



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

C2PC CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE PHONE WITH BT & DTS WLAN b/g/n

MODEL NUMBER: LG-L61AL, L61AL, LGL61AL

FCC ID: ZNFL61AL

REPORT NUMBER: 16I22652-E1V2

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NVLAP LAB CODE 200065-0

Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.
EUT DESCRIPTION: GSM/WCDMA/LTE PHONE WITH BT & DTS WLAN b/g/n
MODEL: LGL61AL, L61AL, LG-L61AL
SERIAL NUMBER: 601KPRW000622, 601KPVH000623
DATE TESTED: JANUARY 16-22, 2016

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H, 24E, 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 revision 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-D, FCC CFR 47 Part 22, FCC CFR Part 24, and FCC CFR 47 Part 27.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☐ Chamber A	☐ Chamber D
☒ Chamber B	☐ Chamber E
☒ Chamber C	☐ Chamber F
	☐ Chamber G
	☐ Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

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:

$$\text{EIRP} = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss(}$$

$$\text{between the SG and substitution antenna)} + \text{Substitution Antenna Factor (dBi)}$$

$$\text{ERP} = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss(}$$

$$\text{between the SG and substitution antenna)}$$

(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, 9KHz to 30 MHz	2.14 dB
Radiated Disturbance, 30 to 1000 MHz	4.98 dB
Radiated Disturbance, 1000 to 6000 MHz	3.86 dB
Radiated Disturbance, 6000 to 18000 MHz	4.23 dB
Radiated Disturbance, 18000 to 26000 MHz	5.30 dB
Radiated Disturbance, 26000 to 40000 MHz	5.23 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

This EUT is a GSM/WCDMA/LTE PHONE WITH BT & DTS WLAN b/g/n.

5.2. MAXIMUM OUTPUT POWER (GSM/EGPRS)

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

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
GSM850	824~849	GMSK	33.5	2238.72		
	824~849	GPRS	33.5	2238.72	30.36	1086.43
	824~849	EGPRS	27.7	588.84	25.14	326.59
GSM1900	1850~1910	GMSK	30.7	1174.90		
	1850~1910	GPRS	30.7	1174.90	31.51	1415.79
	1850~1910	EGPRS	26.7	467.74	28.95	785.24

5.3. MAXIMUM OUTPUT POWER (WCDMA)

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

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
Band 2	1850~1910	REL99	23.7	234.42	24.82	303.39
	1850~1910	HSDPA	23.7	234.42	24.69	294.44
	1850~1910	HSUPA	23.7	234.42		
Band 5	824~849	REL99	23.6	229.09	20.30	107.15
	824~849	HSDPA	23.6	229.09	19.89	97.50
	824~849	HSUPA	23.6	229.09		

5.4. MAXIMUM OUTPUT POWER (LTE)

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

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE2	1850~1910	1.4MHz	QPSK	24.1	257.04	26.26	422.67
			16QAM	23.2	208.93	25.69	370.68
		3MHz	QPSK	24.1	257.04	26.38	434.51
			16QAM	23.2	208.93	25.72	373.25
		5MHz	QPSK	24.2	263.03	26.32	428.55
			16QAM	23.2	208.93	25.86	385.48
		10MHz	QPSK	24.2	263.03	26.33	429.54
			16QAM	23.2	208.93	25.72	373.25
		15MHz	QPSK	24.2	263.03	26.36	432.51
			16QAM	23.2	208.93	25.73	374.11
		20MHz	QPSK	24.2	263.03	26.35	431.52
			16QAM	23.2	208.93	25.83	382.82

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE4	1710~1755	1.4MHz	QPSK	24.4	275.42	25.20	331.13
			16QAM	23.4	218.78	24.55	285.10
		3MHz	QPSK	24.4	275.42	25.19	330.37
			16QAM	23.4	218.78	24.74	297.85
		5MHz	QPSK	24.3	269.15	25.40	346.74
			16QAM	23.4	218.78	24.65	291.74
		10MHz	QPSK	24.4	275.42	25.37	344.35
			16QAM	23.4	218.78	24.71	295.80
		15MHz	QPSK	24.4	275.42	25.21	331.89
			16QAM	23.4	218.78	24.28	267.92
		20MHz	QPSK	24.4	275.42	25.18	329.61
			16QAM	23.4	218.78	24.27	267.30

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	1.4MHz	QPSK	24.2	263.03	21.82	152.05
			16QAM	23.2	208.93	21.00	125.89
		3MHz	QPSK	24.2	263.03	21.82	152.05
			16QAM	23.2	208.93	21.48	140.60
		5MHz	QPSK	24.2	263.03	21.65	146.22
			16QAM	23.2	208.93	21.03	126.77
		10MHz	QPSK	24.1	257.04	22.12	162.93
			16QAM	23.2	208.93	21.53	142.23

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE17	704~716	5MHz	QPSK	24.2	263.03	18.36	68.55
			16QAM	22.9	194.98	17.28	53.46
		10MHz	QPSK	24.0	251.19	18.30	67.61
			16QAM	23.2	208.93	17.87	61.24

5.5. 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)
LTE B2, 1850~1910MHz	0.31
LTE B4, 1710~1755MHz	-0.57
LTE B17, 704~716MHz	-4.34
GSM/WCDMA B5/LTE B5, 824~849MHz	-2.41
GSM/WCDMA B2, 1850~1910MHz	0.31

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	MCS-02WRE	N/A	N/A
Earphone	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

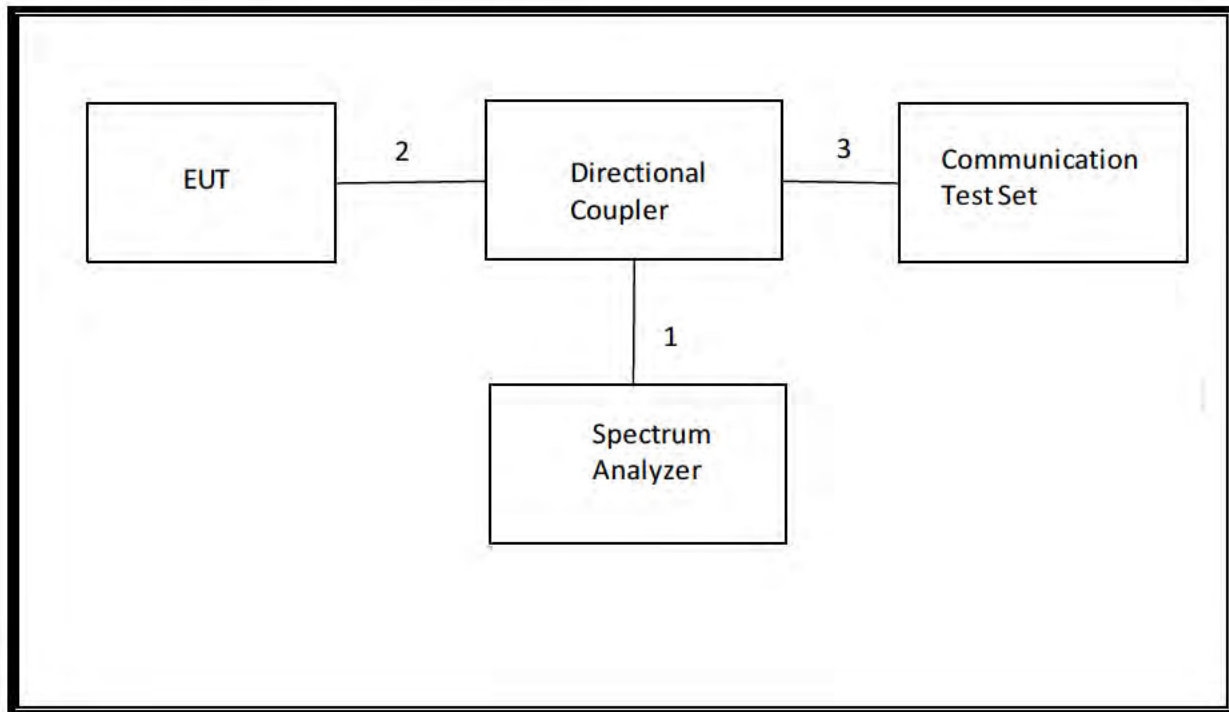
I/O CABLES (RADIATED SETUP)

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

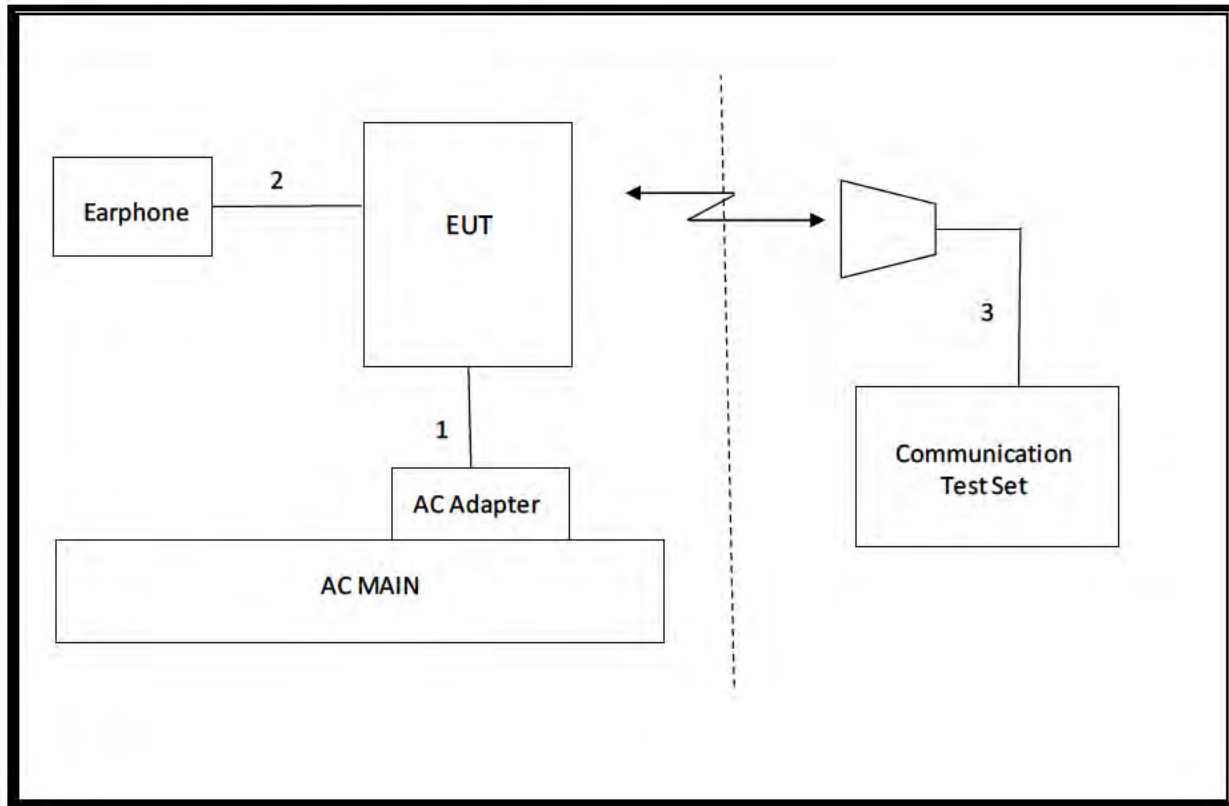
TEST SETUP

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	T Number	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	123	10/22/16
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	130	06/10/16
Antenna, Horn, 18 GHz	EMCO	3115	59	11/18/16
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	151	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	153	CNR
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	80	05/15/16
Communications Test Set	R&S	CMW500	159	07/10/16
DC power supply, 8 V @ 3 A or 15 V	Agilent / HP	E3610A	None	CNR
Vector signal generator, 6 GHz	Agilent / HP	E4438C	None	06/16/16
Antenna, Tuned Dipole 400~1000	ETS	3121C DB4	273	05/05/16
Directional Coupler	RF-Lambda	RFDC5M06G15	None	CNR
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	447	05/18/16

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
CLT Software	UL	UL RF	Ver 1.0, Feb 2, 2015
Antenna Port Software	UL	UL RF	Ver 3.7, Nov 12, 2015

7. SUMMARY TABLE

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

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

8.2. GSM OUTPUT POWER RESULT

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	128	824.4	33.5
			190	836.6	33.5
			251	848.8	33.3
GPRS (GMSK)	CS1	1	128	824.4	33.5
			190	836.6	33.5
			251	848.8	33.3
		2	128	824.4	31.5
			190	836.6	31.5
			251	848.8	31.6
EGPRS (8PSK)	MCS5	1	128	824.4	27.7
			190	836.6	27.7
			251	848.8	27.7
		2	128	824.4	25.7
			190	836.6	25.7
			251	848.8	25.7

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	512	1850.2	30.4
			661	1880.0	30.7
			810	1909.8	30.4
GPRS (GMSK)	CS1	1	512	1850.2	30.4
			661	1880.0	30.7
			810	1909.8	30.4
		2	512	1850.2	29.4
			661	1880.0	29.6
			810	1909.8	29.5
EGPRS (8PSK)	MCS5	1	512	1850.2	26.7
			661	1880.0	26.7
			810	1909.8	26.7
		2	512	1850.2	24.7
			661	1880.0	24.7
			810	1909.8	24.7

8.3. 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
	β_c	Not Applicable
	β_d	Not Applicable
	β_{ec}	Not Applicable
	β_c/β_d	8/15
	β_{hs}	Not Applicable
	β_{ed}	Not Applicable

8.4. UMTS REL 99 OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	0	23.7
		9400	1880.0	0	23.7
		9538	1907.6	0	23.7

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Rel 99 (RMC, 12.2 kbps)	4132	826.4	0	23.5
		4183	836.6	0	23.6
		4233	846.6	0	23.6

8.5. 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			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	12/15	15/8	15/4
	β_{hs}	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			
	$A_{hs} = \beta_{hs}/\beta_c$	30/15			

8.6. UMTS HSDPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	23.7
		9400	1880.0	0	23.7
		9538	1907.6	0	23.7
	Subtest 2	9262	1852.4	0	23.7
		9400	1880.0	0	23.7
		9538	1907.6	0	23.7
	Subtest 3	9262	1852.4	0.5	23.2
		9400	1880.0	0.5	23.2
		9538	1907.6	0.5	23.2
	Subtest 4	9262	1852.4	0.5	23.2
		9400	1880.0	0.5	23.2
		9538	1907.6	0.5	23.2

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	23.4
		4183	836.6	0	23.5
		4233	846.6	0	23.6
	Subtest 2	4132	826.4	0	23.5
		4183	836.6	0	23.6
		4233	846.6	0	23.6
	Subtest 3	4132	826.4	0.5	23.1
		4183	836.6	0.5	23.1
		4233	846.6	0.5	23.1
	Subtest 4	4132	826.4	0.5	23.1
		4183	836.6	0.5	23.1
		4233	846.6	0.5	23.1

8.7. 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
HSDPA Specific Settings	β_c/β_d	11/15	6/15	15/9	2/15	15/15
	Bhs	22/15	12/15	30/15	4/15	30/15
	β_{ed} (note1)	1309/225	94/75	47/15	56/75	134/15
	MPR	0	2	1	2	0
	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
HSUPA Specific Settings	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	$A_{hs} = \beta_{hs}/\beta_c$	30/15				
	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 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E-TFCI PO 4 E-TFCI 71 E-TFCI PO 23	E-TFCI 11	
		E-TFCI PO 4			E-TFCI PO 4	
		E-TFCI 67			E-TFCI 67	
		E-TFCI PO 18			E-TFCI PO 18	
		E-TFCI 71			E-TFCI 71	
		E-TFCI PO 23			E-TFCI PO 23	
		E-TFCI 75			E-TFCI 75	
		E-TFCI PO 26			E-TFCI PO 26	
		E-TFCI 81			E-TFCI 81	
		E-TFCI PO 27			E-TFCI PO 27	

Note1: β_{ed} cannot be set directly, it is set by Absolute Grant Value.

8.8. UMTS HSUPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	23.0
		9400	1880.0	0	23.7
		9538	1907.6	0	23.3
	Subtest 2	9262	1852.4	2	21.7
		9400	1880.0	2	21.7
		9538	1907.6	2	21.7
	Subtest 3	9262	1852.4	1	22.4
		9400	1880.0	1	22.7
		9538	1907.6	1	22.3
	Subtest 4	9262	1852.4	2	21.7
		9400	1880.0	2	21.7
		9538	1907.6	2	21.7
	Subtest 5	9262	1852.4	0	23.0
		9400	1880.0	0	23.7
		9538	1907.6	0	23.3

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	23.0
		4183	836.6	0	22.7
		4233	846.6	0	23.1
	Subtest 2	4132	826.4	2	21.4
		4183	836.6	2	21.7
		4233	846.6	2	21.7
	Subtest 3	4132	826.4	1	22.3
		4183	836.6	1	22.2
		4233	846.6	1	22.2
	Subtest 4	4132	826.4	2	21.4
		4183	836.6	2	21.7
		4233	846.6	2	21.7
	Subtest 5	4132	826.4	0	23.5
		4183	836.6	0	23.5
		4233	846.6	0	23.6

8.9. LTE OUTPUT POWER RESULT

LTE Band 2

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						18607	18900	19193
						1850.7 MHz	1880 MHz	1909.3 MHz
LTE Band 2	1.4	QPSK	1	0	0	23.9	23.8	23.8
			1	2	0	23.9	23.8	23.9
			1	5	0	23.8	23.8	24.1
			3	0	0	24.0	23.9	23.9
			3	1	0	24.1	24.1	23.9
			3	2	0	24.1	24.1	23.9
			6	0	1	23.2	23.0	23.0
		16QAM	1	0	1	23.2	23.2	23.2
			1	2	1	23.2	23.2	23.2
			1	5	1	23.2	23.2	23.2
			3	0	1	22.8	23.0	22.9
			3	1	1	23.1	23.0	22.9
			3	2	1	23.0	22.8	23.1
			6	0	2	22.2	21.9	21.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						18615	18900	19185
						1851.5 MHz	1880 MHz	1908.5 MHz
LTE Band 2	3	QPSK	1	0	0	24.0	24.1	23.9
			1	7	0	24.0	24.1	23.7
			1	14	0	24.0	24.1	24.0
			6	0	1	23.1	23.0	23.1
			6	3	1	23.0	23.0	23.0
			6	5	1	23.0	23.1	23.0
			15	0	1	23.1	23.0	23.1
		16QAM	1	0	1	23.2	23.2	23.2
			1	7	1	23.2	23.2	23.2
			1	14	1	23.1	23.2	23.2
			6	0	2	22.1	22.2	22.0
			6	3	2	22.2	22.2	22.0
			6	5	2	22.2	22.1	22.0
			15	0	2	22.0	22.1	22.1

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						18625	18900	19175
						1852.5 MHz	1880 MHz	1907.5 MHz
LTE Band 2	5	QPSK	1	0	0	24.1	23.9	23.8
			1	12	0	24.0	24.1	24.2
			1	24	0	24.1	24.0	24.0
			12	0	1	23.1	23.1	23.1
			12	6	1	23.1	23.1	23.1
			12	11	1	23.1	23.1	23.1
			25	0	1	23.1	23.1	23.1
		16QAM	1	0	1	23.1	23.2	23.0
			1	12	1	23.2	23.2	22.8
			1	24	1	23.2	23.2	22.9
			12	0	2	22.2	22.1	21.8
			12	6	2	22.2	22.0	22.0
			12	11	2	22.2	22.1	22.1
			25	0	2	22.2	22.0	22.0
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						18650	18900	19150
						1855 MHz	1880 MHz	1905 MHz
LTE Band 2	10	QPSK	1	0	0	24.2	24.2	24.1
			1	24	0	24.1	24.2	24.0
			1	49	0	24.2	23.9	24.0
			25	0	1	23.2	23.2	23.1
			25	12	1	23.2	23.2	23.1
			25	24	1	23.2	23.2	23.2
			50	0	1	23.1	23.1	23.1
		16QAM	1	0	1	23.2	23.2	23.2
			1	24	1	23.2	23.2	23.2
			1	49	1	23.2	23.2	23.2
			25	0	2	22.2	22.1	22.0
			25	12	2	22.2	22.1	22.1
			25	24	2	22.2	22.1	22.1
			50	0	2	22.1	22.1	22.0

