

15MHz+20MHz

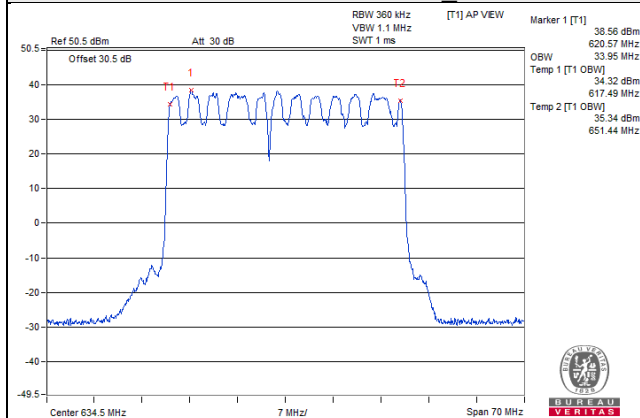
Channel Number	Freq. (MHz)	OCP 99 BAND WIDTH (MHz)															
		ANT0				ANT1				ANT2				ANT3			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
124900+128400	624.5+642	33.95	33.95	33.88	33.81	33.95	33.95	33.81	33.81	33.95	33.95	33.74	33.74	33.95	33.95	33.81	33.81

Spectrum Plot of Worst Value

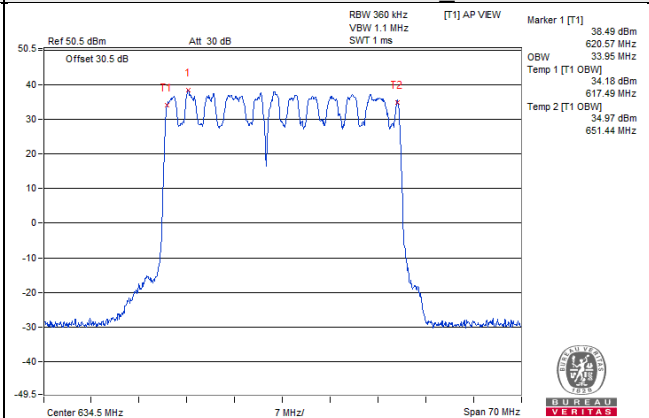
OCP 99 Bandwidth

QPSK

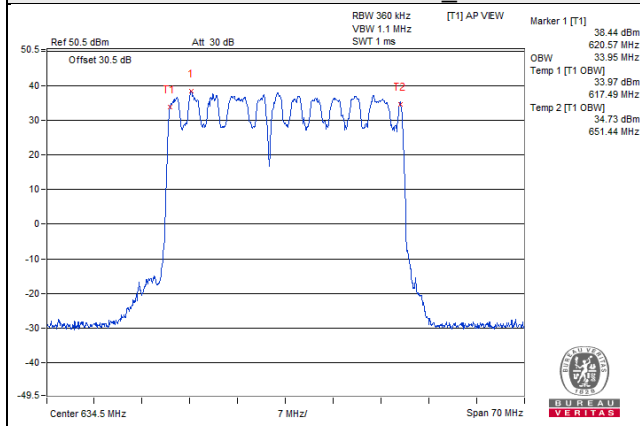
Channel: 124900+128400 ANT0



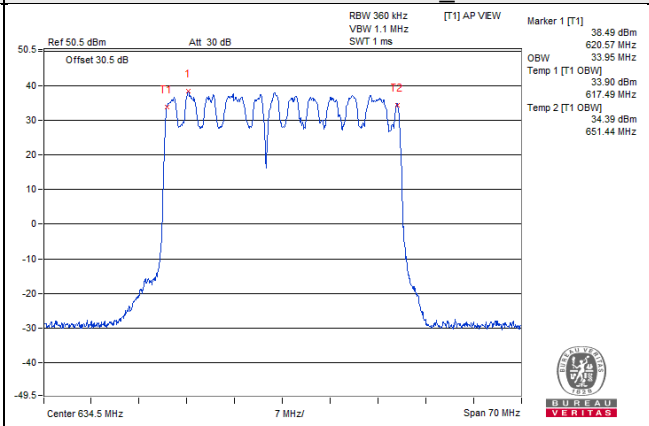
Channel: 124900+128400 ANT1



Channel: 124900+128400 ANT2

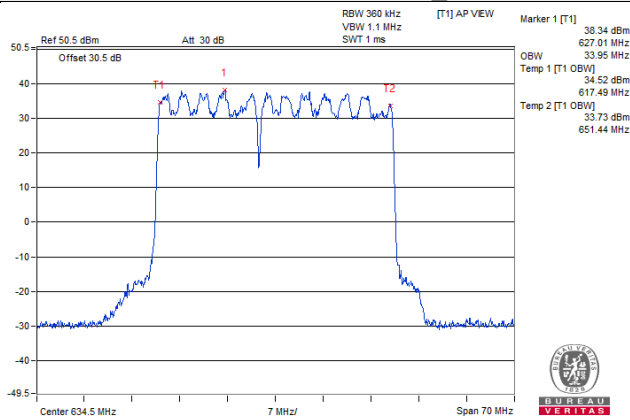


Channel: 124900+128400 ANT3

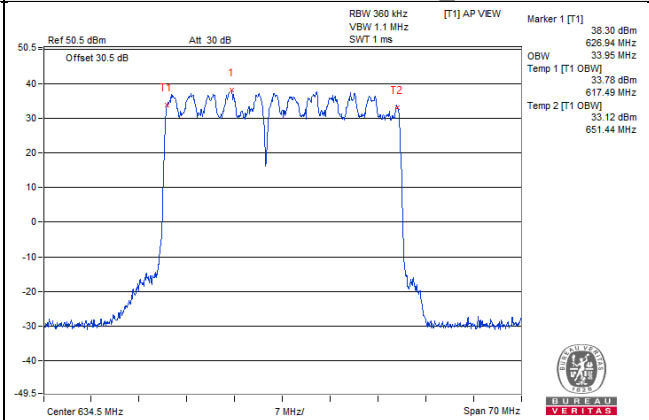


16QAM

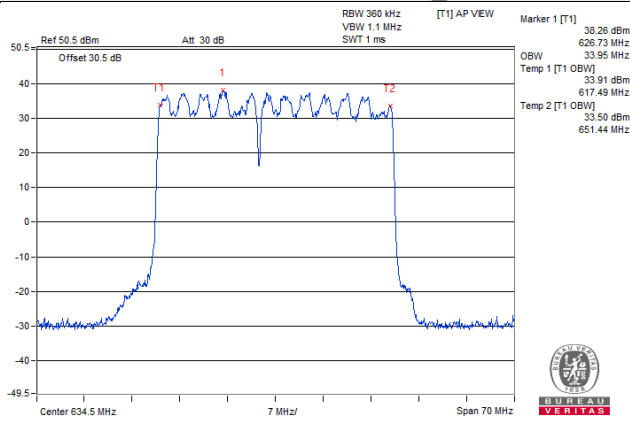
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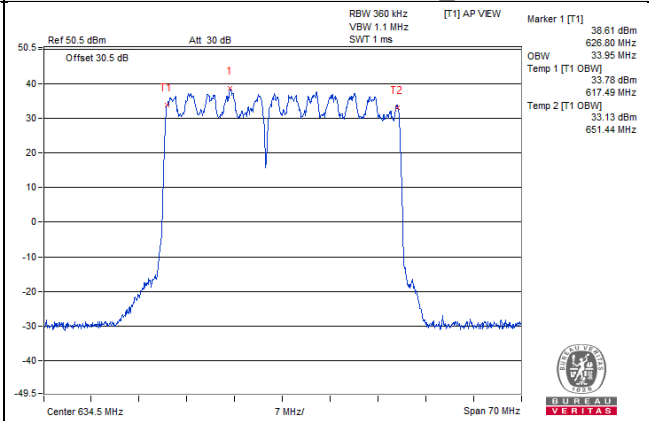
Channel: 124900+128400_ANT1



Channel: 124900+128400_ANT2

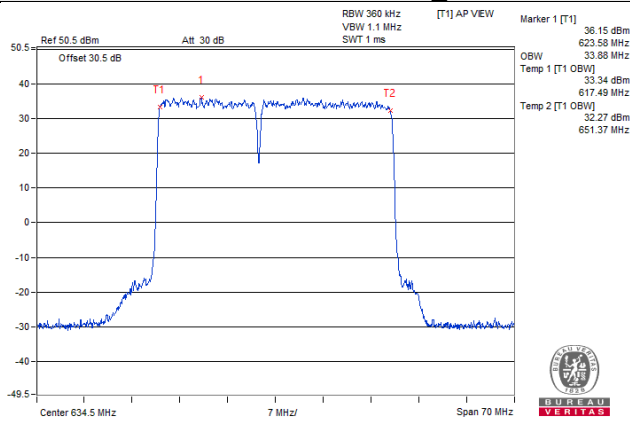


Channel: 124900+128400_ANT3

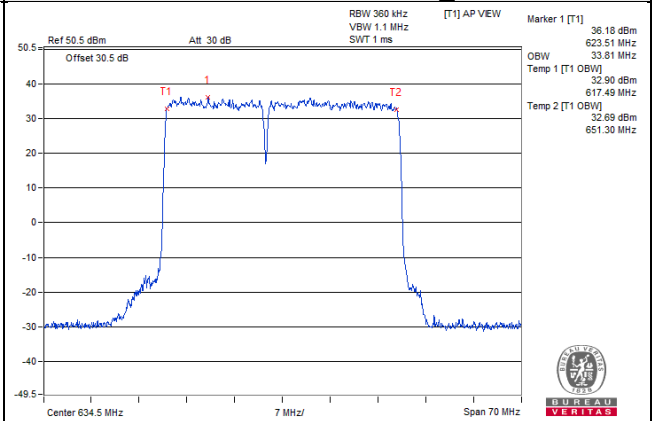


64QAM

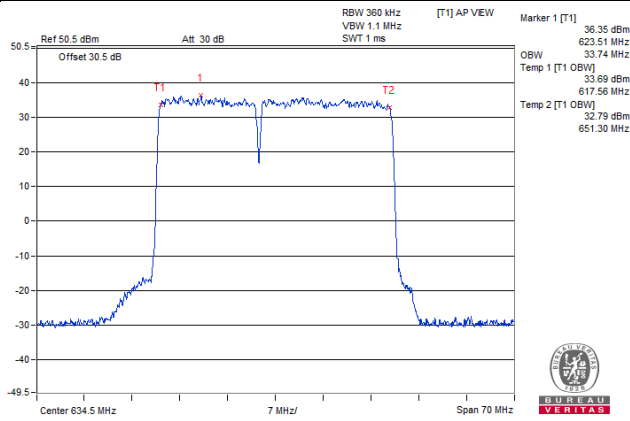
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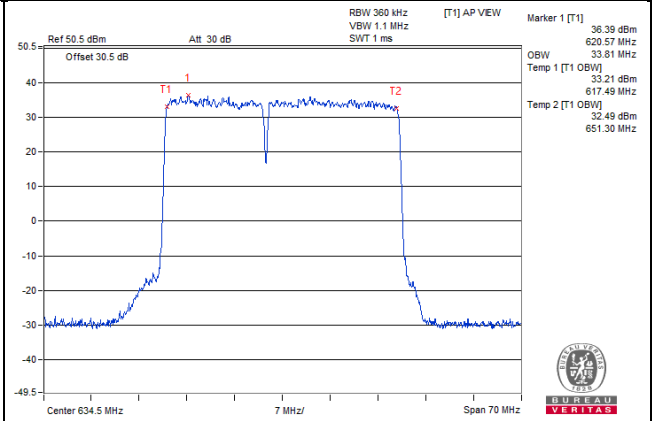
Channel: 124900+128400_ANT1



Channel: 124900+128400_ANT2

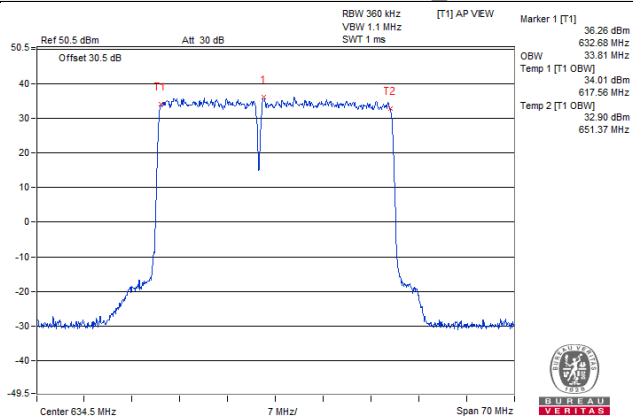


Channel: 124900+128400_ANT3

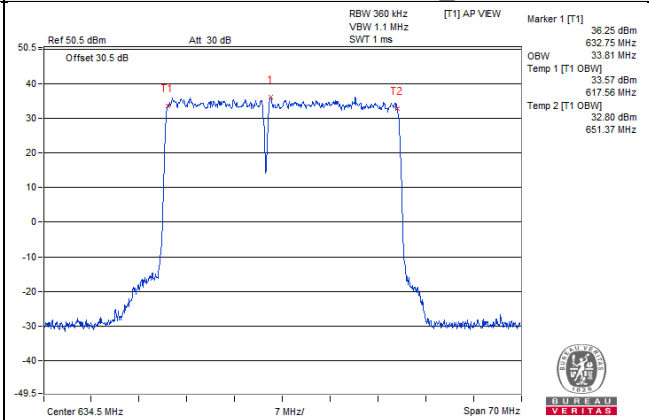


256QAM

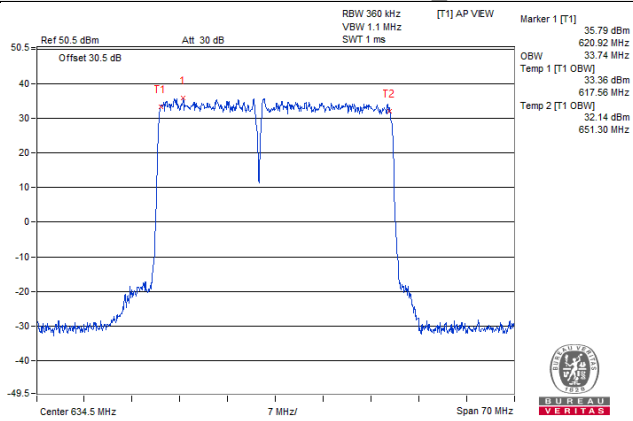
Channel: 124900+128400_ANT0



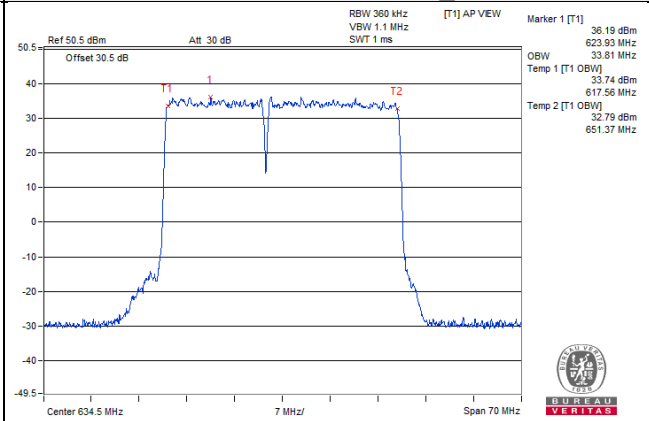
Channel: 124900+128400_ANT1



Channel: 124900+128400_ANT2



Channel: 124900+128400_ANT3

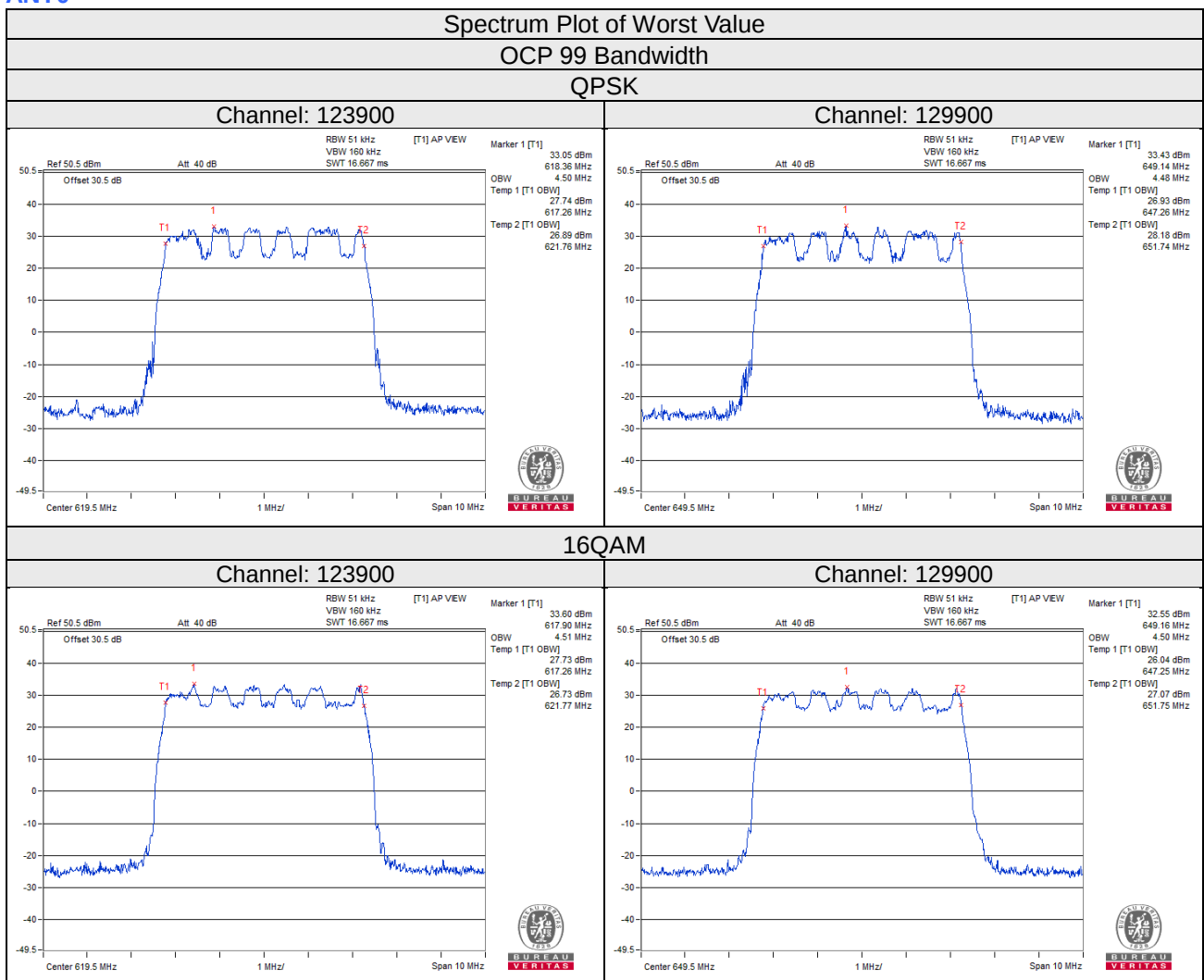


CA-NC Non-Contiguous

5MHz+5MHz

Channel Number	Freq. (MHz)	Carrier	OCP 99 BAND WIDTH (MHz)															
			ANT0				ANT1				ANT2				ANT3			
			QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM
123900	619.5	Carrier 0	4.50	4.51	4.49	4.47	4.52	4.52	4.49	4.47	4.50	4.51	4.49	4.49	4.50	4.51	4.48	4.47
129900	649.5	Carrier 1	4.48	4.50	4.48	4.48	4.51	4.50	4.48	4.48	4.49	4.50	4.48	4.48	4.49	4.50	4.48	4.48
Total			8.98	9.01	8.97	8.95	9.03	9.02	8.97	8.95	8.99	9.01	8.97	8.97	8.99	9.01	8.98	8.95

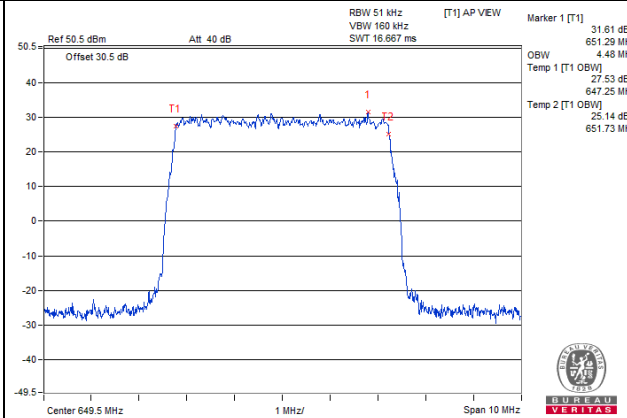
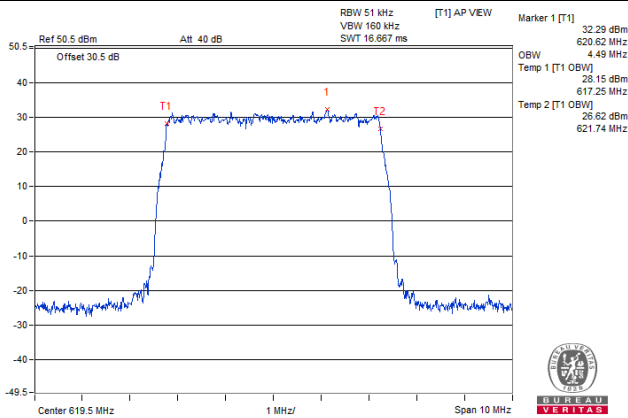
ANT0



