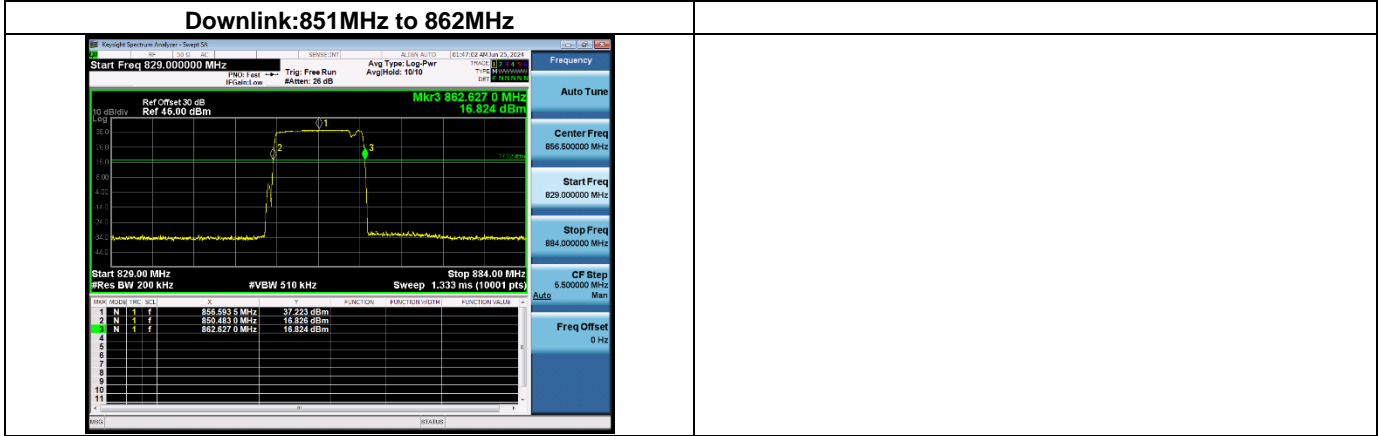


Appendix A for KSCR240500097001

1. Out of band rejection



2. Input/output power and amplifier/booster gain

Mode	Operation Band	Frequency F0 (MHz)	Signal Type	Signal Level (dBm)	Input Power (dBm)	Output Power (dBm)	ERP (dBm)	Gain (dB)
Down link	851~862MHz	856.594	CW	Pre-AGC	-9.83	40.05	37.90	49.88
				3dB Above AGC	-6.84	40.47	38.32	/

Remark:

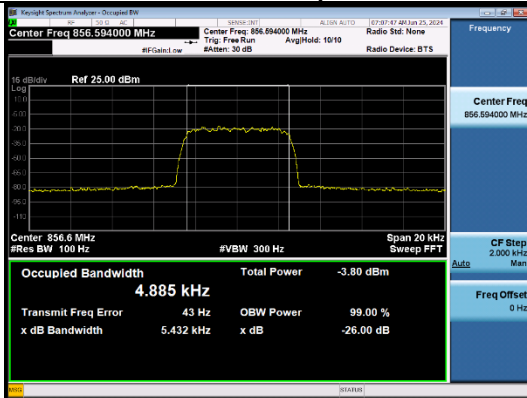
- The normal power is 40dBm and the measured output power which show in above table is within±2.0dB tolerance.
- ERP(dBm)=Total Output Power(dBm)+Antenna Gain(dBi)-2.15dB.Antenna Gain is 0.0dBi.

3 Input-versus-output signal comparison

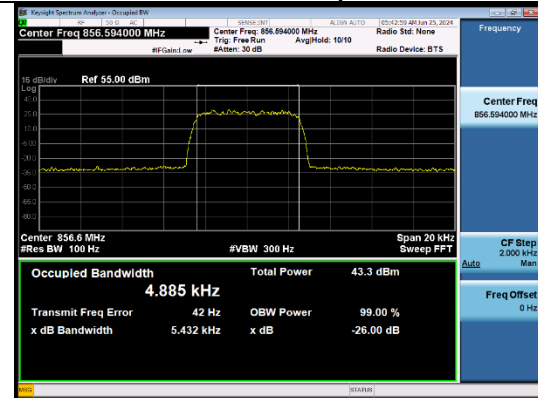
Occupied Bandwidth				
Channel Spacing (KHz)	Test Frequency F0(MHz)	Signal Level	Signal Type	99%Occupied Channel Bandwidth (KHz)
6.25KHz (CQPSK)	856.594	Pre-AGC	Input	4.885
	856.594		Output	4.885
	856.594	3dB Above AGC	Input	4.885
	856.594		Output	4.886
12.5KHz (FM)	856.594	Pre-AGC	Input	9.774
	856.594		Output	9.774
	856.594	3dB Above AGC	Input	9.773
	856.594		Output	9.775
25KHz (TETRA)	856.594	Pre-AGC	Input	20.984
	856.594		Output	20.978
	856.594	3dB Above AGC	Input	20.978
	856.594		Output	20.985

