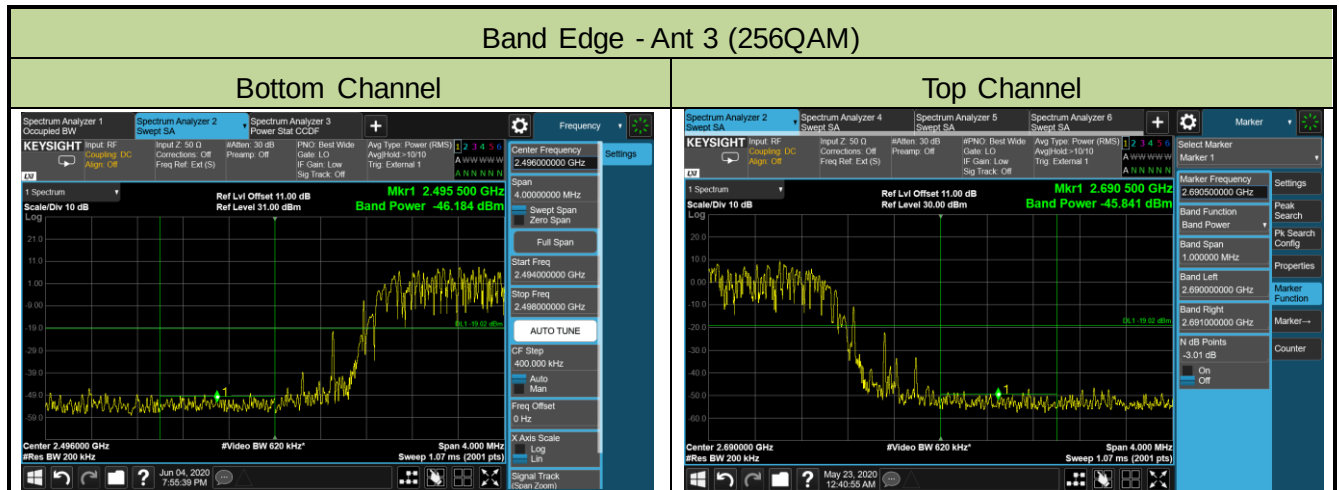




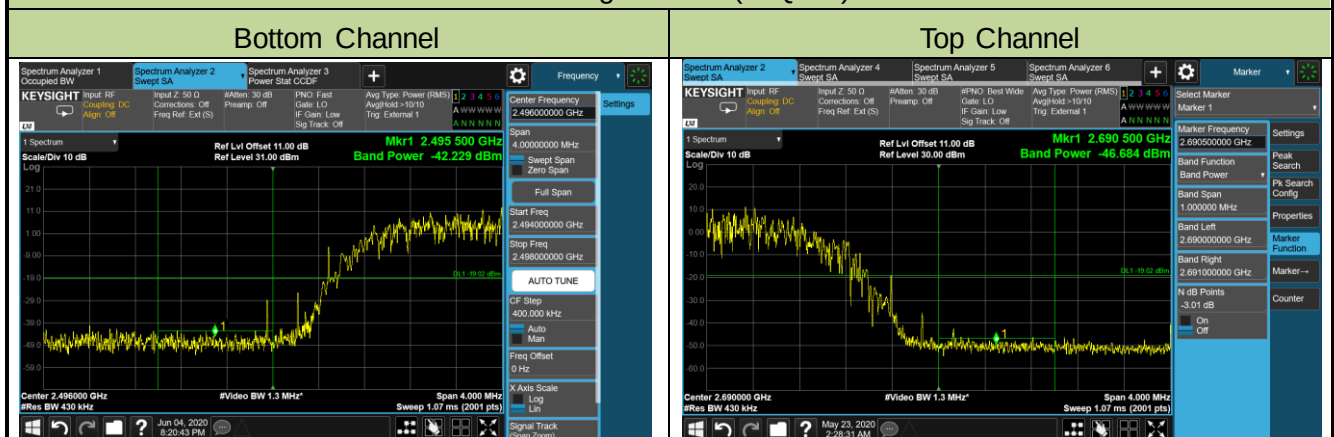
Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Larry Yan
Test Site	SR5	Test Date	2020/05/14 ~ 2020/06/04
Test Item	Band Edge, 20+20MHz Bandwidth		

Frequency (MHz)	Channel Bandwidth (MHz)	Max Band Edge (dBm)				Limit (dBm)	Result
		Ant 0	Ant 1	Ant 2	Ant 3		
QPSK							
Bottom	20+20	-43.43	-43.27	-43.73	-43.89	≤ -19.02	Pass
Top	20+20	-46.81	-46.61	-46.47	-46.74	≤ -19.02	Pass
16QAM							
Bottom	20+20	-42.23	-41.28	-42.24	-42.35	≤ -19.02	Pass
Top	20+20	-46.68	-47.06	-46.76	-46.84	≤ -19.02	Pass
64QAM							
Bottom	20+20	-43.89	-43.58	-44.50	-44.57	≤ -19.02	Pass
Top	20+20	-46.42	-46.46	-46.38	-46.44	≤ -19.02	Pass
256QAM							
Bottom	20+20	-43.44	-43.58	-44.75	-44.69	≤ -19.02	Pass
Top	20+20	-46.63	-46.38	-46.48	-46.35	≤ -19.02	Pass

Band Edge - Ant 0 (QPSK)

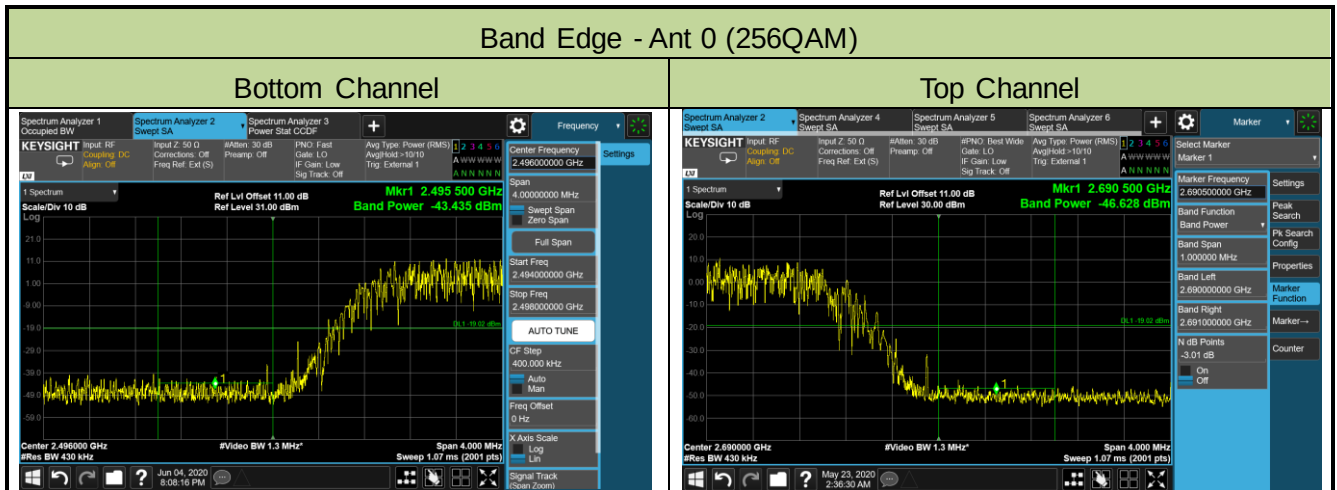


Band Edge - Ant 0 (16QAM)



