

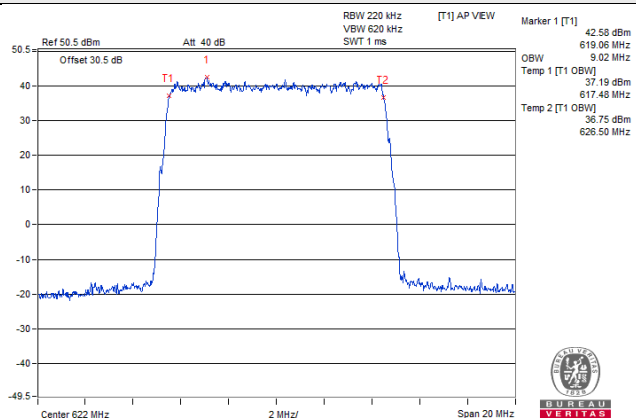
Chain 1

Spectrum Plot of Worst Value

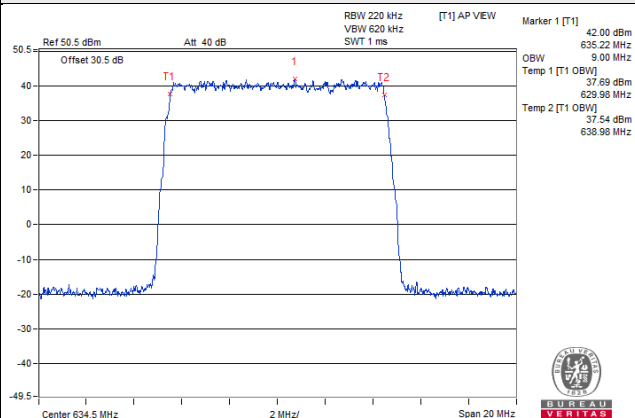
Occupied Bandwidth

QPSK

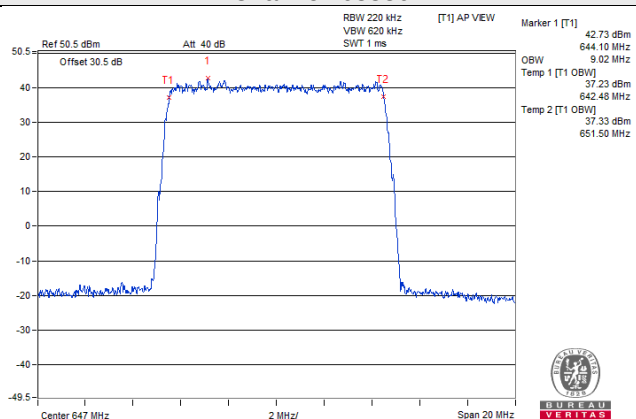
Channel: 68636



Channel: 68761

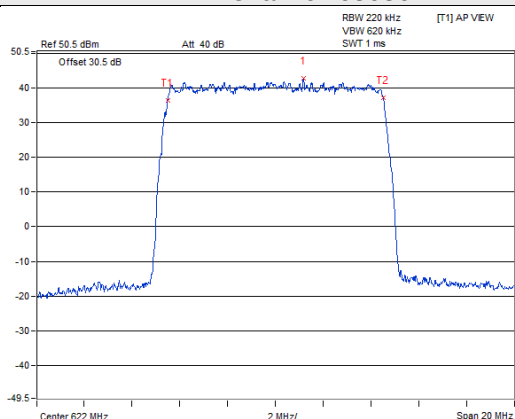


Channel: 68886

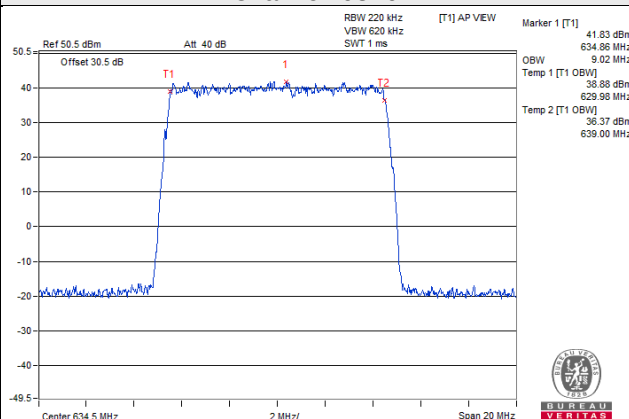


16QAM

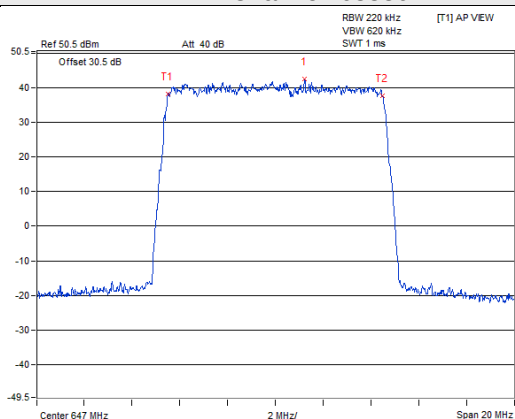
Channel: 68636



Channel: 68761

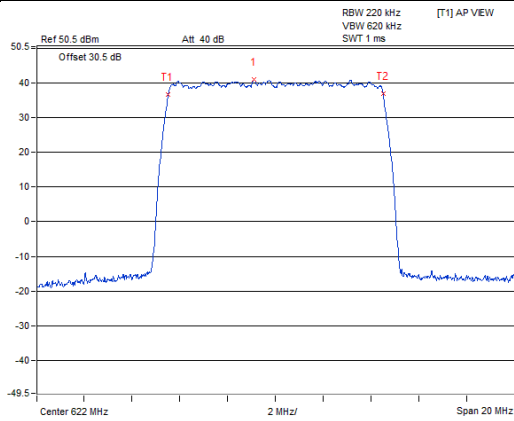


Channel: 68886

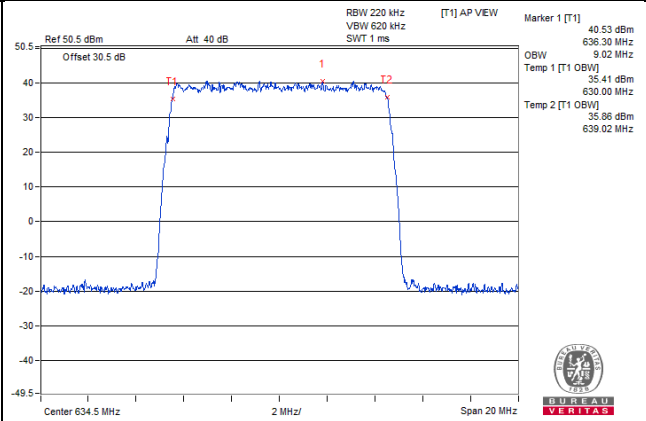


64QAM

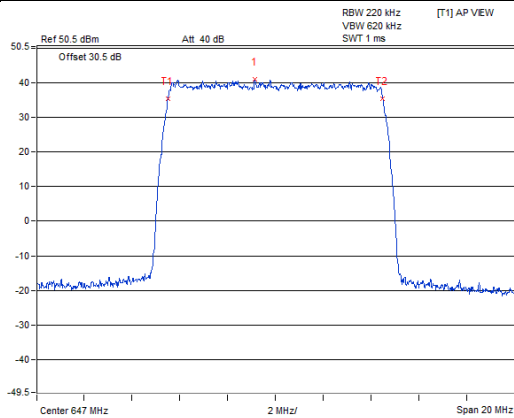
Channel: 68636



Channel: 68761

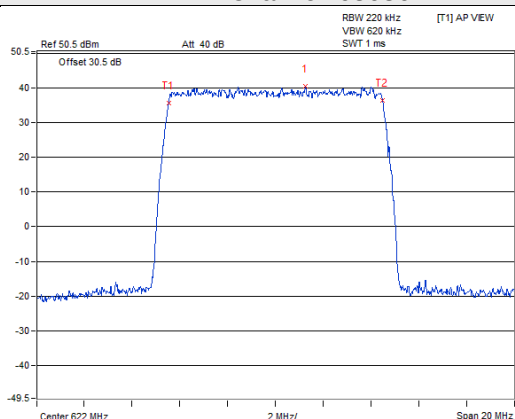


Channel: 68886

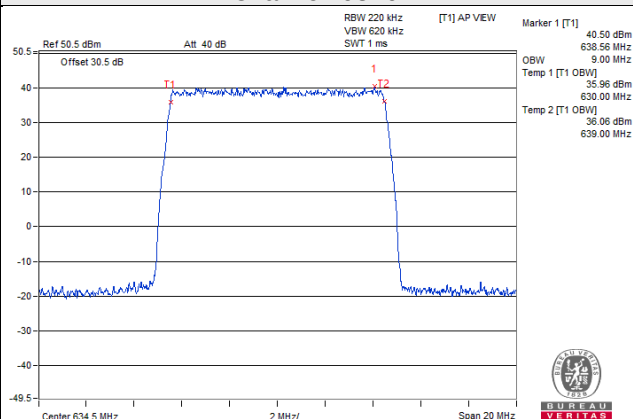


256QAM

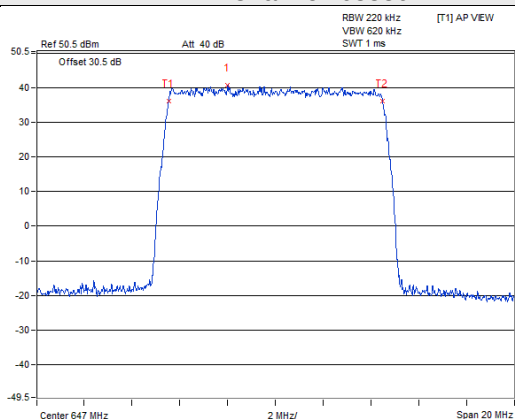
Channel: 68636



Channel: 68761



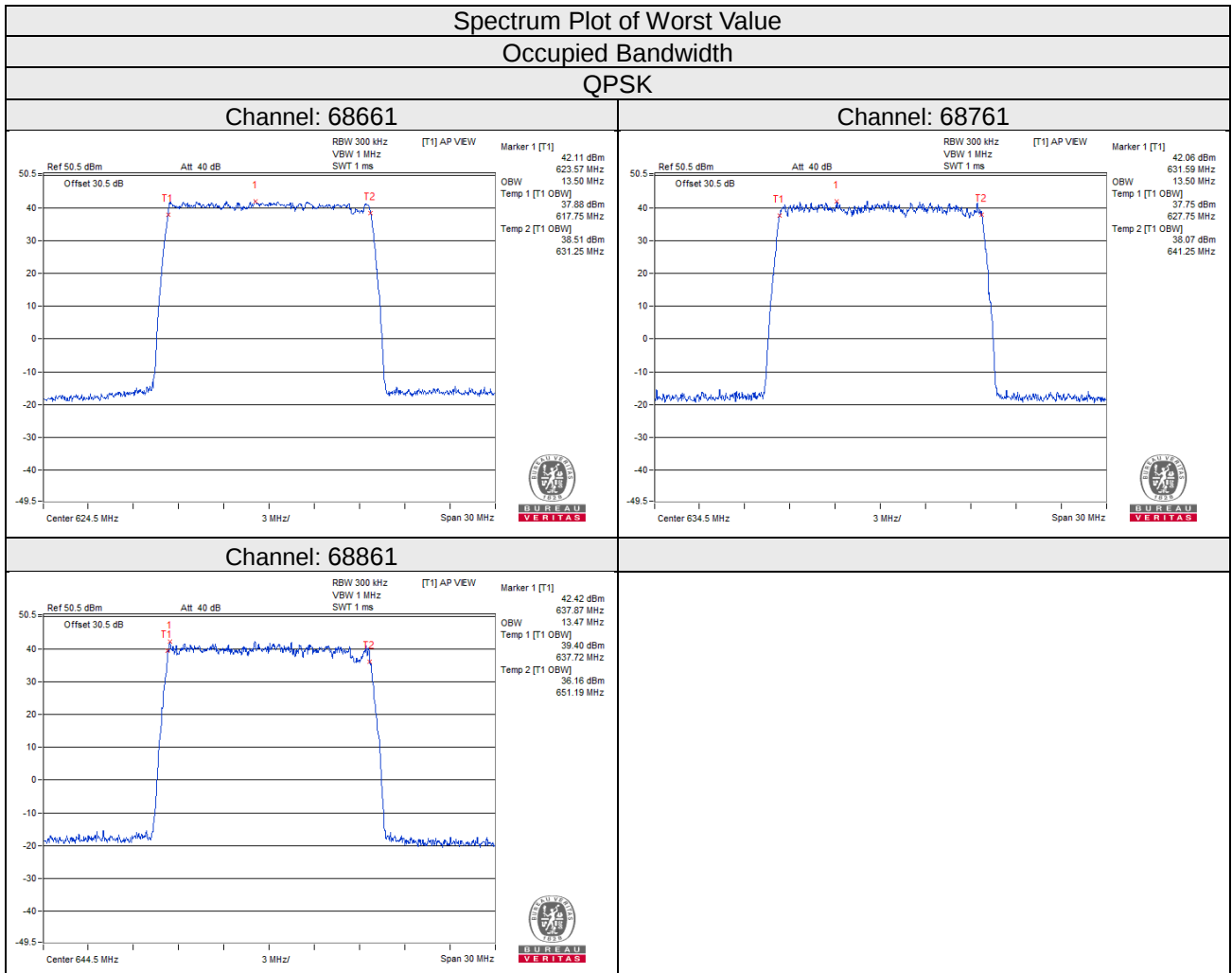
Channel: 68886



15MHz

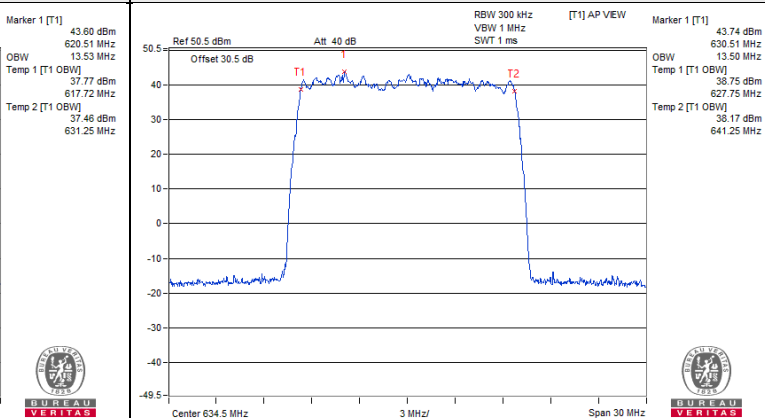
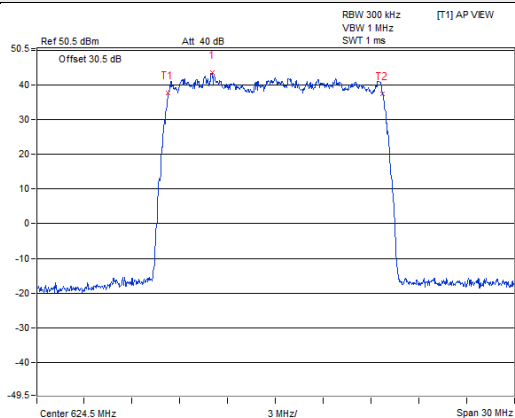
Channel Number	Freq. (MHz)	OCP 99 BAND WIDTH (MHz)							
		Chain0				Chain1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68661	624.5	13.50	13.53	13.47	13.50	13.50	13.53	13.47	13.50
68761	634.5	13.50	13.50	13.47	13.50	13.53	13.53	13.47	13.47
68861	644.5	13.47	13.50	13.50	13.47	13.50	13.53	13.50	13.47

Chain 0

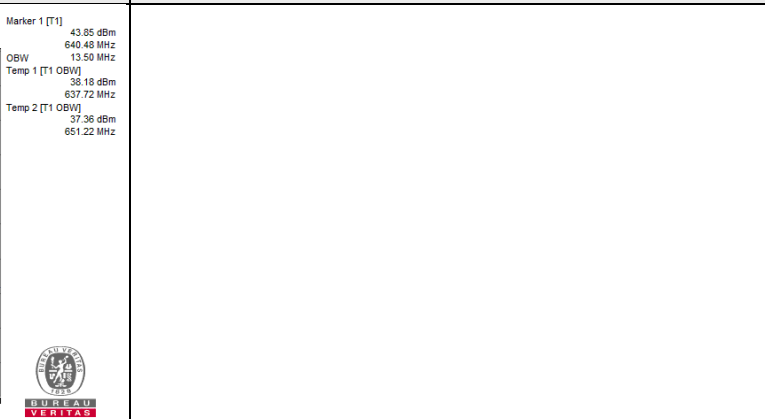
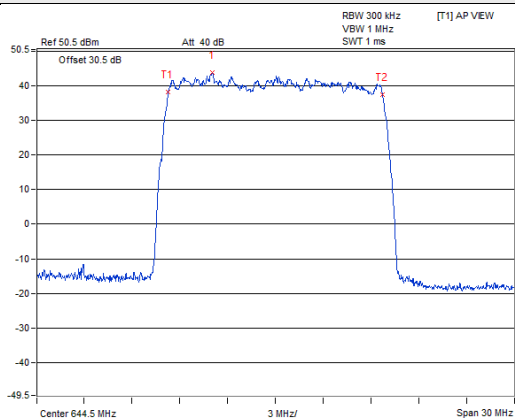


