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

C2PC CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n & NFC

MODEL NUMBER: LG-H443, H443, LGH443, LG-H445, LGH445, H445

FCC ID: ZNFH443

REPORT NUMBER: 15I19922-E1 REVISION B

ISSUE DATE: MARCH 19, 2015

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
----	1/20/15	Initial Issue	D. Coronia
A	3/15/15	Added C2PC information page 18, added note for LTE B17 page 39, 45, 54 & 75	D. Coronia
B	3/19/15	Updated GSM850 EGPRS data	P. Zhang

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TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 5
2. TEST METHODOLOGY 6
3. FACILITIES AND ACCREDITATION 6
4. CALIBRATION AND UNCERTAINTY 6
4.1. MEASURING INSTRUMENT CALIBRATION 6
4.2. SAMPLE CALCULATION 6
4.3. MEASUREMENT UNCERTAINTY 7
5. EQUIPMENT UNDER TEST 8
5.1. DESCRIPTION OF EUT 8
5.2. MAXIMUM OUTPUT POWER 9
5.3. MAXIMUM OUTPUT POWER (LTE) 10
5.4. DESCRIPTION OF AVAILABLE ANTENNAS 13
5.5. DESCRIPTION OF TEST SETUP 14
6. TEST AND MEASUREMENT EQUIPMENT 17
7. SUMMARY TABLE 18
8. RF POWER OUTPUT VERIFICATION 19
8.1. GSM/GPRS/EDGE 19
8.1.1. GSM OUTPUT POWER RESULT 20
8.2. UMTS REL 99 21
8.2.1. UMTS REL 99 OUTPUT POWER RESULT 21
8.3. UMTS HSDPA 22
8.3.1. UMTS HSDPA OUTPUT POWER RESULT 23
8.4. UMTS HSUPA 24
8.4.1. UMTS HSUPA OUTPUT POWER RESULT 25
8.5. DC-HSDPA 26
8.5.1. UMTS DC-HSDPA OUTPUT POWER RESULT 29
8.7. LTE OUTPUT VERIFICATION 30
8.7.1. LTE OUTPUT RESULT 30
9. PEAK TO AVERAGE RATIO 39
9.1. CONDUCTED PEAK TO AVERAGE RESULT 40
10. LIMITS AND CONDUCTED RESULTS 45
10.1. OCCUPIED BANDWIDTH 45

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10.1.1. LTE OCCUPIED BANDWIDTH RESULTS 46
10.1.2. OCCUPIED BANDWIDTH PLOTS 49
10.2. BAND EDGE EMISSIONS 54
10.2.1. BAND EDGE PLOTS 55
10.3. OUT OF BAND EMISSIONS 75
10.3.1. OUT OF BAND EMISSIONS RESULT 76
10.3.2. OUT OF BAND EMISSIONS PLOTS.....79
11. RADIATED TEST RESULTS 84
11.1. RADIATED POWER (ERP & EIRP).....84
11.1.1. ERP/EIRP Results.....85
11.1.2. LTE ERP/EIRP Results 86
11.2. ERP/EIRP PLOTS.....92
11.3. FIELD STRENGTH OF SPURIOUS RADIATION 136
11.3.1. SPURIOUS RADIATION PLOTS.....137
12. SETUP PHOTOS 181

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	LG ELECTRONICS MOBILECOMM U.S.A., INC
EUT DESCRIPTION:	GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n & NFC
MODEL:	LG-H443, H443, LGH443, LG-H445, LGH445, H445
SERIAL NUMBER:	357494-06-000785 (Radiated), 357494-06-000785 (Conducted)
DATE TESTED:	FEBRUARY 7-16, 2015

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

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

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

Approved & Released For
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Tested By:

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 22, FCC CFR Part 24, 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(IC: 2324B-1)	☐ Chamber D(IC: 2324B-4)
☒ Chamber B(IC: 2324B-2)	☐ Chamber E(IC: 2324B-5)
☒ Chamber C(IC: 2324B-3)	☐ Chamber F(IC: 2324B-6)
	☐ Chamber G(IC: 2324B-7)
	☐ Chamber H(IC: 2324B-8)

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2000650.htm.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

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

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4.3. MEASUREMENT UNCERTAINTY

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

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

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n & NFC

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5.2. MAXIMUM OUTPUT POWER

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

FCC Part 22/24/27						
Band	Frequency Range(MHz)	Modulation mW	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
GSM850	824~849	GMSK	33.10	2041.74		
	824~849	GPRS	33.10	2041.74	29.66	924.49
	824~849	EGPRS	27.70	588.84	24.99	315.50
GSM1900	1850~1910	GMSK	30.20	1047.13		
	1850~1910	GPRS	30.20	1047.13	32.81	1909.85
	1850~1910	EGPRS	26.70	467.74	28.46	701.46
Band 5	824~849	REL99	23.70	234.42	20.04	100.88
	824~849	HSDPA	23.70	234.42	20.20	104.76
	824~849	HSUPA	22.90	194.98		
Band 2	1850~1910	REL99	23.50	223.87	25.73	374.11
	1850~1910	HSDPA	23.50	223.87	25.16	328.1
	1850~1910	HSUPA	22.90	194.98		

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5.3. MAXIMUM OUTPUT POWER (LTE)

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

FCC Part 22/24/27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			mW	AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE17	704~716	10MHz	QPSK	23.70	234.42	20.09	102.09
			16QAM	22.70	186.21	19.33	85.7
		5MHz	QPSK	23.40	218.78	19.68	92.9
			16QAM	22.60	181.97	18.48	70.47

FCC Part 22/24/27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			mW	AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	10MHz	QPSK	23.40	218.78	19.58	90.68
			16QAM	22.70	186.21	18.99	79.16
		5MHz	QPSK	23.70	234.42	19.49	88.88
			16QAM	22.70	186.21	18.87	77.05
		3MHz	QPSK	23.50	223.87	19.60	91.1
			16QAM	22.70	186.21	19.15	82.19
		1.4MHz	QPSK	23.30	213.80	19.85	96.49
			16QAM	22.70	186.21	19.66	92.43

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FCC Part 22/24/27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE4	1710~1755	20MHz	QPSK	23.50	223.87	25.02	317.76
			16QAM	22.70	186.21	24.58	287.36
		15MHz	QPSK	23.60	229.09	24.95	312.46
			16QAM	22.70	186.21	24.05	253.98
		10MHz	QPSK	23.10	204.17	24.48	280.61
			16QAM	22.70	186.21	23.52	224.96
		5MHz	QPSK	23.70	234.42	24.52	283.21
			16QAM	22.60	181.97	23.72	235.56
		3MHz	QPSK	23.50	223.87	24.82	303.46
			16QAM	22.70	186.21	23.82	241.05
		1.4MHz	QPSK	23.20	208.93	25.27	336.58
			16QAM	22.70	186.21	24.35	272.32

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FCC Part 22/24/27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE2	1850~1910	20MHz	QPSK	23.60	229.09	25.68	369.4
			16QAM	22.70	186.21	24.77	299.57
		15MHz	QPSK	23.30	213.80	25.92	390.73
			16QAM	22.70	186.21	25.09	322.76
		10MHz	QPSK	23.70	234.42	25.84	383.6
			16QAM	22.70	186.21	25.27	336.47
		5MHz	QPSK	23.60	229.09	25.69	370.68
			16QAM	23.60	229.09	24.59	287.66
		3MHz	QPSK	23.70	234.42	26.00	398
			16QAM	22.70	186.21	25.09	322.76
		1.4MHz	QPSK	23.30	213.80	25.87	386.26
			16QAM	22.70	186.21	24.99	315.41

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5.4. DESCRIPTION OF AVAILABLE ANTENNAS

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

Frequency (MHz)	Peak Gain (dBi)
BAND 2, 1850~1910MHz	1.42
BAND 4, 1710~1755MHz	0.87
BAND 5, 824~849MHz	-5.25
BAND 17, 704~716MHz	-6.64

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5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	LG	MCS-01WR	RD4X0891946	N/A
Earphone	LG	LG-L33L	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	NA
2	Jack	1	Headset	Shielded	1m	NA
3	RF In/out	1	Communication Test Set	Un-shielded	2m	NA

TEST SETUP

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

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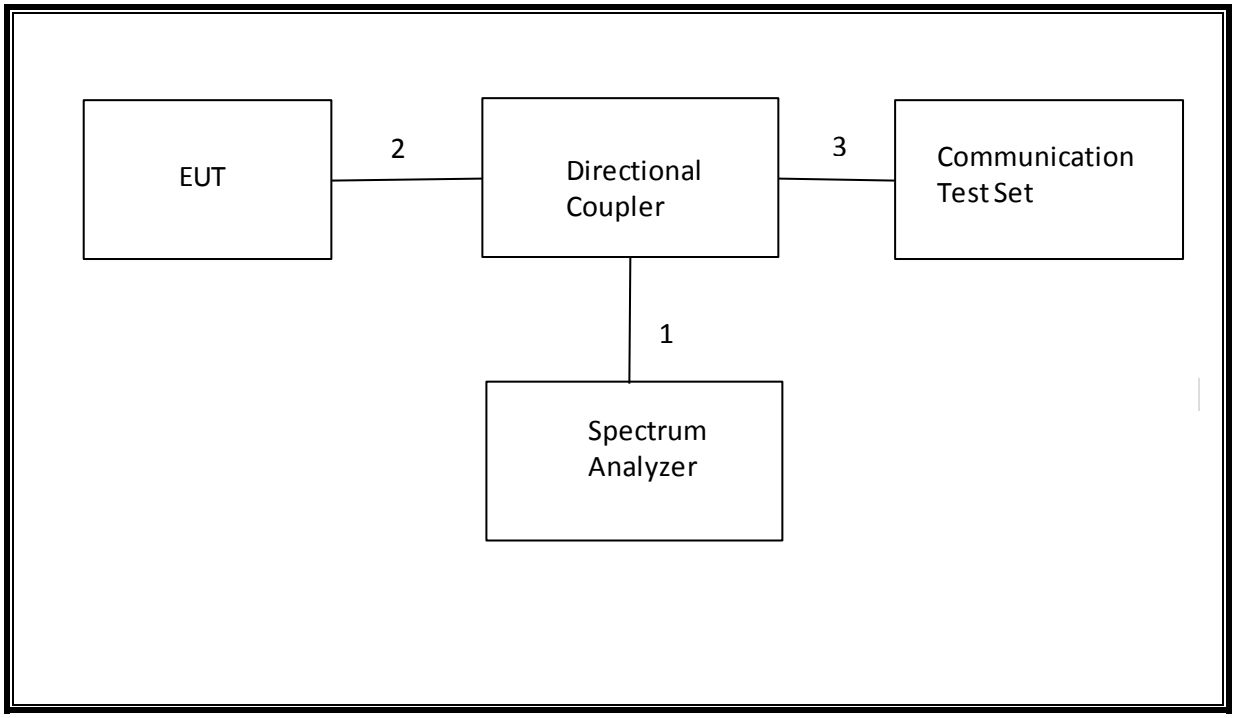
SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



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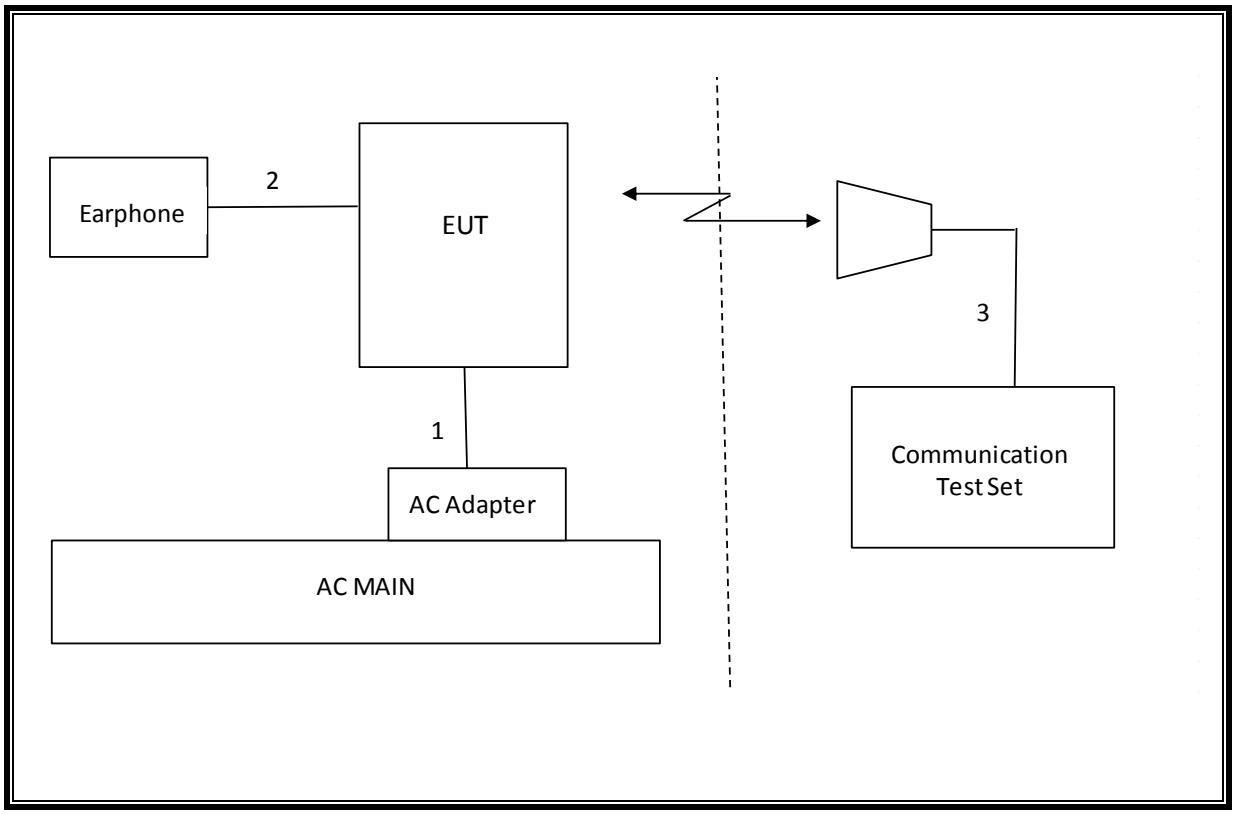
SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01171	02/13/15
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/15
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	11/14/15
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	04/28/15
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/15
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
CBT Bluetooth Tester	R & S	CBT	None	07/12/15
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/15
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/16/16
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	N02684	CNR

Test Software List			
Description	**Manufacturer**	**Model**	**Version**
Radiated Software	UL	UL EMC	Version 9.5, 07/22/14
Conducted Software	UL	UL EMC	Version 9.5, 05/17/14
CLT Software	UL	UL RF	Version 1.0, 02/02/15
Antenna Port Software	UL	UL RF	Version 2.1.1.1, 1/20/15

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7. SUMMARY TABLE

C2PC Reason:

1. LTE Band 2 and 4 added 1.4/3/15/20MHz bandwidth without hardware change.
2. LTE Band 5 added 1.4MHz, and 3MHz bandwidth without hardware change.

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Note
2.1049	N/A	Occupied Band width (99%)	N/A	Conducted	Pass	17.94 MHz
22.917(a) 24.238(a) 27.53(g) 90.691	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Band Edge / Conducted Spurious Emission	-13dBm		Pass	-32.2 dBm
2.1046	N/A	Conducted output power	N/A		Pass	33.1 dBm
22.355 24.235 27.54 90.213	RSS-132(4.3) RSS-133(6.3) RSS-139(6.3) RSS-199(4.3)	Frequency Stability	2.5PPM		Pass	See Original
22.913(a)(2)	RSS-132(4.4)	Effective Radiated Power	38 dBm	Radiated	Pass	29.7 dBm
27.50(c)(10)	N/A		34.77 dBm		Pass	20.1 dBm
24.232(c) 27.50(h)(2)	RSS-133(6.4) RSS-199(4.4)	Equivalent Isotropic Radiated Power	33dBm		Pass	32.8 dBm
27.50(d)(4)	RSS-139(6.4)		30dBm		Pass	25.3 dBm
22.917(a) 24.238(a) 27.53(g)	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Radiated Spurious Emission	-13dBm		Pass	-31.8 dBm

NOTE: LTE Band 17 no additional bandwidth. Data for PAR, Band Edge, Out-of-Band Emissions and Occupied Bandwidth, please refer to original report.

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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

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8.1.1. GSM OUTPUT POWER RESULT

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	128	824.2	33.1
			190	836.6	33.1
			251	848.8	33.1
GPRS (GMSK)	CS1	1	128	824.2	33.1
			190	836.6	33.1
			251	848.8	33.1
		2	128	824.2	31.7
			190	836.6	31.7
			251	848.8	31.7
EGPRS (8PSK)	MCS5	1	128	824.2	27.7
			190	836.6	27.7
			251	848.8	27.7
		2	128	824.2	27.7
			190	836.6	27.7
			251	848.8	27.5

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	512	1850.2	30.0
			661	1880.0	30.1
			810	1909.8	30.2
GPRS (GMSK)	CS1	1	512	1850.2	30.0
			661	1880.0	30.1
			810	1909.8	30.2
		2	512	1850.2	29.7
			661	1880.0	29.7
			810	1909.8	29.7
EGPRS (8PSK)	MCS5	1	512	1850.2	26.7
			661	1880.0	26.7
			810	1909.8	26.7
		2	512	1850.2	26.7
			661	1880.0	26.7
			810	1909.8	26.7

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8.2. UMTS REL 99

TEST PROCEDURE

The following summary of these settings are illustrated below:

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

8.2.1. UMTS REL 99 OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Rel 99 (RMC, 12.2 kbps)	4132	826.4	0	23.7
		4183	836.6	0	23.7
		4233	846.6	0	23.7

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	23.2
		9400	1880.0	0	23.4
		9538	1907.6	0	23.5

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8.3. UMTS HSDPA

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

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

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8.3.1. UMTS HSDPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	23.7
		4183	836.6	0	23.7
		4233	846.6	0	23.7
	Subtest 2	4132	826.4	0	23.7
		4183	836.6	0	23.7
		4233	846.6	0	23.7
	Subtest 3	4132	826.4	0.5	23.2
		4183	836.6	0.5	23.1
		4233	846.6	0.5	23.1
	Subtest 4	4132	826.4	0.5	23.2
		4183	836.6	0.5	23.1
		4233	846.6	0.5	23.1

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	23.3
		9400	1880.0	0	23.5
		9538	1907.6	0	23.5
	Subtest 2	9262	1852.4	0	23.3
		9400	1880.0	0	23.5
		9538	1907.6	0	23.5
	Subtest 3	9262	1852.4	0.5	22.9
		9400	1880.0	0.5	23.1
		9538	1907.6	0.5	23.0
	Subtest 4	9262	1852.4	0.5	22.9
		9400	1880.0	0.5	23.1
		9538	1907.6	0.5	23.0

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8.4. UMTS HSUPA

TEST PROCEDURE

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

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

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

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8.4.1. UMTS HSUPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	22.5
		4183	836.6	0	22.9
		4233	846.6	0	22.5
	Subtest 2	4132	826.4	2	21.5
		4183	836.6	2	21.7
		4233	846.6	2	21.7
	Subtest 3	4132	826.4	1	22.4
		4183	836.6	1	22.4
		4233	846.6	1	22.5
	Subtest 4	4132	826.4	2	21.5
		4183	836.6	2	21.7
		4233	846.6	2	21.7
	Subtest 5	4132	826.4	0	22.5
		4183	836.6	0	22.9
		4233	846.6	0	22.5

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	22.4
		9400	1880.0	0	22.5
		9538	1907.6	0	22.9
	Subtest 2	9262	1852.4	2	21.4
		9400	1880.0	2	21.5
		9538	1907.6	2	21.6
	Subtest 3	9262	1852.4	1	21.8
		9400	1880.0	1	21.9
		9538	1907.6	1	22.0
	Subtest 4	9262	1852.4	2	21.4
		9400	1880.0	2	21.5
		9538	1907.6	2	21.6
	Subtest 5	9262	1852.4	0	22.4
		9400	1880.0	0	22.5
		9538	1907.6	0	22.9

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8.5. DC-HSDPA

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS34.108 v9.5.0. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Table E.5.0: Levels for HSDPA connection setup

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH _Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

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Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

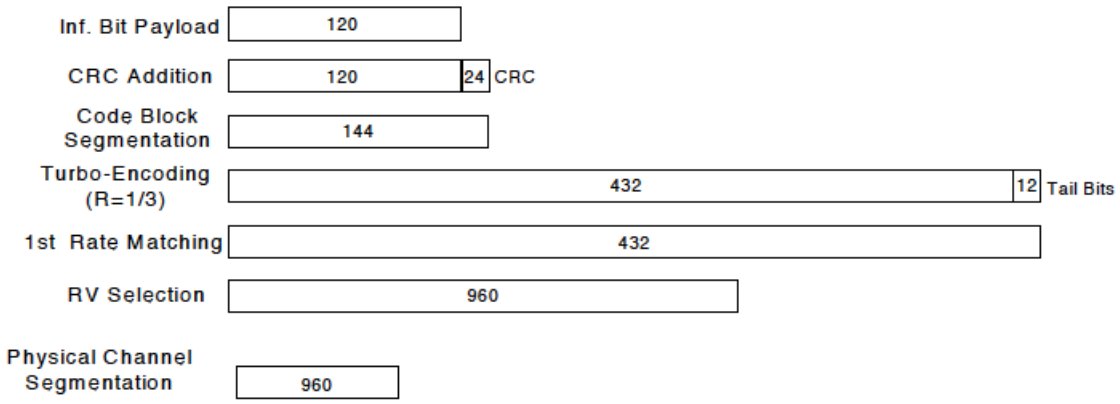

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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The following 4 Sub-tests for HSDPA were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of subtest settings are illustrated below:

	Mode	Rel6 HSDPA	Rel6 HSDPA	Rel6 HSDPA	Rel6 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	Algorithm2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack Repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs = βhs/ βc	30/15			

Up commands are set continuously to set the UE to Max power.

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8.5.1. UMTS DC-HSDPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	23.7
		4183	836.6	0	23.7
		4233	846.6	0	23.7
	Subtest 2	4132	826.4	0	23.7
		4183	836.6	0	23.7
		4233	846.6	0	23.7
	Subtest 3	4132	826.4	0.5	23.2
		4183	836.6	0.5	23.1
		4233	846.6	0.5	23.1
	Subtest 4	4132	826.4	0.5	23.2
		4183	836.6	0.5	23.1
		4233	846.6	0.5	23.1

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	22.9
		9400	1880.0	0	23.1
		9538	1907.6	0	23.0
	Subtest 2	9262	1852.4	0	22.9
		9400	1880.0	0	23.1
		9538	1907.6	0	23.0
	Subtest 3	9262	1852.4	0.5	22.9
		9400	1880.0	0.5	23.1
		9538	1907.6	0.5	23.0
	Subtest 4	9262	1852.4	0.5	22.9
		9400	1880.0	0.5	23.1
		9538	1907.6	0.5	23.0

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8.7. LTE OUTPUT VERIFICATION

8.7.1. LTE OUTPUT RESULT

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm) 23790 710 MHz
LTE Band 17	10	QPSK	1	0	0	23.7
			1	24	0	23.3
			1	49	0	23.4
			25	0	1	22.5
			25	12	1	22.4
			25	24	1	22.4
			50	0	1	22.5
		16QAM	1	0	1	22.7
			1	24	1	22.7
			1	49	1	22.5
			25	0	2	21.5
			25	12	2	21.5
			25	24	2	21.5
			50	0	2	21.4

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm) 23790 710 MHz
LTE Band 17	5	QPSK	1	0	0	23.2
			1	12	0	23.4
			1	24	0	23.1
			12	0	1	22.3
			12	6	1	22.3
			12	11	1	22.3
			25	0	1	22.2
		16QAM	1	0	1	22.4
			1	12	1	22.6
			1	24	1	22.1
			12	0	2	21.3
			12	6	2	21.2
			12	11	2	21.2
			25	0	2	21.3

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20450	20525	20600
						829 MHz	836.5 MHz	844 MHz
LTE Band 5	10	QPSK	1	0	0	23.1	23.4	23.1
			1	24	0	23.1	23.2	23.0
			1	49	0	23.2	23.0	23.0
			25	0	1	22.3	22.3	22.2
			25	12	1	22.4	22.3	22.3
			25	24	1	22.3	22.4	22.2
			50	0	1	22.4	22.3	22.2
		16QAM	1	0	1	22.5	22.7	22.2
			1	24	1	22.6	22.0	22.1
			1	49	1	22.6	22.4	22.4
			25	0	2	21.3	21.3	21.4
			25	12	2	21.4	21.3	21.3
			25	24	2	21.3	21.4	21.4
			50	0	2	21.4	21.3	21.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20425	20525	20625
						826.5 MHz	836.5 MHz	846.5 MHz
LTE Band 5	5	QPSK	1	0	0	23.0	23.4	23.1
			1	12	0	23.1	23.7	23.3
			1	24	0	23.0	23.3	22.9
			12	0	1	22.2	22.3	22.2
			12	6	1	22.3	22.3	22.2
			12	11	1	22.3	22.3	22.2
			25	0	1	22.3	22.3	22.2
		16QAM	1	0	1	22.5	22.3	22.5
			1	12	1	22.7	22.4	22.7
			1	24	1	22.1	22.5	22.7
			12	0	2	21.2	21.4	21.3
			12	6	2	21.4	21.4	21.2
			12	11	2	21.3	21.4	21.3
			25	0	2	21.3	21.3	21.1

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20415	20525	20635
						825.5 MHz	836.5 MHz	847.5 MHz
LTE Band 5	3	QPSK	1	0	0	23.1	23.3	22.9
			1	7	0	23.2	23.5	23.4
			1	14	0	23.0	23.1	23.1
			6	0	1	22.3	22.3	22.2
			6	3	1	22.3	22.4	22.1
			6	5	1	22.2	22.3	22.3
			15	0	1	22.3	22.4	22.2
		16QAM	1	0	1	22.7	22.7	22.7
			1	7	1	22.7	22.6	22.4
			1	14	1	22.7	22.7	21.8
			6	0	2	21.5	21.1	21.3
			6	3	2	21.1	21.1	21.4
			6	5	2	21.5	21.1	21.3
			15	0	2	21.3	21.3	21.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target 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	23.1	23.1	22.8
			1	2	0	23.2	23.3	23.0
			1	5	0	23.1	23.2	22.9
			3	0	0	23.2	23.2	23.0
			3	1	0	23.2	23.3	23.2
			3	2	0	23.2	23.3	23.1
			6	0	1	22.3	22.3	22.1
		16QAM	1	0	1	22.7	22.7	22.5
			1	2	1	21.9	22.0	22.7
			1	5	1	22.5	22.2	22.2
			3	0	1	22.6	21.9	22.2
			3	1	1	22.6	21.9	22.5
			3	2	1	22.6	22.5	22.6
			6	0	2	21.2	21.1	21.3

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20050	20175	20300
						1720 MHz	1732.5 MHz	1745 MHz
LTE Band 4	20	QPSK	1	0	0	23.5	23.1	23.2
			1	49	0	23.5	23.1	23.5
			1	99	0	23.2	23.1	23.4
			50	0	1	22.2	22.3	22.2
			50	25	1	22.2	22.3	22.2
			50	49	1	22.1	22.1	22.2
			100	0	1	22.2	22.2	22.2
		16QAM	1	0	1	22.2	22.4	22.7
			1	49	1	22.1	22.1	22.7
			1	99	1	21.9	22.0	22.7
			50	0	2	21.2	21.3	21.1
			50	25	2	21.2	21.1	20.9
			50	49	2	21.2	21.0	21.0
			100	0	2	21.1	21.2	21.3

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20025	20175	20325
						1717.5 MHz	1732.5 MHz	1747.5 MHz
LTE Band 4	15	QPSK	1	0	0	23.0	23.2	23.2
			1	37	0	23.7	23.1	23.6
			1	74	0	22.9	23.1	23.1
			36	0	1	22.2	22.3	22.2
			36	18	1	22.1	22.2	22.2
			36	35	1	22.2	22.2	22.2
			75	0	1	22.1	22.2	22.1
		16QAM	1	0	1	22.4	22.6	22.7
			1	37	1	22.2	22.4	22.7
			1	74	1	22.1	22.4	22.7
			36	0	2	21.1	21.2	21.3
			36	18	2	21.0	21.3	21.1
			36	35	2	21.0	21.3	21.1
			75	0	2	21.0	21.3	21.2

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20000	20175	20350
						1715 MHz	1732.5 MHz	1750 MHz
LTE Band 4	10	QPSK	1	0	0	23.1	23.1	23.1
			1	24	0	23.1	23.1	23.1
			1	49	0	23.0	23.0	23.1
			25	0	1	22.3	22.2	22.2
			25	12	1	22.2	22.2	22.2
			25	24	1	22.1	22.2	22.2
			50	0	1	22.1	22.2	22.2
		16QAM	1	0	1	22.7	22.7	22.5
			1	24	1	22.7	22.7	22.3
			1	49	1	22.7	22.3	21.7
			25	0	2	21.2	21.2	21.3
			25	12	2	21.0	21.2	21.3
			25	24	2	21.1	21.2	21.3
			50	0	2	21.0	21.1	21.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						19975	20175	20375
						1712.5 MHz	1732.5 MHz	1752.5 MHz
LTE Band 4	5	QPSK	1	0	0	22.9	23.1	22.9
			1	12	0	23.1	23.7	23.5
			1	24	0	22.9	23.2	22.9
			12	0	1	22.1	22.1	22.1
			12	6	1	22.2	22.2	22.2
			12	11	1	22.2	22.2	22.1
			25	0	1	22.1	22.1	22.2
		16QAM	1	0	1	22.1	22.2	21.8
			1	12	1	22.3	22.3	22.6
			1	24	1	21.7	22.0	22.7
			12	0	2	21.1	21.2	21.2
			12	6	2	21.2	21.2	21.2
			12	11	2	21.1	21.2	21.3
			25	0	2	21.2	21.2	21.2

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						19965	20175	20385
						1711.5 MHz	1732.5 MHz	1753.5 MHz
LTE Band 4	3	QPSK	1	0	0	23.1	23.0	22.9
			1	7	0	23.3	23.5	23.3
			1	14	0	23.0	23.1	23.0
			6	0	1	22.1	22.2	22.1
			6	3	1	22.3	22.1	22.1
			6	5	1	22.2	22.1	22.2
			15	0	1	22.2	22.2	22.2
		16QAM	1	0	1	22.5	22.7	22.7
			1	7	1	22.7	22.7	21.8
			1	14	1	22.5	22.3	22.5
			6	0	2	21.2	20.9	21.3
			6	3	2	21.3	21.0	21.3
			6	5	2	21.4	20.9	21.3
			15	0	2	21.2	21.2	21.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target 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	23.1	23.0	23.1
			1	2	0	23.2	23.1	23.2
			1	5	0	23.2	23.1	23.1
			3	0	0	23.2	23.1	23.2
			3	1	0	23.2	23.1	23.2
			3	2	0	23.1	23.2	23.2
			6	0	1	22.2	22.2	22.1
		16QAM	1	0	1	22.7	22.7	22.3
			1	2	1	22.7	22.7	22.6
			1	5	1	22.7	22.4	22.4
			3	0	1	22.4	22.5	22.1
			3	1	1	22.5	22.0	22.3
			3	2	1	22.4	22.2	22.2
			6	0	2	21.2	21.3	21.4

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18700	18900	19100
						1860 MHz	1880 MHz	1900 MHz
LTE Band 2	20	QPSK	1	0	0	23.6	23.2	23.6
			1	49	0	23.5	22.9	23.6
			1	99	0	23.3	23.5	23.5
			50	0	1	22.3	22.2	22.3
			50	25	1	22.3	22.1	22.3
			50	49	1	22.2	22.2	22.1
			100	0	1	22.2	22.1	22.2
		16QAM	1	0	1	22.7	22.7	22.7
			1	49	1	22.7	22.3	22.7
			1	99	1	21.9	22.2	22.7
			50	0	2	21.3	21.2	21.2
			50	25	2	21.0	21.1	21.2
			50	49	2	21.0	21.2	21.1
			100	0	2	21.1	21.1	21.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18675	18900	19125
						1857.5 MHz	1880 MHz	1902.5 MHz
LTE Band 2	15	QPSK	1	0	0	23.1	23.3	23.3
			1	37	0	23.2	23.2	23.2
			1	74	0	23.3	23.3	23.2
			36	0	1	22.2	22.3	22.3
			36	18	1	22.3	22.3	22.3
			36	35	1	22.2	22.3	22.1
			75	0	1	22.2	22.2	22.2
		16QAM	1	0	1	22.5	22.7	22.4
			1	37	1	22.7	22.4	22.5
			1	74	1	22.7	22.5	22.5
			36	0	2	21.2	21.4	21.2
			36	18	2	21.1	21.4	21.2
			36	35	2	21.1	21.3	21.1
			75	0	2	21.2	21.1	21.1

