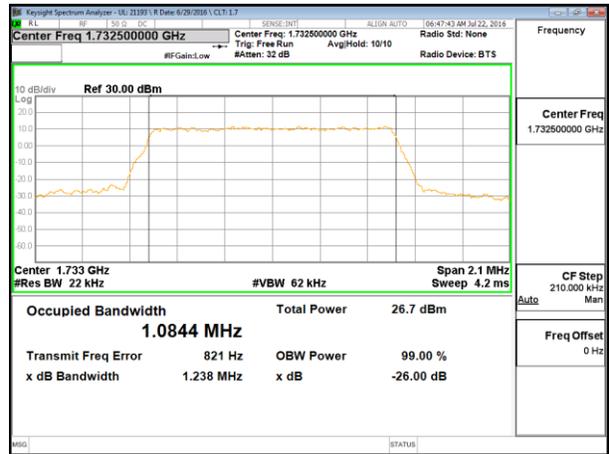
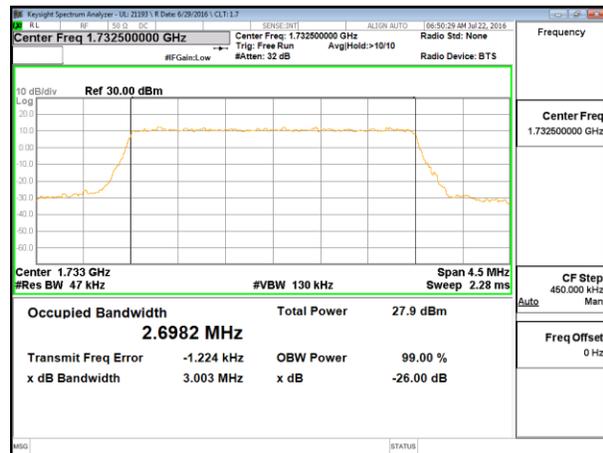


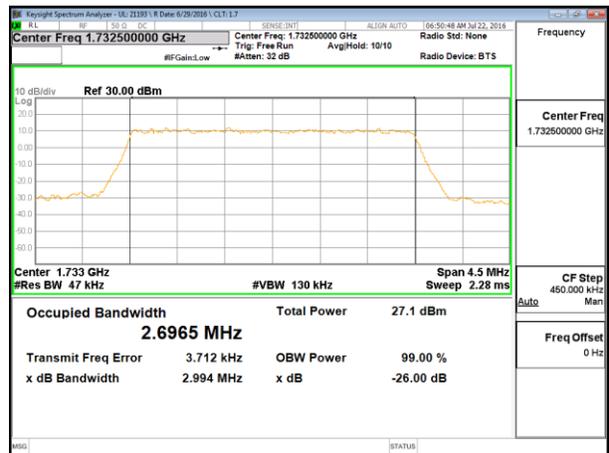
LTE B4 1.4MHz QPSK Middle Channel



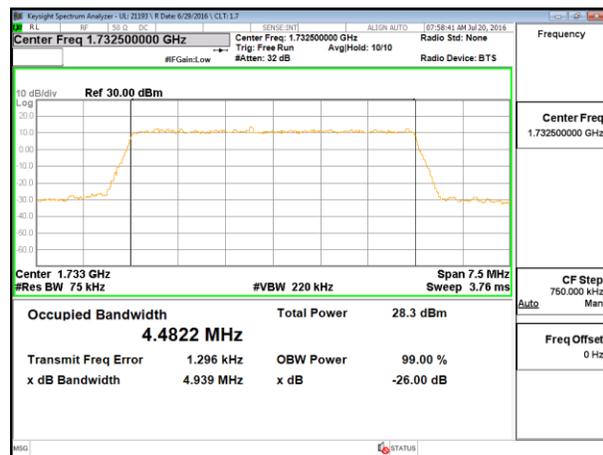
LTE B4 1.4MHz 16QAM Middle Channel



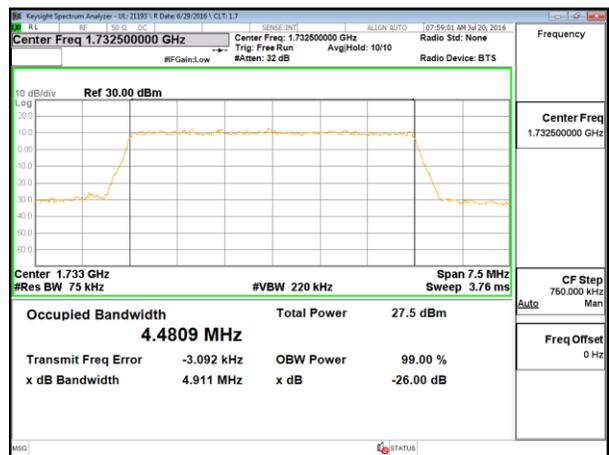
LTE B4 3MHz QPSK Middle Channel



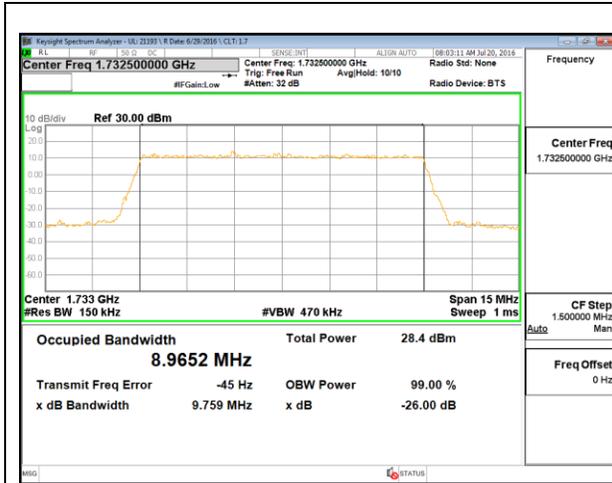
LTE B4 3MHz 16QAM Middle Channel



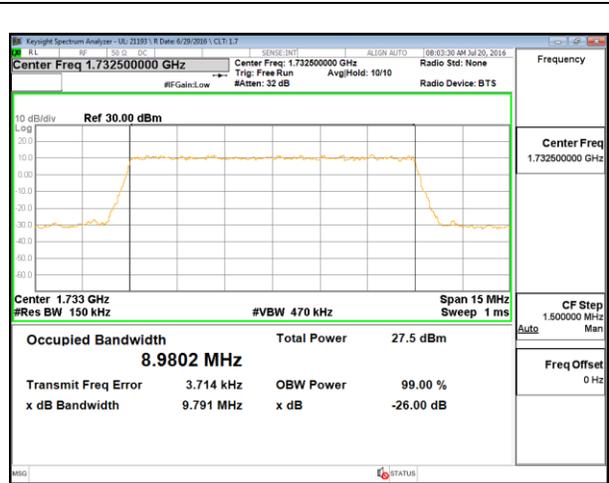
LTE B4 5MHz QPSK Middle Channel



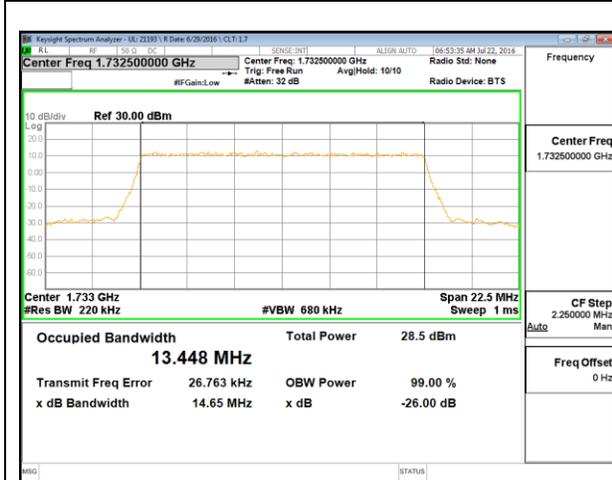
LTE B4 5MHz 16QAM Middle Channel



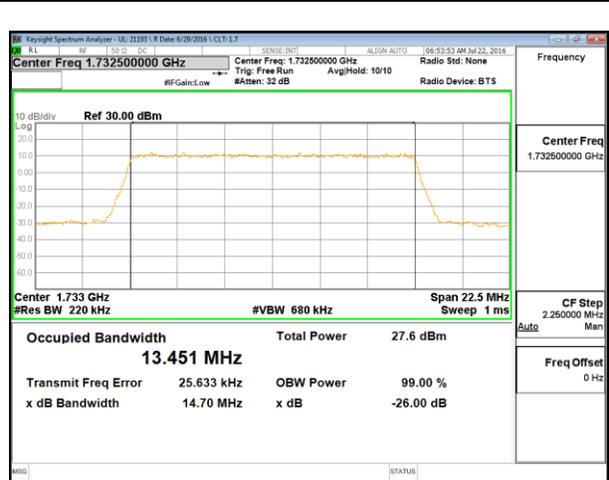
LTE B4 10MHz QPSK Middle Channel



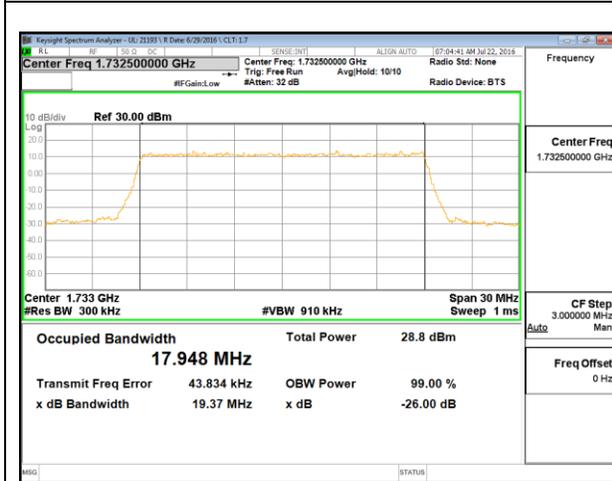
LTE B4 10MHz 16QAM Middle Channel



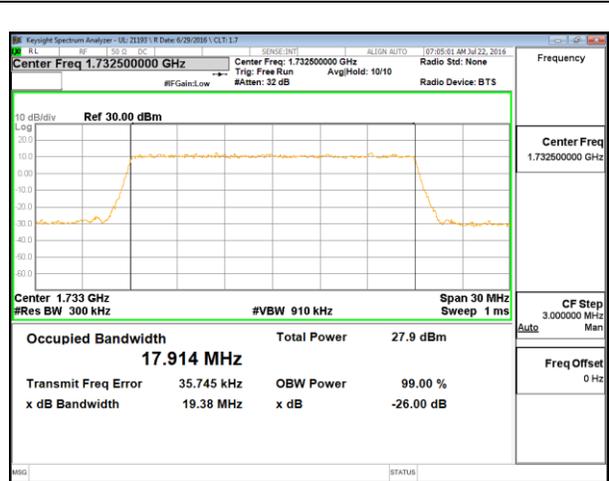
LTE B4 15MHz QPSK Middle Channel



LTE B4 15MHz 16QAM Middle Channel



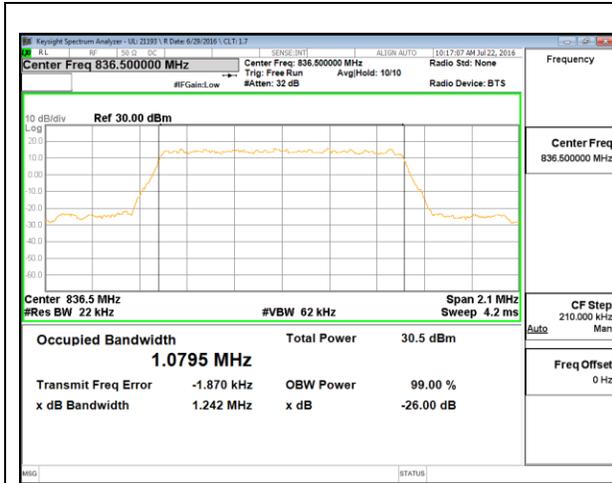
LTE B4 20MHz QPSK Middle Channel



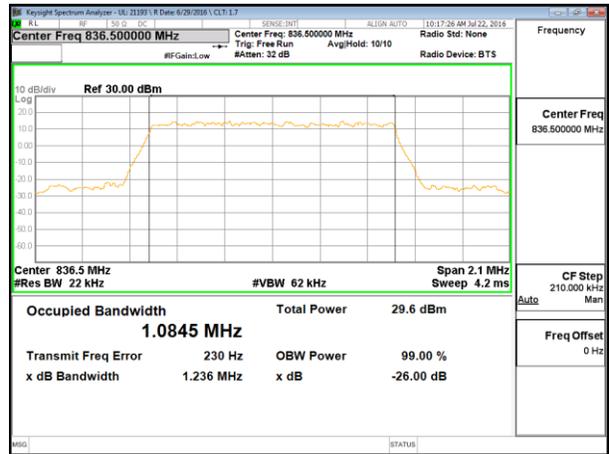
LTE B4 20MHz 16QAM Middle Channel

**LTE Band 5**

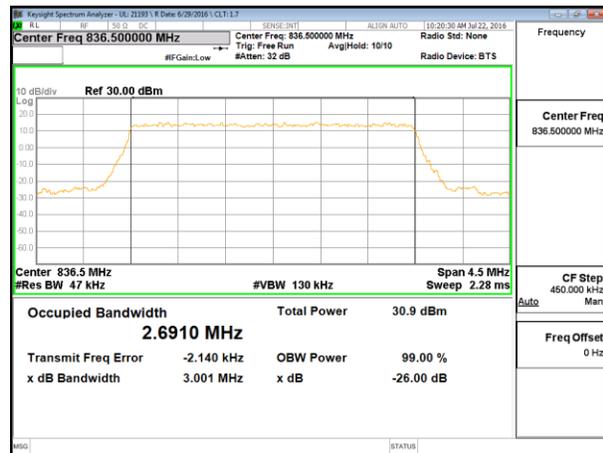
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
1.4	QPSK	6/0	824.7	1.08	1.24
		6/0	836.5	1.08	1.24
		6/0	848.3	1.08	1.24
	16QAM	6/0	824.7	1.08	1.24
		6/0	836.5	1.08	1.24
		6/0	848.3	1.09	1.25
3	QPSK	15/0	825.5	2.7	3
		15/0	836.5	2.69	3
		15/0	847.5	2.7	3.02
	16QAM	15/0	825.5	2.7	3
		15/0	836.5	2.7	2.99
		15/0	847.5	2.7	3.01
5	QPSK	25/0	826.5	4.47	4.83
		25/0	836.5	4.53	4.97
		25/0	846.5	4.5	4.95
	16QAM	25/0	826.5	4.49	4.89
		25/0	836.5	4.51	4.96
		25/0	846.5	4.48	4.9
10	QPSK	50/0	829	8.94	9.7
		50/0	836.5	8.95	9.72
		50/0	844	8.96	9.69
	16QAM	50/0	829	8.95	9.74
		50/0	836.5	8.94	9.69
		50/0	844	8.96	9.78



