9	0.0	14.70	38.5	-23.7	
846.40	20.46	H	0.9	0.0	19.56	38.5	-18.9	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

Band

GSM1900

EGPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/24/14
Test Engineer: R. Alegre
Configuration: X Position, EUT only
Mode: EGPRS 1900MHz

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.20	8.28	V	0.85	7.9	15.28	33.0	-17.7	
1850.20	20.32	H	0.85	7.9	27.32	33.0	-5.7	
Mid Ch								
1880.00	9.34	V	0.85	7.9	16.41	33.0	-16.6	
1880.00	18.23	H	0.85	7.9	25.30	33.0	-7.7	
High Ch								
1909.80	14.49	V	0.85	7.9	21.49	33.0	-11.5	
1909.80	19.98	H	0.85	7.9	26.98	33.0	-6.0	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

Band

GSM1 900

GPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/24/14
Test Engineer: R. Alegre
Configuration: X Position, EUT only
Mode: GPRS 1900MHz

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.20	9.84	V	0.85	7.9	16.84	33.0	-16.2	
1850.20	22.11	H	0.85	7.9	29.11	33.0	-3.9	
Mid Ch								
1880.00	10.43	V	0.85	7.9	17.50	33.0	-15.5	
1880.00	20.01	H	0.85	7.9	27.08	33.0	-5.9	
High Ch								
1909.80	15.72	V	0.85	7.9	22.72	33.0	-10.3	
1909.80	21.07	H	0.85	7.9	28.07	33.0	-4.9	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

Band

GSM850

EGPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17021
Date: 03/24/14
Test Engineer: R. Alegre
Configuration: EUT, Y Position
Mode: EGRPS 850MHz

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) 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	20.46	V	0.9	0.0	19.56	38.5	-18.9	
824.20	22.24	H	0.9	0.0	21.34	38.5	-17.1	
Mid Ch								
836.60	20.58	V	0.9	0.0	19.68	38.5	-18.8	
836.60	24.33	H	0.9	0.0	23.43	38.5	-15.0	
High Ch								
848.80	20.98	V	0.9	0.0	20.08	38.5	-18.4	
848.80	24.75	H	0.9	0.0	23.85	38.5	-14.6	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

Band

GSM850

GPRS

High Frequency Substitution Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17021
Date: 03/21/14
Test Engineer: R. Alegre
Configuration: EUT, Y Position
Mode: GRPS 850MHz

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) 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	22.38	V	0.9	0.0	21.48	38.5	-17.0	
824.20	28.15	H	0.9	0.0	27.25	38.5	-11.2	
Mid Ch								
836.60	22.41	V	0.9	0.0	21.51	38.5	-16.9	
836.60	28.86	H	0.9	0.0	27.96	38.5	-10.5	
High Ch								
848.80	23.00	V	0.9	0.0	22.10	38.5	-16.3	
848.80	28.55	H	0.9	0.0	27.65	38.5	-10.8	

Rev. 3.17.11

9.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238

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

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

RESULTS

9.2.1. SPURIOUS RADIATION DATA

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT with Wireless charger
Mode: TX, LTE B17 10MHz 16QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber C	T145 8449B	Filter 1	Part 22

Band: LTE17 10MHz 16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (709MHz)									
1.418	-31.3	V	3.0	33.1	1.0	-63.4	-13.0	-50.4	
2.127	-25.0	V	3.0	31.6	1.0	-55.5	-13.0	-42.5	
2.836	-24.6	V	3.0	31.0	1.0	-54.6	-13.0	-41.6	
1.418	-29.8	H	3.0	33.1	1.0	-61.9	-13.0	-48.9	
2.127	-26.4	H	3.0	31.6	1.0	-57.0	-13.0	-44.0	
2.836	-25.8	H	3.0	31.0	1.0	-55.9	-13.0	-42.9	
Mid Ch, (710MHz)									
1.420	-31.1	V	3.0	33.1	1.0	-63.2	-13.0	-50.2	
2.130	-25.4	V	3.0	31.6	1.0	-56.0	-13.0	-43.0	
2.840	-24.8	V	3.0	31.0	1.0	-54.9	-13.0	-41.9	
1.420	-31.1	H	3.0	33.1	1.0	-63.2	-13.0	-50.2	
2.130	-26.2	H	3.0	31.6	1.0	-56.8	-13.0	-43.8	
2.840	-25.5	H	3.0	31.0	1.0	-55.5	-13.0	-42.5	
High Ch, (711MHz)									
1.422	-31.0	V	3.0	33.1	1.0	-63.1	-13.0	-50.1	
2.133	-22.6	V	3.0	31.6	1.0	-53.2	-13.0	-40.2	
2.844	-25.4	V	3.0	31.0	1.0	-55.4	-13.0	-42.4	
1.422	-31.8	H	3.0	33.1	1.0	-63.8	-13.0	-50.8	
2.133	-25.6	H	3.0	31.6	1.0	-56.2	-13.0	-43.2	
2.844	-24.6	H	3.0	31.0	1.0	-54.6	-13.0	-41.6	

