

8. CONDUCTED TEST RESULTS

8.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the middle 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
- LTE Band 66

RESULTS

There is no limit required and power is the same for low, middle and high channel; therefore, only middle channel was tested.

LTE BAND 2

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 2	1.4 MHz, QPSK	1/0	1880.0	0.23913	0.3629
	1.4 MHz,16QAM			0.26920	0.3928
	1.4 MHz, QPSK	6/0		1.1008	1.319
	1.4 MHz,16QAM			1.1008	1.317
	1.4 MHz,64QAM			1.0978	1.316
	3 MHz, QPSK	1/0		0.24597	0.3584
	3 MHz, 16QAM			0.27426	0.4036
	3 MHz, QPSK	15/0		2.7067	3.013
	3 MHz, 16QAM			2.7100	3.049
	3 MHz, 64QAM			2.6998	3.019
	5 MHz, QPSK	1/0		0.24074	0.3662
	5 MHz, 16QAM			0.23802	0.3967
	5 MHz, QPSK	25/0		4.5018	4.998
	5 MHz, 16QAM			4.4977	5.005
	5 MHz, 64QAM			4.5001	5.072
	10 MHz, QPSK	1/0		0.27353	0.4529
	10 MHz, 16QAM			0.28172	0.4654
	10 MHz, QPSK	50/0		9.0357	10.51
	10 MHz, 16QAM			9.0134	10.50
	10 MHz, 64QAM			8.9995	10.43
	15 MHz, QPSK	1/0		0.25410	0.4070
	15 MHz, 16QAM			0.27166	0.4634
	15 MHz, QPSK	75/0		13.461	15.52
	15 MHz, 16QAM			13.461	15.58
	15 MHz, 64QAM			13.445	15.48
	20 MHz, QPSK	1/0		0.27198	0.4809
	20 MHz, 16QAM			0.30428	0.5142
	20 MHz, QPSK	100/0		17.943	19.83
	20 MHz, 16QAM			17.926	19.72
	20 MHz, 64QAM			17.927	19.63

LTE BAND 4

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 4	1.4 MHz, QPSK	1/0	1732.5	0.24858	0.3927
	1.4 MHz,16QAM			0.25394	0.3883
	1.4 MHz, QPSK	6/0		1.0973	1.309
	1.4 MHz,16QAM			1.0981	1.319
	1.4 MHz,64QAM			1.0991	1.322
	3 MHz, QPSK	1/0		0.25435	0.3996
	3 MHz, 16QAM			0.26399	0.3940
	3 MHz, QPSK	15/0		2.7059	3.018
	3 MHz, 16QAM			2.7118	3.031
	3 MHz, 64QAM			2.7140	3.032

LTE BAND 5

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 5	1.4 MHz, QPSK	1/0	836.5	0.25191	0.3875
	1.4 MHz,16QAM			0.28562	0.5160
	1.4 MHz, QPSK	6/0		1.0987	1.315
	1.4 MHz,16QAM			1.0994	1.305
	1.4 MHz,64QAM			1.0963	1.319
	3 MHz, QPSK	1/0		0.26455	0.3848
	3 MHz, 16QAM			0.28116	0.4086
	3 MHz, QPSK	15/0		2.7086	3.023
	3 MHz, 16QAM			2.7153	3.028
	3 MHz,64QAM			2.7149	3.036
	5 MHz, QPSK	1/0		0.24766	0.3866
	5 MHz, 16QAM			0.24941	0.3968
	5 MHz, QPSK	25/0		4.5034	5.085
	5 MHz, 16QAM			4.5023	5.072
	5 MHz, 64QAM			4.5060	5.005
	10 MHz, QPSK	1/0		0.27910	0.4612
	10 MHz, 16QAM			0.29427	0.4211
	10 MHz, QPSK	50/0		9.0340	10.48
	10 MHz, 16QAM			9.0140	10.47
	10 MHz, 64QAM			9.0112	10.51

LTE BAND 7

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 7	5 MHz, QPSK	1/0	2535.0	0.23531	0.3917
	5 MHz, 16QAM			0.24532	0.4081
	5 MHz, QPSK	25/0		4.5096	5.030
	5 MHz, 16QAM			4.5078	5.027
	5 MHz, 64QAM			4.5006	5.019
	10 MHz, QPSK	1/0		0.27188	0.4243
	10 MHz, 16QAM			0.27516	0.4207
	10 MHz, QPSK	50/0		9.0237	10.47
	10 MHz, 16QAM			9.0054	10.42
	10 MHz, 64QAM			9.0124	10.47
	15 MHz, QPSK	1/0		0.27676	0.4039
	15 MHz, 16QAM			0.27554	0.4201
	15 MHz, QPSK	75/0		13.486	15.68
	15 MHz, 16QAM			13.478	15.52
	15 MHz, 64QAM			13.483	15.35
	20 MHz, QPSK	1/0		0.25851	0.4196
	20 MHz, 16QAM			0.28979	0.4875
	20 MHz, QPSK	100/0		17.963	19.91
	20 MHz, 16QAM			17.977	19.84
	20 MHz, 64QAM			17.998	19.82

LTE BAND 12

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 12	1.4 MHz, QPSK	1/0	707.5	0.24618	0.3818
	1.4 MHz,16QAM			0.27215	0.4156
	1.4 MHz, QPSK	6/0		1.1004	1.316
	1.4 MHz,16QAM			1.0964	1.315
	1.4 MHz,64QAM			1.0999	1.316
	3 MHz, QPSK	1/0		0.26030	0.3985
	3 MHz, 16QAM			0.26336	0.4129
	3 MHz, QPSK	15/0		2.7049	3.029
	3 MHz, 16QAM			2.7153	3.037
	3 MHz, 64QAM			2.7110	3.029
	5 MHz, QPSK	1/0		0.22879	0.3765
	5 MHz, 16QAM			0.22843	0.3797
	5 MHz, QPSK	25/0		4.5004	5.022
	5 MHz, 16QAM			4.5022	5.084
	5 MHz, 64QAM			4.5185	5.031
	10 MHz, QPSK	1/0		0.29772	0.4458
	10 MHz, 16QAM			0.29895	0.4680
	10 MHz, QPSK	50/0		9.0167	10.46
	10 MHz, 16QAM			9.0185	10.48
	10 MHz, 64QAM			9.0027	10.40

LTE BAND 13

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 13	5 MHz, QPSK	1/0	782.0	0.24162	0.3976
	5 MHz, 16QAM			0.24240	0.3766
	5 MHz, QPSK	25/0		4.5068	5.076
	5 MHz, 16QAM			4.5011	5.084
	5 MHz, 64QAM			4.5023	5.024
	10 MHz, QPSK	1/0		0.28838	0.3943
	10 MHz, 16QAM			0.29979	0.4521
	10 MHz, QPSK	50/0		8.9858	10.46
	10 MHz, 16QAM			8.9960	10.41
	10 MHz, 64QAM			8.9805	10.42

LTE BAND 17

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 17	5 MHz, QPSK	1/0	710.0	0.23798	0.4081
	5 MHz, 16QAM			0.25705	0.3963
	5 MHz, QPSK	25/0		4.5012	5.040
	5 MHz, 16QAM			4.5024	5.101
	5 MHz, 64QAM			4.5005	5.071
	10 MHz, QPSK	1/0		0.26361	0.4129
	10 MHz, 16QAM			0.25237	0.4328
	10 MHz, QPSK	50/0		9.0322	10.40
	10 MHz, 16QAM			9.0105	10.48
	10 MHz, 64QAM			9.0296	10.50

LTE BAND 25

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 25	1.4 MHz, QPSK	1/0	1882.5	0.24858	0.3625
	1.4 MHz,16QAM			0.26880	0.3953
	1.4 MHz, QPSK	6/0		1.0990	1.314
	1.4 MHz,16QAM			1.1028	1.317
	1.4 MHz,64QAM			1.0933	1.314
	3 MHz, QPSK	1/0		0.25637	0.3803
	3 MHz, 16QAM			0.29197	0.4100
	3 MHz, QPSK	15/0		2.7074	3.024
	3 MHz, 16QAM			2.7084	3.022
	3 MHz, 64QAM			2.7079	3.031
	5 MHz, QPSK	1/0		0.23903	0.4223
	5 MHz, 16QAM			0.24351	0.4158
	5 MHz, QPSK	25/0		4.5088	5.038
	5 MHz, 16QAM			4.5016	5.015
	5 MHz, 64QAM			4.5169	5.075
	10 MHz, QPSK	1/0		0.27086	0.4114
	10 MHz, 16QAM			0.28124	0.4229
	10 MHz, QPSK	50/0		8.9915	10.41
	10 MHz, 16QAM			9.0112	10.34
	10 MHz, 64QAM			9.0030	10.374
	15 MHz, QPSK	1/0		0.26519	0.3995
	15 MHz, 16QAM			0.29031	0.4673
	15 MHz, QPSK	75/0		13.464	15.37
	15 MHz, 16QAM			13.466	15.37
	15 MHz, 64QAM			13.4577	15.461
	20 MHz, QPSK	1/0		0.27693	0.4360
	20 MHz, 16QAM			0.28741	0.4265
	20 MHz, QPSK	100/0		17.924	19.71
	20 MHz, 16QAM			17.979	20.07
	20 MHz, 64QAM			17.9226	19.707

LTE BAND 26

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 26	1.4 MHz, QPSK	1/0	819.0	0.2528947	0.404565
	1.4 MHz, 16QAM			0.2675323	0.411280
	1.4 MHz, QPSK	6/0		1.0975	1.310
	1.4 MHz, 16QAM			1.0961	1.312
	1.4 MHz, 64QAM			1.0962	1.312
	3 MHz, QPSK	1/0		0.2630172	0.402299
	3 MHz, 16QAM			0.2740079	0.391664
	3 MHz, QPSK	15/0		2.7034	3.031
	3 MHz, 16QAM			2.7079	3.027
	3 MHz, 64QAM			2.7065	3.027
	5 MHz, QPSK	1/0		0.2414605	0.414378
	5 MHz, 16QAM			0.2330548	0.376700
	5 MHz, QPSK	25/0		4.5065	5.056
	5 MHz, 16QAM			4.5034	5.079
	5 MHz, 64QAM			4.4986	5.093
	10 MHz, QPSK	1/0		0.2723015	0.452086
	10 MHz, 16QAM			0.2953303	0.451424
	10 MHz, QPSK	50/0		9.0277	10.50
	10 MHz, 16QAM			9.0244	10.46
	10 MHz, 64QAM			9.0305	10.49

LTE BAND 30

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 30	5 MHz, QPSK	1/0	2310.0	0.24405	0.4113
	5 MHz, 16QAM			0.24230	0.3726
	5 MHz, QPSK	25/0		4.5004	5.057
	5 MHz, 16QAM			4.5016	5.048
	5 MHz, 64QAM			4.5030	5.017
	10 MHz, QPSK	1/0		0.25411	0.3925
	10 MHz, 16QAM			0.27148	0.4190
	10 MHz, QPSK	50/0		9.0079	10.44
	10 MHz, 16QAM			9.0350	10.63
	10 MHz, 64QAM			9.0165	10.50

LTE BAND 41

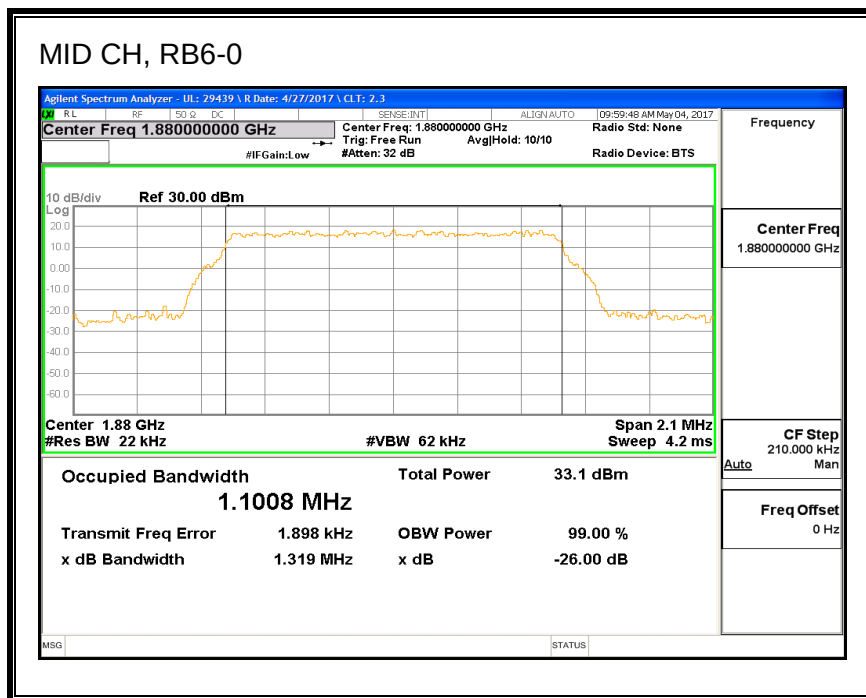
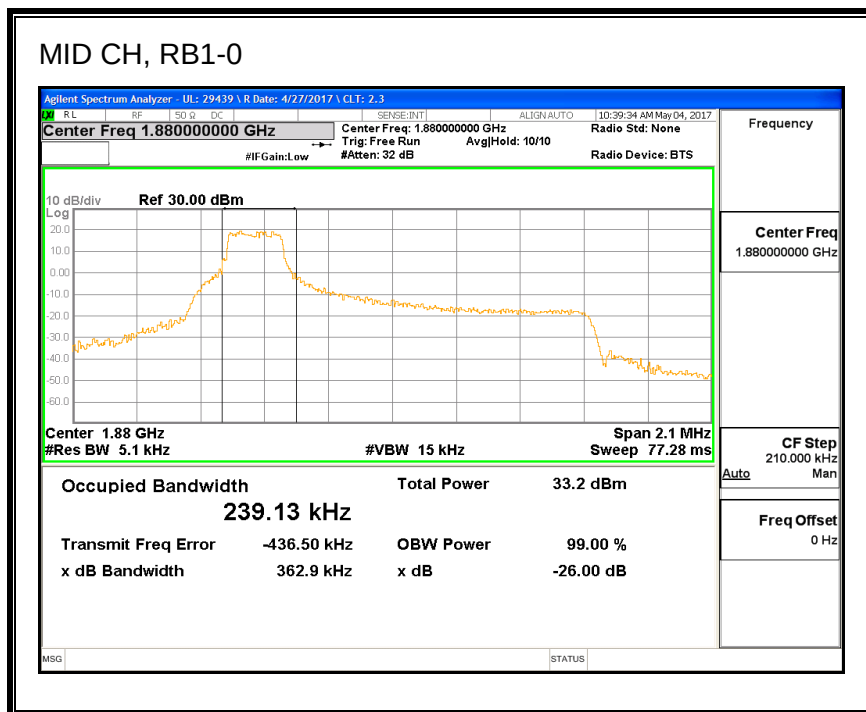
BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 41	5 MHz, QPSK	1/0	2593.0	0.23855	0.3590
	5 MHz, 16QAM			0.24561	0.4294
	5 MHz, QPSK	25/0		4.5016	5.219
	5 MHz, 16QAM			4.5005	5.077
	5 MHz, 64QAM			4.4743	5.103
	10 MHz, QPSK	1/0		0.24233	0.3409
	10 MHz, 16QAM			0.28119	0.4518
	10 MHz, QPSK	50/0		9.0047	10.87
	10 MHz, 16QAM			9.0098	10.34
	10 MHz, 64QAM			9.0070	10.38
	15 MHz, QPSK	1/0		0.27232	0.4169
	15 MHz, 16QAM			0.28460	0.4520
	15 MHz, QPSK	75/0		13.466	16.13
	15 MHz, 16QAM			13.480	15.20
	15 MHz, 64QAM			13.470	15.27
	20 MHz, QPSK	1/0		0.24911	0.3719
	20 MHz, 16QAM			0.29543	0.4096
	20 MHz, QPSK	100/0		17.917	19.98
	20 MHz, 16QAM			17.923	20.51
	20 MHz, 64QAM			17.919	21.30

LTE BAND 66

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 66	5 MHz, QPSK	1/0	1745.0	0.23842	0.4181
	5 MHz, 16QAM			0.22699	0.3798
	5 MHz, QPSK	25/0		4.7168	5.376
	5 MHz, 16QAM			4.7237	5.933
	5 MHz, 64QAM			4.6848	5.962
	10 MHz, QPSK	1/0		0.27335	0.4174
	10 MHz, 16QAM			0.26945	0.4116
	10 MHz, QPSK	50/0		9.1463	10.63
	10 MHz, 16QAM			9.1855	10.69
	10 MHz, 64QAM			9.1646	10.78
	15 MHz, QPSK	1/0		0.29956	0.4515
	15 MHz, 16QAM			0.30632	0.4957
	15 MHz, QPSK	75/0		13.558	15.97
	15 MHz, 16QAM			13.552	15.28
	15 MHz, 64QAM			13.548	15.74
	20 MHz, QPSK	1/0		0.28845	0.4657
	20 MHz, 16QAM			0.28792	0.4990
	20 MHz, QPSK	100/0		17.943	19.93
	20 MHz, 16QAM			17.939	19.97
	20 MHz, 64QAM			17.927	20.03

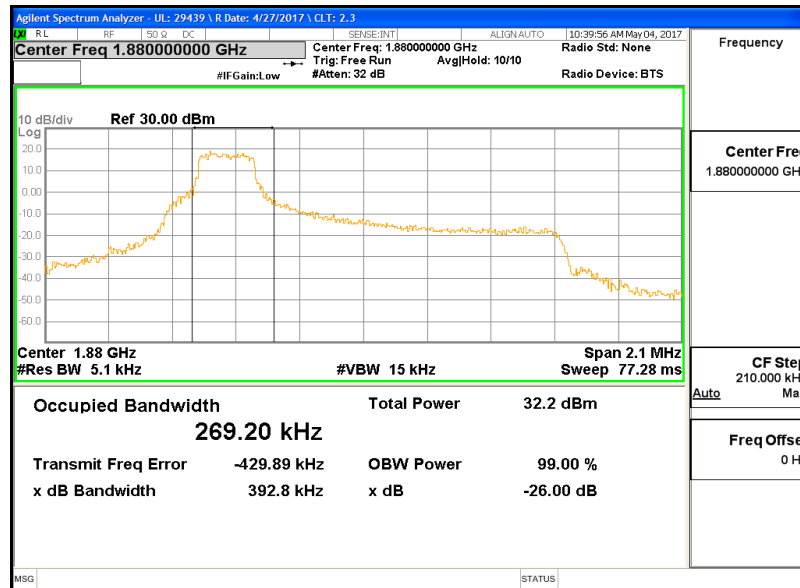
8.1.1. LTE BAND 2

QPSK, (1.4 MHz BAND WIDTH)

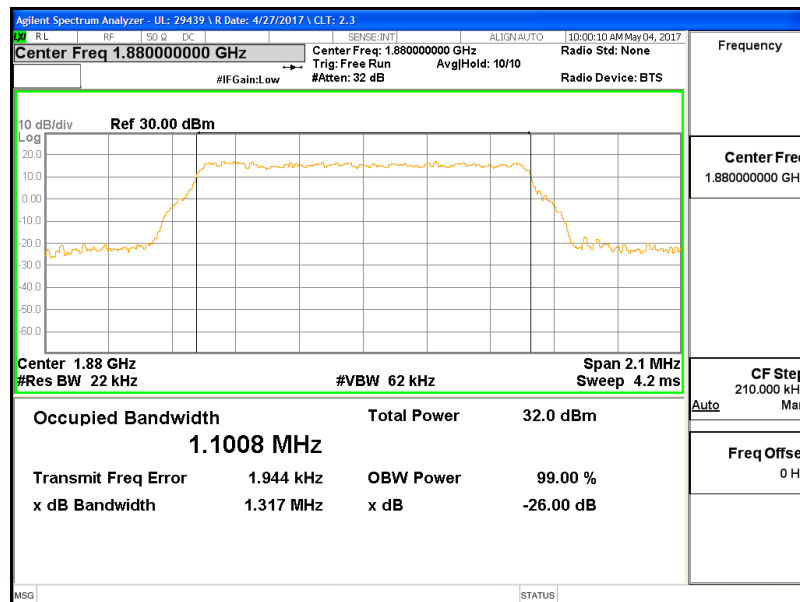


16QAM, (1.4 MHz BAND WIDTH)

