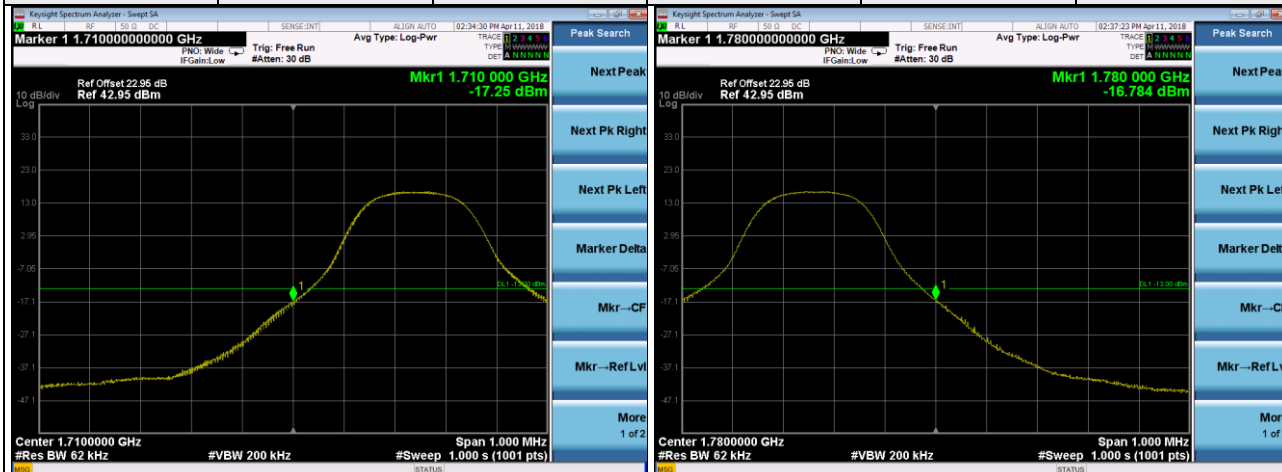


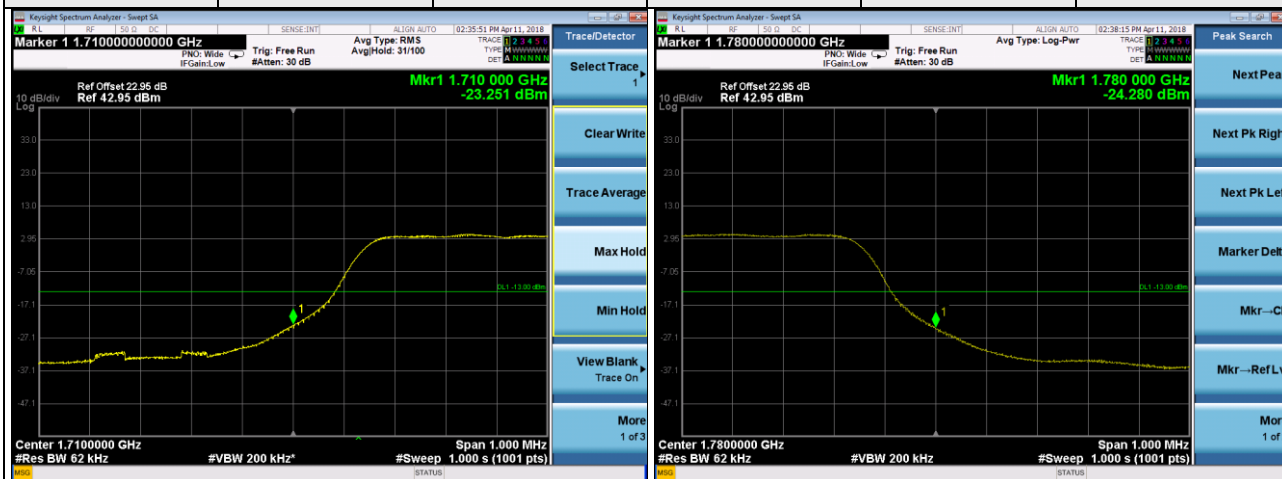
LTE Band 66

Channel Bandwidth 3MHz

Channel	131987	1 RB	Channel	132657	1 RB
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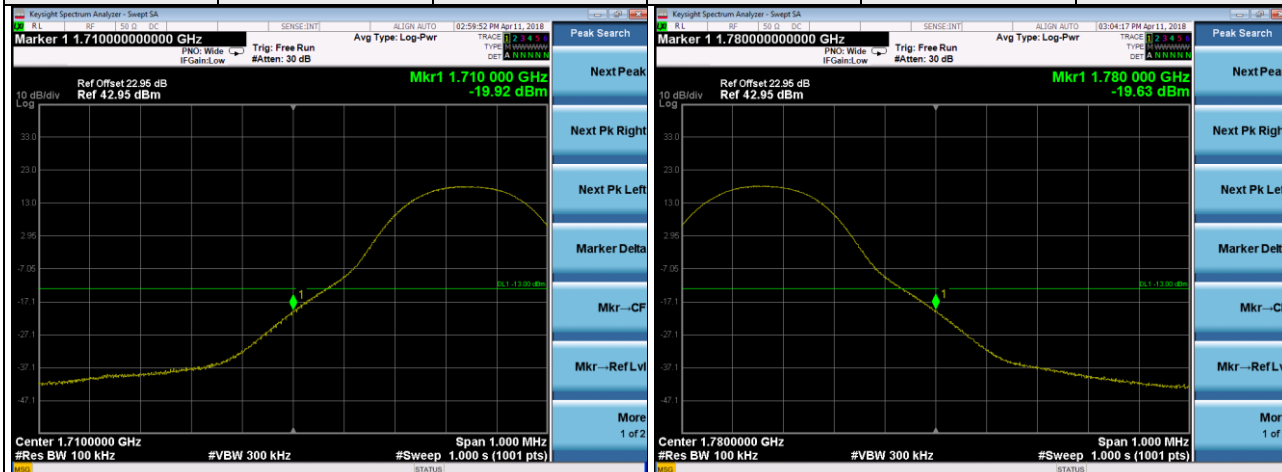
Channel	131987	15 RB	Channel	132657	15 RB
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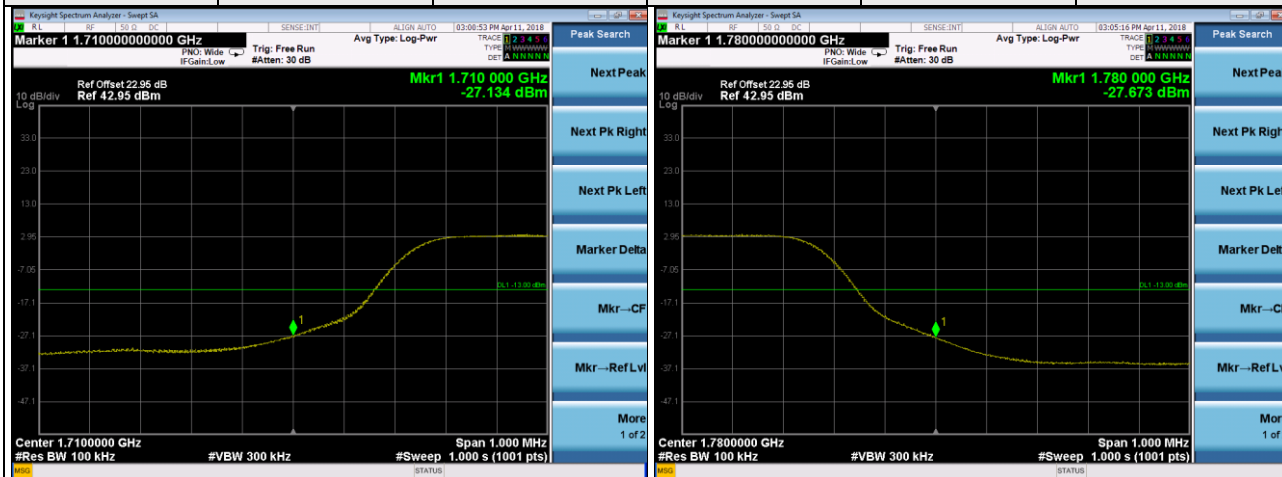
LTE Band 66

