



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

C2PC CERTIFICATION TEST REPORT

FOR

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

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

FCC ID: ZNFH443

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1. ATTESTATION OF TEST RESULTS

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

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

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

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

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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 checked="" 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)

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{EIRP} &= \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss} \\ &\quad (\text{between the SG and substitution antenna}) + \text{Substitution Antenna Factor (dBi)} \\ \text{ERP} &= \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss} \\ &\quad (\text{between the SG and substitution antenna}) \\ &\quad (\text{Path loss} = \text{Signal generator output} - \text{PSA reading with substitution antenna}) \end{aligned}$$

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, DTS/UNII a/b/g/n & NFC

5.2. MAXIMUM OUTPUT POWER

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

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

5.3. MAXIMUM OUTPUT POWER (LTE)

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

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

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

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

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

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

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

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

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

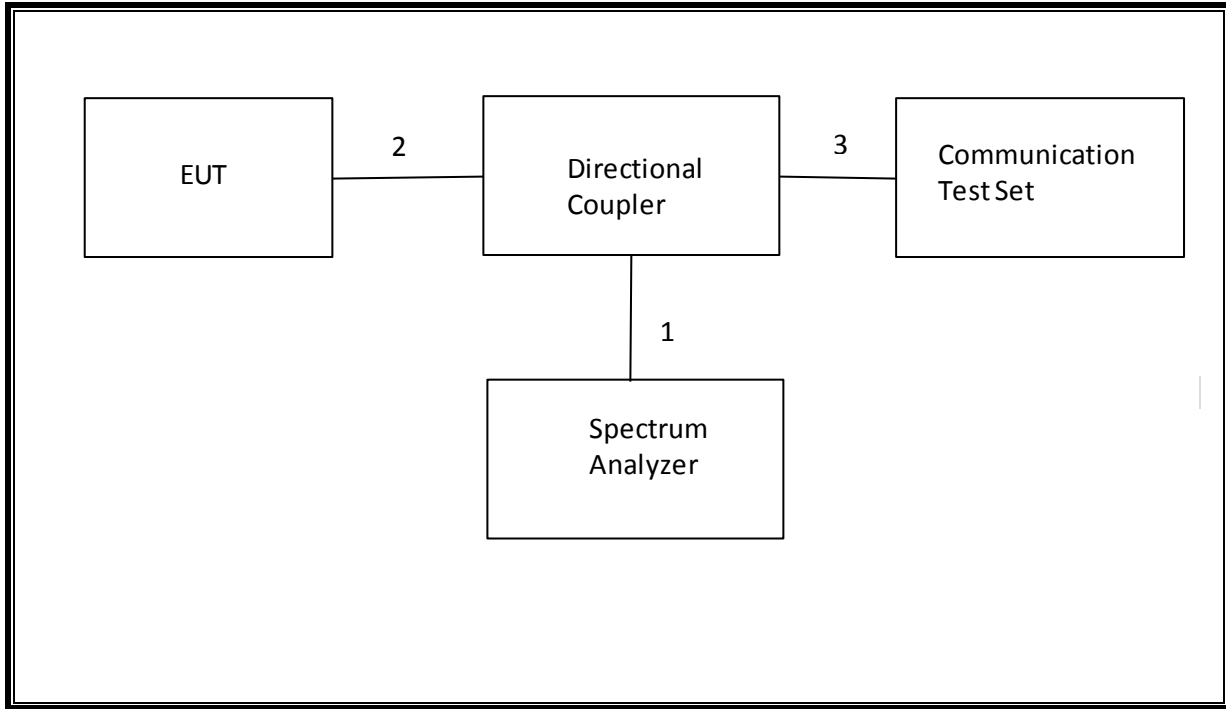
I/O CABLES (RADIATED SETUP)

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

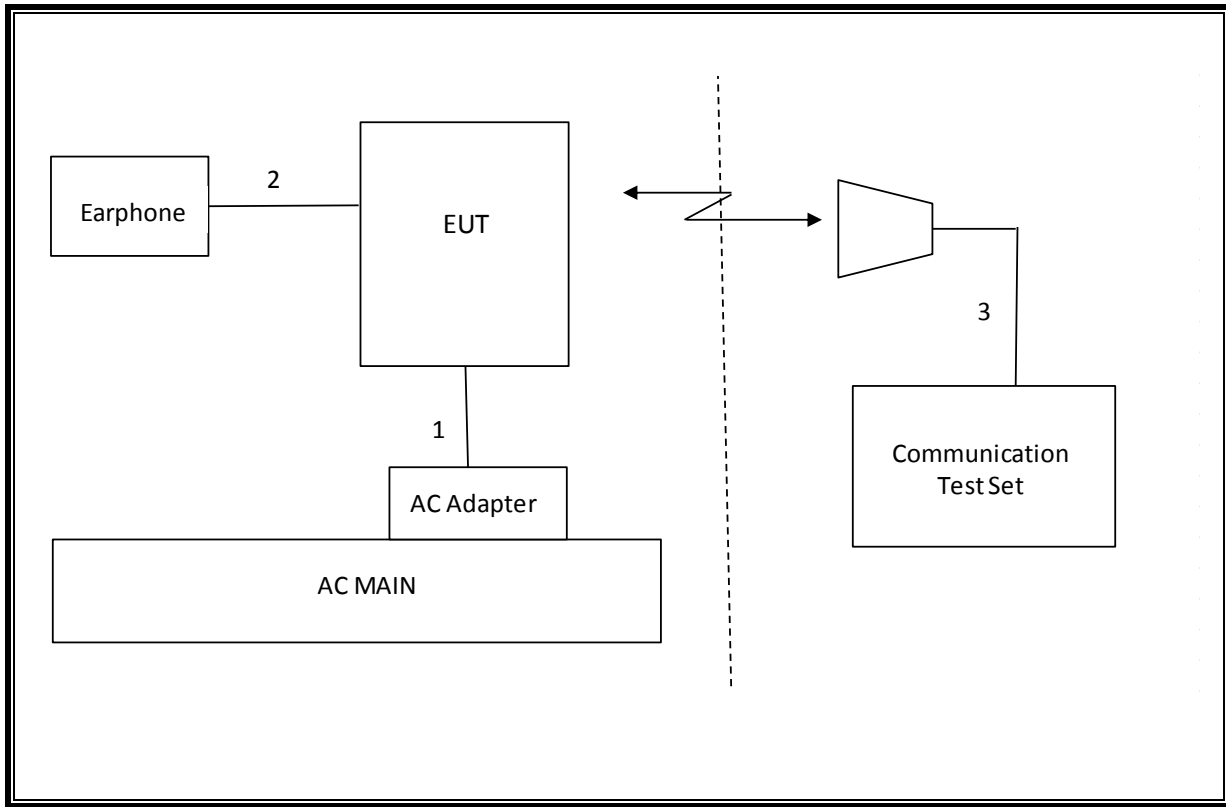
TEST SETUP

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

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

7. SUMMARY TABLE

C2PC Reason:

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

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

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

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	33.1
			190	836.6	33.1
			251	848.8	33.1
GPRS (GMSK)	CS1	1	128	824.2	33.1
			190	836.6	33.1
			251	848.8	33.1
		2	128	824.2	31.7
			190	836.6	31.7
			251	848.8	31.7
EGPRS (8PSK)	MCS5	1	128	824.2	27.7
			190	836.6	27.7
			251	848.8	27.7
		2	128	824.2	27.7
			190	836.6	27.7
			251	848.8	27.5

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

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	23.7
		4183	836.6	0	23.7
		4233	846.6	0	23.7

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	0	23.2
		9400	1880.0	0	23.4
		9538	1907.6	0	23.5

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	23.7
		4183	836.6	0	23.7
		4233	846.6	0	23.7
	Subtest 2	4132	826.4	0	23.7
		4183	836.6	0	23.7
		4233	846.6	0	23.7
	Subtest 3	4132	826.4	0.5	23.2
		4183	836.6	0.5	23.1
		4233	846.6	0.5	23.1
	Subtest 4	4132	826.4	0.5	23.2
		4183	836.6	0.5	23.1
		4233	846.6	0.5	23.1

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

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	22.5
		4183	836.6	0	22.9
		4233	846.6	0	22.5
	Subtest 2	4132	826.4	2	21.5
		4183	836.6	2	21.7
		4233	846.6	2	21.7
	Subtest 3	4132	826.4	1	22.4
		4183	836.6	1	22.4
		4233	846.6	1	22.5
	Subtest 4	4132	826.4	2	21.5
		4183	836.6	2	21.7
		4233	846.6	2	21.7
	Subtest 5	4132	826.4	0	22.5
		4183	836.6	0	22.9
		4233	846.6	0	22.5

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

8.5. DC-HSDPA

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

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

Table E.5.0: Levels for HSDPA connection setup

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

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

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

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

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

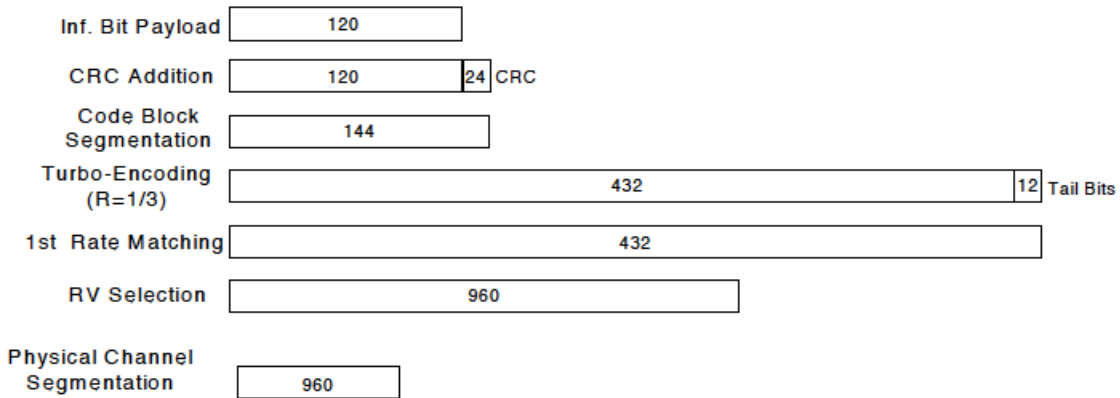


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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

	Mode	Rel6 HSDPA	Rel6 HSDPA	Rel6 HSDPA	Rel6 HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm2			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	β_d (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	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack Repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	$A_{hs} = \beta_{hs} / \beta_c$	30/15			

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

8.5.1. UMTS DC-HSDPA OUTPUT POWER RESULT

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

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

8.7. LTE OUTPUT VERIFICATION

8.7.1. LTE OUTPUT RESULT

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	10	QPSK	1	0	0	23.7
			1	24	0	23.3
			1	49	0	23.4
			25	0	1	22.5
			25	12	1	22.4
			25	24	1	22.4
			50	0	1	22.5
		16QAM	1	0	1	22.7
			1	24	1	22.7
			1	49	1	22.5
			25	0	2	21.5
			25	12	2	21.5
			25	24	2	21.5
			50	0	2	21.4
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	5	QPSK	1	0	0	23.2
			1	12	0	23.4
			1	24	0	23.1
			12	0	1	22.3
			12	6	1	22.3
			12	11	1	22.3
			25	0	1	22.2
		16QAM	1	0	1	22.4
			1	12	1	22.6
			1	24	1	22.1
			12	0	2	21.3
			12	6	2	21.2
			12	11	2	21.2
			25	0	2	21.3

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)			
						20450	20525	20600	
						829 MHz	836.5 MHz	844 MHz	
LTE Band 5	10	QPSK	1	0	0	23.1	23.4	23.1	
			1	24	0	23.1	23.2	23.0	
			1	49	0	23.2	23.0	23.0	
			25	0	1	22.3	22.3	22.2	
			25	12	1	22.4	22.3	22.3	
			25	24	1	22.3	22.4	22.2	
		16QAM	50	0	1	22.4	22.3	22.2	
			1	0	1	22.5	22.7	22.2	
			1	24	1	22.6	22.0	22.1	
			1	49	1	22.6	22.4	22.4	
			25	0	2	21.3	21.3	21.4	
			25	12	2	21.4	21.3	21.3	
LTE Band 5	5	QPSK	25	24	2	21.3	21.4	21.4	
			50	0	2	21.4	21.3	21.2	
			1	0	0	23.0	23.4	23.1	
			1	12	0	23.1	23.7	23.3	
			1	24	0	23.0	23.3	22.9	
			12	0	1	22.2	22.3	22.2	
		16QAM	12	6	1	22.3	22.3	22.2	
			12	11	1	22.3	22.3	22.2	
			25	0	1	22.3	22.3	22.2	
			1	0	1	22.5	22.3	22.5	
			1	12	1	22.7	22.4	22.7	
			1	24	1	22.1	22.5	22.7	
16QAM	12	0	2	21.2	21.4	21.3			
	12	6	2	21.4	21.4	21.2			
	12	11	2	21.3	21.4	21.3			
	25	0	2	21.3	21.3	21.1			
							Avg Pwr (dBm)		
	Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	20425	20525	20625
826.5 MHz							836.5 MHz	846.5 MHz	

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20415	20525	20635
						825.5 MHz	836.5 MHz	847.5 MHz
LTE Band 5	3	QPSK	1	0	0	23.1	23.3	22.9
			1	7	0	23.2	23.5	23.4
			1	14	0	23.0	23.1	23.1
			6	0	1	22.3	22.3	22.2
			6	3	1	22.3	22.4	22.1
			6	5	1	22.2	22.3	22.3
		16QAM	15	0	1	22.3	22.4	22.2
			1	0	1	22.7	22.7	22.7
			1	7	1	22.7	22.6	22.4
			1	14	1	22.7	22.7	21.8
			6	0	2	21.5	21.1	21.3
			6	3	2	21.1	21.1	21.4
			6	5	2	21.5	21.1	21.3
			15	0	2	21.3	21.3	21.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20407	20525	20643
						824.7 MHz	836.5 MHz	848.3 MHz
LTE Band 5	1.4	QPSK	1	0	0	23.1	23.1	22.8
			1	2	0	23.2	23.3	23.0
			1	5	0	23.1	23.2	22.9
			3	0	0	23.2	23.2	23.0
			3	1	0	23.2	23.3	23.2
			3	2	0	23.2	23.3	23.1
		16QAM	6	0	1	22.3	22.3	22.1
			1	0	1	22.7	22.7	22.5
			1	2	1	21.9	22.0	22.7
			1	5	1	22.5	22.2	22.2
			3	0	1	22.6	21.9	22.2
			3	1	1	22.6	21.9	22.5
			3	2	1	22.6	22.5	22.6
			6	0	2	21.2	21.1	21.3

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20050	20175	20300
						1720 MHz	1732.5 MHz	1745 MHz
LTE Band 4	20	QPSK	1	0	0	23.5	23.1	23.2
			1	49	0	23.5	23.1	23.5
			1	99	0	23.2	23.1	23.4
			50	0	1	22.2	22.3	22.2
			50	25	1	22.2	22.3	22.2
			50	49	1	22.1	22.1	22.2
			100	0	1	22.2	22.2	22.2
		16QAM	1	0	1	22.2	22.4	22.7
			1	49	1	22.1	22.1	22.7
			1	99	1	21.9	22.0	22.7
			50	0	2	21.2	21.3	21.1
			50	25	2	21.2	21.1	20.9
			50	49	2	21.2	21.0	21.0
			100	0	2	21.1	21.2	21.3
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20025	20175	20325
						1717.5 MHz	1732.5 MHz	1747.5 MHz
LTE Band 4	15	QPSK	1	0	0	23.0	23.2	23.2
			1	37	0	23.7	23.1	23.6
			1	74	0	22.9	23.1	23.1
			36	0	1	22.2	22.3	22.2
			36	18	1	22.1	22.2	22.2
			36	35	1	22.2	22.2	22.2
			75	0	1	22.1	22.2	22.1
		16QAM	1	0	1	22.4	22.6	22.7
			1	37	1	22.2	22.4	22.7
			1	74	1	22.1	22.4	22.7
			36	0	2	21.1	21.2	21.3
			36	18	2	21.0	21.3	21.1
			36	35	2	21.0	21.3	21.1
			75	0	2	21.0	21.3	21.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20000	20175	20350
						1715 MHz	1732.5 MHz	1750 MHz
LTE Band 4	10	QPSK	1	0	0	23.1	23.1	23.1
			1	24	0	23.1	23.1	23.1
			1	49	0	23.0	23.0	23.1
			25	0	1	22.3	22.2	22.2
			25	12	1	22.2	22.2	22.2
			25	24	1	22.1	22.2	22.2
			50	0	1	22.1	22.2	22.2
		16QAM	1	0	1	22.7	22.7	22.5
			1	24	1	22.7	22.7	22.3
			1	49	1	22.7	22.3	21.7
			25	0	2	21.2	21.2	21.3
			25	12	2	21.0	21.2	21.3
			25	24	2	21.1	21.2	21.3
			50	0	2	21.0	21.1	21.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						19975	20175	20375
						1712.5 MHz	1732.5 MHz	1752.5 MHz
LTE Band 4	5	QPSK	1	0	0	22.9	23.1	22.9
			1	12	0	23.1	23.7	23.5
			1	24	0	22.9	23.2	22.9
			12	0	1	22.1	22.1	22.1
			12	6	1	22.2	22.2	22.2
			12	11	1	22.2	22.2	22.1
			25	0	1	22.1	22.1	22.2
		16QAM	1	0	1	22.1	22.2	21.8
			1	12	1	22.3	22.3	22.6
			1	24	1	21.7	22.0	22.7
			12	0	2	21.1	21.2	21.2
			12	6	2	21.2	21.2	21.2
			12	11	2	21.1	21.2	21.3
			25	0	2	21.2	21.2	21.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						19965	20175	20385
						1711.5 MHz	1732.5 MHz	1753.5 MHz
LTE Band 4	3	QPSK	1	0	0	23.1	23.0	22.9
			1	7	0	23.3	23.5	23.3
			1	14	0	23.0	23.1	23.0
			6	0	1	22.1	22.2	22.1
			6	3	1	22.3	22.1	22.1
			6	5	1	22.2	22.1	22.2
			15	0	1	22.2	22.2	22.2
		16QAM	1	0	1	22.5	22.7	22.7
			1	7	1	22.7	22.7	21.8
			1	14	1	22.5	22.3	22.5
			6	0	2	21.2	20.9	21.3
			6	3	2	21.3	21.0	21.3
			6	5	2	21.4	20.9	21.3
			15	0	2	21.2	21.2	21.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						19957	20175	20393
						1710.7 MHz	1732.5 MHz	1754.3 MHz
LTE Band 4	1.4	QPSK	1	0	0	23.1	23.0	23.1
			1	2	0	23.2	23.1	23.2
			1	5	0	23.2	23.1	23.1
			3	0	0	23.2	23.1	23.2
			3	1	0	23.2	23.1	23.2
			3	2	0	23.1	23.2	23.2
			6	0	1	22.2	22.2	22.1
		16QAM	1	0	1	22.7	22.7	22.3
			1	2	1	22.7	22.7	22.6
			1	5	1	22.7	22.4	22.4
			3	0	1	22.4	22.5	22.1
			3	1	1	22.5	22.0	22.3
			3	2	1	22.4	22.2	22.2
			6	0	2	21.2	21.3	21.4

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18700	18900	19100
						1860 MHz	1880 MHz	1900 MHz
LTE Band 2	20	QPSK	1	0	0	23.6	23.2	23.6
			1	49	0	23.5	22.9	23.6
			1	99	0	23.3	23.5	23.5
			50	0	1	22.3	22.2	22.3
			50	25	1	22.3	22.1	22.3
			50	49	1	22.2	22.2	22.1
		16QAM	100	0	1	22.2	22.1	22.2
			1	0	1	22.7	22.7	22.7
			1	49	1	22.7	22.3	22.7
			1	99	1	21.9	22.2	22.7
			50	0	2	21.3	21.2	21.2
			50	25	2	21.0	21.1	21.2
			50	49	2	21.0	21.2	21.1
			100	0	2	21.1	21.1	21.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18675	18900	19125
						1857.5 MHz	1880 MHz	1902.5 MHz
LTE Band 2	15	QPSK	1	0	0	23.1	23.3	23.3
			1	37	0	23.2	23.2	23.2
			1	74	0	23.3	23.3	23.2
			36	0	1	22.2	22.3	22.3
			36	18	1	22.3	22.3	22.3
			36	35	1	22.2	22.3	22.1
			75	0	1	22.2	22.2	22.2
		16QAM	1	0	1	22.5	22.7	22.4
			1	37	1	22.7	22.4	22.5
			1	74	1	22.7	22.5	22.5
			36	0	2	21.2	21.4	21.2
			36	18	2	21.1	21.4	21.2
			36	35	2	21.1	21.3	21.1
			75	0	2	21.2	21.1	21.1

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18650	18900	19150
						1855 MHz	1880 MHz	1905 MHz
LTE Band 2	10	QPSK	1	0	0	23.4	23.7	23.4
			1	25	0	23.3	23.5	23.3
			1	49	0	23.3	23.4	23.3
			25	0	1	22.2	22.4	22.3
			25	12	1	22.2	22.3	22.2
			25	25	1	22.2	22.3	22.2
		16QAM	50	0	1	22.2	22.4	22.2
			1	0	1	22.7	22.6	22.3
			1	25	1	22.4	22.7	22.2
			1	49	1	22.7	22.7	22.3
			25	0	2	21.2	21.3	21.2
			25	12	2	21.2	21.3	21.3
			25	25	2	21.4	21.3	21.3
			50	0	2	21.3	21.3	21.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18625	18900	19175
						1852.5 MHz	1880 MHz	1907.5 MHz
LTE Band 2	5	QPSK	1	0	0	23.1	23.3	23.2
			1	12	0	23.2	23.6	23.3
			1	24	0	23.2	23.3	23.3
			12	0	1	22.1	22.2	22.2
			12	7	1	22.2	22.3	22.2
			12	13	1	22.2	22.3	22.2
		16QAM	25	0	1	22.2	22.3	22.2
			1	0	1	22.2	22.3	22.6
			1	12	1	22.2	22.3	22.2
			1	24	1	22.1	22.2	22.1
			12	0	2	21.1	21.1	21.2
			12	7	2	21.0	21.1	21.4
			12	13	2	21.2	21.2	21.3
			25	0	2	21.3	21.5	21.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18615	18900	19185
						1851.5 MHz	1880 MHz	1908.5 MHz
LTE Band 2	3	QPSK	1	0	0	22.9	23.2	23.1
			1	7	0	23.4	23.7	23.4
			1	14	0	23.0	23.1	23.2
			6	0	1	22.0	22.1	22.2
			6	3	1	22.0	22.1	22.2
			6	5	1	22.0	22.2	22.2
			15	0	1	22.0	22.2	22.3
		16QAM	1	0	1	22.1	22.7	22.6
			1	7	1	22.4	22.7	22.7
			1	14	1	22.3	22.5	22.5
			6	0	2	20.9	20.8	21.4
			6	3	2	21.2	21.1	21.4
			6	5	2	21.1	21.0	21.4
			15	0	2	21.0	21.3	21.3
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18607	18900	19193
						1850.7 MHz	1880 MHz	1909.3 MHz
LTE Band 2	1.4	QPSK	1	0	0	22.9	23.2	23.3
			1	2	0	23.0	23.0	23.3
			1	5	0	23.1	23.0	23.3
			3	0	0	23.0	23.0	23.3
			3	1	0	23.0	23.1	23.3
			3	2	0	23.0	23.2	23.3
			6	0	1	22.0	22.1	22.2
		16QAM	1	0	1	22.1	22.2	22.7
			1	2	1	22.7	22.2	22.7
			1	5	1	22.7	22.2	22.7
			3	0	1	22.3	21.9	22.6
			3	1	1	22.3	22.0	22.6
			3	2	1	21.8	22.2	22.6
			6	0	2	21.6	21.0	21.5

9. PEAK TO AVERAGE RATIO

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

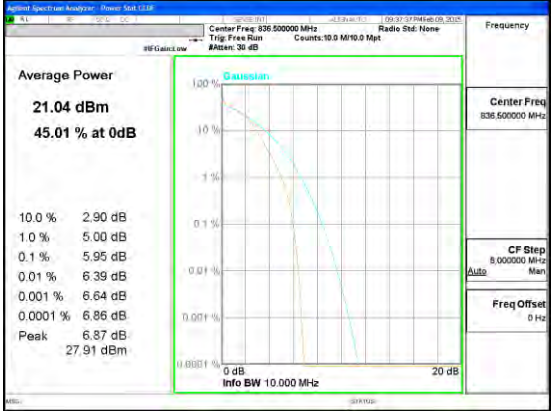

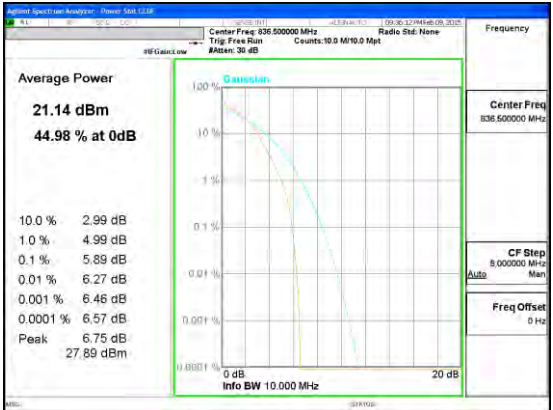
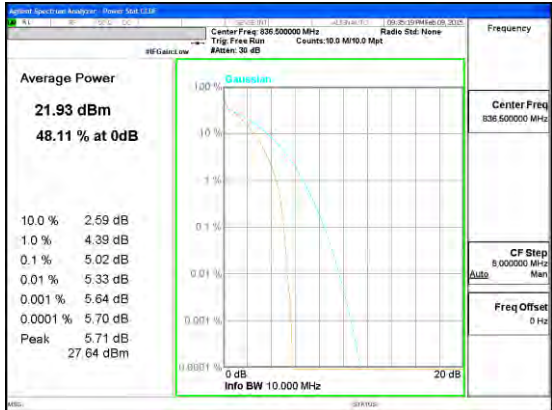
TEST SPEC

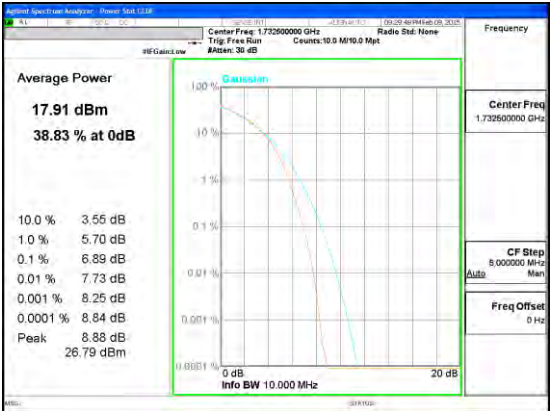
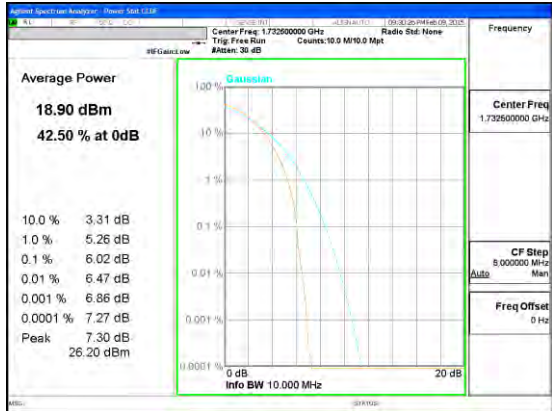
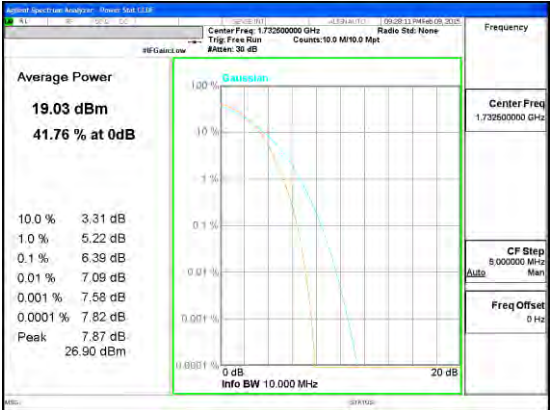
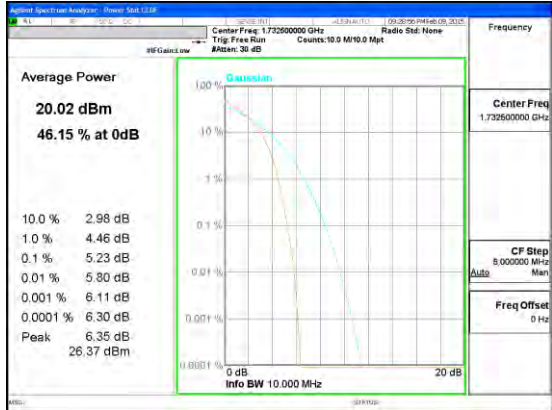
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