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18650	18900	19150
						1855 MHz	1880 MHz	1905 MHz
LTE Band 2	10	QPSK	1	0	0	23.4	23.7	23.4
			1	25	0	23.3	23.5	23.3
			1	49	0	23.3	23.4	23.3
			25	0	1	22.2	22.4	22.3
			25	12	1	22.2	22.3	22.2
			25	25	1	22.2	22.3	22.2
			50	0	1	22.2	22.4	22.2
		16QAM	1	0	1	22.7	22.6	22.3
			1	25	1	22.4	22.7	22.2
			1	49	1	22.7	22.7	22.3
			25	0	2	21.2	21.3	21.2
			25	12	2	21.2	21.3	21.3
			25	25	2	21.4	21.3	21.3
			50	0	2	21.3	21.3	21.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18625	18900	19175
						1852.5 MHz	1880 MHz	1907.5 MHz
LTE Band 2	5	QPSK	1	0	0	23.1	23.3	23.2
			1	12	0	23.2	23.6	23.3
			1	24	0	23.2	23.3	23.3
			12	0	1	22.1	22.2	22.2
			12	7	1	22.2	22.3	22.2
			12	13	1	22.2	22.3	22.2
			25	0	1	22.2	22.3	22.2
		16QAM	1	0	1	22.2	22.3	22.6
			1	12	1	22.2	22.3	22.2
			1	24	1	22.1	22.2	22.1
			12	0	2	21.1	21.1	21.2
			12	7	2	21.0	21.1	21.4
			12	13	2	21.2	21.2	21.3
			25	0	2	21.3	21.5	21.2

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18615	18900	19185
						1851.5 MHz	1880 MHz	1908.5 MHz
LTE Band 2	3	QPSK	1	0	0	22.9	23.2	23.1
			1	7	0	23.4	23.7	23.4
			1	14	0	23.0	23.1	23.2
			6	0	1	22.0	22.1	22.2
			6	3	1	22.0	22.1	22.2
			6	5	1	22.0	22.2	22.2
			15	0	1	22.0	22.2	22.3
		16QAM	1	0	1	22.1	22.7	22.6
			1	7	1	22.4	22.7	22.7
			1	14	1	22.3	22.5	22.5
			6	0	2	20.9	20.8	21.4
			6	3	2	21.2	21.1	21.4
			6	5	2	21.1	21.0	21.4
			15	0	2	21.0	21.3	21.3

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18607	18900	19193
						1850.7 MHz	1880 MHz	1909.3 MHz
LTE Band 2	1.4	QPSK	1	0	0	22.9	23.2	23.3
			1	2	0	23.0	23.0	23.3
			1	5	0	23.1	23.0	23.3
			3	0	0	23.0	23.0	23.3
			3	1	0	23.0	23.1	23.3
			3	2	0	23.0	23.2	23.3
			6	0	1	22.0	22.1	22.2
		16QAM	1	0	1	22.1	22.2	22.7
			1	2	1	22.7	22.2	22.7
			1	5	1	22.7	22.2	22.7
			3	0	1	22.3	21.9	22.6
			3	1	1	22.3	22.0	22.6
			3	2	1	21.8	22.2	22.6
			6	0	2	21.6	21.0	21.5

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9. PEAK TO AVERAGE RATIO

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

TEST SPEC

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

RESULTS

NOTE: Band 17 data please refer to original report for details.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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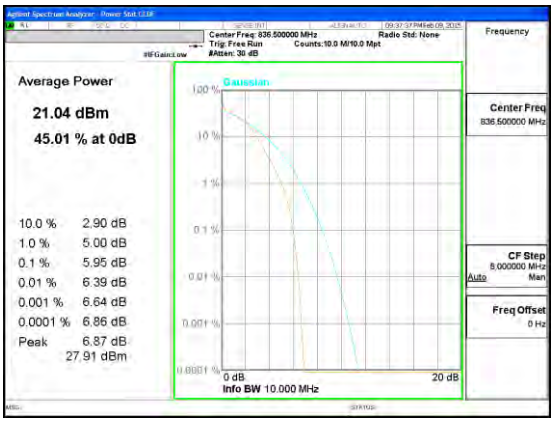
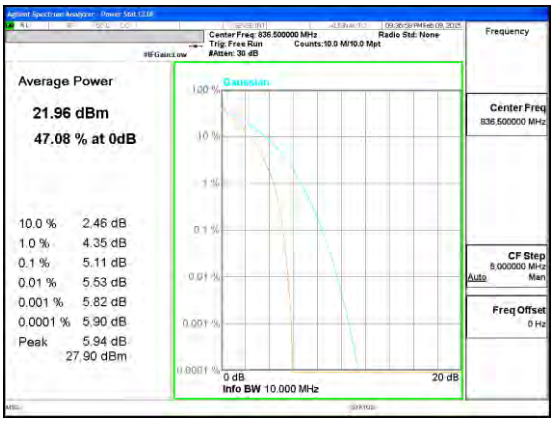
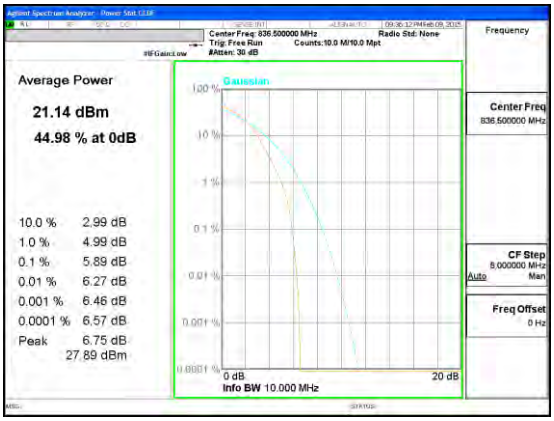
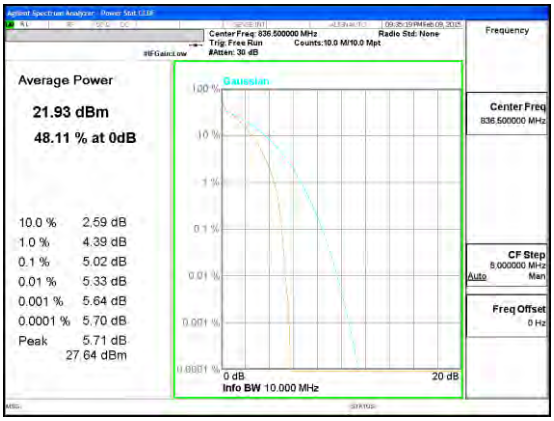
9.1. CONDUCTED PEAK TO AVERAGE RESULT

Band LTE5 3MHz 16QAM	 Band LTE5 3MHz 16QAM Mid channel	 Band LTE5 3MHz QPSK Mid channel
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz 16QAM Mid channel	 Band LTE5 1.4MHz QPSK Mid channel

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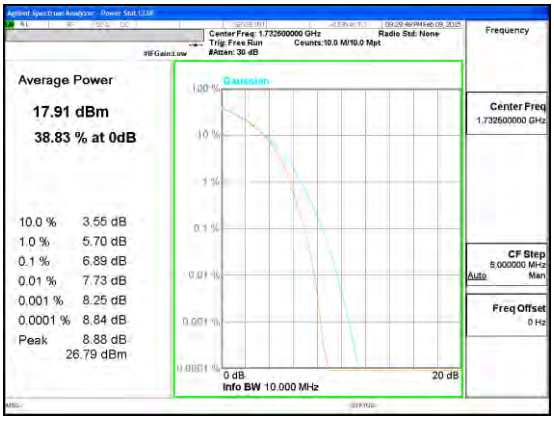
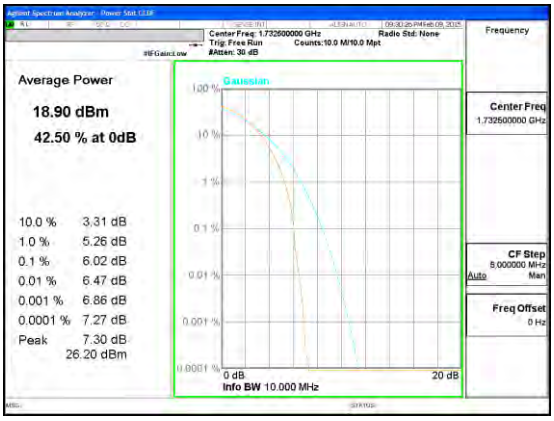
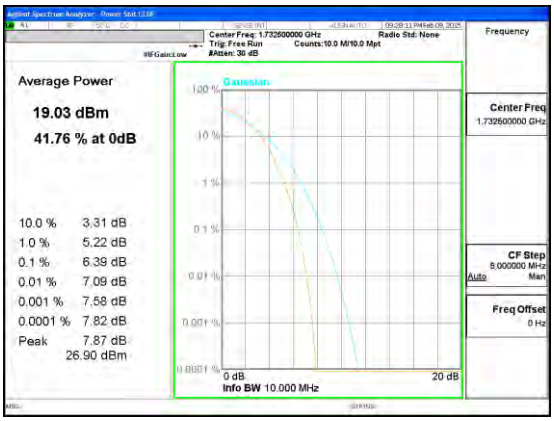
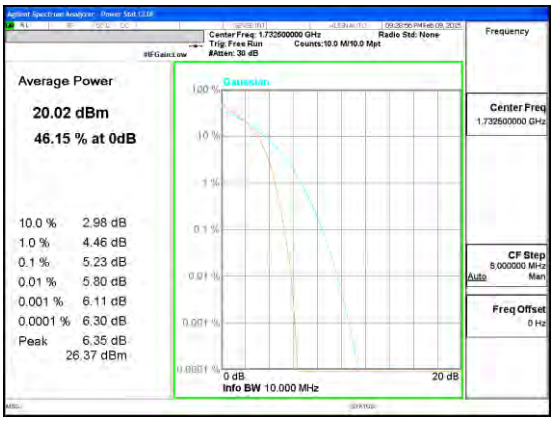
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz 16QAM Mid channel	 Band LTE4 20MHz QPSK Mid channel
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz 16QAM Mid channel	 Band LTE4 15MHz QPSK Mid channel

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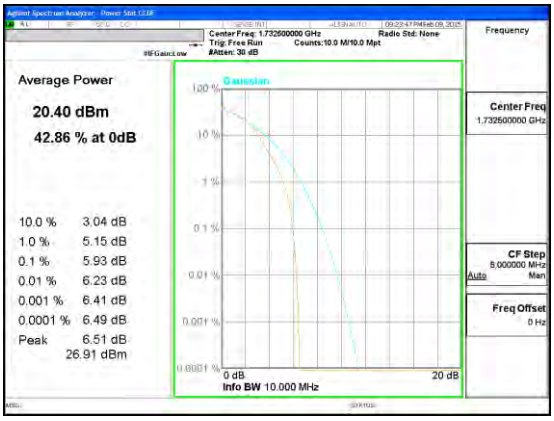
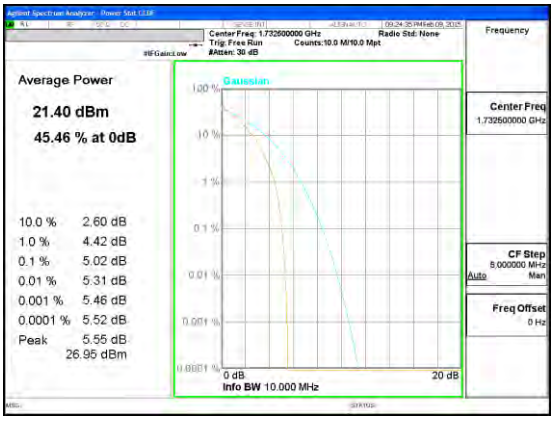
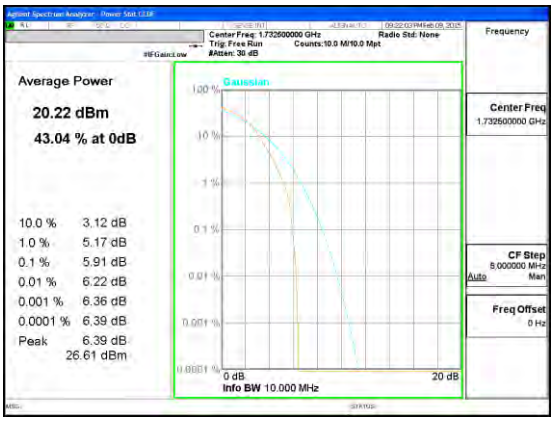
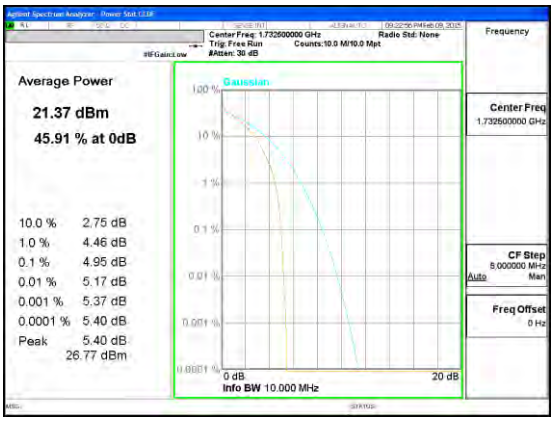
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz 16QAM Mid channel	 Band LTE4 3MHz QPSK Mid channel
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz 16QAM Mid channel	 Band LTE4 1.4MHz QPSK Mid channel

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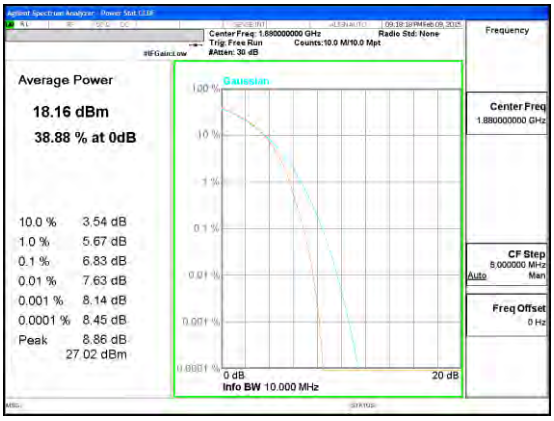
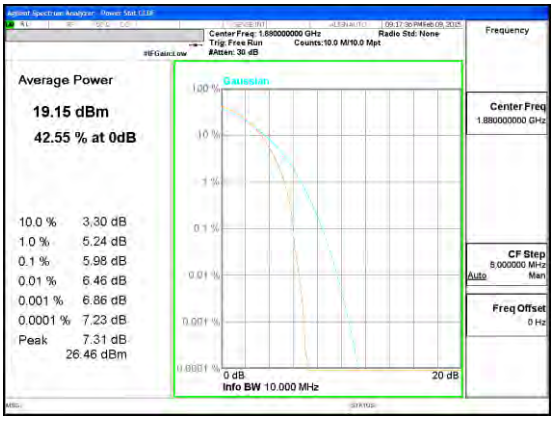
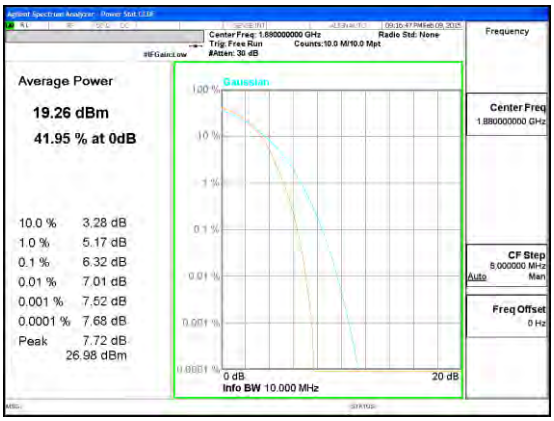
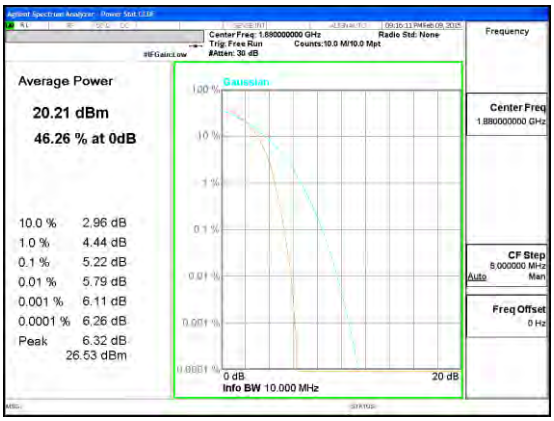
Band LTE2 20MHz 16QAM	 Band LTE2 20MHz 16QAM Mid channel	 Band LTE2 20MHz QPSK Mid channel
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz 16QAM Mid channel	 Band LTE2 15MHz QPSK Mid channel

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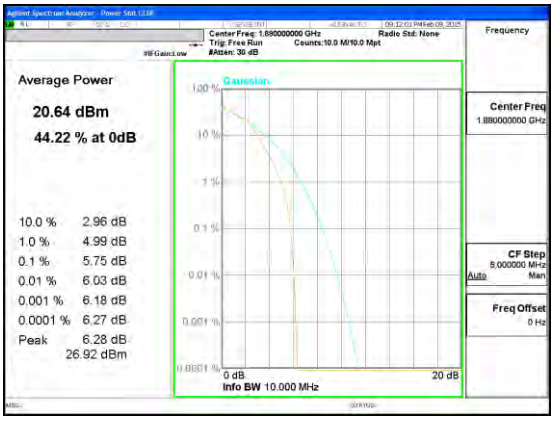
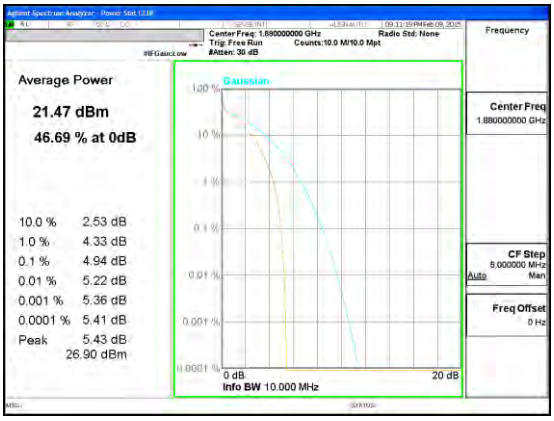
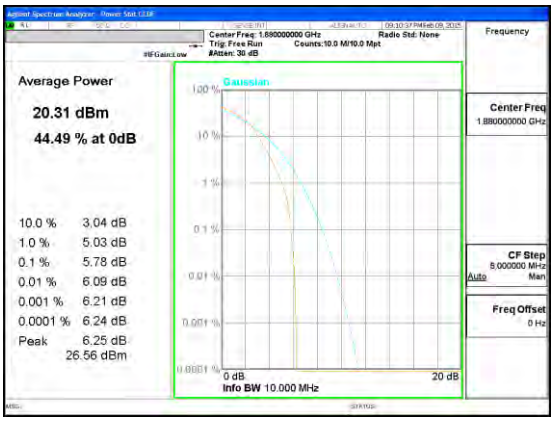
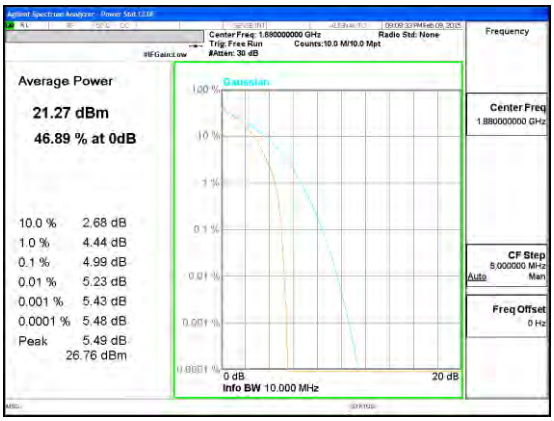
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz 16QAM Mid channel	 Band LTE2 3MHz QPSK Mid channel
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz 16QAM Mid channel	 Band LTE2 1.4MHz QPSK Mid channel

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10. LIMITS AND CONDUCTED RESULTS

10.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v02r02)

MODES TESTED

LTE

RESULTS

NOTE: Band 17 data please refer to original report for details.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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10.1.1. LTE OCCUPIED BANDWIDTH RESULTS

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE5	3	QPSK	15/0	825.5	2.6921	2.98
			15/0	836.5	2.6906	2.933
			15/0	847.5	2.6775	2.992
		16QAM	15/0	825.5	2.6848	2.988
			15/0	836.5	2.6889	2.96
			15/0	847.5	2.6804	2.956
	1.4	QPSK	6/0	824.7	1.0875	1.265
			6/0	836.5	1.0838	1.273
			6/0	848.3	1.0831	1.266
		16QAM	6/0	824.7	1.0898	1.305
			6/0	836.5	1.0819	1.257
			6/0	848.3	1.0831	1.266

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
LTE4	20	QPSK	100/0	1720	17.83	19.01
			100/0	1732.5	17.93	19.12
			100/0	1745	17.84	19.22
		16QAM	100/0	1720	17.89	19.22
			100/0	1732.5	17.86	19.23
			100/0	1745	17.88	19.25
	15	QPSK	75/0	1717.5	13.42	14.64
			75/0	1732.5	13.25	14.67
			75/0	1747.5	13.44	14.55
		16QAM	75/0	1717.5	13.43	14.6
			75/0	1732.5	13.44	14.53
			75/0	1747.5	13.42	14.51
	3	QPSK	15/0	1711.5	2.69	2.96
			15/0	1732.5	2.68	2.97
			15/0	1753.5	2.69	2.98
		16QAM	15/0	1711.5	2.69	2.943
			15/0	1732.5	2.688	2.965
			15/0	1753.5	2.683	2.99
	1.4	QPSK	6/0	1710.7	1.086	1.263
			6/0	1732.5	1.086	1.27
			6/0	1754.3	1.087	1.268
		16QAM	6/0	1710.7	1.09	1.297
			6/0	1732.5	1.092	1.281
			6/0	1754.3	1.089	1.274

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
LTE2	20	QPSK	100/0	1860	17.85	19.1
			100/0	1880	17.94	19.3
			100/0	1900	17.84	19.42
		16QAM	100/0	1860	17.86	19.24
			100/0	1880	17.9	19.31
			100/0	1900	17.88	19.27
	15	QPSK	75/0	1857.5	13.42	14.6
			75/0	1880	13.4	14.64
			75/0	1902.5	13.42	14.54
		16QAM	75/0	1857.5	13.43	14.54
			75/0	1880	13.41	14.65
			75/0	1902.5	13.41	14.56
	3	QPSK	15/0	1851.5	2.689	2.949
			15/0	1880	2.681	2.974
			15/0	1908.5	2.689	2.956
		16QAM	15/0	1851.5	2.691	2.971
			15/0	1880	2.692	2.979
			15/0	1908.5	2.693	2.967
	1.4	QPSK	6/0	1850.7	1.084	1.273
			6/0	1880	1.086	1.281
			6/0	1909.3	1.082	1.29
		16QAM	6/0	1850.7	1.089	1.281
			6/0	1880	1.088	1.297
			6/0	1909.3	1.09	1.293

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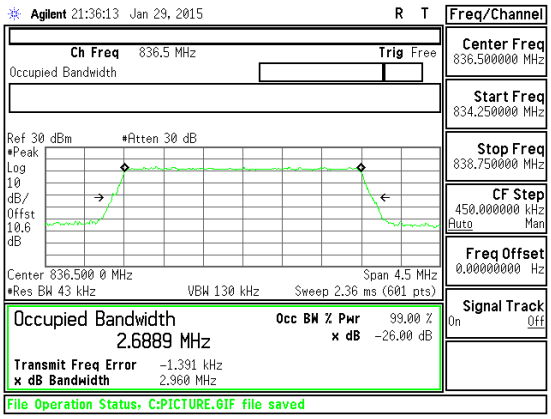
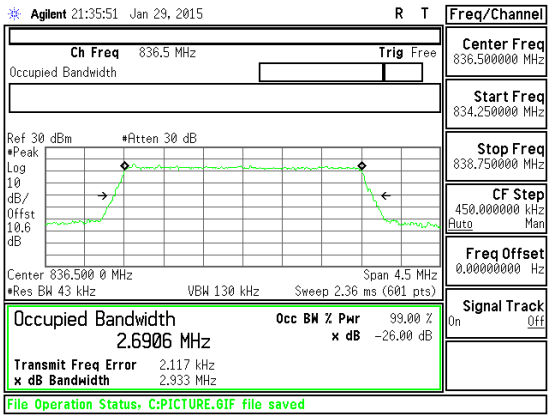
10.1.2. OCCUPIED BANDWIDTH PLOTS

Band LTE5 3MHz 16QAM

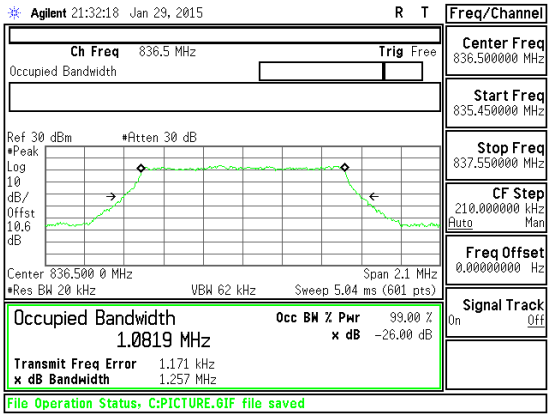


Band LTE5 3MHz OBW 16QAM Mid Channel FRB.gif

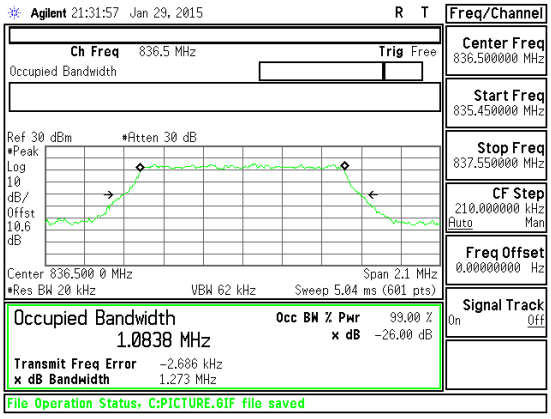


Band LTE5 3MHz OBW QPSK Mid Channel FRB.gif

Band LTE5 1.4MHz 16QAM



Band LTE5 1.4MHz OBW 16QAM Mid Channel FRB.gif



Band LTE5 1.4MHz OBW QPSK Mid Channel FRB.gif

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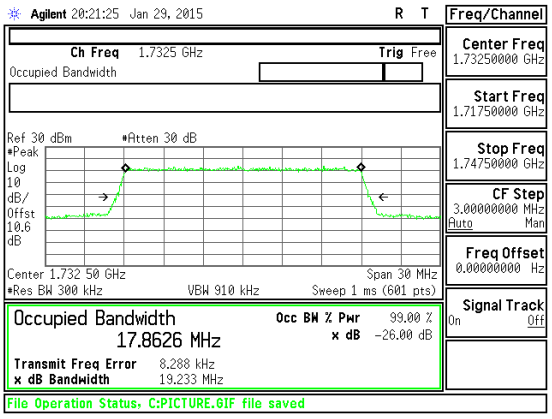
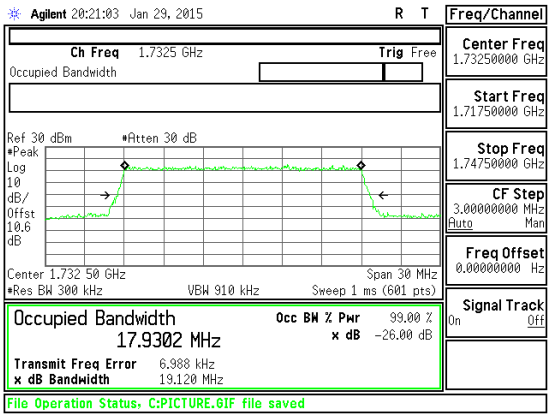
Band LTE4 20MHz 16QAM

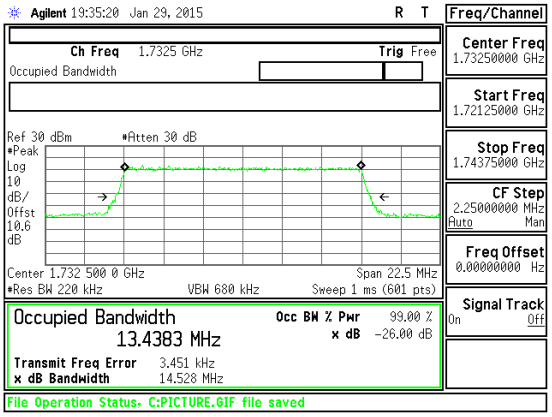


Band LTE4 20MHz OBW 16QAM Mid Channel FRB.gif

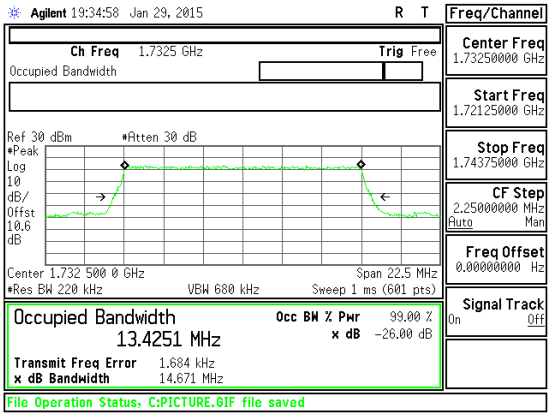


Band LTE4 20MHz OBW QPSK Mid Channel FRB.gif

Band LTE4 15MHz 16QAM



Band LTE4 15MHz OBW 16QAM Mid Channel FRB.gif



Band LTE4 15MHz OBW QPSK Mid Channel FRB.gif

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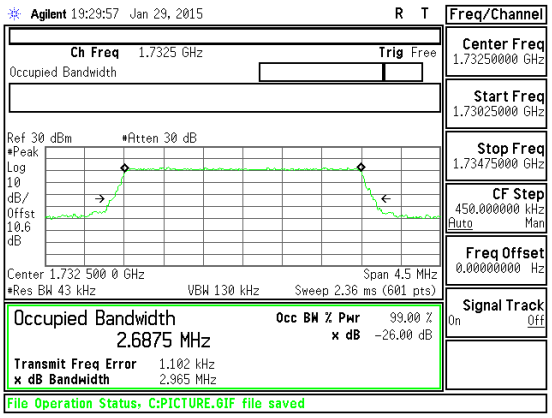
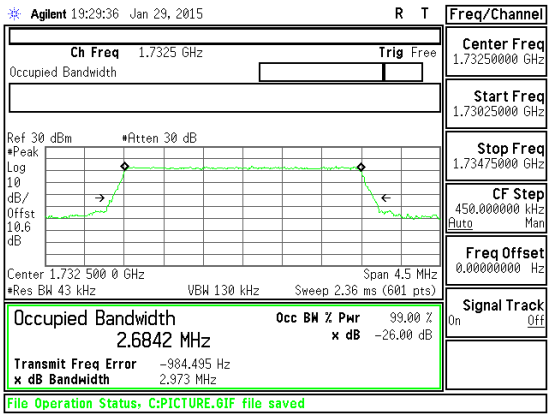
Band LTE4 3MHz 16QAM

