OUTPUT POWER FOR LTE BAND 25 (10.0 MHz)

Bandwidth	UL Channel	Frequency	Mode	RB Size	RB Offset	Average (dBm)	Peak (dBm)
10.0	26090	1855.0	QPSK	1	0	21.2	24.5
				1	24	21.3	24.7
				1	49	20.9	25.4
				25	0	20.2	24.7
				25	12	20.5	25.0
				25	24	20.6	25.2
				50	0	20.6	25.7
			16QAM	1	0	20.2	24.4
				1	24	**20.5**	24.7
				1	49	20.4	25.7
				25	0	19.3	24.7
				25	12	19.6	25.0
				25	24	19.7	25.2
				50	0	19.5	25.3
10.0	26365	1882.5	QPSK	1	0	21.0	24.3
				1	24	21.3	24.8
				1	49	21.1	**25.8**
				25	0	20.3	24.8
				25	12	20.8	25.3
				25	24	20.9	25.7
				50	0	20.7	25.7
			16QAM	1	0	20.5	24.6
				1	24	20.2	24.8
				1	49	20.3	25.0
				25	0	19.6	25.0
				25	12	19.8	25.2
				25	24	19.8	25.4
				50	0	19.7	25.7
10.0	26640	1910.0	QPSK	1	0	21.0	25.1
				1	24	**21.3**	25.1
				1	49	20.1	23.5
				25	0	20.8	25.5
				25	12	20.7	25.2
				25	24	20.1	24.7
				50	0	20.8	25.6
			16QAM	1	0	20.2	25.1
				1	24	20.3	25.1
				1	49	19.4	23.6
				25	0	20.0	25.6
				25	12	19.9	25.3
				25	24	19.7	25.0
				50	0	19.8	**25.7**

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OUTPUT POWER FOR LTE BAND 25 (15.0 MHz)

Bandwidth	UL Channel	Frequency	Mode	RB Size	RB Offset	Average (dBm)	Peak (dBm)
15.0	26115	1857.5	QPSK	1	0	21.2	24.5
				1	37	21.3	25.2
				1	74	21.0	25.9
				36	0	20.3	25.0
				36	16	20.8	25.4
				36	35	20.8	25.7
				75	0	20.9	**26.3**
			16-QAM	1	0	20.3	24.4
				1	37	20.4	25.2
				1	74	20.5	26.3
				36	0	19.4	24.9
				36	16	19.9	25.4
				36	35	19.9	25.7
				75	0	19.8	26.0
15.0	26365	1882.5	QPSK	1	0	21.1	24.4
				1	37	21.3	24.9
				1	74	**21.3**	26.1
				36	0	20.3	24.8
				36	16	20.9	25.3
				36	35	21.0	25.8
				75	0	20.9	26.1
			16-QAM	1	0	**20.6**	24.7
				1	37	20.3	24.9
				1	74	20.4	**26.3**
				36	0	19.6	24.9
				36	16	19.7	25.2
				36	35	19.9	25.6
				75	0	19.9	26.1
15.0	26615	1907.5	QPSK	1	0	21.2	24.5
				1	37	21.1	25.6
				1	74	20.2	23.5
				36	0	20.6	25.3
				36	16	20.8	25.5
				36	35	20.5	25.0
				75	0	20.7	26.0
			16-QAM	1	0	20.2	24.5
				1	37	20.4	25.5
				1	74	19.3	23.6
				36	0	19.8	25.4
				36	16	19.9	25.6
				36	35	20.1	25.5
				75	0	19.7	26.1

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OUTPUT POWER FOR LTE BAND 25 (20.0 MHz)

Bandwidth	UL Channel	Frequency	Mode	RB Size	RB Offset	Average (dBm)	Peak (dBm)
20.0	26140	1860.0	QPSK	1	0	21.1	24.5
				1	49	21.2	25.8
				1	99	20.2	25.4
				50	0	20.6	25.2
				50	24	21.0	25.8
				50	49	20.8	25.7
				100	0	21.1	26.1
			16-QAM	1	0	20.1	24.4
				1	49	20.4	25.3
				1	99	20.4	25.8
				50	0	19.7	25.2
				50	24	20.1	25.9
				50	49	19.8	25.8
				100	0	20.2	26.0
20.0	26365	1882.5	QPSK	1	0	21.1	24.7
				1	49	21.3	24.9
				1	99	21.2	26.1
				50	0	20.4	24.8
				50	24	20.9	25.5
				50	49	21.1	26.0
				100	0	21.0	**26.2**
			16-QAM	1	0	**20.6**	25.0
				1	49	20.3	24.9
				1	99	20.5	25.4
				50	0	19.5	24.9
				50	24	19.9	25.5
				50	49	20.0	25.8
				100	0	20.0	26.0
20.0	26590	1905.0	QPSK	1	0	21.1	25.3
				1	49	**21.4**	25.1
				1	99	20.2	23.5
				50	0	20.5	25.3
				50	24	20.7	25.6
				50	49	20.7	25.3
				100	0	20.6	26.0
			16-QAM	1	0	20.1	24.4
				1	49	20.2	24.4
				1	99	19.9	23.7
				50	0	19.7	25.3
				50	24	19.8	25.6
				50	49	20.1	25.7
				100	0	19.9	**26.1**

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7.4.9. LTE BAND 26

OUTPUT POWER FOR LTE BAND 26 (1.4 MHz)

Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Average (dBm)	Peak (dBm)
1.4	26697	814.7	QPSK	1	0	22.1	27.1
				1	2	22.1	26.9
				1	5	21.8	26.8
				3	0	22.0	27.1
				3	1	22.0	27.2
				3	2	21.8	26.9
				6	0	20.9	26.4
			16QAM	1	0	20.9	26.7
				1	2	21.0	26.7
				1	5	21.0	26.9
				3	0	20.9	27.1
				3	1	21.0	27.1
				3	2	20.8	26.9
				6	0	20.0	26.5
1.4	26740	819.0	QPSK	1	0	21.9	26.7
				1	2	22.1	26.7
				1	5	22.0	26.9
				3	0	22.3	27.3
				3	1	**22.3**	**27.5**
				3	2	22.3	27.5
				6	0	20.8	25.6
			16QAM	1	0	**21.6**	26.8
				1	2	21.4	26.6
				1	5	21.3	26.7
				3	0	21.4	**27.5**
				3	1	21.3	27.4
				3	2	21.3	27.3
				6	0	20.4	26.8
1.4	26783	823.3	QPSK	1	0	21.8	26.7
				1	2	22.0	26.8
				1	5	21.8	26.8
				3	0	21.7	27.1
				3	1	21.8	27.1
				3	2	21.8	27.1
				6	0	20.7	26.4
			16QAM	1	0	21.1	26.9
				1	2	21.1	26.7
				1	5	21.1	27.0
				3	0	20.7	26.9
				3	1	20.7	26.9
				3	2	20.9	27.1
				6	0	19.8	26.6

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OUTPUT POWER FOR LTE BAND 26 (3.0 MHz)

Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Average (dBm)	Peak (dBm)
3.0	26705	815.5	QPSK	1	0	21.9	**26.8**
				1	7	21.9	26.5
				1	14	21.7	26.5
				8	0	20.8	26.0
				8	4	20.9	26.1
				8	7	20.7	25.9
				15	0	20.8	26.3
			16QAM	1	0	21.1	26.6
				1	7	21.2	26.7
				1	14	21.2	26.8
				8	0	20.0	26.0
				8	4	20.1	26.0
				8	7	19.8	25.7
				15	0	19.9	26.5
3.0	26740	819.0	QPSK	1	0	21.7	25.1
				1	7	21.9	25.4
				1	14	22.0	26.7
				8	0	20.9	25.4
				8	4	21.1	25.8
				8	7	21.0	26.1
				15	0	21.0	26.2
			16QAM	1	0	21.2	25.6
				1	7	21.1	25.9
				1	14	**21.2**	26.7
				8	0	20.2	25.5
				8	4	20.0	25.3
				8	7	20.0	25.9
				15	0	20.0	26.1
3.0	26775	822.5	QPSK	1	0	21.9	26.7
				1	7	**22.1**	26.8
				1	14	21.8	26.6
				8	0	20.8	26.0
				8	4	20.8	26.0
				8	7	20.7	26.0
				15	0	20.7	26.2
			16QAM	1	0	21.1	26.7
				1	7	21.2	**27.0**
				1	14	21.1	26.8
				8	0	19.9	25.9
				8	4	19.8	25.9
				8	7	20.0	26.1
				15	0	19.9	26.6

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OUTPUT POWER FOR LTE BAND 26 (5.0 MH)

Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Average (dBm)	Peak (dBm)
5.0	26715	816.5	QPSK	1	0	22.0	**27.0**
				1	12	22.0	26.6
				1	24	21.8	26.6
				12	0	21.0	26.0
				12	6	21.1	26.1
				12	11	20.9	25.8
				25	0	21.0	26.3
			16QAM	1	0	21.1	26.7
				1	12	21.3	26.7
				1	24	21.3	26.8
				12	0	20.1	25.9
				12	6	20.2	25.7
				12	11	19.9	25.1
				25	0	20.0	25.9
5.0	26740	819.0	QPSK	1	0	21.8	26.2
				1	12	22.0	26.5
				1	24	21.9	26.8
				12	0	20.9	25.6
				12	6	21.1	26.0
				12	11	21.1	26.1
				25	0	21.0	26.1
			16QAM	1	0	21.5	26.4
				1	12	21.4	26.1
				1	24	**21.6**	**27.1**
				12	0	19.9	25.4
				12	6	19.9	25.6
				12	11	19.8	25.9
				25	0	19.8	26.2
5.0	26765	821.5	QPSK	1	0	21.8	26.5
				1	12	**22.1**	26.9
				1	24	21.7	26.7
				12	0	20.8	25.9
				12	6	20.9	26.0
				12	11	20.8	25.9
				25	0	20.8	26.9
			16QAM	1	0	21.1	26.8
				1	12	21.1	26.8
				1	24	21.0	26.8
				12	0	19.9	25.8
				12	6	19.9	25.8
				12	11	20.0	26.1
				25	0	19.8	26.6

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OUTPUT POWER FOR LTE BAND 26 (10.0 MHz)

Bandwidth	UL Channel	Frequency	Mode	RB Size	RB Offset	Average (dBm)	Peak (dBm)
10.0	26740	819.0	QPSK	1	0	**22.1**	**26.7**
				1	24	22.0	26.7
				1	49	21.9	26.7
				25	0	20.8	25.9
				25	12	21.1	25.8
				25	24	20.7	26.0
				50	0	20.9	26.3
			16QAM	1	0	**21.3**	**26.6**
				1	24	21.2	26.6
				1	49	21.1	26.6
				25	0	20.1	25.5
				25	12	20.1	25.9
				25	24	20.0	25.9
				50	0	19.8	26.5

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7.4.10. LTE BAND 41

OUTPUT POWER FOR LTE BAND 41 (5.0 MHz)

Bandwidth	UL Channel	Frequency	Mode	RB Size	RB Offset	Average (dBm)	Peak (dBm)
5.0	39675	2498.5	QPSK	1	0	**21.3**	25.2
				1	12	21.2	25.8
				1	24	21.3	26.2
				12	0	20.2	25.0
				12	6	20.3	25.2
				12	11	20.3	25.3
				25	0	20.4	25.9
			16QAM	1	0	**20.8**	25.5
				1	12	20.5	25.9
				1	24	20.6	26.1
				12	0	19.2	24.5
				12	6	19.2	24.7
				12	11	19.2	25.1
				25	0	19.2	25.5
5.0	40620	2593.0	QPSK	1	0	21.2	25.3
				1	12	21.0	25.8
				1	24	21.3	26.2
				12	0	20.3	25.2
				12	6	20.6	25.2
				12	11	20.3	25.3
				25	0	20.4	26.1
			16QAM	1	0	20.4	25.4
				1	12	20.5	25.8
				1	24	20.6	26.2
				12	0	19.2	24.5
				12	6	19.2	24.8
				12	11	19.2	25.1
				25	0	19.2	25.6
5.0	41565	2687.5	QPSK	1	0	21.2	25.4
				1	12	21.2	25.7
				1	24	21.3	26.2
				12	0	20.2	24.9
				12	6	20.3	25.0
				12	11	20.3	25.3
				25	0	20.4	**26.3**
			16QAM	1	0	20.7	25.6
				1	12	20.4	**26.4**
				1	24	20.6	26.2
				12	0	19.2	24.8
				12	6	19.7	24.6
				12	11	19.2	25.2
				25	0	19.5	25.6

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OUTPUT POWER FOR LTE BAND 41 (10.0 MHz)

Bandwidth	UL Channel	Frequency	Mode	RB Size	RB Offset	Average (dBm)	Peak (dBm)
10.0	39700	2501.0	QPSK	1	0	**21.3**	26.0
				1	24	21.1	25.8
				1	49	21.2	**26.2**
				25	0	20.1	25.1
				25	12	20.3	25.2
				25	24	20.5	25.3
				50	0	20.3	25.5
			16QAM	1	0	20.5	26.0
				1	24	20.5	25.9
				1	49	20.3	26.0
				25	0	19.2	24.9
				25	12	19.5	24.8
				25	24	19.2	25.2
				50	0	19.2	25.6
10.0	40620	2593.0	QPSK	1	0	21.2	26.0
				1	24	21.2	25.9
				1	49	21.1	26.1
				25	0	20.1	25.1
				25	12	20.3	25.2
				25	24	20.2	25.8
				50	0	20.2	25.6
			16QAM	1	0	20.4	26.0
				1	24	20.5	25.9
				1	49	20.4	**26.1**
				25	0	19.1	24.6
				25	12	19.3	24.9
				25	24	19.1	25.2
				50	0	19.1	26.0
10.0	41540	2685.0	QPSK	1	0	21.2	26.0
				1	24	21.2	25.8
				1	49	21.2	26.1
				25	0	20.1	25.0
				25	12	20.3	25.2
				25	24	20.2	25.3
				50	0	20.2	26.1
			16QAM	1	0	20.5	26.1
				1	24	**20.5**	26.0
				1	49	20.2	26.0
				25	0	19.1	24.5
				25	12	19.3	25.0
				25	24	19.1	25.2
				50	0	19.1	25.7

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OUTPUT POWER FOR LTE BAND 41 (15.0 MHz)

Bandwidth	UL Channel	Frequency	Mode	RB Size	RB Offset	Average (dBm)	Peak (dBm)
15.0	39725	2503.5	QPSK	1	0	21.2	25.5
				1	37	21.2	25.6
				1	74	21.1	25.5
				36	0	20.1	24.7
				36	16	20.1	25.4
				36	35	20.1	24.7
				75	0	19.8	25.2
			16-QAM	1	0	20.1	24.8
				1	37	20.0	24.3
				1	74	20.0	24.9
				36	0	19.1	25.1
				36	16	19.0	24.5
				36	35	19.0	24.5
				75	0	18.8	24.6
15.0	40620	2593.0	QPSK	1	0	21.2	25.9
				1	37	**21.2**	26.3
				1	74	21.2	26.2
				36	0	20.1	25.4
				36	16	20.1	25.6
				36	35	20.2	25.3
				75	0	20.0	26.3
			16-QAM	1	0	20.2	25.8
				1	37	20.2	25.6
				1	74	20.1	25.2
				36	0	19.0	25.3
				36	16	19.0	25.5
				36	35	19.1	25.4
				75	0	19.0	25.2
15.0	41515	2682.5	QPSK	1	0	21.2	26.2
				1	37	21.2	25.8
				1	74	21.1	26.3
				36	0	20.1	25.6
				36	16	20.2	25.7
				36	35	20.2	25.8
				75	0	20.1	**26.3**
			16-QAM	1	0	**20.3**	25.8
				1	37	20.1	26.0
				1	74	20.0	26.2
				36	0	19.0	25.5
				36	16	19.1	25.5
				36	35	19.2	25.0
				75	0	19.0	**26.2**

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OUTPUT POWER FOR LTE BAND 41 (20.0 MHz)

Bandwidth	UL Channel	Frequency	Mode	RB Size	RB Offset	Average (dBm)	Peak (dBm)
20.0	39750	2506.0	QPSK	1	0	21.4	25.2
				1	49	**21.5**	25.1
				1	99	21.4	25.7
				50	0	20.2	24.1
				50	24	20.4	24.5
				50	49	20.4	24.8
				100	0	20.0	25.2
			16-QAM	1	0	20.2	25.8
				1	49	**20.4**	24.8
				1	99	20.3	24.7
				50	0	19.1	24.0
				50	24	19.3	24.6
				50	49	19.3	24.7
				100	0	19.0	24.6
20.0	40620	2593.0	QPSK	1	0	21.2	26.0
				1	49	21.2	**26.1**
				1	99	21.2	25.6
				50	0	20.1	25.3
				50	24	20.1	24.8
				50	49	20.0	24.7
				100	0	20.0	25.7
			16-QAM	1	0	20.1	24.8
				1	49	20.0	24.2
				1	99	20.2	24.6
				50	0	19.0	24.5
				50	24	19.1	24.3
				50	49	18.9	24.4
				100	0	18.9	24.8
20.0	41490	2680.0	QPSK	1	0	21.2	**26.1**
				1	49	21.4	25.9
				1	99	21.4	26.0
				50	0	20.0	25.0
				50	24	20.3	24.9
				50	49	20.4	24.5
				100	0	20.2	25.4
			16-QAM	1	0	20.0	24.8
				1	49	20.2	25.0
				1	99	**20.4**	**25.7**
				50	0	18.9	24.8
				50	24	19.2	24.6
				50	49	19.4	24.6
				100	0	19.2	25.3

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8. CONDUCTED TEST RESULTS

8.1. OCCUPIED BANDWIDTH (MODEL: A1633)

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

MODES TESTED

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 30
- LTE Band 41

RESULTS

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 2	1.4 MHz BAND QPSK	6/0	1880	1.0797	1.175
	1.4 MHz BAND 16QAM	6/0	1880	1.0702	1.163
	3.0 MHz BAND QPSK	15/0	1880	2.6646	2.882
	3.0 MHz BAND 16QAM	15/0	1880	2.6436	2.748
	5.0 MHz BAND QPSK	25/0	1880	4.4804	4.578
	5.0 MHz BAND 16QAM	25/0	1880	4.4845	4.687
	10.0 MHz BAND QPSK	50/0	1880	8.8191	9.437
	10.0 MHz BAND 16QAM	50/0	1880	8.8727	9.185
	15.0 MHz BAND QPSK	75/0	1880	13.3649	13.861
	15.0 MHz BAND 16QAM	75/0	1880	13.3351	13.829
	20.0 MHz BAND QPSK	100/0	1880	**17.874**	**18.867**
	20.0 MHz BAND 16QAM	100/0	1880	17.6003	18.224

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 4	1.4 MHz BAND QPSK	6/0	1732.5	1.0942	1.22
	1.4 MHz BAND 16QAM	6/0	1732.5	1.0764	1.159
	3.0 MHz BAND QPSK	15/0	1732.5	2.6816	2.759
	3.0 MHz BAND 16QAM	15/0	1732.5	2.676	2.825
	5.0 MHz BAND QPSK	25/0	1732.5	4.4462	4.599
	5.0 MHz BAND 16QAM	25/0	1732.5	4.4767	4.628
	10.0 MHz BAND QPSK	50/0	1732.5	8.7197	9.218
	10.0 MHz BAND 16QAM	50/0	1732.5	8.7045	9.171
	15.0 MHz BAND QPSK	75/0	1732.5	13.2828	13.718
	15.0 MHz BAND 16QAM	75/0	1732.5	13.3141	13.738
	20.0 MHz BAND QPSK	100/0	1732.5	17.7062	**18.903**
	20.0 MHz BAND 16QAM	100/0	1732.5	**17.741**	18.566

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 5	1.4 MHz BAND QPSK	6/0	836.5	1.082	1.137
	1.4 MHz BAND 16QAM	6/0	836.5	1.08	1.144
	3.0 MHz BAND QPSK	15/0	836.5	2.6791	2.785
	3.0 MHz BAND 16QAM	15/0	836.5	2.6604	2.899
	5.0 MHz BAND QPSK	25/0	836.5	4.4383	4.69
	5.0 MHz BAND 16QAM	25/0	836.5	4.4064	4.682
	10.0 MHz BAND QPSK	50/0	836.5	**8.838**	9.147
	10.0 MHz BAND 16QAM	50/0	836.5	8.8174	**9.198**

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 7	5.0 MHz BAND QPSK	25/0	2535	4.4507	4.633
	5.0 MHz BAND 16QAM	25/0	2535	4.4457	4.6
	10.0 MHz BAND QPSK	50/0	2535	8.9035	9.341
	10.0 MHz BAND 16QAM	50/0	2535	8.8186	9.156
	15.0 MHz BAND QPSK	75/0	2535	13.328	13.792
	15.0 MHz BAND 16QAM	75/0	2535	13.2746	13.792
	20.0 MHz BAND QPSK	100/0	2535	**17.8152**	18.346
	20.0 MHz BAND 16QAM	100/0	2535	17.7283	**18.357**

BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 12	1.4 MHz BAND QPSK	6/0	707.5	1.0801	1.173
	1.4 MHz BAND 16QAM	6/0	707.5	1.0803	1.217
	3.0 MHz BAND QPSK	15/0	707.5	2.6528	2.872
	3.0 MHz BAND 16QAM	15/0	707.5	2.6584	2.753
	5.0 MHz BAND QPSK	25/0	707.5	4.4069	4.584
	5.0 MHz BAND 16QAM	25/0	707.5	4.405	4.629
	10.0 MHz BAND QPSK	50/0	707.5	**8.9052**	9.179
	10.0 MHz BAND 16QAM	50/0	707.5	8.8137	**9.215**

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 13	5.0 MHz BAND QPSK	25/0	782	4.4107	4.593
	5.0 MHz BAND 16QAM	25/0	782	4.4476	4.686
	10.0 MHz BAND QPSK	50/0	782	8.8718	**9.196**
	10.0 MHz BAND 16QAM	50/0	782	**8.8995**	9.175

BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 17	5.0 MHz BAND QPSK	25/0	710	4.4756	4.693
	5.0 MHz BAND 16QAM	25/0	710	4.4551	4.687
	10.0 MHz BAND QPSK	50/0	710	**8.9054**	**9.208**
	10.0 MHz BAND 16QAM	50/0	710	8.8251	9.169

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 25	1.4 MHz BAND QPSK	6/0	1882.5	1.0667	1.193
	1.4 MHz BAND 16QAM	6/0	1882.5	1.0798	1.218
	3.0 MHz BAND QPSK	15/0	1882.5	2.6476	2.794
	3.0 MHz BAND 16QAM	15/0	1882.5	2.6582	2.875
	5.0 MHz BAND QPSK	25/0	1882.5	4.4702	4.684
	5.0 MHz BAND 16QAM	25/0	1882.5	4.4969	4.606
	10.0 MHz BAND QPSK	50/0	1882.5	8.8194	9.153
	10.0 MHz BAND 16QAM	50/0	1882.5	8.8303	9.174
	15.0 MHz BAND QPSK	75/0	1882.5	13.2836	14.051
	15.0 MHz BAND 16QAM	75/0	1882.5	13.3735	13.781
	20.0 MHz BAND QPSK	100/0	1882.5	**17.9255**	**18.391**
	20.0 MHz BAND 16QAM	100/0	1882.5	17.8915	18.298

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 26	1.4 MHz BAND QPSK	6/0	819	1.081	1.196
	1.4 MHz BAND 16QAM	6/0	819	1.0654	1.175
	3.0 MHz BAND QPSK	15/0	819	2.6728	2.798
	3.0 MHz BAND 16QAM	15/0	819	2.6939	2.778
	5.0 MHz BAND QPSK	25/0	819	4.5026	4.619
	5.0 MHz BAND 16QAM	25/0	819	4.4512	4.6
	10.0 MHz BAND QPSK	50/0	819	8.796	9.328
	10.0 MHz BAND 16QAM	50/0	819	**8.8533**	**9.435**

BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 30	5.0 MHz BAND QPSK	25/0	2310	4.4173	4.62
	5.0 MHz BAND 16QAM	25/0	2310	4.4689	4.629
	10.0 MHz BAND QPSK	50/0	2310	**8.8941**	**9.180**
	10.0 MHz BAND 16QAM	50/0	2310	8.8328	9.164

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 41	5.0 MHz BAND QPSK	25/0	2593	4.4791	4.721
	5.0 MHz BAND 16QAM	25/0	2593	4.4481	4.68
	10.0 MHz BAND QPSK	50/0	2593	8.8983	9.505
	10.0 MHz BAND 16QAM	50/0	2593	8.816	9.46
	15.0 MHz BAND QPSK	75/0	2593	13.255	13.993
	15.0 MHz BAND 16QAM	75/0	2593	13.2613	13.871
	20.0 MHz BAND QPSK	100/0	2593	**17.943**	**18.386**
	20.0 MHz BAND 16QAM	100/0	2593	17.7267	18.375

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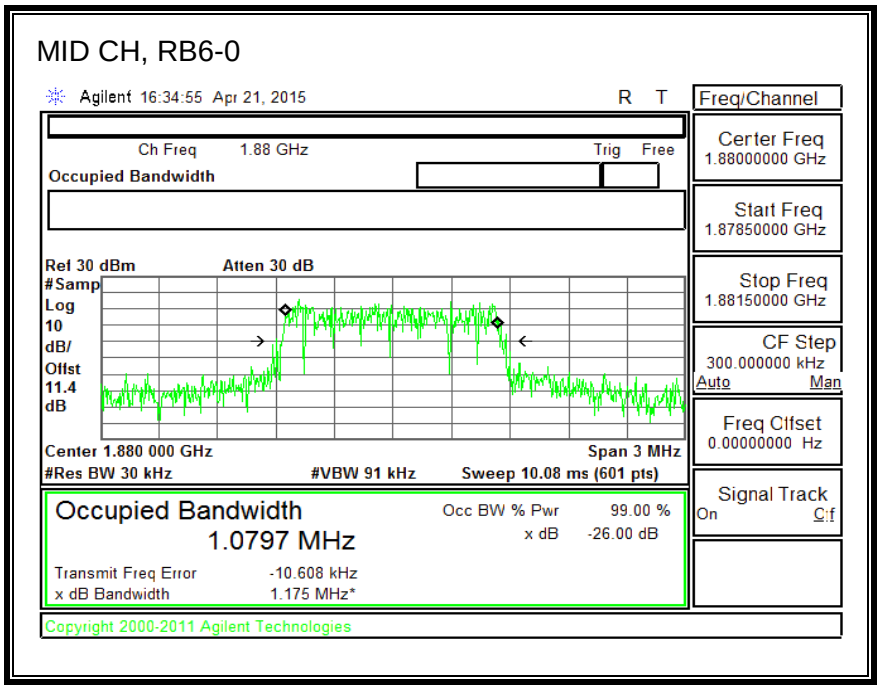
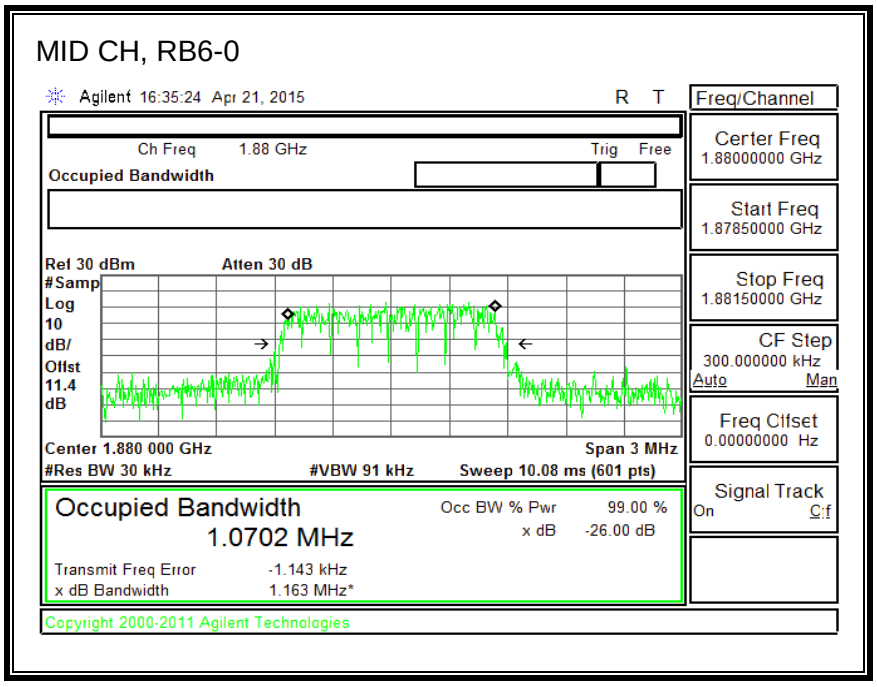
8.1.1. LTE BAND 2

QPSK, (1.4 MHz BAND WIDTH)



16QAM, (1.4 MHz BAND WIDTH)



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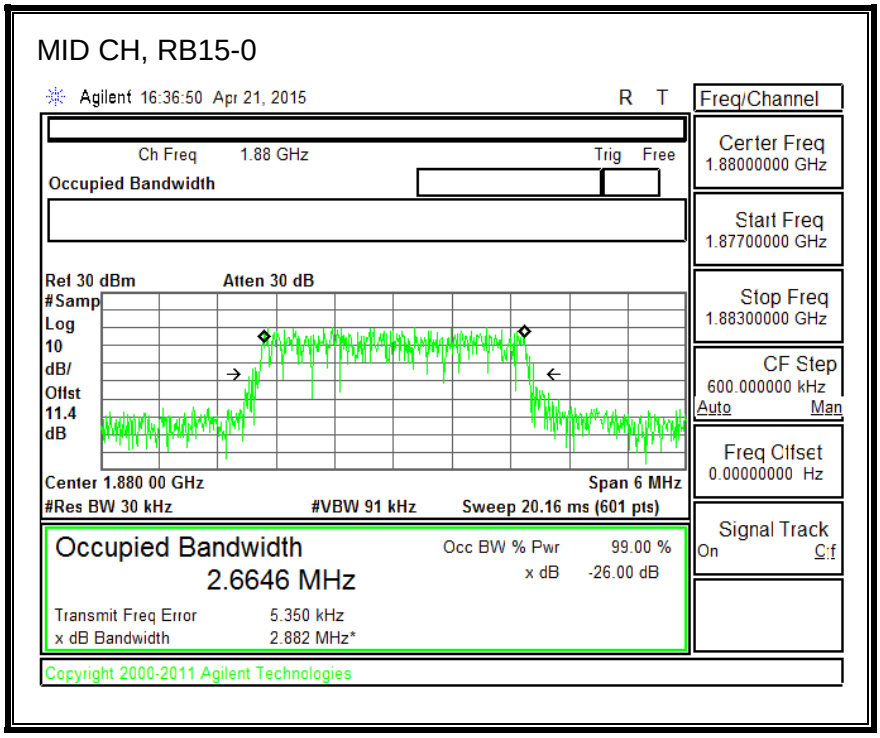
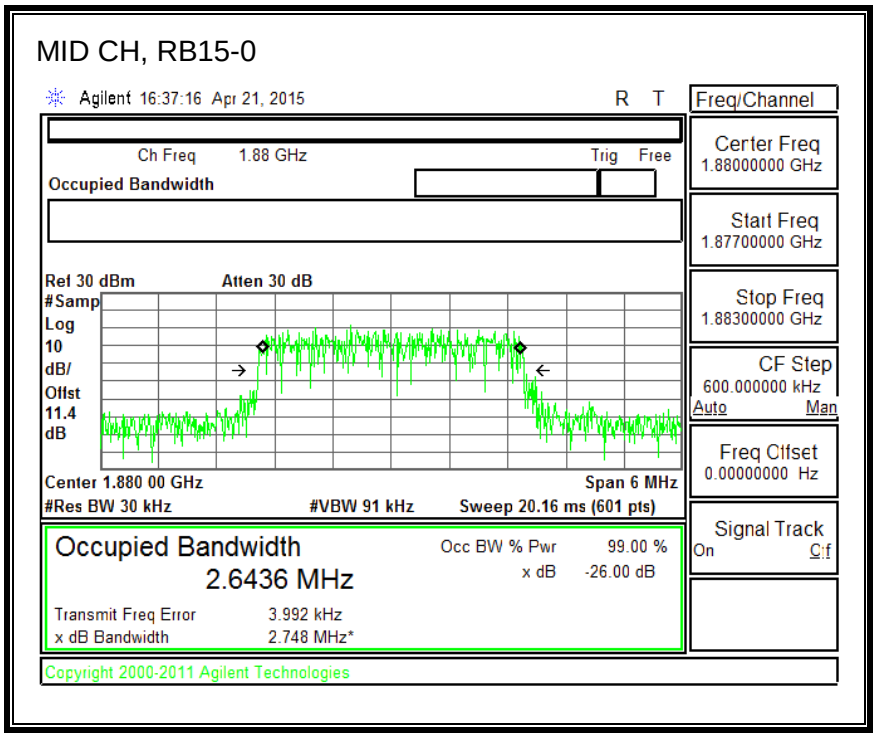
QPSK, (3.0 MHz BAND WIDTH)



16QAM, (3.0 MHz BAND WIDTH)



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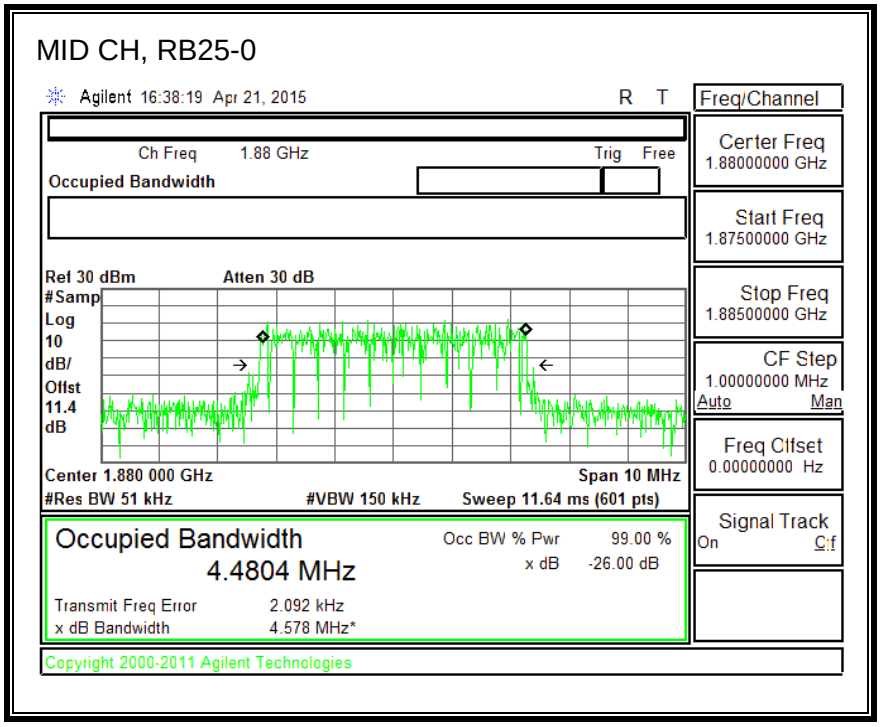
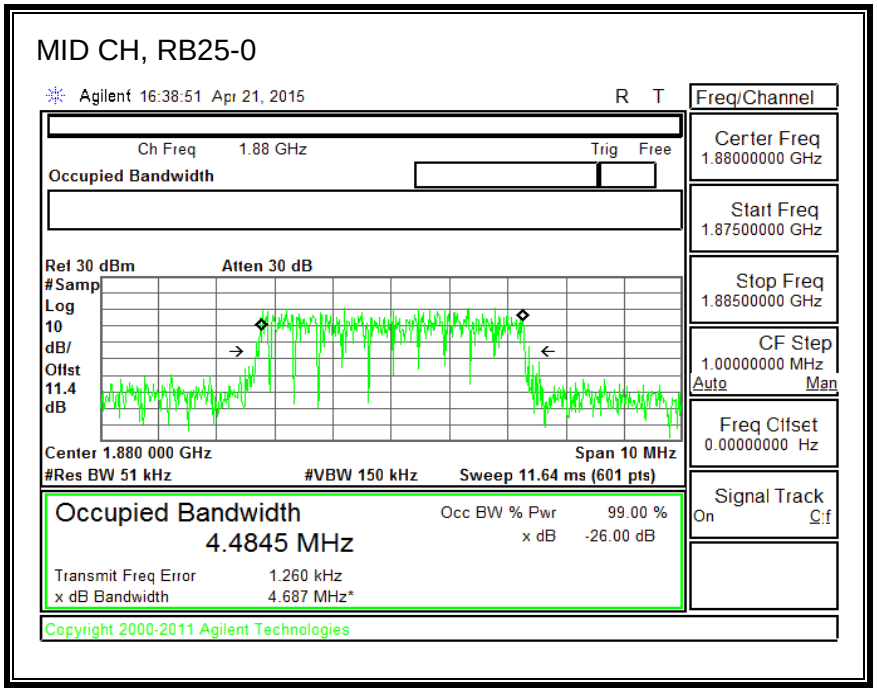
QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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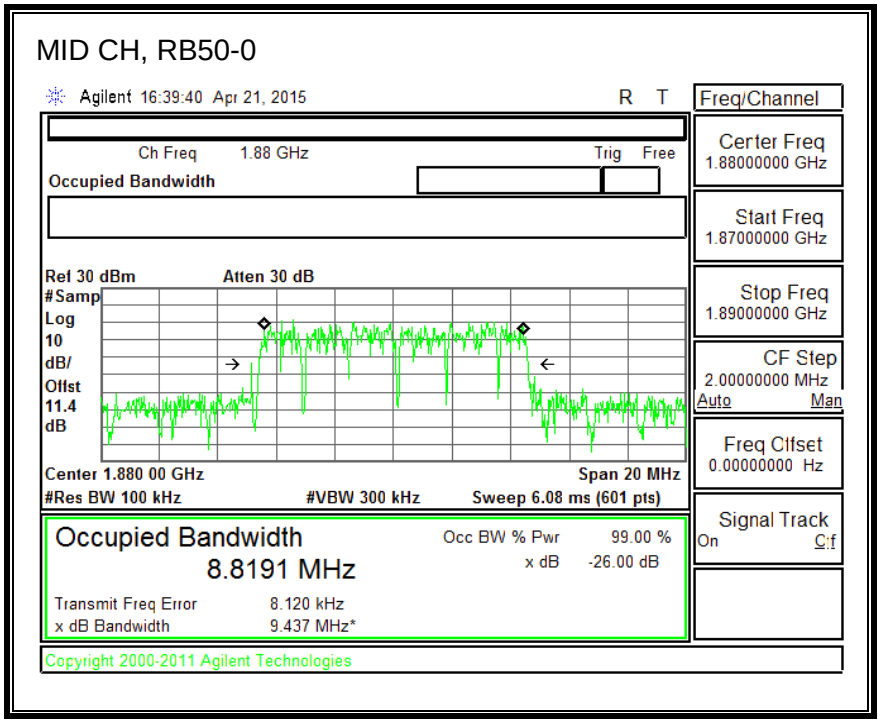
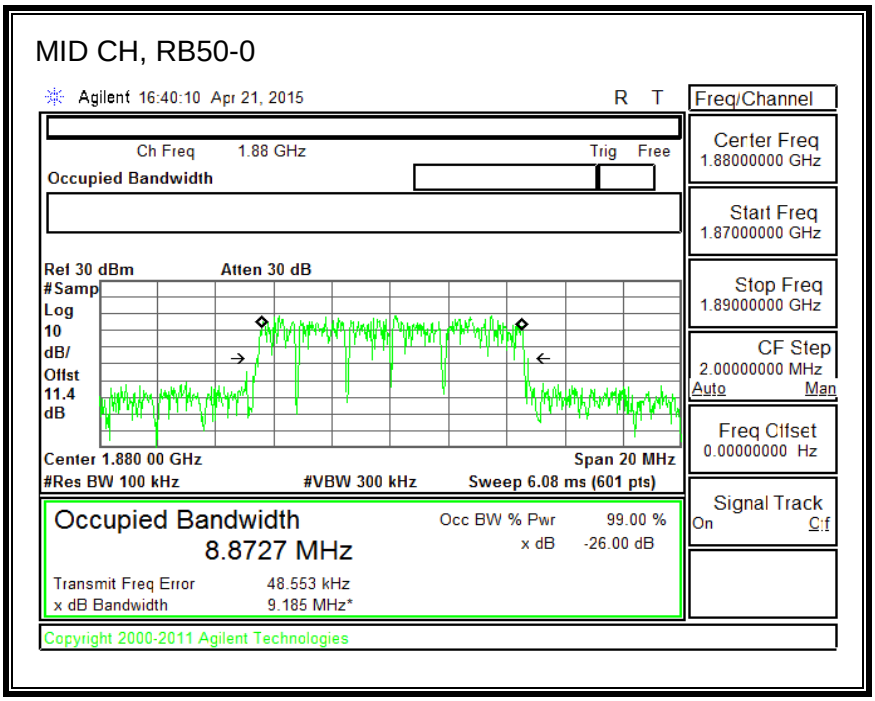
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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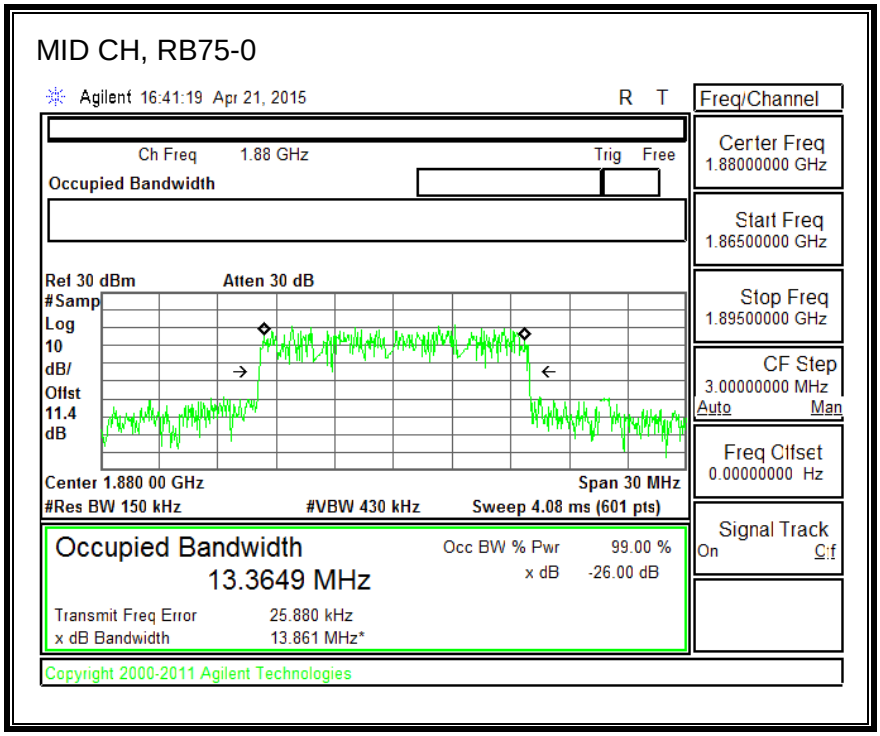
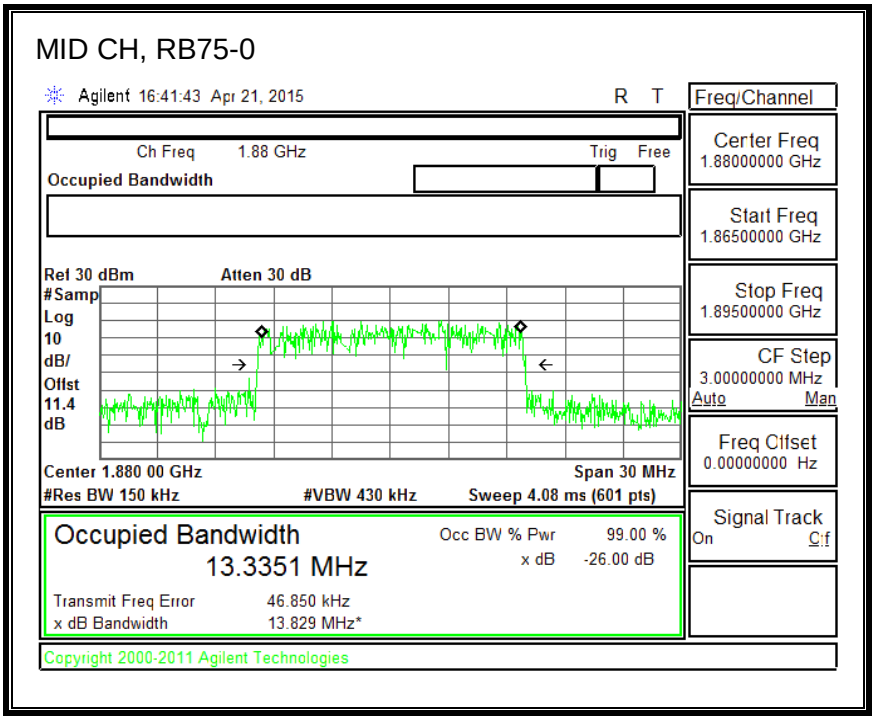
QPSK, (15.0 MHz BAND WIDTH)



16QAM, (15.0 MHz BAND WIDTH)



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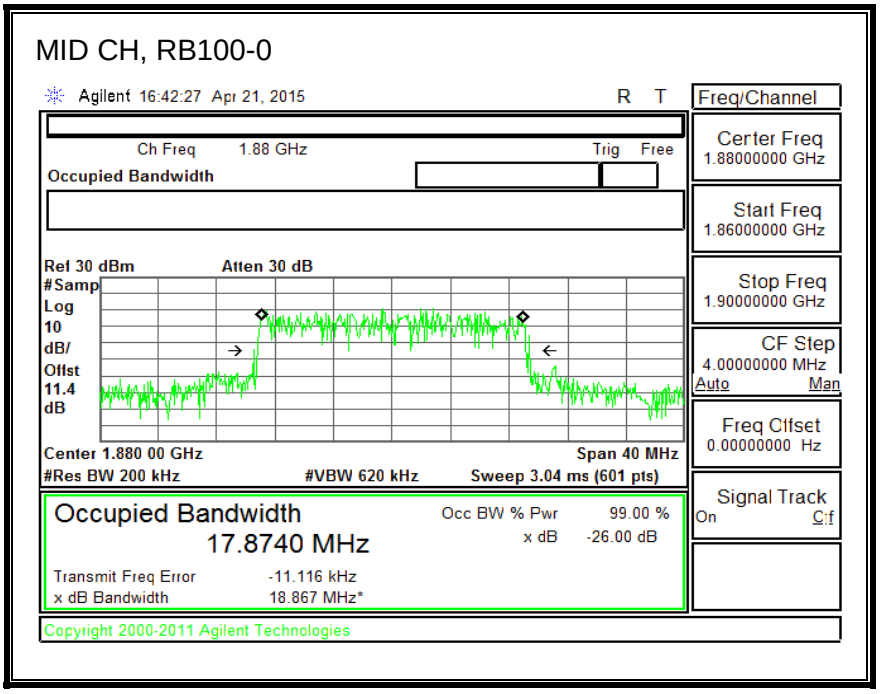
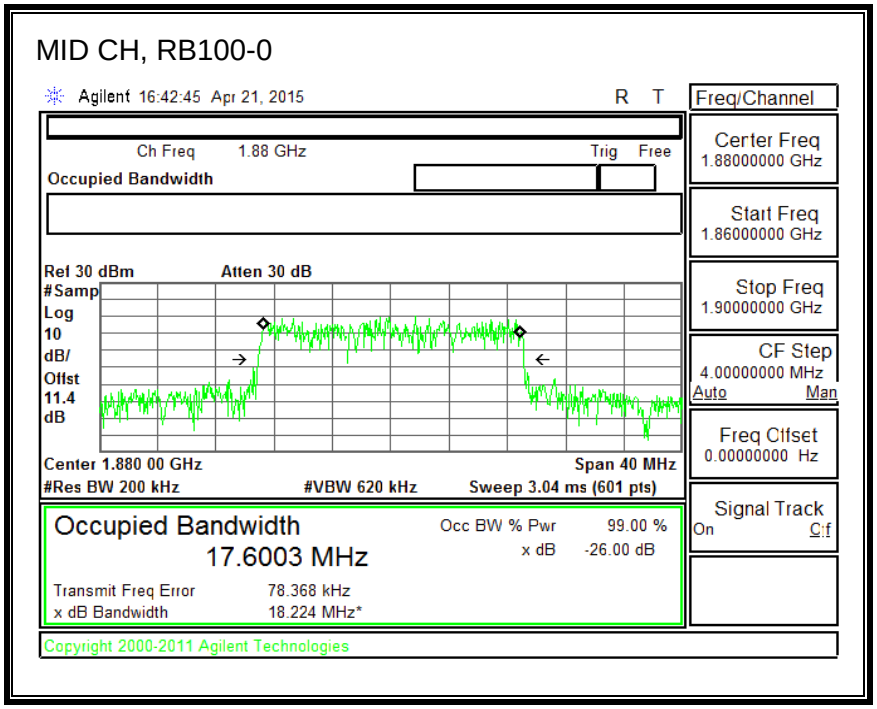
QPSK, (20.0 MHz BAND WIDTH)



16QAM, (20.0 MHz BAND WIDTH)



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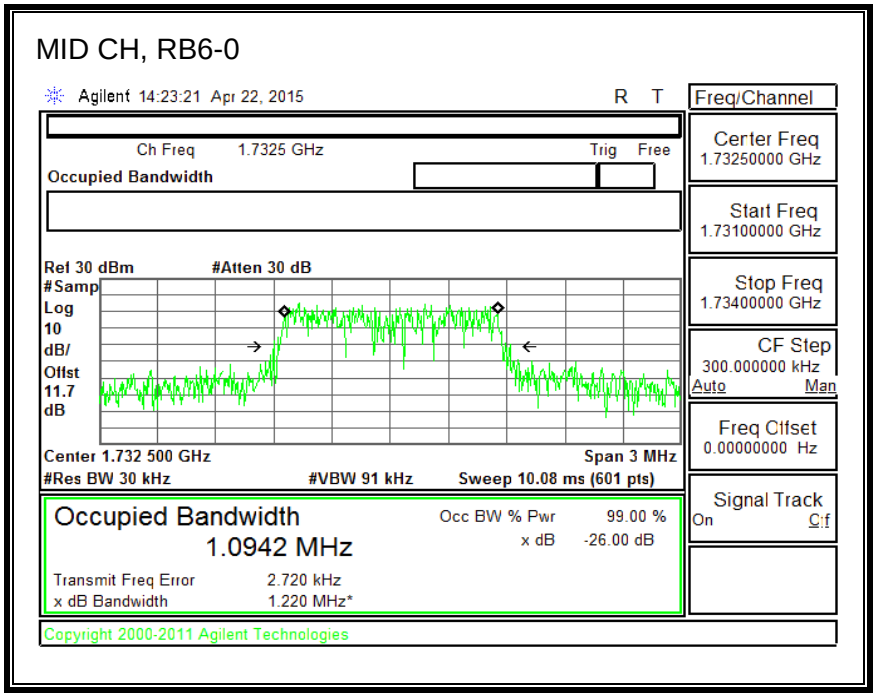
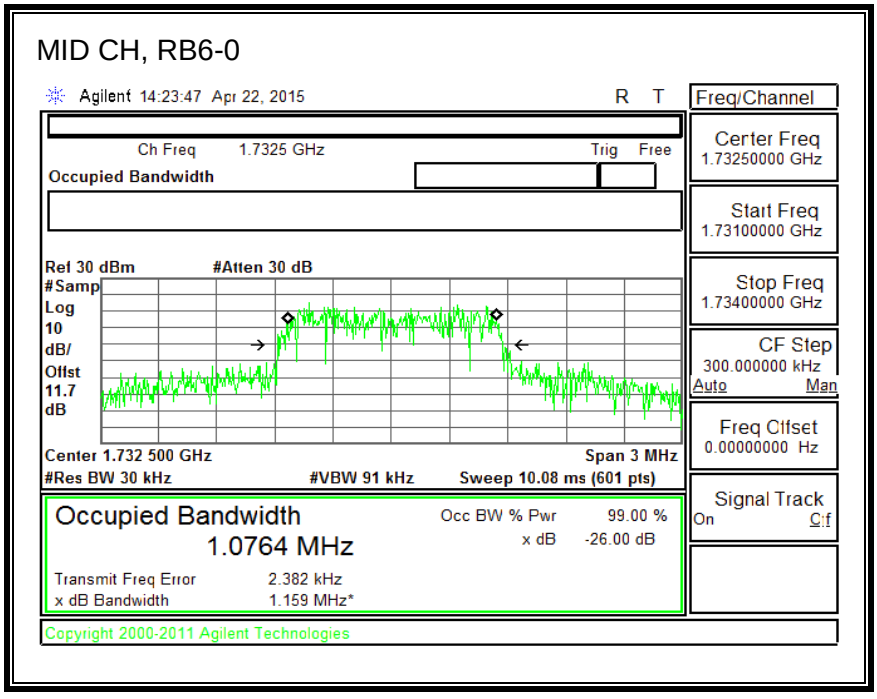
8.1.2. LTE BAND 4

QPSK, (1.4 MHz BAND WIDTH)



16QAM, (1.4 MHz BAND WIDTH)



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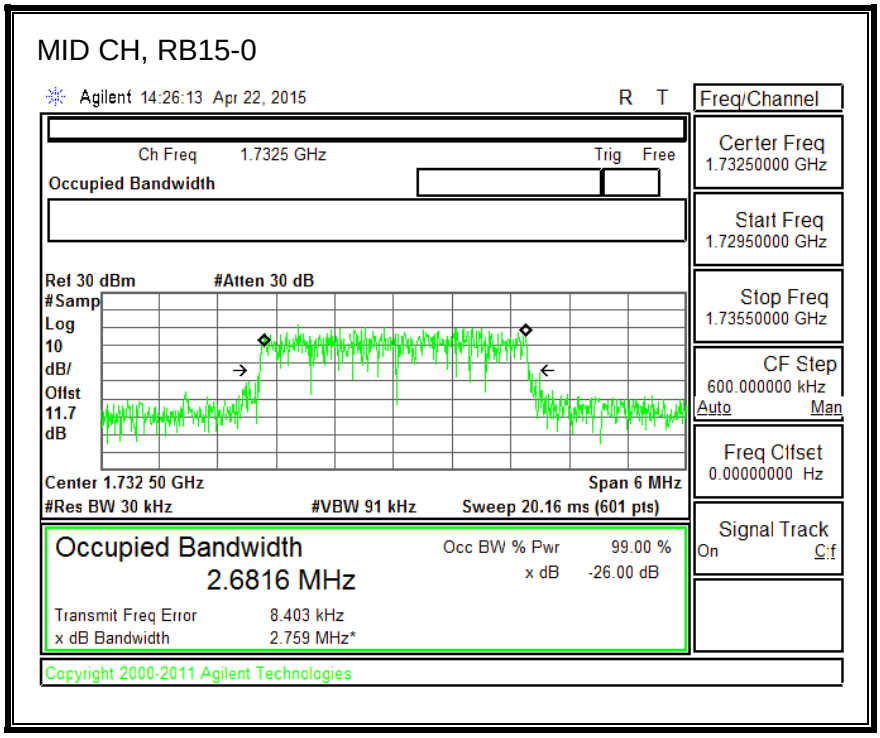
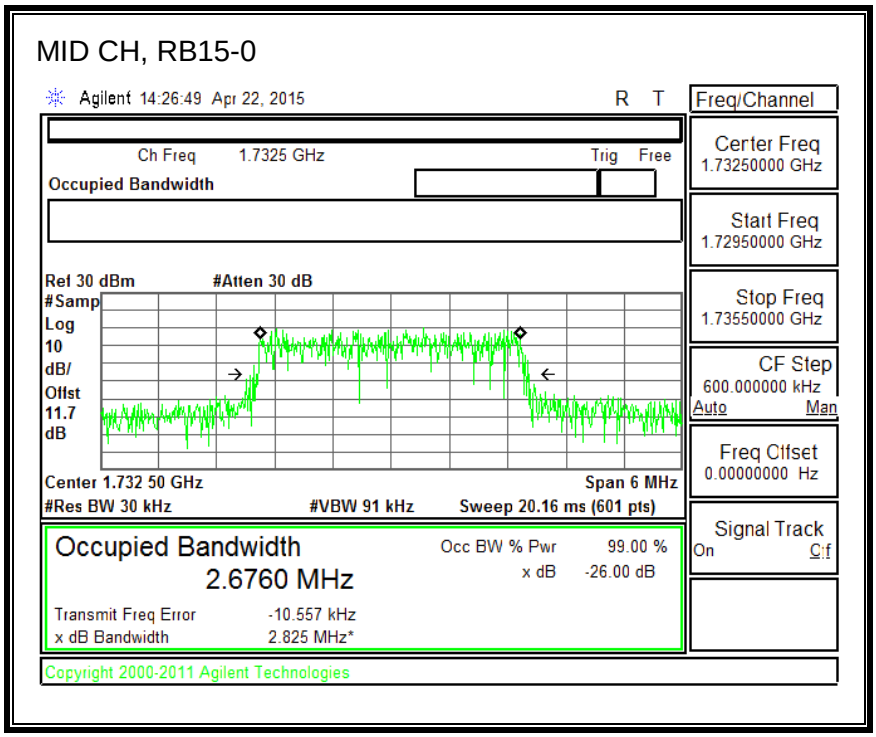
QPSK, (3.0 MHz BAND WIDTH)



16QAM, (3.0 MHz BAND WIDTH)



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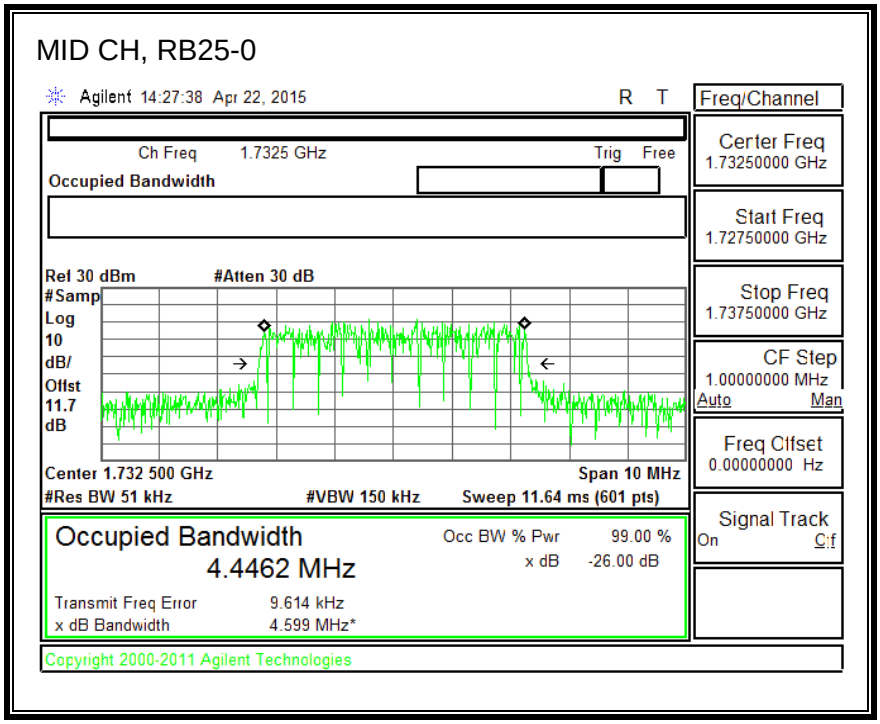
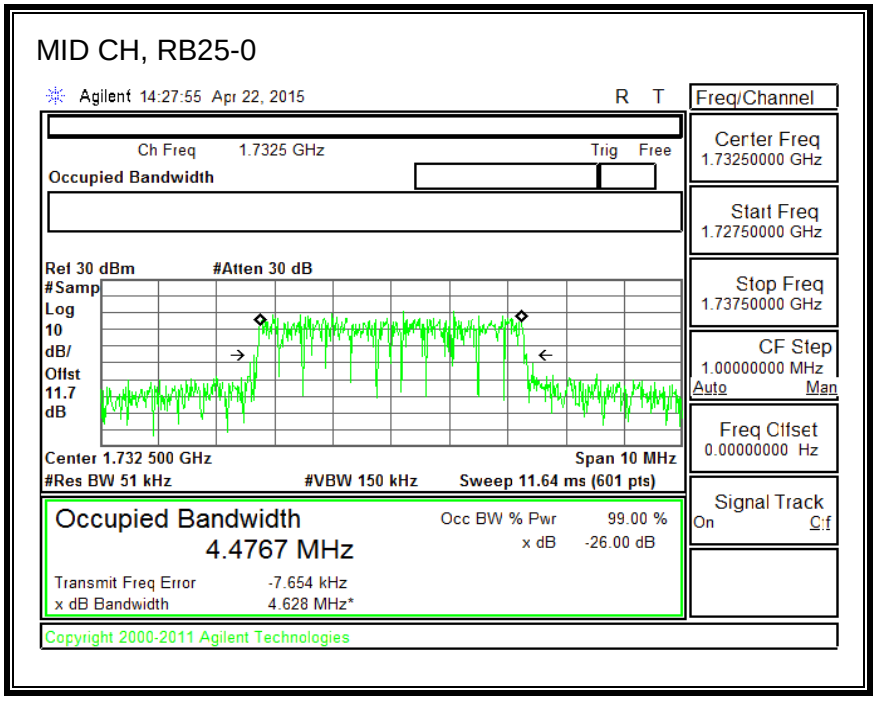
QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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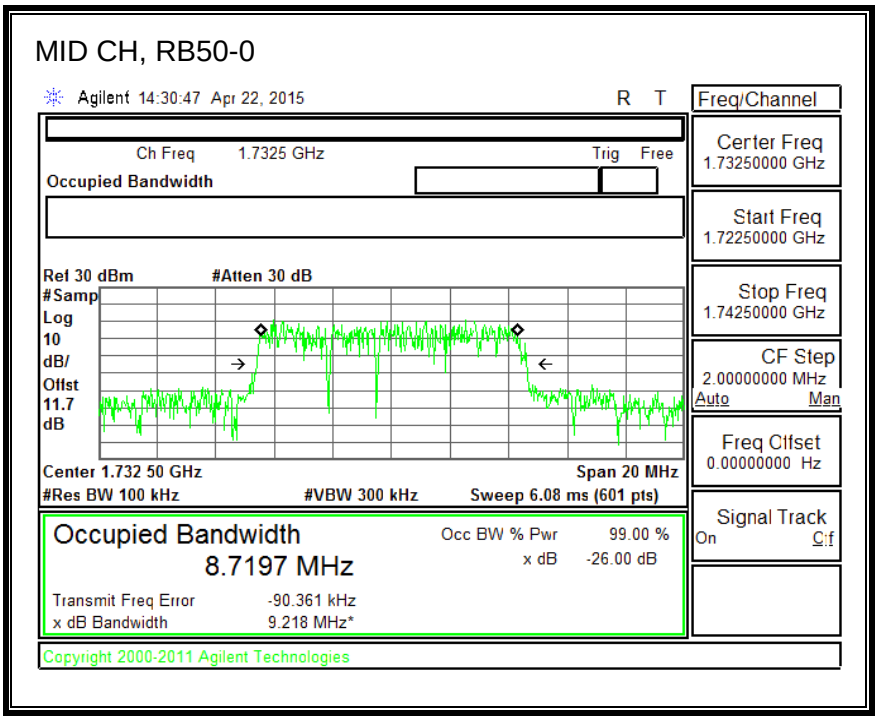
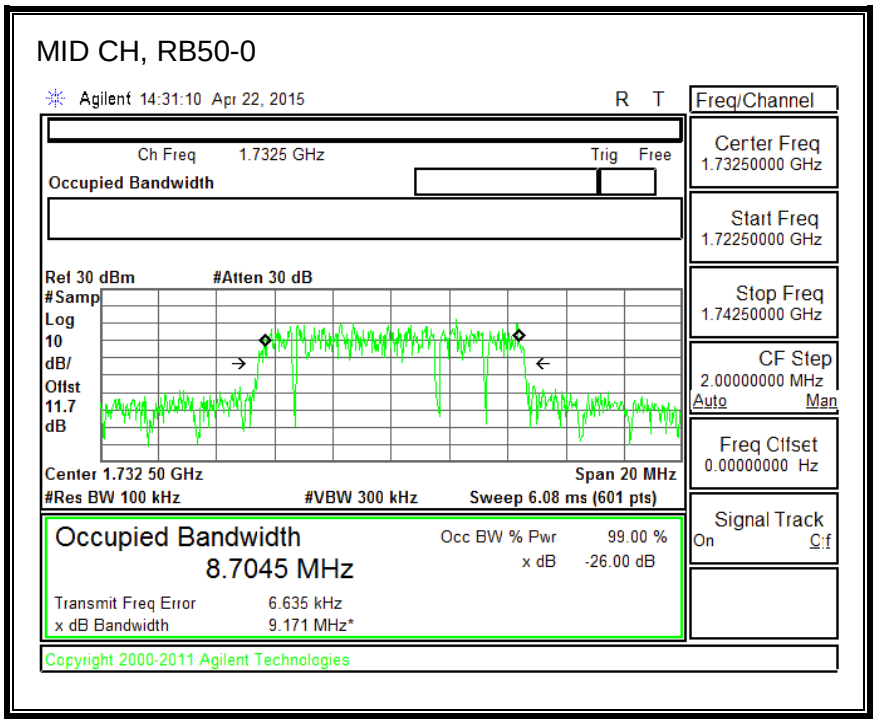
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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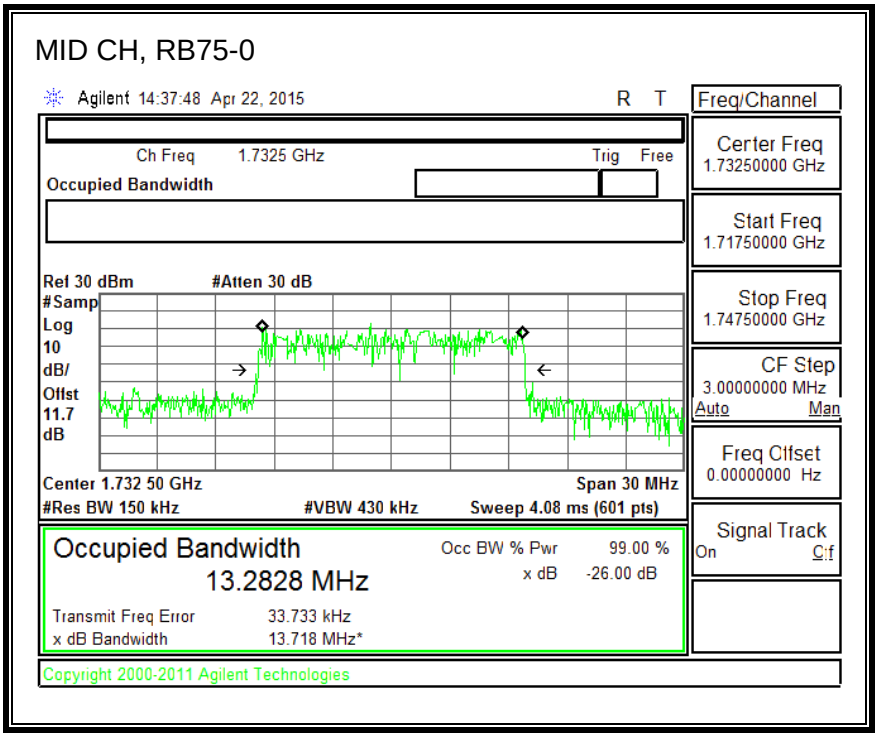
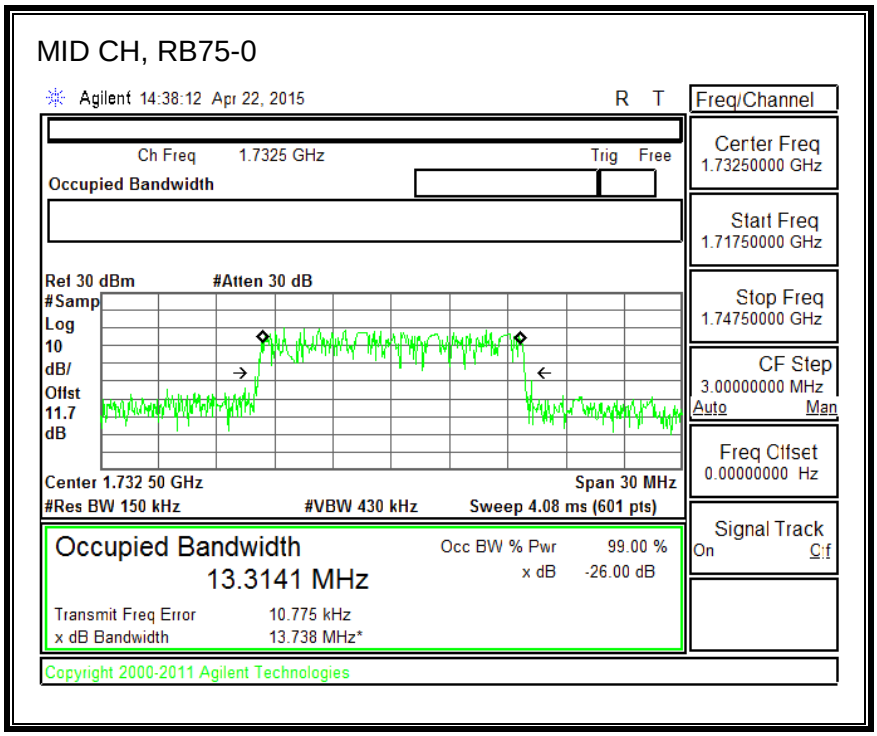
QPSK, (15.0 MHz BAND WIDTH)



16QAM, (15.0 MHz BAND WIDTH)



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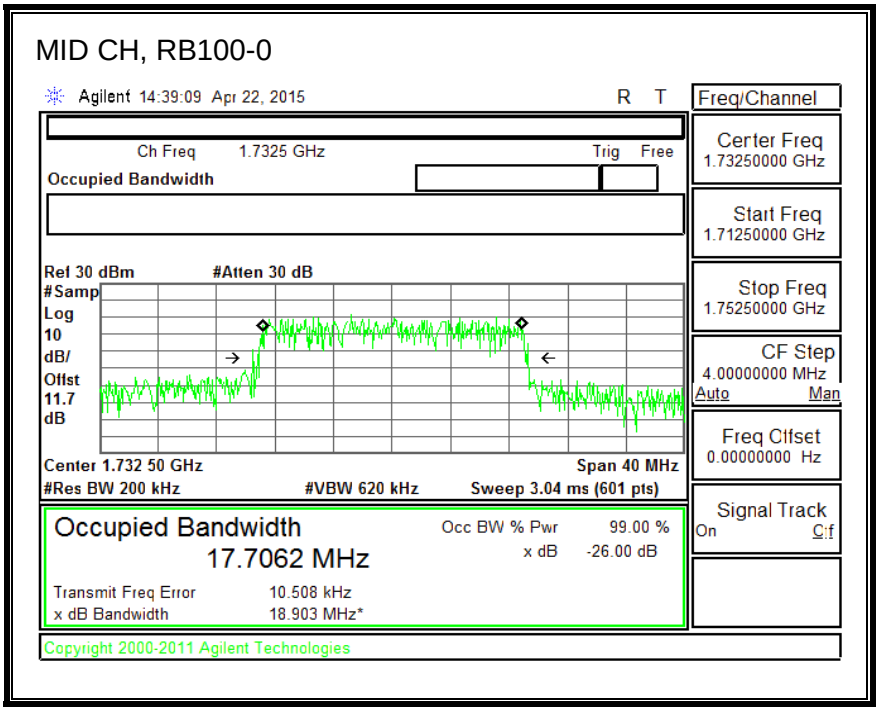
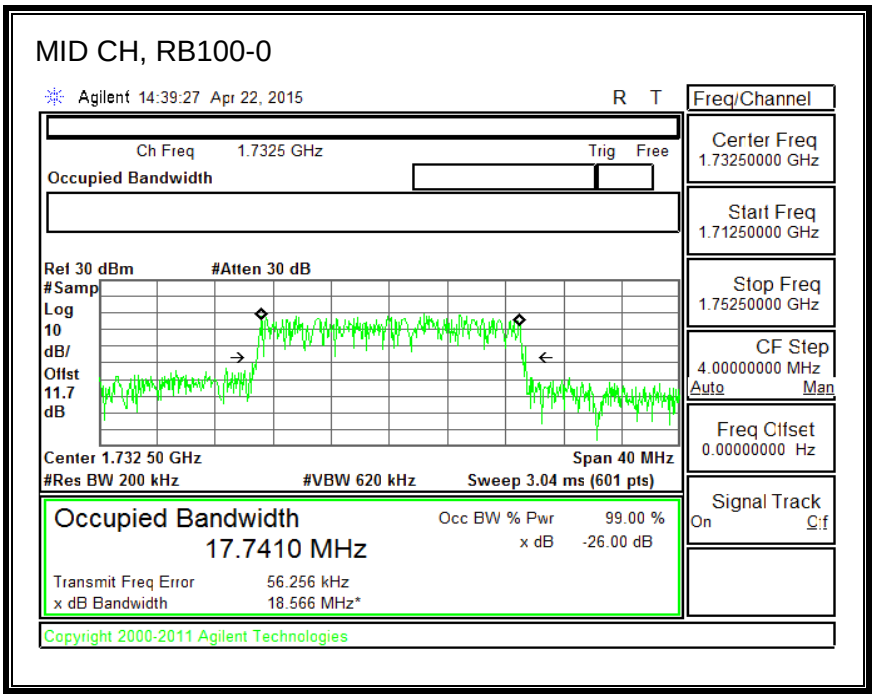
QPSK, (20.0 MHz BAND WIDTH)



16QAM, (20.0 MHz BAND WIDTH)



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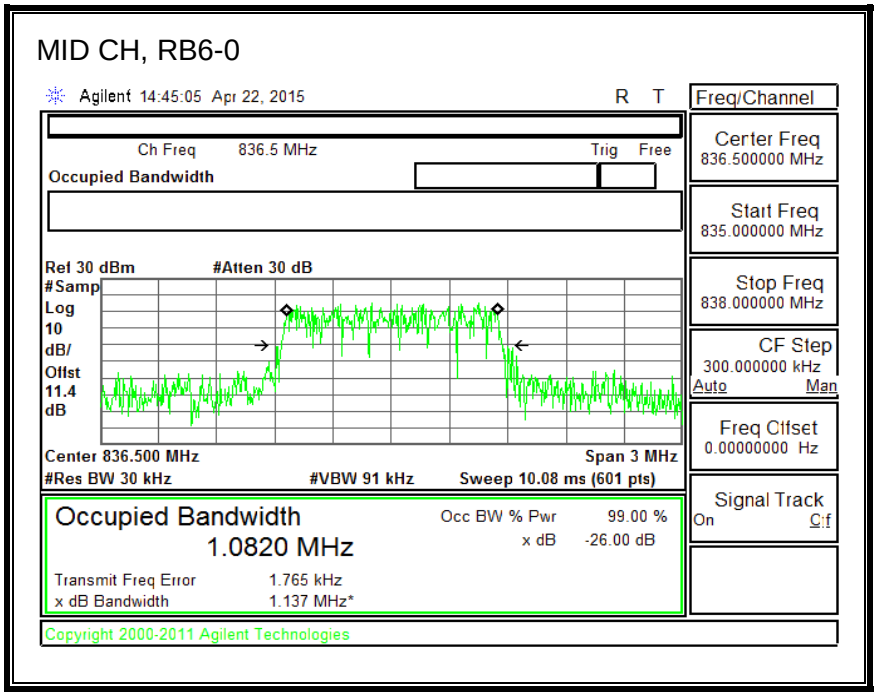
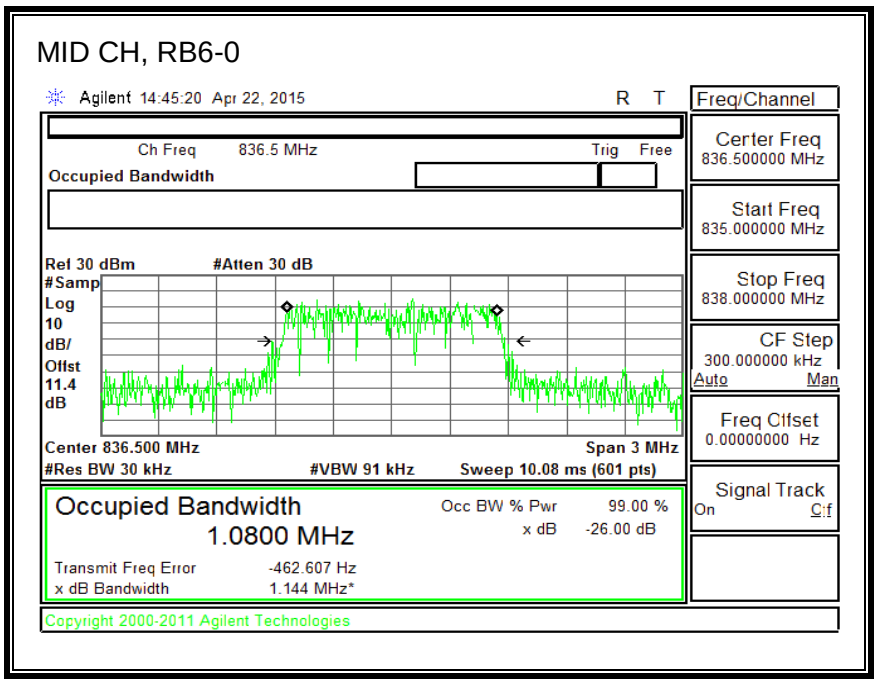
8.1.3. LTE BAND 5

QPSK, (1.4 MHz BAND WIDTH)



16QAM, (1.4 MHz BAND WIDTH)



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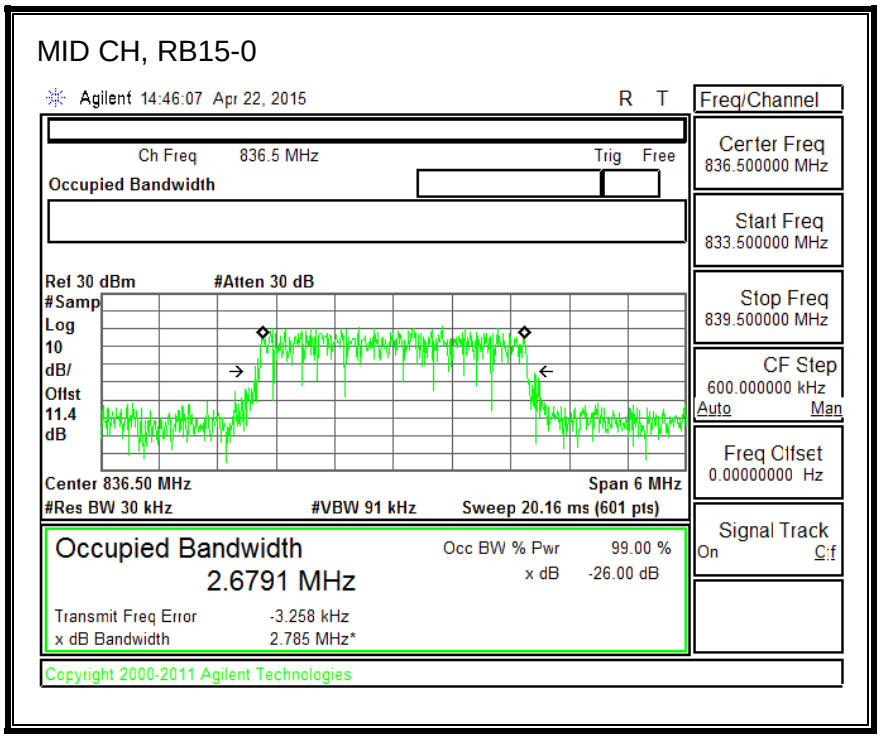
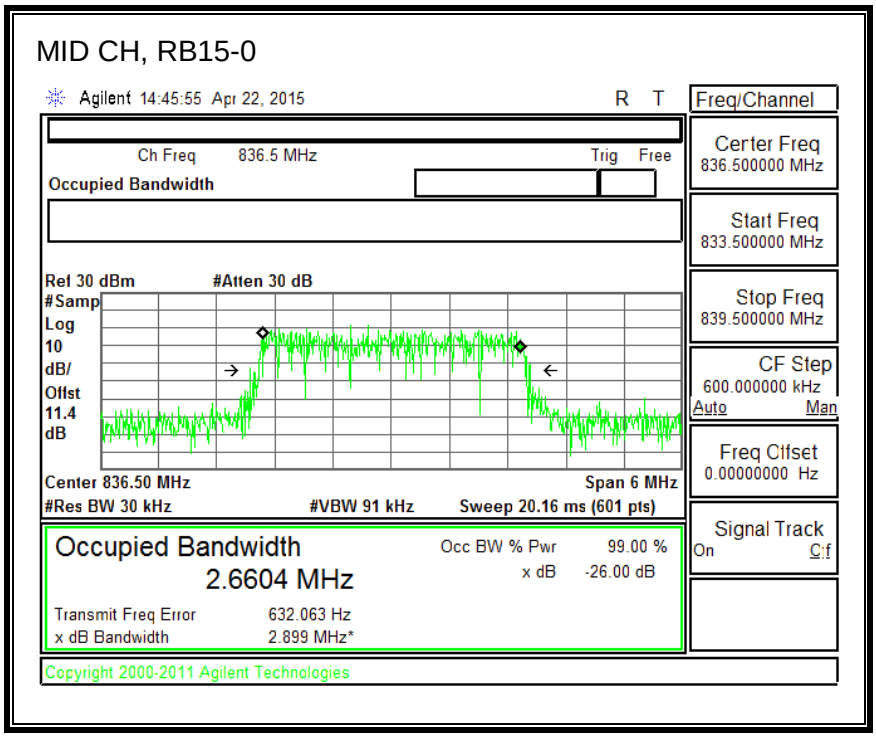
QPSK, (3.0 MHz BAND WIDTH)



16QAM, (3.0 MHz BAND WIDTH)



