

Channel Bandwidth: 15MHz

Channel 20825
(2507.5MHz)

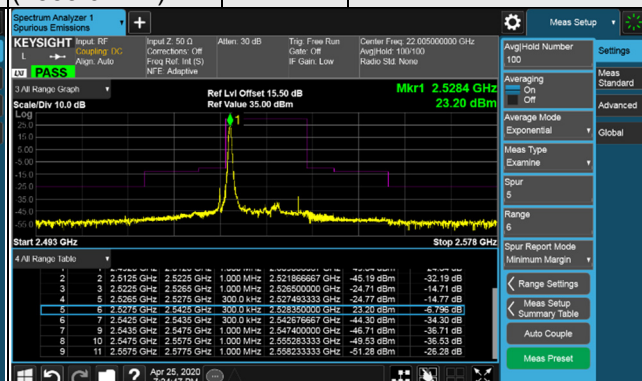
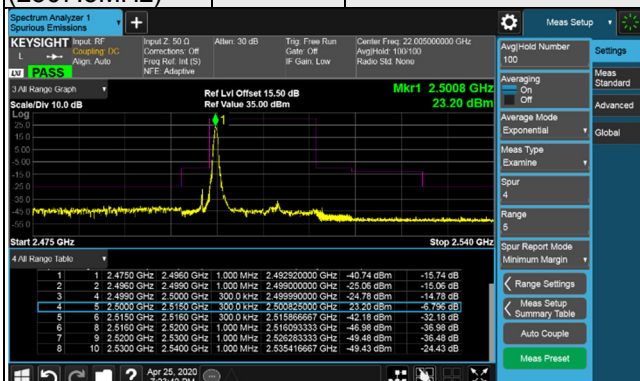
QPSK

1 RB / 0 RB Offset

Channel 21100
(2535.0MHz)

QPSK

1 RB / 0 RB Offset



Channel 20825
(2507.5MHz)

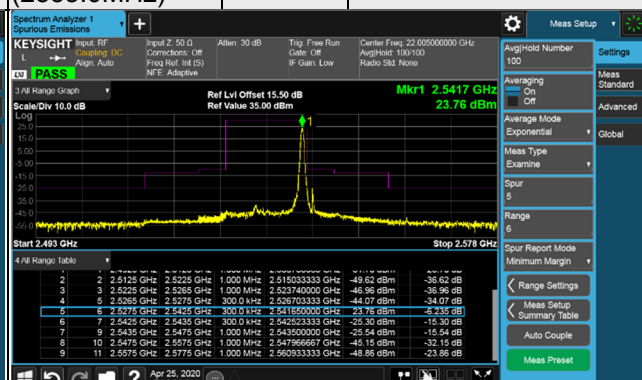
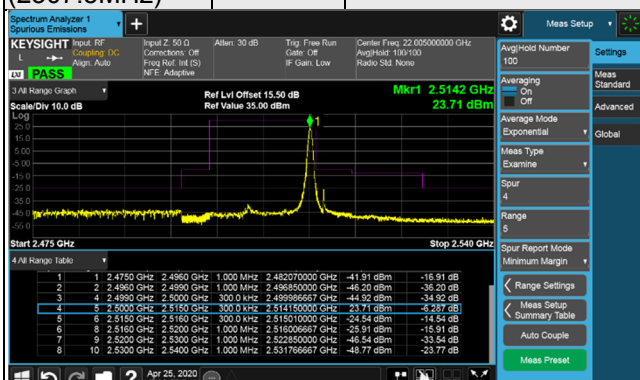
QPSK

1 RB / 74 RB Offset

Channel 21100
(2535.0MHz)

QPSK

1 RB / 74 RB Offset



Channel 20825
(2507.5MHz)

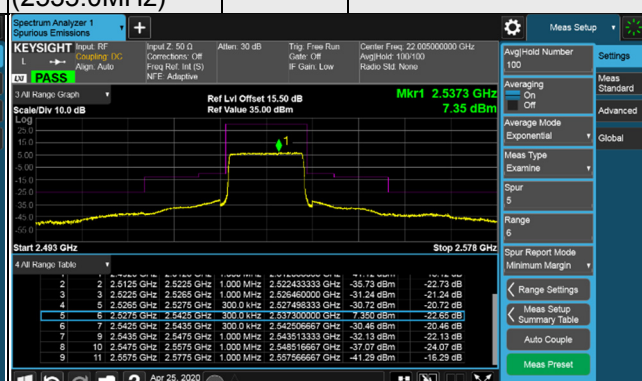
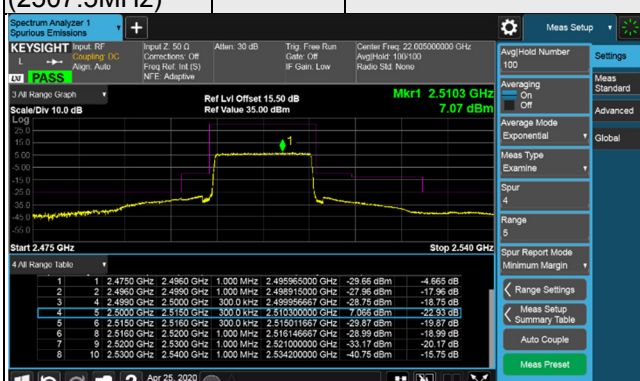
QPSK

75 RB / 0 RB Offset

Channel 21100
(2535.0MHz)

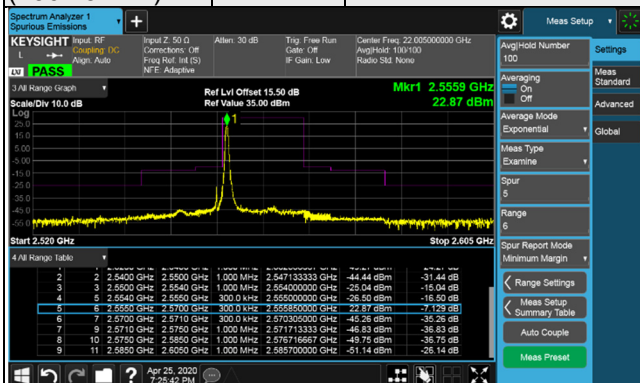
QPSK

75 RB / 0 RB Offset

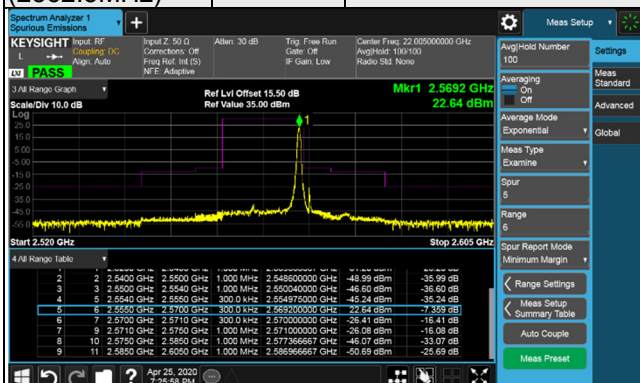


Channel Bandwidth: 15MHz

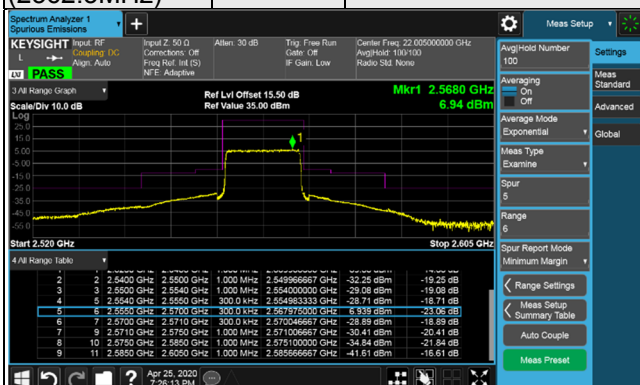
Channel 21375 (2562.5MHz) QPSK 1 RB / 0 RB Offset



Channel 21375 (2562.5MHz) QPSK 1 RB / 74 RB Offset



Channel 21375 (2562.5MHz) QPSK 75 RB / 0 RB Offset



Channel Bandwidth: 20MHz

Channel 20850
(2510.0MHz)