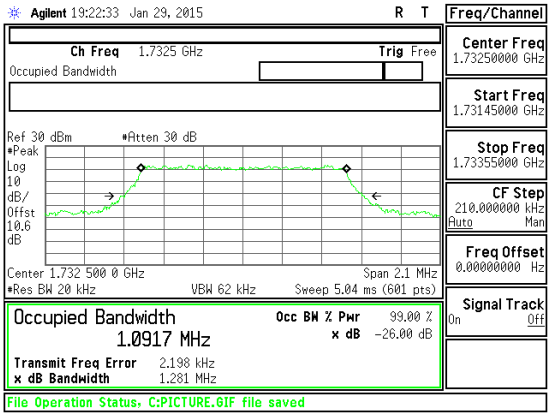


Band LTE4 3MHz OBW 16QAM Mid Channel FRB.gif

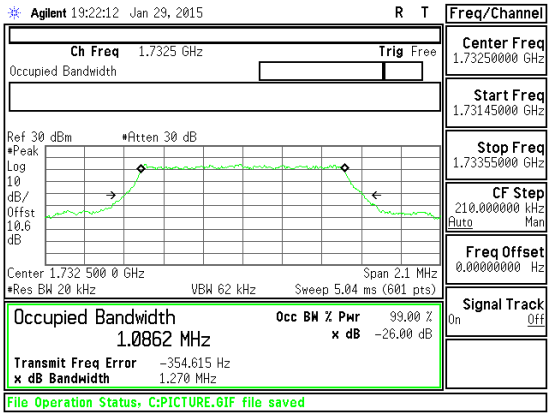


Band LTE4 3MHz OBW QPSK Mid Channel FRB.gif

Band LTE4 1.4MHz 16QAM



Band LTE4 1.4MHz OBW 16QAM Mid Channel FRB.gif



Band LTE4 1.4MHz OBW QPSK Mid Channel FRB.gif

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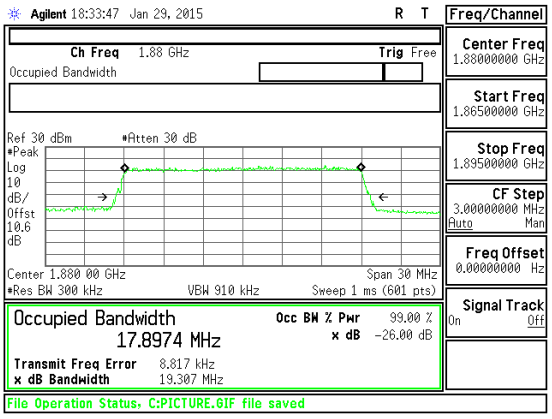
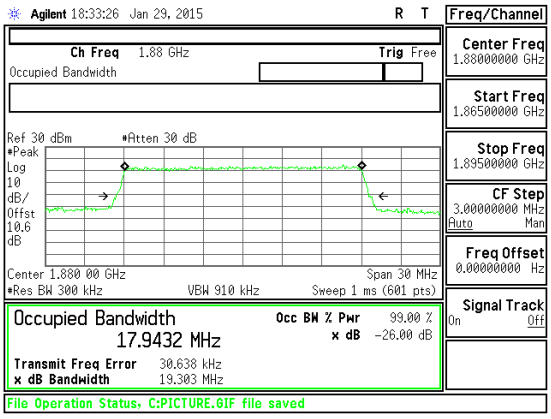
Band LTE2 20MHz 16QAM

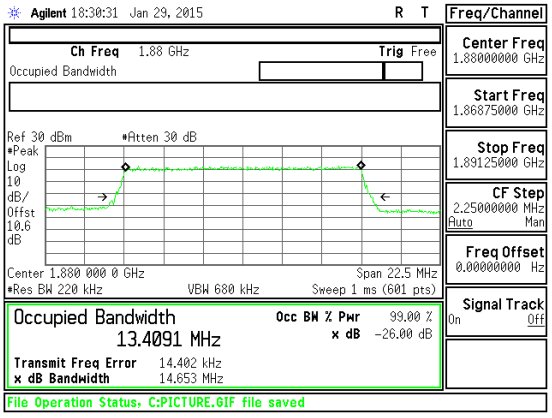


Band LTE2 20MHz OBW 16QAM Mid Channel FRB.gif

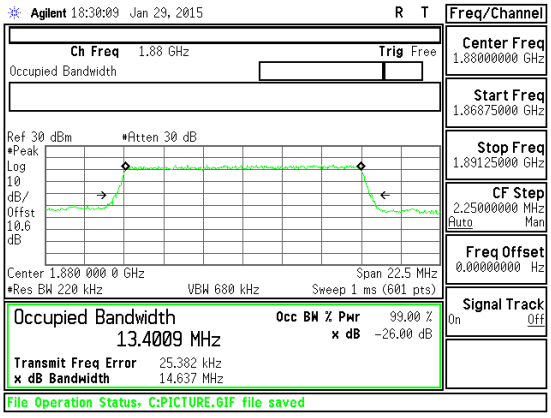


Band LTE2 20MHz OBW QPSK Mid Channel FRB.gif

Band LTE2 15MHz 16QAM



Band LTE2 15MHz OBW 16QAM Mid Channel FRB.gif



Band LTE2 15MHz OBW QPSK Mid Channel FRB.gif

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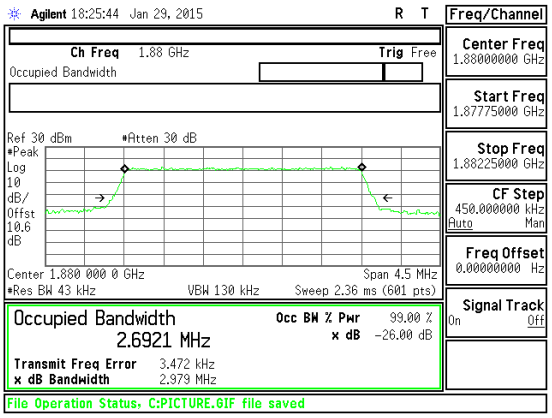
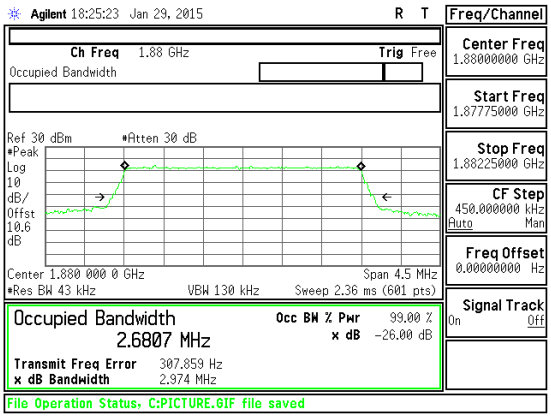
Band LTE2 3MHz 16QAM

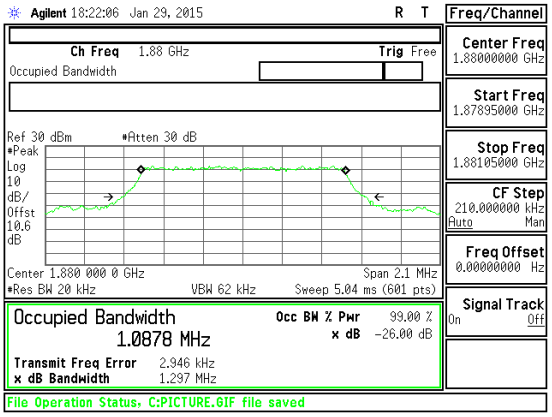


Band LTE2 3MHz OBW 16QAM Mid Channel FRB.gif

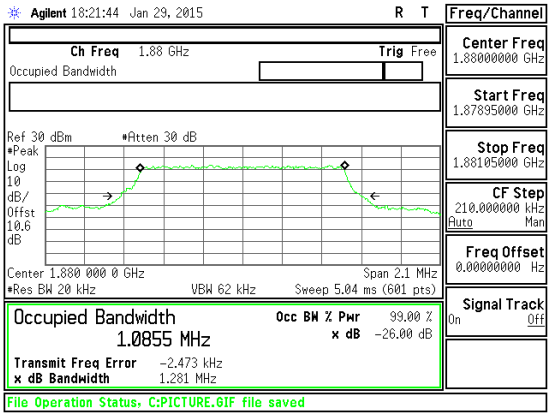


Band LTE2 3MHz OBW QPSK Mid Channel FRB.gif

Band LTE2 1.4MHz 16QAM



Band LTE2 1.4MHz OBW 16QAM Mid Channel FRB.gif



Band LTE2 1.4MHz OBW QPSK Mid Channel FRB.gif

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10.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238, §27. 53

LIMITS

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

Per KDB 971168 D01 Power Meas License Digital Systems v02r02
The transmitter output was connected to an Agilent 8960 or a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

MODES TESTED

LTE

RESULTS

NOTE: Band 17 data please refer to original report for details.

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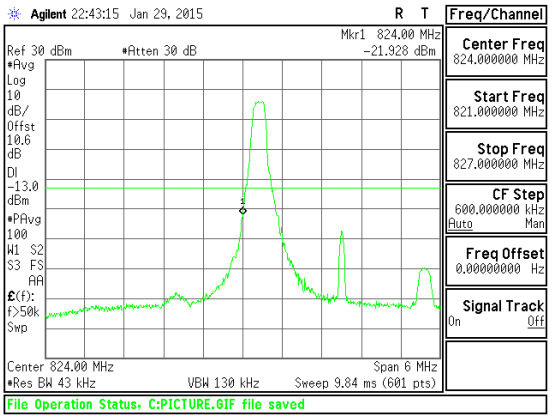
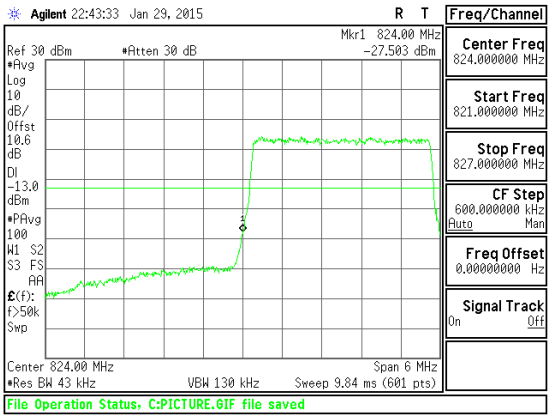
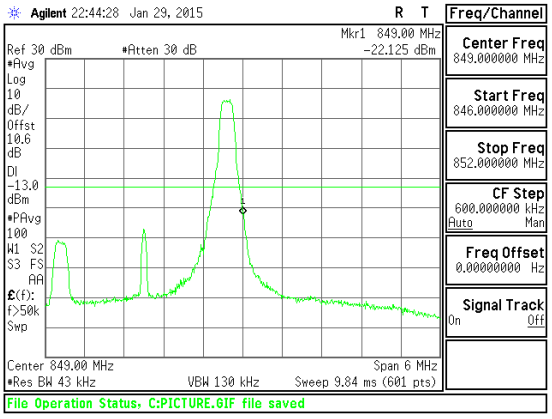
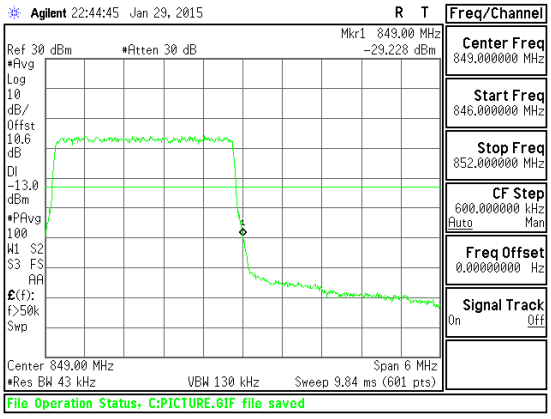
10.2.1. BAND EDGE PLOTS

Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 3MHz CBE 16QAM High Channel FRB.gif

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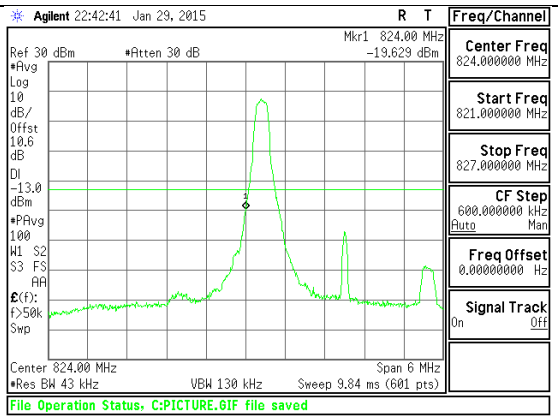
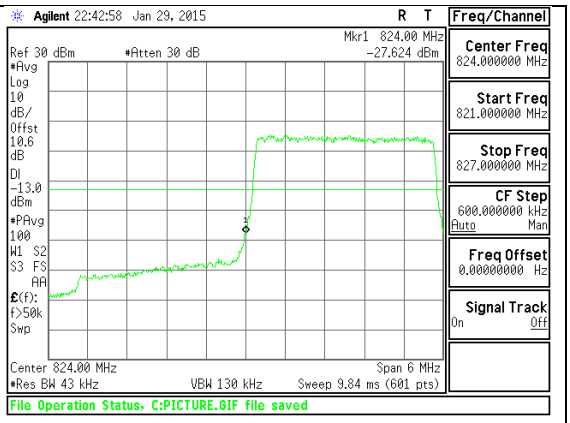
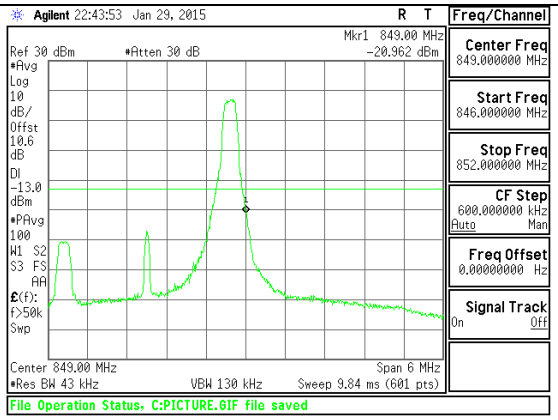
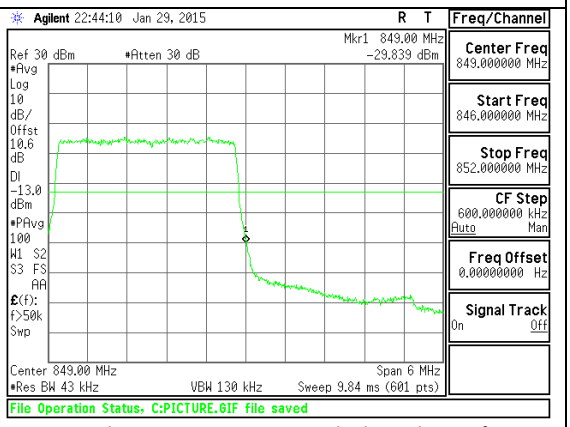
Band LTE5 3MHz QPSK	 Band LTE5 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 3MHz CBE QPSK Low Channel FRB.gif
Band LTE5 3MHz QPSK	 Band LTE5 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 3MHz CBE QPSK High Channel FRB.gif

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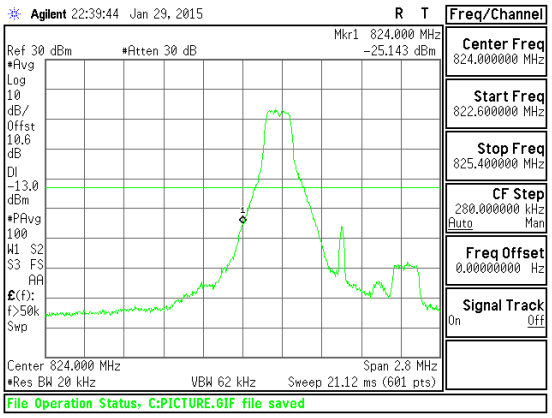
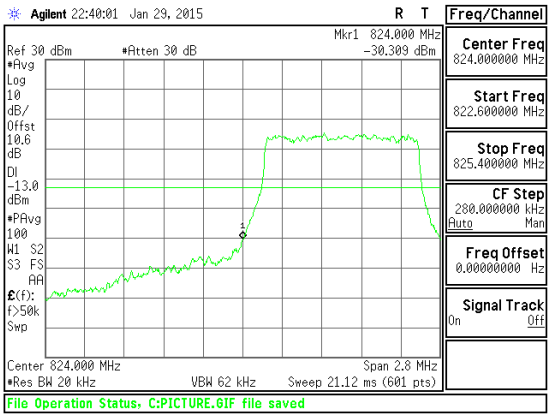
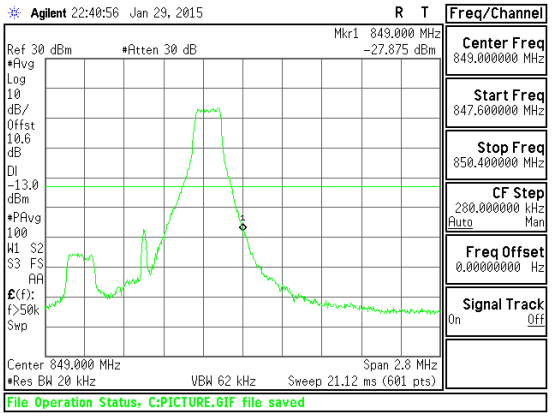
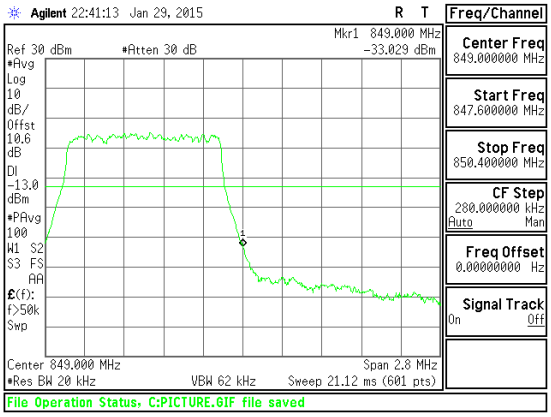
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 1.4MHz CBE 16QAM High Channel FRB.gif

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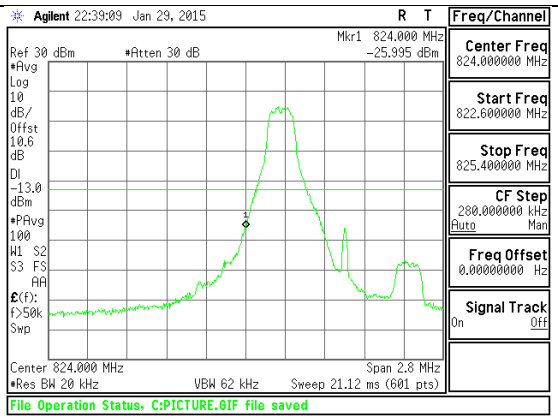
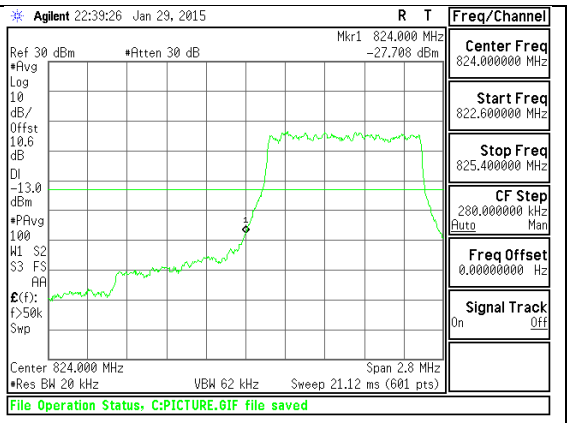
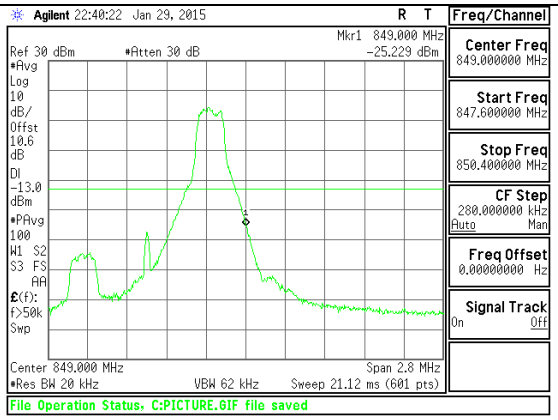
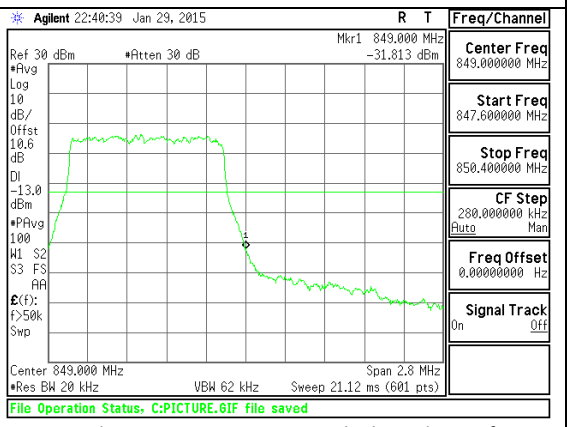
Band LTE5 1.4MHz QPSK	 Band LTE5 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE5 1.4MHz QPSK	 Band LTE5 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 1.4MHz CBE QPSK High Channel FRB.gif

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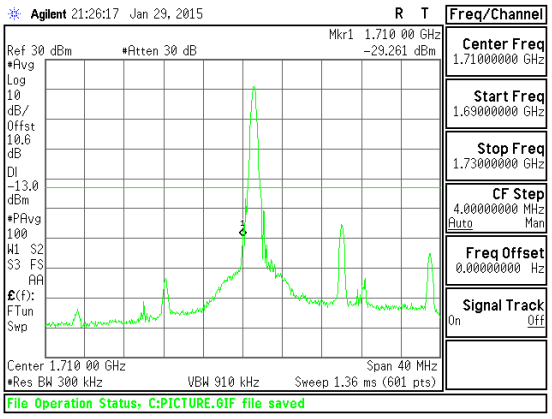
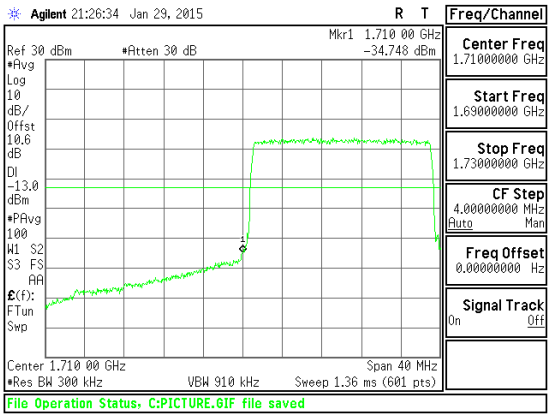
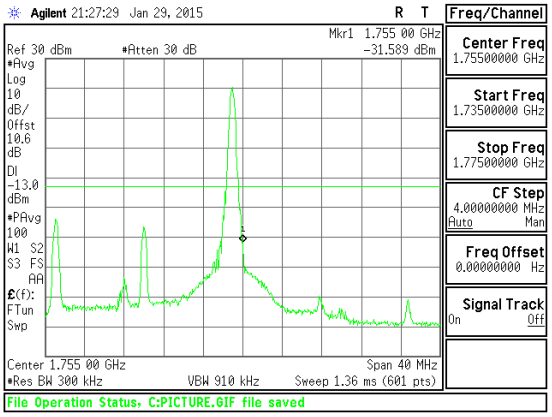
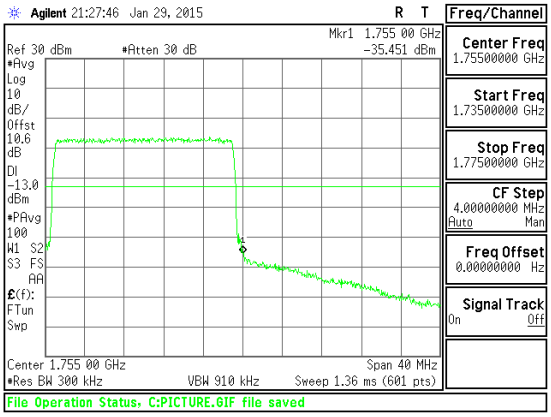
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 20MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 20MHz CBE 16QAM High Channel FRB.gif

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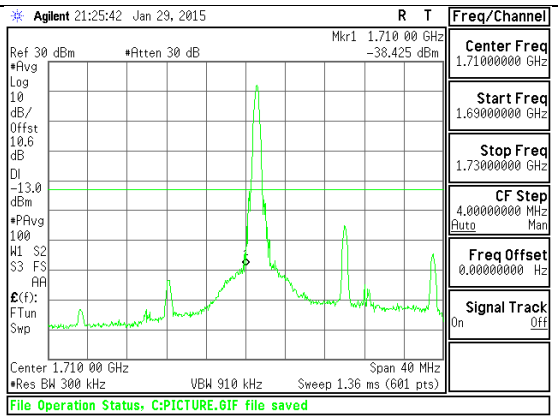
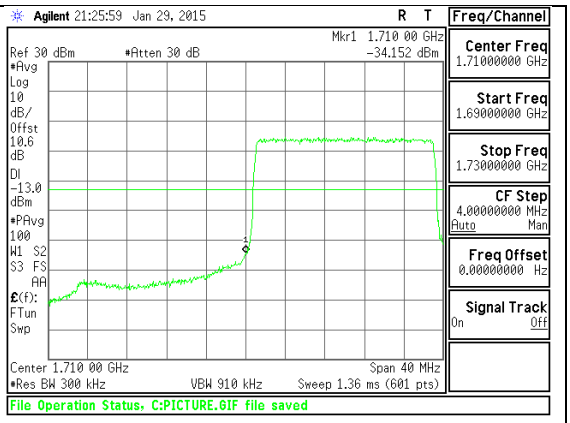
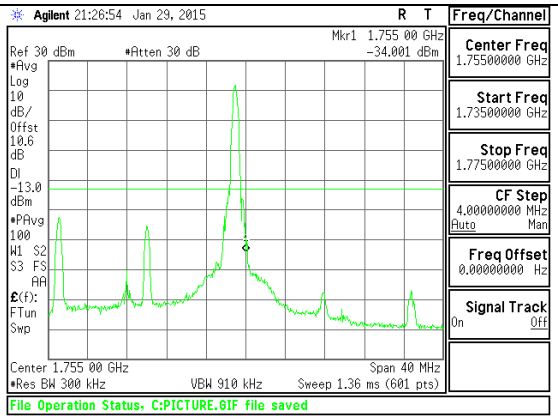
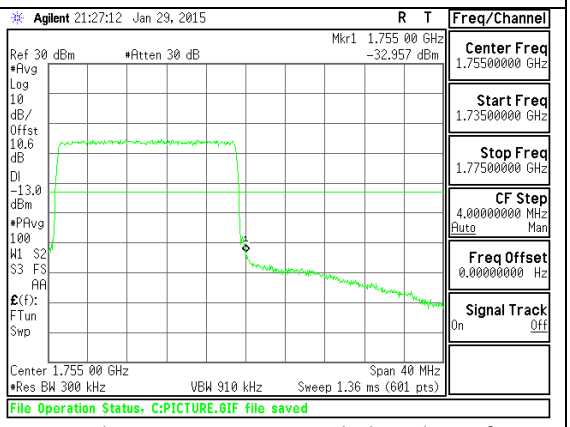
Band LTE4 20MHz QPSK	 Band LTE4 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 20MHz CBE QPSK Low Channel FRB.gif
Band LTE4 20MHz QPSK	 Band LTE4 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 20MHz CBE QPSK High Channel FRB.gif

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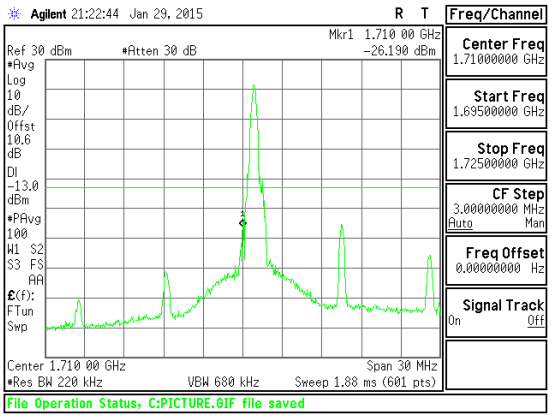
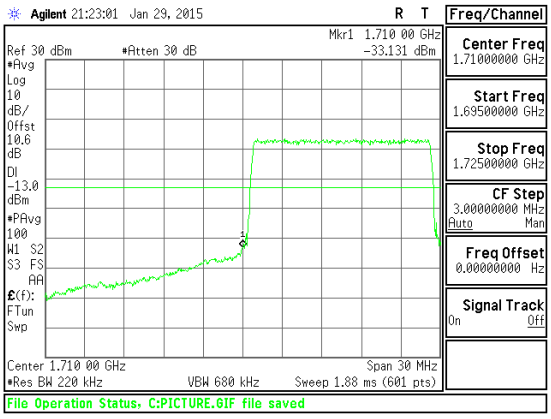
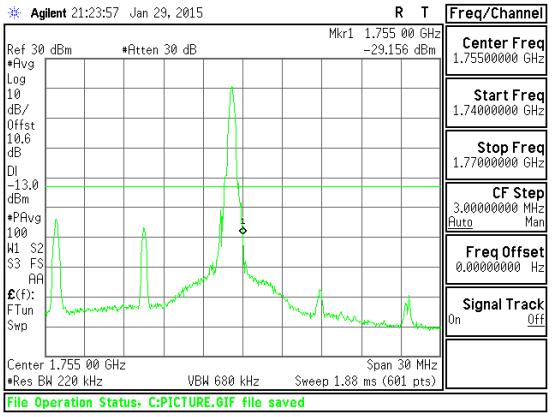
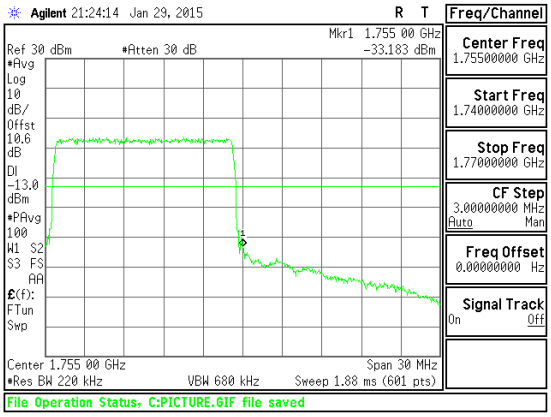
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 15MHz CBE 16QAM High Channel FRB.gif

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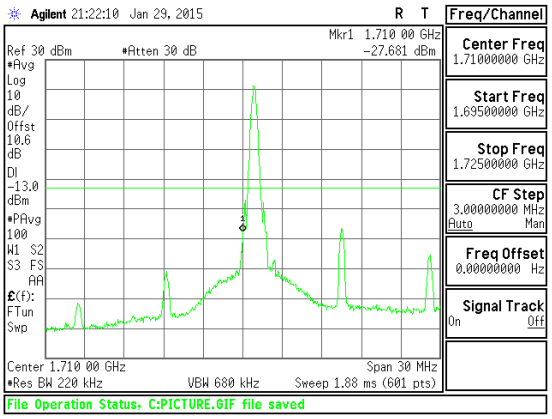
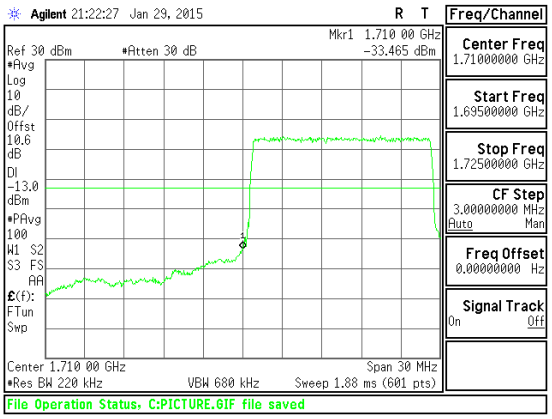
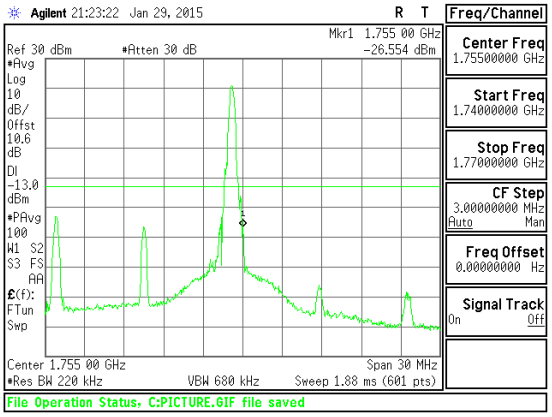
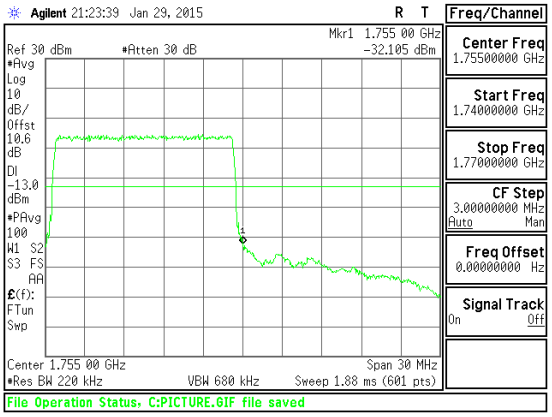
Band LTE4 15MHz QPSK	 Band LTE4 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 15MHz CBE QPSK Low Channel FRB.gif
Band LTE4 15MHz QPSK	 Band LTE4 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 15MHz CBE QPSK High Channel FRB.gif

