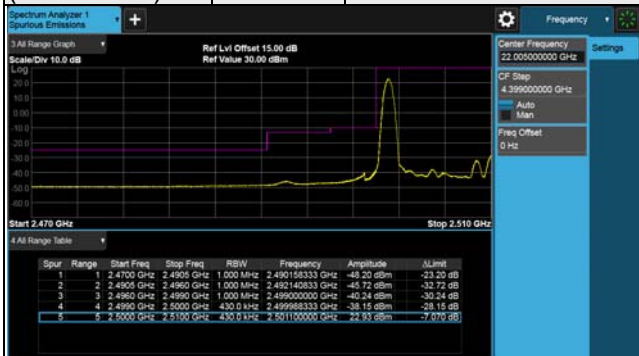


LTE Band 7, Channel Bandwidth 20MHz

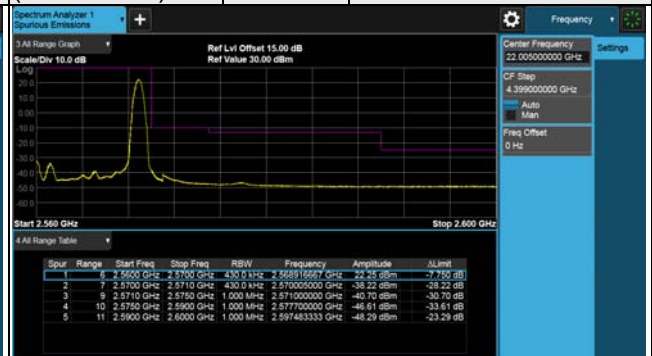
Channel 20850 (2510.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 21350 (2560.0MHz)	QPSK	1 RB / 99 RB Offset
--------------------------------------	-------------	---------------------------	--------------------------------------	-------------	----------------------------



Spectrum Analyzer 1
Spurious Emissions

Center Frequency: 22.005000000 GHz
CF Step: 4.399000000 GHz
Freq Offset: 0 Hz

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ULimit
1	1	2.4700 GHz	2.4900 GHz	1.000 MHz	2.490158333 GHz	-48.20 dBm	-23.20 dB
2	2	2.4900 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	2.499200000 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	-7.93 dB

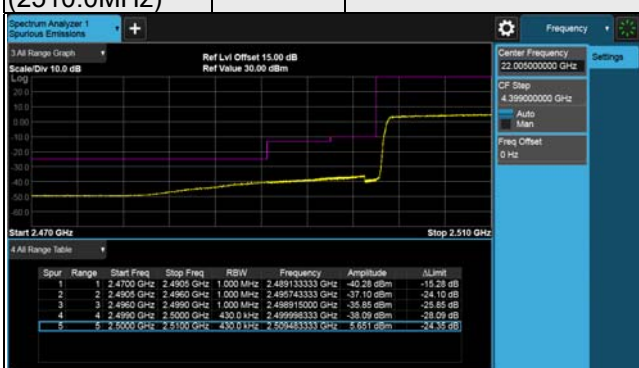


Spectrum Analyzer 1
Spurious Emissions

Center Frequency: 22.005000000 GHz
CF Step: 4.399000000 GHz
Freq Offset: 0 Hz

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ULimit
1	6	2.5600 GHz	2.5700 GHz	430.0 kHz	2.569116667 GHz	-24.25 dBm	-7.75 dB
2	7	2.5700 GHz	2.5710 GHz	430.0 kHz	2.570200000 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	2.577700000 GHz	-46.61 dBm	-33.61 dB
5	11	2.5900 GHz	2.6000 GHz	1.000 MHz	2.597453333 GHz	-45.29 dBm	-23.29 dB


Channel 20850 (2510.0MHz)	QPSK	100 RB / 0 RB Offset	Channel 21350 (2560.0MHz)	QPSK	100 RB / 0 RB Offset
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Spectrum Analyzer 1
Spurious Emissions

Center Frequency: 22.005000000 GHz
CF Step: 4.399000000 GHz
Freq Offset: 0 Hz

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ULimit
1	1	2.4700 GHz	2.4900 GHz	1.000 MHz	2.489133333 GHz	-40.58 dBm	-15.28 dB
2	2	2.4900 GHz	2.4960 GHz	1.000 MHz	2.486743333 GHz	-37.10 dBm	-24.10 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.488915000 GHz	-38.88 dBm	-28.88 dB
4	4	2.4990 GHz	2.5000 GHz	430.0 kHz	2.499993333 GHz	-38.09 dBm	-28.09 dB
5	5	2.5000 GHz	2.5100 GHz	430.0 kHz	2.509433333 GHz	-5.851 dBm	-24.35 dB



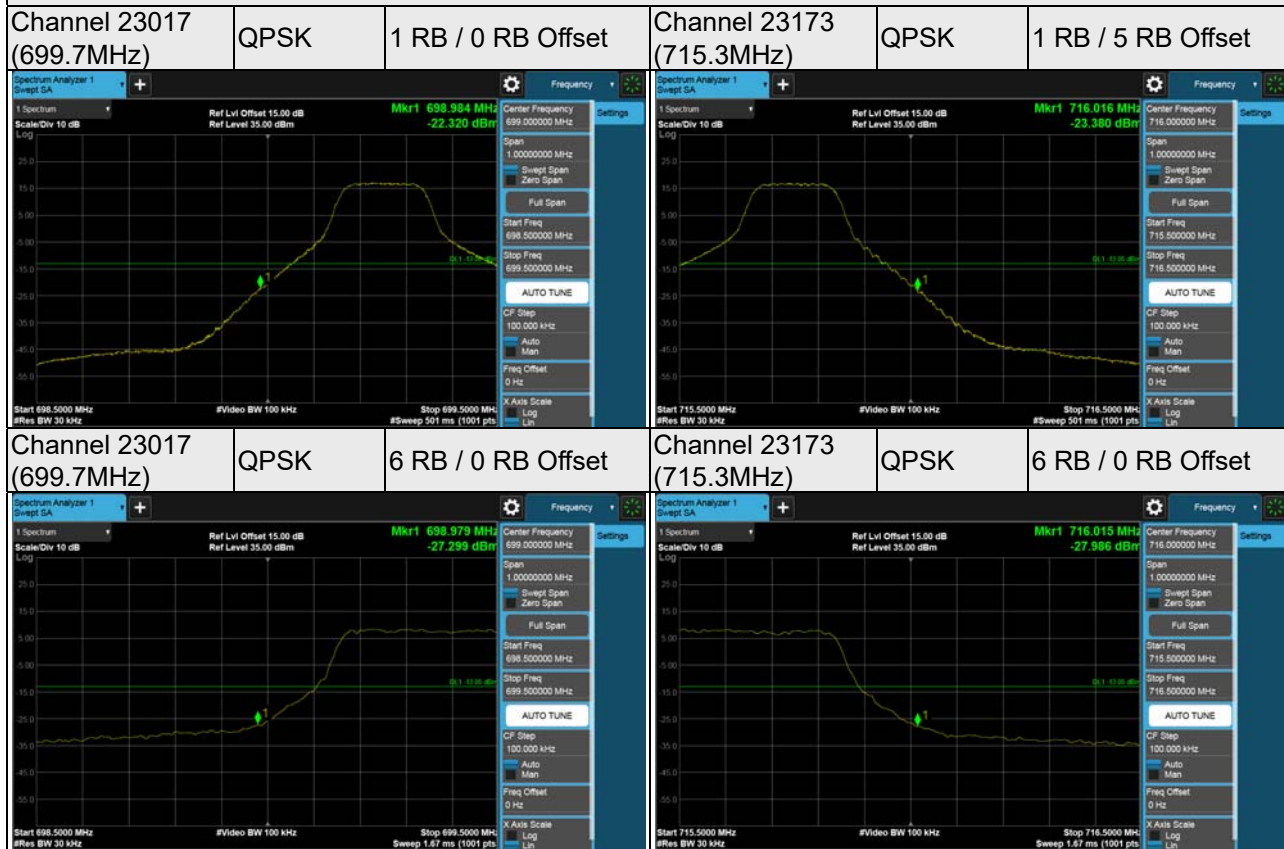
Spectrum Analyzer 1
Spurious Emissions

Center Frequency: 22.005000000 GHz
CF Step: 4.399000000 GHz
Freq Offset: 0 Hz

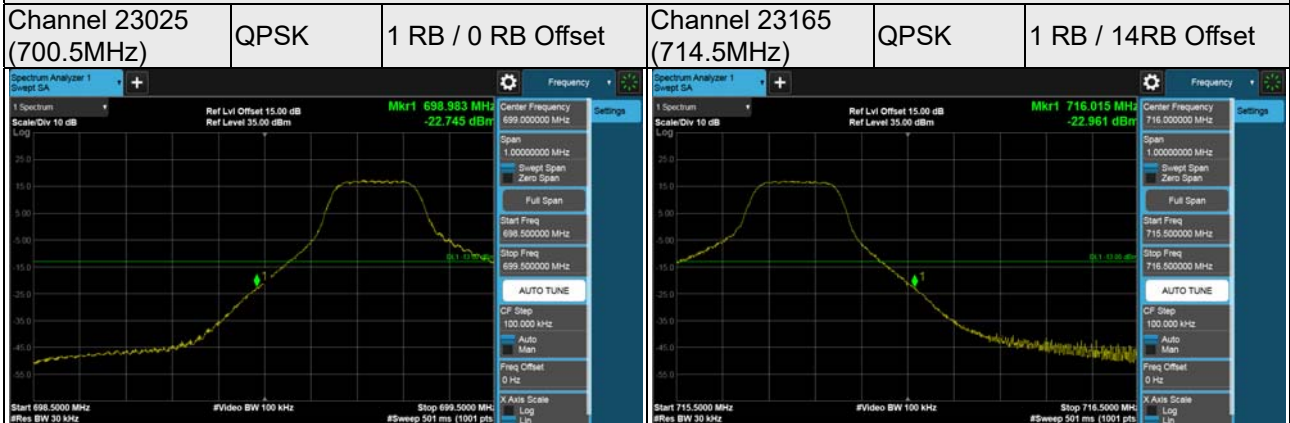
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ULimit
1	6	2.5600 GHz	2.5700 GHz	430.0 kHz	2.571150000 GHz	-4.930 dBm	-28.31 dB
2	7	2.5700 GHz	2.5710 GHz	430.0 kHz	2.570106667 GHz	-36.42 dBm	-28.42 dB
3	9	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571286667 GHz	-32.90 dBm	-22.90 dB
4	10	2.5750 GHz	2.5900 GHz	1.000 MHz	2.575200000 GHz	-35.61 dBm	-25.61 dB
5	11	2.5900 GHz	2.6000 GHz	1.000 MHz	2.591166667 GHz	-46.38 dBm	-23.38 dB