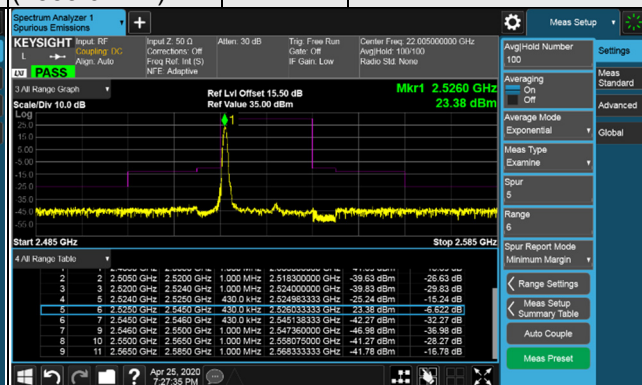
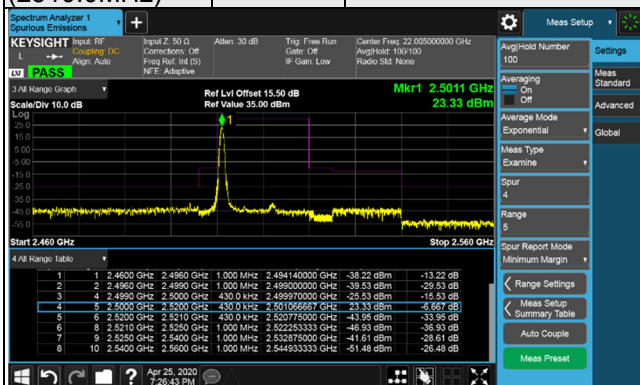
QPSK

1 RB / 0 RB Offset

Channel 21100
(2535.0MHz)

QPSK

1 RB / 0 RB Offset



Channel 20850
(2510.0MHz)

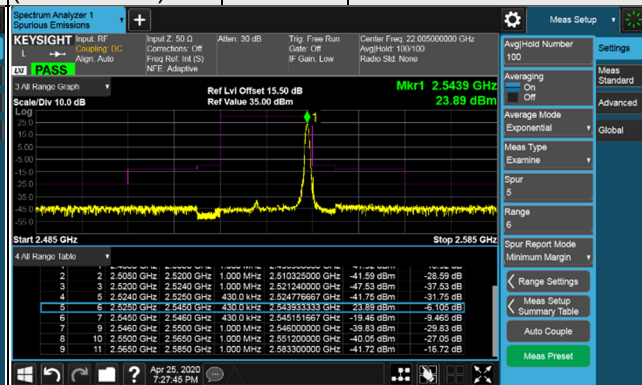
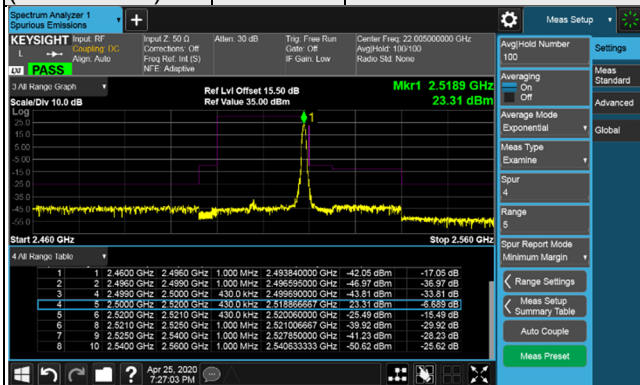
QPSK

1 RB / 99 RB Offset

Channel 21100
(2535.0MHz)

QPSK

1 RB / 99 RB Offset



Channel 20850
(2510.0MHz)

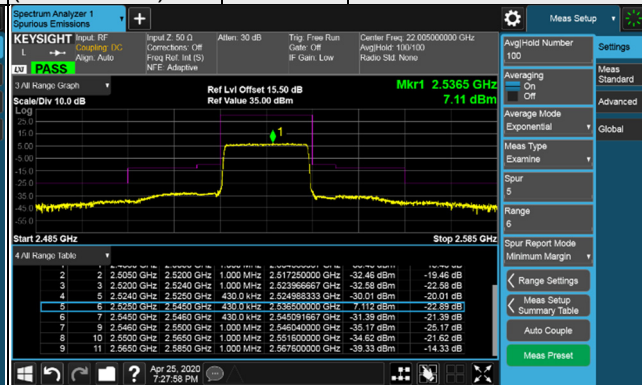
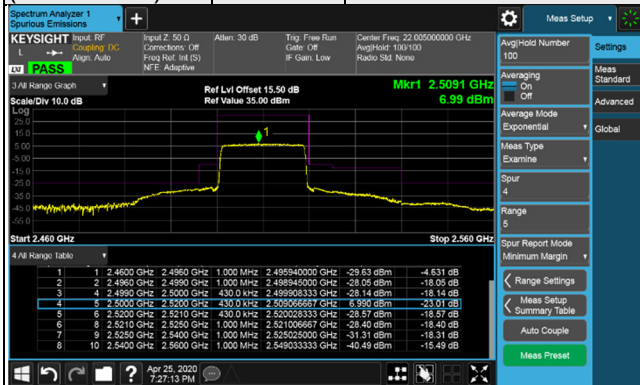
QPSK

100 RB / 0 RB Offset

Channel 21100
(2535.0MHz)

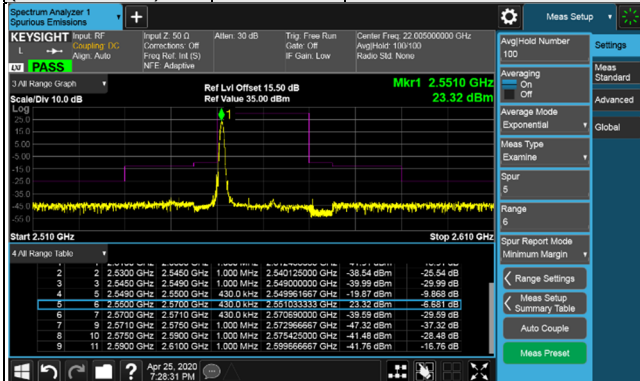
QPSK

100 RB / 0 RB Offset

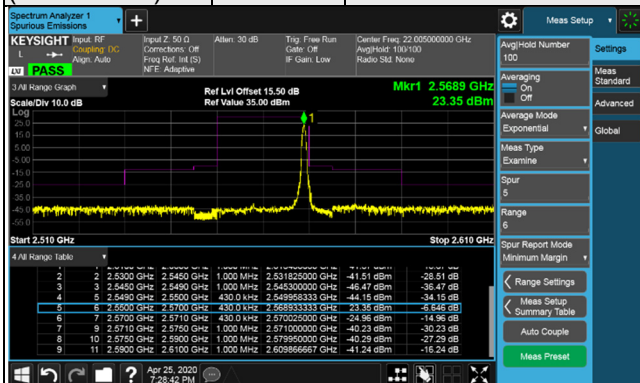


Channel Bandwidth: 20MHz

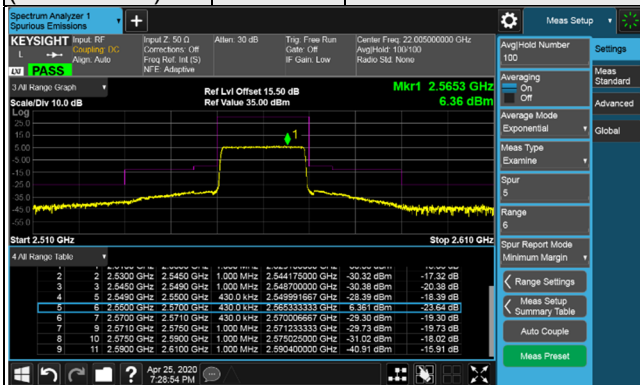
Channel 21350 (2560.0MHz) QPSK 1 RB / 0 RB Offset



Channel 21350 (2560.0MHz) QPSK 1 RB / 99 RB Offset



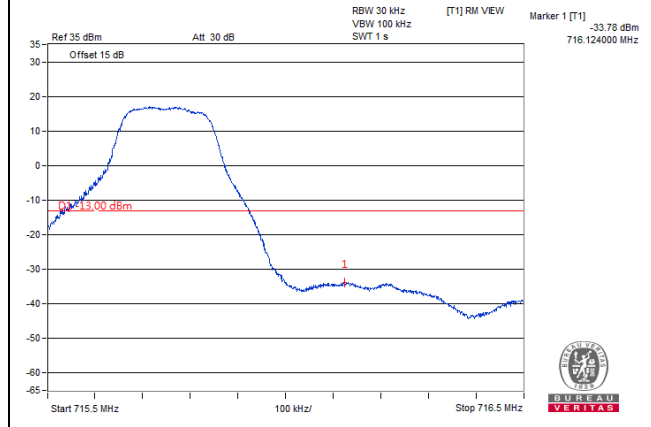
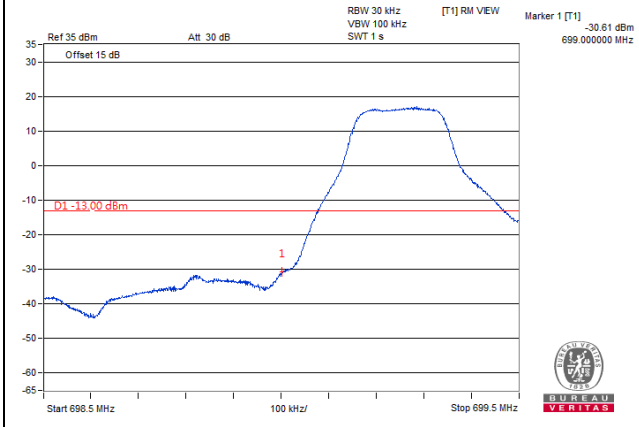
Channel 21350 (2560.0MHz) QPSK 100 RB / 0 RB Offset