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						18675	18900	19125
						1857.5 MHz	1880 MHz	1902.5 MHz
LTE Band 2	15	QPSK	1	0	0	24.1	24.2	24.2
			1	37	0	24.2	24.2	24.0
			1	74	0	24.2	24.0	24.1
			36	0	1	23.2	23.2	23.2
			36	18	1	23.2	23.2	23.1
			36	35	1	23.2	23.1	23.1
			75	0	1	23.2	23.2	23.1
		16QAM	1	0	1	23.2	23.2	23.2
			1	37	1	23.2	23.2	23.2
			1	74	1	23.2	23.2	23.2
			36	0	2	22.1	21.9	22.0
			36	18	2	22.1	22.0	21.9
			36	35	2	22.0	22.0	21.9
			75	0	2	22.2	22.2	21.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						18700	18900	19100
						1860 MHz	1880 MHz	1900 MHz
LTE Band 2	20	QPSK	1	0	0	24.0	24.2	24.1
			1	49	0	23.9	24.2	23.9
			1	99	0	24.0	24.0	24.0
			50	0	1	23.2	23.2	23.2
			50	25	1	23.1	23.2	23.1
			50	49	1	23.2	23.2	23.2
			100	0	1	23.2	23.2	23.2
		16QAM	1	0	1	23.2	23.2	23.2
			1	49	1	23.2	23.2	23.2
			1	99	1	23.2	23.2	23.2
			50	0	2	22.2	22.2	22.2
			50	25	2	22.2	22.2	22.1
			50	49	2	22.2	22.0	22.2
			100	0	2	22.2	22.2	22.1

LTE Band 4

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						19957	20175	20393
						1710.7 MHz	1732.5 MHz	1754.3 MHz
LTE Band 4	1.4	QPSK	1	0	0	23.7	23.8	24.1
			1	2	0	23.8	23.7	24.1
			1	5	0	23.8	23.8	24.1
			3	0	0	23.9	23.9	24.3
			3	1	0	23.9	23.9	24.4
			3	2	0	24.0	23.9	24.3
			6	0	1	23.3	23.2	23.4
		16QAM	1	0	1	23.4	23.3	23.4
			1	2	1	23.4	23.4	23.4
			1	5	1	23.4	23.4	23.4
			3	0	1	23.3	23.4	23.4
			3	1	1	23.2	23.4	23.4
			3	2	1	23.0	23.2	23.4
			6	0	2	22.1	22.3	22.4
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						19965	20175	20385
						1711.5 MHz	1732.5 MHz	1753.5 MHz
LTE Band 4	3	QPSK	1	0	0	23.9	24.1	24.3
			1	7	0	24.3	24.1	24.3
			1	14	0	23.9	23.9	24.4
			6	0	1	23.4	23.4	23.4
			6	3	1	23.4	23.4	23.4
			6	5	1	23.3	23.4	23.4
			15	0	1	23.3	23.4	23.4
		16QAM	1	0	1	23.4	23.4	23.4
			1	7	1	23.4	23.4	23.4
			1	14	1	23.4	23.4	23.4
			6	0	2	22.4	22.4	22.4
			6	3	2	22.4	22.4	22.4
			6	5	2	22.4	22.4	22.4
			15	0	2	22.3	22.4	22.4

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						19975	20175	20375
						1712.5 MHz	1732.5 MHz	1752.5 MHz
LTE Band 4	5	QPSK	1	0	0	24.1	24.0	24.2
			1	12	0	24.2	24.3	24.3
			1	24	0	24.1	24.1	24.3
			12	0	1	23.4	23.4	23.4
			12	7	1	23.4	23.4	23.4
			12	13	1	23.4	23.4	23.4
			25	0	1	23.3	23.4	23.4
		16QAM	1	0	1	23.4	23.2	23.4
			1	12	1	23.3	23.1	23.4
			1	24	1	23.4	22.9	23.4
			12	0	2	22.4	22.2	22.4
			12	7	2	22.3	22.4	22.4
			12	13	2	22.3	22.4	22.4
			25	0	2	22.4	22.4	22.4
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20000	20175	20350
						1715 MHz	1732.5 MHz	1750 MHz
LTE Band 4	10	QPSK	1	0	0	23.9	24.0	24.2
			1	25	0	23.7	24.0	24.0
			1	49	0	23.9	23.9	24.4
			25	0	1	23.3	23.3	23.4
			25	12	1	23.2	23.3	23.4
			25	25	1	23.2	23.3	23.4
			50	0	1	23.3	23.4	23.4
		16QAM	1	0	1	23.4	23.4	23.4
			1	25	1	23.4	23.4	23.4
			1	49	1	23.4	23.4	23.4
			25	0	2	22.3	22.4	22.4
			25	12	2	22.2	22.4	22.4
			25	25	2	22.1	22.3	22.4
			50	0	2	22.3	22.3	22.4

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20025	20175	20325
						1717.5 MHz	1732.5 MHz	1747.5 MHz
LTE Band 4	15	QPSK	1	0	0	24.1	24.0	24.4
			1	37	0	23.8	23.9	24.4
			1	74	0	23.9	23.9	24.4
			36	0	1	23.3	23.3	23.4
			36	20	1	23.2	23.3	23.4
			36	39	1	23.2	23.2	23.4
			75	0	1	23.3	23.4	23.4
		16QAM	1	0	1	23.1	23.4	23.4
			1	37	1	23.4	23.4	23.3
			1	74	1	23.4	23.4	23.4
			36	0	2	22.4	22.4	22.4
			36	20	2	22.3	22.4	22.4
			36	39	2	22.4	22.4	22.4
			75	0	2	22.3	22.4	22.4
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20050	20175	20300
						1720 MHz	1732.5 MHz	1745 MHz
LTE Band 4	20	QPSK	1	0	0		24.40	
			1	49	0		24.40	
			1	99	0		24.30	
			50	0	1		23.40	
			50	24	1		23.40	
			50	50	1		23.30	
			100	0	1		23.40	
		16QAM	1	0	1		23.40	
			1	49	1		23.40	
			1	99	1		23.30	
			50	0	2		22.40	
			50	24	2		22.40	
			50	50	2		22.40	
			100	0	2		22.40	

LTE Band 5

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20407	20525	20643
						824.7 MHz	836.5 MHz	848.3 MHz
LTE Band 5	1.4	QPSK	1	0	0	24.0	24.0	24.1
			1	3	0	24.0	24.0	24.0
			1	5	0	23.7	24.0	24.1
			3	0	0	24.1	24.0	24.2
			3	1	0	24.0	24.0	24.2
			3	3	0	23.9	24.1	24.2
		16QAM	6	0	1	23.1	23.1	23.2
			1	0	1	23.2	23.2	23.2
			1	3	1	23.2	23.2	23.2
			1	5	1	23.2	23.2	23.2
			3	0	1	23.2	23.0	23.2
			3	1	1	23.1	23.0	23.2
			3	3	1	22.9	23.1	23.2
			6	0	2	21.9	21.9	22.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20415	20525	20635
						825.5 MHz	836.5 MHz	847.5 MHz
LTE Band 5	3	QPSK	1	0	0	23.9	24.0	23.8
			1	8	0	23.8	24.0	24.2
			1	14	0	23.9	24.1	24.2
			8	0	1	23.1	23.2	23.2
			8	4	1	23.0	23.2	23.2
			8	7	1	23.1	23.1	23.2
			15	0	1	23.1	23.2	23.2
		16QAM	1	0	1	23.2	23.2	23.2
			1	8	1	23.2	23.2	23.2
			1	14	1	23.2	23.2	23.2
			8	0	2	22.2	22.2	22.2
			8	4	2	22.2	22.1	22.2
			8	7	2	22.1	22.0	22.2
			15	0	2	22.1	22.1	22.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20425	20525	20625
						826.5 MHz	836.5 MHz	846.5 MHz
LTE Band 5	5	QPSK	1	0	0	23.9	23.8	23.8
			1	12	0	24.1	24.0	24.1
			1	24	0	23.9	24.1	24.2
			12	0	1	23.1	23.2	23.1
			12	7	1	23.2	23.1	23.2
			12	13	1	23.1	23.1	23.2
			25	0	1	23.2	23.2	23.2
		16QAM	1	0	1	23.2	23.2	23.0
			1	12	1	23.1	23.2	23.0
			1	24	1	23.1	23.2	23.0
			12	0	2	22.1	22.2	22.2
			12	7	2	22.1	22.2	22.2
			12	13	2	22.1	22.1	22.2
			25	0	2	22.2	22.2	22.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20450	20525	20600
						829 MHz	836.5 MHz	844 MHz
LTE Band 5	10	QPSK	1	0	0		24.1	
			1	25	0		24.0	
			1	49	0		23.9	
			25	0	1		23.2	
			25	12	1		23.2	
			25	25	1		23.2	
			50	0	1		23.2	
		16QAM	1	0	1		23.2	
			1	25	1		23.2	
			1	49	1		23.2	
			25	0	2		22.2	
			25	12	2		22.2	
			25	25	2		22.2	
			50	0	2		22.2	

LTE Band 17

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	5	QPSK	1	0	0	23.9
			1	12	0	24.2
			1	24	0	23.9
			12	0	1	22.9
			12	7	1	23.0
			12	13	1	23.0
			25	0	1	23.0
		16QAM	1	0	1	22.9
			1	12	1	22.7
			1	24	1	22.6
			12	0	2	21.7
			12	7	2	21.9
			12	13	2	22.0
			25	0	2	22.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	10	QPSK	1	0	0	24.0
			1	25	0	23.9
			1	49	0	23.8
			25	0	1	22.9
			25	12	1	22.9
			25	25	1	22.9
			50	0	1	22.9
		16QAM	1	0	1	23.1
			1	25	1	23.2
			1	49	1	23.1
			25	0	2	22.1
			25	12	2	22.1
			25	25	2	21.9
			50	0	2	21.9

9. RADIATED TEST RESULTS

9.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27

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 (b) - (10) Portable stations (handheld devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP. (LTE B13)

27.50 (c) - (10) Portable stations (handheld devices) are limited to 3 watts ERP; (LTE B17)

27.50 (d) - (4) Fixed, mobile, and portable (handheld) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. (Band 4)

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 603D Clause 2.2.17; PSA setting reference to 971168 D01 v02r02

For peak power measurement with a PSA:

a) Set the RBW $\geq$ OBW; b) Set VBW $\geq 3 \times$ RBW; c) Set span $\geq 2 \times$ RBW; d) Sweep time = auto couple; e) Detector = peak; f) Ensure that the number of measurement points $\geq$ span/RBW; g) Trace mode = max hold;

For average power measurement with a PSA:

a) Set span to at least 1.5 times the OBW; b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz; c) Set VBW $\geq 3 \times$ RBW; d) Set number of points in sweep $\geq 2 \times$ span / RBW; e) Sweep time = auto-couple; f) Detector = RMS (power averaging); g) Use free run trigger If burst duty cycle ≥ 98 ; h) Use trigger to capture bursts If burst duty cycle < 98 ; i) Trace average at least 100 traces in power averaging (*i.e.*, RMS) mode. j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function.

9.1.1. ERP/EIRP RESULTS AND TABLE

GSM

Band	Mode	Channel	f(MHz)	ERP/EIRP	
				dBm	mW
GSM850	GPRS	128	824.2	29.43	877.00
		190	836.6	29.89	974.99
		251	848.8	30.36	1086.43
	EGPRS	128	824.2	24.63	290.40
		190	836.6	25.14	326.59
		251	848.8	24.95	312.61
GSM1900	GPRS	512	1850.2	30.52	1127.20
		661	1880	31.51	1415.79
		810	1909.8	30.28	1066.60
	EGPRS	512	1850.2	28.63	729.46
		661	1880.0	28.95	785.24
		810	1909.8	28.87	770.90

GSM850 GPRS																	
High Frequency Substitution Measurement UL Verification Services, Inc.																	
Company:		LG Electronics															
Project #:		16I22652															
Date:		1/19/2016															
Test Engineer:		A. Escamilla															
Configuration:		X-pos EUT Only															
Location:		Chamber C															
Mode:		GPRS 850 MHz Fundamentals															
<u>Test Equipment:</u>																	
Receiving: Hybrid T185, and Chamber C SMA Cables																	
Substitution: Dipole T416, 6ft N-type Cable Warehouse																	
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes									
Low Ch																	
874.20	22.47	V	0.9	0.0	21.57	38.5	-16.9										
874.20	30.33	H	0.9	0.0	29.43	38.5	-9.1										
Mid Ch																	
836.60	22.47	V	0.9	0.0	21.57	38.5	-16.9										
836.60	30.79	H	0.9	0.0	29.89	38.5	-8.6										
High Ch																	
848.80	22.88	V	0.9	0.0	21.98	38.5	-16.5										
848.80	31.76	H	0.9	0.0	30.36	38.5	-8.1										

GSM1900 GPRS																	
High Frequency Substitution Measurement UL Verification Services, Inc.																	
Company:		LG Electronics															
Project #:		16I22652															
Date:		1/16/2016															
Test Engineer:		R. Alegre															
Configuration:		EUT only X position															
Location:		Chamber C															
Mode:		GPRS 1900 MHz Fundamentals															
<u>Test Equipment:</u>																	
Receiving: Horn T119, and Chamber C SMA Cables																	
Substitution: Horn T59, Xft SMA Cable (SN # SERIALNUMBER) Warehouse																	
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes									
Low Ch																	
1850.20	20.99	V	0.9	8.6	28.69	33.0	-4.3										
1850.20	22.82	H	0.9	8.6	30.52	33.0	-2.5										
Mid Ch																	
1880.00	20.81	V	0.9	8.6	28.52	33.0	-4.5										
1880.00	23.80	H	0.9	8.6	31.51	33.0	-1.5										
High Ch																	
1909.80	20.35	V	0.9	8.6	28.07	33.0	-4.9										
1909.80	22.56	H	0.9	8.6	30.78	33.0	-2.7										

GSM850 EGPRS																	
High Frequency Substitution Measurement UL Verification Services, Inc.																	
Company:		LG Electronics															
Project #:		16I22652															
Date:		1/19/2016															
Test Engineer:		A. Escamilla															
Configuration:		X-pos EUT Only															
Location:		Chamber C															
Mode:		EGPRS 850 MHz Fundamentals															
<u>Test Equipment:</u>																	
Receiving: Hybrid T185, and Chamber C SMA Cables																	
Substitution: Dipole T416, 6ft N-type Cable Warehouse																	
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes									
Low Ch																	
874.20	18.06	V	0.9	0.0	17.16	38.5	-21.3										
874.20	25.53	H	0.9	0.0	24.63	38.5	-13.9										
Mid Ch																	
836.60	18.35	V	0.9	0.0	17.45	38.5	-21.1										
836.60	26.04	H	0.9	0.0	25.14	38.5	-13.4										
High Ch																	
848.80	18.21	V	0.9	0.0	17.31	38.5	-21.2										
848.80	25.85	H	0.9	0.0	24.95	38.5	-13.5										

GSM1900 EGPRS																	
High Frequency Substitution Measurement UL Verification Services, Inc.																	
Company:		LG Electronics															
Project #:		16I22652															
Date:		1/16/2016															
Test Engineer:		R. Alegre															
Configuration:		EUT only X position															
Location:		Chamber C															
Mode:		EGPRS 1900 MHz Fundamentals															
<u>Test Equipment:</u>																	
Receiving: Horn T119, and Chamber C SMA Cables																	
Substitution: Horn T59, Xft SMA Cable (SN # SERIALNUMBER) Warehouse																	
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes									
Low Ch																	
1850.20	18.97	V	0.9	8.6	26.67	33.0	-6.3										
1850.20	20.94	H	0.9	8.6	28.63	33.0	-4.4										
Mid Ch																	
1880.00	18.74	V	0.9	8.6	26.45	33.0	-6.6										
1880.00	21.24	H	0.9	8.6	28.95	33.0	-4.1										
High Ch																	
1909.80	18.84	V	0.9	8.6	26.56	33.0	-6.4										
1909.80	21.15	H	0.9	8.6	28.87	33.0	-4.1										

WCDMA

Band	Mode	Channel	f(MHz)	ERP/EIRP	
				dBm	mW
Band 2	REL99	9262	1852.4	24.64	291.07
		9400	1880	24.82	303.39
		9538	1907.6	24.01	251.77
	HSDPA	9262	1852.4	24.60	288.40
		9400	1880.0	24.69	294.44
		9538	1907.6	24.00	251.19
Band 5	REL99	4132	826.4	19.54	89.95
		4183	836.6	19.86	96.83
		4233	846.6	20.30	107.15
	HSDPA	4132	826.4	19.38	86.70
		4183	836.6	19.34	85.90
		4233	846.6	19.89	97.50

B2 REL99

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
 Project #: 16I22652
 Date: 1/16/2016
 Test Engineer: R. Alegre
 Configuration: EUT only X position
 Location: Chamber C
 Mode: Rel99 Band 2 Fundamentals

Test Equipment:

Receiving: Horn T115, and Chamber C SMA Cables
 Substitution: Horn T59, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.40	13.11	V	0.9	8.6	20.81	33.0	-12.2	
1852.40	16.94	H	0.9	8.6	24.64	33.0	-8.4	
Mid Ch								
1880.00	13.34	V	0.9	8.6	21.05	33.0	-12.0	
1880.00	17.11	H	0.9	8.6	24.82	33.0	-8.2	
High Ch								
1907.60	12.95	V	0.9	8.6	20.67	33.0	-12.3	
1907.60	16.29	H	0.9	8.6	24.01	33.0	-9.0	

B5 REL99

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
 Project #: 16I22652
 Date: 1/19/2016
 Test Engineer: A. Escamilla
 Configuration: X-pos EUT Only
 Location: Chamber C
 Mode: Rel99 Band 5 Fundamentals

Test Equipment:

Receiving: Hybrid T185, and Chamber C SMA Cables
 Substitution: Dipole T416, 8ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.40	12.34	V	0.9	0.0	11.44	38.5	-27.1	
826.40	20.44	H	0.9	0.0	19.54	38.5	-19.0	
Mid Ch								
836.60	11.88	V	0.9	0.0	10.98	38.5	-27.5	
836.60	20.16	H	0.9	0.0	19.86	38.5	-18.6	
High Ch								
846.60	12.62	V	0.9	0.0	11.72	38.5	-26.8	
846.60	21.20	H	0.9	0.0	20.30	38.5	-18.2	

B2 HSDPA

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
 Project #: 16I22652
 Date: 1/16/2016
 Test Engineer: R. Alegre
 Configuration: EUT only X position
 Location: Chamber C
 Mode: HSDPA Band 2 Fundamentals

Test Equipment:

Receiving: Horn T115, and Chamber C SMA Cables
 Substitution: Horn T59, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.40	13.18	V	0.9	8.6	20.88	33.0	-12.1	
1852.40	16.98	H	0.9	8.6	24.69	33.0	-8.4	
Mid Ch								
1880.00	13.31	V	0.9	8.6	21.02	33.0	-12.0	
1880.00	16.98	H	0.9	8.6	24.69	33.0	-8.3	
High Ch								
1907.60	13.12	V	0.9	8.6	20.84	33.0	-12.2	
1907.60	16.26	H	0.9	8.6	24.00	33.0	-9.0	

B5 HSDPA

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
 Project #: 16I22652
 Date: 1/19/2016
 Test Engineer: A. Escamilla
 Configuration: X-pos EUT Only
 Location: Chamber C
 Mode: HSDPA Band 5 Fundamentals

Test Equipment:

Receiving: Hybrid T185, and Chamber C SMA Cables
 Substitution: Dipole T416, 8ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.40	12.23	V	0.9	0.0	11.33	38.5	-27.2	
826.40	20.28	H	0.9	0.0	19.38	38.5	-19.1	
Mid Ch								
836.60	11.73	V	0.9	0.0	10.83	38.5	-27.7	
836.60	20.24	H	0.9	0.0	19.34	38.5	-19.2	
High Ch								
846.60	12.44	V	0.9	0.0	11.54	38.5	-27.0	
846.60	20.79	H	0.9	0.0	19.89	38.5	-18.6	

B5 REL99

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

LG Electronics

16I22652

1/19/2016

A. Escamilla

X-pos EUT Only

Chamber C

Rel99 Band 5 Fundamentals

Test Equipment:

Receiving: Hybrid T185, and Chamber C SMA Cables

Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.40	12.34	V	0.9	0.0	11.44	38.5	-27.1	
826.40	20.44	H	0.9	0.0	19.54	38.5	-19.0	
Mid Ch								
836.60	11.88	V	0.9	0.0	10.98	38.5	-27.5	
836.60	20.15	H	0.9	0.0	19.86	38.5	-18.6	
High Ch								
946.60	12.62	V	0.9	0.0	11.72	38.5	-26.8	
946.60	21.20	H	0.9	0.0	20.30	38.5	-18.2	

B5 HSDPA

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

LG Electronics

16I22652

1/19/2016

A. Escamilla

X-pos EUT Only

Chamber C

HSDPA Band 5 Fundamentals

Test Equipment:

