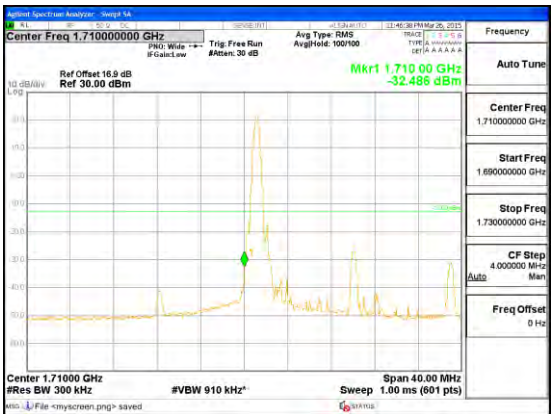
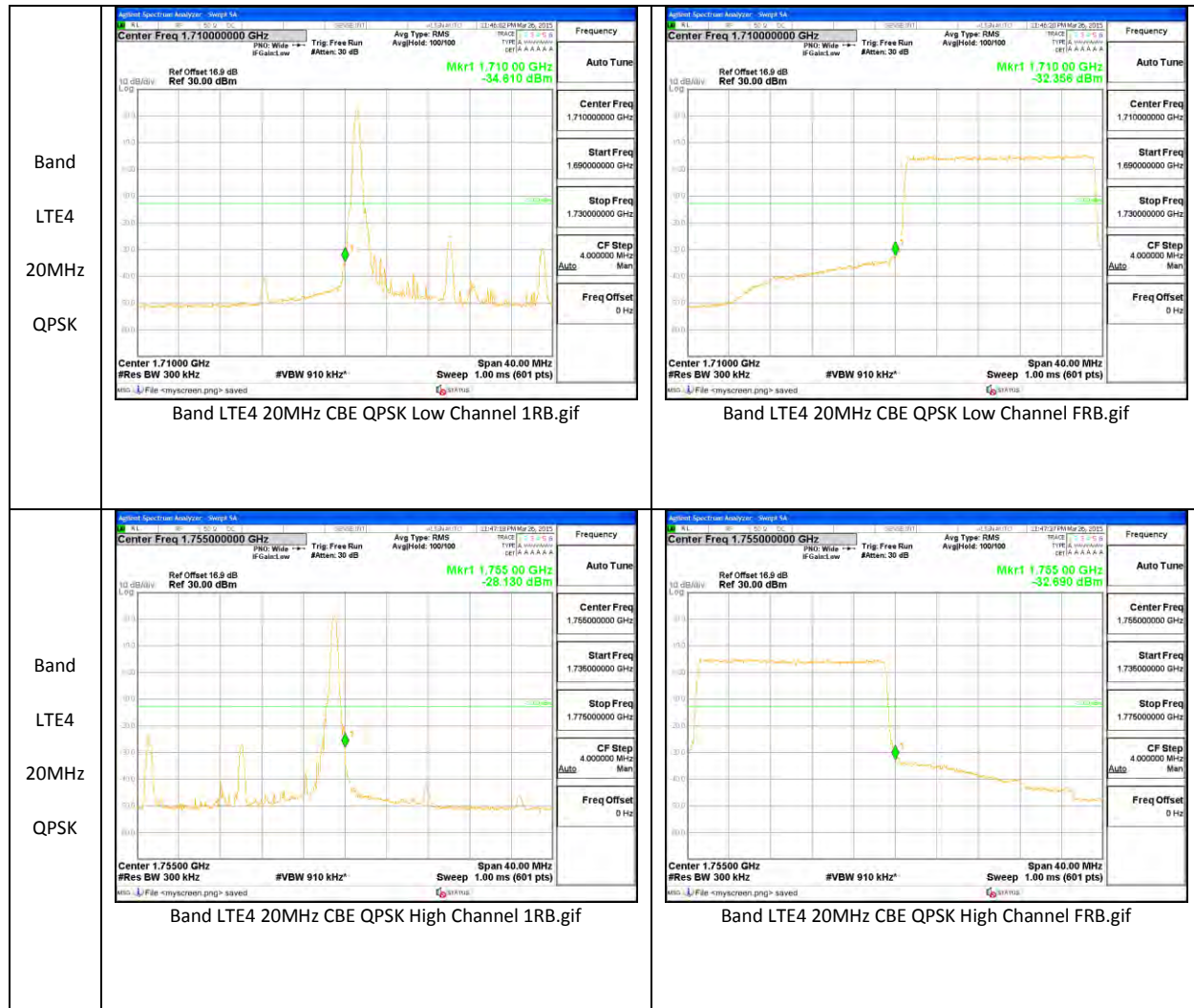
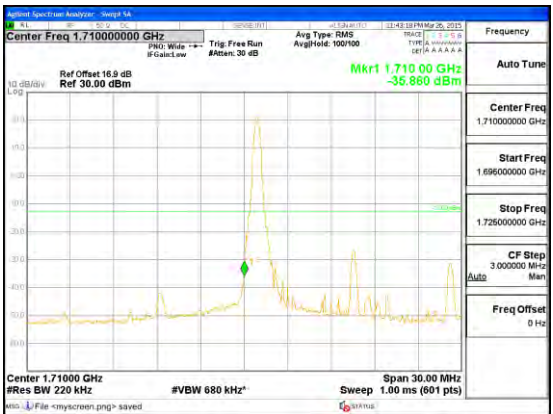
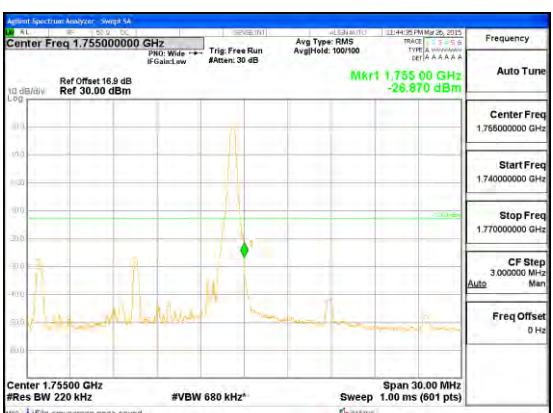
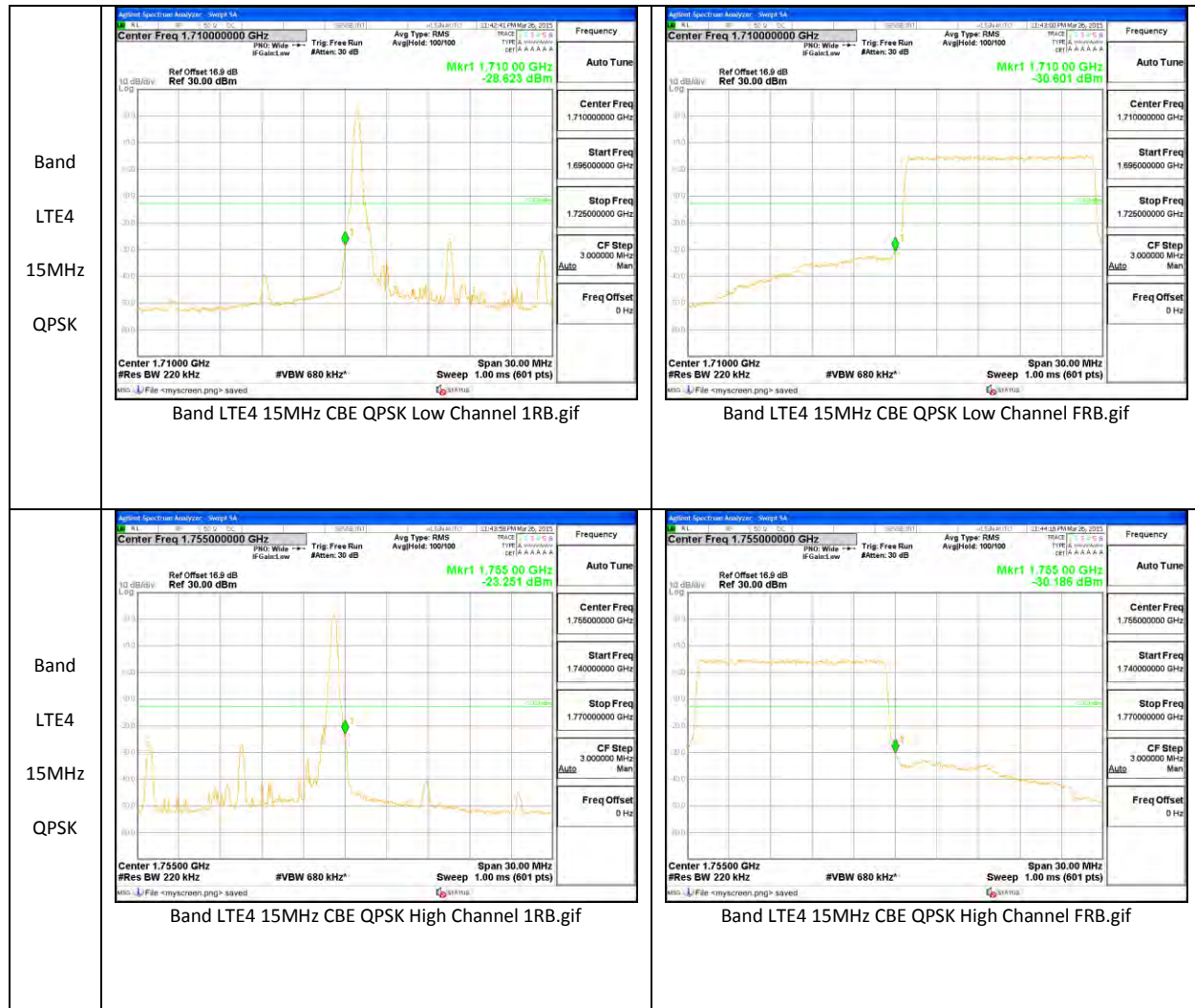
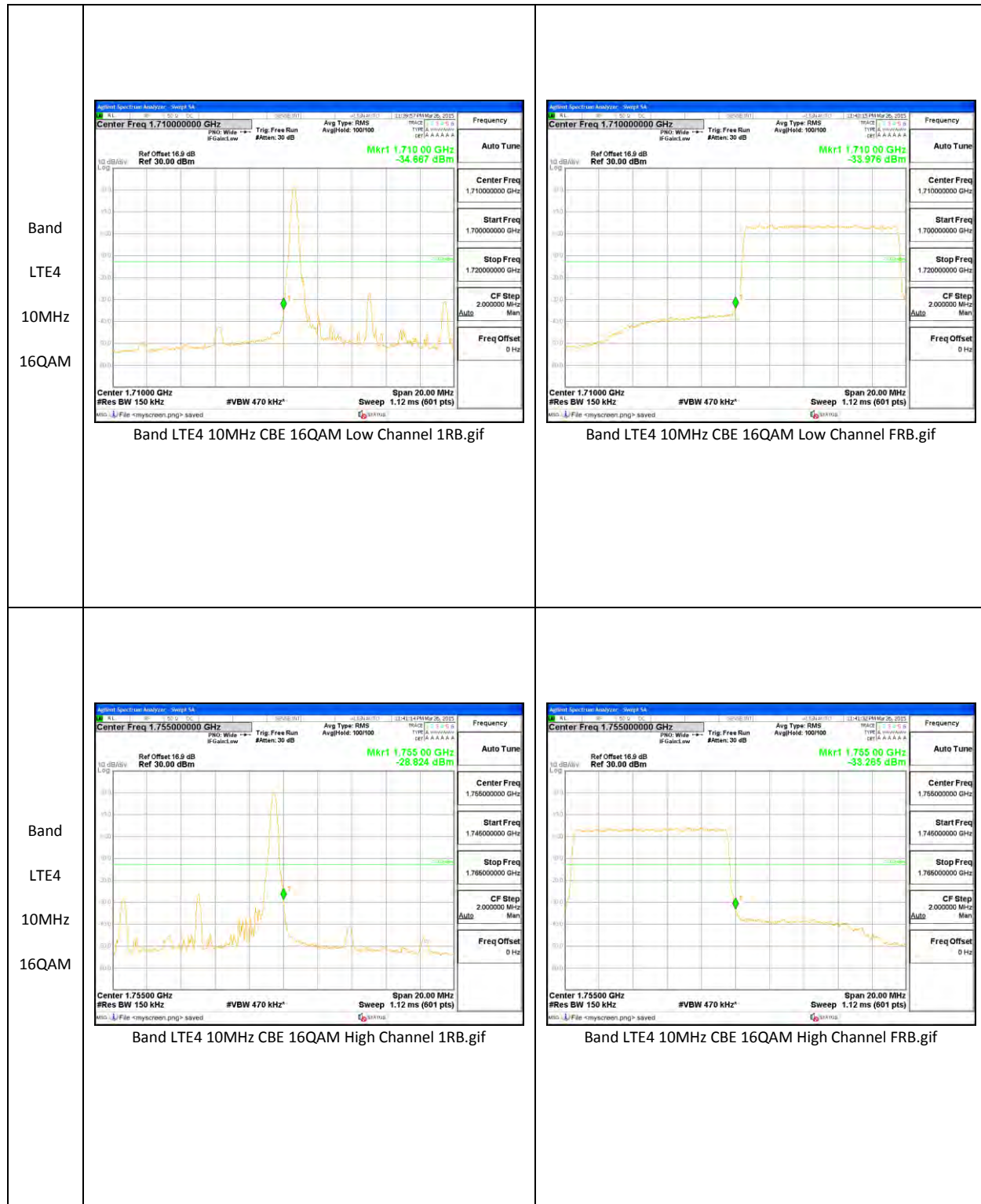


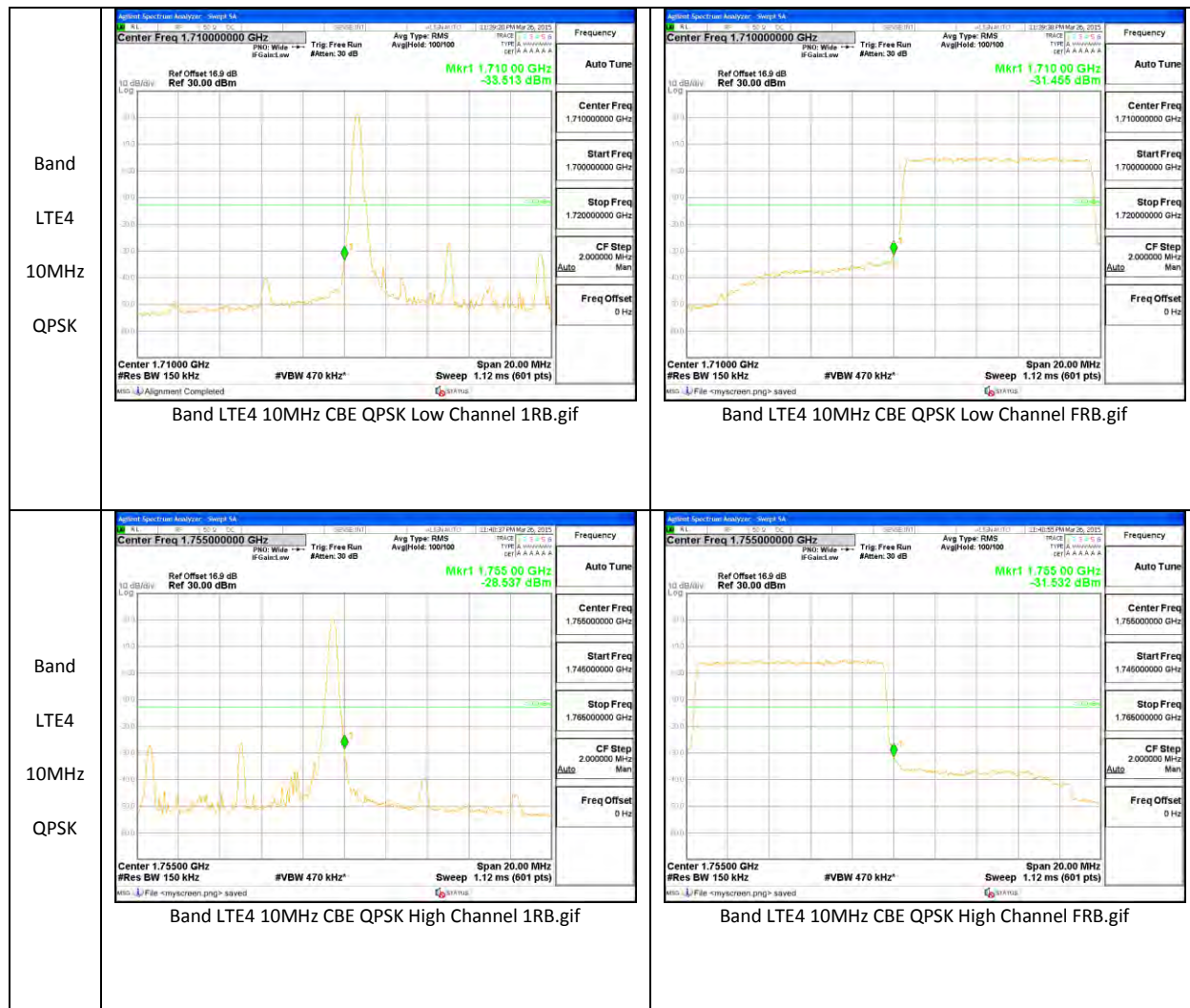
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 20MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 20MHz CBE 16QAM High Channel FRB.gif

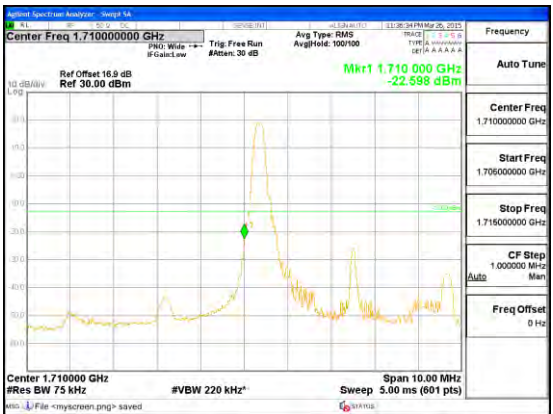
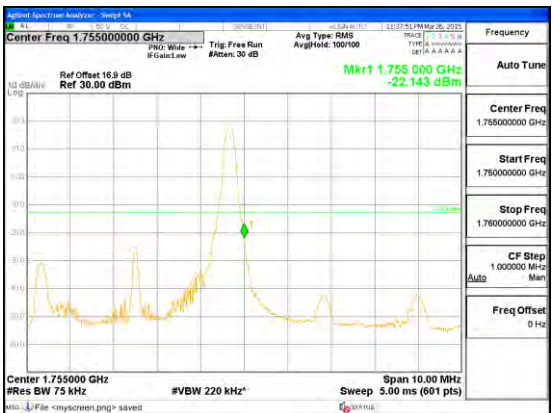


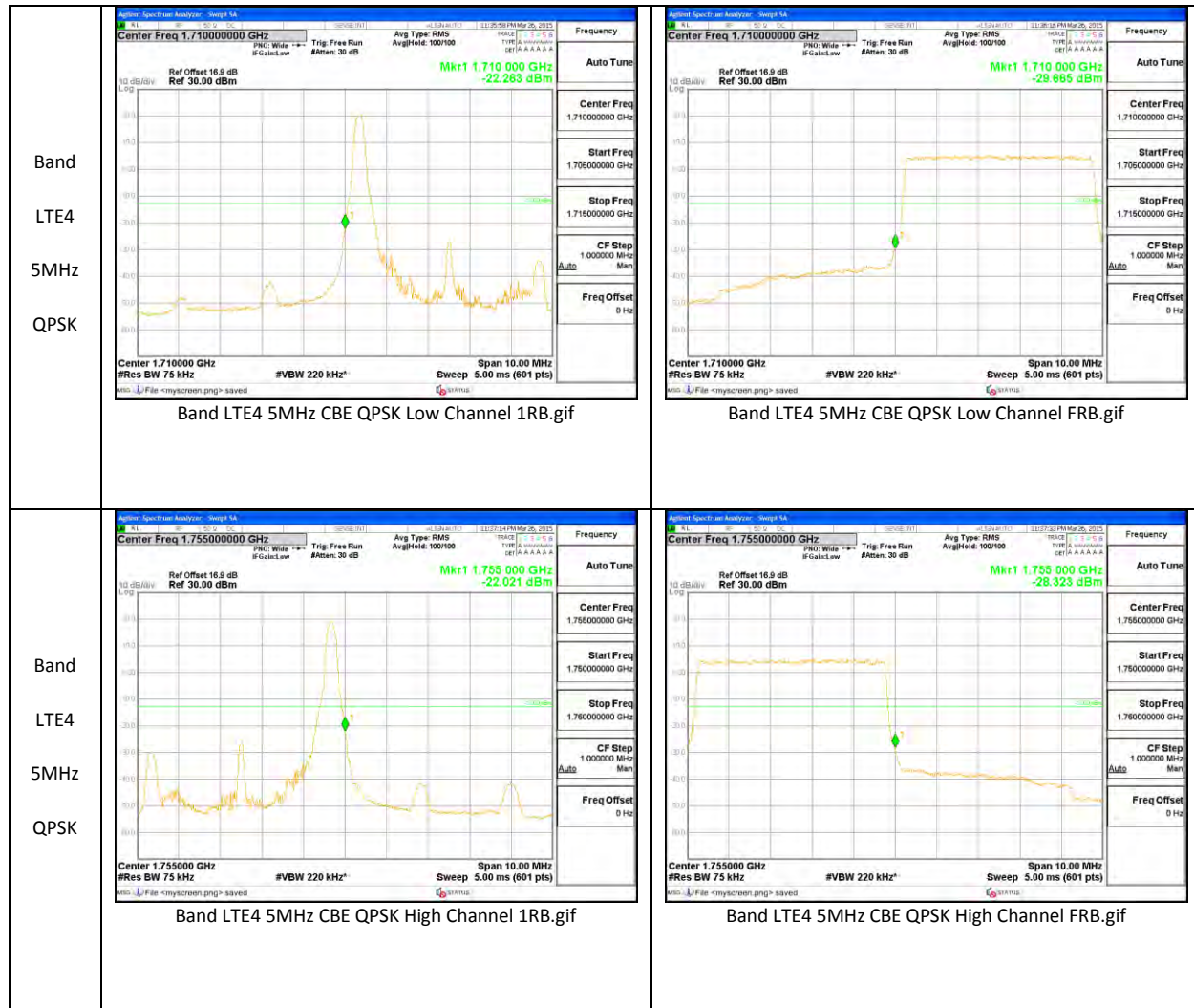
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 15MHz CBE 16QAM High Channel FRB.gif

