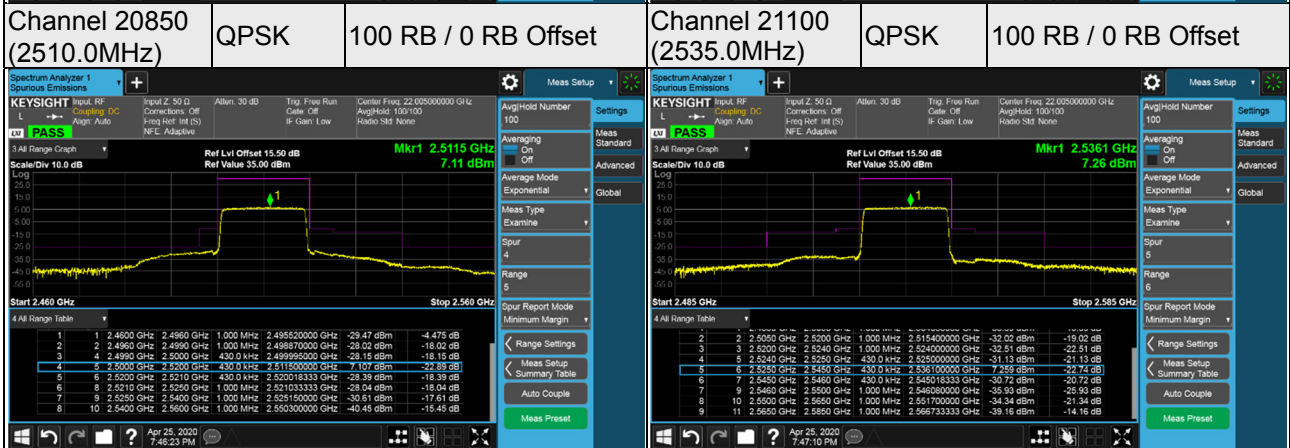
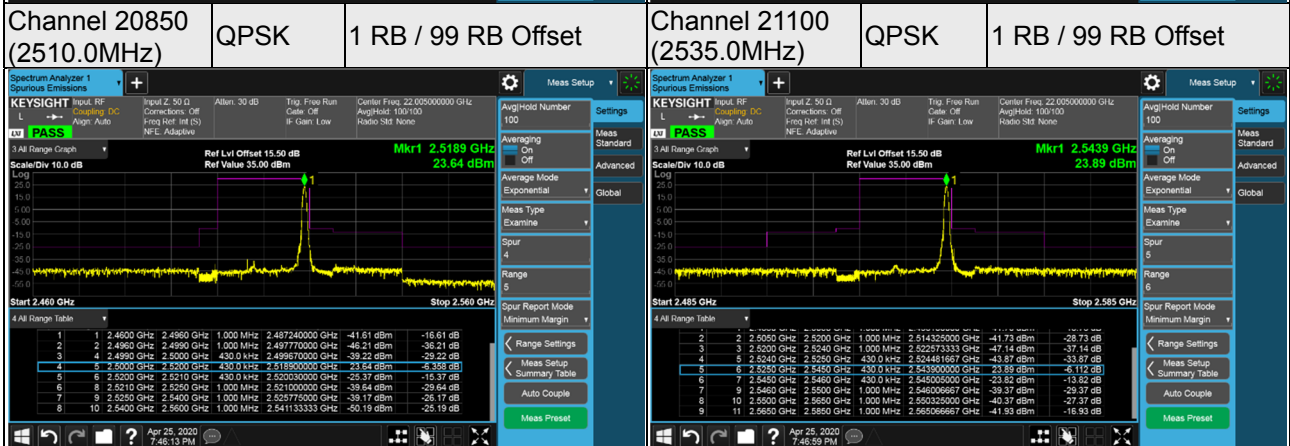
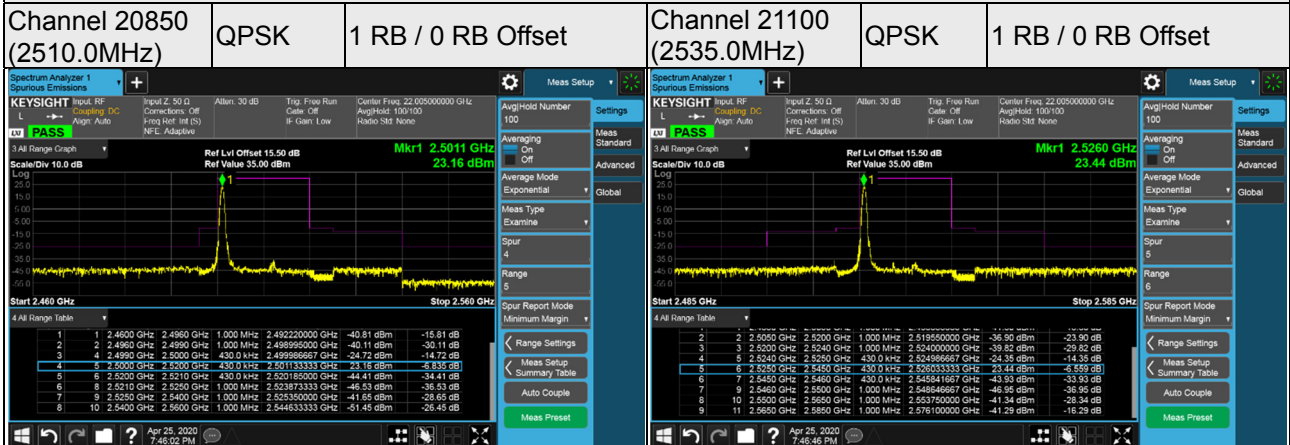
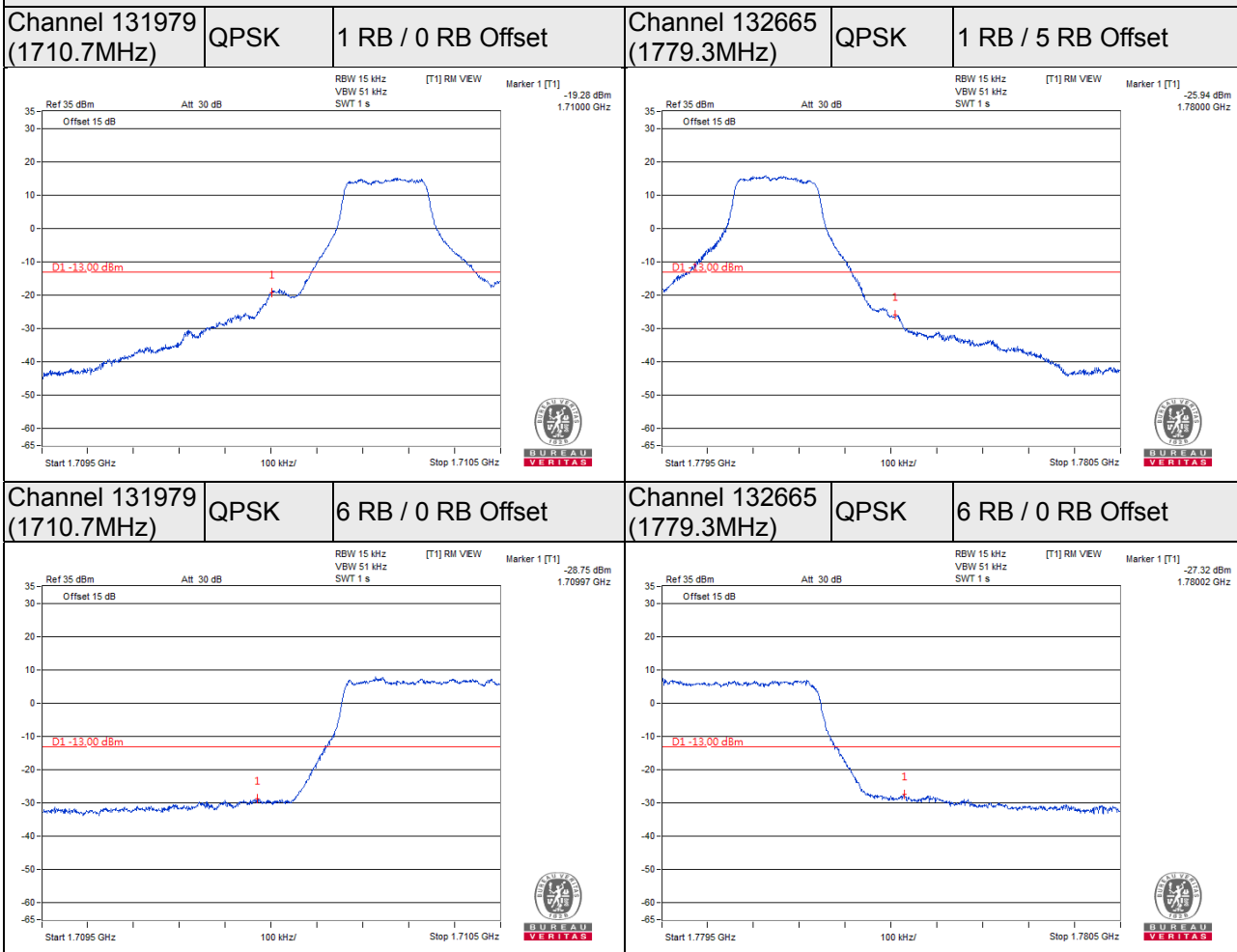