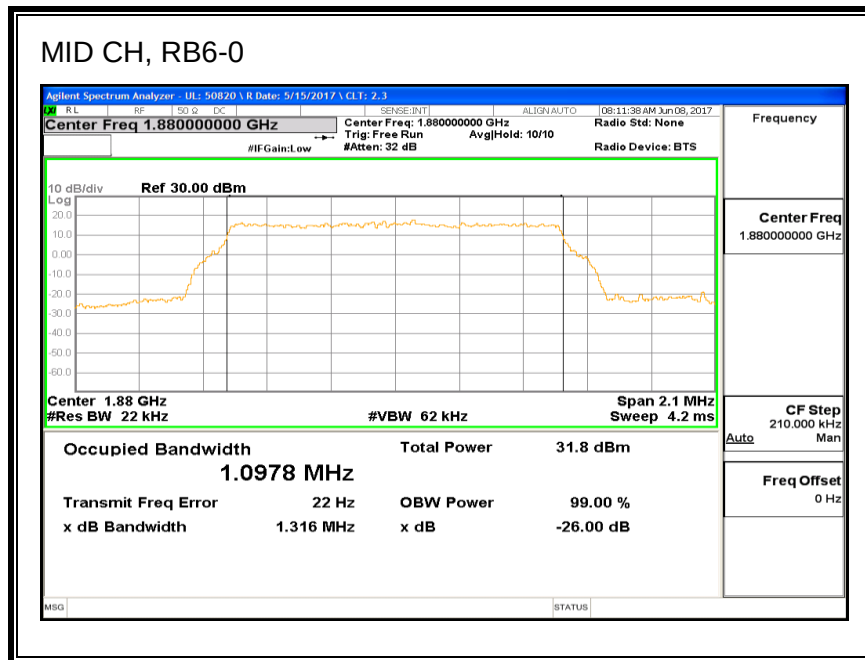
MID CH, RB1-0



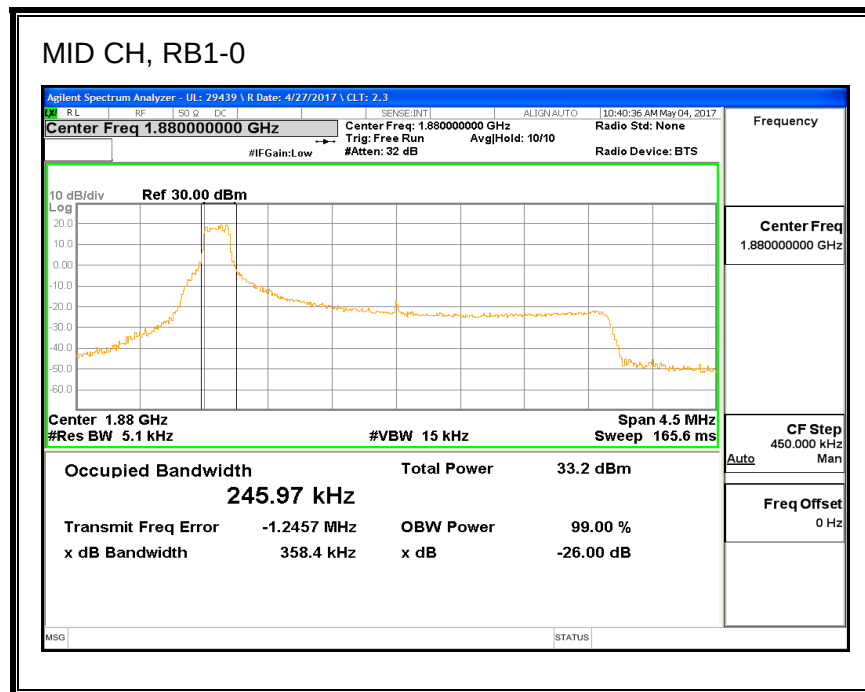
MID CH, RB6-0

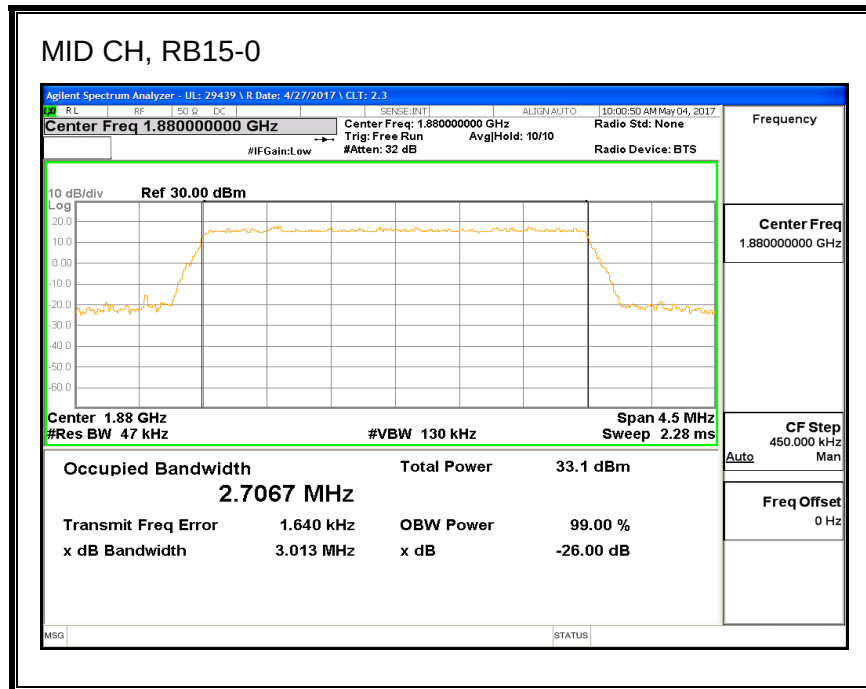


64QAM, (1.4 MHz BAND WIDTH)

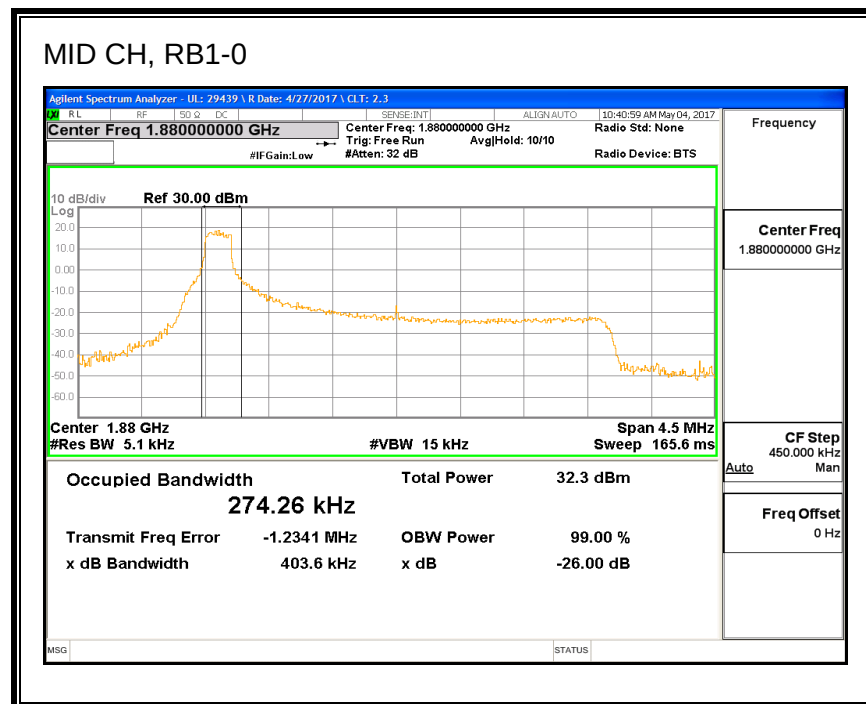


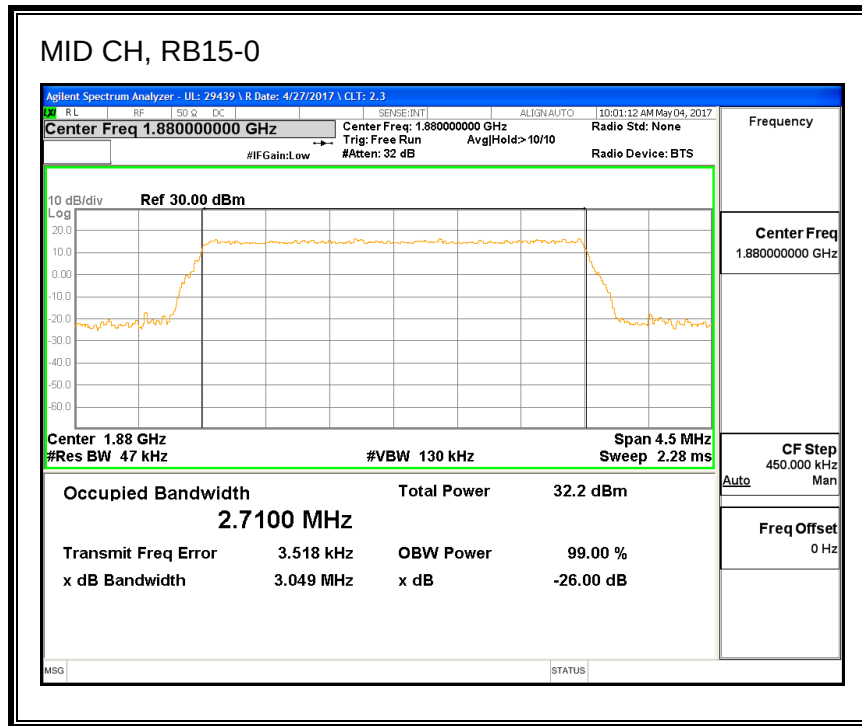
QPSK, (3.0 MHz BAND WIDTH)



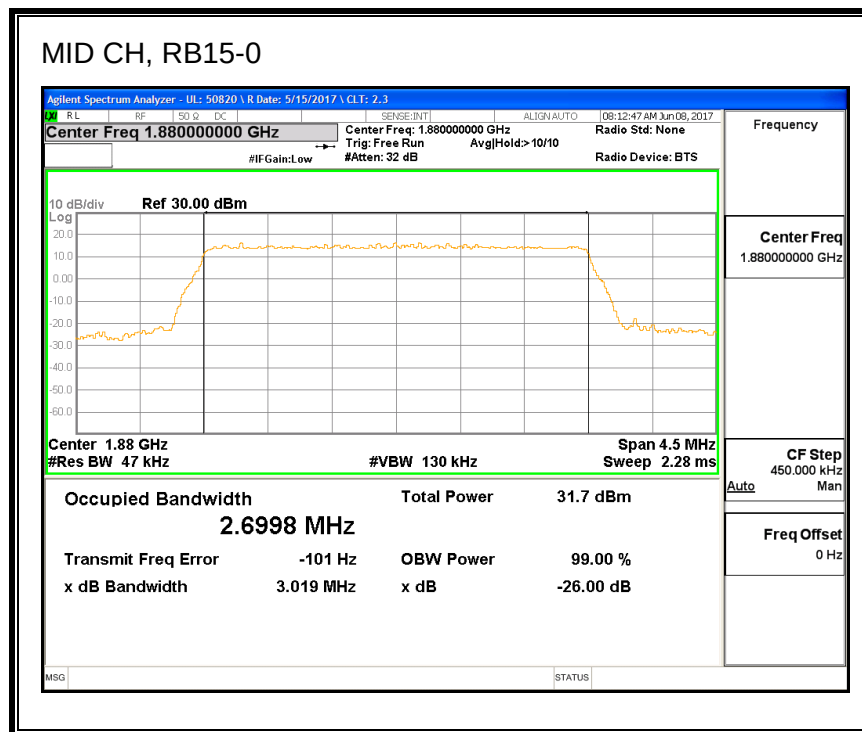


16QAM, (3.0 MHz BAND WIDTH)

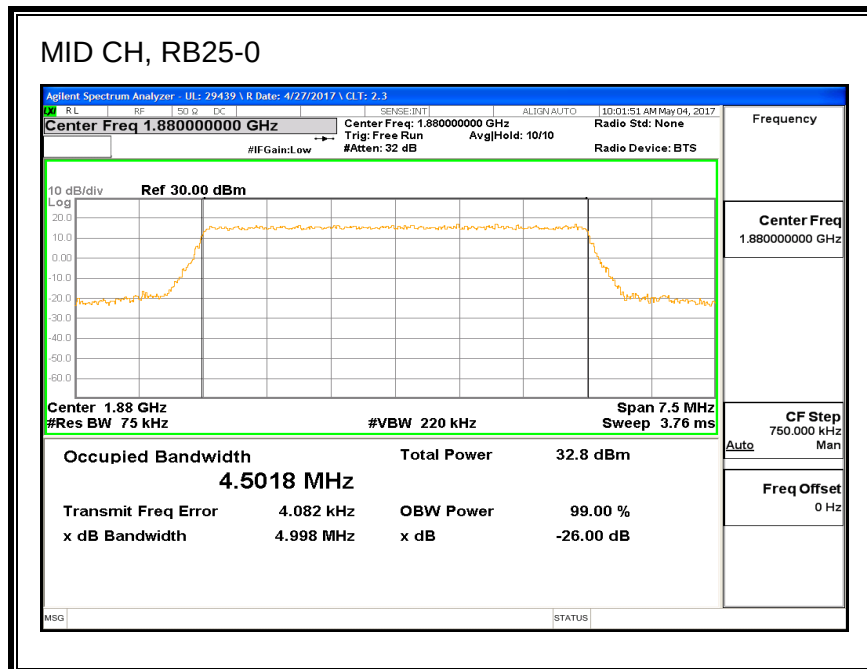
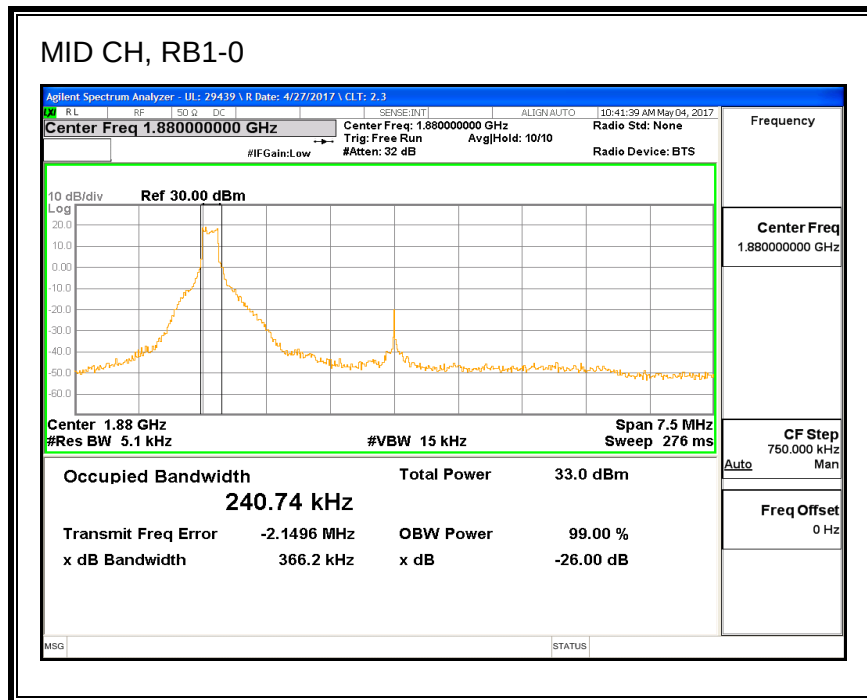




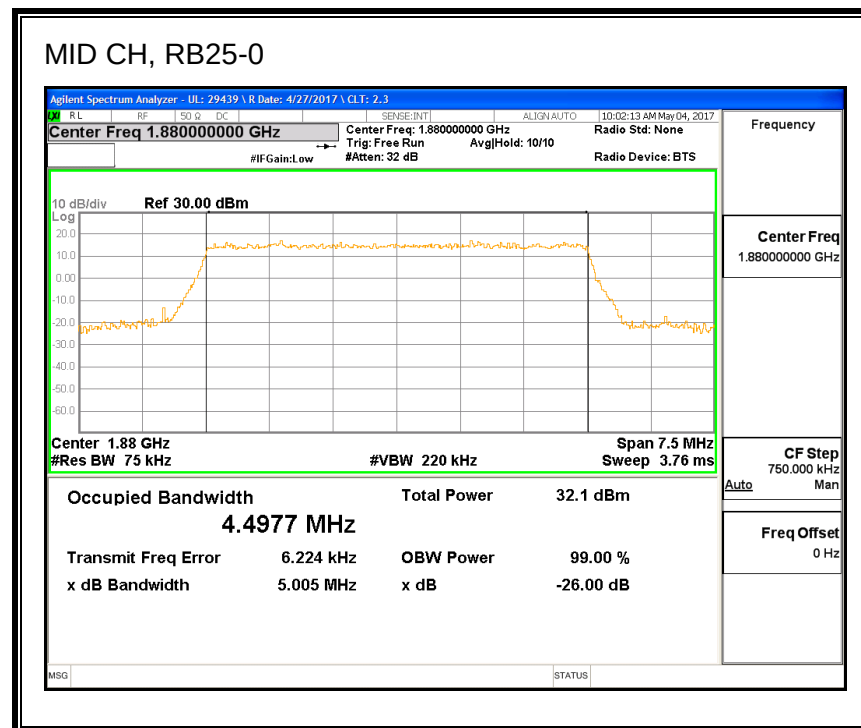
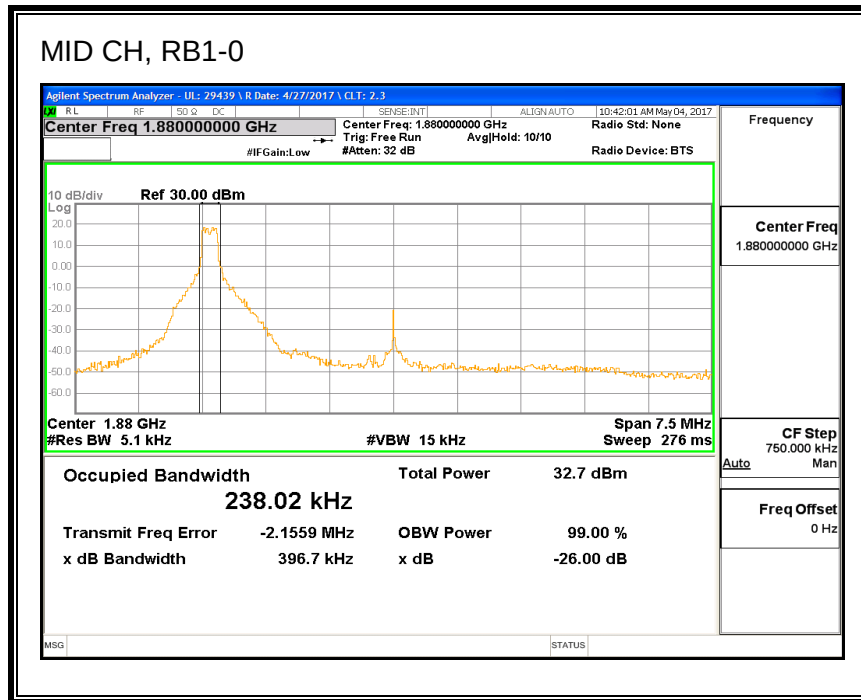
64QAM, (3.0 MHz BAND WIDTH)



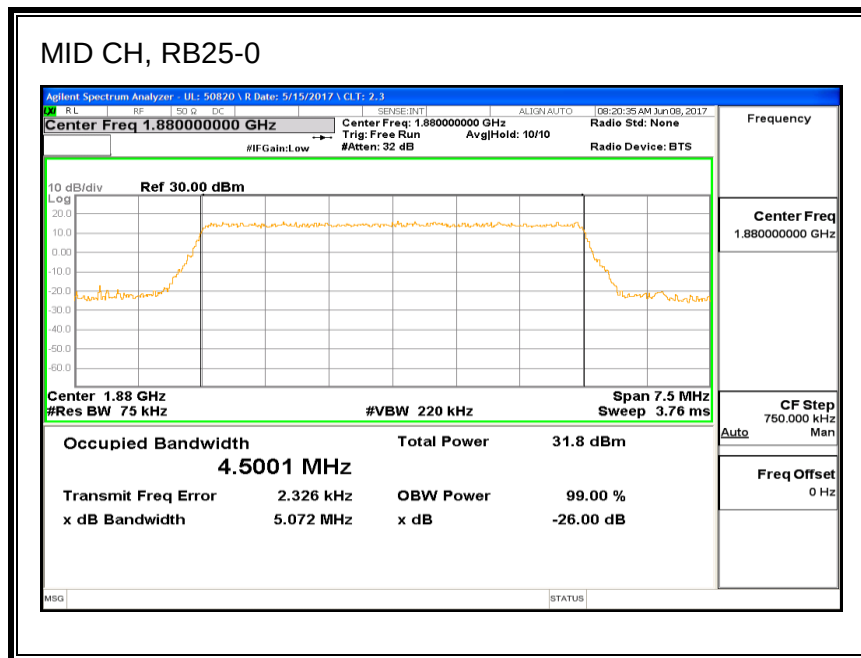
QPSK, (5.0 MHz BAND WIDTH)