6.25KHz CQPSK

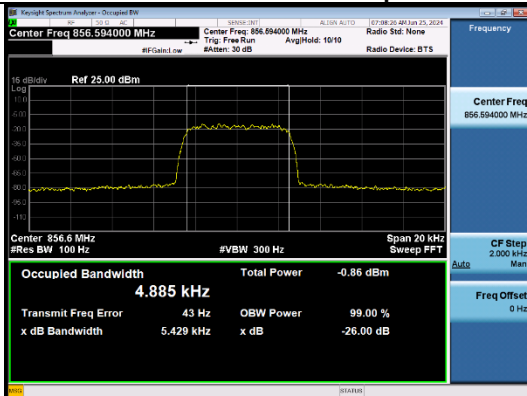
Pre-AGC_Input



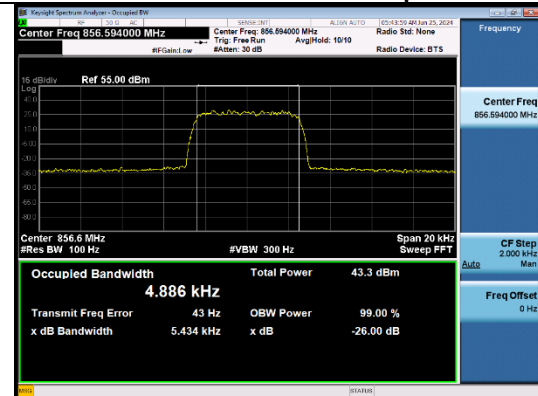
Pre-AGC_Output



3dB Above Pre-AGC_Input

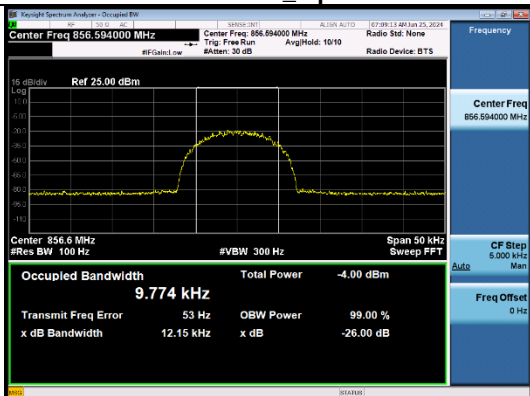


3dB Above Pre-AGC_Output

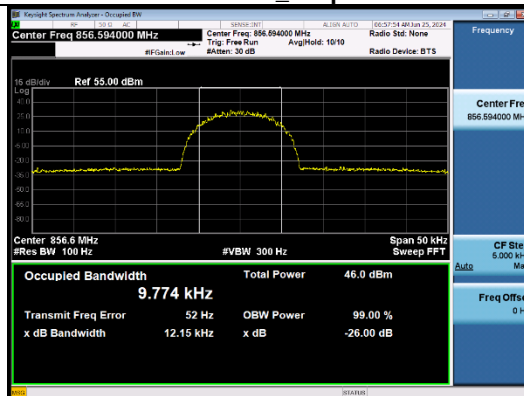


12.5KHz FM

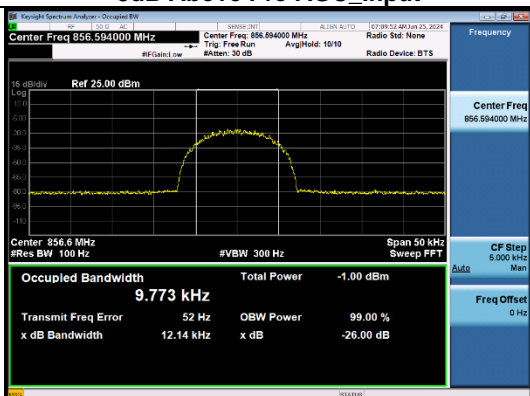
Pre-AGC_Input



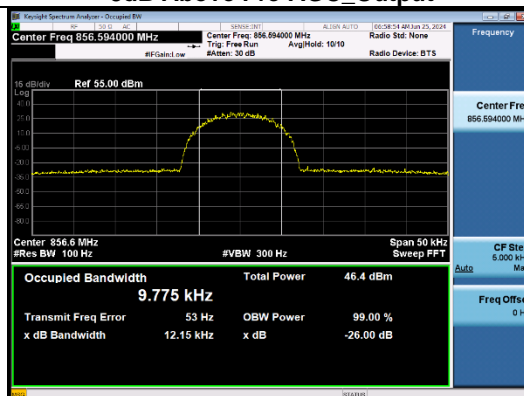
Pre-AGC_Output



3dB Above Pre-AGC_Input

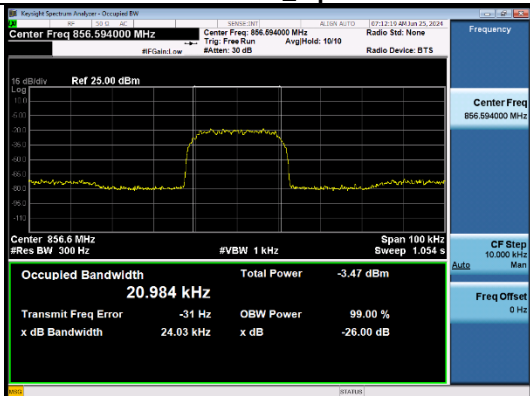


3dB Above Pre-AGC_Output

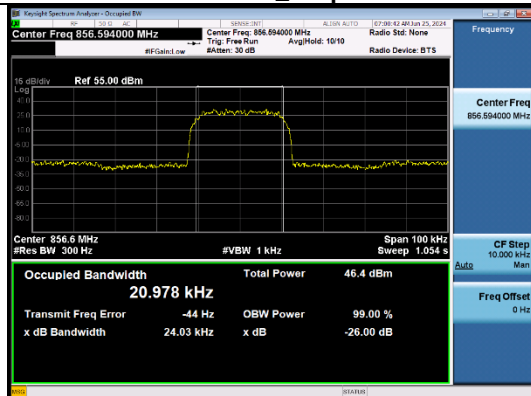


25KHz TETRA

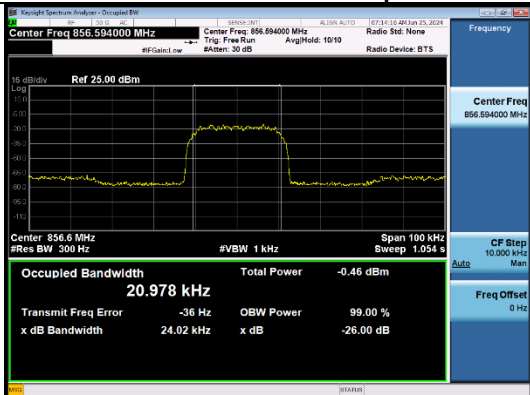
Pre-AGC Input



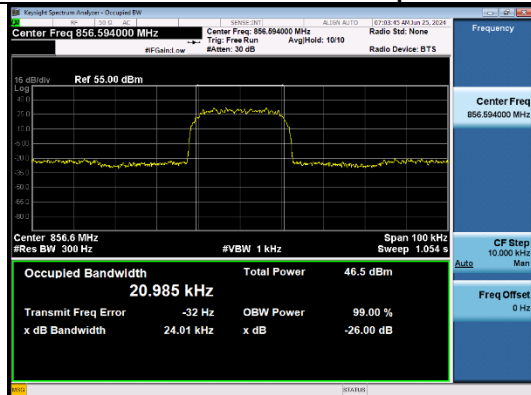
Pre-AGC Output



3dB Above Pre-AGC Input



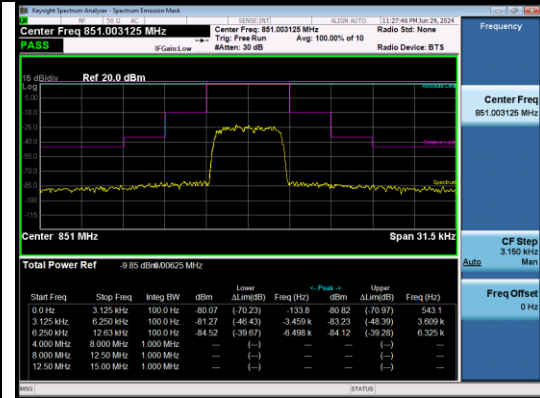
3dB Above Pre-AGC Output



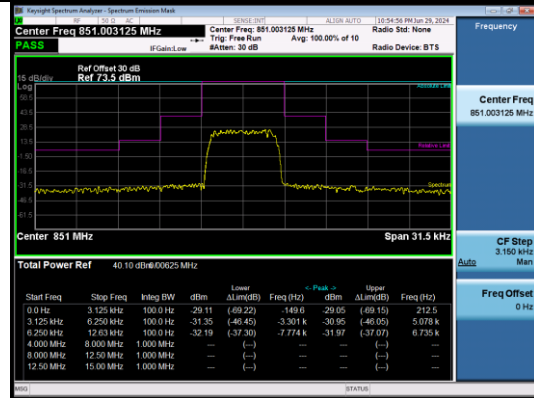
Emission masks				
Channel Spacing (KHz)	Channel	Signal Level	Signal Type	Result
6.25KHz (CQPSK)	Low	Pre-AGC	Input	Pass
			Output	Pass
		3dB Above AGC	Input	Pass
			Output	Pass
	Middle	Pre-AGC	Input	Pass
			Output	Pass
		3dB Above AGC	Input	Pass
			Output	Pass
	High	Pre-AGC	Input	Pass
			Output	Pass
		3dB Above AGC	Input	Pass
			Output	Pass
12.5KHz (FM)	Low	Pre-AGC	Input	Pass
			Output	Pass
		3dB Above AGC	Input	Pass
			Output	Pass
	Middle	Pre-AGC	Input	Pass
			Output	Pass
		3dB Above AGC	Input	Pass
			Output	Pass
	High	Pre-AGC	Input	Pass
			Output	Pass
		3dB Above AGC	Input	Pass
			Output	Pass
25KHz (TETRA)	Low	Pre-AGC	Input	Pass
			Output	Pass
		3dB Above AGC	Input	Pass
			Output	Pass
	Middle	Pre-AGC	Input	Pass
			Output	Pass
		3dB Above AGC	Input	Pass
			Output	Pass
	High	Pre-AGC	Input	Pass
			Output	Pass
		3dB Above AGC	Input	Pass
			Output	Pass