64QAM

Channel: 123900

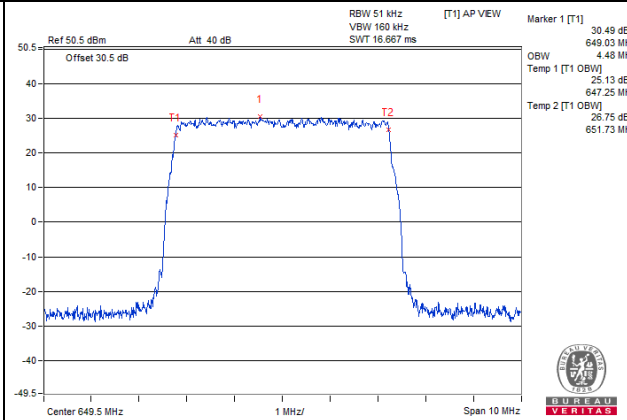
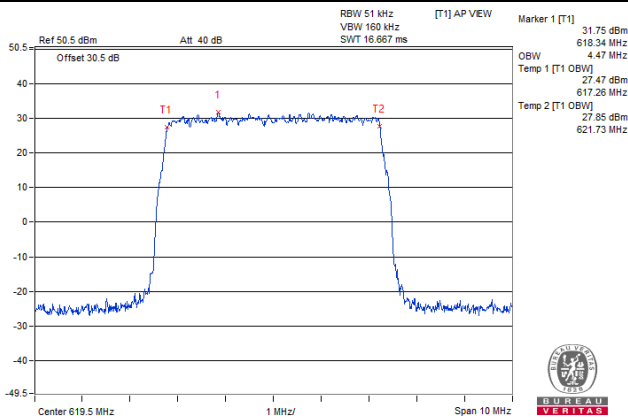
Channel: 129900



256QAM

Channel: 123900

Channel: 129900

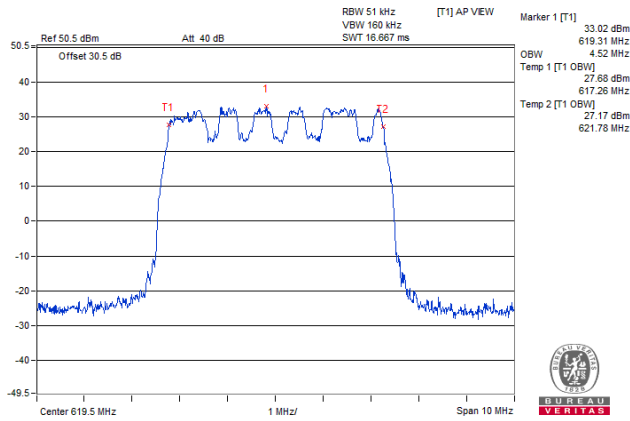


ANT1

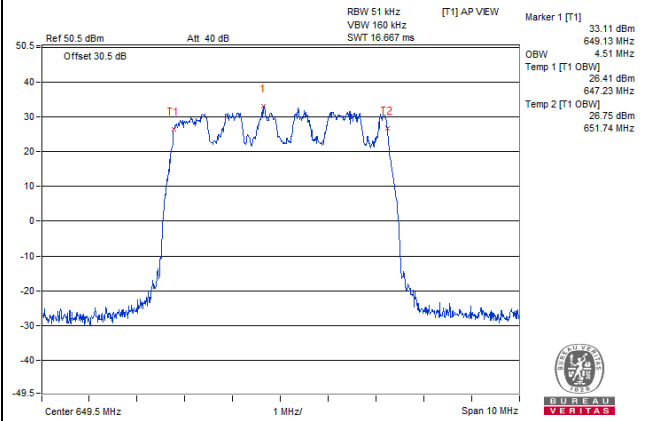
Spectrum Plot of Worst Value OCP 99 Bandwidth

QPSK

Channel: 123900

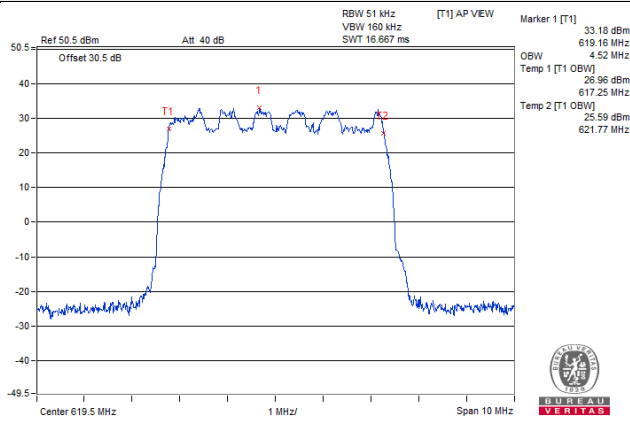


Channel: 129900

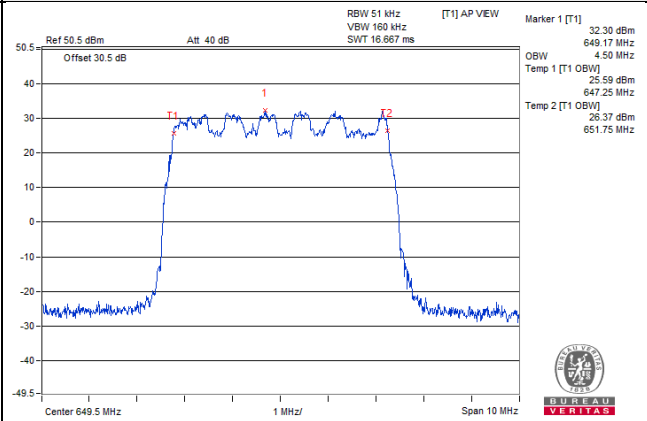


16QAM

Channel: 123900

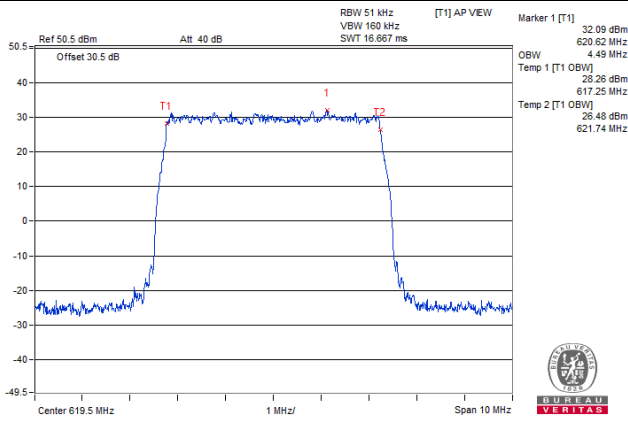


Channel: 129900

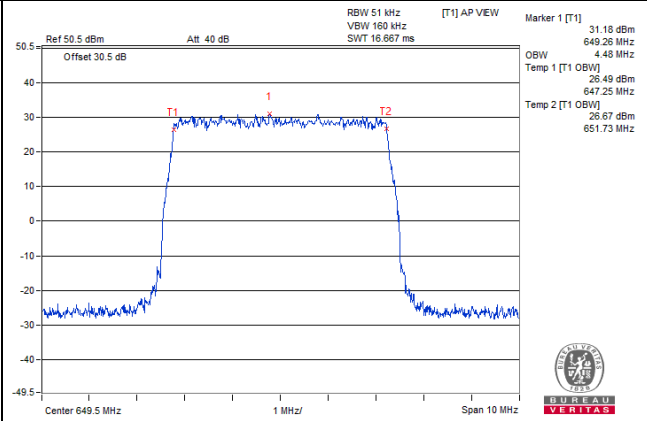


64QAM

Channel: 123900

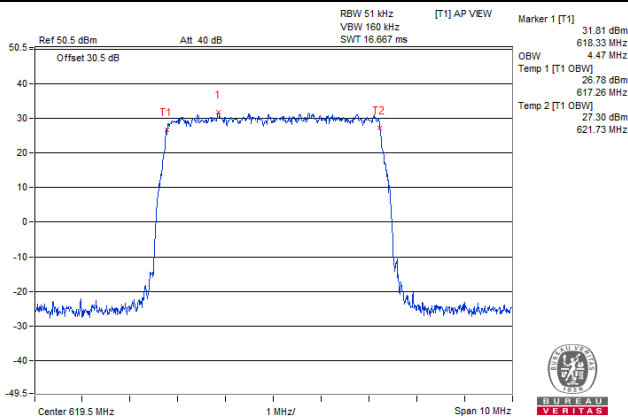


Channel: 129900

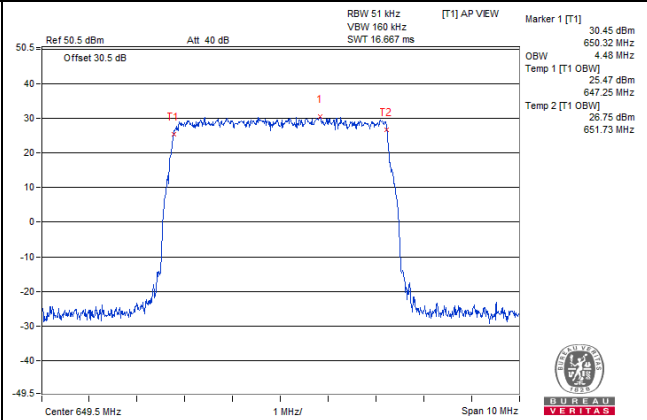


256QAM

Channel: 123900



Channel: 129900

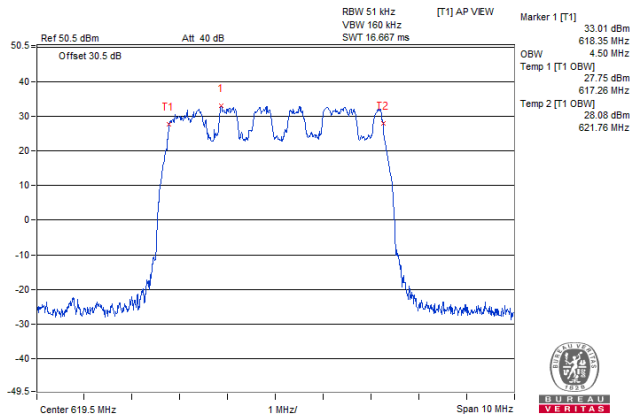


ANT2

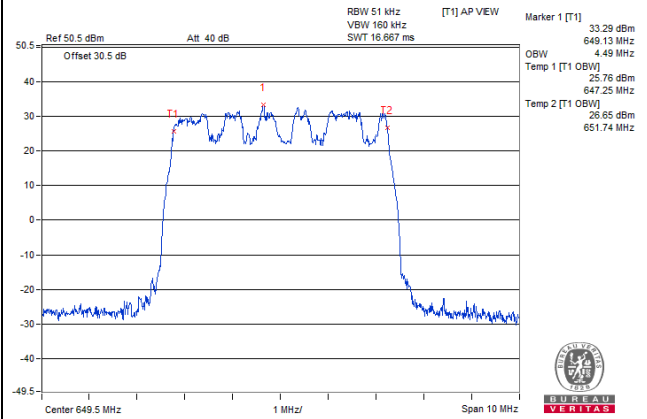
Spectrum Plot of Worst Value OCP 99 Bandwidth

QPSK

Channel: 123900

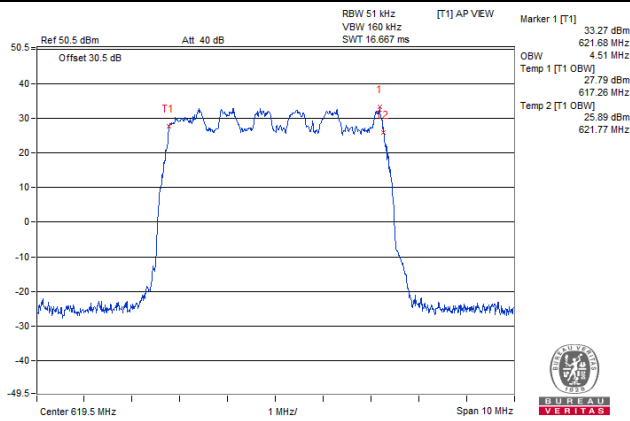


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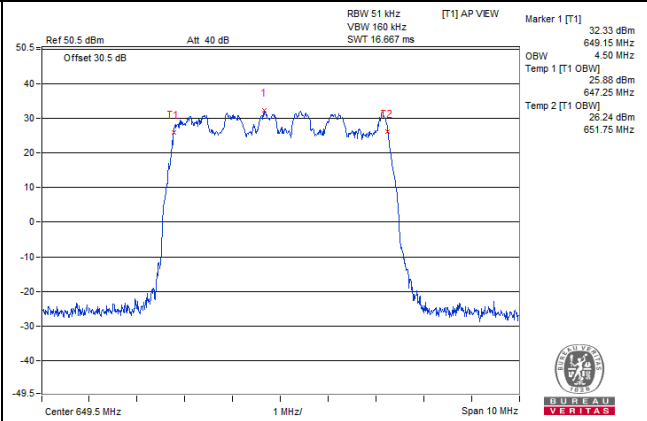


16QAM

Channel: 123900

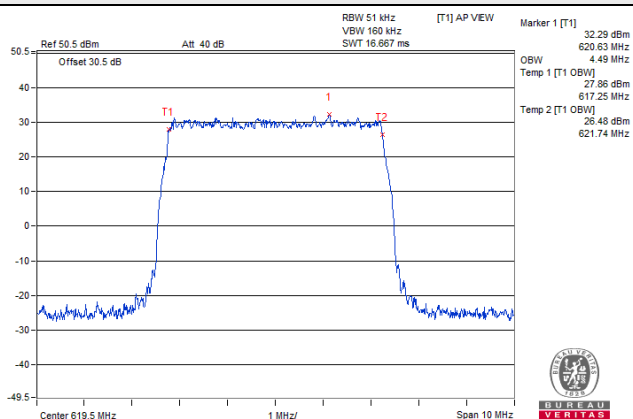


Channel: 129900

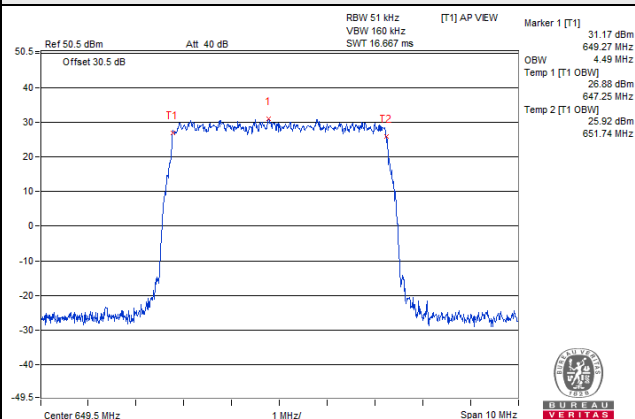


64QAM

Channel: 123900

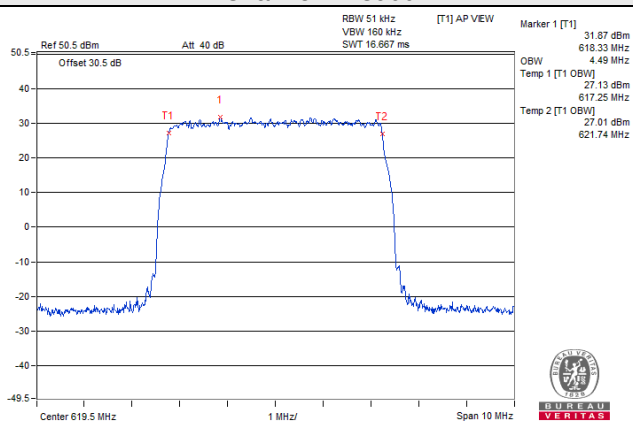


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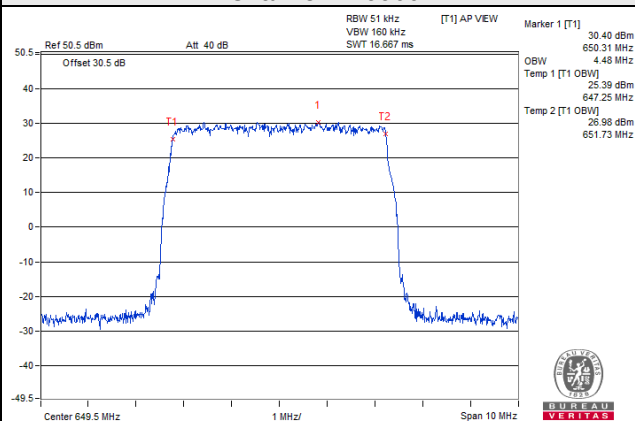


256QAM

Channel: 123900



Channel: 129900

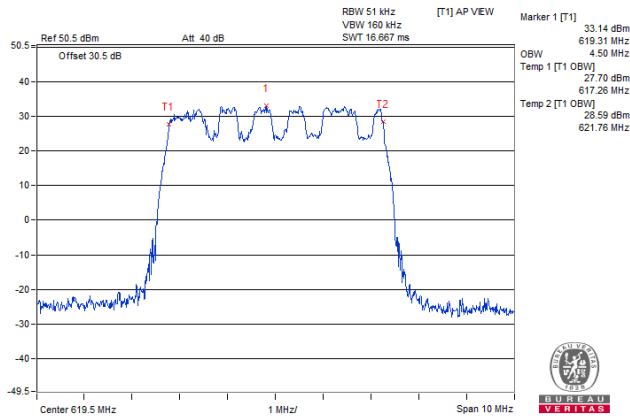


ANT3

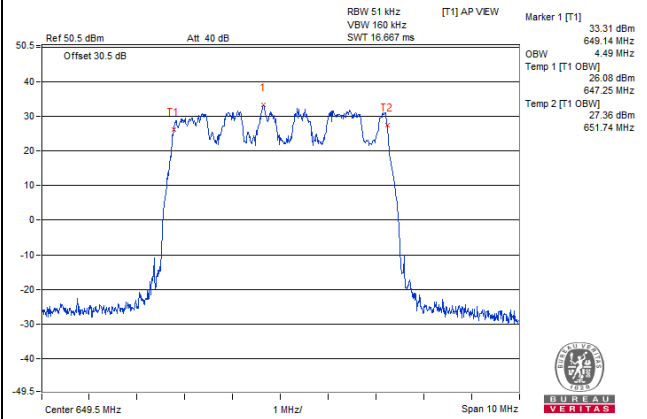
Spectrum Plot of Worst Value OCP 99 Bandwidth