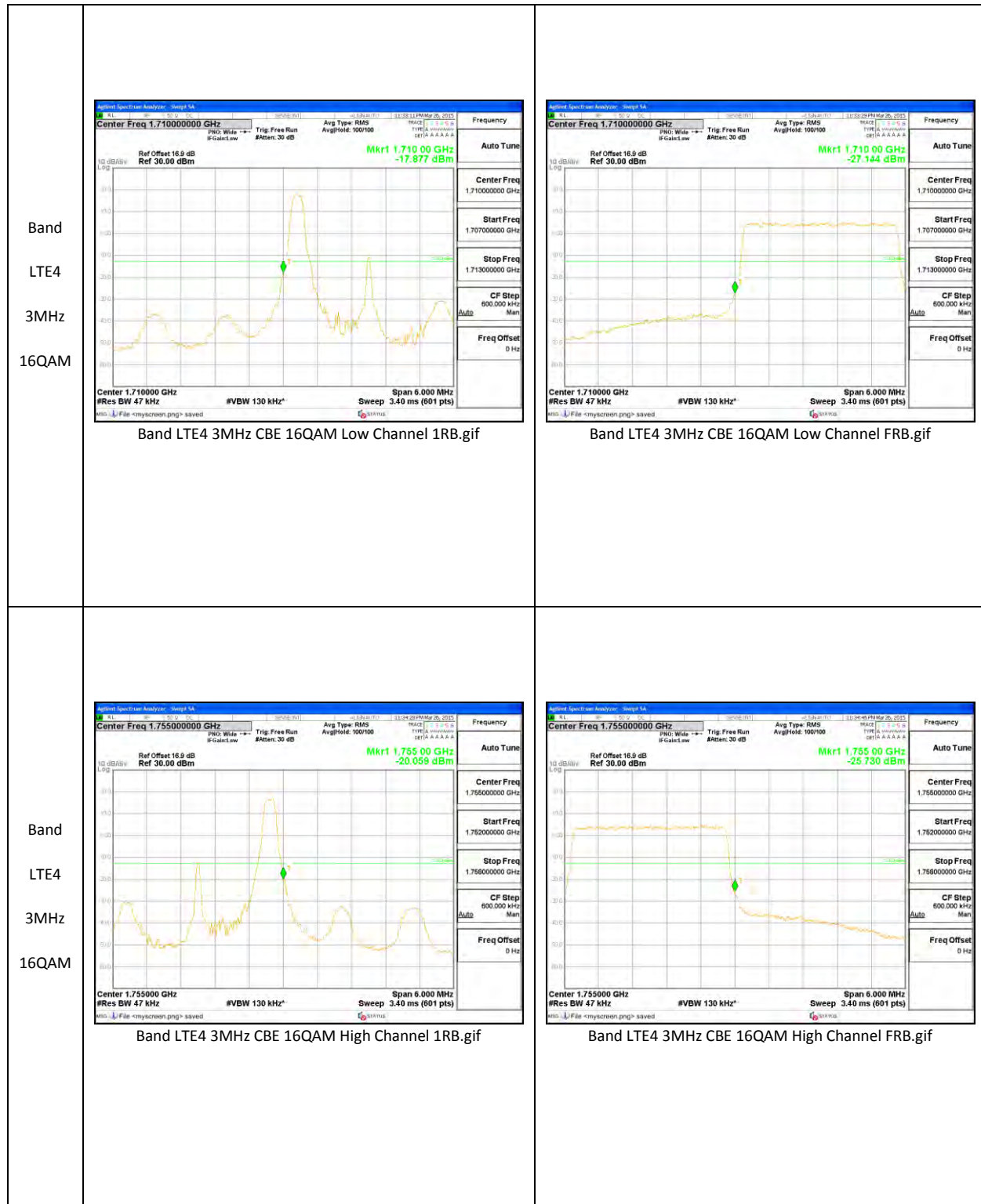


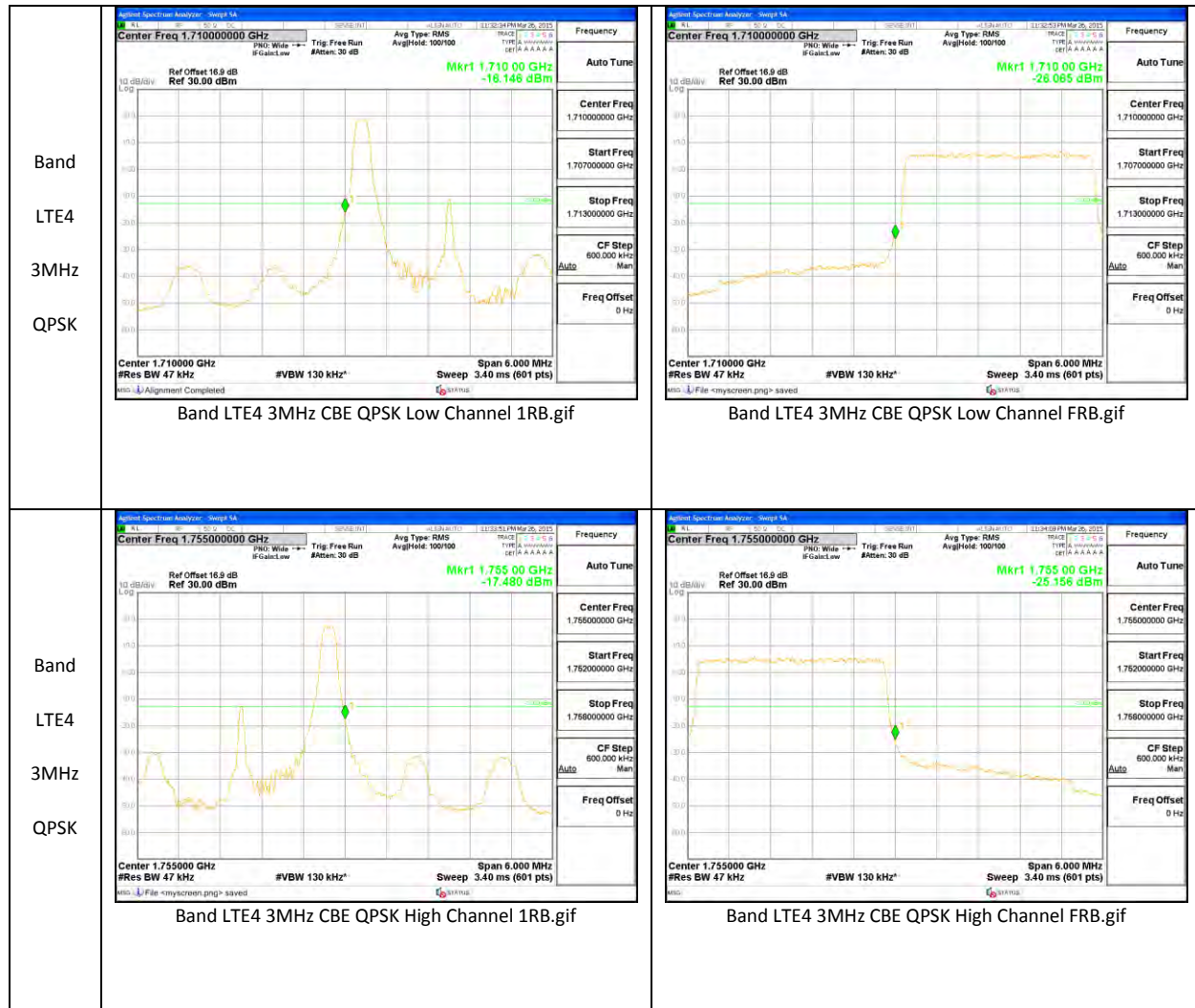


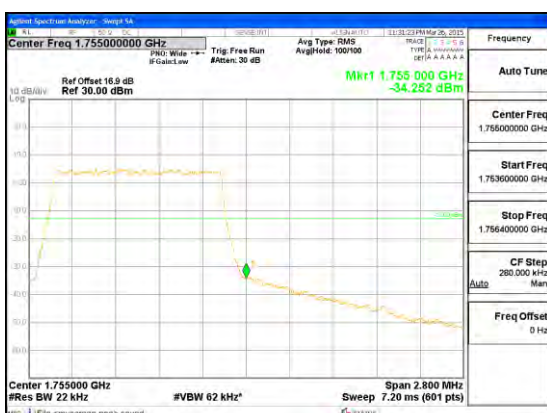


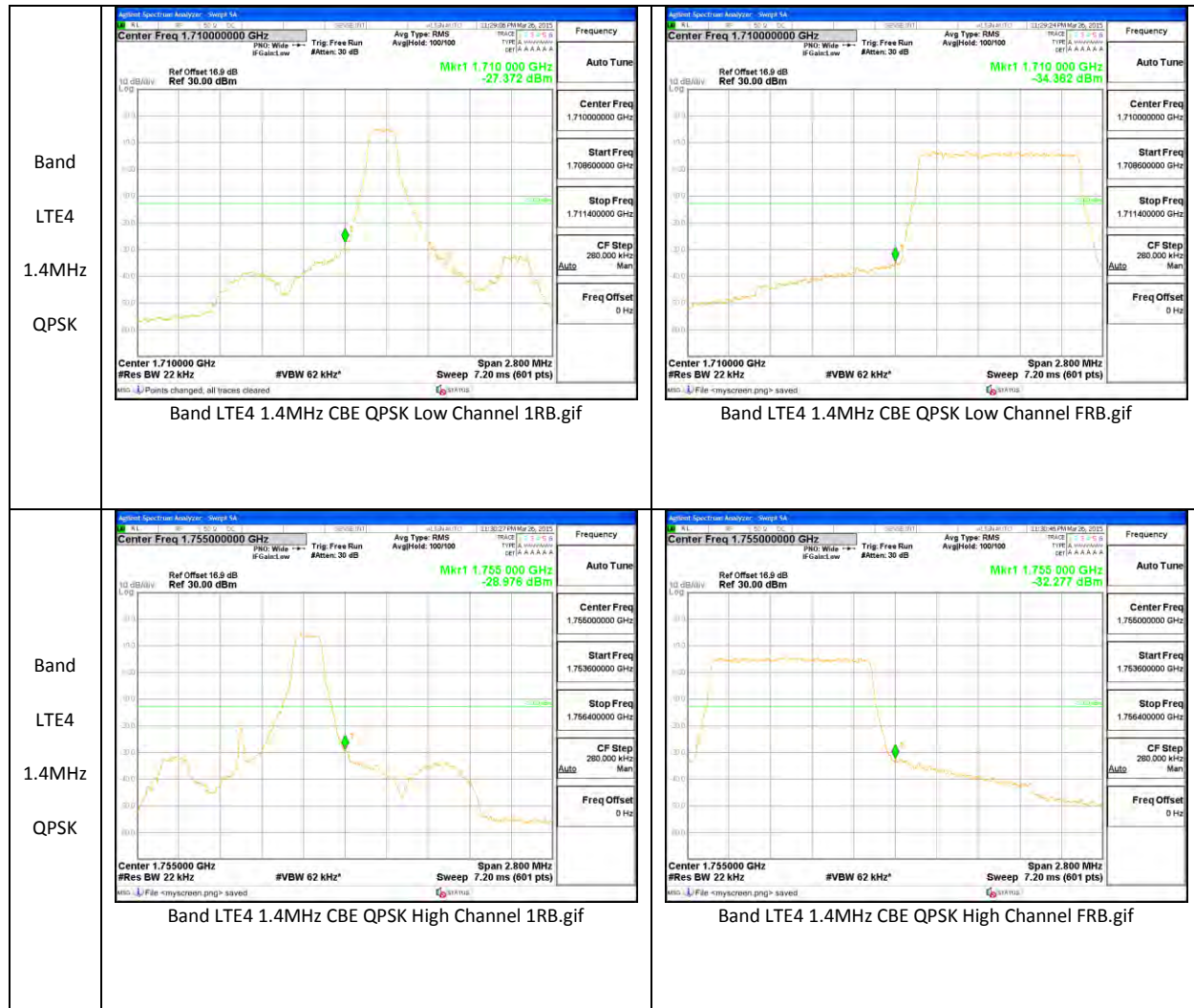
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 5MHz CBE 16QAM High Channel FRB.gif

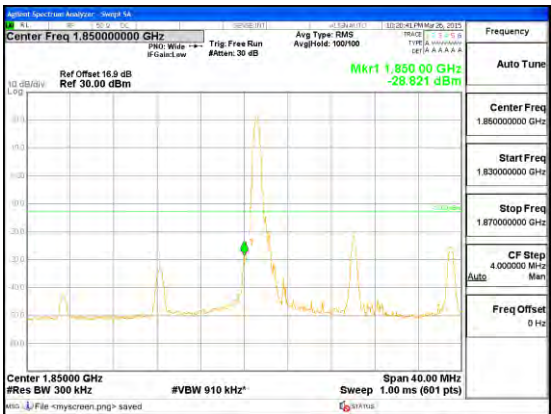
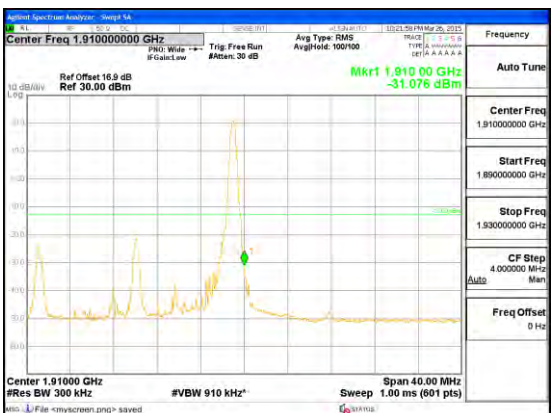
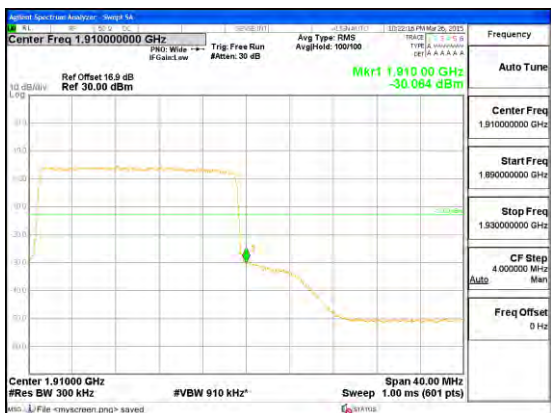


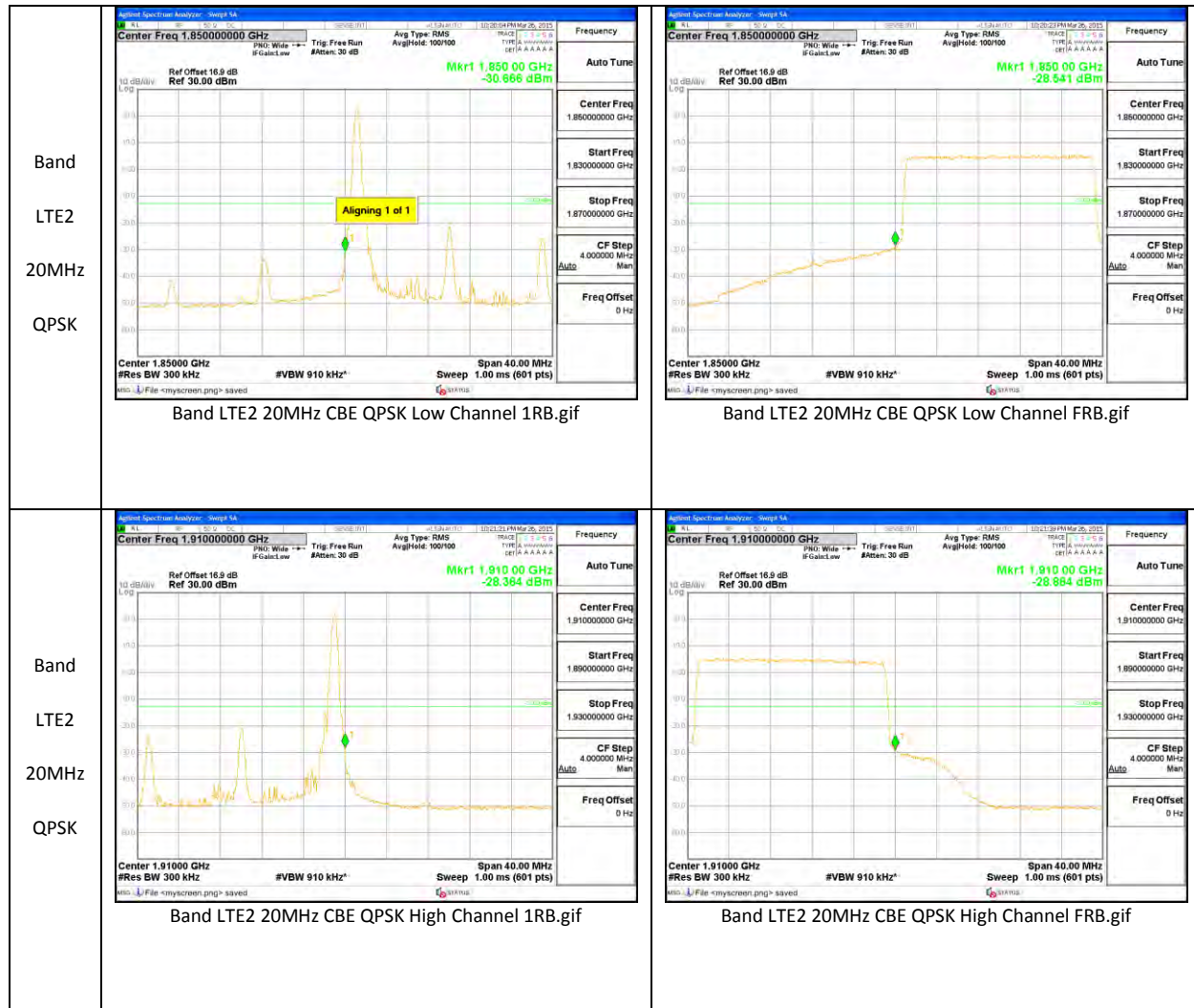


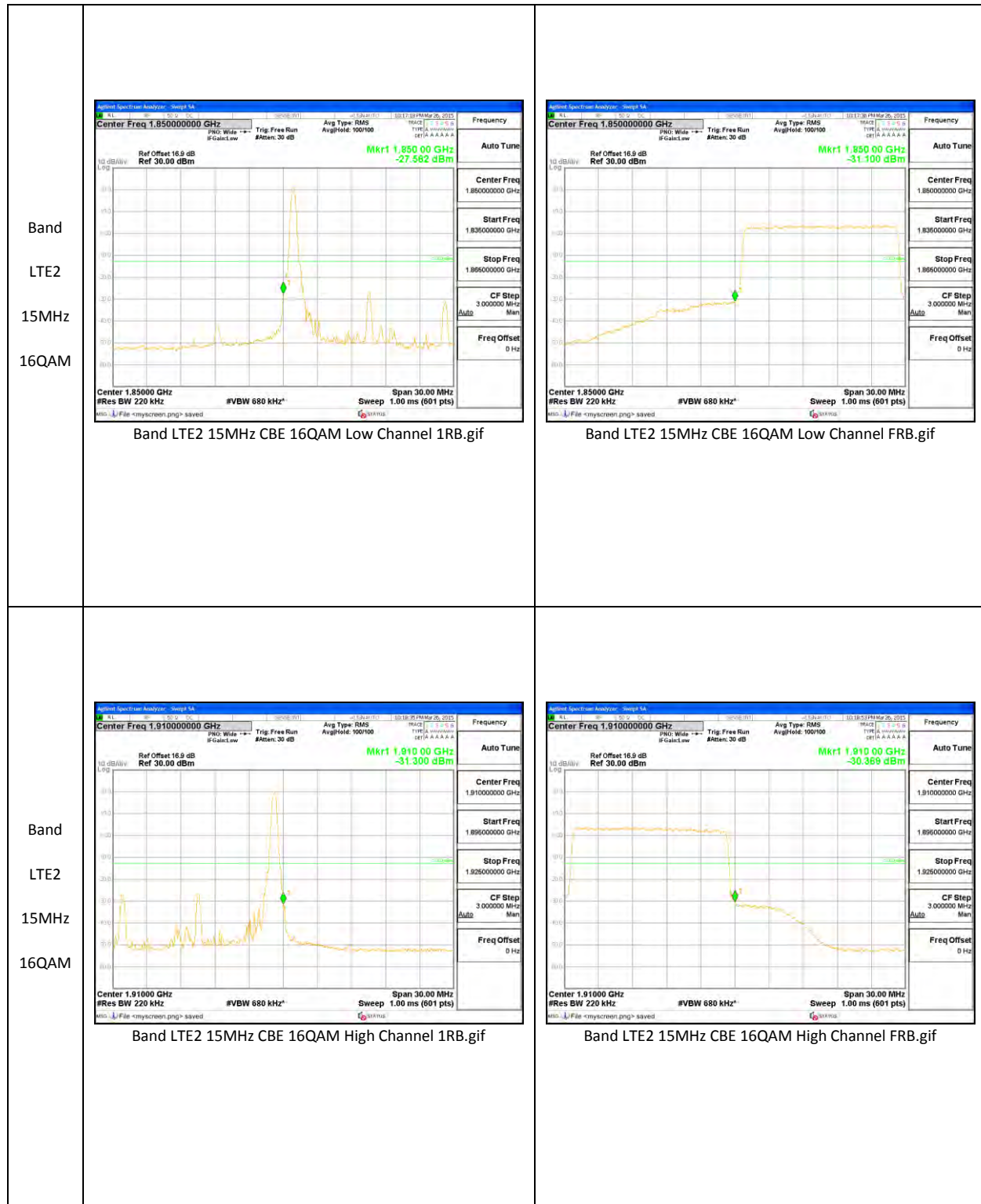


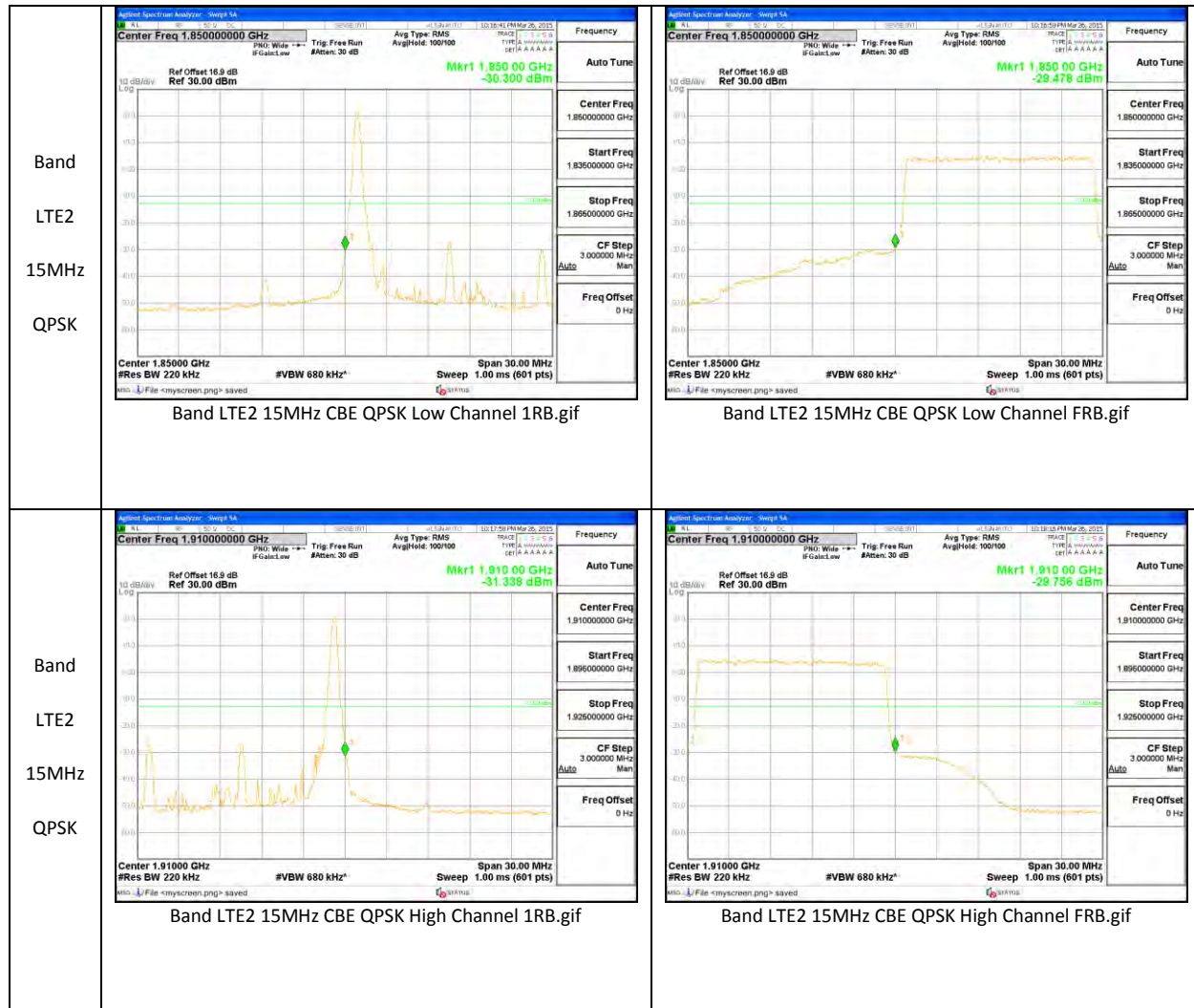
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 1.4MHz CBE 16QAM High Channel FRB.gif