Band Edge - Ant 0 (64QAM)

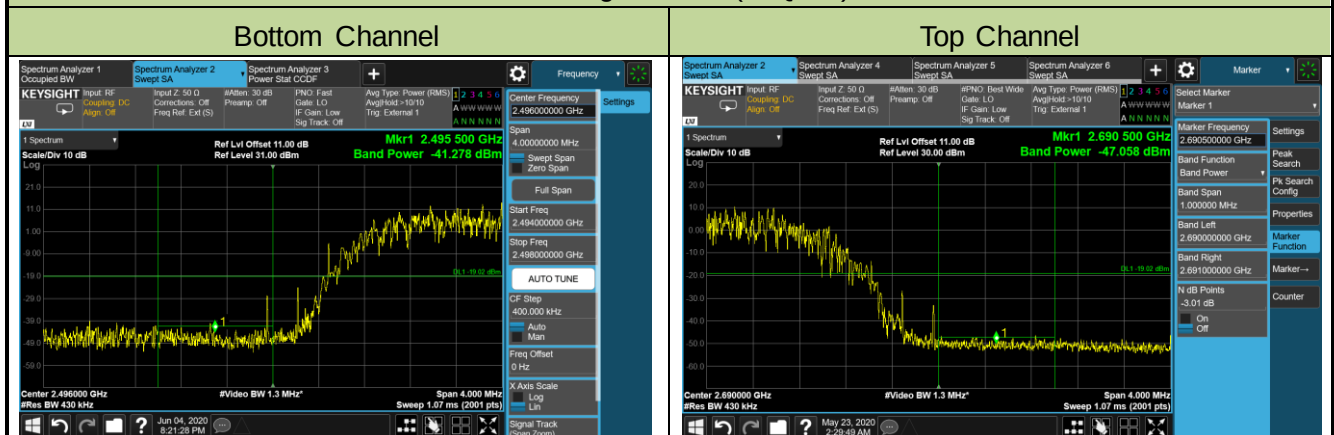




Band Edge - Ant 1 (QPSK)

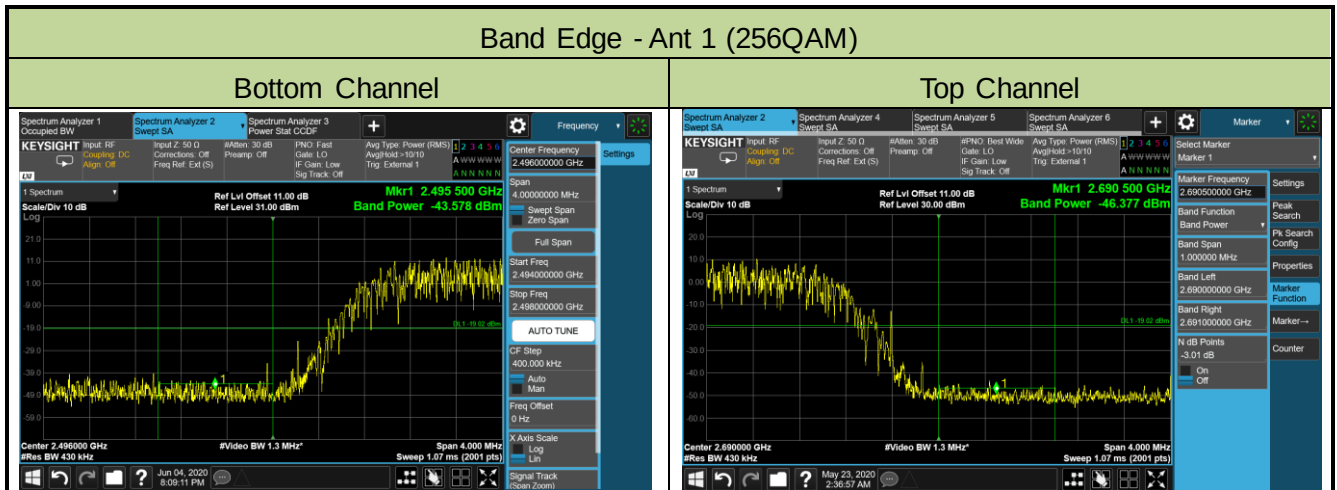


Band Edge - Ant 1 (16QAM)



Band Edge - Ant 1 (64QAM)

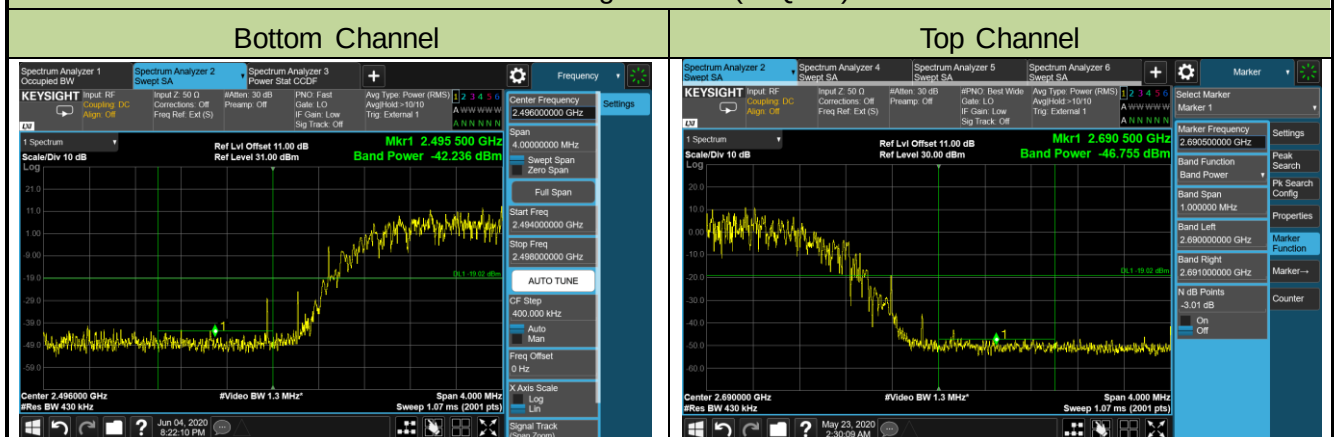




Band Edge - Ant 2 (QPSK)