Channel Bandwidth 5MHz

Channel	131997	1 RB	Channel	132647	1 RB
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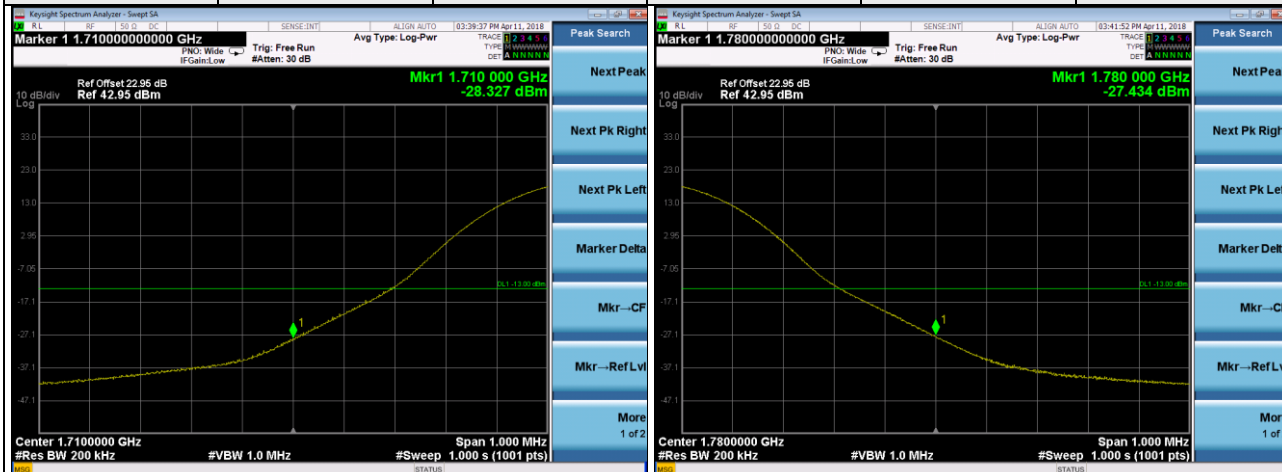
Channel	131997	25 RB	Channel	132647	25 RB
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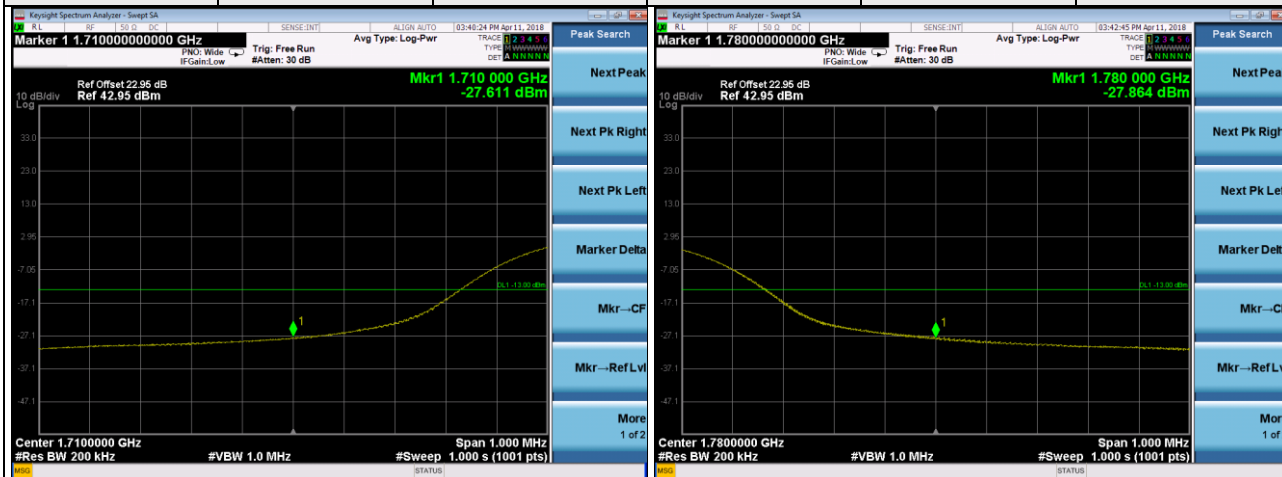
LTE Band 66

Channel Bandwidth 10MHz

Channel	132022	1 RB	Channel	132622	1 RB
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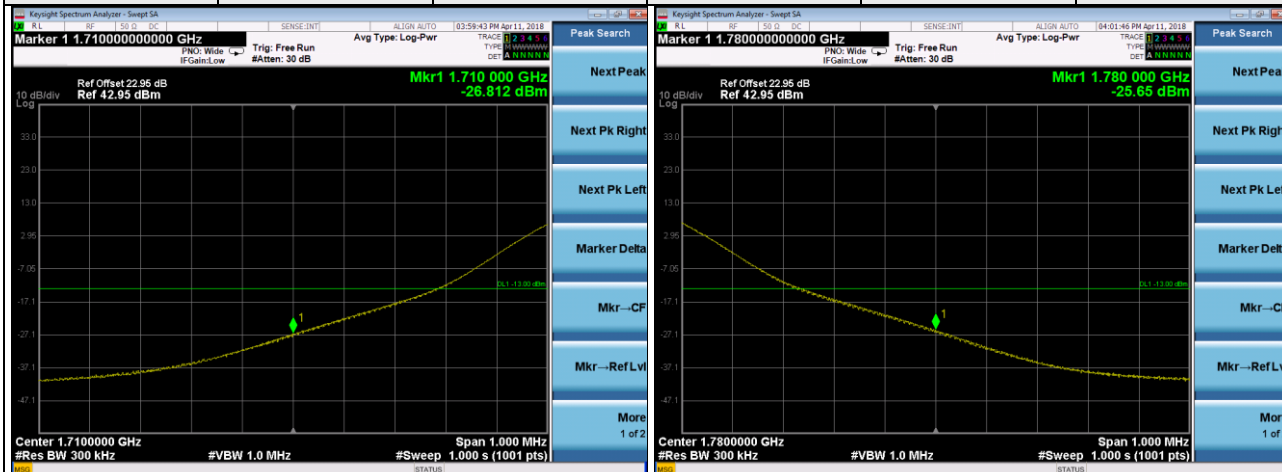
Channel	132022	50 RB	Channel	132622	50 RB
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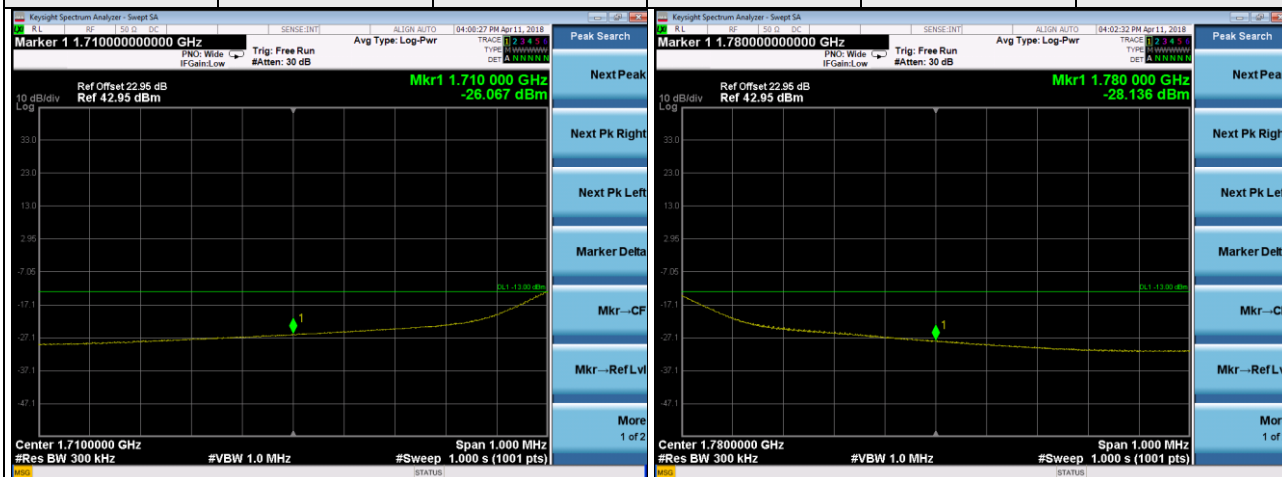
LTE Band 66