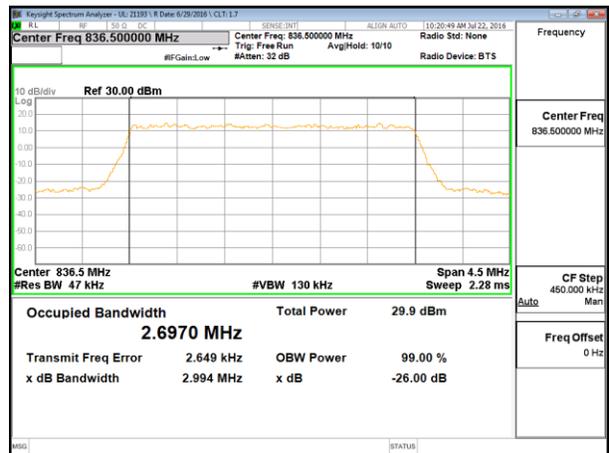
LTE B5 1.4MHz QPSK Middle Channel



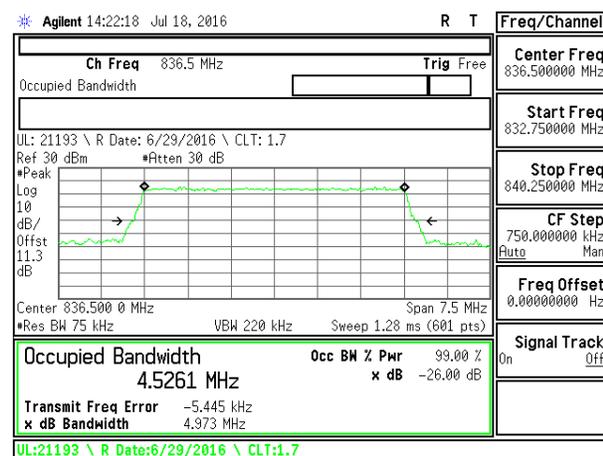
LTE B5 1.4MHz 16QAM Middle Channel



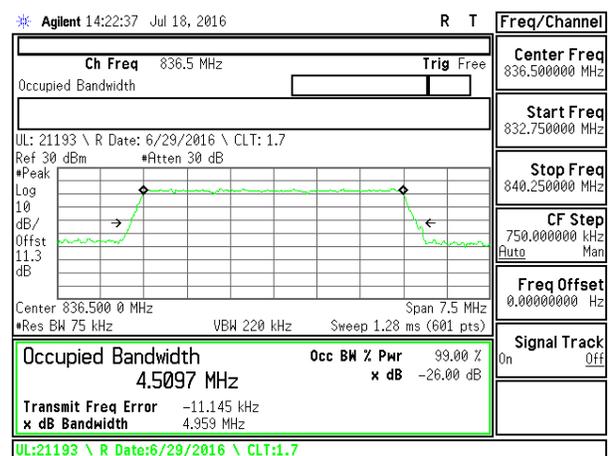
LTE B5 3MHz QPSK Middle Channel



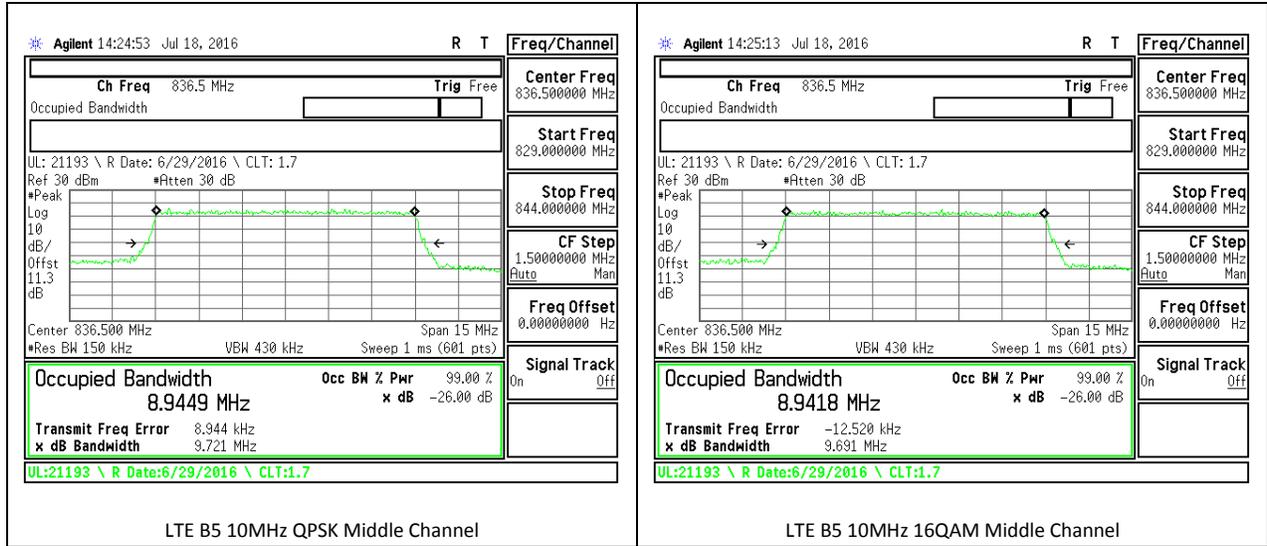
LTE B5 3MHz 16QAM Middle Channel



LTE B5 5MHz QPSK Middle Channel

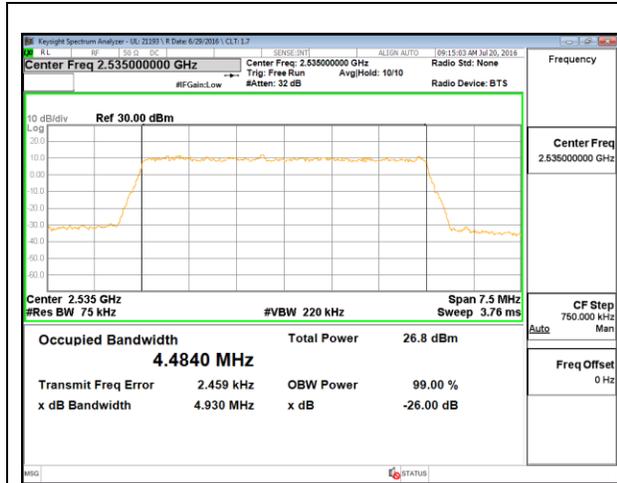


LTE B5 5MHz 16QAM Middle Channel

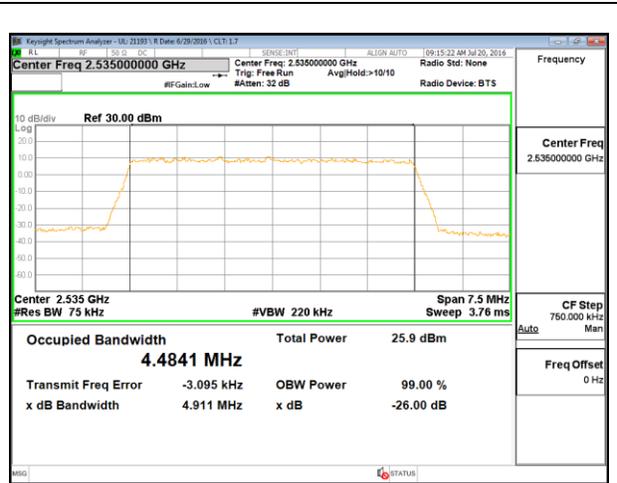


**LTE Band 7**

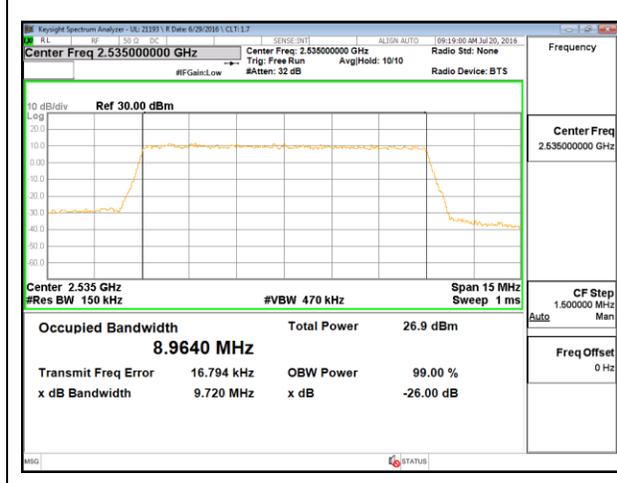
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
5	QPSK	25/0	2502.5	4.49	4.94
		25/0	2535	4.48	4.93
		25/0	2567.5	4.5	4.93
	16QAM	25/0	2502.5	4.49	4.93
		25/0	2535	4.48	4.91
		25/0	2567.5	4.5	4.96
10	QPSK	50/0	2505	8.98	9.74
		50/0	2535	8.96	9.72
		50/0	2565	8.97	9.69
	16QAM	50/0	2505	8.95	9.71
		50/0	2535	8.98	9.76
		50/0	2565	8.97	9.72
15	QPSK	75/0	2507.5	13.45	14.61
		75/0	2535	13.46	14.49
		75/0	2562.5	13.42	14.56
	16QAM	75/0	2507.5	13.44	14.61
		75/0	2535	13.46	14.55
		75/0	2562.5	13.43	14.54
20	QPSK	100/0	2510	17.87	19.24
		100/0	2535	17.94	19.32
		100/0	2560	17.91	19.44
	16QAM	100/0	2510	17.9	19.27
		100/0	2535	17.93	19.37
		100/0	2560	17.86	19.24



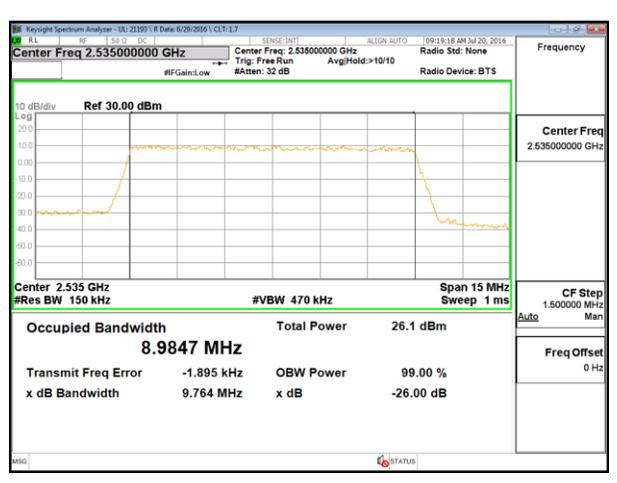
LTE B7 5MHz QPSK Middle Channel



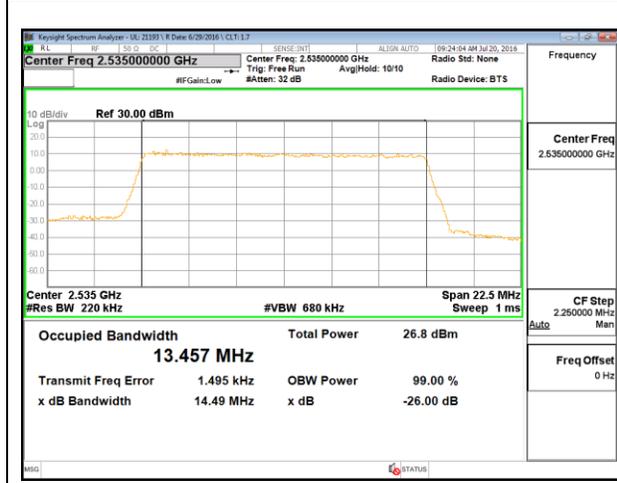
LTE B7 5MHz 16QAM Middle Channel



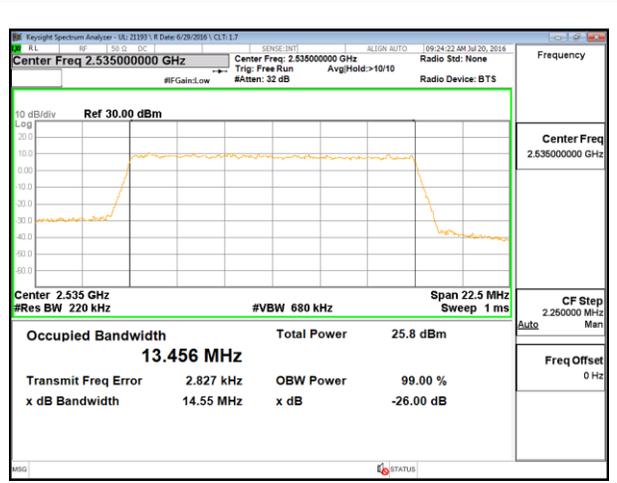
LTE B7 10MHz QPSK Middle Channel



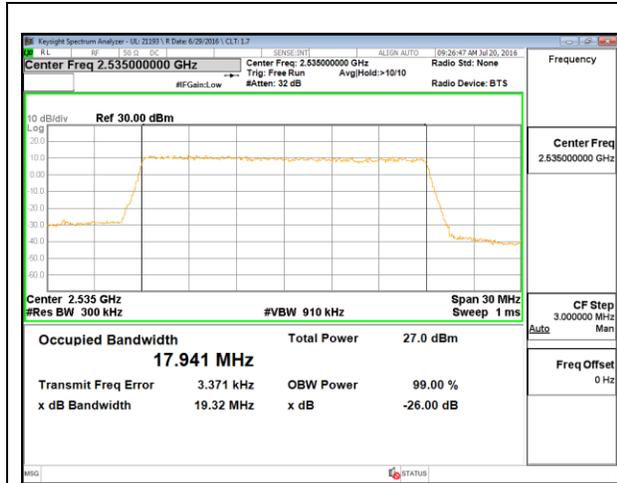
LTE B7 10MHz 16QAM Middle Channel



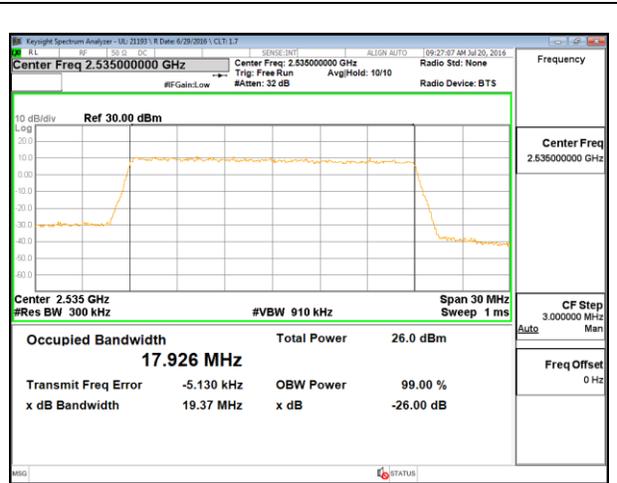
LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel



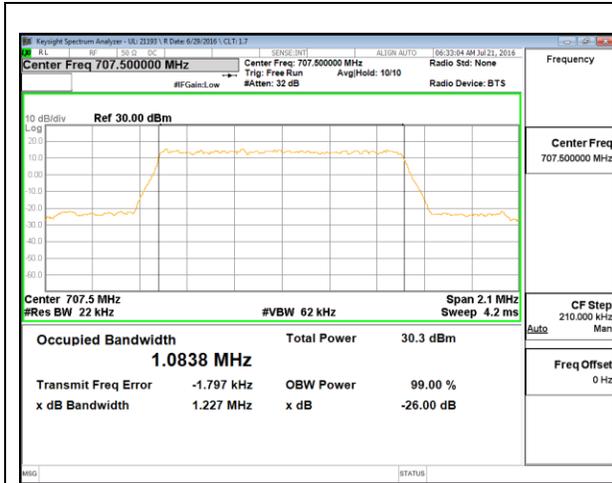
LTE B7 20MHz QPSK Middle Channel



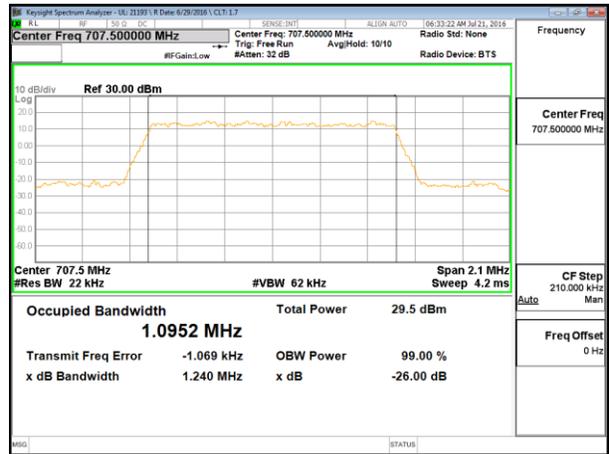
LTE B7 20MHz 16QAM Middle Channel

**LTE Band 12**

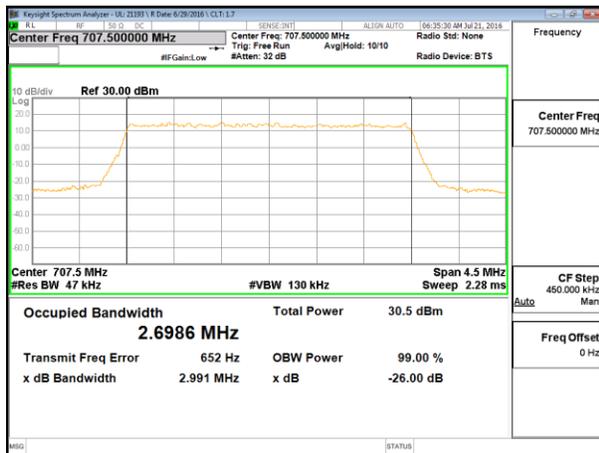
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
1.4	QPSK	6/0	699.7	1.08	1.23
		6/0	707.5	1.08	1.23
		6/0	715.3	1.09	1.23
	16QAM	6/0	699.7	1.08	1.23
		6/0	707.5	1.1	1.24
		6/0	715.3	1.08	1.24
3	QPSK	15/0	700.5	2.7	2.99
		15/0	707.5	2.7	2.99
		15/0	714.5	2.7	2.98
	16QAM	15/0	700.5	2.7	3.01
		15/0	707.5	2.7	3
		15/0	714.5	2.7	2.99
5	QPSK	25/0	701.5	4.49	4.93
		25/0	707.5	4.51	4.95
		25/0	713.5	4.5	4.96
	16QAM	25/0	701.5	4.49	4.92
		25/0	707.5	4.5	4.96
		25/0	713.5	4.49	4.93
10	QPSK	50/0	704	8.97	9.71
		50/0	707.5	8.97	9.7
		50/0	711	8.97	9.76
	16QAM	50/0	704	8.98	9.76
		50/0	707.5	8.94	9.77
		50/0	711	8.99	9.77