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT with Wireless charger
Mode: TX, LTE B17 10MHz QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber C	T145 8449B	Filter 1	Part 22

Band: LTE17 10MHz QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (709MHz)									
1.418	-30.8	V	3.0	33.1	1.0	-62.9	-13.0	-49.9	
2.127	-25.3	V	3.0	31.6	1.0	-55.9	-13.0	-42.9	
2.836	-24.4	V	3.0	31.0	1.0	-54.5	-13.0	-41.5	
1.418	-30.8	H	3.0	33.1	1.0	-62.9	-13.0	-49.9	
2.127	-26.1	H	3.0	31.6	1.0	-56.7	-13.0	-43.7	
2.836	-25.3	H	3.0	31.0	1.0	-55.3	-13.0	-42.3	
Mid Ch, (710MHz)									
1.420	-31.3	V	3.0	33.1	1.0	-63.4	-13.0	-50.4	
2.130	-25.4	V	3.0	31.6	1.0	-56.0	-13.0	-43.0	
2.840	-24.5	V	3.0	31.0	1.0	-54.5	-13.0	-41.5	
1.420	-31.1	H	3.0	33.1	1.0	-63.1	-13.0	-50.1	
2.130	-26.2	H	3.0	31.6	1.0	-56.8	-13.0	-43.8	
2.840	-25.5	H	3.0	31.0	1.0	-55.5	-13.0	-42.5	
High Ch, (711MHz)									
1.422	-30.3	V	3.0	33.1	1.0	-62.4	-13.0	-49.4	
2.133	-22.2	V	3.0	31.6	1.0	-52.8	-13.0	-39.8	
2.844	-24.7	V	3.0	31.0	1.0	-54.7	-13.0	-41.7	
1.422	-31.3	H	3.0	33.1	1.0	-63.3	-13.0	-50.3	
2.133	-25.9	H	3.0	31.6	1.0	-56.5	-13.0	-43.5	
2.844	-25.9	H	3.0	31.0	1.0	-56.0	-13.0	-43.0	

Rev. 03.03.09

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT with Wireless charger
Mode: TX, LTE B17 5MHz har 16QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber C	T145 8449B	Filter 1	Part 22

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
LTE17 5MHz 16QAM	Low Ch, (706.5MHz)									
	1.413	-30.7	V	3.0	33.1	1.0	-62.8	-13.0	-49.8	
	2.120	-25.4	V	3.0	31.6	1.0	-56.0	-13.0	-43.0	
	2.826	-25.3	V	3.0	31.0	1.0	-55.3	-13.0	-42.3	
	1.413	-31.2	H	3.0	33.1	1.0	-63.3	-13.0	-50.3	
	2.120	-27.3	H	3.0	31.6	1.0	-57.9	-13.0	-44.9	
	2.826	-26.0	H	3.0	31.0	1.0	-56.0	-13.0	-43.0	
	Mid Ch, (710MHz)									
	1.420	-31.4	V	3.0	33.1	1.0	-63.4	-13.0	-50.4	
	2.130	-25.5	V	3.0	31.6	1.0	-56.1	-13.0	-43.1	
	2.840	-24.8	V	3.0	31.0	1.0	-54.8	-13.0	-41.8	
	1.420	-30.5	H	3.0	33.1	1.0	-62.6	-13.0	-49.6	
	2.130	-26.4	H	3.0	31.6	1.0	-57.0	-13.0	-44.0	
	2.840	-26.1	H	3.0	31.0	1.0	-56.1	-13.0	-43.1	
	High Ch, (713.5MHz)									
	1.427	-31.3	V	3.0	33.1	1.0	-63.4	-13.0	-50.4	
	2.141	-24.6	V	3.0	31.6	1.0	-55.2	-13.0	-42.2	
	2.854	-24.6	V	3.0	31.0	1.0	-54.6	-13.0	-41.6	
	1.427	-30.8	H	3.0	33.1	1.0	-62.9	-13.0	-49.9	
	2.141	-24.3	H	3.0	31.6	1.0	-54.8	-13.0	-41.8	
	2.854	-25.5	H	3.0	31.0	1.0	-55.5	-13.0	-42.5	