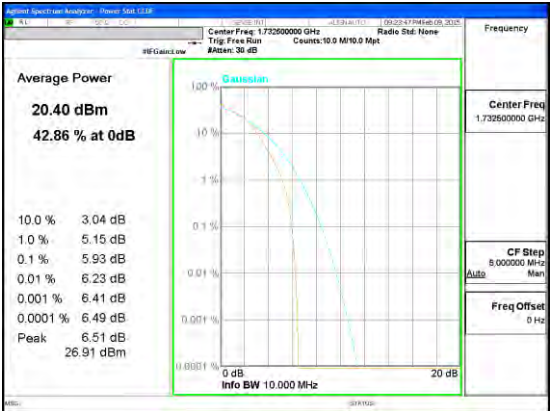
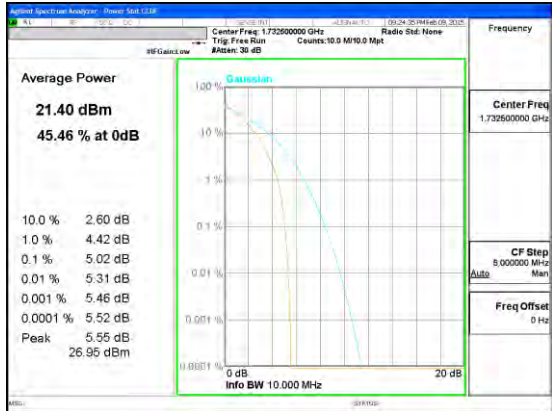
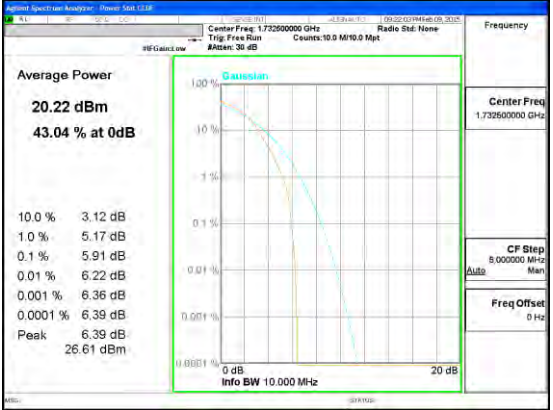
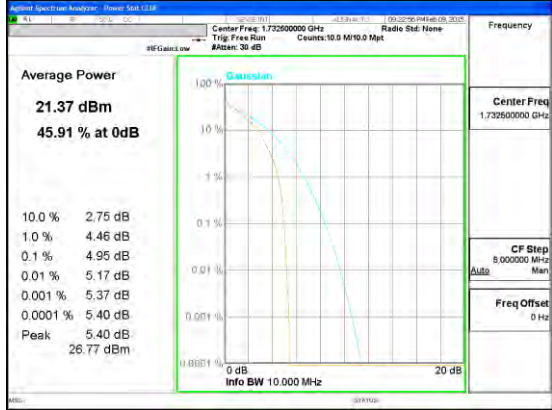
RESULTS

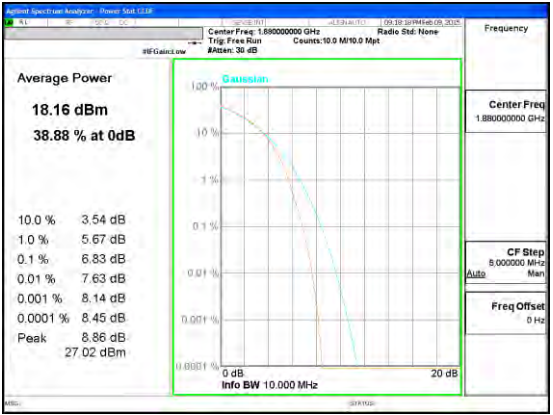
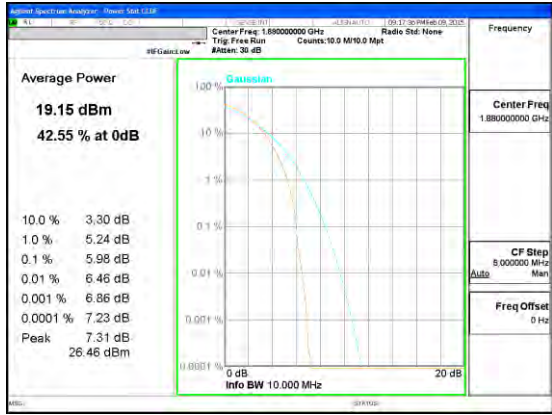
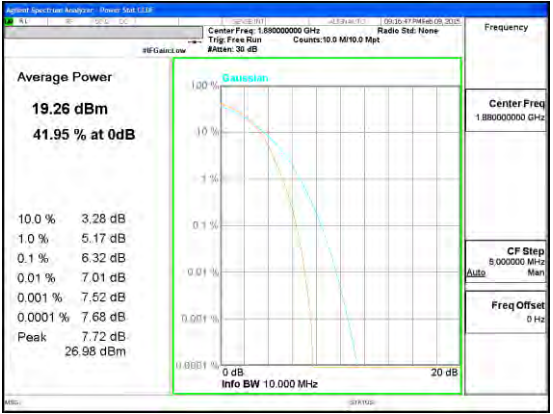
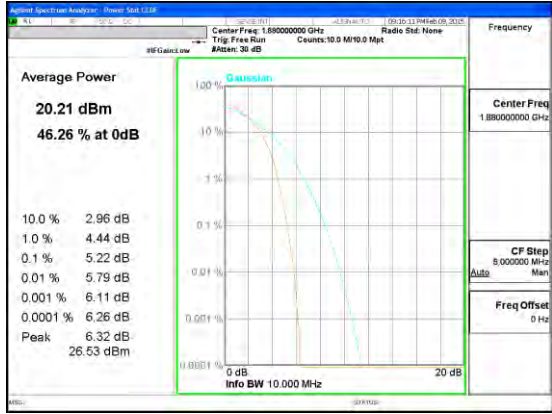
NOTE: Band 17 data please refer to original report for details.

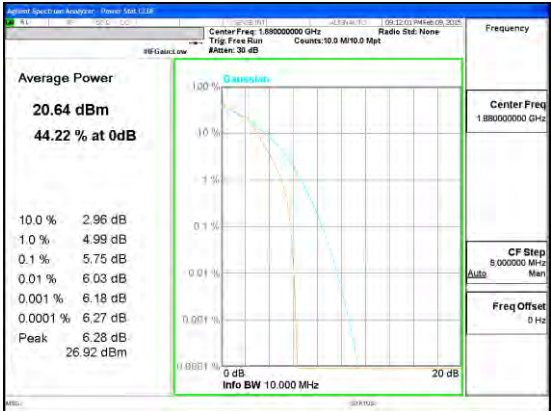
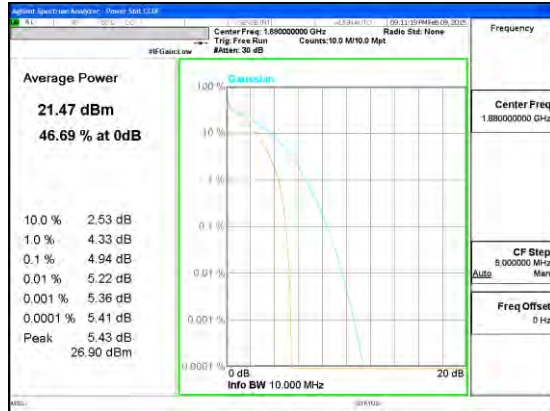
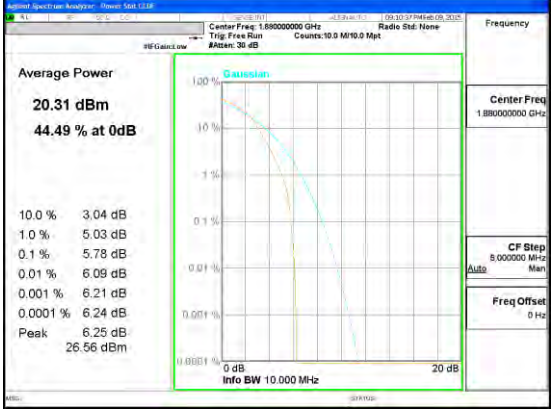
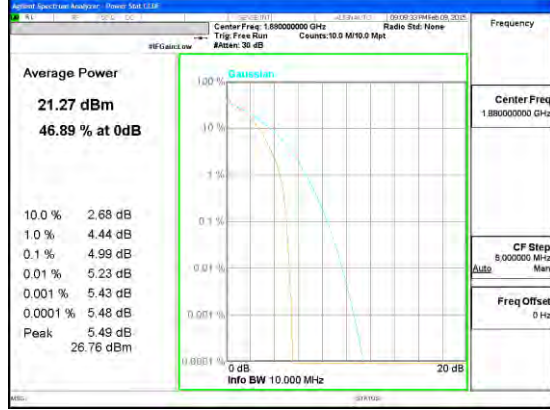
9.1. CONDUCTED PEAK TO AVERAGE RESULT

<p>Band LTE5 3MHz 16QAM</p>	 <p>Average Power 21.04 dBm 45.01 % at 0dB</p> <p>10.0 % 2.90 dB 1.0 % 5.00 dB 0.1 % 5.95 dB 0.01 % 6.39 dB 0.001 % 6.64 dB 0.0001 % 6.86 dB Peak 6.87 dB 27.91 dBm</p> <p>Band LTE5 3MHz 16QAM Mid channel</p>	 <p>Average Power 21.96 dBm 47.08 % at 0dB</p> <p>10.0 % 2.46 dB 1.0 % 4.35 dB 0.1 % 5.11 dB 0.01 % 5.53 dB 0.001 % 5.82 dB 0.0001 % 5.90 dB Peak 5.94 dB 27.90 dBm</p> <p>Band LTE5 3MHz QPSK Mid channel</p>
<p>Band LTE5 1.4MHz 16QAM</p>	 <p>Average Power 21.14 dBm 44.98 % at 0dB</p> <p>10.0 % 2.99 dB 1.0 % 4.99 dB 0.1 % 5.89 dB 0.01 % 6.27 dB 0.001 % 6.46 dB 0.0001 % 6.57 dB Peak 6.75 dB 27.89 dBm</p> <p>Band LTE5 1.4MHz 16QAM Mid channel</p>	 <p>Average Power 21.93 dBm 48.11 % at 0dB</p> <p>10.0 % 2.59 dB 1.0 % 4.39 dB 0.1 % 5.02 dB 0.01 % 5.33 dB 0.001 % 5.64 dB 0.0001 % 5.70 dB Peak 5.71 dB 27.64 dBm</p> <p>Band LTE5 1.4MHz QPSK Mid channel</p>

<p>Band LTE4 20MHz 16QAM</p>	 <p style="text-align: center;">Band LTE4 20MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE4 20MHz QPSK Mid channel</p>
<p>Band LTE4 15MHz 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>LTE4</p> <p>1.4MHz</p> <p>16QAM</p>	 <p style="text-align: center;">Band LTE4 1.4MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE4 1.4MHz QPSK Mid channel</p>

<p>Band LTE2 20MHz 16QAM</p>	 <p style="text-align: center;">Band LTE2 20MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE2 20MHz QPSK Mid channel</p>
<p>Band LTE2 15MHz 16QAM</p>	 <p style="text-align: center;">Band LTE2 15MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE2 15MHz QPSK Mid channel</p>

<p>Band LTE2 3MHz 16QAM</p>	 <p style="text-align: center;">Band LTE2 3MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE2 3MHz QPSK Mid channel</p>
<p>Band LTE2 1.4MHz 16QAM</p>	 <p style="text-align: center;">Band LTE2 1.4MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE2 1.4MHz 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

LTE

RESULTS

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

10.1.1. LTE OCCUPIED BANDWIDTH RESULTS

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

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

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

10.1.2. OCCUPIED BANDWIDTH PLOTS

<p>Band LTE5 3MHz 16QAM</p>	<p>Agilent 21:36:13 Jan 29, 2015</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 2.6889 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -1.391 kHz x dB Bandwidth 2.960 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 21:35:51 Jan 29, 2015</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 2.6906 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 2.117 kHz x dB Bandwidth 2.933 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 21:32:18 Jan 29, 2015</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 1.0819 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 1.171 kHz x dB Bandwidth 1.257 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 21:31:57 Jan 29, 2015</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 1.0838 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -2.686 kHz x dB Bandwidth 1.273 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 20:21:25 Jan 29, 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 17.8626 MHz Occ BN % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 8.288 kHz</p> <p>x dB Bandwidth 19.233 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 20:21:03 Jan 29, 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 17.9302 MHz Occ BN % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 6.988 kHz</p> <p>x dB Bandwidth 19.120 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 19:35:20 Jan 29, 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 13.4383 MHz Occ BN % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 3.451 kHz</p> <p>x dB Bandwidth 14.528 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 19:34:58 Jan 29, 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 13.4251 MHz Occ BN % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 1.684 kHz</p> <p>x dB Bandwidth 14.671 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 19:29:57 Jan 29, 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 2.6875 MHz</p> <p>Transmit Freq Error 1.102 kHz</p> <p>x dB Bandwidth 2.965 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 19:29:36 Jan 29, 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 2.6842 MHz</p> <p>Transmit Freq Error -984.495 Hz</p> <p>x dB Bandwidth 2.973 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 19:22:33 Jan 29, 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 1.0917 MHz</p> <p>Transmit Freq Error 2.190 kHz</p> <p>x dB Bandwidth 1.261 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 19:22:12 Jan 29, 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 1.0862 MHz</p> <p>Transmit Freq Error -354.615 Hz</p> <p>x dB Bandwidth 1.270 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 18:33:47 Jan 29, 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 17.8974 MHz</p> <p>Transmit Freq Error 8.817 kHz</p> <p>x dB Bandwidth 19.307 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 18:33:26 Jan 29, 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 17.9432 MHz</p> <p>Transmit Freq Error 30.638 kHz</p> <p>x dB Bandwidth 19.303 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 18:30:31 Jan 29, 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 13.4091 MHz</p> <p>Transmit Freq Error 14.402 kHz</p> <p>x dB Bandwidth 14.653 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 18:30:09 Jan 29, 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 13.4009 MHz</p> <p>Transmit Freq Error 25.382 kHz</p> <p>x dB Bandwidth 14.637 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 18:25:44 Jan 29, 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</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track Off</p> <p>Occupied Bandwidth 2.6921 MHz</p> <p>Transmit Freq Error 3.472 kHz</p> <p>x dB Bandwidth 2.979 MHz</p> <p>Occ BN % Pwr 99.00 %</p> <p>x dB -26.00 dB</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE2 3MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent 18:25:23 Jan 29, 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</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track Off</p> <p>Occupied Bandwidth 2.6807 MHz</p> <p>Transmit Freq Error 307.859 Hz</p> <p>x dB Bandwidth 2.974 MHz</p> <p>Occ BN % Pwr 99.00 %</p> <p>x dB -26.00 dB</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 18:22:06 Jan 29, 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</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track Off</p> <p>Occupied Bandwidth 1.0878 MHz</p> <p>Transmit Freq Error 2.946 kHz</p> <p>x dB Bandwidth 1.297 MHz</p> <p>Occ BN % Pwr 99.00 %</p> <p>x dB -26.00 dB</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 18:21:44 Jan 29, 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</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track Off</p> <p>Occupied Bandwidth 1.0855 MHz</p> <p>Transmit Freq Error -2.473 kHz</p> <p>x dB Bandwidth 1.281 MHz</p> <p>Occ BN % Pwr 99.00 %</p> <p>x dB -26.00 dB</p> <p>File Operation Status, C:PICTURE.GIF file saved</p> <p>Band LTE2 1.4MHz OBW QPSK Mid Channel FRB.gif</p>