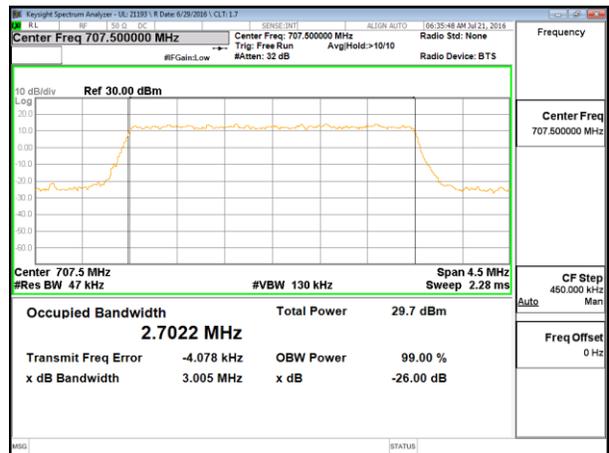
LTE B12 1.4MHz QPSK Middle Channel



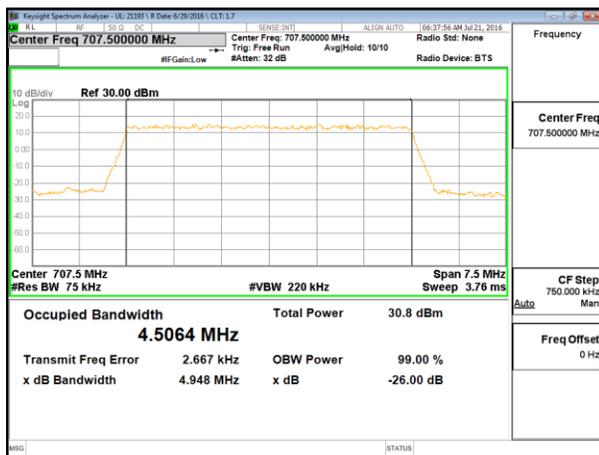
LTE B12 1.4MHz 16QAM Middle Channel



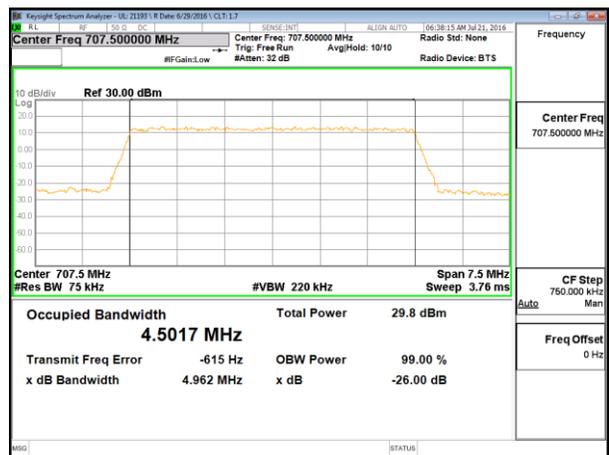
LTE B12 3MHz QPSK Middle Channel



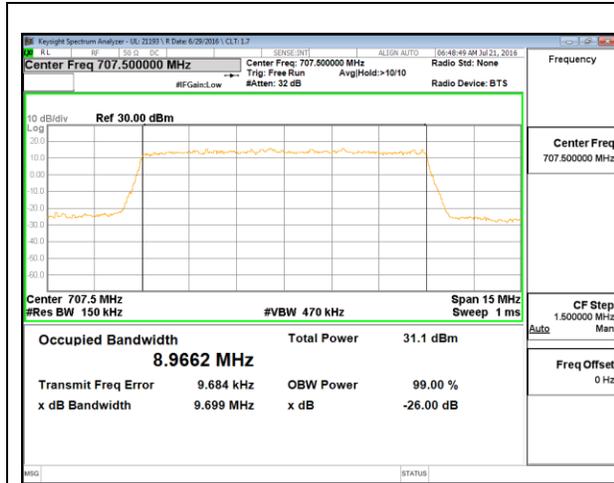
LTE B12 3MHz 16QAM Middle Channel



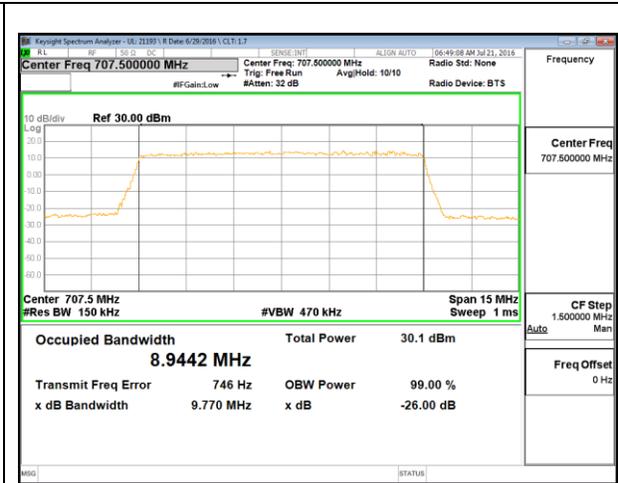
LTE B12 5MHz QPSK Middle Channel



LTE B12 5MHz 16QAM Middle Channel



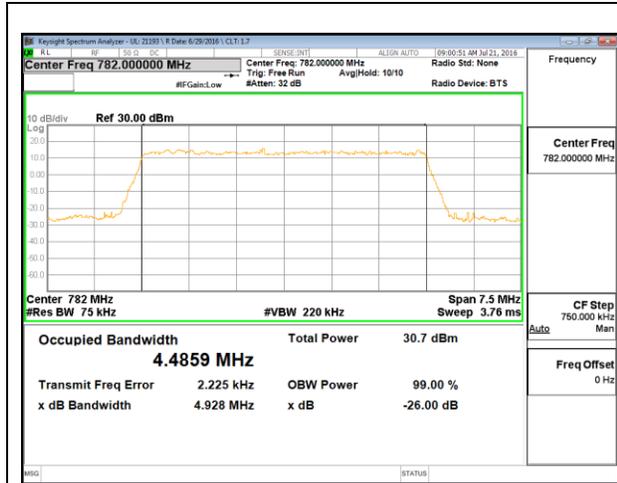
LTE B12 10MHz QPSK Middle Channel



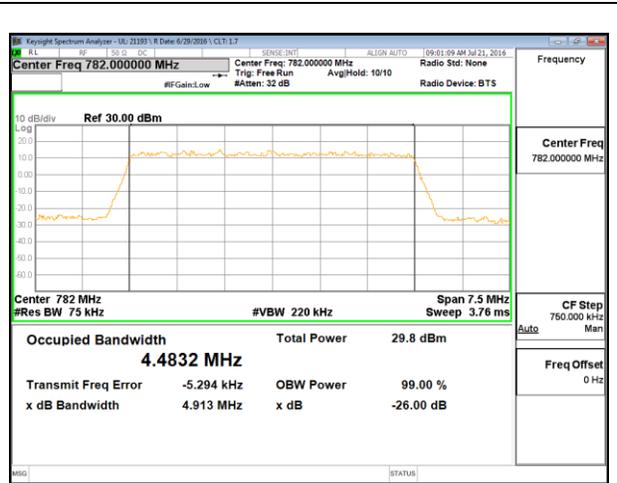
LTE B12 10MHz 16QAM Middle Channel

**LTE Band 13**

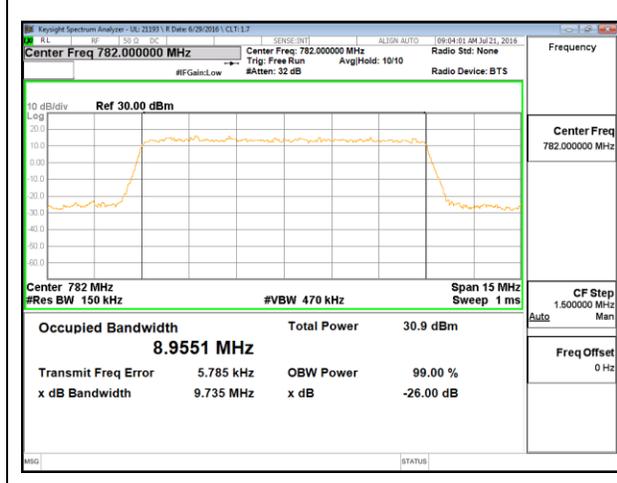
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
5	QPSK	25/0	779.5	4.49	4.93
		25/0	782	4.49	4.93
		25/0	784.5	4.5	4.95
	16QAM	25/0	779.5	4.49	4.93
		25/0	782	4.48	4.91
		25/0	784.5	4.49	4.94
10	QPSK	50/0	-	-	-
		50/0	782	8.96	9.74
		50/0	-	-	-
	16QAM	50/0	-	-	-
		50/0	782	8.99	9.78
		50/0	-	-	-



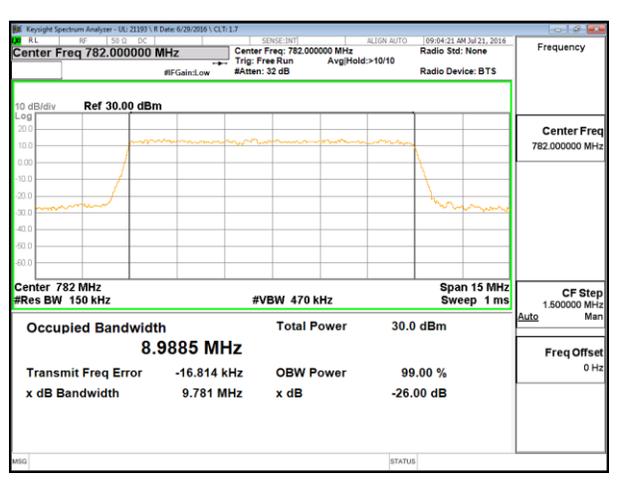
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel



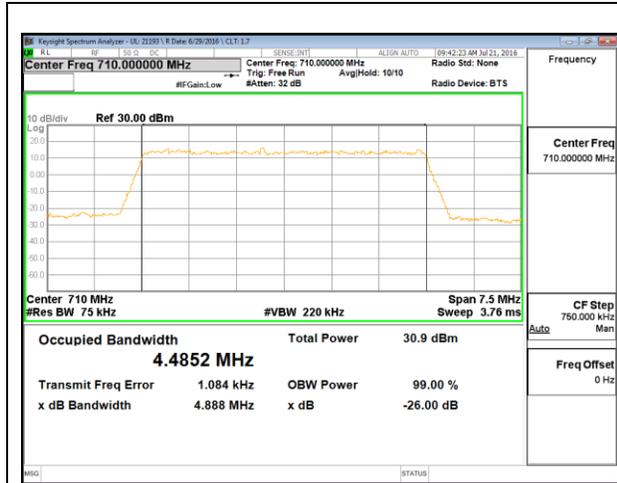
LTE B13 10MHz QPSK Middle Channel



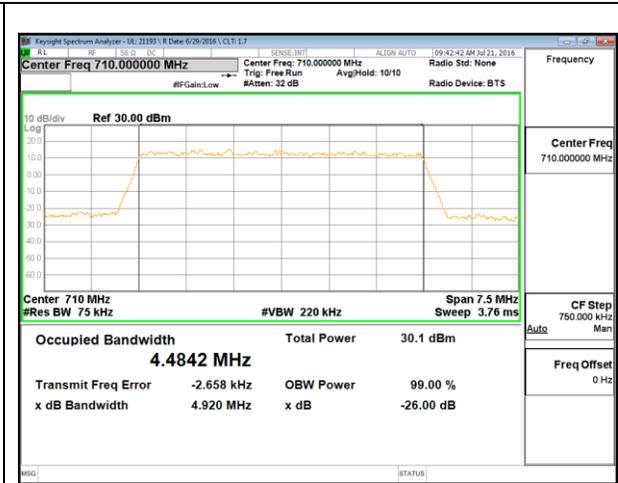
LTE B13 10MHz 16QAM Middle Channel

**LTE Band 17**

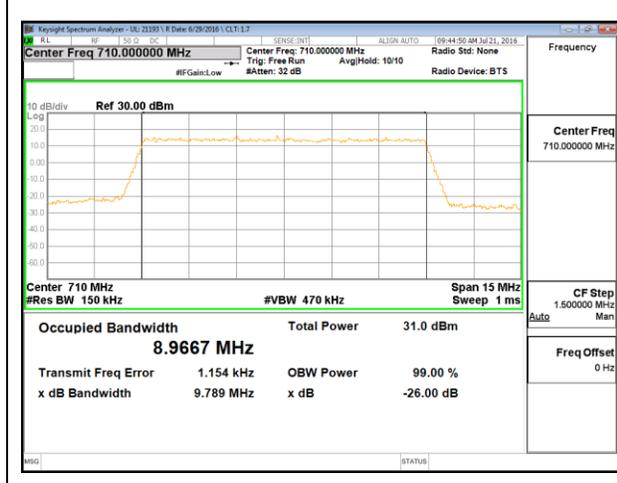
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
5	QPSK	25/0	706.5	4.5	4.94
		25/0	710	4.49	4.89
		25/0	713.5	4.51	4.94
	16QAM	25/0	706.5	4.49	4.91
		25/0	710	4.48	4.92
		25/0	713.5	4.5	4.97
10	QPSK	50/0	709	8.96	9.7
		50/0	710	8.97	9.79
		50/0	711	8.97	9.8
	16QAM	50/0	709	8.98	9.78
		50/0	710	8.98	9.79
		50/0	711	8.96	9.78



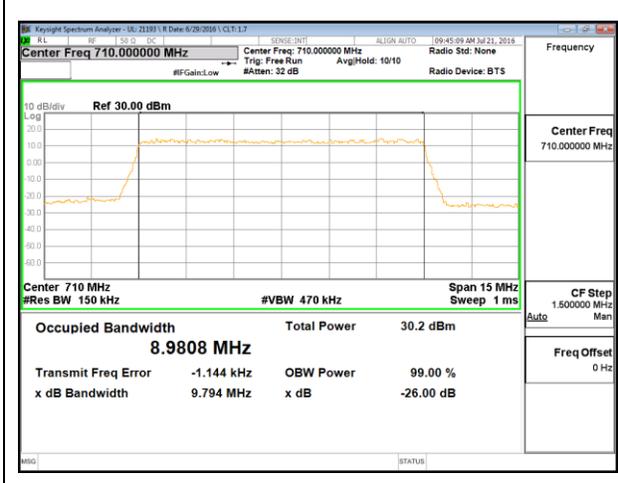
LTE B17 5MHz QPSK Middle Channel



LTE B17 5MHz 16QAM Middle Channel



LTE B17 10MHz QPSK Middle Channel



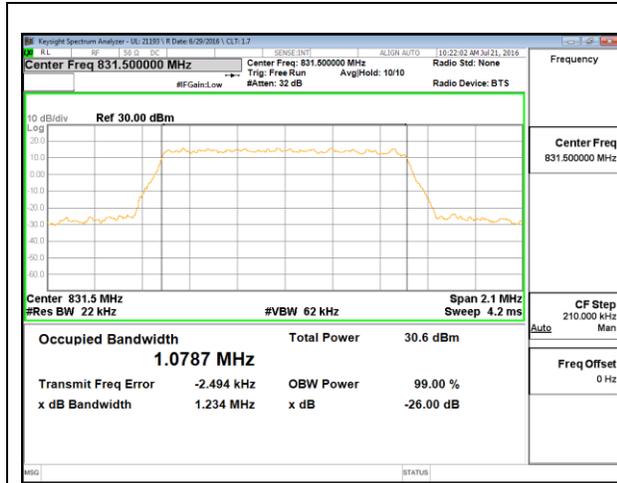
LTE B17 10MHz 16QAM Middle Channel

**LTE Band 26-Part 90**

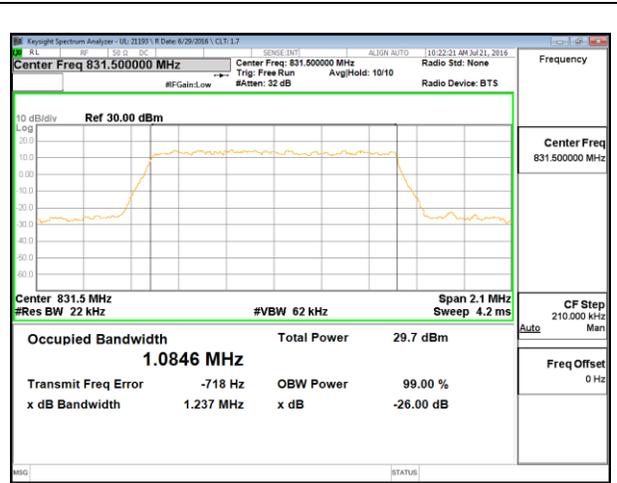
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
1.4	QPSK	6/0	814.7	1.08	1.24
	16QAM	6/0	814.7	1.08	1.24
3	QPSK	15/0	815.5	2.7	2.99
	16QAM	15/0	815.5	2.7	3.04
5	QPSK	25/0	816.5	4.51	4.94
	16QAM	25/0	816.5	4.5	4.97
10	QPSK	50/0	819	8.95	9.79
	16QAM	50/0	819	8.98	9.78

