

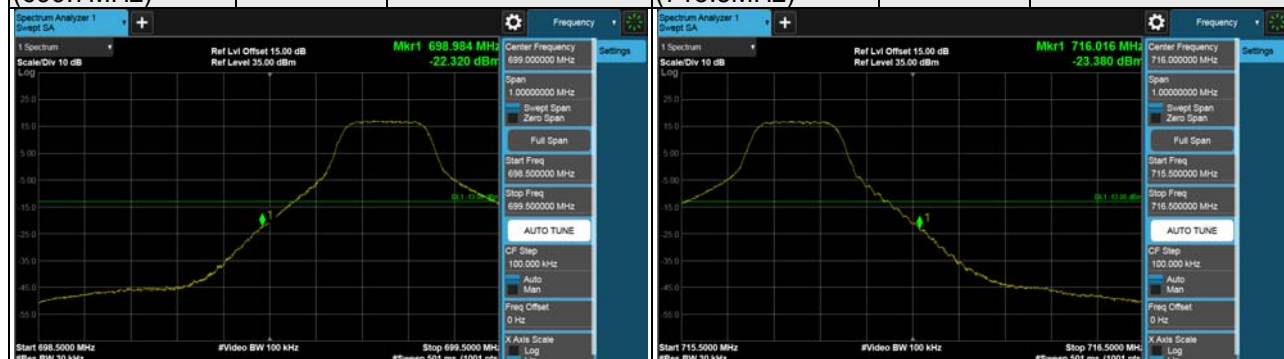
LTE Band 7, Channel Bandwidth 20MHz

Channel 20850 (2510.0MHz) Spectrum Analyzer 1 Spurious Emissions 3 All Range Graph Scale/Div 10.0 dB Ref Lvl Offset 15.00 dB Ref Value 30.00 dBm Center Frequency 22.005000000 GHz CF Step 4.399000000 GHz Auto Main Freq Offset 0 Hz Start 2.470 GHz Stop 2.510 GHz 4 All Range Table <table><thead><tr><th>Spur</th><th>Range</th><th>Start Freq</th><th>Stop Freq</th><th>RBW</th><th>Frequency</th><th>Amplitude</th><th>ULimit</th></tr></thead><tbody><tr><td>1</td><td>1</td><td>2.4700 GHz</td><td>2.4905 GHz</td><td>1.000 MHz</td><td>2.490158333 GHz</td><td>-48.20 dBm</td><td>-33.20 dB</td></tr><tr><td>2</td><td>2</td><td>2.4905 GHz</td><td>2.4960 GHz</td><td>1.000 MHz</td><td>2.492140833 GHz</td><td>-45.72 dBm</td><td>-32.72 dB</td></tr><tr><td>3</td><td>3</td><td>2.4960 GHz</td><td>2.4990 GHz</td><td>1.000 MHz</td><td>2.499000000 GHz</td><td>-40.24 dBm</td><td>-30.24 dB</td></tr><tr><td>4</td><td>4</td><td>2.4990 GHz</td><td>2.5000 GHz</td><td>430.0 kHz</td><td>2.499988333 GHz</td><td>-38.15 dBm</td><td>-28.15 dB</td></tr><tr><td>5</td><td>5</td><td>2.5000 GHz</td><td>2.5100 GHz</td><td>430.0 kHz</td><td>2.501100000 GHz</td><td>-24.93 dBm</td><td>-7.97 dB</td></tr></tbody></table>	Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ULimit	1	1	2.4700 GHz	2.4905 GHz	1.000 MHz	2.490158333 GHz	-48.20 dBm	-33.20 dB	2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.492140833 GHz	-45.72 dBm	-32.72 dB	3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.499000000 GHz	-40.24 dBm	-30.24 dB	4	4	2.4990 GHz	2.5000 GHz	430.0 kHz	2.499988333 GHz	-38.15 dBm	-28.15 dB	5	5	2.5000 GHz	2.5100 GHz	430.0 kHz	2.501100000 GHz	-24.93 dBm	-7.97 dB	Channel 21350 (2560.0MHz) Spectrum Analyzer 1 Spurious Emissions 3 All Range Graph Scale/Div 10.0 dB Ref Lvl Offset 15.00 dB Ref Value 30.00 dBm Center Frequency 22.005000000 GHz CF Step 4.399000000 GHz Auto Main Freq Offset 0 Hz Start 2.560 GHz Stop 2.600 GHz 4 All Range Table <table><thead><tr><th>Spur</th><th>Range</th><th>Start Freq</th><th>Stop Freq</th><th>RBW</th><th>Frequency</th><th>Amplitude</th><th>ULimit</th></tr></thead><tbody><tr><td>1</td><td>6</td><td>2.5500 GHz</td><td>2.5700 GHz</td><td>430.0 kHz</td><td>2.569166667 GHz</td><td>-22.25 dBm</td><td>-7.75 dB</td></tr><tr><td>2</td><td>7</td><td>2.5700 GHz</td><td>2.5710 GHz</td><td>430.0 kHz</td><td>2.570000000 GHz</td><td>-38.22 dBm</td><td>-28.22 dB</td></tr><tr><td>3</td><td>9</td><td>2.5710 GHz</td><td>2.5750 GHz</td><td>1.000 MHz</td><td>2.571000000 GHz</td><td>-40.70 dBm</td><td>-30.70 dB</td></tr><tr><td>4</td><td>10</td><td>2.5750 GHz</td><td>2.5900 GHz</td><td>1.000 MHz</td><td>2.577000000 GHz</td><td>-46.61 dBm</td><td>-33.61 dB</td></tr><tr><td>5</td><td>11</td><td>2.5900 GHz</td><td>2.6000 GHz</td><td>1.000 MHz</td><td>2.597483333 GHz</td><td>-45.29 dBm</td><td>-23.29 dB</td></tr></tbody></table>	Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ULimit	1	6	2.5500 GHz	2.5700 GHz	430.0 kHz	2.569166667 GHz	-22.25 dBm	-7.75 dB	2	7	2.5700 GHz	2.5710 GHz	430.0 kHz	2.570000000 GHz	-38.22 dBm	-28.22 dB	3	9	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571000000 GHz	-40.70 dBm	-30.70 dB	4	10	2.5750 GHz	2.5900 GHz	1.000 MHz	2.577000000 GHz	-46.61 dBm	-33.61 dB	5	11	2.5900 GHz	2.6000 GHz	1.000 MHz	2.597483333 GHz	-45.29 dBm	-23.29 dB
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Band Edge

LTE Band 12, Channel Bandwidth 1.4MHz

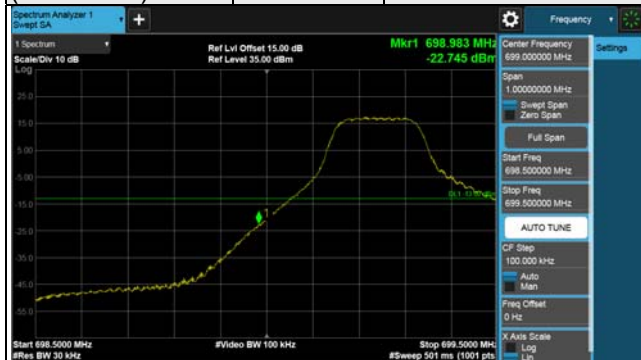
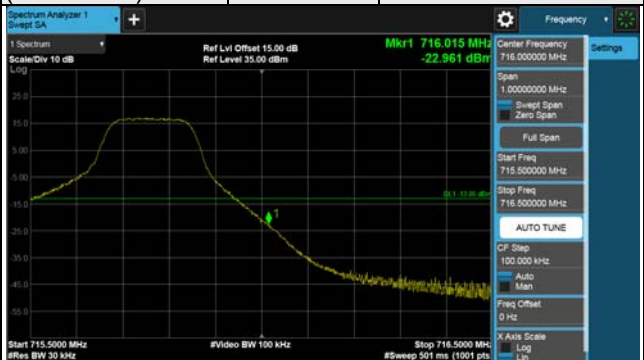
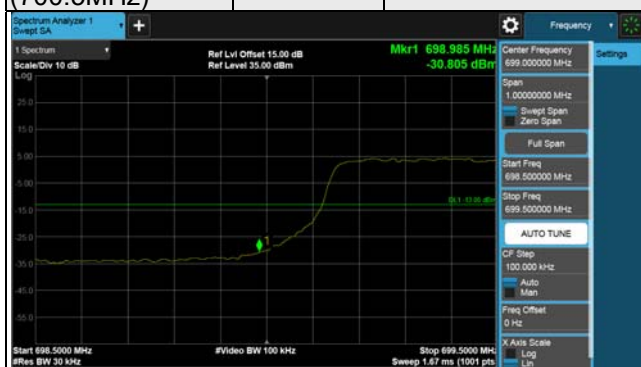
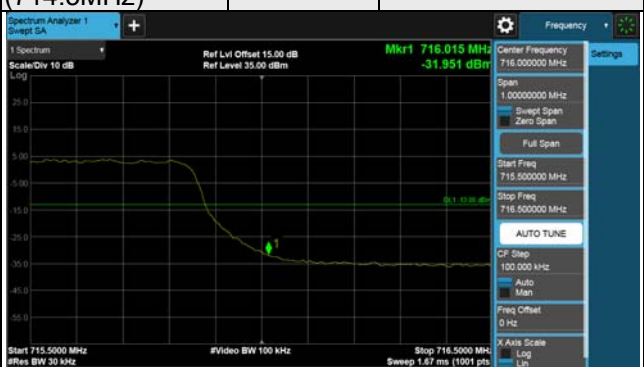
Channel 23017 (699.7MHz)	QPSK	1 RB / 0 RB Offset	Channel 23173 (715.3MHz)	QPSK	1 RB / 5 RB Offset
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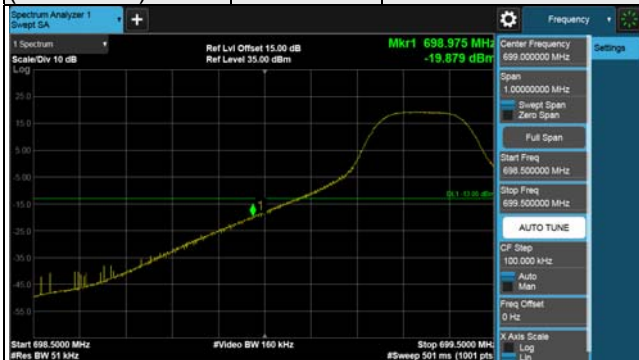
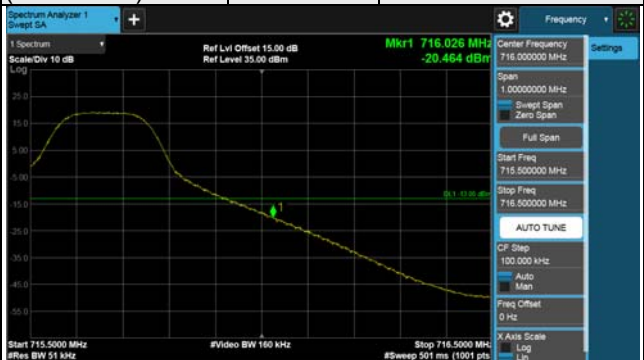
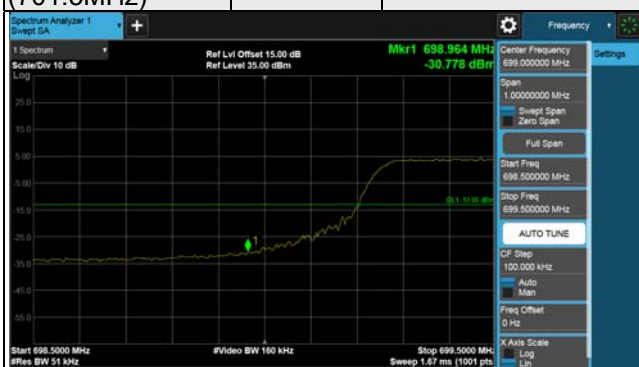
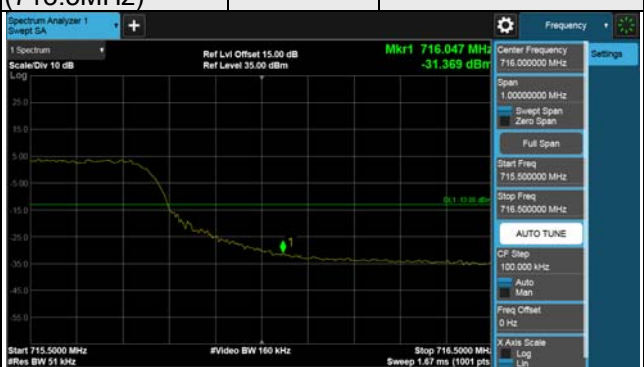
Channel 23017 (699.7MHz)	QPSK	6 RB / 0 RB Offset	Channel 23173 (715.3MHz)	QPSK	6 RB / 0 RB Offset
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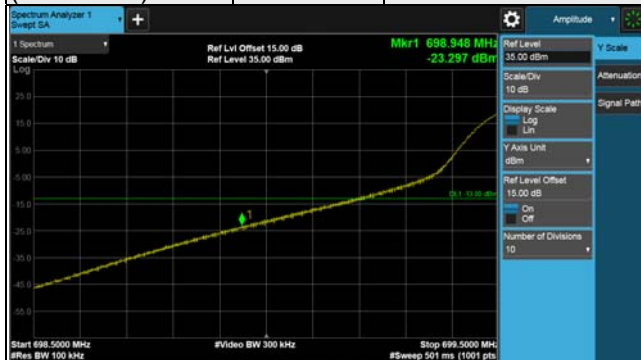
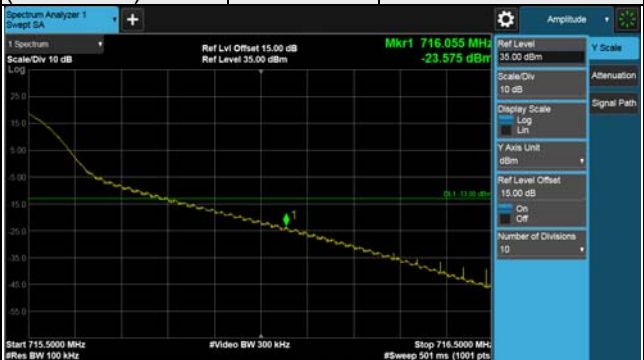
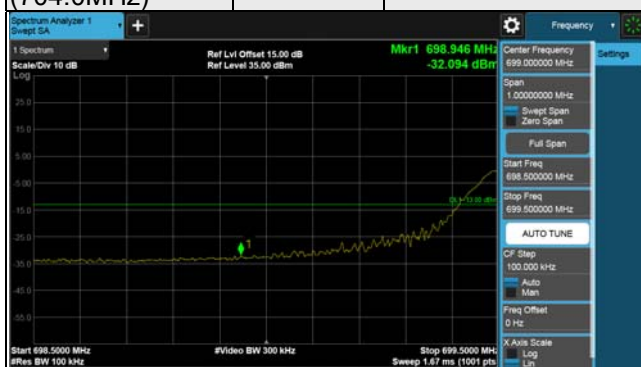
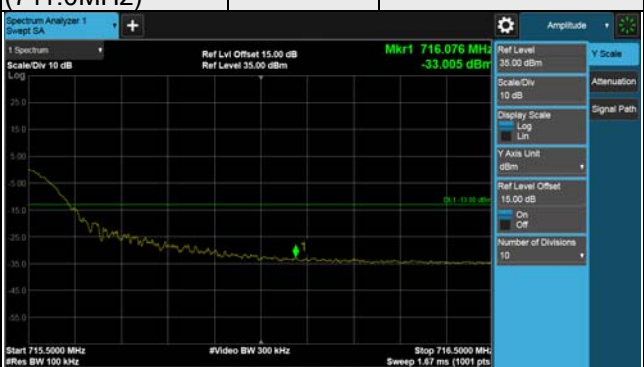
LTE Band 12, Channel Bandwidth 3MHz

