



**FCC 47 CFR PART 22 SUBPART H  
FCC 47 CFR PART 24 SUBPART E  
FCC 47 CFR PART 27 SUBPART M  
FCC 47 CFR PART 90 SUBPART S**

**CERTIFICATION TEST REPORT**

**FOR**

**CDMA/ LTE Phone + Bluetooth, and DTS b/g/n**

**MODEL NUMBER: LG-LS660, LGLS660, LS660**

**FCC ID: ZNFLS660**

**REPORT NUMBER: 14U18147-1**

**ISSUE DATE: JUNE 28, 2014**

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**Revision History**

Rev.	Issue Date	Revisions	Revised By
--	06/28/14	Initial issue	P. Zhang

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# 1. ATTESTATION OF TEST RESULTS

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

**EUT DESCRIPTION:** CDMA/LTE Phone + Bluetooth, and DTS b/g/n.

**MODEL:** LG-LS660, LGLS660, LS660

**SERIAL NUMBER:** 1BYFM (Radiated)

**DATE TESTED:** JUNE 23-28, 2014

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H, 24E, 27M AND 90S	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 2, Part 22, Part 24, Part 27 and Part 90.

Test Procedure: Reference KDB 971168 D01 Power Meas License Digital Systems v02r01 6/7/2013

## 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	<input type="checkbox"/> Chamber D
<input checked="" type="checkbox"/> Chamber B	<input type="checkbox"/> Chamber E
<input checked="" type="checkbox"/> Chamber C	<input type="checkbox"/> Chamber F

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:

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

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

### 4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 18000 MHz	4.94 dB
Radiated Disturbance, 1GHz to 40GHz	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 CDMA/ LTE Phone + Bluetooth, and DTS b/g/n

### 5.2. MAXIMUM OUTPUT POWER

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

FCC Part 22/24/90						
Band	Frequency Range(MHz)	Modulation Peak	Conducted		Radiated	
			Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
BC10	816~824	1xRTT	25.2	331.13	24.179	261.76
	816~824	EVDO REL. 0	25.2	331.13	23.53	225.42
	816~824	EVDO REV. A	25.2	331.13		
BC0	824~849	1xRTT	25.2	331.13	23.835	241.82
	824~849	EVDO REL. 0	25.2	331.13	23.761	237.74
	824~849	EVDO REV. A	25.2	331.13		
BC1	1850~1910	1xRTT	24.4	275.42	25.65	367.28
	1850~1910	EVDO REL. 0	24.4	275.42	25.97	395.37
	1850~1910	EVDO REV. A	24.4	275.42		

### 5.3. MAXIMUM OUTPUT POWER (LTE)

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

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE41	2496~2690	20MHz	QPSK	23.69	233.88	21.53	142.23
	2496~2690	20MHz	16QAM	22.70	186.21	20.93	123.88

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE41	2496~2690	15MHz	QPSK	23.70	234.42	21.61	144.88
	2496~2690	15MHz	16QAM	22.70	186.21	21.01	126.18

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE41	2496~2690	10MHz	QPSK	23.54	225.94	21.31	135.21
	2496~2690	10MHz	16QAM	22.70	186.21	20.82	120.78

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE26	824~849	10MHz	QPSK	23.70	234.42	19.851	96.63
	824~849		16QAM	22.70	186.21	19.36	86.3

FCC Part 90							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE26	814~824	10MHz	QPSK	23.70	234.42	20.207	104.88
	814~824		16QAM	22.70	186.21	19.347	86.04

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE26	824~849	5MHz	QPSK	23.70	234.42	19.821	95.96
	824~849		16QAM	22.70	186.21	18.951	78.54

FCC Part 90							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE26	814~824	5MHz	QPSK	23.70	234.42	20.067	101.55
	814~824		16QAM	22.70	186.21	19.077	80.85

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE26	824~849	3MHz	QPSK	23.70	234.42	19.181	82.81
	824~849		16QAM	22.70	186.21	18.061	63.99

FCC Part 90							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE26	814~824	3MHz	QPSK	23.70	234.42	20.327	107.82
	814~824		16QAM	22.70	186.21	19.267	84.47

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE26	824~849	1.4MHz	QPSK	23.70	234.42	19.541	89.97
	824~849		16QAM	22.70	186.21	18.591	72.29

FCC Part 90							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE26	814~824	1.4MHz	QPSK	23.70	234.42	19.647	92.19
	814~824		16QAM	22.70	186.21	18.737	74.77

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE25	1850~1915	10MHz	QPSK	23.52	224.91	22.55	179.71
	1850~1915	10MHz	16QAM	22.70	186.21	22.44	175.21

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE25	1850~1915	5MHz	QPSK	23.62	230.14	22.68	185.35
	1850~1915	5MHz	16QAM	22.70	186.21	21.63	145.55

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE25	1850~1915	3MHz	QPSK	23.62	230.14	22.21	166.25
	1850~1915	3MHz	16QAM	22.70	186.21	21.66	146.63

#### 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)
LTE26/BC10/BC0, 814~849MHz	-4.54
BC1/LTE25, 1850~1915MHz	-0.51
LTE41, 2496~2690MHz	1.64

## 5.5. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	STA-U34WRI	N/A	N/A
Earphone	LG	N/A	N/A	N/A

### I/O CABLES (CONDUCTED SETUP)

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

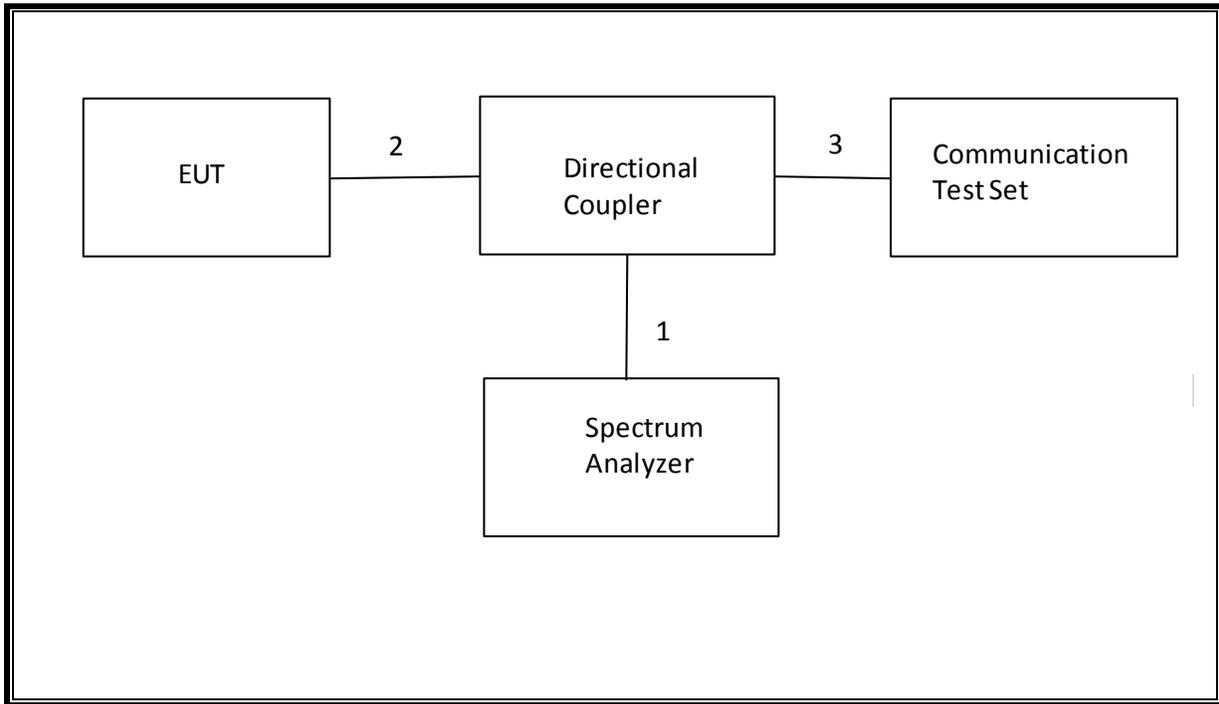
### I/O CABLES (RADIATED SETUP)

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

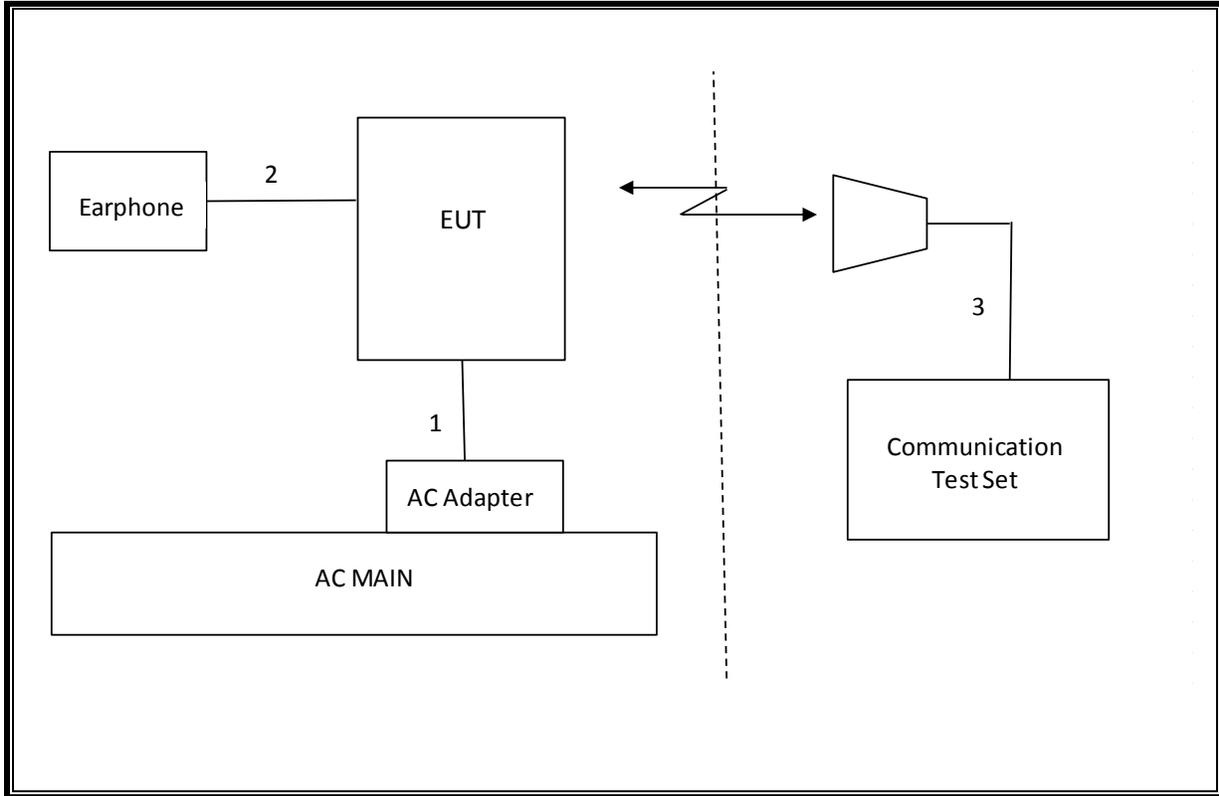
### TEST SETUP

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

**SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)**



**SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)**



## 6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01179	02/26/15
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	08/14/14
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/14
Antenna, Horn, 18 GHz	EMCO	3115	C00784	09/25/14
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	01/09/15
Communications Test Set	R&S	CMW500	T159	07/02/14
DC power supply, 8 V @ 3 A or 15 V	Agilent / HP	E3610A	None	CNR
Vector signal generator, 6 GHz	Agilent / HP	E4438C	None	07/06/14
Antenna, Tuned Dipole 400~1000	ETS	3121C DB4	C00993	02/14/15
Antenna, Horn, 25.5 GHz	ARA	MWH-1826/B	C00980	11/14/14
Directional Coupler	RF-Lambda	RFDC5M06G15	None	CNR
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	11/14/14

## 7. Summary Table

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
22.917(a) 24.238(a)	N/A	Occupied Band width (99%)	N/A	Conducted	Pass	17.822MHz
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	-13.214dBm
2.1046	N/A	Conducted output power	N/A		Pass	25.2dBm
27.53(g) 90.691	RSS-139(6.5.1)	Emission Mask	-25dBm		Pass	-27.85dBm
22.355 24.235 27.54	RSS-132(4.3) RSS-133(6.3) RSS-139(6.3)	Frequency Stability	2.5PPM		Pass	0.063PPM
22.913(a)(2) 90.635	RSS-132(4.4)	Effective Radiated Power	38 dBm		Pass	23.835dBm
			50dBm	Pass	20.327dBm	
24.232(c )	RSS-133(6.4) RSS-139(6.4)	Equivalent Isotropic Radiated Power	33dBm	Radiated	Pass	25.97dBm
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	-25dBm

## 8.1. CDMA2000

### 8.1.1. 1xRTT

#### TEST PROCEDURE

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

<u>Application</u>	<u>Rev, License</u>
CDMA2000 Mobile Test	B.13.08, L

- Call Setup > Shift & Preset
- Cell Info > Cell Parameters > System ID (SID) > 7  
> Network ID (NID) > 1
- Protocol Rev > 6 (IS-2000-0)
- Radio Config (RC) > Please see following table or details
- FCH Service Option (SO) Setup > Please see following table or details
- Traffic Data Rate > Full
- TDSO SCH Info > F-SCH Parameters > F-SCH Data Rate > 153.6 kbps  
> R-SCH Parameters > R-SCH Data Rate > 153.6 kbps
- Rvs Power Ctrl > Active bits
  - Rvs Power Ctrl > All Up bits (Maximum TxPout)

**8.1.2. CDMA2000 OUTPUT POWER RESULT**

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC0	RC1, SO55 (Loopback)	1013	824.70	25.2
		384	836.52	25.2
		777	848.31	25.0
	RC3, SO55 (Loopback)	1013	824.70	25.1
		384	836.52	25.1
		777	848.31	25.0
	RC3, SO32 (+F-SCH)	1013	824.70	25.2
		384	836.52	25.2
		777	848.31	25.0

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC1	RC1, SO55 (Loopback)	25	1851.25	24.3
		600	1880.00	24.3
		1175	1908.75	24.3
	RC3, SO55 (Loopback)	25	1851.25	24.3
		600	1880.00	24.4
		1175	1908.75	24.4
	RC3, SO32 (+F-SCH)	25	1851.25	24.2
		600	1880.00	24.2
		1175	1908.75	24.2

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC10	RC1, SO55 (Loopback)	476	817.90	25.0
		526	820.50	25.1
		564	823.10	25.0
	RC3, SO55 (Loopback)	476	817.90	25.0
		526	820.50	25.1
		564	823.10	25.0
	RC3, SO32 (+F-SCH)	476	817.90	25.1
		526	820.50	25.2
		564	823.10	25.1

### 8.1.3. 1xEV-DO Release 0

#### TEST PROCEDURE

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

<u>Application</u>	<u>Rev, License</u>
1xEV-DO Terminal Test	A.09.13

#### EVDO Release 0 - RTAP

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Params:
  - Cell Power > -105.5 dBm/1.23 MHz
  - Cell Band > (Select US Cellular or US PCS)
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > RTAP
  - RTAP Rate > 153.6 kbps
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press "Start Data Connection" when "Session Open" appear in "Active Cell"
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

#### EVDO Release 0 - FTAP

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Params:
  - Cell Power > -105.5 dBm/1.23 MHz
  - Cell Band > (Select US Cellular or US PCS)
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > FTAP (default)
  - FTAP Rate > 307.2 kbps (2 Slot, QPSK)
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press "Start Data Connection" when "Session Open" appear in "Active Cell"
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

### 8.1.4. 1XEVD0 REL 0 OUTPUT POWER RESULT

#### 1xAdvanced

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC0	Fwd11/Rvs8 SO75 (Loopback)	1013	824.70	25.2
		384	836.52	25.2
		777	848.31	25.0

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC1	Fwd11/Rvs8 SO75 (Loopback)	25	1851.25	24.4
		600	1880.00	24.4
		1175	1908.75	24.4

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC10	Fwd11/Rvs8 SO75 (Loopback)	476	817.90	25.0
		526	820.50	25.1
		564	823.10	25.0

#### 1xEv-Do Rel. 0

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC0	307.2 kbps (2 slot, QPSK)	1013	824.70	25.2
		384	836.52	25.2
		777	848.31	25.1

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC1	307.2 kbps (2 slot, QPSK)	25	1851.25	24.4
		600	1880.00	24.4
		1175	1908.75	24.4

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC10	307.2 kbps (2 slot, QPSK)	476	817.90	25.1
		526	820.50	25.2
		564	823.10	25.1

## 8.1.5. 1xEV-DO Rev. A

### TEST PROCEDURE

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

<u>Application</u>	<u>Rev, License</u>
1xEV-DO Terminal Test	A.09.13

#### EVDO Release A – RETAP

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > RETAP
- R-Data Pkt Size > 4096
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
- > PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration >16 Slots > ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

#### EVDO Release A - FETAP

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > FETAP
- F-Traffic Format > 4 (1024, 2,128) Canonical (307.2k, QPSK)
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
- > PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration >16 Slots > ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

**8.1.6. 1xEVDO REV A OUTPUT RESULT**

Band	FETAP Traffic Format	Channel	f (MHz)	Avg Pwr (dBm)
BC0	307.2k, QPSK/ ACK channel is transmitted at all the slots	1013	824.70	25.2
		384	836.52	25.2
		777	848.31	25.1

Band	FETAP Traffic Format	Channel	f (MHz)	Avg Pwr (dBm)
BC1	307.2k, QPSK/ ACK channel is transmitted at all the slots	25	1851.25	24.4
		600	1880.00	24.4
		1175	1908.75	24.4

Band	FETAP Traffic Format	Channel	f (MHz)	Avg Pwr (dBm)
BC10	307.2k, QPSK/ ACK channel is transmitted at all the slots	476	817.90	25.1
		526	820.50	25.2
		564	823.10	25.1

## 8.2. LTE OUTPUT VERIFICATION

### 8.2.1. LTE OUTPUT RESULT

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26090	26365	26640
						1855 MHz	1882.5 MHz	1910 MHz
LTE Band 25	10	QPSK	1	0	0	<b>23.54</b>	<b>23.61</b>	<b>23.50</b>
			1	25	0	23.44	23.51	23.38
			1	49	0	23.42	23.52	23.18
			25	0	1	<b>22.53</b>	<b>22.68</b>	<b>22.67</b>
			25	12	1	22.50	22.65	22.52
			25	25	1	22.39	22.59	22.49
			50	0	1	22.43	22.64	22.52
		16QAM	1	0	1	22.45	22.70	22.48
			1	25	1	22.26	22.70	22.34
			1	49	1	22.25	22.70	22.18
			25	0	2	21.57	21.69	21.69
			25	12	2	21.54	21.70	21.59
			25	25	2	21.40	21.57	21.50
			50	0	2	21.53	21.62	21.64
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26065	26365	26665
						1852.5 MHz	1882.5 MHz	1912.5 MHz
LTE Band 25	5	QPSK	1	0	0	23.70	23.55	23.44
			1	12	0	23.57	23.59	23.40
			1	24	0	23.45	23.62	23.20
			12	0	1	22.59	22.67	22.61
			12	7	1	22.53	22.69	22.52
			12	13	1	22.51	22.57	22.50
			25	0	1	22.58	22.65	22.57
		16QAM	1	0	1	22.70	22.69	22.41
			1	12	1	22.70	22.54	22.30
			1	24	1	22.70	22.59	22.23
			12	0	2	21.63	21.70	21.68
			12	7	2	21.58	21.69	21.65
			12	13	2	21.53	21.62	21.64
			25	0	2	21.63	21.64	21.70
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26055	26365	26675
						1851.5 MHz	1882.5 MHz	1913.5 MHz
LTE Band 25	3	QPSK	1	0	0	23.62	23.58	23.54
			1	8	0	23.50	23.41	23.48
			1	14	0	23.56	23.46	23.38
			8	0	1	22.63	22.68	22.55

			8	4	1	22.62	22.70	22.60
			8	7	1	22.70	22.61	22.48
			15	0	1	22.61	22.70	22.62
		16QAM	1	0	1	22.70	22.51	22.70
			1	8	1	22.70	22.36	22.70
			1	14	1	22.70	22.41	22.57
			8	0	2	21.70	21.70	21.66
			8	4	2	21.66	21.70	21.63
			8	7	2	21.70	21.62	21.60
			15	0	2	21.65	21.70	21.70

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26740	26865	26990
						819 MHz	831.5 MHz	844 MHz
LTE Band 26	10	QPSK	1	0	0	23.56	<b>23.70</b>	<b>23.63</b>
			1	25	0	23.52	23.62	23.52
			1	49	0	<b>23.62</b>	23.66	23.48
			25	0	1	22.57	<b>22.67</b>	22.62
			25	12	1	22.57	22.54	<b>22.70</b>
			25	25	1	<b>22.62</b>	22.52	22.69
			50	0	1	22.61	22.63	22.70
		16QAM	1	0	1	22.51	22.70	22.53
			1	25	1	22.41	22.70	22.45
			1	49	1	22.51	22.70	22.47
			25	0	2	21.66	21.61	21.60
			25	12	2	21.66	21.48	21.67
			25	25	2	21.70	21.52	21.70
			50	0	2	21.58	21.52	21.70
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26715	26865	27015
						816.5 MHz	831.5 MHz	846.5 MHz
LTE Band 26	5	QPSK	1	0	0	23.53	23.60	23.66
			1	12	0	23.44	23.55	23.70
			1	24	0	23.55	23.50	23.66
			12	0	1	22.56	22.64	22.70
			12	7	1	22.48	22.55	22.67
			12	13	1	22.55	22.44	22.67
			25	0	1	22.59	22.48	22.65
		16QAM	1	0	1	22.40	22.40	22.70
			1	12	1	22.32	22.41	22.70
			1	24	1	22.44	22.32	22.60
			12	0	2	21.66	21.60	21.70
			12	7	2	21.56	21.48	21.68
			12	13	2	21.64	21.51	21.68
			25	0	2	21.70	21.55	21.66
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26705	26865	27025
						815.5 MHz	831.5 MHz	847.5 MHz
LTE Band 26	3	QPSK	1	0	0	23.58	23.70	23.67
			1	8	0	23.45	23.70	23.58
			1	14	0	23.50	23.60	23.58
			8	0	1	22.63	22.68	22.70
			8	4	1	22.53	22.55	22.70
			8	7	1	22.50	22.58	22.70
			15	0	1	22.54	22.57	22.70
		16QAM	1	0	1	22.43	22.70	22.61
			1	8	1	22.40	22.70	22.51

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26697	26865	27033
						814.7 MHz	831.5 MHz	848.3 MHz
			1	14	1	22.41	22.70	22.58
			8	0	2	21.69	21.69	21.70
			8	4	2	21.58	21.60	21.70
			8	7	2	21.55	21.58	21.70
			15	0	2	21.56	21.60	21.70
LTE Band 26	1.4	QPSK	1	0	0	23.63	23.70	23.68
			1	3	0	23.60	23.67	23.58
			1	5	0	23.63	23.57	23.69
			3	0	0	23.63	23.70	23.63
			3	1	0	23.68	23.70	23.62
			3	3	0	23.66	23.60	23.66
			6	0	1	22.70	22.70	22.70
		16QAM	1	0	1	22.65	22.56	22.70
			1	3	1	22.65	22.55	22.70
			1	5	1	22.68	22.44	22.70
			3	0	1	22.62	22.70	22.64
			3	1	1	22.63	22.70	22.63
			3	3	1	22.61	22.70	22.67
			6	0	2	21.70	21.70	21.70

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39750	40620	41490
						2506 MHz	2593 MHz	2680 MHz
LTE Band 41	20	QPSK	1	0	0	23.50	<b>23.48</b>	23.55
			1	49	0	<b>23.69</b>	23.33	<b>23.69</b>
			1	99	0	23.61	23.16	23.20
			50	0	1	22.50	<b>22.50</b>	22.61
			50	24	1	22.52	22.37	<b>22.70</b>
			50	50	1	<b>22.54</b>	22.34	22.46
			100	0	1	22.53	22.37	22.60
		16QAM	1	0	1	21.78	22.06	22.70
			1	49	1	21.93	21.88	22.70
			1	99	1	21.87	21.72	22.65
			50	0	2	21.47	21.51	21.67
			50	24	2	21.55	21.33	21.70
			50	50	2	21.53	21.30	21.62
			100	0	2	21.47	21.32	21.61
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39725	40620	41515
						2503.5 MHz	2593 MHz	2682.5 MHz
LTE Band 41	15	QPSK	1	0	0	23.50	23.62	23.70
			1	37	0	23.61	23.50	23.67
			1	74	0	23.65	23.31	23.21
			36	0	1	22.42	22.47	22.54
			36	20	1	22.50	22.37	22.66
			36	39	1	22.56	22.33	22.30
			75	0	1	22.51	22.36	22.53
		16QAM	1	0	1	22.25	22.51	22.70
			1	37	1	22.49	22.41	22.70
			1	74	1	22.57	22.17	22.28
			36	0	2	21.36	21.47	21.67
			36	20	2	21.42	21.36	21.58
			36	39	2	21.47	21.34	21.35
			75	0	2	21.53	21.40	21.66
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39700	40620	41540
						2501 MHz	2593 MHz	2685 MHz
LTE Band 41	10	QPSK	1	0	0	23.38	23.32	23.47
			1	25	0	23.47	23.24	23.36
			1	49	0	23.54	23.06	22.88
			25	0	1	22.44	22.44	22.56
			25	12	1	22.49	22.32	22.50
			25	25	1	22.55	22.35	22.25
			50	0	1	22.46	22.31	22.40
		16QAM	1	0	1	22.57	22.70	22.57

			1	25	1	22.68	22.70	22.45
			1	49	1	22.70	22.70	21.95
			25	0	2	21.44	21.36	21.61
			25	12	2	21.53	21.32	21.54
			25	25	2	21.52	21.32	21.26
			50	0	2	21.40	21.43	21.47

## 9. PEAK TO AVERAGE RATIO

### Test Procedure

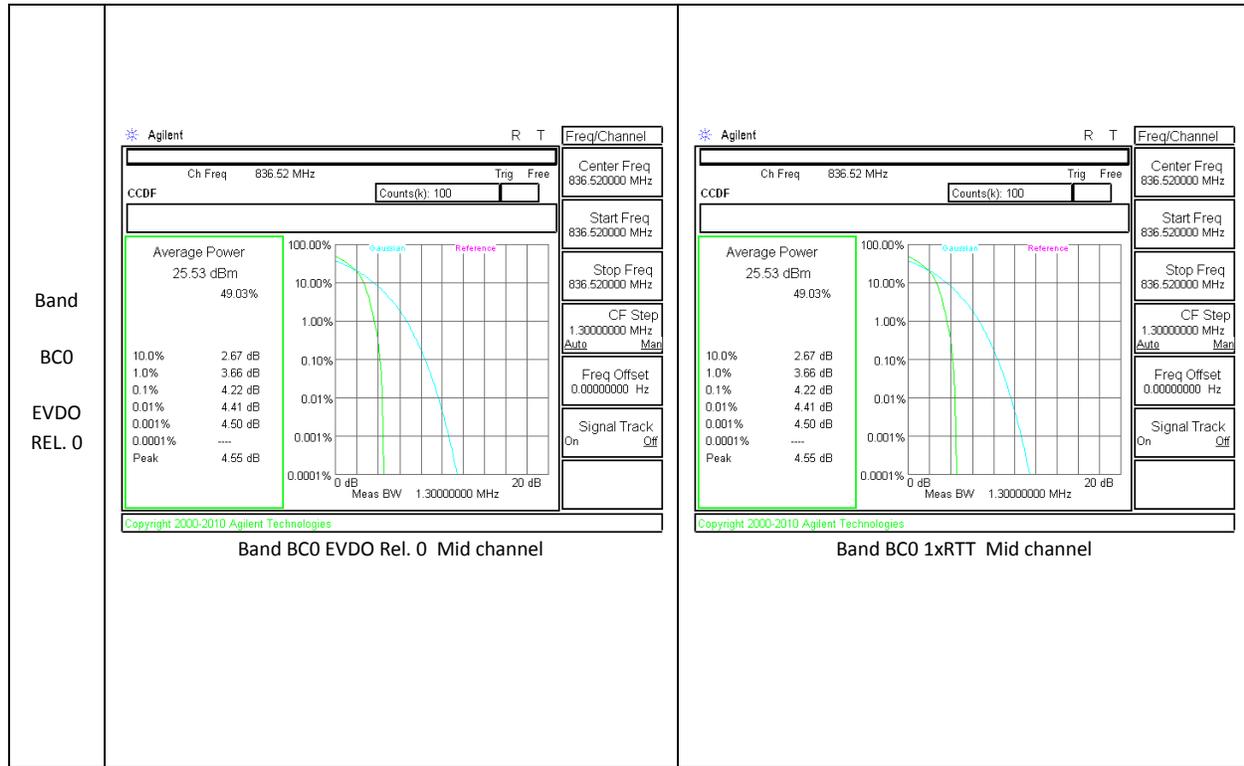
Per KDB 971168 D01 Power Meas License Digital Systems v02r01

### Test Spec

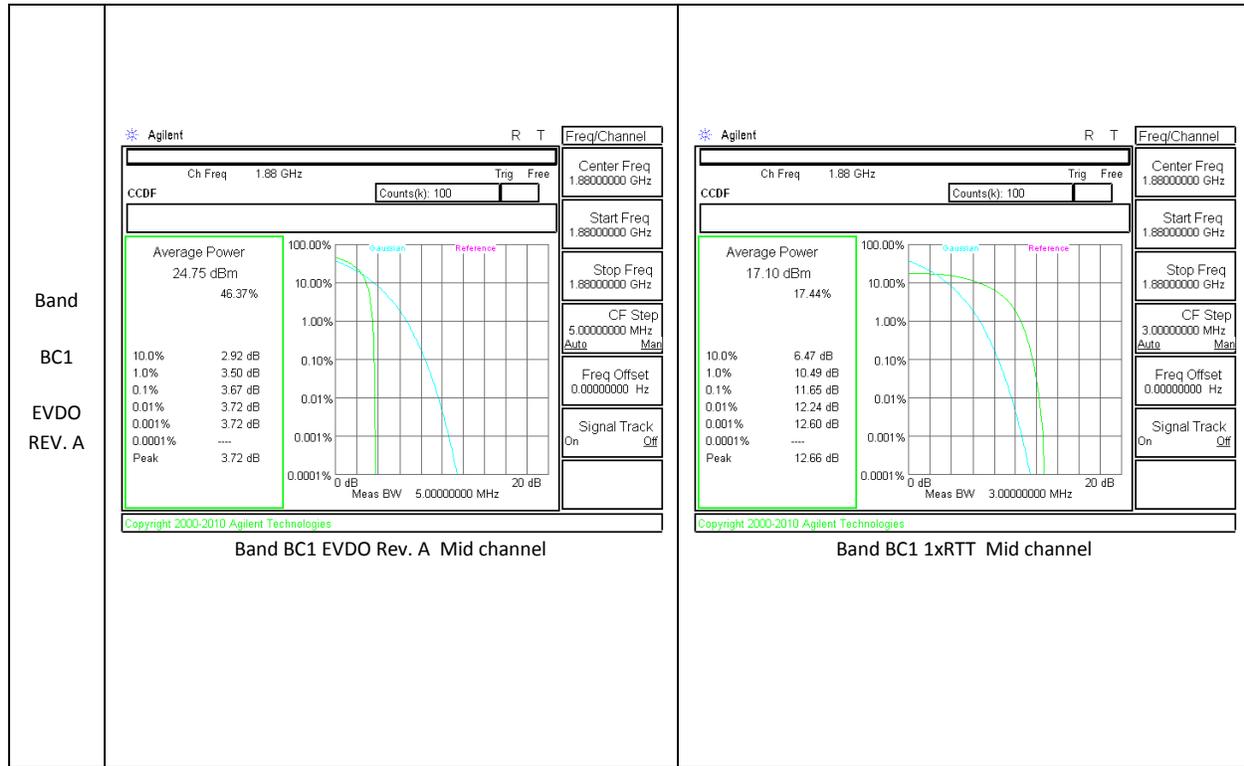
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