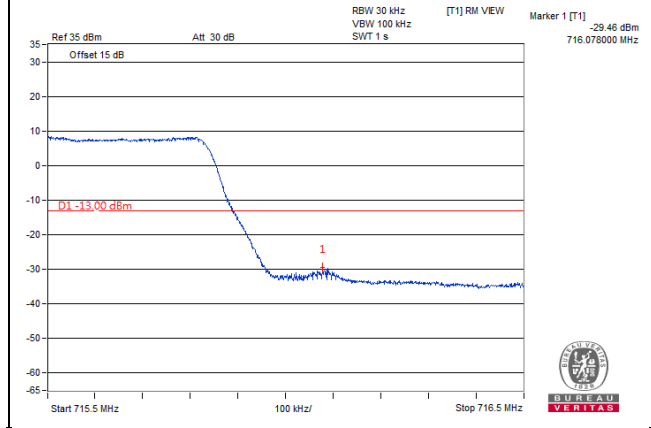
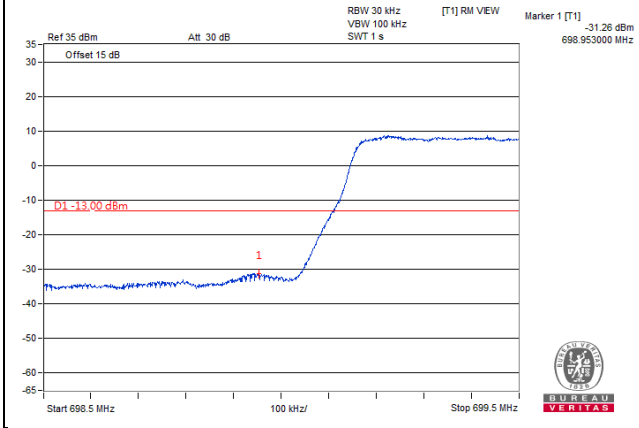
LTE Band 12

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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Channel Bandwidth: 3MHz

Channel 23025
(700.5MHz)

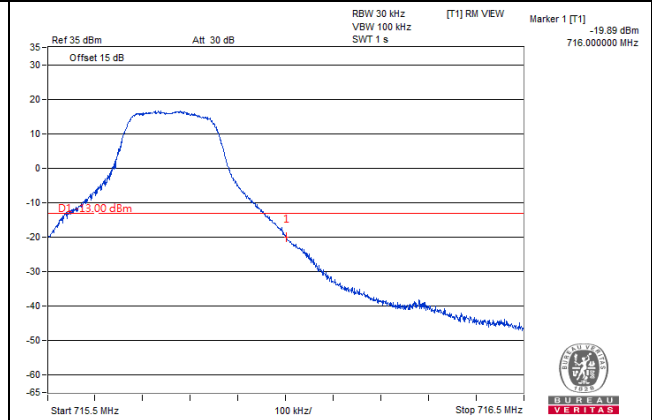
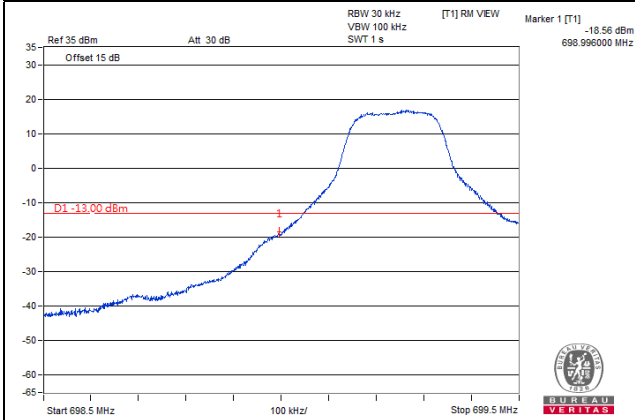
QPSK

1 RB / 0 RB Offset

Channel 23165
(714.5MHz)

QPSK

1 RB / 14RB Offset



Channel 23025
(700.5MHz)

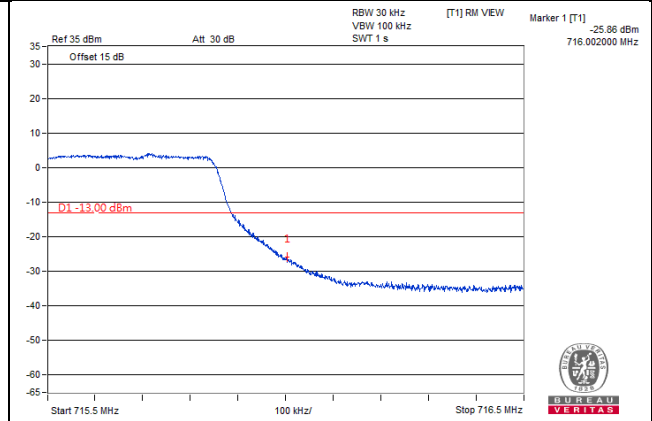
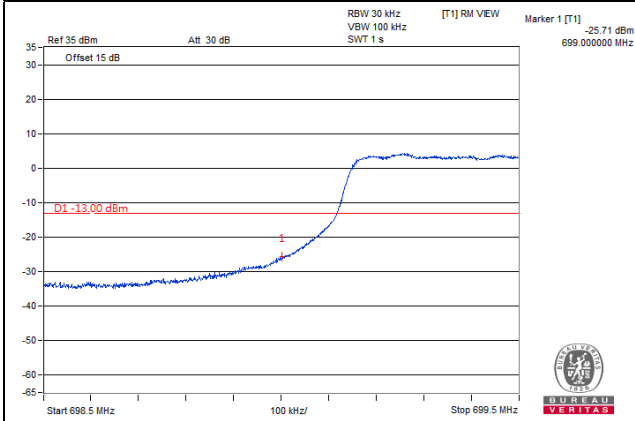
QPSK

15 RB / 0 RB Offset

Channel 23165
(714.5MHz)

QPSK

15 RB / 0 RB Offset





BUREAU VERITAS

Channel Bandwidth: 5MHz

Channel 23035
(701.5MHz)

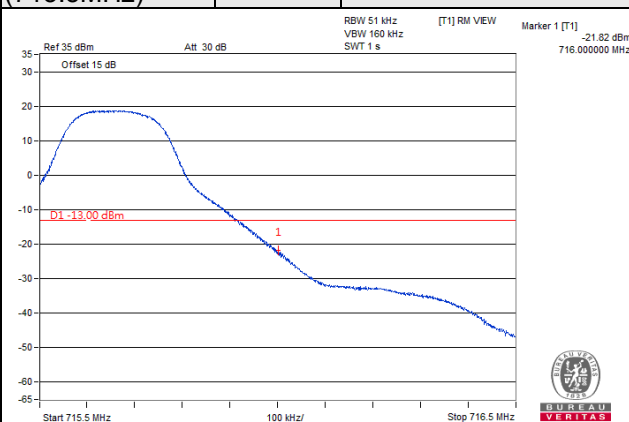
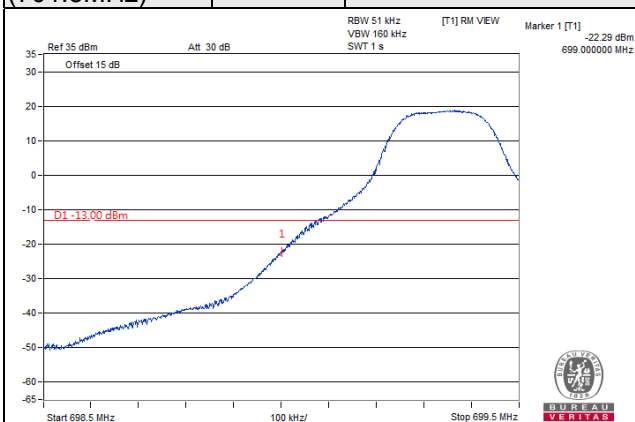
QPSK

1 RB / 0 RB Offset

Channel 23155
(713.5MHz)

QPSK

1 RB / 24RB Offset



Channel 23035
(701.5MHz)

