



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, & 2.4GHz DTS b/g/n

MODEL NUMBER: LG-L33L, LGL33L, L33L, LG-H343, LGH343, H343

FCC ID: ZNFL33L

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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, & 2.4GHz DTS b/g/n
MODEL: LG-L33L, LGL33L, L33L, LG-H343, LGH343, H343
SERIAL NUMBER: 501CYTB000193
DATE TESTED: FEBRUARY 2-11, 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.

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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
<input type="checkbox"/> Chamber A(IC: 2324B-1)	<input type="checkbox"/> Chamber D(IC: 2324B-4)
<input checked="" type="checkbox"/> Chamber B(IC: 2324B-2)	<input type="checkbox"/> Chamber E(IC: 2324B-5)
<input checked="" type="checkbox"/> Chamber C(IC: 2324B-3)	<input type="checkbox"/> Chamber F(IC: 2324B-6)
	<input type="checkbox"/> Chamber G(IC: 2324B-7)
	<input type="checkbox"/> Chamber H(IC: 2324B-8)

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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:

$EIRP = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss(between the SG and substitution antenna)} + \text{Substitution Antenna Factor (dBi)}$

$ERP = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss(between the SG and substitution antenna)}$

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

4.3. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE PHONE + BLUETOOTH, & 2.4GHz DTS b/g/n

5.2. MAXIMUM OUTPUT POWER

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

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation mW	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
GSM850	824~849	GPRS	33.70	2344.23	29.042	802.05
		EGPRS	27.70	588.84	26.15	412.10
GSM1900	1850~1910	GPRS	30.60	1148.15	31.154	1304.37
		EGPRS	29.00	794.33	27.71	590.20
Band 5	824~849	REL99	24.20	263.03	19.197	83.12
		HSDPA	24.20	263.03	19.08	80.91
Band 2	1850~1910	REL99	24.20	263.03	24.96	313.33
		HSDPA	24.20	263.03	24.2	263.03

5.3. MAXIMUM OUTPUT POWER (LTE)

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

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	10MHz	QPSK	23.90	245.47	19.28	84.72
			16QAM	23.20	208.93	18.71	74.3
		5MHz	QPSK	23.88	244.34	19.03	79.98
			16QAM	23.20	208.93	18.04	63.68
		3MHz	QPSK	23.80	239.88	18.98	79.07
			16QAM	23.20	208.93	18.4	69.18
		1.4MHz	QPSK	23.76	237.68	19.26	84.33
			16QAM	23.77	238.23	18.48	70.47

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE4	1710~1755	20MHz	QPSK	24.20	263.03	23.47	222.38
			16QAM	23.20	208.93	22.73	187.3
		15MHz	QPSK	24.20	263.03	23.77	238.29
			16QAM	23.20	208.93	22.87	193.69
		10MHz	QPSK	24.20	263.03	22.83	191.9
			16QAM	23.20	208.93	22.52	178.69
		5MHz	QPSK	24.20	263.03	23.02	200.35
			16QAM	23.20	208.93	21.89	154.45
		3MHz	QPSK	24.07	255.27	23.80	239.94
			16QAM	23.20	208.93	22.87	193.69
		1.4MHz	QPSK	23.97	249.46	23.48	222.91
			16QAM	23.20	208.93	22.49	177.47

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE2	1850~1910	20MHz	QPSK	24.18	261.82	26.43	439.8
			16QAM	23.20	208.93	25.33	341.4
		15MHz	QPSK	24.20	263.03	26.11	408.73
			16QAM	23.20	208.93	25.23	333.76
		10MHz	QPSK	24.07	255.27	26.09	406.39
			16QAM	23.20	208.93	25.07	321.33
		5MHz	QPSK	24.05	254.10	25.38	344.88
			16QAM	23.20	208.93	24.48	280.33
		3MHz	QPSK	24.20	263.03	25.87	386.26
			16QAM	23.20	208.93	24.97	313.96
		1.4MHz	QPSK	23.84	242.10	26.17	413.89
			16QAM	23.20	208.93	25.27	336.42

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE17	704~716	10MHz	QPSK	24.20	263.03	19.54	89.95
			16QAM	23.20	208.93	18.94	78.34
		5MHz	QPSK	24.20	263.03	19.56	90.36
			16QAM	22.60	181.97	18.15	65.31

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)
GSM850, 824~849MHz	-3.25
GSM1900, 1850~1910MHz	0.56
Band 5, 824~849MHz	-3.25
Band 2, 1850~1910MHz	-0.56
LTE2, 1850~1910MHz	-0.56
LTE4, 1710~1755MHz	-0.56
LTE5, 824~849MHz	-3.25
LTE17, 704~716MHz	-3.25

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

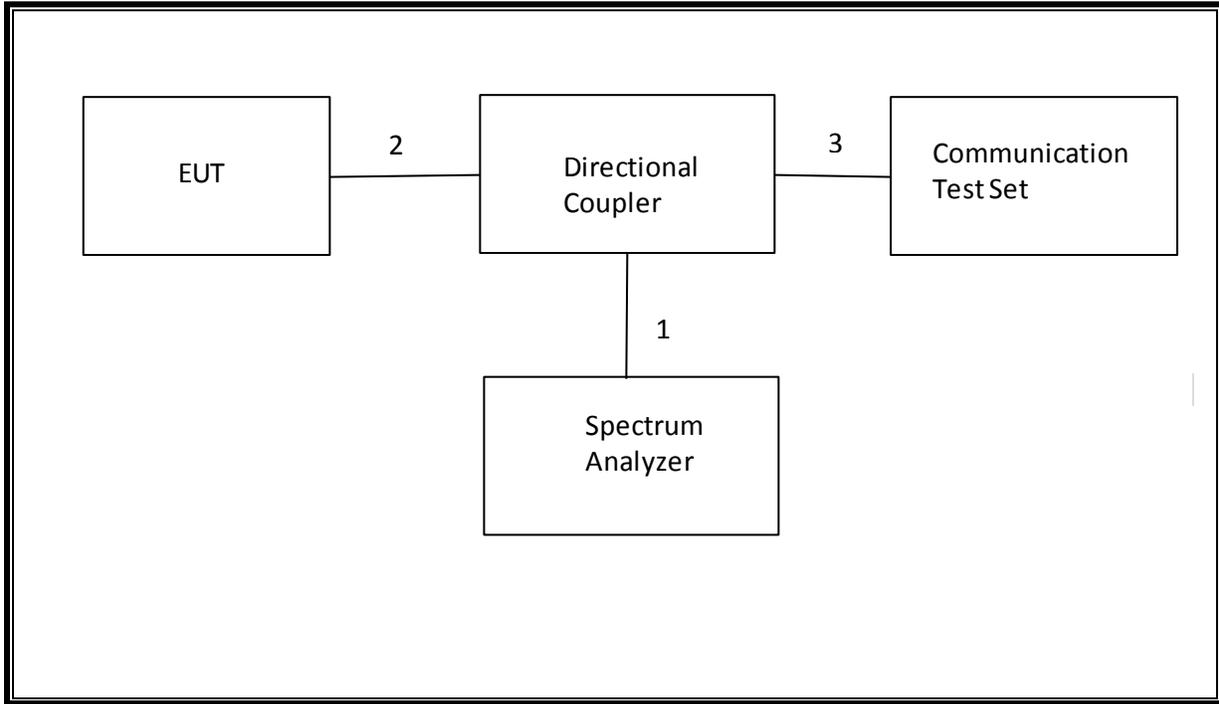
I/O CABLES (RADIATED SETUP)

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

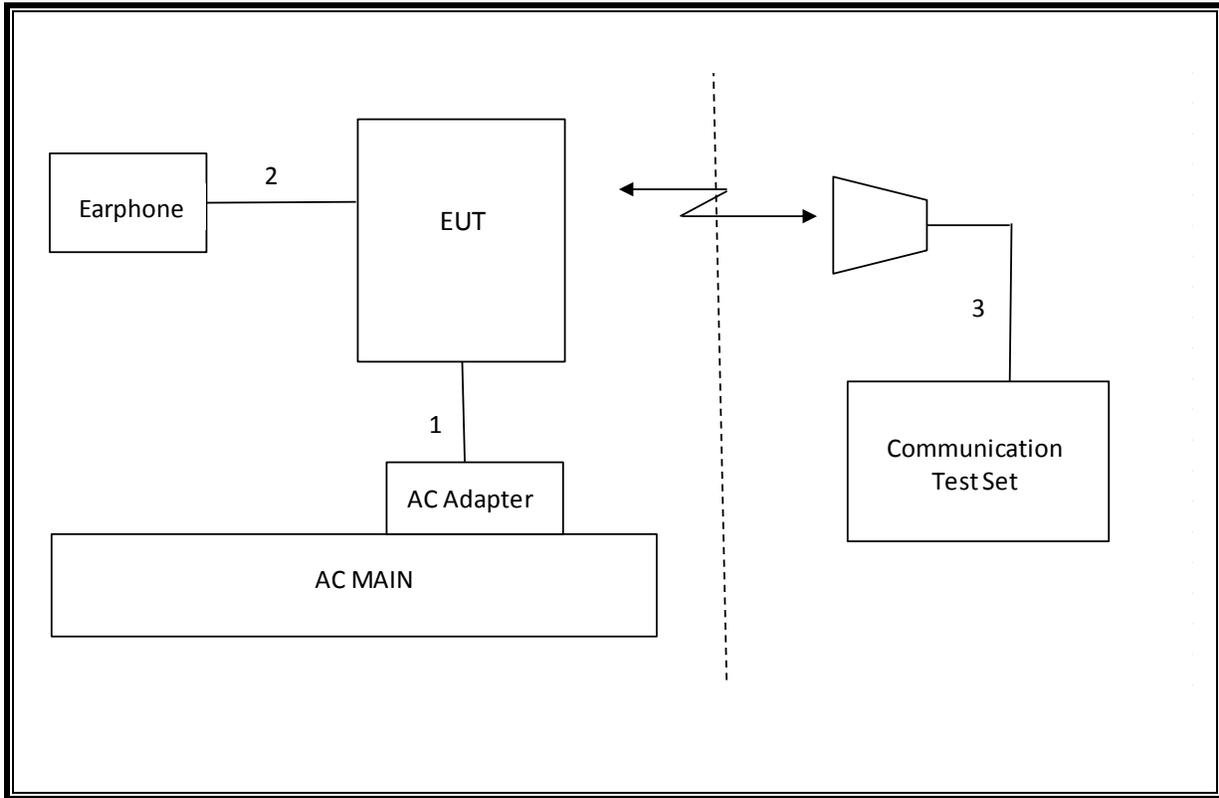
TEST SETUP

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

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01179	02/26/15
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	04/22/15
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/15
Antenna, Horn, 18 GHz	EMCO	3115	C00784	10/25/15
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	06/10/15
Communications Test Set	R&S	CMW500	T159	07/02/15
DC power supply, 8 V @ 3 A or 15 V	Agilent / HP	E3610A	None	CNR
Vector signal generator, 6 GHz	Agilent / HP	E4438C	None	06/18/15
Antenna, Tuned Dipole 400~1000	ETS	3121C DB4	C00993	02/14/15
Directional Coupler	RF-Lambda	RFDC5M06G15	None	CNR
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	12/17/15

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

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 1.4/3MHz bandwidth without hardware change.
3. Additional model LG-H343, LGH343 & H343.

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	-21.41 dBm
2.1046	N/A	Conducted output power	N/A		Pass	33.7 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	29.04 dBm
27.50(c)(10)	N/A		34.77 dBm		Pass	19.56 dBm
24.232(c) 27.50(h)(2)	RSS-133(6.4) RSS-199(4.4)	Equivalent Isotropic Radiated Power	33dBm		Pass	31.15 dBm
27.50(d)(4)	RSS-139(6.4)		30dBm		Pass	23.77 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	-35.1 dBm

8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

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

Press Connection control to choose the different menus

Press RESET > choose all to reset all settings

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

Network Support > GSM+GPRS or GSM+EGPRS

Main Service > Packet Data

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

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

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850/900

> 30 dBm for GPRS1800/1900

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

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

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

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

Channel Type > Off

P0> 4 dB

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

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3 (Default)

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

Bit Stream > 2E9-1PSR Bit Pattern

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

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

8.1.1. GSM OUTPUT POWER RESULT

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	128	824.2	33.6
			190	836.6	33.7
			251	848.8	33.5
GPRS (GMSK)	CS1	1	128	824.2	33.6
			190	836.6	33.7
			251	848.8	33.5
		2	128	824.2	30.8
			190	836.6	30.8
			251	848.8	30.9
EGPRS (8PSK)	MCS5	1	128	824.2	27.6
			190	836.6	27.7
			251	848.8	27.6
		2	128	824.2	25.7
			190	836.6	25.7
			251	848.8	25.7

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	512	1850.2	30.5
			661	1880.0	30.5
			810	1909.8	30.6
GPRS (GMSK)	CS1	1	512	1850.2	30.5
			661	1880.0	30.5
			810	1909.8	30.6
		2	512	1850.2	28.9
			661	1880.0	29.0
			810	1909.8	29.0
EGPRS (8PSK)	MCS5	1	512	1850.2	26.0
			661	1880.0	26.0
			810	1909.8	26.1
		2	512	1850.2	24.0
			661	1880.0	24.0
			810	1909.8	24.0

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

8.2.1. 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	24.1
		4183	836.6	0	24.2
		4233	846.6	0	24.2

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	24.0
		9400	1880.0	0	24.2
		9538	1907.6	0	24.1

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			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	12/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	$A_{hs} = \beta_{hs}/\beta_c$	30/15			

8.3.1. 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	24.2
		4183	836.6	0	24.2
		4233	846.6	0	24.2
	Subtest 2	4132	826.4	0	23.9
		4183	836.6	0	24.2
		4233	846.6	0	24.2
	Subtest 3	4132	826.4	0.5	23.5
		4183	836.6	0.5	23.5
		4233	846.6	0.5	23.5
	Subtest 4	4132	826.4	0.5	23.5
		4183	836.6	0.5	23.5
		4233	846.6	0.5	23.7

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	24.2
		9400	1880.0	0	24.2
		9538	1907.6	0	24.2
	Subtest 2	9262	1852.4	0	24.0
		9400	1880.0	0	24.2
		9538	1907.6	0	24.2
	Subtest 3	9262	1852.4	0.5	23.5
		9400	1880.0	0.5	23.7
		9538	1907.6	0.5	23.7
	Subtest 4	9262	1852.4	0.5	23.5
		9400	1880.0	0.5	23.7
		9538	1907.6	0.5	23.7

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
	β_c/β_d	11/15	6/15	15/9	2/15	15/15
	Bhs	22/15	12/15	30/15	4/15	30/15
β_{ed} (note1)	1309/225	94/75	47/15	56/75	134/15	
MPR	0	2	1	2	0	
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 = β_{hs}/β_c	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: β_{ed} cannot be set directly, it is set by Absolute Grant Value.

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	23.9
		4183	836.6	0	24.0
		4233	846.6	0	24.2
	Subtest 2	4132	826.4	2	22.2
		4183	836.6	2	22.2
		4233	846.6	2	22.2
	Subtest 3	4132	826.4	1	22.5
		4183	836.6	1	22.8
		4233	846.6	1	22.6
	Subtest 4	4132	826.4	2	22.2
		4183	836.6	2	22.2
		4233	846.6	2	22.2
	Subtest 5	4132	826.4	0	23.9
		4183	836.6	0	24.0
		4233	846.6	0	24.2

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	24.1
		9400	1880.0	0	23.2
		9538	1907.6	0	23.7
	Subtest 2	9262	1852.4	2	22.2
		9400	1880.0	2	22.0
		9538	1907.6	2	22.2
	Subtest 3	9262	1852.4	1	22.6
		9400	1880.0	1	22.9
		9538	1907.6	1	22.7
	Subtest 4	9262	1852.4	2	22.2
		9400	1880.0	2	22.0
		9538	1907.6	2	22.2
	Subtest 5	9262	1852.4	0	24.1
		9400	1880.0	0	24.2
		9538	1907.6	0	24.2

8.5. LTE OUTPUT VERIFICATION

8.5.1. LTE OUTPUT RESULT

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	24.18	24.20	24.00
			1	49	0	23.76	24.12	23.87
			1	99	0	24.01	23.97	23.91
			50	0	1	22.93	22.85	22.97
			50	24	1	22.91	22.85	22.87
			50	50	1	22.79	22.79	22.84
			100	0	1	22.84	22.91	22.93
		16QAM	1	0	1	22.97	23.20	23.20
			1	49	1	23.10	23.20	23.20
			1	99	1	22.83	23.20	23.20
			50	0	2	21.97	21.83	21.97
			50	24	2	22.01	21.84	21.87
			50	50	2	21.92	21.84	21.76
			100	0	2	21.90	21.89	21.81
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	23.96	24.00	24.20
			1	37	0	24.15	24.20	23.96
			1	74	0	23.99	23.91	23.73
			36	0	1	23.01	22.95	23.02
			36	20	1	22.94	22.92	23.02
			36	39	1	22.91	22.82	22.92
			75	0	1	22.98	22.95	22.94
		16QAM	1	0	1	23.02	23.20	23.20
			1	37	1	23.08	23.20	23.20
			1	74	1	22.93	23.09	23.20
			36	0	2	21.90	22.04	21.99
			36	20	2	22.07	22.00	22.04
			36	39	2	22.05	21.89	21.95
			75	0	2	22.01	21.89	21.97

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	23.94	23.94	24.05
			1	25	0	24.07	23.87	24.07
			1	49	0	23.93	23.78	24.02
			25	0	1	22.95	22.97	23.09
			25	12	1	22.92	22.97	23.01
			25	25	1	22.93	22.83	22.93
			50	0	1	23.00	22.88	23.00
		16QAM	1	0	1	22.79	23.20	23.05
			1	25	1	23.20	23.20	22.71
			1	49	1	23.20	23.20	23.20
			25	0	2	21.96	21.82	22.20
			25	12	2	22.01	21.92	22.01
			25	25	2	22.02	21.84	21.94
			50	0	2	21.99	21.96	22.05
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	23.77	23.93	23.92
			1	12	0	24.02	24.01	24.05
			1	24	0	23.71	23.84	23.76
			12	0	1	22.84	22.87	22.90
			12	7	1	22.85	22.86	22.94
			12	13	1	22.85	22.89	22.92
			25	0	1	22.90	22.89	22.94
		16QAM	1	0	1	23.11	22.97	23.15
			1	12	1	23.03	23.13	23.20
			1	24	1	22.93	23.14	23.20
			12	0	2	21.79	21.88	21.79
			12	7	2	21.94	22.03	21.95
			12	13	2	21.82	21.99	21.94
			25	0	2	21.97	21.86	21.84

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	23.68	23.83	23.91
			1	8	0	23.77	24.20	23.76
			1	14	0	23.64	24.06	23.72
			8	0	1	22.81	22.92	22.85
			8	4	1	22.83	22.92	22.88
			8	7	1	22.87	22.97	23.02
			15	0	1	22.87	22.85	22.99
		16QAM	1	0	1	23.20	23.20	22.51
			1	8	1	23.20	23.20	22.85
			1	14	1	23.20	23.20	22.73
			8	0	2	22.01	21.39	22.08
			8	4	2	22.05	21.53	22.09
			8	7	2	22.17	21.74	22.17
			15	0	2	21.96	21.99	21.98
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	23.84	23.77	23.75
			1	3	0	23.79	23.79	23.71
			1	5	0	23.71	23.81	23.82
			3	0	0	23.90	23.80	23.86
			3	1	0	23.99	23.83	23.79
			3	3	0	23.78	23.82	23.69
			6	0	1	22.82	22.92	22.87
		16QAM	1	0	1	23.20	22.71	23.20
			1	3	1	23.20	23.20	23.20
			1	5	1	23.20	23.20	23.20
			3	0	1	22.83	22.83	22.86
			3	1	1	22.82	22.52	22.97
			3	3	1	22.96	22.63	22.71
			6	0	2	21.89	21.95	21.90

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	24.20	24.20	24.20
			1	49	0	24.09	24.20	24.20
			1	99	0	23.59	24.20	24.20
			50	0	1	22.96	23.00	23.12
			50	24	1	22.95	23.02	23.18
			50	50	1	22.98	23.04	23.07
			100	0	1	23.03	23.09	23.13
		16QAM	1	0	1	23.20	22.98	23.20
			1	49	1	23.20	23.01	22.95
			1	99	1	23.08	22.97	22.84
			50	0	2	22.10	22.09	22.20
			50	24	2	22.10	22.10	22.20
			50	50	2	22.13	22.20	22.20
			100	0	2	22.09	22.15	22.07
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	23.86	24.01	24.12
			1	37	0	23.86	24.20	24.20
			1	74	0	23.78	23.98	24.02
			36	0	1	22.89	22.99	23.15
			36	20	1	22.85	23.00	23.13
			36	39	1	22.91	22.99	23.02
			75	0	1	22.88	23.04	23.01
		16QAM	1	0	1	23.20	23.13	23.20
			1	37	1	23.20	23.20	23.20
			1	74	1	23.20	23.09	23.20
			36	0	2	22.02	22.06	22.20
			36	20	2	22.02	22.13	22.20
			36	39	2	21.98	22.14	22.20
			75	0	2	22.03	22.15	22.15

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	23.95	24.20	24.06
			1	25	0	24.00	24.02	23.92
			1	49	0	23.88	23.80	24.14
			25	0	1	22.86	22.93	23.06
			25	12	1	22.86	22.96	23.01
			25	25	1	22.87	22.99	23.01
			50	0	1	22.86	23.03	23.02
		16QAM	1	0	1	23.20	23.16	23.20
			1	25	1	23.20	23.20	23.20
			1	49	1	22.74	23.20	23.13
			25	0	2	21.95	22.04	22.15
			25	12	2	21.89	22.20	22.15
			25	25	2	21.90	22.06	22.20
			50	0	2	21.90	22.02	21.99
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	23.83	24.00	23.87
			1	12	0	23.95	24.20	24.20
			1	24	0	23.70	24.05	23.96
			12	0	1	22.85	22.92	23.06
			12	7	1	22.80	22.91	23.04
			12	13	1	22.79	22.97	23.06
			25	0	1	22.76	22.96	23.07
		16QAM	1	0	1	22.88	23.13	23.20
			1	12	1	22.79	23.14	23.20
			1	24	1	22.47	22.98	23.20
			12	0	2	21.78	22.20	22.09
			12	7	2	21.73	21.79	22.18
			12	13	2	21.84	22.07	22.06
			25	0	2	22.10	22.02	22.04

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	23.94	23.83	23.81
			1	8	0	23.80	23.79	24.07
			1	14	0	23.81	23.99	23.95
			8	0	1	22.77	23.00	23.02
			8	4	1	22.89	23.02	23.04
			8	7	1	22.70	22.92	22.99
			15	0	1	22.73	22.91	23.04
		16QAM	1	0	1	23.20	23.03	22.77
			1	8	1	23.20	23.09	23.16
			1	14	1	23.20	23.13	23.11
			8	0	2	21.81	22.02	22.00
			8	4	2	22.07	21.61	21.99
			8	7	2	22.00	21.59	22.04
			15	0	2	22.11	22.12	21.92
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	23.63	23.88	23.93
			1	3	0	23.66	23.97	23.96
			1	5	0	23.65	24.03	23.74
			3	0	0	23.91	23.80	23.98
			3	1	0	23.85	23.82	24.00
			3	3	0	23.83	23.83	23.92
			6	0	1	22.70	22.91	22.95
		16QAM	1	0	1	23.20	23.20	22.92
			1	3	1	23.20	22.88	22.90
			1	5	1	23.20	22.88	23.06
			3	0	1	22.74	23.20	23.20
			3	1	1	22.77	22.47	23.20
			3	3	1	22.77	22.94	23.20
			6	0	2	21.92	21.91	22.05

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	23.90	23.89	23.77
			1	25	0	23.65	23.57	23.81
			1	49	0	23.65	23.69	23.77
			25	0	1	22.89	22.82	22.87
			25	12	1	22.82	22.72	22.85
			25	25	1	22.79	22.74	22.85
		16QAM	50	0	1	22.83	22.77	22.85
			1	0	1	23.20	23.20	22.91
			1	25	1	23.20	23.20	22.79
			1	49	1	22.56	23.20	22.49
			25	0	2	21.87	21.86	22.05
			25	12	2	21.71	21.83	22.13
			25	25	2	21.84	21.76	21.82
			50	0	2	21.82	21.75	21.77
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	23.72	23.66	23.81
			1	12	0	23.74	24.20	23.88
			1	24	0	23.59	23.78	23.60
			12	0	1	22.73	22.70	22.81
			12	7	1	22.79	22.66	22.82
			12	13	1	22.75	22.62	22.73
		16QAM	25	0	1	22.76	22.72	22.83
			1	0	1	22.78	22.87	23.20
			1	12	1	23.20	22.86	23.11
			1	24	1	22.83	22.49	22.72
			12	0	2	21.99	21.80	21.91
			12	7	2	22.09	21.76	21.87
			12	13	2	21.88	21.75	21.77
			25	0	2	22.04	21.64	21.76

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	23.71	23.33	23.69
			1	8	0	23.80	23.51	23.54
			1	14	0	23.62	23.38	23.56
			8	0	1	22.81	22.64	22.71
			8	4	1	22.79	22.72	22.69
			8	7	1	22.69	22.63	22.74
			15	0	1	22.73	22.67	22.74
		16QAM	1	0	1	23.06	22.92	23.20
			1	8	1	23.20	23.20	23.20
			1	14	1	23.20	23.20	22.88
			8	0	2	22.00	21.61	21.99
			8	4	2	22.11	21.62	21.89
			8	7	2	21.71	21.62	21.82
			15	0	2	21.74	21.57	21.61
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	23.62	23.64	23.64
			1	3	0	23.54	23.76	23.60
			1	5	0	23.61	23.57	23.59
			3	0	0	23.77	23.56	23.68
			3	1	0	23.72	23.72	23.69
			3	3	0	23.72	23.60	23.62
			6	0	1	22.76	22.69	22.70
		16QAM	1	0	1	23.11	22.77	22.92
			1	3	1	23.20	23.01	22.61
			1	5	1	23.20	23.20	23.20
			3	0	1	22.92	22.61	23.20
			3	1	1	22.83	22.20	22.71
			3	3	1	23.07	22.62	22.76
			6	0	2	22.13	21.66	21.83

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	10	QPSK	1	0	0	24.20
			1	25	0	24.20
			1	49	0	24.10
			25	0	1	23.20
			25	12	1	23.20
			25	25	1	23.20
		16QAM	50	0	1	23.20
			1	0	1	23.00
			1	25	1	23.20
			1	49	1	23.20
			25	0	2	21.90
			25	12	2	22.00
			25	25	2	21.90
			50	0	2	22.00
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	5	QPSK	1	0	0	24.10
			1	12	0	24.20
			1	24	0	23.80
			12	0	1	22.70
			12	7	1	22.70
			12	13	1	22.70
			25	0	1	22.70
		16QAM	1	0	1	22.60
			1	12	1	22.60
			1	24	1	22.60
			12	0	2	22.00
			12	7	2	22.10
			12	13	2	22.00
			25	0	2	21.80

9. PEAK TO AVERAGE RATIO

TEST PROCEDURE

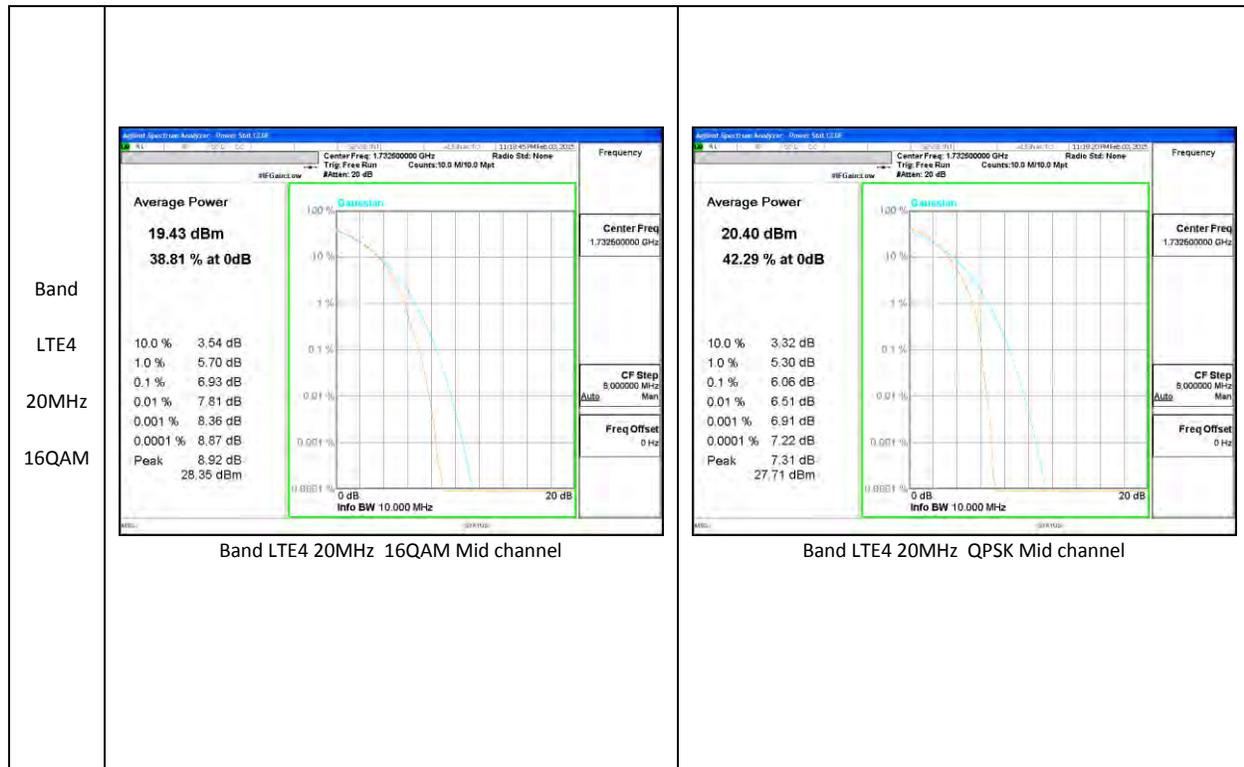
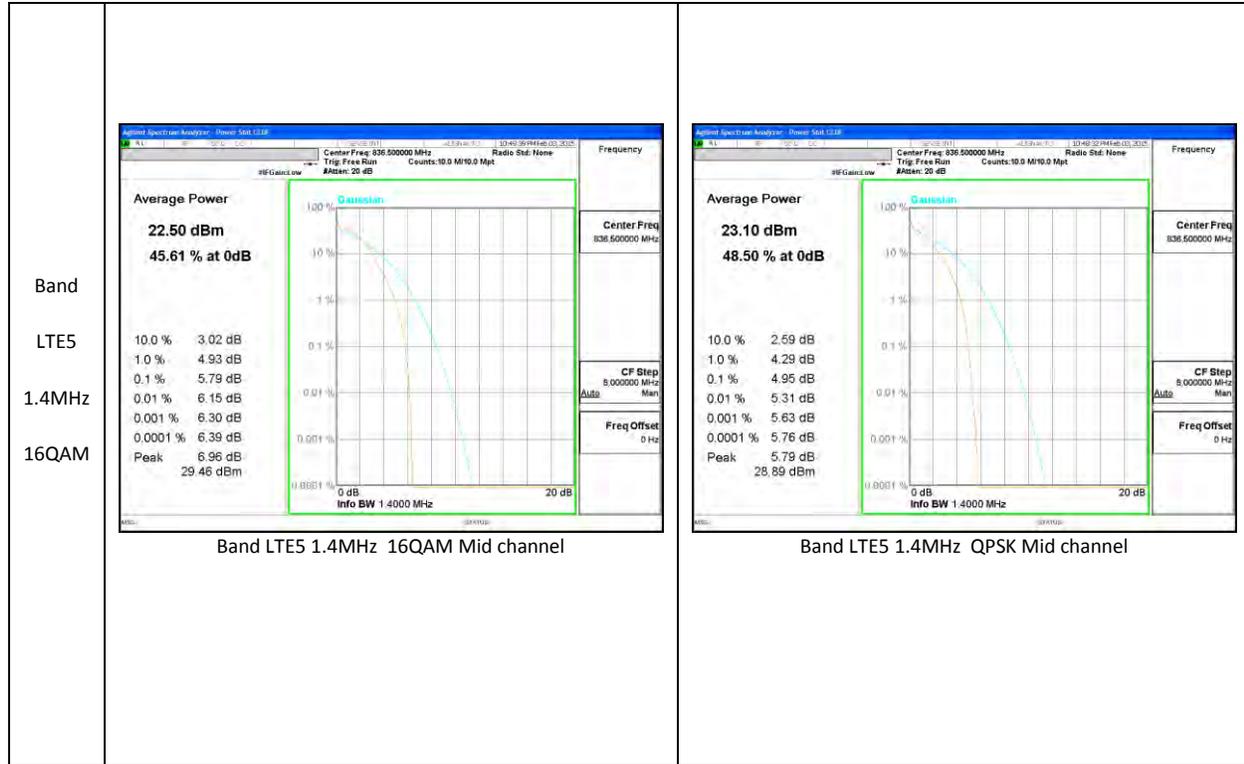
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