6.25KHz CQPSK-Low

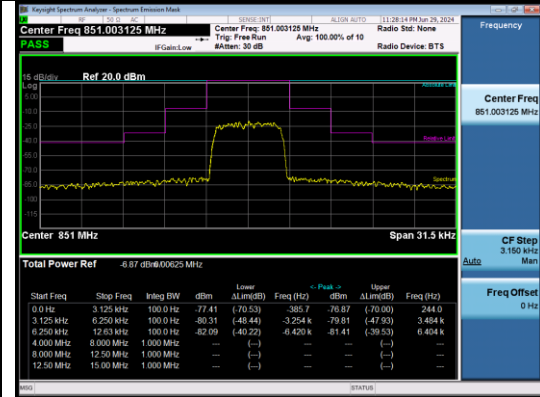
Pre-AGC_Input



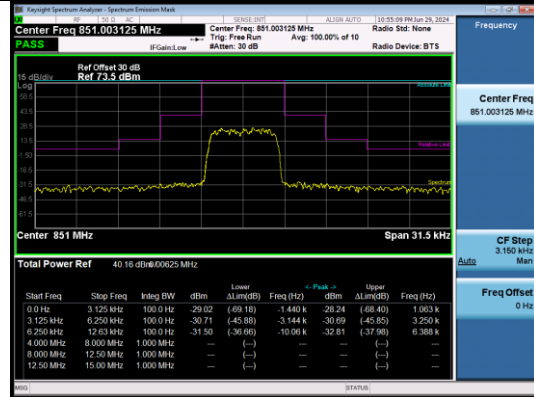
Pre-AGC_Output



3dB Above Pre-AGC_Input

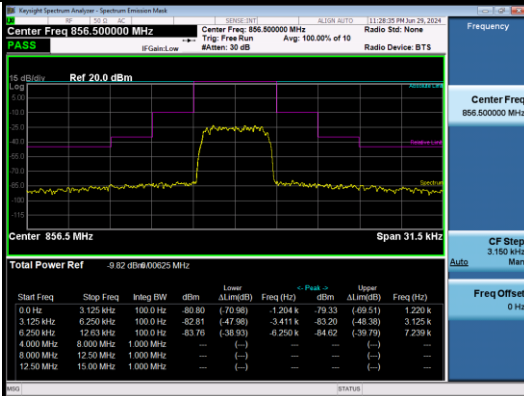


3dB Above Pre-AGC_Output

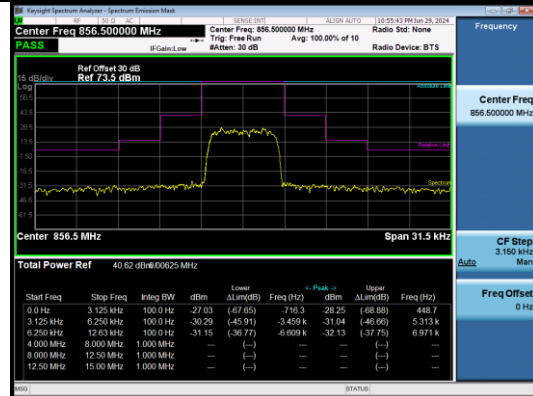


6.25KHz CQPSK-Middle

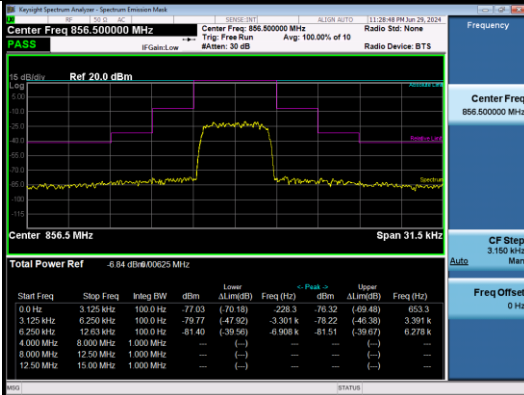
Pre-AGC Input



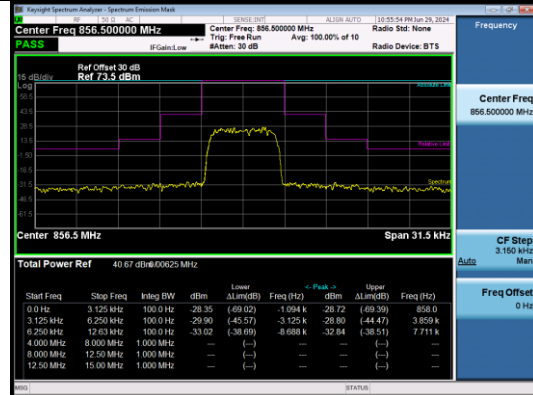
Pre-AGC Output



3dB Above Pre-AGC Input

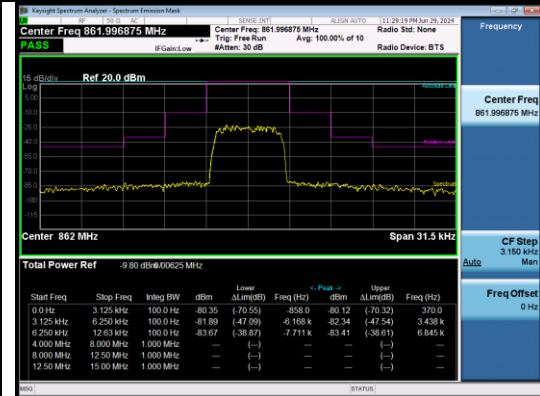


3dB Above Pre-AGC Output

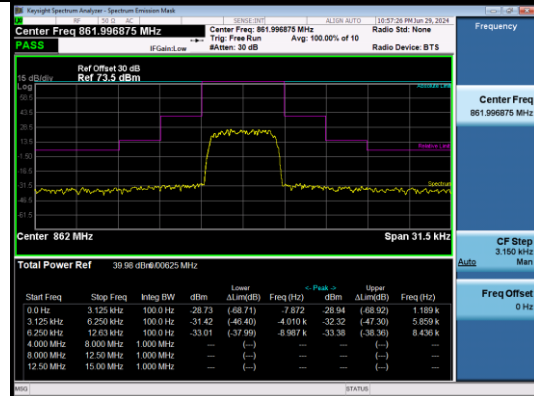


6.25KHz CQPSK-High

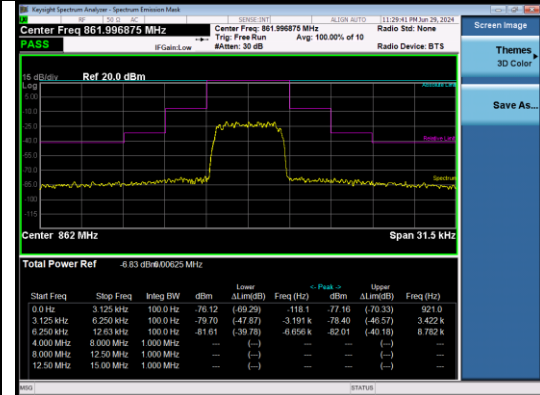
Pre-AGC_Input



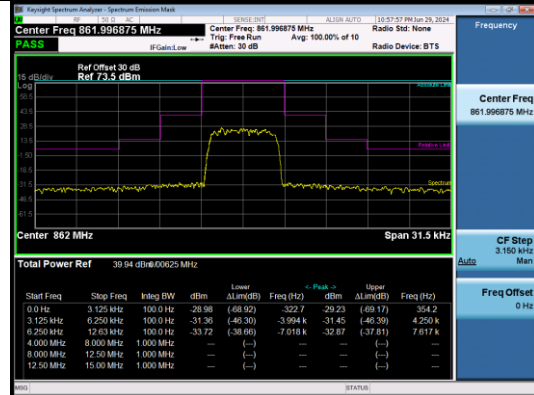
Pre-AGC_Output



3dB Above Pre-AGC_Input

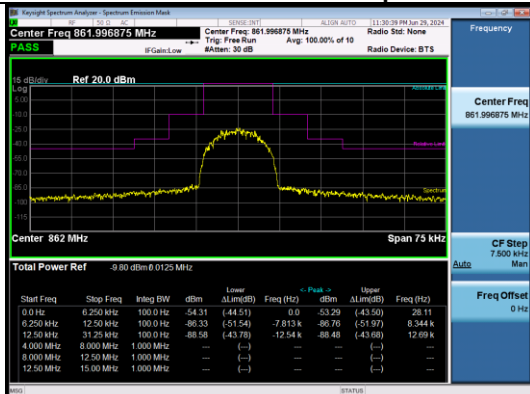


3dB Above Pre-AGC_Output

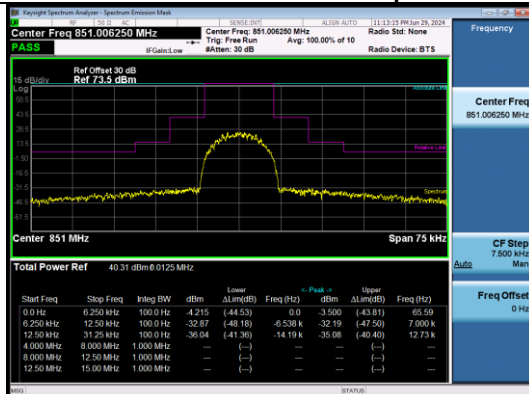


12.5KHz FM-Low