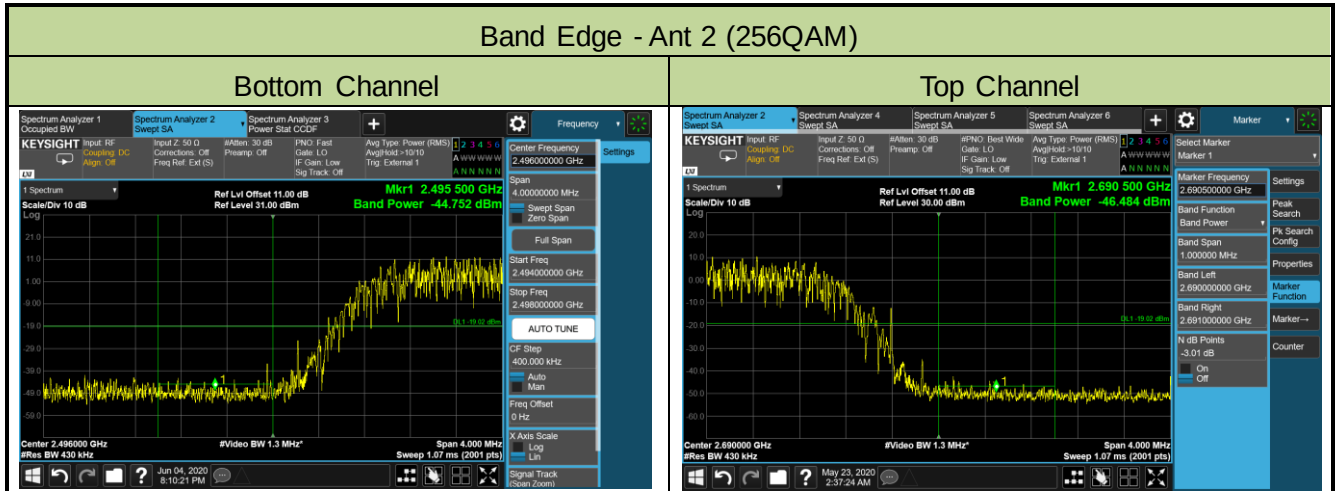


Band Edge - Ant 2 (16QAM)



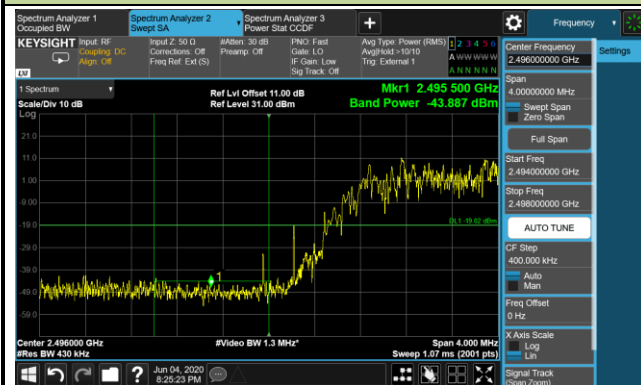
Band Edge - Ant 2 (64QAM)





Band Edge - Ant 3 (QPSK)

Bottom Channel

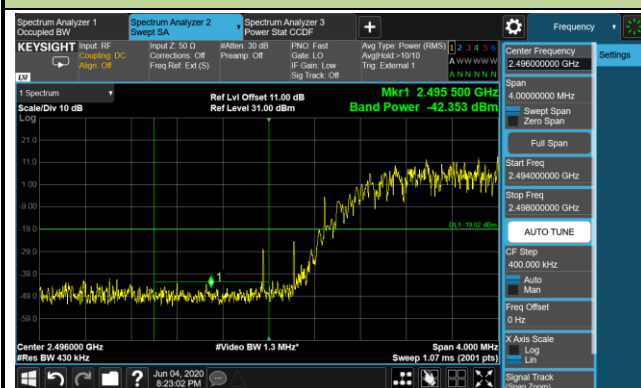


Top Channel

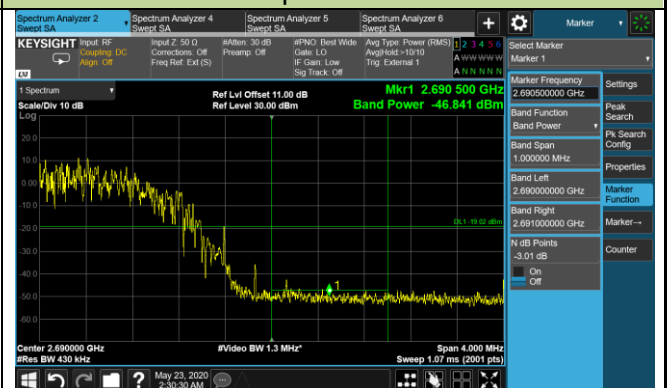


Band Edge - Ant 3 (16QAM)

Bottom Channel

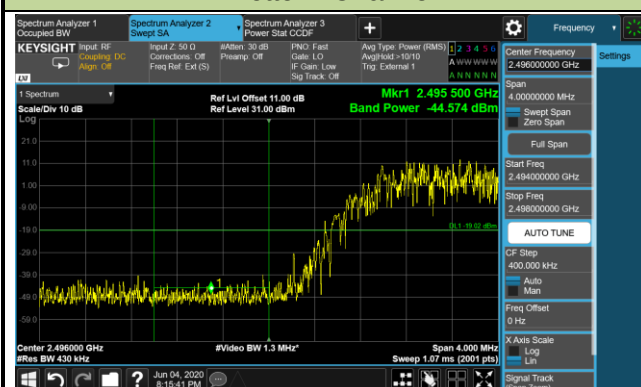


Top Channel

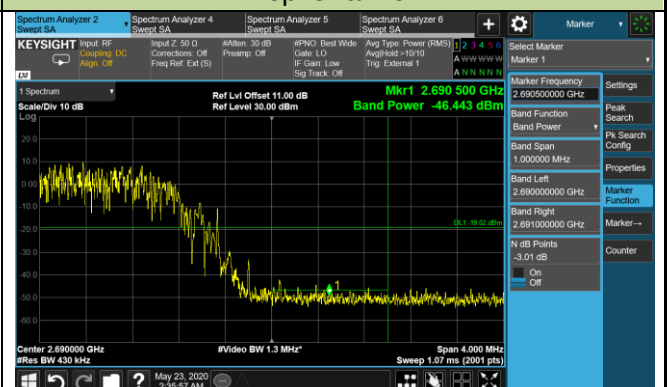


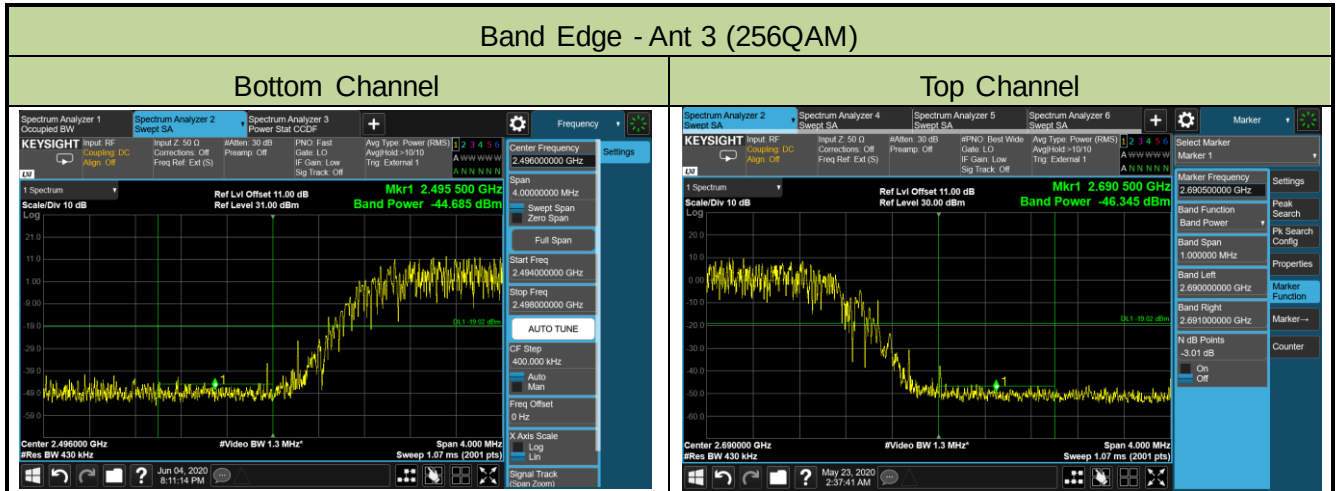
Band Edge - Ant 3 (64QAM)