10.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238, §27.53

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

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

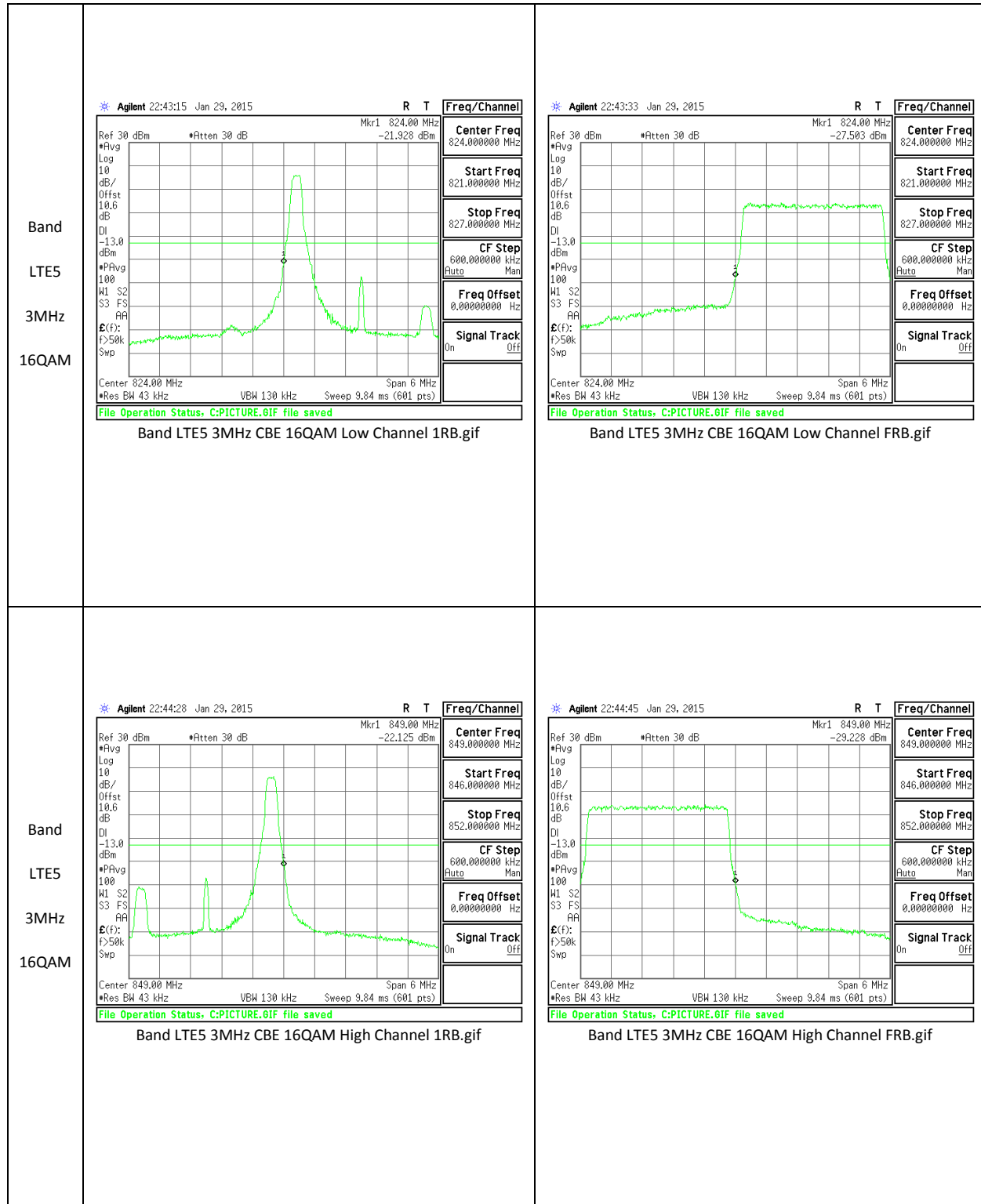
MODES TESTED

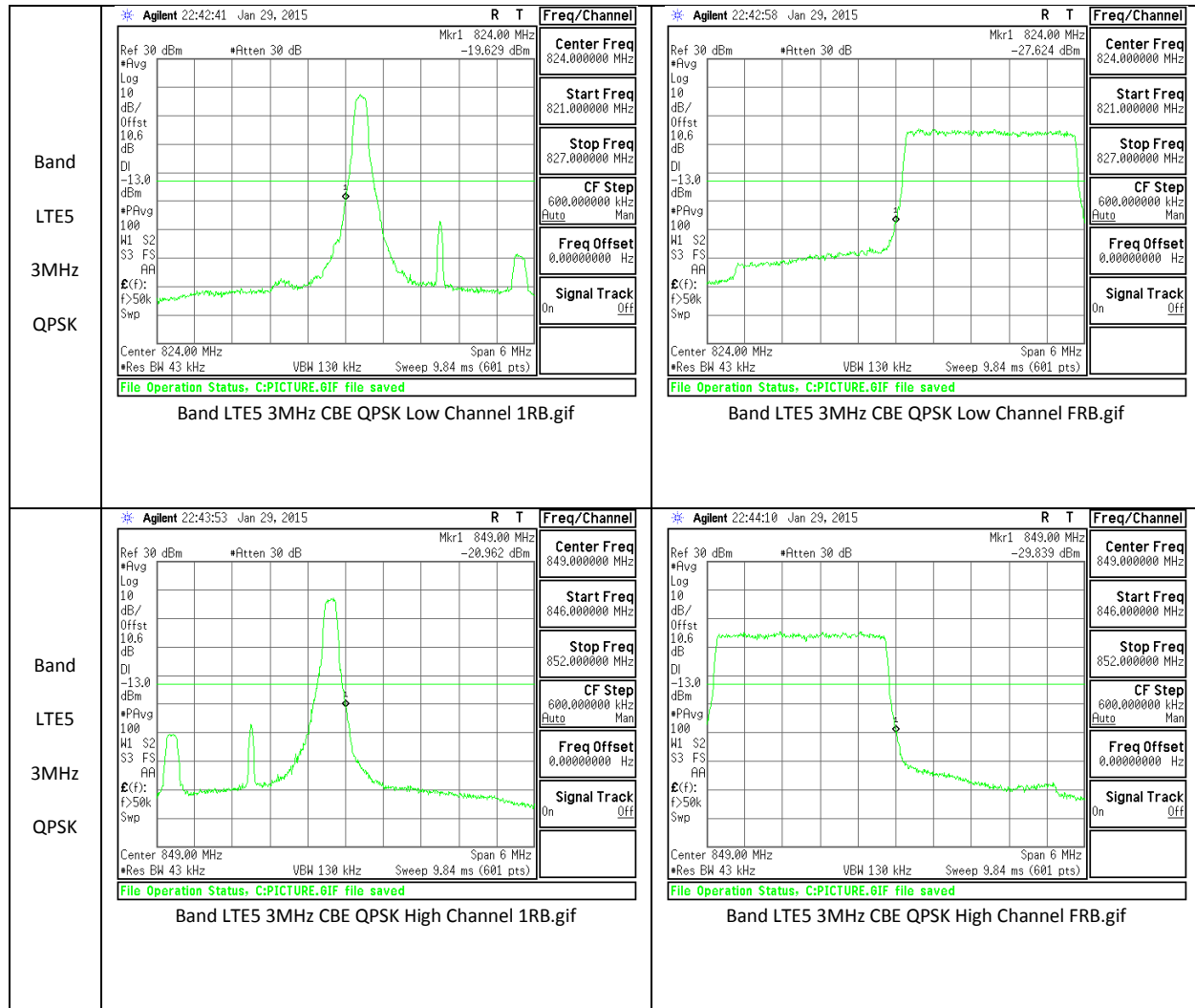
LTE

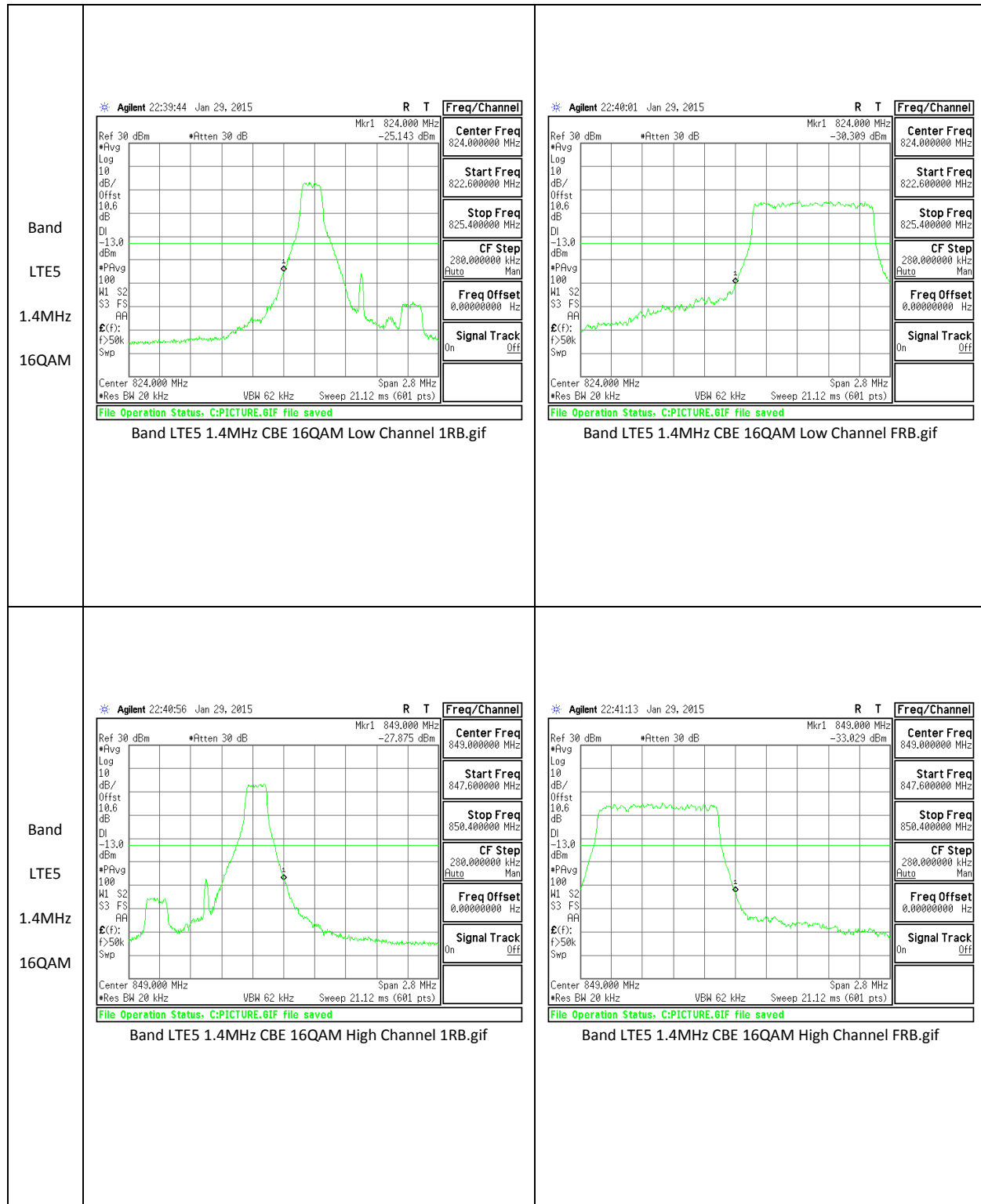
RESULTS

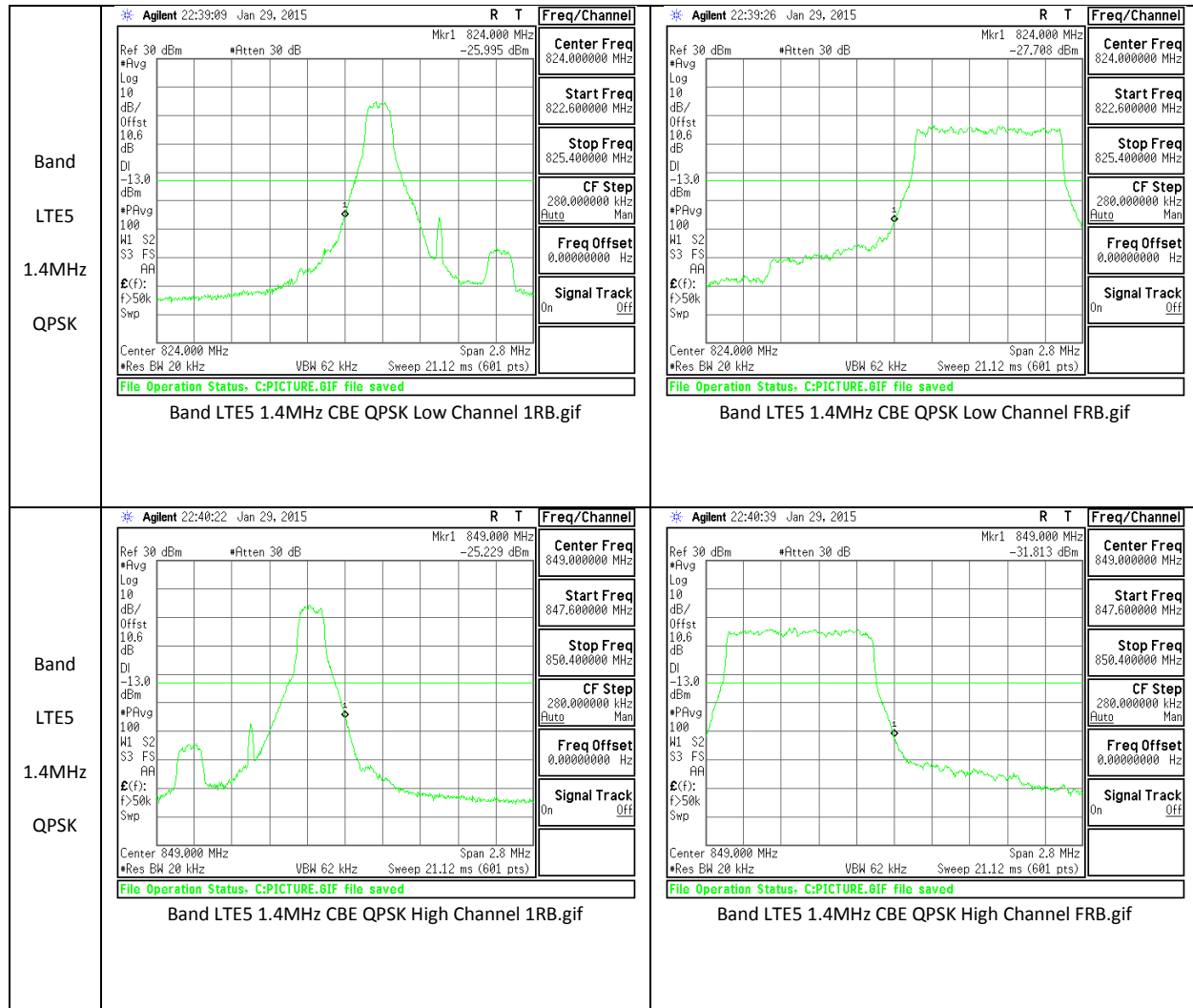
NOTE: Band 17 data please refer to original report for details.

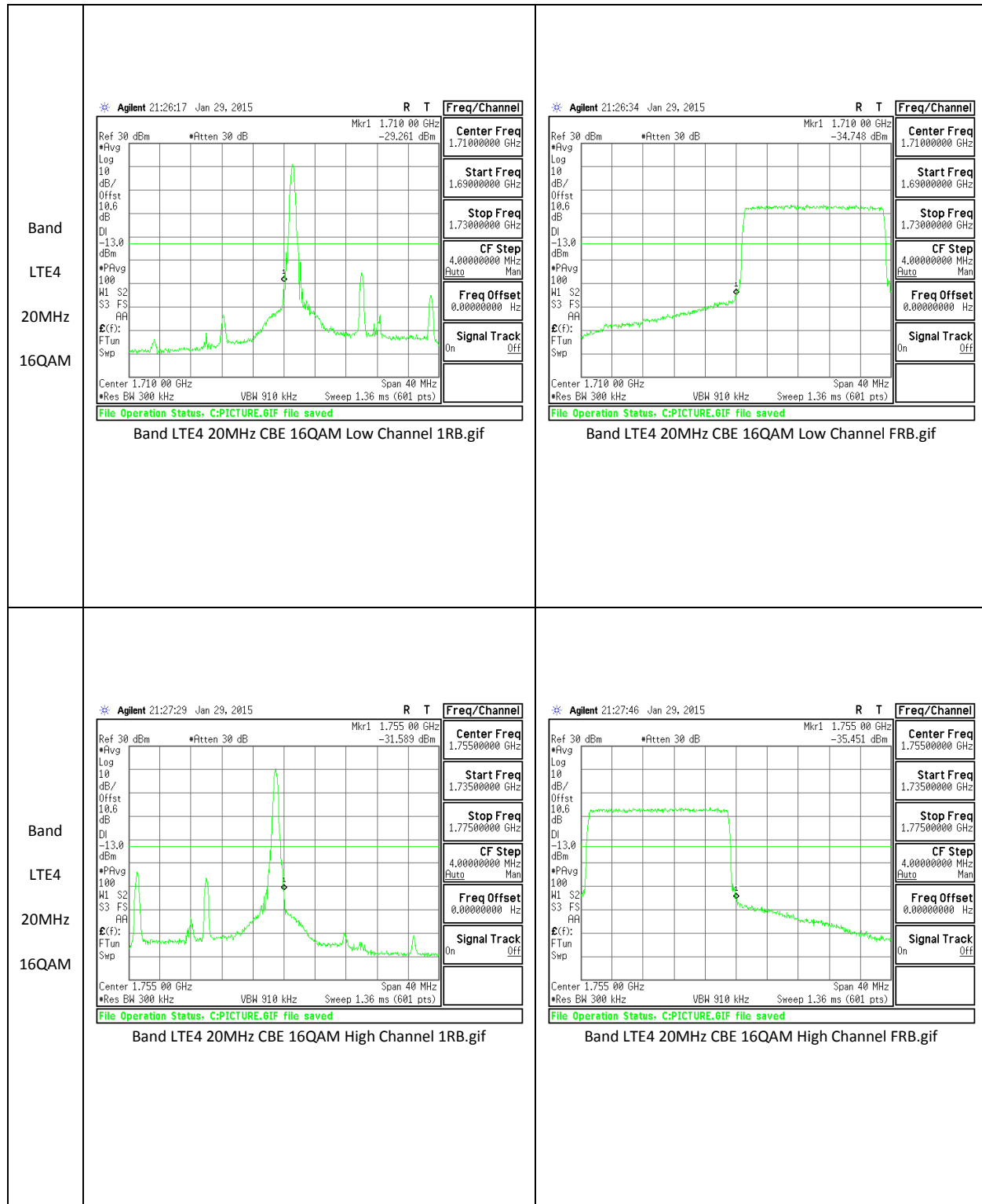
10.2.1. BAND EDGE PLOTS

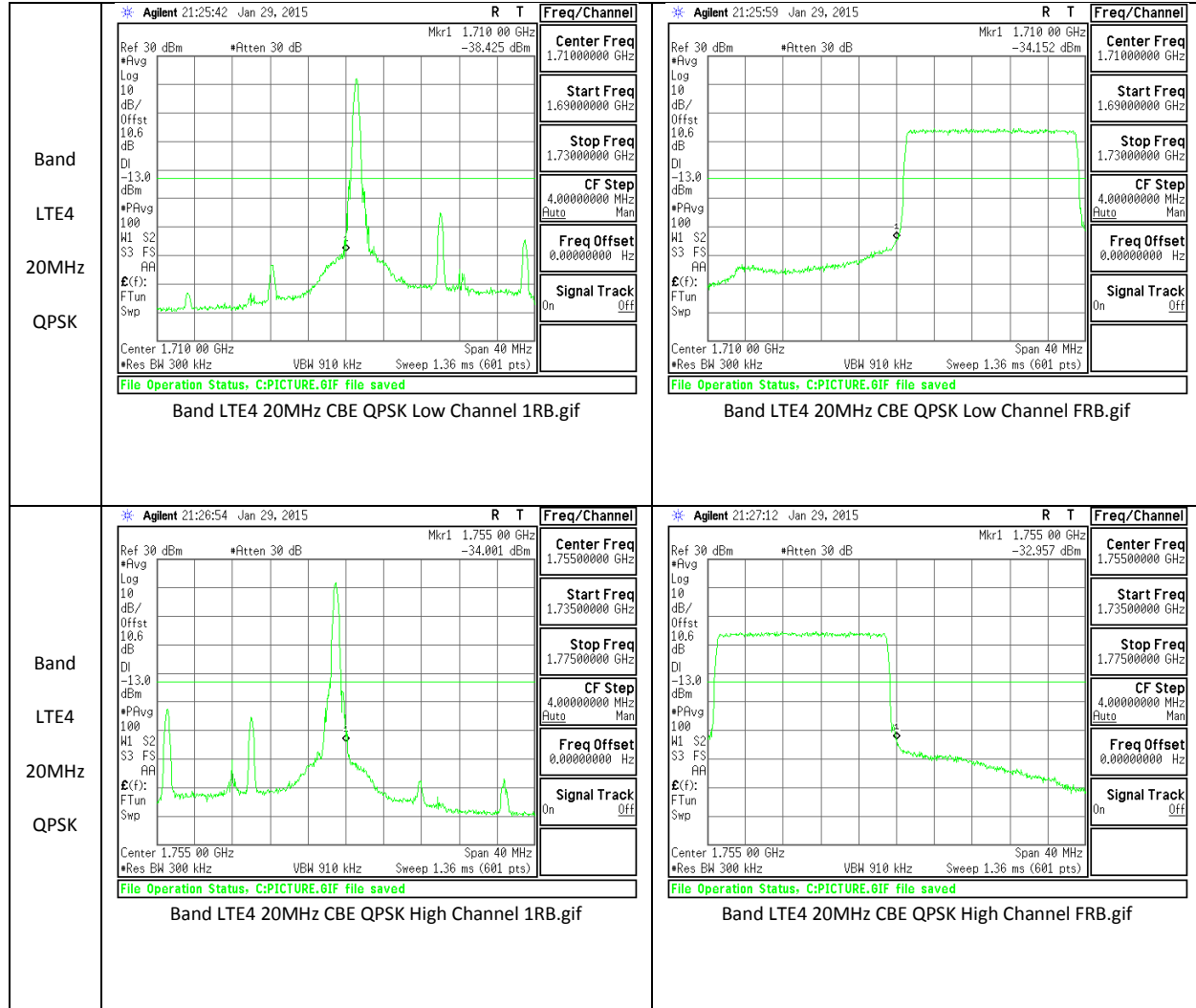




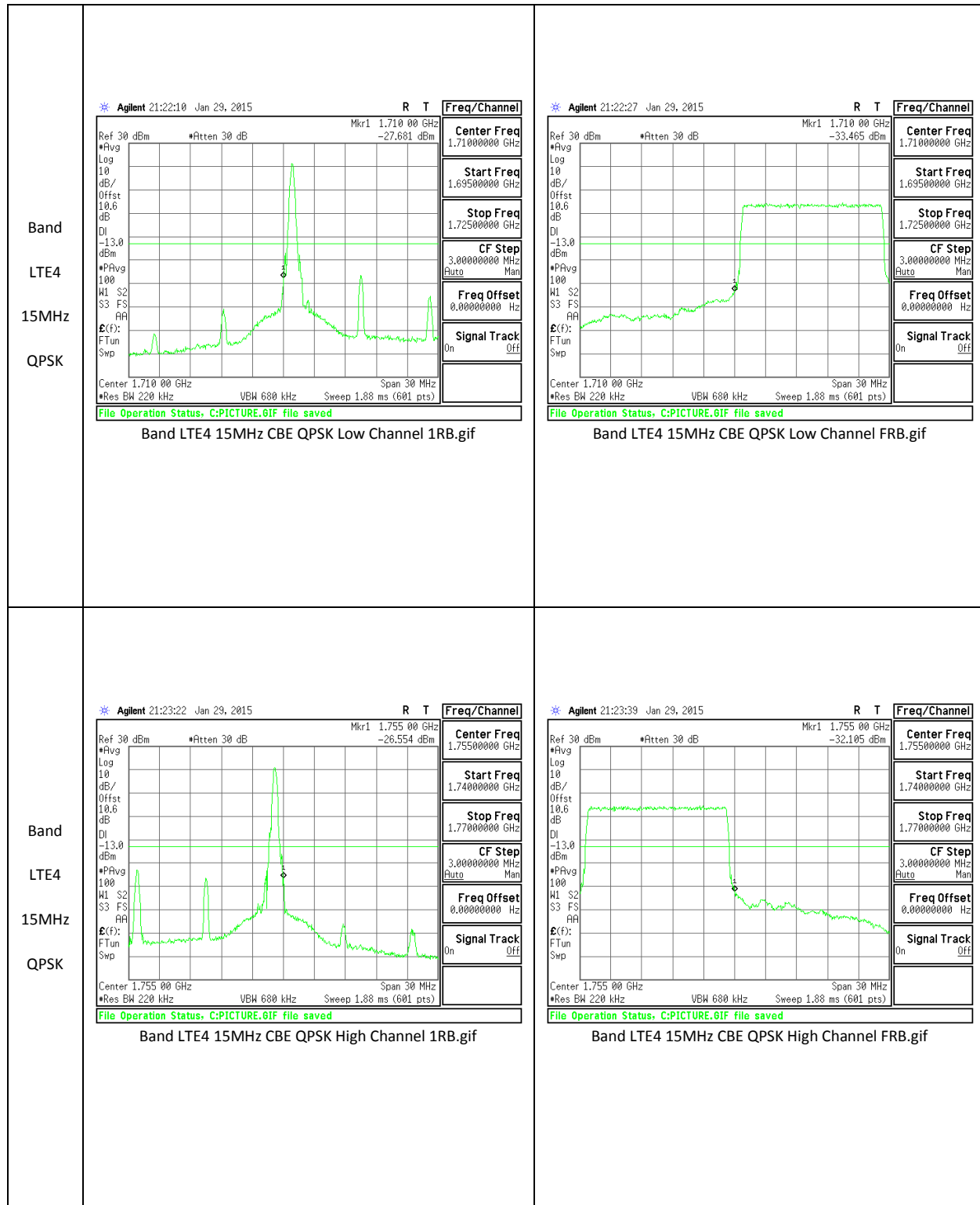




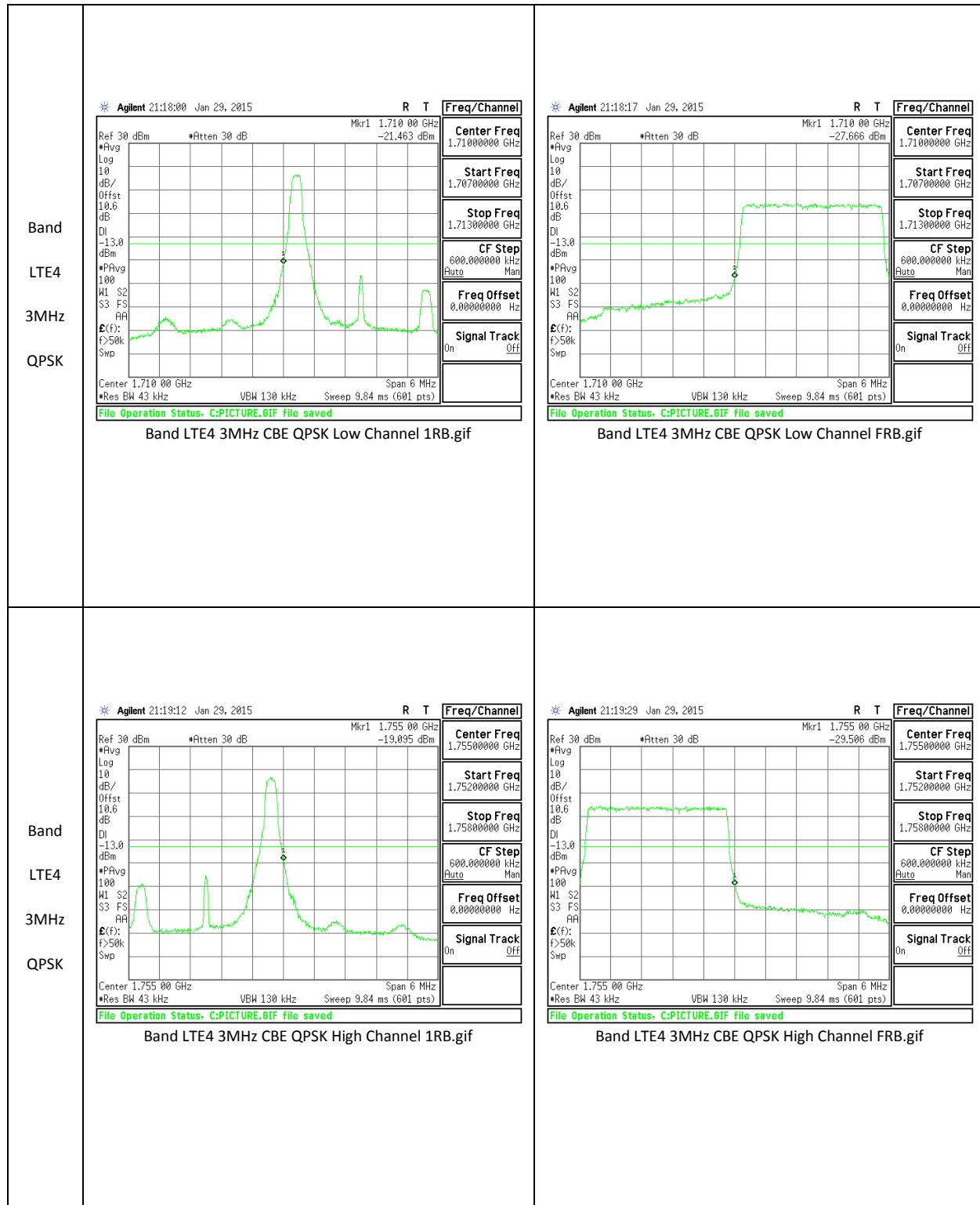


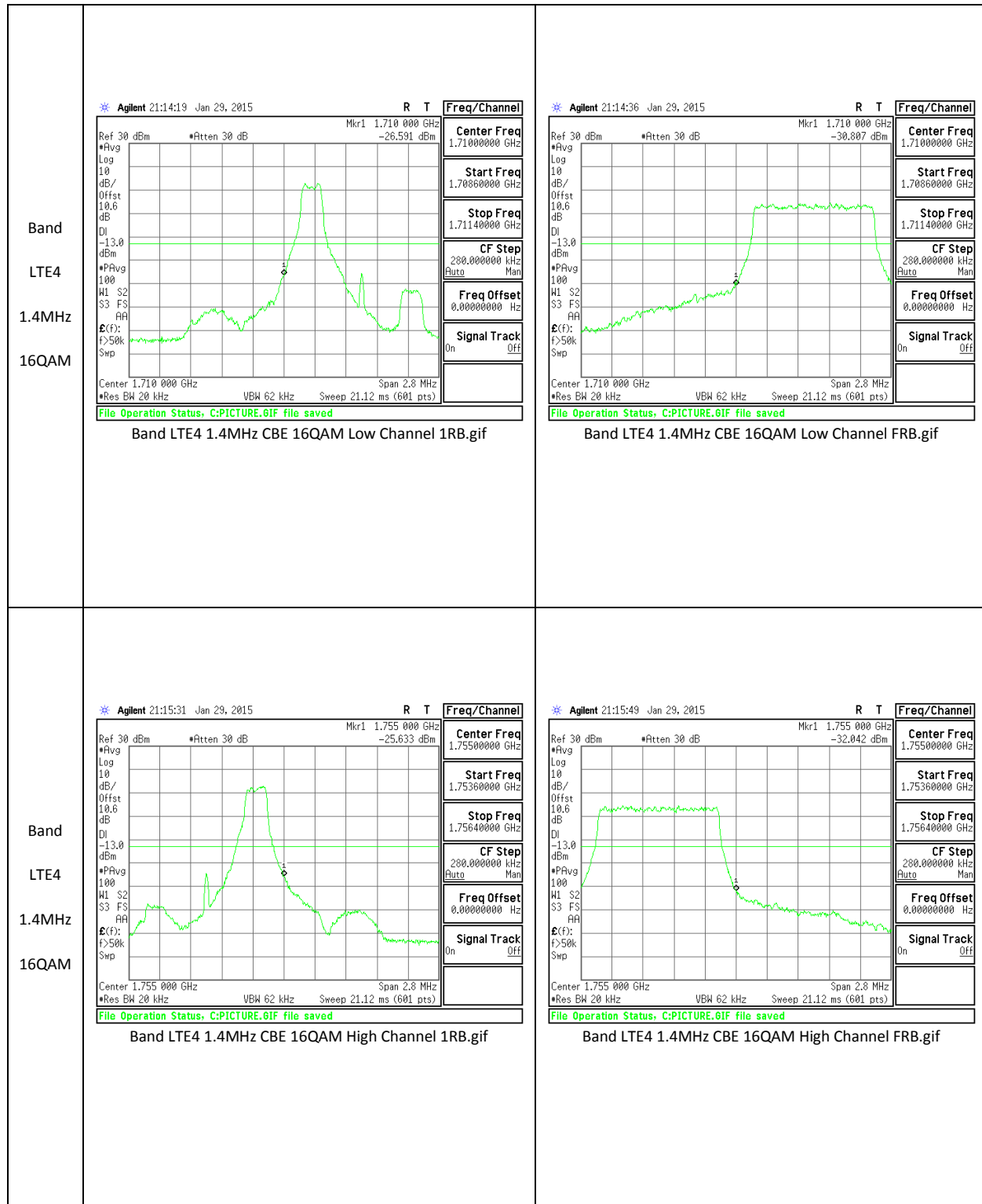


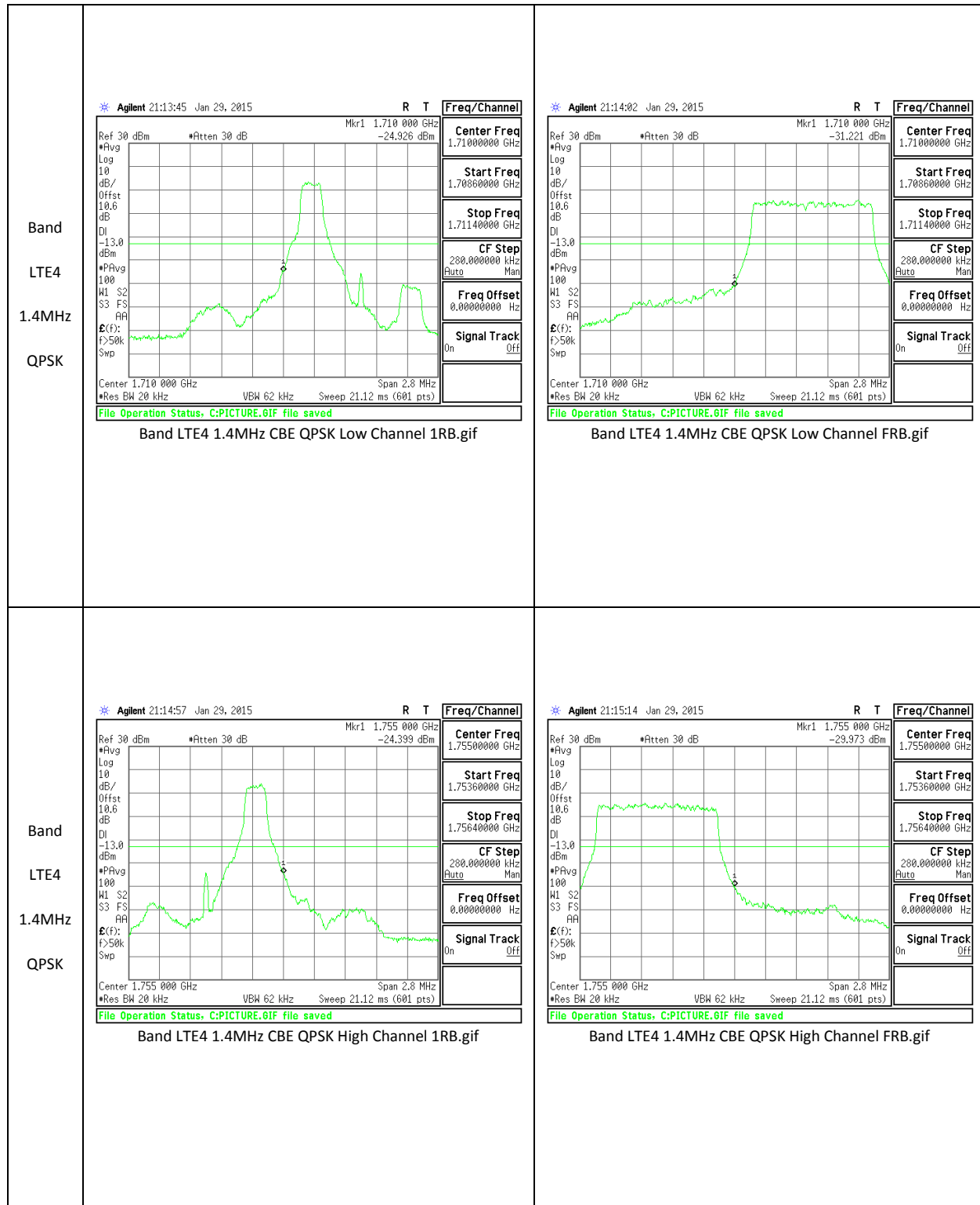
<p>Band LTE4 15MHz 16QAM</p>	<p>Agilent 21:22:44 Jan 29, 2015</p> <p>Center Freq: 1.71000000 GHz Start Freq: 1.69500000 GHz Stop Freq: 1.72500000 GHz CF Step: 3.00000000 MHz Freq Offset: 0.00000000 Hz Signal Track: On</p> <p>Band LTE4 15MHz CBE 16QAM Low Channel 1RB.gif</p>	<p>Agilent 21:23:01 Jan 29, 2015</p> <p>Center Freq: 1.71000000 GHz Start Freq: 1.69500000 GHz Stop Freq: 1.72500000 GHz CF Step: 3.00000000 MHz Freq Offset: 0.00000000 Hz Signal Track: On</p> <p>Band LTE4 15MHz CBE 16QAM Low Channel FRB.gif</p>
<p>Band LTE4 15MHz 16QAM</p>	<p>Agilent 21:23:57 Jan 29, 2015</p> <p>Center Freq: 1.75500000 GHz Start Freq: 1.74000000 GHz Stop Freq: 1.77000000 GHz CF Step: 3.00000000 MHz Freq Offset: 0.00000000 Hz Signal Track: On</p> <p>Band LTE4 15MHz CBE 16QAM High Channel 1RB.gif</p>	<p>Agilent 21:24:14 Jan 29, 2015</p> <p>Center Freq: 1.75500000 GHz Start Freq: 1.74000000 GHz Stop Freq: 1.77000000 GHz CF Step: 3.00000000 MHz Freq Offset: 0.00000000 Hz Signal Track: On</p> <p>Band LTE4 15MHz CBE 16QAM High Channel FRB.gif</p>