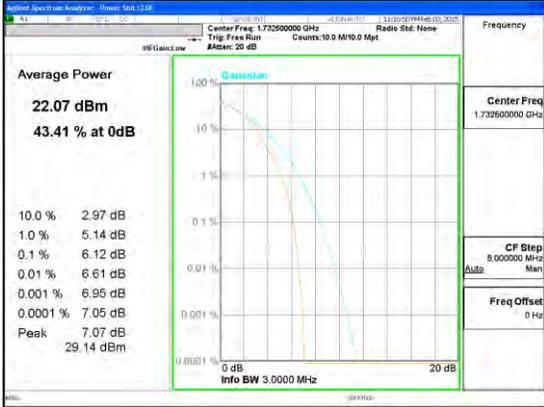
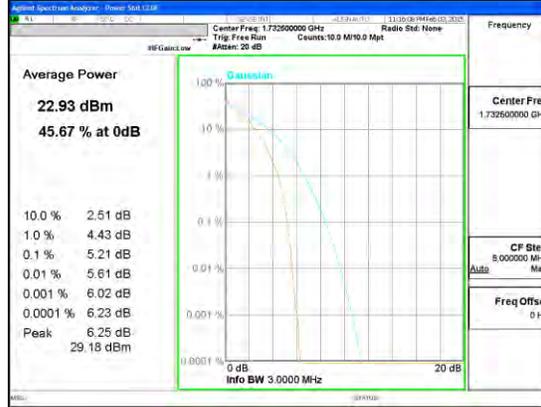
TEST SPEC

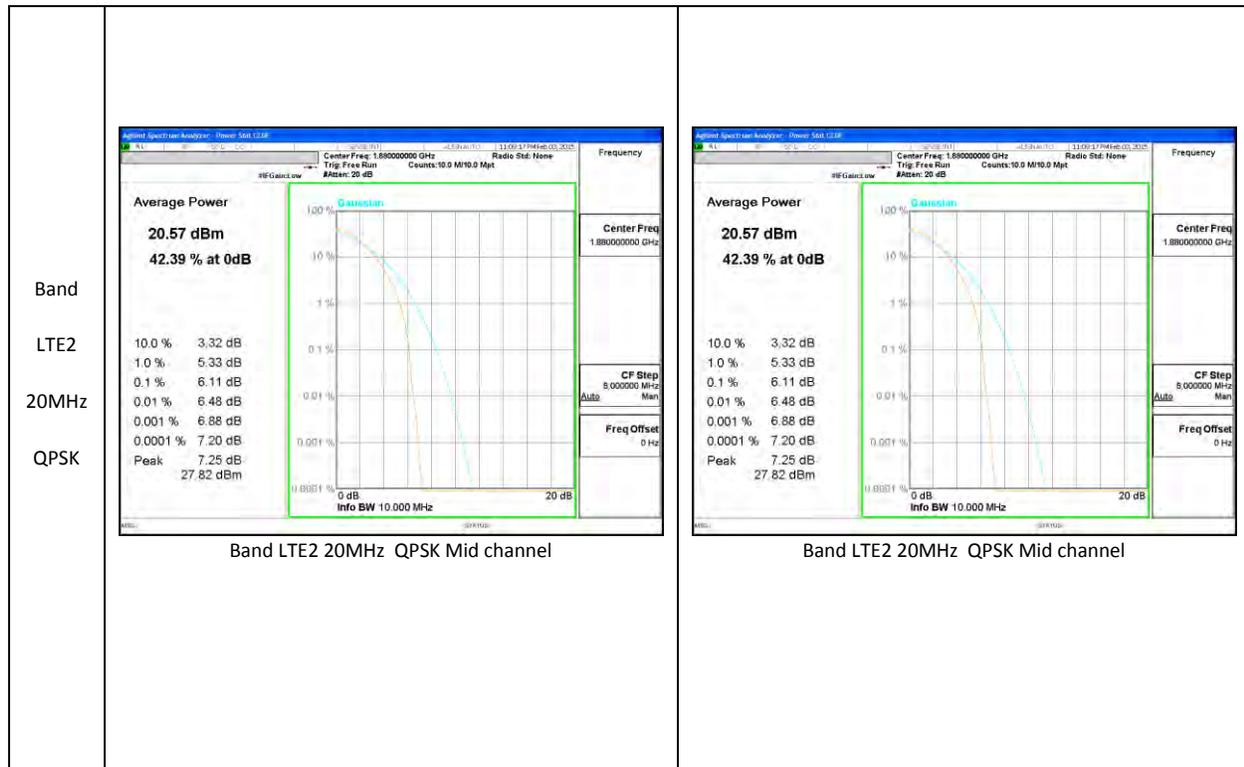
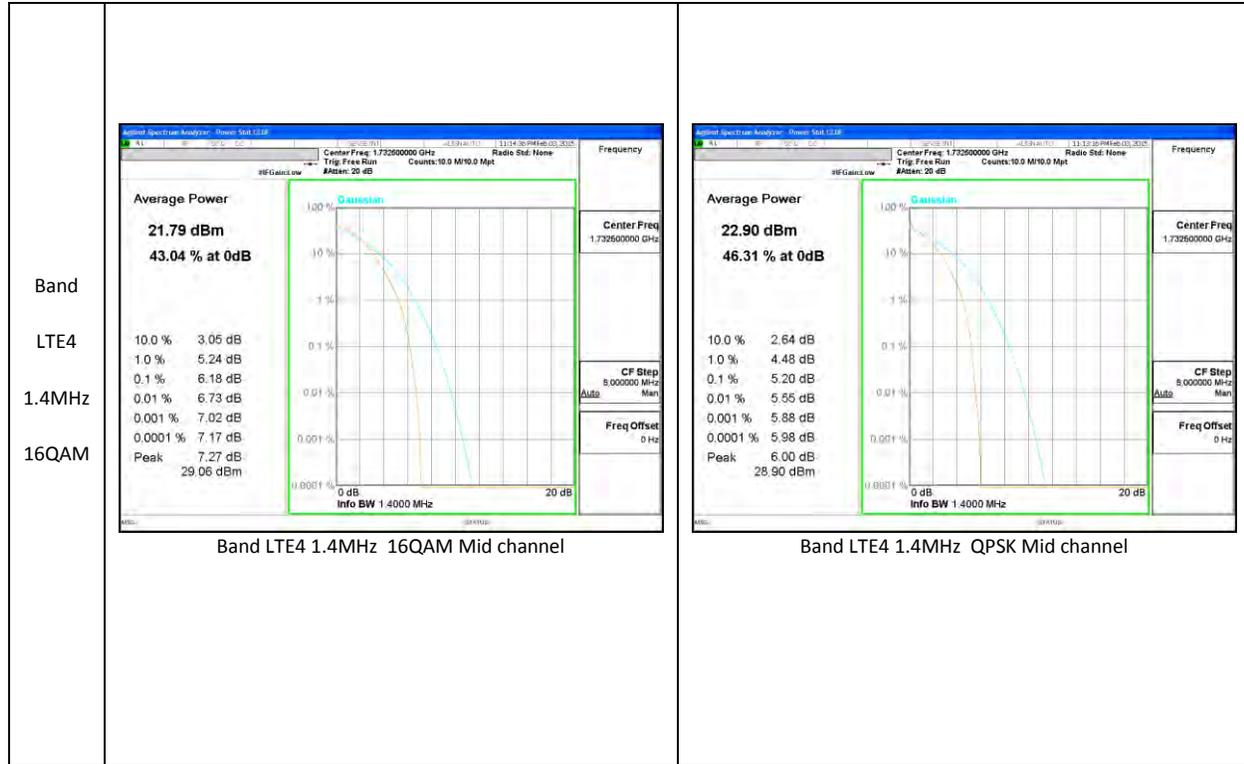
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

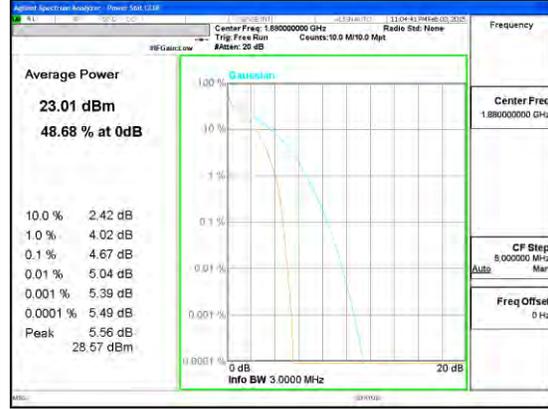
9.1. CONDUCTED PEAK TO AVERAGE RESULT

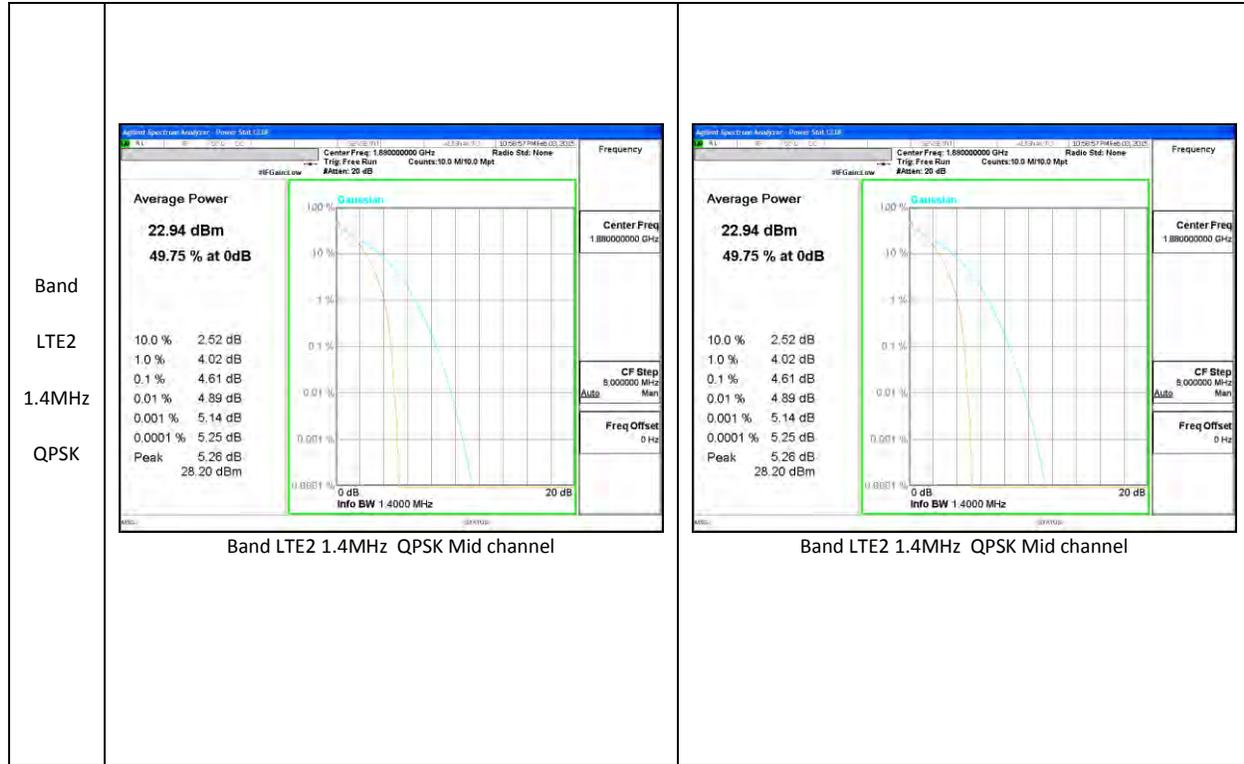
<p>Band</p> <p>LTE5</p> <p>3MHz</p> <p>16QAM</p>	 <p>Average Power 22.43 dBm 45.04 % at 0dB</p> <table border="1"> <tr><td>10.0 %</td><td>2.92 dB</td></tr> <tr><td>1.0 %</td><td>4.94 dB</td></tr> <tr><td>0.1 %</td><td>5.87 dB</td></tr> <tr><td>0.01 %</td><td>6.33 dB</td></tr> <tr><td>0.001 %</td><td>6.60 dB</td></tr> <tr><td>0.0001 %</td><td>6.72 dB</td></tr> <tr><td>Peak</td><td>6.81 dB</td></tr> <tr><td></td><td>29.24 dBm</td></tr> </table> <p>Band LTE5 3MHz 16QAM Mid channel</p>	10.0 %	2.92 dB	1.0 %	4.94 dB	0.1 %	5.87 dB	0.01 %	6.33 dB	0.001 %	6.60 dB	0.0001 %	6.72 dB	Peak	6.81 dB		29.24 dBm	 <p>Average Power 23.07 dBm 47.48 % at 0dB</p> <table border="1"> <tr><td>10.0 %</td><td>2.45 dB</td></tr> <tr><td>1.0 %</td><td>4.28 dB</td></tr> <tr><td>0.1 %</td><td>5.05 dB</td></tr> <tr><td>0.01 %</td><td>5.47 dB</td></tr> <tr><td>0.001 %</td><td>5.75 dB</td></tr> <tr><td>0.0001 %</td><td>5.95 dB</td></tr> <tr><td>Peak</td><td>5.96 dB</td></tr> <tr><td></td><td>29.03 dBm</td></tr> </table> <p>Band LTE5 3MHz QPSK Mid channel</p>	10.0 %	2.45 dB	1.0 %	4.28 dB	0.1 %	5.05 dB	0.01 %	5.47 dB	0.001 %	5.75 dB	0.0001 %	5.95 dB	Peak	5.96 dB		29.03 dBm
10.0 %	2.92 dB																																	
1.0 %	4.94 dB																																	
0.1 %	5.87 dB																																	
0.01 %	6.33 dB																																	
0.001 %	6.60 dB																																	
0.0001 %	6.72 dB																																	
Peak	6.81 dB																																	
	29.24 dBm																																	
10.0 %	2.45 dB																																	
1.0 %	4.28 dB																																	
0.1 %	5.05 dB																																	
0.01 %	5.47 dB																																	
0.001 %	5.75 dB																																	
0.0001 %	5.95 dB																																	
Peak	5.96 dB																																	
	29.03 dBm																																	



<p>Band</p> <p>LTE4</p> <p>15MHz</p> <p>16QAM</p>	 <p style="text-align: center;">Band LTE4 15MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE4 15MHz QPSK Mid channel</p>
<p>Band</p> <p>LTE4</p> <p>3MHz</p> <p>16QAM</p>	 <p style="text-align: center;">Band LTE4 3MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE4 3MHz QPSK Mid channel</p>



<p>Band</p> <p>LTE2</p> <p>15MHz</p> <p>QPSK</p>	 <p style="text-align: center;">Band LTE2 15MHz QPSK Mid channel</p>	 <p style="text-align: center;">Band LTE2 15MHz QPSK Mid channel</p>
<p>Band</p> <p>LTE2</p> <p>3MHz</p> <p>QPSK</p>	 <p style="text-align: center;">Band LTE2 3MHz QPSK Mid channel</p>	 <p style="text-align: center;">Band LTE2 3MHz QPSK Mid channel</p>



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

GSM, WCDMA, LTE

RESULTS

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	2.681	2.958
			15/0	836.5	2.683	2.941
			15/0	847.5	2.69	2.976
		16QAM	15/0	825.5	2.691	2.987
			15/0	836.5	2.688	2.97
			15/0	847.5	2.691	2.965
LTE5	1.4	QPSK	6/0	824.7	1.082	1.271
			6/0	836.5	1.084	1.275
			6/0	848.3	1.081	1.27
		16QAM	6/0	824.7	1.09	1.263
			6/0	836.5	1.085	1.298
			6/0	848.3	1.087	1.298

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	20	QPSK	100/0	1720	17.85	19.08
			100/0	1732.5	17.90	19.43
			100/0	1745	17.86	19.20
		16QAM	100/0	1720	17.90	19.28
			100/0	1732.5	17.94	19.33
			100/0	1745	17.85	19.17
	15	QPSK	75/0	1717.5	13.43	14.53
			75/0	1732.5	13.43	14.59
			75/0	1747.5	13.42	14.54
		16QAM	75/0	1717.5	13.44	14.58
			75/0	1732.5	13.43	14.60
			75/0	1747.5	13.44	14.45
	3	QPSK	15/0	1711.5	2.689	2.973
			15/0	1732.5	2.688	2.938
			15/0	1753.5	2.694	2.996
		16QAM	15/0	1711.5	2.693	2.97
			15/0	1732.5	2.686	2.977
			15/0	1753.5	2.683	2.975
	1.4	QPSK	6/0	1710.7	1.085	1.296
			6/0	1732.5	1.084	1.267
			6/0	1754.3	1.079	1.279
		16QAM	6/0	1710.7	1.089	1.316
			6/0	1732.5	1.085	1.266
			6/0	1754.3	1.084	1.302

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	20	QPSK	100/0	1860	17.85	19.16
			100/0	1880	17.92	19.14
			100/0	1900	17.90	19.21
		16QAM	100/0	1860	17.87	19.07
			100/0	1880	17.90	19.25
			100/0	1900	17.88	19.30
	15	QPSK	75/0	1857.5	13.40	14.59
			75/0	1880	13.43	14.64
			75/0	1902.5	13.45	14.57
		16QAM	75/0	1857.5	13.46	14.57
			75/0	1880	13.44	14.63
			75/0	1902.5	13.41	14.58
	3	QPSK	15/0	1851.5	2.682	2.945
			15/0	1880	2.689	2.966
			15/0	1908.5	2.689	2.967
		16QAM	15/0	1851.5	2.681	2.977
			15/0	1880	2.684	2.998
			15/0	1908.5	2.685	2.962
	1.4	QPSK	6/0	1850.7	1.088	1.312
			6/0	1880	1.086	1.281
			6/0	1909.3	1.081	1.283
		16QAM	6/0	1850.7	1.093	1.286
			6/0	1880	1.086	1.292
			6/0	1909.3	1.091	1.313

10.1.2. OCCUPIED BANDWIDTH PLOTS

<p>Band LTE5 3MHz 16QAM</p>	<p>Agilent 22:22:43 Feb 2, 2015 R T Freq/Channel</p> <p>Ch Freq 836.5 MHz Trig Free</p> <p>Center Freq 836.500000 MHz</p> <p>Start Freq 834.250000 MHz</p> <p>Stop Freq 838.750000 MHz</p> <p>CF Step 450.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm #Atten 30 dB</p> <p>#Peak Log 10 dB/Offst 10.6 dB</p> <p>Center 836.500 0 MHz Span 4.5 MHz</p> <p>#Res BW 43 kHz VBW 130 kHz Sweep 2.36 ms (601 pts)</p> <p>Occupied Bandwidth 2.6878 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -2.969 kHz x dB Bandwidth 2.970 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE5 3MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent 22:22:21 Feb 2, 2015 R T Freq/Channel</p> <p>Ch Freq 836.5 MHz Trig Free</p> <p>Center Freq 836.500000 MHz</p> <p>Start Freq 834.250000 MHz</p> <p>Stop Freq 838.750000 MHz</p> <p>CF Step 450.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm #Atten 30 dB</p> <p>#Peak Log 10 dB/Offst 10.6 dB</p> <p>Center 836.500 0 MHz Span 4.5 MHz</p> <p>#Res BW 43 kHz VBW 130 kHz Sweep 2.36 ms (601 pts)</p> <p>Occupied Bandwidth 2.6830 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -8.787 kHz x dB Bandwidth 2.941 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE5 3MHz OBW QPSK Mid Channel FRB.gif</p>
<p>Band LTE5 1.4MHz 16QAM</p>	<p>Agilent 22:14:36 Feb 2, 2015 R T Freq/Channel</p> <p>Ch Freq 836.5 MHz Trig Free</p> <p>Center Freq 836.500000 MHz</p> <p>Start Freq 835.450000 MHz</p> <p>Stop Freq 837.550000 MHz</p> <p>CF Step 210.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm #Atten 30 dB</p> <p>#Peak Log 10 dB/Offst 10.6 dB</p> <p>Center 836.500 0 MHz Span 2.1 MHz</p> <p>#Res BW 20 kHz VBW 62 kHz Sweep 5.04 ms (601 pts)</p> <p>Occupied Bandwidth 1.0851 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 1.693 kHz x dB Bandwidth 1.298 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE5 1.4MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent 22:14:14 Feb 2, 2015 R T Freq/Channel</p> <p>Ch Freq 836.5 MHz Trig Free</p> <p>Center Freq 836.500000 MHz</p> <p>Start Freq 835.450000 MHz</p> <p>Stop Freq 837.550000 MHz</p> <p>CF Step 210.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm #Atten 30 dB</p> <p>#Peak Log 10 dB/Offst 10.6 dB</p> <p>Center 836.500 0 MHz Span 2.1 MHz</p> <p>#Res BW 20 kHz VBW 62 kHz Sweep 5.04 ms (601 pts)</p> <p>Occupied Bandwidth 1.0835 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -137.670 Hz x dB Bandwidth 1.275 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE5 1.4MHz OBW QPSK Mid Channel FRB.gif</p>

<p>Band LTE4 20MHz 16QAM</p>	<p>Agilent 22:09:22 Feb 2, 2015</p> <p>Ch Freq 1.7325 GHz Trig Free</p> <p>Center Freq 1.73250000 GHz</p> <p>Start Freq 1.71750000 GHz</p> <p>Stop Freq 1.74750000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 17.9407 MHz</p> <p>Transmit Freq Error 20.966 kHz</p> <p>x dB Bandwidth 19.333 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE4 20MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent 22:08:59 Feb 2, 2015</p> <p>Ch Freq 1.7325 GHz Trig Free</p> <p>Center Freq 1.73250000 GHz</p> <p>Start Freq 1.71750000 GHz</p> <p>Stop Freq 1.74750000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 17.9027 MHz</p> <p>Transmit Freq Error 7.447 kHz</p> <p>x dB Bandwidth 19.426 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE4 20MHz OBW QPSK Mid Channel FRB.gif</p>
<p>Band LTE4 15MHz 16QAM</p>	<p>Agilent 22:06:28 Feb 2, 2015</p> <p>Ch Freq 1.7325 GHz Trig Free</p> <p>Center Freq 1.73250000 GHz</p> <p>Start Freq 1.72125000 GHz</p> <p>Stop Freq 1.74375000 GHz</p> <p>CF Step 2.25000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 13.4307 MHz</p> <p>Transmit Freq Error 10.761 kHz</p> <p>x dB Bandwidth 14.595 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE4 15MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent 22:06:08 Feb 2, 2015</p> <p>Ch Freq 1.7325 GHz Trig Free</p> <p>Center Freq 1.73250000 GHz</p> <p>Start Freq 1.72125000 GHz</p> <p>Stop Freq 1.74375000 GHz</p> <p>CF Step 2.25000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 13.4289 MHz</p> <p>Transmit Freq Error 15.110 kHz</p> <p>x dB Bandwidth 14.593 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE4 15MHz OBW QPSK Mid Channel FRB.gif</p>

<p>Band LTE4 3MHz 16QAM</p>	<p>Agilent 22:03:00 Feb 2, 2015</p> <p>Ch Freq 1.7325 GHz Trig Free</p> <p>Center Freq 1.73250000 GHz</p> <p>Start Freq 1.73025000 GHz</p> <p>Stop Freq 1.73475000 GHz</p> <p>CF Step 450.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 2.6855 MHz</p> <p>Transmit Freq Error -2.964 kHz</p> <p>x dB Bandwidth 2.977 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE4 3MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent 22:02:38 Feb 2, 2015</p> <p>Ch Freq 1.7325 GHz Trig Free</p> <p>Center Freq 1.73250000 GHz</p> <p>Start Freq 1.73025000 GHz</p> <p>Stop Freq 1.73475000 GHz</p> <p>CF Step 450.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 2.6882 MHz</p> <p>Transmit Freq Error -6.093 kHz</p> <p>x dB Bandwidth 2.938 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE4 3MHz OBW QPSK Mid Channel FRB.gif</p>
<p>Band LTE4 1.4MHz 16QAM</p>	<p>Agilent 21:59:40 Feb 2, 2015</p> <p>Ch Freq 1.7325 GHz Trig Free</p> <p>Center Freq 1.73250000 GHz</p> <p>Start Freq 1.73145000 GHz</p> <p>Stop Freq 1.73355000 GHz</p> <p>CF Step 210.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 1.0846 MHz</p> <p>Transmit Freq Error 1.352 kHz</p> <p>x dB Bandwidth 1.266 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE4 1.4MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent 21:59:19 Feb 2, 2015</p> <p>Ch Freq 1.7325 GHz Trig Free</p> <p>Center Freq 1.73250000 GHz</p> <p>Start Freq 1.73145000 GHz</p> <p>Stop Freq 1.73355000 GHz</p> <p>CF Step 210.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 1.0843 MHz</p> <p>Transmit Freq Error -384.348 Hz</p> <p>x dB Bandwidth 1.267 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE4 1.4MHz OBW QPSK Mid Channel FRB.gif</p>

<p>Band LTE2 20MHz 16QAM</p>	<p>Agilent 19:54:59 Feb 2, 2015</p> <p>Ch Freq 1.88 GHz Trig Free</p> <p>Center Freq 1.88000000 GHz</p> <p>Start Freq 1.86500000 GHz</p> <p>Stop Freq 1.89500000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 17.8953 MHz</p> <p>Transmit Freq Error 10.326 kHz</p> <p>x dB Bandwidth 19.250 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE2 20MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent 19:54:38 Feb 2, 2015</p> <p>Ch Freq 1.88 GHz Trig Free</p> <p>Center Freq 1.88000000 GHz</p> <p>Start Freq 1.86500000 GHz</p> <p>Stop Freq 1.89500000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 17.9229 MHz</p> <p>Transmit Freq Error -4.565 kHz</p> <p>x dB Bandwidth 19.140 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE2 20MHz OBW QPSK Mid Channel FRB.gif</p>
<p>Band LTE2 15MHz 16QAM</p>	<p>Agilent 19:51:45 Feb 2, 2015</p> <p>Ch Freq 1.88 GHz Trig Free</p> <p>Center Freq 1.88000000 GHz</p> <p>Start Freq 1.86875000 GHz</p> <p>Stop Freq 1.89125000 GHz</p> <p>CF Step 2.25000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 13.4407 MHz</p> <p>Transmit Freq Error -12.936 kHz</p> <p>x dB Bandwidth 14.626 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE2 15MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent 19:51:24 Feb 2, 2015</p> <p>Ch Freq 1.88 GHz Trig Free</p> <p>Center Freq 1.88000000 GHz</p> <p>Start Freq 1.86875000 GHz</p> <p>Stop Freq 1.89125000 GHz</p> <p>CF Step 2.25000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 13.4317 MHz</p> <p>Transmit Freq Error 2.144 kHz</p> <p>x dB Bandwidth 14.644 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE2 15MHz OBW QPSK Mid Channel FRB.gif</p>

<p>Band LTE2 3MHz 16QAM</p>	<p>Agilent 19:48:28 Feb 2, 2015</p> <p>Ch Freq 1.88 GHz Trig Free</p> <p>Center Freq 1.88000000 GHz</p> <p>Start Freq 1.8775000 GHz</p> <p>Stop Freq 1.8825000 GHz</p> <p>CF Step 450.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track Off</p> <p>Occupied Bandwidth 2.6859 MHz</p> <p>Transmit Freq Error -320.358 Hz</p> <p>x dB Bandwidth 2.930 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE2 3MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent 19:48:07 Feb 2, 2015</p> <p>Ch Freq 1.88 GHz Trig Free</p> <p>Center Freq 1.88000000 GHz</p> <p>Start Freq 1.8775000 GHz</p> <p>Stop Freq 1.8825000 GHz</p> <p>CF Step 450.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track Off</p> <p>Occupied Bandwidth 2.6895 MHz</p> <p>Transmit Freq Error -1.198 kHz</p> <p>x dB Bandwidth 2.960 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE2 3MHz OBW QPSK Mid Channel FRB.gif</p>
<p>Band LTE2 1.4MHz 16QAM</p>	<p>Agilent 19:44:52 Feb 2, 2015</p> <p>Ch Freq 1.88 GHz Trig Free</p> <p>Center Freq 1.88000000 GHz</p> <p>Start Freq 1.87895000 GHz</p> <p>Stop Freq 1.88105000 GHz</p> <p>CF Step 210.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track Off</p> <p>Occupied Bandwidth 1.0861 MHz</p> <p>Transmit Freq Error 1.275 kHz</p> <p>x dB Bandwidth 1.292 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE2 1.4MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent 19:44:31 Feb 2, 2015</p> <p>Ch Freq 1.88 GHz Trig Free</p> <p>Center Freq 1.88000000 GHz</p> <p>Start Freq 1.87895000 GHz</p> <p>Stop Freq 1.88105000 GHz</p> <p>CF Step 210.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track Off</p> <p>Occupied Bandwidth 1.0864 MHz</p> <p>Transmit Freq Error -1.474 kHz</p> <p>x dB Bandwidth 1.281 MHz</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE2 1.4MHz OBW QPSK Mid Channel FRB.gif</p>

