

1.1.1 B13_5MHz_ERP

Band: 13 / Bandwidth: 5MHz / NTVN								
Modulation	Frequency (MHz)	RB Allocation		Conducted Power (dBm)	Gain (dBi)	ERP (dBm)		Verdict
		Size	Offset			Result	Limit	
QPSK	779.5	1	0	23.20	-2.21	18.84	<=34.77	Pass
			24	23.19	-2.21	18.83	<=34.77	Pass
		25	0	22.35	-2.21	17.99	<=34.77	Pass
	782	1	0	23.22	-2.21	18.86	<=34.77	Pass
			24	23.21	-2.21	18.85	<=34.77	Pass
		25	0	22.17	-2.21	17.81	<=34.77	Pass
	784.5	1	0	23.29	-2.21	18.93	<=34.77	Pass
			24	23.20	-2.21	18.84	<=34.77	Pass
		25	0	22.32	-2.21	17.96	<=34.77	Pass
16QAM	779.5	1	0	22.58	-2.21	18.22	<=34.77	Pass
			24	22.43	-2.21	18.07	<=34.77	Pass
		25	0	21.34	-2.21	16.98	<=34.77	Pass
	782	1	0	22.56	-2.21	18.20	<=34.77	Pass
			24	22.62	-2.21	18.26	<=34.77	Pass
		25	0	21.25	-2.21	16.89	<=34.77	Pass
	784.5	1	0	22.63	-2.21	18.27	<=34.77	Pass
			24	22.45	-2.21	18.09	<=34.77	Pass
		25	0	21.29	-2.21	16.93	<=34.77	Pass
64QAM	779.5	1	0	22.31	-2.21	17.95	<=34.77	Pass
			24	22.36	-2.21	18.00	<=34.77	Pass
		25	0	21.27	-2.21	16.91	<=34.77	Pass
	782	1	0	22.37	-2.21	18.01	<=34.77	Pass
			24	22.34	-2.21	17.98	<=34.77	Pass
		25	0	21.20	-2.21	16.84	<=34.77	Pass
	784.5	1	0	22.49	-2.21	18.13	<=34.77	Pass
			24	22.36	-2.21	18.00	<=34.77	Pass
		25	0	21.27	-2.21	16.91	<=34.77	Pass
256QAM	779.5	1	0	18.17	-2.21	13.81	<=34.77	Pass
			24	18.44	-2.21	14.08	<=34.77	Pass
		25	0	18.27	-2.21	13.91	<=34.77	Pass
	782	1	0	18.44	-2.21	14.08	<=34.77	Pass
			24	18.44	-2.21	14.08	<=34.77	Pass
		25	0	18.27	-2.21	13.91	<=34.77	Pass
	784.5	1	0	18.31	-2.21	13.95	<=34.77	Pass
			24	18.43	-2.21	14.07	<=34.77	Pass
		25	0	18.32	-2.21	13.96	<=34.77	Pass
Note1: ERP=Conducted Power+Antenna Gain-2.15								

1.1.2 B13_10MHz_ERP

Band: 13 / Bandwidth: 10MHz / NTNV								
Modulation	Frequency (MHz)	RB Allocation		Conducted Power (dBm)	Gain (dBi)	ERP (dBm)		Verdict
		Size	Offset			Result	Limit	
QPSK	782	1	0	23.26	-2.21	18.90	<=34.77	Pass
			49	23.08	-2.21	18.72	<=34.77	Pass
		50	0	22.19	-2.21	17.83	<=34.77	Pass
16QAM	782	1	0	22.57	-2.21	18.21	<=34.77	Pass
			49	22.74	-2.21	18.38	<=34.77	Pass
		50	0	21.26	-2.21	16.90	<=34.77	Pass
64QAM	782	1	0	22.29	-2.21	17.93	<=34.77	Pass
			49	22.38	-2.21	18.02	<=34.77	Pass
		50	0	21.26	-2.21	16.90	<=34.77	Pass
256QAM	782	1	0	18.20	-2.21	13.84	<=34.77	Pass
			49	18.43	-2.21	14.07	<=34.77	Pass
		50	0	18.35	-2.21	13.99	<=34.77	Pass
Note1: ERP=Conducted Power+Antenna Gain-2.15								