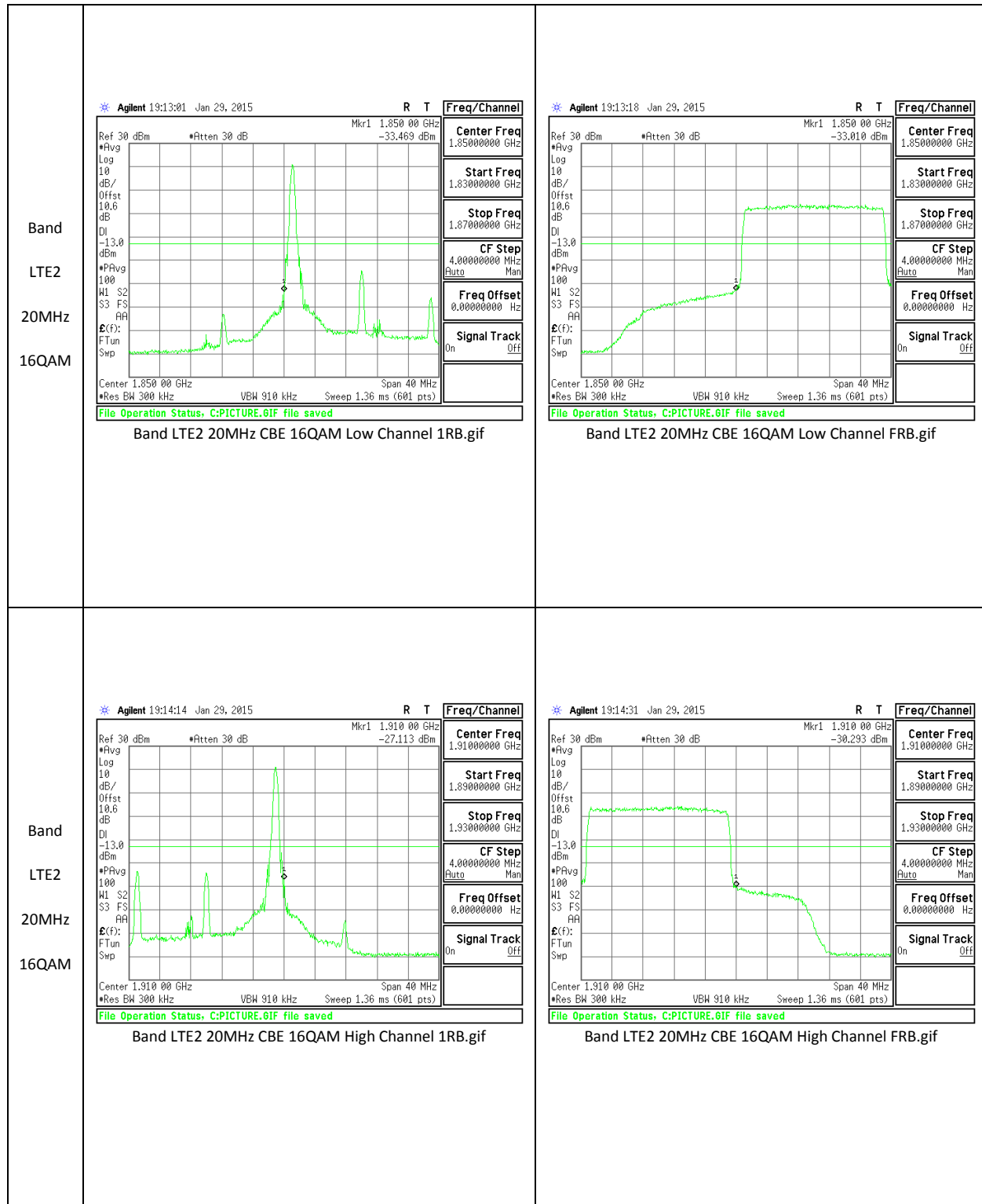


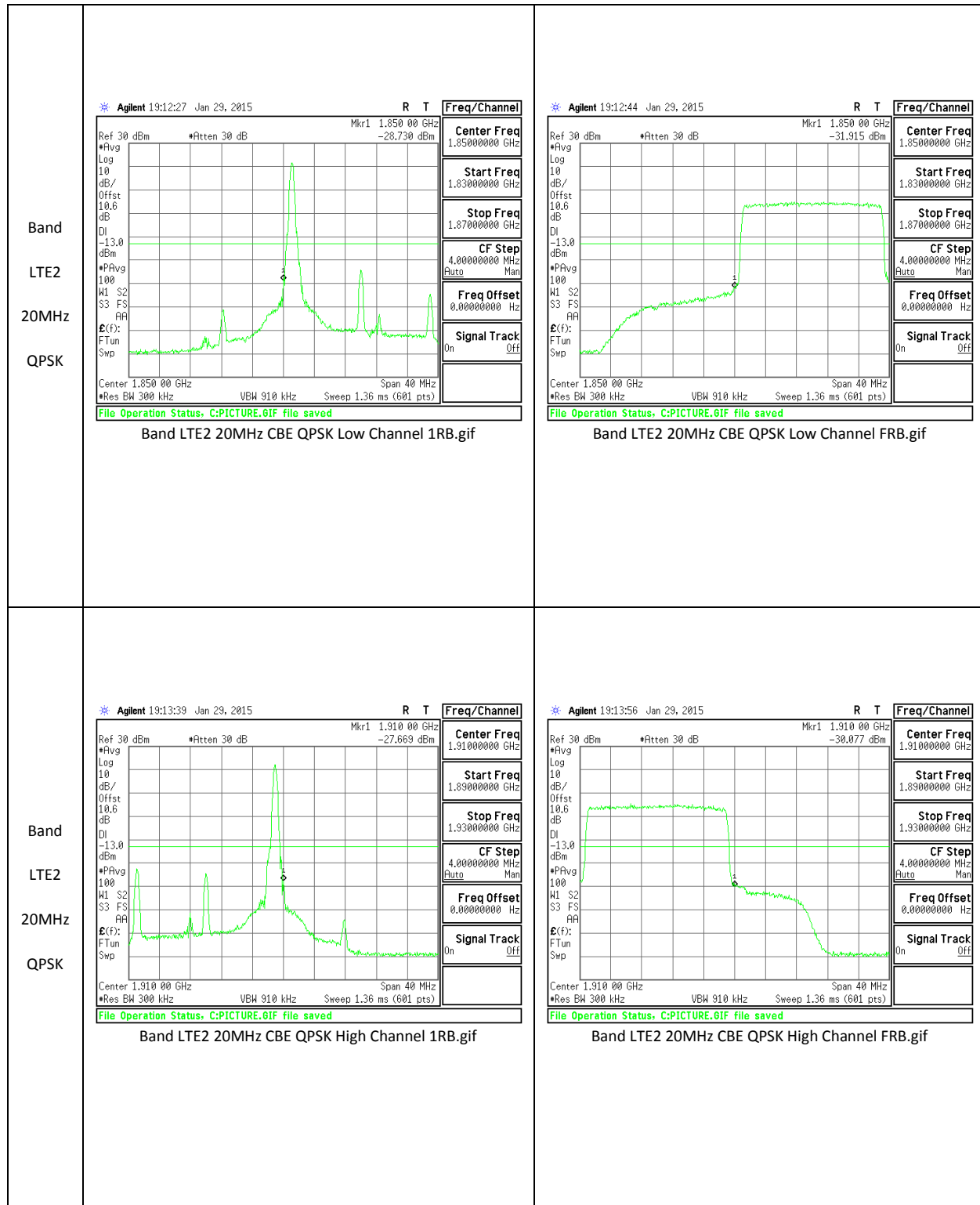
<p>Band LTE4 3MHz 16QAM</p>	<p>Agilent 21:18:34 Jan 29, 2015</p> <p>Center Freq: 1.71000000 GHz Start Freq: 1.70700000 GHz Stop Freq: 1.71300000 GHz CF Step: 600.000000 kHz Freq Offset: 0.00000000 Hz Signal Track: On</p> <p>Band LTE4 3MHz CBE 16QAM Low Channel 1RB.gif</p>	<p>Agilent 21:18:51 Jan 29, 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: On</p> <p>Band LTE4 3MHz CBE 16QAM Low Channel FRB.gif</p>
<p>Band LTE4 3MHz 16QAM</p>	<p>Agilent 21:19:46 Jan 29, 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: On</p> <p>Band LTE4 3MHz CBE 16QAM High Channel 1RB.gif</p>	<p>Agilent 21:20:04 Jan 29, 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: On</p> <p>Band LTE4 3MHz CBE 16QAM High Channel FRB.gif</p>

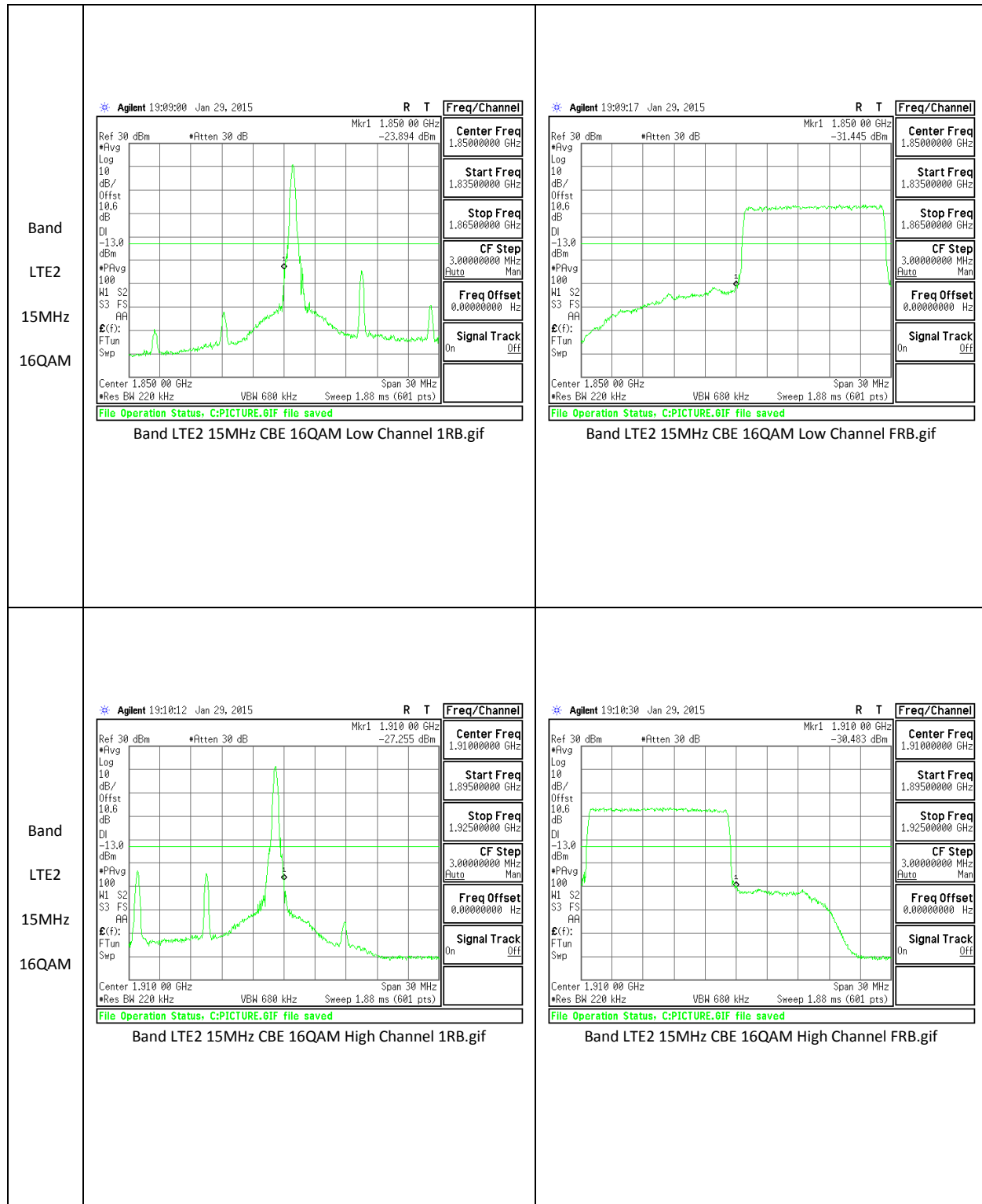


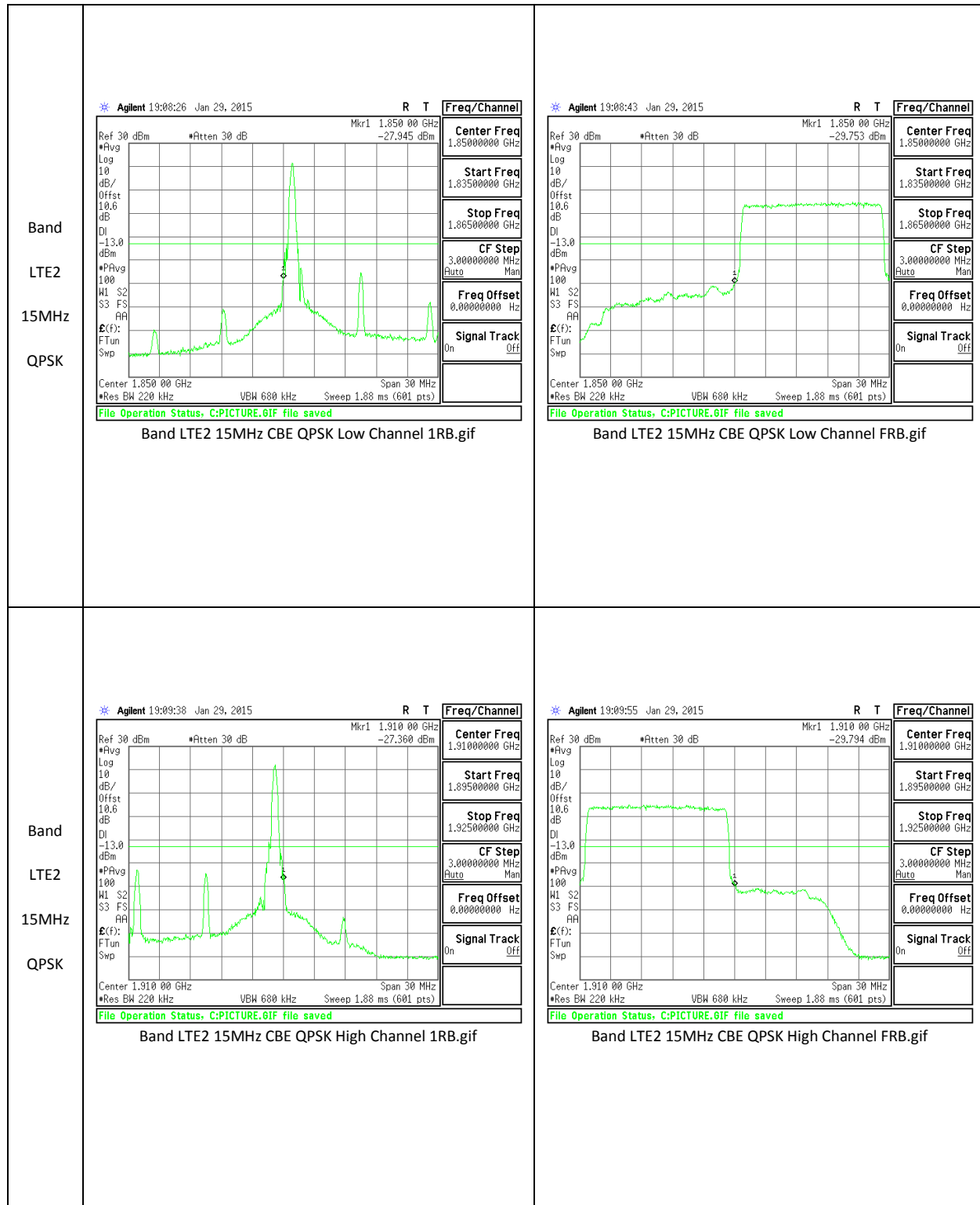




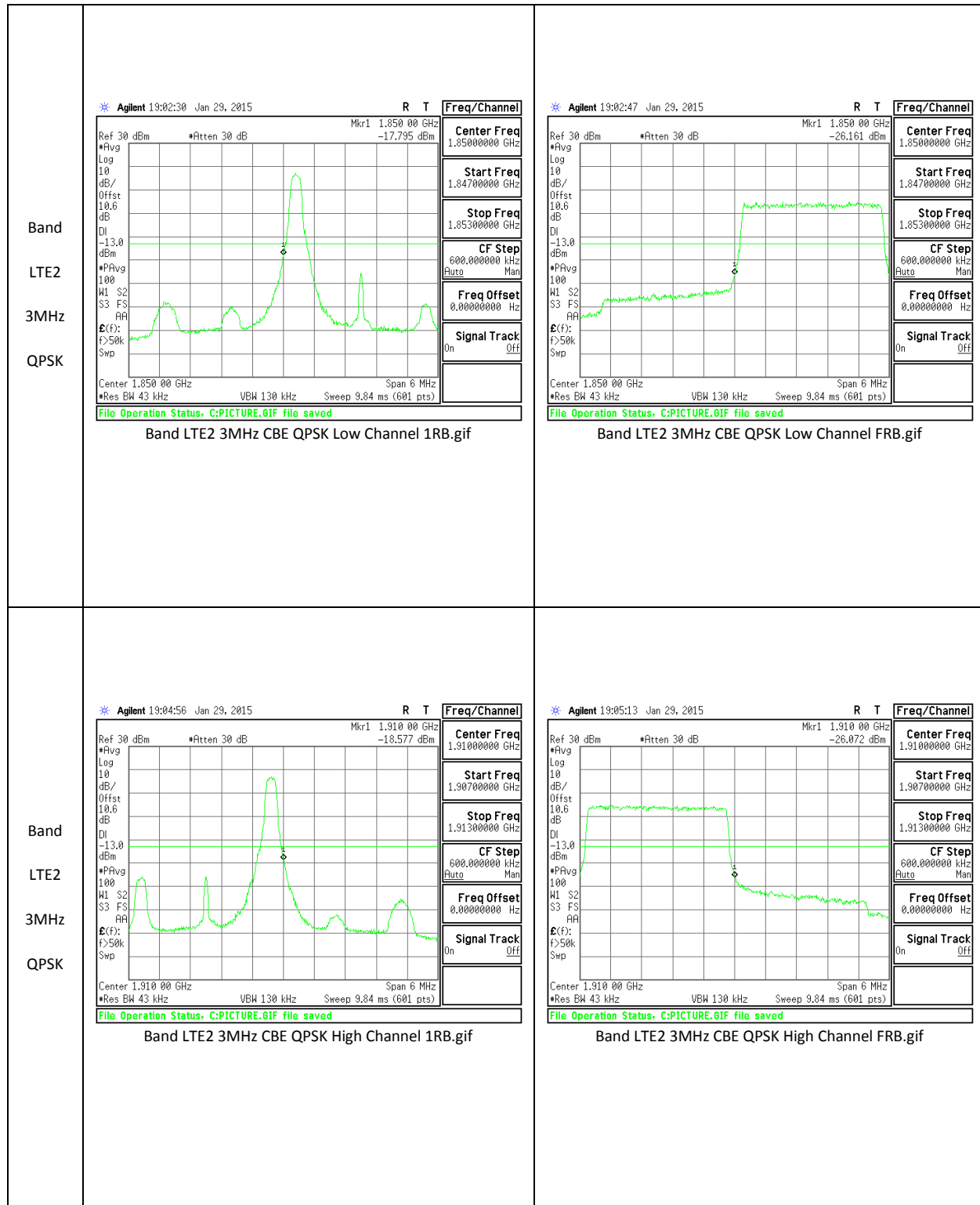


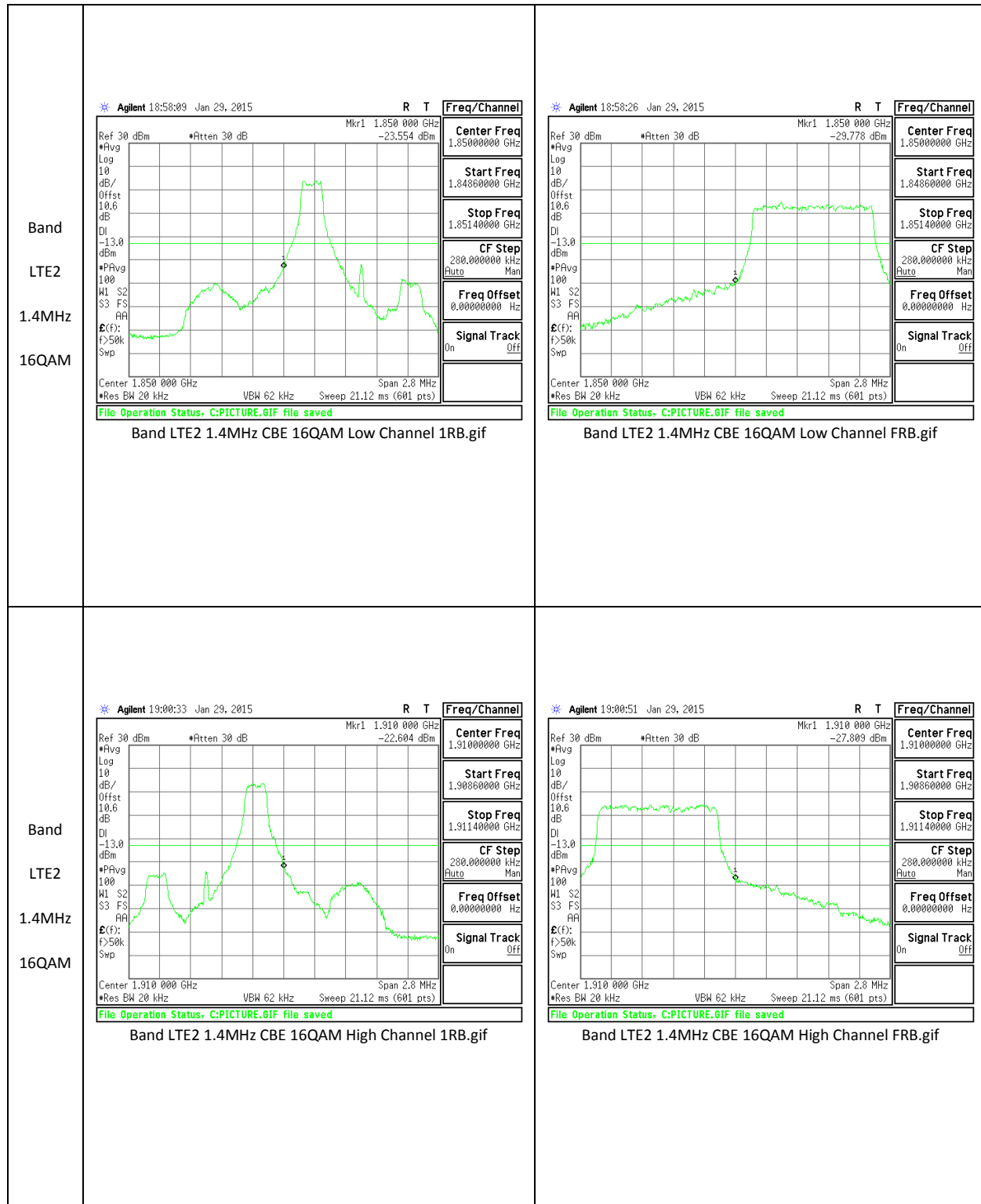


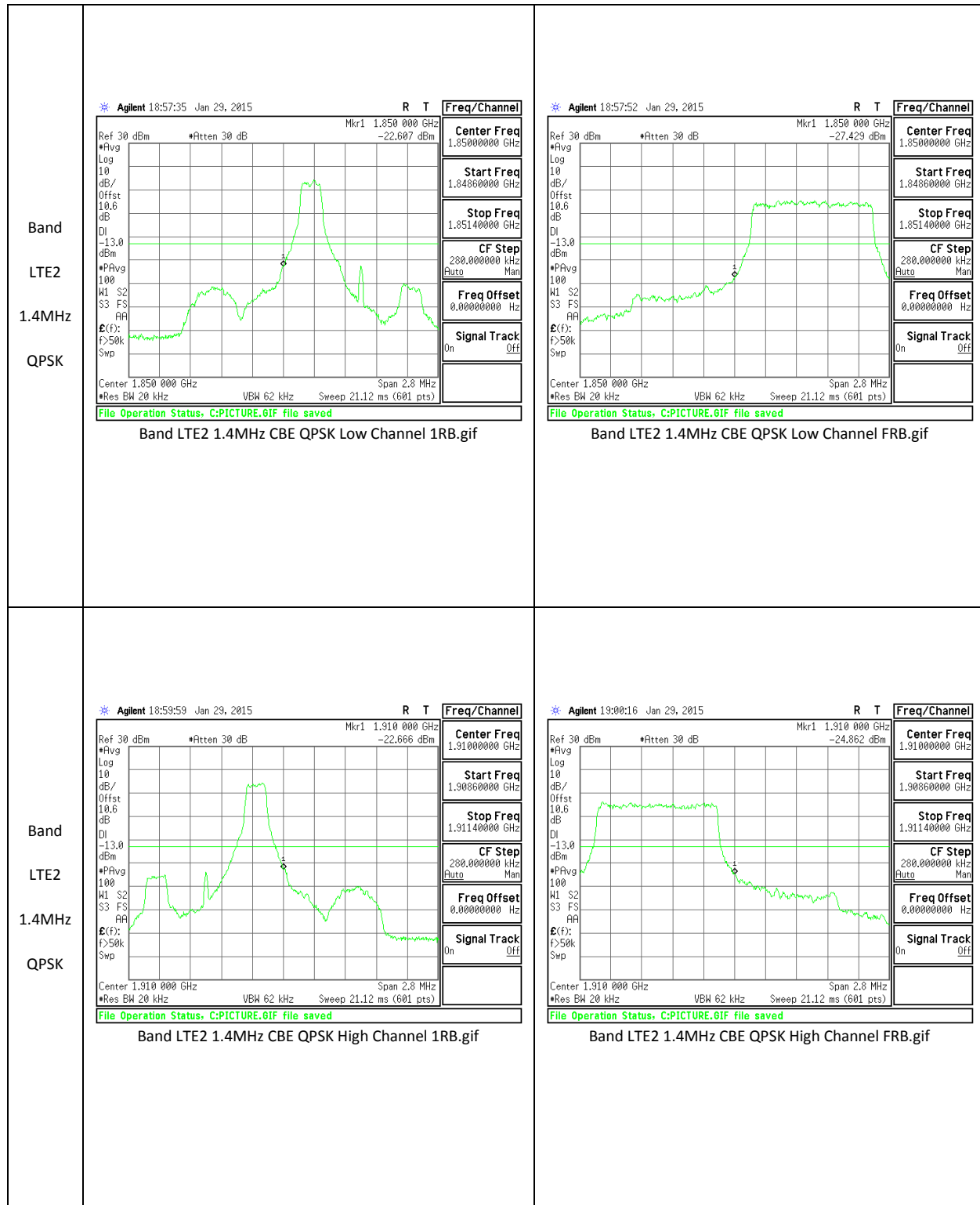




Band LTE2 3MHz 16QAM	<p>Agilent 19:03:04 Jan 29, 2015</p> <p>Center Freq: 1.85000000 GHz Start Freq: 1.84700000 GHz Stop Freq: 1.85300000 GHz CF Step: 600.000000 kHz Freq Offset: 0.00000000 Hz Signal Track: On</p> <p>Band LTE2 3MHz CBE 16QAM Low Channel 1RB.gif</p>	<p>Agilent 19:03:22 Jan 29, 2015</p> <p>Center Freq: 1.85000000 GHz Start Freq: 1.84700000 GHz Stop Freq: 1.85300000 GHz CF Step: 600.000000 kHz Freq Offset: 0.00000000 Hz Signal Track: On</p> <p>Band LTE2 3MHz CBE 16QAM Low Channel FRB.gif</p>
Band LTE2 3MHz 16QAM	<p>Agilent 19:05:31 Jan 29, 2015</p> <p>Center Freq: 1.91000000 GHz Start Freq: 1.90700000 GHz Stop Freq: 1.91300000 GHz CF Step: 600.000000 kHz Freq Offset: 0.00000000 Hz Signal Track: On</p> <p>Band LTE2 3MHz CBE 16QAM High Channel 1RB.gif</p>	<p>Agilent 19:05:48 Jan 29, 2015</p> <p>Center Freq: 1.91000000 GHz Start Freq: 1.90700000 GHz Stop Freq: 1.91300000 GHz CF Step: 600.000000 kHz Freq Offset: 0.00000000 Hz Signal Track: On</p> <p>Band LTE2 3MHz CBE 16QAM High Channel FRB.gif</p>