11. 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

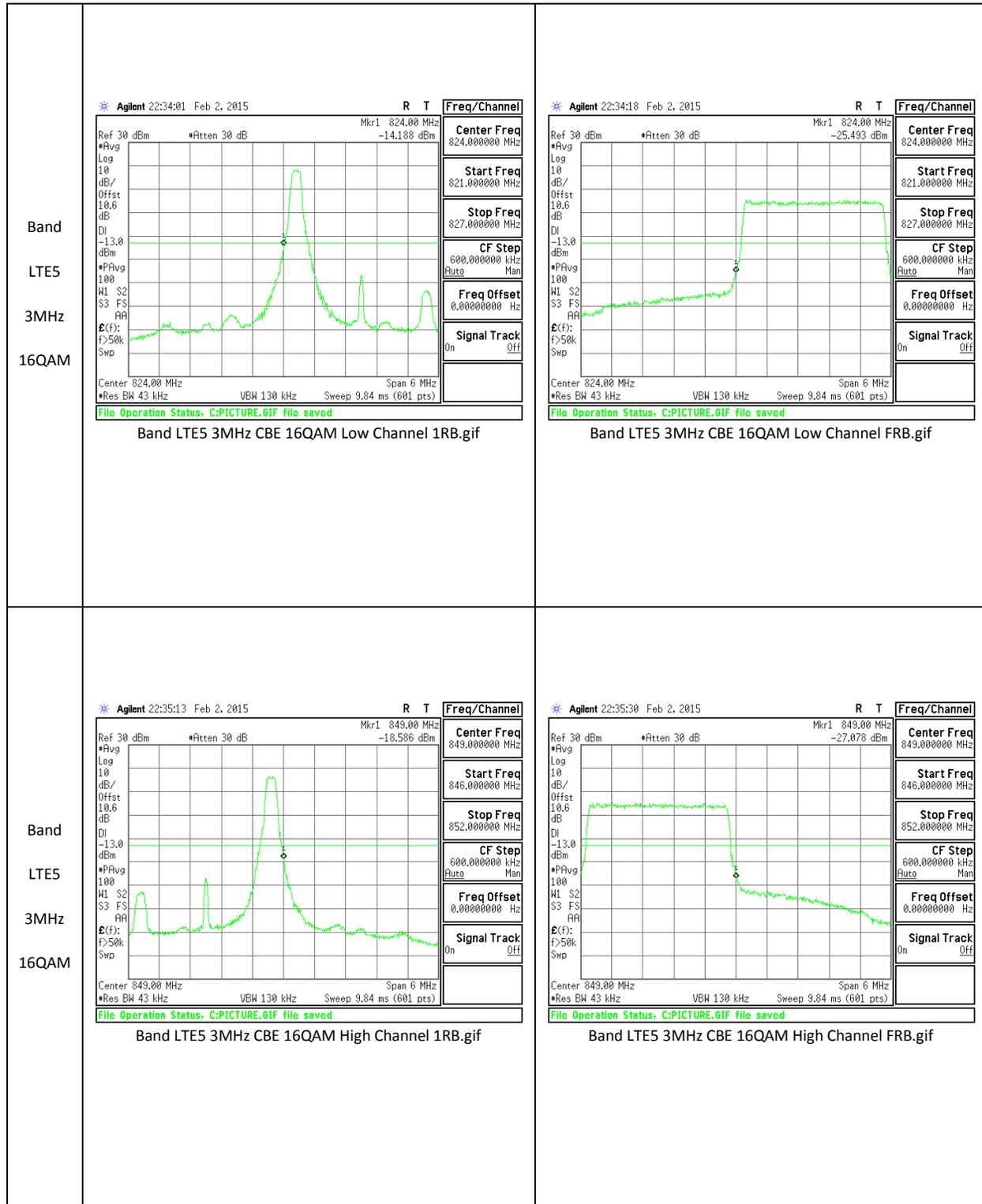
The transmitter output was connected to an Agilent 8960 or a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