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT with Wireless charger
Mode: TX, LTE B17 5MHz har QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber C	T145 8449B	Filter 1	Part 22

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (706.5MHz)									
LTE17	1.413	-30.4	V	3.0	33.1	1.0	-62.4	-13.0	-49.4	
	2.120	-24.8	V	3.0	31.6	1.0	-55.4	-13.0	-42.4	
5MHz	2.826	-24.7	V	3.0	31.0	1.0	-54.8	-13.0	-41.8	
	1.413	-31.9	H	3.0	33.1	1.0	-64.0	-13.0	-51.0	
QPSK	2.120	-27.1	H	3.0	31.6	1.0	-57.7	-13.0	-44.7	
	2.826	-25.5	H	3.0	31.0	1.0	-55.5	-13.0	-42.5	
	Mid Ch, (710MHz)									
	1.420	-29.9	V	3.0	33.1	1.0	-62.0	-13.0	-49.0	
	2.130	-25.3	V	3.0	31.6	1.0	-55.9	-13.0	-42.9	
	2.840	-24.6	V	3.0	31.0	1.0	-54.6	-13.0	-41.6	
	1.420	-30.6	H	3.0	33.1	1.0	-62.7	-13.0	-49.7	
	2.130	-26.5	H	3.0	31.6	1.0	-57.1	-13.0	-44.1	
	2.840	-25.5	H	3.0	31.0	1.0	-55.6	-13.0	-42.6	
	High Ch, (713.5MHz)									
	1.427	-31.2	V	3.0	33.1	1.0	-63.3	-13.0	-50.3	
	2.141	-24.3	V	3.0	31.6	1.0	-54.8	-13.0	-41.8	
	2.854	-24.4	V	3.0	31.0	1.0	-54.4	-13.0	-41.4	
	1.427	-30.5	H	3.0	33.1	1.0	-62.5	-13.0	-49.5	
	2.141	-24.2	H	3.0	31.6	1.0	-54.7	-13.0	-41.7	
	2.854	-25.5	H	3.0	31.0	1.0	-55.5	-13.0	-42.5	

Rev. 03.03.09

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT with Wireless charger
Mode: TX, LTE band 4, 10MHz BW, 16QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	Part 24

Band: LTE4 10MHz 16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1715 MHz)									
3.430	-22.2	V	3.0	30.4	1.0	-51.7	-13.0	-38.7	
5.145	-19.3	V	3.0	28.8	1.0	-47.1	-13.0	-34.1	
6.860	-15.9	V	3.0	27.1	1.0	-42.0	-13.0	-29.0	
3.430	-22.8	H	3.0	30.4	1.0	-52.2	-13.0	-39.2	
5.145	-19.3	H	3.0	28.8	1.0	-47.1	-13.0	-34.1	
6.860	-15.5	H	3.0	27.1	1.0	-41.6	-13.0	-28.6	
Mid Ch, (1732.5 MHz)									
3.465	-23.1	V	3.0	30.4	1.0	-52.5	-13.0	-39.5	
5.198	-19.3	V	3.0	28.7	1.0	-47.0	-13.0	-34.0	
6.930	-16.8	V	3.0	27.1	1.0	-42.9	-13.0	-29.9	
3.465	-23.5	H	3.0	30.4	1.0	-52.9	-13.0	-39.9	
5.198	-20.1	H	3.0	28.7	1.0	-47.8	-13.0	-34.8	
6.930	-15.8	H	3.0	27.1	1.0	-41.8	-13.0	-28.8	
High Ch, (1750 MHz)									
3.500	-22.9	V	3.0	30.4	1.0	-52.3	-13.0	-39.3	
5.250	-19.7	V	3.0	28.7	1.0	-47.4	-13.0	-34.4	
7.000	-15.4	V	3.0	27.0	1.0	-41.4	-13.0	-28.4	
3.500	-21.4	H	3.0	30.4	1.0	-50.8	-13.0	-37.8	
5.250	-19.2	H	3.0	28.7	1.0	-46.8	-13.0	-33.8	
7.000	-14.8	H	3.0	27.0	1.0	-40.8	-13.0	-27.8	

Rev. 03.03.09

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT with Wireless charger
Mode: TX, LTE band 4, 10MHz BW, QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	Part 24