2. Frequency Stability

2.1 Test Result

2.1.1 B13_10MHz

Band: 13 / Bandwidth: 10MHz									
Modulation	Frequency (MHz)	RB Allocation		Temp. (°C)	Voltage (VDC)	Freq. Error (Hz)	Freq. vs. Rated (ppm)		Verdict
		Size	Offset				Result	Limit	
QPSK	782	50	0	20	3.6	0.400	0.0005	-2.5 to 2.5	Pass
					3.84	-0.200	-0.0003	-2.5 to 2.5	Pass
					4.3	-0.900	-0.0012	-2.5 to 2.5	Pass
				-30	3.84	0.700	0.0009	-2.5 to 2.5	Pass
				-20	3.84	1.100	0.0014	-2.5 to 2.5	Pass
				-10	3.84	-1.000	-0.0013	-2.5 to 2.5	Pass
				0	3.84	0.600	0.0008	-2.5 to 2.5	Pass
				10	3.84	1.300	0.0017	-2.5 to 2.5	Pass
				30	3.84	1.200	0.0015	-2.5 to 2.5	Pass
				40	3.84	0.300	0.0004	-2.5 to 2.5	Pass
				50	3.84	0.900	0.0012	-2.5 to 2.5	Pass

3. 99% & 26dB Bandwidth

3.1 Test Result

3.1.1 Band13_OBW

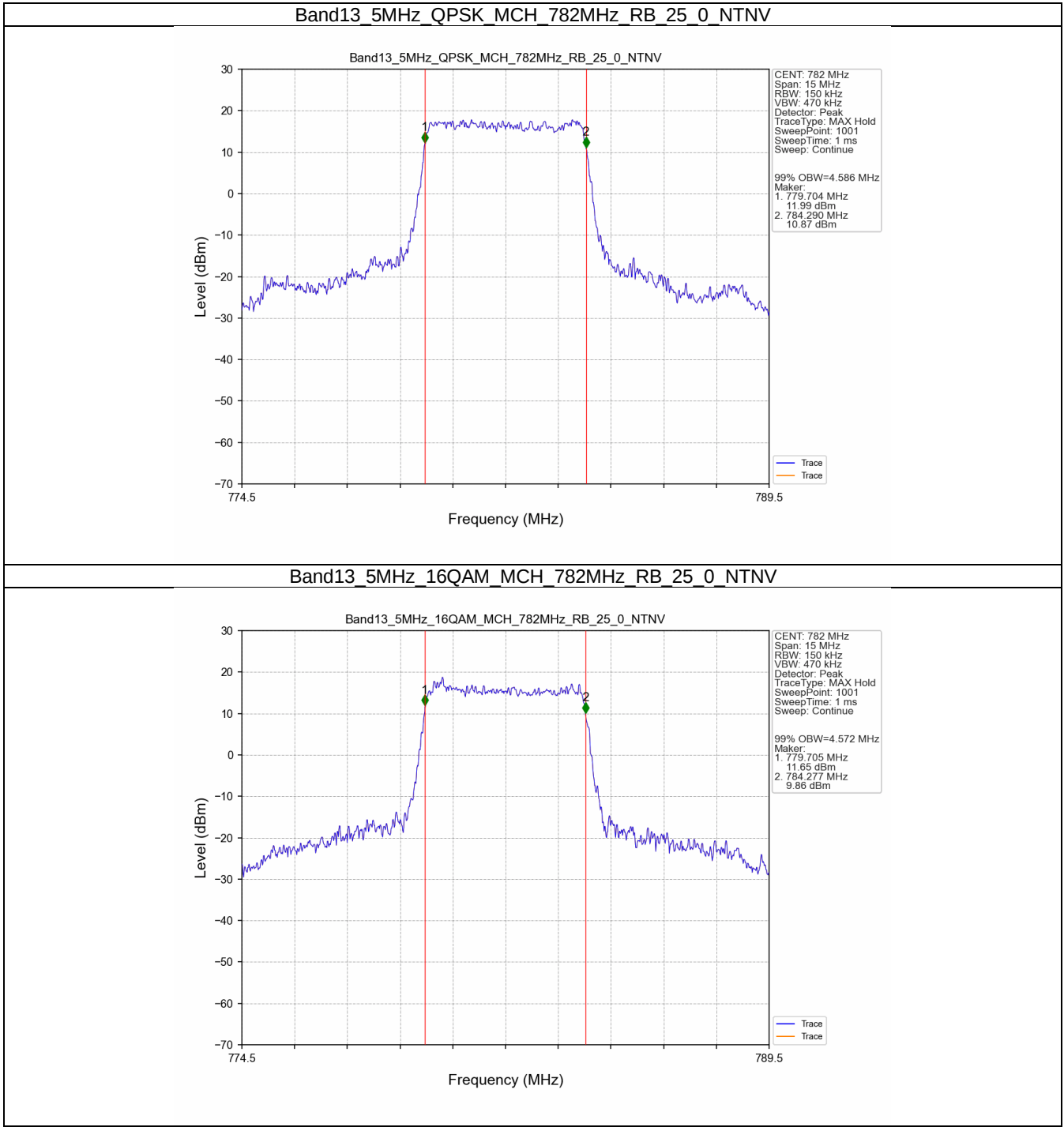
Band: 13 / NTNV							
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		99% Occupied Bandwidth (MHz)		Verdict
			Size	Offset	Result	Limit	
5	QPSK	782	25	0	4.586	/	Pass
	16QAM	782	25	0	4.572	/	Pass
10	QPSK	782	50	0	9.095	/	Pass
	16QAM	782	50	0	9.100	/	Pass