16QAM

Channel: 68661

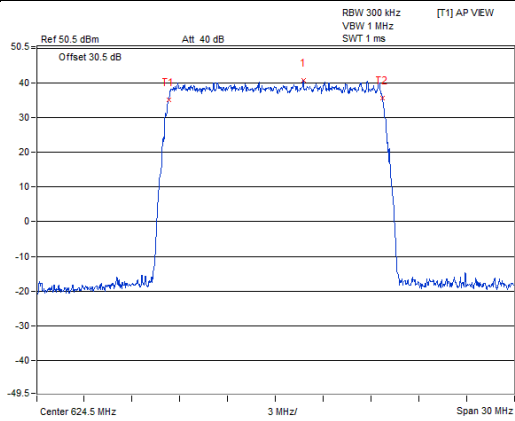


Channel: 68861

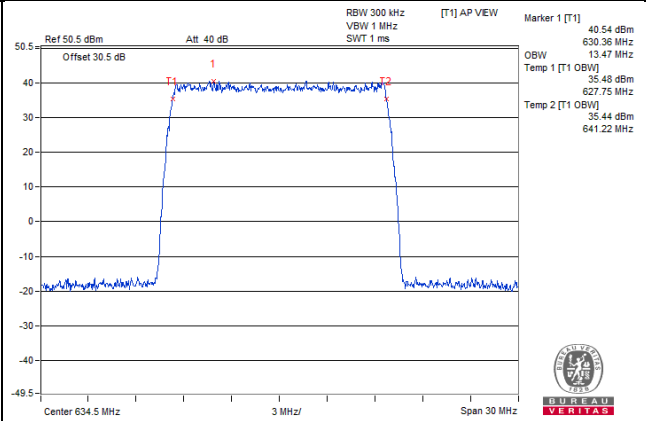


64QAM

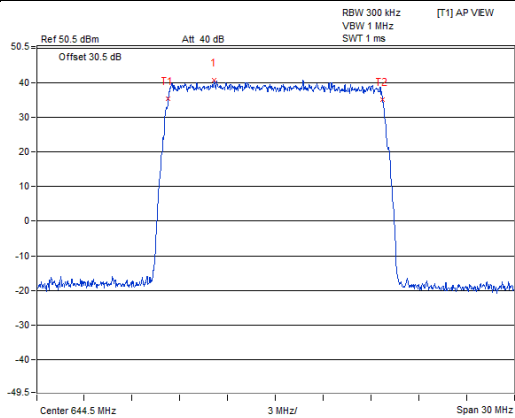
Channel: 68661



Channel: 68761

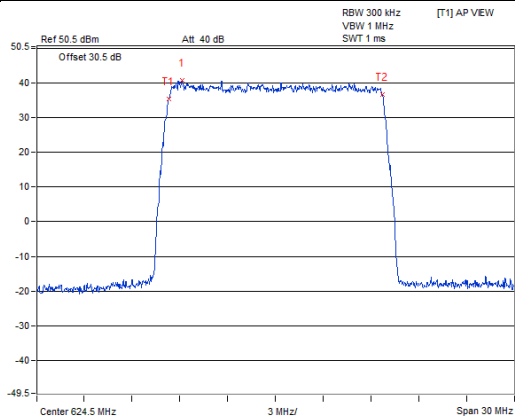


Channel: 68861

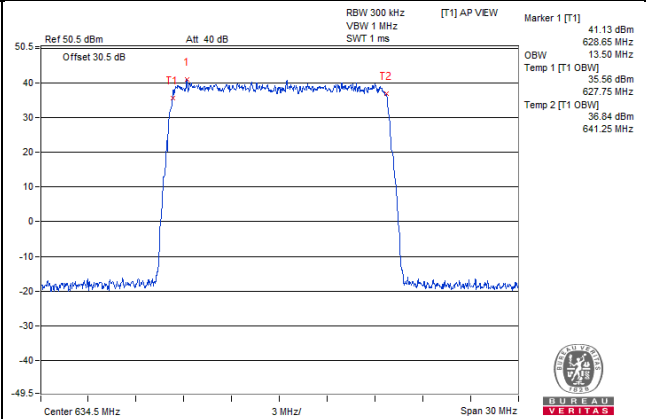


256QAM

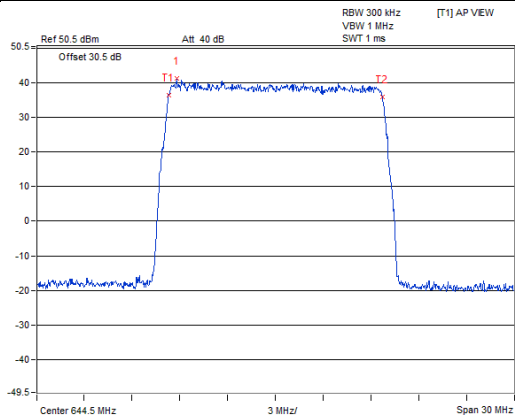
Channel: 68661



Channel: 68761



Channel: 68861



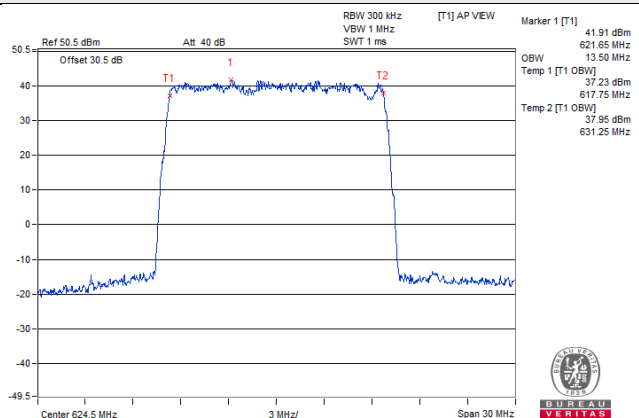
Chain 1

Spectrum Plot of Worst Value

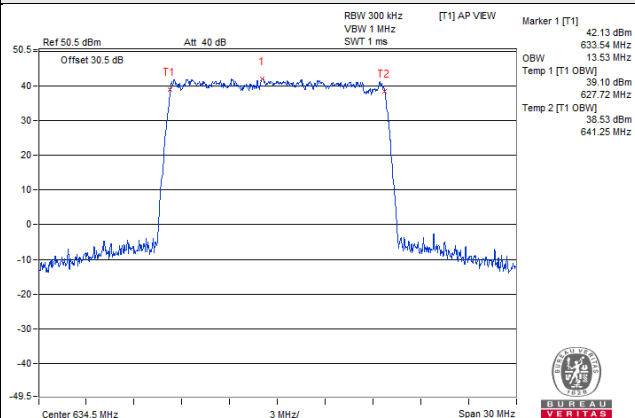
Occupied Bandwidth

QPSK

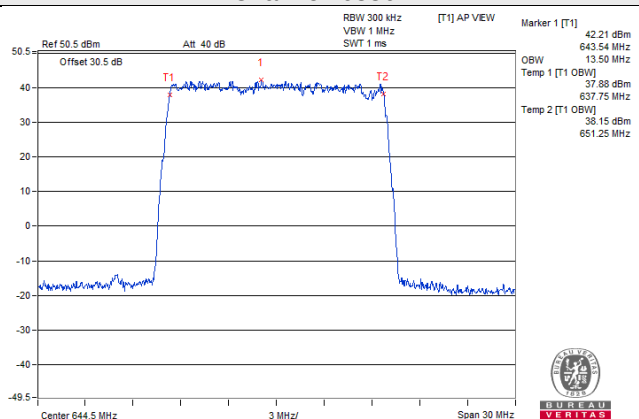
Channel: 68661



Channel: 68761

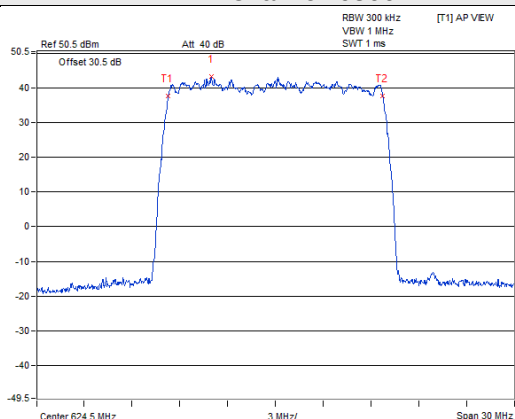


Channel: 68861

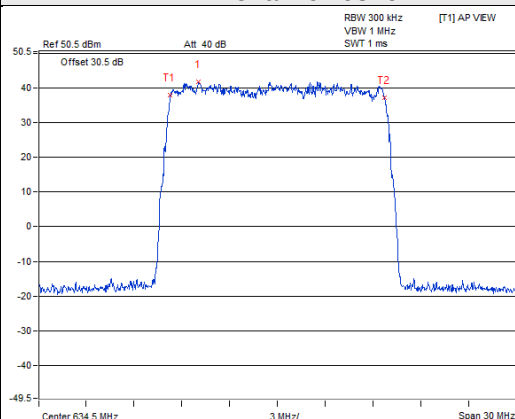


16QAM

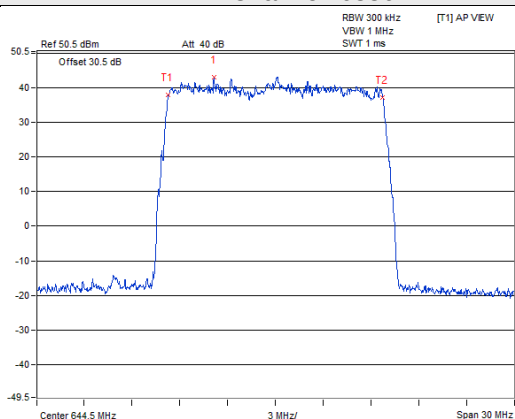
Channel: 68661



Channel: 68761

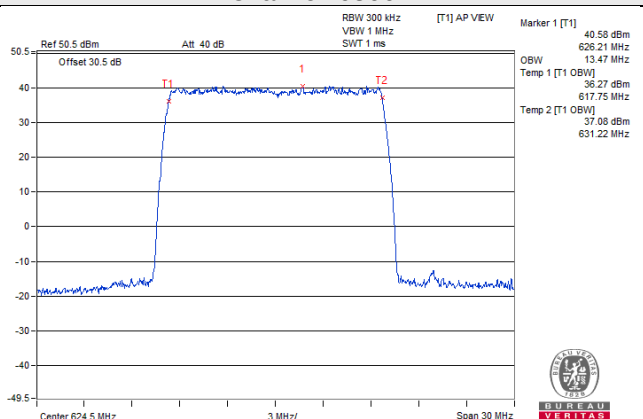


Channel: 68861

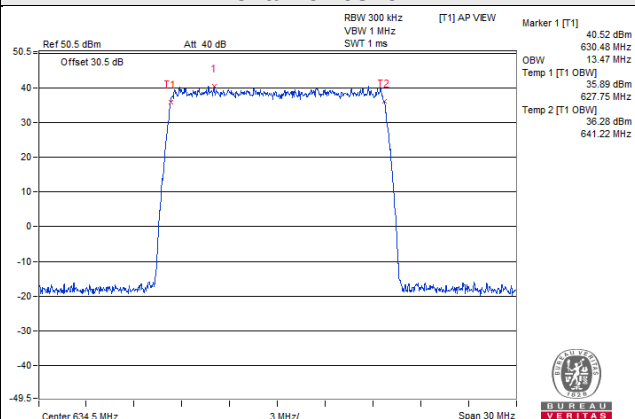


64QAM

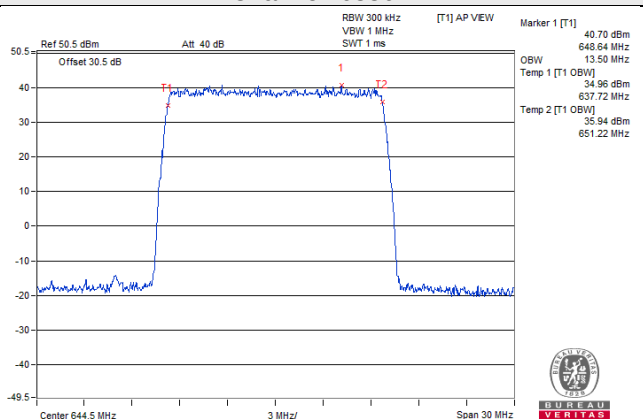
Channel: 68661



Channel: 68761

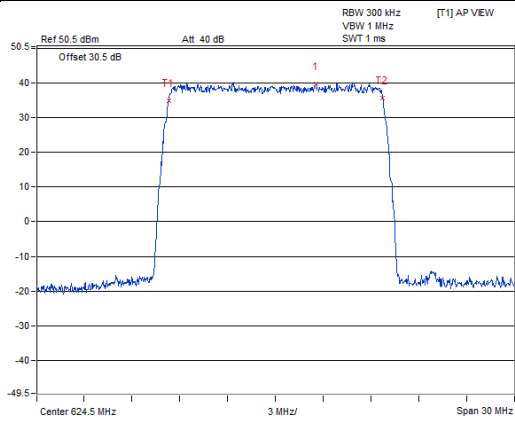


Channel: 68861

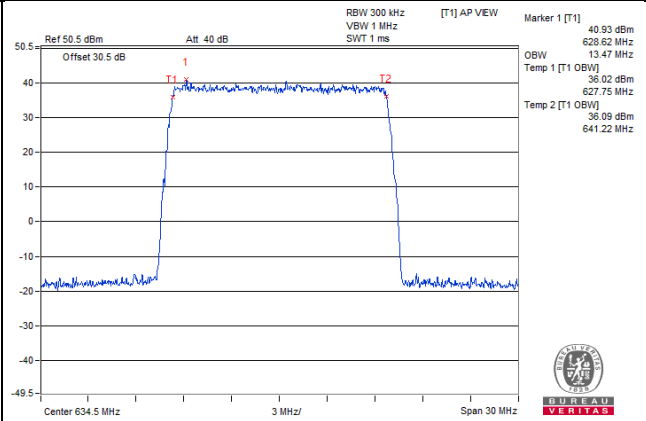


256QAM

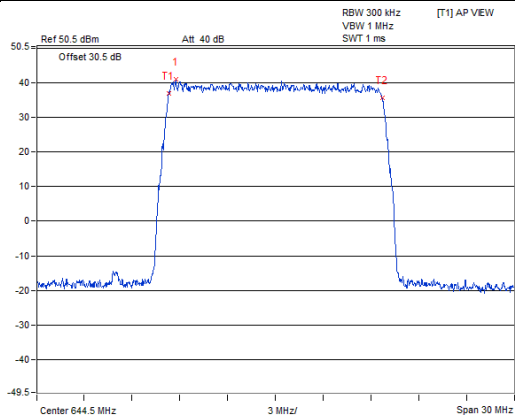
Channel: 68661



Channel: 68761



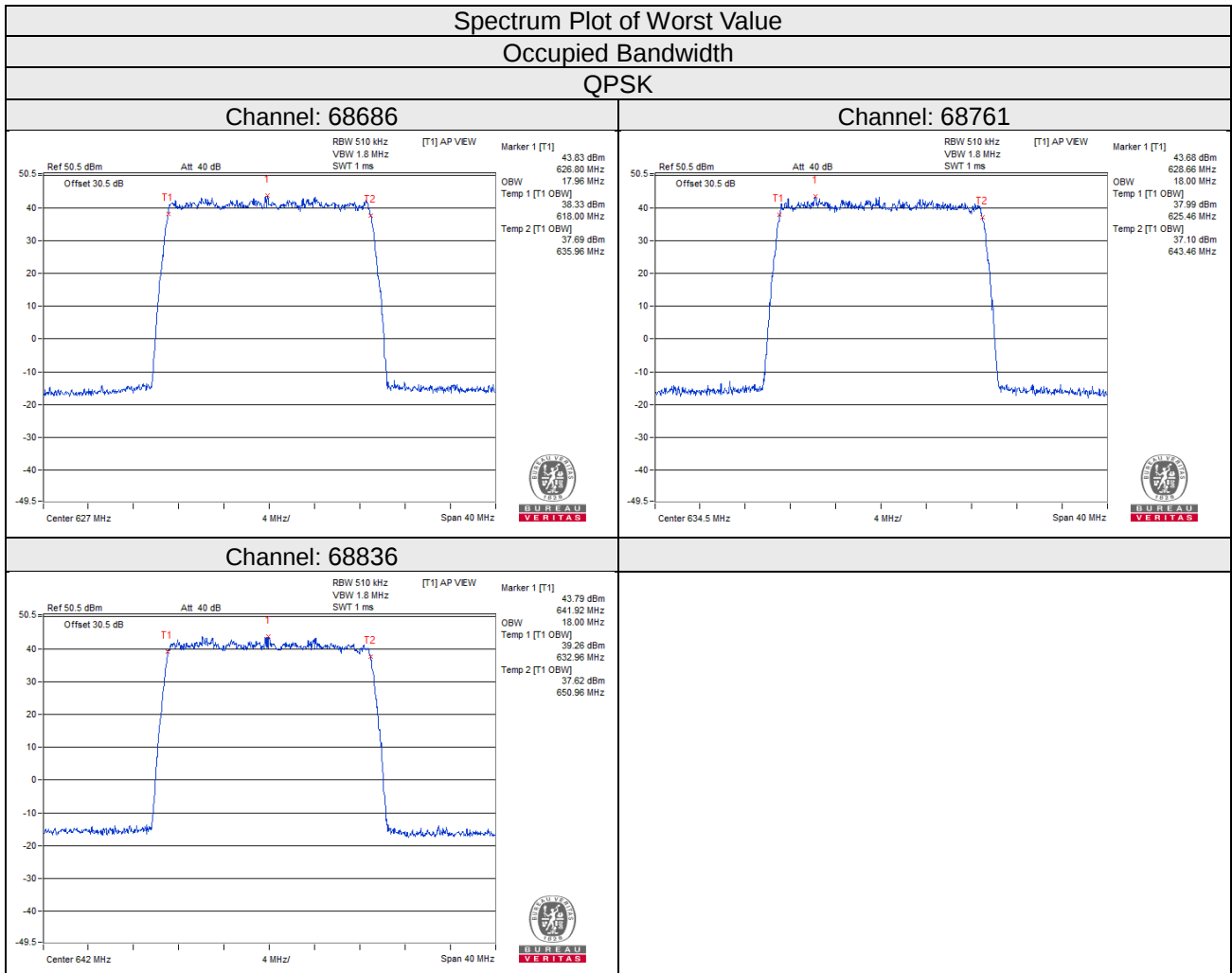
Channel: 68861



20MHz

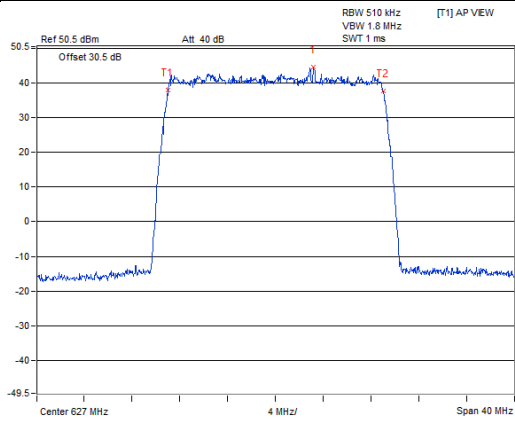
Channel Number	Freq. (MHz)	OCP 99 BAND WIDTH (MHz)							
		Chain0				Chain1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68686	627	17.96	18.08	18.04	18.04	18.00	18.08	18.00	18.04
68761	634.5	18.00	18.12	18.04	18.00	18.00	18.12	18.04	18.00
68836	642	18.00	18.08	17.96	18.00	18.00	18.08	18.00	18.04