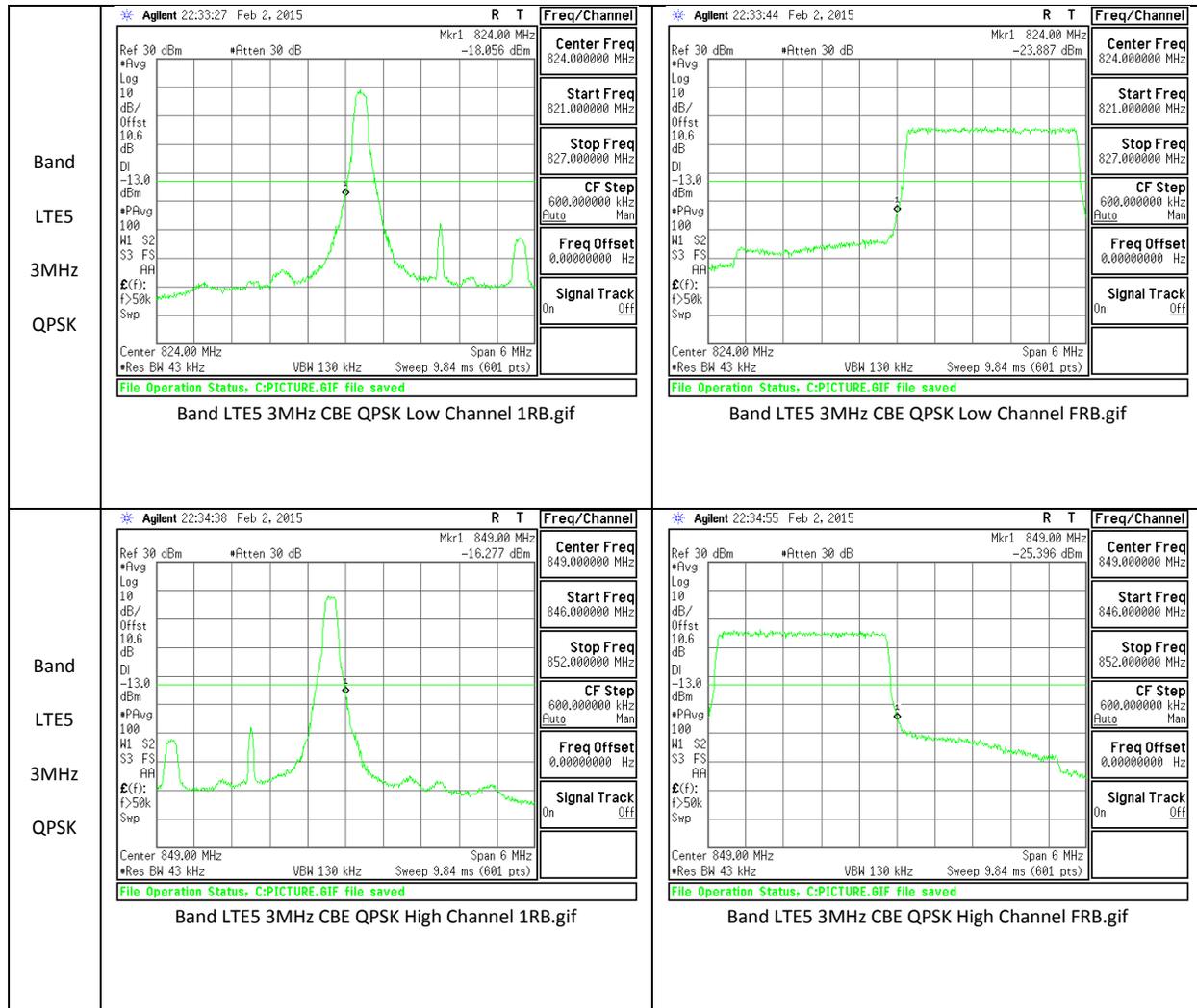
MODES TESTED

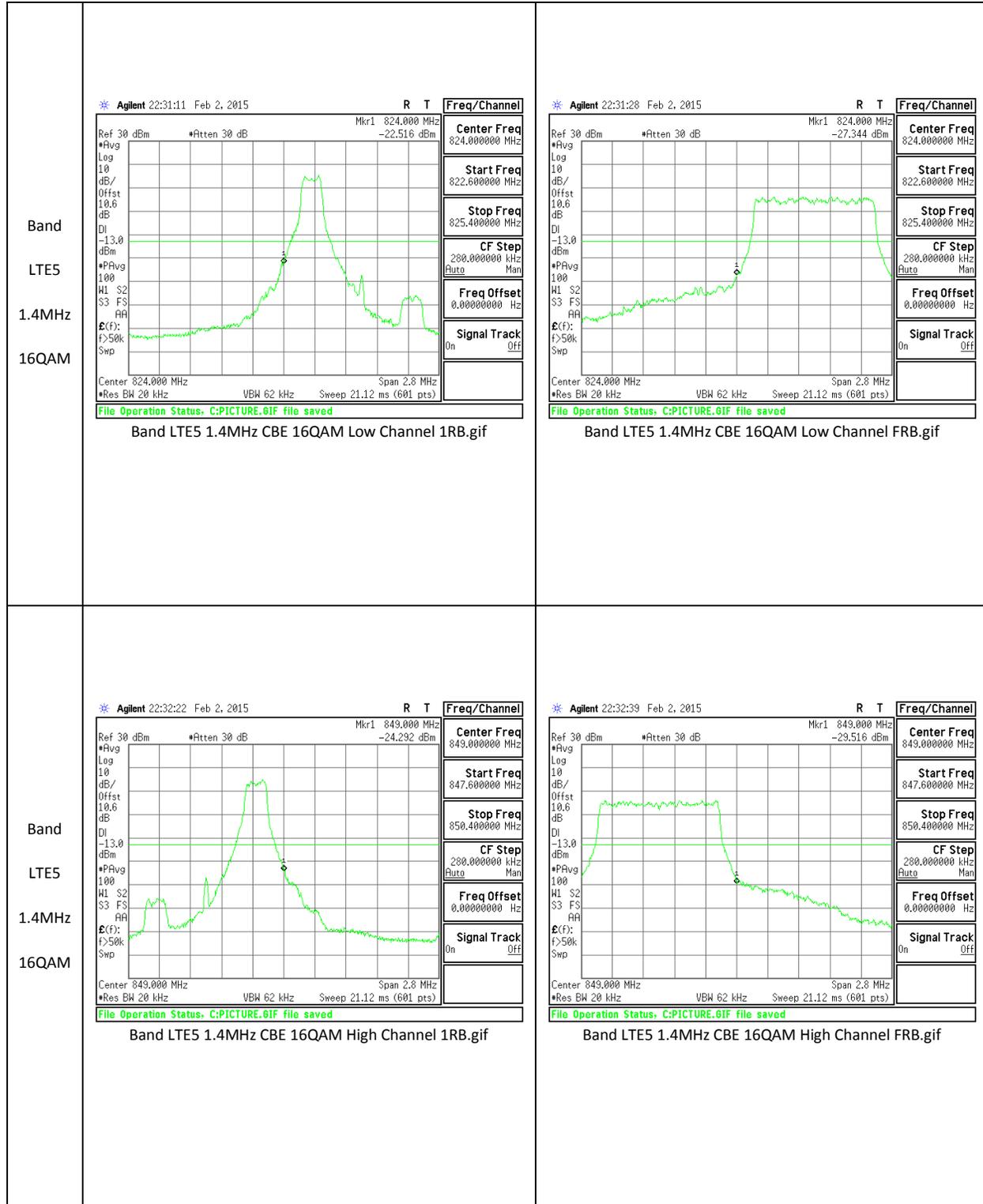
GSM, WCDMA, LTE

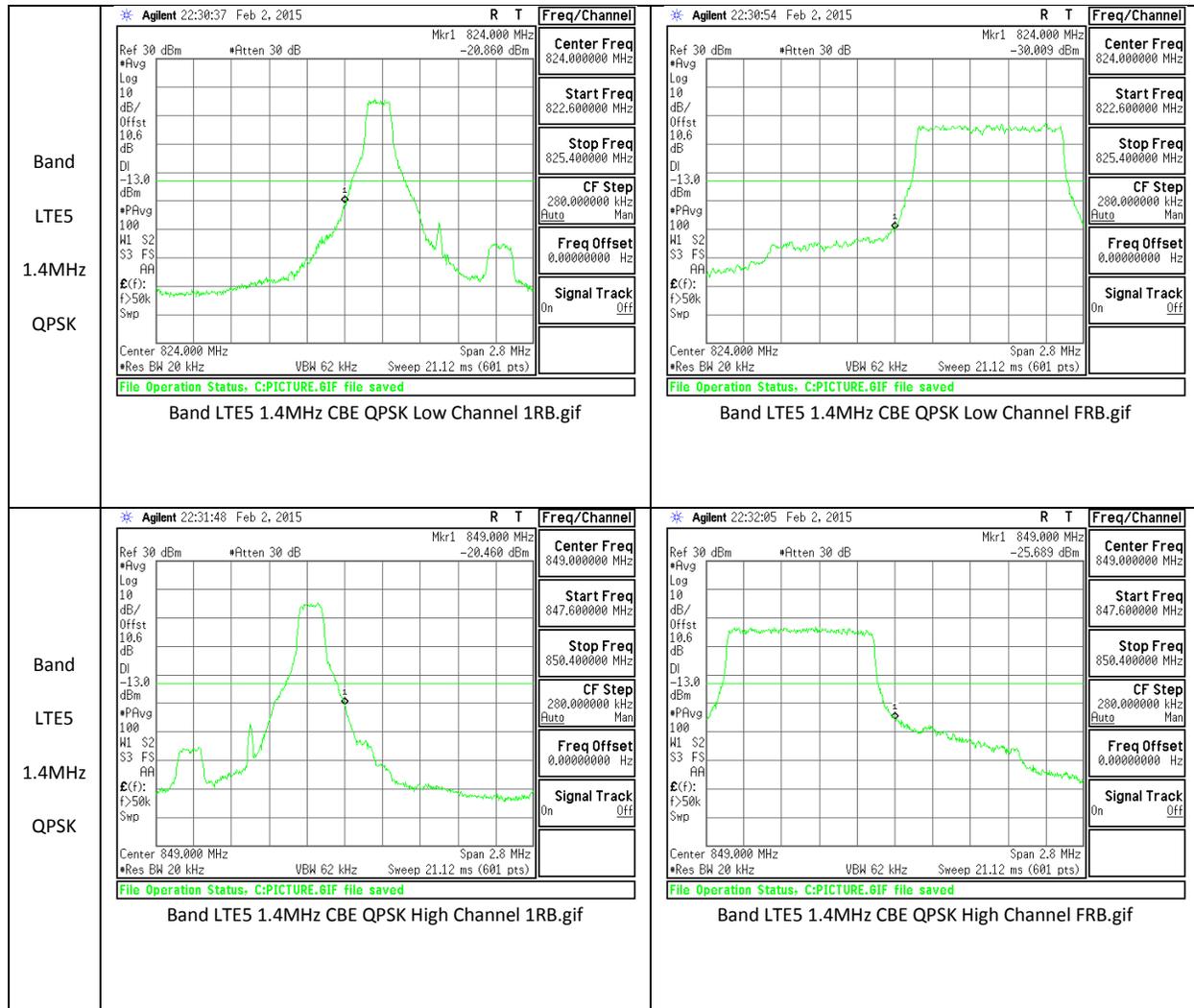
RESULTS

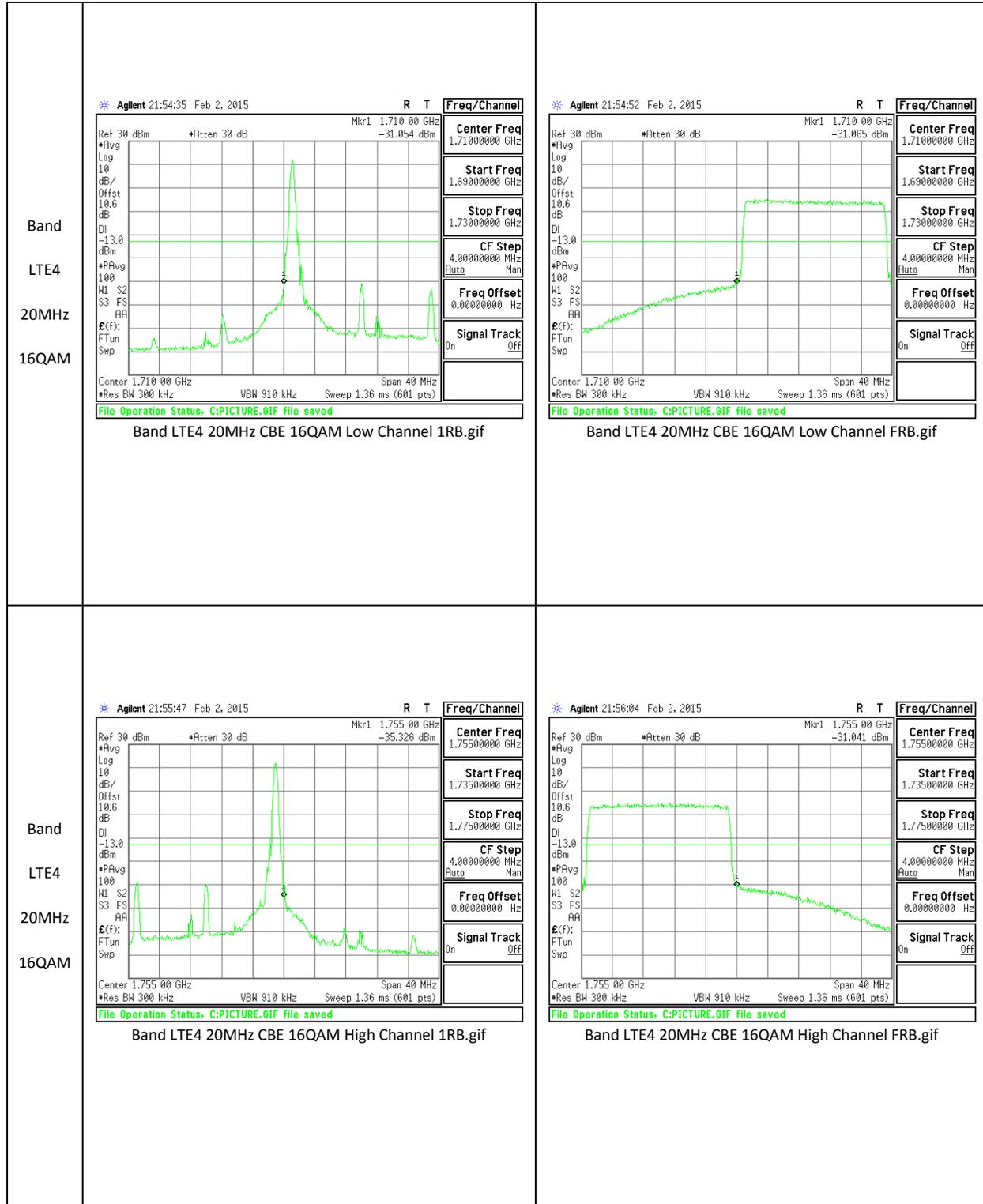
11.1.1. BAND EDGE PLOTS

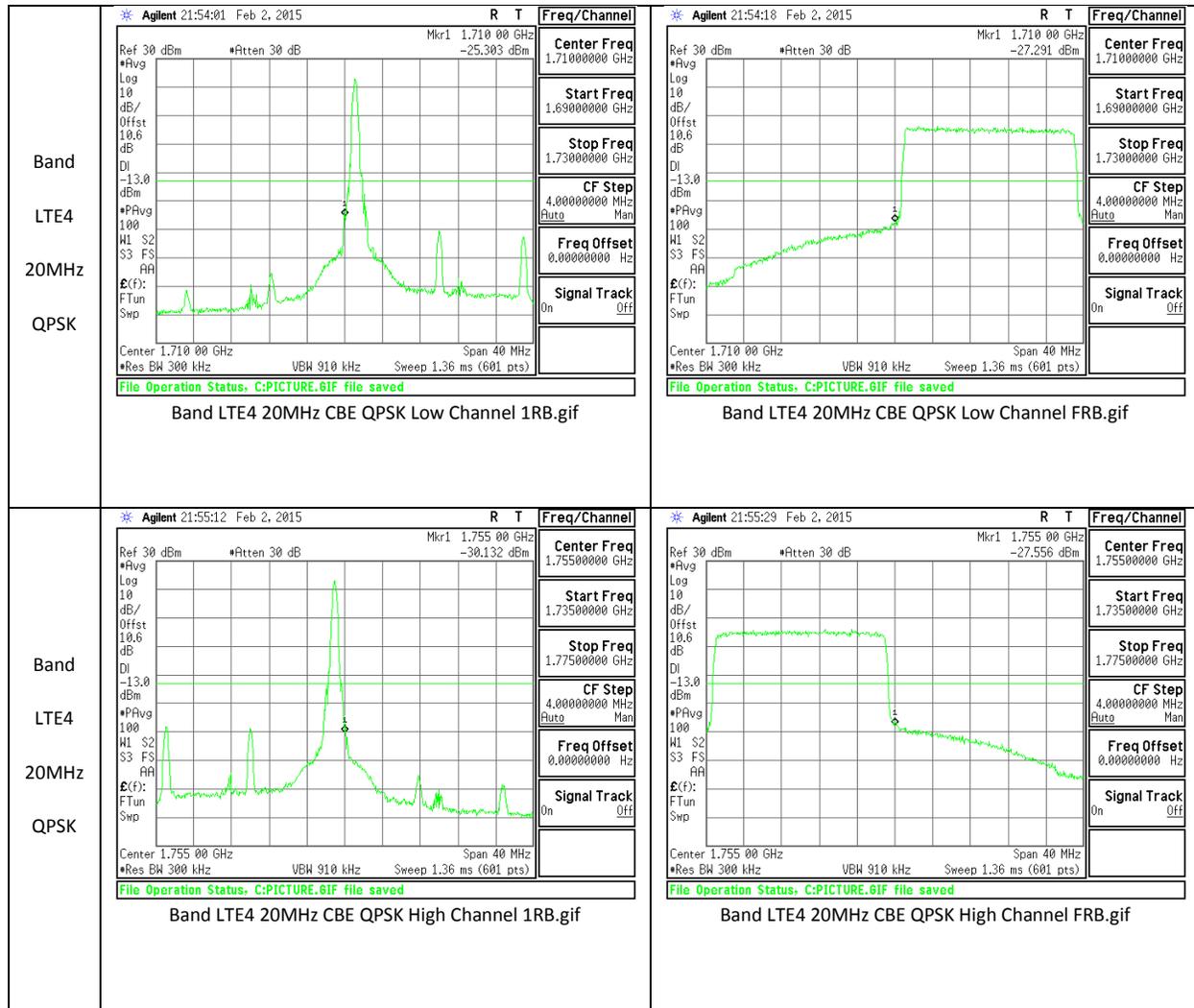


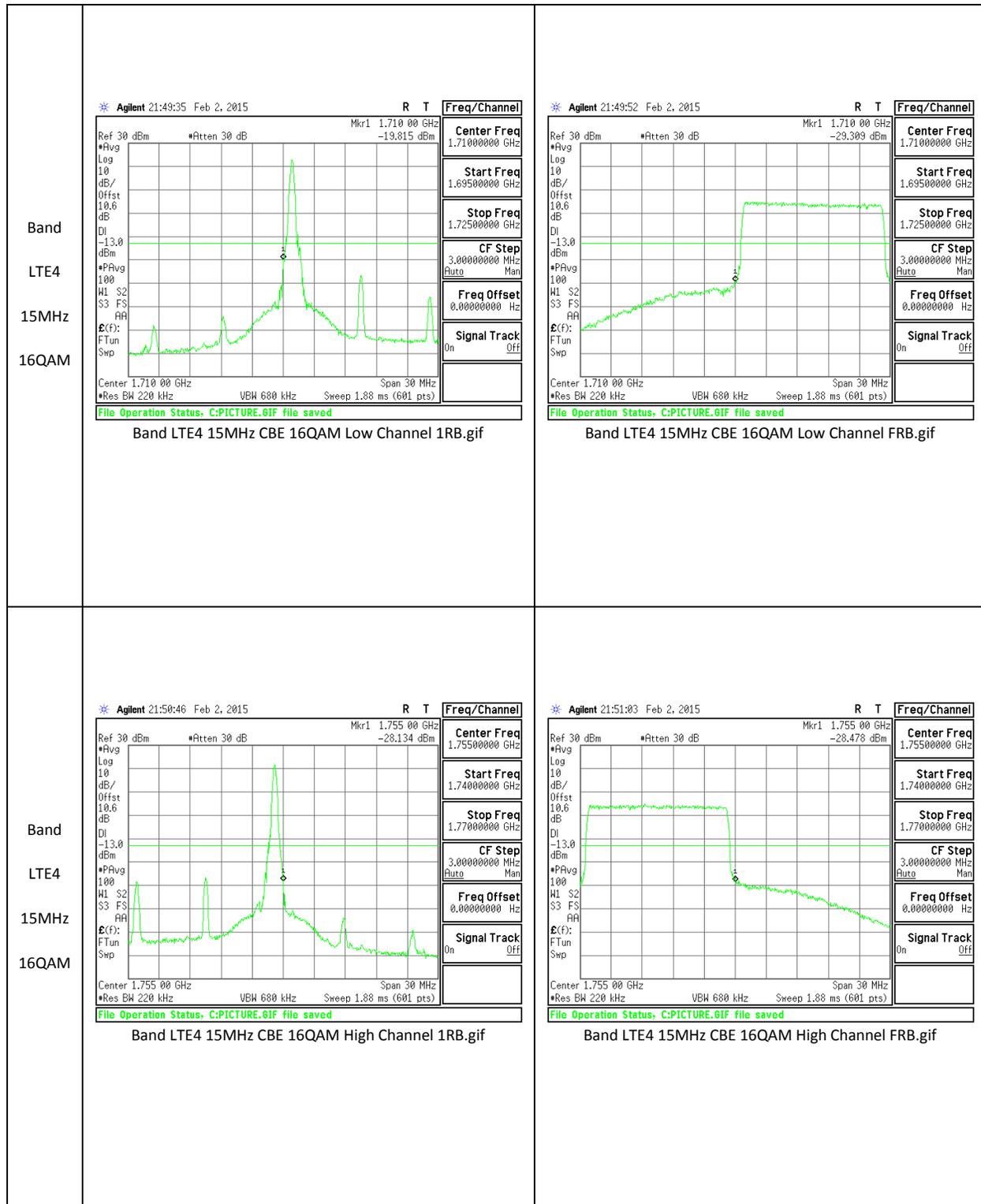


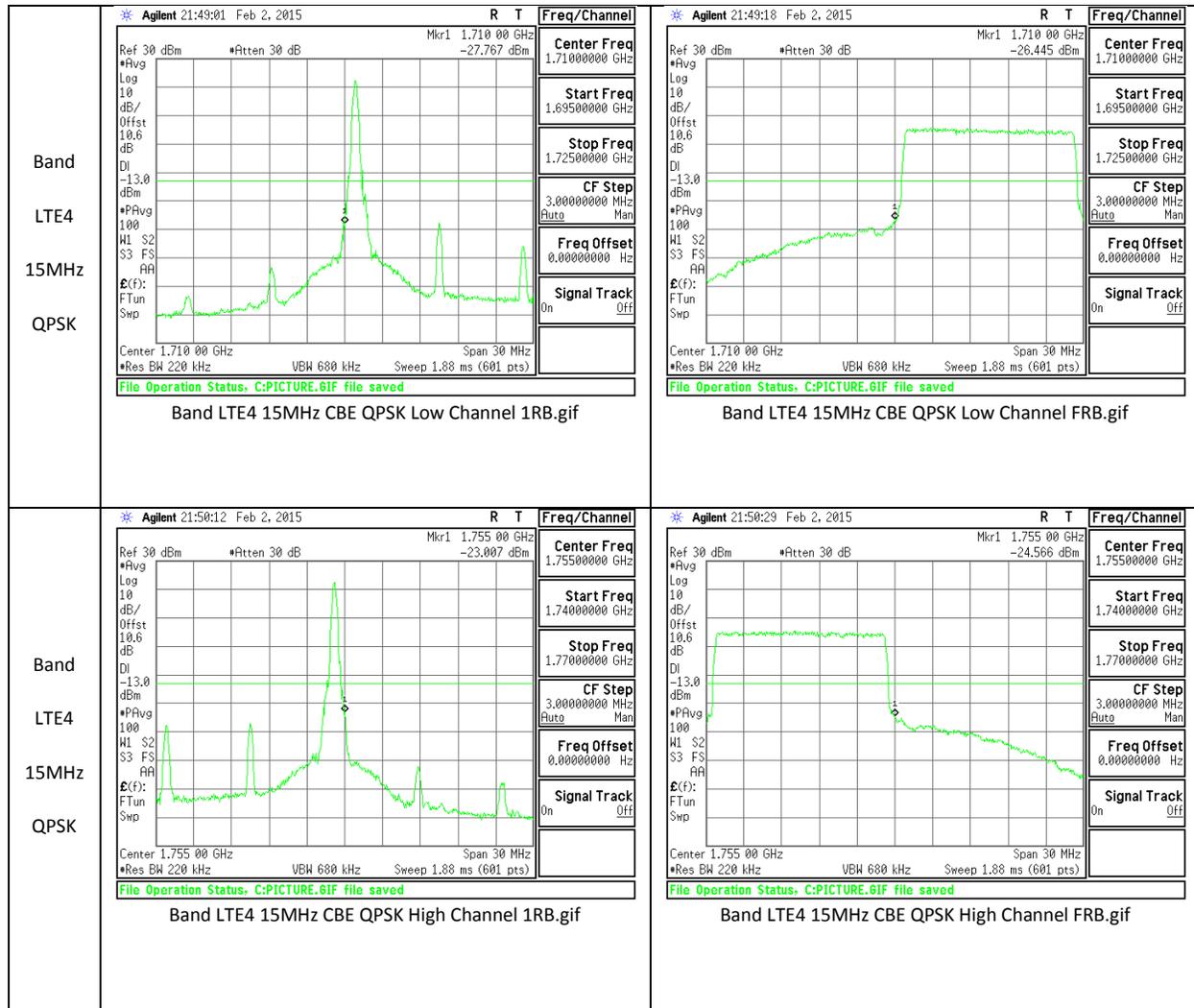




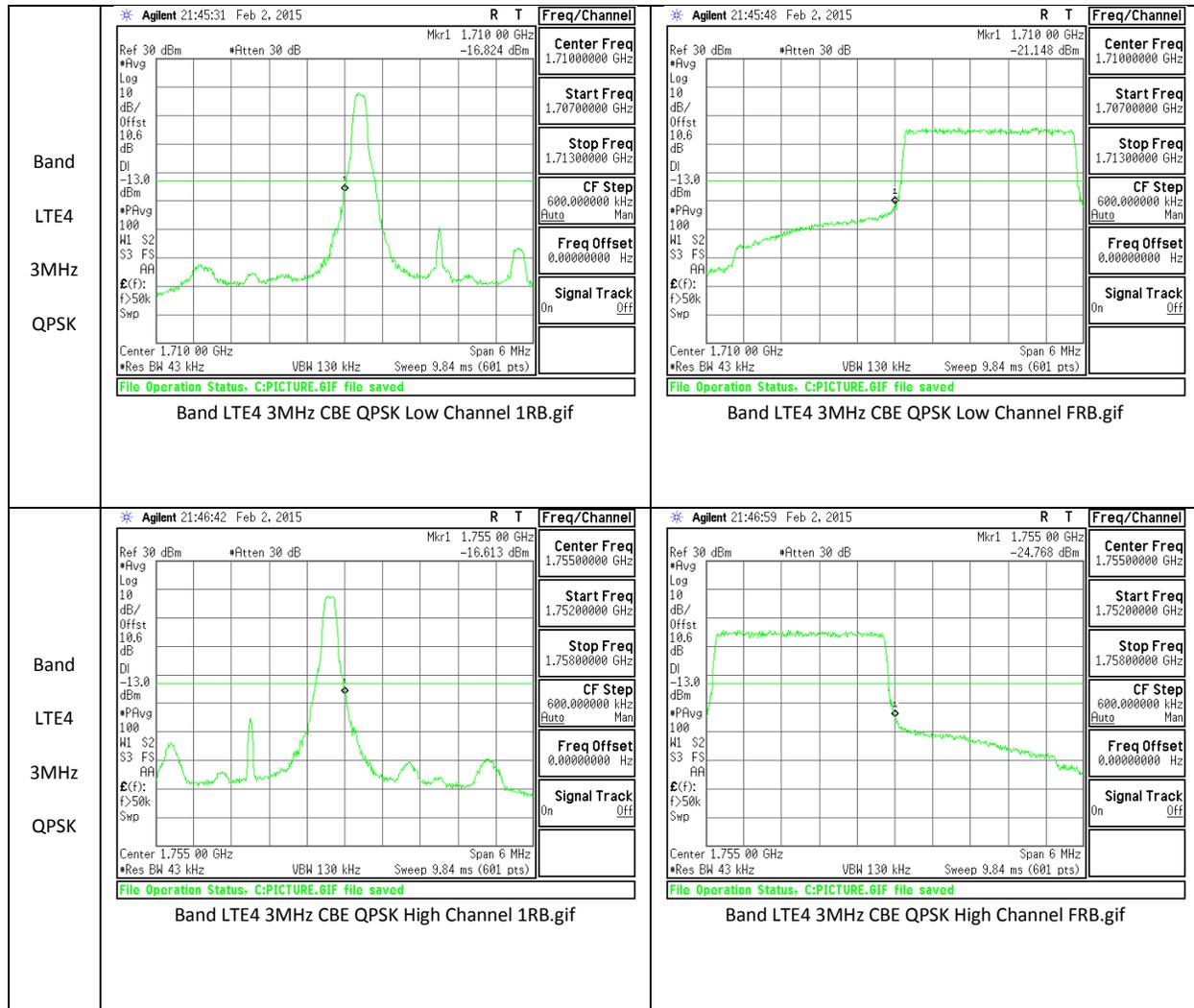


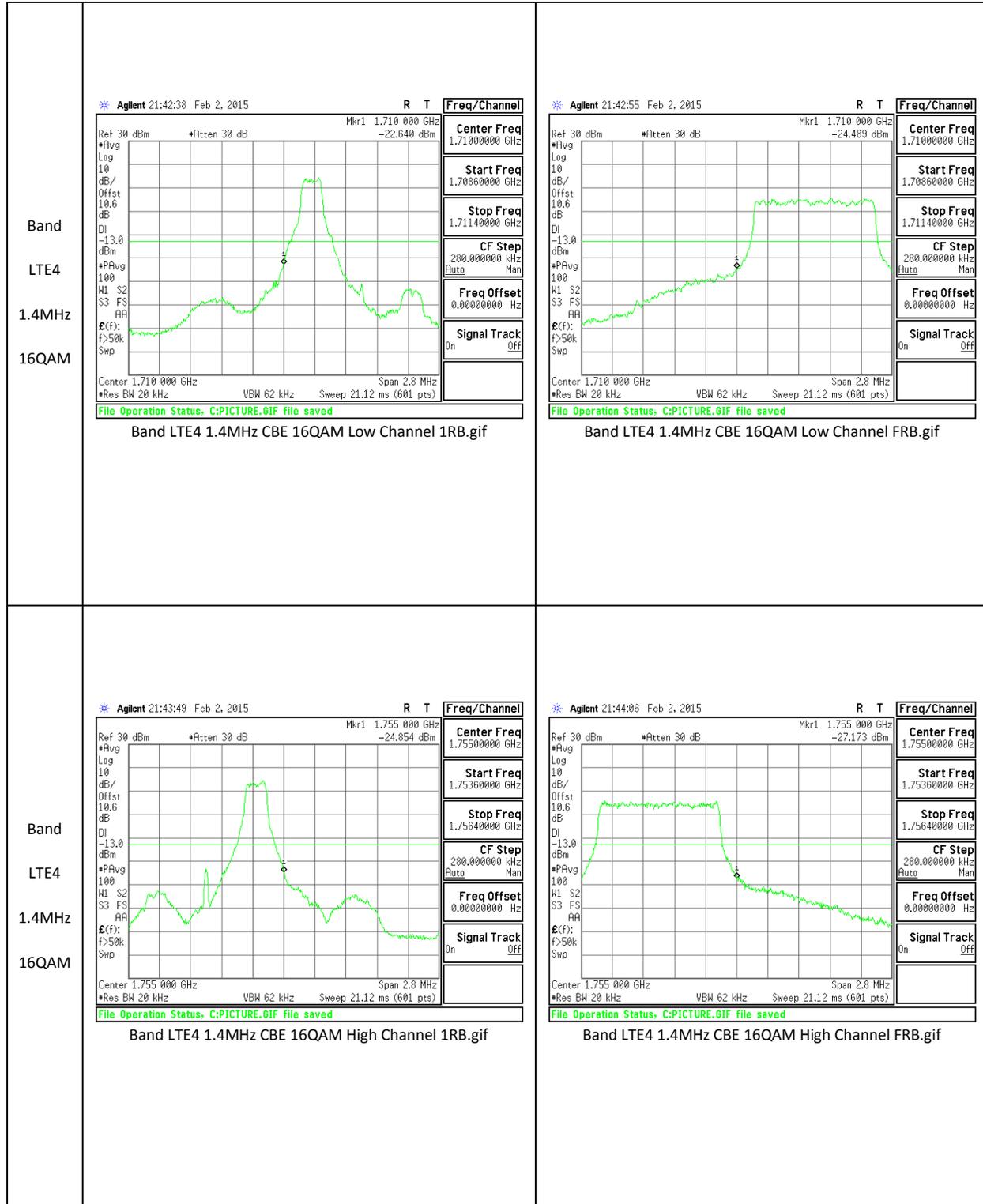


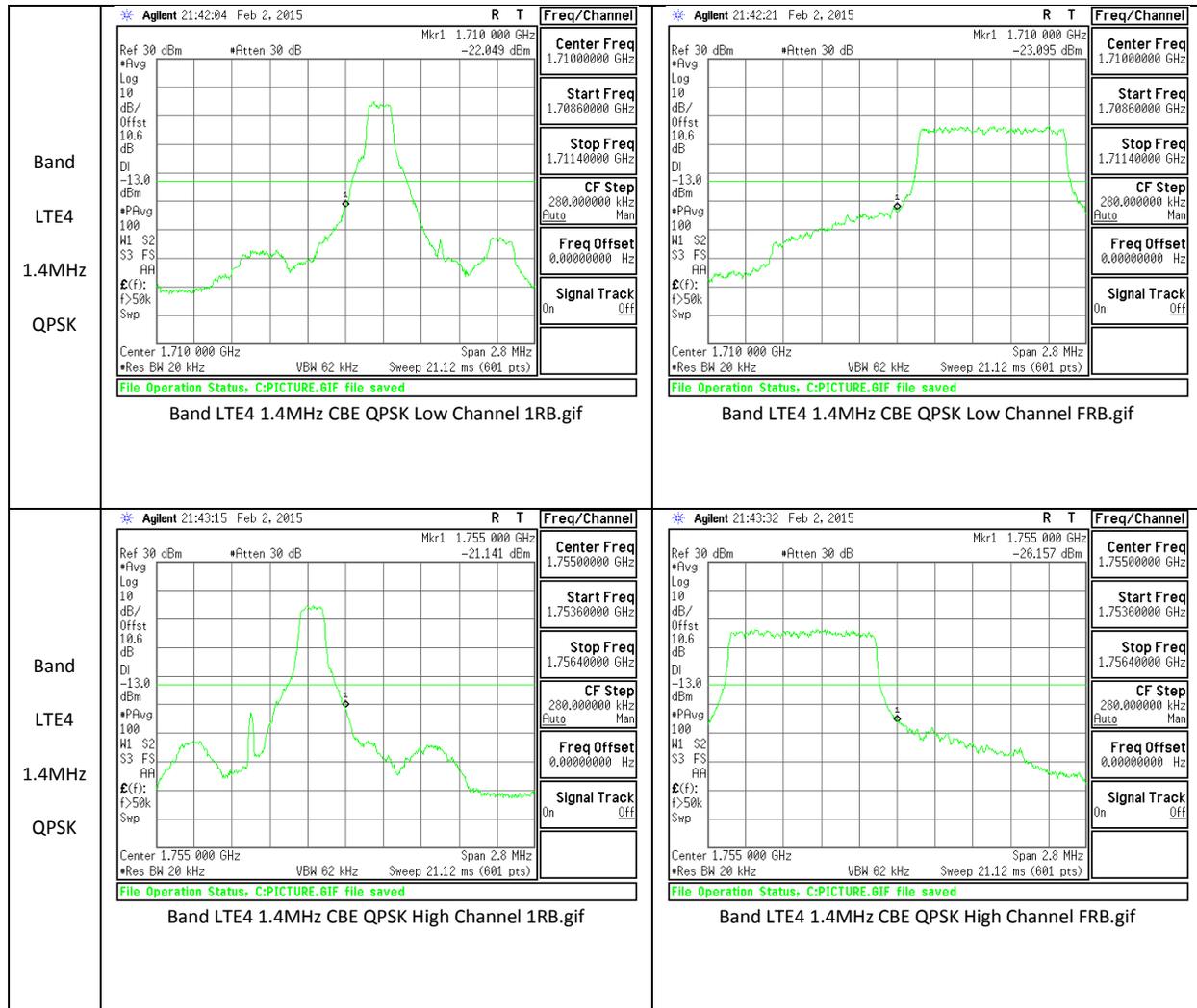


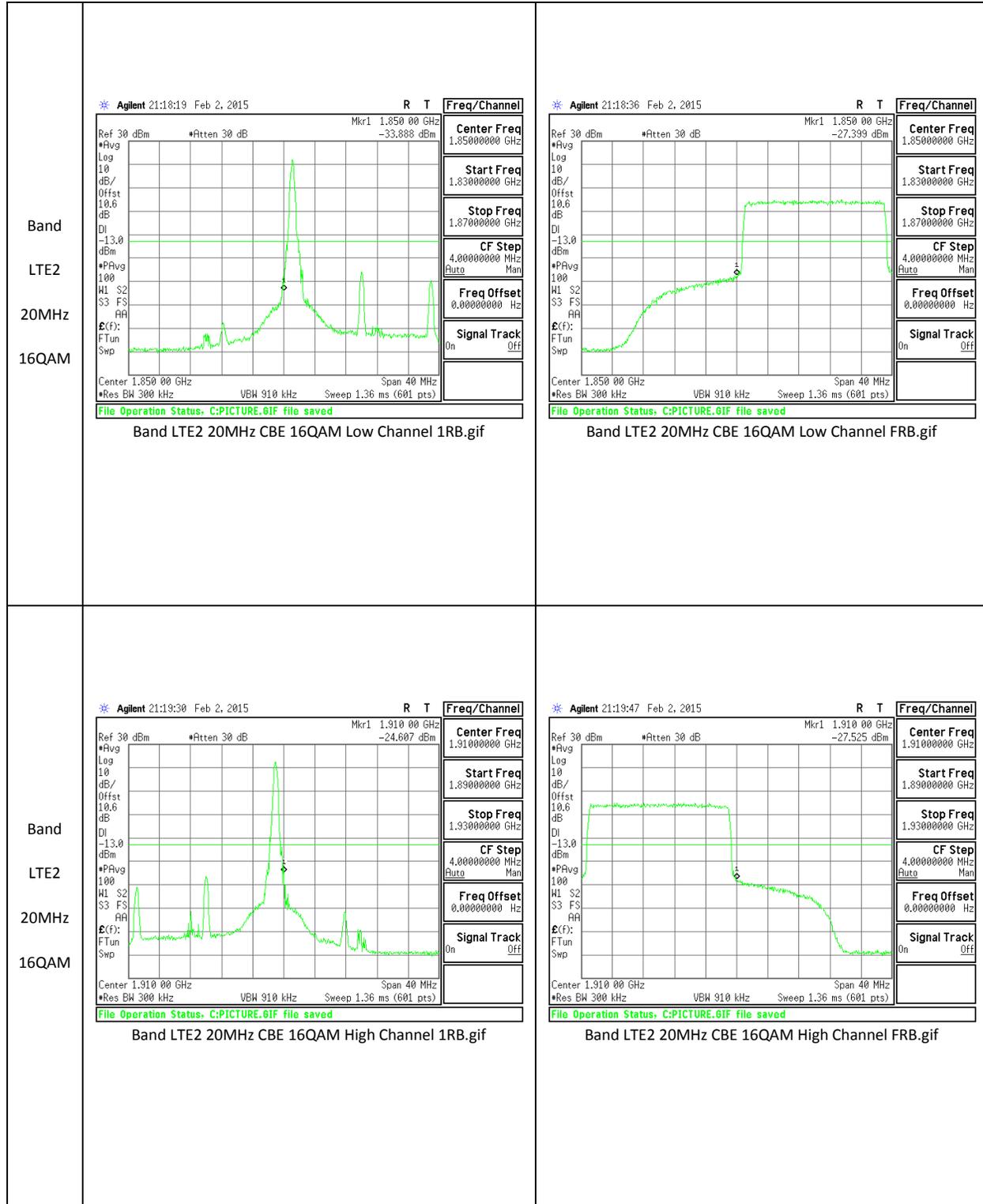


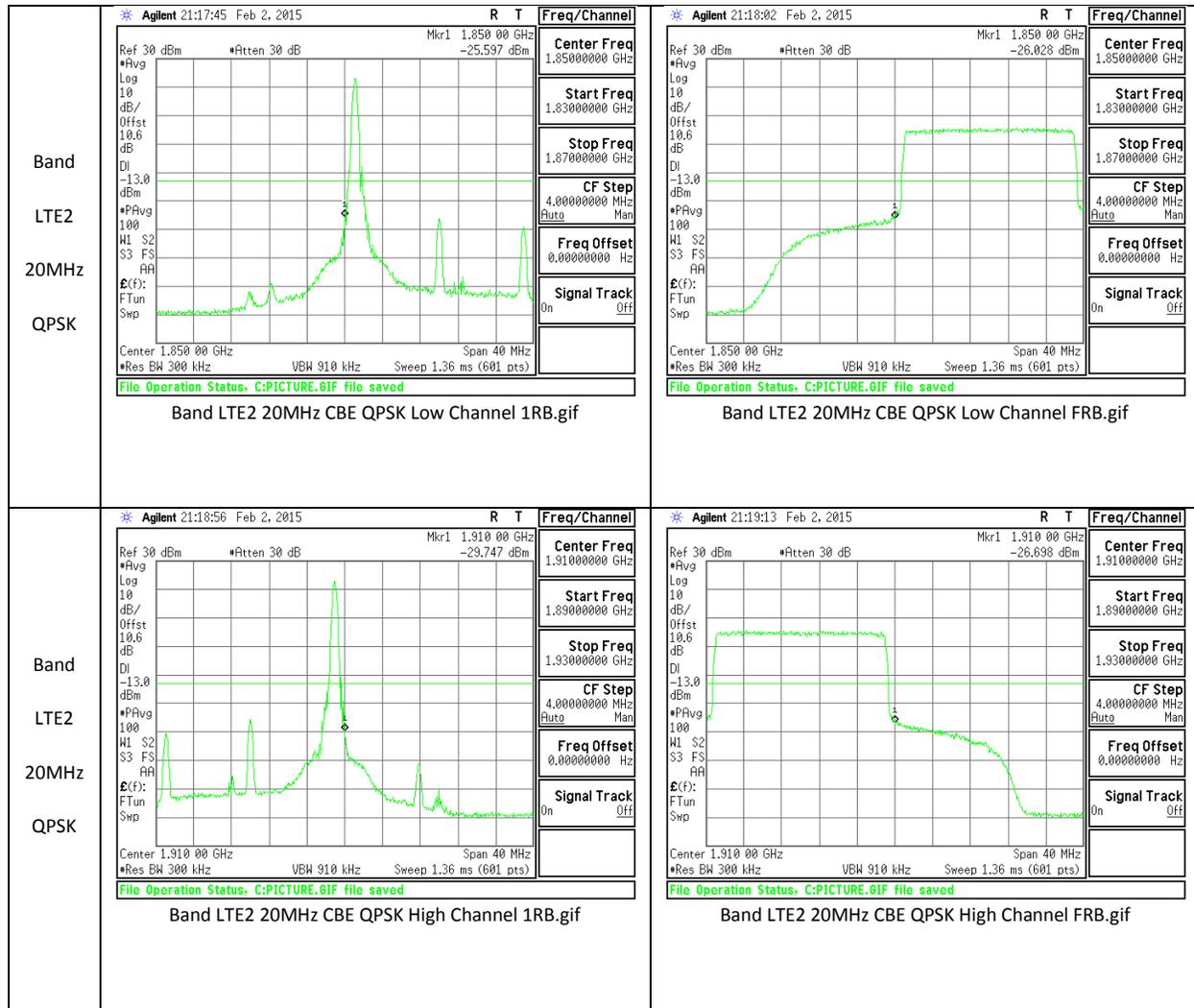
<p>Band LTE4 3MHz 16QAM</p>	<p>Agilent 21:46:05 Feb 2, 2015</p> <p>Center Freq: 1.71000000 GHz Start Freq: 1.70700000 GHz Stop Freq: 1.71300000 GHz CF Step: 600.000000 kHz Freq Offset: 0.00000000 Hz Signal Track: Off</p> <p>Band LTE4 3MHz CBE 16QAM Low Channel 1RB.gif</p>	<p>Agilent 21:46:22 Feb 2, 2015</p> <p>Center Freq: 1.71000000 GHz Start Freq: 1.70700000 GHz Stop Freq: 1.71300000 GHz CF Step: 600.000000 kHz Freq Offset: 0.00000000 Hz Signal Track: Off</p> <p>Band LTE4 3MHz CBE 16QAM Low Channel FRB.gif</p>
<p>Band LTE4 3MHz 16QAM</p>	<p>Agilent 21:47:17 Feb 2, 2015</p> <p>Center Freq: 1.75500000 GHz Start Freq: 1.75200000 GHz Stop Freq: 1.75800000 GHz CF Step: 600.000000 kHz Freq Offset: 0.00000000 Hz Signal Track: Off</p> <p>Band LTE4 3MHz CBE 16QAM High Channel 1RB.gif</p>	<p>Agilent 21:47:34 Feb 2, 2015</p> <p>Center Freq: 1.75500000 GHz Start Freq: 1.75200000 GHz Stop Freq: 1.75800000 GHz CF Step: 600.000000 kHz Freq Offset: 0.00000000 Hz Signal Track: Off</p> <p>Band LTE4 3MHz CBE 16QAM High Channel FRB.gif</p>