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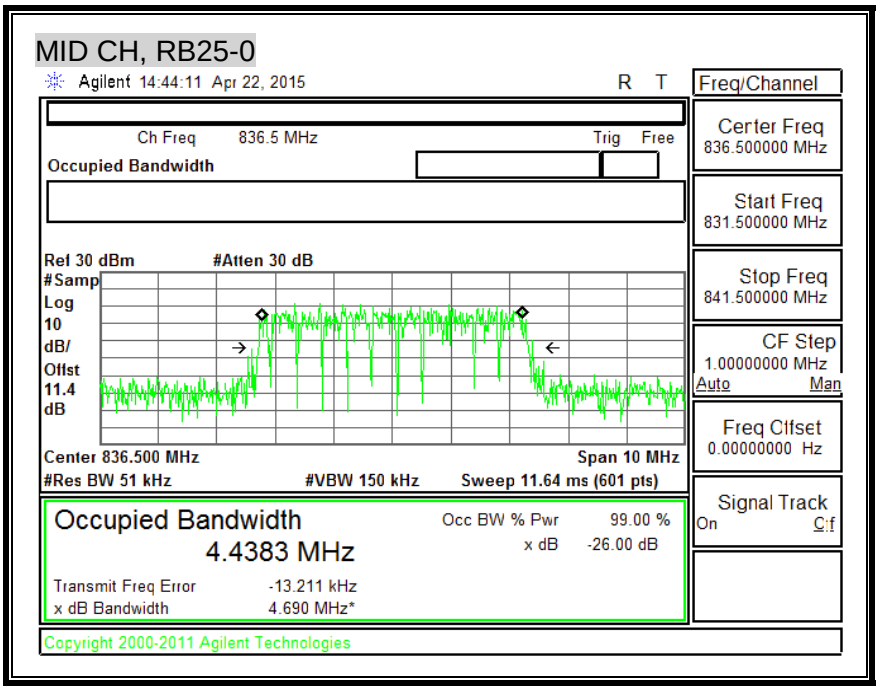
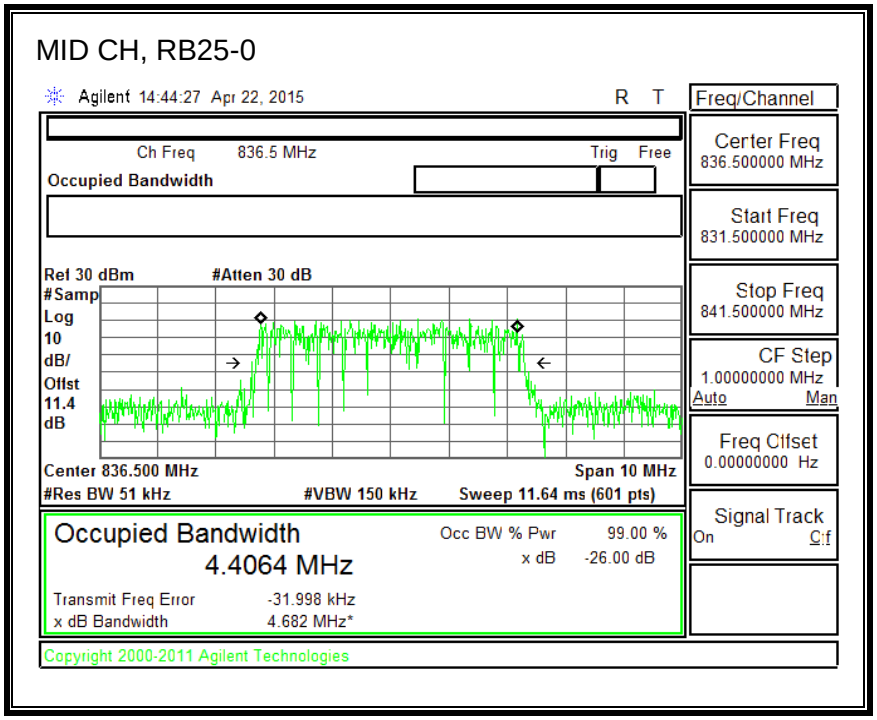
QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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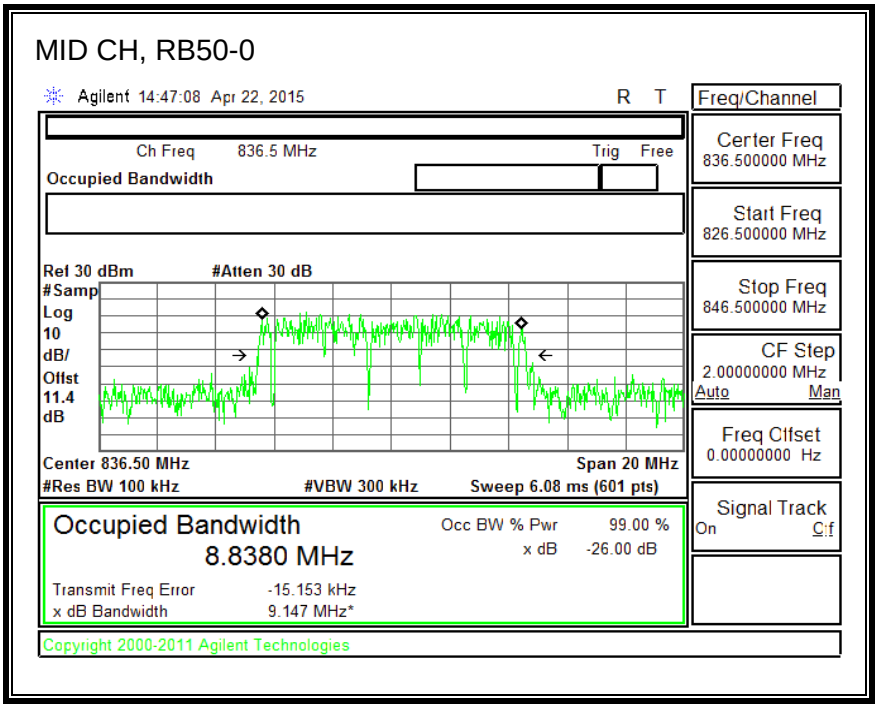
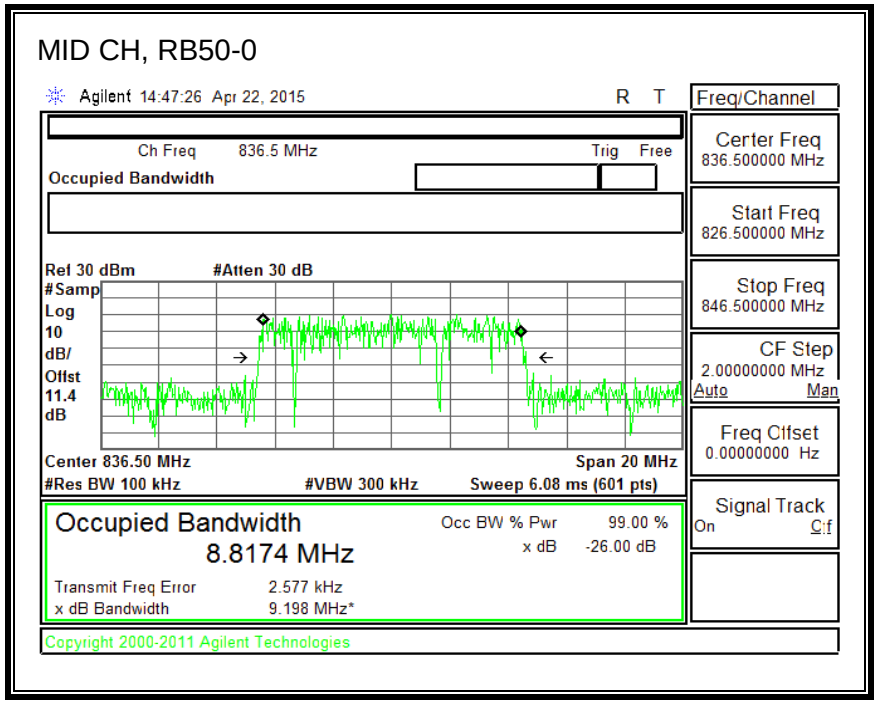
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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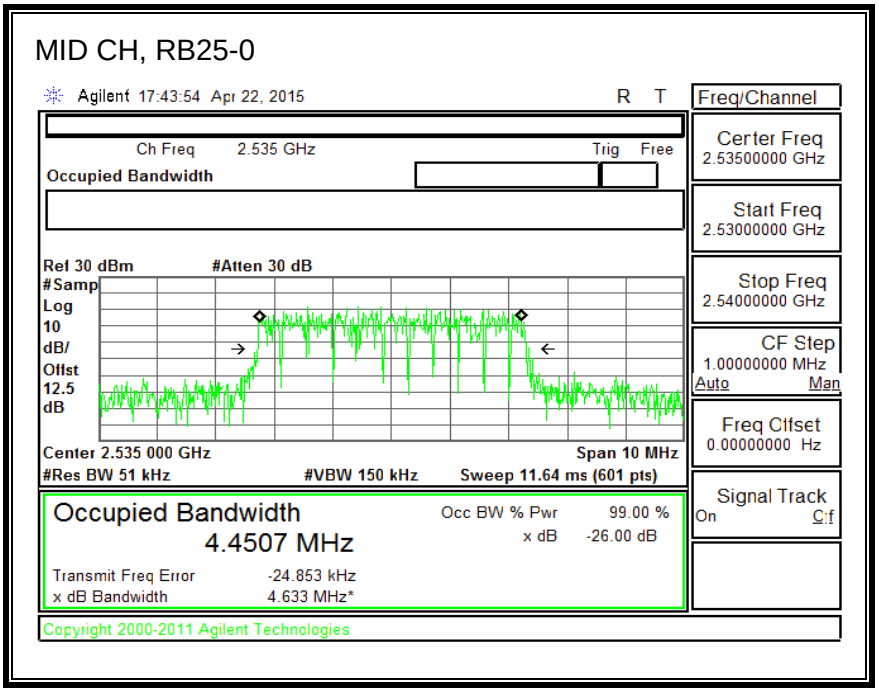
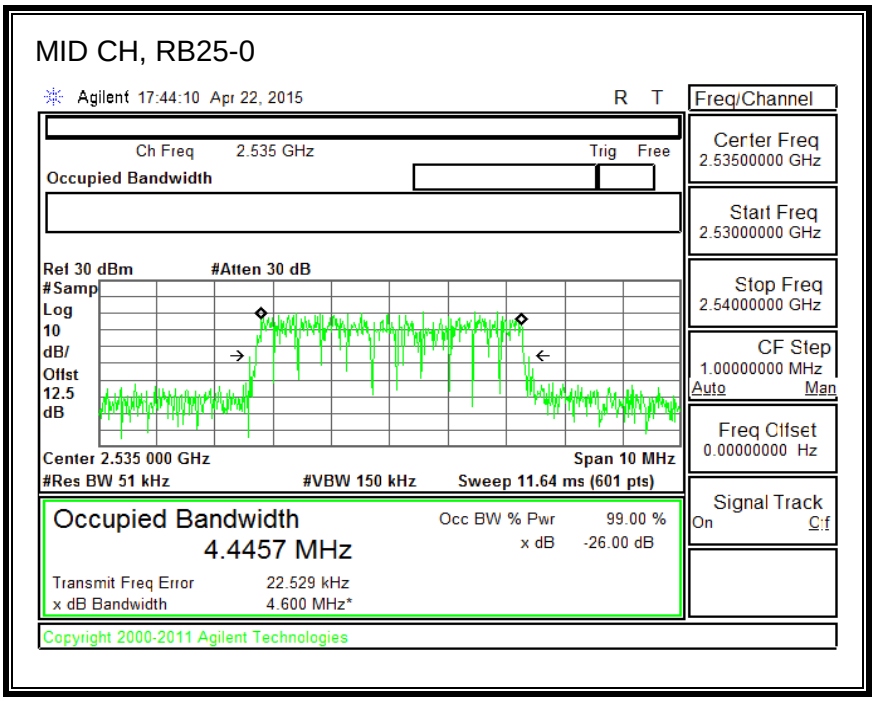
8.1.4. LTE BAND 7

QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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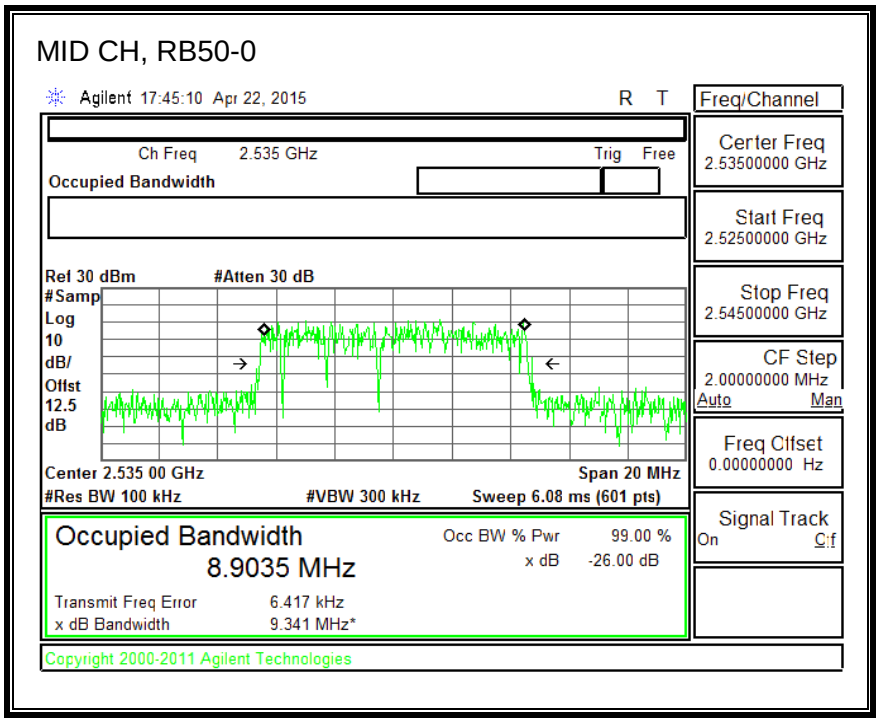
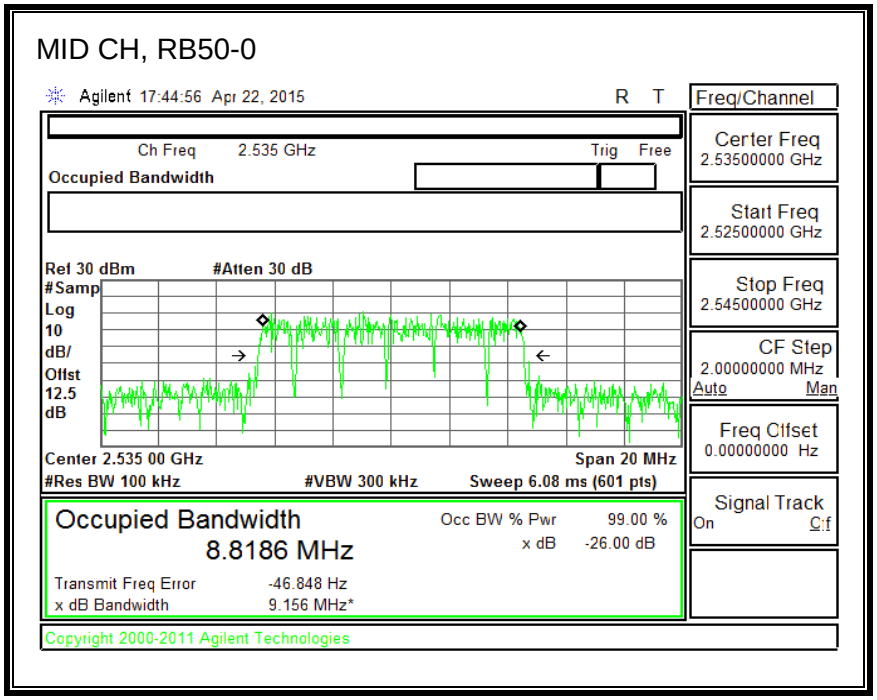
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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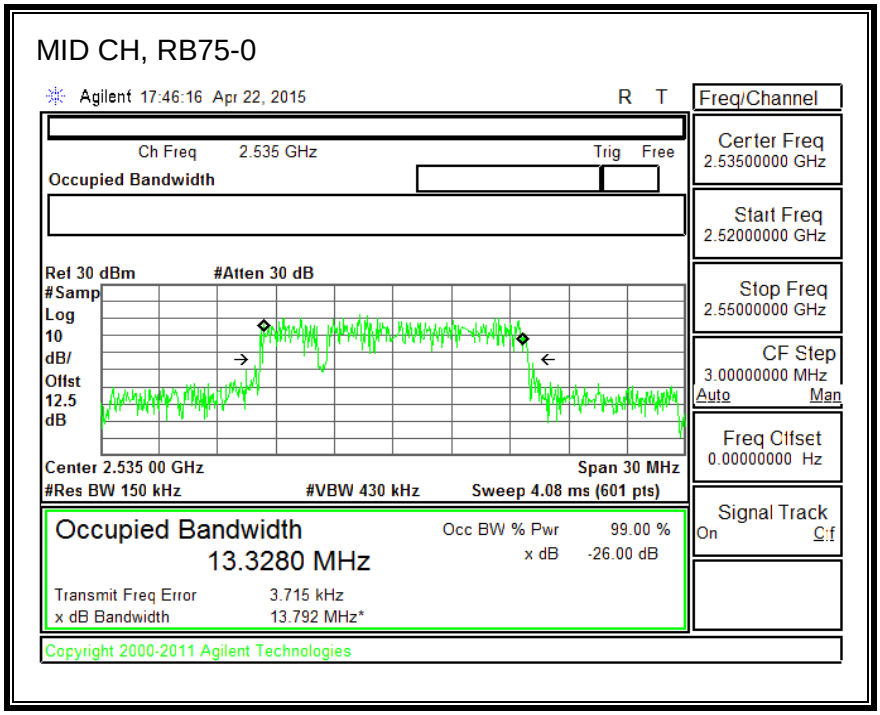
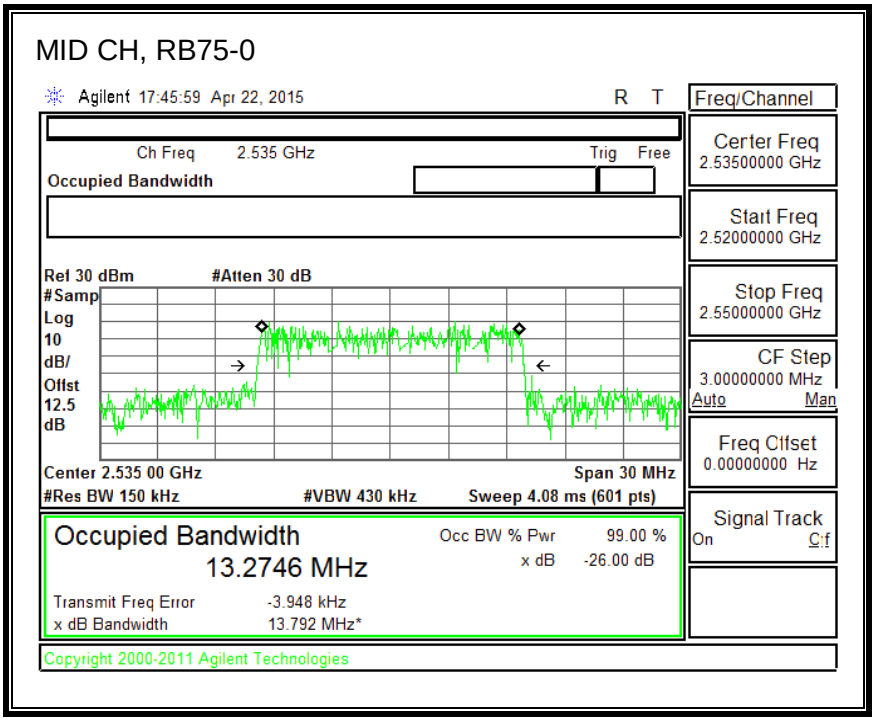
QPSK, (15.0 MHz BAND WIDTH)



16QAM, (15.0 MHz BAND WIDTH)



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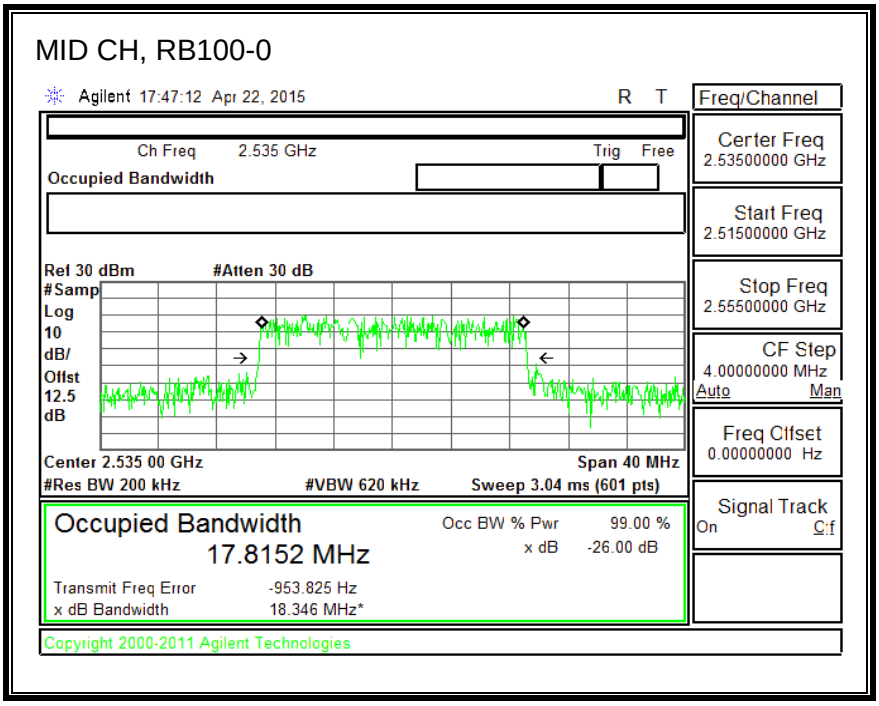
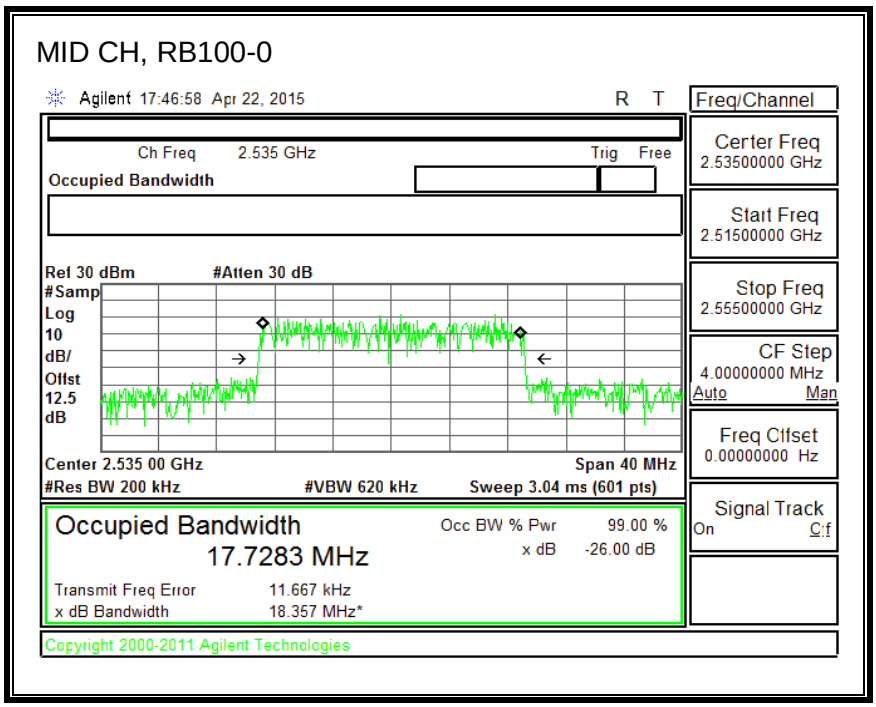
QPSK, (20.0 MHz BAND WIDTH)



16QAM, (20.0 MHz BAND WIDTH)



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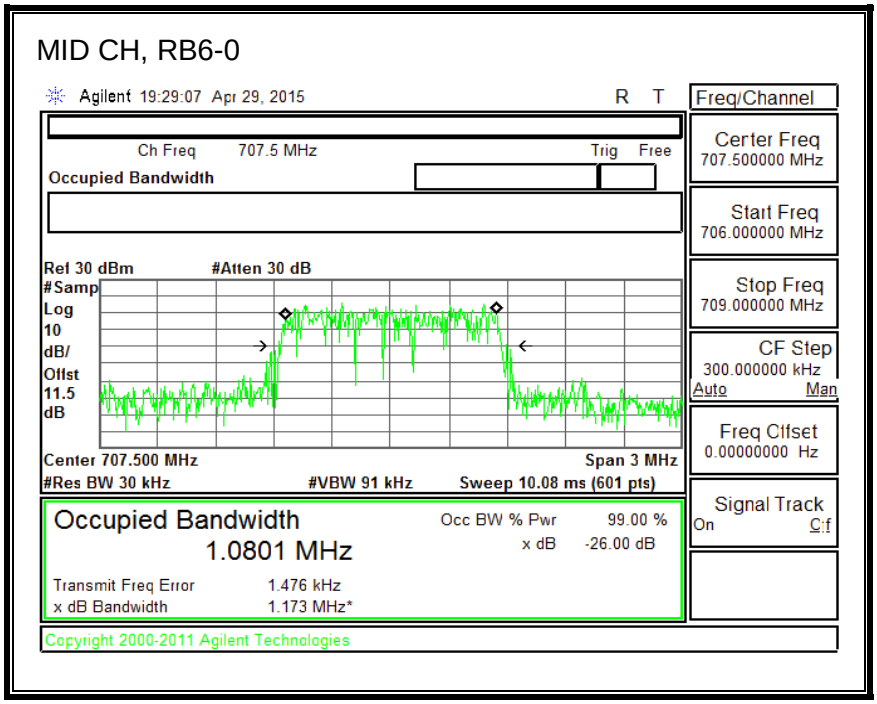
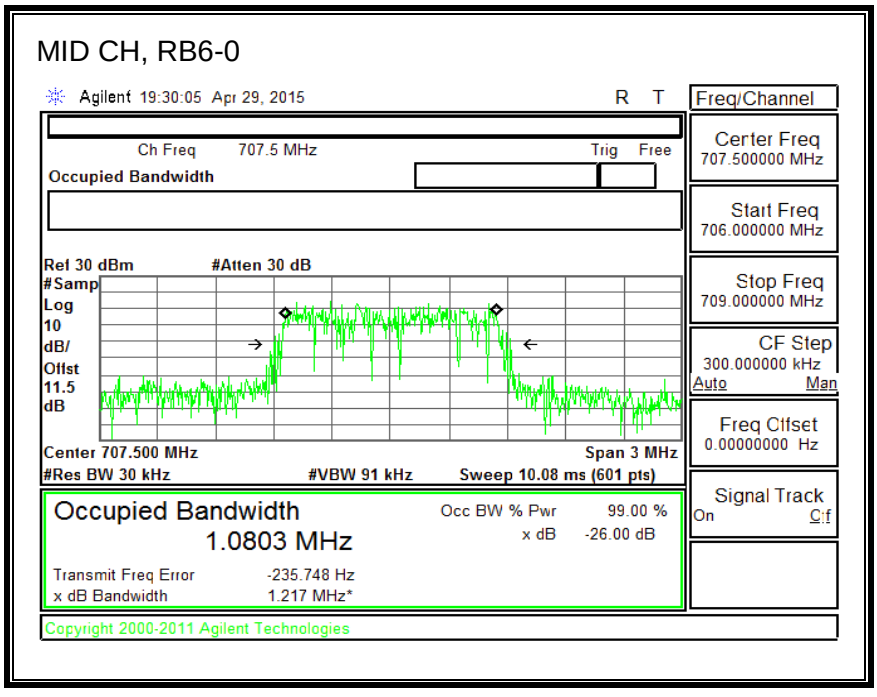
8.1.5. LTE BAND 12

QPSK, (1.4 MHz BAND WIDTH)



16QAM, (1.4 MHz BAND WIDTH)



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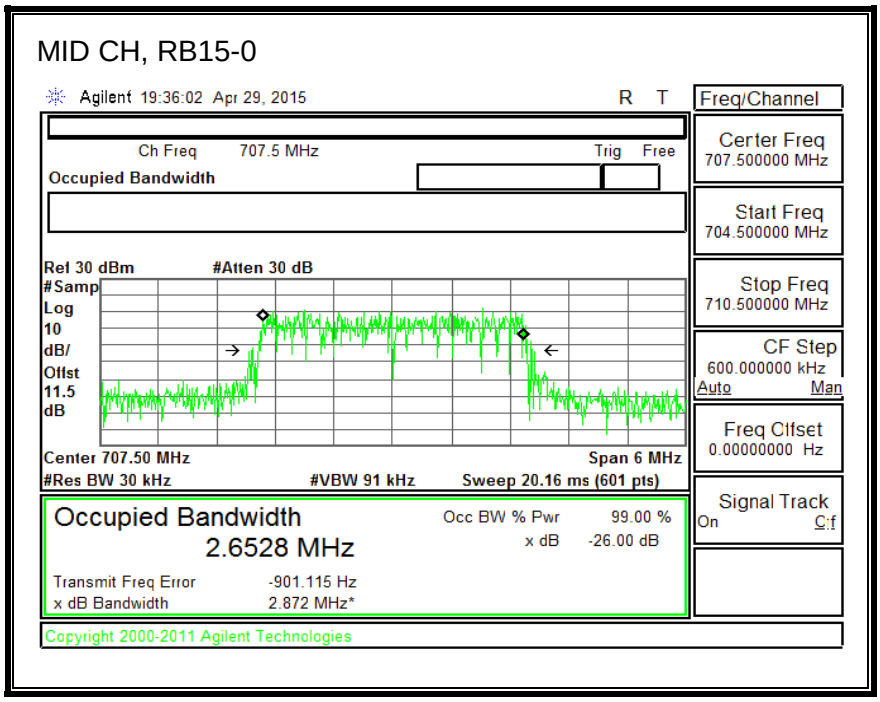
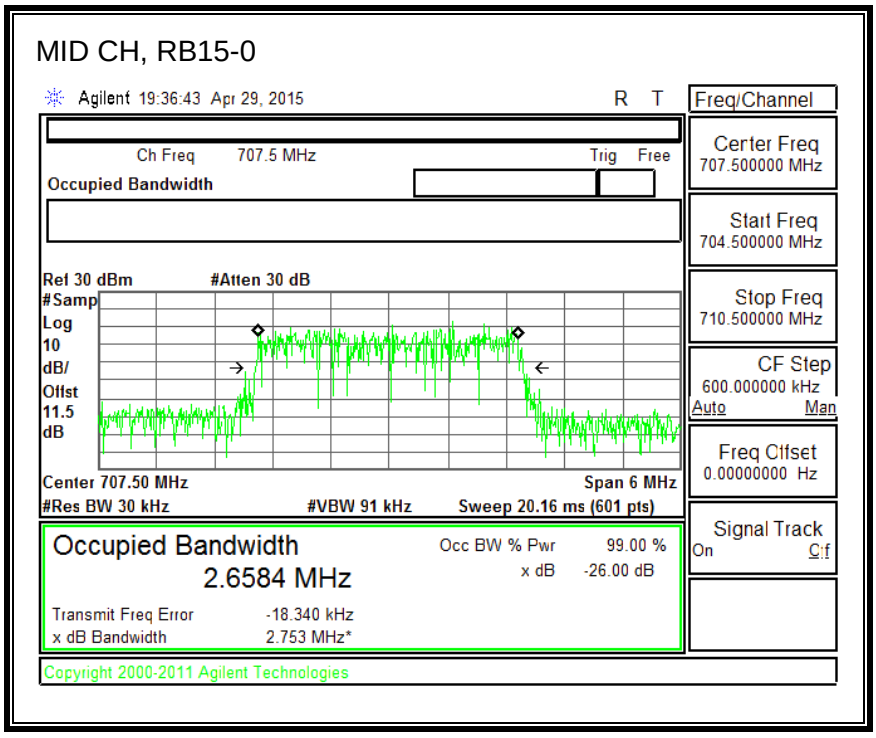
QPSK, (3.0 MHz BAND WIDTH)



16QAM, (3.0 MHz BAND WIDTH)



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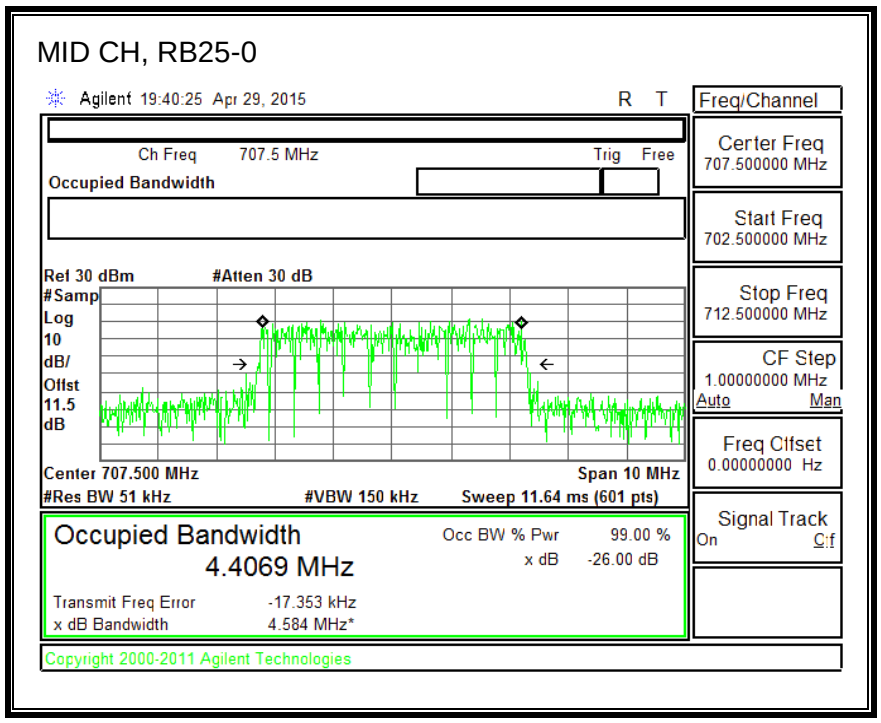
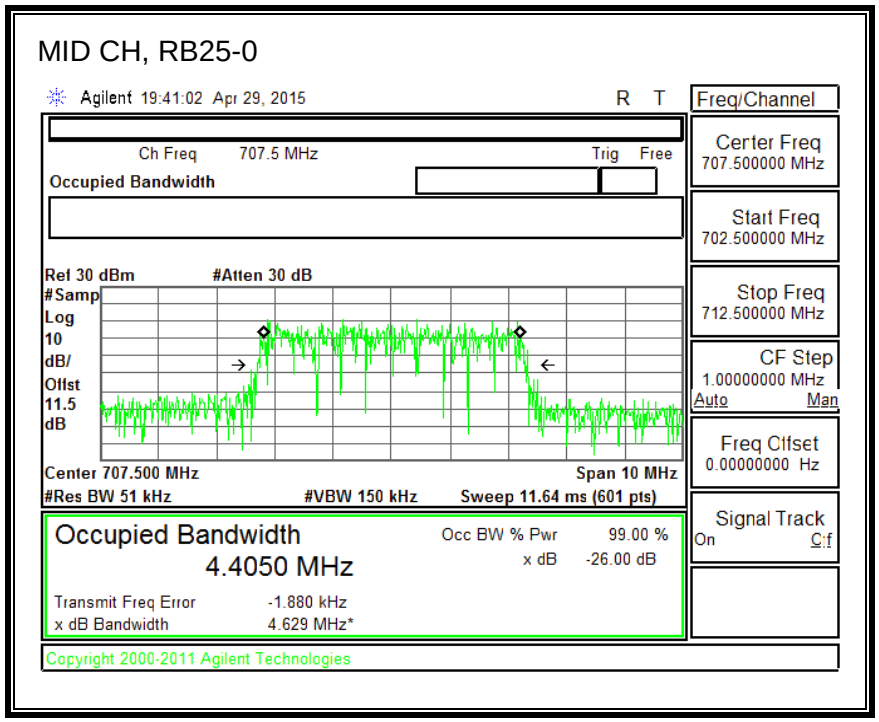
QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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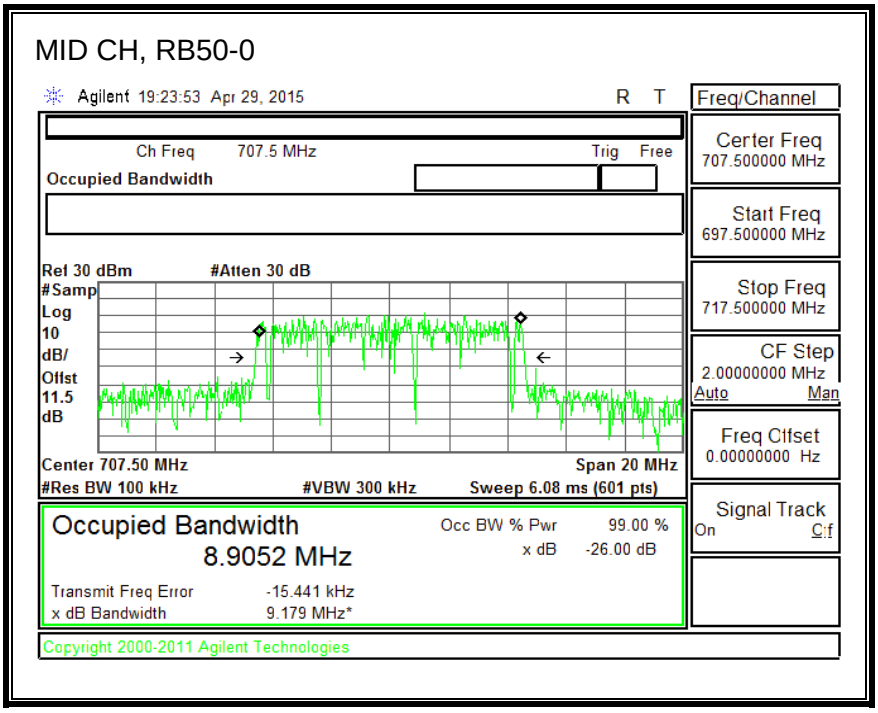
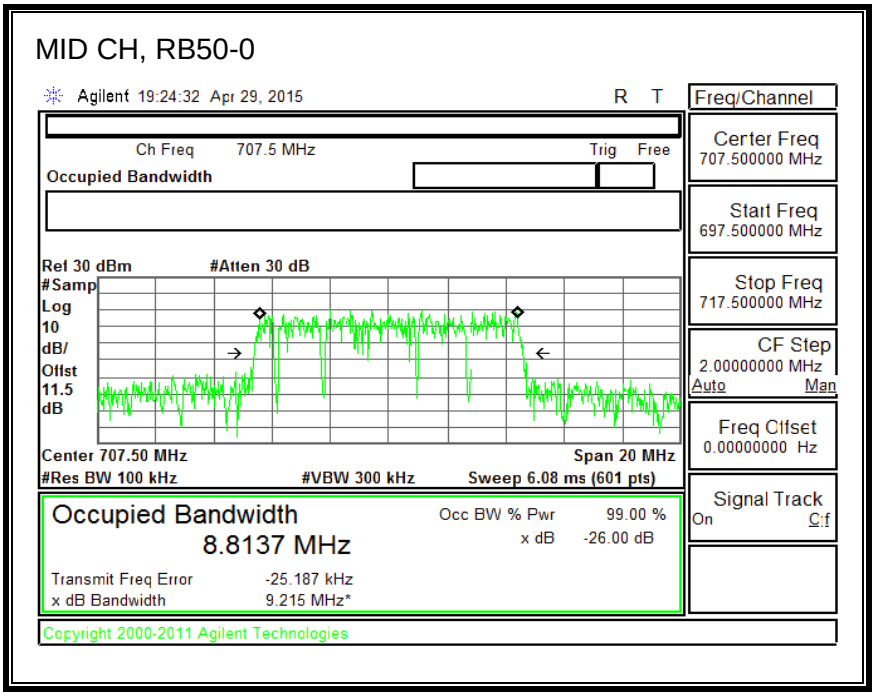
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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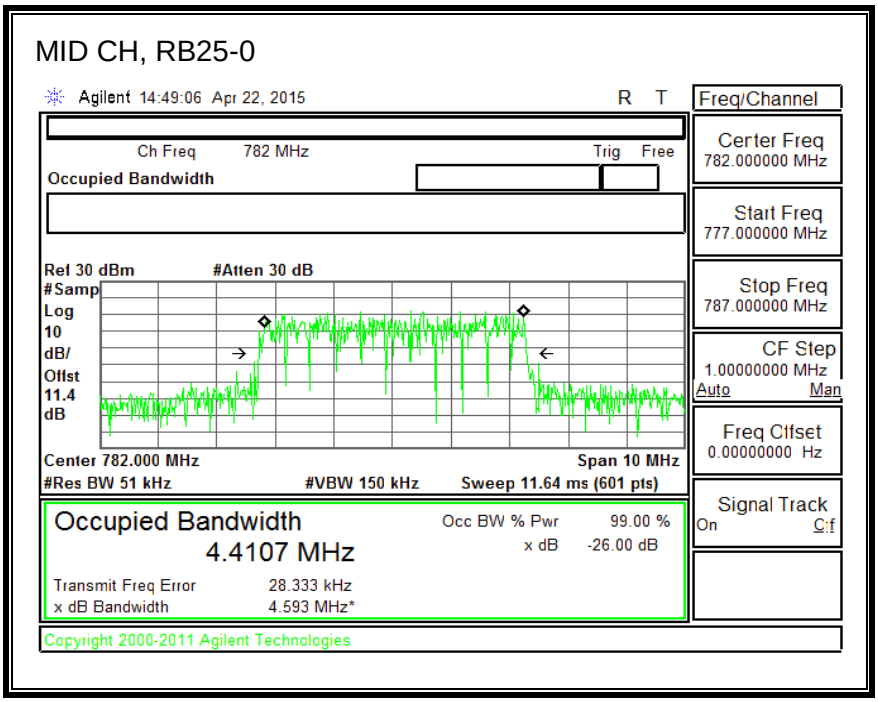
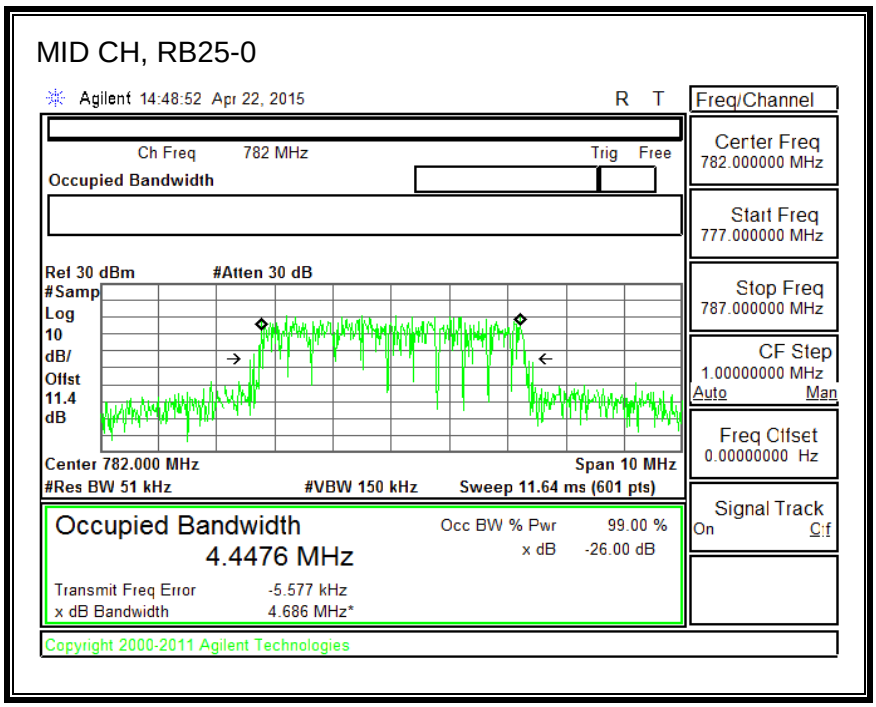
8.1.6. LTE BAND 13

QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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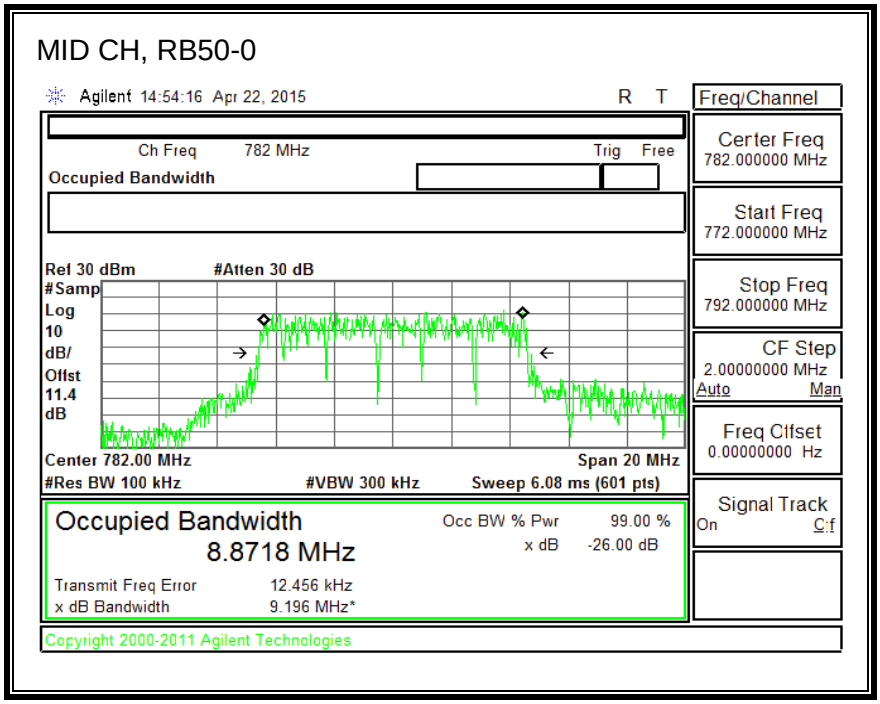
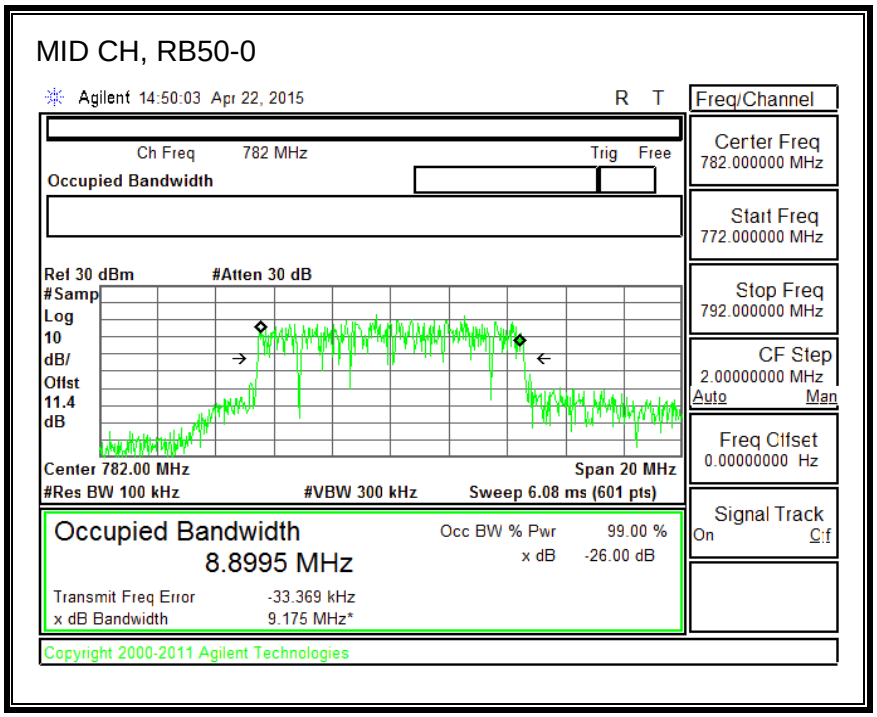
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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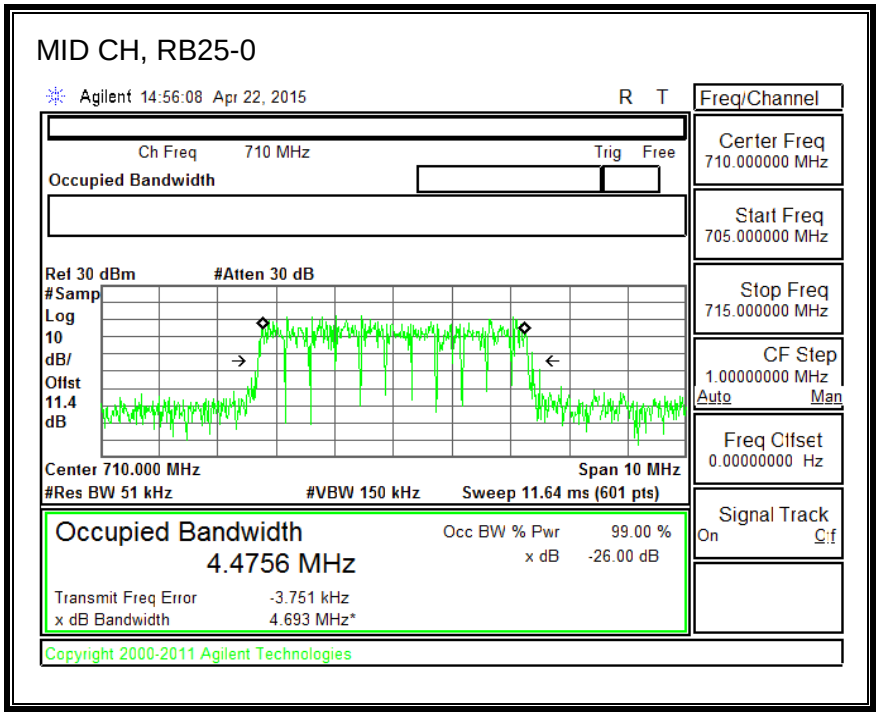
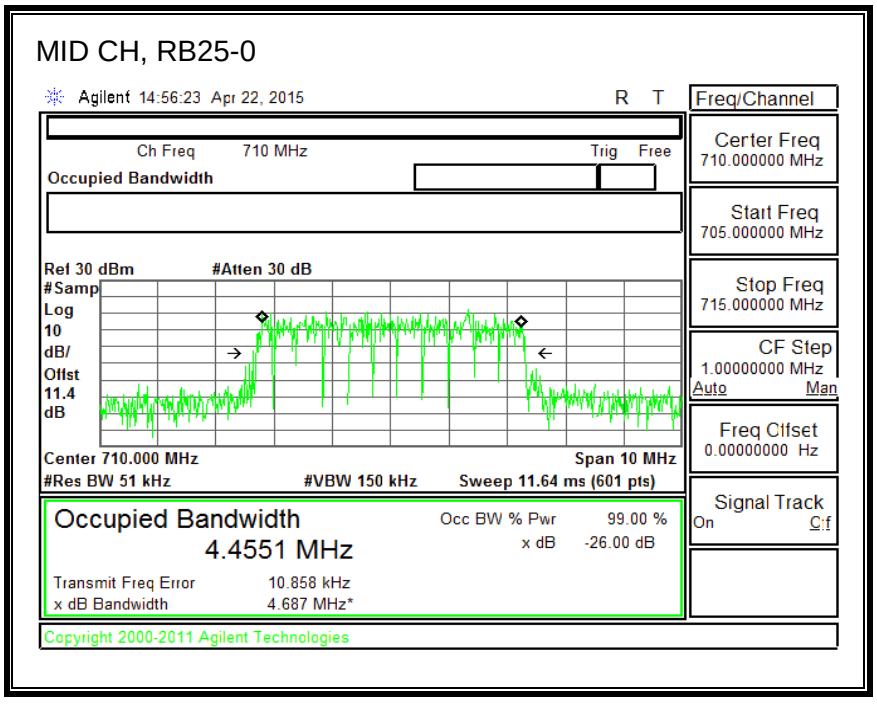
8.1.7. LTE BAND 17

QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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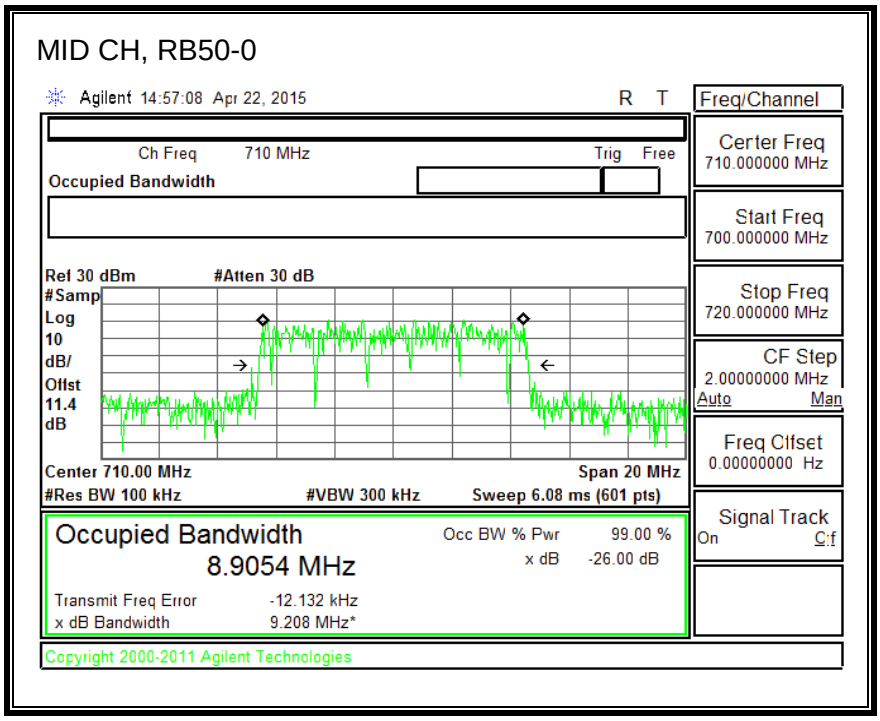
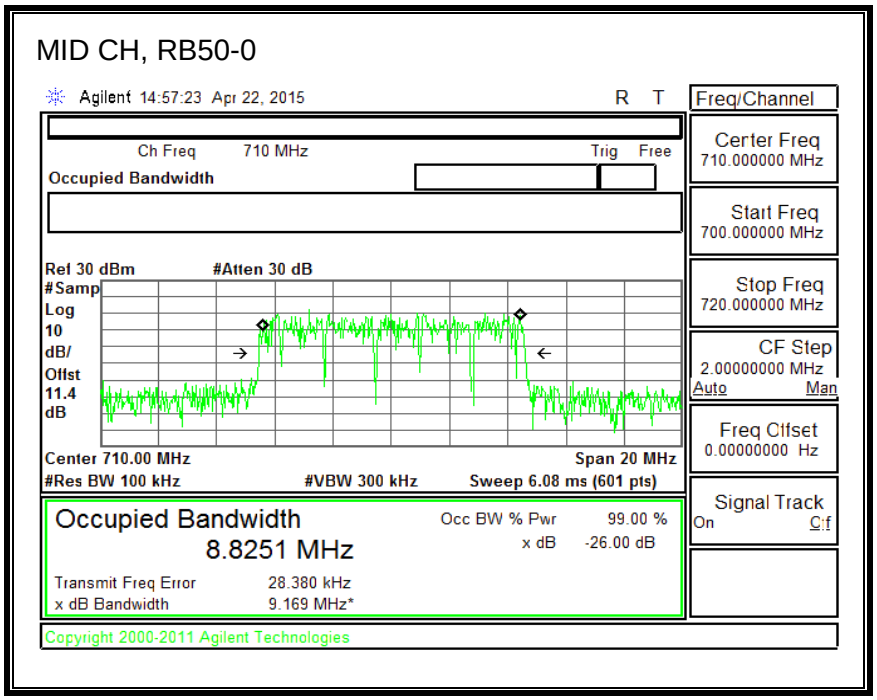
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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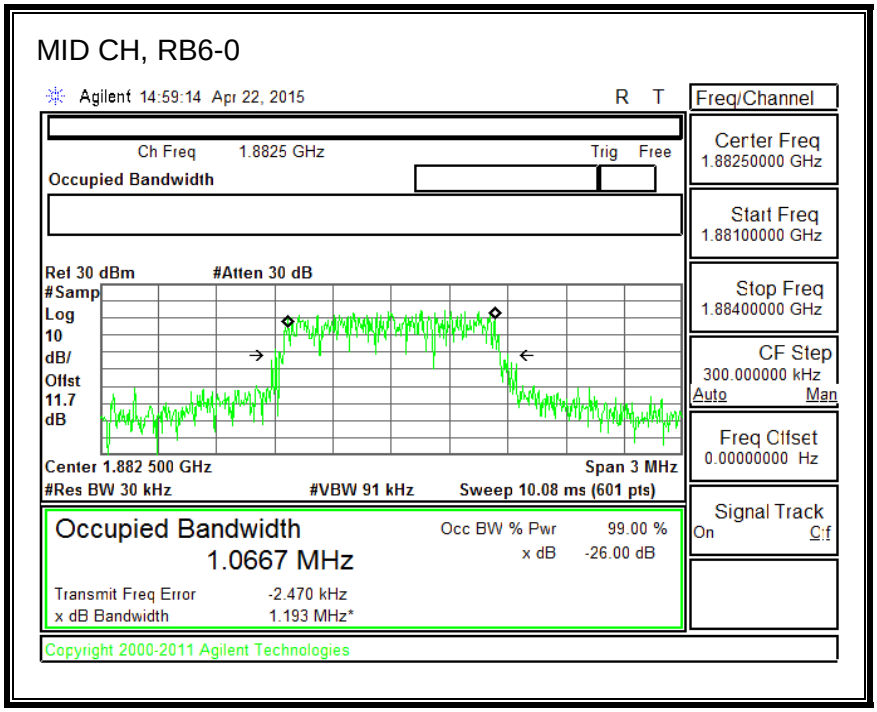
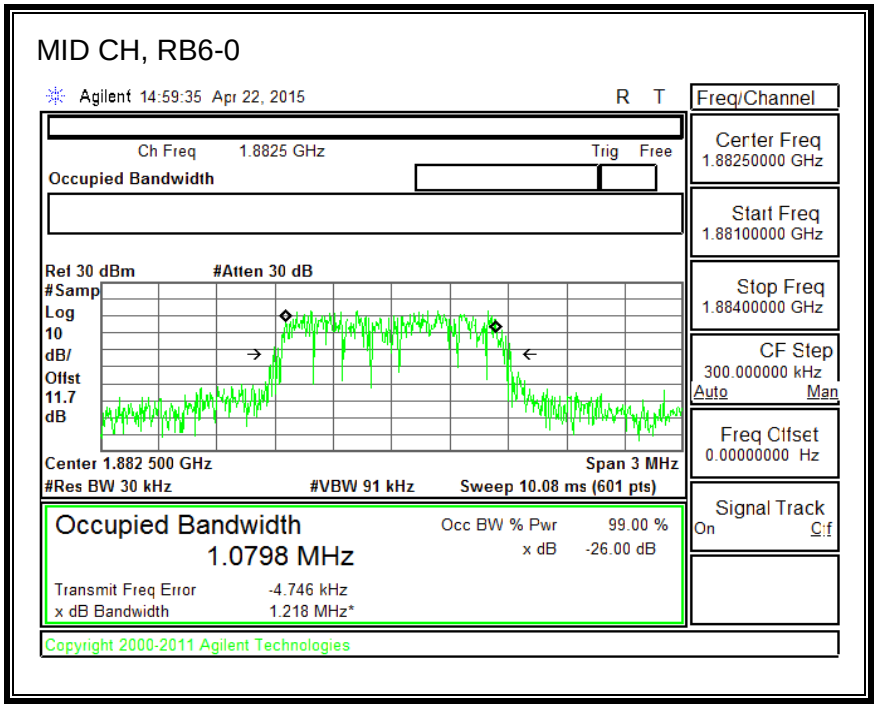
8.1.8. LTE BAND 25

QPSK, (1.4 MHz BAND WIDTH)



16QAM, (1.4 MHz BAND WIDTH)



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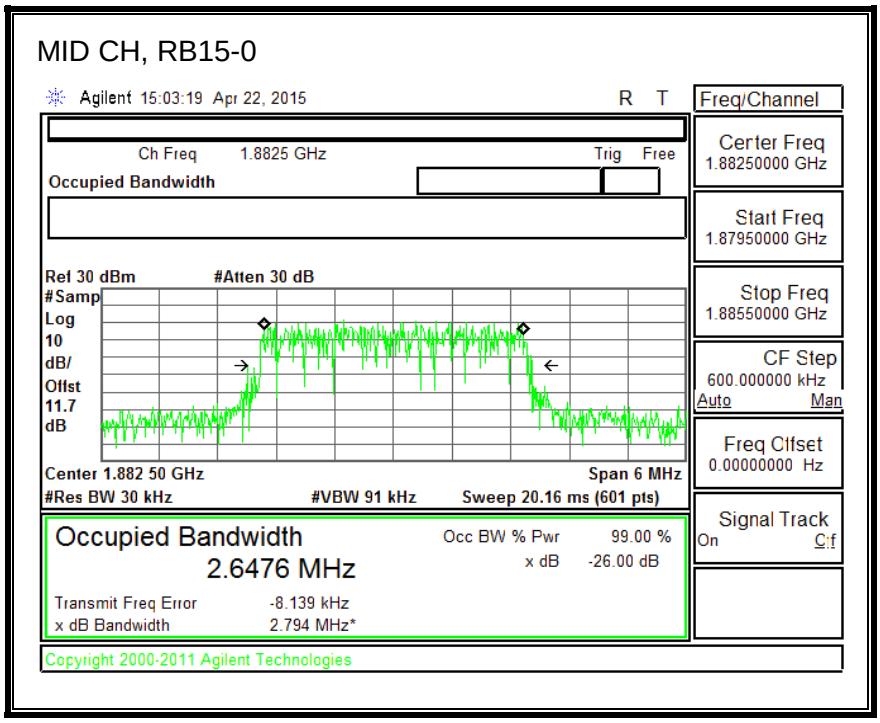
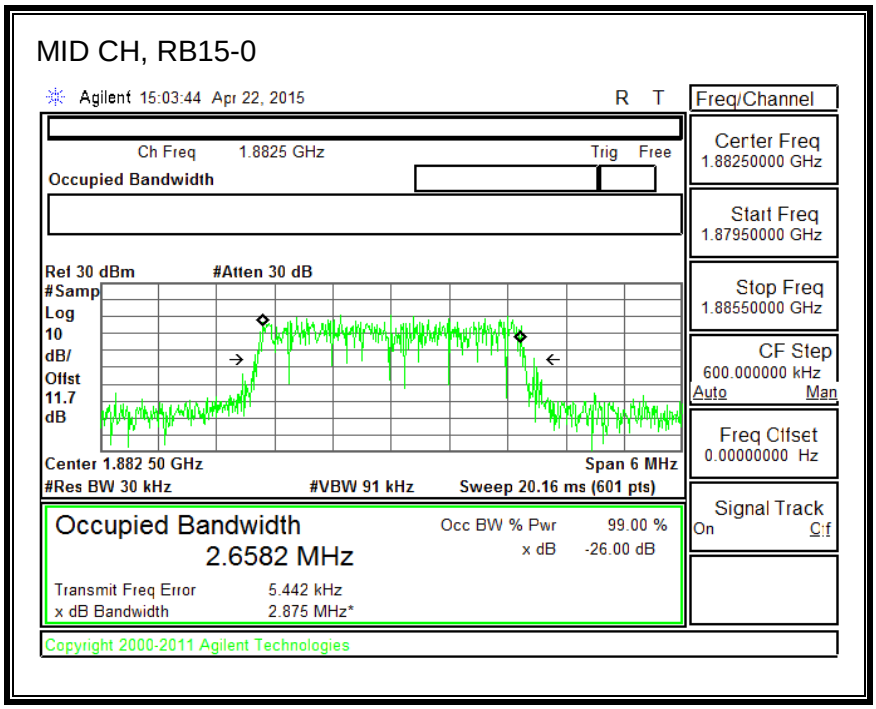
QPSK, (3.0 MHz BAND WIDTH)



16QAM, (3.0 MHz BAND WIDTH)



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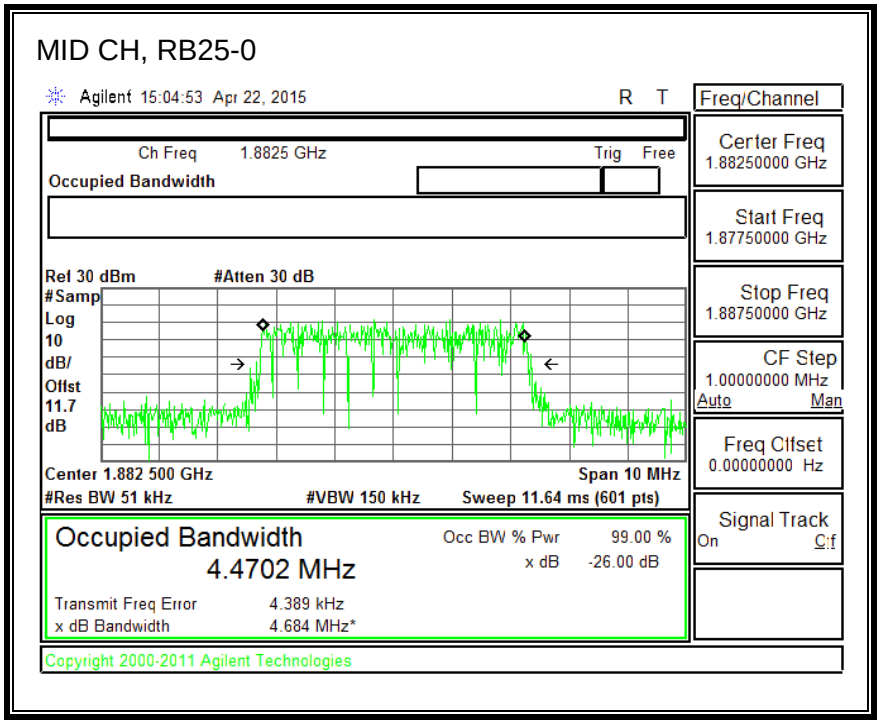
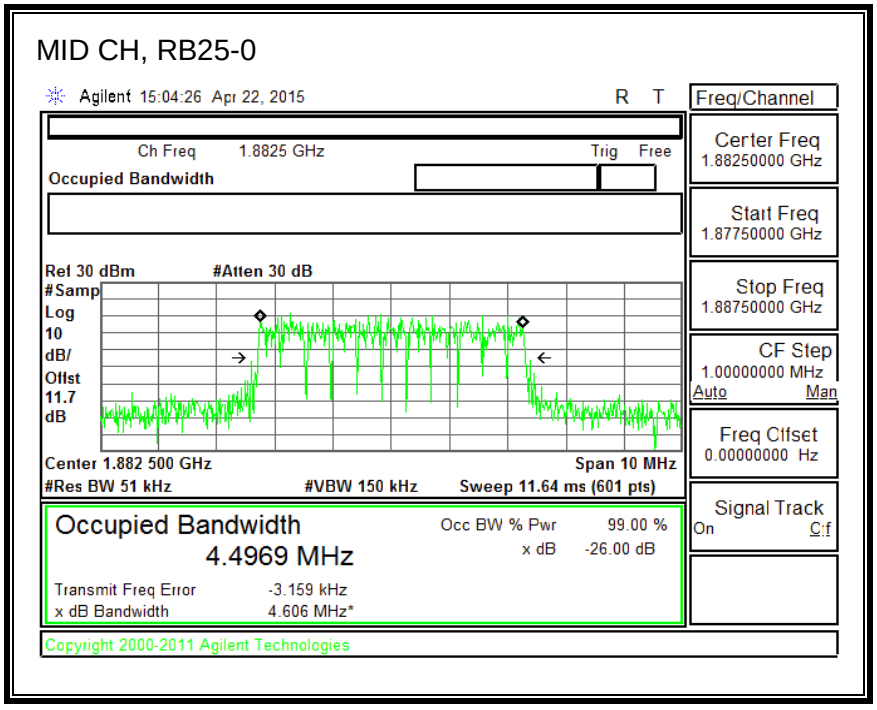
QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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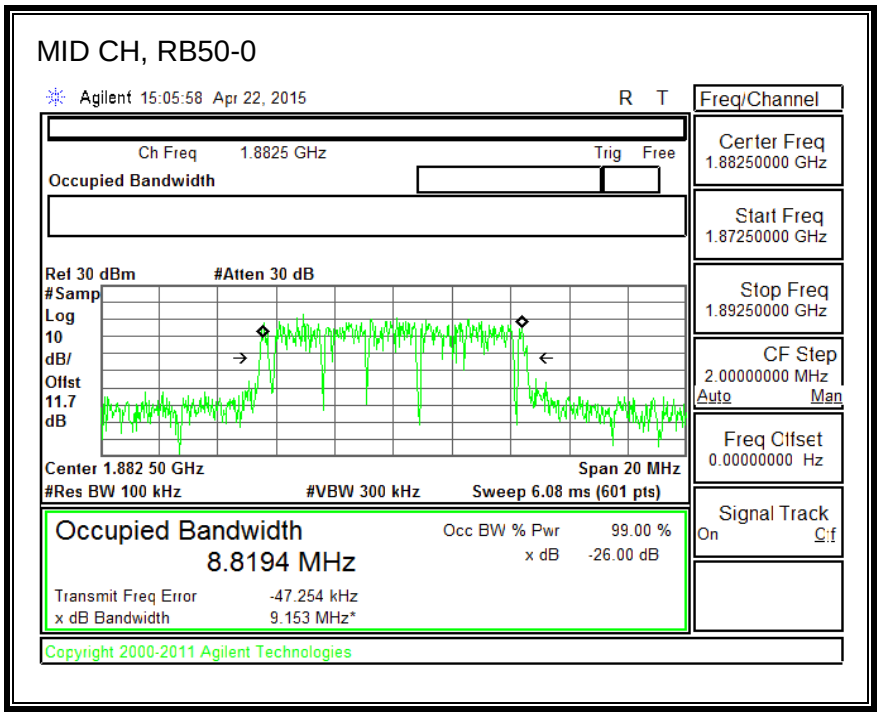
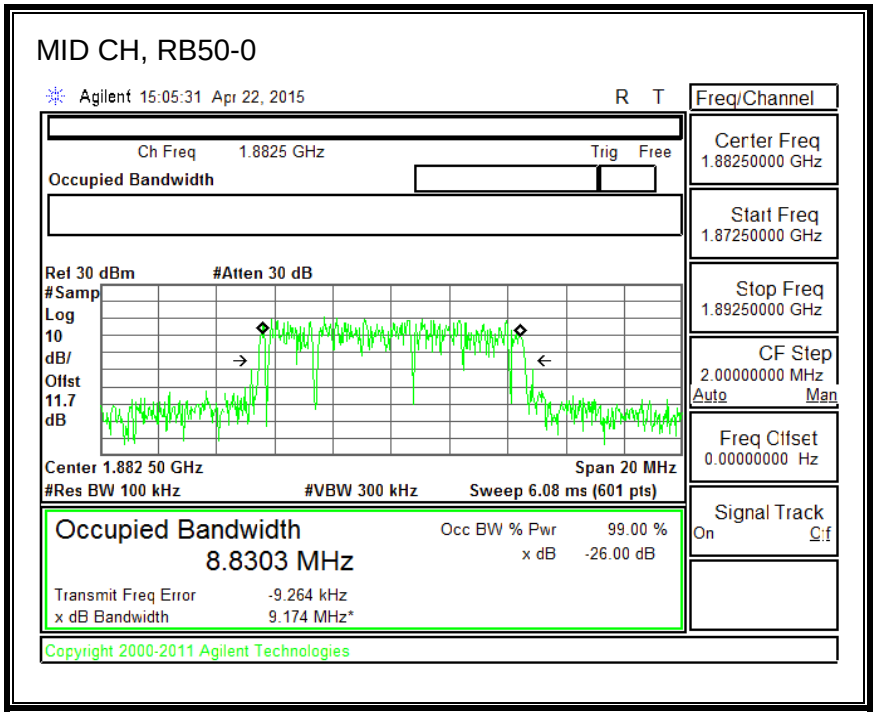
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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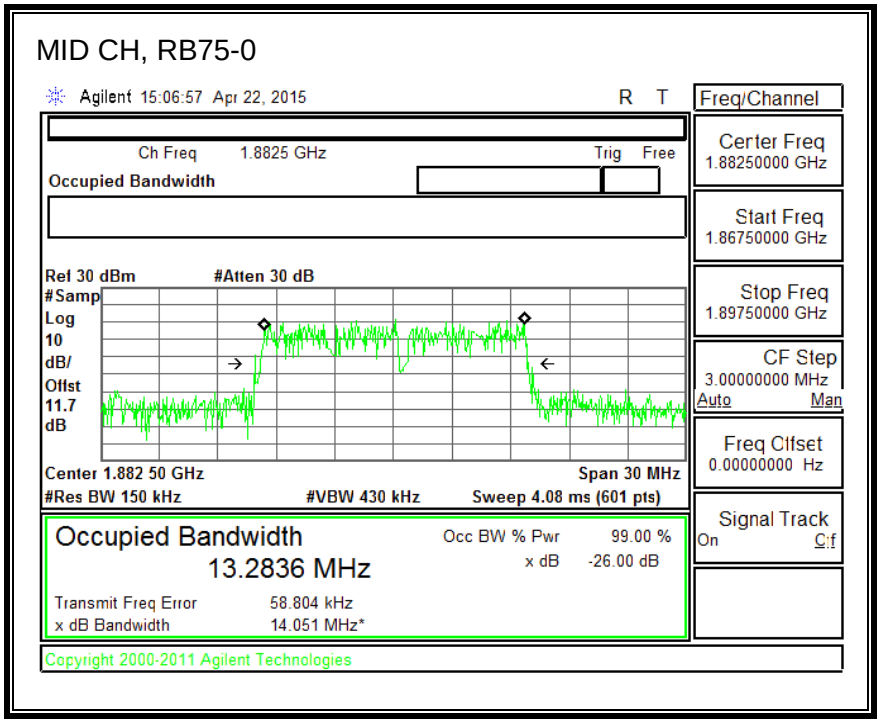
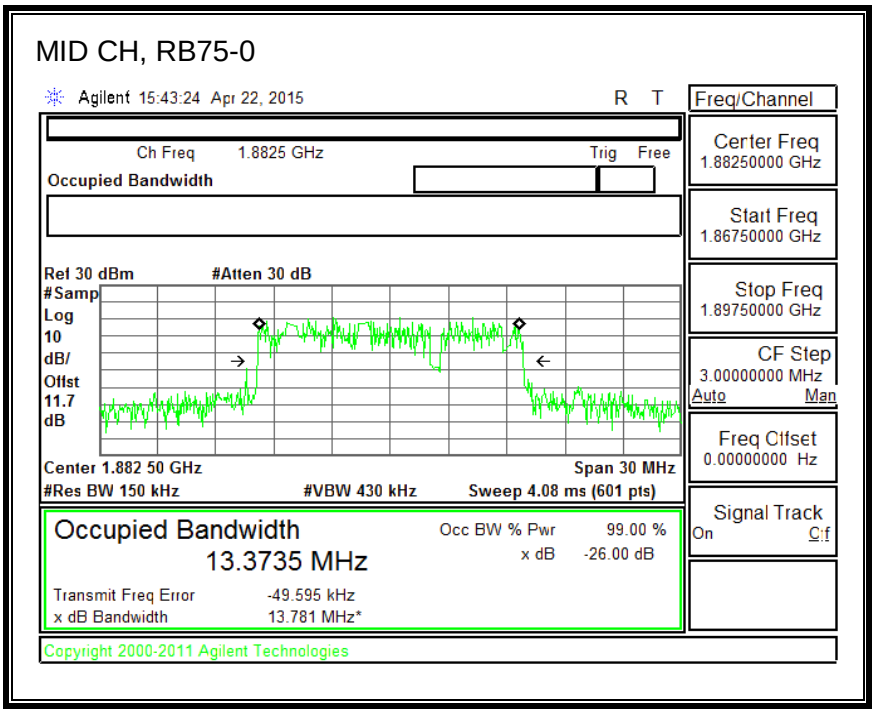
QPSK, (15.0 MHz BAND WIDTH)



16QAM, (15.0 MHz BAND WIDTH)



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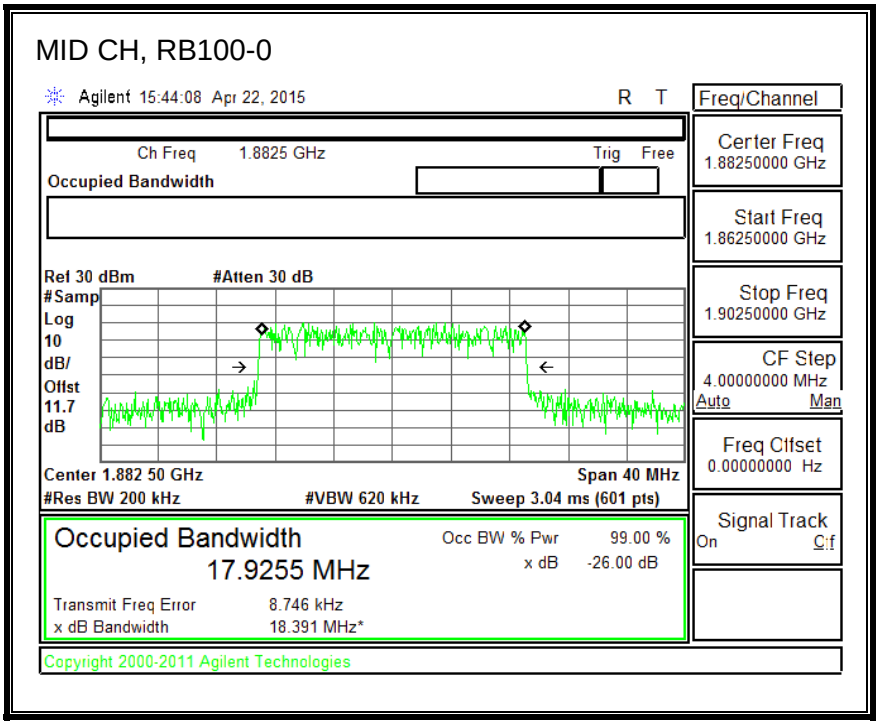
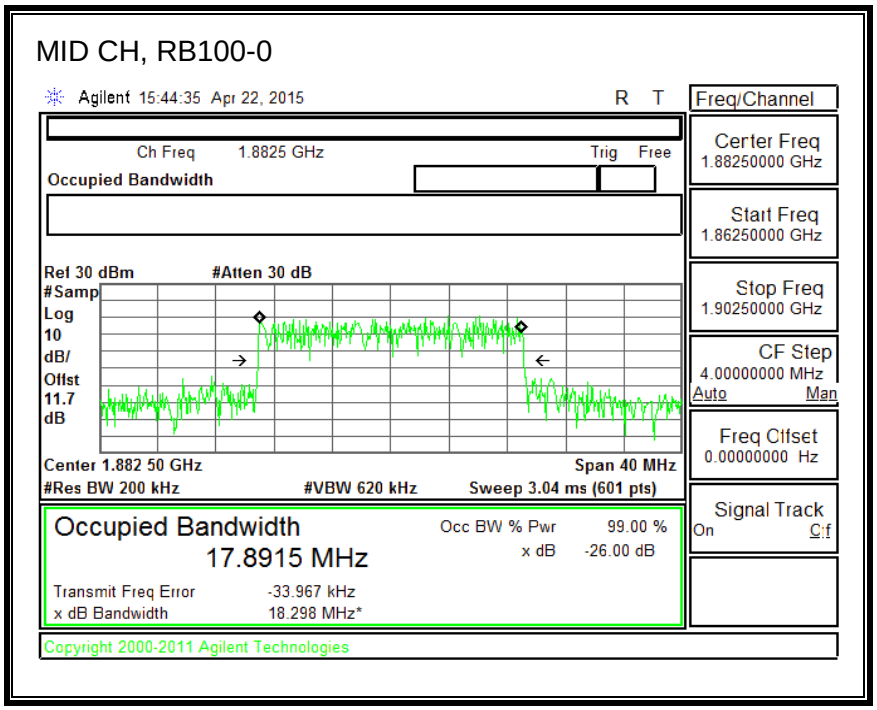
QPSK, (20.0 MHz BAND WIDTH)



16QAM, (20.0 MHz BAND WIDTH)



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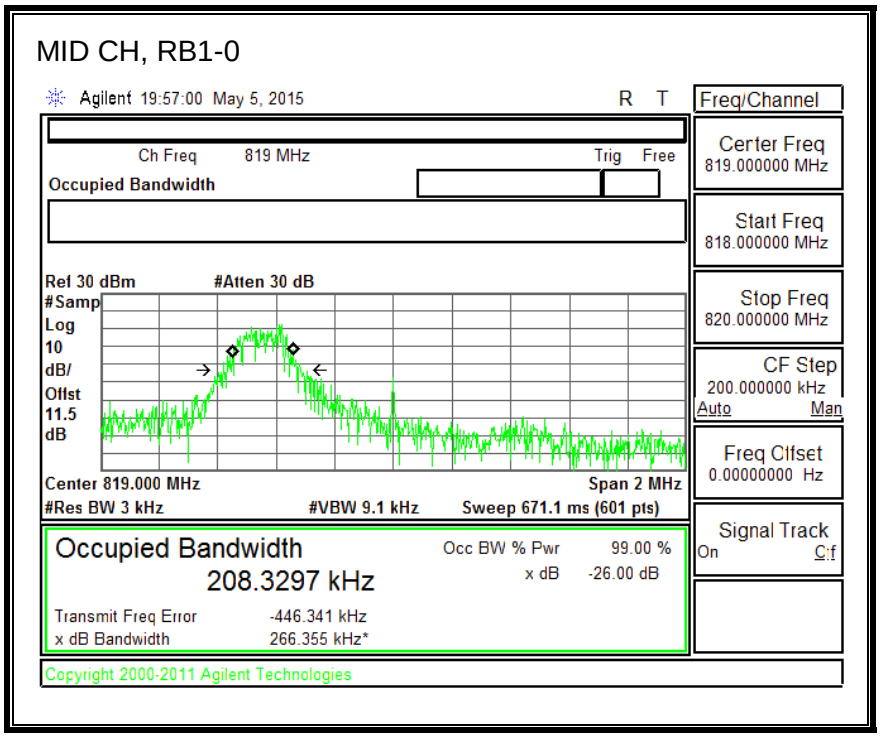
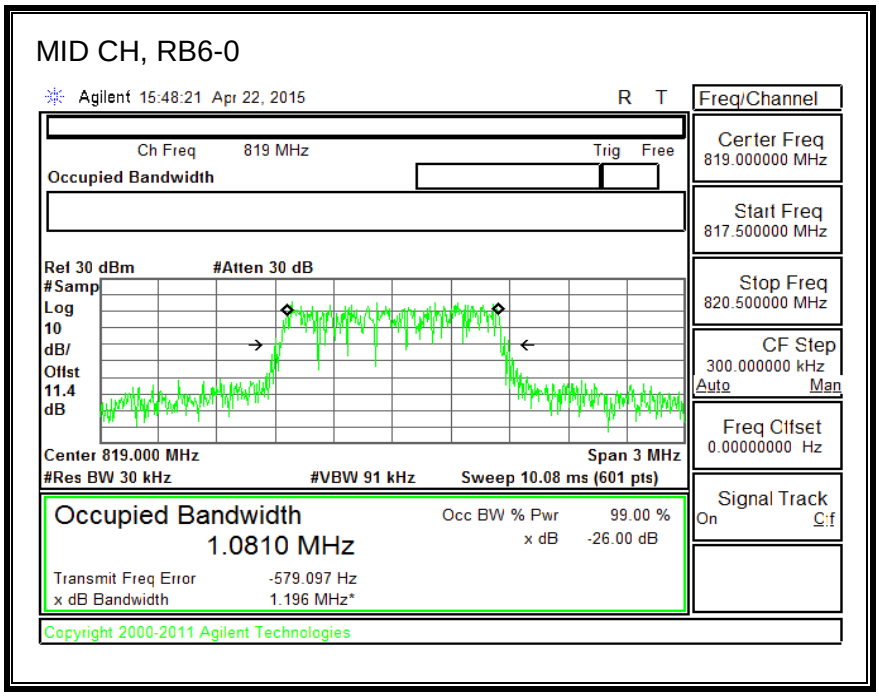
8.1.9. LTE BAND 26

QPSK, (1.4 MHz BAND WIDTH)