Band Edge

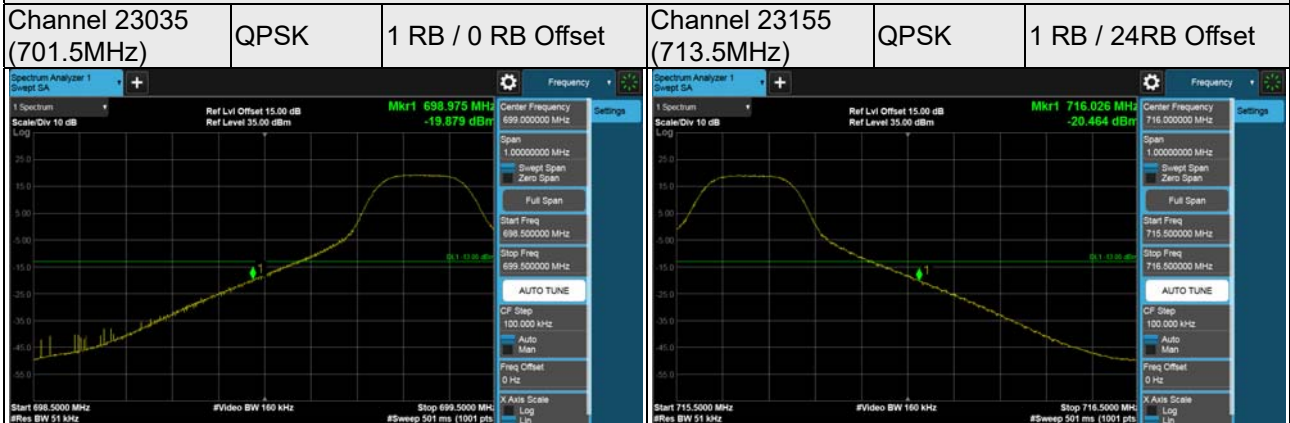
LTE Band 12, Channel Bandwidth 1.4MHz



LTE Band 12, Channel Bandwidth 3MHz



LTE Band 12, Channel Bandwidth 5MHz

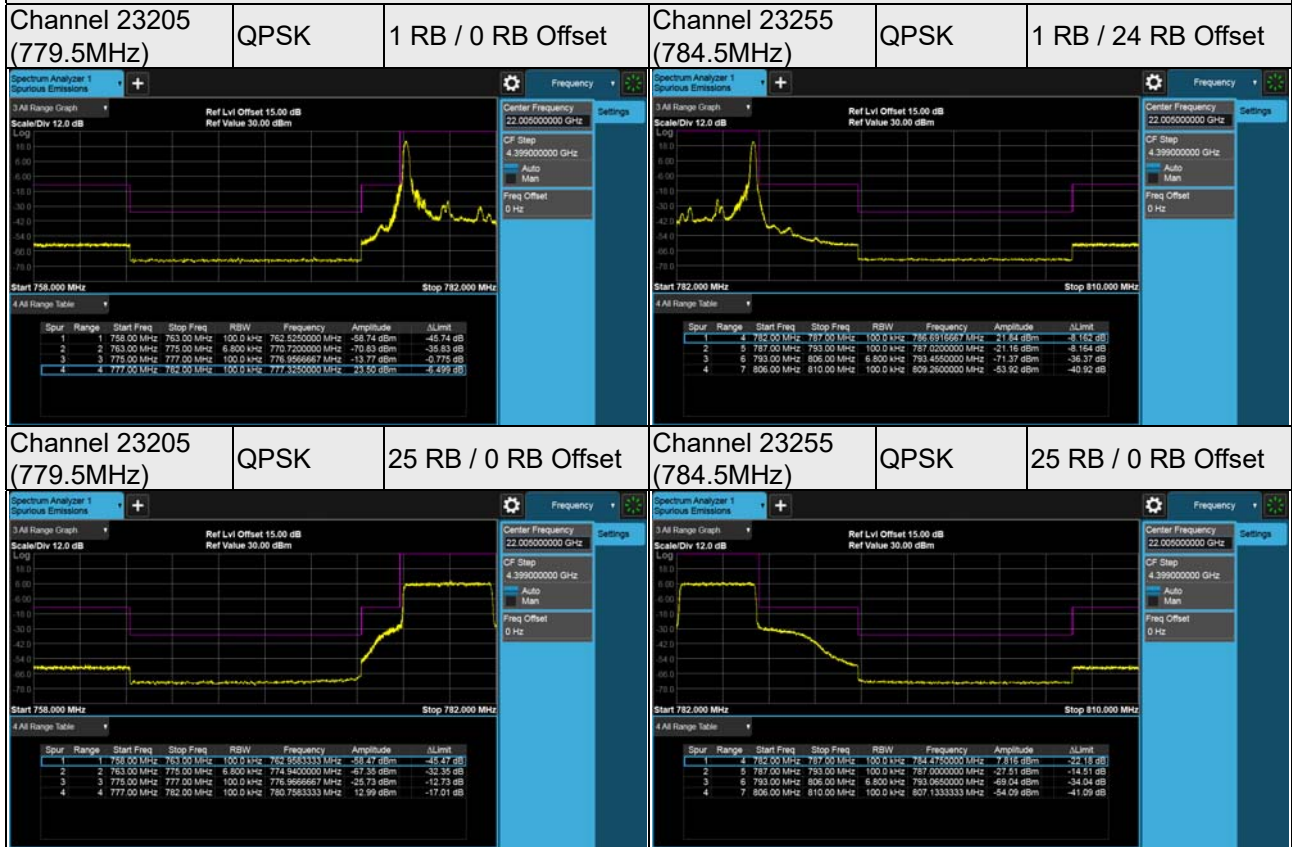


LTE Band 12, Channel Bandwidth 10MHz



Band Edge

LTE Band 13, Channel Bandwidth 5MHz



LTE Band 13, Channel Bandwidth 10MHz

Channel 23230
(782.0MHz)

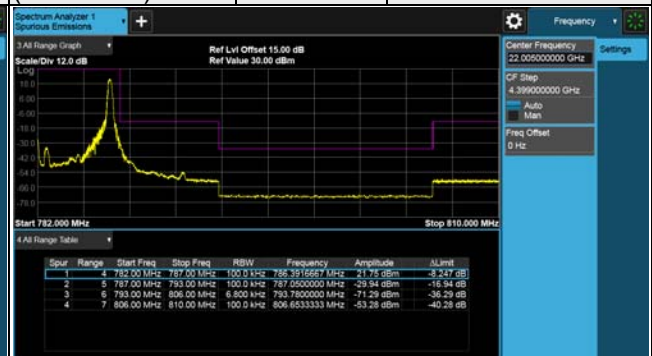
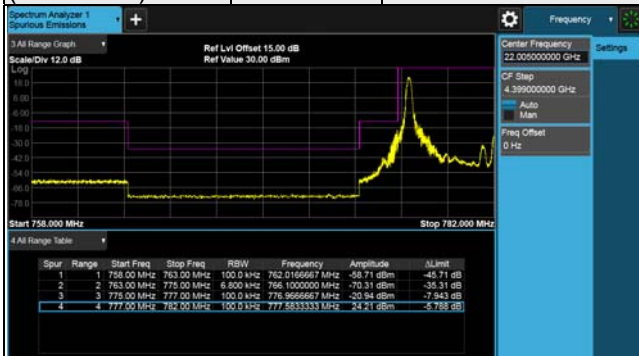
QPSK

1 RB / 0 RB Offset

Channel 23230
(782.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 23230
(782.0MHz)

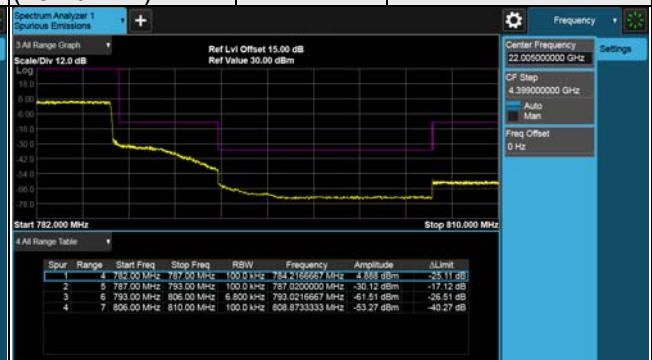
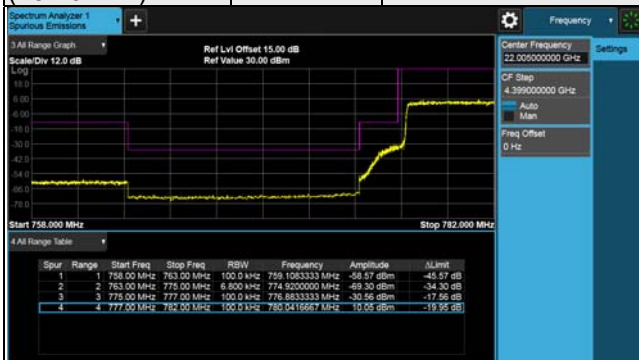
QPSK

50 RB / 0 RB Offset

Channel 23230
(782.0MHz)

QPSK

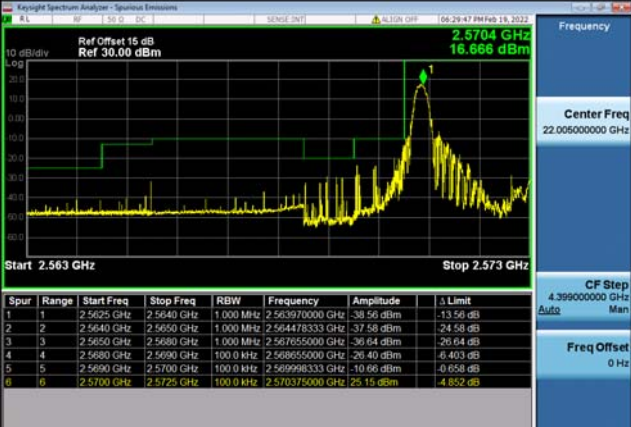
50 RB / 0 RB Offset



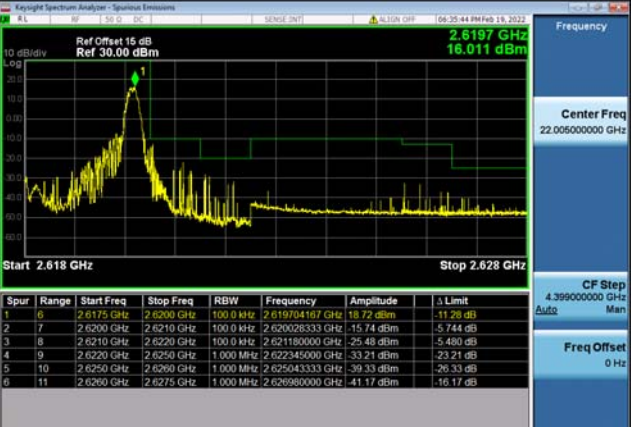
Out-of-Band Emission

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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Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5625 GHz	2.5640 GHz	1.000 MHz	2.563970000 GHz	-38.56 dBm	-13.59 dB
2	2	2.5640 GHz	2.5650 GHz	1.000 MHz	2.564478333 GHz	-37.58 dBm	-24.58 dB
3	3	2.5650 GHz	2.5680 GHz	1.000 MHz	2.567655000 GHz	-36.64 dBm	-26.64 dB
4	4	2.5680 GHz	2.5690 GHz	100.0 kHz	2.568655000 GHz	-26.40 dBm	-6.403 dB
5	5	2.5690 GHz	2.5700 GHz	100.0 kHz	2.569998333 GHz	-10.66 dBm	-0.658 dB
6	6	2.5700 GHz	2.5725 GHz	100.0 kHz	2.570375000 GHz	25.15 dBm	4.852 dB

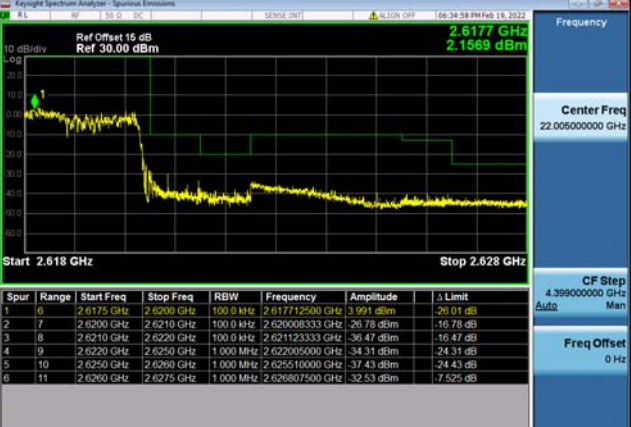


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	6	2.6175 GHz	2.6200 GHz	100.0 kHz	2.61974167 GHz	16.72 dBm	-11.26 dB
2	7	2.6200 GHz	2.6210 GHz	100.0 kHz	2.620083333 GHz	-15.74 dBm	-3.744 dB
3	8	2.6210 GHz	2.6220 GHz	100.0 kHz	2.621180000 GHz	-25.48 dBm	-5.480 dB
4	9	2.6220 GHz	2.6250 GHz	1.000 MHz	2.622345000 GHz	-33.21 dBm	-23.21 dB
5	10	2.6250 GHz	2.6260 GHz	1.000 MHz	2.625043333 GHz	-39.33 dBm	-26.33 dB
6	11	2.6260 GHz	2.6275 GHz	1.000 MHz	2.626960000 GHz	-41.17 dBm	-16.17 dB