Receiving: Hybrid T185, and Chamber C SMA Cables

Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.40	12.23	V	0.9	0.0	11.33	38.5	-27.2	
826.40	20.28	H	0.9	0.0	19.38	38.5	-19.1	
Mid Ch								
836.60	11.73	V	0.9	0.0	10.83	38.5	-27.7	
836.60	20.24	H	0.9	0.0	19.34	38.5	-19.2	
High Ch								
946.60	12.44	V	0.9	0.0	11.54	38.5	-27.0	
946.60	20.79	H	0.9	0.0	19.89	38.5	-18.6	

LTE Band 2

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	mW
1.4	QPSK	1/0	1850.7	26.18	414.95
		1/0	1880	26.04	401.79
		1/0	1909.3	26.26	422.67
	16QAM	1/0	1850.7	25.50	354.81
		1/0	1880	25.43	349.14
		1/0	1909.3	25.69	370.68
3	QPSK	1/0	1851.5	26.24	420.73
		1/0	1880	26.38	434.51
		1/0	1908.5	26.31	427.56
	16QAM	1/0	1851.5	25.47	352.37
		1/0	1880	25.46	351.56
		1/0	1908.5	25.72	373.25
5	QPSK	1/0	1852.5	26.27	423.64
		1/0	1880	26.32	428.55
		1/0	1907.5	26.28	424.62
	16QAM	1/0	1852.5	25.60	363.08
		1/0	1880	25.77	377.57
		1/0	1907.5	25.86	385.48
10	QPSK	1/0	1855	26.18	414.95
		1/0	1880	26.33	429.54
		1/0	1905	26.27	423.64
	16QAM	1/0	1855	25.68	369.83
		1/0	1880	25.72	373.25
		1/0	1905	25.60	363.08
15	QPSK	1/0	1857.5	26.30	426.58
		1/0	1880	26.36	432.51
		1/0	1902.5	26.33	429.54
	16QAM	1/0	1857.5	25.66	368.13
		1/0	1880	25.54	358.10
		1/0	1902.5	25.73	374.11
20	QPSK	1/0	1860	26.34	430.53
		1/0	1880	26.29	425.60
		1/0	1900	26.35	431.52
	16QAM	1/0	1860	25.83	382.82
		1/0	1880	25.52	356.45
		1/0	1900	25.69	370.68

1.4MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 16I22652
Date: 1/16/2016
Test Engineer: R. Alegre
Configuration: EUT only X position
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xfr SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1850.70	7.28	V	0.9	8.6	14.58	33.0	-18.0	
1850.70	18.48	H	0.9	8.6	26.18	33.0	-6.8	
Mid Ch								
1880.00	7.24	V	0.9	8.6	14.95	33.0	-18.1	
1880.00	18.33	H	0.9	8.6	26.04	33.0	-7.0	
High Ch								
1909.30	6.79	V	0.9	8.6	14.51	33.0	-18.5	
1909.30	18.54	H	0.9	8.6	26.26	33.0	-6.7	

1.4MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 16I22652
Date: 1/16/2016
Test Engineer: R. Alegre
Configuration: EUT only X position
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xfr SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1850.70	6.46	V	0.9	8.6	14.16	33.0	-18.8	
1850.70	17.88	H	0.9	8.6	25.50	33.0	-7.5	
Mid Ch								
1880.00	6.51	V	0.9	8.6	14.22	33.0	-18.8	
1880.00	17.72	H	0.9	8.6	25.43	33.0	-7.6	
High Ch								
1909.30	6.23	V	0.9	8.6	13.95	33.0	-19.1	
1909.30	17.97	H	0.9	8.6	25.69	33.0	-7.3	

3MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 16I22652
Date: 1/16/2016
Test Engineer: R. Alegre
Configuration: EUT only X position
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xfr SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1851.50	7.52	V	0.9	8.6	15.22	33.0	-17.8	
1851.50	18.54	H	0.9	8.6	26.24	33.0	-6.8	
Mid Ch								
1880.00	7.51	V	0.9	8.6	15.22	33.0	-17.8	
1880.00	18.67	H	0.9	8.6	26.38	33.0	-6.6	
High Ch								
1908.50	6.99	V	0.9	8.6	14.71	33.0	-18.3	
1908.50	18.59	H	0.9	8.6	26.31	33.0	-6.7	

3MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 16I22652
Date: 1/16/2016
Test Engineer: R. Alegre
Configuration: EUT only X position
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xfr SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1851.50	6.38	V	0.9	8.6	14.08	33.0	-18.9	
1851.50	17.77	H	0.9	8.6	25.47	33.0	-7.5	
Mid Ch								
1880.00	6.34	V	0.9	8.6	14.05	33.0	-19.0	
1880.00	17.73	H	0.9	8.6	25.46	33.0	-7.5	
High Ch								
1908.50	6.35	V	0.9	8.6	14.07	33.0	-18.9	
1908.50	18.00	H	0.9	8.6	25.72	33.0	-7.3	

5MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 16I22652
Date: 1/16/2016
Test Engineer: R. Alegre
Configuration: EUT only X position
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xfr SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.50	7.37	V	0.9	8.6	15.07	33.0	-17.9	
1852.50	18.57	H	0.9	8.6	26.27	33.0	-6.7	
Mid Ch								
1880.00	7.69	V	0.9	8.6	15.20	33.0	-17.8	
1880.00	18.61	H	0.9	8.6	26.32	33.0	-6.7	
High Ch								
1907.50	7.04	V	0.9	8.6	14.76	33.0	-18.2	
1907.50	18.56	H	0.9	8.6	26.28	33.0	-6.7	

5MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 16I22652
Date: 1/16/2016
Test Engineer: R. Alegre
Configuration: EUT only X position
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xfr SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.50	6.67	V	0.9	8.6	14.37	33.0	-18.6	
1852.50	17.58	H	0.9	8.6	25.50	33.0	-7.4	
Mid Ch								
1880.00	6.41	V	0.9	8.6	14.12	33.0	-18.9	
1880.00	18.06	H	0.9	8.6	25.77	33.0	-7.2	
High Ch								
1907.50	6.16	V	0.9	8.6	13.88	33.0	-19.1	
1907.50	18.14	H	0.9	8.6	25.86	33.0	-7.1	

10MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/16/2016

Test Engineer: R Alegre

Configuration: EUT only X position

Location: Chamber C

Mode: LTE_QPSK Band 2 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xfr SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1855.00	7.30	V	0.9	8.6	15.00	33.0	-18.0	
1855.00	18.48	H	0.9	8.6	26.18	33.0	-6.8	
Mid Ch								
1880.00	7.26	V	0.9	8.6	14.97	33.0	-18.0	
1880.00	18.62	H	0.9	8.6	26.33	33.0	-6.7	
High Ch								
1905.00	6.76	V	0.9	8.6	14.47	33.0	-18.5	
1905.00	18.56	H	0.9	8.6	26.27	33.0	-6.7	

10MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/16/2016

Test Engineer: R Alegre

Configuration: EUT only X position

Location: Chamber C

Mode: LTE_16QAM Band 2 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xfr SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1855.00	6.33	V	0.9	8.6	14.03	33.0	-19.0	
1855.00	17.58	H	0.9	8.6	25.68	33.0	-7.3	
Mid Ch								
1880.00	6.67	V	0.9	8.6	14.38	33.0	-18.6	
1880.00	18.01	H	0.9	8.6	25.72	33.0	-7.3	
High Ch								
1905.00	6.40	V	0.9	8.6	14.11	33.0	-18.9	
1905.00	17.89	H	0.9	8.6	25.60	33.0	-7.4	

15MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/16/2016

Test Engineer: R Alegre

Configuration: EUT only X position

Location: Chamber C

Mode: LTE_QPSK Band 2 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xfr SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1857.50	7.48	V	0.9	8.6	15.18	33.0	-17.8	
1857.50	18.60	H	0.9	8.6	26.30	33.0	-6.7	
Mid Ch								
1880.00	7.43	V	0.9	8.6	15.14	33.0	-17.9	
1880.00	18.65	H	0.9	8.6	26.36	33.0	-6.6	
High Ch								
1902.50	6.95	V	0.9	8.6	14.66	33.0	-18.3	
1902.50	18.62	H	0.9	8.6	26.33	33.0	-6.7	

15MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/16/2016

Test Engineer: R Alegre

Configuration: EUT only X position

Location: Chamber C

Mode: LTE_16QAM Band 2 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xfr SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1857.50	6.67	V	0.9	8.6	14.37	33.0	-18.6	
1857.50	17.96	H	0.9	8.6	25.66	33.0	-7.3	
Mid Ch								
1880.00	6.56	V	0.9	8.6	14.27	33.0	-18.7	
1880.00	17.83	H	0.9	8.6	25.34	33.0	-7.5	
High Ch								
1902.50	6.35	V	0.9	8.6	14.06	33.0	-18.9	
1902.50	18.02	H	0.9	8.6	25.73	33.0	-7.3	

20MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/16/2016

Test Engineer: R Alegre

Configuration: EUT only X position

Location: Chamber C

Mode: LTE_QPSK Band 2 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xfr SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1860.00	7.07	V	0.9	8.6	14.77	33.0	-18.2	
1860.00	18.64	H	0.9	8.6	26.34	33.0	-6.7	
Mid Ch								
1880.00	7.33	V	0.9	8.6	15.04	33.0	-18.0	
1880.00	18.58	H	0.9	8.6	26.29	33.0	-6.7	
High Ch								
1900.00	7.00	V	0.9	8.6	14.71	33.0	-18.3	
1900.00	18.64	H	0.9	8.6	26.35	33.0	-6.7	

20MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/16/2016

Test Engineer: R Alegre

Configuration: EUT only X position

Location: Chamber C

Mode: LTE_16QAM Band 2 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xfr SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1860.00	6.61	V	0.9	8.6	14.31	33.0	-18.7	
1860.00	18.13	H	0.9	8.6	25.83	33.0	-7.2	
Mid Ch								
1880.00	6.65	V	0.9	8.6	14.36	33.0	-18.6	
1880.00	17.81	H	0.9	8.6	25.52	33.0	-7.5	
High Ch								
1900.00	6.26	V	0.9	8.6	13.97	33.0	-19.0	
1900.00	17.98	H	0.9	8.6	25.69	33.0	-7.3	

LTE Band 4

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	mW
1.4	QPSK	1/0	1710.7	25.08	322.11
		1/0	1732.5	25.20	331.13
		1/0	1754.3	24.79	301.30
	16QAM	1/0	1710.7	24.43	277.33
		1/0	1732.5	24.55	285.10
		1/0	1754.3	24.31	269.77
3	QPSK	1/0	1711.5	25.07	321.37
		1/0	1732.5	25.19	330.37
		1/0	1753.5	25.12	325.09
	16QAM	1/0	1711.5	24.16	260.62
		1/0	1732.5	24.74	297.85
		1/0	1753.5	24.48	280.54
5	QPSK	1/0	1712.5	24.95	312.61
		1/0	1732.5	25.40	346.74
		1/0	1752.5	25.36	343.56
	16QAM	1/0	1712.5	24.09	256.45
		1/0	1732.5	24.65	291.74
		1/0	1752.5	24.45	278.61
10	QPSK	1/0	1715	24.48	280.54
		1/0	1732.5	25.37	344.35
		1/0	1750	25.11	324.34
	16QAM	1/0	1715	23.57	227.51
		1/0	1732.5	24.71	295.80
		1/0	1750	24.32	270.40
15	QPSK	1/0	1717.5	24.34	271.64
		1/0	1732.5	25.21	331.89
		1/0	1747.5	25.17	328.85
	16QAM	1/0	1717.5	23.88	244.34
		1/0	1732.5	24.28	267.92
		1/0	1747.5	24.20	263.03
20	QPSK	1/0	1720	24.33	271.02
		1/0	1732.5	24.91	309.74
		1/0	1745	25.18	329.61
	16QAM	1/0	1720	23.52	224.91
		1/0	1732.5	23.84	242.10
		1/0	1745	24.27	267.30

1.4MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: A. Escamilla

Configuration: X-pos EUT Only

Location: Chamber C

Mode: LTE, QPSK Band 4 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn T115, and Chamber C SMA Cables
Substitution: Horn T59, 8ft SMA CableWarehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1716.70	15.06	V	0.9	8.7	22.91	30.0	-7.1	
1716.70	17.24	H	0.9	8.7	25.08	30.0	-4.9	
Mid Ch								
1732.50	14.45	V	0.9	8.7	22.26	30.0	-7.7	
1732.50	17.39	H	0.9	8.7	25.20	30.0	-4.8	
High Ch								
1754.30	15.89	V	0.9	8.7	22.77	30.0	-7.2	
1754.30	17.82	H	0.9	8.7	24.79	30.0	-5.2	

1.4MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: A. Escamilla

Configuration: X-pos EUT Only

Location: Chamber C

Mode: LTE, 16QAM Band 4 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn T115, and Chamber C SMA Cables
Substitution: Horn T59, 8ft SMA CableWarehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1716.70	13.68	V	0.9	8.7	21.45	30.0	-8.6	
1716.70	16.59	H	0.9	8.7	24.43	30.0	-5.6	
Mid Ch								
1732.50	14.00	V	0.9	8.7	21.81	30.0	-8.2	
1732.50	16.74	H	0.9	8.7	24.55	30.0	-5.5	
High Ch								
1754.30	14.28	V	0.9	8.7	22.85	30.0	-7.9	
1754.30	16.54	H	0.9	8.7	24.31	30.0	-5.7	

3MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: A. Escamilla

Configuration: X-pos EUT Only

Location: Chamber C

Mode: LTE, QPSK Band 4 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn T115, and Chamber C SMA Cables
Substitution: Horn T59, 8ft SMA CableWarehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1711.50	14.85	V	0.9	8.7	22.70	30.0	-7.3	
1711.50	17.23	H	0.9	8.7	25.07	30.0	-4.9	
Mid Ch								
1732.50	13.93	V	0.9	8.7	21.74	30.0	-8.3	
1732.50	17.38	H	0.9	8.7	25.19	30.0	-4.8	
High Ch								
1753.50	14.87	V	0.9	8.7	22.64	30.0	-7.4	
1753.50	17.35	H	0.9	8.7	25.12	30.0	-4.9	

3MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: A. Escamilla

Configuration: X-pos EUT Only

Location: Chamber C

Mode: LTE, 16QAM Band 4 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn T115, and Chamber C SMA Cables
Substitution: Horn T59, 8ft SMA CableWarehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1711.50	13.75	V	0.9	8.7	21.60	30.0	-8.4	
1711.50	16.32	H	0.9	8.7	24.16	30.0	-5.8	
Mid Ch								
1732.50	13.15	V	0.9	8.7	20.96	30.0	-9.0	
1732.50	16.93	H	0.9	8.7	24.74	30.0	-5.3	
High Ch								
1753.50	14.19	V	0.9	8.7	21.96	30.0	-8.0	
1753.50	16.71	H	0.9	8.7	24.48	30.0	-5.5	

5MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: A. Escamilla

Configuration: X-pos EUT Only

Location: Chamber C

Mode: LTE, QPSK Band 4 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T115, and Chamber C SMA Cables
Substitution: Horn T59, 8ft SMA CableWarehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	14.35	V	0.9	8.7	22.19	30.0	-7.8	
1712.50	17.11	H	0.9	8.7	24.95	30.0	-5.0	
Mid Ch								
1732.50	15.36	V	0.9	8.7	23.17	30.0	-6.8	
1732.50	17.59	H	0.9	8.7	25.40	30.0	-4.6	
High Ch								
1752.50	14.82	V	0.9	8.7	22.59	30.0	-7.4	
1752.50	17.59	H	0.9	8.7	25.36	30.0	-4.6	

5MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: A. Escamilla

Configuration: X-pos EUT Only

Location: Chamber C

Mode: LTE, 16QAM Band 4 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T115, and Chamber C SMA Cables
Substitution: Horn T59, 8ft SMA CableWarehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	13.68	V	0.9	8.7	21.52	30.0	-8.5	
1712.50	16.25	H	0.9	8.7	24.09	30.0	-5.9	
Mid Ch								
1732.50	14.47	V	0.9	8.7	22.28	30.0	-7.7	
1732.50	16.84	H	0.9	8.7	24.65	30.0	-5.4	
High Ch								
1752.50	13.71	V	0.9	8.7	21.48	30.0	-8.5	
1752.50	16.68	H	0.9	8.7	24.45	30.0	-5.6	

10MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: A. Escamilla

Configuration: X-pos EUT Only

Location: Chamber C

Mode: LTE_QPSK Band 4 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T115, and Chamber C SMA Cables
Substitution: Horn T59, 8ft SMA CableWarehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1715.00	14.27	V	0.9	8.7	22.06	30.0	-7.9	
1715.00	16.54	H	0.9	8.7	24.48	30.0	-5.5	
Mid Ch								
1732.50	14.93	V	0.9	8.7	22.74	30.0	-7.3	
1732.50	17.56	H	0.9	8.7	25.37	30.0	-4.6	
High Ch								
1750.00	14.29	V	0.9	8.7	21.98	30.0	-8.0	
1750.00	17.33	H	0.9	8.7	25.11	30.0	-4.9	

10MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: A. Escamilla

Configuration: X-pos EUT Only

Location: Chamber C

Mode: LTE_16QAM Band 4 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T115, and Chamber C SMA Cables
Substitution: Horn T59, 8ft SMA CableWarehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1715.00	13.34	V	0.9	8.7	21.18	30.0	-8.8	
1715.00	15.73	H	0.9	8.7	23.57	30.0	-6.4	
Mid Ch								
1732.50	13.82	V	0.9	8.7	21.63	30.0	-8.4	
1732.50	16.90	H	0.9	8.7	24.71	30.0	-5.3	
High Ch								
1750.00	13.43	V	0.9	8.7	21.21	30.0	-8.8	
1750.00	16.54	H	0.9	8.7	24.32	30.0	-5.7	

15MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: A. Escamilla

Configuration: X-pos EUT Only

Location: Chamber C

Mode: LTE_QPSK Band 4 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T115, and Chamber C SMA Cables
Substitution: Horn T59, 8ft SMA CableWarehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1717.50	14.39	V	0.9	8.7	22.23	30.0	-7.8	
1717.50	16.50	H	0.9	8.7	24.34	30.0	-5.7	
Mid Ch								
1732.50	15.40	V	0.9	8.7	23.21	30.0	-6.8	
1732.50	17.40	H	0.9	8.7	25.21	30.0	-4.8	
High Ch								
1747.50	14.72	V	0.9	8.7	22.50	30.0	-7.5	
1747.50	17.39	H	0.9	8.7	25.17	30.0	-4.8	

15MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: A. Escamilla

Configuration: X-pos EUT Only

Location: Chamber C

Mode: LTE_16QAM Band 4 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T115, and Chamber C SMA Cables
Substitution: Horn T59, 8ft SMA CableWarehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1717.50	13.52	V	0.9	8.7	21.36	30.0	-8.6	
1717.50	16.04	H	0.9	8.7	23.88	30.0	-6.1	
Mid Ch								
1732.50	14.51	V	0.9	8.7	22.32	30.0	-7.7	
1732.50	16.47	H	0.9	8.7	24.28	30.0	-5.7	
High Ch								
1747.50	13.98	V	0.9	8.7	21.76	30.0	-8.2	
1747.50	16.42	H	0.9	8.7	24.20	30.0	-5.8	

20MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: A. Escamilla

Configuration: X-pos EUT Only

Location: Chamber C

Mode: LTE_QPSK Band 4 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T115, and Chamber C SMA Cables
Substitution: Horn T59, 8ft SMA CableWarehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1720.00	14.18	V	0.9	8.7	22.01	30.0	-8.0	
1720.00	16.50	H	0.9	8.7	24.33	30.0	-5.7	
Mid Ch								
1732.50	15.18	V	0.9	8.7	22.99	30.0	-7.0	
1732.50	17.10	H	0.9	8.7	24.91	30.0	-5.1	
High Ch								
1745.00	14.62	V	0.9	8.7	22.41	30.0	-7.6	
1745.00	17.39	H	0.9	8.7	25.18	30.0	-4.8	

20MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: A. Escamilla

Configuration: X-pos EUT Only

Location: Chamber C

Mode: LTE_16QAM Band 4 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T115, and Chamber C SMA Cables
Substitution: Horn T59, 8ft SMA CableWarehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1720.00	13.25	V	0.9	8.7	21.08	30.0	-8.9	
1720.00	15.09	H	0.9	8.7	23.52	30.0	-6.5	
Mid Ch								
1732.50	13.98	V	0.9	8.7	21.79	30.0	-8.2	
1732.50	16.03	H	0.9	8.7	23.84	30.0	-6.2	
High Ch								
1745.00	13.77	V	0.9	8.7	21.56	30.0	-8.4	
1745.00	16.48	H	0.9	8.7	24.27	30.0	-5.7	