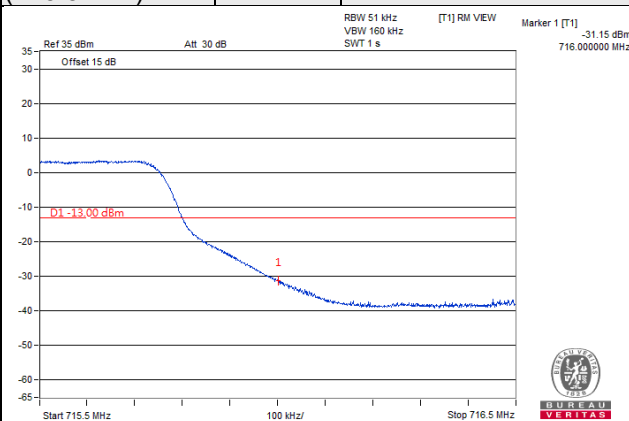
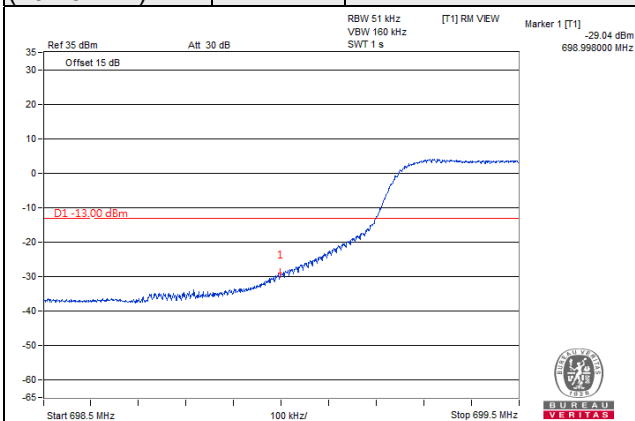
QPSK

25 RB / 0 RB Offset

Channel 23155
(713.5MHz)

QPSK

25 RB / 0 RB Offset





BUREAU
VERITAS

Channel Bandwidth: 10MHz

Channel 23060
(704MHz)

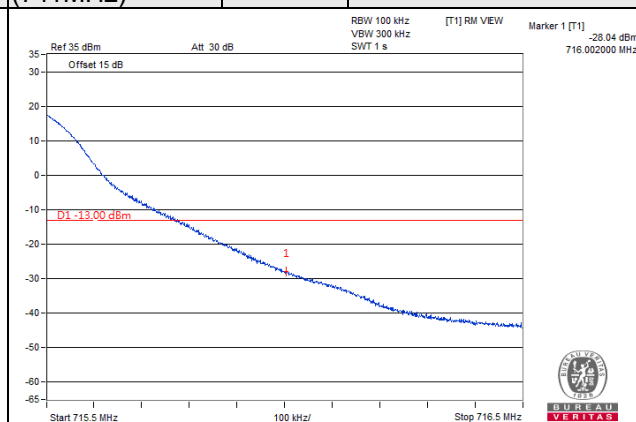
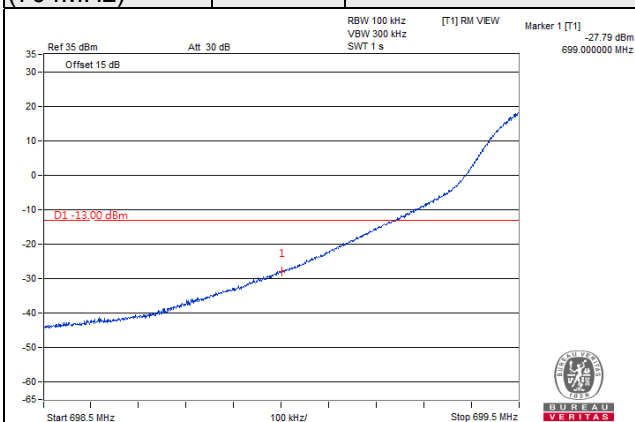
QPSK

1 RB / 0 RB Offset

Channel 23130
(711MHz)

QPSK

1 RB / 24RB Offset



Channel 23060
(704MHz)

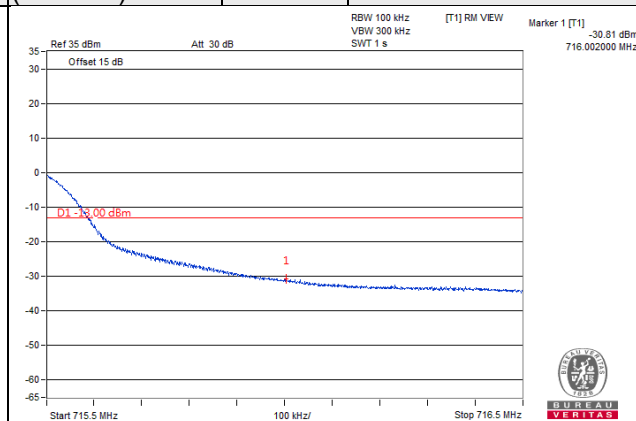
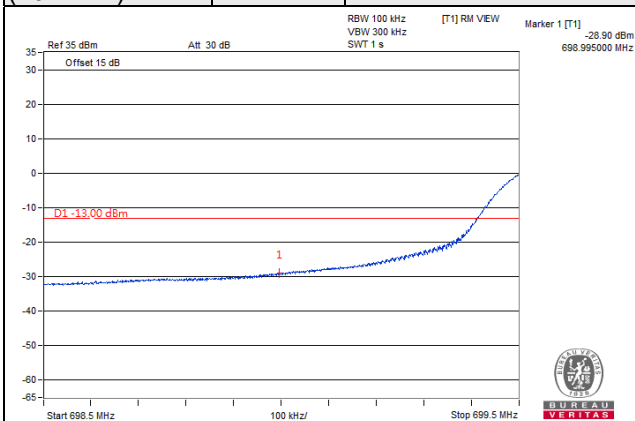
QPSK

50 RB / 0 RB Offset

Channel 23130
(711MHz)

QPSK

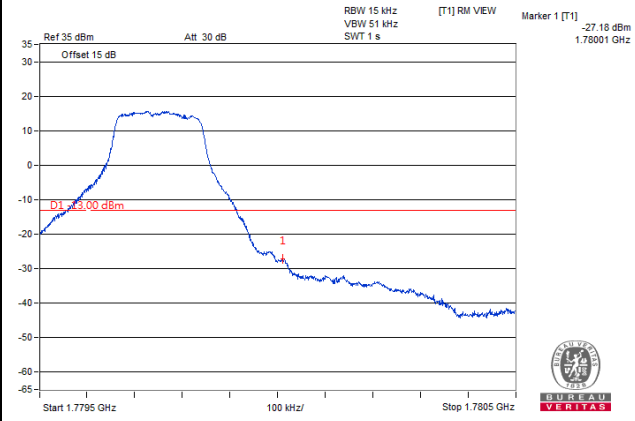
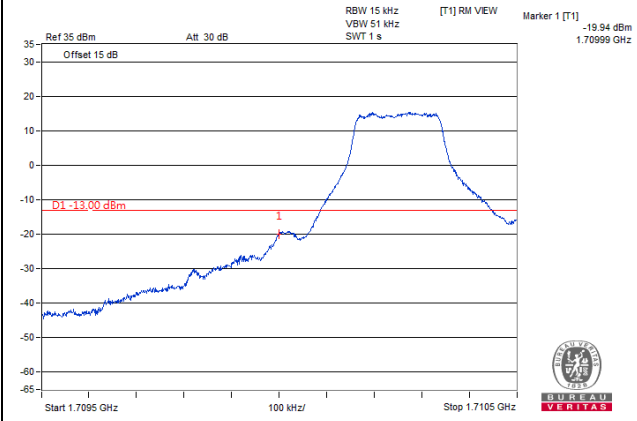
25 RB / 0 RB Offset



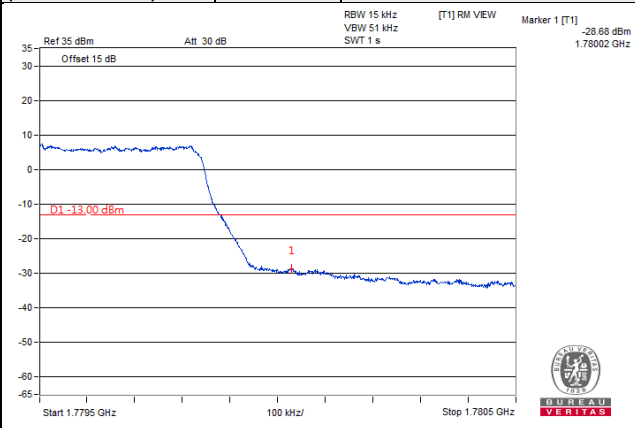
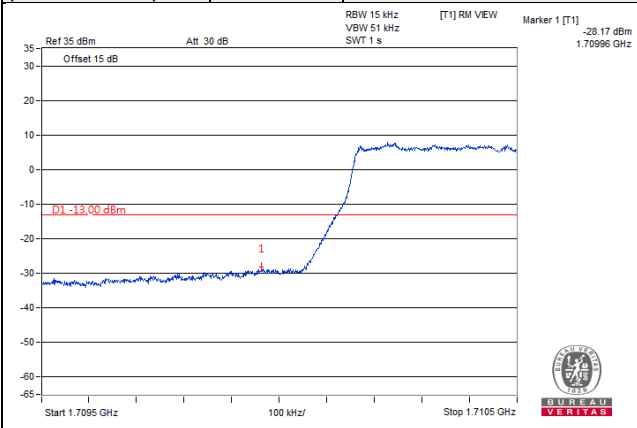
LTE Band 66

