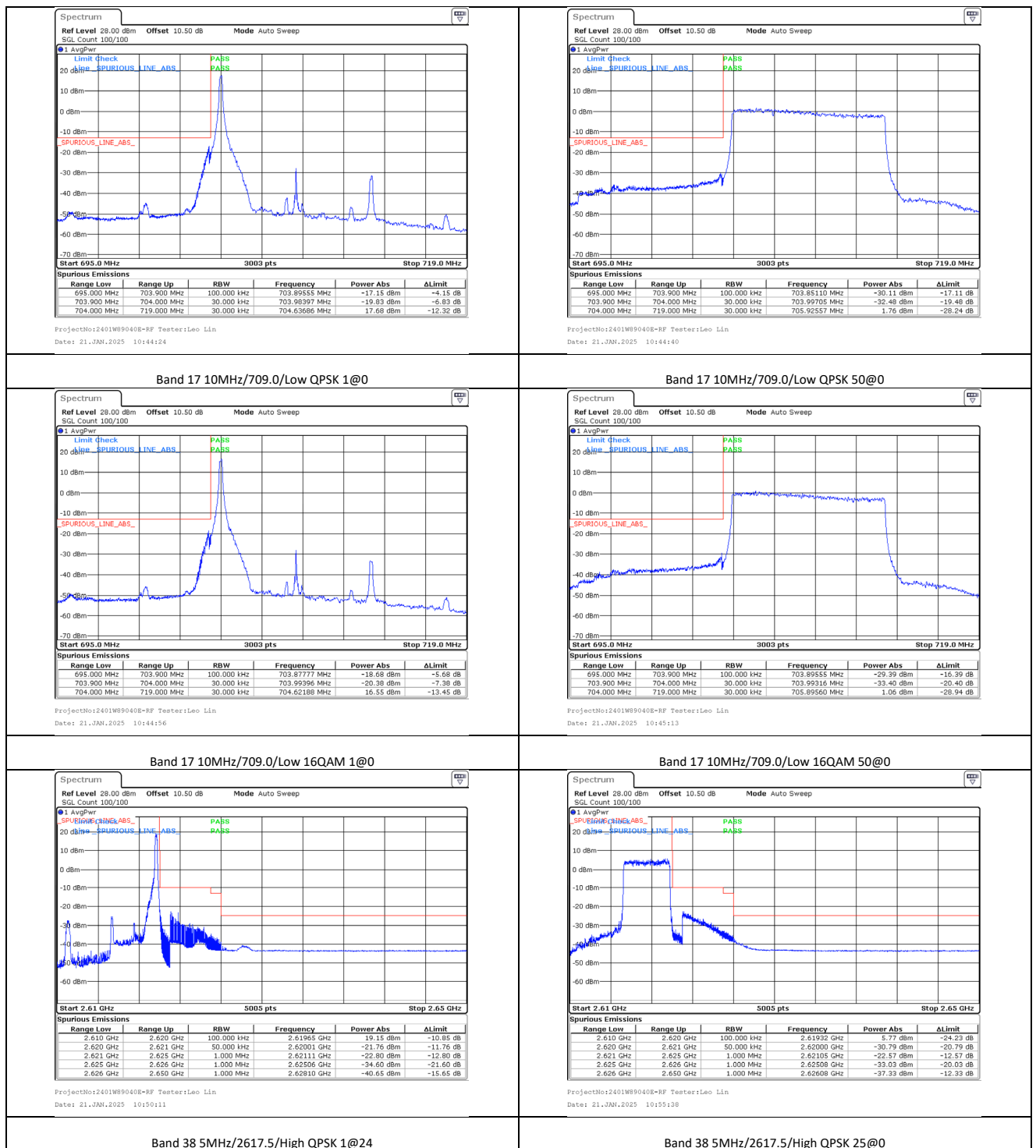
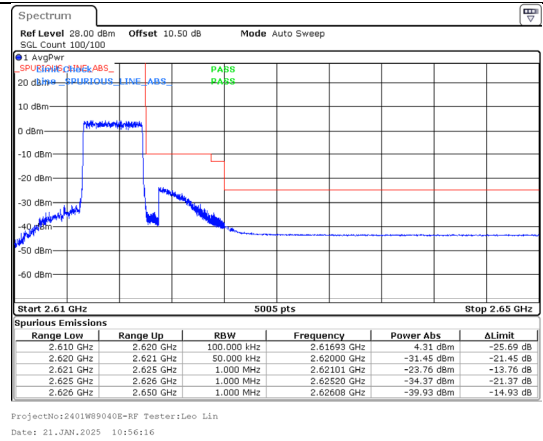
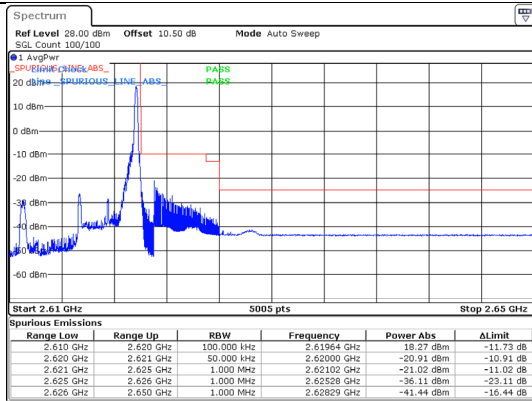
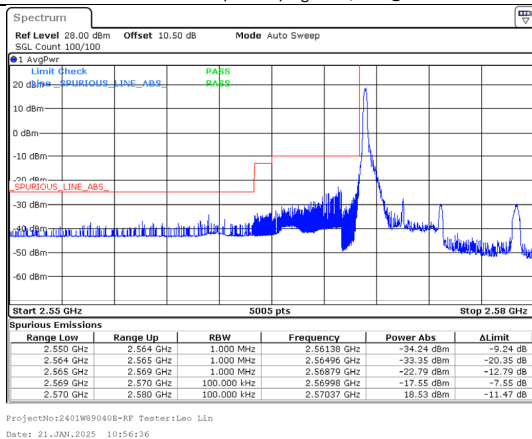


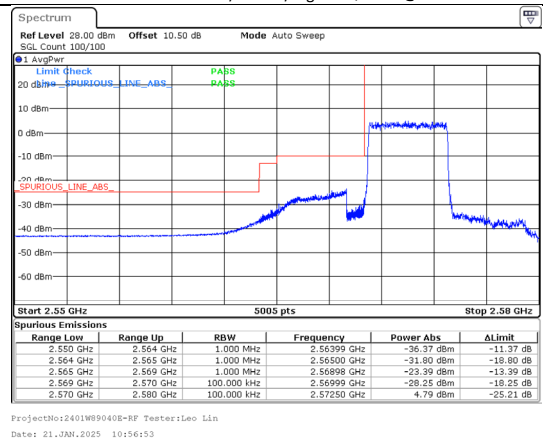




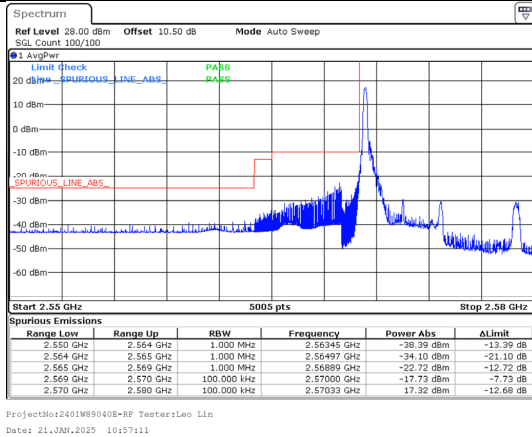
Band 38 5MHz/2617.5/High 16QAM 1@24



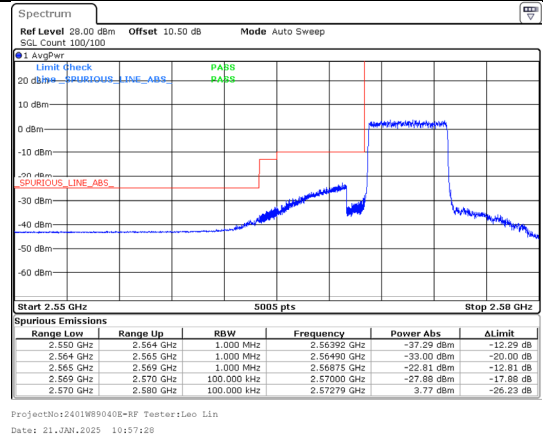
Band 38 5MHz/2617.5/High 16QAM 25@0



Band 38 5MHz/2572.5/Low QPSK 1@0

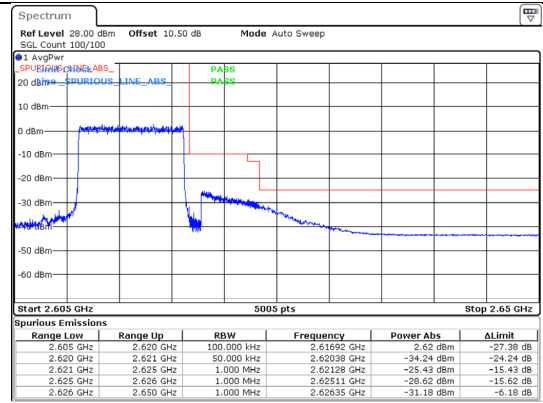
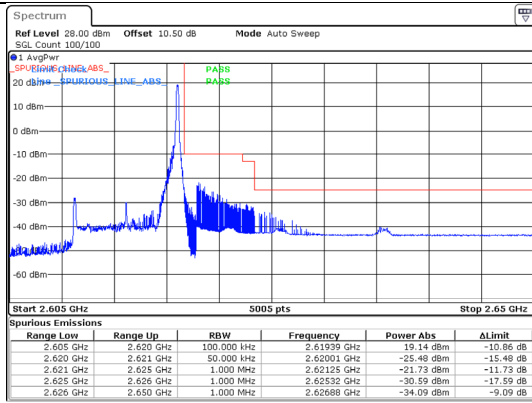