Channel 37775 (2572.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 38225 (2617.5MHz)	QPSK	25 RB / 0 RB Offset
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Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5625 GHz	2.5640 GHz	1.000 MHz	2.563892500 GHz	-38.29 dBm	-13.29 dB
2	2	2.5640 GHz	2.5660 GHz	1.000 MHz	2.564383333 GHz	-39.34 dBm	-25.34 dB
3	3	2.5660 GHz	2.5680 GHz	1.000 MHz	2.567505000 GHz	-27.80 dBm	-17.93 dB
4	4	2.5680 GHz	2.5690 GHz	100.0 kHz	2.568966667 GHz	-30.63 dBm	-10.63 dB
5	5	2.5690 GHz	2.5700 GHz	100.0 kHz	2.569988333 GHz	-25.80 dBm	-15.80 dB
6	6	2.5700 GHz	2.5725 GHz	100.0 kHz	2.572429167 GHz	-49.11 dBm	-79.11 dB



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	6	2.6175 GHz	2.6200 GHz	100.0 kHz	2.617712500 GHz	3.991 dBm	-26.01 dB
2	7	2.6200 GHz	2.6210 GHz	100.0 kHz	2.620083333 GHz	-26.78 dBm	-16.78 dB
3	8	2.6210 GHz	2.6220 GHz	100.0 kHz	2.621233333 GHz	-36.47 dBm	-16.47 dB
4	9	2.6220 GHz	2.6250 GHz	1.000 MHz	2.622095000 GHz	-34.31 dBm	-24.31 dB
5	10	2.6250 GHz	2.6260 GHz	1.000 MHz	2.625510000 GHz	-37.43 dBm	-24.43 dB
6	11	2.6260 GHz	2.6275 GHz	1.000 MHz	2.626807500 GHz	-32.53 dBm	-17.525 dB

LTE Band 38, Channel Bandwidth 10MHz

Channel 37800
(2575.0MHz)

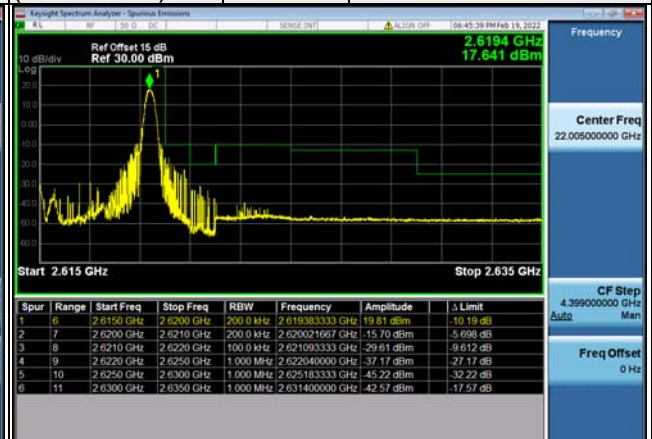
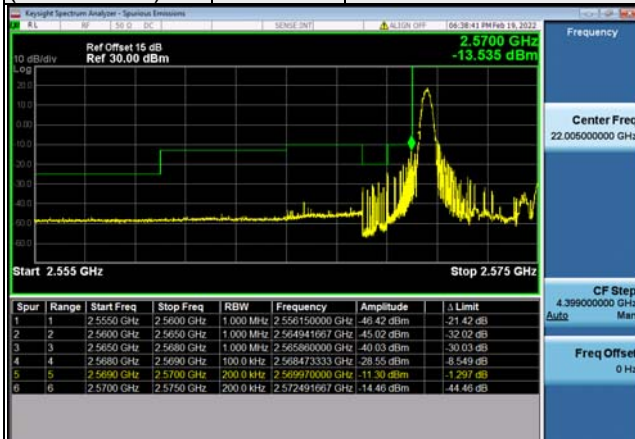
QPSK

1 RB / 0 RB Offset

Channel 38200
(2615.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 37800
(2575.0MHz)

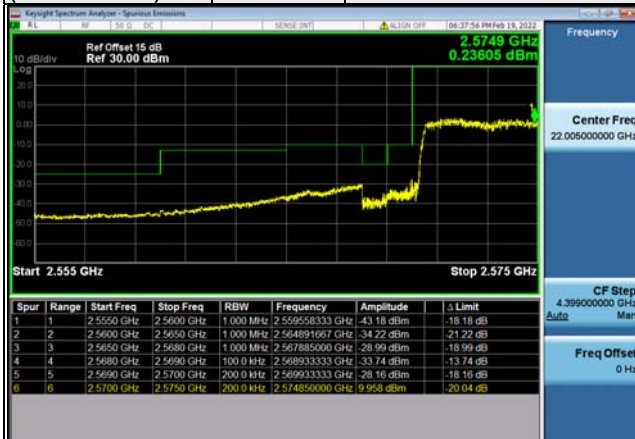
QPSK

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)

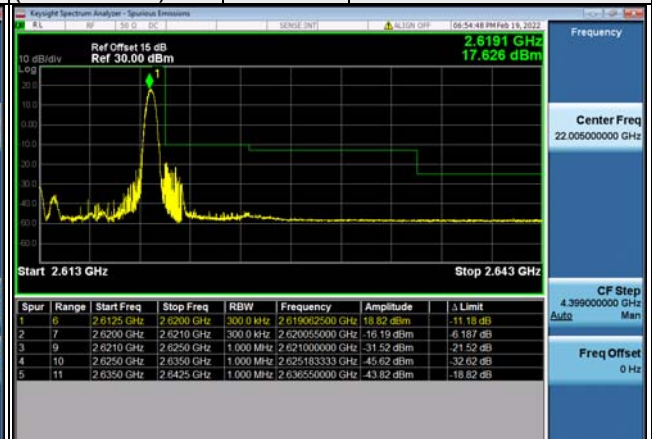
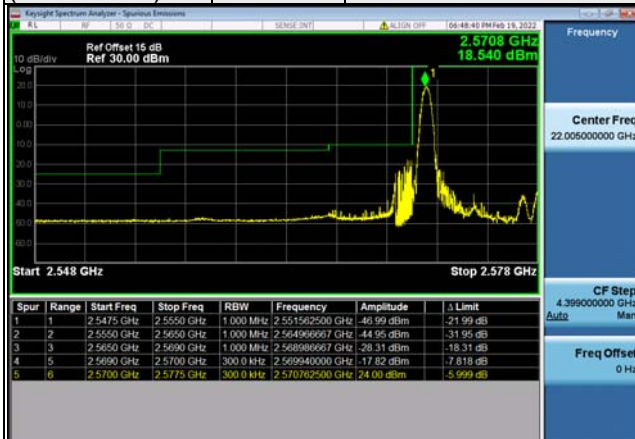
QPSK

1 RB / 0 RB Offset

Channel 38175
(2612.5MHz)

QPSK

1 RB / 74 RB Offset



Channel 37825
(2577.5MHz)

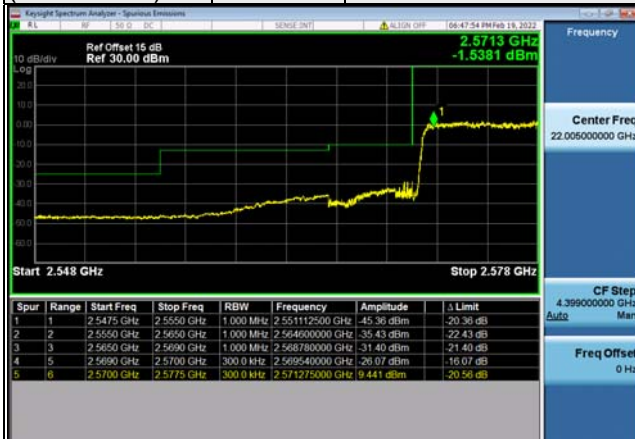
QPSK

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)

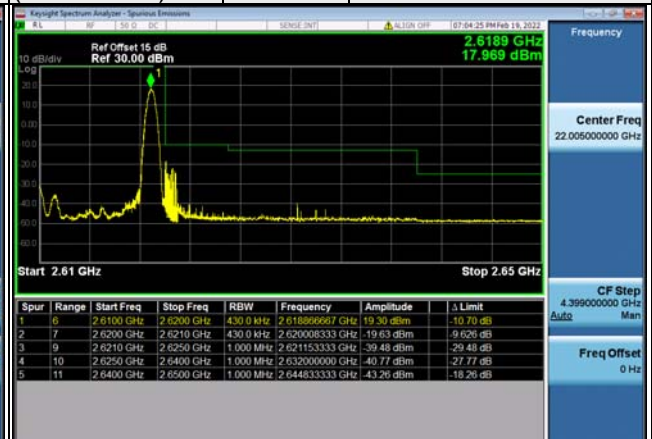
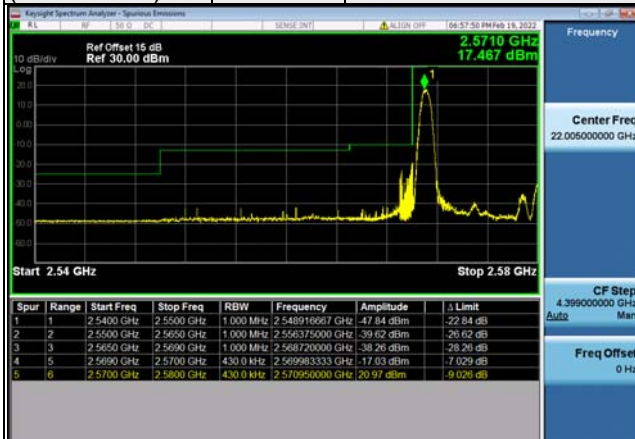
QPSK

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)


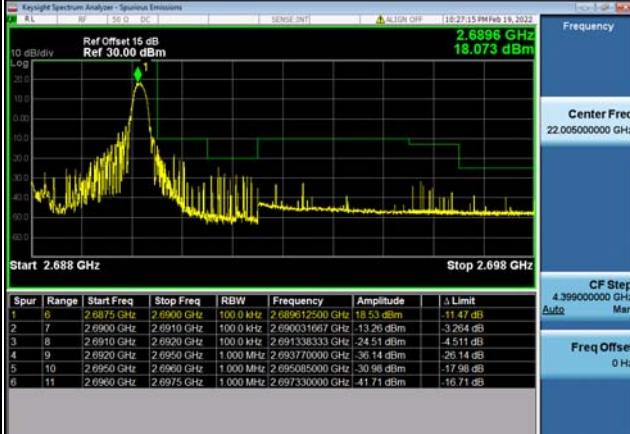

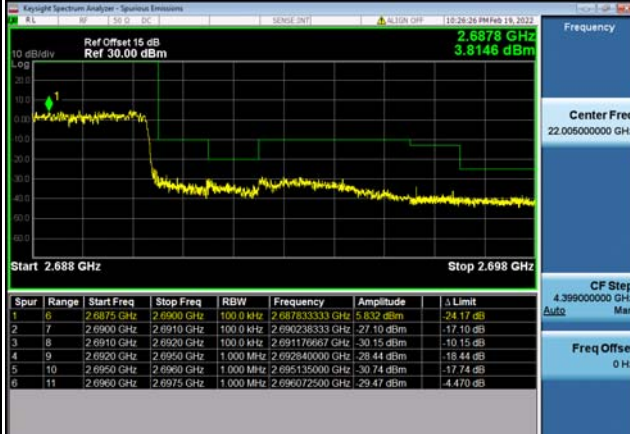
QPSK

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		
							
Channel 39675 (2498.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 41565 (2687.5MHz)	QPSK	25 RB / 0 RB Offset		

LTE Band 41, Channel Bandwidth 10MHz

Channel 39700
(2501.0MHz)