LTE Band 5

BW (MHz)	Mode	RB/RB Size	f(MHz)	ERP	
				dBm	mW
1.4	QPSK	1/0	824.7	20.92	123.59
		1/0	836.5	21.13	129.72
		1/0	848.3	21.82	152.05
	16QAM	1/0	824.7	20.32	107.65
		1/0	836.5	20.81	120.50
		1/0	848.3	21.00	125.89
3	QPSK	1/0	825.5	20.97	125.03
		1/0	836.5	21.43	139.00
		1/0	847.5	21.82	152.05
	16QAM	1/0	825.5	20.39	109.40
		1/0	836.5	20.80	120.23
		1/0	847.5	21.48	140.60
5	QPSK	1/0	826.5	21.10	128.82
		1/0	836.5	21.53	142.23
		1/0	846.5	21.65	146.22
	16QAM	1/0	826.5	20.14	103.28
		1/0	836.5	20.59	114.55
		1/0	846.5	21.03	126.77
10	QPSK	1/0	829	21.72	148.59
		1/0	836.5	21.99	158.12
		1/0	844	22.12	162.93
	16QAM	1/0	829	20.96	124.74
		1/0	836.5	21.53	142.23
		1/0	844	21.48	140.60

1.4MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 16I22652
Date: 1/19/2016
Test Engineer: A. Escamilla
Configuration: X-pos EUT Only
Location: Chamber C
Mode: LTE, QPSK Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	14.51	V	0.9	0.0	13.61	38.5	-24.9	
824.70	21.82	H	0.9	0.0	20.92	38.5	-17.6	
Mid Ch								
836.50	14.22	V	0.9	0.0	13.32	38.5	-25.2	
836.50	22.03	H	0.9	0.0	21.13	38.5	-17.4	
High Ch								
848.30	15.31	V	0.9	0.0	14.41	38.5	-24.1	
848.30	22.72	H	0.9	0.0	21.82	38.5	-16.7	

1.4MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 16I22652
Date: 1/19/2016
Test Engineer: A. Escamilla
Configuration: X-pos EUT Only
Location: Chamber C
Mode: LTE, 16QAM Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	13.32	V	0.9	0.0	12.42	38.5	-26.1	
824.70	21.22	H	0.9	0.0	20.32	38.5	-18.2	
Mid Ch								
836.50	13.58	V	0.9	0.0	12.68	38.5	-25.8	
836.50	21.71	H	0.9	0.0	20.81	38.5	-17.7	
High Ch								
848.30	14.41	V	0.9	0.0	13.51	38.5	-25.0	
848.30	21.90	H	0.9	0.0	21.00	38.5	-17.5	

3MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 16I22652
Date: 1/19/2016
Test Engineer: A. Escamilla
Configuration: X-pos EUT Only
Location: Chamber C
Mode: LTE, QPSK Band 5 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	14.54	V	0.9	0.0	13.74	38.5	-24.8	
825.50	21.87	H	0.9	0.0	20.97	38.5	-17.5	
Mid Ch								
836.50	14.45	V	0.9	0.0	13.55	38.5	-25.0	
836.50	22.33	H	0.9	0.0	21.43	38.5	-17.1	
High Ch								
847.50	15.00	V	0.9	0.0	14.10	38.5	-24.4	
847.50	22.72	H	0.9	0.0	21.82	38.5	-16.7	

3MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 16I22652
Date: 1/19/2016
Test Engineer: A. Escamilla
Configuration: X-pos EUT Only
Location: Chamber C
Mode: LTE, 16QAM Band 5 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	11.83	V	0.9	0.0	12.93	38.5	-25.6	
825.50	21.29	H	0.9	0.0	20.39	38.5	-18.1	
Mid Ch								
836.50	13.85	V	0.9	0.0	12.95	38.5	-25.6	
836.50	21.70	H	0.9	0.0	20.80	38.5	-17.7	
High Ch								
847.50	14.47	V	0.9	0.0	13.57	38.5	-24.9	
847.50	22.38	H	0.9	0.0	21.48	38.5	-17.0	

5MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 16I22652
Date: 1/19/2016
Test Engineer: A. Escamilla
Configuration: X-pos EUT Only
Location: Chamber C
Mode: LTE, QPSK Band 5 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	14.49	V	0.9	0.0	13.59	38.5	-24.9	
826.50	22.00	H	0.9	0.0	21.10	38.5	-17.4	
Mid Ch								
836.50	14.19	V	0.9	0.0	13.29	38.5	-25.2	
836.50	22.43	H	0.9	0.0	21.53	38.5	-17.0	
High Ch								
846.50	15.83	V	0.9	0.0	14.13	38.5	-24.4	
846.50	22.55	H	0.9	0.0	21.65	38.5	-16.9	

5MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 16I22652
Date: 1/19/2016
Test Engineer: A. Escamilla
Configuration: X-pos EUT Only
Location: Chamber C
Mode: LTE, 16QAM Band 5 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	13.83	V	0.9	0.0	12.93	38.5	-25.6	
826.50	21.04	H	0.9	0.0	20.14	38.5	-18.4	
Mid Ch								
836.50	13.64	V	0.9	0.0	12.74	38.5	-25.8	
836.50	21.49	H	0.9	0.0	20.59	38.5	-17.9	
High Ch								
846.50	14.16	V	0.9	0.0	13.26	38.5	-25.2	
846.50	21.93	H	0.9	0.0	21.03	38.5	-17.5	

10MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

LG Electronics

16I22652

1/19/2016

A. Escamilla

X-pos EUT Only

Chamber C

LTE, QPSK Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: Hybrid T185, and Chamber C SMA Cables

Substitution: Dipole T416, 6ft N-type Cable Warehouse

f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
Low Ch								
829.00	14.41	V	0.9	0.0	13.51	38.5	-25.0	
829.00	22.62	H	0.9	0.0	21.72	38.5	-16.8	
Mid Ch								
836.50	14.68	V	0.9	0.0	13.78	38.5	-24.7	
836.50	22.89	H	0.9	0.0	21.99	38.5	-16.5	
High Ch								
844.00	15.86	V	0.9	0.0	14.18	38.5	-24.3	
844.00	23.02	H	0.9	0.0	22.12	38.5	-16.4	

10MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

LG Electronics

16I22652

1/19/2016

A. Escamilla

X-pos EUT Only

Chamber C

LTE, 16QAM Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:

Receiving: Hybrid T185, and Chamber C SMA Cables

Substitution: Dipole T416, 6ft N-type Cable Warehouse

f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
Low Ch								
829.00	13.61	V	0.9	0.0	12.71	38.5	-25.8	
829.00	21.86	H	0.9	0.0	20.96	38.5	-17.5	
Mid Ch								
836.50	13.94	V	0.9	0.0	13.04	38.5	-25.5	
836.50	22.43	H	0.9	0.0	21.53	38.5	-17.0	
High Ch								
844.00	14.33	V	0.9	0.0	13.43	38.5	-25.1	
844.00	22.36	H	0.9	0.0	21.48	38.5	-17.0	

LTE Band 17

BW (MHz)	Mode	RB/RB Size	f(MHz)	ERP	
				dBm	mW
5	QPSK	1/0	701.5	17.63	57.94
		1/0	707.5	18.10	64.57
		1/0	713.5	18.36	68.55
	16QAM	1/0	701.5	17.19	52.36
		1/0	707.5	17.06	50.82
		1/0	713.5	17.28	53.46
10	QPSK	1/0	704	18.10	64.57
		1/0	707.5	18.22	66.37
		1/0	711	18.30	67.61
	16QAM	1/0	704	17.44	55.46
		1/0	707.5	17.87	61.24
		1/0	711	17.70	58.88

5MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
 Project #: 16I22652
 Date: 1/19/2016
 Test Engineer: A. Escamilla
 Configuration: X-pos EUT Only
 Location: Chamber C
 Mode: LTE_QPSK Band 17 Fundamentals. 5MHz Bandwidth

Test Equipment:
 Receiving: Hybrid T185, and Chamber C SMA Cables
 Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
706.50	8.78	V	0.9	0.0	7.88	34.8	-26.9	
706.50	18.53	H	0.9	0.0	17.63	34.8	-17.1	
Mid Ch								
710.00	8.89	V	0.9	0.0	7.99	34.8	-26.8	
710.00	19.00	H	0.9	0.0	18.10	34.8	-16.7	
High Ch								
713.50	9.18	V	0.9	0.0	8.28	34.8	-26.5	
713.50	19.26	H	0.9	0.0	18.36	34.8	-16.4	

10MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
 Project #: 16I22652
 Date: 1/19/2016
 Test Engineer: A. Escamilla
 Configuration: X-pos EUT Only
 Location: Chamber C
 Mode: LTE_QPSK Band 17 Fundamentals. 10MHz Bandwidth

Test Equipment:
 Receiving: Hybrid T185, and Chamber C SMA Cables
 Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
709.00	8.98	V	0.9	0.0	8.08	34.8	-26.7	
709.00	19.00	H	0.9	0.0	18.10	34.8	-16.7	
Mid Ch								
710.00	9.54	V	0.9	0.0	8.64	34.8	-26.1	
710.00	19.12	H	0.9	0.0	18.22	34.8	-16.6	
High Ch								
711.00	9.43	V	0.9	0.0	8.53	34.8	-26.2	
711.00	19.20	H	0.9	0.0	18.30	34.8	-16.5	

5MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
 Project #: 16I22652
 Date: 1/19/2016
 Test Engineer: A. Escamilla
 Configuration: X-pos EUT Only
 Location: Chamber C
 Mode: LTE_16QAM Band 17 Fundamentals. 5MHz Bandwidth

Test Equipment:
 Receiving: Hybrid T185, and Chamber C SMA Cables
 Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
706.50	7.87	V	0.9	0.0	6.97	34.8	-27.8	
706.50	18.09	H	0.9	0.0	17.19	34.8	-17.5	
Mid Ch								
710.00	7.52	V	0.9	0.0	6.72	34.8	-28.1	
710.00	17.96	H	0.9	0.0	17.06	34.8	-17.7	
High Ch								
713.50	7.85	V	0.9	0.0	6.95	34.8	-27.8	
713.50	18.16	H	0.9	0.0	17.26	34.8	-17.5	

10MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
 Project #: 16I22652
 Date: 1/19/2016
 Test Engineer: A. Escamilla
 Configuration: X-pos EUT Only
 Location: Chamber C
 Mode: LTE_16QAM Band 17 Fundamentals. 10MHz Bandwidth

Test Equipment:
 Receiving: Hybrid T185, and Chamber C SMA Cables
 Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
709.00	8.06	V	0.9	0.0	7.16	34.8	-27.5	
709.00	18.34	H	0.9	0.0	17.44	34.8	-17.5	
Mid Ch								
710.00	8.35	V	0.9	0.0	7.45	34.8	-27.3	
710.00	18.77	H	0.9	0.0	17.87	34.8	-16.9	
High Ch								
711.00	8.46	V	0.9	0.0	7.56	34.8	-27.2	
711.00	18.68	H	0.9	0.0	17.79	34.8	-17.1	

10MHz QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

LG Electronics

16I22652

1/19/2016

A. Escamilla

X-pos EUT Only

Chamber C

LTE_QPSK Band 17 Fundamentals. 10MHz Bandwidth

Test Equipment:

Receiving: Hybrid T185, and Chamber C SMA Cables

Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
709.00	8.98	V	0.9	0.0	8.08	34.8	-26.7	
709.00	19.00	H	0.9	0.0	18.10	34.8	-16.7	
Mid Ch								
710.00	9.54	V	0.9	0.0	8.64	34.8	-26.1	
710.00	19.12	H	0.9	0.0	18.22	34.8	-16.6	
High Ch								
711.00	9.43	V	0.9	0.0	8.53	34.8	-26.2	
711.00	19.20	H	0.9	0.0	18.30	34.8	-16.5	

10MHz 16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

LG Electronics

16I22652

1/19/2016

A. Escamilla

X-pos EUT Only

Chamber C

LTE_16QAM Band 17 Fundamentals. 10MHz Bandwidth

Test Equipment:

Receiving: Hybrid T185, and Chamber C SMA Cables

Substitution: Dipole T416, 6ft N-type Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
709.00	8.06	V	0.9	0.0	7.16	34.8	-27.6	
709.00	18.34	H	0.9	0.0	17.44	34.8	-17.3	
Mid Ch								
710.00	8.25	V	0.9	0.0	7.45	34.8	-27.3	
710.00	18.77	H	0.9	0.0	17.87	34.8	-16.9	
High Ch								
711.00	8.46	V	0.9	0.0	7.56	34.8	-27.2	
711.00	18.68	H	0.9	0.0	17.70	34.8	-17.1	

9.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238

LIMIT

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.

9.2.1. SPURIOUS EMISSION TEST DATA

GSM

GSM850 GPRS										GSM850 EGPRS									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG Electronics								Company:		LG Electronics							
Project #:		16I22652								Project #:		16I22652							
Date:		1/21/2016								Date:		1/21/2016							
Test Engineer:		A. Escamilla								Test Engineer:		A. Escamilla							
Configuration:		X-pos. EUT + AC Adapter + Headset								Configuration:		X-pos. EUT + AC Adapter + Headset							
Location:		Chamber C								Location:		Chamber C							
Mode:		GPRS 850 MHz Harmonics								Mode:		EGPRS 850 MHz Harmonics							
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch. 824.2										Low Ch. 824.2									
1648.40	-5.0	V	3.0	36.4	1.0	41.3	-13.0	-28.3		1648.40	-8.4	V	3.0	36.4	1.0	41.3	-13.0	-30.7	
2472.60	-21.3	V	3.0	35.0	1.0	55.3	-13.0	-42.3		2472.60	-20.9	V	3.0	35.0	1.0	54.8	-13.0	-41.8	
3296.80	-23.4	V	3.0	34.3	1.0	56.6	-13.0	-43.6		3296.80	-23.4	V	3.0	34.3	1.0	56.7	-13.0	-43.7	
1648.40	-14.4	H	3.0	36.4	1.0	49.8	-13.0	-36.8		1648.40	-13.2	H	3.0	36.4	1.0	48.6	-13.0	-35.6	
2472.60	-23.1	H	3.0	35.0	1.0	57.1	-13.0	-44.1		2472.60	-23.2	H	3.0	35.0	1.0	57.2	-13.0	-44.2	
3296.80	-24.2	H	3.0	34.3	1.0	57.5	-13.0	-44.5		3296.80	-23.7	H	3.0	34.3	1.0	57.0	-13.0	-44.0	
Mid Ch. 836.6										Mid Ch. 836.6									
1673.20	-7.4	V	3.0	36.3	1.0	42.8	-13.0	-29.8		1673.20	-7.8	V	3.0	36.3	1.0	43.1	-13.0	-30.1	
2509.80	-19.9	V	3.0	34.9	1.0	53.9	-13.0	-40.9		2509.80	-20.0	V	3.0	34.9	1.0	54.0	-13.0	-41.0	
3346.40	-23.3	V	3.0	34.2	1.0	56.5	-13.0	-43.5		3346.40	-23.3	V	3.0	34.2	1.0	56.5	-13.0	-43.5	
1673.20	-12.9	H	3.0	36.3	1.0	48.2	-13.0	-35.2		1673.20	-15.4	H	3.0	36.3	1.0	50.7	-13.0	-37.7	
2509.80	-22.9	H	3.0	34.9	1.0	56.8	-13.0	-43.8		2509.80	-23.8	H	3.0	34.9	1.0	57.7	-13.0	-44.7	
3346.40	-24.0	H	3.0	34.2	1.0	57.3	-13.0	-44.3		3346.40	-23.9	H	3.0	34.2	1.0	57.1	-13.0	-44.1	
High Ch. 848.8										High Ch. 848.8									
1697.60	-8.3	V	3.0	36.3	1.0	43.6	-13.0	-30.6		1697.60	-10.1	V	3.0	36.3	1.0	45.4	-13.0	-32.4	
2546.40	-21.9	V	3.0	34.9	1.0	55.9	-13.0	-42.8		2546.40	-22.3	V	3.0	34.9	1.0	56.2	-13.0	-43.2	
3395.20	-23.0	V	3.0	34.2	1.0	56.2	-13.0	-43.2		3395.20	-23.0	V	3.0	34.2	1.0	56.2	-13.0	-43.2	
1697.60	-16.3	H	3.0	36.3	1.0	51.6	-13.0	-38.6		1697.60	-15.3	H	3.0	36.3	1.0	50.6	-13.0	-37.6	
2546.40	-21.9	H	3.0	34.9	1.0	55.8	-13.0	-42.8		2546.40	-24.0	H	3.0	34.9	1.0	57.9	-13.0	-44.9	
3395.20	-23.5	H	3.0	34.2	1.0	56.7	-13.0	-43.7		3395.20	-24.0	H	3.0	34.2	1.0	57.2	-13.0	-44.2	
GSM1900 GPRS										GSM1900 EGPRS									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG Electronics								Company:		LG Electronics							
Project #:		16I22652								Project #:		16I22652							
Date:		1/21/2016								Date:		1/21/2016							
Test Engineer:		A. Escamilla								Test Engineer:		A. Escamilla							
Configuration:		X-pos. EUT + AC Adapter + Headset								Configuration:		X-pos. EUT + AC Adapter + Headset							
Location:		Chamber C								Location:		Chamber C							
Mode:		GPRS 1900 MHz Harmonics								Mode:		EGPRS 1900 MHz Harmonics							
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch. 1850.2										Low Ch. 1850.2									
3708.40	-14.3	V	3.0	33.9	1.0	47.1	-13.0	-34.1		3708.40	-15.0	V	3.0	33.9	1.0	47.9	-13.0	-34.9	
5550.60	-12.8	V	3.0	33.1	1.0	45.0	-13.0	-32.0		5550.60	-15.5	V	3.0	33.1	1.0	47.6	-13.0	-34.6	
7400.80	-17.5	V	3.0	32.9	1.0	49.4	-13.0	-36.4		7400.80	-13.1	V	3.0	32.9	1.0	44.9	-13.0	-31.9	
3708.40	-15.5	H	3.0	33.9	1.0	48.3	-13.0	-35.3		3708.40	-18.3	H	3.0	33.9	1.0	51.2	-13.0	-38.2	
5550.60	-11.5	H	3.0	33.1	1.0	43.6	-13.0	-30.6		5550.60	-15.1	H	3.0	33.1	1.0	45.2	-13.0	-32.2	
7400.80	-16.1	H	3.0	32.9	1.0	48.0	-13.0	-35.0		7400.80	-17.4	H	3.0	32.9	1.0	49.2	-13.0	-36.2	
Mid Ch. 1880										Mid Ch. 1880									
3768.00	-14.3	V	3.0	33.8	1.0	47.1	-13.0	-34.1		3768.00	-16.3	V	3.0	33.8	1.0	49.1	-13.0	-36.1	
5640.00	-13.2	V	3.0	33.1	1.0	45.3	-13.0	-32.3		5640.00	-7.8	V	3.0	33.1	1.0	39.9	-13.0	-26.9	
7520.00	-16.1	V	3.0	32.8	1.0	47.9	-13.0	-34.9		7520.00	-11.9	V	3.0	32.8	1.0	43.8	-13.0	-30.8	
3768.00	-14.6	H	3.0	33.8	1.0	47.4	-13.0	-34.4		3768.00	-17.7	H	3.0	33.8	1.0	50.5	-13.0	-37.5	
5640.00	-16.8	H	3.0	33.1	1.0	50.7	-13.0	-37.7		5640.00	-18.1	H	3.0	33.1	1.0	50.2	-13.0	-37.2	
7520.00	-16.5	H	3.0	32.8	1.0	48.3	-13.0	-35.3		7520.00	-17.6	H	3.0	32.8	1.0	49.4	-13.0	-36.4	
High Ch. 1909.8										High Ch. 1909.8									
3819.60	-13.8	V	3.0	33.7	1.0	46.5	-13.0	-33.5		3819.60	-15.4	V	3.0	33.7	1.0	48.1	-13.0	-35.1	
5729.40	-15.6	V	3.0	33.1	1.0	47.7	-13.0	-34.7		5729.40	-14.7	V	3.0	33.1	1.0	46.8	-13.0	-33.8	
7639.20	-17.2	V	3.0	32.8	1.0	49.0	-13.0	-36.0		7639.20	-15.2	V	3.0	32.8	1.0	47.1	-13.0	-34.1	
3819.60	-15.5	H	3.0	33.7	1.0	48.3	-13.0	-35.3		3819.60	-16.8	H	3.0	33.7	1.0	49.6	-13.0	-36.6	
5729.40	-13.7	H	3.0	33.1	1.0	45.8	-13.0	-32.8		5729.40	-15.0	H	3.0	33.1	1.0	47.0	-13.0	-34.0	
7639.20	-16.1	H	3.0	32.8	1.0	48.0	-13.0	-35.0		7639.20	-16.5	H	3.0	32.8	1.0	48.4	-13.0	-35.4	