QPSK

Channel: 123900

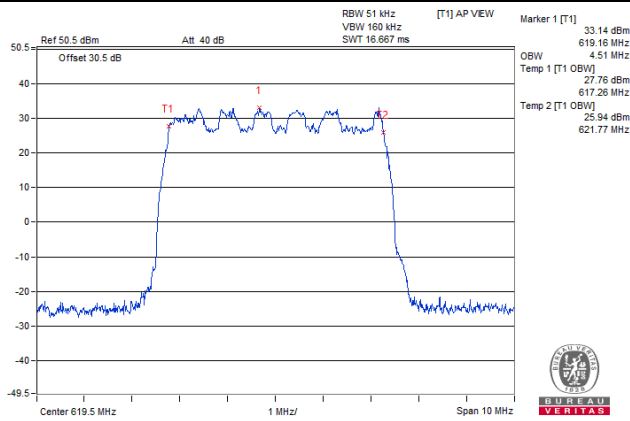


Channel: 129900

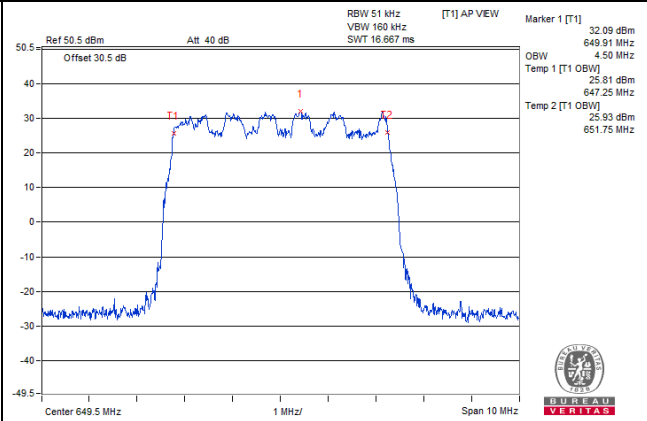


16QAM

Channel: 123900

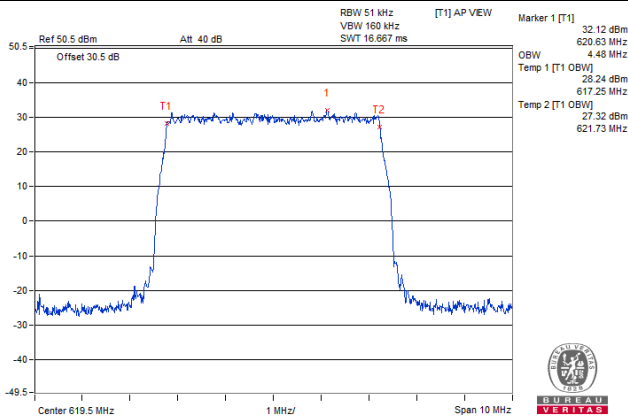


Channel: 129900

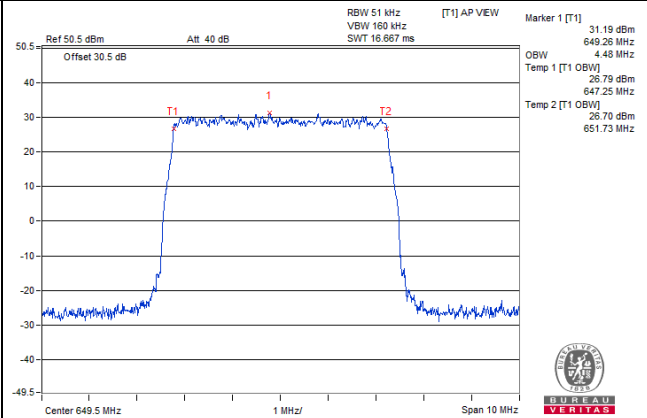


64QAM

Channel: 123900

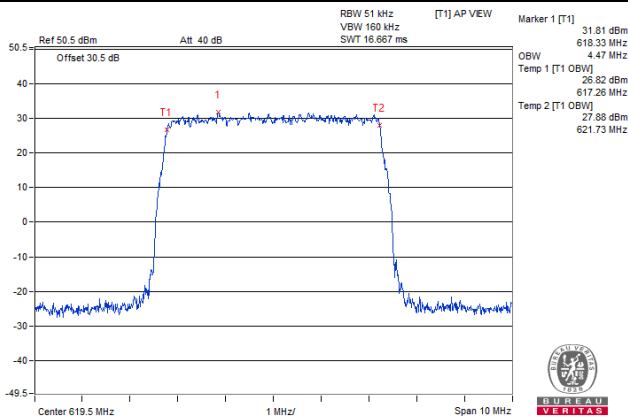


Channel: 129900

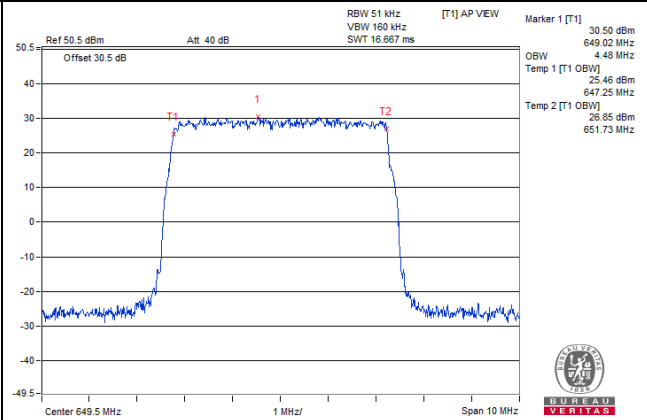


256QAM

Channel: 123900



Channel: 129900

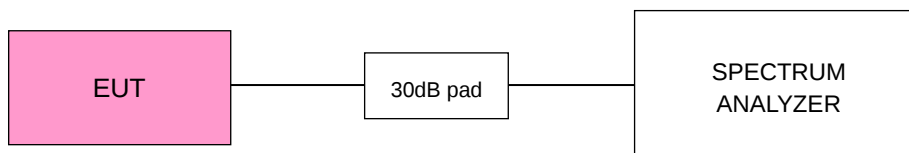


4.5 Channel Edge Measurement

4.5.1 Limits of Band Edge Measurement

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. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

4.5.2 Test Setup



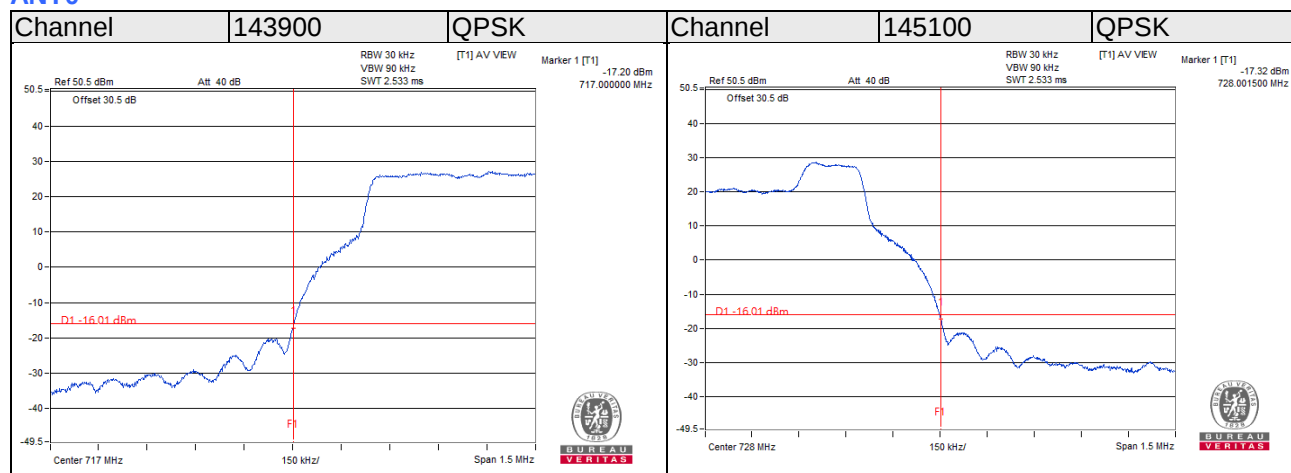
4.5.3 Test Procedures

- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and s RBW = 30k and VBW=3*RBW, Detector=RMS.
- Record the max trace plot into the test report.