10.3. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

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

MODES TESTED

LTE

RESULTS

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

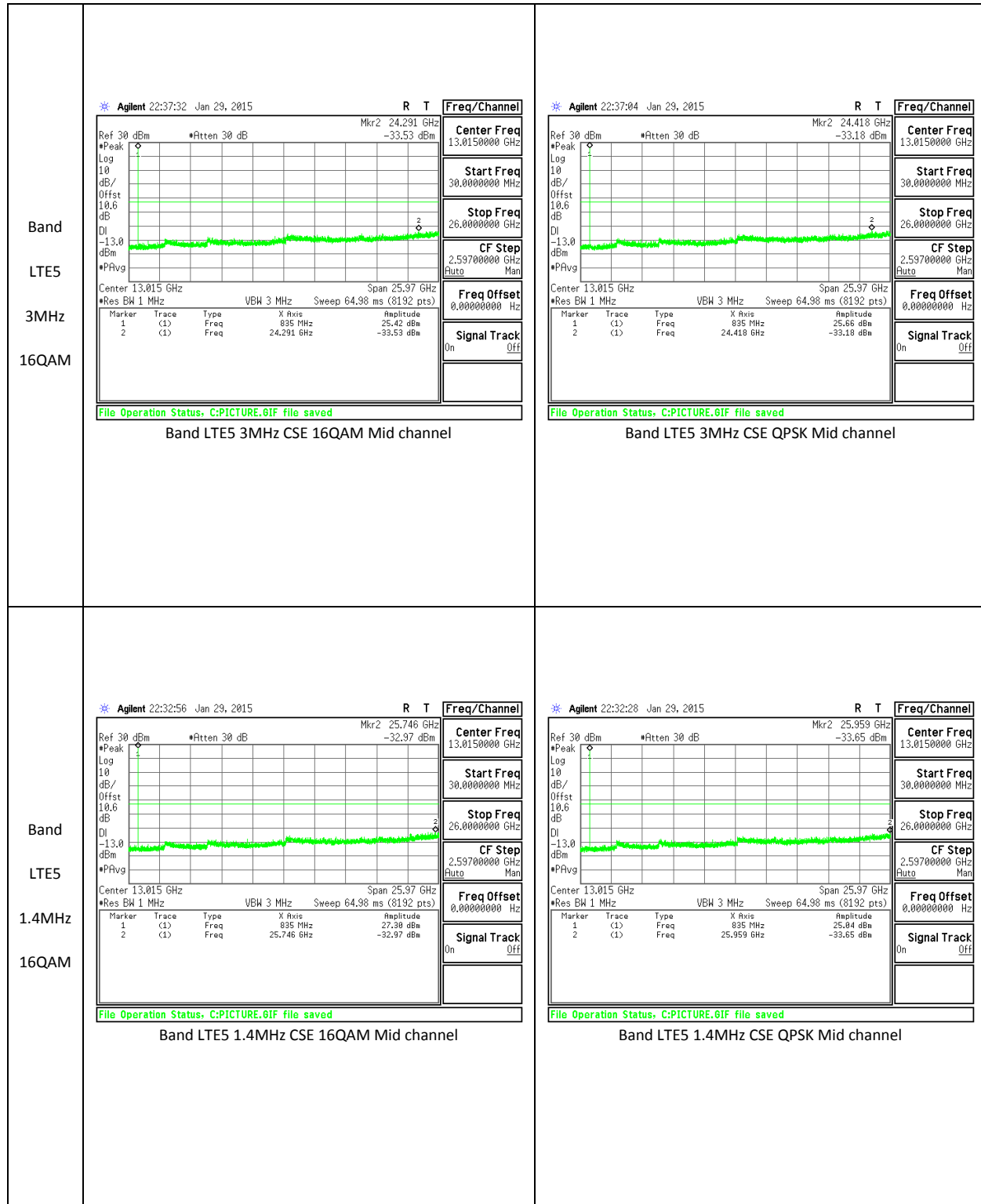
10.3.1. OUT OF BAND EMISSIONS RESULT

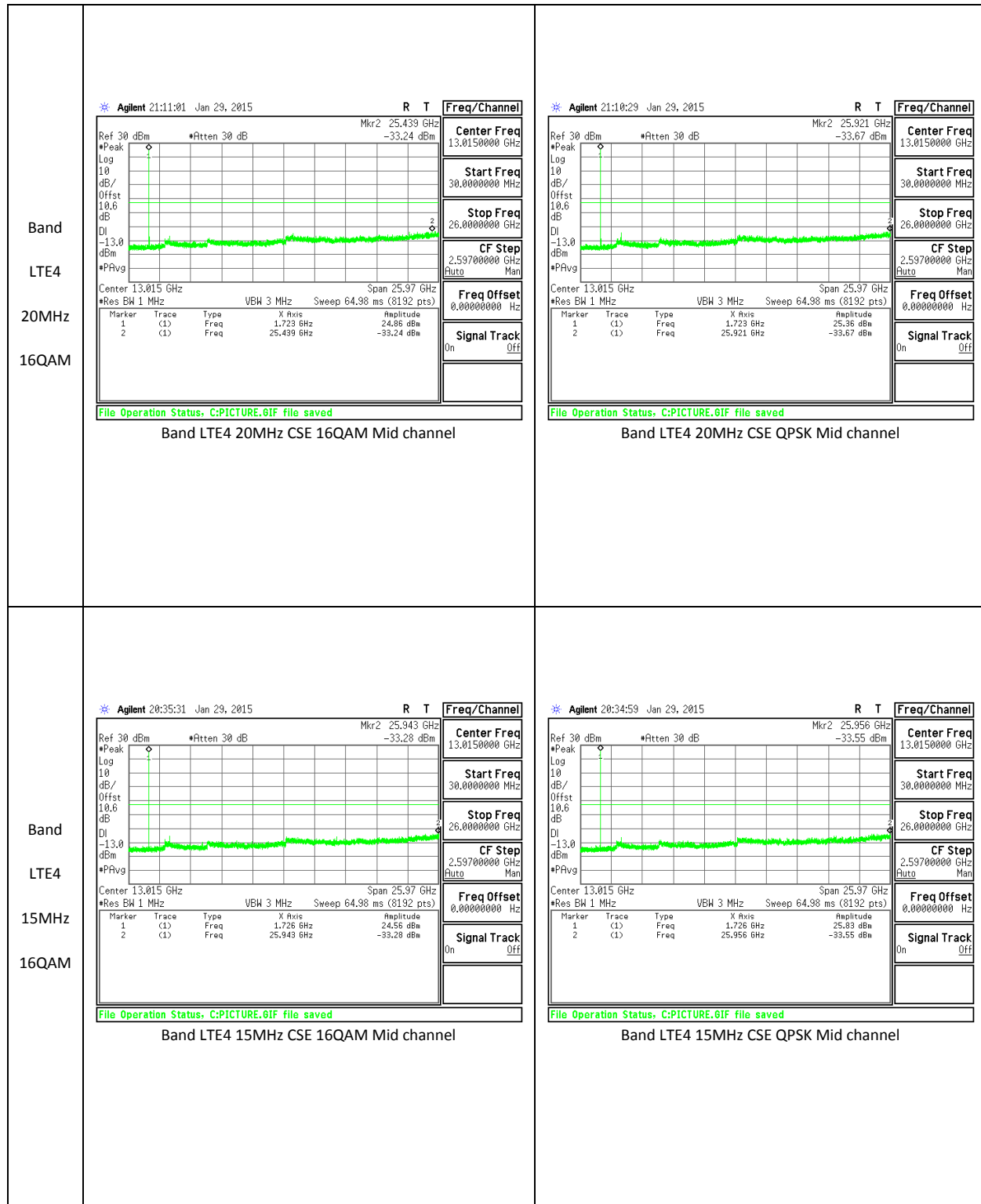
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	3	QPSK	825.5	-33.095	-13	-20.095
			836.5	-33.18	-13	-20.18
			847.5	-33.045	-13	-20.045
		16QAM	825.5	-33.83	-13	-20.83
			836.5	-33.534	-13	-20.534
			847.5	-33.755	-13	-20.755
	1.4	QPSK	824.7	-32.979	-13	-19.979
			836.5	-33.647	-13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

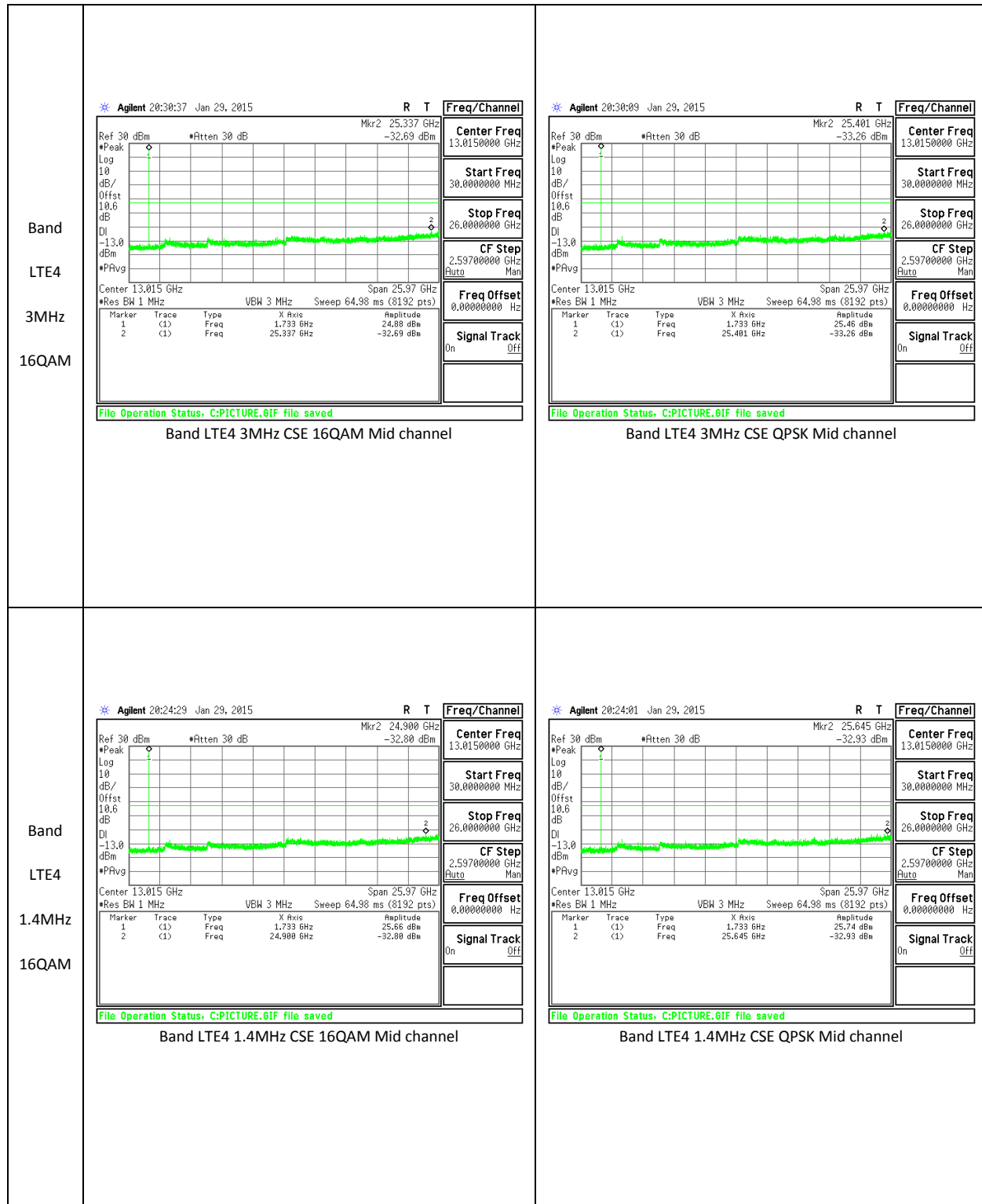
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	20	QPSK	1720	-33.89	-13	-20.89
			1732.5	-33.67	-13	-20.67
			1745	-35.22	-13	-22.22
		16QAM	1720	-33.53	-13	-20.53
			1732.5	-33.24	-13	-20.24
			1745	-33.26	-13	-20.26
	15	QPSK	1717.5	-33.51	-13	-20.51
			1732.5	-33.55	-13	-20.55
			1747.5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

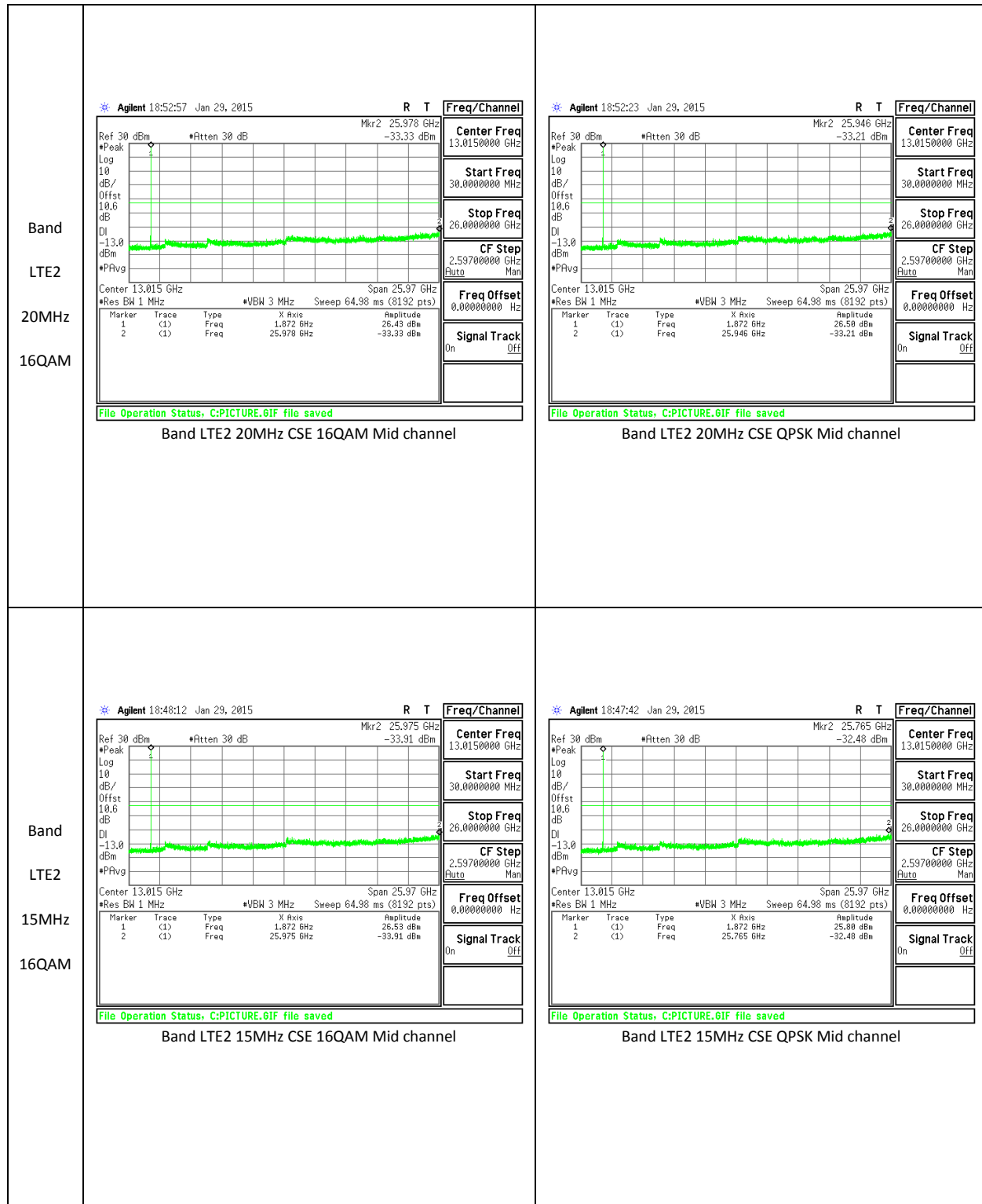
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	20	QPSK	1860	-33.17	-13	-20.17
			1880	-33.21	-13	-20.21
			1900	-36.32	-13	-23.32
		16QAM	1860	-34.57	-13	-21.57
			1880	-33.33	-13	-20.33
			1900	-34.00	-13	-21.00
	15	QPSK	1857.5	-33.535	-13	-20.54
			1880	-32.48	-13	-19.48
			1902.5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

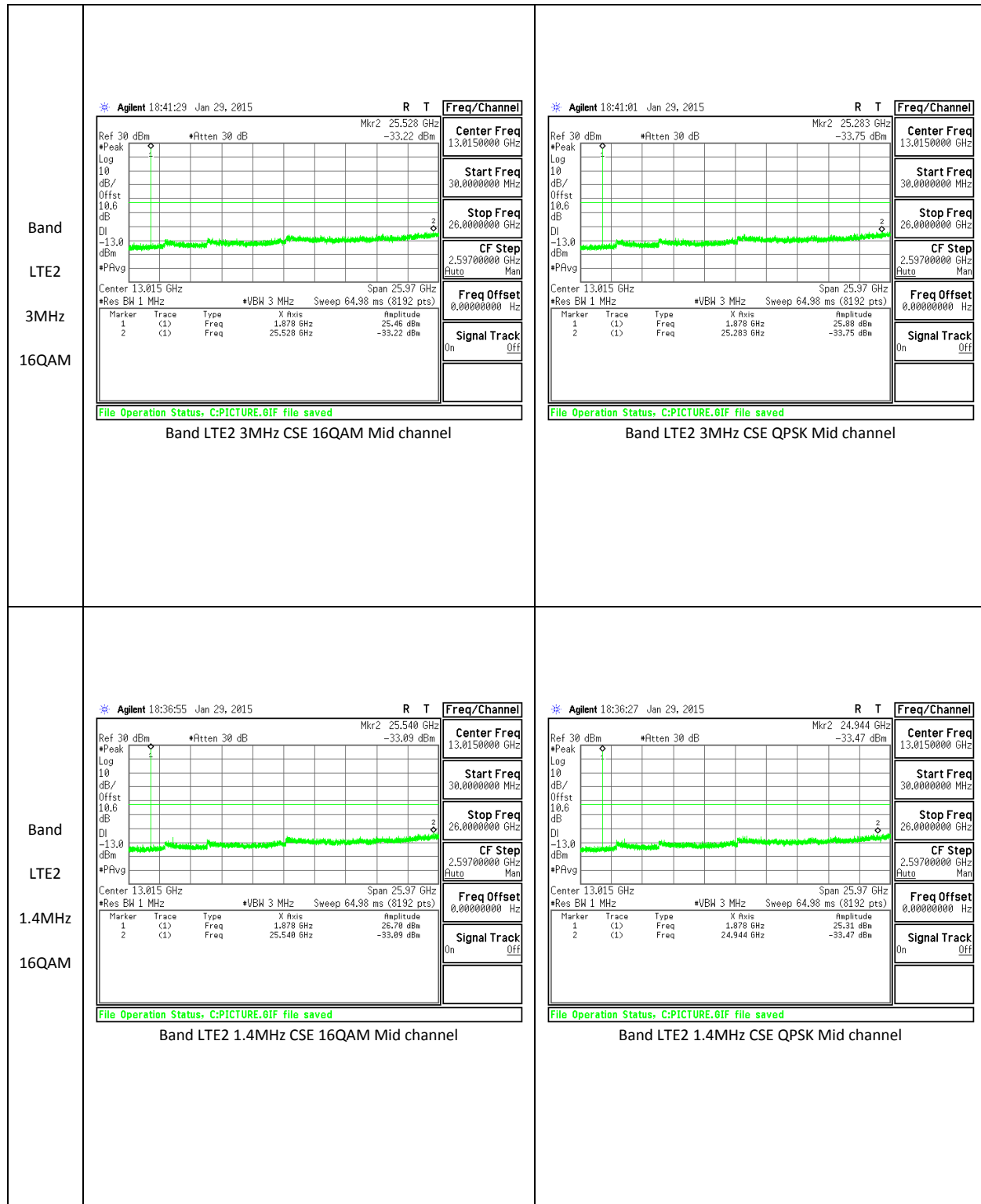
10.3.2. OUT OF BAND EMISSIONS PLOTS











11. RADIATED TEST RESULTS

11.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, and §27.

LIMITS

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

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

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

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

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

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17; PSA setting reference to 971168 D01 v02r02

For peak power measurement with a PSA:

a) Set the RBW \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

11.1.1. ERP/EIRP Results

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

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

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

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

11.1.2. LTE ERP/EIRP Results

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

11.2. ERP/EIRP PLOTS

Band LTE17 10MHz 16QAM	High Frequency Substitution Measurement UL Verification Services, Inc.																																																																																																	
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	Project #:		15119922																																																																																															
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Band LTE5 10MHz 16QAM	High Frequency Substitution Measurement UL Verification Services, Inc.																																																																																										
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	Configuration:		X-pos EUT Only								
	Location:		Chamber B								
	Mode:		LTE_QPSK Band 5 Fundamentals, 10MHz Bandwidth								
	Test Equipment:										
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		f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Delta	Notes	
		MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)		
		Low Ch									
		829.00	11.31	V	0.9	0.0	10.41	38.5	-28.1		
		829.00	20.07	H	0.9	0.0	19.17	38.5	-19.3		
		Mid Ch									
		836.50	10.59	V	0.9	0.0	9.69	38.5	-28.8		
		836.50	20.34	H	0.9	0.0	19.44	38.5	-19.1		
		High Ch									
		844.00	10.39	V	0.9	0.0	9.49	38.5	-29.0		
		844.00	20.48	H	0.9	0.0	19.58	38.5	-18.9		

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	Project #: 15119960								
	Date: 2/12/2015								
	Test Engineer: Kiya Kedida								
	Configuration: EUT Only								
	Location: Chamber C								
	Mode: LTE_16QAM Band 4 Fundamentals, 1.4MHz Bandwidth								
	Test Equipment:								
	Receiving: Horn T119, and Chamber C SMA Cables								
	Substitution: Horn T59, 4ft SMA Cable Warehouse								
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Low Ch									
1715.00	14.08	V	0.9	8.3	21.43	30.0	-8.6		
1715.00	15.30	H	0.9	8.3	22.65	30.0	-7.3		
Mid Ch									
1732.50	15.30	V	0.9	8.2	22.57	30.0	-7.4		
1732.50	16.25	H	0.9	8.2	23.52	30.0	-6.5		
High Ch									
1750.00	14.57	V	0.9	8.1	21.76	30.0	-8.2		
1750.00	15.89	H	0.9	8.1	23.08	30.0	-6.9		

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Band LTE2 1.4MHz QPSK	High Frequency Substitution Measurement UL Verification Services, Inc.																																																																																																	
	Company:		LG																																																																																															
	Project #:		15119922																																																																																															
	Date:		2/11/2015																																																																																															
	Test Engineer:		K.Kedida																																																																																															
	Configuration:		EUT Only																																																																																															
	Location:		Chamber C																																																																																															
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Band Band 2 HSDPA	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber C								
	Company:		LG						
	Project #:		15119922						
	Date:		02/10/15						
	Test Engineer:		K.Kedida						
	Configuration:		EUT Only						
	Location:		Chamber C						
	Mode:		HSDPA B2						
	Test Equipment:								
	Receiving: Horn T119, and Chamber C SMA Cables Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
	Low Ch								
	1852.40	15.78	V	0.9	8.0	22.89	33.0	-10.1	
	1852.40	18.05	H	0.9	8.0	25.16	33.0	-7.8	
	Mid Ch								
	1880.00	15.48	V	0.9	8.0	22.59	33.0	-10.4	
	1880.00	18.00	H	0.9	8.0	25.11	33.0	-7.9	
	High Ch								
	1907.60	14.59	V	0.9	8.0	21.70	33.0	-11.3	
	1907.60	17.70	H	0.9	8.0	24.81	33.0	-8.2	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

Band Band 2 REL99	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber C								
	Company: LG Project #: 15I19922 Date: 02/10/15 Test Engineer: K.Kedida Configuration: EUT Only Location: Chamber C Mode: Rel99 B2								
	Test Equipment: Receiving: Horn T119, and Chamber C SMA Cables Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
	Low Ch								
	1852.40	16.01	V	0.9	8.0	23.12	33.0	-9.9	
	1852.40	18.62	H	0.9	8.0	25.73	33.0	-7.3	
	Mid Ch								
	1880.00	64.25	V	0.9	8.0	71.36	33.0	38.4	
	1880.00	18.60	H	0.9	8.0	25.71	33.0	-7.3	
High Ch									
1907.60	14.09	V	0.9	8.0	21.20	33.0	-11.8		
1907.60	17.80	H	0.9	8.0	24.91	33.0	-8.1		
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

Band Band 5 HSDPA	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber B																																																																																																	
	Company:		LG																																																																																															
	Project #:		15119922																																																																																															
	Date:		02/08/15																																																																																															
	Test Engineer:		O. Stoelting																																																																																															
	Configuration:		X-pos EUT Only																																																																																															
	Location:		Chamber B																																																																																															
	Mode:		HSDPA Band 5 Fundamentals																																																																																															
	Test Equipment:		Receiving: Hybrid T243, and Chamber B SMA Cables																																																																																															
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Band Band 5 REL99	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber B																																																																																																	
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Band GSM 1900 EGPRS	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber C																																																																																																
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Band GSM 1900 GPRS	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber C																																																																																																
	Company:		LG																																																																																														
	Project #:		15I19922																																																																																														
	Date:		2/10/215																																																																																														
	Test Engineer:		K.Kedida																																																																																														
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Band GSM 850 EGPRS	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber B								
	Company: LG Project #: 15119922 Date: 02/08/15 Test Engineer: O. Stoelting Configuration: X-pos EUT Only Mode: EGPRS850								
	Test Equipment: Receiving: Hybrid T243, and Chamber B SMA Cables <i>Substitution: Dipole T416, 4ft SMA Cable Warehouse</i>								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
	Low Ch								
	824.20	17.13	V	0.9	0.0	16.23	38.5	-22.2	
	824.20	25.65	H	0.9	0.0	24.75	38.5	-13.7	
	Mid Ch								
	836.60	17.57	V	0.9	0.0	16.67	38.5	-21.8	
	836.60	25.89	H	0.9	0.0	24.99	38.5	-13.5	
High Ch									
848.80	17.13	V	0.9	0.0	16.23	38.5	-22.2		
848.80	25.79	H	0.9	0.0	24.89	38.5	-13.6		
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									