Channel Bandwidth: 1.4MHz

Channel 131979 (1710.7MHz)	QPSK	1 RB / 0 RB Offset	Channel 132665 (1779.3MHz)	QPSK	1 RB / 5 RB Offset
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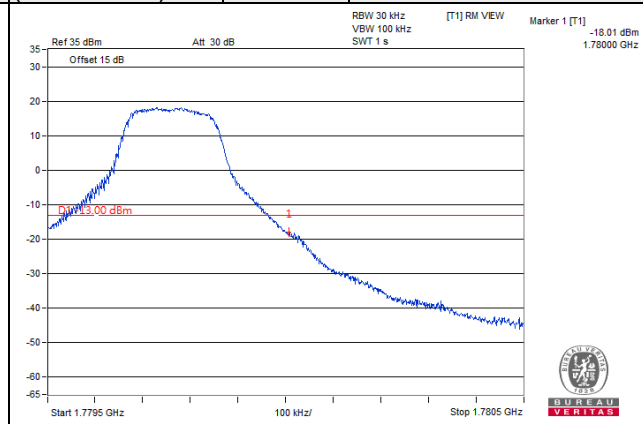
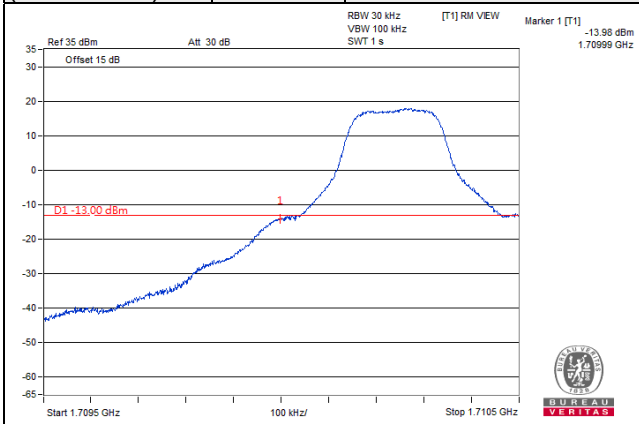


Channel 131979 (1710.7MHz)	QPSK	6 RB / 0 RB Offset	Channel 132665 (1779.3MHz)	QPSK	6 RB / 0 RB Offset
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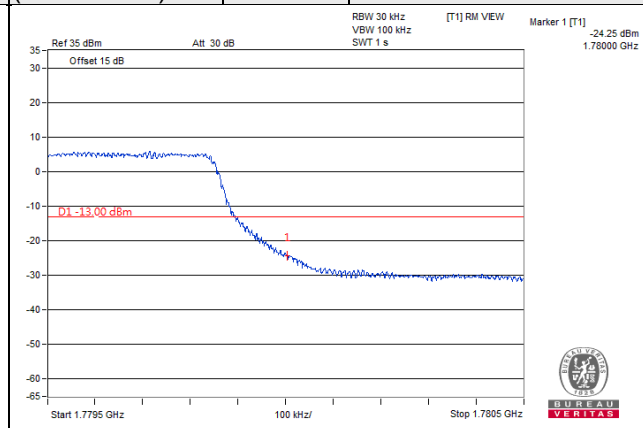
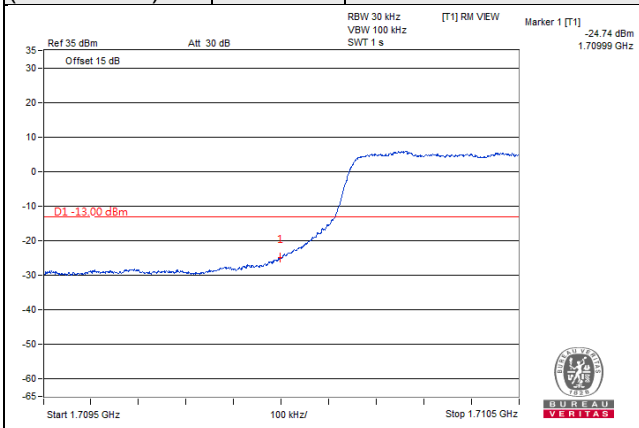


Channel Bandwidth: 3MHz

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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BUREAU
VERITAS

Channel Bandwidth: 5MHz

Channel 131997
(1712.5MHz)

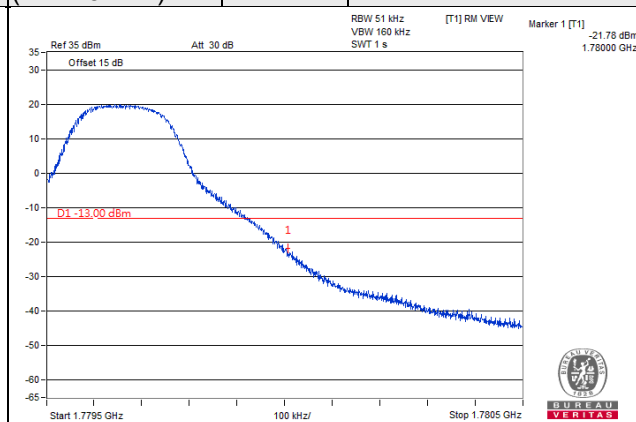
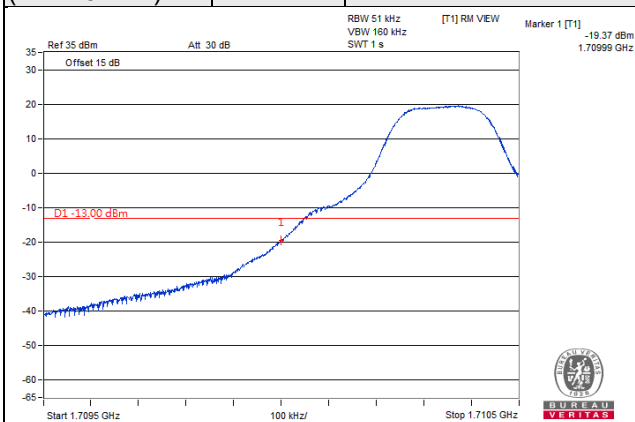
QPSK

1 RB / 0 RB Offset

Channel 132647
(1777.5MHz)

QPSK

1 RB / 24 RB Offset



Channel 131997
(1712.5MHz)

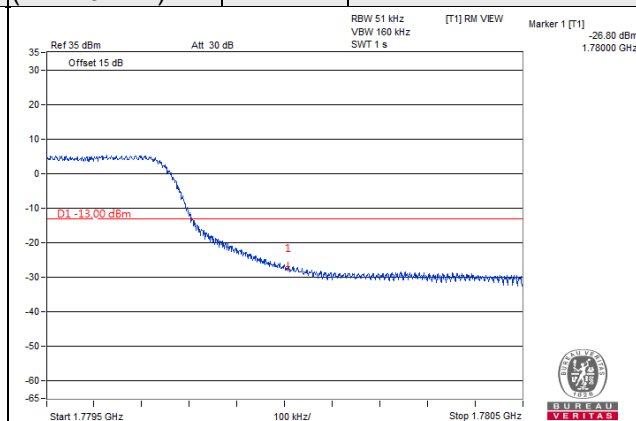
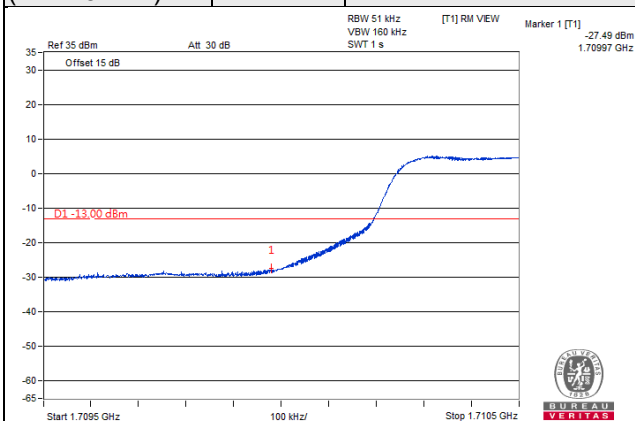
QPSK