### 9.1. CONDUCTED PEAK TO AVERAGE RESULT

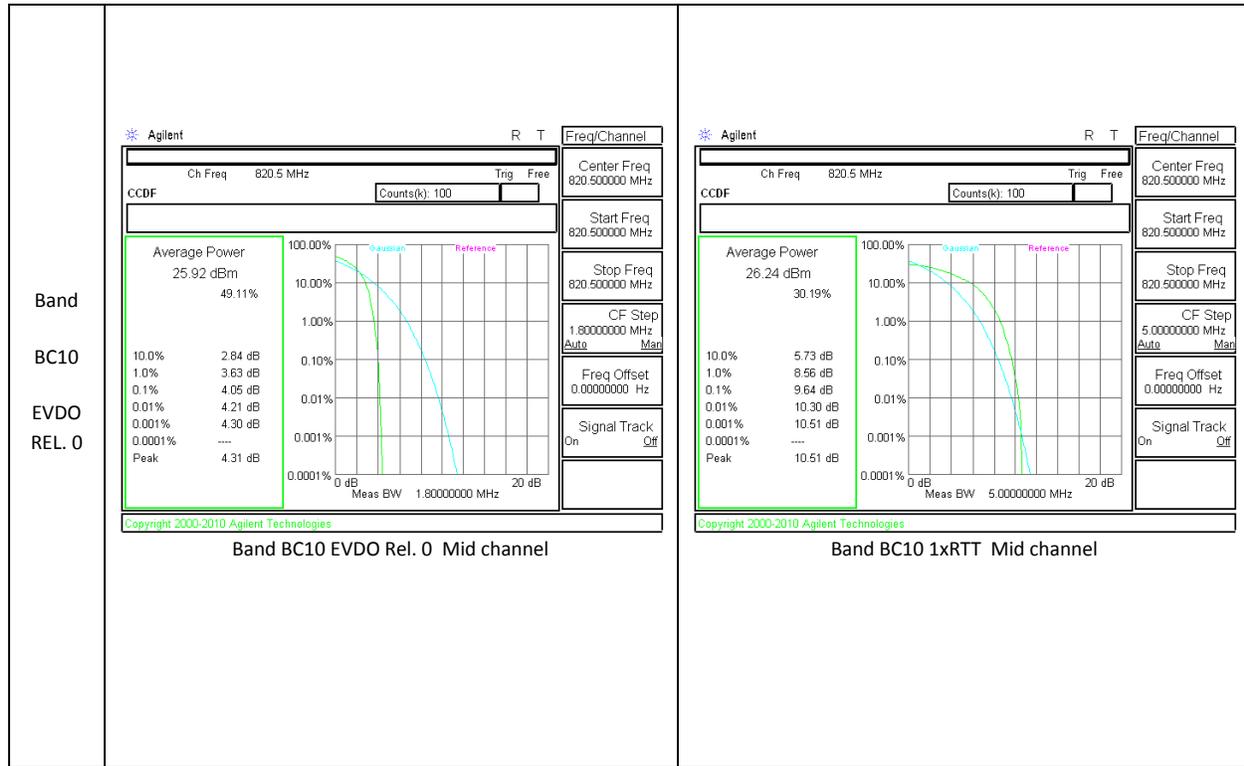
**CDMA BC0**



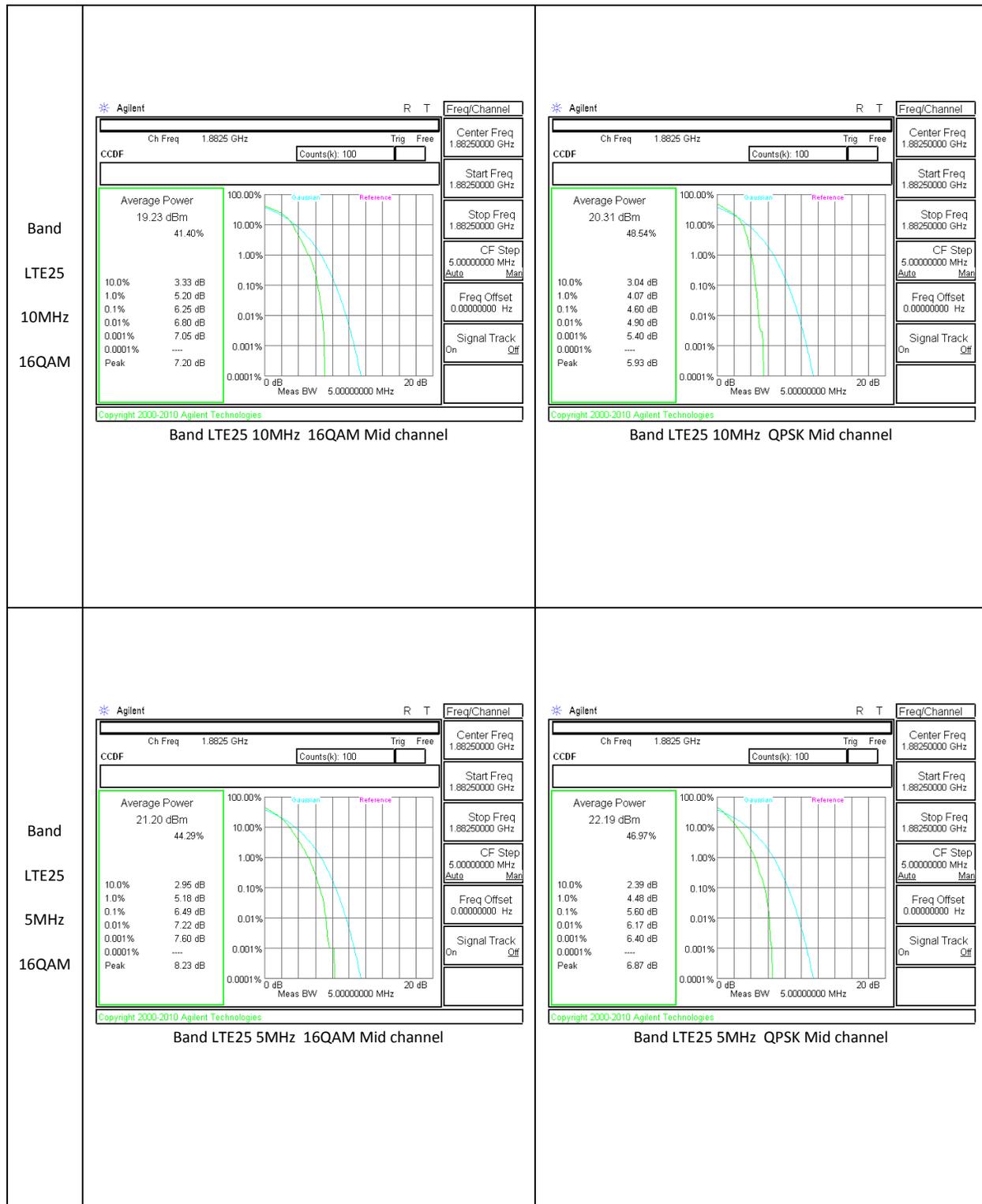
**CDMA BC1**

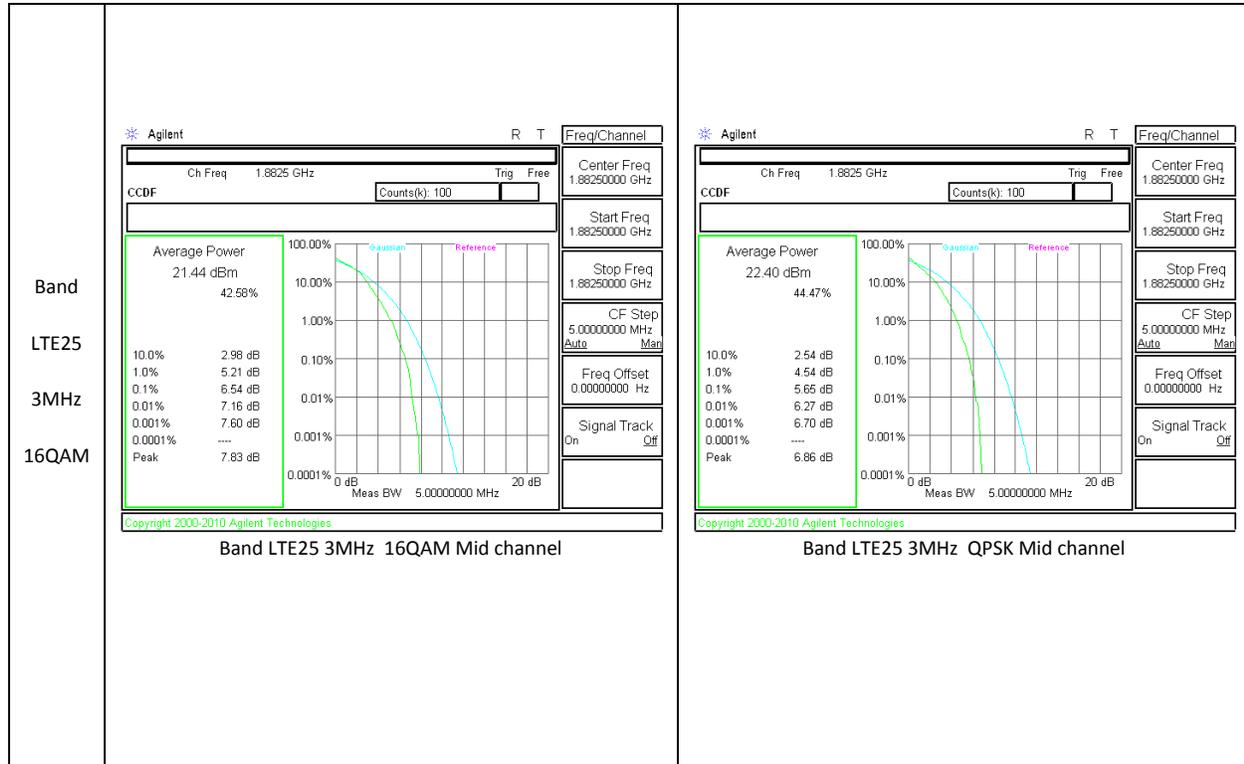


**CDMA BC10**

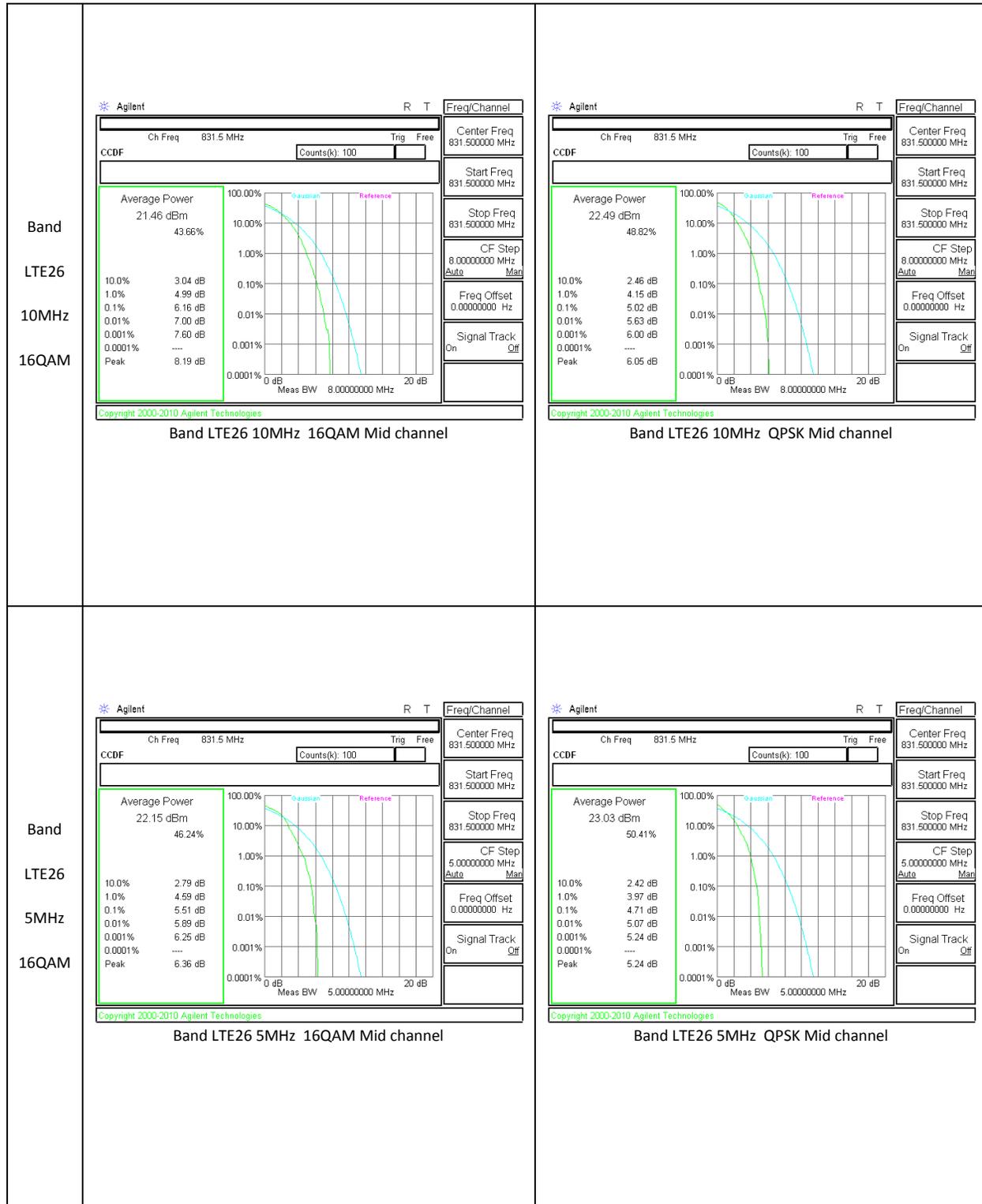


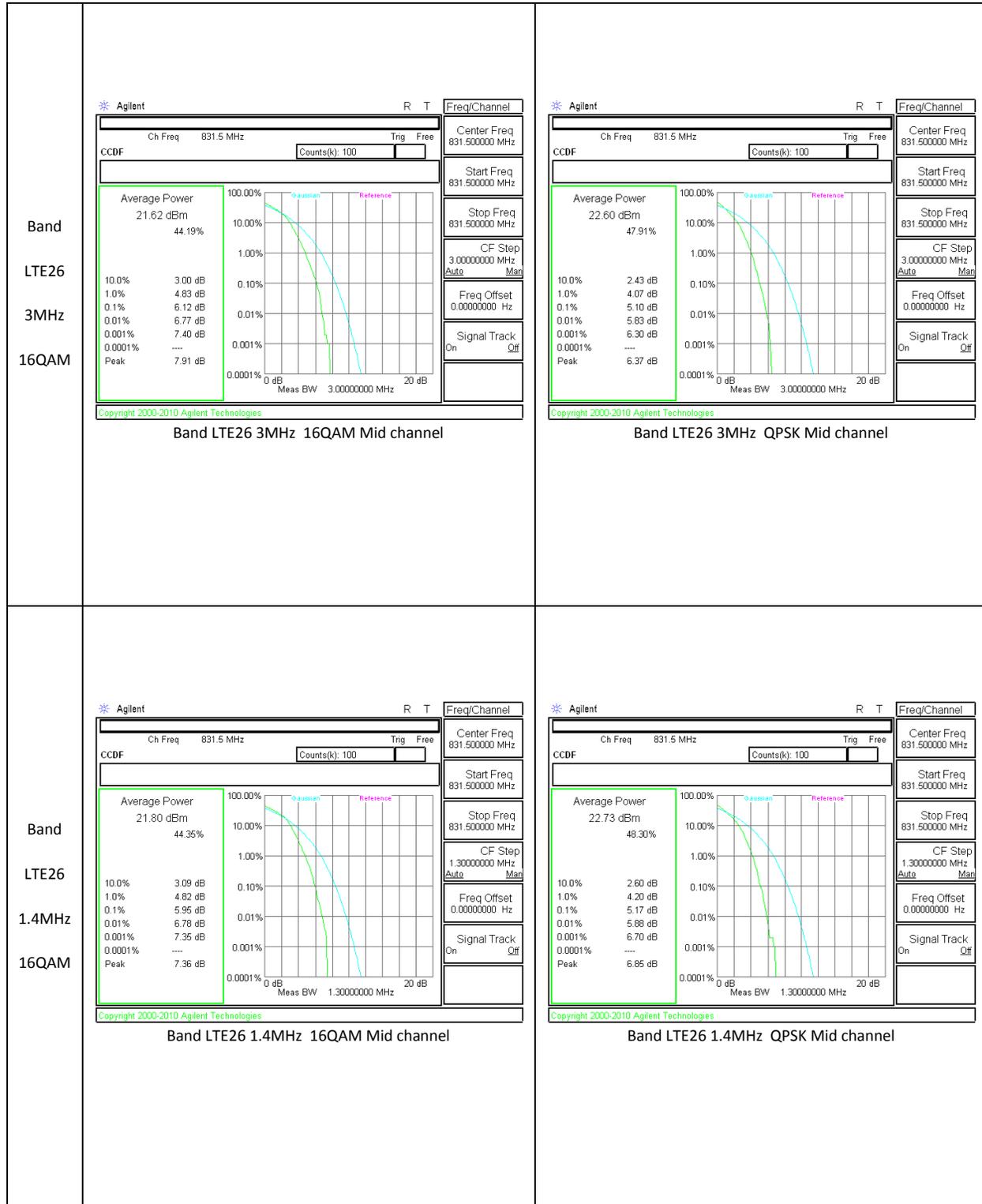
**LTE Band 25**



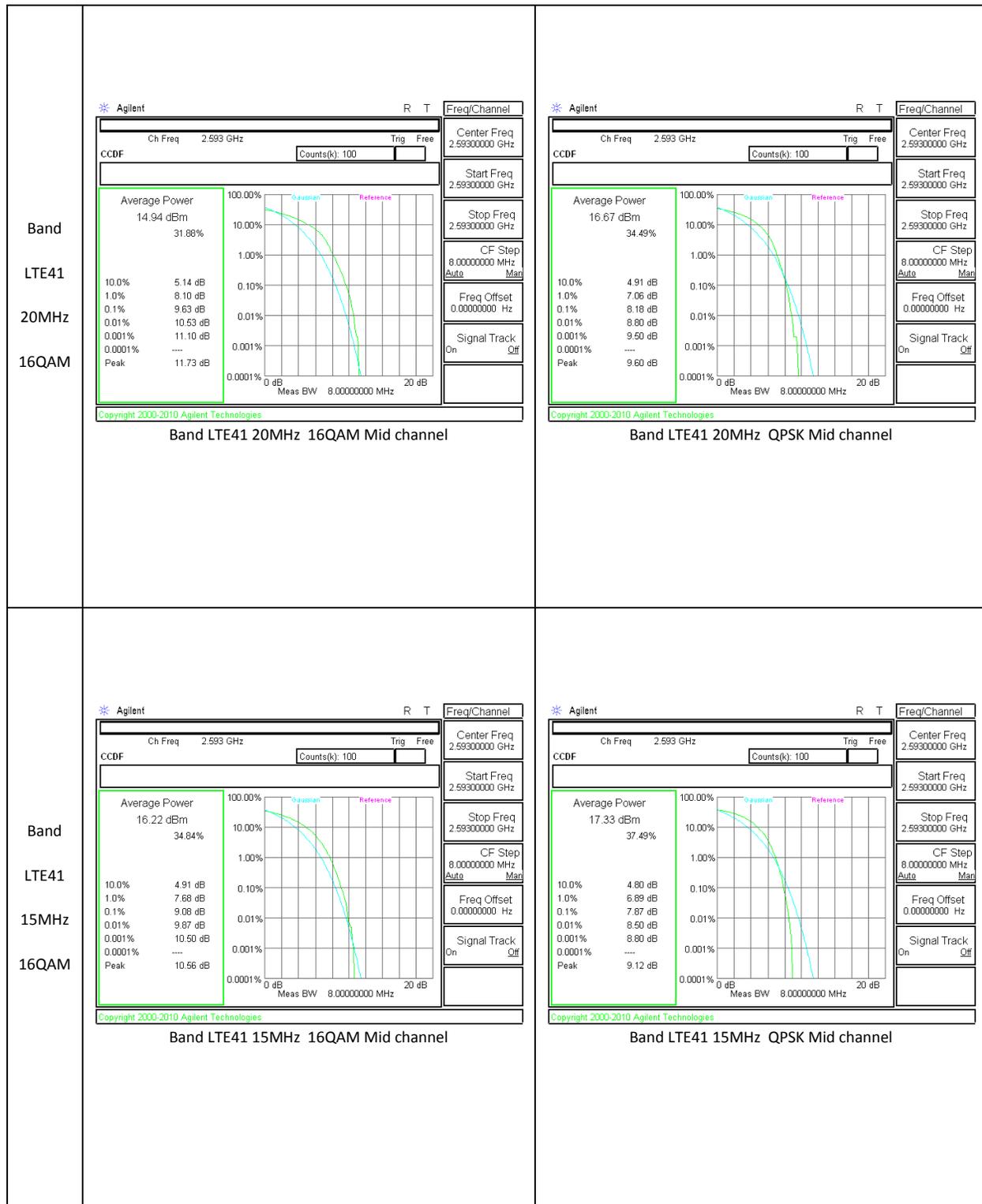


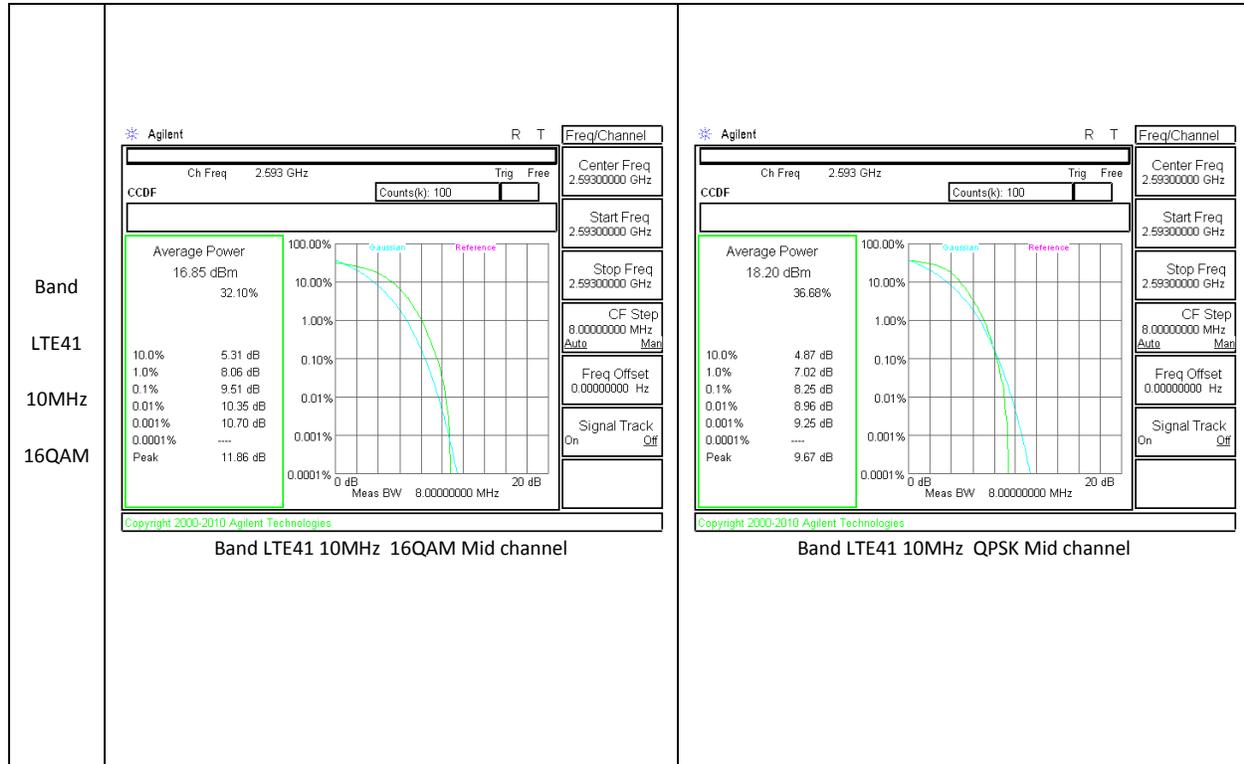
**LTE Band 26**





**LTE Band 41**





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## 10. LIMITS AND CONDUCTED RESULTS

### 10.1. OCCUPIED BANDWIDTH

#### RULE PART(S)

FCC: §2.1049

IC: RSS-132, 4.5; RSS-133, 6.5

#### 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 v02r01 - 06/07/2013)

#### MODES TESTED

CDMA BC0, CDMA BC1, CDMA BC10, LTE Band 25, LTE Band 26, LTE Band 41

**10.1.1. OCCUPIED BANDWIDTH RESULTS**

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BC10	1xRTT	476	817.9	1.27	1.41
		580	820.5	1.28	1.43
		684	823.1	1.27	1.43
	EVDO REL. 0	476	817.9	1.28	1.44
		580	820.5	1.27	1.44
		684	823.1	1.27	1.44
BC0	1xRTT	1013	824.7	1.27	1.41
		384	836.52	1.28	1.43
		777	848.31	1.27	1.42
	EVDO REL. 0	1013	824.7	1.27	1.43
		384	836.52	1.27	1.44
		777	848.31	1.28	1.43
BC1	1xRTT	25	1851.25	1.28	1.44
		600	1880	1.28	1.43
		1175	1908.75	1.29	1.5
	EVDO REL. 0	25	1851.25	1.28	1.44
		600	1880	1.28	1.44
		1175	1908.75	1.28	1.6

**10.1.2. LTE OCCUPIED BANDWIDTH RESULTS**

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE41	20	QPSK	100/0	2506	17.782	18.958
			100/0	2593	17.819	18.858
			100/0	2680	17.788	18.993
		16QAM	100/0	2506	17.808	18.923
			100/0	2593	17.77	18.797
			100/0	2680	17.822	19.041

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE41	15	QPSK	75/0	2503.5	13.38	14.20
			75/0	2593	13.40	14.39
			75/0	2682.5	13.37	14.42
		16QAM	75/0	2503.5	13.41	14.41
			75/0	2593	13.39	14.26
			75/0	2682.5	13.40	14.30

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE41	10	QPSK	50/0	2501	8.94	9.50
			50/0	2593	8.94	9.69
			50/0	2685	8.92	9.63
		16QAM	50/0	2501	8.93	9.62
			50/0	2593	8.93	9.66
			50/0	2685	8.91	9.46

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE26	10	QPSK	50/0	819	8.95	9.81
			50/0	831.5	8.93	9.77
			50/0	844	8.97	9.74
		16QAM	50/0	819	8.94	9.73
			50/0	831.5	8.93	9.76
			50/0	844	8.94	9.67

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE26	5	QPSK	25/0	816.5	4.50	5.00
			25/0	831.5	4.50	4.97
			25/0	846.5	4.50	4.93
		16QAM	25/0	816.5	4.51	5.03
			25/0	831.5	4.51	4.97
			25/0	846.5	4.46	5.02

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE26	3	QPSK	15/0	815.5	2.68	2.91
			15/0	831.5	2.68	2.92
			15/0	847.5	2.68	2.92
		16QAM	15/0	815.5	2.68	2.93
			15/0	831.5	2.69	2.97
			15/0	847.5	2.69	2.96

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE26	1.4	QPSK	6/0	814.7	1.11	1.28
			6/0	831.5	1.08	1.23
			6/0	848.3	1.09	1.28
		16QAM	6/0	814.7	1.08	1.26
			6/0	831.5	1.08	1.27
			6/0	848.3	1.08	1.25

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE25	10	QPSK	50/0	1855	8.91	9.57
			50/0	1882.5	8.95	9.50
			50/0	1910	8.96	9.74
		16QAM	50/0	1855	8.91	9.57
			50/0	1882.5	8.95	9.50
			50/0	1910	8.95	9.76

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE25	5	QPSK	25/0	1852.5	4.46	4.80
			25/0	1882.5	4.45	4.90
			25/0	1912.5	4.46	4.94
		16QAM	25/0	1852.5	4.44	4.87
			25/0	1882.5	4.45	4.88
			25/0	1912.5	4.46	4.95

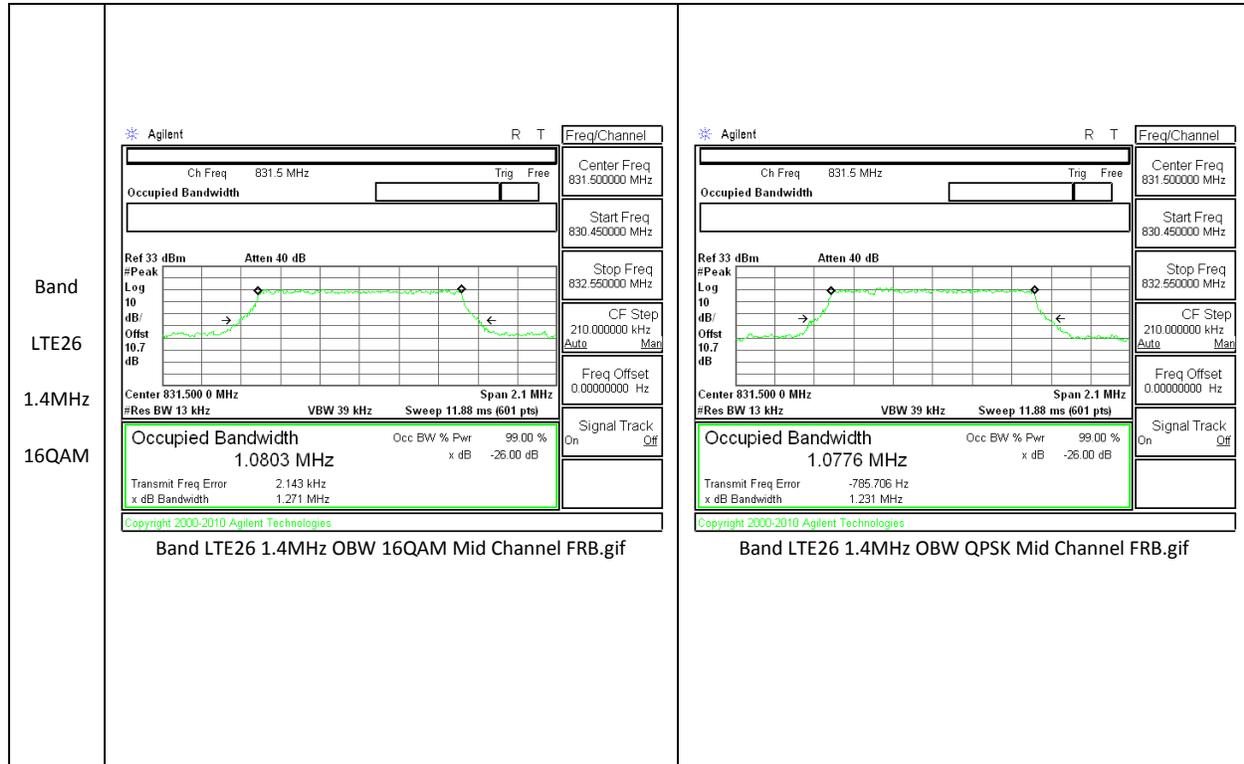
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE25	3	QPSK	15/0	1851.5	2.68	2.91
			15/0	1882.5	2.67	2.91
			15/0	1913.5	2.69	2.93
		16QAM	15/0	1851.5	2.68	2.92
			15/0	1882.5	2.68	2.91
			15/0	1913.5	2.68	2.89

### 10.1.3. OCCUPIED BANDWIDTH PLOTS

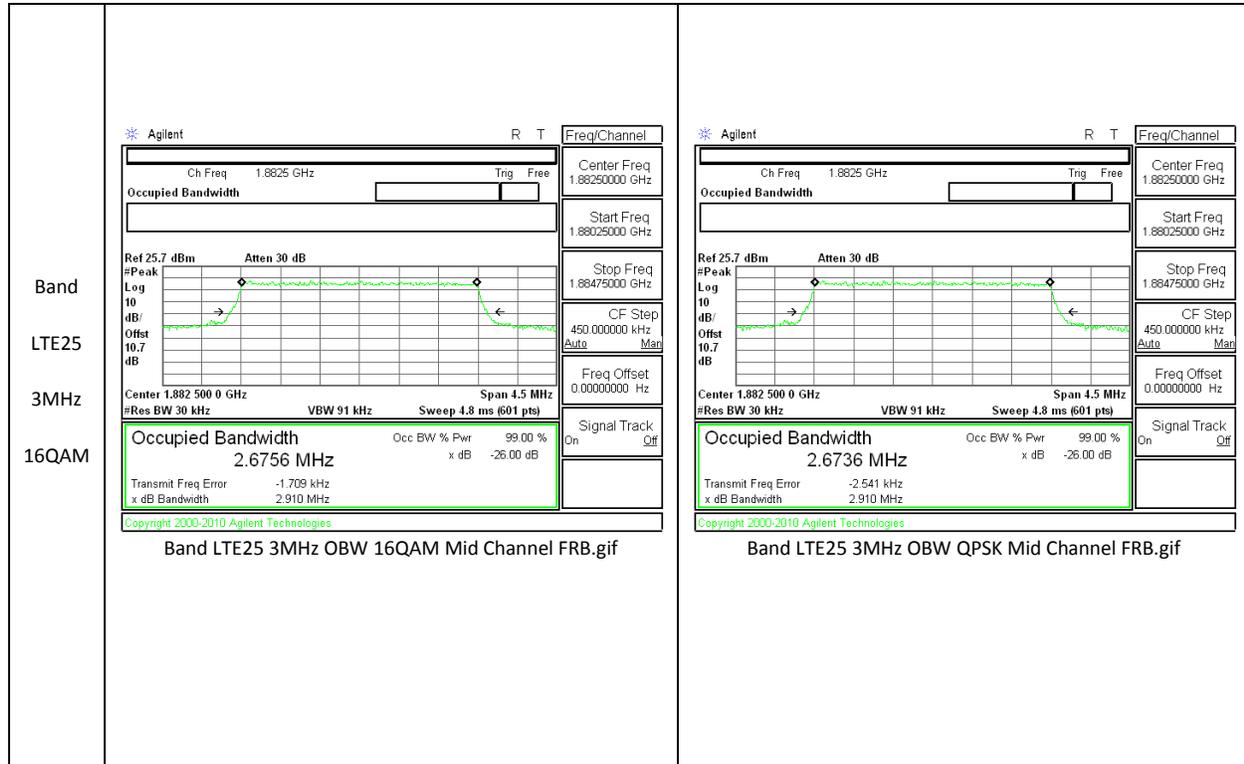


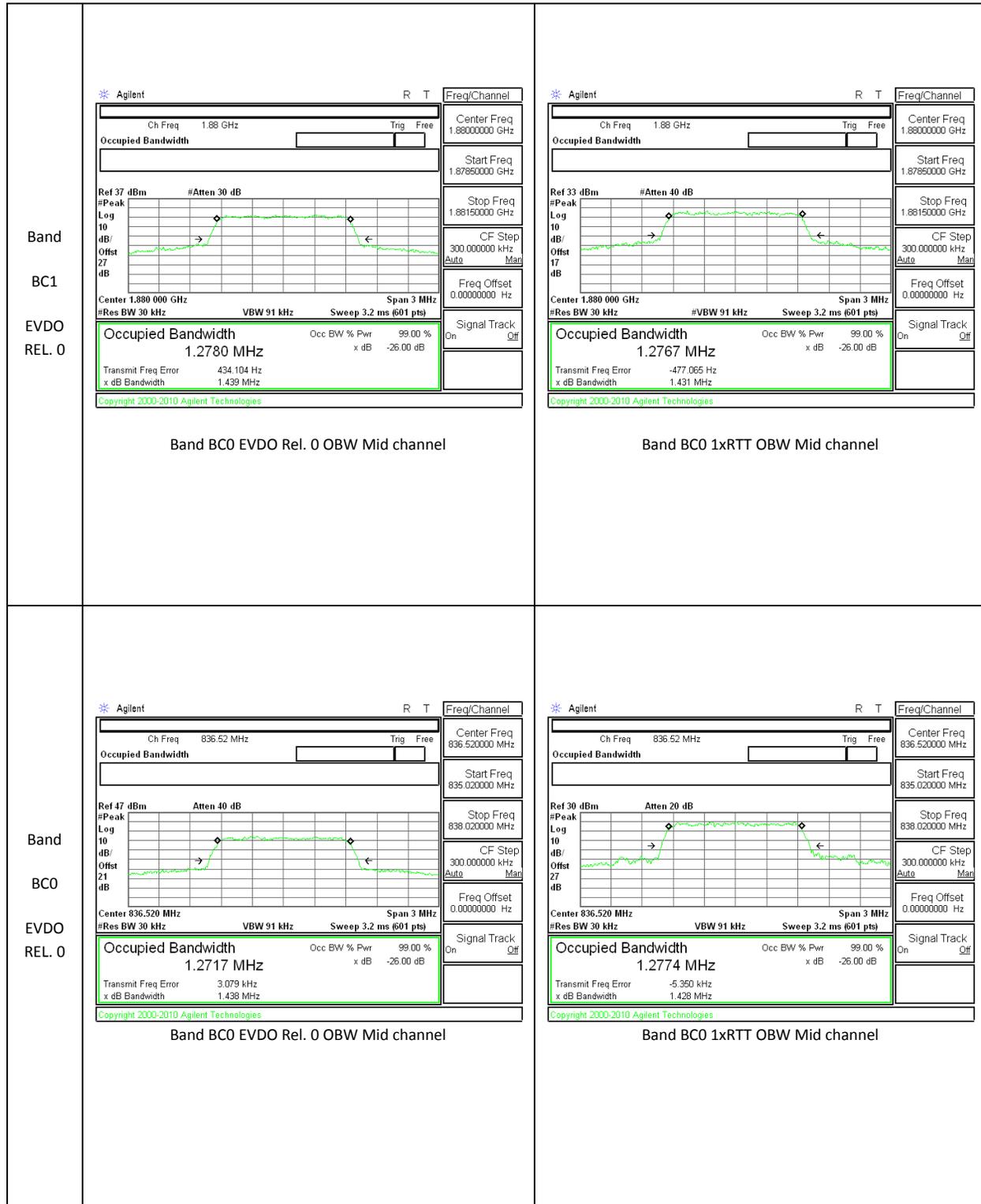
<p>Band LTE41 10MHz 16QAM</p>	<p>Agilent 16.07.34 Jun 26, 2014 R T Freq/Channel</p> <p>Ch Freq 2.593 GHz Trig Free</p> <p>Center Freq 2.59300000 GHz</p> <p>Start Freq 2.58300000 GHz</p> <p>Stop Freq 2.60300000 GHz</p> <p>CF Step 836.600000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On</p> <p>Center 2.593 00 GHz Span 20 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1.92 ms (601 pts)</p> <p>Occupied Bandwidth 8.9293 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 1.006 kHz</p> <p>x dB Bandwidth 9.656 MHz</p> <p>Copyright 2000-2011 Agilent Technologies</p> <p>Band LTE41 10MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent 16.11.20 Jun 26, 2014 R T Freq/Channel</p> <p>Ch Freq 2.593 GHz Trig Free</p> <p>Center Freq 2.59300000 GHz</p> <p>Start Freq 2.58300000 GHz</p> <p>Stop Freq 2.60300000 GHz</p> <p>CF Step 836.600000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On</p> <p>Center 2.593 00 GHz Span 20 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1.92 ms (601 pts)</p> <p>Occupied Bandwidth 8.9351 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 1.725 kHz</p> <p>x dB Bandwidth 9.690 MHz</p> <p>Copyright 2000-2011 Agilent Technologies</p> <p>Band LTE41 10MHz OBW QPSK Mid Channel FRB.gif</p>
<p>Band LTE26 10MHz 16QAM</p>	<p>Agilent R T Freq/Channel</p> <p>Ch Freq 831.5 MHz Trig Free</p> <p>Center Freq 831.500000 MHz</p> <p>Start Freq 824.000000 MHz</p> <p>Stop Freq 839.000000 MHz</p> <p>CF Step 1.50000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On</p> <p>Center 831.500 MHz Span 15 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1.44 ms (601 pts)</p> <p>Occupied Bandwidth 8.9251 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 9.055 kHz</p> <p>x dB Bandwidth 9.759 MHz</p> <p>Copyright 2000-2010 Agilent Technologies</p> <p>Band LTE26 10MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Agilent R T Freq/Channel</p> <p>Ch Freq 831.5 MHz Trig Free</p> <p>Center Freq 831.500000 MHz</p> <p>Start Freq 824.000000 MHz</p> <p>Stop Freq 839.000000 MHz</p> <p>CF Step 1.50000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On</p> <p>Center 831.500 MHz Span 15 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1.44 ms (601 pts)</p> <p>Occupied Bandwidth 8.9277 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 5.883 kHz</p> <p>x dB Bandwidth 9.767 MHz</p> <p>Copyright 2000-2010 Agilent Technologies</p> <p>Band LTE26 10MHz OBW QPSK Mid Channel FRB.gif</p>

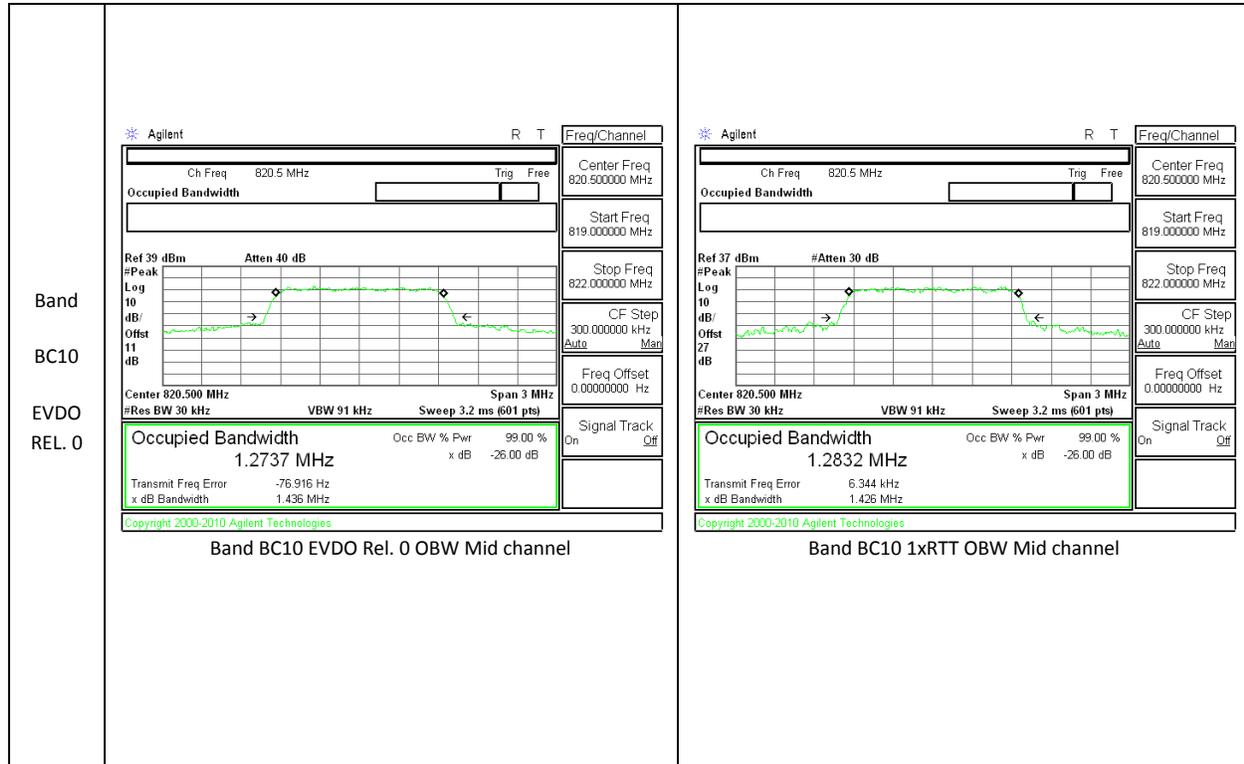
<p>Band LTE26 5MHz 16QAM</p>	<p>Band LTE26 5MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Band LTE26 5MHz OBW QPSK Mid Channel FRB.gif</p>
<p>Band LTE26 3MHz 16QAM</p>	<p>Band LTE26 3MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Band LTE26 3MHz OBW QPSK Mid Channel FRB.gif</p>











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## **10.2. BAND EDGE EMISSIONS**

### **RULE PART(S)**

FCC: §22.359, §24.238 and § 90.691

### **LIMITS**

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

### **TEST PROCEDURE**

Per KDB 971168 D01 Power Meas License Digital Systems v02r01

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.