Band GSM 850 GPRS	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber B																																																																																																	
	Company:		LG																																																																																															
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Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm																																																																																																		

11.3. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, and §24.238

LIMIT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

TEST PROCEDURE

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

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

MODES TESTED

GSM, WCDMA, and LTE

RESULTS

11.3.1. SPURIOUS RADIATION PLOTS

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG Electronics								
Project #:		15119922								
Date:		2/10/2015								
Test Engineer:		S, Tran								
Configuration:		EUT AC charger and HS								
Location:		Chamber A								
Mode:		LTE_16QAM Band 17 Harmonics, 10MHz Bandwidth								
Band	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	-16.5	V	3.0	37.3	1.0	-52.9	-13.0	-39.9	
	2130.00	-14.5	V	3.0	36.6	1.0	-50.1	-13.0	-37.1	
	2840.00	-23.9	V	3.0	36.4	1.0	-59.3	-13.0	-46.3	
	1420.00	-16.3	H	3.0	37.3	1.0	-52.7	-13.0	-39.7	
	2130.00	-14.4	H	3.0	36.6	1.0	-49.9	-13.0	-36.9	
	2840.00	-24.5	H	3.0	36.4	1.0	-59.9	-13.0	-46.9	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
Company:		LG Electronics									
Project #:		15119922									
Date:		2/10/2015									
Test Engineer:		S,Tran									
Configuration:		EUT AC charger and HS									
Location:		Chamber A									
Mode:		LTE_QPSK Band 17 Harmonics, 10MHz Bandwidth									
Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
LTE17											
10MHz											
QPSK	Mid Ch, 710										
		1420.00	-16.2	V	3.0	37.3	1.0	-52.5	-13.0	-39.5	
		2130.00	-14.1	V	3.0	36.6	1.0	-49.7	-13.0	-36.7	
		2840.00	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
		1420.00	-16.0	H	3.0	37.3	1.0	-52.3	-13.0	-39.3	
		2130.00	-14.0	H	3.0	36.6	1.0	-49.6	-13.0	-36.6	
		2840.00	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG Electronics								
Project #:		15119922								
Date:		2/9/2015								
Test Engineer:		S,Tran								
Configuration:		EUT AC charger and HS								
Location:		Chamber A								
Mode:		LTE_16QAM Band 17 Harmonics, 5MHz Bandwidth								
Band	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	-17.7	V	3.0	37.4	1.0	-54.1	-13.0	-41.1	
	2119.50	-14.9	V	3.0	36.6	1.0	-50.5	-13.0	-37.5	
	2826.00	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
5MHz	1413.00	-16.7	H	3.0	37.4	1.0	-53.1	-13.0	-40.1	
	2119.50	-17.6	H	3.0	36.6	1.0	-53.2	-13.0	-40.2	
	2826.00	-24.1	H	3.0	36.4	1.0	-59.5	-13.0	-46.5	
16QAM	Mid Ch, 710									
	1420.00	-12.7	V	3.0	37.3	1.0	-49.0	-13.0	-36.0	
	2130.00	-18.7	V	3.0	36.6	1.0	-54.3	-13.0	-41.3	
	2840.00	-23.0	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
	1420.00	-13.4	H	3.0	37.3	1.0	-49.8	-13.0	-36.8	
	2130.00	-20.3	H	3.0	36.6	1.0	-55.9	-13.0	-42.9	
	2840.00	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	
	High Ch, 713.5									
	1427.00	-15.8	V	3.0	37.3	1.0	-52.2	-13.0	-39.2	
	2140.50	-13.6	V	3.0	36.6	1.0	-49.2	-13.0	-36.2	
	2854.00	-22.7	V	3.0	36.4	1.0	-58.1	-13.0	-45.1	
	1427.00	-15.7	H	3.0	37.3	1.0	-52.0	-13.0	-39.0	
	2140.50	-17.1	H	3.0	36.6	1.0	-52.7	-13.0	-39.7	
	2854.00	-23.5	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG Electronics								
Project #:		15119922								
Date:		2/9/2015								
Test Engineer:		S,Tran								
Configuration:		EUT AC charger and HS								
Location:		Chamber A								
Mode:		LTE_QPSK Band 17 Harmonics, 5MHz Bandwidth								
Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 706.5									
	1413.00	-17.4	V	3.0	37.4	1.0	-53.7	-13.0	-40.7	
LTE17	2119.50	-14.6	V	3.0	36.6	1.0	-50.1	-13.0	-37.1	
	2826.00	-23.2	V	3.0	36.4	1.0	-58.5	-13.0	-45.5	
5MHz	1413.00	-16.4	H	3.0	37.4	1.0	-52.7	-13.0	-39.7	
	2119.50	-17.3	H	3.0	36.6	1.0	-52.9	-13.0	-39.9	
	2826.00	-23.8	H	3.0	36.4	1.0	-59.2	-13.0	-46.2	
QPSK	Mid Ch, 710									
	1420.00	-12.3	V	3.0	37.3	1.0	-48.7	-13.0	-35.7	
	2130.00	-18.4	V	3.0	36.6	1.0	-53.9	-13.0	-40.9	
	2840.00	-22.6	V	3.0	36.4	1.0	-58.0	-13.0	-45.0	
	1420.00	-13.1	H	3.0	37.3	1.0	-49.4	-13.0	-36.4	
	2130.00	-20.0	H	3.0	36.6	1.0	-55.6	-13.0	-42.6	
	2840.00	-23.8	H	3.0	36.4	1.0	-59.2	-13.0	-46.2	
	High Ch, 713.5									
	1427.00	-15.5	V	3.0	37.3	1.0	-51.9	-13.0	-38.9	
	2140.50	-13.3	V	3.0	36.6	1.0	-48.8	-13.0	-35.8	
	2854.00	-22.4	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
	1427.00	-15.3	H	3.0	37.3	1.0	-51.7	-13.0	-38.7	
	2140.50	-16.8	H	3.0	36.6	1.0	-52.3	-13.0	-39.3	
	2854.00	-23.1	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG Electronics								
Project #:		15119922								
Date:		2/9/2015								
Test Engineer:		S,Tran								
Configuration:		EUT AC charger and HS								
Location:		Chamber A								
Mode:		LTE_16QAM Band 5 Harmonics, 10MHz Bandwidth								
Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 829									
	1658.00	-4.7	V	3.0	37.0	1.0	-40.7	-13.0	-27.7	
	2487.00	-19.5	V	3.0	36.4	1.0	-54.9	-13.0	-41.9	
	3316.00	-17.5	V	3.0	36.1	1.0	-52.6	-13.0	-39.6	
10MHz	1658.00	-17.5	H	3.0	37.0	1.0	-53.6	-13.0	-40.6	
	2487.00	-19.8	H	3.0	36.4	1.0	-55.2	-13.0	-42.2	
	3316.00	-17.2	H	3.0	36.1	1.0	-52.4	-13.0	-39.4	
16QAM	Mid Ch, 836.5									
	1673.00	-0.3	V	3.0	37.0	1.0	-36.3	-13.0	-23.3	
	2509.50	-19.3	V	3.0	36.4	1.0	-54.7	-13.0	-41.7	
	3346.00	-17.3	V	3.0	36.1	1.0	-52.4	-13.0	-39.4	
	1673.00	-4.9	H	3.0	37.0	1.0	-40.9	-13.0	-27.9	
	2509.50	-20.6	H	3.0	36.4	1.0	-56.0	-13.0	-43.0	
	3346.00	-16.9	H	3.0	36.1	1.0	-52.0	-13.0	-39.0	
	High Ch, 844									
	1688.00	0.7	V	3.0	37.0	1.0	-35.3	-13.0	-22.3	
	2532.00	-19.4	V	3.0	36.4	1.0	-54.8	-13.0	-41.8	
	3376.00	-17.5	V	3.0	36.1	1.0	-52.6	-13.0	-39.6	
	1688.00	-12.5	H	3.0	37.0	1.0	-48.5	-13.0	-35.5	
	2532.00	-17.1	H	3.0	36.4	1.0	-52.5	-13.0	-39.5	
	3376.00	-17.3	H	3.0	36.1	1.0	-52.4	-13.0	-39.4	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG Electronics								
Project #:		15119922								
Date:		2/9/2015								
Test Engineer:		S,Tran								
Configuration:		EUT AC charger and HS								
Location:		Chamber A								
Mode:		LTE_QPSK Band 5 Harmonics, 10MHz Bandwidth								
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	-4.4	V	3.0	37.0	1.0	-40.4	-13.0	-27.4	
	2487.00	-19.1	V	3.0	36.4	1.0	-54.5	-13.0	-41.5	
	3316.00	-17.1	V	3.0	36.1	1.0	-52.3	-13.0	-39.3	
LTE5	1658.00	-17.2	H	3.0	37.0	1.0	-53.2	-13.0	-40.2	
10MHz	2487.00	-19.4	H	3.0	36.4	1.0	-54.8	-13.0	-41.8	
	3316.00	-16.9	H	3.0	36.1	1.0	-52.0	-13.0	-39.0	
QPSK	Mid Ch, 836.5									
	1673.00	0.1	V	3.0	37.0	1.0	-35.9	-13.0	-22.9	
	2509.50	-18.9	V	3.0	36.4	1.0	-54.3	-13.0	-41.3	
	3346.00	-16.9	V	3.0	36.1	1.0	-52.0	-13.0	-39.0	
	1673.00	-4.6	H	3.0	37.0	1.0	-40.6	-13.0	-27.6	
	2509.50	-20.3	H	3.0	36.4	1.0	-55.7	-13.0	-42.7	
	3346.00	-16.6	H	3.0	36.1	1.0	-51.7	-13.0	-38.7	
	High Ch, 844									
	1688.00	1.0	V	3.0	37.0	1.0	-35.0	-13.0	-22.0	
	2532.00	-19.0	V	3.0	36.4	1.0	-54.5	-13.0	-41.5	
	3376.00	-17.1	V	3.0	36.1	1.0	-52.2	-13.0	-39.2	
	1688.00	-12.2	H	3.0	37.0	1.0	-48.2	-13.0	-35.2	
	2532.00	-16.8	H	3.0	36.4	1.0	-52.2	-13.0	-39.2	
	3376.00	-17.0	H	3.0	36.1	1.0	-52.1	-13.0	-39.1	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Electronics Project #: 15119922 Date: 2/9/2015 Test Engineer: S,Tran Configuration: EUT AC charger and HS Location: Chamber A Mode: LTE_16QAM Band 5 Harmonics, 5MHz Bandwidth										
Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 826.5									
	1653.00	-4.3	V	3.0	37.0	1.0	-40.4	-13.0	-27.4	
	2479.50	-18.0	V	3.0	36.4	1.0	-53.5	-13.0	-40.5	
	3306.00	-17.8	V	3.0	36.1	1.0	-52.9	-13.0	-39.9	
LTE5	1653.00	-14.3	H	3.0	37.0	1.0	-50.4	-13.0	-37.4	
5MHz	2479.50	-19.1	H	3.0	36.4	1.0	-54.5	-13.0	-41.5	
16QAM	3306.00	-17.2	H	3.0	36.1	1.0	-52.3	-13.0	-39.3	
	Mid Ch, 836.5									
	1673.00	1.3	V	3.0	37.0	1.0	-34.7	-13.0	-21.7	
	2509.50	-19.7	V	3.0	36.4	1.0	-55.2	-13.0	-42.2	
	3346.00	-17.1	V	3.0	36.1	1.0	-52.2	-13.0	-39.2	
	1673.00	-4.7	H	3.0	37.0	1.0	-40.7	-13.0	-27.7	
	2509.50	-19.4	H	3.0	36.4	1.0	-54.8	-13.0	-41.8	
	3346.00	-16.8	H	3.0	36.1	1.0	-51.9	-13.0	-38.9	
	High Ch, 846.5									
	1693.00	2.3	V	3.0	37.0	1.0	-33.6	-13.0	-20.6	
	2539.50	-19.5	V	3.0	36.4	1.0	-54.9	-13.0	-41.9	
	3386.00	-17.4	V	3.0	36.1	1.0	-52.5	-13.0	-39.5	
	1693.00	-10.4	H	3.0	37.0	1.0	-46.4	-13.0	-33.4	
	2539.50	-18.4	H	3.0	36.4	1.0	-53.8	-13.0	-40.8	
	3386.00	-16.7	H	3.0	36.1	1.0	-51.8	-13.0	-38.8	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG Electronics								
Project #:		15119922								
Date:		2/9/2015								
Test Engineer:		S,Tran								
Configuration:		EUT AC charger and HS								
Location:		Chamber A								
Mode:		LTE_QPSK Band 5 Harmonics, 5MHz Bandwidth								
Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 826.5									
	1653.00	-4.0	V	3.0	37.0	1.0	-40.0	-13.0	-27.0	
LTE5	2479.50	-17.7	V	3.0	36.4	1.0	-53.1	-13.0	-40.1	
	3306.00	-17.5	V	3.0	36.1	1.0	-52.6	-13.0	-39.6	
5MHz	1653.00	-14.0	H	3.0	37.0	1.0	-50.0	-13.0	-37.0	
	2479.50	-18.8	H	3.0	36.4	1.0	-54.2	-13.0	-41.2	
QPSK	3306.00	-16.9	H	3.0	36.1	1.0	-52.0	-13.0	-39.0	
	Mid Ch, 836.5									
	1673.00	1.7	V	3.0	37.0	1.0	-34.3	-13.0	-21.3	
	2509.50	-19.4	V	3.0	36.4	1.0	-54.8	-13.0	-41.8	
	3346.00	-16.8	V	3.0	36.1	1.0	-51.9	-13.0	-38.9	
	1673.00	-4.4	H	3.0	37.0	1.0	-40.4	-13.0	-27.4	
	2509.50	-19.1	H	3.0	36.4	1.0	-54.5	-13.0	-41.5	
	3346.00	-16.5	H	3.0	36.1	1.0	-51.6	-13.0	-38.6	
	High Ch, 846.5									
	1693.00	2.7	V	3.0	37.0	1.0	-33.3	-13.0	-20.3	
	2539.50	-19.2	V	3.0	36.4	1.0	-54.6	-13.0	-41.6	
	3386.00	-17.1	V	3.0	36.1	1.0	-52.2	-13.0	-39.2	
	1693.00	-10.1	H	3.0	37.0	1.0	-46.1	-13.0	-33.1	
	2539.50	-18.1	H	3.0	36.4	1.0	-53.5	-13.0	-40.5	
	3386.00	-16.3	H	3.0	36.1	1.0	-51.4	-13.0	-38.4	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG Electronics								
Project #:		15119922								
Date:		2/9/2015								
Test Engineer:		S,Tran								
Configuration:		EUT AC charger and HS								
Location:		Chamber A								
Mode:		LTE_16QAM Band 5 Harmonics, 3MHz Bandwidth								
Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 825.5									
	1651.00	-4.9	V	3.0	37.0	1.0	-40.9	-13.0	-27.9	
	2476.50	-18.0	V	3.0	36.4	1.0	-53.4	-13.0	-40.4	
	3302.00	-16.6	V	3.0	36.2	1.0	-51.7	-13.0	-38.7	
LTE5	1651.00	-14.2	H	3.0	37.0	1.0	-50.2	-13.0	-37.2	
3MHz	2476.50	-20.2	H	3.0	36.4	1.0	-55.7	-13.0	-42.7	
	3302.00	-17.2	H	3.0	36.2	1.0	-52.3	-13.0	-39.3	
16QAM	Mid Ch, 836.5									
	1673.00	2.6	V	3.0	37.0	1.0	-33.4	-13.0	-20.4	
	2509.50	-19.9	V	3.0	36.4	1.0	-55.4	-13.0	-42.4	
	3346.00	-16.8	V	3.0	36.1	1.0	-51.9	-13.0	-38.9	
	1673.00	-3.2	H	3.0	37.0	1.0	-39.2	-13.0	-26.2	
	2509.50	-20.4	H	3.0	36.4	1.0	-55.8	-13.0	-42.8	
	3346.00	-17.6	H	3.0	36.1	1.0	-52.7	-13.0	-39.7	
	High Ch, 847.5									
	1695.00	2.2	V	3.0	37.0	1.0	-33.8	-13.0	-20.8	
	2542.50	-19.1	V	3.0	36.4	1.0	-54.5	-13.0	-41.5	
	3390.00	-17.6	V	3.0	36.1	1.0	-52.7	-13.0	-39.7	
	1695.00	-4.6	H	3.0	37.0	1.0	-40.6	-13.0	-27.6	
	2542.50	-20.7	H	3.0	36.4	1.0	-56.1	-13.0	-43.1	
	3390.00	-17.8	H	3.0	36.1	1.0	-52.9	-13.0	-39.9	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG Electronics								
Project #:		15119922								
Date:		2/9/2015								
Test Engineer:		S,Tran								
Configuration:		EUT AC charger and HS								
Location:		Chamber A								
Mode:		LTE_QPSK Band 5 Harmonics, 3MHz Bandwidth								
Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamplifier (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 825.5									
	1651.00	-4.6	V	3.0	37.0	1.0	-40.6	-13.0	-27.6	
LTE5	2476.50	-17.6	V	3.0	36.4	1.0	-53.1	-13.0	-40.1	
	3302.00	-16.2	V	3.0	36.2	1.0	-51.4	-13.0	-38.4	
3MHz	1651.00	-13.9	H	3.0	37.0	1.0	-49.9	-13.0	-36.9	
	2476.50	-19.9	H	3.0	36.4	1.0	-55.3	-13.0	-42.3	
QPSK	3302.00	-16.8	H	3.0	36.2	1.0	-52.0	-13.0	-39.0	
	Mid Ch, 836.5									
	1673.00	2.9	V	3.0	37.0	1.0	-33.1	-13.0	-20.1	
	2509.50	-19.6	V	3.0	36.4	1.0	-55.0	-13.0	-42.0	
	3346.00	-16.5	V	3.0	36.1	1.0	-51.6	-13.0	-38.6	
	1673.00	-2.9	H	3.0	37.0	1.0	-38.9	-13.0	-25.9	
	2509.50	-20.0	H	3.0	36.4	1.0	-55.5	-13.0	-42.5	
	3346.00	-17.2	H	3.0	36.1	1.0	-52.3	-13.0	-39.3	
	High Ch, 847.5									
	1695.00	2.5	V	3.0	37.0	1.0	-33.4	-13.0	-20.4	
	2542.50	-18.8	V	3.0	36.4	1.0	-54.2	-13.0	-41.2	
	3390.00	-17.2	V	3.0	36.1	1.0	-52.3	-13.0	-39.3	
	1695.00	-4.3	H	3.0	37.0	1.0	-40.3	-13.0	-27.3	
	2542.50	-20.4	H	3.0	36.4	1.0	-55.8	-13.0	-42.8	
	3390.00	-17.5	H	3.0	36.1	1.0	-52.6	-13.0	-39.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG Electronics								
Project #:		15119922								
Date:		2/9/2015								
Test Engineer:		S,Tran								
Configuration:		EUT AC charger and HS								
Location:		Chamber A								
Mode:		LTE_16QAM Band 5 Harmonics, 1.4MHz Bandwidth								
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	-5.1	V	3.0	37.0	1.0	-41.2	-13.0	-28.2	
	2474.10	-18.0	V	3.0	36.4	1.0	-53.4	-13.0	-40.4	
	3298.80	-16.7	V	3.0	36.2	1.0	-51.8	-13.0	-38.8	
1.4MHz	1649.40	-14.1	H	3.0	37.0	1.0	-50.1	-13.0	-37.1	
	2474.10	-19.6	H	3.0	36.4	1.0	-55.1	-13.0	-42.1	
	3298.80	-16.5	H	3.0	36.2	1.0	-51.7	-13.0	-38.7	
16QAM	Mid Ch, 836.5									
	1673.00	-2.0	V	3.0	37.0	1.0	-38.0	-13.0	-25.0	
	2509.50	-19.8	V	3.0	36.4	1.0	-55.2	-13.0	-42.2	
	3346.00	-17.2	V	3.0	36.1	1.0	-52.4	-13.0	-39.4	
	1673.00	-2.0	H	3.0	37.0	1.0	-38.0	-13.0	-25.0	
	2509.50	-20.5	H	3.0	36.4	1.0	-55.9	-13.0	-42.9	
	3346.00	-17.2	H	3.0	36.1	1.0	-52.3	-13.0	-39.3	
	High Ch, 848.3									
	1696.60	-0.2	V	3.0	37.0	1.0	-36.1	-13.0	-23.1	
	2544.90	-18.9	V	3.0	36.4	1.0	-54.3	-13.0	-41.3	
	3393.20	-17.6	V	3.0	36.1	1.0	-52.7	-13.0	-39.7	
	1696.60	-5.4	H	3.0	37.0	1.0	-41.3	-13.0	-28.3	
	2544.90	-19.2	H	3.0	36.4	1.0	-54.6	-13.0	-41.6	
	3393.20	-17.9	H	3.0	36.1	1.0	-53.0	-13.0	-40.0	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
Company: LG Electronics Project #: 15119922 Date: 2/9/2015 Test Engineer: S,Tran Configuration: EUT AC charger and HS Location: Chamber A Mode: LTE_QPSK Band 5 Harmonics, 1.4MHz Bandwidth											
Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
1.4MHz	Low Ch, 824.7										
	LTE5	1649.40	-4.8	V	3.0	37.0	1.0	-40.8	-13.0	-27.8	
		2474.10	-17.7	V	3.0	36.4	1.0	-53.1	-13.0	-40.1	
		3298.80	-16.4	V	3.0	36.2	1.0	-51.5	-13.0	-38.5	
	QPSK	1649.40	-13.8	H	3.0	37.0	1.0	-49.8	-13.0	-36.8	
		2474.10	-19.3	H	3.0	36.4	1.0	-54.7	-13.0	-41.7	
		3298.80	-16.2	H	3.0	36.2	1.0	-51.4	-13.0	-38.4	
	Mid Ch, 836.5										
		1673.00	-1.7	V	3.0	37.0	1.0	-37.7	-13.0	-24.7	
		2509.50	-19.5	V	3.0	36.4	1.0	-54.9	-13.0	-41.9	
		3346.00	-16.9	V	3.0	36.1	1.0	-52.0	-13.0	-39.0	
		1673.00	-1.7	H	3.0	37.0	1.0	-37.7	-13.0	-24.7	
		2509.50	-20.2	H	3.0	36.4	1.0	-55.6	-13.0	-42.6	
		3346.00	-16.8	H	3.0	36.1	1.0	-52.0	-13.0	-39.0	
	High Ch, 848.3										
	1696.60	0.2	V	3.0	37.0	1.0	-35.8	-13.0	-22.8		
	2544.90	-18.6	V	3.0	36.4	1.0	-54.0	-13.0	-41.0		
	3393.20	-17.3	V	3.0	36.1	1.0	-52.4	-13.0	-39.4		
	1696.60	-5.0	H	3.0	37.0	1.0	-41.0	-13.0	-28.0		
	2544.90	-18.9	H	3.0	36.4	1.0	-54.3	-13.0	-41.3		
	3393.20	-17.6	H	3.0	36.1	1.0	-52.7	-13.0	-39.7		

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
Company: LG Project #: 15119922 Date: 2/13/2015 Test Engineer: K.Kedida Configuration: EUT , AC Adapter, Headset Location: Chamber C Mode: LTE_16QAM Band 4 Harmonics, 20MHz Bandwidth											
Band	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											
LTE4	3440.00	-12.4	V	3.0	36.0	1.0	-47.4	-13.0	-34.4		
	5160.00	-17.1	V	3.0	35.4	1.0	-51.5	-13.0	-38.5		
	6880.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2		
20MHz	3440.00	-13.0	H	3.0	36.0	1.0	-48.1	-13.0	-35.1		
	5160.00	-16.9	H	3.0	35.4	1.0	-51.3	-13.0	-38.3		
	6880.00	-14.1	H	3.0	35.7	1.0	-48.8	-13.0	-35.8		
16QAM	Mid Ch, 1732.5										
	3465.00	-14.4	V	3.0	36.0	1.0	-49.4	-13.0	-36.4		
	5197.50	-17.1	V	3.0	35.4	1.0	-51.5	-13.0	-38.5		
	6930.00	-15.4	V	3.0	35.7	1.0	-50.1	-13.0	-37.1		
	3465.00	-10.2	H	3.0	36.0	1.0	-45.2	-13.0	-32.2		
	5197.50	-16.9	H	3.0	35.4	1.0	-51.3	-13.0	-38.3		
	6930.00	-13.6	H	3.0	35.7	1.0	-48.3	-13.0	-35.3		
	High Ch, 1745										
	3490.00	-13.2	V	3.0	36.0	1.0	-48.2	-13.0	-35.2		
5235.00	-17.1	V	3.0	35.4	1.0	-51.5	-13.0	-38.5			
6980.00	-15.1	V	3.0	35.7	1.0	-49.8	-13.0	-36.8			
3490.00	-13.4	H	3.0	36.0	1.0	-48.4	-13.0	-35.4			
5235.00	-15.8	H	3.0	35.4	1.0	-50.3	-13.0	-37.3			
6980.00	-12.7	H	3.0	35.7	1.0	-47.4	-13.0	-34.4			