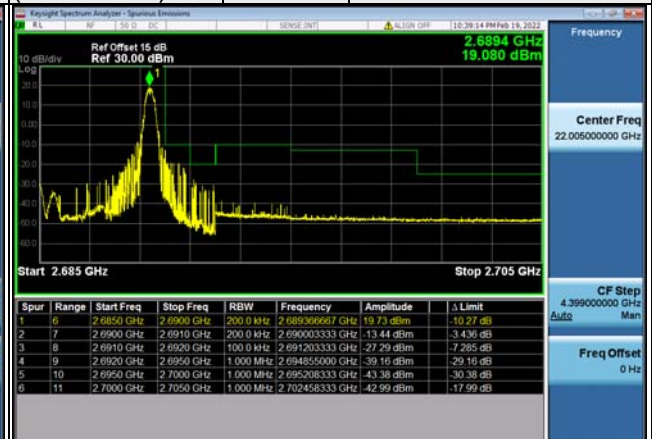
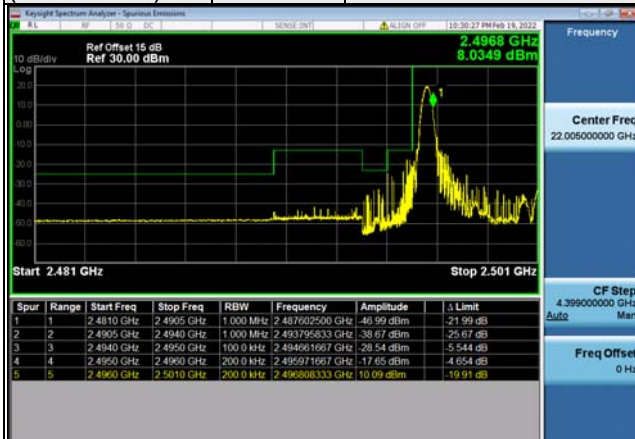
QPSK

1 RB / 0 RB Offset

Channel 41540
(2685.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 39700
(2501.0MHz)

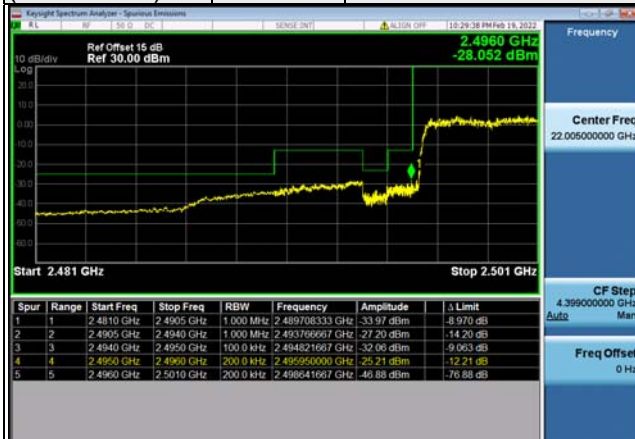
QPSK

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)

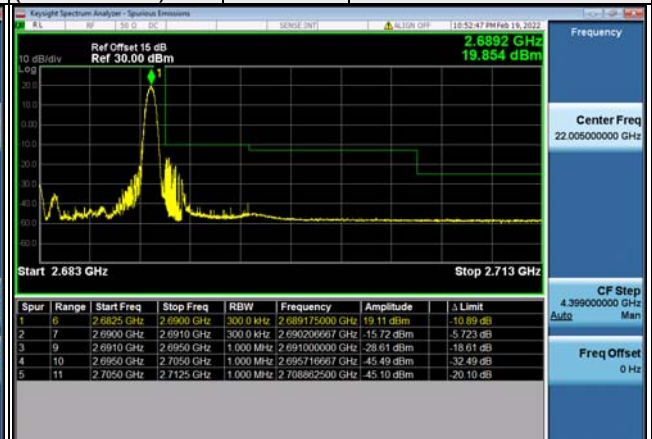
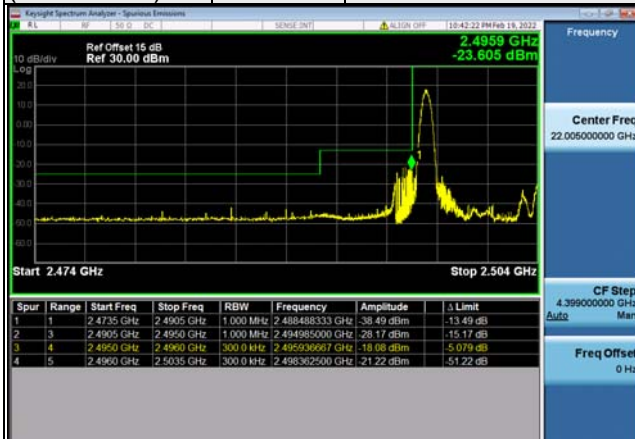
QPSK

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)

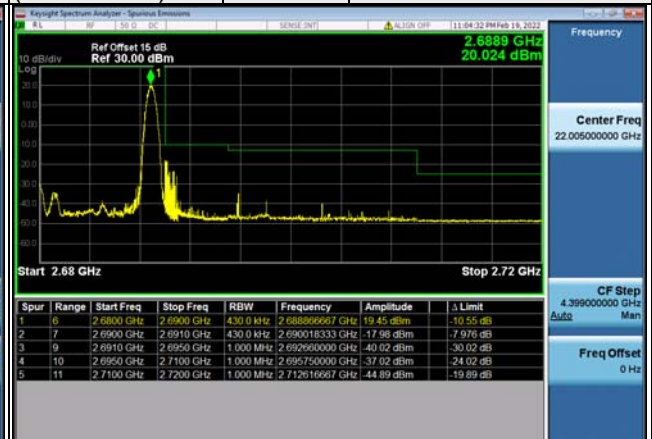
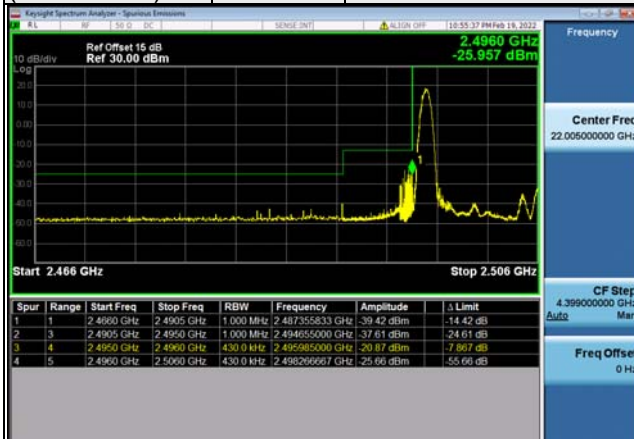
QPSK

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)

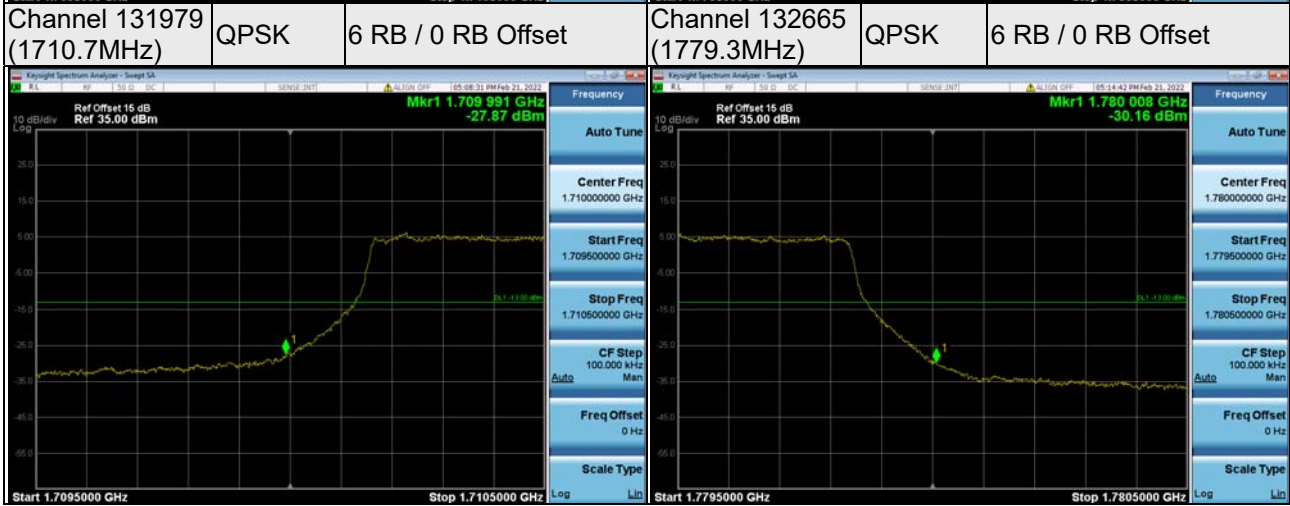
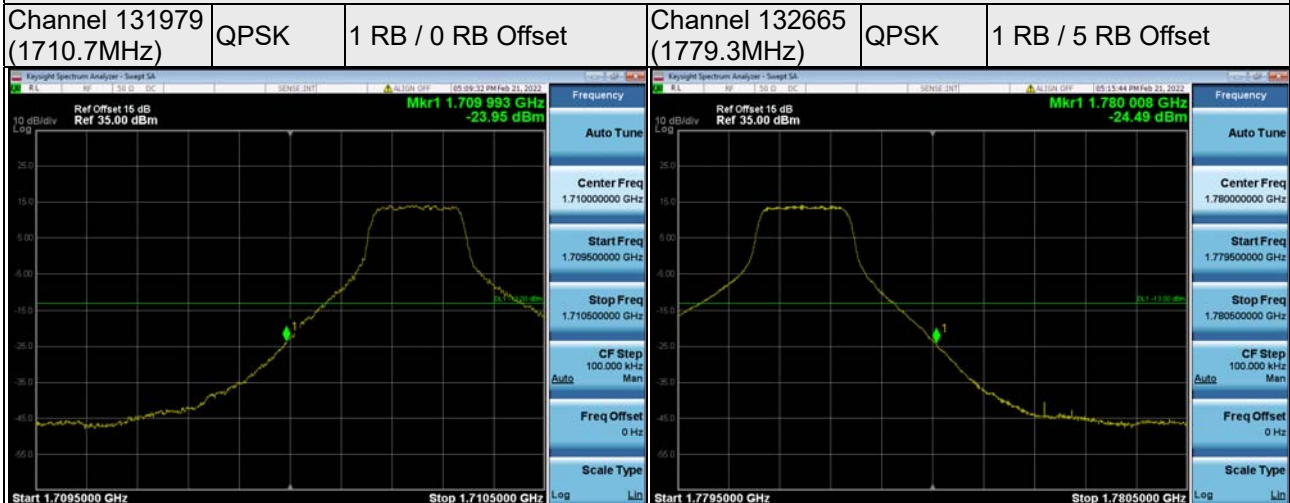
QPSK

100 RB / 0 RB Offset



Band Edge

LTE Band 66, Channel Bandwidth 1.4MHz



LTE Band 66, Channel Bandwidth 3MHz

Channel 131987
(1711.5MHz)

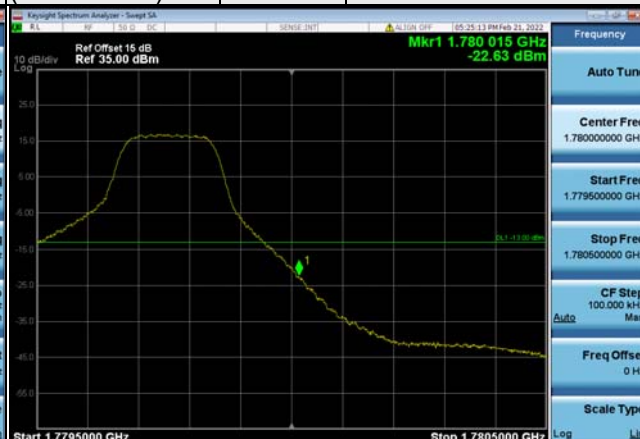
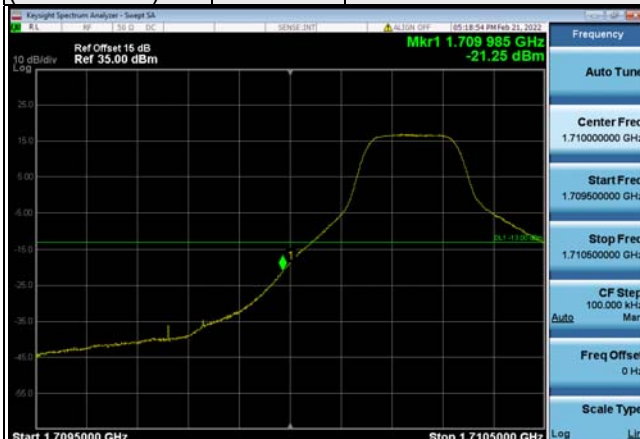
QPSK

1 RB / 0 RB Offset

Channel 132657
(1778.5MHz)

QPSK

1 RB / 14 RB Offset



Channel 131987
(1711.5MHz)

