

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	6/0	1880.0	1.0896	1.231
	1.4 MHz,16QAM			1.0940	1.242
	1.4 MHz,64QAM			1.0722	1.199
	3 MHz, QPSK	15/0		2.6936	2.978
	3 MHz, 16QAM			2.6987	2.962
	3 MHz, 64QAM			2.6866	2.952
	5 MHz, QPSK	25/0		4.5118	4.931
	5 MHz, 16QAM			4.4878	4.969
	5 MHz, 64QAM			4.4748	4.886
	10 MHz, QPSK	50/0		8.9624	9.816
	10 MHz, 16QAM			8.9743	9.798
	10 MHz, 64QAM			8.9085	9.380
	15 MHz, QPSK	75/0		13.437	14.60
	15 MHz, 16QAM			13.431	14.54
	15 MHz, 64QAM			13.360	14.25
	20 MHz, QPSK	100/0		17.885	19.38
	20 MHz, 16QAM			17.924	19.30
	20 MHz, 64QAM			17.894	18.92

LTE BAND 4

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)	
LTE BAND 4	1.4 MHz, QPSK	6/0	1732.5	1.0887	1.236	
	1.4 MHz,16QAM			1.0965	1.244	
	1.4 MHz,64QAM			1.0749	1.211	
	3 MHz, QPSK	15/0		2.6949	3.005	
	3 MHz, 16QAM			2.7040	2.984	
	3 MHz, 64QAM			2.6825	2.879	

LTE BAND 5

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 5	1.4 MHz, QPSK	6/0	836.5	1.0824	1.227
	1.4 MHz,16QAM			1.0865	1.231
	1.4 MHz,64QAM			1.0694	1.196
	3 MHz, QPSK	15/0		2.6968	3.012
	3 MHz, 16QAM			2.7024	2.996
	3 MHz, 64QAM			2.6879	2.920
	5 MHz, QPSK	25/0		4.5114	4.951
	5 MHz, 16QAM			4.5005	4.973
	5 MHz, 64QAM			4.4792	4.809
	10 MHz, QPSK	50/0		8.9676	9.792
	10 MHz, 16QAM			8.9818	9.760
	10 MHz, 64QAM			8.9641	9.505

LTE BAND 7

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 7	5 MHz, QPSK	25/0	2535.0	4.4990	4.918
	5 MHz, 16QAM			4.4836	4.903
	5 MHz, 64QAM			4.4588	4.818
	10 MHz, QPSK	50/0		8.9633	9.844
	10 MHz, 16QAM			8.9742	9.786
	10 MHz, 64QAM			8.9559	9.397
	15 MHz, QPSK	75/0		13.438	14.55
	15 MHz, 16QAM			13.453	14.51
	15 MHz, 64QAM			13.458	14.21
	20 MHz, QPSK	100/0		17.928	19.31
	20 MHz, 16QAM			17.935	19.25
	20 MHz, 64QAM			17.879	18.97

LTE BAND 12

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 12	1.4 MHz, QPSK	6/0	707.5	1.0893	1.229
	1.4 MHz,16QAM			1.0937	1.244
	1.4 MHz,64QAM			1.0798	1.202
	3 MHz, QPSK	15/0		2.6990	3.002
	3 MHz, 16QAM			2.7001	3.005
	3 MHz, 64QAM			2.6933	2.950
	5 MHz, QPSK	25/0		4.5191	4.953
	5 MHz, 16QAM			4.5035	4.942
	5 MHz, 64QAM			4.4888	4.787
	10 MHz, QPSK	50/0		8.9519	9.813
	10 MHz, 16QAM			8.9852	9.731
	10 MHz, 64QAM			8.9506	9.496

LTE BAND 13

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 13	5 MHz, QPSK	25/0	782.0	4.5791	4.968
	5 MHz, 16QAM			4.5045	4.910
	5 MHz, 64QAM			4.4638	4.796
	10 MHz, QPSK	50/0		8.8943	9.658
	10 MHz, 16QAM			8.9298	9.639
	10 MHz, 64QAM			8.9388	9.482

LTE BAND 17

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 17	5 MHz, QPSK	25/0	710.0	4.5202	4.951
	5 MHz, 16QAM			4.5025	4.965
	5 MHz, 64QAM			4.4825	4.948
	10 MHz, QPSK	50/0		8.9611	9.747
	10 MHz, 16QAM			8.9526	9.776
	10 MHz, 64QAM			8.8511	9.581

LTE BAND 25

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 25	1.4 MHz, QPSK	6/0	1882.5	1.0881	1.236
	1.4 MHz, 16QAM			1.0951	1.241
	1.4 MHz, 64QAM			1.0798	1.190
	3 MHz, QPSK	15/0		2.6956	3.005
	3 MHz, 16QAM			2.6973	3.000
	3 MHz, 64QAM			2.6774	2.888
	5 MHz, QPSK	25/0		4.5010	4.956
	5 MHz, 16QAM			4.4979	4.950
	5 MHz, 64QAM			4.4781	4.810
	10 MHz, QPSK	50/0		8.9751	9.786
	10 MHz, 16QAM			8.9889	9.801
	10 MHz, 64QAM			8.8968	9.486
	15 MHz, QPSK	75/0		13.456	14.56
	15 MHz, 16QAM			13.452	14.58
	15 MHz, 64QAM			13.390	14.10
	20 MHz, QPSK	100/0		17.912	19.34
	20 MHz, 16QAM			17.906	19.28
	20 MHz, 64QAM			17.893	19.41

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	0.20405	0.2977
	1.4 MHz,16QAM			0.20732	0.2870
	1.4 MHz, QPSK	6/0		1.0871	1.230
	1.4 MHz,16QAM			1.0917	1.239
	1.4 MHz,64QAM			1.0815	1.203
	3 MHz, QPSK	1/0		0.20272	0.3263
	3 MHz, 16QAM			0.20759	0.3286
	3 MHz, QPSK	15/0		2.6956	2.994
	3 MHz, 16QAM			2.6998	2.989
	3 MHz, 64QAM			2.7026	3.001
	5 MHz, QPSK	1/0		0.21601	0.3360
	5 MHz, 16QAM			0.22648	0.3735
	5 MHz, QPSK	25/0		4.5099	4.947
	5 MHz, 16QAM			4.5031	4.980
	5 MHz, 64QAM			4.4676	4.775
	10 MHz, QPSK	1/0		0.23237	0.3892
	10 MHz, 16QAM			0.23521	0.3891
	10 MHz, QPSK	50/0		8.9639	9.811
	10 MHz, 16QAM			8.9836	9.801
	10 MHz, 64QAM			8.9676	9.447

LTE BAND 30

BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)	
LTE BAND 30	5 MHz, QPSK	25/0	2310.0	4.4890	4.915	
	5 MHz, 16QAM			4.4809	4.908	
	5 MHz, 64QAM			4.4933	4.862	
	10 MHz, QPSK	50/0		8.9754	9.809	
	10 MHz, 16QAM			8.9875	9.759	
	10 MHz, 64QAM			8.8680	9.467	

LTE BAND 41

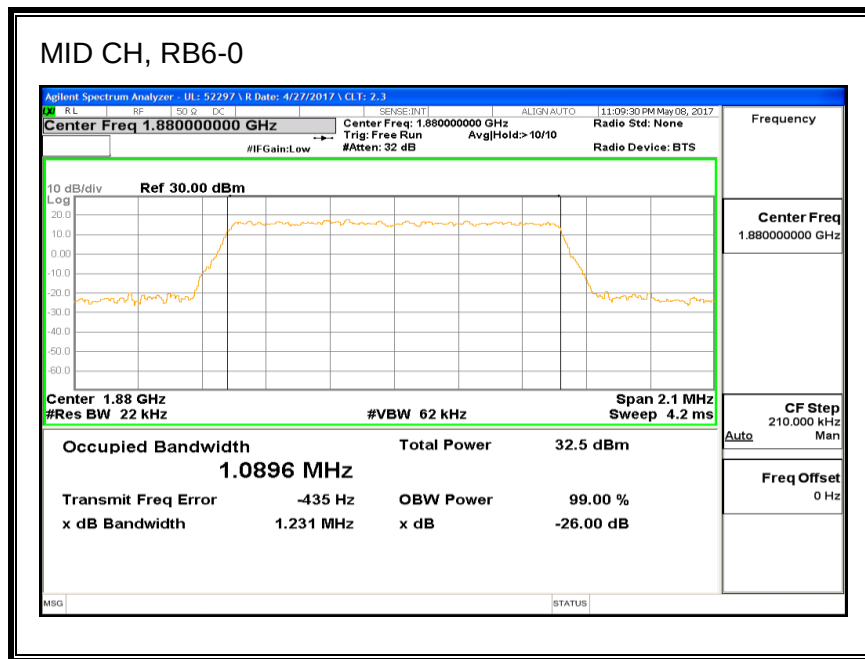
BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 41	5 MHz, QPSK	25/0	2593.0	4.4932	4.988
	5 MHz, 16QAM			4.4947	5.289
	5 MHz, 64QAM			4.4678	4.918
	10 MHz, QPSK	50/0		8.9570	9.877
	10 MHz, 16QAM			8.9889	9.819
	10 MHz, 64QAM			8.9378	9.681
	15 MHz, QPSK	75/0		13.454	14.87
	15 MHz, 16QAM			13.448	14.54
	15 MHz, 64QAM			13.407	14.49
	20 MHz, QPSK	100/0		17.858	19.30
	20 MHz, 16QAM			17.880	19.21
	20 MHz, 64QAM			17.786	19.13

LTE BAND 66

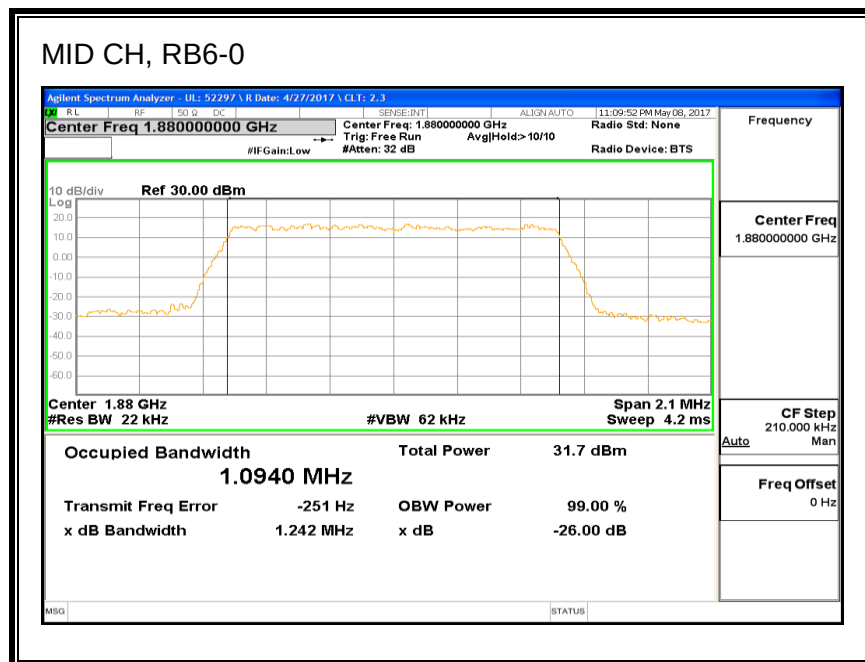
BAND	MODE	RB SIZE/RB OFFSET	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 66	5 MHz, QPSK	25/0	1745.0	4.5006	4.936
	5 MHz, 16QAM			4.4826	4.902
	5 MHz, 64QAM			4.4872	4.861
	10 MHz, QPSK	50/0		8.9701	9.875
	10 MHz, 16QAM			8.9707	9.802
	10 MHz, 64QAM			8.9650	9.353
	15 MHz, QPSK	75/0		13.473	14.69
	15 MHz, 16QAM			13.453	14.64
	15 MHz, 64QAM			13.451	14.16
	20 MHz, QPSK	100/0		17.912	19.25
	20 MHz, 16QAM			17.904	19.26
	20 MHz, 64QAM			17.818	19.16

8.1.1. LTE BAND 2

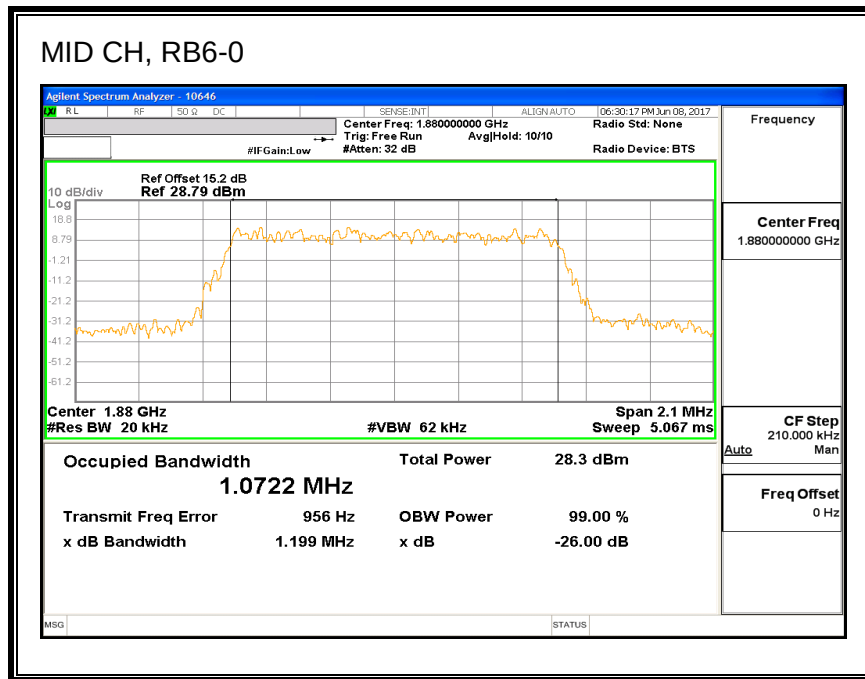
QPSK, (1.4 MHz BAND WIDTH)



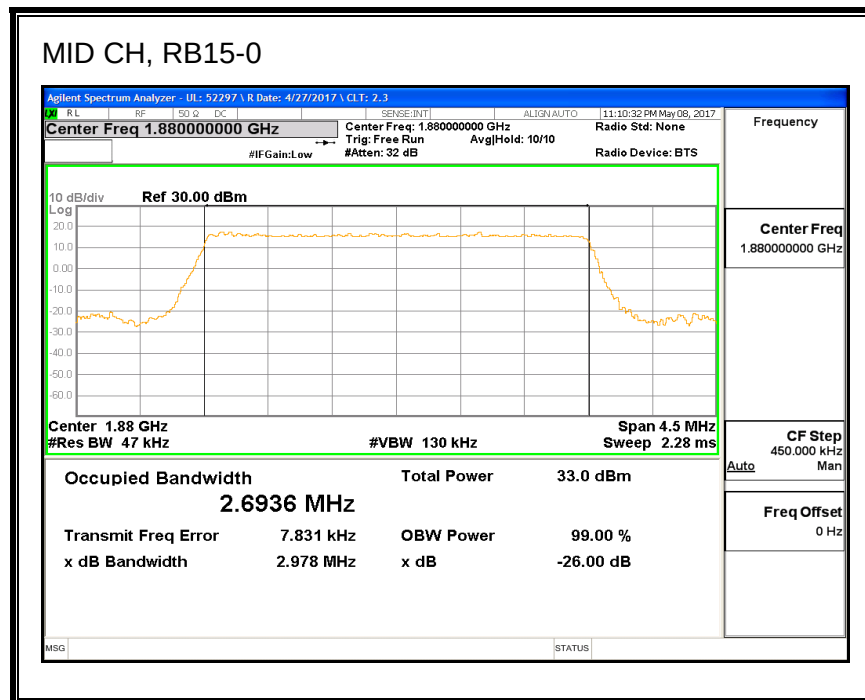
16QAM, (1.4 MHz BAND WIDTH)



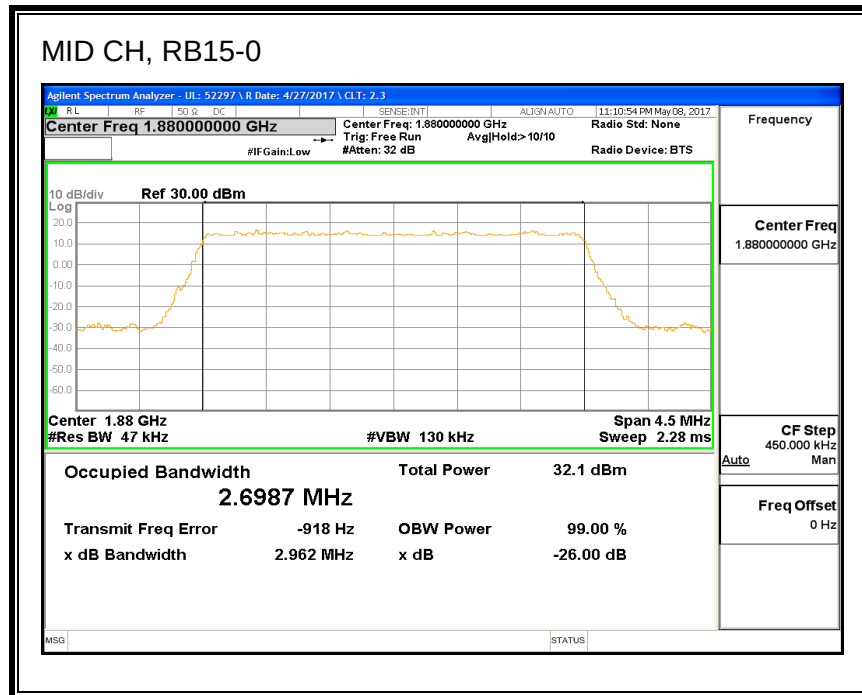
64QAM, (1.4 MHz BAND WIDTH)



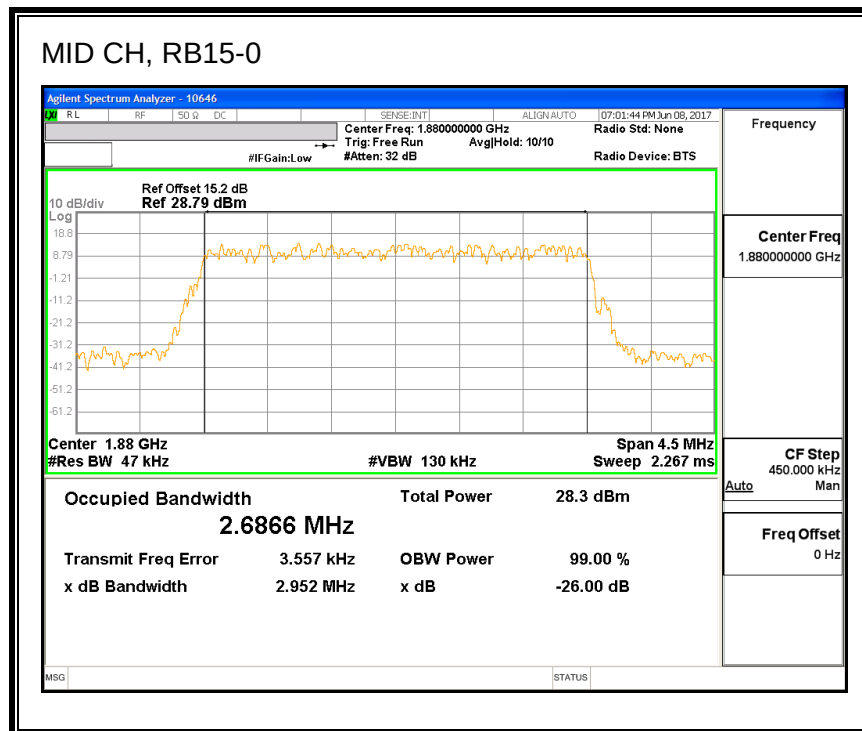
QPSK, (3.0 MHz BAND WIDTH)



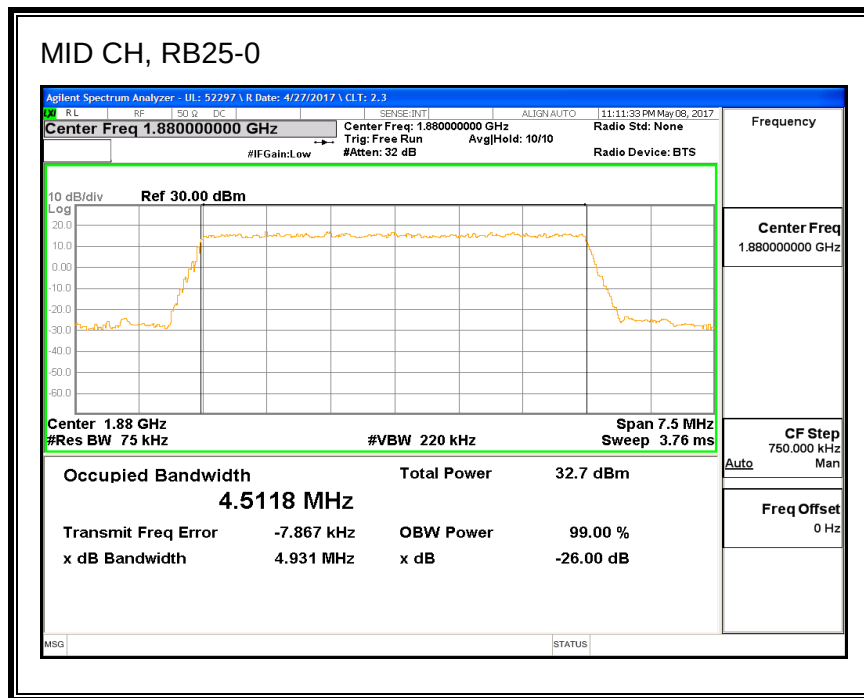
16QAM, (3.0 MHz BAND WIDTH)