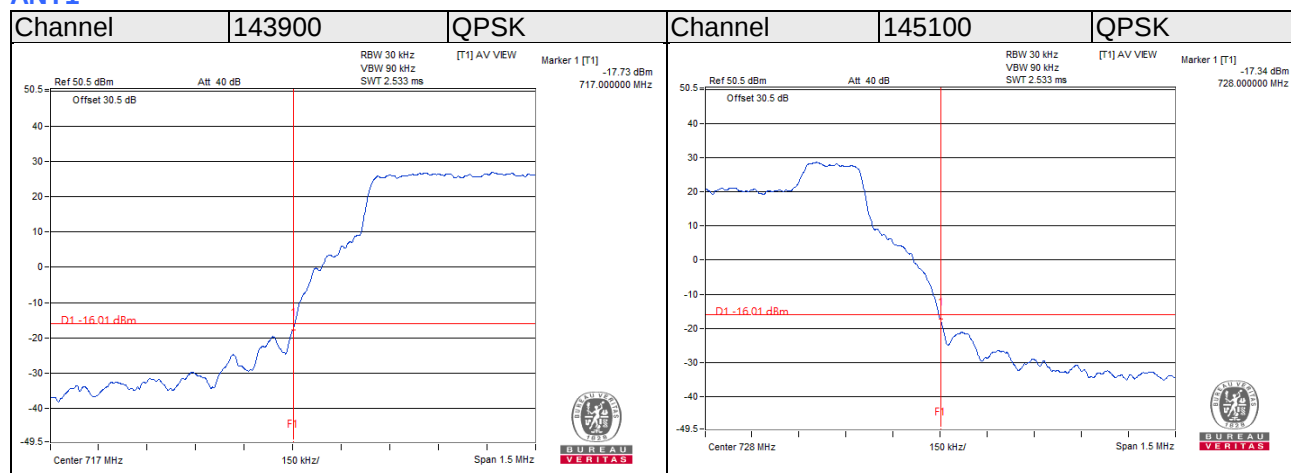
4.5.4 Test Results

Band n29
Single Carrier

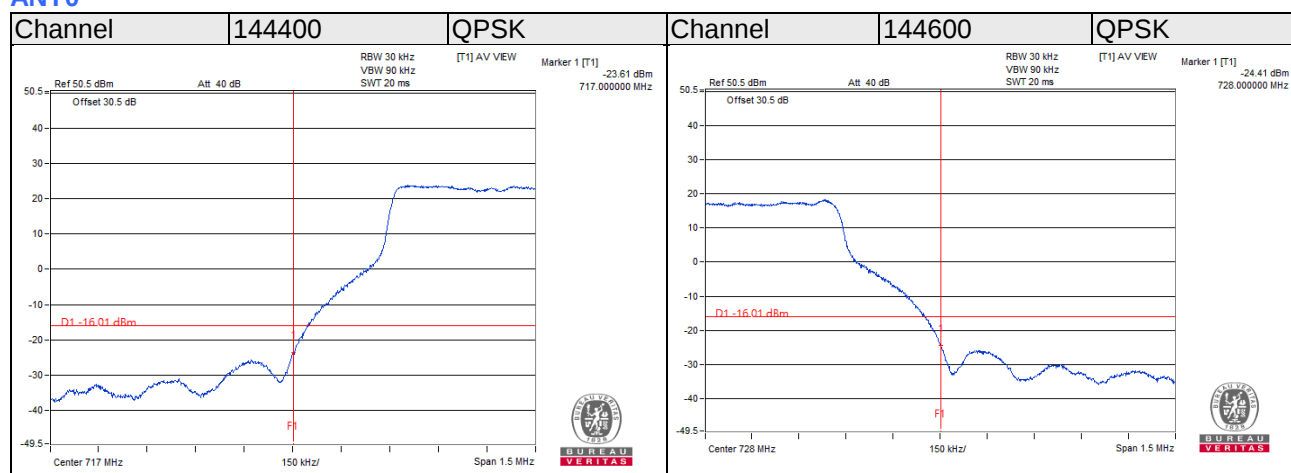
5MHz
ANT0



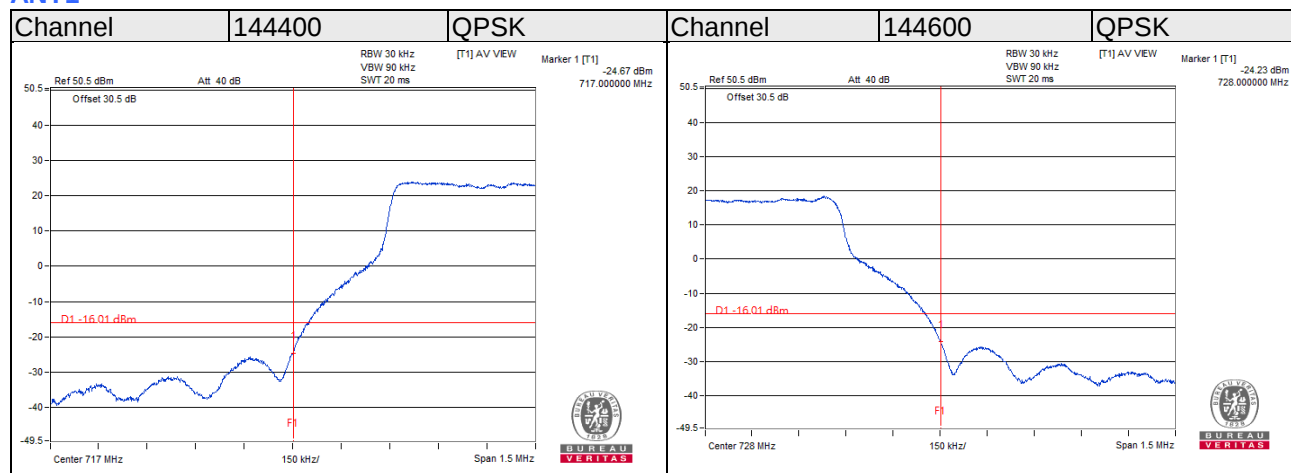
ANT1



10MHz ANT0

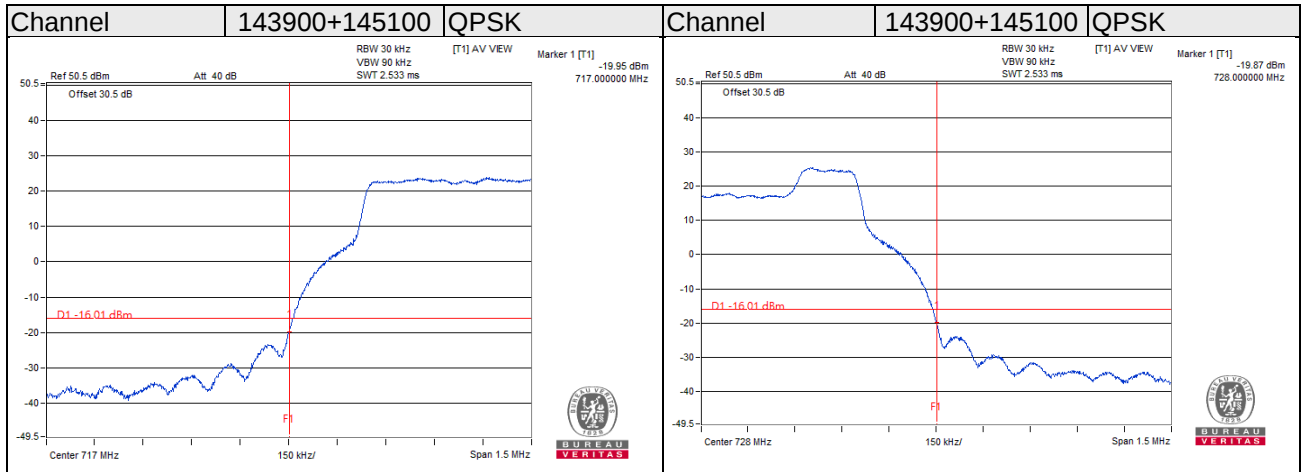


ANT1

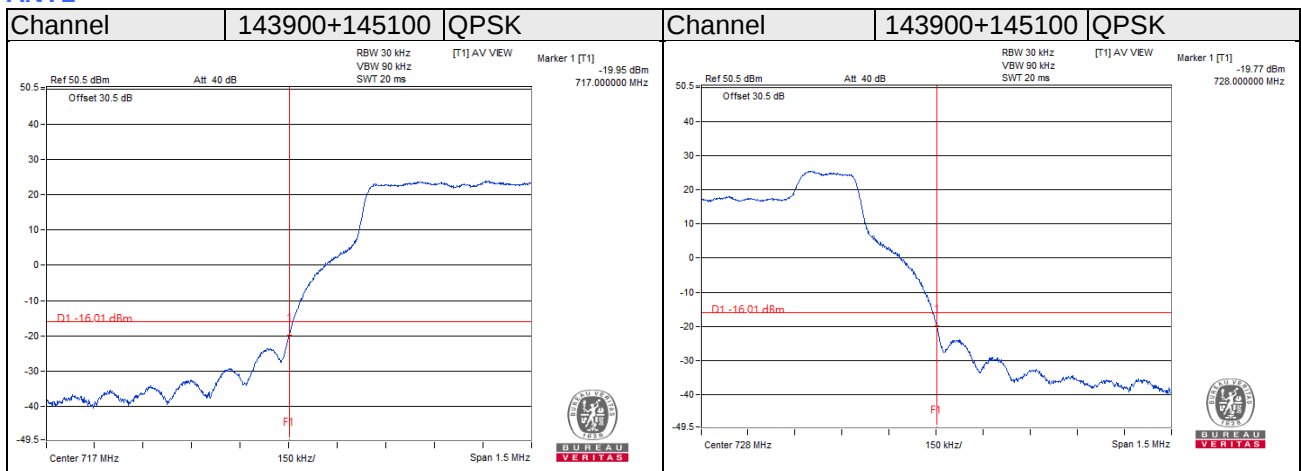


CA-NC Non-Contiguous

5MHz+5MHz
ANT0

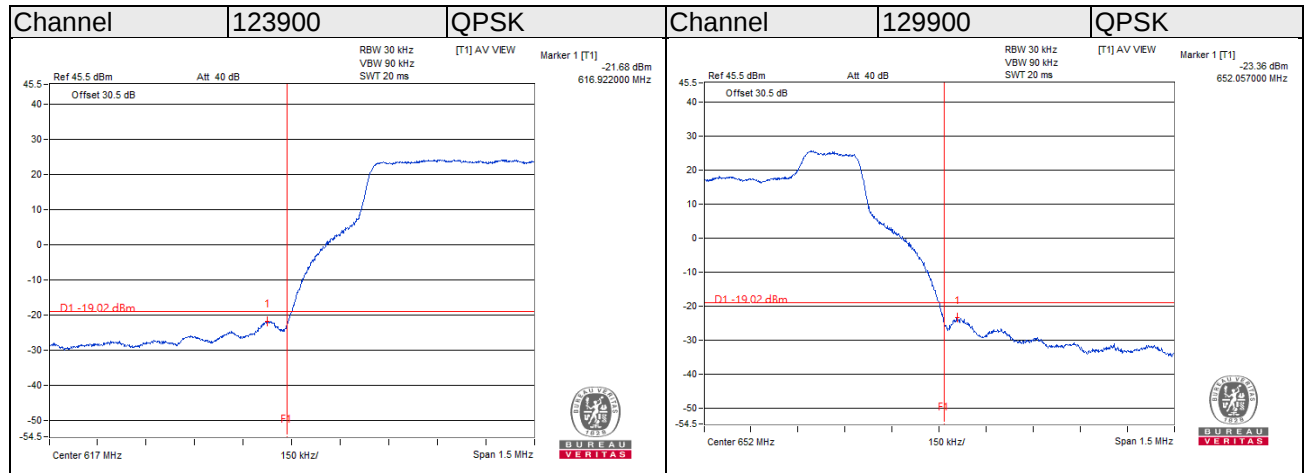


ANT1

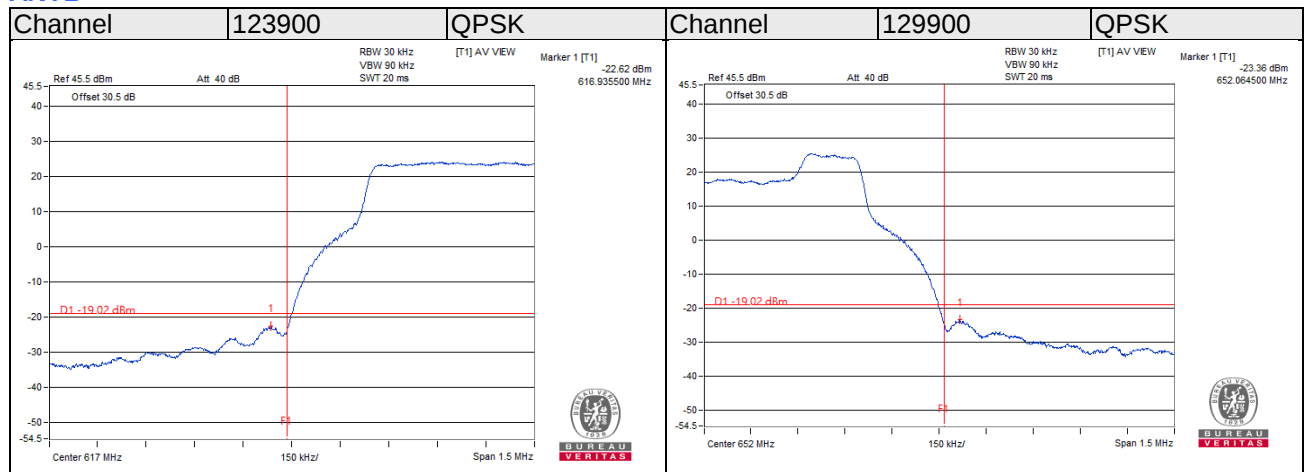


Band n71 Single Carrier

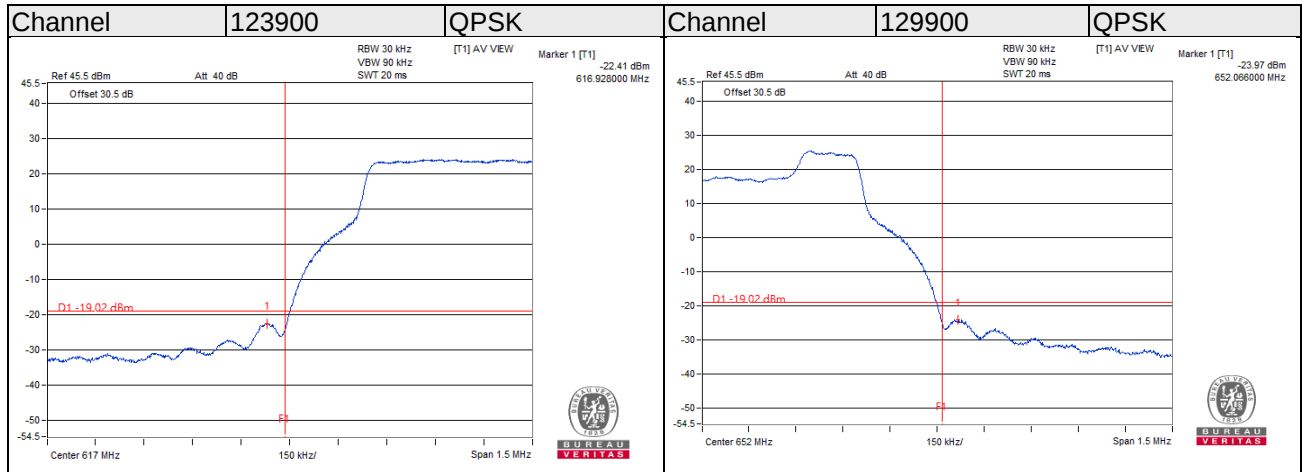
5MHz
ANT0



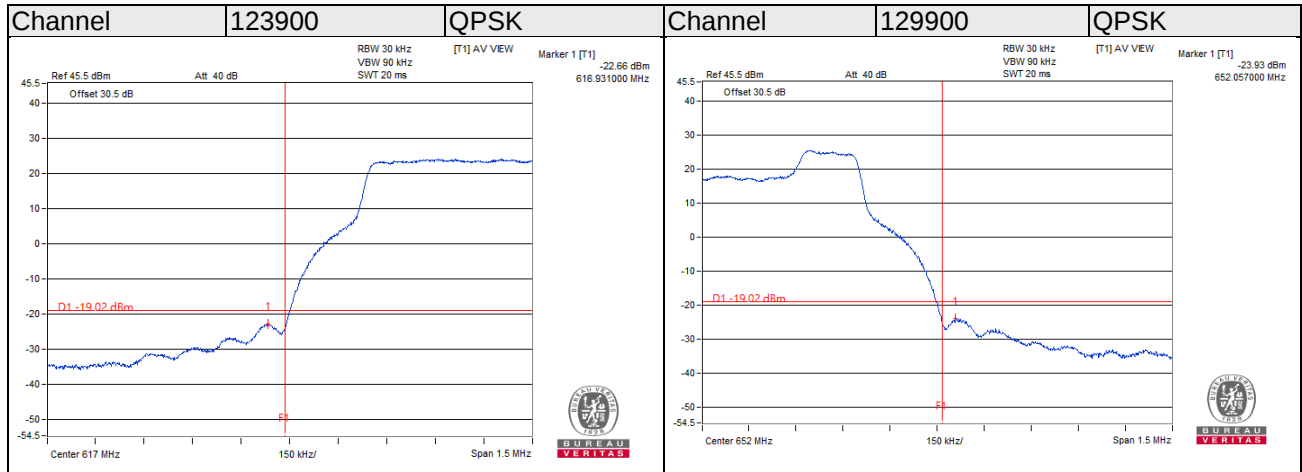
ANT1



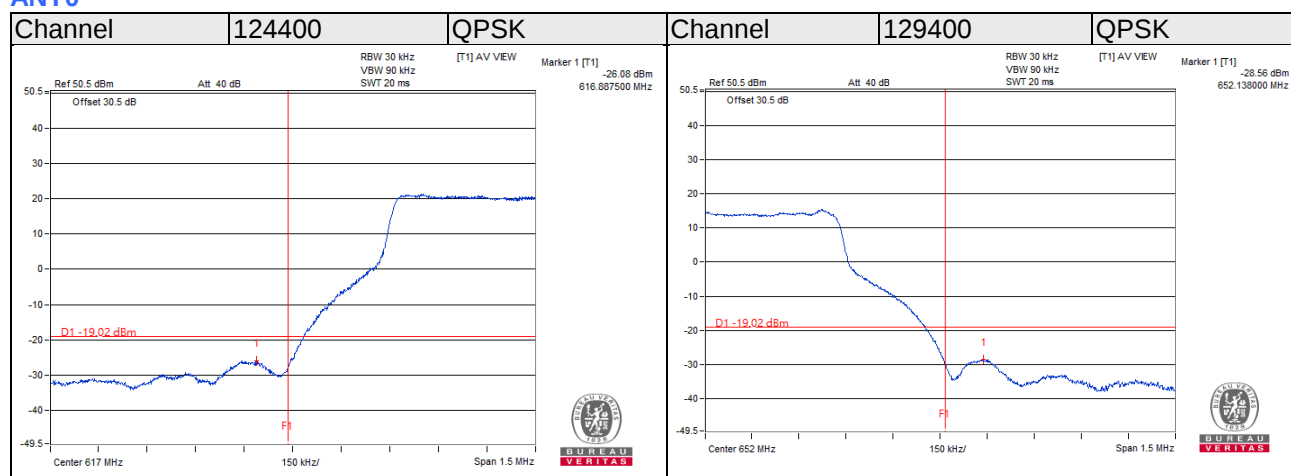
ANT2



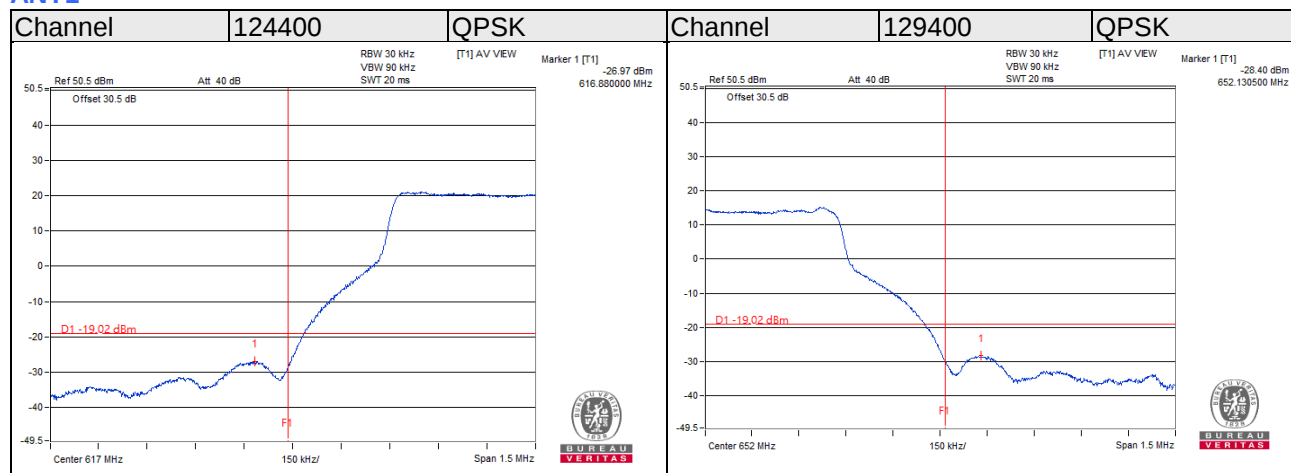
ANT3



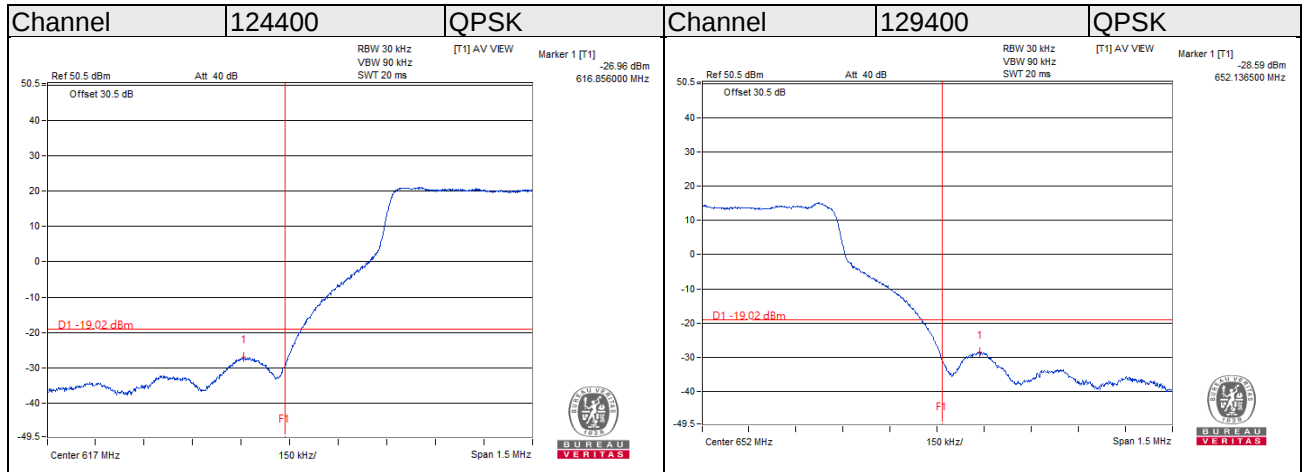
10MHz ANT0



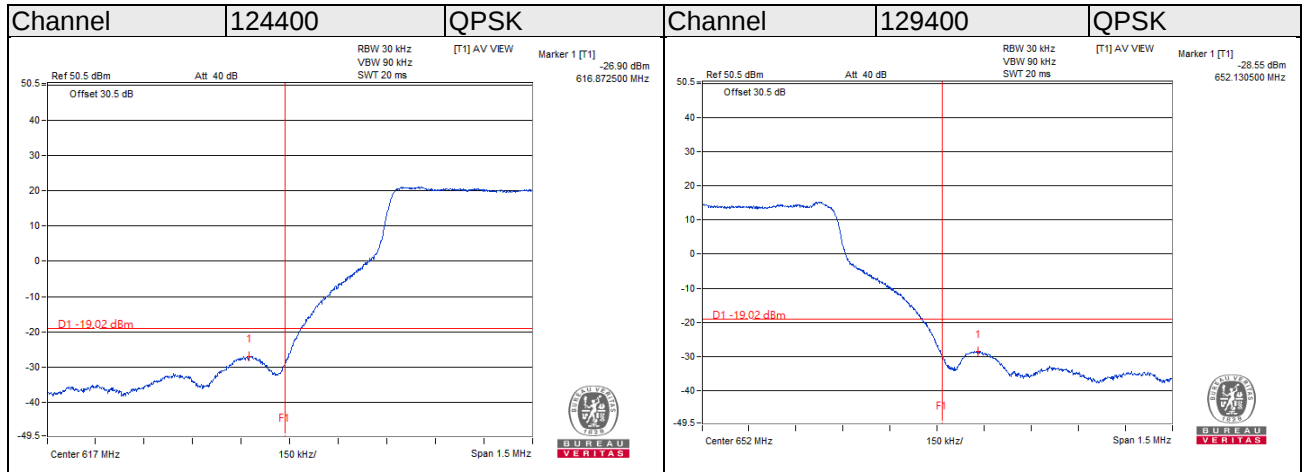
ANT1



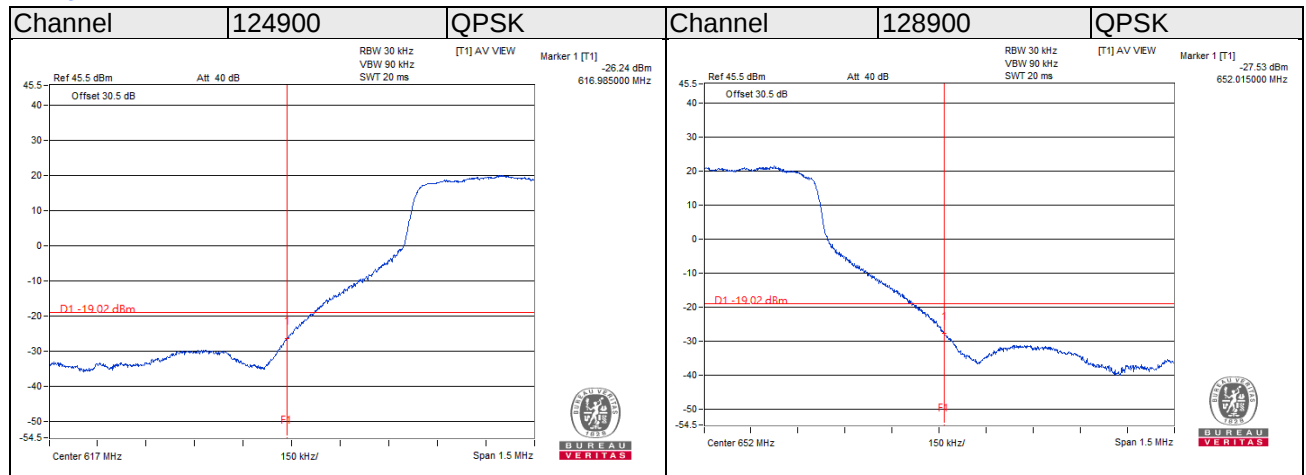
ANT2



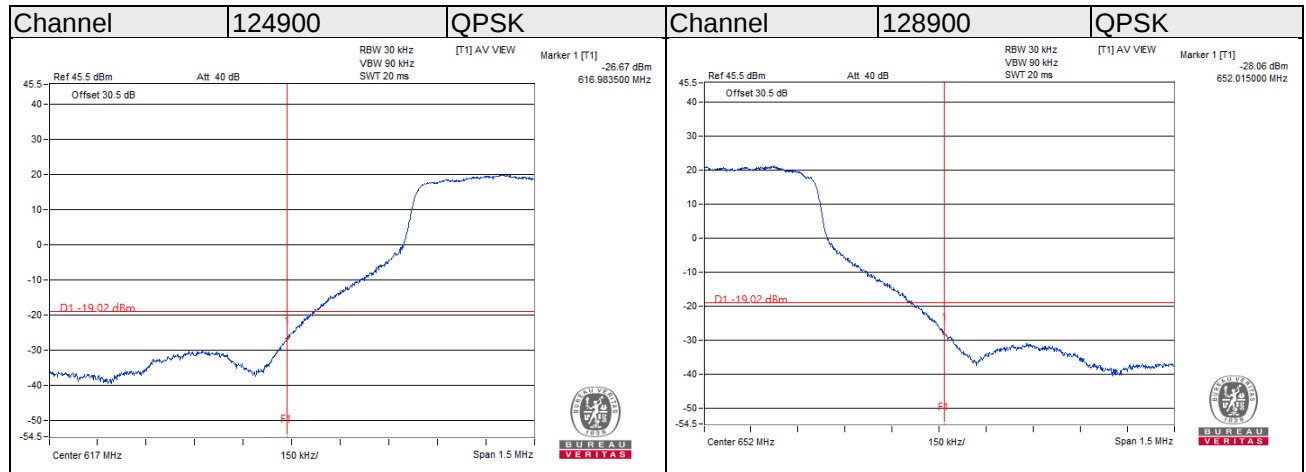
ANT3



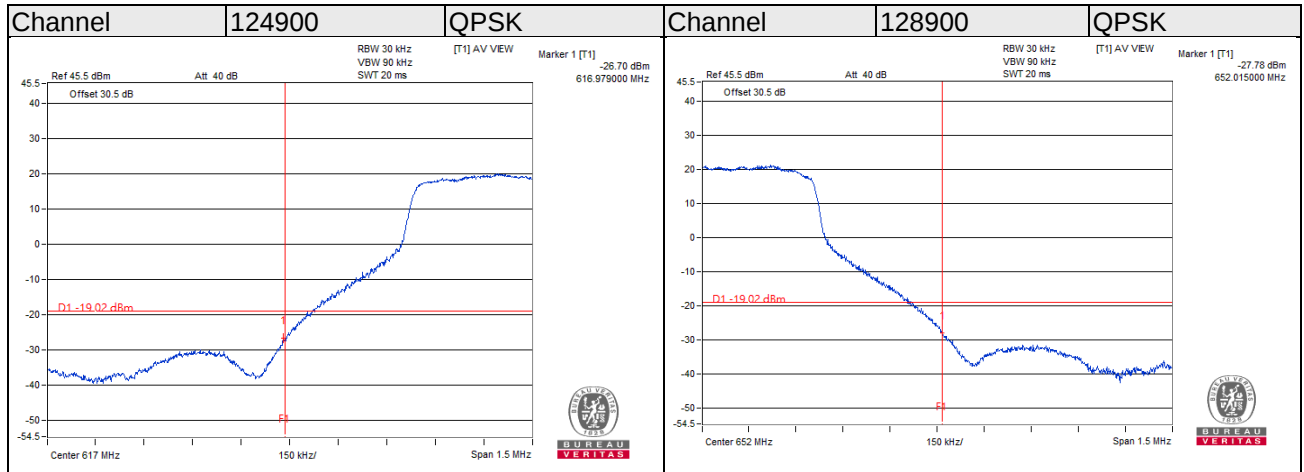
15MHz ANT0



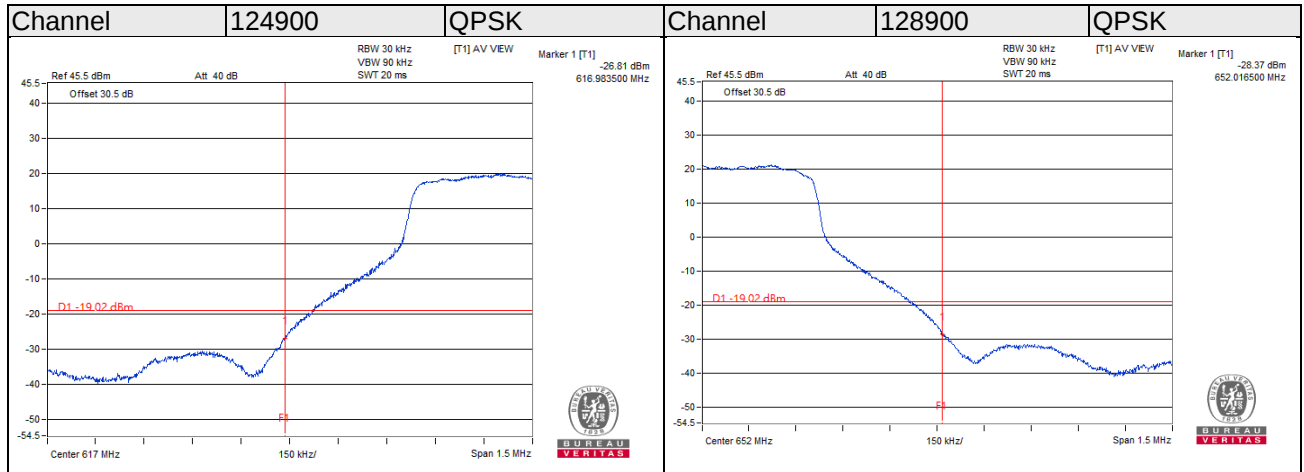
ANT1



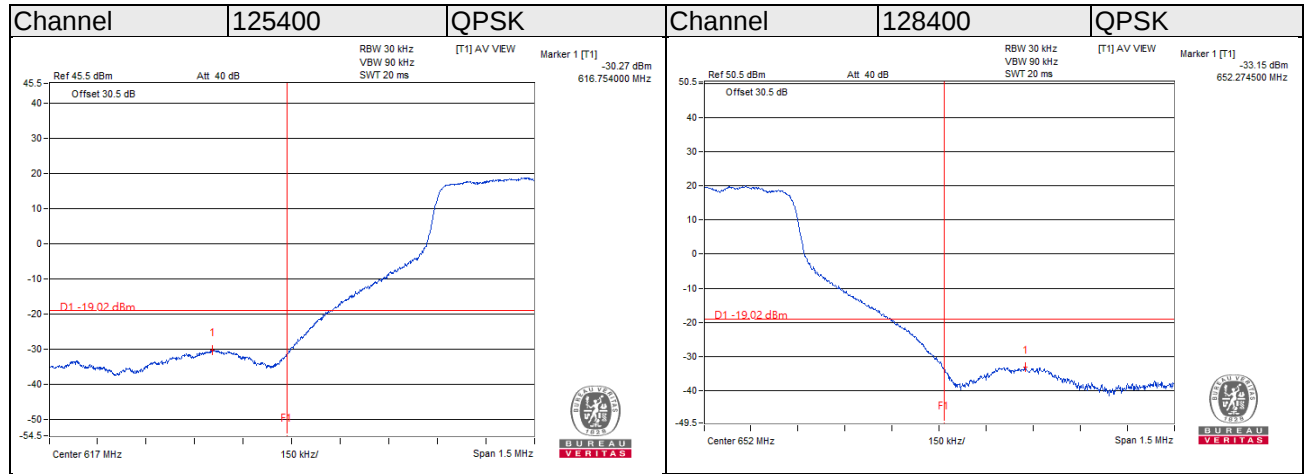
ANT2



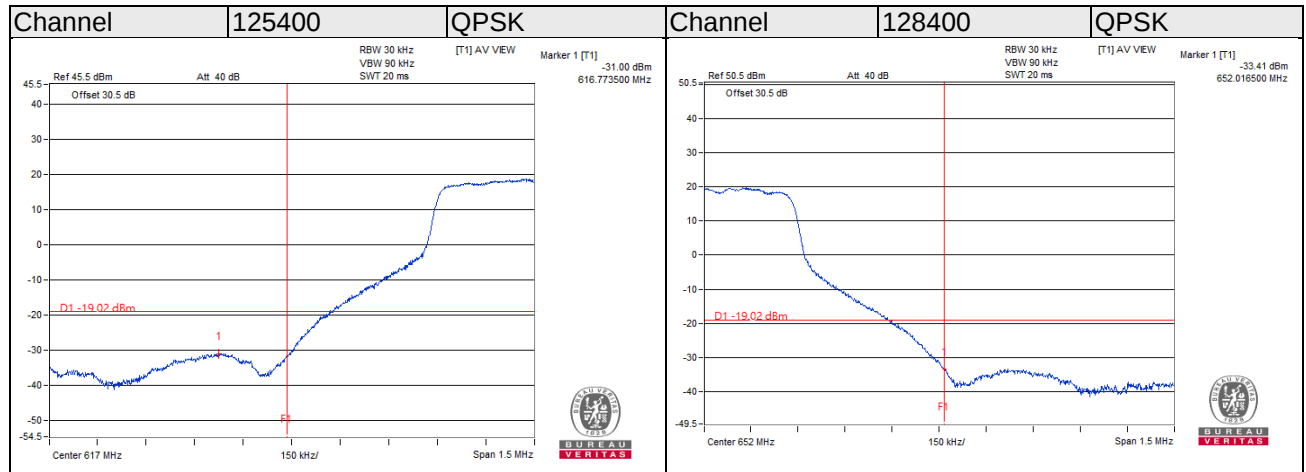