Band: LTE4, 10MHz, QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1715 MHz)									
3.430	-22.6	V	3.0	30.4	1.0	-52.0	-13.0	-39.0	
5.145	-19.6	V	3.0	28.8	1.0	-47.3	-13.0	-34.3	
6.860	-16.7	V	3.0	27.1	1.0	-42.8	-13.0	-29.8	
3.430	-22.7	H	3.0	30.4	1.0	-52.1	-13.0	-39.1	
5.145	-19.5	H	3.0	28.8	1.0	-47.3	-13.0	-34.3	
6.860	-15.7	H	3.0	27.1	1.0	-41.8	-13.0	-28.8	
Mid Ch, (1732.5 MHz)									
3.465	-23.6	V	3.0	30.4	1.0	-53.0	-13.0	-40.0	
5.198	-18.5	V	3.0	28.7	1.0	-46.2	-13.0	-33.2	
6.930	-17.1	V	3.0	27.1	1.0	-43.2	-13.0	-30.2	
3.465	-23.0	H	3.0	30.4	1.0	-52.4	-13.0	-39.4	
5.198	-19.9	H	3.0	28.7	1.0	-47.6	-13.0	-34.6	
6.930	-15.1	H	3.0	27.1	1.0	-41.1	-13.0	-28.1	
High Ch, (1750 MHz)									
3.500	-23.2	V	3.0	30.4	1.0	-52.5	-13.0	-39.5	
5.250	-20.4	V	3.0	28.7	1.0	-48.1	-13.0	-35.1	
7.000	-16.6	V	3.0	27.0	1.0	-42.6	-13.0	-29.6	
3.500	-23.3	H	3.0	30.4	1.0	-52.7	-13.0	-39.7	
5.250	-20.0	H	3.0	28.7	1.0	-47.7	-13.0	-34.7	
7.000	-14.3	H	3.0	27.0	1.0	-40.3	-13.0	-27.3	

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT with Wireless charger
Mode: TX, LTE band 4, 5MHz BW, 16 QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	Part 24

Band: LTE4, 5MHz, 16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1712.5 MHz)									
3.425	-23.9	V	3.0	30.4	1.0	-53.3	-13.0	-40.3	
5.137	-20.6	V	3.0	28.8	1.0	-48.3	-13.0	-35.3	
6.850	-16.5	V	3.0	27.1	1.0	-42.7	-13.0	-29.7	
3.425	-22.4	H	3.0	30.4	1.0	-51.8	-13.0	-38.8	
5.137	-20.1	H	3.0	28.8	1.0	-47.8	-13.0	-34.8	
6.850	-16.3	H	3.0	27.1	1.0	-42.5	-13.0	-29.5	
Mid Ch, (1732.5 MHz)									
3.465	-23.0	V	3.0	30.4	1.0	-52.4	-13.0	-39.4	
5.197	-20.3	V	3.0	28.7	1.0	-48.0	-13.0	-35.0	
6.930	-17.2	V	3.0	27.1	1.0	-43.2	-13.0	-30.2	
3.465	-22.6	H	3.0	30.4	1.0	-52.0	-13.0	-39.0	
5.197	-20.2	H	3.0	28.7	1.0	-47.9	-13.0	-34.9	
6.930	-16.2	H	3.0	27.1	1.0	-42.2	-13.0	-29.2	
High Ch, (1752.5 MHz)									
3.505	-24.0	V	3.0	30.4	1.0	-53.4	-13.0	-40.4	
5.257	-20.7	V	3.0	28.6	1.0	-48.3	-13.0	-35.3	
7.010	-16.6	V	3.0	27.0	1.0	-42.6	-13.0	-29.6	
3.505	-22.8	H	3.0	30.4	1.0	-52.1	-13.0	-39.1	
5.257	-18.8	H	3.0	28.6	1.0	-46.4	-13.0	-33.4	
7.010	-15.5	H	3.0	27.0	1.0	-41.5	-13.0	-28.5	

Rev. 03.03.09

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT with Wireless charger
Mode: TX, LTE band 4, 5MHz BW, QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	Part 24