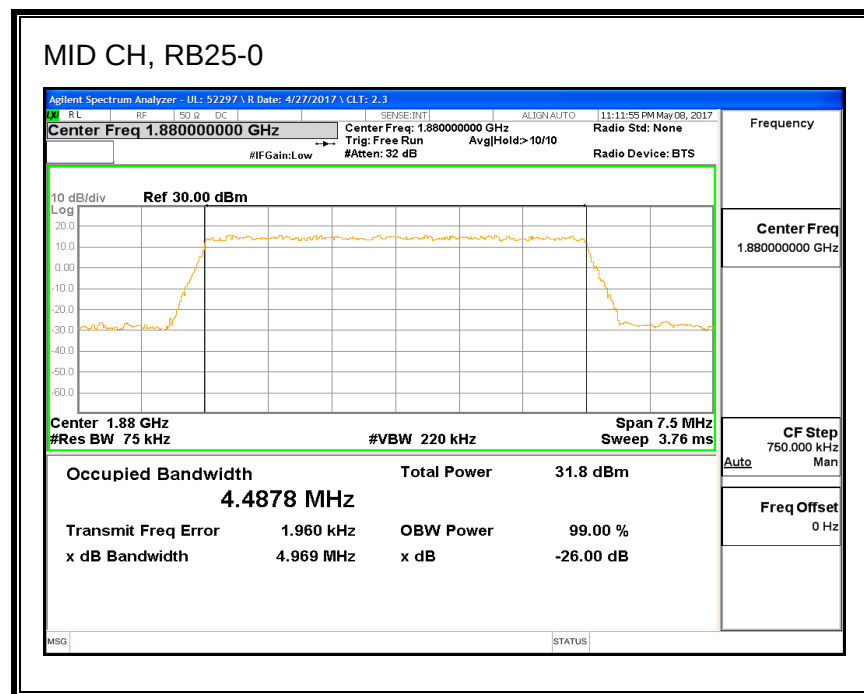
64QAM, (3.0 MHz BAND WIDTH)



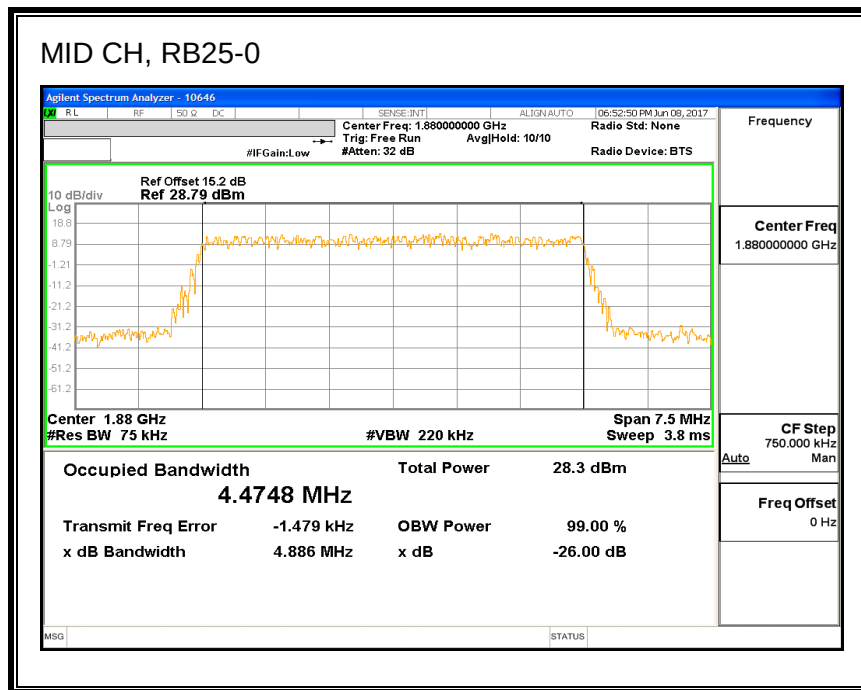
QPSK, (5.0 MHz BAND WIDTH)



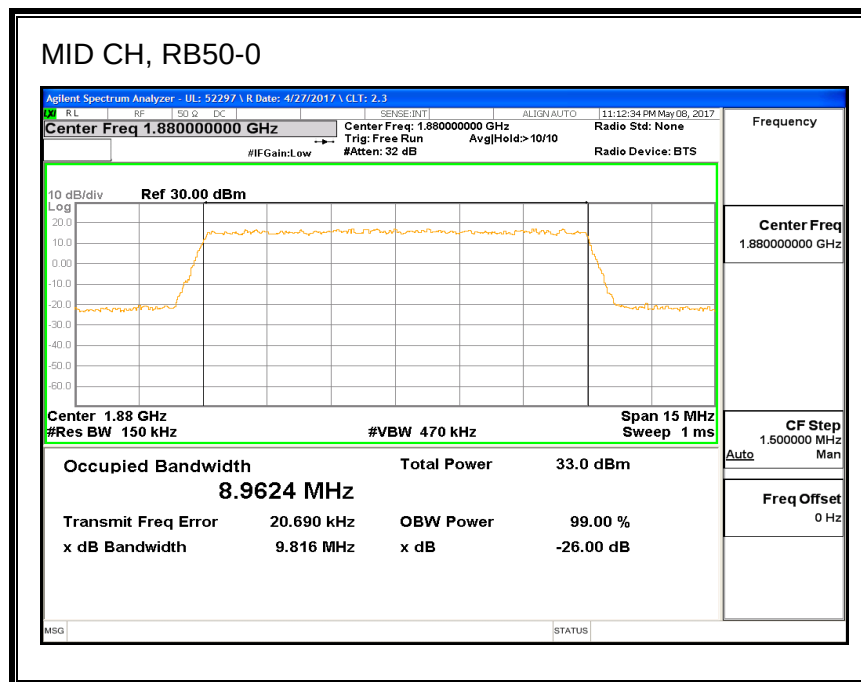
16QAM, (5.0 MHz BAND WIDTH)



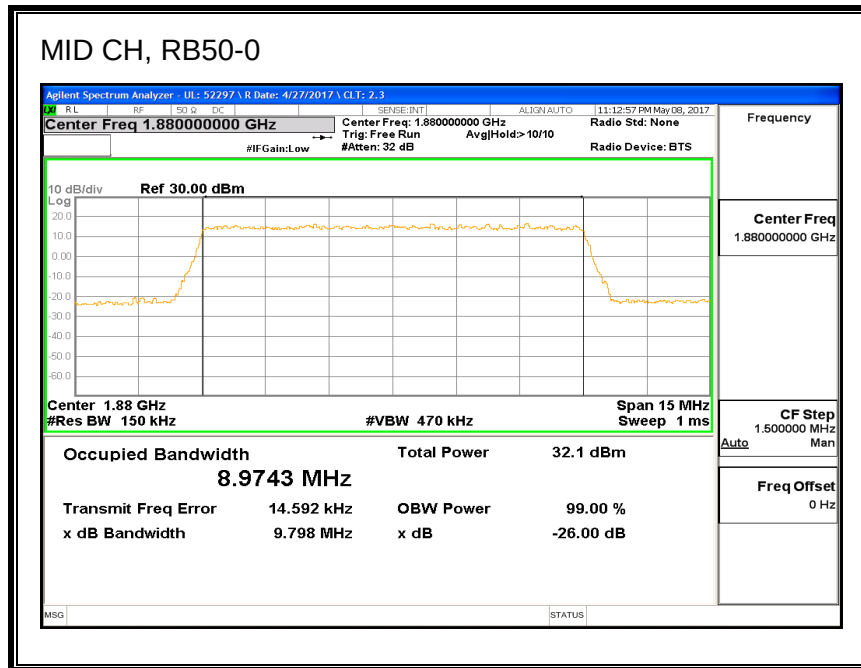
64QAM, (5.0 MHz BAND WIDTH)



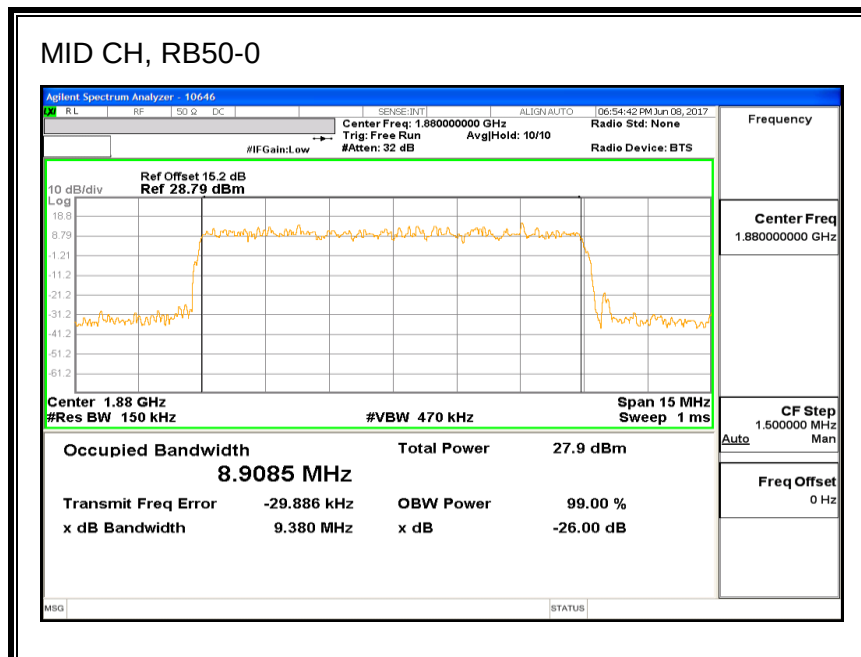
QPSK, (10.0 MHz BAND WIDTH)



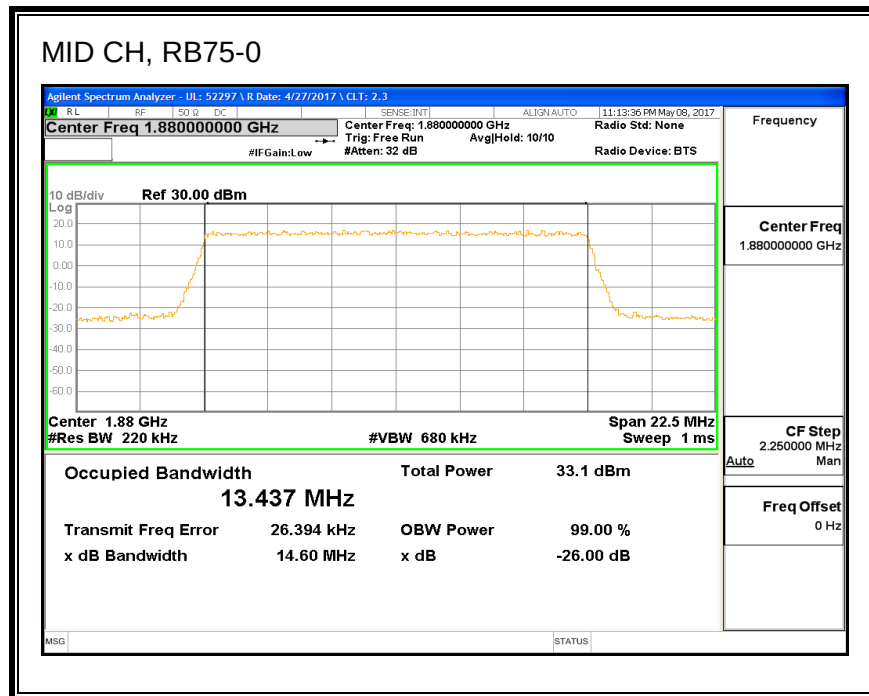
16QAM, (10.0 MHz BAND WIDTH)



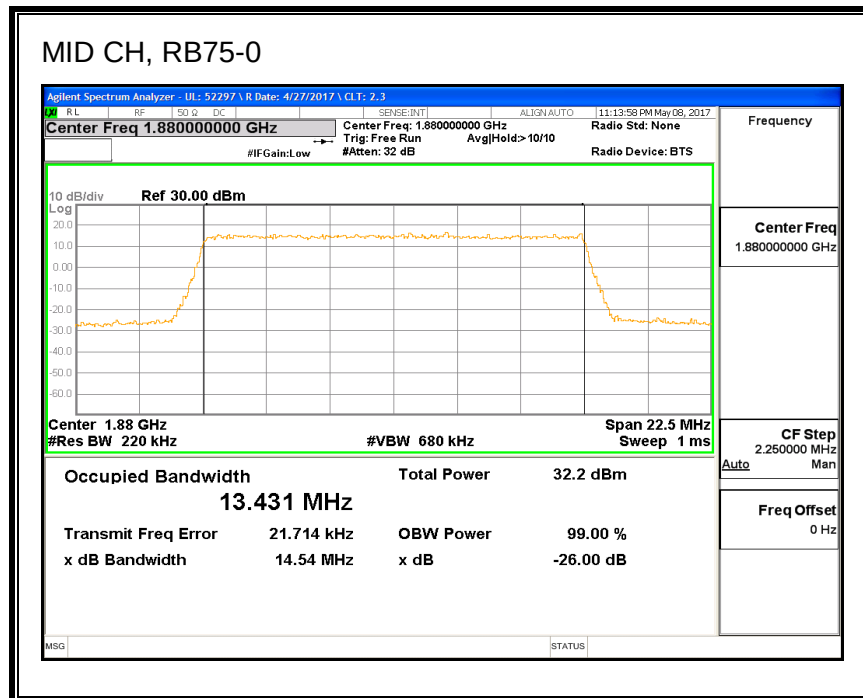
64QAM, (10.0 MHz BAND WIDTH)



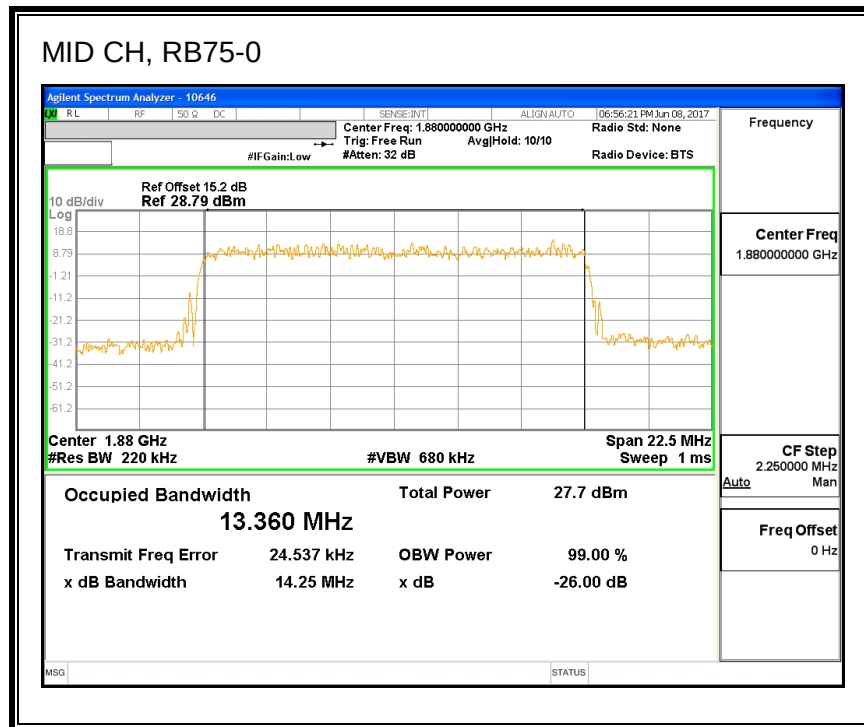
QPSK, (15.0 MHz BAND WIDTH)



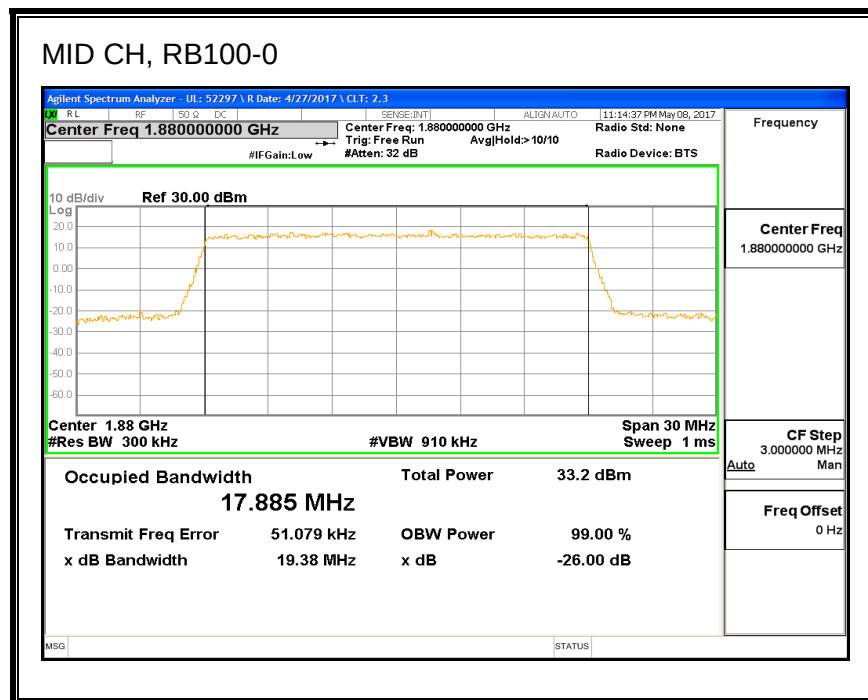
16QAM, (15.0 MHz BAND WIDTH)



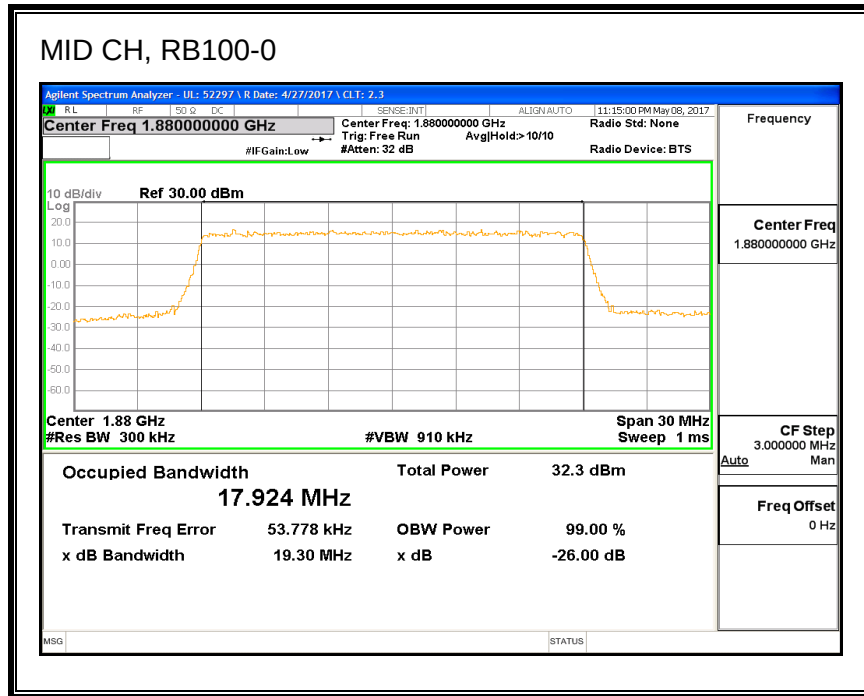
64QAM, (15.0 MHz BAND WIDTH)



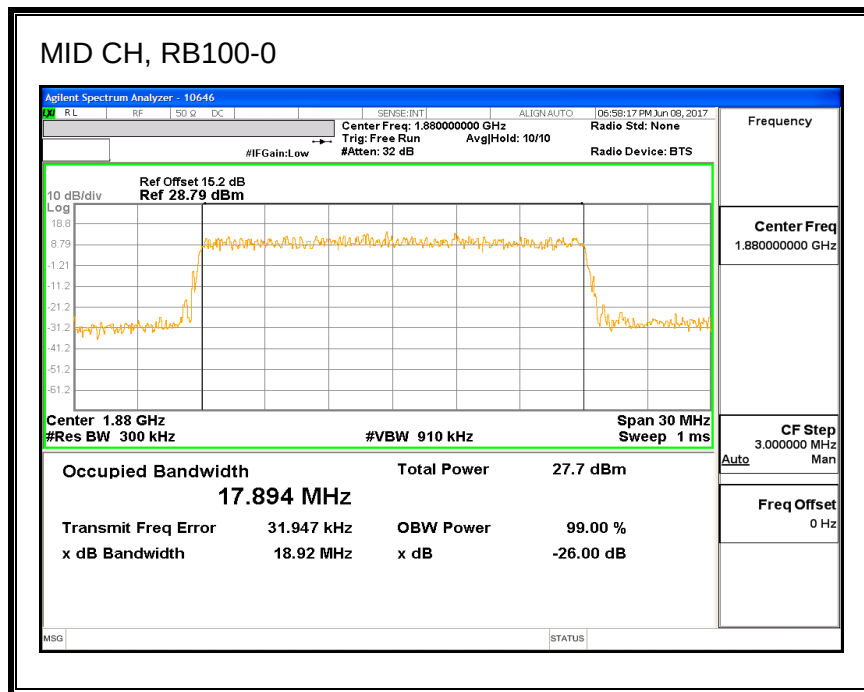
QPSK, (20.0 MHz BAND WIDTH)



16QAM, (20.0 MHz BAND WIDTH)

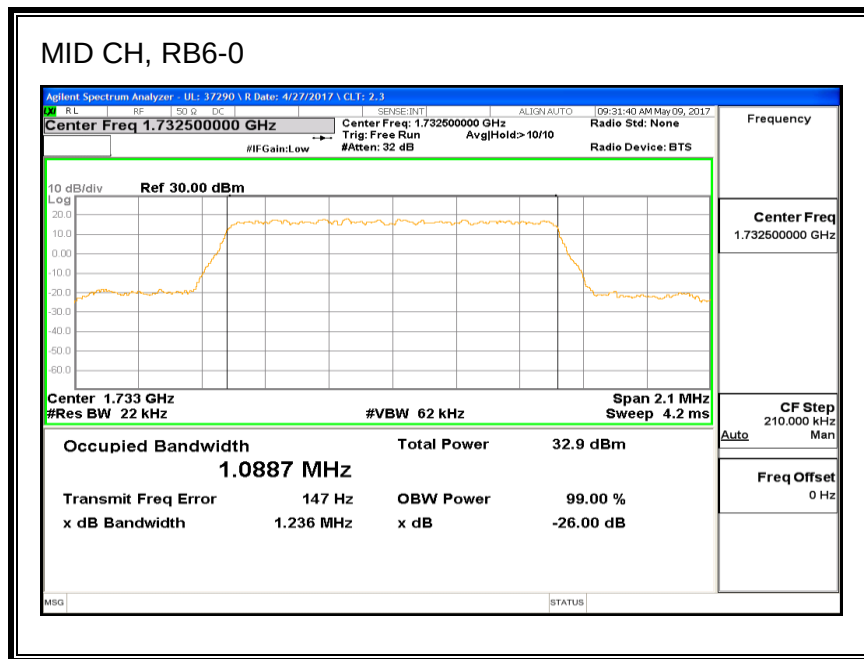


64QAM, (20.0 MHz BAND WIDTH)