Band 38 5MHz/2572.5/Low QPSK 25@0

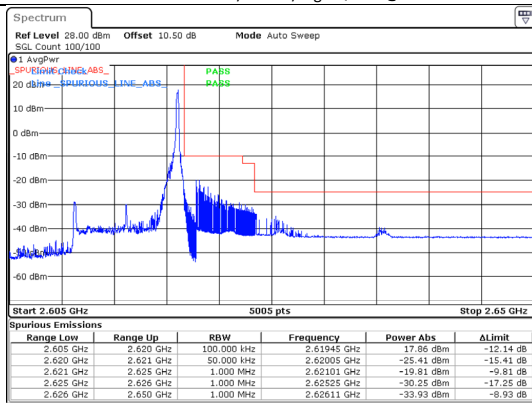


Band 38 5MHz/2572.5/Low 16QAM 1@0

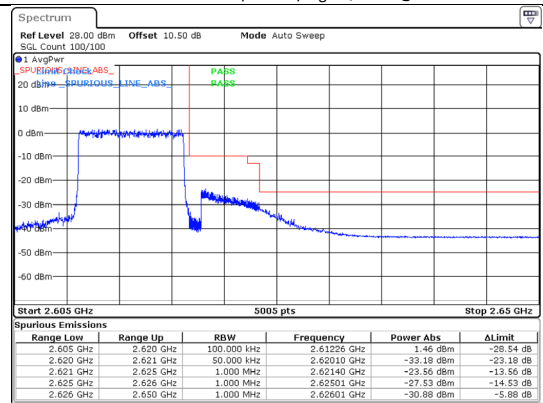
Band 38 5MHz/2572.5/Low 16QAM 25@0



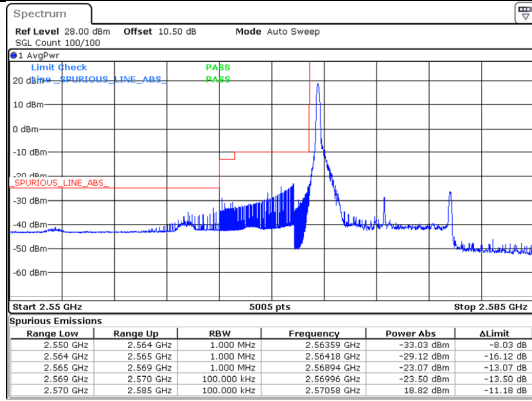
Band 38 10MHz/2615.0/High QPSK 1@49



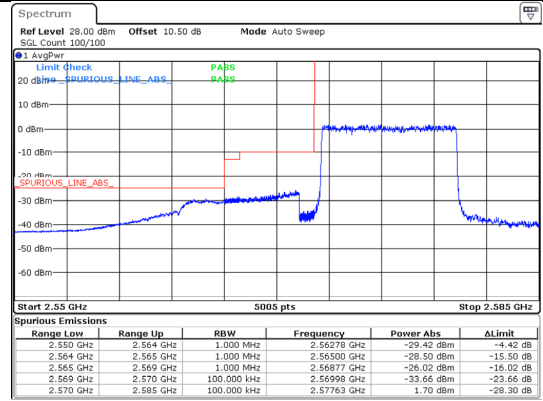
Band 38 10MHz/2615.0/High QPSK 50@0



Band 38 10MHz/2615.0/High 16QAM 1@49

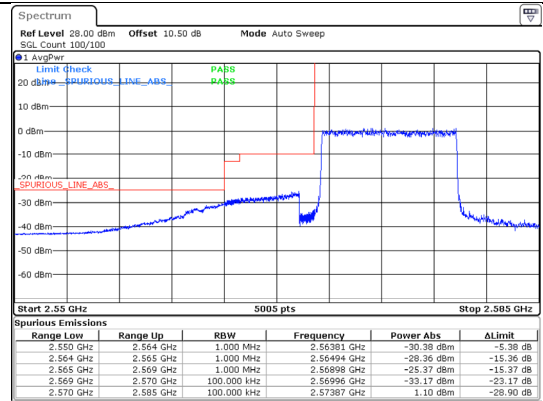
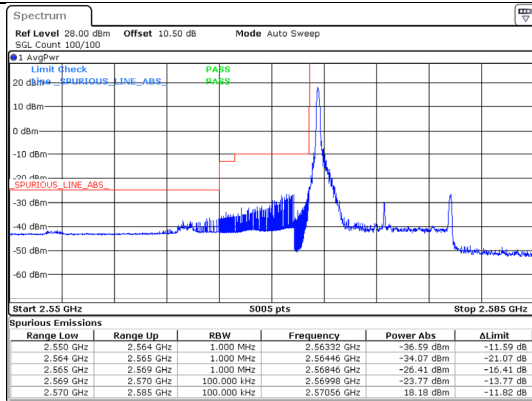