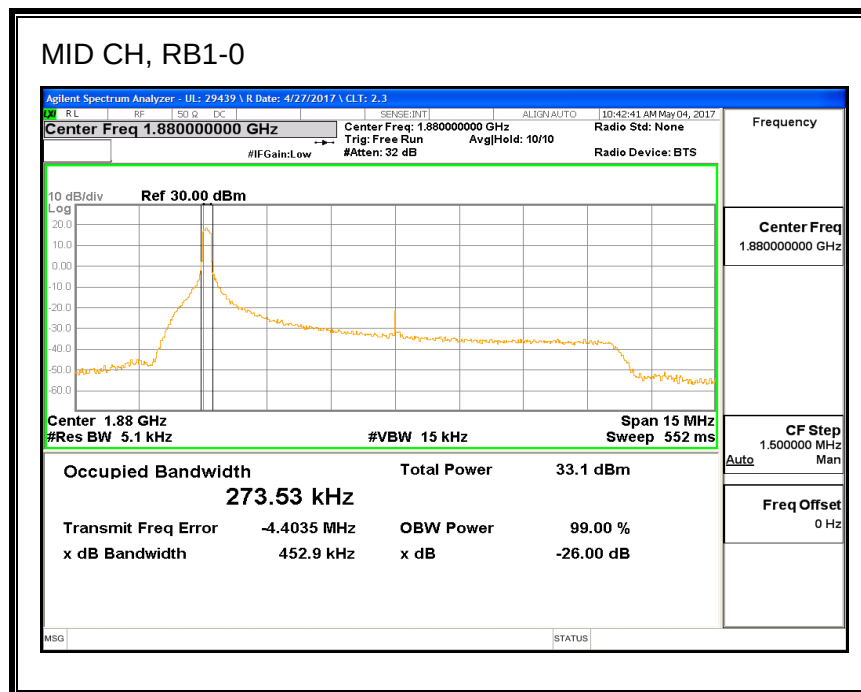
16QAM, (5.0 MHz BAND WIDTH)

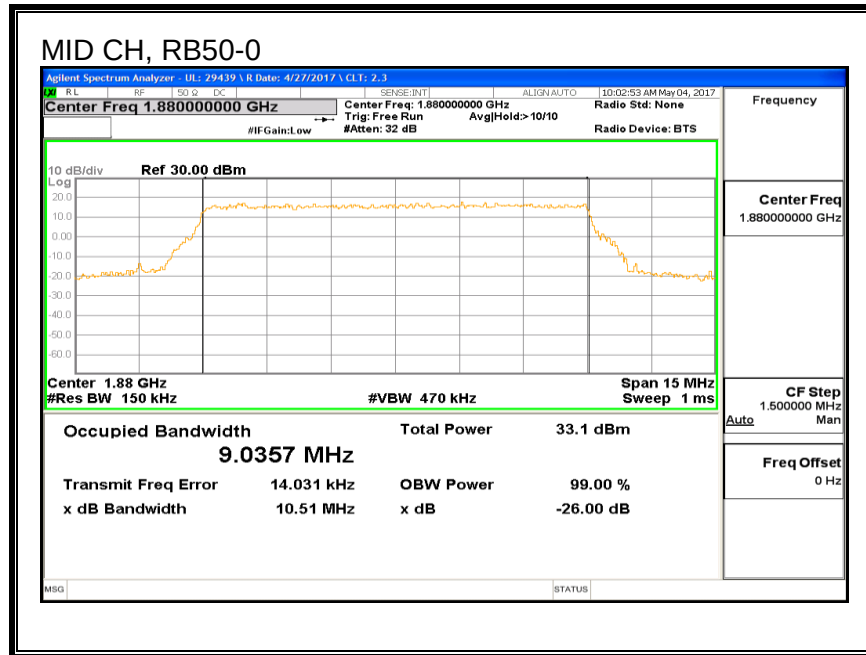


64QAM, (5.0 MHz BAND WIDTH)

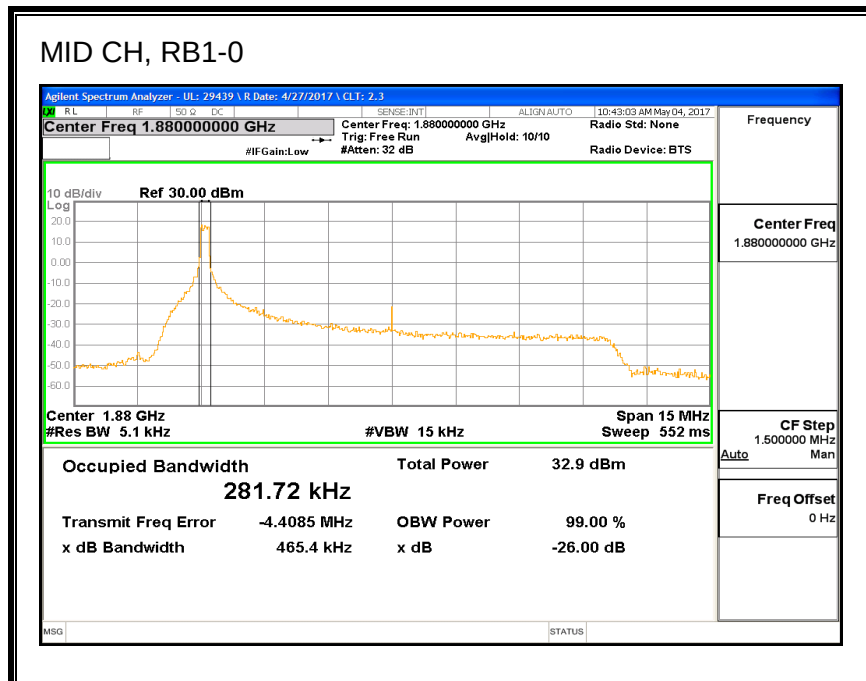


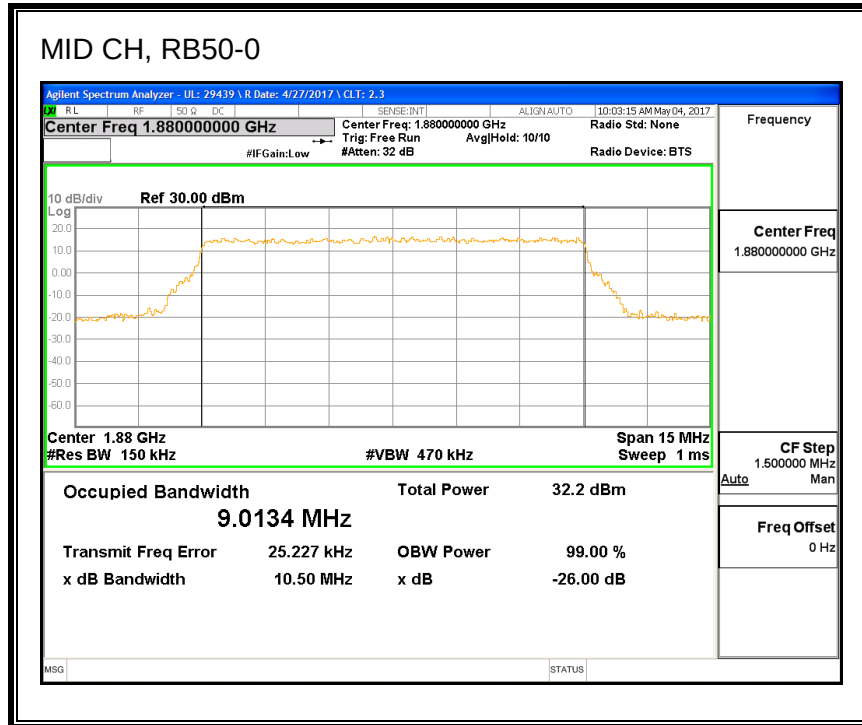
QPSK, (10.0 MHz BAND WIDTH)



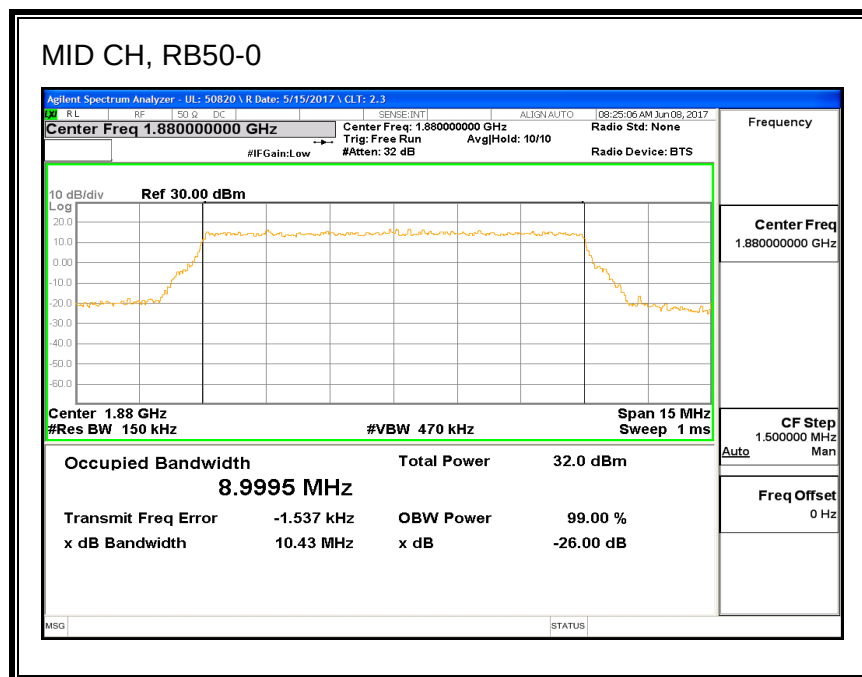


16QAM, (10.0 MHz BAND WIDTH)

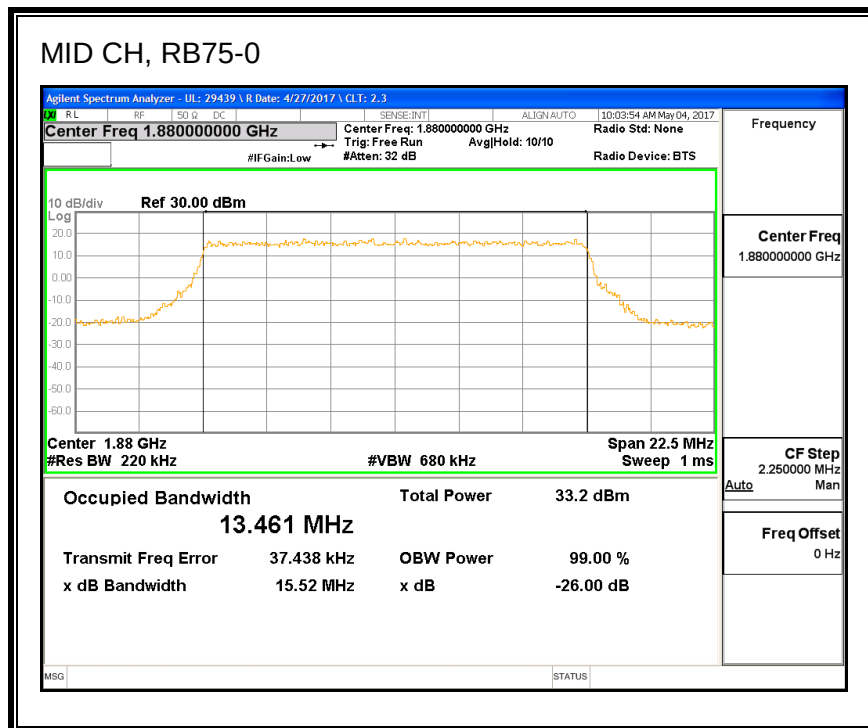
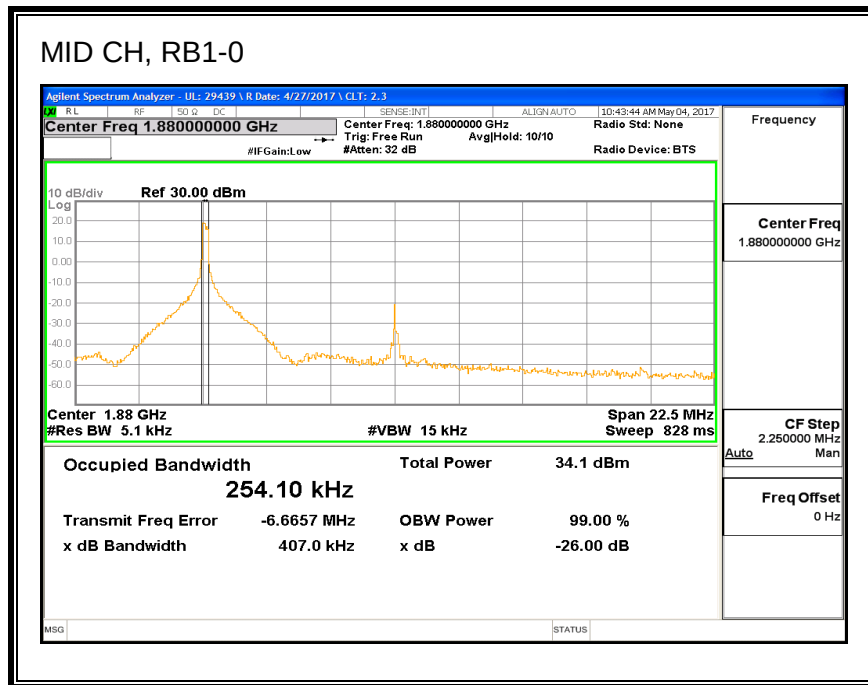




64QAM, (10.0 MHz BAND WIDTH)

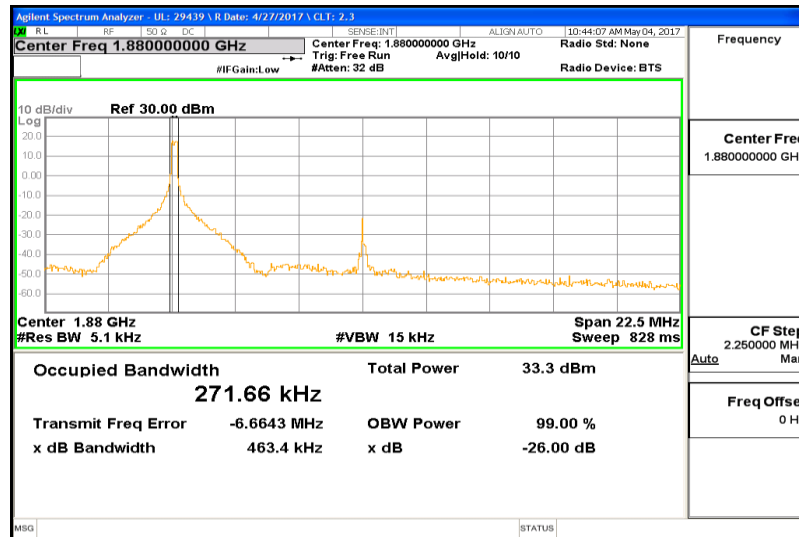


QPSK, (15.0 MHz BAND WIDTH)

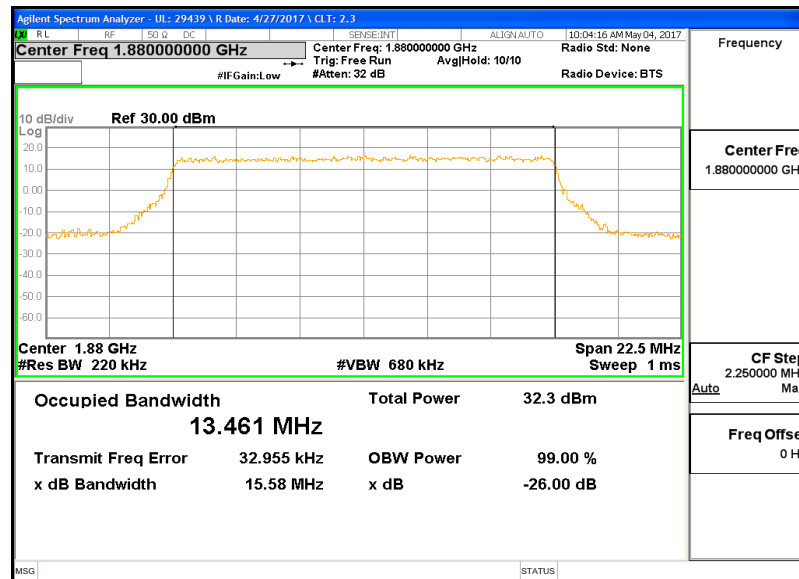


16QAM, (15.0 MHz BAND WIDTH)

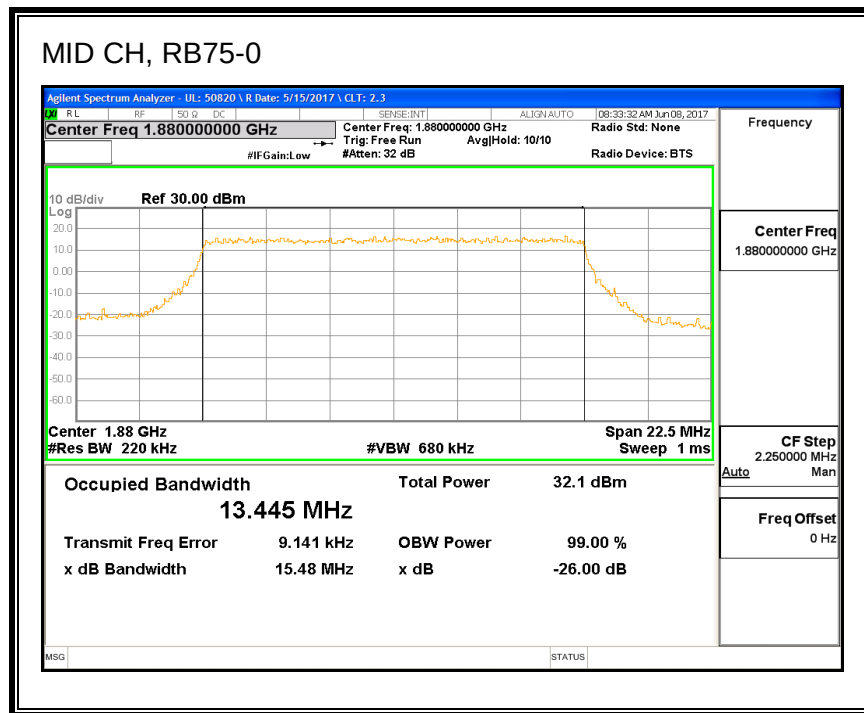
MID CH, RB1-0



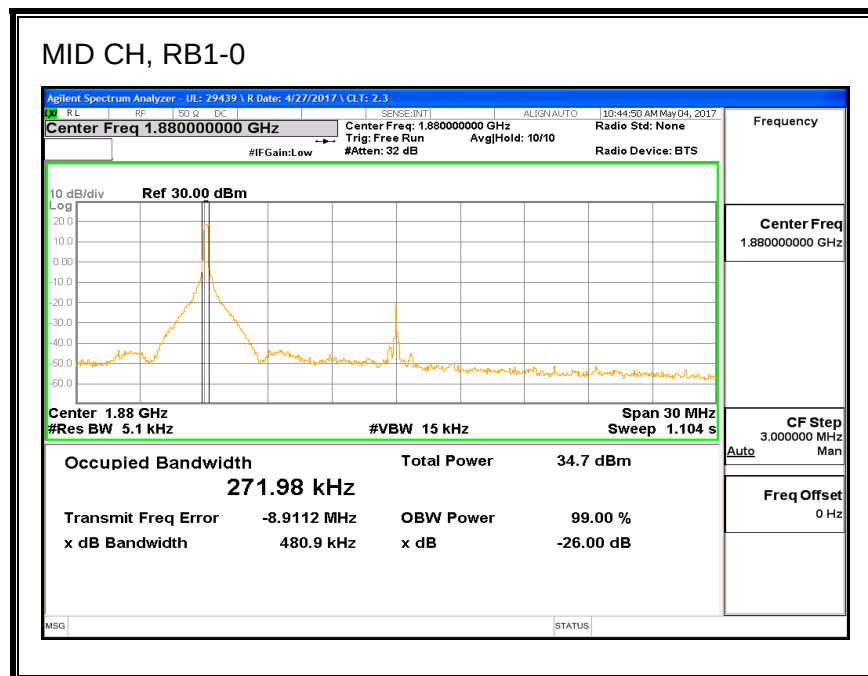
MID CH, RB75-0

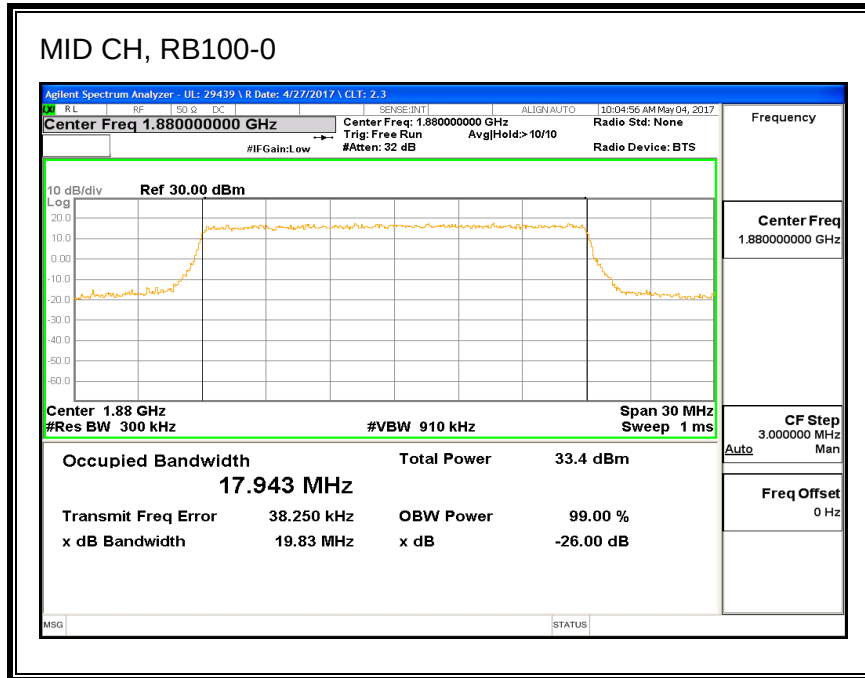


64QAM, (15.0 MHz BAND WIDTH)