Channel Bandwidth: 20MHz



LTE Band 66

Channel Bandwidth: 1.4MHz



Channel Bandwidth: 3MHz

Channel 131987
(1711.5MHz)

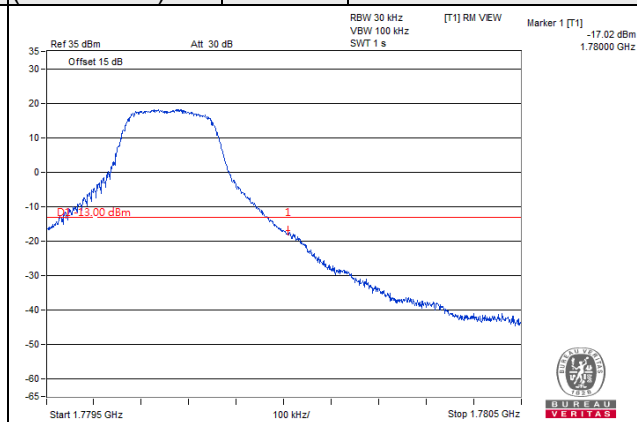
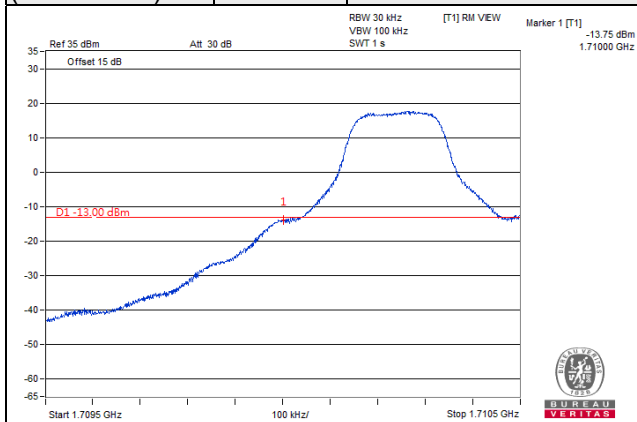
QPSK

1 RB / 0 RB Offset

Channel 132657
(1778.5MHz)

QPSK

1 RB / 14 RB Offset



Channel 131987
(1711.5MHz)

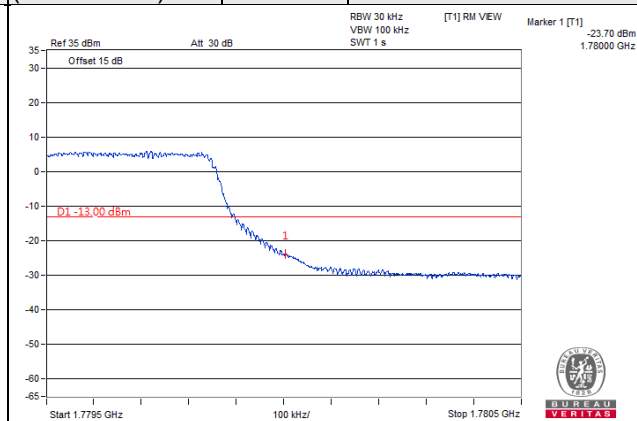
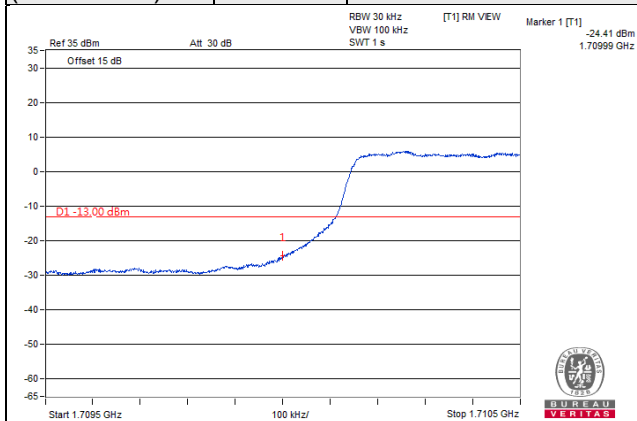
QPSK

15 RB / 0 RB Offset

Channel 132657
(1778.5MHz)

QPSK

15 RB / 0 RB Offset



Channel Bandwidth: 5MHz

Channel 131997
(1712.5MHz)

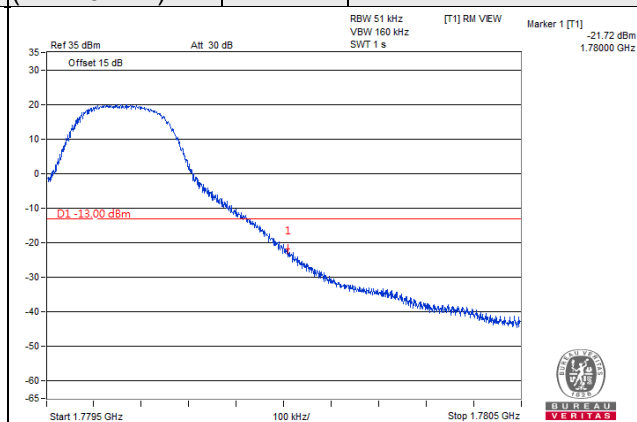
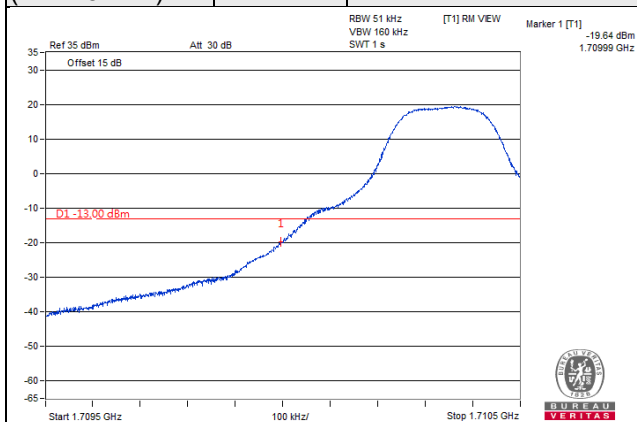
QPSK

1 RB / 0 RB Offset

Channel 132647
(1777.5MHz)

QPSK

1 RB / 24 RB Offset



Channel 131997
(1712.5MHz)

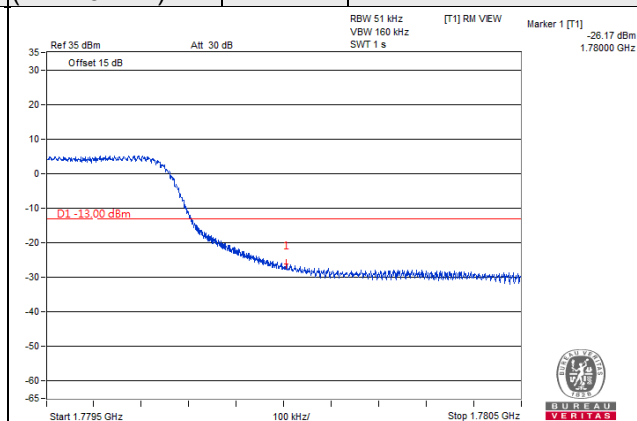
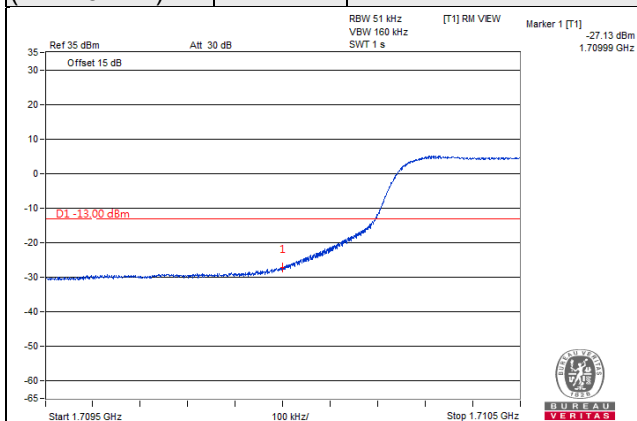
QPSK