Channel Bandwidth 15MHz

Channel	132047	1 RB	Channel	132597	1 RB
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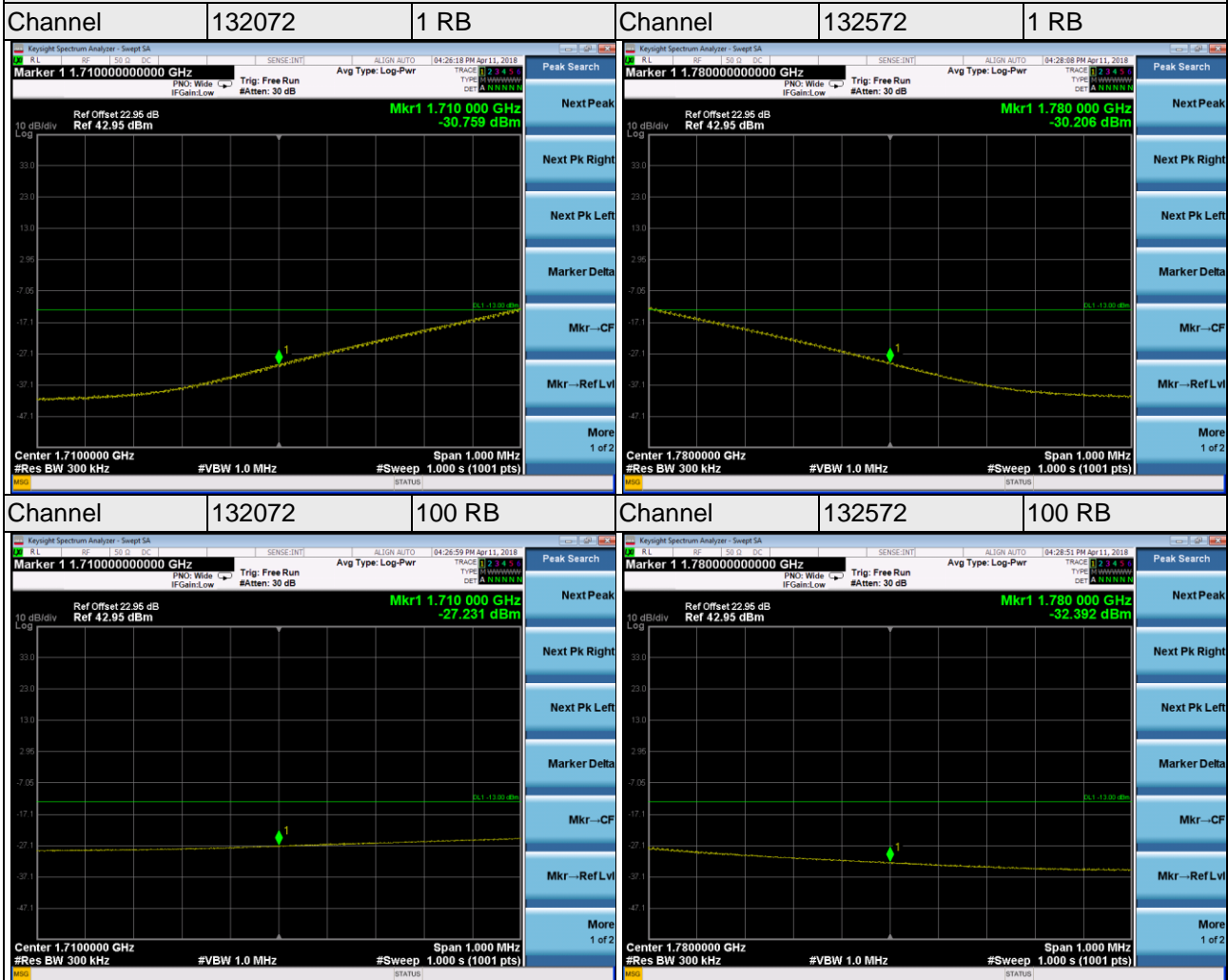


Channel	132047	75 RB	Channel	132597	75 RB
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## LTE Band 66

### Channel Bandwidth 20MHz

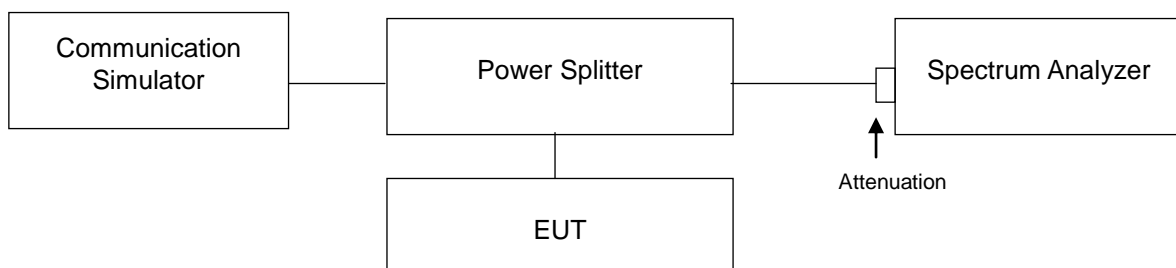


## 4.6 Peak to Average Ratio

### 4.5.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

### 4.5.2 Test Setup

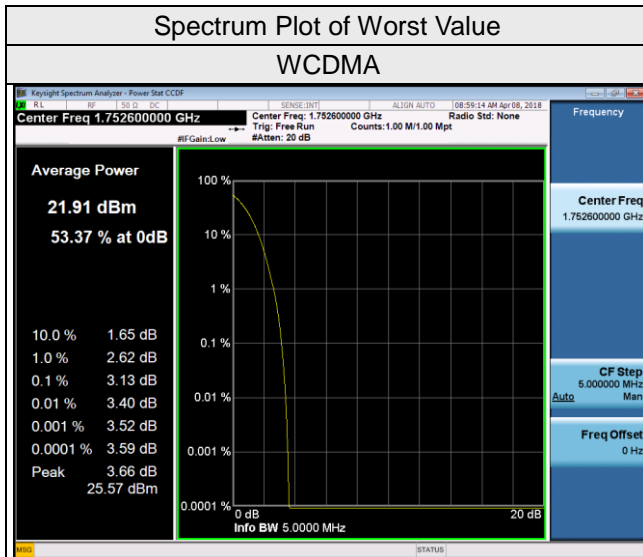


### 4.5.3 Test Procedures

1. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

#### 4.5.4 Test Results

Channel	Freq. (MHz)	Peak to Average Ratio (dB)
		WCDMA
1312	1712.4	3.10
1413	1732.6	3.12
1513	1752.6	3.13

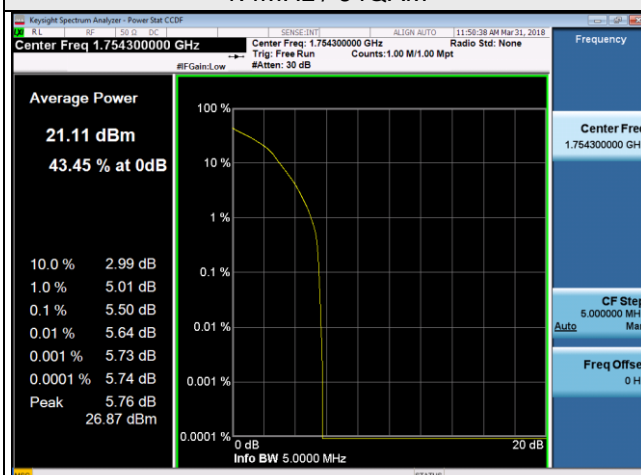


LTE Band 4									
Channel Bandwidth 1.4MHz					Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
19957	1710.7	3.76	5.42	5.43	19965	1711.5	3.53	5.28	5.32
20175	1732.5	3.86	4.63	4.74	20175	1732.5	3.79	4.51	4.55
20393	1754.3	3.85	5.50	5.50	20385	1753.5	3.7	5.39	5.47
Channel Bandwidth 5MHz					Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
19975	1712.5	3.55	5.26	5.31	20000	1715	3.51	5.22	5.36
20175	1732.5	3.6	4.34	4.42	20175	1732.5	3.54	4.21	4.37
20375	1752.5	3.75	5.44	5.50	20350	1750	3.62	5.02	5.08
Channel Bandwidth 15MHz					Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
20025	1717.5	3.42	5.06	5.16	20050	1720	3.46	5.07	5.23
20175	1732.5	3.5	4.19	4.31	20175	1732.5	3.44	4.80	4.89
20325	1747.5	3.47	5.30	4.19	20300	1745	3.49	5.21	5.13