Bottom Channel



Top Channel



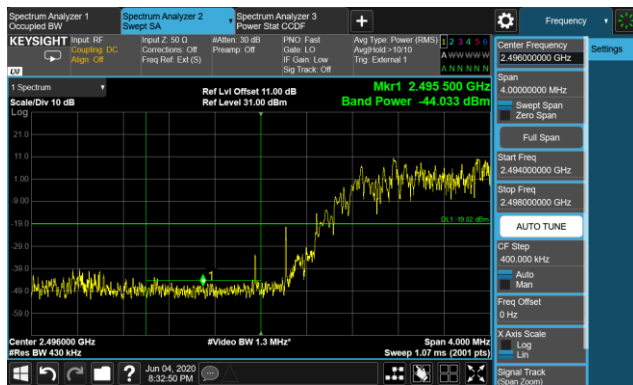


Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Larry Yan
Test Site	SR5	Test Date	2020/05/14 ~ 2020/06/04
Test Item	Band Edge, 20+20+20MHz Bandwidth		

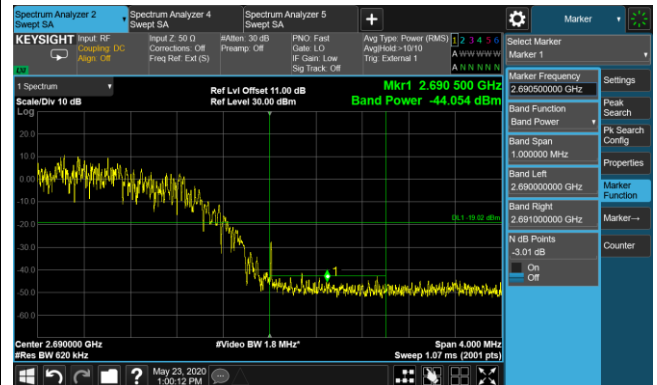
Frequency (MHz)	Channel Bandwidth (MHz)	Max Band Edge (dBm)				Limit (dBm)	Result
		Ant 0	Ant 1	Ant 2	Ant 3		
QPSK							
Bottom	20+20+20	-44.03	-43.44	-43.84	-43.72	≤ -19.02	Pass
Top	20+20+20	-44.05	-45.76	-46.03	-44.50	≤ -19.02	Pass
16QAM							
Bottom	20+20+20	-42.17	-41.59	-42.69	-43.13	≤ -19.02	Pass
Top	20+20+20	-46.52	-44.63	-46.40	-44.26	≤ -19.02	Pass
64QAM							
Bottom	20+20+20	-44.06	-43.25	-44.32	-44.12	≤ -19.02	Pass
Top	20+20+20	-46.50	-45.00	-46.50	-45.12	≤ -19.02	Pass
256QAM							
Bottom	20+20+20	-43.68	-43.82	-45.16	-45.51	≤ -19.02	Pass
Top	20+20+20	-43.71	-45.21	-45.10	-45.37	≤ -19.02	Pass

Band Edge - Ant 0 (QPSK)

Bottom Channel

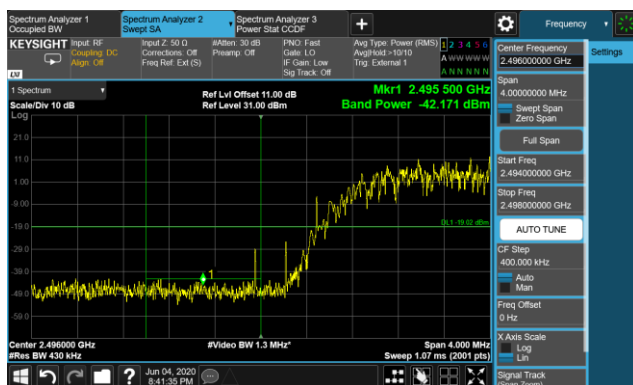


Top Channel

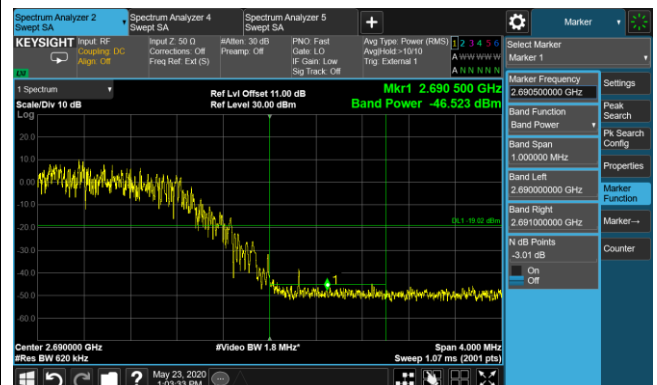


Band Edge - Ant 0 (16QAM)

Bottom Channel

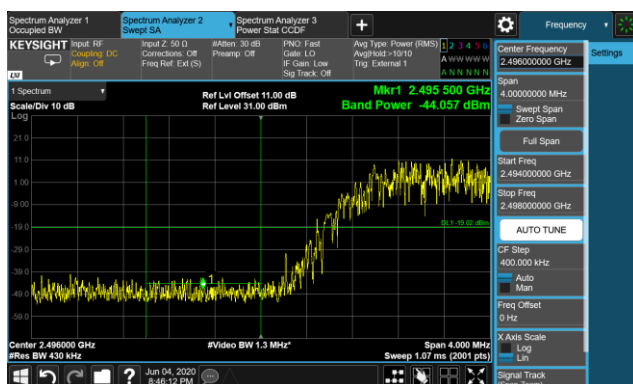


Top Channel

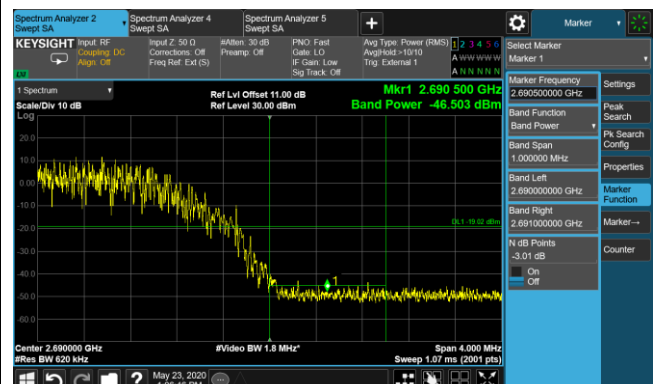


Band Edge - Ant 0 (64QAM)