25 RB / 0 RB Offset

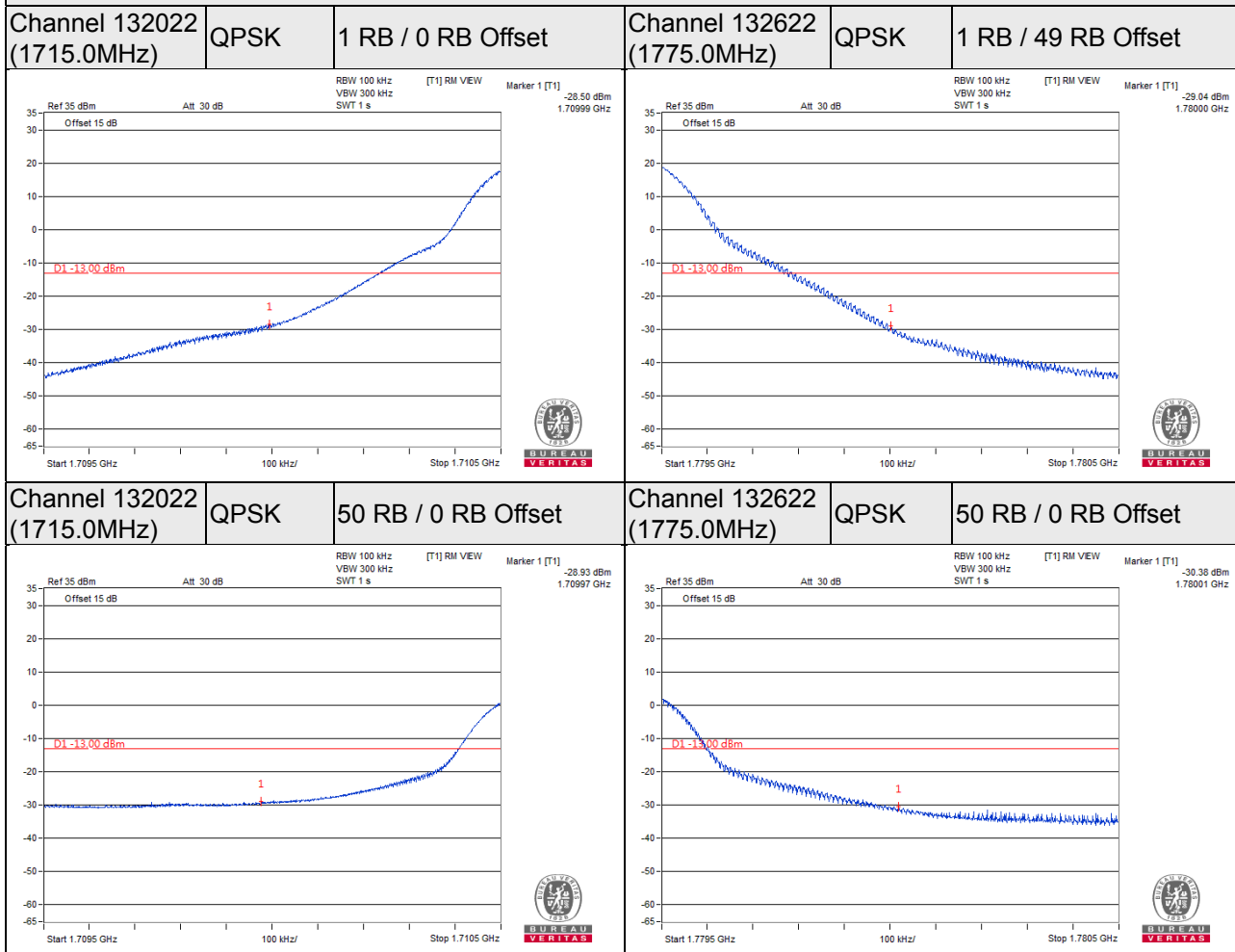
Channel 132647
(1777.5MHz)

QPSK

25 RB / 0 RB Offset



Channel Bandwidth: 10MHz



Channel Bandwidth: 15MHz

Channel 132047
(1717.5MHz)

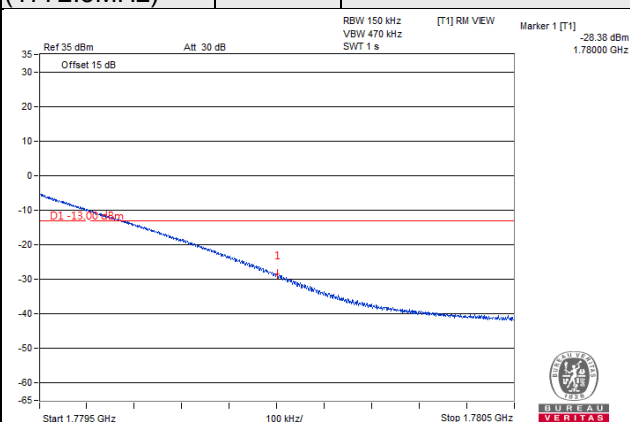
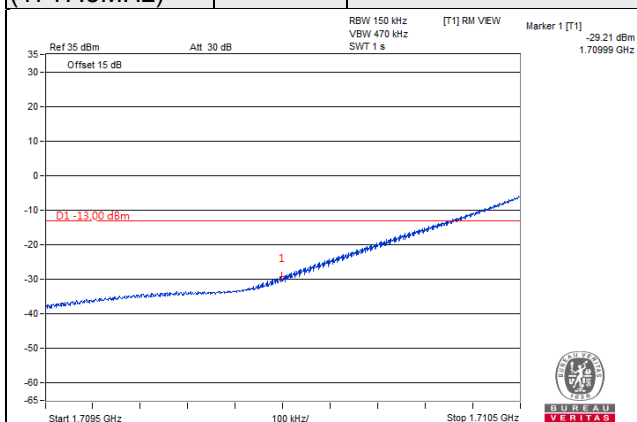
QPSK

1 RB / 0 RB Offset

Channel 132597
(1772.5MHz)

QPSK

1 RB / 74 RB Offset



Channel 132047
(1717.5MHz)

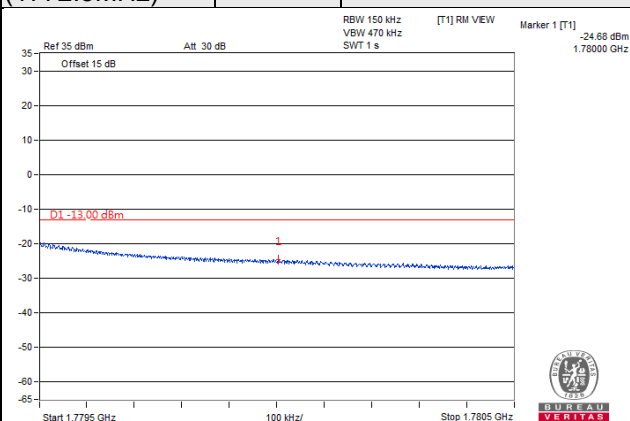
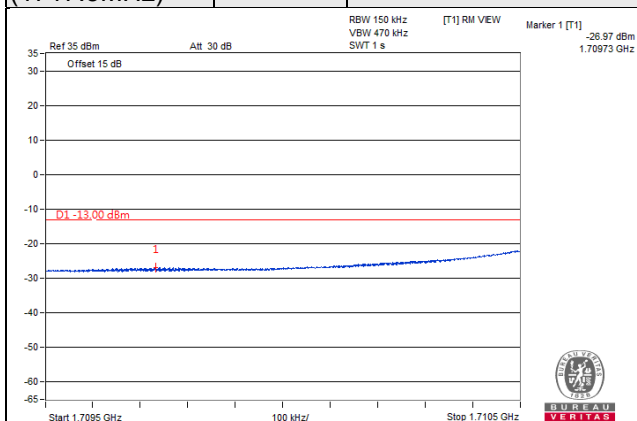
QPSK

75 RB / 0 RB Offset

Channel 132597
(1772.5MHz)

QPSK

75 RB / 0 RB Offset



Channel Bandwidth: 20MHz

Channel 132072
(1720.0MHz)

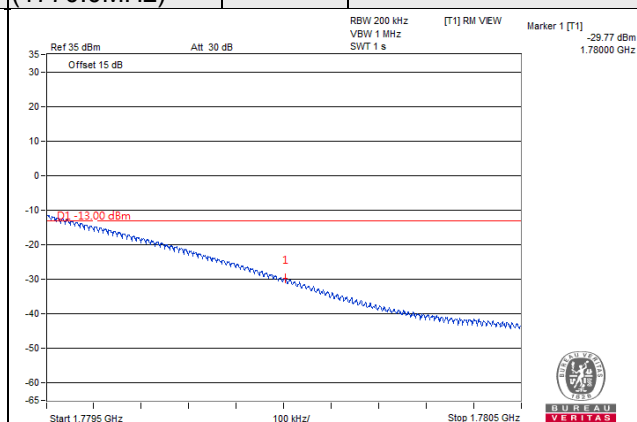
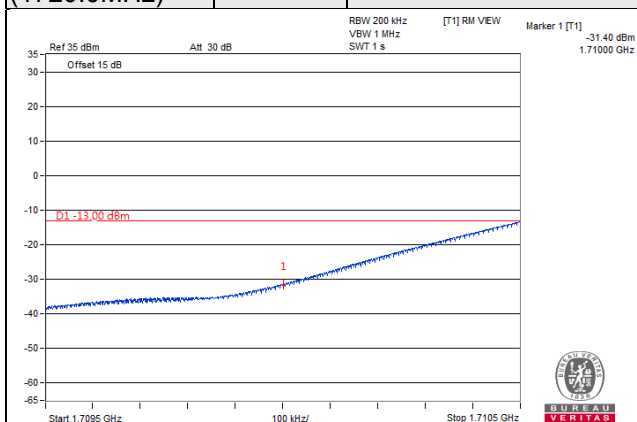
QPSK