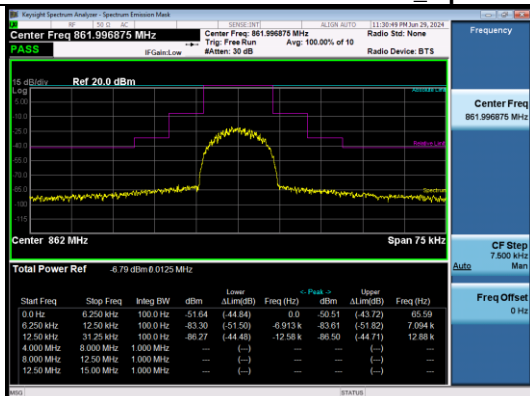
Pre-AGC_Input



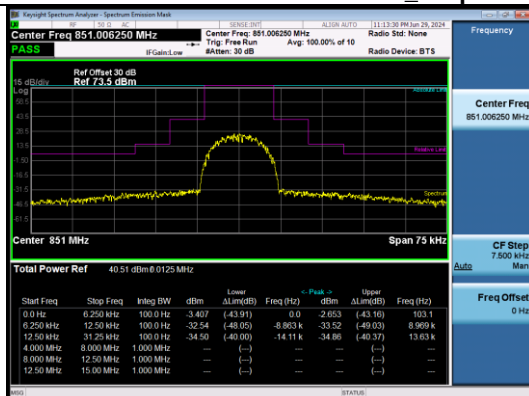
Pre-AGC_Output



3dB Above Pre-AGC_Input

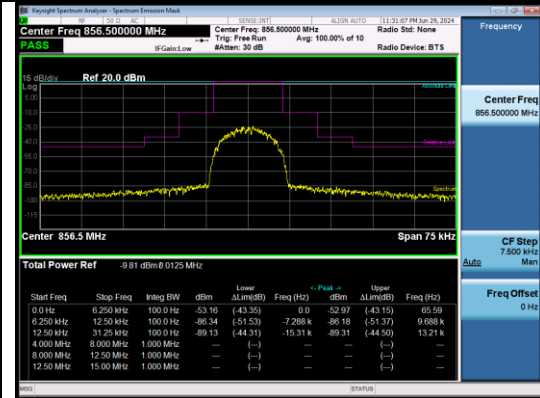


3dB Above Pre-AGC_Output

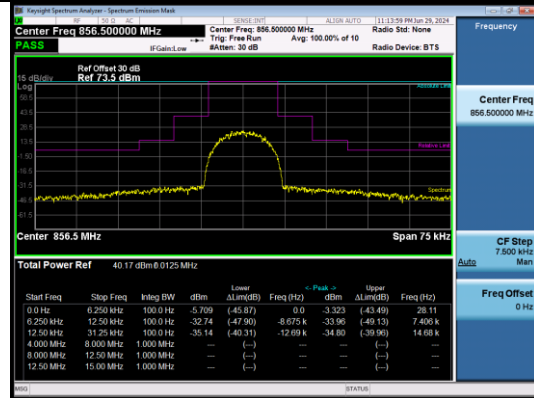


12.5KHz FM-Middle

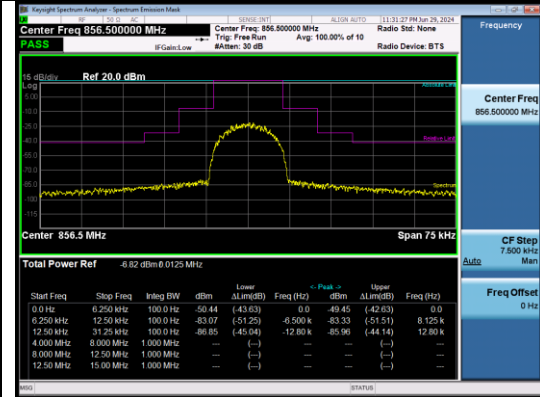
Pre-AGC_Input



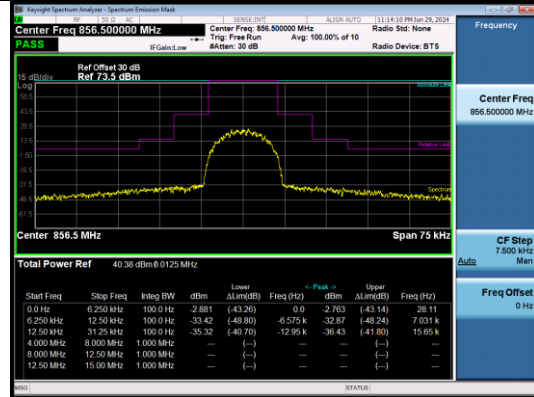
Pre-AGC_Output



3dB Above Pre-AGC_Input

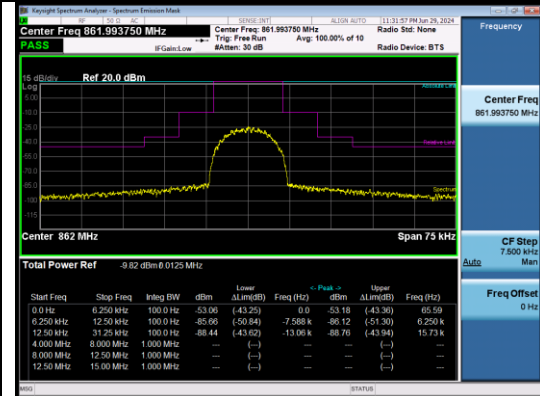


3dB Above Pre-AGC_Output

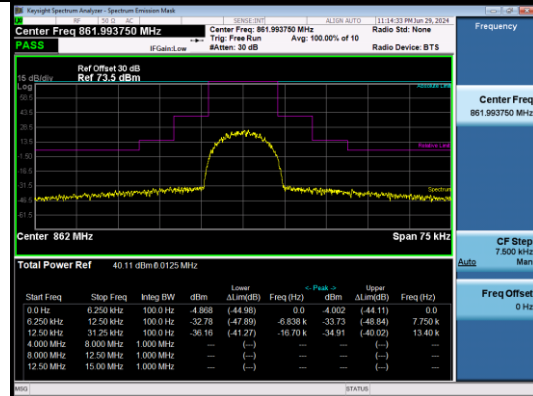


12.5KHz FM-High

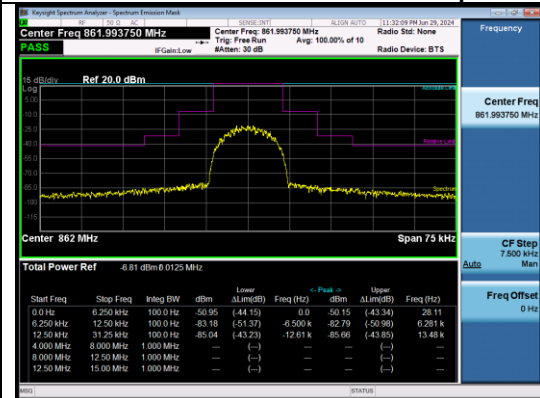
Pre-AGC_Input



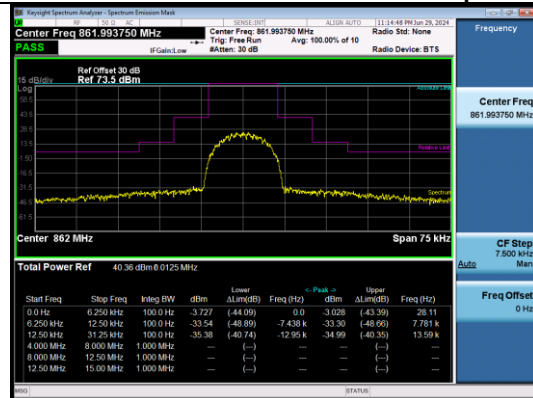
Pre-AGC_Output



3dB Above Pre-AGC_Input

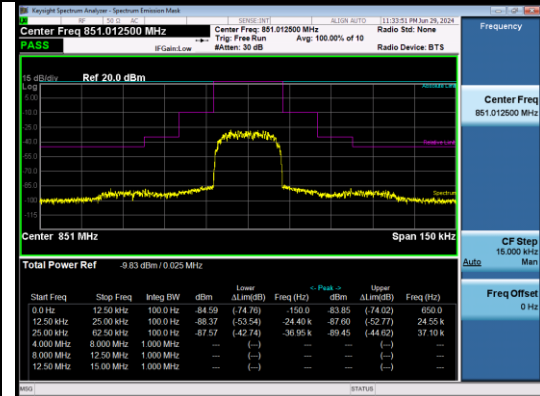


3dB Above Pre-AGC_Output

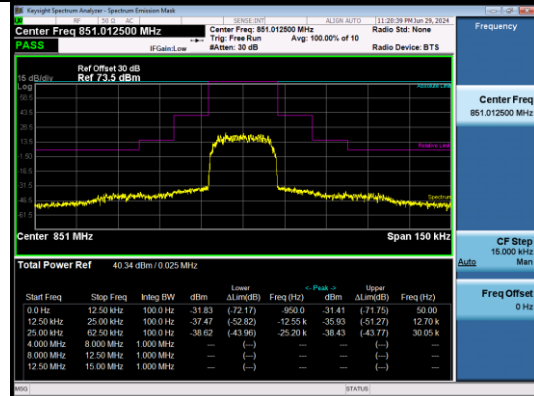


25KHz TETRA-Low