UL Verification Services, Inc.										
Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119922								
Date:		2/13/2015								
Test Engineer:		K.Kedida								
Configuration:		EUT , AC Adapter, Headset								
Location:		Chamber C								
Mode:		LTE_QPSK Band 4 Harmonics, 20MHz Bandwidth								
Band	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									
LTE4	3440.00	-12.0	V	3.0	36.0	1.0	-47.0	-13.0	-34.0	
	5160.00	-17.2	V	3.0	35.4	1.0	-51.6	-13.0	-38.6	
	6880.00	-15.7	V	3.0	35.7	1.0	-50.4	-13.0	-37.4	
20MHz	3440.00	-12.4	H	3.0	36.0	1.0	-47.5	-13.0	-34.5	
	5160.00	-16.6	H	3.0	35.4	1.0	-51.0	-13.0	-38.0	
	6880.00	-13.5	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
QPSK	Mid Ch, 1732.5									
	3465.00	-13.6	V	3.0	36.0	1.0	-48.6	-13.0	-35.6	
	5197.50	-17.5	V	3.0	35.4	1.0	-52.0	-13.0	-39.0	
	6930.00	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
	3465.00	-9.4	H	3.0	36.0	1.0	-44.5	-13.0	-31.5	
	5197.50	-15.7	H	3.0	35.4	1.0	-50.1	-13.0	-37.1	
	6930.00	-13.9	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
High Ch, 1745										
	3490.00	-13.0	V	3.0	36.0	1.0	-48.0	-13.0	-35.0	
	5235.00	-16.4	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
	6980.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
	3490.00	-13.0	H	3.0	36.0	1.0	-48.0	-13.0	-35.0	
	5235.00	-16.6	H	3.0	35.4	1.0	-51.0	-13.0	-38.0	
	6980.00	-12.3	H	3.0	35.7	1.0	-47.0	-13.0	-34.0	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
<p>Company: LG Project #: 15119922 Date: 2/13/2015 Test Engineer: K.Kedida Configuration: EUT , AC Adapter, Headset Location: Chamber C Mode: LTE_16QAM Band 4 Harmonics, 15MHz Bandwidth</p>										
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									
LTE4	3435.00	-12.7	V	3.0	36.1	1.0	-47.7	-13.0	-34.7	
	5152.50	-16.8	V	3.0	35.4	1.0	-51.2	-13.0	-38.2	
	6870.00	-15.2	V	3.0	35.7	1.0	-49.9	-13.0	-36.9	
15MHz	3435.00	-11.6	H	3.0	36.1	1.0	-46.7	-13.0	-33.7	
	5152.50	-15.8	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
	6870.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
16QAM	Mid Ch, 1732.5									
	3465.00	-14.4	V	3.0	36.0	1.0	-49.4	-13.0	-36.4	
	5197.50	-17.5	V	3.0	35.4	1.0	-52.0	-13.0	-39.0	
	6930.00	-15.1	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
	3465.00	-12.6	H	3.0	36.0	1.0	-47.6	-13.0	-34.6	
	5197.50	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
	6930.00	-13.5	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
High Ch, 1747.5										
	3495.00	-12.7	V	3.0	36.0	1.0	-47.7	-13.0	-34.7	
	5242.50	-17.0	V	3.0	35.4	1.0	-51.5	-13.0	-38.5	
	6990.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
	3495.00	-13.8	H	3.0	36.0	1.0	-48.8	-13.0	-35.8	
	5242.50	-16.8	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	
	6990.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119922								
Date:		2/13/2015								
Test Engineer:		K.Kedida								
Configuration:		EUT , AC Adapter, Headset								
Location:		Chamber C								
Mode:		LTE_QPSK Band 4 Harmonics, 15MHz Bandwidth								
Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1717.5									
	3435.00	-11.8	V	3.0	36.1	1.0	-46.8	-13.0	-33.8	
LTE4	5152.50	-16.4	V	3.0	35.4	1.0	-50.8	-13.0	-37.8	
	6870.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
15MHz	3435.00	-11.2	H	3.0	36.1	1.0	-46.3	-13.0	-33.3	
	5152.50	-16.2	H	3.0	35.4	1.0	-50.6	-13.0	-37.6	
	6870.00	-14.3	H	3.0	35.7	1.0	-49.0	-13.0	-36.0	
QPSK	Mid Ch, 1732.5									
	3465.00	-13.9	V	3.0	36.0	1.0	-48.9	-13.0	-35.9	
	5197.50	-16.6	V	3.0	35.4	1.0	-51.0	-13.0	-38.0	
	6930.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
	3465.00	-11.8	H	3.0	36.0	1.0	-46.8	-13.0	-33.8	
	5197.50	-16.8	H	3.0	35.4	1.0	-51.2	-13.0	-38.2	
	6930.00	-12.4	H	3.0	35.7	1.0	-47.1	-13.0	-34.1	
	High Ch, 1747.5									
	3495.00	-11.6	V	3.0	36.0	1.0	-46.6	-13.0	-33.6	
	5242.50	-17.3	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
	6990.00	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
	3495.00	-12.8	H	3.0	36.0	1.0	-47.8	-13.0	-34.8	
	5242.50	-15.8	H	3.0	35.4	1.0	-50.2	-13.0	-37.2	
	6990.00	-13.8	H	3.0	35.7	1.0	-48.5	-13.0	-35.5	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Project #: 15119922 Date: 2/13/2015 Test Engineer: K.Kedida Configuration: EUT , AC Adapter, Headset Location: Chamber C Mode: LTE_16QAM Band 4 Harmonics, 10MHz Bandwidth										
Band	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									
LTE4	3430.00	-13.4	V	3.0	36.1	1.0	-48.5	-13.0	-35.5	
	5145.00	-17.5	V	3.0	35.4	1.0	-51.9	-13.0	-38.9	
	6860.00	-15.7	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
10MHz	3430.00	-12.7	H	3.0	36.1	1.0	-47.8	-13.0	-34.8	
	5145.00	-16.4	H	3.0	35.4	1.0	-50.8	-13.0	-37.8	
	6860.00	-14.1	H	3.0	35.7	1.0	-48.8	-13.0	-35.8	
16QAM	Mid Ch, 1732.5									
	3465.00	-14.2	V	3.0	36.0	1.0	-49.3	-13.0	-36.3	
	5197.50	-17.2	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
	6930.00	-15.2	V	3.0	35.7	1.0	-49.8	-13.0	-36.8	
	3465.00	-13.8	H	3.0	36.0	1.0	-48.9	-13.0	-35.9	
	5197.50	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
	6930.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
High Ch, 1750										
	3500.00	-12.9	V	3.0	36.0	1.0	-47.9	-13.0	-34.9	
	5250.00	-17.4	V	3.0	35.4	1.0	-51.8	-13.0	-38.8	
	7000.00	-15.6	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
	3500.00	-12.5	H	3.0	36.0	1.0	-47.5	-13.0	-34.5	
	5250.00	-16.8	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	
	7000.00	-13.7	H	3.0	35.7	1.0	-48.4	-13.0	-35.4	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Project #: 15119922 Date: 2/13/2015 Test Engineer: K.Kedida Configuration: EUT , AC Adapter, Headset Location: Chamber C Mode: LTE_QPSK Band 4 Harmonics, 10MHz Bandwidth										
Band	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									
LTE4	3430.00	-13.0	V	3.0	36.1	1.0	-48.1	-13.0	-35.1	
	5145.00	-16.5	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
	6860.00	-15.7	V	3.0	35.7	1.0	-50.4	-13.0	-37.4	
10MHz	3430.00	-12.0	H	3.0	36.1	1.0	-47.1	-13.0	-34.1	
	5145.00	-16.2	H	3.0	35.4	1.0	-50.6	-13.0	-37.6	
	6860.00	-13.7	H	3.0	35.7	1.0	-48.4	-13.0	-35.4	
QPSK	Mid Ch, 1732.5									
	3465.00	-13.7	V	3.0	36.0	1.0	-48.7	-13.0	-35.7	
	5197.50	-16.6	V	3.0	35.4	1.0	-51.1	-13.0	-38.1	
	6930.00	-15.6	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
	3465.00	-13.0	H	3.0	36.0	1.0	-48.1	-13.0	-35.1	
	5197.50	-15.5	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
	6930.00	-12.2	H	3.0	35.7	1.0	-46.9	-13.0	-33.9	
	High Ch, 1750									
	3500.00	-12.0	V	3.0	36.0	1.0	-47.1	-13.0	-34.1	
	5250.00	-16.3	V	3.0	35.4	1.0	-50.7	-13.0	-37.7	
	7000.00	-14.9	V	3.0	35.7	1.0	-49.6	-13.0	-36.6	
	3500.00	-11.6	H	3.0	36.0	1.0	-46.6	-13.0	-33.6	
	5250.00	-15.6	H	3.0	35.4	1.0	-50.1	-13.0	-37.1	
	7000.00	-13.4	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		15119922								
Date:		2/7/2015								
Test Engineer:		K.Kedida								
Configuration:		EUT , AC Adapter								
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	-14.2	V	3.0	36.1	1.0	-49.3	-13.0	-36.3	
LTE4	5137.50	-16.9	V	3.0	35.4	1.0	-51.3	-13.0	-38.3	
	6850.00	-14.8	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
5MHz	3425.00	-12.7	H	3.0	36.1	1.0	-47.8	-13.0	-34.8	
	5137.50	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
	6850.00	-14.0	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
16QAM	Mid Ch, 1732.5									
	3465.00	-13.9	V	3.0	36.0	1.0	-49.0	-13.0	-36.0	
	5197.50	-17.3	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
	6930.00	-15.3	V	3.0	35.7	1.0	-49.9	-13.0	-36.9	
	3465.00	-13.9	H	3.0	36.0	1.0	-49.0	-13.0	-36.0	
	5197.50	-16.5	H	3.0	35.4	1.0	-50.9	-13.0	-37.9	
	6930.00	-13.0	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
	High Ch, 1752.5									
	3505.00	-15.0	V	3.0	36.0	1.0	-50.0	-13.0	-37.0	
	5257.50	-17.3	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
	7010.00	-14.9	V	3.0	35.7	1.0	-49.5	-13.0	-36.5	
	3505.00	-13.6	H	3.0	36.0	1.0	-48.6	-13.0	-35.6	
	5257.50	-15.8	H	3.0	35.4	1.0	-50.2	-13.0	-37.2	
	7010.00	-13.2	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Project #: 15119922 Date: 2/7/2015 Test Engineer: K.Kedida Configuration: EUT , AC Adapter 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	-13.5	V	3.0	36.1	1.0	-48.6	-13.0	-35.6	
LTE4	5137.50	-18.1	V	3.0	35.4	1.0	-52.5	-13.0	-39.5	
	6850.00	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
5MHz	3425.00	-11.8	H	3.0	36.1	1.0	-46.9	-13.0	-33.9	
	5137.50	-16.9	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	
	6850.00	-13.1	H	3.0	35.7	1.0	-47.7	-13.0	-34.7	
QPSK	Mid Ch, 1732.5									
	3465.00	-14.3	V	3.0	36.0	1.0	-49.4	-13.0	-36.4	
	5197.50	-17.1	V	3.0	35.4	1.0	-51.5	-13.0	-38.5	
	6930.00	-15.3	V	3.0	35.7	1.0	-50.0	-13.0	-37.0	
	3465.00	-12.8	H	3.0	36.0	1.0	-47.8	-13.0	-34.8	
	5197.50	-16.9	H	3.0	35.4	1.0	-51.4	-13.0	-38.4	
	6930.00	-12.2	H	3.0	35.7	1.0	-46.8	-13.0	-33.8	
	High Ch, 1752.5									
	3505.00	-14.4	V	3.0	36.0	1.0	-49.4	-13.0	-36.4	
	5257.50	-16.3	V	3.0	35.4	1.0	-50.7	-13.0	-37.7	
	7010.00	-15.3	V	3.0	35.7	1.0	-50.0	-13.0	-37.0	
	3505.00	-12.6	H	3.0	36.0	1.0	-47.6	-13.0	-34.6	
	5257.50	-16.4	H	3.0	35.4	1.0	-50.8	-13.0	-37.8	
	7010.00	-12.4	H	3.0	35.7	1.0	-47.1	-13.0	-34.1	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Project #: 15119922 Date: 2/7/2015 Test Engineer: K.Kedida Configuration: EUT , AC Adapter Location: Chamber C 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									
	3423.00	-14.0	V	3.0	36.1	1.0	-49.1	-13.0	-36.1	
LTE4	5134.50	-16.5	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
	6846.00	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3MHz	3423.00	-12.3	H	3.0	36.1	1.0	-47.4	-13.0	-34.4	
	5134.50	-16.1	H	3.0	35.4	1.0	-50.5	-13.0	-37.5	
	6846.00	-13.7	H	3.0	35.7	1.0	-48.4	-13.0	-35.4	
16QAM	Mid Ch, 1732.5									
	3465.00	-15.5	V	3.0	36.0	1.0	-50.5	-13.0	-37.5	
	5197.50	-16.8	V	3.0	35.4	1.0	-51.3	-13.0	-38.3	
	6930.00	-14.8	V	3.0	35.7	1.0	-49.5	-13.0	-36.5	
	3465.00	-14.8	H	3.0	36.0	1.0	-49.9	-13.0	-36.9	
	5197.50	-16.2	H	3.0	35.4	1.0	-50.6	-13.0	-37.6	
	6930.00	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	
	High Ch, 1753.5									
	3507.00	-15.3	V	3.0	36.0	1.0	-50.3	-13.0	-37.3	
	5260.50	-17.4	V	3.0	35.4	1.0	-51.8	-13.0	-38.8	
	7014.00	-13.8	V	3.0	35.7	1.0	-48.5	-13.0	-35.5	
	3507.00	-13.8	H	3.0	36.0	1.0	-48.8	-13.0	-35.8	
	5260.50	-16.6	H	3.0	35.4	1.0	-51.0	-13.0	-38.0	
	7014.00	-13.4	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Project #: 15119922 Date: 2/7/2015 Test Engineer: K.Kedida Configuration: EUT , AC Adapter Location: Chamber C 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	-13.4	V	3.0	36.1	1.0	-48.5	-13.0	-35.5	
LTE4	5134.50	-17.5	V	3.0	35.4	1.0	-51.9	-13.0	-38.9	
	6846.00	-14.1	V	3.0	35.7	1.0	-48.7	-13.0	-35.7	
3MHz	3423.00	-11.8	H	3.0	36.1	1.0	-46.9	-13.0	-33.9	
	5134.50	-16.8	H	3.0	35.4	1.0	-51.2	-13.0	-38.2	
QPSK	6846.00	-12.9	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
	Mid Ch, 1732.5									
	3465.00	-15.2	V	3.0	36.0	1.0	-50.2	-13.0	-37.2	
	5197.50	-17.8	V	3.0	35.4	1.0	-52.2	-13.0	-39.2	
	6930.00	-14.2	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
	3465.00	-13.2	H	3.0	36.0	1.0	-48.2	-13.0	-35.2	
	5197.50	-17.3	H	3.0	35.4	1.0	-51.7	-13.0	-38.7	
	6930.00	-12.4	H	3.0	35.7	1.0	-47.0	-13.0	-34.0	
	High Ch, 1753.5									
	3507.00	-14.1	V	3.0	36.0	1.0	-49.1	-13.0	-36.1	
	5260.50	-17.3	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
	7014.00	-13.2	V	3.0	35.7	1.0	-47.9	-13.0	-34.9	
	3507.00	-12.8	H	3.0	36.0	1.0	-47.8	-13.0	-34.8	
	5260.50	-16.9	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	
	7014.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
Company: LG Project #: 15I19922 Date: 2/7/2015 Test Engineer: K.Kedida Configuration: EUT , AC Adapter Location: Chamber C Mode: LTE_16QAM Band 4 Harmonics, 1.4MHz Bandwidth											
Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
1.4MHz 16QAM	Low Ch, 1710.7										
	LTE4	3421.40	-13.9	V	3.0	36.1	1.0	-48.9	-13.0	-35.9	
		5132.10	-17.6	V	3.0	35.4	1.0	-52.0	-13.0	-39.0	
		6842.80	-14.9	V	3.0	35.7	1.0	-49.5	-13.0	-36.5	
		3421.40	-11.3	H	3.0	36.1	1.0	-46.4	-13.0	-33.4	
		5132.10	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
		6842.80	-13.3	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	
		Mid Ch, 1732.5									
		3465.00	-15.3	V	3.0	36.0	1.0	-50.3	-13.0	-37.3	
		5197.50	-17.2	V	3.0	35.4	1.0	-51.6	-13.0	-38.6	
		6930.00	-14.3	V	3.0	35.7	1.0	-49.0	-13.0	-36.0	
		3465.00	-23.2	H	3.0	36.0	1.0	-58.2	-13.0	-45.2	
		5197.50	-17.0	H	3.0	35.4	1.0	-51.4	-13.0	-38.4	
		6930.00	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	
		High Ch, 1754.3									
		3508.60	-13.9	V	3.0	36.0	1.0	-48.9	-13.0	-35.9	
		5262.90	-16.7	V	3.0	35.4	1.0	-51.2	-13.0	-38.2	
		7017.20	-14.4	V	3.0	35.7	1.0	-49.0	-13.0	-36.0	
	3508.60	-11.4	H	3.0	36.0	1.0	-46.4	-13.0	-33.4		
	5262.90	-17.0	H	3.0	35.4	1.0	-51.4	-13.0	-38.4		
	7017.20	-12.7	H	3.0	35.7	1.0	-47.3	-13.0	-34.3		

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement											
Company: LG Project #: 15119922 Date: 2/7/2015 Test Engineer: K.Kedida Configuration: EUT , AC Adapter Location: Chamber C Mode: LTE_QPSK Band 4 Harmonics, 1.4MHz Bandwidth											
Band	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	-13.3	V	3.0	36.1	1.0	-48.4	-13.0	-35.4	
		5132.10	-18.1	V	3.0	35.4	1.0	-52.6	-13.0	-39.6	
		6842.80	-14.2	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
		3421.40	-10.3	H	3.0	36.1	1.0	-45.4	-13.0	-32.4	
		5132.10	-17.1	H	3.0	35.4	1.0	-51.5	-13.0	-38.5	
		6842.80	-12.8	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
		Mid Ch, 1732.5									
		3465.00	-14.7	V	3.0	36.0	1.0	-49.8	-13.0	-36.8	
		5197.50	-17.0	V	3.0	35.4	1.0	-51.4	-13.0	-38.4	
		6930.00	-13.3	V	3.0	35.7	1.0	-48.0	-13.0	-35.0	
		3465.00	-12.1	H	3.0	36.0	1.0	-47.2	-13.0	-34.2	
	5197.50	-17.4	H	3.0	35.4	1.0	-51.8	-13.0	-38.8		
	6930.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2		
	High Ch, 1754.3										
	3508.60	-13.3	V	3.0	36.0	1.0	-48.3	-13.0	-35.3		
	5262.90	-17.5	V	3.0	35.4	1.0	-52.0	-13.0	-39.0		
	7017.20	-13.4	V	3.0	35.7	1.0	-48.1	-13.0	-35.1		
	3508.60	-10.9	H	3.0	36.0	1.0	-45.9	-13.0	-32.9		
	5262.90	-16.3	H	3.0	35.4	1.0	-50.8	-13.0	-37.8		
	7017.20	-12.0	H	3.0	35.7	1.0	-46.7	-13.0	-33.7		

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119922							
Date:		2/7/2015							
Test Engineer:		K.Kedida							
Configuration:		EUT , AC Adapter and HP							
Location:		Chamber C							
Mode:		LTE_16QAM Band 2 Harmonics, 20MHz Bandwidth							
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, 1860									
3720.00	-18.6	V	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5580.00	-16.3	V	3.0	35.5	1.0	-50.7	-13.0	-37.7	
LTE2									
7440.00	-13.7	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3720.00	-19.9	H	3.0	35.8	1.0	-54.8	-13.0	-41.8	
5580.00	-16.0	H	3.0	35.5	1.0	-50.5	-13.0	-37.5	
20MHz									
7440.00	-12.9	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
16QAM									
Mid Ch, 1880									
3760.00	-19.0	V	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5640.00	-16.3	V	3.0	35.5	1.0	-50.8	-13.0	-37.8	
7520.00	-13.8	V	3.0	35.7	1.0	-48.5	-13.0	-35.5	
3760.00	-18.8	H	3.0	35.8	1.0	-53.7	-13.0	-40.7	
5640.00	-15.4	H	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7520.00	-12.2	H	3.0	35.7	1.0	-46.9	-13.0	-33.9	
High Ch, 1900									
3800.00	-18.9	V	3.0	35.8	1.0	-53.7	-13.0	-40.7	
5700.00	-16.6	V	3.0	35.5	1.0	-51.1	-13.0	-38.1	
7600.00	-13.5	V	3.0	35.8	1.0	-48.2	-13.0	-35.2	
3800.00	-19.4	H	3.0	35.8	1.0	-54.2	-13.0	-41.2	
5700.00	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7600.00	-11.9	H	3.0	35.8	1.0	-46.6	-13.0	-33.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119922							
Date:		2/7/2015							
Test Engineer:		K.Kedida							
Configuration:		EUT , AC Adapter and HP							
Location:		Chamber C							
Mode:		LTE_QPSK Band 2 Harmonics, 20MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860									
Band	3720.00	-18.2	V	3.0	35.8	1.0	-53.1	-13.0	-40.1
	5580.00	-16.9	V	3.0	35.5	1.0	-51.4	-13.0	-38.4
LTE2	7440.00	-13.3	V	3.0	35.7	1.0	-48.1	-13.0	-35.1
	3720.00	-19.9	H	3.0	35.8	1.0	-54.7	-13.0	-41.7
	5580.00	-17.1	H	3.0	35.5	1.0	-51.6	-13.0	-38.6
20MHz	7440.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2
Mid Ch, 1880									
QPSK	3760.00	-18.8	V	3.0	35.8	1.0	-53.6	-13.0	-40.6
	5640.00	-17.3	V	3.0	35.5	1.0	-51.7	-13.0	-38.7
	7520.00	-13.7	V	3.0	35.7	1.0	-48.4	-13.0	-35.4
	3760.00	-18.9	H	3.0	35.8	1.0	-53.7	-13.0	-40.7
	5640.00	-16.4	H	3.0	35.5	1.0	-50.9	-13.0	-37.9
	7520.00	-11.9	H	3.0	35.7	1.0	-46.6	-13.0	-33.6
High Ch, 1900									
	3800.00	-19.3	V	3.0	35.8	1.0	-54.1	-13.0	-41.1
	5700.00	-16.9	V	3.0	35.5	1.0	-51.4	-13.0	-38.4
	7600.00	-13.5	V	3.0	35.8	1.0	-48.3	-13.0	-35.3
	3800.00	-19.5	H	3.0	35.8	1.0	-54.3	-13.0	-41.3
	5700.00	-16.1	H	3.0	35.5	1.0	-50.6	-13.0	-37.6
	7600.00	-12.3	H	3.0	35.8	1.0	-47.0	-13.0	-34.0

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119922							
Date:		2/7/2015							
Test Engineer:		K.Kedida							
Configuration:		EUT , AC Adapter and HP							
Location:		Chamber C							
Mode:		LTE_16QAM Band 2 Harmonics, 15MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Band									
LTE2									
15MHz									
16QAM									
Low Ch, 1857.5									
3715.00	-19.2	V	3.0	35.8	1.0	-54.0	-13.0	-41.0	
5572.50	-16.9	V	3.0	35.5	1.0	-51.4	-13.0	-38.4	
7430.00	-13.5	V	3.0	35.7	1.0	-48.2	-13.0	-35.2	
3715.00	-20.1	H	3.0	35.8	1.0	-54.9	-13.0	-41.9	
5572.50	-15.6	H	3.0	35.5	1.0	-50.1	-13.0	-37.1	
7430.00	-12.7	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
Mid Ch, 1880									
3760.00	-17.9	V	3.0	35.8	1.0	-52.7	-13.0	-39.7	
5640.00	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7520.00	-13.0	V	3.0	35.7	1.0	-47.7	-13.0	-34.7	
3760.00	-19.0	H	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5640.00	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7520.00	-12.8	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
High Ch, 1902.5									
3805.00	-18.8	V	3.0	35.8	1.0	-53.6	-13.0	-40.6	
5707.50	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7610.00	-13.7	V	3.0	35.8	1.0	-48.4	-13.0	-35.4	
3805.00	-19.8	H	3.0	35.8	1.0	-54.6	-13.0	-41.6	
5707.50	-16.0	H	3.0	35.5	1.0	-50.4	-13.0	-37.4	
7610.00	-12.2	H	3.0	35.8	1.0	-46.9	-13.0	-33.9	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119922							
Date:		2/7/2015							
Test Engineer:		K.Kedida							
Configuration:		EUT , AC Adapter and HP							
Location:		Chamber C							
Mode:		LTE_QPSK Band 2 Harmonics, 15MHz Bandwidth							
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, 1857.5									
3715.00	-18.9	V	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5572.50	-16.7	V	3.0	35.5	1.0	-51.2	-13.0	-38.2	
LTE2									
7430.00	-13.4	V	3.0	35.7	1.0	-48.1	-13.0	-35.1	
3715.00	-19.4	H	3.0	35.8	1.0	-54.3	-13.0	-41.3	
5572.50	-16.5	H	3.0	35.5	1.0	-51.0	-13.0	-38.0	
15MHz									
7430.00	-12.7	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
QPSK									
Mid Ch, 1880									
3760.00	-17.5	V	3.0	35.8	1.0	-52.3	-13.0	-39.3	
5640.00	-17.0	V	3.0	35.5	1.0	-51.5	-13.0	-38.5	
7520.00	-13.1	V	3.0	35.7	1.0	-47.9	-13.0	-34.9	
3760.00	-19.0	H	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5640.00	-17.0	H	3.0	35.5	1.0	-51.5	-13.0	-38.5	
7520.00	-12.0	H	3.0	35.7	1.0	-46.7	-13.0	-33.7	
High Ch, 1902.5									
3805.00	-18.6	V	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5707.50	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7610.00	-13.1	V	3.0	35.8	1.0	-47.8	-13.0	-34.8	
3805.00	-19.1	H	3.0	35.8	1.0	-53.9	-13.0	-40.9	
5707.50	-15.8	H	3.0	35.5	1.0	-50.3	-13.0	-37.3	
7610.00	-12.0	H	3.0	35.8	1.0	-46.7	-13.0	-33.7	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119922							
Date:		2/7/2015							
Test Engineer:		K.Kedida							
Configuration:		EUT , AC Adapter and HP							
Location:		Chamber C							
Mode:		LTE_16QAM Band 2 Harmonics, 10MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1855									
Band	3710.00	-18.5	V	3.0	35.9	1.0	-53.4	-13.0	-40.4
	5565.00	-17.2	V	3.0	35.5	1.0	-51.6	-13.0	-38.6
LTE2	7420.00	-13.0	V	3.0	35.7	1.0	-47.7	-13.0	-34.7
	3710.00	-18.5	H	3.0	35.9	1.0	-53.4	-13.0	-40.4
	5565.00	-17.2	H	3.0	35.5	1.0	-51.7	-13.0	-38.7
10MHz	7420.00	-12.0	H	3.0	35.7	1.0	-46.7	-13.0	-33.7
Mid Ch, 1880									
16QAM	3760.00	-17.8	V	3.0	35.8	1.0	-52.6	-13.0	-39.6
	5640.00	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0
	7520.00	-13.9	V	3.0	35.7	1.0	-48.7	-13.0	-35.7
	3760.00	-19.9	H	3.0	35.8	1.0	-54.7	-13.0	-41.7
	5640.00	-16.0	H	3.0	35.5	1.0	-50.5	-13.0	-37.5
	7520.00	-12.6	H	3.0	35.7	1.0	-47.4	-13.0	-34.4
High Ch, 1905									
	3810.00	-18.8	V	3.0	35.8	1.0	-53.6	-13.0	-40.6
	5715.00	-16.2	V	3.0	35.5	1.0	-50.7	-13.0	-37.7
	7620.00	-12.8	V	3.0	35.8	1.0	-47.5	-13.0	-34.5
	3810.00	-18.5	H	3.0	35.8	1.0	-53.3	-13.0	-40.3
	5715.00	-15.1	H	3.0	35.5	1.0	-49.6	-13.0	-36.6
	7620.00	-12.7	H	3.0	35.8	1.0	-47.4	-13.0	-34.4

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119922							
Date:		2/7/2015							
Test Engineer:		K.Kedida							
Configuration:		EUT , AC Adapter and HP							
Location:		Chamber C							
Mode:		LTE_QPSK Band 2 Harmonics, 10MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1855									
Band	3710.00	-18.3	V	3.0	35.9	1.0	-53.1	-13.0	-40.1
	5565.00	-17.1	V	3.0	35.5	1.0	-51.6	-13.0	-38.6
LTE2	7420.00	-13.5	V	3.0	35.7	1.0	-48.2	-13.0	-35.2
	3710.00	-17.4	H	3.0	35.9	1.0	-52.2	-13.0	-39.2
	5565.00	-16.7	H	3.0	35.5	1.0	-51.2	-13.0	-38.2
10MHz	7420.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2
Mid Ch, 1880									
QPSK	3760.00	-17.6	V	3.0	35.8	1.0	-52.4	-13.0	-39.4
	5640.00	-16.0	V	3.0	35.5	1.0	-50.5	-13.0	-37.5
	7520.00	-13.2	V	3.0	35.7	1.0	-48.0	-13.0	-35.0
	3760.00	-18.4	H	3.0	35.8	1.0	-53.2	-13.0	-40.2
	5640.00	-16.1	H	3.0	35.5	1.0	-50.6	-13.0	-37.6
	7520.00	-11.9	H	3.0	35.7	1.0	-46.7	-13.0	-33.7
High Ch, 1905									
	3810.00	-17.9	V	3.0	35.8	1.0	-52.7	-13.0	-39.7
	5715.00	-16.7	V	3.0	35.5	1.0	-51.2	-13.0	-38.2
	7620.00	-13.2	V	3.0	35.8	1.0	-48.0	-13.0	-35.0
	3810.00	-18.6	H	3.0	35.8	1.0	-53.4	-13.0	-40.4
	5715.00	-15.7	H	3.0	35.5	1.0	-50.2	-13.0	-37.2
	7620.00	-11.2	H	3.0	35.8	1.0	-46.0	-13.0	-33.0