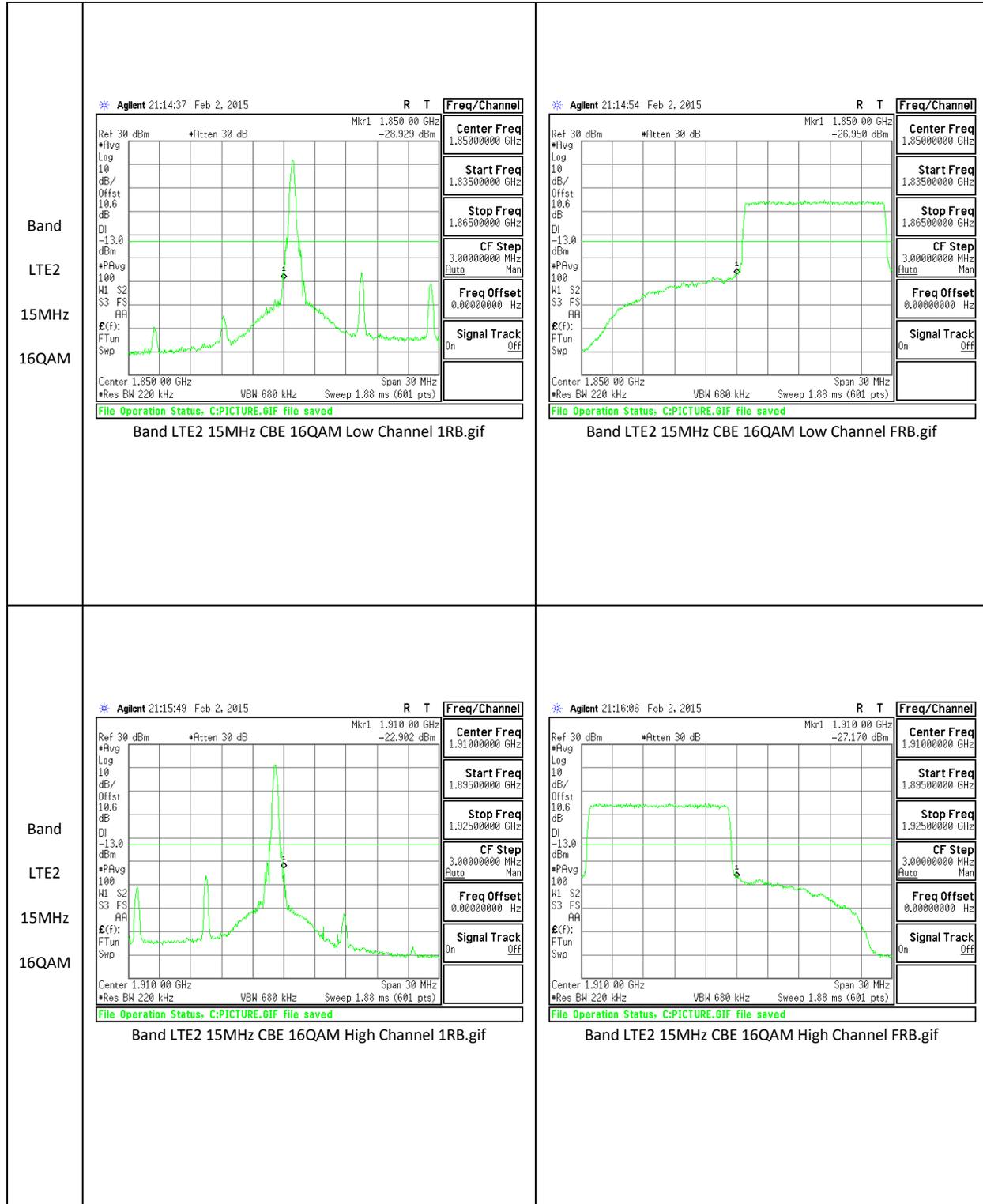


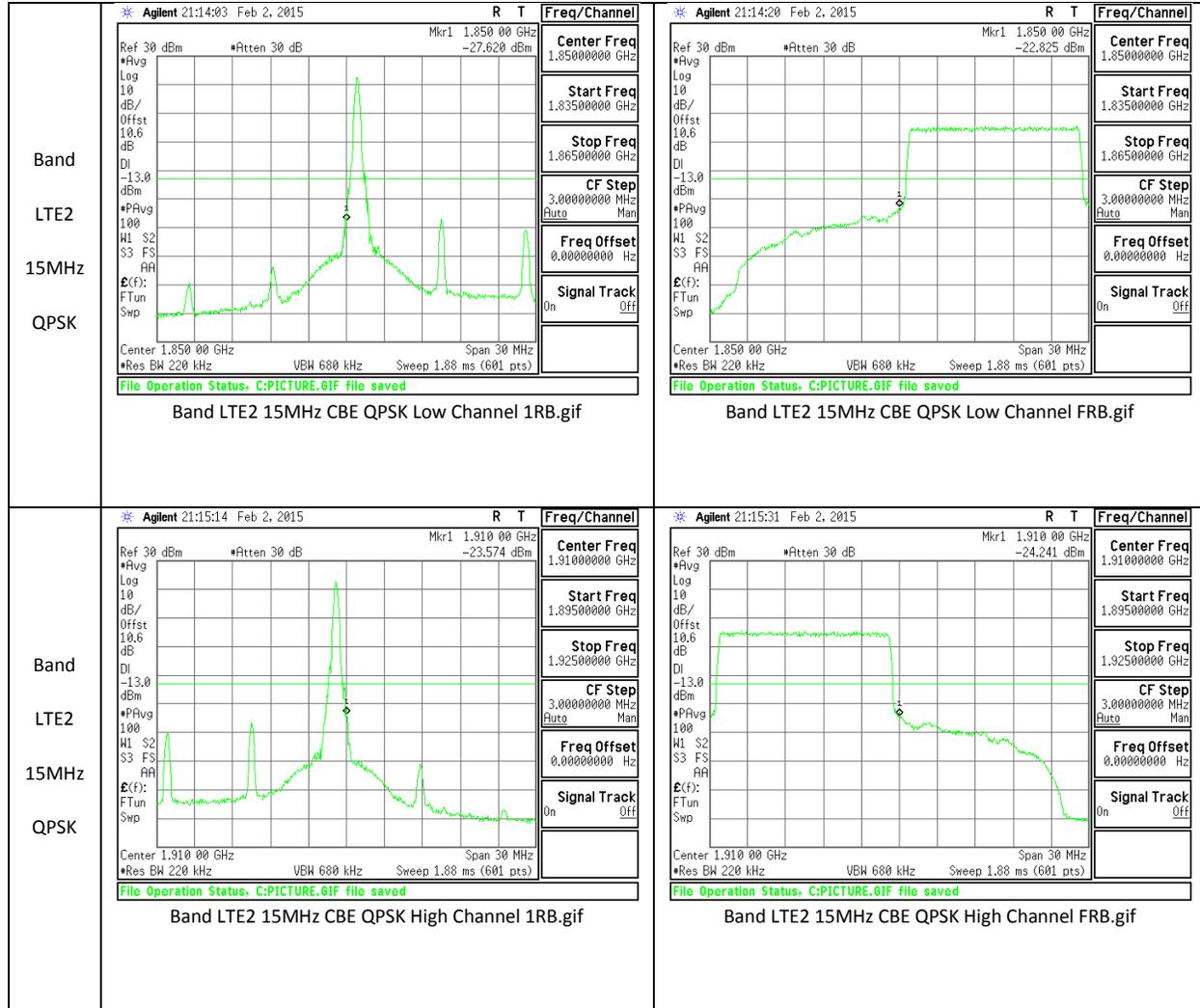


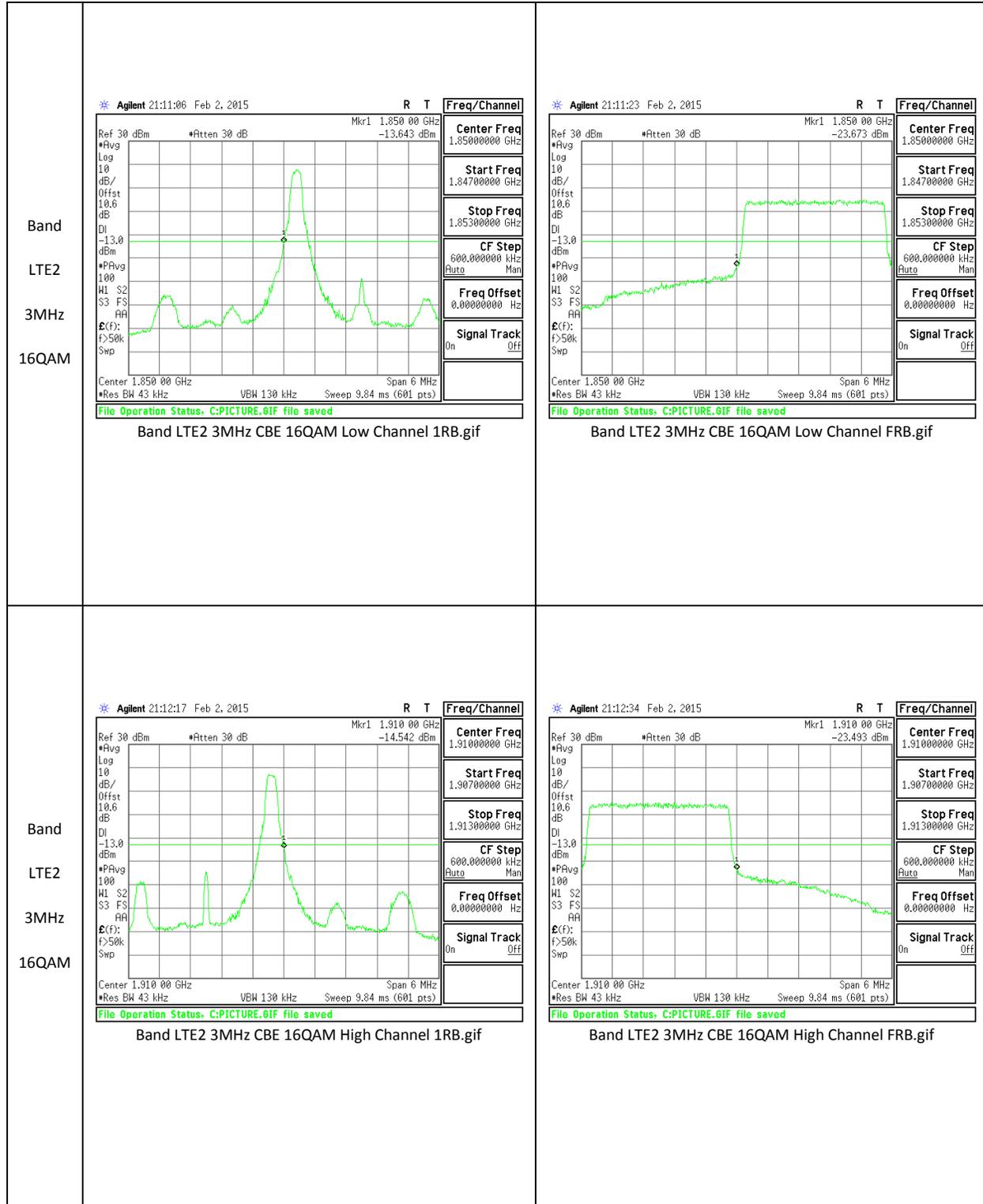


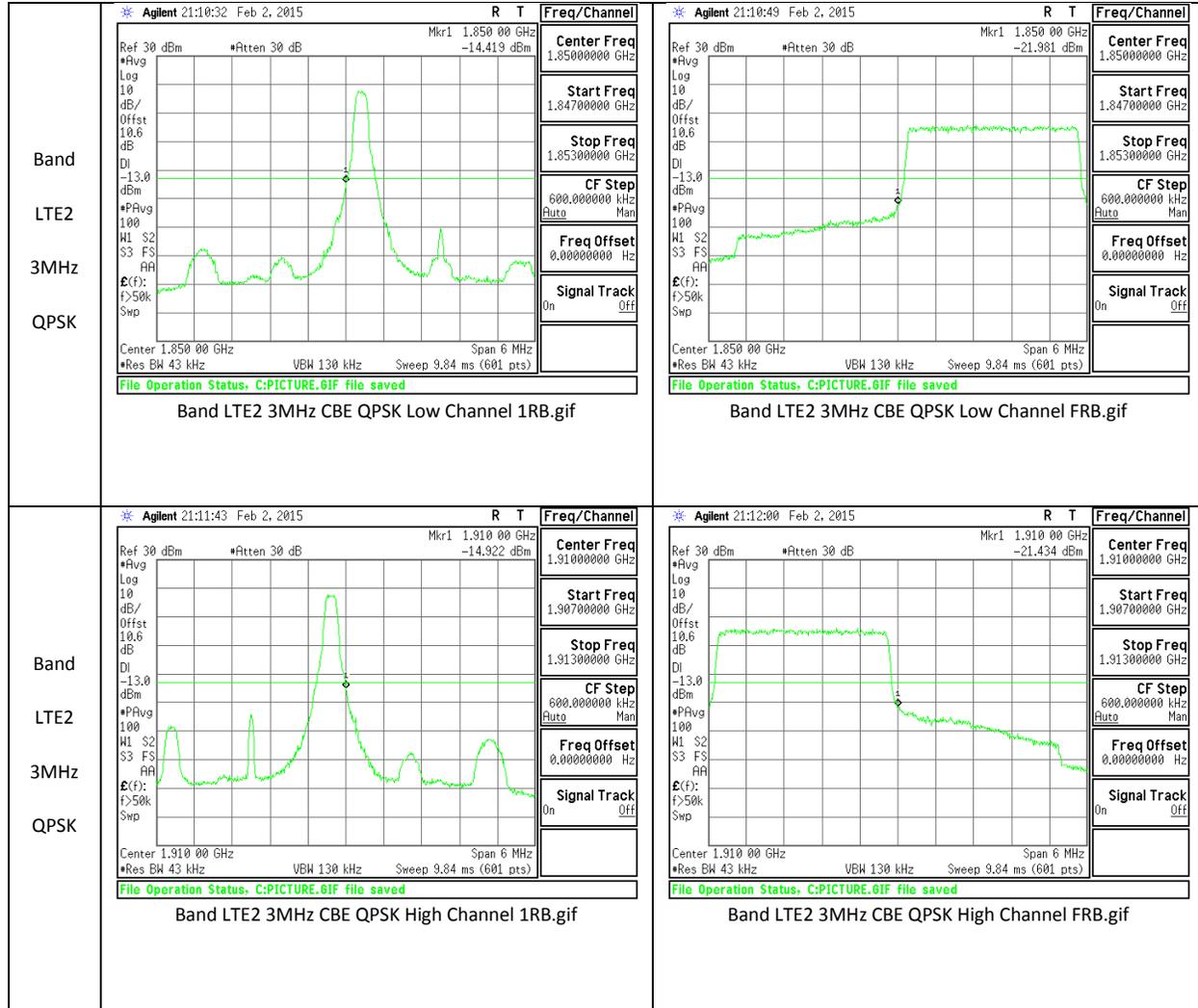


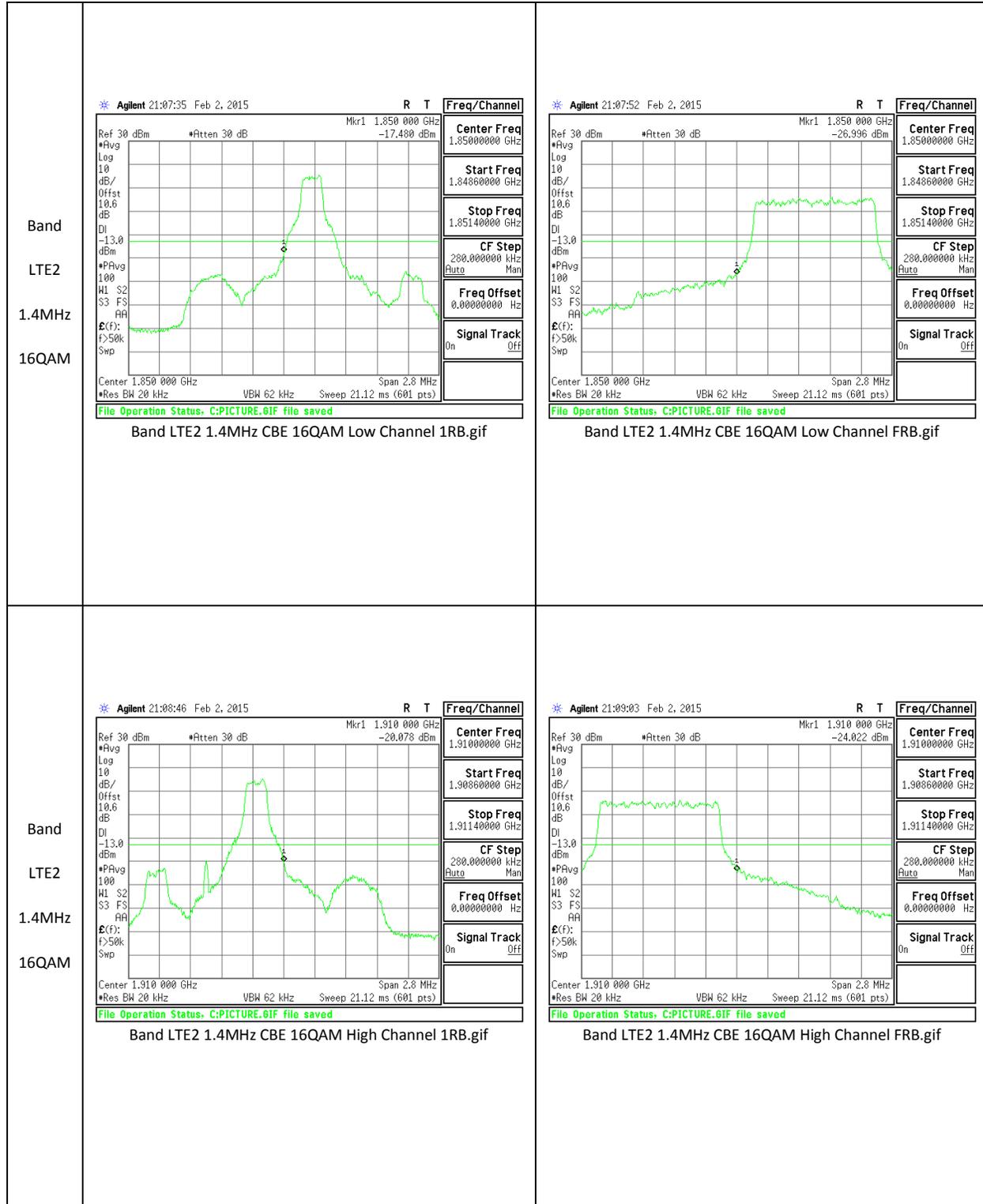


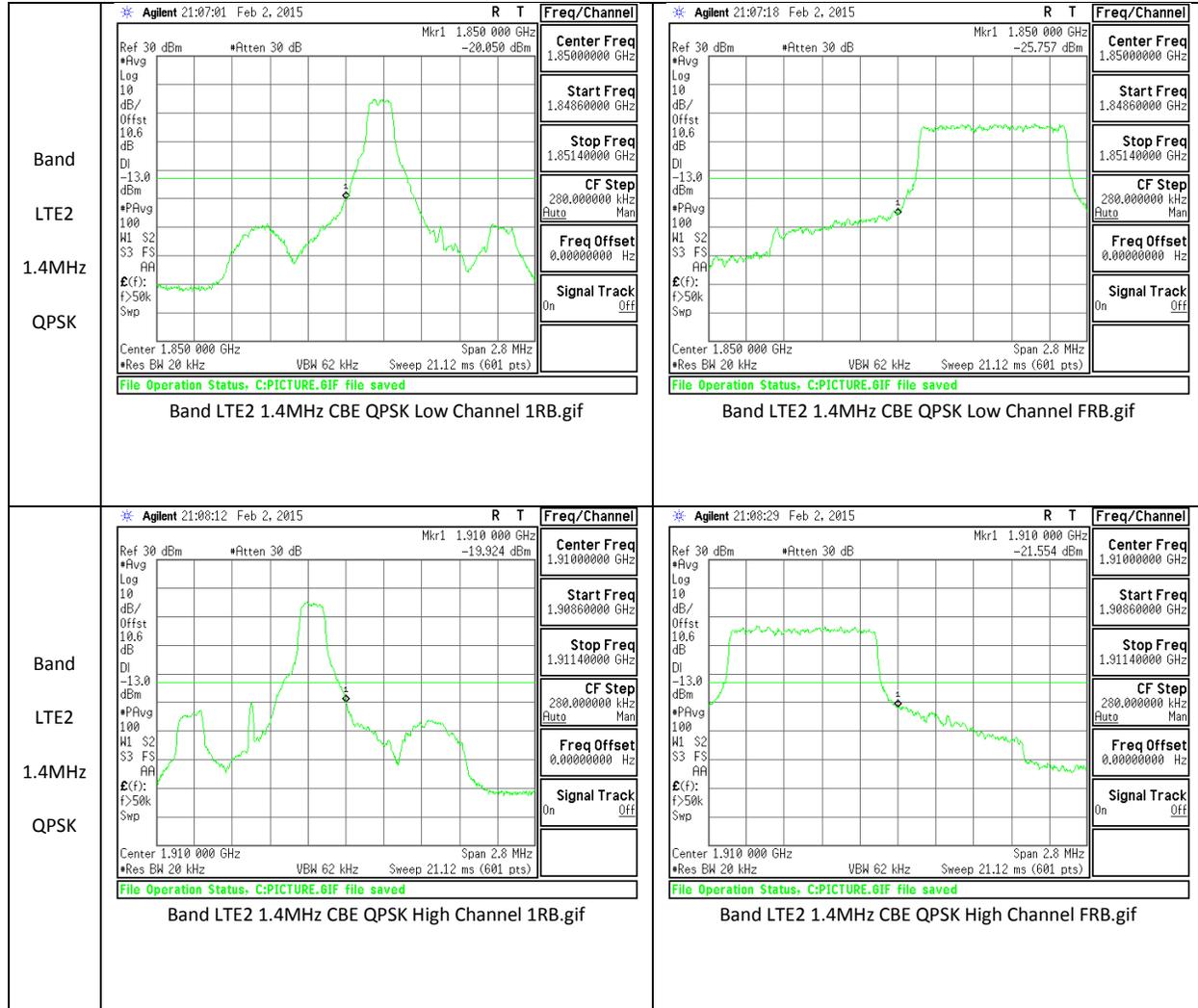












11.2. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53 and §90.691

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.

Part 27: (m)(4) For mobile station, the attenuation factor shall be not less than $43+10\log(P)$ dB at the channel edge and $(55+10\log(P)$ dB) at 5.5MHz from the channel edges.

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

GSM, WCDMA, LTE

RESULTS

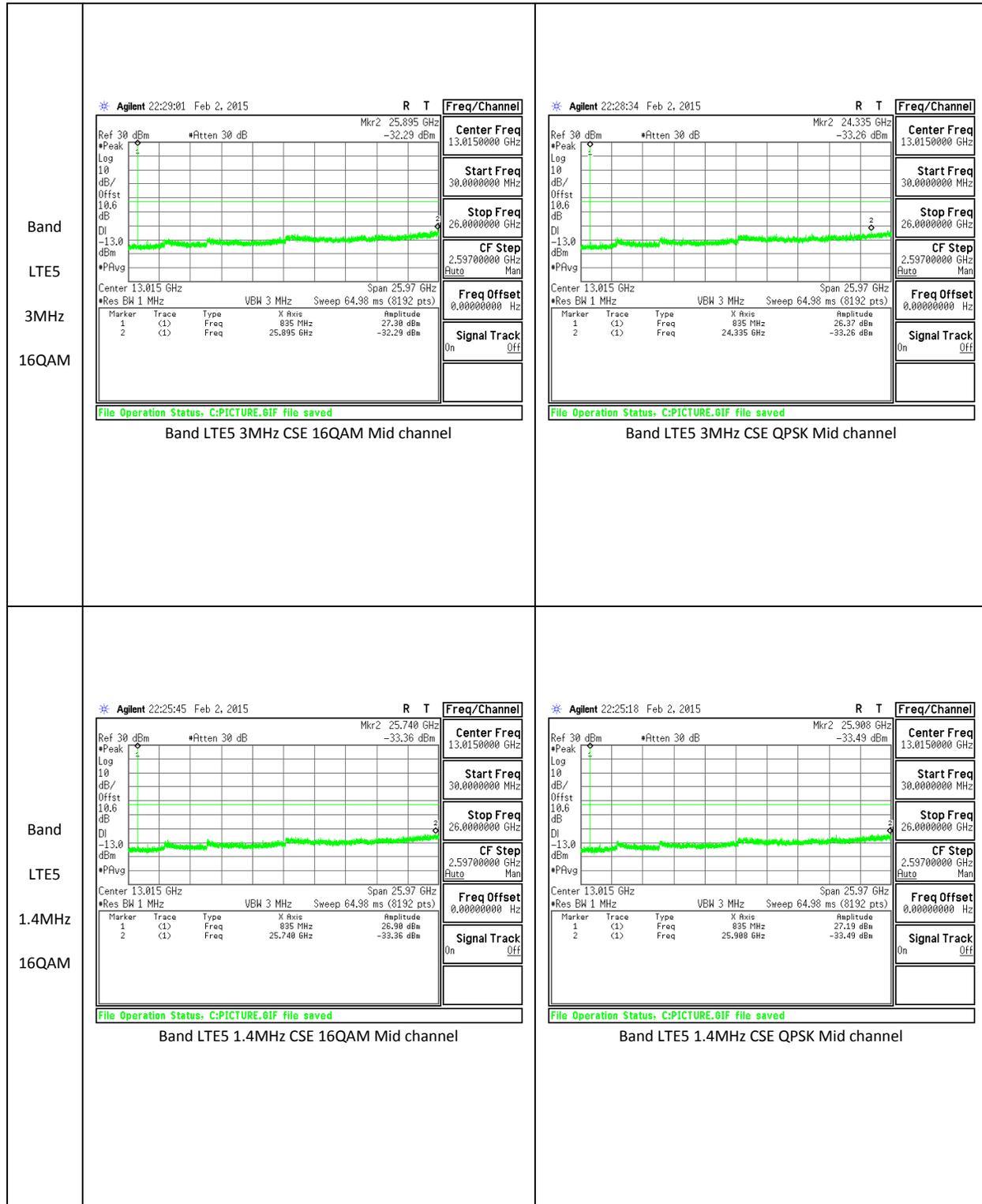
11.2.1. OUT OF BAND EMISSIONS RESULT

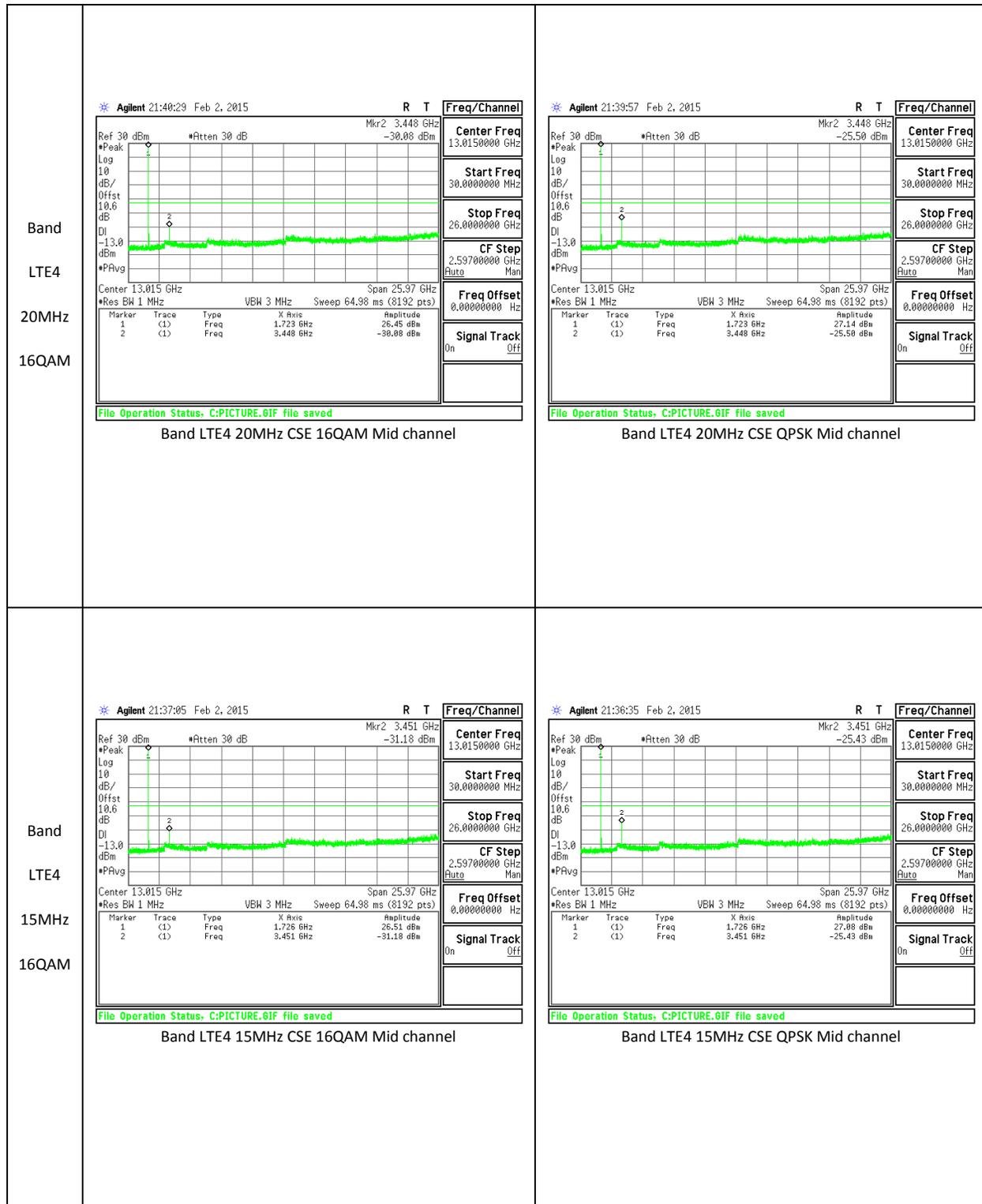
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	3	QPSK	825.5	-33.63	-13	-20.63
			836.5	-33.26	-13	-20.26
			847.5	-33.30	-13	-20.30
		16QAM	825.5	-33.03	-13	-20.03
			836.5	-32.29	-13	-19.29
			847.5	-33.39	-13	-20.39
	1.4	QPSK	824.7	-33.10	-13	-20.10
			836.5	-33.49	-13	-20.49
			848.3	-32.92	-13	-19.92
		16QAM	824.7	-33.63	-13	-20.63
			836.5	-33.36	-13	-20.36
			848.3	-33.04	-13	-20.04

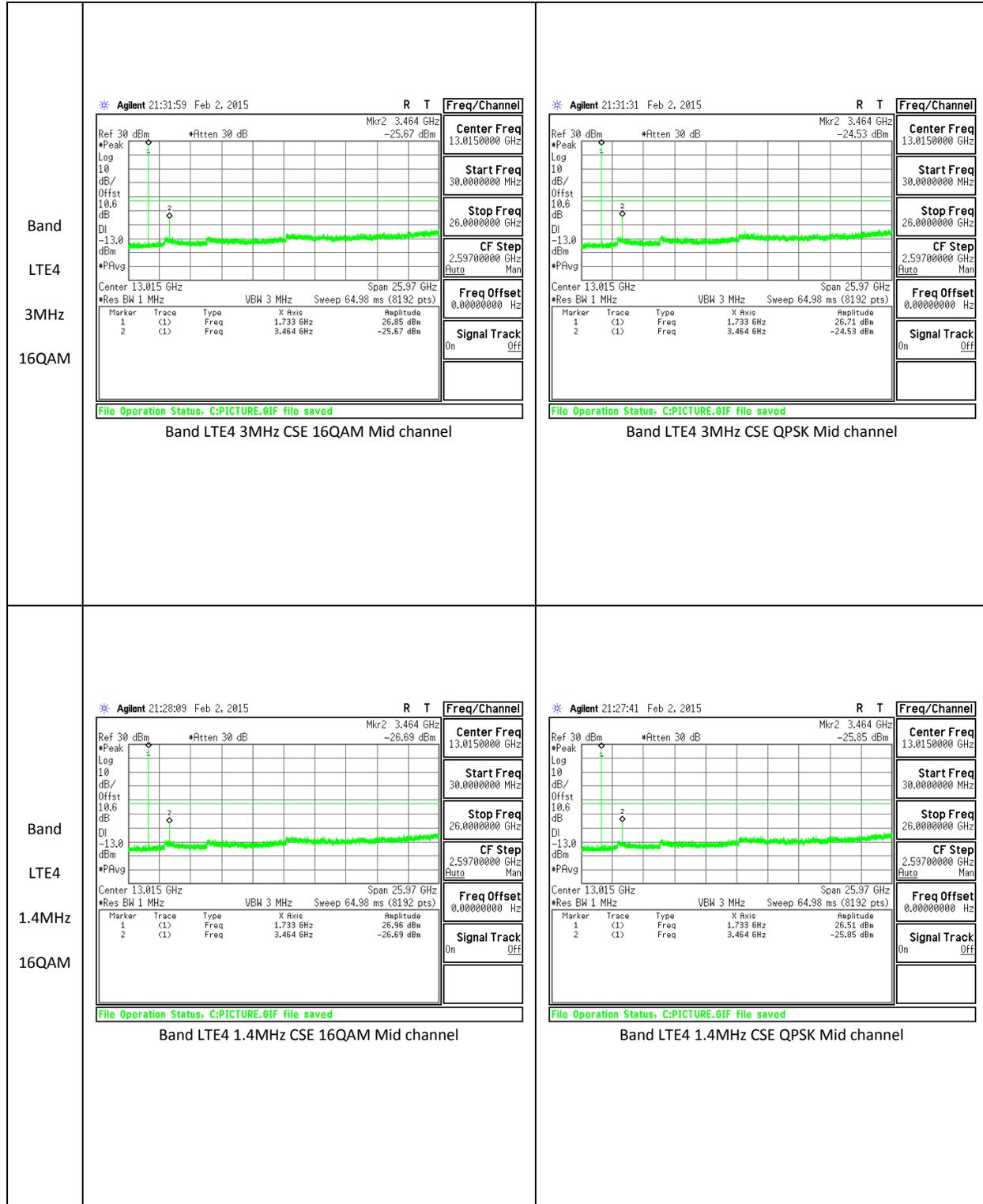
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	20	QPSK	1720	-22.83	-13	-9.83
			1732.5	-23.16	-13	-10.16
			1745	-22.49	-13	-9.49
		16QAM	1720	-25.27	-13	-12.27
			1732.5	-24.32	-13	-11.32
			1745	-22.80	-13	-9.80
	15	QPSK	1717.5	-24.67	-13	-11.67
			1732.5	-25.43	-13	-12.43
			1747.5	-22.78	-13	-9.78
		16QAM	1717.5	-21.51	-13	-8.51
			1732.5	-27.81	-13	-14.81
			1747.5	-26.24	-13	-13.24
	3	QPSK	1711.5	-22.66	-13	-9.66
			1732.5	-24.54	-13	-11.54
			1753.5	-26.18	-13	-13.18
		16QAM	1711.5	-21.41	-13	-8.41
			1732.5	-25.67	-13	-12.67
			1753.5	-26.77	-13	-13.77
	1.4	QPSK	1710.7	-21.44	-13	-8.44
			1732.5	-25.85	-13	-12.85
			1754.3	-25.61	-13	-12.61
		16QAM	1710.7	-22.27	-13	-9.27
			1732.5	-26.69	-13	-13.69
			1754.3	-23.71	-13	-10.71

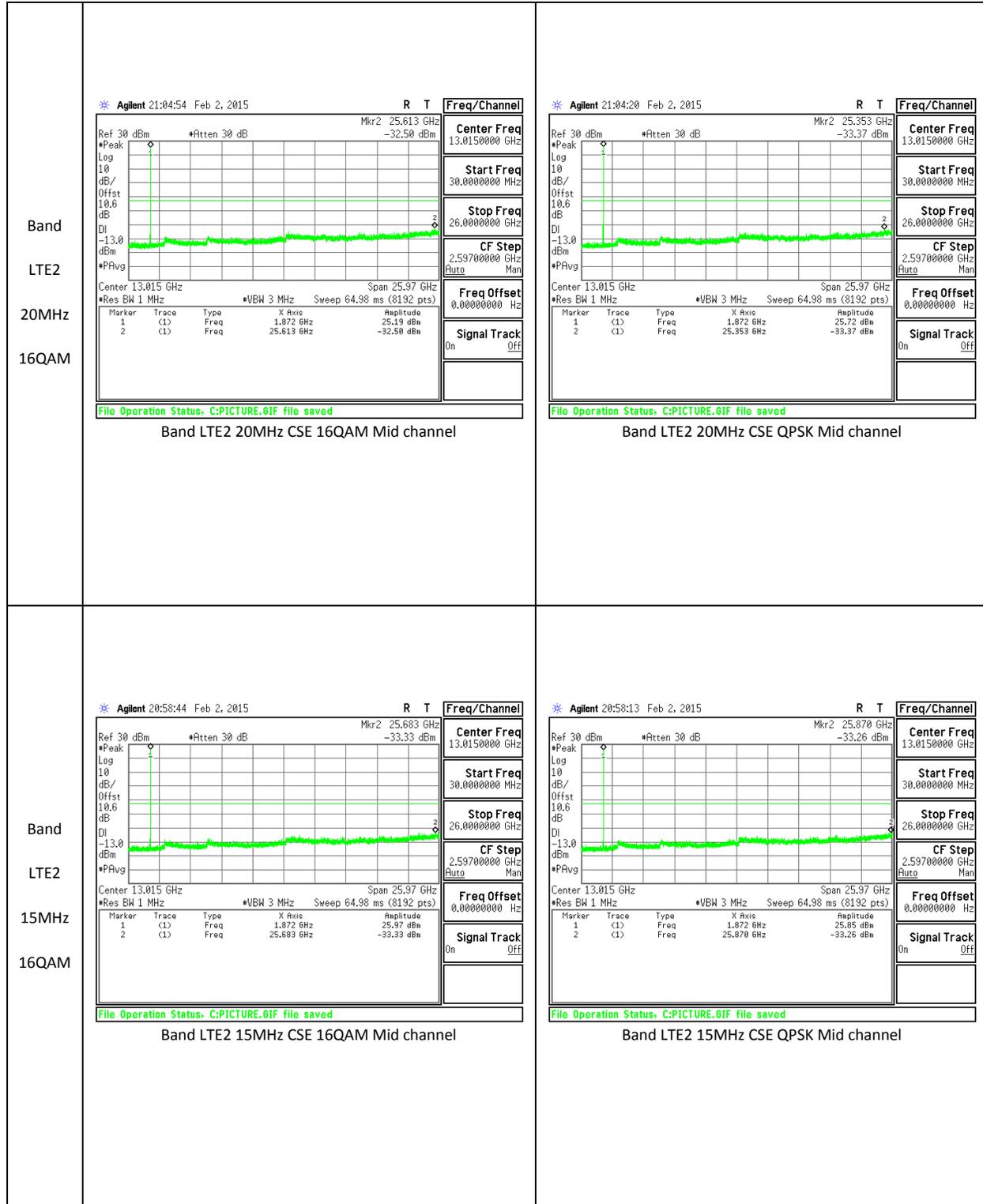
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	20	QPSK	1860	-23.16	-13	-10.16
			1880	-23.91	-13	-10.91
			1900	-23.35	-13	-10.35
		16QAM	1860	-23.89	-13	-10.89
			1880	-24.44	-13	-11.44
			1900	-23.49	-13	-10.49
	15	QPSK	1857.5	-27.05	-13	-14.05
			1880	-24.75	-13	-11.75
			1902.5	-24.60	-13	-11.60
		16QAM	1857.5	-27.51	-13	-14.51
			1880	-26.42	-13	-13.42
			1902.5	-24.06	-13	-11.06
	3	QPSK	1851.5	-33.24	-13	-20.24
			1880	-33.19	-13	-20.19
			1908.5	-33.18	-13	-20.18
		16QAM	1851.5	-33.48	-13	-20.48
			1880	-32.98	-13	-19.98
			1908.5	-33.52	-13	-20.52
	1.4	QPSK	1850.7	-33.27	-13	-20.27
			1880	-33.36	-13	-20.36
			1909.3	-33.05	-13	-20.05
		16QAM	1850.7	-33.49	-13	-20.49
			1880	-33.35	-13	-20.35
			1909.3	-33.58	-13	-20.58

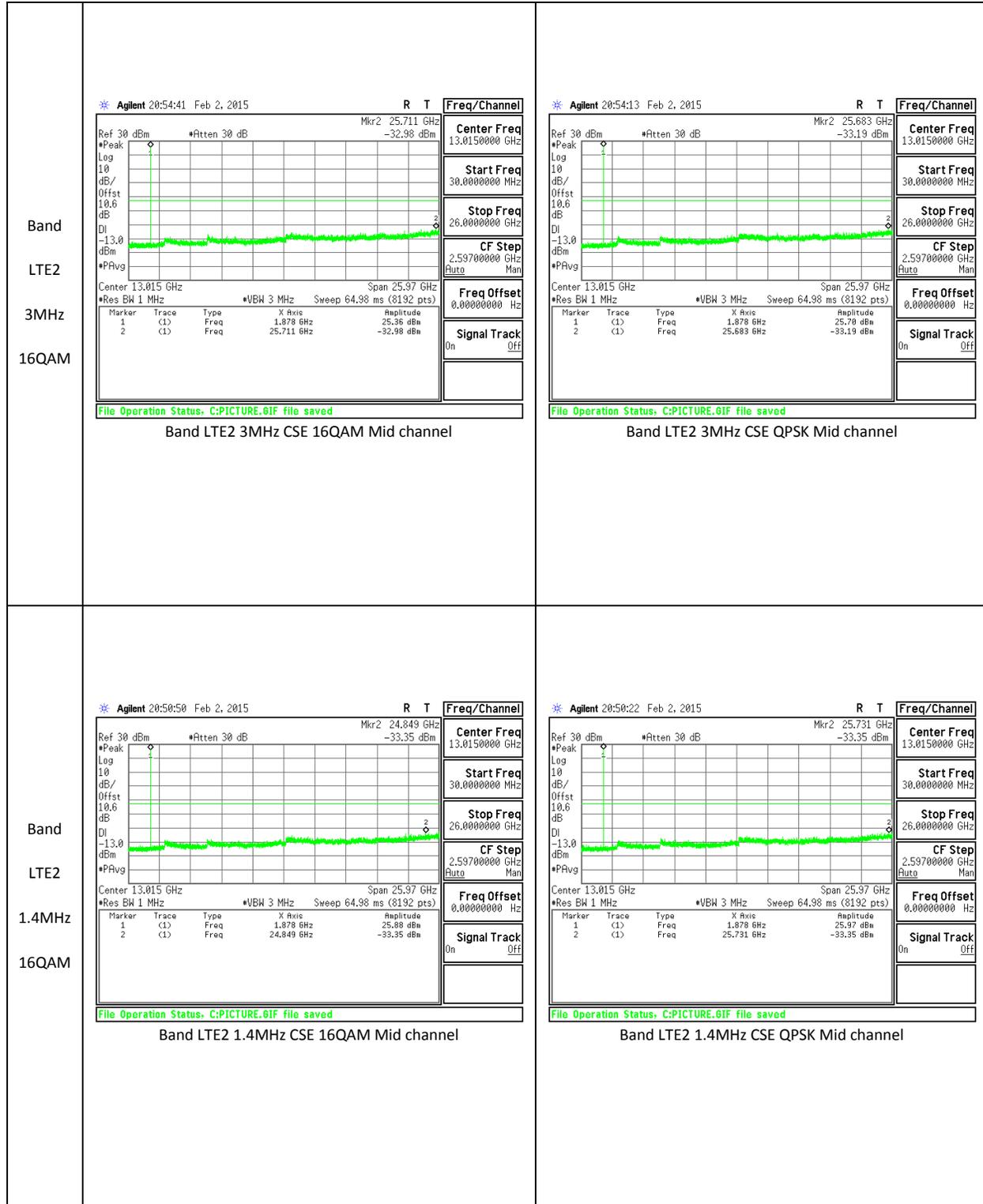
11.2.2. OUT OF BAND EMISSIONS PLOTS











12. RADIATED TEST RESULTS

12.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27.