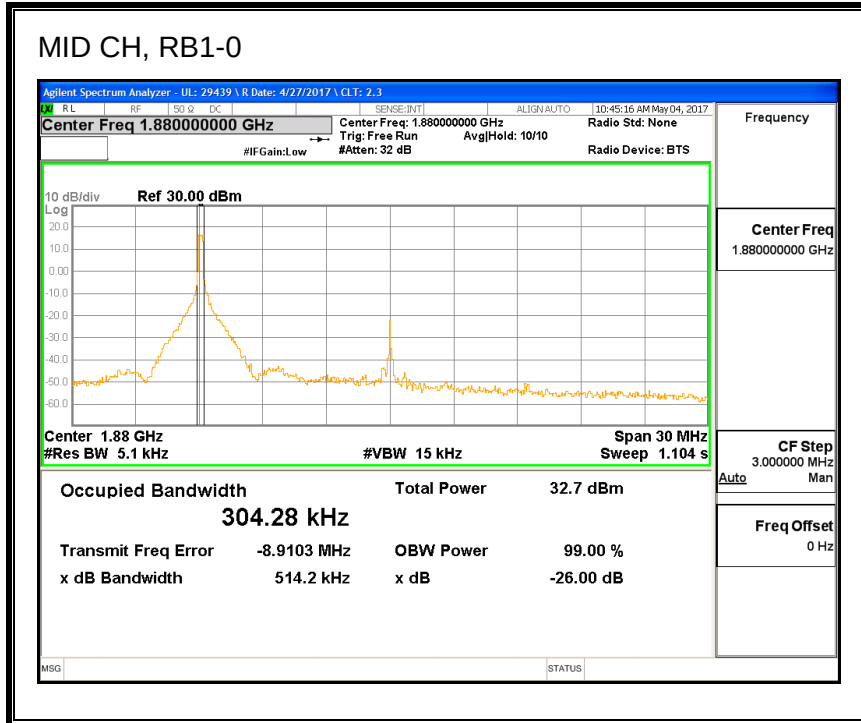


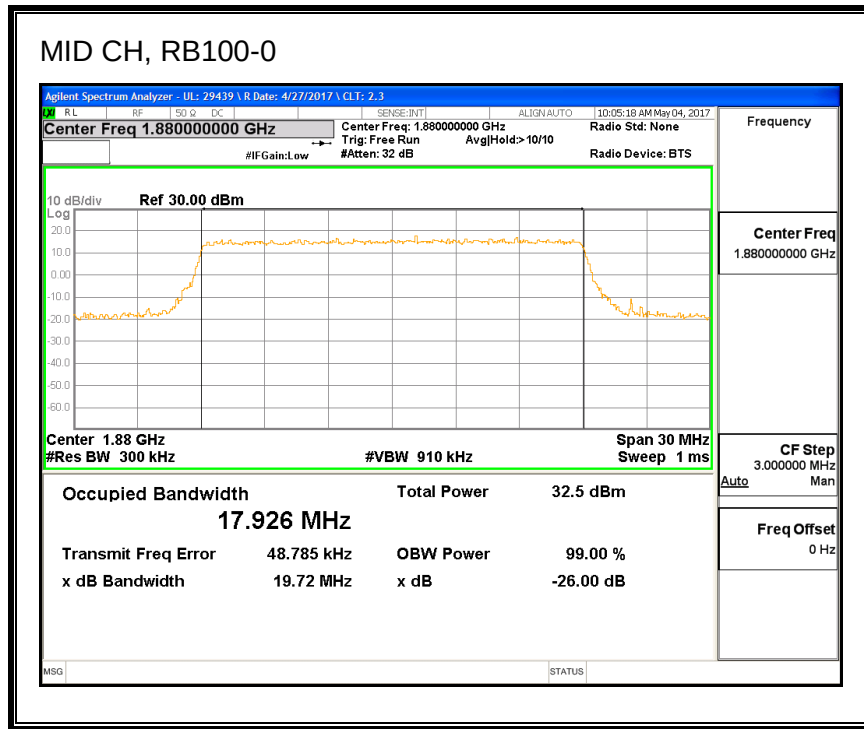
QPSK, (20.0 MHz BAND WIDTH)



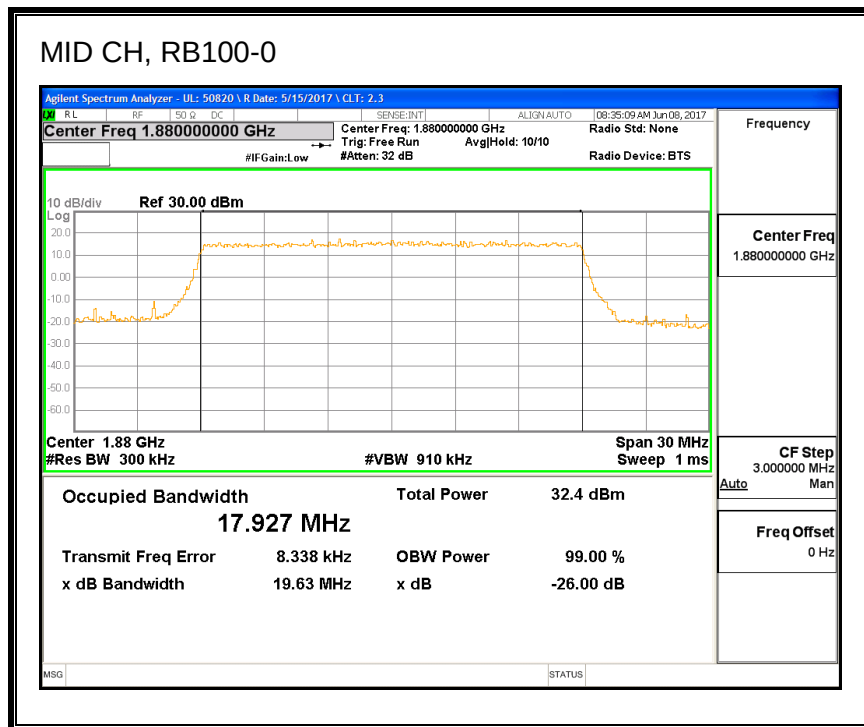


16QAM, (20.0 MHz BAND WIDTH)



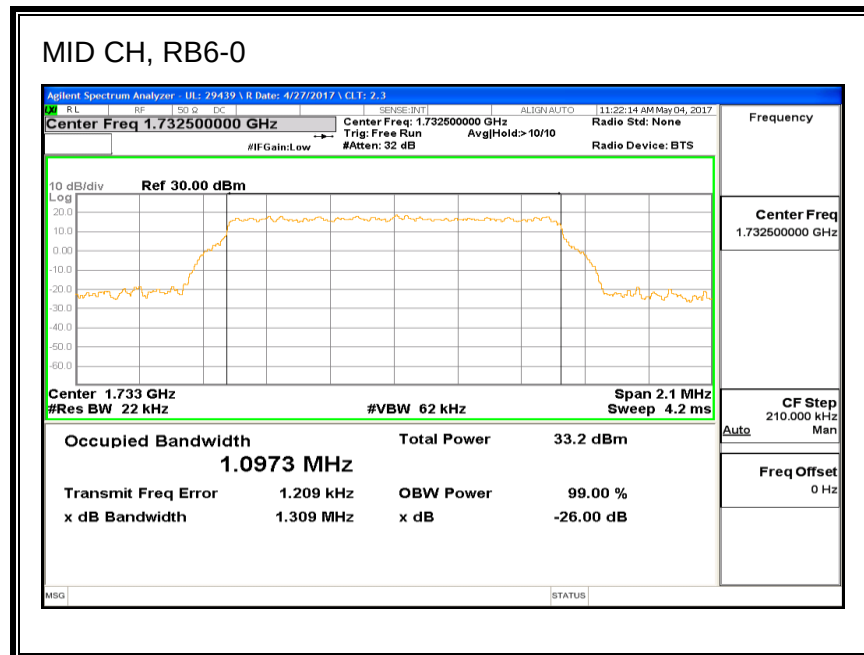
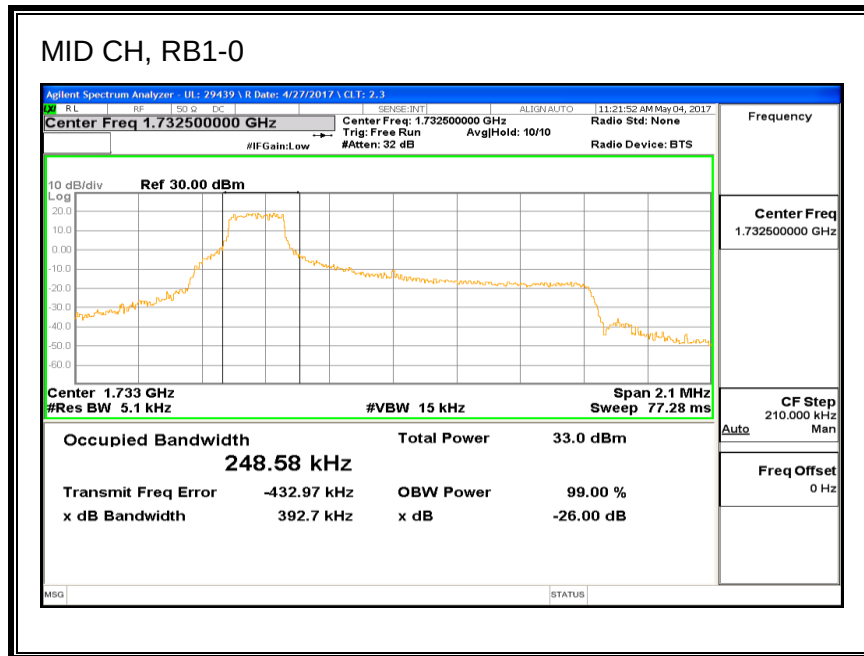


64QAM, (20.0 MHz BAND WIDTH)

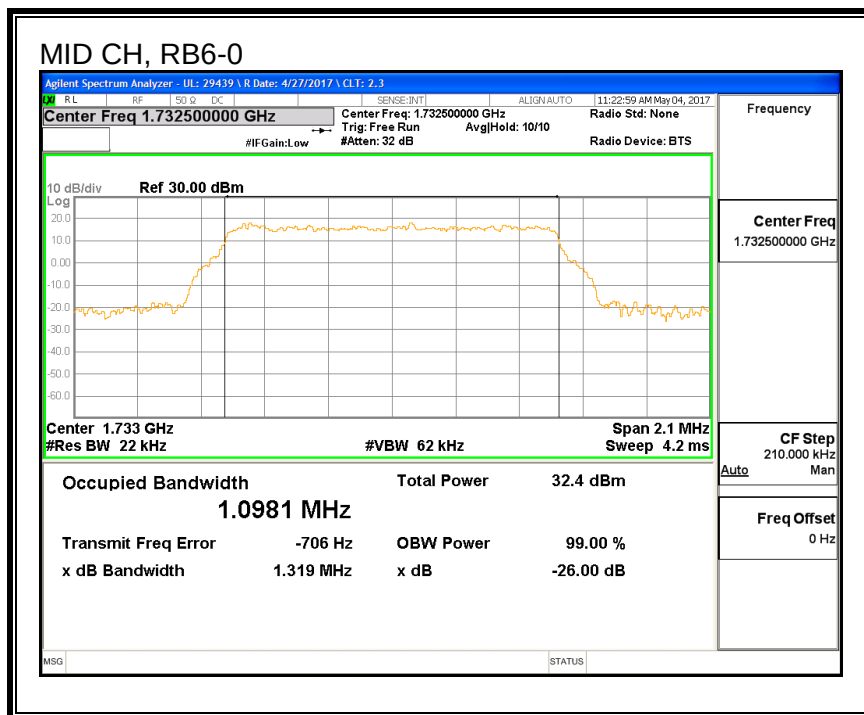
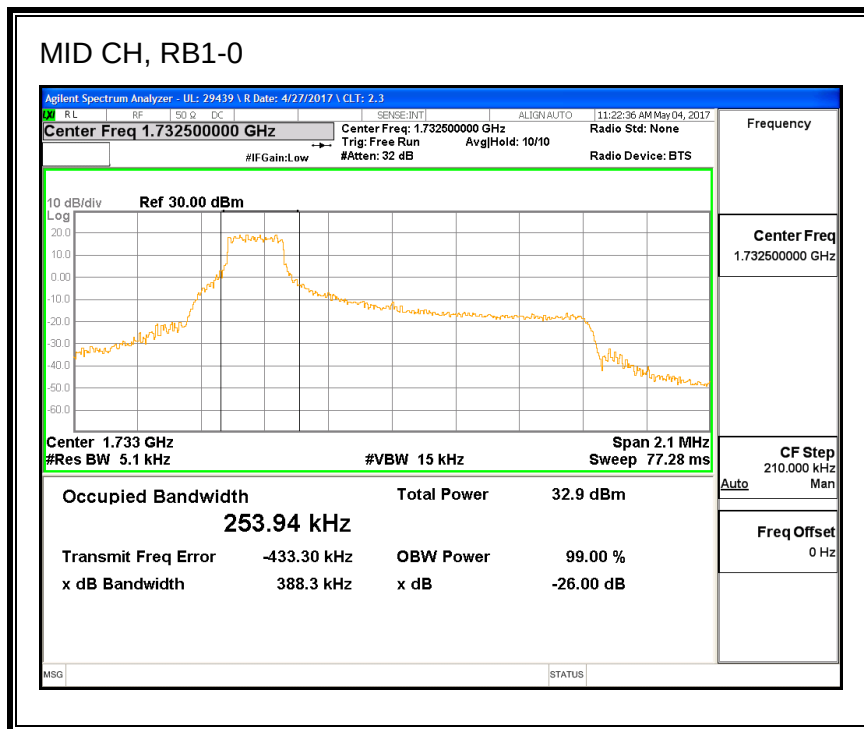


8.1.2. LTE BAND 4

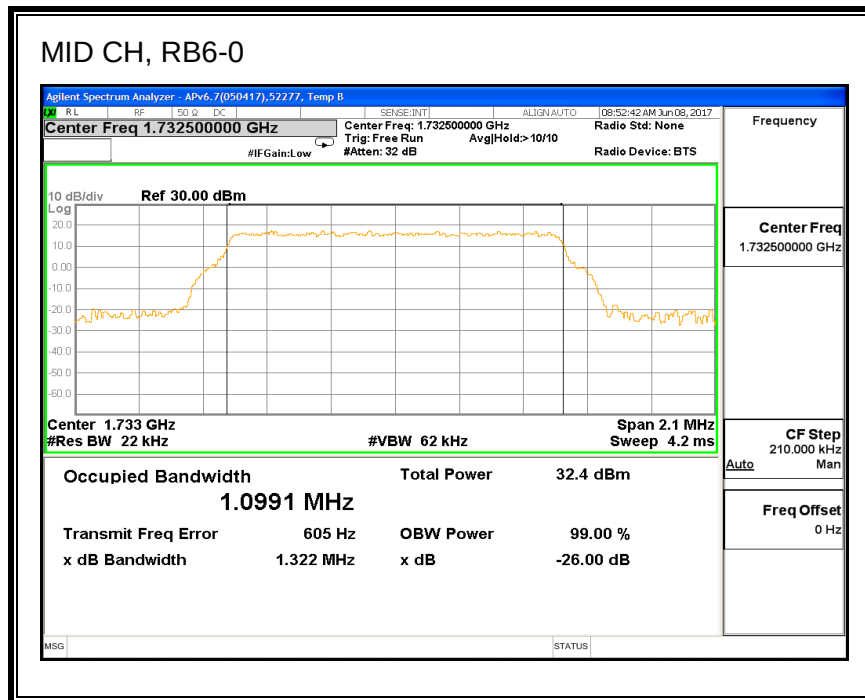
QPSK, (1.4 MHz BAND WIDTH)



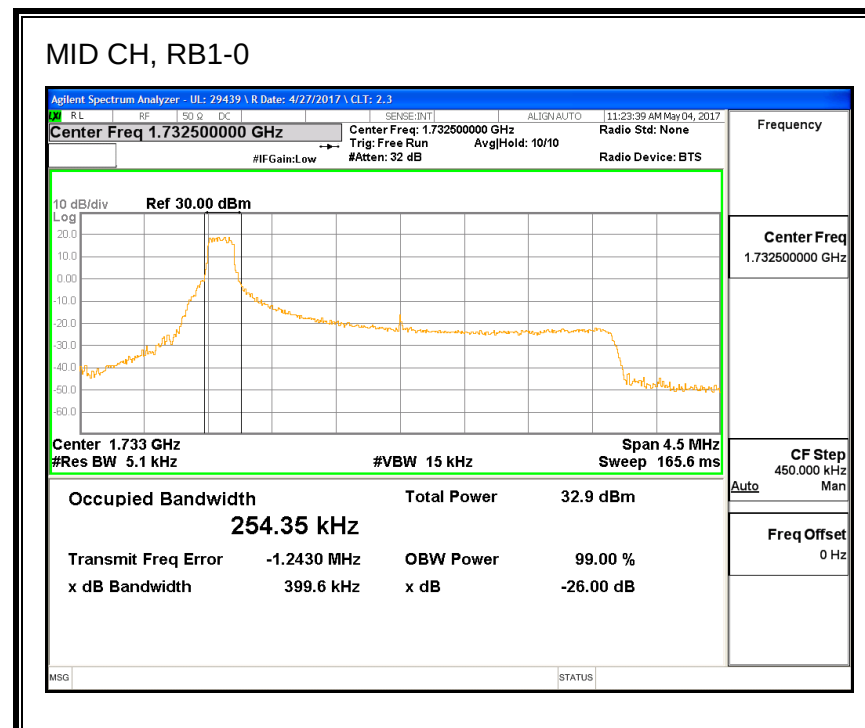
16QAM, (1.4 MHz BAND WIDTH)

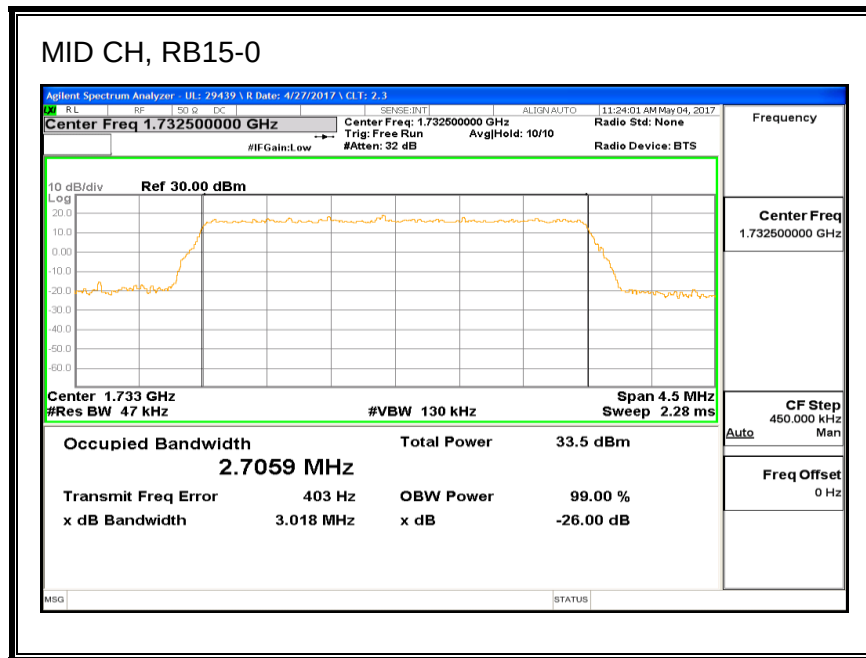


64QAM, (1.4 MHz BAND WIDTH)