ANT3



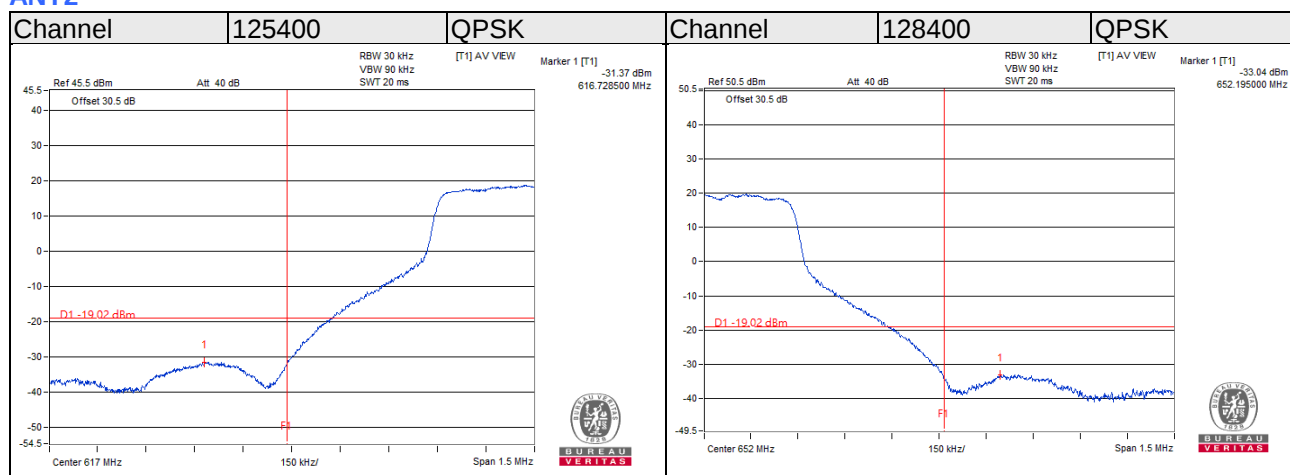
20MHz ANT0



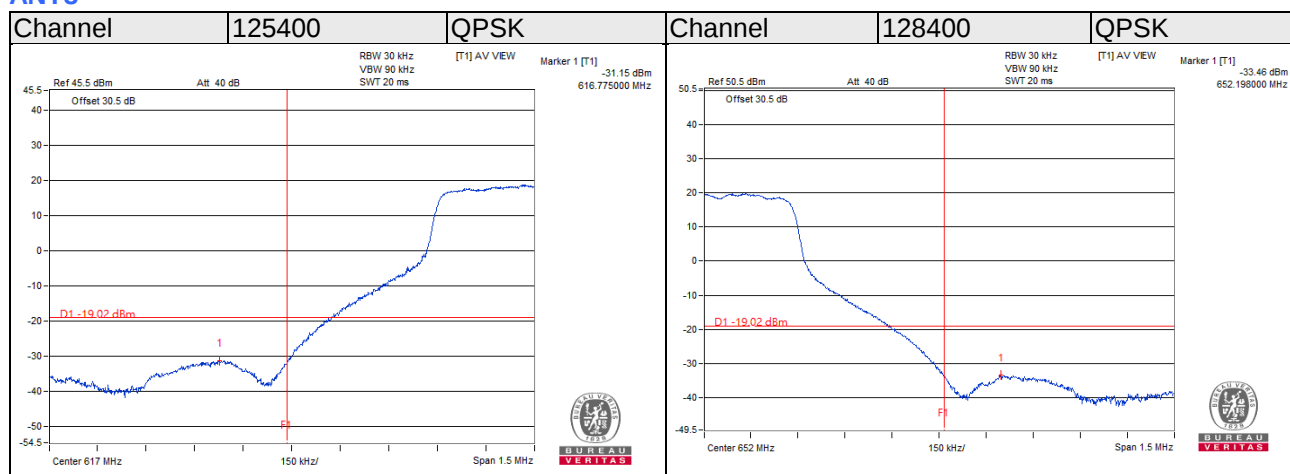
ANT1



ANT2

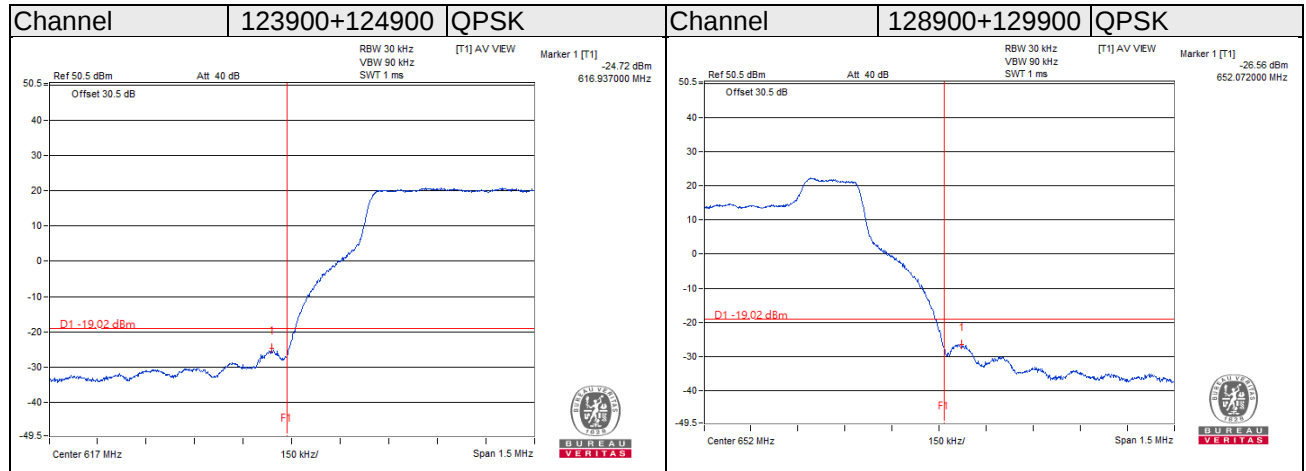


ANT3

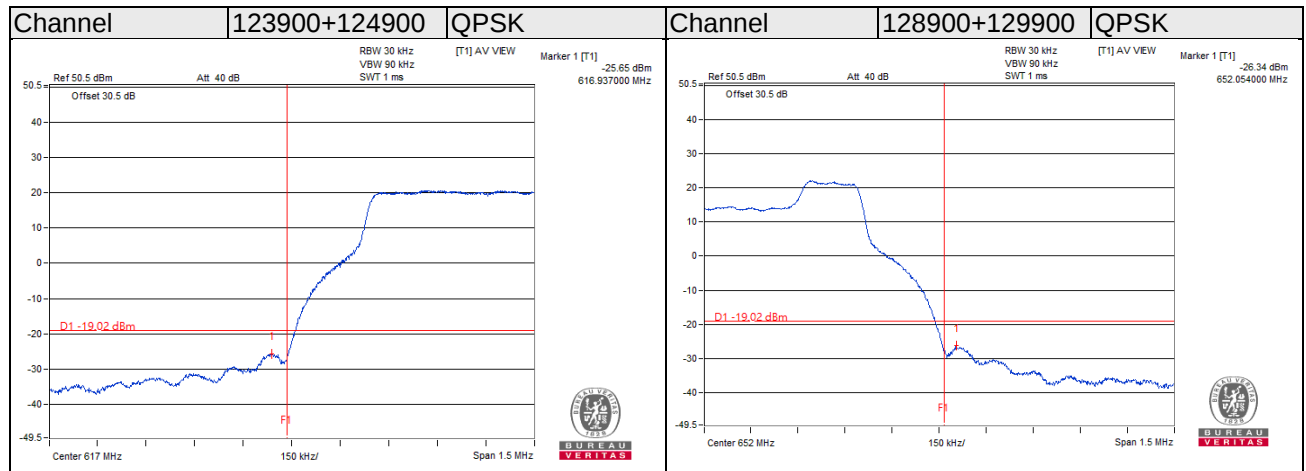


CA Contiguous

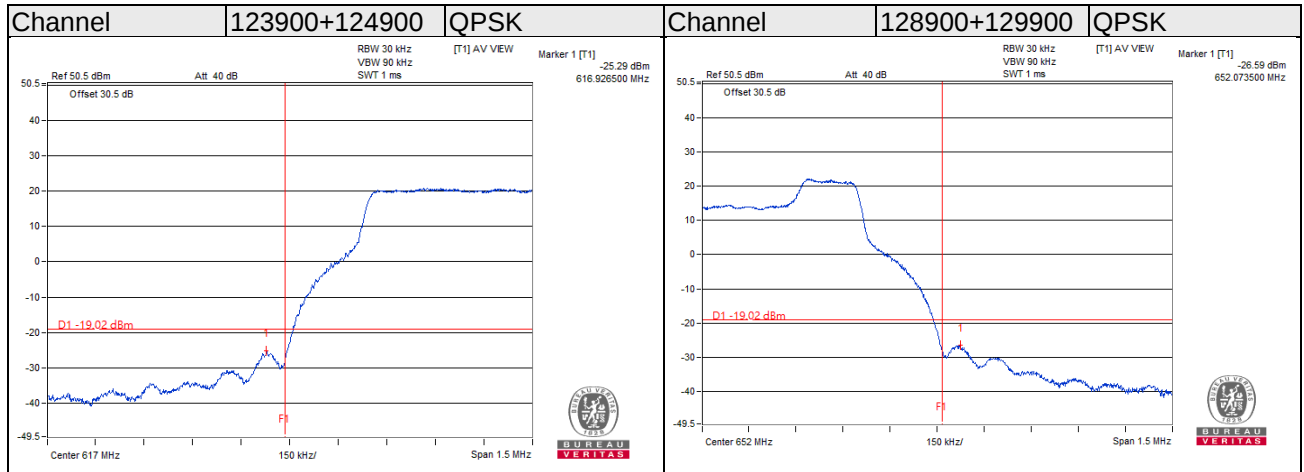
5MHz+5MHz ANT0



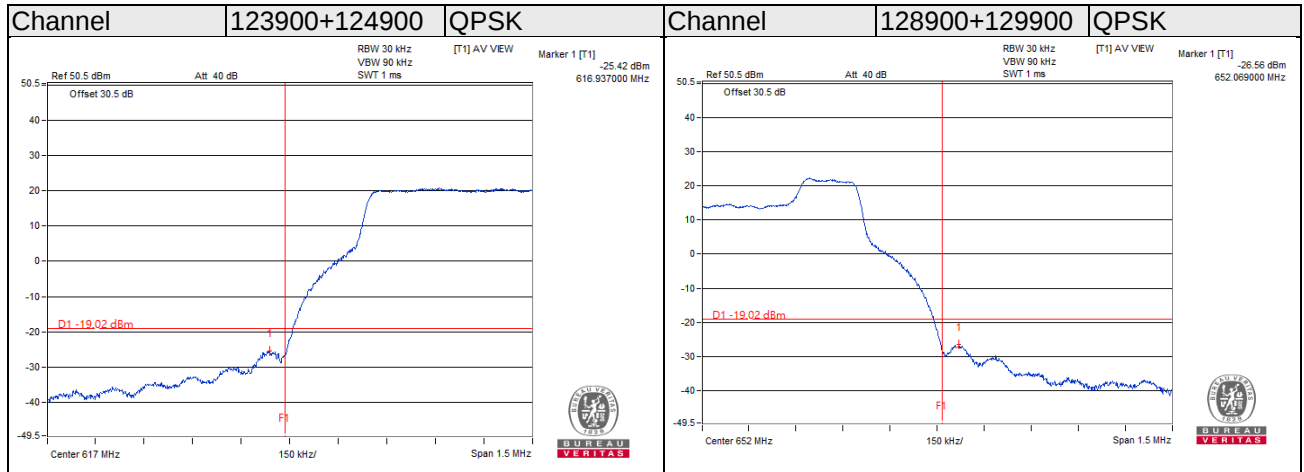
ANT1



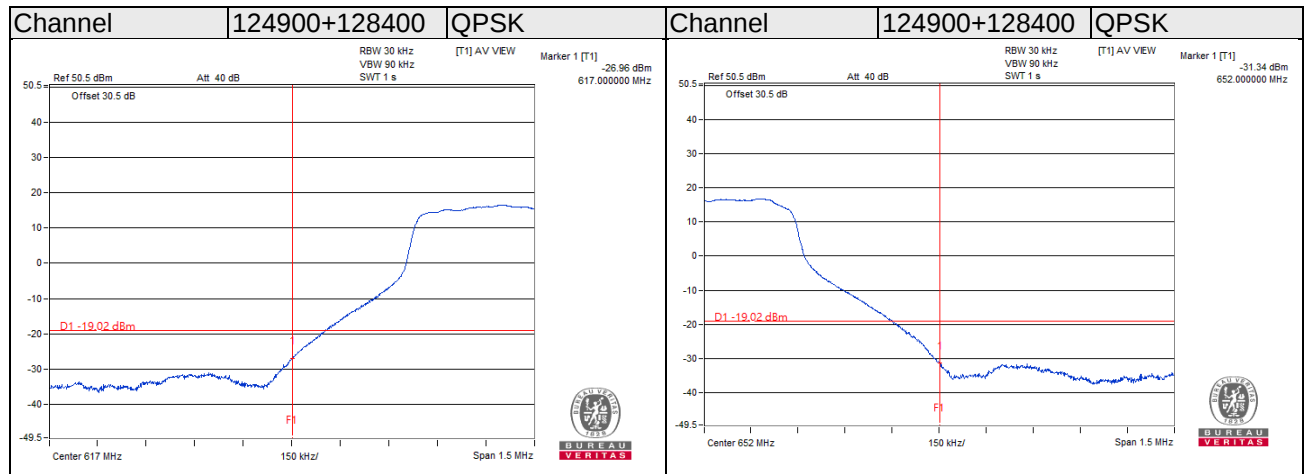
ANT2



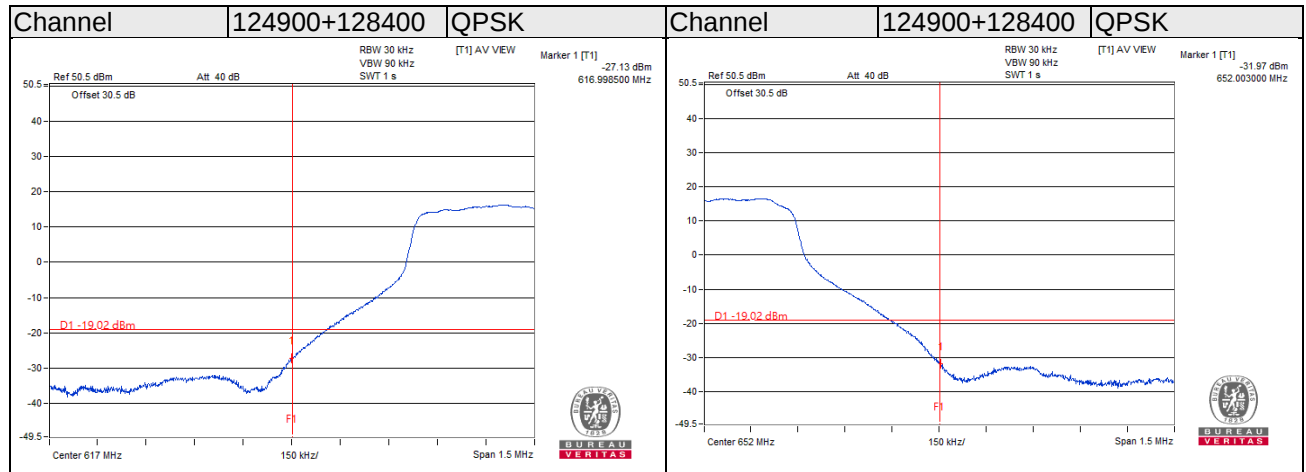
ANT3



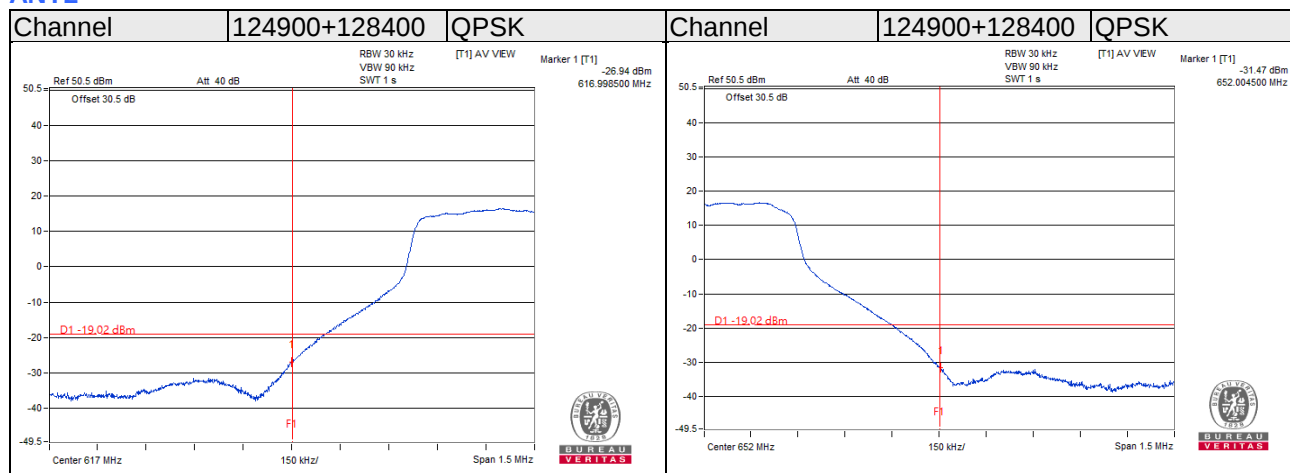
15MHz+20MHz ANT0



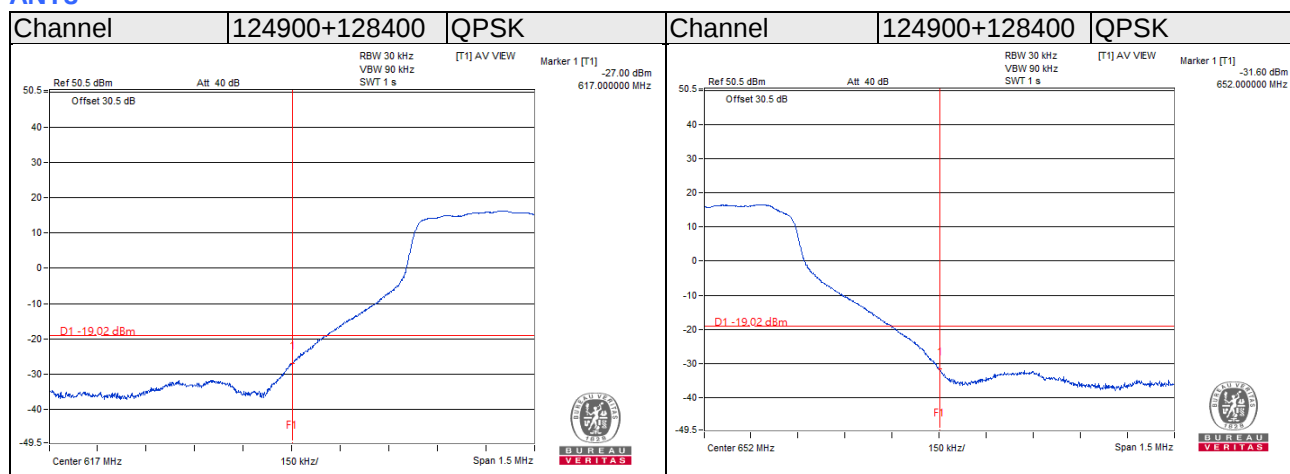
ANT1



ANT2

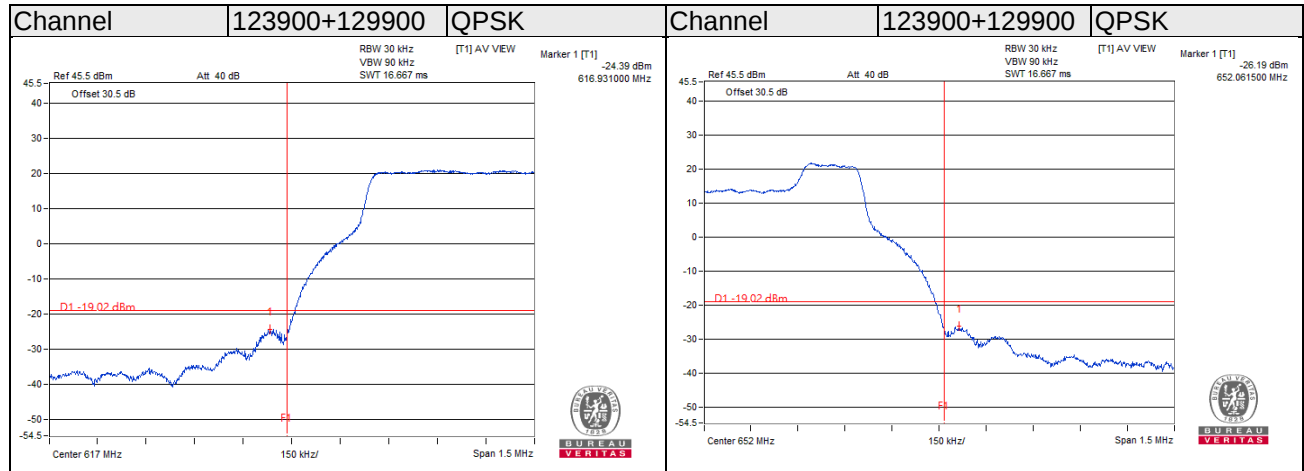


ANT3

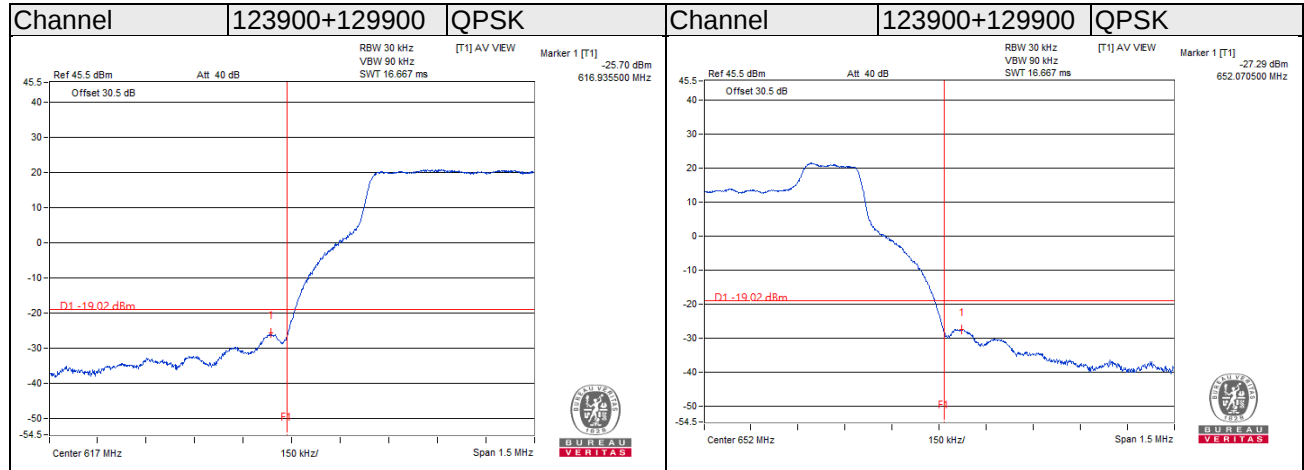


CA-NC Non-Contiguous

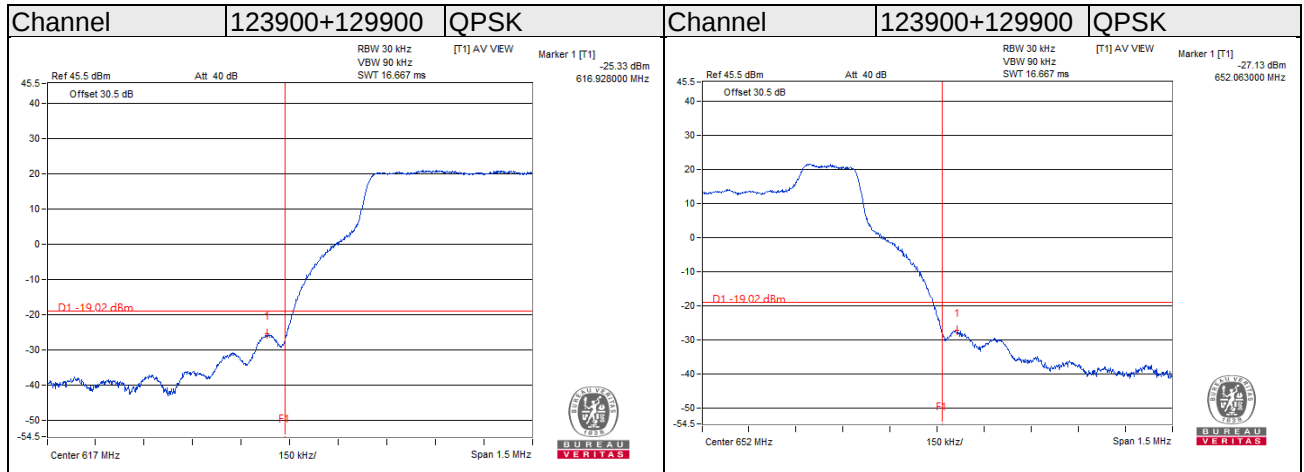
5MHz+5MHz ANT0



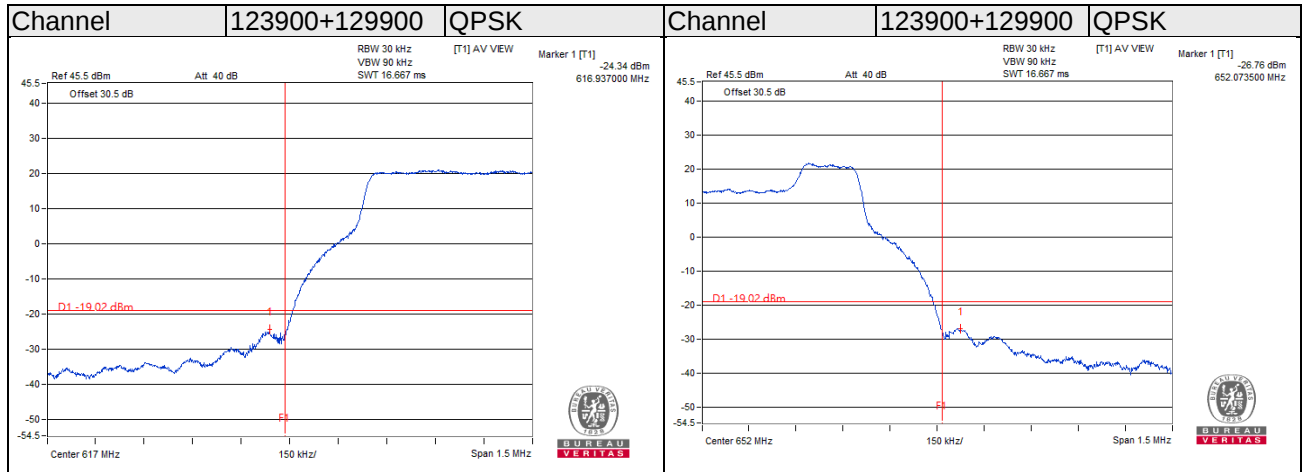
ANT1



ANT2



ANT3

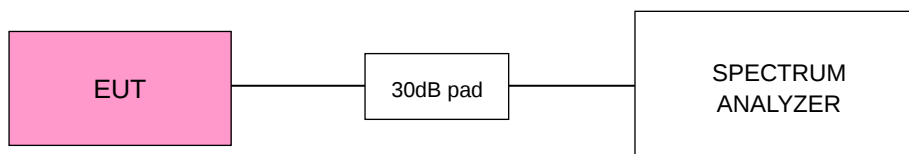


4.6 Peak to Average Ratio

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

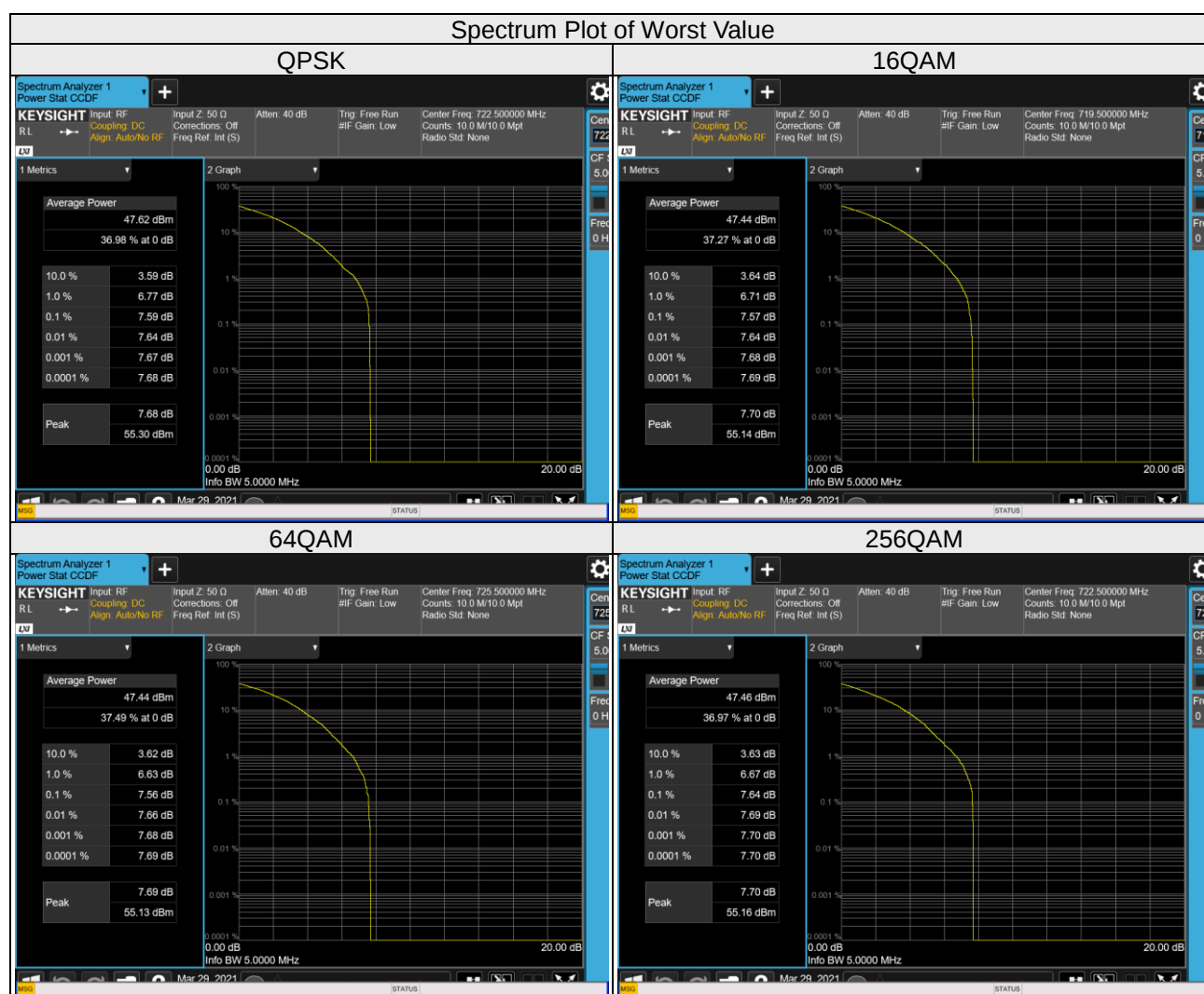
1. Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

4.6.4 Test Results