LIMITS

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

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

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

27.50(c) - (10) Portable stations (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)

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

For average power measurement with a PSA:

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

MODES TESTED

GSM, WCDMA, and LTE

TEST RESULTS

12.1.1. ERP/EIRP Results

Band	Mode	Channel	f(MHz)	EIRP	
				dBm	mW
Band 2	REL99	9262	1852.4	24.96	313.33
		9400	1880	24.29	268.53
		9538	1907.6	24.81	302.69
	HSDPA	9262	1852.4	24.17	261.22
		9400	1880	24.11	257.63
		9538	1907.6	24.2	263.03

Band	Mode	Channel	f(MHz)	ERP	
				dBm	mW
Band 5	REL99	4132	826.4	18.773	75.39
		4183	836.6	18.9544	78.6
		4233	846.6	19.197	83.12
	HSDPA	4132	826.4	19.08	80.91
		4183	836.6	18.881	77.29
		4233	846.6	18.906	77.73

Band	Mode	Channel	f(MHz)	EIRP	
				dBm	mW
GSM1900	GPRS	512	1850.2	31.154	1304.37
		661	1880	30.64	1158.78
		810	1909.8	30.41	1099.01
	EGPRS	512	1850.2	27.64	580.76
		661	1880	27.71	590.20
		810	1909.8	27.31	538.27

Band	Mode	Channel	f(MHz)	ERP	
				dBm	mW
GSM850	GPRS	128	824.2	29.042	802.05
		190	836.6	28.249	668.19
		251	848.8	28.54	714.5
	EGPRS	128	824.2	26.15	412.10
		190	836.6	24.86	306.20
		251	848.8	24.56	285.76

12.1.2. LTE ERP/EIRP Results

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP	
					dBm	mW
LTE17	10	QPSK	1/0	709	19.54	89.95
			1/0	710	19.52	89.54
			1/0	711	19.54	89.95
		16QAM	1/0	709	18.81	76.03
			1/0	710	18.58	72.11
			1/0	711	18.94	78.34

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP	
					dBm	mW
LTE17	5	QPSK	1/0	706.5	19.56	90.36
			1/0	710	17.32	53.95
			1/0	713.5	18.92	77.98
		16QAM	1/0	706.5	18.15	65.31
			1/0	710	17.17	52.12
			1/0	713.5	17.88	61.38

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP	
					dBm	mW
LTE5	10	QPSK	1/0	829	19.28	84.72
			1/0	836.5	17.45	55.59
			1/0	844	18.06	63.97
		16QAM	1/0	829	18.71	74.3
			1/0	836.5	16.83	48.19
			1/0	844	16.94	49.43

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP	
					dBm	mW
LTE5	5	QPSK	1/0	826.5	19.03	79.98
			1/0	836.5	17.49	56.1
			1/0	846.5	17.98	62.81
		16QAM	1/0	826.5	18.04	63.68
			1/0	836.5	16.51	44.77
			1/0	846.5	16.64	46.13

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP	
					dBm	mW
LTE5	3	QPSK	1/0	825.5	18.98	79.07
			1/0	836.5	17.36	54.45
			1/0	847.5	17.83	60.67
		16QAM	1/0	825.5	18.4	69.18
			1/0	836.5	16.83	48.19
			1/0	847.5	17.17	52.12

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP	
					dBm	mW
LTE5	1.4	QPSK	1/0	824.7	19.26	84.33
			1/0	836.5	17.32	53.95
			1/0	848.3	17.87	61.24
		16QAM	1/0	824.7	18.48	70.47
			1/0	836.5	16.5	44.67
			1/0	848.3	16.9	48.98

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	EIRP	
					dBm	mW
LTE4	20	QPSK	1/0	1720	23.3068	214.13
			1/0	1732.5	23.47105	222.38
			1/0	1745	23.3953	218.54
		16QAM	1/0	1720	22.4168	174.45
			1/0	1732.5	22.47105	176.65
			1/0	1745	22.7253	187.3

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	EIRP	
					dBm	mW
LTE4	15	QPSK	1/0	1717.5	23.22595	210.18
			1/0	1732.5	23.77105	238.29
			1/0	1747.5	23.10615	204.46
		16QAM	1/0	1717.5	22.32595	170.84
			1/0	1732.5	22.87105	193.69
			1/0	1747.5	22.21615	166.58

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	EIRP	
					dBm	mW
LTE4	10	QPSK	1/0	1715	22.830838	191.9
			1/0	1732.5	23.52105	224.96
			1/0	1750	22.731262	187.55
		16QAM	1/0	1715	21.950838	156.71
			1/0	1732.5	22.52105	178.69
			1/0	1750	21.581262	143.92

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	EIRP	
					dBm	mW
LTE4	5	QPSK	1/0	1712.5	22.18425	165.36
			1/0	1732.5	22.72105	187.11
			1/0	1752.5	23.01785	200.35
		16QAM	1/0	1712.5	21.24425	133.18
			1/0	1732.5	21.82105	152.09
			1/0	1752.5	21.88785	154.45

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	EIRP	
					dBm	mW
LTE4	3	QPSK	1/0	1711.5	23.23791	210.76
			1/0	1732.5	23.80105	239.94
			1/0	1753.5	23.59419	228.78
		16QAM	1/0	1711.5	22.34791	171.71
			1/0	1732.5	22.87105	193.69
			1/0	1753.5	22.69419	185.96

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	EIRP	
					dBm	mW
LTE4	1.4	QPSK	1/0	1710.7	23.000838	199.56
			1/0	1732.5	23.07105	202.82
			1/0	1754.3	23.481262	222.91
		16QAM	1/0	1710.7	22.050838	160.36
			1/0	1732.5	21.97105	157.44
			1/0	1754.3	22.491262	177.47

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	EIRP	
					dBm	mW
LTE2	20	QPSK	1/0	1860	26.4326	439.8
			1/0	1880	25.6788	369.73
			1/0	1900	25.355	343.16
		16QAM	1/0	1860	25.3326	341.4
			1/0	1880	24.7688	299.83
			1/0	1900	24.255	266.38

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	EIRP	
					dBm	mW
LTE2	15	QPSK	1/0	1857.5	26.114325	408.73
			1/0	1880	25.5088	355.53
			1/0	1902.5	25.562225	359.93
		16QAM	1/0	1857.5	25.234325	333.76
			1/0	1880	24.5688	286.34
			1/0	1902.5	24.462225	279.4

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	EIRP	
					dBm	mW
LTE2	10	QPSK	1/0	1855	25.68605	370.34
			1/0	1880	25.8388	383.6
			1/0	1905	26.08945	406.39
		16QAM	1/0	1855	24.73605	297.58
			1/0	1880	24.8688	306.82
			1/0	1905	25.06945	321.33

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	EIRP	
					dBm	mW
LTE2	5	QPSK	1/0	1852.5	25.337775	341.8
			1/0	1880	25.75	375.84
			1/0	1907.5	25.376675	344.88
		16QAM	1/0	1852.5	24.337775	271.5
			1/0	1880	24.4688	279.82
			1/0	1907.5	24.476675	280.33

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	EIRP	
					dBm	mW
LTE2	3	QPSK	1/0	1851.5	25.528465	357.15
			1/0	1880	25.8688	386.26
			1/0	1908.5	25.679565	369.79
		16QAM	1/0	1851.5	24.638465	290.97
			1/0	1880	24.9688	313.96
			1/0	1908.5	24.779565	300.58

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	EIRP	
					dBm	mW
LTE2	1.4	QPSK	1/0	1850.7	25.839017	383.62
			1/0	1880	26.1688	413.89
			1/0	1909.3	25.081877	322.25
		16QAM	1/0	1850.7	24.939017	311.82
			1/0	1880	25.2688	336.42
			1/0	1909.3	24.181877	261.93

12.1.3. ERP/EIRP PLOTS

Band LTE17 10MHz 16QAM	<p>High Frequency Substitution Measurement UL Verification Services, Inc.</p>																																																																																																					
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829.00	19.61	V	0.9	0.0	18.71	38.5	-19.8																																																																																											
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836.50	18.22	V	0.9	0.0	17.32	38.5	-21.2																																																																																											
836.50	9.98	H	0.9	0.0	9.08	38.5	-29.4																																																																																											
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848.30	18.77	V	0.9	0.0	17.87	38.5	-20.6																																																																																											
848.30	10.51	H	0.9	0.0	9.61	38.5	-28.9																																																																																											

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Band LTE2 1.4MHz 16QAM	High Frequency Substitution Measurement UL Verification Services, Inc.																																																																																																	
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Band Band 2 HSDPA	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber C																																																																																										
	<p> Company: LG Project #: 15I19923 Date: 02/10/15 Test Engineer: K.Kedida Configuration: EUT Only Location: Chamber C Mode: HSDPA B2 </p> <p> Test Equipment: Receiving: Horn T119, and Chamber C SMA Cables Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse </p>																																																																																										
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Band Band 2 REL99	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber C								
	Company: LG Project #: 15I19923 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	15.45	V	0.9	8.0	22.56	33.0	-10.4	
	1852.40	17.85	H	0.9	8.0	24.96	33.0	-8.0	
	Mid Ch								
	1880.00	14.71	V	0.9	8.0	21.82	33.0	-11.2	
	1880.00	17.18	H	0.9	8.0	24.29	33.0	-8.7	
High Ch									
1907.60	14.49	V	0.9	8.0	21.60	33.0	-11.4		
1907.60	17.70	H	0.9	8.0	24.81	33.0	-8.2		
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Band Band 5 HSDPA	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber B																																																																																																	
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	Receiving: Hybrid T243, and Chamber B SMA Cables Substitution: Dipole T416, 4ft SMA Cable Warehouse																																																																																																	
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Band GSM 1900 EGPRS	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber C								
	Company:		LG						
	Project #:		15I19923						
	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	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1850.20	18.65	V	0.9	8.0	25.76	33.0	-7.2	
	1850.20	20.53	H	0.9	8.0	27.64	33.0	-5.4	
	Mid Ch								
	1880.00	18.40	V	0.9	8.0	25.51	33.0	-7.5	
	1880.00	20.60	H	0.9	8.0	27.71	33.0	-5.3	
	High Ch								
	1909.80	17.79	V	0.9	8.0	24.90	33.0	-8.1	
	1909.80	20.20	H	0.9	8.0	27.31	33.0	-5.7	
Rev. 3.17.11									
Note: For Band 4 EIRP limit is 30dBm									

Band GSM 1900 GPRS	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber C																																																																																																
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12.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

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

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

12.2.1. SPURIOUS RADIATION PLOTS

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/11/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset, X Position								
Location:		Chamber B								
Mode:		LTE_16QAM Band 17 Harmonics, 10MHz Bandwidth								
Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
LTE17										
10MHz										
16QAM	Mid Ch, 710									
	1420.00	-29.4	V	3.0	37.3	1.0	-65.7	-13.0	-52.7	
	2130.00	-20.3	V	3.0	36.6	1.0	-55.9	-13.0	-42.9	
	2840.00	-25.2	V	3.0	36.4	1.0	-60.6	-13.0	-47.6	
	1420.00	-28.8	H	3.0	37.3	1.0	-65.1	-13.0	-52.1	
	2130.00	-22.2	H	3.0	36.6	1.0	-57.8	-13.0	-44.8	
	2840.00	-25.9	H	3.0	36.4	1.0	-61.3	-13.0	-48.3	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
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Project #:		15119923								
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Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset, X Position								
Location:		Chamber B								
Mode:		LTE_16QAM Band 17 Harmonics, 5MHz Bandwidth								
Band	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									
LTE17	1413.00	-30.4	V	3.0	37.4	1.0	-66.7	-13.0	-53.7	
	2119.50	-19.2	V	3.0	36.6	1.0	-54.8	-13.0	-41.8	
	2826.00	-25.3	V	3.0	36.4	1.0	-60.7	-13.0	-47.7	
5MHz	1413.00	-29.2	H	3.0	37.4	1.0	-65.5	-13.0	-52.5	
	2119.50	-23.7	H	3.0	36.6	1.0	-59.3	-13.0	-46.3	
	2826.00	-26.0	H	3.0	36.4	1.0	-61.4	-13.0	-48.4	
16QAM	Mid Ch, 710									
	1420.00	-27.1	V	3.0	37.3	1.0	-63.5	-13.0	-50.5	
	2130.00	-17.4	V	3.0	36.6	1.0	-53.0	-13.0	-40.0	
	2840.00	-25.4	V	3.0	36.4	1.0	-60.7	-13.0	-47.7	
	1420.00	-24.8	H	3.0	37.3	1.0	-61.2	-13.0	-48.2	
	2130.00	-19.4	H	3.0	36.6	1.0	-54.9	-13.0	-41.9	
	2840.00	-26.1	H	3.0	36.4	1.0	-61.5	-13.0	-48.5	
	High Ch, 713.5									
	1427.00	-24.6	V	3.0	37.3	1.0	-60.9	-13.0	-47.9	
	2140.50	-20.9	V	3.0	36.6	1.0	-56.4	-13.0	-43.4	
	2854.00	-24.9	V	3.0	36.4	1.0	-60.3	-13.0	-47.3	
	1427.00	-20.7	H	3.0	37.3	1.0	-57.1	-13.0	-44.1	
	2140.50	-21.3	H	3.0	36.6	1.0	-56.9	-13.0	-43.9	
	2854.00	-26.1	H	3.0	36.4	1.0	-61.5	-13.0	-48.5	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/11/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset, X Position								
Location:		Chamber B								
Mode:		LTE_QPSK Band 17 Harmonics, 5MHz Bandwidth								
Band	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	-30.0	V	3.0	37.4	1.0	-66.4	-13.0	-53.4	
LTE17	2119.50	-18.9	V	3.0	36.6	1.0	-54.4	-13.0	-41.4	
	2826.00	-25.0	V	3.0	36.4	1.0	-60.4	-13.0	-47.4	
5MHz	1413.00	-28.8	H	3.0	37.4	1.0	-65.2	-13.0	-52.2	
	2119.50	-23.4	H	3.0	36.6	1.0	-58.9	-13.0	-45.9	
QPSK	2826.00	-25.7	H	3.0	36.4	1.0	-61.1	-13.0	-48.1	
	Mid Ch, 710									
	1420.00	-26.8	V	3.0	37.3	1.0	-63.2	-13.0	-50.2	
	2130.00	-17.1	V	3.0	36.6	1.0	-52.6	-13.0	-39.6	
	2840.00	-25.0	V	3.0	36.4	1.0	-60.4	-13.0	-47.4	
	1420.00	-24.5	H	3.0	37.3	1.0	-60.8	-13.0	-47.8	
	2130.00	-19.1	H	3.0	36.6	1.0	-54.6	-13.0	-41.6	
	2840.00	-25.8	H	3.0	36.4	1.0	-61.2	-13.0	-48.2	
	High Ch, 713.5									
	1427.00	-24.3	V	3.0	37.3	1.0	-60.6	-13.0	-47.6	
	2140.50	-20.5	V	3.0	36.6	1.0	-56.1	-13.0	-43.1	
	2854.00	-24.6	V	3.0	36.4	1.0	-60.0	-13.0	-47.0	
	1427.00	-20.4	H	3.0	37.3	1.0	-56.7	-13.0	-43.7	
	2140.50	-21.0	H	3.0	36.6	1.0	-56.6	-13.0	-43.6	
	2854.00	-25.8	H	3.0	36.4	1.0	-61.2	-13.0	-48.2	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/11/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset								
Location:		Chamber B								
Mode:		LTE_16QAM Band 5 Harmonics, 10MHz Bandwidth								
Band	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	-24.1	V	3.0	37.0	1.0	-60.1	-13.0	-47.1	
	2487.00	-25.2	V	3.0	36.4	1.0	-60.7	-13.0	-47.7	
	3316.00	-25.0	V	3.0	36.1	1.0	-60.2	-13.0	-47.2	
10MHz	1658.00	-24.1	H	3.0	37.0	1.0	-60.1	-13.0	-47.1	
	2487.00	-27.2	H	3.0	36.4	1.0	-62.6	-13.0	-49.6	
	3316.00	-24.6	H	3.0	36.1	1.0	-59.7	-13.0	-46.7	
16QAM	Mid Ch, 836.5									
	1673.00	-19.5	V	3.0	37.0	1.0	-55.5	-13.0	-42.5	
	2509.50	-23.9	V	3.0	36.4	1.0	-59.3	-13.0	-46.3	
	3346.00	-24.6	V	3.0	36.1	1.0	-59.7	-13.0	-46.7	
	1673.00	-18.3	H	3.0	37.0	1.0	-54.3	-13.0	-41.3	
	2509.50	-24.9	H	3.0	36.4	1.0	-60.3	-13.0	-47.3	
	3346.00	-23.8	H	3.0	36.1	1.0	-58.9	-13.0	-45.9	
	High Ch, 844									
	1688.00	-20.0	V	3.0	37.0	1.0	-55.9	-13.0	-42.9	
	2532.00	-26.3	V	3.0	36.4	1.0	-61.7	-13.0	-48.7	
	3376.00	-24.3	V	3.0	36.1	1.0	-59.4	-13.0	-46.4	
	1688.00	-21.7	H	3.0	37.0	1.0	-57.7	-13.0	-44.7	
	2532.00	-27.7	H	3.0	36.4	1.0	-63.1	-13.0	-50.1	
	3376.00	-24.4	H	3.0	36.1	1.0	-59.5	-13.0	-46.5	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/11/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset								
Location:		Chamber B								
Mode:		LTE_QPSK Band 5 Harmonics, 10MHz Bandwidth								
Band	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	-23.7	V	3.0	37.0	1.0	-59.7	-13.0	-46.7	
	2487.00	-24.9	V	3.0	36.4	1.0	-60.3	-13.0	-47.3	
	3316.00	-24.7	V	3.0	36.1	1.0	-59.8	-13.0	-46.8	
10MHz	1658.00	-23.7	H	3.0	37.0	1.0	-59.8	-13.0	-46.8	
	2487.00	-26.9	H	3.0	36.4	1.0	-62.3	-13.0	-49.3	
	3316.00	-24.2	H	3.0	36.1	1.0	-59.4	-13.0	-46.4	
QPSK	Mid Ch, 836.5									
	1673.00	-19.2	V	3.0	37.0	1.0	-55.2	-13.0	-42.2	
	2509.50	-23.6	V	3.0	36.4	1.0	-59.0	-13.0	-46.0	
	3346.00	-24.3	V	3.0	36.1	1.0	-59.4	-13.0	-46.4	
	1673.00	-17.9	H	3.0	37.0	1.0	-53.9	-13.0	-40.9	
	2509.50	-24.6	H	3.0	36.4	1.0	-60.0	-13.0	-47.0	
	3346.00	-23.5	H	3.0	36.1	1.0	-58.6	-13.0	-45.6	
	High Ch, 844									
	1688.00	-19.6	V	3.0	37.0	1.0	-55.6	-13.0	-42.6	
	2532.00	-25.9	V	3.0	36.4	1.0	-61.3	-13.0	-48.3	
	3376.00	-24.0	V	3.0	36.1	1.0	-59.1	-13.0	-46.1	
	1688.00	-21.4	H	3.0	37.0	1.0	-57.4	-13.0	-44.4	
	2532.00	-27.3	H	3.0	36.4	1.0	-62.7	-13.0	-49.7	
	3376.00	-24.1	H	3.0	36.1	1.0	-59.2	-13.0	-46.2	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/11/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset								
Location:		Chamber B								
Mode:		LTE_16QAM Band 5 Harmonics, 5MHz Bandwidth								
Band	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	-23.4	V	3.0	37.0	1.0	-59.4	-13.0	-46.4	
	2479.50	-18.7	V	3.0	36.4	1.0	-54.1	-13.0	-41.1	
	3306.00	-23.0	V	3.0	36.1	1.0	-58.1	-13.0	-45.1	
5MHz	1653.00	-22.9	H	3.0	37.0	1.0	-58.9	-13.0	-45.9	
	2479.50	-26.1	H	3.0	36.4	1.0	-61.5	-13.0	-48.5	
	3306.00	-22.5	H	3.0	36.1	1.0	-57.6	-13.0	-44.6	
16QAM	Mid Ch, 836.5									
	1673.00	-22.3	V	3.0	37.0	1.0	-58.3	-13.0	-45.3	
	2509.50	-24.3	V	3.0	36.4	1.0	-59.8	-13.0	-46.8	
	3346.00	-25.0	V	3.0	36.1	1.0	-60.1	-13.0	-47.1	
	1673.00	-18.5	H	3.0	37.0	1.0	-54.5	-13.0	-41.5	
	2509.50	-25.7	H	3.0	36.4	1.0	-61.1	-13.0	-48.1	
	3346.00	-24.6	H	3.0	36.1	1.0	-59.7	-13.0	-46.7	
	High Ch, 846.5									
	1693.00	-18.6	V	3.0	37.0	1.0	-54.6	-13.0	-41.6	
	2539.50	-26.2	V	3.0	36.4	1.0	-61.6	-13.0	-48.6	
	3386.00	-24.0	V	3.0	36.1	1.0	-59.1	-13.0	-46.1	
	1693.00	-16.9	H	3.0	37.0	1.0	-52.9	-13.0	-39.9	
	2539.50	-27.6	H	3.0	36.4	1.0	-63.0	-13.0	-50.0	
	3386.00	-24.5	H	3.0	36.1	1.0	-59.6	-13.0	-46.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/11/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset								
Location:		Chamber B								
Mode:		LTE_QPSK Band 5 Harmonics, 5MHz Bandwidth								
Band	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	-23.0	V	3.0	37.0	1.0	-59.0	-13.0	-46.0	
LTE5	2479.50	-18.3	V	3.0	36.4	1.0	-53.8	-13.0	-40.8	
	3306.00	-22.6	V	3.0	36.1	1.0	-57.7	-13.0	-44.7	
5MHz	1653.00	-22.5	H	3.0	37.0	1.0	-58.5	-13.0	-45.5	
	2479.50	-25.7	H	3.0	36.4	1.0	-61.1	-13.0	-48.1	
QPSK	3306.00	-22.1	H	3.0	36.1	1.0	-57.3	-13.0	-44.3	
	Mid Ch, 836.5									
	1673.00	-21.9	V	3.0	37.0	1.0	-57.9	-13.0	-44.9	
	2509.50	-24.0	V	3.0	36.4	1.0	-59.4	-13.0	-46.4	
	3346.00	-24.6	V	3.0	36.1	1.0	-59.7	-13.0	-46.7	
	1673.00	-18.1	H	3.0	37.0	1.0	-54.1	-13.0	-41.1	
	2509.50	-25.3	H	3.0	36.4	1.0	-60.7	-13.0	-47.7	
	3346.00	-24.2	H	3.0	36.1	1.0	-59.3	-13.0	-46.3	
	High Ch, 846.5									
	1693.00	-18.2	V	3.0	37.0	1.0	-54.2	-13.0	-41.2	
	2539.50	-25.8	V	3.0	36.4	1.0	-61.2	-13.0	-48.2	
	3386.00	-23.7	V	3.0	36.1	1.0	-58.8	-13.0	-45.8	
	1693.00	-16.5	H	3.0	37.0	1.0	-52.5	-13.0	-39.5	
	2539.50	-27.2	H	3.0	36.4	1.0	-62.7	-13.0	-49.7	
	3386.00	-24.1	H	3.0	36.1	1.0	-59.2	-13.0	-46.2	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/11/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset								
Location:		Chamber B								
Mode:		LTE_16QAM Band 5 Harmonics, 3MHz Bandwidth								
Band	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	-22.1	V	3.0	37.0	1.0	-58.2	-13.0	-45.2	
	2476.50	-26.4	V	3.0	36.4	1.0	-61.8	-13.0	-48.8	
	3302.00	-25.2	V	3.0	36.2	1.0	-60.4	-13.0	-47.4	
	3MHz									
	1651.00	-23.1	H	3.0	37.0	1.0	-59.1	-13.0	-46.1	
	2476.50	-27.9	H	3.0	36.4	1.0	-63.4	-13.0	-50.4	
	3302.00	-24.5	H	3.0	36.2	1.0	-59.7	-13.0	-46.7	
	16QAM									
	Mid Ch, 836.5									
	1673.00	-21.5	V	3.0	37.0	1.0	-57.5	-13.0	-44.5	
	2509.50	-25.3	V	3.0	36.4	1.0	-60.7	-13.0	-47.7	
	3346.00	-24.7	V	3.0	36.1	1.0	-59.9	-13.0	-46.9	
	1673.00	-20.3	H	3.0	37.0	1.0	-56.3	-13.0	-43.3	
	2509.50	-25.8	H	3.0	36.4	1.0	-61.2	-13.0	-48.2	
	3346.00	-25.0	H	3.0	36.1	1.0	-60.1	-13.0	-47.1	
	High Ch, 847.5									
	1695.00	-16.5	V	3.0	37.0	1.0	-52.5	-13.0	-39.5	
	2542.50	-26.0	V	3.0	36.4	1.0	-61.4	-13.0	-48.4	
	3390.00	-24.2	V	3.0	36.1	1.0	-59.3	-13.0	-46.3	
	1695.00	-18.2	H	3.0	37.0	1.0	-54.2	-13.0	-41.2	
	2542.50	-27.8	H	3.0	36.4	1.0	-63.2	-13.0	-50.2	
	3390.00	-24.5	H	3.0	36.1	1.0	-59.6	-13.0	-46.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/11/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset								
Location:		Chamber B								
Mode:		LTE_QPSK Band 5 Harmonics, 3MHz Bandwidth								
Band	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	-21.8	V	3.0	37.0	1.0	-57.8	-13.0	-44.8	
	2476.50	-26.1	V	3.0	36.4	1.0	-61.5	-13.0	-48.5	
	3302.00	-24.9	V	3.0	36.2	1.0	-60.1	-13.0	-47.1	
3MHz	1651.00	-22.7	H	3.0	37.0	1.0	-58.8	-13.0	-45.8	
	2476.50	-27.6	H	3.0	36.4	1.0	-63.0	-13.0	-50.0	
	3302.00	-24.2	H	3.0	36.2	1.0	-59.4	-13.0	-46.4	
QPSK	Mid Ch, 836.5									
	1673.00	-21.2	V	3.0	37.0	1.0	-57.2	-13.0	-44.2	
	2509.50	-25.0	V	3.0	36.4	1.0	-60.4	-13.0	-47.4	
	3346.00	-24.4	V	3.0	36.1	1.0	-59.5	-13.0	-46.5	
	1673.00	-20.0	H	3.0	37.0	1.0	-56.0	-13.0	-43.0	
	2509.50	-25.5	H	3.0	36.4	1.0	-60.9	-13.0	-47.9	
	3346.00	-24.6	H	3.0	36.1	1.0	-59.8	-13.0	-46.8	
	High Ch, 847.5									
	1695.00	-16.2	V	3.0	37.0	1.0	-52.2	-13.0	-39.2	
	2542.50	-25.7	V	3.0	36.4	1.0	-61.1	-13.0	-48.1	
	3390.00	-23.9	V	3.0	36.1	1.0	-59.0	-13.0	-46.0	
	1695.00	-17.9	H	3.0	37.0	1.0	-53.9	-13.0	-40.9	
	2542.50	-27.5	H	3.0	36.4	1.0	-62.9	-13.0	-49.9	
	3390.00	-24.2	H	3.0	36.1	1.0	-59.3	-13.0	-46.3	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/11/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset								
Location:		Chamber B								
Mode:		LTE_16QAM Band 5 Harmonics, 1.4MHz Bandwidth								
Band	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	-24.3	V	3.0	37.0	1.0	-60.3	-13.0	-47.3	
	2474.10	-25.4	V	3.0	36.4	1.0	-60.8	-13.0	-47.8	
	3298.80	-24.3	V	3.0	36.2	1.0	-59.4	-13.0	-46.4	
1.4MHz	1649.40	-23.0	H	3.0	37.0	1.0	-59.0	-13.0	-46.0	
	2474.10	-27.4	H	3.0	36.4	1.0	-62.8	-13.0	-49.8	
	3298.80	-25.3	H	3.0	36.2	1.0	-60.4	-13.0	-47.4	
16QAM	Mid Ch, 836.5									
	1673.00	-21.9	V	3.0	37.0	1.0	-57.9	-13.0	-44.9	
	2509.50	-25.1	V	3.0	36.4	1.0	-60.5	-13.0	-47.5	
	3346.00	-25.4	V	3.0	36.1	1.0	-60.6	-13.0	-47.6	
	1673.00	-19.3	H	3.0	37.0	1.0	-55.3	-13.0	-42.3	
	2509.50	-26.0	H	3.0	36.4	1.0	-61.4	-13.0	-48.4	
	3346.00	-24.7	H	3.0	36.1	1.0	-59.9	-13.0	-46.9	
	High Ch, 848.3									
	1696.60	-20.7	V	3.0	37.0	1.0	-56.7	-13.0	-43.7	
	2544.90	-25.8	V	3.0	36.4	1.0	-61.2	-13.0	-48.2	
	3393.20	-24.2	V	3.0	36.1	1.0	-59.3	-13.0	-46.3	
	1696.60	-15.3	H	3.0	37.0	1.0	-51.2	-13.0	-38.2	
	2544.90	-28.1	H	3.0	36.4	1.0	-63.5	-13.0	-50.5	
	3393.20	-24.7	H	3.0	36.1	1.0	-59.7	-13.0	-46.7	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/11/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset								
Location:		Chamber B								
Mode:		LTE_QPSK Band 5 Harmonics, 1.4MHz Bandwidth								
Band	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	-23.9	V	3.0	37.0	1.0	-60.0	-13.0	-47.0	
	2474.10	-25.0	V	3.0	36.4	1.0	-60.4	-13.0	-47.4	
	3298.80	-23.9	V	3.0	36.2	1.0	-59.1	-13.0	-46.1	
1.4MHz	1649.40	-22.6	H	3.0	37.0	1.0	-58.6	-13.0	-45.6	
	2474.10	-27.0	H	3.0	36.4	1.0	-62.4	-13.0	-49.4	
	3298.80	-24.9	H	3.0	36.2	1.0	-60.1	-13.0	-47.1	
QPSK	Mid Ch, 836.5									
	1673.00	-21.6	V	3.0	37.0	1.0	-57.6	-13.0	-44.6	
	2509.50	-24.8	V	3.0	36.4	1.0	-60.2	-13.0	-47.2	
	3346.00	-25.1	V	3.0	36.1	1.0	-60.2	-13.0	-47.2	
	1673.00	-18.9	H	3.0	37.0	1.0	-54.9	-13.0	-41.9	
	2509.50	-25.6	H	3.0	36.4	1.0	-61.1	-13.0	-48.1	
	3346.00	-24.4	H	3.0	36.1	1.0	-59.5	-13.0	-46.5	
	High Ch, 848.3									
	1696.60	-20.3	V	3.0	37.0	1.0	-56.3	-13.0	-43.3	
	2544.90	-25.4	V	3.0	36.4	1.0	-60.9	-13.0	-47.9	
	3393.20	-23.9	V	3.0	36.1	1.0	-59.0	-13.0	-46.0	
	1696.60	-14.9	H	3.0	37.0	1.0	-50.9	-13.0	-37.9	
	2544.90	-27.7	H	3.0	36.4	1.0	-63.1	-13.0	-50.1	
	3393.20	-24.3	H	3.0	36.1	1.0	-59.4	-13.0	-46.4	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/7/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset, X Position								
Location:		Chamber B								
Mode:		LTE_16QAM Band 4 Harmonics, 20MHz Bandwidth								
Band	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	-7.6	V	3.0	36.0	1.0	-42.7	-13.0	-29.7	
	5160.00	-14.1	V	3.0	35.4	1.0	-48.5	-13.0	-35.5	
	6880.00	-16.7	V	3.0	35.7	1.0	-51.4	-13.0	-38.4	
LTE4	3440.00	-9.9	H	3.0	36.0	1.0	-45.0	-13.0	-32.0	
20MHz	5160.00	-12.1	H	3.0	35.4	1.0	-46.5	-13.0	-33.5	
16QAM	6880.00	-16.6	H	3.0	35.7	1.0	-51.3	-13.0	-38.3	
	Mid Ch, 1732.5									
	3465.00	-10.7	V	3.0	36.0	1.0	-45.7	-13.0	-32.7	
	5197.50	-11.3	V	3.0	35.4	1.0	-45.7	-13.0	-32.7	
	6930.00	-10.7	V	3.0	35.7	1.0	-45.3	-13.0	-32.3	
	3465.00	-7.1	H	3.0	36.0	1.0	-42.2	-13.0	-29.2	
	5197.50	-6.7	H	3.0	35.4	1.0	-41.1	-13.0	-28.1	
	6930.00	-4.5	H	3.0	35.7	1.0	-39.2	-13.0	-26.2	
	High Ch, 1745									
	3490.00	-2.5	V	3.0	36.0	1.0	-37.5	-13.0	-24.5	
	5235.00	-10.4	V	3.0	35.4	1.0	-44.8	-13.0	-31.8	
	6980.00	-17.7	V	3.0	35.7	1.0	-52.4	-13.0	-39.4	
	3490.00	-3.7	H	3.0	36.0	1.0	-38.7	-13.0	-25.7	
	5235.00	-9.0	H	3.0	35.4	1.0	-43.5	-13.0	-30.5	
	6980.00	-15.7	H	3.0	35.7	1.0	-50.4	-13.0	-37.4	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/7/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset, X Position								
Location:		Chamber B								
Mode:		LTE_QPSK Band 4 Harmonics, 20MHz Bandwidth								
Band	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	-7.3	V	3.0	36.0	1.0	-42.4	-13.0	-29.4	
LTE4	5160.00	-13.8	V	3.0	35.4	1.0	-48.2	-13.0	-35.2	
	6880.00	-16.4	V	3.0	35.7	1.0	-51.1	-13.0	-38.1	
20MHz	3440.00	-9.6	H	3.0	36.0	1.0	-44.7	-13.0	-31.7	
	5160.00	-11.8	H	3.0	35.4	1.0	-46.2	-13.0	-33.2	
QPSK	6880.00	-16.3	H	3.0	35.7	1.0	-51.0	-13.0	-38.0	
	Mid Ch, 1732.5									
	3465.00	-10.4	V	3.0	36.0	1.0	-45.4	-13.0	-32.4	
	5197.50	-11.0	V	3.0	35.4	1.0	-45.4	-13.0	-32.4	
	6930.00	-10.4	V	3.0	35.7	1.0	-45.0	-13.0	-32.0	
	3465.00	-7.4	H	3.0	36.0	1.0	-42.4	-13.0	-29.4	
	5197.50	-5.6	H	3.0	35.4	1.0	-40.0	-13.0	-27.0	
	6930.00	-4.2	H	3.0	35.7	1.0	-38.9	-13.0	-25.9	
	High Ch, 1745									
	3490.00	-2.2	V	3.0	36.0	1.0	-37.2	-13.0	-24.2	
	5235.00	-10.1	V	3.0	35.4	1.0	-44.5	-13.0	-31.5	
	6980.00	-17.4	V	3.0	35.7	1.0	-52.1	-13.0	-39.1	
	3490.00	-3.4	H	3.0	36.0	1.0	-38.4	-13.0	-25.4	
	5235.00	-8.7	H	3.0	35.4	1.0	-43.2	-13.0	-30.2	
	6980.00	-15.4	H	3.0	35.7	1.0	-50.1	-13.0	-37.1	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/7/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset, X Position								
Location:		Chamber B								
Mode:		LTE_16QAM Band 4 Harmonics, 15MHz Bandwidth								
Band	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	-3.7	V	3.0	36.1	1.0	-38.7	-13.0	-25.7	
LTE4	5152.50	-9.8	V	3.0	35.4	1.0	-44.3	-13.0	-31.3	
	6870.00	-18.3	V	3.0	35.7	1.0	-52.9	-13.0	-39.9	
15MHz	3435.00	-1.1	H	3.0	36.1	1.0	-36.1	-13.0	-23.1	
	5152.50	-11.1	H	3.0	35.4	1.0	-45.5	-13.0	-32.5	
	6870.00	-20.8	H	3.0	35.7	1.0	-55.5	-13.0	-42.5	
16QAM	Mid Ch, 1732.5									
	3465.00	-7.8	V	3.0	36.0	1.0	-42.9	-13.0	-29.9	
	5197.50	-17.2	V	3.0	35.4	1.0	-51.6	-13.0	-38.6	
	6930.00	-15.9	V	3.0	35.7	1.0	-50.6	-13.0	-37.6	
	3465.00	-5.0	H	3.0	36.0	1.0	-40.0	-13.0	-27.0	
	5197.50	-16.5	H	3.0	35.4	1.0	-50.9	-13.0	-37.9	
	6930.00	-15.1	H	3.0	35.7	1.0	-49.8	-13.0	-36.8	
	High Ch, 1747.5									
	3495.00	-2.4	V	3.0	36.0	1.0	-37.5	-13.0	-24.5	
	5242.50	-12.2	V	3.0	35.4	1.0	-46.6	-13.0	-33.6	
	6990.00	-17.5	V	3.0	35.7	1.0	-52.2	-13.0	-39.2	
	3495.00	-5.3	H	3.0	36.0	1.0	-40.3	-13.0	-27.3	
	5242.50	-12.7	H	3.0	35.4	1.0	-47.2	-13.0	-34.2	
	6990.00	-15.8	H	3.0	35.7	1.0	-50.5	-13.0	-37.5	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/7/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset, X Position								
Location:		Chamber B								
Mode:		LTE_QPSK Band 4 Harmonics, 15MHz Bandwidth								
Band	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	-3.3	V	3.0	36.1	1.0	-38.4	-13.0	-25.4	
LTE4	5152.50	-9.5	V	3.0	35.4	1.0	-43.9	-13.0	-30.9	
	6870.00	-17.9	V	3.0	35.7	1.0	-52.6	-13.0	-39.6	
15MHz	3435.00	-0.7	H	3.0	36.1	1.0	-35.8	-13.0	-22.8	
	5152.50	-10.7	H	3.0	35.4	1.0	-45.1	-13.0	-32.1	
QPSK	6870.00	-20.5	H	3.0	35.7	1.0	-55.1	-13.0	-42.1	
	Mid Ch, 1732.5									
	3465.00	-7.5	V	3.0	36.0	1.0	-42.5	-13.0	-29.5	
	5197.50	-16.8	V	3.0	35.4	1.0	-51.3	-13.0	-38.3	
	6930.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
	3465.00	-4.6	H	3.0	36.0	1.0	-39.7	-13.0	-26.7	
	5197.50	-16.1	H	3.0	35.4	1.0	-50.5	-13.0	-37.5	
	6930.00	-14.8	H	3.0	35.7	1.0	-49.4	-13.0	-36.4	
	High Ch, 1747.5									
	3495.00	-2.1	V	3.0	36.0	1.0	-37.1	-13.0	-24.1	
	5242.50	-11.8	V	3.0	35.4	1.0	-46.3	-13.0	-33.3	
	6990.00	-17.1	V	3.0	35.7	1.0	-51.8	-13.0	-38.8	
	3495.00	-4.9	H	3.0	36.0	1.0	-40.0	-13.0	-27.0	
	5242.50	-12.4	H	3.0	35.4	1.0	-46.8	-13.0	-33.8	
	6990.00	-15.5	H	3.0	35.7	1.0	-50.1	-13.0	-37.1	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/7/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset, X Position								
Location:		Chamber B								
Mode:		LTE_16QAM Band 4 Harmonics, 10MHz Bandwidth								
Band	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	-2.5	V	3.0	36.1	1.0	-37.6	-13.0	-24.6	
LTE4	5145.00	-10.0	V	3.0	35.4	1.0	-44.4	-13.0	-31.4	
	6860.00	-17.8	V	3.0	35.7	1.0	-52.5	-13.0	-39.5	
10MHz	3430.00	-0.5	H	3.0	36.1	1.0	-35.5	-13.0	-22.5	
	5145.00	-9.2	H	3.0	35.4	1.0	-43.6	-13.0	-30.6	
	6860.00	-16.5	H	3.0	35.7	1.0	-51.2	-13.0	-38.2	
16QAM	Mid Ch, 1732.5									
	3465.00	-5.8	V	3.0	36.0	1.0	-40.8	-13.0	-27.8	
	5197.50	-10.4	V	3.0	35.4	1.0	-44.8	-13.0	-31.8	
	6930.00	-18.2	V	3.0	35.7	1.0	-52.8	-13.0	-39.8	
	3465.00	-4.4	H	3.0	36.0	1.0	-39.5	-13.0	-26.5	
	5197.50	-10.5	H	3.0	35.4	1.0	-44.9	-13.0	-31.9	
	6930.00	-16.8	H	3.0	35.7	1.0	-51.5	-13.0	-38.5	
	High Ch, 1750									
	3500.00	-4.3	V	3.0	36.0	1.0	-39.3	-13.0	-26.3	
	5250.00	-13.8	V	3.0	35.4	1.0	-48.3	-13.0	-35.3	
	7000.00	-18.2	V	3.0	35.7	1.0	-52.9	-13.0	-39.9	
	3500.00	-9.7	H	3.0	36.0	1.0	-44.7	-13.0	-31.7	
	5250.00	-13.2	H	3.0	35.4	1.0	-47.6	-13.0	-34.6	
	7000.00	-16.5	H	3.0	35.7	1.0	-51.1	-13.0	-38.1	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Project #: 15119923 Date: 2/7/2015 Test Engineer: S,Tran Configuration: EUT , AC Adapter, Headset, X Position Location: Chamber B Mode: LTE_QPSK Band 4 Harmonics, 10MHz Bandwidth										
Band	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	-2.3	V	3.0	36.1	1.0	-37.3	-13.0	-24.3	
LTE4	5145.00	-9.7	V	3.0	35.4	1.0	-44.1	-13.0	-31.1	
	6860.00	-17.5	V	3.0	35.7	1.0	-52.2	-13.0	-39.2	
10MHz	3430.00	-0.2	H	3.0	36.1	1.0	-35.3	-13.0	-22.3	
	5145.00	-8.9	H	3.0	35.4	1.0	-43.4	-13.0	-30.4	
	6860.00	-16.2	H	3.0	35.7	1.0	-50.9	-13.0	-37.9	
QPSK	Mid Ch, 1732.5									
	3465.00	-5.5	V	3.0	36.0	1.0	-40.6	-13.0	-27.6	
	5197.50	-10.1	V	3.0	35.4	1.0	-44.5	-13.0	-31.5	
	6930.00	-17.9	V	3.0	35.7	1.0	-52.6	-13.0	-39.6	
	3465.00	-4.1	H	3.0	36.0	1.0	-39.2	-13.0	-26.2	
	5197.50	-10.2	H	3.0	35.4	1.0	-44.7	-13.0	-31.7	
	6930.00	-16.5	H	3.0	35.7	1.0	-51.2	-13.0	-38.2	
	High Ch, 1750									
	3500.00	-4.0	V	3.0	36.0	1.0	-39.0	-13.0	-26.0	
	5250.00	-13.6	V	3.0	35.4	1.0	-48.0	-13.0	-35.0	
	7000.00	-18.0	V	3.0	35.7	1.0	-52.6	-13.0	-39.6	
	3500.00	-9.4	H	3.0	36.0	1.0	-44.4	-13.0	-31.4	
	5250.00	-12.9	H	3.0	35.4	1.0	-47.3	-13.0	-34.3	
	7000.00	-16.2	H	3.0	35.7	1.0	-50.9	-13.0	-37.9	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/7/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset, X Position								
Location:		Chamber B								
Mode:		LTE_16QAM Band 4 Harmonics, 5MHz Bandwidth								
Band	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	-3.6	V	3.0	36.1	1.0	-38.7	-13.0	-25.7	
LTE4	5137.50	-9.5	V	3.0	35.4	1.0	-43.9	-13.0	-30.9	
	6850.00	-17.7	V	3.0	35.7	1.0	-52.4	-13.0	-39.4	
5MHz	3425.00	-1.6	H	3.0	36.1	1.0	-36.6	-13.0	-23.6	
	5137.50	-10.1	H	3.0	35.4	1.0	-44.5	-13.0	-31.5	
	6850.00	-16.5	H	3.0	35.7	1.0	-51.1	-13.0	-38.1	
16QAM	Mid Ch, 1732.5									
	3465.00	-3.8	V	3.0	36.0	1.0	-38.8	-13.0	-25.8	
	5197.50	-14.1	V	3.0	35.4	1.0	-48.5	-13.0	-35.5	
	6930.00	-17.7	V	3.0	35.7	1.0	-52.3	-13.0	-39.3	
	3465.00	-4.7	H	3.0	36.0	1.0	-39.8	-13.0	-26.8	
	5197.50	-12.2	H	3.0	35.4	1.0	-46.6	-13.0	-33.6	
	6930.00	-16.9	H	3.0	35.7	1.0	-51.5	-13.0	-38.5	
	High Ch, 1752.5									
	3505.00	-4.3	V	3.0	36.0	1.0	-39.3	-13.0	-26.3	
	5257.50	-4.2	V	3.0	35.4	1.0	-38.7	-13.0	-25.7	
	7010.00	-17.6	V	3.0	35.7	1.0	-52.3	-13.0	-39.3	
	3505.00	-10.7	H	3.0	36.0	1.0	-45.7	-13.0	-32.7	
	5257.50	-14.6	H	3.0	35.4	1.0	-49.1	-13.0	-36.1	
	7010.00	-15.4	H	3.0	35.7	1.0	-50.1	-13.0	-37.1	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/7/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset, X Position								
Location:		Chamber B								
Mode:		LTE_QPSK Band 4 Harmonics, 5MHz Bandwidth								
Band	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	-3.4	V	3.0	36.1	1.0	-38.4	-13.0	-25.4	
LTE4	5137.50	-9.3	V	3.0	35.4	1.0	-43.7	-13.0	-30.7	
	6850.00	-17.4	V	3.0	35.7	1.0	-52.1	-13.0	-39.1	
5MHz	3425.00	-1.3	H	3.0	36.1	1.0	-36.4	-13.0	-23.4	
	5137.50	-9.8	H	3.0	35.4	1.0	-44.3	-13.0	-31.3	
	6850.00	-16.2	H	3.0	35.7	1.0	-50.9	-13.0	-37.9	
QPSK	Mid Ch, 1732.5									
	3465.00	-3.5	V	3.0	36.0	1.0	-38.5	-13.0	-25.5	
	5197.50	-13.8	V	3.0	35.4	1.0	-48.2	-13.0	-35.2	
	6930.00	-17.4	V	3.0	35.7	1.0	-52.1	-13.0	-39.1	
	3465.00	-4.5	H	3.0	36.0	1.0	-39.5	-13.0	-26.5	
	5197.50	-11.9	H	3.0	35.4	1.0	-46.3	-13.0	-33.3	
	6930.00	-16.6	H	3.0	35.7	1.0	-51.3	-13.0	-38.3	
	High Ch, 1752.5									
	3505.00	-4.1	V	3.0	36.0	1.0	-39.1	-13.0	-26.1	
	5257.50	-4.0	V	3.0	35.4	1.0	-38.4	-13.0	-25.4	
	7010.00	-17.3	V	3.0	35.7	1.0	-52.0	-13.0	-39.0	
	3505.00	-10.4	H	3.0	36.0	1.0	-45.4	-13.0	-32.4	
	5257.50	-14.4	H	3.0	35.4	1.0	-48.8	-13.0	-35.8	
	7010.00	-15.7	H	3.0	35.7	1.0	-50.4	-13.0	-37.4	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/7/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset, X Position								
Location:		Chamber B								
Mode:		LTE_16QAM Band 4 Harmonics, 3MHz Bandwidth								
Band	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									
LTE4	3423.00	-3.2	V	3.0	36.1	1.0	-38.3	-13.0	-25.3	
	5134.50	-10.5	V	3.0	35.4	1.0	-44.9	-13.0	-31.9	
	6846.00	-18.7	V	3.0	35.7	1.0	-53.4	-13.0	-40.4	
3MHz	3423.00	-0.7	H	3.0	36.1	1.0	-35.8	-13.0	-22.8	
	5134.50	-11.9	H	3.0	35.4	1.0	-46.3	-13.0	-33.3	
	6846.00	-16.7	H	3.0	35.7	1.0	-51.4	-13.0	-38.4	
16QAM	Mid Ch, 1732.5									
	3465.00	-3.6	V	3.0	36.0	1.0	-38.6	-13.0	-25.6	
	5197.50	-10.3	V	3.0	35.4	1.0	-44.7	-13.0	-31.7	
	6930.00	-18.5	V	3.0	35.7	1.0	-53.2	-13.0	-40.2	
	3465.00	-4.0	H	3.0	36.0	1.0	-39.0	-13.0	-26.0	
	5197.50	-12.7	H	3.0	35.4	1.0	-47.1	-13.0	-34.1	
	6930.00	-16.1	H	3.0	35.7	1.0	-50.7	-13.0	-37.7	
	High Ch, 1753.5									
	3507.00	-11.5	V	3.0	36.0	1.0	-46.5	-13.0	-33.5	
	5260.50	-13.4	V	3.0	35.4	1.0	-47.9	-13.0	-34.9	
	7014.00	-17.5	V	3.0	35.7	1.0	-52.2	-13.0	-39.2	
	3507.00	-13.8	H	3.0	36.0	1.0	-48.8	-13.0	-35.8	
	5260.50	-11.3	H	3.0	35.4	1.0	-45.8	-13.0	-32.8	
	7014.00	-15.9	H	3.0	35.7	1.0	-50.6	-13.0	-37.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		2/7/2015								
Test Engineer:		S,Tran								
Configuration:		EUT , AC Adapter, Headset, X Position								
Location:		Chamber B								
Mode:		LTE_QPSK Band 4 Harmonics, 3MHz Bandwidth								
Band	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	-2.8	V	3.0	36.1	1.0	-37.9	-13.0	-24.9	
LTE4	5134.50	-10.1	V	3.0	35.4	1.0	-44.5	-13.0	-31.5	
	6846.00	-18.3	V	3.0	35.7	1.0	-53.0	-13.0	-40.0	
3MHz	3423.00	-0.3	H	3.0	36.1	1.0	-35.4	-13.0	-22.4	
	5134.50	-11.6	H	3.0	35.4	1.0	-46.0	-13.0	-33.0	
QPSK	6846.00	-16.4	H	3.0	35.7	1.0	-51.0	-13.0	-38.0	
	Mid Ch, 1732.5									
	3465.00	-3.3	V	3.0	36.0	1.0	-38.3	-13.0	-25.3	
	5197.50	-9.9	V	3.0	35.4	1.0	-44.4	-13.0	-31.4	
	6930.00	-18.2	V	3.0	35.7	1.0	-52.8	-13.0	-39.8	
	3465.00	-3.7	H	3.0	36.0	1.0	-38.7	-13.0	-25.7	
	5197.50	-12.3	H	3.0	35.4	1.0	-46.8	-13.0	-33.8	
	6930.00	-15.7	H	3.0	35.7	1.0	-50.4	-13.0	-37.4	
	High Ch, 1753.5									
	3507.00	-11.1	V	3.0	36.0	1.0	-46.1	-13.0	-33.1	
	5260.50	-13.1	V	3.0	35.4	1.0	-47.5	-13.0	-34.5	
	7014.00	-17.2	V	3.0	35.7	1.0	-51.9	-13.0	-38.9	
	3507.00	-13.4	H	3.0	36.0	1.0	-48.4	-13.0	-35.4	
	5260.50	-11.0	H	3.0	35.4	1.0	-45.4	-13.0	-32.4	
	7014.00	-15.6	H	3.0	35.7	1.0	-50.3	-13.0	-37.3	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Project #: 15119923 Date: 2/7/2015 Test Engineer: S,Tran Configuration: EUT , AC Adapter, Headset, X Position Location: Chamber B Mode: LTE_16QAM Band 4 Harmonics, 1.4MHz Bandwidth										
Band	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	-4.6	V	3.0	36.1	1.0	-39.6	-13.0	-26.6	
	5132.10	-9.6	V	3.0	35.4	1.0	-44.0	-13.0	-31.0	
	6842.80	-18.4	V	3.0	35.7	1.0	-53.1	-13.0	-40.1	
1.4MHz	3421.40	-1.8	H	3.0	36.1	1.0	-36.9	-13.0	-23.9	
	5132.10	-10.3	H	3.0	35.4	1.0	-44.7	-13.0	-31.7	
	6842.80	-16.1	H	3.0	35.7	1.0	-50.8	-13.0	-37.8	
16QAM	Mid Ch, 1732.5									
	3465.00	-3.3	V	3.0	36.0	1.0	-38.4	-13.0	-25.4	
	5197.50	-13.0	V	3.0	35.4	1.0	-47.4	-13.0	-34.4	
	6930.00	-18.1	V	3.0	35.7	1.0	-52.8	-13.0	-39.8	
	3465.00	-4.3	H	3.0	36.0	1.0	-39.3	-13.0	-26.3	
	5197.50	-13.2	H	3.0	35.4	1.0	-47.6	-13.0	-34.6	
	6930.00	-16.5	H	3.0	35.7	1.0	-51.2	-13.0	-38.2	
	High Ch, 1754.3									
	3508.60	-11.6	V	3.0	36.0	1.0	-46.6	-13.0	-33.6	
	5262.90	-12.9	V	3.0	35.4	1.0	-47.4	-13.0	-34.4	
	7017.20	-18.2	V	3.0	35.7	1.0	-52.9	-13.0	-39.9	
	3508.60	-14.1	H	3.0	36.0	1.0	-49.1	-13.0	-36.1	
	5262.90	-12.3	H	3.0	35.4	1.0	-46.7	-13.0	-33.7	
	7017.20	-16.4	H	3.0	35.7	1.0	-51.1	-13.0	-38.1	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
Company: LG Project #: 15119923 Date: 2/7/2015 Test Engineer: S,Tran Configuration: EUT , AC Adapter, Headset, X Position Location: Chamber B Mode: LTE_QPSK Band 4 Harmonics, 1.4MHz Bandwidth											
Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
1.4MHz QPSK	Low Ch, 1710.7										
	LTE4	3421.40	-4.2	V	3.0	36.1	1.0	-39.3	-13.0	-26.3	
		5132.10	-9.3	V	3.0	35.4	1.0	-43.7	-13.0	-30.7	
		6842.80	-18.1	V	3.0	35.7	1.0	-52.7	-13.0	-39.7	
		3421.40	-1.5	H	3.0	36.1	1.0	-36.6	-13.0	-23.6	
		5132.10	-9.9	H	3.0	35.4	1.0	-44.4	-13.0	-31.4	
		6842.80	-15.8	H	3.0	35.7	1.0	-50.4	-13.0	-37.4	
		Mid Ch, 1732.5									
		3465.00	-3.0	V	3.0	36.0	1.0	-38.0	-13.0	-25.0	
		5197.50	-12.7	V	3.0	35.4	1.0	-47.1	-13.0	-34.1	
		6930.00	-17.8	V	3.0	35.7	1.0	-52.5	-13.0	-39.5	
		3465.00	-3.9	H	3.0	36.0	1.0	-39.0	-13.0	-26.0	
	5197.50	-12.9	H	3.0	35.4	1.0	-47.3	-13.0	-34.3		
	6930.00	-16.2	H	3.0	35.7	1.0	-50.9	-13.0	-37.9		
	High Ch, 1754.3										
	3508.60	-11.3	V	3.0	36.0	1.0	-46.3	-13.0	-33.3		
	5262.90	-12.6	V	3.0	35.4	1.0	-47.1	-13.0	-34.1		
	7017.20	-17.8	V	3.0	35.7	1.0	-52.5	-13.0	-39.5		
	3508.60	-13.8	H	3.0	36.0	1.0	-48.8	-13.0	-35.8		
	5262.90	-11.9	H	3.0	35.4	1.0	-46.4	-13.0	-33.4		
	7017.20	-16.1	H	3.0	35.7	1.0	-50.8	-13.0	-37.8		