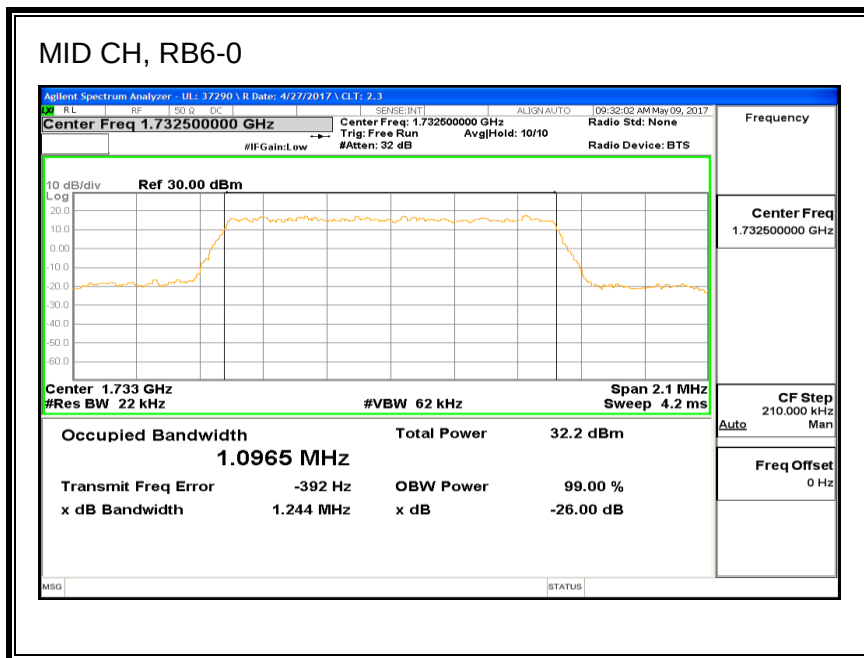


8.1.2. LTE BAND 4

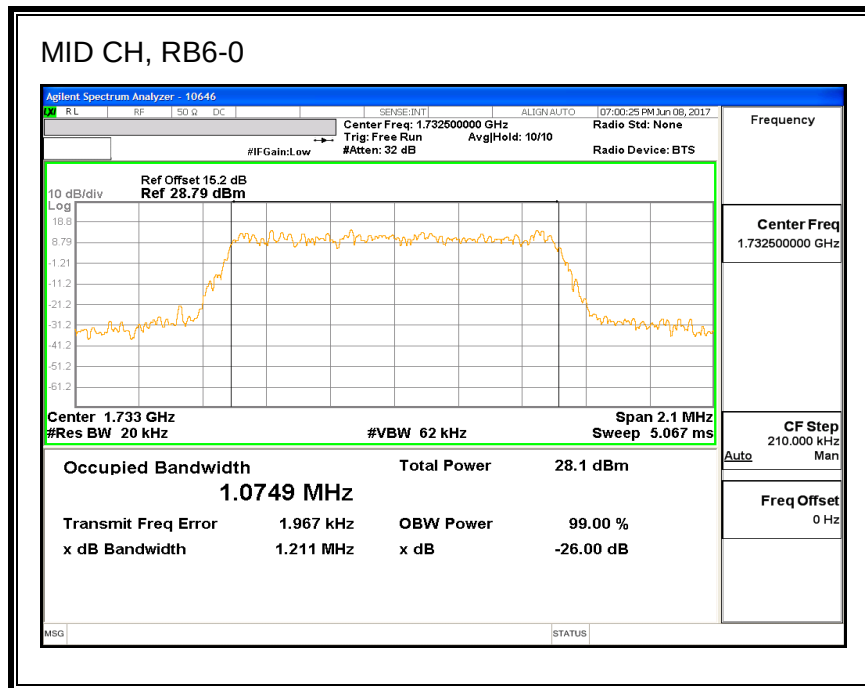
QPSK, (1.4 MHz BAND WIDTH)



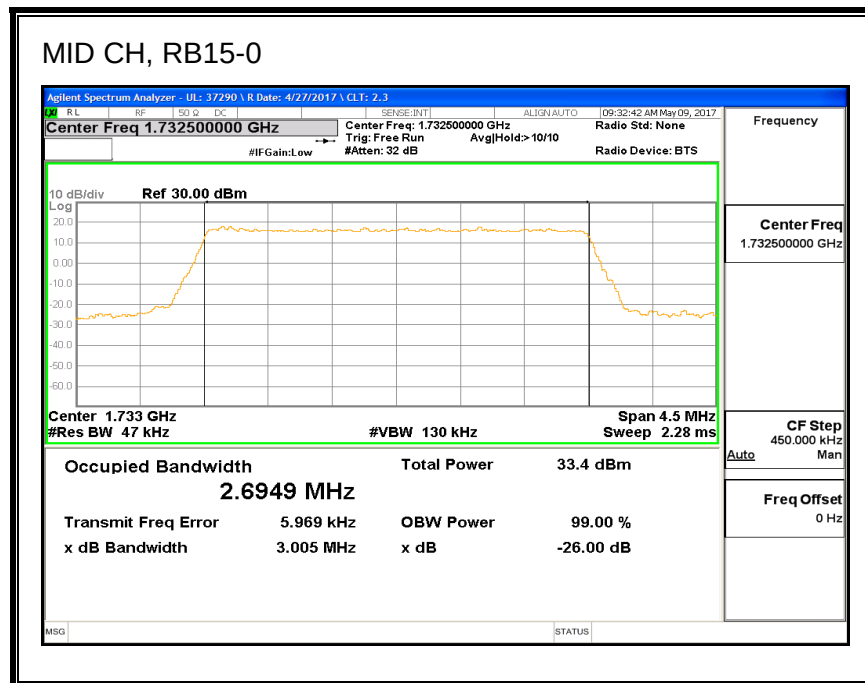
16QAM, (1.4 MHz BAND WIDTH)



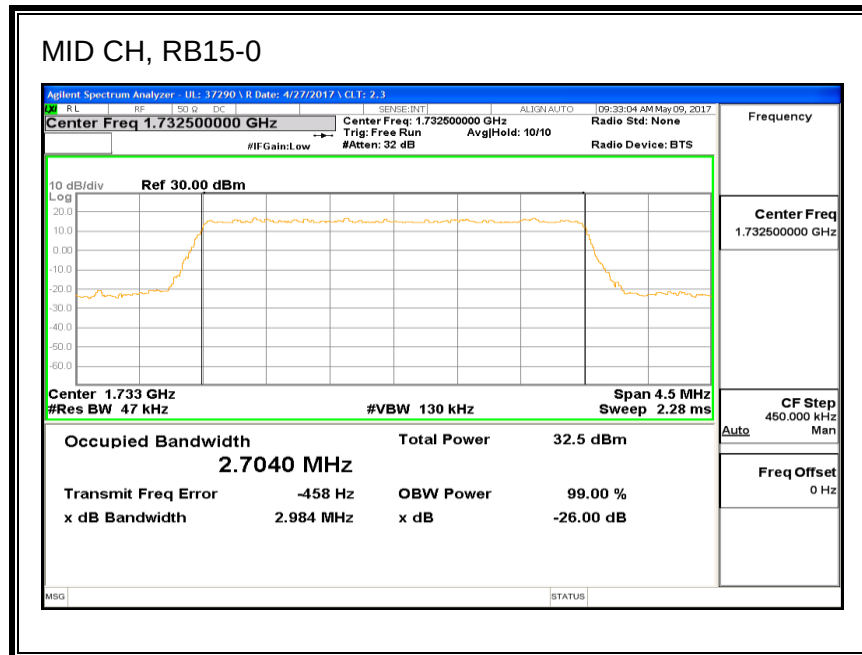
64QAM, (1.4 MHz BAND WIDTH)



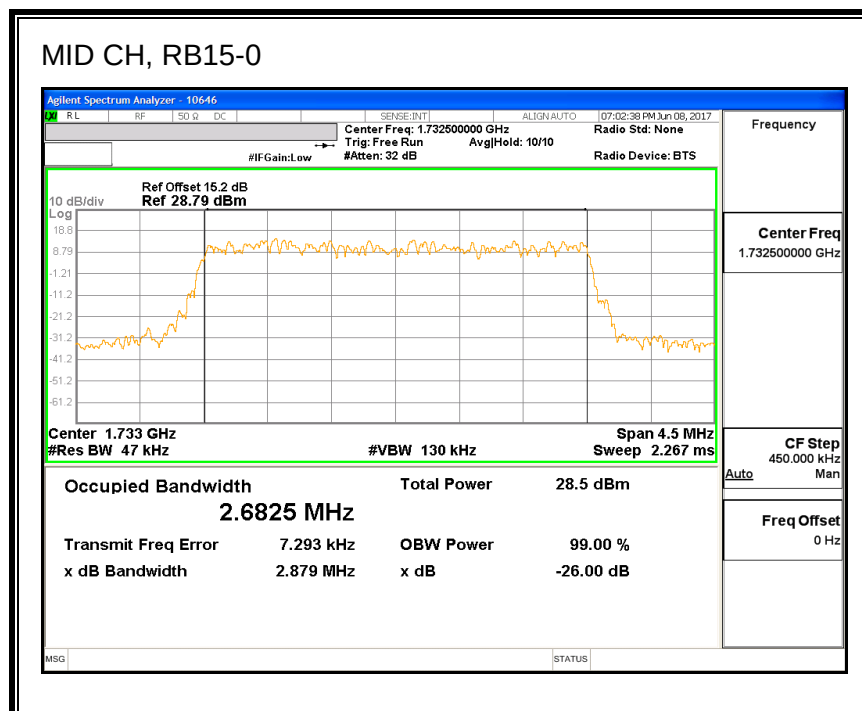
QPSK, (3.0 MHz BAND WIDTH)



16QAM, (3.0 MHz BAND WIDTH)

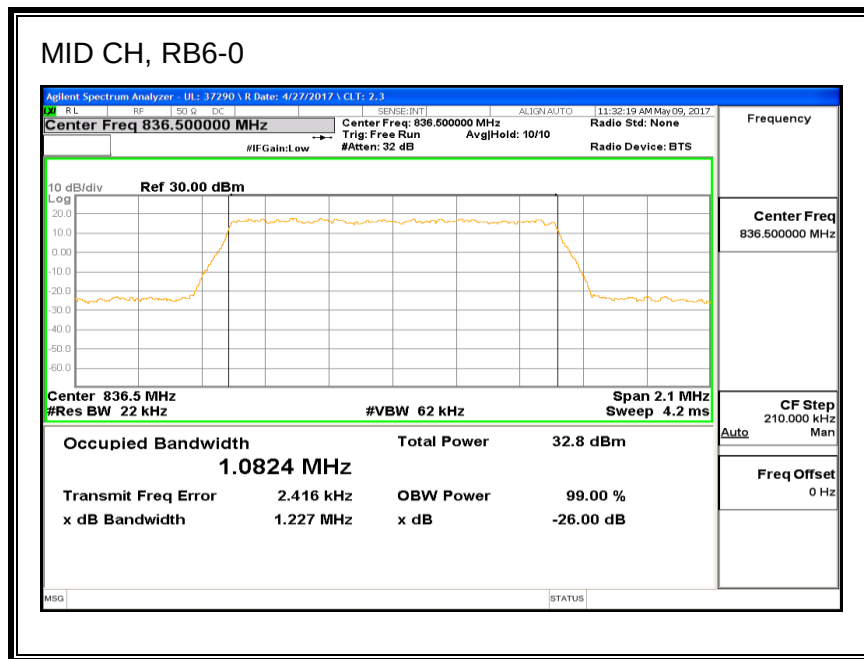


64QAM, (3.0 MHz BAND WIDTH)

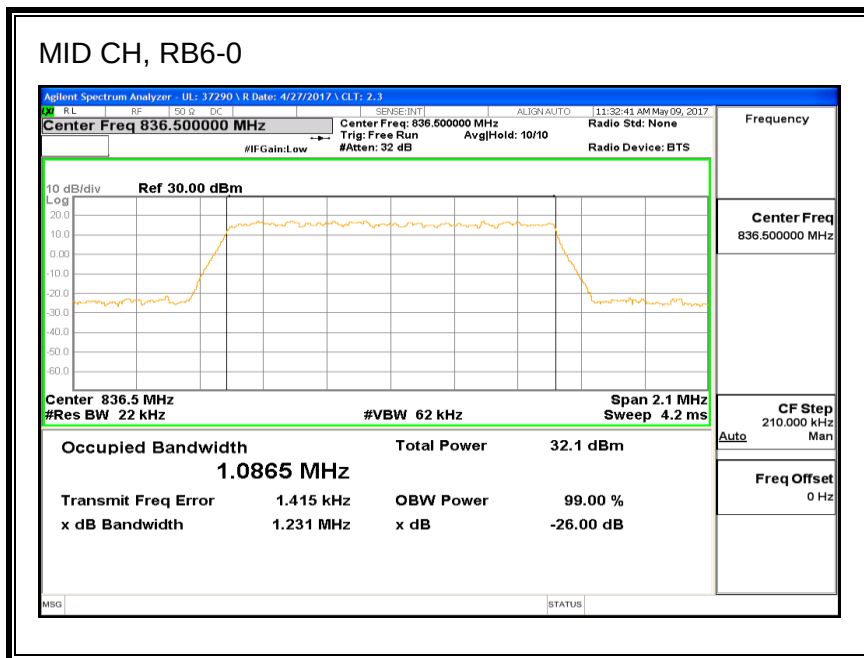


8.1.3. LTE BAND 5

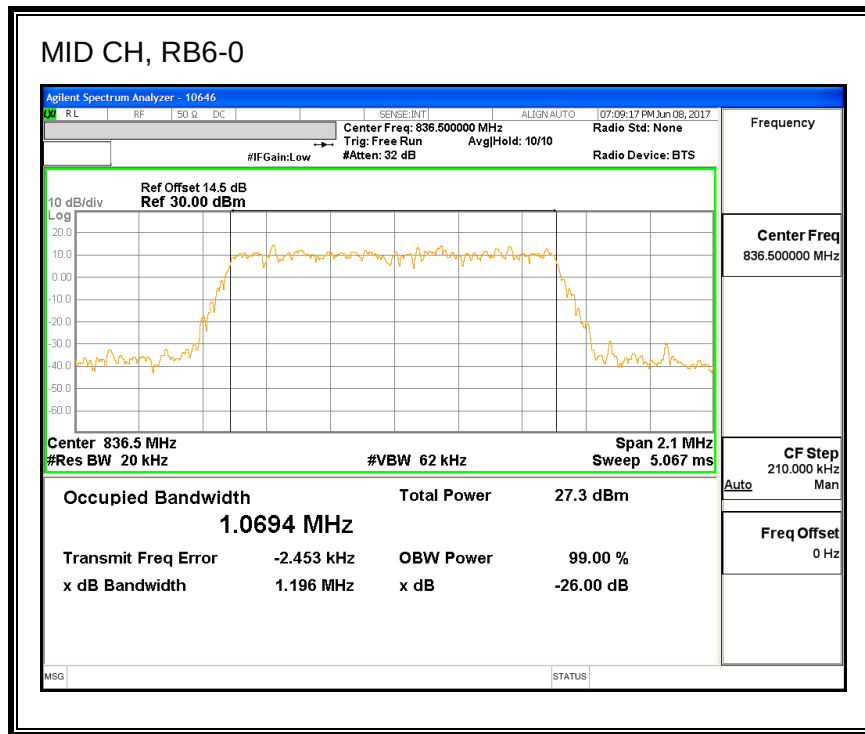
QPSK, (1.4 MHz BAND WIDTH)



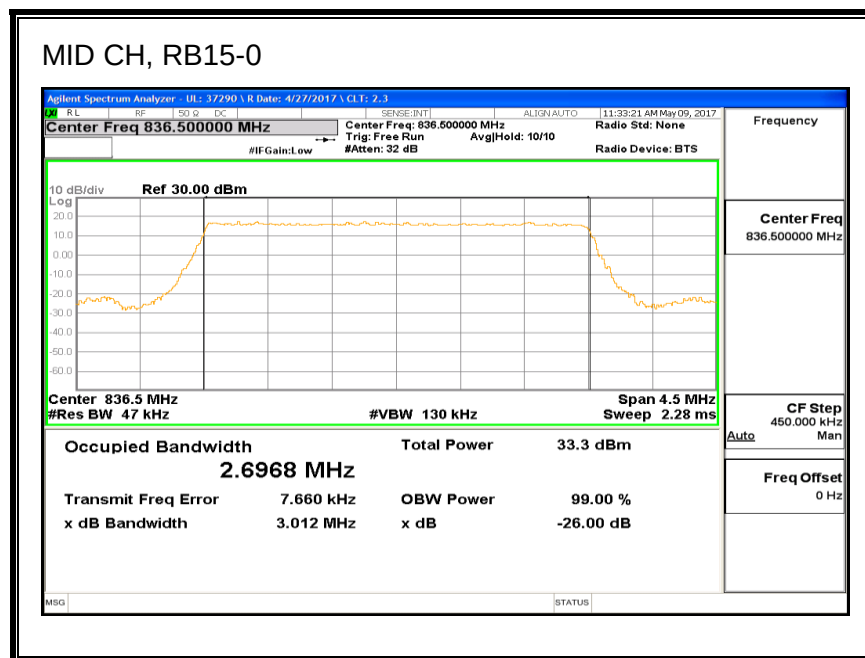
16QAM, (1.4 MHz BAND WIDTH)



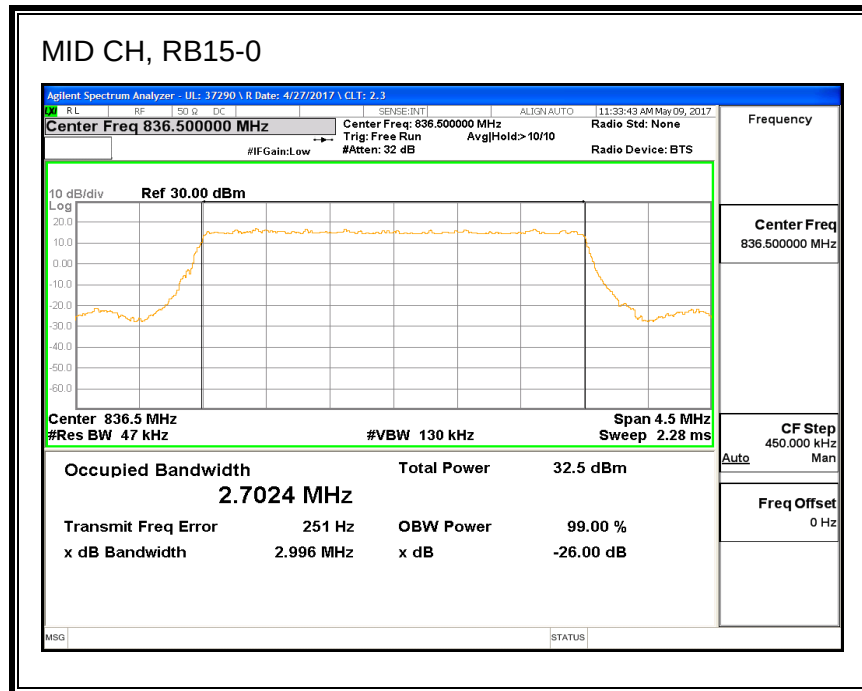
64QAM, (1.4 MHz BAND WIDTH)



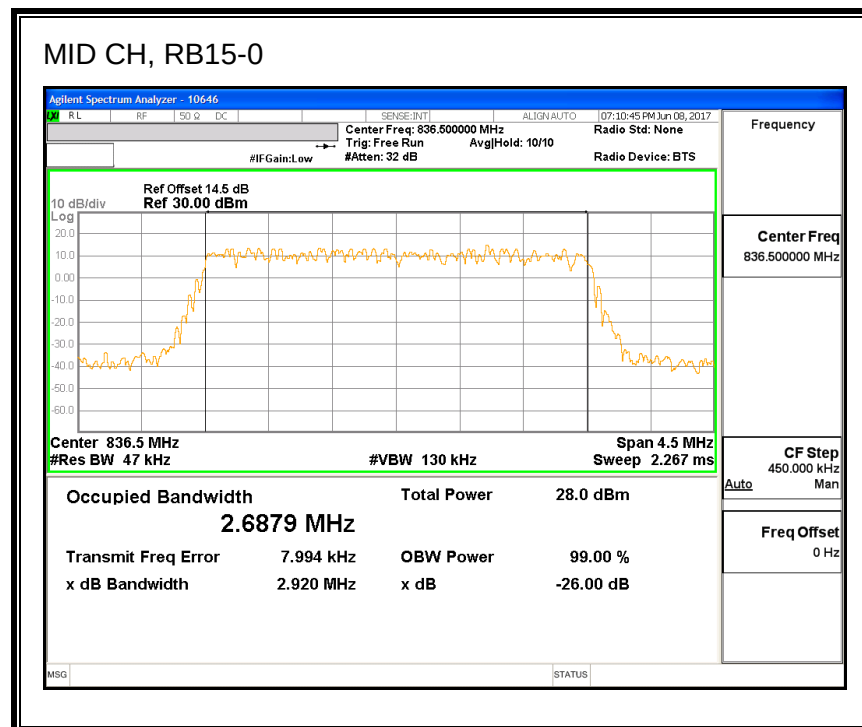
QPSK, (3.0 MHz BAND WIDTH)