**LTE Band 26-Part 22**

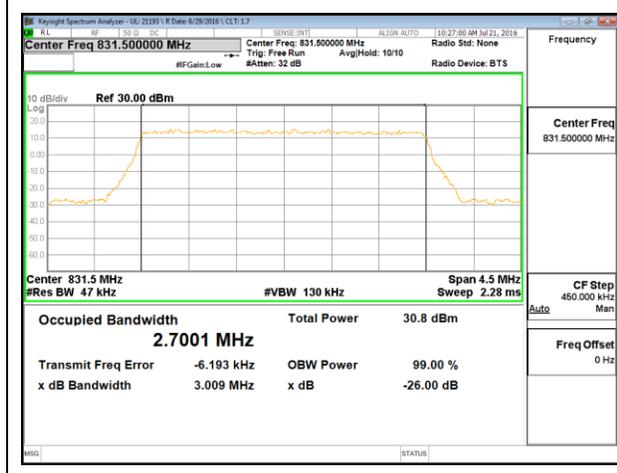
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
1.4	QPSK	6/0	831.5	1.08	1.23
		6/0	848.3	1.09	1.24
	16QAM	6/0	831.5	1.08	1.24
		6/0	848.3	1.09	1.24
3	QPSK	15/0	831.5	2.7	3.01
		15/0	847.5	2.7	3.02
	16QAM	15/0	831.5	2.7	2.98
		15/0	847.5	2.7	3.01
5	QPSK	25/0	831.5	4.5	4.98
		25/0	846.5	4.48	4.94
	16QAM	25/0	831.5	4.49	4.93
		25/0	846.5	4.48	4.9
10	QPSK	50/0	831.5	8.96	9.73
		50/0	844	8.98	9.74
	16QAM	50/0	831.5	8.97	9.77
		50/0	844	8.94	9.74
15	QPSK	75/0	836.5	13.46	14.67
		75/0	841.5	13.42	14.63
	16QAM	75/0	836.5	13.45	14.59
		75/0	841.5	13.43	14.6



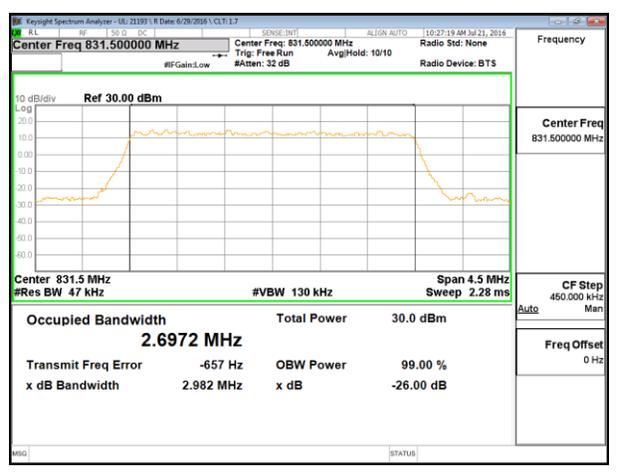
LTE B26 1.4MHz QPSK Middle Channel



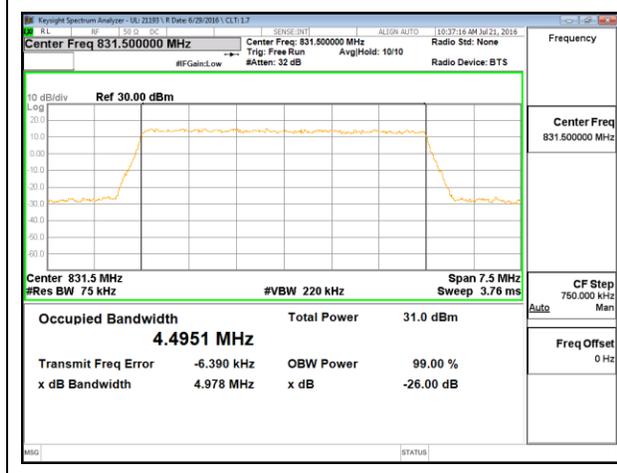
LTE B26 1.4MHz 16QAM Middle Channel



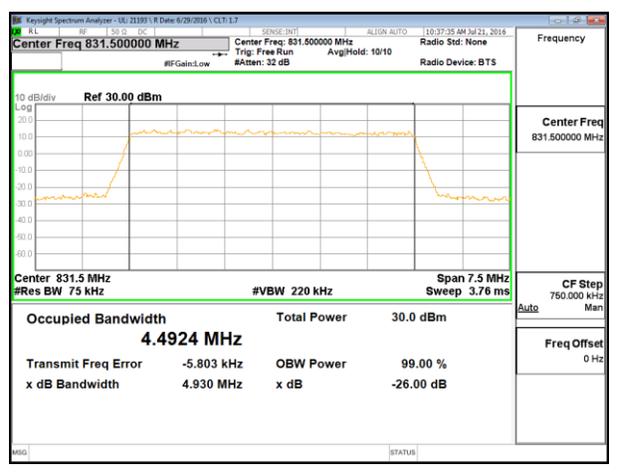
LTE B26 3MHz QPSK Middle Channel



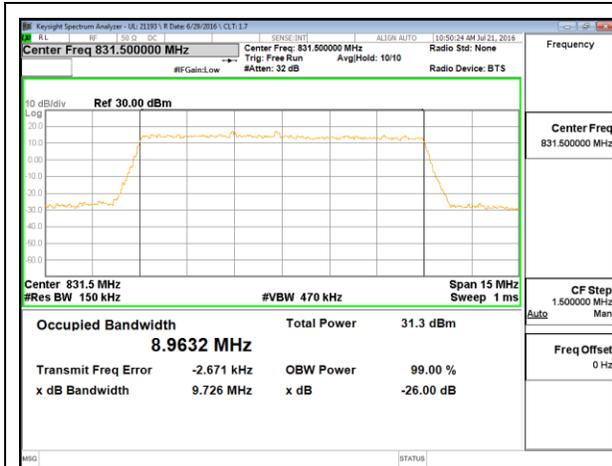
LTE B26 3MHz 16QAM Middle Channel



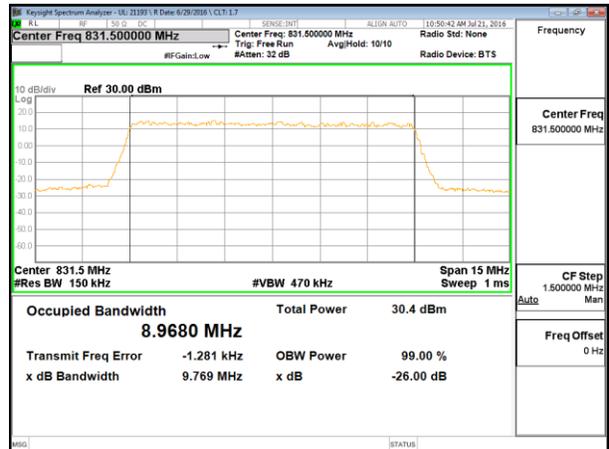
LTE B26 5MHz QPSK Middle Channel



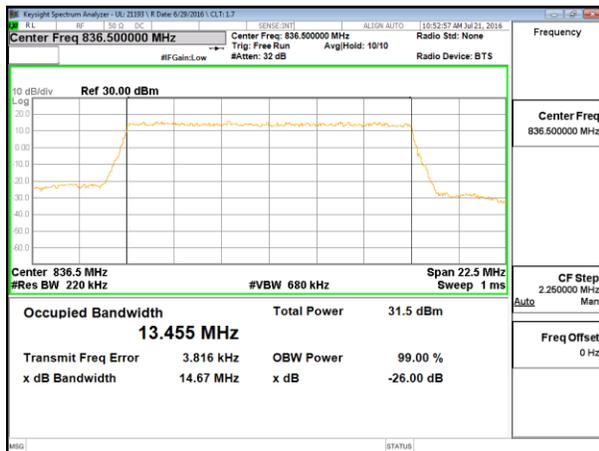
LTE B26 5MHz 16QAM Middle Channel



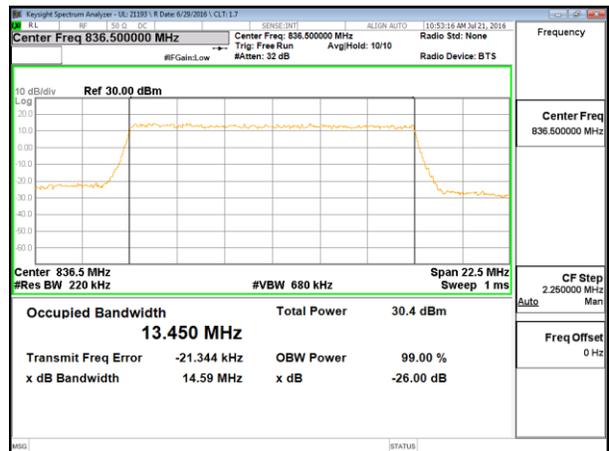
LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel



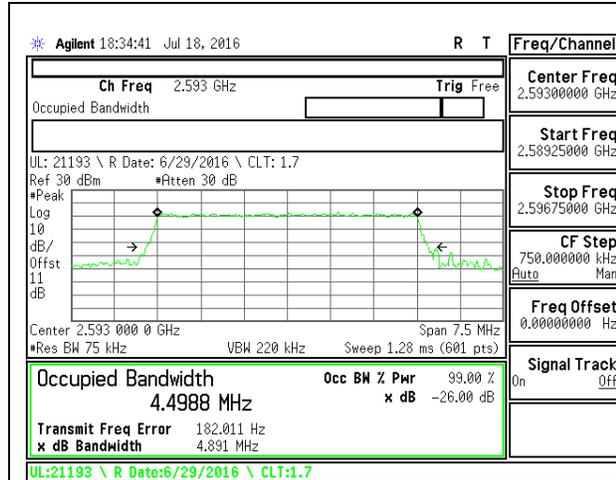
LTE B26 15MHz QPSK Middle Channel



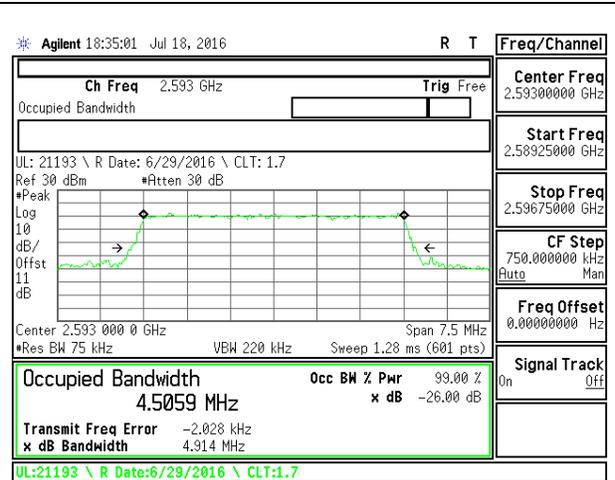
LTE B26 15MHz 16QAM Middle Channel

**LTE Band 41**

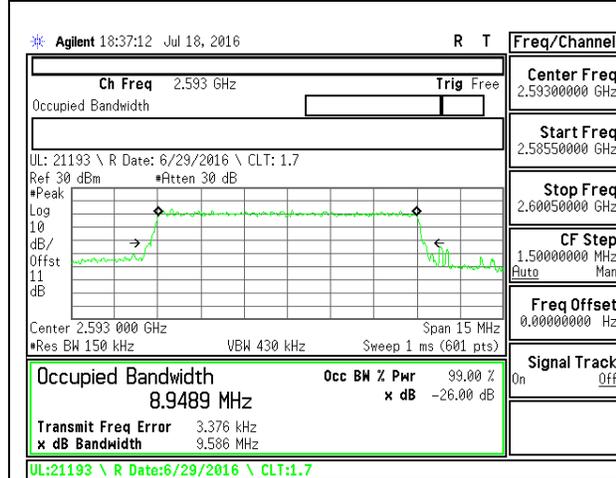
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
5	QPSK	25/0	2498.5	4.5	4.89
		25/0	2593	4.5	4.89
		25/0	2687.5	4.49	4.87
	16QAM	25/0	2498.5	4.5	4.87
		25/0	2593	4.51	4.91
		25/0	2687.5	4.49	4.85
10	QPSK	50/0	2501	8.96	9.54
		50/0	2593	8.95	9.59
		50/0	2685	8.95	9.61
	16QAM	50/0	2501	8.95	9.53
		50/0	2593	8.97	9.58
		50/0	2685	8.97	9.58
15	QPSK	75/0	2503.5	13.38	14.28
		75/0	2593	13.45	14.45
		75/0	2682.5	13.43	14.79
	16QAM	75/0	2503.5	13.42	14.56
		75/0	2593	13.42	14.42
		75/0	2682.5	13.43	14.56
20	QPSK	100/0	2506	17.86	19.34
		100/0	2593	17.85	19.3
		100/0	2680	17.87	19.36
	16QAM	100/0	2506	17.91	19.05
		100/0	2593	17.85	18.98
		100/0	2680	17.89	19.34