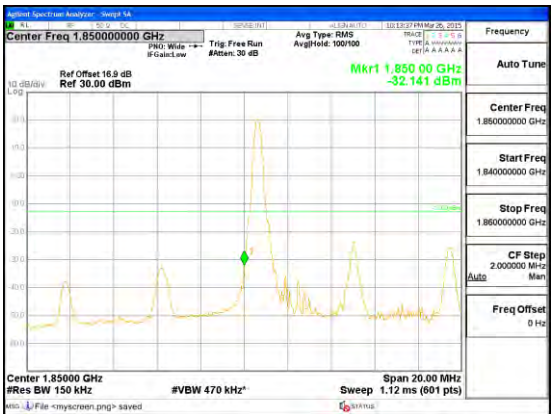
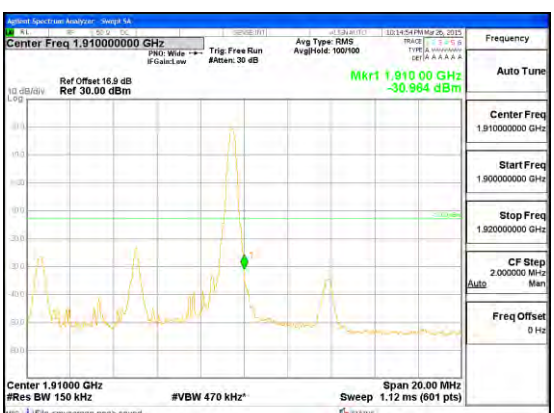


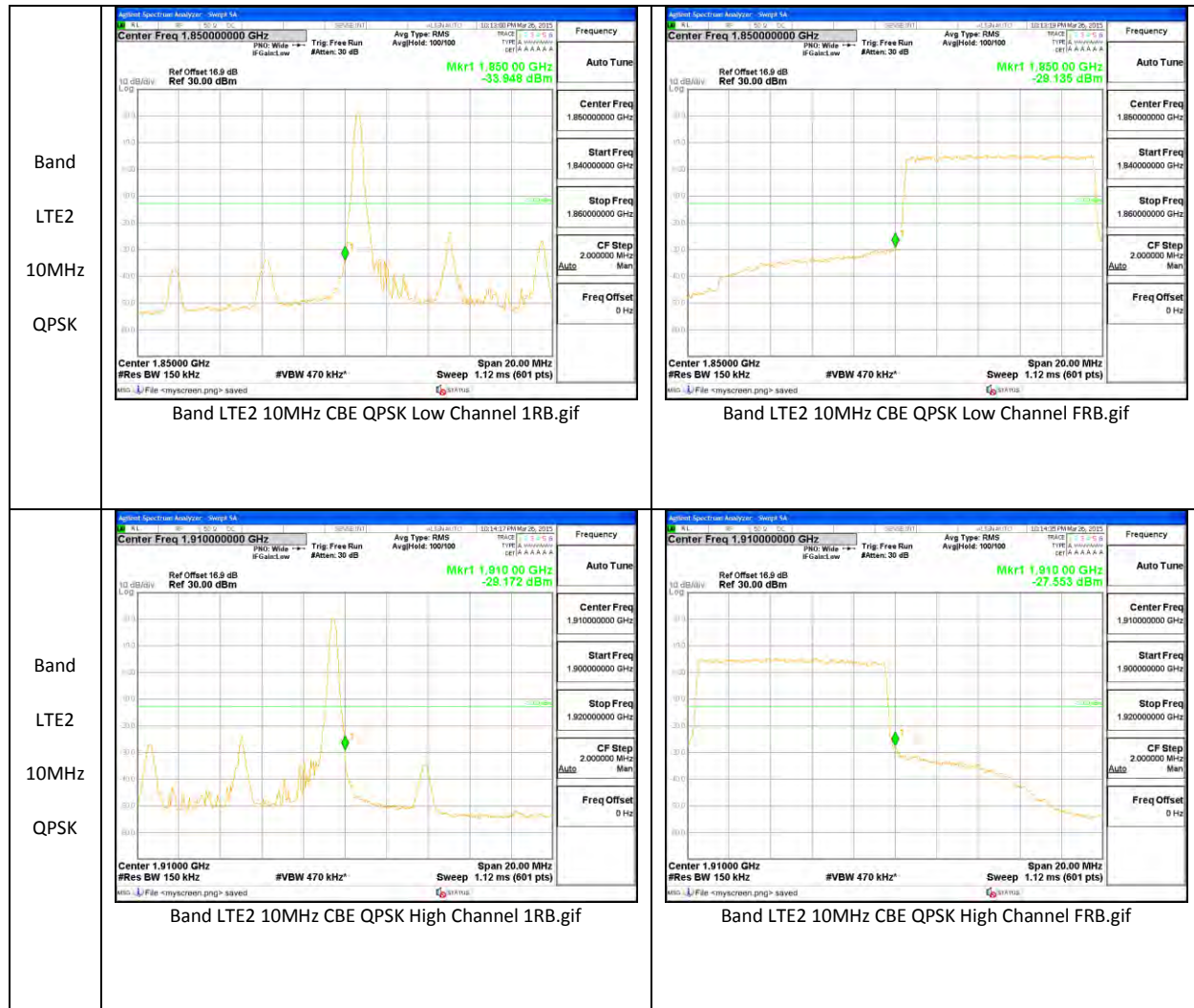
Band LTE2 20MHz 16QAM	 Band LTE2 20MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 20MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 20MHz 16QAM	 Band LTE2 20MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 20MHz CBE 16QAM High Channel FRB.gif

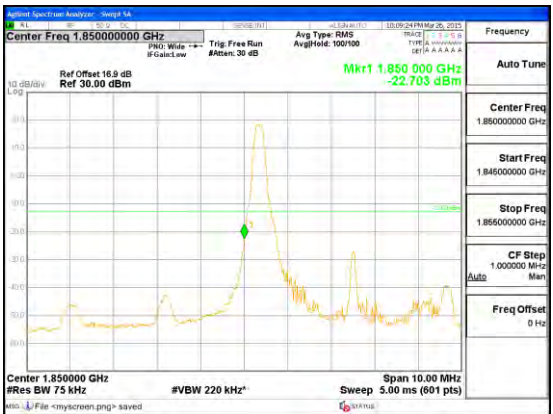
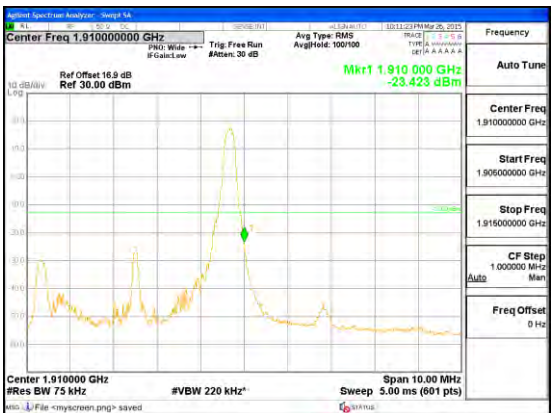


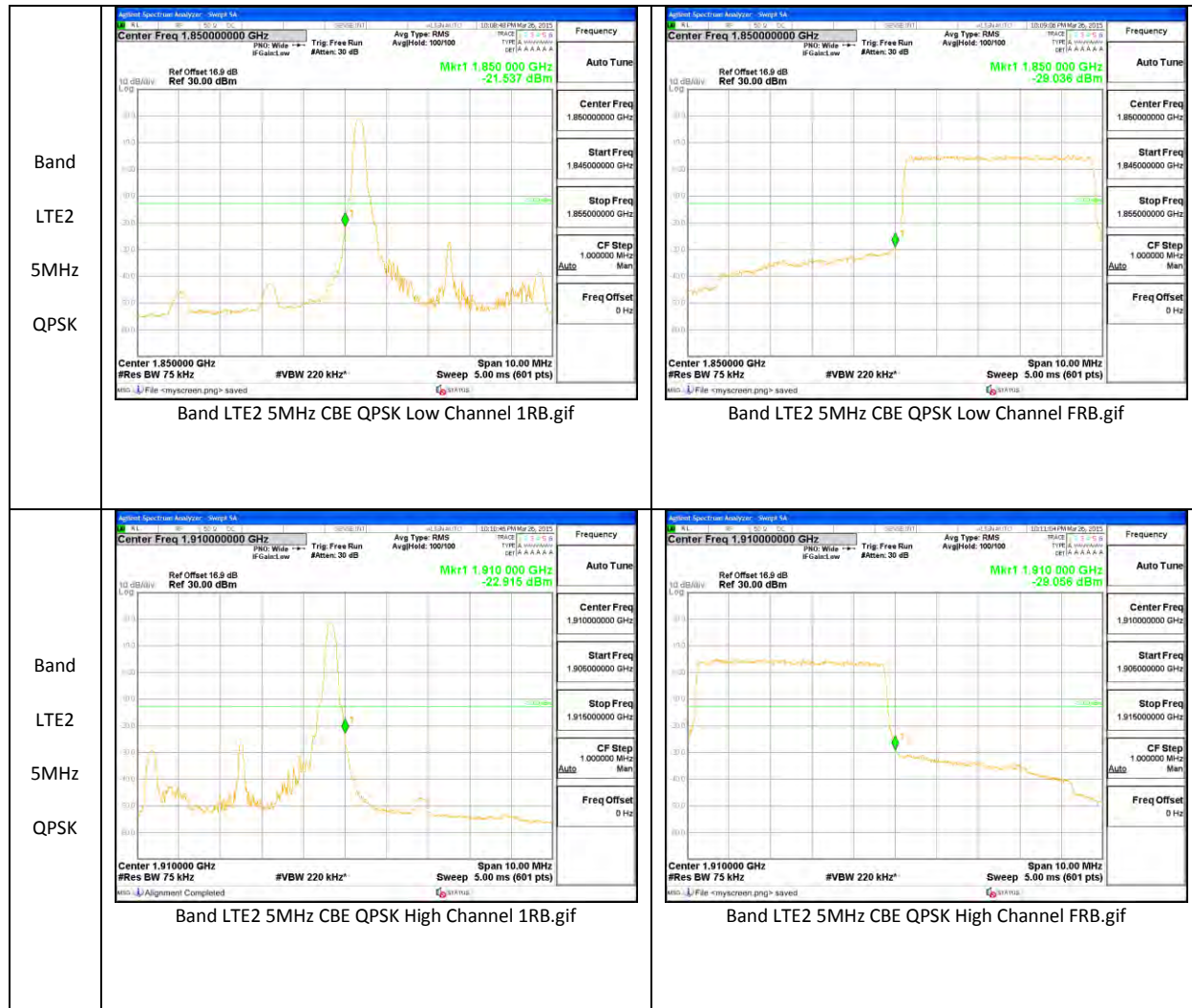


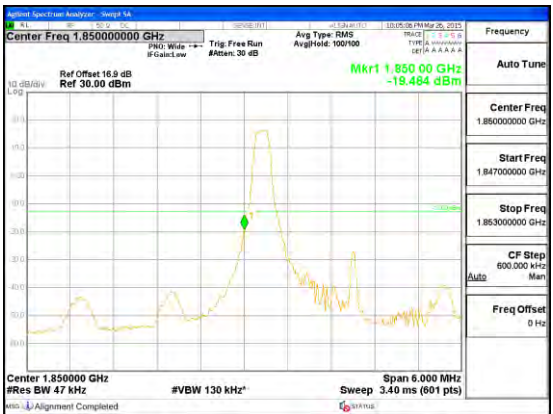
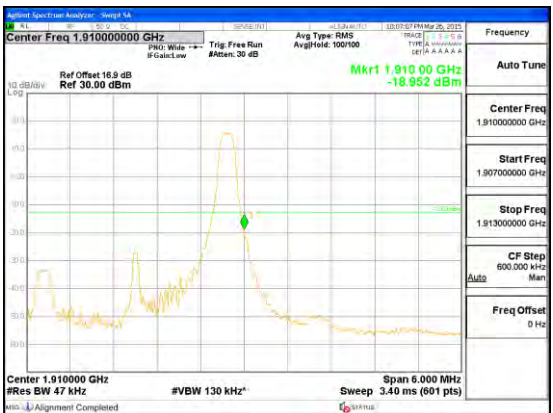


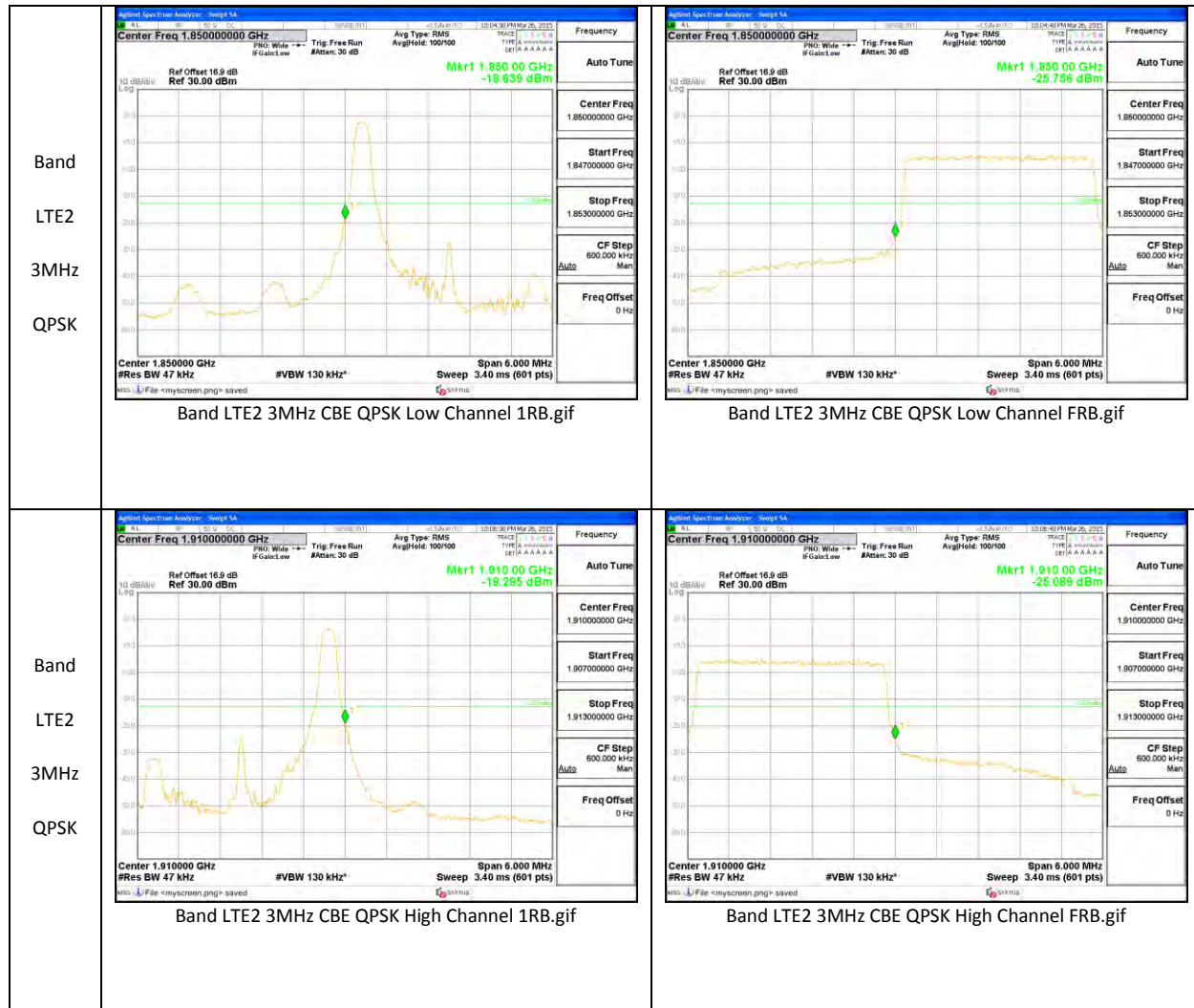
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 10MHz CBE 16QAM High Channel FRB.gif

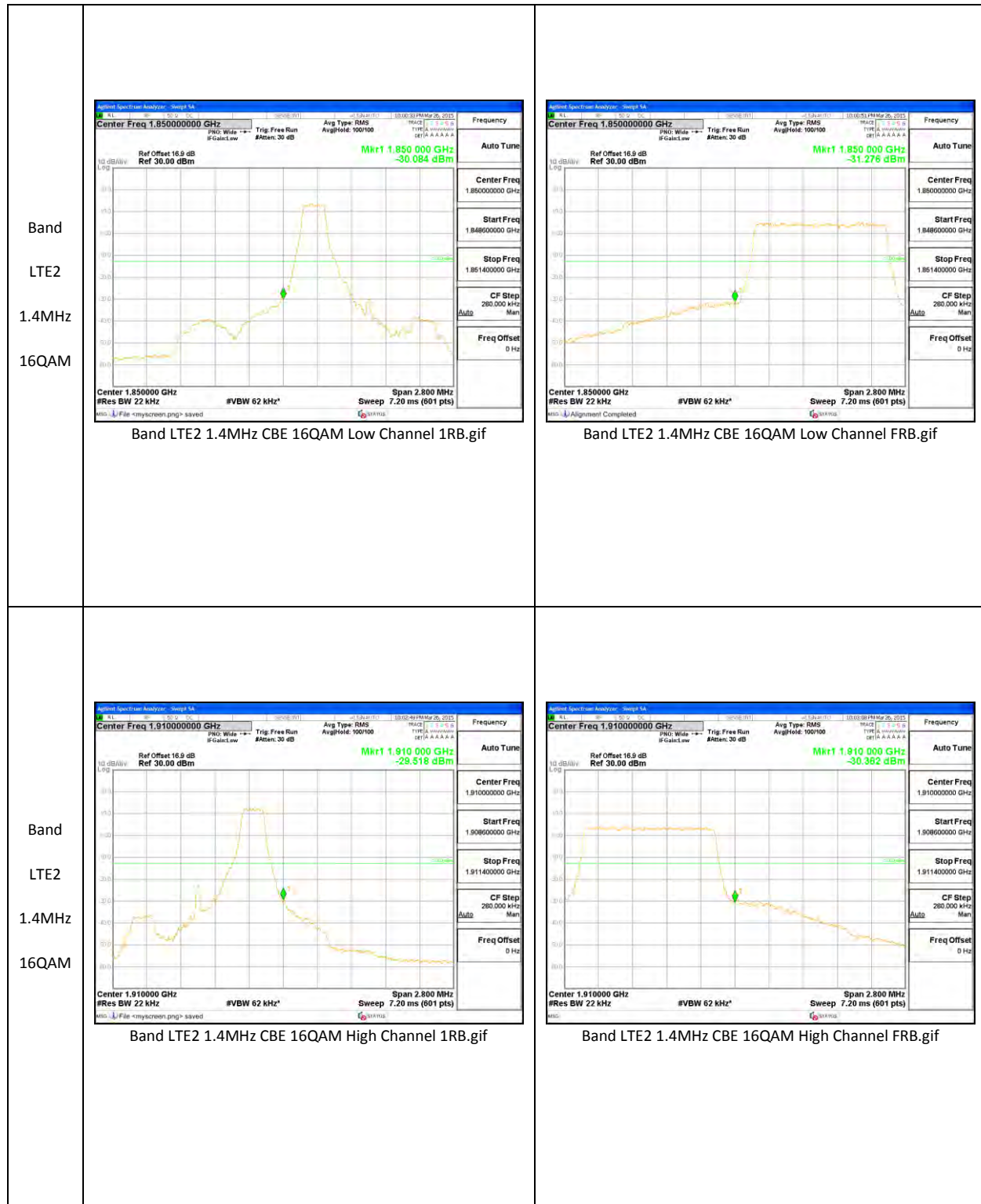


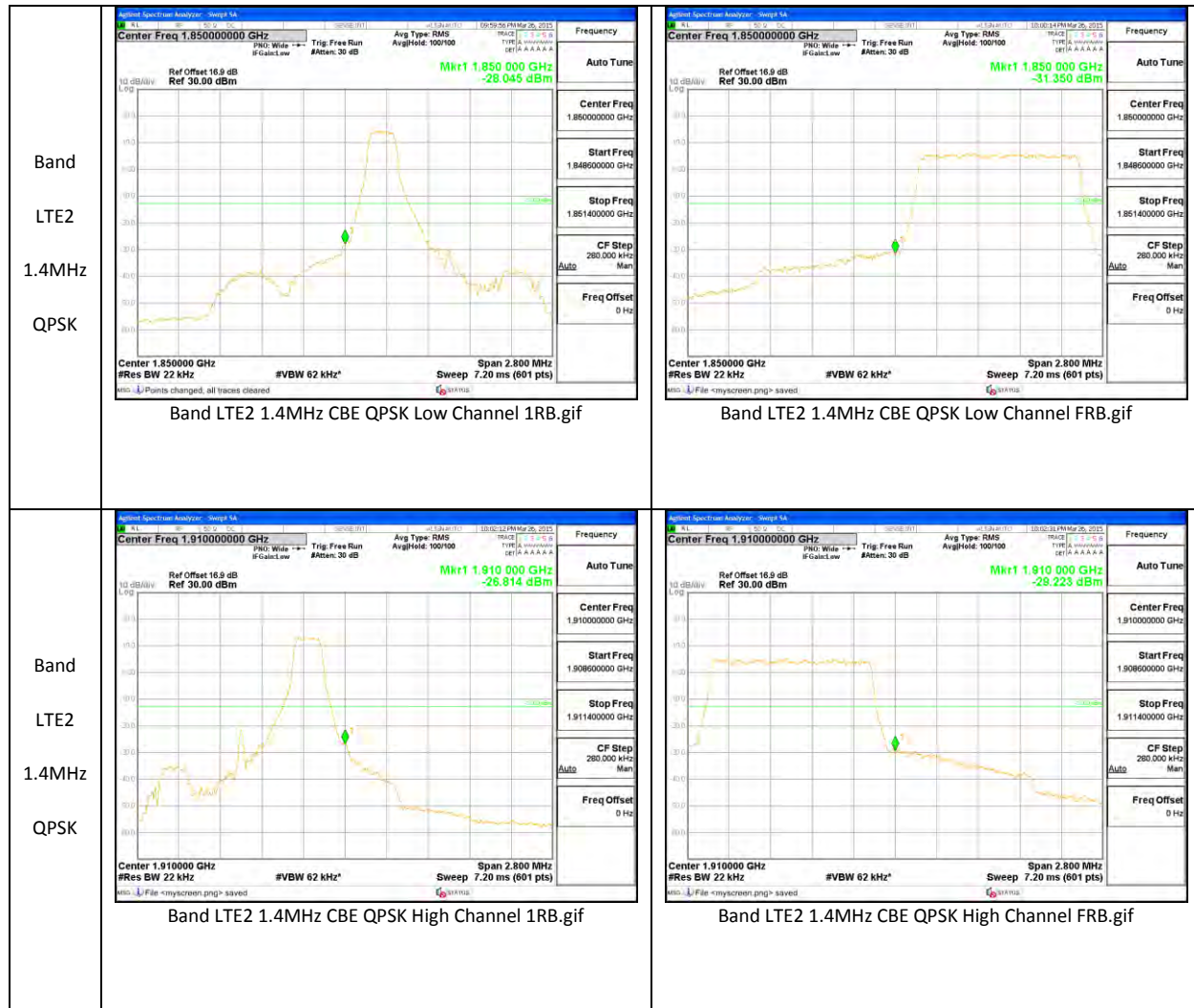
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 5MHz CBE 16QAM High Channel FRB.gif