25 RB / 0 RB Offset

Channel 132647
(1777.5MHz)

QPSK

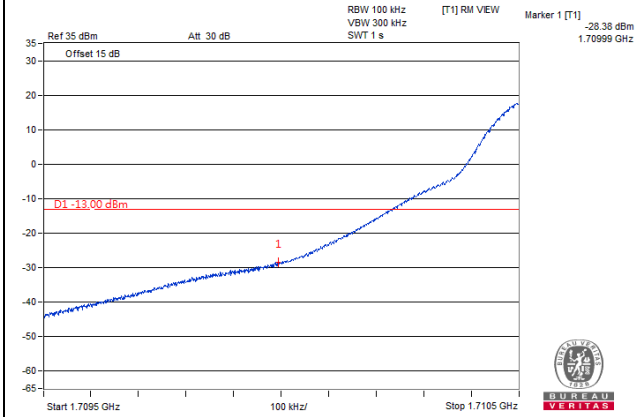
25 RB / 0 RB Offset



Channel Bandwidth: 10MHz

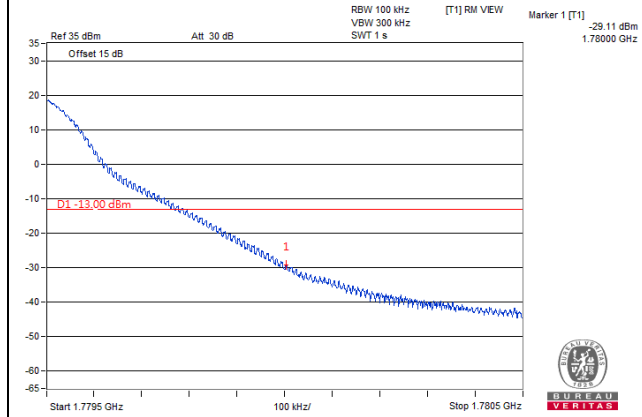
Channel 132022
(1715.0MHz)

QPSK
1 RB / 0 RB Offset



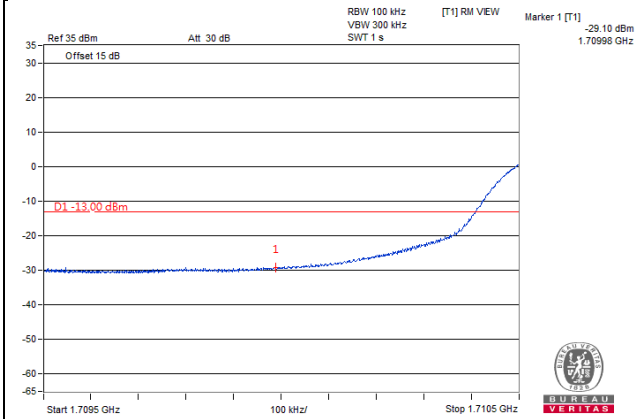
Channel 132622
(1775.0MHz)

QPSK
1 RB / 49 RB Offset



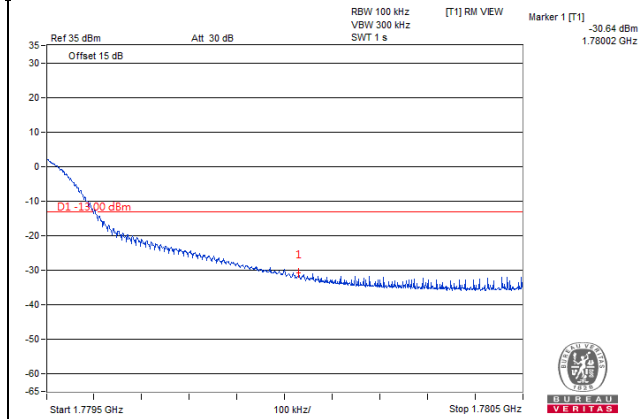
Channel 132022
(1715.0MHz)

QPSK
50 RB / 0 RB Offset



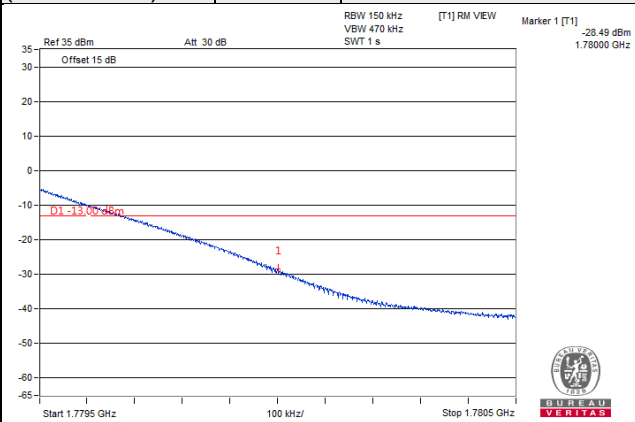
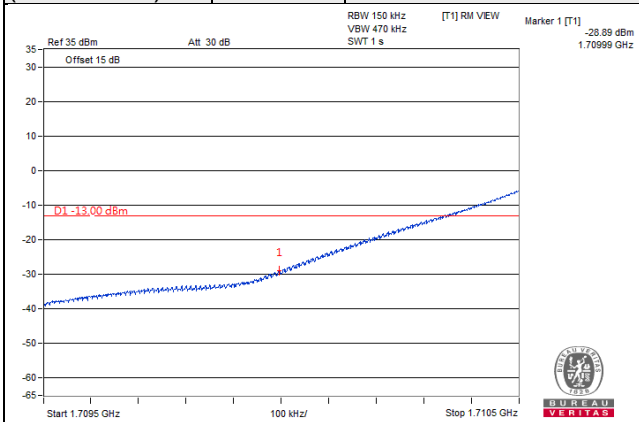
Channel 132622
(1775.0MHz)

QPSK
50 RB / 0 RB Offset

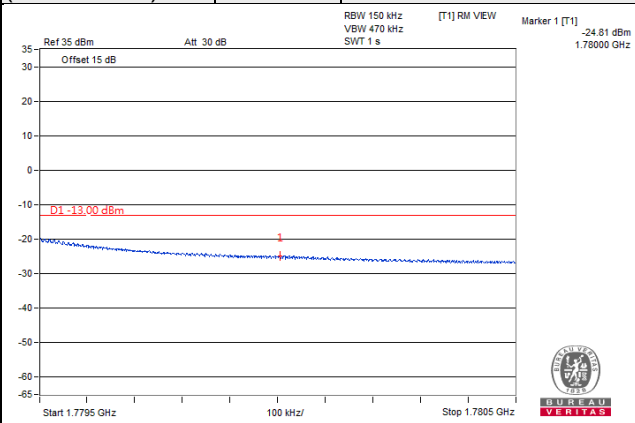
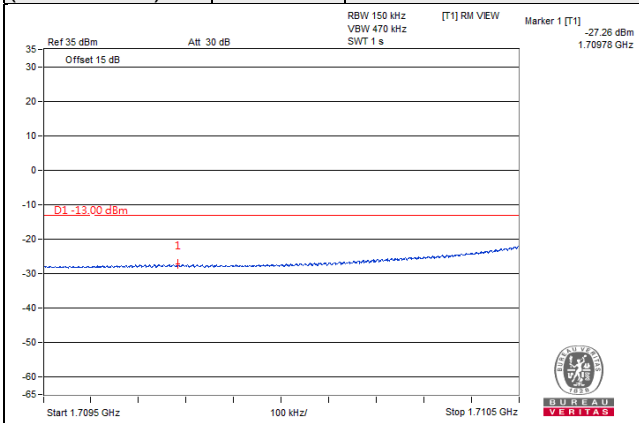


Channel Bandwidth: 15MHz

Channel 132047 (1717.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 132597 (1772.5MHz)	QPSK	1 RB / 74 RB Offset
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Channel 132047 (1717.5MHz)	QPSK	75 RB / 0 RB Offset	Channel 132597 (1772.5MHz)	QPSK	75 RB / 0 RB Offset
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Channel Bandwidth: 20MHz

Channel 132072
(1720.0MHz)