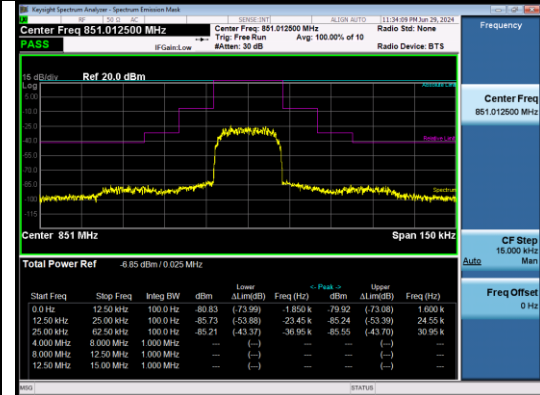
Pre-AGC_Input



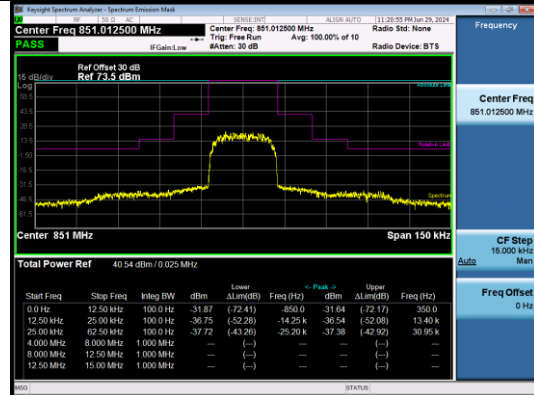
Pre-AGC_Output



3dB Above Pre-AGC_Input

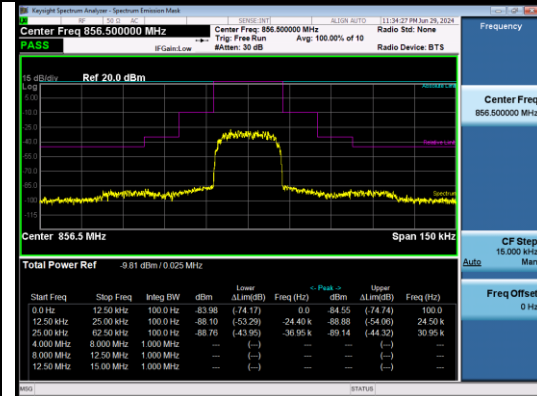


3dB Above Pre-AGC_Output

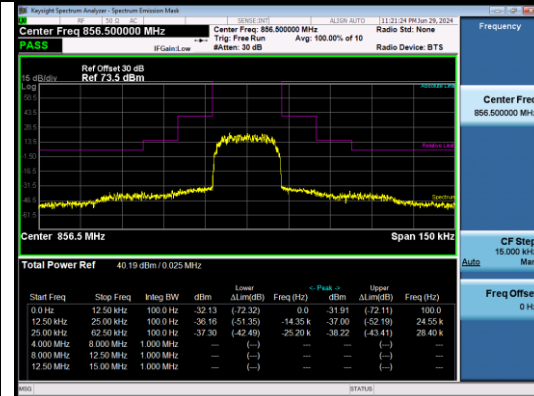


25KHz TETRA-Middle

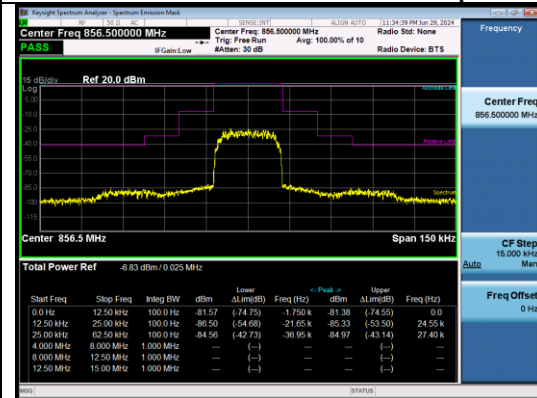
Pre-AGC_Input



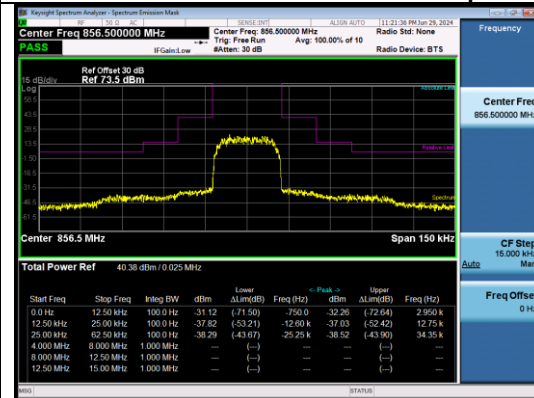
Pre-AGC_Output



3dB Above Pre-AGC_Input

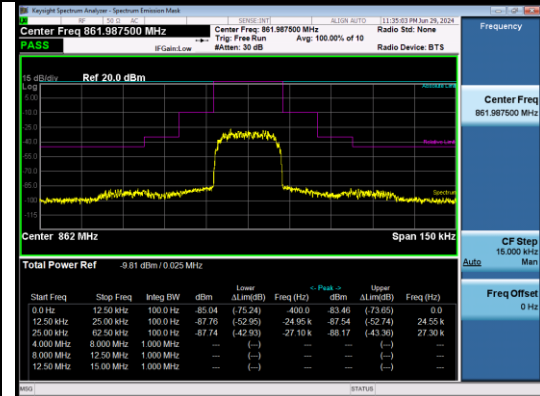


3dB Above Pre-AGC_Output

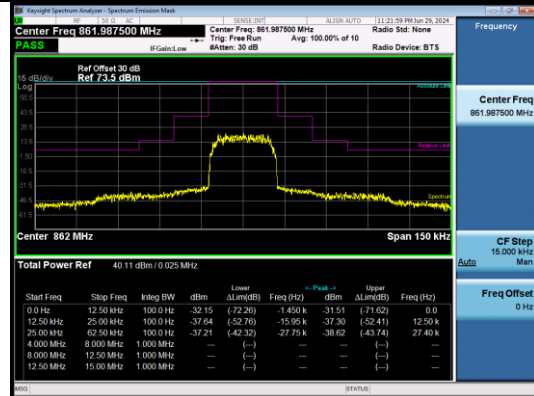


25KHz TETRA-High

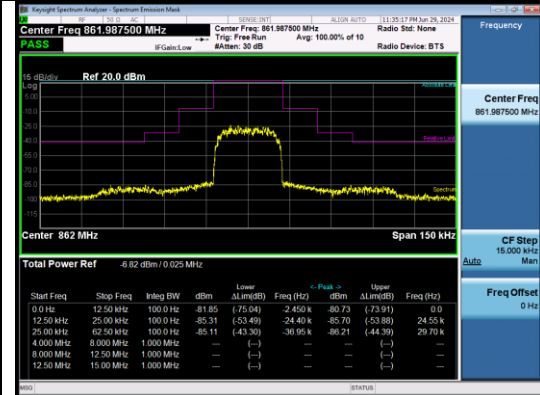
Pre-AGC_Input



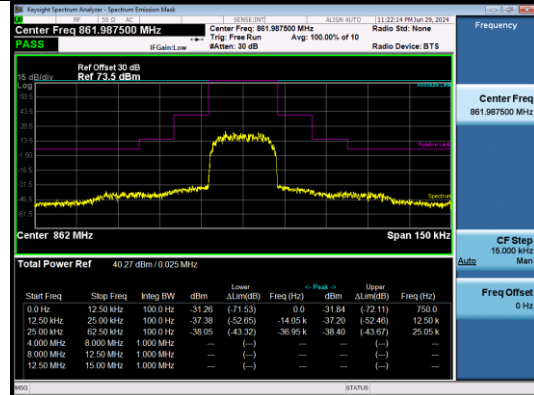
Pre-AGC_Output



3dB Above Pre-AGC_Input



3dB Above Pre-AGC_Output



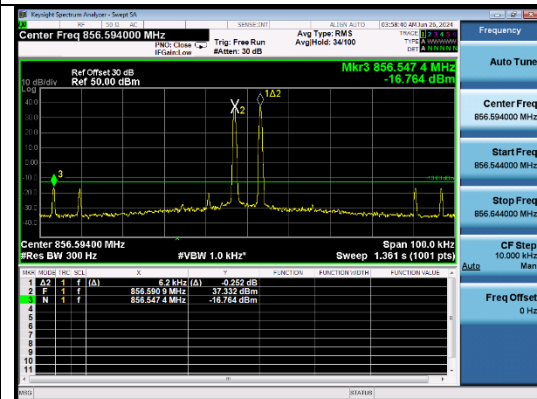
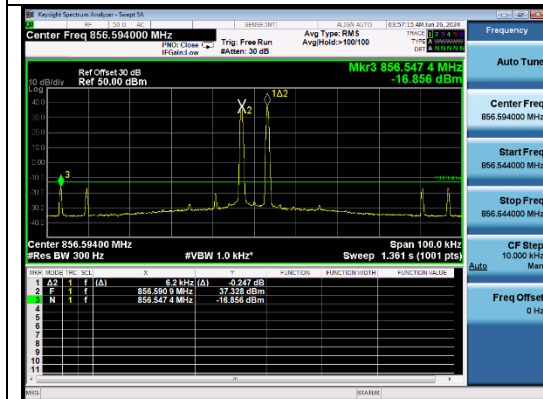
4. out of Band/out of block (including intermodulation)