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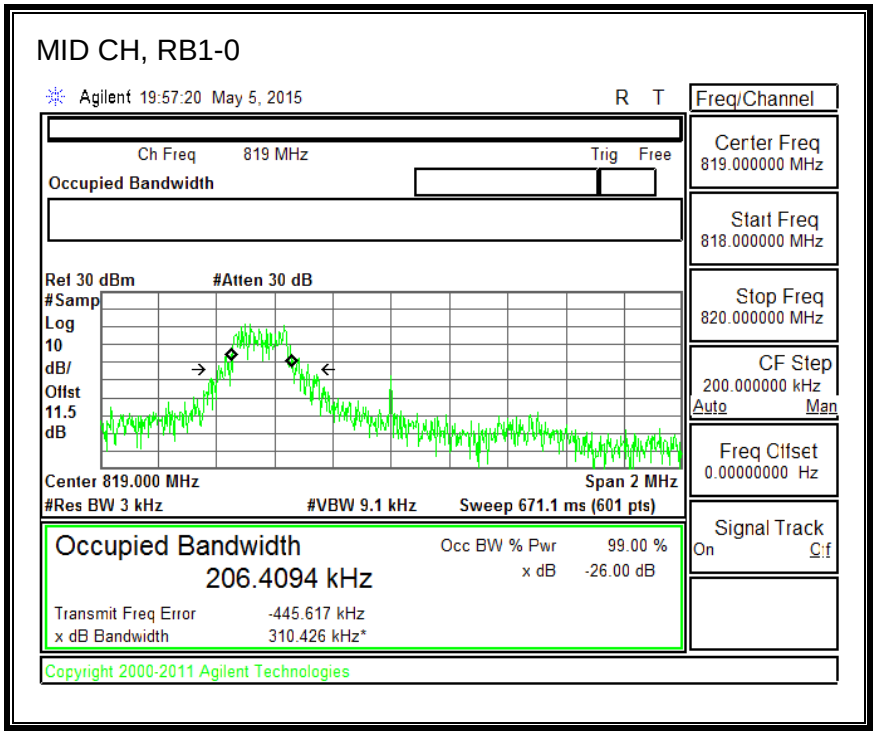
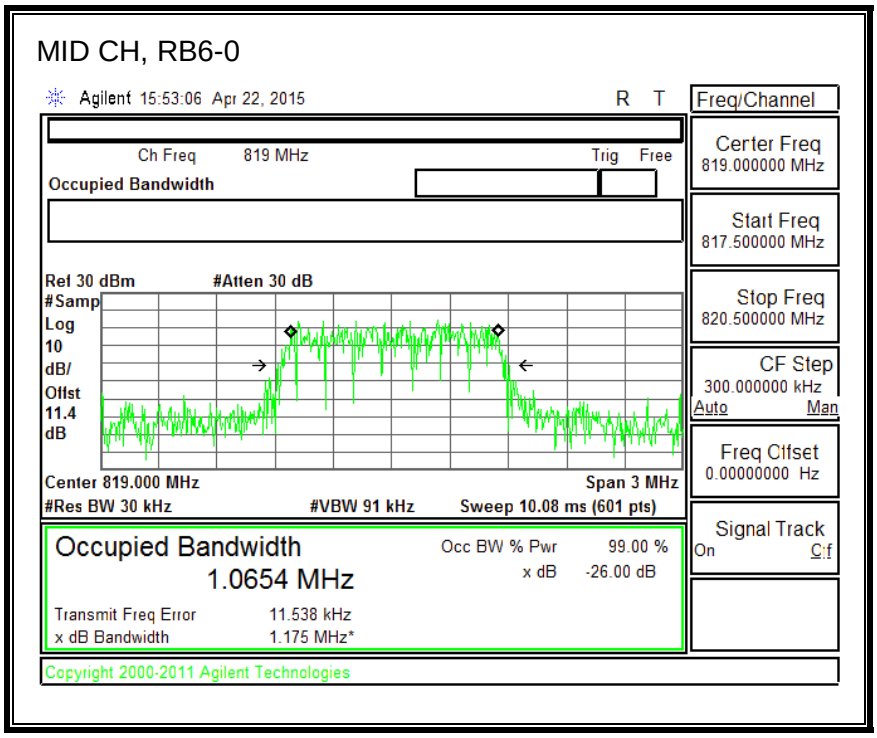
16QAM, (1.4 MHz BAND WIDTH)





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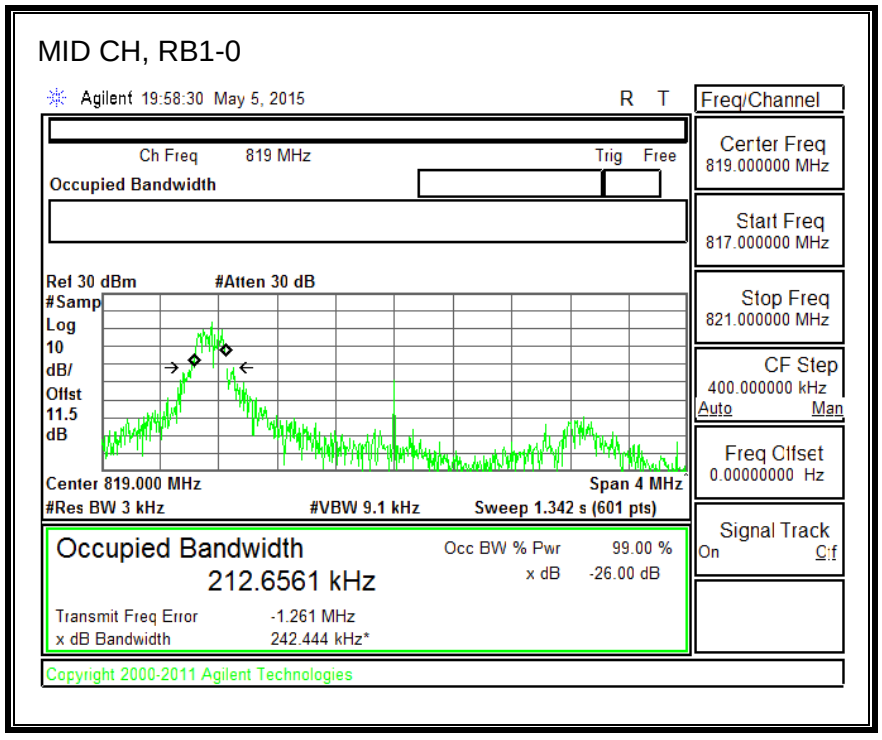
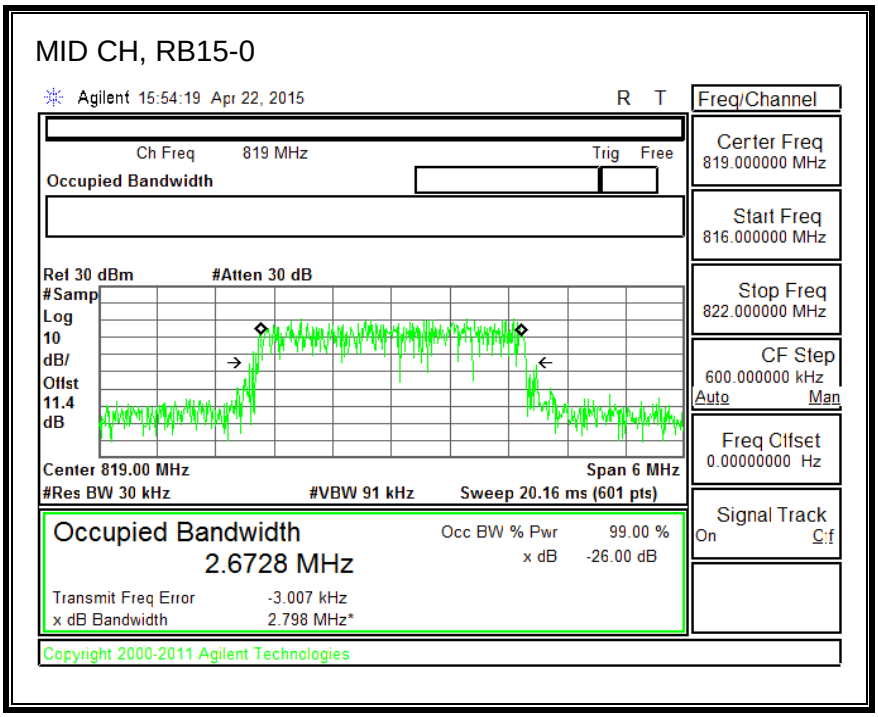
QPSK, (3.0 MHz BAND WIDTH)





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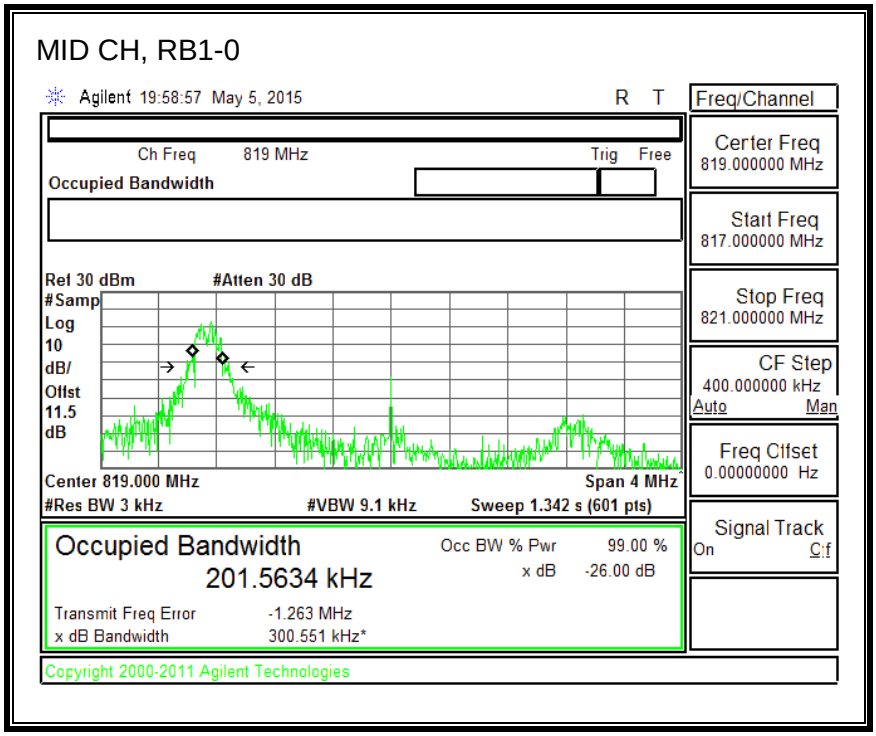
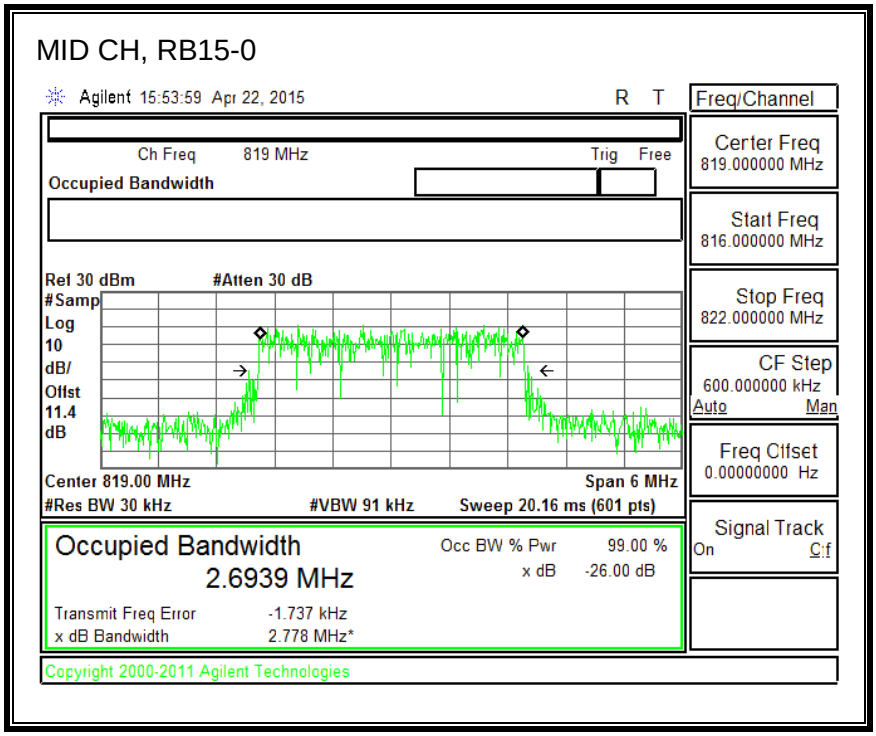
16QAM, (3.0 MHz BAND WIDTH)

MID CH, RB1-0



MID CH, RB15-0



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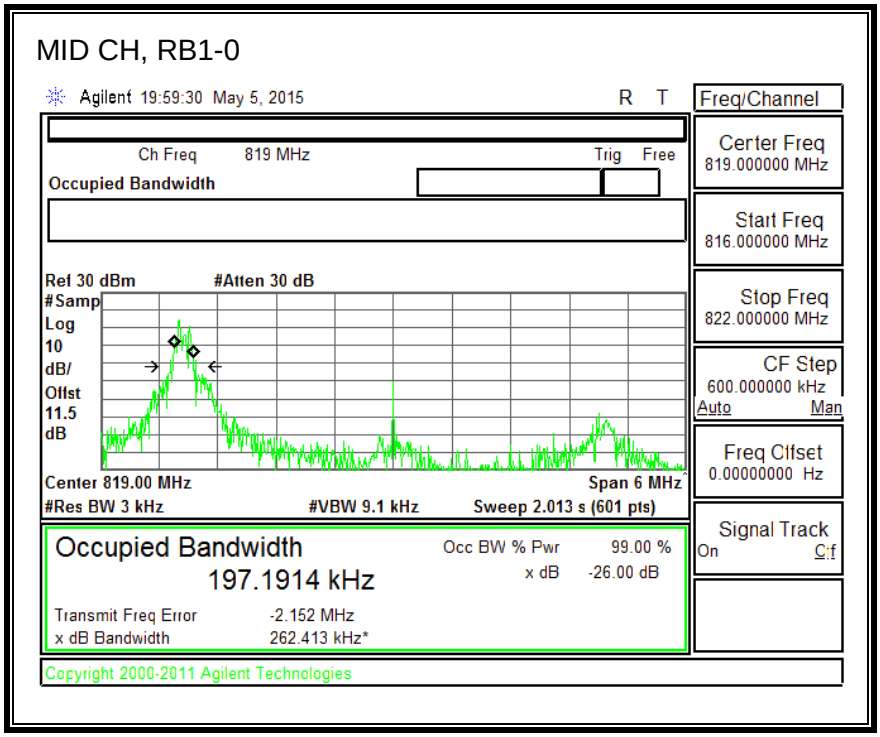
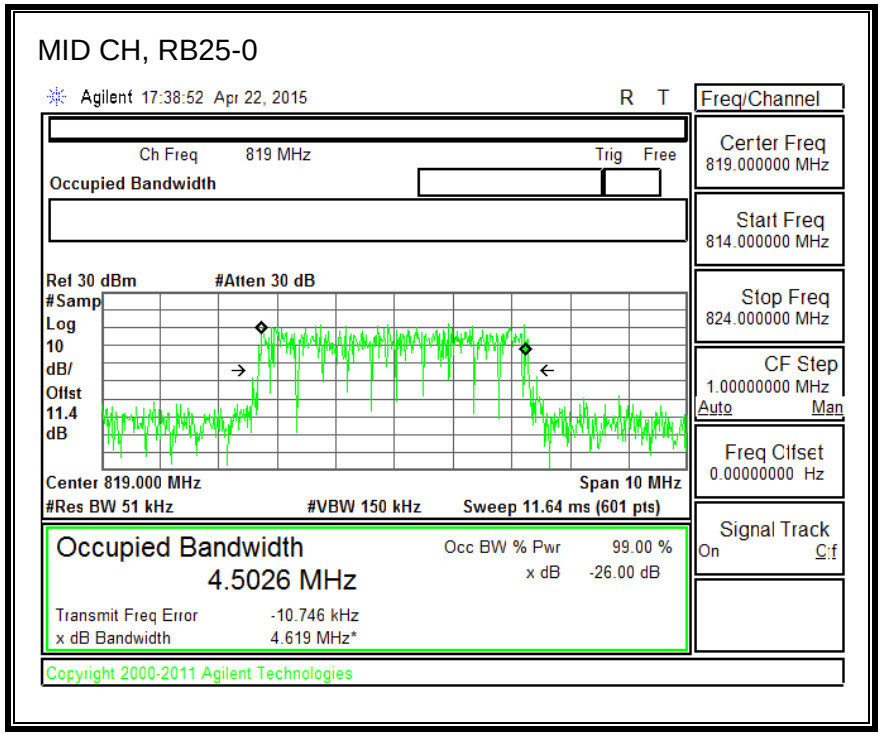
QPSK, (5.0 MHz BAND WIDTH)

MID CH, RB1-0



MID CH, RB25-0



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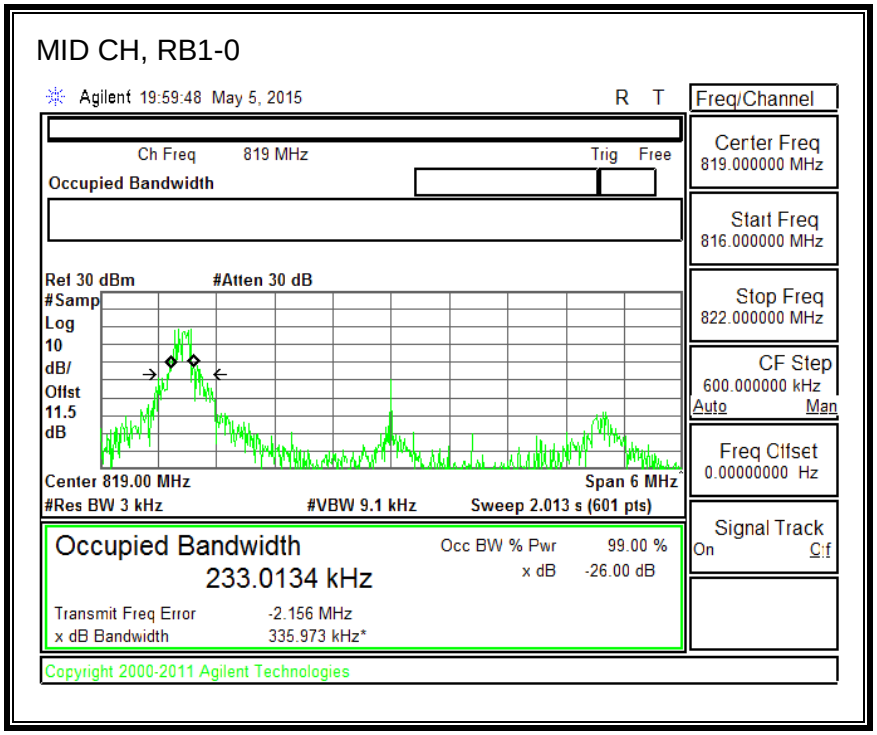
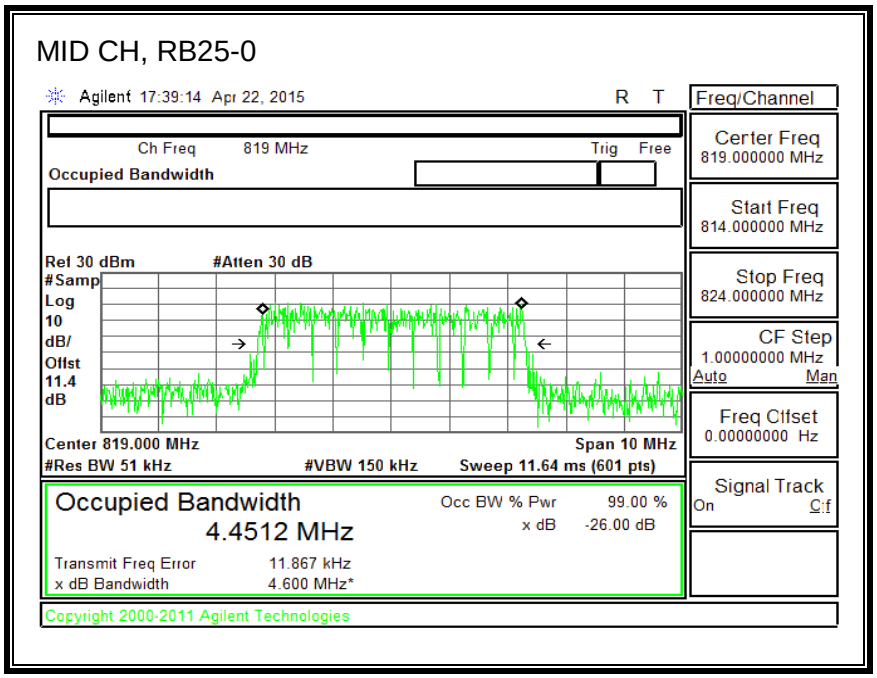
16QAM, (5.0 MHz BAND WIDTH)





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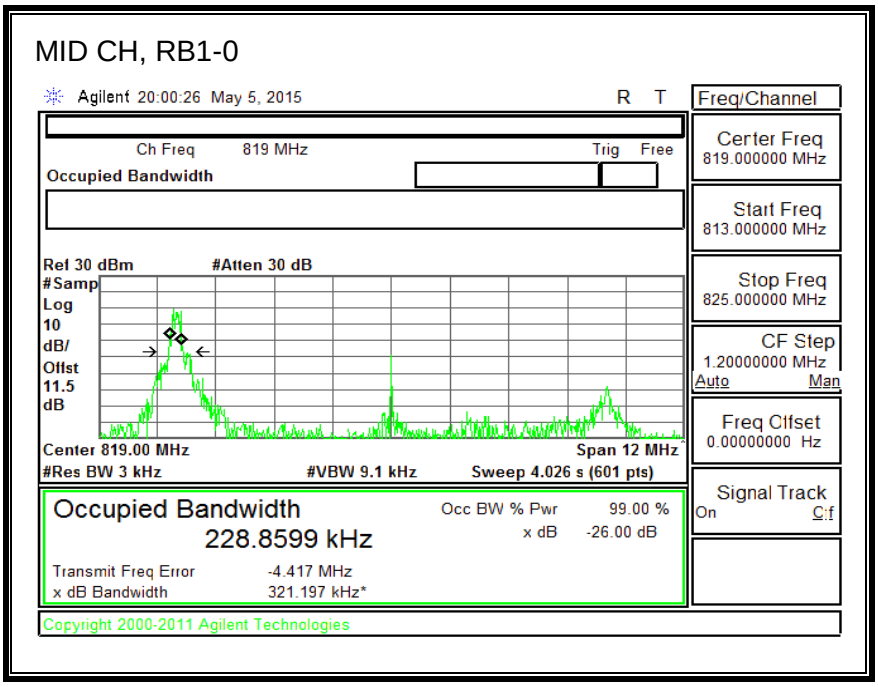
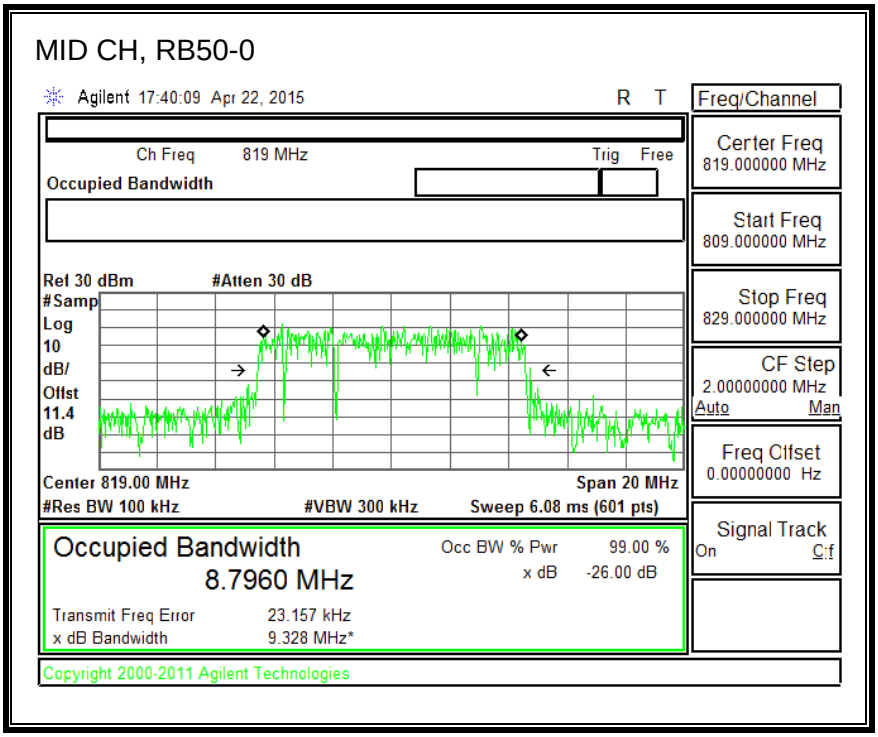
QPSK, (10.0 MHz BAND WIDTH)

MID CH, RB1-0



MID CH, RB50-0



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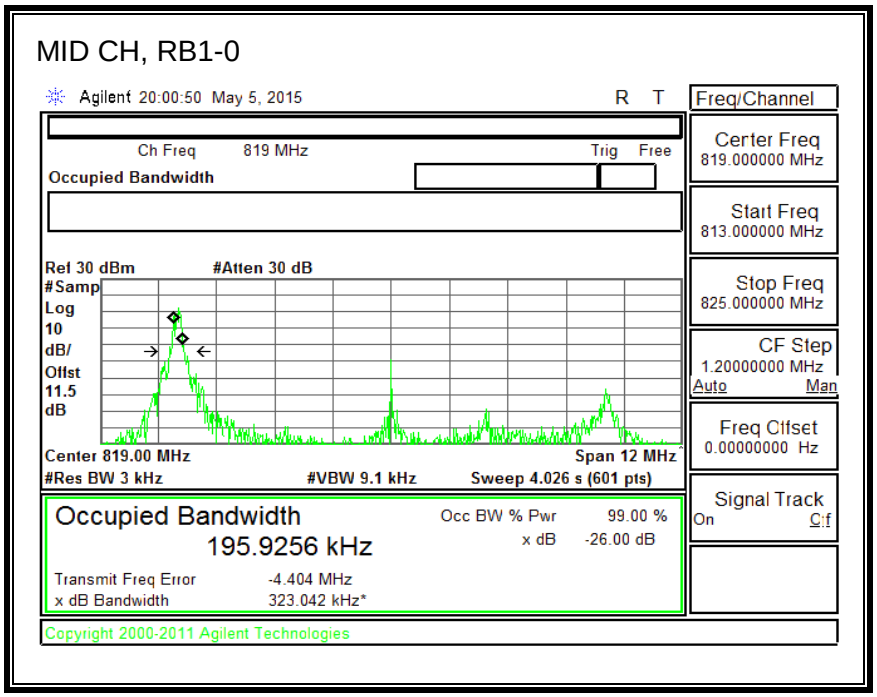
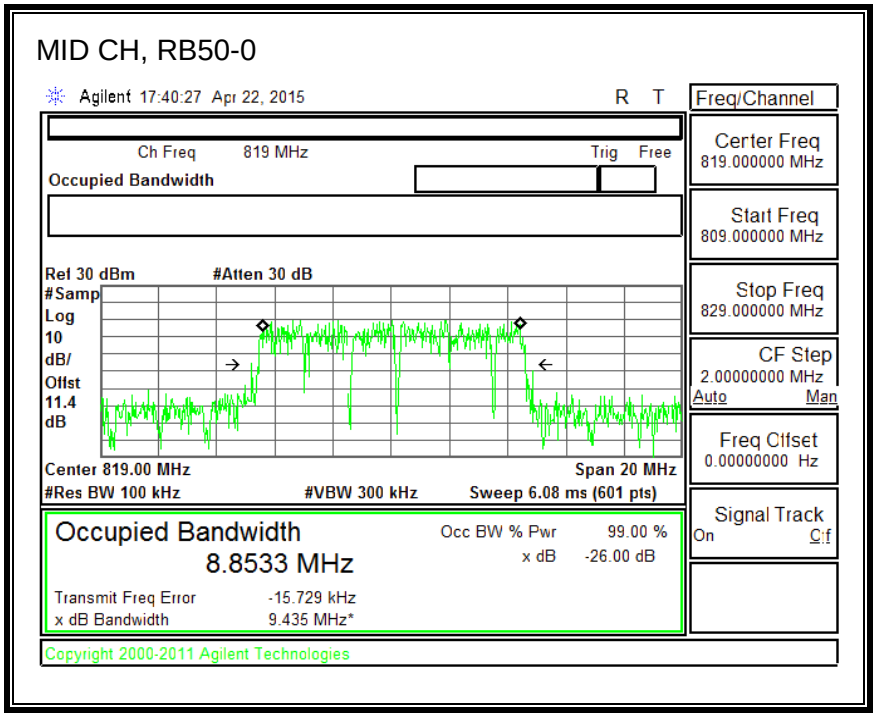
16QAM, (10.0 MHz BAND WIDTH)





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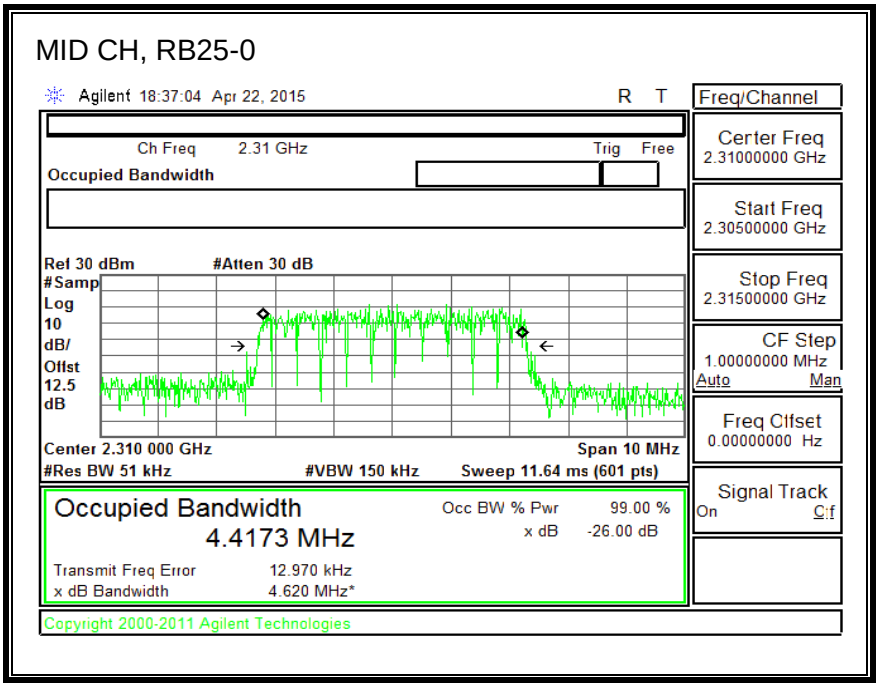
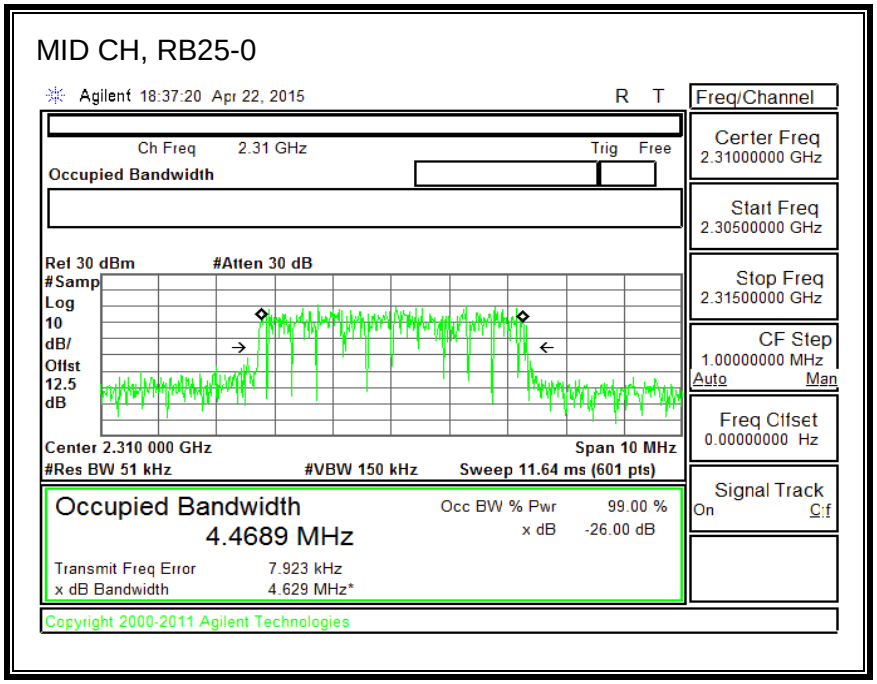
8.1.10. LTE BAND 30

QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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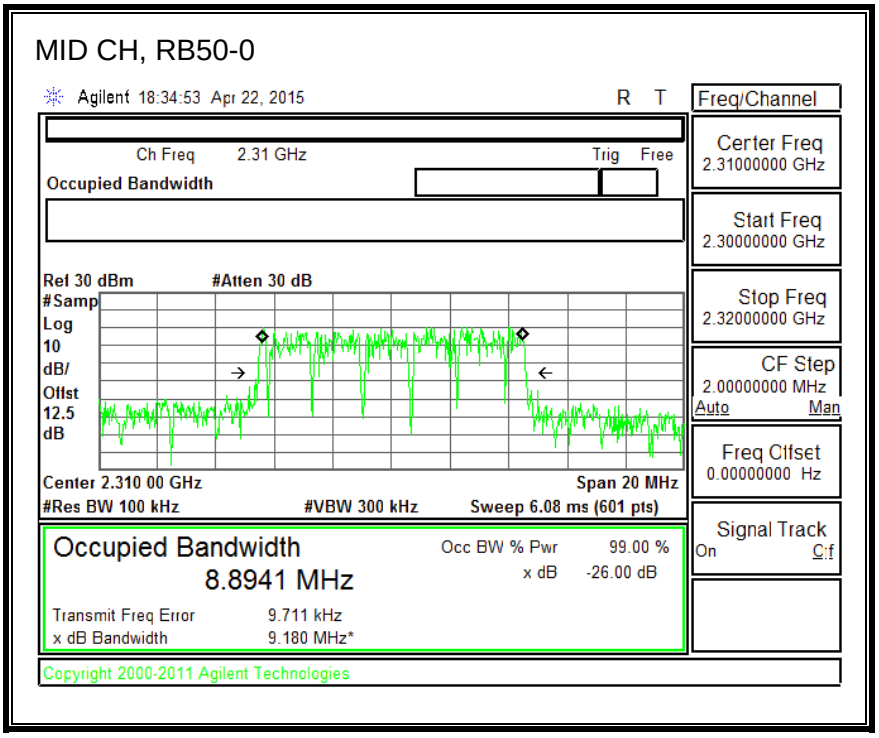
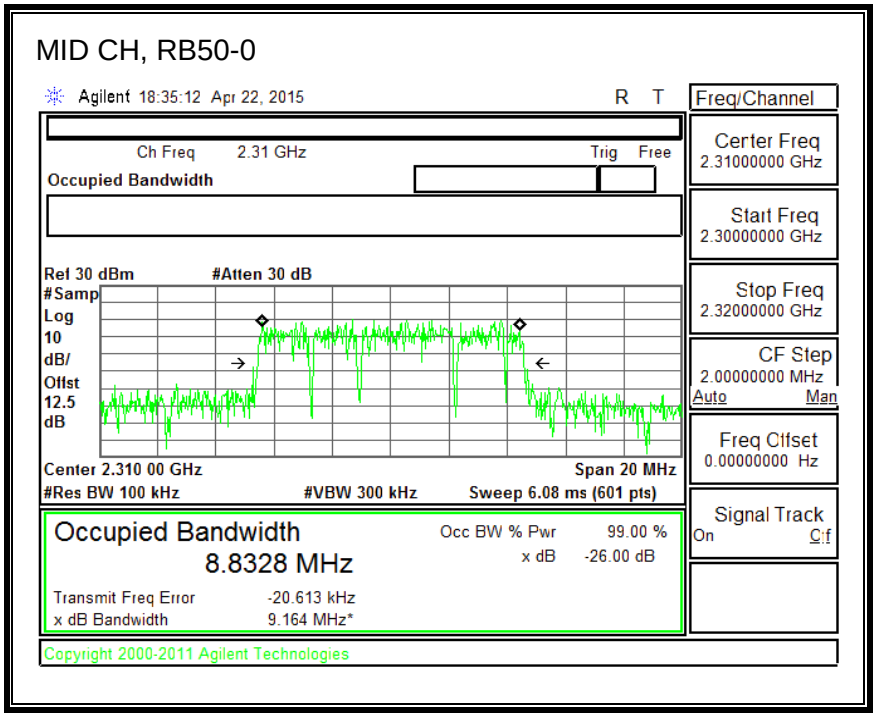
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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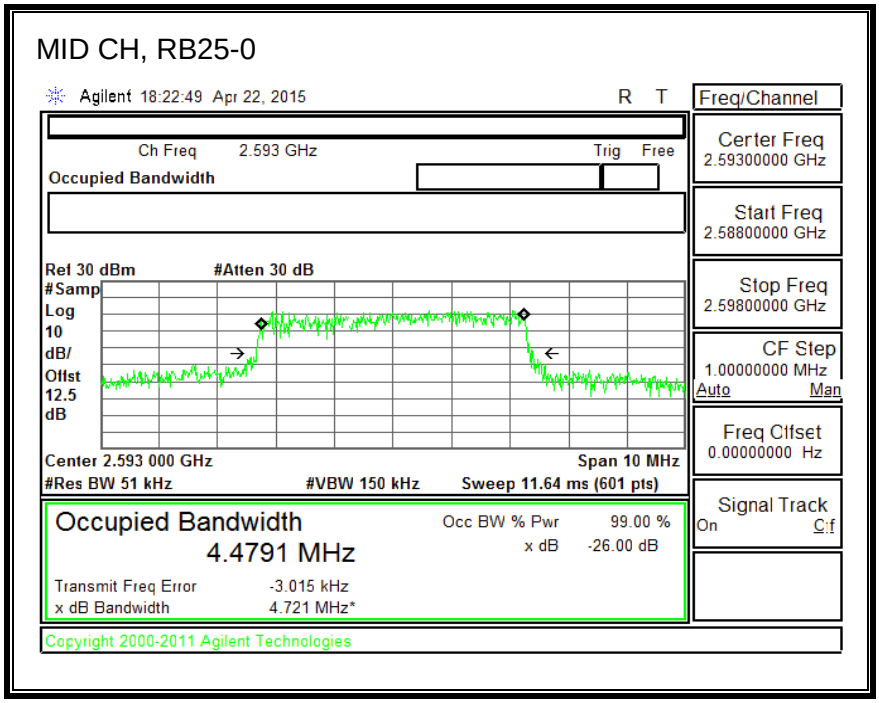
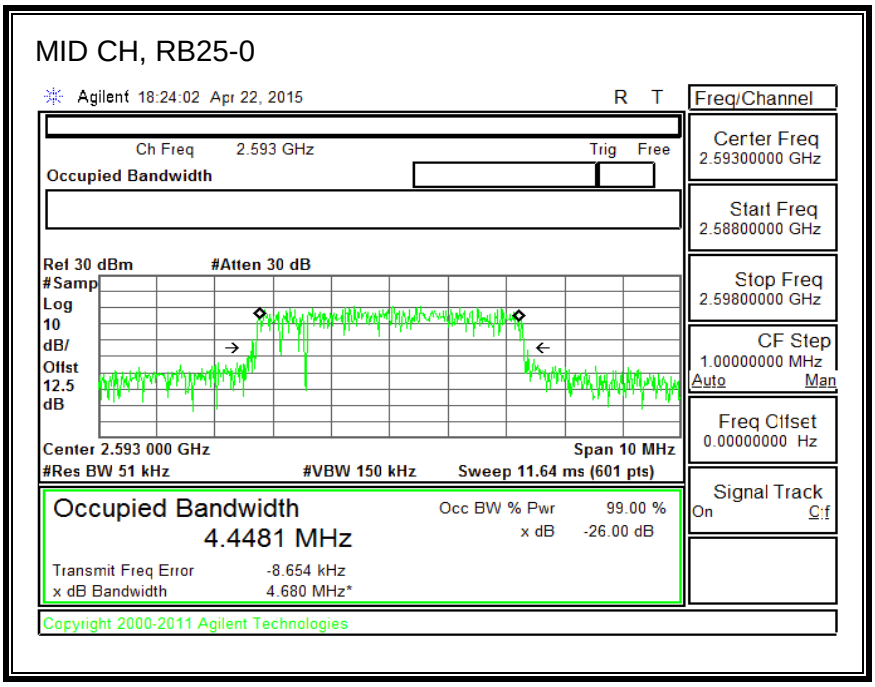
8.1.11. LTE BAND 41

QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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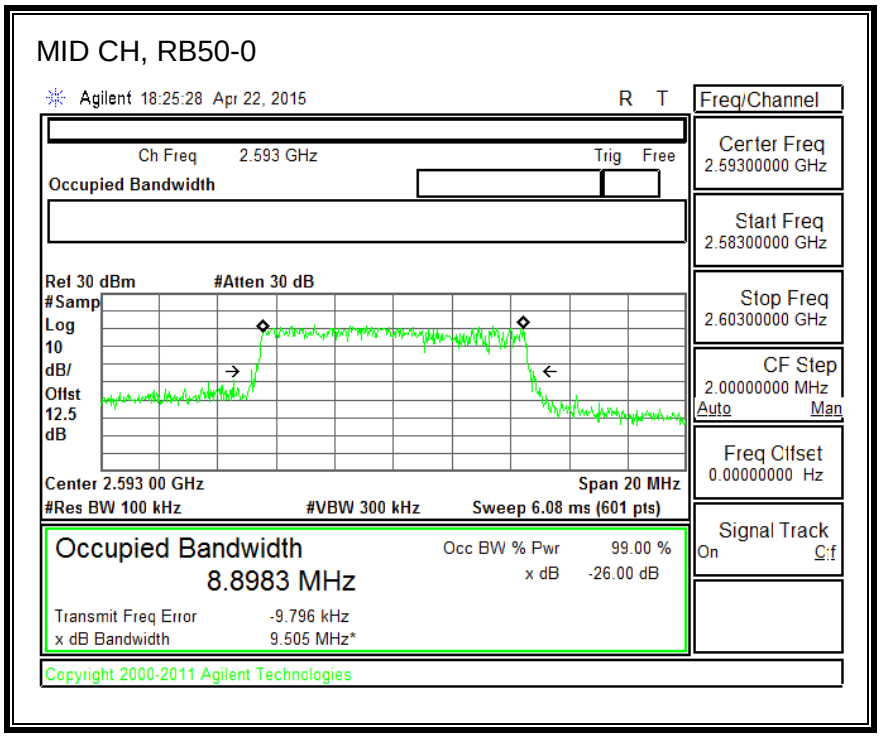
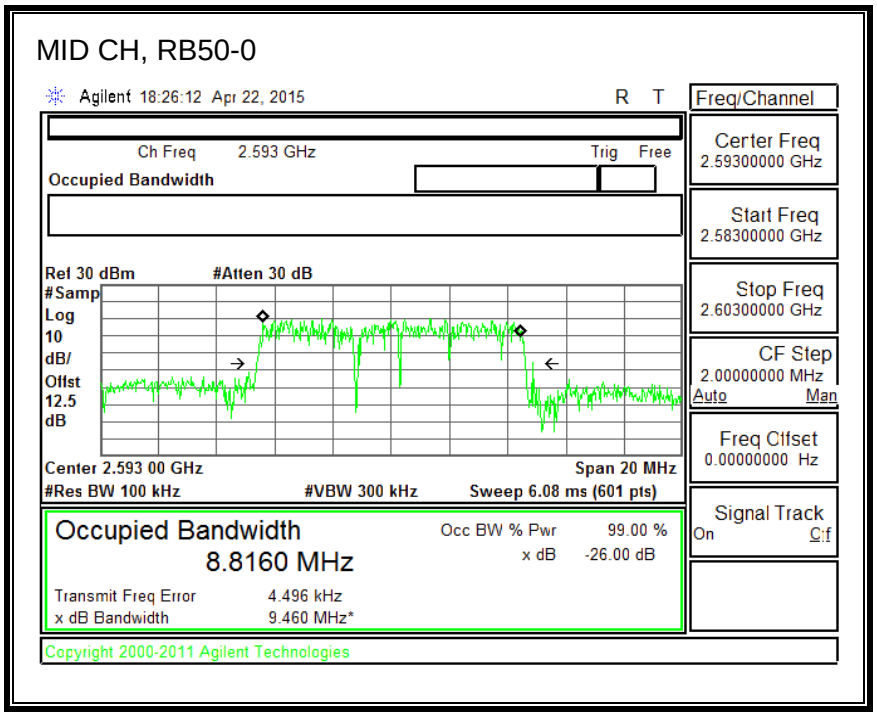
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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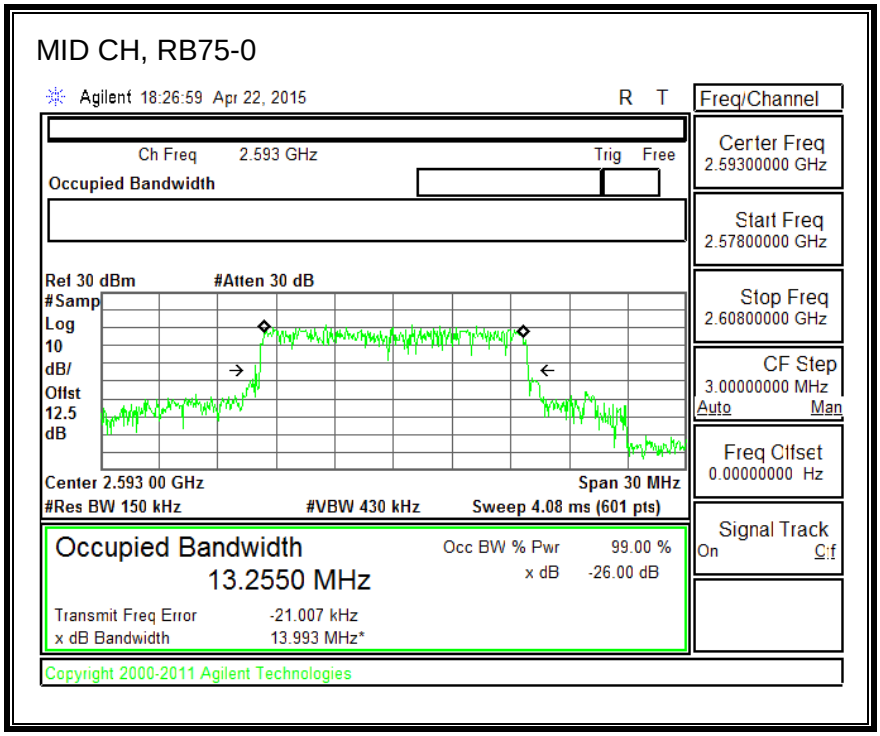
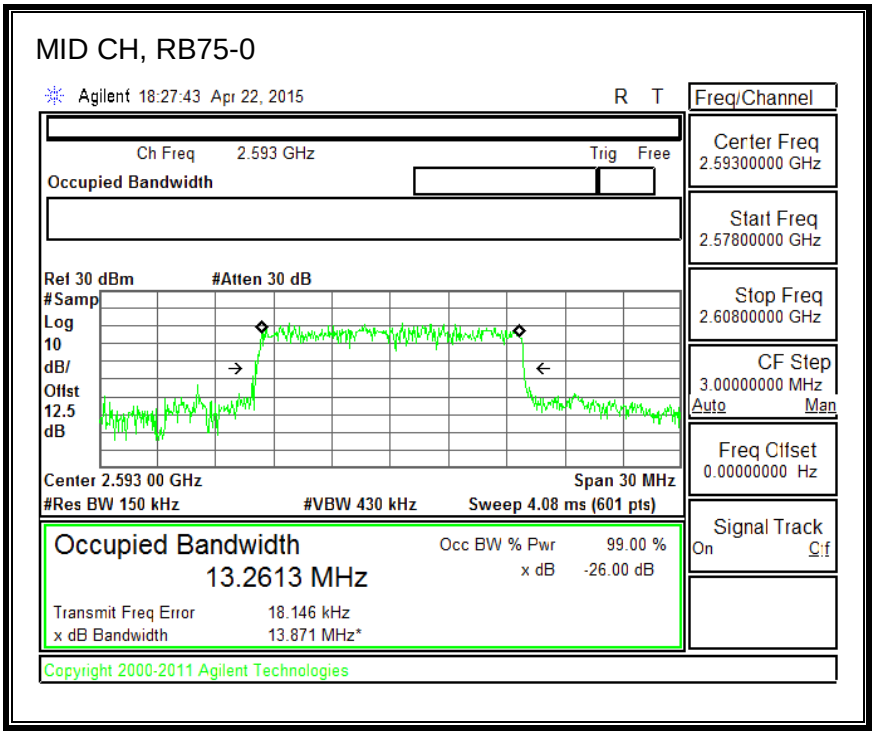
QPSK, (15.0 MHz BAND WIDTH)



16QAM, (15.0 MHz BAND WIDTH)



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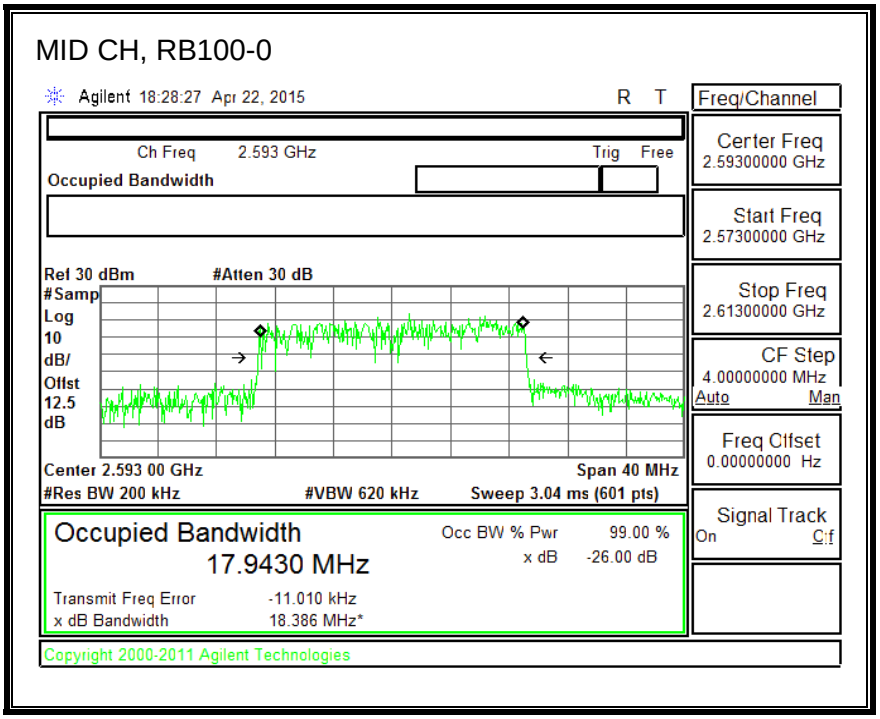
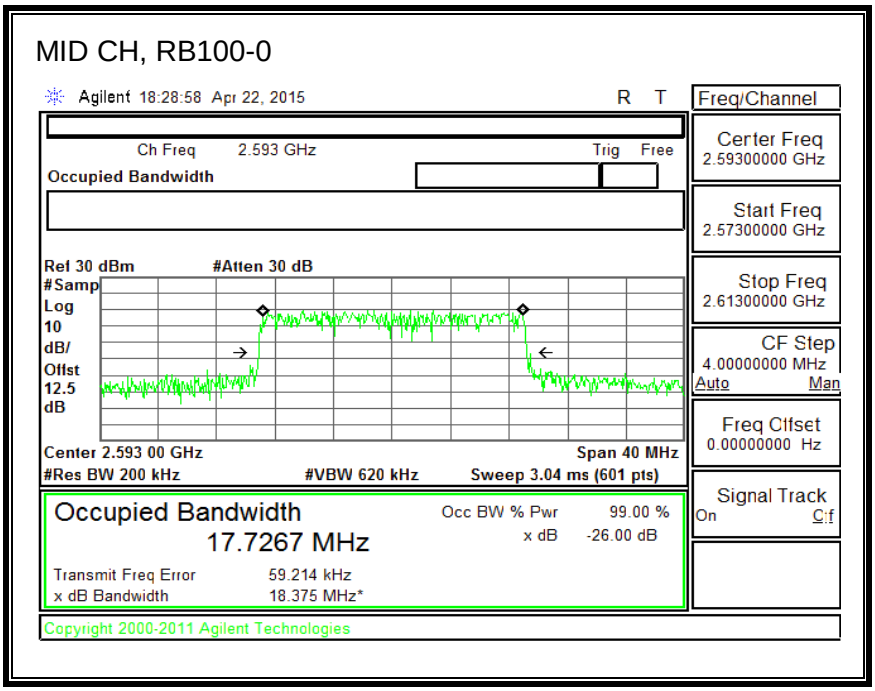
QPSK, (20.0 MHz BAND WIDTH)



16QAM, (20.0 MHz BAND WIDTH)



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8.2. OCCUPIED BANDWIDTH (MODEL: A1688)

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

MODES TESTED

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 41

RESULTS

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 2	1.4 MHz BAND QPSK	6/0	1880	1.0662	1.197
	1.4 MHz BAND 16QAM	6/0	1880	1.0881	1.199
	3.0 MHz BAND QPSK	15/0	1880	2.6836	2.857
	3.0 MHz BAND 16QAM	15/0	1880	2.6718	2.852
	5.0 MHz BAND QPSK	25/0	1880	4.4479	4.616
	5.0 MHz BAND 16QAM	25/0	1880	4.4621	4.624
	10.0 MHz BAND QPSK	50/0	1880	8.8585	9.127
	10.0 MHz BAND 16QAM	50/0	1880	8.8713	9.23
	15.0 MHz BAND QPSK	75/0	1880	13.2094	13.763
	15.0 MHz BAND 16QAM	75/0	1880	13.2999	13.906
	20.0 MHz BAND QPSK	100/0	1880	**17.8366**	18.27
	20.0 MHz BAND 16QAM	100/0	1880	17.7023	**18.366**

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 4	1.4 MHz BAND QPSK	6/0	1732.5	1.0811	1.194
	1.4 MHz BAND 16QAM	6/0	1732.5	1.0694	1.158
	3.0 MHz BAND QPSK	15/0	1732.5	2.6761	2.765
	3.0 MHz BAND 16QAM	15/0	1732.5	2.6612	2.852
	5.0 MHz BAND QPSK	25/0	1732.5	4.4349	4.627
	5.0 MHz BAND 16QAM	25/0	1732.5	4.3990	4.617
	10.0 MHz BAND QPSK	50/0	1732.5	8.8352	9.423
	10.0 MHz BAND 16QAM	50/0	1732.5	8.7889	9.182
	15.0 MHz BAND QPSK	75/0	1732.5	13.3875	13.869
	15.0 MHz BAND 16QAM	75/0	1732.5	13.4452	14.071
	20.0 MHz BAND QPSK	100/0	1732.5	**17.9289**	**18.369**
	20.0 MHz BAND 16QAM	100/0	1732.5	17.7828	18.345

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 5	1.4 MHz BAND QPSK	6/0	836.5	1.0696	1.219
	1.4 MHz BAND 16QAM	6/0	836.5	1.0737	1.178
	3.0 MHz BAND QPSK	15/0	836.5	2.6741	2.854
	3.0 MHz BAND 16QAM	15/0	836.5	2.6646	2.881
	5.0 MHz BAND QPSK	25/0	836.5	4.4009	4.717
	5.0 MHz BAND 16QAM	25/0	836.5	4.4345	4.675
	10.0 MHz BAND QPSK	50/0	836.5	**8.9051**	**9.431**
	10.0 MHz BAND 16QAM	50/0	836.5	8.8982	9.129

BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 7	5.0 MHz BAND QPSK	25/0	2535	4.4733	4.6
	5.0 MHz BAND 16QAM	25/0	2535	4.4723	4.794
	10.0 MHz BAND QPSK	50/0	2535	8.939	9.241
	10.0 MHz BAND 16QAM	50/0	2535	8.9368	9.227
	15.0 MHz BAND QPSK	75/0	2535	13.242	13.698
	15.0 MHz BAND 16QAM	75/0	2535	13.3325	13.788
	20.0 MHz BAND QPSK	100/0	2535	17.7279	18.469
	20.0 MHz BAND 16QAM	100/0	2535	**17.9105**	**18.535**

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 12	1.4 MHz BAND QPSK	6/0	707.5	1.0766	1.177
	1.4 MHz BAND 16QAM	6/0	707.5	1.0956	1.177
	3.0 MHz BAND QPSK	15/0	707.5	2.6723	2.815
	3.0 MHz BAND 16QAM	15/0	707.5	2.6392	2.898
	5.0 MHz BAND QPSK	25/0	707.5	4.3858	4.579
	5.0 MHz BAND 16QAM	25/0	707.5	4.4497	4.796
	10.0 MHz BAND QPSK	50/0	707.5	8.8591	9.185
	10.0 MHz BAND 16QAM	50/0	707.5	**8.9219**	**9.207**

BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 13	5.0 MHz BAND QPSK	25/0	782	4.4876	4.692
	5.0 MHz BAND 16QAM	25/0	782	4.4089	4.684
	10.0 MHz BAND QPSK	50/0	782	8.8303	**9.158**
	10.0 MHz BAND 16QAM	50/0	782	**8.8613**	9.111

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 17	5.0 MHz BAND QPSK	25/0	710	4.4635	4.567
	5.0 MHz BAND 16QAM	25/0	710	4.4338	4.688
	10.0 MHz BAND QPSK	50/0	710	8.8365	9.203
	10.0 MHz BAND 16QAM	50/0	710	**8.8956**	**9.218**

BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 25	1.4 MHz BAND QPSK	6/0	1882.5	1.079	1.2
	1.4 MHz BAND 16QAM	6/0	1882.5	1.0819	1.194
	3.0 MHz BAND QPSK	15/0	1882.5	2.6895	2.795
	3.0 MHz BAND 16QAM	15/0	1882.5	2.657	2.768
	5.0 MHz BAND QPSK	25/0	1882.5	4.4484	4.62
	5.0 MHz BAND 16QAM	25/0	1882.5	4.4841	4.604
	10.0 MHz BAND QPSK	50/0	1882.5	8.8524	9.161
	10.0 MHz BAND 16QAM	50/0	1882.5	8.8449	9.164
	15.0 MHz BAND QPSK	75/0	1882.5	13.3155	13.842
	15.0 MHz BAND 16QAM	75/0	1882.5	13.035	13.845
	20.0 MHz BAND QPSK	100/0	1882.5	**17.9507**	**18.45**
	20.0 MHz BAND 16QAM	100/0	1882.5	17.8306	18.346

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BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 26	1.4 MHz BAND QPSK	6/0	819	1.0896	1.156
	1.4 MHz BAND 16QAM	6/0	819	1.0868	1.157
	3.0 MHz BAND QPSK	15/0	819	2.6292	2.746
	3.0 MHz BAND 16QAM	15/0	819	2.6623	2.896
	5.0 MHz BAND QPSK	25/0	819	4.3814	4.621
	5.0 MHz BAND 16QAM	25/0	819	4.4458	4.633
	10.0 MHz BAND QPSK	50/0	819	**8.8601**	9.158
	10.0 MHz BAND 16QAM	50/0	819	8.8361	**9.16**

BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 41	5.0 MHz BAND QPSK	25/0	2593	4.4384	4.699
	5.0 MHz BAND 16QAM	25/0	2593	4.4505	4.686
	10.0 MHz BAND QPSK	50/0	2593	8.8254	9.356
	10.0 MHz BAND 16QAM	50/0	2593	8.8816	9.337
	15.0 MHz BAND QPSK	75/0	2593	13.219	13.825
	15.0 MHz BAND 16QAM	75/0	2593	13.1442	13.865
	20.0 MHz BAND QPSK	100/0	2593	**17.9163**	**18.896**
	20.0 MHz BAND 16QAM	100/0	2593	17.828	18.389

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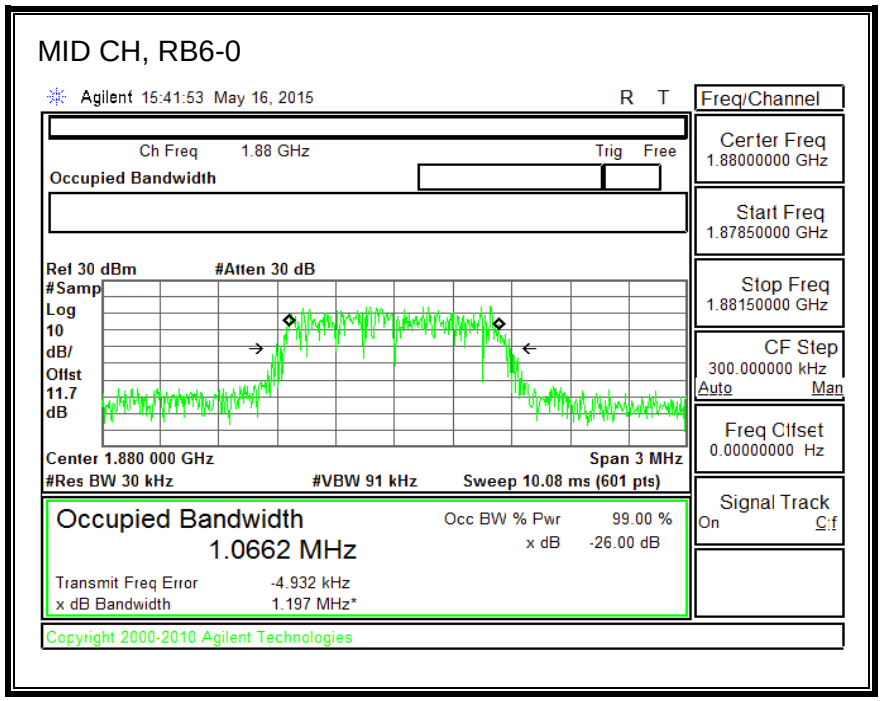
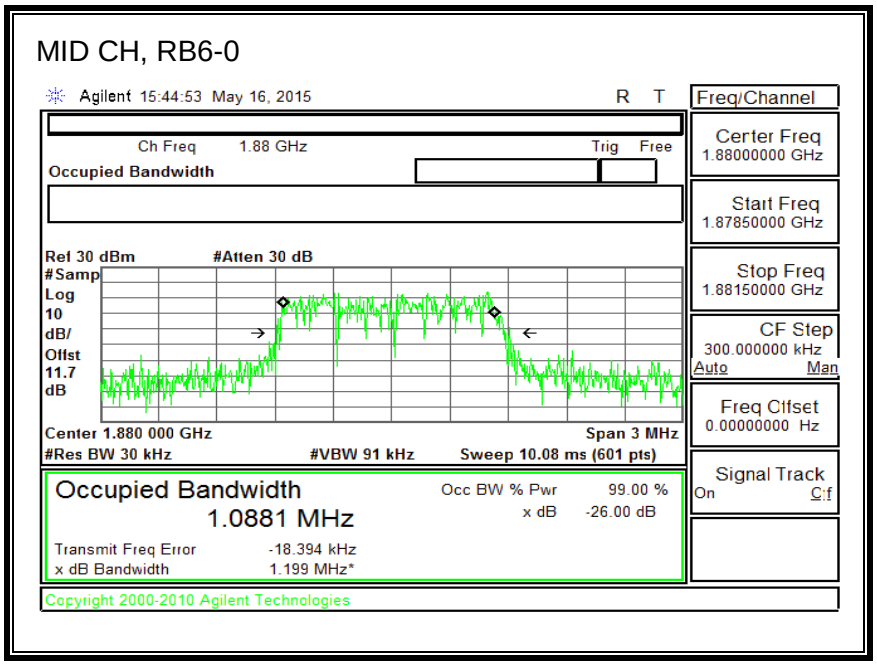
8.2.1. LTE BAND 2

QPSK, (1.4 MHz BAND WIDTH)



16QAM, (1.4 MHz BAND WIDTH)



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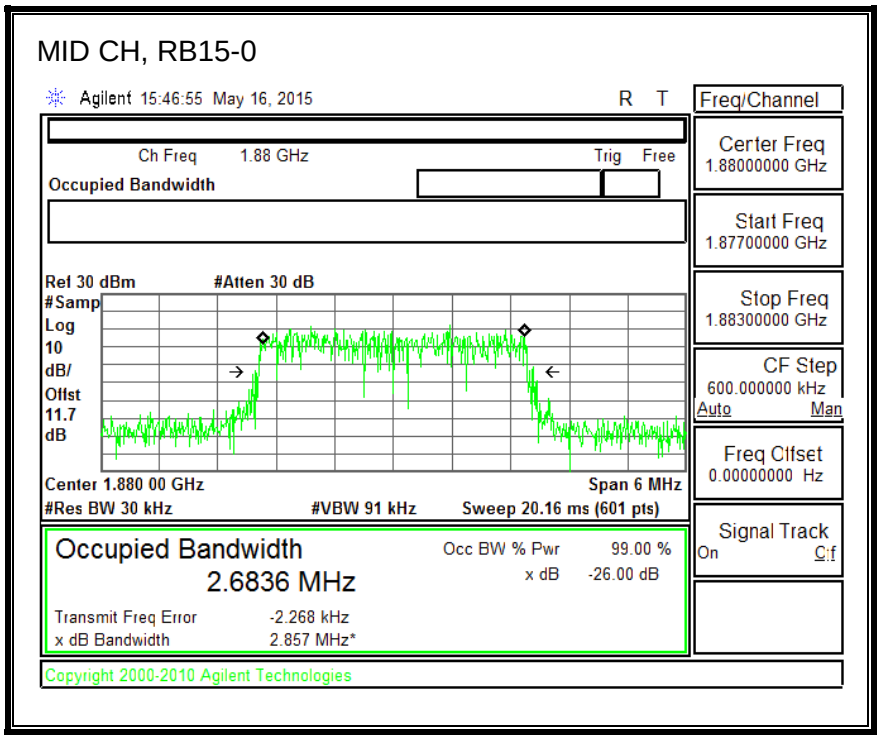
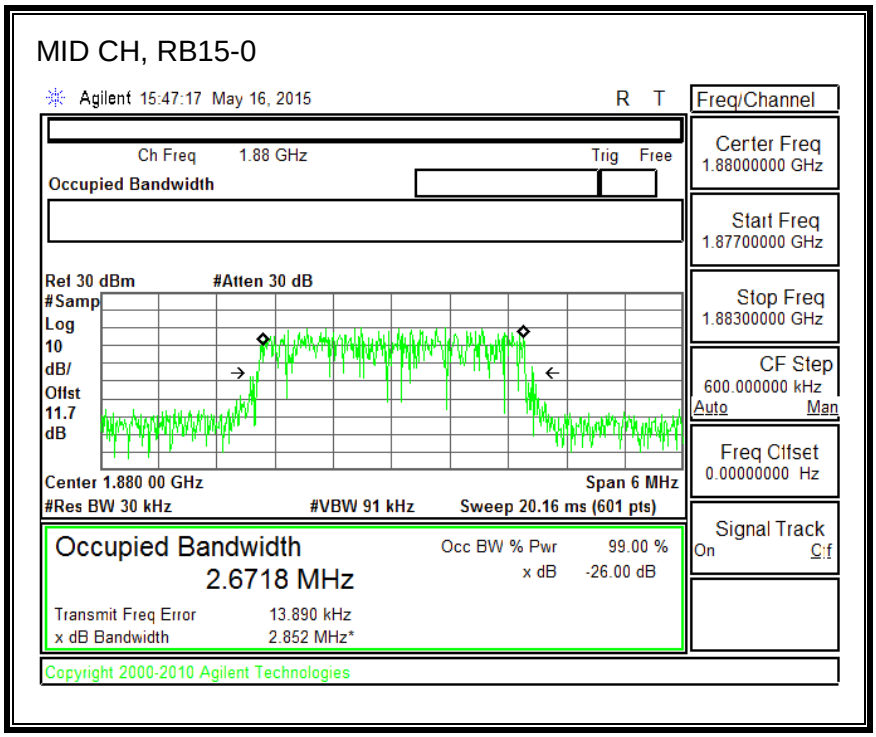
QPSK, (3.0 MHz BAND WIDTH)



16QAM, (3.0 MHz BAND WIDTH)



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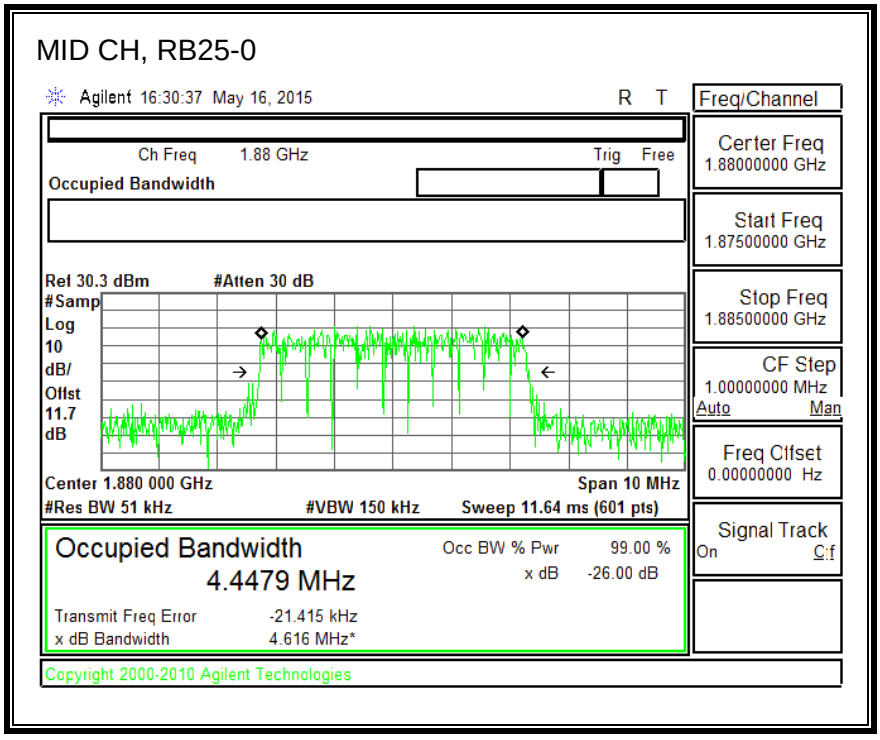
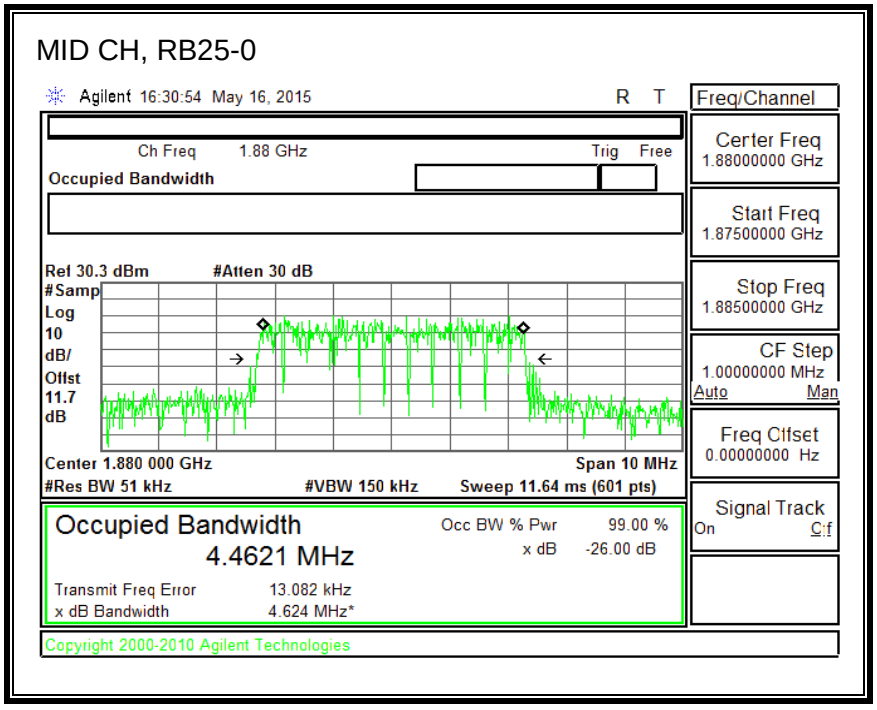
QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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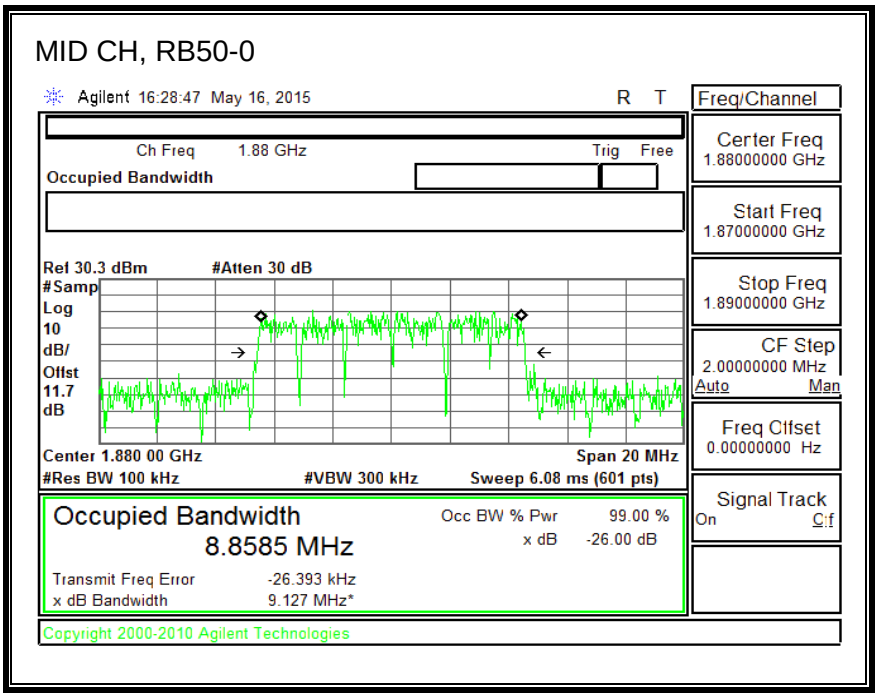
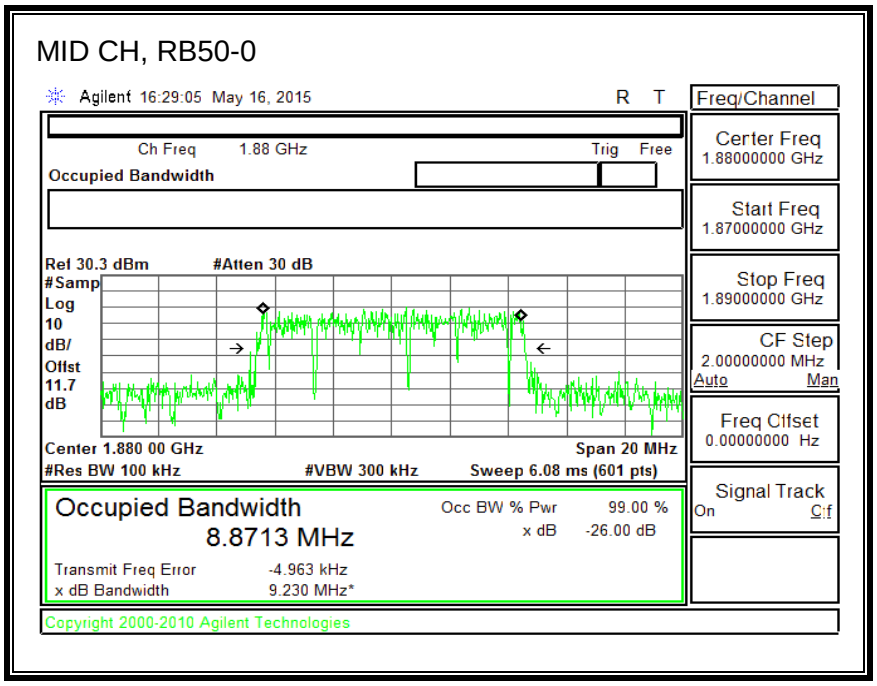
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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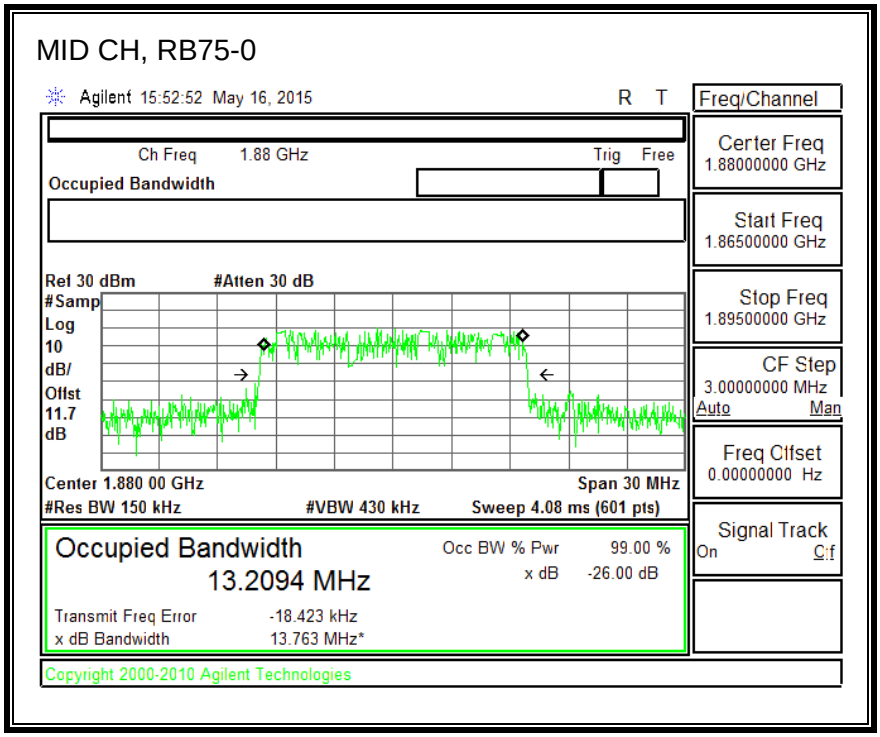
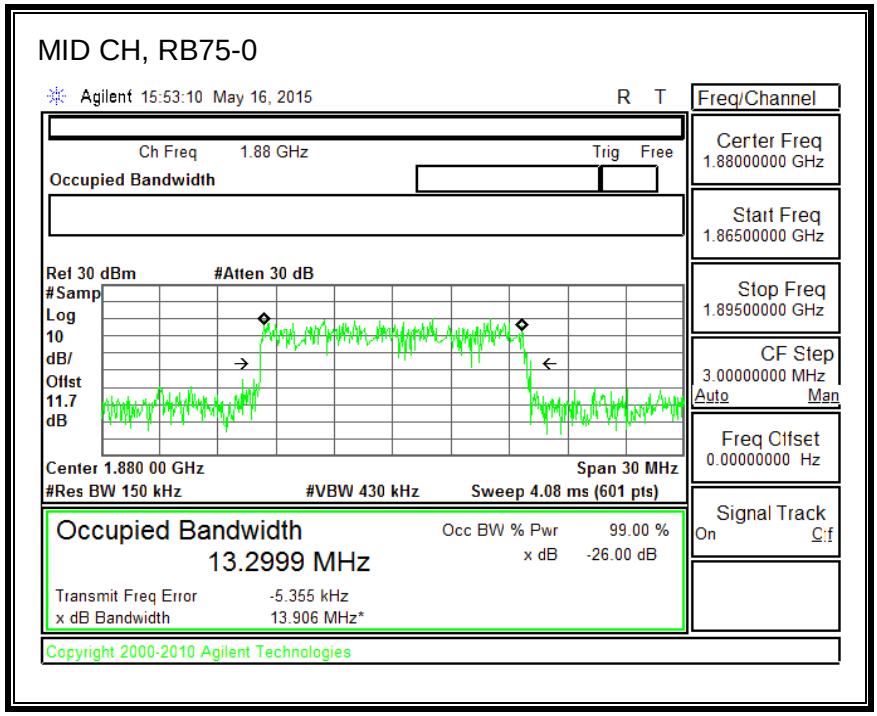
QPSK, (15.0 MHz BAND WIDTH)



16QAM, (15.0 MHz BAND WIDTH)



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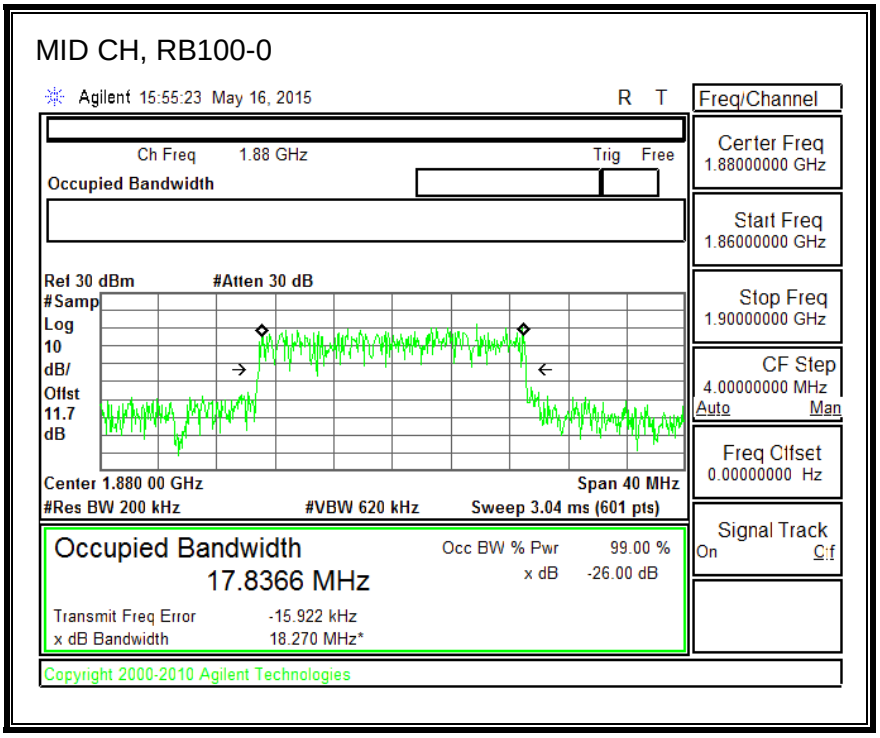
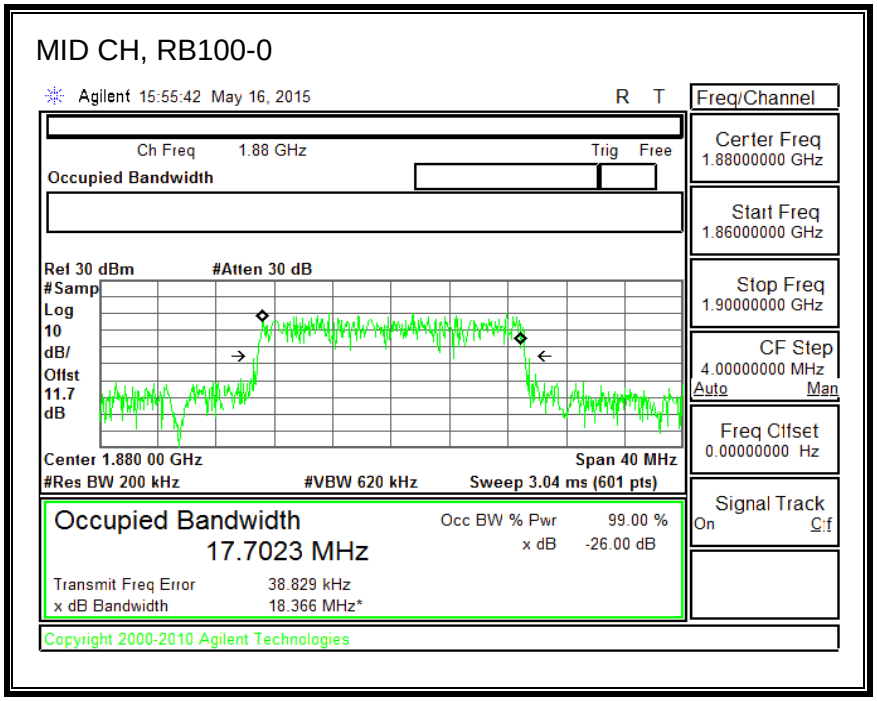
QPSK, (20.0 MHz BAND WIDTH)