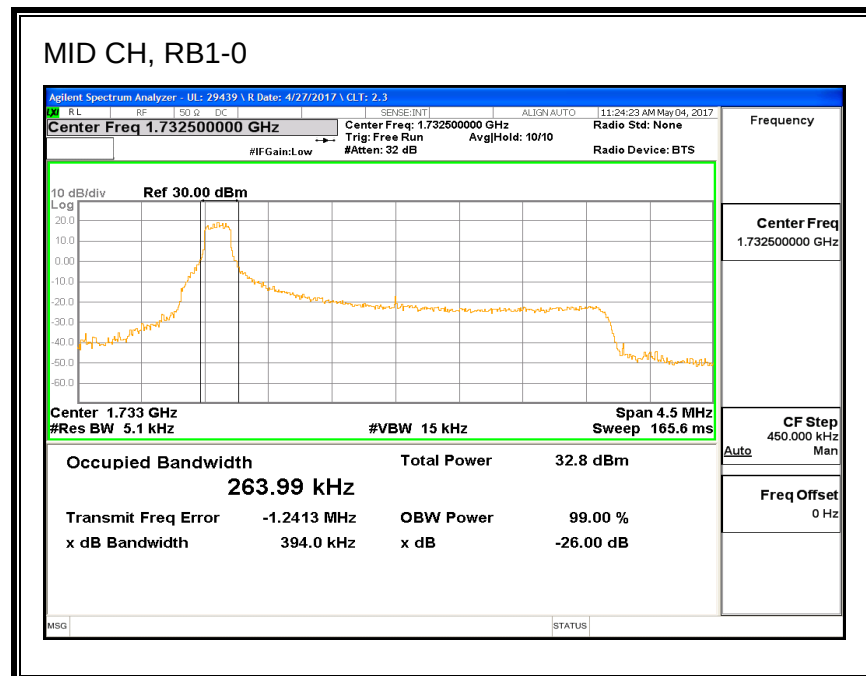


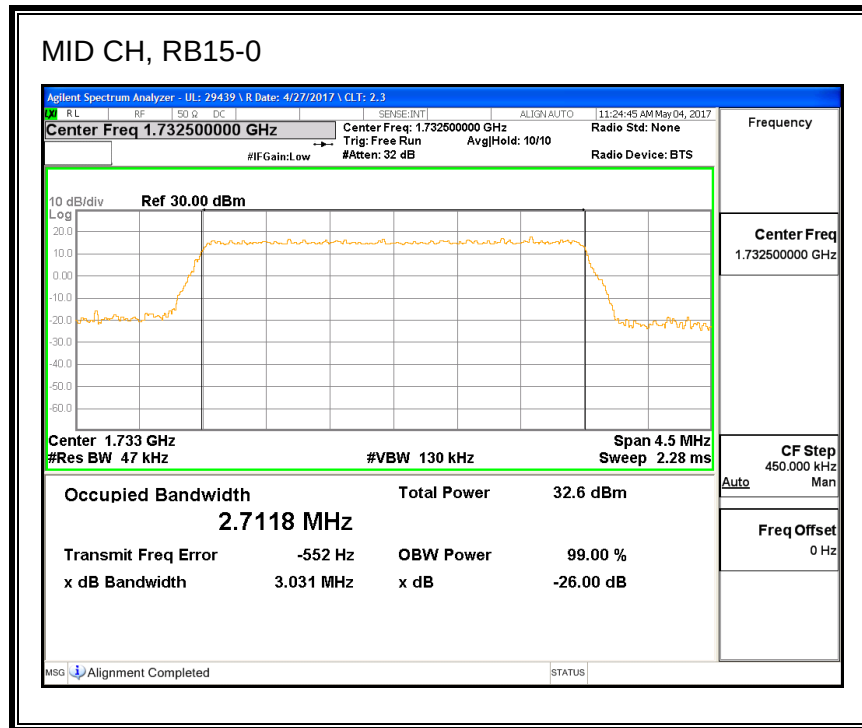
QPSK, (3.0 MHz BAND WIDTH)



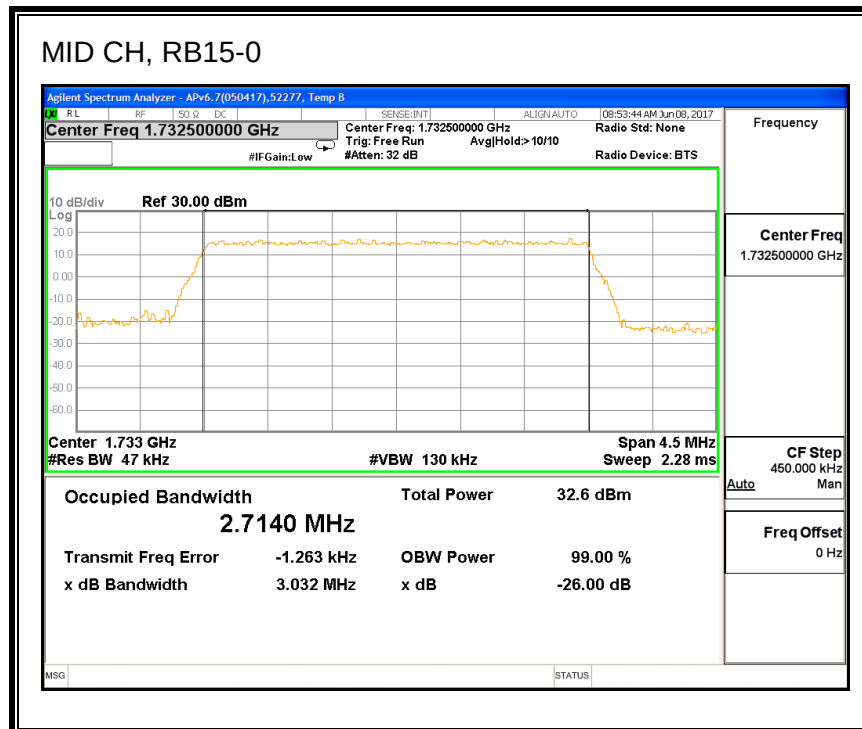


16QAM, (3.0 MHz BAND WIDTH)



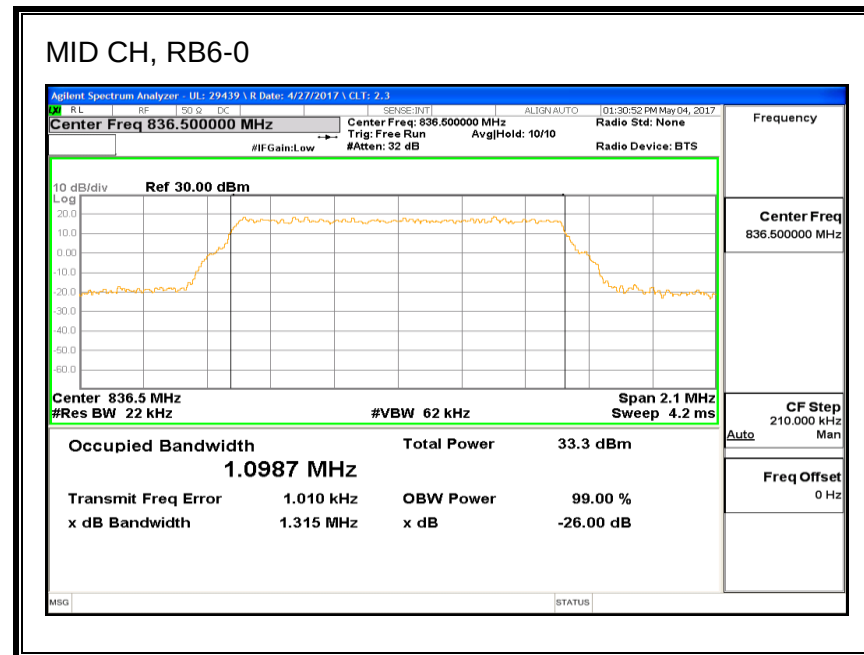
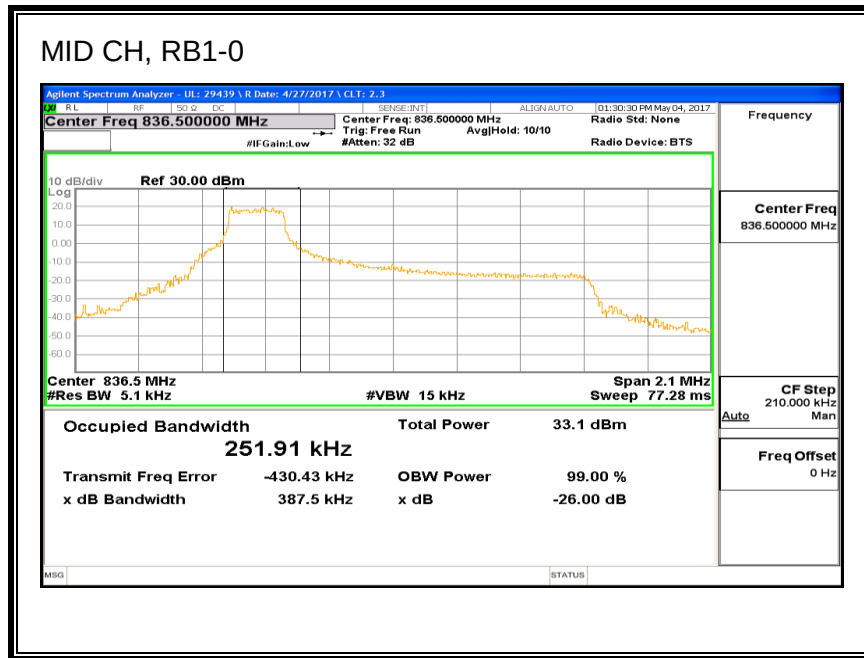


64QAM, (3.0 MHz BAND WIDTH)

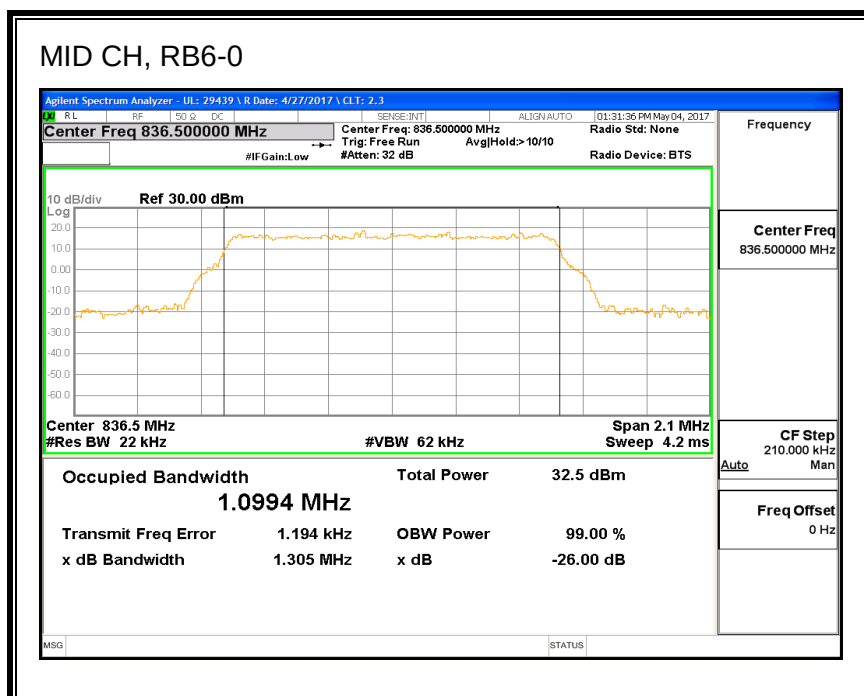
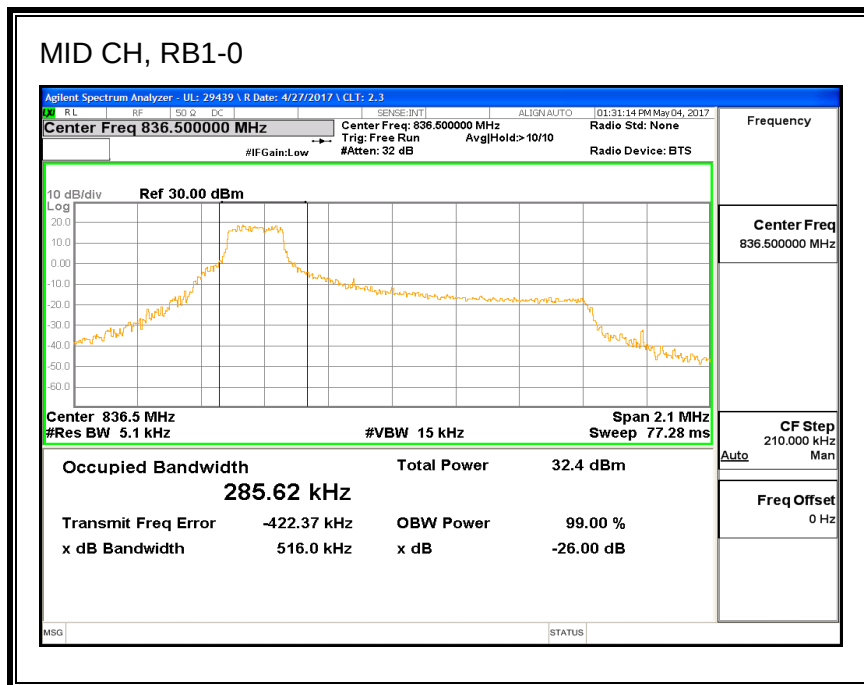


8.1.3. LTE BAND 5

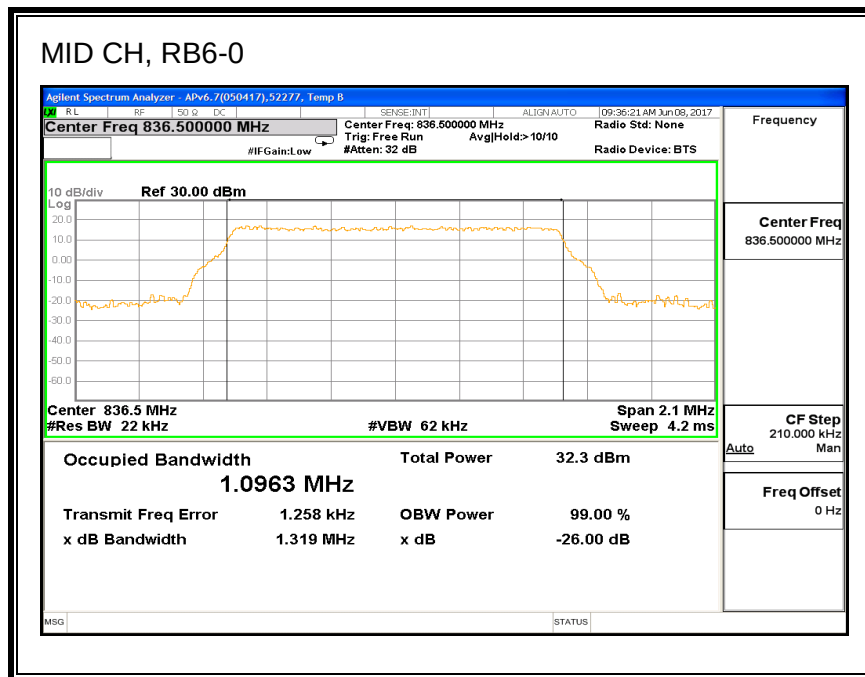
QPSK, (1.4 MHz BAND WIDTH)



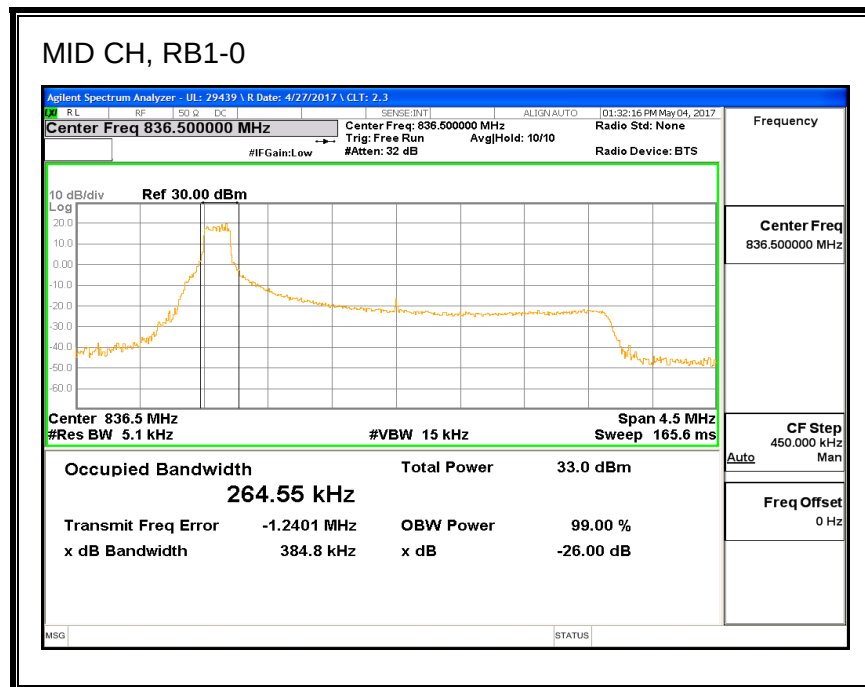
16QAM, (1.4 MHz BAND WIDTH)

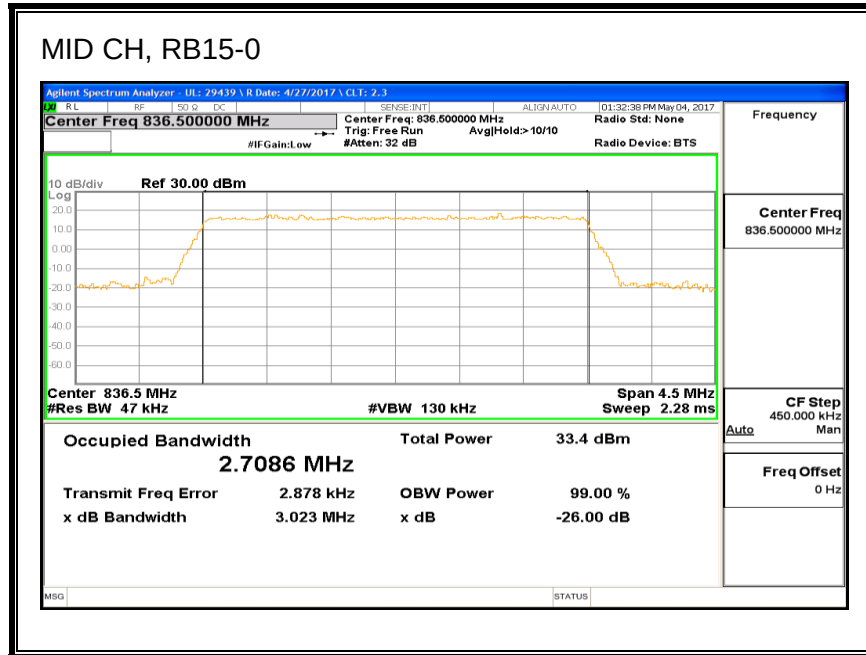


64QAM, (1.4 MHz BAND WIDTH)

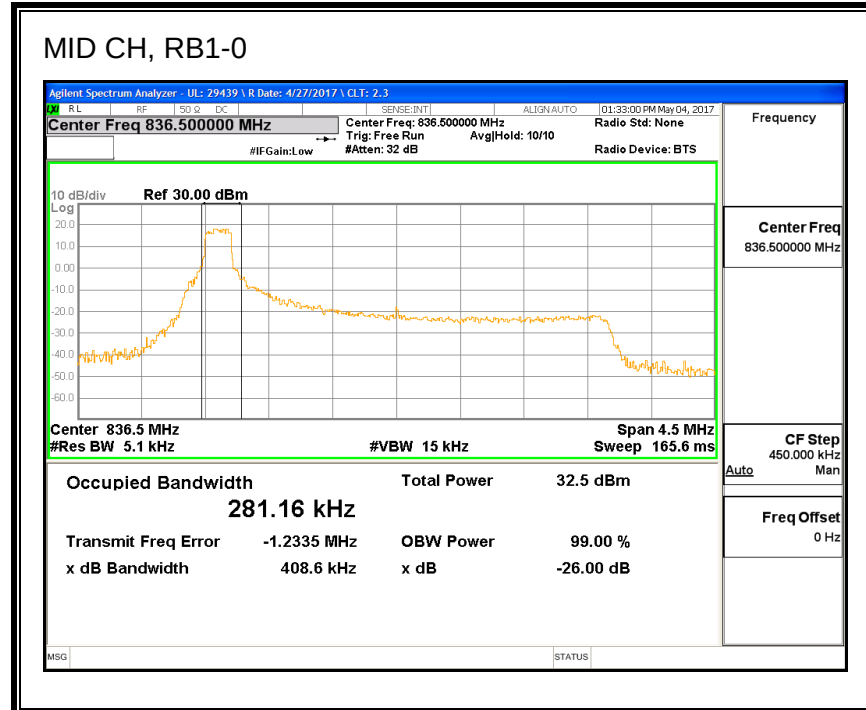


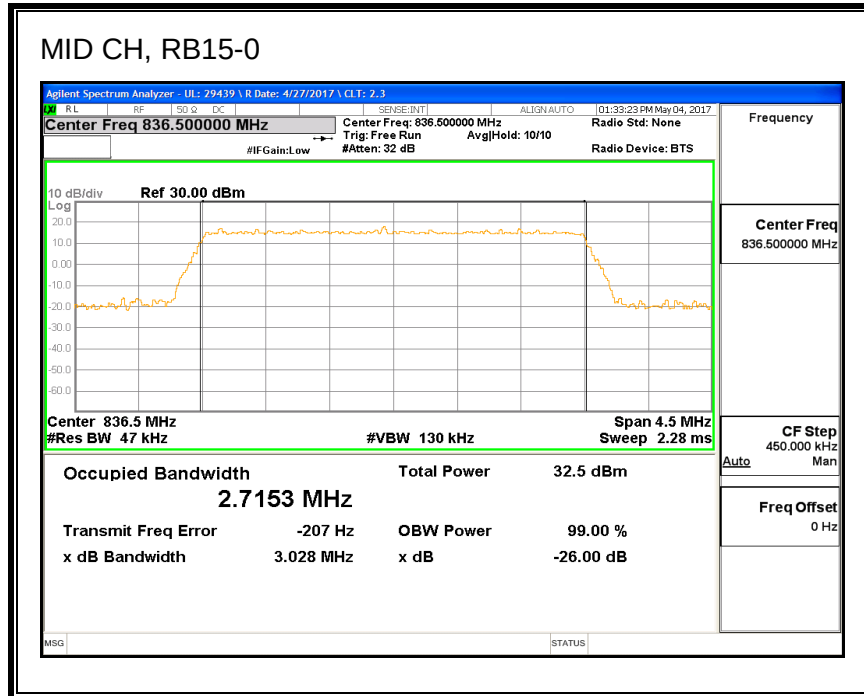
QPSK, (3.0 MHz BAND WIDTH)