Channel Spacing (KHz)	Signal Level	Worst Test Level (dBm)	Limit (dBm)	Result
6.25KHz	Pre-AGC	-16.856	-13	Pass
	3dB Above AGC	-16.764	-13	Pass
12.5KHz	Pre-AGC	-16.995	-13	Pass
	3dB Above AGC	-16.853	-13	Pass
25KHz	Pre-AGC	-16.879	-13	Pass
	3dB Above AGC	-16.899	-13	Pass

Channel Spacing: 6.25KHz

Pre-AGC

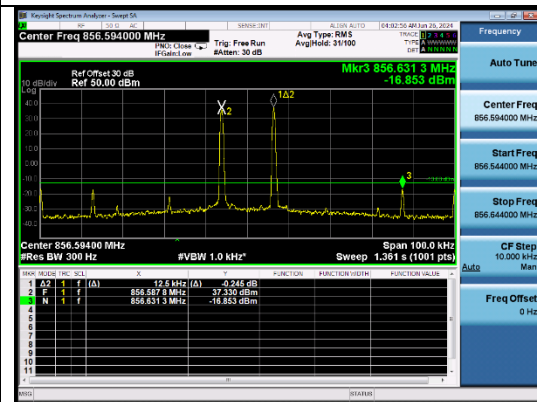
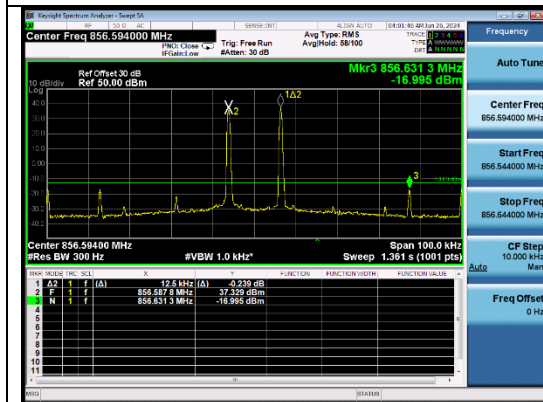
3dB Above AGC



Channel Spacing: 12.5KHz

Pre-AGC

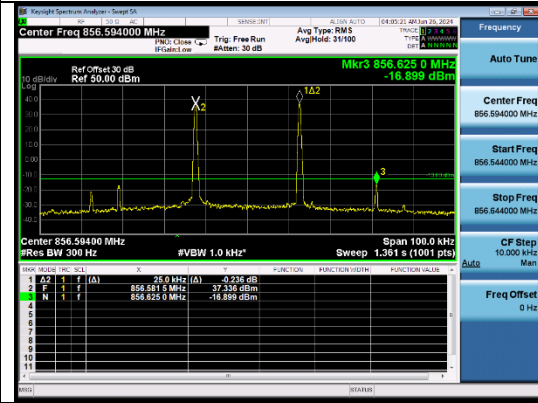
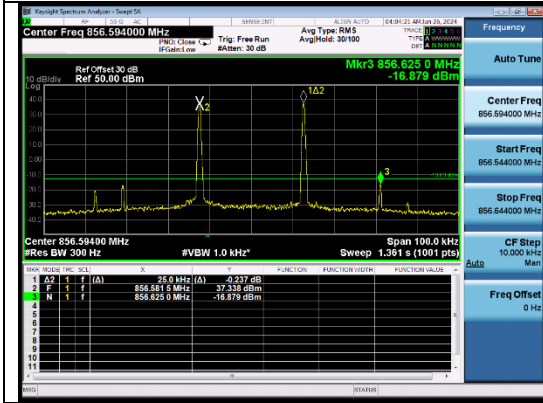
3dB Above AGC



Channel Spacing: 25KHz

Pre-AGC

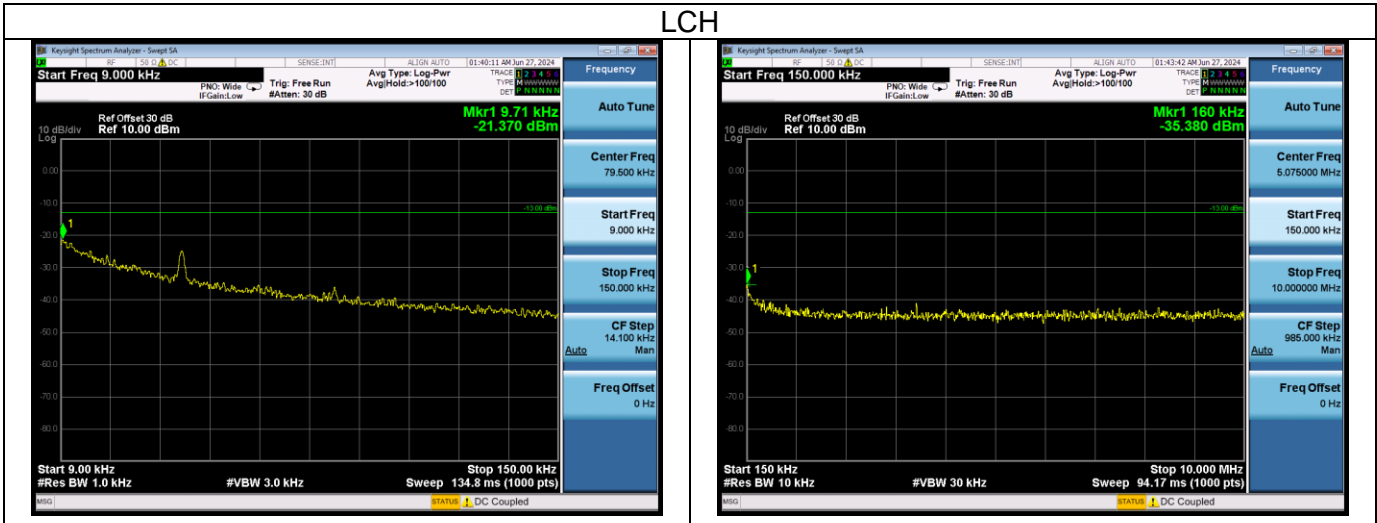
3dB Above AGC



5. Conducted Spurious Emissions

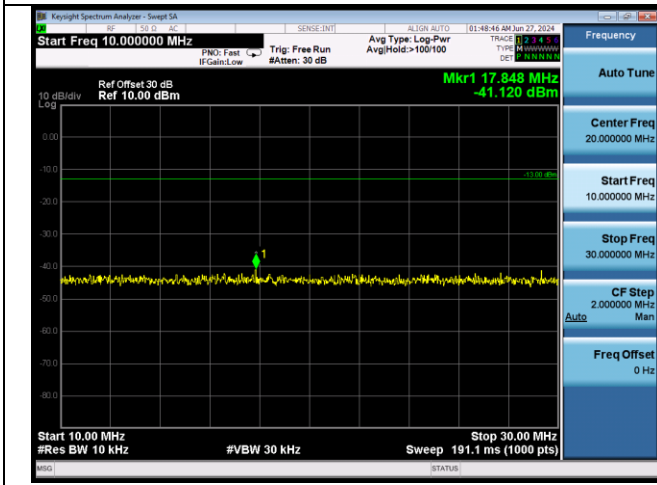
Channel	Frequency Range (MHz)	Worst Test Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
LCH	0.009~0.15	-21.37	-13.00	-8.37	Pass
	0.15~10	-35.38	-13.00	-22.38	Pass
	10~30	-41.12	-13.00	-28.12	Pass
	30~1000	-30.03	-13.00	-17.03	Pass
	1000~10000	-22.28	-13.00	-9.28	Pass
MCH	0.009~0.15	-22.68	-13.00	-9.68	Pass
	0.15~10	-36.19	-13.00	-23.19	Pass
	10~30	-41.85	-13.00	-28.85	Pass
	30~1000	-30.51	-13.00	-17.51	Pass
	1000~10000	-22.83	-13.00	-9.83	Pass
HCH	0.009~0.15	-22.53	-13.00	-9.53	Pass
	0.15~10	-35.07	-13.00	-22.07	Pass
	10 - 30	-41.20	-13.00	-28.20	Pass
	30 - 1000	-29.93	-13.00	-16.93	Pass
	1000 - 10000	-23.64	-13.00	-10.64	Pass