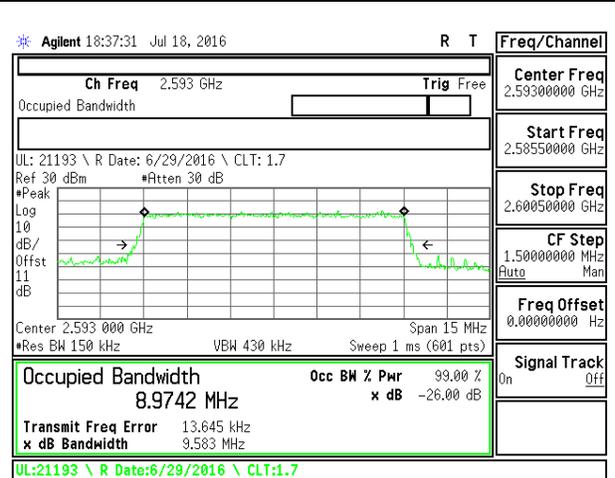
LTE B41 5MHz QPSK Middle Channel



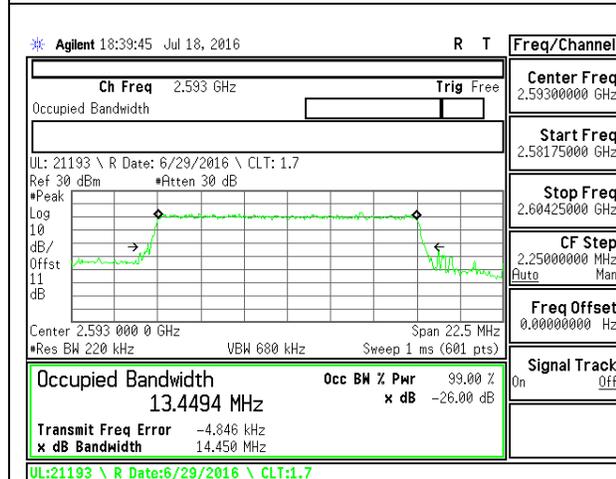
LTE B41 5MHz 16QAM Middle Channel



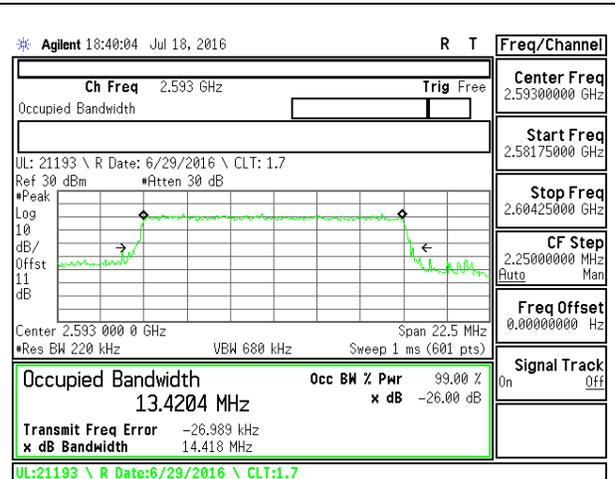
LTE B41 10MHz QPSK Middle Channel



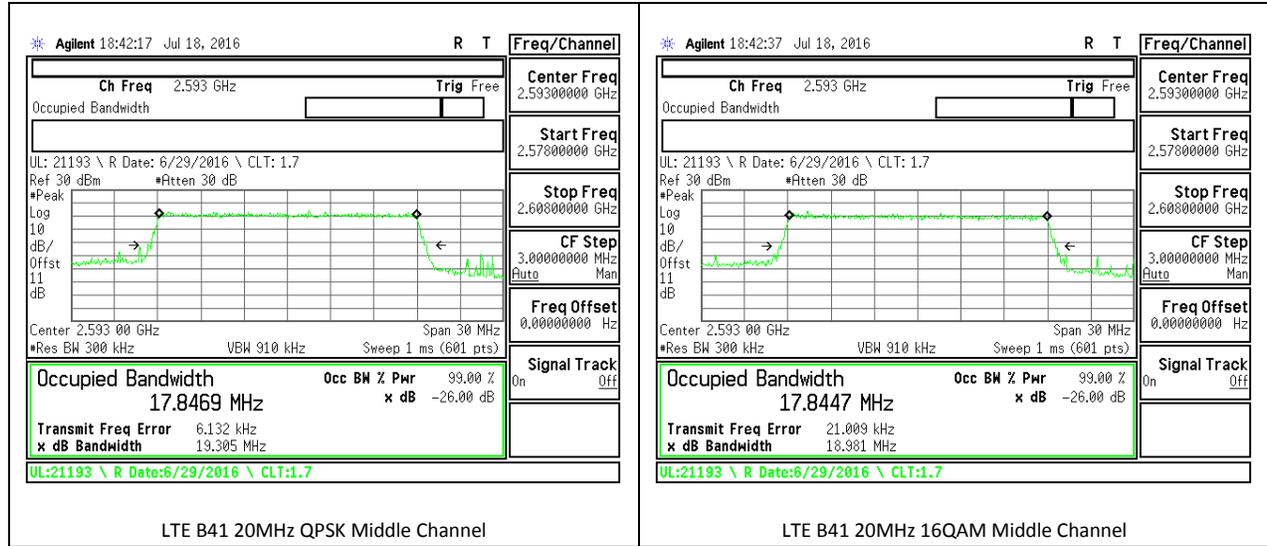
LTE B41 10MHz 16QAM Middle Channel



LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel



## 11. BAND EDGE EMISSIONS

### RULE PART(S)

FCC: §22.359, §24.238, §27.53 and § 90.691

### LIMITS

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

Part 27: (m)(4) (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.

Part 90:

(a)(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \log_{10} (f/6.1)$  decibels or  $50 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(a)(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10} (P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz. {NOTE: Use 100 kHz reference bandwidth.}

### TEST PROCEDURE

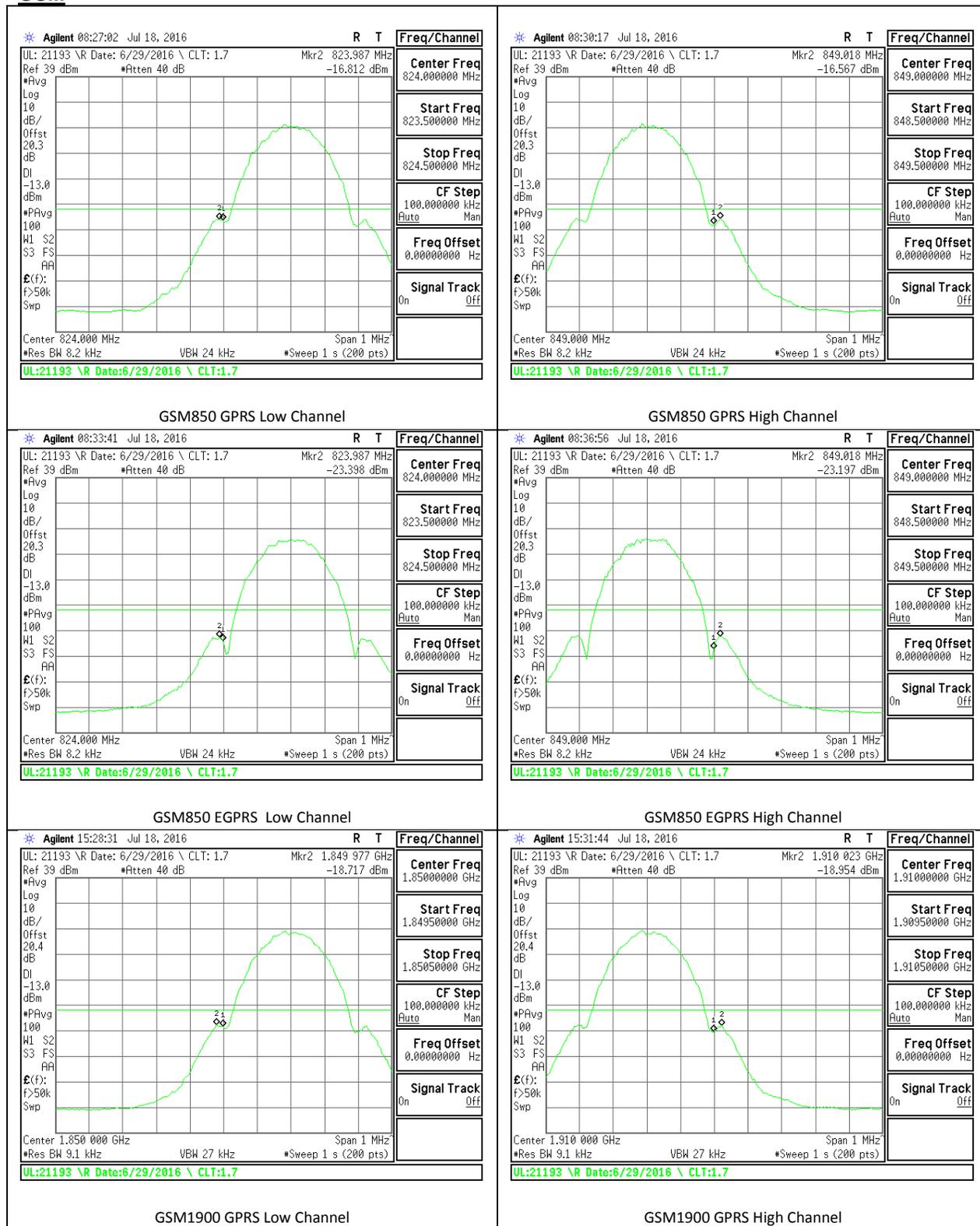
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

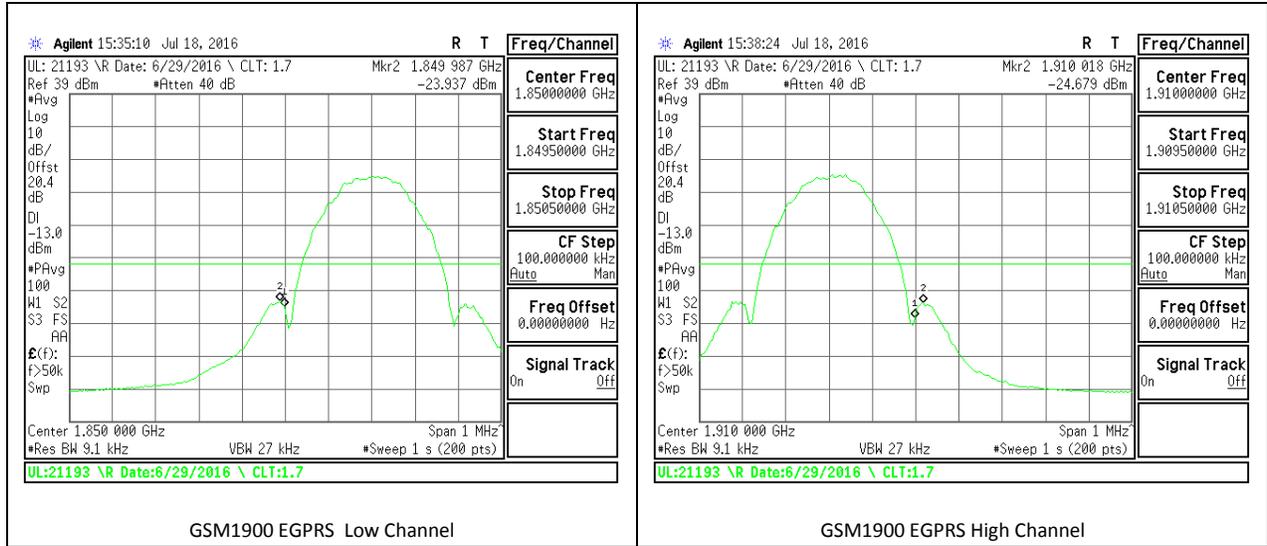
The transmitter output was connected to an Agilent 8960 or a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

Note : LTE B41 Emission plot

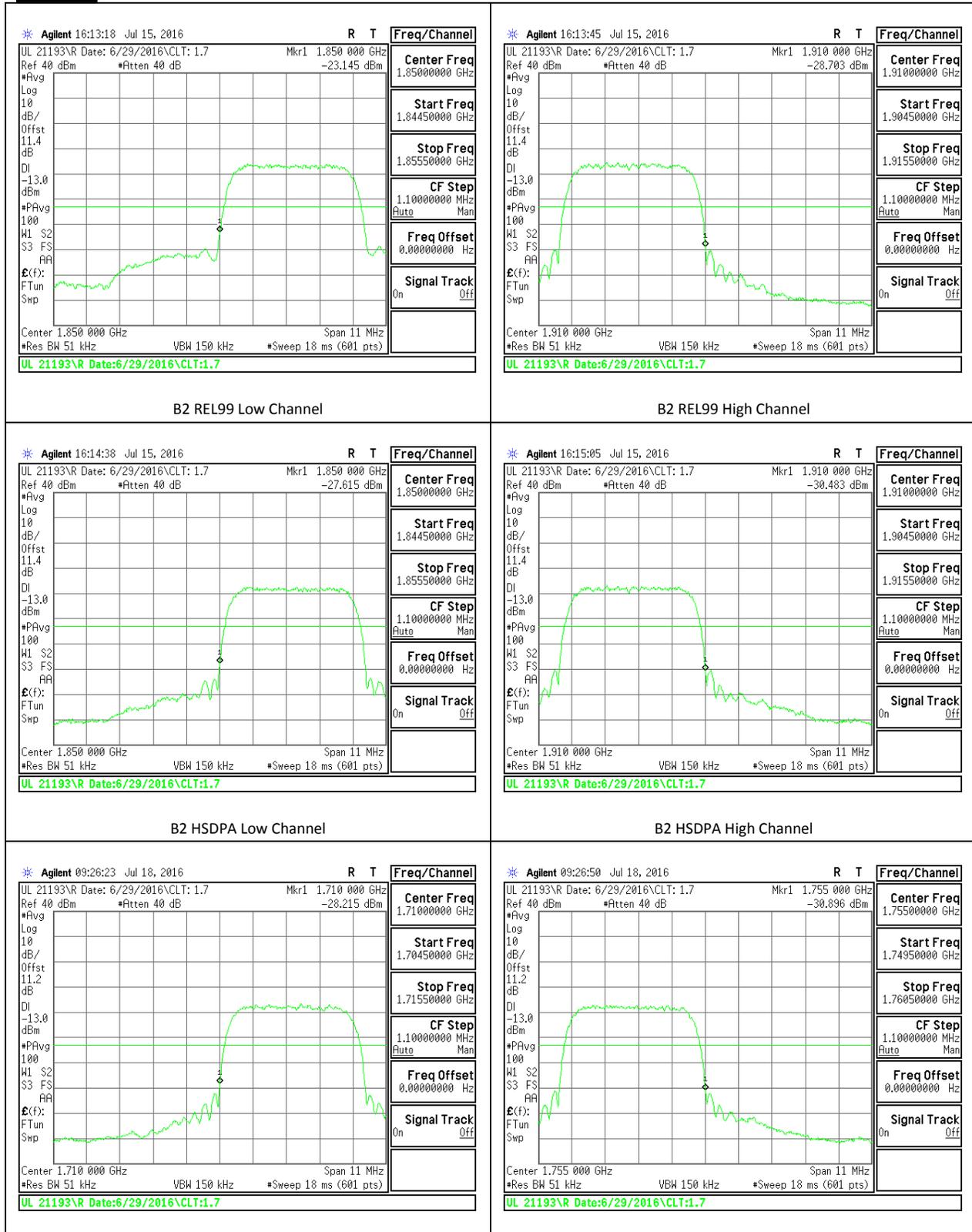
1. RBW: 1MHz for Blue Trace
2. RBW: 2% of OBW for Red Trace