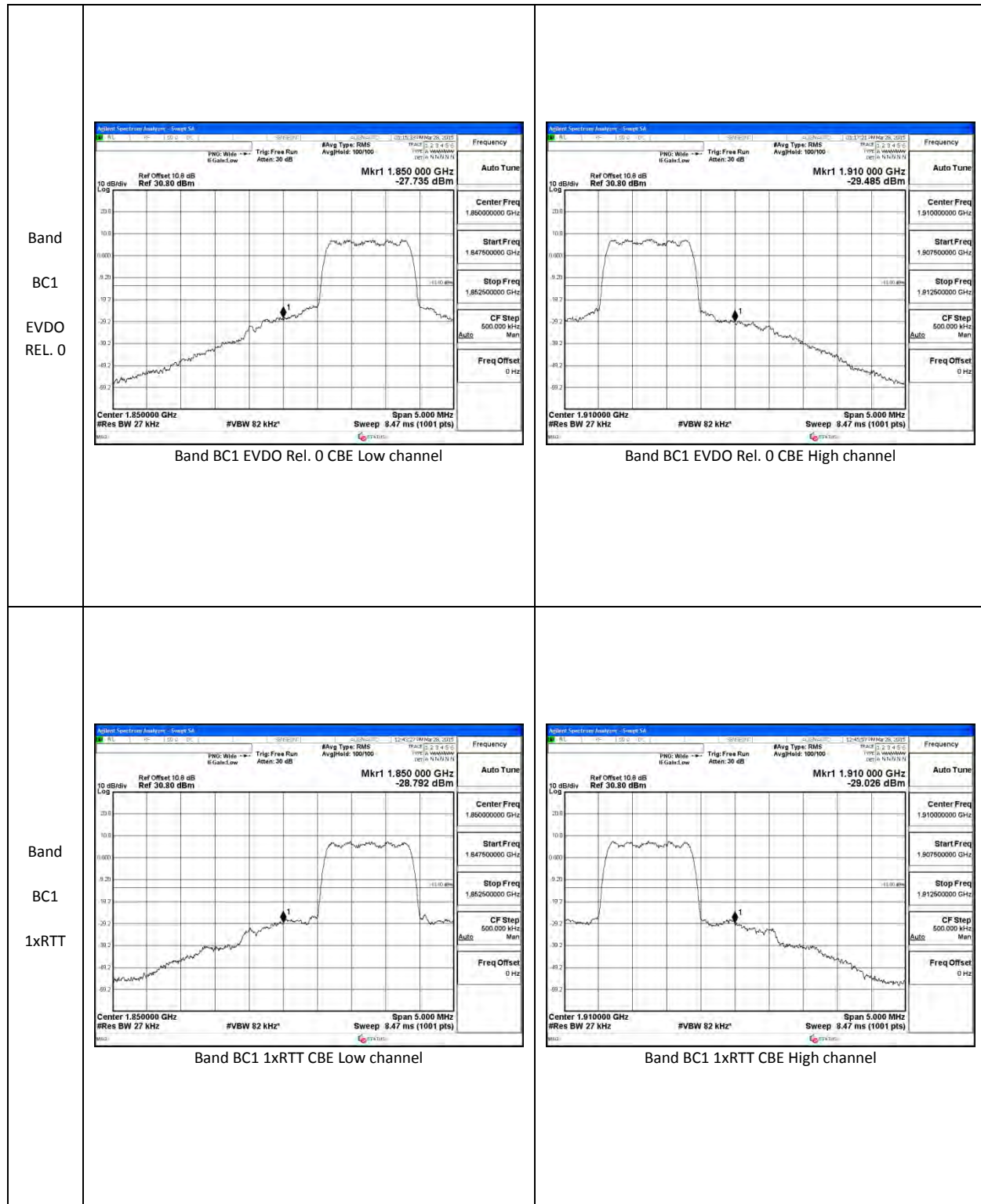


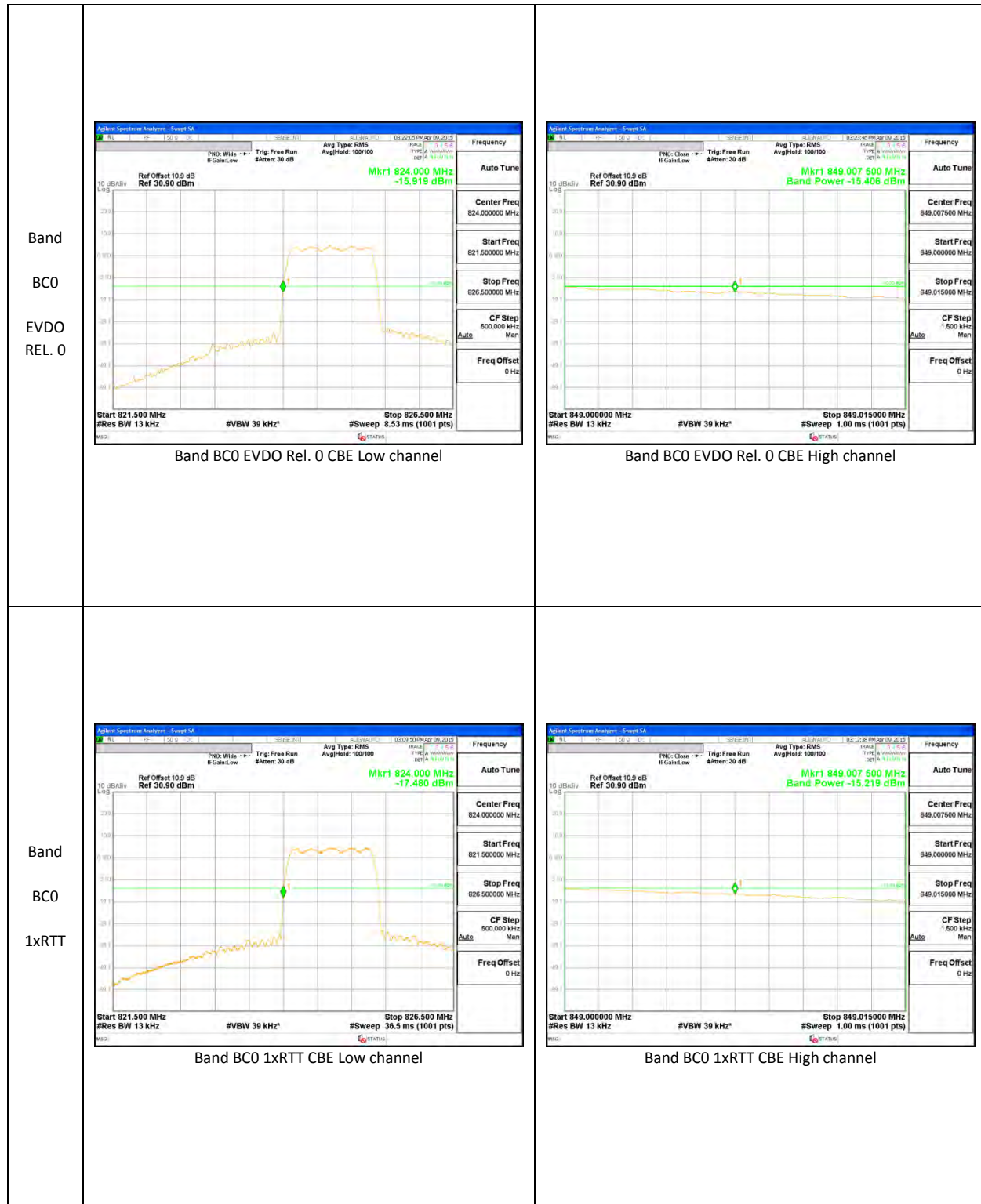
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 3MHz CBE 16QAM High Channel FRB.gif

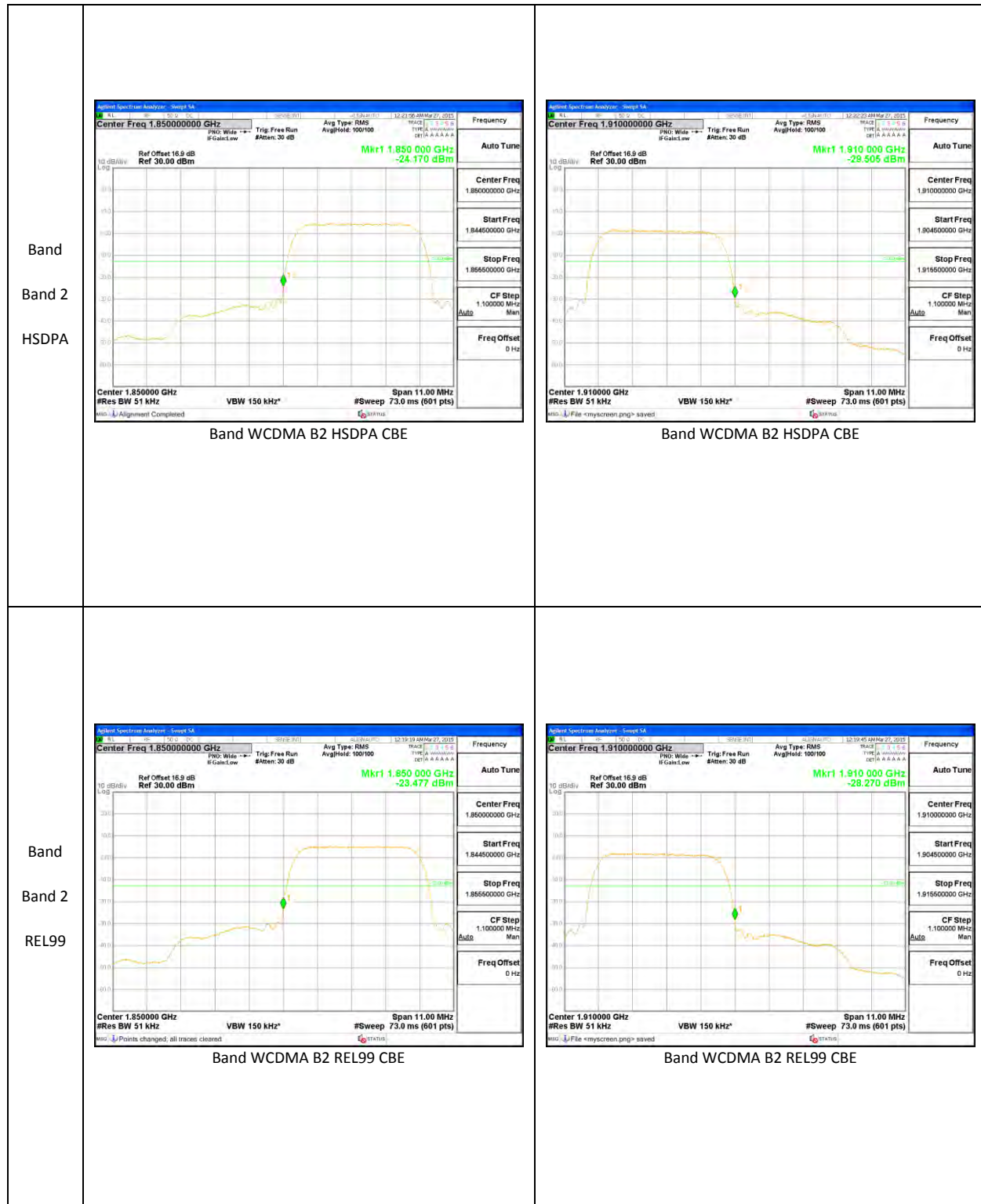


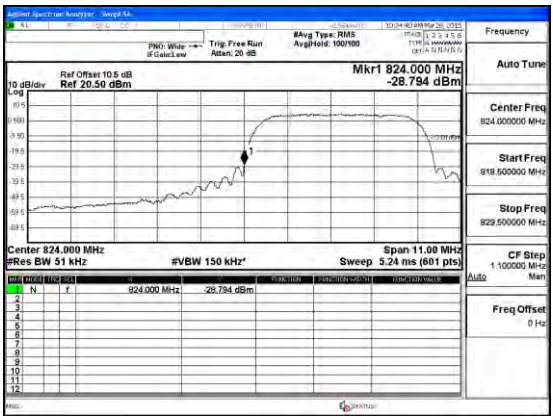
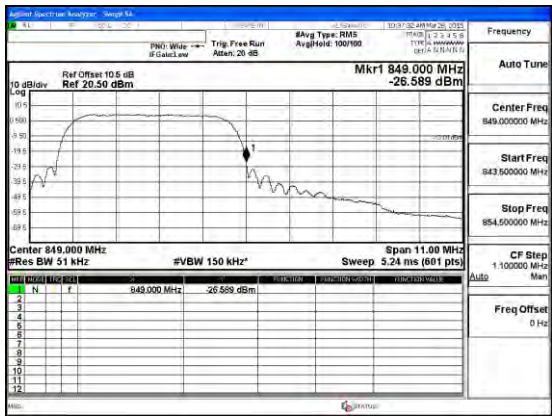
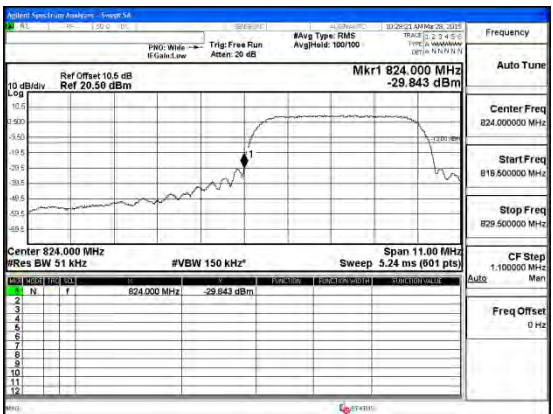
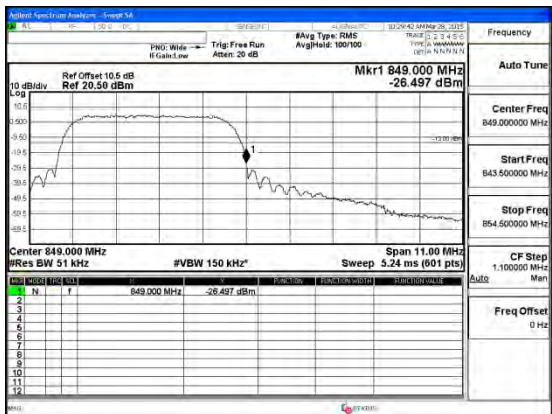