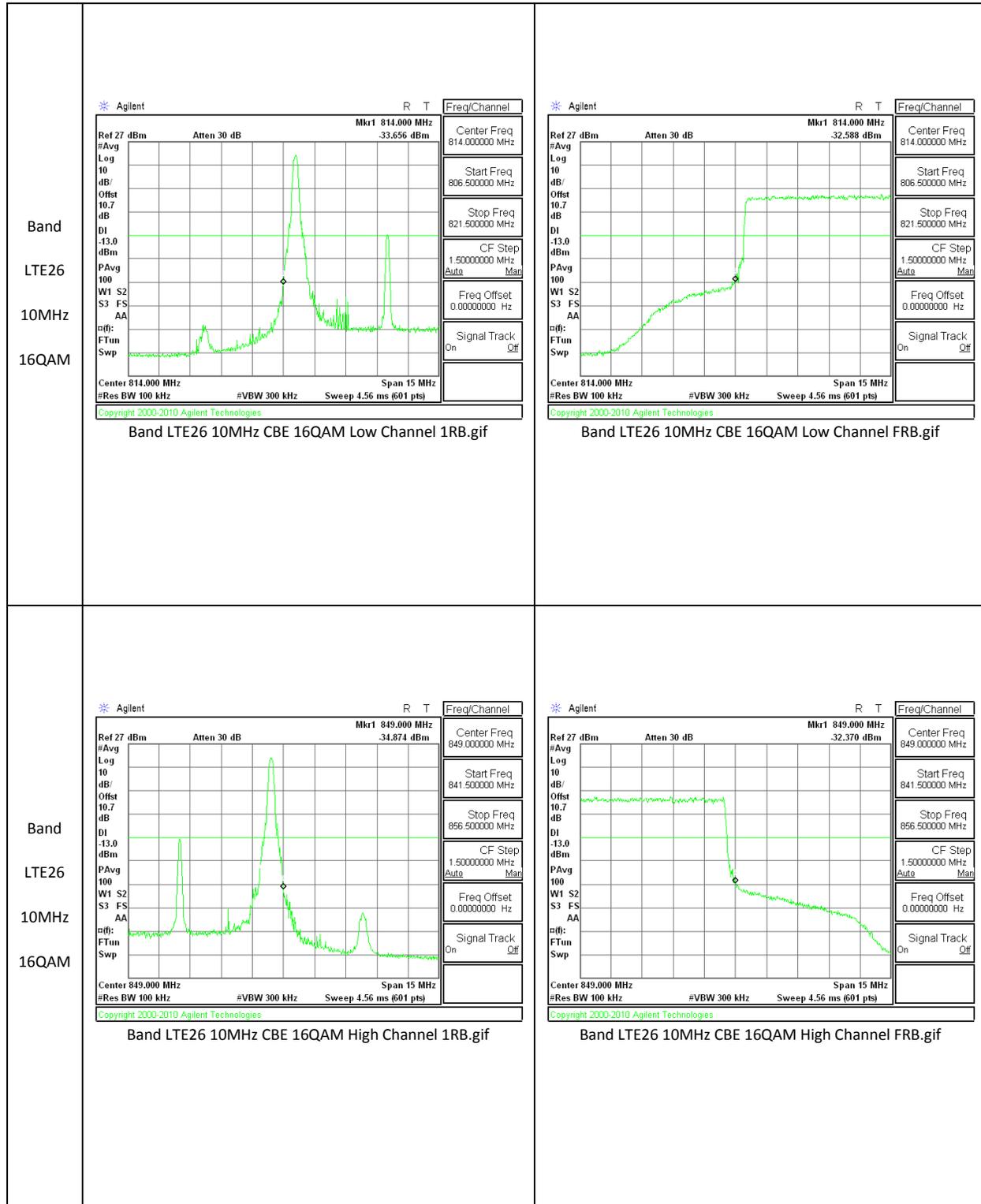
### **MODES TESTED**

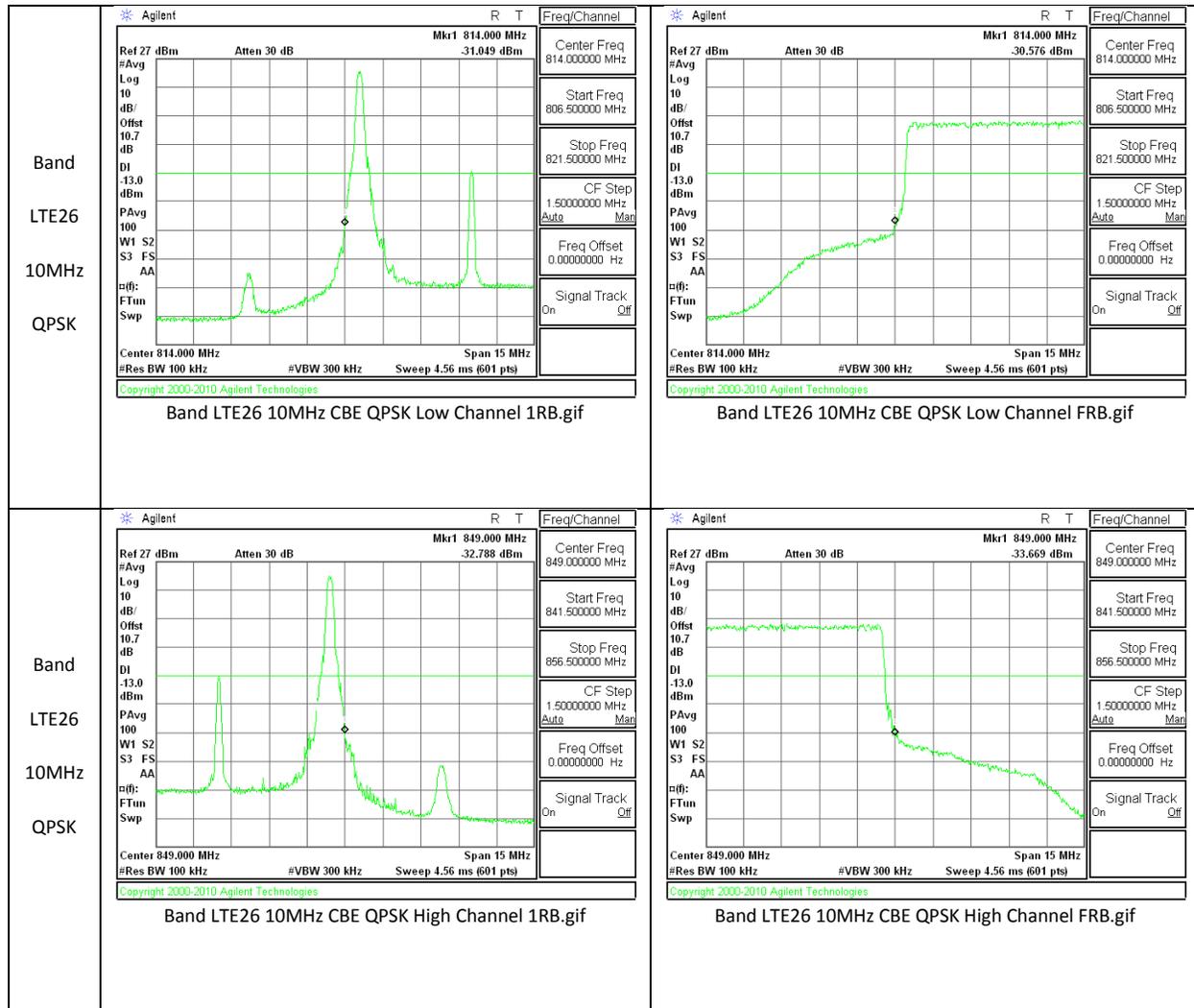
CDMA BC0, CDMA BC1, CDMA BC10, LTE Band 25, LTE Band 26, LTE Band 41