UL Verification Services Chamber B Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		LTE2 16QAM 20MHz Harm								
Chamber		Pre-amplifier			Filter		Limit			
5m Chamber B		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
LTE2 20MHz 16QAM	Low Ch, 1860MHz									
	3.720	-14.9	V	3.0	35.4	1.0	-49.3	-13.0	-36.3	
	5.580	-19.0	V	3.0	34.7	1.0	-52.7	-13.0	-39.7	
	7.440	-19.0	V	3.0	34.9	1.0	-52.9	-13.0	-39.9	
	3.720	-20.7	H	3.0	35.4	1.0	-55.1	-13.0	-42.1	
	5.580	-17.3	H	3.0	34.7	1.0	-51.0	-13.0	-38.0	
	7.440	-17.3	H	3.0	34.9	1.0	-51.2	-13.0	-38.2	
	Mid Ch, 1880MHz									
	3.760	-15.5	V	3.0	35.3	1.0	-49.9	-13.0	-36.9	
	5.640	-18.7	V	3.0	34.7	1.0	-52.4	-13.0	-39.4	
	7.520	-16.3	V	3.0	34.9	1.0	-50.2	-13.0	-37.2	
	3.760	-20.6	H	3.0	35.3	1.0	-54.9	-13.0	-41.9	
5.640	-17.4	H	3.0	34.7	1.0	-51.1	-13.0	-38.1		
7.520	-17.1	H	3.0	34.9	1.0	-51.0	-13.0	-38.0		
High Ch, 1900MHz										
3.800	-20.2	V	3.0	35.3	1.0	-54.5	-13.0	-41.5		
5.700	-18.7	V	3.0	34.7	1.0	-52.4	-13.0	-39.4		
7.600	-15.5	V	3.0	34.9	1.0	-49.5	-13.0	-36.5		
3.800	-19.9	H	3.0	35.3	1.0	-54.2	-13.0	-41.2		
5.700	-16.7	H	3.0	34.7	1.0	-50.4	-13.0	-37.4		
7.600	-15.2	H	3.0	34.9	1.0	-49.1	-13.0	-36.1		
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										

UL Verification Services Chamber B Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		LTE2 QPSK 20MHz Harm								
Chamber		Pre-amplifier			Filter		Limit			
5m Chamber B		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, 1860MHz									
	3.720	-15.2	V	3.0	35.4	1.0	-49.6	-13.0	-36.6	
	5.580	-19.2	V	3.0	34.7	1.0	-52.9	-13.0	-39.9	
	20MHz									
	7.440	-18.9	V	3.0	34.9	1.0	-52.8	-13.0	-39.8	
	3.720	-20.2	H	3.0	35.4	1.0	-54.5	-13.0	-41.5	
	5.580	-17.1	H	3.0	34.7	1.0	-50.9	-13.0	-37.9	
	7.440	-16.9	H	3.0	34.9	1.0	-50.8	-13.0	-37.8	
	QPSK									
	Mid Ch, 1880MHz									
	3.760	-15.3	V	3.0	35.3	1.0	-49.6	-13.0	-36.6	
	5.640	-18.3	V	3.0	34.7	1.0	-52.1	-13.0	-39.1	
	7.520	-16.2	V	3.0	34.9	1.0	-50.1	-13.0	-37.1	
	3.760	-20.7	H	3.0	35.3	1.0	-55.0	-13.0	-42.0	
	5.640	-17.8	H	3.0	34.7	1.0	-51.5	-13.0	-38.5	
	7.520	-17.0	H	3.0	34.9	1.0	-51.0	-13.0	-38.0	
	High Ch, 1900MHz									
	3.800	-20.4	V	3.0	35.3	1.0	-54.7	-13.0	-41.7	
	5.700	-19.0	V	3.0	34.7	1.0	-52.7	-13.0	-39.7	
	7.600	-14.2	V	3.0	34.9	1.0	-48.1	-13.0	-35.1	
	3.800	-20.3	H	3.0	35.3	1.0	-54.6	-13.0	-41.6	
	5.700	-16.1	H	3.0	34.7	1.0	-49.9	-13.0	-36.9	
	7.600	-15.5	H	3.0	34.9	1.0	-49.5	-13.0	-36.5	
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										

UL Verification Services Chamber B Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		LTE2 16QAM 15MHz Harm								
Chamber		Pre-amplifier		Filter		Limit				
5m Chamber B		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
LTE2 15MHz 16QAM	Low Ch, 1857.5MHz									
	3.715	-15.4	V	3.0	35.4	1.0	-49.8	-13.0	-36.8	
	5.573	-17.3	V	3.0	34.7	1.0	-51.0	-13.0	-38.0	
	7.430	-17.3	V	3.0	34.9	1.0	-51.2	-13.0	-38.2	
	3.715	-20.3	H	3.0	35.4	1.0	-54.7	-13.0	-41.7	
	5.573	-15.9	H	3.0	34.7	1.0	-49.7	-13.0	-36.7	
	7.430	-17.2	H	3.0	34.9	1.0	-51.1	-13.0	-38.1	
	Mid Ch, 1880MHz									
	3.760	-18.4	V	3.0	35.3	1.0	-52.8	-13.0	-39.8	
	5.640	-16.9	V	3.0	34.7	1.0	-50.6	-13.0	-37.6	
	7.520	-18.8	V	3.0	34.9	1.0	-52.8	-13.0	-39.8	
	3.760	-18.0	H	3.0	35.3	1.0	-52.4	-13.0	-39.4	
5.640	-16.5	H	3.0	34.7	1.0	-50.2	-13.0	-37.2		
7.520	-17.1	H	3.0	34.9	1.0	-51.0	-13.0	-38.0		
High Ch, 1902.5MHz										
3.805	-18.2	V	3.0	35.3	1.0	-52.5	-13.0	-39.5		
5.708	-15.4	V	3.0	34.7	1.0	-49.1	-13.0	-36.1		
7.610	-17.9	V	3.0	34.9	1.0	-51.9	-13.0	-38.9		
3.805	-19.1	H	3.0	35.3	1.0	-53.4	-13.0	-40.4		
5.708	-14.7	H	3.0	34.7	1.0	-48.4	-13.0	-35.4		
7.610	-16.9	H	3.0	34.9	1.0	-50.8	-13.0	-37.8		
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										

UL Verification Services Chamber B Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		LTE2 QPSK 15MHz Harm								
Chamber		Pre-amplifier		Filter		Limit				
5m Chamber B		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
LTE2 15MHz	Low Ch, 1857.5MHz									
	3.715	-14.6	V	3.0	35.4	1.0	-49.0	-13.0	-36.0	
	5.573	-16.9	V	3.0	34.7	1.0	-50.6	-13.0	-37.6	
	7.430	-15.9	V	3.0	34.9	1.0	-49.9	-13.0	-36.9	
	3.715	-20.2	H	3.0	35.4	1.0	-54.6	-13.0	-41.6	
	5.573	-15.2	H	3.0	34.7	1.0	-48.9	-13.0	-35.9	
QPSK	Mid Ch, 1880MHz									
	7.430	-17.1	H	3.0	34.9	1.0	-51.0	-13.0	-38.0	
	High Ch, 1902.5MHz									
	3.760	-18.1	V	3.0	35.3	1.0	-52.5	-13.0	-39.5	
	5.640	-16.5	V	3.0	34.7	1.0	-50.2	-13.0	-37.2	
	7.520	-18.9	V	3.0	34.9	1.0	-52.8	-13.0	-39.8	
	3.760	-17.9	H	3.0	35.3	1.0	-52.2	-13.0	-39.2	
	5.640	-17.1	H	3.0	34.7	1.0	-50.9	-13.0	-37.9	
	7.520	-17.1	H	3.0	34.9	1.0	-51.0	-13.0	-38.0	
	3.805	-19.2	V	3.0	35.3	1.0	-53.5	-13.0	-40.5	
5.708	-15.3	V	3.0	34.7	1.0	-49.0	-13.0	-36.0		
7.610	-18.5	V	3.0	34.9	1.0	-52.4	-13.0	-39.4		
3.805	-19.1	H	3.0	35.3	1.0	-53.4	-13.0	-40.4		
5.708	-14.5	H	3.0	34.7	1.0	-48.2	-13.0	-35.2		
7.610	-16.8	H	3.0	34.9	1.0	-50.8	-13.0	-37.8		
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										

UL Verification Services Chamber B Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		LTE2 16QAM 10MHz Harm								
Chamber		Pre-amplifier		Filter		Limit				
5m Chamber B		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
LTE2 10MHz 16QAM	Low Ch, 1855MHz									
	3.710	-15.8	V	3.0	35.4	1.0	-50.2	-13.0	-37.2	
	5.565	-18.6	V	3.0	34.7	1.0	-52.4	-13.0	-39.4	
	7.420	-18.6	V	3.0	34.9	1.0	-52.6	-13.0	-39.6	
	3.710	-20.3	H	3.0	35.4	1.0	-54.7	-13.0	-41.7	
	5.565	-17.6	H	3.0	34.7	1.0	-51.3	-13.0	-38.3	
	7.420	-16.9	H	3.0	34.9	1.0	-50.9	-13.0	-37.9	
	Mid Ch, 1880MHz									
	3.760	-14.6	V	3.0	35.3	1.0	-48.9	-13.0	-35.9	
	5.640	-18.3	V	3.0	34.7	1.0	-52.0	-13.0	-39.0	
	7.520	-18.8	V	3.0	34.9	1.0	-52.7	-13.0	-39.7	
	3.760	-14.6	H	3.0	35.3	1.0	-48.9	-13.0	-35.9	
5.640	-16.4	H	3.0	34.7	1.0	-50.1	-13.0	-37.1		
7.520	-17.1	H	3.0	34.9	1.0	-51.0	-13.0	-38.0		
High Ch, 1905MHz										
3.810	-17.4	V	3.0	35.3	1.0	-51.7	-13.0	-38.7		
5.715	-18.1	V	3.0	34.7	1.0	-51.8	-13.0	-38.8		
7.620	-16.6	V	3.0	34.9	1.0	-50.6	-13.0	-37.6		
3.810	-18.2	H	3.0	35.3	1.0	-52.5	-13.0	-39.5		
5.715	-14.6	H	3.0	34.7	1.0	-48.4	-13.0	-35.4		
7.620	-16.8	H	3.0	34.9	1.0	-50.8	-13.0	-37.8		
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										