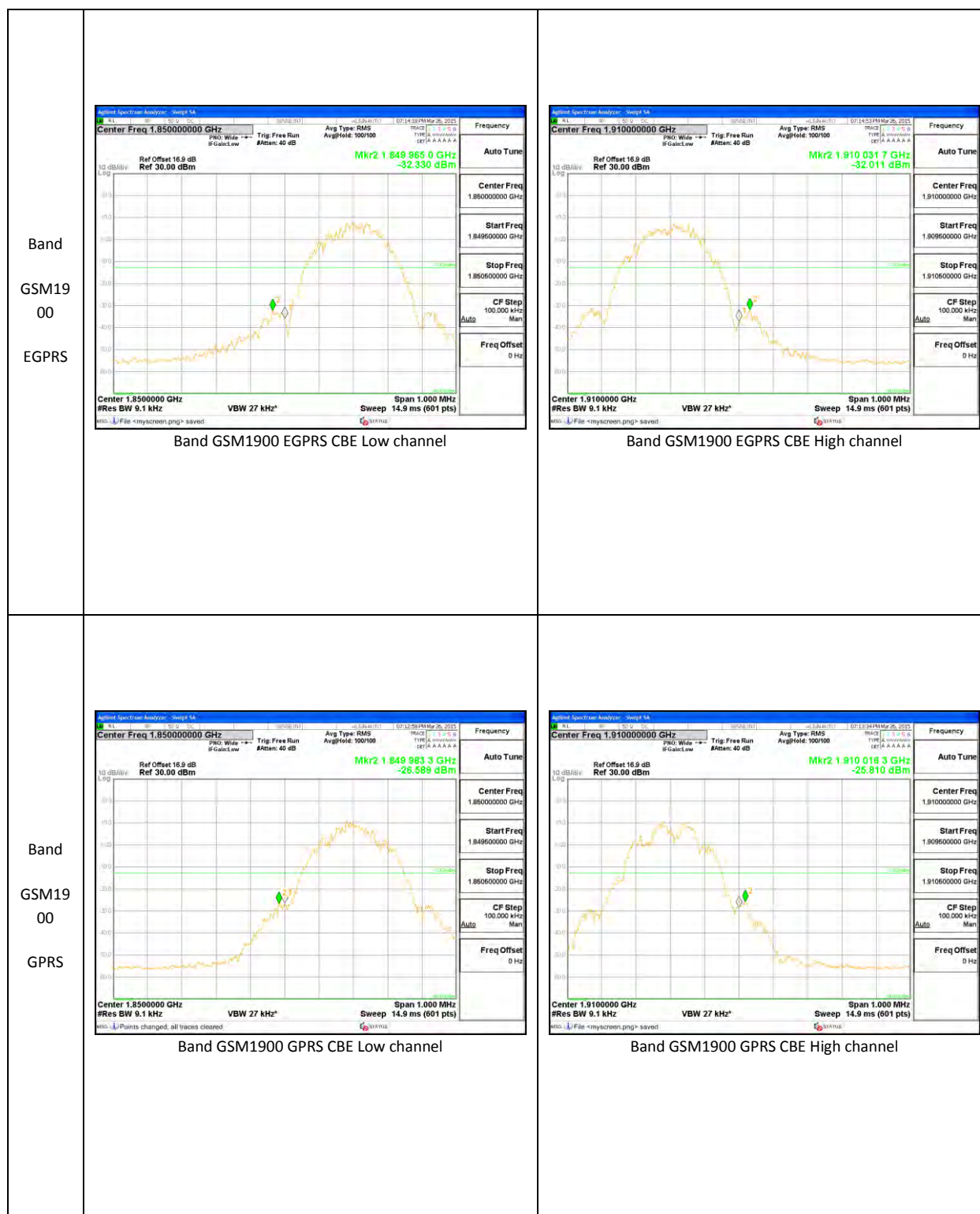


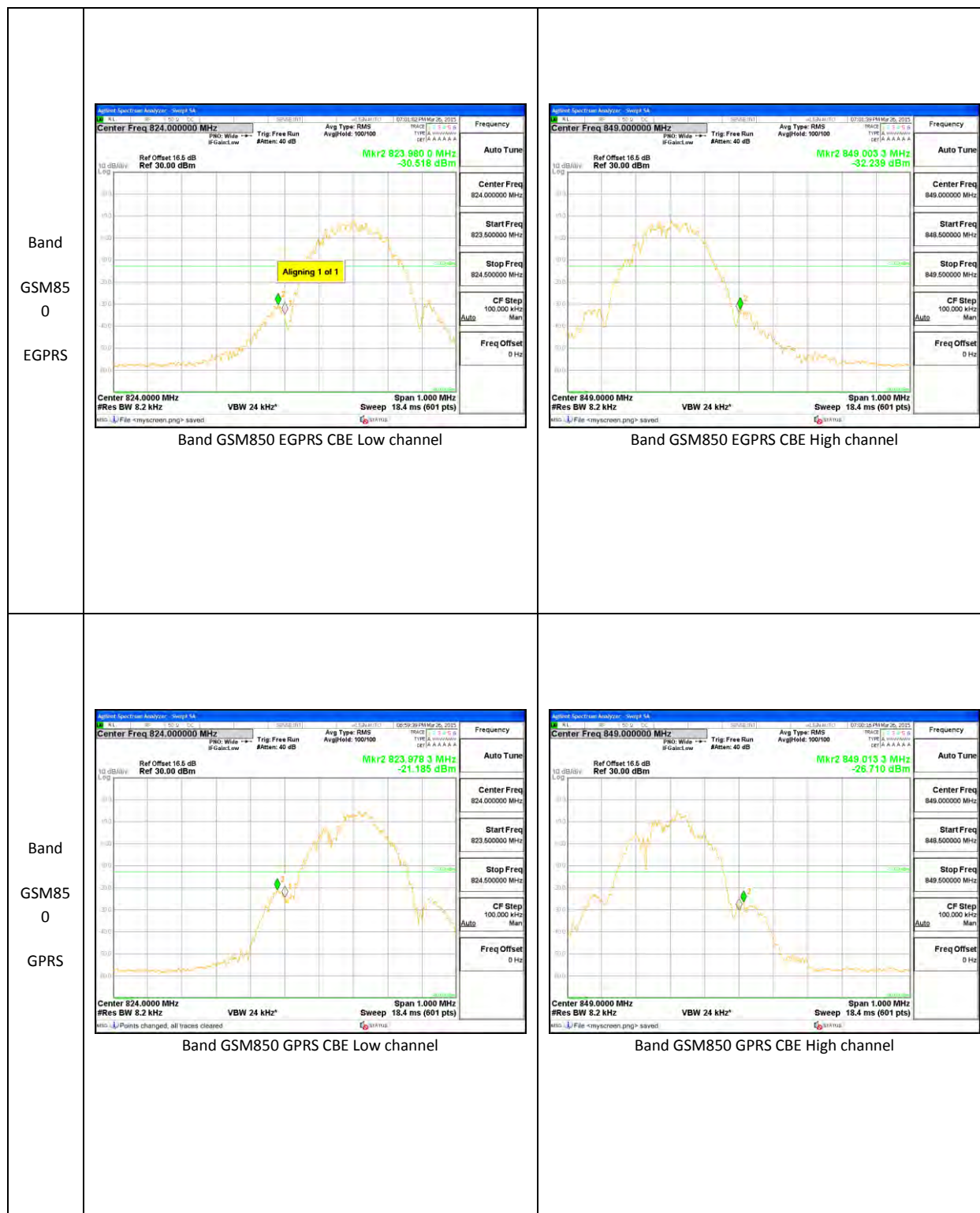






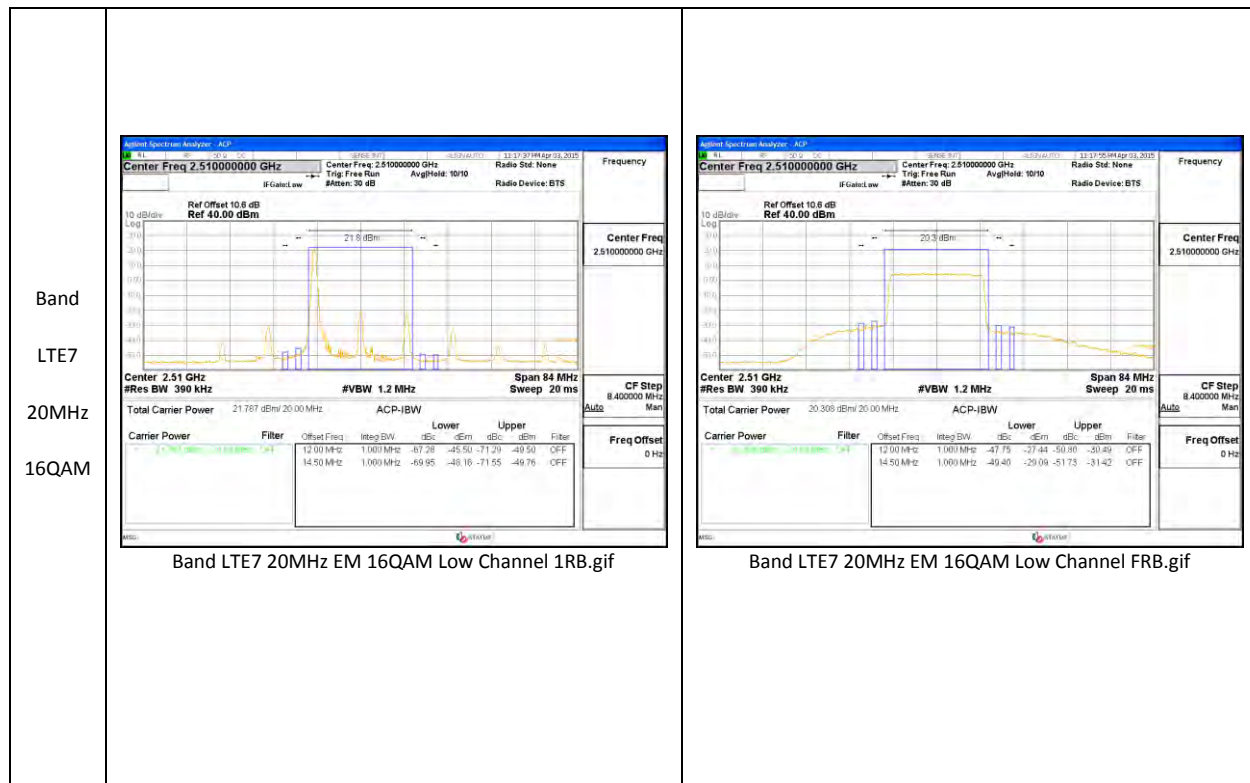
Band Band 5 HSDPA	 Band WCDMA B5 HSDPA CBE	 Band WCDMA B5 HSDPA CBE
Band Band 5 REL99	 Band WCDMA B5 REL99 CBE	 Band WCDMA B5 REL99 CBE

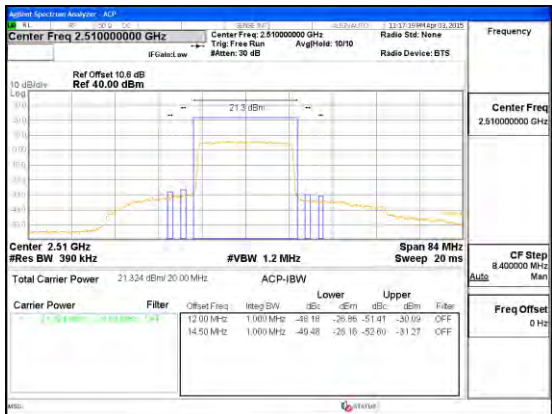
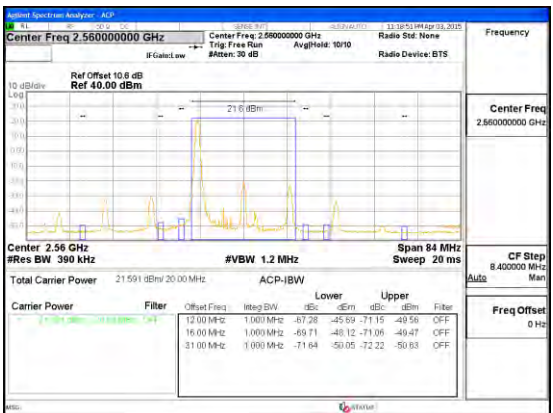


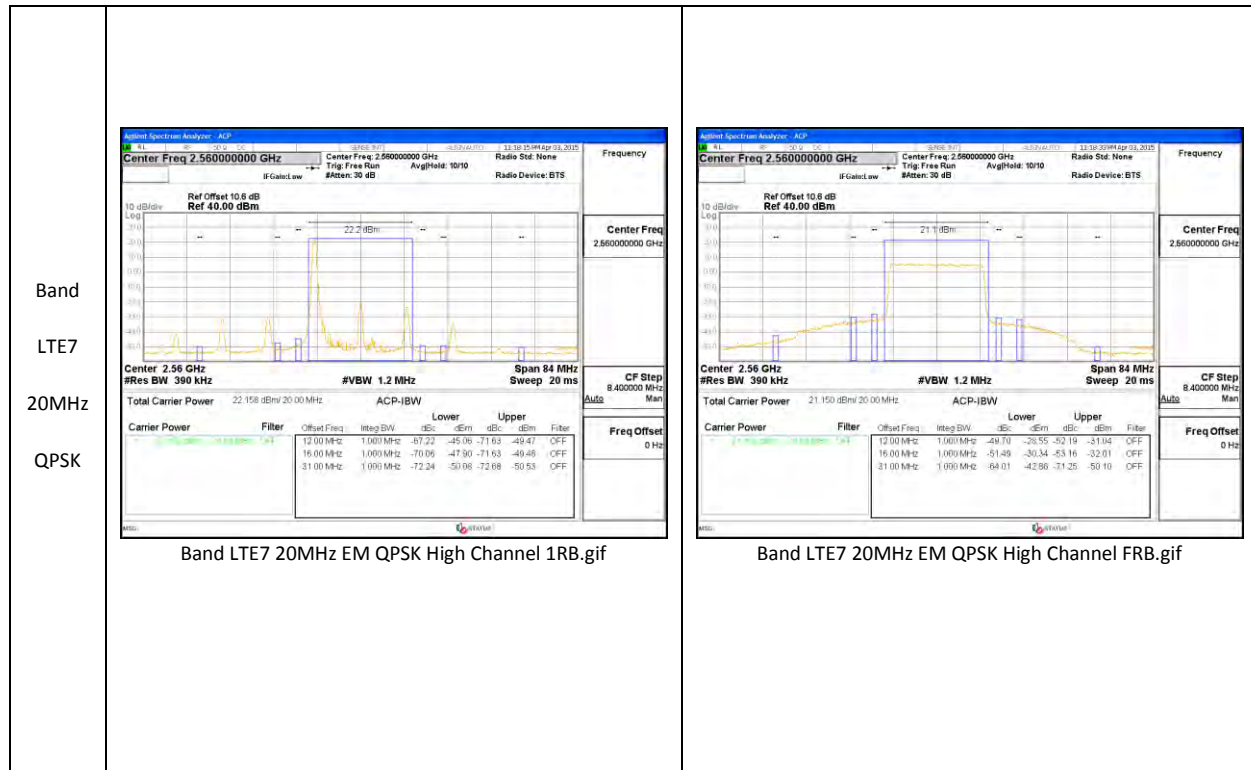


10.2.2. EMISSION MASK PLOTS

LTE Band 7

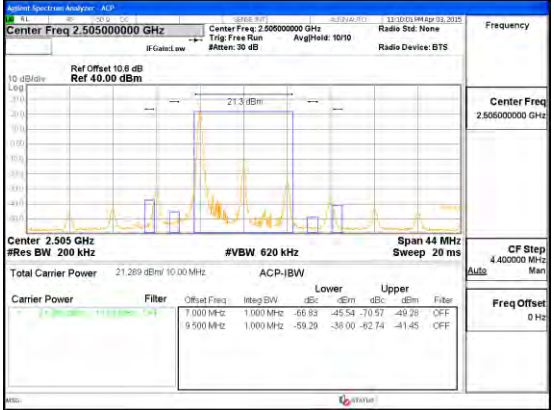
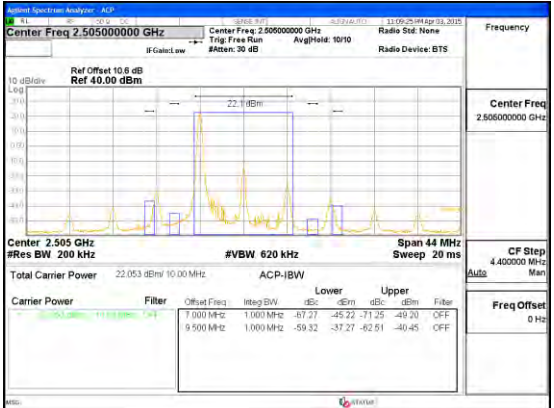
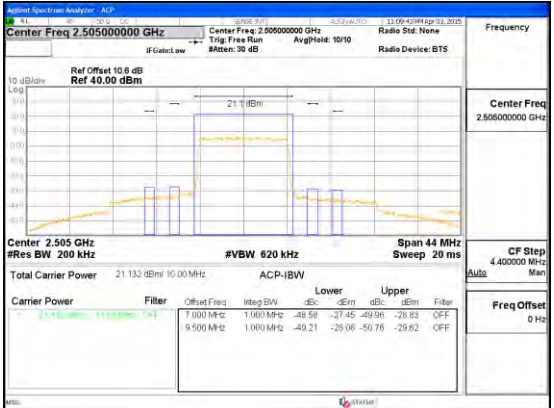


Band LTE7 20MHz QPSK	 Band LTE7 20MHz EM QPSK Low Channel 1RB.gif	 Band LTE7 20MHz EM QPSK Low Channel FRB.gif
Band LTE7 20MHz 16QAM	 Band LTE7 20MHz EM 16QAM High Channel 1RB.gif	 Band LTE7 20MHz EM 16QAM High Channel FRB.gif

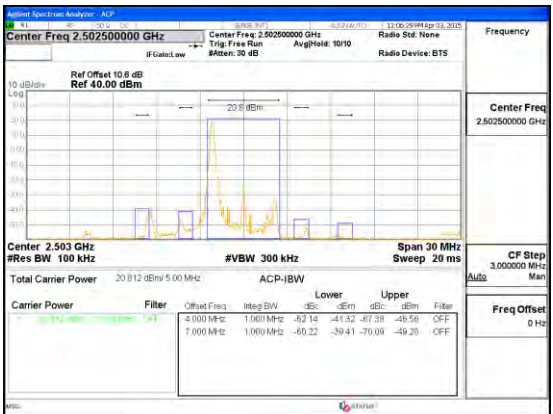
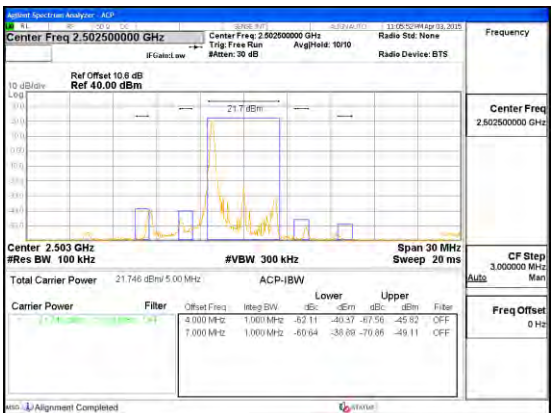


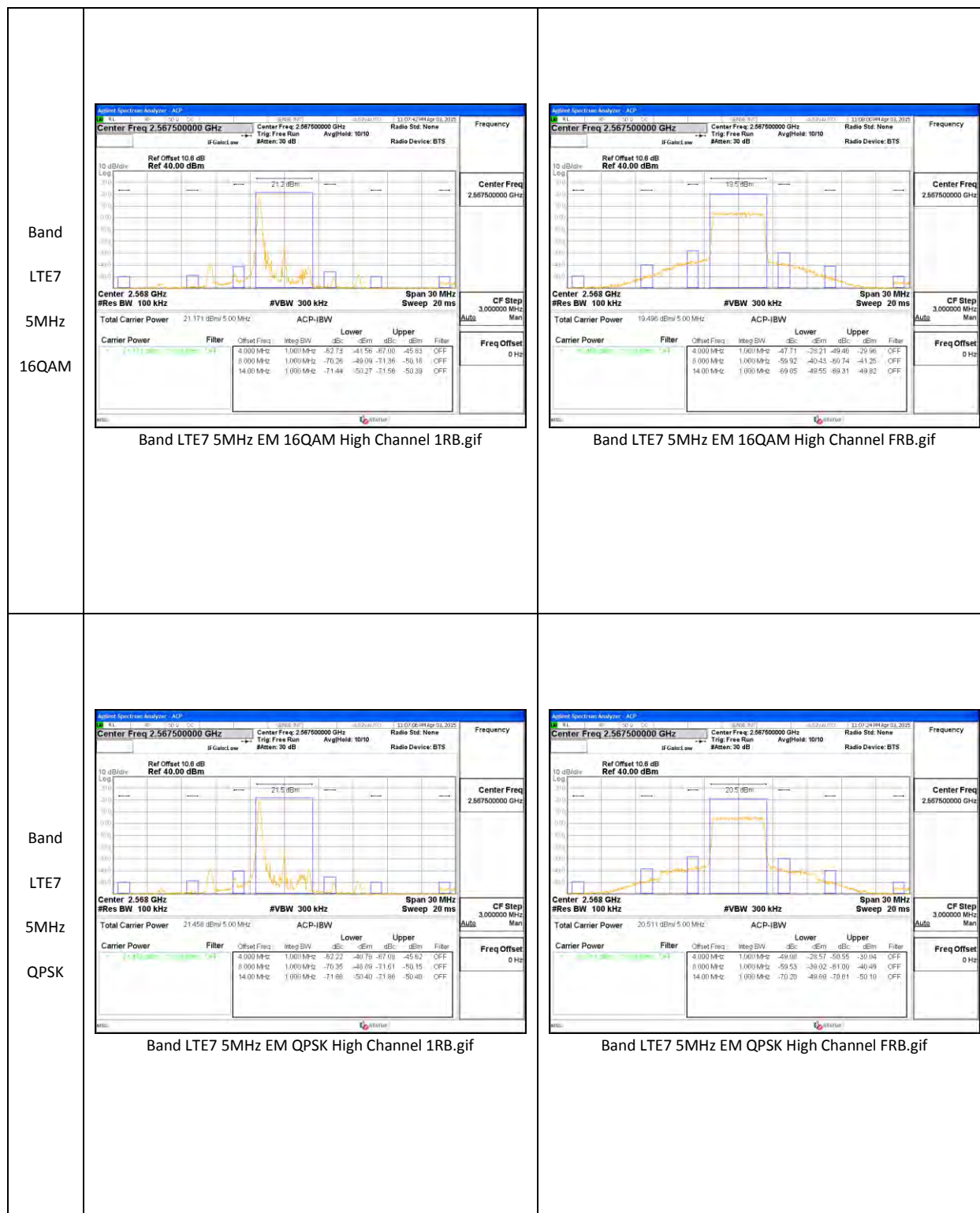




Band LTE7 10MHz 16QAM	 Band LTE7 10MHz EM 16QAM Low Channel 1RB.gif	 Band LTE7 10MHz EM 16QAM Low Channel FRB.gif
Band LTE7 10MHz QPSK	 Band LTE7 10MHz EM QPSK Low Channel 1RB.gif	 Band LTE7 10MHz EM QPSK Low Channel FRB.gif



Band LTE7 5MHz 16QAM	 Band LTE7 5MHz EM 16QAM Low Channel 1RB.gif	 Band LTE7 5MHz EM 16QAM Low Channel FRB.gif
Band LTE7 5MHz QPSK	 Band LTE7 5MHz EM QPSK Low Channel 1RB.gif	 Band LTE7 5MHz EM QPSK Low Channel FRB.gif



10.3. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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

Part 27: (m)(4) (4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

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

RESULTS

10.3.1. OUT OF BAND EMISSIONS RESULT

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE13	10	QPSK	782	-31.78	-13	-18.78
			782	-31.78	-13	-18.78
			782	-31.78	-13	-18.78
		16QAM	782	-35.63	-13	-22.63
			782	-35.63	-13	-22.63
			782	-35.63	-13	-22.63

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE13	5	QPSK	779.5	-27.53	-13	-14.53
			782	-35.29	-13	-22.29
			784.5	-35.29	-13	-22.29
		16QAM	779.5	-27.85	-13	-14.85
			782	-35.90	-13	-22.90
			784.5	-34.23	-13	-21.23

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE7	20	QPSK	2510	-34.36	-25	-9.36
			2535	-33.66	-25	-8.66
			2560	-34.32	-25	-9.32
		16QAM	2510	-33.85	-25	-8.85
			2535	-33.64	-25	-8.64
			2560	-37.17	-25	-12.17

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE7	15	QPSK	2507.5	-34.19	-25	-9.19
			2535	-33.28	-25	-8.28
			2562.5	-33.84	-25	-8.84
		16QAM	2507.5	-33.73	-25	-8.73
			2535	-33.23	-25	-8.23
			2562.5	-33.66	-25	-8.66

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE7	10	QPSK	2505	-34.50	-25	-9.50
			2535	-34.07	-25	-9.07
			2565	-33.34	-25	-8.34
		16QAM	2505	-34.57	-25	-9.57
			2535	-33.89	-25	-8.89
			2565	-33.65	-25	-8.65

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE7	5	QPSK	2502.5	-33.63	-25	-8.63
			2535	-32.73	-25	-7.73
			2567.5	-33.97	-25	-8.97
		16QAM	2502.5	-37.35	-25	-12.35
			2535	-33.70	-25	-8.70
			2567.5	-32.89	-25	-7.89

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	10	QPSK	829	-27.85	-13	-14.85
			836.5	-27.25	-13	-14.25
			844	-28.55	-13	-15.55
		16QAM	829	-27.65	-13	-14.65
			836.5	-27.62	-13	-14.62
			844	-28.40	-13	-15.40

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	5	QPSK	826.5	-35.01	-13	-22.01
			836.5	-28.28	-13	-15.28
			846.5	-25.81	-13	-12.81
		16QAM	826.5	-36.23	-13	-23.23
			836.5	-28.14	-13	-15.14
			846.5	-36.23	-13	-23.23

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	3	QPSK	825.5	-28.02	-13	-15.02
			836.5	-27.41	-13	-14.41
			847.5	-27.28	-13	-14.28
		16QAM	825.5	-27.41	-13	-14.41
			836.5	-28.20	-13	-15.20
			847.5	-27.83	-13	-14.83

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	1.4	QPSK	824.7	-27.77	-13	-14.77
			836.5	-27.50	-13	-14.50
			848.3	-28.08	-13	-15.08
		16QAM	824.7	-28.01	-13	-15.01
			836.5	-28.01	-13	-15.01
			848.3	-27.16	-13	-14.16

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	20	QPSK	1720	-21.59	-13	-18.59
			1732.5	-21.38	-13	-18.38
			1745	-21.27	-13	-18.27
		16QAM	1720	-20.62	-13	-17.62
			1732.5	-21.99	-13	-18.99
			1745	-21.40	-13	-18.40

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	15	QPSK	1717.5	-21.56	-13	-8.56
			1732.5	-21.89	-13	-8.89
			1747.5	-30.15	-13	-17.15
		16QAM	1717.5	-21.83	-13	-8.83
			1732.5	-21.04	-13	-8.04
			1747.5	-28.28	-13	-15.28

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	10	QPSK	1715	-20.76	-13	-7.76
			1732.5	-20.92	-13	-7.92
			1750	-21.15	-13	-8.15
		16QAM	1715	-19.91	-13	-6.91
			1732.5	-21.50	-13	-8.50
			1750	-21.55	-13	-8.55

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	5	QPSK	1712.5	-20.73	-13	-7.73
			1732.5	-21.96	-13	-8.96
			1752.5	-31.48	-13	-18.48
		16QAM	1712.5	-20.89	-13	-7.89
			1732.5	-21.35	-13	-8.35
			1752.5	-27.14	-13	-14.14

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	3	QPSK	1711.5	-21.92	-13	-8.92
			1732.5	-20.23	-13	-7.23
			1753.5	-20.84	-13	-7.84
		16QAM	1711.5	-21.30	-13	-8.30
			1732.5	-20.77	-13	-7.77
			1753.5	-21.67	-13	-8.67

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	1.4	QPSK	1710.7	-21.13	-13	-8.13
			1732.5	-21.28	-13	-8.28
			1754.3	-21.88	-13	-8.88
		16QAM	1710.7	-21.40	-13	-8.40
			1732.5	-22.93	-13	-9.93
			1754.3	-22.06	-13	-9.06