Channel 23025 (700.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 23165 (714.5MHz)	QPSK	1 RB / 14RB Offset
					
Channel 23025 (700.5MHz)	QPSK	15 RB / 0 RB Offset	Channel 23165 (714.5MHz)	QPSK	15 RB / 0 RB Offset
					

LTE Band 12, Channel Bandwidth 5MHz

Channel 23035 (701.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 23155 (713.5MHz)	QPSK	1 RB / 24RB Offset
					
Channel 23035 (701.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 23155 (713.5MHz)	QPSK	25 RB / 0 RB Offset
					

LTE Band 12, Channel Bandwidth 10MHz

Channel 23060 (704.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 23130 (711.0MHz)	QPSK	1 RB / 24RB Offset
					
Channel 23060 (704.0MHz)	QPSK	50 RB / 0 RB Offset	Channel 23130 (711.0MHz)	QPSK	25 RB / 0 RB Offset
					

Band Edge

LTE Band 13, Channel Bandwidth 5MHz

Channel 23205 (779.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 23255 (784.5MHz)	QPSK	1 RB / 24 RB Offset
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Channel 23205 (779.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 23255 (784.5MHz)	QPSK	25 RB / 0 RB Offset
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LTE Band 13, Channel Bandwidth 10MHz

Channel 23230
(782.0MHz)

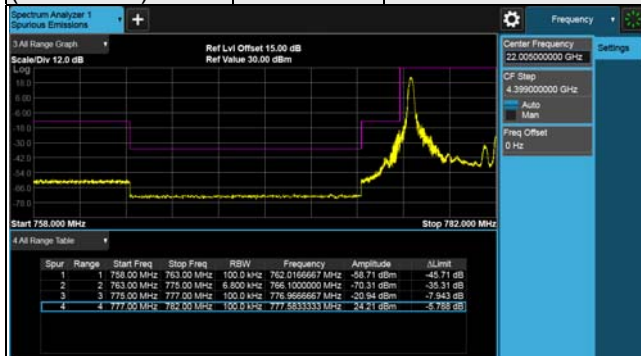
QPSK

1 RB / 0 RB Offset

Channel 23230
(782.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 23230
(782.0MHz)

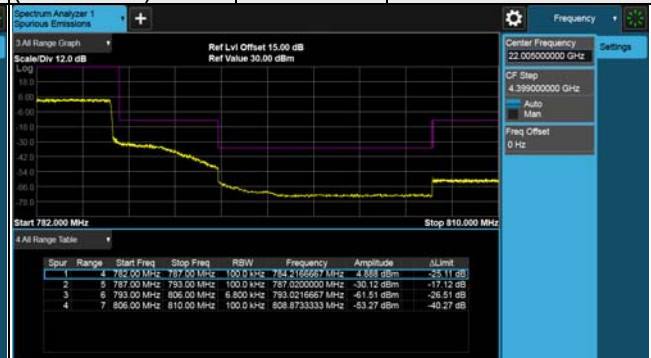
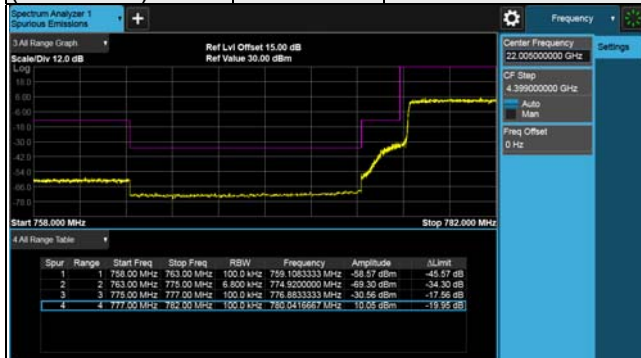
QPSK

50 RB / 0 RB Offset

Channel 23230
(782.0MHz)

QPSK

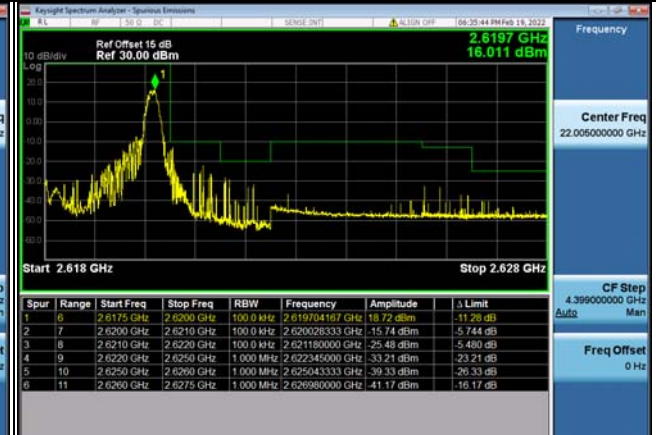
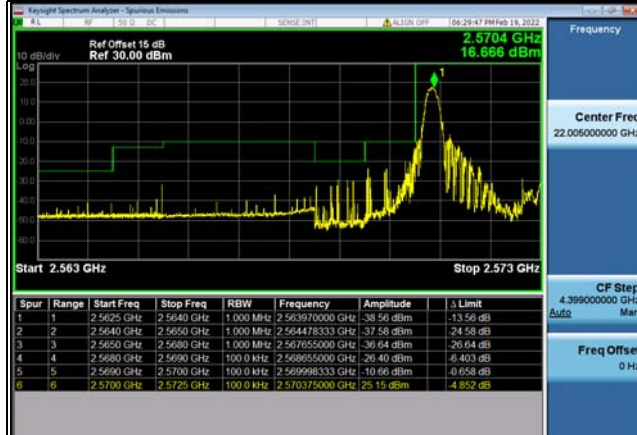
50 RB / 0 RB Offset



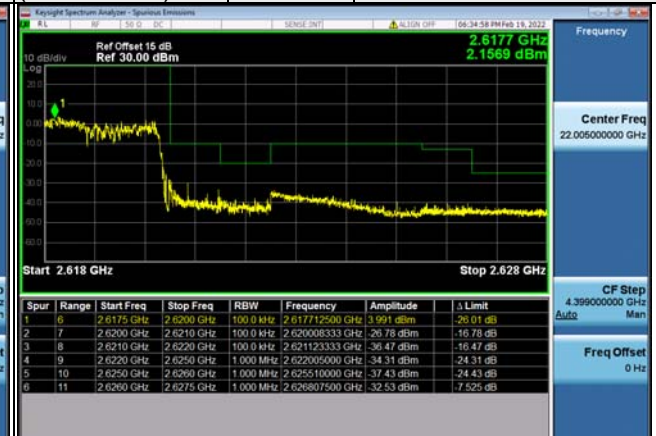
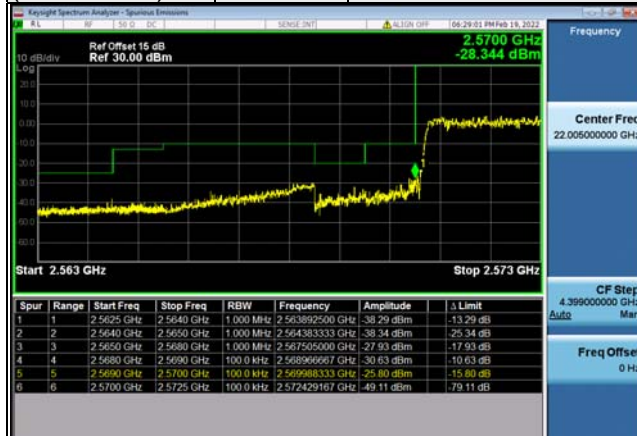
Out-of-Band Emission

LTE Band 38, Channel Bandwidth 5MHz

Channel 37775 (2572.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 38225 (2617.5MHz)	QPSK	1 RB / 24 RB Offset
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Channel 37775 (2572.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 38225 (2617.5MHz)	QPSK	25 RB / 0 RB Offset
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LTE Band 38, Channel Bandwidth 10MHz