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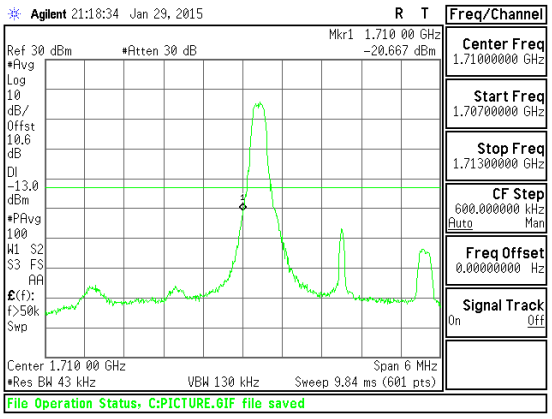
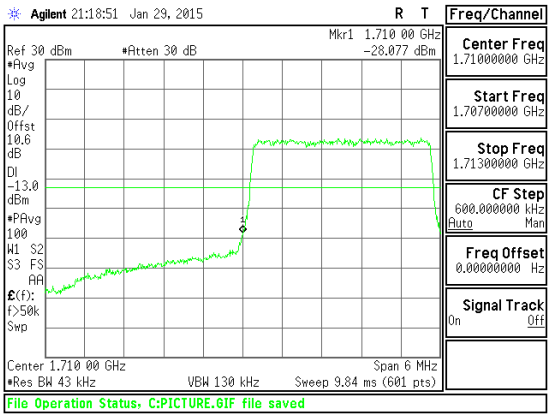
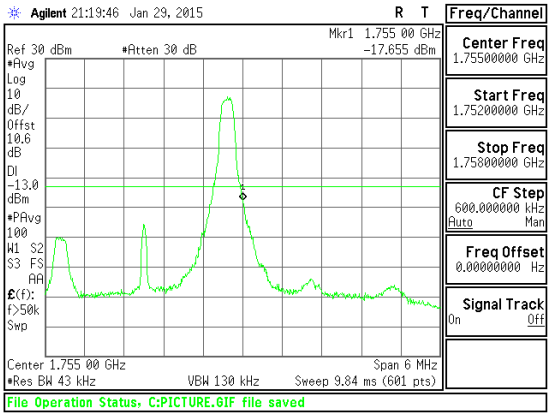
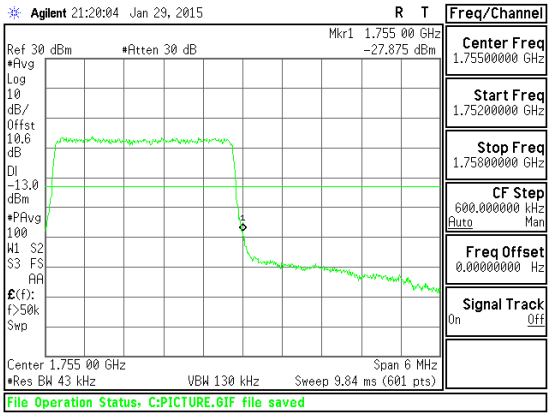
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 3MHz CBE 16QAM High Channel FRB.gif

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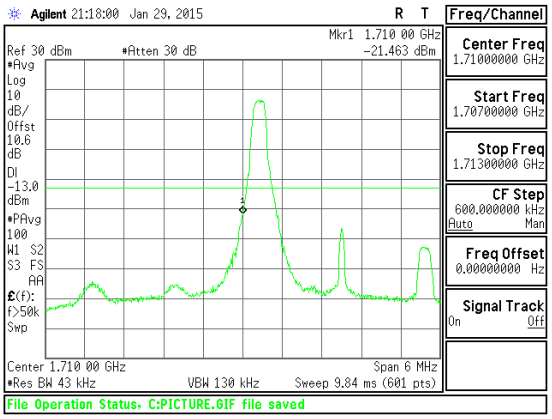
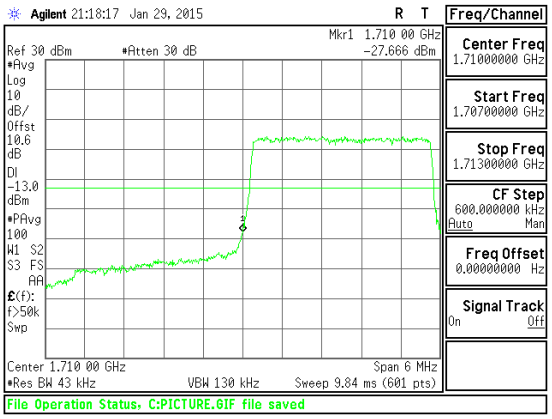
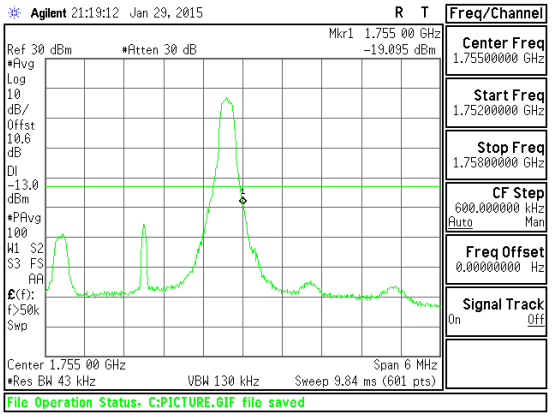
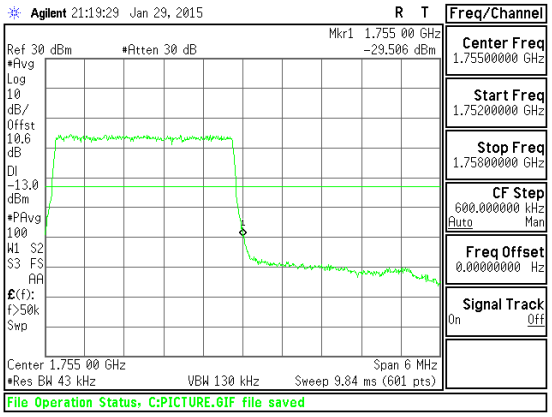
Band LTE4 3MHz QPSK	 Band LTE4 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 3MHz CBE QPSK Low Channel FRB.gif
Band LTE4 3MHz QPSK	 Band LTE4 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 3MHz CBE QPSK High Channel FRB.gif

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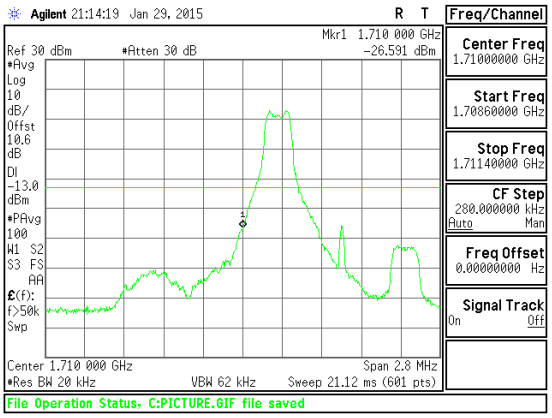
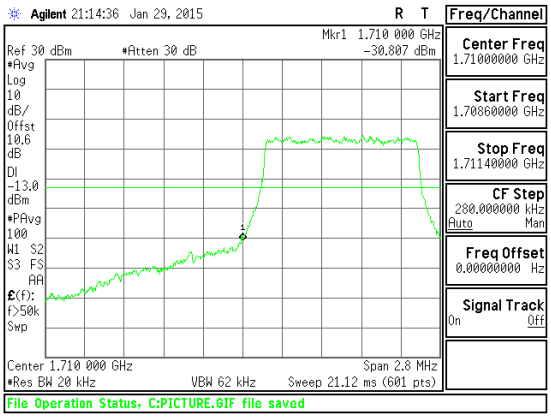
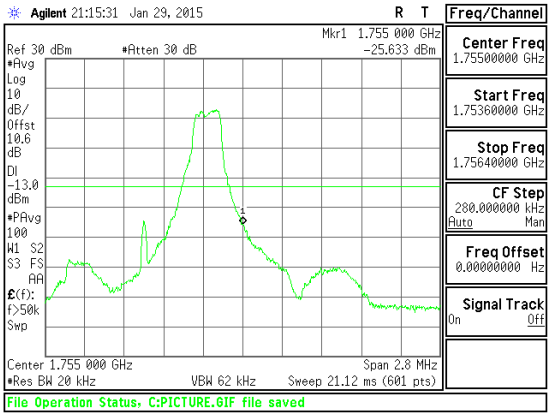
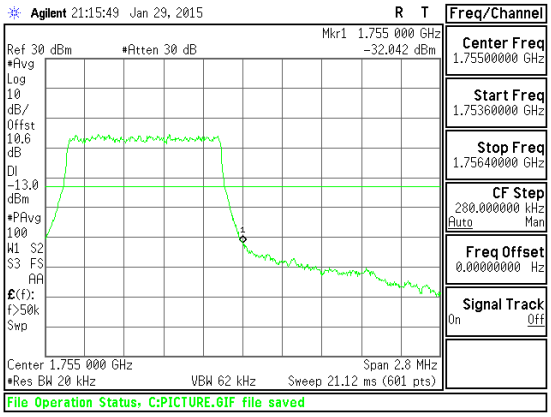
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 1.4MHz CBE 16QAM High Channel FRB.gif

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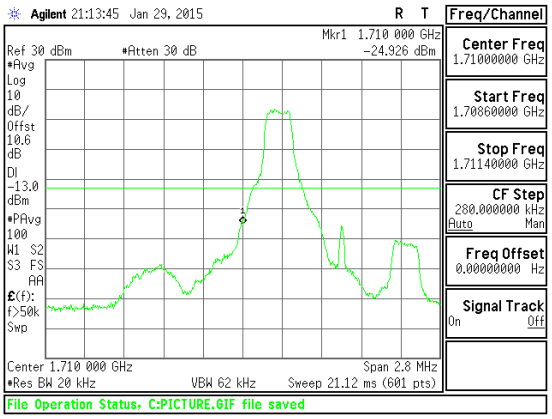
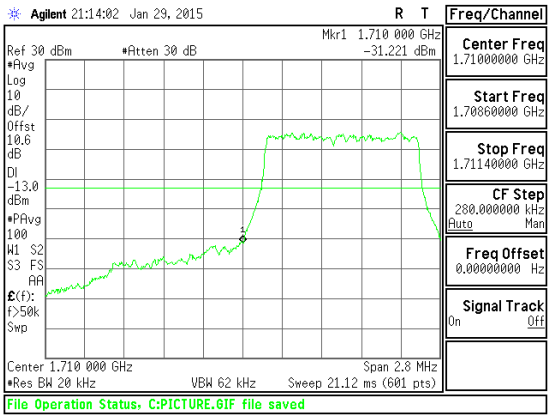
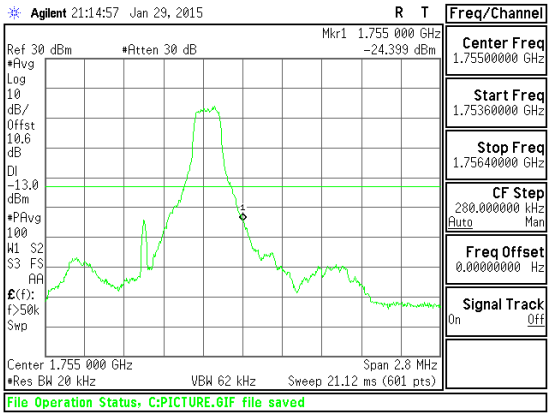
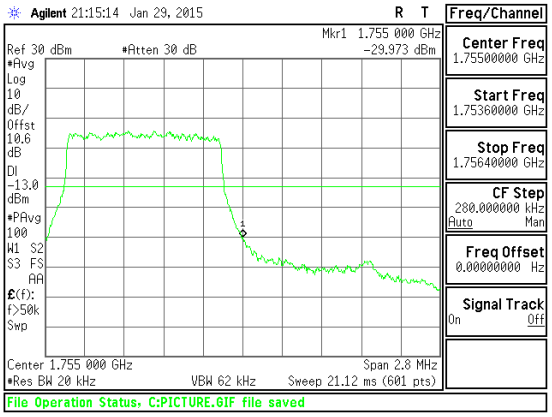
Band LTE4 1.4MHz QPSK	 Band LTE4 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE4 1.4MHz QPSK	 Band LTE4 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 1.4MHz CBE QPSK High Channel FRB.gif

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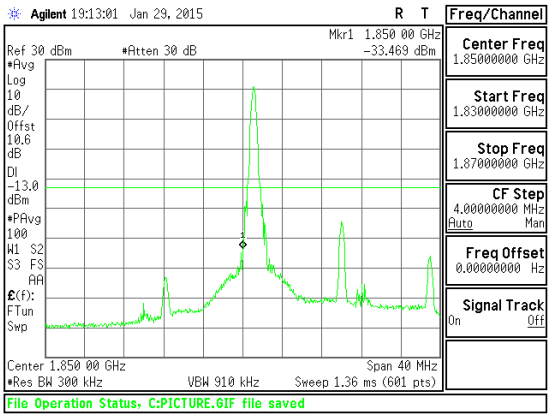
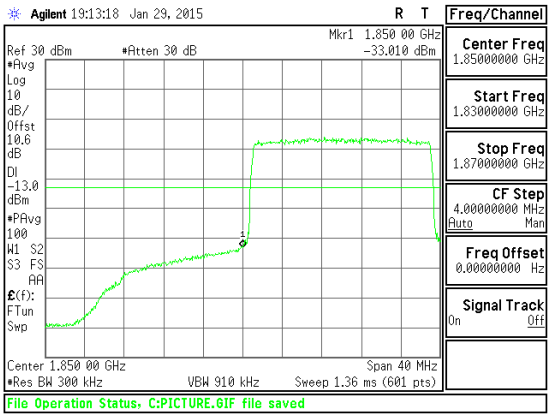
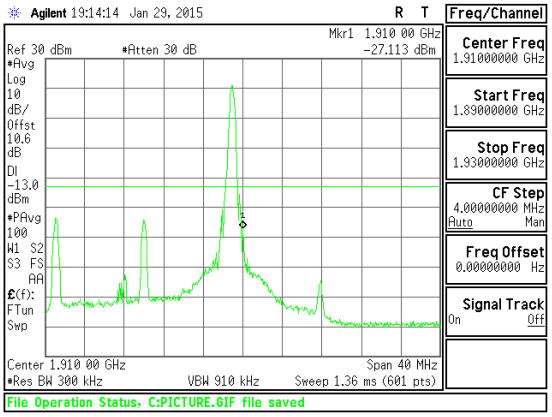
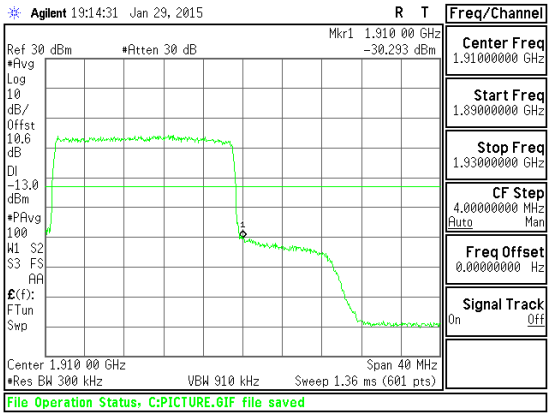
Band LTE2 20MHz 16QAM	 Band LTE2 20MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 20MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 20MHz 16QAM	 Band LTE2 20MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 20MHz CBE 16QAM High Channel FRB.gif

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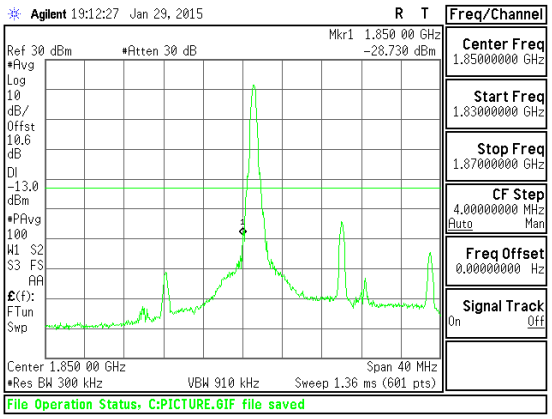
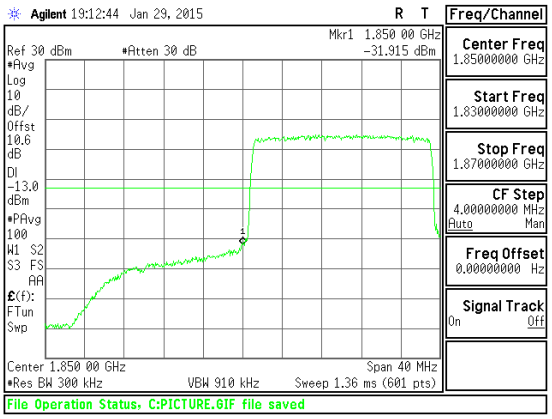
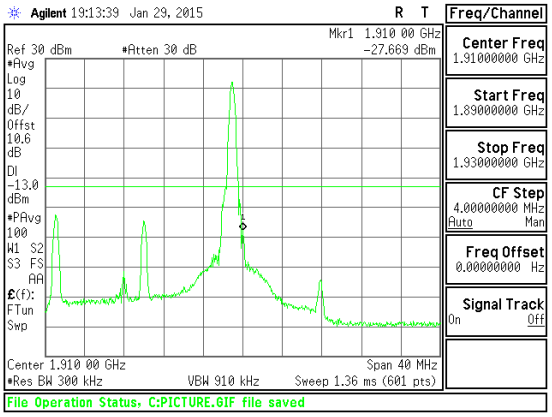
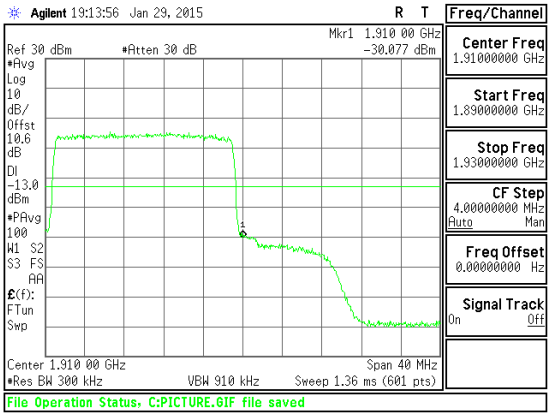
Band LTE2 20MHz QPSK	 Band LTE2 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 20MHz CBE QPSK Low Channel FRB.gif
Band LTE2 20MHz QPSK	 Band LTE2 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 20MHz CBE QPSK High Channel FRB.gif

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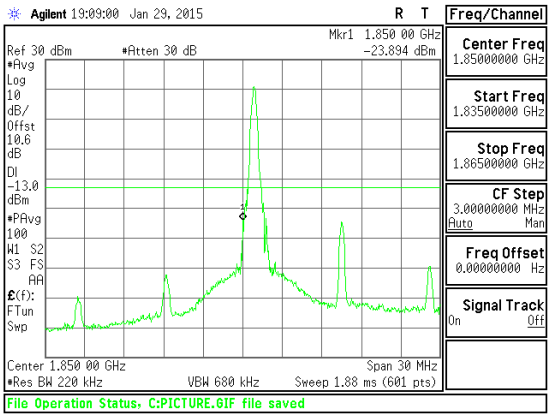
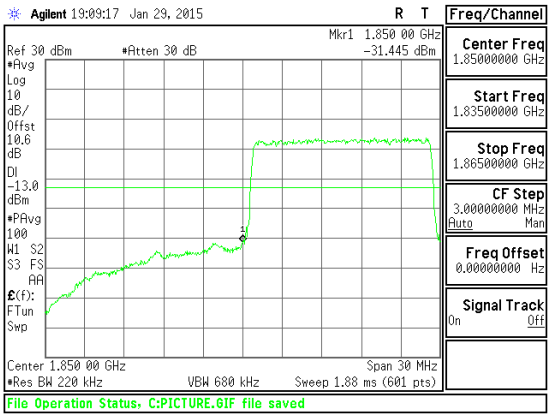
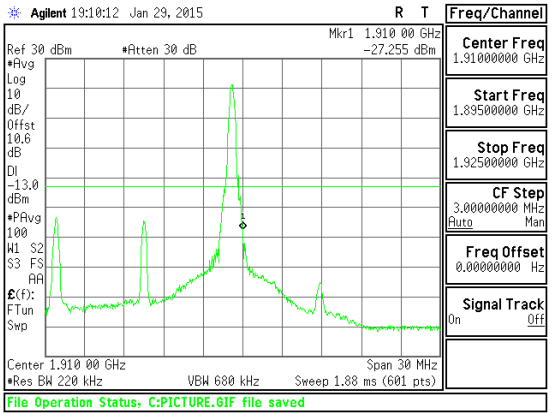
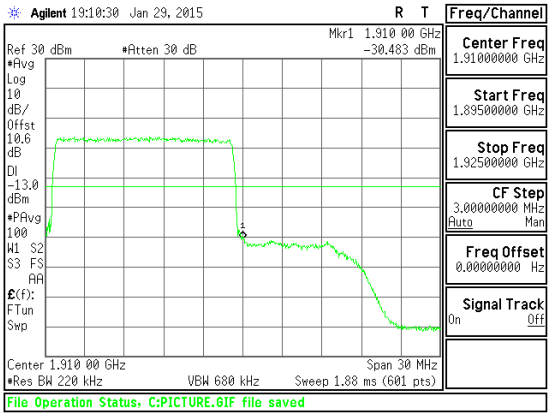
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 15MHz CBE 16QAM High Channel FRB.gif

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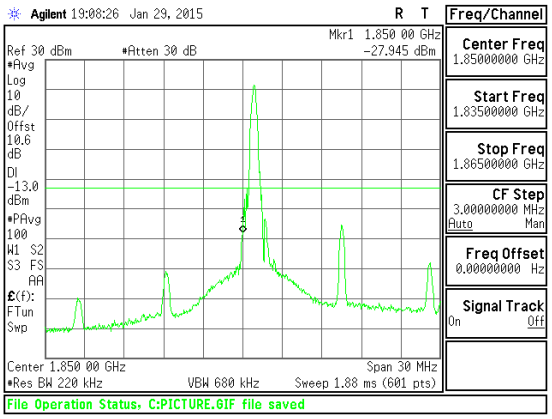
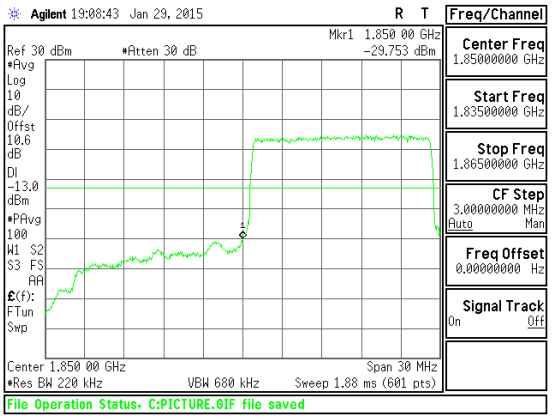
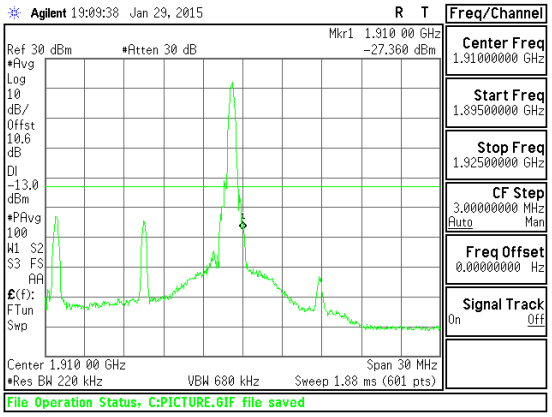
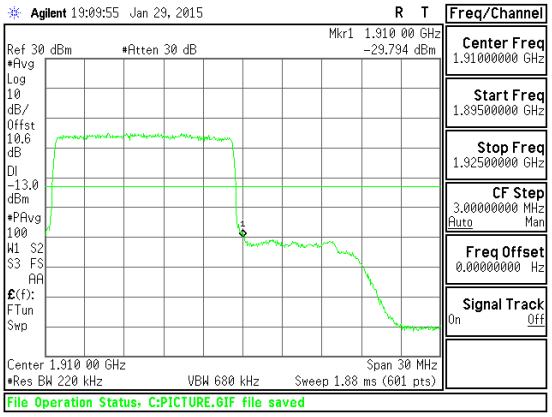
Band LTE2 15MHz QPSK	 Band LTE2 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 15MHz CBE QPSK Low Channel FRB.gif
Band LTE2 15MHz QPSK	 Band LTE2 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 15MHz CBE QPSK High Channel FRB.gif

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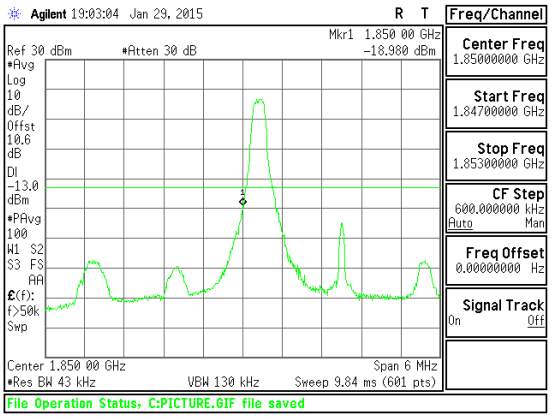
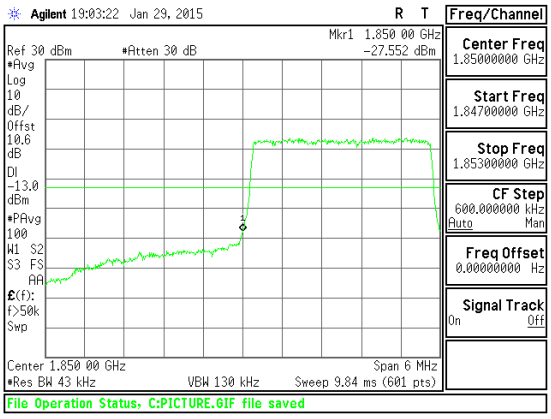
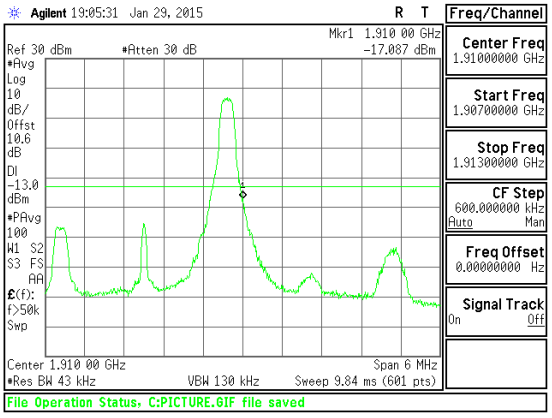
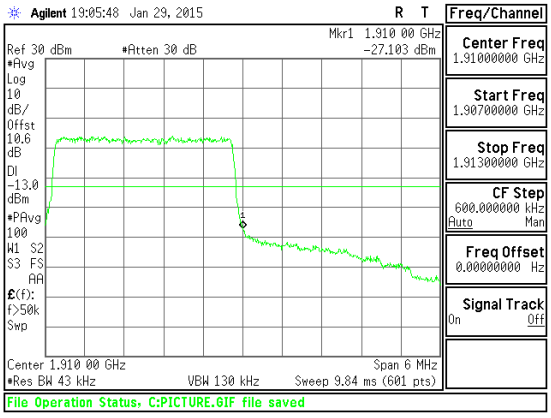
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 3MHz CBE 16QAM High Channel FRB.gif

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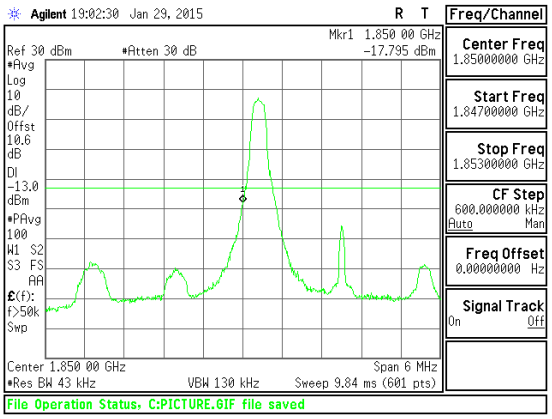
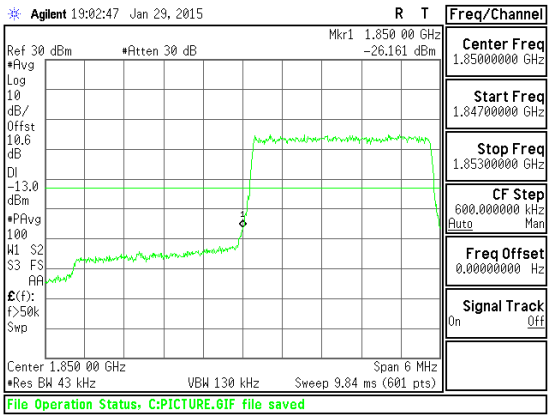
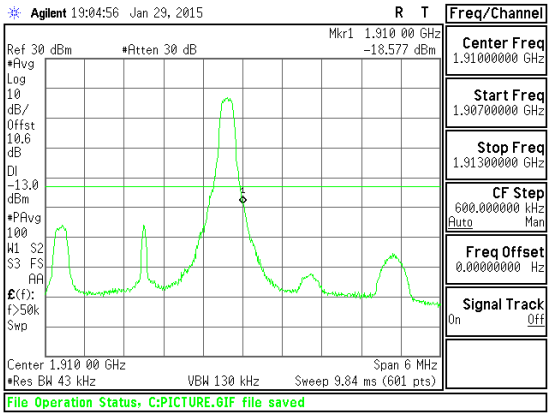
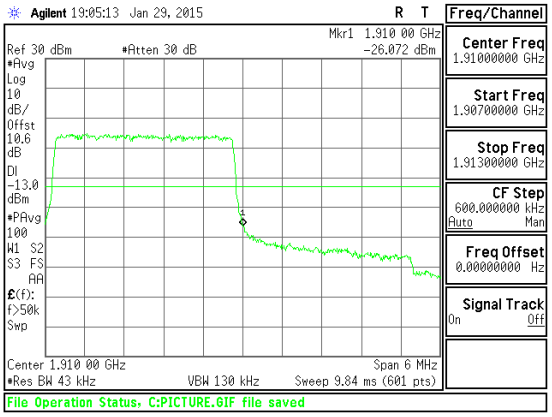
Band LTE2 3MHz QPSK	 Band LTE2 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 3MHz CBE QPSK Low Channel FRB.gif
Band LTE2 3MHz QPSK	 Band LTE2 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 3MHz CBE QPSK High Channel FRB.gif

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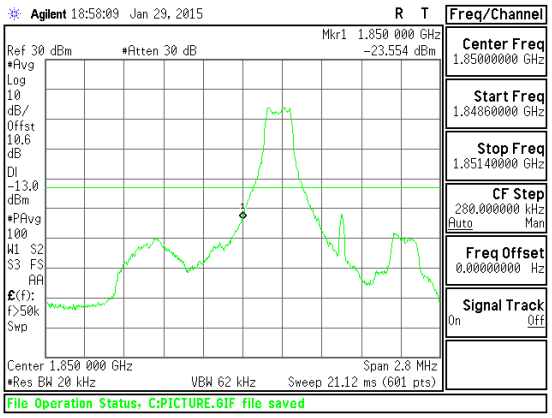
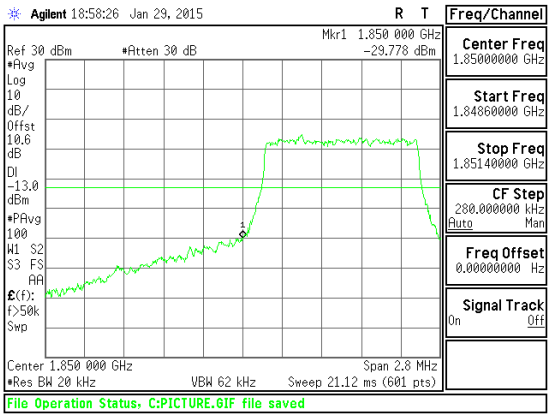
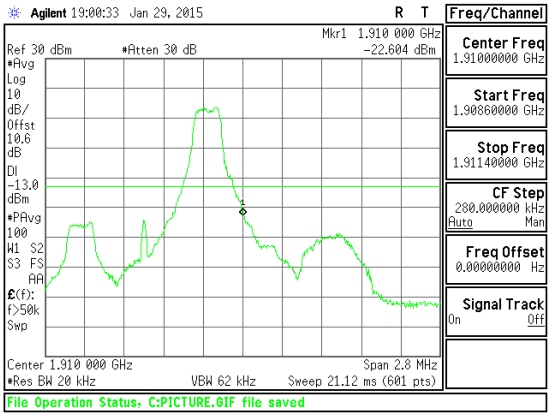
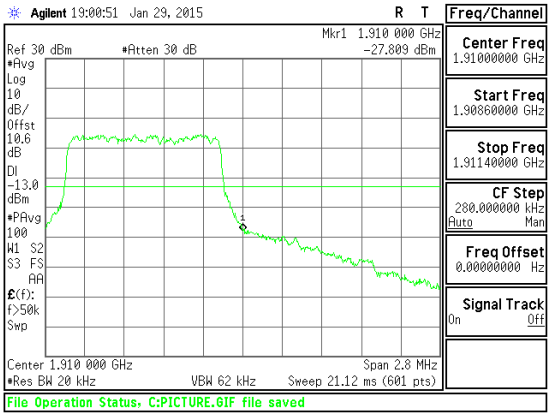
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 1.4MHz CBE 16QAM High Channel FRB.gif

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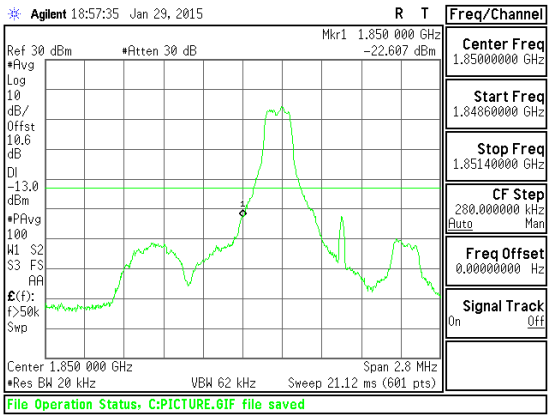
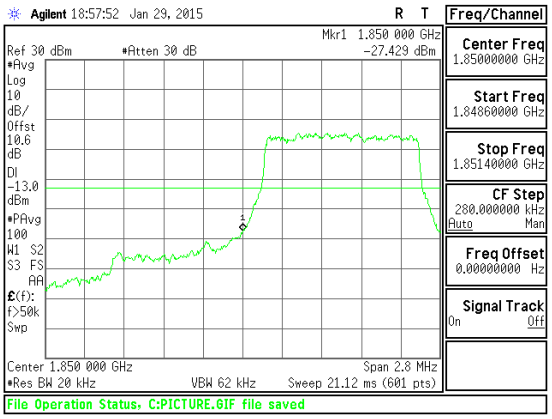
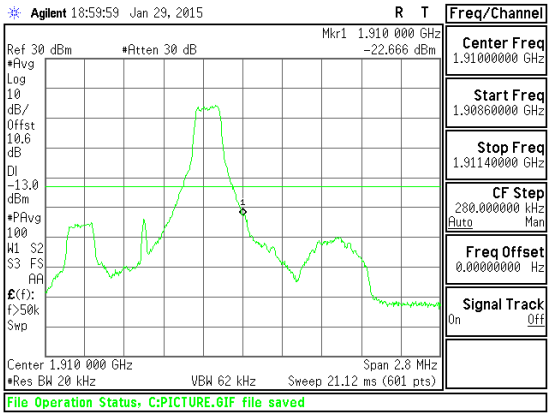
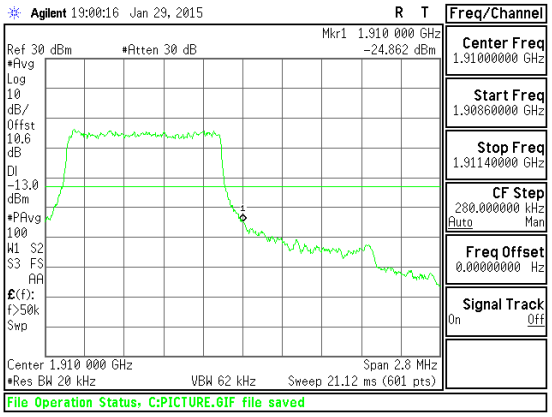
Band LTE2 1.4MHz QPSK	 Band LTE2 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE2 1.4MHz QPSK	 Band LTE2 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 1.4MHz CBE QPSK High Channel FRB.gif

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10.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, and §24.238

LIMITS

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

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

MODES TESTED

LTE

RESULTS

NOTE: Band 17 data please refer to original report for details.