16QAM, (20.0 MHz BAND WIDTH)



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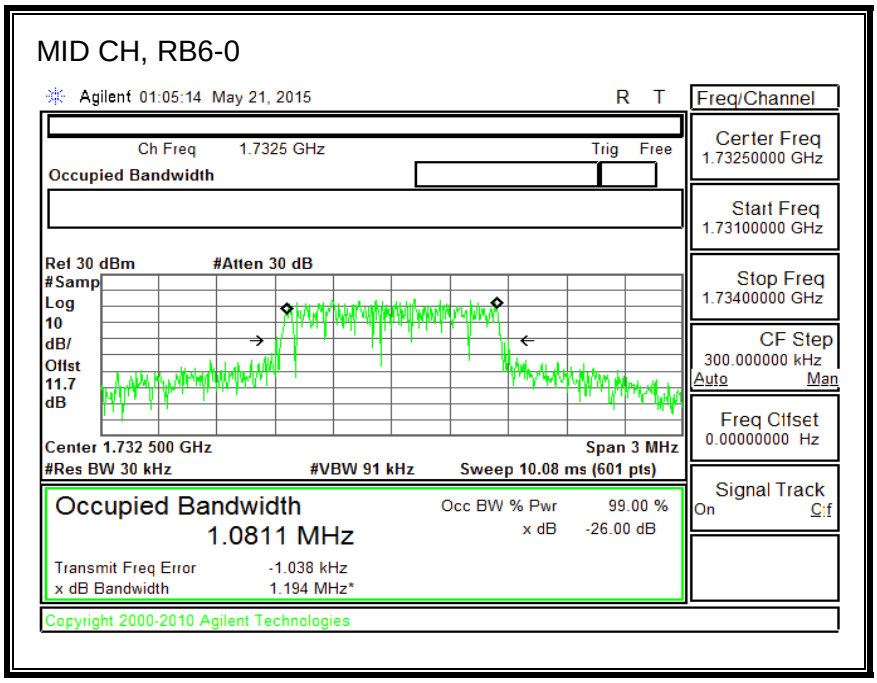
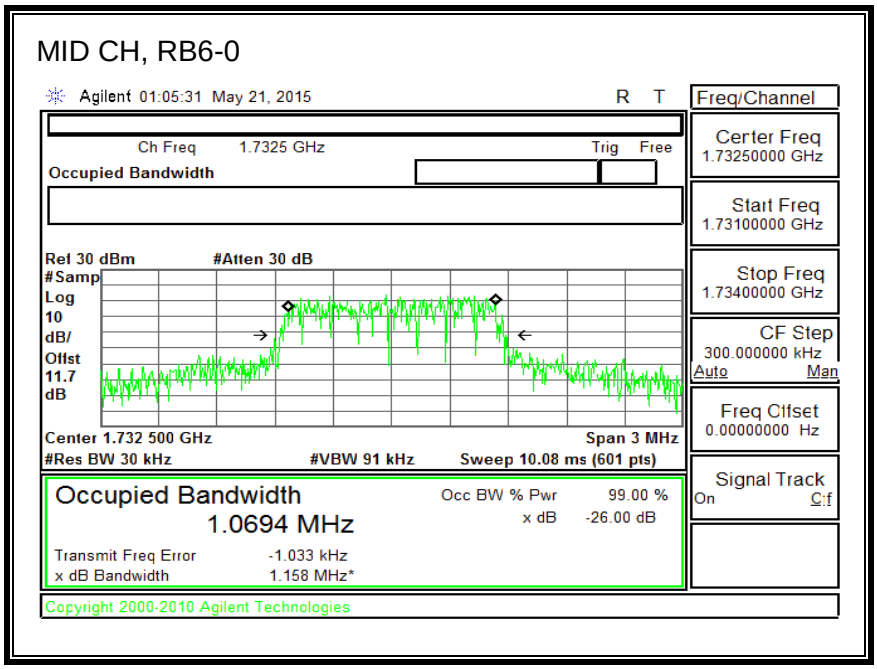
8.2.2. LTE BAND 4

QPSK, (1.4 MHz BAND WIDTH)



16QAM, (1.4 MHz BAND WIDTH)



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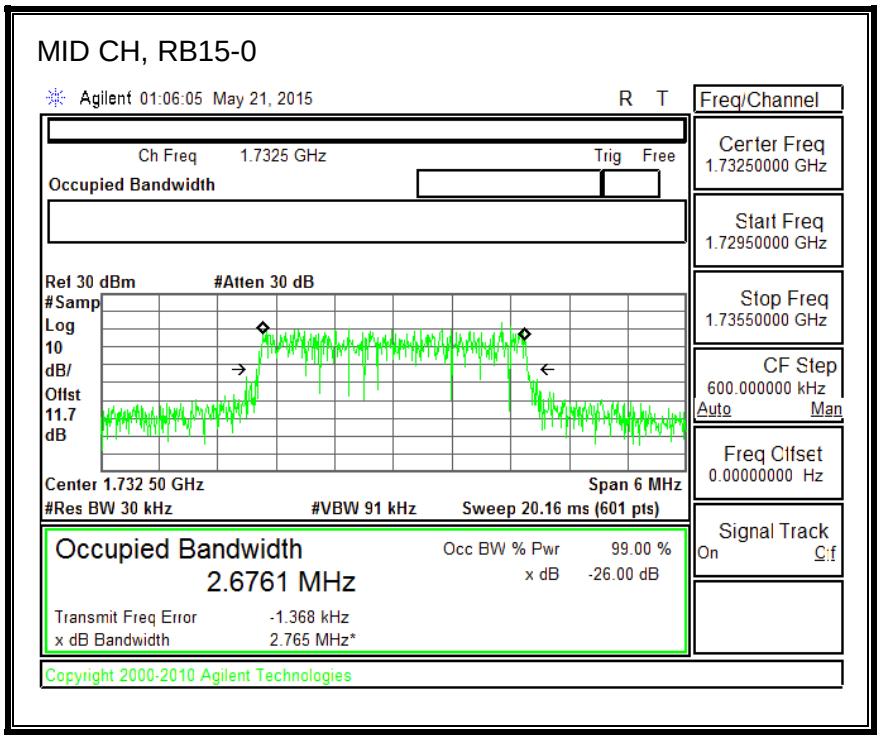
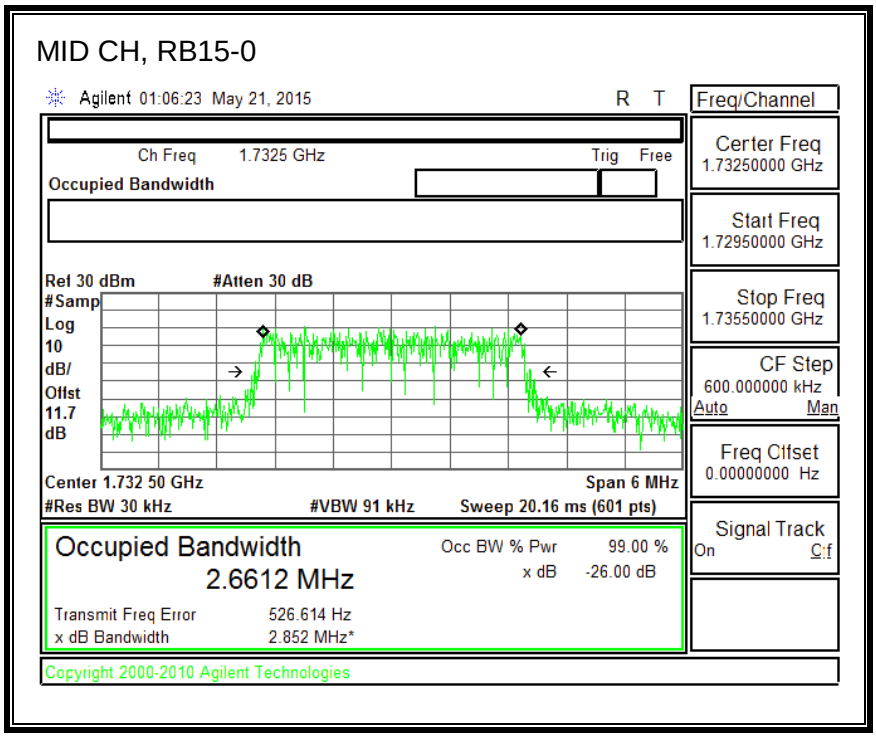
QPSK, (3.0 MHz BAND WIDTH)



16QAM, (3.0 MHz BAND WIDTH)



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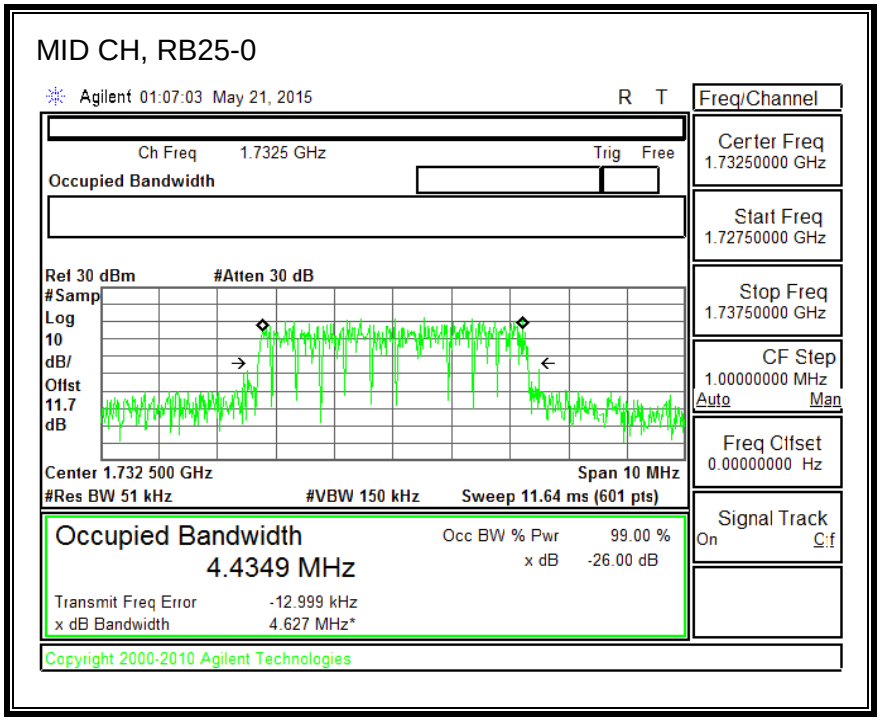
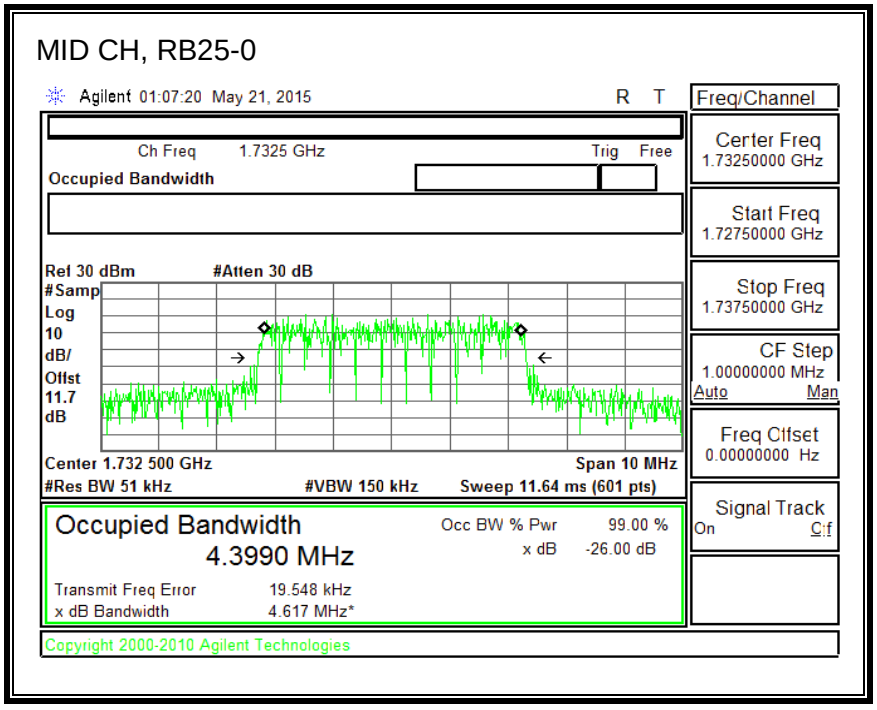
QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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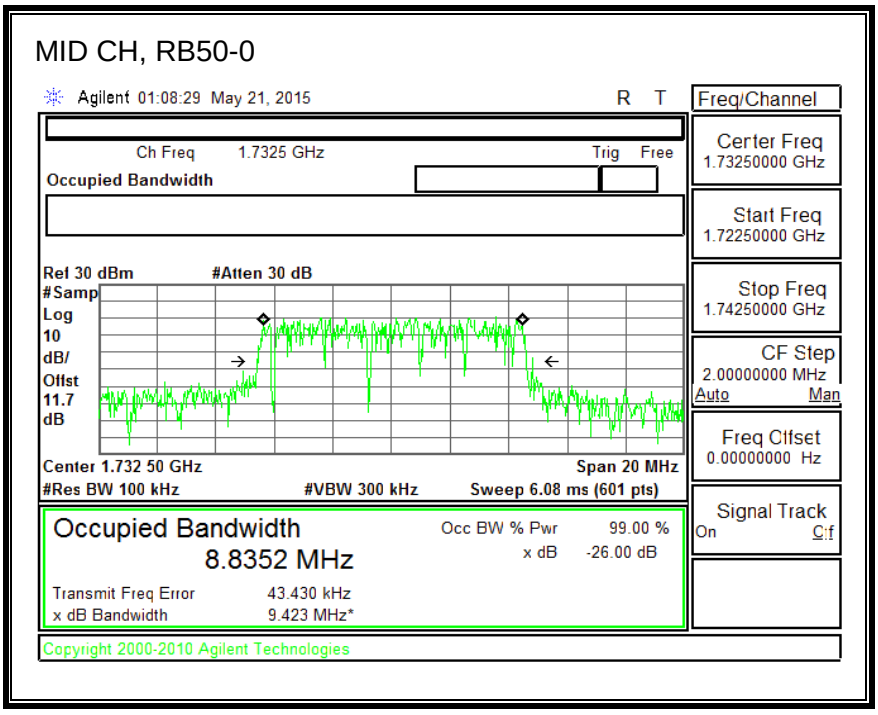
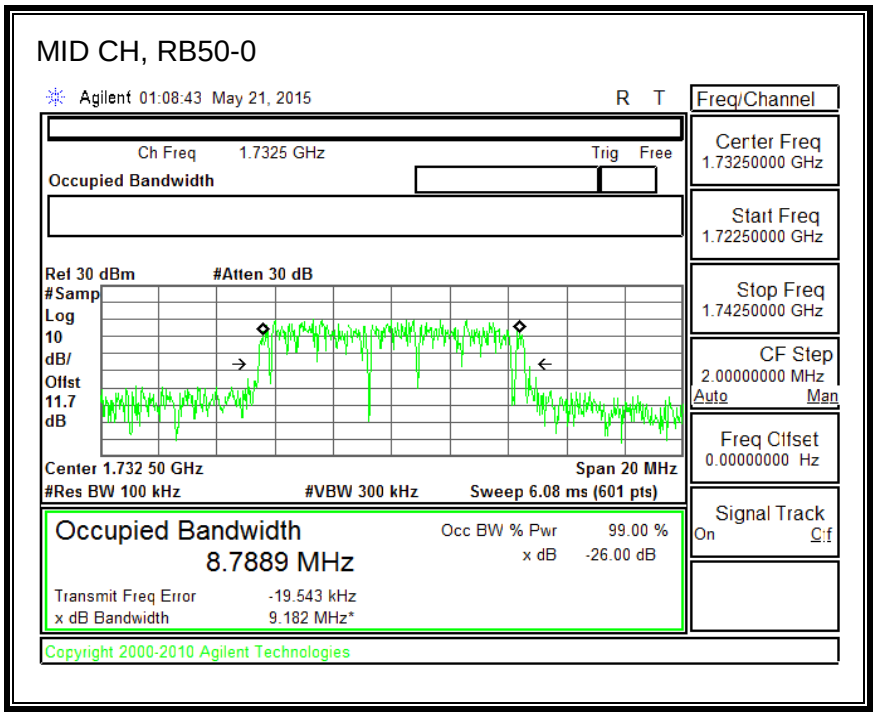
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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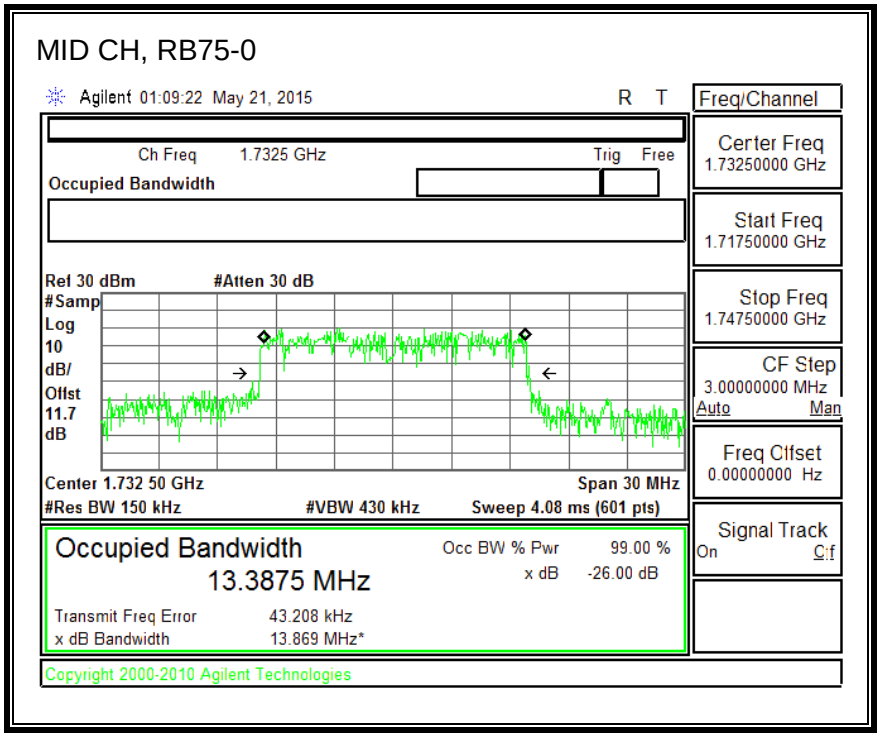
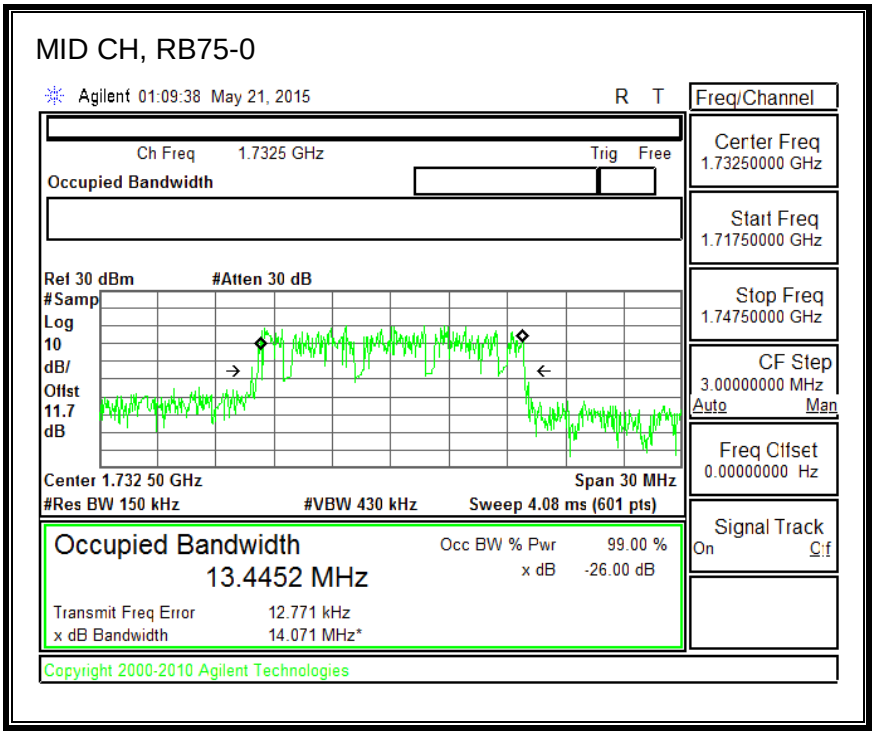
QPSK, (15.0 MHz BAND WIDTH)



16QAM, (15.0 MHz BAND WIDTH)



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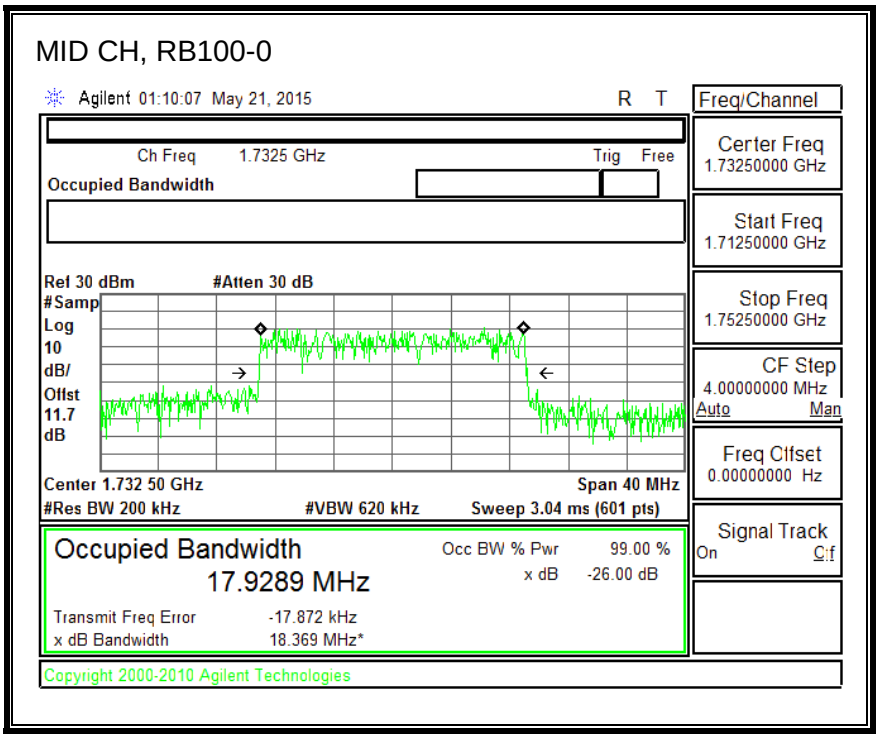
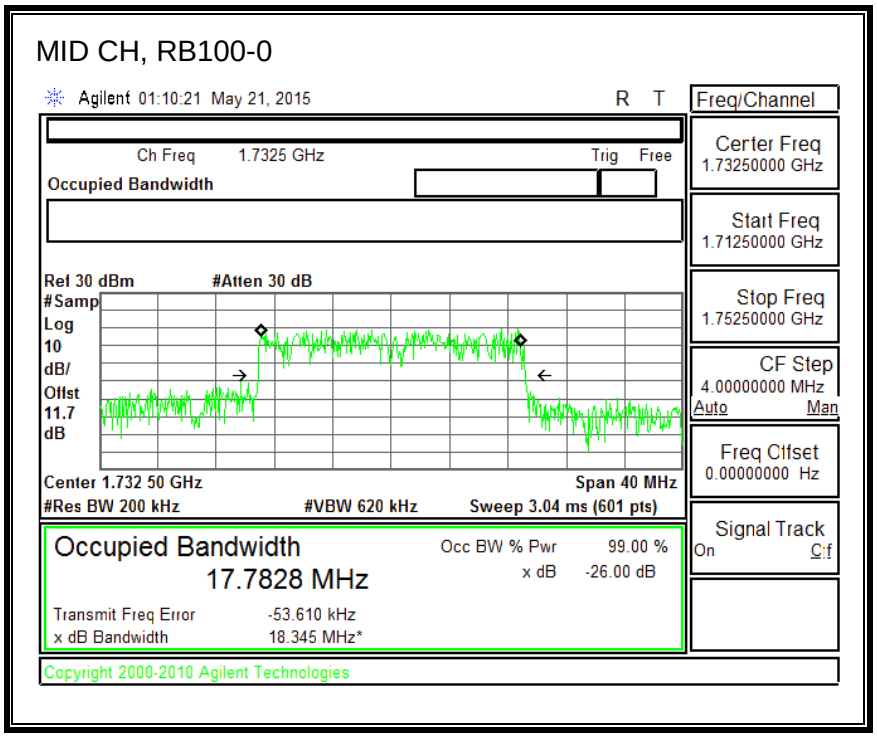
QPSK, (20.0 MHz BAND WIDTH)



16QAM, (20.0 MHz BAND WIDTH)



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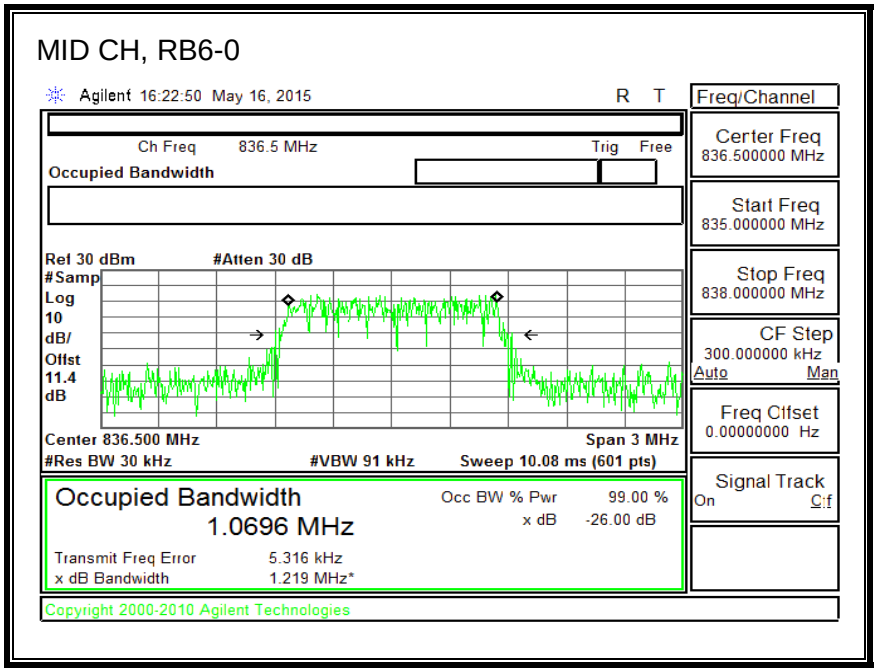
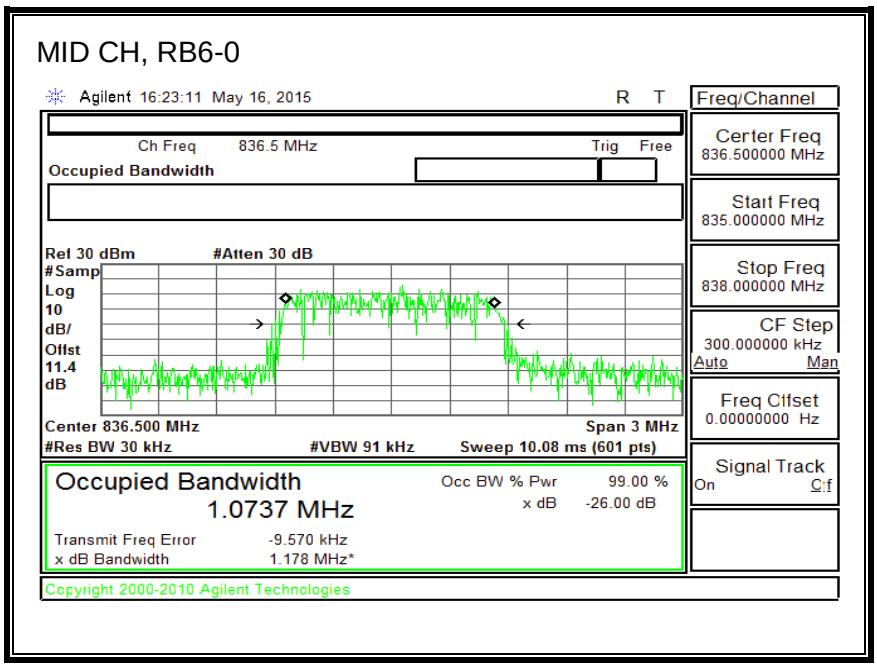
8.2.3. LTE BAND 5

QPSK, (1.4 MHz BAND WIDTH)



16QAM, (1.4 MHz BAND WIDTH)



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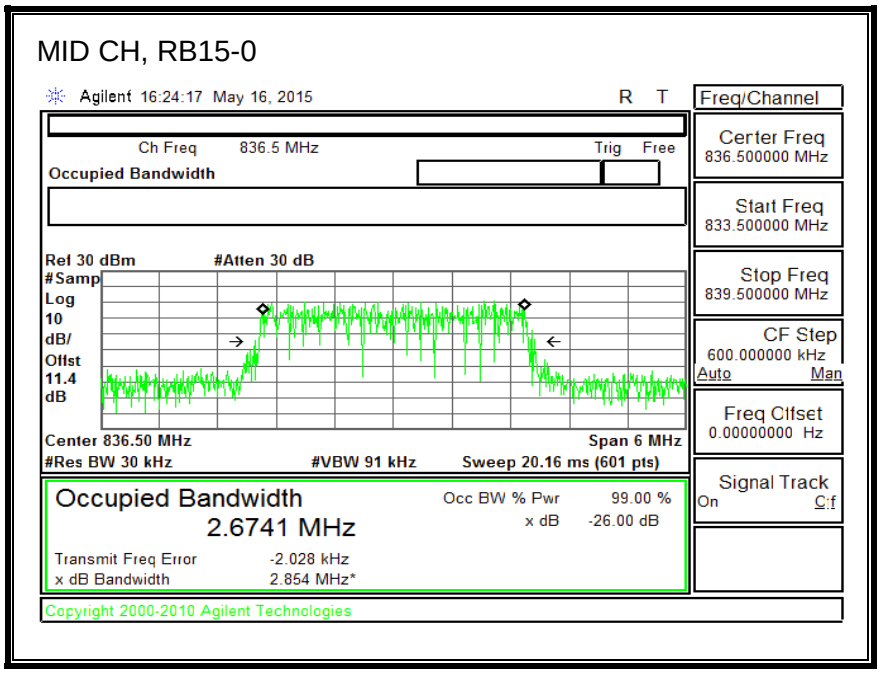
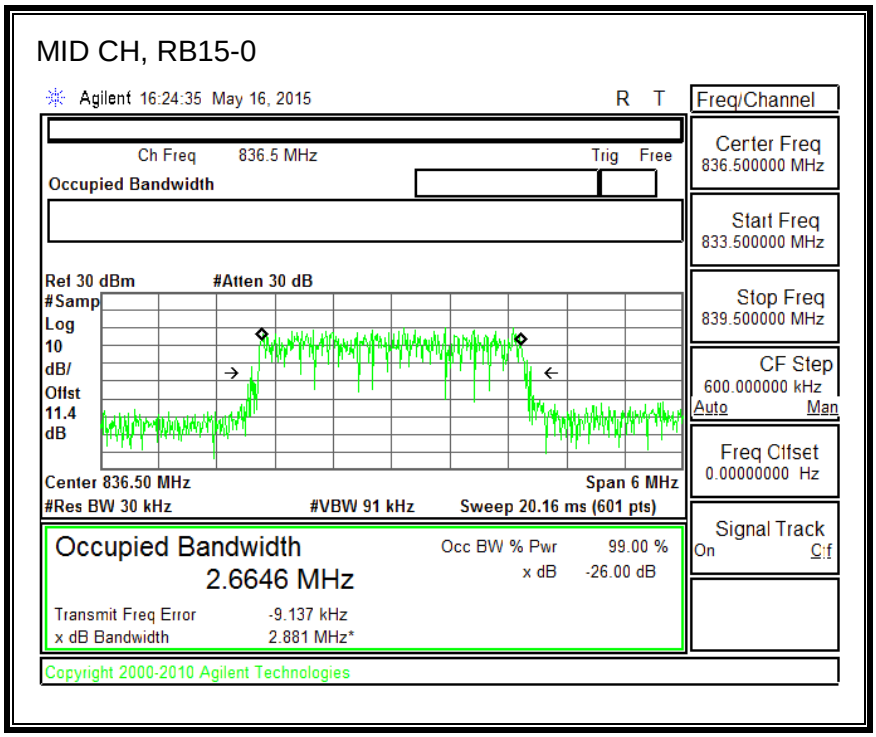
QPSK, (3.0 MHz BAND WIDTH)



16QAM, (3.0 MHz BAND WIDTH)



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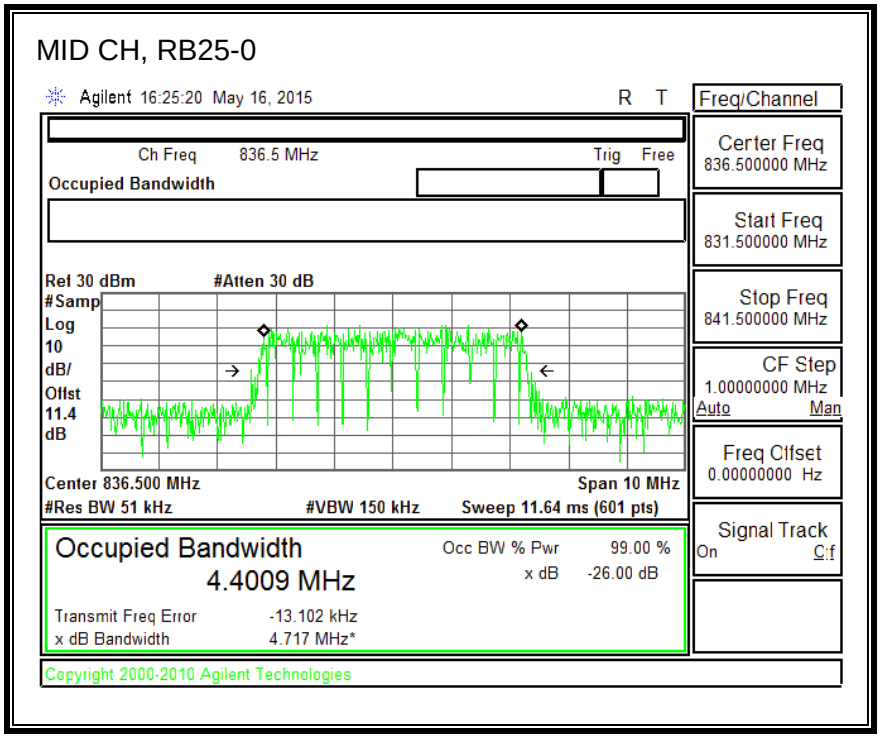
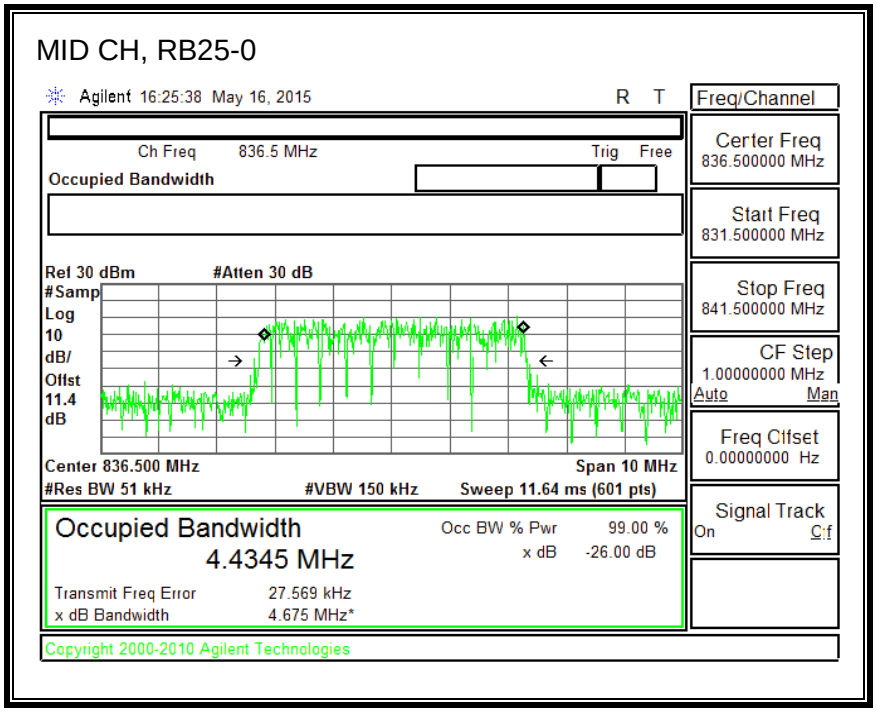
QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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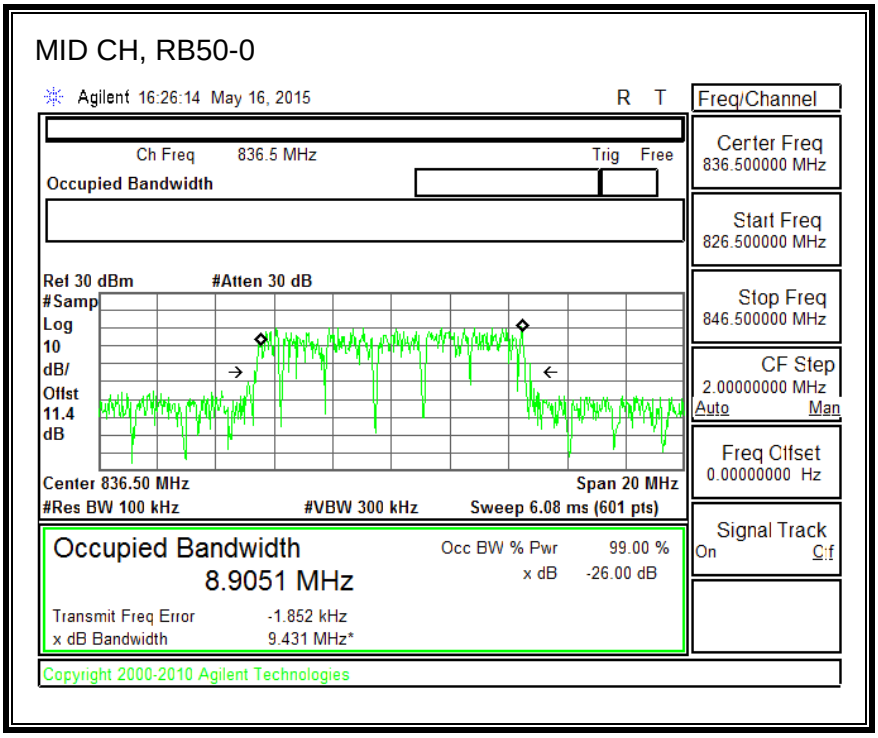
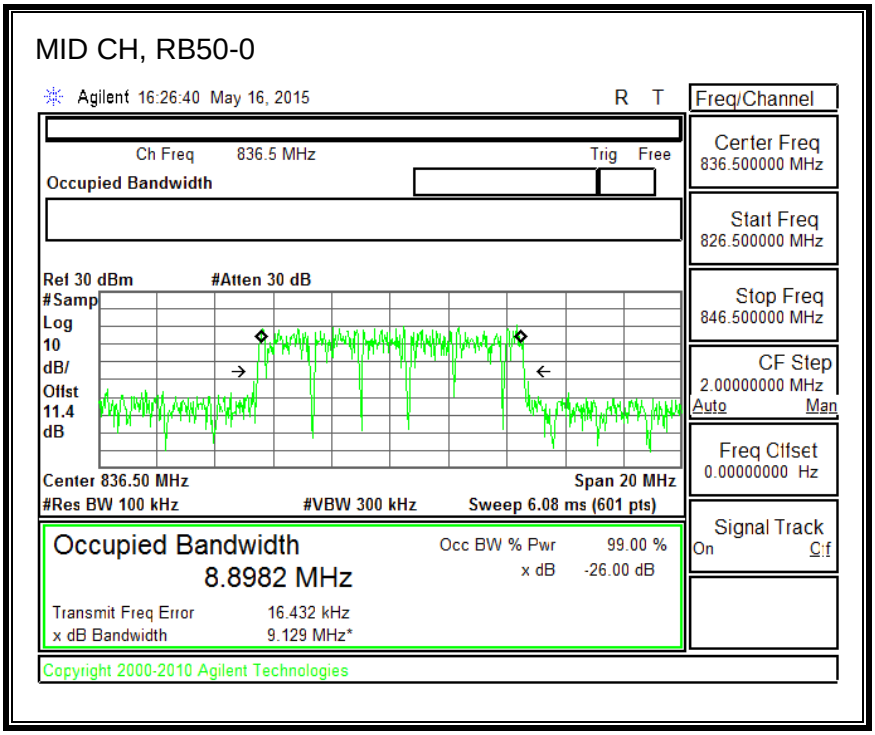
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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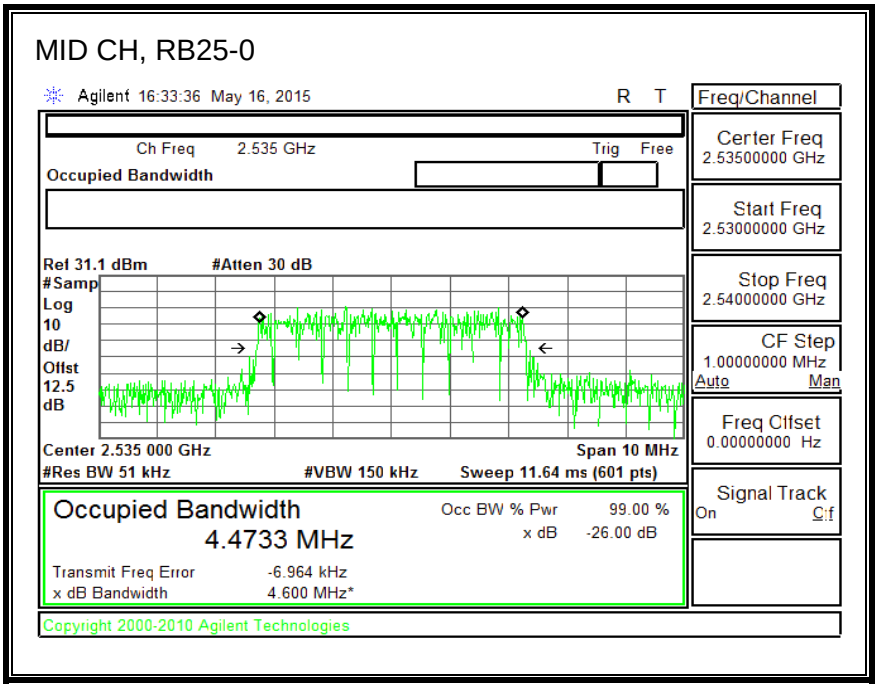
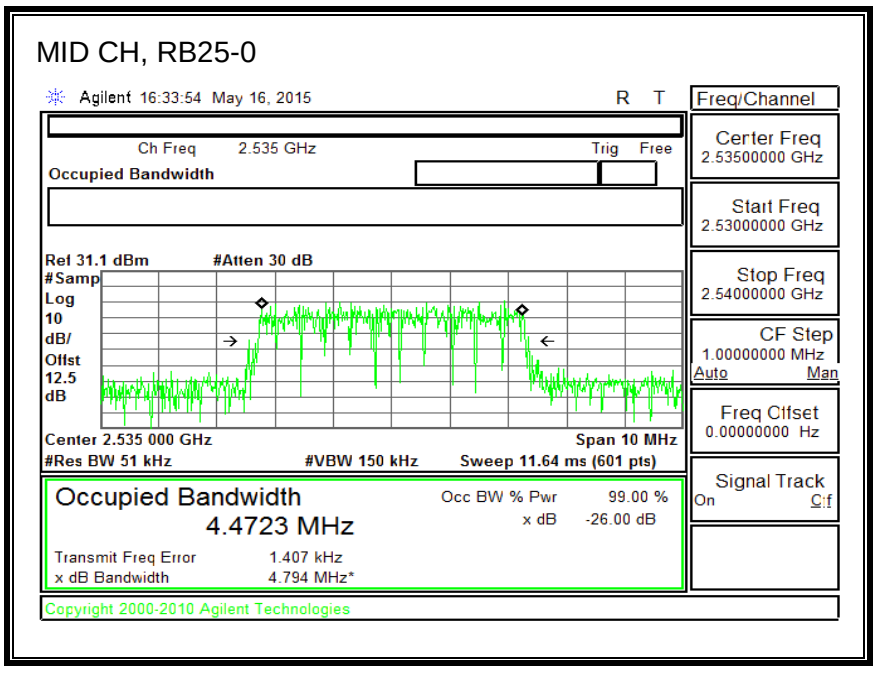
8.2.4. LTE BAND 7

QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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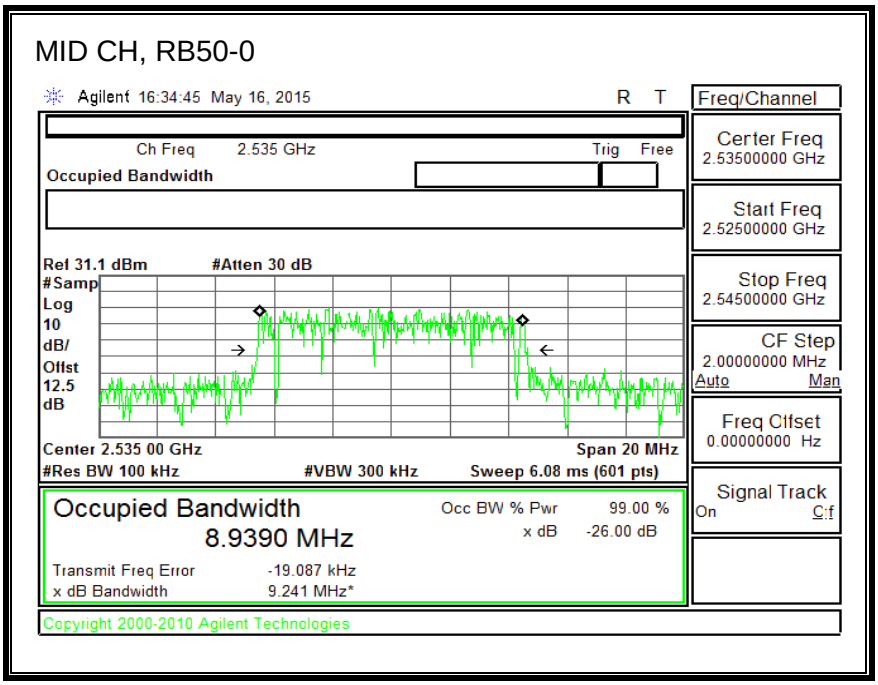
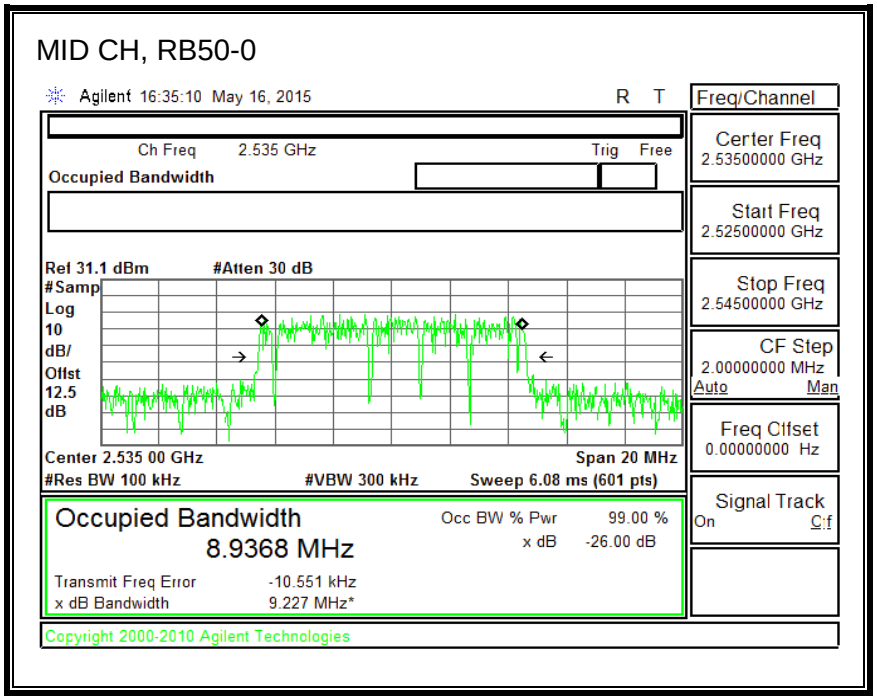
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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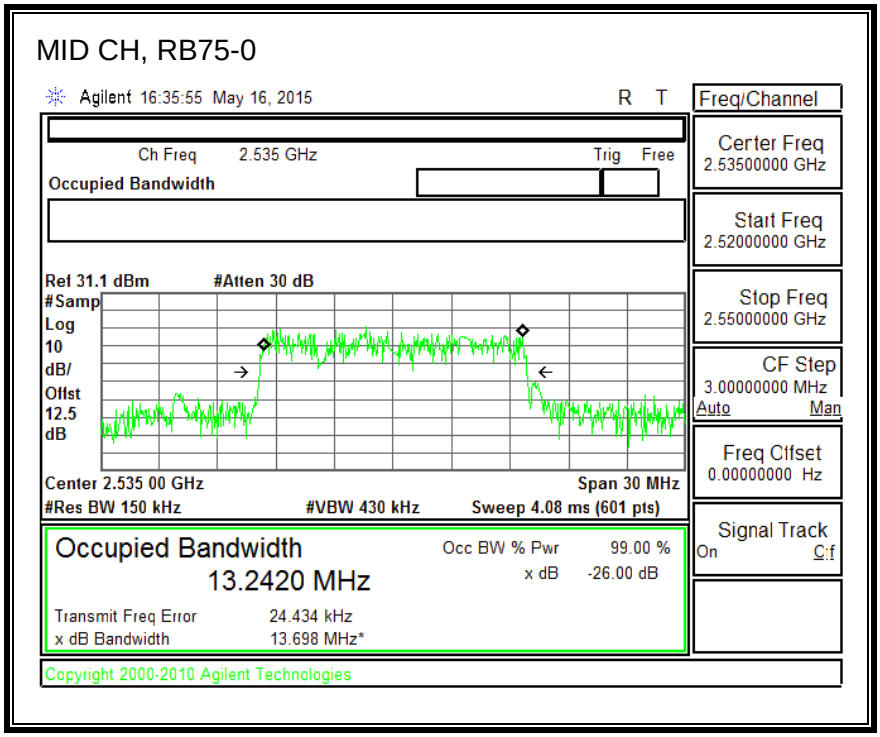
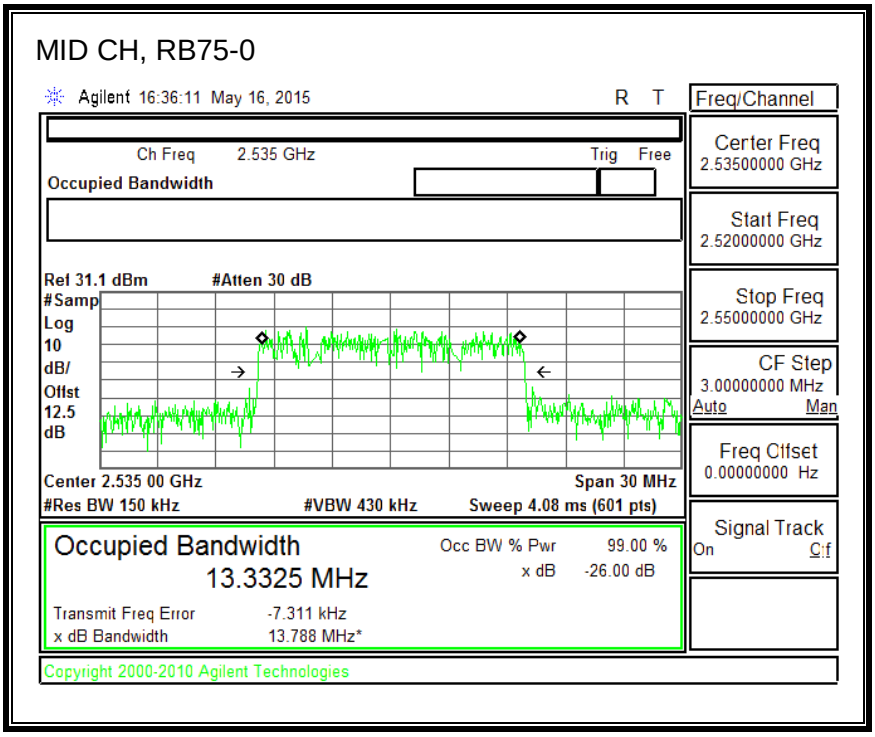
QPSK, (15.0 MHz BAND WIDTH)



16QAM, (15.0 MHz BAND WIDTH)



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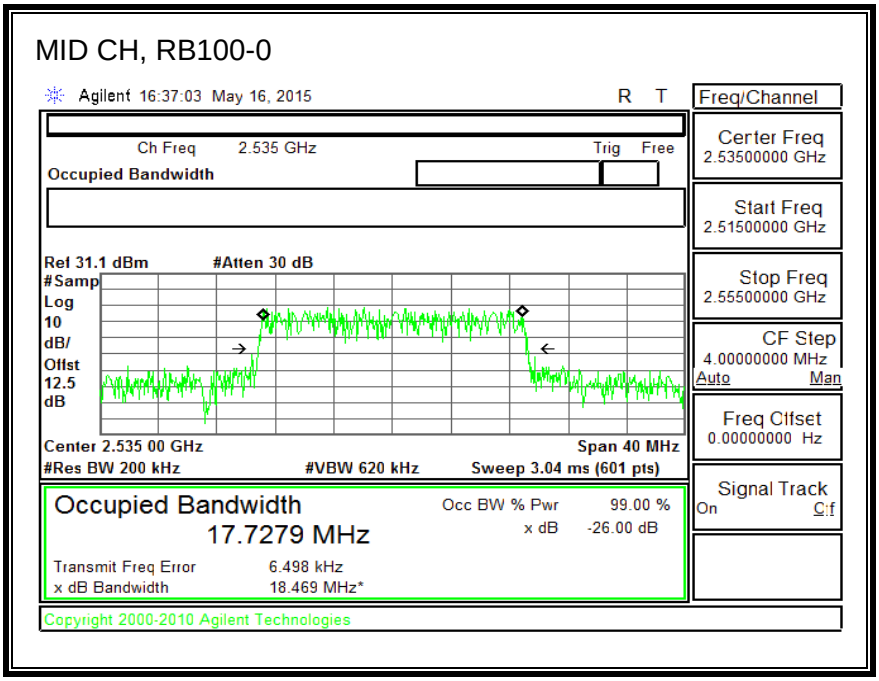
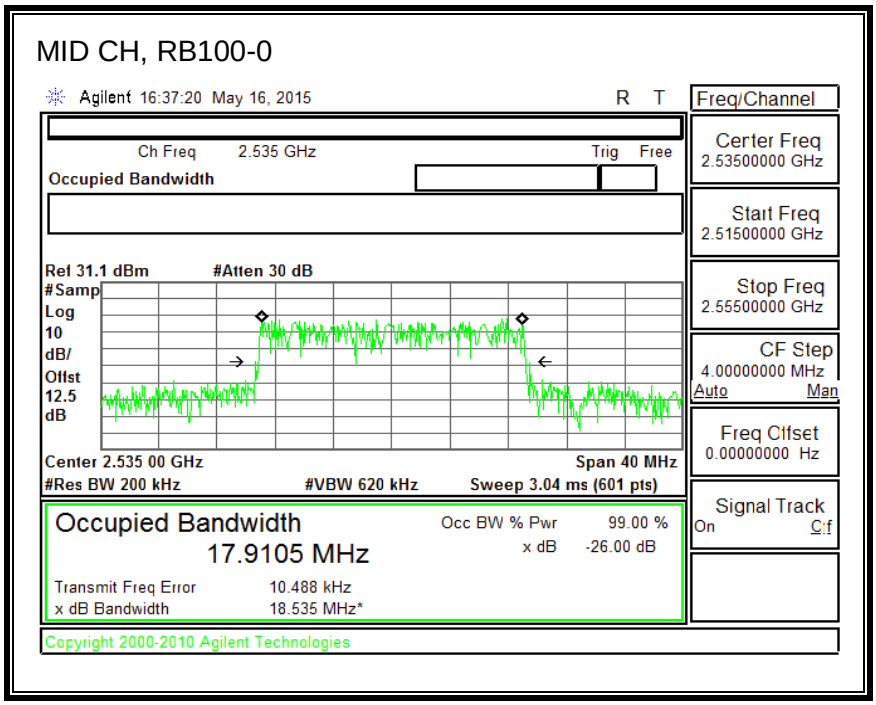
QPSK, (20.0 MHz BAND WIDTH)



16QAM, (20.0 MHz BAND WIDTH)



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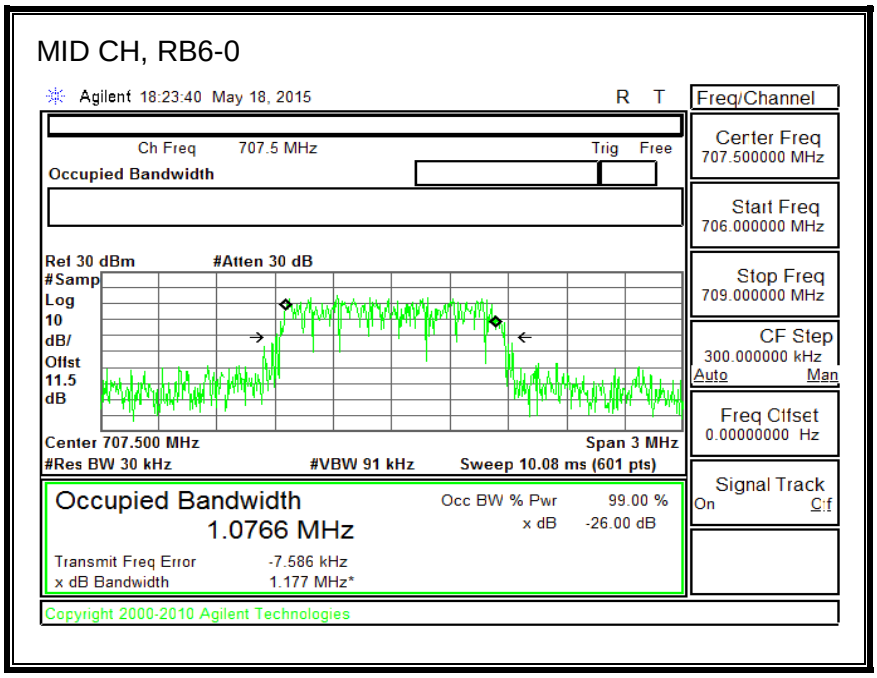
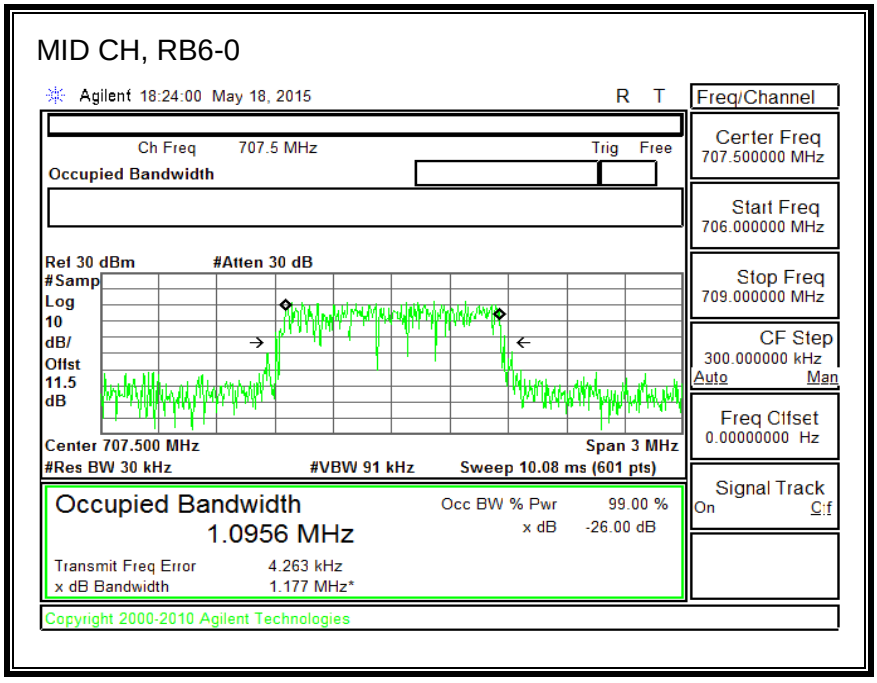
8.2.5. LTE BAND 12

QPSK, (1.4 MHz BAND WIDTH)



16QAM, (1.4 MHz BAND WIDTH)



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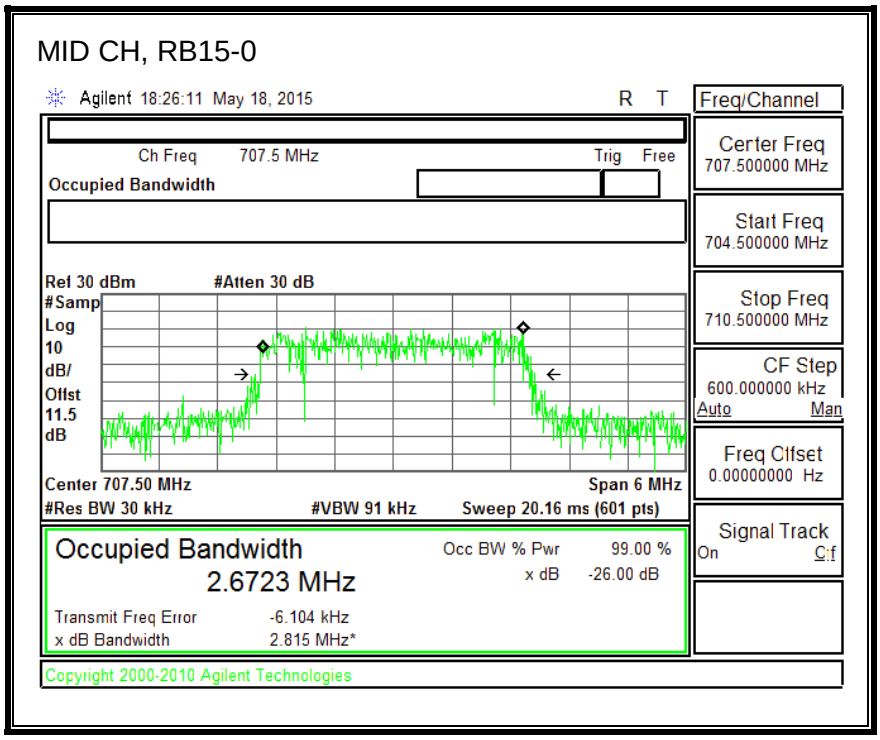
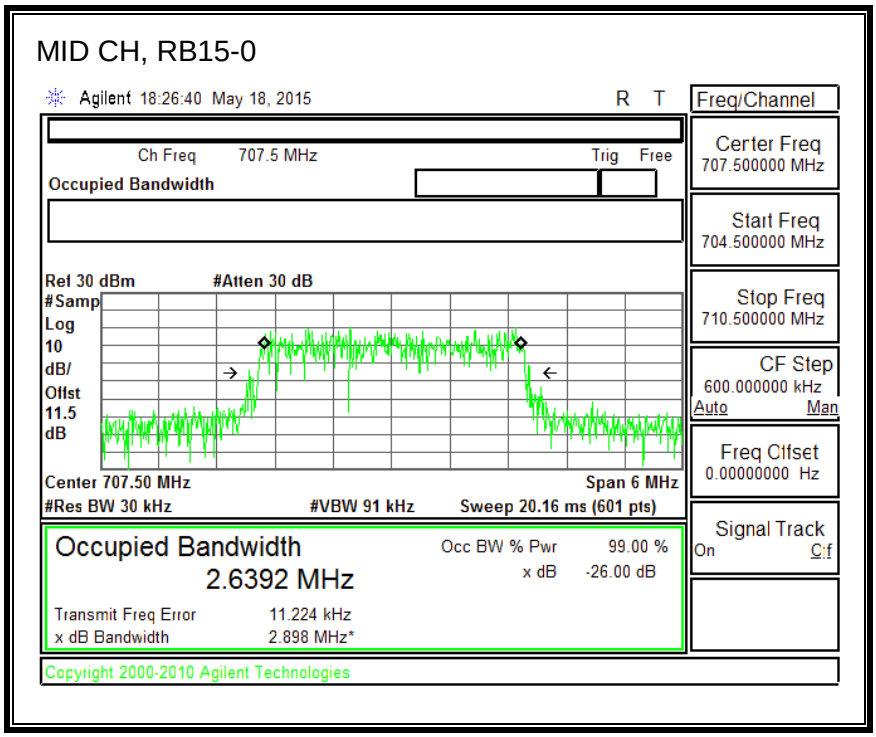
QPSK, (3.0 MHz BAND WIDTH)



16QAM, (3.0 MHz BAND WIDTH)



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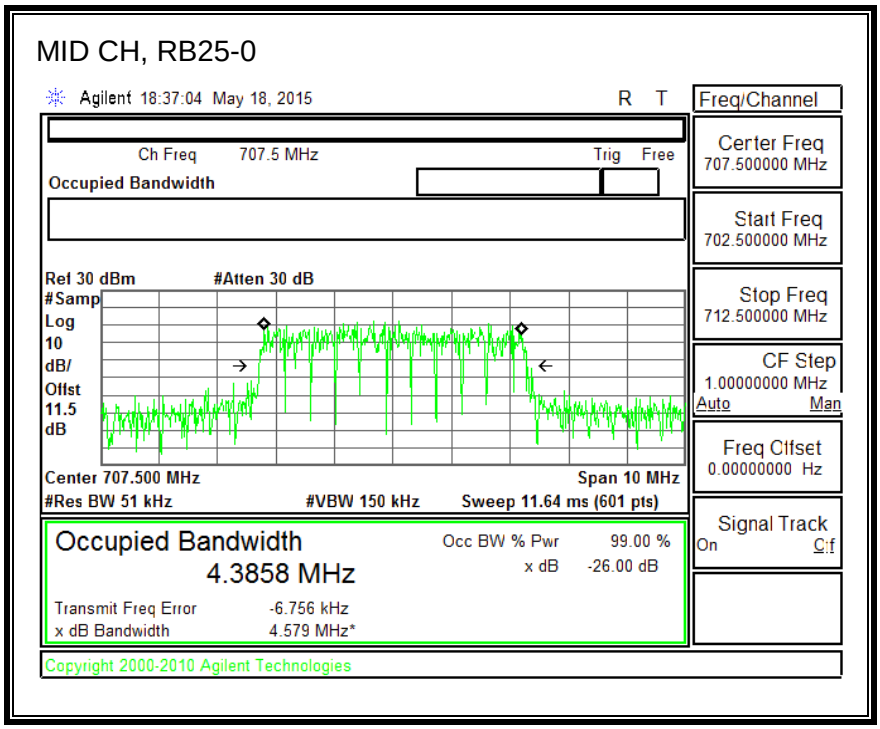
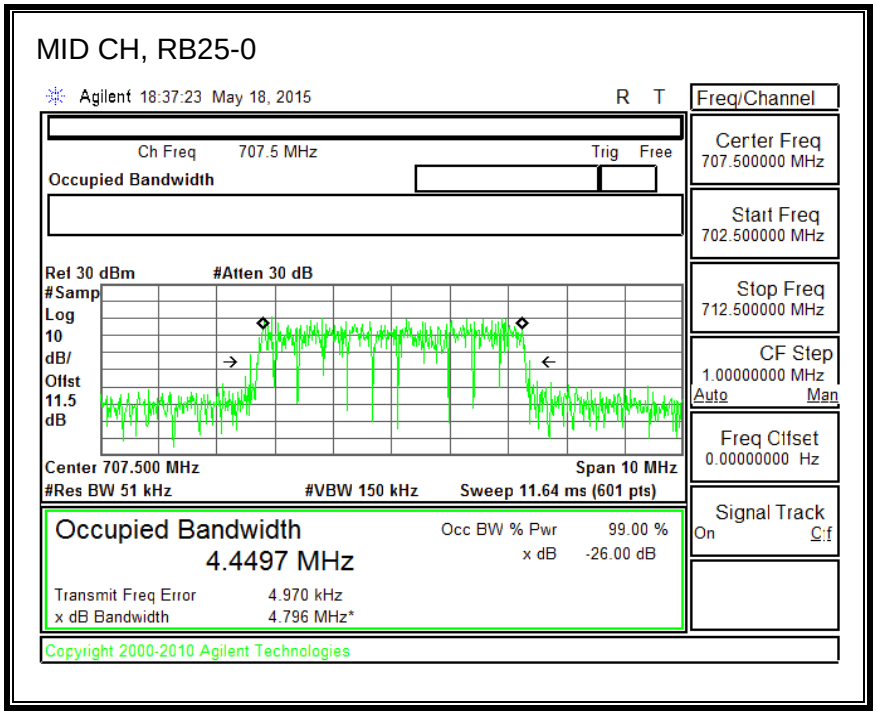
QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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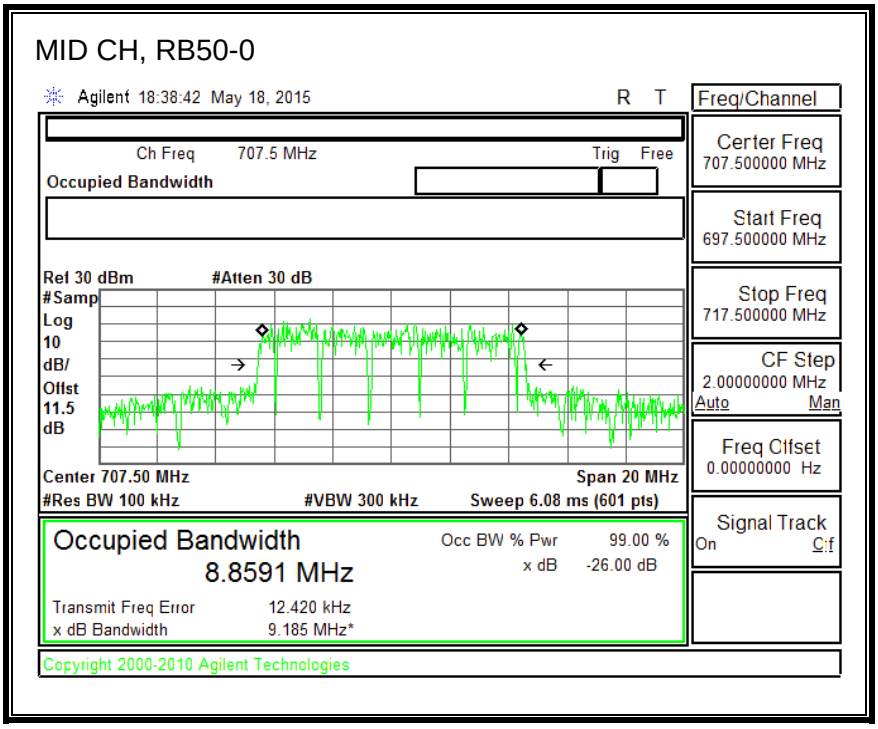
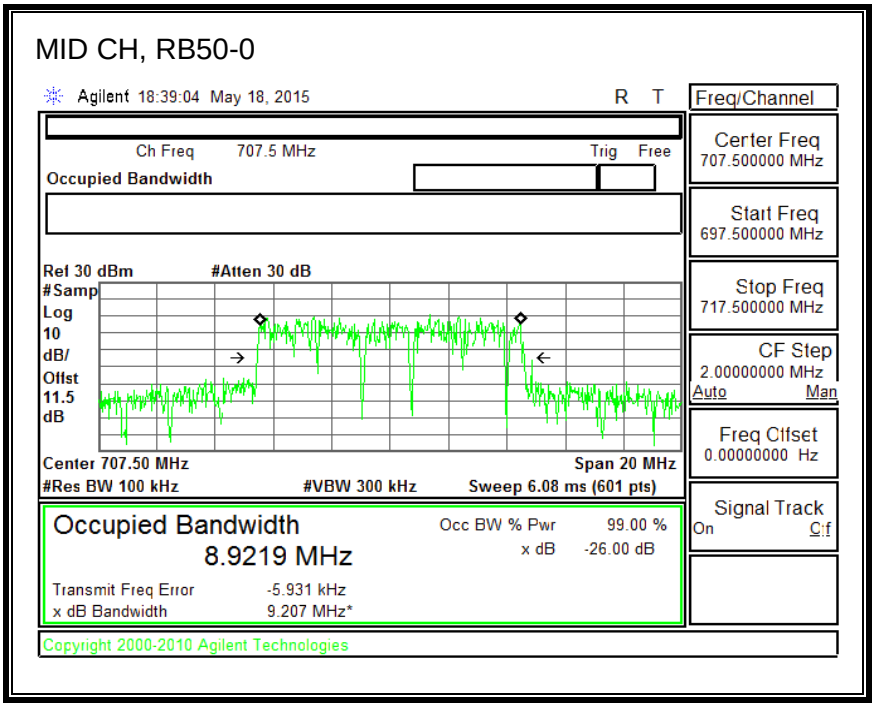
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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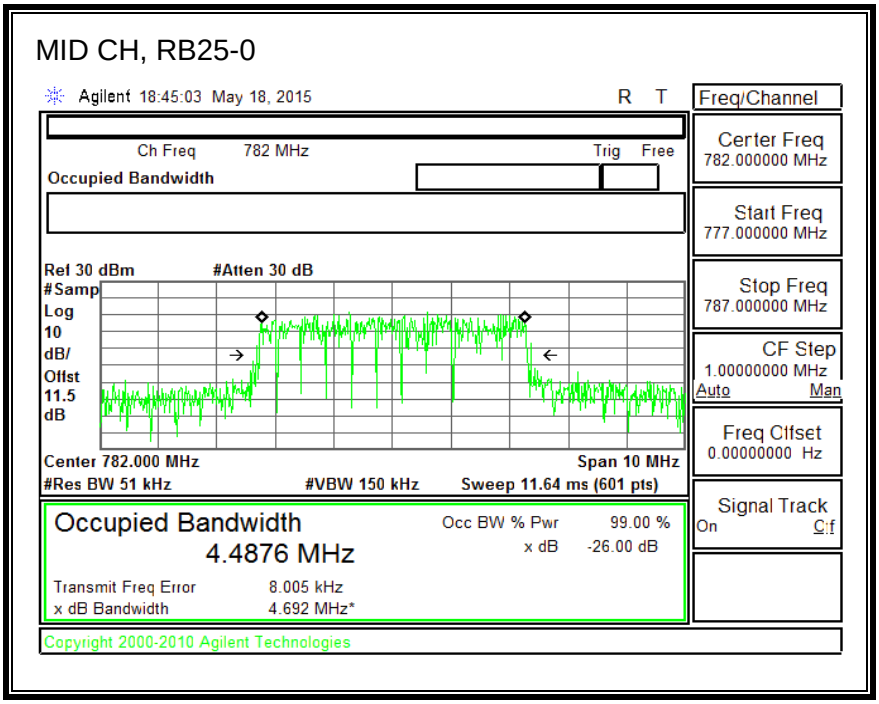
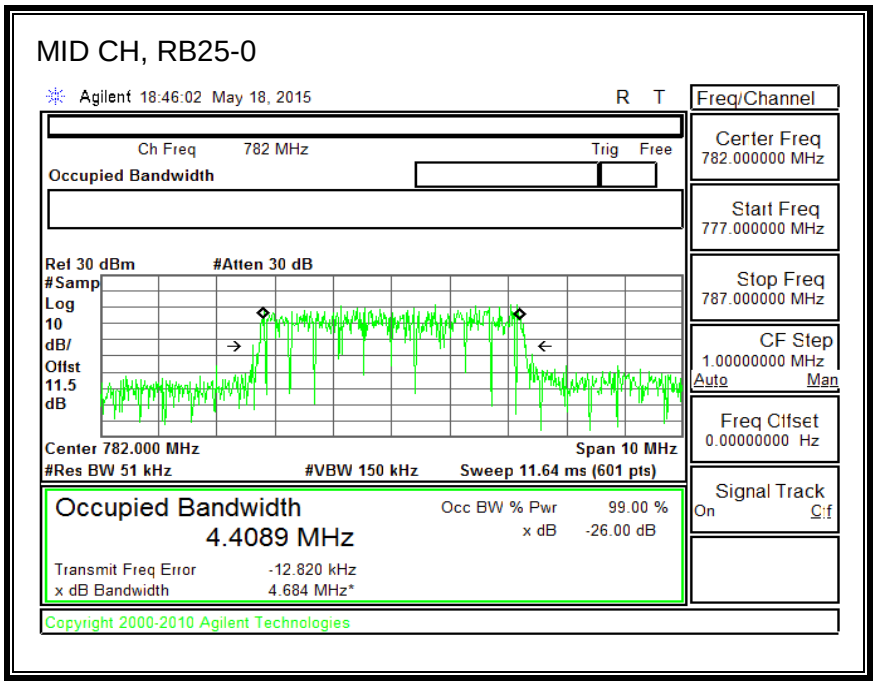
8.2.6. LTE BAND 13

QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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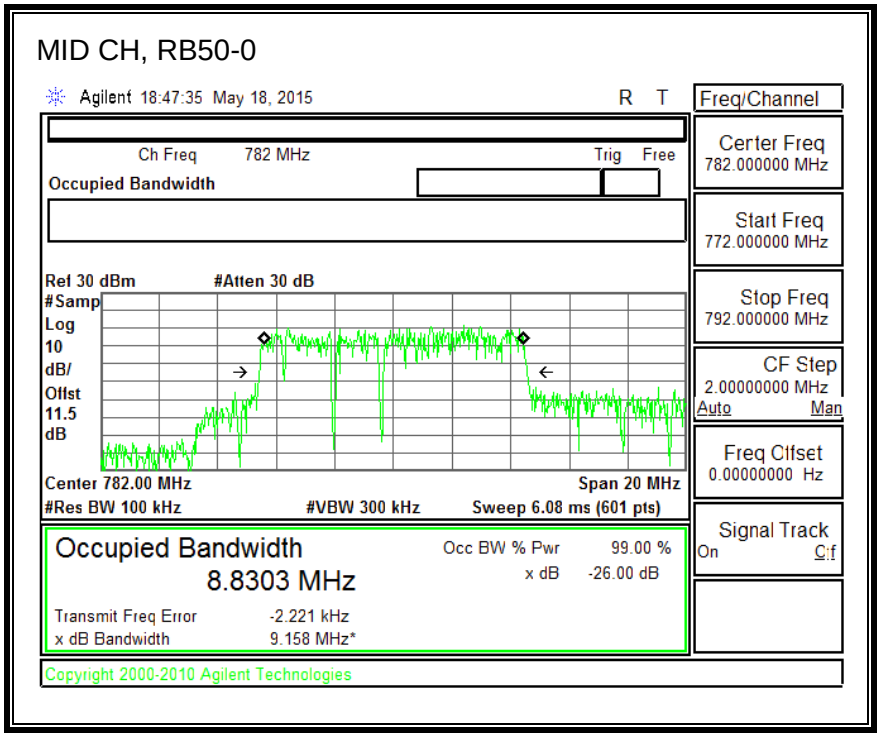
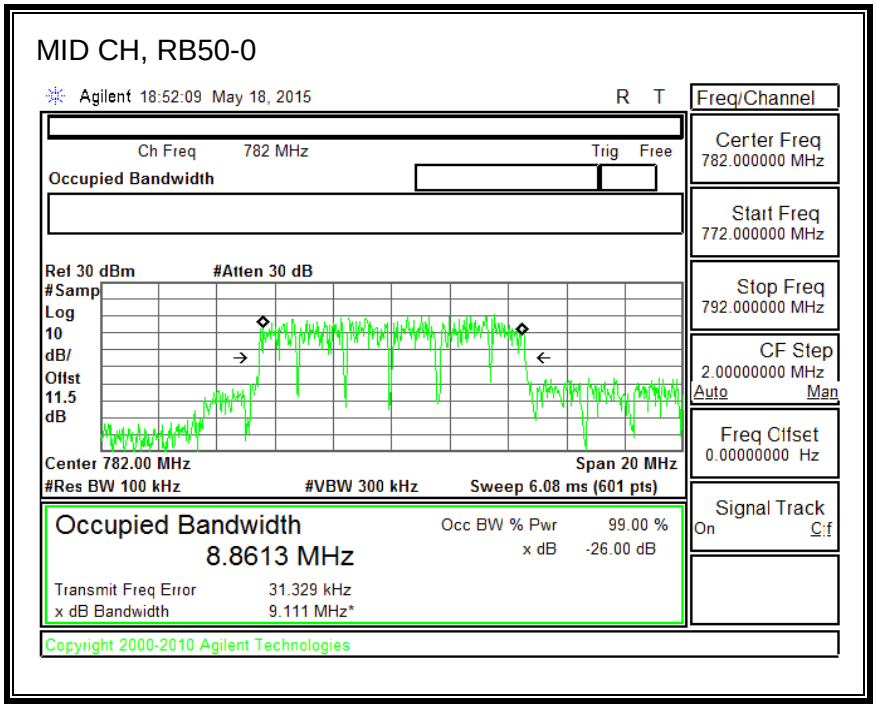
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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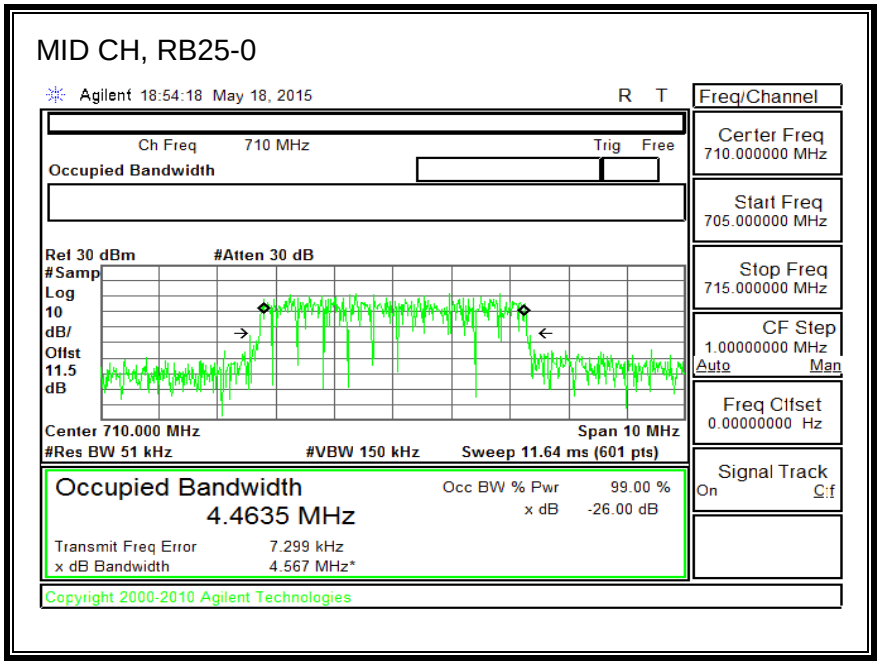
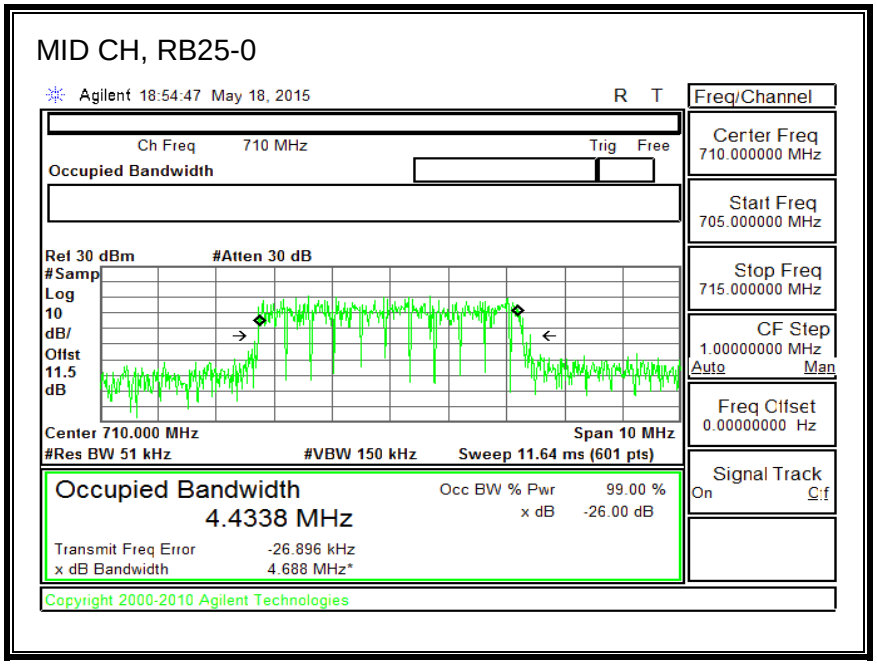
8.2.7. LTE BAND 17

QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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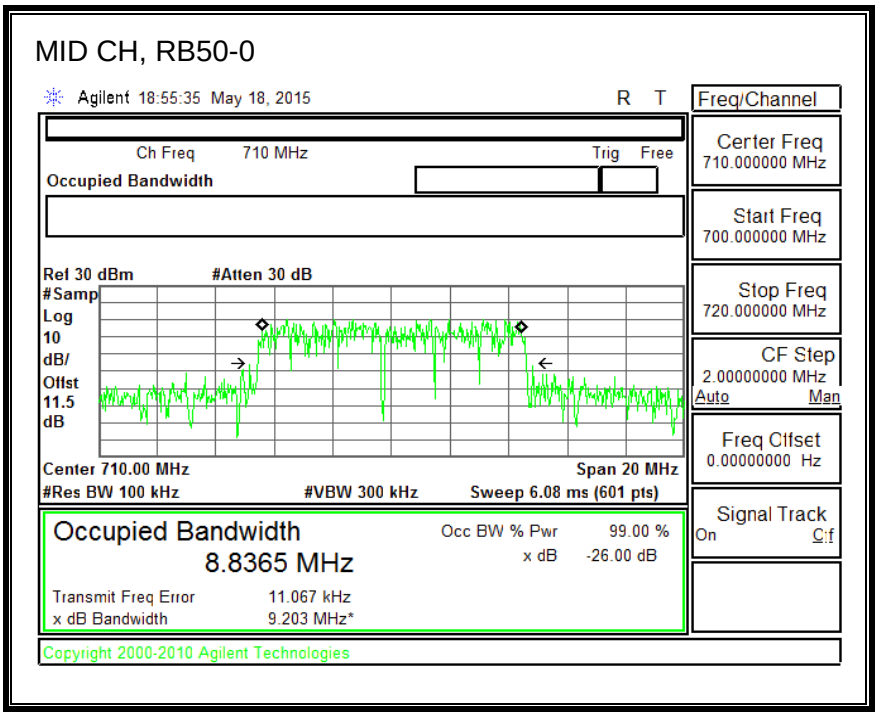
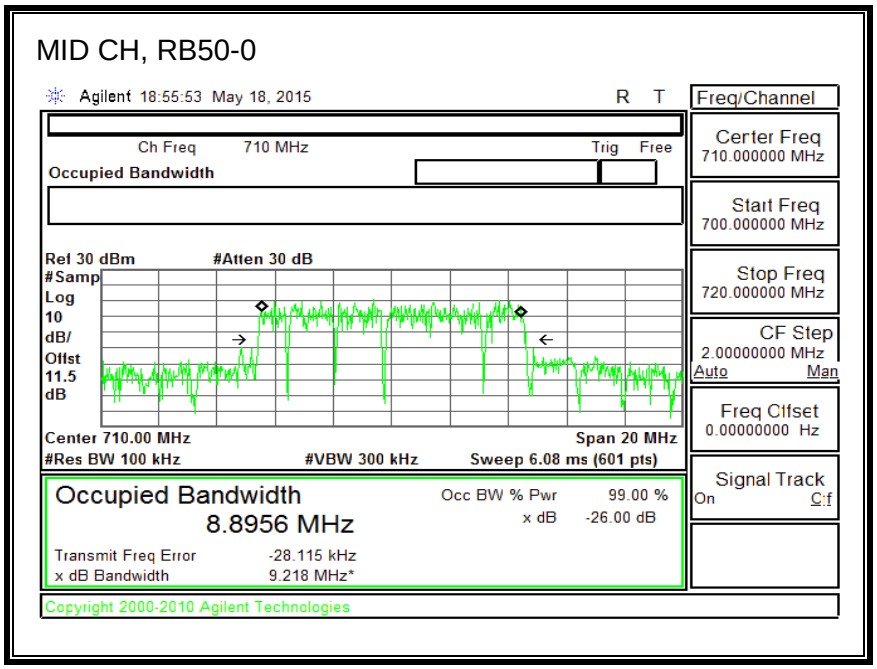
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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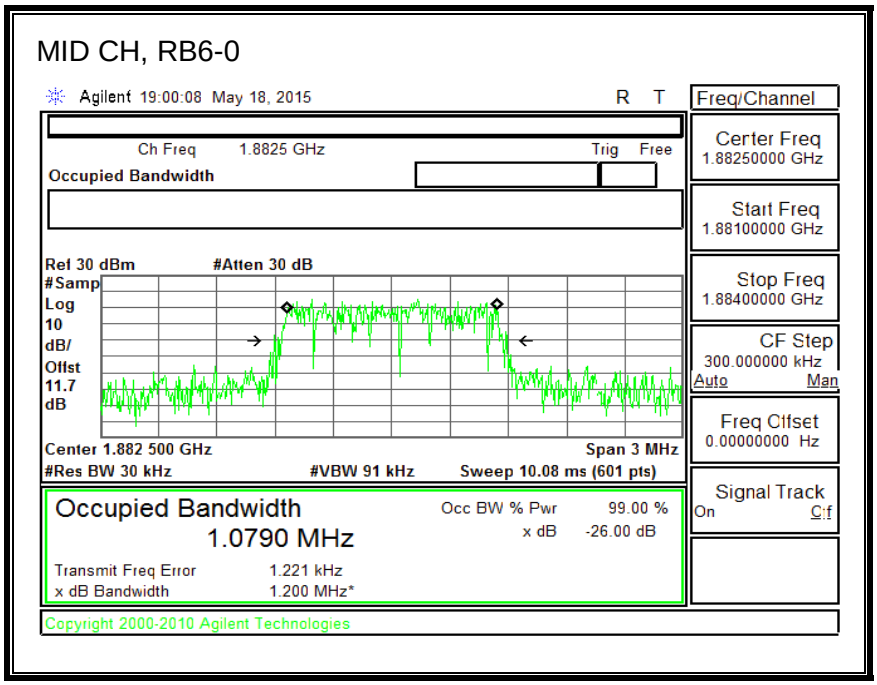
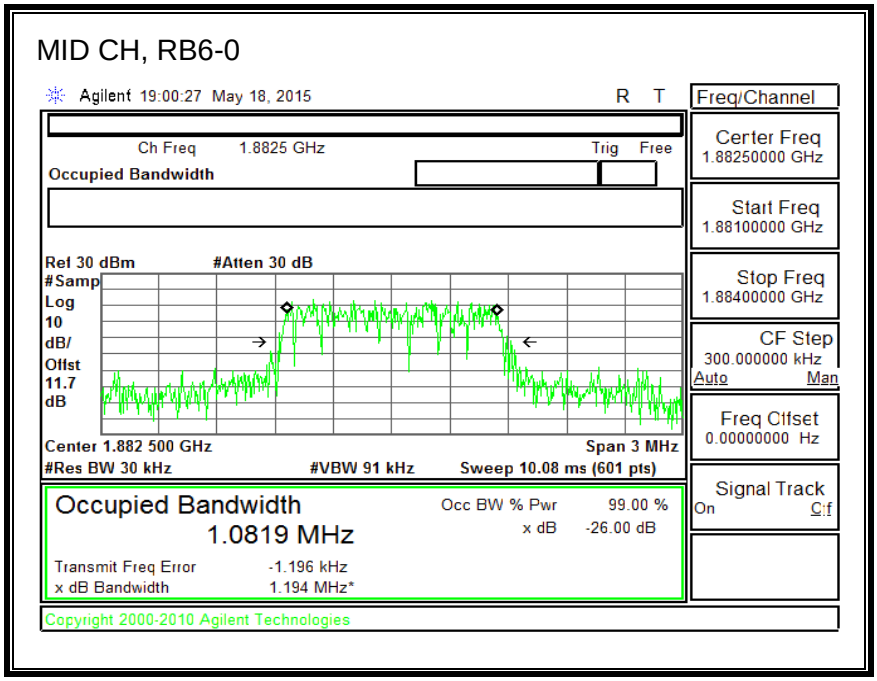
8.2.8. LTE BAND 25

QPSK, (1.4 MHz BAND WIDTH)



16QAM, (1.4 MHz BAND WIDTH)



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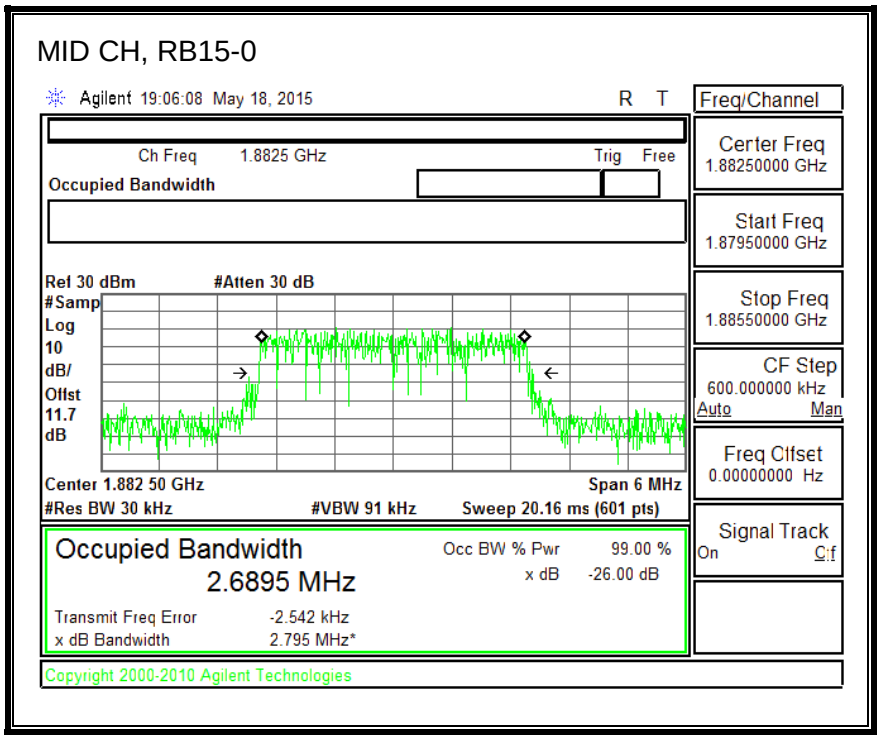
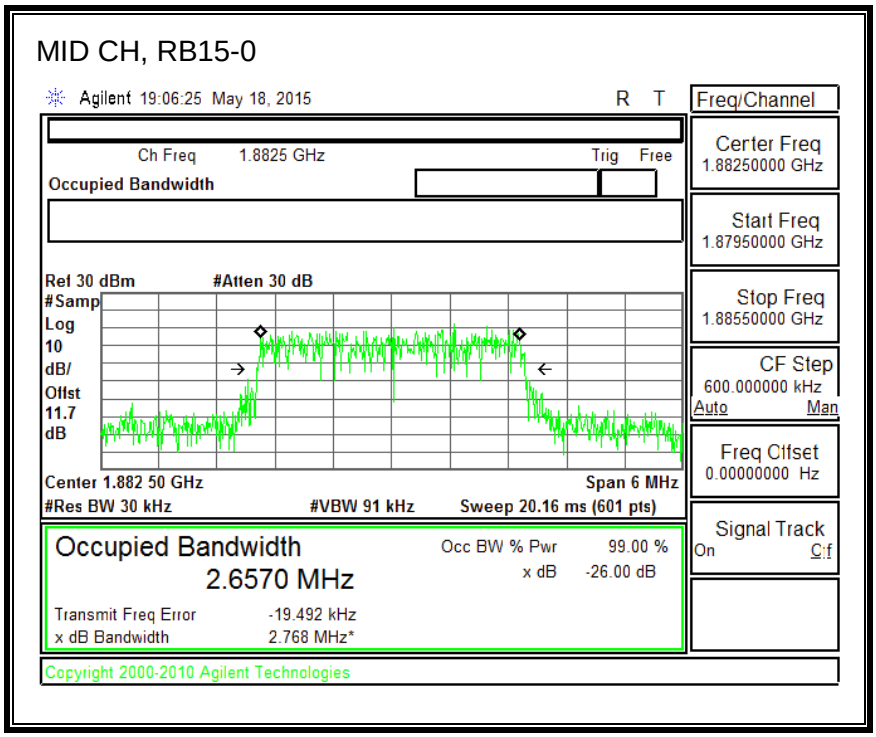
QPSK, (3.0 MHz BAND WIDTH)



16QAM, (3.0 MHz BAND WIDTH)



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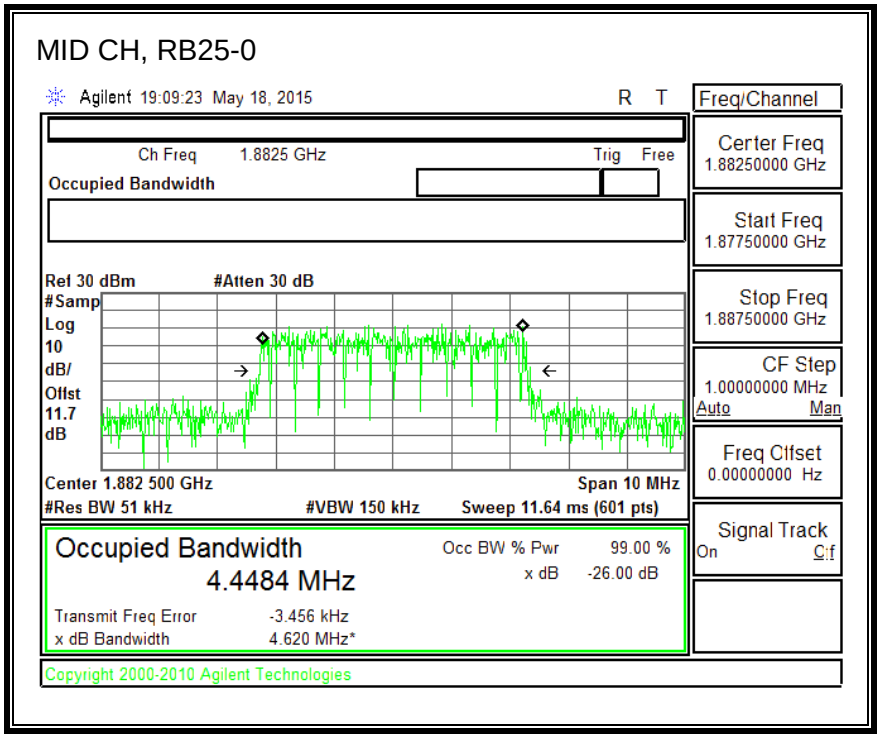
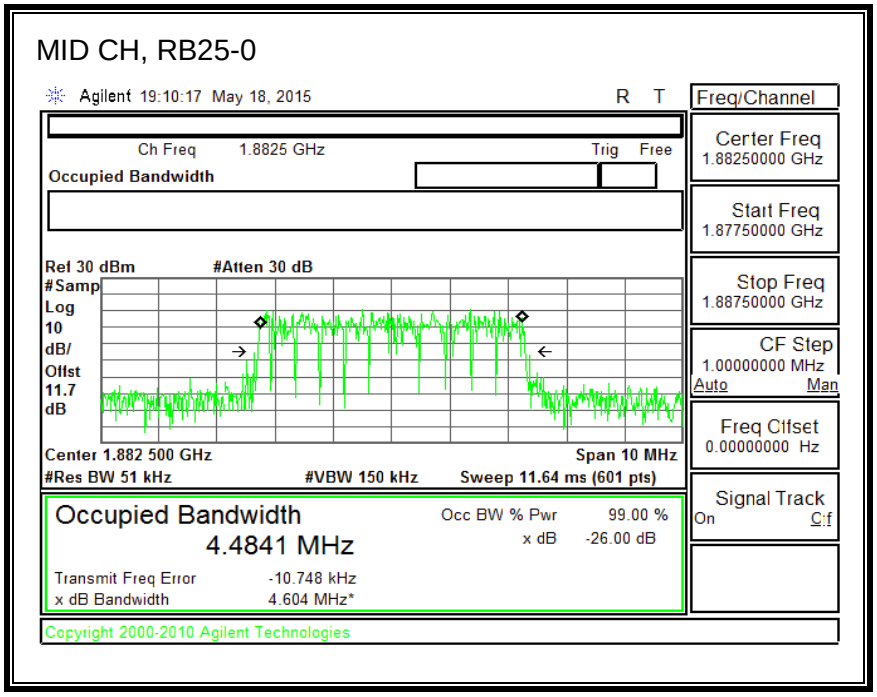
QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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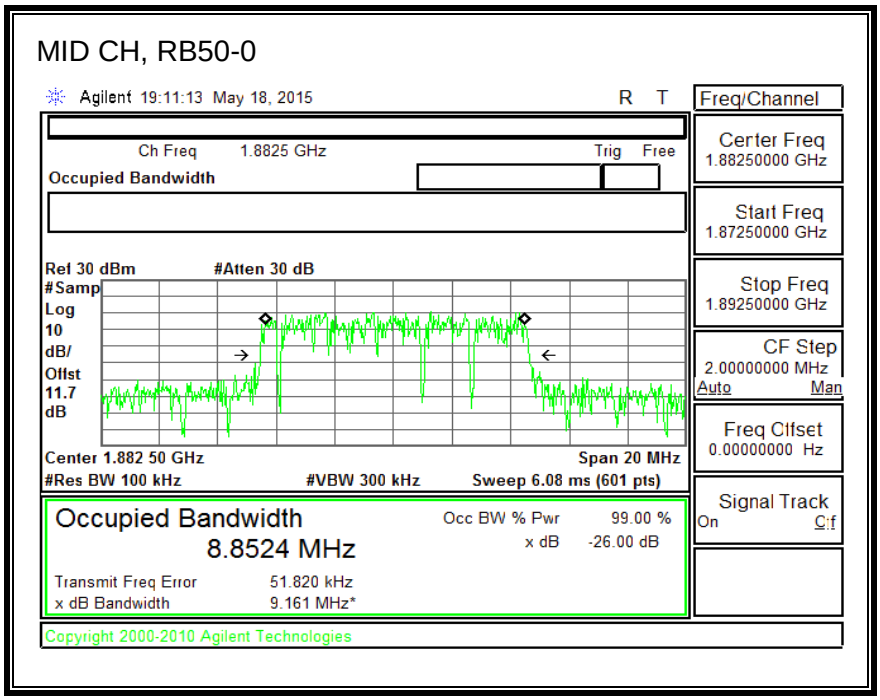
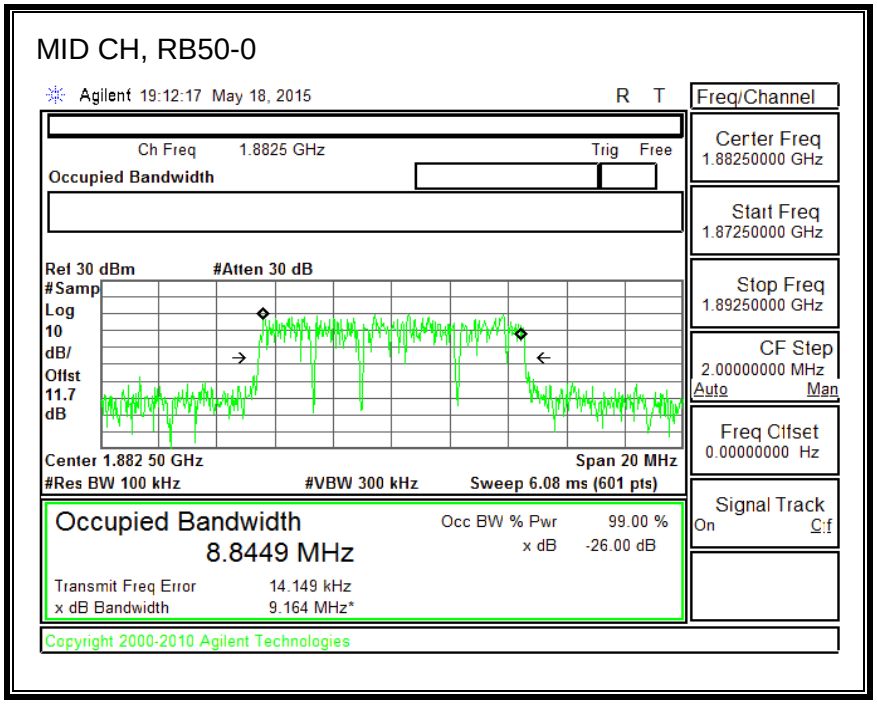
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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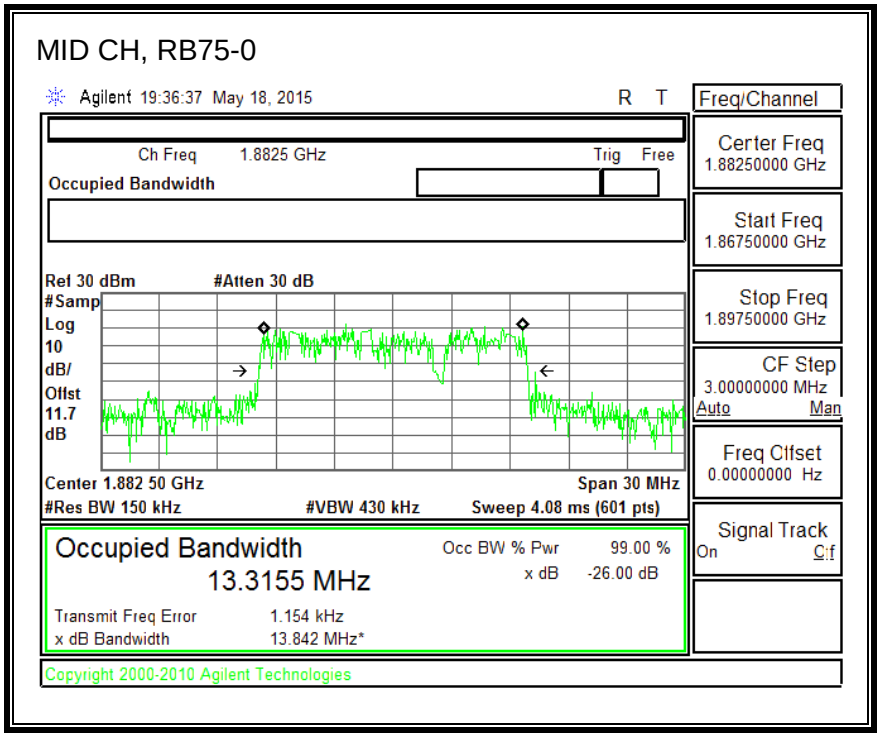
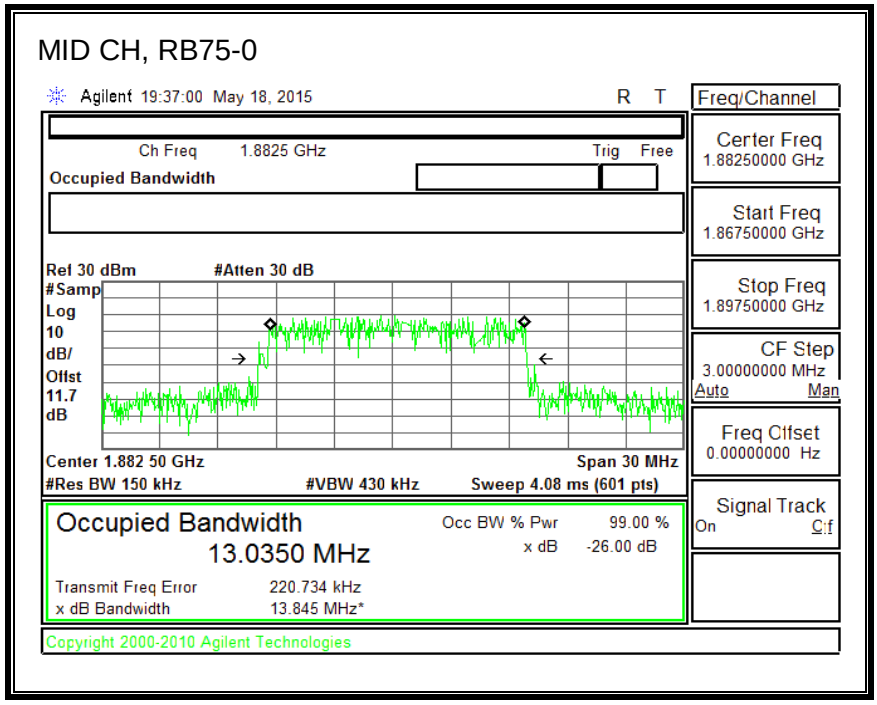
QPSK, (15.0 MHz BAND WIDTH)



16QAM, (15.0 MHz BAND WIDTH)



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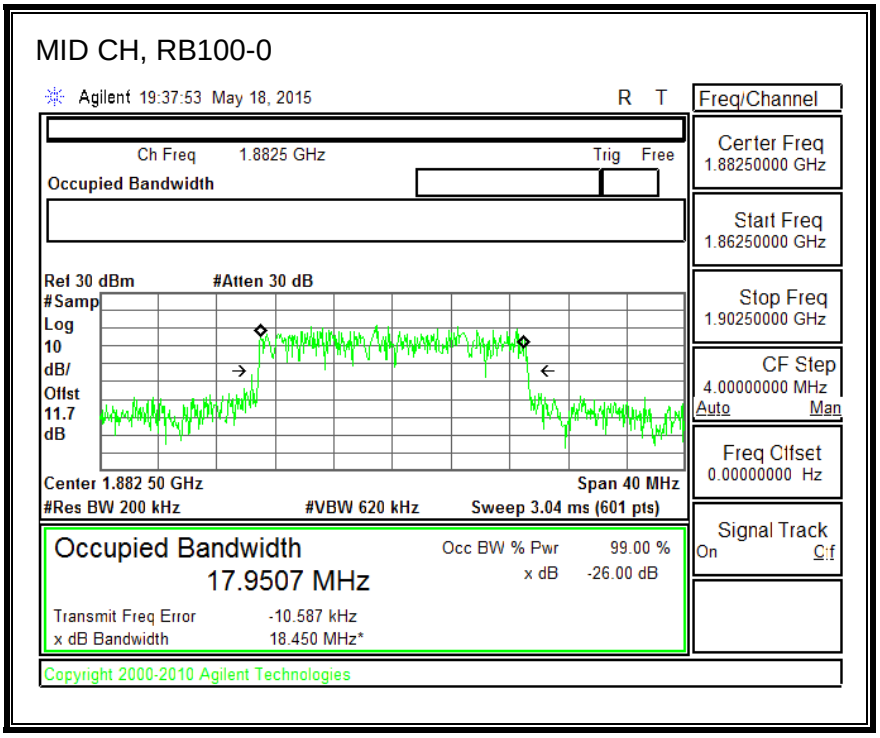
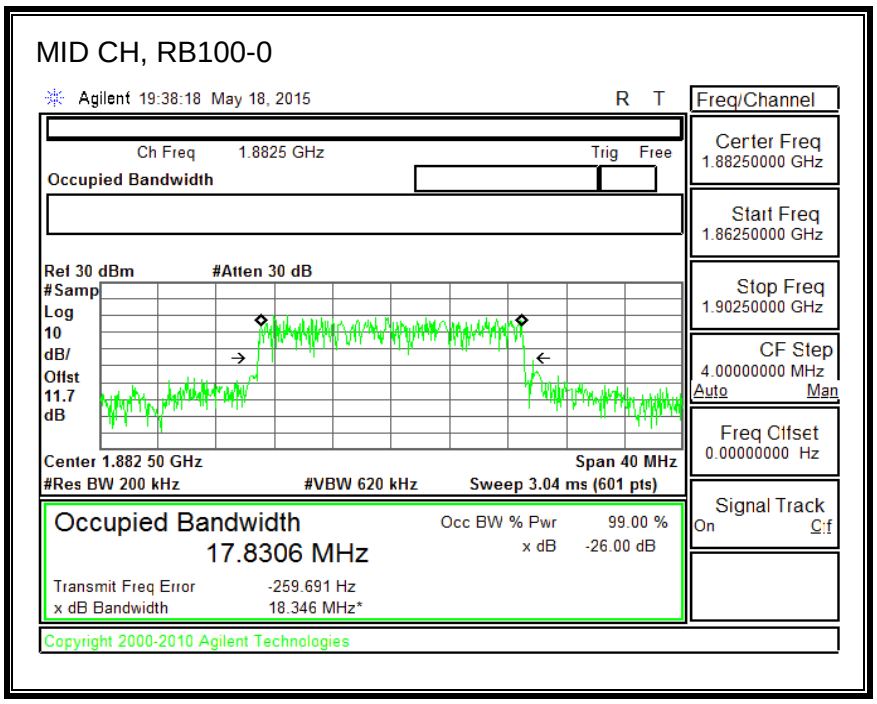
QPSK, (20.0 MHz BAND WIDTH)



16QAM, (20.0 MHz BAND WIDTH)



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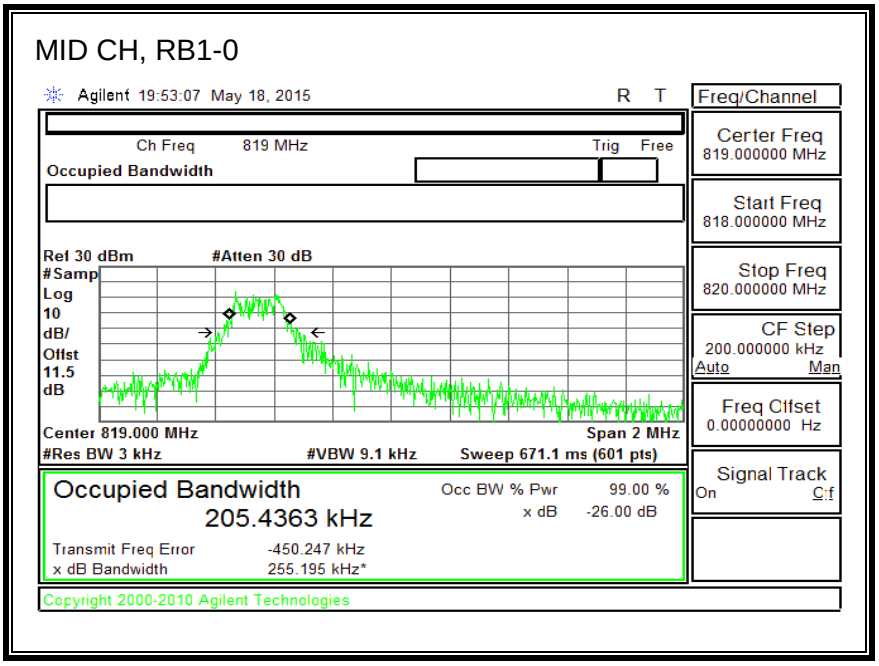
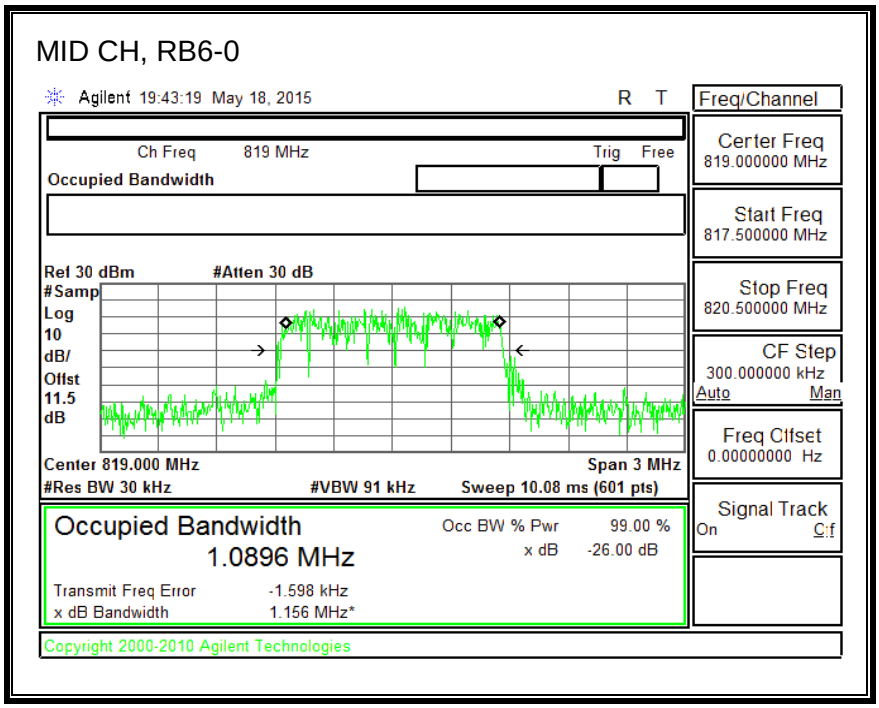
8.2.9. LTE BAND 26

QPSK, (1.4 MHz BAND WIDTH)





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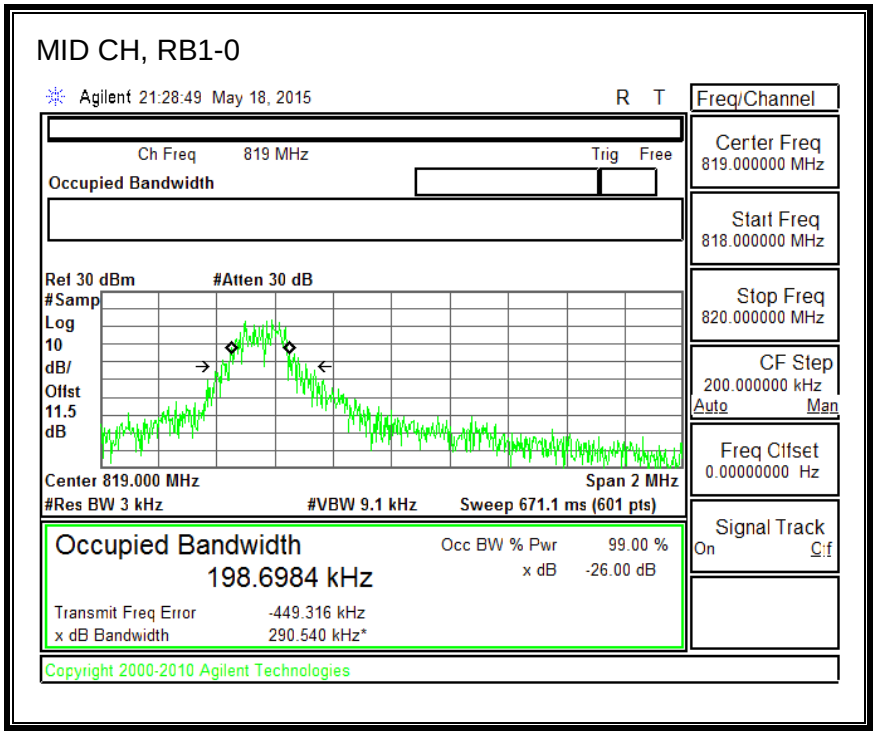
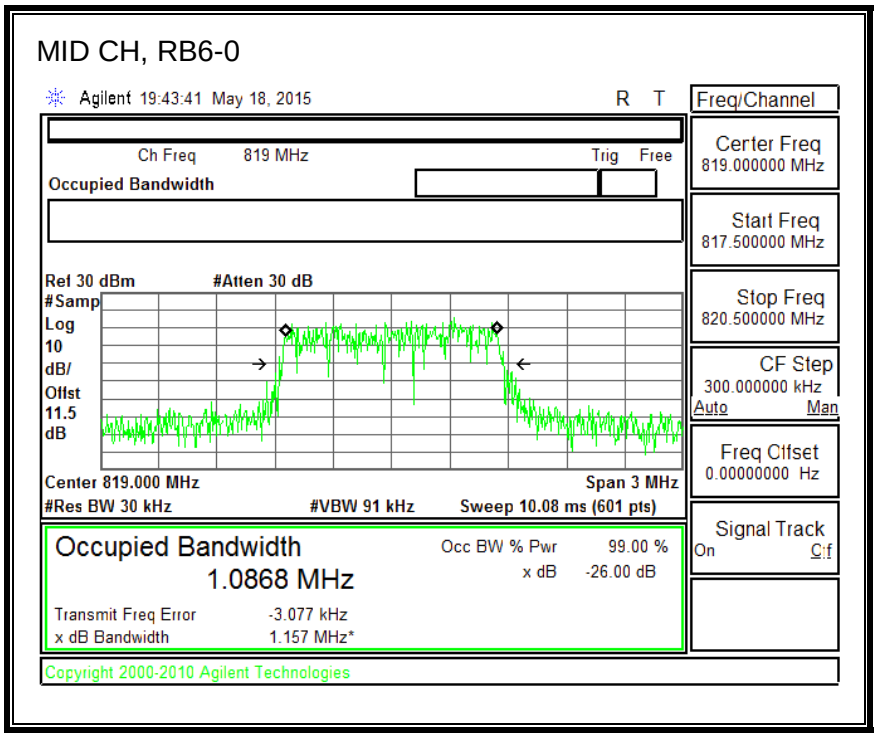
16QAM, (1.4 MHz BAND WIDTH)





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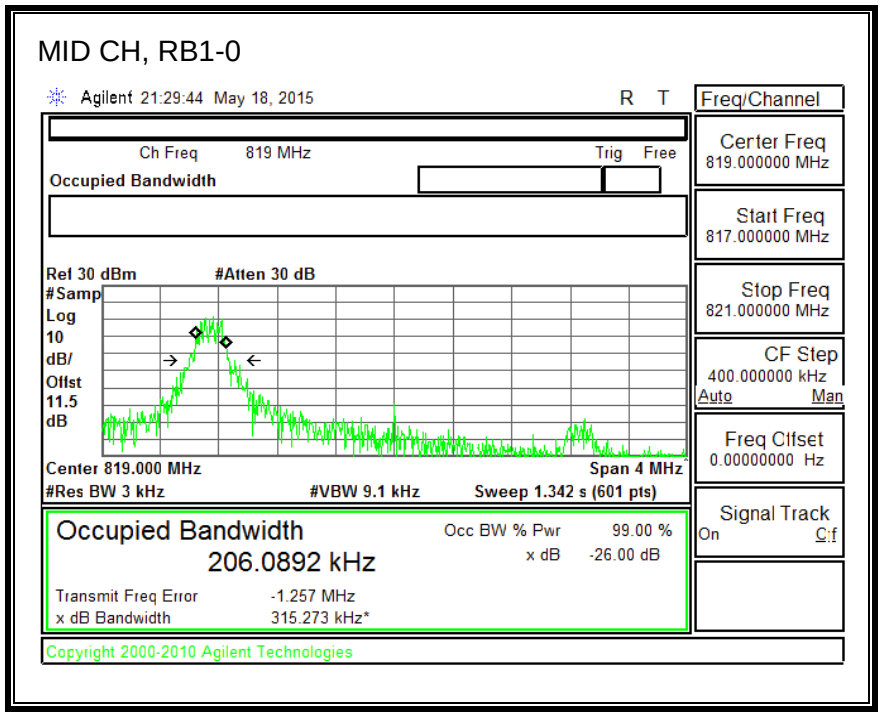
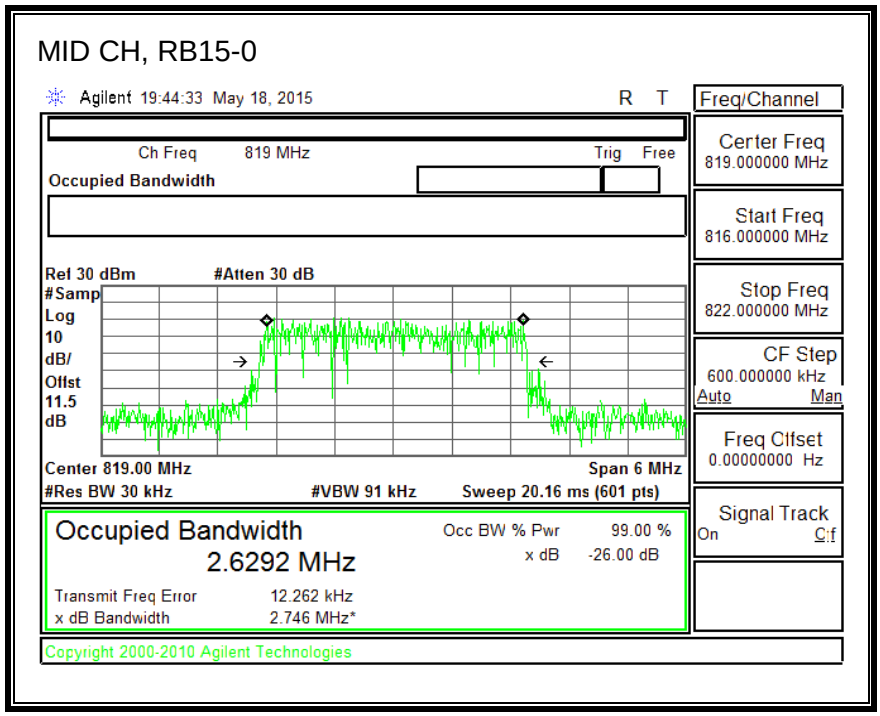
QPSK, (3.0 MHz BAND WIDTH)





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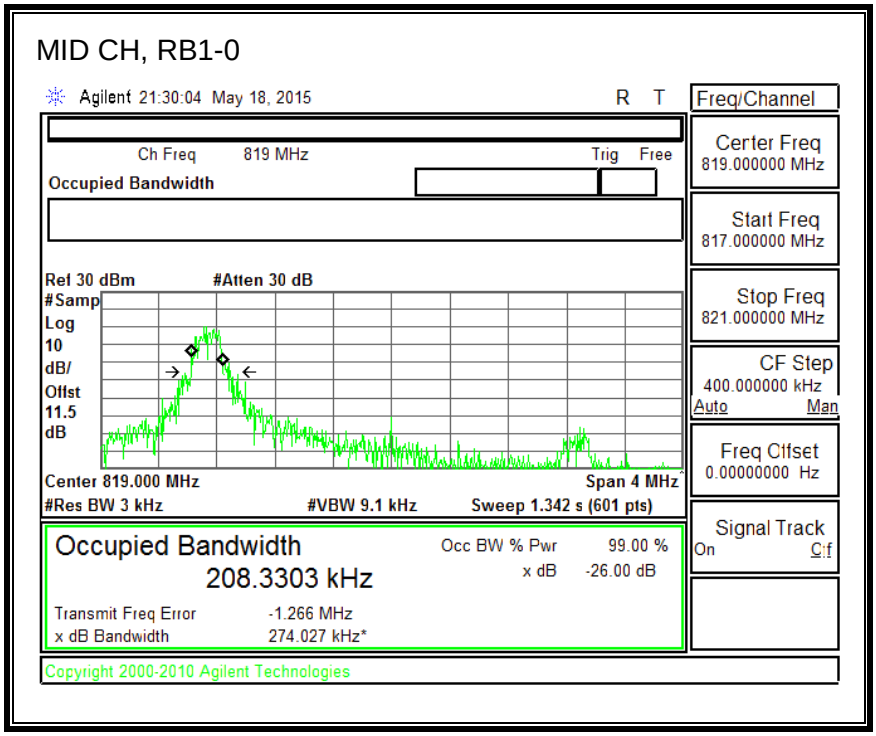
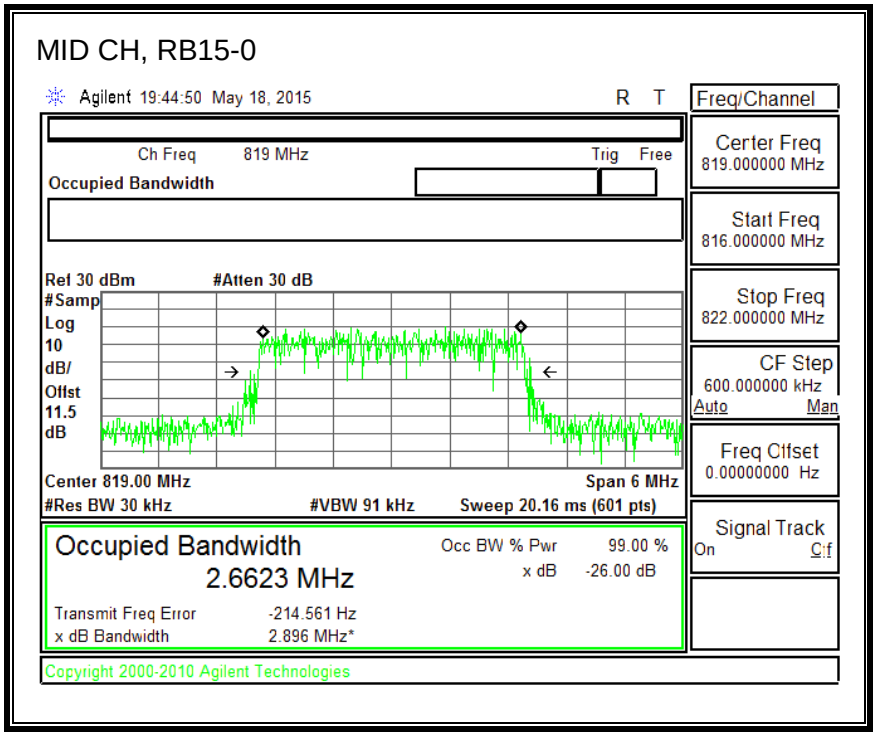
16QAM, (3.0 MHz BAND WIDTH)





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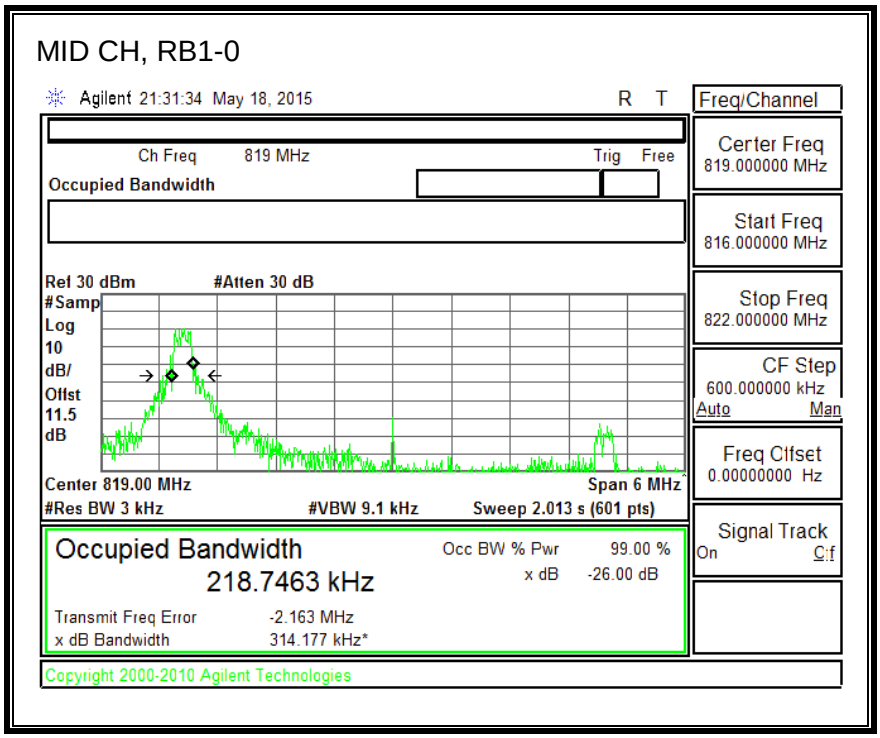
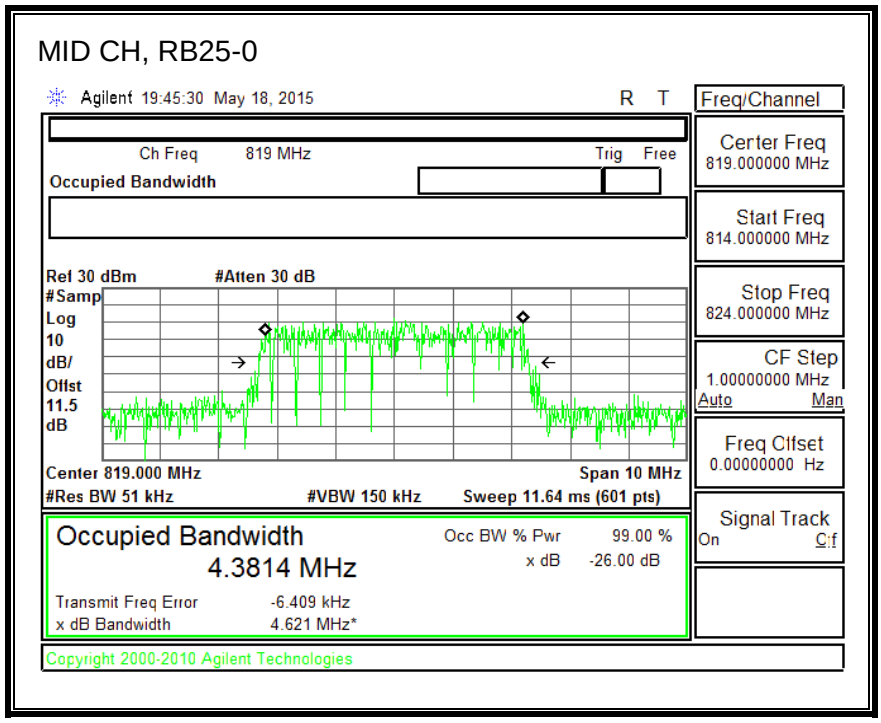
QPSK, (5.0 MHz BAND WIDTH)





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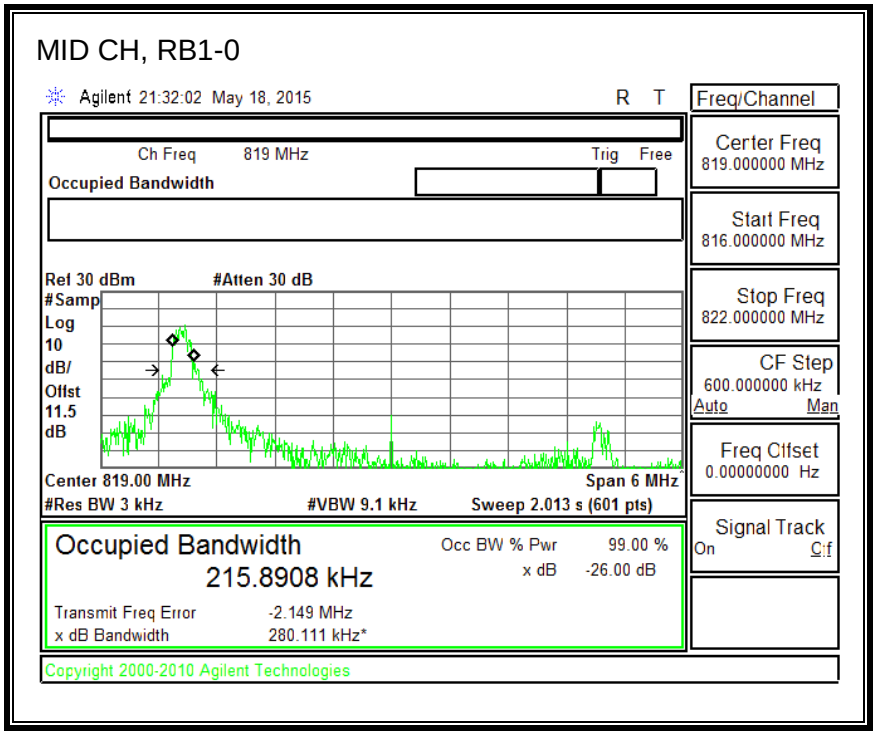
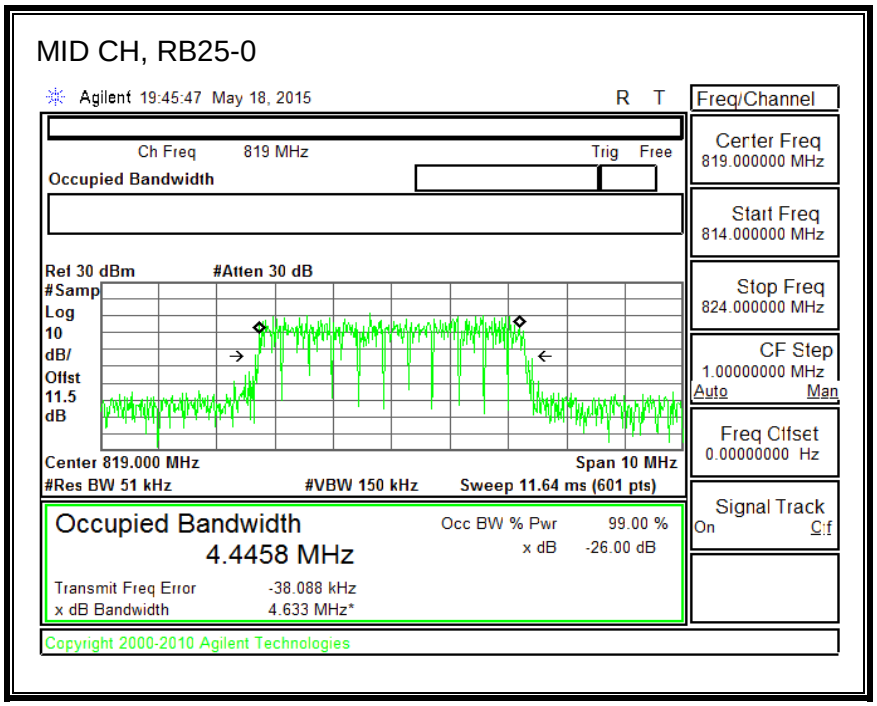
16QAM, (5.0 MHz BAND WIDTH)





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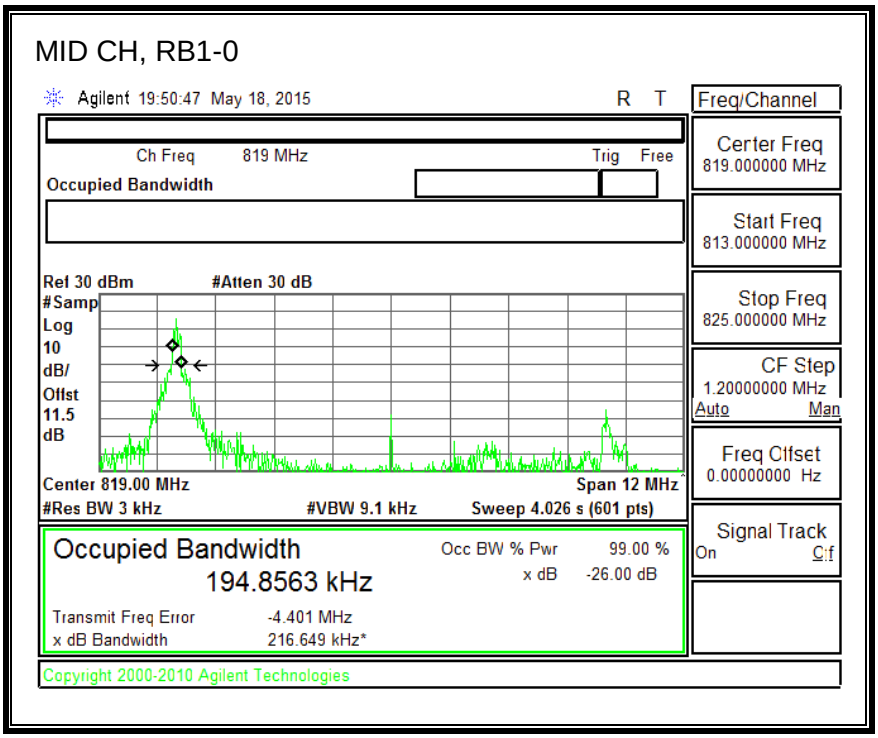
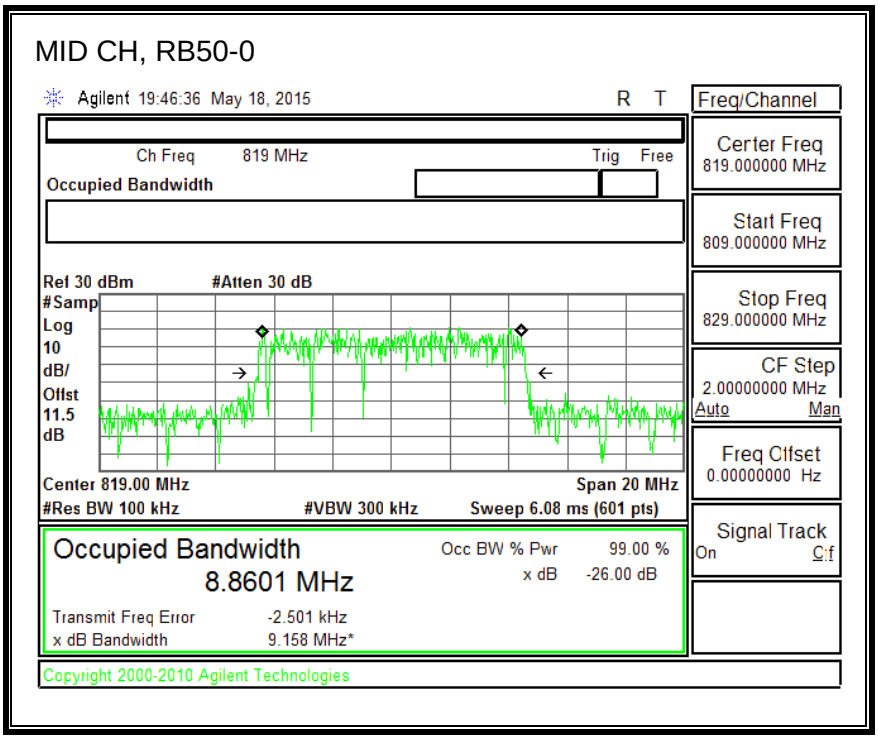
QPSK, (10.0 MHz BAND WIDTH)

MID CH, RB1-0



MID CH, RB50-0



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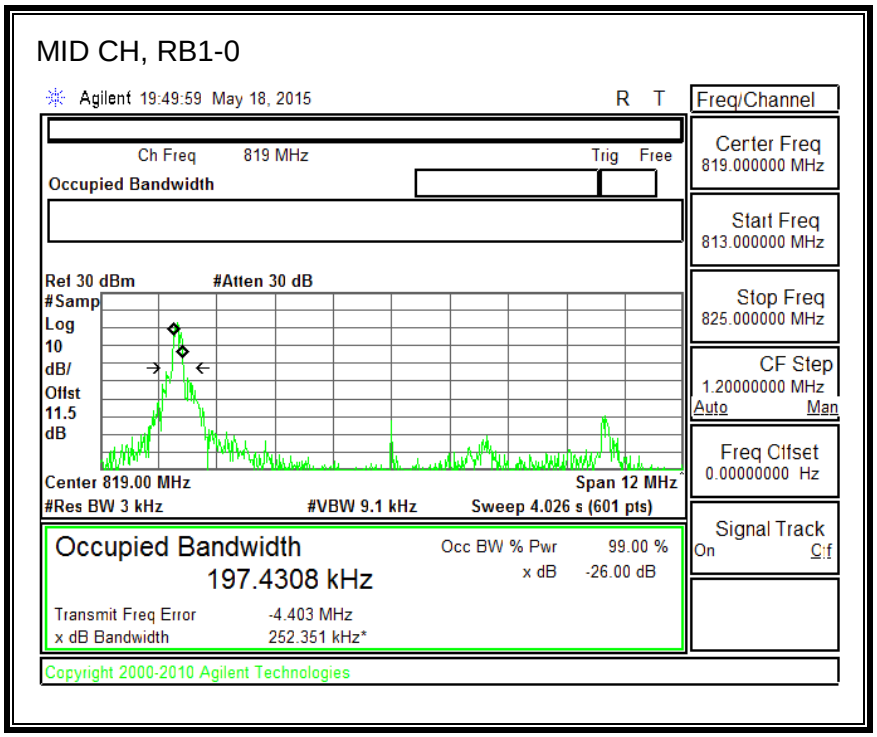
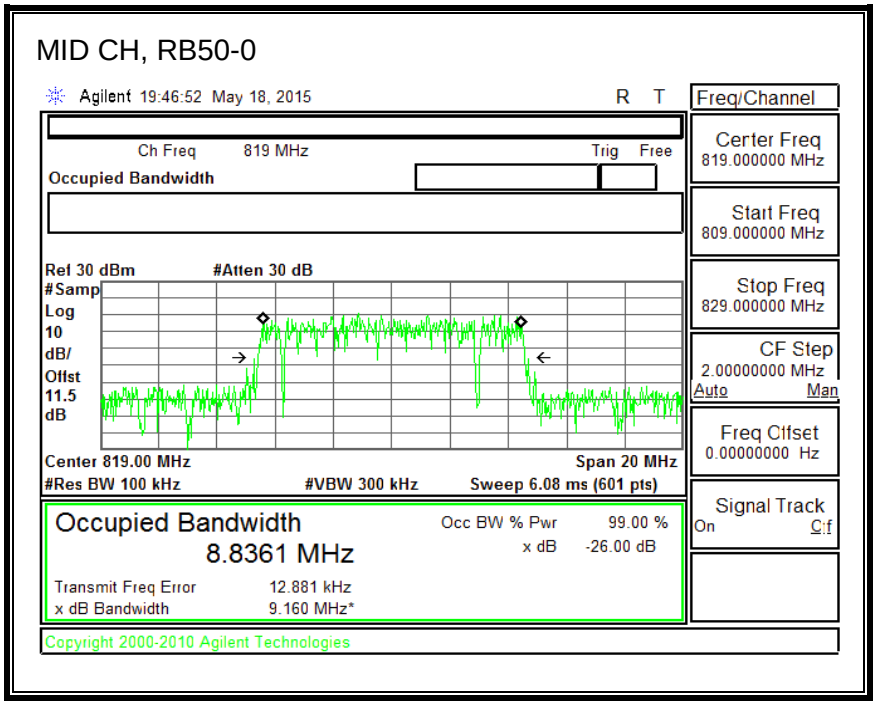
16QAM, (10.0 MHz BAND WIDTH)





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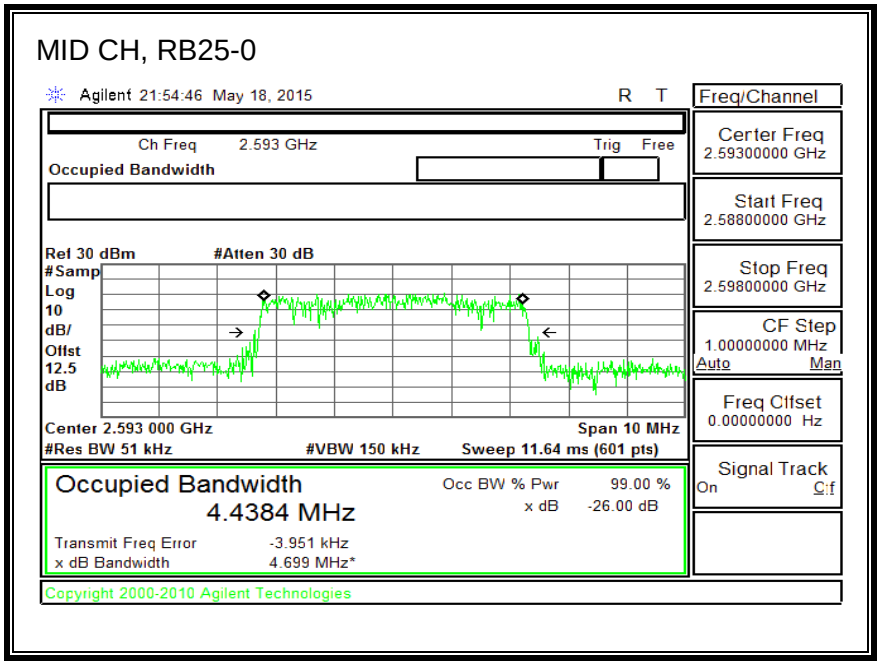
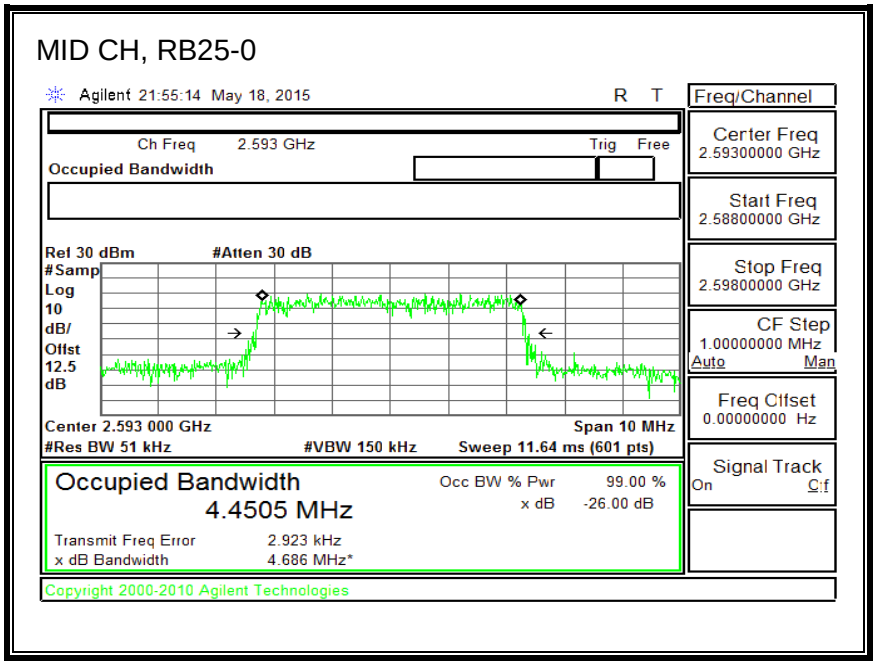
8.2.10. LTE BAND 41

QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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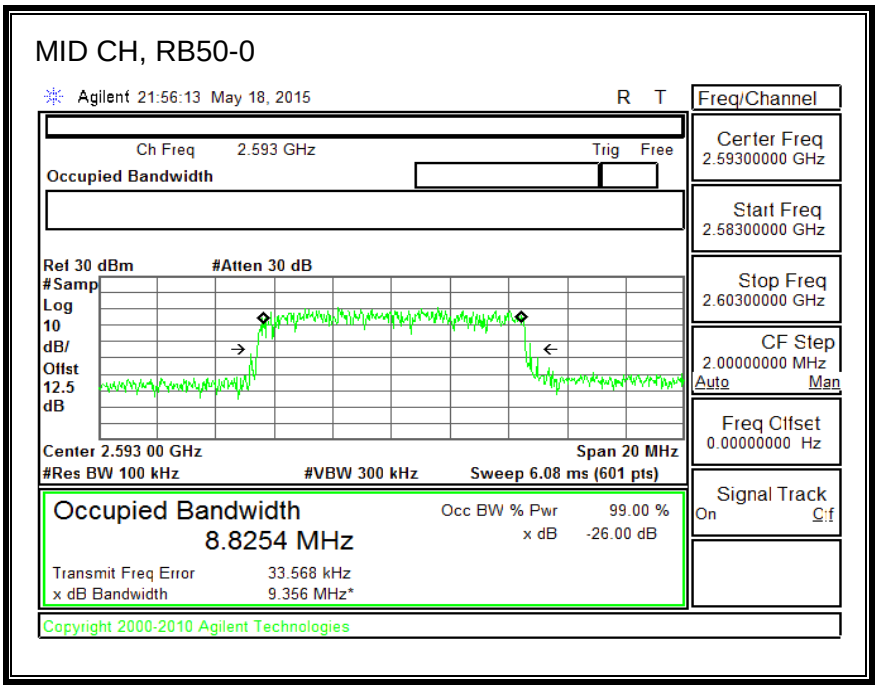
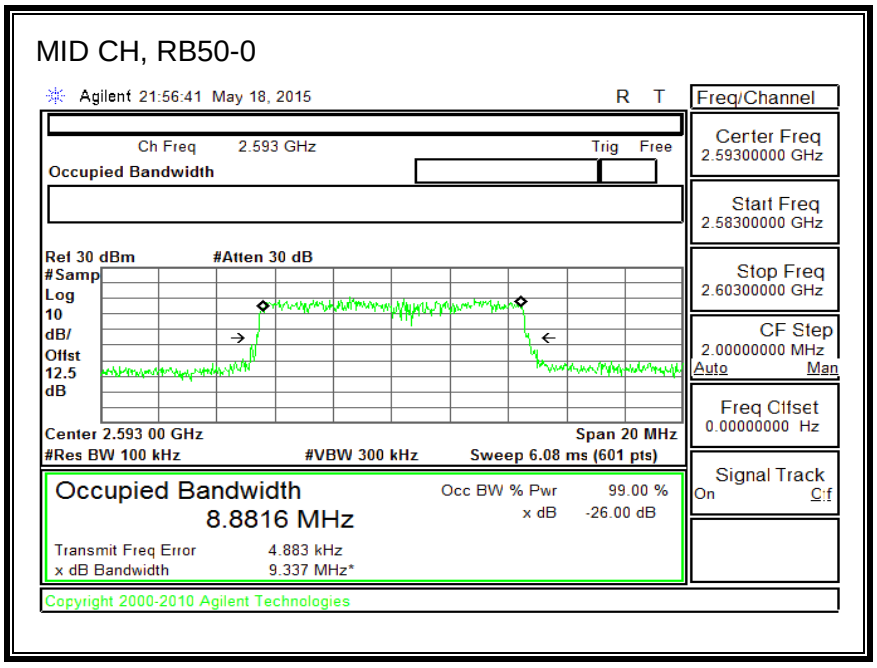
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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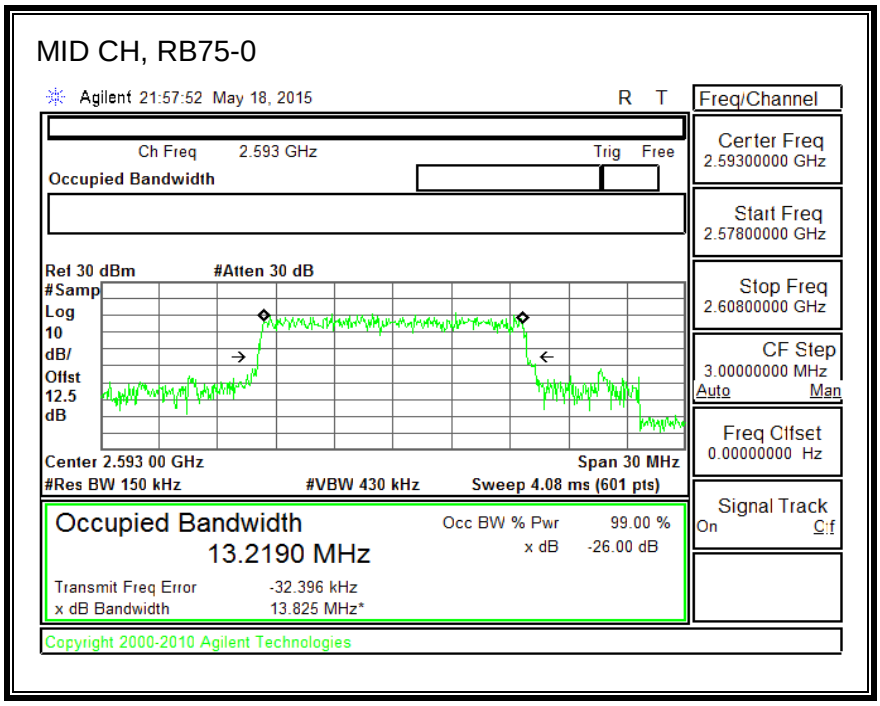
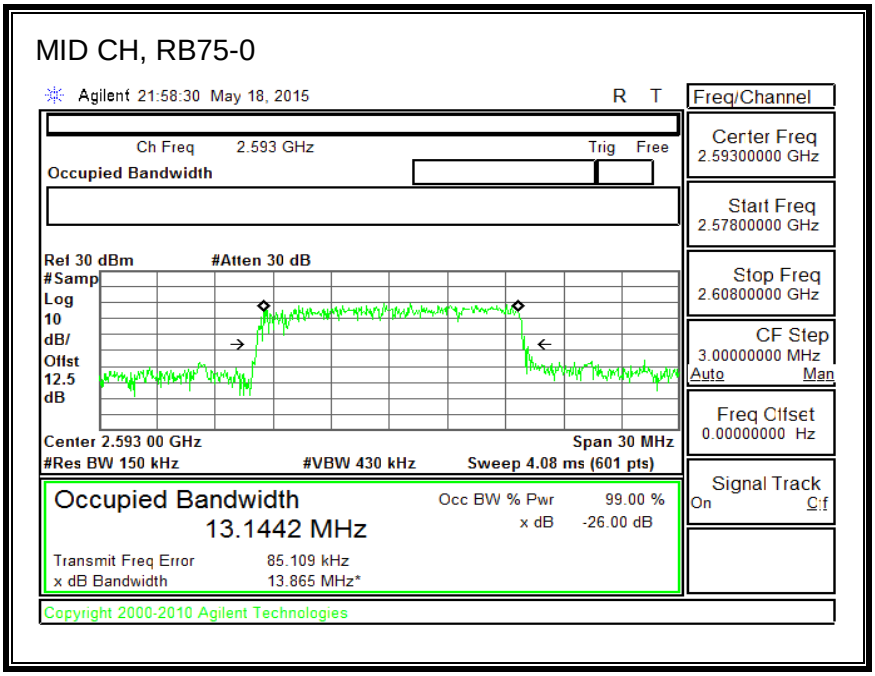
QPSK, (15.0 MHz BAND WIDTH)



16QAM, (15.0 MHz BAND WIDTH)



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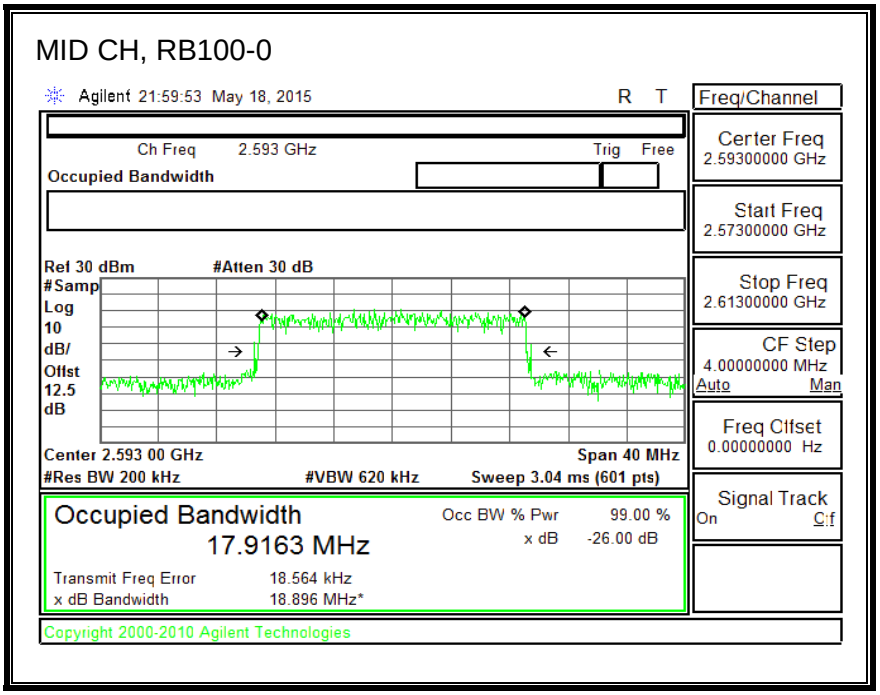
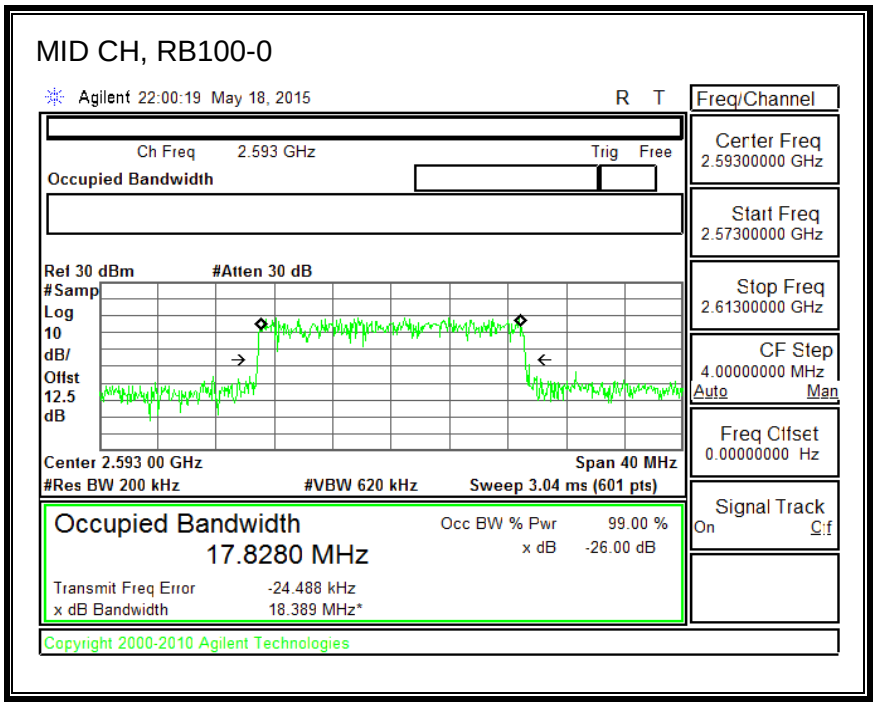
QPSK, (20.0 MHz BAND WIDTH)



16QAM, (20.0 MHz BAND WIDTH)



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8.3. BANDEDGE AND EMISSION MASK (MODEL: A1633)

RULE PART(S)

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

LIMITS

FCC: §24.238, §27.53
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.

FCC: §90.210, and §90.691 (LTE BAND 26)
(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 Log10 (f/6.1) decibels or 50 + 10 Log10(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 + 10Log10(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.)

FCC: §27.53
(c) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;
(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;
(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;
(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;
(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;
(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

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FCC: §27.53 (LTE BAND 41)
(m)(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

(m)(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 that 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.Show citation box.

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FCC: §90.210, and §90.691
(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 Log10(f/6.1) decibels or 50 + 10 Log10(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 + 10Log10(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

The transmitter output was connected to a CMW500Test 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.

For each band edge measurement:
Set the spectrum analyzer span to include the block edge frequency (704, 716, 824, 849, 1710 and 1755, 1850 and 1910MHz)
Set a marker to point the corresponding band edge frequency in each test case.
Set display line at -13 dBm
Set resolution bandwidth to at least 1% of emission bandwidth.