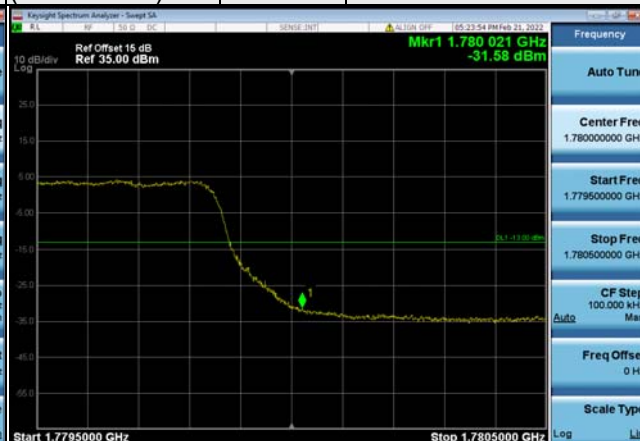
QPSK

15 RB / 0 RB Offset

Channel 132657
(1778.5MHz)

QPSK

15 RB / 0 RB Offset



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



Channel 131997
(1712.5MHz)

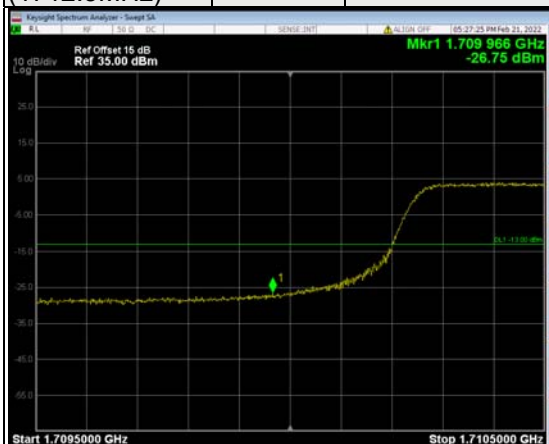
QPSK

25 RB / 0 RB Offset

Channel 132647
(1777.5MHz)

QPSK

25 RB / 0 RB Offset



LTE Band 66, Channel Bandwidth 10MHz

Channel 132022
(1715.0MHz)

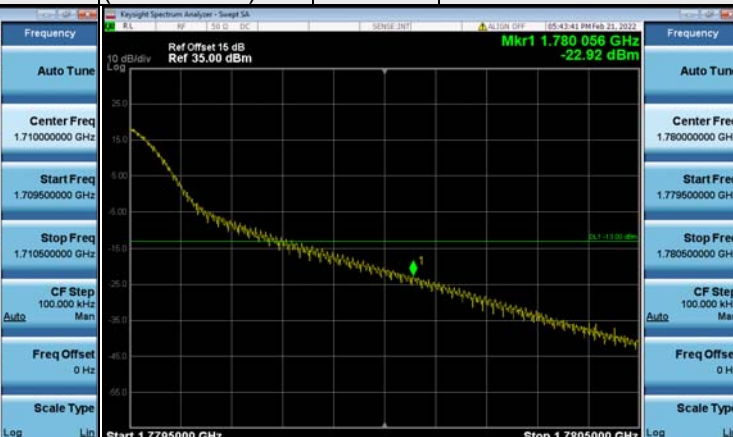
QPSK

1 RB / 0 RB Offset

Channel 132622
(1775.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 132022
(1715.0MHz)

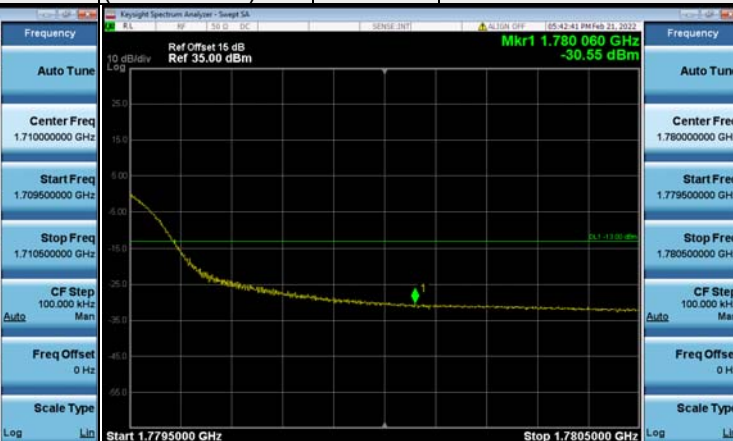
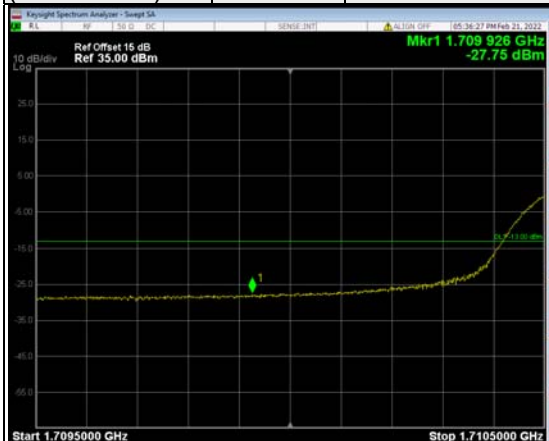
QPSK

50 RB / 0 RB Offset

Channel 132622
(1775.0MHz)

QPSK

50 RB / 0 RB Offset



LTE Band 66, Channel Bandwidth 15MHz

Channel 132047
(1717.5MHz)

QPSK

1 RB / 0 RB Offset

Channel 132597
(1772.5MHz)

QPSK

1 RB / 74 RB Offset



Channel 132047
(1717.5MHz)

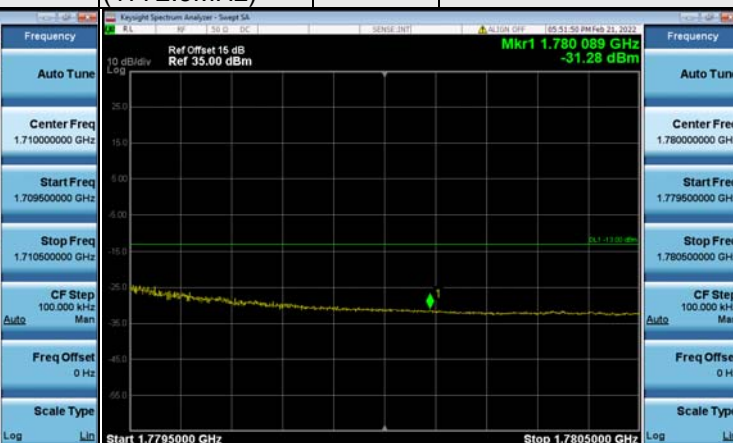
QPSK

75 RB / 0 RB Offset

Channel 132597
(1772.5MHz)

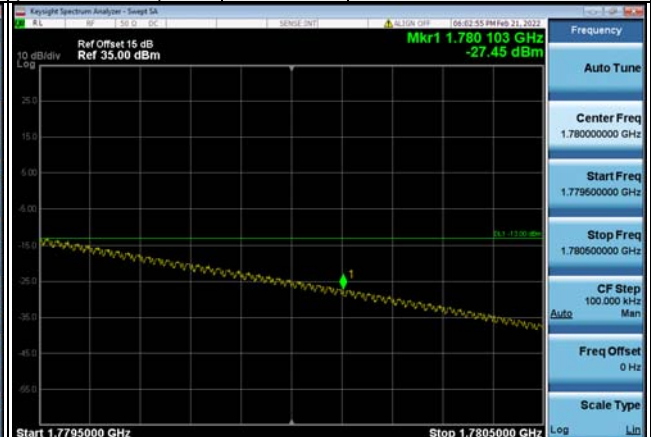
QPSK

75 RB / 0 RB Offset



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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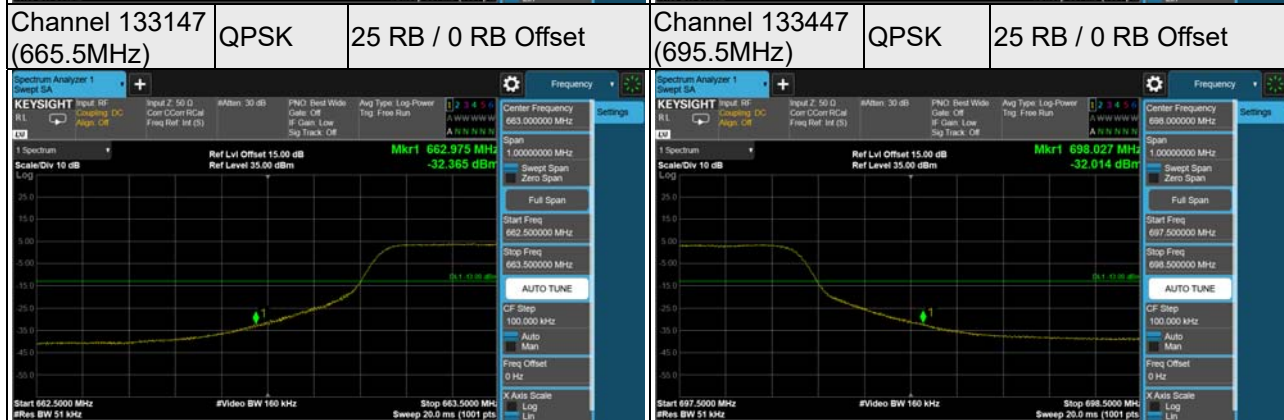
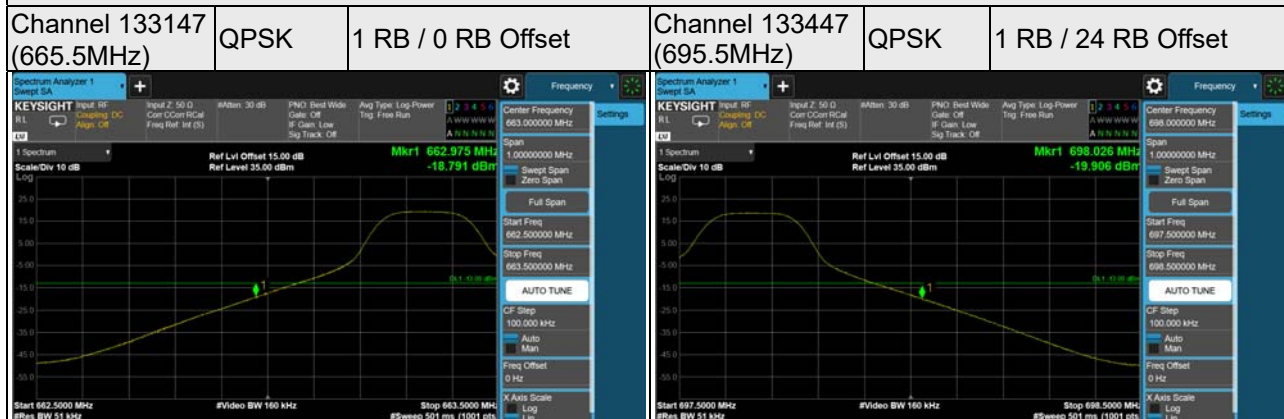


Channel 132072 (1720.0MHz)	QPSK	100 RB / 0 RB Offset	Channel 132572 (1770.0MHz)	QPSK	100 RB / 0 RB Offset
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Band Edge

LTE Band 71, Channel Bandwidth 5MHz



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
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Channel 133422 (693.0MHz)	QPSK	50 RB / 0 RB Offset
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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
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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