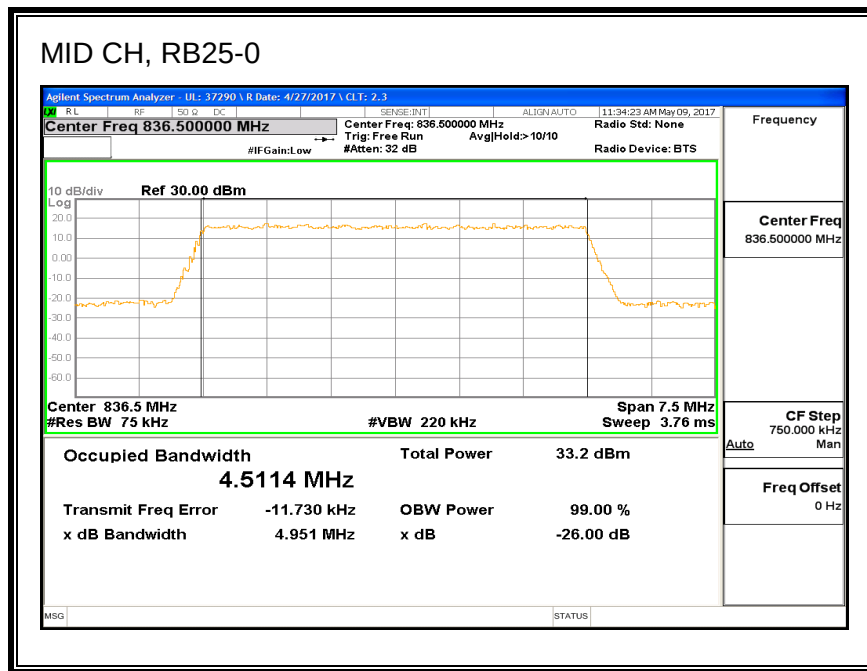
16QAM, (3.0 MHz BAND WIDTH)



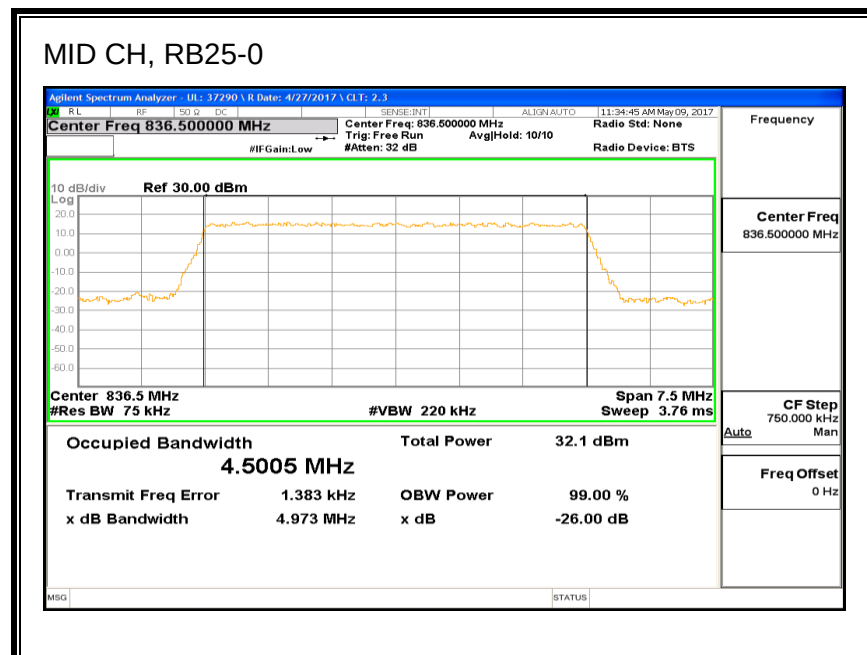
64QAM, (3.0 MHz BAND WIDTH)



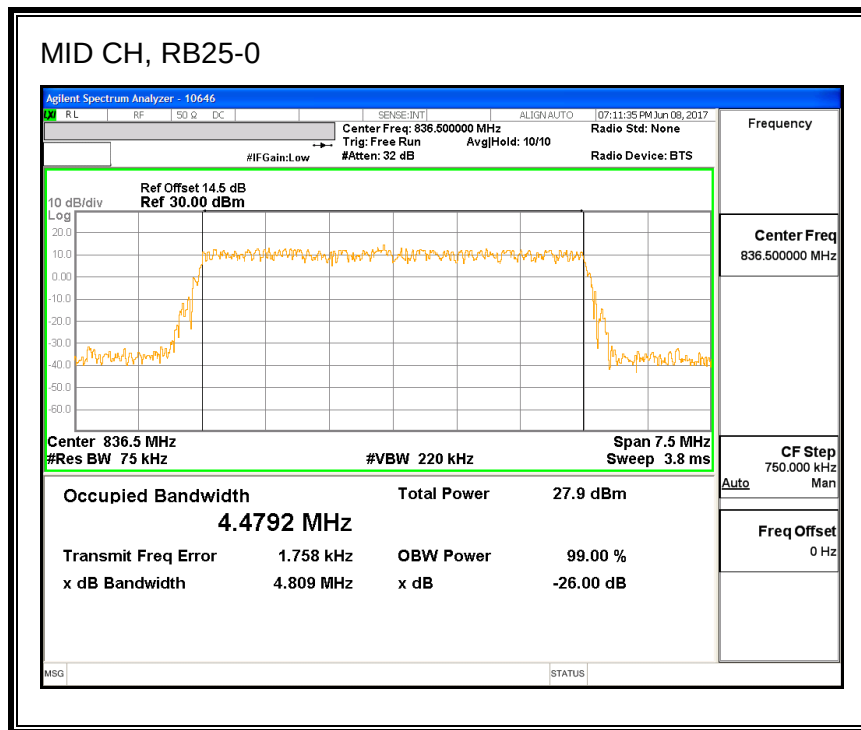
QPSK, (5.0 MHz BAND WIDTH)



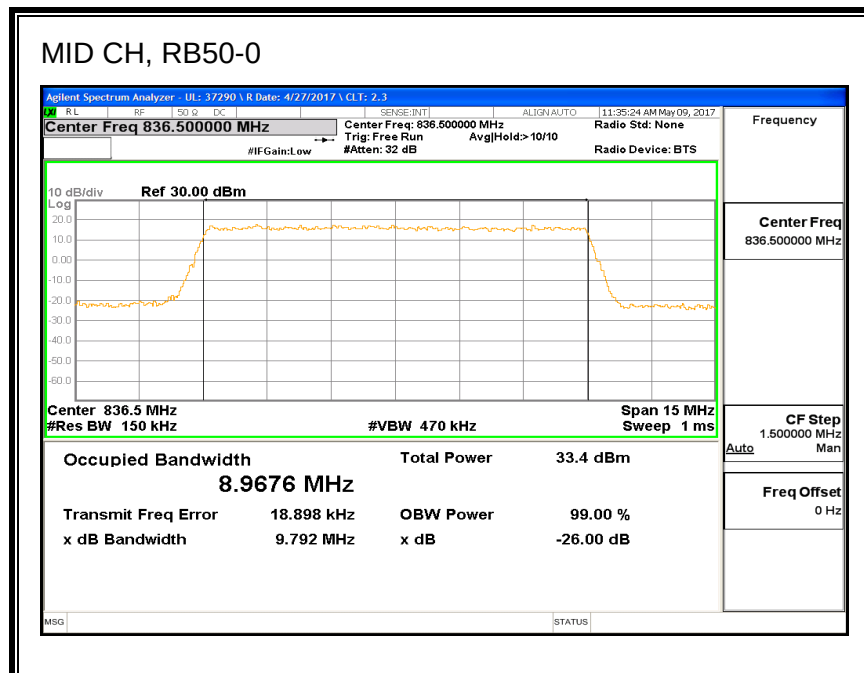
16QAM, (5.0 MHz BAND WIDTH)



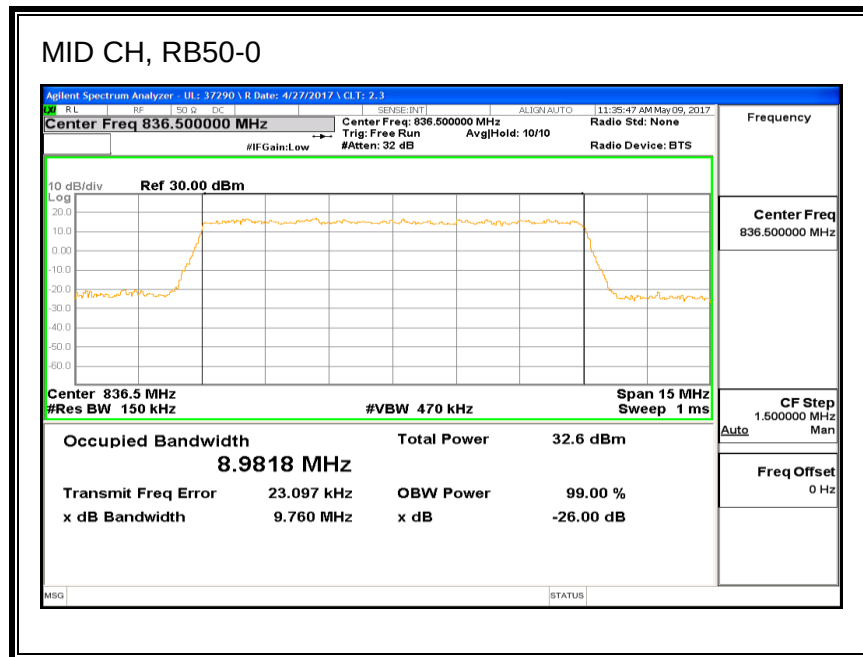
64QAM, (5.0 MHz BAND WIDTH)



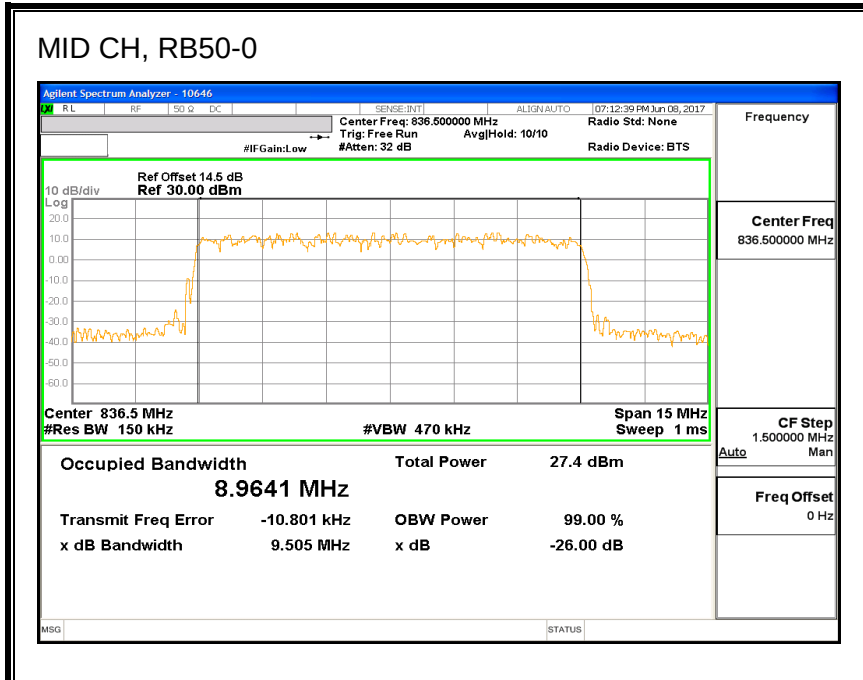
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)

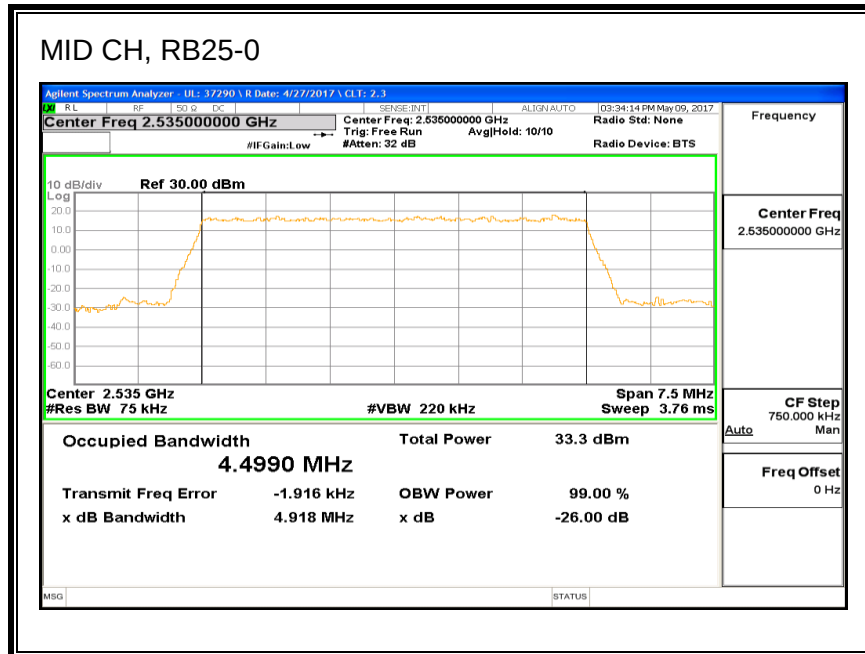


64QAM, (10.0 MHz BAND WIDTH)

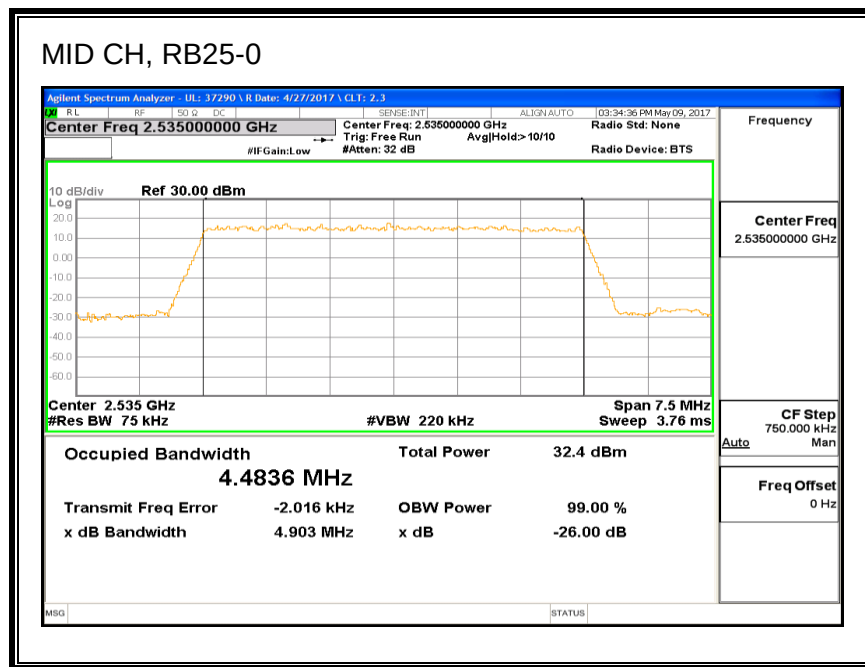


8.1.4. LTE BAND 7

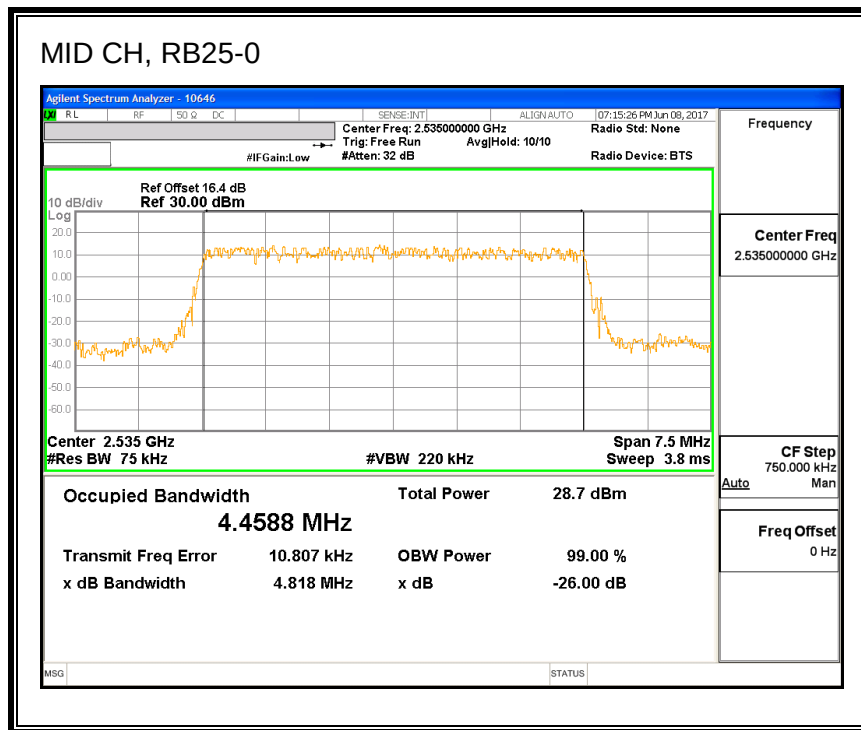
QPSK, (5.0 MHz BAND WIDTH)



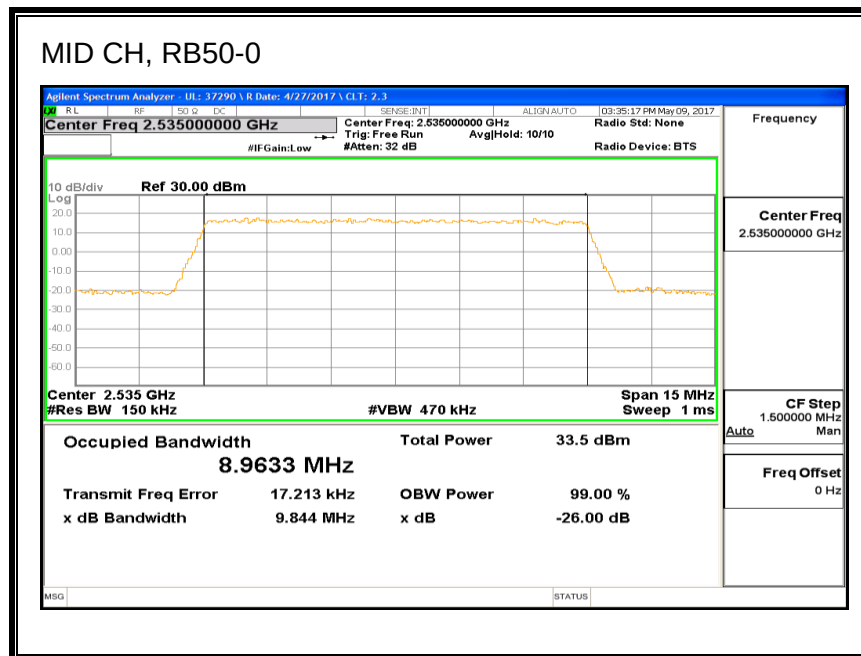
16QAM, (5.0 MHz BAND WIDTH)



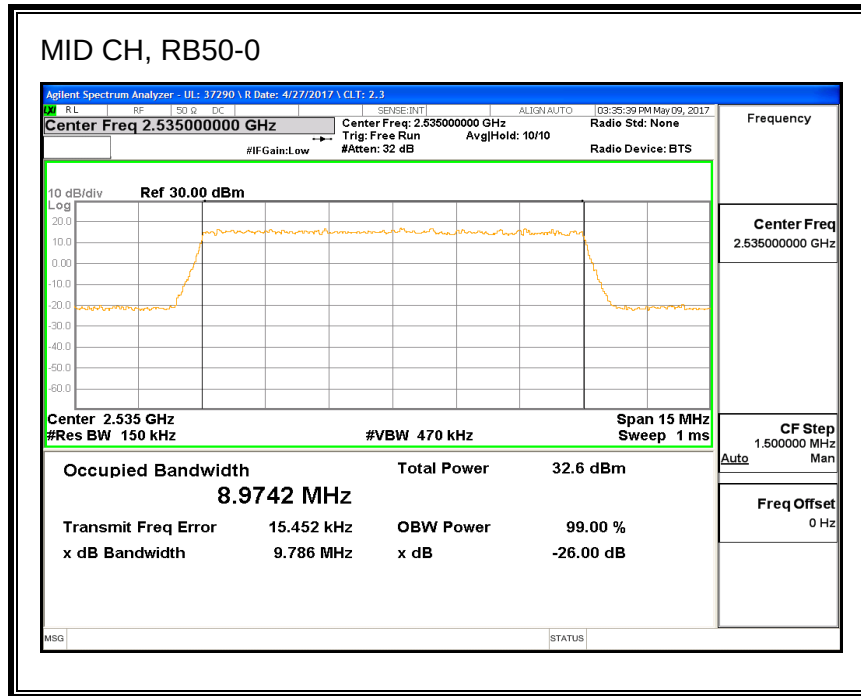
64QAM, (5.0 MHz BAND WIDTH)



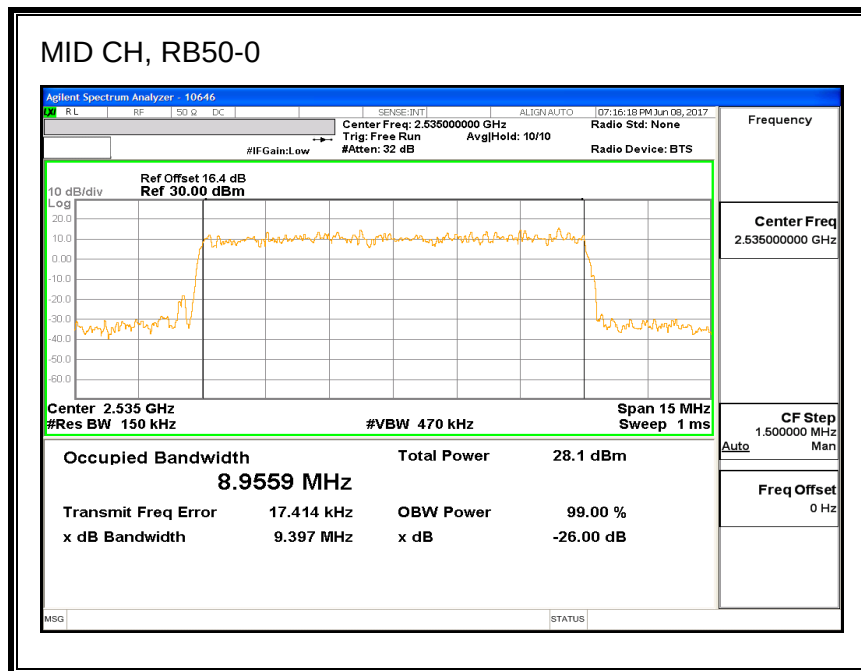
QPSK, (10.0 MHz BAND WIDTH)