Band 38 10MHz/2615.0/High 16QAM 50@0

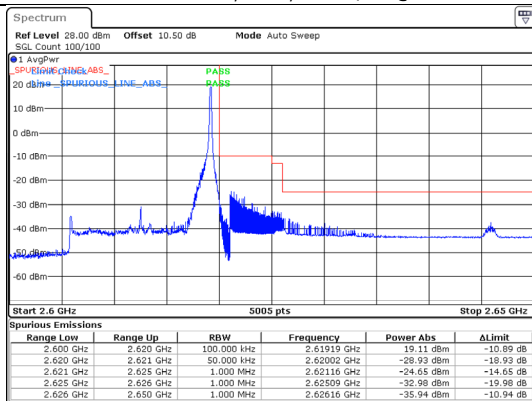


Band 38 10MHz/2575.0/Low QPSK 1@0

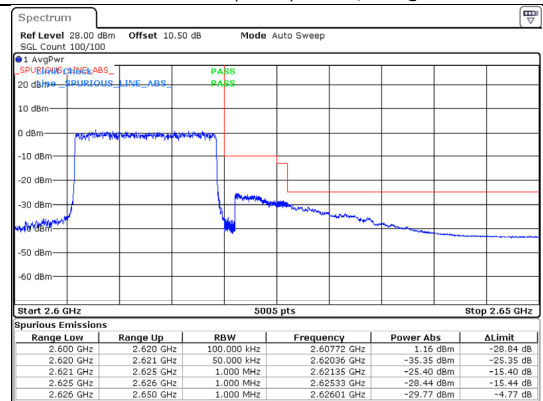
Band 38 10MHz/2575.0/Low QPSK 50@0



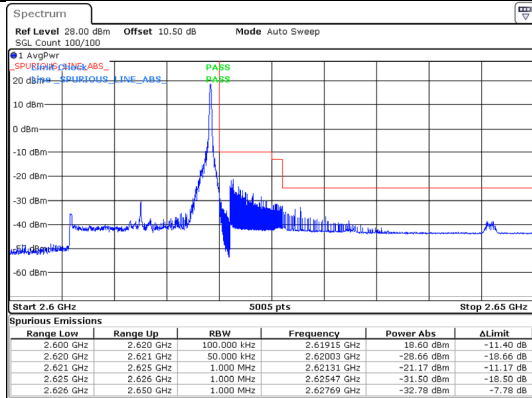
Band 38 10MHz/2575.0/Low 16QAM 1@0



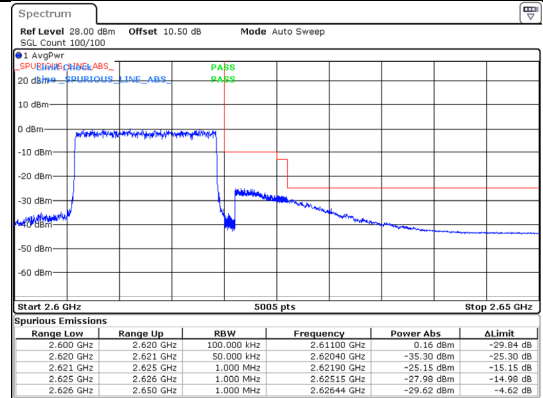
Band 38 10MHz/2575.0/Low 16QAM 50@0



Band 38 15MHz/2612.5/High QPSK 1@74

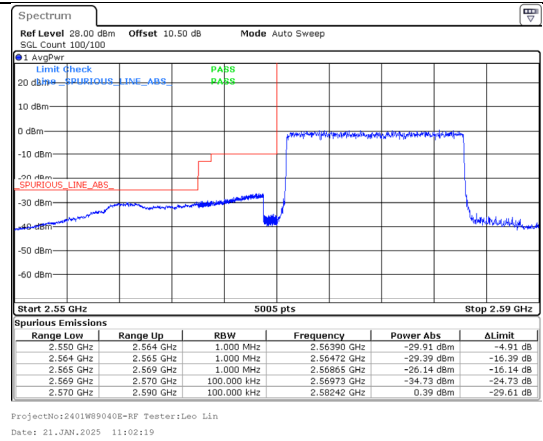
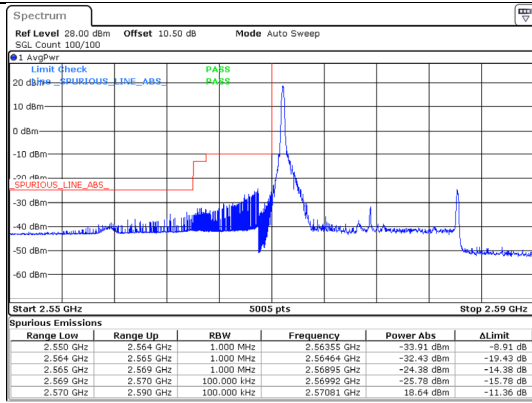


Band 38 15MHz/2612.5/High QPSK 75@0

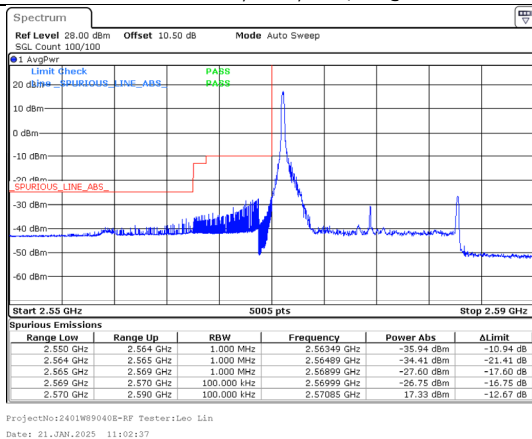


Band 38 15MHz/2612.5/High 16QAM 1@74

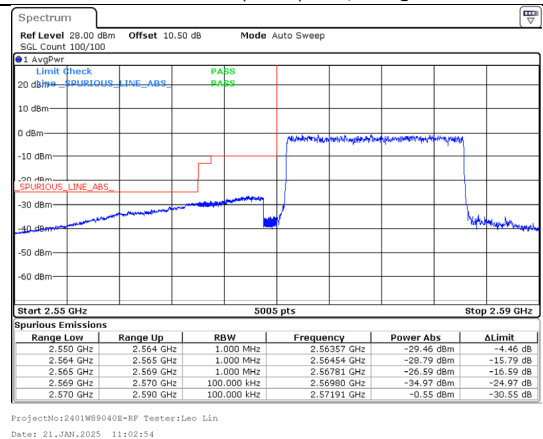
Band 38 15MHz/2612.5/High 16QAM 75@0



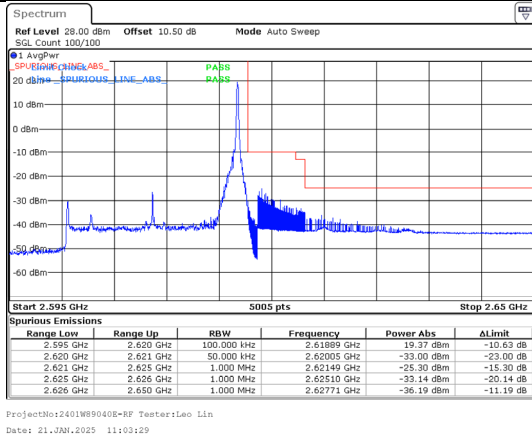
Band 38 15MHz/2577.5/Low QPSK 1@0



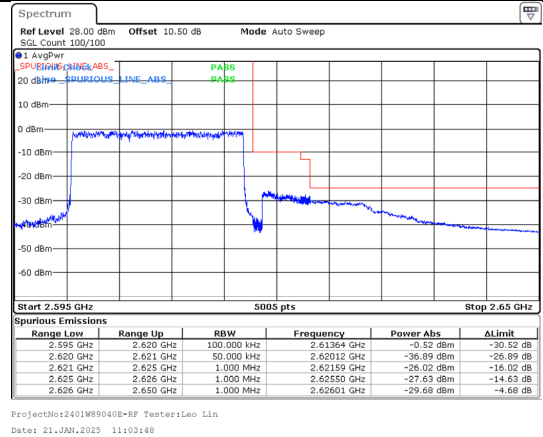
Band 38 15MHz/2577.5/Low QPSK 75@0



Band 38 15MHz/2577.5/Low 16QAM 1@0

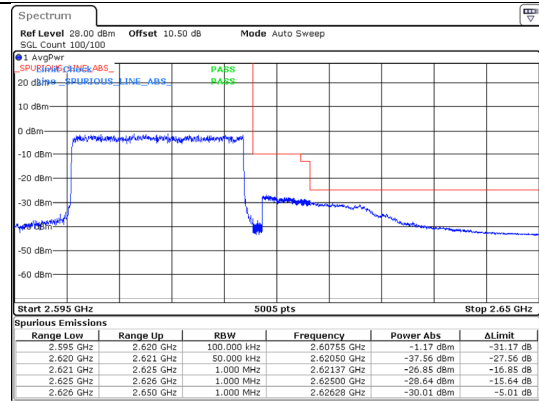
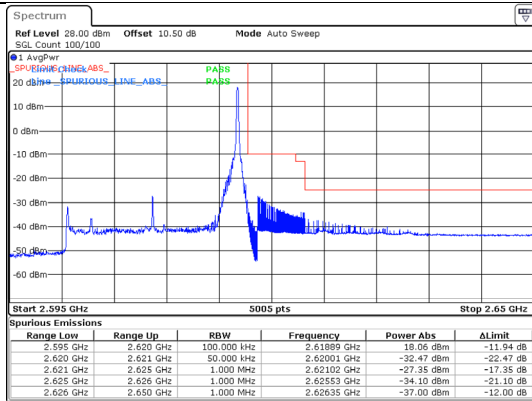