1 RB / 0 RB Offset

Channel 132572
(1770.0MHz)

QPSK

1 RB / 99 RB Offset



Channel 132072
(1720.0MHz)

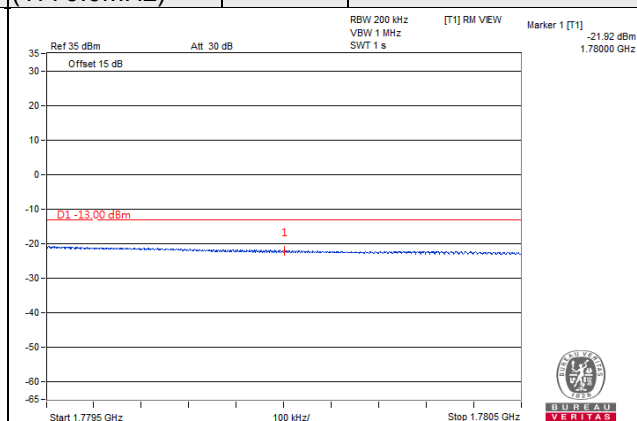
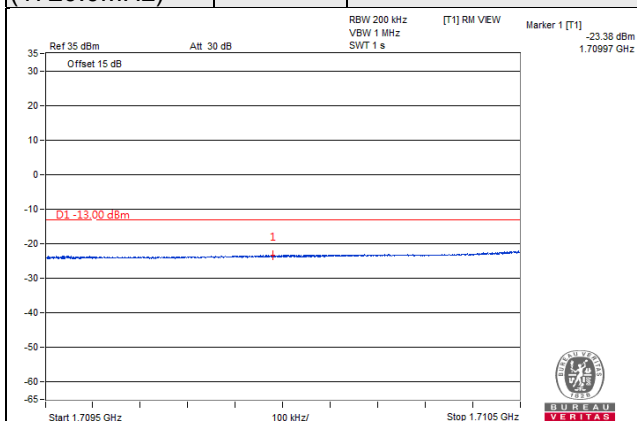
QPSK

100 RB / 0 RB Offset

Channel 132572
(1770.0MHz)

QPSK

100 RB / 0 RB Offset

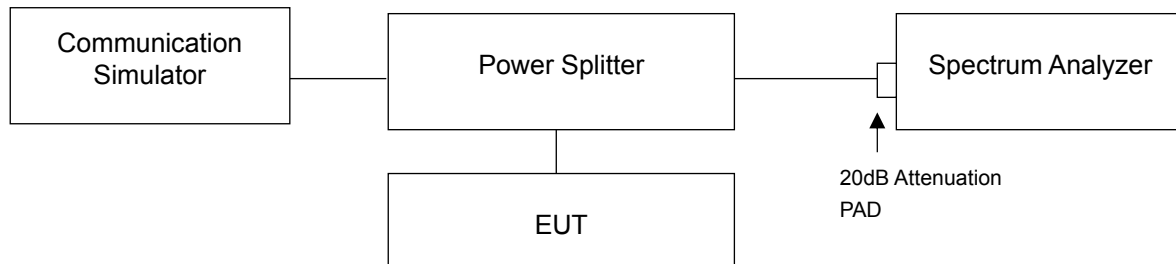


4.6 Peak to Average Ratio

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%.

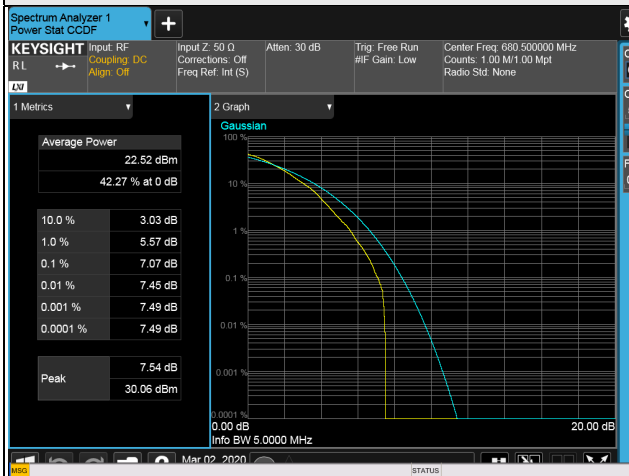
4.6.4 Test Results

n71

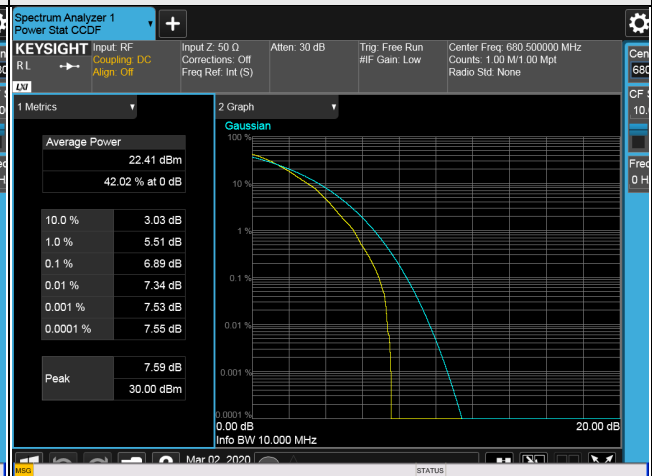
n71, Channel Bandwidth 5MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
133100	665.5	3.50	3.53	5.19	6.73	4.27
136100	680.5	3.70	3.53	4.40	7.07	4.78
139100	695.5	3.67	3.59	4.72	6.83	5.24
n71, Channel Bandwidth 10MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
133600	668	3.45	3.59	5.11	6.66	4.49
136100	680.5	3.85	3.63	5.01	6.89	5.21
138600	693	3.78	3.78	4.94	6.78	5.62
n71, Channel Bandwidth 15MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
134100	670.5	3.42	3.32	5.06	6.49	4.15
136100	680.5	3.64	3.52	4.91	6.94	5.35
138100	690.5	3.61	3.48	5.35	6.97	4.56
n71, Channel Bandwidth 20MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
134600	673	3.44	3.45	5.04	6.54	4.20
136100	680.5	3.77	3.65	5.31	6.92	4.55
137600	688	3.49	3.34	4.58	6.79	5.18

Spectrum Plot of Worst Value

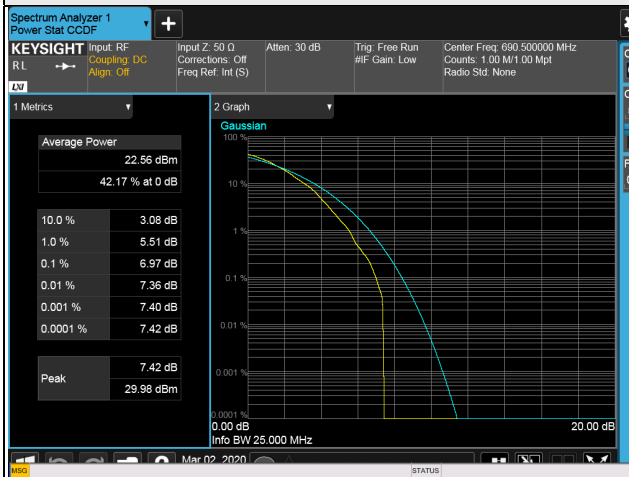
5MHz / 64QAM



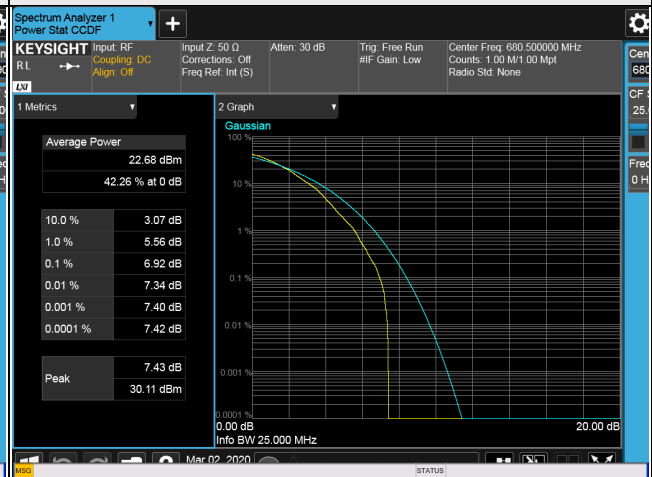
10MHz / 64QAM



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	4.05	5.01	6.44
18900	1880.0	3.83	4.92	6.47
19193	1909.3	3.59	4.34	6.39