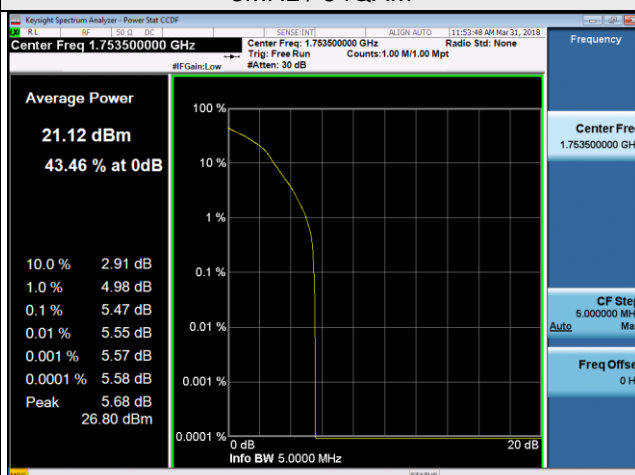


### Spectrum Plot of Worst Value

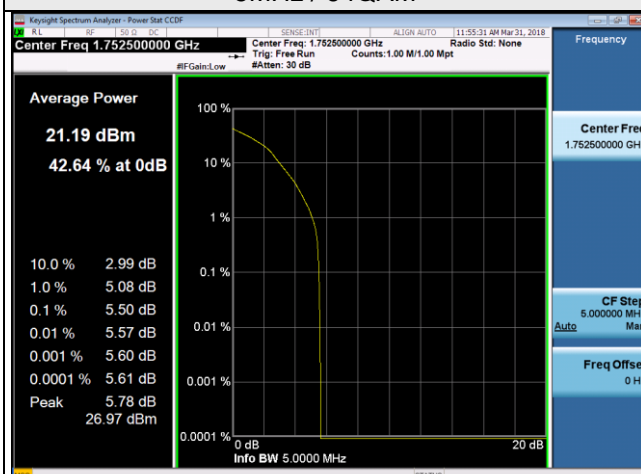
**1.4MHz / 64QAM**



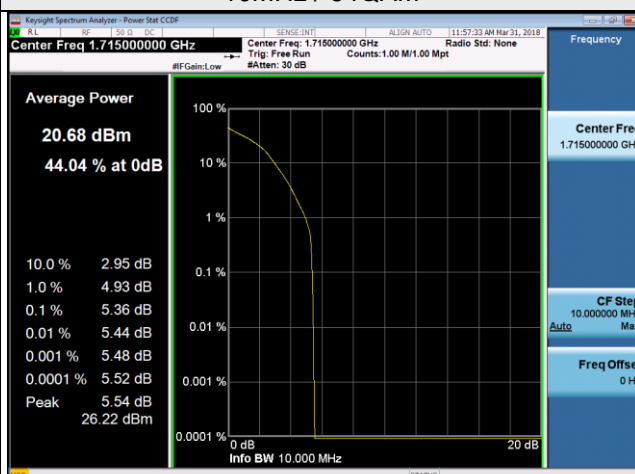
**3MHz / 64QAM**



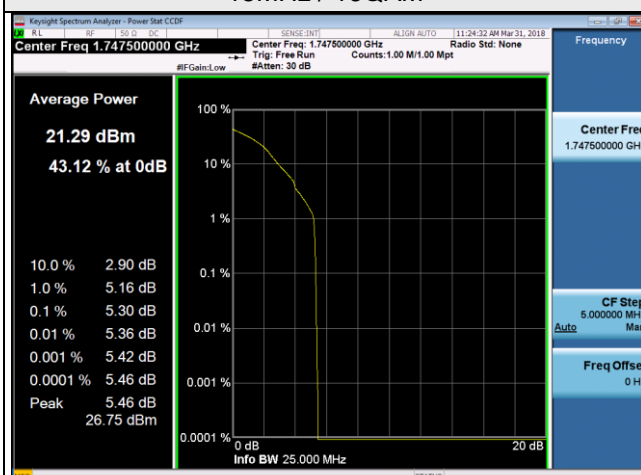
**5MHz / 64QAM**



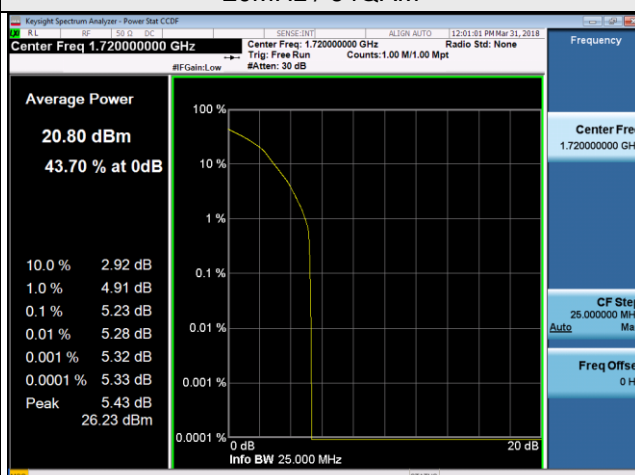
**10MHz / 64QAM**



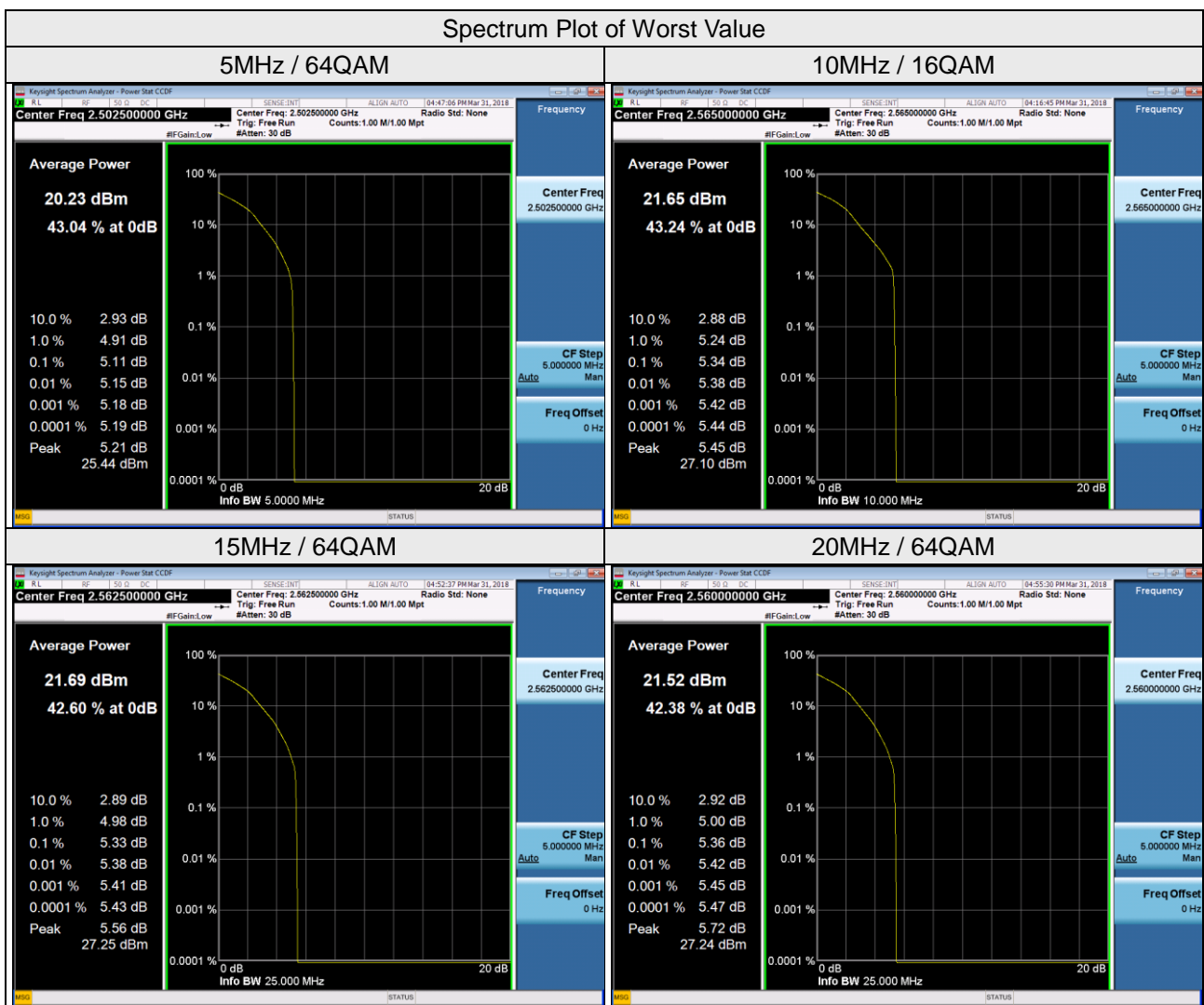
**15MHz / 16QAM**



**20MHz / 64QAM**



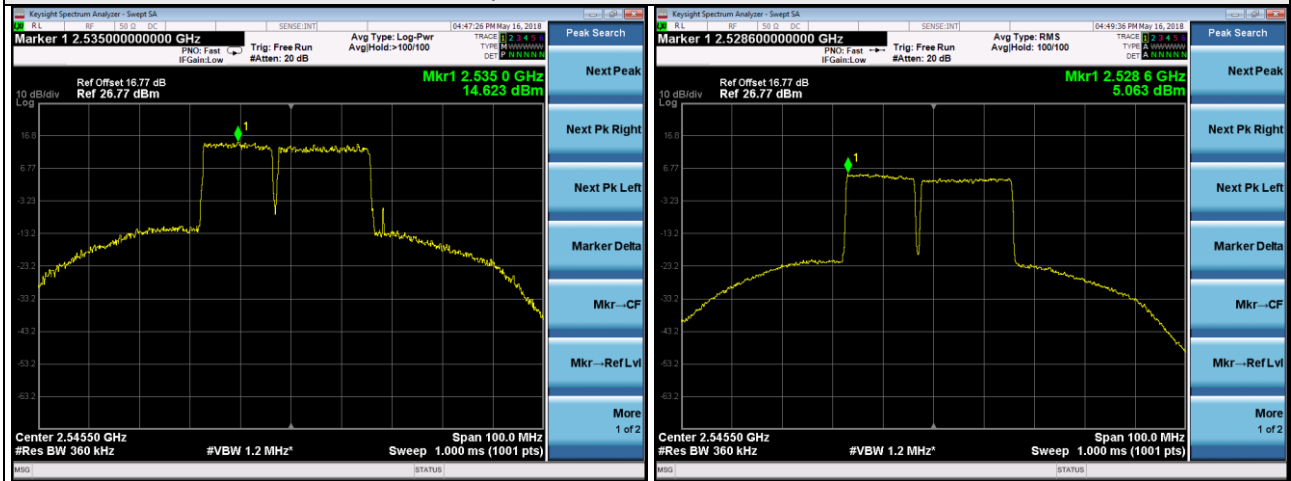
LTE Band 7									
Channel Bandwidth 5MHz					Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
20775	2502.5	3.63	4.99	5.11	20800	2505	3.57	5.18	5.28