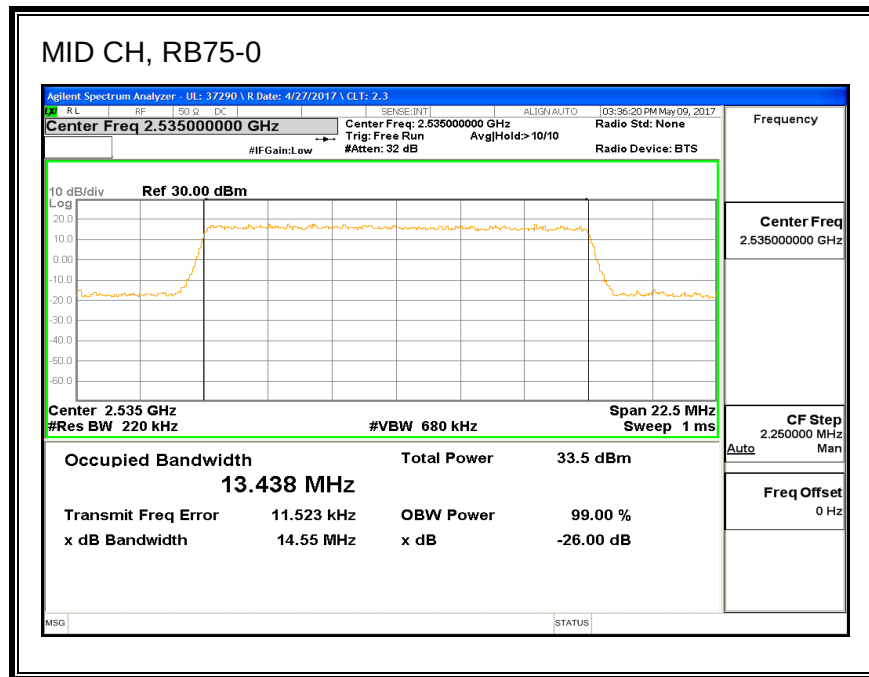
16QAM, (10.0 MHz BAND WIDTH)



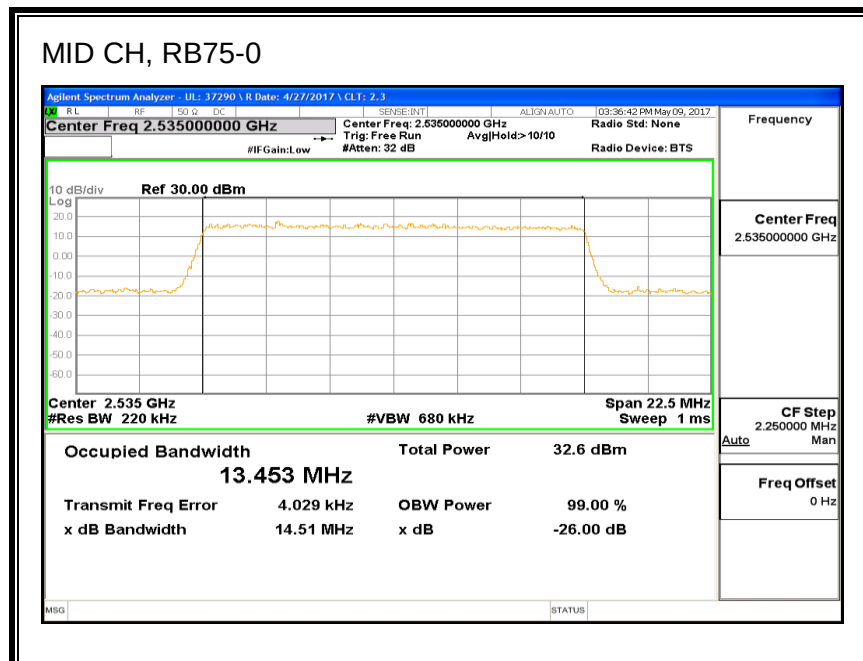
64QAM, (10.0 MHz BAND WIDTH)



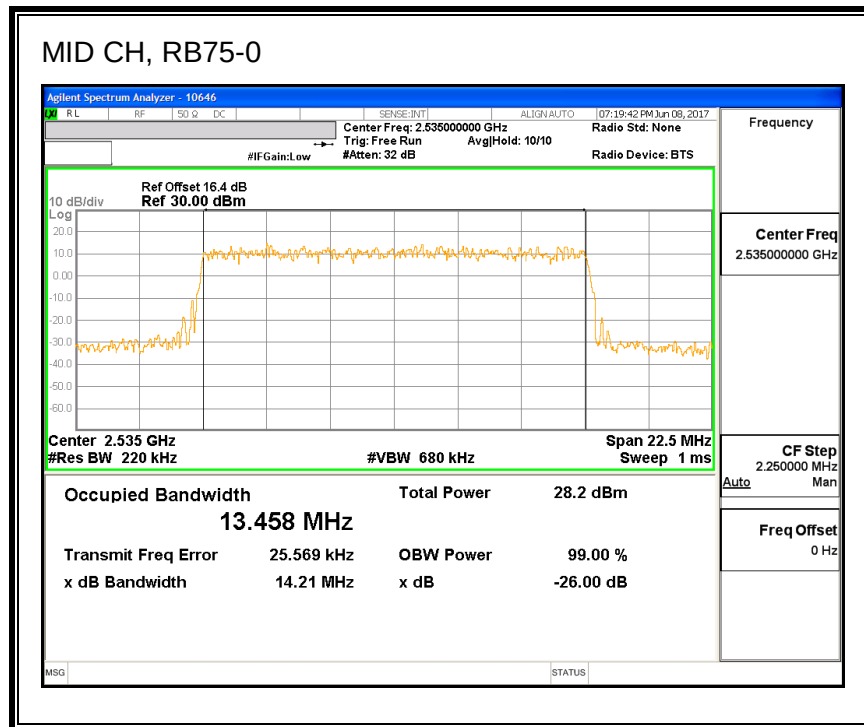
QPSK, (15.0 MHz BAND WIDTH)



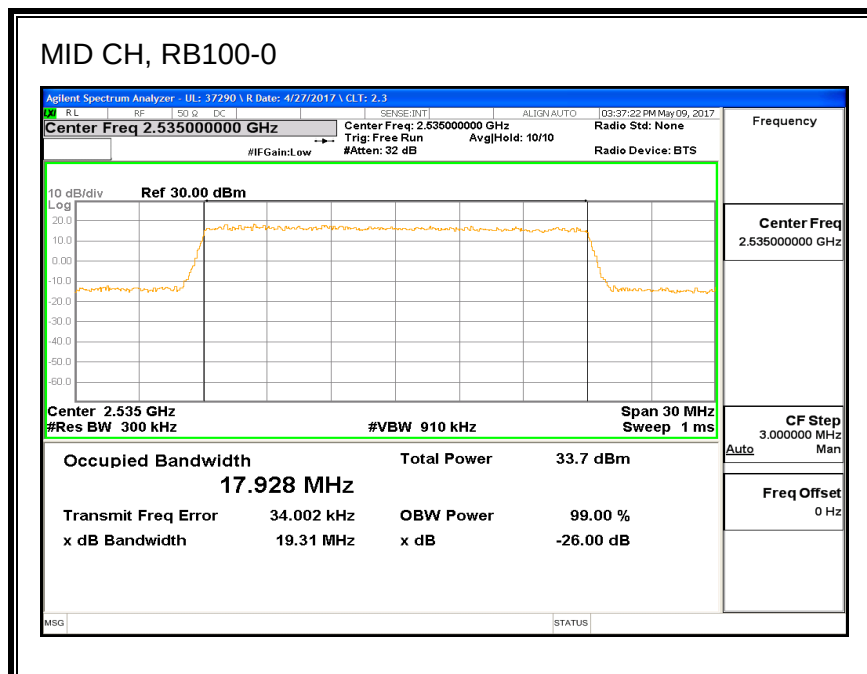
16QAM, (15.0 MHz BAND WIDTH)



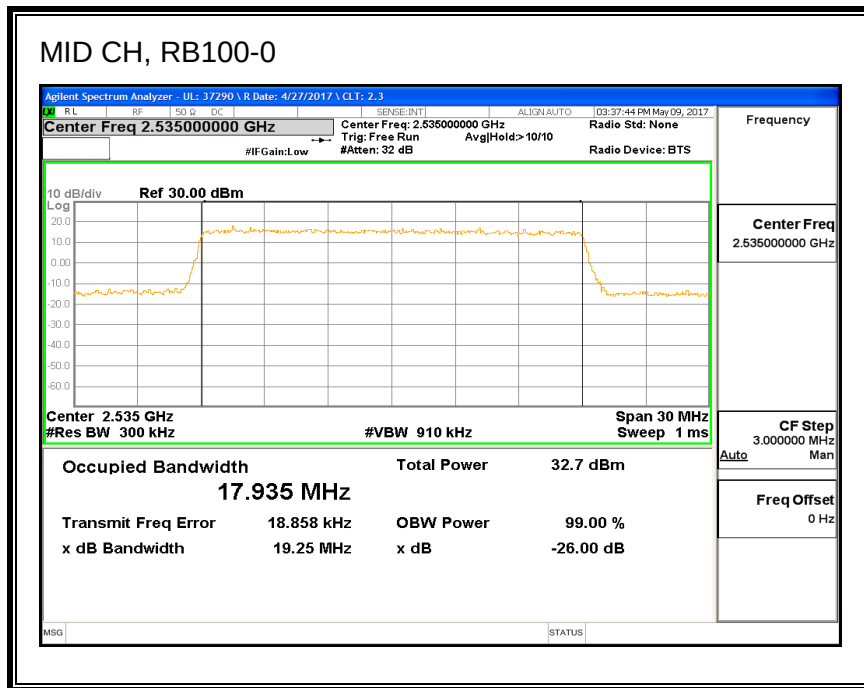
64QAM, (15.0 MHz BAND WIDTH)



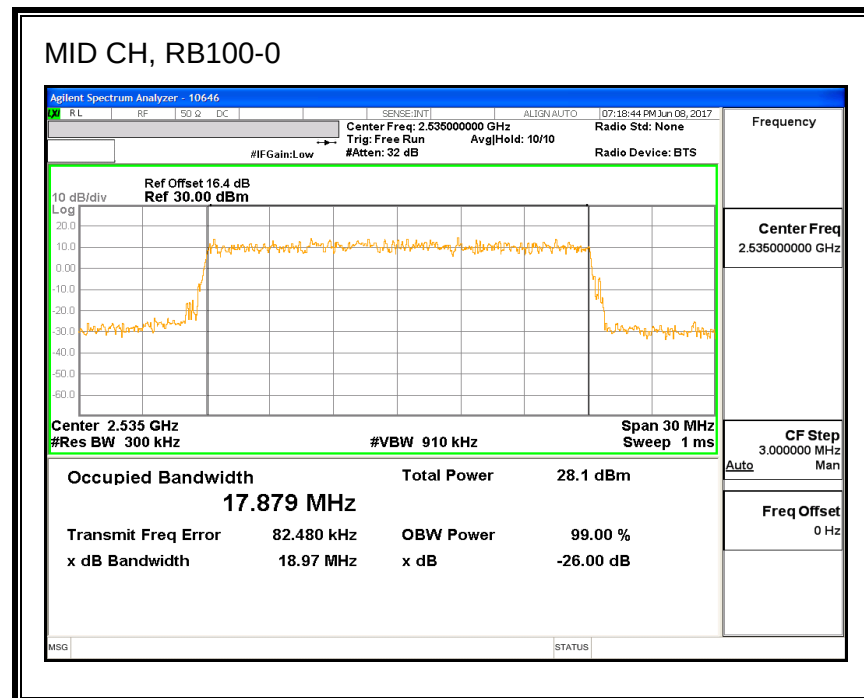
QPSK, (20.0 MHz BAND WIDTH)



16QAM, (20.0 MHz BAND WIDTH)

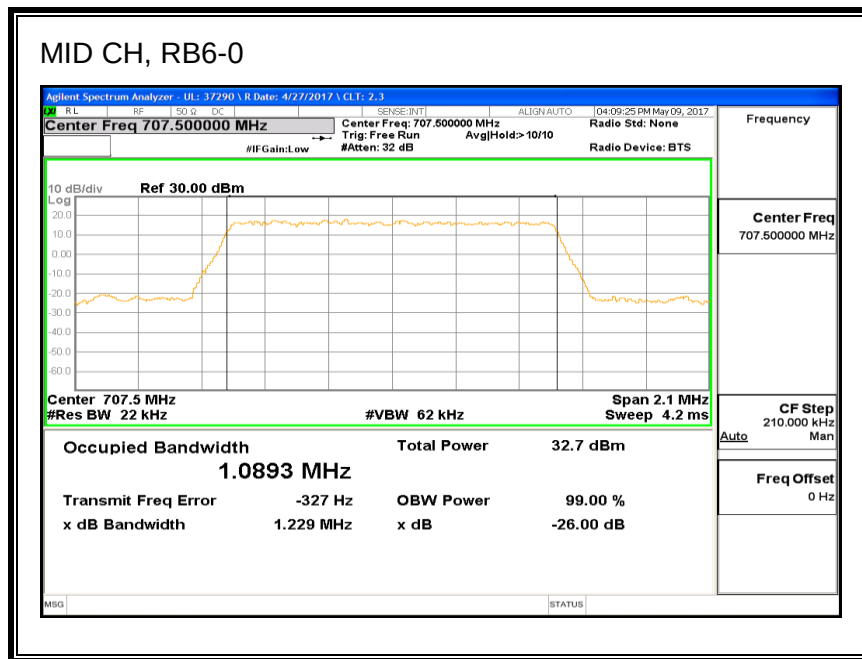


64QAM, (20.0 MHz BAND WIDTH)

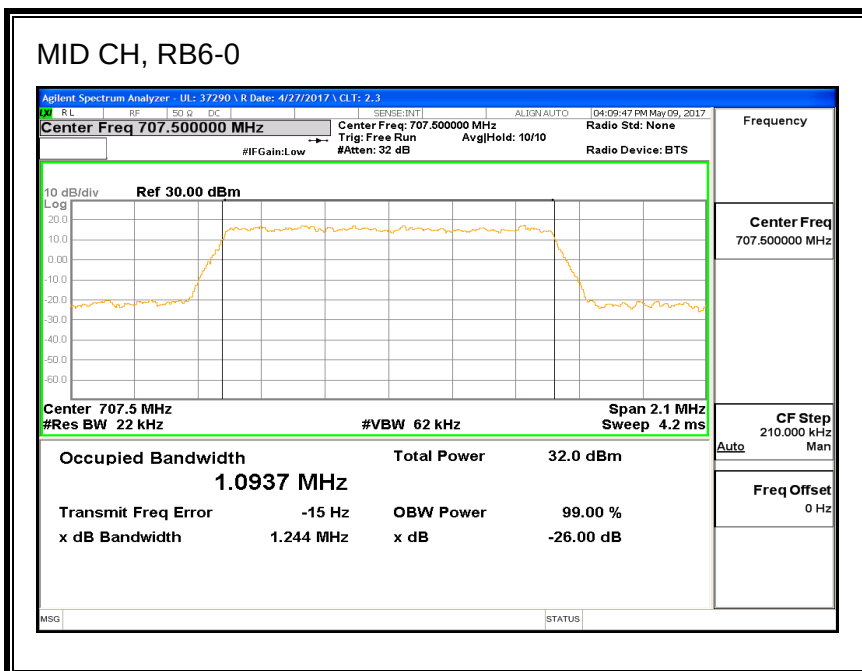


8.1.5. LTE BAND 12

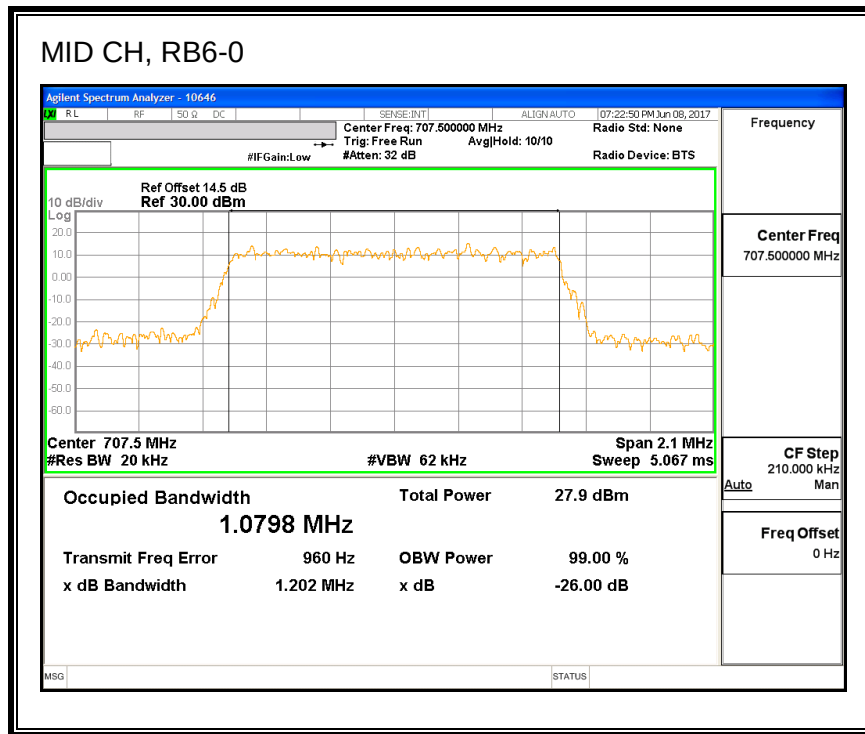
QPSK, (1.4 MHz BAND WIDTH)



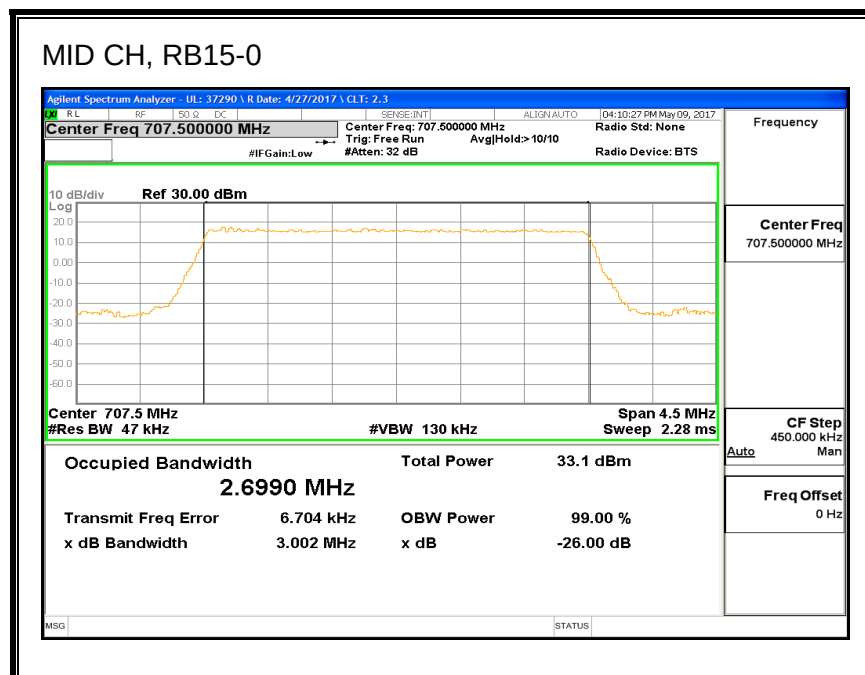
16QAM, (1.4 MHz BAND WIDTH)



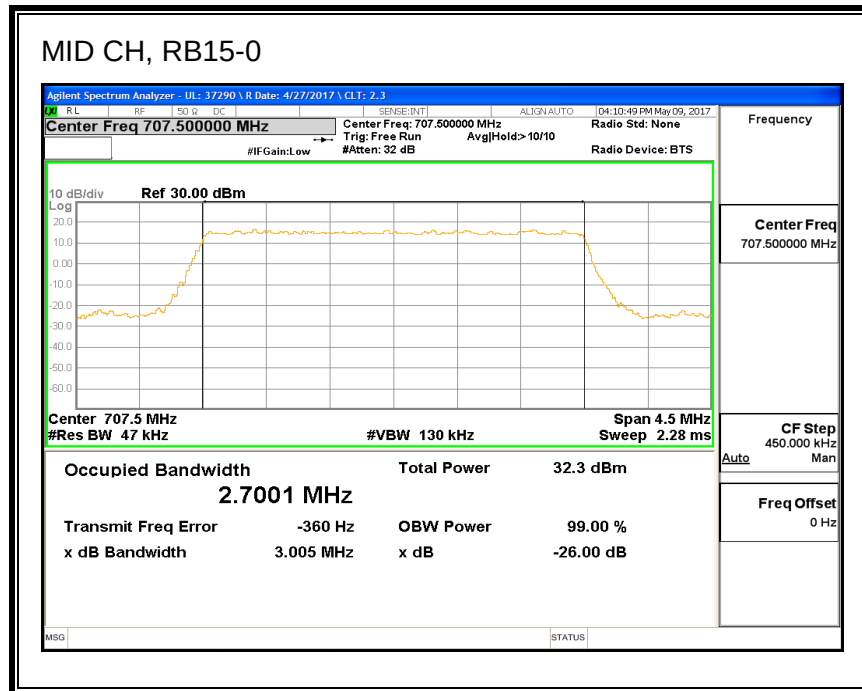
64QAM, (1.4 MHz BAND WIDTH)