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10.3.1. OUT OF BAND EMISSIONS RESULT

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	3	QPSK	825.5	-33.095	-13	-20.095
			836.5	-33.18	-13	-20.18
			847.5	-33.045	-13	-20.045
		16QAM	825.5	-33.83	-13	-20.83
			836.5	-33.534	-13	-20.534
			847.5	-33.755	-13	-20.755
	1.4	QPSK	824.7	-32.979	-13	-19.979
			836.5	-33.647	-13	-20.647
			848.3	-33.745	-13	-20.745
		16QAM	824.7	-33.715	-13	-20.715
			836.5	-32.975	-13	-19.975
			848.3	-33.387	-13	-20.387

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Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	20	QPSK	1720	-33.89	-13	-20.89
			1732.5	-33.67	-13	-20.67
			1745	-35.22	-13	-22.22
		16QAM	1720	-33.53	-13	-20.53
			1732.5	-33.24	-13	-20.24
			1745	-33.26	-13	-20.26
	15	QPSK	1717.5	-33.51	-13	-20.51
			1732.5	-33.55	-13	-20.55
			1747.5	-35.85	-13	-22.85
		16QAM	1717.5	-33.61	-13	-20.61
			1732.5	-33.28	-13	-20.28
			1747.5	-34.64	-13	-21.64
	3	QPSK	1711.5	-33.29	-13	-20.291
			1732.5	-33.26	-13	-20.257
			1753.5	-32.62	-13	-19.616
		16QAM	1711.5	-33.49	-13	-20.492
			1732.5	-32.69	-13	-19.685
			1753.5	-32.95	-13	-19.946
	1.4	QPSK	1710.7	-32.89	-13	-19.893
			1732.5	-32.93	-13	-19.927
			1754.3	-33.23	-13	-20.229
		16QAM	1710.7	-32.18	-13	-19.178
			1732.5	-32.80	-13	-19.798
			1754.3	-32.84	-13	-19.841

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Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	20	QPSK	1860	-33.17	-13	-20.17
			1880	-33.21	-13	-20.21
			1900	-36.32	-13	-23.32
		16QAM	1860	-34.57	-13	-21.57
			1880	-33.33	-13	-20.33
			1900	-34.00	-13	-21.00
	15	QPSK	1857.5	-33.535	-13	-20.54
			1880	-32.48	-13	-19.48
			1902.5	-35.99	-13	-22.99
		16QAM	1857.5	-32.2	-13	-19.20
			1880	-33.91	-13	-20.91
			1902.5	-35.51	-13	-22.51
	3	QPSK	1851.5	-32.884	-13	-19.884
			1880	-33.753	-13	-20.753
			1908.5	-32.809	-13	-19.809
		16QAM	1851.5	-32.825	-13	-19.825
			1880	-33.225	-13	-20.225
			1908.5	-33.754	-13	-20.754
	1.4	QPSK	1850.7	-33.427	-13	-20.427
			1880	-33.466	-13	-20.466
			1909.3	-33.854	-13	-20.854
		16QAM	1850.7	-33.373	-13	-20.373
			1880	-33.087	-13	-20.087
			1909.3	-32.982	-13	-19.982

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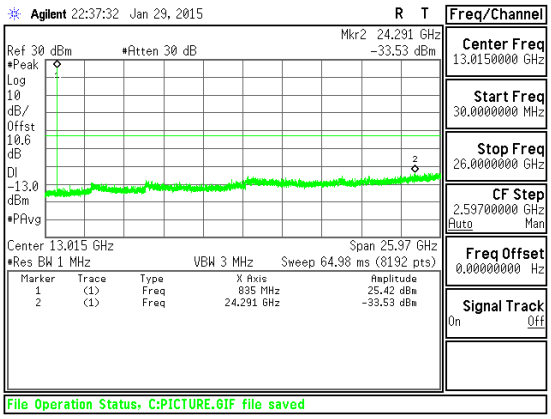
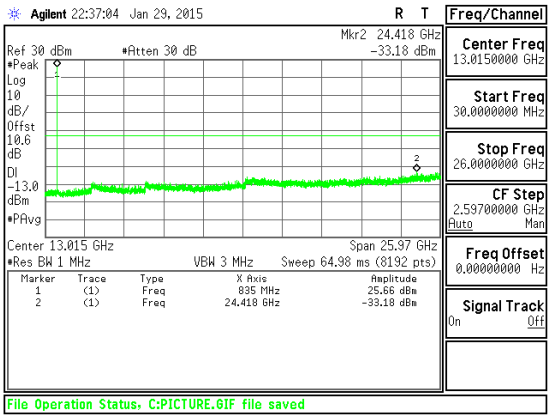
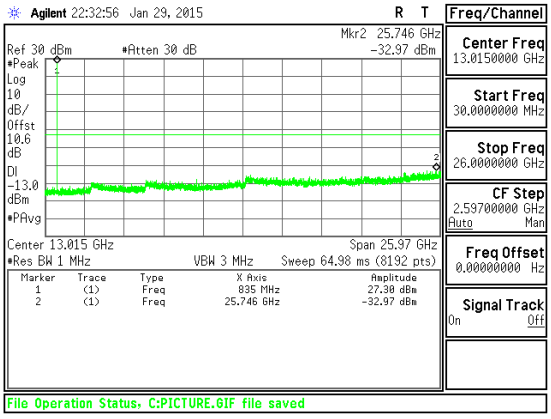
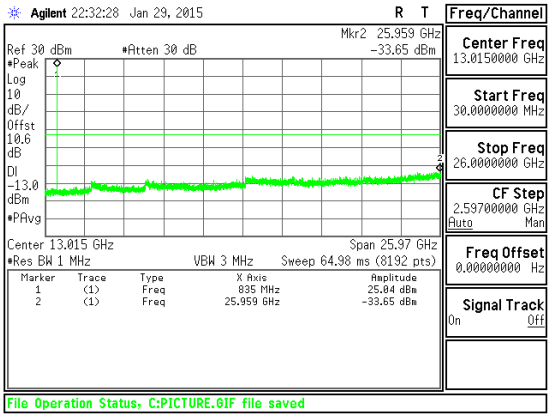
10.3.2. OUT OF BAND EMISSIONS PLOTS

Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CSE 16QAM Mid channel	 Band LTE5 3MHz CSE QPSK Mid channel
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CSE 16QAM Mid channel	 Band LTE5 1.4MHz CSE QPSK Mid channel

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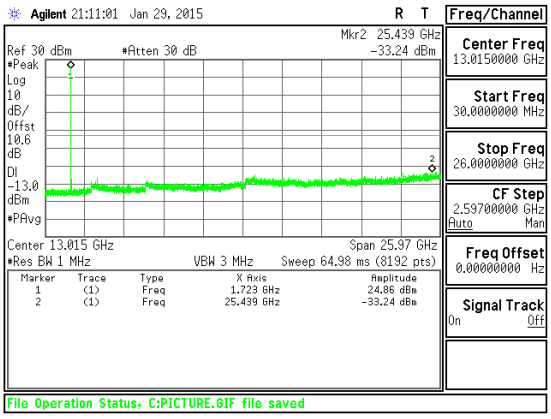
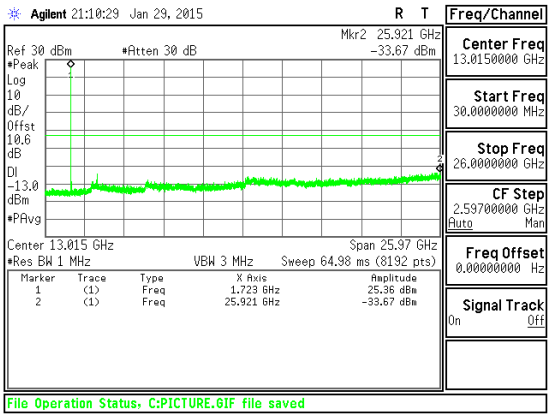
Band LTE4 20MHz 16QAM

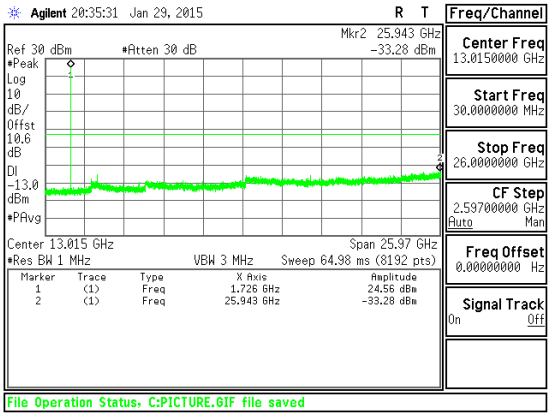


Band LTE4 20MHz CSE 16QAM Mid channel

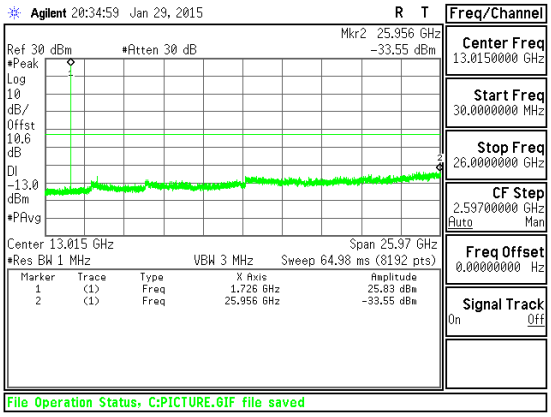


Band LTE4 20MHz CSE QPSK Mid channel

Band LTE4 15MHz 16QAM



Band LTE4 15MHz CSE 16QAM Mid channel



Band LTE4 15MHz CSE QPSK Mid channel

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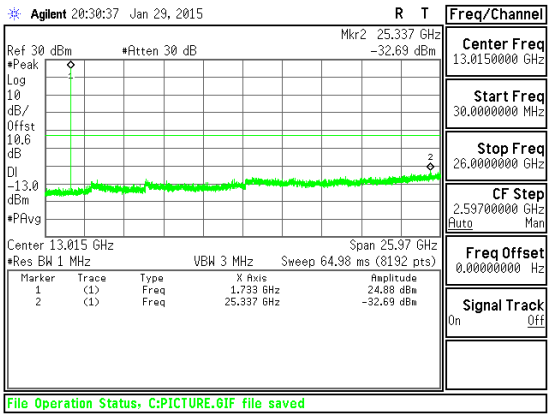
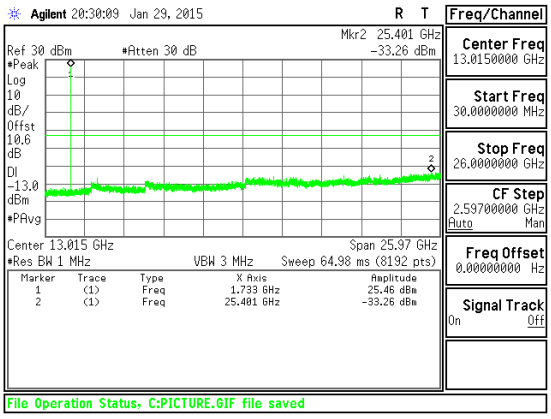
Band LTE4 3MHz 16QAM

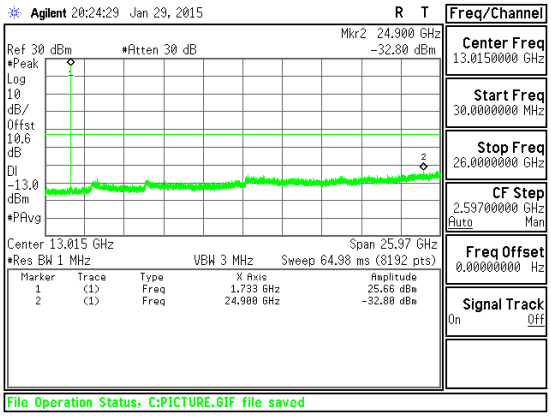


Band LTE4 3MHz CSE 16QAM Mid channel

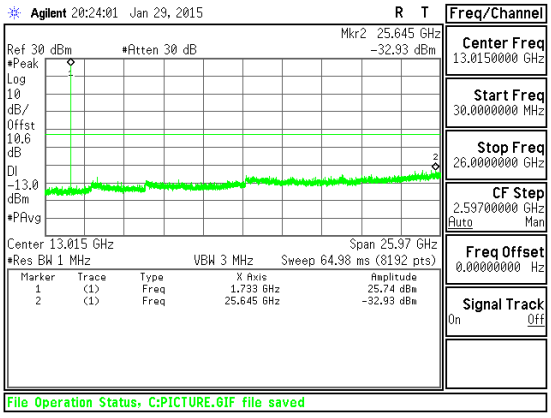


Band LTE4 3MHz CSE QPSK Mid channel

Band LTE4 1.4MHz 16QAM



Band LTE4 1.4MHz CSE 16QAM Mid channel



Band LTE4 1.4MHz CSE QPSK Mid channel

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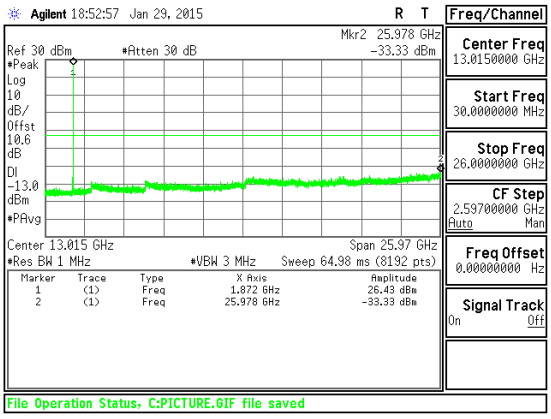
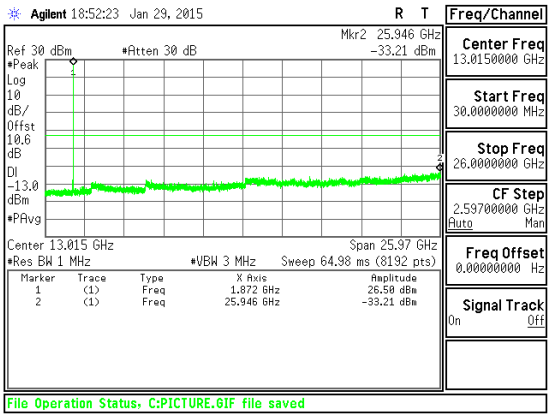
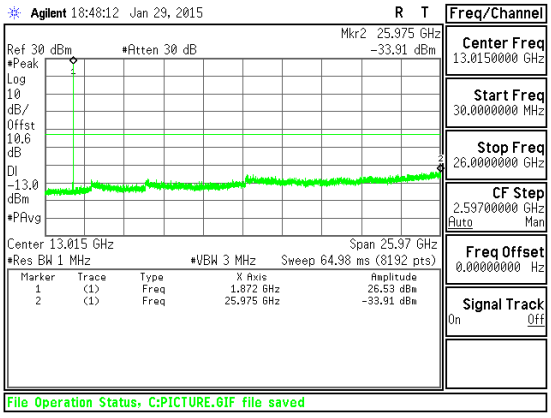
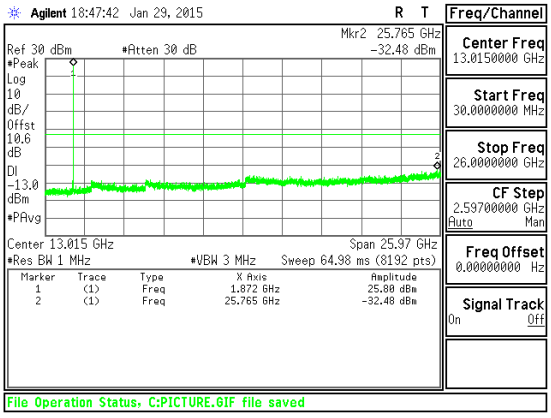
Band LTE2 20MHz 16QAM	 Band LTE2 20MHz CSE 16QAM Mid channel	 Band LTE2 20MHz CSE QPSK Mid channel
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CSE 16QAM Mid channel	 Band LTE2 15MHz CSE QPSK Mid channel

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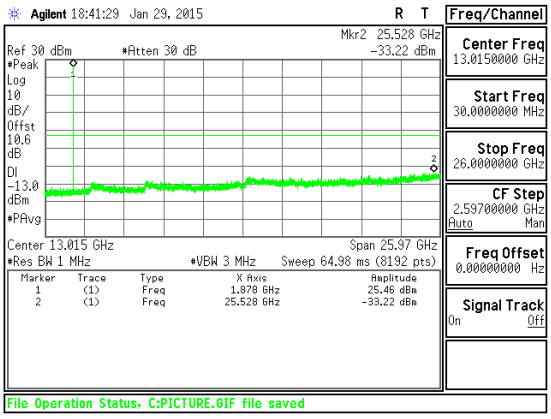
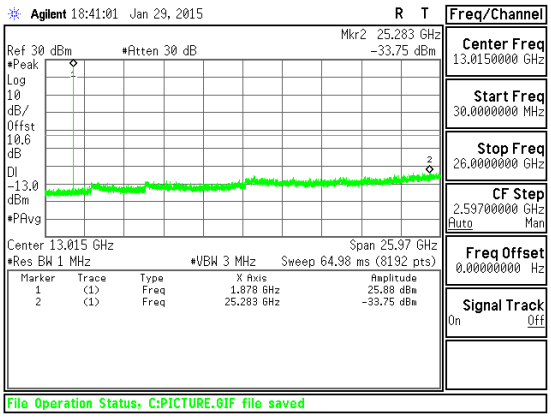
Band LTE2 3MHz 16QAM

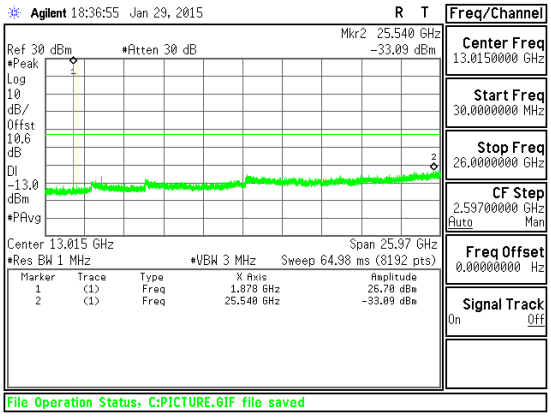


Band LTE2 3MHz CSE 16QAM Mid channel

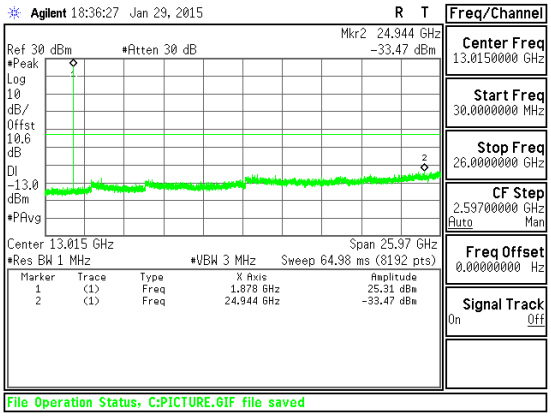


Band LTE2 3MHz CSE QPSK Mid channel

Band LTE2 1.4MHz 16QAM



Band LTE2 1.4MHz CSE 16QAM Mid channel



Band LTE2 1.4MHz CSE QPSK Mid channel

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11. RADIATED TEST RESULTS

11.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, and §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(c) - (10) Portable stations (hand-held devices) are limited to 3 watts ERP; (LTE B17)

27.50(d) - (4) Fixed, mobile, and portable (hand-held) 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 603C Clause 2.2.17; PSA setting reference to 971168 D01 v02r02

For peak power measurement with a PSA:

a) Set the RBW ≥ OBW; b) Set VBW ≥ 3 × RBW; c) Set span ≥ 2 x RBW; d) Sweep time = auto couple; e) Detector = peak; f) Ensure that the number of measurement points ≥ 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 ≥ 3 x RBW; d) Set number of points in sweep ≥ 2 × 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.

MODES TESTED

GSM, WCDMA, and LTE

TEST RESULTS

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11.1.1. ERP/EIRP Results

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 2	REL99	9262	1852.4	25.73	374.11
		9400	1880	25.71	372.39
		9538	1907.6	24.91	309.74
	HSDPA	9262	1852.4	25.16	328.1
		9400	1880	25.11	324.34
		9538	1907.6	24.81	302.69

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 5	REL99	4132	826.4	18.80	75.77
		4183	836.6	19.27	84.61
		4233	846.6	20.04	100.88
	HSDPA	4132	826.4	19.28	84.64
		4183	836.6	19.55	90.14
		4233	846.6	20.20	104.76

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM1900	GPRS	512	1850.2	32.81	1909.85
		661	1880	32.44	1753.88
		810	1909.8	32.11	1625.55
	EGPRS	512	1850.2	28.46	701.46
		661	1880	27.96	625.17
		810	1909.8	27.91	618.02

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM850	GPRS	128	824.2	27.68	586.68
		190	836.6	28.11	646.7
		251	848.8	29.66	924.49
	EGPRS	128	824.2	24.75	298.54
		190	836.6	24.99	315.50
		251	848.8	24.89	308.32

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11.1.2. LTE ERP/EIRP Results

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE17	10	QPSK	1/0	709	19.33	85.7
			1/0	710	19.68	92.9
			1/0	711	20.09	102.09
		16QAM	1/0	709	18.43	69.66
			1/0	710	19.18	82.78
			1/0	711	19.33	85.7

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE17	5	QPSK	1/0	706.5	19.60	91.2
			1/0	710	19.39	86.9
			1/0	713.5	19.68	92.9
		16QAM	1/0	706.5	18.19	65.92
			1/0	710	18.48	70.47
			1/0	713.5	18.38	68.87

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	10	QPSK	1/0	829	19.17	82.57
			1/0	836.5	19.44	87.86
			1/0	844	19.58	90.68
		16QAM	1/0	829	17.94	62.2
			1/0	836.5	18.76	75.13
			1/0	844	18.99	79.16

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Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	5	QPSK	1/0	826.5	19.42	87.46
			1/0	836.5	19.49	88.88
			1/0	846.5	19.39	86.8
		16QAM	1/0	826.5	18.09	64.39
			1/0	836.5	18.87	77.05
			1/0	846.5	18.43	69.58

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	3	QPSK	1/0	825.5	19.56	90.32
			1/0	836.5	19.50	89.08
			1/0	847.5	19.60	91.1
		16QAM	1/0	825.5	19.15	82.19
			1/0	836.5	18.80	75.82
			1/0	847.5	19.12	81.56

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	1.4	QPSK	1/0	824.7	19.41	87.26
			1/0	836.5	19.64	92
			1/0	848.3	19.85	96.49
		16QAM	1/0	824.7	18.38	68.83
			1/0	836.5	19.66	92.43
			1/0	848.3	18.50	70.71

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Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	20	QPSK	1/0	1720	24.19	262.68
			1/0	1732.5	25.02	317.76
			1/0	1745	24.33	270.89
		16QAM	1/0	1720	24.58	287.36
			1/0	1732.5	24.22	264.30
			1/0	1745	23.19	208.45

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	15	QPSK	1/0	1717.5	24.95	312.46
			1/0	1732.5	24.27	267.37
			1/0	1747.5	23.78	239.01
		16QAM	1/0	1717.5	24.05	253.98
			1/0	1732.5	23.32	214.83
			1/0	1747.5	22.78	189.85

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	10	QPSK	1/0	1715	23.60	229.13
			1/0	1732.5	24.48	280.61
			1/0	1750	24.28	267.99
		16QAM	1/0	1715	22.65	184.11
			1/0	1732.5	23.52	224.96
			1/0	1750	23.08	203.29

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Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	5	QPSK	1/0	1712.5	24.22	264.5
			1/0	1732.5	24.52	283.21
			1/0	1752.5	24.38	274.02
		16QAM	1/0	1712.5	23.54	226.16
			1/0	1732.5	23.72	235.56
			1/0	1752.5	23.27	212.22

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	3	QPSK	1/0	1711.5	24.68	293.62
			1/0	1732.5	24.82	303.46
			1/0	1753.5	24.23	265.11
		16QAM	1/0	1711.5	23.75	237.02
			1/0	1732.5	23.82	241.05
			1/0	1753.5	23.48	223.06

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	1.4	QPSK	1/0	1710.7	25.27	336.58
			1/0	1732.5	25.05	319.97
			1/0	1754.3	24.45	278.69
		16QAM	1/0	1710.7	24.35	272.32
			1/0	1732.5	24.22	264.3
			1/0	1754.3	23.38	217.83

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Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	20	QPSK	1/0	1860	25.44	350.15
			1/0	1880	25.21	331.8
			1/0	1900	25.68	369.4
		16QAM	1/0	1860	24.34	271.81
			1/0	1880	24.49	281.11
			1/0	1900	24.77	299.57

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	15	QPSK	1/0	1857.5	25.87	386.75
			1/0	1880	25.92	390.73
			1/0	1902.5	25.22	332.83
		16QAM	1/0	1857.5	25.08	322.43
			1/0	1880	25.09	322.76
			1/0	1902.5	24.47	280.04

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	10	QPSK	1/0	1855	25.66	367.79
			1/0	1880	25.84	383.6
			1/0	1905	25.20	331.09
		16QAM	1/0	1855	24.79	301.03
			1/0	1880	24.89	308.23
			1/0	1905	25.27	336.47

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Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	5	QPSK	1/0	1852.5	24.72	296.67
			1/0	1880	25.69	370.68
			1/0	1907.5	24.75	298.31
		16QAM	1/0	1852.5	23.89	244.78
			1/0	1880	24.59	287.66
			1/0	1907.5	23.99	250.42

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	3	QPSK	1/0	1851.5	25.33	341.07
			1/0	1880	26.00	398
			1/0	1908.5	25.14	326.56
		16QAM	1/0	1851.5	24.45	278.51
			1/0	1880	25.09	322.76
			1/0	1908.5	23.99	250.59

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	1.4	QPSK	1/0	1850.7	25.50	354.73
			1/0	1880	25.87	386.26
			1/0	1909.3	25.09	322.99
		16QAM	1/0	1850.7	24.69	294.38
			1/0	1880	24.99	315.41
			1/0	1909.3	24.49	281.31

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11.2. ERP/EIRP PLOTS

Band

LTE17

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 17 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA 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	7.62	V	0.9	0.0	6.72	34.8	-28.1	
709.00	19.33	H	0.9	0.0	18.43	34.8	-16.3	
Mid Ch								
710.00	7.13	V	0.9	0.0	6.23	34.8	-28.5	
710.00	20.08	H	0.9	0.0	19.18	34.8	-15.6	
High Ch								
711.00	7.90	V	0.9	0.0	7.00	34.8	-27.8	
711.00	20.23	H	0.9	0.0	19.33	34.8	-15.4	

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Band

LTE17

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 17 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA 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	8.45	V	0.9	0.0	7.55	34.8	-27.2	
709.00	20.23	H	0.9	0.0	19.33	34.8	-15.4	
Mid Ch								
710.00	8.55	V	0.9	0.0	7.65	34.8	-27.1	
710.00	20.58	H	0.9	0.0	19.68	34.8	-15.1	
High Ch								
711.00	8.79	V	0.9	0.0	7.89	34.8	-26.9	
711.00	20.99	H	0.9	0.0	20.09	34.8	-14.7	

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Band

LTE17

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 17 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA 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	7.30	V	0.9	0.0	6.40	34.8	-28.4	
706.50	19.09	H	0.9	0.0	18.19	34.8	-16.6	
Mid Ch								
710.00	6.48	V	0.9	0.0	5.58	34.8	-29.2	
710.00	19.38	H	0.9	0.0	18.48	34.8	-16.3	
High Ch								
713.50	7.55	V	0.9	0.0	6.65	34.8	-28.1	
713.50	19.28	H	0.9	0.0	18.38	34.8	-16.4	

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Band

LTE17

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 17 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA 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	8.20	V	0.9	0.0	7.30	34.8	-27.5	
706.50	20.50	H	0.9	0.0	19.60	34.8	-15.2	
Mid Ch								
710.00	7.37	V	0.9	0.0	6.47	34.8	-28.3	
710.00	20.29	H	0.9	0.0	19.39	34.8	-15.4	
High Ch								
713.50	8.83	V	0.9	0.0	7.93	34.8	-26.8	
713.50	20.58	H	0.9	0.0	19.68	34.8	-15.1	