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MODES TESTED

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 30
- LTE Band 41

RESULTS

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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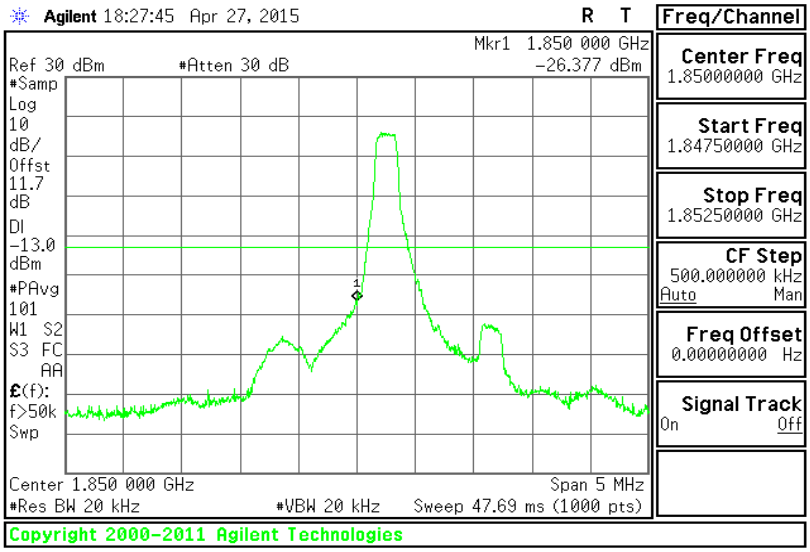
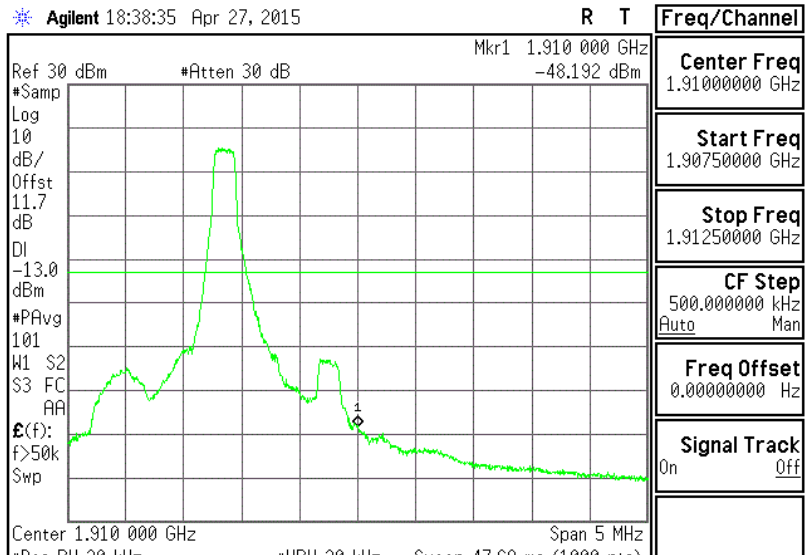
8.3.1. LTE BAND 2 BANDEDGE

QPSK, (1.4 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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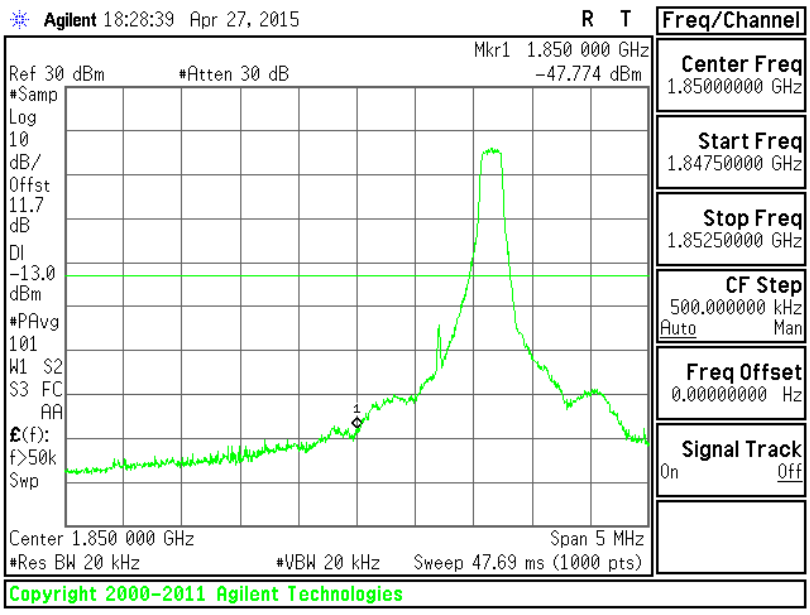
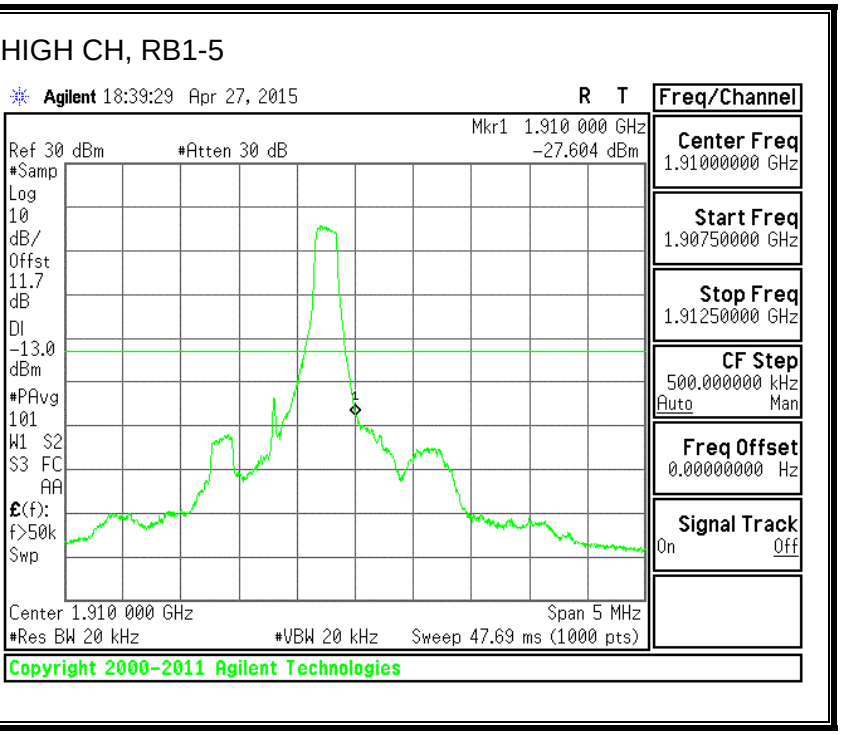
LOW CH, RB1-5



HIGH CH, RB1-5



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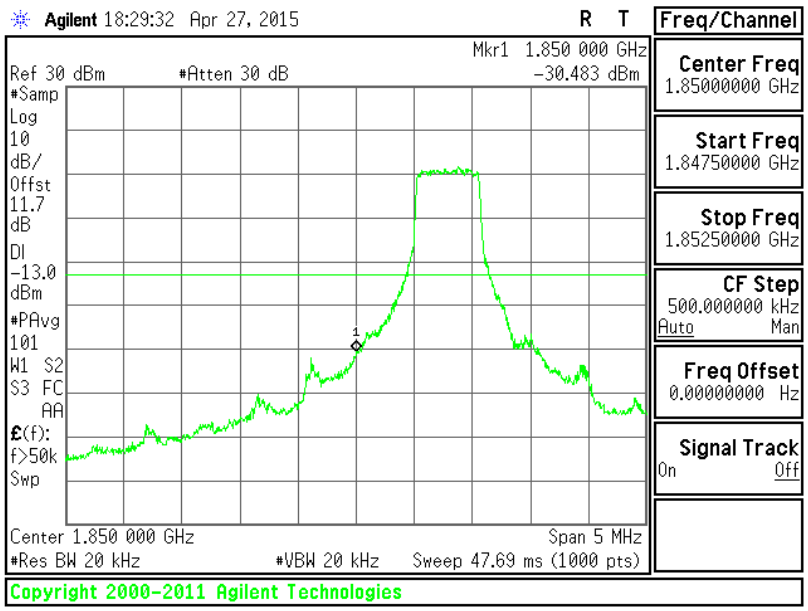
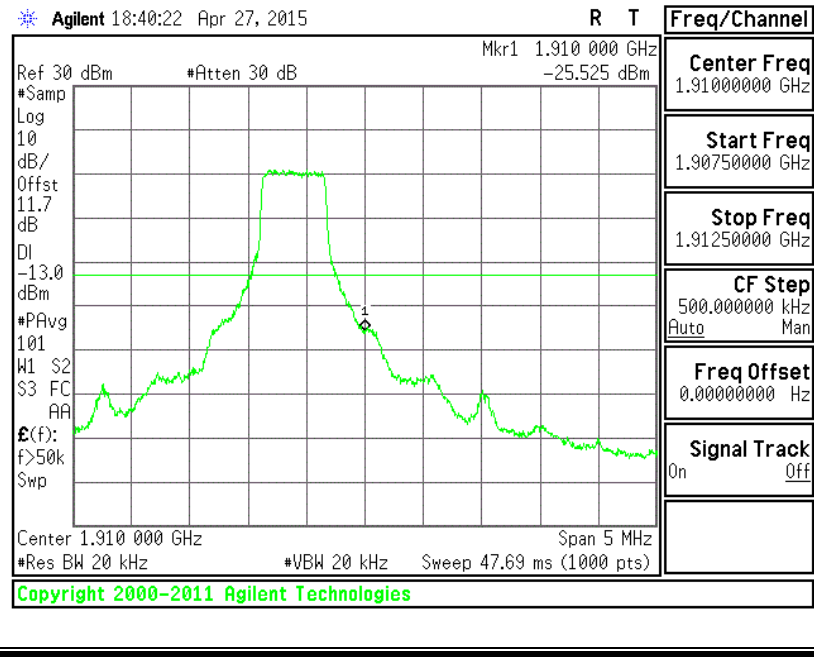
LOW CH, RB3-2



HIGH CH, RB3-2



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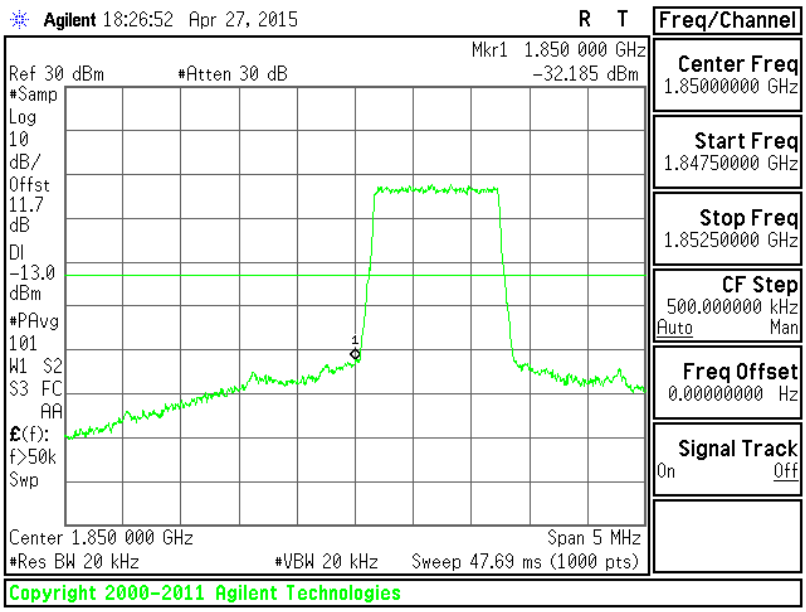
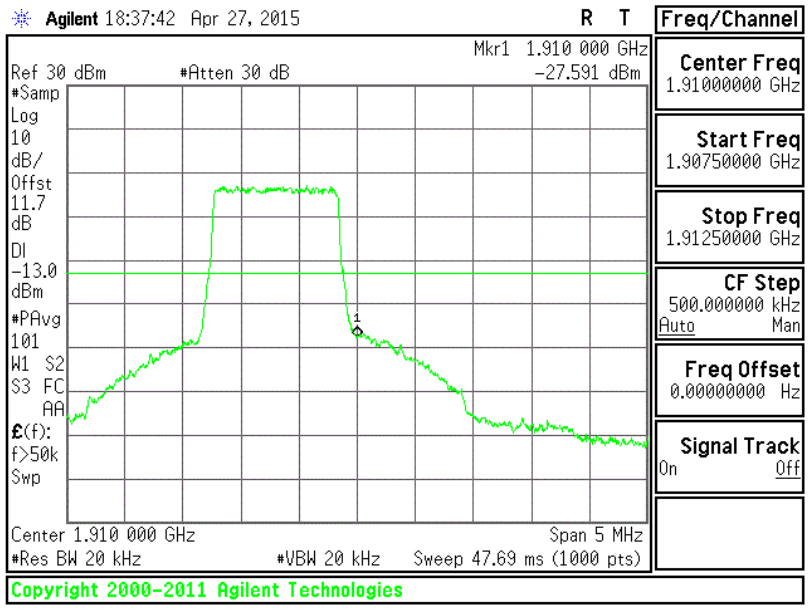
LOW CH, RB6-0



HIGH CH, RB6-0



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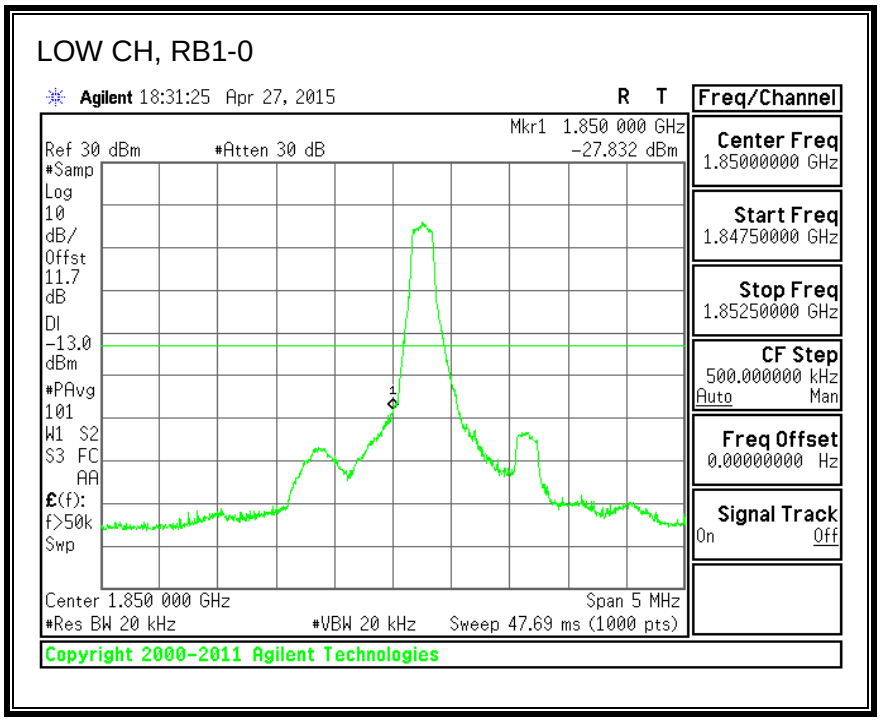
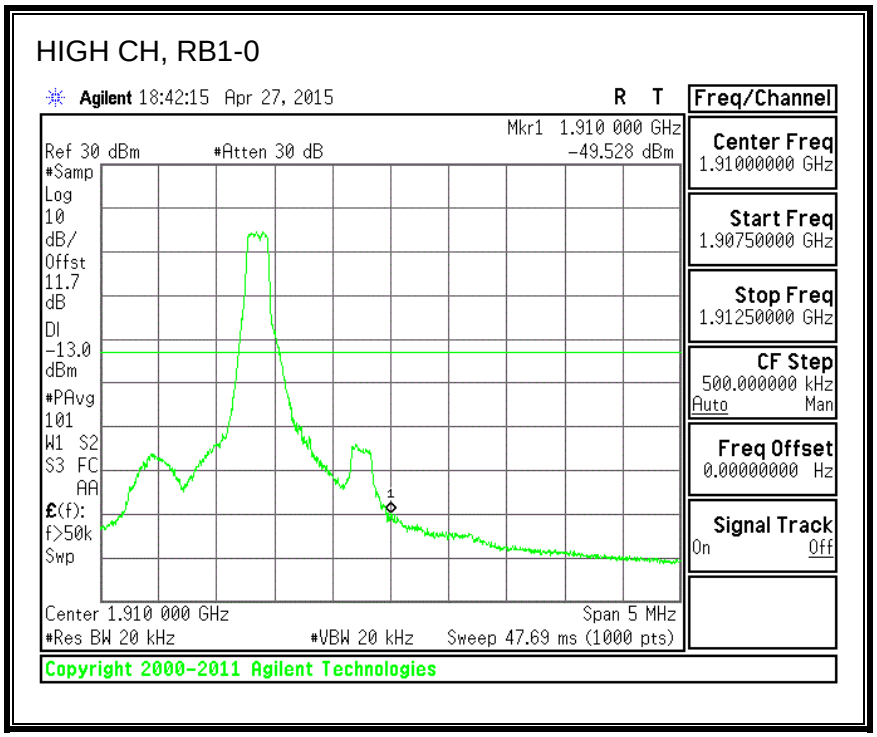
16QAM, (1.4 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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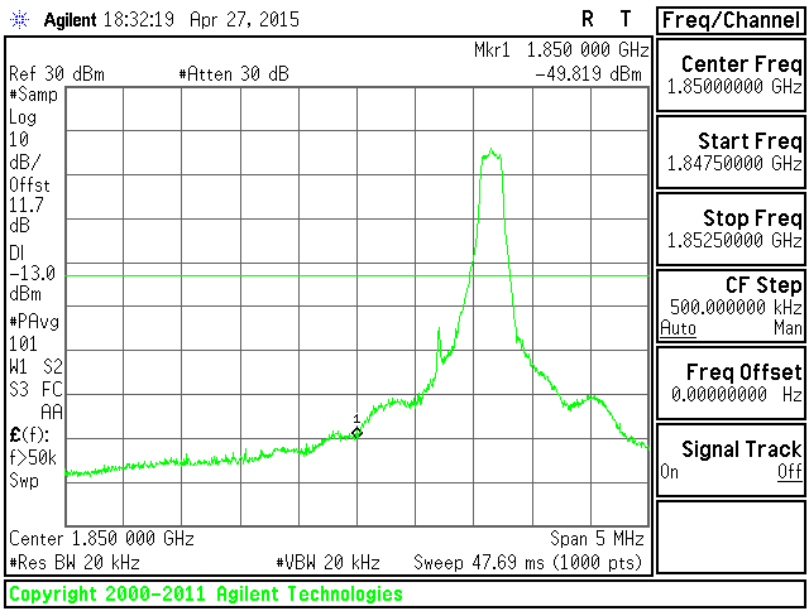
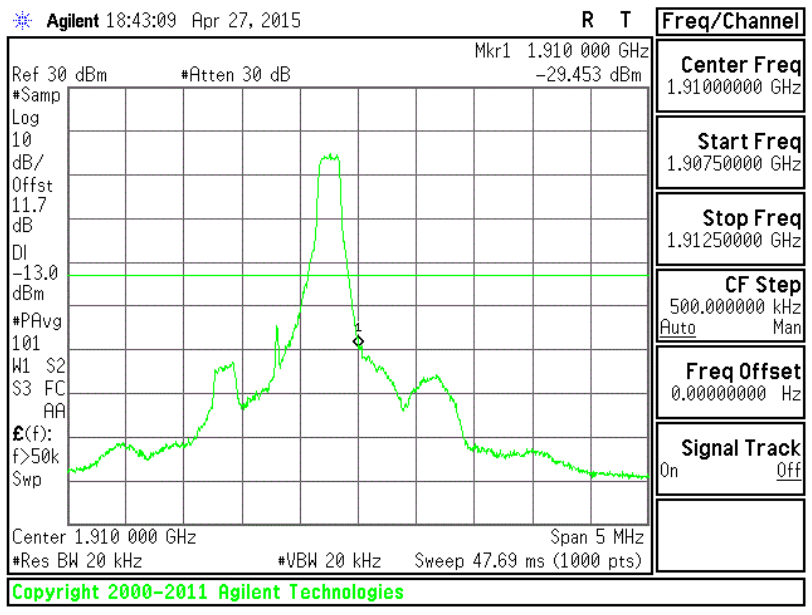
LOW CH, RB1-5



HIGH CH, RB1-5



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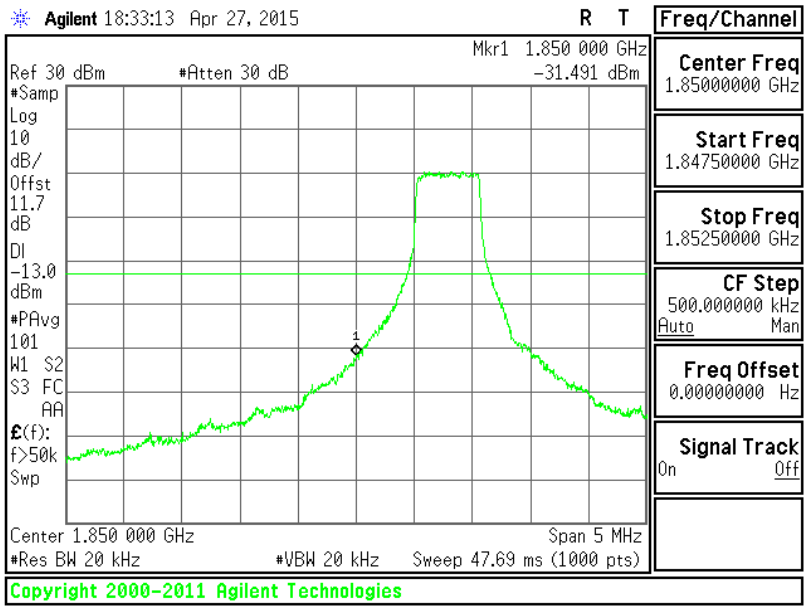
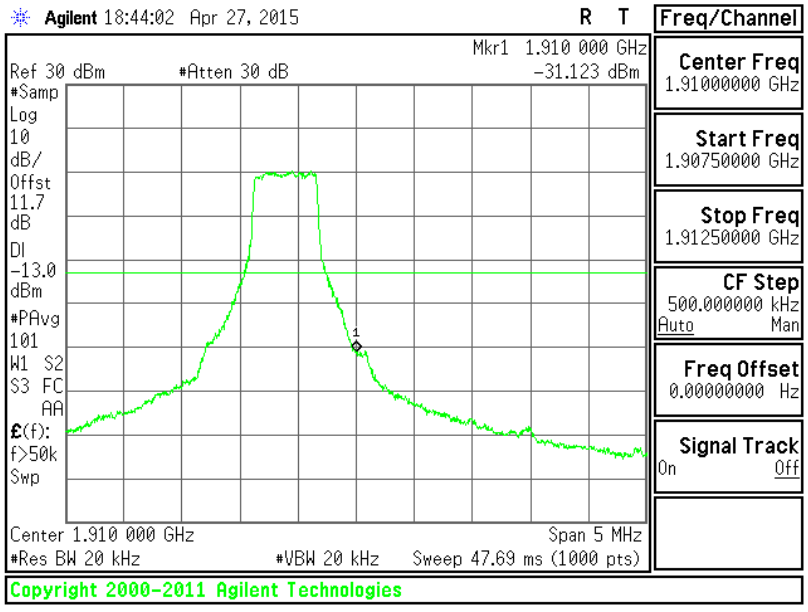
LOW CH, RB3-2



HIGH CH, RB3-2



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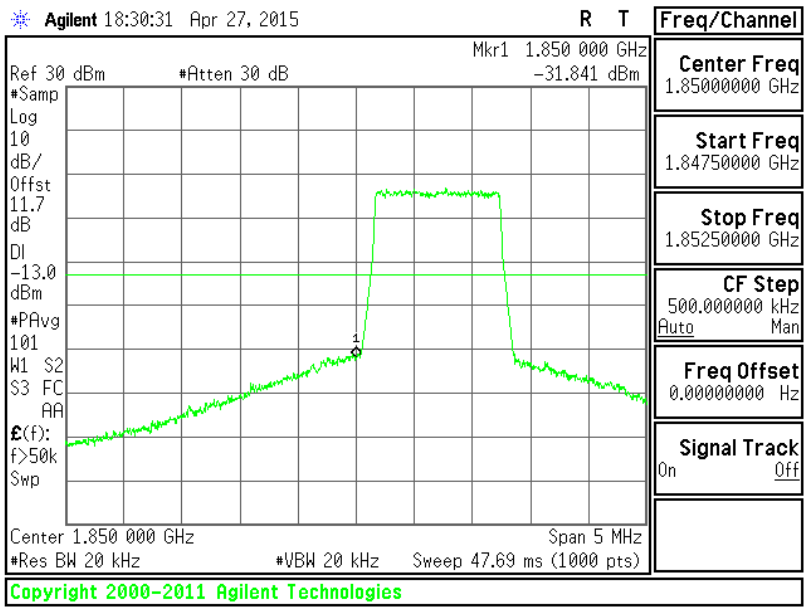
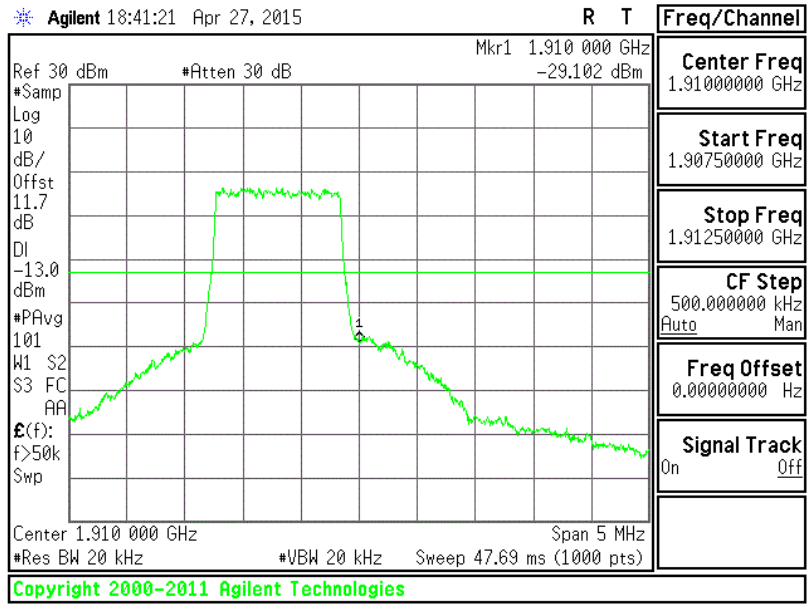
LOW CH, RB6-0



HIGH CH, RB6-0



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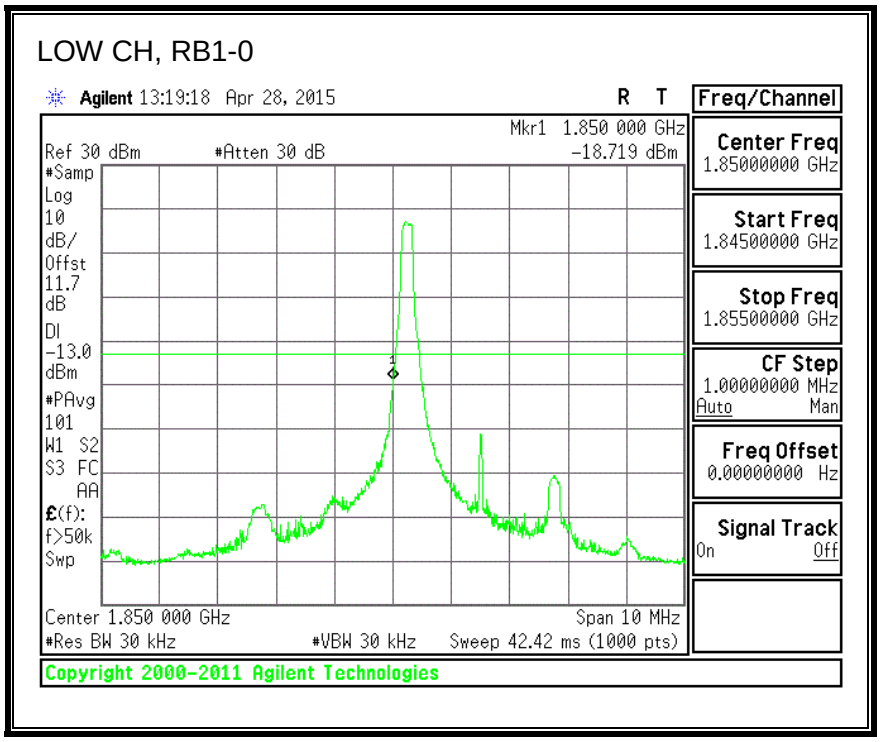
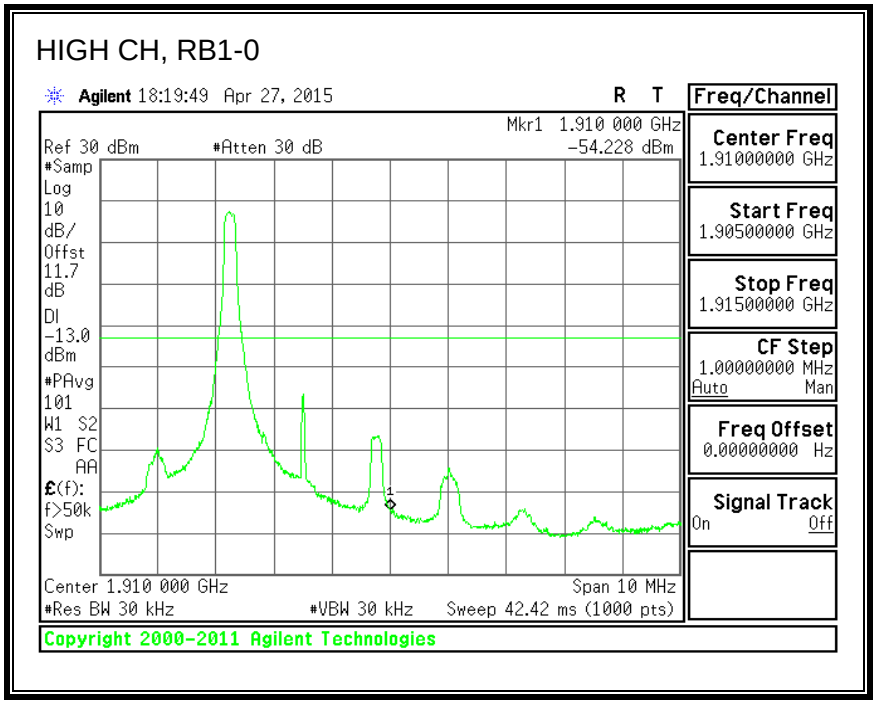
QPSK, (3.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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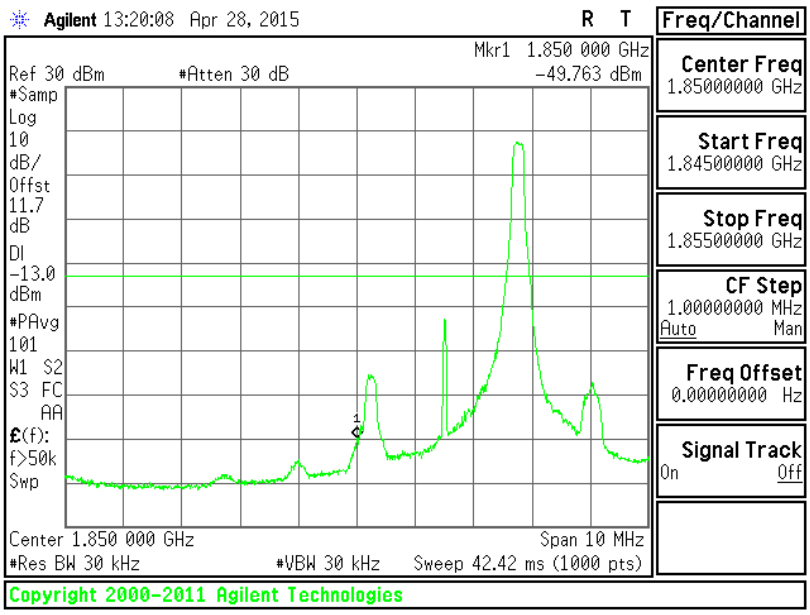
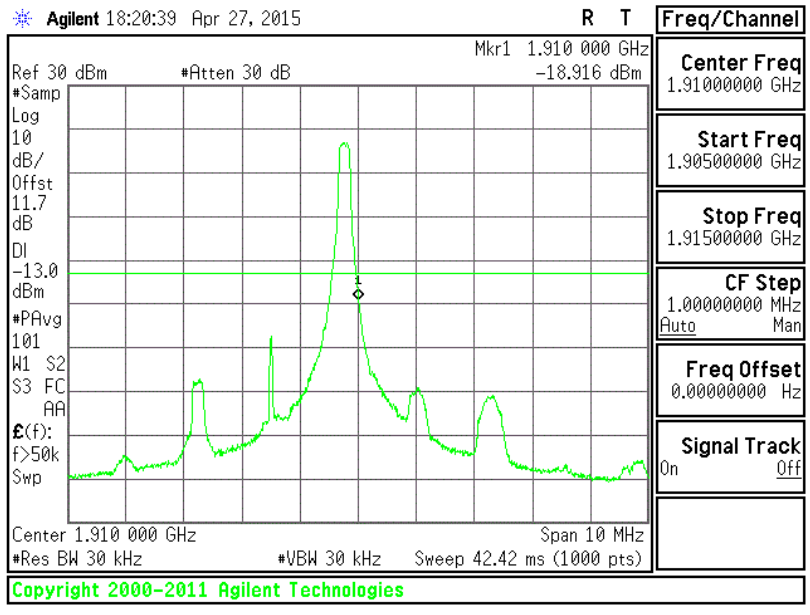
LOW CH, RB1-14



HIGH CH, RB1-14



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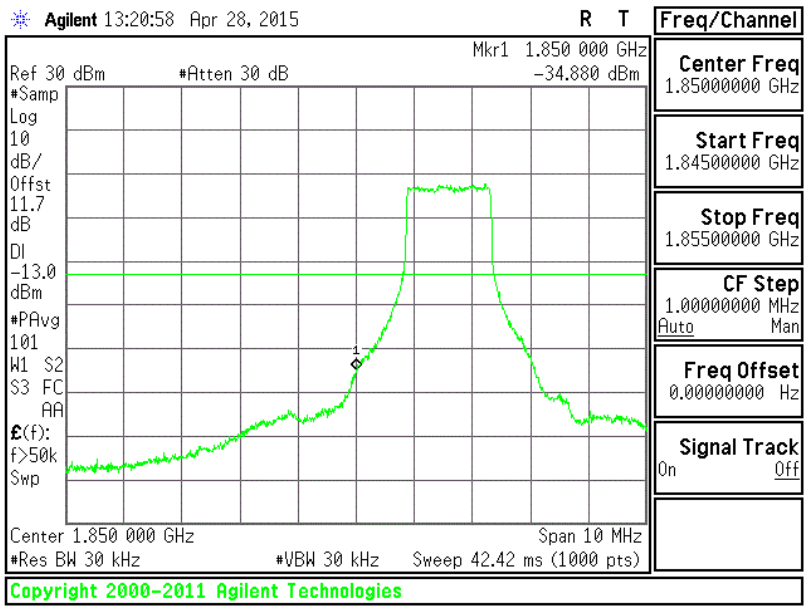
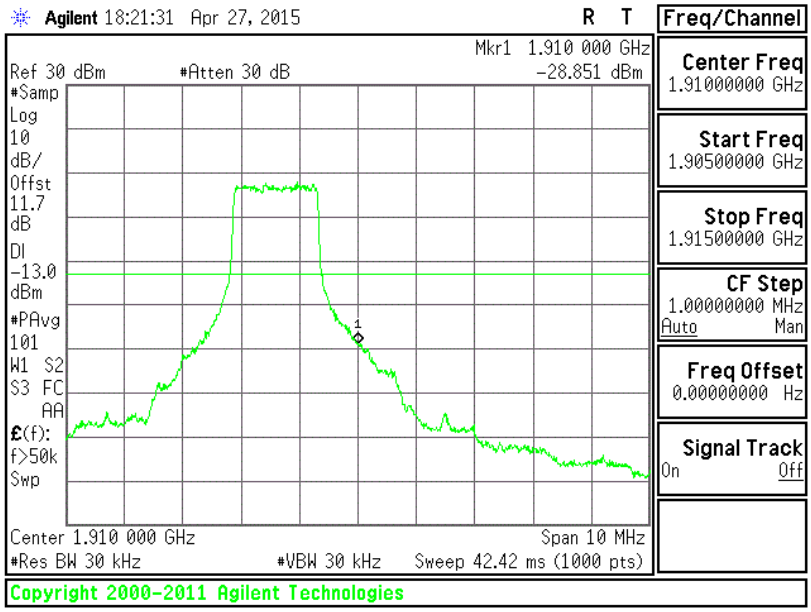
LOW CH, RB8-4



HIGH CH, RB8-4



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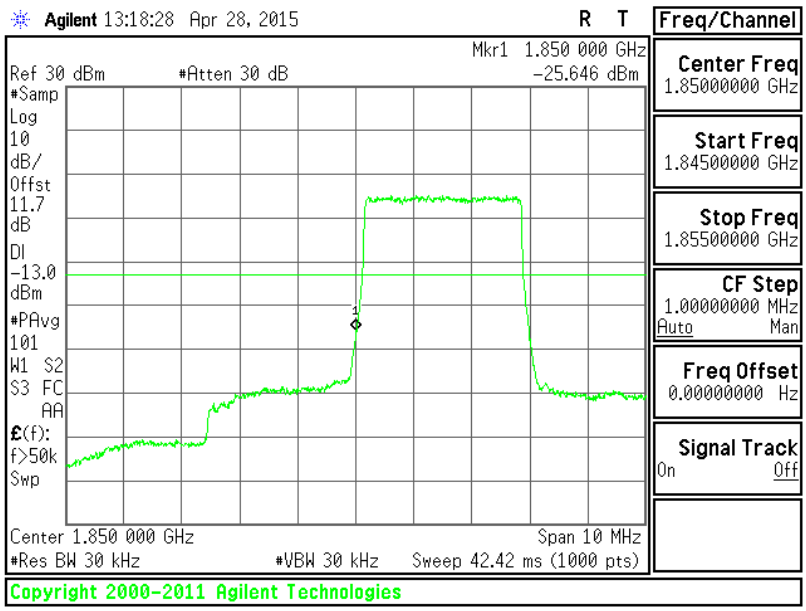
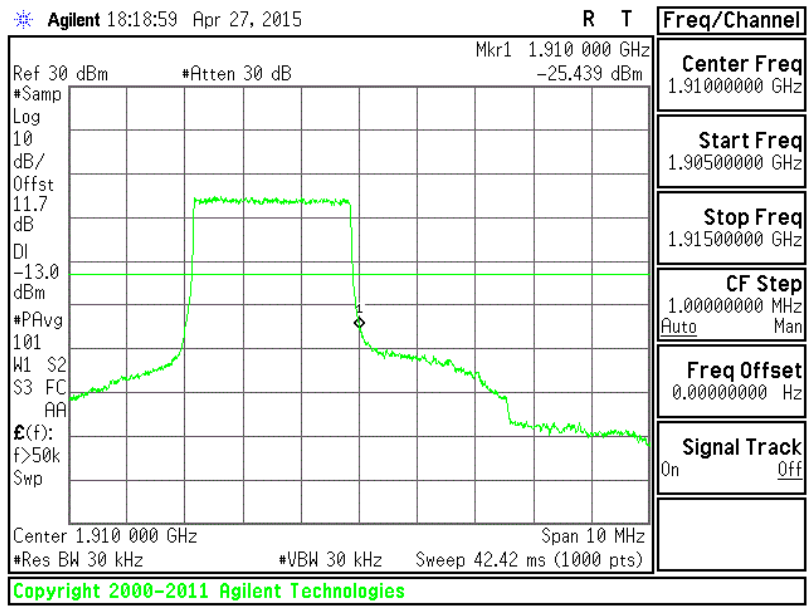
LOW CH, RB15-0



HIGH CH, RB15-0



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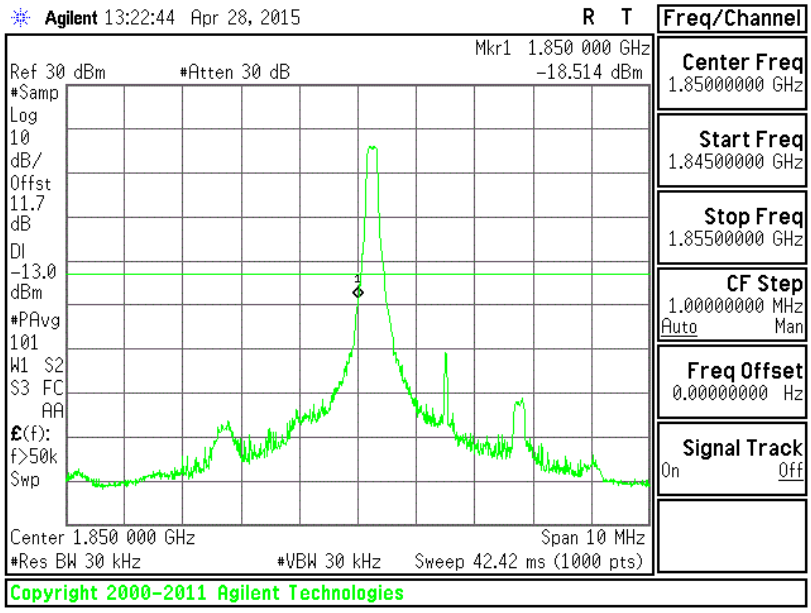
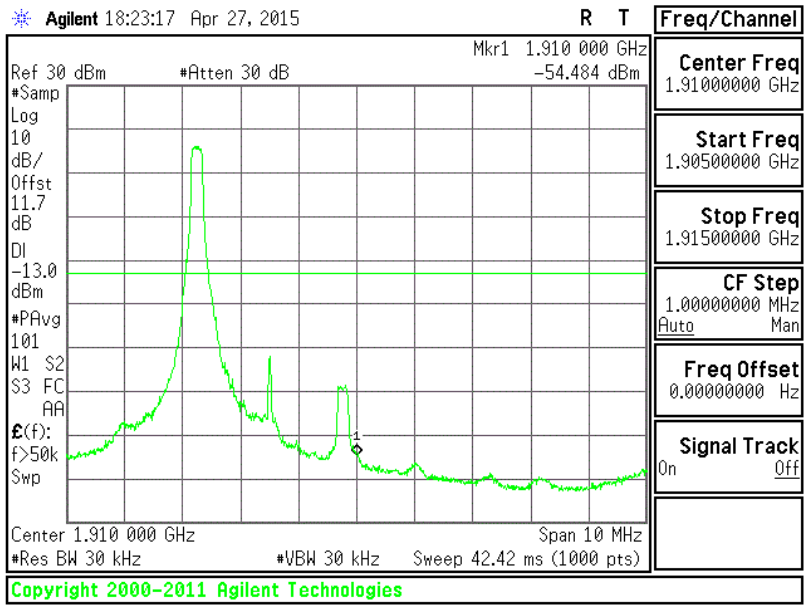
16QAM, (3.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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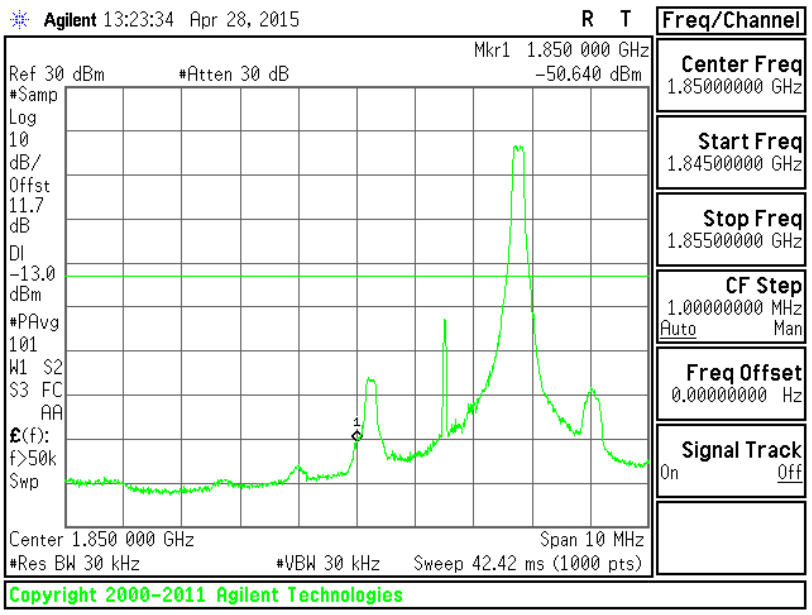
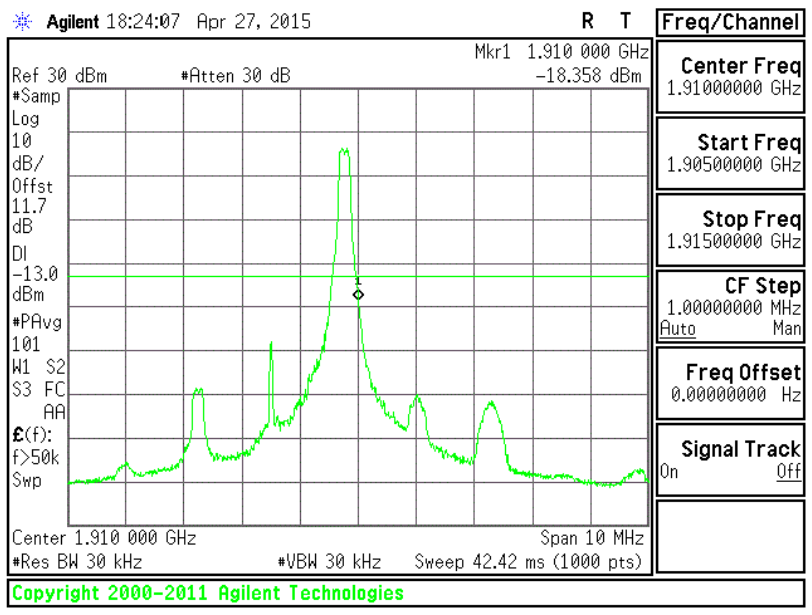
LOW CH, RB1-14



HIGH CH, RB1-14



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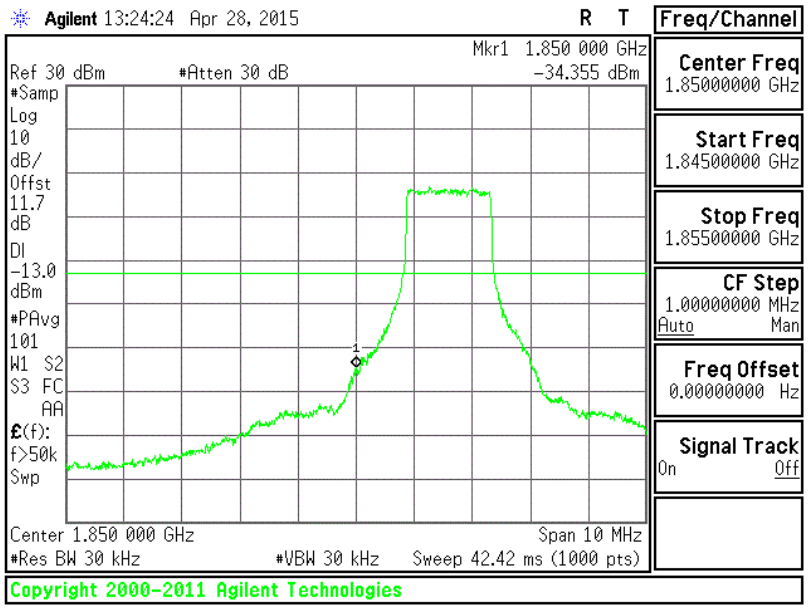
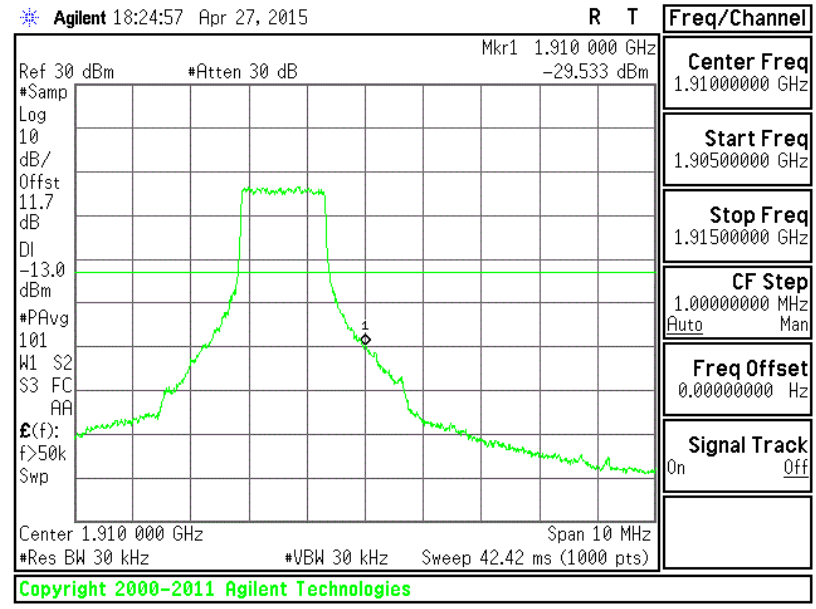
LOW CH, RB8-4



HIGH CH, RB8-4



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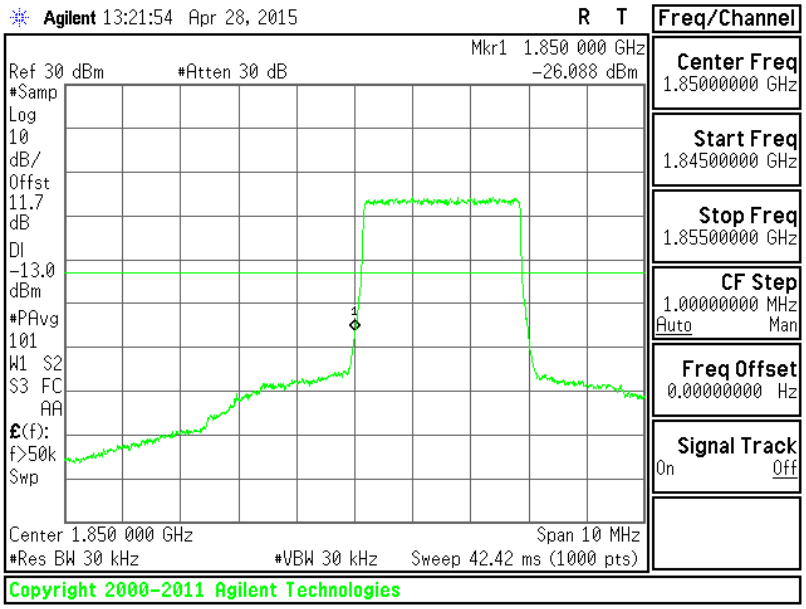
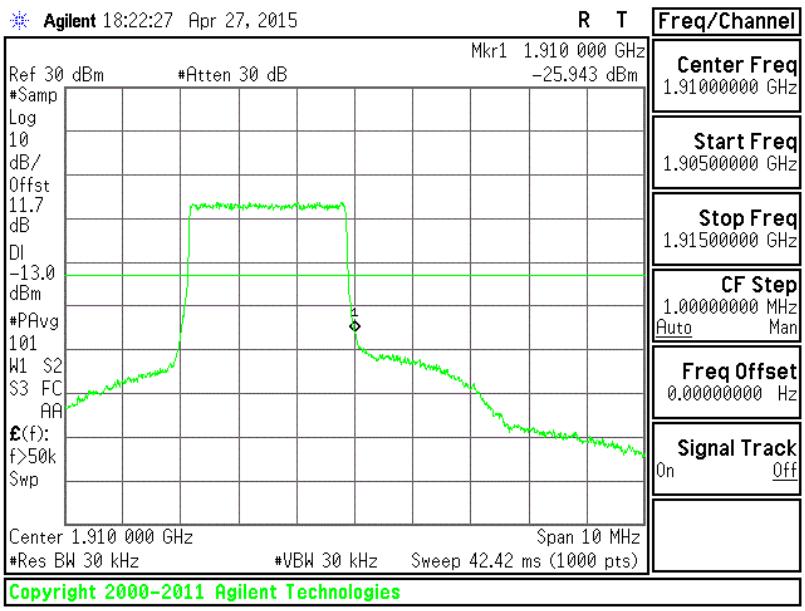
LOW CH, RB15-0



HIGH CH, RB15-0



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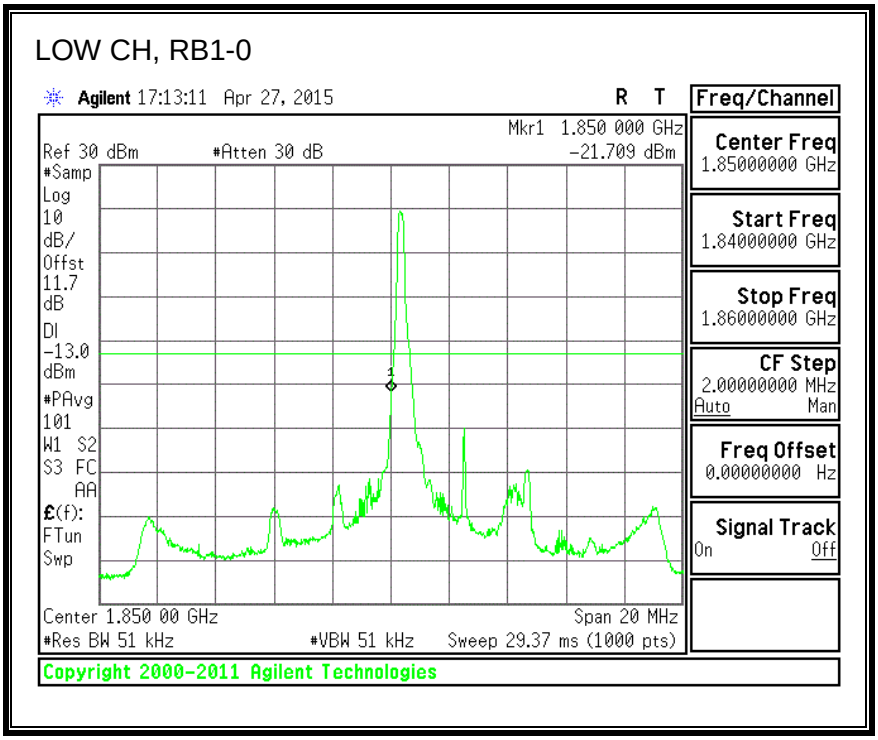
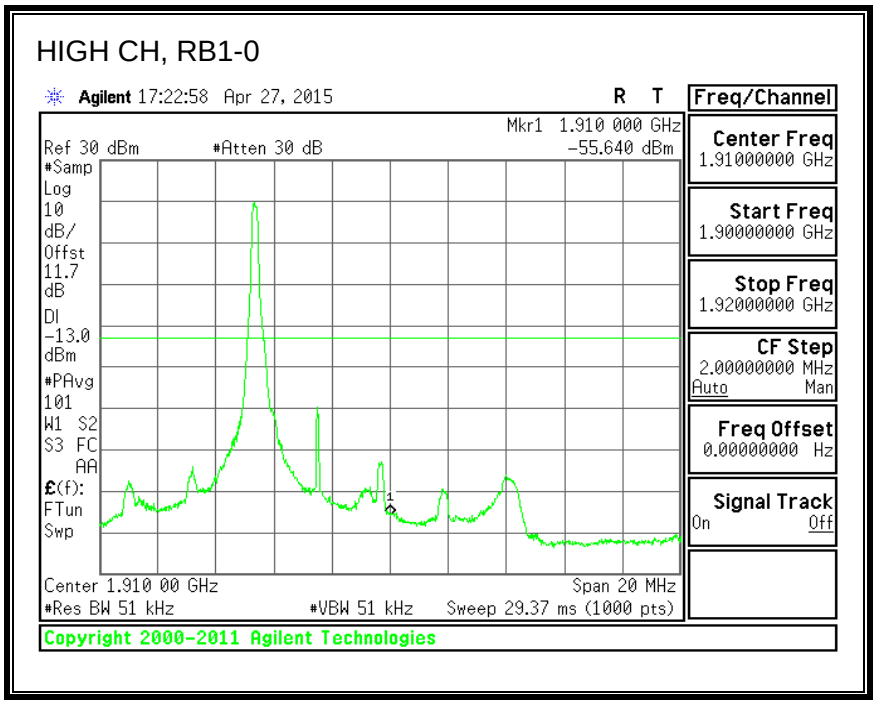
QPSK, (5.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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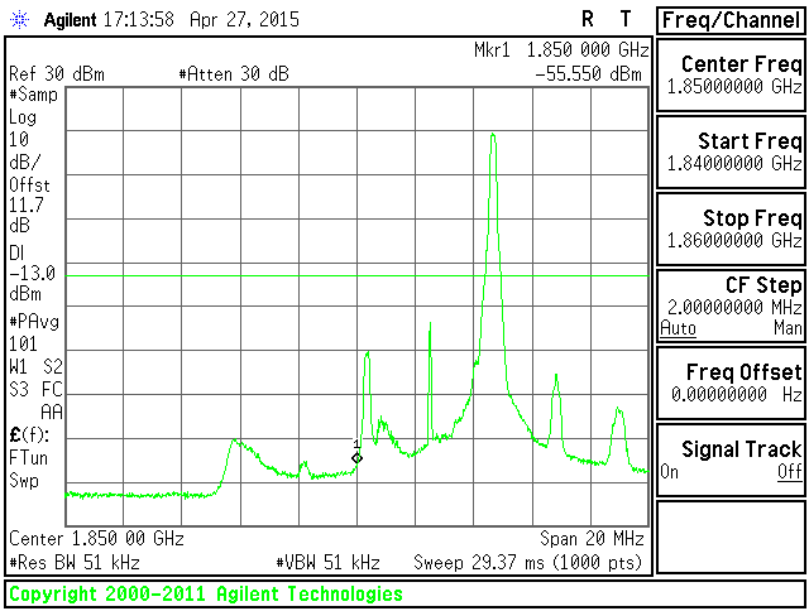
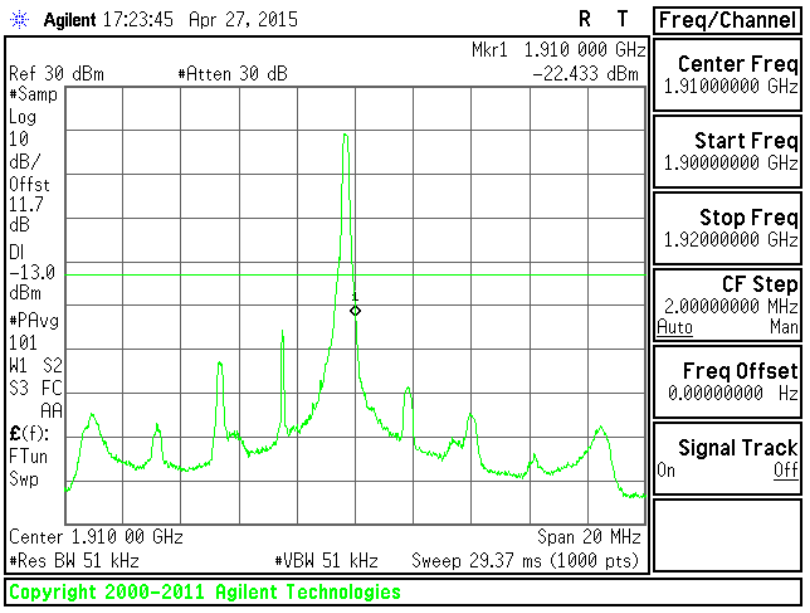
LOW CH, RB1-24



HIGH CH, RB1-24



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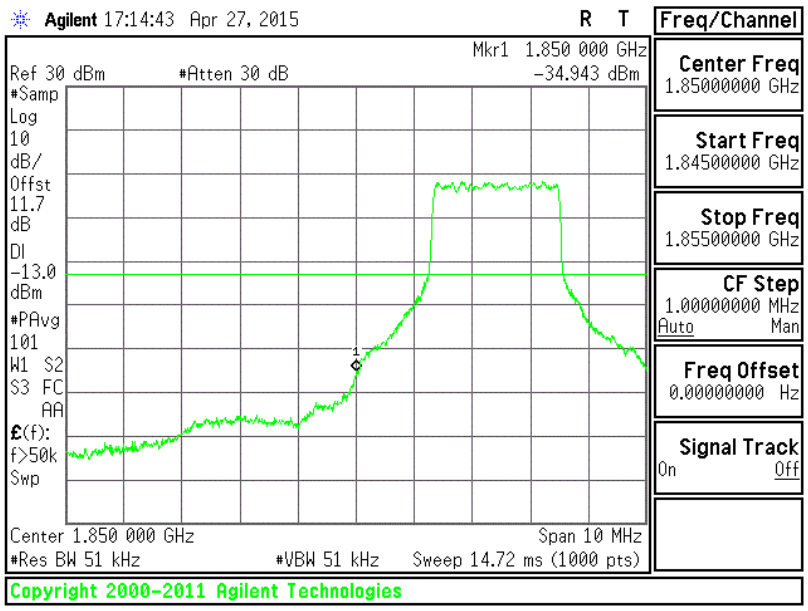
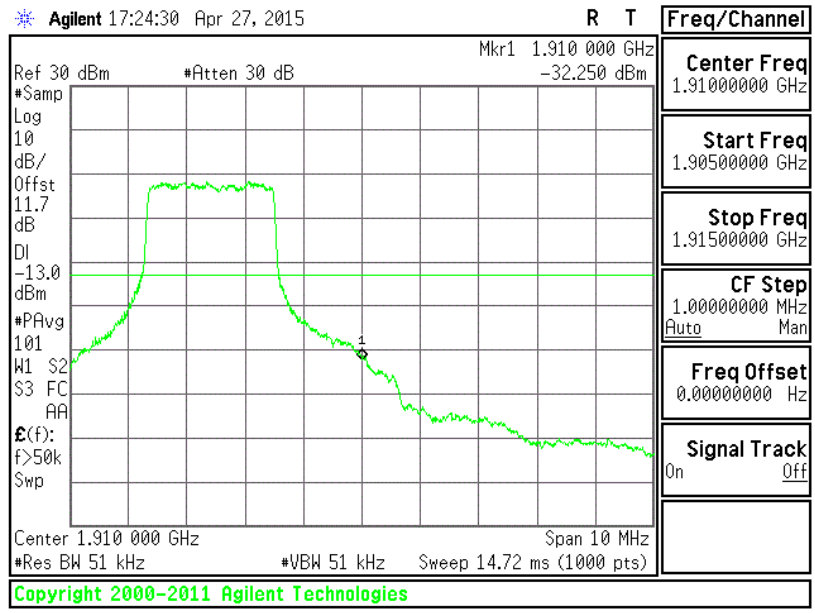
LOW CH, RB12-6



HIGH CH, RB12-6



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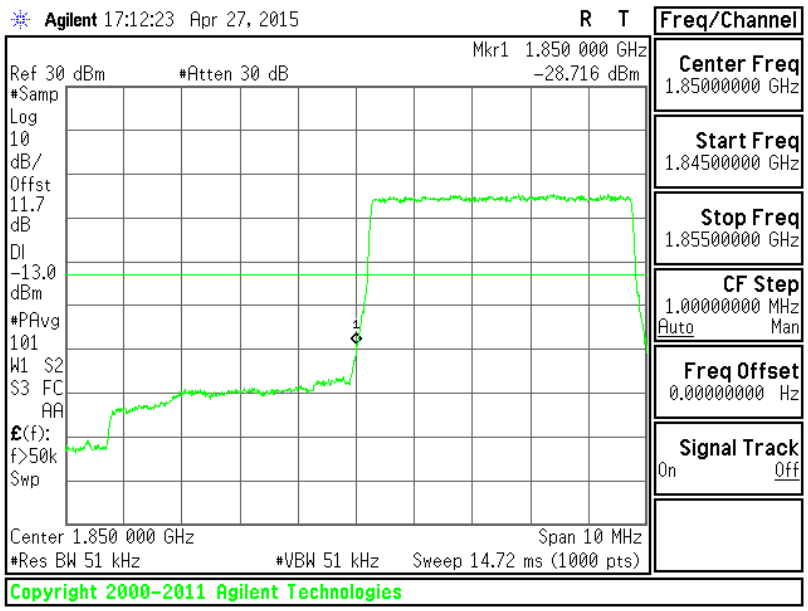
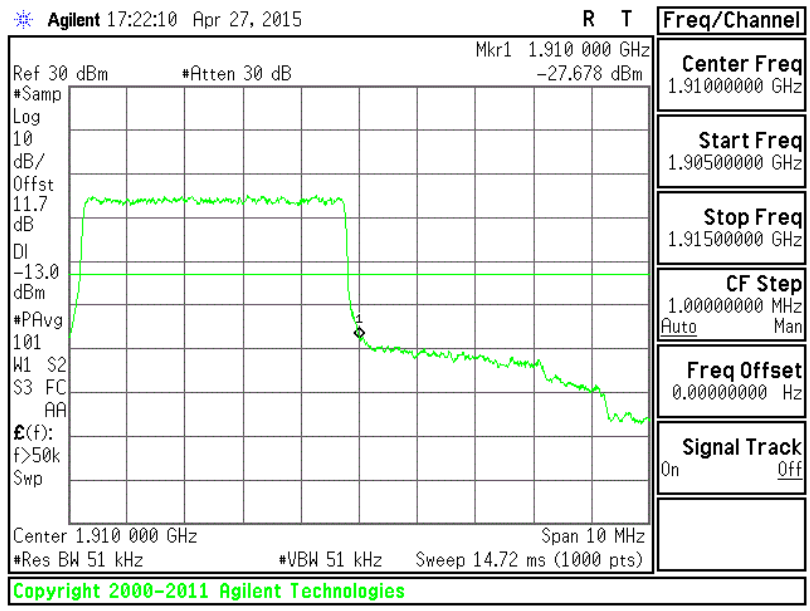
LOW CH, RB25-0



HIGH CH, RB25-0



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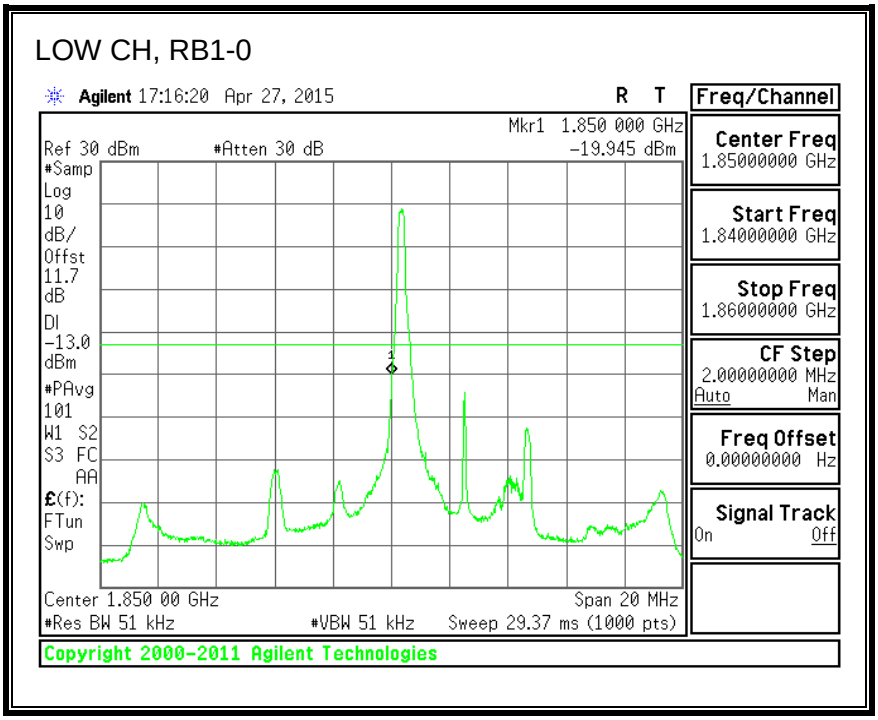
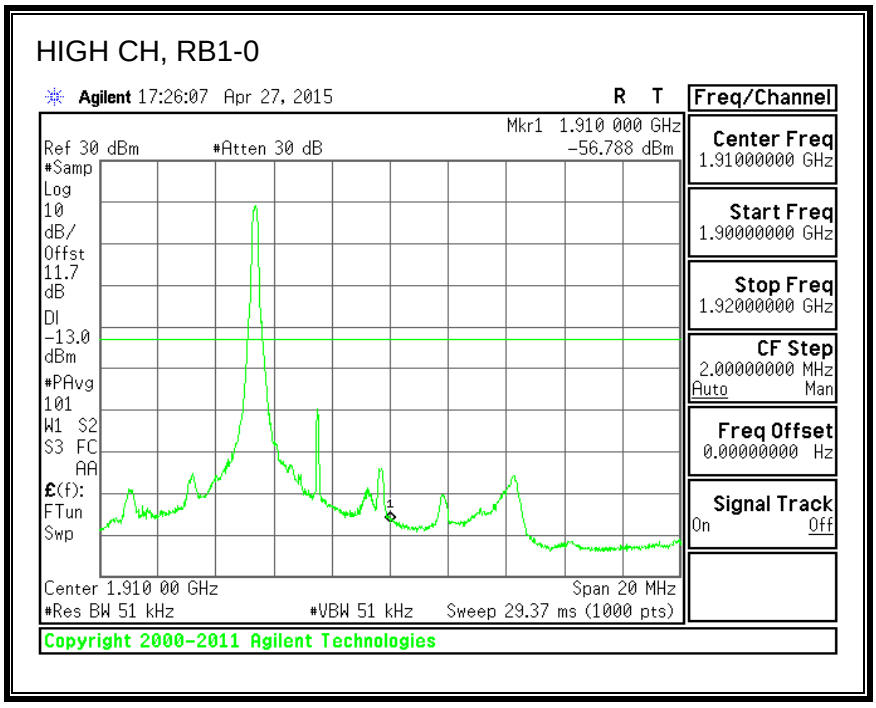
16QAM, (5.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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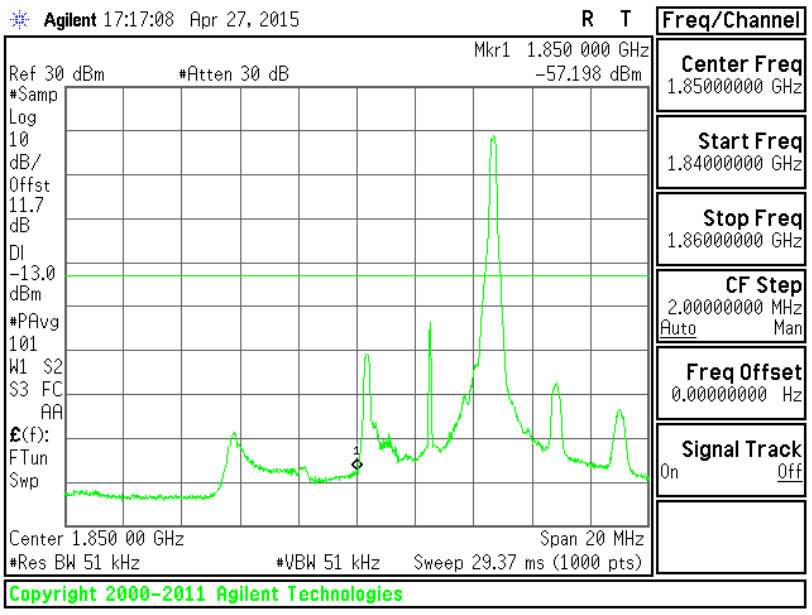
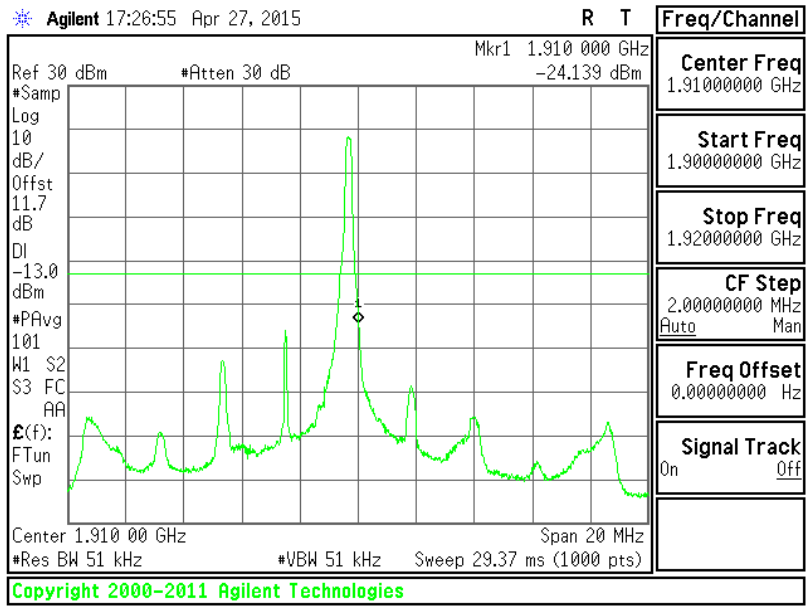
LOW CH, RB1-24



HIGH CH, RB1-24



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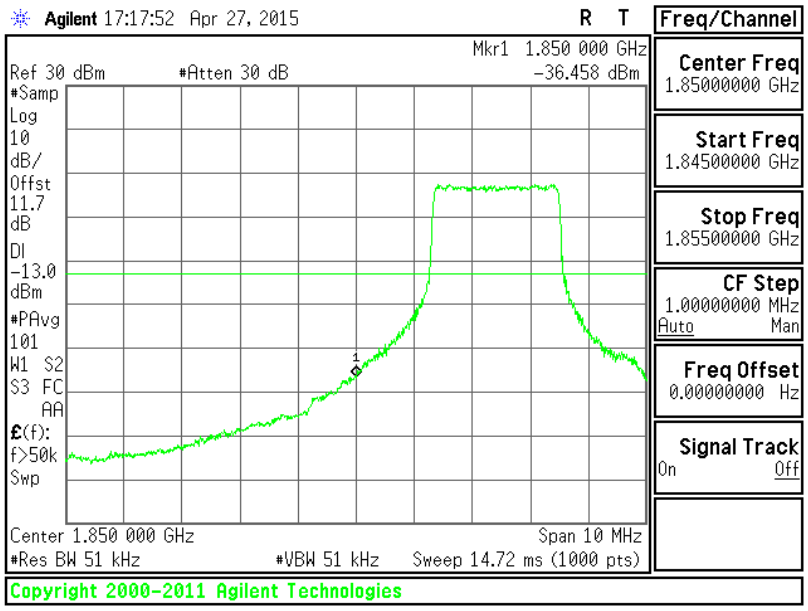
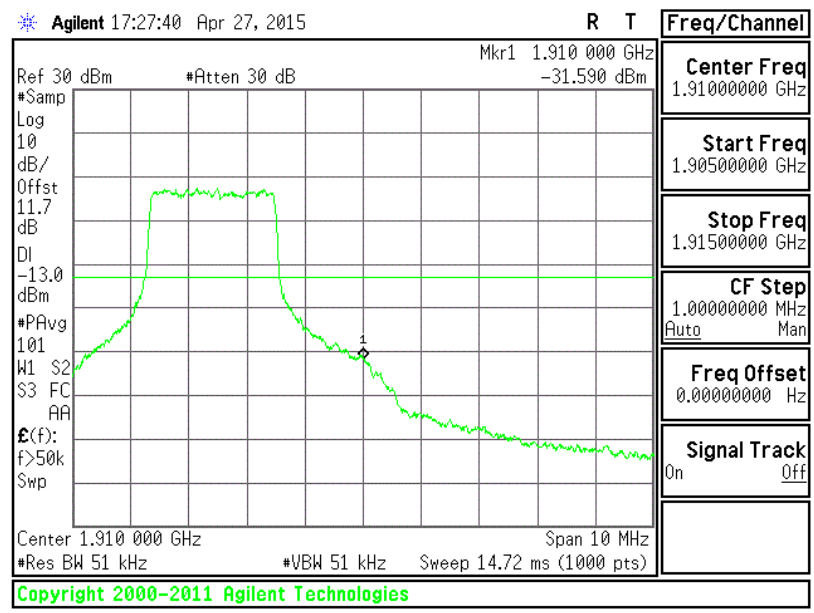
LOW CH, RB12-6



HIGH CH, RB12-6



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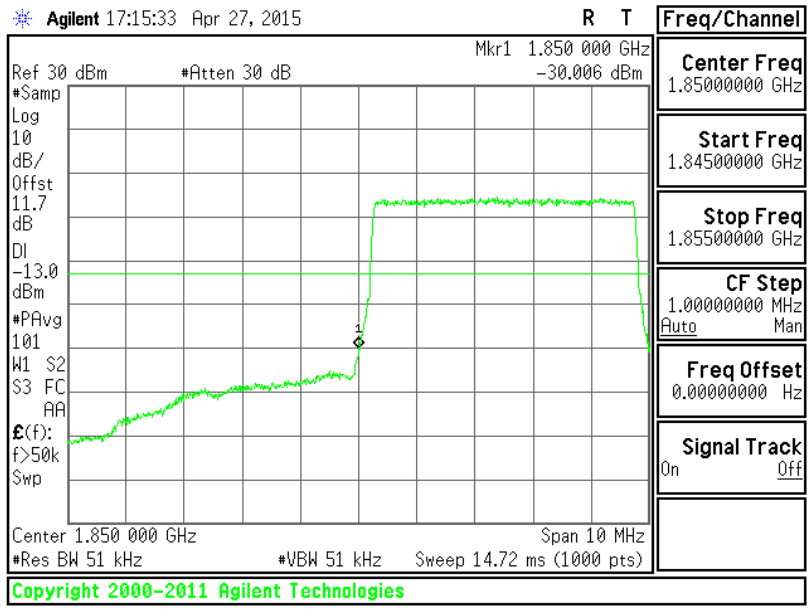
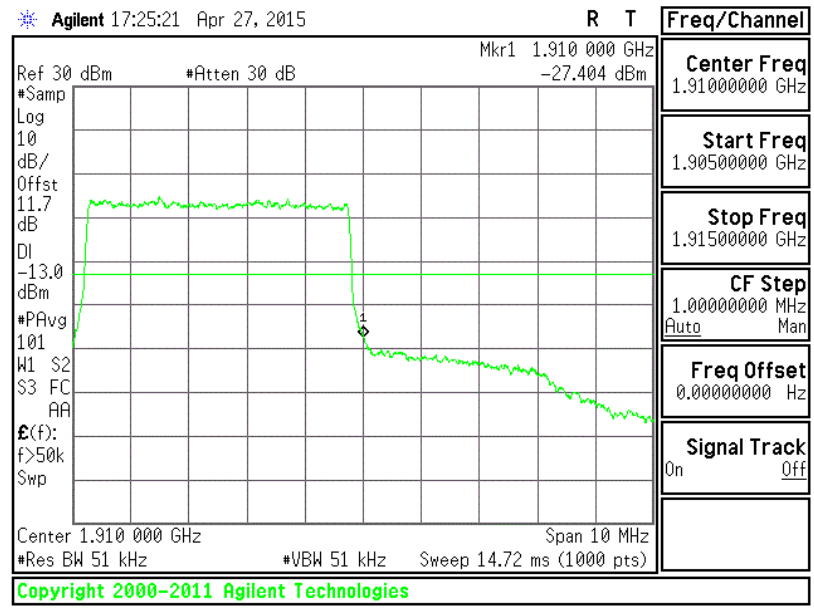
LOW CH, RB25-0



HIGH CH, RB25-0



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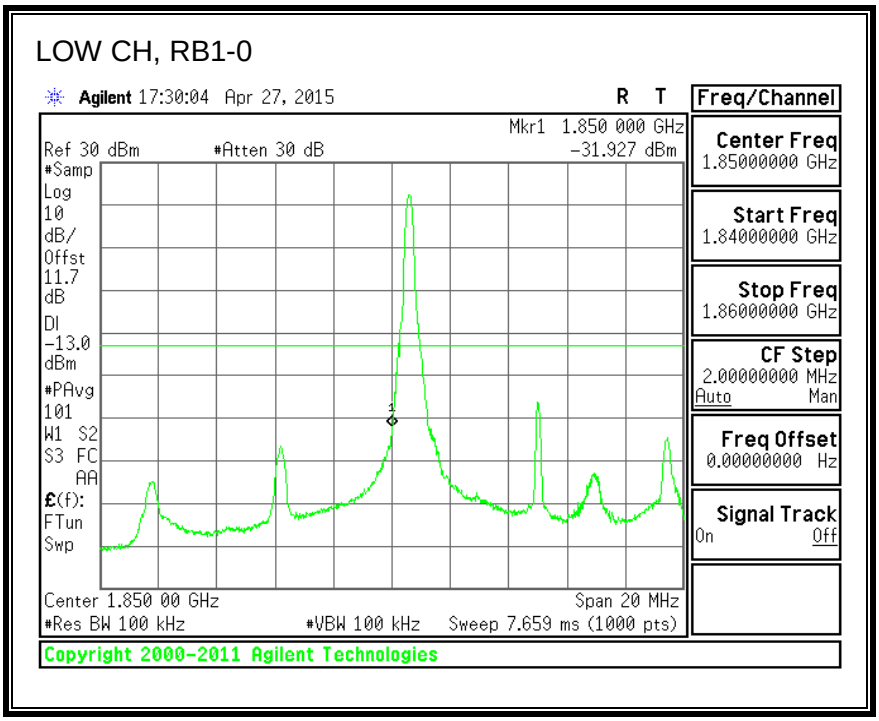
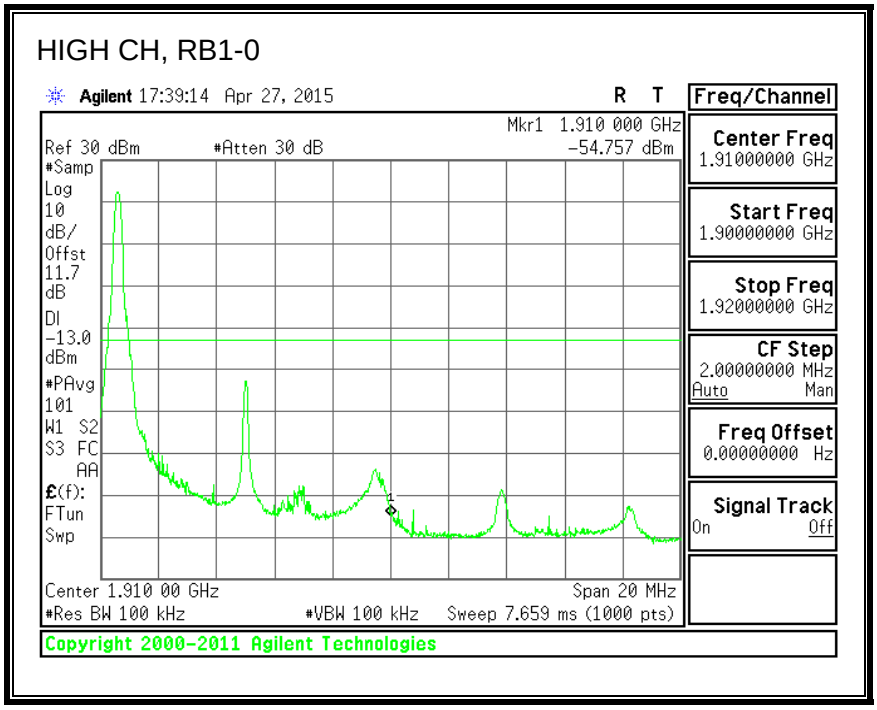
QPSK, (10.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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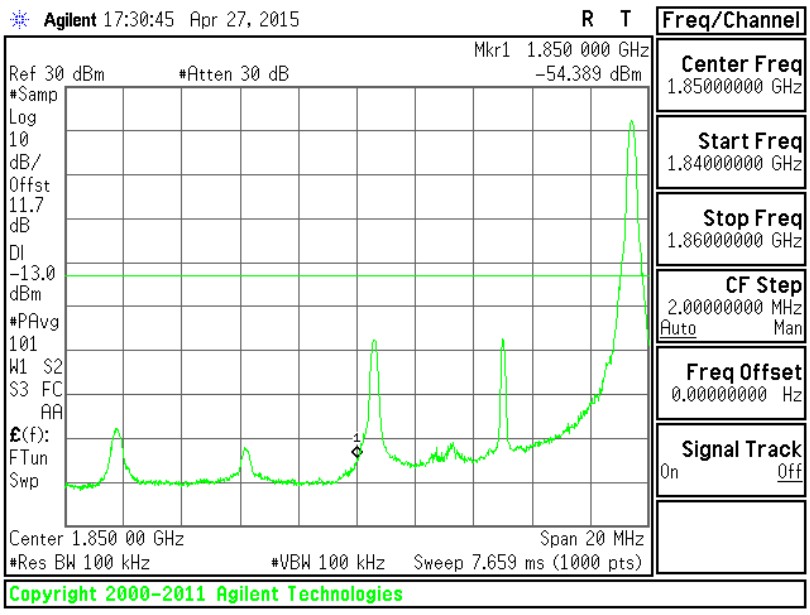
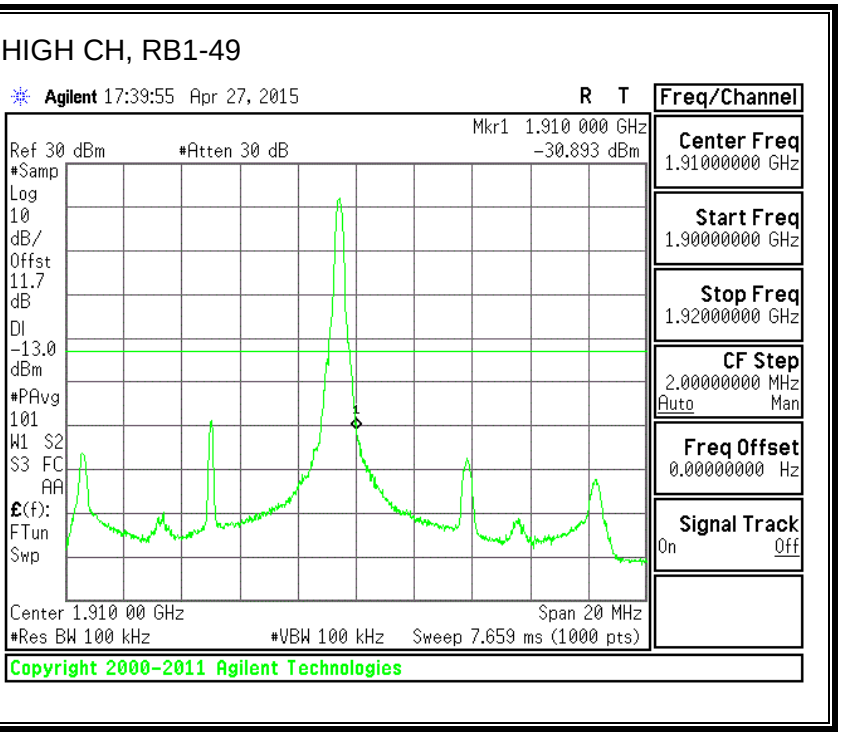
LOW CH, RB1-49