Band 38 15MHz/2577.5/Low 16QAM 75@0

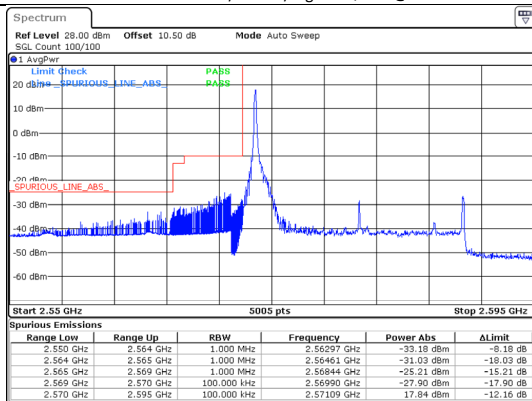


Band 38 20MHz/2610.0/High QPSK 1@99

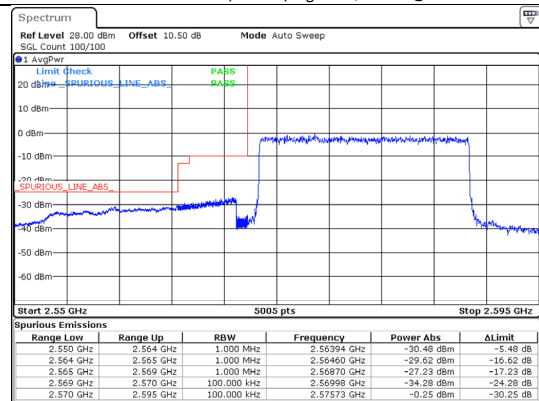
Band 38 20MHz/2610.0/High QPSK 100@0



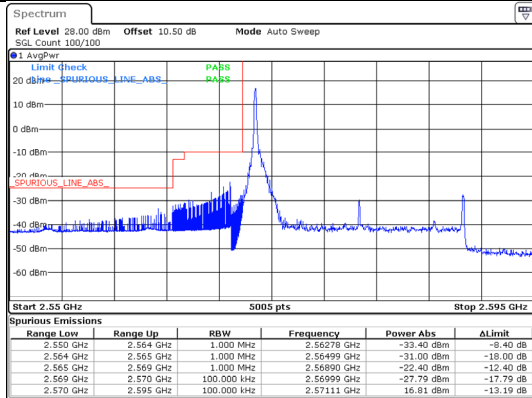
Band 38 20MHz/2610.0/High 16QAM 1@99



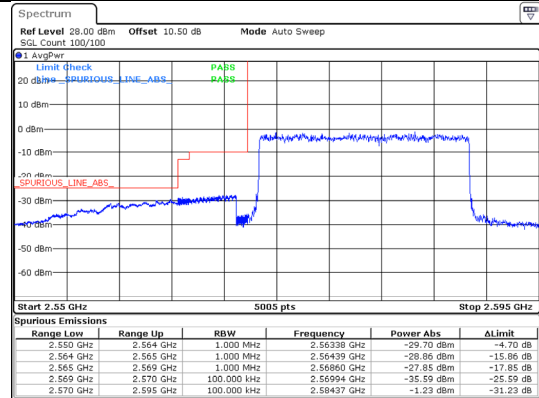
Band 38 20MHz/2610.0/High 16QAM 100@0



Band 38 20MHz/2580.0/Low QPSK 1@0

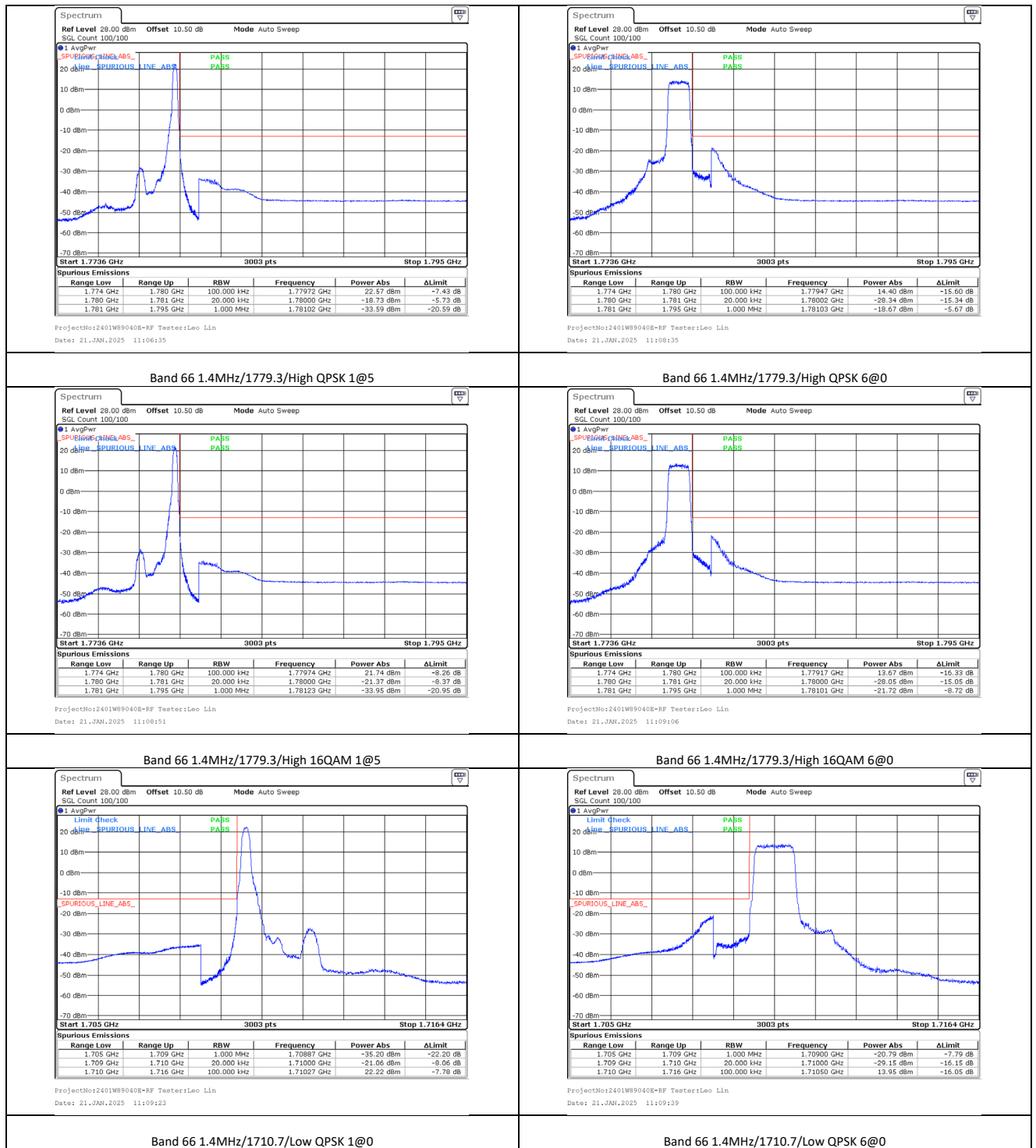


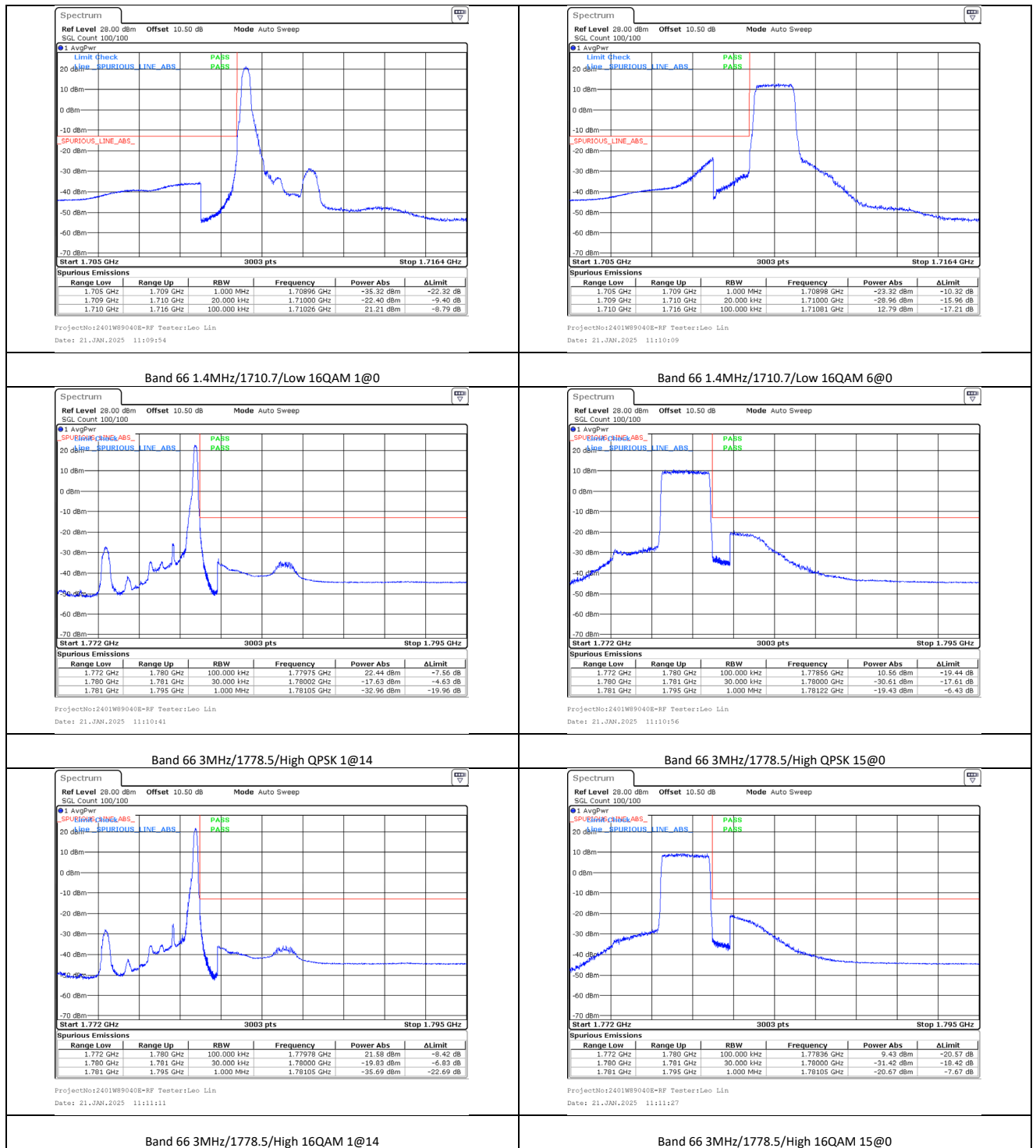
Band 38 20MHz/2580.0/Low QPSK 100@0

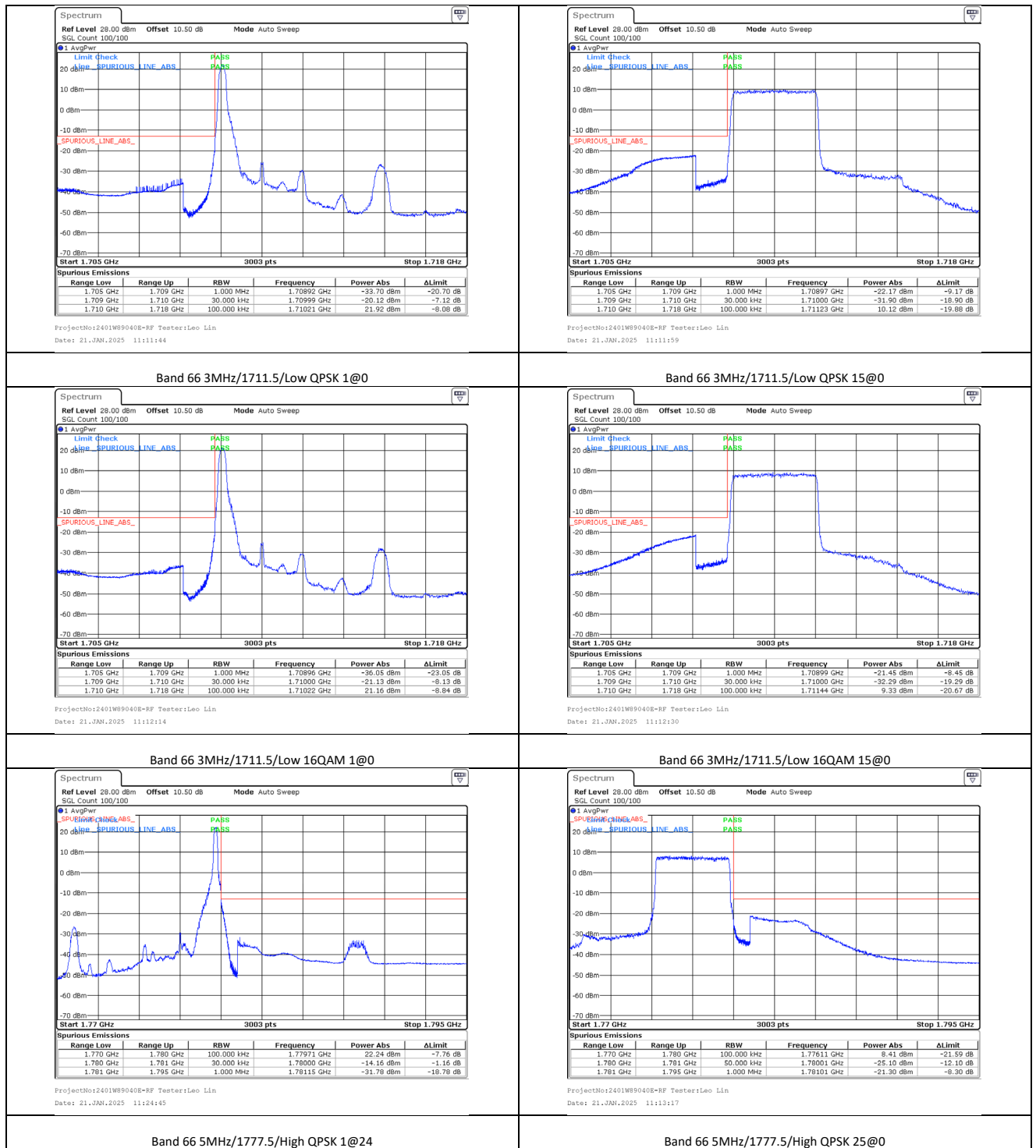


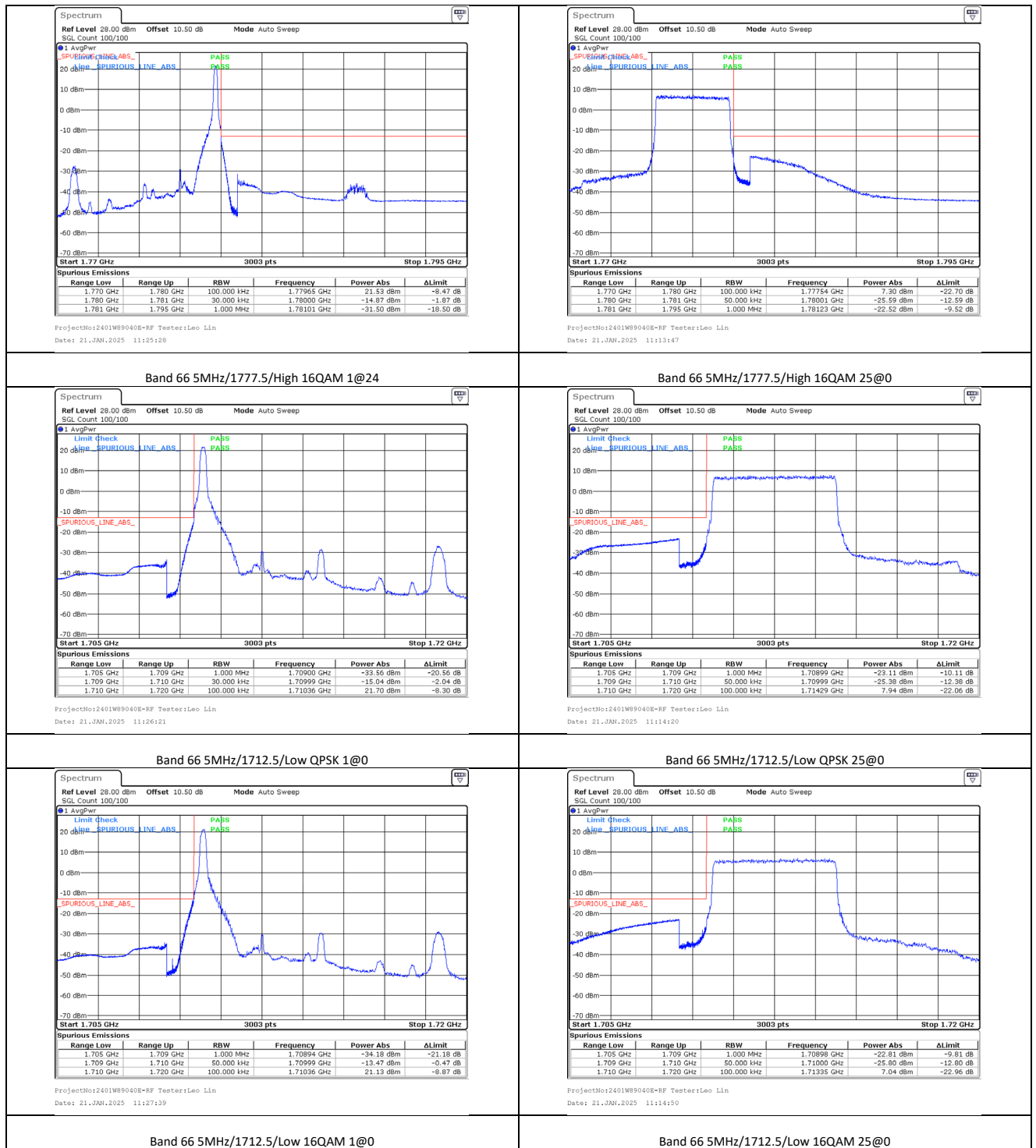
Band 38 20MHz/2580.0/Low 16QAM 1@0

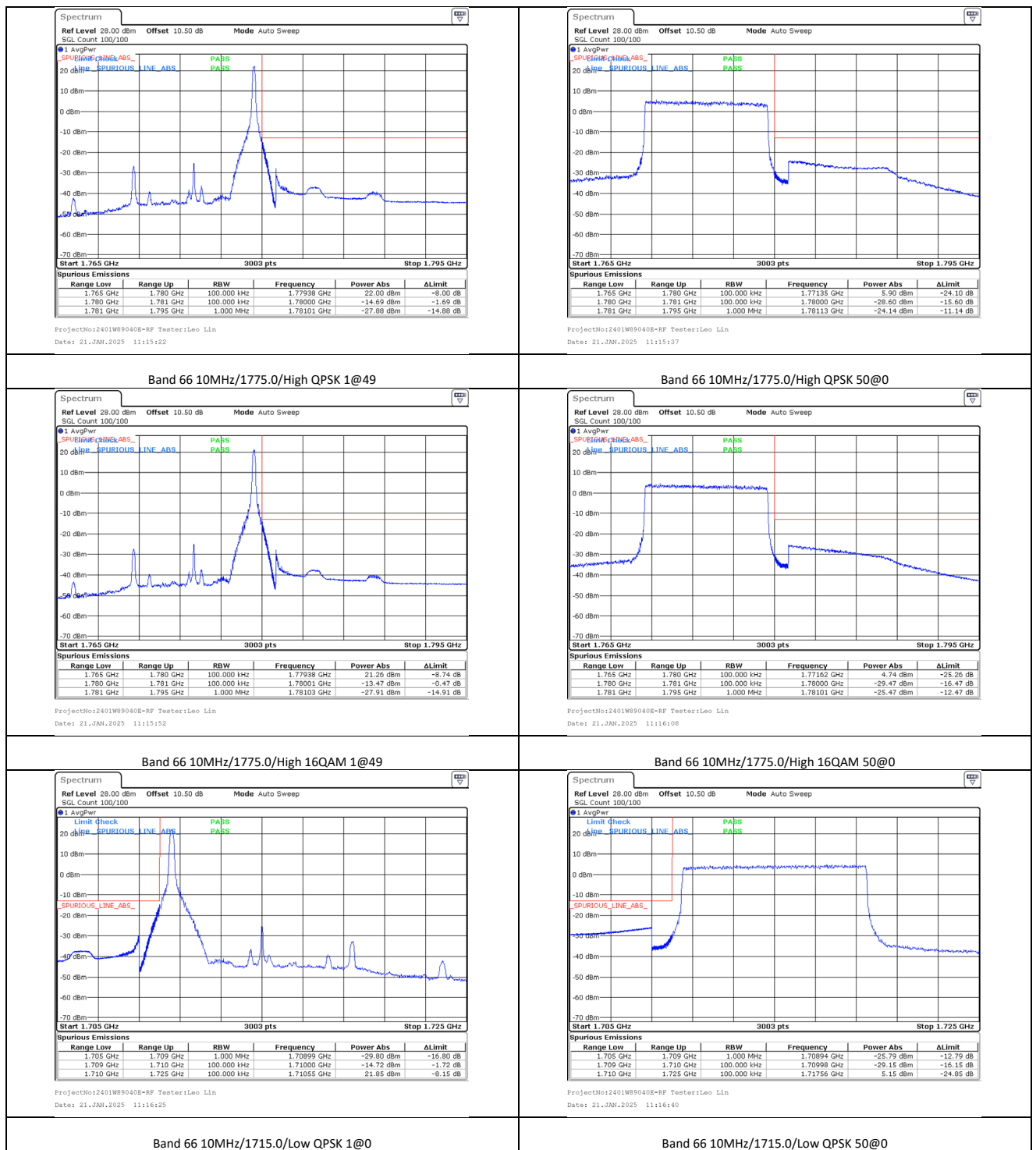
Band 38 20MHz/2580.0/Low 16QAM 100@0



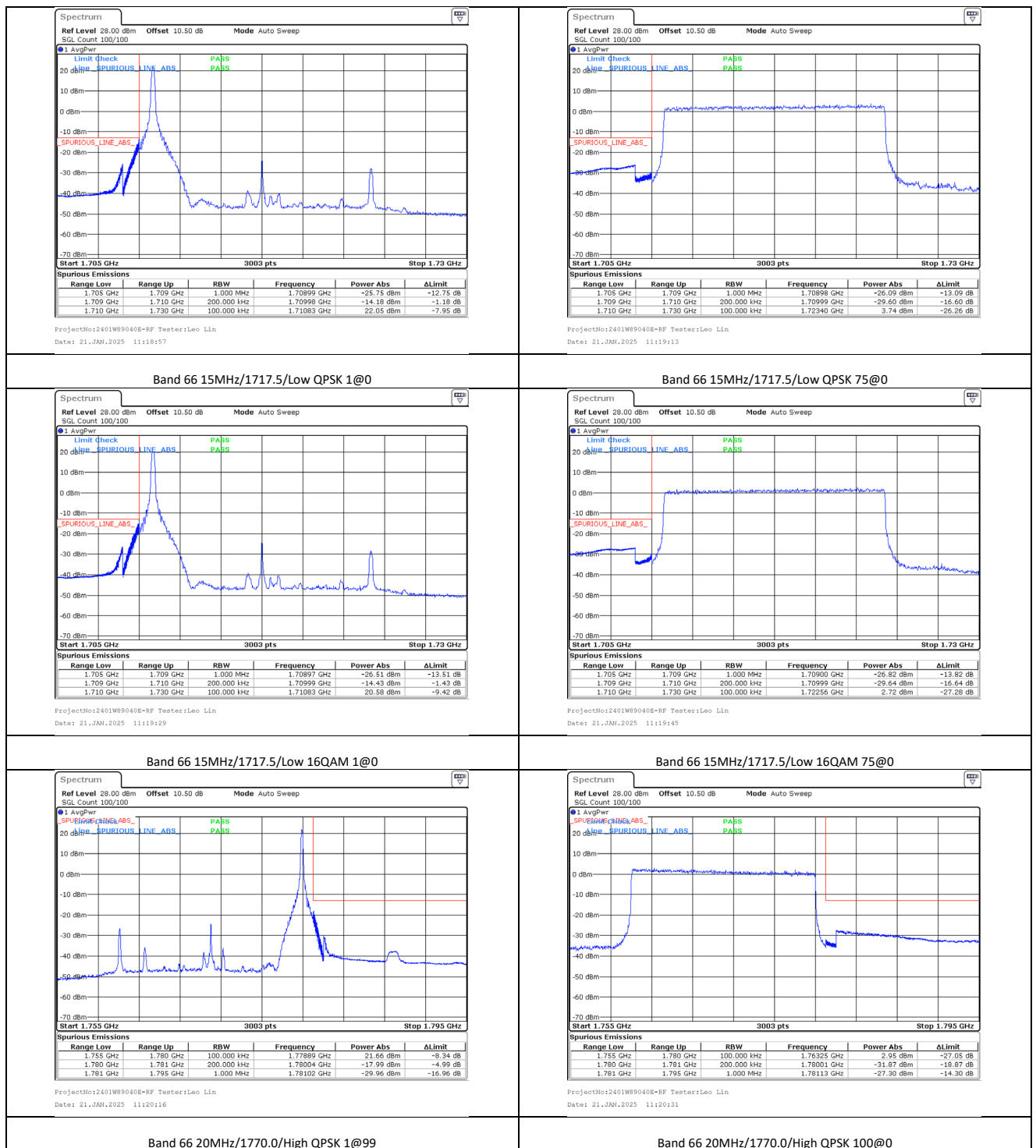














Frequency Stability