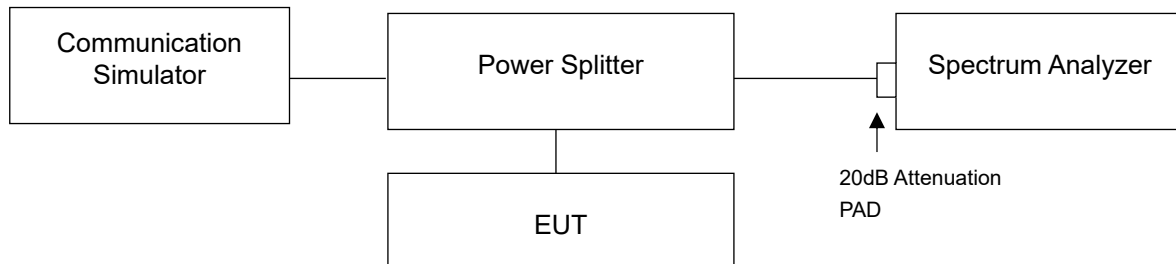


4.6 Peak to Average Ratio

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



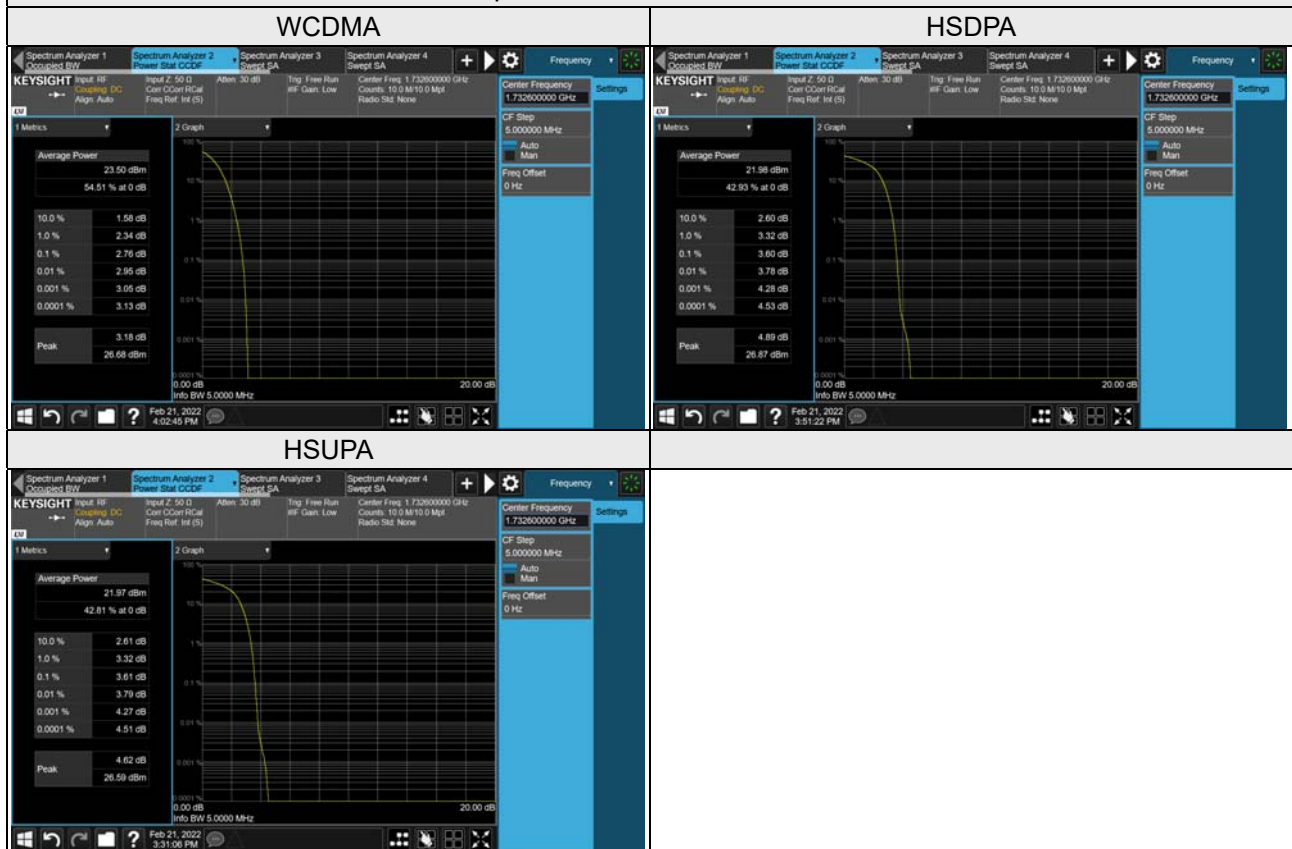
4.6.3 Test Procedures

- 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

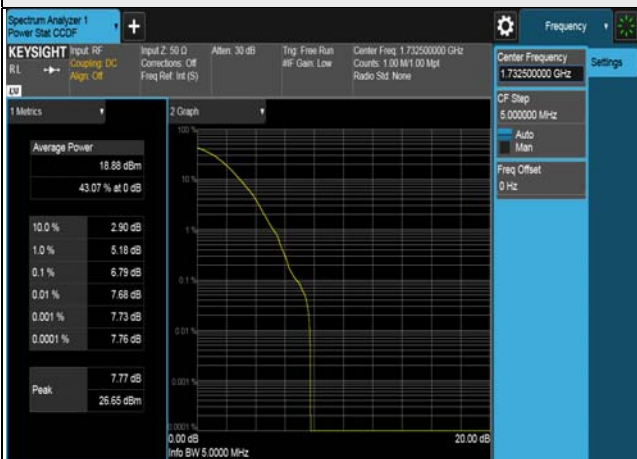
1.4MHz / 256QAM



3MHz / 256QAM



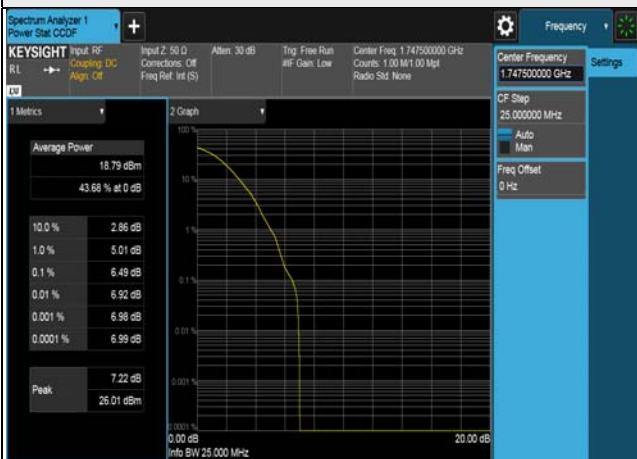
5MHz / 256QAM



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



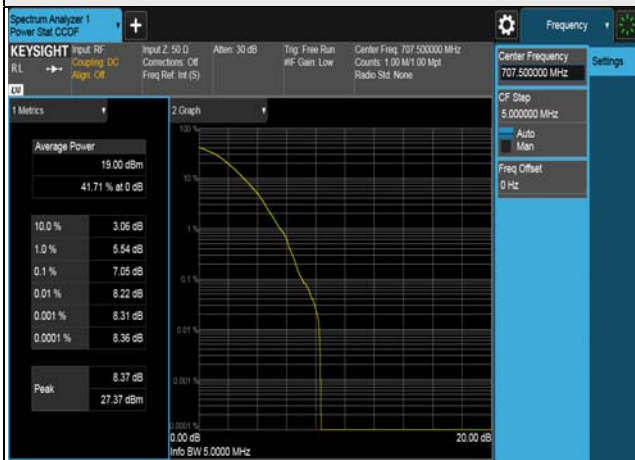
20MHz / 256QAM



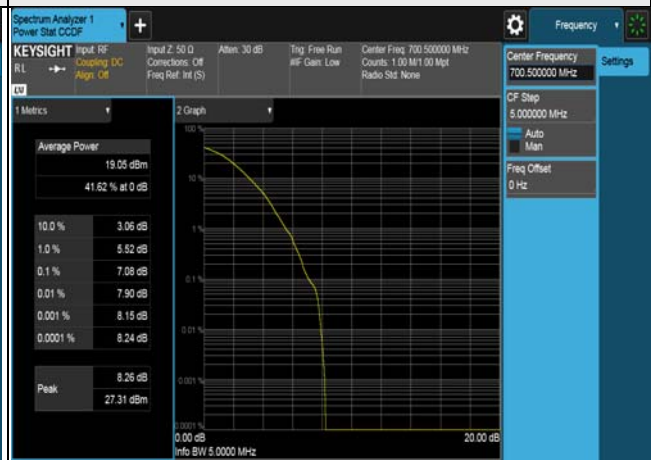
LTE Band 12, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
23017	699.7	5.58	6.81	6.84	7.02
23095	707.5	5.49	6.62	6.80	7.05
23173	715.3	5.47	6.59	6.82	6.98
LTE Band 12, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (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

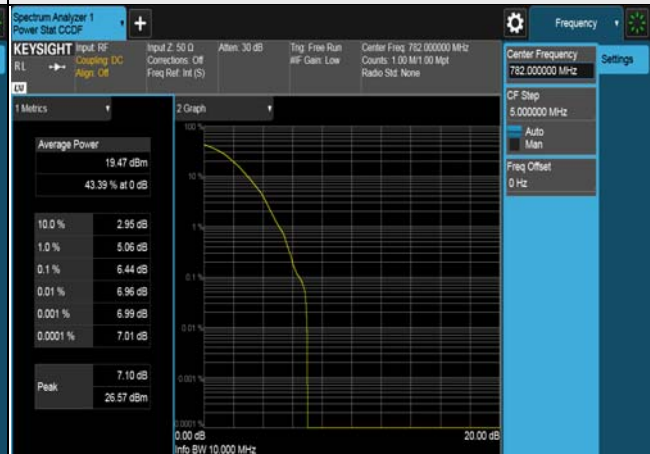
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
23230	782.0	3.43	4.35	4.96	6.44

Spectrum Plot of Worst Value

5MHz / 256QAM



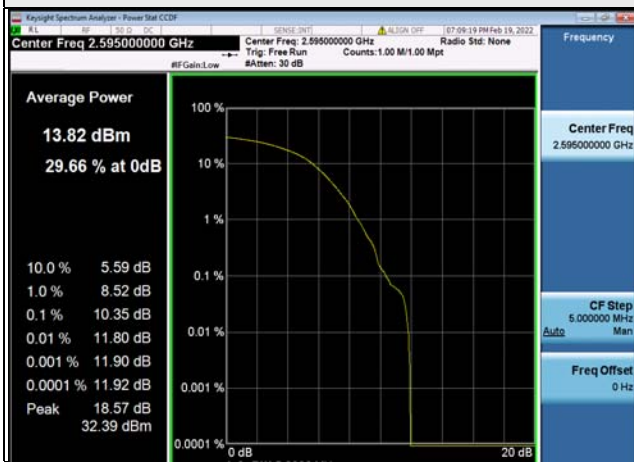
10MHz / 256QAM



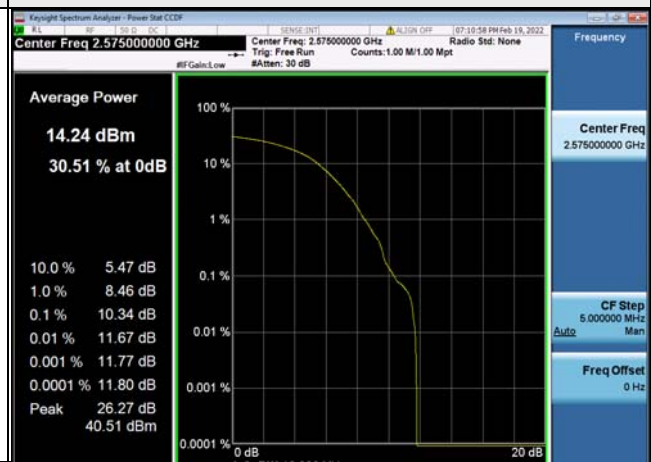
LTE Band 38, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
37775	2572.5	8.63	9.60	9.97	10.29
38000	2595.0	7.85	9.25	9.85	10.35
38225	2617.5	7.91	9.39	9.96	10.00
LTE Band 38, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average 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