Chain 0

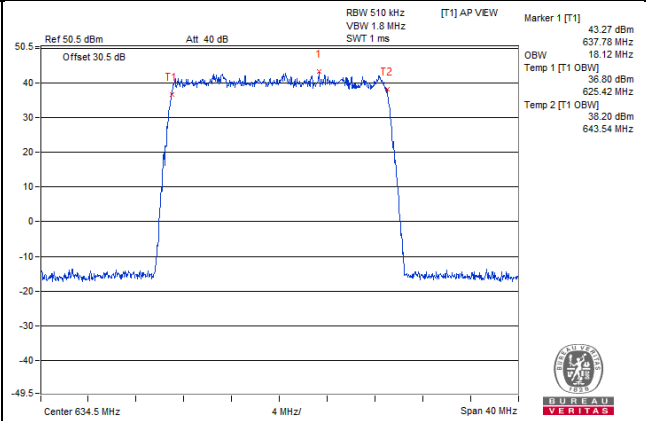


16QAM

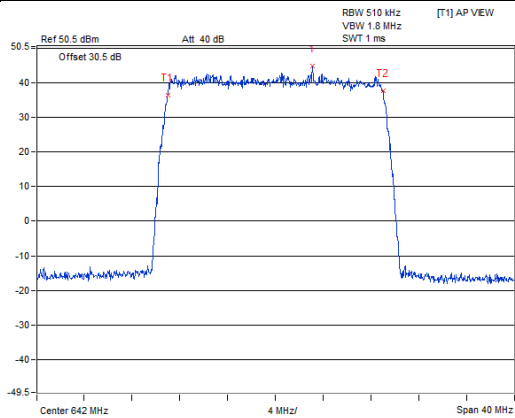
Channel: 68686



Channel: 68761

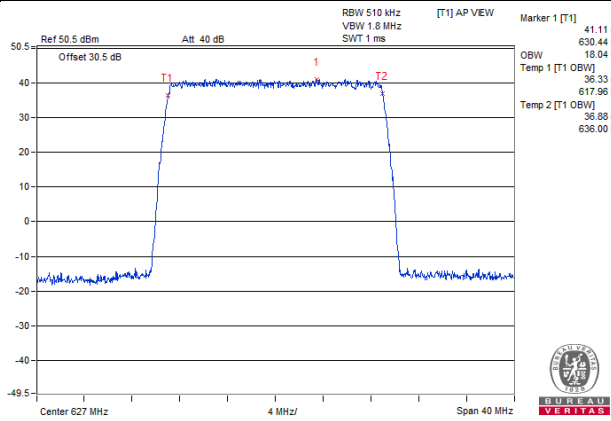


Channel: 68836

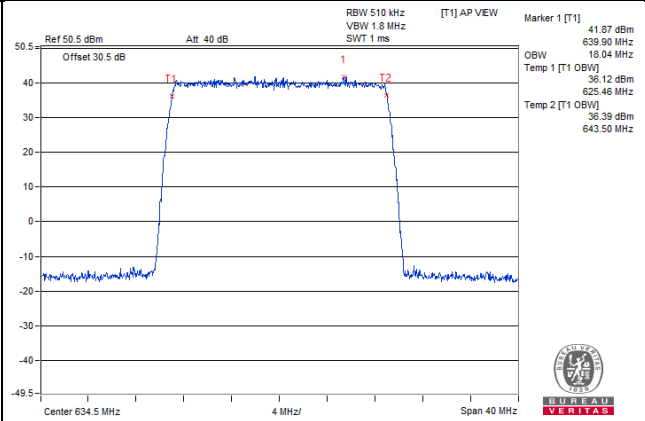


64QAM

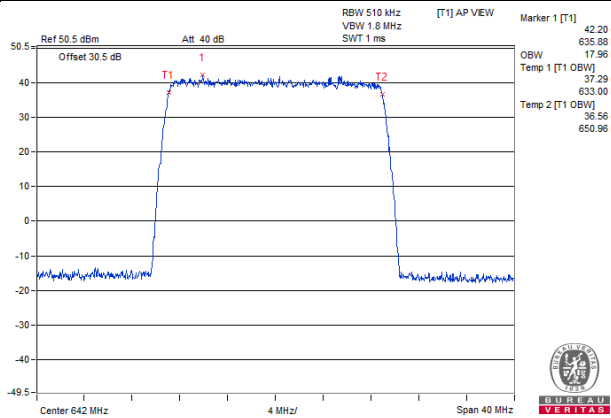
Channel: 68686



Channel: 68761

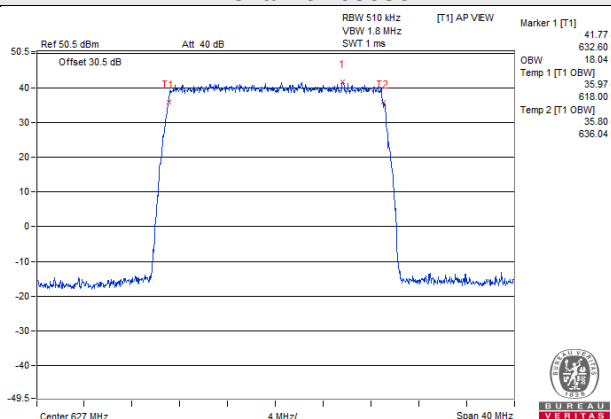


Channel: 68836

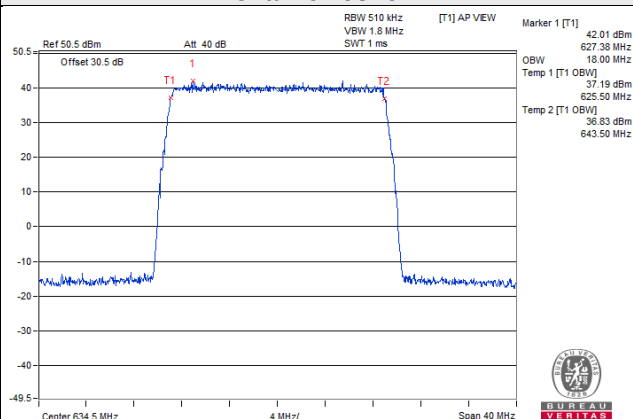


256QAM

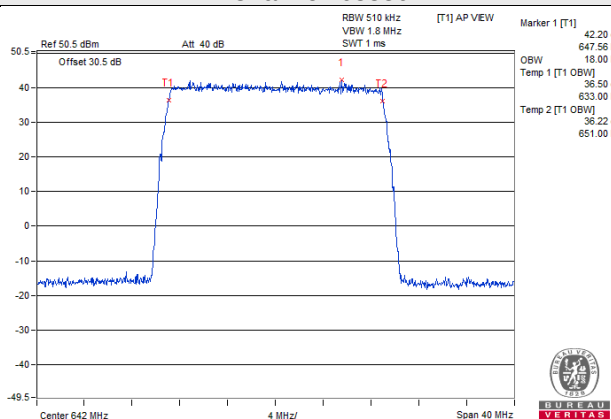
Channel: 68686



Channel: 68761



Channel: 68836



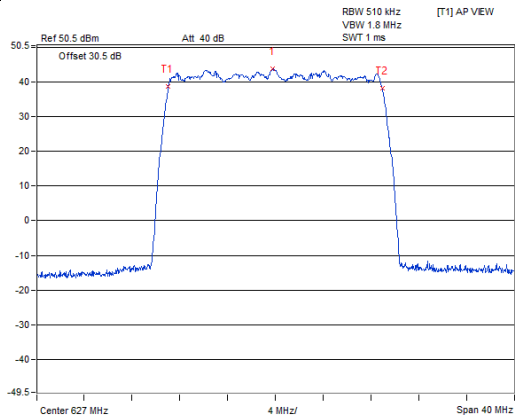
Chain 1

Spectrum Plot of Worst Value

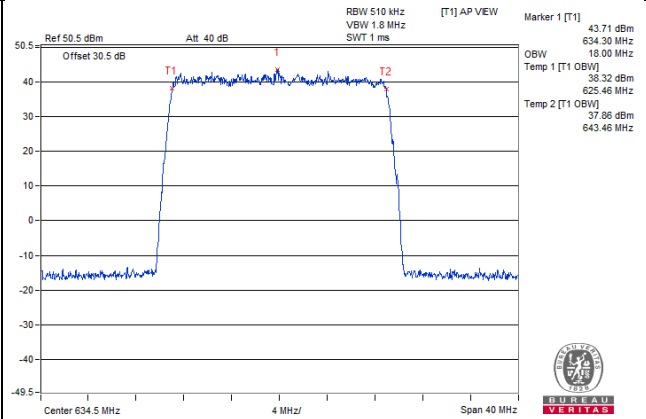
Occupied Bandwidth

QPSK

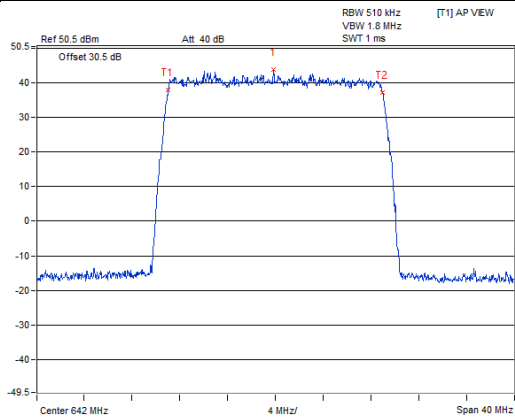
Channel: 68686



Channel: 68761

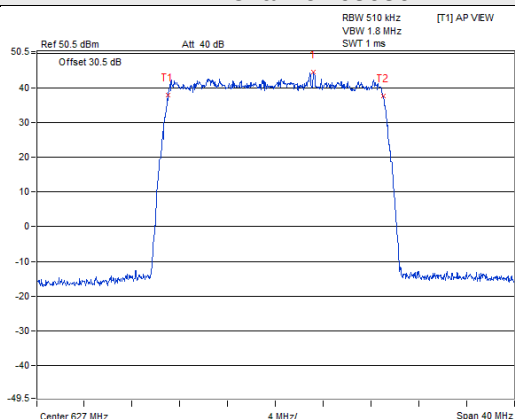


Channel: 68836

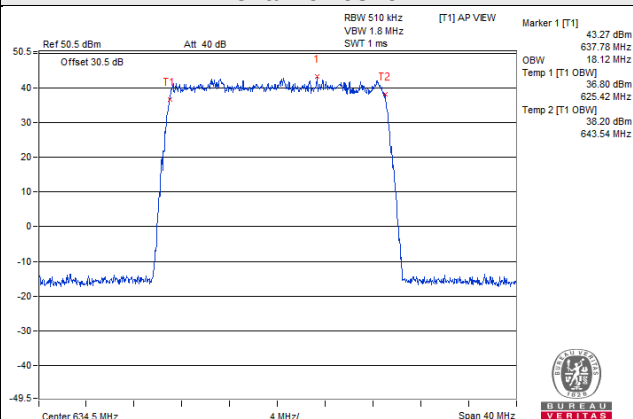


16QAM

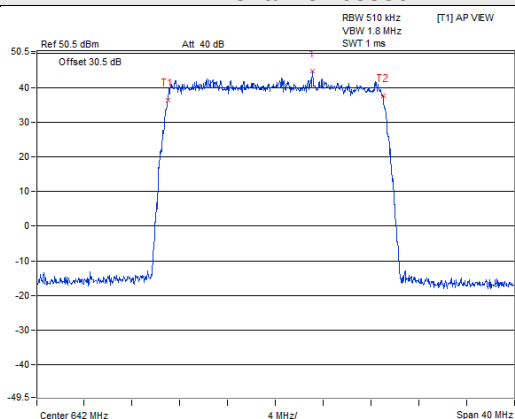
Channel: 68686



Channel: 68761

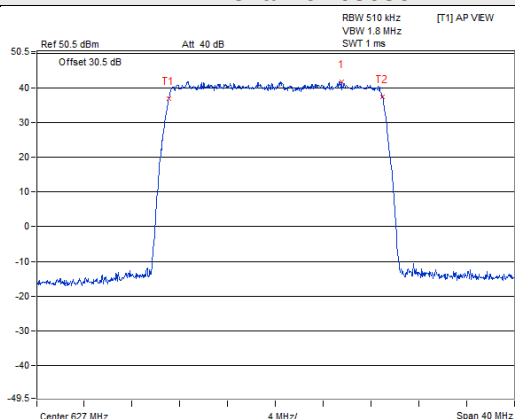


Channel: 68836

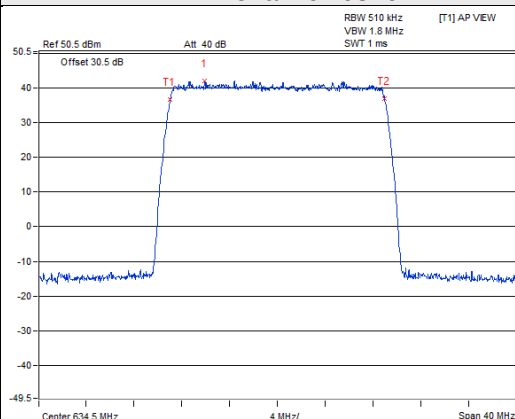


64QAM

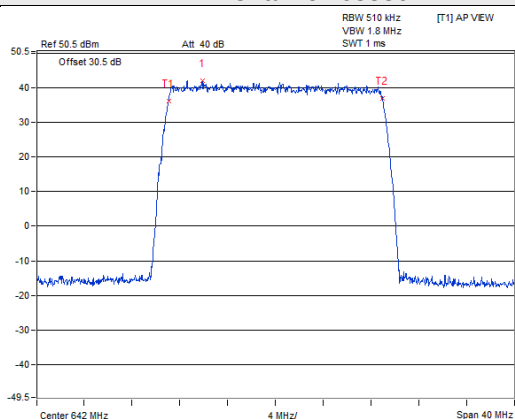
Channel: 68686



Channel: 68761

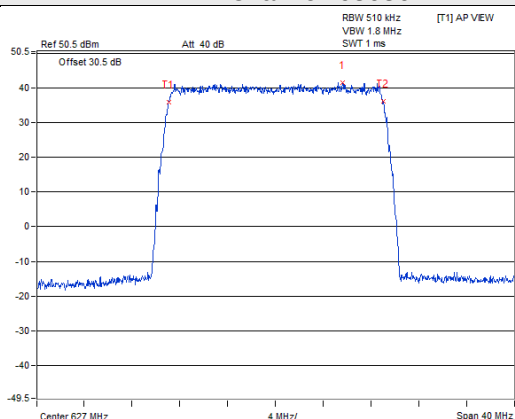


Channel: 68836

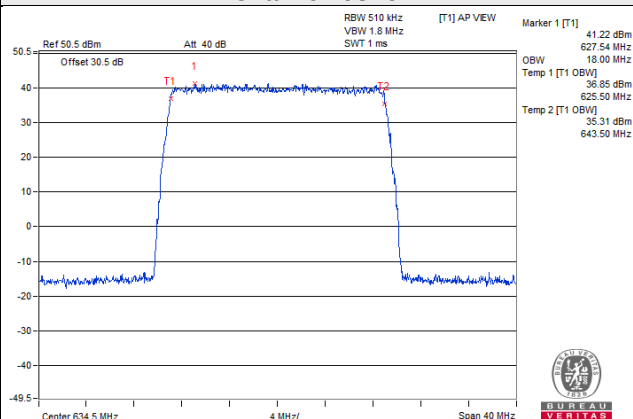


256QAM

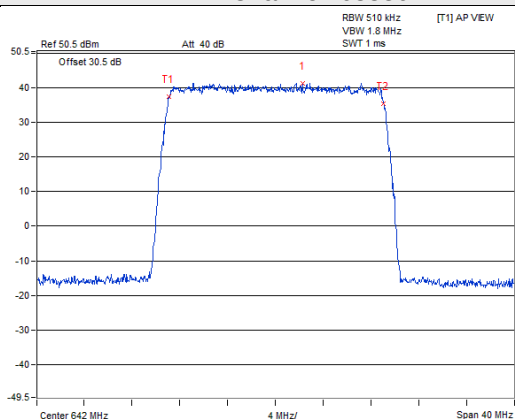
Channel: 68686



Channel: 68761



Channel: 68836

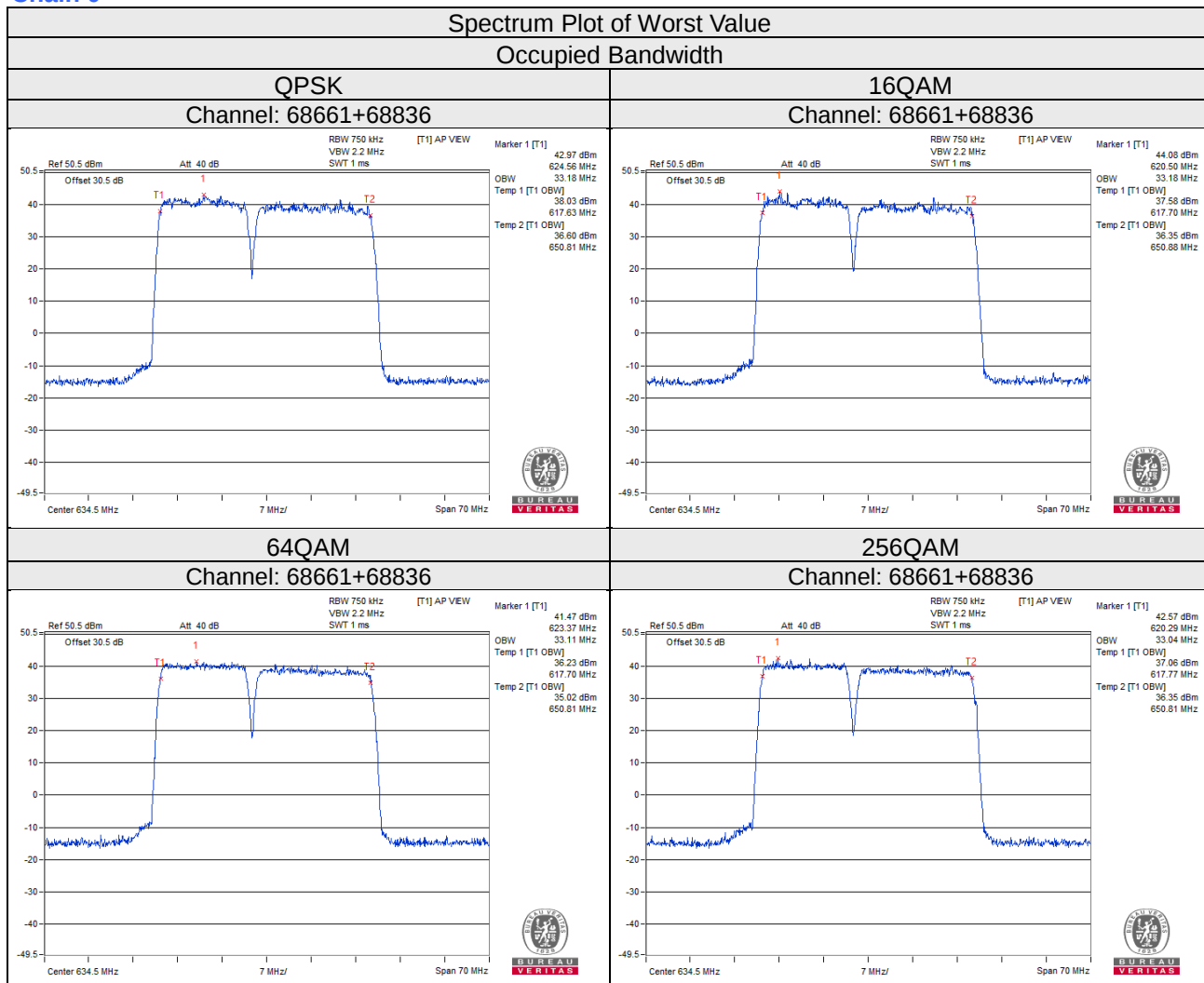


CA Contiguous

15MHz+20MHz

Channel Number	Freq. (MHz)	OCP 99 BAND WIDTH (MHz)							
		Chain0				Chain1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68661+68836	624.5+642	33.18	33.18	33.11	33.04	33.11	33.18	33.11	33.25