Band	Freq (MHz)	Lower Edge (MHz) (Result)	Limit (1850MHz)	Upper Edge(MHz) (Result)	Limit (1910MHz)	Environment
20MHz Bandwidth QPSK						
2	1860/1900	1850.0362	1850.000	1909.9609	1910.000	20°C/3.4V _{DC}
2	1860/1900	1850.0418	1850.000	1909.9656	1910.000	20°C/4.4V _{DC}
2	1860/1900	1850.0413	1850.000	1909.9655	1910.000	-30°C/3.8V _{DC}
2	1860/1900	1850.0419	1850.000	1909.9648	1910.000	-20°C/3.8V _{DC}
2	1860/1900	1850.0381	1850.000	1909.9614	1910.000	-10°C/3.8V _{DC}
2	1860/1900	1850.0389	1850.000	1909.9659	1910.000	0°C/3.8V _{DC}
2	1860/1900	1850.0363	1850.000	1909.9592	1910.000	10°C/3.8V _{DC}
2	1860/1900	1850.0356	1850.000	1909.9626	1910.000	20°C/3.8V _{DC}
2	1860/1900	1850.0422	1850.000	1909.9622	1910.000	30°C/3.8V _{DC}
2	1860/1900	1850.0362	1850.000	1909.9608	1910.000	40°C/3.8V _{DC}