LCH

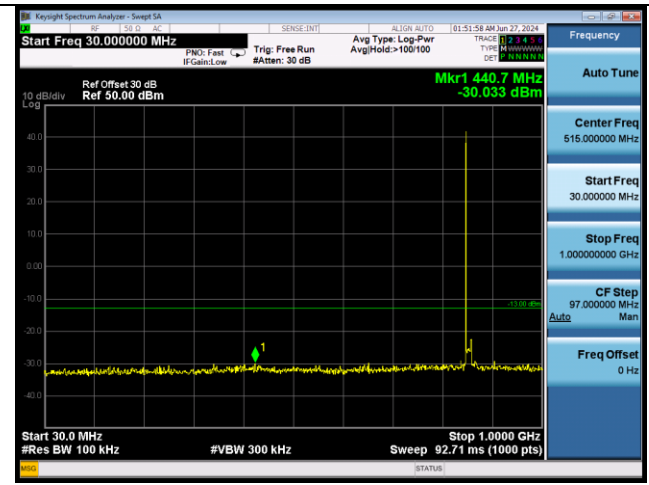


9KHz-150KHz

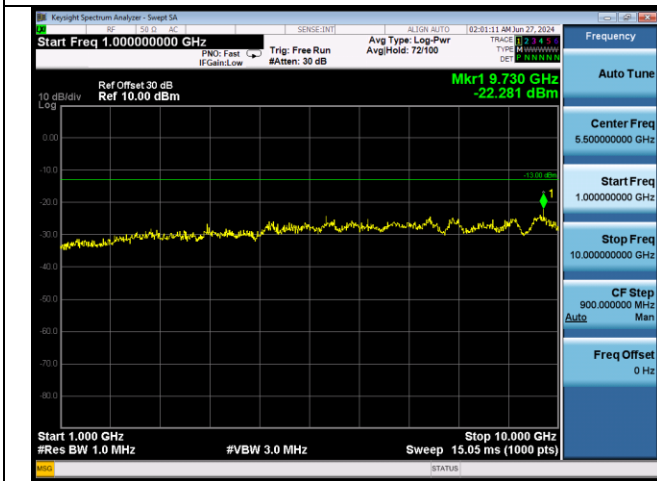
15KHz-10MHz



10MHz-30MHz

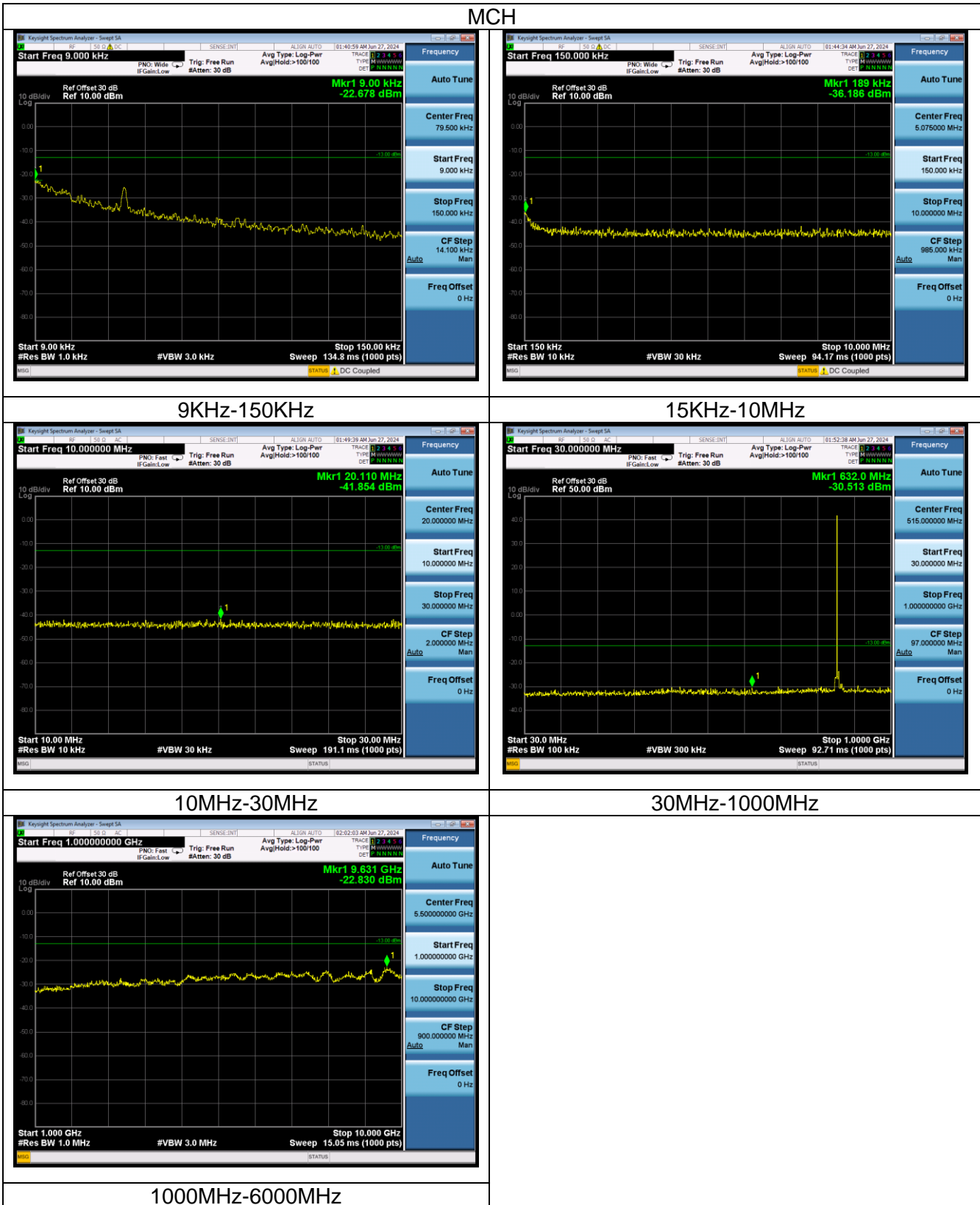


30MHz-1000MHz

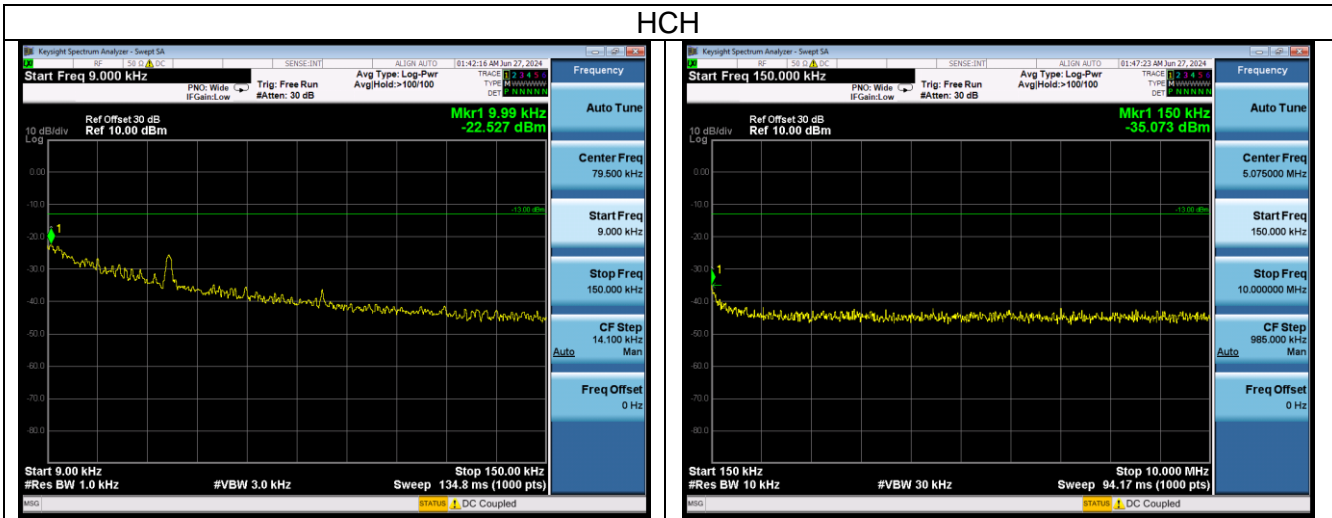


1000MHz-6000MHz

MCH

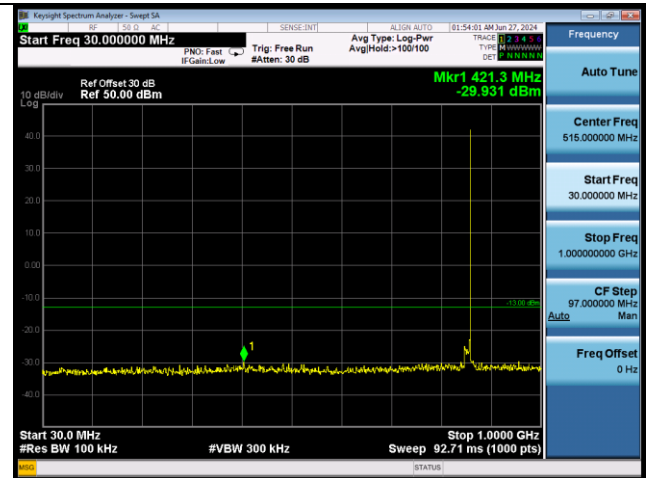
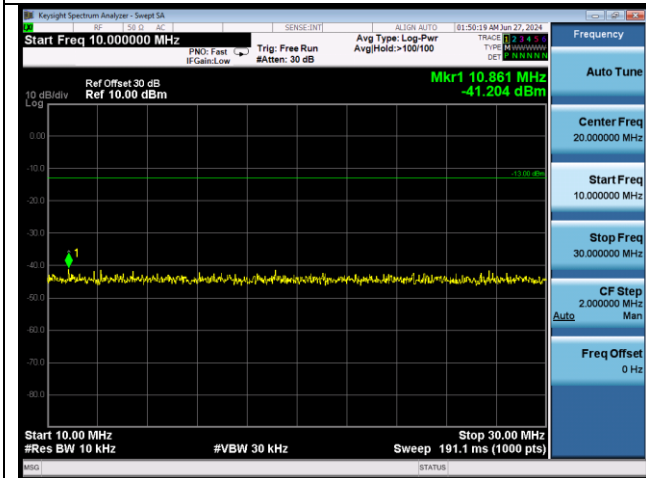


HCH



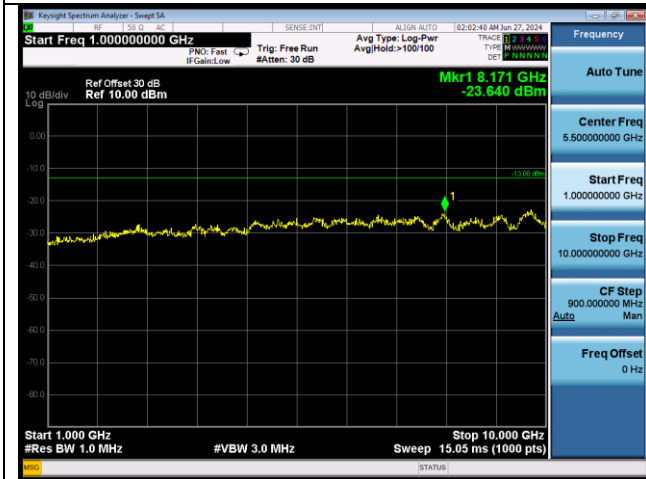
9KHz-150KHz

150KHz-10MHz



10MHz-30MHz

30MHz-1000MHz



1000MHz-6000MHz

6. Radiated Spurious Emissions

851MHz-862MHz-Low Channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over Limit	Verdict
	MHz	Polarization			
99.42	Horizontal	-56.52	-13	-43.52	Pass
318.25	Horizontal	-51.37	-13	-38.37	Pass
871.71	Horizontal	-53.73	-13	-40.73	Pass
2685.99	Horizontal	-45.35	-13	-32.35	Pass
5110.93	Horizontal	-41.20	-13	-28.20	Pass
8720.75	Horizontal	-34.47	-13	-21.47	Pass
131.16	Vertical	-54.79	-13	-41.79	Pass
400.76	Vertical	-51.36	-13	-38.36	Pass
764.05	Vertical	-53.51	-13	-40.51	Pass
3269.83	Vertical	-48.51	-13	-35.51	Pass
4760.21	Vertical	-44.99	-13	-31.99	Pass
9191.33	Vertical	-36.72	-13	-23.72	Pass

851MHz-862MHz-Middle Channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over Limit	Verdict
	MHz	Polarization			
110.34	Horizontal	-50.50	-13	-37.50	Pass
180.96	Horizontal	-51.48	-13	-38.48	Pass
801.07	Horizontal	-51.48	-13	-38.48	Pass
1167.87	Horizontal	-34.30	-13	-21.30	Pass
4990.40	Horizontal	-39.46	-13	-26.46	Pass
7918.33	Horizontal	-35.36	-13	-22.36	Pass
144.04	Vertical	-50.56	-13	-37.56	Pass
170.32	Vertical	-61.01	-13	-48.01	Pass
557.17	Vertical	-56.63	-13	-43.63	Pass
3185.14	Vertical	-45.30	-13	-32.30	Pass
4895.07	Vertical	-39.22	-13	-26.22	Pass
9454.45	Vertical	-46.02	-13	-33.02	Pass

851MHz-862MHz-High Channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over Limit	Verdict
MHz	Polarization	dBm	dBm	dB	