Channel 37800
(2575.0MHz)

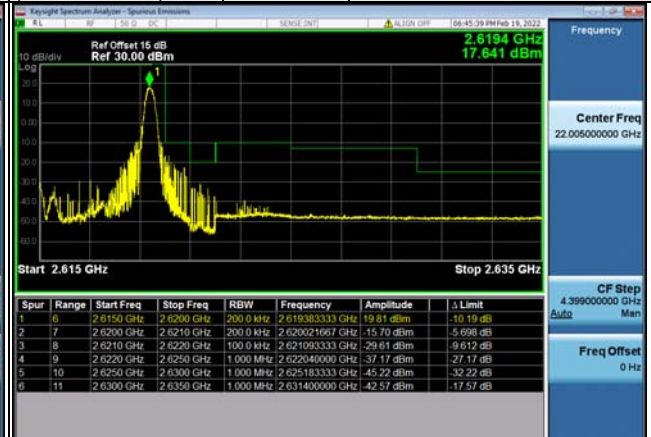
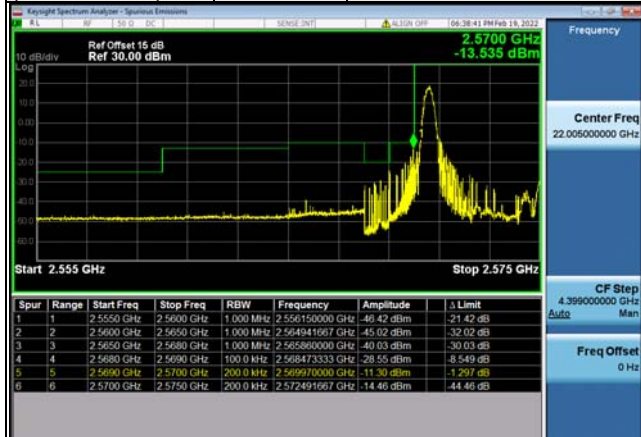
QPSK

1 RB / 0 RB Offset

Channel 38200
(2615.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 37800
(2575.0MHz)

QPSK

50 RB / 0 RB Offset

Channel 38200
(2615.0MHz)

QPSK

50 RB / 0 RB Offset



LTE Band 38, Channel Bandwidth 15MHz

Channel 37825
(2577.5MHz)

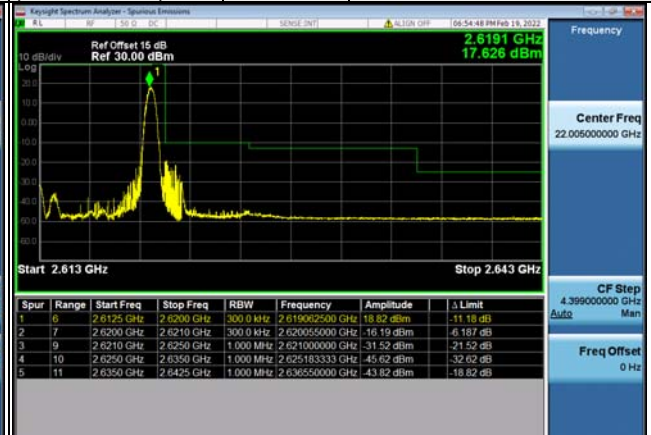
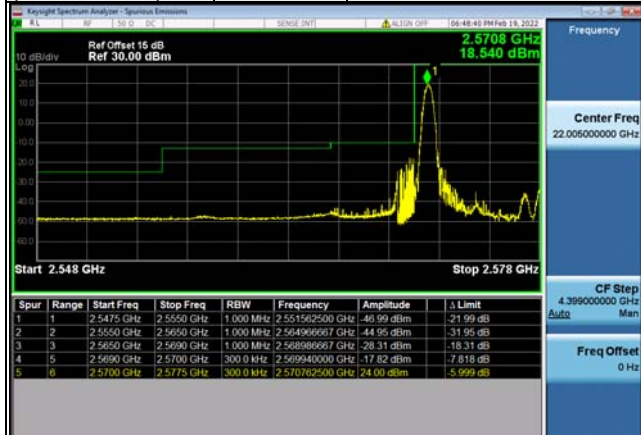
QPSK

1 RB / 0 RB Offset

Channel 38175
(2612.5MHz)

QPSK

1 RB / 74 RB Offset



Channel 37825
(2577.5MHz)

QPSK

75 RB / 0 RB Offset

Channel 38175
(2612.5MHz)

QPSK

75 RB / 0 RB Offset



LTE Band 38, Channel Bandwidth 20MHz

Channel 37850
(2580.0MHz)

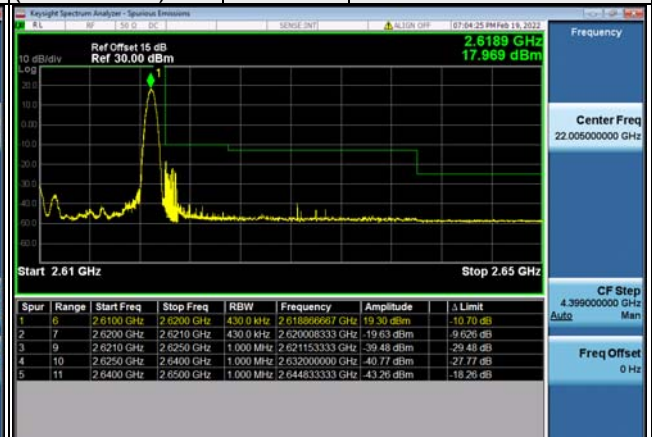
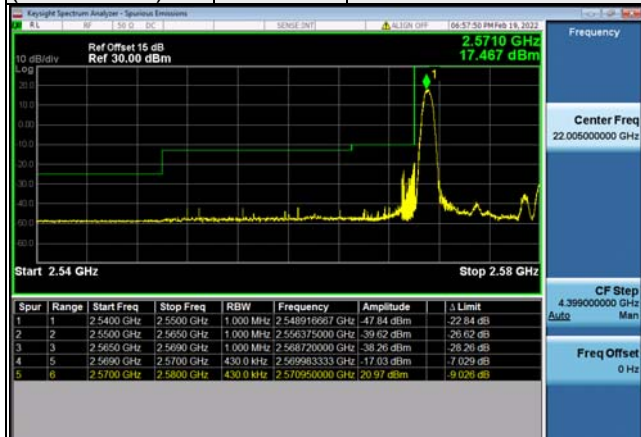
QPSK

1 RB / 0 RB Offset

Channel 38150
(2610.0MHz)

QPSK

1 RB / 99 RB Offset



Channel 37850
(2580.0MHz)

QPSK

100 RB / 0 RB Offset

Channel 38150
(2610.0MHz)

QPSK

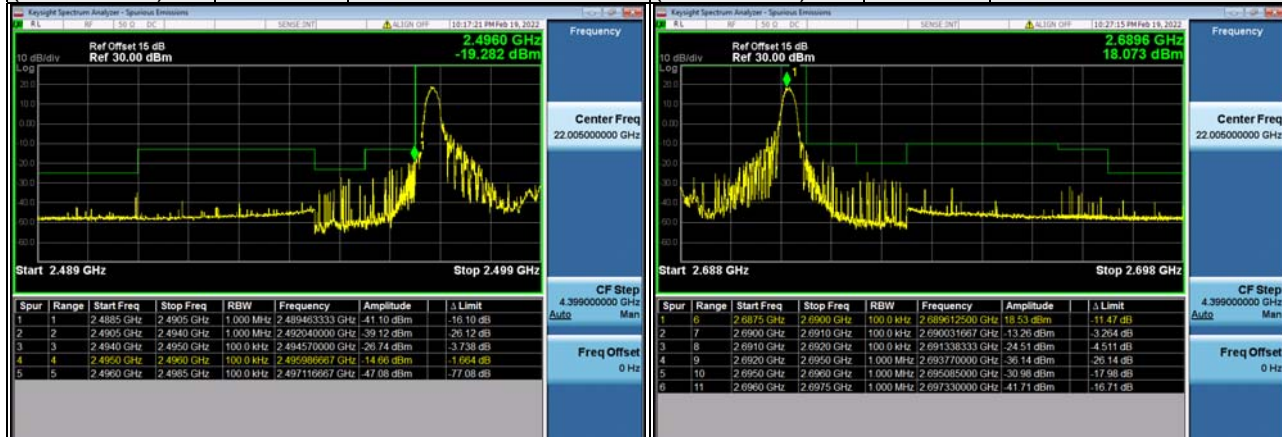
100 RB / 0 RB Offset



Out-of-Band Emission

LTE Band 41, Channel Bandwidth 5MHz

Channel 39675 (2498.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 41565 (2687.5MHz)	QPSK	1 RB / 24 RB Offset
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Channel 39675 (2498.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 41565 (2687.5MHz)	QPSK	25 RB / 0 RB Offset
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LTE Band 41, Channel Bandwidth 10MHz

Channel 39700
(2501.0MHz)

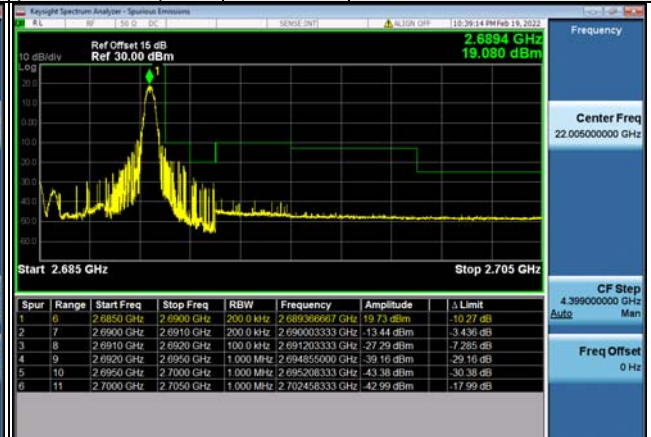
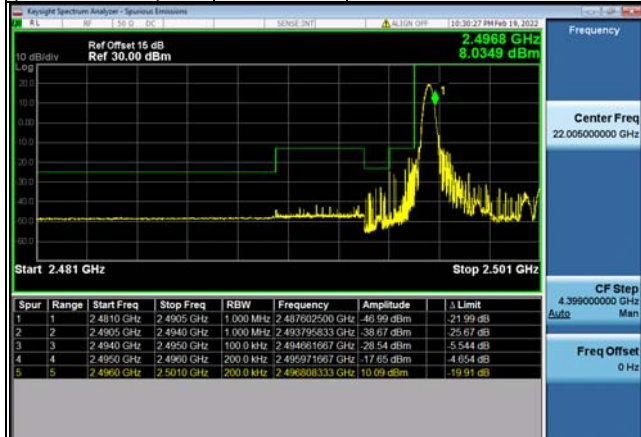
QPSK

1 RB / 0 RB Offset

Channel 41540
(2685.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 39700
(2501.0MHz)

QPSK

50 RB / 0 RB Offset

Channel 41540
(2685.0MHz)

QPSK

50 RB / 0 RB Offset



LTE Band 41, Channel Bandwidth 15MHz

Channel 39725
(2503.5MHz)