2	1860/1900	1850.0402	1850.000	1909.9607	1910.000	50°C/3.8V _{DC}
20MHz Bandwidth 16QAM						
2	1860/1900	1850.0436	1850.000	1909.9637	1910.000	20°C/3.4V _{DC}
2	1860/1900	1850.0380	1850.000	1909.9566	1910.000	20°C/4.4V _{DC}
2	1860/1900	1850.0368	1850.000	1909.9621	1910.000	-30°C/3.8V _{DC}
2	1860/1900	1850.0378	1850.000	1909.9609	1910.000	-20°C/3.8V _{DC}
2	1860/1900	1850.0397	1850.000	1909.9590	1910.000	-10°C/3.8V _{DC}
2	1860/1900	1850.0406	1850.000	1909.9620	1910.000	0°C/3.8V _{DC}
2	1860/1900	1850.0388	1850.000	1909.9640	1910.000	10°C/3.8V _{DC}
2	1860/1900	1850.0401	1850.000	1909.9604	1910.000	20°C/3.8V _{DC}
2	1860/1900	1850.0400	1850.000	1909.9563	1910.000	30°C/3.8V _{DC}
2	1860/1900	1850.0428	1850.000	1909.9615	1910.000	40°C/3.8V _{DC}
2	1860/1900	1850.0392	1850.000	1909.9626	1910.000	50°C/3.8V _{DC}