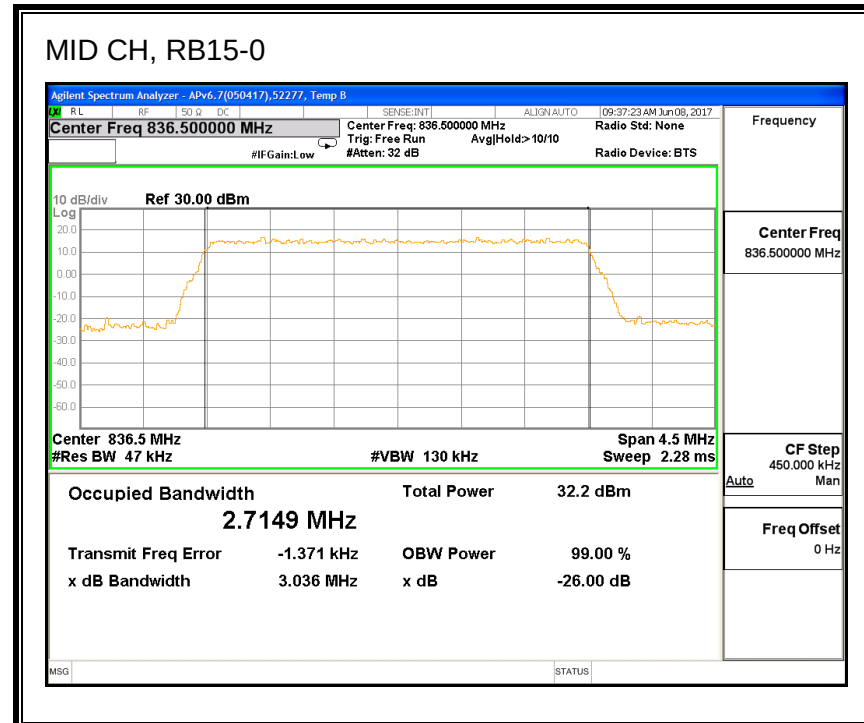


16QAM, (3.0 MHz BAND WIDTH)

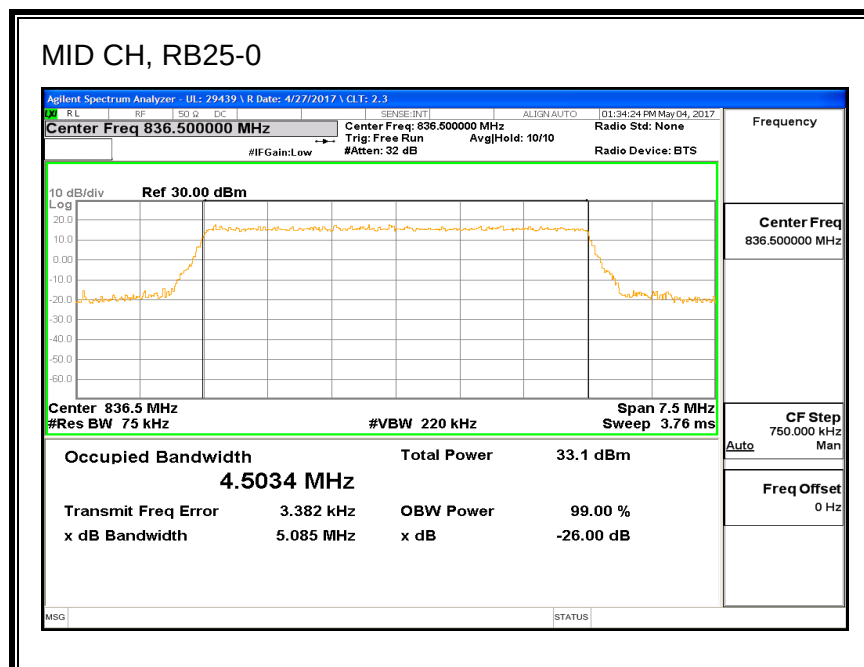
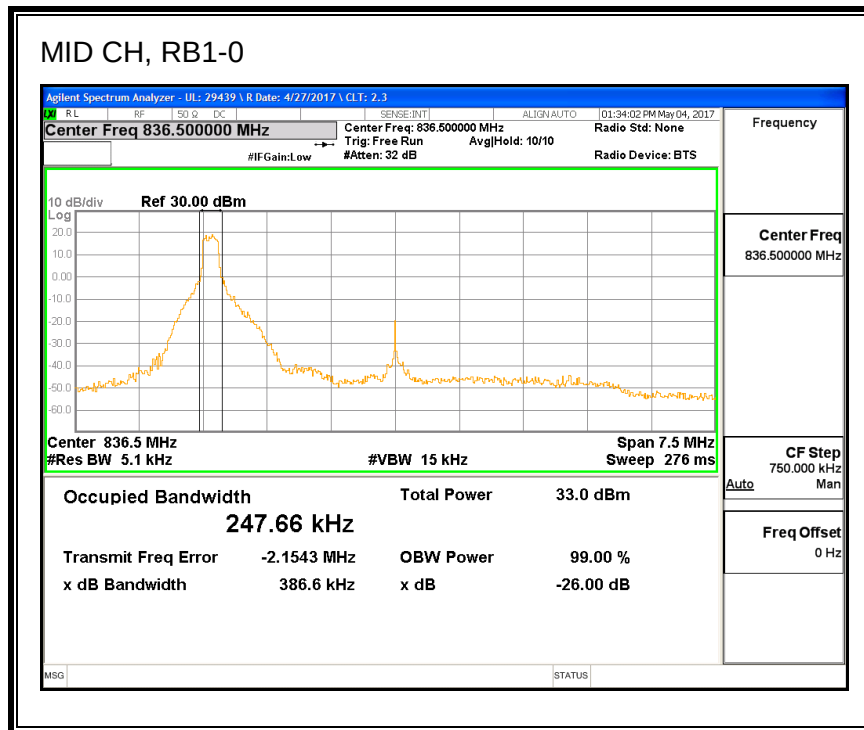




64QAM, (3.0 MHz BAND WIDTH)

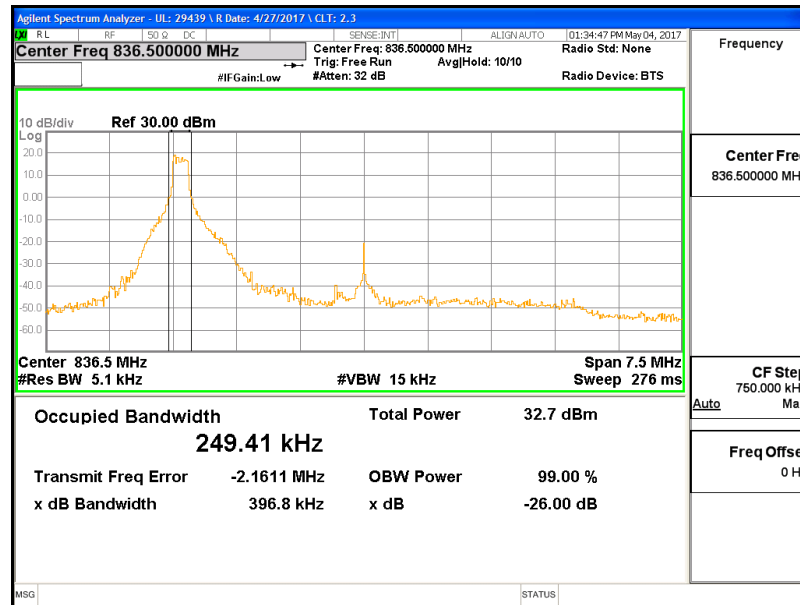


QPSK, (5.0 MHz BAND WIDTH)

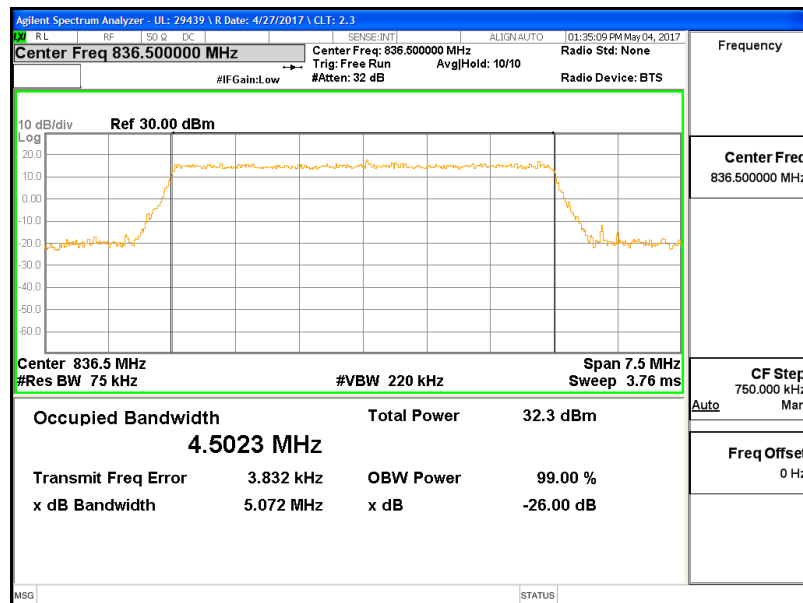


16QAM, (5.0 MHz BAND WIDTH)

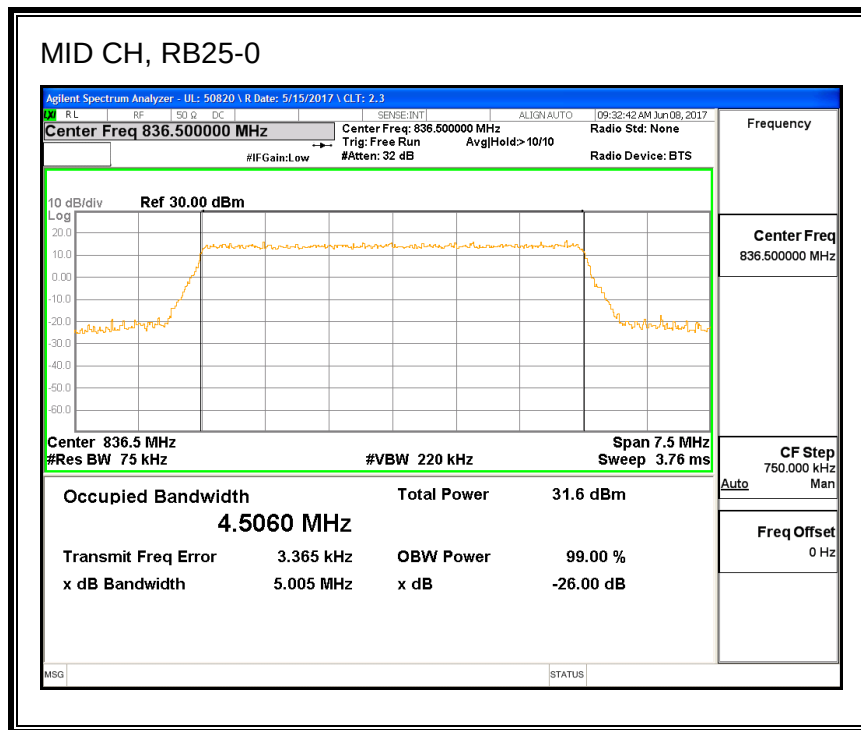
MID CH, RB1-0



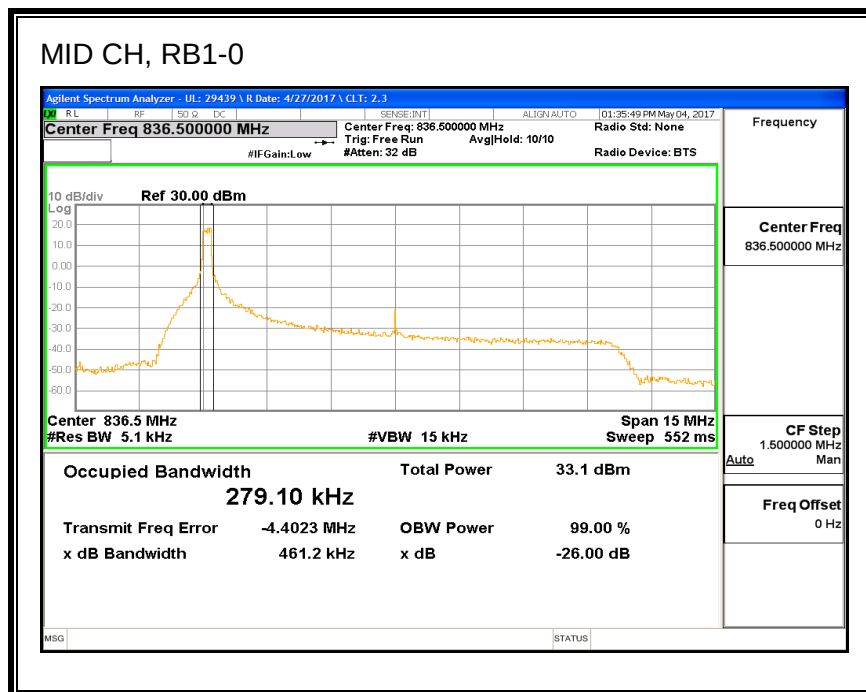
MID CH, RB25-0



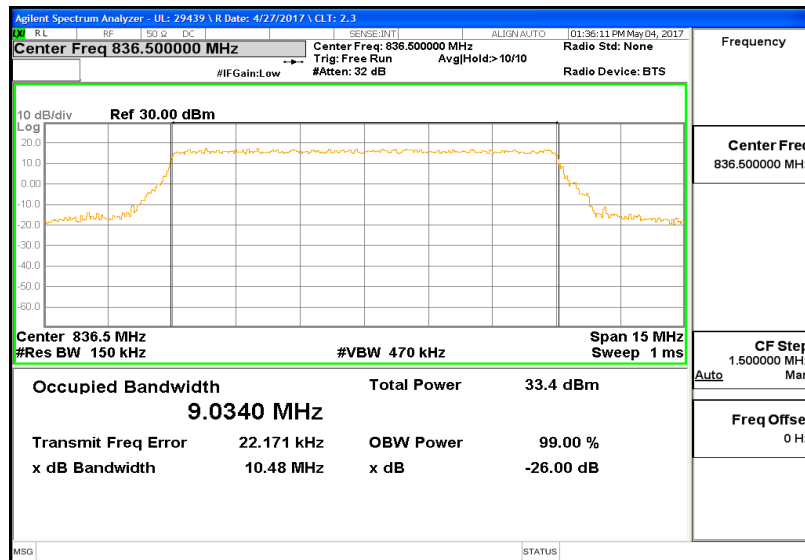
64QAM, (5.0 MHz BAND WIDTH)



QPSK, (10.0 MHz BAND WIDTH)

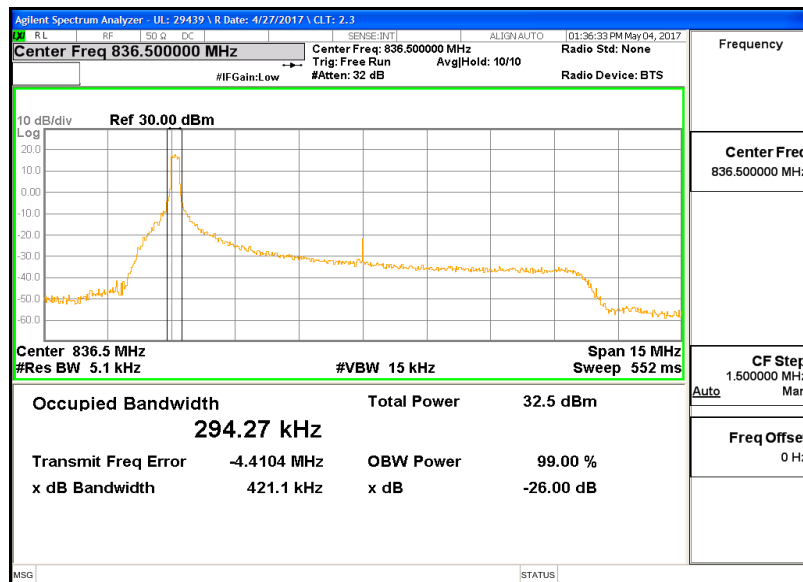


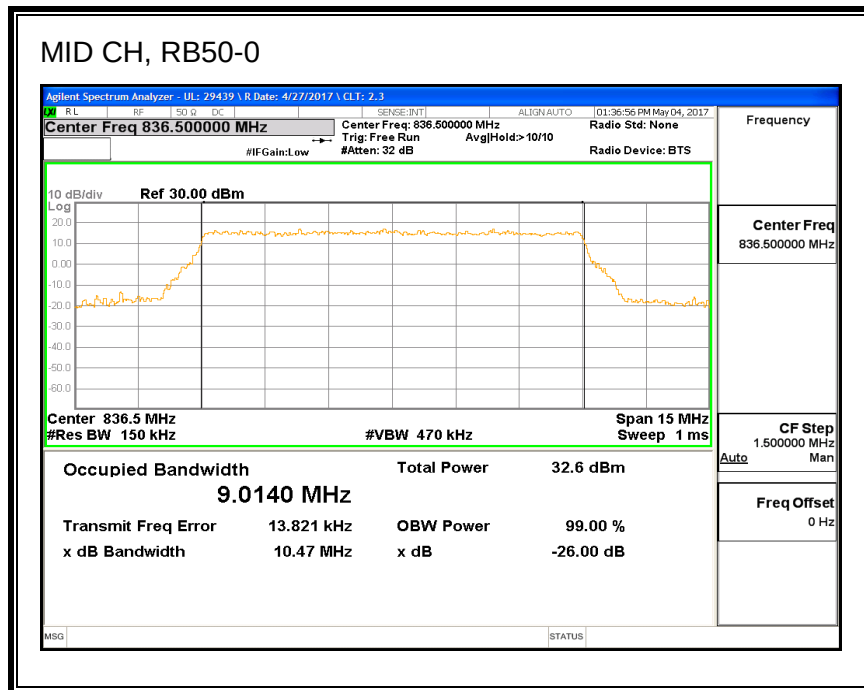
MID CH, RB50-0



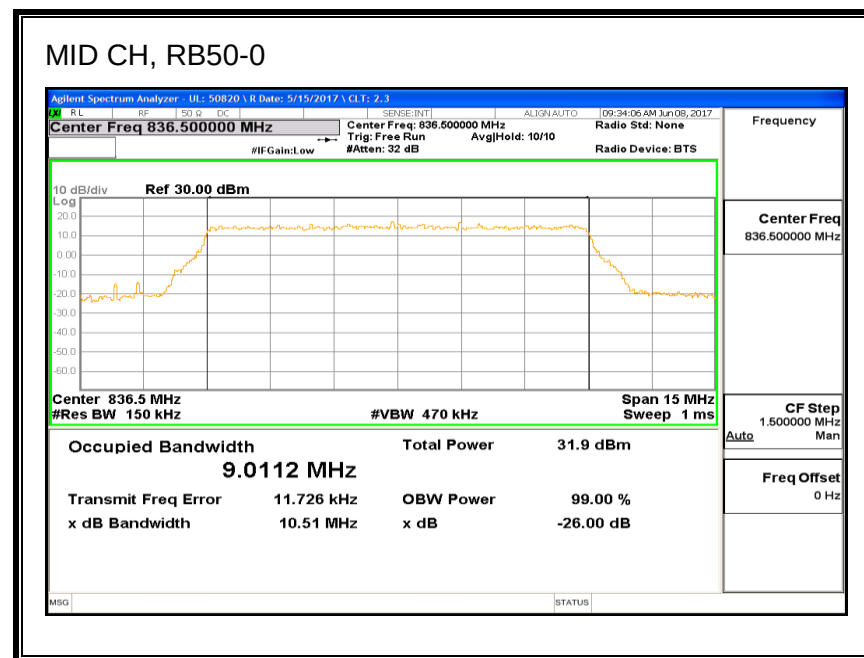
16QAM, (10.0 MHz BAND WIDTH)

MID CH, RB1-0



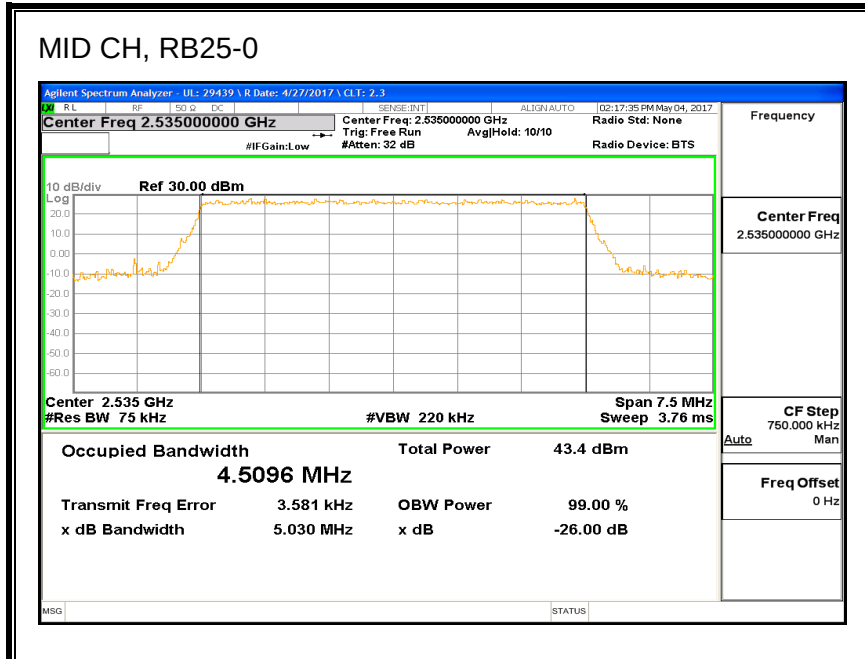
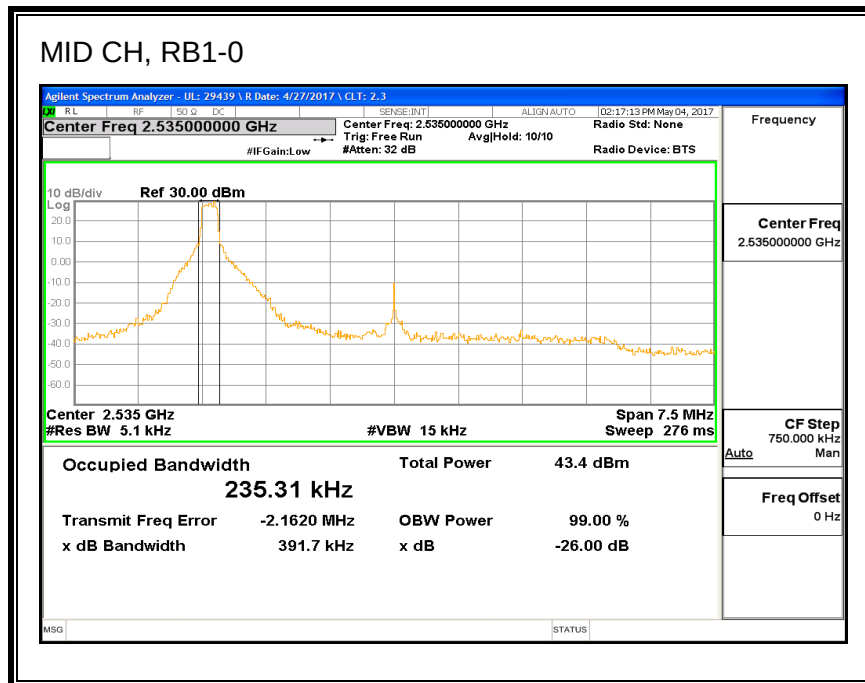


64QAM, (10.0 MHz BAND WIDTH)

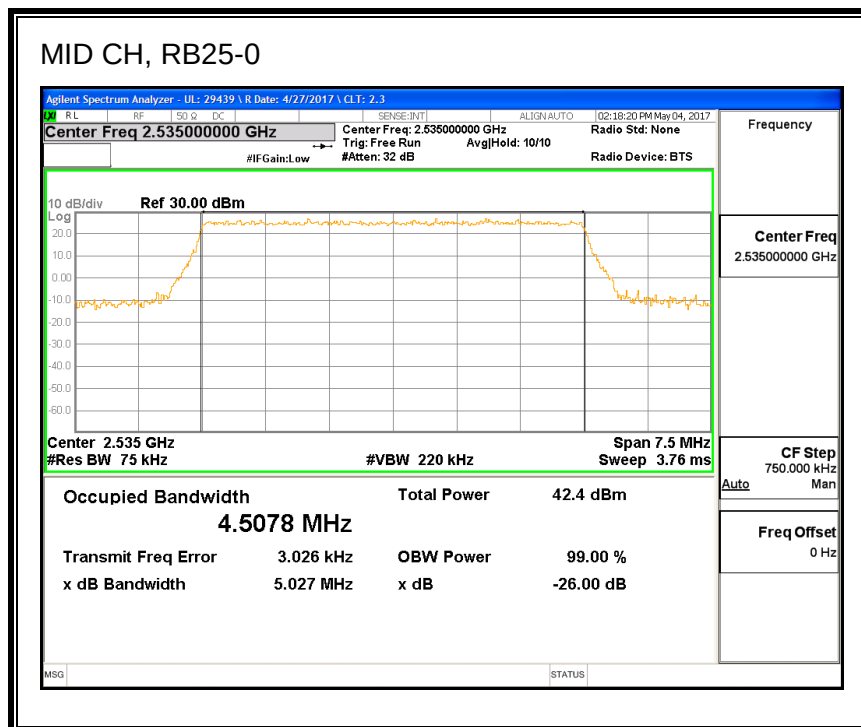
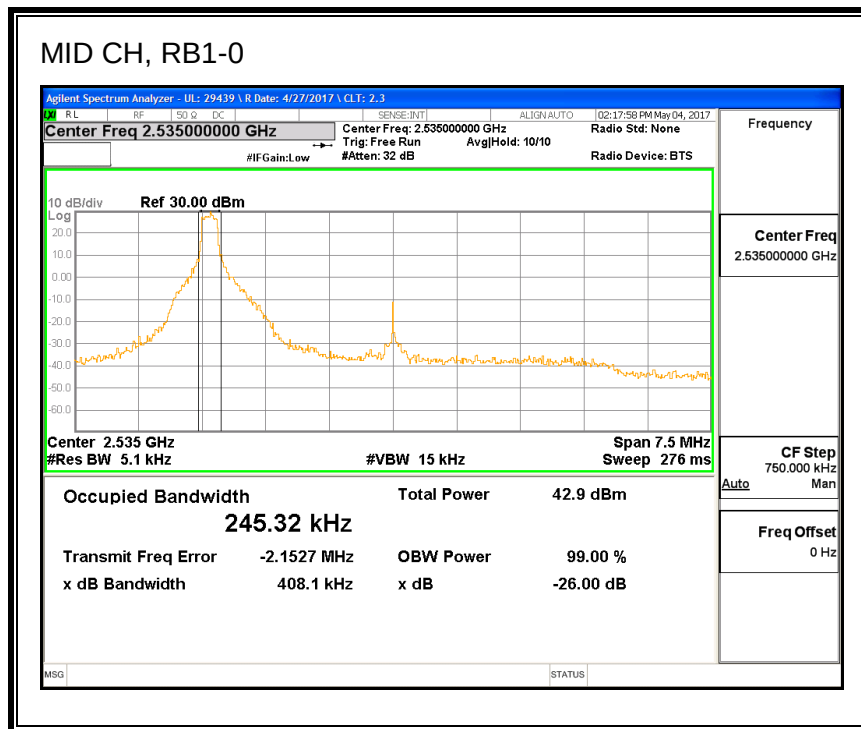


8.1.4. LTE BAND 7

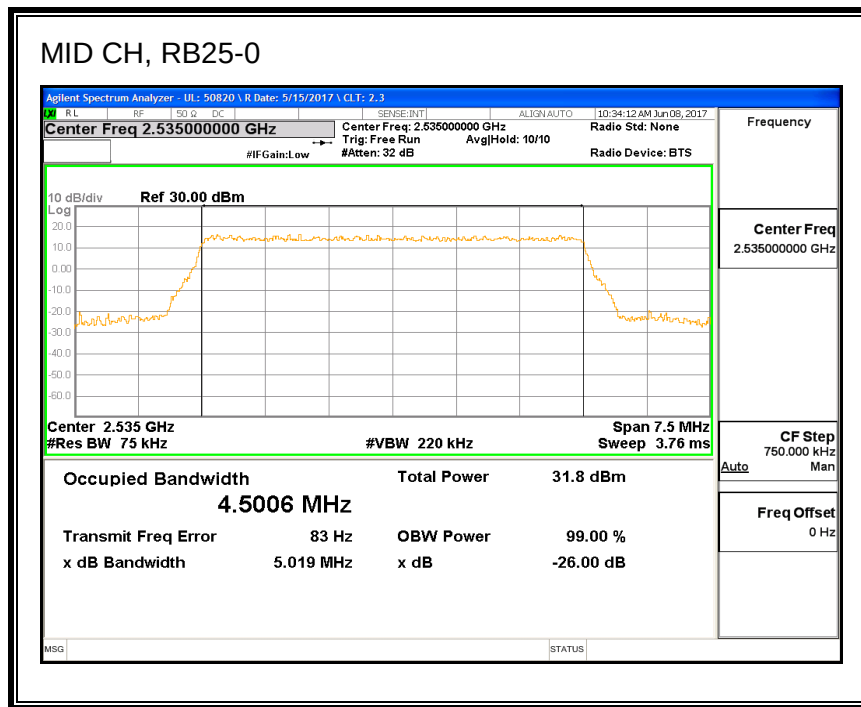
QPSK, (5.0 MHz BAND WIDTH)



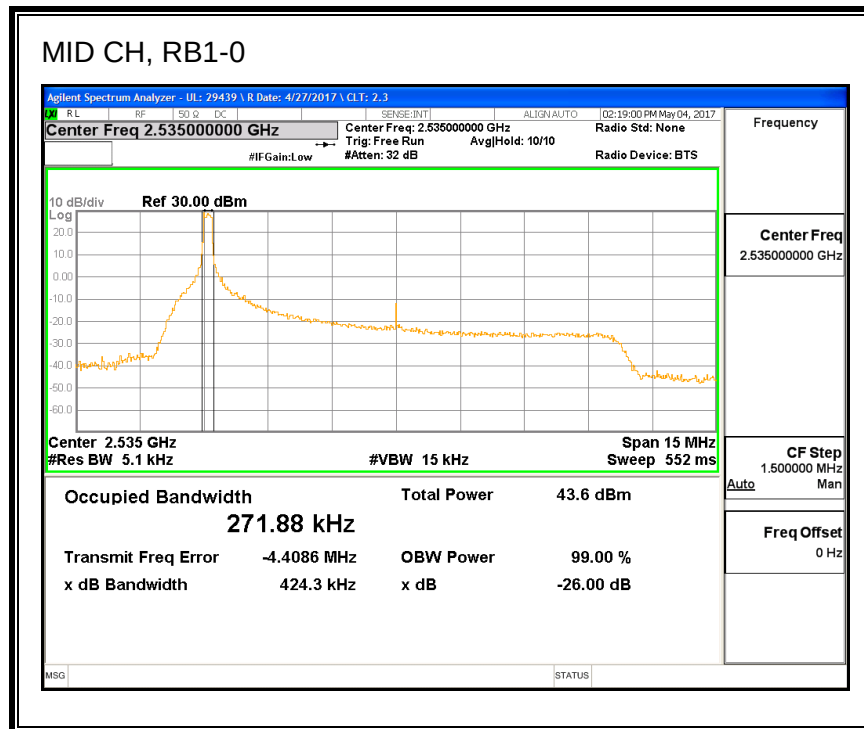
16QAM, (5.0 MHz BAND WIDTH)

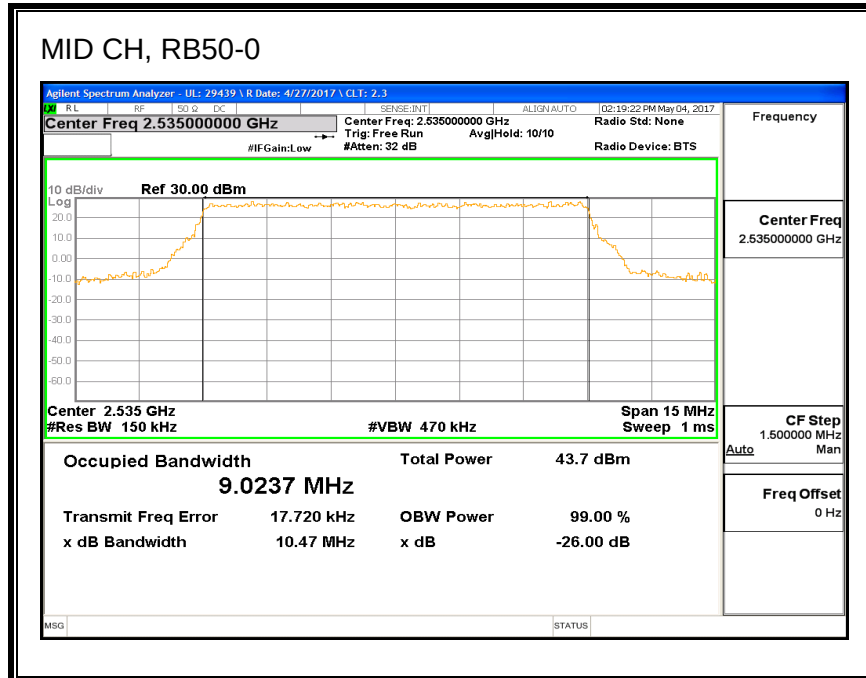


64QAM, (5.0 MHz BAND WIDTH)

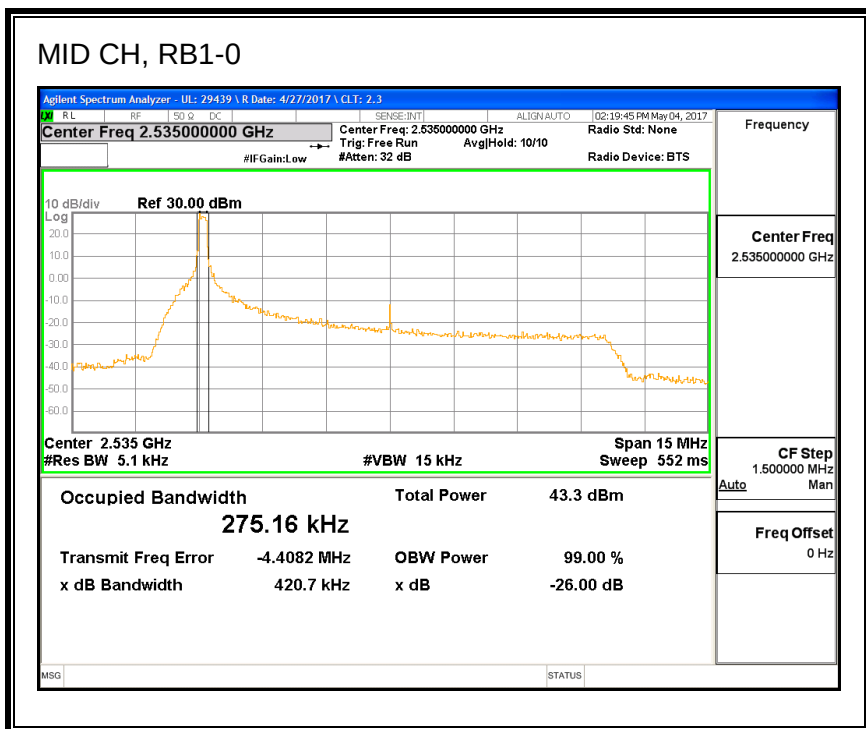


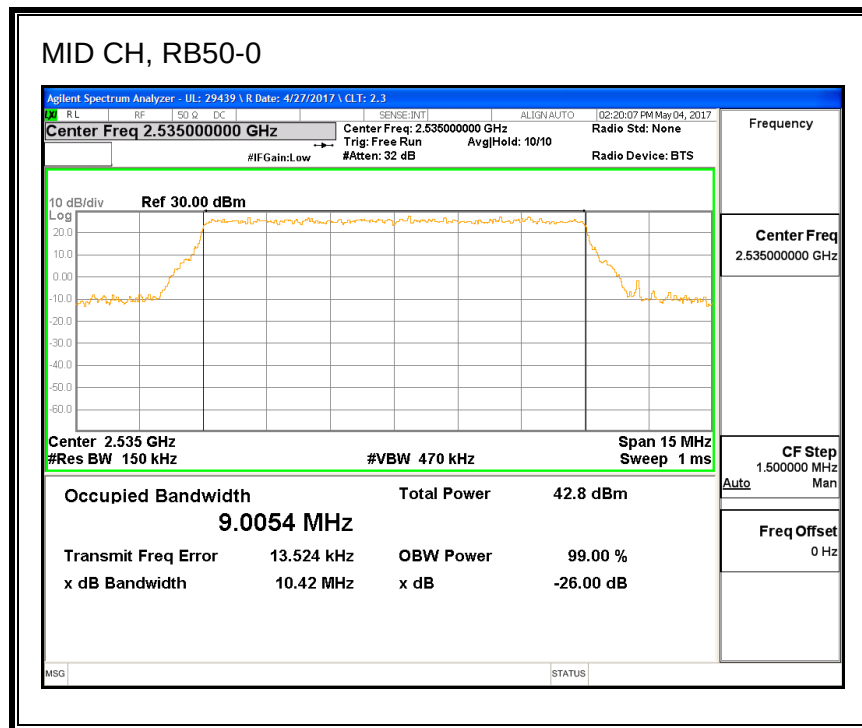
QPSK, (10.0 MHz BAND WIDTH)



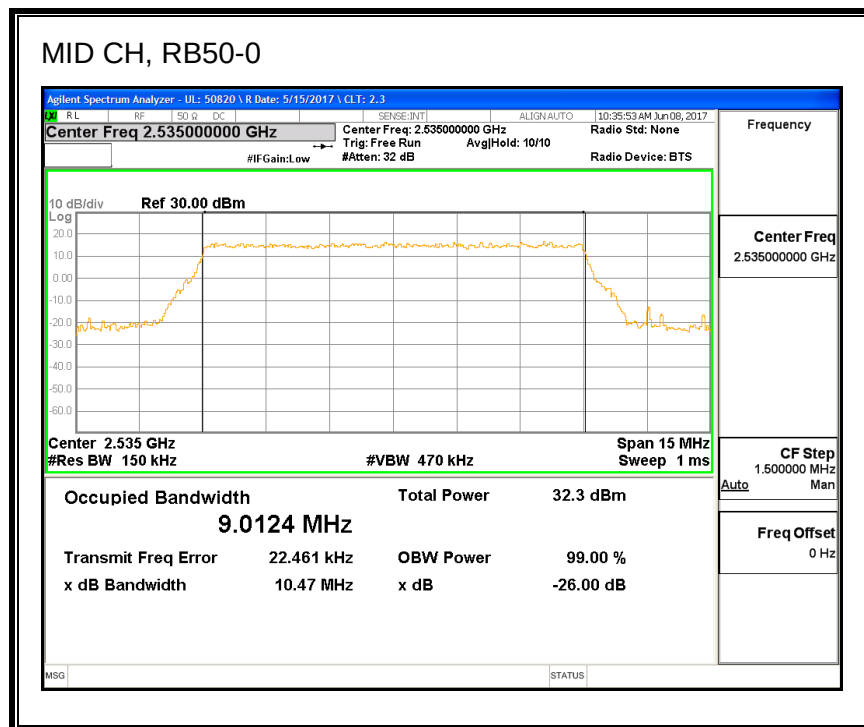


16QAM, (10.0 MHz BAND WIDTH)

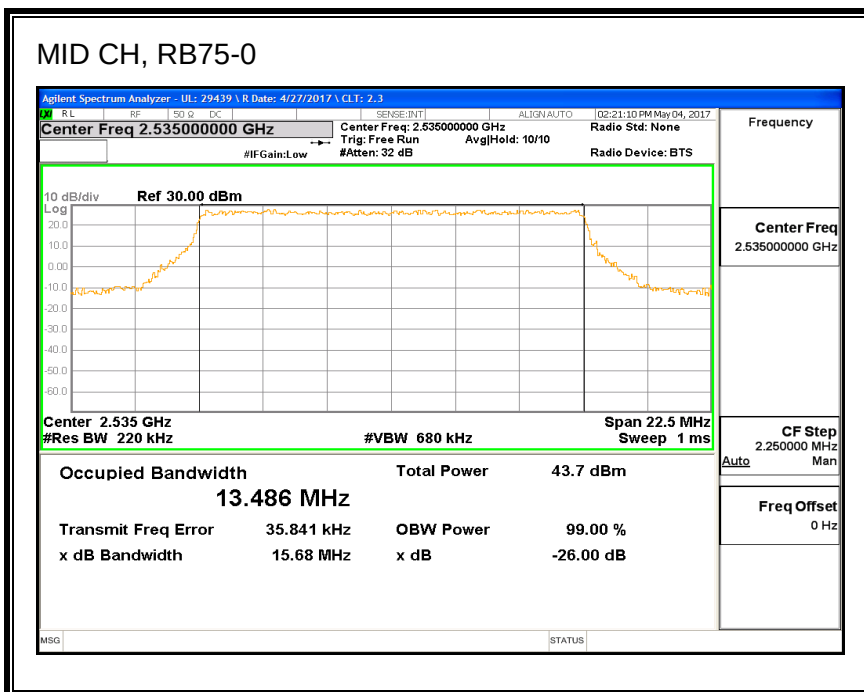
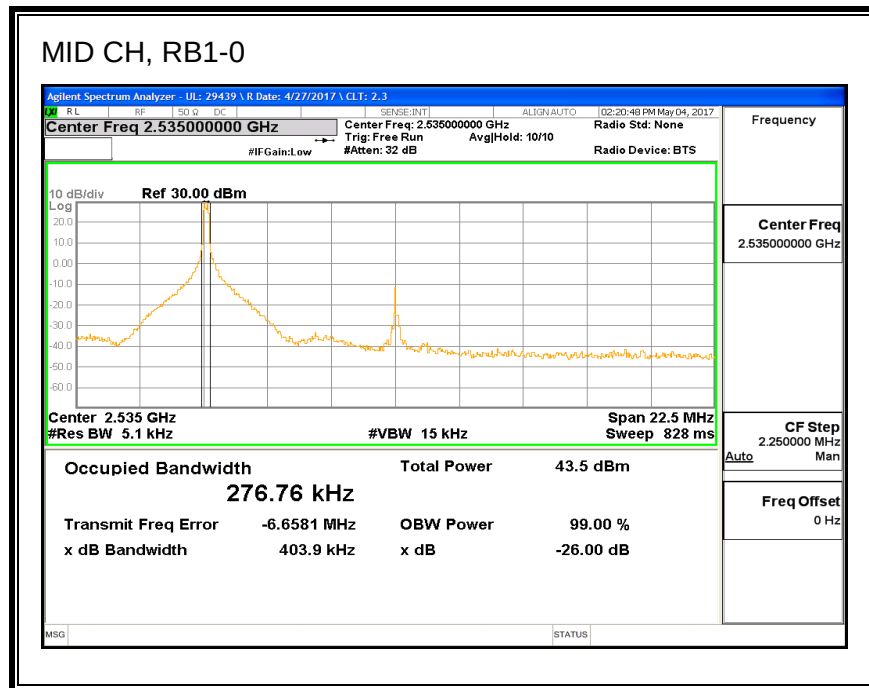