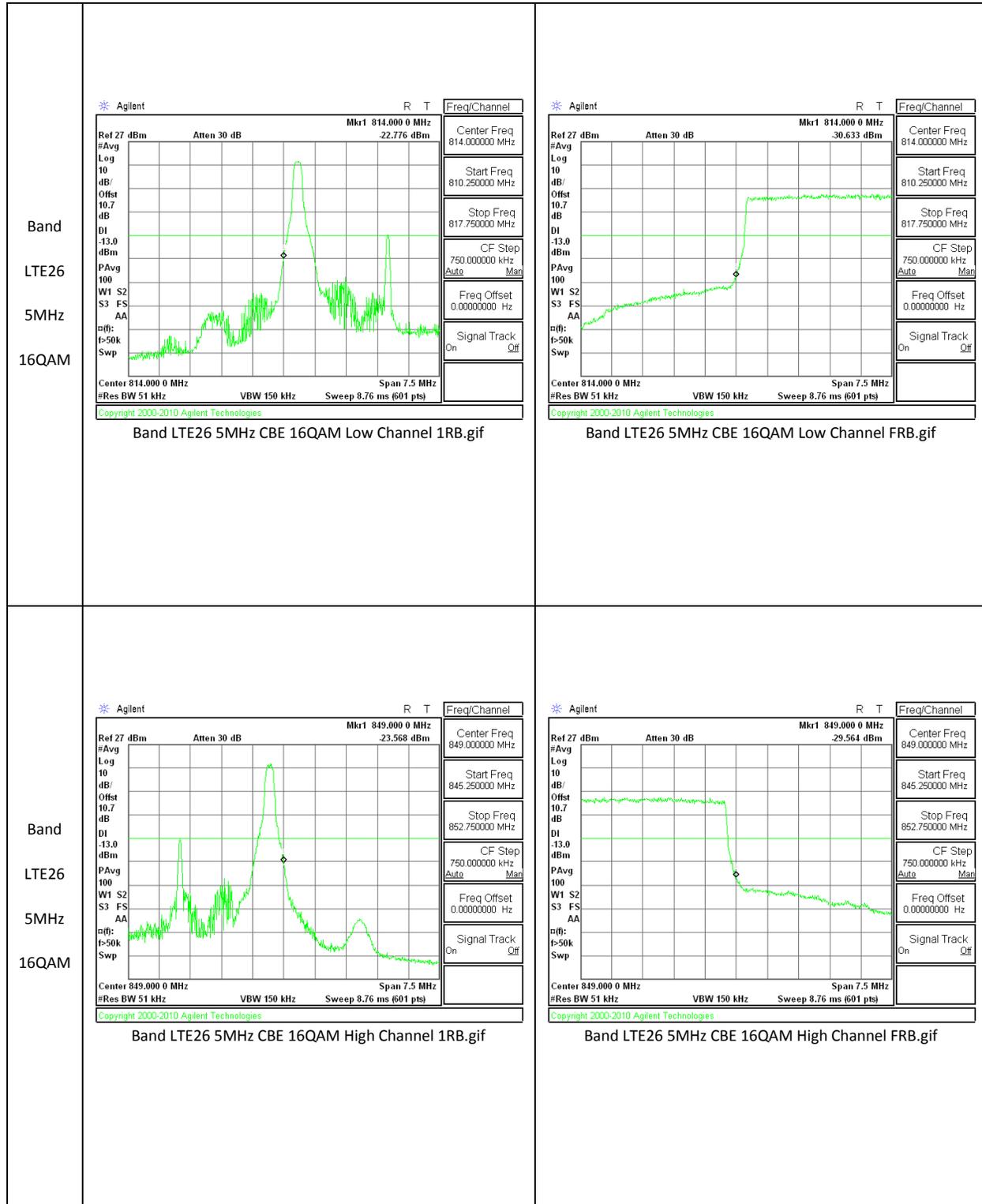
### **RESULTS**

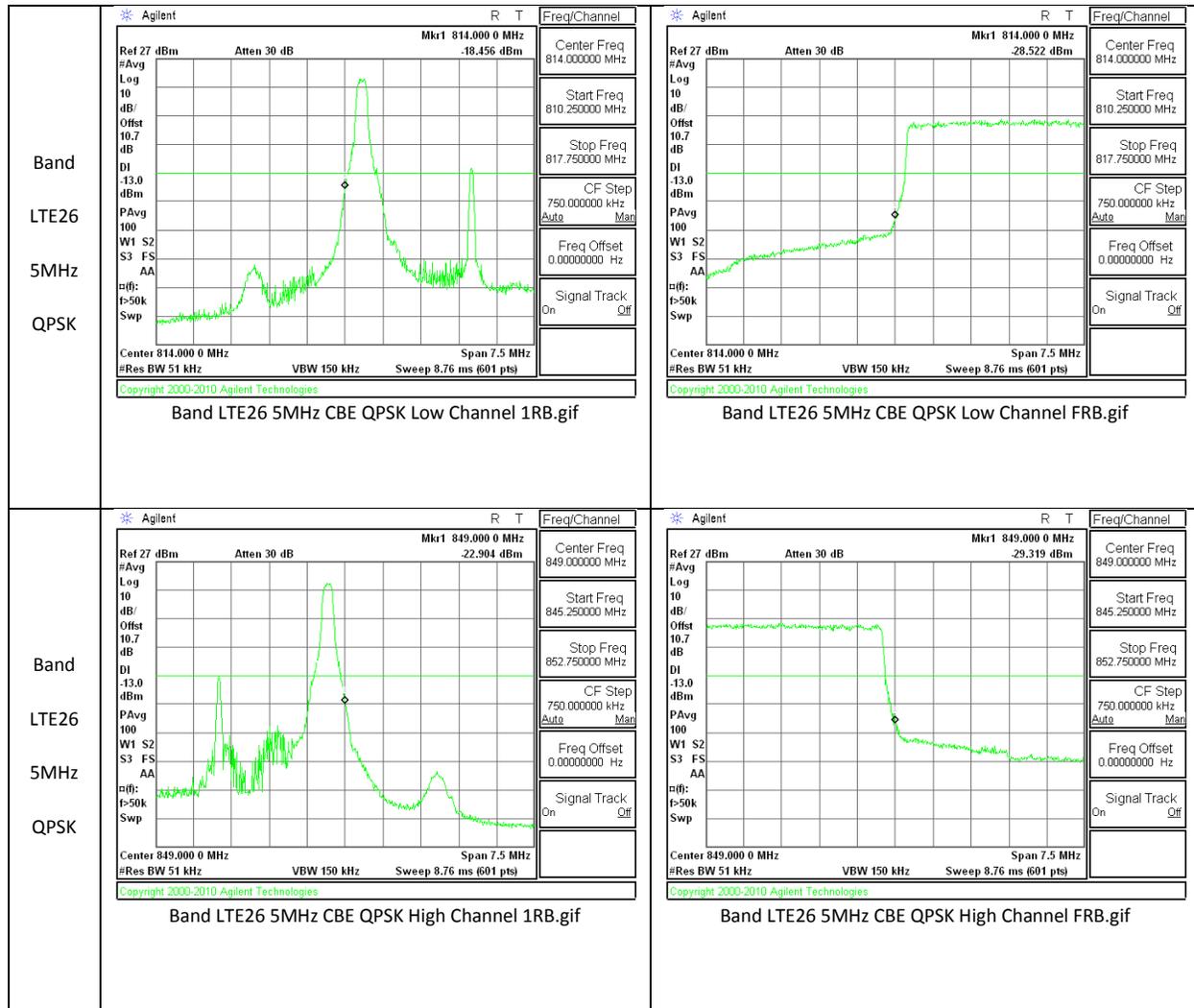
### 10.2.1. BAND EDGE PLOTS

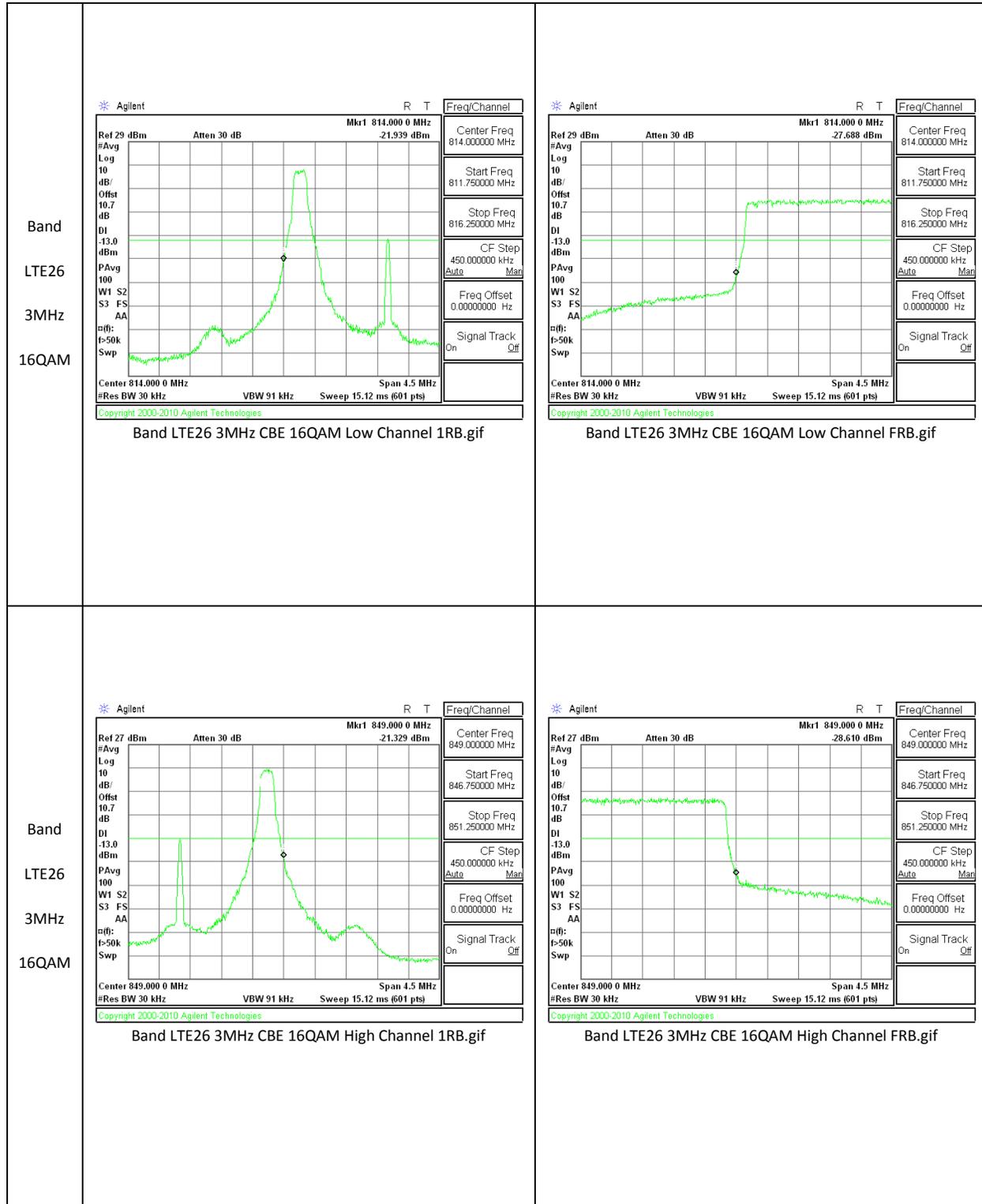
#### LTE Band 26

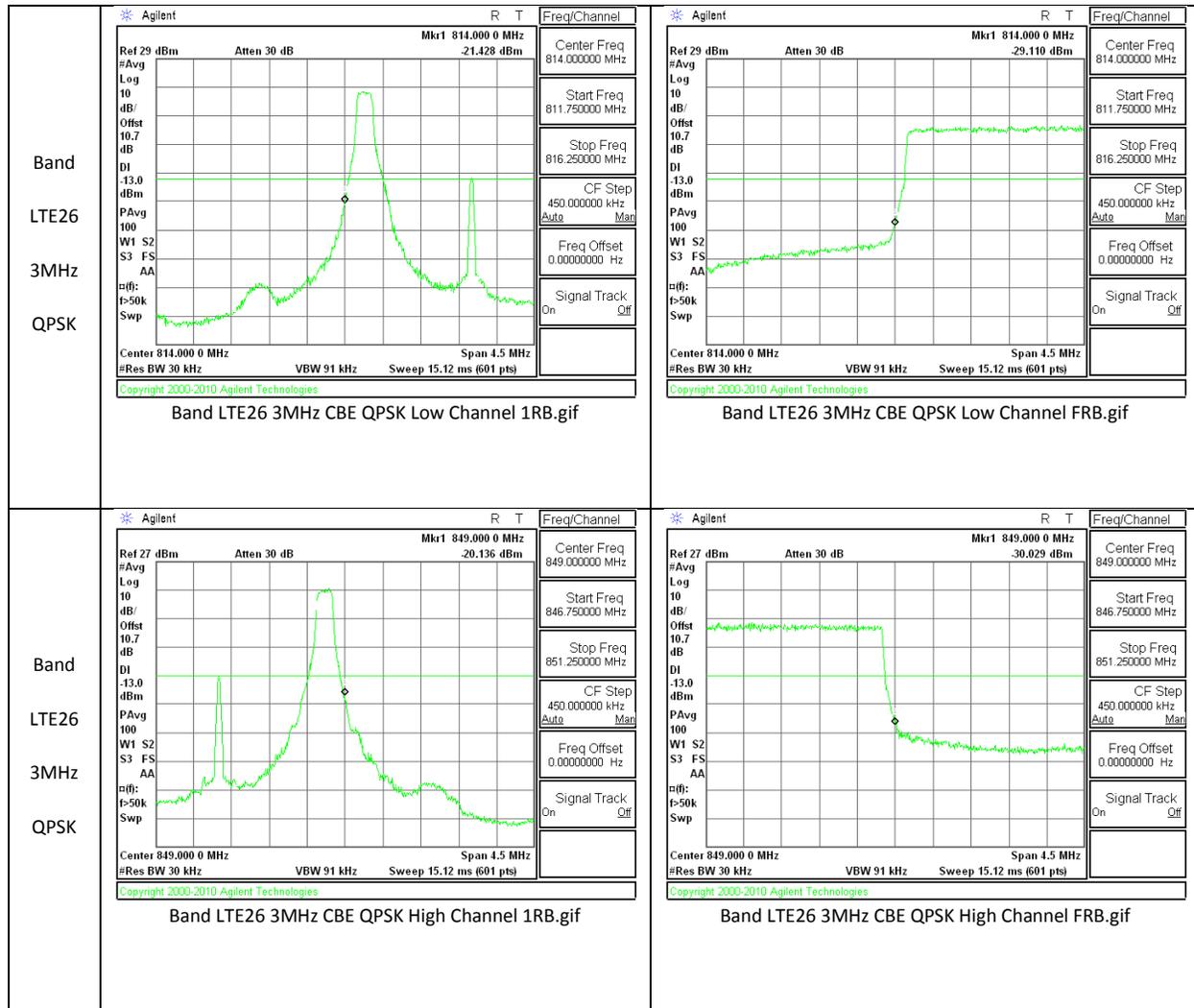


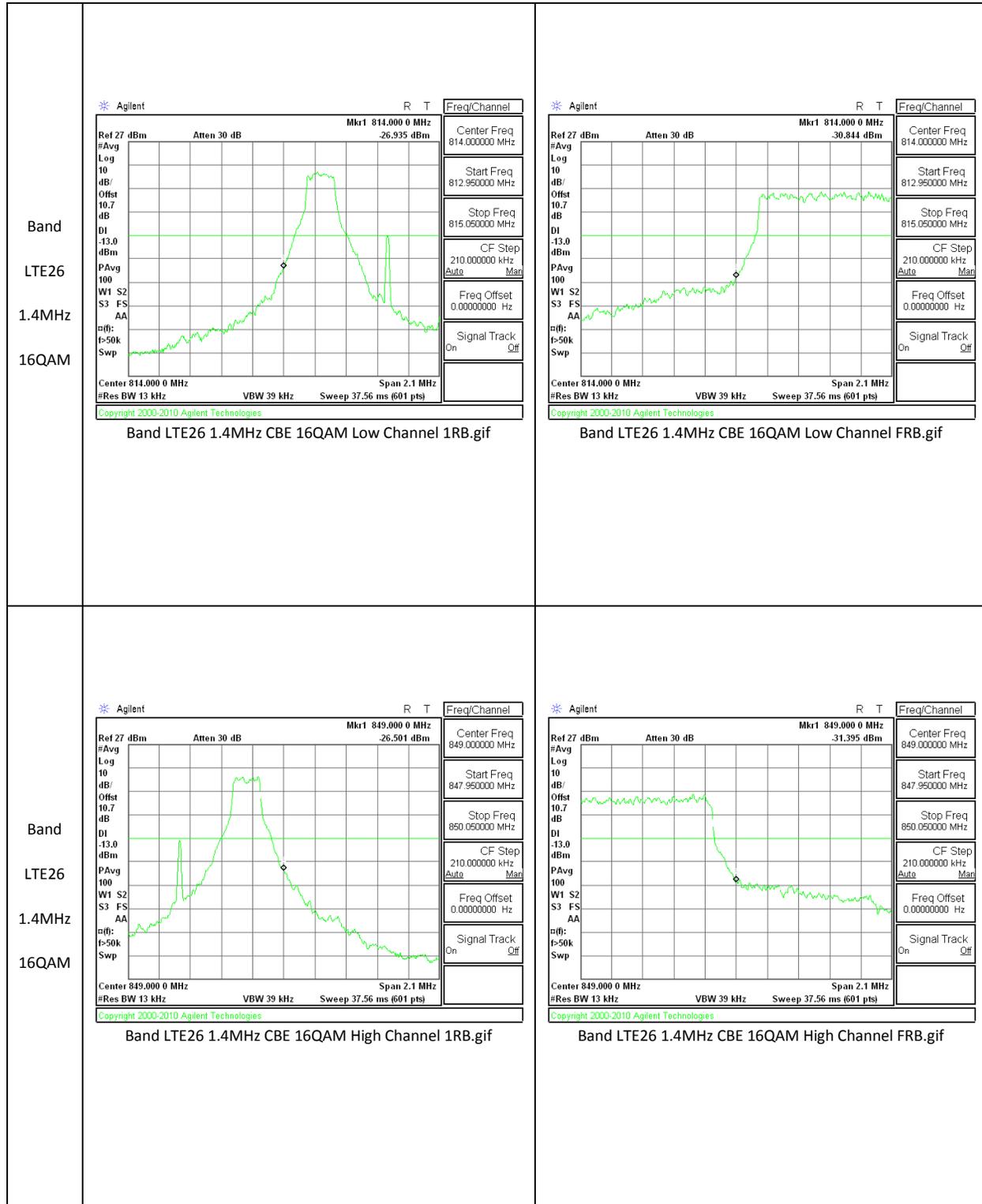


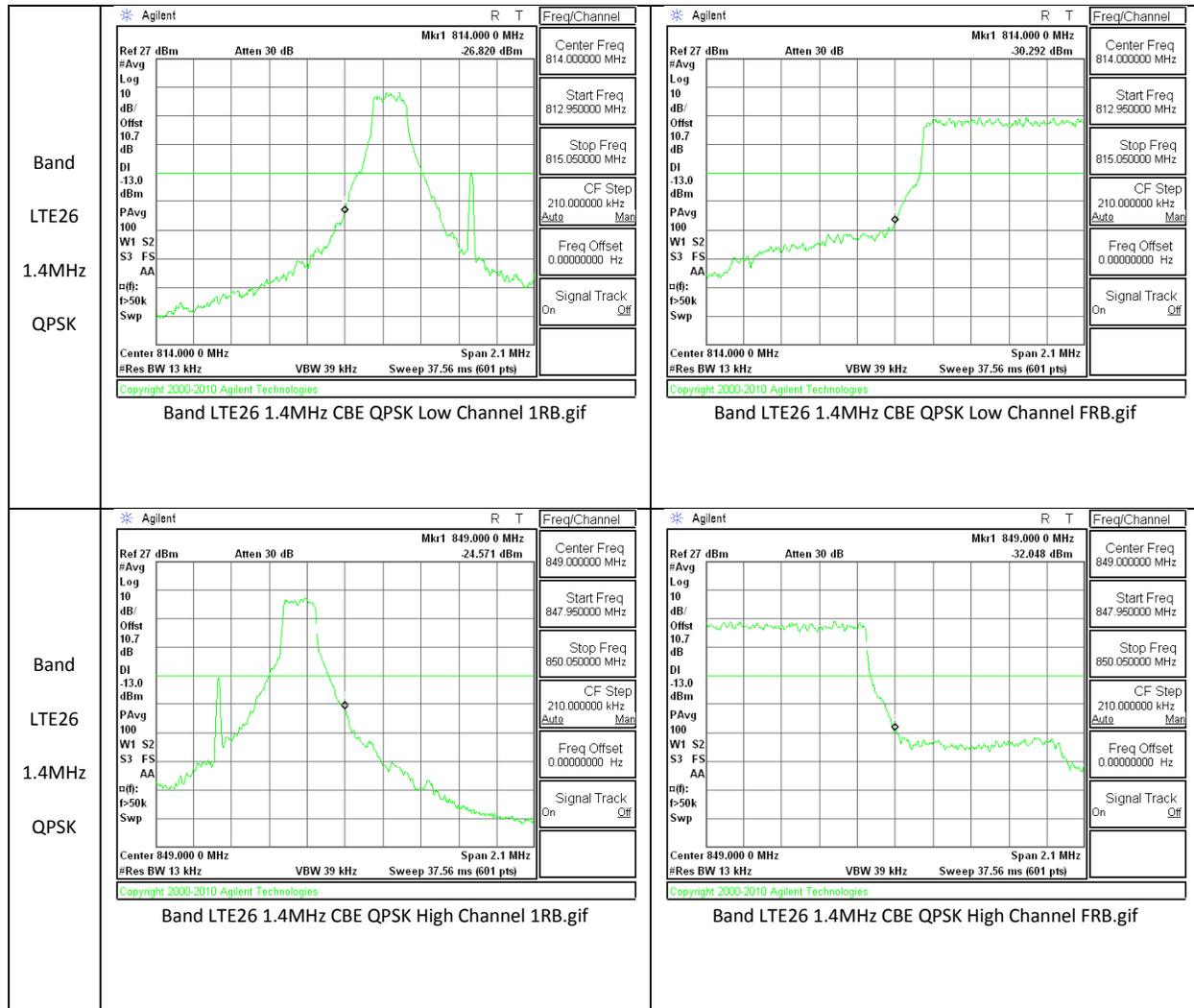




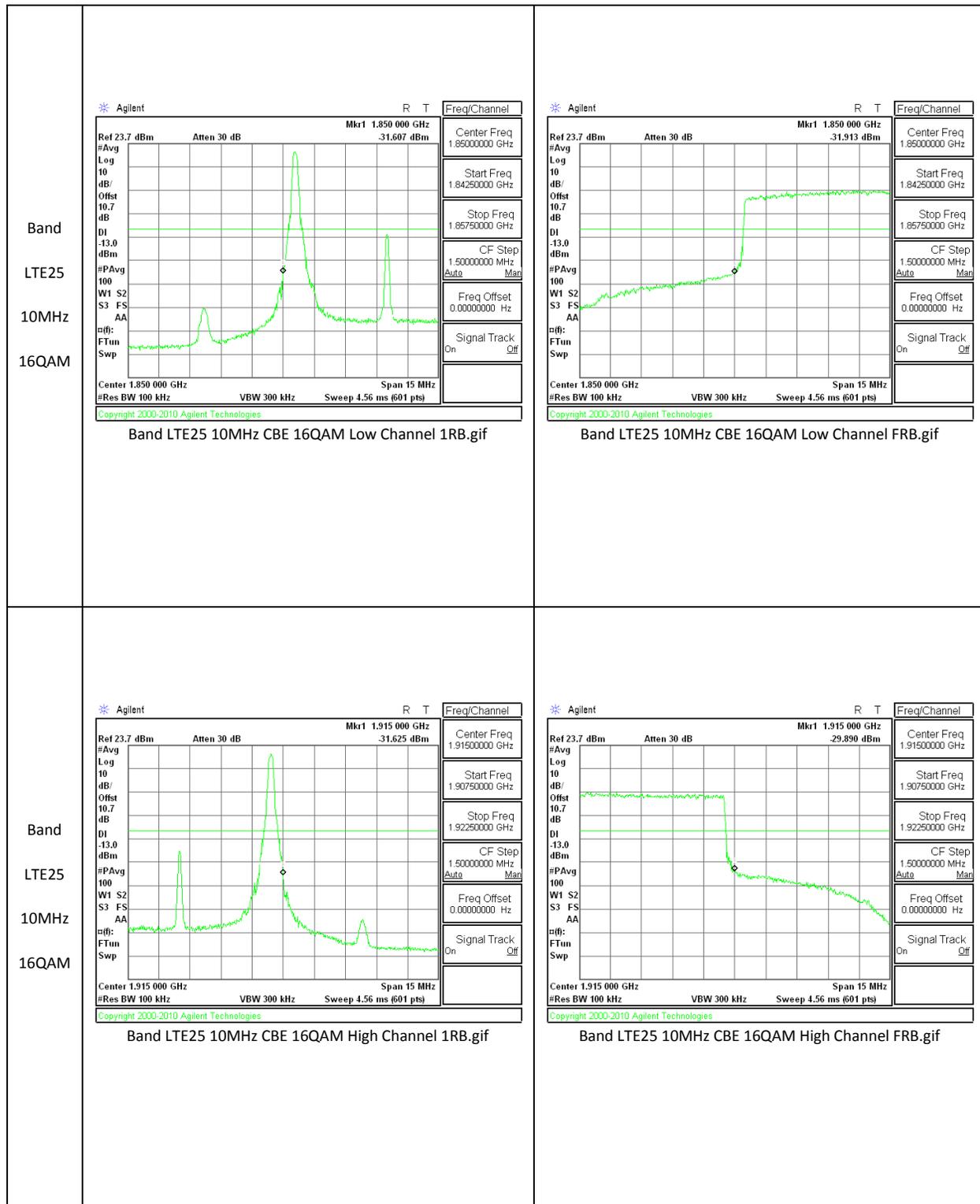


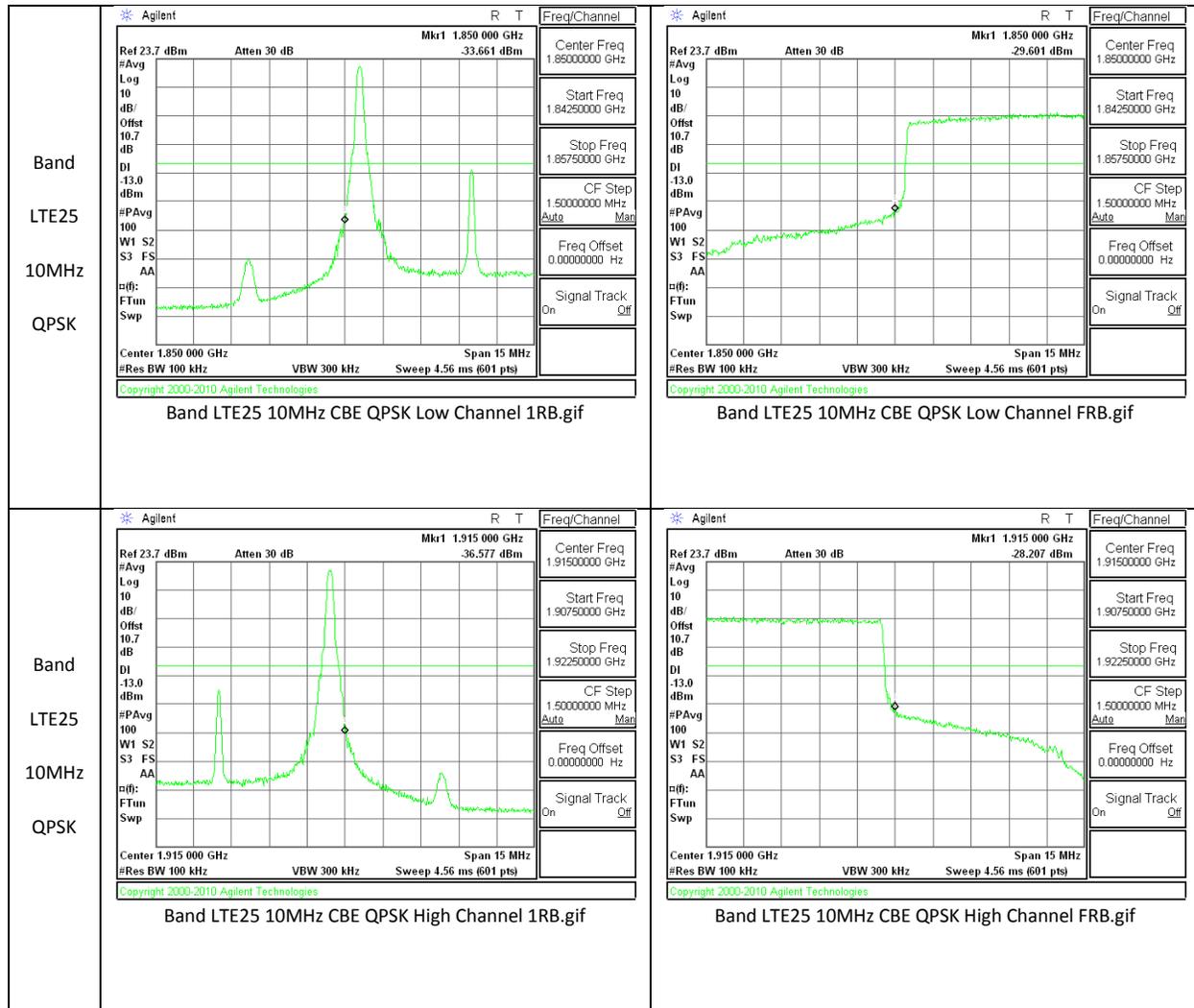


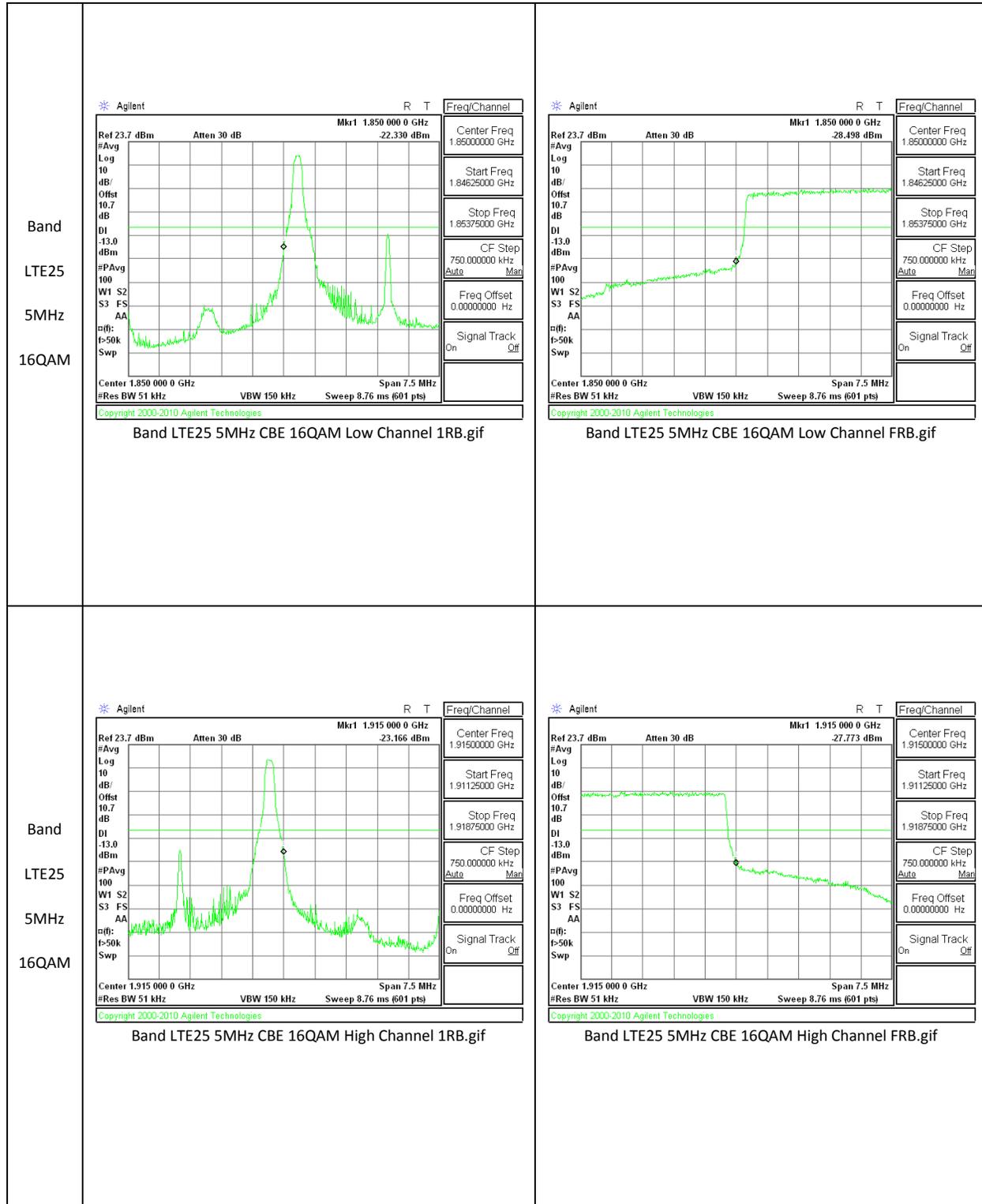


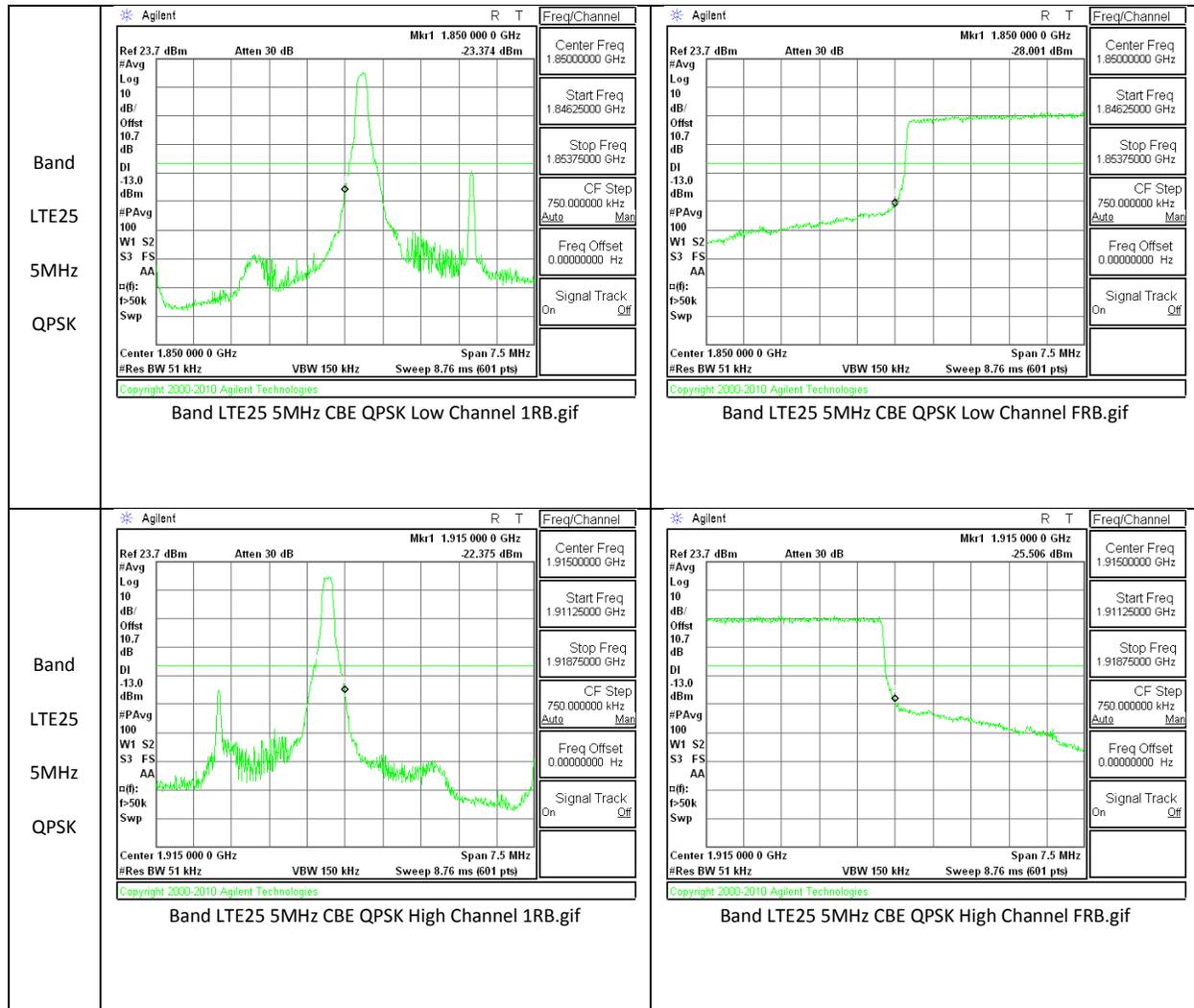


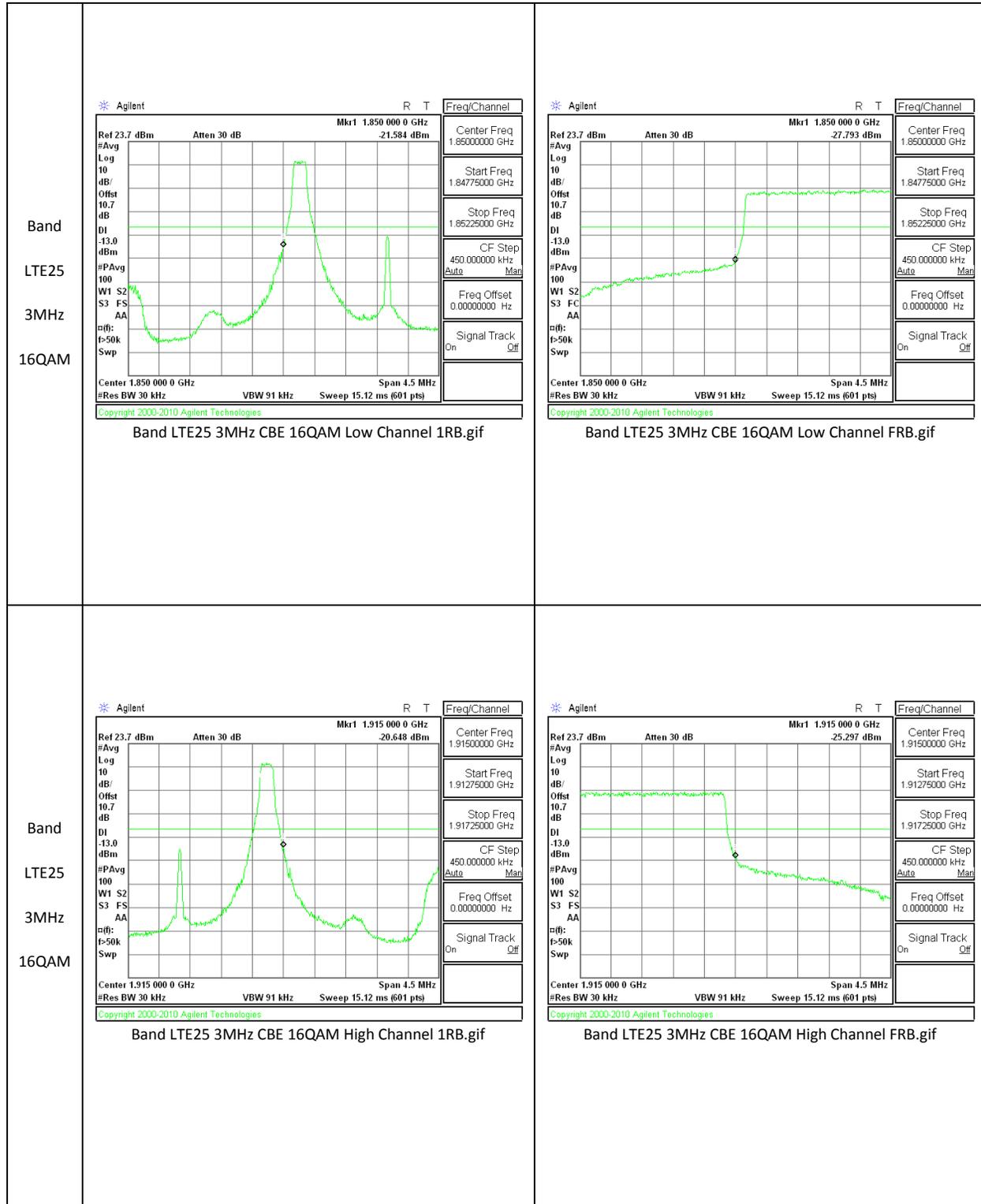
**LTE Band 25**

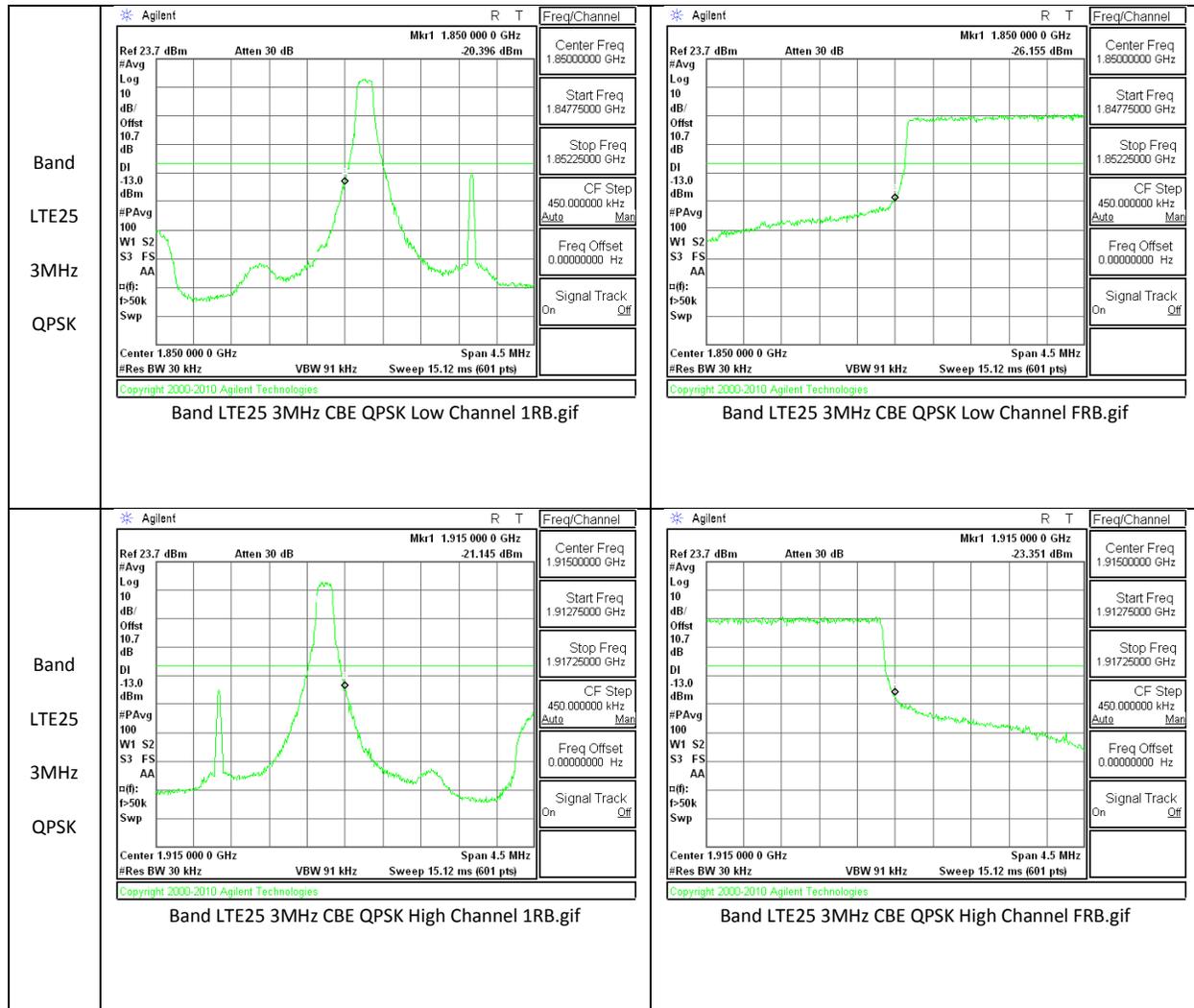




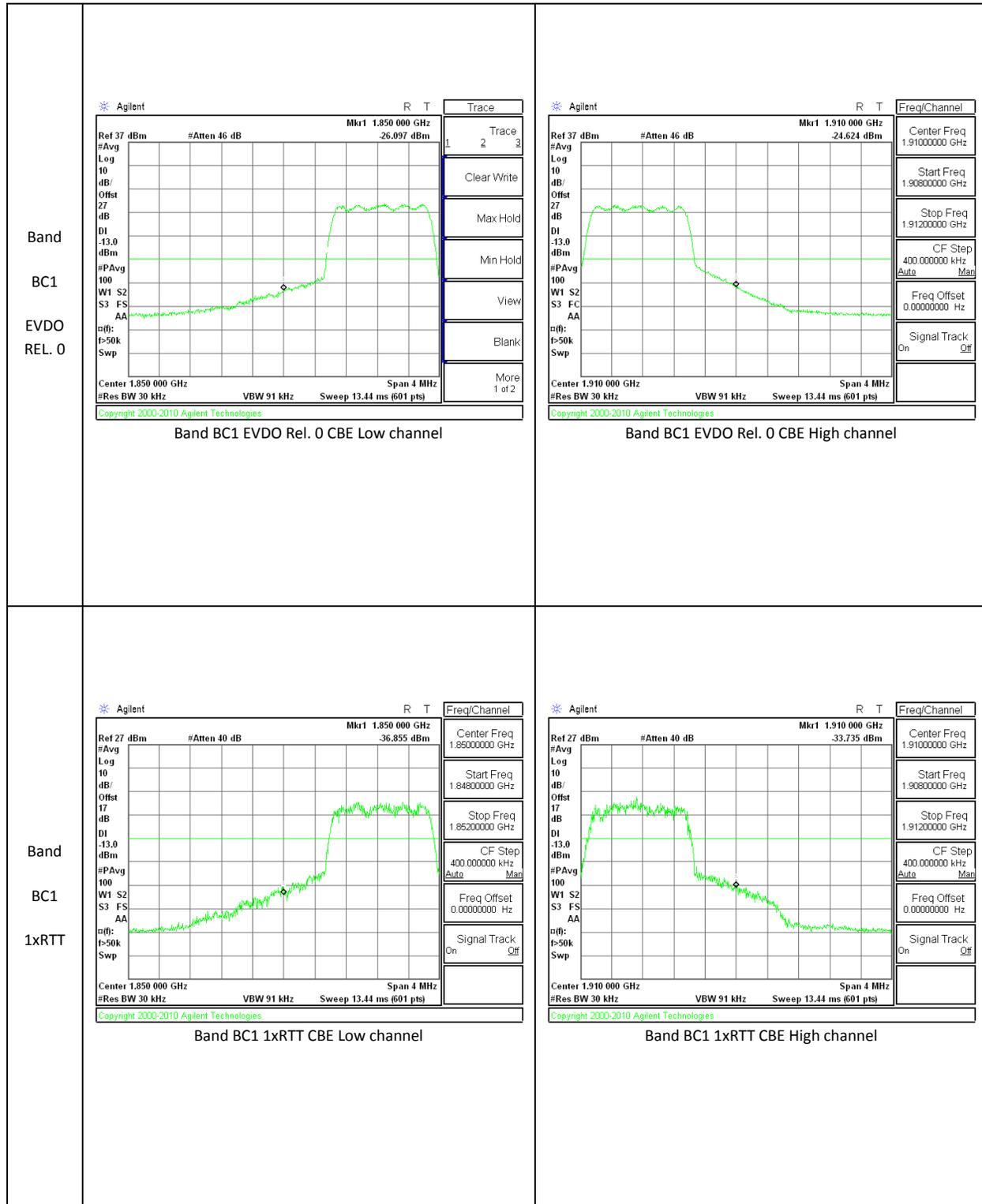




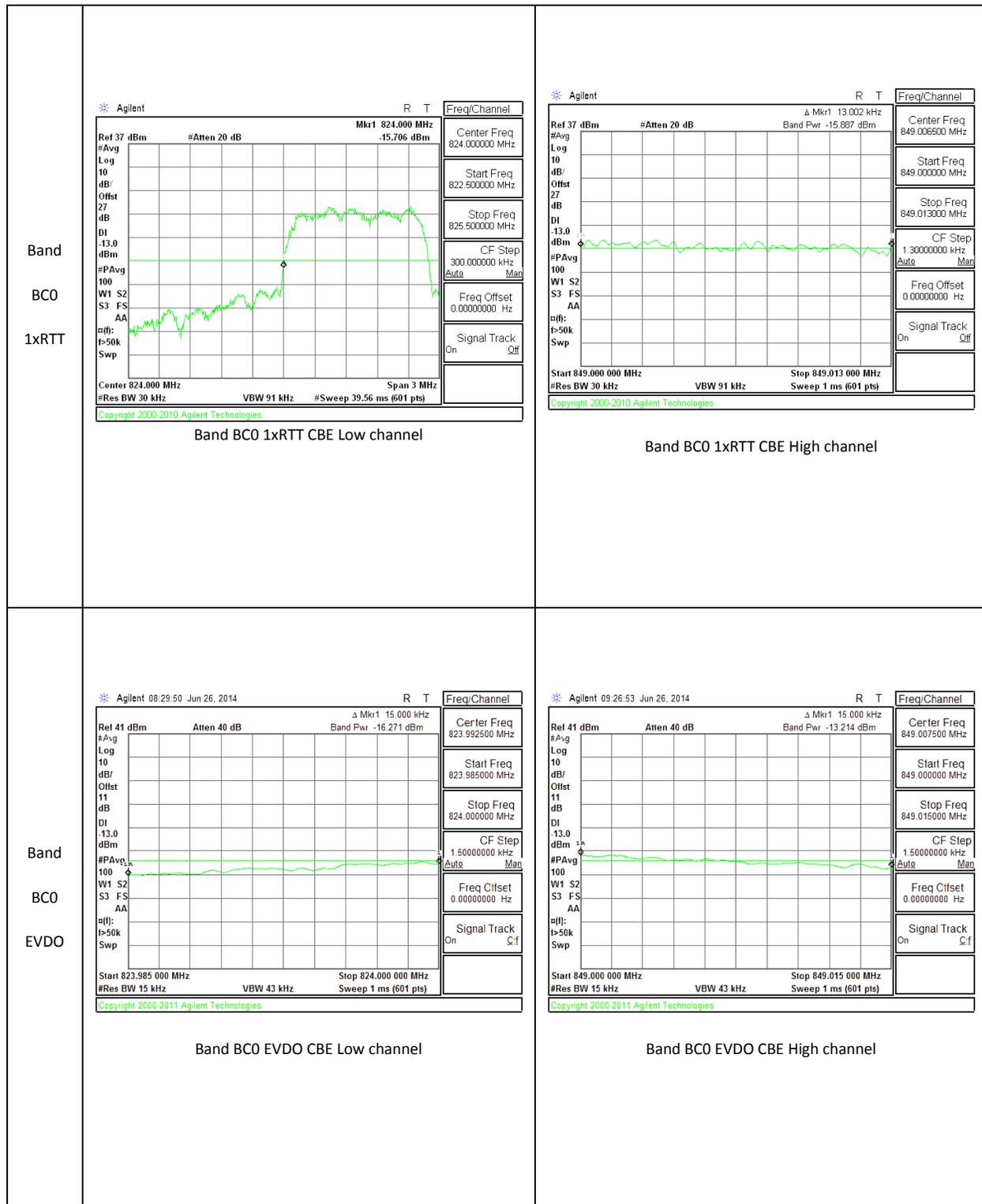


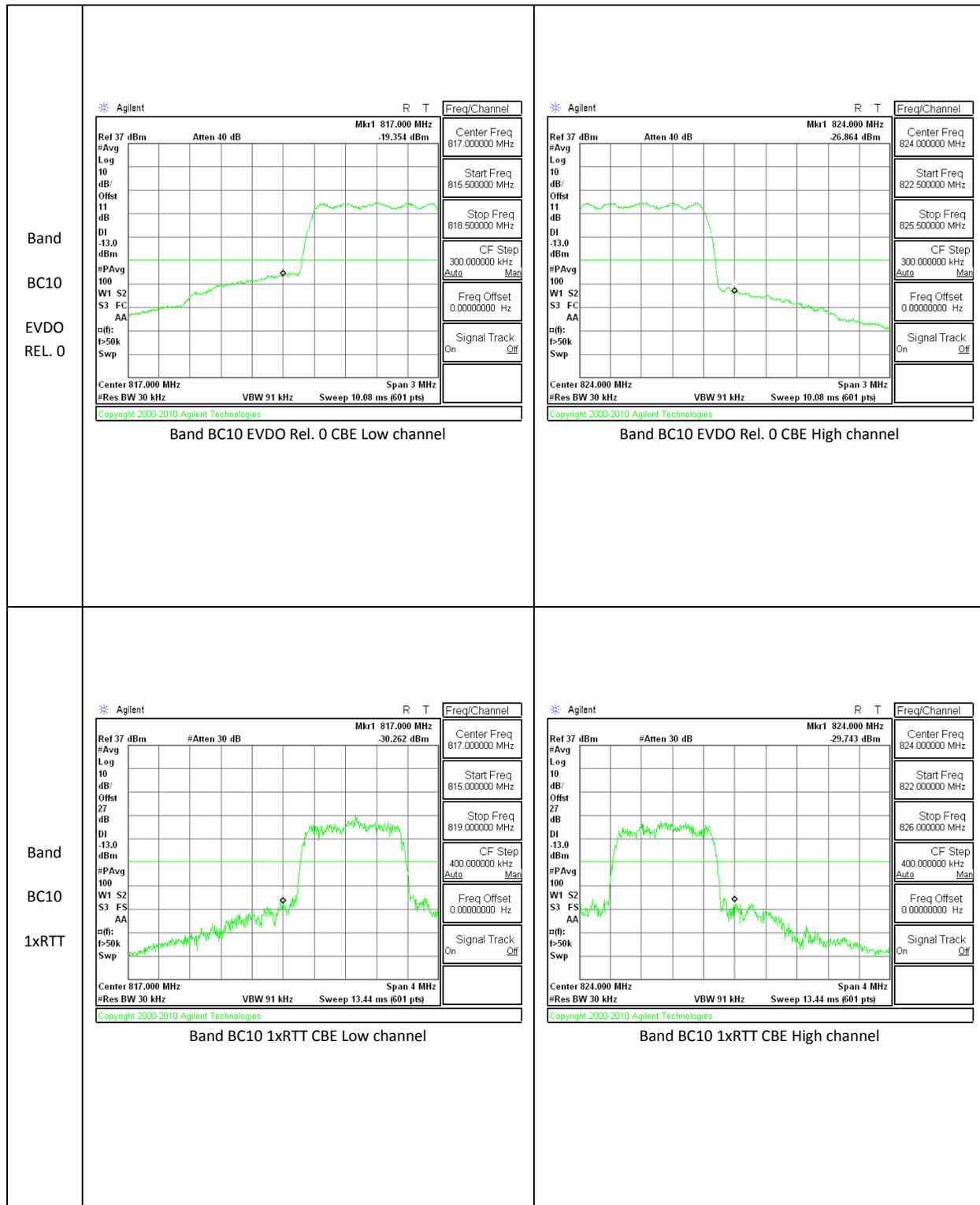


**CDMA BC1**



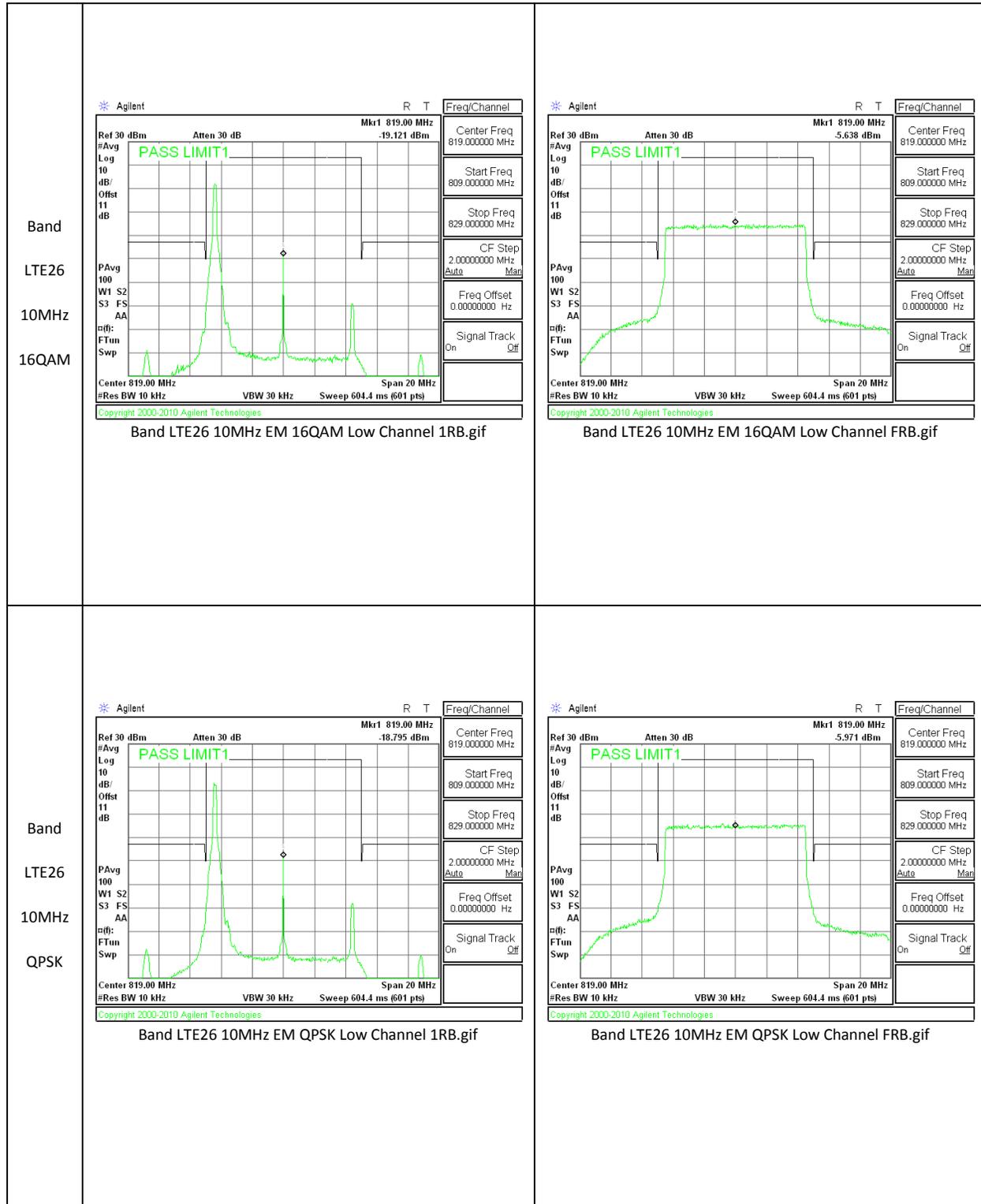
**CDMA BC0**

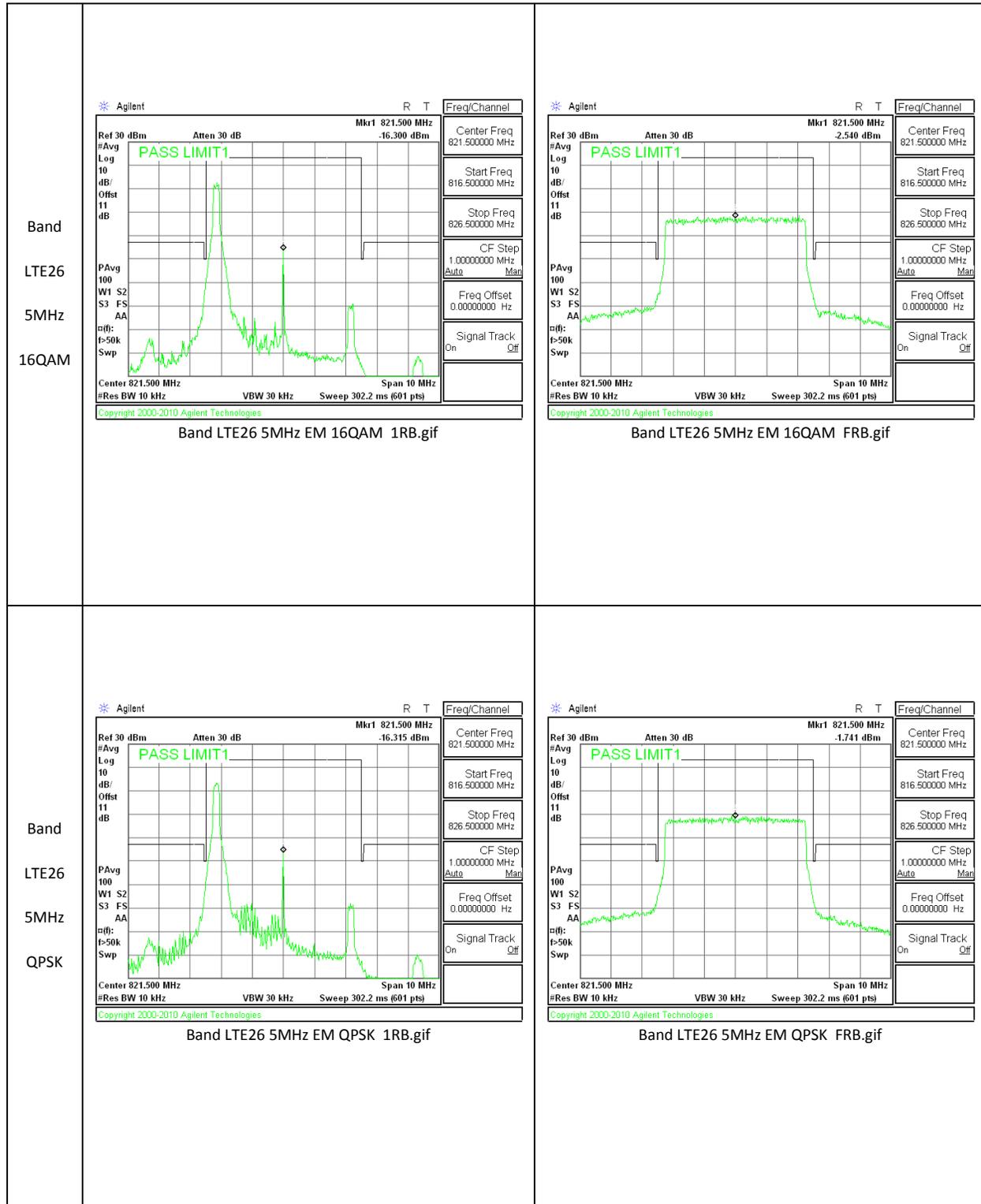


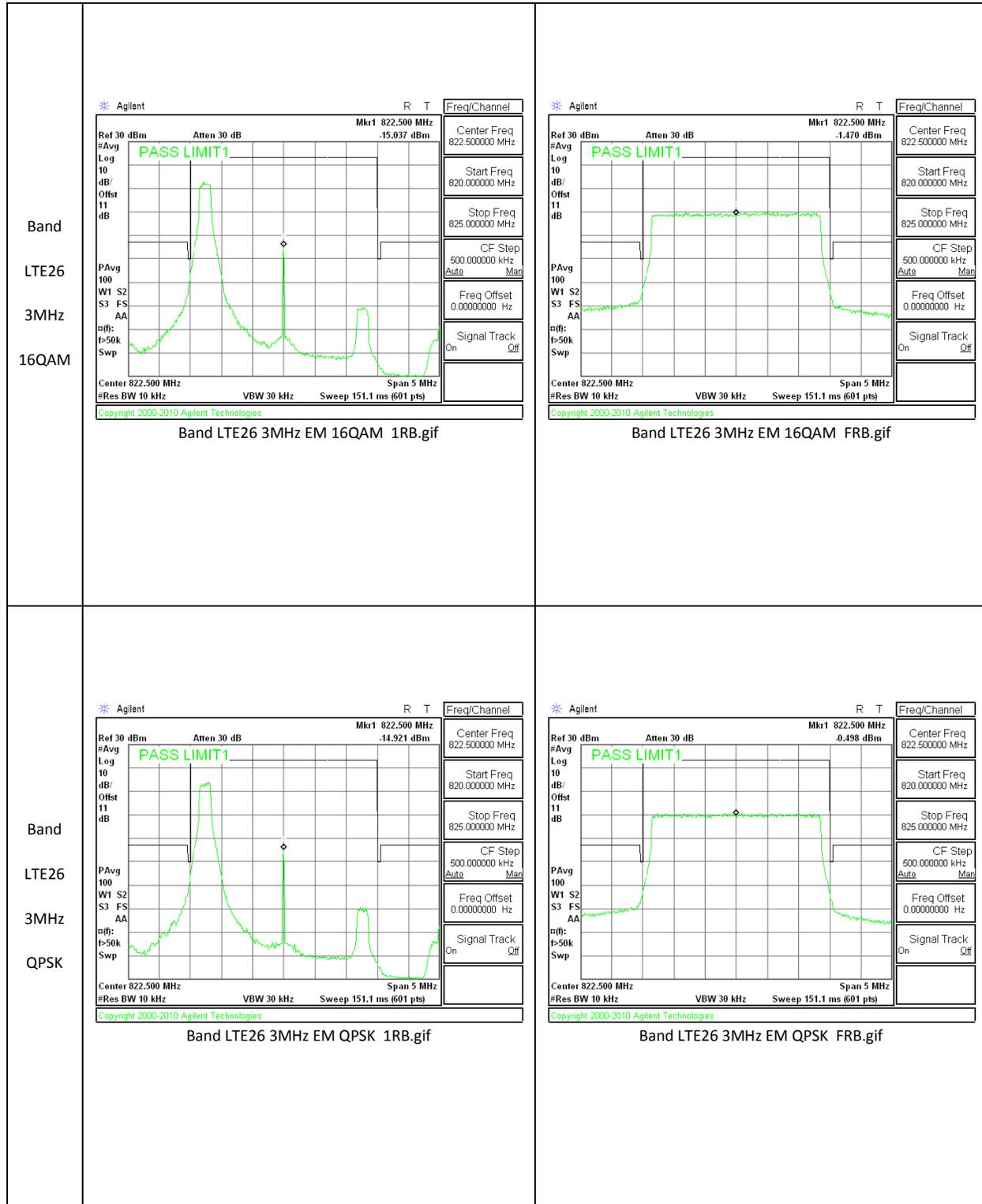


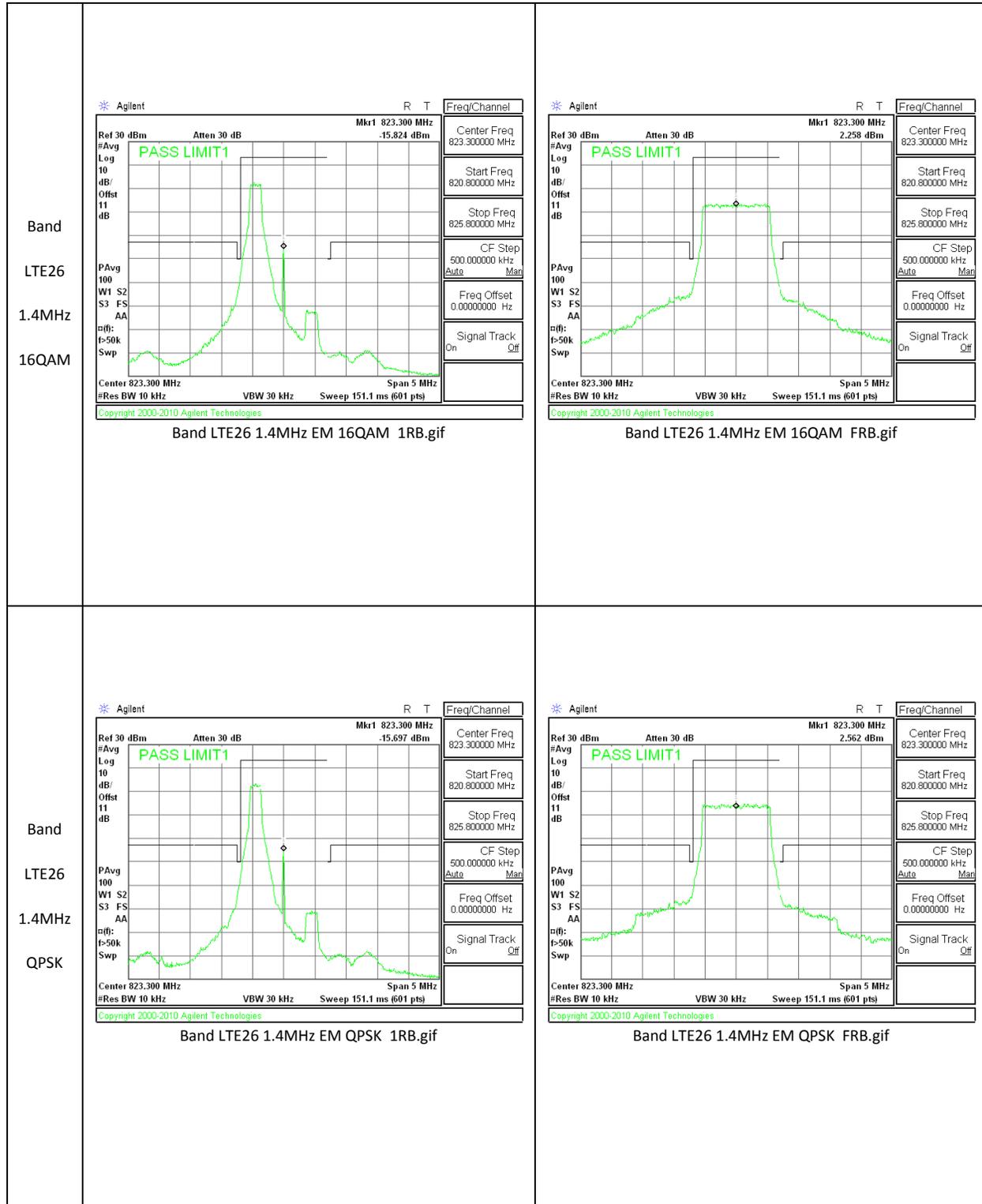
### 10.2.2. EMISSION MASK PLOTS

#### LTE Band 26

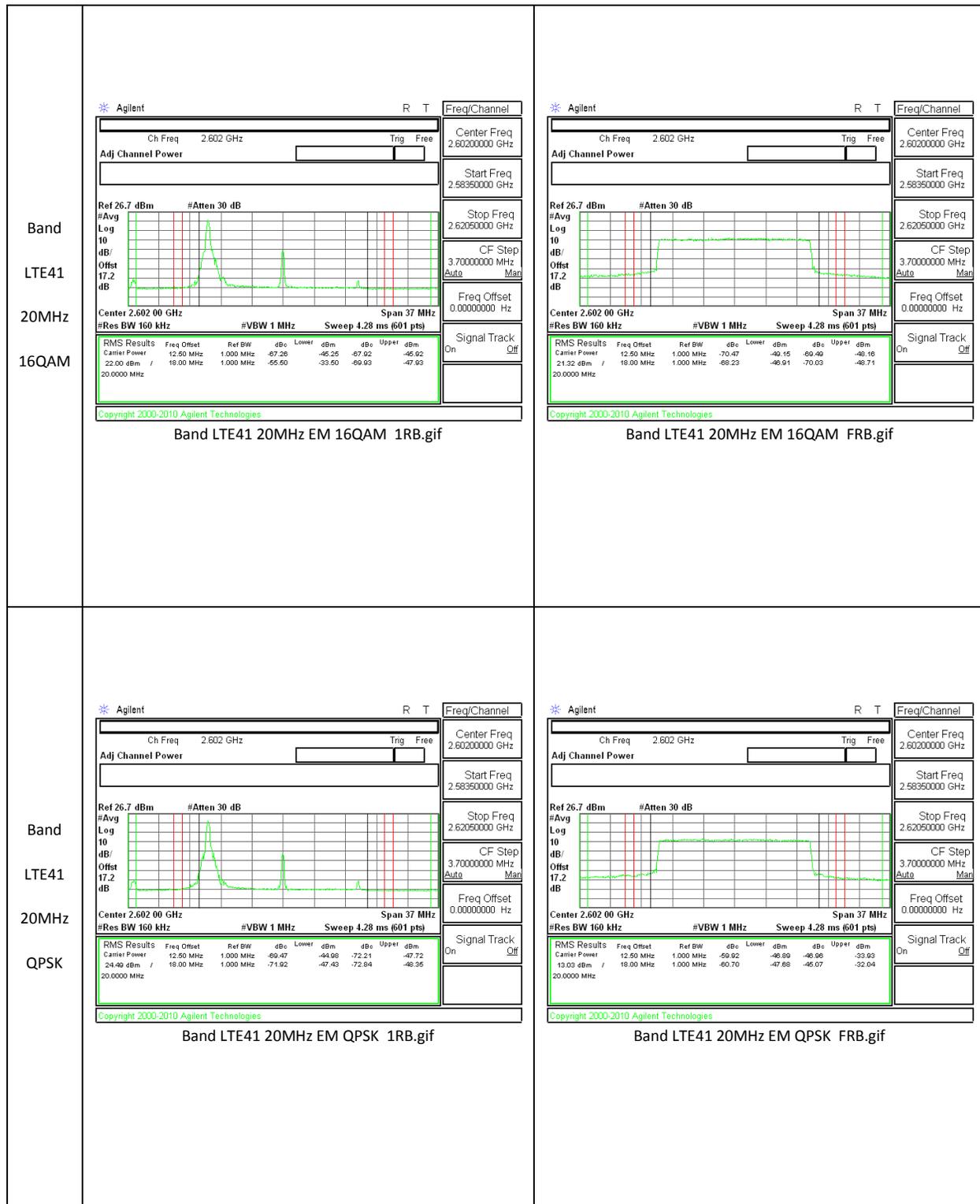


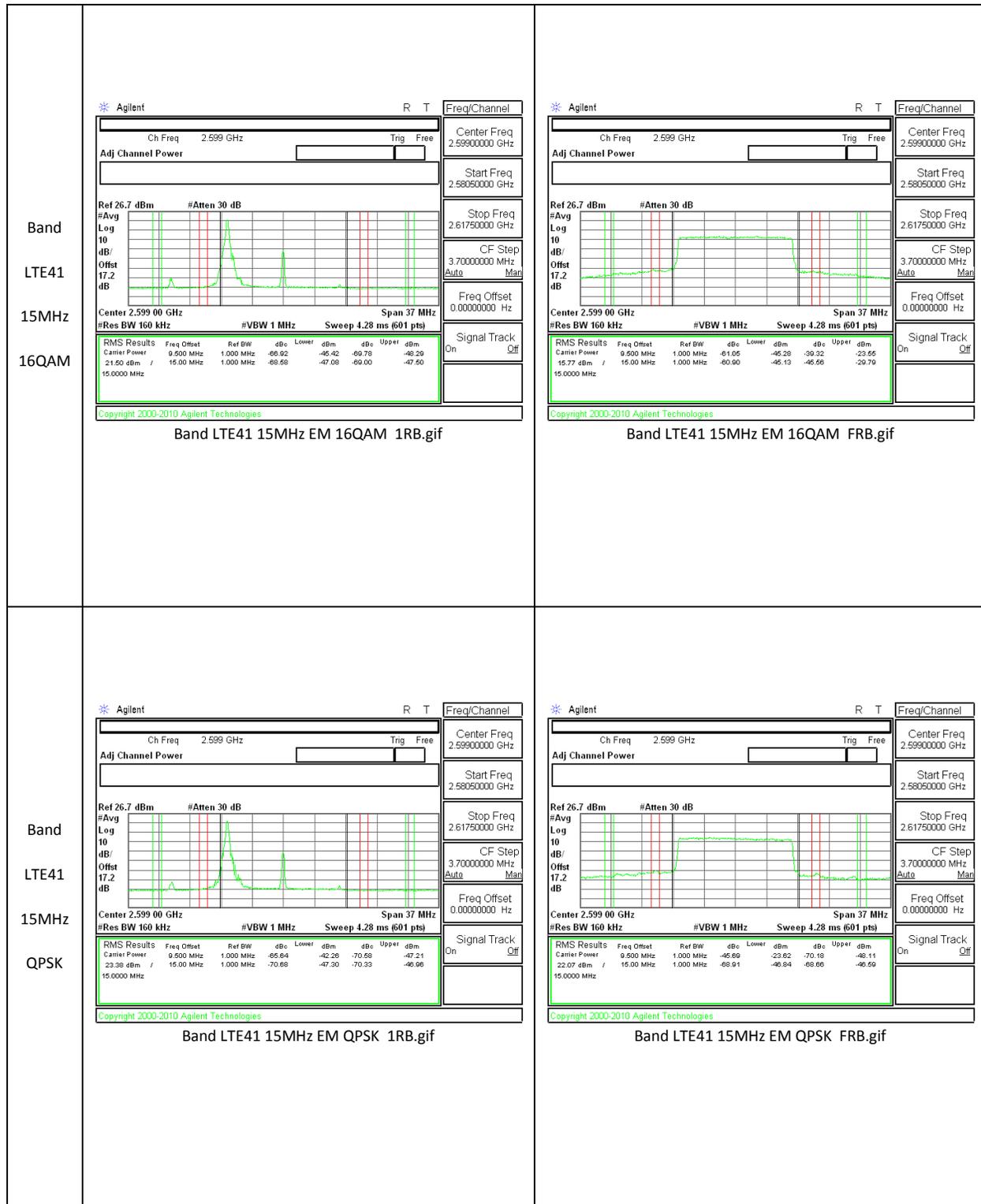


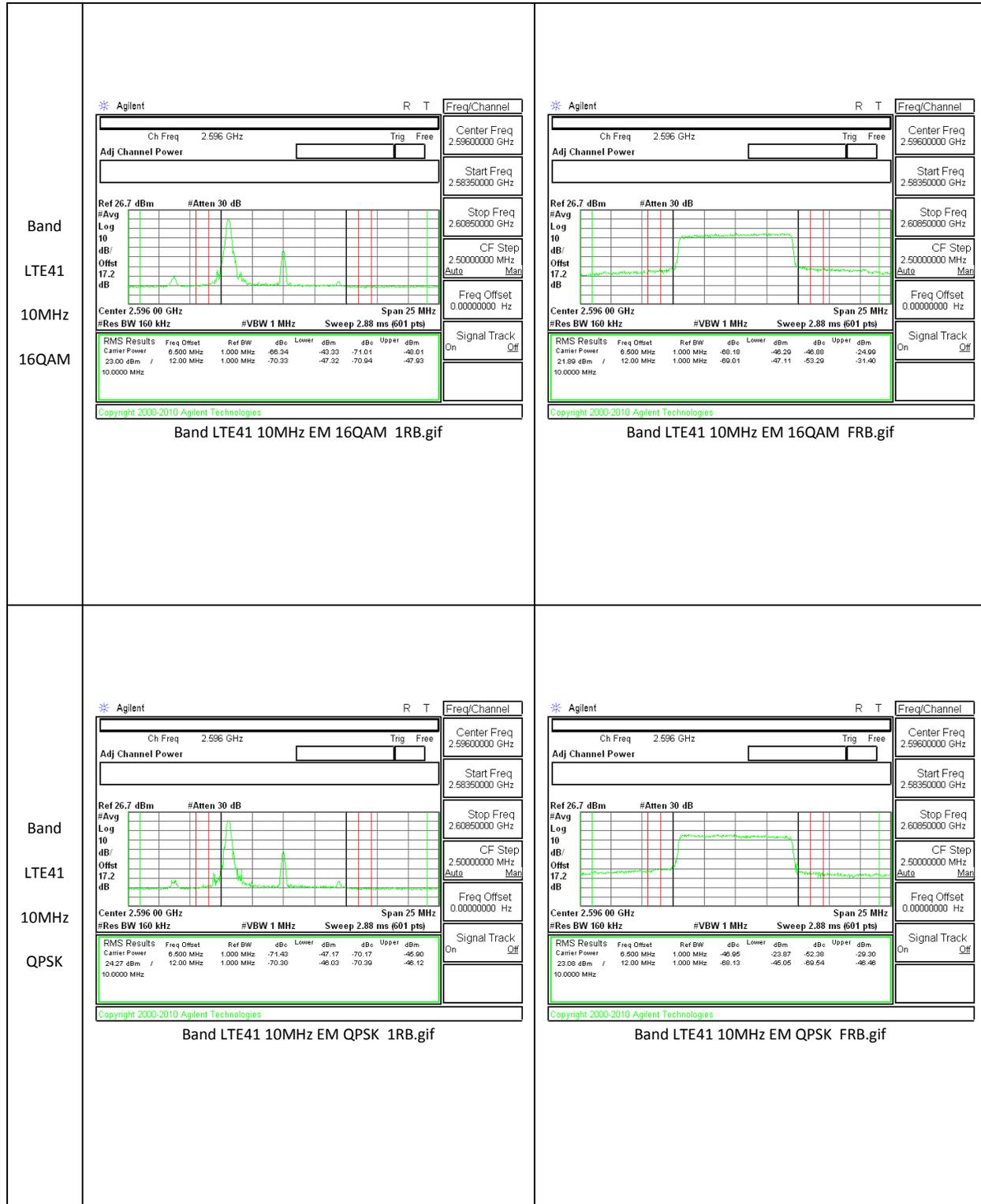




**LTE Band 41**







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### **10.3. OUT OF BAND EMISSIONS**

#### **RULE PART(S)**

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

#### **LIMITS**

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

#### **TEST PROCEDURE**

Per KDB 971168 D01 Power Meas License Digital Systems v02r01

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**

CDMA BC0, CDMA BC1, CDMA BC10, LTE Band 25, LTE Band 26, LTE Band 41

#### **RESULTS**

**10.3.1. OUT OF BAND EMISSIONS RESULT**

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE41	20	QPSK	2506	-29.23	-25	-4.23
			2593	-29.43	-25	-4.43
			2680	-29.72	-25	-4.72
		16QAM	2506	-28.42	-25	-3.42
			2593	-28.44	-25	-3.44
			2680	-28.96	-25	-3.96

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE41	15	QPSK	2503.5	-29.31	-25	-4.31
			2593	-29.77	-25	-4.77
			2682.5	-29.25	-25	-4.25
		16QAM	2503.5	-28.86	-25	-3.86
			2593	-27.85	-25	-2.85
			2682.5	-29.24	-25	-4.24

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE41	10	QPSK	2501	-28.97	-25	-3.97
			2593	-28.61	-25	-3.61
			2685	-29.07	-25	-4.07
		16QAM	2501	-27.92	-25	-2.92
			2593	-29.23	-25	-4.23
			2685	-29.11	-25	-4.11