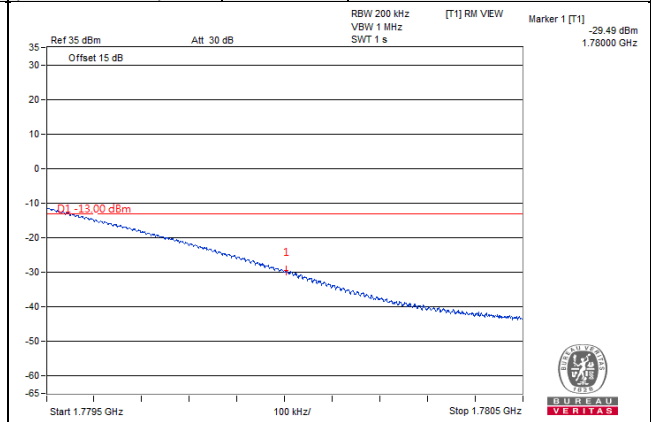
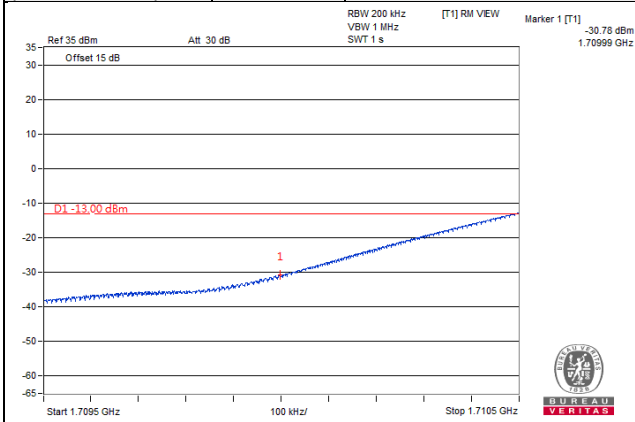
QPSK

1 RB / 0 RB Offset

Channel 132572
(1770.0MHz)

QPSK

1 RB / 99 RB Offset



Channel 132072
(1720.0MHz)

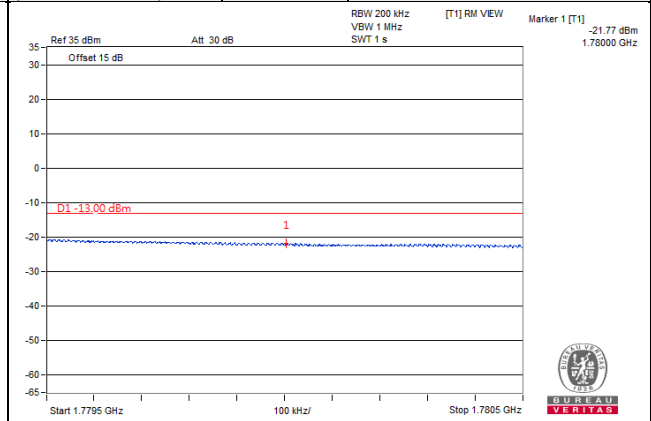
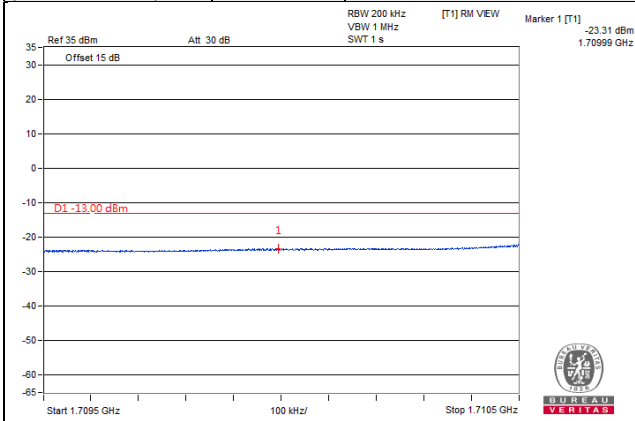
QPSK

100 RB / 0 RB Offset

Channel 132572
(1770.0MHz)

QPSK

100 RB / 0 RB Offset

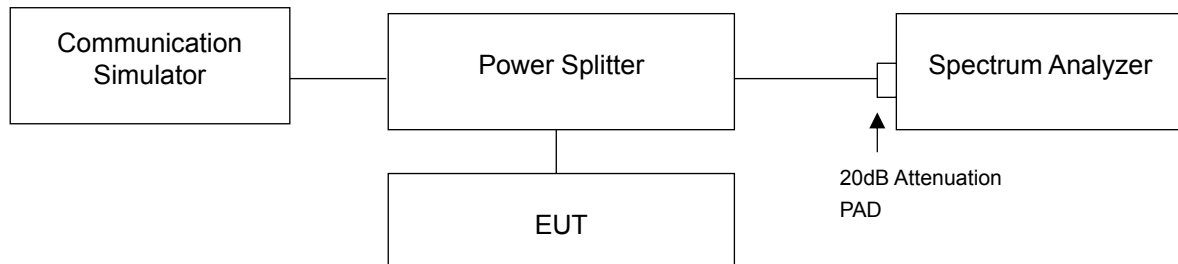


4.6 Peak to Average Ratio

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%.

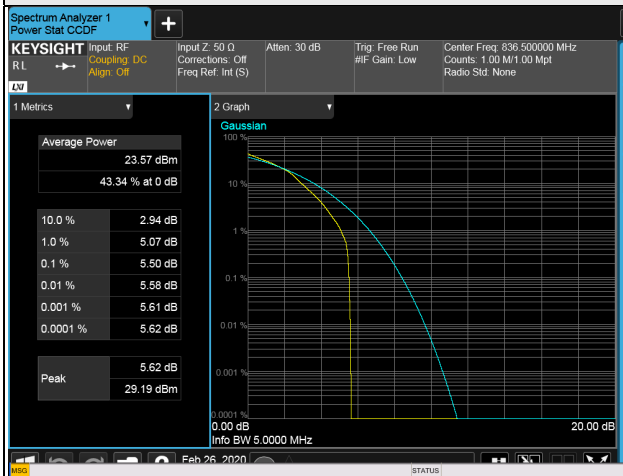
4.6.4 Test Results

n5

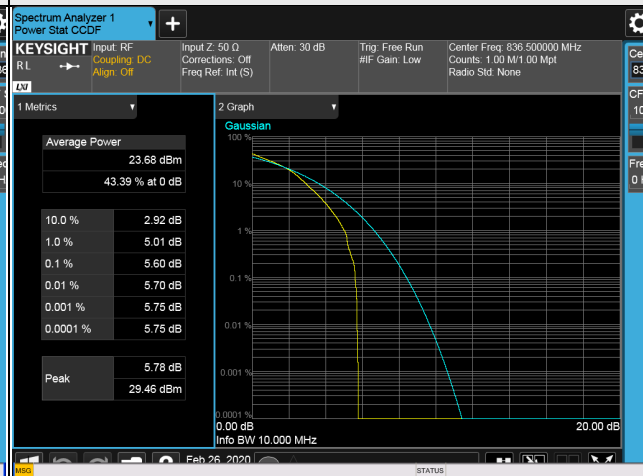
n5, Channel Bandwidth 5MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
165300	826.5	3.72	3.59	5.35	5.40	5.32
167300	836.5	3.70	3.62	5.39	5.50	5.47
169300	846.5	3.60	3.53	5.22	5.30	5.21
n5, Channel Bandwidth 10MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
165800	829.0	3.54	3.50	5.15	5.33	5.22
167300	836.5	3.55	3.76	5.37	5.60	5.50
168800	844.0	3.48	3.45	4.97	5.17	5.10
n5, Channel Bandwidth 15MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
166300	831.5	3.51	3.61	4.93	5.06	5.15
167300	836.5	3.41	3.46	5.24	5.32	4.98
168300	841.5	3.32	3.30	3.96	4.07	4.05
n5, Channel Bandwidth 20MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
166800	834.0	3.60	3.64	5.01	5.20	4.73
167300	836.5	3.38	3.36	5.13	5.22	5.02
167800	839.0	3.31	3.30	4.03	4.04	4.00

Spectrum Plot of Worst Value

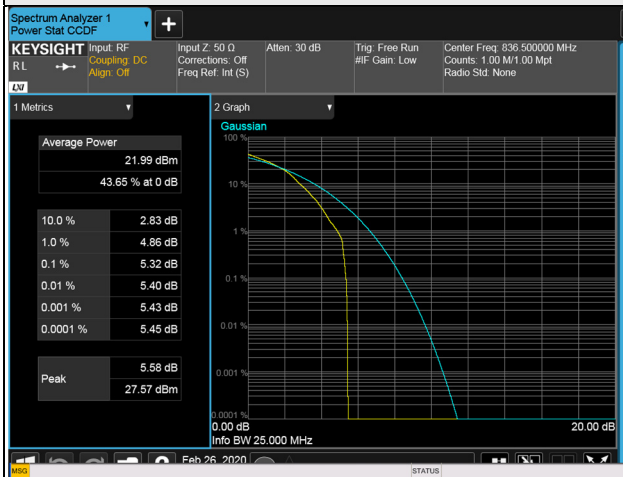
5MHz / 64QAM



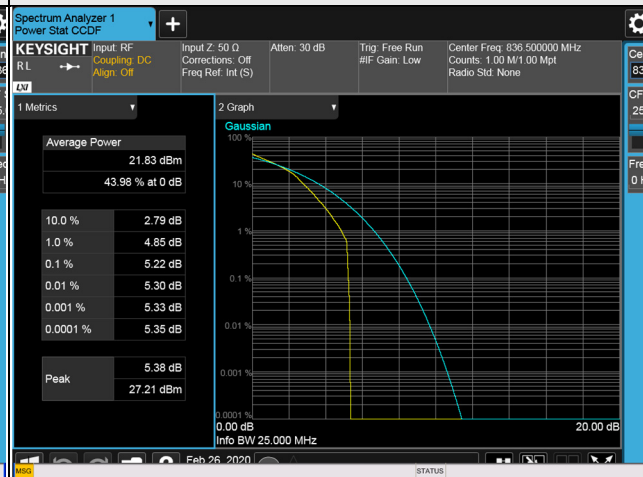
10MHz / 64QAM



15MHz / 64QAM



20MHz / 64QAM



LTE Band 2, Channel Bandwidth 1.4MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
18607	1850.7	4.00	5.19	6.40
18900	1880.0	4.10	4.99	6.74
19193	1909.3	3.73	4.34	6.40