Chain 0

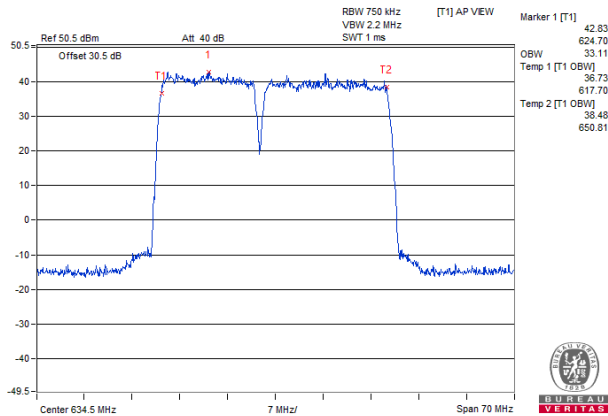


Chain 1

Spectrum Plot of Worst Value Occupied Bandwidth

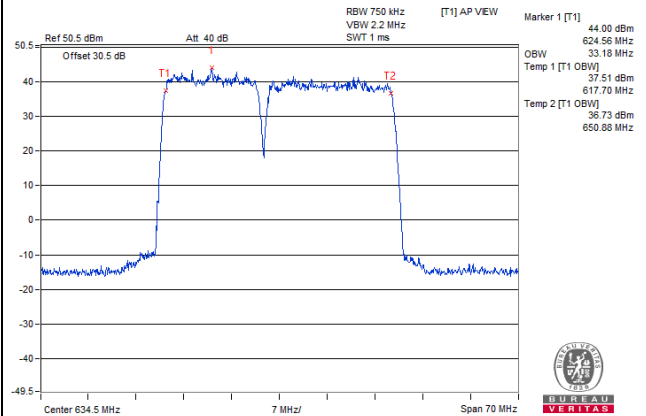
QPSK

Channel: 68661+68836



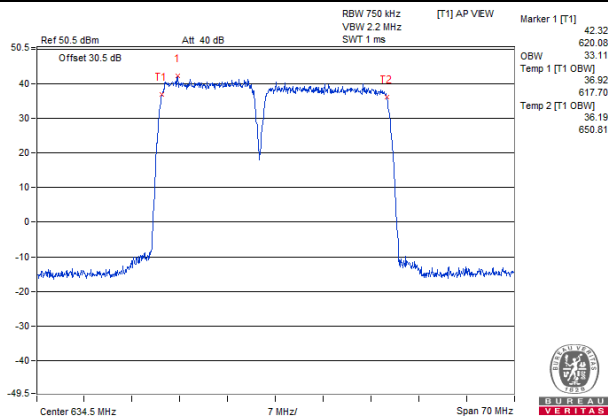
16QAM

Channel: 68661+68836



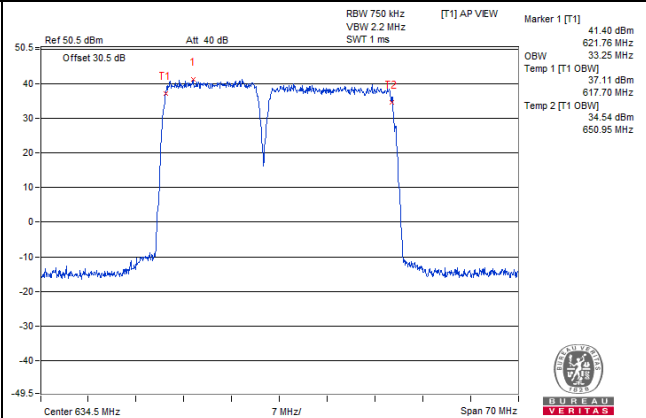
64QAM

Channel: 68661+68836



256QAM

Channel: 68661+68836

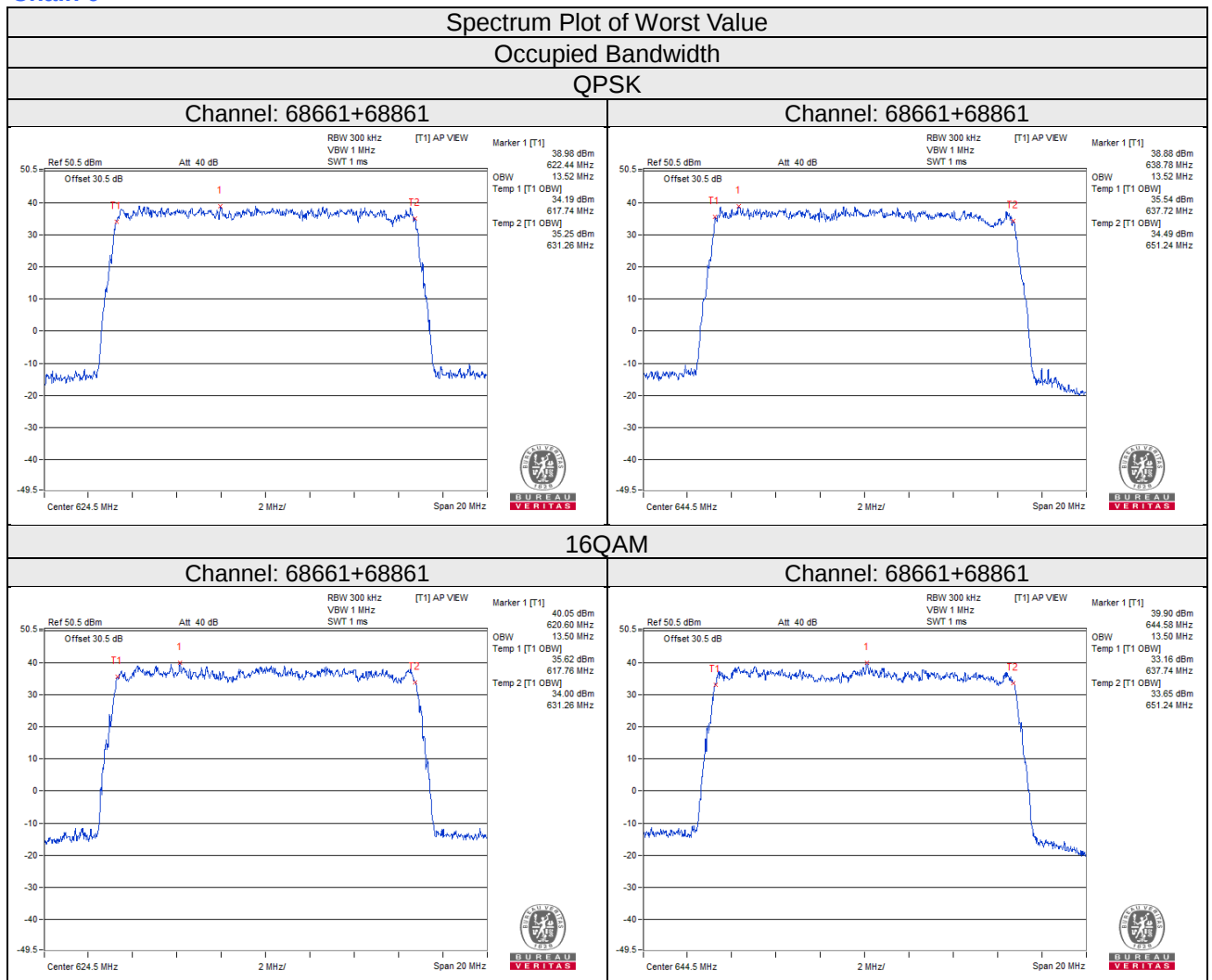


CA-NC Non-Contiguous

15MHz+15MHz

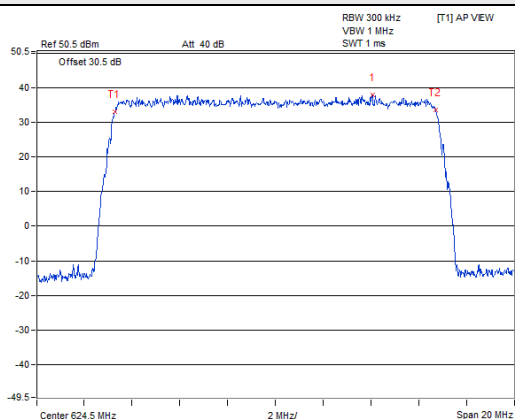
Channel Number	Freq. (MHz)	OCP 99 BAND WIDTH (MHz)							
		Chain0							
		CC0				CC1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68661+68861	624.5+644.5	13.52	13.50	13.50	13.48	13.52	13.50	13.46	13.48
Channel Number	Freq. (MHz)	CC0+CC1 Total							
		QPSK		16QAM		64QAM		256QAM	
68661+68861	624.5+644.5	27.04		27.00		26.96		26.96	

Chain 0



64QAM

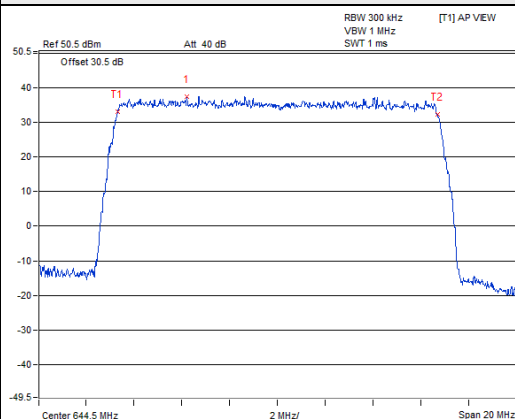
Channel: 68661+68861



Marker 1 [T1]
37.98 dBm
628.56 MHz
OBW
Temp 1 [T1] OBW
33.00 dBm
617.74 MHz
Temp 2 [T1] OBW
33.59 dBm
631.24 MHz



Channel: 68661+68861

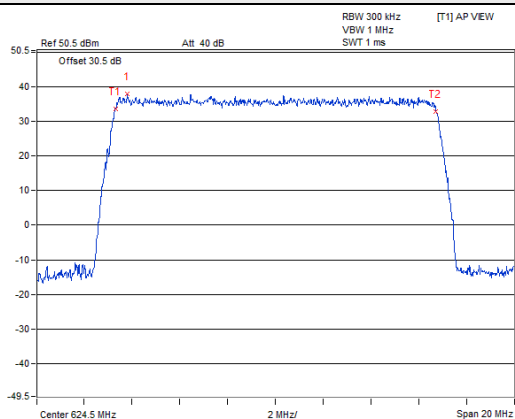


Marker 1 [T1]
37.55 dBm
640.70 MHz
OBW
Temp 1 [T1] OBW
33.02 dBm
637.76 MHz
Temp 2 [T1] OBW
32.21 dBm
651.22 MHz



256QAM

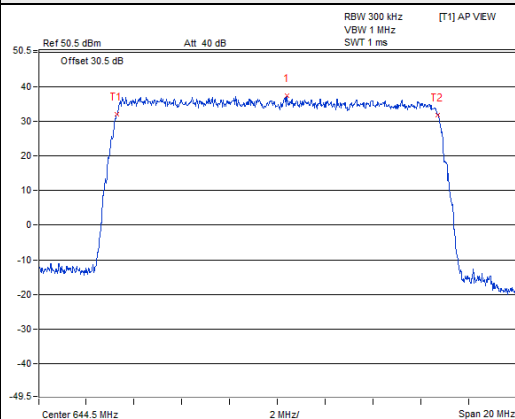
Channel: 68661+68861



Marker 1 [T1]
37.90 dBm
618.28 MHz
OBW
Temp 1 [T1] OBW
33.71 dBm
617.76 MHz
Temp 2 [T1] OBW
32.81 dBm
631.24 MHz



Channel: 68661+68861



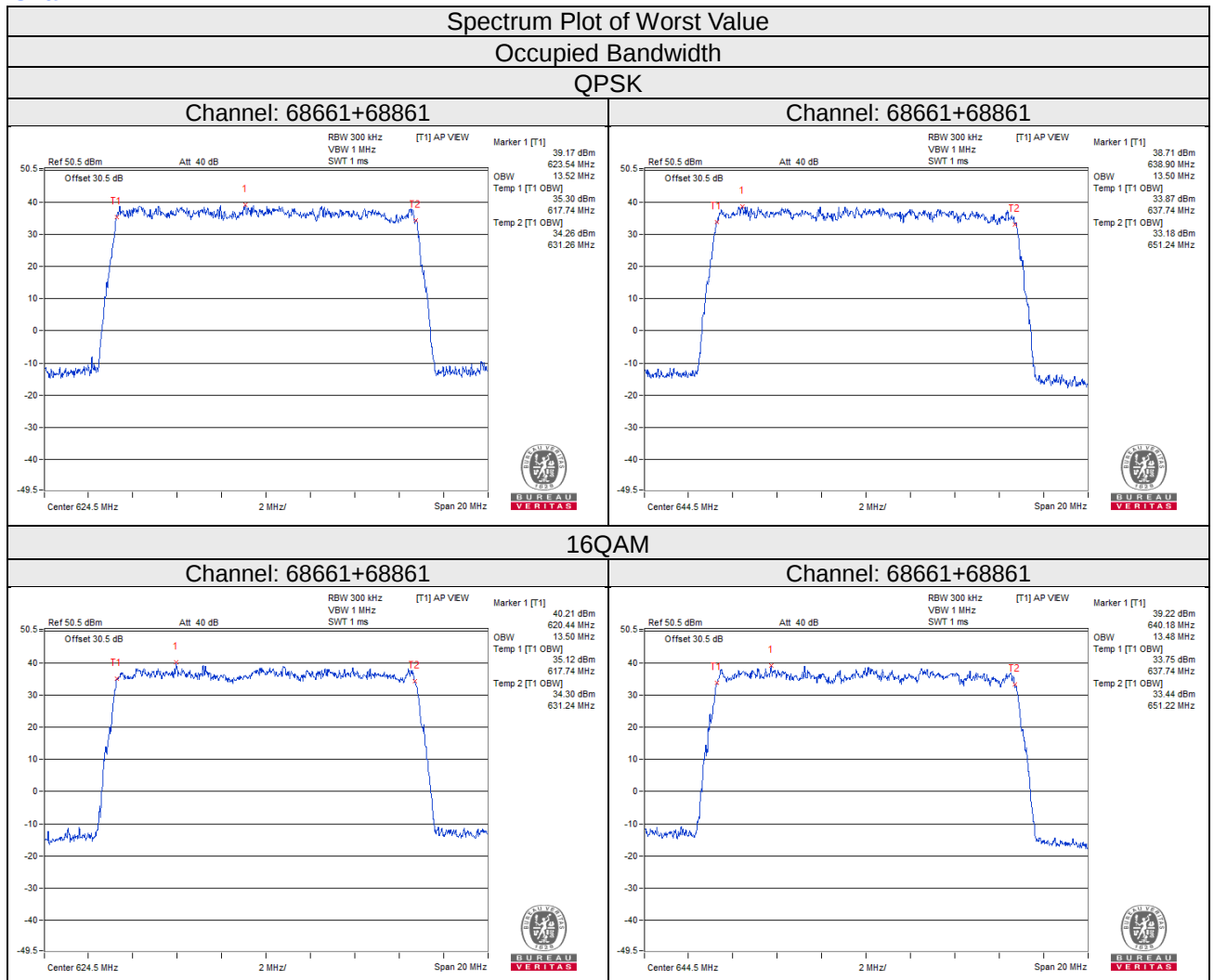
Marker 1 [T1]
37.46 dBm
644.88 MHz
OBW
Temp 1 [T1] OBW
31.90 dBm
637.74 MHz
Temp 2 [T1] OBW
31.92 dBm
651.22 MHz