HIGH CH, RB1-49



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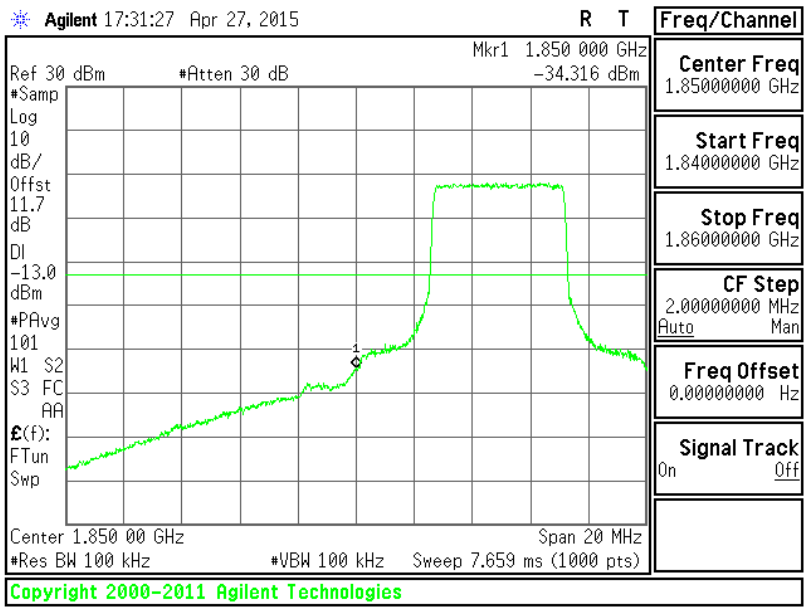
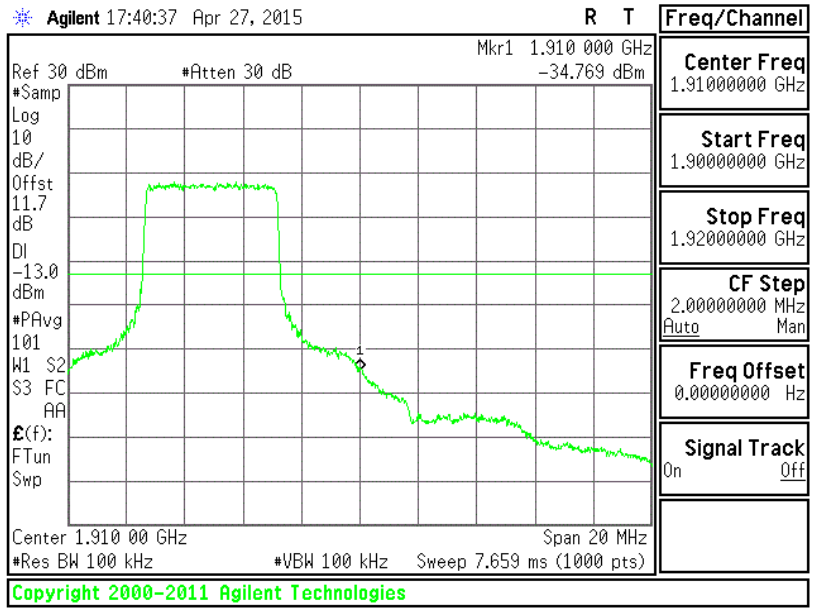
LOW CH, RB25-12



HIGH CH, RB25-12



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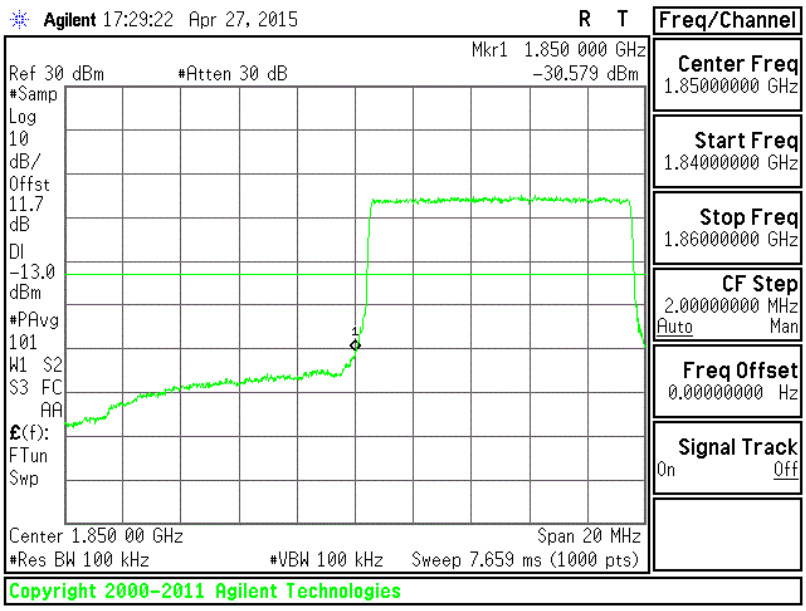
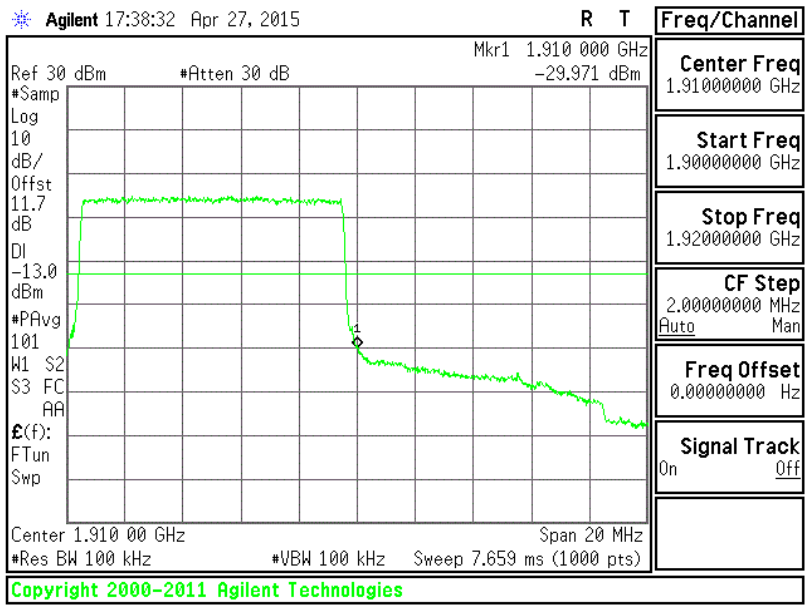
LOW CH, RB50-0



HIGH CH, RB50-0



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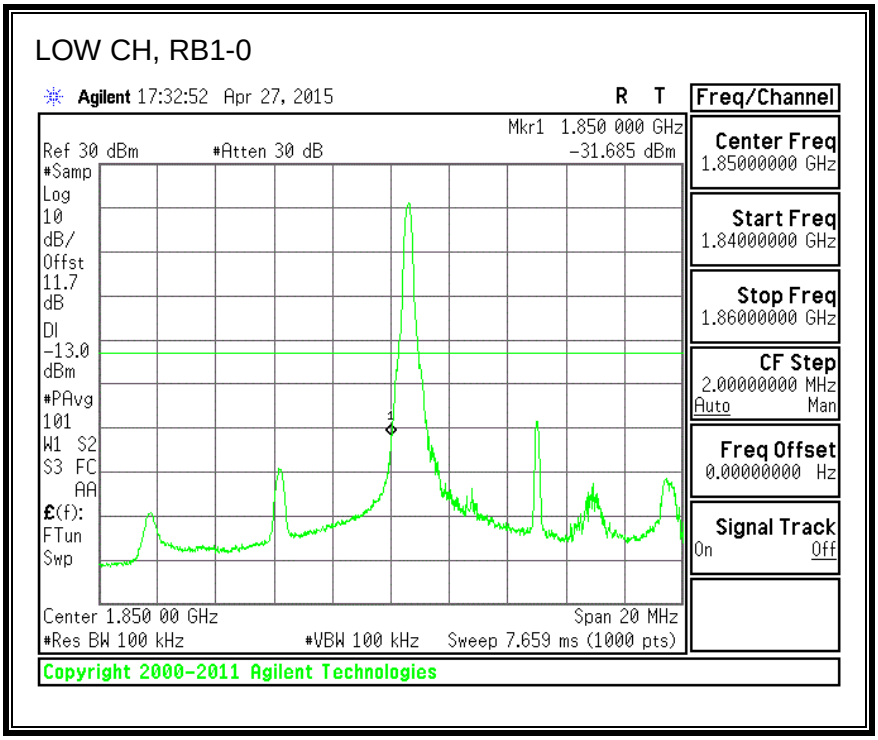
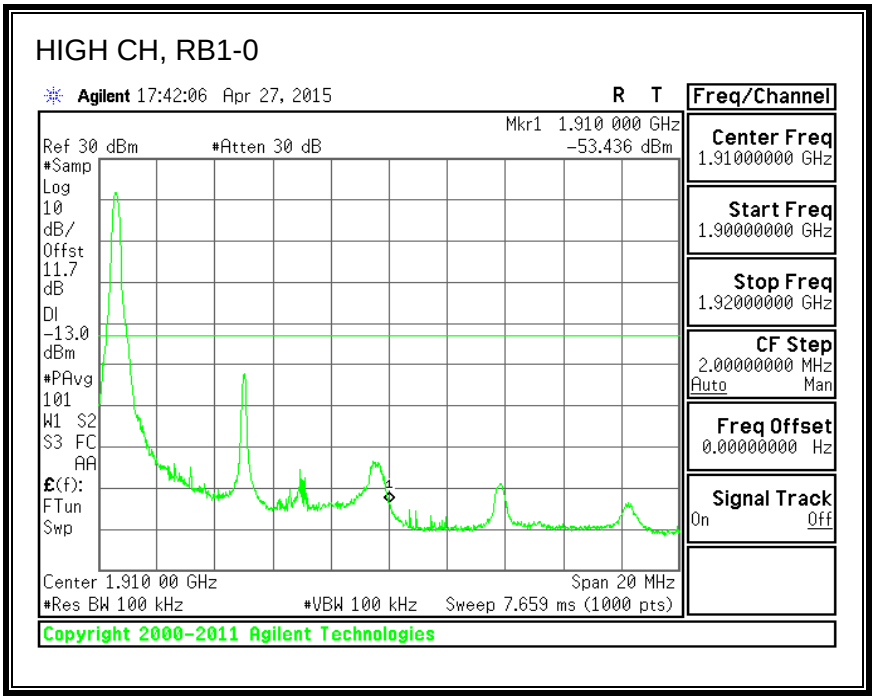
16QAM, (10.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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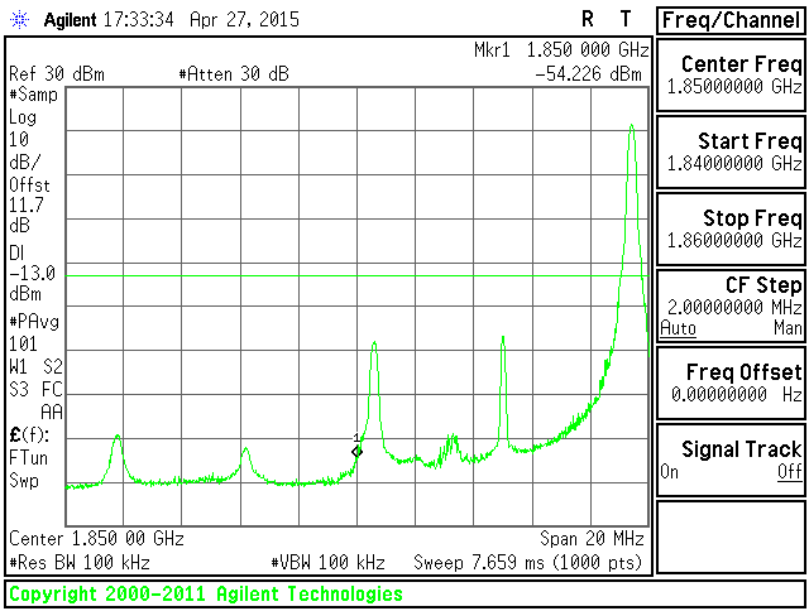
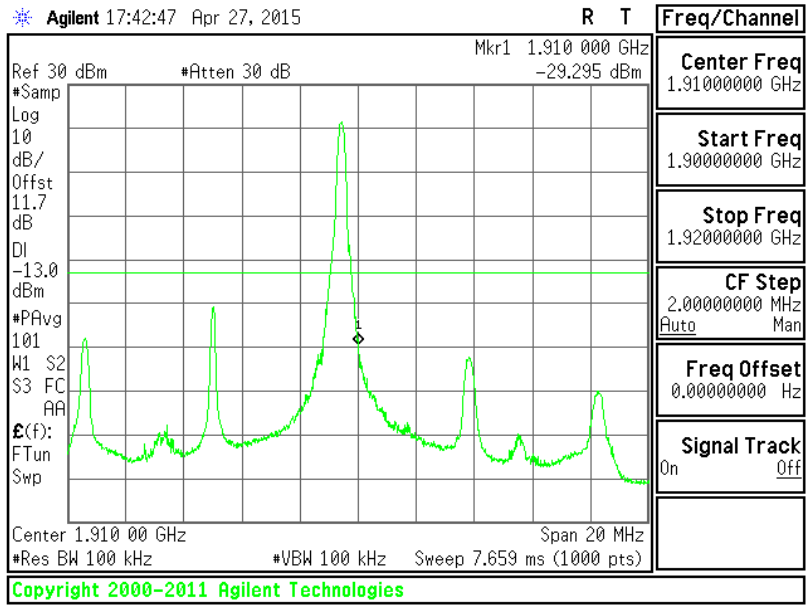
LOW CH, RB1-49



HIGH CH, RB1-49



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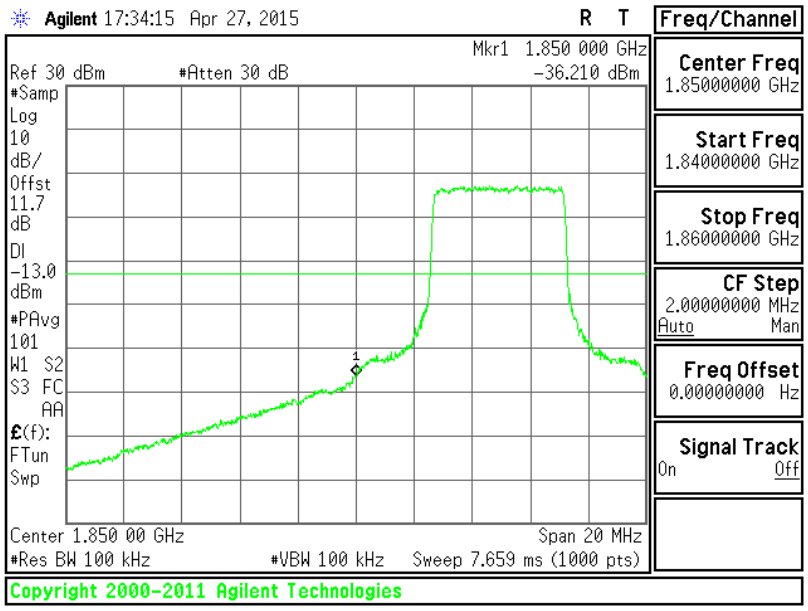
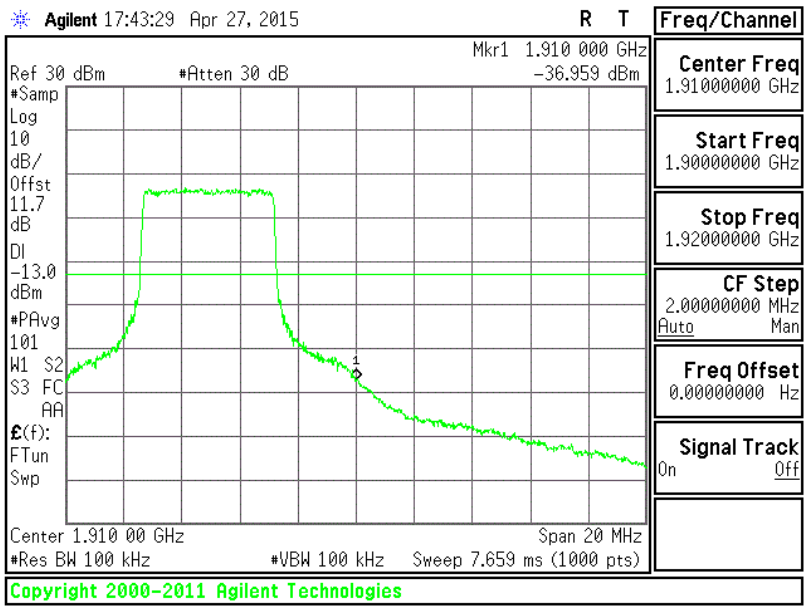
LOW CH, RB25-12



HIGH CH, RB25-12



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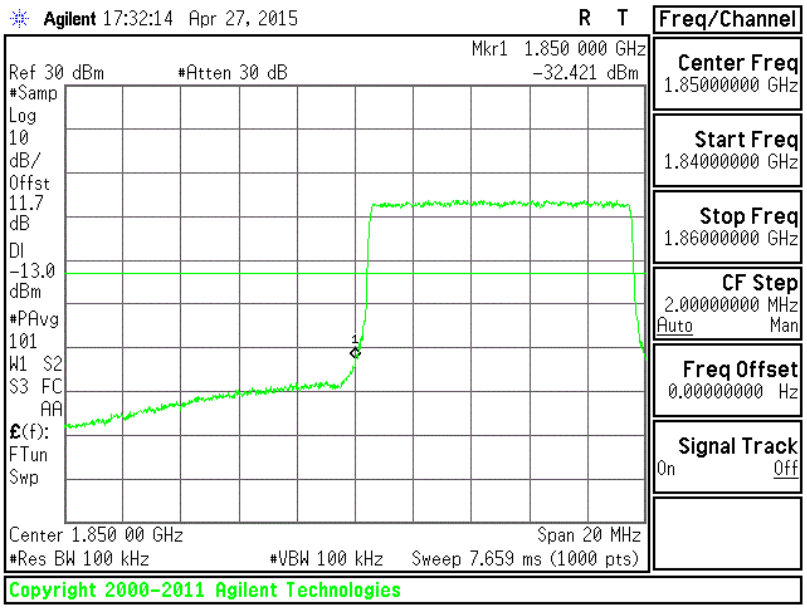
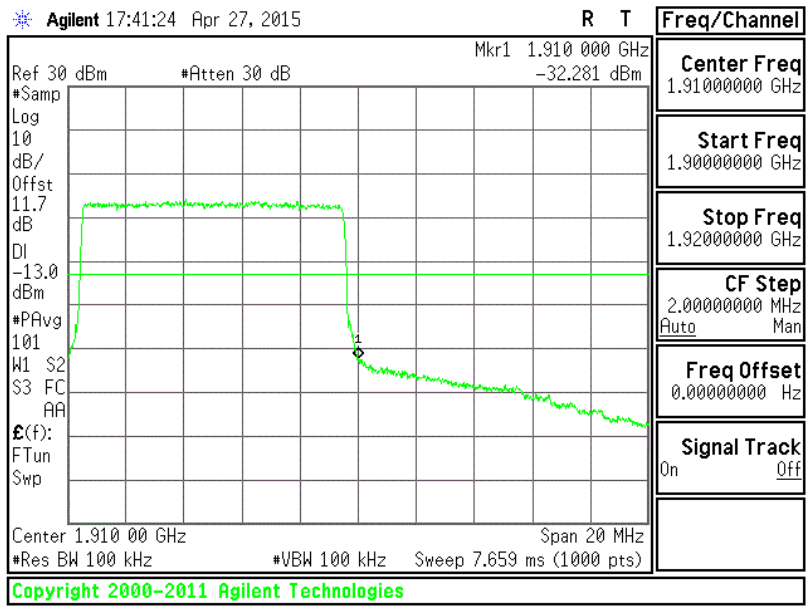
LOW CH, RB50-0



IGH CH, RB50-0



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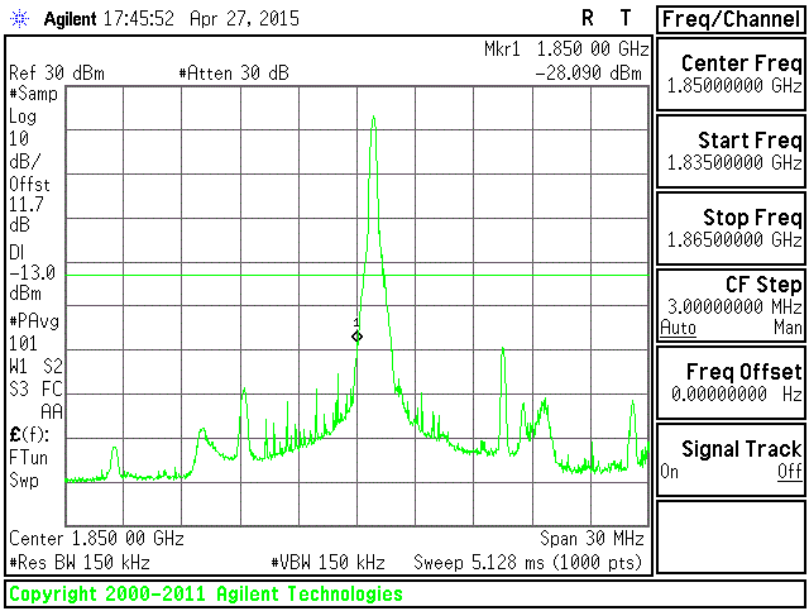
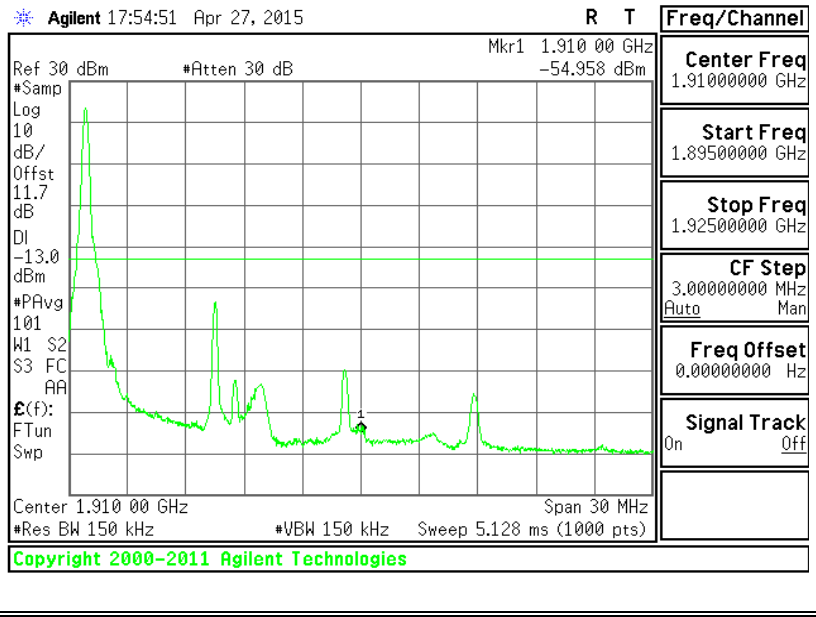
QPSK, (15.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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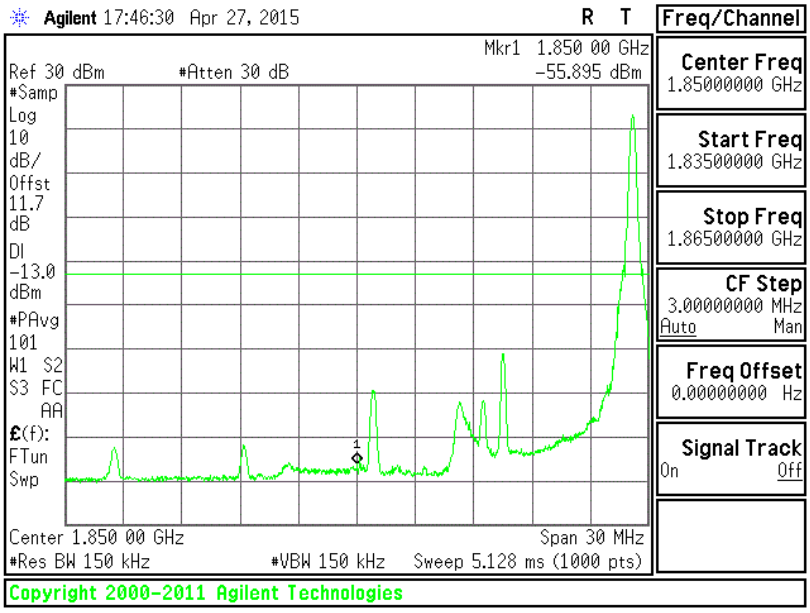
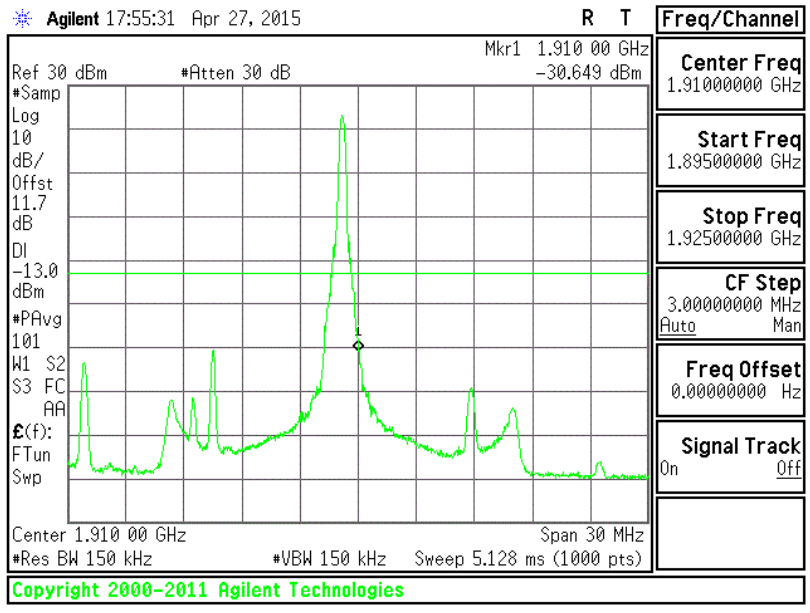
LOW CH, RB1-74



HIGH CH, RB1-74



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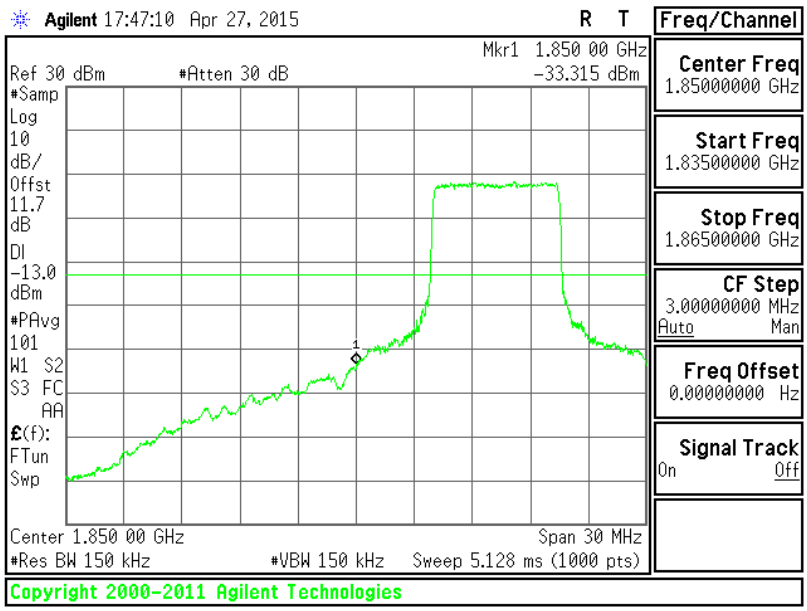
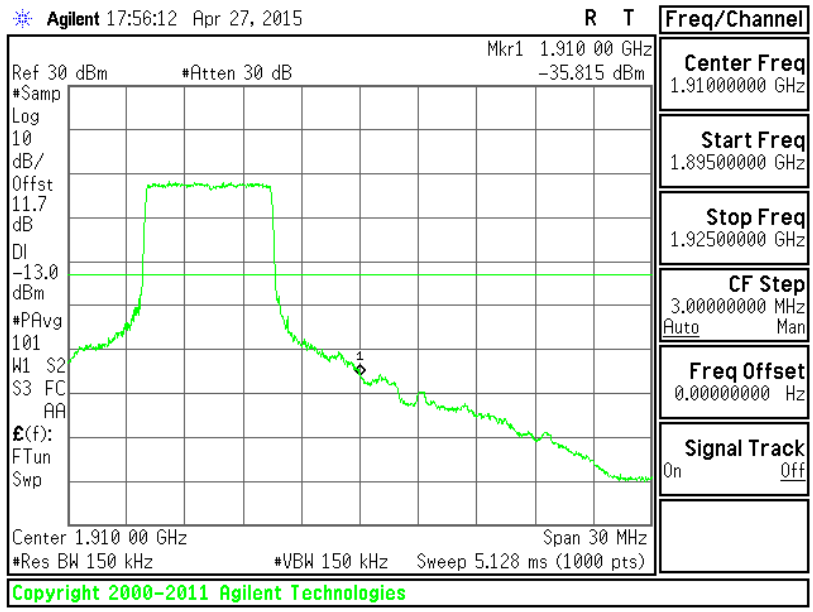
LOW CH, RB36-18



HIGH CH, RB36-18



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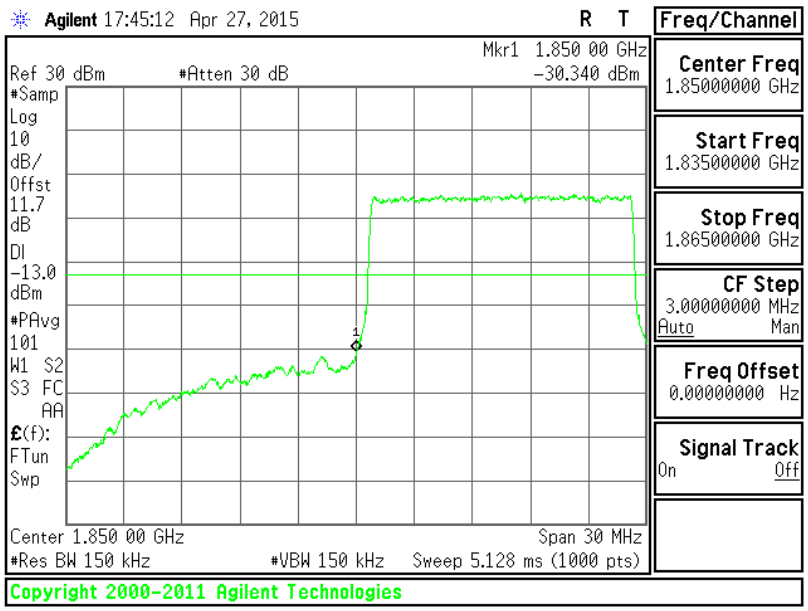
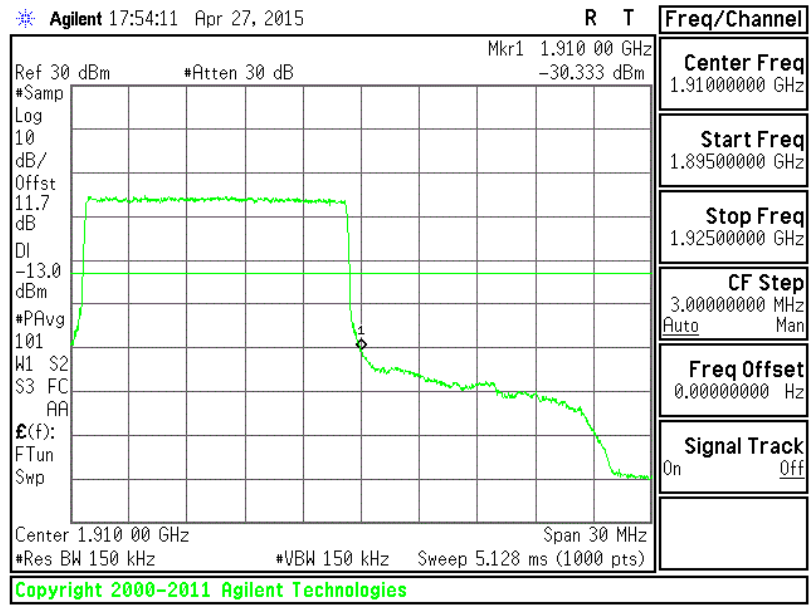
LOW CH, RB75-0



HIGH CH, RB75-0



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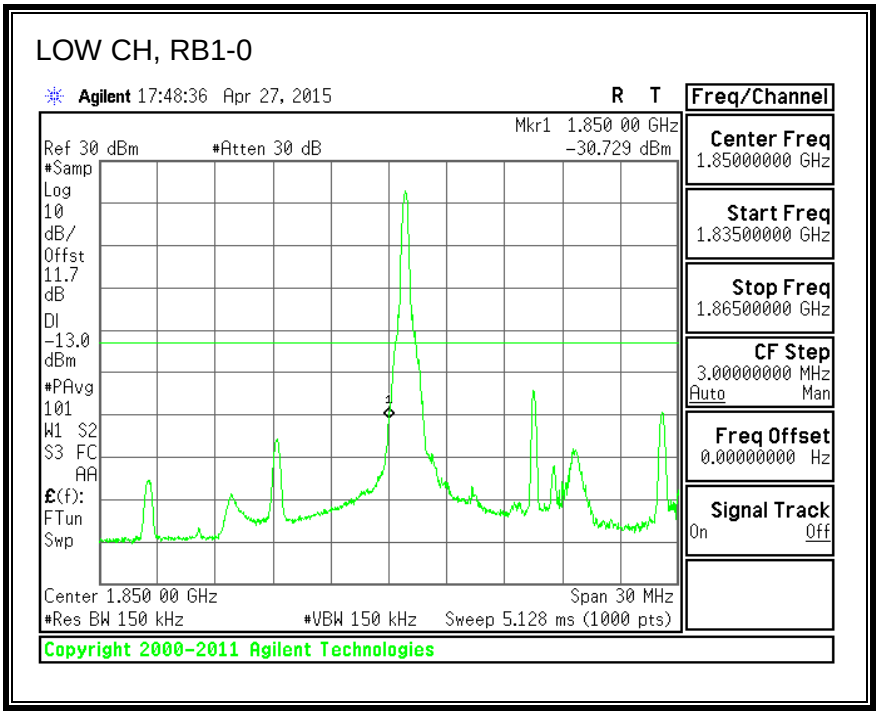
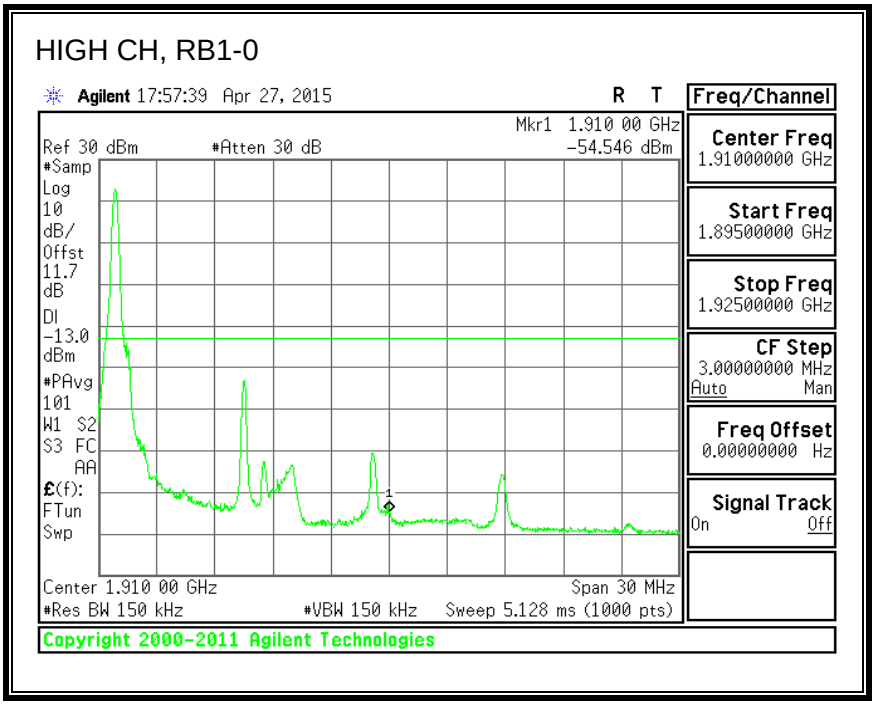
16QAM, (15.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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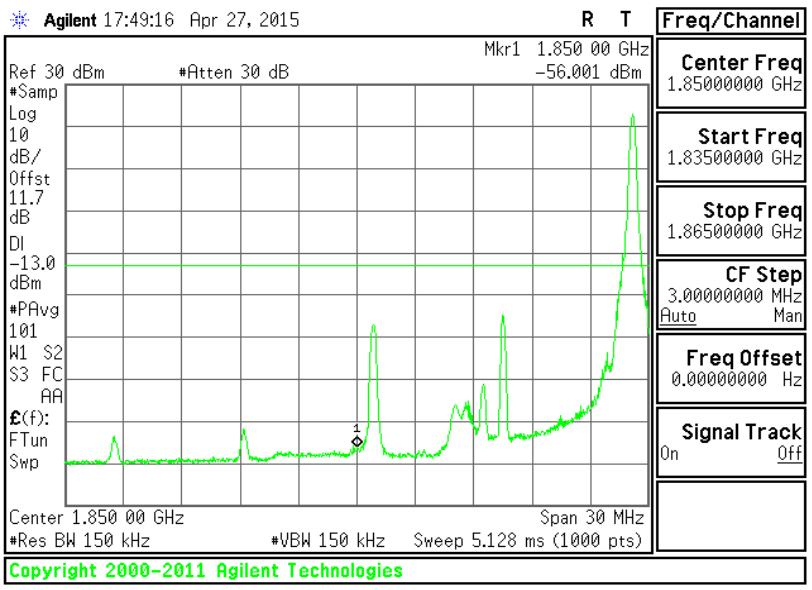
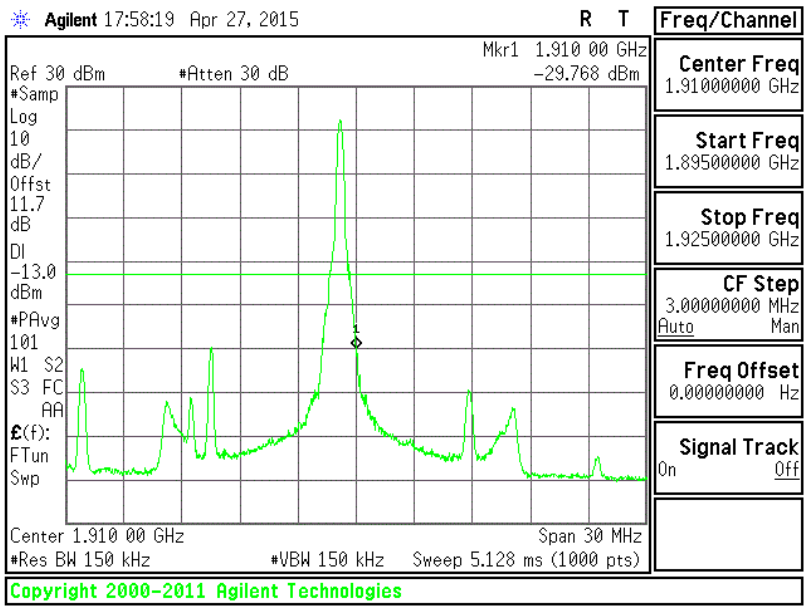
LOW CH, RB1-74



HIGH CH, RB1-74



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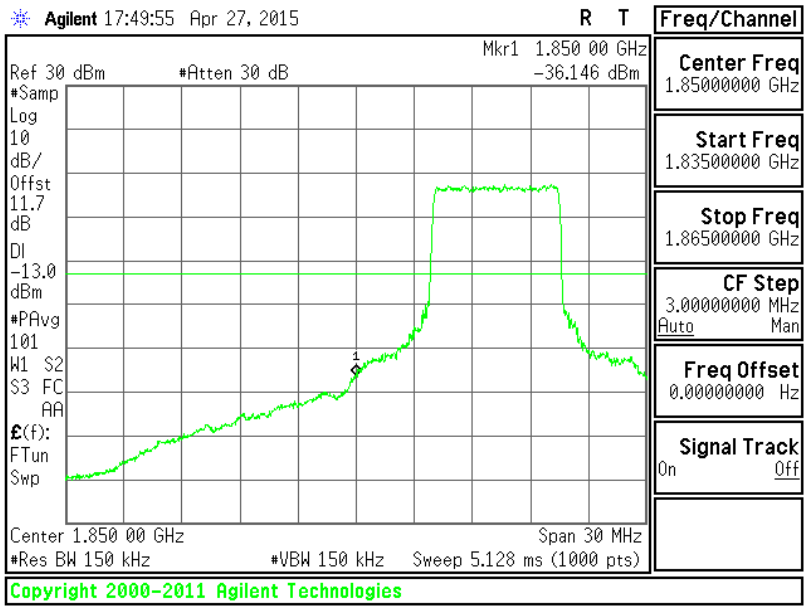
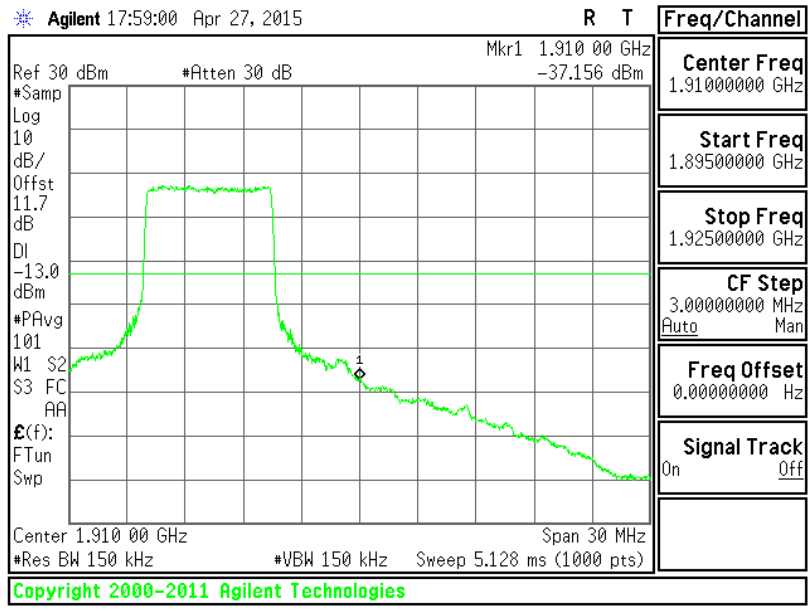
LOW CH, RB36-18



HIGH CH, RB36-18



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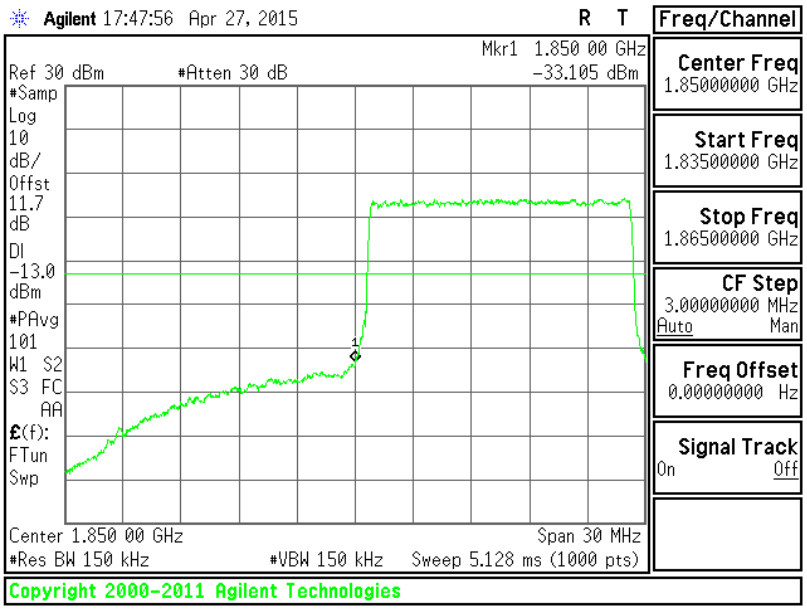
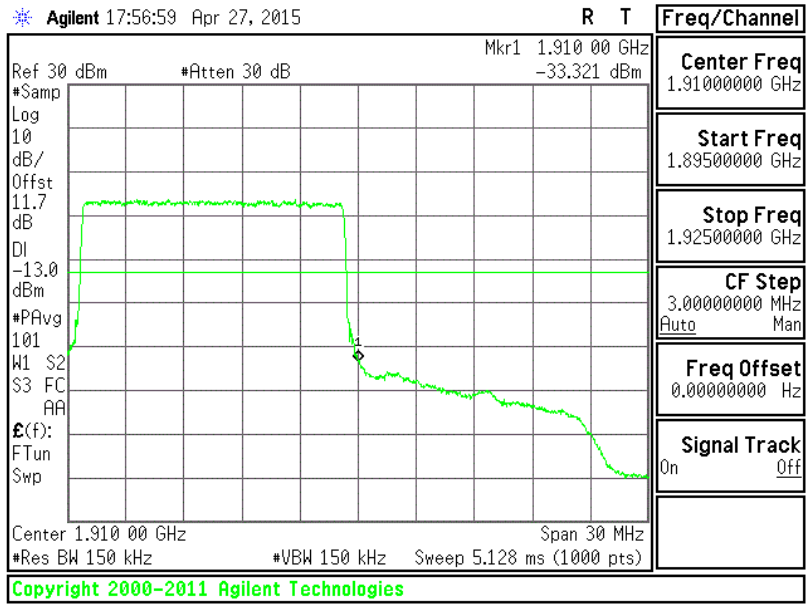
LOW CH, RB75-0



HIGH CH, RB75-0



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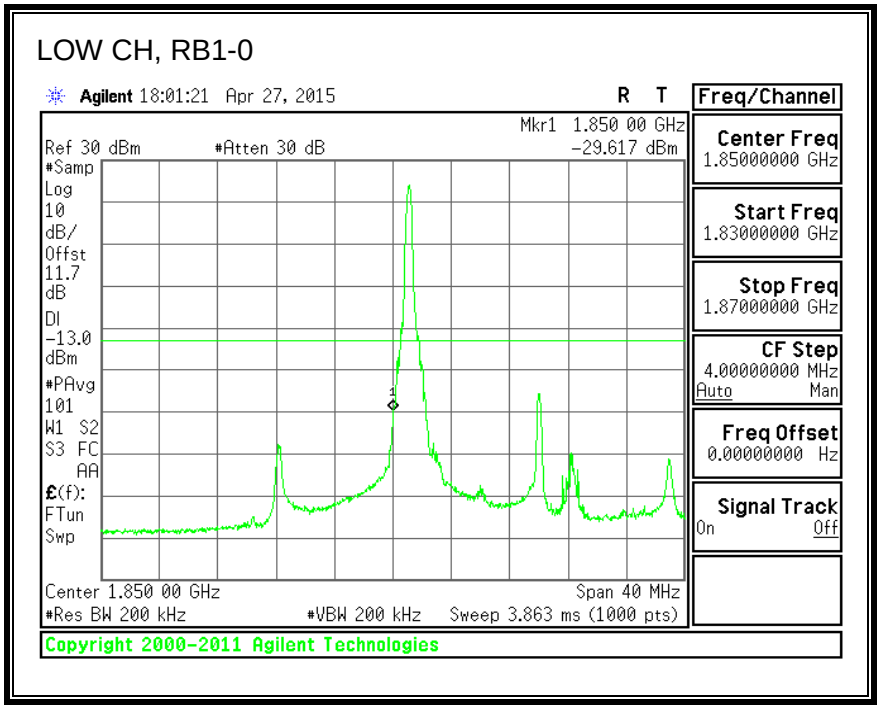
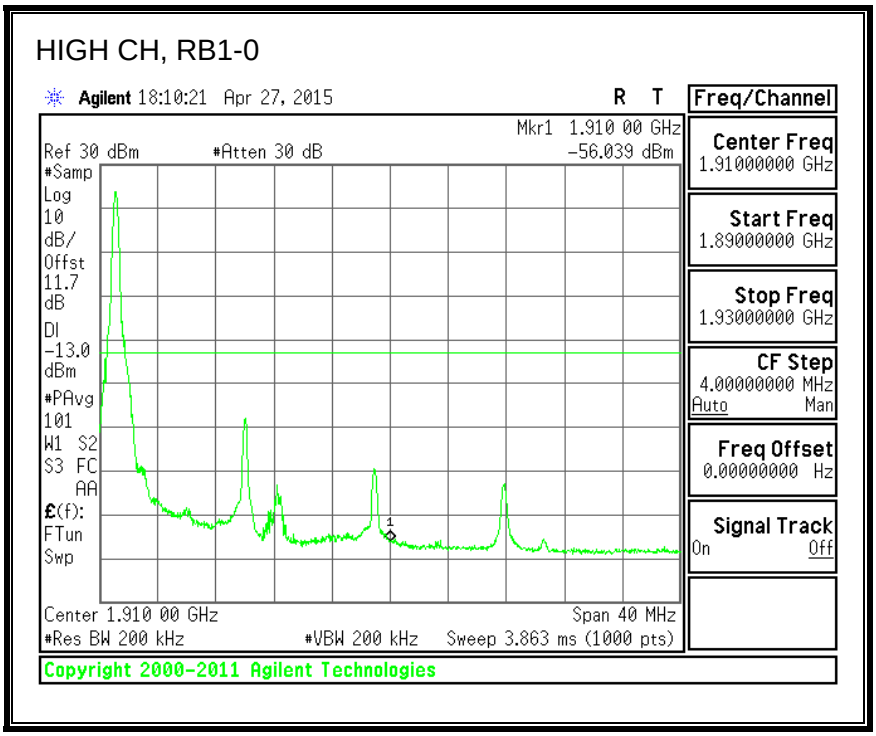
QPSK, (20.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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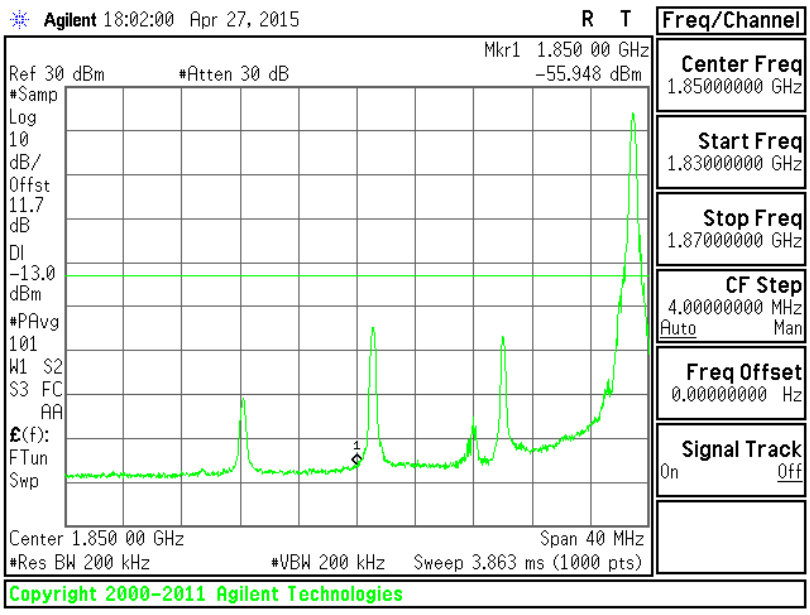
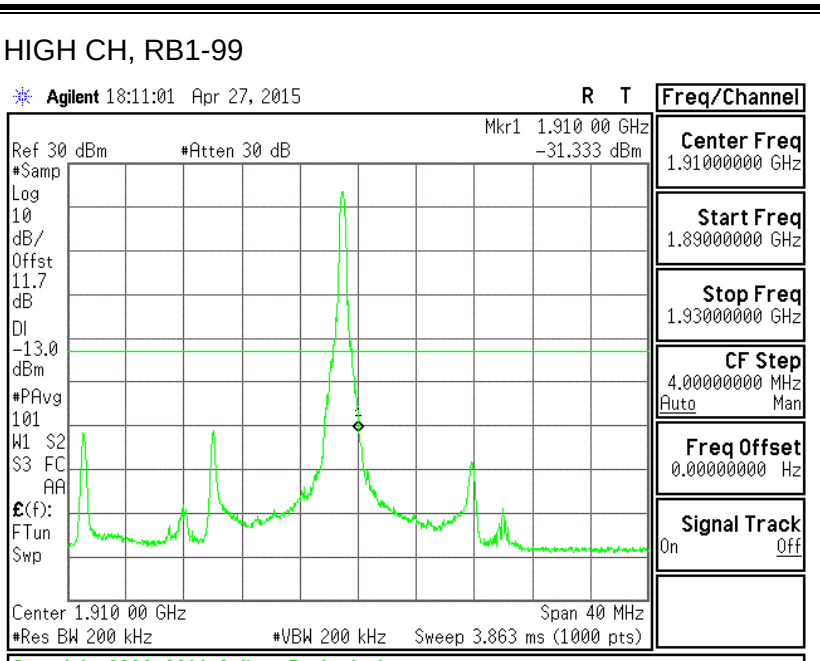
LOW CH, RB1-99



HIGH CH, RB1-99



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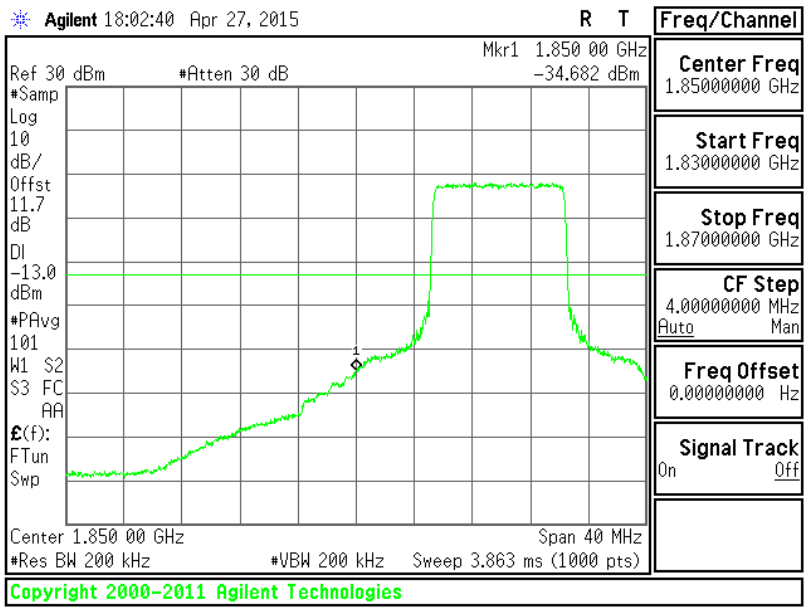
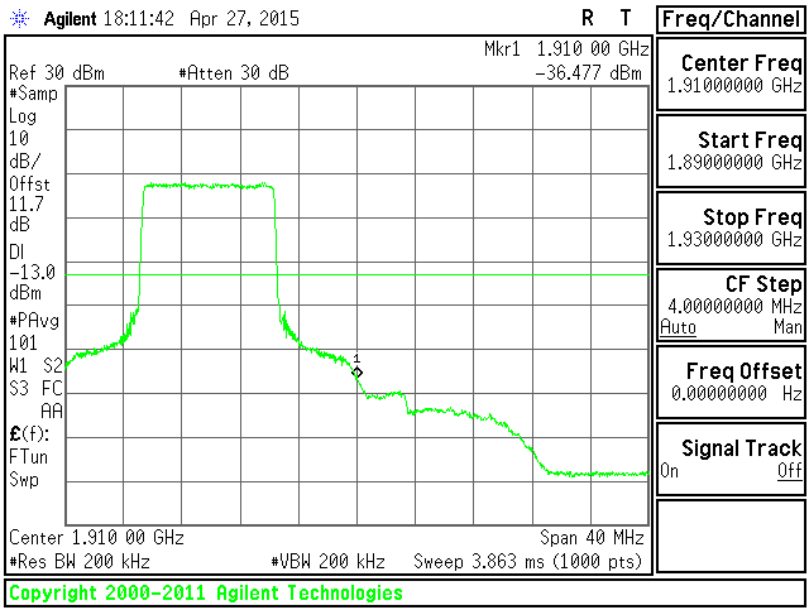
LOW CH, RB50-24



HIGH CH, RB50-24



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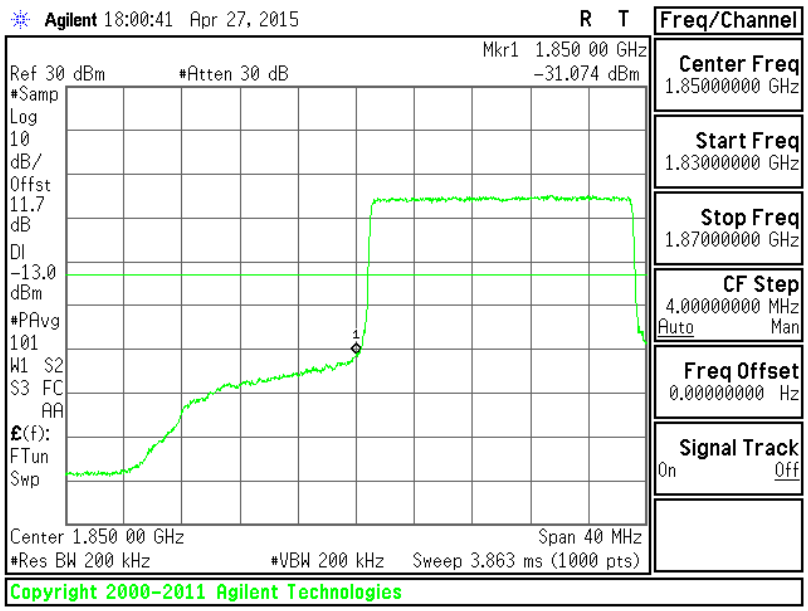
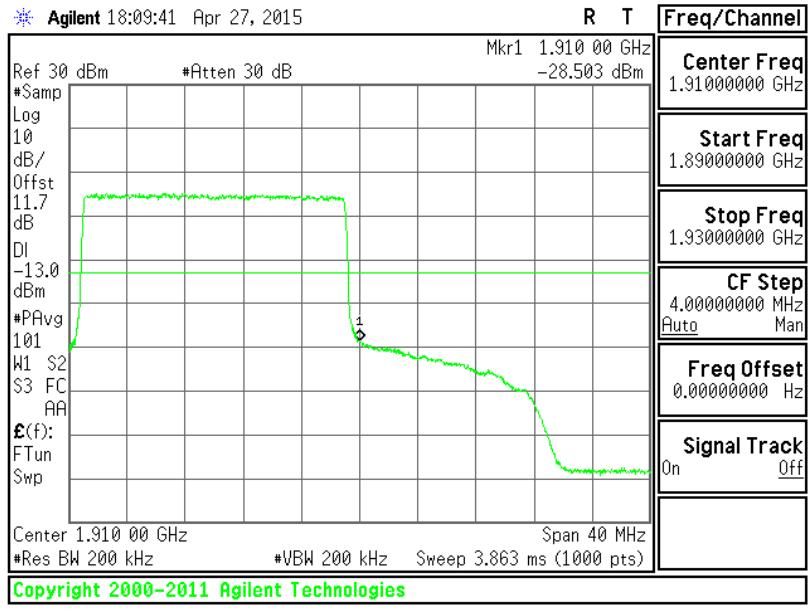
LOW CH, RB100-0



HIGH CH, RB100-0



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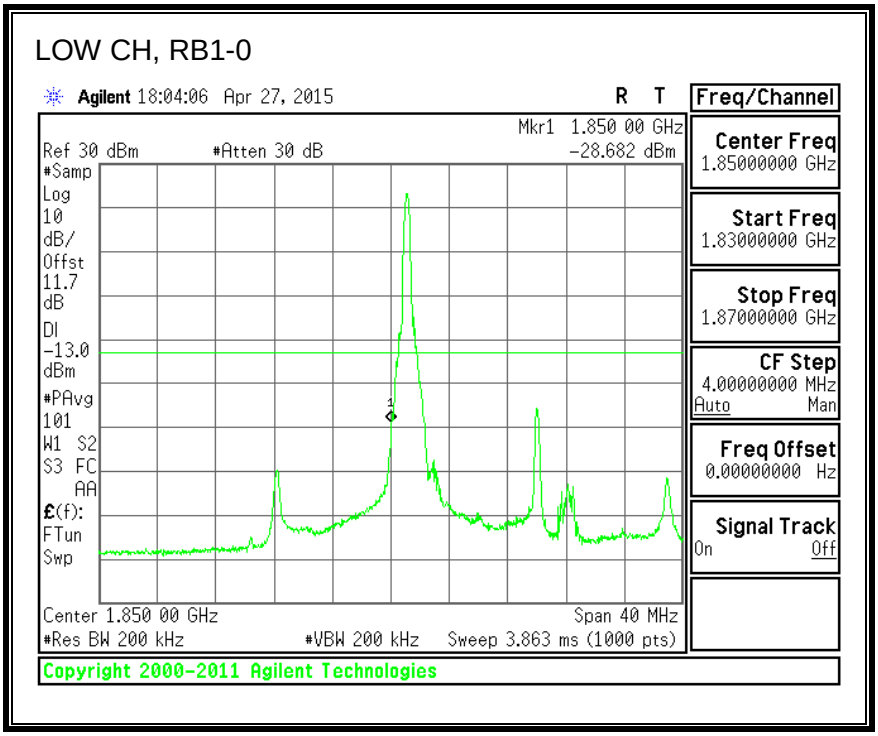
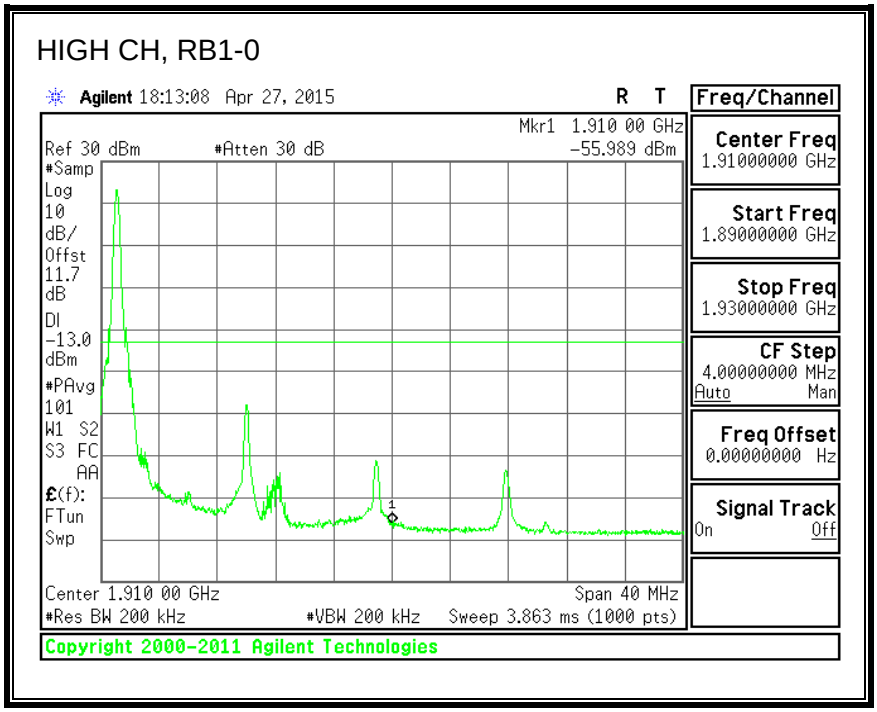
16QAM, (20.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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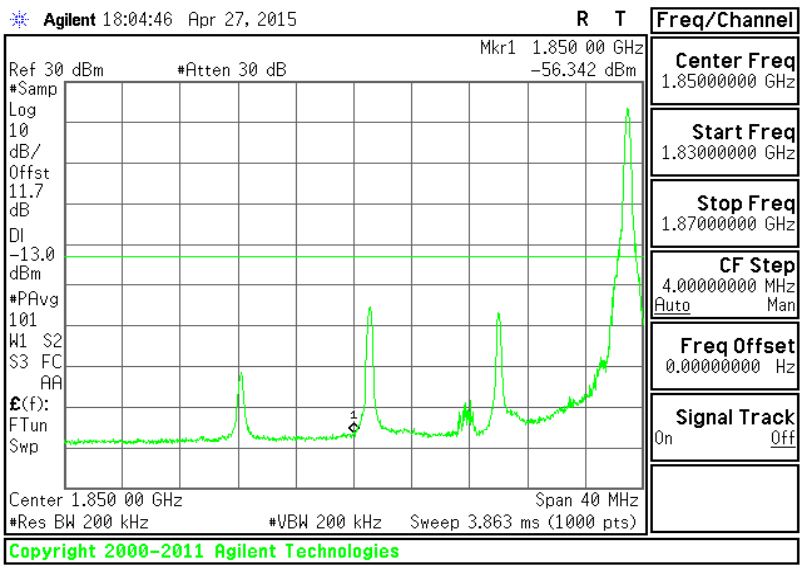
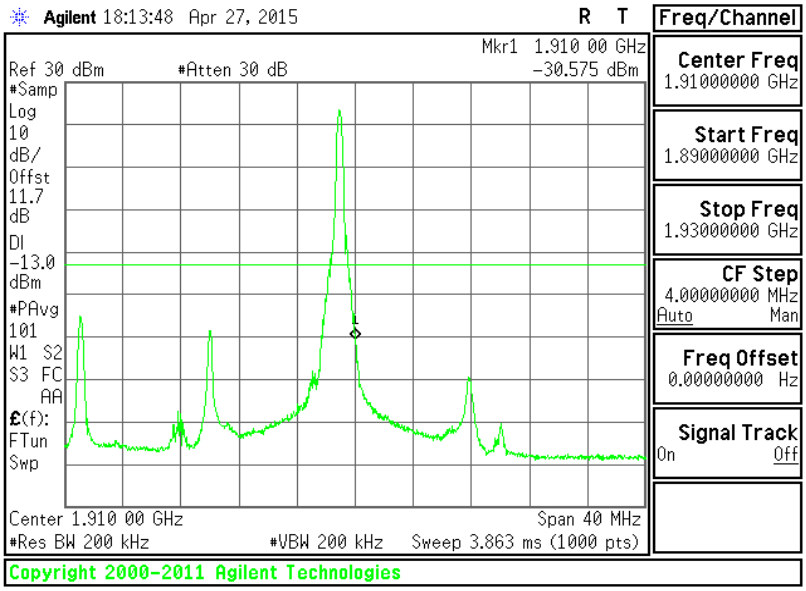
LOW CH, RB1-99

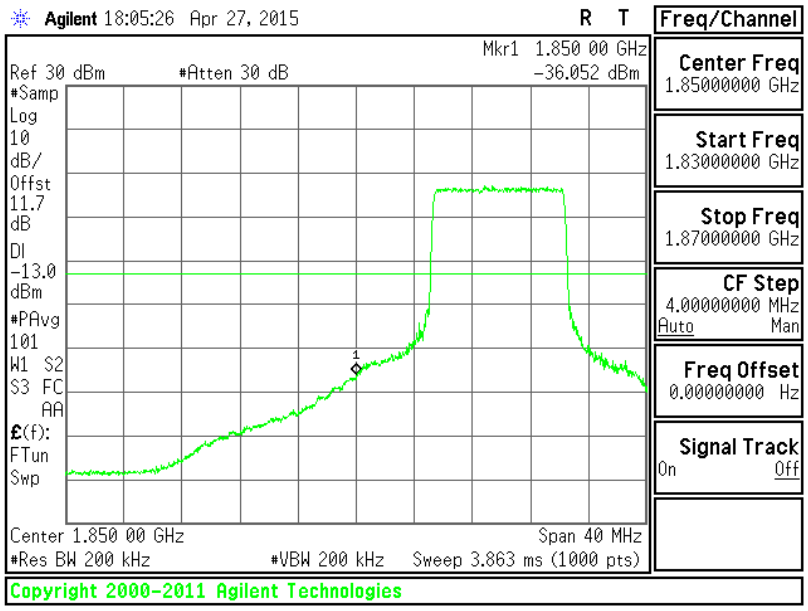


HIGH CH, RB1-99

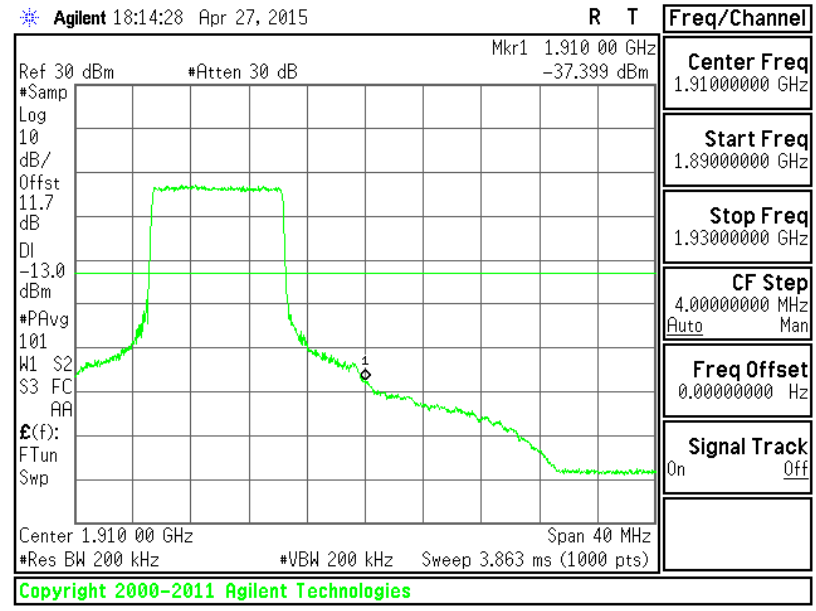


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LOW CH, RB50-24



HIGH CH, RB50-24



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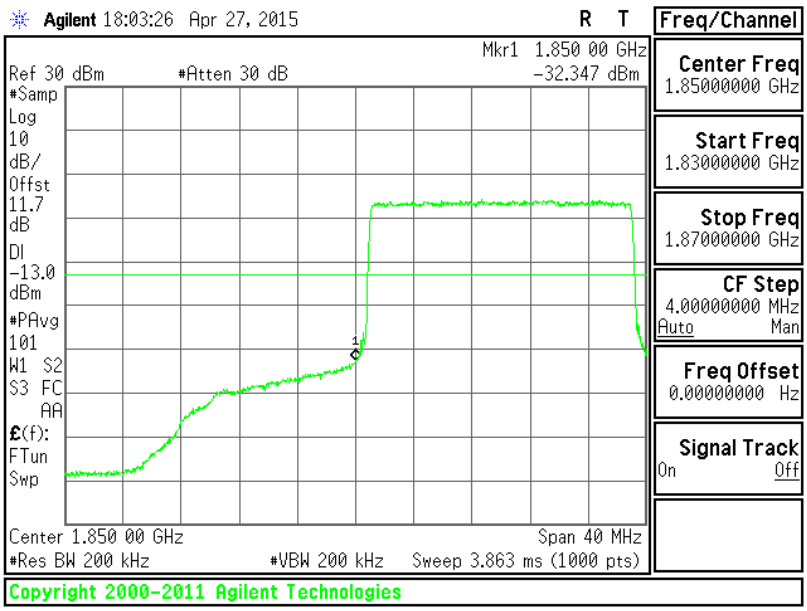
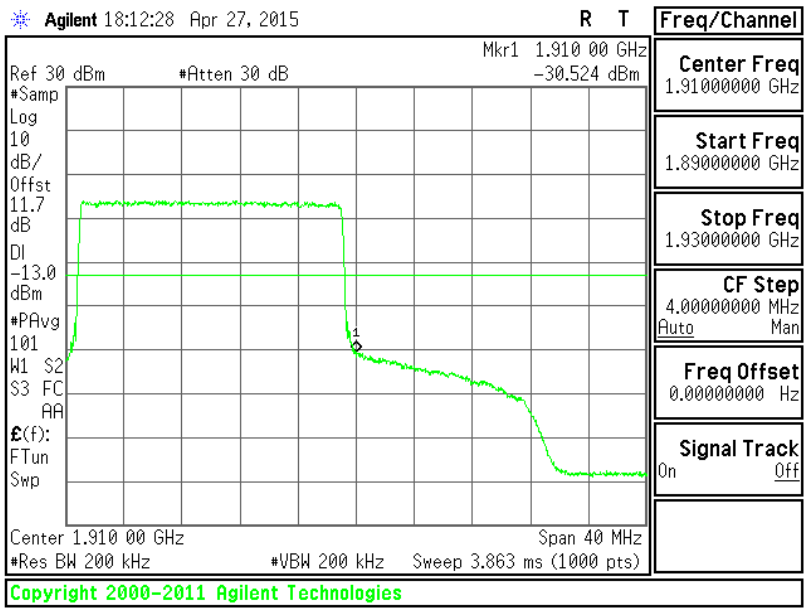
LOW CH, RB100-0



HIGH CH, RB100-0



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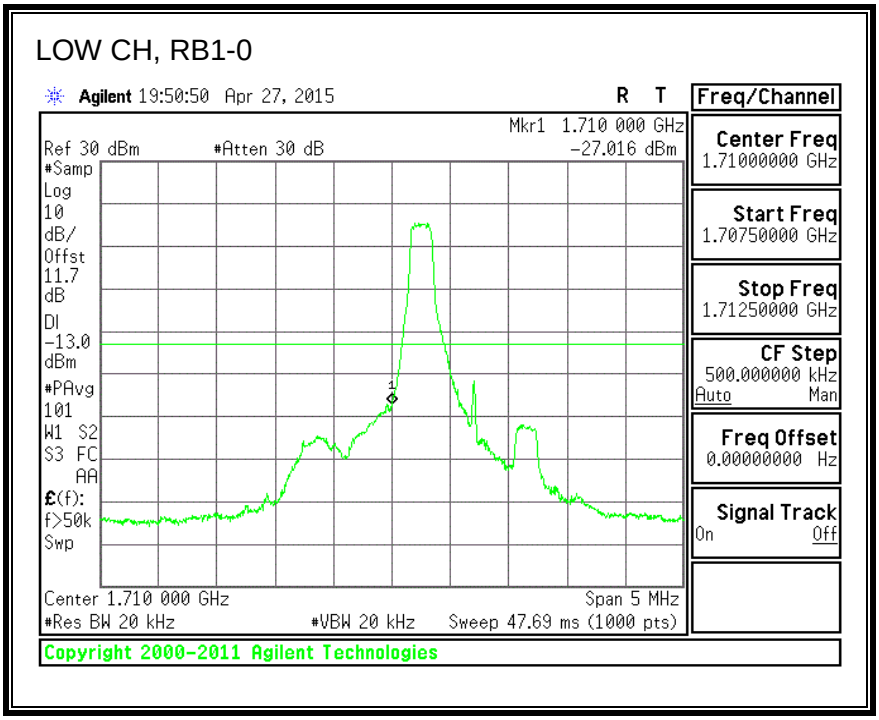
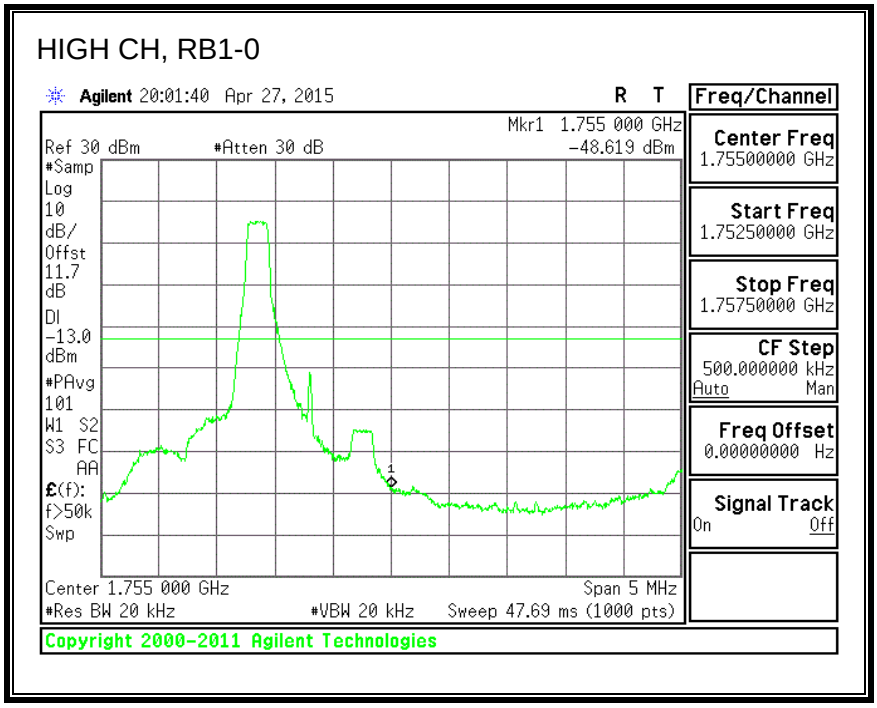
8.3.2. LTE BAND 4 BANDEDGE

QPSK, (1.4 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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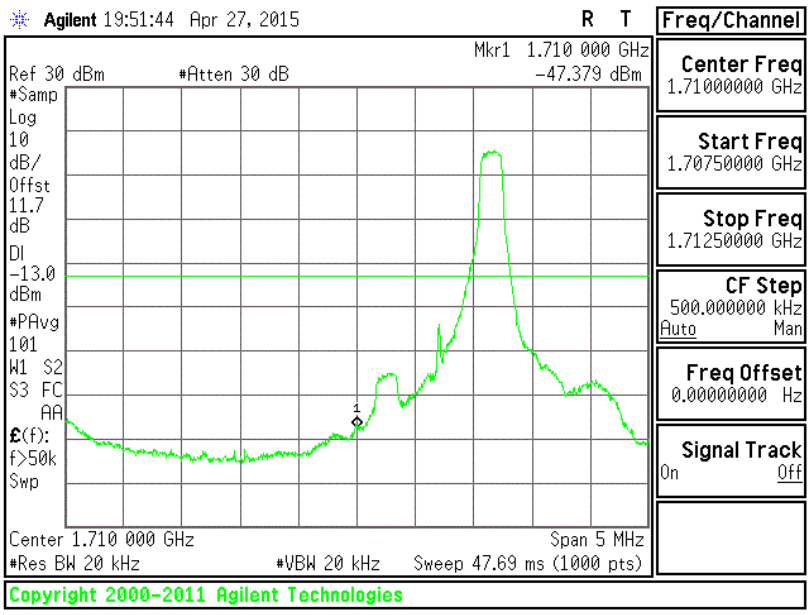
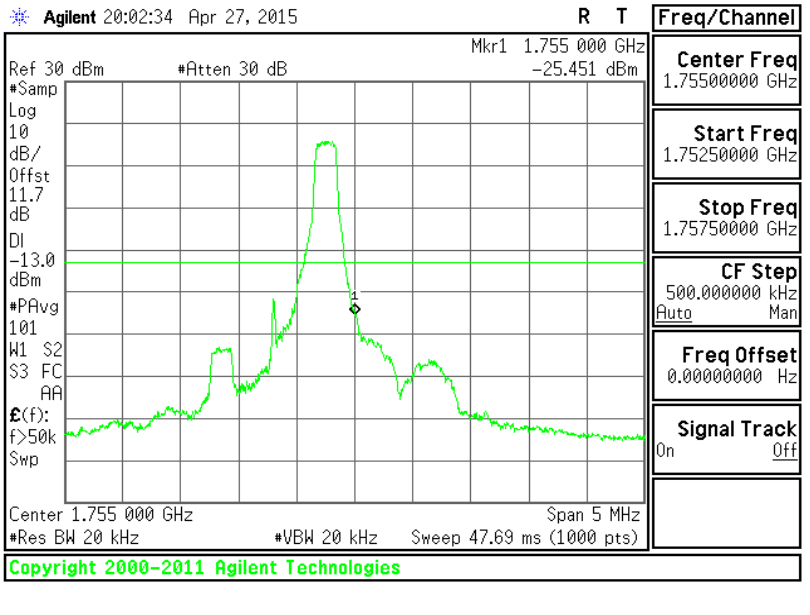
LOW CH, RB1-5



HIGH CH, RB1-5



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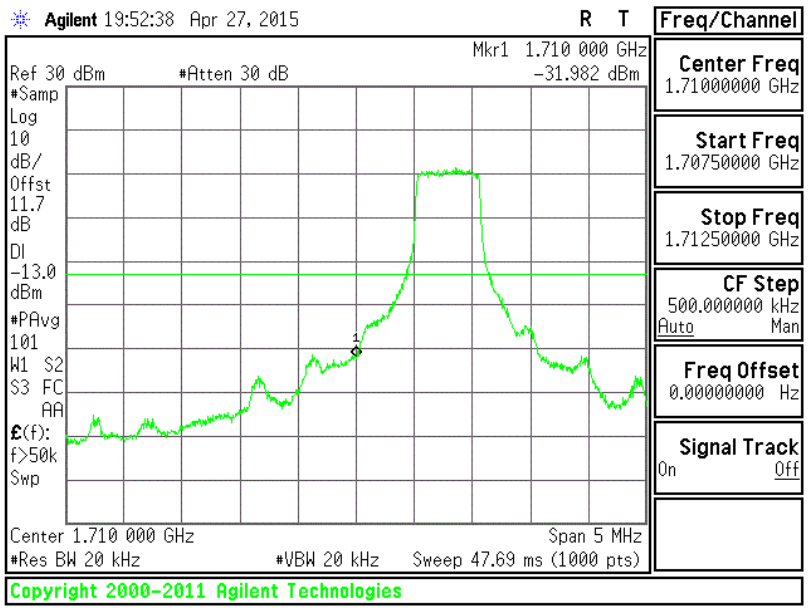
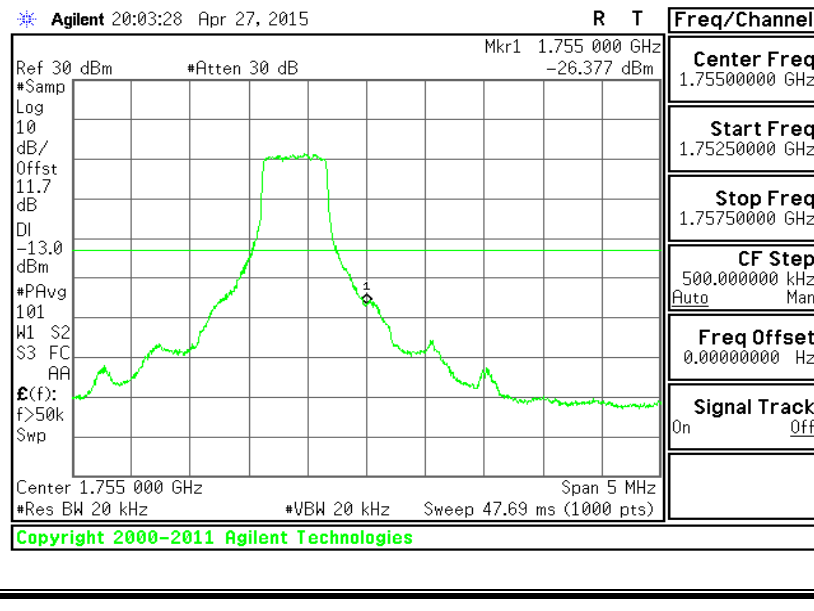
LOW CH, RB3-2