Band: LTE4, 5MHz, QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1712.5 MHz)									
3.425	-22.6	V	3.0	30.4	1.0	-52.1	-13.0	-39.1	
5.137	-20.0	V	3.0	28.8	1.0	-47.7	-13.0	-34.7	
6.850	-17.3	V	3.0	27.1	1.0	-43.4	-13.0	-30.4	
3.425	-23.3	H	3.0	30.4	1.0	-52.7	-13.0	-39.7	
5.137	-19.7	H	3.0	28.8	1.0	-47.5	-13.0	-34.5	
6.850	-15.6	H	3.0	27.1	1.0	-41.7	-13.0	-28.7	
Mid Ch, (1732.5 MHz)									
3.465	-22.6	V	3.0	30.4	1.0	-52.0	-13.0	-39.0	
5.197	-19.8	V	3.0	28.7	1.0	-47.5	-13.0	-34.5	
6.930	-16.5	V	3.0	27.1	1.0	-42.6	-13.0	-29.6	
3.465	-22.7	H	3.0	30.4	1.0	-52.1	-13.0	-39.1	
5.197	-19.4	H	3.0	28.7	1.0	-47.1	-13.0	-34.1	
6.930	-15.8	H	3.0	27.1	1.0	-41.8	-13.0	-28.8	
High Ch, (1752.5 MHz)									
3.505	-23.2	V	3.0	30.4	1.0	-52.6	-13.0	-39.6	
5.257	-20.5	V	3.0	28.6	1.0	-48.1	-13.0	-35.1	
7.010	-16.1	V	3.0	27.0	1.0	-42.1	-13.0	-29.1	
3.505	-22.2	H	3.0	30.4	1.0	-51.6	-13.0	-38.6	
5.257	-19.3	H	3.0	28.6	1.0	-46.9	-13.0	-33.9	
7.010	-15.0	H	3.0	27.0	1.0	-40.9	-13.0	-27.9	

Rev. 03.03.09

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT with Wireless charger
Mode: Tx, 1900MHz HSDPA

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 24

Band: Band 2 HSDPA

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									
3.705	-22.0	V	3.0	35.4	1.0	-56.4	-13.0	-43.4	
5.557	-19.5	V	3.0	34.7	1.0	-53.2	-13.0	-40.2	
7.409	-10.4	V	3.0	34.9	1.0	-44.3	-13.0	-31.3	
3.705	-23.3	H	3.0	35.4	1.0	-57.7	-13.0	-44.7	
5.557	-18.5	H	3.0	34.7	1.0	-52.2	-13.0	-39.2	
7.409	-14.5	H	3.0	34.9	1.0	-48.4	-13.0	-35.4	
Mid Ch, 1880MHz									
3.760	-22.9	V	3.0	35.3	1.0	-57.2	-13.0	-44.2	
5.640	-19.5	V	3.0	34.7	1.0	-53.3	-13.0	-40.3	
7.520	-13.0	V	3.0	34.9	1.0	-46.9	-13.0	-33.9	
3.760	-23.4	H	3.0	35.3	1.0	-57.7	-13.0	-44.7	
5.640	-18.7	H	3.0	34.7	1.0	-52.4	-13.0	-39.4	
7.520	-15.3	H	3.0	34.9	1.0	-49.2	-13.0	-36.2	
High Ch, 1907.6MHz									
3.815	-22.6	V	3.0	35.3	1.0	-56.9	-13.0	-43.9	
5.723	-19.4	V	3.0	34.7	1.0	-53.1	-13.0	-40.1	
7.630	-8.8	V	3.0	34.9	1.0	-42.8	-13.0	-29.8	
3.815	-22.7	H	3.0	35.3	1.0	-57.0	-13.0	-44.0	
5.723	-18.6	H	3.0	34.7	1.0	-52.4	-13.0	-39.4	
7.630	-14.3	H	3.0	34.9	1.0	-48.3	-13.0	-35.3	

Rev. 03.03.09

Band

Band 2

REL99

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/27/14
Test Engineer: R. Alegre
Configuration: EUT with Wireless charger
Mode: Tx, 1900MHz Rel 99