Bottom Channel

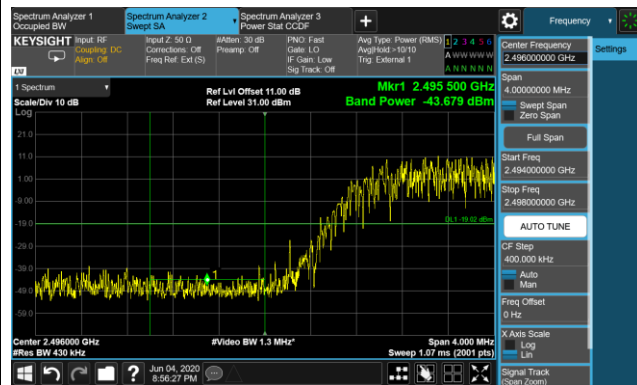


Top Channel

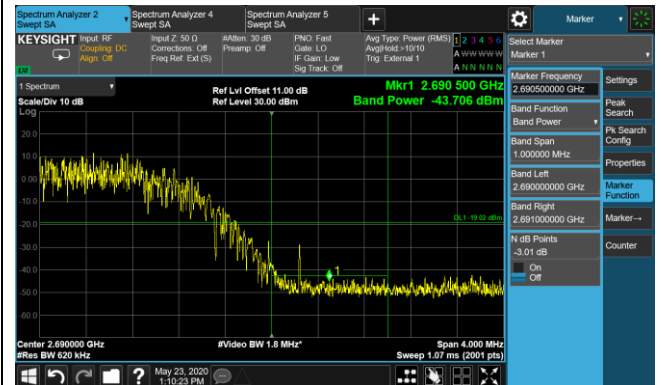


Band Edge - Ant 0 (256QAM)

Bottom Channel

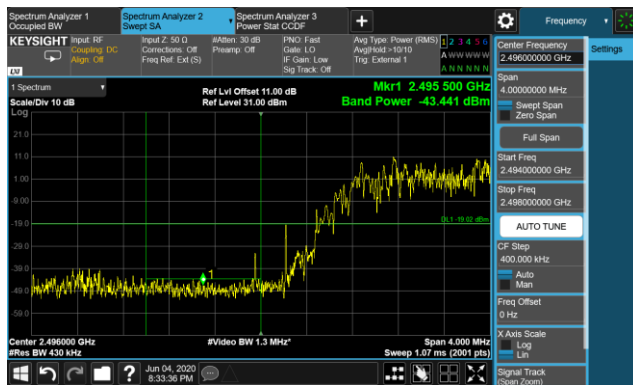


Top Channel

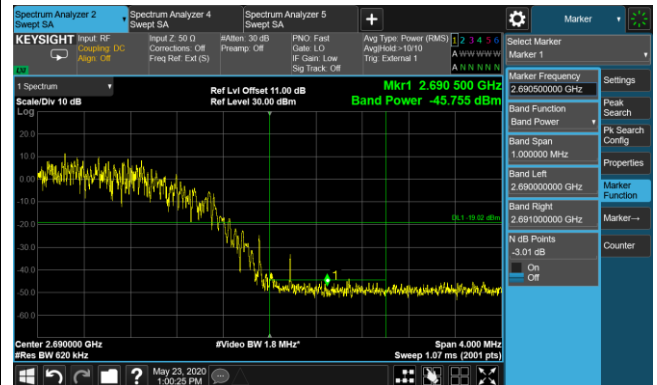


Band Edge - Ant 1 (QPSK)

Bottom Channel

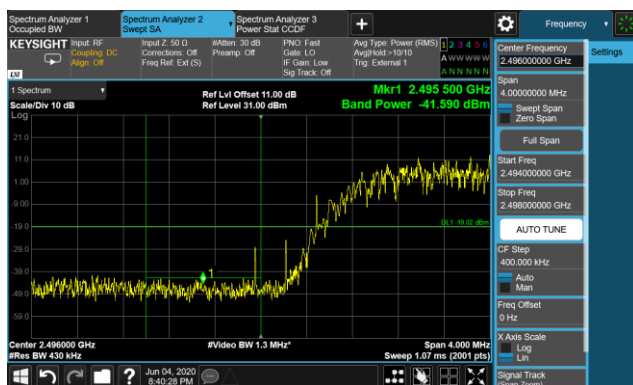


Top Channel

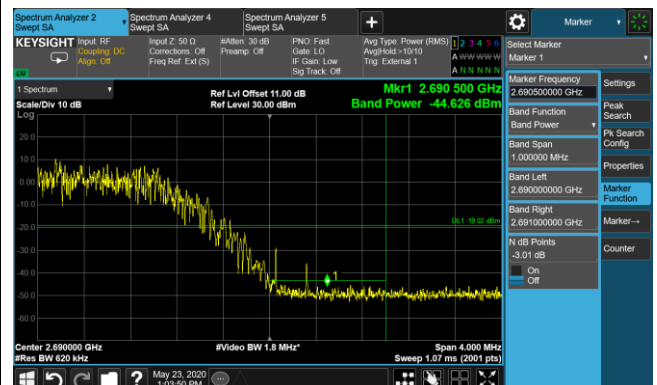


Band Edge - Ant 1 (16QAM)

Bottom Channel

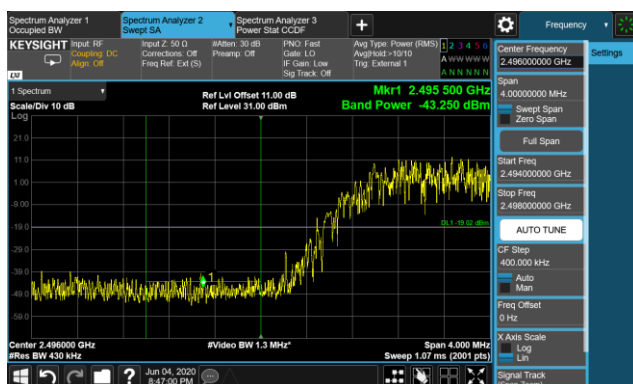


Top Channel

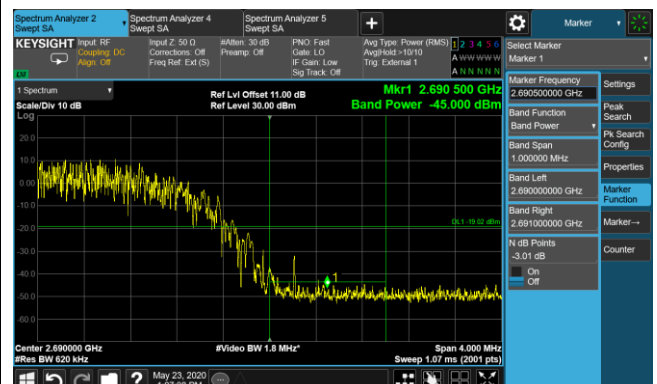


Band Edge - Ant 1 (64QAM)