LTE Band 2, Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
18615	1851.5	3.83	4.86	6.38
18900	1880.0	3.83	4.73	6.56
19185	1908.5	3.55	4.29	6.40

LTE Band 2, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
18625	1852.5	3.82	4.84	6.97
18900	1880.0	3.78	4.49	6.84
19175	1907.5	3.62	4.37	6.49

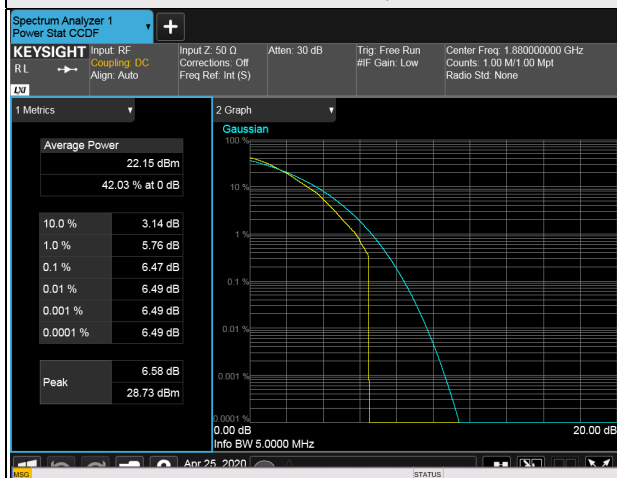
LTE Band 2, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
18650	1855.0	3.97	4.75	7.27
18900	1880.0	3.65	4.70	7.05
19150	1905.0	3.54	4.23	6.31

LTE Band 2, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
18675	1857.5	3.89	4.75	7.11
18900	1880.0	3.90	4.76	7.49
19125	1902.5	3.52	4.16	6.18

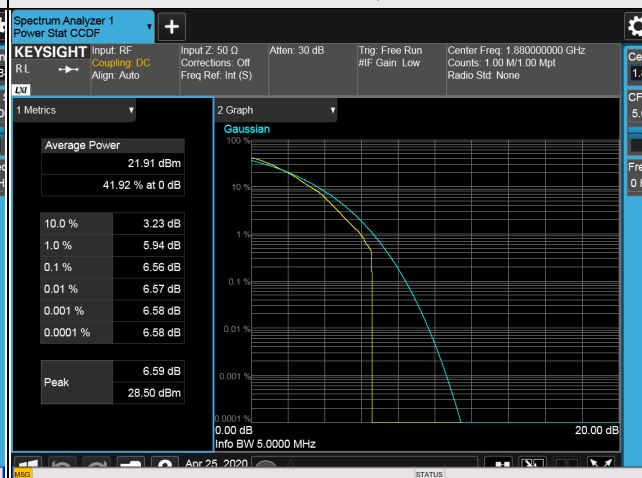
LTE Band 2, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
18700	1860.0	3.81	4.64	6.96
18900	1880.0	3.85	4.67	6.79
19100	1900.0	3.61	4.16	6.20

Spectrum Plot of Worst Value

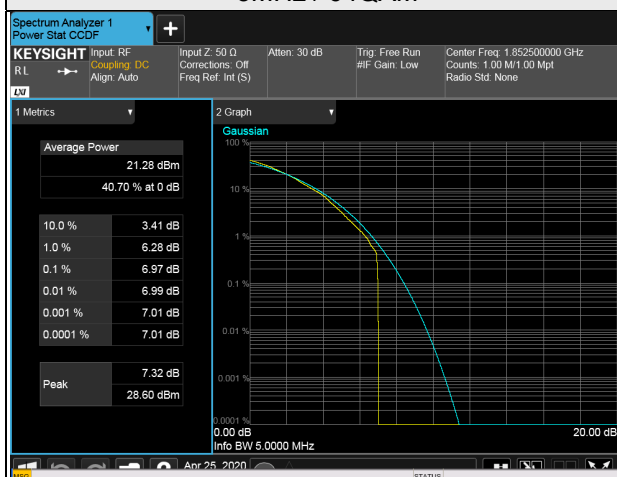
1.4MHz / 64QAM



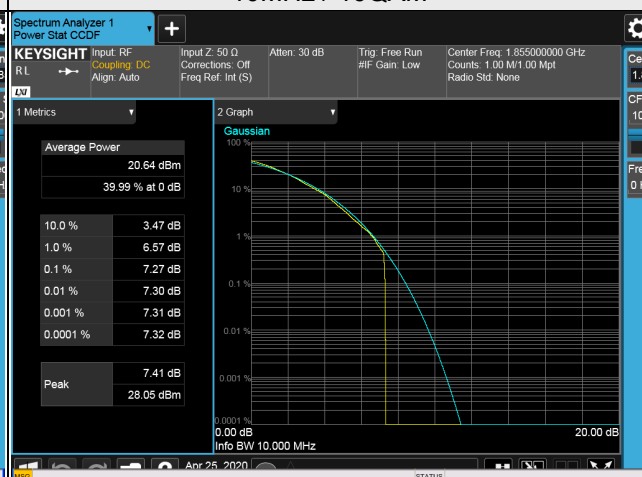
3MHz / 64QAM



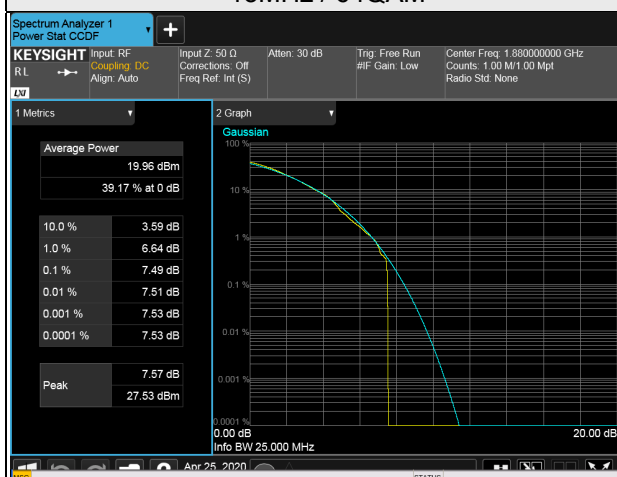
5MHz / 64QAM



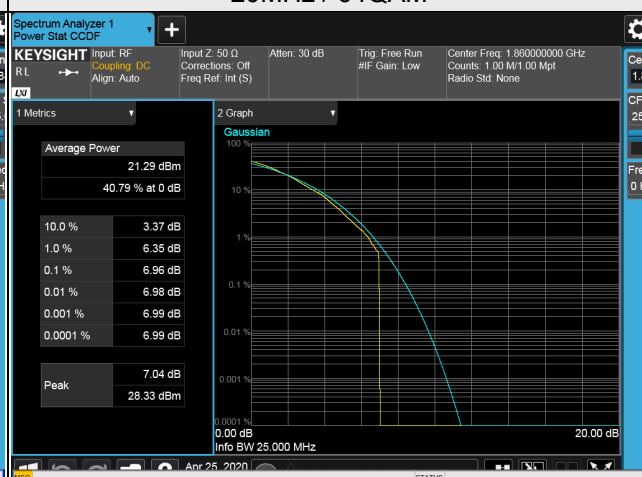
10MHz / 16QAM



15MHz / 64QAM



20MHz / 64QAM

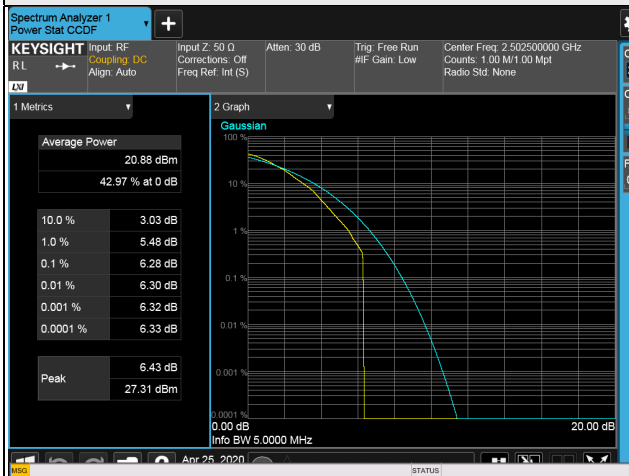


LTE Band 7

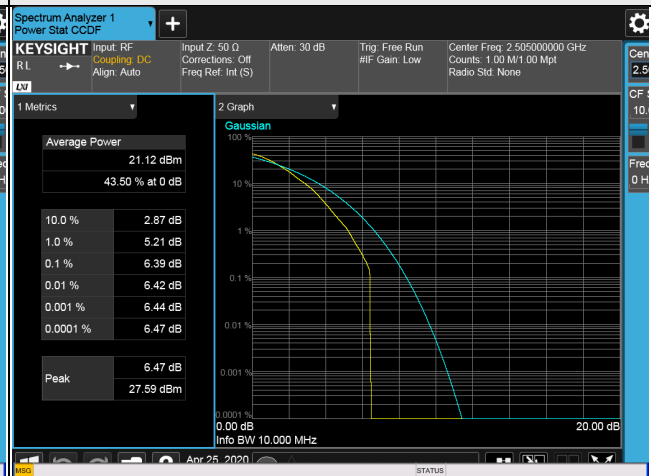
LTE Band 7, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
20775	2502.5	3.57	5.08	6.28
21100	2535.0	3.57	5.02	6.10
21425	2567.5	3.41	4.12	6.12
LTE Band 7, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
20800	2505.0	3.69	5.02	6.39
21100	2535.0	3.73	4.81	6.15
21400	2565.0	3.39	4.08	6.08
LTE Band 7, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
20825	2507.5	3.48	4.87	6.14
21100	2535.0	3.34	4.79	5.99
21375	2562.5	3.35	4.06	6.03
LTE Band 7, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
20850	2510.0	4.05	5.20	6.86
21100	2535.0	3.30	4.78	6.00
21350	2560.0	3.37	4.16	6.01