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Band

LTE5

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 5 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA 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								
829.00	10.45	V	0.9	0.0	9.55	38.5	-29.0	
829.00	18.84	H	0.9	0.0	17.94	38.5	-20.6	
Mid Ch								
836.50	9.79	V	0.9	0.0	8.89	38.5	-29.6	
836.50	19.66	H	0.9	0.0	18.76	38.5	-19.7	
High Ch								
844.00	9.81	V	0.9	0.0	8.91	38.5	-29.6	
844.00	19.89	H	0.9	0.0	18.99	38.5	-19.5	

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Band

LTE5

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 5 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA 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								
829.00	11.31	V	0.9	0.0	10.41	38.5	-28.1	
829.00	20.07	H	0.9	0.0	19.17	38.5	-19.3	
Mid Ch								
836.50	10.59	V	0.9	0.0	9.69	38.5	-28.8	
836.50	20.34	H	0.9	0.0	19.44	38.5	-19.1	
High Ch								
844.00	10.39	V	0.9	0.0	9.49	38.5	-29.0	
844.00	20.48	H	0.9	0.0	19.58	38.5	-18.9	

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Band

LTE5

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 5 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA 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	10.12	V	0.9	0.0	9.22	38.5	-29.3	
826.50	18.99	H	0.9	0.0	18.09	38.5	-20.4	
Mid Ch								
836.50	8.81	V	0.9	0.0	7.91	38.5	-30.6	
836.50	19.77	H	0.9	0.0	18.87	38.5	-19.6	
High Ch								
846.50	9.73	V	0.9	0.0	8.83	38.5	-29.7	
846.50	19.33	H	0.9	0.0	18.43	38.5	-20.1	

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Band

LTE5

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 5 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA 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	11.02	V	0.9	0.0	10.12	38.5	-28.4	
826.50	20.32	H	0.9	0.0	19.42	38.5	-19.1	
Mid Ch								
836.50	9.56	V	0.9	0.0	8.66	38.5	-29.8	
836.50	20.39	H	0.9	0.0	19.49	38.5	-19.0	
High Ch								
846.50	10.62	V	0.9	0.0	9.72	38.5	-28.8	
846.50	20.29	H	0.9	0.0	19.39	38.5	-19.1	

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Band

LTE5

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 5 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA 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	10.60	V	0.9	0.0	9.70	38.5	-28.8	
825.50	20.05	H	0.9	0.0	19.15	38.5	-19.4	
Mid Ch								
836.50	9.87	V	0.9	0.0	8.97	38.5	-29.5	
836.50	19.70	H	0.9	0.0	18.80	38.5	-19.7	
High Ch								
847.50	10.50	V	0.9	0.0	9.60	38.5	-28.9	
847.50	20.02	H	0.9	0.0	19.12	38.5	-19.4	

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Band

LTE5

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 5 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA 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	11.12	V	0.9	0.0	10.22	38.5	-28.3	
825.50	20.46	H	0.9	0.0	19.56	38.5	-18.9	
Mid Ch								
836.50	10.57	V	0.9	0.0	9.67	38.5	-28.8	
836.50	20.40	H	0.9	0.0	19.50	38.5	-19.0	
High Ch								
847.50	10.88	V	0.9	0.0	9.98	38.5	-28.5	
847.50	20.50	H	0.9	0.0	19.60	38.5	-18.9	

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Band

LTE5

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA 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	10.29	V	0.9	0.0	9.39	38.5	-29.1	
824.70	19.28	H	0.9	0.0	18.38	38.5	-20.1	
Mid Ch								
836.50	11.13	V	0.9	0.0	10.23	38.5	-28.3	
836.50	20.56	H	0.9	0.0	19.66	38.5	-18.8	
High Ch								
848.30	9.26	V	0.9	0.0	8.36	38.5	-30.1	
848.30	19.40	H	0.9	0.0	18.50	38.5	-20.0	

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Band

LTE5

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA 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	11.27	V	0.9	0.0	10.37	38.5	-28.1	
824.70	20.31	H	0.9	0.0	19.41	38.5	-19.1	
Mid Ch								
836.50	10.60	V	0.9	0.0	9.70	38.5	-28.8	
836.50	20.54	H	0.9	0.0	19.64	38.5	-18.9	
High Ch								
848.30	10.11	V	0.9	0.0	9.21	38.5	-29.3	
848.30	20.75	H	0.9	0.0	19.85	38.5	-18.7	

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Band

LTE4

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 4 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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								
1720.00	14.80	V	0.9	8.2	22.14	30.0	-7.9	
1720.00	17.24	H	0.9	8.2	24.58	30.0	-5.4	
Mid Ch								
1732.50	15.20	V	0.9	8.2	22.47	30.0	-7.5	
1732.50	16.95	H	0.9	8.2	24.22	30.0	-5.8	
High Ch								
1745.00	14.77	V	0.9	8.1	21.97	30.0	-8.0	
1745.00	15.99	H	0.9	8.1	23.19	30.0	-6.8	

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Band

LTE4

20MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 4 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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								
1720.00	15.50	V	0.9	8.2	22.84	30.0	-7.2	
1720.00	16.85	H	0.9	8.2	24.19	30.0	-5.8	
Mid Ch								
1732.50	16.02	V	0.9	8.2	23.29	30.0	-6.7	
1732.50	17.75	H	0.9	8.2	25.02	30.0	-5.0	
High Ch								
1745.00	15.42	V	0.9	8.1	22.62	30.0	-7.4	
1745.00	17.13	H	0.9	8.1	24.33	30.0	-5.7	

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Band

LTE4

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 4 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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								
1717.50	14.10	V	0.9	8.2	21.45	30.0	-8.6	
1717.50	16.70	H	0.9	8.2	24.05	30.0	-6.0	
Mid Ch								
1732.50	15.60	V	0.9	8.2	22.87	30.0	-7.1	
1732.50	16.05	H	0.9	8.2	23.32	30.0	-6.7	
High Ch								
1747.50	14.77	V	0.9	8.1	21.96	30.0	-8.0	
1747.50	15.59	H	0.9	8.1	22.78	30.0	-7.2	

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Band

LTE4

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 4 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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								
1717.50	15.15	V	0.9	8.2	22.50	30.0	-7.5	
1717.50	17.60	H	0.9	8.2	24.95	30.0	-5.1	
Mid Ch								
1732.50	16.53	V	0.9	8.2	23.80	30.0	-6.2	
1732.50	17.00	H	0.9	8.2	24.27	30.0	-5.7	
High Ch								
1747.50	15.47	V	0.9	8.1	22.66	30.0	-7.3	
1747.50	16.59	H	0.9	8.1	23.78	30.0	-6.2	

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Band

LTE4

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19960
Date: 2/12/2015
Test Engineer: Kiya Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 4 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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								
1715.00	14.08	V	0.9	8.3	21.43	30.0	-8.6	
1715.00	15.30	H	0.9	8.3	22.65	30.0	-7.3	
Mid Ch								
1732.50	15.30	V	0.9	8.2	22.57	30.0	-7.4	
1732.50	16.25	H	0.9	8.2	23.52	30.0	-6.5	
High Ch								
1750.00	14.57	V	0.9	8.1	21.76	30.0	-8.2	
1750.00	15.89	H	0.9	8.1	23.08	30.0	-6.9	

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Band

LTE4

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19960
Date: 2/12/2015
Test Engineer: Kiya Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 4 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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								
1715.00	15.40	V	0.9	8.3	22.75	30.0	-7.2	
1715.00	16.25	H	0.9	8.3	23.60	30.0	-6.4	
Mid Ch								
1732.50	15.87	V	0.9	8.2	23.14	30.0	-6.9	
1732.50	17.21	H	0.9	8.2	24.48	30.0	-5.5	
High Ch								
1750.00	15.62	V	0.9	8.1	22.81	30.0	-7.2	
1750.00	17.09	H	0.9	8.1	24.28	30.0	-5.7	

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Band

LTE4

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/12/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 4 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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								
1712.50	13.90	V	0.9	8.2	21.24	30.0	-8.8	
1712.50	16.20	H	0.9	8.2	23.54	30.0	-6.5	
Mid Ch								
1732.50	14.60	V	0.9	8.2	21.87	30.0	-8.1	
1732.50	16.45	H	0.9	8.2	23.72	30.0	-6.3	
High Ch								
1752.50	14.47	V	0.9	8.1	21.67	30.0	-8.3	
1752.50	16.07	H	0.9	8.1	23.27	30.0	-6.7	

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Band

LTE4

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/12/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 4 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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								
1712.50	14.52	V	0.9	8.2	21.86	30.0	-8.1	
1712.50	16.88	H	0.9	8.2	24.22	30.0	-5.8	
Mid Ch								
1732.50	15.26	V	0.9	8.2	22.53	30.0	-7.5	
1732.50	17.25	H	0.9	8.2	24.52	30.0	-5.5	
High Ch								
1752.50	15.19	V	0.9	8.1	22.39	30.0	-7.6	
1752.50	17.18	H	0.9	8.1	24.38	30.0	-5.6	

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Band

LTE4

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 4 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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								
1711.50	13.90	V	0.9	8.2	21.25	30.0	-8.8	
1711.50	16.40	H	0.9	8.2	23.75	30.0	-6.3	
Mid Ch								
1732.50	15.70	V	0.9	8.2	22.97	30.0	-7.0	
1732.50	16.55	H	0.9	8.2	23.82	30.0	-6.2	
High Ch								
1753.50	14.77	V	0.9	8.1	21.96	30.0	-8.0	
1753.50	16.29	H	0.9	8.1	23.48	30.0	-6.5	

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Band

LTE4

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 4 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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								
1711.50	14.70	V	0.9	8.2	22.05	30.0	-8.0	
1711.50	17.33	H	0.9	8.2	24.68	30.0	-5.3	
Mid Ch								
1732.50	16.50	V	0.9	8.2	23.77	30.0	-6.2	
1732.50	17.55	H	0.9	8.2	24.82	30.0	-5.2	
High Ch								
1753.50	15.65	V	0.9	8.1	22.84	30.0	-7.2	
1753.50	17.04	H	0.9	8.1	24.23	30.0	-5.8	

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Band

LTE4

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 4 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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								
1710.70	14.80	V	0.9	8.3	22.15	30.0	-7.8	
1710.70	17.00	H	0.9	8.3	24.35	30.0	-5.6	
Mid Ch								
1732.50	15.00	V	0.9	8.2	22.27	30.0	-7.7	
1732.50	16.95	H	0.9	8.2	24.22	30.0	-5.8	
High Ch								
1754.30	15.27	V	0.9	8.1	22.46	30.0	-7.5	
1754.30	16.19	H	0.9	8.1	23.38	30.0	-6.6	

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Band

LTE4

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 4 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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								
1710.70	15.93	V	0.9	8.3	23.28	30.0	-6.7	
1710.70	17.92	H	0.9	8.3	25.27	30.0	-4.7	
Mid Ch								
1732.50	15.84	V	0.9	8.2	23.11	30.0	-6.9	
1732.50	17.78	H	0.9	8.2	25.05	30.0	-4.9	
High Ch								
1754.30	15.98	V	0.9	8.1	23.17	30.0	-6.8	
1754.30	17.26	H	0.9	8.1	24.45	30.0	-5.5	

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Band

LTE2

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/11/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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	17.28	V	0.9	7.9	24.26	33.0	-8.7	
1860.00	17.36	H	0.9	7.9	24.34	33.0	-8.7	
Mid Ch								
1880.00	17.23	V	0.9	7.9	24.20	33.0	-8.8	
1880.00	17.52	H	0.9	7.9	24.49	33.0	-8.5	
High Ch								
1900.00	16.40	V	0.9	7.9	23.36	33.0	-9.6	
1900.00	17.81	H	0.9	7.9	24.77	33.0	-8.2	

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Band

LTE2

20MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/11/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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	17.70	V	0.9	7.9	24.68	33.0	-8.3	
1860.00	18.46	H	0.9	7.9	25.44	33.0	-7.6	
Mid Ch								
1880.00	18.05	V	0.9	7.9	25.02	33.0	-8.0	
1880.00	18.24	H	0.9	7.9	25.21	33.0	-7.8	
High Ch								
1900.00	17.15	V	0.9	7.9	24.11	33.0	-8.9	
1900.00	18.72	H	0.9	7.9	25.68	33.0	-7.3	

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Band

LTE2

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/11/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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	18.10	V	0.9	7.9	25.08	33.0	-7.9	
1857.50	17.86	H	0.9	7.9	24.84	33.0	-8.2	
Mid Ch								
1880.00	17.83	V	0.9	7.9	24.80	33.0	-8.2	
1880.00	18.12	H	0.9	7.9	25.09	33.0	-7.9	
High Ch								
1902.50	17.20	V	0.9	7.9	24.16	33.0	-8.8	
1902.50	17.51	H	0.9	7.9	24.47	33.0	-8.5	

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Band

LTE2

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/11/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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	18.89	V	0.9	7.9	25.87	33.0	-7.1	
1857.50	18.72	H	0.9	7.9	25.70	33.0	-7.3	
Mid Ch								
1880.00	18.47	V	0.9	7.9	25.44	33.0	-7.6	
1880.00	18.95	H	0.9	7.9	25.92	33.0	-7.1	
High Ch								
1902.50	17.86	V	0.9	7.9	24.82	33.0	-8.2	
1902.50	18.26	H	0.9	7.9	25.22	33.0	-7.8	

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Band

LTE2

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/11/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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	17.80	V	0.9	7.9	24.79	33.0	-8.2	
1855.00	17.16	H	0.9	7.9	24.15	33.0	-8.9	
Mid Ch								
1880.00	17.53	V	0.9	7.9	24.50	33.0	-8.5	
1880.00	17.92	H	0.9	7.9	24.89	33.0	-8.1	
High Ch								
1905.00	18.30	V	0.9	7.9	25.27	33.0	-7.7	
1905.00	16.51	H	0.9	7.9	23.48	33.0	-9.5	

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Band

LTE2

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/11/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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	18.67	V	0.9	7.9	25.66	33.0	-7.3	
1855.00	18.10	H	0.9	7.9	25.09	33.0	-7.9	
Mid Ch								
1880.00	18.87	V	0.9	7.9	25.84	33.0	-7.2	
1880.00	18.85	H	0.9	7.9	25.82	33.0	-7.2	
High Ch								
1905.00	18.23	V	0.9	7.9	25.20	33.0	-7.8	
1905.00	17.88	H	0.9	7.9	24.85	33.0	-8.2	

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Band

LTE2

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/11/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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	16.90	V	0.9	7.9	23.89	33.0	-9.1	
1852.50	16.76	H	0.9	7.9	23.75	33.0	-9.3	
Mid Ch								
1880.00	17.03	V	0.9	7.9	24.00	33.0	-9.0	
1880.00	17.62	H	0.9	7.9	24.59	33.0	-8.4	
High Ch								
1907.50	16.00	V	0.9	7.9	22.98	33.0	-10.0	
1907.50	17.01	H	0.9	7.9	23.99	33.0	-9.0	

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Band

LTE2

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/11/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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	17.74	V	0.9	7.9	24.72	33.0	-8.3	
1852.50	17.66	H	0.9	7.9	24.65	33.0	-8.4	
Mid Ch								
1880.00	17.75	V	0.9	7.9	24.72	33.0	-8.3	
1880.00	18.69	H	0.9	7.9	25.69	33.0	-7.3	
High Ch								
1907.50	17.15	V	0.9	7.9	24.13	33.0	-8.9	
1907.50	17.77	H	0.9	7.9	24.75	33.0	-8.3	

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Band

LTE2

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/11/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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	17.20	V	0.9	7.9	24.19	33.0	-8.8	
1851.50	17.46	H	0.9	7.9	24.45	33.0	-8.6	
Mid Ch								
1880.00	16.13	V	0.9	7.9	23.10	33.0	-9.9	
1880.00	18.12	H	0.9	7.9	25.09	33.0	-7.9	
High Ch								
1908.50	16.07	V	0.9	7.9	23.05	33.0	-10.0	
1908.50	17.01	H	0.9	7.9	23.99	33.0	-9.0	

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Band

LTE2

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/11/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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	17.99	V	0.9	7.9	24.98	33.0	-8.0	
1851.50	18.34	H	0.9	7.9	25.33	33.0	-7.7	
Mid Ch								
1880.00	17.13	V	0.9	7.9	24.10	33.0	-8.9	
1880.00	19.03	H	0.9	7.9	26.00	33.0	-7.0	
High Ch								
1908.50	16.89	V	0.9	7.9	23.87	33.0	-9.1	
1908.50	18.16	H	0.9	7.9	25.14	33.0	-7.9	

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Band

LTE2

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/11/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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	17.70	V	0.9	7.9	24.69	33.0	-8.3	
1850.70	17.06	H	0.9	7.9	24.05	33.0	-9.0	
Mid Ch								
1880.00	16.73	V	0.9	7.9	23.70	33.0	-9.3	
1880.00	18.02	H	0.9	7.9	24.99	33.0	-8.0	
High Ch								
1909.30	16.50	V	0.9	7.9	23.48	33.0	-9.5	
1909.30	17.51	H	0.9	7.9	24.49	33.0	-8.5	

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Band

LTE2

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I19922
Date: 2/11/2015
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, 4ft SMA Cable 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	18.51	V	0.9	7.9	25.50	33.0	-7.5	
1850.70	17.97	H	0.9	7.9	24.96	33.0	-8.0	
Mid Ch								
1880.00	17.61	V	0.9	7.9	24.58	33.0	-8.4	
1880.00	18.90	H	0.9	7.9	25.87	33.0	-7.1	
High Ch								
1909.30	17.38	V	0.9	7.9	24.36	33.0	-8.6	
1909.30	18.11	H	0.9	7.9	25.09	33.0	-7.9	

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Band

Band 2

HSDPA

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

Company: LG
Project #: 15I19922
Date: 02/10/15
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: HSDPA B2

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

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	15.78	V	0.9	8.0	22.89	33.0	-10.1	
1852.40	18.05	H	0.9	8.0	25.16	33.0	-7.8	
Mid Ch								
1880.00	15.48	V	0.9	8.0	22.59	33.0	-10.4	
1880.00	18.00	H	0.9	8.0	25.11	33.0	-7.9	
High Ch								
1907.60	14.59	V	0.9	8.0	21.70	33.0	-11.3	
1907.60	17.70	H	0.9	8.0	24.81	33.0	-8.2	

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

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Band

Band 2

REL99

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

Company: LG
Project #: 15I19922
Date: 02/10/15
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: Rel99 B2

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

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	16.01	V	0.9	8.0	23.12	33.0	-9.9	
1852.40	18.62	H	0.9	8.0	25.73	33.0	-7.3	
Mid Ch								
1880.00	64.25	V	0.9	8.0	71.36	33.0	38.4	
1880.00	18.60	H	0.9	8.0	25.71	33.0	-7.3	
High Ch								
1907.60	14.09	V	0.9	8.0	21.20	33.0	-11.8	
1907.60	17.80	H	0.9	8.0	24.91	33.0	-8.1	

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

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Band

Band 5

HSDPA

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

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: HSDPA Band 5 Fundamentals

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) 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								
826.40	10.92	V	0.9	0.0	10.02	38.5	-28.5	
826.40	20.18	H	0.9	0.0	19.28	38.5	-19.2	
Mid Ch								
836.60	10.63	V	0.9	0.0	9.73	38.5	-28.8	
836.60	20.45	H	0.9	0.0	19.55	38.5	-19.0	
High Ch								
846.60	11.14	V	0.9	0.0	10.24	38.5	-28.3	
846.60	21.10	H	0.9	0.0	20.20	38.5	-18.3	

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Band

Band 5

REL99

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

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Location: Chamber B
Mode: Rel99 Band 5 Fundamentals

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) 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								
826.40	10.64	V	0.9	0.0	9.74	38.5	-28.8	
826.40	19.70	H	0.9	0.0	18.80	38.5	-19.7	
Mid Ch								
836.60	10.54	V	0.9	0.0	9.64	38.5	-28.9	
836.60	20.17	H	0.9	0.0	19.27	38.5	-19.2	
High Ch								
846.60	10.52	V	0.9	0.0	9.62	38.5	-28.9	
846.60	20.94	H	0.9	0.0	20.04	38.5	-18.5	

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Band

GSM 1900

EGPRS

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

Company: LG
Project #: 15I19922
Date: 2/10/215
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: EGPRS 1900

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

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.20	19.15	V	0.9	8.0	26.26	33.0	-6.7	
1850.20	21.35	H	0.9	8.0	28.46	33.0	-4.5	
Mid Ch								
1880.00	19.80	V	0.9	8.0	26.91	33.0	-6.1	
1880.00	20.85	H	0.9	8.0	27.96	33.0	-5.0	
High Ch								
1909.80	19.33	V	0.9	8.0	26.44	33.0	-6.6	
1909.80	20.80	H	0.9	8.0	27.91	33.0	-5.1	

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

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Band

GSM 1900

GPRS

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

Company: LG
Project #: 15I19922
Date: 2/10/215
Test Engineer: K.Kedida
Configuration: EUT Only
Location: Chamber C
Mode: GPRS 1900

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

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.20	23.52	V	0.9	8.0	30.63	33.0	-2.4	
1850.20	25.70	H	0.9	8.0	32.81	33.0	-0.2	
Mid Ch								
1880.00	23.35	V	0.9	8.0	30.46	33.0	-2.5	
1880.00	25.33	H	0.9	8.0	32.44	33.0	-0.6	
High Ch								
1909.80	22.97	V	0.9	8.0	30.08	33.0	-2.9	
1909.80	25.00	H	0.9	8.0	32.11	33.0	-0.9	

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

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Band

GSM 850

EGPRS

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

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Mode: EGPRS850

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	17.13	V	0.9	0.0	16.23	38.5	-22.2	
824.20	25.65	H	0.9	0.0	24.75	38.5	-13.7	
Mid Ch								
836.60	17.57	V	0.9	0.0	16.67	38.5	-21.8	
836.60	25.89	H	0.9	0.0	24.99	38.5	-13.5	
High Ch								
848.80	17.13	V	0.9	0.0	16.23	38.5	-22.2	
848.80	25.79	H	0.9	0.0	24.89	38.5	-13.6	

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

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Band

GSM 850

GPRS

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

Company: LG
Project #: 15I19922
Date: 02/08/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT Only
Mode: GPRS850

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	19.47	V	0.9	0.0	18.57	38.5	-19.9	
824.20	28.58	H	0.9	0.0	27.68	38.5	-10.8	
Mid Ch								
836.60	19.64	V	0.9	0.0	18.74	38.5	-19.7	
836.60	29.01	H	0.9	0.0	28.11	38.5	-10.3	
High Ch								
848.80	19.96	V	0.9	0.0	19.06	38.5	-19.4	
848.80	30.56	H	0.9	0.0	29.66	38.5	-8.8	

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

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11.3. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, and §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.

MODES TESTED

GSM, WCDMA, and LTE

RESULTS

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11.3.1. SPURIOUS RADIATION PLOTS

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

Company: LG Electronics
Project #: 15I19922
Date: 2/10/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: LTE_16QAM Band 17 Harmonics, 10MHz Bandwidth

Band

LTE17

10MHz

16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Mid Ch, 710									
1420.00	-16.5	V	3.0	37.3	1.0	-52.9	-13.0	-39.9	
2130.00	-14.5	V	3.0	36.6	1.0	-50.1	-13.0	-37.1	
2840.00	-23.9	V	3.0	36.4	1.0	-59.3	-13.0	-46.3	
1420.00	-16.3	H	3.0	37.3	1.0	-52.7	-13.0	-39.7	
2130.00	-14.4	H	3.0	36.6	1.0	-49.9	-13.0	-36.9	
2840.00	-24.5	H	3.0	36.4	1.0	-59.9	-13.0	-46.9	

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

Company: LG Electronics
Project #: 15I19922
Date: 2/10/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: LTE_QPSK Band 17 Harmonics, 10MHz Bandwidth

Band
LTE17
10MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Mid Ch, 710									
1420.00	-16.2	V	3.0	37.3	1.0	-52.5	-13.0	-39.5	
2130.00	-14.1	V	3.0	36.6	1.0	-49.7	-13.0	-36.7	
2840.00	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
1420.00	-16.0	H	3.0	37.3	1.0	-52.3	-13.0	-39.3	
2130.00	-14.0	H	3.0	36.6	1.0	-49.6	-13.0	-36.6	
2840.00	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	

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

Company: LG Electronics
Project #: 15I19922
Date: 2/9/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: LTE_16QAM Band 17 Harmonics, 5MHz Bandwidth

Band
LTE17
5MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 706.5									
1413.00	-17.7	V	3.0	37.4	1.0	-54.1	-13.0	-41.1	
2119.50	-14.9	V	3.0	36.6	1.0	-50.5	-13.0	-37.5	
2826.00	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
1413.00	-16.7	H	3.0	37.4	1.0	-53.1	-13.0	-40.1	
2119.50	-17.6	H	3.0	36.6	1.0	-53.2	-13.0	-40.2	
2826.00	-24.1	H	3.0	36.4	1.0	-59.5	-13.0	-46.5	
Mid Ch, 710									
1420.00	-12.7	V	3.0	37.3	1.0	-49.0	-13.0	-36.0	
2130.00	-18.7	V	3.0	36.6	1.0	-54.3	-13.0	-41.3	
2840.00	-23.0	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
1420.00	-13.4	H	3.0	37.3	1.0	-49.8	-13.0	-36.8	
2130.00	-20.3	H	3.0	36.6	1.0	-55.9	-13.0	-42.9	
2840.00	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	
High Ch, 713.5									
1427.00	-15.8	V	3.0	37.3	1.0	-52.2	-13.0	-39.2	
2140.50	-13.6	V	3.0	36.6	1.0	-49.2	-13.0	-36.2	
2854.00	-22.7	V	3.0	36.4	1.0	-58.1	-13.0	-45.1	
1427.00	-15.7	H	3.0	37.3	1.0	-52.0	-13.0	-39.0	
2140.50	-17.1	H	3.0	36.6	1.0	-52.7	-13.0	-39.7	
2854.00	-23.5	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	

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

Company: LG Electronics
Project #: 15I19922
Date: 2/9/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: LTE_QPSK Band 17 Harmonics, 5MHz Bandwidth

Band
LTE17
5MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 706.5									
1413.00	-17.4	V	3.0	37.4	1.0	-53.7	-13.0	-40.7	
2119.50	-14.6	V	3.0	36.6	1.0	-50.1	-13.0	-37.1	
2826.00	-23.2	V	3.0	36.4	1.0	-58.5	-13.0	-45.5	
1413.00	-16.4	H	3.0	37.4	1.0	-52.7	-13.0	-39.7	
2119.50	-17.3	H	3.0	36.6	1.0	-52.9	-13.0	-39.9	
2826.00	-23.8	H	3.0	36.4	1.0	-59.2	-13.0	-46.2	
Mid Ch, 710									
1420.00	-12.3	V	3.0	37.3	1.0	-48.7	-13.0	-35.7	
2130.00	-18.4	V	3.0	36.6	1.0	-53.9	-13.0	-40.9	
2840.00	-22.6	V	3.0	36.4	1.0	-58.0	-13.0	-45.0	
1420.00	-13.1	H	3.0	37.3	1.0	-49.4	-13.0	-36.4	
2130.00	-20.0	H	3.0	36.6	1.0	-55.6	-13.0	-42.6	
2840.00	-23.8	H	3.0	36.4	1.0	-59.2	-13.0	-46.2	
High Ch, 713.5									
1427.00	-15.5	V	3.0	37.3	1.0	-51.9	-13.0	-38.9	
2140.50	-13.3	V	3.0	36.6	1.0	-48.8	-13.0	-35.8	
2854.00	-22.4	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
1427.00	-15.3	H	3.0	37.3	1.0	-51.7	-13.0	-38.7	
2140.50	-16.8	H	3.0	36.6	1.0	-52.3	-13.0	-39.3	
2854.00	-23.1	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	

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

Company: LG Electronics
Project #: 15I19922
Date: 2/9/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: LTE_16QAM Band 5 Harmonics, 10MHz Bandwidth

Band

LTE5

10MHz

16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 829									
1658.00	-4.7	V	3.0	37.0	1.0	-40.7	-13.0	-27.7	
2487.00	-19.5	V	3.0	36.4	1.0	-54.9	-13.0	-41.9	
3316.00	-17.5	V	3.0	36.1	1.0	-52.6	-13.0	-39.6	
1658.00	-17.5	H	3.0	37.0	1.0	-53.6	-13.0	-40.6	
2487.00	-19.8	H	3.0	36.4	1.0	-55.2	-13.0	-42.2	
3316.00	-17.2	H	3.0	36.1	1.0	-52.4	-13.0	-39.4	
Mid Ch, 836.5									
1673.00	-0.3	V	3.0	37.0	1.0	-36.3	-13.0	-23.3	
2509.50	-19.3	V	3.0	36.4	1.0	-54.7	-13.0	-41.7	
3346.00	-17.3	V	3.0	36.1	1.0	-52.4	-13.0	-39.4	
1673.00	-4.9	H	3.0	37.0	1.0	-40.9	-13.0	-27.9	
2509.50	-20.6	H	3.0	36.4	1.0	-56.0	-13.0	-43.0	
3346.00	-16.9	H	3.0	36.1	1.0	-52.0	-13.0	-39.0	
High Ch, 844									
1688.00	0.7	V	3.0	37.0	1.0	-35.3	-13.0	-22.3	
2532.00	-19.4	V	3.0	36.4	1.0	-54.8	-13.0	-41.8	
3376.00	-17.5	V	3.0	36.1	1.0	-52.6	-13.0	-39.6	
1688.00	-12.5	H	3.0	37.0	1.0	-48.5	-13.0	-35.5	
2532.00	-17.1	H	3.0	36.4	1.0	-52.5	-13.0	-39.5	
3376.00	-17.3	H	3.0	36.1	1.0	-52.4	-13.0	-39.4	

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Band

LTE5

10MHz

QPSK

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

Company: LG Electronics
Project #: 15I19922
Date: 2/9/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: LTE_QPSK Band 5 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, 829									
1658.00	-4.4	V	3.0	37.0	1.0	-40.4	-13.0	-27.4	
2487.00	-19.1	V	3.0	36.4	1.0	-54.5	-13.0	-41.5	
3316.00	-17.1	V	3.0	36.1	1.0	-52.3	-13.0	-39.3	
1658.00	-17.2	H	3.0	37.0	1.0	-53.2	-13.0	-40.2	
2487.00	-19.4	H	3.0	36.4	1.0	-54.8	-13.0	-41.8	
3316.00	-16.9	H	3.0	36.1	1.0	-52.0	-13.0	-39.0	
Mid Ch, 836.5									
1673.00	0.1	V	3.0	37.0	1.0	-35.9	-13.0	-22.9	
2509.50	-18.9	V	3.0	36.4	1.0	-54.3	-13.0	-41.3	
3346.00	-16.9	V	3.0	36.1	1.0	-52.0	-13.0	-39.0	
1673.00	-4.6	H	3.0	37.0	1.0	-40.6	-13.0	-27.6	
2509.50	-20.3	H	3.0	36.4	1.0	-55.7	-13.0	-42.7	
3346.00	-16.6	H	3.0	36.1	1.0	-51.7	-13.0	-38.7	
High Ch, 844									
1688.00	1.0	V	3.0	37.0	1.0	-35.0	-13.0	-22.0	
2532.00	-19.0	V	3.0	36.4	1.0	-54.5	-13.0	-41.5	
3376.00	-17.1	V	3.0	36.1	1.0	-52.2	-13.0	-39.2	
1688.00	-12.2	H	3.0	37.0	1.0	-48.2	-13.0	-35.2	
2532.00	-16.8	H	3.0	36.4	1.0	-52.2	-13.0	-39.2	
3376.00	-17.0	H	3.0	36.1	1.0	-52.1	-13.0	-39.1	

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

Company: LG Electronics
Project #: 15I19922
Date: 2/9/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: LTE_16QAM Band 5 Harmonics, 5MHz Bandwidth

Band
LTE5
5MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.5									
1653.00	-4.3	V	3.0	37.0	1.0	-40.4	-13.0	-27.4	
2479.50	-18.0	V	3.0	36.4	1.0	-53.5	-13.0	-40.5	
3306.00	-17.8	V	3.0	36.1	1.0	-52.9	-13.0	-39.9	
1653.00	-14.3	H	3.0	37.0	1.0	-50.4	-13.0	-37.4	
2479.50	-19.1	H	3.0	36.4	1.0	-54.5	-13.0	-41.5	
3306.00	-17.2	H	3.0	36.1	1.0	-52.3	-13.0	-39.3	
Mid Ch, 836.5									
1673.00	1.3	V	3.0	37.0	1.0	-34.7	-13.0	-21.7	
2509.50	-19.7	V	3.0	36.4	1.0	-55.2	-13.0	-42.2	
3346.00	-17.1	V	3.0	36.1	1.0	-52.2	-13.0	-39.2	
1673.00	-4.7	H	3.0	37.0	1.0	-40.7	-13.0	-27.7	
2509.50	-19.4	H	3.0	36.4	1.0	-54.8	-13.0	-41.8	
3346.00	-16.8	H	3.0	36.1	1.0	-51.9	-13.0	-38.9	
High Ch, 846.5									
1693.00	2.3	V	3.0	37.0	1.0	-33.6	-13.0	-20.6	
2539.50	-19.5	V	3.0	36.4	1.0	-54.9	-13.0	-41.9	
3386.00	-17.4	V	3.0	36.1	1.0	-52.5	-13.0	-39.5	
1693.00	-10.4	H	3.0	37.0	1.0	-46.4	-13.0	-33.4	
2539.50	-18.4	H	3.0	36.4	1.0	-53.8	-13.0	-40.8	
3386.00	-16.7	H	3.0	36.1	1.0	-51.8	-13.0	-38.8	