Chamber	Pre-amplifer	Filter	Limit
5m Chamber C	T34 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									
3.705	-22.6	V	3.0	35.4	1.0	-57.0	-13.0	-44.0	
5.557	-18.7	V	3.0	34.7	1.0	-52.4	-13.0	-39.4	
7.409	-11.5	V	3.0	34.9	1.0	-45.4	-13.0	-32.4	
3.705	-22.1	H	3.0	35.4	1.0	-56.5	-13.0	-43.5	
5.557	-18.7	H	3.0	34.7	1.0	-52.5	-13.0	-39.5	
7.409	-14.8	H	3.0	34.9	1.0	-48.7	-13.0	-35.7	
Mid Ch, 1880MHz									
3.760	-21.9	V	3.0	35.3	1.0	-56.2	-13.0	-43.2	
5.640	-19.6	V	3.0	34.7	1.0	-53.3	-13.0	-40.3	
7.520	-13.7	V	3.0	34.9	1.0	-47.6	-13.0	-34.6	
3.760	-22.1	H	3.0	35.3	1.0	-56.5	-13.0	-43.5	
5.640	-19.3	H	3.0	34.7	1.0	-53.0	-13.0	-40.0	
7.520	-14.9	H	3.0	34.9	1.0	-48.8	-13.0	-35.8	
High Ch, 1907.6MHz									
3.815	-21.0	V	3.0	35.3	1.0	-55.3	-13.0	-42.3	
5.723	-19.1	V	3.0	34.7	1.0	-52.8	-13.0	-39.8	
7.630	-9.3	V	3.0	34.9	1.0	-43.3	-13.0	-30.3	
3.815	-21.7	H	3.0	35.3	1.0	-56.0	-13.0	-43.0	
5.723	-19.2	H	3.0	34.7	1.0	-52.9	-13.0	-39.9	
7.630	-15.6	H	3.0	34.9	1.0	-49.6	-13.0	-36.6	

Rev. 03.03.09

Band

Band 5

HSDPA

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	14U17021
Date:	03/27/14
Test Engineer:	R. Alegre
Configuration:	EUT with Wireless charger
Mode:	WCDMA_HSDPA_ 850

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 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, 826.40MHz									
1.652	-28.7	V	3.0	37.4	1.0	-65.0	-13.0	-52.0	
2.479	-25.0	V	3.0	36.4	1.0	-60.4	-13.0	-47.4	
3.306	-23.3	V	3.0	35.8	1.0	-58.1	-13.0	-45.1	
1.652	-29.2	H	3.0	37.4	1.0	-65.5	-13.0	-52.5	
2.479	-27.3	H	3.0	36.4	1.0	-62.7	-13.0	-49.7	
3.306	-24.0	H	3.0	35.8	1.0	-58.8	-13.0	-45.8	
Mid Ch, 836.6MHz									
1.673	-28.0	V	3.0	37.3	1.0	-64.4	-13.0	-51.4	
2.510	-24.0	V	3.0	36.4	1.0	-59.4	-13.0	-46.4	
3.346	-23.1	V	3.0	35.8	1.0	-57.8	-13.0	-44.8	
1.673	-28.6	H	3.0	37.3	1.0	-64.9	-13.0	-51.9	
2.510	-26.8	H	3.0	36.4	1.0	-62.2	-13.0	-49.2	
3.346	-22.7	H	3.0	35.8	1.0	-57.5	-13.0	-44.5	
High Ch, 846.6MHz									
1.693	-30.5	V	3.0	37.3	1.0	-66.8	-13.0	-53.8	
2.539	-24.3	V	3.0	36.3	1.0	-59.7	-13.0	-46.7	
3.386	-21.9	V	3.0	35.7	1.0	-56.6	-13.0	-43.6	
1.693	-29.5	H	3.0	37.3	1.0	-65.8	-13.0	-52.8	
2.539	-26.5	H	3.0	36.3	1.0	-61.8	-13.0	-48.8	
3.386	-22.5	H	3.0	35.7	1.0	-57.2	-13.0	-44.2	

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

Band

Band 5

REL99

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	14U17021
Date:	03/27/14
Test Engineer:	R. Alegre
Configuration:	EUT with Wireless charger
Mode:	WCDMA_Rel 99_ 850

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 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, 826.40MHz									
1.652	-28.3	V	3.0	37.4	1.0	-64.7	-13.0	-51.7	
2.479	-24.7	V	3.0	36.4	1.0	-60.1	-13.0	-47.1	
3.306	-23.8	V	3.0	35.8	1.0	-58.6	-13.0	-45.6	
1.652	-28.5	H	3.0	37.4	1.0	-64.8	-13.0	-51.8	
2.479	-28.6	H	3.0	36.4	1.0	-64.0	-13.0	-51.0	
3.306	-24.0	H	3.0	35.8	1.0	-58.8	-13.0	-45.8	
Mid Ch, 836.6MHz									
1.673	-27.9	V	3.0	37.3	1.0	-64.2	-13.0	-51.2	
2.510	-24.4	V	3.0	36.4	1.0	-59.7	-13.0	-46.7	
3.346	-23.8	V	3.0	35.8	1.0	-58.5	-13.0	-45.5	
1.673	-28.8	H	3.0	37.3	1.0	-65.1	-13.0	-52.1	
2.510	-27.0	H	3.0	36.4	1.0	-62.4	-13.0	-49.4	
3.346	-22.8	H	3.0	35.8	1.0	-57.6	-13.0	-44.6	
High Ch, 846.6MHz									
1.693	-29.5	V	3.0	37.3	1.0	-65.8	-13.0	-52.8	
2.539	-24.7	V	3.0	36.3	1.0	-60.1	-13.0	-47.1	
3.386	-21.4	V	3.0	35.7	1.0	-56.1	-13.0	-43.1	
1.693	-29.2	H	3.0	37.3	1.0	-65.5	-13.0	-52.5	
2.539	-26.5	H	3.0	36.3	1.0	-61.8	-13.0	-48.8	
3.386	-21.9	H	3.0	35.7	1.0	-56.6	-13.0	-43.6	