15MHz+15MHz

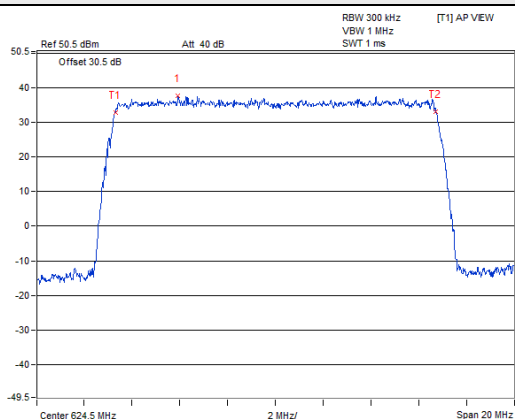
Channel Number	Freq. (MHz)	OCP 99 BAND WIDTH (MHz)							
		Chain1							
		CC0				CC1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68661+68861	624.5+644.5	13.52	13.50	13.48	13.48	13.50	13.48	13.46	13.48
Channel Number	Freq. (MHz)	CC0+CC1 Total							
		QPSK		16QAM		64QAM		256QAM	
68661+68861	624.5+644.5	27.02		26.98		26.94		26.96	

Chain 1

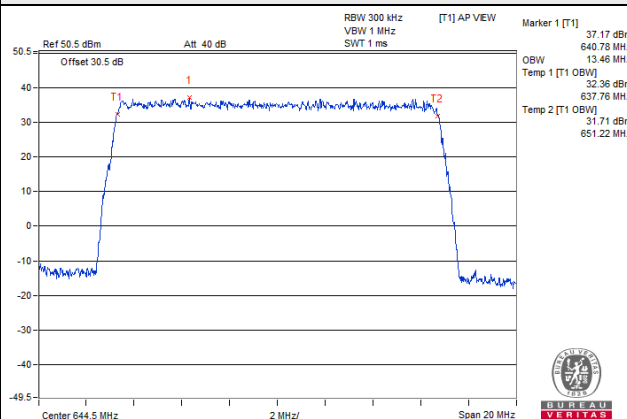


64QAM

Channel: 68661+68861

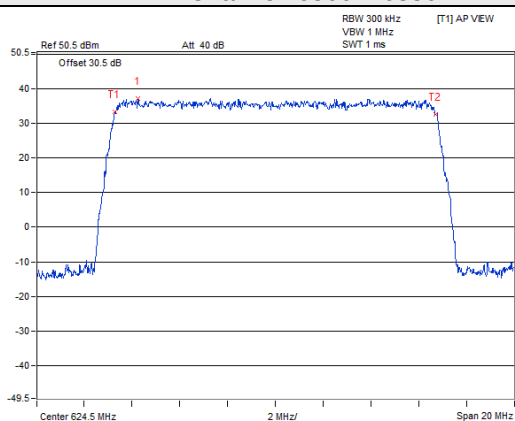


Channel: 68661+68861

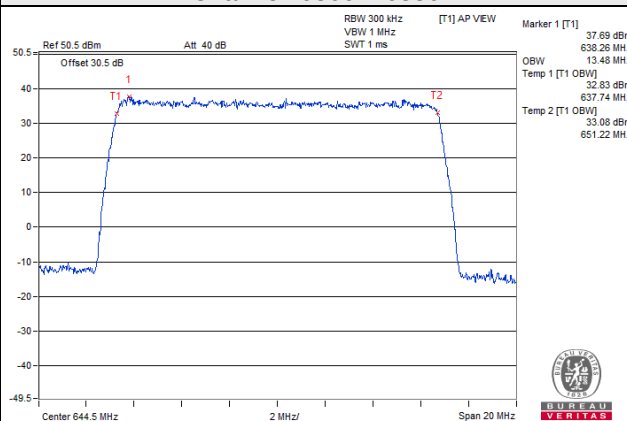


256QAM

Channel: 68661+68861



Channel: 68661+68861

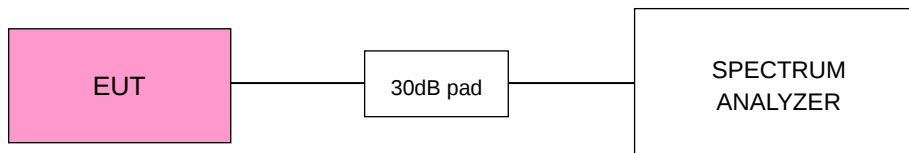


4.5 Channel Edge Measurement

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

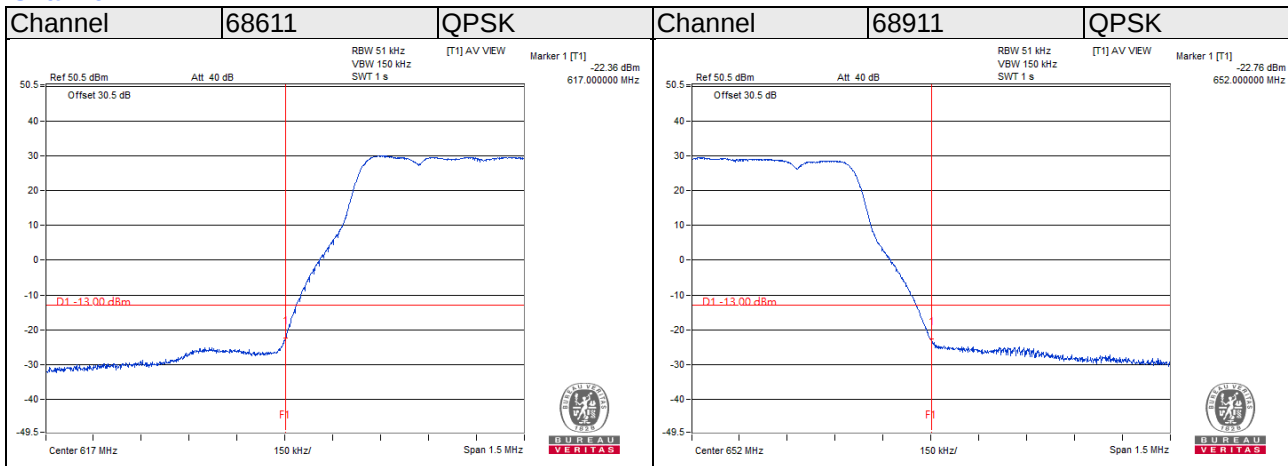
- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and s RB of the spectrum is $>1\%$ EMISSION BANDWIDTH and VB of the spectrum is $\geq 3*RB$, Detector=RMS.
- Record the max trace plot into the test report.