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE26	10	QPSK	819	-45.68	-13	-32.68
			831.5	-45.65	-13	-32.65
			844	-47.45	-13	-34.45
		16QAM	819	-45.9	-13	-32.9
			831.5	-46.72	-13	-33.72
			844	-46.87	-13	-33.87

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE26	5	QPSK	816.5	-41.25	-13	-28.25
			831.5	-45.3	-13	-32.3
			846.5	-46.94	-13	-33.94
		16QAM	816.5	-41.72	-13	-28.72
			831.5	-46.29	-13	-33.29
			846.5	-46.97	-13	-33.97

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE26	3	QPSK	815.5	-46.99	-13	-33.99
			831.5	-47.02	-13	-34.02
			847.5	-46.47	-13	-33.47
		16QAM	815.5	-46.6	-13	-33.6
			831.5	-46.14	-13	-33.14
			847.5	-46.27	-13	-33.27

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE26	1.4	QPSK	814.7	-47.82	-13	-34.82
			831.5	-48.85	-13	-35.85
			848.3	-46.8	-13	-33.8
		16QAM	814.7	-46.88	-13	-33.88
			831.5	-45.24	-13	-32.24
			848.3	-48.22	-13	-35.22

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE25	10	QPSK	1855	-26.23	-13	-13.23
			1882.5	-26.5	-13	-13.5
			1910	-27.8	-13	-14.8
		16QAM	1855	-26.51	-13	-13.51
			1882.5	-25.93	-13	-12.93
			1910	-27.28	-13	-14.28

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE25	5	QPSK	1852.5	-27.34	-13	-14.34
			1882.5	-27.02	-13	-14.02
			1912.5	-26.99	-13	-13.99
		16QAM	1852.5	-27.53	-13	-14.53
			1882.5	-26.97	-13	-13.97
			1912.5	-28.01	-13	-15.01

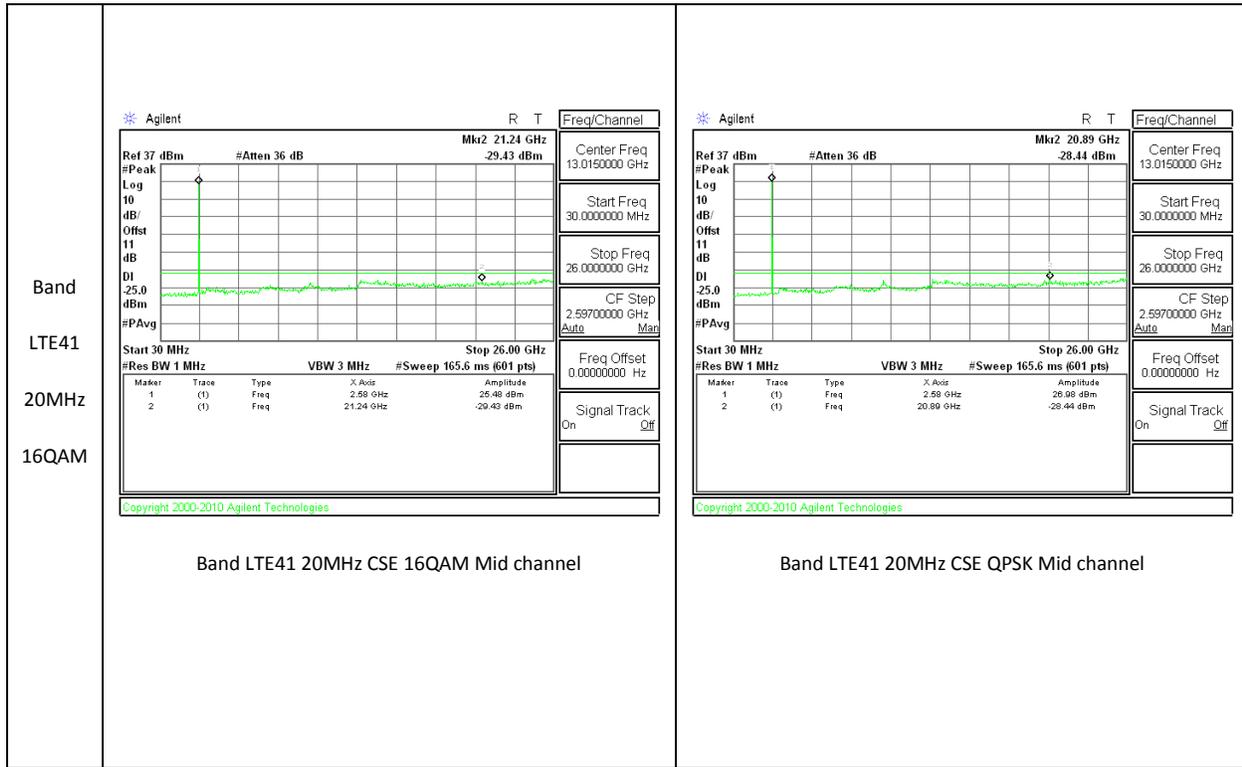
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE25	3	QPSK	1851.5	-26.44	-13	-13.44
			1882.5	-27.36	-13	-14.36
			1913.5	-26.54	-13	-13.54
		16QAM	1851.5	-27.64	-13	-14.64
			1882.5	-27.34	-13	-14.34
			1913.5	-27.81	-13	-14.81

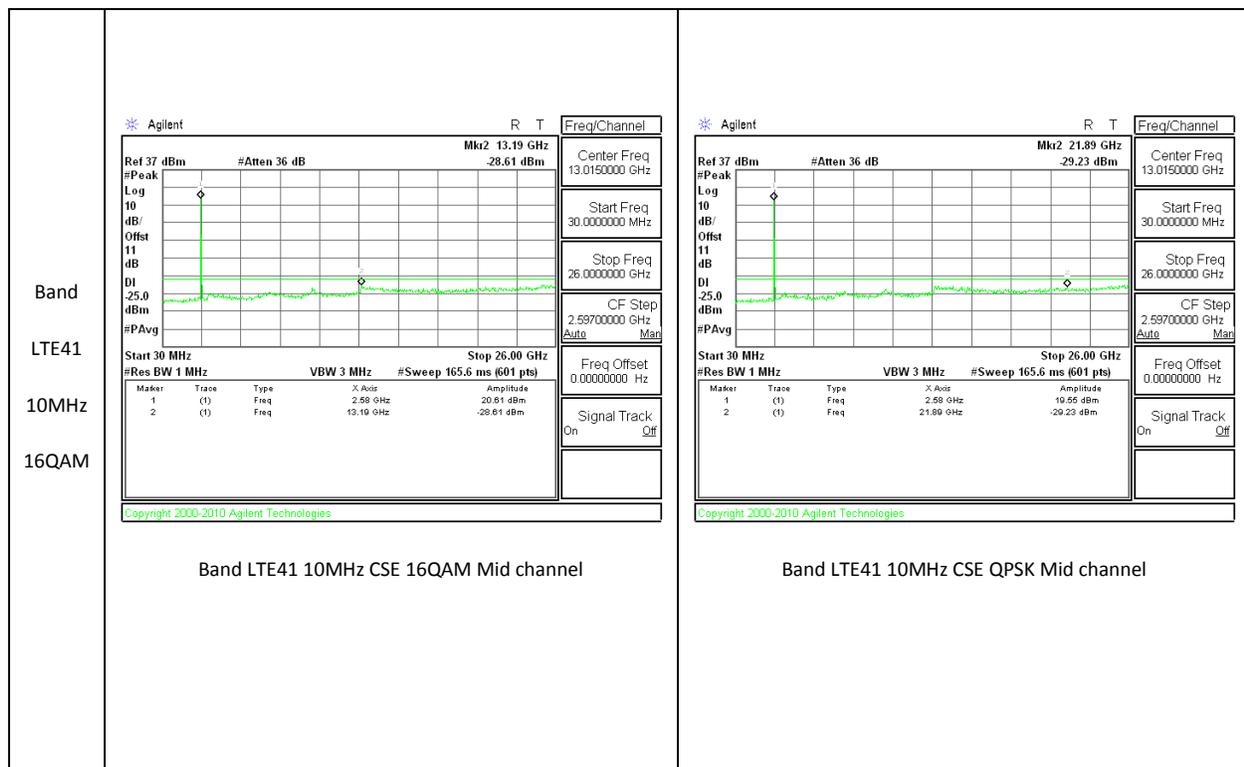
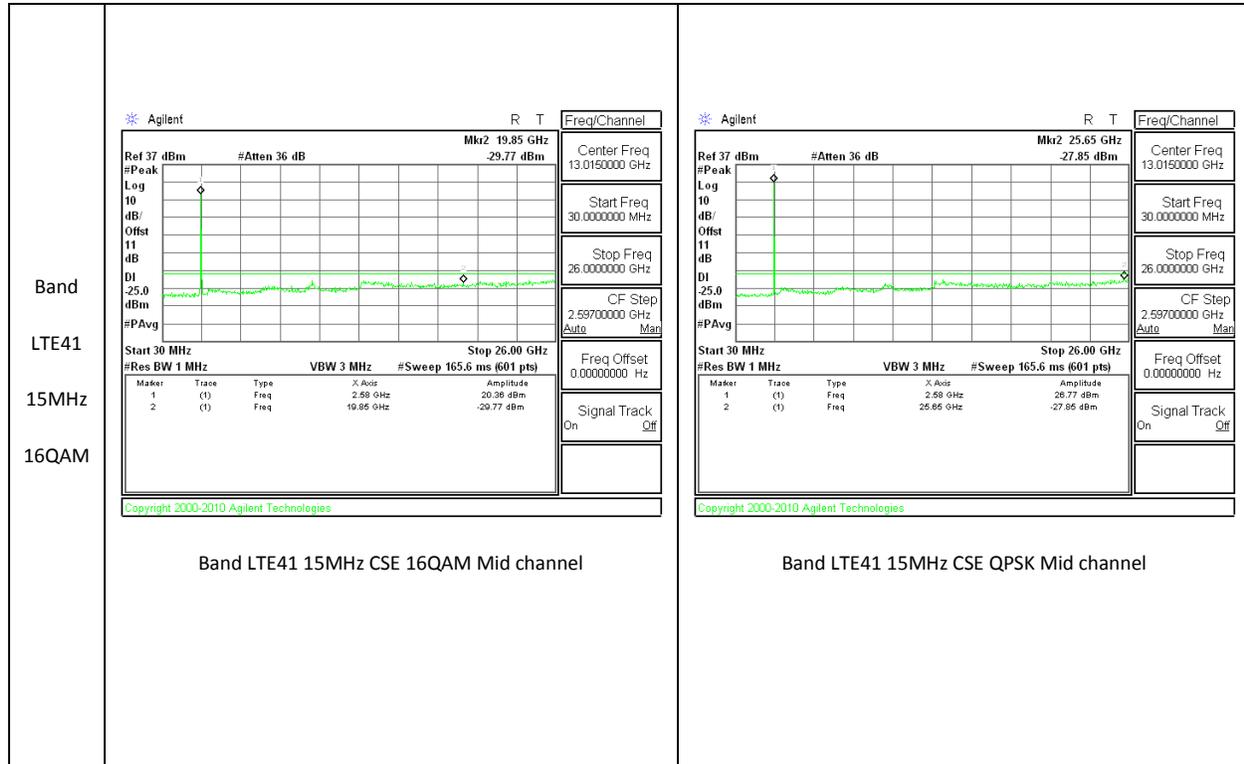
Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
BC10	1xRTT	817.9	-19.96	-13	-6.96
		820.5	-19.2	-13	-6.2
		823.1	-19.98	-13	-6.98
BC0	1xRTT	824.7	-28.81	-13	-15.81
		836.52	-29.46	-13	-16.46
		848.31	-27.82	-13	-14.82
BC1	1xRTT	1851.25	-19.13	-13	-6.13
		1880	-19.46	-13	-6.46
		1908.75	-18.11	-13	-5.11

Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
BC10	EVDO	817.9	-35.27	-13	-22.27
		820.5	-35.01	-13	-22.01
		823.1	-34.4	-13	-21.4
BC0	EVDO	824.7	-24.32	-13	-11.32
		836.52	-25.13	-13	-12.13
		848.31	-25.5	-13	-12.5
BC1	EVDO	1851.25	-19.7	-13	-6.7
		1880	-19.86	-13	-6.86
		1908.75	-19.8	-13	-6.8