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	20	QPSK	1860	-22.06	-13	-9.06
			1880	-21.73	-13	-8.73
			1900	-21.25	-13	-8.25
		16QAM	1860	-21.79	-13	-8.79
			1880	-21.15	-13	-8.15
			1900	-21.02	-13	-8.02

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	15	QPSK	1857.5	-21.80	-13	-8.80
			1880	-21.61	-13	-8.61
			1902.5	-27.86	-13	-14.86
		16QAM	1857.5	-20.26	-13	-7.26
			1880	-21.69	-13	-8.69
			1902.5	-21.76	-13	-8.76

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	10	QPSK	1855	-20.65	-13	-7.65
			1880	-21.84	-13	-8.84
			1905	-27.86	-13	-14.86
		16QAM	1855	-20.86	-13	-7.86
			1880	-21.55	-13	-8.55
			1905	-28.39	-13	-15.39

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	5	QPSK	1852.5	-21.77	-13	-8.77
			1880	-21.39	-13	-8.39
			1907.5	-21.74	-13	-8.74
		16QAM	1852.5	-21.14	-13	-8.14
			1880	-21.48	-13	-8.48
			1907.5	-21.76	-13	-8.76

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	3	QPSK	1851.5	-22.08	-13	-9.08
			1880	-20.88	-13	-7.88
			1908.5	-28.52	-13	-15.52
		16QAM	1851.5	-21.45	-13	-8.45
			1880	-21.39	-13	-8.39
			1908.5	-21.63	-13	-8.63

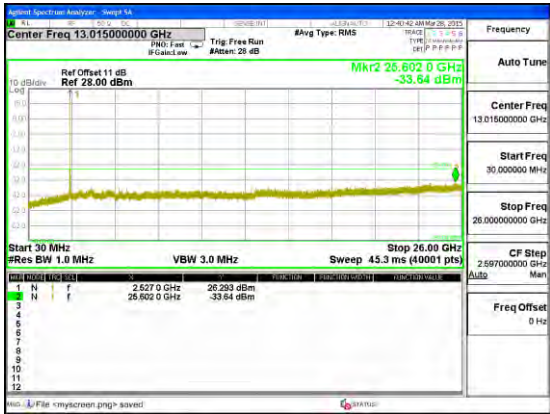
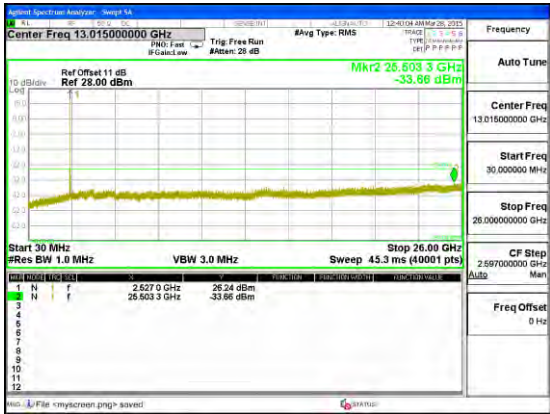
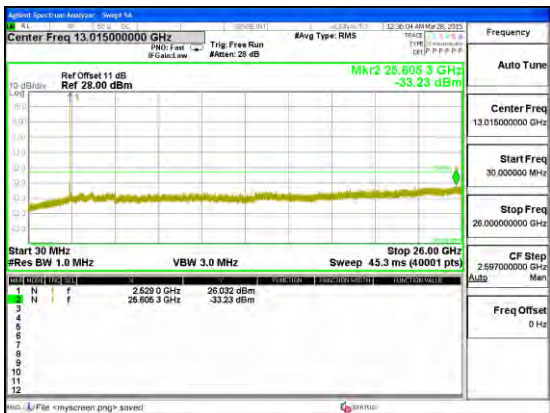
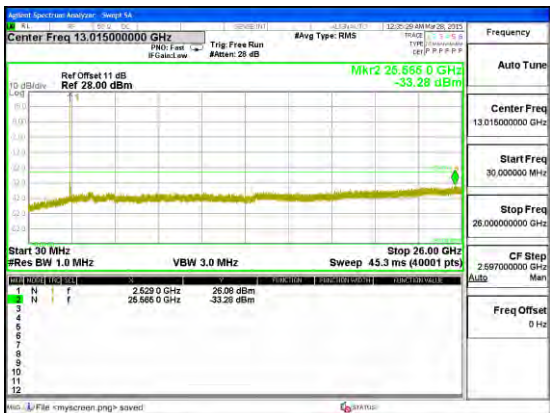
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LTE2	1.4	QPSK	1850.7	-21.18	-13	-8.18
			1880	-21.81	-13	-8.81
			1909.3	-21.89	-13	-8.89
		16QAM	1850.7	-21.01	-13	-8.01
			1880	-21.74	-13	-8.74
			1909.3	-21.11	-13	-8.11

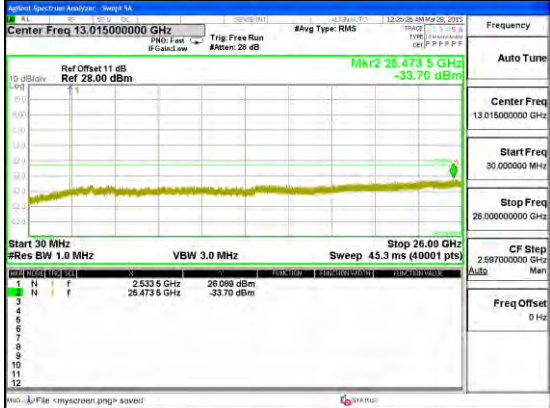
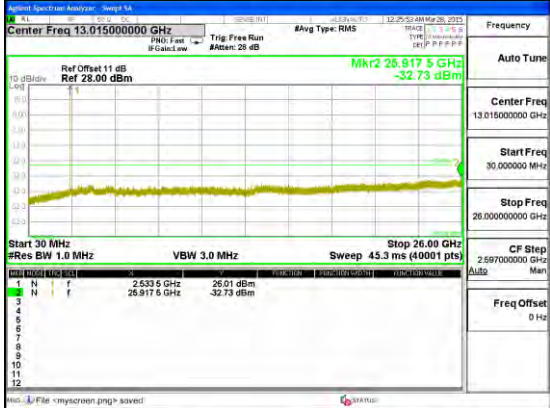
Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
GSM850	GPRS	824.2	-17.84	-13	-4.843
		836.6	-17.96	-13	-4.969
		848.8	-18.89	-13	-5.899
	EGPRS	824.2	-18.84	-13	-5.843
		836.6	-18.36	-13	-5.365
		848.8	-18.74	-13	-5.747
GSM1900	GPRS	1850.2	-17.29	-13	-4.298
		1880	-17.41	-13	-4.41
		1909.8	-18.59	-13	-5.597
	EGPRS	1850.2	-18.13	-13	-5.132
		1880	-18.55	-13	-5.55
		1909.8	-18.17	-13	-5.171

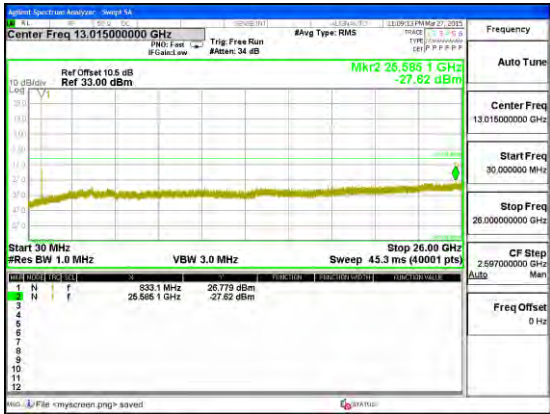
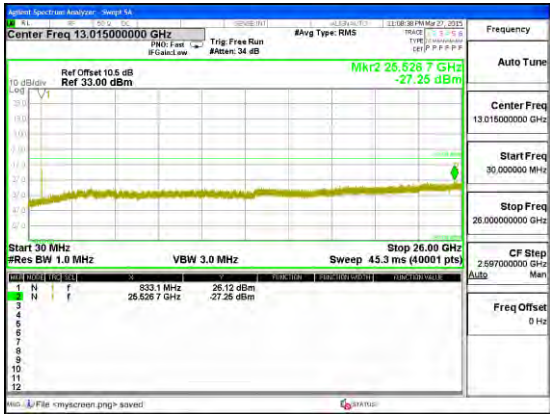
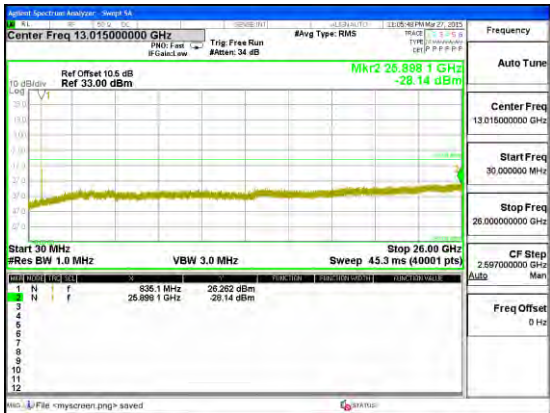
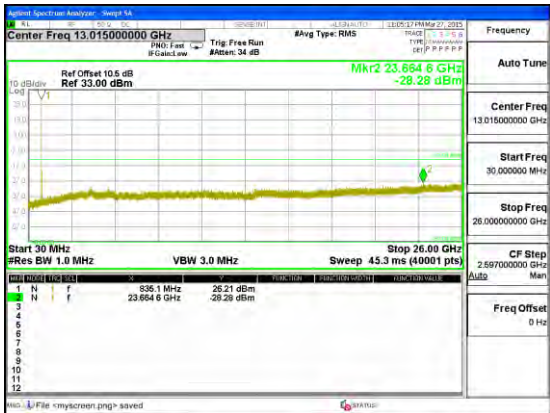
Band 5	REL99	826.4	-34.55	-13	-21.55
		836.6	-35.12	-13	-22.12
		846.6	-35.05	-13	-22.05
	HSDPA	826.4	-34.79	-13	-21.79
		836.6	-34.68	-13	-21.68
		846.6	-34.58	-13	-21.58
Band 2	REL99	1852.4	-28.17	-13	-15.17
		1880	-28.72	-13	-15.72
		1907.6	-31.88	-13	-18.88
	HSDPA	1852.4	-30.88	-13	-17.88
		1880	-28.48	-13	-15.48
		1907.6	-27.93	-13	-14.93
BC0	1xRTT	824.7	-35.45	-13	-22.45
		836.52	-34.25	-13	-21.25
		848.31	-35.77	-13	-22.77
	EVDO	824.7	-34.60	-13	-21.60
		836.52	-34.50	-13	-21.50
		848.31	-33.36	-13	-20.36
BC1	1xRTT	1851.25	-32.07	-13	-19.07
		1880	-31.01	-13	-18.01
		1908.75	-31.57	-13	-18.57
	EVDO	1851.25	-32.37	-13	-19.37
		1880	-31.98	-13	-18.98
		1908.75	-34.35	-13	-21.35

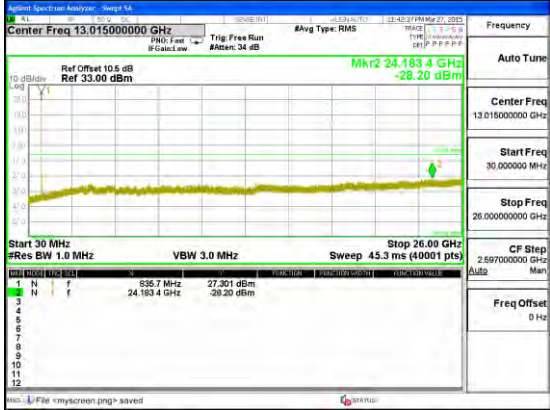
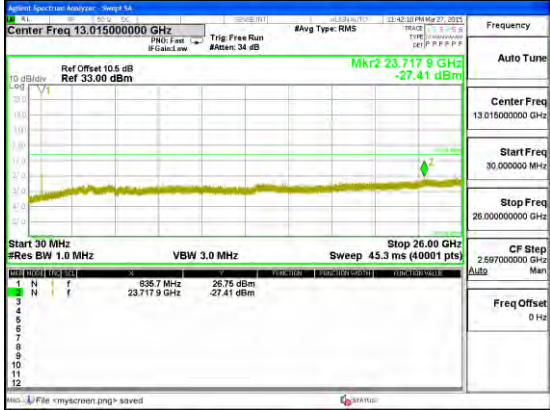
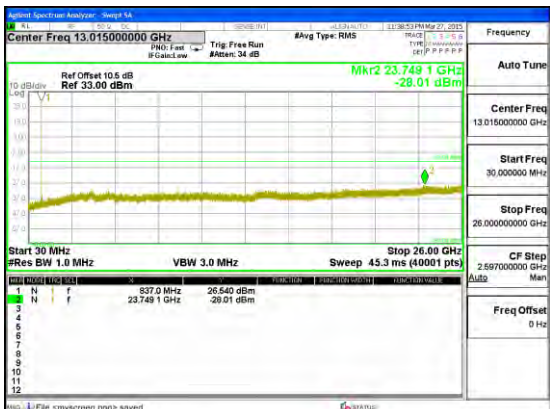
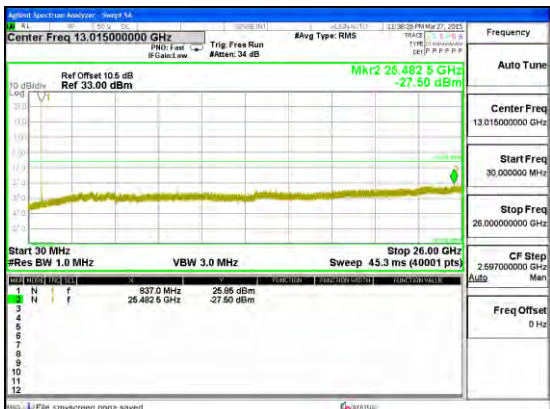
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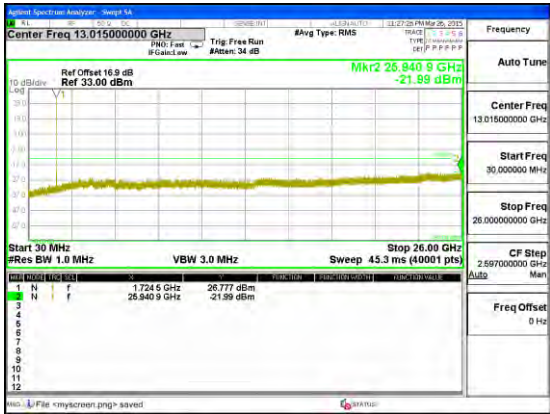
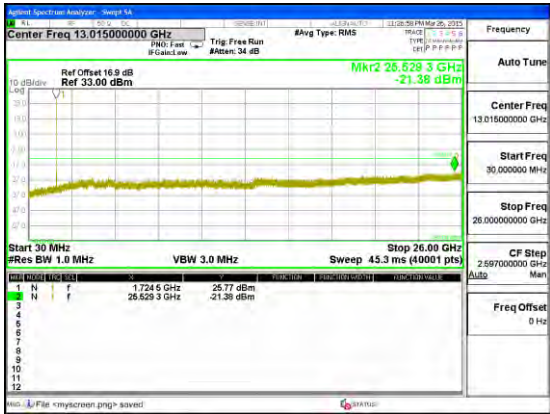
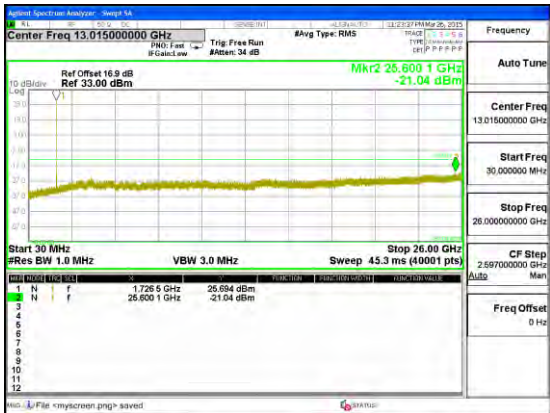
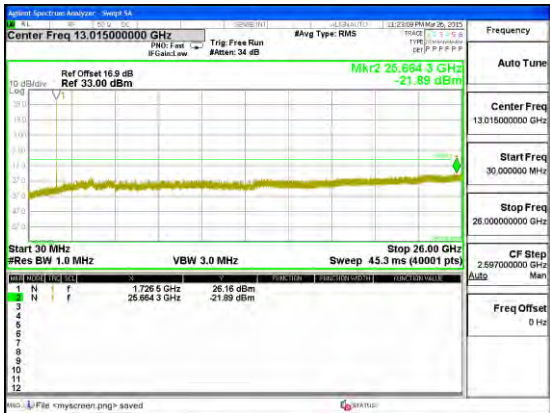


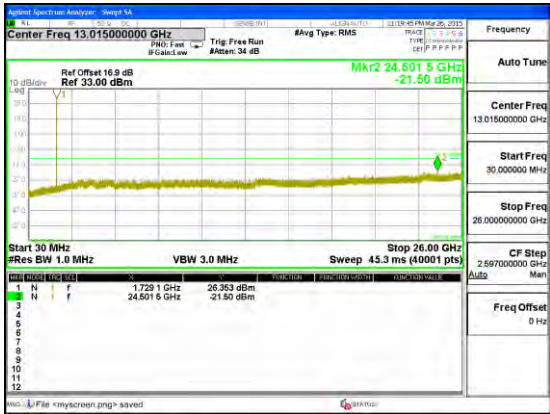
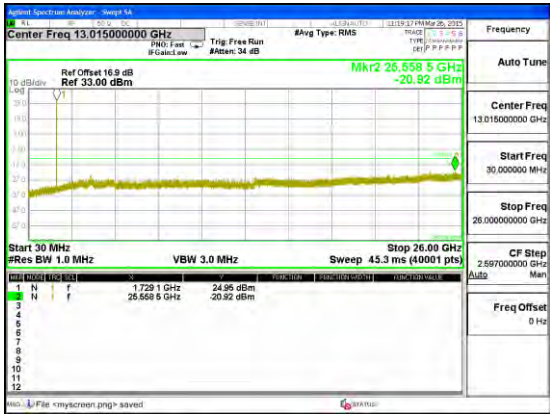
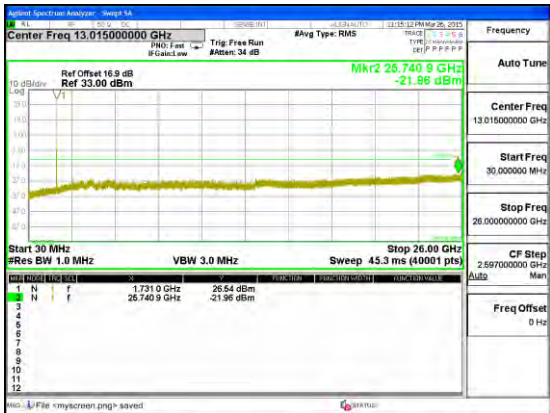
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Band LTE7 15MHz 16QAM	 Band LTE7 15MHz CSE 16QAM Mid channel	 Band LTE7 15MHz CSE QPSK Mid channel

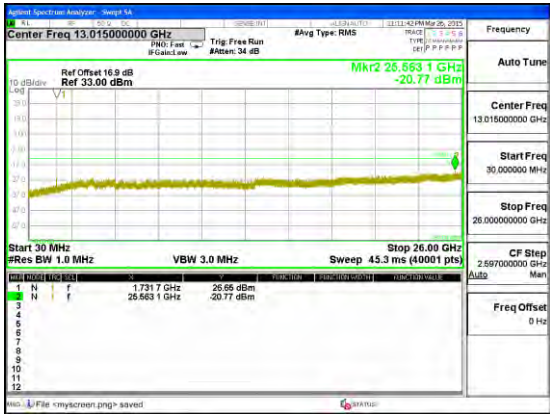
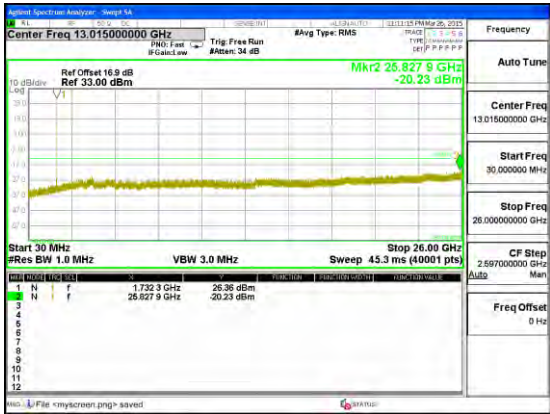
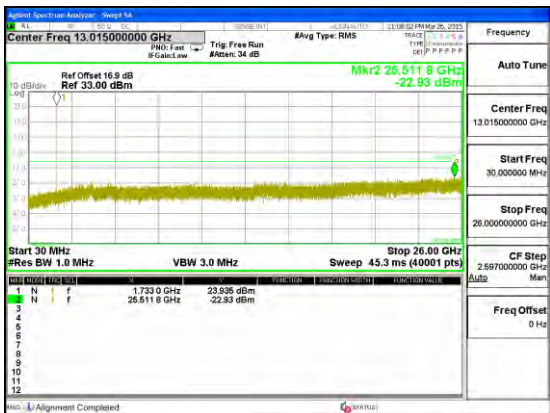
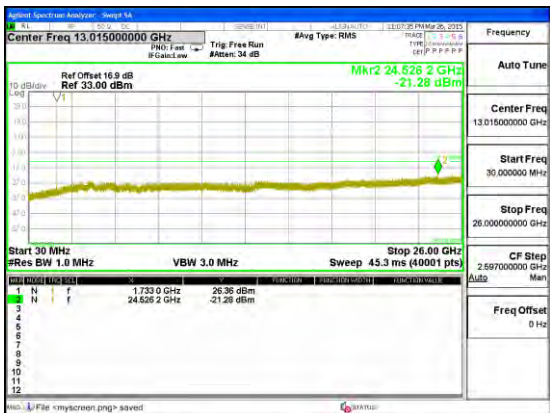
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz CSE 16QAM Mid channel	 Band LTE7 10MHz CSE QPSK Mid channel
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz CSE 16QAM Mid channel	 Band LTE7 5MHz CSE QPSK Mid channel