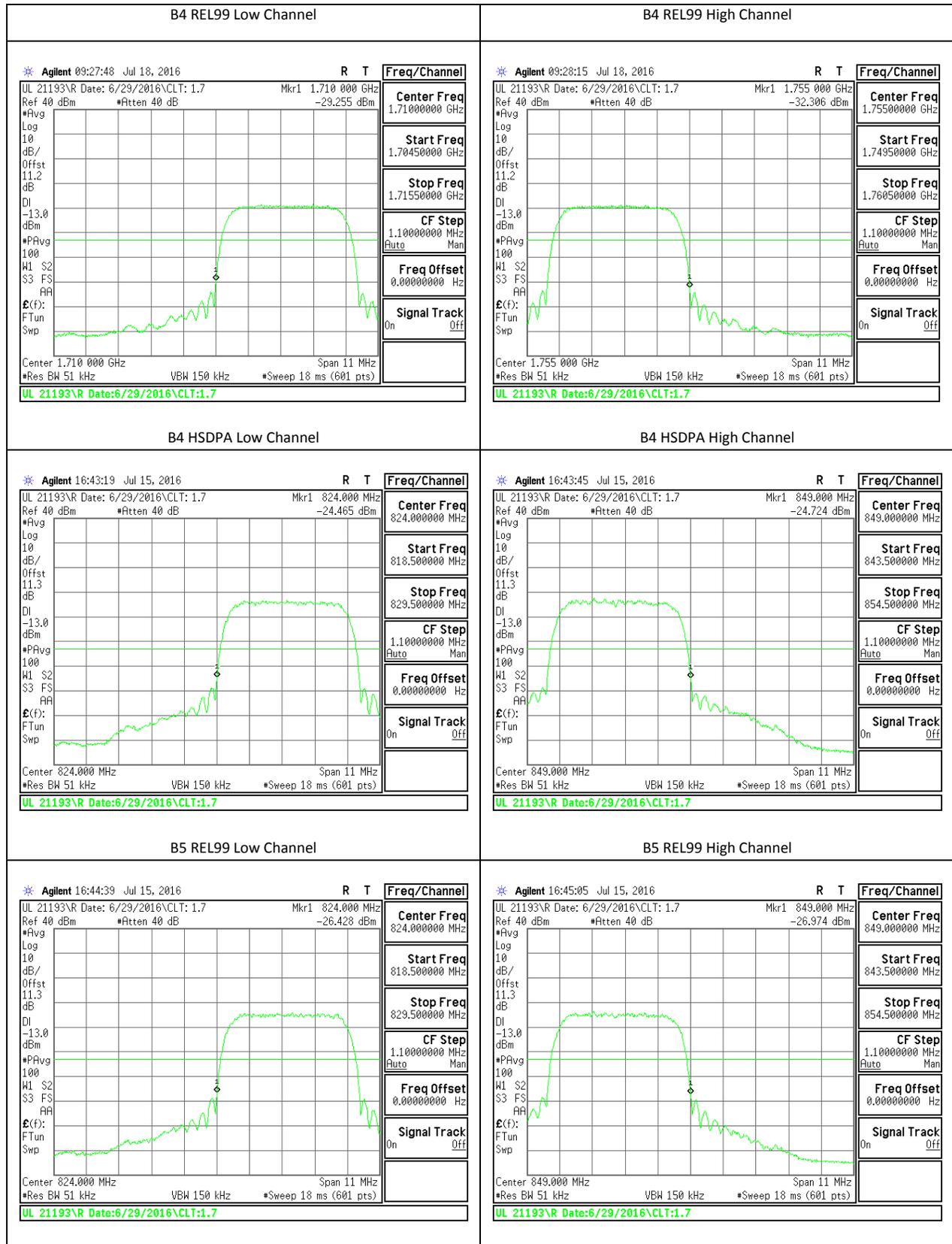
# 11.1. BAND EDGE PLOTS GSM





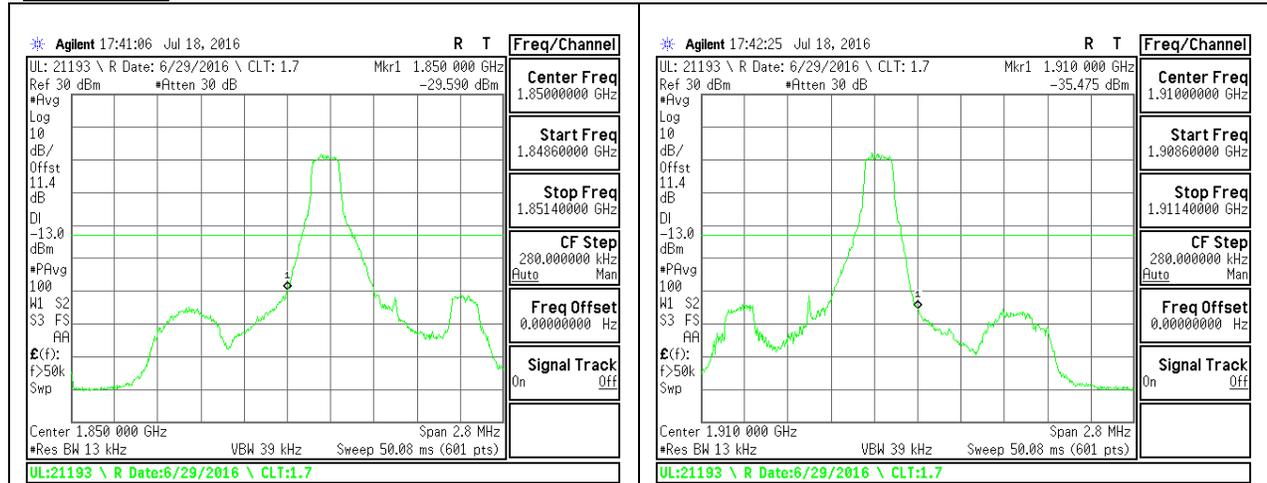
**WCDMA**





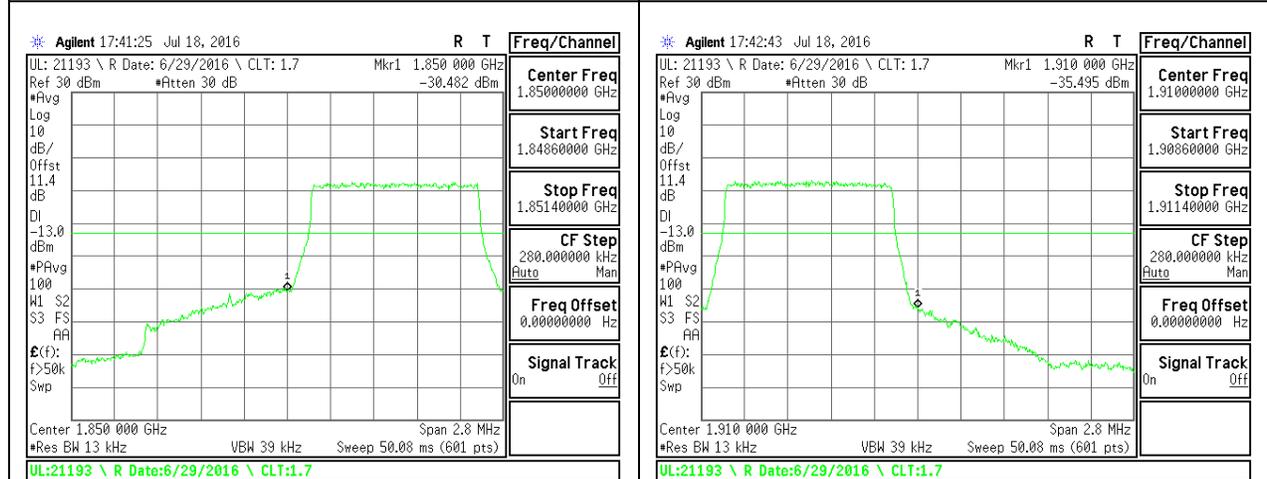
B5 HSDPA Low Channel	B5 HSDPA High Channel
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**LTE Band 2**



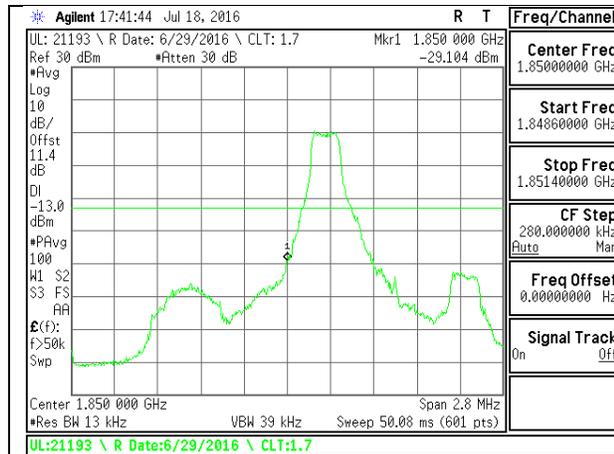
LTE B2 1.4MHz QPSK Low Channel 1RB

LTE B2 1.4MHz QPSK High Channel 1RB

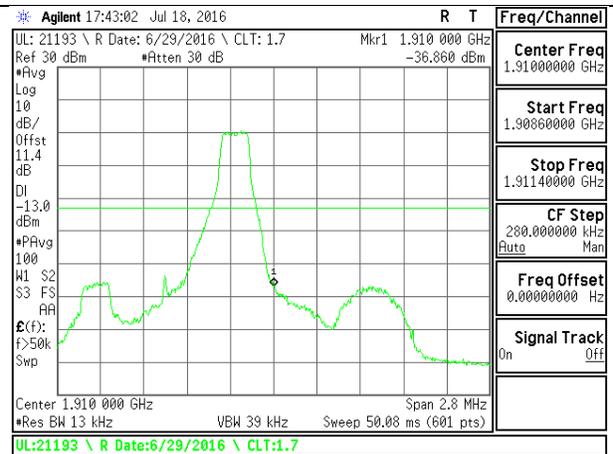


LTE B2 1.4MHz QPSK Low Channel FRB

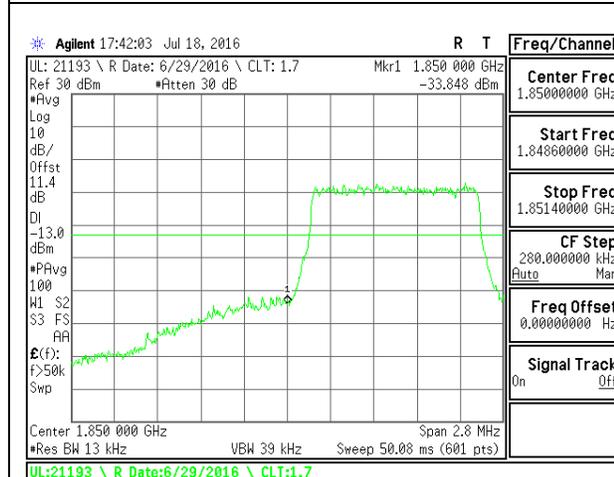
LTE B2 1.4MHz QPSK High Channel FRB



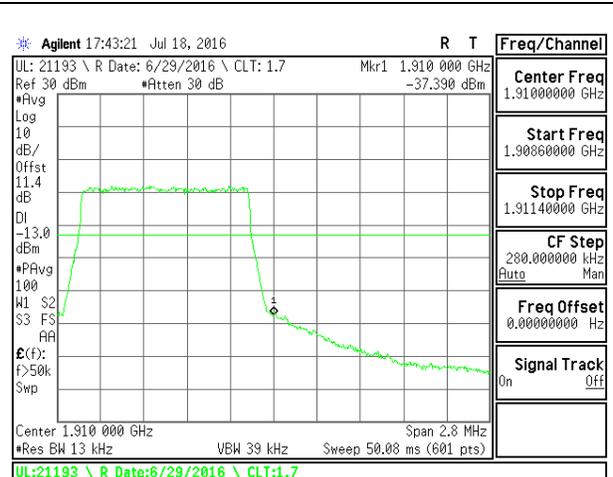
LTE B2 1.4MHz 16QAM Low Channel 1RB



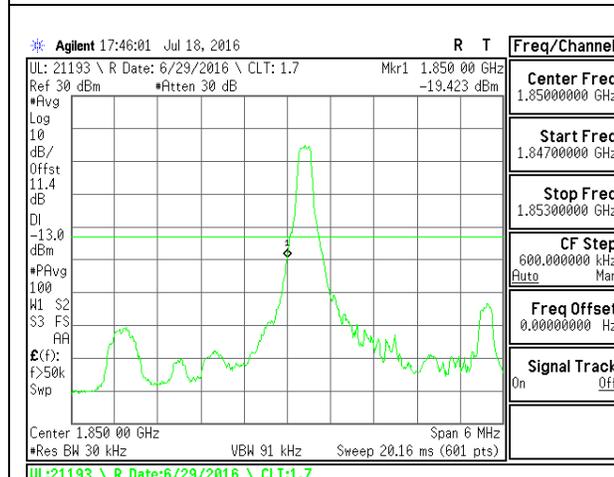
LTE B2 1.4MHz 16QAM High Channel 1RB



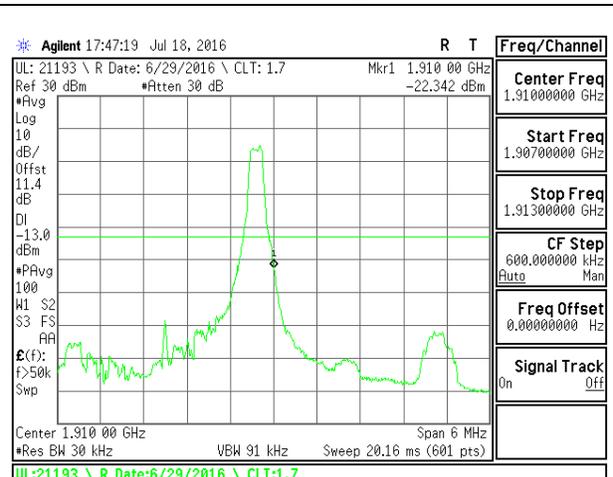
LTE B2 1.4MHz 16QAM Low Channel FRB



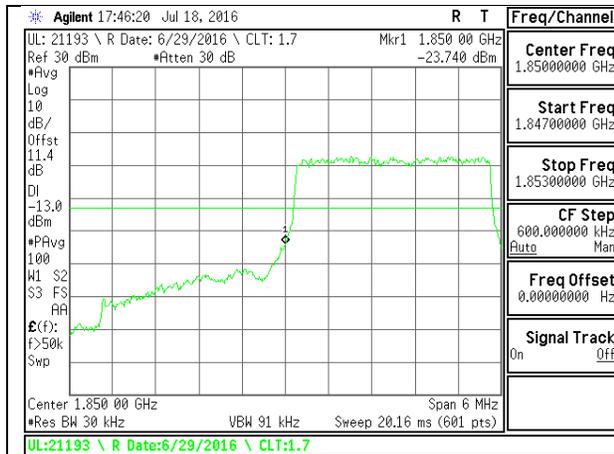
LTE B2 1.4MHz 16QAM High Channel FRB



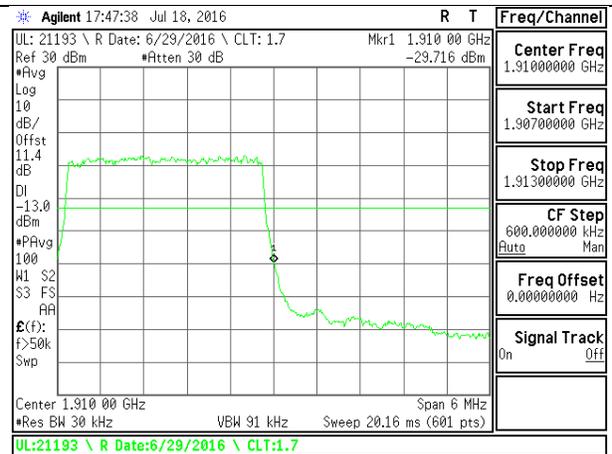
LTE B2 3MHz QPSK Low Channel 1RB



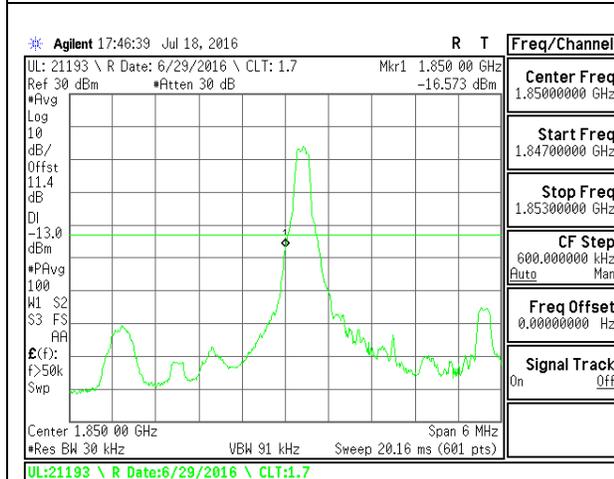
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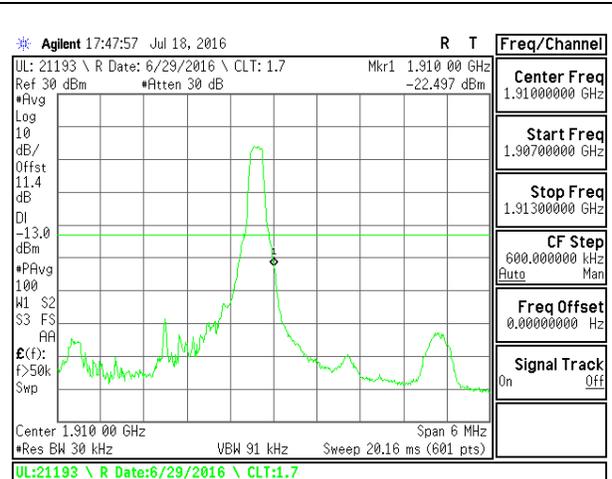
LTE B2 3MHz QPSK Low Channel FRB



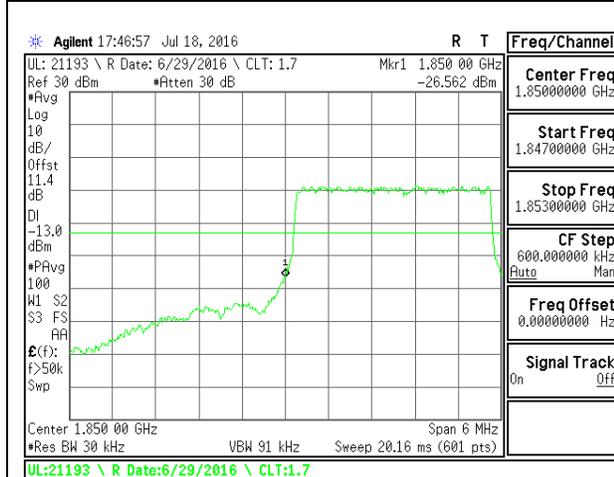
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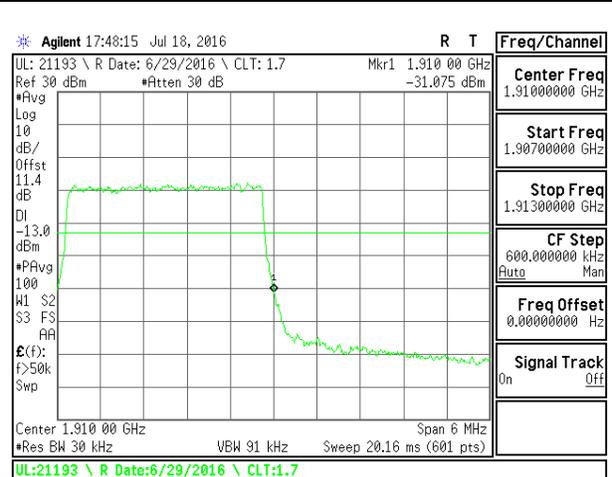
LTE B2 3MHz 16QAM Low Channel 1RB