Bottom Channel

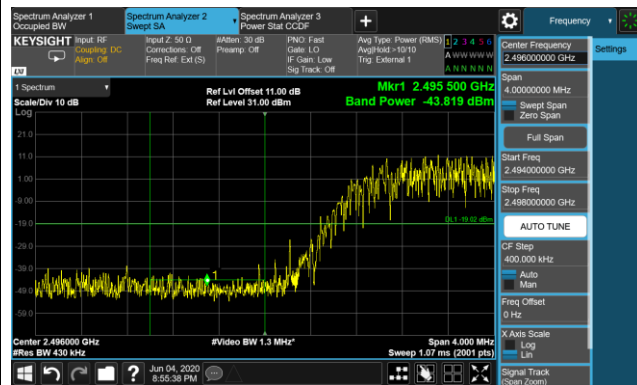


Top Channel

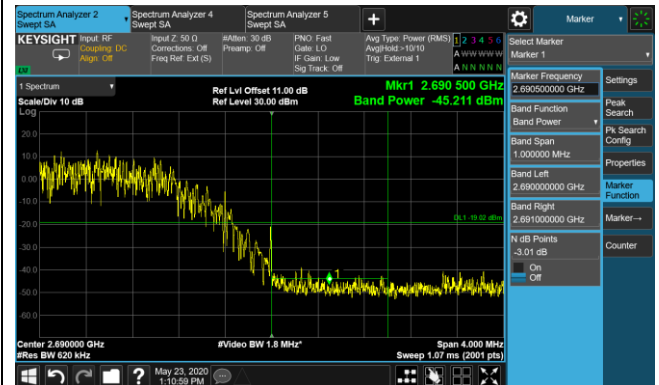


Band Edge - Ant 1 (256QAM)

Bottom Channel

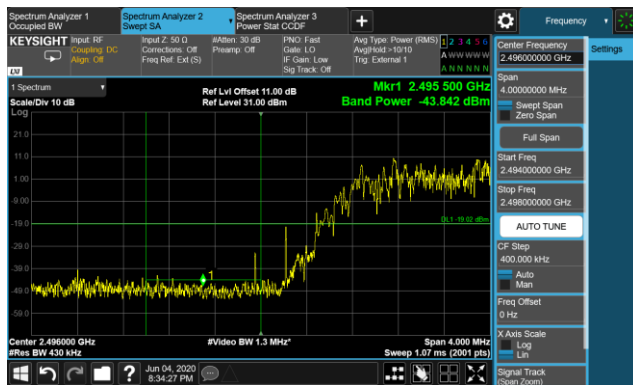


Top Channel

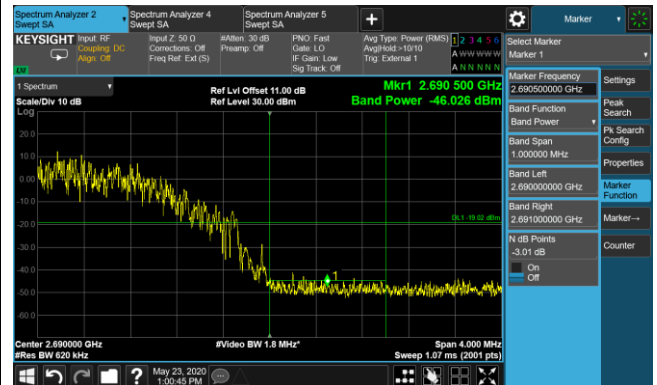


Band Edge - Ant 2 (QPSK)

Bottom Channel

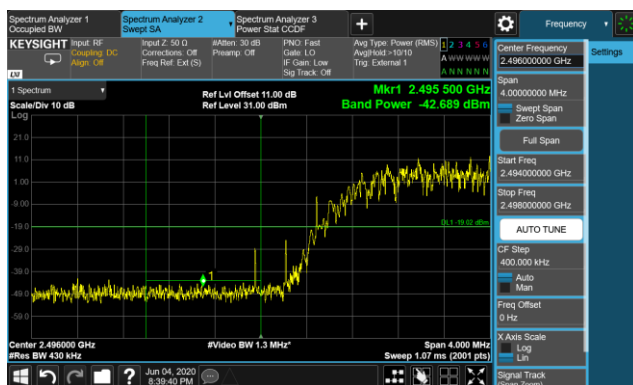


Top Channel

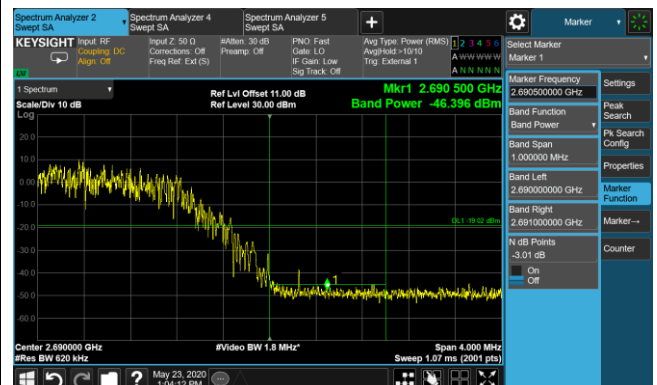


Band Edge - Ant 2 (16QAM)

Bottom Channel

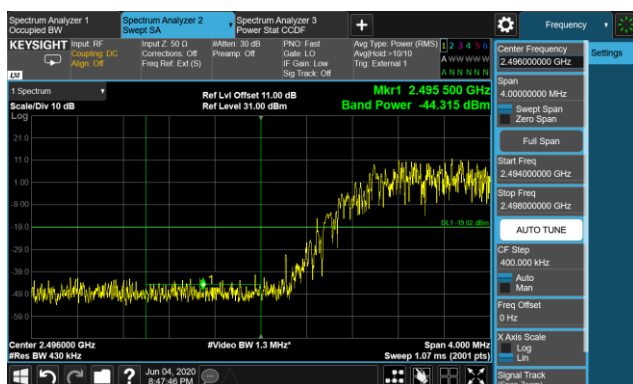


Top Channel

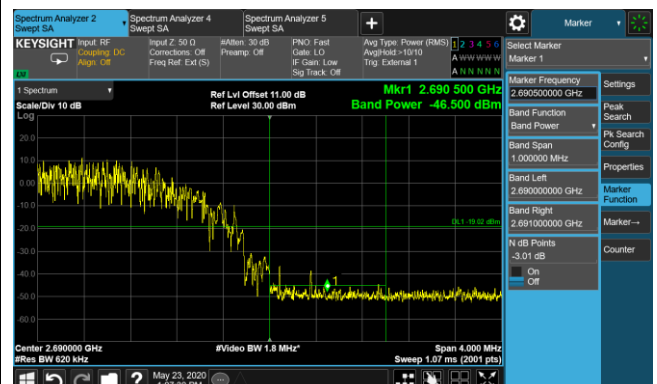


Band Edge - Ant 2 (64QAM)