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

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/28/14
Test Engineer: R.Alegre
Configuration: EUT w/ ac charger
Mode: EGPRS 1900

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T343 8449B	Filter 1	Part 24

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
GSM1900 EGPRS	Low Ch, 1850MHz									
	3.700	-22.1	V	3.0	35.4	1.0	-56.5	-13.0	-43.5	
	5.550	-19.8	V	3.0	34.7	1.0	-53.6	-13.0	-40.6	
	7.400	-16.6	V	3.0	34.9	1.0	-50.5	-13.0	-37.5	
	3.700	-22.7	H	3.0	35.4	1.0	-57.1	-13.0	-44.1	
	5.550	-18.7	H	3.0	34.7	1.0	-52.5	-13.0	-39.5	
	7.400	-15.2	H	3.0	34.9	1.0	-49.1	-13.0	-36.1	
	Mid Ch, 1880.0MHz									
	3.760	-23.6	V	3.0	35.3	1.0	-57.9	-13.0	-44.9	
	5.640	-18.2	V	3.0	34.7	1.0	-51.9	-13.0	-38.9	
	7.520	-16.3	V	3.0	34.9	1.0	-50.3	-13.0	-37.3	
	3.760	-22.6	H	3.0	35.3	1.0	-56.9	-13.0	-43.9	
	5.640	-20.0	H	3.0	34.7	1.0	-53.7	-13.0	-40.7	
	7.520	-14.6	H	3.0	34.9	1.0	-48.5	-13.0	-35.5	
	High Ch, 1909.8 MHz									
	3.820	-21.9	V	3.0	35.3	1.0	-56.2	-13.0	-43.2	
	5.729	-17.2	V	3.0	34.7	1.0	-50.9	-13.0	-37.9	
	7.639	-15.4	V	3.0	35.0	1.0	-49.4	-13.0	-36.4	
	3.820	-22.5	H	3.0	35.3	1.0	-56.8	-13.0	-43.8	
	5.729	-19.4	H	3.0	34.7	1.0	-53.1	-13.0	-40.1	
	7.639	-14.8	H	3.0	35.0	1.0	-48.8	-13.0	-35.8	

Rev. 03.03.09

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/28/14
Test Engineer: R.Alegre
Configuration: EUT w/ ac charger
Mode: GPRS 1900

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T343 8449B	Filter 1	Part 24

Band

GSM1900

GPRS

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850MHz									
3.700	-22.0	V	3.0	35.4	1.0	-56.4	-13.0	-43.4	
5.550	-18.8	V	3.0	34.7	1.0	-52.6	-13.0	-39.6	
7.400	-15.6	V	3.0	34.9	1.0	-49.5	-13.0	-36.5	
3.700	-22.0	H	3.0	35.4	1.0	-56.4	-13.0	-43.4	
5.550	-19.3	H	3.0	34.7	1.0	-53.0	-13.0	-40.0	
7.400	-15.6	H	3.0	34.9	1.0	-49.5	-13.0	-36.5	
Mid Ch, 1880.0MHz									
3.760	-21.8	V	3.0	35.3	1.0	-56.2	-13.0	-43.2	
5.640	-19.8	V	3.0	34.7	1.0	-53.5	-13.0	-40.5	
7.520	-16.3	V	3.0	34.9	1.0	-50.3	-13.0	-37.3	
3.760	-22.8	H	3.0	35.3	1.0	-57.1	-13.0	-44.1	
5.640	-19.5	H	3.0	34.7	1.0	-53.2	-13.0	-40.2	
7.520	-14.4	H	3.0	34.9	1.0	-48.3	-13.0	-35.3	
High Ch, 1909.8 MHz									
3.820	-21.6	V	3.0	35.3	1.0	-55.8	-13.0	-42.8	
5.729	-17.4	V	3.0	34.7	1.0	-51.2	-13.0	-38.2	
7.639	-15.0	V	3.0	35.0	1.0	-49.0	-13.0	-36.0	
3.820	-23.1	H	3.0	35.3	1.0	-57.4	-13.0	-44.4	
5.729	-18.9	H	3.0	34.7	1.0	-52.7	-13.0	-39.7	
7.639	-14.9	H	3.0	35.0	1.0	-48.8	-13.0	-35.8	