WCDMA

B2 REL99

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
 Project #: 16I22652
 Date: 1/21/2016
 Test Engineer: A. Escamilla
 Configuration: X-pos, EUT + AC Adapter + Headset
 Location: Chamber C
 Mode: Rel99 Band 2 Harmonics

f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch, 1852.4									
3704.80	-14.8	V	3.0	33.9	1.0	47.6	-13.0	-34.6	
5557.20	-18.3	V	3.0	33.1	1.0	50.4	-13.0	-37.4	
7409.60	-17.7	V	3.0	32.9	1.0	49.5	-13.0	-36.5	
3704.80	-15.7	H	3.0	33.9	1.0	48.6	-13.0	-35.6	
5557.20	-15.5	H	3.0	33.1	1.0	47.6	-13.0	-34.6	
7409.60	-17.4	H	3.0	32.9	1.0	49.3	-13.0	-36.3	
Mid Ch, 1860									
3760.00	-15.2	V	3.0	33.8	1.0	48.0	-13.0	-35.0	
5640.00	-17.2	V	3.0	33.1	1.0	49.3	-13.0	-36.3	
7520.00	-15.3	V	3.0	32.8	1.0	47.2	-13.0	-34.2	
3760.00	-15.6	H	3.0	33.8	1.0	48.4	-13.0	-35.4	
5640.00	-14.4	H	3.0	33.1	1.0	46.5	-13.0	-33.5	
7520.00	-16.6	H	3.0	32.8	1.0	48.4	-13.0	-35.4	
High Ch, 1907.6									
3815.20	-13.6	V	3.0	33.7	1.0	46.3	-13.0	-33.3	
5722.80	-14.0	V	3.0	33.1	1.0	46.1	-13.0	-33.1	
7630.40	-15.5	V	3.0	32.8	1.0	47.3	-13.0	-34.3	
3815.20	-12.9	H	3.0	33.7	1.0	46.7	-13.0	-33.7	
5722.80	-13.8	H	3.0	33.1	1.0	45.9	-13.0	-32.9	
7630.40	-15.4	H	3.0	32.8	1.0	47.2	-13.0	-34.2	

B5 REL99

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
 Project #: 16I22652
 Date: 1/21/2016
 Test Engineer: A. Escamilla
 Configuration: X-pos, EUT + AC Adapter + Headset
 Location: Chamber C
 Mode: Rel99 Band 5 Harmonics

f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch, 826.4									
1652.80	-22.6	V	3.0	36.4	1.0	57.9	-13.0	-44.9	
2479.20	-22.8	V	3.0	35.0	1.0	56.8	-13.0	-43.8	
3305.60	-21.9	V	3.0	34.3	1.0	55.2	-13.0	-42.2	
1652.80	-26.3	H	3.0	36.4	1.0	61.7	-13.0	-48.7	
2479.20	-24.6	H	3.0	35.0	1.0	58.6	-13.0	-45.6	
3305.60	-22.4	H	3.0	34.3	1.0	55.7	-13.0	-42.7	
Mid Ch, 836.6									
1673.20	-21.1	V	3.0	36.3	1.0	58.5	-13.0	-45.5	
2509.80	-24.0	V	3.0	34.9	1.0	58.0	-13.0	-45.0	
3346.40	-21.4	V	3.0	34.2	1.0	54.7	-13.0	-41.7	
1673.20	-26.0	H	3.0	36.3	1.0	61.3	-13.0	-48.3	
2509.80	-24.4	H	3.0	34.9	1.0	58.4	-13.0	-45.4	
3346.40	-22.4	H	3.0	34.2	1.0	55.6	-13.0	-42.6	
High Ch, 846.6									
1693.20	-23.5	V	3.0	36.3	1.0	58.8	-13.0	-45.8	
2539.80	-23.8	V	3.0	34.9	1.0	57.7	-13.0	-44.7	
3386.40	-22.2	V	3.0	34.2	1.0	55.3	-13.0	-42.3	
1693.20	-25.9	H	3.0	36.3	1.0	61.2	-13.0	-48.2	
2539.80	-24.2	H	3.0	34.9	1.0	58.1	-13.0	-45.1	
3386.40	-19.6	H	3.0	34.2	1.0	52.8	-13.0	-39.8	

B2 HSDPA

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
 Project #: 16I22652
 Date: 1/21/2016
 Test Engineer: A. Escamilla
 Configuration: X-pos EUT + AC Adapter + Headset
 Location: Chamber C
 Mode: HSDPA Band 2 Harmonics

f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch, 1852.4									
3704.80	-15.0	V	3.0	33.9	1.0	47.9	-13.0	-34.9	
5557.20	-18.8	V	3.0	33.1	1.0	50.9	-13.0	-37.9	
7409.60	-15.5	V	3.0	32.9	1.0	47.3	-13.0	-34.3	
3704.80	-14.3	H	3.0	33.9	1.0	47.2	-13.0	-34.2	
5557.20	-15.2	H	3.0	33.1	1.0	47.3	-13.0	-34.3	
7409.60	-17.5	H	3.0	32.9	1.0	49.3	-13.0	-36.3	
Mid Ch, 1860									
3760.00	-13.2	V	3.0	33.8	1.0	46.0	-13.0	-33.0	
5640.00	-18.6	V	3.0	33.1	1.0	50.7	-13.0	-37.7	
7520.00	-16.6	V	3.0	32.8	1.0	48.4	-13.0	-35.4	
3760.00	-12.7	H	3.0	33.9	1.0	45.5	-13.0	-32.5	
5640.00	-12.2	H	3.0	33.1	1.0	44.3	-13.0	-31.3	
7520.00	-17.5	H	3.0	32.8	1.0	49.4	-13.0	-36.4	
High Ch, 1907.6									
3815.20	-12.2	V	3.0	33.7	1.0	45.0	-13.0	-32.0	
5722.80	-14.0	V	3.0	33.1	1.0	46.1	-13.0	-33.1	
7630.40	-15.5	V	3.0	32.8	1.0	47.3	-13.0	-34.3	
3815.20	-12.9	H	3.0	33.7	1.0	45.7	-13.0	-32.7	
5722.80	-14.3	H	3.0	33.1	1.0	46.4	-13.0	-33.4	
7630.40	-14.4	H	3.0	32.8	1.0	46.3	-13.0	-33.3	

B5 HSDPA

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
 Project #: 16I22652
 Date: 1/21/2016
 Test Engineer: A. Escamilla
 Configuration: X-pos EUT + AC Adapter + Headset
 Location: Chamber C
 Mode: HSDPA Band 5 Harmonics

f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch, 826.4									
1652.80	-24.4	V	3.0	36.4	1.0	59.8	-13.0	-46.8	
2479.20	-23.5	V	3.0	35.0	1.0	57.4	-13.0	-44.4	
3305.60	-21.2	V	3.0	34.3	1.0	54.5	-13.0	-41.5	
1652.80	-23.5	H	3.0	36.4	1.0	58.9	-13.0	-45.9	
2479.20	-23.6	H	3.0	35.0	1.0	57.6	-13.0	-44.6	
3305.60	-21.7	H	3.0	34.3	1.0	55.0	-13.0	-42.0	
Mid Ch, 836.6									
1673.20	-25.9	V	3.0	36.3	1.0	61.2	-13.0	-48.2	
2509.80	-23.5	V	3.0	34.9	1.0	57.5	-13.0	-44.5	
3346.40	-21.9	V	3.0	34.2	1.0	55.2	-13.0	-42.2	
1673.20	-24.1	H	3.0	36.3	1.0	59.4	-13.0	-46.4	
2509.80	-24.5	H	3.0	34.9	1.0	58.4	-13.0	-45.4	
3346.40	-21.1	H	3.0	34.2	1.0	54.3	-13.0	-41.3	
High Ch, 846.6									
1693.20	-25.3	V	3.0	36.3	1.0	60.6	-13.0	-47.6	
2539.80	-24.2	V	3.0	34.9	1.0	58.7	-13.0	-45.7	
3386.40	-21.6	V	3.0	34.2	1.0	54.7	-13.0	-41.7	
1693.20	-22.5	H	3.0	36.3	1.0	57.8	-13.0	-44.8	
2539.80	-23.9	H	3.0	34.9	1.0	57.8	-13.0	-44.8	
3386.40	-19.7	H	3.0	34.2	1.0	52.9	-13.0	-39.9	

LTE Band 2

1.4MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: R Z

Configuration: EUT w/AC+HS X position

Location: Chamber B

Mode: LTE_QPSK Band 2 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.7									
3701.40	-14.5	V	3.0	38.4	1.0	-51.9	-13.0	-38.9	
5552.10	-7.8	V	3.0	38.8	1.0	-45.6	-13.0	-32.6	
7402.80	-7.2	V	3.0	38.3	1.0	-44.5	-13.0	-31.5	
3701.40	-14.7	H	3.0	38.4	1.0	-52.1	-13.0	-39.1	
5552.10	-8.9	H	3.0	38.8	1.0	-46.7	-13.0	-33.7	
7402.80	-8.2	H	3.0	38.3	1.0	-45.4	-13.0	-32.4	
Mid Ch, 1860									
3760.00	-14.4	V	3.0	38.4	1.0	-51.9	-13.0	-38.9	
5640.00	-10.4	V	3.0	38.7	1.0	-48.2	-13.0	-35.2	
7520.00	-9.3	V	3.0	38.2	1.0	-46.5	-13.0	-33.5	
3760.00	-10.6	H	3.0	38.4	1.0	-49.0	-13.0	-35.0	
5640.00	-10.7	H	3.0	38.7	1.0	-48.5	-13.0	-35.5	
7520.00	-10.4	H	3.0	38.2	1.0	-47.6	-13.0	-34.6	
High Ch, 1909.3									
3818.60	-11.2	V	3.0	38.4	1.0	-48.6	-13.0	-35.6	
5727.90	-4.4	V	3.0	38.7	1.0	-42.1	-13.0	-29.1	
7637.20	-3.7	V	3.0	38.1	1.0	-40.8	-13.0	-27.8	
3818.60	-9.7	H	3.0	38.4	1.0	-47.1	-13.0	-34.1	
5727.90	-6.1	H	3.0	38.7	1.0	-43.8	-13.0	-30.8	
7637.20	-6.9	H	3.0	38.1	1.0	-44.0	-13.0	-31.0	

1.4MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: R Z

Configuration: EUT w/AC+HS X position

Location: Chamber B

Mode: LTE_16QAM Band 2 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.7									
3701.40	-14.8	V	3.0	38.4	1.0	-52.3	-13.0	-39.3	
5552.10	-8.2	V	3.0	38.8	1.0	-46.0	-13.0	-33.0	
7402.80	-8.1	V	3.0	38.3	1.0	-45.3	-13.0	-32.3	
3701.40	-15.8	H	3.0	38.4	1.0	-53.2	-13.0	-40.2	
5552.10	-10.4	H	3.0	38.8	1.0	-48.1	-13.0	-35.1	
7402.80	-8.7	H	3.0	38.3	1.0	-46.0	-13.0	-33.0	
Mid Ch, 1860									
3760.00	-15.2	V	3.0	38.4	1.0	-52.6	-13.0	-39.6	
5640.00	-10.3	V	3.0	38.7	1.0	-48.0	-13.0	-35.0	
7520.00	-9.0	V	3.0	38.2	1.0	-46.2	-13.0	-33.2	
3760.00	-11.6	H	3.0	38.4	1.0	-49.1	-13.0	-36.1	
5640.00	-11.3	H	3.0	38.7	1.0	-49.0	-13.0	-36.0	
7520.00	-11.2	H	3.0	38.2	1.0	-48.4	-13.0	-35.4	
High Ch, 1909.3									
3818.60	-10.9	V	3.0	38.4	1.0	-48.3	-13.0	-35.3	
5727.90	-3.4	V	3.0	38.7	1.0	-41.1	-13.0	-28.1	
7637.20	-2.5	V	3.0	38.1	1.0	-39.6	-13.0	-26.6	
3818.60	-10.9	H	3.0	38.4	1.0	-48.3	-13.0	-35.3	
5727.90	-6.7	H	3.0	38.7	1.0	-44.4	-13.0	-31.4	
7637.20	-2.4	H	3.0	38.1	1.0	-39.6	-13.0	-26.6	

3MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: R Z

Configuration: EUT w/AC+HS X position

Location: Chamber B

Mode: LTE_QPSK Band 2 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.5									
3703.00	-15.1	V	3.0	38.4	1.0	-52.6	-13.0	-39.6	
5554.50	-11.4	V	3.0	38.8	1.0	-49.2	-13.0	-36.2	
7406.00	-13.3	V	3.0	38.3	1.0	-50.6	-13.0	-37.6	
3703.00	-14.5	H	3.0	38.4	1.0	-51.9	-13.0	-38.9	
5554.50	-11.7	H	3.0	38.8	1.0	-49.4	-13.0	-36.4	
7406.00	-14.8	H	3.0	38.3	1.0	-52.2	-13.0	-39.2	
Mid Ch, 1860									
3760.00	-14.5	V	3.0	38.4	1.0	-51.9	-13.0	-38.9	
5640.00	-9.6	V	3.0	38.7	1.0	-47.3	-13.0	-34.3	
7520.00	-9.7	V	3.0	38.2	1.0	-46.9	-13.0	-33.9	
3760.00	-12.8	H	3.0	38.4	1.0	-50.2	-13.0	-37.2	
5640.00	-12.4	H	3.0	38.7	1.0	-50.1	-13.0	-37.1	
7520.00	-11.8	H	3.0	38.2	1.0	-48.9	-13.0	-35.9	
High Ch, 1908.5									
3817.00	-13.0	V	3.0	38.4	1.0	-50.4	-13.0	-37.4	
5725.50	-6.2	V	3.0	38.7	1.0	-43.9	-13.0	-30.9	
7634.00	-8.0	V	3.0	38.1	1.0	-45.2	-13.0	-32.2	
3817.00	-13.0	H	3.0	38.4	1.0	-50.4	-13.0	-37.4	
5725.50	-11.2	H	3.0	38.7	1.0	-48.9	-13.0	-35.9	
7634.00	-10.4	H	3.0	38.1	1.0	-47.5	-13.0	-34.5	

3MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: R Z

Configuration: EUT w/AC+HS X position

Location: Chamber B

Mode: LTE_16QAM Band 2 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.5									
3703.00	-15.5	V	3.0	38.4	1.0	-52.9	-13.0	-39.9	
5554.50	-12.5	V	3.0	38.8	1.0	-50.3	-13.0	-37.3	
7406.00	-14.0	V	3.0	38.3	1.0	-51.2	-13.0	-38.2	
3703.00	-15.1	H	3.0	38.4	1.0	-52.5	-13.0	-39.5	
5554.50	-12.9	H	3.0	38.8	1.0	-50.6	-13.0	-37.6	
7406.00	-15.2	H	3.0	38.3	1.0	-52.4	-13.0	-39.4	
Mid Ch, 1860									
3760.00	-14.2	V	3.0	38.4	1.0	-51.6	-13.0	-38.6	
5640.00	-10.2	V	3.0	38.7	1.0	-48.0	-13.0	-35.0	
7520.00	-9.9	V	3.0	38.2	1.0	-47.1	-13.0	-34.1	
3760.00	-13.7	H	3.0	38.4	1.0	-51.2	-13.0	-38.2	
5640.00	-13.2	H	3.0	38.7	1.0	-50.9	-13.0	-37.9	
7520.00	-10.4	H	3.0	38.2	1.0	-47.6	-13.0	-34.6	
High Ch, 1908.5									
3817.00	-14.0	V	3.0	38.4	1.0	-51.4	-13.0	-38.4	
5725.50	-7.1	V	3.0	38.7	1.0	-44.8	-13.0	-31.8	
7634.00	-9.6	V	3.0	38.1	1.0	-46.7	-13.0	-33.7	
3817.00	-13.7	H	3.0	38.4	1.0	-51.1	-13.0	-38.1	
5725.50	-11.7	H	3.0	38.7	1.0	-49.5	-13.0	-36.5	
7634.00	-11.1	H	3.0	38.1	1.0	-48.3	-13.0	-35.3	

5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: R Z

Configuration: EUT w/AC+HS X position

Location: Chamber B

Mode: LTE_QPSK Band 2 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.5									
3705.00	-15.9	V	3.0	38.4	1.0	-53.3	-13.0	-40.3	
5557.50	-10.7	V	3.0	38.8	1.0	-48.5	-13.0	-35.5	
7410.00	-13.3	V	3.0	38.3	1.0	-50.5	-13.0	-37.5	
3705.00	-14.8	H	3.0	38.4	1.0	-52.2	-13.0	-39.2	
5557.50	-13.5	H	3.0	38.8	1.0	-51.2	-13.0	-38.2	
7410.00	-15.9	H	3.0	38.3	1.0	-53.1	-13.0	-40.1	
Mid Ch, 1860									
3760.00	-14.5	V	3.0	38.4	1.0	-51.9	-13.0	-38.9	
5640.00	-12.1	V	3.0	38.7	1.0	-49.8	-13.0	-36.8	
7520.00	-11.3	V	3.0	38.2	1.0	-48.5	-13.0	-35.5	
3760.00	-14.0	H	3.0	38.4	1.0	-51.4	-13.0	-38.4	
5640.00	-13.7	H	3.0	38.7	1.0	-51.4	-13.0	-38.4	
7520.00	-12.7	H	3.0	38.2	1.0	-49.9	-13.0	-36.9	
High Ch, 1907.5									
3815.00	-13.0	V	3.0	38.4	1.0	-50.4	-13.0	-37.4	
5722.50	-9.7	V	3.0	38.7	1.0	-47.5	-13.0	-34.5	
7630.00	-8.8	V	3.0	38.1	1.0	-45.9	-13.0	-32.9	
3815.00	-13.4	H	3.0	38.4	1.0	-50.8	-13.0	-37.8	
5722.50	-11.6	H	3.0	38.7	1.0	-49.3	-13.0	-36.3	
7630.00	-11.9	H	3.0	38.1	1.0	-49.1	-13.0	-36.1	

5MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics

Project #: 16I22652

Date: 1/20/2016

Test Engineer: R Z

Configuration: EUT w/AC+HS X position

Location: Chamber B

Mode: LTE_16QAM Band 2 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.5									
3705.00	-16.7	V	3.0	38.4	1.0	-54.2	-13.0	-41.2	
5557.50	-12.0	V	3.0	38.8	1.0	-49.8	-13.0	-36.8	
7410.00	-13.9	V	3.0	38.3	1.0	-51.2	-13.0	-38.2	
3705.00	-16.2	H	3.0	38.4	1.0	-53.6	-13.0	-40.6	
5557.50	-14.0	H	3.0	38.8	1.0	-51.8	-13.0	-38.8	
7410.00	-15.7	H	3.0	38.3	1.0	-53.0	-13.0	-40.0	
Mid Ch, 1860									
3760.00	-14.9	V	3.0	38.4	1.0	-52.3	-13.0	-39.3	
5640.00	-11.2	V	3.0	38.7	1.0	-48.7	-13.0	-35.7	
7520.00	-11.0	V	3.0	38.2	1.0	-48.2	-13.0	-35.2	
3760.00	-14.2	H	3.0	38.4	1.0	-51.6	-13.0	-38.6	
5640.00	-14.2	H	3.0	38.7	1.0	-52.0	-13.0	-39.0	
7520.00	-13.2	H	3.0	38.2	1.0	-50.0	-13.0	-37.0	
High Ch, 1907.5									
3815.00	-13.6	V	3.0	38.4	1.0	-51.0	-13.0	-38.0	
5722.50	-9.9	V	3.0	38.7	1.0	-47.6	-13.0	-34.6	
7630.00	-9.0	V	3.0	38.1	1.0	-46.1	-13.0	-33.1	
3815.00	-13.3	H	3.0	38.4	1.0	-50.7	-13.0	-37.7	
5722.50	-12.2	H	3.0	38.7	1.0	-50.0	-13.0	-37.0	
7630.00	-12.5	H	3.0	38.1	1.0	-49.6	-13.0	-36.6	