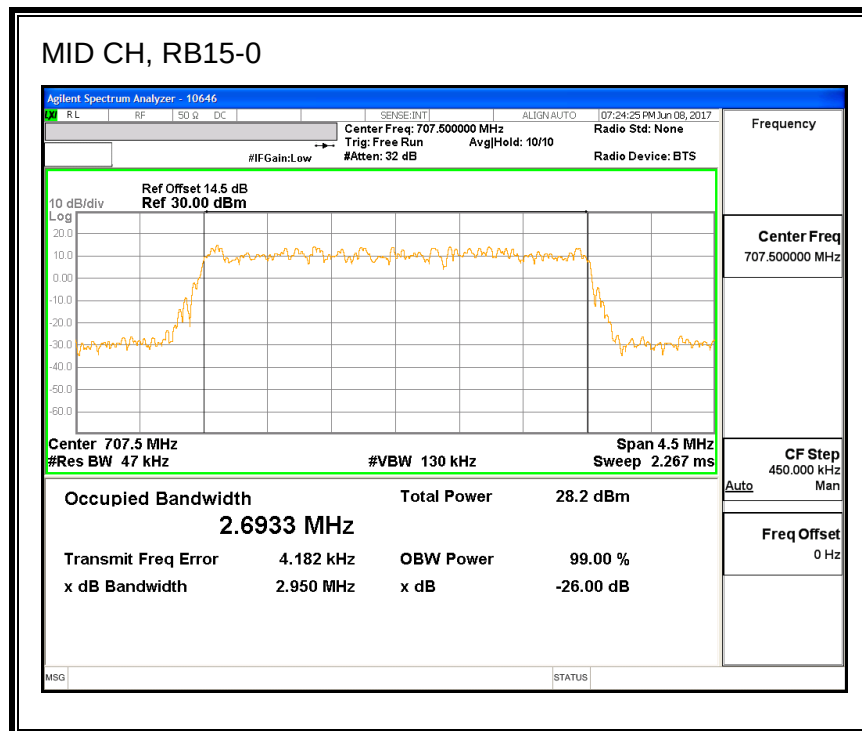
QPSK, (3.0 MHz BAND WIDTH)



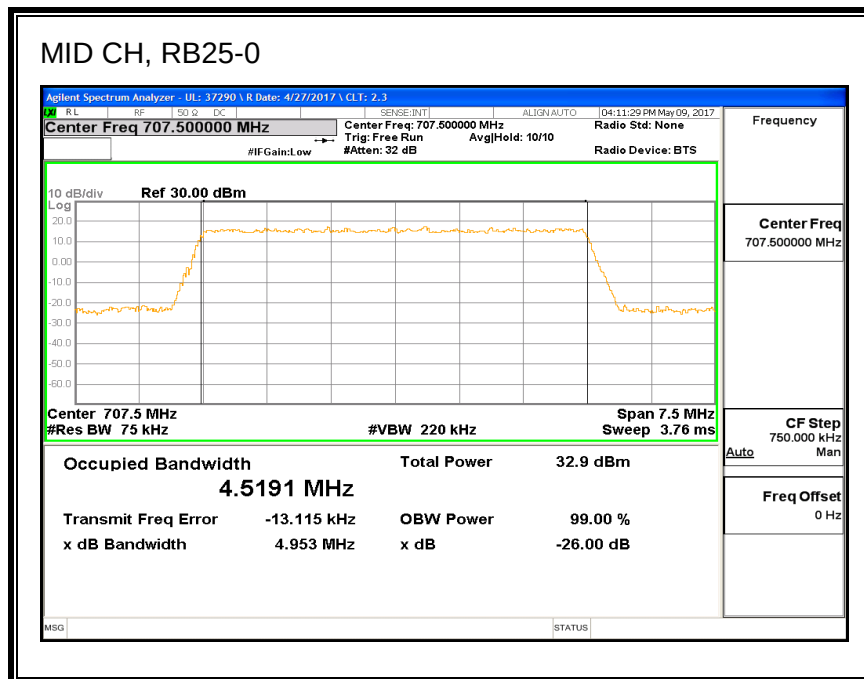
16QAM, (3.0 MHz BAND WIDTH)



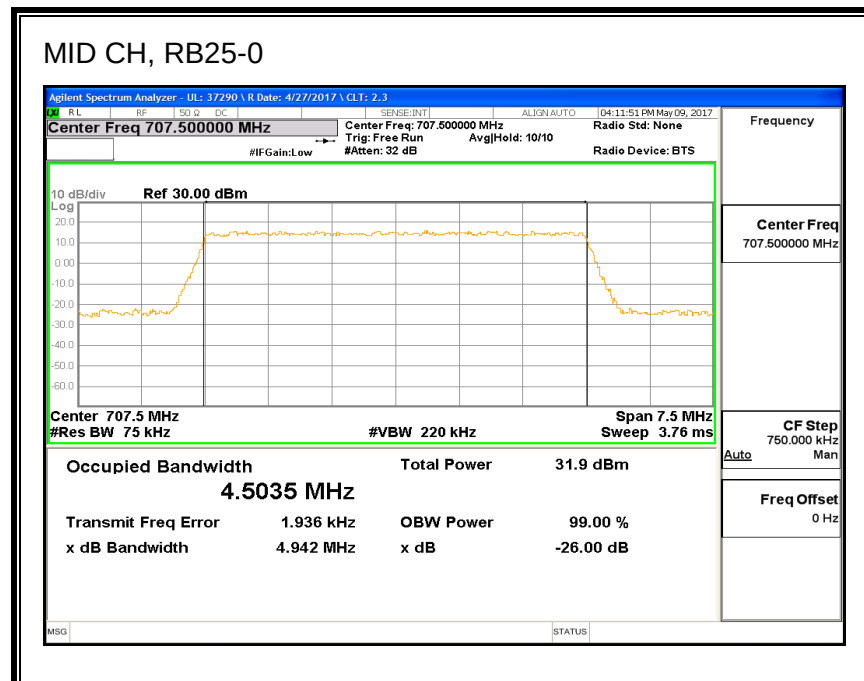
64QAM, (3.0 MHz BAND WIDTH)



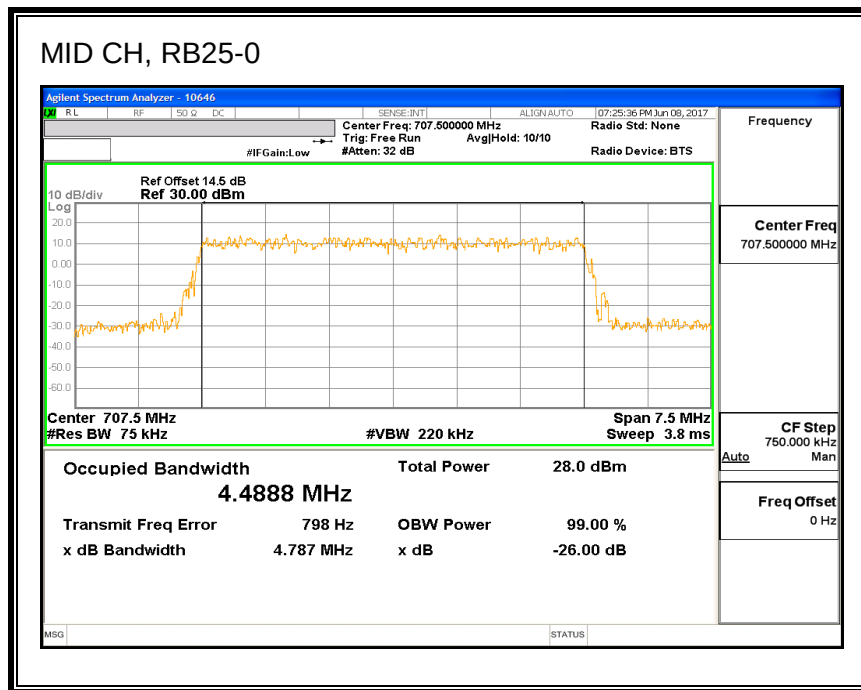
QPSK, (5.0 MHz BAND WIDTH)



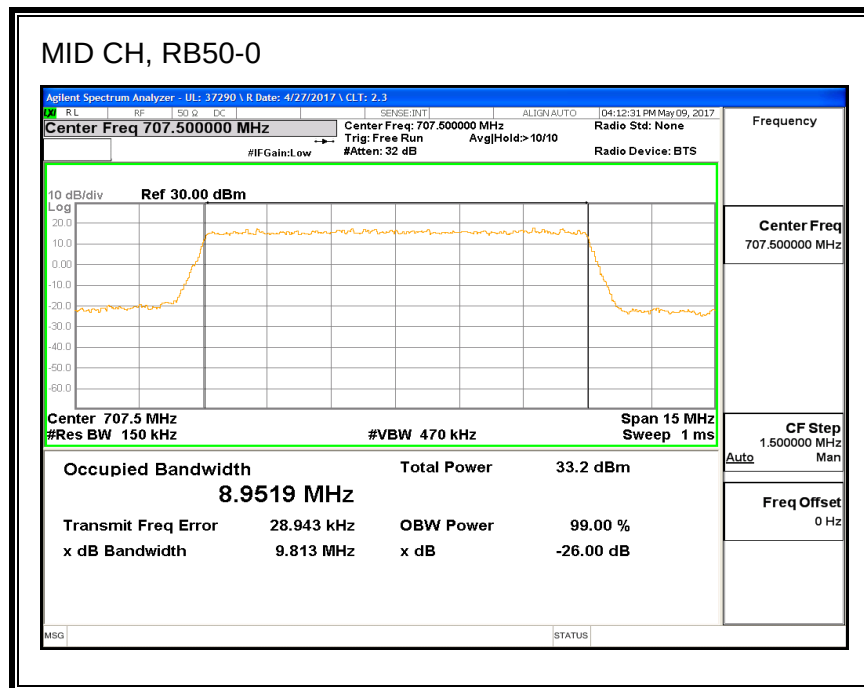
16QAM, (5.0 MHz BAND WIDTH)



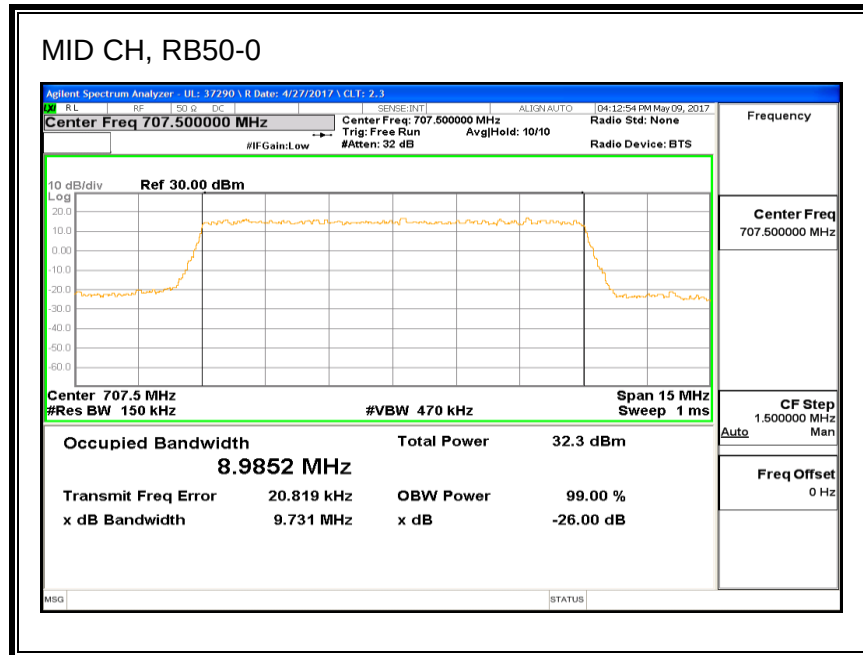
64QAM, (5.0 MHz BAND WIDTH)



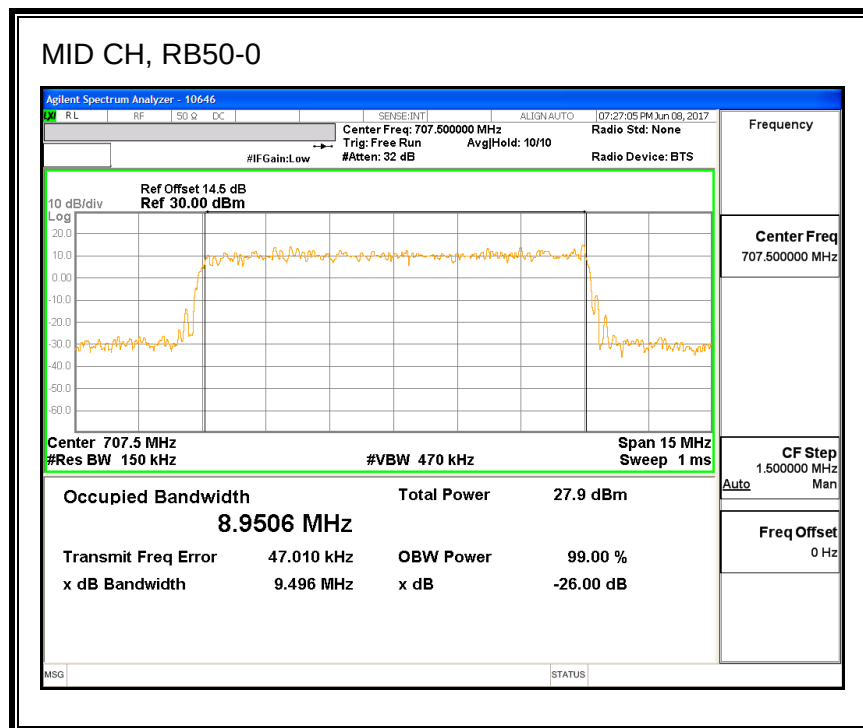
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)

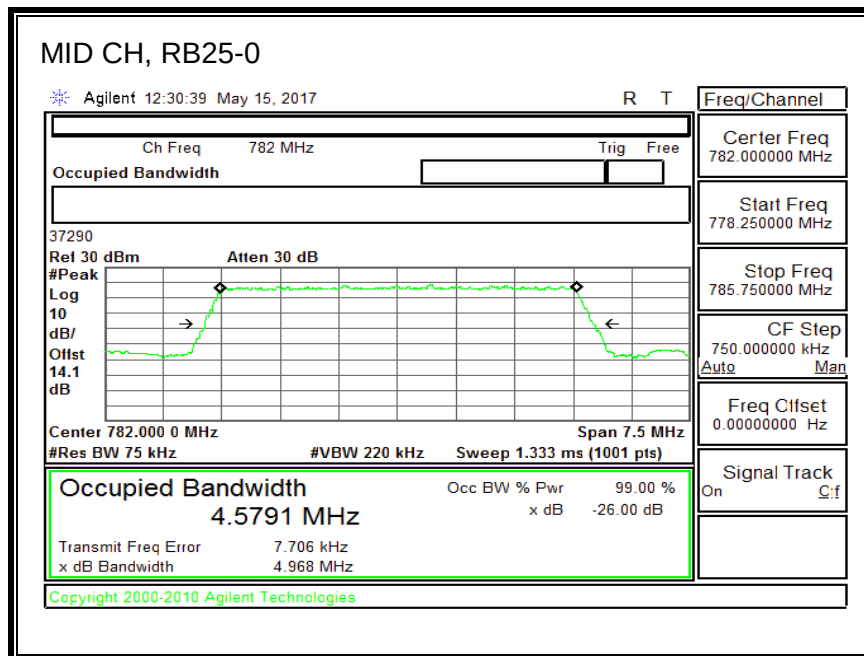


64QAM, (10.0 MHz BAND WIDTH)

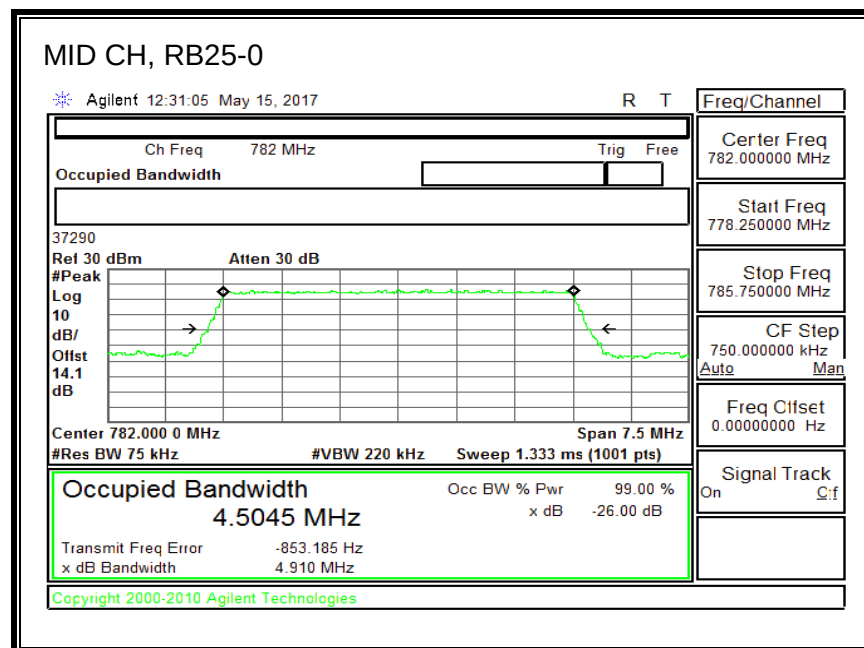


8.1.6. LTE BAND 13

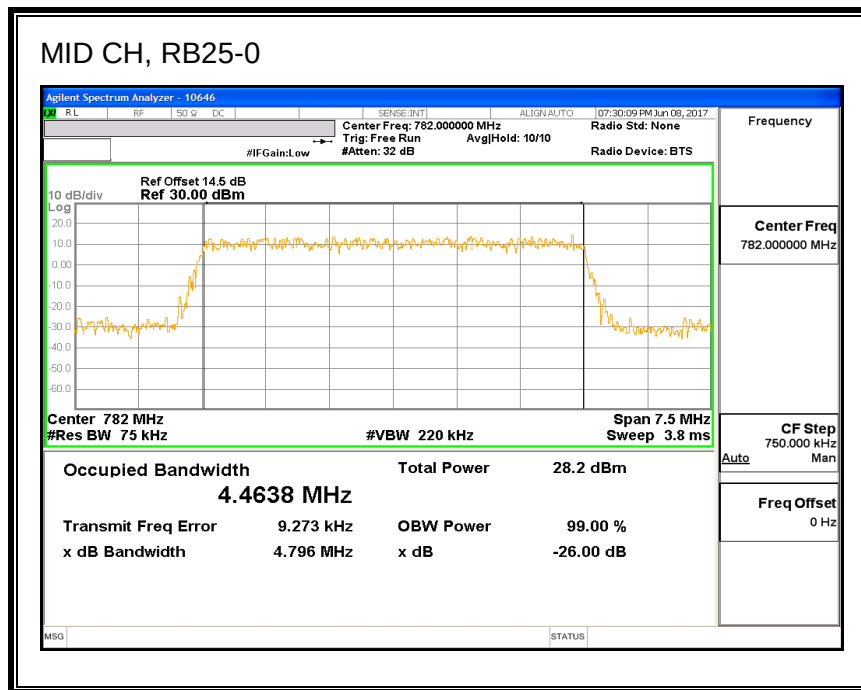
QPSK, (5.0 MHz BAND WIDTH)



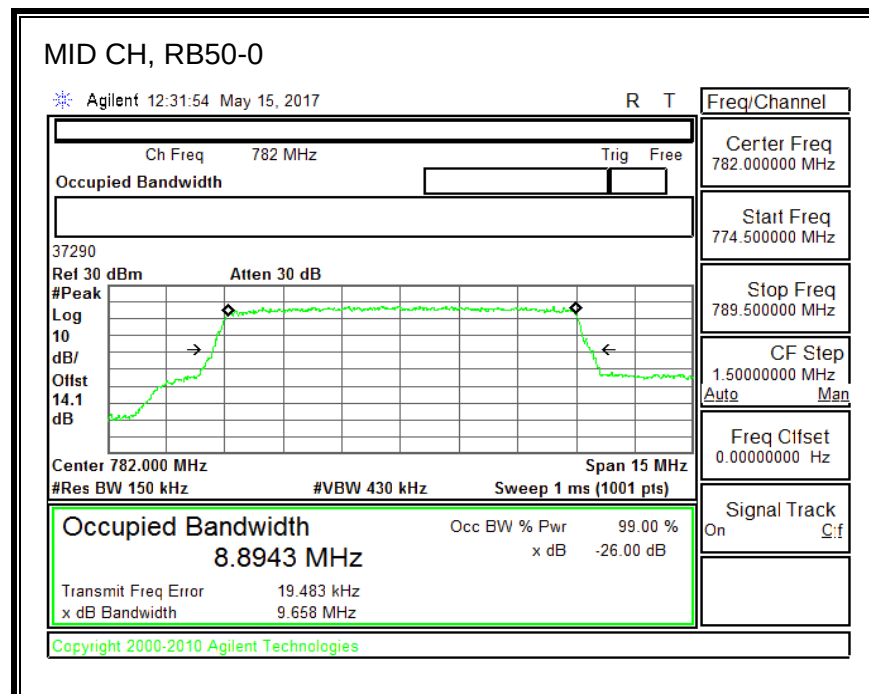
16QAM, (5.0 MHz BAND WIDTH)