Band n29 Single Carrier

5MHz

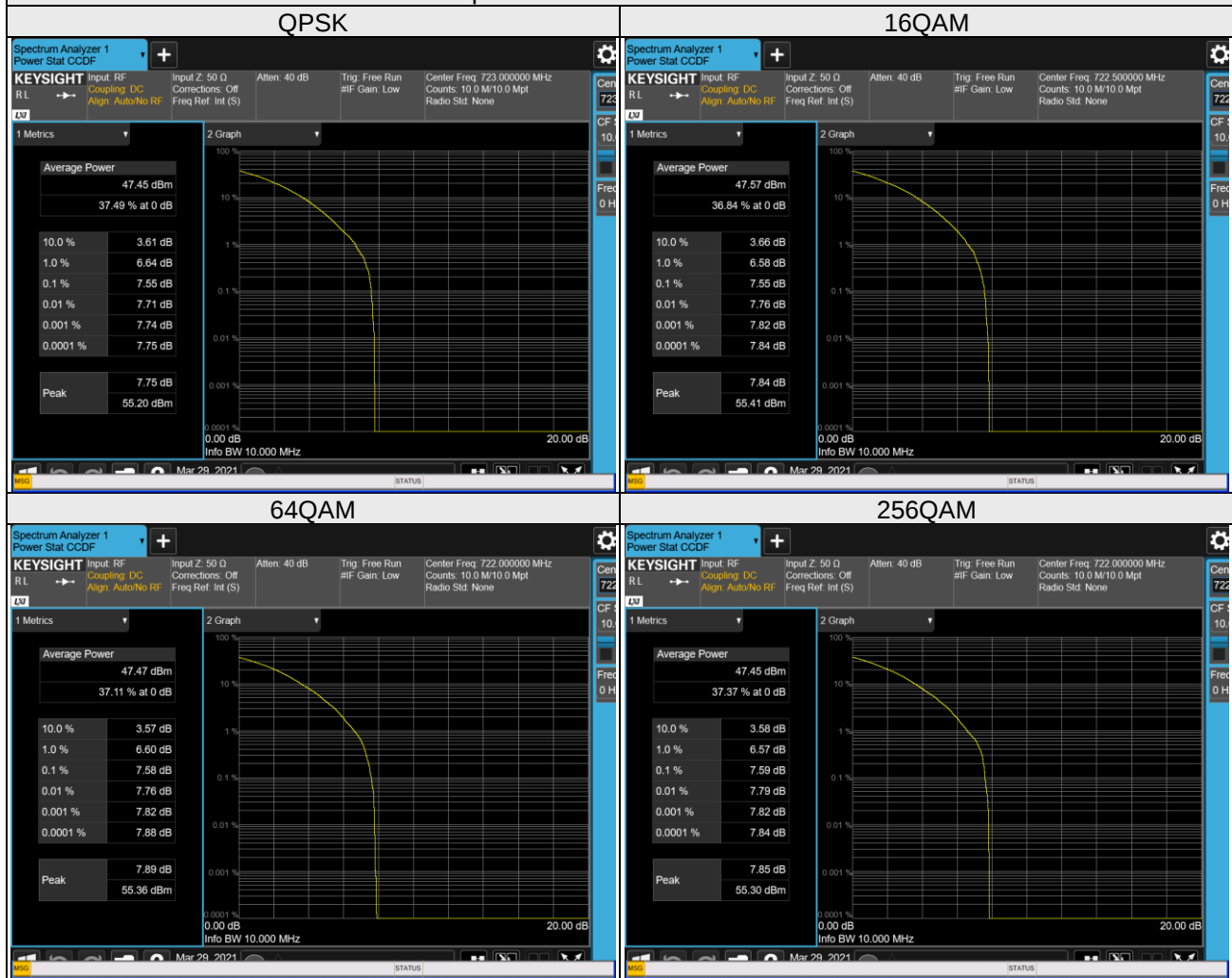
Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)							
		ANT0				ANT1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
143900	719.5	7.46	7.54	7.54	7.59	7.48	7.57	7.54	7.60
144500	722.5	7.59	7.55	7.52	7.64	7.59	7.55	7.52	7.63
145100	725.5	7.54	7.55	7.55	7.61	7.57	7.56	7.56	7.61



10MHz

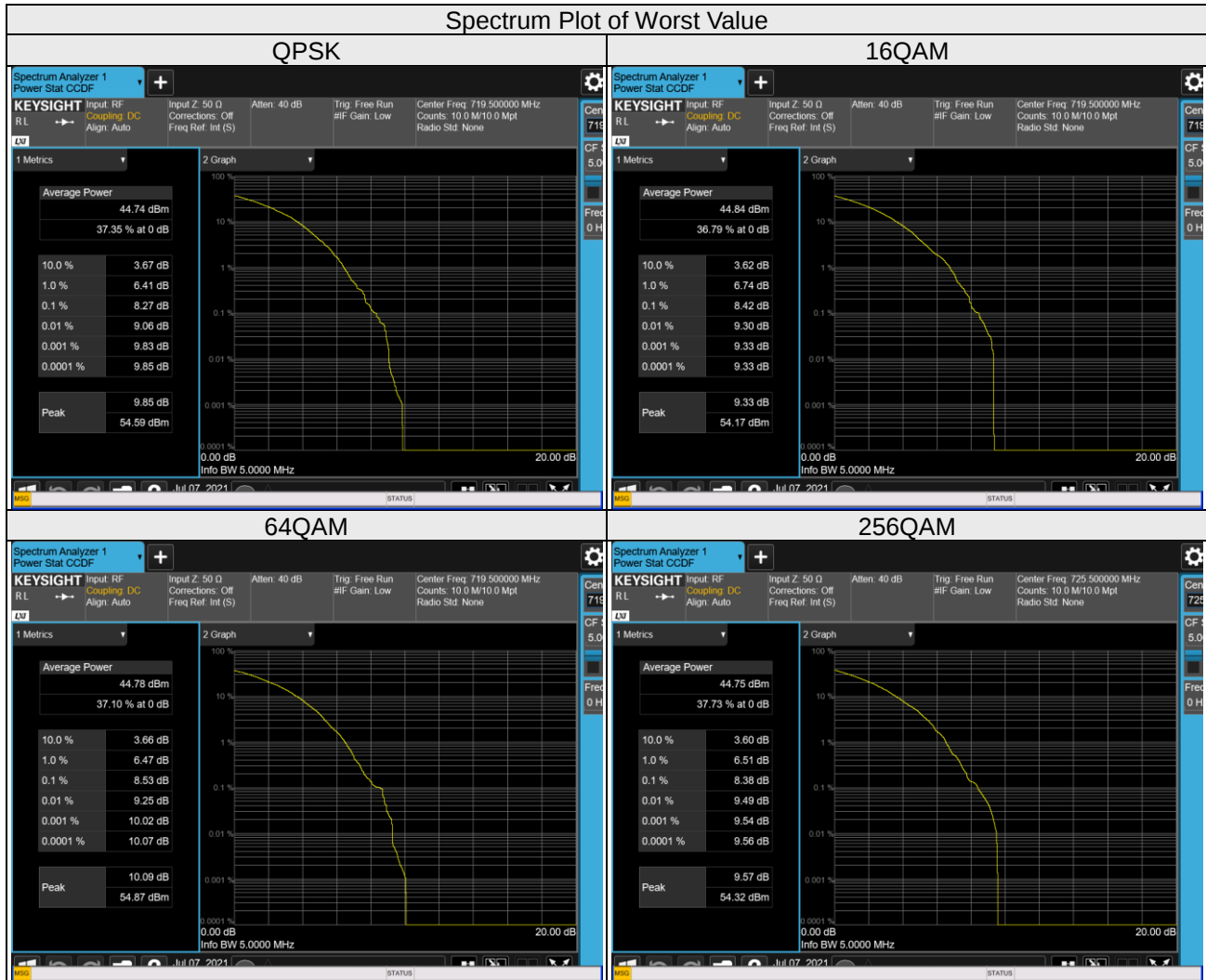
Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)							
		ANT0				ANT1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
144400	722	7.51	7.55	7.58	7.59	7.51	7.57	7.51	7.56
144500	722.5	7.54	7.55	7.51	7.63	7.47	7.55	7.47	7.52
144600	723	7.55	7.55	7.51	7.59	7.49	7.56	7.53	7.51

Spectrum Plot of Worst Value



CA-NC Non-Contiguous 5MHz+5MHz

Channel Number	Freq. (MHz)	Carrier	Peak-to-Average Power Ratio (dB)							
			ANT0				ANT1			
			QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
143900 +	719.5	Carrier 0	8.13	8.42	8.27	8.35	8.27	8.38	8.53	8.34
145100	725.5	Carrier 1	8.24	8.06	7.68	8.38	8.10	8.15	8.18	7.99