147.16	Horizontal	-52.62	-13	-39.62	Pass
513.28	Horizontal	-62.67	-13	-49.67	Pass
569.28	Horizontal	-62.71	-13	-49.71	Pass
1154.18	Horizontal	-35.81	-13	-22.81	Pass
3697.91	Horizontal	-38.99	-13	-25.99	Pass
9526.38	Horizontal	-42.14	-13	-29.14	Pass
153.55	Vertical	-54.10	-13	-41.10	Pass
236.46	Vertical	-56.09	-13	-43.09	Pass
988.09	Vertical	-53.47	-13	-40.47	Pass
2240.09	Vertical	-37.39	-13	-24.39	Pass
3399.73	Vertical	-45.25	-13	-32.25	Pass
8312.66	Vertical	-37.25	-13	-24.25	Pass

7. Frequency Stability

Frequency Stability vs temperature:

Channel Bandwidth(KHz)	Temperature (°C)	Voltage (V ac)	Frequency Error(Hz)	Tolerance (ppm)	Limit(ppm)
6.25KHz	50	120	63.96	0.0747	0.1
	40	120	60.55	0.0707	0.1
	30	120	17.14	0.0200	0.1
	20	120	40.93	0.0478	0.1
	10	120	49.14	0.0574	0.1
	0	120	13.59	0.0159	0.1
	-10	120	50.01	0.0584	0.1
	-20	120	9.04	0.0106	0.1
	-30	120	34.11	0.0398	0.1
	-40	120	35.92	0.0419	0.1
12.5KHz	50	120	11.32	0.0132	0.1
	40	120	23.48	0.0274	0.1
	30	120	23.15	0.0270	0.1
	20	120	64.36	0.0751	0.1
	10	120	8.10	0.0095	0.1
	0	120	58.82	0.0687	0.1
	-10	120	43.88	0.0512	0.1
	-20	120	55.59	0.0649	0.1
	-30	120	47.72	0.0557	0.1
	-40	120	55.34	0.0646	0.1
25KHz	50	120	14.27	0.0167	0.1
	40	120	16.24	0.0190	0.1
	30	120	39.46	0.0461	0.1
	20	120	40.03	0.0467	0.1
	10	120	63.76	0.0744	0.1
	0	120	23.17	0.0271	0.1
	-10	120	26.61	0.0311	0.1
	-20	120	40.62	0.0474	0.1
	-30	120	64.90	0.0758	0.1
	-40	120	64.46	0.0753	0.1

Frequency Stability vs voltage:

Channel Bandwidth(KHz)	Voltage (V ac)	Temperature (°C)	Frequency Error(Hz)	Tolerance (ppm)	Limit(ppm)
6.25KHz	102	20	7.48	0.0087	0.1
	120	20	25.55	0.0298	0.1
	138	20	27.64	0.0323	0.1
12.5KHz	102	20	49.19	0.0574	0.1
	120	20	36.33	0.0424	0.1
	138	20	12.64	0.0148	0.1
25KHz	102	20	10.60	0.0124	0.1
	120	20	63.22	0.0738	0.1
	138	20	66.39	0.0775	0.1

8. Noise