Band	Freq (MHz)	Lower Edge (MHz) (Result)	Limit (1710MHz)	Upper Edge(MHz) (Result)	Limit (1755MHz)	Environment
20MHz Bandwidth QPSK						
4	1720/1745	1710.0479	1710.000	1754.9541	1755.000	20℃/3.4V _{DC}
4	1720/1745	1710.0468	1710.000	1754.9595	1755.000	20℃/4.4V _{DC}
4	1720/1745	1710.0431	1710.000	1754.9534	1755.000	-30℃/3.8V _{DC}
4	1720/1745	1710.0450	1710.000	1754.9596	1755.000	-20℃/3.8V _{DC}
4	1720/1745	1710.0434	1710.000	1754.9551	1755.000	-10℃/3.8V _{DC}
4	1720/1745	1710.0477	1710.000	1754.9596	1755.000	0℃/3.8V _{DC}
4	1720/1745	1710.0431	1710.000	1754.9600	1755.000	10℃/3.8V _{DC}
4	1720/1745	1710.0478	1710.000	1754.9568	1755.000	20℃/3.8V _{DC}
4	1720/1745	1710.0408	1710.000	1754.9598	1755.000	30℃/3.8V _{DC}
4	1720/1745	1710.0425	1710.000	1754.9529	1755.000	40℃/3.8V _{DC}
4	1720/1745	1710.0444	1710.000	1754.9542	1755.000	50℃/3.8V _{DC}
20MHz Bandwidth 16QAM						
4	1720/1745	1710.0430	1710.000	1754.9603	1755.000	20℃/3.4V _{DC}
4	1720/1745	1710.0430	1710.000	1754.9558	1755.000	20℃/4.4V _{DC}
4	1720/1745	1710.0446	1710.000	1754.9607	1755.000	-30℃/3.8V _{DC}
4	1720/1745	1710.0414	1710.000	1754.9558	1755.000	-20℃/3.8V _{DC}
4	1720/1745	1710.0417	1710.000	1754.9563	1755.000	-10℃/3.8V _{DC}
4	1720/1745	1710.0460	1710.000	1754.9589	1755.000	0℃/3.8V _{DC}
4	1720/1745	1710.0426	1710.000	1754.9579	1755.000	10℃/3.8V _{DC}
4	1720/1745	1710.0423	1710.000	1754.9590	1755.000	20℃/3.8V _{DC}
4	1720/1745	1710.0397	1710.000	1754.9544	1755.000	30℃/3.8V _{DC}
4	1720/1745	1710.0389	1710.000	1754.9611	1755.000	40℃/3.8V _{DC}
4	1720/1745	1710.0430	1710.000	1754.9540	1755.000	50℃/3.8V _{DC}

Band 5

Test Modulation:	10MHz QPSK		Test Channel:	836.5MHz	
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.80	8.57	0.01025	2.5
	-20	3.80	6.11	0.00730	2.5
	-10	3.80	1.49	0.00178	2.5
	0	3.80	5.01	0.00599	2.5
	10	3.80	3.50	0.00418	2.5
	20	3.80	5.20	0.00622	2.5
	30	3.80	8.18	0.00978	2.5
	40	3.80	7.16	0.00856	2.5
	50	3.80	5.13	0.00613	2.5
Frequency Stability vs. Voltage	20	3.40	1.23	0.00147	2.5
	20	4.40	1.06	0.00127	2.5

Test Modulation:	10MHz 16QAM		Test Channel:	836.5MHz	
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.80	6.39	0.00764	2.5
	-20	3.80	1.89	0.00226	2.5
	-10	3.80	-8.33	-0.00996	2.5
	0	3.80	6.77	0.00809	2.5
	10	3.80	6.82	0.00815	2.5
	20	3.80	-4.74	-0.00567	2.5
	30	3.80	1.50	0.00179	2.5
	40	3.80	7.01	0.00838	2.5
	50	3.80	-4.00	-0.00478	2.5
Frequency Stability vs. Voltage	20	3.40	2.92	0.00349	2.5
	20	4.40	3.32	0.00397	2.5

Band	Freq (MHz)	Lower Edge (MHz) (Result)	Limit (2500MHz)	Upper Edge(MHz) (Result)	Limit (2570MHz)	Environment
20MHz Bandwidth QPSK						
7	2510/2560	2500.0374	2500.000	2569.9587	2570.000	20℃/3.4V _{DC}
7	2510/2560	2500.0346	2500.000	2569.9634	2570.000	20℃/4.4V _{DC}
7	2510/2560	2500.0351	2500.000	2569.9585	2570.000	-30℃/3.8V _{DC}
7	2510/2560	2500.0350	2500.000	2569.9631	2570.000	-20℃/3.8V _{DC}
7	2510/2560	2500.0368	2500.000	2569.9611	2570.000	-10℃/3.8V _{DC}
7	2510/2560	2500.0355	2500.000	2569.9631	2570.000	0℃/3.8V _{DC}
7	2510/2560	2500.0418	2500.000	2569.9659	2570.000	10℃/3.8V _{DC}
7	2510/2560	2500.0350	2500.000	2569.9636	2570.000	20℃/3.8V _{DC}
7	2510/2560	2500.0359	2500.000	2569.9640	2570.000	30℃/3.8V _{DC}
7	2510/2560	2500.0387	2500.000	2569.9604	2570.000	40℃/3.8V _{DC}
7	2510/2560	2500.0356	2500.000	2569.9620	2570.000	50℃/3.8V _{DC}
20MHz Bandwidth 16QAM						
7	2510/2560	2500.0292	2500.000	2569.9628	2570.000	20℃/3.4V _{DC}
7	2510/2560	2500.0363	2500.000	2569.9657	2570.000	20℃/4.4V _{DC}
7	2510/2560	2500.0348	2500.000	2569.9629	2570.000	-30℃/3.8V _{DC}
7	2510/2560	2500.0298	2500.000	2569.9627	2570.000	-20℃/3.8V _{DC}
7	2510/2560	2500.0321	2500.000	2569.9644	2570.000	-10℃/3.8V _{DC}
7	2510/2560	2500.0312	2500.000	2569.9624	2570.000	0℃/3.8V _{DC}
7	2510/2560	2500.0363	2500.000	2569.9670	2570.000	10℃/3.8V _{DC}
7	2510/2560	2500.0327	2500.000	2569.9690	2570.000	20℃/3.8V _{DC}
7	2510/2560	2500.0365	2500.000	2569.9656	2570.000	30℃/3.8V _{DC}
7	2510/2560	2500.0297	2500.000	2569.9628	2570.000	40℃/3.8V _{DC}
7	2510/2560	2500.0312	2500.000	2569.9662	2570.000	50℃/3.8V _{DC}

Band	Freq (MHz)	Lower Edge (MHz) (Result)	Limit (699MHz)	Upper Edge(MHz) (Result)	Limit (716MHz)	Environment
10MHz Bandwidth QPSK						
12	704/711	699.0421	699.000	715.9614	716.000	20°C/3.4V _{DC}
12	704/711	699.0438	699.000	715.9558	716.000	20°C/4.4V _{DC}
12	704/711	699.0407	699.000	715.9585	716.000	-30°C/3.8V _{DC}
12	704/711	699.0459	699.000	715.9573	716.000	-20°C/3.8V _{DC}
12	704/711	699.0421	699.000	715.9574	716.000	-10°C/3.8V _{DC}
12	704/711	699.0458	699.000	715.9564	716.000	0°C/3.8V _{DC}
12	704/711	699.0438	699.000	715.9583	716.000	10°C/3.8V _{DC}
12	704/711	699.0403	699.000	715.9578	716.000	20°C/3.8V _{DC}
12	704/711	699.0465	699.000	715.9555	716.000	30°C/3.8V _{DC}
12	704/711	699.0401	699.000	715.9594	716.000	40°C/3.8V _{DC}
12	704/711	699.0470	699.000	715.9593	716.000	50°C/3.8V _{DC}
10MHz Bandwidth16QAM						
12	704/711	699.0456	699.000	715.9535	716.000	20°C/3.4V _{DC}
12	704/711	699.0436	699.000	715.9599	716.000	20°C/4.4V _{DC}
12	704/711	699.0438	699.000	715.9556	716.000	-30°C/3.8V _{DC}
12	704/711	699.0501	699.000	715.9590	716.000	-20°C/3.8V _{DC}
12	704/711	699.0457	699.000	715.9563	716.000	-10°C/3.8V _{DC}
12	704/711	699.0503	699.000	715.9570	716.000	0°C/3.8V _{DC}
12	704/711	699.0457	699.000	715.9547	716.000	10°C/3.8V _{DC}
12	704/711	699.0490	699.000	715.9596	716.000	20°C/3.8V _{DC}
12	704/711	699.0445	699.000	715.9596	716.000	30°C/3.8V _{DC}
12	704/711	699.0475	699.000	715.9551	716.000	40°C/3.8V _{DC}
12	704/711	699.0444	699.000	715.9558	716.000	50°C/3.8V _{DC}