21100	2535	3.38	4.13	4.21	21100	2535	3.45	4.08	4.16
21425	2567.5	3.59	4.42	4.49	21400	2565	3.53	5.34	5.29
Channel Bandwidth 15MHz					Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
20825	2507.5	3.54	4.88	5.06	20850	2510	3.55	4.72	4.88
21100	2535	3.49	4.07	4.15	21100	2535	3.46	4.29	4.59
21375	2562.5	3.53	5.28	5.33	21350	2560	3.57	5.24	5.36



LTE CA\_7C

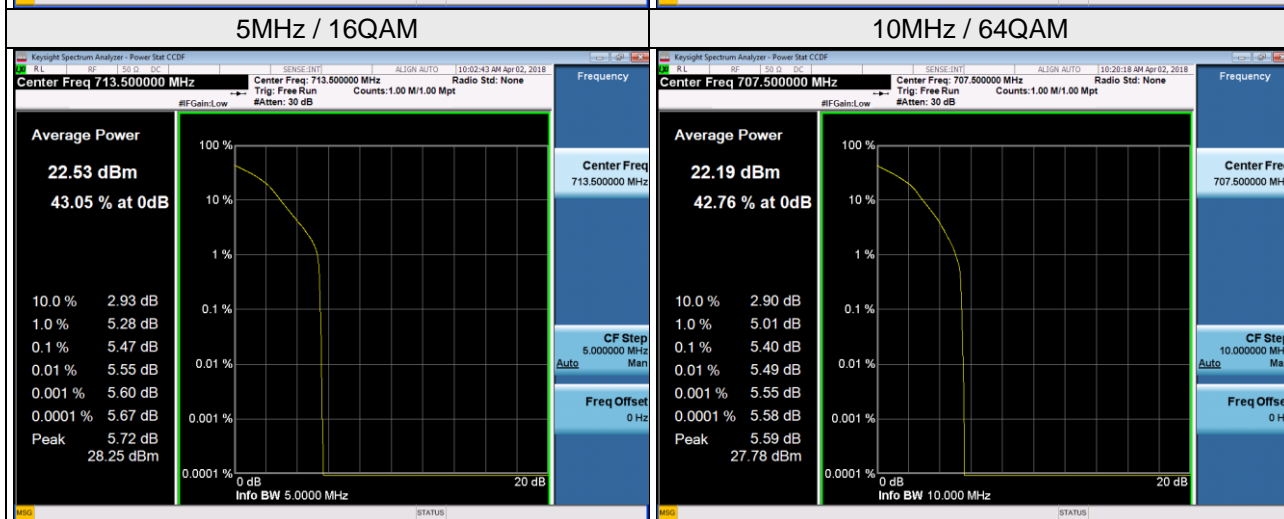
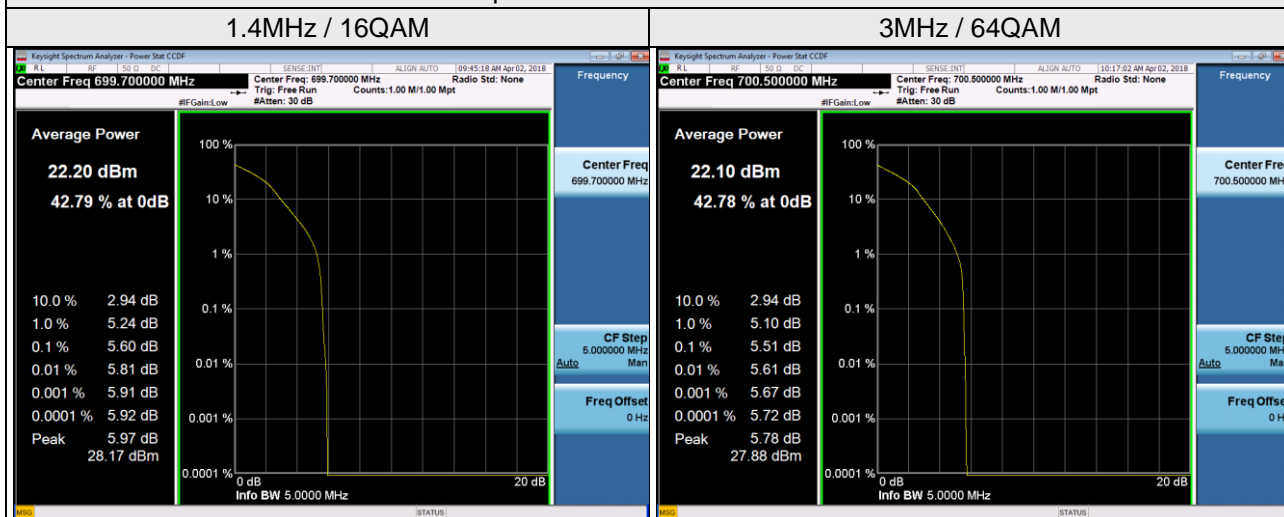
Channel	Freq. (MHz)	Peak to Average Ratio (dB)		
		Peak	Average	Difference
21100+21271	2535+2552.1	14.62	5.06	9.56