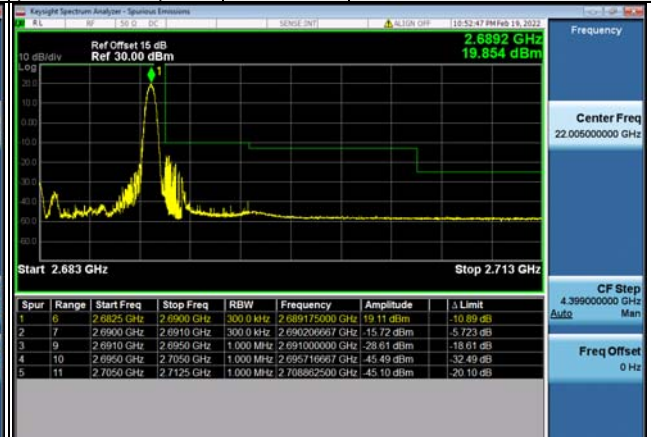
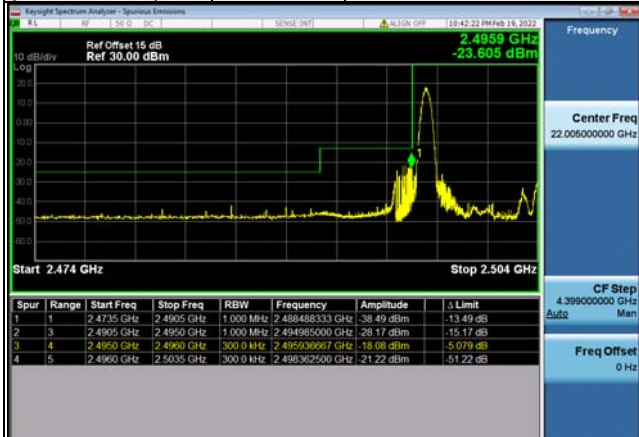
QPSK

1 RB / 0 RB Offset

Channel 41515
(2682.5MHz)

QPSK

1 RB / 74 RB Offset



Channel 39725
(2503.5MHz)

QPSK

75 RB / 0 RB Offset

Channel 41515
(2682.5MHz)

QPSK

75 RB / 0 RB Offset



LTE Band 41, Channel Bandwidth 20MHz

Channel 39750
(2506.0MHz)

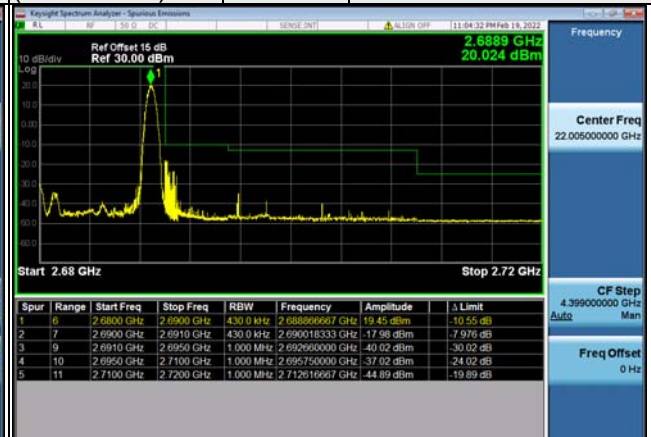
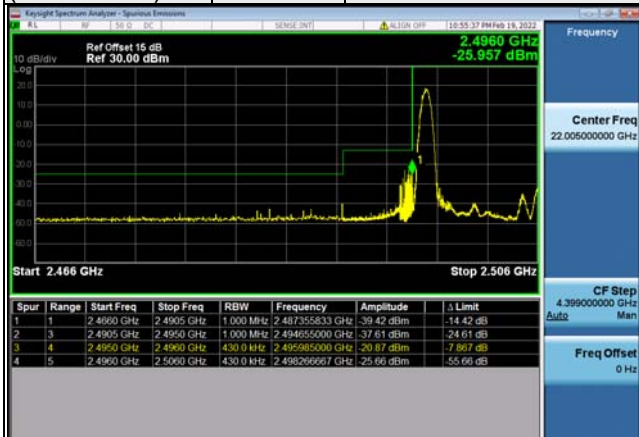
QPSK

1 RB / 0 RB Offset

Channel 41490
(2680.0MHz)

QPSK

1 RB / 99 RB Offset



Channel 39750
(2506.0MHz)

QPSK

100 RB / 0 RB Offset

Channel 41490
(2680.0MHz)

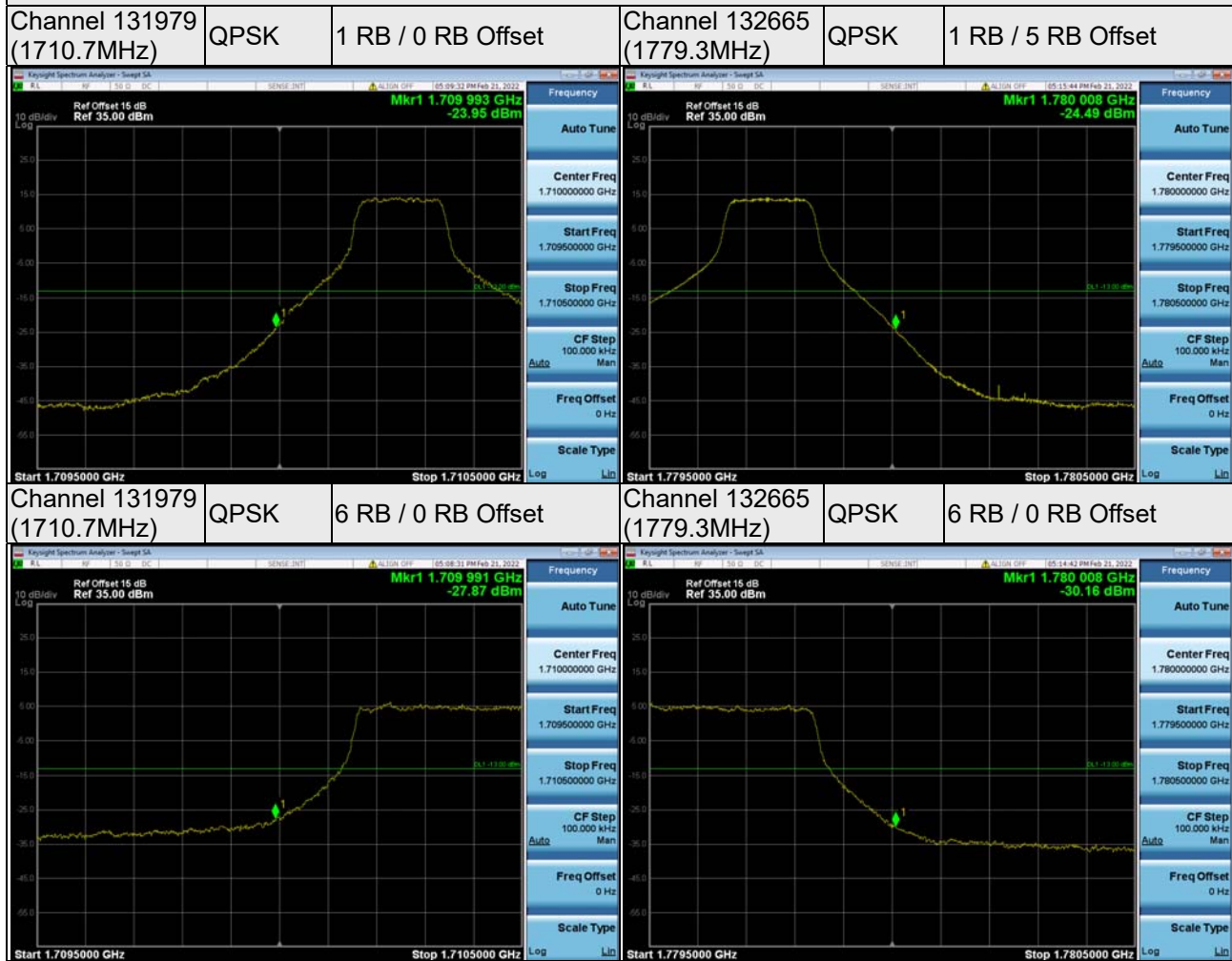
QPSK

100 RB / 0 RB Offset



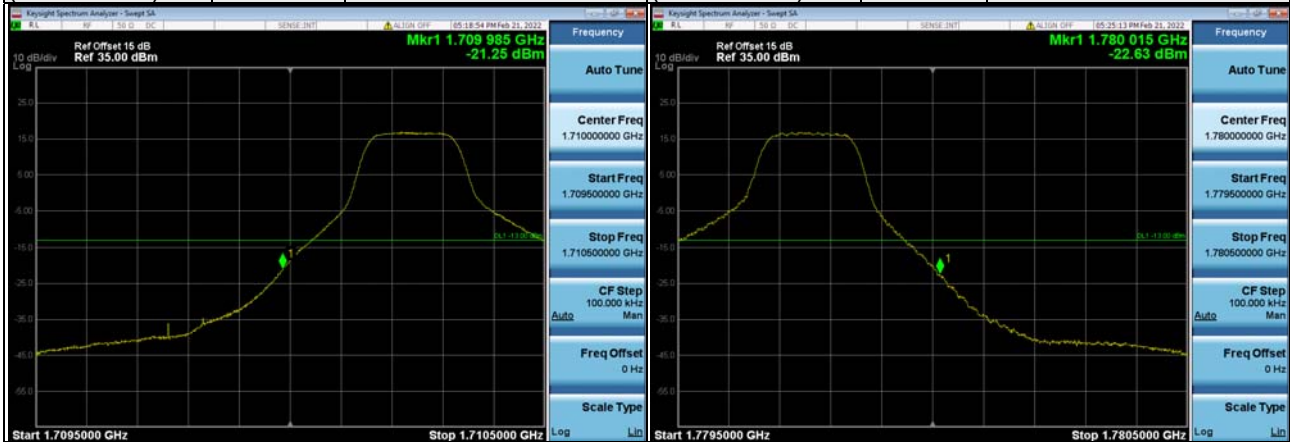
Band Edge

LTE Band 66, Channel Bandwidth 1.4MHz



LTE Band 66, Channel Bandwidth 3MHz

Channel 131987 (1711.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 132657 (1778.5MHz)	QPSK	1 RB / 14 RB Offset
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Channel 131987 (1711.5MHz)	QPSK	15 RB / 0 RB Offset	Channel 132657 (1778.5MHz)	QPSK	15 RB / 0 RB Offset
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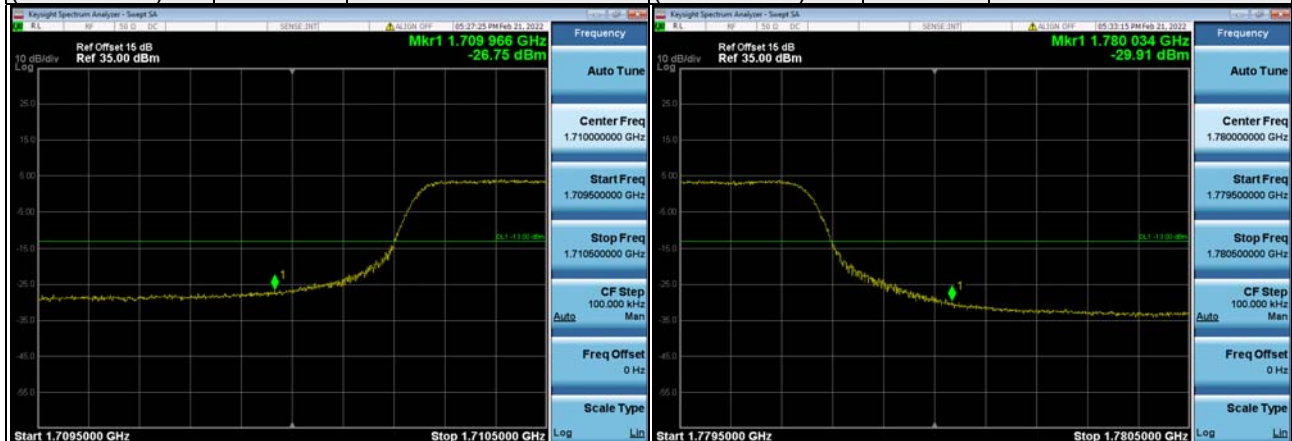