Spectrum Plot of Worst Value

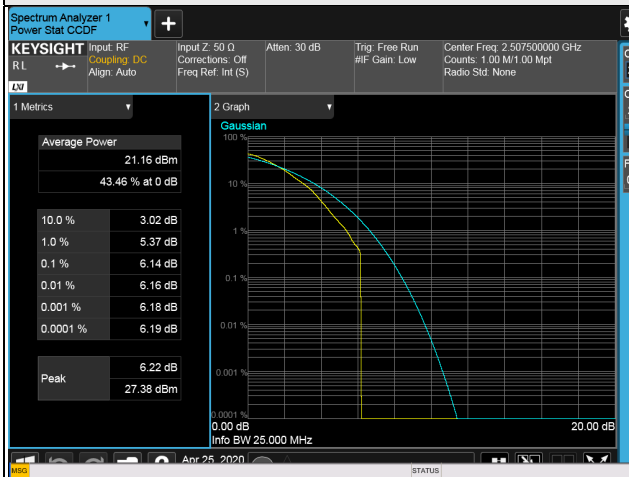
5MHz / 64QAM



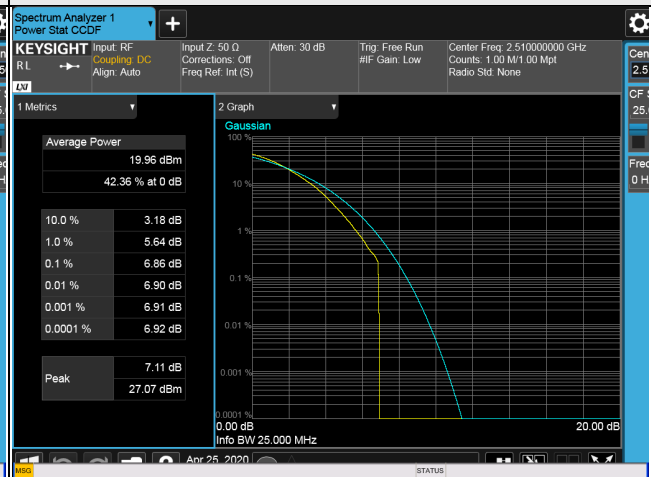
10MHz / 64QAM



15MHz / 64QAM



20MHz / 64QAM



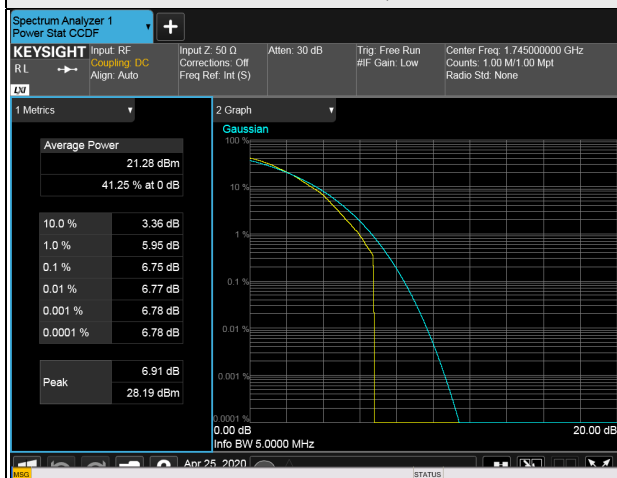
LTE Band 66

LTE Band 66, Channel Bandwidth 1.4MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
131979	1710.7	3.73	4.49	6.68
132322	1745.0	3.66	4.45	6.75
132665	1779.3	3.94	5.10	6.37
LTE Band 66, Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
131987	1711.5	3.62	4.42	6.54
132322	1745.0	3.60	4.42	6.59
132657	1778.5	3.74	5.15	6.40
LTE Band 66, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
131997	1712.5	3.65	4.43	6.59
132322	1745.0	3.68	4.43	6.65
132647	1777.5	3.75	4.85	6.44
LTE Band 66, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
132022	1715.0	3.79	4.61	6.85
132322	1745.0	3.73	4.56	6.86
132622	1775.0	3.59	4.35	6.62
LTE Band 66, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
132047	1717.5	3.74	4.38	6.64
132322	1745.0	3.69	4.48	6.71
132597	1772.5	3.46	4.19	6.28

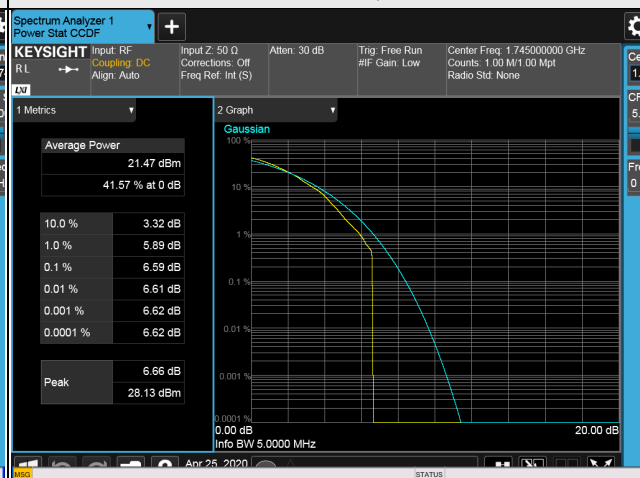
LTE Band 66, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
132072	1720.0	3.78	4.55	6.90
132322	1745.0	3.74	4.60	6.82
132572	1770.0	3.54	4.85	6.24