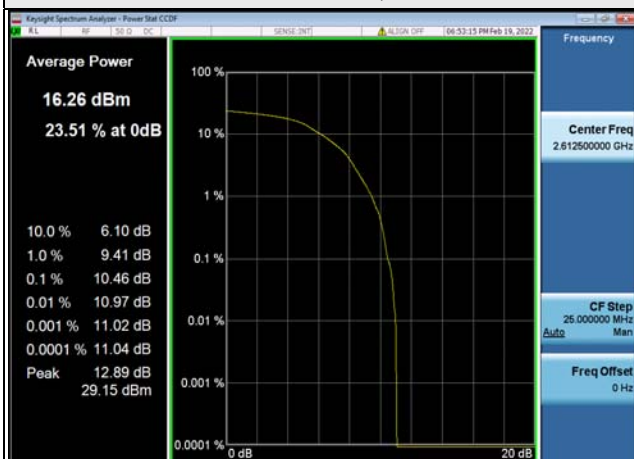
5MHz / 256QAM



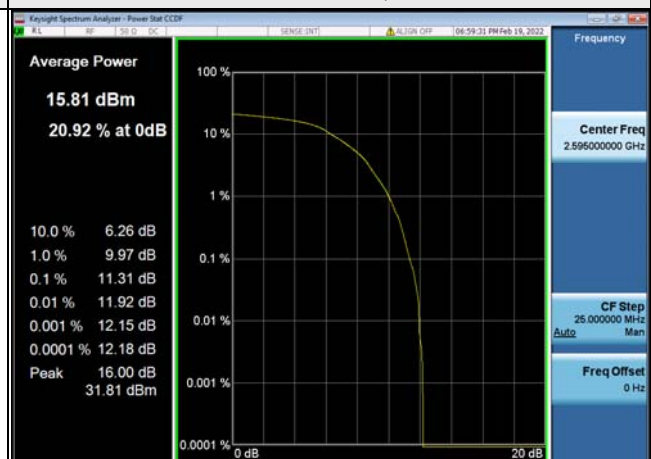
10MHz / 256QAM



15MHz / 16QAM



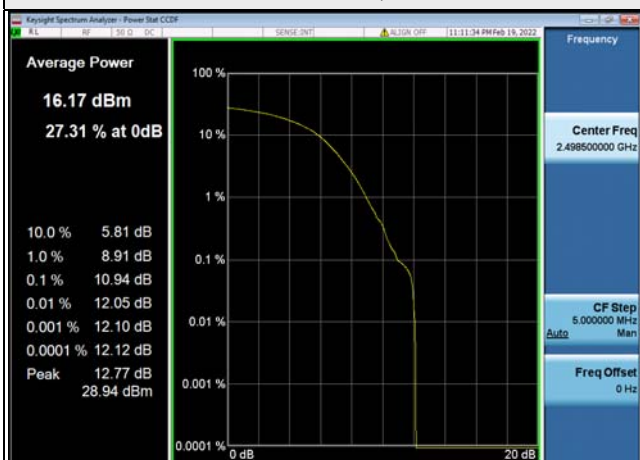
20MHz / 16QAM



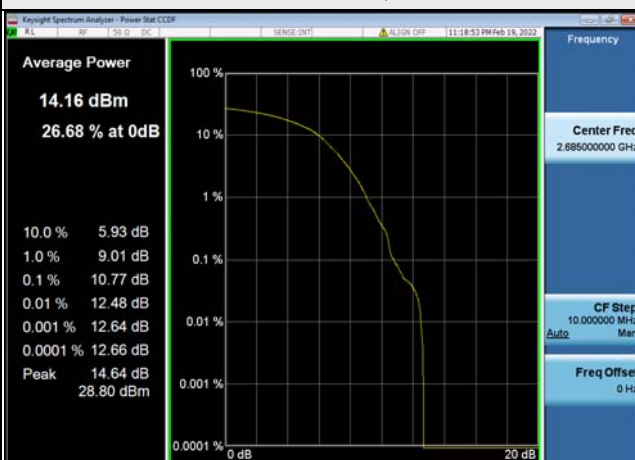
LTE Band 41, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
39675	2498.5	8.60	9.34	9.57	10.94
40620	2593.0	8.34	9.57	9.62	9.84
41565	2687.5	8.97	9.31	9.86	10.29
LTE Band 41, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average 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

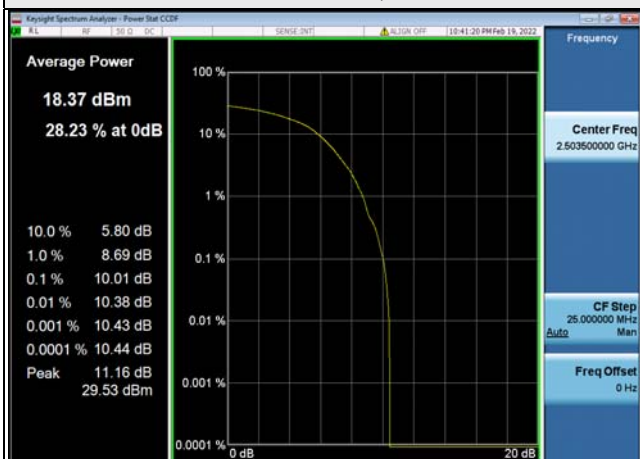
5MHz / 256QAM



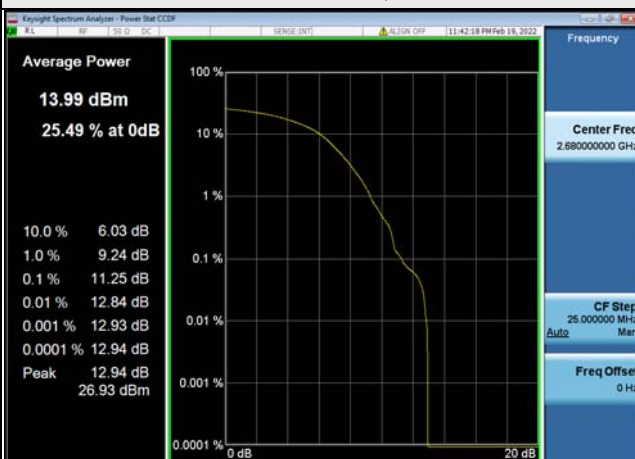
10MHz / 256QAM



15MHz / 64QAM



20MHz / 256QAM



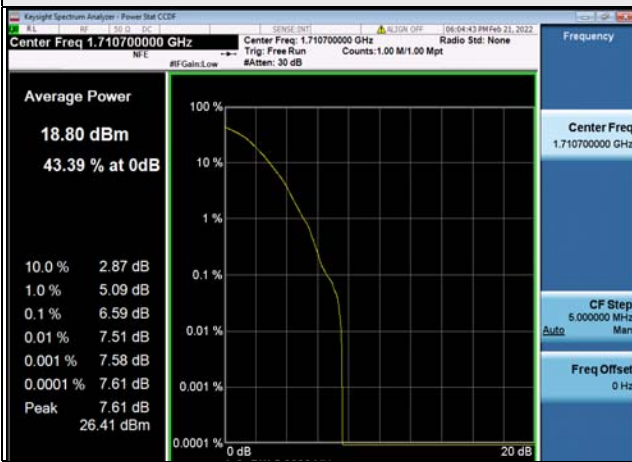
LTE Band 66, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
131979	1710.7	4.28	5.26	5.78	6.59
132322	1745.0	3.06	4.10	4.64	6.20
132665	1779.3	4.46	5.57	5.93	6.58
LTE Band 66, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	Peak To Average 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

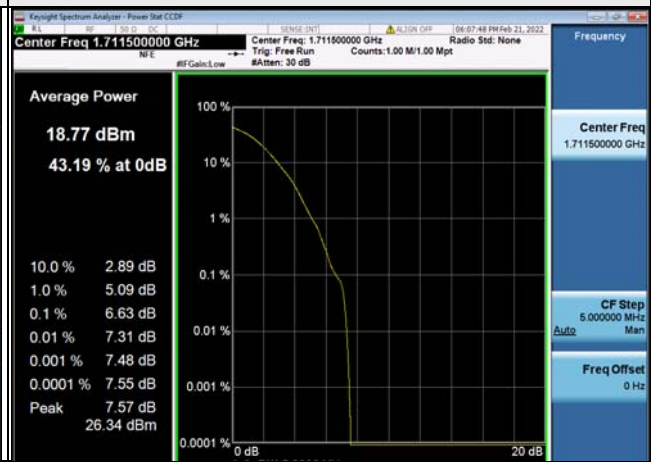
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
132072	1720.0	3.99	5.08	5.53	6.80
132322	1745.0	4.03	5.10	5.57	6.06
132572	1770.0	4.79	6.09	6.10	6.58

Spectrum Plot of Worst Value

1.4MHz / 256QAM



3MHz / 256QAM



5MHz / 256QAM



10MHz / 256QAM



15MHz / 256QAM



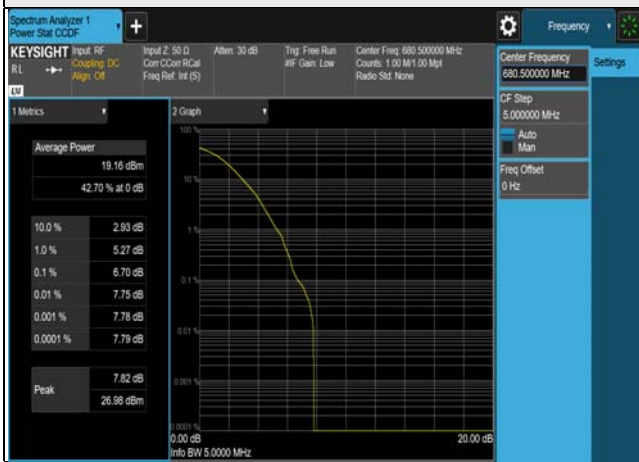
20MHz / 256QAM



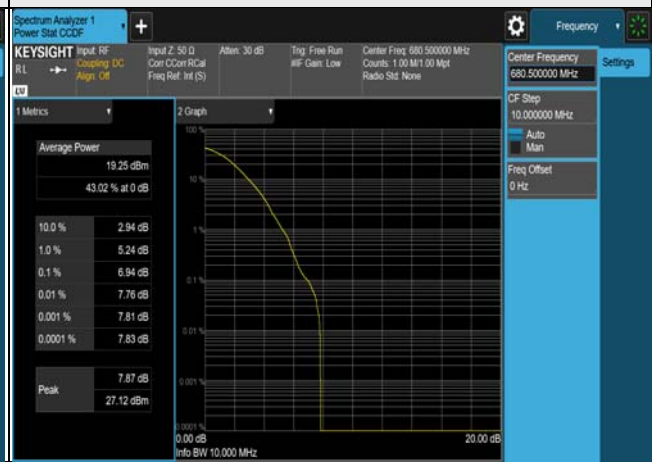
LTE Band 71, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
133147	665.5	4.19	5.22	5.71	6.34
133297	680.5	5.05	6.07	6.35	6.70
133447	695.5	4.75	5.88	6.22	6.67
LTE Band 71, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average 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

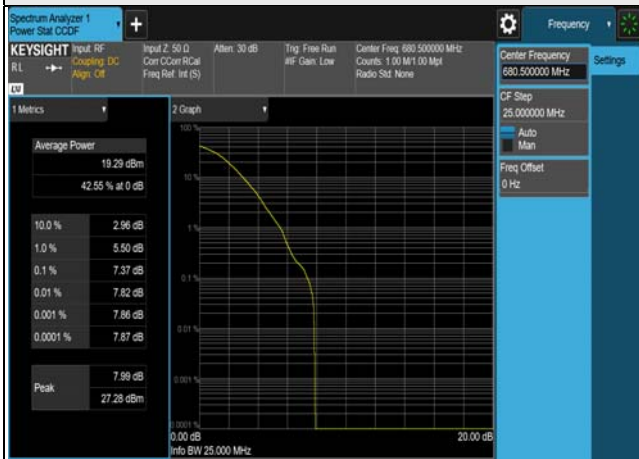
5MHz / 256QAM



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:

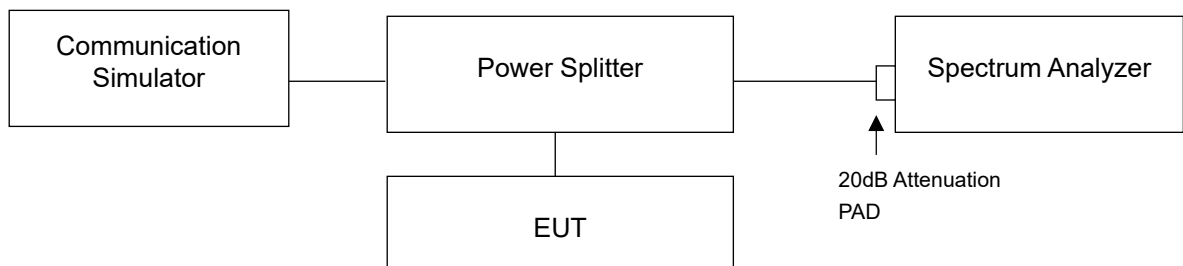
According to FCC 27.53(c)(2) for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB.