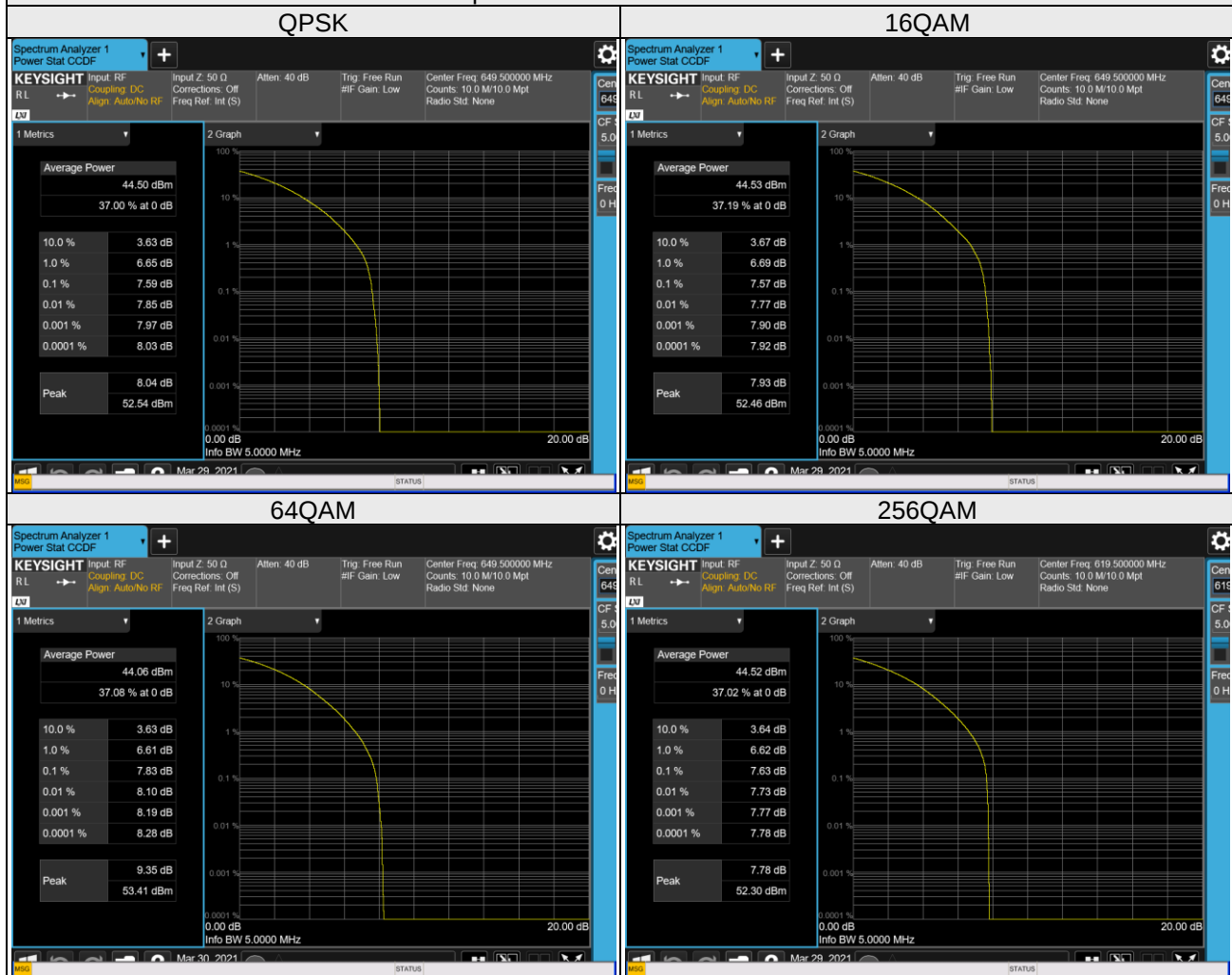


Band n71 Single Carrier

5MHz

Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)															
		ANT0				ANT1				ANT2				ANT3			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
123900	619.5	7.55	7.52	7.55	7.63	7.56	7.53	7.54	7.63	7.54	7.51	7.54	7.62	7.56	7.52	7.53	7.62
126900	634.5	7.56	7.53	7.55	7.62	7.56	7.53	7.56	7.62	7.56	7.52	7.54	7.62	7.57	7.53	7.55	7.63
129900	649.5	7.58	7.56	7.55	7.60	7.59	7.57	7.56	7.60	7.58	7.56	7.83	7.59	7.59	7.56	7.56	7.61

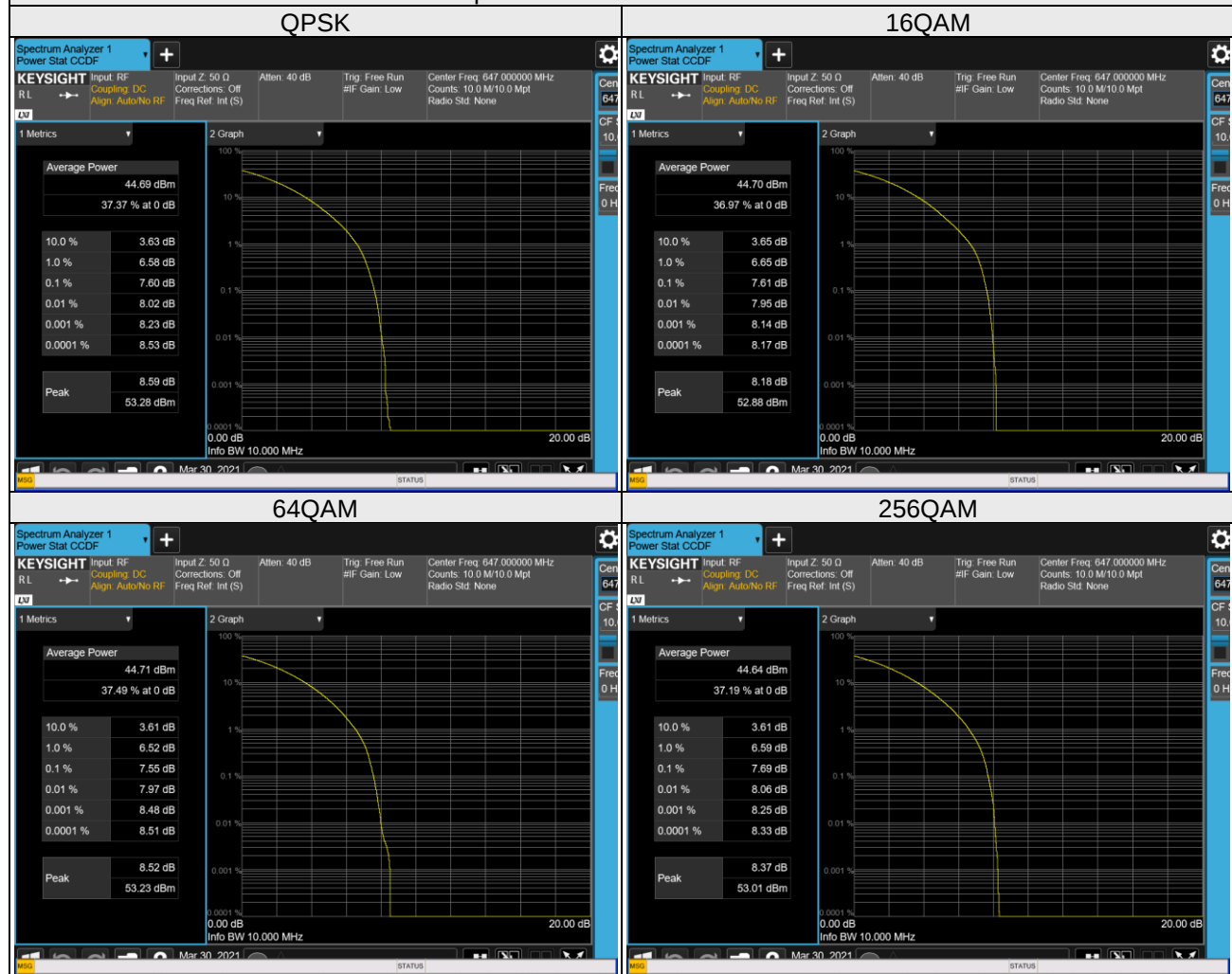
Spectrum Plot of Worst Value



10MHz

Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)															
		ANT0				ANT1				ANT2				ANT3			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
124400	622	7.53	7.55	7.52	7.59	7.53	7.54	7.53	7.59	7.53	7.55	7.53	7.59	7.52	7.54	7.52	7.59
126900	634.5	7.50	7.53	7.51	7.58	7.51	7.53	7.52	7.59	7.50	7.52	7.51	7.59	7.49	7.52	7.50	7.59
129400	647	7.60	7.61	7.55	7.69	7.59	7.61	7.55	7.69	7.60	7.60	7.54	7.69	7.60	7.61	7.55	7.69

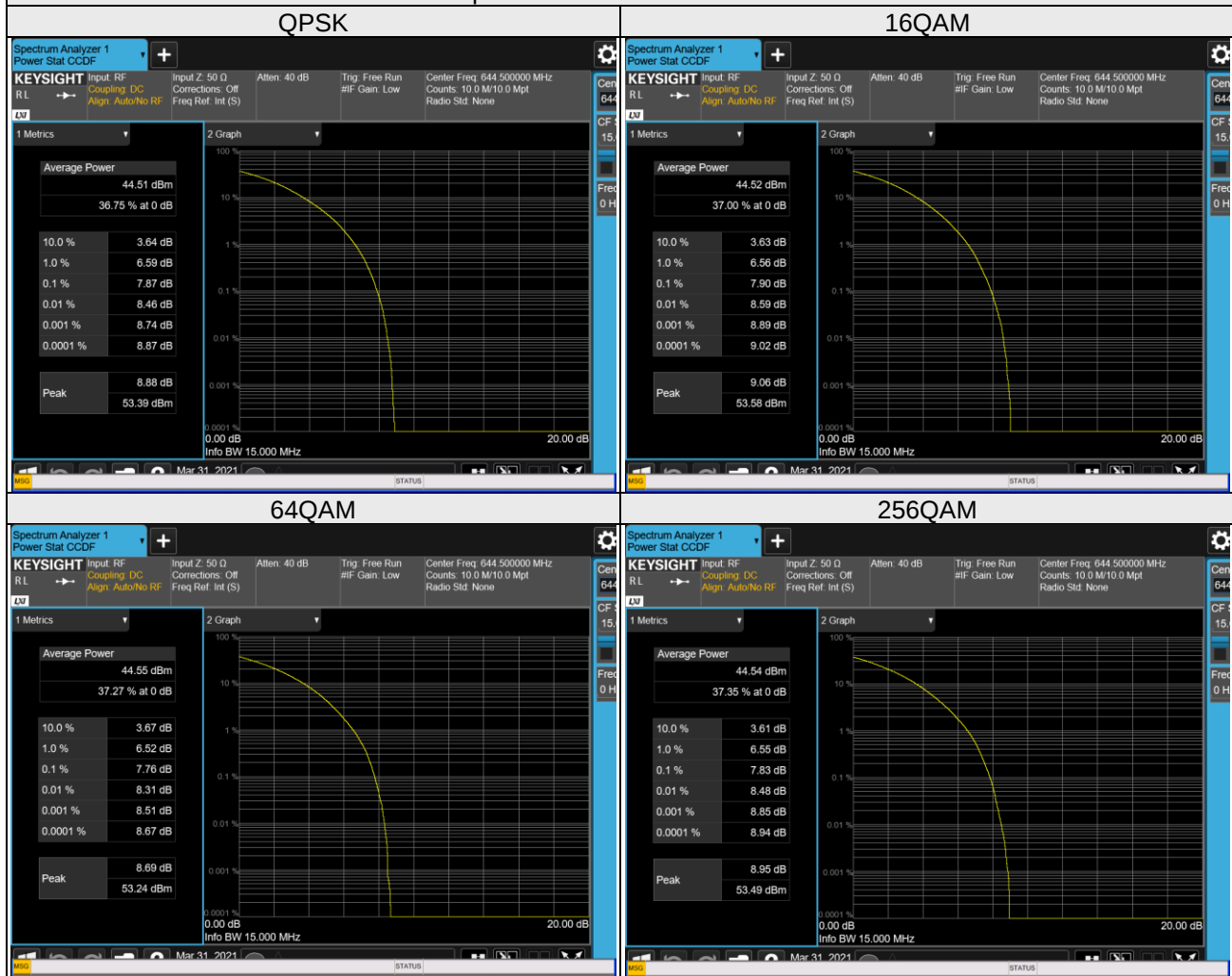
Spectrum Plot of Worst Value



15MHz

Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)															
		ANT0				ANT1				ANT2				ANT3			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
124900	624.5	7.67	7.67	7.62	7.61	7.66	7.67	7.61	7.61	7.67	7.67	7.62	7.61	7.67	7.66	7.62	7.61
126900	634.5	7.64	7.64	7.63	7.64	7.65	7.65	7.63	7.64	7.65	7.64	7.64	7.64	7.65	7.64	7.64	7.64
128900	644.5	7.87	7.89	7.76	7.83	7.86	7.89	7.75	7.83	7.87	7.90	7.76	7.83	7.87	7.90	7.75	7.83

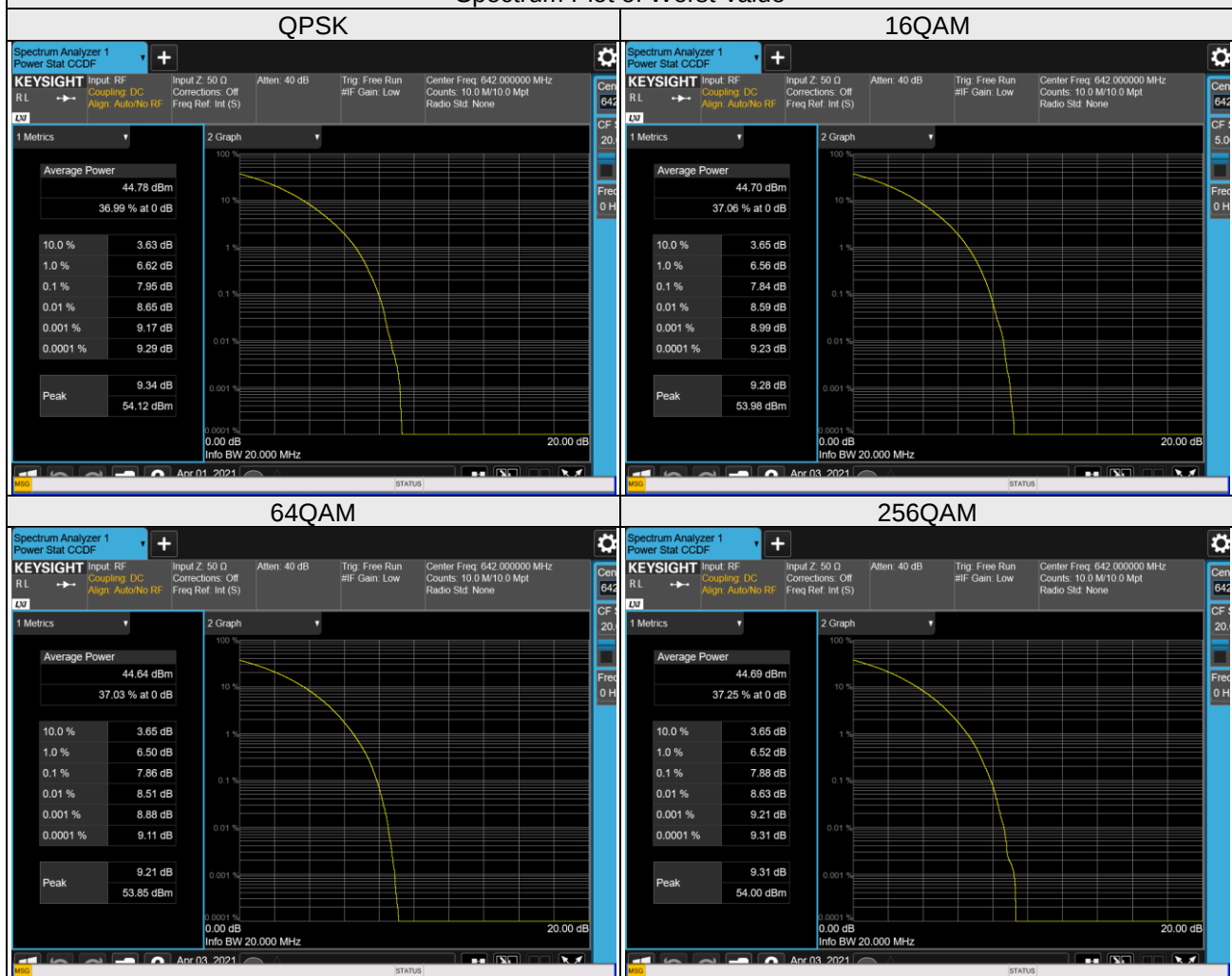
Spectrum Plot of Worst Value



20MHz

Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)															
		ANT0				ANT1				ANT2				ANT3			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
125400	627	7.54	7.52	7.53	7.54	7.54	7.52	7.53	7.52	7.55	7.54	7.53	7.53	7.54	7.52	7.54	7.53
126900	634.5	7.60	7.54	7.57	7.55	7.60	7.55	7.57	7.55	7.62	7.57	7.59	7.56	7.61	7.54	7.58	7.56
128400	642	7.92	7.81	7.84	7.84	7.92	7.80	7.84	7.83	7.95	7.84	7.87	7.88	7.94	7.83	7.86	7.88

Spectrum Plot of Worst Value

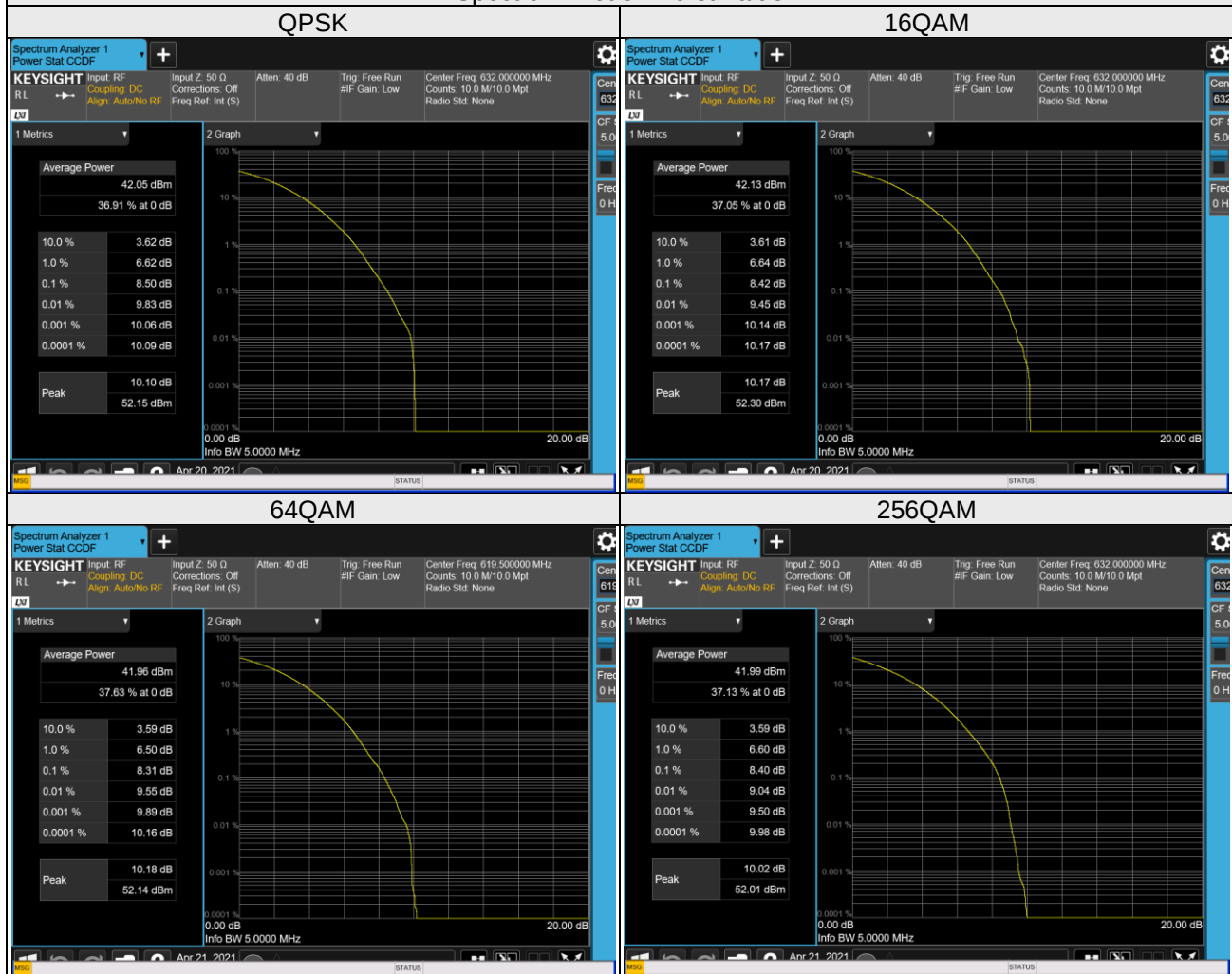


CA Contiguous

5MHz+5MHz

Channel Number	Freq. (MHz)	Carrier	Peak-to-Average Power Ratio (dB)															
			ANT0				ANT1				ANT2				ANT3			
			QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	25 QAM	QPSK	16 QAM	64 QAM	256 QAM
123900 + 124900	619.5 + 624.5	Carrier 0	8.43	8.25	8.31	8.25	8.37	8.27	8.24	8.37	8.46	8.25	8.20	8.17	8.41	8.18	8.13	8.16
		Carrier 1	8.09	8.17	7.97	8.13	8.06	7.98	8.00	8.10	8.14	8.00	8.19	8.03	8.14	8.01	7.99	8.39
126400 + 127400	632 + 637	Carrier 0	8.33	8.42	8.27	8.39	8.50	8.18	8.18	8.40	8.35	8.28	8.20	8.35	8.46	8.29	8.19	8.09
		Carrier 1	8.12	8.19	8.18	8.39	8.07	8.06	8.18	8.36	8.06	8.10	8.20	8.23	8.16	8.07	8.12	8.20
128900 + 129900	644.5 + 649.5	Carrier 0	8.47	8.25	8.16	8.32	8.49	8.40	8.30	8.37	8.44	8.29	8.28	8.16	8.42	8.32	8.23	8.17
		Carrier 1	8.10	7.99	8.01	8.05	8.05	7.97	7.98	8.17	8.16	8.20	8.02	8.24	8.17	7.98	7.97	8.12