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

Company: LG Electronics
Project #: 15I19922
Date: 2/9/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: LTE_QPSK Band 5 Harmonics, 5MHz Bandwidth

Band
LTE5
5MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.5									
1653.00	-4.0	V	3.0	37.0	1.0	-40.0	-13.0	-27.0	
2479.50	-17.7	V	3.0	36.4	1.0	-53.1	-13.0	-40.1	
3306.00	-17.5	V	3.0	36.1	1.0	-52.6	-13.0	-39.6	
1653.00	-14.0	H	3.0	37.0	1.0	-50.0	-13.0	-37.0	
2479.50	-18.8	H	3.0	36.4	1.0	-54.2	-13.0	-41.2	
3306.00	-16.9	H	3.0	36.1	1.0	-52.0	-13.0	-39.0	
Mid Ch, 836.5									
1673.00	1.7	V	3.0	37.0	1.0	-34.3	-13.0	-21.3	
2509.50	-19.4	V	3.0	36.4	1.0	-54.8	-13.0	-41.8	
3346.00	-16.8	V	3.0	36.1	1.0	-51.9	-13.0	-38.9	
1673.00	-4.4	H	3.0	37.0	1.0	-40.4	-13.0	-27.4	
2509.50	-19.1	H	3.0	36.4	1.0	-54.5	-13.0	-41.5	
3346.00	-16.5	H	3.0	36.1	1.0	-51.6	-13.0	-38.6	
High Ch, 846.5									
1693.00	2.7	V	3.0	37.0	1.0	-33.3	-13.0	-20.3	
2539.50	-19.2	V	3.0	36.4	1.0	-54.6	-13.0	-41.6	
3386.00	-17.1	V	3.0	36.1	1.0	-52.2	-13.0	-39.2	
1693.00	-10.1	H	3.0	37.0	1.0	-46.1	-13.0	-33.1	
2539.50	-18.1	H	3.0	36.4	1.0	-53.5	-13.0	-40.5	
3386.00	-16.3	H	3.0	36.1	1.0	-51.4	-13.0	-38.4	

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

Company: LG Electronics
Project #: 15I19922
Date: 2/9/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: LTE_16QAM Band 5 Harmonics, 3MHz Bandwidth

Band
LTE5
3MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 825.5									
1651.00	-4.9	V	3.0	37.0	1.0	-40.9	-13.0	-27.9	
2476.50	-18.0	V	3.0	36.4	1.0	-53.4	-13.0	-40.4	
3302.00	-16.6	V	3.0	36.2	1.0	-51.7	-13.0	-38.7	
1651.00	-14.2	H	3.0	37.0	1.0	-50.2	-13.0	-37.2	
2476.50	-20.2	H	3.0	36.4	1.0	-55.7	-13.0	-42.7	
3302.00	-17.2	H	3.0	36.2	1.0	-52.3	-13.0	-39.3	
Mid Ch, 836.5									
1673.00	2.6	V	3.0	37.0	1.0	-33.4	-13.0	-20.4	
2509.50	-19.9	V	3.0	36.4	1.0	-55.4	-13.0	-42.4	
3346.00	-16.8	V	3.0	36.1	1.0	-51.9	-13.0	-38.9	
1673.00	-3.2	H	3.0	37.0	1.0	-39.2	-13.0	-26.2	
2509.50	-20.4	H	3.0	36.4	1.0	-55.8	-13.0	-42.8	
3346.00	-17.6	H	3.0	36.1	1.0	-52.7	-13.0	-39.7	
High Ch, 847.5									
1695.00	2.2	V	3.0	37.0	1.0	-33.8	-13.0	-20.8	
2542.50	-19.1	V	3.0	36.4	1.0	-54.5	-13.0	-41.5	
3390.00	-17.6	V	3.0	36.1	1.0	-52.7	-13.0	-39.7	
1695.00	-4.6	H	3.0	37.0	1.0	-40.6	-13.0	-27.6	
2542.50	-20.7	H	3.0	36.4	1.0	-56.1	-13.0	-43.1	
3390.00	-17.8	H	3.0	36.1	1.0	-52.9	-13.0	-39.9	

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

Company: LG Electronics
Project #: 15I19922
Date: 2/9/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: LTE_QPSK Band 5 Harmonics, 3MHz Bandwidth

Band
LTE5
3MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 825.5									
1651.00	-4.6	V	3.0	37.0	1.0	-40.6	-13.0	-27.6	
2476.50	-17.6	V	3.0	36.4	1.0	-53.1	-13.0	-40.1	
3302.00	-16.2	V	3.0	36.2	1.0	-51.4	-13.0	-38.4	
1651.00	-13.9	H	3.0	37.0	1.0	-49.9	-13.0	-36.9	
2476.50	-19.9	H	3.0	36.4	1.0	-55.3	-13.0	-42.3	
3302.00	-16.8	H	3.0	36.2	1.0	-52.0	-13.0	-39.0	
Mid Ch, 836.5									
1673.00	2.9	V	3.0	37.0	1.0	-33.1	-13.0	-20.1	
2509.50	-19.6	V	3.0	36.4	1.0	-55.0	-13.0	-42.0	
3346.00	-16.5	V	3.0	36.1	1.0	-51.6	-13.0	-38.6	
1673.00	-2.9	H	3.0	37.0	1.0	-38.9	-13.0	-25.9	
2509.50	-20.0	H	3.0	36.4	1.0	-55.5	-13.0	-42.5	
3346.00	-17.2	H	3.0	36.1	1.0	-52.3	-13.0	-39.3	
High Ch, 847.5									
1695.00	2.5	V	3.0	37.0	1.0	-33.4	-13.0	-20.4	
2542.50	-18.8	V	3.0	36.4	1.0	-54.2	-13.0	-41.2	
3390.00	-17.2	V	3.0	36.1	1.0	-52.3	-13.0	-39.3	
1695.00	-4.3	H	3.0	37.0	1.0	-40.3	-13.0	-27.3	
2542.50	-20.4	H	3.0	36.4	1.0	-55.8	-13.0	-42.8	
3390.00	-17.5	H	3.0	36.1	1.0	-52.6	-13.0	-39.6	

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Band

LTE5

1.4MHz

16QAM

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

Company: LG Electronics
Project #: 15I19922
Date: 2/9/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: LTE_16QAM Band 5 Harmonics, 1.4MHz 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, 824.7									
1649.40	-5.1	V	3.0	37.0	1.0	-41.2	-13.0	-28.2	
2474.10	-18.0	V	3.0	36.4	1.0	-53.4	-13.0	-40.4	
3298.80	-16.7	V	3.0	36.2	1.0	-51.8	-13.0	-38.8	
1649.40	-14.1	H	3.0	37.0	1.0	-50.1	-13.0	-37.1	
2474.10	-19.6	H	3.0	36.4	1.0	-55.1	-13.0	-42.1	
3298.80	-16.5	H	3.0	36.2	1.0	-51.7	-13.0	-38.7	
Mid Ch, 836.5									
1673.00	-2.0	V	3.0	37.0	1.0	-38.0	-13.0	-25.0	
2509.50	-19.8	V	3.0	36.4	1.0	-55.2	-13.0	-42.2	
3346.00	-17.2	V	3.0	36.1	1.0	-52.4	-13.0	-39.4	
1673.00	-2.0	H	3.0	37.0	1.0	-38.0	-13.0	-25.0	
2509.50	-20.5	H	3.0	36.4	1.0	-55.9	-13.0	-42.9	
3346.00	-17.2	H	3.0	36.1	1.0	-52.3	-13.0	-39.3	
High Ch, 848.3									
1696.60	-0.2	V	3.0	37.0	1.0	-36.1	-13.0	-23.1	
2544.90	-18.9	V	3.0	36.4	1.0	-54.3	-13.0	-41.3	
3393.20	-17.6	V	3.0	36.1	1.0	-52.7	-13.0	-39.7	
1696.60	-5.4	H	3.0	37.0	1.0	-41.3	-13.0	-28.3	
2544.90	-19.2	H	3.0	36.4	1.0	-54.6	-13.0	-41.6	
3393.20	-17.9	H	3.0	36.1	1.0	-53.0	-13.0	-40.0	

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

Company: LG Electronics
Project #: 15I19922
Date: 2/9/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: LTE_QPSK Band 5 Harmonics, 1.4MHz Bandwidth

Band: LTE5 1.4MHz QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7									
1649.40	-4.8	V	3.0	37.0	1.0	-40.8	-13.0	-27.8	
2474.10	-17.7	V	3.0	36.4	1.0	-53.1	-13.0	-40.1	
3298.80	-16.4	V	3.0	36.2	1.0	-51.5	-13.0	-38.5	
1649.40	-13.8	H	3.0	37.0	1.0	-49.8	-13.0	-36.8	
2474.10	-19.3	H	3.0	36.4	1.0	-54.7	-13.0	-41.7	
3298.80	-16.2	H	3.0	36.2	1.0	-51.4	-13.0	-38.4	
Mid Ch, 836.5									
1673.00	-1.7	V	3.0	37.0	1.0	-37.7	-13.0	-24.7	
2509.50	-19.5	V	3.0	36.4	1.0	-54.9	-13.0	-41.9	
3346.00	-16.9	V	3.0	36.1	1.0	-52.0	-13.0	-39.0	
1673.00	-1.7	H	3.0	37.0	1.0	-37.7	-13.0	-24.7	
2509.50	-20.2	H	3.0	36.4	1.0	-55.6	-13.0	-42.6	
3346.00	-16.8	H	3.0	36.1	1.0	-52.0	-13.0	-39.0	
High Ch, 848.3									
1696.60	0.2	V	3.0	37.0	1.0	-35.8	-13.0	-22.8	
2544.90	-18.6	V	3.0	36.4	1.0	-54.0	-13.0	-41.0	
3393.20	-17.3	V	3.0	36.1	1.0	-52.4	-13.0	-39.4	
1696.60	-5.0	H	3.0	37.0	1.0	-41.0	-13.0	-28.0	
2544.90	-18.9	H	3.0	36.4	1.0	-54.3	-13.0	-41.3	
3393.20	-17.6	H	3.0	36.1	1.0	-52.7	-13.0	-39.7	

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

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 20MHz Bandwidth

Band
LTE4
20MHz
16QAM

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	-12.4	V	3.0	36.0	1.0	-47.4	-13.0	-34.4	
5160.00	-17.1	V	3.0	35.4	1.0	-51.5	-13.0	-38.5	
6880.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
3440.00	-13.0	H	3.0	36.0	1.0	-48.1	-13.0	-35.1	
5160.00	-16.9	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	
6880.00	-14.1	H	3.0	35.7	1.0	-48.8	-13.0	-35.8	
Mid Ch, 1732.5									
3465.00	-14.4	V	3.0	36.0	1.0	-49.4	-13.0	-36.4	
5197.50	-17.1	V	3.0	35.4	1.0	-51.5	-13.0	-38.5	
6930.00	-15.4	V	3.0	35.7	1.0	-50.1	-13.0	-37.1	
3465.00	-10.2	H	3.0	36.0	1.0	-45.2	-13.0	-32.2	
5197.50	-16.9	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	
6930.00	-13.6	H	3.0	35.7	1.0	-48.3	-13.0	-35.3	
High Ch, 1745									
3490.00	-13.2	V	3.0	36.0	1.0	-48.2	-13.0	-35.2	
5235.00	-17.1	V	3.0	35.4	1.0	-51.5	-13.0	-38.5	
6980.00	-15.1	V	3.0	35.7	1.0	-49.8	-13.0	-36.8	
3490.00	-13.4	H	3.0	36.0	1.0	-48.4	-13.0	-35.4	
5235.00	-15.8	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6980.00	-12.7	H	3.0	35.7	1.0	-47.4	-13.0	-34.4	

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

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 20MHz Bandwidth

Band
LTE4
20MHz
QPSK

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	-12.0	V	3.0	36.0	1.0	-47.0	-13.0	-34.0	
5160.00	-17.2	V	3.0	35.4	1.0	-51.6	-13.0	-38.6	
6880.00	-15.7	V	3.0	35.7	1.0	-50.4	-13.0	-37.4	
3440.00	-12.4	H	3.0	36.0	1.0	-47.5	-13.0	-34.5	
5160.00	-16.6	H	3.0	35.4	1.0	-51.0	-13.0	-38.0	
6880.00	-13.5	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
Mid Ch, 1732.5									
3465.00	-13.6	V	3.0	36.0	1.0	-48.6	-13.0	-35.6	
5197.50	-17.5	V	3.0	35.4	1.0	-52.0	-13.0	-39.0	
6930.00	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3465.00	-9.4	H	3.0	36.0	1.0	-44.5	-13.0	-31.5	
5197.50	-15.7	H	3.0	35.4	1.0	-50.1	-13.0	-37.1	
6930.00	-13.9	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
High Ch, 1745									
3490.00	-13.0	V	3.0	36.0	1.0	-48.0	-13.0	-35.0	
5235.00	-16.4	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
6980.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
3490.00	-13.0	H	3.0	36.0	1.0	-48.0	-13.0	-35.0	
5235.00	-16.6	H	3.0	35.4	1.0	-51.0	-13.0	-38.0	
6980.00	-12.3	H	3.0	35.7	1.0	-47.0	-13.0	-34.0	

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

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 15MHz Bandwidth

Band
LTE4
15MHz
16QAM

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	-12.7	V	3.0	36.1	1.0	-47.7	-13.0	-34.7	
5152.50	-16.8	V	3.0	35.4	1.0	-51.2	-13.0	-38.2	
6870.00	-15.2	V	3.0	35.7	1.0	-49.9	-13.0	-36.9	
3435.00	-11.6	H	3.0	36.1	1.0	-46.7	-13.0	-33.7	
5152.50	-15.8	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6870.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
Mid Ch, 1732.5									
3465.00	-14.4	V	3.0	36.0	1.0	-49.4	-13.0	-36.4	
5197.50	-17.5	V	3.0	35.4	1.0	-52.0	-13.0	-39.0	
6930.00	-15.1	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3465.00	-12.6	H	3.0	36.0	1.0	-47.6	-13.0	-34.6	
5197.50	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6930.00	-13.5	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
High Ch, 1747.5									
3495.00	-12.7	V	3.0	36.0	1.0	-47.7	-13.0	-34.7	
5242.50	-17.0	V	3.0	35.4	1.0	-51.5	-13.0	-38.5	
6990.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
3495.00	-13.8	H	3.0	36.0	1.0	-48.8	-13.0	-35.8	
5242.50	-16.8	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	
6990.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	

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

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 15MHz Bandwidth

Band
LTE4
15MHz
QPSK

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	-11.8	V	3.0	36.1	1.0	-46.8	-13.0	-33.8	
5152.50	-16.4	V	3.0	35.4	1.0	-50.8	-13.0	-37.8	
6870.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
3435.00	-11.2	H	3.0	36.1	1.0	-46.3	-13.0	-33.3	
5152.50	-16.2	H	3.0	35.4	1.0	-50.6	-13.0	-37.6	
6870.00	-14.3	H	3.0	35.7	1.0	-49.0	-13.0	-36.0	
Mid Ch, 1732.5									
3465.00	-13.9	V	3.0	36.0	1.0	-48.9	-13.0	-35.9	
5197.50	-16.6	V	3.0	35.4	1.0	-51.0	-13.0	-38.0	
6930.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
3465.00	-11.8	H	3.0	36.0	1.0	-46.8	-13.0	-33.8	
5197.50	-16.8	H	3.0	35.4	1.0	-51.2	-13.0	-38.2	
6930.00	-12.4	H	3.0	35.7	1.0	-47.1	-13.0	-34.1	
High Ch, 1747.5									
3495.00	-11.6	V	3.0	36.0	1.0	-46.6	-13.0	-33.6	
5242.50	-17.3	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
6990.00	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3495.00	-12.8	H	3.0	36.0	1.0	-47.8	-13.0	-34.8	
5242.50	-15.8	H	3.0	35.4	1.0	-50.2	-13.0	-37.2	
6990.00	-13.8	H	3.0	35.7	1.0	-48.5	-13.0	-35.5	

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

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 10MHz Bandwidth

Band
LTE4
10MHz
16QAM

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	-13.4	V	3.0	36.1	1.0	-48.5	-13.0	-35.5	
5145.00	-17.5	V	3.0	35.4	1.0	-51.9	-13.0	-38.9	
6860.00	-15.7	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
3430.00	-12.7	H	3.0	36.1	1.0	-47.8	-13.0	-34.8	
5145.00	-16.4	H	3.0	35.4	1.0	-50.8	-13.0	-37.8	
6860.00	-14.1	H	3.0	35.7	1.0	-48.8	-13.0	-35.8	
Mid Ch, 1732.5									
3465.00	-14.2	V	3.0	36.0	1.0	-49.3	-13.0	-36.3	
5197.50	-17.2	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
6930.00	-15.2	V	3.0	35.7	1.0	-49.8	-13.0	-36.8	
3465.00	-13.8	H	3.0	36.0	1.0	-48.9	-13.0	-35.9	
5197.50	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6930.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
High Ch, 1750									
3500.00	-12.9	V	3.0	36.0	1.0	-47.9	-13.0	-34.9	
5250.00	-17.4	V	3.0	35.4	1.0	-51.8	-13.0	-38.8	
7000.00	-15.6	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
3500.00	-12.5	H	3.0	36.0	1.0	-47.5	-13.0	-34.5	
5250.00	-16.8	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	
7000.00	-13.7	H	3.0	35.7	1.0	-48.4	-13.0	-35.4	

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

Company: LG
Project #: 15I19922
Date: 2/13/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 10MHz Bandwidth

Band
LTE4
10MHz
QPSK

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	-13.0	V	3.0	36.1	1.0	-48.1	-13.0	-35.1	
5145.00	-16.5	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
6860.00	-15.7	V	3.0	35.7	1.0	-50.4	-13.0	-37.4	
3430.00	-12.0	H	3.0	36.1	1.0	-47.1	-13.0	-34.1	
5145.00	-16.2	H	3.0	35.4	1.0	-50.6	-13.0	-37.6	
6860.00	-13.7	H	3.0	35.7	1.0	-48.4	-13.0	-35.4	
Mid Ch, 1732.5									
3465.00	-13.7	V	3.0	36.0	1.0	-48.7	-13.0	-35.7	
5197.50	-16.6	V	3.0	35.4	1.0	-51.1	-13.0	-38.1	
6930.00	-15.6	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
3465.00	-13.0	H	3.0	36.0	1.0	-48.1	-13.0	-35.1	
5197.50	-15.5	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6930.00	-12.2	H	3.0	35.7	1.0	-46.9	-13.0	-33.9	
High Ch, 1750									
3500.00	-12.0	V	3.0	36.0	1.0	-47.1	-13.0	-34.1	
5250.00	-16.3	V	3.0	35.4	1.0	-50.7	-13.0	-37.7	
7000.00	-14.9	V	3.0	35.7	1.0	-49.6	-13.0	-36.6	
3500.00	-11.6	H	3.0	36.0	1.0	-46.6	-13.0	-33.6	
5250.00	-15.6	H	3.0	35.4	1.0	-50.1	-13.0	-37.1	
7000.00	-13.4	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter
Location: Chamber B
Mode: LTE_16QAM Band 4 Harmonics, 5MHz Bandwidth

Band
LTE4
5MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5									
3425.00	-14.2	V	3.0	36.1	1.0	-49.3	-13.0	-36.3	
5137.50	-16.9	V	3.0	35.4	1.0	-51.3	-13.0	-38.3	
6850.00	-14.8	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3425.00	-12.7	H	3.0	36.1	1.0	-47.8	-13.0	-34.8	
5137.50	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6850.00	-14.0	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
Mid Ch, 1732.5									
3465.00	-13.9	V	3.0	36.0	1.0	-49.0	-13.0	-36.0	
5197.50	-17.3	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
6930.00	-15.3	V	3.0	35.7	1.0	-49.9	-13.0	-36.9	
3465.00	-13.9	H	3.0	36.0	1.0	-49.0	-13.0	-36.0	
5197.50	-16.5	H	3.0	35.4	1.0	-50.9	-13.0	-37.9	
6930.00	-13.0	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
High Ch, 1752.5									
3505.00	-15.0	V	3.0	36.0	1.0	-50.0	-13.0	-37.0	
5257.50	-17.3	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
7010.00	-14.9	V	3.0	35.7	1.0	-49.5	-13.0	-36.5	
3505.00	-13.6	H	3.0	36.0	1.0	-48.6	-13.0	-35.6	
5257.50	-15.8	H	3.0	35.4	1.0	-50.2	-13.0	-37.2	
7010.00	-13.2	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter
Location: Chamber B
Mode: LTE_QPSK Band 4 Harmonics, 5MHz Bandwidth

Band
LTE4
5MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5									
3425.00	-13.5	V	3.0	36.1	1.0	-48.6	-13.0	-35.6	
5137.50	-18.1	V	3.0	35.4	1.0	-52.5	-13.0	-39.5	
6850.00	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3425.00	-11.8	H	3.0	36.1	1.0	-46.9	-13.0	-33.9	
5137.50	-16.9	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	
6850.00	-13.1	H	3.0	35.7	1.0	-47.7	-13.0	-34.7	
Mid Ch, 1732.5									
3465.00	-14.3	V	3.0	36.0	1.0	-49.4	-13.0	-36.4	
5197.50	-17.1	V	3.0	35.4	1.0	-51.5	-13.0	-38.5	
6930.00	-15.3	V	3.0	35.7	1.0	-50.0	-13.0	-37.0	
3465.00	-12.8	H	3.0	36.0	1.0	-47.8	-13.0	-34.8	
5197.50	-16.9	H	3.0	35.4	1.0	-51.4	-13.0	-38.4	
6930.00	-12.2	H	3.0	35.7	1.0	-46.8	-13.0	-33.8	
High Ch, 1752.5									
3505.00	-14.4	V	3.0	36.0	1.0	-49.4	-13.0	-36.4	
5257.50	-16.3	V	3.0	35.4	1.0	-50.7	-13.0	-37.7	
7010.00	-15.3	V	3.0	35.7	1.0	-50.0	-13.0	-37.0	
3505.00	-12.6	H	3.0	36.0	1.0	-47.6	-13.0	-34.6	
5257.50	-16.4	H	3.0	35.4	1.0	-50.8	-13.0	-37.8	
7010.00	-12.4	H	3.0	35.7	1.0	-47.1	-13.0	-34.1	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 3MHz Bandwidth

Band
LTE4
3MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1711.5									
3423.00	-14.0	V	3.0	36.1	1.0	-49.1	-13.0	-36.1	
5134.50	-16.5	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
6846.00	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3423.00	-12.3	H	3.0	36.1	1.0	-47.4	-13.0	-34.4	
5134.50	-16.1	H	3.0	35.4	1.0	-50.5	-13.0	-37.5	
6846.00	-13.7	H	3.0	35.7	1.0	-48.4	-13.0	-35.4	
Mid Ch, 1732.5									
3465.00	-15.5	V	3.0	36.0	1.0	-50.5	-13.0	-37.5	
5197.50	-16.8	V	3.0	35.4	1.0	-51.3	-13.0	-38.3	
6930.00	-14.8	V	3.0	35.7	1.0	-49.5	-13.0	-36.5	
3465.00	-14.8	H	3.0	36.0	1.0	-49.9	-13.0	-36.9	
5197.50	-16.2	H	3.0	35.4	1.0	-50.6	-13.0	-37.6	
6930.00	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	
High Ch, 1753.5									
3507.00	-15.3	V	3.0	36.0	1.0	-50.3	-13.0	-37.3	
5260.50	-17.4	V	3.0	35.4	1.0	-51.8	-13.0	-38.8	
7014.00	-13.8	V	3.0	35.7	1.0	-48.5	-13.0	-35.5	
3507.00	-13.8	H	3.0	36.0	1.0	-48.8	-13.0	-35.8	
5260.50	-16.6	H	3.0	35.4	1.0	-51.0	-13.0	-38.0	
7014.00	-13.4	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 3MHz Bandwidth

Band
LTE4
3MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1711.5									
3423.00	-13.4	V	3.0	36.1	1.0	-48.5	-13.0	-35.5	
5134.50	-17.5	V	3.0	35.4	1.0	-51.9	-13.0	-38.9	
6846.00	-14.1	V	3.0	35.7	1.0	-48.7	-13.0	-35.7	
3423.00	-11.8	H	3.0	36.1	1.0	-46.9	-13.0	-33.9	
5134.50	-16.8	H	3.0	35.4	1.0	-51.2	-13.0	-38.2	
6846.00	-12.9	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
Mid Ch, 1732.5									
3465.00	-15.2	V	3.0	36.0	1.0	-50.2	-13.0	-37.2	
5197.50	-17.8	V	3.0	35.4	1.0	-52.2	-13.0	-39.2	
6930.00	-14.2	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
3465.00	-13.2	H	3.0	36.0	1.0	-48.2	-13.0	-35.2	
5197.50	-17.3	H	3.0	35.4	1.0	-51.7	-13.0	-38.7	
6930.00	-12.4	H	3.0	35.7	1.0	-47.0	-13.0	-34.0	
High Ch, 1753.5									
3507.00	-14.1	V	3.0	36.0	1.0	-49.1	-13.0	-36.1	
5260.50	-17.3	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
7014.00	-13.2	V	3.0	35.7	1.0	-47.9	-13.0	-34.9	
3507.00	-12.8	H	3.0	36.0	1.0	-47.8	-13.0	-34.8	
5260.50	-16.9	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	
7014.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 1.4MHz Bandwidth

Band
LTE4
1.4MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7									
3421.40	-13.9	V	3.0	36.1	1.0	-48.9	-13.0	-35.9	
5132.10	-17.6	V	3.0	35.4	1.0	-52.0	-13.0	-39.0	
6842.80	-14.9	V	3.0	35.7	1.0	-49.5	-13.0	-36.5	
3421.40	-11.3	H	3.0	36.1	1.0	-46.4	-13.0	-33.4	
5132.10	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6842.80	-13.3	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	
Mid Ch, 1732.5									
3465.00	-15.3	V	3.0	36.0	1.0	-50.3	-13.0	-37.3	
5197.50	-17.2	V	3.0	35.4	1.0	-51.6	-13.0	-38.6	
6930.00	-14.3	V	3.0	35.7	1.0	-49.0	-13.0	-36.0	
3465.00	-23.2	H	3.0	36.0	1.0	-58.2	-13.0	-45.2	
5197.50	-17.0	H	3.0	35.4	1.0	-51.4	-13.0	-38.4	
6930.00	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	
High Ch, 1754.3									
3508.60	-13.9	V	3.0	36.0	1.0	-48.9	-13.0	-35.9	
5262.90	-16.7	V	3.0	35.4	1.0	-51.2	-13.0	-38.2	
7017.20	-14.4	V	3.0	35.7	1.0	-49.0	-13.0	-36.0	
3508.60	-11.4	H	3.0	36.0	1.0	-46.4	-13.0	-33.4	
5262.90	-17.0	H	3.0	35.4	1.0	-51.4	-13.0	-38.4	
7017.20	-12.7	H	3.0	35.7	1.0	-47.3	-13.0	-34.3	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 1.4MHz Bandwidth

Band
LTE4
1.4MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7									
3421.40	-13.3	V	3.0	36.1	1.0	-48.4	-13.0	-35.4	
5132.10	-18.1	V	3.0	35.4	1.0	-52.6	-13.0	-39.6	
6842.80	-14.2	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
3421.40	-10.3	H	3.0	36.1	1.0	-45.4	-13.0	-32.4	
5132.10	-17.1	H	3.0	35.4	1.0	-51.5	-13.0	-38.5	
6842.80	-12.8	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
Mid Ch, 1732.5									
3465.00	-14.7	V	3.0	36.0	1.0	-49.8	-13.0	-36.8	
5197.50	-17.0	V	3.0	35.4	1.0	-51.4	-13.0	-38.4	
6930.00	-13.3	V	3.0	35.7	1.0	-48.0	-13.0	-35.0	
3465.00	-12.1	H	3.0	36.0	1.0	-47.2	-13.0	-34.2	
5197.50	-17.4	H	3.0	35.4	1.0	-51.8	-13.0	-38.8	
6930.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	
High Ch, 1754.3									
3508.60	-13.3	V	3.0	36.0	1.0	-48.3	-13.0	-35.3	
5262.90	-17.5	V	3.0	35.4	1.0	-52.0	-13.0	-39.0	
7017.20	-13.4	V	3.0	35.7	1.0	-48.1	-13.0	-35.1	
3508.60	-10.9	H	3.0	36.0	1.0	-45.9	-13.0	-32.9	
5262.90	-16.3	H	3.0	35.4	1.0	-50.8	-13.0	-37.8	
7017.20	-12.0	H	3.0	35.7	1.0	-46.7	-13.0	-33.7	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter and HP
Location: Chamber C
Mode: LTE_16QAM Band 2 Harmonics, 20MHz Bandwidth

Band
LTE2
20MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860									
3720.00	-18.6	V	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5580.00	-16.3	V	3.0	35.5	1.0	-50.7	-13.0	-37.7	
7440.00	-13.7	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3720.00	-19.9	H	3.0	35.8	1.0	-54.8	-13.0	-41.8	
5580.00	-16.0	H	3.0	35.5	1.0	-50.5	-13.0	-37.5	
7440.00	-12.9	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
Mid Ch, 1880									
3760.00	-19.0	V	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5640.00	-16.3	V	3.0	35.5	1.0	-50.8	-13.0	-37.8	
7520.00	-13.8	V	3.0	35.7	1.0	-48.5	-13.0	-35.5	
3760.00	-18.8	H	3.0	35.8	1.0	-53.7	-13.0	-40.7	
5640.00	-15.4	H	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7520.00	-12.2	H	3.0	35.7	1.0	-46.9	-13.0	-33.9	
High Ch, 1900									
3800.00	-18.9	V	3.0	35.8	1.0	-53.7	-13.0	-40.7	
5700.00	-16.6	V	3.0	35.5	1.0	-51.1	-13.0	-38.1	
7600.00	-13.5	V	3.0	35.8	1.0	-48.2	-13.0	-35.2	
3800.00	-19.4	H	3.0	35.8	1.0	-54.2	-13.0	-41.2	
5700.00	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7600.00	-11.9	H	3.0	35.8	1.0	-46.6	-13.0	-33.6	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter and HP
Location: Chamber C
Mode: LTE_QPSK Band 2 Harmonics, 20MHz Bandwidth

Band LTE2 20MHz QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860									
3720.00	-18.2	V	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5580.00	-16.9	V	3.0	35.5	1.0	-51.4	-13.0	-38.4	
7440.00	-13.3	V	3.0	35.7	1.0	-48.1	-13.0	-35.1	
3720.00	-19.9	H	3.0	35.8	1.0	-54.7	-13.0	-41.7	
5580.00	-17.1	H	3.0	35.5	1.0	-51.6	-13.0	-38.6	
7440.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	
Mid Ch, 1880									
3760.00	-18.8	V	3.0	35.8	1.0	-53.6	-13.0	-40.6	
5640.00	-17.3	V	3.0	35.5	1.0	-51.7	-13.0	-38.7	
7520.00	-13.7	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3760.00	-18.9	H	3.0	35.8	1.0	-53.7	-13.0	-40.7	
5640.00	-16.4	H	3.0	35.5	1.0	-50.9	-13.0	-37.9	
7520.00	-11.9	H	3.0	35.7	1.0	-46.6	-13.0	-33.6	
High Ch, 1900									
3800.00	-19.3	V	3.0	35.8	1.0	-54.1	-13.0	-41.1	
5700.00	-16.9	V	3.0	35.5	1.0	-51.4	-13.0	-38.4	
7600.00	-13.5	V	3.0	35.8	1.0	-48.3	-13.0	-35.3	
3800.00	-19.5	H	3.0	35.8	1.0	-54.3	-13.0	-41.3	
5700.00	-16.1	H	3.0	35.5	1.0	-50.6	-13.0	-37.6	
7600.00	-12.3	H	3.0	35.8	1.0	-47.0	-13.0	-34.0	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter and HP
Location: Chamber C
Mode: LTE_16QAM Band 2 Harmonics, 15MHz Bandwidth