10MHz QPSK									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG Electronics							
Project #:		16I22652							
Date:		1/20/2016							
Test Engineer:		R Z							
Configuration:		EUT w/AC+HS X position							
Location:		Chamber B							
Mode:		LTE_QPSK Band 2 Harmonics, 10MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1855									
3710.00	-16.5	V	3.0	38.4	1.0	-54.0	-13.0	-41.0	
5565.00	-14.7	V	3.0	38.8	1.0	-52.5	-13.0	-39.5	
7420.00	-13.4	V	3.0	38.3	1.0	-50.7	-13.0	-37.7	
3710.00	-15.5	H	3.0	38.4	1.0	-52.9	-13.0	-39.9	
5565.00	-15.2	H	3.0	38.8	1.0	-52.9	-13.0	-39.9	
7420.00	-15.2	H	3.0	38.3	1.0	-52.4	-13.0	-39.4	
Mid Ch, 1880									
3760.00	-14.8	V	3.0	38.4	1.0	-52.3	-13.0	-39.3	
5640.00	-12.7	V	3.0	38.7	1.0	-50.4	-13.0	-37.4	
7520.00	-14.3	V	3.0	38.2	1.0	-51.5	-13.0	-38.5	
3760.00	-15.2	H	3.0	38.4	1.0	-52.6	-13.0	-39.6	
5640.00	-15.8	H	3.0	38.7	1.0	-53.5	-13.0	-40.5	
7520.00	-14.6	H	3.0	38.2	1.0	-51.8	-13.0	-38.8	
High Ch, 1905									
3810.00	-14.0	V	3.0	38.4	1.0	-51.4	-13.0	-38.4	
5715.00	-11.7	V	3.0	38.7	1.0	-49.4	-13.0	-36.4	
7620.00	-10.5	V	3.0	38.1	1.0	-47.6	-13.0	-34.6	
3810.00	-14.4	H	3.0	38.4	1.0	-51.8	-13.0	-38.8	
5715.00	-13.5	H	3.0	38.7	1.0	-51.3	-13.0	-38.3	
7620.00	-12.4	H	3.0	38.1	1.0	-49.6	-13.0	-36.6	

10MHz 16QAM									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG Electronics							
Project #:		16I22652							
Date:		1/20/2016							
Test Engineer:		R Z							
Configuration:		EUT w/AC+HS X position							
Location:		Chamber B							
Mode:		LTE_QPSK Band 2 Harmonics, 10MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1855									
3710.00	-17.3	V	3.0	38.4	1.0	-54.8	-13.0	-41.8	
5565.00	-15.2	V	3.0	38.8	1.0	-53.0	-13.0	-40.0	
7420.00	-12.5	V	3.0	38.3	1.0	-49.7	-13.0	-36.7	
3710.00	-16.2	H	3.0	38.4	1.0	-53.6	-13.0	-40.6	
5565.00	-15.4	H	3.0	38.8	1.0	-53.1	-13.0	-40.1	
7420.00	-15.5	H	3.0	38.3	1.0	-52.7	-13.0	-39.7	
Mid Ch, 1880									
3760.00	-15.1	V	3.0	38.4	1.0	-52.6	-13.0	-39.6	
5640.00	-14.1	V	3.0	38.7	1.0	-51.9	-13.0	-38.9	
7520.00	-11.3	V	3.0	38.2	1.0	-48.5	-13.0	-35.5	
3760.00	-16.3	H	3.0	38.4	1.0	-53.7	-13.0	-40.7	
5640.00	-15.7	H	3.0	38.7	1.0	-53.5	-13.0	-40.5	
7520.00	-14.7	H	3.0	38.2	1.0	-51.9	-13.0	-38.9	
High Ch, 1905									
3810.00	-14.4	V	3.0	38.4	1.0	-51.8	-13.0	-38.8	
5715.00	-12.3	V	3.0	38.7	1.0	-50.0	-13.0	-37.0	
7620.00	-12.0	V	3.0	38.1	1.0	-49.1	-13.0	-36.1	
3810.00	-15.5	H	3.0	38.4	1.0	-52.9	-13.0	-39.9	
5715.00	-14.9	H	3.0	38.7	1.0	-52.6	-13.0	-39.6	
7620.00	-13.7	H	3.0	38.1	1.0	-50.8	-13.0	-37.8	

15MHz QPSK									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG Electronics							
Project #:		16I22652							
Date:		1/20/2016							
Test Engineer:		R Z							
Configuration:		EUT w/AC+HS X position							
Location:		Chamber B							
Mode:		LTE_QPSK Band 2 Harmonics, 15MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1857.5									
3715.00	-17.3	V	3.0	38.4	1.0	-54.7	-13.0	-41.7	
5572.50	-13.1	V	3.0	38.8	1.0	-50.9	-13.0	-37.9	
7430.00	-12.6	V	3.0	38.3	1.0	-49.8	-13.0	-36.8	
3715.00	-15.4	H	3.0	38.4	1.0	-52.8	-13.0	-39.8	
5572.50	-16.2	H	3.0	38.8	1.0	-53.9	-13.0	-40.9	
7430.00	-15.1	H	3.0	38.3	1.0	-52.4	-13.0	-39.4	
Mid Ch, 1880									
3760.00	-15.9	V	3.0	38.4	1.0	-53.3	-13.0	-40.3	
5640.00	-16.2	V	3.0	38.7	1.0	-54.0	-13.0	-41.0	
7520.00	-11.6	V	3.0	38.2	1.0	-48.8	-13.0	-35.8	
3760.00	-16.3	H	3.0	38.4	1.0	-53.7	-13.0	-40.7	
5640.00	-15.0	H	3.0	38.7	1.0	-52.8	-13.0	-39.8	
7520.00	-13.3	H	3.0	38.2	1.0	-50.5	-13.0	-37.5	
High Ch, 1902.5									
3805.00	-15.5	V	3.0	38.4	1.0	-52.9	-13.0	-39.9	
5707.50	-13.2	V	3.0	38.7	1.0	-51.0	-13.0	-38.0	
7610.00	-10.8	V	3.0	38.1	1.0	-47.9	-13.0	-34.9	
3805.00	-14.4	H	3.0	38.4	1.0	-51.8	-13.0	-38.8	
5707.50	-14.3	H	3.0	38.7	1.0	-52.0	-13.0	-39.0	
7610.00	-14.0	H	3.0	38.1	1.0	-51.2	-13.0	-38.2	

15MHz 16QAM									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG Electronics							
Project #:		16I22652							
Date:		1/20/2016							
Test Engineer:		R Z							
Configuration:		EUT w/AC+HS X position							
Location:		Chamber B							
Mode:		LTE_16QAM Band 2 Harmonics, 15MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1857.5									
3715.00	-17.4	V	3.0	38.4	1.0	-54.8	-13.0	-41.8	
5572.50	-13.9	V	3.0	38.8	1.0	-51.7	-13.0	-38.7	
7430.00	-13.9	V	3.0	38.3	1.0	-51.1	-13.0	-38.1	
3715.00	-16.1	H	3.0	38.4	1.0	-53.6	-13.0	-40.6	
5572.50	-17.0	H	3.0	38.8	1.0	-54.7	-13.0	-41.7	
7430.00	-15.5	H	3.0	38.3	1.0	-52.8	-13.0	-39.8	
Mid Ch, 1880									
3760.00	-15.6	V	3.0	38.4	1.0	-53.0	-13.0	-40.0	
5640.00	-14.1	V	3.0	38.7	1.0	-51.9	-13.0	-38.9	
7520.00	-15.8	V	3.0	38.2	1.0	-53.0	-13.0	-40.0	
3760.00	-15.9	H	3.0	38.4	1.0	-53.3	-13.0	-40.3	
5640.00	-15.8	H	3.0	38.7	1.0	-53.5	-13.0	-40.5	
7520.00	-15.8	H	3.0	38.2	1.0	-53.0	-13.0	-40.0	
High Ch, 1902.5									
3805.00	-15.2	V	3.0	38.4	1.0	-52.6	-13.0	-39.6	
5707.50	-13.3	V	3.0	38.7	1.0	-51.1	-13.0	-38.1	
7610.00	-12.6	V	3.0	38.1	1.0	-49.8	-13.0	-36.8	
3805.00	-15.3	H	3.0	38.4	1.0	-52.7	-13.0	-39.7	
5707.50	-15.0	H	3.0	38.7	1.0	-52.8	-13.0	-39.8	
7610.00	-13.7	H	3.0	38.1	1.0	-50.9	-13.0	-37.9	

20MHz QPSK									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG Electronics							
Project #:		16I22652							
Date:		1/20/2016							
Test Engineer:		R Z							
Configuration:		EUT w/AC+HS X position							
Location:		Chamber B							
Mode:		LTE_QPSK Band 2 Harmonics, 20MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860									
3720.00	-16.7	V	3.0	38.4	1.0	-54.1	-13.0	-41.1	
5580.00	-14.2	V	3.0	38.8	1.0	-52.0	-13.0	-39.0	
7440.00	-13.1	V	3.0	38.2	1.0	-50.4	-13.0	-37.4	
3720.00	-18.3	H	3.0	38.4	1.0	-55.7	-13.0	-42.7	
5580.00	-17.0	H	3.0	38.8	1.0	-54.8	-13.0	-41.8	
7440.00	-15.1	H	3.0	38.2	1.0	-52.4	-13.0	-39.4	
Mid Ch, 1880									
3760.00	-18.1	V	3.0	38.4	1.0	-55.5	-13.0	-42.5	
5640.00	-15.2	V	3.0	38.7	1.0	-52.9	-13.0	-39.9	
7520.00	-13.2	V	3.0	38.2	1.0	-50.4	-13.0	-37.4	
3760.00	-16.5	H	3.0	38.4	1.0	-53.9	-13.0	-40.9	
5640.00	-17.8	H	3.0	38.7	1.0	-55.5	-13.0	-42.5	
7520.00	-14.6	H	3.0	38.2	1.0	-51.8	-13.0	-38.8	
High Ch, 1900									
3800.00	-16.9	V	3.0	38.4	1.0	-54.3	-13.0	-41.3	
5700.00	-14.9	V	3.0	38.7	1.0	-52.7	-13.0	-39.7	
7600.00	-12.1	V	3.0	38.2	1.0	-49.2	-13.0	-36.2	
3800.00	-14.9	H	3.0	38.4	1.0	-52.4	-13.0	-39.4	
5700.00	-17.1	H	3.0	38.7	1.0	-54.9	-13.0	-41.9	
7600.00	-13.1	H	3.0	38.2	1.0	-50.2	-13.0	-37.2	

20MHz 16QAM									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG Electronics							
Project #:		16I22652							
Date:		1/20/2016							
Test Engineer:		R Z							
Configuration:		EUT w/AC+HS X position							
Location:		Chamber B							
Mode:		LTE_16QAM Band 2 Harmonics, 20MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860									
3720.00	-17.3	V	3.0	38.4	1.0	-54.7	-13.0	-41.7	
5580.00	-14.7	V	3.0	38.8	1.0	-52.4	-13.0	-39.4	
7440.00	-14.7	V	3.0	38.2	1.0	-51.9	-13.0	-38.9	
3720.00	-18.7	H	3.0	38.4	1.0	-56.1	-13.0	-43.1	
5580.00	-17.4	H	3.0	38.8	1.0	-55.2	-13.0	-42.2	
7440.00	-15.5	H	3.0	38.2	1.0	-52.8	-13.0	-39.8	
Mid Ch, 1880									
3760.00	-18.3	V	3.0	38.4	1.0	-55.7	-13.0	-42.7	
5640.00	-16.9	V	3.0	38.7	1.0	-52.9	-13.0	-39.9	
7520.00	-15.3	V	3.0	38.2	1.0	-52.5	-13.0	-39.5	
3760.00	-17.3	H	3.0	38.4	1.0	-54.7	-13.0	-41.7	
5640.00	-17.3	H	3.0	38.7	1.0	-55.1	-13.0	-42.1	
7520.00	-15.3	H	3.0	38.2	1.0	-52.5	-13.0	-39.5	
High Ch, 1900									
3800.00	-18.0	V	3.0	38.4	1.0	-55.4	-13.0	-42.4	
5700.00	-16.0	V	3.0	38.7	1.0	-53.7	-13.0	-40.7	
7600.00	-12.3	V	3.0	38.2	1.0	-49.5	-13.0	-36.5	
3800.00	-16.5	H	3.0	38.4	1.0	-53.9	-13.0	-40.9	
5700.00	-17.8	H	3.0	38.7	1.0	-55.5	-13.0	-42.5	
7600.00	-13.4	H	3.0	38.2	1.0	-50.6	-13.0	-37.6	

LTE Band 4

1.4MHz QPSK										
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 16I22652 Date: 1/21/2016 Test Engineer: R.Z Configuration: X-pos EUT w/AC+HS Location: Chamber B Mode: LTE_QPSK Band 4 Harmonics, 1.4MHz Bandwidth										
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 1710.7										
3421.40	-14.2	V	3.0	38.5	1.0	-51.7	-13.0	-38.7		
5132.10	-7.8	V	3.0	38.8	1.0	-45.6	-13.0	-32.6		
6842.80	-2.5	V	3.0	38.5	1.0	-40.1	-13.0	-27.1		
3421.40	-14.9	H	3.0	38.5	1.0	-52.4	-13.0	-39.4		
5132.10	-10.9	H	3.0	38.8	1.0	-48.7	-13.0	-35.7		
6842.80	-9.5	H	3.0	38.5	1.0	-47.0	-13.0	-34.0		
Mid Ch, 1732.5										
3465.00	-17.7	V	3.0	38.5	1.0	-55.2	-13.0	-42.2		
5197.50	-6.8	V	3.0	38.8	1.0	-44.6	-13.0	-31.6		
6930.00	1.0	V	3.0	38.5	1.0	-36.5	-13.0	-23.5		
3465.00	-16.0	H	3.0	38.5	1.0	-53.5	-13.0	-40.5		
5197.50	-11.2	H	3.0	38.8	1.0	-49.0	-13.0	-36.0		
6930.00	-0.7	H	3.0	38.5	1.0	-38.2	-13.0	-25.2		
High Ch, 1754.3										
3508.60	-18.1	V	3.0	38.5	1.0	-55.5	-13.0	-42.5		
5262.90	-4.9	V	3.0	38.8	1.0	-42.7	-13.0	-29.7		
7017.20	1.5	V	3.0	38.5	1.0	-36.0	-13.0	-23.0		
3508.60	-16.5	H	3.0	38.5	1.0	-53.9	-13.0	-40.9		
5262.90	-7.9	H	3.0	38.8	1.0	-45.7	-13.0	-32.7		
7017.20	-2.7	H	3.0	38.5	1.0	-40.2	-13.0	-27.2		

1.4MHz 16QAM										
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 16I22652 Date: 1/21/2016 Test Engineer: R.Z Configuration: X-pos EUT w/AC+HS Location: Chamber B Mode: LTE_16QAM Band 4 Harmonics, 1.4MHz Bandwidth										
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 1710.7										
3421.40	-15.5	V	3.0	38.5	1.0	-53.0	-13.0	-40.0		
5132.10	-8.2	V	3.0	38.8	1.0	-46.0	-13.0	-33.0		
6842.80	-2.9	V	3.0	38.5	1.0	-40.5	-13.0	-27.5		
3421.40	-14.0	H	3.0	38.5	1.0	-51.5	-13.0	-38.5		
5132.10	-11.5	H	3.0	38.8	1.0	-49.3	-13.0	-36.3		
6842.80	-9.3	H	3.0	38.5	1.0	-46.8	-13.0	-33.8		
Mid Ch, 1732.5										
3465.00	-15.4	V	3.0	38.5	1.0	-52.9	-13.0	-39.9		
5197.50	-7.5	V	3.0	38.8	1.0	-45.4	-13.0	-32.4		
6930.00	-0.5	V	3.0	38.5	1.0	-38.0	-13.0	-25.0		
3465.00	-15.2	H	3.0	38.5	1.0	-52.7	-13.0	-39.7		
5197.50	-12.5	H	3.0	38.8	1.0	-50.4	-13.0	-37.4		
6930.00	-6.7	H	3.0	38.5	1.0	-44.2	-13.0	-31.2		
High Ch, 1754.3										
3508.60	-16.1	V	3.0	38.5	1.0	-53.6	-13.0	-40.6		
5262.90	-5.8	V	3.0	38.8	1.0	-43.6	-13.0	-30.6		
7017.20	-0.2	V	3.0	38.5	1.0	-37.7	-13.0	-24.7		
3508.60	-15.6	H	3.0	38.5	1.0	-53.1	-13.0	-40.1		
5262.90	-8.5	H	3.0	38.8	1.0	-46.3	-13.0	-33.3		
7017.20	-4.5	H	3.0	38.5	1.0	-42.0	-13.0	-29.0		

3MHz QPSK										
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 16I22652 Date: 1/21/2016 Test Engineer: R.Z Configuration: X-pos EUT w/AC+HS Location: Chamber B Mode: LTE_QPSK Band 4 Harmonics, 3MHz Bandwidth										
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 1711.5										
3423.00	-15.4	V	3.0	38.5	1.0	-52.9	-13.0	-39.9		
5134.50	-11.1	V	3.0	38.8	1.0	-48.9	-13.0	-35.9		
6846.00	-5.1	V	3.0	38.5	1.0	-42.6	-13.0	-29.6		
3423.00	-15.9	H	3.0	38.5	1.0	-53.4	-13.0	-40.4		
5134.50	-12.6	H	3.0	38.8	1.0	-50.4	-13.0	-37.4		
6846.00	-10.7	H	3.0	38.5	1.0	-48.2	-13.0	-35.2		
Mid Ch, 1732.5										
3465.00	-18.2	V	3.0	38.5	1.0	-55.7	-13.0	-42.7		
5197.50	-10.1	V	3.0	38.8	1.0	-47.9	-13.0	-34.9		
6930.00	-3.0	V	3.0	38.5	1.0	-40.5	-13.0	-27.5		
3465.00	-17.9	H	3.0	38.5	1.0	-55.4	-13.0	-42.4		
5197.50	-14.1	H	3.0	38.8	1.0	-51.9	-13.0	-38.9		
6930.00	-6.3	H	3.0	38.5	1.0	-43.8	-13.0	-30.8		
High Ch, 1753.5										
3507.00	-20.3	V	3.0	38.5	1.0	-57.8	-13.0	-44.8		
5260.50	-8.3	V	3.0	38.8	1.0	-46.2	-13.0	-33.2		
7014.00	-3.2	V	3.0	38.5	1.0	-42.7	-13.0	-29.7		
3507.00	-18.4	H	3.0	38.5	1.0	-55.8	-13.0	-42.8		
5260.50	-11.6	H	3.0	38.8	1.0	-49.4	-13.0	-36.4		
7014.00	-7.3	H	3.0	38.5	1.0	-44.8	-13.0	-31.8		

3MHz 16QAM										
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 16I22652 Date: 1/21/2016 Test Engineer: R.Z Configuration: X-pos EUT w/AC+HS Location: Chamber B Mode: LTE_16QAM Band 4 Harmonics, 3MHz Bandwidth										
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 1711.5										
3423.00	-17.7	V	3.0	38.5	1.0	-55.2	-13.0	-42.2		
5134.50	-11.3	V	3.0	38.8	1.0	-49.1	-13.0	-36.1		
6846.00	-4.6	V	3.0	38.5	1.0	-42.2	-13.0	-29.2		
3423.00	-13.8	H	3.0	38.5	1.0	-51.3	-13.0	-38.3		
5134.50	-14.3	H	3.0	38.8	1.0	-52.1	-13.0	-39.1		
6846.00	-11.6	H	3.0	38.5	1.0	-49.1	-13.0	-36.1		
Mid Ch, 1732.5										
3465.00	-19.3	V	3.0	38.5	1.0	-56.8	-13.0	-43.8		
5197.50	-10.1	V	3.0	38.8	1.0	-47.9	-13.0	-34.9		
6930.00	-4.3	V	3.0	38.5	1.0	-41.8	-13.0	-28.8		
3465.00	-16.7	H	3.0	38.5	1.0	-54.2	-13.0	-41.2		
5197.50	-14.4	H	3.0	38.8	1.0	-52.2	-13.0	-39.2		
6930.00	-10.7	H	3.0	38.5	1.0	-48.2	-13.0	-35.2		
High Ch, 1753.5										
3507.00	-17.3	V	3.0	38.5	1.0	-54.8	-13.0	-41.8		
5260.50	-10.1	V	3.0	38.8	1.0	-47.9	-13.0	-34.9		
7014.00	-5.7	V	3.0	38.5	1.0	-43.2	-13.0	-30.2		
3507.00	-19.8	H	3.0	38.5	1.0	-57.3	-13.0	-44.3		
5260.50	-13.9	H	3.0	38.8	1.0	-51.7	-13.0	-38.7		
7014.00	-11.3	H	3.0	38.5	1.0	-48.8	-13.0	-35.8		