Spectrum Plot of Worst Value

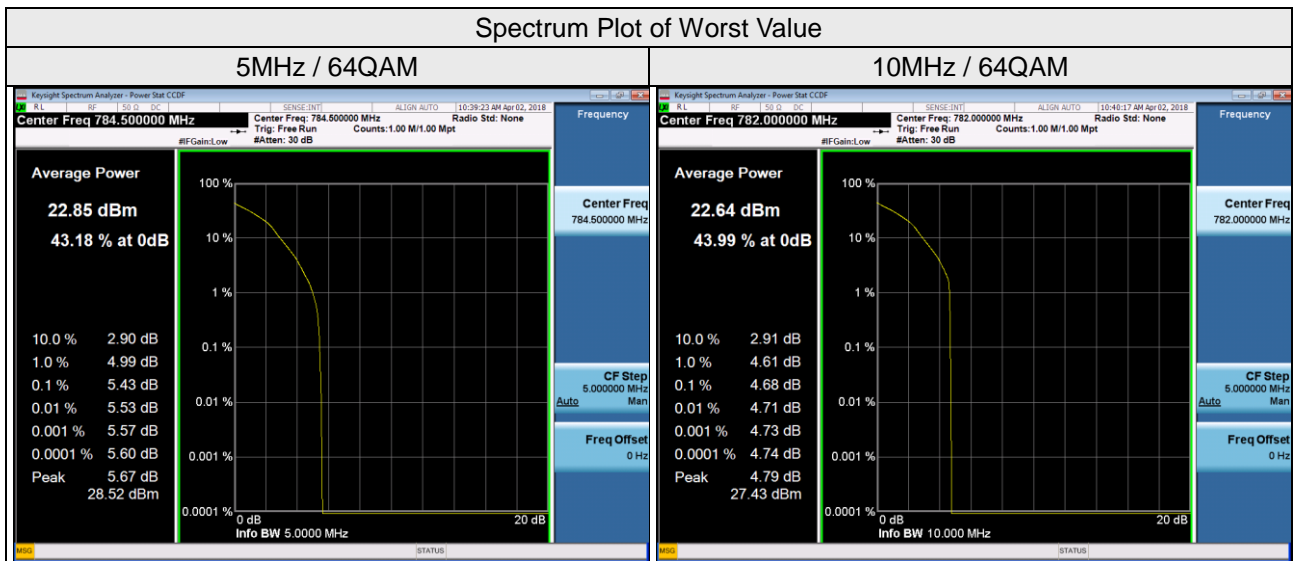


LTE Band 12									
Channel Bandwidth 1.4MHz					Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
23017	699.7	3.89	5.60	5.52	23025	700.5	3.69	5.43	5.51
23095	707.5	3.86	5.42	5.40	23095	707.5	3.65	5.37	5.33
23173	715.3	3.85	5.02	5.06	23165	714.5	3.66	5.31	5.40
Channel Bandwidth 5MHz					Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
23035	701.5	3.66	5.40	5.45	23060	704	3.6	5.32	5.39
23095	707.5	3.65	4.77	5.01	23095	707.5	3.56	5.35	5.40
23155	713.5	3.66	5.47	5.45	23130	711	3.57	5.17	5.29

### Spectrum Plot of Worst Value



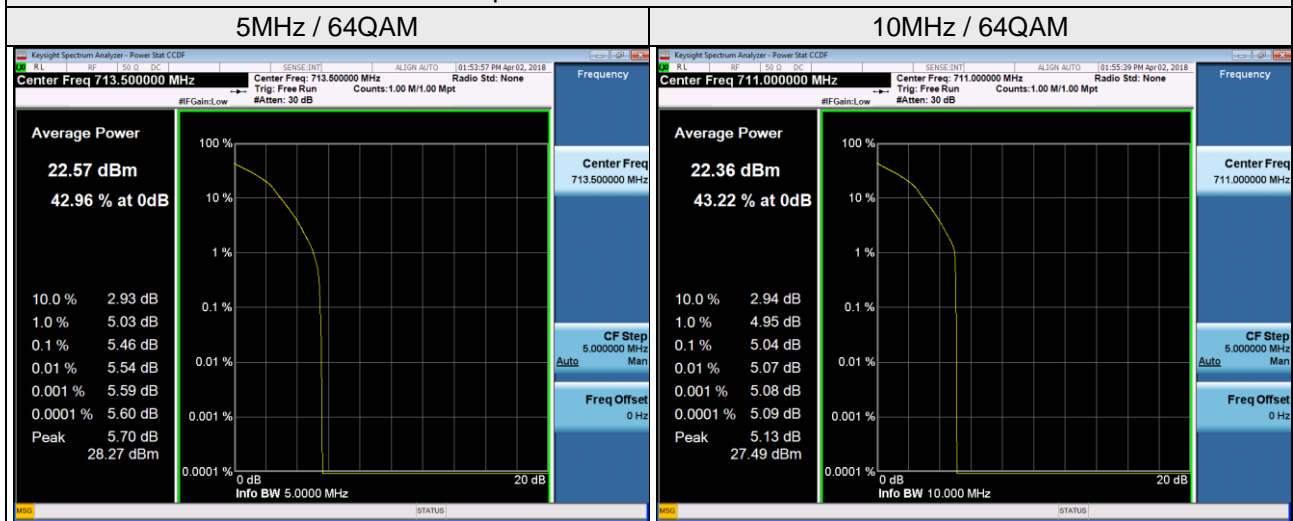
LTE Band 13									
Channel Bandwidth 5MHz					Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
23205	779.5	3.58	4.54	4.59	23230	782	3.5	4.59	4.68
23230	782	3.63	5.32	5.38					
23255	784.5	3.53	5.35	5.43					



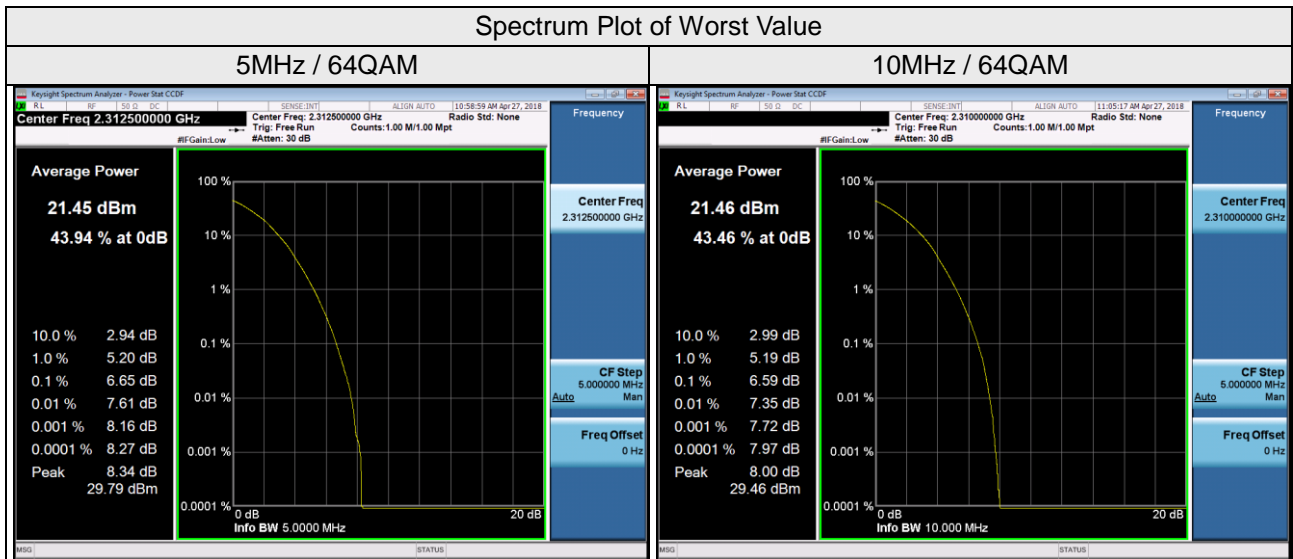
### LTE Band 17

Channel Bandwidth 5MHz					Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
23755	706.5	3.65	4.84	4.97	23780	709	3.58	4.80	4.87
23790	710	3.66	5.11	5.30	23790	710	3.54	4.48	4.66
23825	713.5	3.67	5.42	5.46	23800	711	3.56	4.95	5.04