Bottom Channel

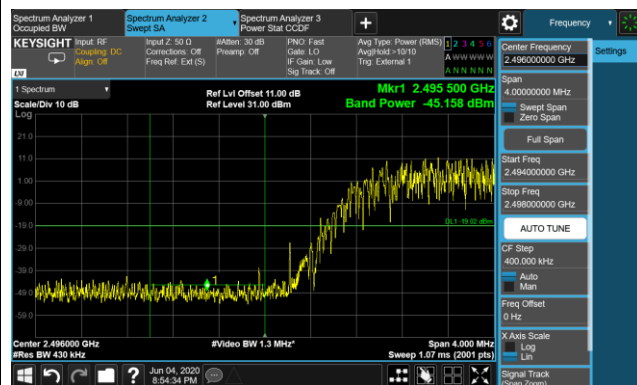


Top Channel

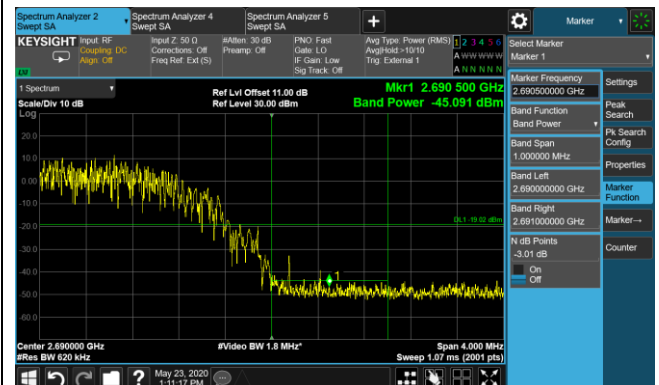


Band Edge - Ant 2 (256QAM)

Bottom Channel

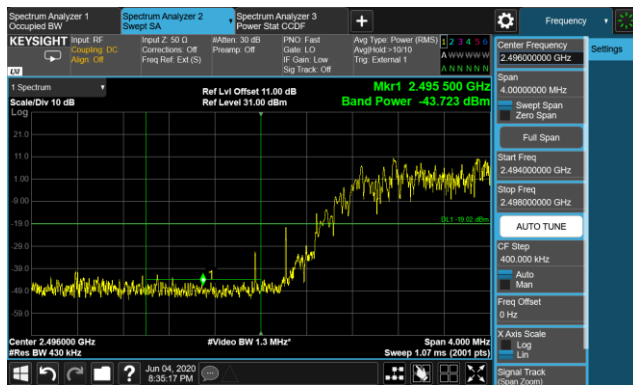


Top Channel

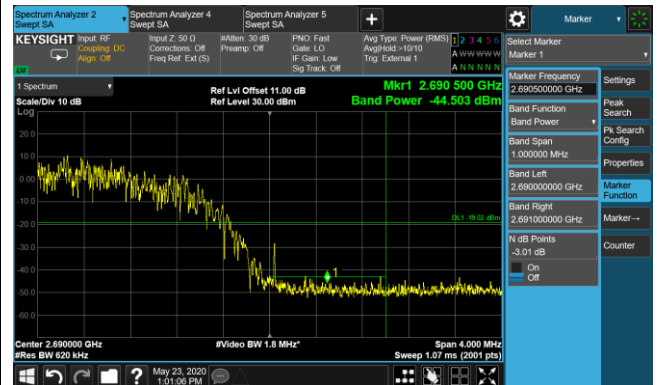


Band Edge - Ant 3 (QPSK)

Bottom Channel

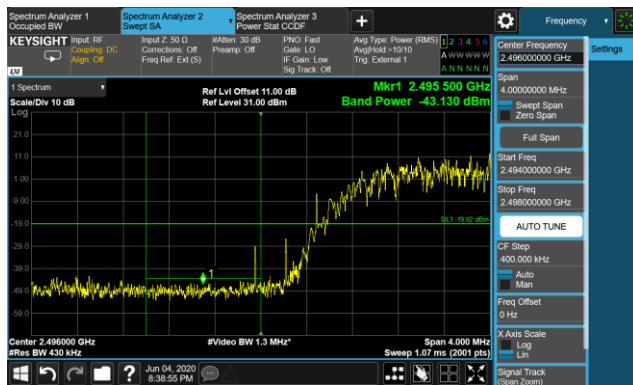


Top Channel

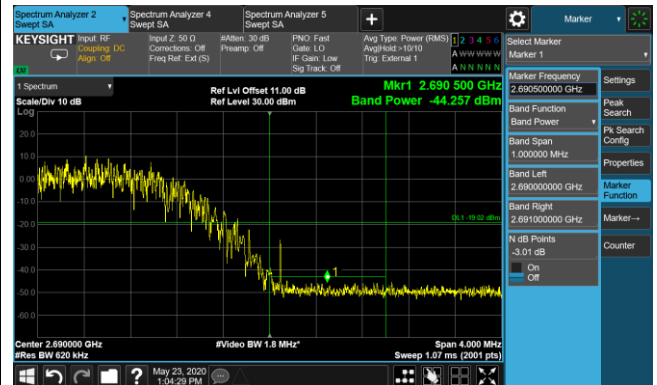


Band Edge - Ant 3 (16QAM)

Bottom Channel

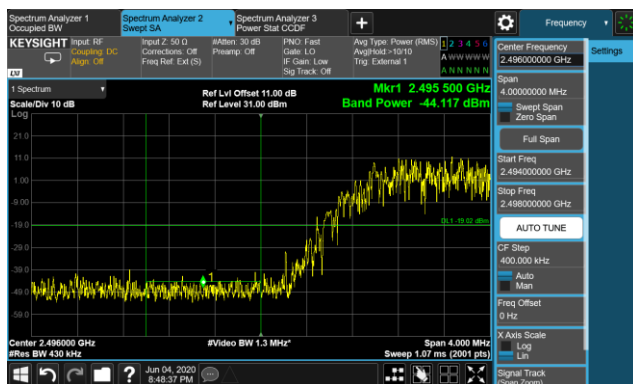


Top Channel

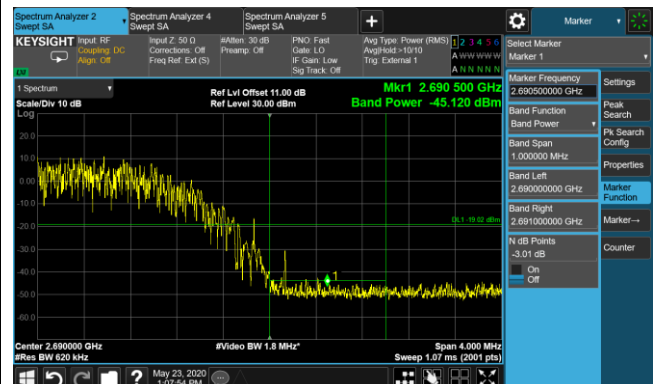


Band Edge - Ant 3 (64QAM)