Rev. 03.03.09

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/28/14
Test Engineer: R.Alegre
Configuration: EUT w/ ac charger
Mode: EGPRS 850

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 24

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
GSM850 EGPRS	Low Ch, 824.2MHz									
	1.648	-28.7	V	3.0	37.4	1.0	-65.1	-13.0	-52.1	
	2.473	-23.2	V	3.0	36.4	1.0	-58.5	-13.0	-45.5	
	3.297	-23.6	V	3.0	35.8	1.0	-58.4	-13.0	-45.4	
	1.648	-28.5	H	3.0	37.4	1.0	-64.9	-13.0	-51.9	
	2.473	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
	3.297	-23.4	H	3.0	35.8	1.0	-58.2	-13.0	-45.2	
	Mid Ch, 836.6MHz									
	1.673	-28.6	V	3.0	37.3	1.0	-65.0	-13.0	-52.0	
	2.510	-23.7	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
	3.346	-22.9	V	3.0	35.8	1.0	-57.7	-13.0	-44.7	
	1.673	-28.4	H	3.0	37.3	1.0	-64.7	-13.0	-51.7	
	2.510	-25.4	H	3.0	36.4	1.0	-60.8	-13.0	-47.8	
	3.346	-22.7	H	3.0	35.8	1.0	-57.4	-13.0	-44.4	
	High Ch, 848.8MHz									
	1.698	-28.3	V	3.0	37.3	1.0	-64.6	-13.0	-51.6	
	2.547	-23.3	V	3.0	36.3	1.0	-58.7	-13.0	-45.7	
	3.395	-22.3	V	3.0	35.7	1.0	-57.0	-13.0	-44.0	
	1.698	-28.4	H	3.0	37.3	1.0	-64.7	-13.0	-51.7	
	2.547	-25.7	H	3.0	36.3	1.0	-61.0	-13.0	-48.0	
	3.395	-23.6	H	3.0	35.7	1.0	-58.3	-13.0	-45.3	

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

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17021
Date: 03/28/14
Test Engineer: R.Alegre
Configuration: EUT w/ ac charger
Mode: GPRS 850

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 24

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
GSM850 GPRS	Low Ch, 824.2MHz									
	1.648	-27.4	V	3.0	37.4	1.0	-63.8	-13.0	-50.8	
	2.473	-24.0	V	3.0	36.4	1.0	-59.4	-13.0	-46.4	
	3.297	-23.1	V	3.0	35.8	1.0	-57.9	-13.0	-44.9	
	1.648	-28.5	H	3.0	37.4	1.0	-64.9	-13.0	-51.9	
	2.473	-25.5	H	3.0	36.4	1.0	-60.9	-13.0	-47.9	
	3.297	-23.4	H	3.0	35.8	1.0	-58.2	-13.0	-45.2	
	Mid Ch, 836.6MHz									
	1.673	-28.5	V	3.0	37.3	1.0	-64.8	-13.0	-51.8	
	2.510	-23.3	V	3.0	36.4	1.0	-58.6	-13.0	-45.6	
	3.346	-22.9	V	3.0	35.8	1.0	-57.7	-13.0	-44.7	
	1.673	-28.3	H	3.0	37.3	1.0	-64.7	-13.0	-51.7	
	2.510	-25.3	H	3.0	36.4	1.0	-60.7	-13.0	-47.7	
	3.346	-22.7	H	3.0	35.8	1.0	-57.4	-13.0	-44.4	
	High Ch, 848.8MHz									
	1.698	-28.2	V	3.0	37.3	1.0	-64.5	-13.0	-51.5	
	2.547	-23.4	V	3.0	36.3	1.0	-58.8	-13.0	-45.8	
	3.395	-22.7	V	3.0	35.7	1.0	-57.4	-13.0	-44.4	
	1.698	-28.3	H	3.0	37.3	1.0	-64.6	-13.0	-51.6	
	2.547	-25.2	H	3.0	36.3	1.0	-60.5	-13.0	-47.5	
	3.395	-23.4	H	3.0	35.7	1.0	-58.1	-13.0	-45.1	

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