### Spectrum Plot of Worst Value



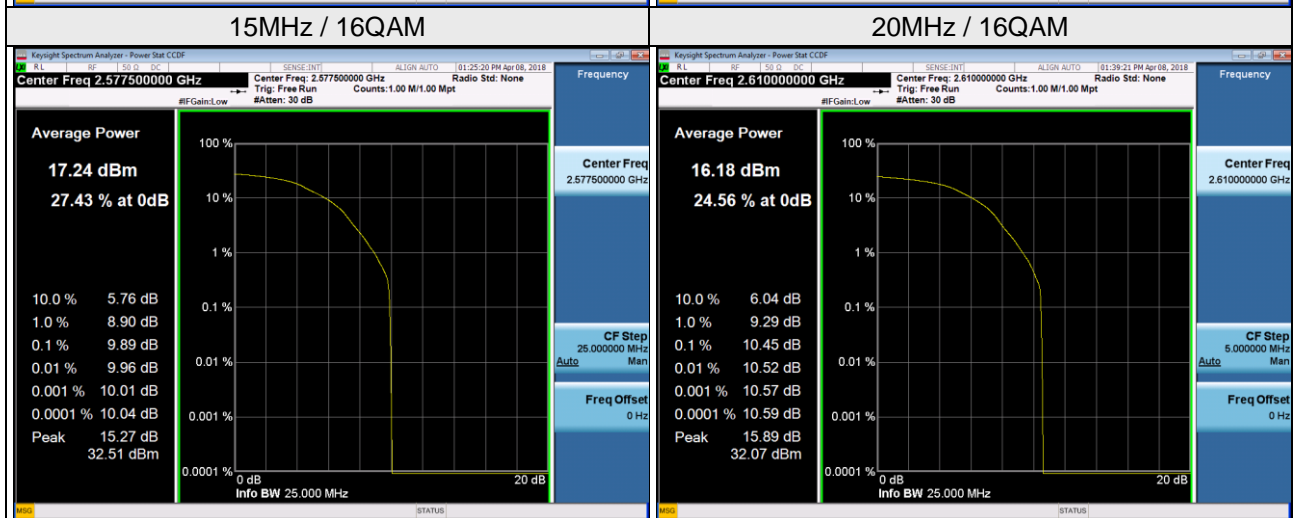
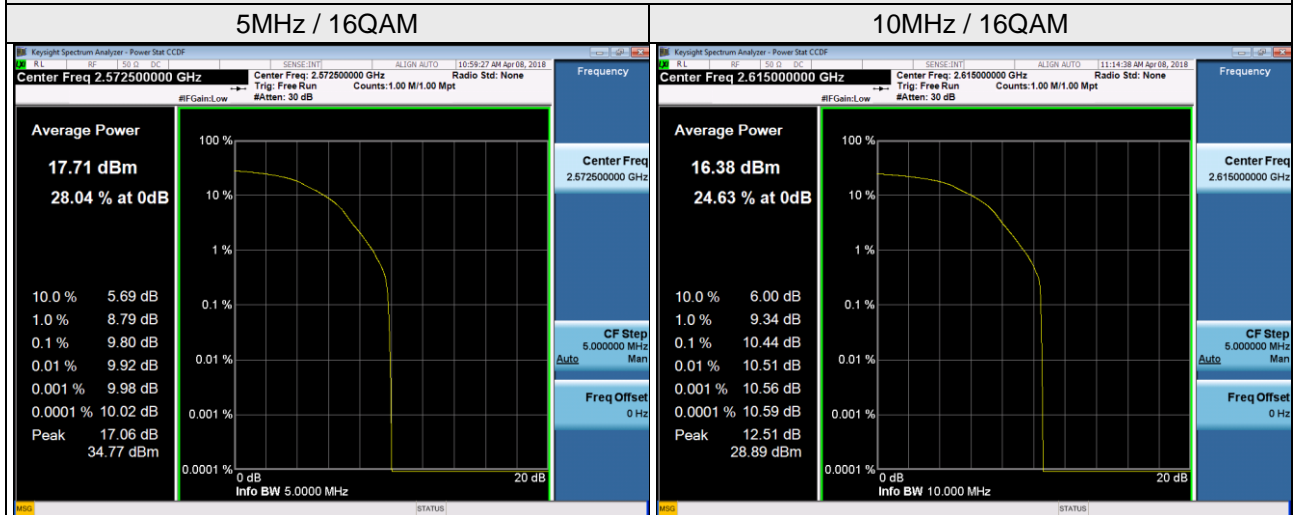
LTE Band 30									
Channel Bandwidth 5MHz					Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
27685	2307.5	4.55	5.71	6.52	27710	2310	4.54	5.68	6.59
27710	2310	4.62	5.73	6.57					
27735	2312.5	4.83	6.01	6.65					





LTE Band 38									
Channel Bandwidth 5MHz					Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
37775	2572.5	7.84	9.80	9.50	37800	2575	7.88	8.82	9.80
38000	2595	7.47	8.89	9.68	38000	2595	7.24	9.20	10.13
38225	2617.5	7.5	9.27	9.45	38200	2615	7.03	10.44	9.42
Channel Bandwidth 15MHz					Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
37825	2577.5	7.61	9.89	8.20	37850	2580	7.71	9.65	8.38
38000	2595	7.21	8.36	8.51	38000	2595	7.56	9.85	8.23
38175	2612.5	6.91	8.42	9.55	38150	2610	7.22	10.45	9.89