4.5.4 Test Results

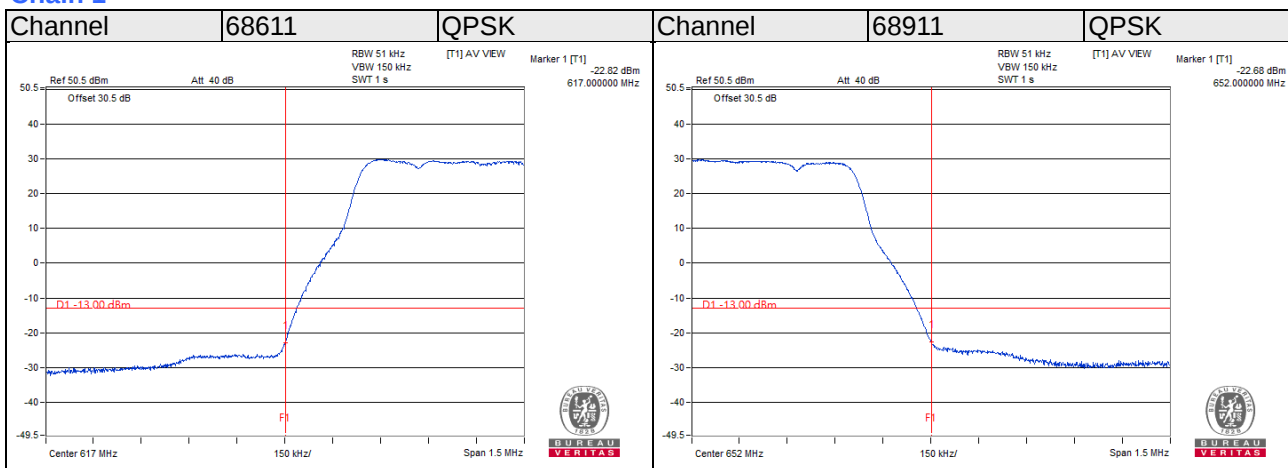
Single Carrier

5MHz

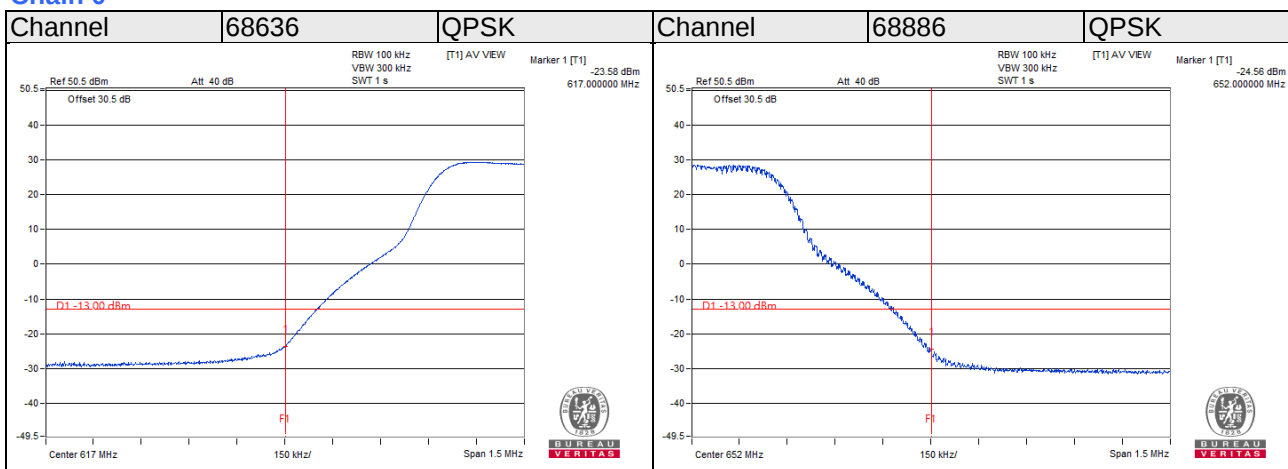
Chain 0



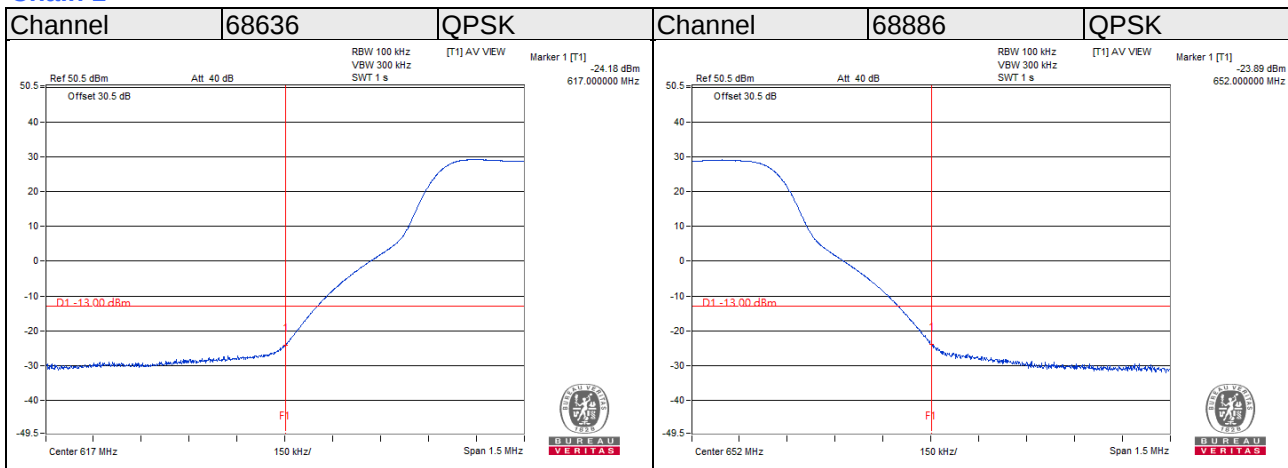
Chain 1



10MHz Chain 0

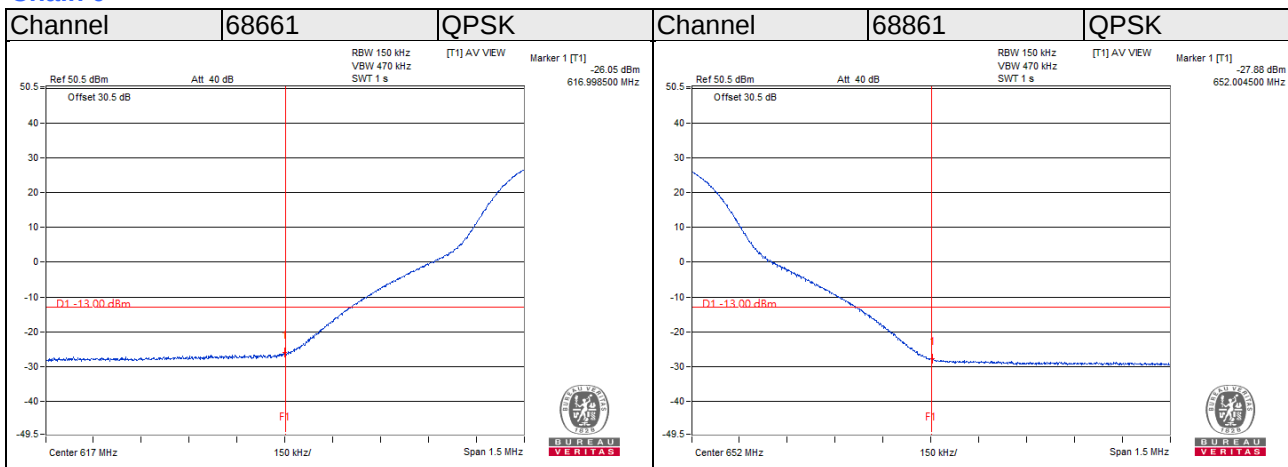


Chain 1

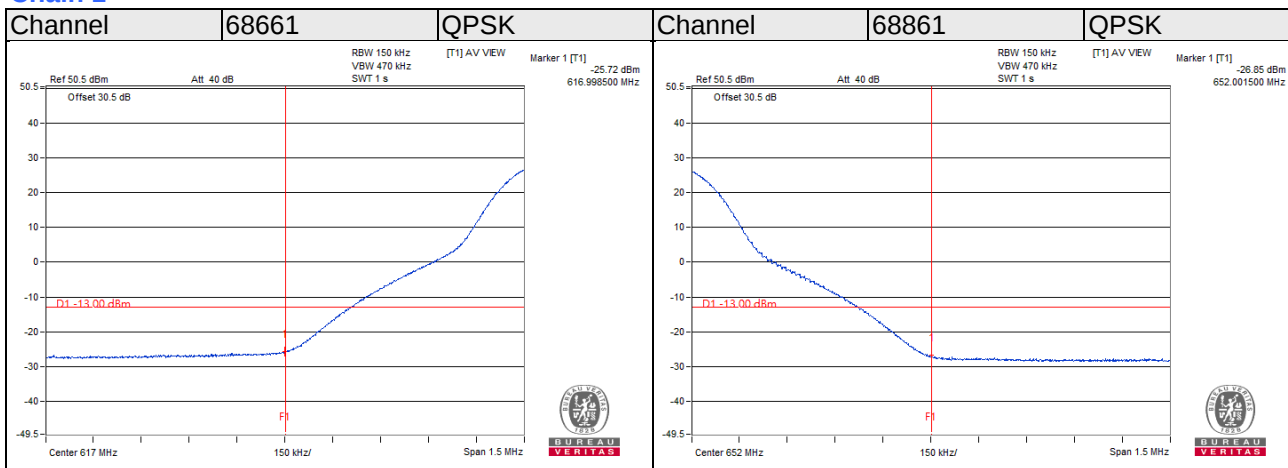


15MHz

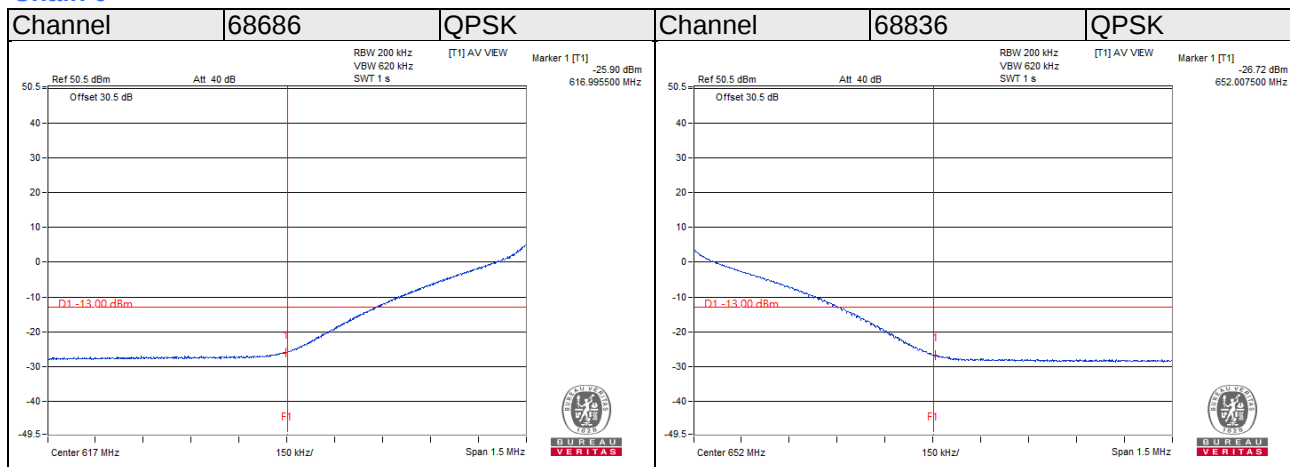
Chain 0



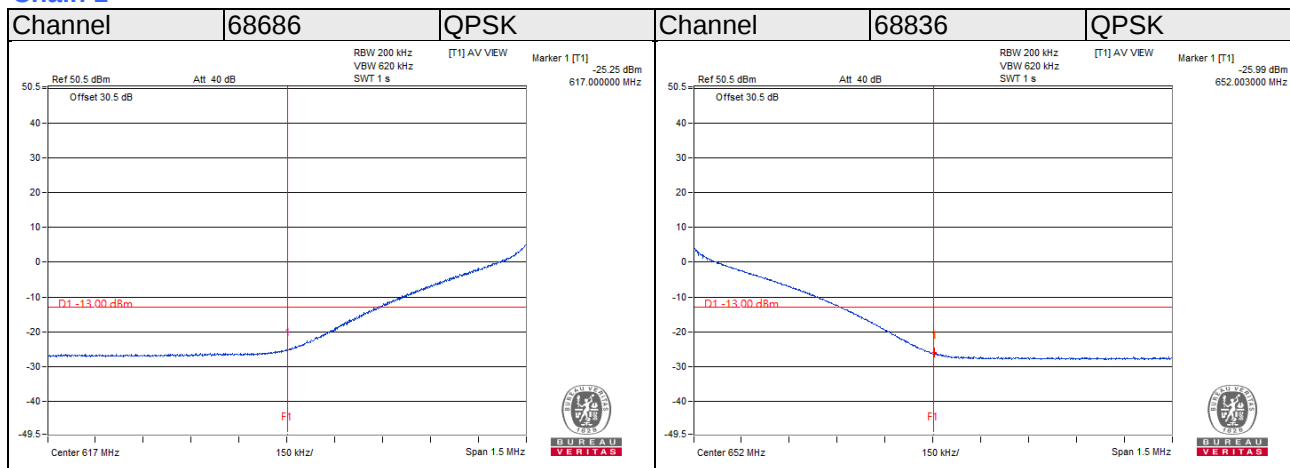
Chain 1



20MHz Chain 0

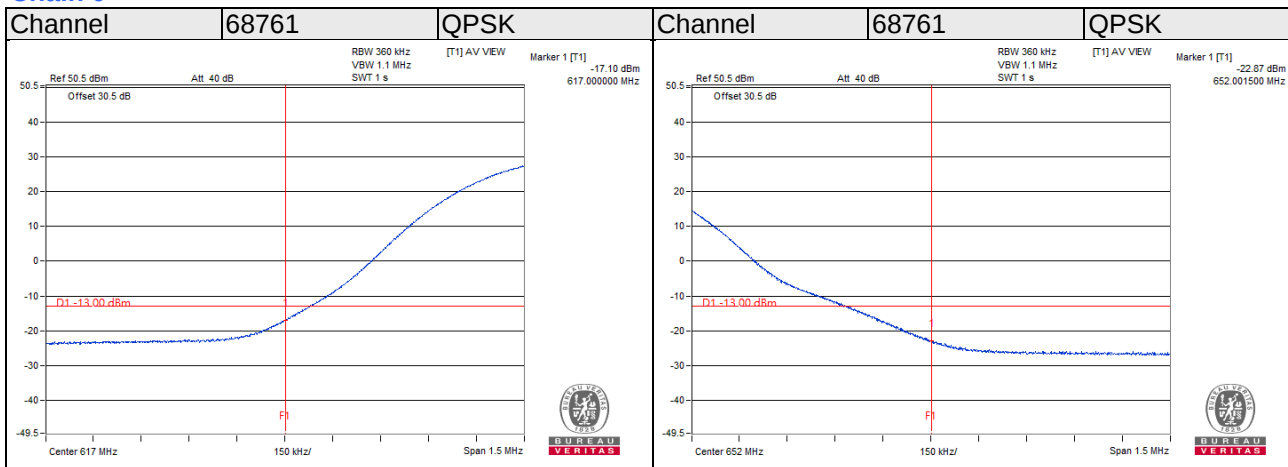


Chain 1

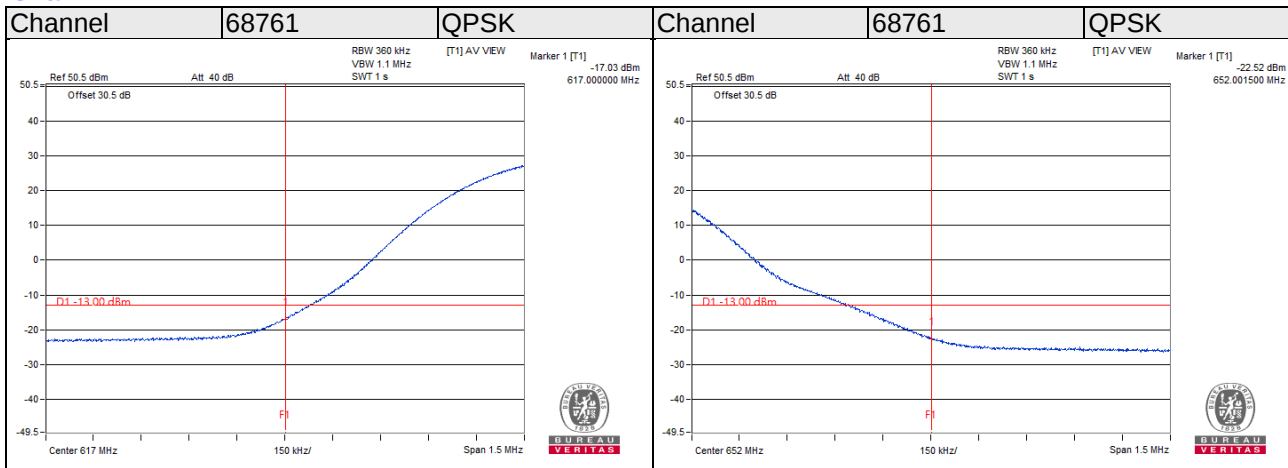


CA Contiguous

15MHz+20MHz
Chain 0



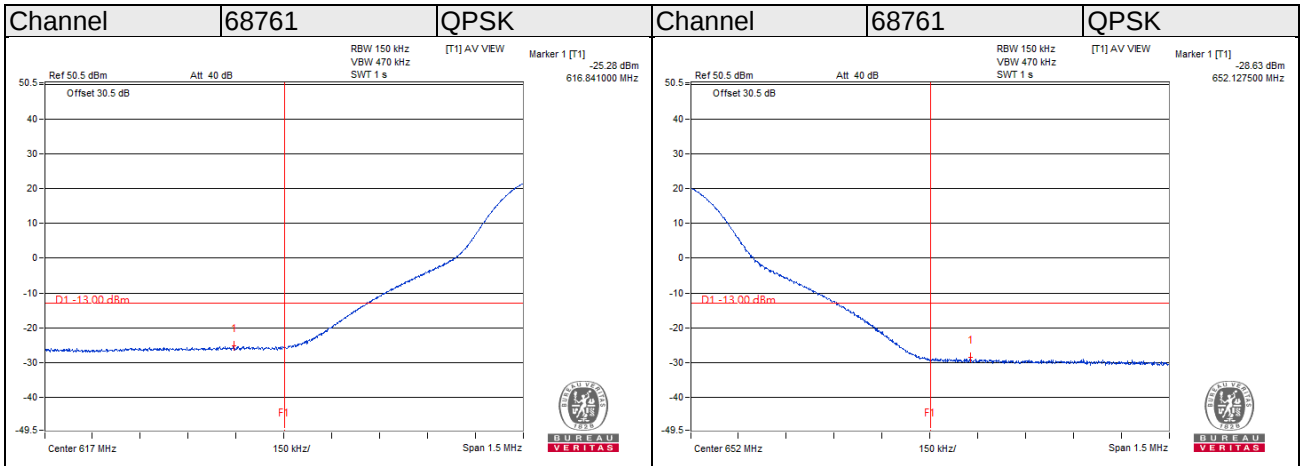
Chain 1



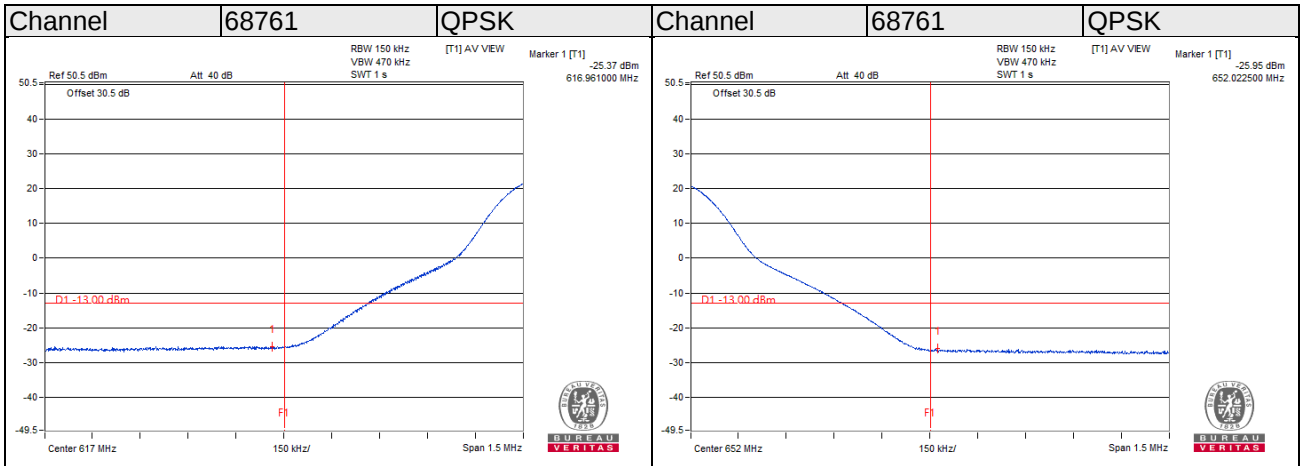
CA-NC Non-Contiguous

15MHz+15MHz

Chain 0



Chain 1

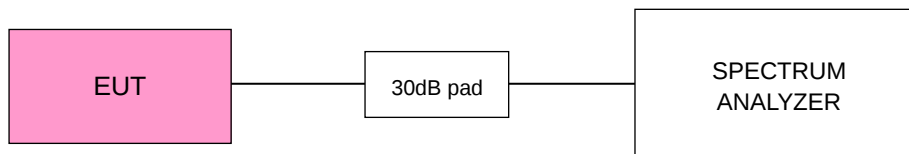


4.6 Peak to Average Ratio

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

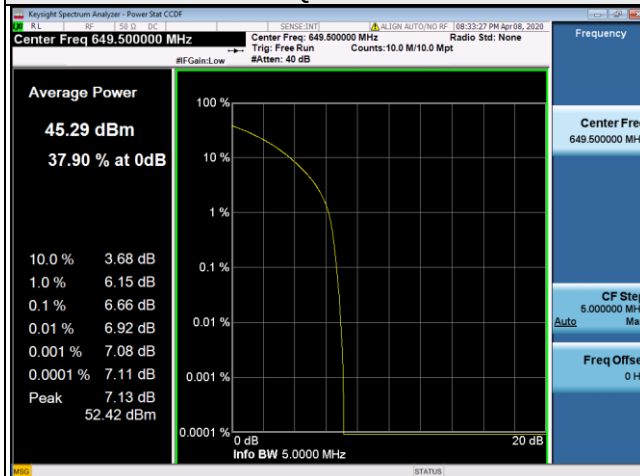
Single Carrier

5MHz

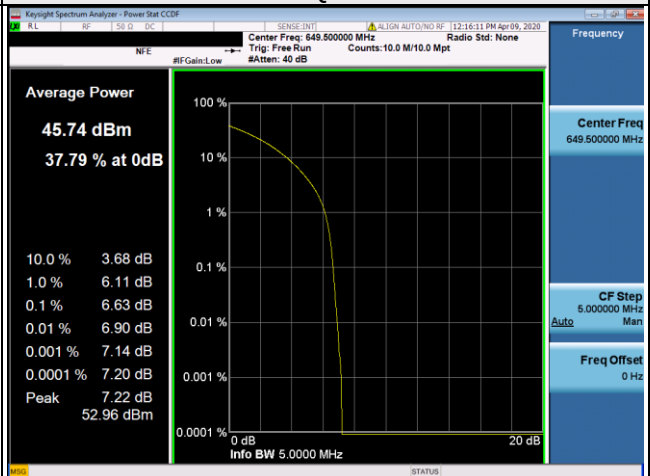
Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)							
		Chain0				Chain1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68611	619.5	6.50	6.48	6.50	6.49	6.49	6.49	6.49	6.49
68761	634.5	6.48	6.48	6.49	6.47	6.49	6.49	6.48	6.49
68911	649.5	6.66	6.63	6.67	6.69	6.57	6.57	6.57	6.59