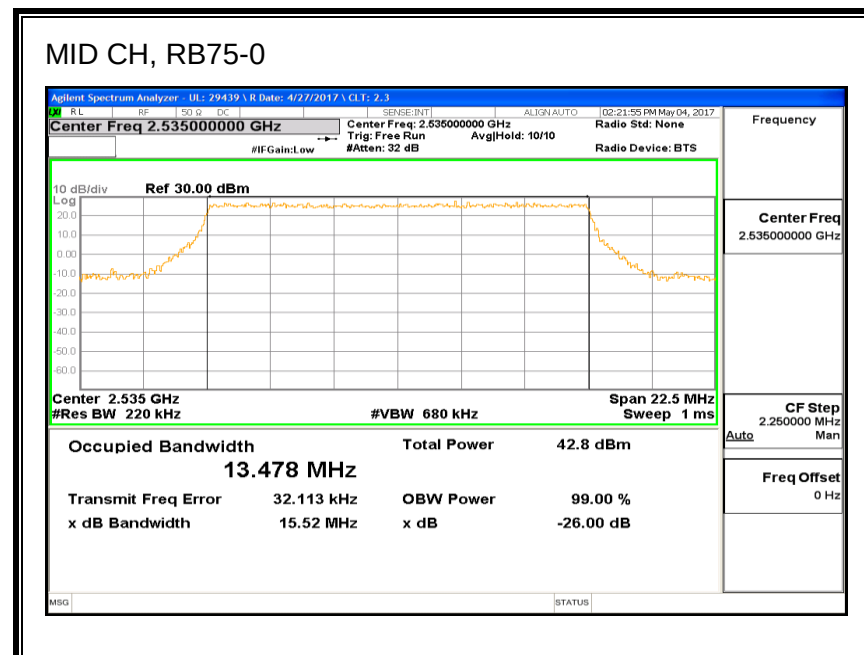
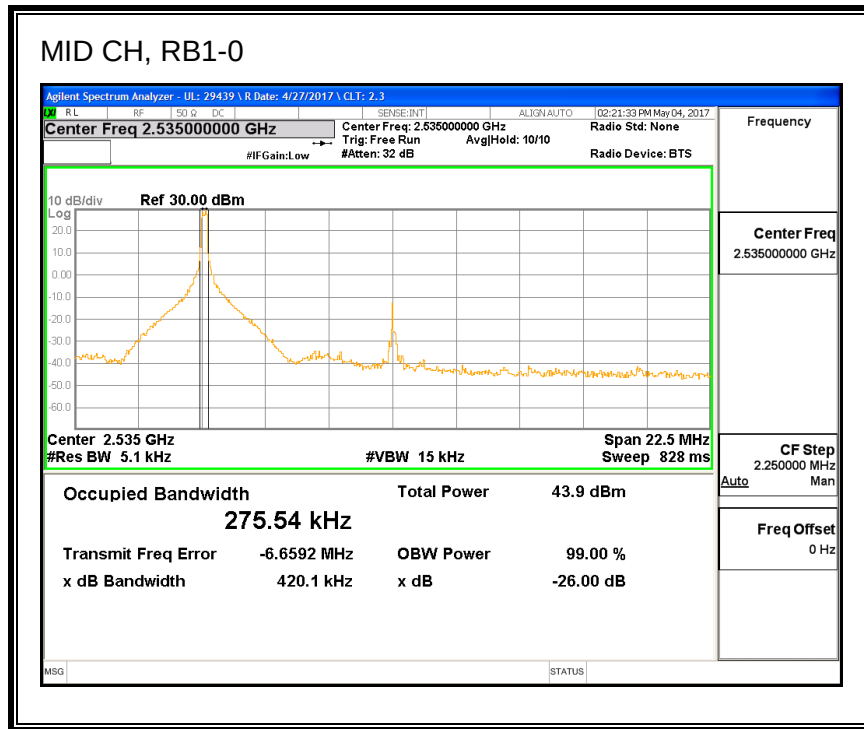
64QAM, (10.0 MHz BAND WIDTH)



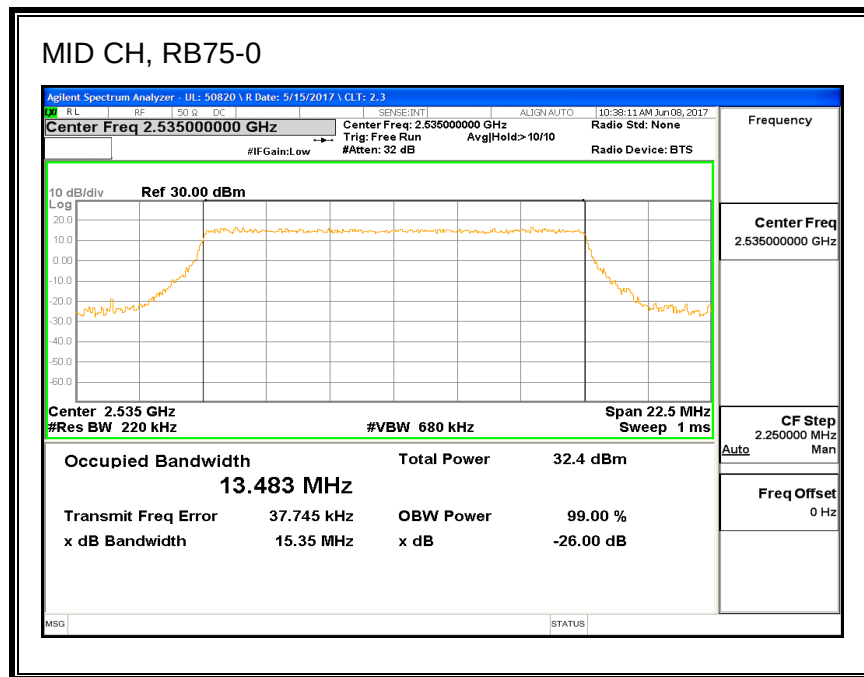
QPSK, (15.0 MHz BAND WIDTH)



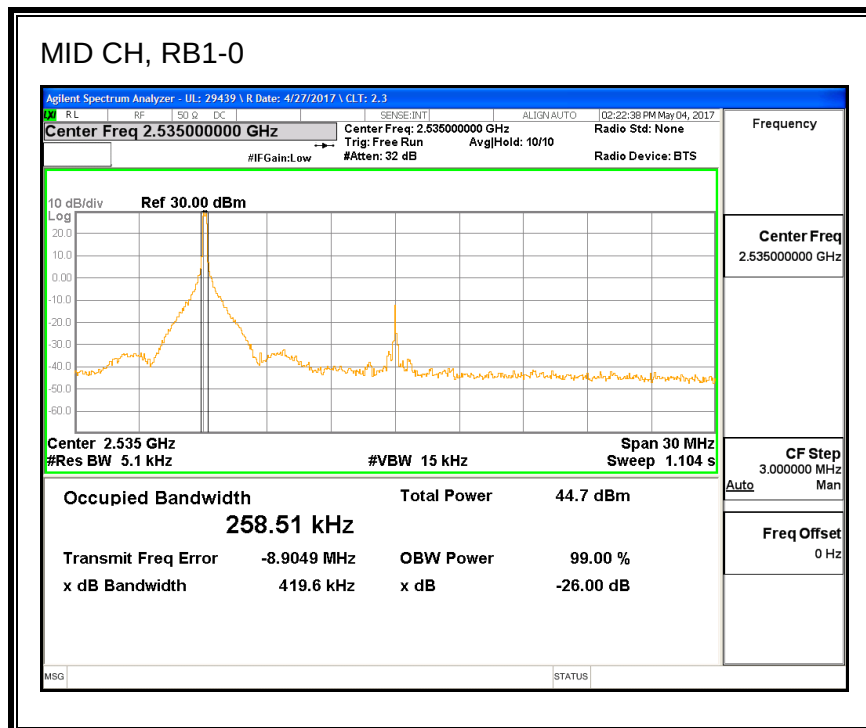
16QAM, (15.0 MHz BAND WIDTH)

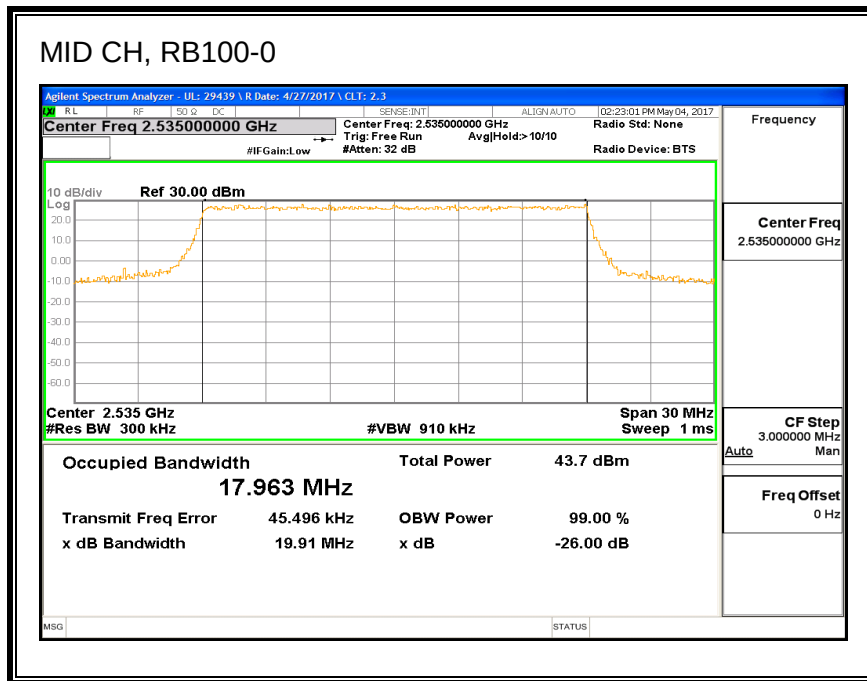


64QAM, (15.0 MHz BAND WIDTH)

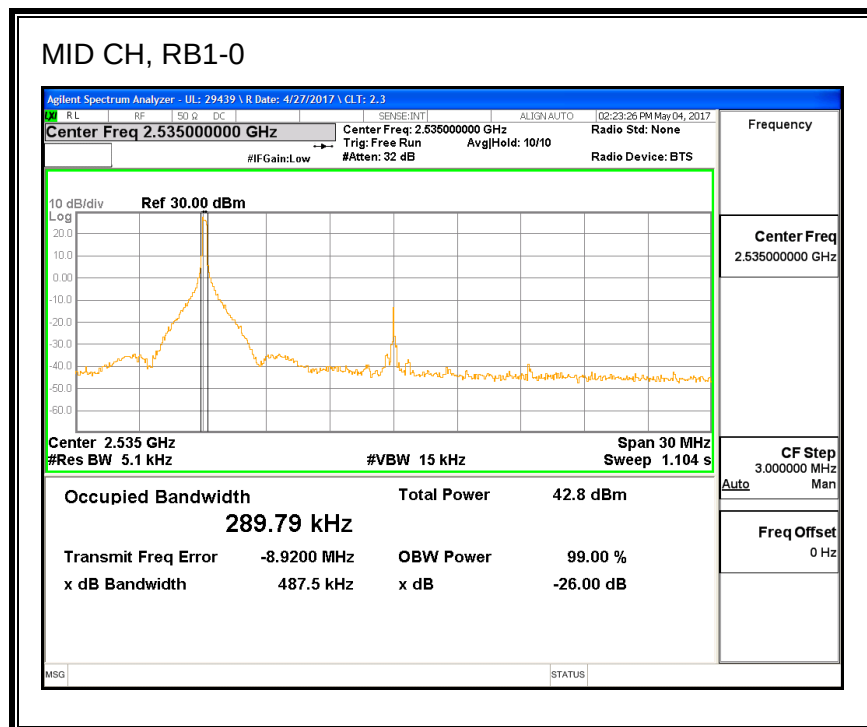


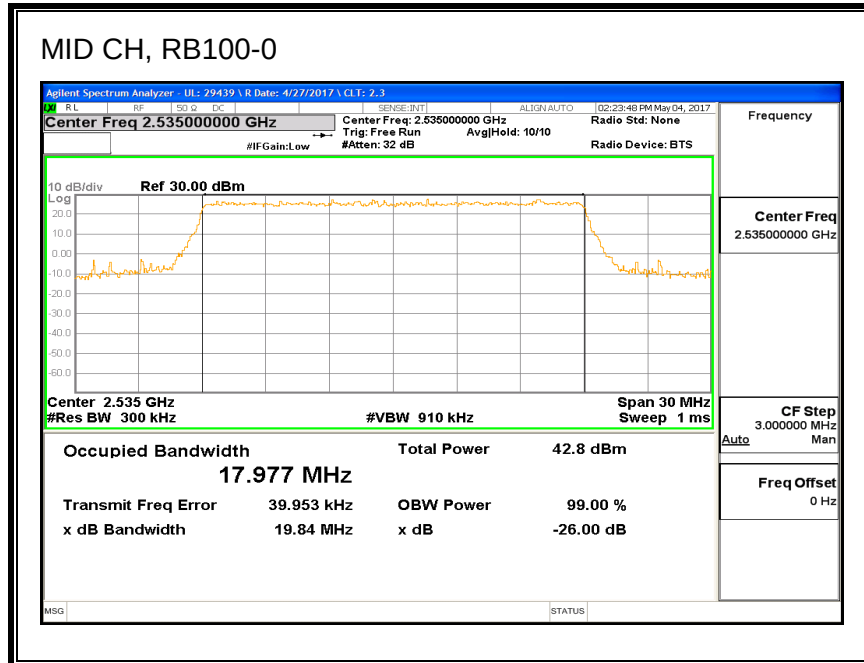
QPSK, (20.0 MHz BAND WIDTH)



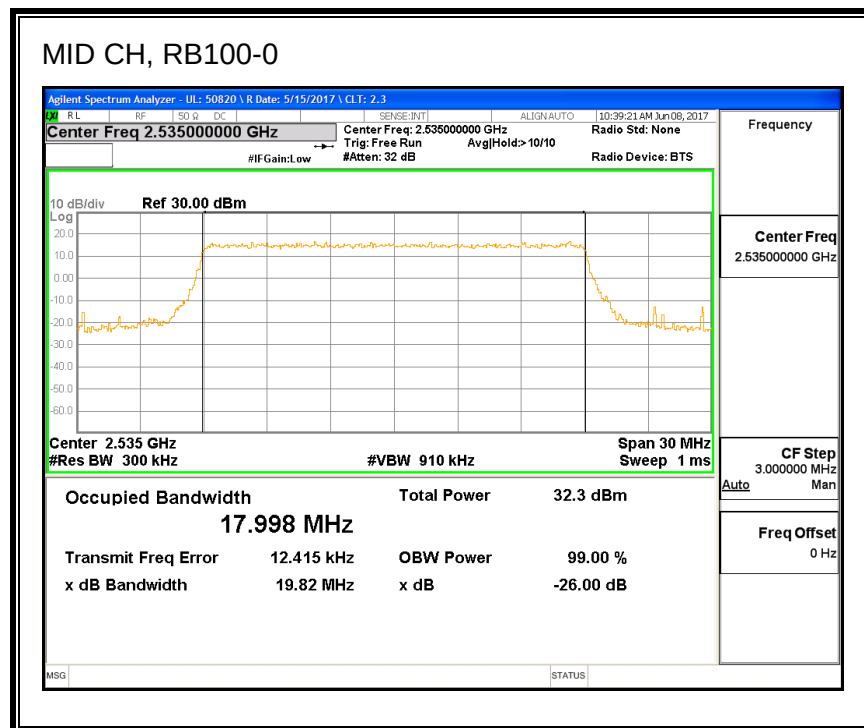


16QAM, (20.0 MHz BAND WIDTH)



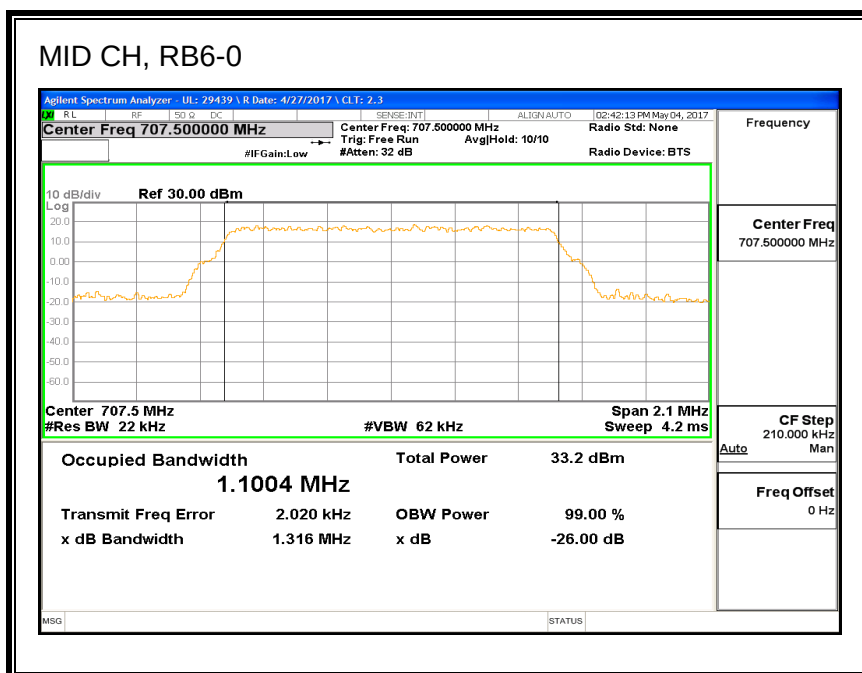
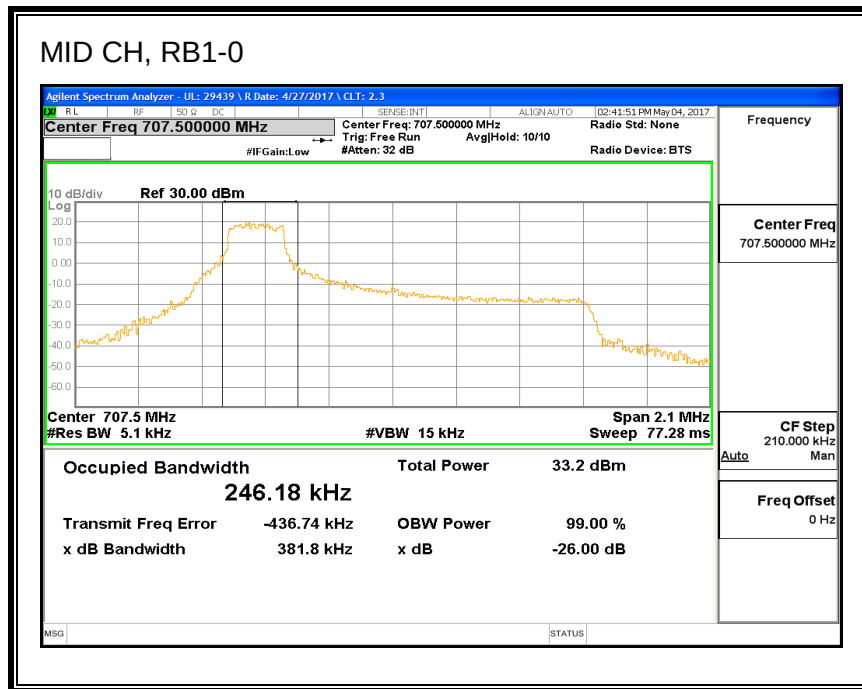


64QAM, (20.0 MHz BAND WIDTH)



8.1.5. LTE BAND 12

QPSK, (1.4 MHz BAND WIDTH)



16QAM, (1.4 MHz BAND WIDTH)