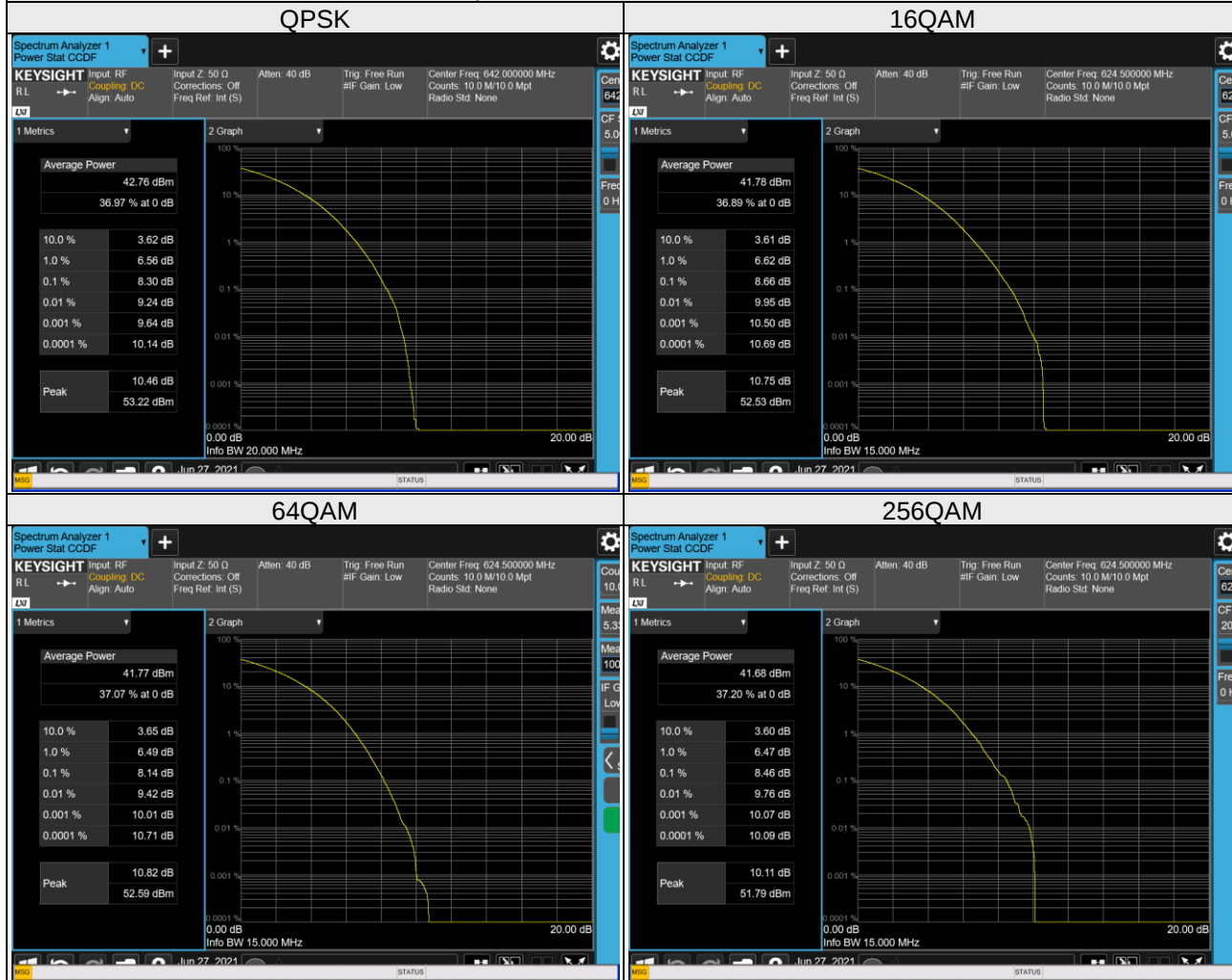
Spectrum Plot of Worst Value



15MHz+20MHz

Channel Number	Freq. (MHz)	Carrier	Peak-to-Average Power Ratio (dB)															
			ANT0				ANT1				ANT2				ANT3			
			QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM
124900 + 128400	624.5 + 642	Carrier 0	8.08	8.54	8.14	8.35	8.18	8.66	7.95	8.34	8.14	8.56	8.07	8.46	8.21	8.55	8.07	8.21
		Carrier 1	8.16	8.19	8.01	8.24	8.17	8.21	8.10	8.24	8.17	8.15	8.14	8.24	8.30	8.21	8.01	8.16

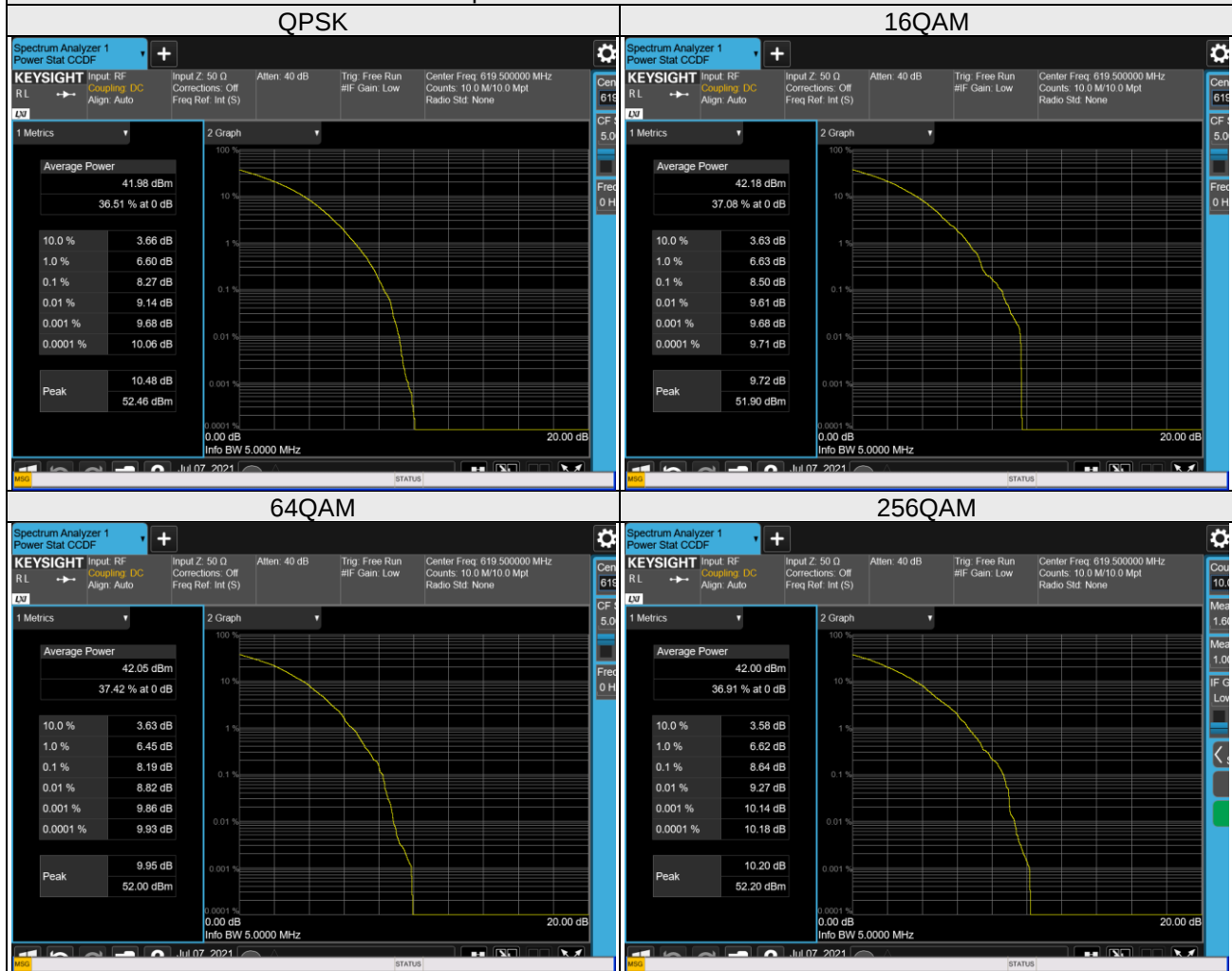
Spectrum Plot of Worst Value



CA-NC Non-Contiguous 5MHz+5MHz

Channel Number	Freq. (MHz)	Carrier	Peak-to-Average Power Ratio (dB)															
			ANT0				ANT1				ANT2				ANT3			
			QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
123900 + 129900	619.5 + 649.5	Carrier 0	8.04	8.48	8.08	8.59	8.27	8.43	8.19	8.64	8.00	8.40	8.00	8.21	8.01	8.50	8.18	8.17
		Carrier 1	7.89	7.97	7.88	8.24	7.95	7.97	7.60	8.30	8.00	8.40	8.09	8.12	8.14	7.98	8.13	8.28

Spectrum Plot of Worst Value



4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

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. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

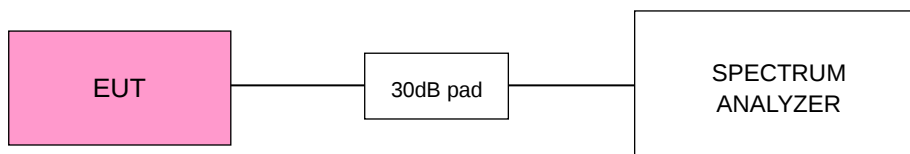
Note:

This device can be implement MIMO function, so the limit of spurious emissions needs to be reduced by $10\log(\text{NumbersAnt})$ according to FCC KDB 662911 D01 guidance.

{2TX: The limit is adjusted to $-13\text{dBm} - 10*\log(2) = -16.01\text{dBm}$.}

{4TX: The limit is adjusted to $-13\text{dBm} - 10*\log(4) = -19.02\text{dBm}$.}

4.7.2 Test Setup



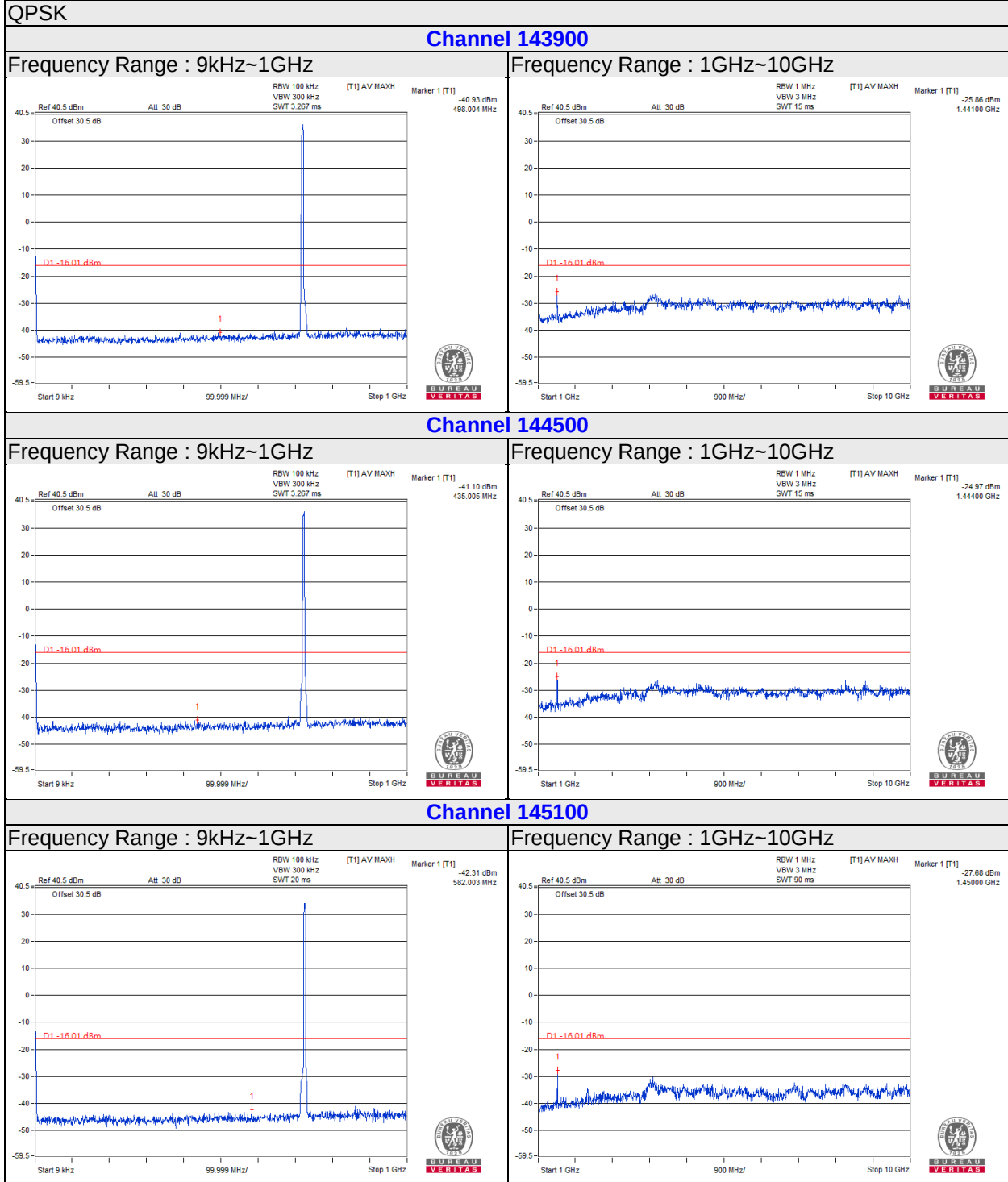
4.7.3 Test Procedure

- All measurements were done at 3 channels: low, middle and high operational frequency range.
- When the spectrum scanned from 9kHz to 10GHz, it shall be connected to the 30dB pad attenuated the carried frequency.
- S.A. setting: RBW=100kHz, VBW=300kHz, Detector=RMS (Power average)

4.7.4 Test Results

Band n29
Single Carrier

5MHz-ANT0



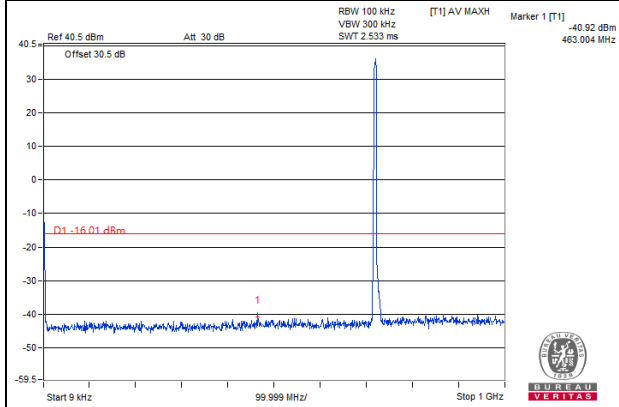
Note: The signal at 9 kHz is IF signal from spectrum analyzer.

5MHz-ANT1

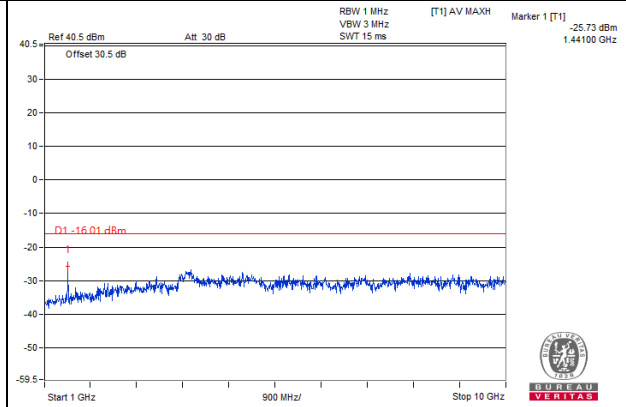
QPSK

Channel 143900

Frequency Range : 9kHz~1GHz

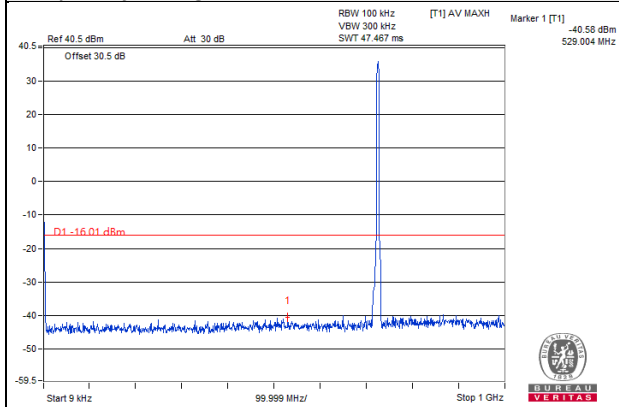


Frequency Range : 1GHz~10GHz

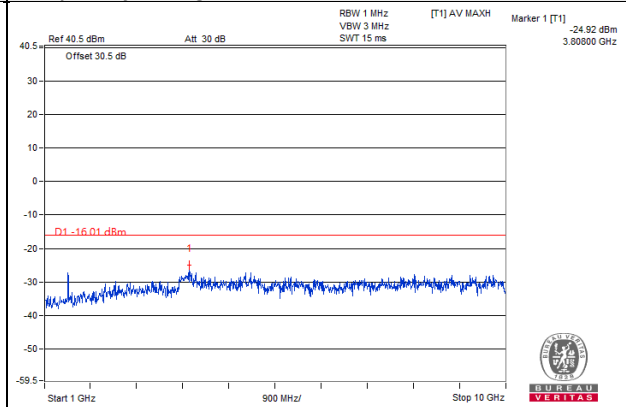


Channel 144500

Frequency Range : 9kHz~1GHz

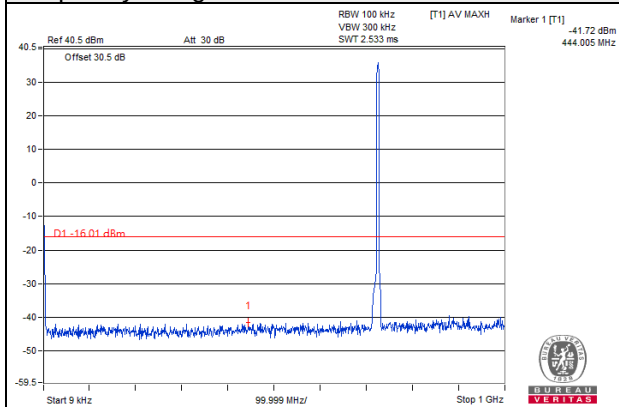


Frequency Range : 1GHz~10GHz

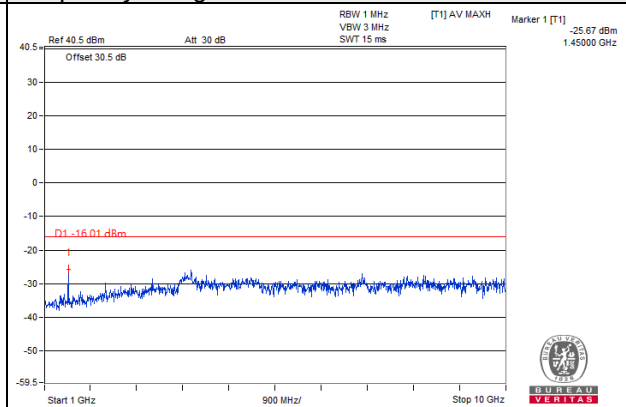


Channel 145100

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Note: The signal at 9 kHz is IF signal from spectrum analyzer.