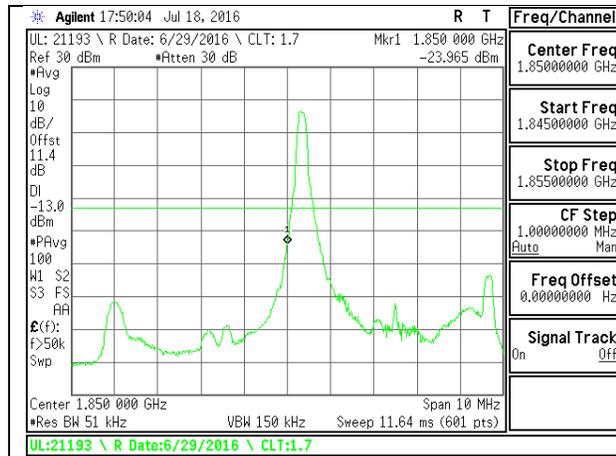
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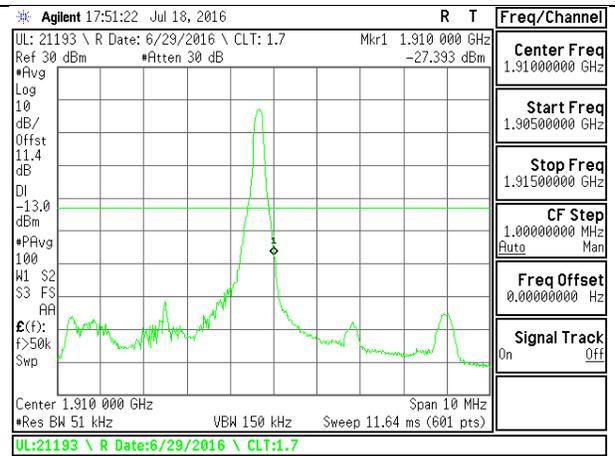
LTE B2 3MHz 16QAM Low Channel FRB



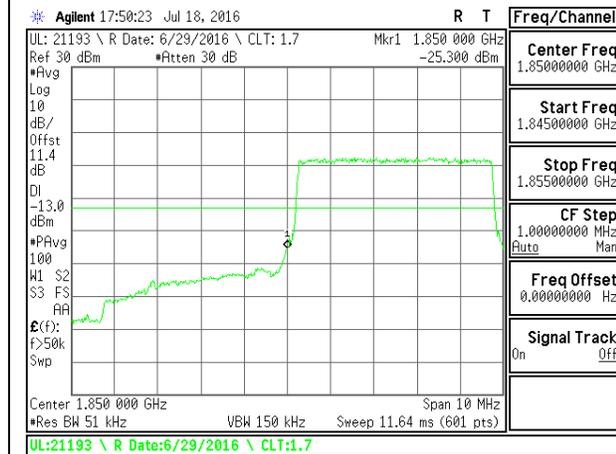
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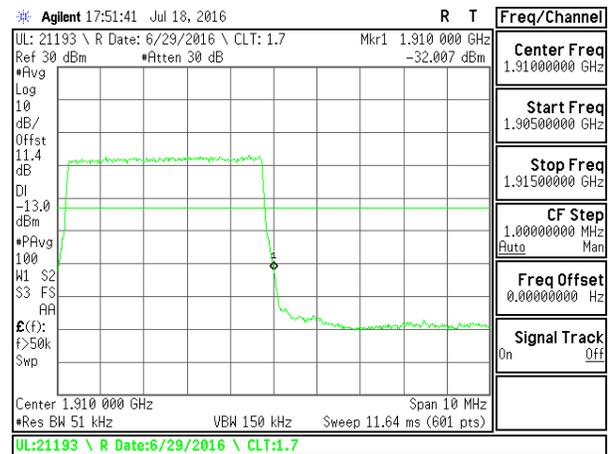
LTE B2 5MHz QPSK Low Channel 1RB



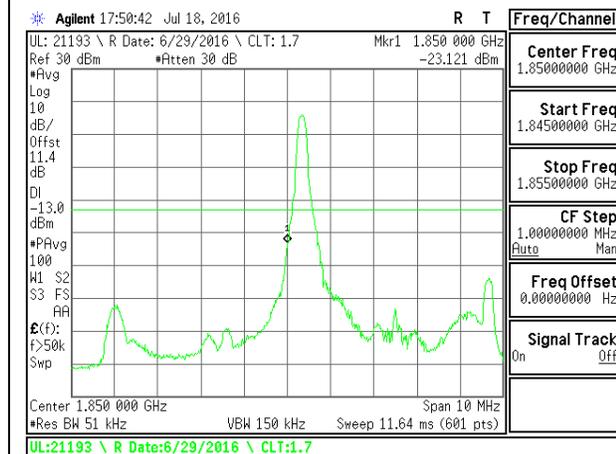
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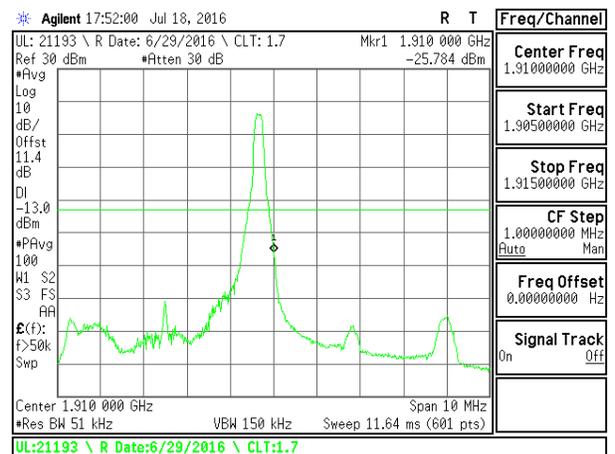
LTE B2 5MHz QPSK Low Channel FRB



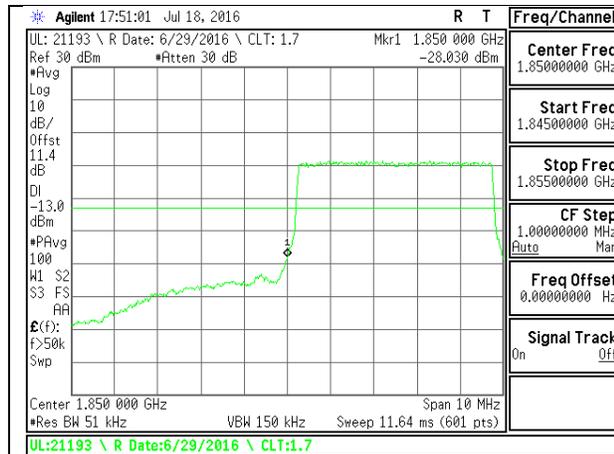
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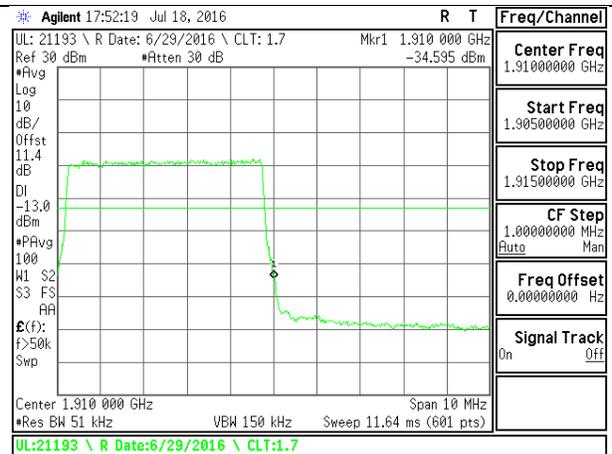
LTE B2 5MHz 16QAM Low Channel 1RB



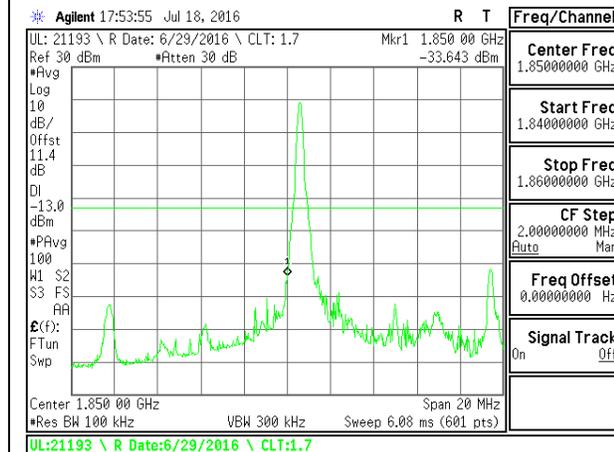
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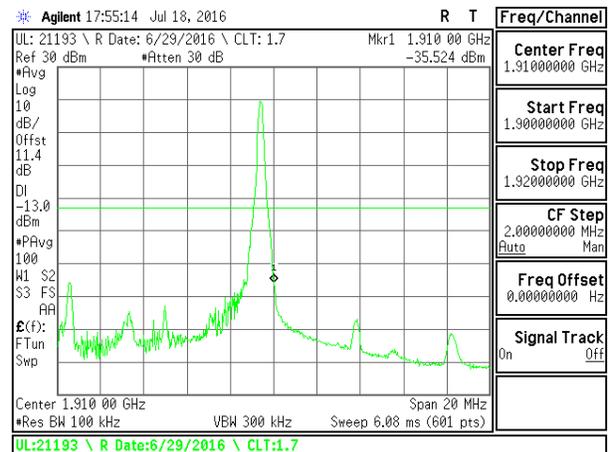
LTE B2 5MHz 16QAM Low Channel FRB



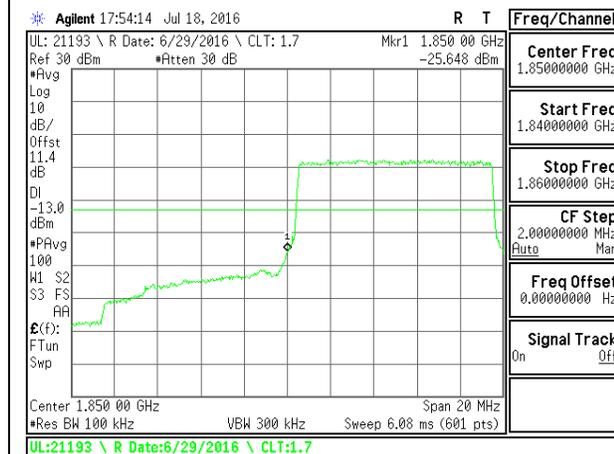
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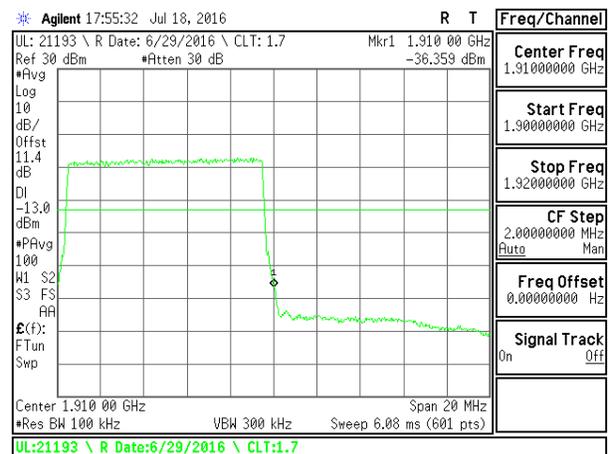
LTE B2 10MHz QPSK Low Channel 1RB



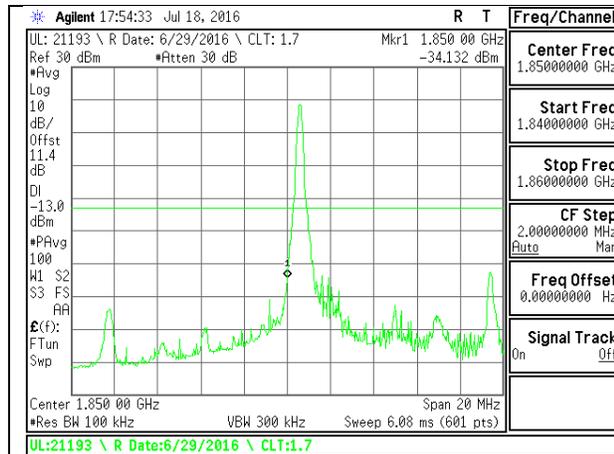
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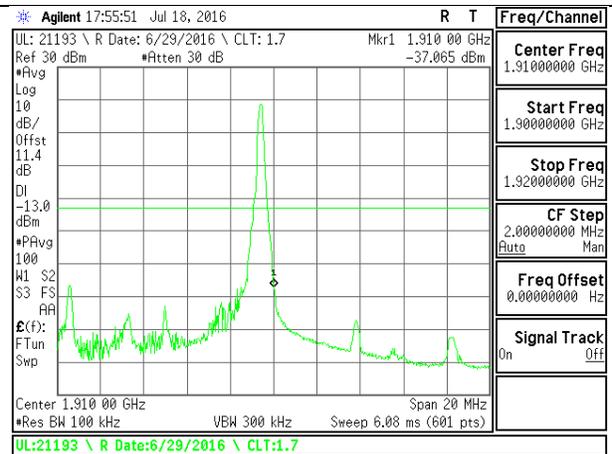
LTE B2 10MHz QPSK Low Channel FRB



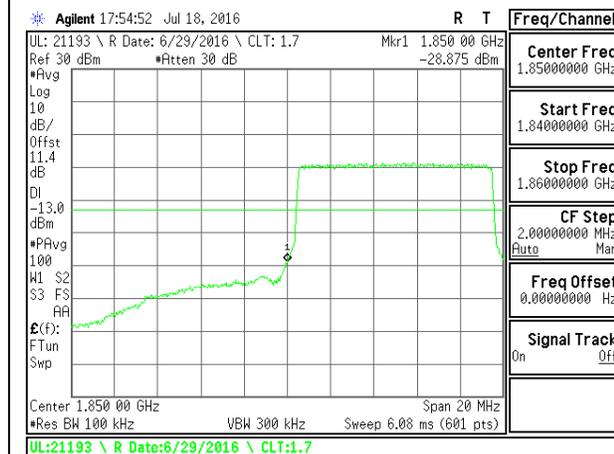
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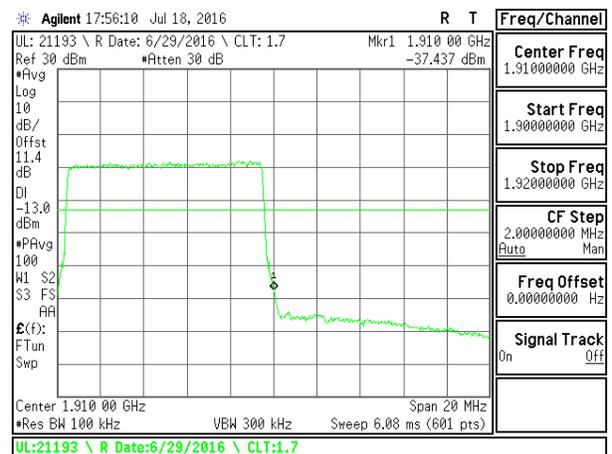
LTE B2 10MHz 16QAM Low Channel 1RB