Spectrum Plot of Worst Value

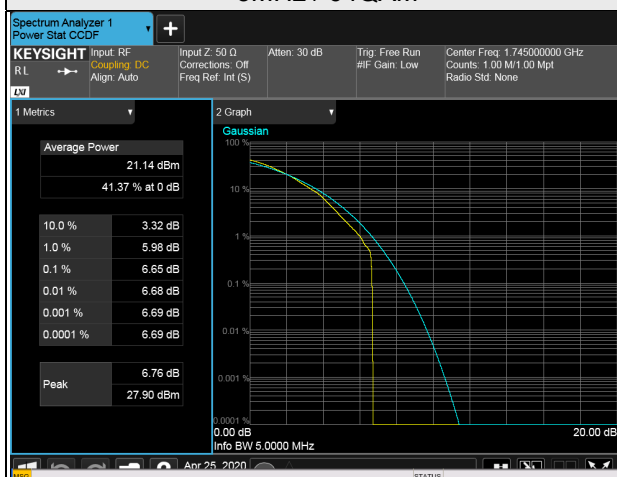
1.4MHz / 64QAM



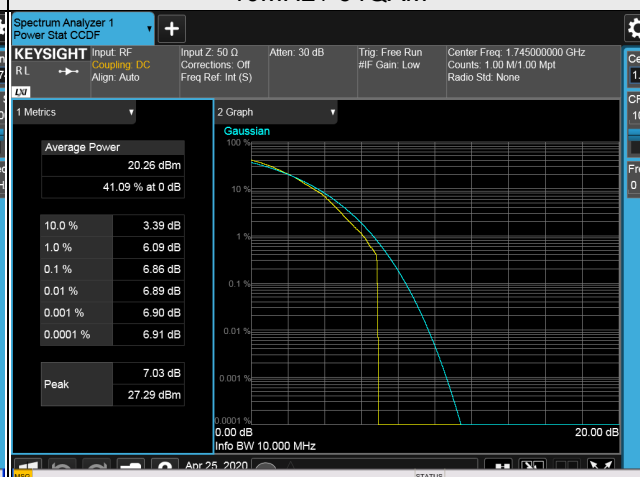
3MHz / 64QAM



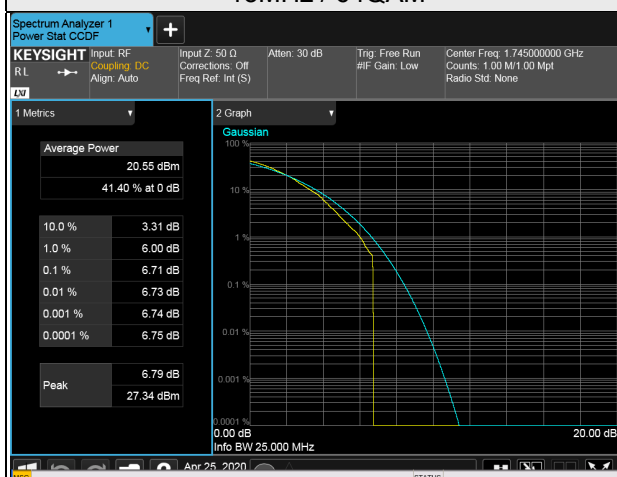
5MHz / 64QAM



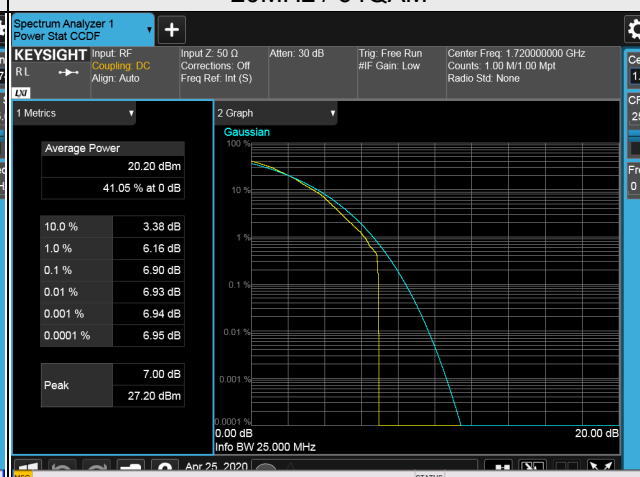
10MHz / 64QAM



15MHz / 64QAM



20MHz / 64QAM



4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

For LTE Band 2

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13dBm .

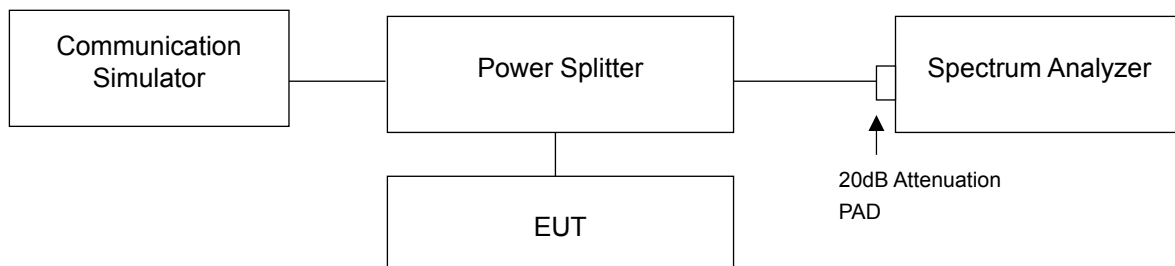
For LTE Band 7

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 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 .

4.7.2 Test Setup

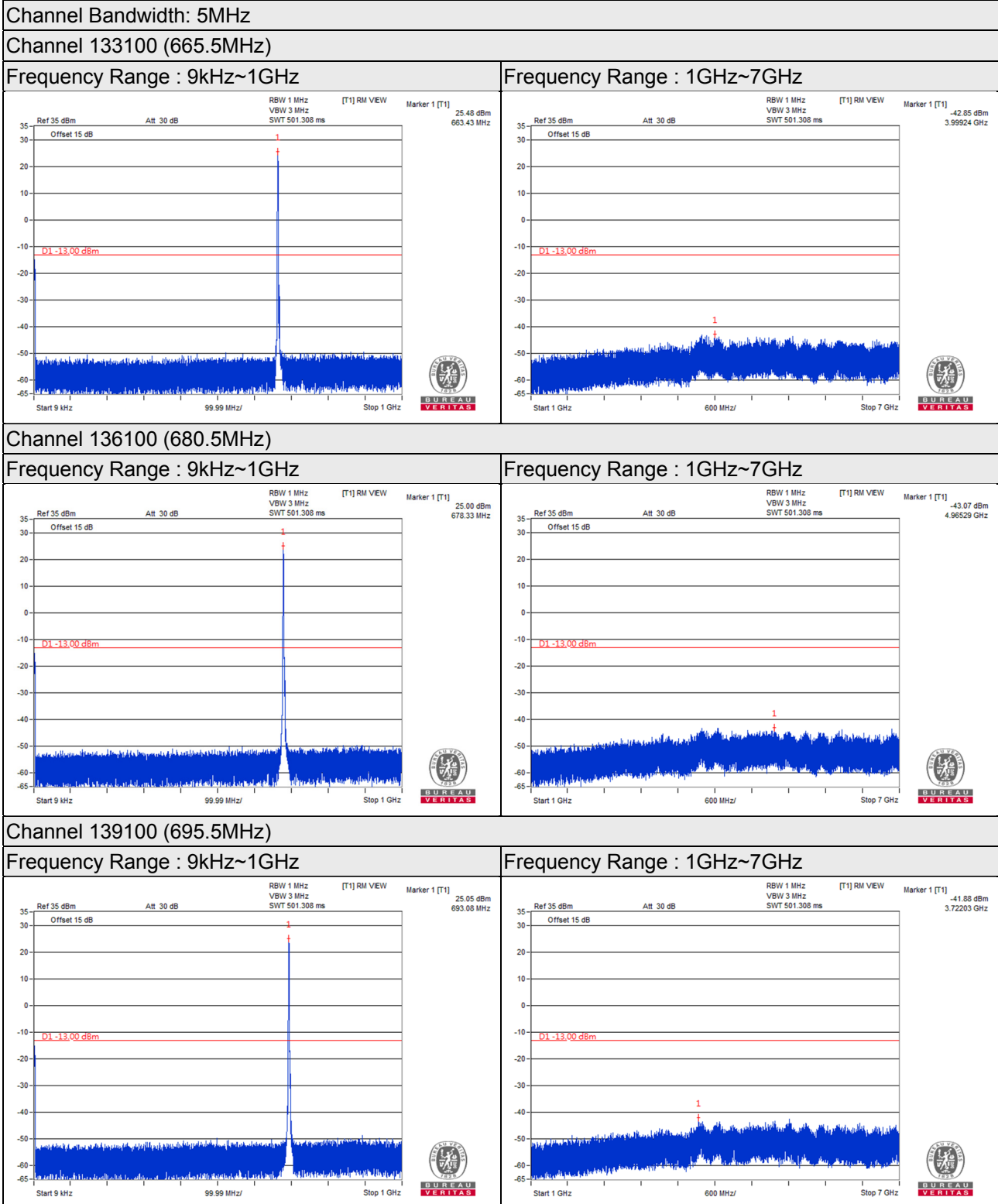


4.7.3 Test Procedure

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9kHz to 9GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

4.7.4 Test Results

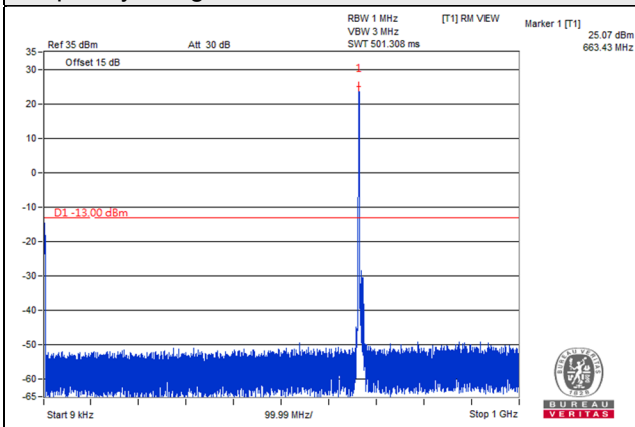
n71



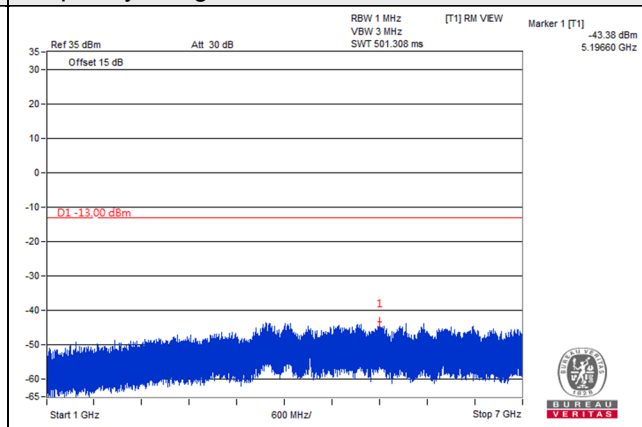
Channel Bandwidth: 10MHz

Channel 133600 (668.0MHz)

Frequency Range : 9kHz~1GHz

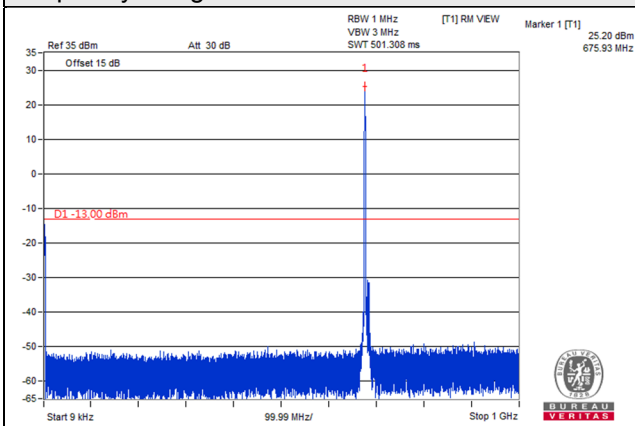


Frequency Range : 1GHz~7GHz

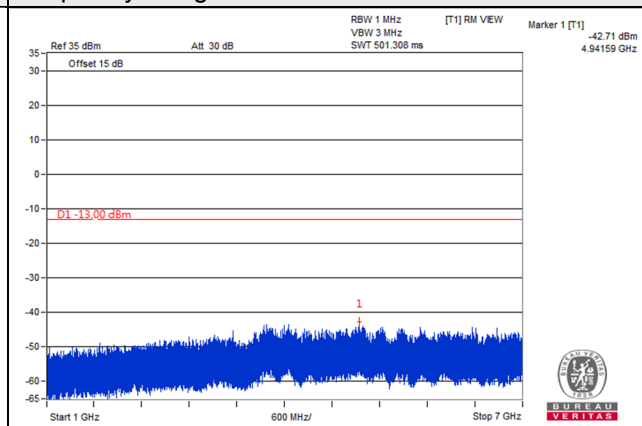


Channel 136100 (680.5MHz)

Frequency Range : 9kHz~1GHz

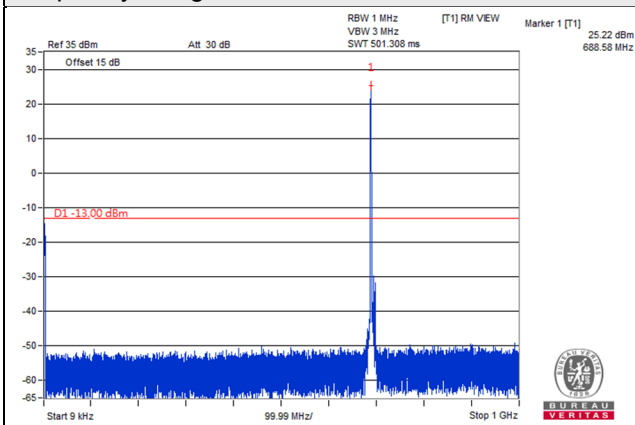


Frequency Range : 1GHz~7GHz

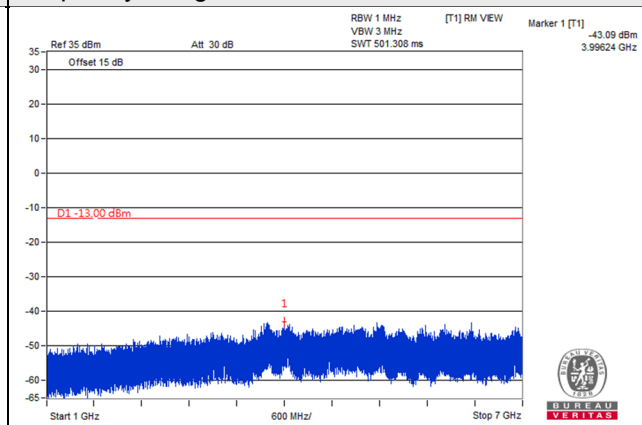


Channel 138600 (693.0MHz)

Frequency Range : 9kHz~1GHz



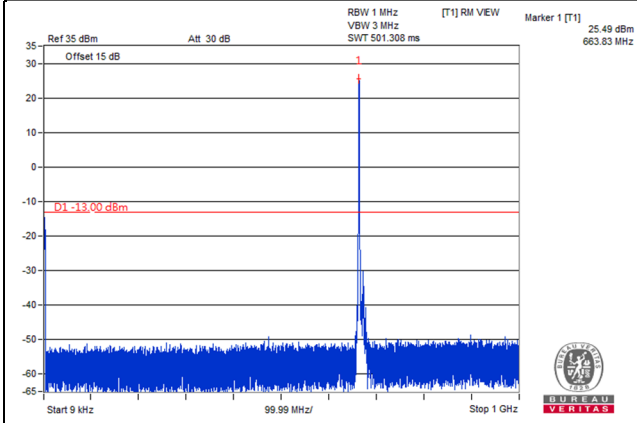
Frequency Range : 1GHz~7GHz



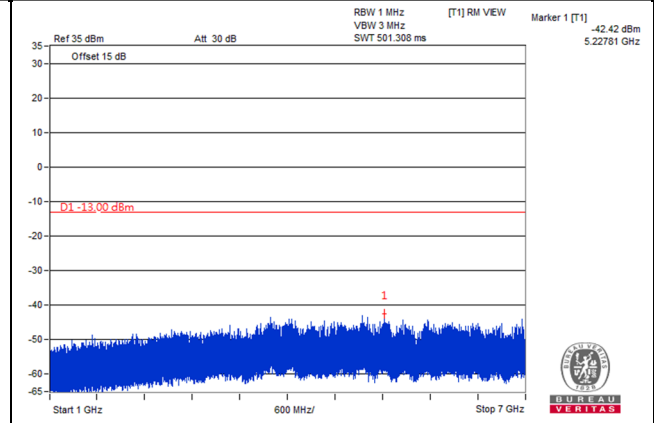
Channel Bandwidth: 15MHz

Channel 134100 (670.5MHz)

Frequency Range : 9kHz~1GHz

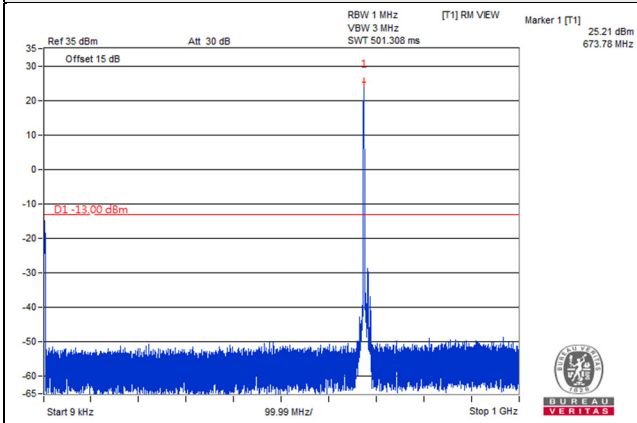


Frequency Range : 1GHz~7GHz

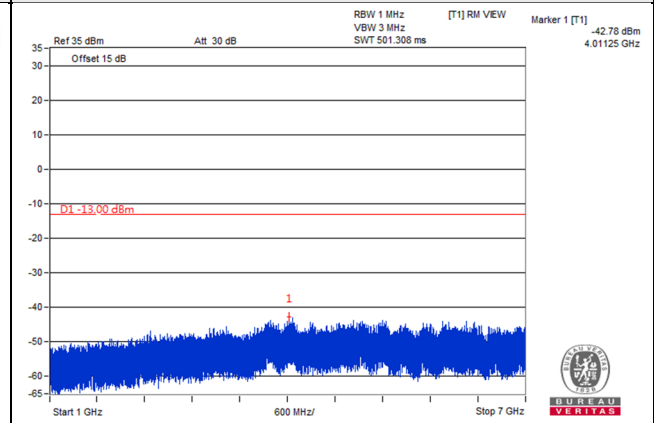


Channel 136100 (680.5MHz)

Frequency Range : 9kHz~1GHz

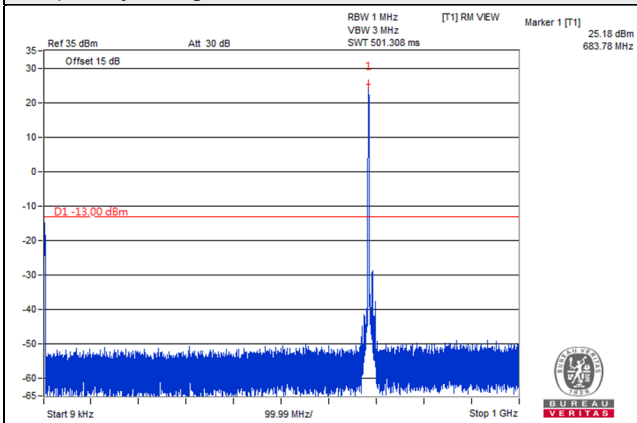


Frequency Range : 1GHz~7GHz



Channel 138100 (690.5MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~7GHz