Spectrum Plot of Worst Value

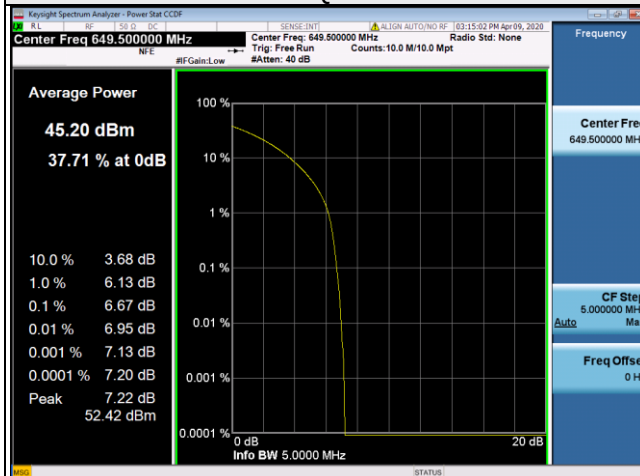
QPSK



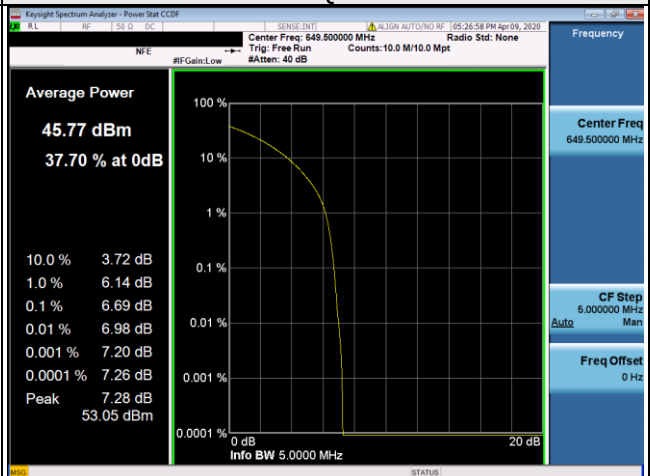
16QAM



64QAM



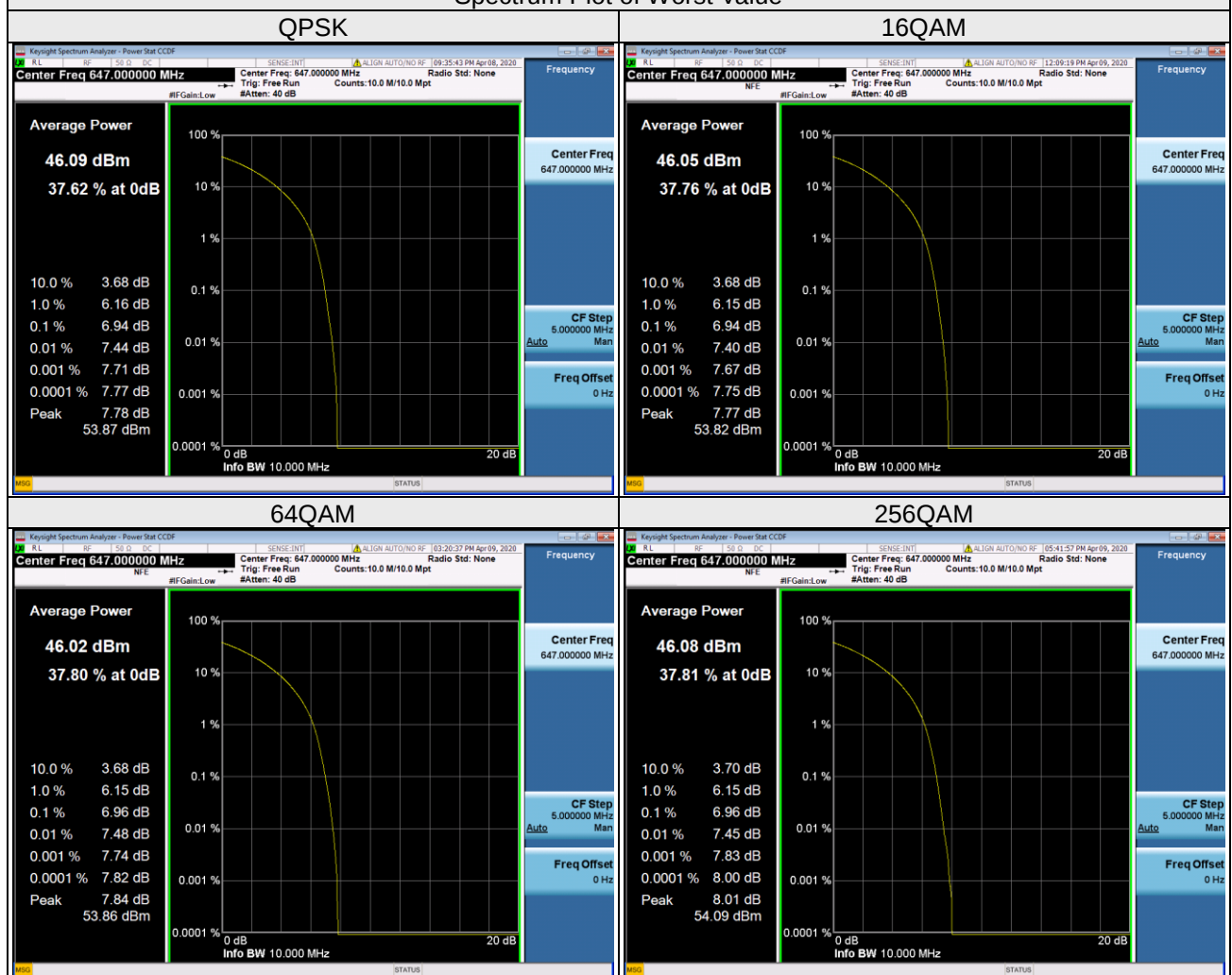
256QAM



10MHz

Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)							
		Chain0				Chain1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68636	622	6.52	6.51	6.54	6.52	6.51	6.51	6.53	6.52
68761	634.5	6.50	6.50	6.51	6.51	6.49	6.49	6.50	6.49
68886	647	6.94	6.94	6.96	6.96	6.75	6.77	6.75	6.77

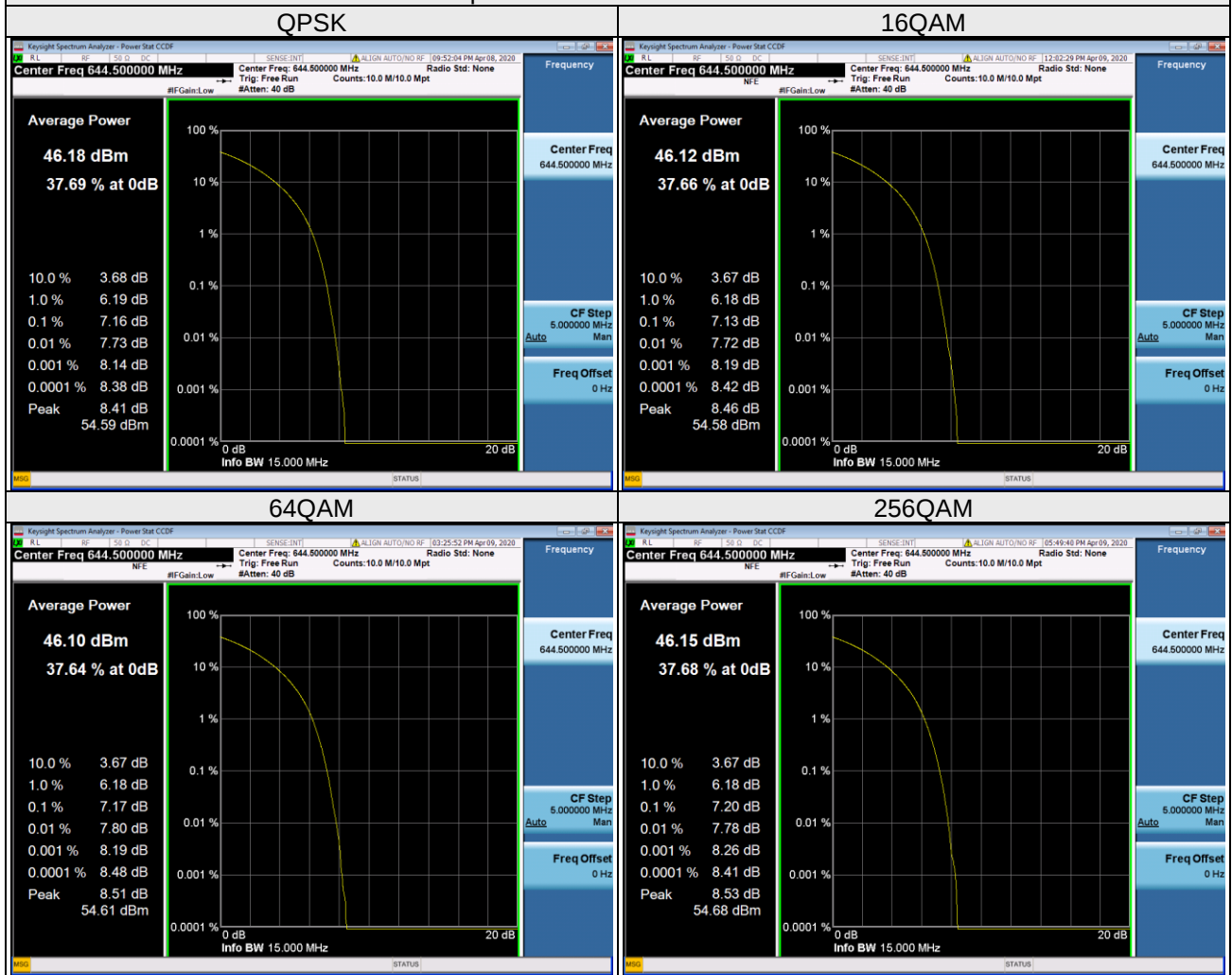
Spectrum Plot of Worst Value



15MHz

Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)							
		Chain0				Chain1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68661	624.5	6.54	6.54	6.54	6.53	6.54	6.52	6.54	6.54
68761	634.5	6.57	6.57	6.58	6.57	6.54	6.53	6.54	6.54
68861	644.5	7.16	7.13	7.17	7.20	6.94	6.92	6.94	6.97

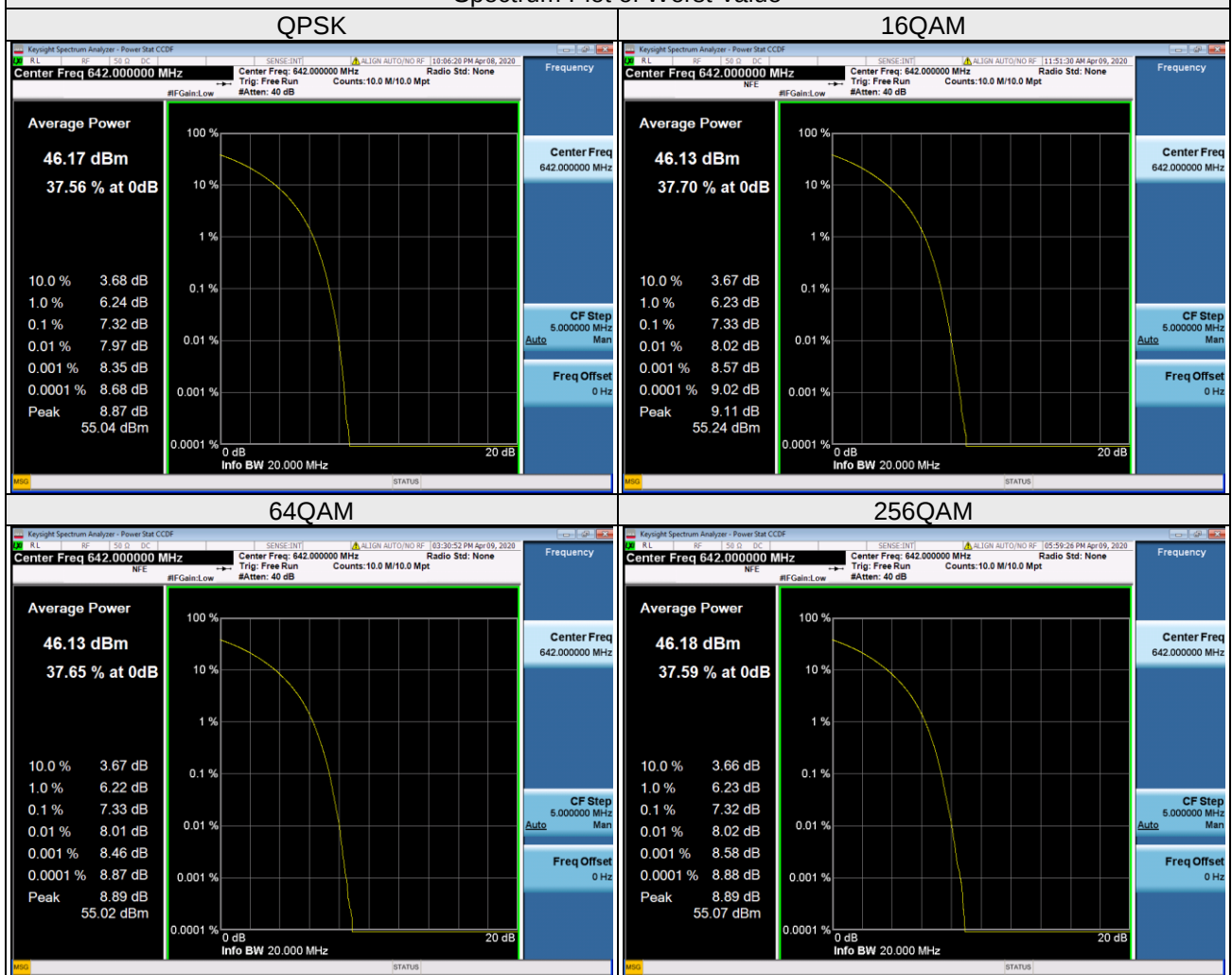
Spectrum Plot of Worst Value



20MHz

Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)							
		Chain0				Chain1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68686	627	6.52	6.53	6.54	6.53	6.53	6.53	6.54	6.53
68761	634.5	6.71	6.70	6.70	6.70	6.63	6.63	6.63	6.63
68836	642	7.32	7.33	7.33	7.32	7.10	7.07	7.09	7.09

Spectrum Plot of Worst Value



CA Contiguous

15MHz+20MHz

Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)							
		Chain0							
		CC0				CC1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68661+68836	624.5+642	7.92	7.96	7.88	7.92	8.16	8.08	8.11	8.09

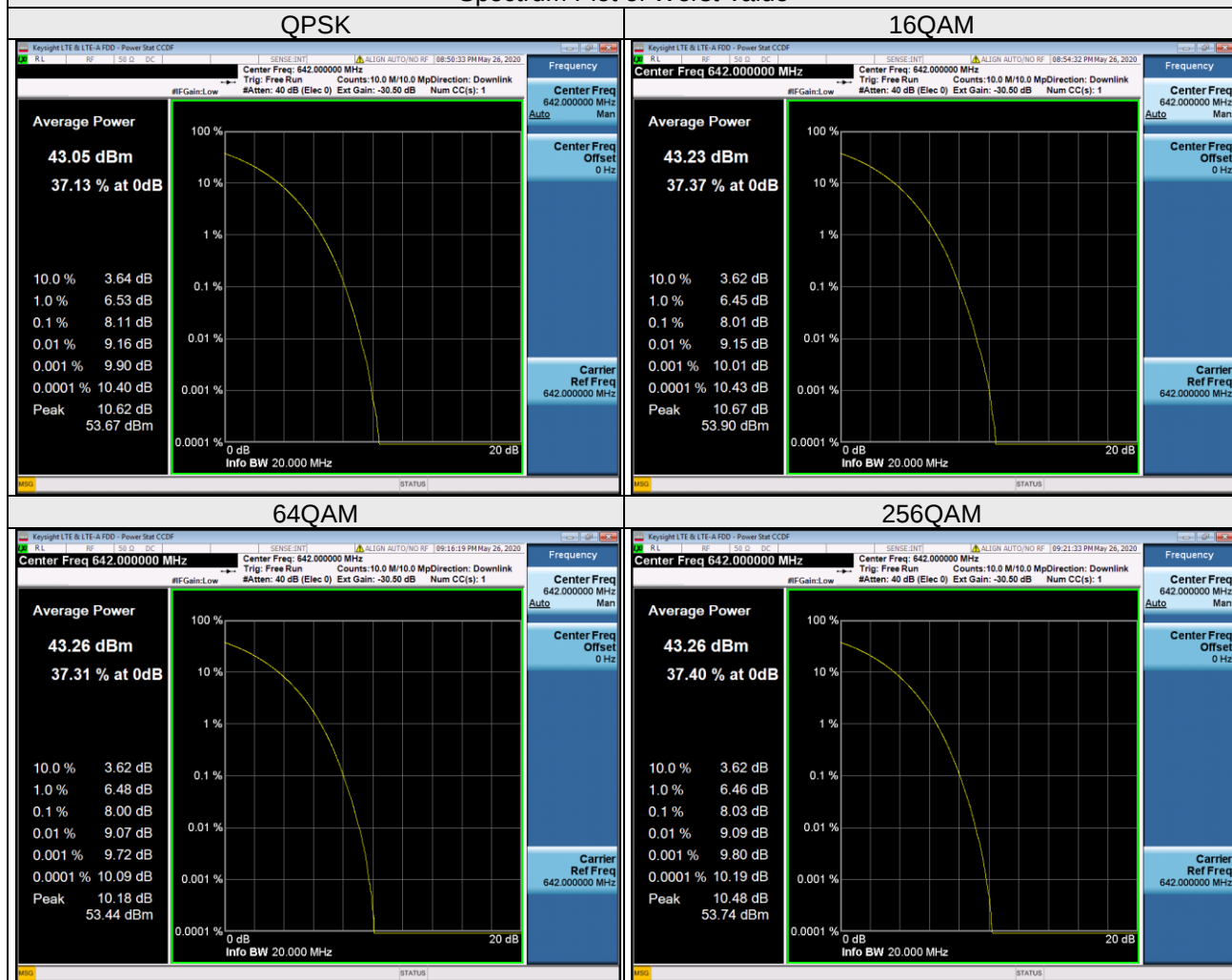
Spectrum Plot of Worst Value



15MHz+20MHz

Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)							
		Chain1							
		CC0				CC1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68661+68836	624.5+642	7.96	7.95	7.87	7.91	8.11	8.01	8.00	8.03

Spectrum Plot of Worst Value

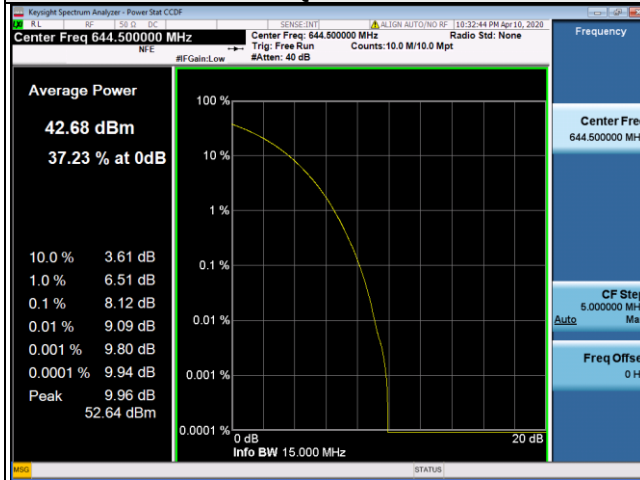


CA-NC Non-Contiguous 15MHz+15MHz

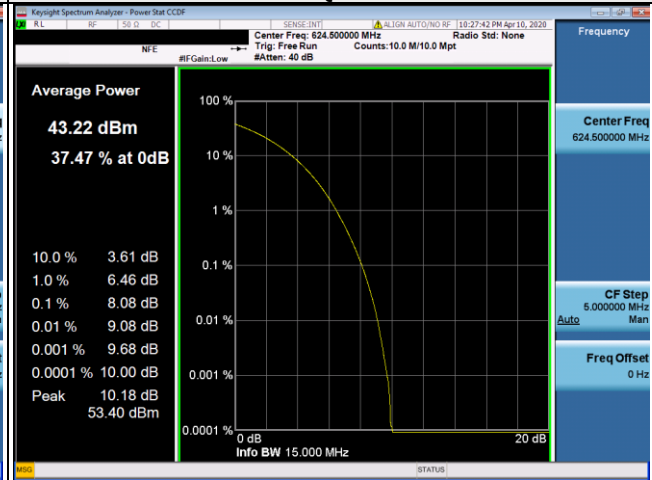
Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)							
		Chain0							
		CC0				CC1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68661+68861	624.5+644.5	8.05	8.08	8.01	8.05	8.12	8.07	8.07	8.12