UL Verification Services Chamber B Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		LTE2 QPSK 10MHz Harm								
Chamber		Pre-amplifier			Filter		Limit			
5m Chamber B		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
LTE2 10MHz QPSK	Low Ch, 1855MHz									
	3.710	-16.2	V	3.0	35.4	1.0	-50.6	-13.0	-37.6	
	5.565	-18.7	V	3.0	34.7	1.0	-52.4	-13.0	-39.4	
	7.420	-18.7	V	3.0	34.9	1.0	-52.6	-13.0	-39.6	
	3.710	-20.2	H	3.0	35.4	1.0	-54.6	-13.0	-41.6	
	5.565	-17.4	H	3.0	34.7	1.0	-51.1	-13.0	-38.1	
	7.420	-17.0	H	3.0	34.9	1.0	-50.9	-13.0	-37.9	
	Mid Ch, 1880MHz									
	3.760	-14.1	V	3.0	35.3	1.0	-48.5	-13.0	-35.5	
	5.640	-18.7	V	3.0	34.7	1.0	-52.4	-13.0	-39.4	
	7.520	-19.0	V	3.0	34.9	1.0	-52.9	-13.0	-39.9	
	3.760	-15.6	H	3.0	35.3	1.0	-49.9	-13.0	-36.9	
	5.640	-17.2	H	3.0	34.7	1.0	-50.9	-13.0	-37.9	
	7.520	-17.3	H	3.0	34.9	1.0	-51.2	-13.0	-38.2	
	High Ch, 1905MHz									
3.810	-17.6	V	3.0	35.3	1.0	-51.9	-13.0	-38.9		
5.715	-18.2	V	3.0	34.7	1.0	-51.9	-13.0	-38.9		
7.620	-17.2	V	3.0	34.9	1.0	-51.2	-13.0	-38.2		
3.810	-18.5	H	3.0	35.3	1.0	-52.8	-13.0	-39.8		
5.715	-14.7	H	3.0	34.7	1.0	-48.5	-13.0	-35.5		
7.620	-16.5	H	3.0	34.9	1.0	-50.4	-13.0	-37.4		
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										

UL Verification Services Chamber B Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		LTE2 16QAM 5MHz Harm								
Chamber		Pre-amplifier		Filter		Limit				
5m Chamber B		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, 1852.5MHz									
	3.705	-13.7	V	3.0	35.4	1.0	-48.1	-13.0	-35.1	
	5.558	-18.2	V	3.0	34.7	1.0	-52.0	-13.0	-39.0	
	5MHz									
	7.410	-18.0	V	3.0	34.9	1.0	-52.0	-13.0	-39.0	
	3.705	-20.5	H	3.0	35.4	1.0	-54.9	-13.0	-41.9	
	5.558	-15.8	H	3.0	34.7	1.0	-49.5	-13.0	-36.5	
	7.410	-17.2	H	3.0	34.9	1.0	-51.1	-13.0	-38.1	
	16QAM									
	Mid Ch, 1880MHz									
	3.760	-16.9	V	3.0	35.3	1.0	-51.3	-13.0	-38.3	
	5.640	-15.5	V	3.0	34.7	1.0	-49.2	-13.0	-36.2	
	7.520	-18.9	V	3.0	34.9	1.0	-52.8	-13.0	-39.8	
	3.760	-16.9	H	3.0	35.3	1.0	-51.3	-13.0	-38.3	
	5.640	-16.4	H	3.0	34.7	1.0	-50.1	-13.0	-37.1	
	7.520	-16.3	H	3.0	34.9	1.0	-50.3	-13.0	-37.3	
	High Ch, 1907.5MHz									
	3.815	-18.2	V	3.0	35.3	1.0	-52.5	-13.0	-39.5	
	5.723	-18.0	V	3.0	34.7	1.0	-51.7	-13.0	-38.7	
	7.630	-17.8	V	3.0	34.9	1.0	-51.8	-13.0	-38.8	
	3.815	-19.9	H	3.0	35.3	1.0	-54.1	-13.0	-41.1	
	5.723	-16.6	H	3.0	34.7	1.0	-50.3	-13.0	-37.3	
	7.630	-16.1	H	3.0	34.9	1.0	-50.1	-13.0	-37.1	
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										

UL Verification Services Chamber B Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		LTE2 QPSK 5MHz Harm								
Chamber		Pre-amplifier			Filter		Limit			
5m Chamber B		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, 1852.5MHz									
LTE2	3.705	-13.4	V	3.0	35.4	1.0	-47.8	-13.0	-34.8	
	5.558	-17.9	V	3.0	34.7	1.0	-51.6	-13.0	-38.6	
	7.410	-16.8	V	3.0	34.9	1.0	-50.8	-13.0	-37.8	
5MHz	3.705	-20.5	H	3.0	35.4	1.0	-54.9	-13.0	-41.9	
	5.558	-15.2	H	3.0	34.7	1.0	-48.9	-13.0	-35.9	
QPSK	7.410	-17.4	H	3.0	34.9	1.0	-51.3	-13.0	-38.3	
	Mid Ch, 1880MHz									
	3.760	-17.5	V	3.0	35.3	1.0	-51.9	-13.0	-38.9	
	5.640	-15.7	V	3.0	34.7	1.0	-49.4	-13.0	-36.4	
	7.520	-19.0	V	3.0	34.9	1.0	-52.9	-13.0	-39.9	
	3.760	-16.7	H	3.0	35.3	1.0	-51.1	-13.0	-38.1	
	5.640	-15.9	H	3.0	34.7	1.0	-49.7	-13.0	-36.7	
	7.520	-16.9	H	3.0	34.9	1.0	-50.8	-13.0	-37.8	
	High Ch, 1907.5MHz									
	3.815	-17.6	V	3.0	35.3	1.0	-51.9	-13.0	-38.9	
	5.723	-17.4	V	3.0	34.7	1.0	-51.1	-13.0	-38.1	
	7.630	-17.4	V	3.0	34.9	1.0	-51.3	-13.0	-38.3	
	3.815	-19.0	H	3.0	35.3	1.0	-53.3	-13.0	-40.3	
	5.723	-15.5	H	3.0	34.7	1.0	-49.3	-13.0	-36.3	
	7.630	-15.6	H	3.0	34.9	1.0	-49.5	-13.0	-36.5	
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										

UL Verification Services Chamber B Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		LTE2_3M_HARM_16QAM								
Chamber		Pre-amplifier			Filter		Limit			
5m Chamber B		T343 8449B			Filter 1		Part 24			
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
LTE2	Low Ch, 1851.5MHz									
	3.703	-14.4	V	3.0	35.4	1.0	-48.8	-13.0	-35.8	
	5.554	-17.0	V	3.0	34.7	1.0	-50.7	-13.0	-37.7	
3MHz	7.406	-16.3	V	3.0	34.9	1.0	-50.2	-13.0	-37.2	
	3.703	-19.6	H	3.0	35.4	1.0	-54.0	-13.0	-41.0	
	5.554	-17.7	H	3.0	34.7	1.0	-51.4	-13.0	-38.4	
16QAM	7.406	-17.2	H	3.0	34.9	1.0	-51.1	-13.0	-38.1	
	Mid Ch, 1880.0MHz									
	3.760	-11.9	V	3.0	35.3	1.0	-46.3	-13.0	-33.3	
	5.640	-14.3	V	3.0	34.7	1.0	-48.0	-13.0	-35.0	
	7.520	-14.9	V	3.0	34.9	1.0	-48.9	-13.0	-35.9	
	3.760	-15.0	H	3.0	35.3	1.0	-49.4	-13.0	-36.4	
	5.640	-17.1	H	3.0	34.7	1.0	-50.8	-13.0	-37.8	
	7.520	-17.2	H	3.0	34.9	1.0	-51.2	-13.0	-38.2	
	High Ch, 1908.5 MHz									
	3.817	-20.5	V	3.0	35.3	1.0	-54.7	-13.0	-41.7	
	5.725	-18.6	V	3.0	34.7	1.0	-52.4	-13.0	-39.4	
	7.634	-9.1	V	3.0	34.9	1.0	-43.0	-13.0	-30.0	
	3.817	-17.6	H	3.0	35.3	1.0	-51.9	-13.0	-38.9	
	5.725	-17.2	H	3.0	34.7	1.0	-50.9	-13.0	-37.9	
	7.634	-15.5	H	3.0	34.9	1.0	-49.4	-13.0	-36.4	
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										

UL Verification Services Chamber B Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		LTE2_3M_HARM_QPSK								
Chamber		Pre-amplifier		Filter		Limit				
5m Chamber B		T343 8449B		Filter 1		Part 24				
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
LTE2	Low Ch, 1851.5MHz									
	3.703	-14.9	V	3.0	35.4	1.0	-49.3	-13.0	-36.3	
	5.554	-16.5	V	3.0	34.7	1.0	-50.2	-13.0	-37.2	
3MHz	7.406	-16.5	V	3.0	34.9	1.0	-50.4	-13.0	-37.4	
	3.703	-19.9	H	3.0	35.4	1.0	-54.3	-13.0	-41.3	
	5.554	-17.0	H	3.0	34.7	1.0	-50.7	-13.0	-37.7	
QPSK	7.406	-17.3	H	3.0	34.9	1.0	-51.2	-13.0	-38.2	
	Mid Ch, 1880.0MHz									
	3.760	-13.5	V	3.0	35.3	1.0	-47.8	-13.0	-34.8	
	5.640	-15.3	V	3.0	34.7	1.0	-49.0	-13.0	-36.0	
	7.520	-15.7	V	3.0	34.9	1.0	-49.6	-13.0	-36.6	
	3.760	-15.3	H	3.0	35.3	1.0	-49.7	-13.0	-36.7	
	5.640	-17.1	H	3.0	34.7	1.0	-50.8	-13.0	-37.8	
	7.520	-17.3	H	3.0	34.9	1.0	-51.2	-13.0	-38.2	
High Ch, 1908.5 MHz										
	3.817	-20.0	V	3.0	35.3	1.0	-54.3	-13.0	-41.3	
	5.725	-19.0	V	3.0	34.7	1.0	-52.8	-13.0	-39.8	
	7.634	-12.4	V	3.0	34.9	1.0	-46.4	-13.0	-33.4	
	3.817	-18.5	H	3.0	35.3	1.0	-52.8	-13.0	-39.8	
	5.725	-17.0	H	3.0	34.7	1.0	-50.7	-13.0	-37.7	
	7.634	-15.8	H	3.0	34.9	1.0	-49.8	-13.0	-36.8	
Rev: 03.03.09										
Note: No other emissions were detected above the system noise floor.										

UL Verification Services Chamber B Above 1GHz High Frequency Substitution Measurement											
Company:		LG									
Project #:		15119923									
Date:		02/06/15									
Test Engineer:		O. Stoelting									
Configuration:		X-pos EUT w/ AC Adaptor and HS									
Mode:		LTE2_1.4M_HARM_16QAM									
Chamber		Pre-amplifier			Filter		Limit				
5m Chamber B		T343 8449B			Filter 1		Part 24				
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
LTE2 1.4MHz 16QAM	Low Ch, 1851.0MHz										
	3.702	-16.1	V	3.0	35.4	1.0	-50.5	-13.0	-37.5		
	5.553	-19.4	V	3.0	34.7	1.0	-53.1	-13.0	-40.1		
	7.404	-18.7	V	3.0	34.9	1.0	-52.6	-13.0	-39.6		
	3.702	-20.1	H	3.0	35.4	1.0	-54.5	-13.0	-41.5		
	5.553	-17.3	H	3.0	34.7	1.0	-51.0	-13.0	-38.0		
	7.404	-17.2	H	3.0	34.9	1.0	-51.2	-13.0	-38.2		
	Mid Ch, 1880.0MHz										
	3.760	-12.1	V	3.0	35.3	1.0	-46.4	-13.0	-33.4		
	5.640	-14.8	V	3.0	34.7	1.0	-48.5	-13.0	-35.5		
	7.520	-18.7	V	3.0	34.9	1.0	-52.6	-13.0	-39.6		
	3.760	-20.7	H	3.0	35.3	1.0	-55.0	-13.0	-42.0		
5.640	-15.4	H	3.0	34.7	1.0	-49.1	-13.0	-36.1			
7.520	-16.6	H	3.0	34.9	1.0	-50.6	-13.0	-37.6			
High Ch, 1908 MHz											
3.816	-17.0	V	3.0	35.3	1.0	-51.3	-13.0	-38.3			
5.724	-17.6	V	3.0	34.7	1.0	-51.4	-13.0	-38.4			
7.632	-16.2	V	3.0	34.9	1.0	-50.2	-13.0	-37.2			
3.816	-17.6	H	3.0	35.3	1.0	-51.9	-13.0	-38.9			
5.724	-14.3	H	3.0	34.7	1.0	-48.1	-13.0	-35.1			
7.632	-16.0	H	3.0	34.9	1.0	-49.9	-13.0	-36.9			
Rev. 03.03.09											
Note: No other emissions were detected above the system noise floor.											

UL Verification Services Chamber B Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		LTE2_1.4M_HARM_QPSK								
Chamber		Pre-amplifier		Filter		Limit				
5m Chamber B		T343 8449B		Filter 1		Part 24				
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
LTE2 1.4MHz QPSK	Low Ch, 1851.0MHz									
	3.702	-16.1	V	3.0	35.4	1.0	-50.5	-13.0	-37.5	
	5.553	-18.9	V	3.0	34.7	1.0	-52.6	-13.0	-39.6	
	7.404	-18.8	V	3.0	34.9	1.0	-52.8	-13.0	-39.8	
	3.702	-19.9	H	3.0	35.4	1.0	-54.3	-13.0	-41.3	
	5.553	-17.1	H	3.0	34.7	1.0	-50.8	-13.0	-37.8	
	7.404	-17.3	H	3.0	34.9	1.0	-51.2	-13.0	-38.2	
	Mid Ch, 1880.0MHz									
	3.760	-11.3	V	3.0	35.3	1.0	-45.6	-13.0	-32.6	
5.640	-15.3	V	3.0	34.7	1.0	-49.0	-13.0	-36.0		
7.520	-18.6	V	3.0	34.9	1.0	-52.6	-13.0	-39.6		
3.760	-20.7	H	3.0	35.3	1.0	-55.0	-13.0	-42.0		
5.640	-15.1	H	3.0	34.7	1.0	-48.8	-13.0	-35.8		
7.520	-16.2	H	3.0	34.9	1.0	-50.1	-13.0	-37.1		
High Ch, 1908 MHz										
3.816	-18.3	V	3.0	35.3	1.0	-52.6	-13.0	-39.6		
5.724	-17.3	V	3.0	34.7	1.0	-51.0	-13.0	-38.0		
7.632	-17.0	V	3.0	34.9	1.0	-50.9	-13.0	-37.9		
3.816	-18.4	H	3.0	35.3	1.0	-52.7	-13.0	-39.7		
5.724	-15.4	H	3.0	34.7	1.0	-49.1	-13.0	-36.1		
7.632	-16.0	H	3.0	34.9	1.0	-49.9	-13.0	-36.9		
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										

UL Verification Services Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119923							
Date:		02/06/15							
Test Engineer:		O. Stoelting							
Configuration:		X-pos EUT w/ AC Adaptor and HS							
Location:		Chamber B							
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									
Band	3704.80	-18.7	V	3.0	35.9	1.0	-53.6	-13.0	-40.6
	5557.20	-19.0	V	3.0	35.5	1.0	-53.5	-13.0	-40.5
	7409.60	-17.5	V	3.0	35.7	1.0	-52.3	-13.0	-39.3
Band 2	3704.80	-20.8	H	3.0	35.9	1.0	-55.6	-13.0	-42.6
	5557.20	-17.2	H	3.0	35.5	1.0	-51.7	-13.0	-38.7
	7409.60	-17.1	H	3.0	35.7	1.0	-51.8	-13.0	-38.8
HSDPA	Mid Ch, 1880								
	3760.00	-17.6	V	3.0	35.8	1.0	-52.5	-13.0	-39.5
	5640.00	-18.9	V	3.0	35.5	1.0	-53.3	-13.0	-40.3
	7520.00	-18.0	V	3.0	35.7	1.0	-52.7	-13.0	-39.7
	3760.00	-22.3	H	3.0	35.8	1.0	-57.1	-13.0	-44.1
	5640.00	-18.2	H	3.0	35.5	1.0	-52.7	-13.0	-39.7
	7520.00	-16.6	H	3.0	35.7	1.0	-51.3	-13.0	-38.3
	High Ch, 1907.6								
	3815.20	-18.7	V	3.0	35.8	1.0	-53.5	-13.0	-40.5
	5722.80	-19.3	V	3.0	35.5	1.0	-53.8	-13.0	-40.8
	7630.40	-17.3	V	3.0	35.8	1.0	-52.0	-13.0	-39.0
	3815.20	-19.5	H	3.0	35.8	1.0	-54.3	-13.0	-41.3
	5722.80	-18.4	H	3.0	35.5	1.0	-52.9	-13.0	-39.9
	7630.40	-16.2	H	3.0	35.8	1.0	-51.0	-13.0	-38.0

UL Verification Services Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119923							
Date:		02/06/15							
Test Engineer:		O. Stoelting							
Configuration:		X-pos EUT w/ AC Adaptor and HS							
Location:		Chamber B							
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									
Band	3704.80	-18.8	V	3.0	35.9	1.0	-53.6	-13.0	-40.6
	5557.20	-18.9	V	3.0	35.5	1.0	-53.4	-13.0	-40.4
	7409.60	-17.4	V	3.0	35.7	1.0	-52.2	-13.0	-39.2
Band 2	3704.80	-22.4	H	3.0	35.9	1.0	-57.3	-13.0	-44.3
	5557.20	-18.8	H	3.0	35.5	1.0	-53.3	-13.0	-40.3
	7409.60	-17.0	H	3.0	35.7	1.0	-51.7	-13.0	-38.7
REL99	Mid Ch, 1880								
	3760.00	-20.7	V	3.0	35.8	1.0	-55.5	-13.0	-42.5
	5640.00	-18.2	V	3.0	35.5	1.0	-52.7	-13.0	-39.7
	7520.00	-17.7	V	3.0	35.7	1.0	-52.4	-13.0	-39.4
	3760.00	-20.9	H	3.0	35.8	1.0	-55.7	-13.0	-42.7
	5640.00	-18.4	H	3.0	35.5	1.0	-52.9	-13.0	-39.9
	7520.00	-17.0	H	3.0	35.7	1.0	-51.7	-13.0	-38.7
	High Ch, 1907.6								
	3815.20	-19.6	V	3.0	35.8	1.0	-54.4	-13.0	-41.4
	5722.80	-19.3	V	3.0	35.5	1.0	-53.8	-13.0	-40.8
	7630.40	-17.1	V	3.0	35.8	1.0	-51.8	-13.0	-38.8
	3815.20	-21.4	H	3.0	35.8	1.0	-56.2	-13.0	-43.2
	5722.80	-18.2	H	3.0	35.5	1.0	-52.7	-13.0	-39.7
	7630.40	-16.3	H	3.0	35.8	1.0	-51.0	-13.0	-38.0

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119923							
Date:		2/11/2015							
Test Engineer:		S,Tran							
Configuration:		EUT , AC Adapter, Headset							
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
Band									
Low Ch, 826.4									
1652.80	-25.7	V	3.0	37.0	1.0	-61.7	-13.0	-48.7	
2479.20	-25.7	V	3.0	36.4	1.0	-61.1	-13.0	-48.1	
Band 5									
3305.60	-24.4	V	3.0	36.1	1.0	-59.6	-13.0	-46.6	
1652.80	-24.9	H	3.0	37.0	1.0	-60.9	-13.0	-47.9	
2479.20	-25.9	H	3.0	36.4	1.0	-61.3	-13.0	-48.3	
HSDPA									
3305.60	-25.0	H	3.0	36.1	1.0	-60.1	-13.0	-47.1	
Mid Ch, 836.6									
1673.20	-24.8	V	3.0	37.0	1.0	-60.8	-13.0	-47.8	
2509.80	-24.9	V	3.0	36.4	1.0	-60.3	-13.0	-47.3	
3346.40	-25.1	V	3.0	36.1	1.0	-60.2	-13.0	-47.2	
1673.20	-23.0	H	3.0	37.0	1.0	-59.0	-13.0	-46.0	
2509.80	-26.0	H	3.0	36.4	1.0	-61.4	-13.0	-48.4	
3346.40	-23.8	H	3.0	36.1	1.0	-58.9	-13.0	-45.9	
High Ch, 846.6									
1693.20	-23.4	V	3.0	37.0	1.0	-59.4	-13.0	-46.4	
2539.80	-25.6	V	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3386.40	-24.0	V	3.0	36.1	1.0	-59.1	-13.0	-46.1	
1693.20	-20.9	H	3.0	37.0	1.0	-56.8	-13.0	-43.8	
2539.80	-27.4	H	3.0	36.4	1.0	-62.8	-13.0	-49.8	
3386.40	-24.5	H	3.0	36.1	1.0	-59.6	-13.0	-46.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119923							
Date:		2/11/2015							
Test Engineer:		S,Tran							
Configuration:		EUT , AC Adapter, Headset							
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
Band									
Band 5									
REL99									
Low Ch, 826.4									
1652.80	-24.3	V	3.0	37.0	1.0	-60.3	-13.0	-47.3	
2479.20	-24.7	V	3.0	36.4	1.0	-60.1	-13.0	-47.1	
3305.60	-24.4	V	3.0	36.1	1.0	-59.6	-13.0	-46.6	
1652.80	-24.7	H	3.0	37.0	1.0	-60.7	-13.0	-47.7	
2479.20	-25.0	H	3.0	36.4	1.0	-60.5	-13.0	-47.5	
3305.60	-24.2	H	3.0	36.1	1.0	-59.4	-13.0	-46.4	
Mid Ch, 836.6									
1673.20	-24.4	V	3.0	37.0	1.0	-60.4	-13.0	-47.4	
2509.80	-25.3	V	3.0	36.4	1.0	-60.7	-13.0	-47.7	
3346.40	-24.8	V	3.0	36.1	1.0	-59.9	-13.0	-46.9	
1673.20	-23.2	H	3.0	37.0	1.0	-59.2	-13.0	-46.2	
2509.80	-25.9	H	3.0	36.4	1.0	-61.3	-13.0	-48.3	
3346.40	-23.8	H	3.0	36.1	1.0	-59.0	-13.0	-46.0	
High Ch, 846.6									
1693.20	-23.1	V	3.0	37.0	1.0	-59.1	-13.0	-46.1	
2539.80	-24.5	V	3.0	36.4	1.0	-59.9	-13.0	-46.9	
3386.40	-23.7	V	3.0	36.1	1.0	-58.8	-13.0	-45.8	
1693.20	-20.2	H	3.0	37.0	1.0	-56.2	-13.0	-43.2	
2539.80	-27.2	H	3.0	36.4	1.0	-62.7	-13.0	-49.7	
3386.40	-24.1	H	3.0	36.1	1.0	-59.2	-13.0	-46.2	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15I19923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		EGPRS1900 Harm								
Chamber		Pre-amplifer		Filter		Limit				
3m Chamber		T34 8449B		Filter 1		Part 24				
Band	f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
GSM	GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
1900	Low Ch, 1850.2MHz									
	3.700	-20.7	V	3.0	35.4	1.0	-55.1	-13.0	-42.1	
	5.551	-19.8	V	3.0	34.7	1.0	-53.5	-13.0	-40.5	
EGPRS	7.401	-12.3	V	3.0	34.9	1.0	-46.2	-13.0	-33.2	
	3.700	-22.4	H	3.0	35.4	1.0	-56.8	-13.0	-43.8	
	5.551	-19.2	H	3.0	34.7	1.0	-52.9	-13.0	-39.9	
	7.401	-14.3	H	3.0	34.9	1.0	-48.2	-13.0	-35.2	
	Mid Ch, 1880.0MHz									
	3.760	-21.6	V	3.0	35.3	1.0	-55.9	-13.0	-42.9	
	5.640	-19.5	V	3.0	34.7	1.0	-53.3	-13.0	-40.3	
	7.520	-13.0	V	3.0	34.9	1.0	-46.9	-13.0	-33.9	
	3.760	-22.1	H	3.0	35.3	1.0	-56.4	-13.0	-43.4	
	5.640	-18.9	H	3.0	34.7	1.0	-52.7	-13.0	-39.7	
	7.520	-10.2	H	3.0	34.9	1.0	-44.1	-13.0	-31.1	
	High Ch, 1909.8MHz									
	3.820	-21.6	V	3.0	35.3	1.0	-55.9	-13.0	-42.9	
	5.729	-19.3	V	3.0	34.7	1.0	-53.0	-13.0	-40.0	
	7.639	-8.0	V	3.0	35.0	1.0	-42.0	-13.0	-29.0	
	3.820	-21.3	H	3.0	35.3	1.0	-55.6	-13.0	-42.6	
	5.729	-18.8	H	3.0	34.7	1.0	-52.5	-13.0	-39.5	
	7.639	-11.1	H	3.0	35.0	1.0	-45.1	-13.0	-32.1	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119923								
Date:		02/06/15								
Test Engineer:		O. Stoelting								
Configuration:		X-pos EUT w/ AC Adaptor and HS								
Mode:		GPRS1900 Harm								
Chamber		Pre-amplifier		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
GSM 1900 GPRS	Low Ch, 1850.2MHz									
	3.700	-22.1	V	3.0	35.4	1.0	-56.5	-13.0	-43.5	
	5.551	-19.8	V	3.0	34.7	1.0	-53.5	-13.0	-40.5	
	7.401	-14.3	V	3.0	34.9	1.0	-48.2	-13.0	-35.2	
	3.700	-22.4	H	3.0	35.4	1.0	-56.8	-13.0	-43.8	
	5.551	-16.0	H	3.0	34.7	1.0	-49.8	-13.0	-36.8	
	7.401	-14.6	H	3.0	34.9	1.0	-48.5	-13.0	-35.5	
	Mid Ch, 1880.0MHz									
	3.760	-21.8	V	3.0	35.3	1.0	-56.1	-13.0	-43.1	
	5.640	-19.3	V	3.0	34.7	1.0	-53.0	-13.0	-40.0	
	7.520	-10.1	V	3.0	34.9	1.0	-44.1	-13.0	-31.1	
	3.760	-22.0	H	3.0	35.3	1.0	-56.3	-13.0	-43.3	
	5.640	-17.5	H	3.0	34.7	1.0	-51.2	-13.0	-38.2	
	7.520	-8.3	H	3.0	34.9	1.0	-42.2	-13.0	-29.2	
	High Ch, 1909.8MHz									
	3.820	-21.2	V	3.0	35.3	1.0	-55.5	-13.0	-42.5	
	5.729	-17.8	V	3.0	34.7	1.0	-51.5	-13.0	-38.5	
	7.639	-17.6	V	3.0	35.0	1.0	-51.5	-13.0	-38.5	
3.820	-21.8	H	3.0	35.3	1.0	-56.1	-13.0	-43.1		
5.729	-14.2	H	3.0	34.7	1.0	-48.0	-13.0	-35.0		
7.639	-14.4	H	3.0	35.0	1.0	-48.4	-13.0	-35.4		

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119923							
Date:		2/11/2015							
Test Engineer:		S,Tran							
Configuration:		EUT , AC Adapter, Headset							
Location:		Chamber B							
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
Band									
Low Ch, 824.2									
1648.40	-31.4	V	3.0	37.0	1.0	-67.5	-13.0	-54.5	
2472.60	-26.7	V	3.0	36.4	1.0	-62.2	-13.0	-49.2	
3296.80	-25.4	V	3.0	36.2	1.0	-60.6	-13.0	-47.6	
GSM									
1648.40	-31.2	H	3.0	37.0	1.0	-67.2	-13.0	-54.2	
2472.60	-29.2	H	3.0	36.4	1.0	-64.6	-13.0	-51.6	
3296.80	-25.8	H	3.0	36.2	1.0	-61.0	-13.0	-48.0	
EGPRS									
Mid Ch, 836.6									
1673.20	-30.3	V	3.0	37.0	1.0	-66.3	-13.0	-53.3	
2509.80	-26.4	V	3.0	36.4	1.0	-61.8	-13.0	-48.8	
3346.40	-25.9	V	3.0	36.1	1.0	-61.0	-13.0	-48.0	
1673.20	-31.4	H	3.0	37.0	1.0	-67.4	-13.0	-54.4	
2509.80	-27.7	H	3.0	36.4	1.0	-63.1	-13.0	-50.1	
3346.40	-25.9	H	3.0	36.1	1.0	-61.0	-13.0	-48.0	
High Ch, 848.8									
1697.60	-30.2	V	3.0	37.0	1.0	-66.1	-13.0	-53.1	
2546.40	-27.1	V	3.0	36.4	1.0	-62.5	-13.0	-49.5	
3395.20	-25.4	V	3.0	36.1	1.0	-60.5	-13.0	-47.5	
1697.60	-30.6	H	3.0	37.0	1.0	-66.5	-13.0	-53.5	
2546.40	-28.3	H	3.0	36.4	1.0	-63.7	-13.0	-50.7	
3395.20	-25.2	H	3.0	36.1	1.0	-60.3	-13.0	-47.3	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119923							
Date:		2/11/2015							
Test Engineer:		S,Tran							
Configuration:		EUT , AC Adapter, Headset							
Location:		Chamber B							
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	-30.1	V	3.0	37.0	1.0	-66.1	-13.0	-53.1	
2472.60	-25.4	V	3.0	36.4	1.0	-60.9	-13.0	-47.9	
3296.80	-24.1	V	3.0	36.2	1.0	-59.2	-13.0	-46.2	
850									
1648.40	-29.8	H	3.0	37.0	1.0	-65.9	-13.0	-52.9	
2472.60	-27.8	H	3.0	36.4	1.0	-63.3	-13.0	-50.3	
3296.80	-24.5	H	3.0	36.2	1.0	-59.7	-13.0	-46.7	
GPRS									
Mid Ch, 836.6									
1673.20	-28.9	V	3.0	37.0	1.0	-64.9	-13.0	-51.9	
2509.80	-25.0	V	3.0	36.4	1.0	-60.4	-13.0	-47.4	
3346.40	-24.6	V	3.0	36.1	1.0	-59.7	-13.0	-46.7	
1673.20	-30.1	H	3.0	37.0	1.0	-66.1	-13.0	-53.1	
2509.80	-26.4	H	3.0	36.4	1.0	-61.8	-13.0	-48.8	
3346.40	-24.6	H	3.0	36.1	1.0	-59.7	-13.0	-46.7	
High Ch, 848.8									
1697.60	-28.8	V	3.0	37.0	1.0	-64.8	-13.0	-51.8	
2546.40	-25.8	V	3.0	36.4	1.0	-61.2	-13.0	-48.2	
3395.20	-24.1	V	3.0	36.1	1.0	-59.1	-13.0	-46.1	
1697.60	-29.2	H	3.0	37.0	1.0	-65.2	-13.0	-52.2	
2546.40	-27.0	H	3.0	36.4	1.0	-62.4	-13.0	-49.4	
3395.20	-23.9	H	3.0	36.1	1.0	-59.0	-13.0	-46.0	