LTE Band 2, Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
18615	1851.5	3.79	5.03	6.84
18900	1880.0	3.79	5.01	6.75
19185	1908.5	3.58	4.38	6.40

LTE Band 2, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
18625	1852.5	3.80	4.61	6.88
18900	1880.0	3.81	4.64	6.78
19175	1907.5	3.61	4.35	6.46

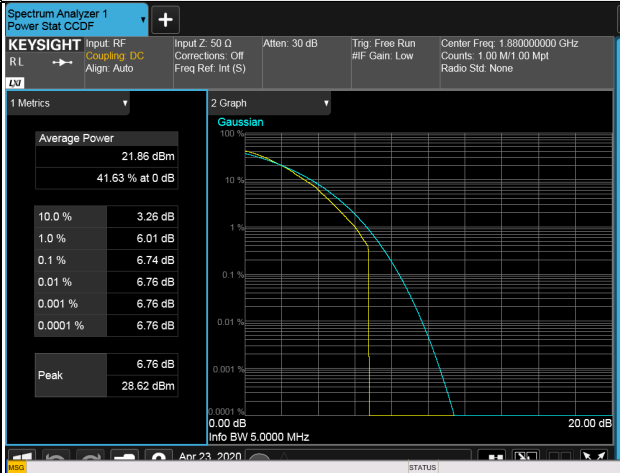
LTE Band 2, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
18650	1855.0	3.95	4.78	7.20
18900	1880.0	3.72	4.63	6.70
19150	1905.0	3.54	4.24	6.33

LTE Band 2, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
18675	1857.5	3.87	4.82	7.39
18900	1880.0	3.65	4.42	6.74
19125	1902.5	3.50	4.22	6.18

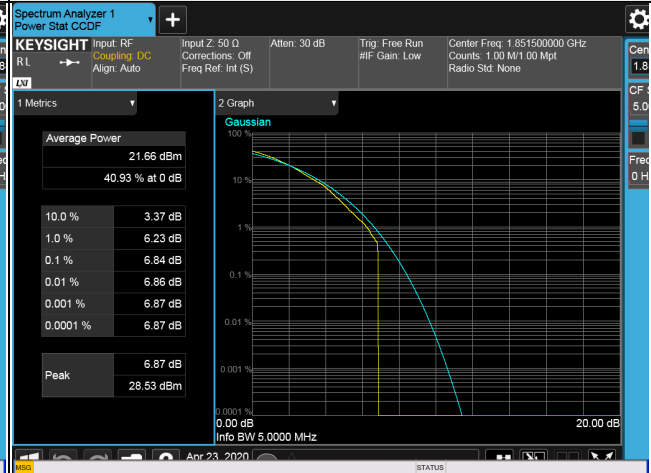
LTE Band 2, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
18700	1860.0	3.90	4.73	7.16
18900	1880.0	3.66	4.52	6.62
19100	1900.0	3.65	4.12	6.20

Spectrum Plot of Worst Value

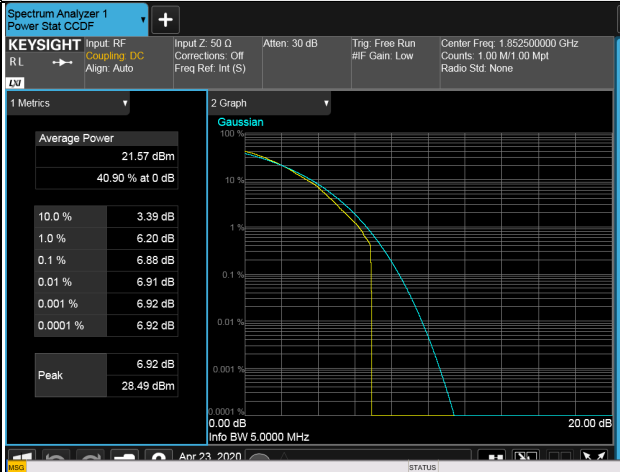
1.4MHz / 64QAM



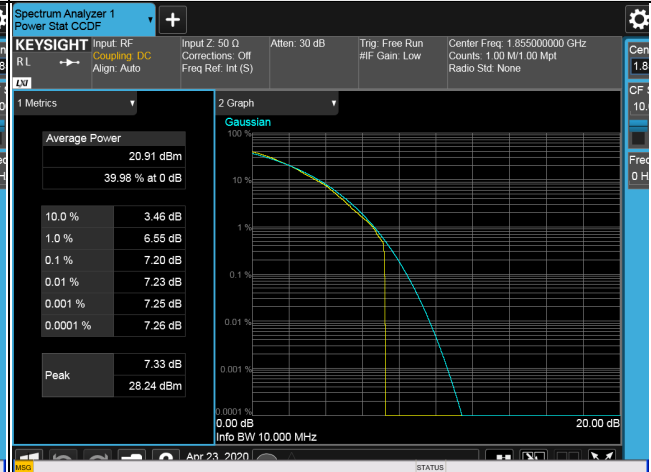
3MHz / 64QAM



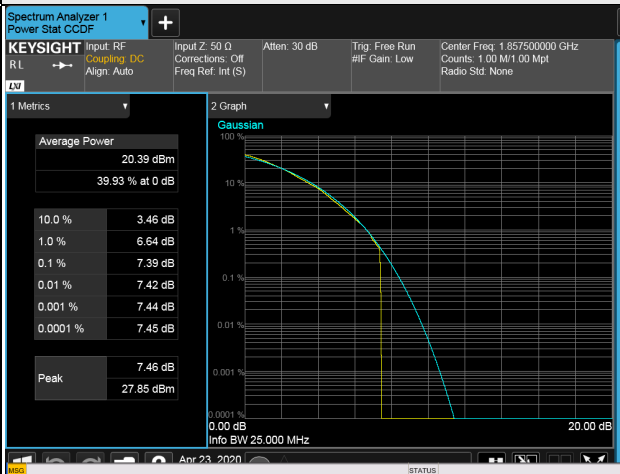
5MHz / 64QAM



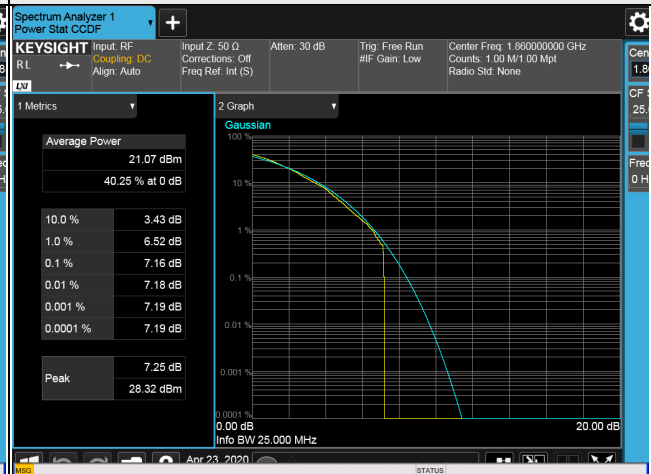
10MHz / 64QAM



15MHz / 64QAM



20MHz / 64QAM



LTE Band 7

LTE Band 7, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
20775	2502.5	3.57	5.05	6.41
21100	2535.0	3.60	5.08	6.37
21425	2567.5	3.46	4.12	6.12
LTE Band 7, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
20800	2505.0	3.58	5.04	6.35
21100	2535.0	3.64	5.03	6.09
21400	2565.0	3.38	4.07	6.07
LTE Band 7, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
20825	2507.5	3.46	4.92	6.14
21100	2535.0	3.35	4.81	6.03
21375	2562.5	3.36	4.06	5.97
LTE Band 7, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
20850	2510.0	3.92	5.23	6.89
21100	2535.0	3.35	4.79	6.03
21350	2560.0	3.63	4.28	6.01