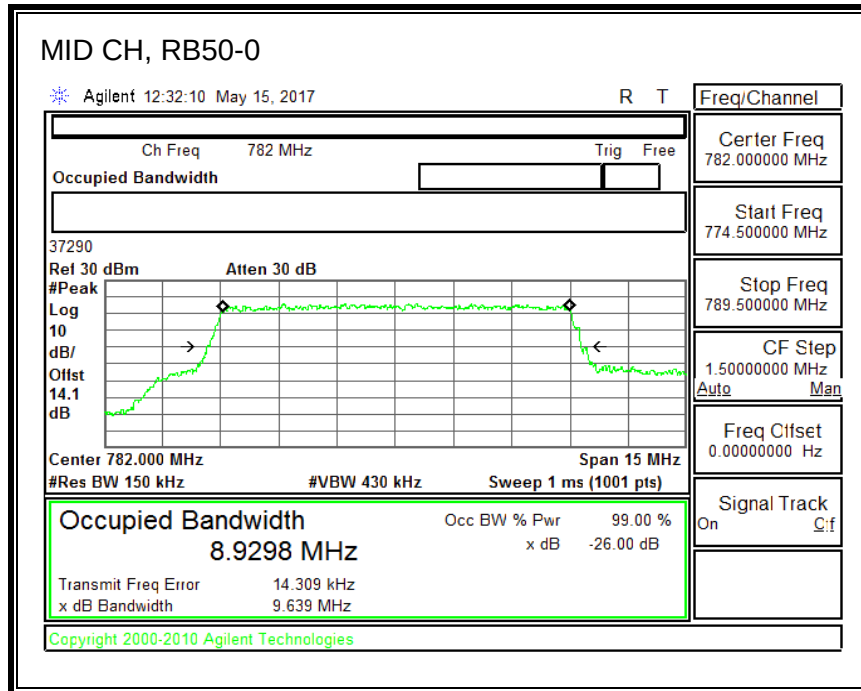
64QAM, (5.0 MHz BAND WIDTH)



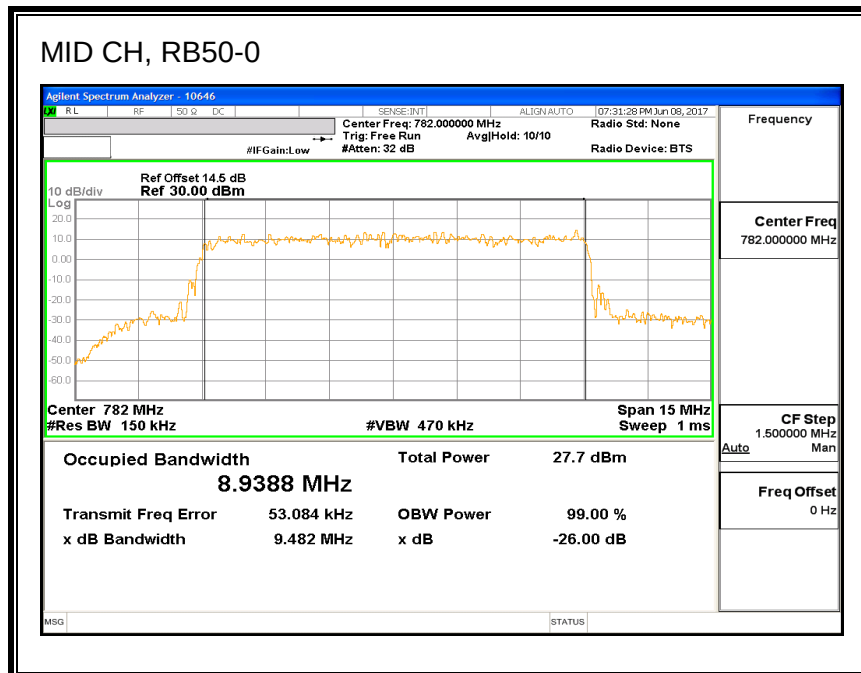
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)

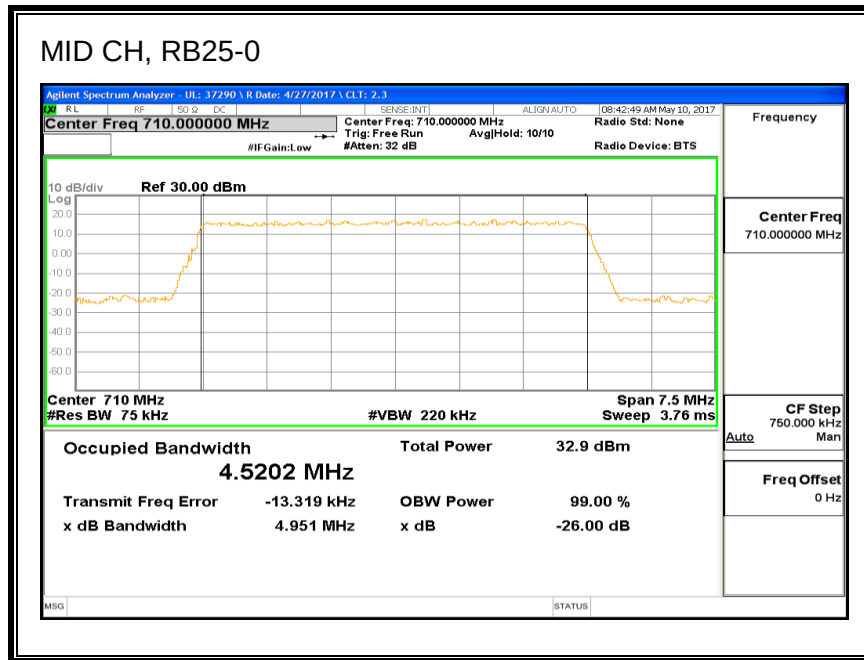


64QAM, (10.0 MHz BAND WIDTH)

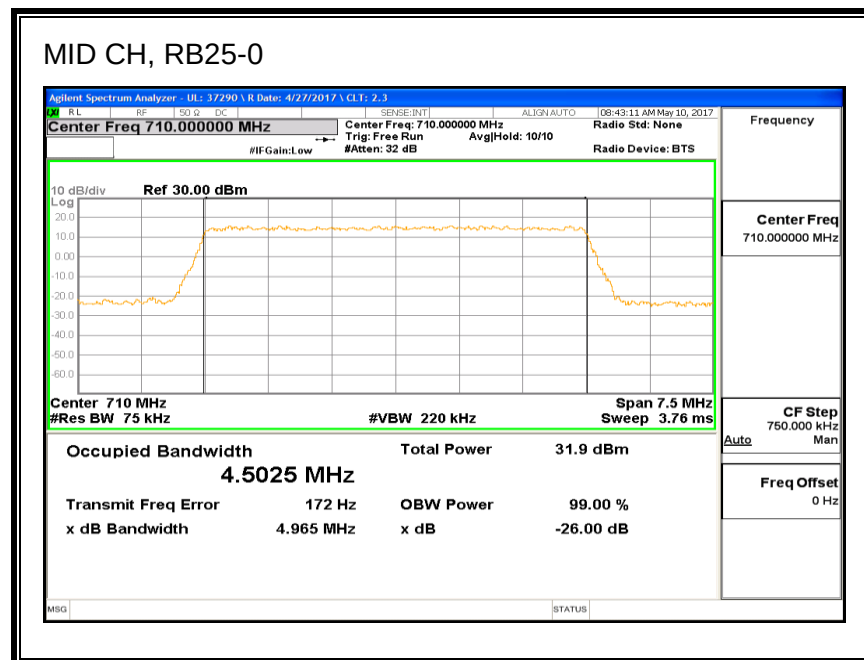


8.1.7. LTE BAND 17

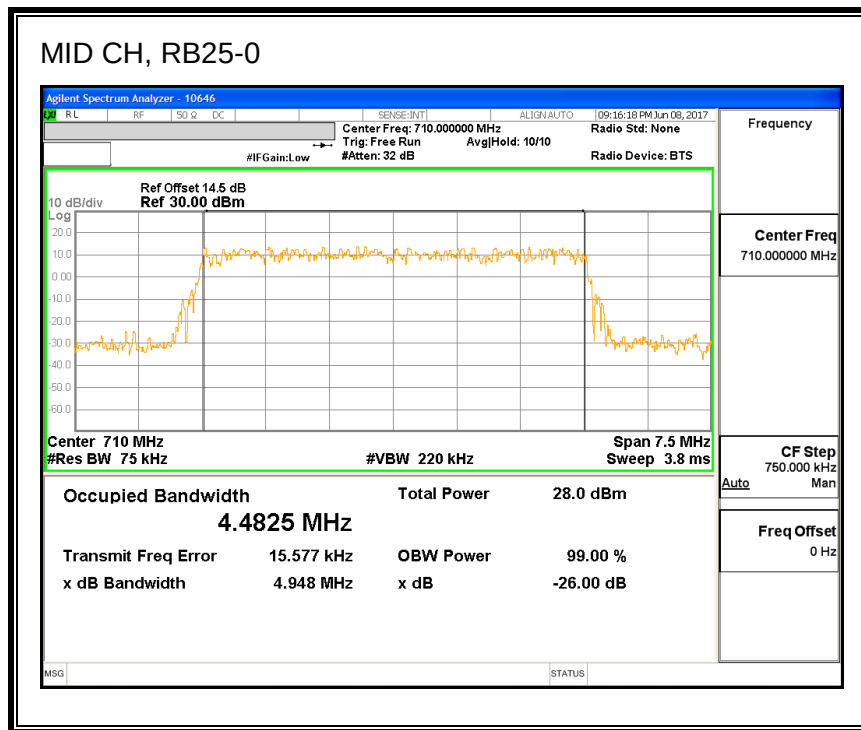
QPSK, (5.0 MHz BAND WIDTH)



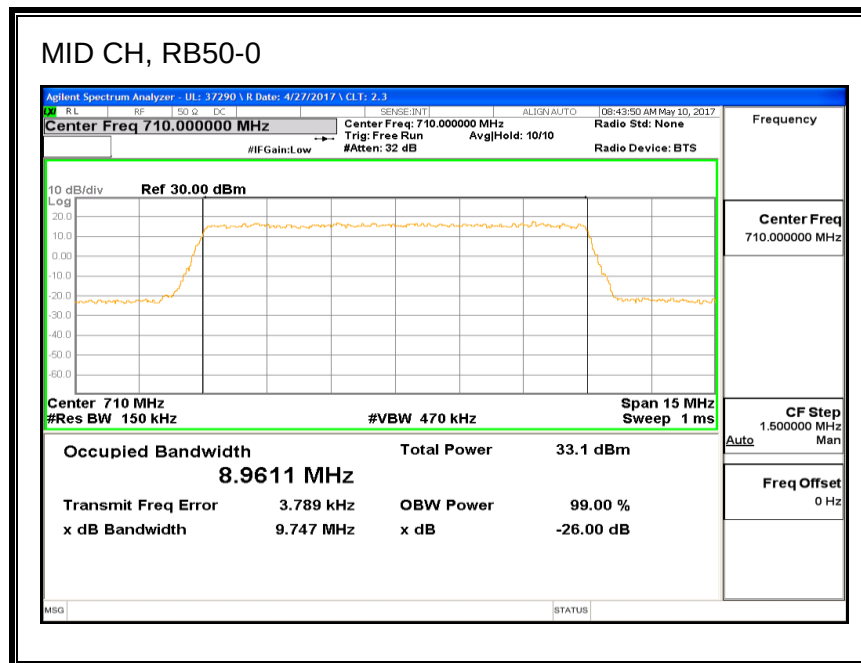
16QAM, (5.0 MHz BAND WIDTH)



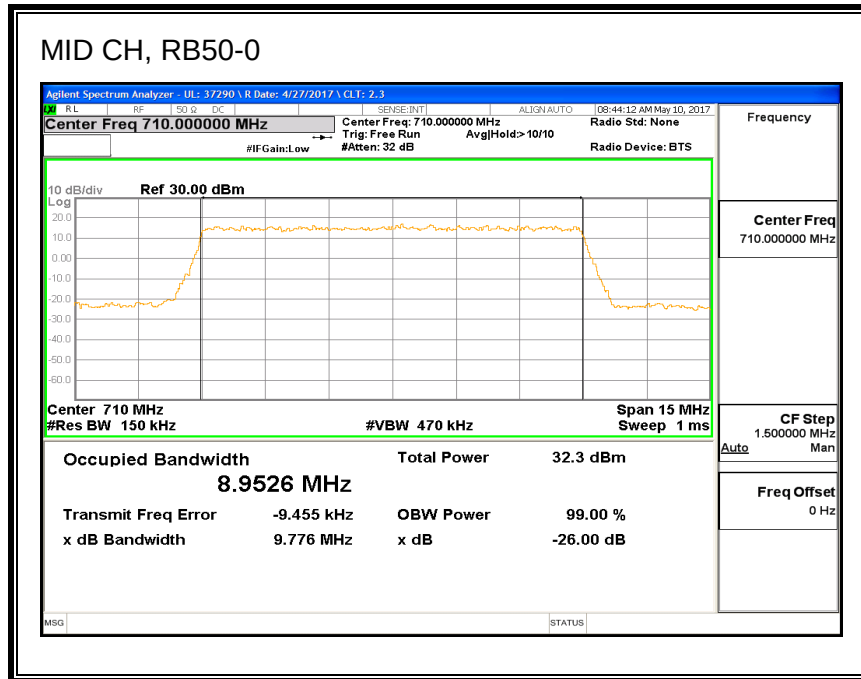
64QAM, (5.0 MHz BAND WIDTH)



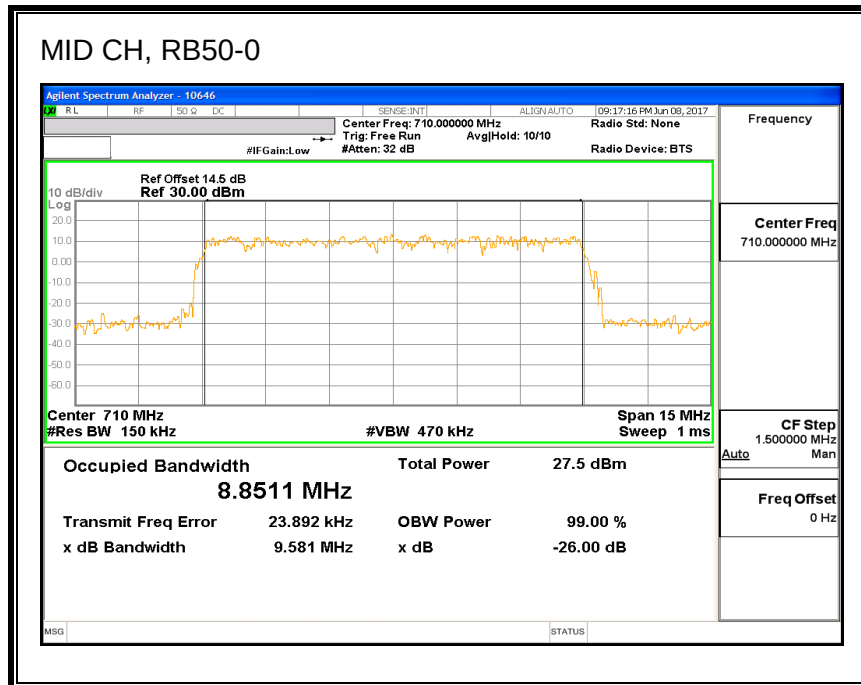
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)

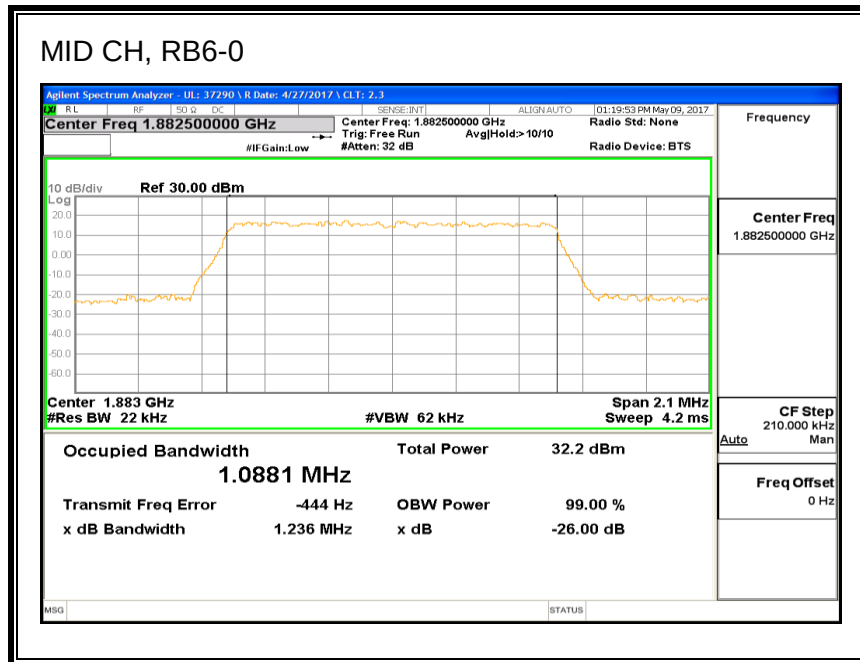


64QAM, (10.0 MHz BAND WIDTH)

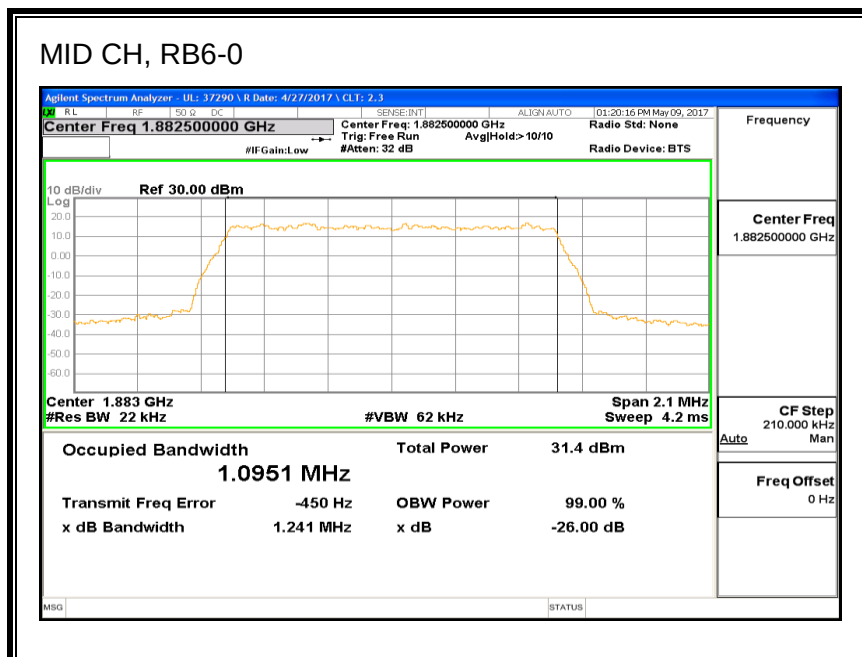


8.1.8. LTE BAND 25

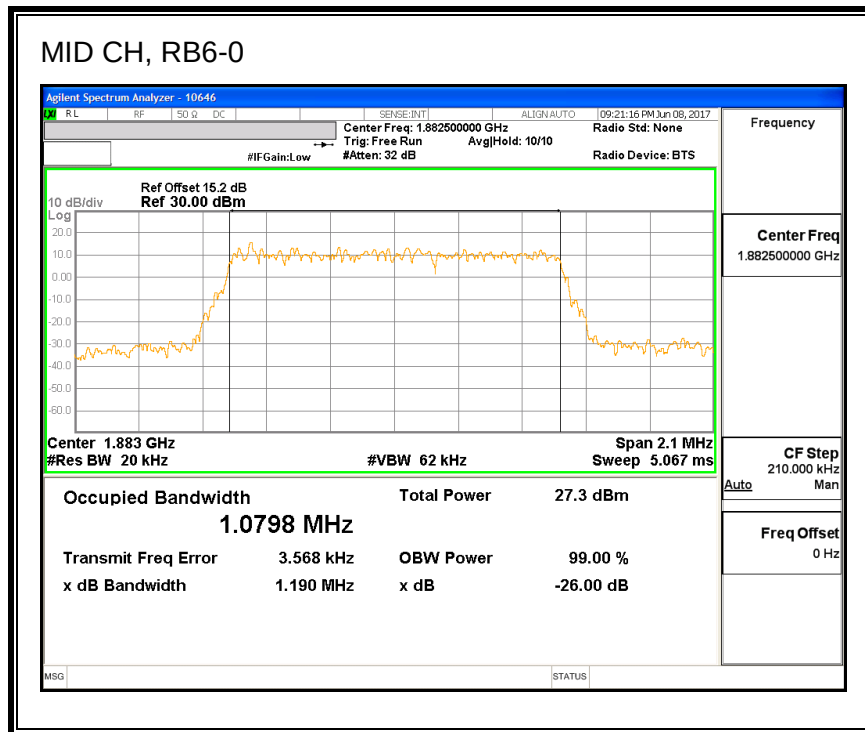
QPSK, (1.4 MHz BAND WIDTH)



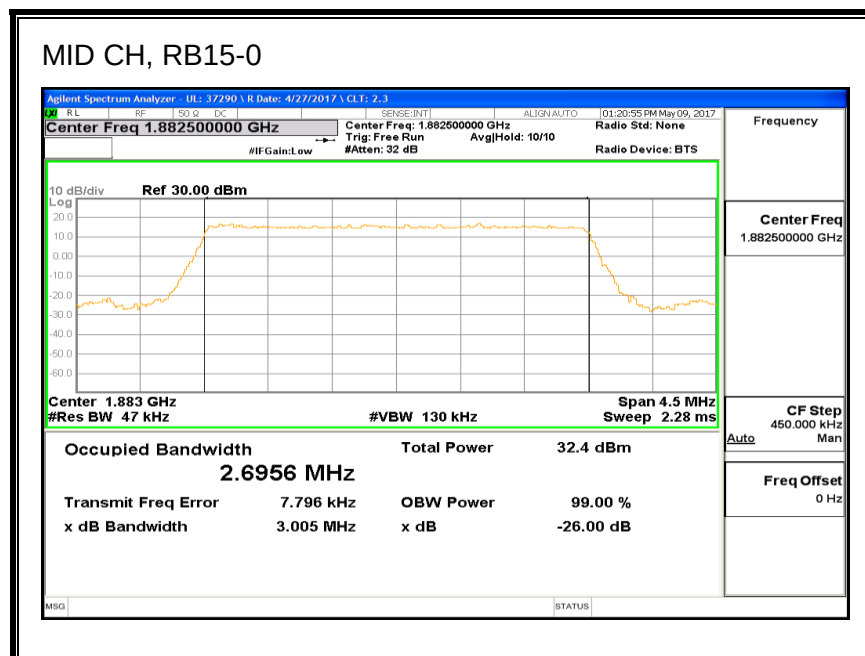
16QAM, (1.4 MHz BAND WIDTH)