Bottom Channel

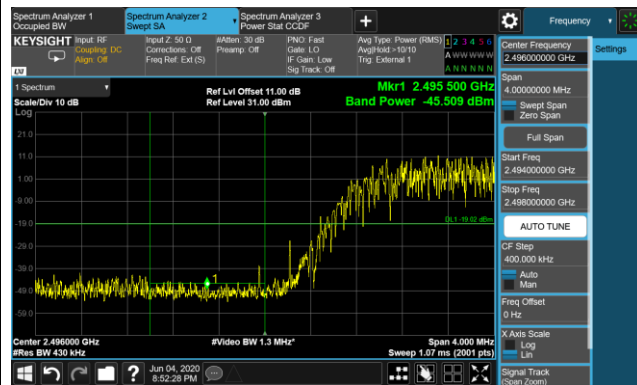


Top Channel

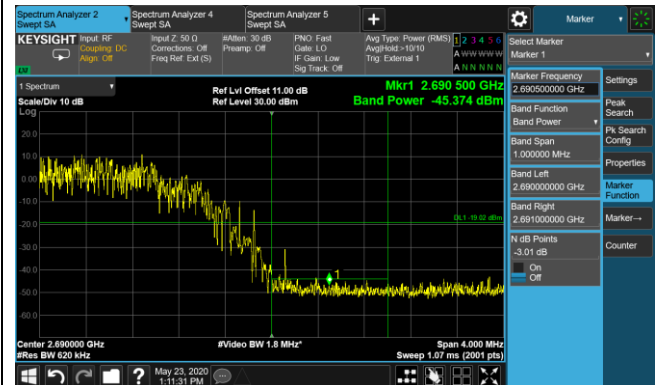


Band Edge - Ant 3 (256QAM)

Bottom Channel



Top Channel



6.6. Peak to Average Ratio

6.6.1. Test Limit

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.

6.6.2. Test Procedure Used

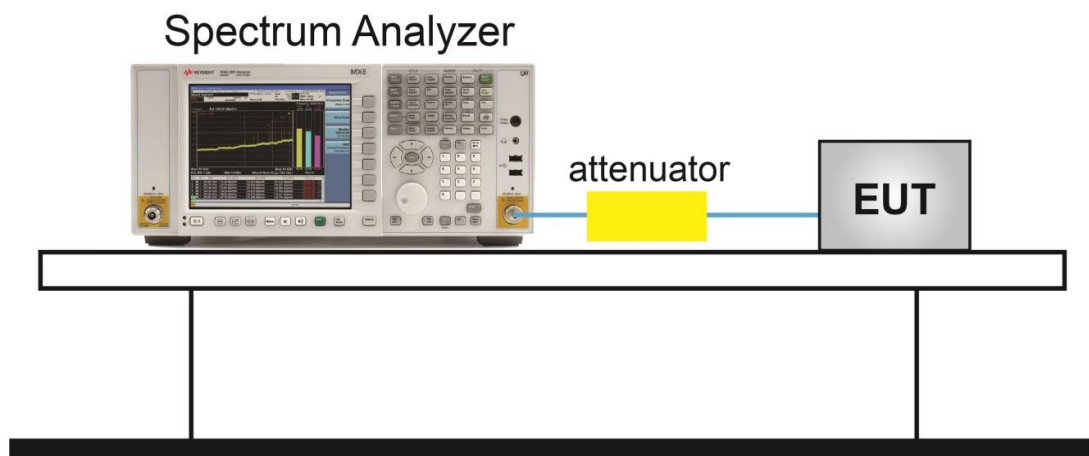
KDB 971168 D01v03r01 - Section 5.7

ANSI C63.26-2015 - Section 5.2.6

6.6.3. Test Setting

1. Set the analyzer center frequency to the OBW center frequency;
2. Set the span to $2 \times$ to $3 \times$ the OBW;
3. Set the RBW to the specified reference bandwidth;
4. Set the VBW $\geq 3 \times$ RBW;
5. Detector = peak;
6. Sweep time $\geq 10 \times$ (number of points in sweep) $\times$ (transmission symbol period);
7. Trace mode = max hold;
8. Allow trace to fully stabilize and view the trace;
9. Use the peak marker function to determine the maximum amplitude level (P_{PK}) within the specified reference bandwidth (PSD);
10. Select trace 2 and change Detector = power averaging (rms);
11. Trace mode = trace average;
12. Use the peak marker function to determine the maximum amplitude level (P_{AV}) within the specified reference bandwidth (PSD);
13. Calculate the PAPR (dB) = P_{PK} (dBm) – P_{Avg} (dBm).

6.6.4. Test Setup



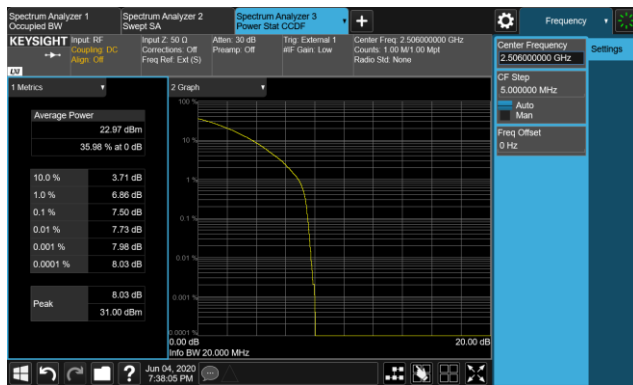
6.6.5. Test Result

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Larry Yan
Test Site	SR2	Test Date	2020/05/14 ~ 2020/06/04
Test Item	Peak to Average Ratio, 20MHz Bandwidth		

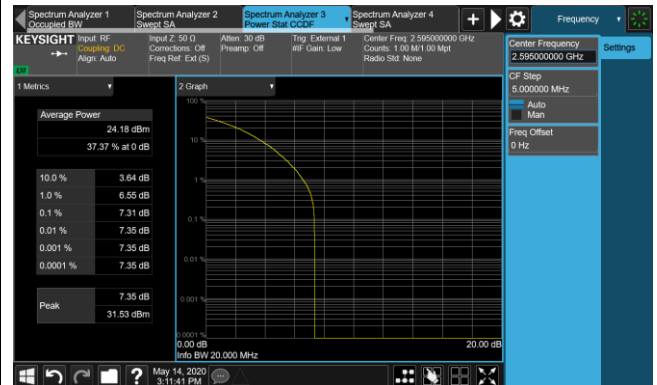
Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)				Limit (dB)	Result
		Ant 0	Ant 1	Ant 2	Ant 3		
QPSK							
Bottom	20	7.50	7.50	7.53	7.49	≤ 13.00	Pass
Middle	20	7.31	7.31	7.30	7.30	≤ 13.00	Pass
Top	20	7.33	7.32	7.33	7.33	≤ 13.00	Pass
16QAM							
Bottom	20	7.44	7.43	7.44	7.41	≤ 13.00	Pass
Middle	20	7.28	7.28	7.29	7.29	≤ 13.00	Pass
Top	20	7.30	7.33	7.32	7.33	≤ 13.00	Pass
64QAM							
Bottom	20	7.49	7.48	7.50	7.45	≤ 13.00	Pass
Middle	20	7.30	7.30	7.31	7.30	≤ 13.00	Pass
Top	20	7.32	7.33	7.32	7.29	≤ 13.00	Pass
256QAM							
Bottom	20	7.65	7.49	7.51	7.51	≤ 13.00	Pass
Middle	20	7.31	7.30	7.30	7.30	≤ 13.00	Pass
Top	20	7.35	7.37	7.35	7.33	≤ 13.00	Pass

Peak to Average Ratio - Ant 0 (QPSK)

Bottom Channel



Middle Channel



Top Channel