LTE Band 66, Channel Bandwidth 5MHz

Channel 131997 (1712.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 132647 (1777.5MHz)	QPSK	1 RB / 24 RB Offset
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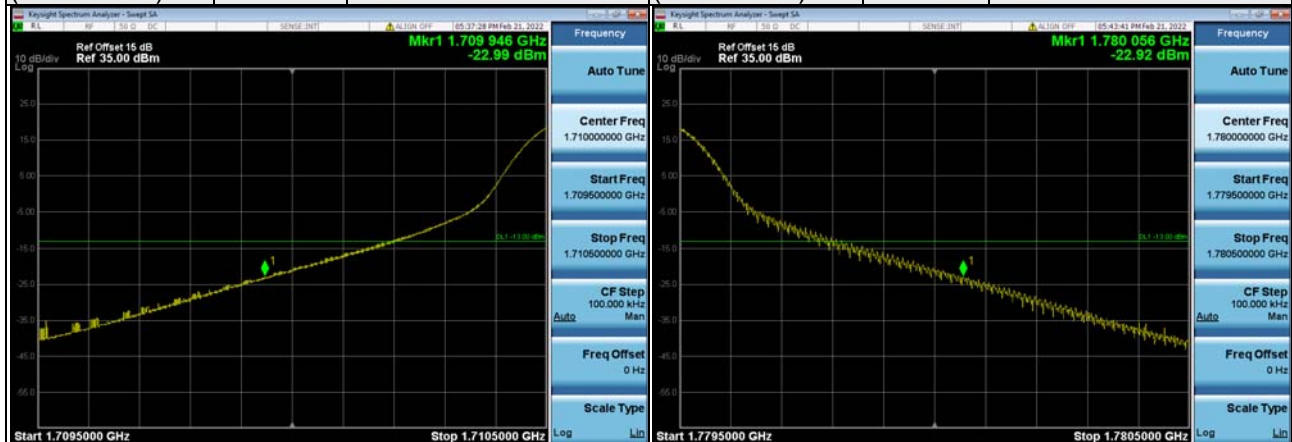


Channel 131997 (1712.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 132647 (1777.5MHz)	QPSK	25 RB / 0 RB Offset
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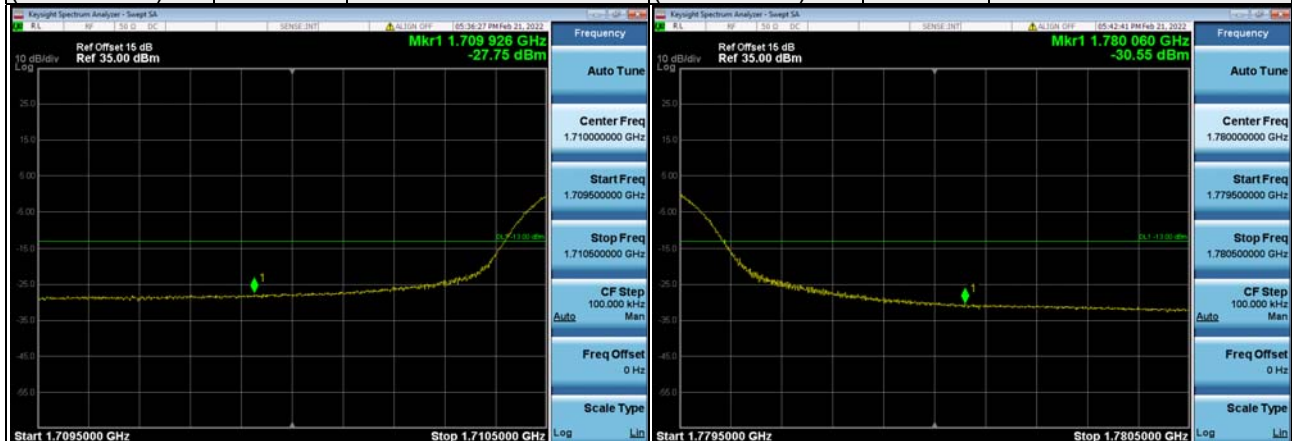


LTE Band 66, Channel Bandwidth 10MHz

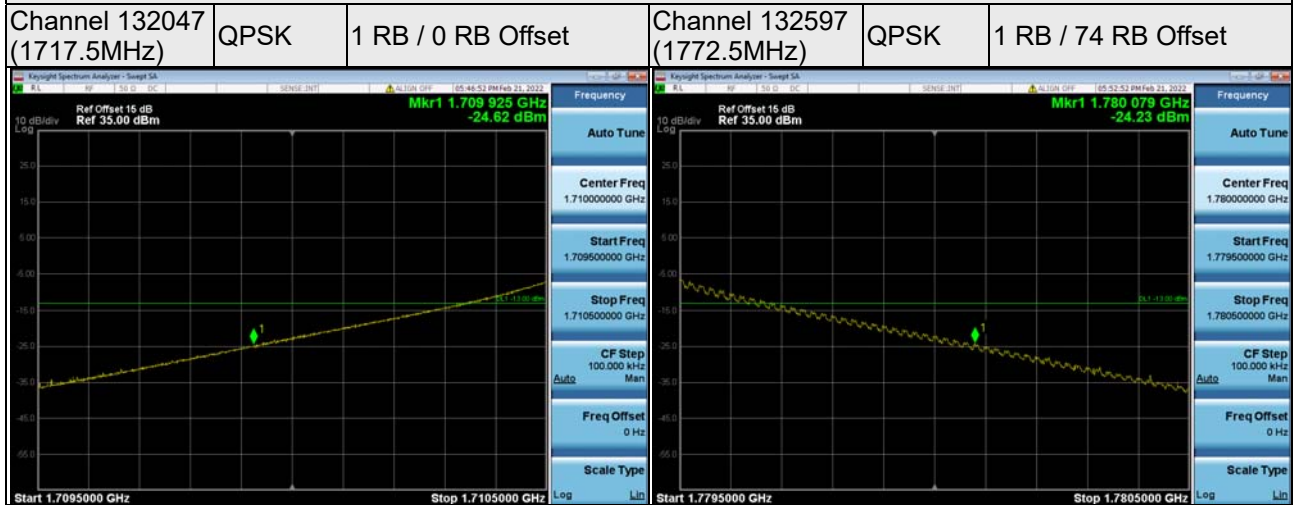
Channel 132022 (1715.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 132622 (1775.0MHz)	QPSK	1 RB / 49 RB Offset
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Channel 132022 (1715.0MHz)	QPSK	50 RB / 0 RB Offset	Channel 132622 (1775.0MHz)	QPSK	50 RB / 0 RB Offset
-------------------------------	------	---------------------	-------------------------------	------	---------------------

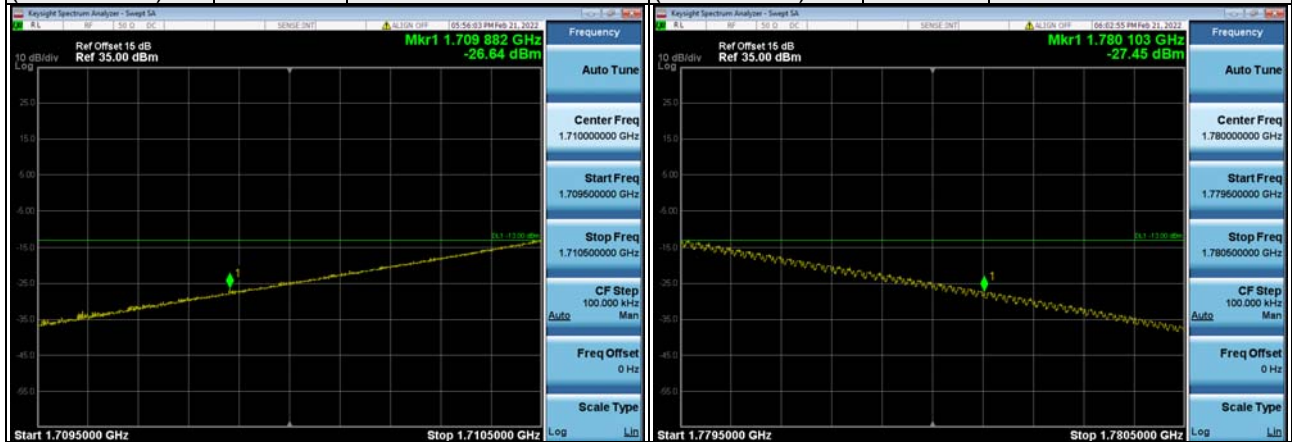


LTE Band 66, Channel Bandwidth 15MHz



LTE Band 66, Channel Bandwidth 20MHz

Channel 132072 (1720.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 132572 (1770.0MHz)	QPSK	1 RB / 99 RB Offset
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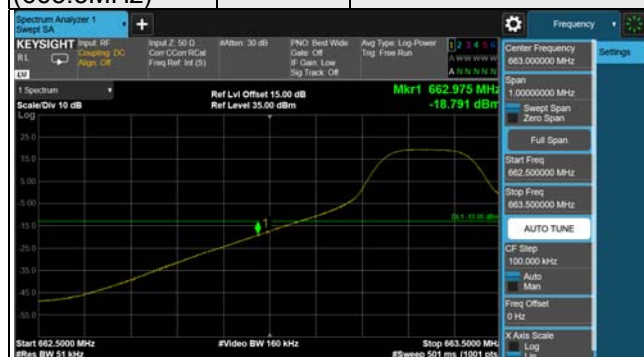
Channel 132072 (1720.0MHz)	QPSK	100 RB / 0 RB Offset	Channel 132572 (1770.0MHz)	QPSK	100 RB / 0 RB Offset
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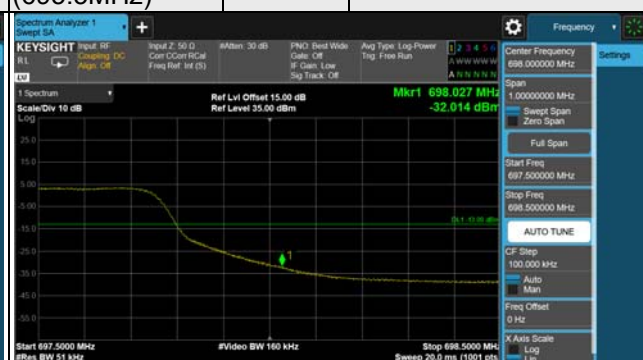
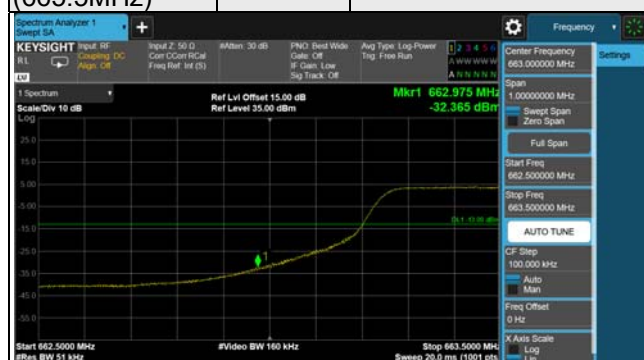
Band Edge

LTE Band 71, Channel Bandwidth 5MHz

Channel 133147 (665.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 133447 (695.5MHz)	QPSK	1 RB / 24 RB Offset
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Channel 133147 (665.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 133447 (695.5MHz)	QPSK	25 RB / 0 RB Offset
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LTE Band 71, Channel Bandwidth 10MHz

Channel 133172 (668.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 133422 (693.0MHz)	QPSK	1 RB / 49 RB Offset
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Channel 133172 (668.0MHz)	QPSK	50 RB / 0 RB Offse	Channel 133422 (693.0MHz)	QPSK	50 RB / 0 RB Offset
------------------------------	------	--------------------	------------------------------	------	---------------------



LTE Band 71, Channel Bandwidth 15MHz

Channel 133197 (670.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 133397 (690.5MHz)	QPSK	1 RB / 74 RB Offset
					
Channel 133197 (670.5MHz)	QPSK	75 RB / 0 RB Offset	Channel 133397 (690.5MHz)	QPSK	75 RB / 0 RB Offset
					