Band
LTE2
15MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1857.5									
3715.00	-19.2	V	3.0	35.8	1.0	-54.0	-13.0	-41.0	
5572.50	-16.9	V	3.0	35.5	1.0	-51.4	-13.0	-38.4	
7430.00	-13.5	V	3.0	35.7	1.0	-48.2	-13.0	-35.2	
3715.00	-20.1	H	3.0	35.8	1.0	-54.9	-13.0	-41.9	
5572.50	-15.6	H	3.0	35.5	1.0	-50.1	-13.0	-37.1	
7430.00	-12.7	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
Mid Ch, 1880									
3760.00	-17.9	V	3.0	35.8	1.0	-52.7	-13.0	-39.7	
5640.00	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7520.00	-13.0	V	3.0	35.7	1.0	-47.7	-13.0	-34.7	
3760.00	-19.0	H	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5640.00	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7520.00	-12.8	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
High Ch, 1902.5									
3805.00	-18.8	V	3.0	35.8	1.0	-53.6	-13.0	-40.6	
5707.50	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7610.00	-13.7	V	3.0	35.8	1.0	-48.4	-13.0	-35.4	
3805.00	-19.8	H	3.0	35.8	1.0	-54.6	-13.0	-41.6	
5707.50	-16.0	H	3.0	35.5	1.0	-50.4	-13.0	-37.4	
7610.00	-12.2	H	3.0	35.8	1.0	-46.9	-13.0	-33.9	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter and HP
Location: Chamber C
Mode: LTE_QPSK Band 2 Harmonics, 15MHz Bandwidth

Band
LTE2
15MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1857.5									
3715.00	-18.9	V	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5572.50	-16.7	V	3.0	35.5	1.0	-51.2	-13.0	-38.2	
7430.00	-13.4	V	3.0	35.7	1.0	-48.1	-13.0	-35.1	
3715.00	-19.4	H	3.0	35.8	1.0	-54.3	-13.0	-41.3	
5572.50	-16.5	H	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7430.00	-12.7	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
Mid Ch, 1880									
3760.00	-17.5	V	3.0	35.8	1.0	-52.3	-13.0	-39.3	
5640.00	-17.0	V	3.0	35.5	1.0	-51.5	-13.0	-38.5	
7520.00	-13.1	V	3.0	35.7	1.0	-47.9	-13.0	-34.9	
3760.00	-19.0	H	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5640.00	-17.0	H	3.0	35.5	1.0	-51.5	-13.0	-38.5	
7520.00	-12.0	H	3.0	35.7	1.0	-46.7	-13.0	-33.7	
High Ch, 1902.5									
3805.00	-18.6	V	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5707.50	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7610.00	-13.1	V	3.0	35.8	1.0	-47.8	-13.0	-34.8	
3805.00	-19.1	H	3.0	35.8	1.0	-53.9	-13.0	-40.9	
5707.50	-15.8	H	3.0	35.5	1.0	-50.3	-13.0	-37.3	
7610.00	-12.0	H	3.0	35.8	1.0	-46.7	-13.0	-33.7	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter and HP
Location: Chamber C
Mode: LTE_16QAM Band 2 Harmonics, 10MHz Bandwidth

Band

LTE2

10MHz

16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1855									
3710.00	-18.5	V	3.0	35.9	1.0	-53.4	-13.0	-40.4	
5565.00	-17.2	V	3.0	35.5	1.0	-51.6	-13.0	-38.6	
7420.00	-13.0	V	3.0	35.7	1.0	-47.7	-13.0	-34.7	
3710.00	-18.5	H	3.0	35.9	1.0	-53.4	-13.0	-40.4	
5565.00	-17.2	H	3.0	35.5	1.0	-51.7	-13.0	-38.7	
7420.00	-12.0	H	3.0	35.7	1.0	-46.7	-13.0	-33.7	
Mid Ch, 1880									
3760.00	-17.8	V	3.0	35.8	1.0	-52.6	-13.0	-39.6	
5640.00	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7520.00	-13.9	V	3.0	35.7	1.0	-48.7	-13.0	-35.7	
3760.00	-19.9	H	3.0	35.8	1.0	-54.7	-13.0	-41.7	
5640.00	-16.0	H	3.0	35.5	1.0	-50.5	-13.0	-37.5	
7520.00	-12.6	H	3.0	35.7	1.0	-47.4	-13.0	-34.4	
High Ch, 1905									
3810.00	-18.8	V	3.0	35.8	1.0	-53.6	-13.0	-40.6	
5715.00	-16.2	V	3.0	35.5	1.0	-50.7	-13.0	-37.7	
7620.00	-12.8	V	3.0	35.8	1.0	-47.5	-13.0	-34.5	
3810.00	-18.5	H	3.0	35.8	1.0	-53.3	-13.0	-40.3	
5715.00	-15.1	H	3.0	35.5	1.0	-49.6	-13.0	-36.6	
7620.00	-12.7	H	3.0	35.8	1.0	-47.4	-13.0	-34.4	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter and HP
Location: Chamber C
Mode: LTE_QPSK Band 2 Harmonics, 10MHz Bandwidth

Band LTE2 10MHz QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1855									
3710.00	-18.3	V	3.0	35.9	1.0	-53.1	-13.0	-40.1	
5565.00	-17.1	V	3.0	35.5	1.0	-51.6	-13.0	-38.6	
7420.00	-13.5	V	3.0	35.7	1.0	-48.2	-13.0	-35.2	
3710.00	-17.4	H	3.0	35.9	1.0	-52.2	-13.0	-39.2	
5565.00	-16.7	H	3.0	35.5	1.0	-51.2	-13.0	-38.2	
7420.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	
Mid Ch, 1880									
3760.00	-17.6	V	3.0	35.8	1.0	-52.4	-13.0	-39.4	
5640.00	-16.0	V	3.0	35.5	1.0	-50.5	-13.0	-37.5	
7520.00	-13.2	V	3.0	35.7	1.0	-48.0	-13.0	-35.0	
3760.00	-18.4	H	3.0	35.8	1.0	-53.2	-13.0	-40.2	
5640.00	-16.1	H	3.0	35.5	1.0	-50.6	-13.0	-37.6	
7520.00	-11.9	H	3.0	35.7	1.0	-46.7	-13.0	-33.7	
High Ch, 1905									
3810.00	-17.9	V	3.0	35.8	1.0	-52.7	-13.0	-39.7	
5715.00	-16.7	V	3.0	35.5	1.0	-51.2	-13.0	-38.2	
7620.00	-13.2	V	3.0	35.8	1.0	-48.0	-13.0	-35.0	
3810.00	-18.6	H	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5715.00	-15.7	H	3.0	35.5	1.0	-50.2	-13.0	-37.2	
7620.00	-11.2	H	3.0	35.8	1.0	-46.0	-13.0	-33.0	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter and HP
Location: Chamber C
Mode: LTE_16QAM Band 2 Harmonics, 5MHz Bandwidth

Band
LTE2
5MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.5									
3705.00	-17.4	V	3.0	35.9	1.0	-52.2	-13.0	-39.2	
5557.50	-15.4	V	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7410.00	-13.7	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3705.00	-15.6	H	3.0	35.9	1.0	-50.4	-13.0	-37.4	
5557.50	-15.6	H	3.0	35.5	1.0	-50.1	-13.0	-37.1	
7410.00	-13.1	H	3.0	35.7	1.0	-47.8	-13.0	-34.8	
Mid Ch, 1880									
3760.00	-18.6	V	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5640.00	-16.1	V	3.0	35.5	1.0	-50.6	-13.0	-37.6	
7520.00	-13.6	V	3.0	35.7	1.0	-48.3	-13.0	-35.3	
3760.00	-18.0	H	3.0	35.8	1.0	-52.8	-13.0	-39.8	
5640.00	-15.3	H	3.0	35.5	1.0	-49.8	-13.0	-36.8	
7520.00	-12.8	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
High Ch, 1907.5									
3815.00	-18.2	V	3.0	35.8	1.0	-52.9	-13.0	-39.9	
5722.50	-16.3	V	3.0	35.5	1.0	-50.8	-13.0	-37.8	
7630.00	-13.3	V	3.0	35.8	1.0	-48.1	-13.0	-35.1	
3815.00	-18.2	H	3.0	35.8	1.0	-53.0	-13.0	-40.0	
5722.50	-15.3	H	3.0	35.5	1.0	-49.8	-13.0	-36.8	
7630.00	-12.6	H	3.0	35.8	1.0	-47.4	-13.0	-34.4	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter and HP
Location: Chamber C
Mode: LTE_QPSK Band 2 Harmonics, 5MHz Bandwidth

Band LTE2 5MHz QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.5									
3705.00	-16.9	V	3.0	35.9	1.0	-51.8	-13.0	-38.8	
5557.50	-16.2	V	3.0	35.5	1.0	-50.6	-13.0	-37.6	
7410.00	-13.6	V	3.0	35.7	1.0	-48.3	-13.0	-35.3	
3705.00	-14.5	H	3.0	35.9	1.0	-49.4	-13.0	-36.4	
5557.50	-16.5	H	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7410.00	-12.2	H	3.0	35.7	1.0	-46.9	-13.0	-33.9	
Mid Ch, 1880									
3760.00	-18.5	V	3.0	35.8	1.0	-53.3	-13.0	-40.3	
5640.00	-16.9	V	3.0	35.5	1.0	-51.4	-13.0	-38.4	
7520.00	-13.6	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3760.00	-16.3	H	3.0	35.8	1.0	-51.1	-13.0	-38.1	
5640.00	-16.3	H	3.0	35.5	1.0	-50.8	-13.0	-37.8	
7520.00	-12.3	H	3.0	35.7	1.0	-47.1	-13.0	-34.1	
High Ch, 1907.5									
3815.00	-18.3	V	3.0	35.8	1.0	-53.0	-13.0	-40.0	
5722.50	-16.0	V	3.0	35.5	1.0	-50.5	-13.0	-37.5	
7630.00	-13.8	V	3.0	35.8	1.0	-48.5	-13.0	-35.5	
3815.00	-17.1	H	3.0	35.8	1.0	-51.9	-13.0	-38.9	
5722.50	-16.5	H	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7630.00	-11.7	H	3.0	35.8	1.0	-46.5	-13.0	-33.5	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter and HP
Location: Chamber C
Mode: LTE_16QAM Band 2 Harmonics, 3MHz Bandwidth

Band

LTE2

3MHz

16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.5									
3703.00	-16.6	V	3.0	35.9	1.0	-51.5	-13.0	-38.5	
5554.50	-16.1	V	3.0	35.5	1.0	-50.5	-13.0	-37.5	
7406.00	-13.8	V	3.0	35.7	1.0	-48.5	-13.0	-35.5	
3703.00	-15.2	H	3.0	35.9	1.0	-50.1	-13.0	-37.1	
5554.50	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7406.00	-12.2	H	3.0	35.7	1.0	-47.0	-13.0	-34.0	
Mid Ch, 1880									
3760.00	-15.9	V	3.0	35.8	1.0	-50.7	-13.0	-37.7	
5640.00	-15.6	V	3.0	35.5	1.0	-50.1	-13.0	-37.1	
7520.00	-13.6	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3760.00	-16.7	H	3.0	35.8	1.0	-51.5	-13.0	-38.5	
5640.00	-16.5	H	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7520.00	-12.1	H	3.0	35.7	1.0	-46.8	-13.0	-33.8	
High Ch, 1908.5									
3817.00	-17.6	V	3.0	35.8	1.0	-52.3	-13.0	-39.3	
5725.50	-15.1	V	3.0	35.5	1.0	-49.6	-13.0	-36.6	
7634.00	-13.6	V	3.0	35.8	1.0	-48.4	-13.0	-35.4	
3817.00	-16.3	H	3.0	35.8	1.0	-51.0	-13.0	-38.0	
5725.50	-15.3	H	3.0	35.5	1.0	-49.8	-13.0	-36.8	
7634.00	-12.3	H	3.0	35.8	1.0	-47.1	-13.0	-34.1	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter and HP
Location: Chamber C
Mode: LTE_QPSK Band 2 Harmonics, 3MHz Bandwidth

Band
LTE2
3MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.5									
3703.00	-16.3	V	3.0	35.9	1.0	-51.2	-13.0	-38.2	
5554.50	-15.0	V	3.0	35.5	1.0	-49.4	-13.0	-36.4	
7406.00	-14.2	V	3.0	35.7	1.0	-49.0	-13.0	-36.0	
3703.00	-12.8	H	3.0	35.9	1.0	-47.6	-13.0	-34.6	
5554.50	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7406.00	-11.8	H	3.0	35.7	1.0	-46.5	-13.0	-33.5	
Mid Ch, 1880									
3760.00	-15.6	V	3.0	35.8	1.0	-50.4	-13.0	-37.4	
5640.00	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7520.00	-13.8	V	3.0	35.7	1.0	-48.6	-13.0	-35.6	
3760.00	-15.8	H	3.0	35.8	1.0	-50.6	-13.0	-37.6	
5640.00	-15.4	H	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7520.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	
High Ch, 1908.5									
3817.00	-17.0	V	3.0	35.8	1.0	-51.7	-13.0	-38.7	
5725.50	-15.8	V	3.0	35.5	1.0	-50.3	-13.0	-37.3	
7634.00	-13.3	V	3.0	35.8	1.0	-48.1	-13.0	-35.1	
3817.00	-15.4	H	3.0	35.8	1.0	-50.2	-13.0	-37.2	
5725.50	-14.5	H	3.0	35.5	1.0	-49.0	-13.0	-36.0	
7634.00	-11.9	H	3.0	35.8	1.0	-46.6	-13.0	-33.6	

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter and HP
Location: Chamber C
Mode: LTE_16QAM Band 2 Harmonics, 1.4MHz Bandwidth

Band

LTE2

1.4MHz

16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.7									
3701.40	-16.2	V	3.0	35.9	1.0	-51.1	-13.0	-38.1	
5552.10	-16.1	V	3.0	35.5	1.0	-50.6	-13.0	-37.6	
7402.80	-13.9	V	3.0	35.7	1.0	-48.6	-13.0	-35.6	
3701.40	-14.4	H	3.0	35.9	1.0	-49.2	-13.0	-36.2	
5552.10	-14.8	H	3.0	35.5	1.0	-49.2	-13.0	-36.2	
7402.80	-12.8	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
Mid Ch, 1880									
3760.00	-15.2	V	3.0	35.8	1.0	-50.0	-13.0	-37.0	
5640.00	-16.2	V	3.0	35.5	1.0	-50.6	-13.0	-37.6	
7520.00	-13.9	V	3.0	35.7	1.0	-48.6	-13.0	-35.6	
3760.00	-15.6	H	3.0	35.8	1.0	-50.4	-13.0	-37.4	
5640.00	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7520.00	-12.8	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
High Ch, 1909.3									
3818.60	-17.0	V	3.0	35.8	1.0	-51.8	-13.0	-38.8	
5727.90	-15.5	V	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7637.20	-12.9	V	3.0	35.8	1.0	-47.6	-13.0	-34.6	
3818.60	-17.0	H	3.0	35.8	1.0	-51.8	-13.0	-38.8	
5727.90	-14.9	H	3.0	35.5	1.0	-49.4	-13.0	-36.4	
7637.20	-12.8	H	3.0	35.8	1.0	-47.6	-13.0	-34.6	

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Band

LTE2

1.4MHz

QPSK

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

Company: LG
Project #: 15I19922
Date: 2/7/2015
Test Engineer: K.Kedida
Configuration: EUT , AC Adapter and HP
Location: Chamber C
Mode: LTE_QPSK Band 2 Harmonics, 1.4MHz 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, 1850.7									
3701.40	-15.3	V	3.0	35.9	1.0	-50.2	-13.0	-37.2	
5552.10	-15.6	V	3.0	35.5	1.0	-50.1	-13.0	-37.1	
7402.80	-13.3	V	3.0	35.7	1.0	-48.0	-13.0	-35.0	
3701.40	-11.6	H	3.0	35.9	1.0	-46.4	-13.0	-33.4	
5552.10	-15.8	H	3.0	35.5	1.0	-50.3	-13.0	-37.3	
7402.80	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	
Mid Ch, 1880									
3760.00	-14.5	V	3.0	35.8	1.0	-49.3	-13.0	-36.3	
5640.00	-16.0	V	3.0	35.5	1.0	-50.5	-13.0	-37.5	
7520.00	-13.3	V	3.0	35.7	1.0	-48.0	-13.0	-35.0	
3760.00	-15.7	H	3.0	35.8	1.0	-50.6	-13.0	-37.6	
5640.00	-16.1	H	3.0	35.5	1.0	-50.6	-13.0	-37.6	
7520.00	-12.2	H	3.0	35.7	1.0	-47.0	-13.0	-34.0	
High Ch, 1909.3									
3818.60	-15.9	V	3.0	35.8	1.0	-50.7	-13.0	-37.7	
5727.90	-15.8	V	3.0	35.5	1.0	-50.3	-13.0	-37.3	
7637.20	-13.8	V	3.0	35.8	1.0	-48.6	-13.0	-35.6	
3818.60	-16.2	H	3.0	35.8	1.0	-51.0	-13.0	-38.0	
5727.90	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7637.20	-12.1	H	3.0	35.8	1.0	-46.8	-13.0	-33.8	

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Band

Band 5

HSDPA

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

Company: LG Electronics
Project #: 15I19922
Date: 2/10/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: HSDPA Band 5 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4									
1652.80	-3.5	V	3.0	37.0	1.0	-39.5	-13.0	-26.5	
2479.20	-21.1	V	3.0	36.4	1.0	-56.5	-13.0	-43.5	
3305.60	-21.9	V	3.0	36.1	1.0	-57.1	-13.0	-44.1	
1652.80	-9.6	H	3.0	37.0	1.0	-45.6	-13.0	-32.6	
2479.20	-23.8	H	3.0	36.4	1.0	-59.2	-13.0	-46.2	
3305.60	-22.4	H	3.0	36.1	1.0	-57.5	-13.0	-44.5	
Mid Ch, 836.6									
1673.20	2.5	V	3.0	37.0	1.0	-33.5	-13.0	-20.5	
2509.80	-19.2	V	3.0	36.4	1.0	-54.6	-13.0	-41.6	
3346.40	-22.1	V	3.0	36.1	1.0	-57.2	-13.0	-44.2	
1673.20	-3.3	H	3.0	37.0	1.0	-39.3	-13.0	-26.3	
2509.80	-22.1	H	3.0	36.4	1.0	-57.5	-13.0	-44.5	
3346.40	-22.1	H	3.0	36.1	1.0	-57.2	-13.0	-44.2	
High Ch, 846.6									
1693.20	-3.8	V	3.0	37.0	1.0	-39.8	-13.0	-26.8	
2539.80	-18.8	V	3.0	36.4	1.0	-54.2	-13.0	-41.2	
3386.40	-22.5	V	3.0	36.1	1.0	-57.6	-13.0	-44.6	
1693.20	-11.0	H	3.0	37.0	1.0	-47.0	-13.0	-34.0	
2539.80	-21.6	H	3.0	36.4	1.0	-57.0	-13.0	-44.0	
3386.40	-21.7	H	3.0	36.1	1.0	-56.8	-13.0	-43.8	

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Band

Band 5

REL99

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

Company: LG Electronics
Project #: 15I19922
Date: 2/10/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: Rel99 Band 5 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4									
1652.80	-11.0	V	3.0	37.0	1.0	-47.0	-13.0	-34.0	
2479.20	-24.4	V	3.0	36.4	1.0	-59.8	-13.0	-46.8	
3305.60	-22.4	V	3.0	36.1	1.0	-57.6	-13.0	-44.6	
1652.80	-14.2	H	3.0	37.0	1.0	-50.2	-13.0	-37.2	
2479.20	-24.7	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
3305.60	-22.6	H	3.0	36.1	1.0	-57.7	-13.0	-44.7	
Mid Ch, 836.6									
1673.20	-4.5	V	3.0	37.0	1.0	-40.5	-13.0	-27.5	
2509.80	-23.6	V	3.0	36.4	1.0	-59.0	-13.0	-46.0	
3346.40	-22.1	V	3.0	36.1	1.0	-57.3	-13.0	-44.3	
1673.20	-11.1	H	3.0	37.0	1.0	-47.1	-13.0	-34.1	
2509.80	-25.0	H	3.0	36.4	1.0	-60.4	-13.0	-47.4	
3346.40	-22.7	H	3.0	36.1	1.0	-57.9	-13.0	-44.9	
High Ch, 846.6									
1693.20	-8.3	V	3.0	37.0	1.0	-44.2	-13.0	-31.2	
2539.80	-22.3	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
3386.40	-22.7	V	3.0	36.1	1.0	-57.8	-13.0	-44.8	
1693.20	-17.2	H	3.0	37.0	1.0	-53.2	-13.0	-40.2	
2539.80	-24.3	H	3.0	36.4	1.0	-59.7	-13.0	-46.7	
3386.40	-22.2	H	3.0	36.1	1.0	-57.3	-13.0	-44.3	

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Band

Band 2

HSDPA

UL Verification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 15I19922
Date: 2/16/2015
Test Engineer: K.Kedida
Configuration: EUT with AC charger and HS
Location: Chamber C
Mode: HSDPA Band 2 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4									
3704.80	-17.8	V	3.0	35.9	1.0	-52.6	-13.0	-39.6	
5557.20	-17.3	V	3.0	35.5	1.0	-51.7	-13.0	-38.7	
7409.60	-13.6	V	3.0	35.7	1.0	-48.3	-13.0	-35.3	
3704.80	-16.5	H	3.0	35.9	1.0	-51.3	-13.0	-38.3	
5557.20	-16.3	H	3.0	35.5	1.0	-50.7	-13.0	-37.7	
7409.60	-12.7	H	3.0	35.7	1.0	-47.4	-13.0	-34.4	
Mid Ch, 1880									
3760.00	-17.2	V	3.0	35.8	1.0	-52.1	-13.0	-39.1	
5640.00	-17.0	V	3.0	35.5	1.0	-51.5	-13.0	-38.5	
7520.00	-13.7	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3760.00	-15.7	H	3.0	35.8	1.0	-50.5	-13.0	-37.5	
5640.00	-15.9	H	3.0	35.5	1.0	-50.4	-13.0	-37.4	
7520.00	-12.6	H	3.0	35.7	1.0	-47.3	-13.0	-34.3	
High Ch, 1907.6									
3815.20	-18.2	V	3.0	35.8	1.0	-53.0	-13.0	-40.0	
5722.80	-16.6	V	3.0	35.5	1.0	-51.1	-13.0	-38.1	
7630.40	-13.4	V	3.0	35.8	1.0	-48.2	-13.0	-35.2	
3815.20	-16.2	H	3.0	35.8	1.0	-51.0	-13.0	-38.0	
5722.80	-16.2	H	3.0	35.5	1.0	-50.7	-13.0	-37.7	
7630.40	-12.1	H	3.0	35.8	1.0	-46.8	-13.0	-33.8	

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Band

Band 2

REL99

UL Verification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 15I19922
Date: 2/16/2015
Test Engineer: K.Kedida
Configuration: EUT with AC charger and HS
Location: Chamber C
Mode: Rel99 Band 2 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4									
3704.80	-17.6	V	3.0	35.9	1.0	-52.5	-13.0	-39.5	
5557.20	-16.3	V	3.0	35.5	1.0	-50.8	-13.0	-37.8	
7409.60	-14.2	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
3704.80	-15.6	H	3.0	35.9	1.0	-50.5	-13.0	-37.5	
5557.20	-16.5	H	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7409.60	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	
Mid Ch, 1880									
3760.00	-17.9	V	3.0	35.8	1.0	-52.7	-13.0	-39.7	
5640.00	-16.2	V	3.0	35.5	1.0	-50.7	-13.0	-37.7	
7520.00	-14.0	V	3.0	35.7	1.0	-48.8	-13.0	-35.8	
3760.00	-16.1	H	3.0	35.8	1.0	-50.9	-13.0	-37.9	
5640.00	-16.7	H	3.0	35.5	1.0	-51.1	-13.0	-38.1	
7520.00	-12.8	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
High Ch, 1907.6									
3815.20	-16.6	V	3.0	35.8	1.0	-51.3	-13.0	-38.3	
5722.80	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7630.40	-13.6	V	3.0	35.8	1.0	-48.4	-13.0	-35.4	
3815.20	-17.8	H	3.0	35.8	1.0	-52.6	-13.0	-39.6	
5722.80	-15.6	H	3.0	35.5	1.0	-50.1	-13.0	-37.1	
7630.40	-12.7	H	3.0	35.8	1.0	-47.5	-13.0	-34.5	

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

Company: LG
Project #: 15I19922
Date: 2/16/2015
Test Engineer: K.Kedida
Configuration: EUT w/ AC Adaptor and HS
Mode: EGPRS1900 Harm

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

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1850.2MHz									
GSM 1900	3.700	-8.9	V	3.0	35.4	1.0	-43.3	-13.0	-30.3	
	5.551	-10.1	V	3.0	34.7	1.0	-43.9	-13.0	-30.9	
	7.401	-11.8	V	3.0	34.9	1.0	-45.7	-13.0	-32.7	
EGPRS	3.700	-13.8	H	3.0	35.4	1.0	-48.2	-13.0	-35.2	
	5.551	-14.6	H	3.0	34.7	1.0	-48.3	-13.0	-35.3	
	7.401	-12.7	H	3.0	34.9	1.0	-46.6	-13.0	-33.6	
	Mid Ch, 1880.0MHz									
	3.760	-8.1	V	3.0	35.3	1.0	-42.5	-13.0	-29.5	
	5.640	-10.3	V	3.0	34.7	1.0	-44.0	-13.0	-31.0	
	7.520	-9.0	V	3.0	34.9	1.0	-42.9	-13.0	-29.9	
	3.760	-12.5	H	3.0	35.3	1.0	-46.8	-13.0	-33.8	
	5.640	-15.0	H	3.0	34.7	1.0	-48.7	-13.0	-35.7	
	7.520	-12.7	H	3.0	34.9	1.0	-46.6	-13.0	-33.6	
	High Ch, 1909.8MHz									
	3.820	-11.5	V	3.0	35.3	1.0	-45.8	-13.0	-32.8	
	5.729	-10.6	V	3.0	34.7	1.0	-44.3	-13.0	-31.3	
	7.639	-10.1	V	3.0	35.0	1.0	-44.0	-13.0	-31.0	
	3.820	-13.6	H	3.0	35.3	1.0	-47.9	-13.0	-34.9	
	5.729	-14.4	H	3.0	34.7	1.0	-48.1	-13.0	-35.1	
	7.639	-11.9	H	3.0	35.0	1.0	-45.9	-13.0	-32.9	

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

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

Company: LG
Project #: 15I19922
Date: 02/16/15
Test Engineer: K.Kedida
Configuration: EUT w/ AC Adaptor and HS
Mode: GPRS1900 Harm

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

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1850.2MHz									
GSM 1900	3.700	-7.4	V	3.0	35.4	1.0	-41.8	-13.0	-28.8	
	5.551	-9.4	V	3.0	34.7	1.0	-43.1	-13.0	-30.1	
	7.401	-10.4	V	3.0	34.9	1.0	-44.3	-13.0	-31.3	
GPRS	3.700	-10.4	H	3.0	35.4	1.0	-44.8	-13.0	-31.8	
	5.551	-13.1	H	3.0	34.7	1.0	-46.8	-13.0	-33.8	
	7.401	-12.0	H	3.0	34.9	1.0	-45.9	-13.0	-32.9	
	Mid Ch, 1880.0MHz									
	3.760	-7.6	V	3.0	35.3	1.0	-41.9	-13.0	-28.9	
	5.640	-9.5	V	3.0	34.7	1.0	-43.2	-13.0	-30.2	
	7.520	-9.3	V	3.0	34.9	1.0	-43.2	-13.0	-30.2	
	3.760	-9.8	H	3.0	35.3	1.0	-44.1	-13.0	-31.1	
	5.640	-11.9	H	3.0	34.7	1.0	-45.6	-13.0	-32.6	
	7.520	-11.4	H	3.0	34.9	1.0	-45.4	-13.0	-32.4	
	High Ch, 1909.8MHz									
	3.820	-8.1	V	3.0	35.3	1.0	-42.4	-13.0	-29.4	
	5.729	-9.7	V	3.0	34.7	1.0	-43.4	-13.0	-30.4	
	7.639	-9.3	V	3.0	35.0	1.0	-43.3	-13.0	-30.3	
	3.820	-11.3	H	3.0	35.3	1.0	-45.5	-13.0	-32.5	
	5.729	-12.9	H	3.0	34.7	1.0	-46.6	-13.0	-33.6	
	7.639	-11.5	H	3.0	35.0	1.0	-45.5	-13.0	-32.5	

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

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Band

GSM 850

EGPRS

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

Company: LG Electronics
Project #: 15I19922
Date: 2/10/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
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
Low Ch, 824.2									
1648.40	-2.3	V	3.0	37.0	1.0	-38.3	-13.0	-25.3	
2472.60	-17.5	V	3.0	36.4	1.0	-52.9	-13.0	-39.9	
3296.80	-22.7	V	3.0	36.2	1.0	-57.9	-13.0	-44.9	
1648.40	-5.4	H	3.0	37.0	1.0	-41.4	-13.0	-28.4	
2472.60	-18.0	H	3.0	36.4	1.0	-53.4	-13.0	-40.4	
3296.80	-23.1	H	3.0	36.2	1.0	-58.2	-13.0	-45.2	
Mid Ch, 836.6									
1673.20	4.0	V	3.0	37.0	1.0	-32.0	-13.0	-19.0	
2509.80	-18.9	V	3.0	36.4	1.0	-54.3	-13.0	-41.3	
3346.40	-22.8	V	3.0	36.1	1.0	-57.9	-13.0	-44.9	
1673.20	-1.6	H	3.0	37.0	1.0	-37.6	-13.0	-24.6	
2509.80	-21.6	H	3.0	36.4	1.0	-57.1	-13.0	-44.1	
3346.40	-22.9	H	3.0	36.1	1.0	-58.0	-13.0	-45.0	
High Ch, 848.8									
1697.60	-0.1	V	3.0	37.0	1.0	-36.0	-13.0	-23.0	
2546.40	-20.2	V	3.0	36.4	1.0	-55.6	-13.0	-42.6	
3395.20	-22.6	V	3.0	36.1	1.0	-57.6	-13.0	-44.6	
1697.60	-13.0	H	3.0	37.0	1.0	-48.9	-13.0	-35.9	
2546.40	-24.1	H	3.0	36.4	1.0	-59.5	-13.0	-46.5	
3395.20	-23.0	H	3.0	36.1	1.0	-58.1	-13.0	-45.1	

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Band

GSM 850

GPRS

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

Company: LG Electronics
Project #: 15I19922
Date: 2/10/2015
Test Engineer: S,Tran
Configuration: EUT AC charger and HS
Location: Chamber A
Mode: GPRS 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
Low Ch, 824.2									
1648.40	-2.3	V	3.0	37.0	1.0	-38.3	-13.0	-25.3	
2472.60	-17.4	V	3.0	36.4	1.0	-52.9	-13.0	-39.9	
3296.80	-22.3	V	3.0	36.2	1.0	-57.5	-13.0	-44.5	
1648.40	-5.5	H	3.0	37.0	1.0	-41.6	-13.0	-28.6	
2472.60	-18.4	H	3.0	36.4	1.0	-53.8	-13.0	-40.8	
3296.80	-22.6	H	3.0	36.2	1.0	-57.7	-13.0	-44.7	
Mid Ch, 836.6									
1673.20	4.2	V	3.0	37.0	1.0	-31.8	-13.0	-18.8	
2509.80	-18.9	V	3.0	36.4	1.0	-54.3	-13.0	-41.3	
3346.40	-22.7	V	3.0	36.1	1.0	-57.8	-13.0	-44.8	
1673.20	-1.4	H	3.0	37.0	1.0	-37.4	-13.0	-24.4	
2509.80	-22.2	H	3.0	36.4	1.0	-57.6	-13.0	-44.6	
3346.40	-23.2	H	3.0	36.1	1.0	-58.3	-13.0	-45.3	
High Ch, 848.8									
1697.60	-0.1	V	3.0	37.0	1.0	-36.1	-13.0	-23.1	
2546.40	-20.1	V	3.0	36.4	1.0	-55.5	-13.0	-42.5	
3395.20	-23.0	V	3.0	36.1	1.0	-58.1	-13.0	-45.1	
1697.60	-13.5	H	3.0	37.0	1.0	-49.4	-13.0	-36.4	
2546.40	-23.1	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	
3395.20	-23.1	H	3.0	36.1	1.0	-58.1	-13.0	-45.1	

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