5MHz QPSK										
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 16I22652 Date: 1/21/2016 Test Engineer: R.Z Configuration: X-pos EUT w/AC+HS Location: Chamber B Mode: LTE_QPSK Band 4 Harmonics, 5MHz Bandwidth										
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 1712.5										
3425.00	-17.3	V	3.0	38.5	1.0	-54.8	-13.0	-41.8		
5137.50	-12.2	V	3.0	38.8	1.0	-43.5	-13.0	-30.5		
6850.00	-4.6	V	3.0	38.5	1.0	-40.5	-13.0	-27.5		
3425.00	-18.3	H	3.0	38.5	1.0	-55.8	-13.0	-42.8		
5137.50	-14.8	H	3.0	38.8	1.0	-52.6	-13.0	-39.6		
6850.00	-9.1	H	3.0	38.5	1.0	-46.7	-13.0	-33.7		
Mid Ch, 1732.5										
3465.00	-17.3	V	3.0	38.5	1.0	-54.8	-13.0	-41.8		
5197.50	-10.7	V	3.0	38.8	1.0	-48.6	-13.0	-35.6		
6930.00	-4.0	V	3.0	38.5	1.0	-43.5	-13.0	-30.5		
3465.00	-17.4	H	3.0	38.5	1.0	-54.9	-13.0	-41.9		
5197.50	-13.9	H	3.0	38.8	1.0	-51.8	-13.0	-38.8		
6930.00	-7.6	H	3.0	38.5	1.0	-45.1	-13.0	-32.1		
High Ch, 1752.5										
3505.00	-19.7	V	3.0	38.5	1.0	-57.2	-13.0	-44.2		
5257.50	-9.0	V	3.0	38.8	1.0	-46.8	-13.0	-33.8		
7010.00	-3.6	V	3.0	38.5	1.0	-43.1	-13.0	-30.1		
3505.00	-19.3	H	3.0	38.5	1.0	-56.8	-13.0	-43.8		
5257.50	-13.1	H	3.0	38.8	1.0	-50.9	-13.0	-37.9		
7010.00	-8.4	H	3.0	38.5	1.0	-45.9	-13.0	-32.9		

5MHz 16QAM										
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 16I22652 Date: 1/21/2016 Test Engineer: R.Z Configuration: X-pos EUT w/AC+HS Location: Chamber B Mode: LTE_16QAM Band 4 Harmonics, 5MHz Bandwidth										
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 1712.5										
3425.00	-18.2	V	3.0	38.5	1.0	-55.7	-13.0	-42.7		
5137.50	-14.8	V	3.0	38.8	1.0	-52.6	-13.0	-39.6		
6850.00	-7.5	V	3.0	38.5	1.0	-45.1	-13.0	-32.1		
3425.00	-17.3	H	3.0	38.5	1.0	-54.8	-13.0	-41.8		
5137.50	-16.1	H	3.0	38.8	1.0	-53.9	-13.0	-40.9		
6850.00	-14.0	H	3.0	38.5	1.0	-51.5	-13.0	-38.5		
Mid Ch, 1732.5										
3465.00	-19.5	V	3.0	38.5	1.0	-57.0	-13.0	-44.0		
5197.50	-9.6	V	3.0	38.8	1.0	-47.5	-13.0	-34.5		
6930.00	-7.2	V	3.0	38.5	1.0	-44.7	-13.0	-31.7		
3465.00	-17.4	H	3.0	38.5	1.0	-54.9	-13.0	-41.9		
5197.50	-15.6	H	3.0	38.8	1.0	-53.4	-13.0	-40.4		
6930.00	-12.5	H	3.0	38.5	1.0	-50.0	-13.0	-37.0		
High Ch, 1752.5										
3505.00	-19.6	V	3.0	38.5	1.0	-57.1	-13.0	-44.1		
5257.50	-11.9	V	3.0	38.8	1.0	-49.7	-13.0	-36.7		
7010.00	-7.9	V	3.0	38.5	1.0	-45.4	-13.0	-32.4		
3505.00	-20.2	H	3.0	38.5	1.0	-57.6	-13.0	-44.6		
5257.50	-15.8	H	3.0	38.8	1.0	-53.6	-13.0	-40.6		
7010.00	-12.8	H	3.0	38.5	1.0	-50.3	-13.0	-37.3		

10MHz QPSK									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:	LG Electronics								
Project #:	1622652								
Date:	1/21/2016								
Test Engineer:	R Z								
Configuration:	X-pos EUT w/AC+HS								
Location:	Chamber B								
Mode:	LTE_QPSK Band 4 Harmonics, 10MHz Bandwidth								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1715									
3430.00	-19.8	V	3.0	38.5	1.0	-56.5	-13.0	-43.5	
5145.00	-14.3	V	3.0	38.8	1.0	-52.1	-13.0	-39.1	
6860.00	-8.0	V	3.0	38.5	1.0	-45.5	-13.0	-32.5	
3430.00	-20.7	H	3.0	38.5	1.0	-58.2	-13.0	-45.2	
5145.00	-17.1	H	3.0	38.8	1.0	-54.9	-13.0	-41.9	
6860.00	-14.2	H	3.0	38.5	1.0	-51.8	-13.0	-38.8	
Mid Ch, 1732.5									
3465.00	-20.5	V	3.0	38.5	1.0	-58.0	-13.0	-45.0	
5197.50	-9.4	V	3.0	38.8	1.0	-47.2	-13.0	-34.2	
6930.00	-7.1	V	3.0	38.5	1.0	-44.6	-13.0	-31.6	
3465.00	-20.5	H	3.0	38.5	1.0	-58.0	-13.0	-45.0	
5197.50	-15.5	H	3.0	38.8	1.0	-53.3	-13.0	-40.3	
6930.00	-10.0	H	3.0	38.5	1.0	-47.5	-13.0	-34.5	
High Ch, 1750									
3500.00	-21.2	V	3.0	38.5	1.0	-58.7	-13.0	-45.7	
5250.00	-12.5	V	3.0	38.8	1.0	-50.3	-13.0	-37.3	
7000.00	-7.9	V	3.0	38.5	1.0	-45.4	-13.0	-32.4	
3500.00	-21.1	H	3.0	38.5	1.0	-58.6	-13.0	-45.6	
5250.00	-14.5	H	3.0	38.8	1.0	-52.3	-13.0	-39.3	
7000.00	-10.5	H	3.0	38.5	1.0	-48.0	-13.0	-35.0	

10MHz 16QAM									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:	LG Electronics								
Project #:	1622652								
Date:	1/21/2016								
Test Engineer:	R Z								
Configuration:	X-pos EUT w/AC+HS								
Location:	Chamber B								
Mode:	LTE_16QAM Band 4 Harmonics, 10MHz Bandwidth								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1715									
3430.00	-19.3	V	3.0	38.5	1.0	-56.8	-13.0	-43.8	
5145.00	-15.7	V	3.0	38.8	1.0	-53.5	-13.0	-40.5	
6860.00	-8.2	V	3.0	38.5	1.0	-45.7	-13.0	-32.7	
3430.00	-20.6	H	3.0	38.5	1.0	-58.1	-13.0	-45.1	
5145.00	-17.8	H	3.0	38.8	1.0	-55.6	-13.0	-42.6	
6860.00	-14.9	H	3.0	38.5	1.0	-52.4	-13.0	-39.4	
Mid Ch, 1732.5									
3465.00	-18.9	V	3.0	38.5	1.0	-56.4	-13.0	-43.4	
5197.50	-12.2	V	3.0	38.8	1.0	-50.0	-13.0	-37.0	
6930.00	-9.2	V	3.0	38.5	1.0	-46.7	-13.0	-33.7	
3465.00	-18.7	H	3.0	38.5	1.0	-56.2	-13.0	-43.2	
5197.50	-15.5	H	3.0	38.8	1.0	-53.3	-13.0	-40.3	
6930.00	-11.2	H	3.0	38.5	1.0	-48.7	-13.0	-35.7	
High Ch, 1750									
3500.00	-19.9	V	3.0	38.5	1.0	-57.3	-13.0	-44.3	
5250.00	-14.0	V	3.0	38.8	1.0	-51.8	-13.0	-38.8	
7000.00	-8.5	V	3.0	38.5	1.0	-46.0	-13.0	-33.0	
3500.00	-20.4	H	3.0	38.5	1.0	-57.9	-13.0	-44.9	
5250.00	-15.5	H	3.0	38.8	1.0	-53.3	-13.0	-40.3	
7000.00	-11.1	H	3.0	38.5	1.0	-48.6	-13.0	-35.6	

15MHz QPSK									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:	LG Electronics								
Project #:	1622652								
Date:	1/21/2016								
Test Engineer:	R Z								
Configuration:	X-pos EUT w/AC+HS								
Location:	Chamber B								
Mode:	LTE_QPSK Band 4 Harmonics, 15MHz Bandwidth								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5									
3435.00	-21.7	V	3.0	38.5	1.0	-59.2	-13.0	-46.2	
5152.50	-14.0	V	3.0	38.8	1.0	-51.8	-13.0	-38.8	
6870.00	-11.5	V	3.0	38.5	1.0	-49.1	-13.0	-36.1	
3435.00	-21.4	H	3.0	38.5	1.0	-58.9	-13.0	-45.9	
5152.50	-15.8	H	3.0	38.8	1.0	-53.6	-13.0	-40.6	
6870.00	-14.6	H	3.0	38.5	1.0	-52.1	-13.0	-39.1	
Mid Ch, 1732.5									
3465.00	-19.8	V	3.0	38.5	1.0	-57.3	-13.0	-44.3	
5197.50	-13.1	V	3.0	38.8	1.0	-51.0	-13.0	-38.0	
6930.00	-9.0	V	3.0	38.5	1.0	-46.5	-13.0	-33.5	
3465.00	-21.0	H	3.0	38.5	1.0	-58.4	-13.0	-45.4	
5197.50	-15.9	H	3.0	38.8	1.0	-53.7	-13.0	-40.7	
6930.00	-12.3	H	3.0	38.5	1.0	-49.8	-13.0	-36.8	
High Ch, 1747.5									
3495.00	-22.0	V	3.0	38.5	1.0	-59.5	-13.0	-46.5	
5242.50	-13.0	V	3.0	38.8	1.0	-50.8	-13.0	-37.8	
6990.00	-8.3	V	3.0	38.5	1.0	-45.8	-13.0	-32.8	
3495.00	-19.3	H	3.0	38.5	1.0	-56.8	-13.0	-43.8	
5242.50	-16.3	H	3.0	38.8	1.0	-54.1	-13.0	-41.1	
6990.00	-10.6	H	3.0	38.5	1.0	-48.1	-13.0	-35.1	

15MHz 16QAM									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:	LG Electronics								
Project #:	1622652								
Date:	1/21/2016								
Test Engineer:	R Z								
Configuration:	X-pos EUT w/AC+HS								
Location:	Chamber B								
Mode:	LTE_16QAM Band 4 Harmonics, 15MHz Bandwidth								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5									
3435.00	-20.2	V	3.0	38.5	1.0	-57.7	-13.0	-44.7	
5152.50	-16.3	V	3.0	38.8	1.0	-54.1	-13.0	-41.1	
6870.00	-14.4	V	3.0	38.5	1.0	-52.0	-13.0	-39.0	
3435.00	-19.4	H	3.0	38.5	1.0	-56.9	-13.0	-43.9	
5152.50	-17.0	H	3.0	38.8	1.0	-54.8	-13.0	-41.8	
6870.00	-16.2	H	3.0	38.5	1.0	-53.7	-13.0	-40.7	
Mid Ch, 1732.5									
3465.00	-19.8	V	3.0	38.5	1.0	-57.3	-13.0	-44.3	
5197.50	-14.4	V	3.0	38.8	1.0	-52.2	-13.0	-39.2	
6930.00	-11.0	V	3.0	38.5	1.0	-48.6	-13.0	-35.6	
3465.00	-21.0	H	3.0	38.5	1.0	-58.4	-13.0	-45.4	
5197.50	-18.1	H	3.0	38.8	1.0	-55.9	-13.0	-42.9	
6930.00	-17.2	H	3.0	38.5	1.0	-54.7	-13.0	-41.7	
High Ch, 1747.5									
3495.00	-21.6	V	3.0	38.5	1.0	-59.1	-13.0	-46.1	
5242.50	-15.0	V	3.0	38.8	1.0	-52.8	-13.0	-39.8	
6990.00	-11.6	V	3.0	38.5	1.0	-49.1	-13.0	-36.1	
3495.00	-20.6	H	3.0	38.5	1.0	-58.1	-13.0	-45.1	
5242.50	-17.9	H	3.0	38.8	1.0	-55.7	-13.0	-42.7	
6990.00	-13.6	H	3.0	38.5	1.0	-51.1	-13.0	-38.1	

20MHz QPSK									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:	LG Electronics								
Project #:	1622652								
Date:	1/21/2016								
Test Engineer:	R Z								
Configuration:	X-pos EUT w/AC+HS								
Location:	Chamber B								
Mode:	LTE_QPSK Band 4 Harmonics, 20MHz Bandwidth								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1720									
3440.00	-20.9	V	3.0	38.5	1.0	-58.4	-13.0	-45.4	
5160.00	-15.3	V	3.0	38.8	1.0	-53.1	-13.0	-40.1	
6880.00	-12.4	V	3.0	38.5	1.0	-50.0	-13.0	-37.0	
3440.00	-21.2	H	3.0	38.5	1.0	-58.7	-13.0	-45.7	
5160.00	-17.1	H	3.0	38.8	1.0	-54.9	-13.0	-41.9	
6880.00	-16.1	H	3.0	38.5	1.0	-53.6	-13.0	-40.6	
Mid Ch, 1732.5									
3465.00	-22.4	V	3.0	38.5	1.0	-59.9	-13.0	-46.9	
5197.50	-18.9	V	3.0	38.8	1.0	-56.7	-13.0	-43.7	
6930.00	-17.3	V	3.0	38.5	1.0	-54.8	-13.0	-41.8	
3465.00	-22.0	H	3.0	38.5	1.0	-59.5	-13.0	-46.5	
5197.50	-17.7	H	3.0	38.8	1.0	-55.5	-13.0	-42.5	
6930.00	-17.4	H	3.0	38.5	1.0	-54.9	-13.0	-41.9	
High Ch, 1745									
3490.00	-22.3	V	3.0	38.5	1.0	-59.8	-13.0	-46.8	
5235.00	-15.5	V	3.0	38.8	1.0	-53.4	-13.0	-40.4	
6980.00	-11.7	V	3.0	38.5	1.0	-50.2	-13.0	-37.2	
3490.00	-21.8	H	3.0	38.5	1.0	-59.2	-13.0	-46.2	
5235.00	-18.4	H	3.0	38.8	1.0	-56.2	-13.0	-43.2	
6980.00	-16.2	H	3.0	38.5	1.0	-53.7	-13.0	-40.7	

20MHz 16QAM									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:	LG Electronics								
Project #:	1622652								
Date:	1/21/2016								
Test Engineer:	R Z								
Configuration:	X-pos EUT w/AC+HS								
Location:	Chamber B								
Mode:	LTE_16QAM Band 4 Harmonics, 20MHz Bandwidth								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1720									
3440.00	-21.5	V	3.0	38.5	1.0	-59.0	-13.0	-46.0	
5160.00	-17.3	V	3.0	38.8	1.0	-55.1	-13.0	-42.1	
6880.00	-15.7	V	3.0	38.5	1.0	-53.2	-13.0	-40.2	
3440.00	-21.3	H	3.0	38.5	1.0	-58.8	-13.0	-45.8	
5160.00	-16.5	H	3.0	38.8	1.0	-54.3	-13.0	-41.3	
6880.00	-17.2	H	3.0	38.5	1.0	-54.7	-13.0	-41.7	
Mid Ch, 1732.5									
3465.00	-22.0	V	3.0	38.5	1.0	-59.5	-13.0	-46.5	
5197.50	-13.9	V	3.0	38.8	1.0	-51.8	-13.0	-38.8	
6930.00	-12.3	V	3.0	38.5	1.0	-49.8	-13.0	-36.8	
3465.00	-22.7	H	3.0	38.5	1.0	-60.2	-13.0	-47.2	
5197.50	-17.0	H	3.0	38.8	1.0	-54.9	-13.0	-41.9	
6930.00	-15.9	H	3.0	38.5	1.0	-51.4	-13.0	-38.4	
High Ch, 1745									
3490.00	-20.6	V	3.0	38.5	1.0	-58.1	-13.0	-45.1	
5235.00	-14.3	V	3.0	38.8	1.0	-50.1	-13.0	-37.1	
6980.00	-17.2	V	3.0	38.5	1.0	-54.7	-13.0	-41.7	
3490.00	-20.7	H	3.0	38.5	1.0	-58.2	-13.0	-45.2	
5235.00	-17.7	H	3.0	38.8	1.0	-55.5	-13.0	-42.5	
6980.00	-17.2	H	3.0	38.5	1.0	-54.7	-13.0	-41.7	

LTE Band 5

1.4MHz QPSK										
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 16I22652 Date: 1/23/2016 Test Engineer: R.Alegre Configuration: EUT + AC ADAPTER + HS Location: Chamber C Mode: LTE_QPSK Band 5 Harmonics, 1.4MHz Bandwidth										
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 824.7										
1649.40	-21.1	V	3.0	36.4	1.0	-56.5	-13.0	-43.5		
2474.10	-23.5	V	3.0	35.0	1.0	-57.5	-13.0	-44.5		
3298.80	-15.8	V	3.0	34.3	1.0	-49.1	-13.0	-36.1		
1649.40	-19.6	H	3.0	36.4	1.0	-55.0	-13.0	-42.0		
2474.10	-24.0	H	3.0	35.0	1.0	-58.0	-13.0	-45.0		
3298.80	-17.8	H	3.0	34.3	1.0	-51.1	-13.0	-38.1		
Mid Ch, 836.5										
1673.00	-22.9	V	3.0	36.3	1.0	-58.3	-13.0	-45.3		
2509.50	-12.8	V	3.0	34.9	1.0	-46.7	-13.0	-33.7		
3346.00	-21.1	V	3.0	34.7	1.0	-54.4	-13.0	-41.4		
1673.00	-24.4	H	3.0	36.3	1.0	-59.8	-13.0	-46.8		
2509.50	-11.4	H	3.0	34.9	1.0	-45.4	-13.0	-32.4		
3346.00	-18.9	H	3.0	34.2	1.0	-52.1	-13.0	-39.1		
High Ch, 848.3										
1696.60	-20.2	V	3.0	36.3	1.0	-55.5	-13.0	-42.5		
2544.90	-18.5	V	3.0	34.9	1.0	-52.4	-13.0	-39.4		
3393.20	-18.2	V	3.0	34.2	1.0	-51.4	-13.0	-38.4		
1696.60	-21.8	H	3.0	36.3	1.0	-57.1	-13.0	-44.1		
2544.90	-23.2	H	3.0	34.9	1.0	-57.1	-13.0	-44.1		
3393.20	-22.2	H	3.0	34.2	1.0	-55.4	-13.0	-42.4		

1.4MHz 16QAM										
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 16I22652 Date: 1/23/2016 Test Engineer: R.Alegre Configuration: EUT + AC ADAPTER + HS Location: Chamber C Mode: LTE_16QAM Band 5 Harmonics, 1.4MHz Bandwidth										
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 824.7										
1649.40	-19.7	V	3.0	36.4	1.0	-55.1	-13.0	-42.1		
2474.10	-23.9	V	3.0	35.0	1.0	-57.9	-13.0	-44.9		
3298.80	-15.4	V	3.0	34.3	1.0	-48.7	-13.0	-35.7		
1649.40	-18.4	H	3.0	36.4	1.0	-53.7	-13.0	-40.7		
2474.10	-25.1	H	3.0	35.0	1.0	-59.1	-13.0	-46.1		
3298.80	-16.9	H	3.0	34.3	1.0	-50.1	-13.0	-37.1		
Mid Ch, 836.5										
1673.00	-17.6	V	3.0	36.3	1.0	-52.9	-13.0	-39.9		
2509.50	-23.9	V	3.0	34.9	1.0	-57.8	-13.0	-44.8		
3346.00	-22.4	V	3.0	34.7	1.0	-55.6	-13.0	-42.6		
1673.00	-27.0	H	3.0	36.3	1.0	-62.3	-13.0	-49.3		
2509.50	-24.0	H	3.0	34.9	1.0	-57.9	-13.0	-44.9		
3346.00	-16.0	H	3.0	34.2	1.0	-49.2	-13.0	-36.2		
High Ch, 848.3										
1696.60	-21.1	V	3.0	36.3	1.0	-56.4	-13.0	-43.4		
2544.90	-18.7	V	3.0	34.9	1.0	-52.6	-13.0	-39.6		
3393.20	-19.4	V	3.0	34.2	1.0	-52.6	-13.0	-39.6		
1696.60	-21.9	H	3.0	36.3	1.0	-57.2	-13.0	-44.2		
2544.90	-23.0	H	3.0	34.9	1.0	-56.9	-13.0	-43.9		
3393.20	-23.2	H	3.0	34.2	1.0	-56.3	-13.0	-43.3		