HIGH CH, RB3-2



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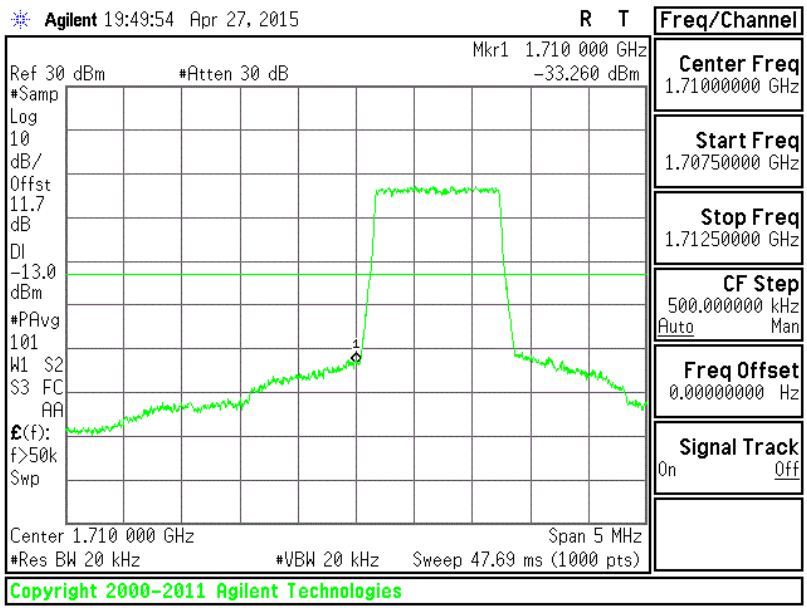
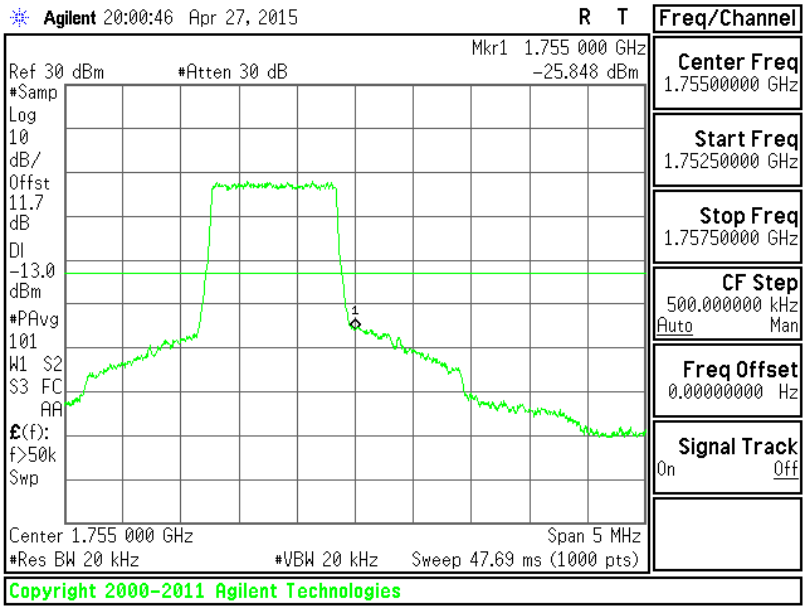
LOW CH, RB6-0



HIGH CH, RB6-0



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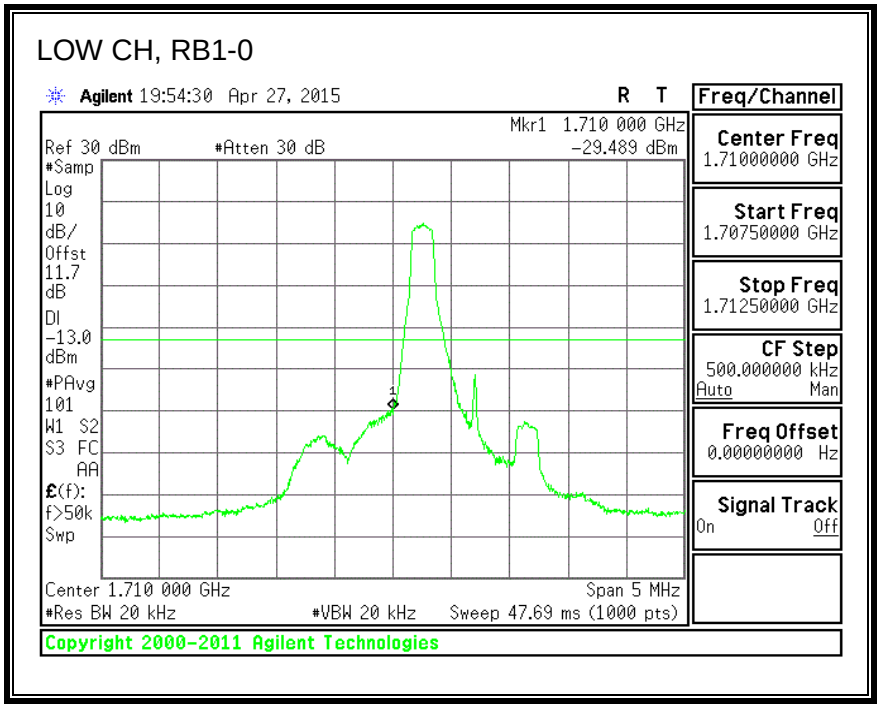
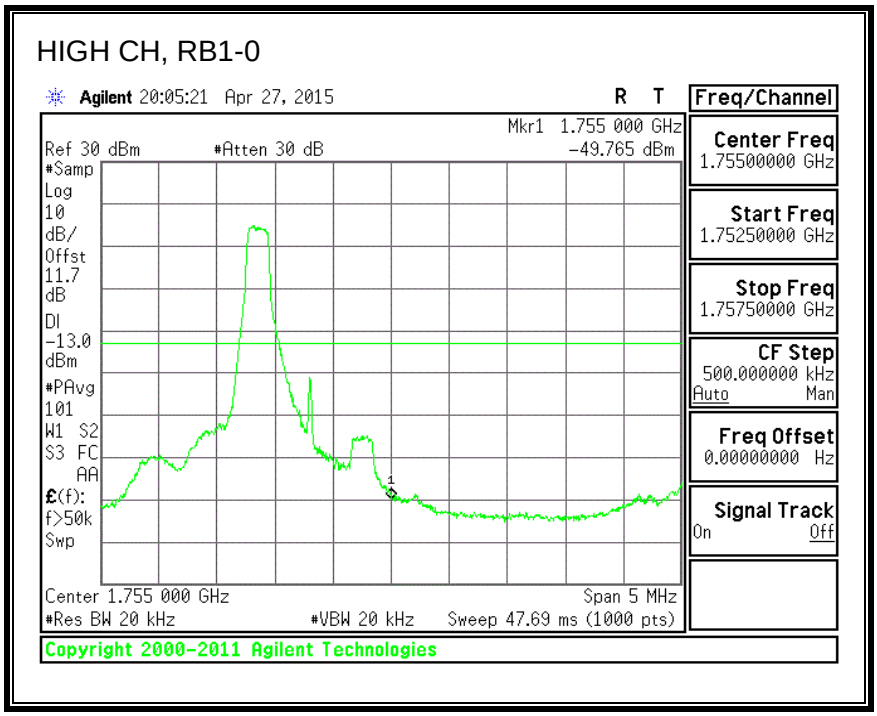
16QAM, (1.4 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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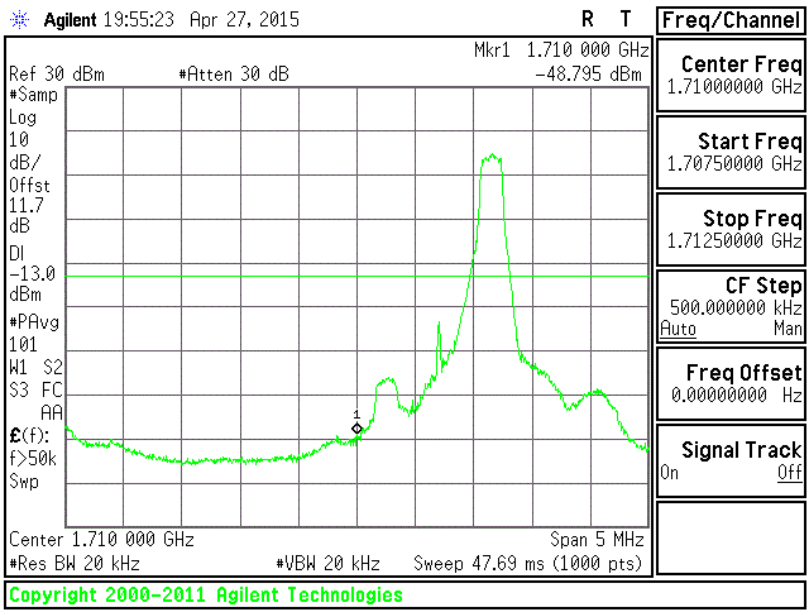
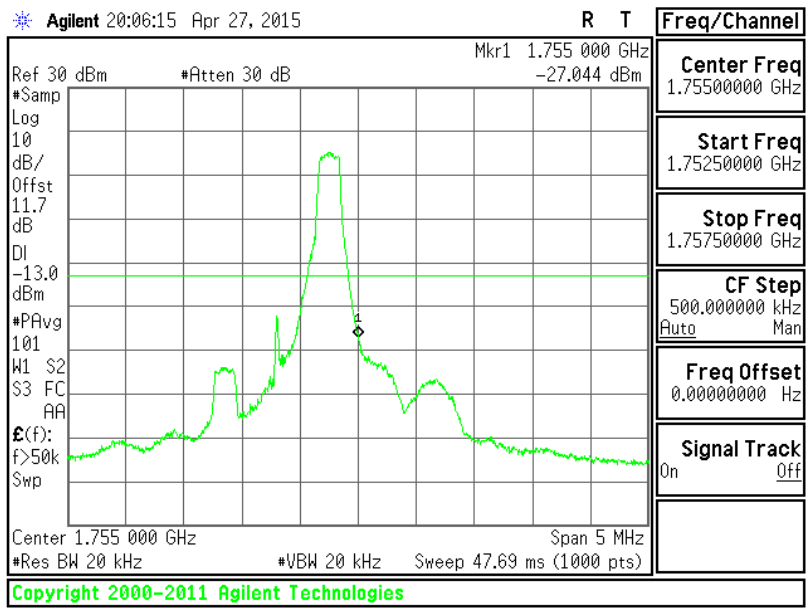
LOW CH, RB1-5



HIGH CH, RB1-5



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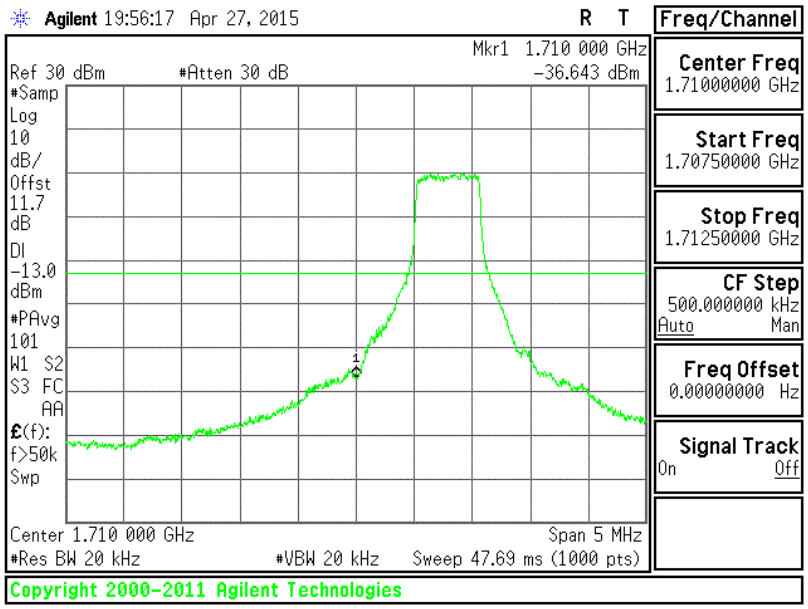
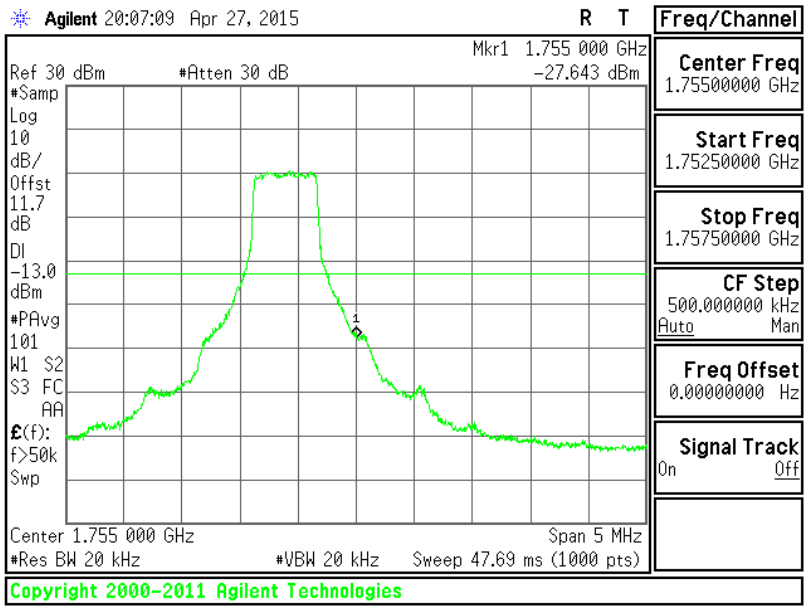
LOW CH, RB3-2



HIGH CH, RB3-2



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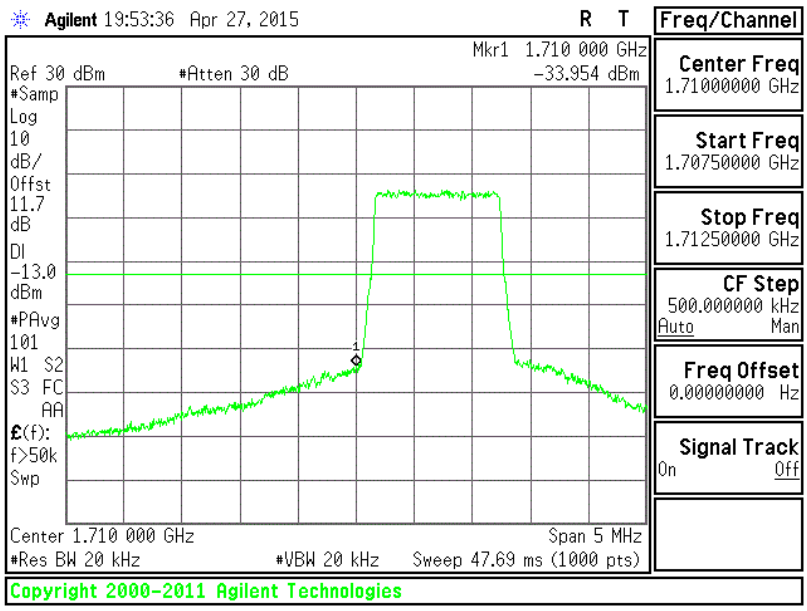
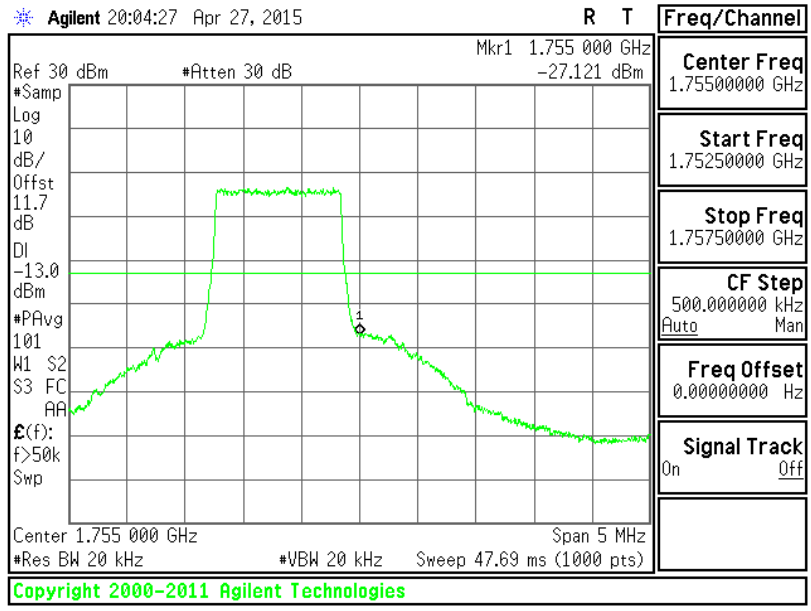
LOW CH, RB6-0



HIGH CH, RB6-0



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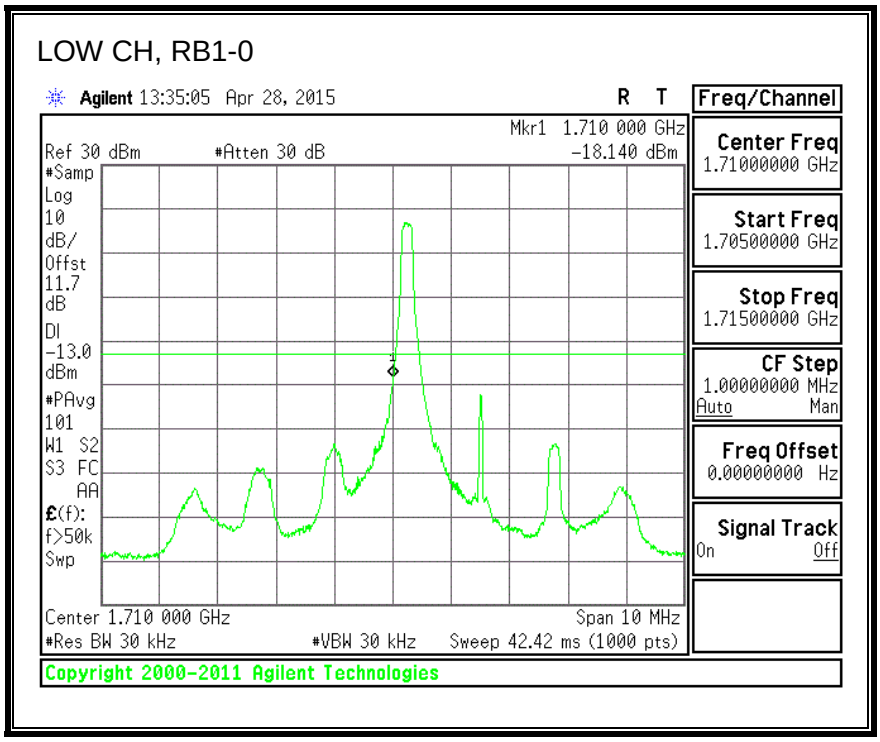
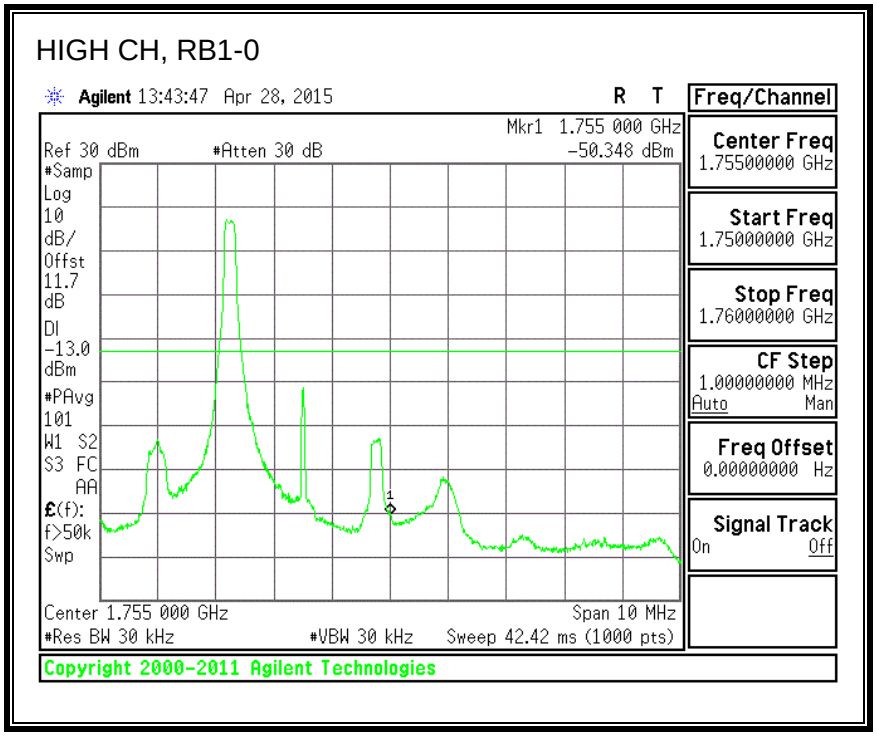
QPSK, (3.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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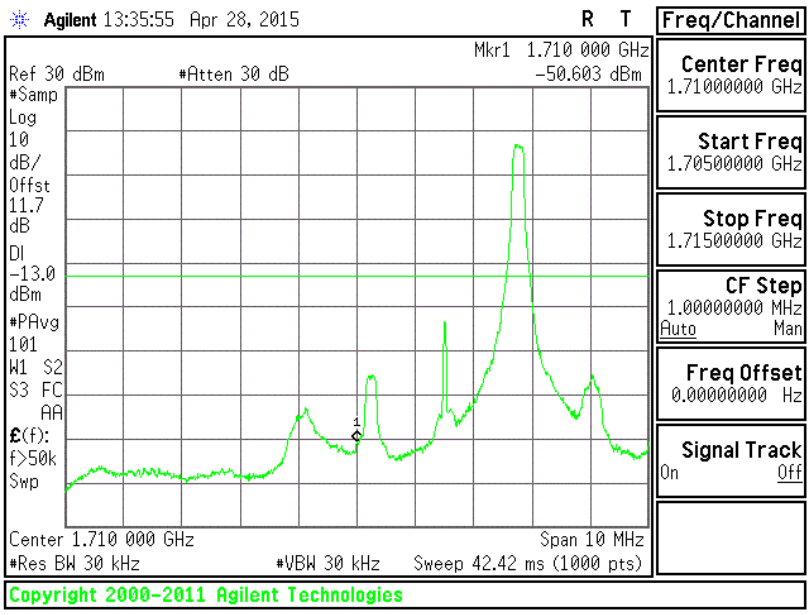
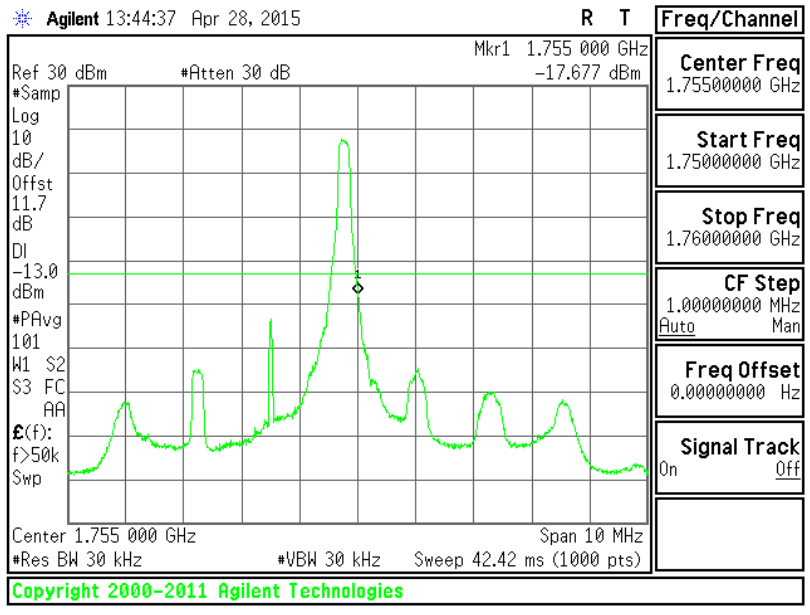
LOW CH, RB1-14



HIGH CH, RB1-14



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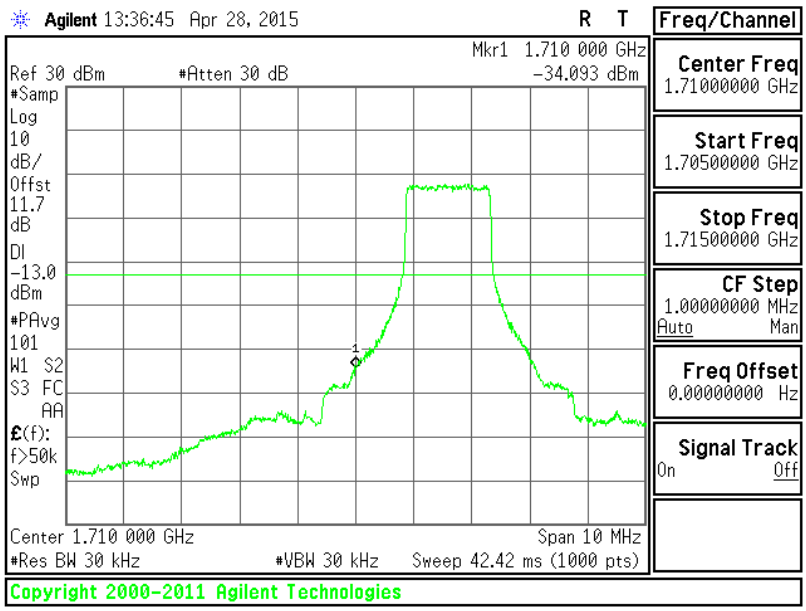
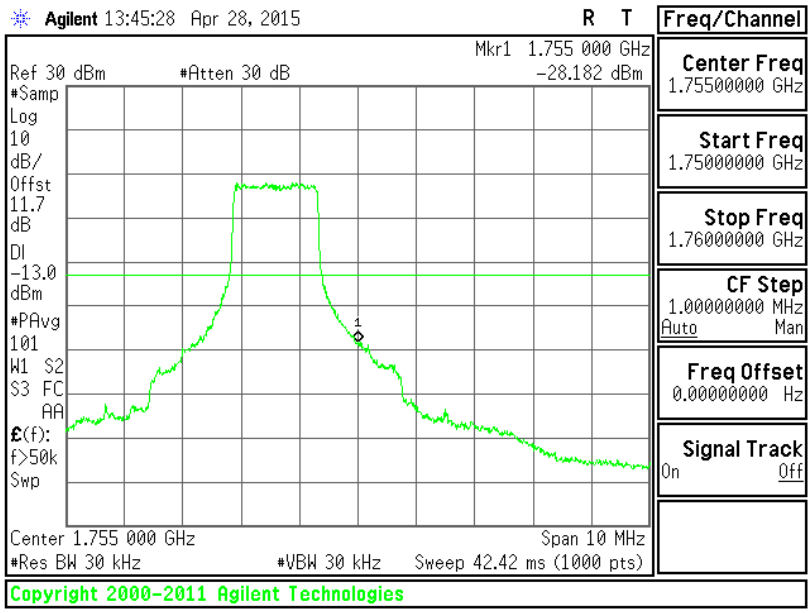
LOW CH, RB8-4



HIGH CH, RB8-4



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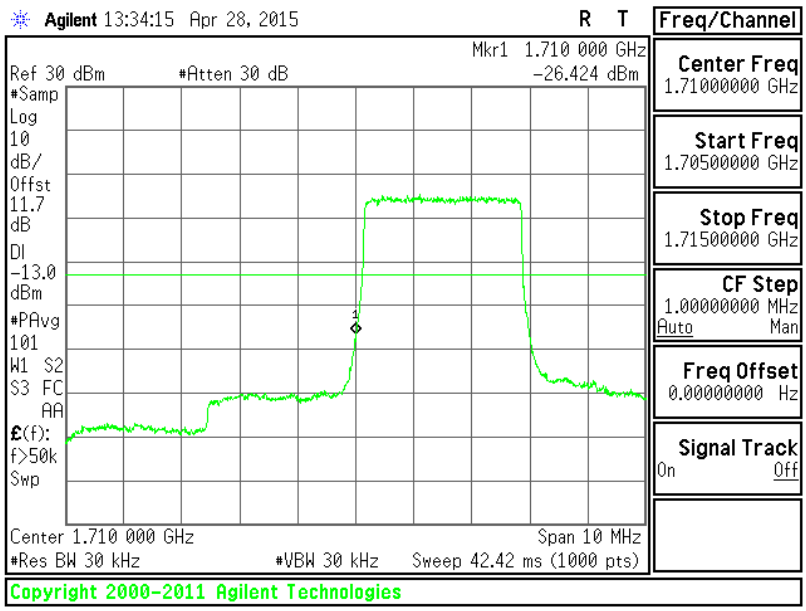
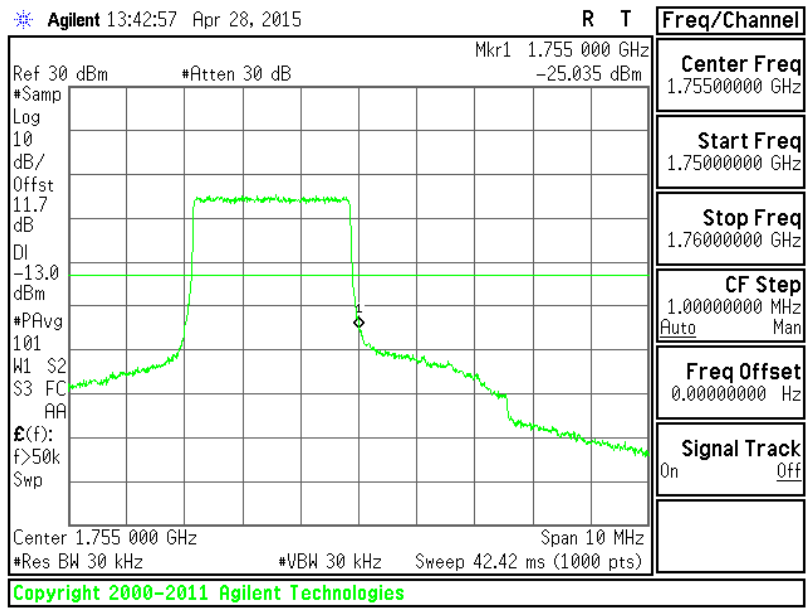
LOW CH, RB15-0



HIGH CH, RB15-0



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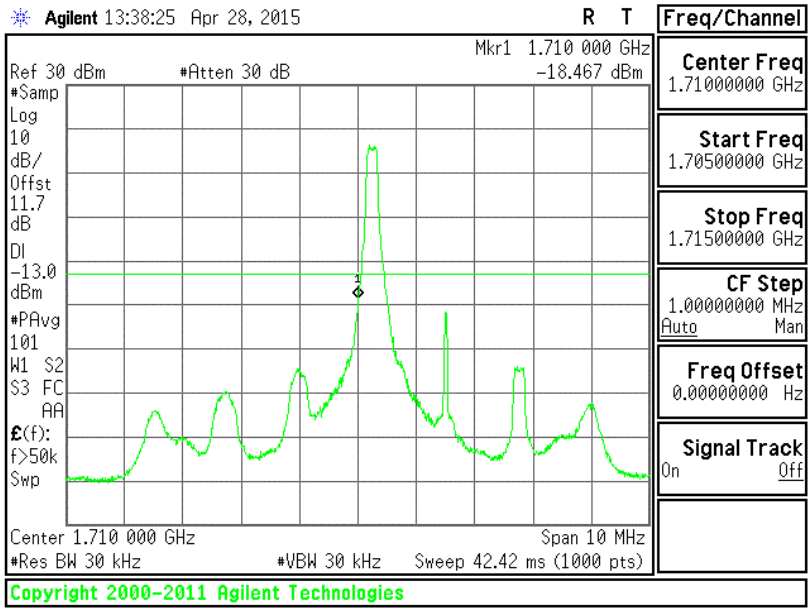
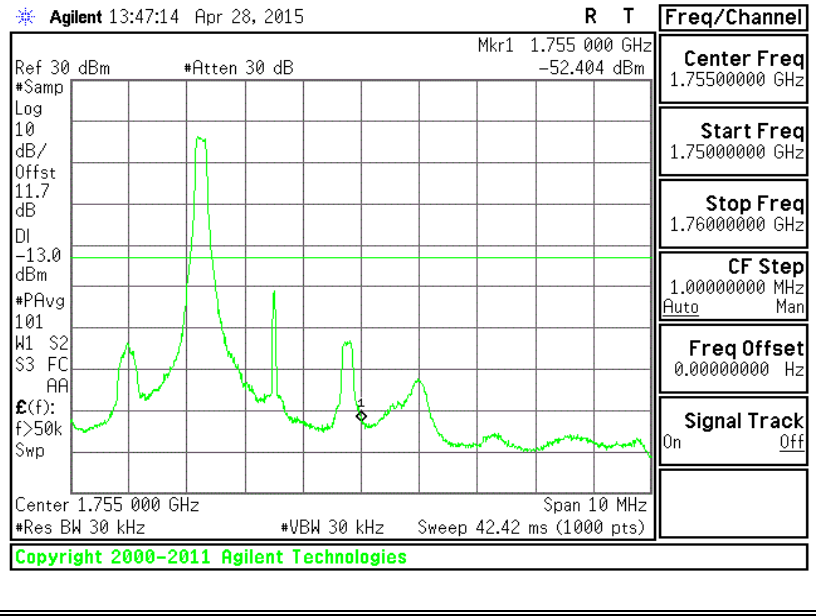
16QAM, (3.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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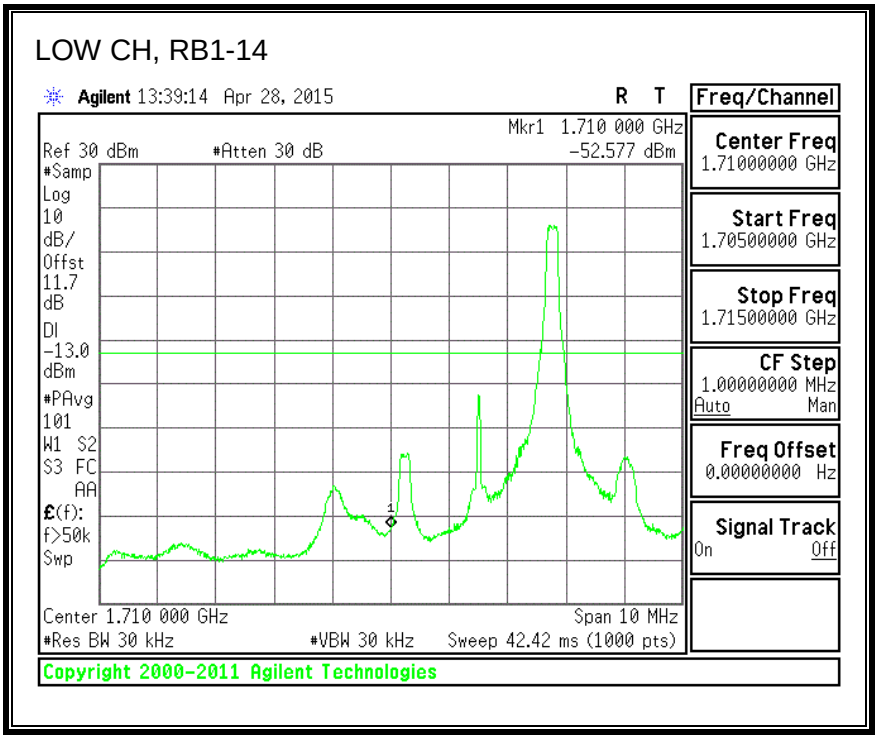
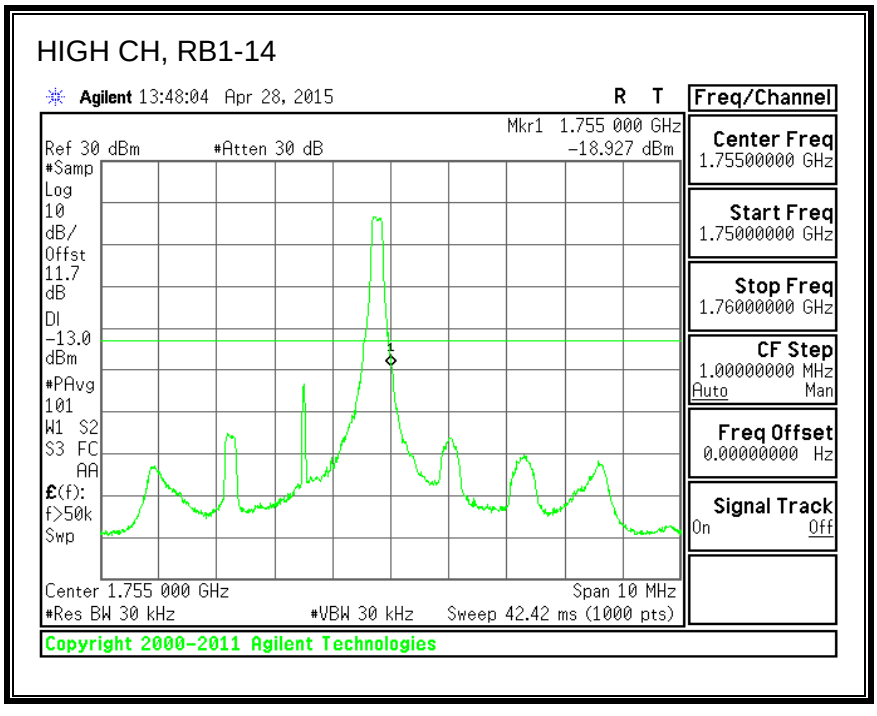
LOW CH, RB1-14



HIGH CH, RB1-14



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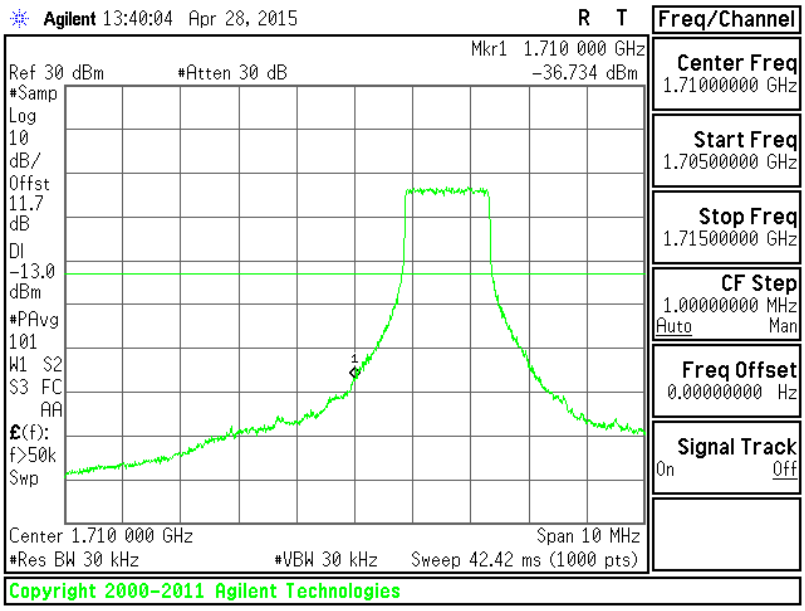
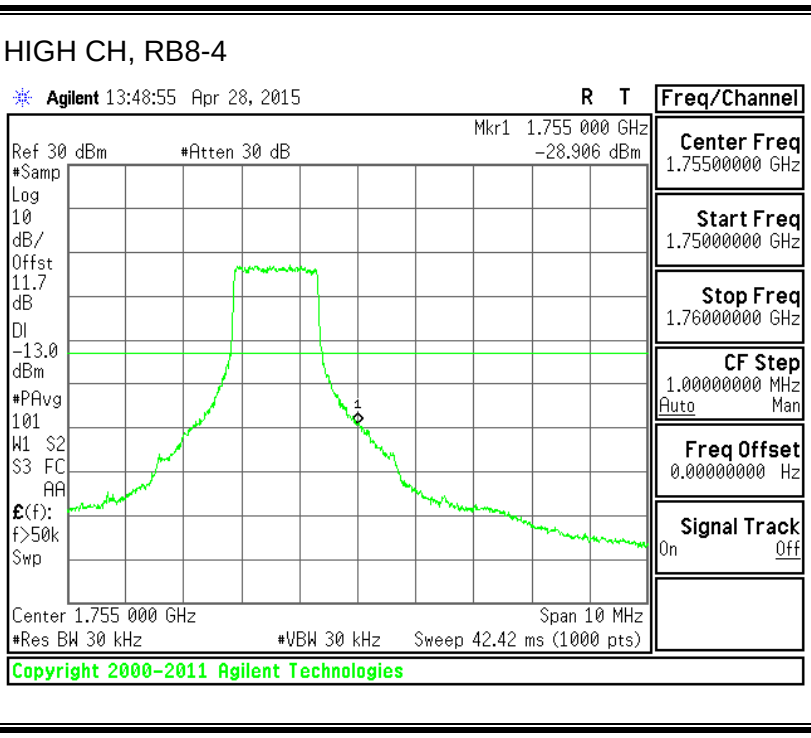
LOW CH, RB8-4



HIGH CH, RB8-4



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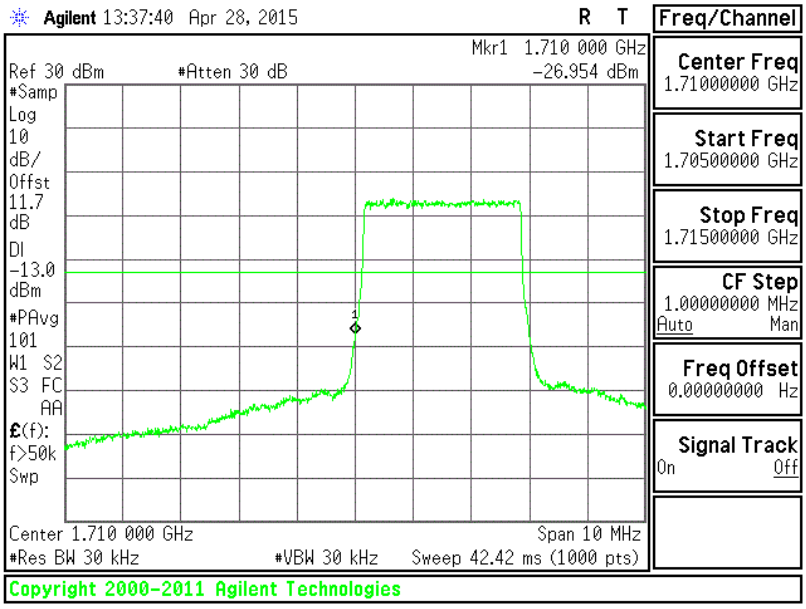
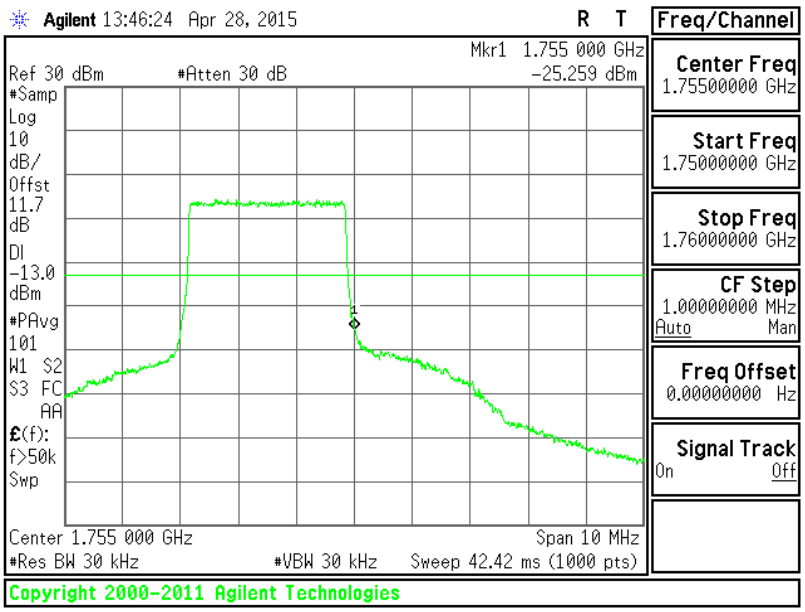
LOW CH, RB15-0



HIGH CH, RB15-0



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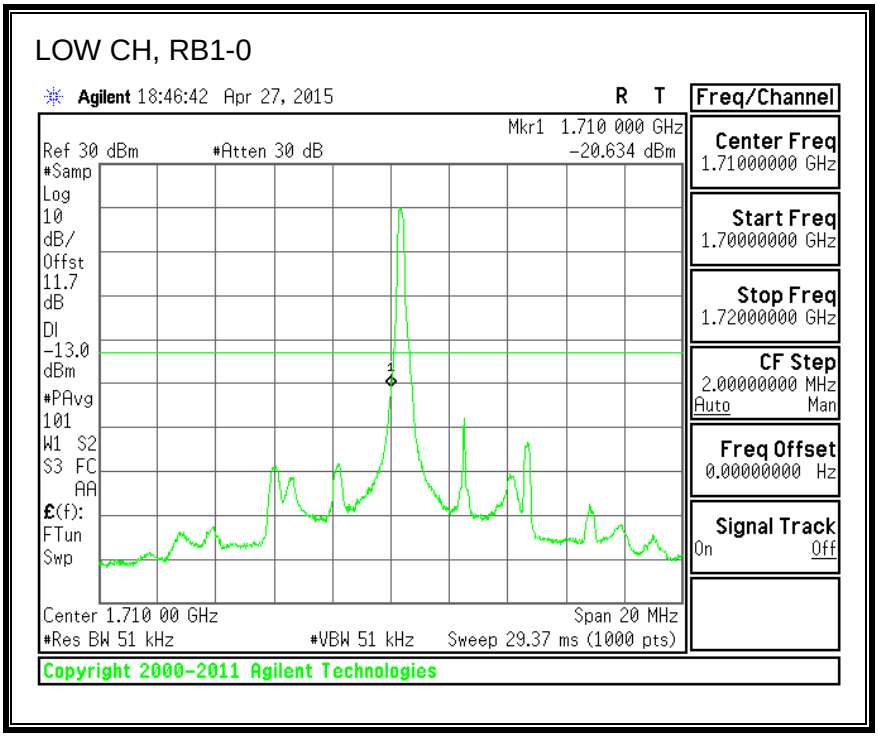
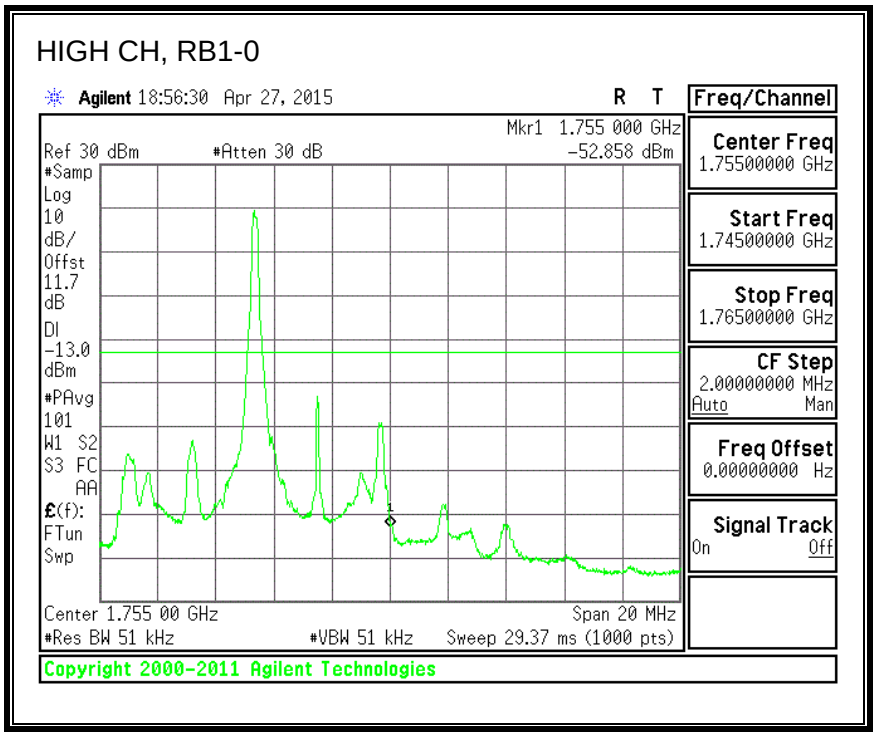
QPSK, (5.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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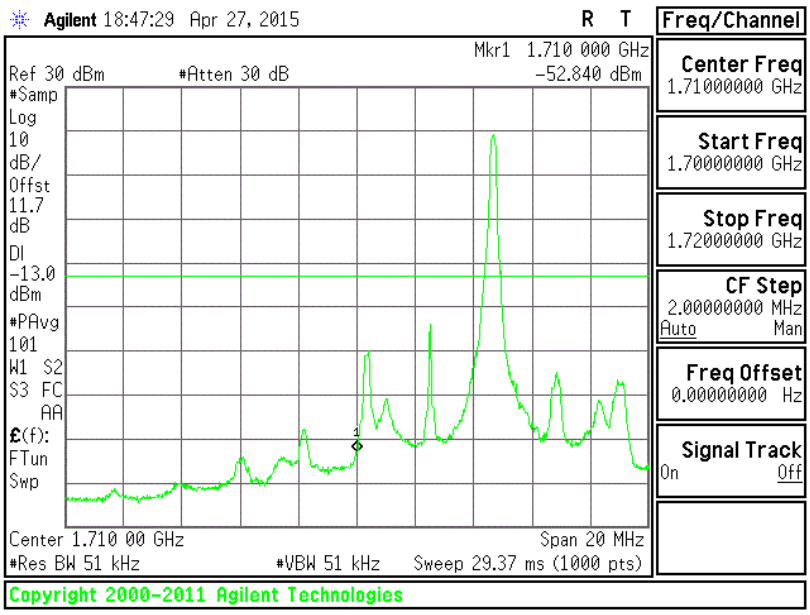
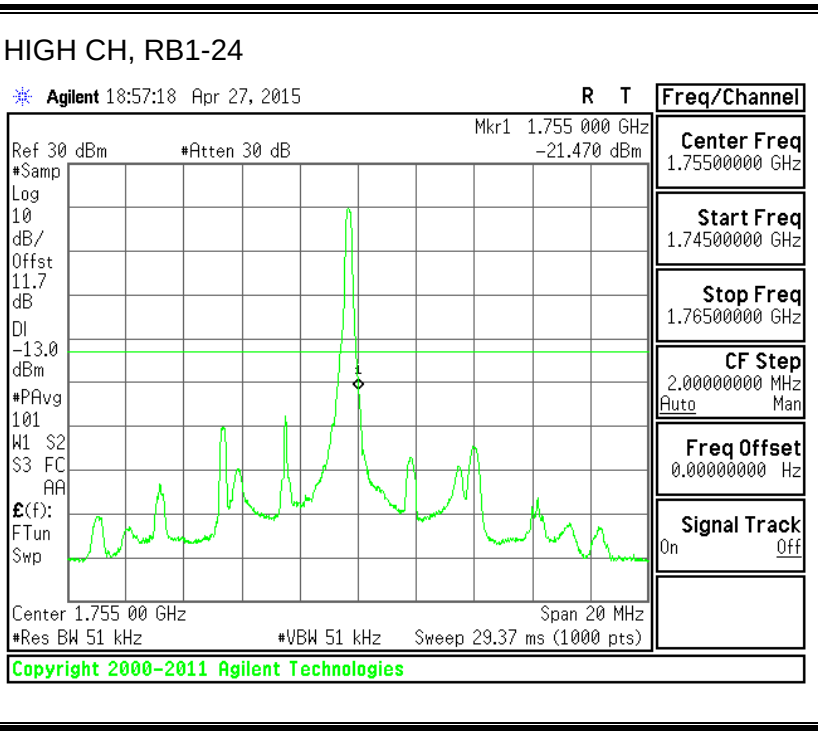
LOW CH, RB1-24



HIGH CH, RB1-24



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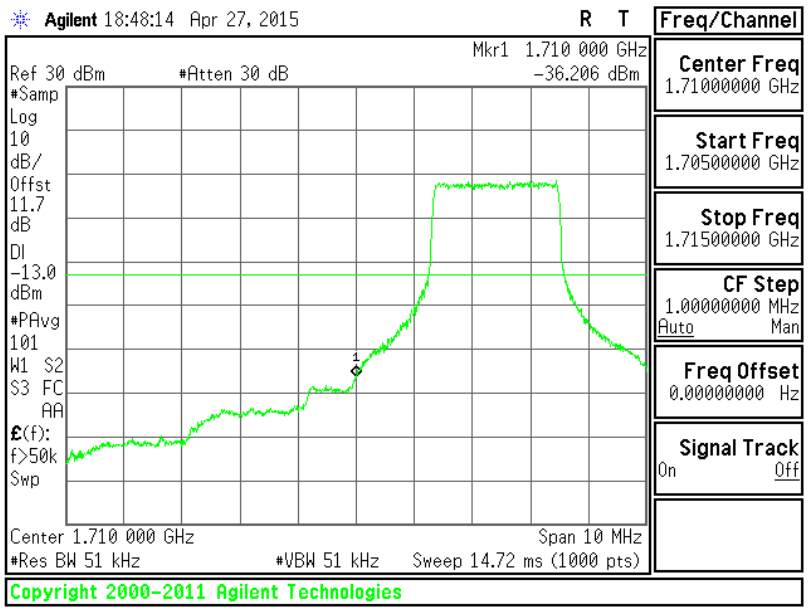
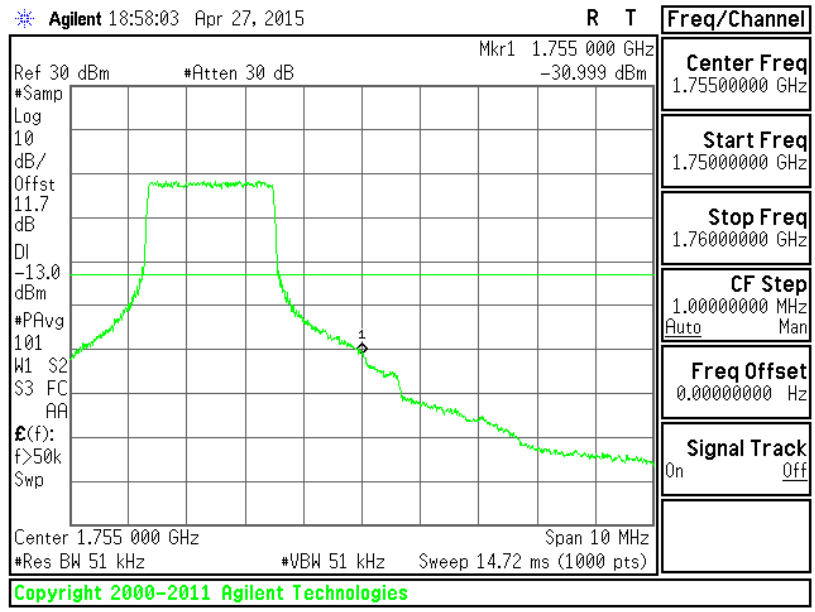
LOW CH, RB12-6



HIGH CH, RB12-6



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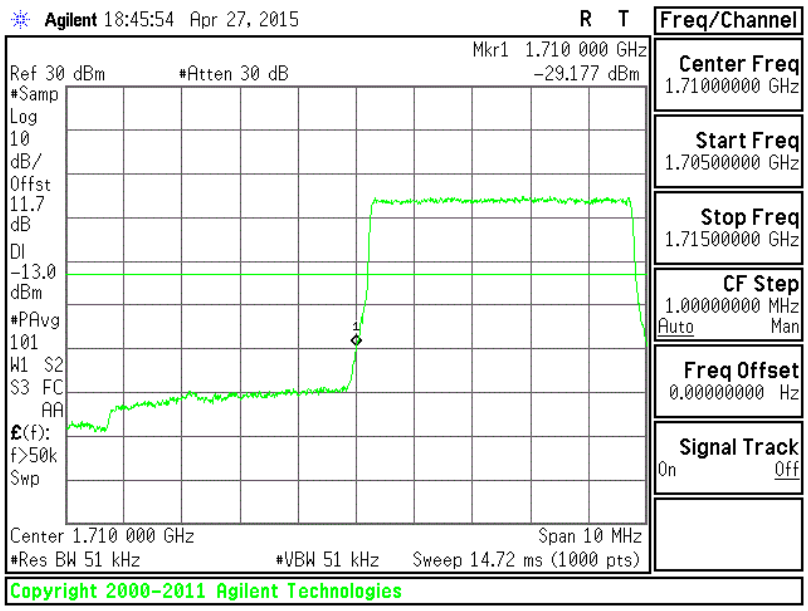
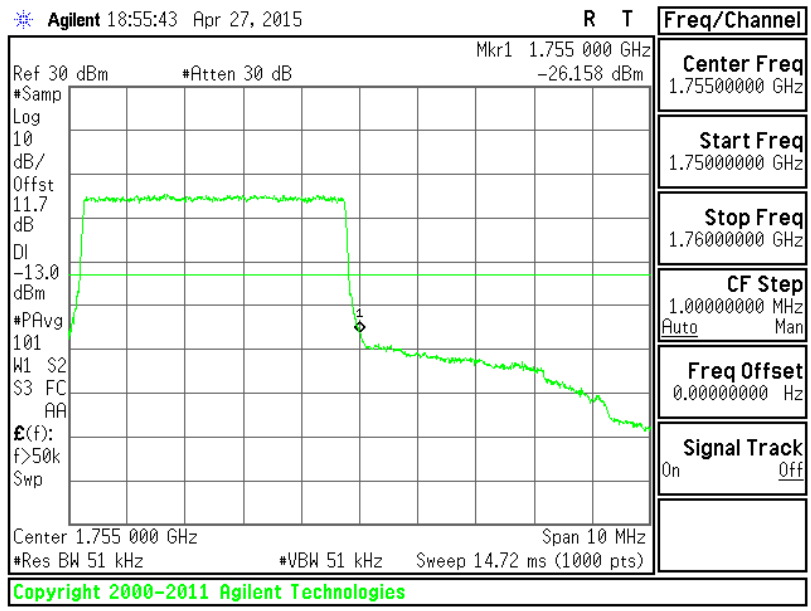
LOW CH, RB25-0



HIGH CH, RB25-0



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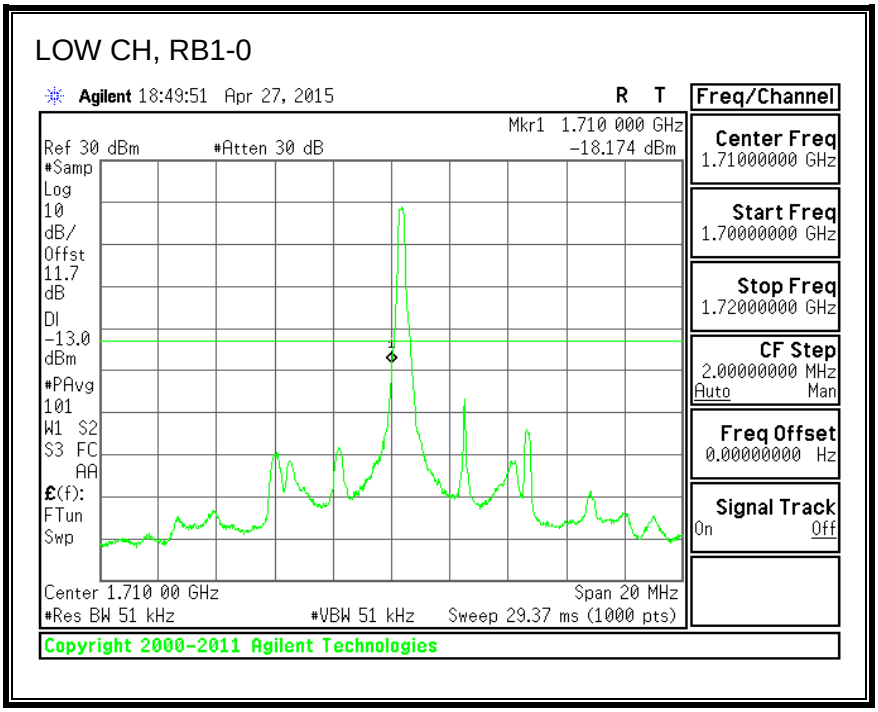
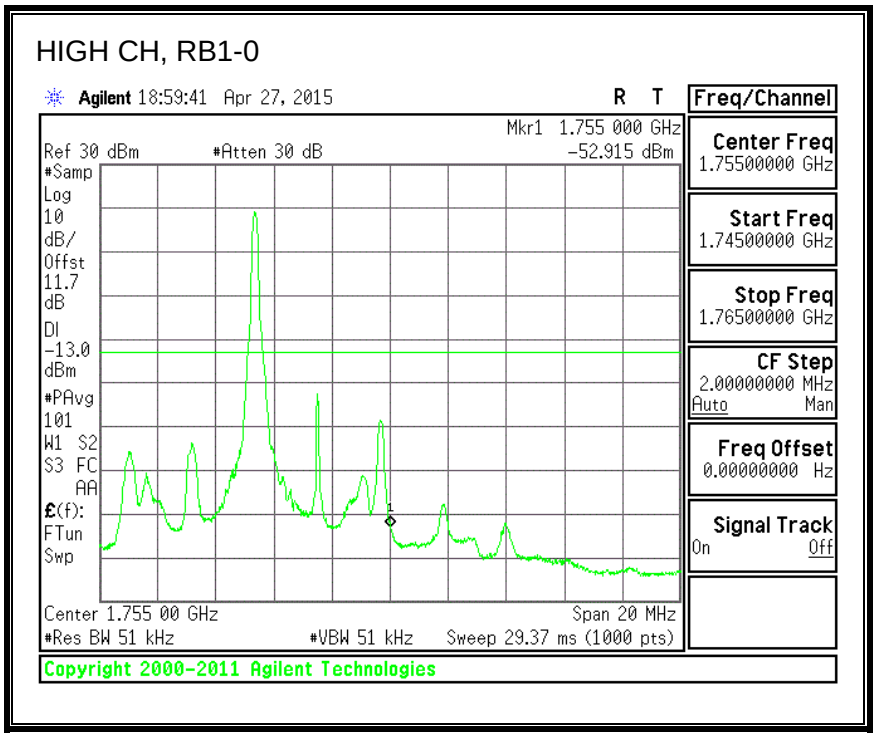
16QAM, (5.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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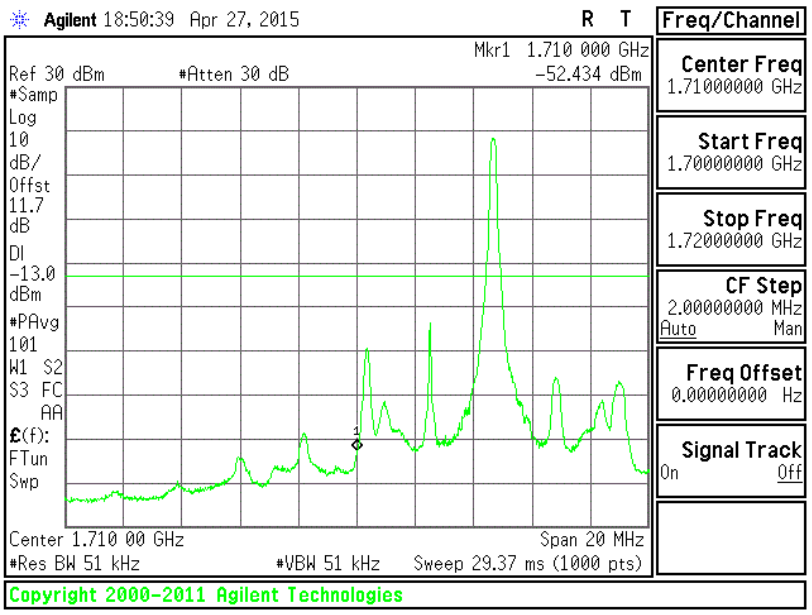
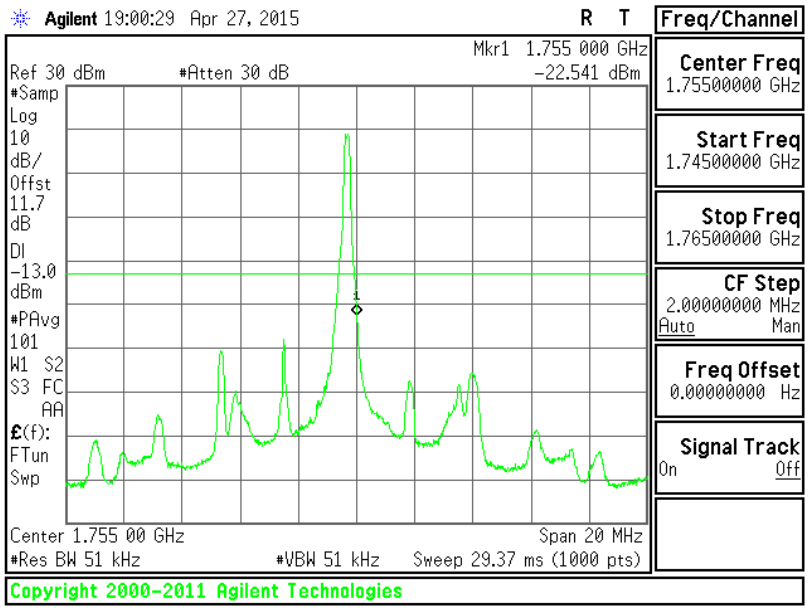
LOW CH, RB1-24



HIGH CH, RB1-24



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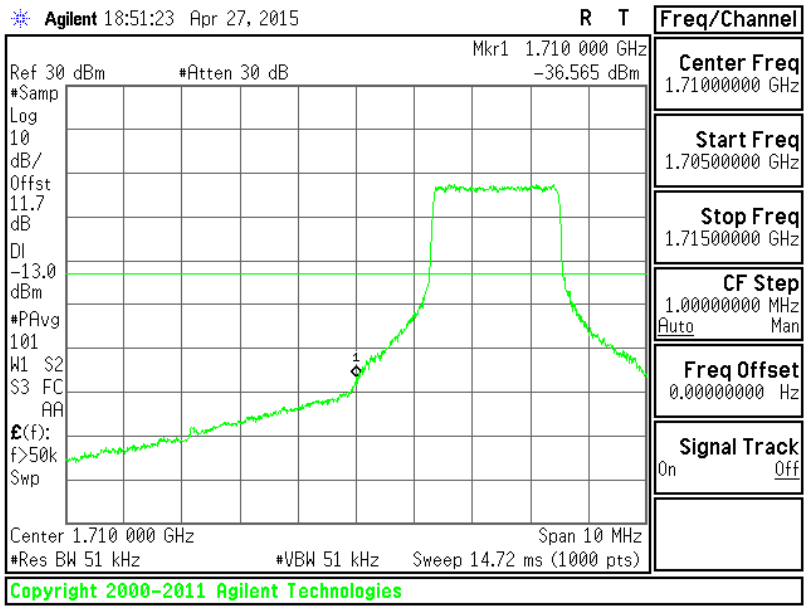
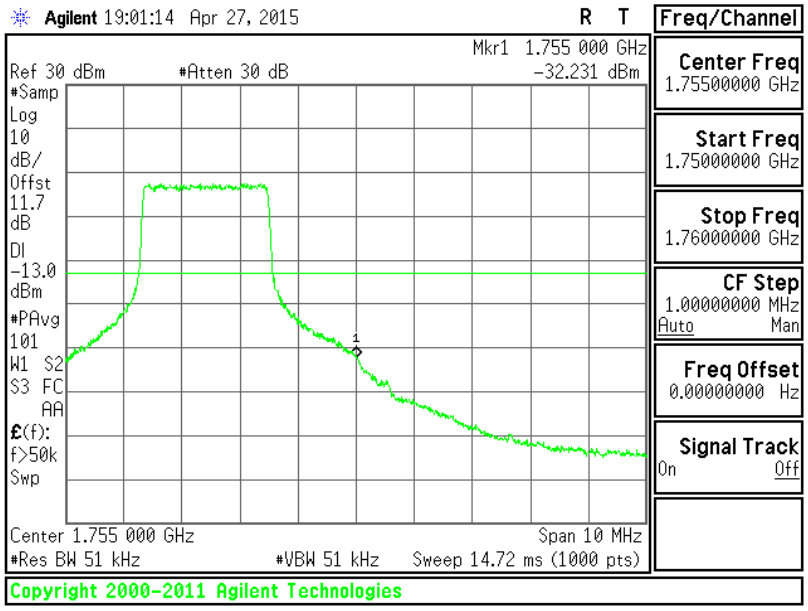
LOW CH, RB12-6



HIGH CH, RB12-6



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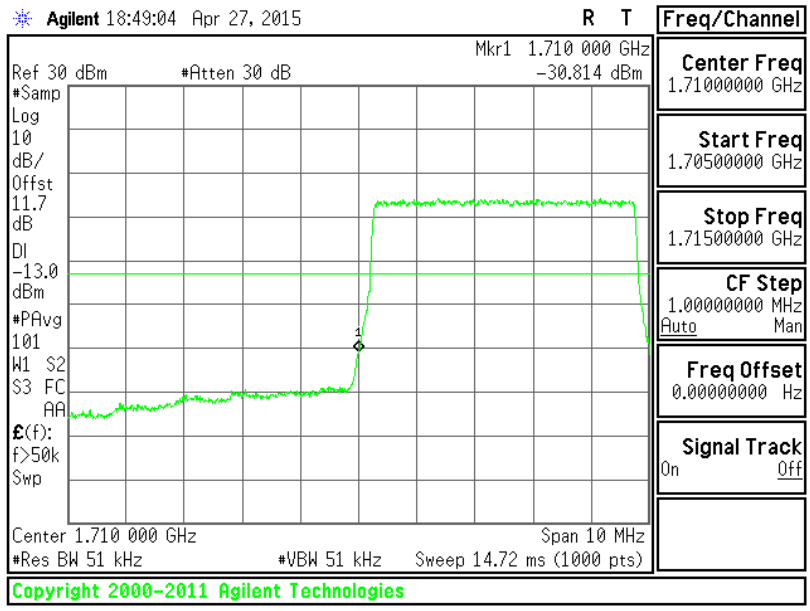
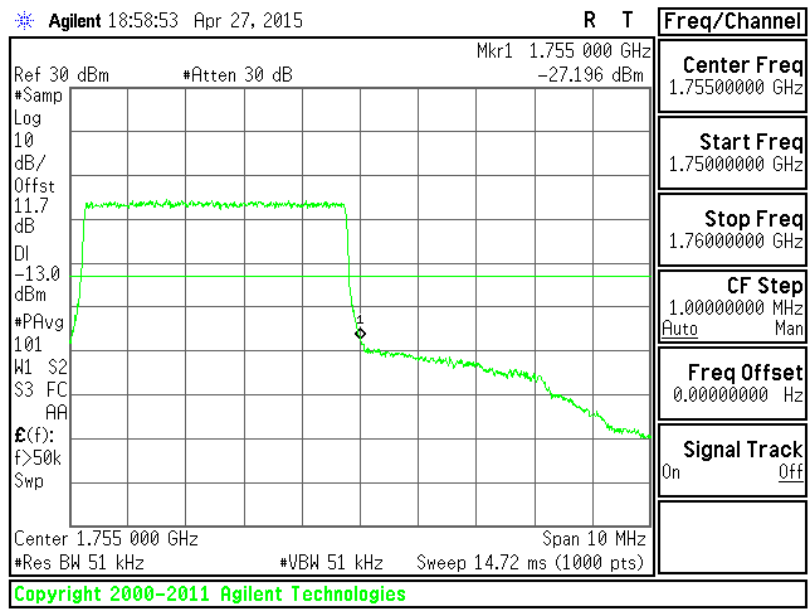
LOW CH, RB25-0



HIGH CH, RB25-0



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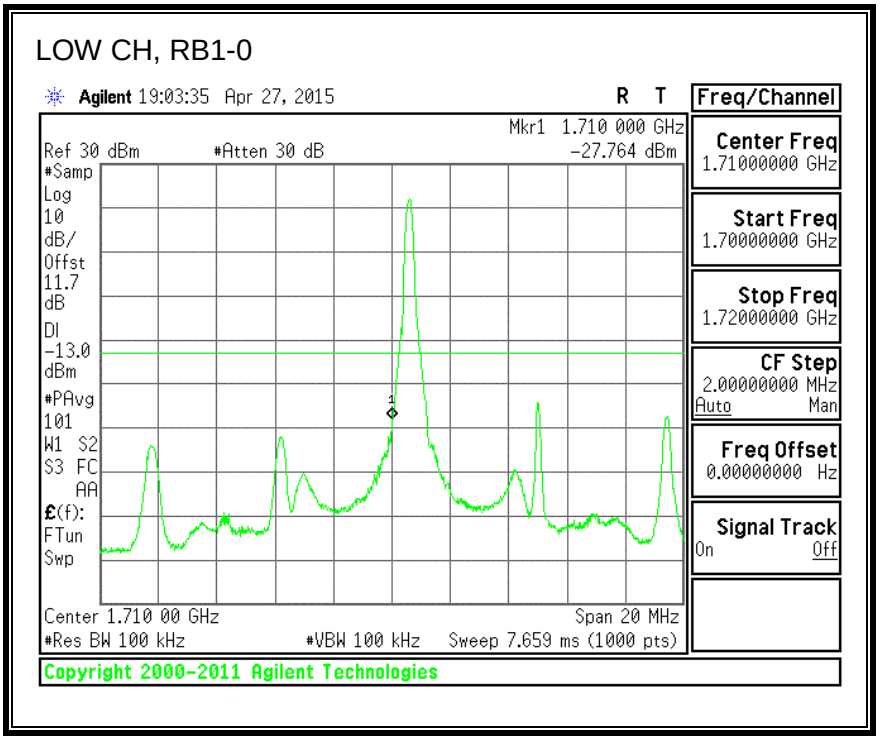
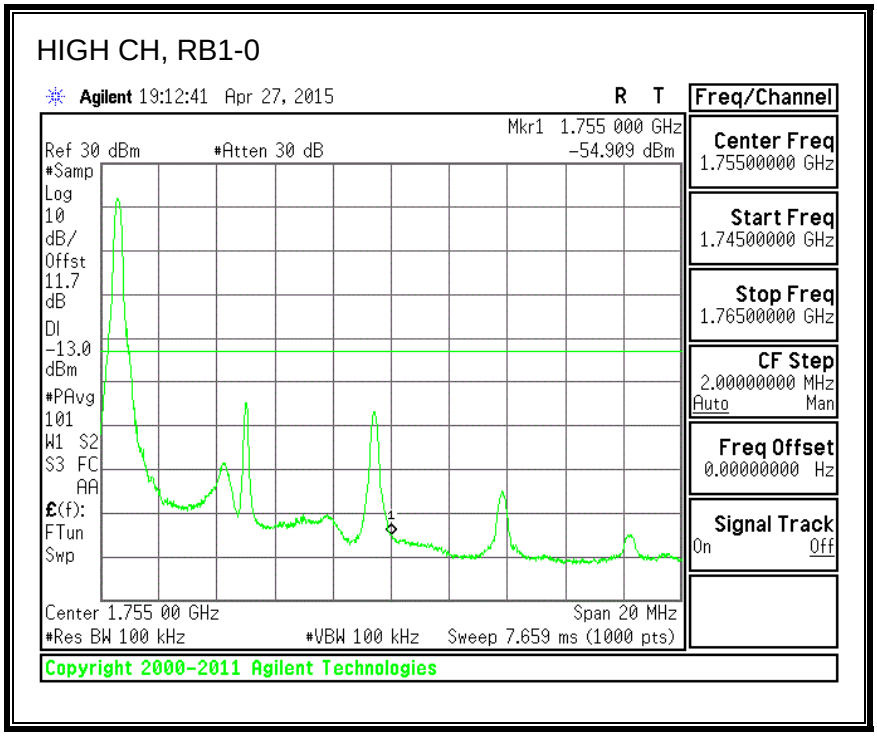
QPSK, (10.0 MHz BAND WIDTH)

LOW CH, RB1-0



HIGH CH, RB1-0



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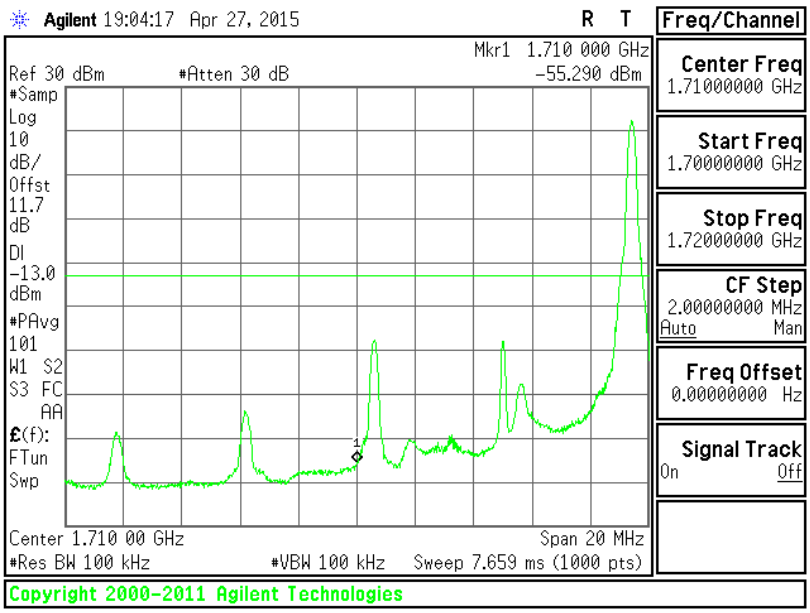
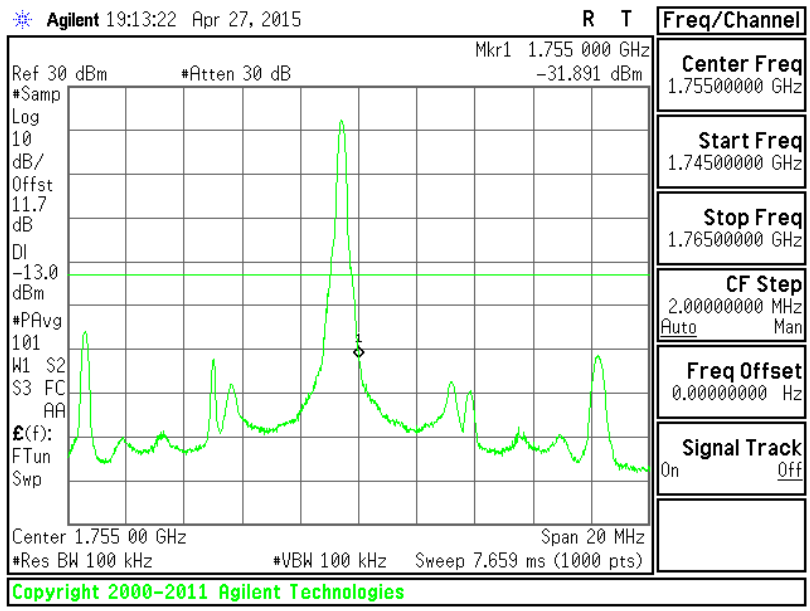
LOW CH, RB1-49



HIGH CH, RB1-49



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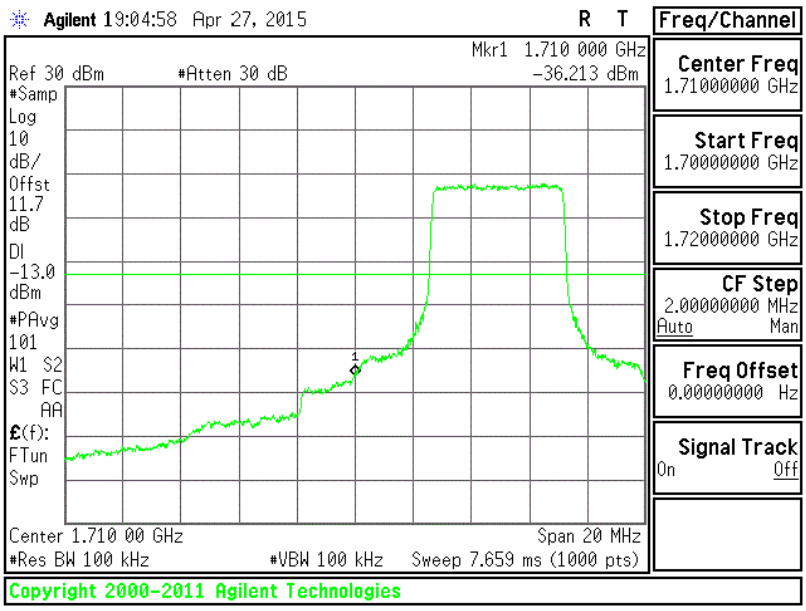
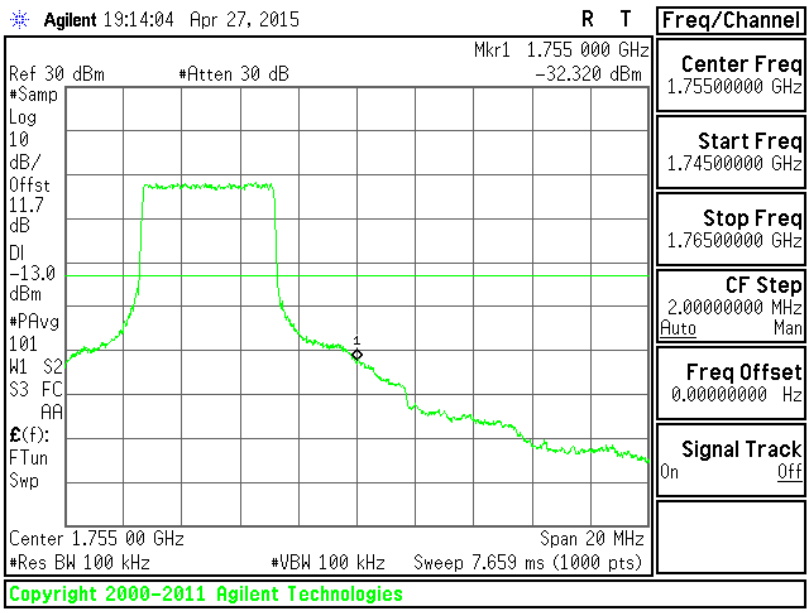
LOW CH, RB25-12



HIGH CH, RB25-12



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