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.

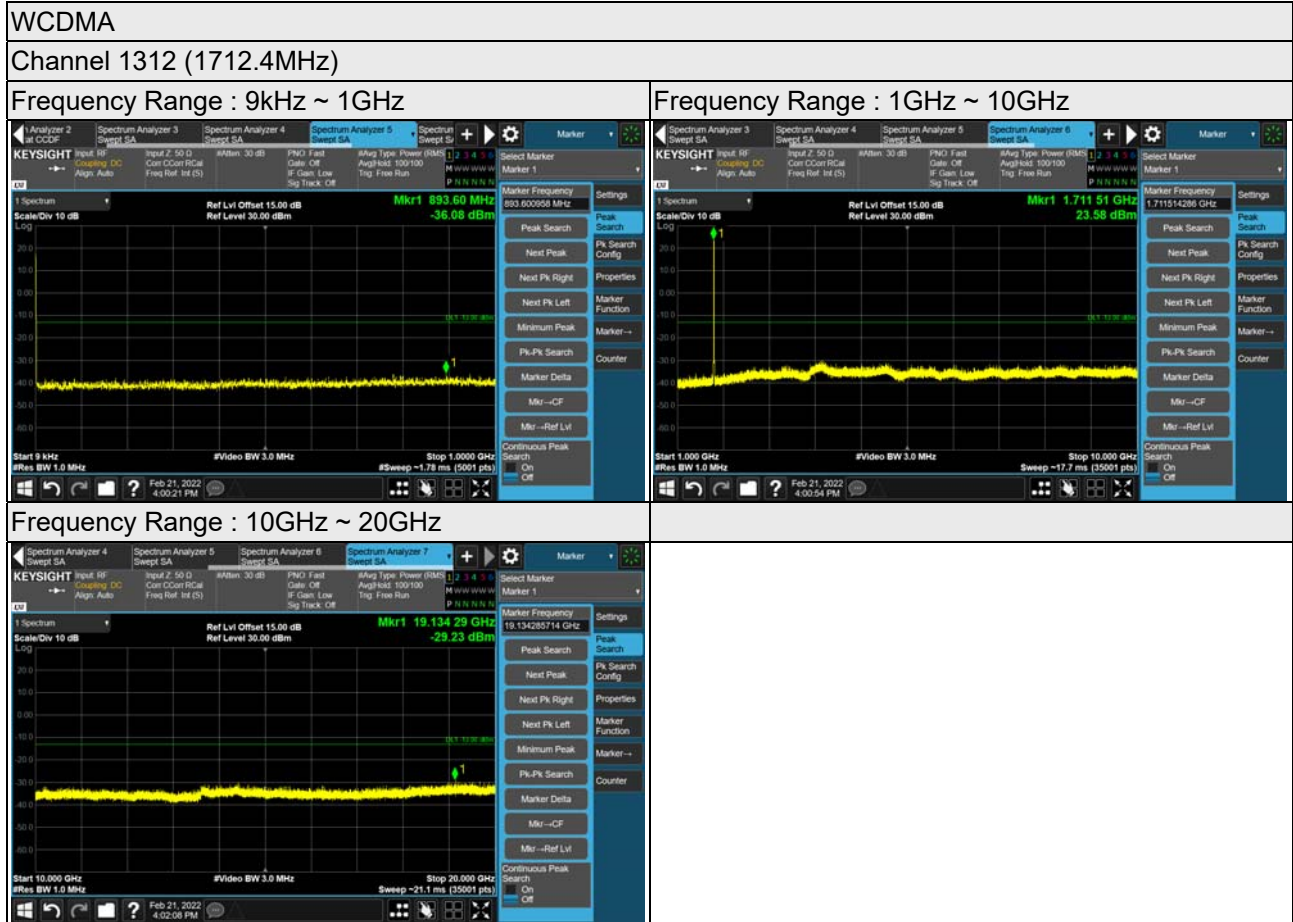
4.7.2 Test Setup



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

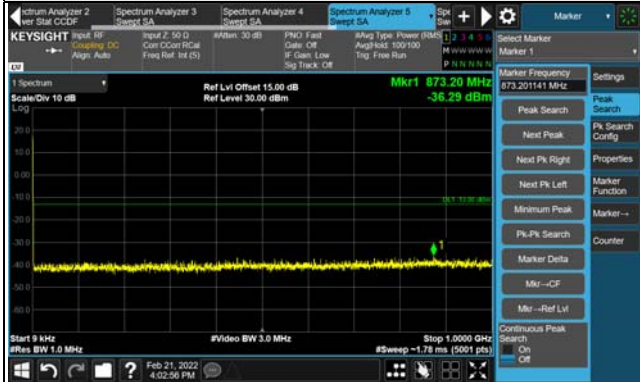


*The 9kHz signal over the limit is from Spectrum.

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.

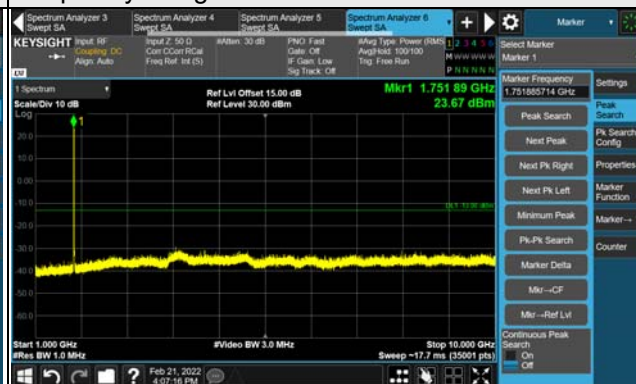
WCDMA

Channel 1513 (1752.6MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

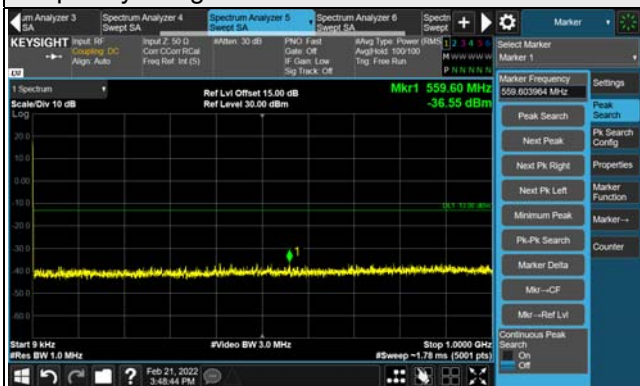


*The 9kHz signal over the limit is from Spectrum.

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.

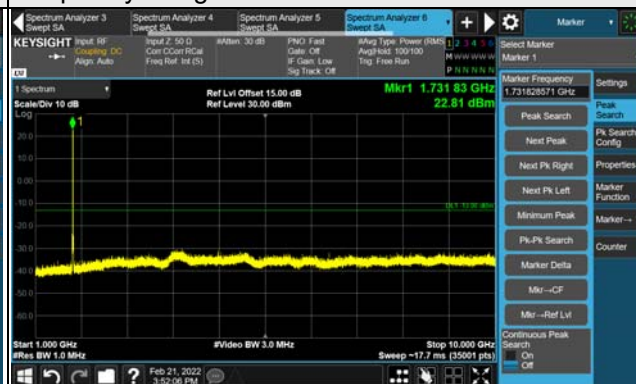
HSDPA

Channel 1413 (1732.6MHz)

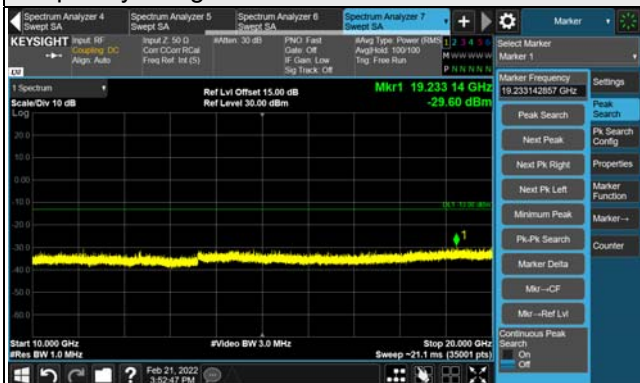
Frequency Range : 9kHz ~ 1GHz



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

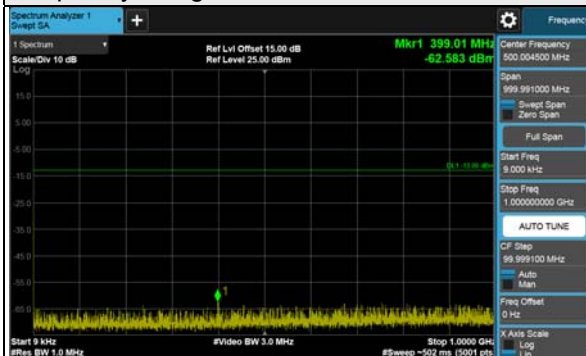


*The 9kHz signal over the limit is from Spectrum.

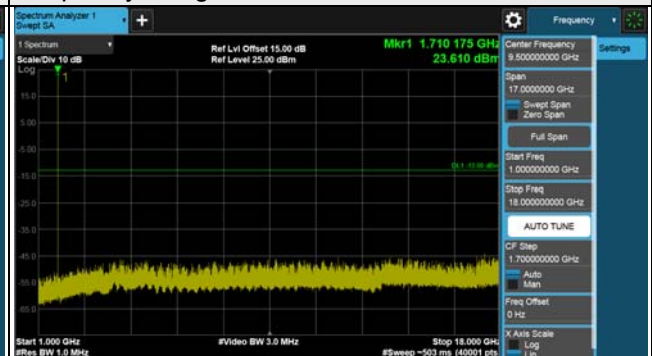
LTE Band 4, Channel Bandwidth 1.4MHz

Channel 19957 (1710.7MHz)

Frequency Range : 9kHz ~ 1GHz

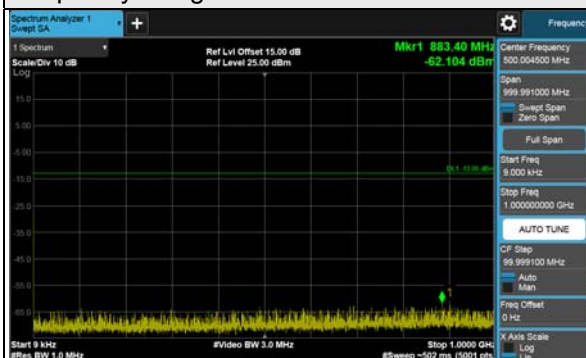


Frequency Range : 1GHz ~ 18GHz

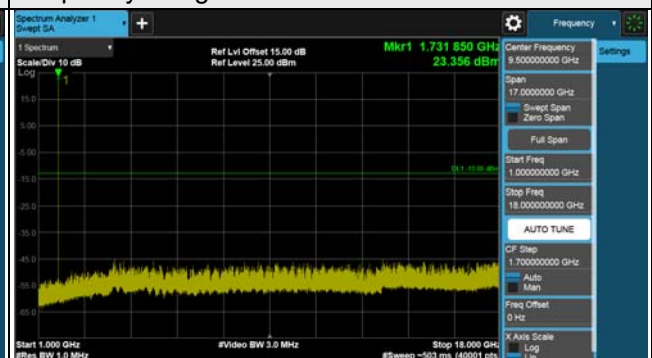


Channel 20175 (1732.5MHz)

Frequency Range : 9kHz ~ 1GHz

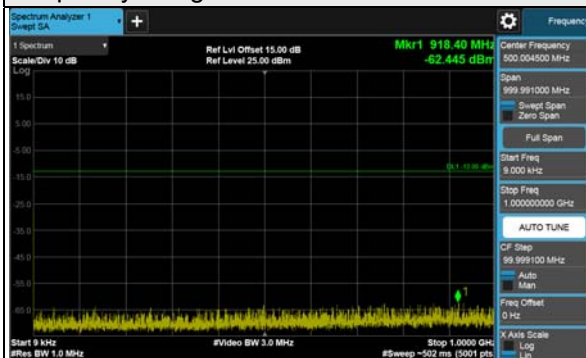


Frequency Range : 1GHz ~ 18GHz



Channel 20393 (1754.3MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 18GHz