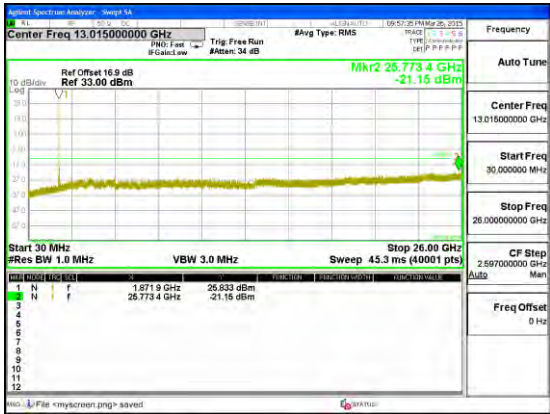
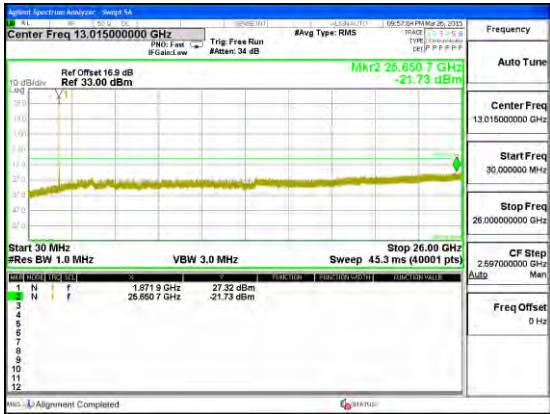
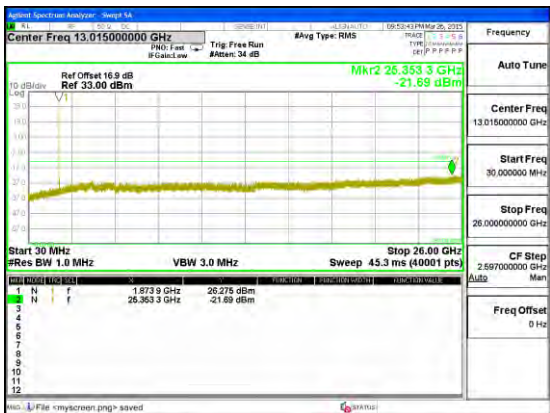
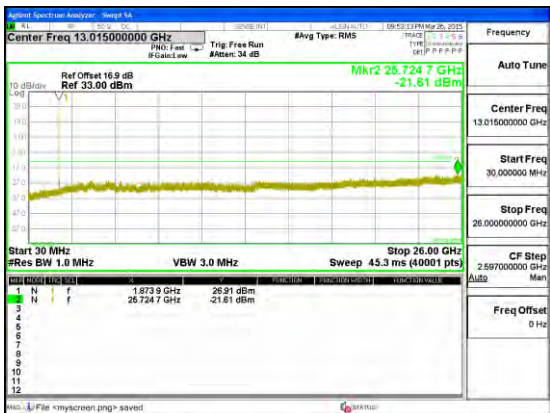
Band LTE5 10MHz 16QAM	 Band LTE5 10MHz CSE 16QAM Mid channel	 Band LTE5 10MHz CSE QPSK Mid channel
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CSE 16QAM Mid channel	 Band LTE5 5MHz CSE QPSK Mid channel

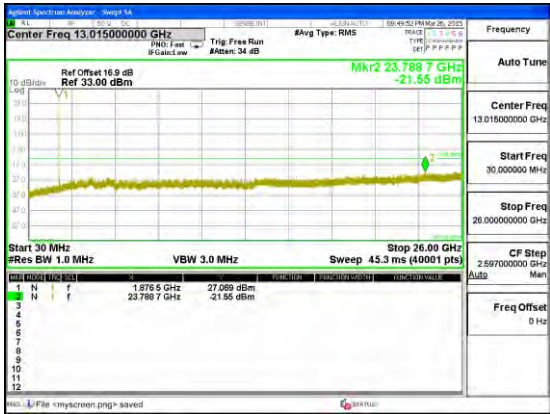
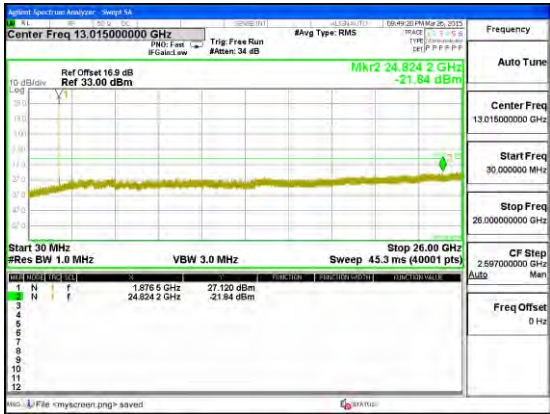
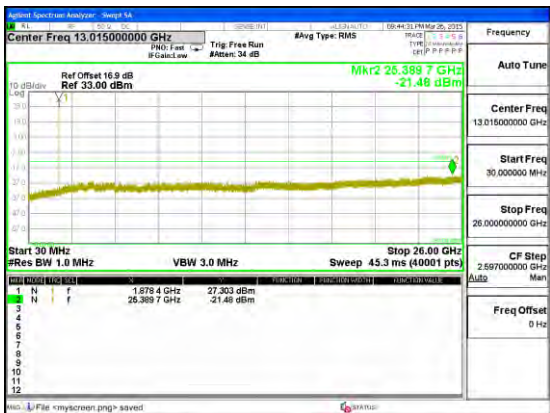
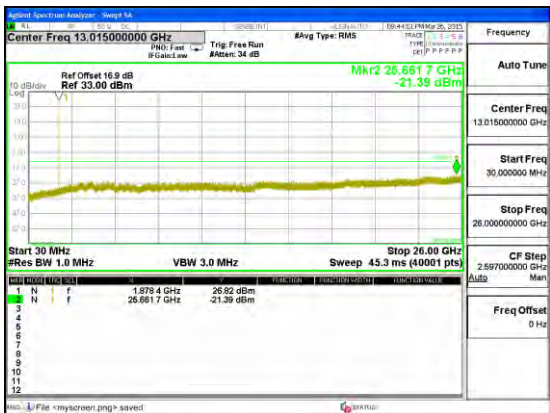
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CSE 16QAM Mid channel	 Band LTE5 3MHz CSE QPSK Mid channel
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CSE 16QAM Mid channel	 Band LTE5 1.4MHz CSE QPSK Mid channel

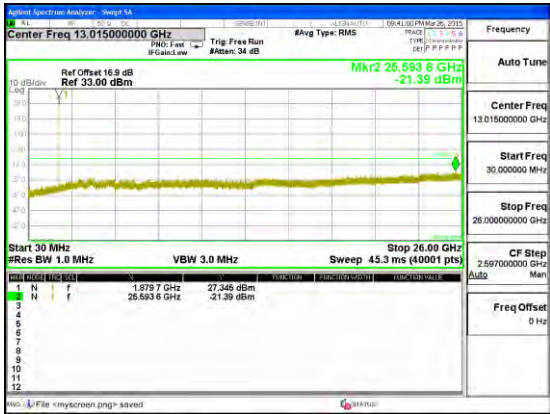
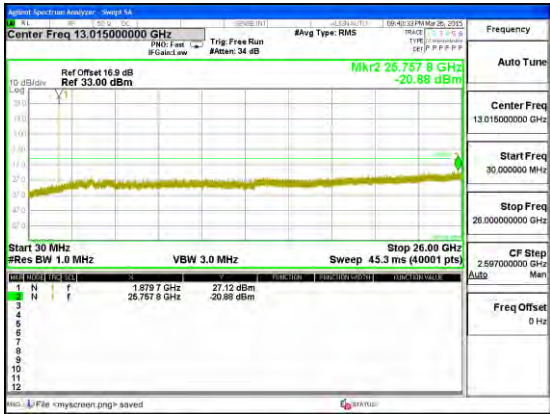
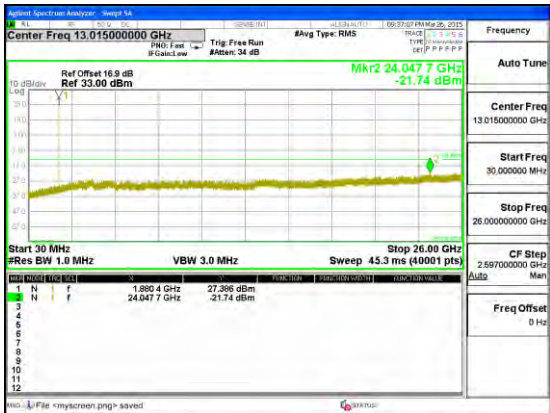
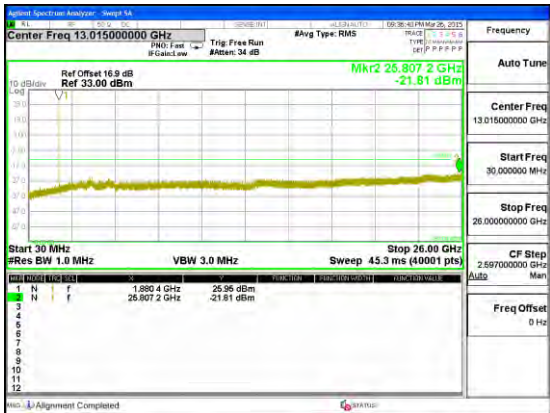
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz CSE 16QAM Mid channel	 Band LTE4 20MHz CSE QPSK Mid channel
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CSE 16QAM Mid channel	 Band LTE4 15MHz CSE QPSK Mid channel

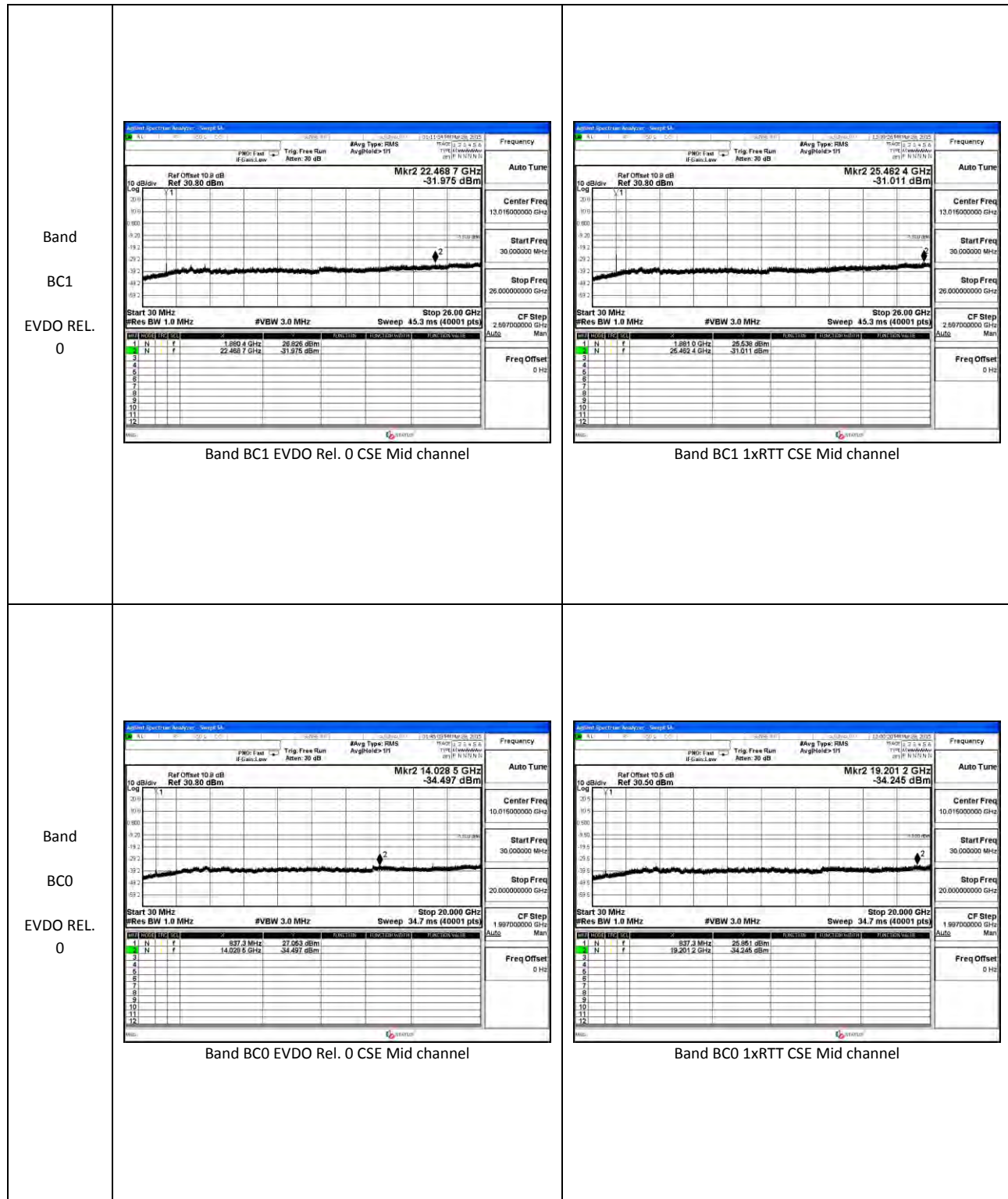
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz CSE 16QAM Mid channel	 Band LTE4 10MHz CSE QPSK Mid channel
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz CSE 16QAM Mid channel	 Band LTE4 5MHz CSE QPSK Mid channel

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

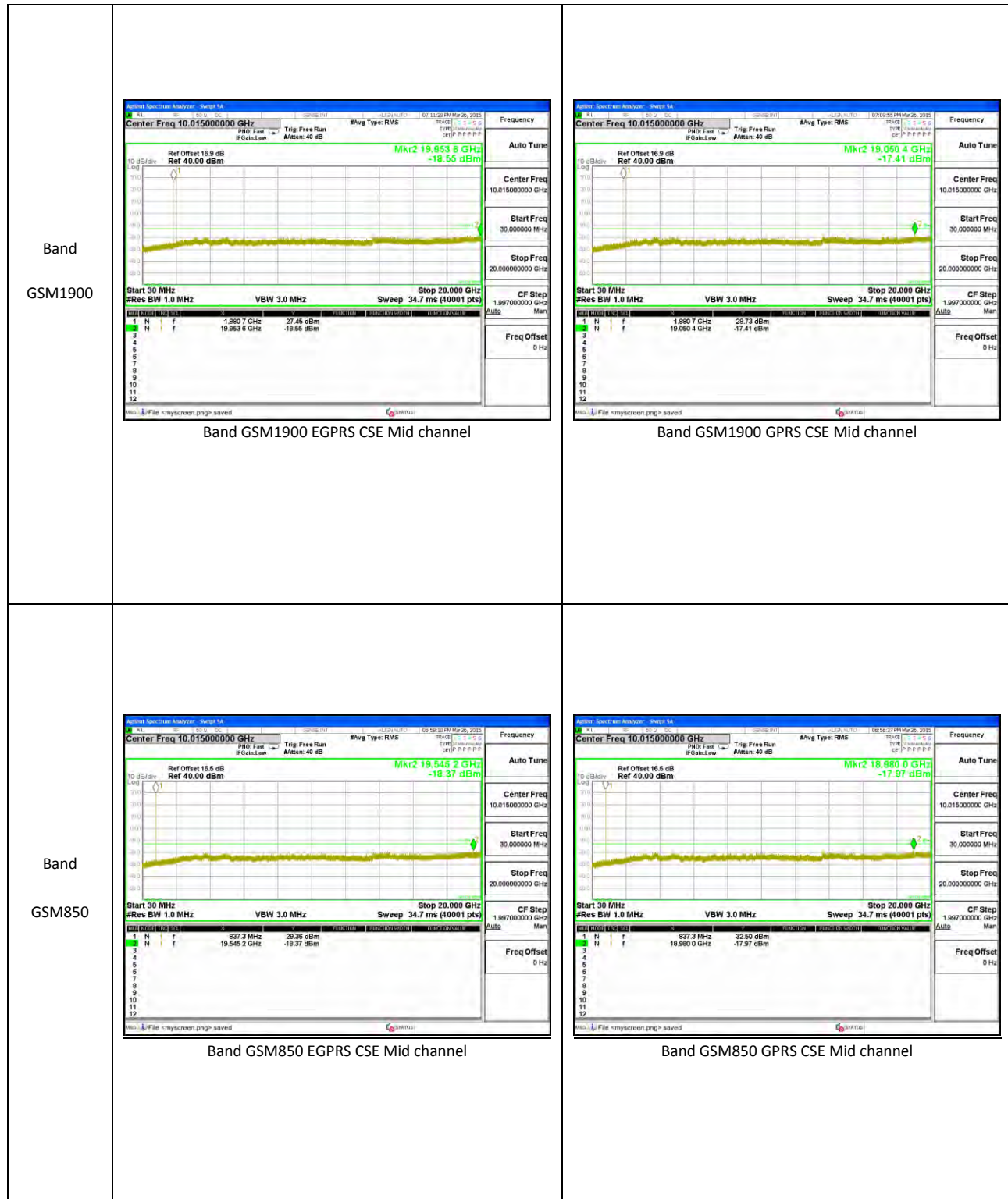
Band LTE2 20MHz 16QAM	 Band LTE2 20MHz CSE 16QAM Mid channel	 Band LTE2 20MHz CSE QPSK Mid channel
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CSE 16QAM Mid channel	 Band LTE2 15MHz CSE QPSK Mid channel

Band LTE2 10MHz 16QAM	 Band LTE2 10MHz CSE 16QAM Mid channel	 Band LTE2 10MHz CSE QPSK Mid channel
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CSE 16QAM Mid channel	 Band LTE2 5MHz CSE QPSK Mid channel

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







10.4. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 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 v02r02

RESULTS

See the following pages.

10.4.1. FREQUENCY STABILITY RESULTS**LTE Band 2, Freq: 1880MHz– MID CHANNEL**

Reference Frequency: PCS Mid Channel Limit: to stay +/- 2.5 ppm =				
		1880	MHz @ 20°C	
		4700.000	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1879.999994	-0.001	2.5
3.80	40	1879.999992	0.000	2.5
3.80	30	1879.999993	-0.001	2.5
3.80	20	1879.999992	0	2.5
3.80	10	1879.999994	-0.001	2.5
3.80	0	1879.999993	-0.001	2.5
3.80	-10	1879.999994	-0.001	2.5
3.80	-20	1879.999994	-0.001	2.5
3.80	-30	1879.999995	-0.002	2.5

Reference Frequency: PCS Mid Channel Limit: to stay +/- 2.5 ppm =				
		1880	MHz @ 20°C	
		4700.000	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	20	1879.999992	0	2.5
4.37	20	1879.999995	-0.002	2.5
3.23(End of volt)	20	1879.999994	-0.001	2.5

LTE Band 7, Freq: 2535 MHz– MID CHANNEL

Low Frequency Limit: > 2500MHz		High Frequency Limit: < 2570MHz		
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	Offset (KHz)	FL + Offset (MHz)	FH + Offset (MHz)
3.80	50.00	0.002620	2501.378120	2568.62737
3.80	40.00	0.001660	2501.377160	2568.62641
3.80	30	-0.000320	2501.375180	2568.62443
3.80	20	0.000000	2501.375500	2568.62475
3.80	10	0.003170	2501.378670	2568.62792
3.80	0	0.001860	2501.377360	2568.62661
3.80	-10	0.003220	2501.378720	2568.62797
3.80	-20	0.002530	2501.378030	2568.62728
3.80	-30	0.002500	2501.378000	2568.62725
Low Frequency Limit: > 2500MHz		High Frequency Limit: < 2570MHz		
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	Offset (KHz)	FL + Offset (MHz)	FH + Offset (MHz)
3.80	20	0.000000	2501.375500	2568.62475
3.23	20	-0.000220	2501.375280	2568.62453
4.37	20	0.003470	2501.378970	2568.62822

LTE Band 5, Freq: 836.5 MHz– MID CHANNEL

Reference Frequency: PCS Mid Channel Limit: to stay +/- 2.5 ppm =			836.5 2091.250	MHz @ 20°C Hz
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	836.499996	0.009	2.5
3.80	40	836.499997	0.009	2.5
3.80	30	836.499999	0.006	2.5
3.80	20	836.500004	0	2.5
3.80	10	836.500003	0.001	2.5
3.80	0	836.500003	0.002	2.5
3.80	-10	836.500004	0.000	2.5
3.80	-20	836.500004	0.000	2.5
3.80	-30	836.500003	0.001	2.5

Reference Frequency: PCS Mid Channel			836.5	MHz @ 20°C
Limit: to stay +/- 2.5 ppm =			2091.250	Hz
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	20	836.500004	0	2.5
4.37	20	836.5000028	0.001	2.5
3.23(End of volt)	20	836.5000036	0.000	2.5

LTE Band 13, Freq: 782 MHz– MID CHANNEL

Reference Frequency: PCS Mid Channel Limit: to stay +/- 2.5 ppm =			782 1955.000	MHz @ 20°C Hz
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	781.999996	0.000	2.5
3.80	40	781.999996	0.001	2.5
3.80	30	781.999997	0.000	2.5
3.80	20	781.999997	0	2.5
3.80	10	781.999997	-0.001	2.5
3.80	0	781.999996	0.001	2.5
3.80	-10	781.999998	-0.002	2.5
3.80	-20	781.999997	0.000	2.5
3.80	-30	781.999998	-0.001	2.5
			782.0000000	-0.004
Reference Frequency: PCS Mid Channel Limit: to stay +/- 2.5 ppm =			782 1955.000	MHz @ 20°C Hz
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	20	781.999997	0	2.5
4.37	20	781.9999954	0.002	2.5
3.23(End of volt)	20	781.9999971	-0.001	2.5

LTE Band 4 – MID CHANNEL

Reference Frequency: PCS Mid Channel Limit: to stay +/- 2.5 ppm =				
		1732.5	MHz @ 20°C	
		4331.250	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1732.500007	0.000	2.5
3.80	40	1732.499988	0.011	2.5
3.80	30	1732.499989	0.010	2.5
3.80	20	1732.500007	0	2.5
3.80	10	1732.500007	0.000	2.5
3.80	0	1732.500006	0.000	2.5
3.80	-10	1732.500006	0.001	2.5
3.80	-20	1732.500007	0.000	2.5
3.80	-30	1732.500006	0.000	2.5

Reference Frequency: PCS Mid Channel Limit: to stay +/- 2.5 ppm =				
		1732.5	MHz @ 20°C	
		4331.250	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	20	1732.500007	0	2.5
4.37	20	1732.500008	-0.001	2.5
3.23(End of volt)	20	1732.500006	0.000	2.5

11. RADIATED TEST RESULTS

11.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27

LIMITS

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

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

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

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

27.50(h) - (2) Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.(LTE B41 & 7)

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

TEST PROCEDURE

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

For peak power measurement with a PSA:

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

For average power measurement with a PSA:

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

TEST RESULTS**11.1.1. ERP/EIRP Results**

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
BC1	1xRTT	25	1851.25	26.74	472.06
		600	1880	26.65	462.38
		1175	1908.75	26.03	400.87
	EVDO REL. 0	25	1851.25	26.72	469.89
		600	1880	26.64	461.32
		1175	1908.75	26.01	399.02

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
BC0	1xRTT	1013	824.7	21.37	137.09
		384	836.52	21.50	141.25
		777	848.31	21.86	153.46
	EVDO REL. 0	1013	824.7	21.35	136.46
		384	836.52	21.41	138.36
		777	848.31	21.84	152.76