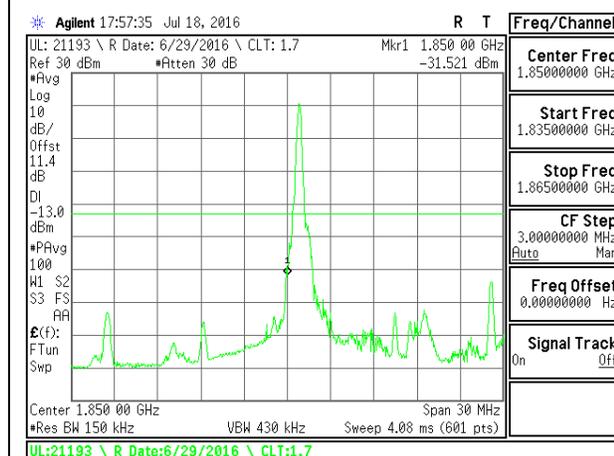
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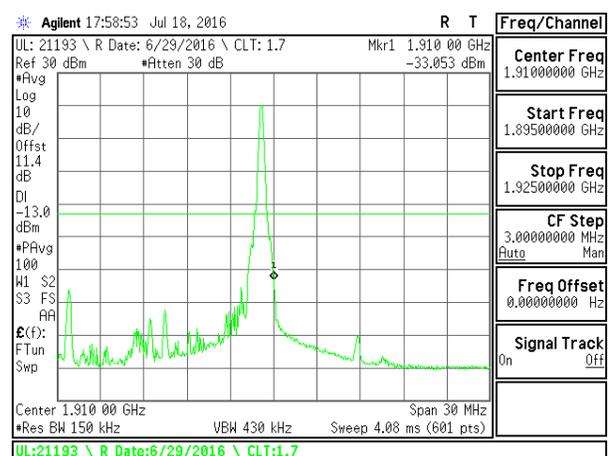
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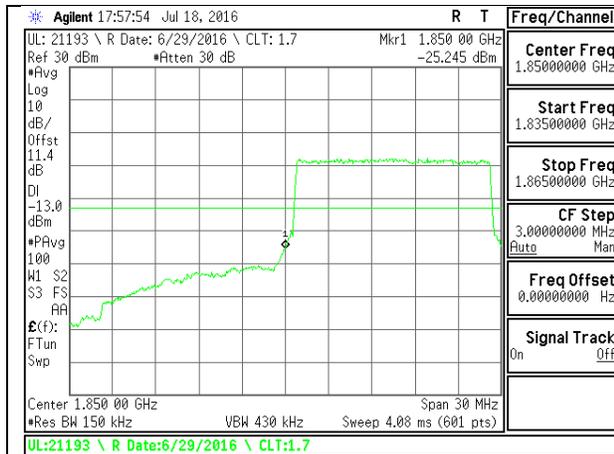
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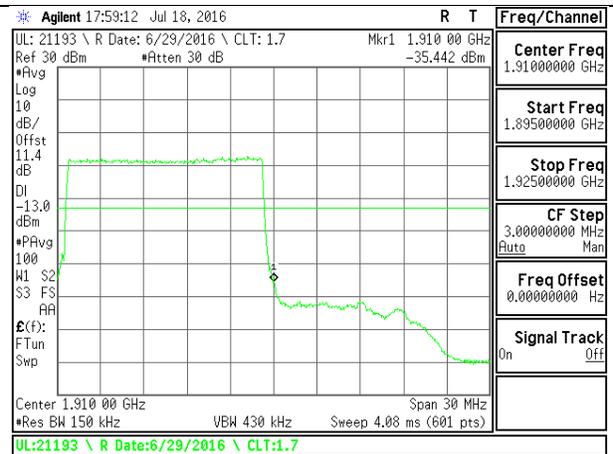
LTE B2 15MHz QPSK Low Channel 1RB



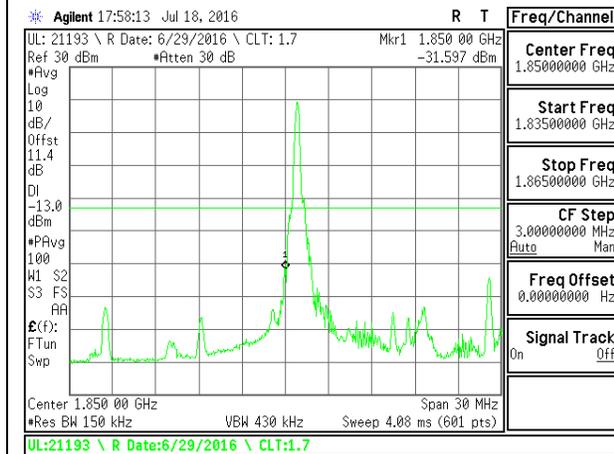
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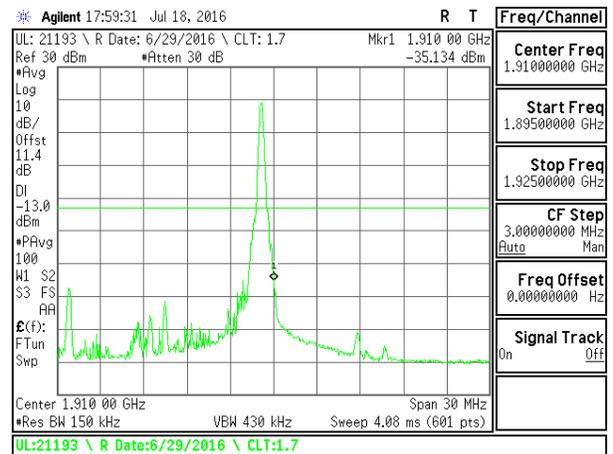
LTE B2 15MHz QPSK Low Channel FRB



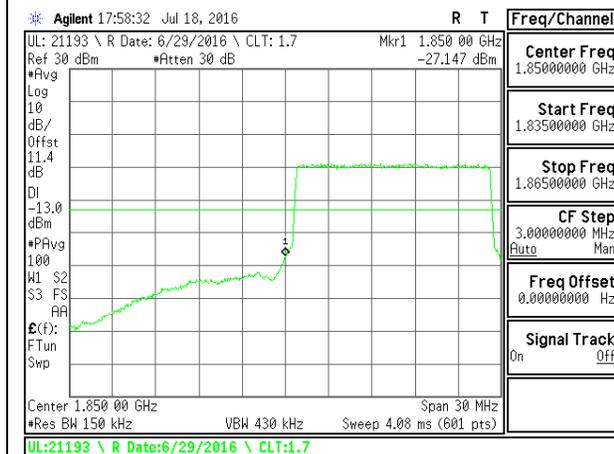
LTE B2 15MHz QPSK High Channel FRB



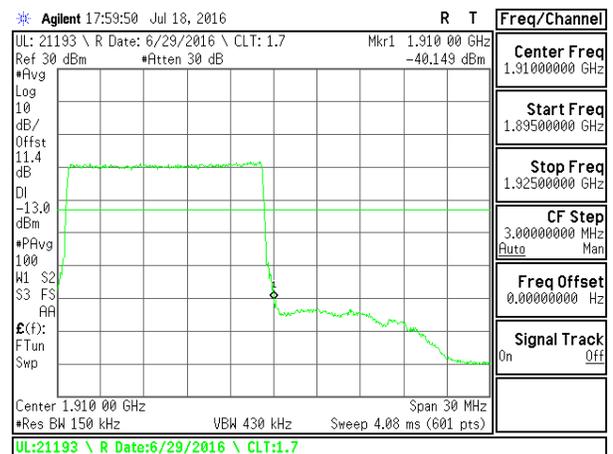
LTE B2 15MHz 16QAM Low Channel 1RB



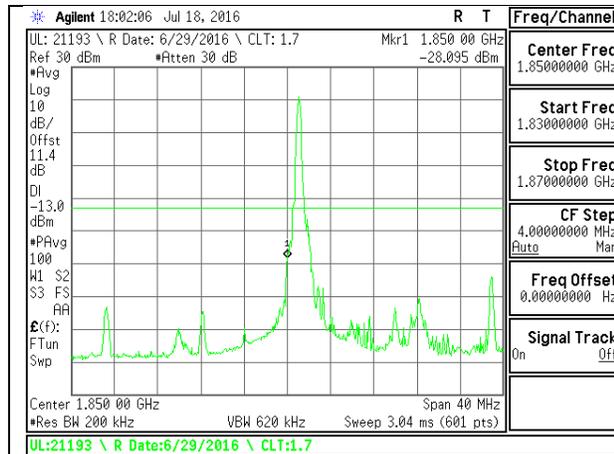
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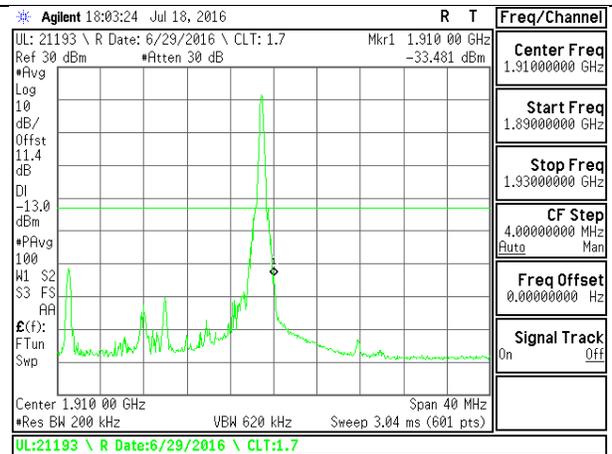
LTE B2 15MHz 16QAM Low Channel FRB



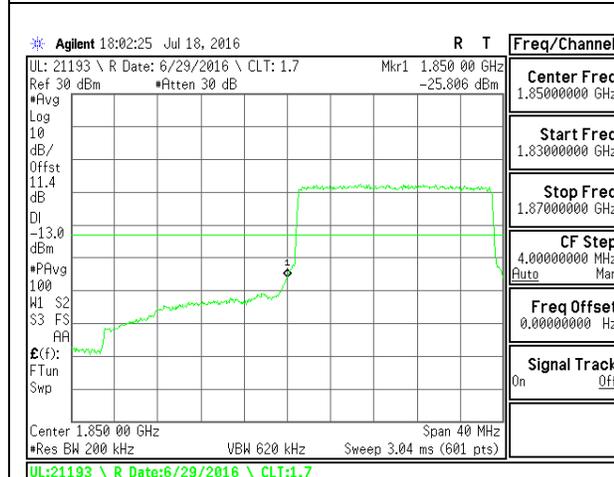
LTE B2 15MHz 16QAM High Channel FRB



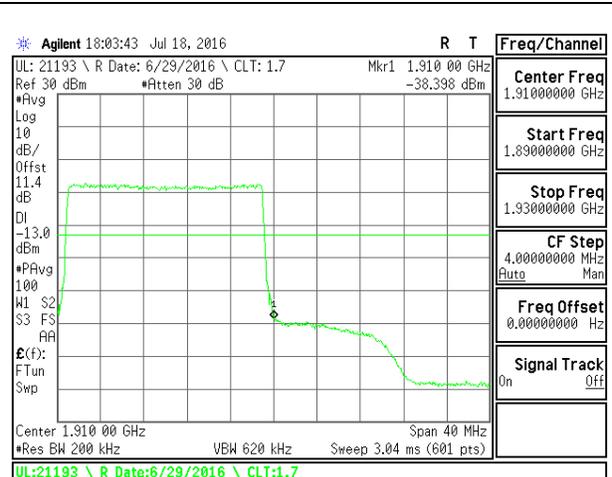
LTE B2 20MHz QPSK Low Channel 1RB



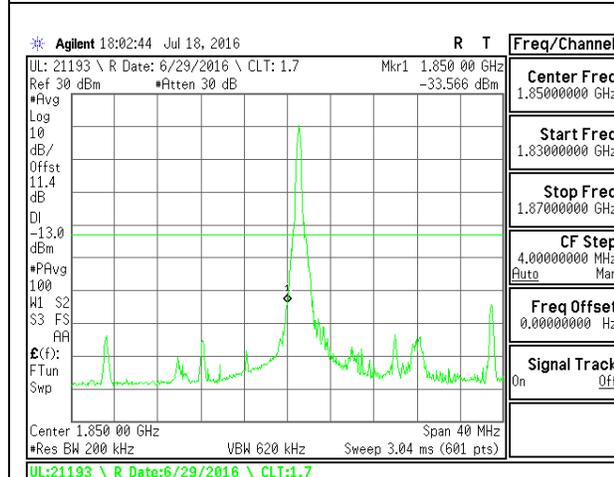
LTE B2 20MHz QPSK High Channel 1RB



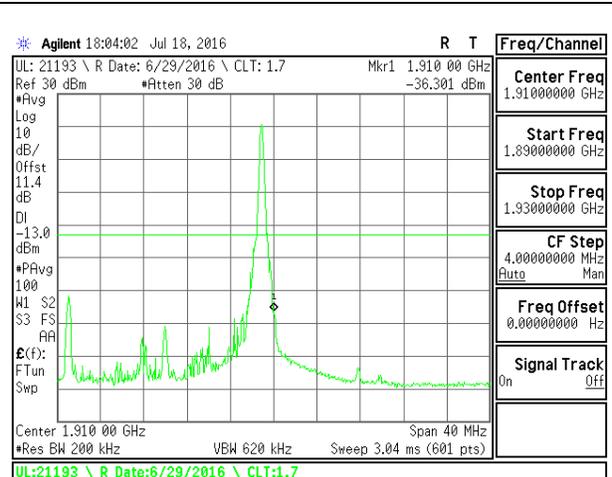
LTE B2 20MHz QPSK Low Channel FRB



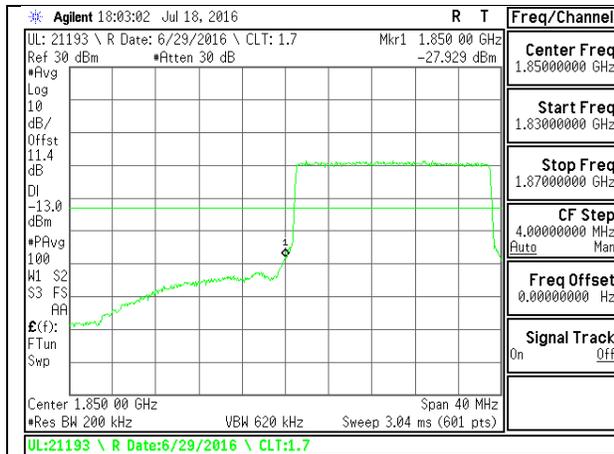
LTE B2 20MHz QPSK High Channel FRB



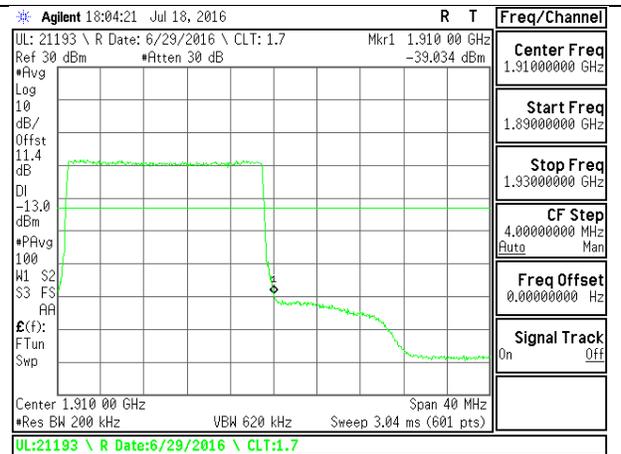
LTE B2 20MHz 16QAM Low Channel 1RB



LTE B2 20MHz 16QAM High Channel 1RB



LTE B2 20MHz 16QAM Low Channel FRB

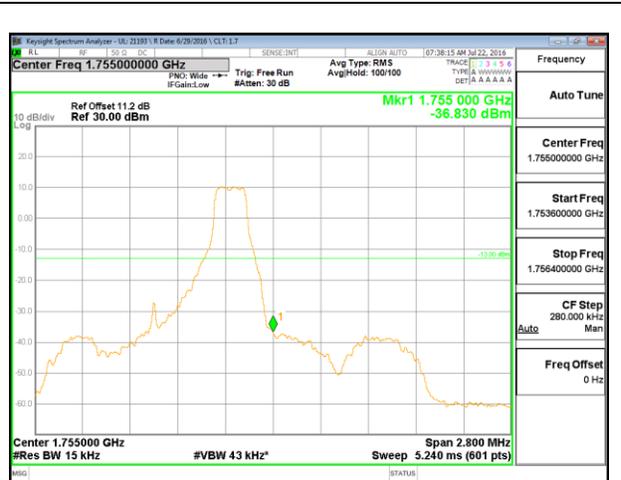


LTE B2 20MHz 16QAM High Channel FRB

LTE Band 4



LTE B4 1.4MHz QPSK Low Channel 1RB



LTE B4 1.4MHz QPSK High Channel 1RB



LTE B4 1.4MHz QPSK Low Channel FRB



LTE B4 1.4MHz QPSK High Channel FRB