Spectrum Plot of Worst Value

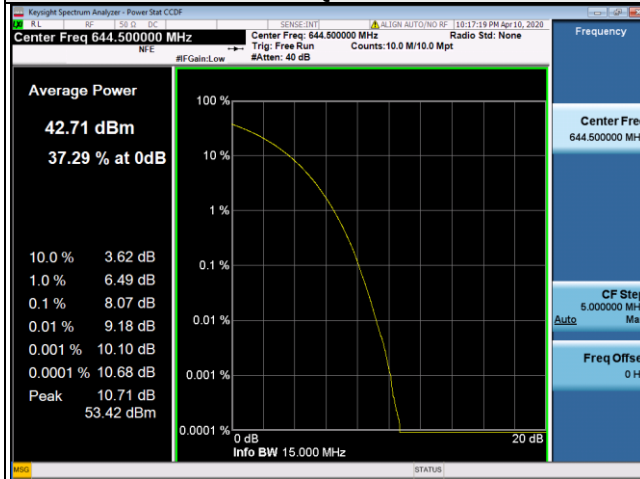
QPSK



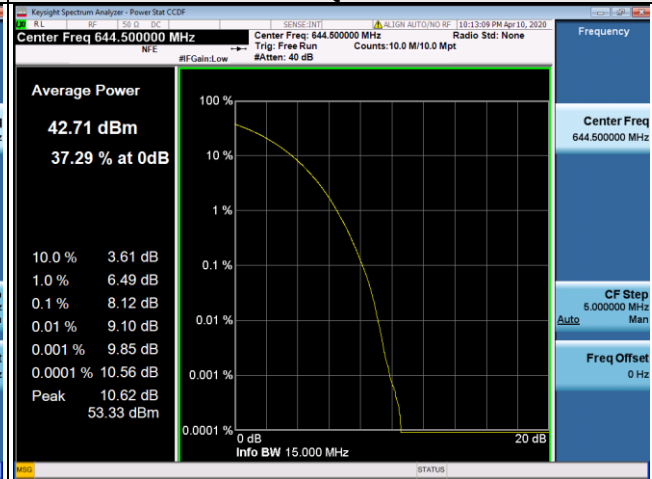
16QAM



64QAM



256QAM

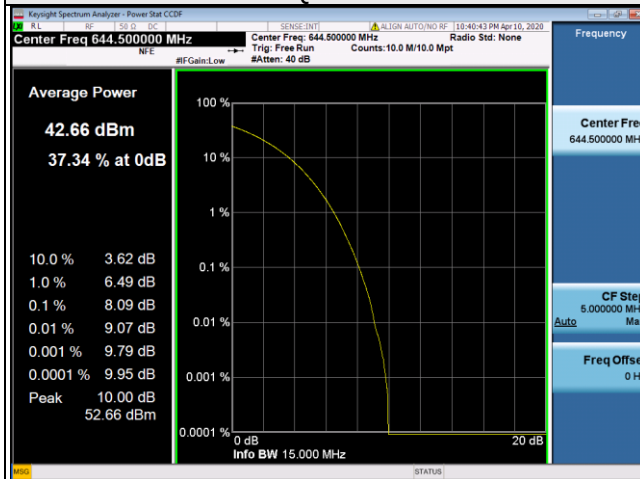


15MHz+15MHz

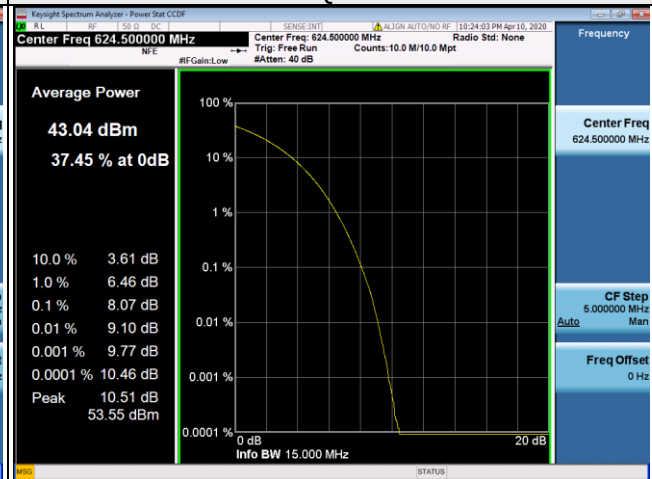
Channel Number	Freq. (MHz)	Peak-to-Average Power Ratio (dB)							
		Chain1							
		CC0				CC1			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
68661+68861	624.5+644.5	8.02	8.07	8.02	8.06	8.09	8.04	8.05	8.07

Spectrum Plot of Worst Value

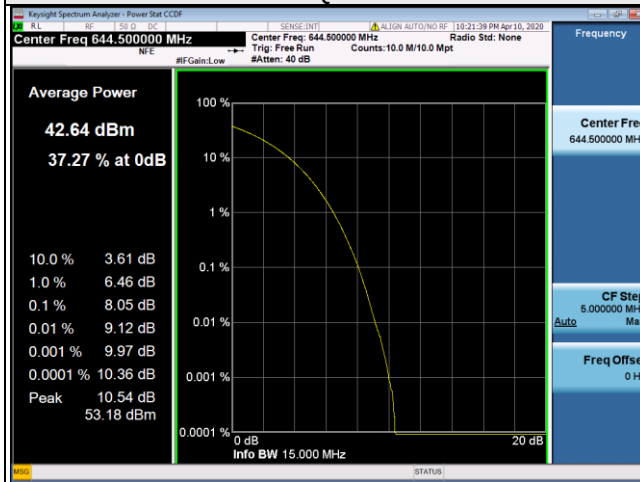
QPSK



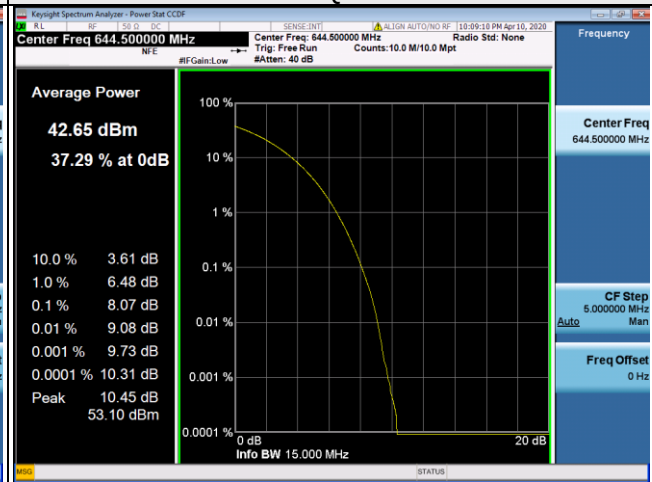
16QAM



64QAM



256QAM

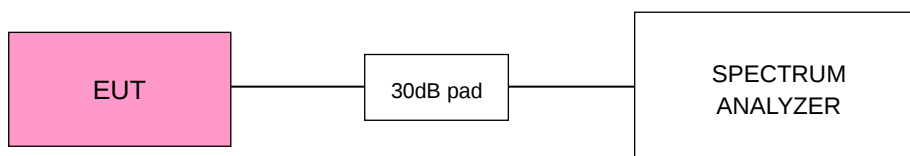


4.7 Conducted Spurious Emissions

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.

4.7.2 Test Setup



4.7.3 Test Procedure

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

4.7.4 Test Results

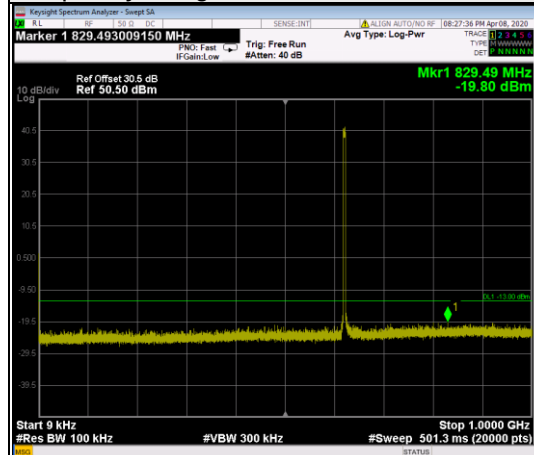
Single Carrier

5MHz-Chain 0

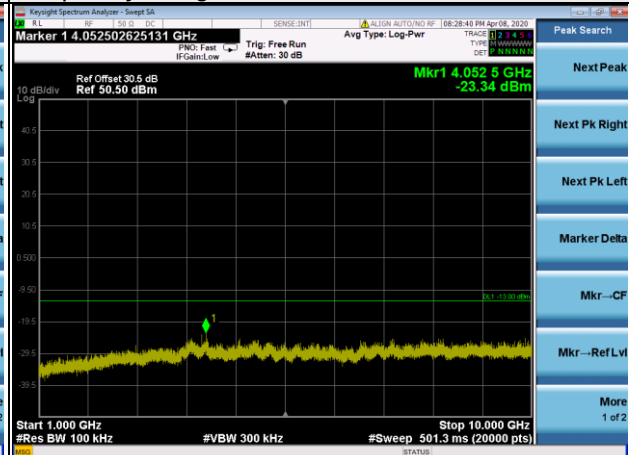
QPSK

Channel 68611

Frequency Range : 9kHz~1GHz

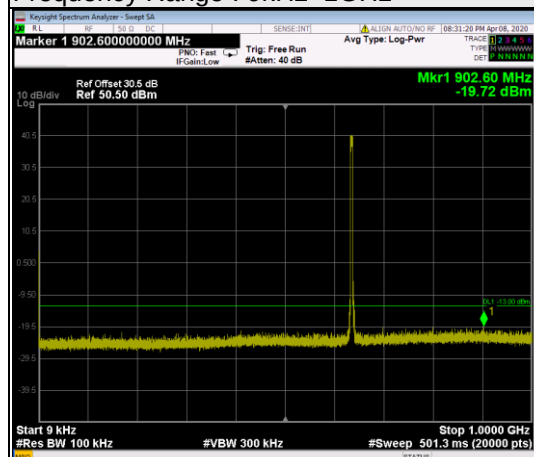


Frequency Range : 1GHz~10GHz

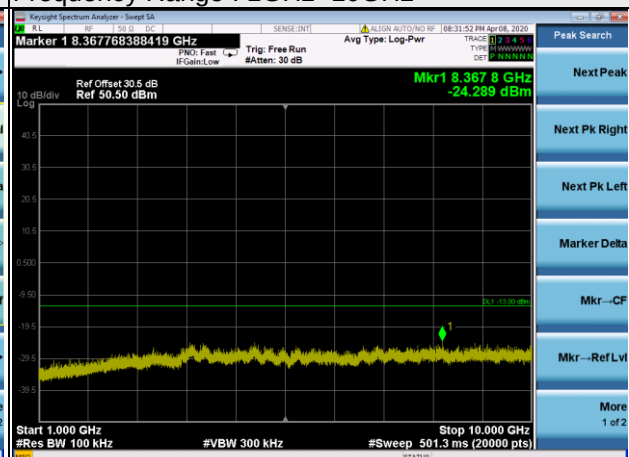


Channel 68761

Frequency Range : 9kHz~1GHz

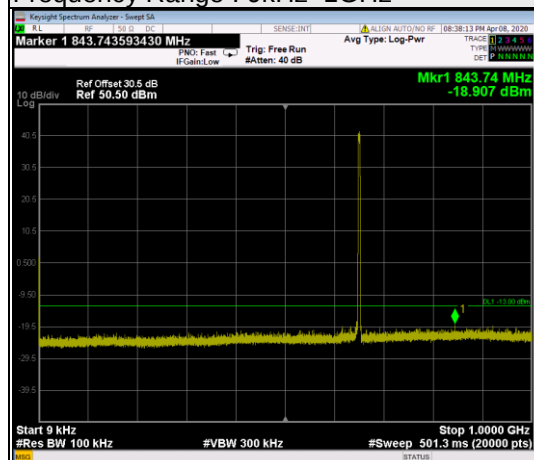


Frequency Range : 1GHz~10GHz

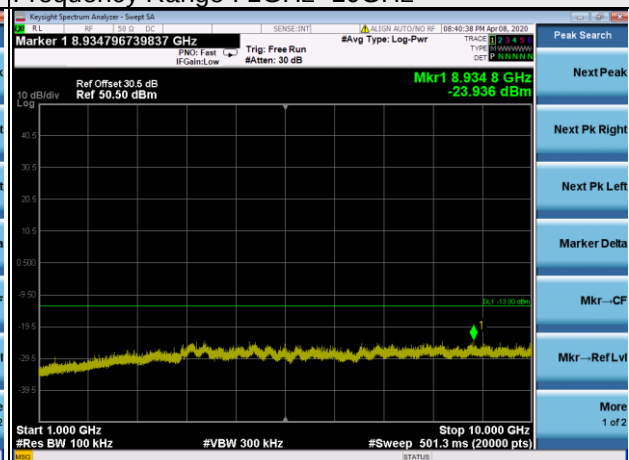


Channel 68911

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz

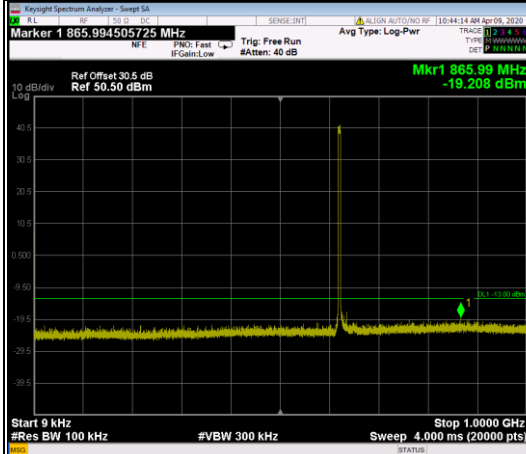


5MHz-Chain 1

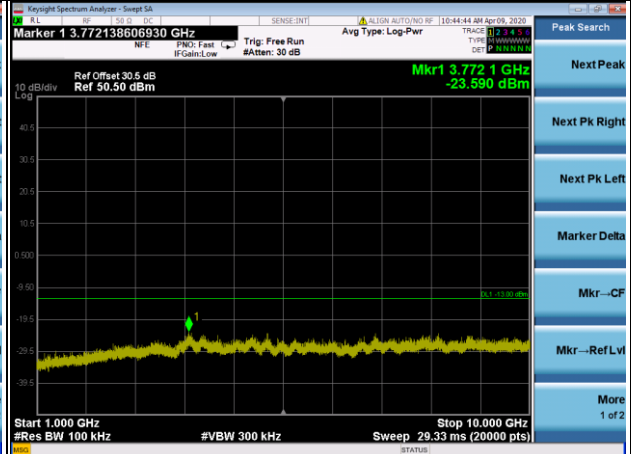
QPSK

Channel 68611

Frequency Range : 9kHz~1GHz

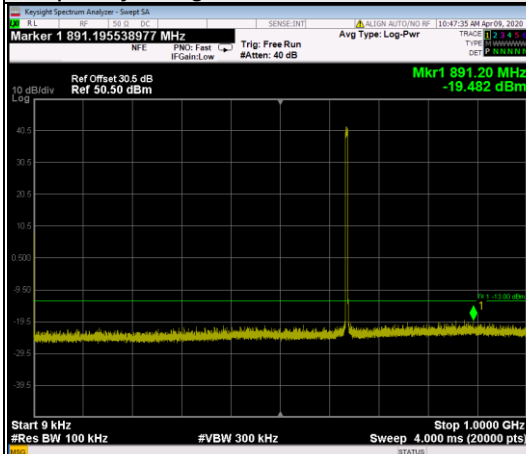


Frequency Range : 1GHz~10GHz

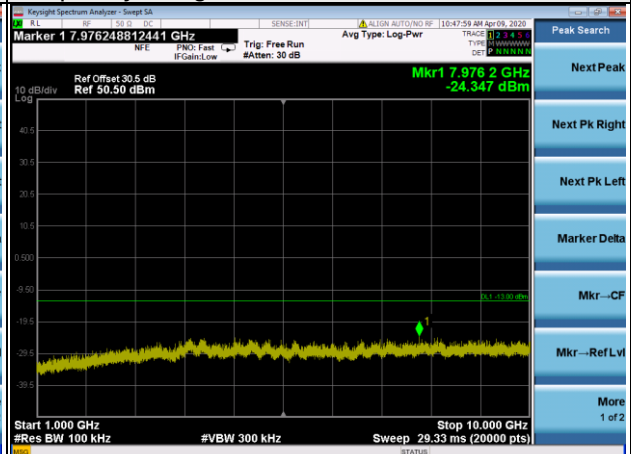


Channel 68761

Frequency Range : 9kHz~1GHz

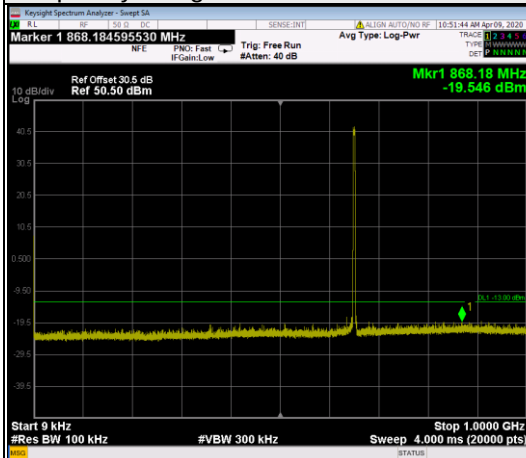


Frequency Range : 1GHz~10GHz



Channel 68911

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz