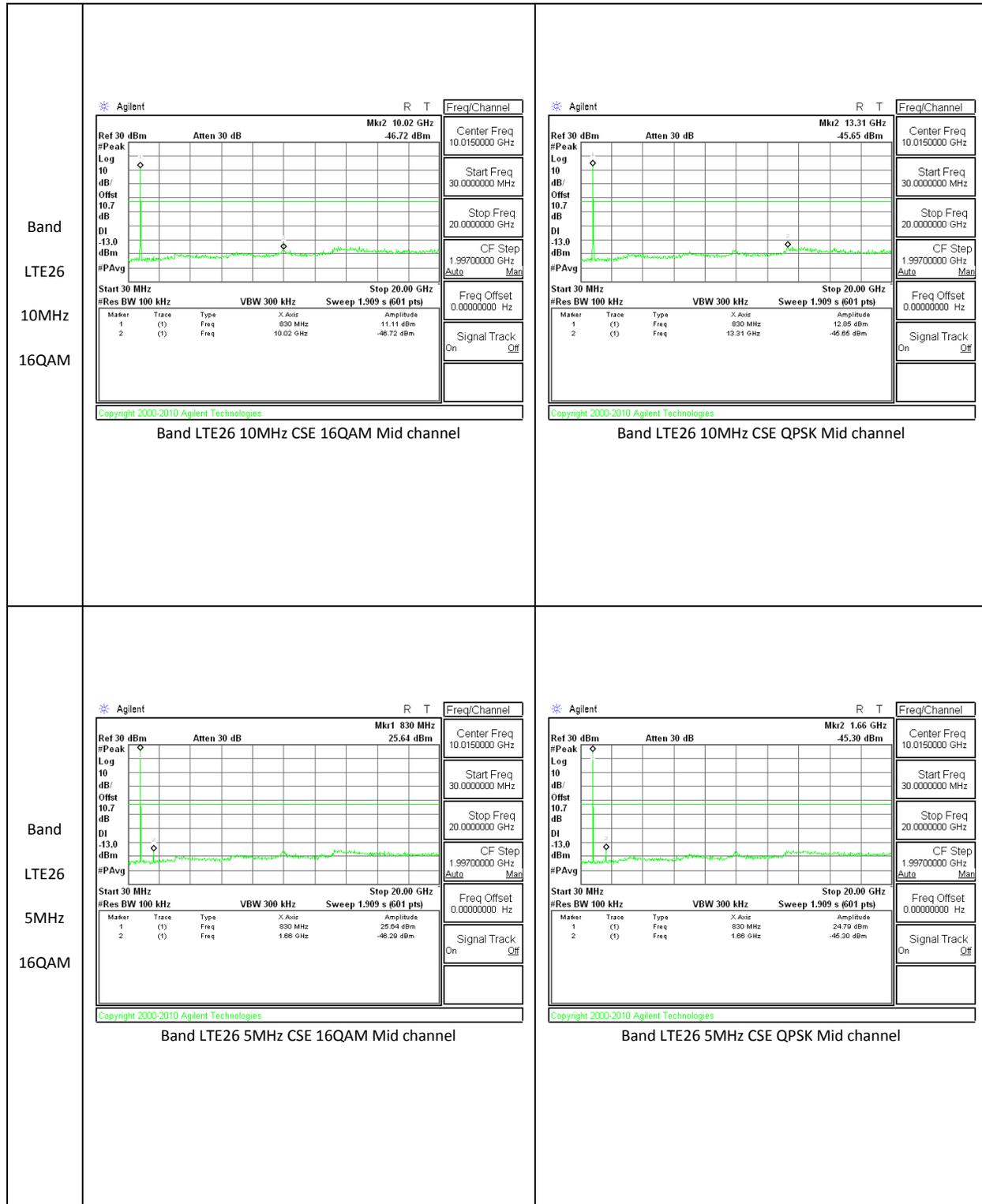
### 10.3.2. OUT OF BAND EMISSIONS PLOTS

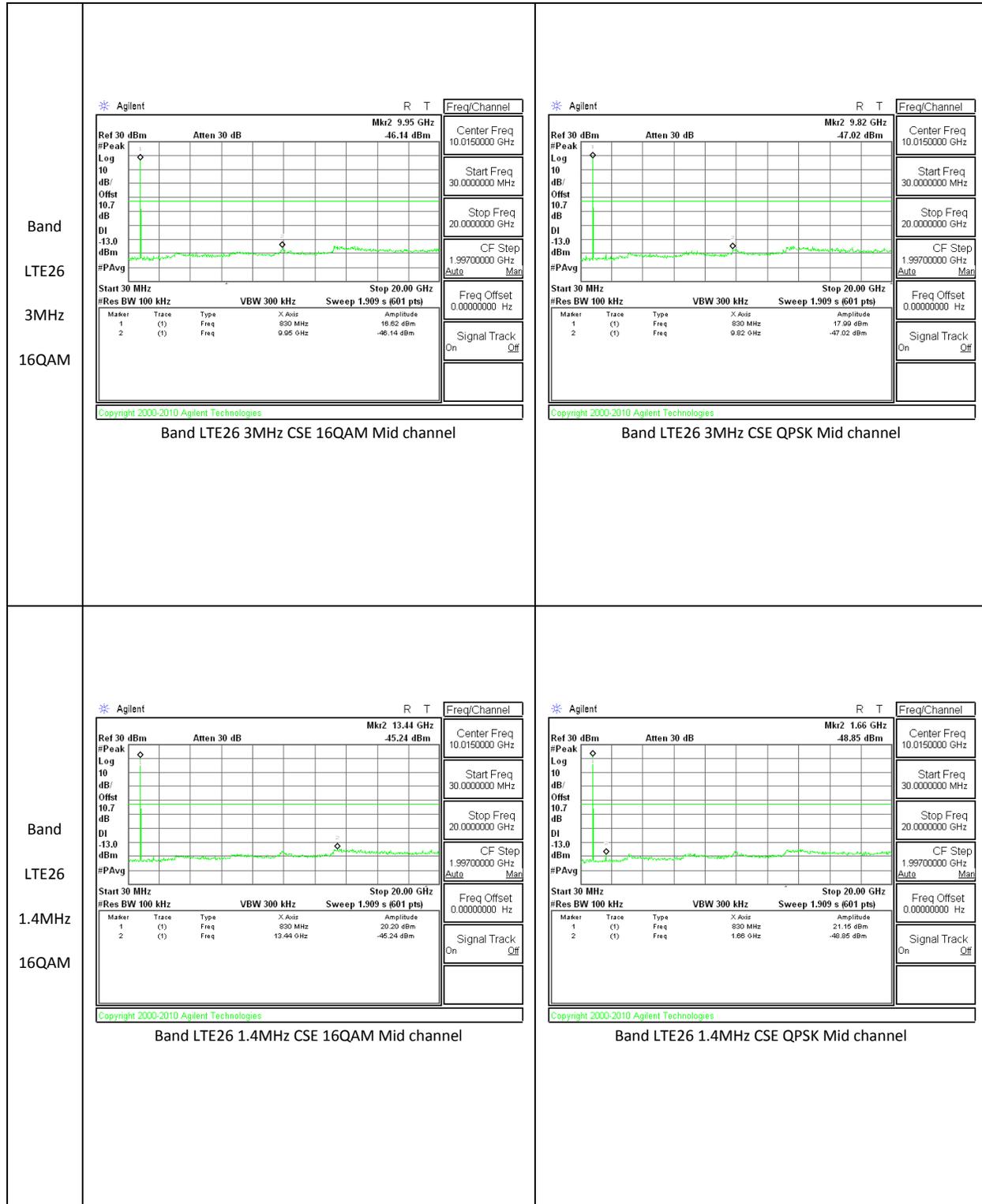
#### LTE Band 41



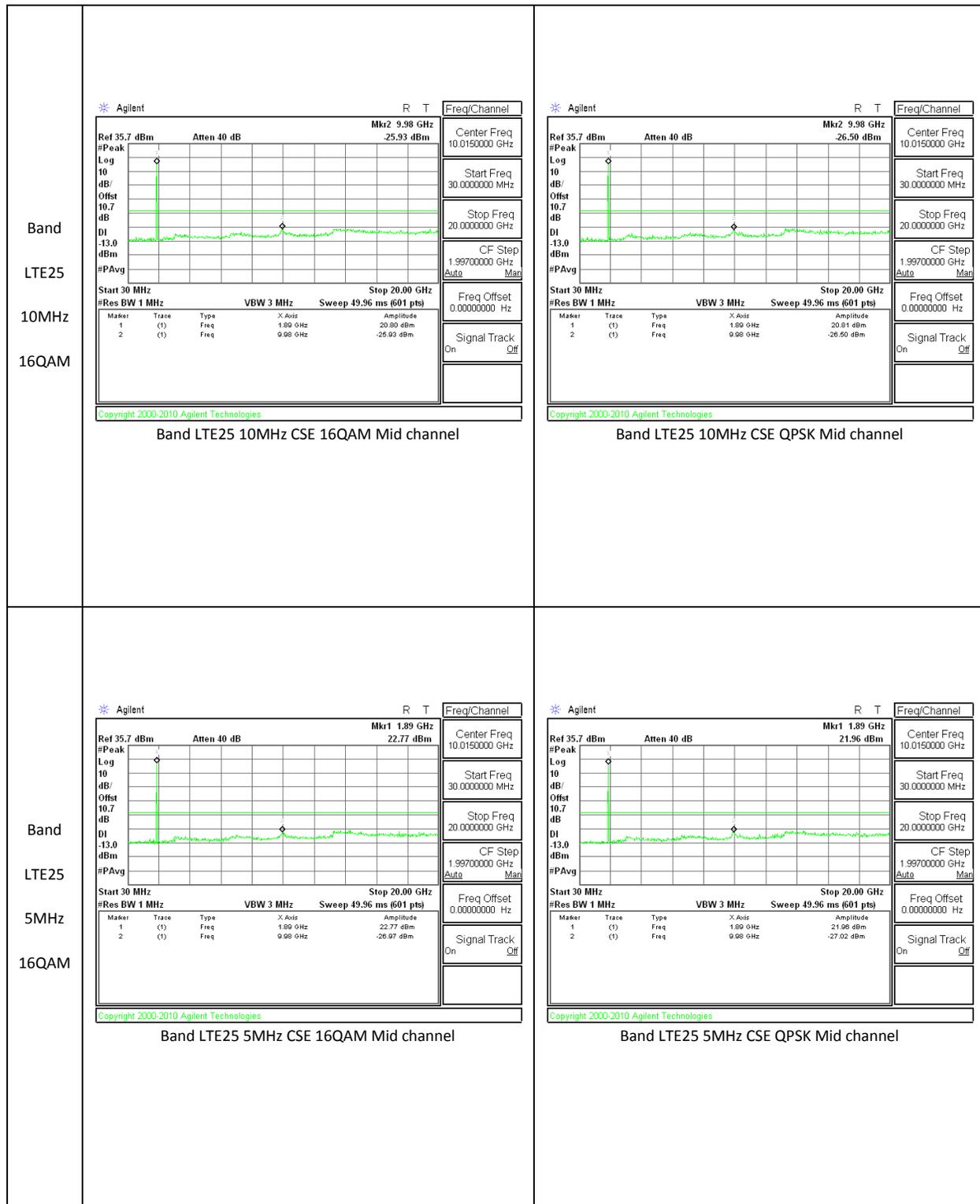


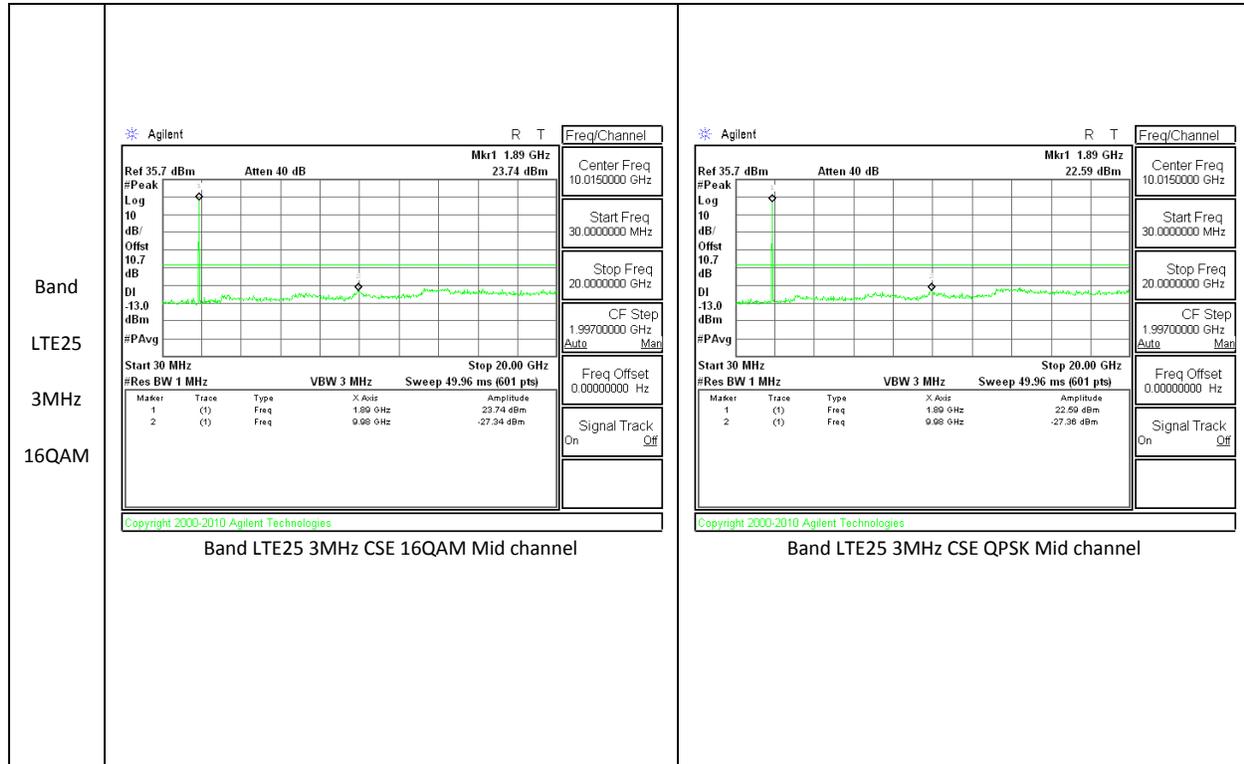
**LTE Band 26**



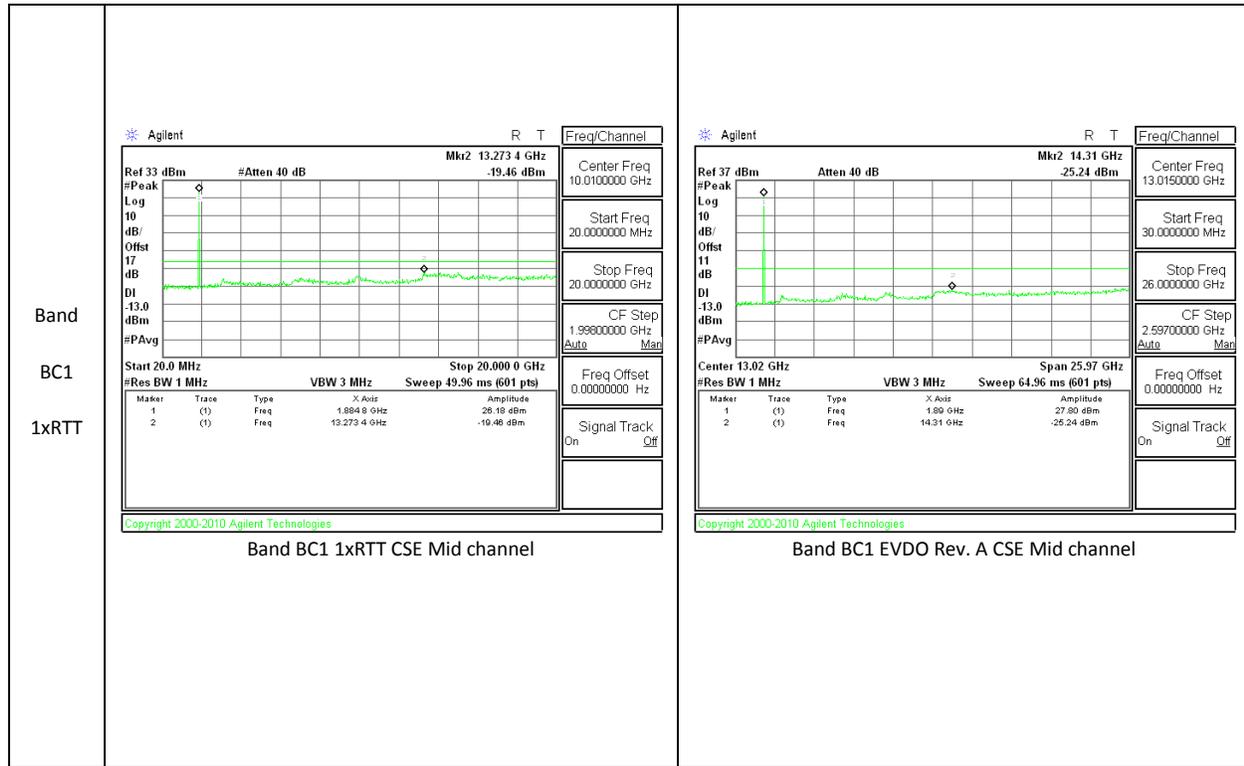


**LTE Band 25**

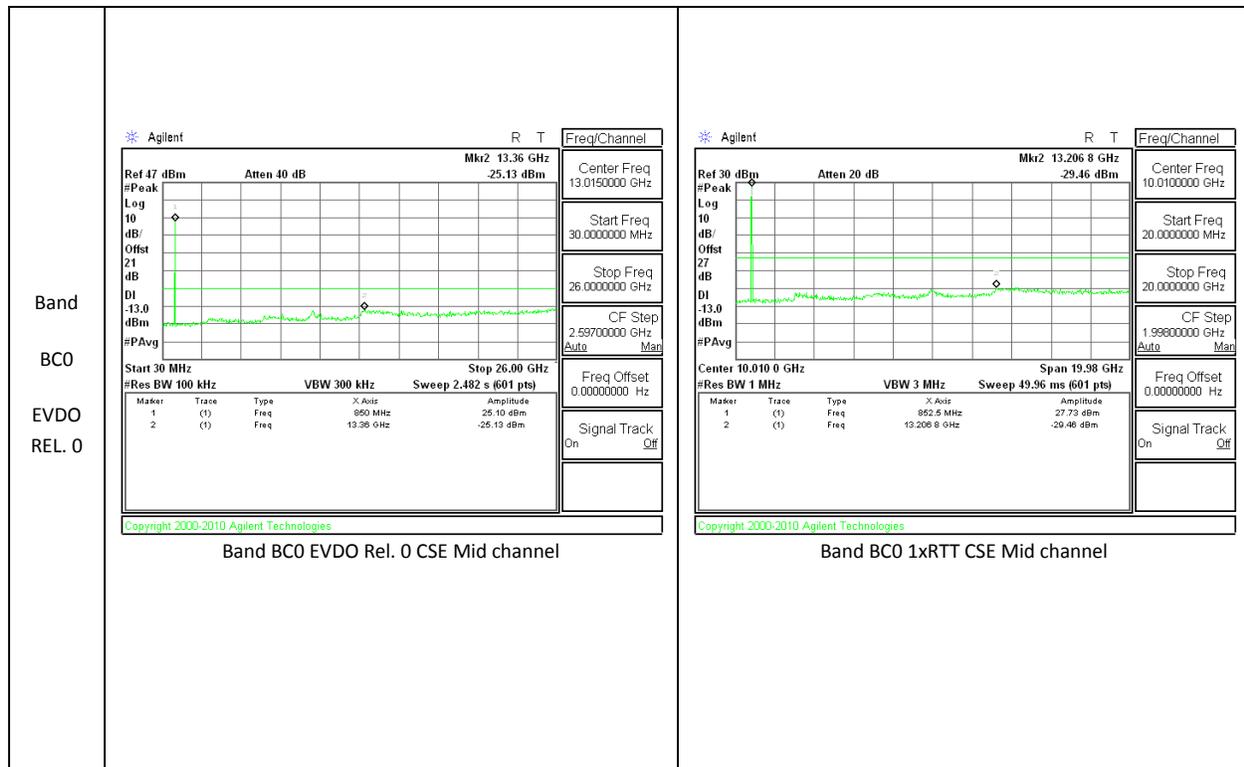




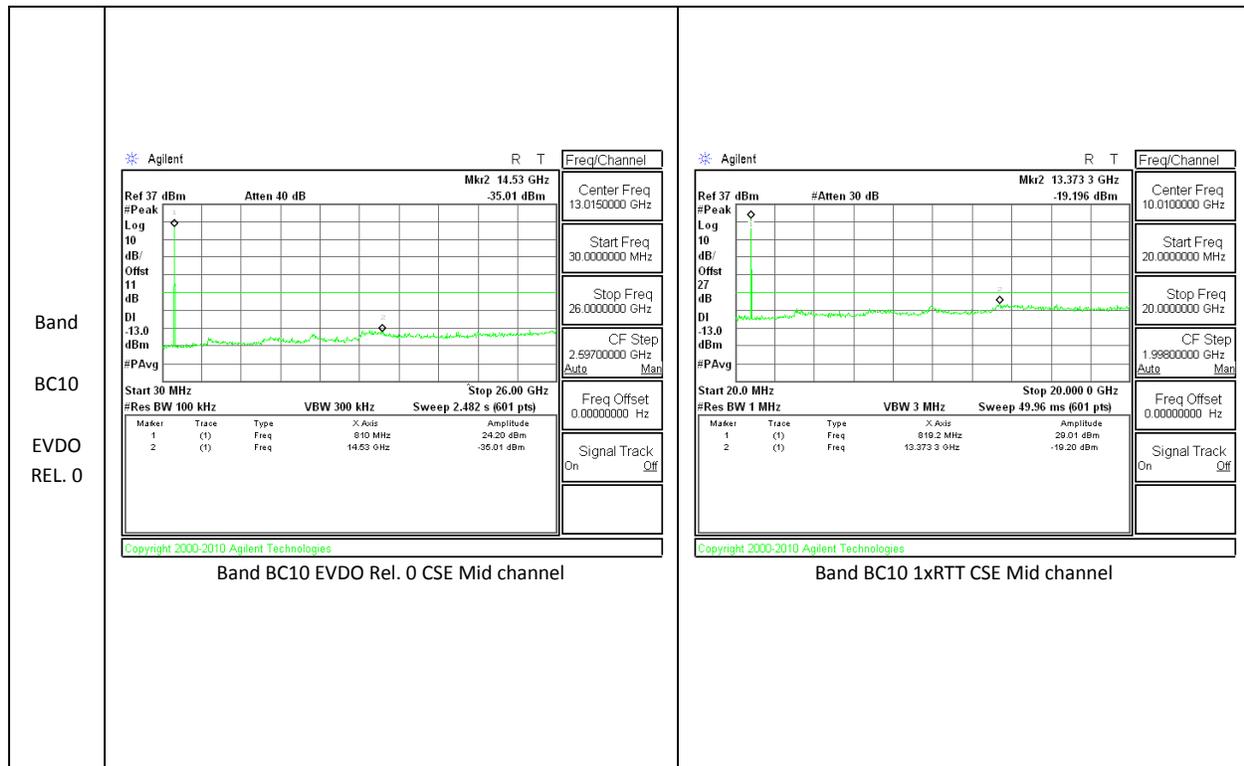
**CDMA BC1**



**CDMA BC0**



**CDMA BC10**



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## 10.4. FREQUENCY STABILITY

### **RULE PART(S)**

FCC: §2.1055, §22.355, §24.235, and §27.54

### **LIMITS**

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

§27.54 - The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### **TEST PROCEDURE**

Per KDB 971168 D01 Power Meas License Digital Systems v02r01

### **MODES TESTED**

CDMA BC0, CDMA BC1, CDMA BC10, LTE Band 25, LTE Band 26, LTE Band 41

### **RESULTS**

See the following pages.

**10.4.1. FREQUENCY STABILITY RESULTS**

**CDMA BC10 Freq: 820.5 MHz– MID CHANNEL**

Reference Frequency: CDMA BC10, Channel 580 Freq : 820.5 MHz @ 20°C Limit: to stay +- 2.5 ppm = 2051.25 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	820.499988	0.006	2.5
3.80	40	820.499995	-0.002	2.5
3.80	30	820.499995	-0.002	2.5
<b>3.80</b>	<b>20</b>	820.499993	<b>0</b>	<b>2.5</b>
3.80	10	820.500005	-0.015	2.5
3.80	0	820.499994	-0.002	2.5
3.80	-10	820.499994	-0.001	2.5
3.80	-20	820.499996	-0.003	2.5
3.80	-30	820.499995	-0.003	2.5
Reference Frequency: CDMA BC10, Channel 580 Freq : 820.5 MHz @ 20°C Limit: to stay +- 2.5 ppm = 2051.25 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
<b>3.80</b>	<b>20</b>	820.499993	<b>0</b>	<b>2.5</b>
3.30	20	820.499994	-0.002	2.5
4.30	20	820.499994	-0.001	2.5

**CELL, CDMA MODULATION – MID CHANNEL**

Reference Frequency: Cellular Mid Channel 836.5200001MHz @ 20°C				
Limit: to stay +- 2.5 ppm = 2091.500 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	836.599998	0.004	2.5
3.80	40	836.599998	0.004	2.5
3.80	30	836.599996	0.006	2.5
<b>3.80</b>	<b>20</b>	<b>836.600001</b>	<b>0</b>	<b>2.5</b>
3.80	10	836.599999	0.002	2.5
3.80	0	836.599998	0.004	2.5
3.80	-10	836.600005	-0.005	2.5
3.80	-20	836.600007	-0.007	2.5
3.80	-30	836.600003	-0.002	2.5

Reference Frequency: Cellular Mid Channel 836.600001MHz @ 20°C				
Limit: to stay +- 2.5 ppm = 2091.500 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
<b>3.80</b>	<b>20</b>	<b>836.600001</b>	<b>0</b>	<b>2.5</b>
4.30	20	836.600001	0.000	2.5
3.30	20	836.599998	0.004	2.5

**PCS, CDMA MODULATION – MID CHANNEL BC 1**

Reference Frequency: PCS Mid Channel 1880.000036MHz @ 20°C				
Limit: within the authorized block or +/- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (*C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1880.000011	0.000	2.5
3.80	40	1880.000009	0.001	2.5
3.80	30	1880.000001	0.001	2.5
<b>3.80</b>	<b>20</b>	<b>1880.000011</b>	<b>0</b>	<b>2.5</b>
3.80	10	1880.000010	0.001	2.5
3.80	0	1880.000009	0.001	2.5
3.80	-10	1880.000009	0.001	2.5
3.80	-20	1880.000009	0.001	2.5
3.80	-30	1880.000012	-0.001	2.5

Reference Frequency: PCS Mid Channel 1880.000004MHz @ 20°C				
Limit: within the authorized block or +/- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (*C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
<b>3.80</b>	<b>20</b>	<b>1880.000011</b>	<b>0.00000</b>	<b>2.5</b>
4.30	20	1880.000014	-0.00160	2.5
3.30	20	1880.000014	-0.00160	2.5

**LTE41 Channel 40620 Freq: 2593 MHz– MID CHANNEL**

Reference Frequency: LTE41 Channel 40620 Freq : 2593 MHz @ 20°C Limit: to stay +- 2.5 ppm = 6482.500 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	2593.000031	-0.002	2.5
3.80	40	2593.000032	-0.002	2.5
3.80	30	2593.000021	0.002	2.5
<b>3.80</b>	<b>20</b>	2593.000026	<b>0</b>	<b>2.5</b>
3.80	10	2593.000032	-0.002	2.5
3.80	0	2593.000018	0.003	2.5
3.80	-10	2593.000021	0.002	2.5
3.80	-20	2593.000023	0.001	2.5
3.80	-30	2592.999862	0.063	2.5
Reference Frequency: LTE41 Channel 40620 Freq : 2593 MHz @ 20°C Limit: to stay +- 2.5 ppm = 6482.500 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
<b>3.80</b>	<b>20</b>	2593.000026	<b>0</b>	<b>2.5</b>
3.30	20	2592.999913	0.044	2.5
4.30	20	2593.000017	0.004	2.5

**LTE26 Channel 26864 Freq: 831.5 MHz– MID CHANNEL**

Reference Frequency: LTE26 Channel 26864 Freq : 831.5 MHz @ 20°C Limit: to stay +- 2.5 ppm = 2078.75 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	831.500004	0.002	2.5
3.80	40	831.500003	0.004	2.5
3.80	30	831.500007	-0.001	2.5
<b>3.80</b>	<b>20</b>	831.500006	<b>0</b>	<b>2.5</b>
3.80	10	831.500014	-0.010	2.5
3.80	0	831.500013	-0.008	2.5
3.80	-10	831.500011	-0.006	2.5
3.80	-20	831.500008	-0.003	2.5
3.80	-30	831.500007	-0.001	2.5
Reference Frequency: LTE26 Channel 26864 Freq : 831.5 MHz @ 20°C Limit: to stay +- 2.5 ppm = 2078.75 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
<b>3.80</b>	<b>20</b>	831.500012	<b>0</b>	<b>2.5</b>
3.30	20	831.500013	-0.001	2.5
4.30	20	831.499986	0.032	2.5

**LTE25 Channel 26364 Freq: 1882.5 MHz– MID CHANNEL**

Reference Frequency: LTE25 Channel 26364 Freq : 1882.5 MHz @ 20°C				
Limit: to stay +- 2.5 ppm = 4706.25 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1882.499991	-0.001	2.5
3.80	40	1882.499991	-0.001	2.5
3.80	30	1882.499991	-0.001	2.5
<b>3.80</b>	<b>20</b>	1882.499989	<b>0</b>	<b>2.5</b>
3.80	10	1882.499989	0.000	2.5
3.80	0	1882.499990	0.000	2.5
3.80	-10	1882.499989	0.000	2.5
3.80	-20	1882.499990	-0.001	2.5
3.80	-30	1882.499990	0.000	2.5
Reference Frequency: LTE25 Channel 26364 Freq : 1882.5 MHz @ 20°C				
Limit: to stay +- 2.5 ppm = 4706.25 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
<b>3.80</b>	<b>20</b>	1882.499989	<b>0</b>	<b>2.5</b>
3.30	20	1882.499989	0.000	2.5
4.30	20	1882.499990	0.000	2.5

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## 11. RADIATED TEST RESULTS

### 11.1. RADIATED POWER (ERP & EIRP)

#### RULE PART(S)

FCC: §2.1046, §22.913, §24.232, and § 90.635.

#### LIMITS

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

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

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

#### TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17

#### MODES TESTED

CDMA BC0, CDMA BC1, CDMA BC10, LTE Band 25, LTE Band 26, LTE Band 41

#### TEST RESULTS

##### 11.1.1. ERP/EIRP Results

**CDMA BC1**

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
BC1	1xRTT	25	1851.25	24.47	279.90
		600	1880	25.65	367.28
		1175	1908.75	22.98	198.61
	EVDO REL. 0	25	1851.25	25.32	340.41
		600	1880	25.97	395.37
		1175	1908.75	23.44	220.8

**CDMA BC0**

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
BC0	1xRTT	1013	824.7	23.835	241.82
		384	836.52	23.425	220.04
		777	848.31	23.575	227.77
	EVDO REL. 0	1013	824.7	22.74	187.93
		384	836.52	23.761	237.74
		777	848.31	23.03	200.91

**CDMA BC10**

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
BC10	1xRTT	476	817.9	23.869	243.72
		580	820.5	24.179	261.76
		684	823.1	23.753	237.3
	EVDO REL. 0	476	817.9	23.53	225.42
		580	820.5	23.21	209.41
		684	823.1	23.07	202.77

### 11.1.2. LTE ERP/EIRP Results

#### LTE Band 41

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE41	20	QPSK	1/0	2506	20.61	115.08
			1/0	2593	21.53	142.23
			1/0	2680	21.21	132.13
		16QAM	1/0	2506	20.25	105.93
			1/0	2593	20.93	123.88
			1/0	2680	20.41	109.9

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE41	15	QPSK	1/0	2503.5	21.61	144.88
			1/0	2593	21.45	139.64
			1/0	2682.5	21.5	141.25
		16QAM	1/0	2503.5	21.01	126.18
			1/0	2593	20.86	121.9
			1/0	2682.5	20.54	113.24

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE41	10	QPSK	1/0	2501	21.31	135.21
			1/0	2593	20.55	113.5
			1/0	2685	21.06	127.64
		16QAM	1/0	2501	19.81	95.72
			1/0	2593	20.82	120.78
			1/0	2685	20.05	101.16

**LTE Band 26**

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	10	QPSK	1/0	819	20.207	104.88
			1/0	831.5	19.851	96.63
			1/0	844	18.54	71.45
		16QAM	1/0	819	19.347	86.04
			1/0	831.5	19.051	80.37
			1/0	844	19.36	86.3

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	5	QPSK	1/0	816.5	20.067	101.55
			1/0	831.5	19.821	95.96
			1/0	846.5	19.13	81.85
		16QAM	1/0	816.5	19.077	80.85
			1/0	831.5	18.951	78.54
			1/0	846.5	18.32	67.92

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	3	QPSK	1/0	815.5	20.327	107.82
			1/0	831.5	19.181	82.81
			1/0	847.5	18.36	68.55
		16QAM	1/0	815.5	19.267	84.47
			1/0	831.5	18.061	63.99
			1/0	847.5	17.53	56.62

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	1.4	QPSK	1/0	814.7	19.647	92.19
			1/0	831.5	19.541	89.97
			1/0	848.3	18.94	78.34
		16QAM	1/0	814.7	18.737	74.77
			1/0	831.5	18.591	72.29
			1/0	848.3	18.19	65.92

**LTE Band 25**

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE25	10	QPSK	1/0	1855	22.55	179.71
			1/0	1882.5	21.70	147.99
			1/0	1910	22.49	177.3
		16QAM	1/0	1855	22.44	175.21
			1/0	1882.5	20.98	125.35
			1/0	1910	21.29	134.5

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE25	5	QPSK	1/0	1852.5	22.68	185.35
			1/0	1882.5	22.33	171.00
			1/0	1912.5	22.07	161.06
		16QAM	1/0	1852.5	21.63	145.55
			1/0	1882.5	21.19	131.52
			1/0	1912.5	20.98	125.31

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE25	3	QPSK	1/0	1851.5	22.21	166.25
			1/0	1882.5	22.18	165.28
			1/0	1913.5	21.95	156.57
		16QAM	1/0	1851.5	21.36	136.7
			1/0	1882.5	21.66	146.63
			1/0	1913.5	21.08	128.15

### 11.1.3. ERP/EIRP PLOTS

#### LTE Band 41

Band LTE41 20MHz 16QAM	<b>High Frequency Substitution Measurement</b> <b>UL Verification Services, Inc. Chamber C</b>								
	<b>Company: LG Electronics</b> <b>Project #: 14U18147</b> <b>Date: 06.24.2014</b> <b>Test Engineer: Bob Liu</b> <b>Configuration: EUT ONLY / X-orientation</b> <b>Mode: LTE B41 20MHz 16QAM</b>								
	<b>Test Equipment:</b> <b>Receiving: Horn T119, and Chamber C SMA Cables</b> <b>Substitution: Horn T60 Substitution, 4ft SMA Cable Warehouse</b>								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
	<b>Low Ch</b>								
	2506.00	9.47	V	0.9	9.5	18.12	33.0	-14.9	
	2506.00	11.60	H	0.9	9.5	20.25	33.0	-12.8	
	<b>Mid Ch</b>								
	2593.00	10.66	V	0.9	9.5	19.31	33.0	-13.7	
	2593.00	12.28	H	0.9	9.5	20.93	33.0	-12.1	
	<b>High Ch</b>								
	2680.00	9.06	V	0.9	9.6	17.81	33.0	-15.2	
2680.00	11.66	H	0.9	9.6	20.41	33.0	-12.6		
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

Band  LTE41  20MHz  QPSK	<b>High Frequency Substitution Measurement</b> <b>UL Verification Services, Inc. Chamber C</b>								
	<b>Company: LG Electronics</b> <b>Project #: 14U18147</b> <b>Date: 06.24.2014</b> <b>Test Engineer: Bob Liu</b> <b>Configuration: EUT ONLY / X-orientation</b> <b>Mode: LTE B41 20MHz QPSK</b>								
	<b>Test Equipment:</b> Receiving: Horn T119, and Chamber C SMA Cables Substitution: Horn T60 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
	<b>Low Ch</b>								
	2506.00	9.97	V	0.9	9.5	18.62	33.0	-14.4	
	2506.00	11.96	H	0.9	9.5	20.61	33.0	-12.4	
	<b>Mid Ch</b>								
	2593.00	11.23	V	0.9	9.5	19.88	33.0	-13.1	
	2593.00	12.88	H	0.9	9.5	21.53	33.0	-11.5	
<b>High Ch</b>									
2680.00	9.30	V	0.9	9.6	18.05	33.0	-15.0		
2680.00	12.46	H	0.9	9.6	21.21	33.0	-11.8		
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

Band  LTE41  15MHz  16QAM	<b>High Frequency Substitution Measurement</b> <b>UL Verification Services, Inc. Chamber C</b>								
	Company: <b>LG Electronics</b> Project #: <b>14U18147</b> Date: <b>06.24.2014</b> Test Engineer: <b>Bob Liu</b> Configuration: <b>EUT ONLY / X-orientation</b> Mode: <b>LTE B41 15MHz 16QAM</b>								
	<b>Test Equipment:</b> Receiving: <b>Horn T72, and Chamber C SMA Cables</b> Substitution: <b>Horn T60 Substitution, 4ft SMA Cable Warehouse</b>								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
	Low Ch								
	2503.50	9.26	V	0.9	9.5	17.91	33.0	-15.1	
	2503.50	12.36	H	0.9	9.5	21.01	33.0	-12.0	
	Mid Ch								
	2593.00	8.12	V	0.9	9.5	16.77	33.0	-16.2	
	2593.00	12.21	H	0.9	9.5	20.86	33.0	-12.1	
High Ch									
2682.50	8.32	V	0.9	9.6	17.07	33.0	-15.9		
2682.50	11.79	H	0.9	9.6	20.54	33.0	-12.5		
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

Band  LTE41  15MHz  QPSK	<b>High Frequency Substitution Measurement</b> <b>UL Verification Services, Inc. Chamber C</b>								
	<b>Company: LG Electronics</b> <b>Project #: 14U18147</b>								
	<b>Test Engineer: Bob Liu</b> <b>Configuration: EUT ONLY / X-orientation</b> <b>Mode: LTE B41 15MHz QPSK</b>								
	<b>Test Equipment:</b> Receiving: Horn T119, and Chamber C SMA Cables Substitution: Horn T60 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								
	2503.50	9.71	V	0.9	9.5	18.36	33.0	-14.6	
	2503.50	12.96	H	0.9	9.5	21.61	33.0	-11.4	
	Mid Ch								
	2593.00	8.45	V	0.9	9.5	17.10	33.0	-15.9	
2593.00	12.80	H	0.9	9.5	21.45	33.0	-11.6		
High Ch									
2682.50	9.55	V	0.9	9.6	18.30	33.0	-14.7		
2682.50	12.75	H	0.9	9.6	21.50	33.0	-11.5		
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

Band  LTE41  10MHz  16QAM	<b>High Frequency Substitution Measurement</b> <b>UL Verification Services, Inc. Chamber C</b>								
	Company: LG Electronics Project #: 14U18147 Date: 6-24-2014 Test Engineer: M. Zarin Configuration: EUT ONLY / X-orientation Mode: LTE B41 10MHz 16QAM								
	<b>Test Equipment:</b> Receiving: Horn T119, and Chamber C SMA Cables Substitution: Horn T60 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								
	2501.00	8.09	V	0.9	9.5	16.74	33.0	-16.3	
	2501.00	11.16	H	0.9	9.5	19.81	33.0	-13.2	
	Mid Ch								
	2593.00	8.10	V	0.9	9.5	16.75	33.0	-16.3	
	2593.00	12.17	H	0.9	9.5	20.82	33.0	-12.2	
	High Ch								
	2685.00	10.97	V	0.9	9.6	19.72	33.0	-13.3	
	2685.00	11.30	H	0.9	9.6	20.05	33.0	-13.0	
	Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm								

Band  LTE41  10MHz  QPSK	<b>High Frequency Substitution Measurement</b> <b>UL Verification Services, Inc. Chamber C</b>								
	Company: LG Electronics Project #: 14U18147 Date: 6/24/2014 Test Engineer: Bob Liu Configuration: EUT ONLY / X-orientation Mode: LTE B41 10MHz QPSK								
	<b>Test Equipment:</b> Receiving: Horn T119, and Chamber C SMA Cables Substitution: Horn T60 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								
	2501.00	9.46	V	0.9	9.5	18.11	33.0	-14.9	
	2501.00	12.66	H	0.9	9.5	21.31	33.0	-11.7	
	Mid Ch								
	2593.00	11.20	V	0.9	9.5	19.85	33.0	-13.2	
	2593.00	11.90	H	0.9	9.5	20.55	33.0	-12.5	
High Ch									
2685.00	10.18	V	0.9	9.6	18.93	33.0	-14.1		
2685.00	12.31	H	0.9	9.6	21.06	33.0	-11.9		
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									





	<p><b>High Frequency Substitution Measurement</b>  <b>Compliance Certification Services Chamber C</b></p>								
	<p><b>Company:</b> LG  <b>Project #:</b> 14U18147  <b>Date:</b> 06/24/14  <b>Test Engineer:</b> K.Huynh  <b>Configuration:</b> EUT only  <b>Mode:</b> LTE band 26, 5MHz BW  16QAM, Average, RB1-0</p>								
Band	<p><b>Test Equipment:</b>  Receiving: Sunoi T243, and Chamber C Cable (Setup this one for testing EUT)  Substitution: Dipole S/N: 00022117, 8ft SMA Cable (SN # 208955002) Warehouse.</p>								
LTE26									
5MHz									
16QAM									
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
	Low Ch								
	816.50	11.34	V	0.9	0.0	10.44	38.5	-28.0	
	816.50	19.98	H	0.9	0.0	19.08	38.5	-19.4	
	Mid Ch								
	831.50	12.17	V	0.9	0.0	11.27	38.5	-27.2	
	831.50	19.85	H	0.9	0.0	18.95	38.5	-19.5	
	High Ch								
	846.50	10.14	V	0.9	0.0	9.24	38.5	-29.2	
	846.50	19.22	H	0.9	0.0	18.32	38.5	-20.1	
	Rev. 3.17.11								

Band  LTE26  5MHz  QPSK	<b>High Frequency Substitution Measurement                  Compliance Certification Services Chamber C</b>								
	<b>Company:</b> LG <b>Project #:</b> 14U18147 <b>Date:</b> 06/24/14 <b>Test Engineer:</b> K.Huynh <b>Configuration:</b> EUT only <b>Mode:</b> LTE band 26, 5MHz BW QPSK, Average, RB1-0								
	<b>Test Equipment:</b> Receiving: Sunoi T243, and Chamber C Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00022117, 8ft SMA Cable (SN # 208955002) Warehouse.								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
	Low Ch								
	816.50	12.18	V	0.9	0.0	11.28	38.5	-27.2	
	816.50	20.97	H	0.9	0.0	20.07	38.5	-18.4	
	Mid Ch								
	831.50	13.04	V	0.9	0.0	12.14	38.5	-26.3	
	831.50	20.72	H	0.9	0.0	19.82	38.5	-18.6	
High Ch									
846.50	11.03	V	0.9	0.0	10.13	38.5	-28.3		
846.50	20.03	H	0.9	0.0	19.13	38.5	-19.3		
Rev. 3.17.11									