LTE Band 71, Channel Bandwidth 20MHz

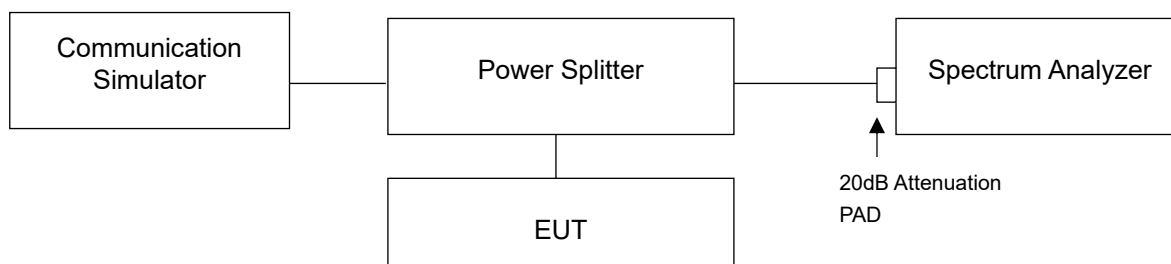
Channel 133222 (673.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 133372 (688.0MHz)	QPSK	1 RB / 99 RB Offset
					
Channel 133222 (673.0MHz)	QPSK	100 RB / 0 RB Offset	Channel 133372 (688.0MHz)	QPSK	100 RB / 0 RB Offset
					

4.6 Peak to Average Ratio

4.6.1 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

4.6.2 Test Setup



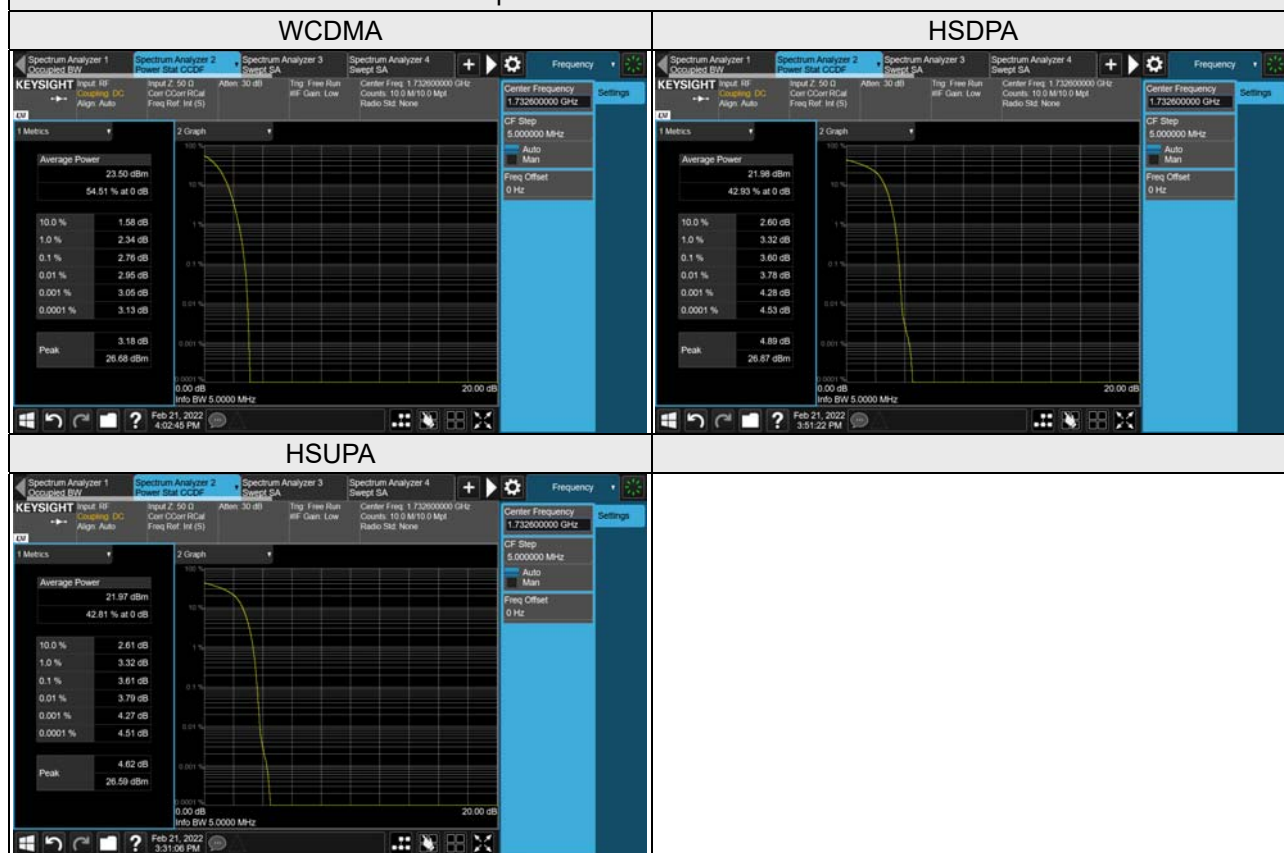
4.6.3 Test Procedures

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

4.6.4 Test Results

Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		WCDMA	HSDPA	HSUPA
1312	1712.4	2.51	3.45	3.46
1413	1732.6	2.76	3.60	3.61
1513	1752.6	2.53	3.50	3.51

Spectrum Plot of Worst Value



LTE Band 4, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
19957	1710.7	3.64	4.74	5.35	6.40
20175	1732.5	4.50	5.64	6.00	6.73
20393	1754.3	3.99	5.01	5.44	6.69
LTE Band 4, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
19965	1711.5	3.75	4.76	5.38	6.50
20175	1732.5	4.52	5.63	5.93	6.64
20385	1753.5	3.63	4.67	5.18	6.52
LTE Band 4, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
19975	1712.5	3.71	4.77	5.35	6.59
20175	1732.5	4.58	5.66	5.97	6.79
20375	1752.5	3.19	4.22	4.77	6.33
LTE Band 4, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
20000	1715.0	3.69	4.73	5.35	6.54
20175	1732.5	4.67	5.84	6.10	6.52
20350	1750.0	2.76	3.76	4.33	6.08
LTE Band 4, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
20025	1717.5	3.79	4.89	5.39	6.17
20175	1732.5	4.69	5.89	6.07	6.48
20325	1747.5	3.00	3.95	4.59	6.49

LTE Band 4, Channel Bandwidth 20MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
20050	1720.0	3.71	4.84	5.34	6.95
20175	1732.5	4.41	5.58	5.85	6.89
20300	1745.0	3.91	4.99	5.44	6.95

Spectrum Plot of Worst Value

1.4MHz / 256QAM



3MHz / 256QAM



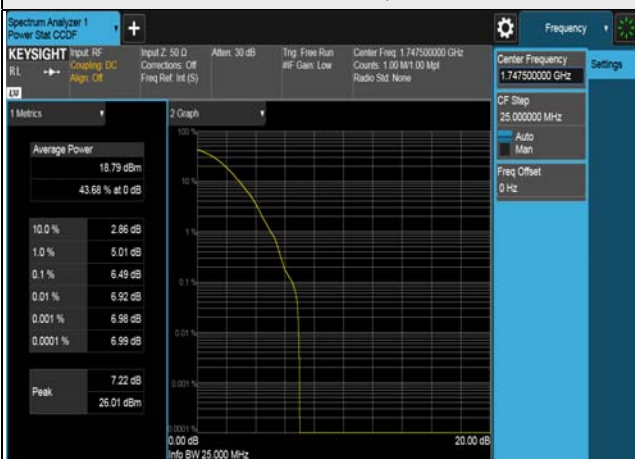
5MHz / 256QAM



10MHz / 256QAM



15MHz / 256QAM



20MHz / 256QAM



LTE Band 7, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
20775	2502.5	4.50	5.55	6.01	6.75
21100	2535.0	4.78	5.97	6.15	6.84
21425	2567.5	4.14	5.28	5.78	6.90
LTE Band 7, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
20800	2505.0	4.47	5.56	6.00	7.20
21100	2535.0	4.75	6.00	6.17	6.77
21400	2565.0	4.63	5.78	6.11	6.83
LTE Band 7, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
20825	2507.5	4.47	5.65	6.01	7.14
21100	2535.0	4.66	5.90	6.19	7.29
21375	2562.5	4.59	5.83	6.12	6.87
LTE Band 7, Channel Bandwidth 20MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
20850	2510.0	4.58	5.61	6.08	6.72
21100	2535.0	4.73	5.99	6.12	6.98
21350	2560.0	4.30	5.44	5.91	7.17

Spectrum Plot of Worst Value

5MHz / 256QAM



10MHz / 256QAM



15MHz / 256QAM



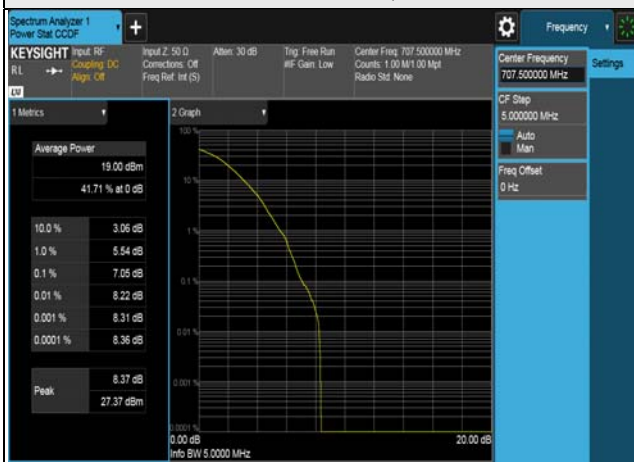
20MHz / 256QAM



LTE Band 12, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
23017	699.7	5.58	6.81	6.84	7.02
23095	707.5	5.49	6.62	6.80	7.05
23173	715.3	5.47	6.59	6.82	6.98
LTE Band 12, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
23025	700.5	5.47	6.67	6.79	7.08
23095	707.5	5.43	6.56	6.78	7.04
23165	714.5	5.40	6.64	6.74	6.94
LTE Band 12, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
23035	701.5	5.48	6.68	6.76	7.04
23095	707.5	5.41	6.73	6.77	6.94
23155	713.5	5.53	6.65	6.72	7.03
LTE Band 12, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
23060	704.0	5.50	6.83	6.76	6.94
23095	707.5	5.47	6.73	6.77	7.09
23130	711.0	5.44	6.60	6.77	7.03

Spectrum Plot of Worst Value

1.4MHz / 256QAM



3MHz / 256QAM



5MHz / 256QAM



10MHz / 256QAM



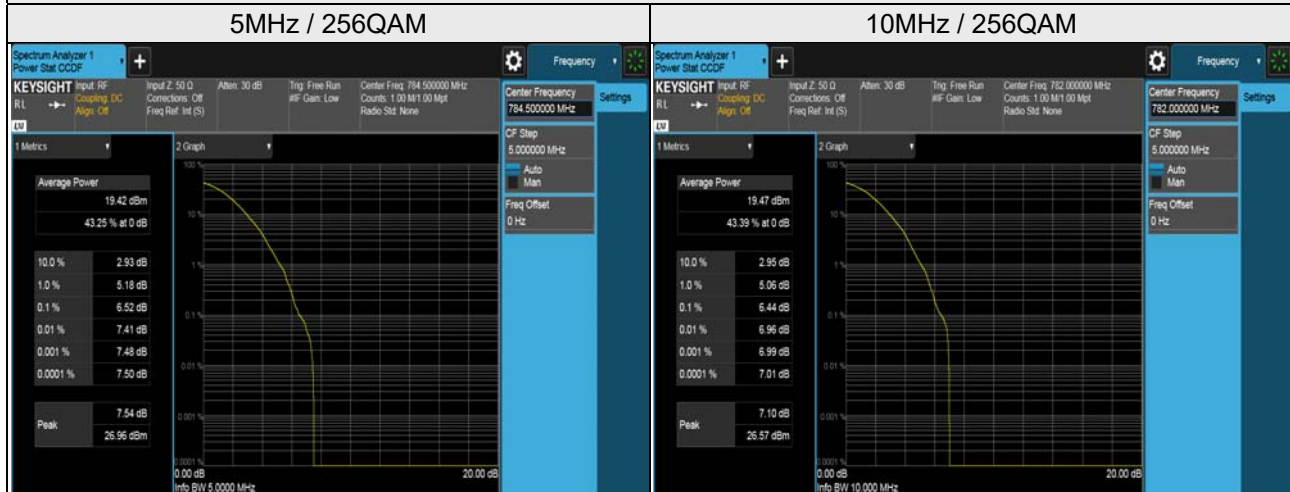
LTE Band 13, Channel Bandwidth 5MHz

Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
23205	779.5	3.30	4.33	4.90	6.26
23230	782.0	3.63	4.68	5.26	6.48
23255	784.5	4.21	5.30	5.78	6.52