3MHz QPSK										
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 16I22652 Date: 1/23/2016 Test Engineer: R.Alegre Configuration: EUT + AC ADAPTER + HS Location: Chamber C Mode: LTE_QPSK Band 5 Harmonics, 3MHz Bandwidth										
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 825.5										
1651.00	-21.1	V	3.0	36.4	1.0	-56.4	-13.0	-43.4		
2476.50	-23.5	V	3.0	35.0	1.0	-57.5	-13.0	-44.5		
3302.00	-15.8	V	3.0	34.3	1.0	-49.1	-13.0	-36.1		
1651.00	-19.6	H	3.0	36.4	1.0	-54.9	-13.0	-41.9		
2476.50	-24.1	H	3.0	35.0	1.0	-58.0	-13.0	-45.0		
3302.00	-17.9	H	3.0	34.3	1.0	-51.2	-13.0	-38.2		
Mid Ch, 836.5										
1673.00	-22.9	V	3.0	36.3	1.0	-58.2	-13.0	-45.2		
2509.50	-12.8	V	3.0	34.9	1.0	-46.7	-13.0	-33.7		
3346.00	-21.4	V	3.0	34.7	1.0	-54.7	-13.0	-41.7		
1673.00	-24.5	H	3.0	36.3	1.0	-59.8	-13.0	-46.8		
2509.50	-11.5	H	3.0	34.9	1.0	-45.4	-13.0	-32.4		
3346.00	-19.0	H	3.0	34.2	1.0	-52.2	-13.0	-39.2		
High Ch, 847.5										
1695.00	-20.3	V	3.0	36.3	1.0	-55.6	-13.0	-42.6		
2542.50	-18.5	V	3.0	34.9	1.0	-52.4	-13.0	-39.4		
3390.00	-18.1	V	3.0	34.2	1.0	-51.3	-13.0	-38.3		
1695.00	-21.8	H	3.0	36.3	1.0	-57.1	-13.0	-44.1		
2542.50	-23.4	H	3.0	34.9	1.0	-57.3	-13.0	-44.3		
3390.00	-22.2	H	3.0	34.2	1.0	-55.3	-13.0	-42.3		

3MHz 16QAM										
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 16I22652 Date: 1/23/2016 Test Engineer: R.Alegre Configuration: EUT + AC ADAPTER + HS Location: Chamber C Mode: LTE_16QAM Band 5 Harmonics, 3MHz Bandwidth										
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 825.5										
1651.00	-19.8	V	3.0	36.4	1.0	-55.2	-13.0	-42.2		
2476.50	-23.9	V	3.0	35.0	1.0	-57.9	-13.0	-44.9		
3302.00	-15.4	V	3.0	34.3	1.0	-48.7	-13.0	-35.7		
1651.00	-18.4	H	3.0	36.4	1.0	-53.8	-13.0	-40.8		
2476.50	-25.2	H	3.0	35.0	1.0	-59.2	-13.0	-46.2		
3302.00	-16.9	H	3.0	34.3	1.0	-50.2	-13.0	-37.2		
Mid Ch, 836.5										
1673.00	-17.6	V	3.0	36.3	1.0	-53.0	-13.0	-40.0		
2509.50	-23.4	V	3.0	34.9	1.0	-57.3	-13.0	-44.3		
3346.00	-22.2	V	3.0	34.7	1.0	-55.4	-13.0	-42.4		
1673.00	-27.4	H	3.0	36.3	1.0	-62.7	-13.0	-49.7		
2509.50	-24.0	H	3.0	34.9	1.0	-58.0	-13.0	-45.0		
3346.00	-15.7	H	3.0	34.2	1.0	-49.0	-13.0	-36.0		
High Ch, 847.5										
1695.00	-21.2	V	3.0	36.3	1.0	-56.5	-13.0	-43.5		
2542.50	-18.4	V	3.0	34.9	1.0	-52.3	-13.0	-39.3		
3390.00	-19.3	V	3.0	34.2	1.0	-52.5	-13.0	-39.5		
1695.00	-22.1	H	3.0	36.3	1.0	-57.4	-13.0	-44.4		
2542.50	-23.0	H	3.0	34.9	1.0	-56.9	-13.0	-43.9		
3390.00	-22.3	H	3.0	34.2	1.0	-55.5	-13.0	-42.5		

5MHz QPSK										
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 16I22652 Date: 1/23/2016 Test Engineer: R.Alegre Configuration: EUT + AC ADAPTER + HS Location: Chamber C Mode: LTE_QPSK Band 5 Harmonics, 5MHz Bandwidth										
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 826.5										
1653.00	-20.7	V	3.0	36.4	1.0	-56.1	-13.0	-43.1		
2479.50	-23.5	V	3.0	35.0	1.0	-57.4	-13.0	-44.4		
3306.00	-15.6	V	3.0	34.3	1.0	-48.9	-13.0	-35.9		
1653.00	-19.6	H	3.0	36.4	1.0	-55.0	-13.0	-42.0		
2479.50	-23.8	H	3.0	35.0	1.0	-57.8	-13.0	-44.8		
3306.00	-17.8	H	3.0	34.3	1.0	-51.1	-13.0	-38.1		
Mid Ch, 836.5										
1673.00	-23.3	V	3.0	36.3	1.0	-58.6	-13.0	-45.6		
2509.50	-13.4	V	3.0	34.9	1.0	-47.4	-13.0	-34.4		
3346.00	-21.7	V	3.0	34.7	1.0	-55.0	-13.0	-42.0		
1673.00	-24.5	H	3.0	36.3	1.0	-59.9	-13.0	-46.9		
2509.50	-11.5	H	3.0	34.9	1.0	-45.4	-13.0	-32.4		
3346.00	-18.9	H	3.0	34.2	1.0	-52.1	-13.0	-39.1		
High Ch, 846.5										
1693.00	-20.6	V	3.0	36.3	1.0	-55.9	-13.0	-42.9		
2539.50	-18.4	V	3.0	34.9	1.0	-52.3	-13.0	-39.3		
3386.00	-18.3	V	3.0	34.2	1.0	-51.5	-13.0	-38.5		
1693.00	-21.3	H	3.0	36.3	1.0	-56.6	-13.0	-43.6		
2539.50	-24.5	H	3.0	34.9	1.0	-58.4	-13.0	-45.4		
3386.00	-22.0	H	3.0	34.2	1.0	-55.2	-13.0	-42.2		

5MHz 16QAM										
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 16I22652 Date: 1/23/2016 Test Engineer: R.Alegre Configuration: EUT + AC ADAPTER + HS Location: Chamber C Mode: LTE_16QAM Band 5 Harmonics, 5MHz Bandwidth										
F MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, 826.5										
1653.00	-19.5	V	3.0	36.4	1.0	-54.9	-13.0	-41.9		
2479.50	-23.5	V	3.0	35.0	1.0	-57.5	-13.0	-44.5		
3306.00	-15.1	V	3.0	34.3	1.0	-48.4	-13.0	-35.4		
1653.00	-19.3	H	3.0	36.4	1.0	-54.7	-13.0	-41.7		
2479.50	-25.1	H	3.0	35.0	1.0	-59.1	-13.0	-46.1		
3306.00	-17.4	H	3.0	34.3	1.0	-50.7	-13.0	-37.7		
Mid Ch, 836.5										
1673.00	-17.8	V	3.0	36.3	1.0	-53.1	-13.0	-40.1		
2509.50	-23.9	V	3.0	34.9	1.0	-57.8	-13.0	-44.8		
3346.00	-22.2	V	3.0	34.7	1.0	-55.5	-13.0	-42.5		
1673.00	-27.4	H	3.0	36.3	1.0	-62.7	-13.0	-49.7		
2509.50	-23.9	H	3.0	34.9	1.0	-57.8	-13.0	-44.8		
3346.00	-15.8	H	3.0	34.2	1.0	-49.0	-13.0	-36.0		
High Ch, 846.5										
1693.00	-21.5	V	3.0	36.3	1.0	-56.8	-13.0	-43.8		
2539.50	-18.4	V	3.0	34.9	1.0	-52.3	-13.0	-39.3		
3386.00	-18.4	V	3.0	34.2	1.0	-52.6	-13.0	-39.6		
1693.00	-22.4	H	3.0	36.3	1.0	-57.3	-13.0	-44.7		
2539.50	-23.0	H	3.0	34.9	1.0	-56.9	-13.0	-43.9		
3386.00	-21.9	H	3.0	34.2	1.0	-55.1	-13.0	-42.1		

10MHz QPSK										10MHz 16QAM									
UL Verification Services, Inc.										UL Verification Services, Inc.									
Above 1GHz High Frequency Substitution Measurement										Above 1GHz High Frequency Substitution Measurement									
Company:		LO Electronics								Company:		LO Electronics							
Project #:		16I22652								Project #:		16I22652							
Date:		1/23/2016								Date:		1/23/2016							
Test Engineer:		R. Alegre								Test Engineer:		R. Alegre							
Configuration:		EUT + AC ADAPTER + HS								Configuration:		EUT + AC ADAPTER + HS							
Location:		Chamber C								Location:		Chamber C							
Mode:		LTE_QPSK Band 5 Harmonics, 10MHz Bandwidth								Mode:		LTE_16QAM Band 5 Harmonics, 10MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 829										Low Ch, 829									
1658.00	-21.4	V	3.0	36.4	1.0	56.7	-13.0	-43.7		1658.00	-20.4	V	3.0	36.4	1.0	55.8	-13.0	-42.8	
2487.00	-23.5	V	3.0	35.0	1.0	57.5	-13.0	-44.5		2487.00	-23.7	V	3.0	35.0	1.0	57.7	-13.0	-44.7	
3316.00	-19.4	V	3.0	34.3	1.0	48.6	-13.0	-35.6		3316.00	-16.2	V	3.0	34.3	1.0	49.4	-13.0	-36.4	
1658.00	-19.7	H	3.0	36.4	1.0	55.1	-13.0	-42.1		1658.00	-19.4	H	3.0	36.4	1.0	54.7	-13.0	-41.7	
2487.00	-23.8	H	3.0	35.0	1.0	57.8	-13.0	-44.8		2487.00	-25.1	H	3.0	35.0	1.0	59.0	-13.0	-46.0	
3316.00	-17.8	H	3.0	34.3	1.0	51.1	-13.0	-38.1		3316.00	-17.6	H	3.0	34.3	1.0	50.9	-13.0	-37.9	
Mid Ch, 836.5										Mid Ch, 836.5									
1673.00	-24.2	V	3.0	36.3	1.0	59.5	-13.0	-46.5		1673.00	-18.1	V	3.0	36.3	1.0	53.4	-13.0	-48.4	
2509.50	-13.8	V	3.0	34.9	1.0	47.7	-13.0	-34.7		2509.50	-23.9	V	3.0	34.9	1.0	57.8	-13.0	-44.8	
3346.00	-22.5	V	3.0	34.2	1.0	55.8	-13.0	-42.8		3346.00	-22.5	V	3.0	34.2	1.0	55.7	-13.0	-42.7	
1673.00	-24.5	H	3.0	36.3	1.0	59.8	-13.0	-46.8		1673.00	-27.4	H	3.0	36.3	1.0	62.8	-13.0	-49.8	
2509.50	-11.6	H	3.0	34.9	1.0	45.5	-13.0	-32.5		2509.50	-23.9	H	3.0	34.9	1.0	57.8	-13.0	-44.8	
3346.00	-19.6	H	3.0	34.2	1.0	52.8	-13.0	-39.8		3346.00	-16.1	H	3.0	34.2	1.0	49.3	-13.0	-36.3	
High Ch, 844										High Ch, 844									
1688.00	-20.7	V	3.0	36.3	1.0	56.0	-13.0	-43.0		1688.00	-21.6	V	3.0	36.3	1.0	56.9	-13.0	-43.9	
2532.00	-18.5	V	3.0	34.9	1.0	52.4	-13.0	-39.4		2532.00	-18.5	V	3.0	34.9	1.0	52.4	-13.0	-39.4	
3376.00	-18.7	V	3.0	34.2	1.0	51.9	-13.0	-38.9		3376.00	-18.5	V	3.0	34.2	1.0	52.7	-13.0	-39.7	
1688.00	-21.7	H	3.0	36.3	1.0	57.0	-13.0	-44.0		1688.00	-22.4	H	3.0	36.3	1.0	57.7	-13.0	-44.7	
2532.00	-24.7	H	3.0	34.9	1.0	58.6	-13.0	-45.6		2532.00	-23.1	H	3.0	34.9	1.0	57.0	-13.0	-44.0	
3376.00	-22.0	H	3.0	34.2	1.0	55.2	-13.0	-42.2		3376.00	-22.2	H	3.0	34.2	1.0	55.4	-13.0	-42.4	

LTE Band 17

5MHz QPSK										5MHz 16QAM									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG Electronics								Company:		LG Electronics							
Project #:		16I22652								Project #:		16I22652							
Date:		1/21/2016								Date:		1/21/2016							
Test Engineer:		A. Escamilla								Test Engineer:		A. Escamilla							
Configuration:		X-pos, EUT + AC Adapter + Headset								Configuration:		X-pos, EUT + AC Adapter + Headset							
Location:		Chamber C								Location:		Chamber C							
Mode:		LTE_QPSK Band 17 Harmonics, 5MHz Bandwidth								Mode:		LTE_16QAM Band 17 Harmonics, 5MHz Bandwidth							
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes	f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)		MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch, 706.50										Low Ch, 706.50									
1413.00	-20.5	V	3.0	36.5	1.0	-56.0	-13.0	-43.0		1413.00	-20.8	V	3.0	36.5	1.0	-56.3	-13.0	-43.3	
2119.50	-16.3	V	3.0	35.6	1.0	-50.9	-13.0	-37.9		2119.50	-16.7	V	3.0	35.6	1.0	-51.3	-13.0	-38.3	
2826.00	-21.8	V	3.0	34.7	1.0	-55.5	-13.0	-42.5		2826.00	-23.1	V	3.0	34.7	1.0	-56.8	-13.0	-43.8	
1413.00	-18.5	H	3.0	36.5	1.0	-54.0	-13.0	-41.0		1413.00	-18.5	H	3.0	36.5	1.0	-54.0	-13.0	-41.0	
2119.50	-23.1	H	3.0	35.6	1.0	-57.7	-13.0	-44.7		2119.50	-23.4	H	3.0	35.6	1.0	-58.0	-13.0	-45.0	
2826.00	-23.2	H	3.0	34.7	1.0	-56.9	-13.0	-43.9		2826.00	-23.5	H	3.0	34.7	1.0	-57.2	-13.0	-44.2	
Mid Ch, 710.00										Mid Ch, 710.00									
1420.00	-21.2	V	3.0	36.5	1.0	-56.7	-13.0	-43.7		1420.00	-21.2	V	3.0	36.5	1.0	-56.7	-13.0	-43.7	
2130.00	-19.7	V	3.0	35.6	1.0	-54.3	-13.0	-41.3		2130.00	-21.2	V	3.0	35.6	1.0	-55.8	-13.0	-42.8	
2840.00	-22.1	V	3.0	34.7	1.0	-55.8	-13.0	-42.8		2840.00	-22.4	V	3.0	34.7	1.0	-56.1	-13.0	-43.1	
1420.00	-18.9	H	3.0	36.5	1.0	-54.4	-13.0	-41.4		1420.00	-20.1	H	3.0	36.5	1.0	-55.7	-13.0	-42.7	
2130.00	-22.8	H	3.0	35.6	1.0	-57.4	-13.0	-44.4		2130.00	-23.1	H	3.0	35.6	1.0	-57.7	-13.0	-44.7	
2840.00	-23.5	H	3.0	34.7	1.0	-57.2	-13.0	-44.2		2840.00	-24.1	H	3.0	34.7	1.0	-57.8	-13.0	-44.8	
High Ch, 713.50										High Ch, 713.50									
1427.00	-20.1	V	3.0	36.5	1.0	-55.6	-13.0	-42.6		1427.00	-21.0	V	3.0	36.5	1.0	-56.5	-13.0	-43.5	
2140.50	-22.3	V	3.0	35.6	1.0	-56.9	-13.0	-43.9		2140.50	-22.5	V	3.0	35.6	1.0	-57.1	-13.0	-44.1	
2854.00	-21.8	V	3.0	34.7	1.0	-55.5	-13.0	-42.5		2854.00	-22.3	V	3.0	34.7	1.0	-56.0	-13.0	-43.0	
1427.00	-19.4	H	3.0	36.5	1.0	-54.9	-13.0	-41.9		1427.00	-20.0	H	3.0	36.5	1.0	-55.5	-13.0	-42.5	
2140.50	-22.6	H	3.0	35.6	1.0	-57.2	-13.0	-44.2		2140.50	-22.7	H	3.0	35.6	1.0	-57.1	-13.0	-44.3	
2854.00	-23.5	H	3.0	34.7	1.0	-57.2	-13.0	-44.2		2854.00	-23.4	H	3.0	34.7	1.0	-57.1	-13.0	-44.1	

10MHz QPSK										10MHz 16QAM									
UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG Electronics								Company:		LG Electronics							
Project #:		16I22652								Project #:		16I22652							
Date:		1/21/2016								Date:		1/21/2016							
Test Engineer:		A. Escamilla								Test Engineer:		A. Escamilla							
Configuration:		X-pos, EUT + AC Adapter + Headset								Configuration:		X-pos, EUT + AC Adapter + Headset							
Location:		Chamber C								Location:		Chamber C							
Mode:		LTE_QPSK Band 17 Harmonics, 10MHz Bandwidth								Mode:		LTE_16QAM Band 17 Harmonics, 10MHz Bandwidth							
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes	f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes
MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)		MHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch, 709										Low Ch, 709									
1418.00	-21.3	V	3.0	36.5	1.0	-56.8	-13.0	-43.8		1418.00	-21.8	V	3.0	36.5	1.0	-57.3	-13.0	-44.3	
2127.00	-18.8	V	3.0	35.6	1.0	-53.4	-13.0	-40.4		2127.00	-19.8	V	3.0	35.6	1.0	-54.4	-13.0	-41.4	
2836.00	-21.9	V	3.0	34.7	1.0	-55.6	-13.0	-42.6		2836.00	-21.9	V	3.0	34.7	1.0	-55.6	-13.0	-42.6	
1418.00	-18.4	H	3.0	36.5	1.0	-53.9	-13.0	-40.9		1418.00	-18.6	H	3.0	36.5	1.0	-54.1	-13.0	-41.1	
2127.00	-23.0	H	3.0	35.6	1.0	-57.6	-13.0	-44.6		2127.00	-22.9	H	3.0	35.6	1.0	-57.5	-13.0	-44.5	
2836.00	-23.8	H	3.0	34.7	1.0	-56.7	-13.0	-43.7		2836.00	-23.1	H	3.0	34.7	1.0	-57.0	-13.0	-44.0	
Mid Ch, 710										Mid Ch, 710									
1420.00	-22.1	V	3.0	36.5	1.0	-57.7	-13.0	-44.7		1420.00	-22.5	V	3.0	36.5	1.0	-58.0	-13.0	-45.0	
2130.00	-22.5	V	3.0	35.6	1.0	-57.1	-13.0	-44.1		2130.00	-22.1	V	3.0	35.6	1.0	-56.7	-13.0	-43.7	
2840.00	-22.2	V	3.0	34.7	1.0	-55.9	-13.0	-42.9		2840.00	-23.0	V	3.0	34.7	1.0	-56.7	-13.0	-43.7	
1420.00	-19.2	H	3.0	36.5	1.0	-54.7	-13.0	-41.7		1420.00	-19.5	H	3.0	36.5	1.0	-55.0	-13.0	-42.0	
2130.00	-23.6	H	3.0	35.6	1.0	-58.2	-13.0	-45.2		2130.00	-24.1	H	3.0	35.6	1.0	-58.7	-13.0	-45.7	
2840.00	-22.8	H	3.0	34.7	1.0	-56.5	-13.0	-43.5		2840.00	-23.4	H	3.0	34.7	1.0	-57.1	-13.0	-44.1	
High Ch, 711										High Ch, 711									
1422.00	-21.0	V	3.0	36.5	1.0	-56.5	-13.0	-43.5		1422.00	-22.0	V	3.0	36.5	1.0	-57.6	-13.0	-44.6	
2133.00	-22.4	V	3.0	35.6	1.0	-57.0	-13.0	-44.0		2133.00	-22.3	V	3.0	35.6	1.0	-56.9	-13.0	-43.9	
2844.00	-22.8	V	3.0	34.7	1.0	-56.5	-13.0	-43.5		2844.00	-23.0	V	3.0	34.7	1.0	-56.7	-13.0	-43.7	
1422.00	-19.4	H	3.0	36.5	1.0	-54.9	-13.0	-41.9		1422.00	-19.9	H	3.0	36.5	1.0	-55.5	-13.0	-42.5	
2133.00	-23.0	H	3.0	35.6	1.0	-57.6	-13.0	-44.6		2133.00	-22.3	H	3.0	35.6	1.0	-56.9	-13.0	-43.9	
2844.00	-22.6	H	3.0	34.7	1.0	-56.3	-13.0	-43.3		2844.00	-23.4	H	3.0	34.7	1.0	-57.1	-13.0	-44.1	