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119922							
Date:		2/7/2015							
Test Engineer:		K.Kedida							
Configuration:		EUT , AC Adapter and HP							
Location:		Chamber C							
Mode:		LTE_16QAM Band 2 Harmonics, 5MHz Bandwidth							
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, 1852.5									
3705.00	-17.4	V	3.0	35.9	1.0	-52.2	-13.0	-39.2	
5557.50	-15.4	V	3.0	35.5	1.0	-49.9	-13.0	-36.9	
LTE2									
7410.00	-13.7	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3705.00	-15.6	H	3.0	35.9	1.0	-50.4	-13.0	-37.4	
5557.50	-15.6	H	3.0	35.5	1.0	-50.1	-13.0	-37.1	
5MHz									
7410.00	-13.1	H	3.0	35.7	1.0	-47.8	-13.0	-34.8	
16QAM									
Mid Ch, 1880									
3760.00	-18.6	V	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5640.00	-16.1	V	3.0	35.5	1.0	-50.6	-13.0	-37.6	
7520.00	-13.6	V	3.0	35.7	1.0	-48.3	-13.0	-35.3	
3760.00	-18.0	H	3.0	35.8	1.0	-52.8	-13.0	-39.8	
5640.00	-15.3	H	3.0	35.5	1.0	-49.8	-13.0	-36.8	
7520.00	-12.8	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
High Ch, 1907.5									
3815.00	-18.2	V	3.0	35.8	1.0	-52.9	-13.0	-39.9	
5722.50	-16.3	V	3.0	35.5	1.0	-50.8	-13.0	-37.8	
7630.00	-13.3	V	3.0	35.8	1.0	-48.1	-13.0	-35.1	
3815.00	-18.2	H	3.0	35.8	1.0	-53.0	-13.0	-40.0	
5722.50	-15.3	H	3.0	35.5	1.0	-49.8	-13.0	-36.8	
7630.00	-12.6	H	3.0	35.8	1.0	-47.4	-13.0	-34.4	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Project #: 15119922 Date: 2/7/2015 Test Engineer: K.Kedida Configuration: EUT , AC Adapter and HP Location: Chamber C Mode: LTE_QPSK Band 2 Harmonics, 5MHz Bandwidth										
	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, 1852.5									
	3705.00	-16.9	V	3.0	35.9	1.0	-51.8	-13.0	-38.8	
LTE2	5557.50	-16.2	V	3.0	35.5	1.0	-50.6	-13.0	-37.6	
	7410.00	-13.6	V	3.0	35.7	1.0	-48.3	-13.0	-35.3	
5MHz	3705.00	-14.5	H	3.0	35.9	1.0	-49.4	-13.0	-36.4	
	5557.50	-16.5	H	3.0	35.5	1.0	-51.0	-13.0	-38.0	
QPSK	7410.00	-12.2	H	3.0	35.7	1.0	-46.9	-13.0	-33.9	
	Mid Ch, 1880									
	3760.00	-18.5	V	3.0	35.8	1.0	-53.3	-13.0	-40.3	
	5640.00	-16.9	V	3.0	35.5	1.0	-51.4	-13.0	-38.4	
	7520.00	-13.6	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
	3760.00	-16.3	H	3.0	35.8	1.0	-51.1	-13.0	-38.1	
	5640.00	-16.3	H	3.0	35.5	1.0	-50.8	-13.0	-37.8	
	7520.00	-12.3	H	3.0	35.7	1.0	-47.1	-13.0	-34.1	
	High Ch, 1907.5									
	3815.00	-18.3	V	3.0	35.8	1.0	-53.0	-13.0	-40.0	
	5722.50	-16.0	V	3.0	35.5	1.0	-50.5	-13.0	-37.5	
	7630.00	-13.8	V	3.0	35.8	1.0	-48.5	-13.0	-35.5	
	3815.00	-17.1	H	3.0	35.8	1.0	-51.9	-13.0	-38.9	
	5722.50	-16.5	H	3.0	35.5	1.0	-51.0	-13.0	-38.0	
	7630.00	-11.7	H	3.0	35.8	1.0	-46.5	-13.0	-33.5	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119922							
Date:		2/7/2015							
Test Engineer:		K.Kedida							
Configuration:		EUT , AC Adapter and HP							
Location:		Chamber C							
Mode:		LTE_16QAM Band 2 Harmonics, 3MHz Bandwidth							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.5									
Band	3703.00	-16.6	V	3.0	35.9	1.0	-51.5	-13.0	-38.5
	5554.50	-16.1	V	3.0	35.5	1.0	-50.5	-13.0	-37.5
LTE2	7406.00	-13.8	V	3.0	35.7	1.0	-48.5	-13.0	-35.5
	3703.00	-15.2	H	3.0	35.9	1.0	-50.1	-13.0	-37.1
	5554.50	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0
3MHz	7406.00	-12.2	H	3.0	35.7	1.0	-47.0	-13.0	-34.0
Mid Ch, 1880									
16QAM	3760.00	-15.9	V	3.0	35.8	1.0	-50.7	-13.0	-37.7
	5640.00	-15.6	V	3.0	35.5	1.0	-50.1	-13.0	-37.1
	7520.00	-13.6	V	3.0	35.7	1.0	-48.4	-13.0	-35.4
	3760.00	-16.7	H	3.0	35.8	1.0	-51.5	-13.0	-38.5
	5640.00	-16.5	H	3.0	35.5	1.0	-51.0	-13.0	-38.0
	7520.00	-12.1	H	3.0	35.7	1.0	-46.8	-13.0	-33.8
High Ch, 1908.5									
	3817.00	-17.6	V	3.0	35.8	1.0	-52.3	-13.0	-39.3
	5725.50	-15.1	V	3.0	35.5	1.0	-49.6	-13.0	-36.6
	7634.00	-13.6	V	3.0	35.8	1.0	-48.4	-13.0	-35.4
	3817.00	-16.3	H	3.0	35.8	1.0	-51.0	-13.0	-38.0
	5725.50	-15.3	H	3.0	35.5	1.0	-49.8	-13.0	-36.8
	7634.00	-12.3	H	3.0	35.8	1.0	-47.1	-13.0	-34.1

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119922							
Date:		2/7/2015							
Test Engineer:		K.Kedida							
Configuration:		EUT , AC Adapter and HP							
Location:		Chamber C							
Mode:		LTE_QPSK Band 2 Harmonics, 3MHz Bandwidth							
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, 1851.5									
3703.00	-16.3	V	3.0	35.9	1.0	-51.2	-13.0	-38.2	
5554.50	-15.0	V	3.0	35.5	1.0	-49.4	-13.0	-36.4	
LTE2									
7406.00	-14.2	V	3.0	35.7	1.0	-49.0	-13.0	-36.0	
3703.00	-12.8	H	3.0	35.9	1.0	-47.6	-13.0	-34.6	
5554.50	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
3MHz									
7406.00	-11.8	H	3.0	35.7	1.0	-46.5	-13.0	-33.5	
Mid Ch, 1880									
3760.00	-15.6	V	3.0	35.8	1.0	-50.4	-13.0	-37.4	
5640.00	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7520.00	-13.8	V	3.0	35.7	1.0	-48.6	-13.0	-35.6	
3760.00	-15.8	H	3.0	35.8	1.0	-50.6	-13.0	-37.6	
5640.00	-15.4	H	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7520.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	
High Ch, 1908.5									
3817.00	-17.0	V	3.0	35.8	1.0	-51.7	-13.0	-38.7	
5725.50	-15.8	V	3.0	35.5	1.0	-50.3	-13.0	-37.3	
7634.00	-13.3	V	3.0	35.8	1.0	-48.1	-13.0	-35.1	
3817.00	-15.4	H	3.0	35.8	1.0	-50.2	-13.0	-37.2	
5725.50	-14.5	H	3.0	35.5	1.0	-49.0	-13.0	-36.0	
7634.00	-11.9	H	3.0	35.8	1.0	-46.6	-13.0	-33.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119922							
Date:		2/7/2015							
Test Engineer:		K.Kedida							
Configuration:		EUT , AC Adapter and HP							
Location:		Chamber C							
Mode:		LTE_16QAM Band 2 Harmonics, 1.4MHz Bandwidth							
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, 1850.7									
3701.40	-16.2	V	3.0	35.9	1.0	-51.1	-13.0	-38.1	
5552.10	-16.1	V	3.0	35.5	1.0	-50.6	-13.0	-37.6	
LTE2									
7402.80	-13.9	V	3.0	35.7	1.0	-48.6	-13.0	-35.6	
3701.40	-14.4	H	3.0	35.9	1.0	-49.2	-13.0	-36.2	
5552.10	-14.8	H	3.0	35.5	1.0	-49.2	-13.0	-36.2	
1.4MHz									
7402.80	-12.8	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
16QAM									
Mid Ch, 1880									
3760.00	-15.2	V	3.0	35.8	1.0	-50.0	-13.0	-37.0	
5640.00	-16.2	V	3.0	35.5	1.0	-50.6	-13.0	-37.6	
7520.00	-13.9	V	3.0	35.7	1.0	-48.6	-13.0	-35.6	
3760.00	-15.6	H	3.0	35.8	1.0	-50.4	-13.0	-37.4	
5640.00	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7520.00	-12.8	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
High Ch, 1909.3									
3818.60	-17.0	V	3.0	35.8	1.0	-51.8	-13.0	-38.8	
5727.90	-15.5	V	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7637.20	-12.9	V	3.0	35.8	1.0	-47.6	-13.0	-34.6	
3818.60	-17.0	H	3.0	35.8	1.0	-51.8	-13.0	-38.8	
5727.90	-14.9	H	3.0	35.5	1.0	-49.4	-13.0	-36.4	
7637.20	-12.8	H	3.0	35.8	1.0	-47.6	-13.0	-34.6	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company: LG Project #: 15119922 Date: 2/7/2015 Test Engineer: K.Kedida Configuration: EUT , AC Adapter and HP Location: Chamber C Mode: LTE_QPSK Band 2 Harmonics, 1.4MHz Bandwidth									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Band									
Low Ch, 1850.7									
3701.40	-15.3	V	3.0	35.9	1.0	-50.2	-13.0	-37.2	
5552.10	-15.6	V	3.0	35.5	1.0	-50.1	-13.0	-37.1	
LTE2									
7402.80	-13.3	V	3.0	35.7	1.0	-48.0	-13.0	-35.0	
3701.40	-11.6	H	3.0	35.9	1.0	-46.4	-13.0	-33.4	
5552.10	-15.8	H	3.0	35.5	1.0	-50.3	-13.0	-37.3	
1.4MHz									
7402.80	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	
QPSK									
Mid Ch, 1880									
3760.00	-14.5	V	3.0	35.8	1.0	-49.3	-13.0	-36.3	
5640.00	-16.0	V	3.0	35.5	1.0	-50.5	-13.0	-37.5	
7520.00	-13.3	V	3.0	35.7	1.0	-48.0	-13.0	-35.0	
3760.00	-15.7	H	3.0	35.8	1.0	-50.6	-13.0	-37.6	
5640.00	-16.1	H	3.0	35.5	1.0	-50.6	-13.0	-37.6	
7520.00	-12.2	H	3.0	35.7	1.0	-47.0	-13.0	-34.0	
High Ch, 1909.3									
3818.60	-15.9	V	3.0	35.8	1.0	-50.7	-13.0	-37.7	
5727.90	-15.8	V	3.0	35.5	1.0	-50.3	-13.0	-37.3	
7637.20	-13.8	V	3.0	35.8	1.0	-48.6	-13.0	-35.6	
3818.60	-16.2	H	3.0	35.8	1.0	-51.0	-13.0	-38.0	
5727.90	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7637.20	-12.1	H	3.0	35.8	1.0	-46.8	-13.0	-33.8	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG Electronics								
Project #:		15119922								
Date:		2/10/2015								
Test Engineer:		S,Tran								
Configuration:		EUT AC charger and HS								
Location:		Chamber A								
Mode:		HSDPA Band 5 Harmonics								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Band										
Low Ch, 826.4										
1652.80	-3.5	V	3.0	37.0	1.0	-39.5	-13.0	-26.5		
2479.20	-21.1	V	3.0	36.4	1.0	-56.5	-13.0	-43.5		
Band 5										
3305.60	-21.9	V	3.0	36.1	1.0	-57.1	-13.0	-44.1		
1652.80	-9.6	H	3.0	37.0	1.0	-45.6	-13.0	-32.6		
2479.20	-23.8	H	3.0	36.4	1.0	-59.2	-13.0	-46.2		
HSDPA										
3305.60	-22.4	H	3.0	36.1	1.0	-57.5	-13.0	-44.5		
Mid Ch, 836.6										
1673.20	2.5	V	3.0	37.0	1.0	-33.5	-13.0	-20.5		
2509.80	-19.2	V	3.0	36.4	1.0	-54.6	-13.0	-41.6		
3346.40	-22.1	V	3.0	36.1	1.0	-57.2	-13.0	-44.2		
1673.20	-3.3	H	3.0	37.0	1.0	-39.3	-13.0	-26.3		
2509.80	-22.1	H	3.0	36.4	1.0	-57.5	-13.0	-44.5		
3346.40	-22.1	H	3.0	36.1	1.0	-57.2	-13.0	-44.2		
High Ch, 846.6										
1693.20	-3.8	V	3.0	37.0	1.0	-39.8	-13.0	-26.8		
2539.80	-18.8	V	3.0	36.4	1.0	-54.2	-13.0	-41.2		
3386.40	-22.5	V	3.0	36.1	1.0	-57.6	-13.0	-44.6		
1693.20	-11.0	H	3.0	37.0	1.0	-47.0	-13.0	-34.0		
2539.80	-21.6	H	3.0	36.4	1.0	-57.0	-13.0	-44.0		
3386.40	-21.7	H	3.0	36.1	1.0	-56.8	-13.0	-43.8		

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company: LG Electronics Project #: 15119922 Date: 2/10/2015 Test Engineer: S,Tran Configuration: EUT AC charger and HS Location: Chamber A Mode: Rel99 Band 5 Harmonics									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Band									
Band 5									
REL99									
Low Ch, 826.4									
1652.80	-11.0	V	3.0	37.0	1.0	-47.0	-13.0	-34.0	
2479.20	-24.4	V	3.0	36.4	1.0	-59.8	-13.0	-46.8	
3305.60	-22.4	V	3.0	36.1	1.0	-57.6	-13.0	-44.6	
1652.80	-14.2	H	3.0	37.0	1.0	-50.2	-13.0	-37.2	
2479.20	-24.7	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
3305.60	-22.6	H	3.0	36.1	1.0	-57.7	-13.0	-44.7	
Mid Ch, 836.6									
1673.20	-4.5	V	3.0	37.0	1.0	-40.5	-13.0	-27.5	
2509.80	-23.6	V	3.0	36.4	1.0	-59.0	-13.0	-46.0	
3346.40	-22.1	V	3.0	36.1	1.0	-57.3	-13.0	-44.3	
1673.20	-11.1	H	3.0	37.0	1.0	-47.1	-13.0	-34.1	
2509.80	-25.0	H	3.0	36.4	1.0	-60.4	-13.0	-47.4	
3346.40	-22.7	H	3.0	36.1	1.0	-57.9	-13.0	-44.9	
High Ch, 846.6									
1693.20	-8.3	V	3.0	37.0	1.0	-44.2	-13.0	-31.2	
2539.80	-22.3	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
3386.40	-22.7	V	3.0	36.1	1.0	-57.8	-13.0	-44.8	
1693.20	-17.2	H	3.0	37.0	1.0	-53.2	-13.0	-40.2	
2539.80	-24.3	H	3.0	36.4	1.0	-59.7	-13.0	-46.7	
3386.40	-22.2	H	3.0	36.1	1.0	-57.3	-13.0	-44.3	

UL Verification Services Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15119922							
Date:		2/16/2015							
Test Engineer:		K.Kedida							
Configuration:		EUT with AC charger and HS							
Location:		Chamber C							
Mode:		HSDPA Band 2 Harmonics							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Band									
Band 2									
HSDPA									
Low Ch, 1852.4									
3704.80	-17.8	V	3.0	35.9	1.0	-52.6	-13.0	-39.6	
5557.20	-17.3	V	3.0	35.5	1.0	-51.7	-13.0	-38.7	
Mid Ch, 1880									
3760.00	-17.2	V	3.0	35.8	1.0	-52.1	-13.0	-39.1	
5640.00	-17.0	V	3.0	35.5	1.0	-51.5	-13.0	-38.5	
7520.00	-13.7	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3760.00	-15.7	H	3.0	35.8	1.0	-50.5	-13.0	-37.5	
5640.00	-15.9	H	3.0	35.5	1.0	-50.4	-13.0	-37.4	
7520.00	-12.6	H	3.0	35.7	1.0	-47.3	-13.0	-34.3	
High Ch, 1907.6									
3815.20	-18.2	V	3.0	35.8	1.0	-53.0	-13.0	-40.0	
5722.80	-16.6	V	3.0	35.5	1.0	-51.1	-13.0	-38.1	
7630.40	-13.4	V	3.0	35.8	1.0	-48.2	-13.0	-35.2	
3815.20	-16.2	H	3.0	35.8	1.0	-51.0	-13.0	-38.0	
5722.80	-16.2	H	3.0	35.5	1.0	-50.7	-13.0	-37.7	
7630.40	-12.1	H	3.0	35.8	1.0	-46.8	-13.0	-33.8	

UL Verification Services									
Above 1GHz High Frequency Substitution Measurement									
Company:		LG							
Project #:		15I19922							
Date:		2/16/2015							
Test Engineer:		K.Kedida							
Configuration:		EUT with AC charger and HS							
Location:		Chamber C							
Mode:		Rel99 Band 2 Harmonics							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Band									
Low Ch, 1852.4									
3704.80	-17.6	V	3.0	35.9	1.0	-52.5	-13.0	-39.5	
5557.20	-16.3	V	3.0	35.5	1.0	-50.8	-13.0	-37.8	
Band 2									
7409.60	-14.2	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
3704.80	-15.6	H	3.0	35.9	1.0	-50.5	-13.0	-37.5	
5557.20	-16.5	H	3.0	35.5	1.0	-51.0	-13.0	-38.0	
REL99									
7409.60	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	
Mid Ch, 1880									
3760.00	-17.9	V	3.0	35.8	1.0	-52.7	-13.0	-39.7	
5640.00	-16.2	V	3.0	35.5	1.0	-50.7	-13.0	-37.7	
7520.00	-14.0	V	3.0	35.7	1.0	-48.8	-13.0	-35.8	
3760.00	-16.1	H	3.0	35.8	1.0	-50.9	-13.0	-37.9	
5640.00	-16.7	H	3.0	35.5	1.0	-51.1	-13.0	-38.1	
7520.00	-12.8	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
High Ch, 1907.6									
3815.20	-16.6	V	3.0	35.8	1.0	-51.3	-13.0	-38.3	
5722.80	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7630.40	-13.6	V	3.0	35.8	1.0	-48.4	-13.0	-35.4	
3815.20	-17.8	H	3.0	35.8	1.0	-52.6	-13.0	-39.6	
5722.80	-15.6	H	3.0	35.5	1.0	-50.1	-13.0	-37.1	
7630.40	-12.7	H	3.0	35.8	1.0	-47.5	-13.0	-34.5	

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Project #: 15119922 Date: 2/16/2015 Test Engineer: K.Kedida Configuration: EUT w/ AC Adaptor and HS Mode: EGPRS1900 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
	Low Ch, 1850.2MHz									
GSM 1900	3.700	-8.9	V	3.0	35.4	1.0	-43.3	-13.0	-30.3	
	5.551	-10.1	V	3.0	34.7	1.0	-43.9	-13.0	-30.9	
	7.401	-11.8	V	3.0	34.9	1.0	-45.7	-13.0	-32.7	
EGPRS	3.700	-13.8	H	3.0	35.4	1.0	-48.2	-13.0	-35.2	
	5.551	-14.6	H	3.0	34.7	1.0	-48.3	-13.0	-35.3	
	7.401	-12.7	H	3.0	34.9	1.0	-46.6	-13.0	-33.6	
	Mid Ch, 1880.0MHz									
	3.760	-8.1	V	3.0	35.3	1.0	-42.5	-13.0	-29.5	
	5.640	-10.3	V	3.0	34.7	1.0	-44.0	-13.0	-31.0	
	7.520	-9.0	V	3.0	34.9	1.0	-42.9	-13.0	-29.9	
	3.760	-12.5	H	3.0	35.3	1.0	-46.8	-13.0	-33.8	
	5.640	-15.0	H	3.0	34.7	1.0	-48.7	-13.0	-35.7	
	7.520	-12.7	H	3.0	34.9	1.0	-46.6	-13.0	-33.6	
	High Ch, 1909.8MHz									
	3.820	-11.5	V	3.0	35.3	1.0	-45.8	-13.0	-32.8	
	5.729	-10.6	V	3.0	34.7	1.0	-44.3	-13.0	-31.3	
	7.639	-10.1	V	3.0	35.0	1.0	-44.0	-13.0	-31.0	
	3.820	-13.6	H	3.0	35.3	1.0	-47.9	-13.0	-34.9	
	5.729	-14.4	H	3.0	34.7	1.0	-48.1	-13.0	-35.1	
	7.639	-11.9	H	3.0	35.0	1.0	-45.9	-13.0	-32.9	
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.										

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company: LG Project #: 15I19922 Date: 02/16/15 Test Engineer: K.Kedida Configuration: EUT w/ AC Adaptor and HS Mode: GPRS1900 Harm										
		Chamber	Pre-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	Low Ch, 1850.2MHz									
	3.700	-7.4	V	3.0	35.4	1.0	-41.8	-13.0	-28.8	
	5.551	-9.4	V	3.0	34.7	1.0	-43.1	-13.0	-30.1	
	7.401	-10.4	V	3.0	34.9	1.0	-44.3	-13.0	-31.3	
	3.700	-10.4	H	3.0	35.4	1.0	-44.8	-13.0	-31.8	
	5.551	-13.1	H	3.0	34.7	1.0	-46.8	-13.0	-33.8	
	7.401	-12.0	H	3.0	34.9	1.0	-45.9	-13.0	-32.9	
	Mid Ch, 1880.0MHz									
	3.760	-7.6	V	3.0	35.3	1.0	-41.9	-13.0	-28.9	
5.640	-9.5	V	3.0	34.7	1.0	-43.2	-13.0	-30.2		
7.520	-9.3	V	3.0	34.9	1.0	-43.2	-13.0	-30.2		
3.760	-9.8	H	3.0	35.3	1.0	-44.1	-13.0	-31.1		
5.640	-11.9	H	3.0	34.7	1.0	-45.6	-13.0	-32.6		
7.520	-11.4	H	3.0	34.9	1.0	-45.4	-13.0	-32.4		
GPRS	High Ch, 1909.8MHz									
	3.820	-8.1	V	3.0	35.3	1.0	-42.4	-13.0	-29.4	
	5.729	-9.7	V	3.0	34.7	1.0	-43.4	-13.0	-30.4	
	7.639	-9.3	V	3.0	35.0	1.0	-43.3	-13.0	-30.3	
	3.820	-11.3	H	3.0	35.3	1.0	-45.5	-13.0	-32.5	
	5.729	-12.9	H	3.0	34.7	1.0	-46.6	-13.0	-33.6	
	7.639	-11.5	H	3.0	35.0	1.0	-45.5	-13.0	-32.5	
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.										

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		LG Electronics								
Project #:		15119922								
Date:		2/10/2015								
Test Engineer:		S,Tran								
Configuration:		EUT AC charger and HS								
Location:		Chamber A								
Mode:		EGPRS 850 MHz Harmonics								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Band										
GSM										
850										
EGPRS										
Low Ch, 824.2										
1648.40	-2.3	V	3.0	37.0	1.0	-38.3	-13.0	-25.3		
2472.60	-17.5	V	3.0	36.4	1.0	-52.9	-13.0	-39.9		
3296.80	-22.7	V	3.0	36.2	1.0	-57.9	-13.0	-44.9		
1648.40	-5.4	H	3.0	37.0	1.0	-41.4	-13.0	-28.4		
2472.60	-18.0	H	3.0	36.4	1.0	-53.4	-13.0	-40.4		
3296.80	-23.1	H	3.0	36.2	1.0	-58.2	-13.0	-45.2		
Mid Ch, 836.6										
1673.20	4.0	V	3.0	37.0	1.0	-32.0	-13.0	-19.0		
2509.80	-18.9	V	3.0	36.4	1.0	-54.3	-13.0	-41.3		
3346.40	-22.8	V	3.0	36.1	1.0	-57.9	-13.0	-44.9		
1673.20	-1.6	H	3.0	37.0	1.0	-37.6	-13.0	-24.6		
2509.80	-21.6	H	3.0	36.4	1.0	-57.1	-13.0	-44.1		
3346.40	-22.9	H	3.0	36.1	1.0	-58.0	-13.0	-45.0		
High Ch, 848.8										
1697.60	-0.1	V	3.0	37.0	1.0	-36.0	-13.0	-23.0		
2546.40	-20.2	V	3.0	36.4	1.0	-55.6	-13.0	-42.6		
3395.20	-22.6	V	3.0	36.1	1.0	-57.6	-13.0	-44.6		
1697.60	-13.0	H	3.0	37.0	1.0	-48.9	-13.0	-35.9		
2546.40	-24.1	H	3.0	36.4	1.0	-59.5	-13.0	-46.5		
3395.20	-23.0	H	3.0	36.1	1.0	-58.1	-13.0	-45.1		

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
Company:		LG Electronics							
Project #:		15119922							
Date:		2/10/2015							
Test Engineer:		S,Tran							
Configuration:		EUT AC charger and HS							
Location:		Chamber A							
Mode:		GPRS 850 MHz Harmonics							
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Band									
GSM									
850									
GPRS									
Low Ch, 824.2									
1648.40	-2.3	V	3.0	37.0	1.0	-38.3	-13.0	-25.3	
2472.60	-17.4	V	3.0	36.4	1.0	-52.9	-13.0	-39.9	
3296.80	-22.3	V	3.0	36.2	1.0	-57.5	-13.0	-44.5	
1648.40	-5.5	H	3.0	37.0	1.0	-41.6	-13.0	-28.6	
2472.60	-18.4	H	3.0	36.4	1.0	-53.8	-13.0	-40.8	
3296.80	-22.6	H	3.0	36.2	1.0	-57.7	-13.0	-44.7	
Mid Ch, 836.6									
1673.20	4.2	V	3.0	37.0	1.0	-31.8	-13.0	-18.8	
2509.80	-18.9	V	3.0	36.4	1.0	-54.3	-13.0	-41.3	
3346.40	-22.7	V	3.0	36.1	1.0	-57.8	-13.0	-44.8	
1673.20	-1.4	H	3.0	37.0	1.0	-37.4	-13.0	-24.4	
2509.80	-22.2	H	3.0	36.4	1.0	-57.6	-13.0	-44.6	
3346.40	-23.2	H	3.0	36.1	1.0	-58.3	-13.0	-45.3	
High Ch, 848.8									
1697.60	-0.1	V	3.0	37.0	1.0	-36.1	-13.0	-23.1	
2546.40	-20.1	V	3.0	36.4	1.0	-55.5	-13.0	-42.5	
3395.20	-23.0	V	3.0	36.1	1.0	-58.1	-13.0	-45.1	
1697.60	-13.5	H	3.0	37.0	1.0	-49.4	-13.0	-36.4	
2546.40	-23.1	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	
3395.20	-23.1	H	3.0	36.1	1.0	-58.1	-13.0	-45.1	