LTE Band 13, Channel Bandwidth 10MHz

Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
23230	782.0	3.43	4.35	4.96	6.44

Spectrum Plot of Worst Value



LTE Band 38, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
37775	2572.5	8.63	9.60	9.97	10.29
38000	2595.0	7.85	9.25	9.85	10.35
38225	2617.5	7.91	9.39	9.96	10.00
LTE Band 38, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
37800	2575.0	8.72	9.53	10.31	10.34
38000	2595.0	9.12	9.38	9.76	9.54
38200	2615.0	8.59	9.15	9.45	10.12
LTE Band 38, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
37825	2577.5	8.36	9.88	9.74	9.18
38000	2595.0	8.02	9.81	9.85	9.50
38175	2612.5	7.91	10.46	9.87	10.43
LTE Band 38, Channel Bandwidth 20MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
37850	2580.0	9.61	9.90	9.88	11.25
38000	2595.0	8.57	11.31	9.69	10.56
38150	2610.0	8.36	9.99	9.84	9.12

Spectrum Plot of Worst Value

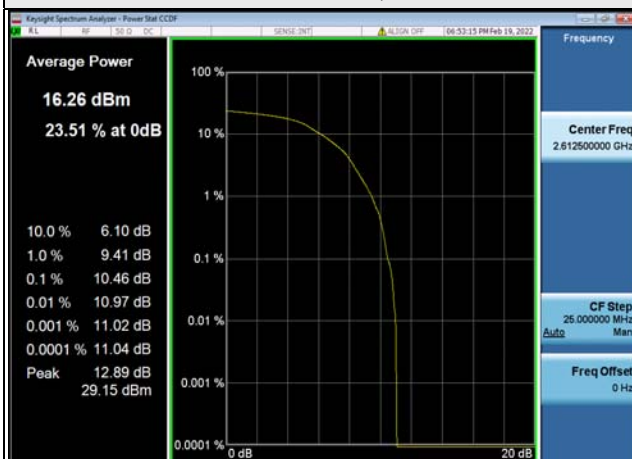
5MHz / 256QAM



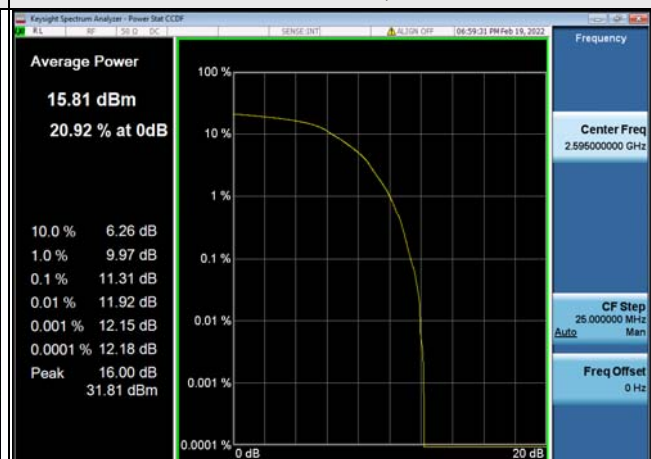
10MHz / 256QAM



15MHz / 16QAM



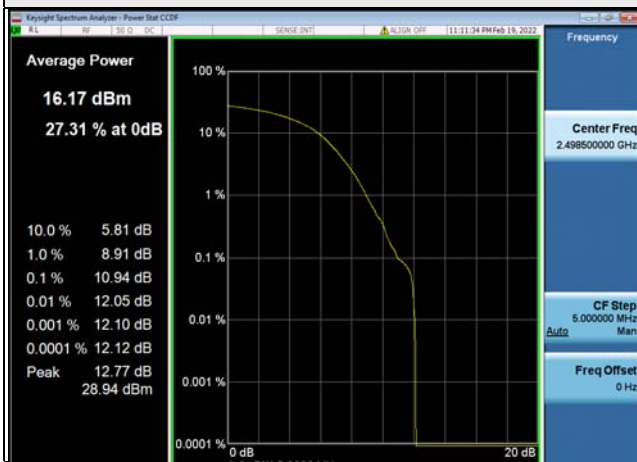
20MHz / 16QAM



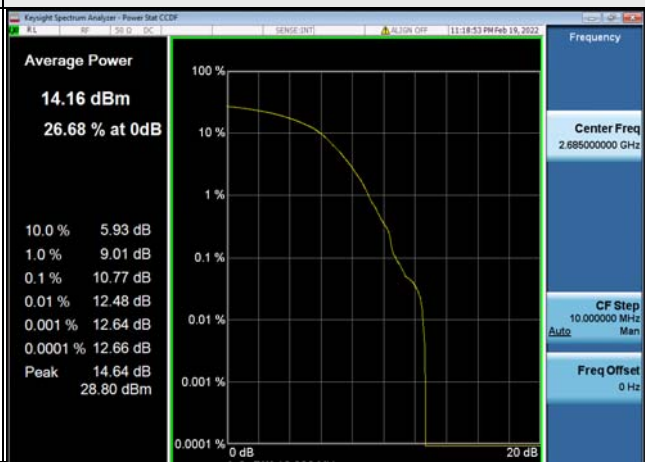
LTE Band 41, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
39675	2498.5	8.60	9.34	9.57	10.94
40620	2593.0	8.34	9.57	9.62	9.84
41565	2687.5	8.97	9.31	9.86	10.29
LTE Band 41, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
39700	2501.0	7.86	9.24	9.30	10.45
40620	2593.0	8.84	9.73	10.24	10.49
41540	2685.0	8.66	9.80	10.66	10.77
LTE Band 41, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
39725	2503.5	8.27	8.55	10.01	9.62
40620	2593.0	8.23	9.82	8.83	9.18
41515	2682.5	8.47	8.57	9.83	9.97
LTE Band 41, Channel Bandwidth 20MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
39750	2506.0	8.35	9.70	9.89	11.02
40620	2593.0	8.27	9.83	9.91	10.23
41490	2680.0	8.43	8.62	9.84	11.25

Spectrum Plot of Worst Value

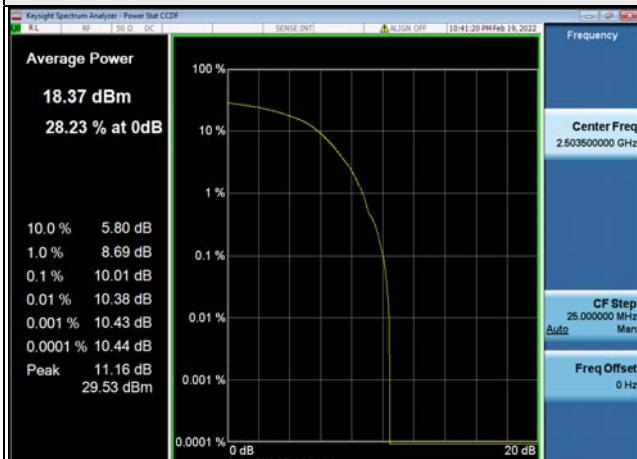
5MHz / 256QAM



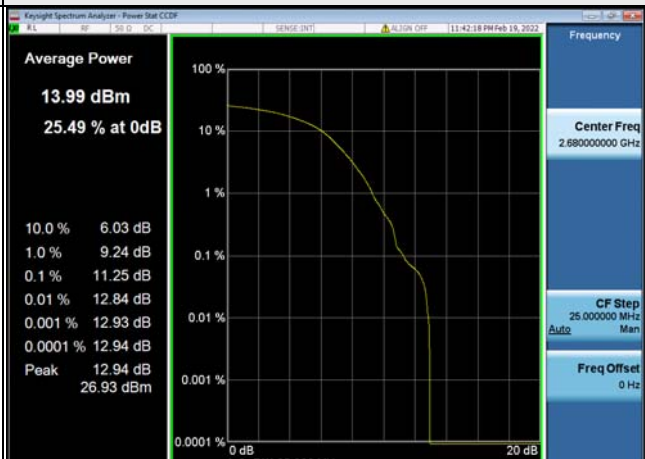
10MHz / 256QAM



15MHz / 64QAM



20MHz / 256QAM



LTE Band 66, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
131979	1710.7	4.28	5.26	5.78	6.59
132322	1745.0	3.06	4.10	4.64	6.20
132665	1779.3	4.46	5.57	5.93	6.58
LTE Band 66, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
131987	1711.5	4.11	5.23	5.66	6.63
132322	1745.0	3.06	4.08	4.66	6.18
132657	1778.5	4.26	5.27	5.69	6.47
LTE Band 66, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
131997	1712.5	4.00	5.11	5.61	6.58
132322	1745.0	3.01	4.08	4.64	6.20
132647	1777.5	3.88	4.95	5.37	6.77
LTE Band 66, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
132022	1715.0	4.01	5.14	5.64	6.79
132322	1745.0	3.27	4.27	4.88	6.53
132622	1775.0	3.54	4.68	5.15	6.55
LTE Band 66, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
132047	1717.5	3.99	5.03	5.57	6.78
132322	1745.0	3.62	4.61	5.28	6.59
132597	1772.5	4.18	5.26	5.66	6.62

LTE Band 66, Channel Bandwidth 20MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
132072	1720.0	3.99	5.08	5.53	6.80
132322	1745.0	4.03	5.10	5.57	6.06
132572	1770.0	4.79	6.09	6.10	6.58