Band	Freq (MHz)	Lower Edge (MHz) (Result)	Limit (704MHz)	Upper Edge(MHz) (Result)	Limit (716MHz)	Environment
10MHz Bandwidth QPSK						
17	709/711	704.0435	704.000	715.9600	716.000	20°C/3.4V _{DC}
17	709/711	704.0449	704.000	715.9562	716.000	20°C/4.4V _{DC}
17	709/711	704.0406	704.000	715.9569	716.000	-30°C/3.8V _{DC}
17	709/711	704.0402	704.000	715.9624	716.000	-20°C/3.8V _{DC}
17	709/711	704.0428	704.000	715.9581	716.000	-10°C/3.8V _{DC}
17	709/711	704.0415	704.000	715.9627	716.000	0°C/3.8V _{DC}
17	709/711	704.0470	704.000	715.9611	716.000	10°C/3.8V _{DC}
17	709/711	704.0432	704.000	715.9612	716.000	20°C/3.8V _{DC}
17	709/711	704.0422	704.000	715.9627	716.000	30°C/3.8V _{DC}
17	709/711	704.0473	704.000	715.9574	716.000	40°C/3.8V _{DC}
17	709/711	704.0401	704.000	715.9605	716.000	50°C/3.8V _{DC}
10MHz Bandwidth 16QAM						
17	709/711	704.0407	704.000	715.9574	716.000	20°C/3.4V _{DC}
17	709/711	704.0439	704.000	715.9579	716.000	20°C/4.4V _{DC}
17	709/711	704.0396	704.000	715.9538	716.000	-30°C/3.8V _{DC}
17	709/711	704.0397	704.000	715.9587	716.000	-20°C/3.8V _{DC}
17	709/711	704.0415	704.000	715.9558	716.000	-10°C/3.8V _{DC}
17	709/711	704.0450	704.000	715.9582	716.000	0°C/3.8V _{DC}
17	709/711	704.0417	704.000	715.9539	716.000	10°C/3.8V _{DC}
17	709/711	704.0410	704.000	715.9556	716.000	20°C/3.8V _{DC}
17	709/711	704.0402	704.000	715.9599	716.000	30°C/3.8V _{DC}
17	709/711	704.0421	704.000	715.9587	716.000	40°C/3.8V _{DC}
17	709/711	704.0458	704.000	715.9543	716.000	50°C/3.8V _{DC}

Band	Freq (MHz)	Lower Edge (MHz) (Result)	Limit (2570MHz)	Upper Edge(MHz) (Result)	Limit (2620MHz)	Environment
20MHz Bandwidth QPSK						
38	2580/2610	2570.0308	2570.000	2619.9644	2620.000	20℃/3.4V _{DC}
38	2580/2610	2570.0334	2570.000	2619.9658	2620.000	20℃/4.4V _{DC}
38	2580/2610	2570.0329	2570.000	2619.9638	2620.000	-30℃/3.8V _{DC}
38	2580/2610	2570.0308	2570.000	2619.9652	2620.000	-20℃/3.8V _{DC}
38	2580/2610	2570.0326	2570.000	2619.9637	2620.000	-10℃/3.8V _{DC}
38	2580/2610	2570.0339	2570.000	2619.9658	2620.000	0℃/3.8V _{DC}
38	2580/2610	2570.0347	2570.000	2619.9631	2620.000	10℃/3.8V _{DC}
38	2580/2610	2570.0366	2570.000	2619.9658	2620.000	20℃/3.8V _{DC}
38	2580/2610	2570.0370	2570.000	2619.9681	2620.000	30℃/3.8V _{DC}
38	2580/2610	2570.0308	2570.000	2619.9635	2620.000	40℃/3.8V _{DC}
38	2580/2610	2570.0355	2570.000	2619.9682	2620.000	50℃/3.8V _{DC}
20MHz Bandwidth 16QAM						
38	2580/2610	2570.0392	2570.000	2619.9681	2620.000	20℃/3.4V _{DC}
38	2580/2610	2570.0370	2570.000	2619.9644	2620.000	20℃/4.4V _{DC}
38	2580/2610	2570.0326	2570.000	2619.9670	2620.000	-30℃/3.8V _{DC}
38	2580/2610	2570.0358	2570.000	2619.9672	2620.000	-20℃/3.8V _{DC}
38	2580/2610	2570.0351	2570.000	2619.9644	2620.000	-10℃/3.8V _{DC}
38	2580/2610	2570.0354	2570.000	2619.9648	2620.000	0℃/3.8V _{DC}
38	2580/2610	2570.0333	2570.000	2619.9637	2620.000	10℃/3.8V _{DC}
38	2580/2610	2570.0396	2570.000	2619.9682	2620.000	20℃/3.8V _{DC}
38	2580/2610	2570.0353	2570.000	2619.9674	2620.000	30℃/3.8V _{DC}
38	2580/2610	2570.0376	2570.000	2619.9641	2620.000	40℃/3.8V _{DC}
38	2580/2610	2570.0357	2570.000	2619.9650	2620.000	50℃/3.8V _{DC}

Band	Freq (MHz)	Lower Edge (MHz) (Result)	Limit (1710MHz)	Upper Edge(MHz) (Result)	Limit (1780MHz)	Environment
20MHz Bandwidth QPSK						
66	1720/1770	1710.0384	1710.000	1779.9649	1780.000	20°C/3.4V _{DC}
66	1720/1770	1710.0438	1710.000	1779.9633	1780.000	20°C/4.4V _{DC}
66	1720/1770	1710.0432	1710.000	1779.9586	1780.000	-30°C/3.8V _{DC}
66	1720/1770	1710.0368	1710.000	1779.9625	1780.000	-20°C/3.8V _{DC}
66	1720/1770	1710.0391	1710.000	1779.9607	1780.000	-10°C/3.8V _{DC}
66	1720/1770	1710.0375	1710.000	1779.9595	1780.000	0°C/3.8V _{DC}
66	1720/1770	1710.0423	1710.000	1779.9609	1780.000	10°C/3.8V _{DC}
66	1720/1770	1710.0419	1710.000	1779.9582	1780.000	20°C/3.8V _{DC}
66	1720/1770	1710.0406	1710.000	1779.9612	1780.000	30°C/3.8V _{DC}
66	1720/1770	1710.0389	1710.000	1779.9587	1780.000	40°C/3.8V _{DC}
66	1720/1770	1710.0373	1710.000	1779.9633	1780.000	50°C/3.8V _{DC}
20MHz Bandwidth 16QAM						
66	1720/1770	1710.0385	1710.000	1779.9612	1780.000	20°C/3.4V _{DC}
66	1720/1770	1710.0415	1710.000	1779.9637	1780.000	20°C/4.4V _{DC}
66	1720/1770	1710.0414	1710.000	1779.9629	1780.000	-30°C/3.8V _{DC}
66	1720/1770	1710.0387	1710.000	1779.9610	1780.000	-20°C/3.8V _{DC}
66	1720/1770	1710.0380	1710.000	1779.9615	1780.000	-10°C/3.8V _{DC}
66	1720/1770	1710.0368	1710.000	1779.9618	1780.000	0°C/3.8V _{DC}
66	1720/1770	1710.0409	1710.000	1779.9616	1780.000	10°C/3.8V _{DC}
66	1720/1770	1710.0417	1710.000	1779.9641	1780.000	20°C/3.8V _{DC}
66	1720/1770	1710.0387	1710.000	1779.9626	1780.000	30°C/3.8V _{DC}
66	1720/1770	1710.0374	1710.000	1779.9616	1780.000	40°C/3.8V _{DC}
66	1720/1770	1710.0399	1710.000	1779.9637	1780.000	50°C/3.8V _{DC}