### Spectrum Plot of Worst Value

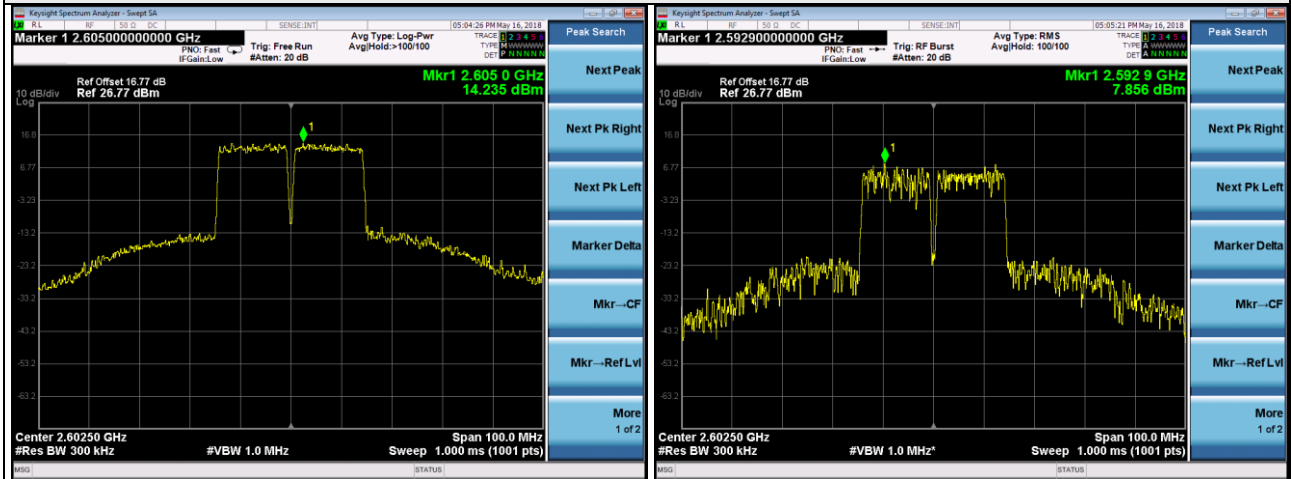




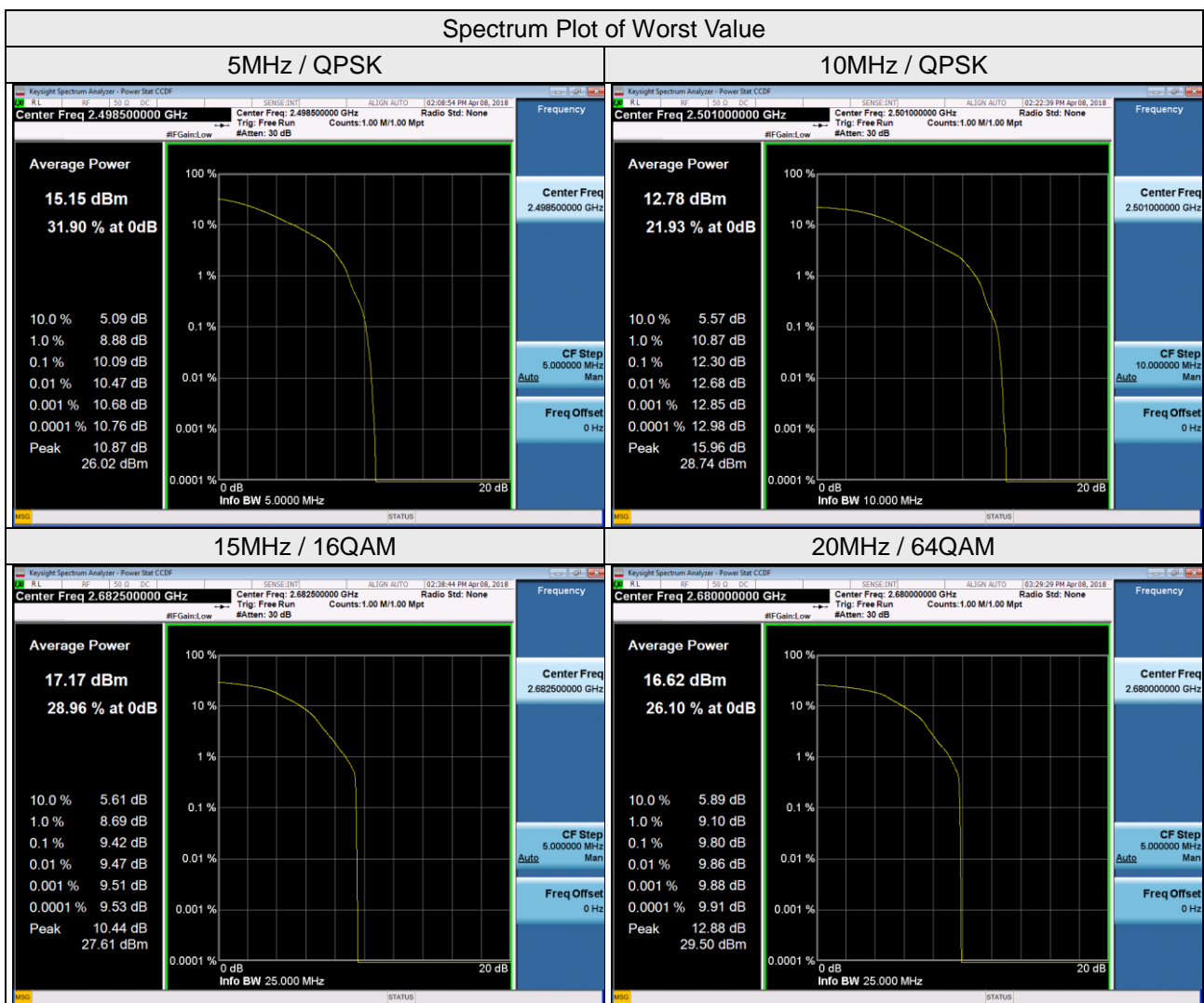
LTE CA\_38C

Channel	Freq. (MHz)	Peak to Average Ratio (dB)		
		Peak	Average	Difference
38000+38150	2595+2610	14.24	7.86	6.38

Spectrum Plot of Worst Value



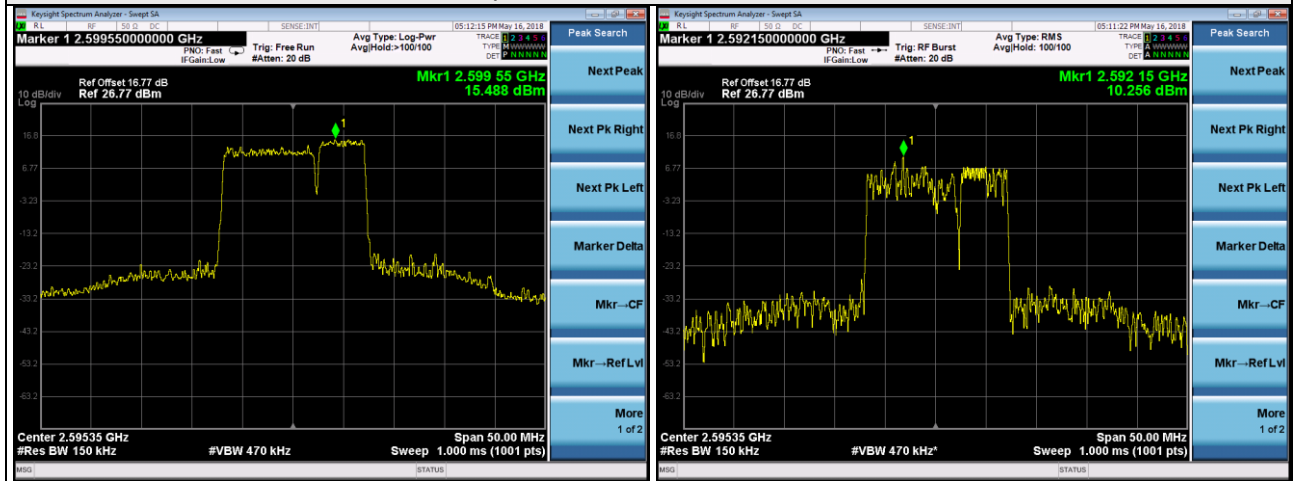
LTE Band 41									
Channel Bandwidth 5MHz					Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
39675	2498.5	10.09	9.74	9.49	39700	2501	12.3	9.13	9.37
40620	2593	7.71	8.36	9.07	50620	2593	7.21	8.84	8.95
41565	2687.5	7.97	9.19	9.38	41540	2685	7.21	9.51	9.14
Channel Bandwidth 15MHz					Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
39725	2503.5	7.57	8.36	8.19	39750	2506	7.37	9.56	8.25
40620	2593	7.63	7.83	8.03	40620	2593	7.29	9.12	8.04
41515	2682.5	7.29	9.42	8.28	41490	2680	7.67	9.54	9.80



LTE CA\_41C

Channel	Freq. (MHz)	Peak to Average Ratio (dB)		
		Peak	Average	Difference
40620+40692	2593+2600.2	15.49	10.26	5.23

Spectrum Plot of Worst Value



LTE Band 66									
Channel Bandwidth 1.4MHz					Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
131979	1710.7	4.67	4.85	6.03	131987	1711.5	3.51	4.77	5.93
132322	1745	4.82	5.72	6.46	132322	1745	3.62	5.61	6.41
132665	1779.3	4.94	5.71	6.38	132657	1778.5	3.56	5.56	6.35
Channel Bandwidth 5MHz					Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
131997	1712.5	3.54	4.79	5.91	132022	1715	3.47	4.59	5.77
132322	1745	3.65	5.59	6.44	132322	1745	3.53	5.56	6.44
132647	1777.5	3.54	5.21	6.19	132622	1775	3.49	4.52	5.69
Channel Bandwidth 15MHz					Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
132047	1717.5	3.38	4.47	5.68	132072	1720	3.48	4.50	5.62
132322	1745	3.49	5.32	6.08	132322	1745	3.5	4.38	5.38
132597	1772.5	3.45	5.45	6.30	132572	1770	3.49	5.45	6.33