Spectrum Plot of Worst Value

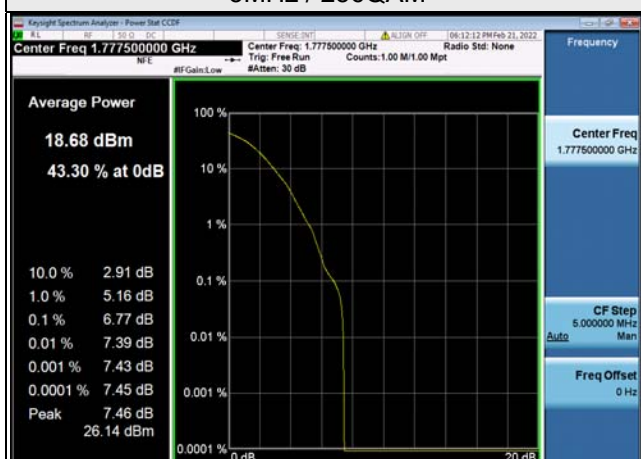
1.4MHz / 256QAM



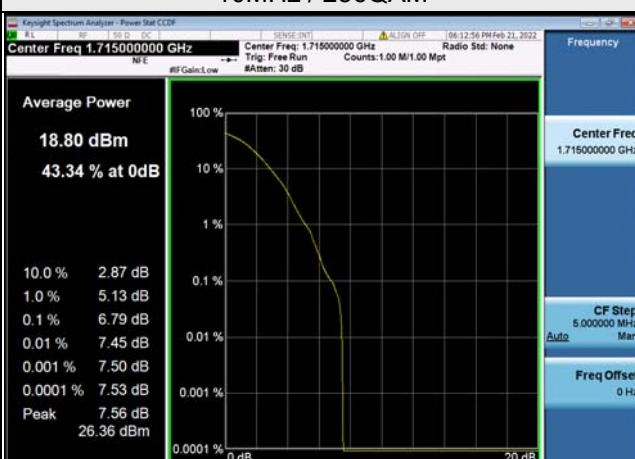
3MHz / 256QAM



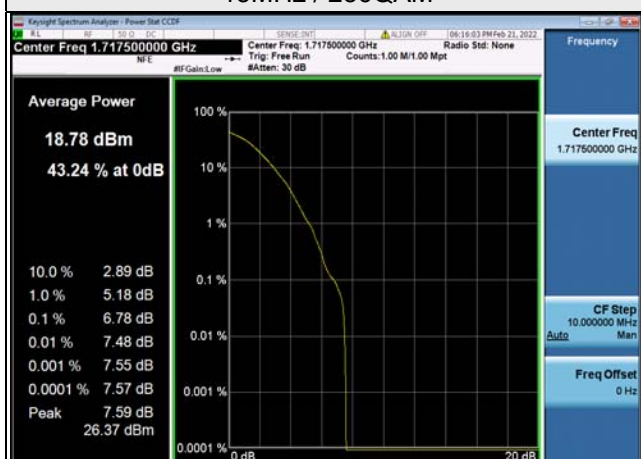
5MHz / 256QAM



10MHz / 256QAM



15MHz / 256QAM



20MHz / 256QAM



LTE Band 71, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
133147	665.5	4.19	5.22	5.71	6.34
133297	680.5	5.05	6.07	6.35	6.70
133447	695.5	4.75	5.88	6.22	6.67
LTE Band 71, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
133172	668.0	4.25	5.23	5.69	6.52
133297	680.5	4.94	6.07	6.39	6.94
133422	693.0	4.86	5.96	6.34	6.53
LTE Band 71, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
133197	670.5	4.43	5.47	5.67	6.83
133297	680.5	4.81	6.04	6.28	7.37
133397	690.5	5.00	6.12	6.26	6.15
LTE Band 71, Channel Bandwidth 20MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
133222	673.0	4.50	5.40	5.95	6.10
133297	680.5	4.77	5.52	6.17	6.24
133372	688.0	4.97	6.22	6.43	6.32

Spectrum Plot of Worst Value

5MHz / 256QAM



10MHz / 256QAM



15MHz / 256QAM



20MHz / 256QAM



4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

For WCDMA Band 4, LTE Band 4, LTE Band 66:

In the FCC 27.53(h), On any frequency outside a licensee's frequency block, The power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB. The emission limit equal to -13dBm .

For LTE Band 7, LTE Band 38, LTE Band 41:

In the FCC 27.53(m)(4), On any frequency outside a licensee's frequency block, The power of any emission shall be attenuated below the transmitter power (P) by at least $55 + 10 \log (P)$ dB. The emission limit equal to -25dBm .

For LTE Band 13:

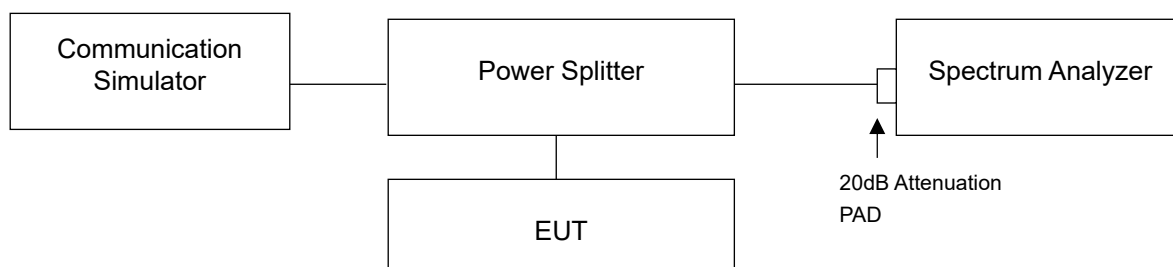
According to FCC 27.53(c)(2) for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB.

According to FCC 27.53(f) for operations in the 775-788 MHz, emissions in the band 1559-1610MHz shall be limited to -70 dBW/MHz . The limit of emissions is equal to -40 dBm

For LTE Band 12, LTE Band 17, LTE Band 71:

According to FCC 27.53(g) for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

4.7.2 Test Setup



4.7.3 Test Procedure

- a. All measurements were done at low and high channels operational frequency range.
- b. Measuring frequency range is from 9kHz to 1GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are for conducted emission measurement.
- c. Measuring frequency range is from 1GHz to 7GHz / 8GHz / 9GHz / 18GHz / 20GHz / 26GHz / 27GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

4.7.4 Test Results

WCDMA

Channel 1312 (1712.4MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz



*The 9kHz signal over the limit is from Spectrum.

WCDMA

Channel 1413 (1732.6MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz



*The 9kHz signal over the limit is from Spectrum.

WCDMA

Channel 1513 (1752.6MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

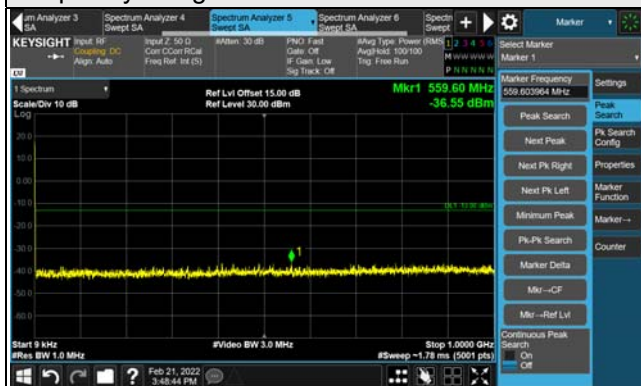


*The 9kHz signal over the limit is from Spectrum.

HSDPA

Channel 1312 (1712.4MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

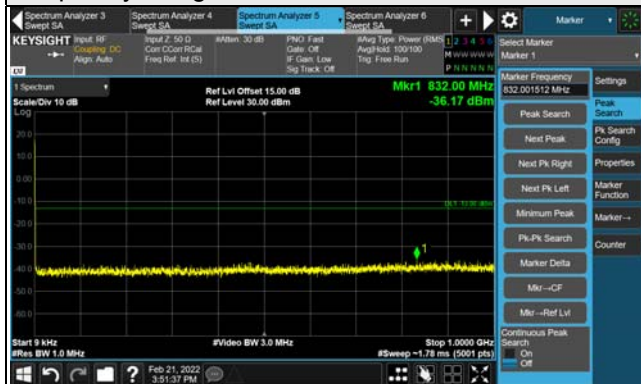


*The 9kHz signal over the limit is from Spectrum.

HSDPA

Channel 1413 (1732.6MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz



*The 9kHz signal over the limit is from Spectrum.

HSDPA

Channel 1513 (1752.6MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz



*The 9kHz signal over the limit is from Spectrum.

HSUPA

Channel 1312 (1712.4MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz



*The 9kHz signal over the limit is from Spectrum.

HSUPA

Channel 1413 (1732.6MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz



*The 9kHz signal over the limit is from Spectrum.

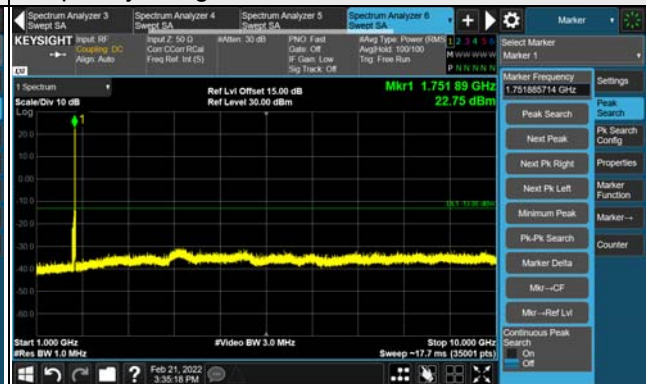
HSUPA

Channel 1513 (1752.6MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

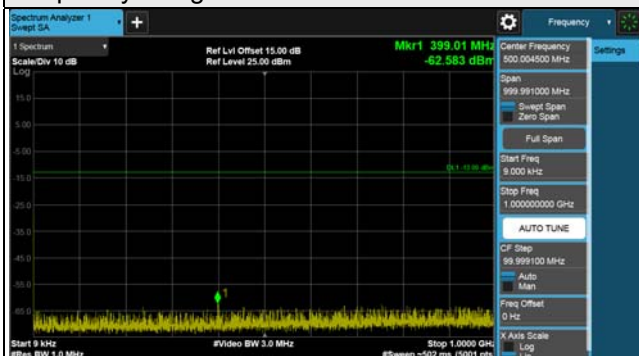


*The 9kHz signal over the limit is from Spectrum.

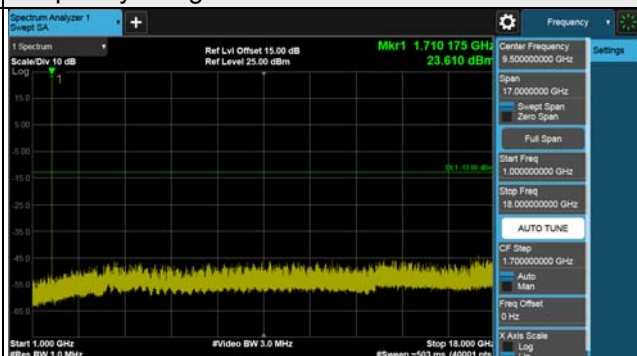
LTE Band 4, Channel Bandwidth 1.4MHz

Channel 19957 (1710.7MHz)

Frequency Range : 9kHz ~ 1GHz

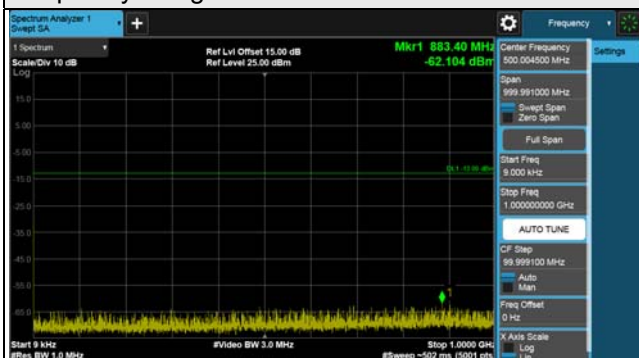


Frequency Range : 1GHz ~ 18GHz

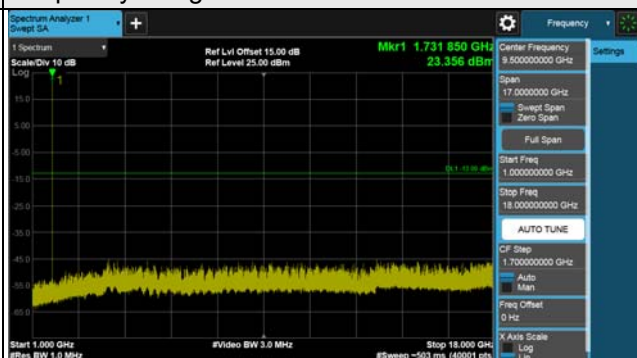


Channel 20175 (1732.5MHz)

Frequency Range : 9kHz ~ 1GHz

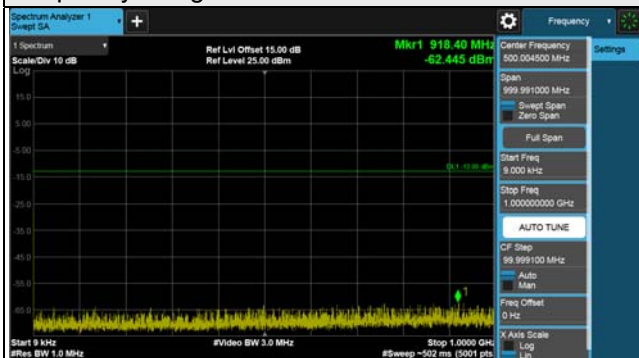


Frequency Range : 1GHz ~ 18GHz



Channel 20393 (1754.3MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 18GHz