Band  LTE26  3MHz  QPSK	<b>High Frequency Substitution Measurement Compliance Certification Services Chamber C</b>								
	<b>Company:</b> LG								
	<b>Project #:</b> 14U18147								
	<b>Date:</b> 06/24/14								
	<b>Test Engineer:</b> K.Huynh								
	<b>Configuration:</b> EUT only								
	<b>Mode:</b> LTE band 26, 3MHz BW QPSK, Peak, RB1-0								
	<b>Test Equipment:</b>								
	Receiving: Sunoi T243, and Chamber C Cable (Setup this one for testing EUT)								
	Substitution: Dipole S/N: 00022117, 8ft SMA Cable (SN # 208955002) Warehouse.								
	<b>f</b> <b>MHz</b>	<b>SG reading</b> <b>(dBm)</b>	<b>Ant. Pol.</b> <b>(H/V)</b>	<b>Cable Loss</b> <b>(dB)</b>	<b>Antenna Gain</b> <b>(dBd)</b>	<b>ERP</b> <b>(dBm)</b>	<b>Limit</b> <b>(dBm)</b>	<b>Margin</b> <b>(dB)</b>	<b>Notes</b>
	Low Ch								
	815.50	13.51	V	0.9	0.0	12.61	38.5	-25.8	
	815.50	21.23	H	0.9	0.0	20.33	38.5	-18.1	
	Mid Ch								
	831.50	12.33	V	0.9	0.0	11.43	38.5	-27.0	
	831.50	20.08	H	0.9	0.0	19.18	38.5	-19.3	
	High Ch								
	847.50	10.21	V	0.9	0.0	9.31	38.5	-29.1	
	847.50	19.26	H	0.9	0.0	18.36	38.5	-20.1	
	Rev. 3.17.11								

Band  LTE26  1.4MHz  16QAM	<b>High Frequency Substitution Measurement                  Compliance Certification Services Chamber C</b>																																																																																																	
	<b>Company:</b> LG																																																																																																	
	<b>Project #:</b> 14U18147																																																																																																	
	<b>Date:</b> 06/24/14																																																																																																	
	<b>Test Engineer:</b> K.Huynh																																																																																																	
	<b>Configuration:</b> EUT only																																																																																																	
	<b>Mode:</b> LTE band 26, 1.4MHz BW 16QAM, Average, RB1-0																																																																																																	
	<b>Test Equipment:</b>																																																																																																	
	Receiving: Sunoi T185, and Chamber C Cable (Setup this one for testing EUT)																																																																																																	
	Substitution: Dipole S/N: 00022117, 8ft SMA Cable (SN # 208955002) Warehouse.																																																																																																	
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Band  LTE26  1.4MHz  QPSK	<b>High Frequency Substitution Measurement                  Compliance Certification Services Chamber C</b>																																																																																																	
	<b>Company:</b> LG																																																																																																	
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Rev. 3.17.11																																																																																																		

**LTE Band 25**

Band  LTE25  10MHz  16QAM	<b>High Frequency Fundamental Measurement Compliance Certification Services Chamber A</b>								
	<b>Company:</b>		LG						
	<b>Project #:</b>		14U18147						
	<b>Date:</b>		06/24/14						
	<b>Test Engineer:</b>		O. Stoelting						
	<b>Configuration:</b>		X-pos EUT						
	<b>Mode:</b>		LTE band 25, 10MHz BW 16QAM						
	<b>Test Equipment:</b>		Receiving: Horn T136, and Chamber A Cable (Setup this one for testing EUT) Substitution: Horn T344 Substitution, 5ft (#16795) SMA Cable Warehouse						
	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	<b>Low Ch</b>								
	1.855	17.2	V	0.85	5.18	21.52	33.0	-11.5	
	1.855	18.1	H	0.85	5.18	22.44	33.0	-10.6	
	<b>Mid Ch</b>								
	1.883	16.8	V	0.85	5.01	20.98	33.0	-12.0	
	1.883	15.9	H	0.85	5.01	20.10	33.0	-12.9	
<b>High Ch</b>									
1.910	17.2	V	0.85	4.96	21.29	33.0	-11.7		
1.910	17.2	H	0.85	4.96	21.28	33.0	-11.7		

Band  LTE25  10MHz  QPSK	<b>High Frequency Fundamental Measurement Compliance Certification Services Chamber A</b>																																																																																																	
	<b>Company:</b>		LG																																																																																															
	<b>Project #:</b>		14U18147																																																																																															
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Band  LTE25  5MHz  16QAM	<b>High Frequency Fundamental Measurement Compliance Certification Services Chamber A</b>								
	<b>Company:</b>		LG						
	<b>Project #:</b>		14U18147						
	<b>Date:</b>		06/24/14						
	<b>Test Engineer:</b>		O. Stoelling						
	<b>Configuration:</b>		X-pos EUT						
	<b>Mode:</b>		LTE band 25, 5MHz BW 16QAM						
	<b>Test Equipment:</b>		Receiving: Horn T136, and Chamber A Cable (Setup this one for testing EUT) Substitution: Horn T344 Substitution, 5ft (#16795) SMA Cable Warehouse						
	<b>f</b>	<b>SG reading</b>	<b>Ant. Pol.</b>	<b>Cable Loss</b>	<b>Antenna Gain</b>	<b>EIRP</b>	<b>Limit</b>	<b>Delta</b>	<b>Notes</b>
	<b>GHz</b>	<b>(dBm)</b>	<b>(H/V)</b>	<b>(dB)</b>	<b>(dBi)</b>	<b>(dBm)</b>	<b>(dBm)</b>	<b>(dB)</b>	
	<b>Low Ch</b>								
	1.853	16.7	V	0.85	5.18	21.00	33.0	-12.0	
	1.853	17.3	H	0.85	5.18	21.63	33.0	-11.4	
	<b>Mid Ch</b>								
	1.883	15.9	V	0.85	5.01	20.04	33.0	-13.0	
1.883	17.0	H	0.85	5.01	21.19	33.0	-11.8		
<b>High Ch</b>									
1.913	16.9	V	0.85	4.96	20.98	33.0	-12.0		
1.913	16.9	H	0.85	4.96	20.98	33.0	-12.0		

Band  LTE25  5MHz  QPSK	<b>High Frequency Fundamental Measurement                  Compliance Certification Services Chamber A</b>								
	<b>Company:</b> LG								
	<b>Project #:</b> 14U18147								
	<b>Date:</b> 06/24/14								
	<b>Test Engineer:</b> O. Stoelling								
	<b>Configuration:</b> X-pos EUT								
	<b>Mode:</b> LTE band 25, 5MHz BW QPSK								
	<b>Test Equipment:</b>								
	Receiving: Horn T136, and Chamber A Cable (Setup this one for testing EUT)								
	Substitution: Horn T344 Substitution, 5ft (#16795) SMA Cable Warehouse								
	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch								
	1.853	17.3	V	0.85	5.18	21.63	33.0	-11.4	
	1.853	18.3	H	0.85	5.18	22.68	33.0	-10.3	
	Mid Ch								
1.883	16.8	V	0.85	5.01	20.96	33.0	-12.0		
1.883	18.2	H	0.85	5.01	22.33	33.0	-10.7		
High Ch									
1.913	18.0	V	0.85	4.96	22.07	33.0	-10.9		
1.913	17.4	H	0.85	4.96	21.53	33.0	-11.5		



Band  LTE25  3MHz  QPSK	<b>High Frequency Fundamental Measurement Compliance Certification Services Chamber A</b>																																																																																																	
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	<b>Test Equipment:</b>		Receiving: Horn T136, and Chamber A Cable (Setup this one for testing EUT)																																																																																															
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<table border="1"> <thead> <tr> <th>f GHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>EIRP (dBm)</th> <th>Limit (dBm)</th> <th>Delta (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td colspan="9"><b>Low Ch</b></td> </tr> <tr> <td>1.852</td> <td>17.9</td> <td>V</td> <td>0.85</td> <td>5.18</td> <td>22.21</td> <td>33.0</td> <td>-10.8</td> <td></td> </tr> <tr> <td>1.852</td> <td>17.8</td> <td>H</td> <td>0.85</td> <td>5.18</td> <td>22.14</td> <td>33.0</td> <td>-10.9</td> <td></td> </tr> <tr> <td colspan="9"><b>Mid Ch</b></td> </tr> <tr> <td>1.883</td> <td>17.2</td> <td>V</td> <td>0.85</td> <td>5.01</td> <td>21.40</td> <td>33.0</td> <td>-11.6</td> <td></td> </tr> <tr> <td>1.883</td> <td>18.0</td> <td>H</td> <td>0.85</td> <td>5.01</td> <td>22.18</td> <td>33.0</td> <td>-10.8</td> <td></td> </tr> <tr> <td colspan="9"><b>High Ch</b></td> </tr> <tr> <td>1.914</td> <td>17.8</td> <td>V</td> <td>0.85</td> <td>4.96</td> <td>21.95</td> <td>33.0</td> <td>-11.1</td> <td></td> </tr> <tr> <td>1.914</td> <td>17.4</td> <td>H</td> <td>0.85</td> <td>4.96</td> <td>21.55</td> <td>33.0</td> <td>-11.5</td> <td></td> </tr> </tbody> </table>									f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	<b>Low Ch</b>									1.852	17.9	V	0.85	5.18	22.21	33.0	-10.8		1.852	17.8	H	0.85	5.18	22.14	33.0	-10.9		<b>Mid Ch</b>									1.883	17.2	V	0.85	5.01	21.40	33.0	-11.6		1.883	18.0	H	0.85	5.01	22.18	33.0	-10.8		<b>High Ch</b>									1.914	17.8	V	0.85	4.96	21.95	33.0	-11.1		1.914	17.4	H	0.85	4.96	21.55	33.0	-11.5	
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**CDMA BC1**

Band BC1 EVDO REL. 0	<b>High Frequency Fundamental Measurement Compliance Certification Services Chamber C</b>								
	<b>Company:</b>		LG						
	<b>Project #:</b>		14U18147						
	<b>Date:</b>		06/24/14						
	<b>Test Engineer:</b>		Bob Liu						
	<b>Configuration:</b>		EUT only						
	<b>Mode:</b>		CDMA EVDOR0 BC1						
	<b>Test Equipment:</b>								
	Receiving: T120, and Chamber F SMA Cables								
	Substitution: Horn T59 Substitution, 4ft SMA Cable (244640002) Warehouse								
	<b>f GHz</b>	<b>SG reading (dBm)</b>	<b>Ant. Pol. (H/V)</b>	<b>Cable Loss (dB)</b>	<b>Antenna Gain (dBi)</b>	<b>EIRP (dBm)</b>	<b>Limit (dBm)</b>	<b>Delta (dB)</b>	<b>Notes</b>
	<b>Low Ch</b>								
	1.851	17.8	V	0.85	4.40	21.35	33.0	-11.7	
	1.851	21.8	H	0.85	4.40	25.32	33.0	-7.7	
	<b>Mid Ch</b>								
	1.880	15.9	V	0.85	4.40	19.45	33.0	-13.6	
	1.880	22.4	H	0.85	4.40	25.97	33.0	-7.0	
	<b>High Ch</b>								
	1.909	17.0	V	0.85	4.40	20.51	33.0	-12.5	
	1.909	19.9	H	0.85	4.40	23.44	33.0	-9.6	
	Rev. 3.17.11								

Band  BC1  1xRTT	<b>High Frequency Fundamental Measurement Compliance Certification Services Chamber B</b>																																																																																																
	<b>Company:</b>		LG																																																																																														
	<b>Project #:</b>		14U18147																																																																																														
	<b>Date:</b>		06/24/14																																																																																														
	<b>Test Engineer:</b>		K.Huynh																																																																																														
	<b>Configuration:</b>		EUT, X Position																																																																																														
	<b>Mode:</b>		CDMA RTT 1900MHz																																																																																														
	<b>Test Equipment:</b>																																																																																																
	Receiving: T345, and Chamber B SMA Cables																																																																																																
	Substitution: Horn T72 Substitution, 4ft SMA Cable (244639001) Warehouse																																																																																																
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**CDMA BC0**

Band BC0 EVDO REL. 0	<b>High Frequency Substitution Measurement Compliance Certification Services Chamber C</b>																																																																																																	
	<b>Company:</b> LG																																																																																																	
	<b>Project #:</b> 14U18147																																																																																																	
	<b>Date:</b> 06/24/14																																																																																																	
	<b>Test Engineer:</b> Bob Liu																																																																																																	
	<b>Configuration:</b> EUT only																																																																																																	
	<b>Mode:</b> EVDO 0 BC0																																																																																																	
	<b>Test Equipment:</b> Receiving: Sunol T243, and Chamber C Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00022117, 8ft SMA Cable (SN # 208955002) Warehouse.																																																																																																	
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Band BC0 1xRTT	<b>High Frequency Substitution Measurement Compliance Certification Services Chamber C</b>																																																																																																
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**CDMA BC10**

Band BC10 EVDO REL. 0	<b>High Frequency Substitution Measurement Compliance Certification Services Chamber C</b>																																																																																																
	<b>Company:</b>		LG																																																																																														
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Rev. 3.17.11																																																																																																	

Band  BC10  1xRTT	<b>High Frequency Substitution Measurement Compliance Certification Services Chamber C</b>																																																																																																
	<b>Company:</b>		LG																																																																																														
	<b>Project #:</b>		14U18147																																																																																														
	<b>Date:</b>		06/24/14																																																																																														
	<b>Test Engineer:</b>		K.Huynh																																																																																														
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	<b>Mode:</b>		CDMA RTT BC10																																																																																														
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Rev. 3.17.11																																																																																																	

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## 11.2. FIELD STRENGTH OF SPURIOUS RADIATION

### **RULE PART(S)**

FCC: §2.1053, §22.917, §24.238, and §90.691

### **LIMIT**

§22.917 (e) and §24.238 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB

### **TEST PROCEDURE**

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

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

### **MODES TESTED**

CDMA BC0, CDMA BC1, CDMA BC10, LTE Band 25, LTE Band 26, LTE Band 41

### **RESULTS**

### 11.2.1. SPURIOUS RADIATION PLOTS

#### CDMA BC1

**Compliance Certification Services**  
**Above 1GHz High Frequency Substitution Measurement**

**Company:** LG  
**Project #:** 14U17849  
**Date:** 06.25.2014  
**Test Engineer:** Bob Liu  
**Configuration:** EUT with AC adapter & HS  
**Mode:** EVDO BC01 HARM

**Chamber**  
 3m Chamber C

**Pre-amplifier**  
 T343 8449B

**Filter**  
 Filter 1

**Limit**  
 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
	<b>Low Ch, 1851.25MHz</b>									
BC1	3.703	-19.0	V	3.0	35.4	1.0	-53.4	-13.0	-40.4	
	5.554	-16.8	V	3.0	34.7	1.0	-50.5	-13.0	-37.5	
EVDO REL. 0	7.405	-12.6	V	3.0	34.9	1.0	-46.5	-13.0	-33.5	
	3.703	-19.8	H	3.0	35.4	1.0	-54.2	-13.0	-41.2	
	5.554	-16.1	H	3.0	34.7	1.0	-49.8	-13.0	-36.8	
	7.405	-11.3	H	3.0	34.9	1.0	-45.2	-13.0	-32.2	
	<b>Mid Ch, 1880.0MHz</b>									
	3.760	-19.0	V	3.0	35.3	1.0	-53.4	-13.0	-40.4	
	5.640	-16.3	V	3.0	34.7	1.0	-50.1	-13.0	-37.1	
	7.520	-13.2	V	3.0	34.9	1.0	-47.2	-13.0	-34.2	
	3.760	-19.6	H	3.0	35.3	1.0	-53.9	-13.0	-40.9	
	5.640	-15.2	H	3.0	34.7	1.0	-48.9	-13.0	-35.9	
	7.520	-11.6	H	3.0	34.9	1.0	-45.5	-13.0	-32.5	
	<b>High Ch, 1908.75 MHz</b>									
	3.818	-19.0	V	3.0	35.3	1.0	-53.2	-13.0	-40.2	
	5.726	-14.8	V	3.0	34.7	1.0	-48.6	-13.0	-35.6	
	7.635	-12.1	V	3.0	34.9	1.0	-46.0	-13.0	-33.0	
	3.818	-15.7	H	3.0	35.3	1.0	-49.9	-13.0	-36.9	
	5.726	-14.7	H	3.0	34.7	1.0	-48.4	-13.0	-35.4	
	7.635	-11.2	H	3.0	34.9	1.0	-45.1	-13.0	-32.1	

Rev. 03.03.09

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

**Compliance Certification Services**  
**Above 1GHz High Frequency Substitution Measurement**

**Company:** LG  
**Project #:** 14U17849  
**Date:** 06.25.2014  
**Test Engineer:** Bob Liu  
**Configuration:** EUT with AC charger & HS  
**Mode:** RTT BC1

**Chamber**

3m Chamber

**Pre-amplifer**

T34 8449B

**Filter**

Filter 1

**Limit**

Part 24

	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Band  BC1  1xRTT	<b>Low Ch, 1851.25 MHz</b>									
	3.703	-20.9	V	3.0	35.4	1.0	-55.3	-13.0	-42.3	
	5.554	-18.1	V	3.0	34.7	1.0	-51.9	-13.0	-38.9	
	7.405	-15.4	V	3.0	34.9	1.0	-49.3	-13.0	-36.3	
	3.703	-21.7	H	3.0	35.4	1.0	-56.1	-13.0	-43.1	
	5.554	-17.3	H	3.0	34.7	1.0	-51.0	-13.0	-38.0	
	7.405	-14.6	H	3.0	34.9	1.0	-48.5	-13.0	-35.5	
	<b>Mid Ch, 1880 MHz</b>									
	3.760	-16.1	V	3.0	35.3	1.0	-50.5	-13.0	-37.5	
	5.640	-16.8	V	3.0	34.7	1.0	-50.5	-13.0	-37.5	
	7.520	-14.8	V	3.0	34.9	1.0	-48.8	-13.0	-35.8	
	3.760	-19.5	H	3.0	35.3	1.0	-53.9	-13.0	-40.9	
	5.640	-17.1	H	3.0	34.7	1.0	-50.8	-13.0	-37.8	
	7.520	-14.3	H	3.0	34.9	1.0	-48.3	-13.0	-35.3	
	<b>High Ch, 1908.75 MHz</b>									
	3.818	-20.3	V	3.0	35.3	1.0	-54.6	-13.0	-41.6	
	5.726	-16.3	V	3.0	34.7	1.0	-50.0	-13.0	-37.0	
	7.635	-16.0	V	3.0	34.9	1.0	-50.0	-13.0	-37.0	
	3.818	-19.7	H	3.0	35.3	1.0	-54.0	-13.0	-41.0	
	5.726	-16.0	H	3.0	34.7	1.0	-49.8	-13.0	-36.8	
	7.635	-15.0	H	3.0	34.9	1.0	-48.9	-13.0	-35.9	

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

**CDMA BC0**

**Compliance Certification Services**  
**Above 1GHz High Frequency Substitution Measurement**

**Company:** LG  
**Project #:** 14U17849  
**Date:** 06.25.2014  
**Test Engineer:** Bob Liu  
**Configuration:** EUT with AC adapter & HS  
**Mode:** EVDOR0 BC0 HARM

**Chamber**

3m Chamber

**Pre-amplifier**

T343 8449B

**Filter**

Filter 1

**Limit**

3m Chamber C

	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Band	Low Ch, 824.7MHz									
	1.650	-25.6	V	3.0	37.4	1.0	-62.0	-13.0	-49.0	
	2.474	-20.2	V	3.0	36.4	1.0	-55.6	-13.0	-42.6	
BC0	3.298	-21.3	V	3.0	35.8	1.0	-56.1	-13.0	-43.1	
	1.650	-26.4	H	3.0	37.4	1.0	-62.7	-13.0	-49.7	
EVDO	2.474	-25.4	H	3.0	36.4	1.0	-60.8	-13.0	-47.8	
	3.298	-22.5	H	3.0	35.8	1.0	-57.3	-13.0	-44.3	
REL. 0	Mid Ch, 836.52MHz									
	1.673	-27.7	V	3.0	37.3	1.0	-64.0	-13.0	-51.0	
	2.509	-23.0	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
	3.346	-22.4	V	3.0	35.8	1.0	-57.1	-13.0	-44.1	
	1.673	-25.1	H	3.0	37.3	1.0	-61.5	-13.0	-48.5	
	2.509	-23.6	H	3.0	36.4	1.0	-59.0	-13.0	-46.0	
	3.346	-22.6	H	3.0	35.8	1.0	-57.3	-13.0	-44.3	
	High Ch, 848.31 MHz									
	1.696	-28.6	V	3.0	37.3	1.0	-64.9	-13.0	-51.9	
	2.544	-20.5	V	3.0	36.3	1.0	-55.9	-13.0	-42.9	
3.393	-21.9	V	3.0	35.7	1.0	-56.6	-13.0	-43.6		
1.696	-26.1	H	3.0	37.3	1.0	-62.4	-13.0	-49.4		
2.544	-19.7	H	3.0	36.3	1.0	-55.0	-13.0	-42.0		
3.393	-19.5	H	3.0	35.7	1.0	-54.2	-13.0	-41.2		

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

**Compliance Certification Services**  
**Above 1GHz High Frequency Substitution Measurement**

**Company:** LG  
**Project #:** 14U17849  
**Date:** 06.25.2014  
**Test Engineer:** Bob Liu  
**Configuration:** EUT with AC charger & HS  
**Mode:** RTT BC0

Chamber

Pre-amplifier

Filter

Limit

3m Chamber

T34 8449B

Filter 1

	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Band  BC0  1xRTT	<b>Low Ch, 824.7MHz</b>									
	1.648	-23.8	V	3.0	37.4	1.0	-60.2	-13.0	-47.2	
	2.473	-13.1	V	3.0	36.4	1.0	-48.5	-13.0	-35.5	
	3.297	-22.2	V	3.0	35.8	1.0	-57.0	-13.0	-44.0	
	1.648	-22.6	H	3.0	37.4	1.0	-59.0	-13.0	-46.0	
	2.473	-16.7	H	3.0	36.4	1.0	-52.1	-13.0	-39.1	
	3.297	-22.4	H	3.0	35.8	1.0	-57.2	-13.0	-44.2	
	<b>Mid Ch, 836.52MHz</b>									
	1.673	-27.0	V	3.0	37.3	1.0	-63.3	-13.0	-50.3	
2.510	-21.5	V	3.0	36.4	1.0	-56.9	-13.0	-43.9		
3.346	-21.0	V	3.0	35.8	1.0	-55.7	-13.0	-42.7		
1.673	-27.7	H	3.0	37.3	1.0	-64.0	-13.0	-51.0		
2.510	-25.7	H	3.0	36.4	1.0	-61.1	-13.0	-48.1		
3.346	-22.9	H	3.0	35.8	1.0	-57.7	-13.0	-44.7		
<b>High Ch, 848.31MHz</b>										
1.697	-29.6	V	3.0	37.3	1.0	-65.9	-13.0	-52.9		
2.545	-15.4	V	3.0	36.3	1.0	-50.7	-13.0	-37.7		
3.393	-22.3	V	3.0	35.7	1.0	-57.0	-13.0	-44.0		
1.697	-28.7	H	3.0	37.3	1.0	-65.0	-13.0	-52.0		
2.545	-14.9	H	3.0	36.3	1.0	-50.2	-13.0	-37.2		
3.393	-21.2	H	3.0	35.7	1.0	-55.9	-13.0	-42.9		

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

**CDMA BC10**

**Compliance Certification Services**  
**Above 1GHz High Frequency Substitution Measurement**

**Company:** LG  
**Project #:** 14U17849  
**Date:** 06.25.2014  
**Test Engineer:** Bob Liu  
**Configuration:** EUT with AC adapter & HS  
**Mode:** EVDOR0 BC10 HARM

Chamber  
3m Chamber C

Pre-amplifier  
T343 8449B

Filter  
Filter 1

Limit

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	<b>Low Ch, 817.9MHz</b>									
BC10	1.635	-27.9	V	3.0	37.4	1.0	-64.3	-13.0	-51.3	
	2.453	-24.0	V	3.0	36.4	1.0	-59.4	-13.0	-46.4	
	3.271	-20.2	V	3.0	35.8	1.0	-55.1	-13.0	-42.1	
EVDO	1.635	-28.1	H	3.0	37.4	1.0	-64.5	-13.0	-51.5	
REL. 0	2.453	-25.0	H	3.0	36.4	1.0	-60.5	-13.0	-47.5	
	3.271	-20.9	H	3.0	35.8	1.0	-55.7	-13.0	-42.7	
	<b>Mid Ch, 820.5MHz</b>									
	1.641	-28.2	V	3.0	37.4	1.0	-64.6	-13.0	-51.6	
	2.461	-23.6	V	3.0	36.4	1.0	-59.0	-13.0	-46.0	
	3.280	-21.1	V	3.0	35.8	1.0	-56.0	-13.0	-43.0	
	1.641	-27.8	H	3.0	37.4	1.0	-64.1	-13.0	-51.1	
	2.461	-25.5	H	3.0	36.4	1.0	-60.9	-13.0	-47.9	
	3.280	-20.8	H	3.0	35.8	1.0	-55.6	-13.0	-42.6	
	<b>High Ch, 823.1 MHz</b>									
	1.646	-27.4	V	3.0	37.4	1.0	-63.8	-13.0	-50.8	
	2.469	-24.0	V	3.0	36.4	1.0	-59.4	-13.0	-46.4	
	3.292	-20.8	V	3.0	35.8	1.0	-55.6	-13.0	-42.6	
	1.646	-27.8	H	3.0	37.4	1.0	-64.2	-13.0	-51.2	
	2.469	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
	3.292	-20.2	H	3.0	35.8	1.0	-55.0	-13.0	-42.0	

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

**Compliance Certification Services**  
**Above 1GHz High Frequency Substitution Measurement**

**Company:** LG  
**Project #:** 14U17849  
**Date:** 06.25.2014  
**Test Engineer:** Bob Liu  
**Configuration:** EUT with AC adapter & HS  
**Mode:** RTT BC10 HARM

**Chamber**

3m Chamber

**Pre-amplifier**

T343 8449B

**Filter**

Filter 1

**Limit**

	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Band  BC10  1xRTT	<b>Low Ch, 817.9MHz</b>										
		1.635	-24.2	V	3.0	37.4	1.0	-60.6	-13.0	-47.6	
		2.453	-12.4	V	3.0	36.4	1.0	-47.9	-13.0	-34.9	
		3.271	-23.8	V	3.0	35.8	1.0	-58.6	-13.0	-45.6	
		1.635	-25.8	H	3.0	37.4	1.0	-62.2	-13.0	-49.2	
		2.453	-17.2	H	3.0	36.4	1.0	-52.6	-13.0	-39.6	
		3.271	-22.4	H	3.0	35.8	1.0	-57.2	-13.0	-44.2	
		<b>Mid Ch, 820.5MHz</b>									
		1.641	-22.7	V	3.0	37.4	1.0	-59.1	-13.0	-46.1	
		2.461	-13.1	V	3.0	36.4	1.0	-48.5	-13.0	-35.5	
		3.280	-22.1	V	3.0	35.8	1.0	-56.9	-13.0	-43.9	
		1.641	-26.2	H	3.0	37.4	1.0	-62.6	-13.0	-49.6	
		2.461	-20.6	H	3.0	36.4	1.0	-56.0	-13.0	-43.0	
		3.280	-22.3	H	3.0	35.8	1.0	-57.1	-13.0	-44.1	
		<b>High Ch, 823.1 MHz</b>									
		1.646	-28.0	V	3.0	37.4	1.0	-64.4	-13.0	-51.4	
		2.469	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
		3.292	-22.4	V	3.0	35.8	1.0	-57.2	-13.0	-44.2	
	1.646	-28.6	H	3.0	37.4	1.0	-65.0	-13.0	-52.0		
	2.469	-26.1	H	3.0	36.4	1.0	-61.5	-13.0	-48.5		
	3.292	-22.1	H	3.0	35.8	1.0	-56.9	-13.0	-43.9		

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

**LTE 25**

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
<b>Company:</b>		LG								
<b>Project #:</b>		14U18147								
<b>Date:</b>		06/23/14								
<b>Test Engineer:</b>		K.Huynh								
<b>Configuration:</b>		EUT , AC Adapter, Headphones								
<b>Mode:</b>		TX, LTE band 25, 10MHz, 16QAM								
Chamber		Pre-amplifer			Filter		Limit			
5m Chamber A		T145 8449B			Filter 1					
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (1855 MHz)									
LTE25	3.710	-19.5	V	3.0	30.2	1.0	-48.7	-13.0	-35.7	
	5.565	-30.9	V	3.0	28.4	1.0	-58.2	-13.0	-45.2	
	7.420	-27.7	V	3.0	26.5	1.0	-53.2	-13.0	-40.2	
10MHz	3.710	-23.1	H	3.0	30.2	1.0	-52.3	-13.0	-39.3	
	5.565	-29.2	H	3.0	28.4	1.0	-56.5	-13.0	-43.5	
16QAM	7.420	-26.4	H	3.0	26.5	1.0	-51.9	-13.0	-38.9	
	Mid Ch, (1882.5 MHz)									
	3.765	-18.2	V	3.0	30.1	1.0	-47.4	-13.0	-34.4	
	5.648	-30.5	V	3.0	28.3	1.0	-57.8	-13.0	-44.8	
	7.530	-27.9	V	3.0	26.3	1.0	-53.2	-13.0	-40.2	
	3.765	-20.7	H	3.0	30.1	1.0	-49.8	-13.0	-36.8	
	5.648	-29.6	H	3.0	28.3	1.0	-56.9	-13.0	-43.9	
	7.530	-26.4	H	3.0	26.3	1.0	-51.7	-13.0	-38.7	
	High Ch, (1910 MHz)									
	3.820	-7.3	V	3.0	30.1	1.0	-36.4	-13.0	-23.4	
	5.730	-29.8	V	3.0	28.2	1.0	-57.0	-13.0	-44.0	
	7.640	-27.0	V	3.0	26.2	1.0	-52.2	-13.0	-39.2	
	3.820	-12.1	H	3.0	30.1	1.0	-41.2	-13.0	-28.2	
	5.730	-28.4	H	3.0	28.2	1.0	-55.6	-13.0	-42.6	
	7.640	-25.9	H	3.0	26.2	1.0	-51.0	-13.0	-38.0	
Rev. 03.03.09										

**Compliance Certification Services**  
**Above 1GHz High Frequency Substitution Measurement**

**Company:** LG  
**Project #:** 14U18147  
**Date:** 06/23/14  
**Test Engineer:** K.Huynh  
**Configuration:** EUT , AC Adapter, Headphones  
**Mode:** TX, LTE band 25, 10MHz, QPSK

**Chamber**  
 5m Chamber A

**Pre-amplifer**  
 T145 8449B

**Filter**  
 Filter 1

**Limit**

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
<b>Low Ch, (1855 MHz)</b>										
LTE25	3.710	-19.1	V	3.0	30.2	1.0	-48.3	-13.0	-35.3	
	5.565	-31.2	V	3.0	28.4	1.0	-58.5	-13.0	-45.5	
	7.420	-27.6	V	3.0	26.5	1.0	-53.0	-13.0	-40.0	
10MHz	3.710	-22.6	H	3.0	30.2	1.0	-51.8	-13.0	-38.8	
	5.565	-29.7	H	3.0	28.4	1.0	-57.1	-13.0	-44.1	
	7.420	-26.4	H	3.0	26.5	1.0	-51.8	-13.0	-38.8	
QPSK	<b>Mid Ch, (1882.5 MHz)</b>									
	3.765	-17.5	V	3.0	30.1	1.0	-46.6	-13.0	-33.6	
	5.648	-31.3	V	3.0	28.3	1.0	-58.6	-13.0	-45.6	
	7.530	-27.1	V	3.0	26.3	1.0	-52.4	-13.0	-39.4	
	3.765	-20.7	H	3.0	30.1	1.0	-49.9	-13.0	-36.9	
	5.648	-29.9	H	3.0	28.3	1.0	-57.1	-13.0	-44.1	
	7.530	-26.3	H	3.0	26.3	1.0	-51.6	-13.0	-38.6	
<b>High Ch, (1910 MHz)</b>										
	3.820	-7.6	V	3.0	30.1	1.0	-36.6	-13.0	-23.6	
	5.730	-29.6	V	3.0	28.2	1.0	-56.8	-13.0	-43.8	
	7.640	-27.6	V	3.0	26.2	1.0	-52.7	-13.0	-39.7	
	3.820	-12.2	H	3.0	30.1	1.0	-41.3	-13.0	-28.3	
	5.730	-28.2	H	3.0	28.2	1.0	-55.4	-13.0	-42.4	
	7.640	-26.1	H	3.0	26.2	1.0	-51.2	-13.0	-38.2	

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Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
<b>Company:</b>		LG								
<b>Project #:</b>		14U18147								
<b>Date:</b>		06/23/14								
<b>Test Engineer:</b>		K.Huynh								
<b>Configuration:</b>		EUT , AC Adapter, Headphones								
<b>Mode:</b>		TX, LTE band 25, 5MHz, 16QAM								
Chamber		Pre-amplifer			Filter		Limit			
3m Chamber		T145 8449B			Filter 1					
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (1852.5 MHz)									
	3.705	-11.9	V	3.0	30.2	1.0	-41.1	-13.0	-28.1	
LTE25	5.558	-17.0	V	3.0	28.4	1.0	-44.4	-13.0	-31.4	
	7.410	-13.8	V	3.0	26.5	1.0	-39.3	-13.0	-26.3	
5MHz	3.705	-14.8	H	3.0	30.2	1.0	-44.0	-13.0	-31.0	
	5.558	-16.3	H	3.0	28.4	1.0	-43.7	-13.0	-30.7	
16QAM	7.410	-12.1	H	3.0	26.5	1.0	-37.6	-13.0	-24.6	
	Mid Ch, (1882.5 MHz)									
	3.765	-9.0	V	3.0	30.1	1.0	-38.1	-13.0	-25.1	
	5.648	-16.8	V	3.0	28.3	1.0	-44.0	-13.0	-31.0	
	7.530	-13.4	V	3.0	26.3	1.0	-38.7	-13.0	-25.7	
	3.765	-12.3	H	3.0	30.1	1.0	-41.5	-13.0	-28.5	
	5.648	-16.1	H	3.0	28.3	1.0	-43.3	-13.0	-30.3	
	7.530	-12.2	H	3.0	26.3	1.0	-37.5	-13.0	-24.5	
	High Ch, (1912.5 MHz)									
	3.825	2.8	V	3.0	30.1	1.0	-26.3	-13.0	-13.3	
	5.738	-15.9	V	3.0	28.2	1.0	-43.1	-13.0	-30.1	
	7.650	-13.2	V	3.0	26.2	1.0	-38.3	-13.0	-25.3	
	3.825	-0.6	H	3.0	30.1	1.0	-29.7	-13.0	-16.7	
	5.738	-15.1	H	3.0	28.2	1.0	-42.3	-13.0	-29.3	
	7.650	-12.3	H	3.0	26.2	1.0	-37.5	-13.0	-24.5	
Rev. 03.03.09										

**Compliance Certification Services**  
**Above 1GHz High Frequency Substitution Measurement**

**Company:** LG  
**Project #:** 14U18147  
**Date:** 06/23/14  
**Test Engineer:** K.Huynh  
**Configuration:** EUT , AC Adapter, Headphones  
**Mode:** TX, LTE band 25, 5MHz, QPSK

**Chamber**  
 3m Chamber

**Pre-amplifer**  
 T145 8449B

**Filter**  
 Filter 1

**Limit**

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	<b>Low Ch, (1852.5 MHz)</b>									
LTE25	3.705	-13.5	V	3.0	30.2	1.0	-42.7	-13.0	-29.7	
	5.558	-16.3	V	3.0	28.4	1.0	-43.7	-13.0	-30.7	
	7.410	-13.6	V	3.0	26.5	1.0	-39.1	-13.0	-26.1	
5MHz	3.705	-16.0	H	3.0	30.2	1.0	-45.2	-13.0	-32.2	
	5.558	-16.2	H	3.0	28.4	1.0	-43.6	-13.0	-30.6	
QPSK	7.410	-12.5	H	3.0	26.5	1.0	-38.0	-13.0	-25.0	
	<b>Mid Ch, (1882.5 MHz)</b>									
	3.765	-5.8	V	3.0	30.1	1.0	-35.0	-13.0	-22.0	
	5.648	-17.2	V	3.0	28.3	1.0	-44.4	-13.0	-31.4	
	7.530	-14.0	V	3.0	26.3	1.0	-39.3	-13.0	-26.3	
	3.765	-10.8	H	3.0	30.1	1.0	-39.9	-13.0	-26.9	
	5.648	-16.3	H	3.0	28.3	1.0	-43.6	-13.0	-30.6	
	7.530	-12.4	H	3.0	26.3	1.0	-37.7	-13.0	-24.7	
	<b>High Ch, (1912.5 MHz)</b>									
	3.825	2.7	V	3.0	30.1	1.0	-26.4	-13.0	-13.4	
	5.738	-15.3	V	3.0	28.2	1.0	-42.5	-13.0	-29.5	
	7.650	-12.8	V	3.0	26.2	1.0	-38.0	-13.0	-25.0	
	3.825	-3.2	H	3.0	30.1	1.0	-32.3	-13.0	-19.3	
	5.738	-14.9	H	3.0	28.2	1.0	-42.1	-13.0	-29.1	
	7.650	-12.3	H	3.0	26.2	1.0	-37.4	-13.0	-24.4	