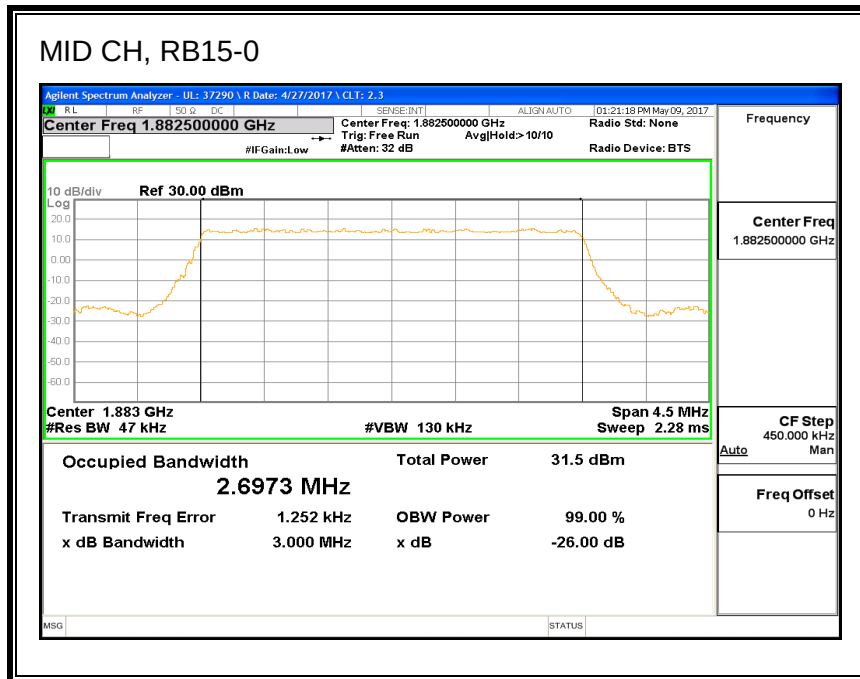
64QAM, (1.4 MHz BAND WIDTH)



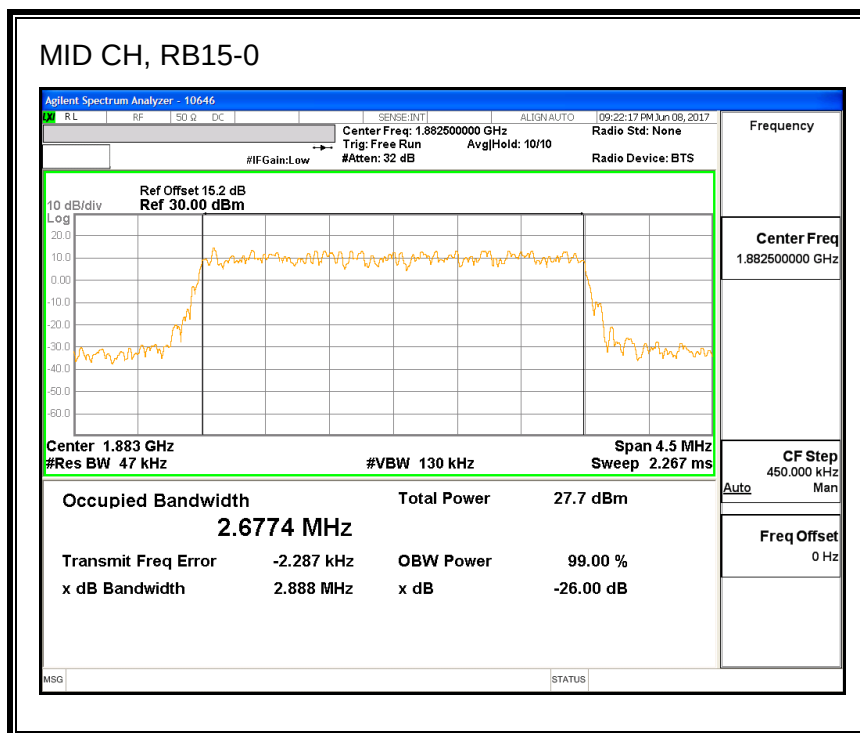
QPSK, (3.0 MHz BAND WIDTH)



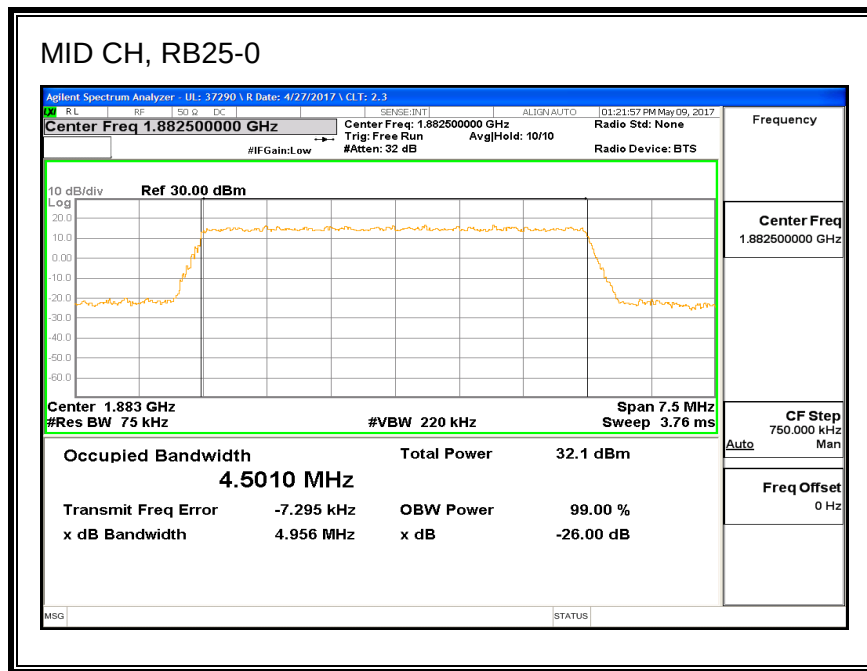
16QAM, (3.0 MHz BAND WIDTH)



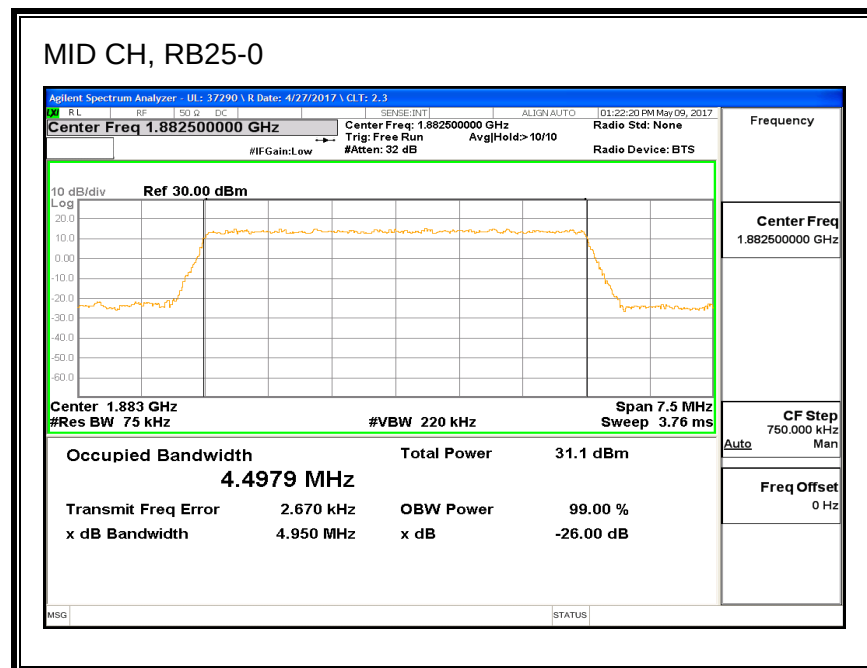
64QAM, (3.0 MHz BAND WIDTH)



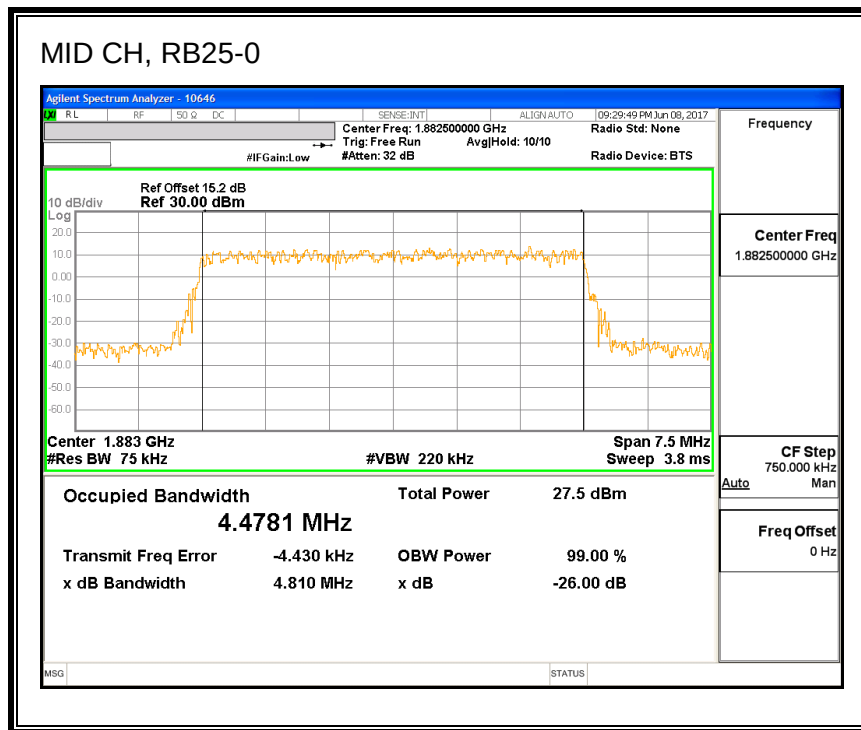
QPSK, (5.0 MHz BAND WIDTH)



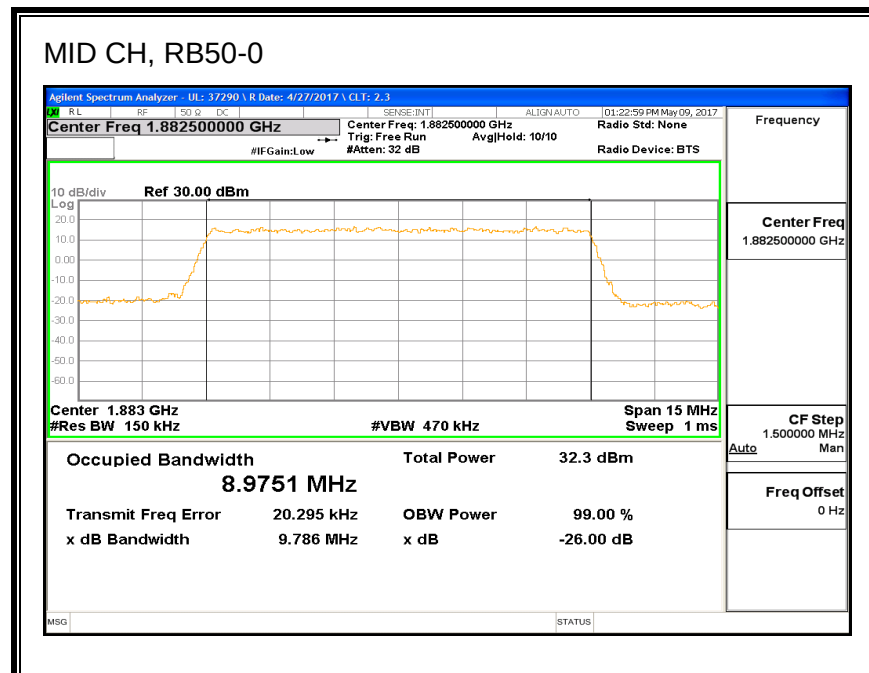
16QAM, (5.0 MHz BAND WIDTH)



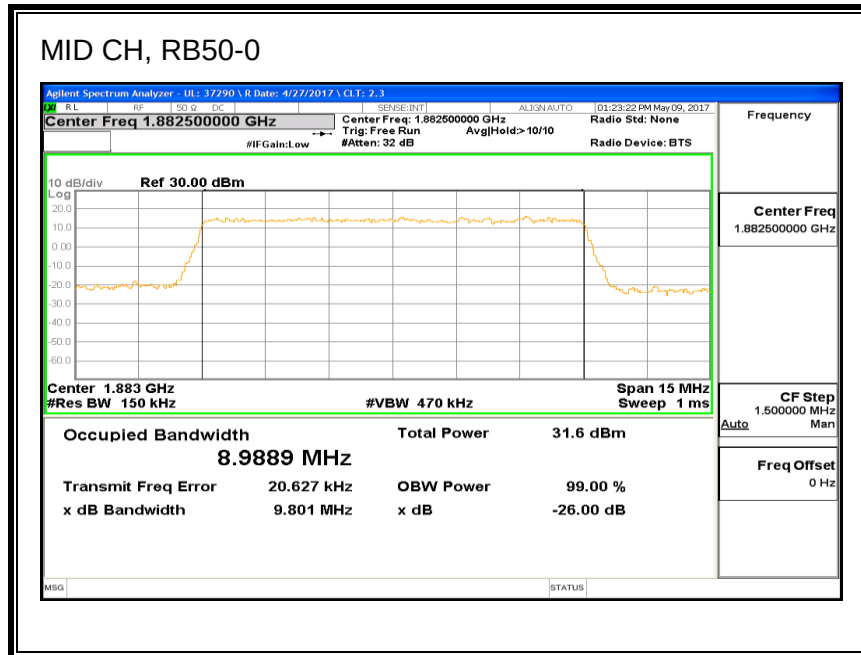
64QAM, (5.0 MHz BAND WIDTH)



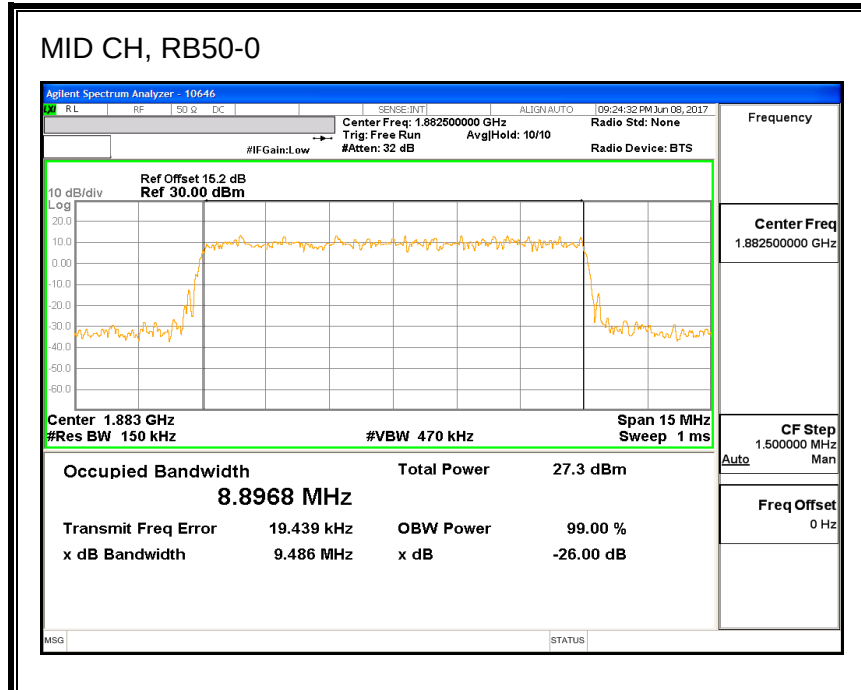
QPSK, (10.0 MHz BAND WIDTH)



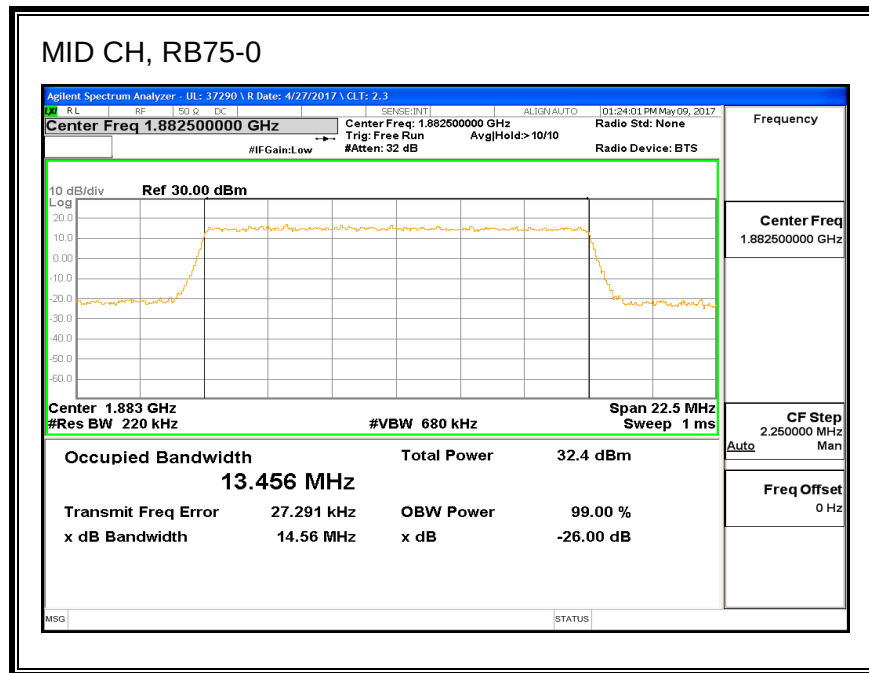
16QAM, (10.0 MHz BAND WIDTH)



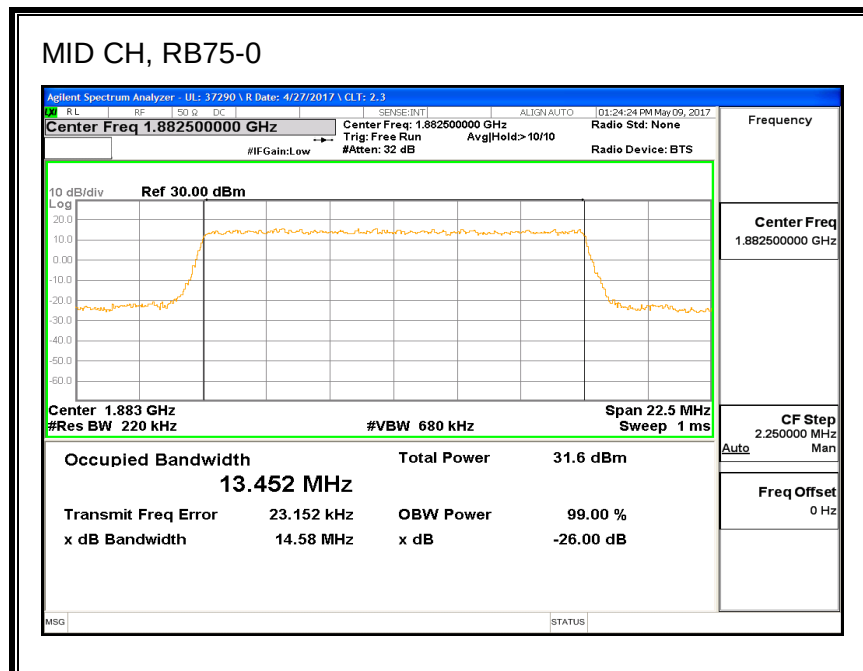
64QAM, (10.0 MHz BAND WIDTH)



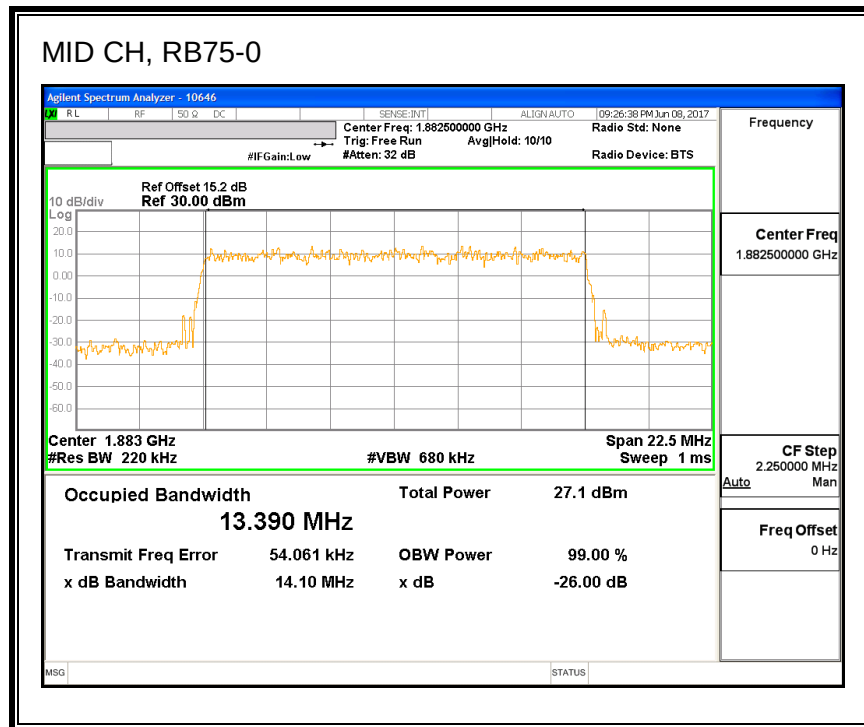
QPSK, (15.0 MHz BAND WIDTH)



16QAM, (15.0 MHz BAND WIDTH)



64QAM, (15.0 MHz BAND WIDTH)



QPSK, (20.0 MHz BAND WIDTH)