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 2	REL99	9262	1852.4	26.14	411.15
		9400	1880	25.64	366.44
		9538	1907.6	25.37	344.35
	HSDPA	9262	1852.4	26.11	408.32
		9400	1880	25.62	364.75
		9538	1907.6	25.34	341.98

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 5	REL99	4132	826.4	21.66	146.55
		4183	836.6	20.85	121.62
		4233	846.6	20.23	105.44
	HSDPA	4132	826.4	21.63	145.55
		4183	836.6	20.78	119.67
		4233	846.6	20.01	100.23

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM1900	GPRS	512	1850.2	30.45	1109.17
		661	1880	30.58	1142.88
		810	1909.8	31.41	1383.57
	EGPRS	512	1850.2	27.60	575.44
		661	1880	27.48	559.76
		810	1909.8	28.58	721.11

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM850	GPRS	128	824.2	30.70	1174.90
		190	836.6	30.31	1073.99
		251	848.8	29.71	935.41
	EGPRS	128	824.2	25.99	397.19
		190	836.6	25.82	381.94
		251	848.8	25.24	334.20

11.1.2. LTE ERP/EIRP Results

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE13	10	QPSK	1/0	782	20.11	102.57
			1/0	782	20.11	102.57
			1/0	782	20.11	102.57
		16QAM	1/0	782	19.50	89.13
			1/0	782	19.50	89.13
			1/0	782	19.50	89.13

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE13	5	QPSK	1/0	779.5	19.94	98.63
			1/0	782	20.09	102.09
			1/0	784.5	20.00	100.00
		16QAM	1/0	779.5	19.39	86.90
			1/0	782	19.48	88.72
			1/0	784.5	19.35	86.10

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE7	20	QPSK	1/0	2510	22.41	174.18
			1/0	2535	22.79	190.11
			1/0	2560	22.60	181.97
		16QAM	1/0	2510	21.97	157.40
			1/0	2535	22.16	164.44
			1/0	2560	21.98	157.76

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE7	15	QPSK	1/0	2507.5	22.22	166.72
			1/0	2535	23.01	199.99
			1/0	2562.5	22.58	181.13
		16QAM	1/0	2507.5	21.40	138.04
			1/0	2535	22.36	172.19
			1/0	2562.5	21.55	142.89

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE7	10	QPSK	1/0	2505	22.24	167.49
			1/0	2535	22.27	168.66
			1/0	2565	22.61	182.39
		16QAM	1/0	2505	21.46	139.96
			1/0	2535	21.49	140.93
			1/0	2565	21.92	155.60

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE7	5	QPSK	1/0	2502.5	21.97	157.40
			1/0	2535	22.51	178.24
			1/0	2567.5	23.18	207.97
		16QAM	1/0	2502.5	21.25	133.35
			1/0	2535	21.66	146.55
			1/0	2567.5	22.50	177.83

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	10	QPSK	1/0	829	21.12	129.42
			1/0	836.5	21.76	149.97
			1/0	844	21.25	133.35
		16QAM	1/0	829	20.27	106.41
			1/0	836.5	20.90	123.03
			1/0	844	20.51	112.46

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	5	QPSK	1/0	826.5	21.39	137.72
			1/0	836.5	21.07	127.94
			1/0	846.5	21.10	128.82
		16QAM	1/0	826.5	20.54	113.24
			1/0	836.5	20.22	105.20
			1/0	846.5	20.35	108.39

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	3	QPSK	1/0	825.5	21.43	139.00
			1/0	836.5	21.06	127.64
			1/0	847.5	21.12	129.42
		16QAM	1/0	825.5	20.57	114.02
			1/0	836.5	20.20	104.71
			1/0	847.5	20.45	110.92

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	1.4	QPSK	1/0	824.7	21.28	134.28
			1/0	836.5	20.93	123.88
			1/0	848.3	21.10	128.82
		16QAM	1/0	824.7	20.33	107.89
			1/0	836.5	20.12	102.80
			1/0	848.3	20.20	104.71

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	20	QPSK	1/0	1720	27.58	572.80
			1/0	1732.5	27.62	578.10
			1/0	1745	27.59	574.12
		16QAM	1/0	1720	26.87	486.41
			1/0	1732.5	26.69	466.66
			1/0	1745	26.98	498.88

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	15	QPSK	1/0	1717.5	27.71	590.20
			1/0	1732.5	27.73	592.93
			1/0	1747.5	27.66	583.45
		16QAM	1/0	1717.5	27.07	509.33
			1/0	1732.5	26.80	478.63
			1/0	1747.5	27.21	526.02

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	10	QPSK	1/0	1715	27.39	548.28
			1/0	1732.5	27.76	597.04
			1/0	1750	27.34	542.00
		16QAM	1/0	1715	26.76	474.24
			1/0	1732.5	26.86	485.29
			1/0	1750	26.83	481.95

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	5	QPSK	1/0	1712.5	27.68	586.14
			1/0	1732.5	27.83	606.74
			1/0	1752.5	27.42	552.08
		16QAM	1/0	1712.5	27.03	504.66
			1/0	1732.5	26.99	500.03
			1/0	1752.5	26.88	487.53

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	3	QPSK	1/0	1711.5	27.85	609.54
			1/0	1732.5	27.79	601.17
			1/0	1753.5	27.23	528.45
		16QAM	1/0	1711.5	27.25	530.88
			1/0	1732.5	27.02	503.50
			1/0	1753.5	26.56	452.90

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	1.4	QPSK	1/0	1710.7	27.65	582.10
			1/0	1732.5	27.87	612.35
			1/0	1754.3	27.22	527.23
		16QAM	1/0	1710.7	26.95	495.45
			1/0	1732.5	26.98	498.88
			1/0	1754.3	26.36	432.51

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	20	QPSK	1/0	1860	26.35	431.52
			1/0	1880	26.15	412.10
			1/0	1900	24.95	312.61
		16QAM	1/0	1860	26.03	400.87
			1/0	1880	25.47	352.37
			1/0	1900	24.28	267.92

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	15	QPSK	1/0	1857.5	26.37	433.51
			1/0	1880	26.09	406.44
			1/0	1902.5	24.98	314.77
		16QAM	1/0	1857.5	26.06	403.65
			1/0	1880	25.52	356.45
			1/0	1902.5	24.36	272.90

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	10	QPSK	1/0	1855	26.35	431.52
			1/0	1880	25.63	365.59
			1/0	1905	24.93	311.17
		16QAM	1/0	1855	26.03	400.87
			1/0	1880	25.02	317.69
			1/0	1905	24.27	267.30

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	5	QPSK	1/0	1852.5	26.37	433.51
			1/0	1880	25.73	374.11
			1/0	1907.5	24.75	298.54
		16QAM	1/0	1852.5	26.06	403.65
			1/0	1880	25.32	340.41
			1/0	1907.5	24.13	258.82

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	3	QPSK	1/0	1851.5	26.41	437.52
			1/0	1880	25.48	353.18
			1/0	1908.5	24.86	306.20
		16QAM	1/0	1851.5	26.04	401.79
			1/0	1880	25.05	319.89
			1/0	1908.5	24.26	266.69

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	1.4	QPSK	1/0	1850.7	26.39	435.51
			1/0	1880	25.29	338.06
			1/0	1909.3	24.92	310.46
		16QAM	1/0	1850.7	26.02	399.94
			1/0	1880	24.78	300.61
			1/0	1909.3	24.26	266.69

Band

GSM

850

EGPRS

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

Company: LG
Project #: 15I20402
Date: 04/04/15
Test Engineer: R.Alegre
Configuration: EUT only
Mode: EGPRS850

Test Equipment:
Receiving: Sunol T243, and 5m Chamber B N-type Cable
Substitution: Dipole T276, 4ft SMA Cable (SN: 244639 002) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	18.20	V	0.9	0.0	17.30	38.5	-21.1	
824.20	26.89	H	0.9	0.0	25.99	38.5	-12.5	
Mid Ch								
836.60	17.95	V	0.9	0.0	17.05	38.5	-21.4	
836.60	26.72	H	0.9	0.0	25.82	38.5	-12.6	
High Ch								
848.80	17.80	V	0.9	0.0	16.90	38.5	-21.5	
848.80	26.14	H	0.9	0.0	25.24	38.5	-13.2	

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

Band
GSM850
GPRS

High Frequency Substitution Measurement

UL Verification Services, Inc. Chamber B

Company: LG

Project #: 15I20402

Date: 04/04/15

Test Engineer: R.Alegre

Configuration: EUT only

Mode: GPRS850

Test Equipment:

Receiving: Sunol T243, and 5m Chamber B N-type Cable

Substitution: Dipole T276, 4ft SMA Cable (SN: 244639 002) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	22.68	V	0.9	0.0	21.78	38.5	-16.7	
824.20	31.60	H	0.9	0.0	30.70	38.5	-7.7	
Mid Ch								
836.60	22.40	V	0.9	0.0	21.50	38.5	-16.9	
836.60	31.21	H	0.9	0.0	30.31	38.5	-8.1	
High Ch								
848.80	22.25	V	0.9	0.0	21.35	38.5	-17.1	
848.80	30.61	H	0.9	0.0	29.71	38.5	-8.7	

Rev. 3.17.11

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

WCDMA

High Frequency Substitution Measurement UL Verification Services, Inc.								
Company:	LG							
Project #:	15I20402							
Date:	3/29/2015							
Test Engineer:	R.Alegre							
Configuration:	EUT Only							
Location:	Chamber C							
Mode:	HSDPA B2							
Test Equipment:								
Receiving: Horn T119, and Chamber C SMA Cables								
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	7.63	V	0.9	8.0	14.74	33.0	-18.3	
1852.40	19.00	H	0.9	8.0	26.11	33.0	-6.9	
Mid Ch								
1880.00	7.32	V	0.9	8.0	14.43	33.0	-18.6	
1880.00	18.51	H	0.9	8.0	25.62	33.0	-7.4	
High Ch								
1907.60	7.38	V	0.9	8.0	14.49	33.0	-18.5	
1907.60	18.23	H	0.9	8.0	25.34	33.0	-7.7	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm								

High Frequency Substitution Measurement UL Verification Services, Inc.								
Company:	LG							
Project #:	15I20402							
Date:	3/29/2015							
Test Engineer:	R. Alegre							
Configuration:	EUT Only							
Location:	Chamber C							
Mode:	Rel99 B2							
Test Equipment:								
Receiving: Horn T119, and Chamber C SMA Cables								
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	7.72	V	0.9	8.0	14.83	33.0	-18.2	
1852.40	19.03	H	0.9	8.0	26.14	33.0	-6.9	
Mid Ch								
1880.00	7.40	V	0.9	8.0	14.51	33.0	-18.5	
1880.00	18.53	H	0.9	8.0	25.64	33.0	-7.4	
High Ch								
1907.60	7.50	V	0.9	8.0	14.61	33.0	-18.4	
1907.60	18.26	H	0.9	8.0	25.37	33.0	-7.6	
Rev. 3.17.11								
Note: For Band 4 EIRP limit is 30dBm								

High Frequency Substitution Measurement UL Verification Services, Inc.								
Company:	LG							
Project #:	15I20402							
Date:	03/30/15							
Test Engineer:	R.Alegre							
Configuration:	EUT X-position							
Mode:	WCDMA Band 5 HSDPA							
Test Equipment:								
Receiving: Sunol T185, and 3m Chamber C N-type Cable								
Substitution: Dipole T273, 4ft SMA Cable Warehouse.								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.40	14.26	V	0.9	0.0	13.36	38.5	-25.1	
826.40	22.53	H	0.9	0.0	21.63	38.5	-16.8	
Mid Ch								
836.60	13.39	V	0.9	0.0	12.49	38.5	-26.0	
836.60	21.68	H	0.9	0.0	20.78	38.5	-17.7	
High Ch								
846.60	13.88	V	0.9	0.0	12.98	38.5	-25.5	
846.60	20.91	H	0.9	0.0	20.01	38.5	-18.4	
Rev. 3.17.11								
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm								

High Frequency Substitution Measurement UL Verification Services, Inc.								
Company:	LG							
Project #:	15I20402							
Date:	03/30/15							
Test Engineer:	R.Alegre							
Configuration:	EUT X-position							
Mode:	REL99 B5 FUND							
Test Equipment:								
Receiving: Sunol T185, and 3m Chamber C N-type Cable								
Substitution: Dipole T273, 4ft SMA Cable Warehouse.								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.40	14.27	V	0.9	0.0	13.37	38.5	-25.1	
826.40	22.56	H	0.9	0.0	21.66	38.5	-16.8	
Mid Ch								
836.60	13.41	V	0.9	0.0	12.51	38.5	-25.9	
836.60	21.75	H	0.9	0.0	20.85	38.5	-17.6	
High Ch								
846.60	13.91	V	0.9	0.0	13.01	38.5	-25.4	
846.60	21.13	H	0.9	0.0	20.23	38.5	-18.2	
Rev. 3.17.11								
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm								

CDMA

Band BC1	High Frequency Fundamental Measurement UL Verification Services, Inc. Company: LG Project #: 15I20402 Date: 3/30/2015 Test Engineer: R. Alegre Configuration: EUT Only Mode: CDMA EVDO BC1 Test Equipment: Receiving: Horn T119, and Chamber C SMA Cables Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
	GHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
	Low Ch								
	1.8513	6.4	V	0.90	8.01	13.49	33.0	-19.5	
	1.8513	19.6	H	0.90	8.01	26.72	33.0	-6.3	
	Mid Ch								
	1.8800	6.5	V	0.90	8.01	13.65	33.0	-19.4	
	1.8800	19.5	H	0.90	8.01	26.64	33.0	-6.4	
	High Ch								
1.9088	7.2	V	0.90	8.01	14.32	33.0	-18.7		
1.9088	18.9	H	0.90	8.01	26.01	33.0	-7.0		
Rev. 3.17.11									

Band BC1 1xRTT	High Frequency Fundamental Measurement UL Verification Services, Inc.								
	Company:		LG						
	Project #:		15I20402						
	Date:		3/30/2015						
	Test Engineer:		R. Alegre						
	Configuration:		EUT Only						
	Mode:		CDMA RTT BC1						
	Test Equipment:								
	Receiving: Horn T119, and Chamber C SMA Cables								
	Substitution: Horn T59 Substitution, 4ft 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								
	1.8513	6.6	V	0.90	8.01	13.73	33.0	-19.3	
	1.8513	19.6	H	0.90	8.01	26.74	33.0	-6.3	
	Mid Ch								
	1.8800	6.5	V	0.90	8.01	13.61	33.0	-19.4	
	1.8800	19.5	H	0.90	8.01	26.65	33.0	-6.3	
	High Ch								
	1.9088	7.5	V	0.90	8.01	14.63	33.0	-18.4	
	1.9088	18.9	H	0.90	8.01	26.03	33.0	-7.0	
	Rev. 3.17.11								

Band BC0	High Frequency Substitution Measurement UL Verification Services Chamber B Company: LG Project #: 15I20402 Date: 4/4/2015 Test Engineer: R. Alegre Configuration: EUT Only Mode: CDMA EVDO BC0 Test Equipment: Receiving: T185, and Chamber B Cable Substitution: Dipole T273, 4ft SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	824.70	13.61	V	0.9	0.0	12.71	38.5	-25.7	
	824.70	22.25	H	0.9	0.0	21.35	38.5	-17.1	
	Mid Ch								
	836.52	13.27	V	0.9	0.0	12.37	38.5	-26.1	
	836.52	22.31	H	0.9	0.0	21.41	38.5	-17.0	
	High Ch								
848.31	13.79	V	0.9	0.0	12.89	38.5	-25.6		
848.31	22.74	H	0.9	0.0	21.84	38.5	-16.6		
Rev. 3.17.11									

Band BC0 1xRTT	High Frequency Substitution Measurement UL Verification Services Chamber B Company: LG Project #: 15I20402 Date: 4/4/2015 Test Engineer: R. Alegre Configuration: EUT Only Mode: CDMA RTT BC0 Test Equipment: Receiving: T243, and Chamber B Cable Substitution: Dipole T273, 4ft SMA Cable Warehouse								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	824.70	13.63	V	0.9	0.0	12.73	38.5	-25.7	
	824.70	22.27	H	0.9	0.0	21.37	38.5	-17.1	
	Mid Ch								
	836.52	13.25	V	0.9	0.0	12.35	38.5	-26.1	
	836.52	22.40	H	0.9	0.0	21.50	38.5	-16.9	
	High Ch								
848.31	13.85	V	0.9	0.0	12.95	38.5	-25.5		
848.31	22.76	H	0.9	0.0	21.86	38.5	-16.6		
Rev. 3.17.11									

Band LTE13 10MHz 16QAM	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber B								
	Company:		LG						
	Project #:		15I20402						
	Date:		04/04/15						
	Test Engineer:		R.Alegre						
	Configuration:		EUT only						
	Mode:		LTE13 10MHz 16QAM						
	Test Equipment:								
	Receiving: Hybrid T243, and Chamber B SMA Cables								
	Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) 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								
	Mid Ch								
	782.00	11.05	V	0.9	0.0	10.15	34.8	-24.6	
	782.00	20.40	H	0.9	0.0	19.50	34.8	-15.3	
	High Ch								
Rev. 3.17.11									
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									

Band LTE13 10MHz QPSK	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber B																																																																															
	Company: LG																																																																															
	Project #: 15I20402																																																																															
	Date: 04/04/15																																																																															
	Test Engineer: R.Alegre																																																																															
	Configuration: EUT only																																																																															
	Mode: LTE13 10MHz QPSK																																																																															
	Test Equipment: Receiving: Hybrid T243, and Chamber B SMA Cables Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.																																																																															
	<table border="1"> <thead> <tr> <th>f MHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBd)</th> <th>ERP (dBm)</th> <th>Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>Low Ch</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Mid Ch</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>782.00</td> <td>11.69</td> <td>V</td> <td>0.9</td> <td>0.0</td> <td>10.79</td> <td>34.8</td> <td>-24.0</td> <td></td> </tr> <tr> <td>782.00</td> <td>21.01</td> <td>H</td> <td>0.9</td> <td>0.0</td> <td>20.11</td> <td>34.8</td> <td>-14.7</td> <td></td> </tr> <tr> <td>High Ch</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>								f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes	Low Ch																		Mid Ch									782.00	11.69	V	0.9	0.0	10.79	34.8	-24.0		782.00	21.01	H	0.9	0.0	20.11	34.8	-14.7		High Ch																	
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes																																																																							
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Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm																																																																																

Band

LTE13

5MHz

16QAM

High Frequency Substitution Measurement

UL Verification Services, Inc.

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

LG

15I20402

04/04/15

R.Alegre

EUT only

Chamber B

LTE_16QAM Band 13 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: Hybrid T243, and Chamber B SMA Cables

Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
779.50	11.01	V	0.9	0.0	10.11	34.8	-24.7	
779.50	20.29	H	0.9	0.0	19.39	34.8	-15.4	
Mid Ch								
782.00	11.12	V	0.9	0.0	10.22	34.8	-24.5	
782.00	20.38	H	0.9	0.0	19.48	34.8	-15.3	
High Ch								
784.50	11.15	V	0.9	0.0	10.25	34.8	-24.5	
784.50	20.25	H	0.9	0.0	19.35	34.8	-15.4	

Band

LTE13

5MHz

QPSK

High Frequency Substitution Measurement

UL Verification Services, Inc.

Company:

Project #:

Date:

Test Engineer:

Configuration:

Location:

Mode:

LG

15I20402

04/04/15

R.Alegre

EUT only

Chamber B

LTE_QPSK Band 13 Fundamentals, 5MHz Bandwidth

Test Equipment:

Receiving: Hybrid T243, and Chamber B SMA Cables

Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
779.50	11.83	V	0.9	0.0	10.93	34.8	-23.8	
779.50	20.84	H	0.9	0.0	19.94	34.8	-14.8	
Mid Ch								
782.00	11.86	V	0.9	0.0	10.96	34.8	-23.8	
782.00	20.99	H	0.9	0.0	20.09	34.8	-14.7	
High Ch								
784.50	11.88	V	0.9	0.0	10.98	34.8	-23.8	
784.50	20.90	H	0.9	0.0	20.00	34.8	-14.8	

Band LTE7 20MHz 16QAM	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber C								
	Company:		LG						
	Project #:		15I20402						
	Date:		03/31/15						
	Test Engineer:		Charles Vergonio						
	Configuration:		EUT Only, Z position						
	Mode:		TX, LTE band 7, 20MHz, 16QAM						
	Test Equipment:								
	Receiving: Horn T119, and Chamber C SMA Cables								
	Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
	Low Ch								
	2507.70	3.43	V	0.9	9.5	12.05	33.0	-21.0	
	2507.50	13.35	H	0.9	9.5	21.97	33.0	-11.0	
	Mid Ch								
	2535.00	3.51	V	0.9	9.5	12.13	33.0	-20.9	
	2535.00	13.54	H	0.9	9.5	22.16	33.0	-10.8	
	High Ch								
	2562.50	3.61	V	0.9	9.5	12.26	33.0	-20.7	
	2562.50	13.33	H	0.9	9.5	21.98	33.0	-11.0	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

Band LTE7 20MHz QPSK	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber C								
	Company: LG								
	Project #: 15I20402								
	Date: 03/31/15								
	Test Engineer: Charles Vergonio								
	Configuration: EUT Only, Z position								
	Mode: TX, LTE band 7, 20MHz, 16QAM								
	Test Equipment:								
	Receiving: Horn T119, and Chamber C SMA Cables								
	Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
	Low Ch								
	2507.50	4.32	V	0.9	9.5	12.94	33.0	-20.1	
	2507.50	13.79	H	0.9	9.5	22.41	33.0	-10.6	
	Mid Ch								
	2535.00	4.93	V	0.9	9.5	13.55	33.0	-19.5	
	2535.00	14.17	H	0.9	9.5	22.79	33.0	-10.2	
	High Ch								
	2562.50	4.74	V	0.9	9.5	13.39	33.0	-19.6	
	2562.50	13.95	H	0.9	9.5	22.60	33.0	-10.4	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									

Band LTE7 15MHz 16QAM	High Frequency Substitution Measurement UL Verification Services, Inc. Chamber C								
	Company: LG								
	Project #: 15I20402								
	Date: 03/31/15								
	Test Engineer: Charles Vergonio								
	Configuration: EUT Only, Z position								
	Mode: TX, LTE band 7, 15MHz, 16QAM								
	Test Equipment:								
	Receiving: Horn T119, and Chamber C SMA Cables								
	Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse								
	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
	Low Ch								
	2507.70	3.33	V	0.9	9.5	11.95	33.0	-21.1	
	2507.50	12.78	H	0.9	9.5	21.40	33.0	-11.6	
	Mid Ch								
	2535.00	3.81	V	0.9	9.5	12.43	33.0	-20.6	
	2535.00	13.74	H	0.9	9.5	22.36	33.0	-10.6	
	High Ch								
	2562.50	3.61	V	0.9	9.5	12.26	33.0	-20.7	
	2562.50	12.90	H	0.9	9.5	21.55	33.0	-11.5	
Rev. 3.17.11 Note: For Band 4 EIRP limit is 30dBm									