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Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
<b>Company:</b>		LG								
<b>Project #:</b>		14U18147								
<b>Date:</b>		06/23/14								
<b>Test Engineer:</b>		K.Huynh								
<b>Configuration:</b>		EUT , AC Adapter, Headphones								
<b>Mode:</b>		TX, LTE band 25, 3MHz, 16QAM								
Chamber		Pre-amplifer			Filter		Limit			
3m Chamber		T145 8449B			Filter 1					
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (1851.5 MHz)									
LTE25	3.703	-15.2	V	3.0	30.2	1.0	-44.4	-13.0	-31.4	
	5.555	-16.9	V	3.0	28.4	1.0	-44.3	-13.0	-31.3	
	7.406	-13.3	V	3.0	26.5	1.0	-38.7	-13.0	-25.7	
3MHz	3.703	-12.8	H	3.0	30.2	1.0	-42.0	-13.0	-29.0	
	5.555	-16.8	H	3.0	28.4	1.0	-44.2	-13.0	-31.2	
16QAM	7.406	-12.6	H	3.0	26.5	1.0	-38.0	-13.0	-25.0	
	Mid Ch, (1882.5 MHz)									
	3.765	-11.0	V	3.0	30.1	1.0	-40.1	-13.0	-27.1	
	5.647	-11.8	V	3.0	28.3	1.0	-39.1	-13.0	-26.1	
	7.530	-13.6	V	3.0	26.3	1.0	-38.9	-13.0	-25.9	
	3.765	-11.4	H	3.0	30.1	1.0	-40.6	-13.0	-27.6	
	5.647	-16.4	H	3.0	28.3	1.0	-43.7	-13.0	-30.7	
	7.530	-11.9	H	3.0	26.3	1.0	-37.2	-13.0	-24.2	
	High Ch, (1913.5 MHz)									
	3.828	4.1	V	3.0	30.1	1.0	-25.0	-13.0	-12.0	
	5.741	-15.6	V	3.0	28.2	1.0	-42.8	-13.0	-29.8	
	7.654	-13.4	V	3.0	26.1	1.0	-38.5	-13.0	-25.5	
	3.828	-0.6	H	3.0	30.1	1.0	-29.7	-13.0	-16.7	
	5.743	-15.6	H	3.0	28.2	1.0	-42.8	-13.0	-29.8	
	7.654	-12.4	H	3.0	26.1	1.0	-37.6	-13.0	-24.6	
Rev. 03.03.09										

**Compliance Certification Services**  
**Above 1GHz High Frequency Substitution Measurement**

**Company:** LG  
**Project #:** 14U18147  
**Date:** 06/23/14  
**Test Engineer:** K.Huynh  
**Configuration:** EUT , AC Adapter, Headphones  
**Mode:** TX, LTE band 25, 3MHz, QPSK

Chamber

Pre-amplifer

Filter

Limit

3m Chamber

T145 8449B

Filter 1

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	<b>Low Ch, (1851.5 MHz)</b>									
LTE25	3.703	-14.6	V	3.0	30.2	1.0	-43.8	-13.0	-30.8	
	5.555	-17.4	V	3.0	28.4	1.0	-44.7	-13.0	-31.7	
	7.406	-13.5	V	3.0	26.5	1.0	-38.9	-13.0	-25.9	
3MHz	3.703	-13.6	H	3.0	30.2	1.0	-42.8	-13.0	-29.8	
	5.555	-16.5	H	3.0	28.4	1.0	-43.9	-13.0	-30.9	
QPSK	7.406	-12.0	H	3.0	26.5	1.0	-37.5	-13.0	-24.5	
	<b>Mid Ch, (1882.5 MHz)</b>									
	3.765	-10.9	V	3.0	30.1	1.0	-40.0	-13.0	-27.0	
	5.648	-12.2	V	3.0	28.3	1.0	-39.5	-13.0	-26.5	
	7.530	-14.2	V	3.0	26.3	1.0	-39.5	-13.0	-26.5	
	3.765	-11.2	H	3.0	30.1	1.0	-40.4	-13.0	-27.4	
	5.648	-16.6	H	3.0	28.3	1.0	-43.9	-13.0	-30.9	
	7.530	-12.1	H	3.0	26.3	1.0	-37.4	-13.0	-24.4	
	<b>High Ch, (1913.5 MHz)</b>									
	3.828	3.5	V	3.0	30.1	1.0	-25.6	-13.0	-12.6	
	5.741	-15.7	V	3.0	28.2	1.0	-42.9	-13.0	-29.9	
	7.654	-13.4	V	3.0	26.1	1.0	-38.5	-13.0	-25.5	
	3.828	-0.9	H	3.0	30.1	1.0	-30.0	-13.0	-17.0	
	5.743	-15.2	H	3.0	28.2	1.0	-42.4	-13.0	-29.4	
	7.654	-12.2	H	3.0	26.1	1.0	-37.3	-13.0	-24.3	

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**LTE 26**

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
<b>Company:</b>		LG								
<b>Project #:</b>		14U18147								
<b>Date:</b>		06/25/14								
<b>Test Engineer:</b>		N.Sheridan								
<b>Configuration:</b>		EUT with AC CHARGER and Headset								
<b>Mode:</b>		LTE B26 10M 16QAM HARM								
<b>Chamber</b>		<b>Pre-amplifier</b>		<b>Filter</b>		<b>Limit</b>				
5m Chamber B		T145 8449B		Filter 1		Part 22				
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	<b>Low Ch, (819MHz)</b>									
	1.638	-13.0	V	3.0	32.7	1.0	-44.6	-13.0	-31.6	
LTE26	2.457	-11.8	V	3.0	31.3	1.0	-42.1	-13.0	-29.1	
	3.276	-20.9	V	3.0	30.6	1.0	-50.5	-13.0	-37.5	
10MHz	1.638	-11.1	H	3.0	32.7	1.0	-42.7	-13.0	-29.7	
	2.457	-21.4	H	3.0	31.3	1.0	-51.7	-13.0	-38.7	
16QAM	3.276	-20.3	H	3.0	30.6	1.0	-49.9	-13.0	-36.9	
	<b>Mid Ch, (831.5MHz)</b>									
	1.663	-14.1	V	3.0	32.6	1.0	-45.8	-13.0	-32.8	
	2.495	-14.2	V	3.0	31.5	1.0	-44.7	-13.0	-31.7	
	3.327	-24.5	V	3.0	30.5	1.0	-54.0	-13.0	-41.0	
	1.663	-7.9	H	3.0	32.6	1.0	-39.5	-13.0	-26.5	
	2.495	-20.4	H	3.0	31.5	1.0	-50.9	-13.0	-37.9	
	3.327	-19.8	H	3.0	30.5	1.0	-49.3	-13.0	-36.3	
	<b>High Ch, (844MHz)</b>									
	1.688	-8.8	V	3.0	32.6	1.0	-40.4	-13.0	-27.4	
	2.532	-17.3	V	3.0	31.5	1.0	-47.7	-13.0	-34.7	
	3.376	-20.7	V	3.0	30.5	1.0	-50.1	-13.0	-37.1	
	1.688	-12.7	H	3.0	32.6	1.0	-44.3	-13.0	-31.3	
	2.532	-12.3	H	3.0	31.5	1.0	-42.8	-13.0	-29.8	
	3.376	-20.9	H	3.0	30.5	1.0	-50.4	-13.0	-37.4	
Rev. 03.03.09										

**Compliance Certification Services**  
**Above 1GHz High Frequency Substitution Measurement**

**Company:** LG  
**Project #:** 14U18147  
**Date:** 06/25/14  
**Test Engineer:** N. Sheridan  
**Configuration:** EUT with AC CHARGER and Headset  
**Mode:** LTE B26 10M QPSK HARM

Chamber

Pre-amplifier

Filter

Limit

5m Chamber B

T145 8449B

Filter 1

Part 22

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	<b>Low Ch, (819MHz)</b>									
LTE26	1.638	-14.4	V	3.0	32.7	1.0	-46.1	-13.0	-33.1	
	2.457	-12.4	V	3.0	31.3	1.0	-42.7	-13.0	-29.7	
	3.276	-21.1	V	3.0	30.6	1.0	-50.7	-13.0	-37.7	
10MHz	1.638	-11.0	H	3.0	32.7	1.0	-42.7	-13.0	-29.7	
	2.457	-22.1	H	3.0	31.3	1.0	-52.4	-13.0	-39.4	
	3.276	-21.2	H	3.0	30.6	1.0	-50.8	-13.0	-37.8	
QPSK	<b>Mid Ch, (831.5MHz)</b>									
	1.663	-13.5	V	3.0	32.6	1.0	-45.1	-13.0	-32.1	
	2.495	-15.5	V	3.0	31.5	1.0	-46.0	-13.0	-33.0	
	3.327	-24.3	V	3.0	30.5	1.0	-53.8	-13.0	-40.8	
	1.663	-7.8	H	3.0	32.6	1.0	-39.4	-13.0	-26.4	
	2.495	-19.7	H	3.0	31.5	1.0	-50.2	-13.0	-37.2	
	3.327	-18.3	H	3.0	30.5	1.0	-47.8	-13.0	-34.8	
	<b>High Ch, (844MHz)</b>									
	1.688	-8.5	V	3.0	32.6	1.0	-40.1	-13.0	-27.1	
	2.532	-13.1	V	3.0	31.5	1.0	-43.5	-13.0	-30.5	
	3.376	-20.4	V	3.0	30.5	1.0	-49.8	-13.0	-36.8	
	1.688	-11.9	H	3.0	32.6	1.0	-43.5	-13.0	-30.5	
	2.532	-12.4	H	3.0	31.5	1.0	-42.8	-13.0	-29.8	
	3.376	-24.2	H	3.0	30.5	1.0	-53.7	-13.0	-40.7	

Rev. 03.03.09

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
<b>Company:</b>		LG								
<b>Project #:</b>		14U18147								
<b>Date:</b>		06/25/14								
<b>Test Engineer:</b>		D. Soper								
<b>Configuration:</b>		EUT with AC CHARGER								
<b>Mode:</b>		LTE B26 3M 16QAM HARM								
<b>Chamber</b>		<b>Pre-amplifer</b>		<b>Filter</b>		<b>Limit</b>				
5m Chamber A		T145 8449B		Filter 1		Part 22				
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (816.5MHz)										
LTE26	1.633	-16.5	V	3.0	32.7	1.0	-48.2	-13.0	-35.2	
	2.450	-25.5	V	3.0	31.2	1.0	-55.7	-13.0	-42.7	
	3.266	-30.3	V	3.0	30.6	1.0	-59.9	-13.0	-46.9	
5MHz	1.633	-13.8	H	3.0	32.7	1.0	-45.5	-13.0	-32.5	
	2.450	-19.7	H	3.0	31.2	1.0	-49.9	-13.0	-36.9	
	3.266	-28.2	H	3.0	30.6	1.0	-57.8	-13.0	-44.8	
16QAM	Mid Ch, (831.5MHz)									
	1.663	-18.2	V	3.0	32.6	1.0	-49.8	-13.0	-36.8	
	2.495	-23.1	V	3.0	31.5	1.0	-53.5	-13.0	-40.5	
	3.327	-30.2	V	3.0	30.5	1.0	-59.7	-13.0	-46.7	
	1.663	-8.6	H	3.0	32.6	1.0	-40.2	-13.0	-27.2	
	2.495	-25.1	H	3.0	31.5	1.0	-55.6	-13.0	-42.6	
	3.327	-29.2	H	3.0	30.5	1.0	-58.7	-13.0	-45.7	
High Ch, (846.5MHz)										
	1.693	-10.6	V	3.0	32.6	1.0	-42.2	-13.0	-29.2	
	2.540	-24.4	V	3.0	31.4	1.0	-54.8	-13.0	-41.8	
	3.386	-29.8	V	3.0	30.5	1.0	-59.3	-13.0	-46.3	
	1.693	-12.9	H	3.0	32.6	1.0	-44.4	-13.0	-31.4	
	2.540	-17.3	H	3.0	31.4	1.0	-47.8	-13.0	-34.8	
	3.386	-30.4	H	3.0	30.5	1.0	-59.9	-13.0	-46.9	
Rev. 03.03.09										

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
<b>Company:</b>		LG								
<b>Project #:</b>		14U18147								
<b>Date:</b>		06/25/14								
<b>Test Engineer:</b>		D. Soper								
<b>Configuration:</b>		EUT with AC CHARGER								
<b>Mode:</b>		LTE B26 3M QPSK HARM								
Chamber		Pre-amplifer			Filter		Limit			
5m Chamber A		T145 8449B			Filter 1		Part 22			
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (816.5MHz)										
LTE26	1.633	-18.7	V	3.0	32.7	1.0	-50.4	-13.0	-37.4	
	2.450	-26.0	V	3.0	31.2	1.0	-56.3	-13.0	-43.3	
	3.266	-29.9	V	3.0	30.6	1.0	-59.4	-13.0	-46.4	
5MHz	1.633	-14.7	H	3.0	32.7	1.0	-46.4	-13.0	-33.4	
	2.450	-18.6	H	3.0	31.2	1.0	-48.9	-13.0	-35.9	
	3.266	-29.8	H	3.0	30.6	1.0	-59.4	-13.0	-46.4	
QPSK	Mid Ch, (831.5MHz)									
	1.663	-13.5	V	3.0	32.6	1.0	-45.1	-13.0	-32.1	
	2.495	-18.7	V	3.0	31.5	1.0	-49.2	-13.0	-36.2	
	3.327	-29.3	V	3.0	30.5	1.0	-58.8	-13.0	-45.8	
	1.663	-9.8	H	3.0	32.6	1.0	-41.4	-13.0	-28.4	
	2.495	-24.9	H	3.0	31.5	1.0	-55.4	-13.0	-42.4	
	3.327	-29.1	H	3.0	30.5	1.0	-58.6	-13.0	-45.6	
High Ch, (846.5MHz)										
	1.693	-9.9	V	3.0	32.6	1.0	-41.5	-13.0	-28.5	
	2.540	-20.7	V	3.0	31.4	1.0	-51.2	-13.0	-38.2	
	3.386	-29.6	V	3.0	30.5	1.0	-59.0	-13.0	-46.0	
	1.693	-10.7	H	3.0	32.6	1.0	-42.3	-13.0	-29.3	
	2.540	-22.9	H	3.0	31.4	1.0	-53.4	-13.0	-40.4	
	3.386	-30.2	H	3.0	30.5	1.0	-59.7	-13.0	-46.7	
Rev. 03.03.09										

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
<b>Company:</b>		LG								
<b>Project #:</b>		14U18147								
<b>Date:</b>		06/24/14								
<b>Test Engineer:</b>		O. Stoelting								
<b>Configuration:</b>		EUT with AC CHARGER								
<b>Mode:</b>		LTE B26 3M 16QAM HARM								
<b>Chamber</b>		<b>Pre-amplifer</b>		<b>Filter</b>		<b>Limit</b>				
5m Chamber A		T145 8449B		Filter 1		Part 22				
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (815.5MHz)									
	1.631	-16.0	V	3.0	32.7	1.0	-47.7	-13.0	-34.7	
LTE26	2.447	-15.8	V	3.0	31.2	1.0	-46.1	-13.0	-33.1	
	3.263	-34.1	V	3.0	30.6	1.0	-63.7	-13.0	-50.7	
3MHz	1.631	-18.0	H	3.0	32.7	1.0	-49.7	-13.0	-36.7	
	2.447	-30.6	H	3.0	31.2	1.0	-60.9	-13.0	-47.9	
16QAM	3.263	-36.4	H	3.0	30.6	1.0	-66.0	-13.0	-53.0	
	Mid Ch, (831.5MHz)									
	1.663	-11.0	V	3.0	32.6	1.0	-42.6	-13.0	-29.6	
	2.495	-16.2	V	3.0	31.5	1.0	-46.7	-13.0	-33.7	
	3.327	-35.1	V	3.0	30.5	1.0	-64.6	-13.0	-51.6	
	1.663	-16.4	H	3.0	32.6	1.0	-48.0	-13.0	-35.0	
	2.495	-19.2	H	3.0	31.5	1.0	-49.7	-13.0	-36.7	
	3.327	-36.7	H	3.0	30.5	1.0	-66.2	-13.0	-53.2	
	High Ch, (847.5MHz)									
	1.695	-6.6	V	3.0	32.6	1.0	-38.2	-13.0	-25.2	
	2.543	-24.7	V	3.0	31.4	1.0	-55.2	-13.0	-42.2	
	3.391	-35.5	V	3.0	30.5	1.0	-65.0	-13.0	-52.0	
	1.695	-17.2	H	3.0	32.6	1.0	-48.8	-13.0	-35.8	
	2.543	-24.9	H	3.0	31.4	1.0	-55.3	-13.0	-42.3	
	3.391	-35.4	H	3.0	30.5	1.0	-64.9	-13.0	-51.9	
Rev. 03.03.09										

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
<b>Company:</b>		LG								
<b>Project #:</b>		14U18147								
<b>Date:</b>		06/24/14								
<b>Test Engineer:</b>		O. Stoelting								
<b>Configuration:</b>		EUT with AC CHARGER								
<b>Mode:</b>		LTE B26 3M QPSK HARM								
Chamber		Pre-amplifier			Filter		Limit			
5m Chamber A		T145 8449B			Filter 1		Part 22			
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (815.5MHz)										
LTE26	1.631	-17.8	V	3.0	32.7	1.0	-49.5	-13.0	-36.5	
	2.447	-16.4	V	3.0	31.2	1.0	-46.6	-13.0	-33.6	
	3.263	-34.1	V	3.0	30.6	1.0	-63.6	-13.0	-50.6	
3MHz	1.631	-17.7	H	3.0	32.7	1.0	-49.4	-13.0	-36.4	
	2.447	-29.9	H	3.0	31.2	1.0	-60.1	-13.0	-47.1	
	3.263	-36.5	H	3.0	30.6	1.0	-66.0	-13.0	-53.0	
QPSK	Mid Ch, (831.5MHz)									
	1.663	-10.0	V	3.0	32.6	1.0	-41.6	-13.0	-28.6	
	2.495	-16.4	V	3.0	31.5	1.0	-46.9	-13.0	-33.9	
	3.327	-35.3	V	3.0	30.5	1.0	-64.9	-13.0	-51.9	
	1.663	-15.3	H	3.0	32.6	1.0	-46.9	-13.0	-33.9	
	2.495	-19.4	H	3.0	31.5	1.0	-49.9	-13.0	-36.9	
	3.327	-36.5	H	3.0	30.5	1.0	-66.1	-13.0	-53.1	
High Ch, (847.5MHz)										
	1.695	-8.8	V	3.0	32.6	1.0	-40.4	-13.0	-27.4	
	2.543	-24.8	V	3.0	31.4	1.0	-55.3	-13.0	-42.3	
	3.391	-35.6	V	3.0	30.5	1.0	-65.0	-13.0	-52.0	
	1.695	-18.1	H	3.0	32.6	1.0	-49.7	-13.0	-36.7	
	2.543	-24.2	H	3.0	31.4	1.0	-54.7	-13.0	-41.7	
	3.391	-35.2	H	3.0	30.5	1.0	-64.6	-13.0	-51.6	
Rev. 03.03.09										

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
<b>Company:</b>		LG								
<b>Project #:</b>		14U18147								
<b>Date:</b>		06/24/14								
<b>Test Engineer:</b>		O. Stoelting								
<b>Configuration:</b>		EUT with AC CHARGER								
<b>Mode:</b>		LTE B26 1.4M 16QAM HARM								
<b>Chamber</b>		<b>Pre-amplifer</b>		<b>Filter</b>		<b>Limit</b>				
5m Chamber A		T145 8449B		Filter 1		Part 22				
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	<b>Low Ch, (814.7MHz)</b>									
	1.629	-15.8	V	3.0	32.7	1.0	-47.5	-13.0	-34.5	
LTE26	2.444	-16.8	V	3.0	31.2	1.0	-47.0	-13.0	-34.0	
	3.259	-35.0	V	3.0	30.6	1.0	-64.5	-13.0	-51.5	
1.4MHz	1.629	-21.0	H	3.0	32.7	1.0	-52.7	-13.0	-39.7	
	2.444	-31.3	H	3.0	31.2	1.0	-61.5	-13.0	-48.5	
16QAM	3.259	-36.3	H	3.0	30.6	1.0	-65.9	-13.0	-52.9	
	<b>Mid Ch, (831.5MHz)</b>									
	1.663	-10.2	V	3.0	32.6	1.0	-41.8	-13.0	-28.8	
	2.495	-18.4	V	3.0	31.5	1.0	-48.8	-13.0	-35.8	
	3.327	-33.1	V	3.0	30.5	1.0	-62.7	-13.0	-49.7	
	1.663	-11.4	H	3.0	32.6	1.0	-43.0	-13.0	-30.0	
	2.495	-24.4	H	3.0	31.5	1.0	-54.8	-13.0	-41.8	
	3.327	-36.7	H	3.0	30.5	1.0	-66.2	-13.0	-53.2	
	<b>High Ch, (848.3MHz)</b>									
	1.697	-8.4	V	3.0	32.6	1.0	-40.0	-13.0	-27.0	
	2.545	-20.2	V	3.0	31.4	1.0	-50.6	-13.0	-37.6	
	3.393	-33.7	V	3.0	30.5	1.0	-63.2	-13.0	-50.2	
	1.697	-16.9	H	3.0	32.6	1.0	-48.4	-13.0	-35.4	
	2.545	-23.6	H	3.0	31.4	1.0	-54.0	-13.0	-41.0	
	3.393	-35.7	H	3.0	30.5	1.0	-65.2	-13.0	-52.2	

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
<b>Company:</b>		LG								
<b>Project #:</b>		14U18147								
<b>Date:</b>		06/24/14								
<b>Test Engineer:</b>		O. Stoelting								
<b>Configuration:</b>		EUT with AC CHARGER								
<b>Mode:</b>		LTE B26 1.4M QPSK HARM								
Chamber		Pre-amplifer		Filter		Limit				
5m Chamber A		T145 8449B		Filter 1						
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (814.7MHz)										
LTE26	1.629	-16.1	V	3.0	32.7	1.0	-47.8	-13.0	-34.8	
	2.444	-17.1	V	3.0	31.2	1.0	-47.3	-13.0	-34.3	
	3.259	-34.4	V	3.0	30.6	1.0	-64.0	-13.0	-51.0	
1.4MHz	1.629	-22.0	H	3.0	32.7	1.0	-53.7	-13.0	-40.7	
	2.444	-30.8	H	3.0	31.2	1.0	-61.1	-13.0	-48.1	
	3.259	-36.4	H	3.0	30.6	1.0	-66.0	-13.0	-53.0	
Mid Ch, (831.5MHz)										
QPSK	1.663	-10.6	V	3.0	32.6	1.0	-42.2	-13.0	-29.2	
	2.495	-18.1	V	3.0	31.5	1.0	-48.6	-13.0	-35.6	
	3.327	-32.8	V	3.0	30.5	1.0	-62.3	-13.0	-49.3	
	1.663	-11.8	H	3.0	32.6	1.0	-43.4	-13.0	-30.4	
	2.495	-25.4	H	3.0	31.5	1.0	-55.9	-13.0	-42.9	
3.327	-36.7	H	3.0	30.5	1.0	-66.2	-13.0	-53.2		
High Ch, (848.3MHz)										
QPSK	1.697	-9.8	V	3.0	32.6	1.0	-41.3	-13.0	-28.3	
	2.545	-20.4	V	3.0	31.4	1.0	-50.9	-13.0	-37.9	
	3.393	-34.2	V	3.0	30.5	1.0	-63.7	-13.0	-50.7	
	1.697	-20.2	H	3.0	32.6	1.0	-51.8	-13.0	-38.8	
	2.545	-23.4	H	3.0	31.4	1.0	-53.8	-13.0	-40.8	
3.393	-35.7	H	3.0	30.5	1.0	-65.1	-13.0	-52.1		
Rev. 03.03.09										

**LTE 41**

Compliance Certification Services										
Above 1GHz High Frequency Substitution Measurement										
Company:		LG								
Project #:		14U18147								
Date:		06/23/14								
Test Engineer:		K.Huynh								
Configuration:		EUT , AC Adapter, Headphones								
Mode:		TX, LTE band 41, 20MHz, 16QAM								
Chamber		Pre-amplifer			Filter		Limit			
5m Chamber A		T145 8449B			Filter 1					
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (2506 MHz)										
LTE41	5.012	-45.4	V	3.0	28.9	1.0	-73.3	-25.0	-48.3	
	7.518	-40.2	V	3.0	26.3	1.0	-65.5	-25.0	-40.5	
	10.553	-39.3	V	3.0	22.9	1.0	-61.2	-25.0	-36.2	
20MHz	5.012	-44.1	H	3.0	28.9	1.0	-72.0	-25.0	-47.0	
	7.518	-39.3	H	3.0	26.3	1.0	-64.6	-25.0	-39.6	
16QAM	10.553	-38.6	H	3.0	22.9	1.0	-60.5	-25.0	-35.5	
Mid Ch, (2593 MHz)										
	5.186	-44.8	V	3.0	28.7	1.0	-72.6	-25.0	-47.6	
	7.779	-39.6	V	3.0	26.0	1.0	-64.6	-25.0	-39.6	
	10.372	-38.6	V	3.0	23.0	1.0	-60.6	-25.0	-35.6	
	5.186	-44.7	H	3.0	28.7	1.0	-72.4	-25.0	-47.4	
	7.779	-38.2	H	3.0	26.0	1.0	-63.2	-25.0	-38.2	
	10.372	-37.3	H	3.0	23.0	1.0	-59.3	-25.0	-34.3	
High Ch, (2680 MHz)										
	5.360	-45.5	V	3.0	28.5	1.0	-73.1	-25.0	-48.1	
	8.040	-39.9	V	3.0	25.6	1.0	-64.5	-25.0	-39.5	
	10.720	-39.4	V	3.0	22.9	1.0	-61.3	-25.0	-36.3	
	5.360	-43.9	H	3.0	28.5	1.0	-71.4	-25.0	-46.4	
	8.040	-38.5	H	3.0	25.6	1.0	-63.1	-25.0	-38.1	
	10.720	-38.8	H	3.0	22.9	1.0	-60.7	-25.0	-35.7	
Rev. 03.03.09										

**Compliance Certification Services**  
**Above 1GHz High Frequency Substitution Measurement**

**Company:** LG  
**Project #:** 14U18147  
**Date:** 06/23/14  
**Test Engineer:** K.Huynh  
**Configuration:** EUT , AC Adapter, Headphones  
**Mode:** TX, LTE band 41, 20MHz, QPSK

Chamber

Pre-amplifer

Filter

Limit

5m Chamber A

T145 8449B

Filter 1

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	<b>Low Ch, (2506 MHz)</b>									
LTE41	5.012	-45.3	V	3.0	28.9	1.0	-73.1	-25.0	-48.1	
	7.518	-39.9	V	3.0	26.3	1.0	-65.2	-25.0	-40.2	
	10.553	-39.4	V	3.0	22.9	1.0	-61.3	-25.0	-36.3	
20MHz	5.012	-43.9	H	3.0	28.9	1.0	-71.7	-25.0	-46.7	
	7.518	-39.4	H	3.0	26.3	1.0	-64.7	-25.0	-39.7	
	10.553	-38.1	H	3.0	22.9	1.0	-60.1	-25.0	-35.1	
QPSK	<b>Mid Ch, (2593 MHz)</b>									
	5.186	-46.3	V	3.0	28.7	1.0	-74.0	-25.0	-49.0	
	7.779	-39.0	V	3.0	26.0	1.0	-64.0	-25.0	-39.0	
	10.372	-38.1	V	3.0	23.0	1.0	-60.1	-25.0	-35.1	
	5.186	-44.5	H	3.0	28.7	1.0	-72.2	-25.0	-47.2	
	7.779	-38.1	H	3.0	26.0	1.0	-63.1	-25.0	-38.1	
	10.372	-37.1	H	3.0	23.0	1.0	-59.0	-25.0	-34.0	
	<b>High Ch, (2680 MHz)</b>									
	5.360	-45.9	V	3.0	28.5	1.0	-73.5	-25.0	-48.5	
	8.040	-39.8	V	3.0	25.6	1.0	-64.5	-25.0	-39.5	
	10.720	-40.8	V	3.0	22.9	1.0	-62.7	-25.0	-37.7	
	5.360	-44.2	H	3.0	28.5	1.0	-71.8	-25.0	-46.8	
	8.040	-39.4	H	3.0	25.6	1.0	-64.1	-25.0	-39.1	
	10.720	-38.6	H	3.0	22.9	1.0	-60.5	-25.0	-35.5	

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Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
<b>Company:</b>		LG								
<b>Project #:</b>		14U18147								
<b>Date:</b>		06/23/14								
<b>Test Engineer:</b>		K.Huynh								
<b>Configuration:</b>		EUT , AC Adapter, Headphones								
<b>Mode:</b>		TX, LTE band 41, 15MHz, 16QAM								
<b>Chamber</b>		<b>Pre-amplifer</b>		<b>Filter</b>		<b>Limit</b>				
5m Chamber A		T145 8449B		Filter 1						
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (2503.5 MHz)									
LTE41	5.007	-45.8	V	3.0	28.9	1.0	-73.7	-25.0	-48.7	
	7.511	-40.7	V	3.0	26.3	1.0	-66.1	-25.0	-41.1	
	10.014	-39.0	V	3.0	23.1	1.0	-61.1	-25.0	-36.1	
15MHz	5.007	-44.6	H	3.0	28.9	1.0	-72.5	-25.0	-47.5	
	7.511	-39.4	H	3.0	26.3	1.0	-64.7	-25.0	-39.7	
16QAM	10.014	-37.5	H	3.0	23.1	1.0	-59.6	-25.0	-34.6	
	Mid Ch, (2593 MHz)									
	5.186	-46.9	V	3.0	28.7	1.0	-74.6	-25.0	-49.6	
	7.779	-38.3	V	3.0	26.0	1.0	-63.3	-25.0	-38.3	
	10.372	-38.3	V	3.0	23.0	1.0	-60.3	-25.0	-35.3	
	5.186	-45.4	H	3.0	28.7	1.0	-73.1	-25.0	-48.1	
	7.779	-38.7	H	3.0	26.0	1.0	-63.7	-25.0	-38.7	
	10.372	-37.3	H	3.0	23.0	1.0	-59.3	-25.0	-34.3	
	High Ch, (2682.5 MHz)									
	5.365	-46.3	V	3.0	28.5	1.0	-73.9	-25.0	-48.9	
	8.052	-40.1	V	3.0	25.6	1.0	-64.7	-25.0	-39.7	
	10.730	-39.9	V	3.0	22.9	1.0	-61.8	-25.0	-36.8	
	5.365	-44.6	H	3.0	28.5	1.0	-72.2	-25.0	-47.2	
	8.052	-39.1	H	3.0	25.6	1.0	-63.8	-25.0	-38.8	
	10.730	-39.7	H	3.0	22.9	1.0	-61.6	-25.0	-36.6	
Rev. 03.03.09										

**Compliance Certification Services**  
**Above 1GHz High Frequency Substitution Measurement**

**Company:** LG  
**Project #:** 14U18147  
**Date:** 06/23/14  
**Test Engineer:** K.Huynh  
**Configuration:** EUT , AC Adapter, Headphones  
**Mode:** TX, LTE band 41, 15MHz, QPSK

Chamber

Pre-amplifer

Filter

Limit

5m Chamber A

T145 8449B

Filter 1

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	<b>Low Ch, (2503.5 MHz)</b>									
LTE41	5.007	-46.3	V	3.0	28.9	1.0	-74.1	-25.0	-49.1	
	7.511	-40.7	V	3.0	26.3	1.0	-66.1	-25.0	-41.1	
	10.014	-39.1	V	3.0	23.1	1.0	-61.2	-25.0	-36.2	
15MHz	5.007	-44.6	H	3.0	28.9	1.0	-72.5	-25.0	-47.5	
	7.511	-39.8	H	3.0	26.3	1.0	-65.2	-25.0	-40.2	
	10.014	-37.9	H	3.0	23.1	1.0	-60.0	-25.0	-35.0	
QPSK	<b>Mid Ch, (2593 MHz)</b>									
	5.186	-44.6	V	3.0	28.7	1.0	-72.3	-25.0	-47.3	
	7.779	-39.5	V	3.0	26.0	1.0	-64.5	-25.0	-39.5	
	10.372	-38.4	V	3.0	23.0	1.0	-60.4	-25.0	-35.4	
	5.186	-42.8	H	3.0	28.7	1.0	-70.5	-25.0	-45.5	
	7.779	-38.3	H	3.0	26.0	1.0	-63.3	-25.0	-38.3	
	10.372	-38.0	H	3.0	23.0	1.0	-60.0	-25.0	-35.0	
	<b>High Ch, (2682.5 MHz)</b>									
	5.365	-46.6	V	3.0	28.5	1.0	-74.2	-25.0	-49.2	
	8.052	-38.5	V	3.0	25.6	1.0	-63.2	-25.0	-38.2	
	10.730	-39.7	V	3.0	22.9	1.0	-61.5	-25.0	-36.5	
	5.365	-44.2	H	3.0	28.5	1.0	-71.7	-25.0	-46.7	
	8.052	-39.1	H	3.0	25.6	1.0	-63.8	-25.0	-38.8	
	10.730	-39.1	H	3.0	22.9	1.0	-61.0	-25.0	-36.0	

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Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
<b>Company:</b>		LG								
<b>Project #:</b>		14U18147								
<b>Date:</b>		06/23/14								
<b>Test Engineer:</b>		K.Huynh								
<b>Configuration:</b>		EUT , AC Adapter, Headphones								
<b>Mode:</b>		TX, LTE band 41, 10MHz, 16QAM								
Chamber		Pre-amplifier		Filter		Limit				
5m Chamber A		T145 8449B		Filter 1						
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (2501 MHz)										
LTE41	5.002	-46.2	V	3.0	28.9	1.0	-74.1	-25.0	-49.1	
	7.503	-40.6	V	3.0	26.3	1.0	-65.9	-25.0	-40.9	
	10.004	-39.1	V	3.0	23.1	1.0	-61.2	-25.0	-36.2	
10MHz	5.002	-44.8	H	3.0	28.9	1.0	-72.7	-25.0	-47.7	
	7.503	-41.0	H	3.0	26.3	1.0	-66.3	-25.0	-41.3	
16QAM	10.004	-38.3	H	3.0	23.1	1.0	-60.4	-25.0	-35.4	
Mid Ch, (2593 MHz)										
	5.186	-47.0	V	3.0	28.7	1.0	-74.7	-25.0	-49.7	
	7.779	-38.8	V	3.0	26.0	1.0	-63.8	-25.0	-38.8	
	10.372	-38.6	V	3.0	23.0	1.0	-60.6	-25.0	-35.6	
	5.186	-44.8	H	3.0	28.7	1.0	-72.5	-25.0	-47.5	
	7.779	-38.2	H	3.0	26.0	1.0	-63.2	-25.0	-38.2	
	10.372	-37.9	H	3.0	23.0	1.0	-59.9	-25.0	-34.9	
High Ch, (2685 MHz)										
	5.375	-46.0	V	3.0	28.5	1.0	-73.6	-25.0	-48.6	
	8.055	-40.2	V	3.0	25.6	1.0	-64.8	-25.0	-39.8	
	10.740	-39.9	V	3.0	22.9	1.0	-61.8	-25.0	-36.8	
	5.375	-45.7	H	3.0	28.5	1.0	-73.3	-25.0	-48.3	
	8.055	-39.2	H	3.0	25.6	1.0	-63.8	-25.0	-38.8	
	10.740	-39.6	H	3.0	22.9	1.0	-61.5	-25.0	-36.5	
Rev. 03.03.09										

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement											
<b>Company:</b>		LG									
<b>Project #:</b>		14U18147									
<b>Date:</b>		06/23/14									
<b>Test Engineer:</b>		K.Huynh									
<b>Configuration:</b>		EUT , AC Adapter, Headphones									
<b>Mode:</b>		TX, LTE band 41, 10MHz, QPSK									
<b>Chamber</b>		<b>Pre-amplifer</b>		<b>Filter</b>		<b>Limit</b>					
5m Chamber A		T145 8449B		Filter 1							
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Ch, (2501 MHz)											
LTE41	5.002	-45.9	V	3.0	28.9	1.0	-73.8	-25.0	-48.8		
	7.503	-40.9	V	3.0	26.3	1.0	-66.3	-25.0	-41.3		
	10.004	-38.8	V	3.0	23.1	1.0	-60.9	-25.0	-35.9		
10MHz	5.002	-45.0	H	3.0	28.9	1.0	-72.9	-25.0	-47.9		
	7.503	-40.2	H	3.0	26.3	1.0	-65.6	-25.0	-40.6		
QPSK	10.004	-37.7	H	3.0	23.1	1.0	-59.8	-25.0	-34.8		
	Mid Ch, (2593 MHz)										
		5.186	-45.5	V	3.0	28.7	1.0	-73.2	-25.0	-48.2	
	7.779	-39.3	V	3.0	26.0	1.0	-64.3	-25.0	-39.3		
	10.372	-38.6	V	3.0	23.0	1.0	-60.6	-25.0	-35.6		
	5.186	-43.0	H	3.0	28.7	1.0	-70.8	-25.0	-45.8		
	7.779	-37.7	H	3.0	26.0	1.0	-62.7	-25.0	-37.7		
	10.372	-37.5	H	3.0	23.0	1.0	-59.4	-25.0	-34.4		
High Ch, (2685 MHz)											
	5.375	-46.3	V	3.0	28.5	1.0	-73.8	-25.0	-48.8		
	8.055	-40.2	V	3.0	25.6	1.0	-64.8	-25.0	-39.8		
	10.740	-39.9	V	3.0	22.9	1.0	-61.8	-25.0	-36.8		
	5.375	-44.5	H	3.0	28.5	1.0	-72.1	-25.0	-47.1		
	8.055	-38.8	H	3.0	25.6	1.0	-63.4	-25.0	-38.4		
	10.740	-39.4	H	3.0	22.9	1.0	-61.3	-25.0	-36.3		
Rev. 03.03.09											