3.1.2 Band13_XDB

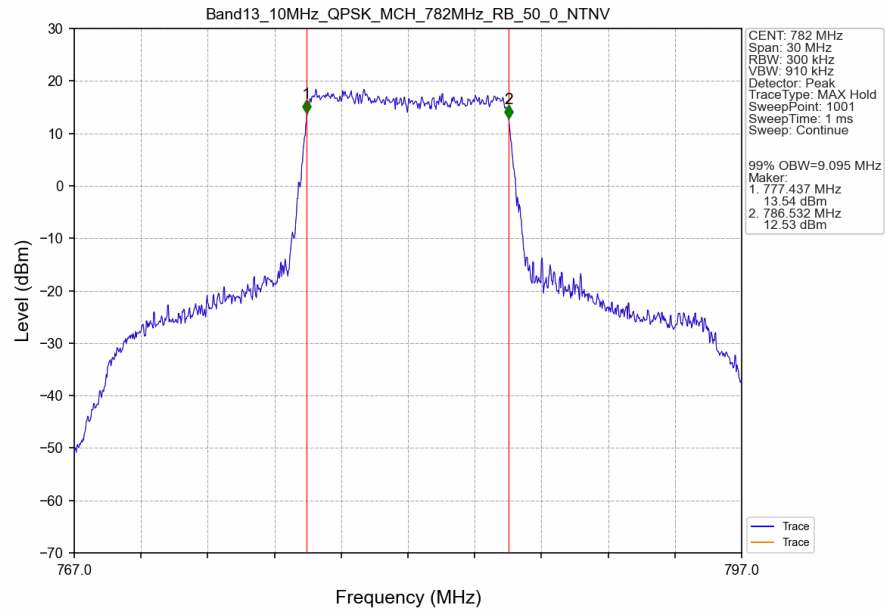
Band: 13 / NTNV							
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		26dB Bandwidth (MHz)		Verdict
			Size	Offset	Result	Limit	
5	QPSK	782	25	0	5.203	/	Pass
	16QAM	782	25	0	5.123	/	Pass
10	QPSK	782	50	0	10.167	/	Pass
	16QAM	782	50	0	10.221	/	Pass

3.2 Test Graph

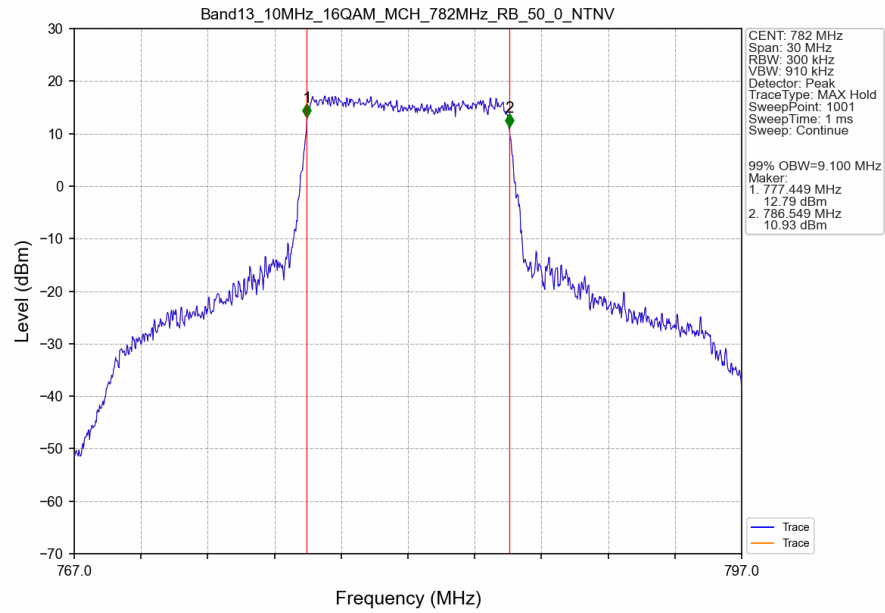
3.2.1 Band13_OBW



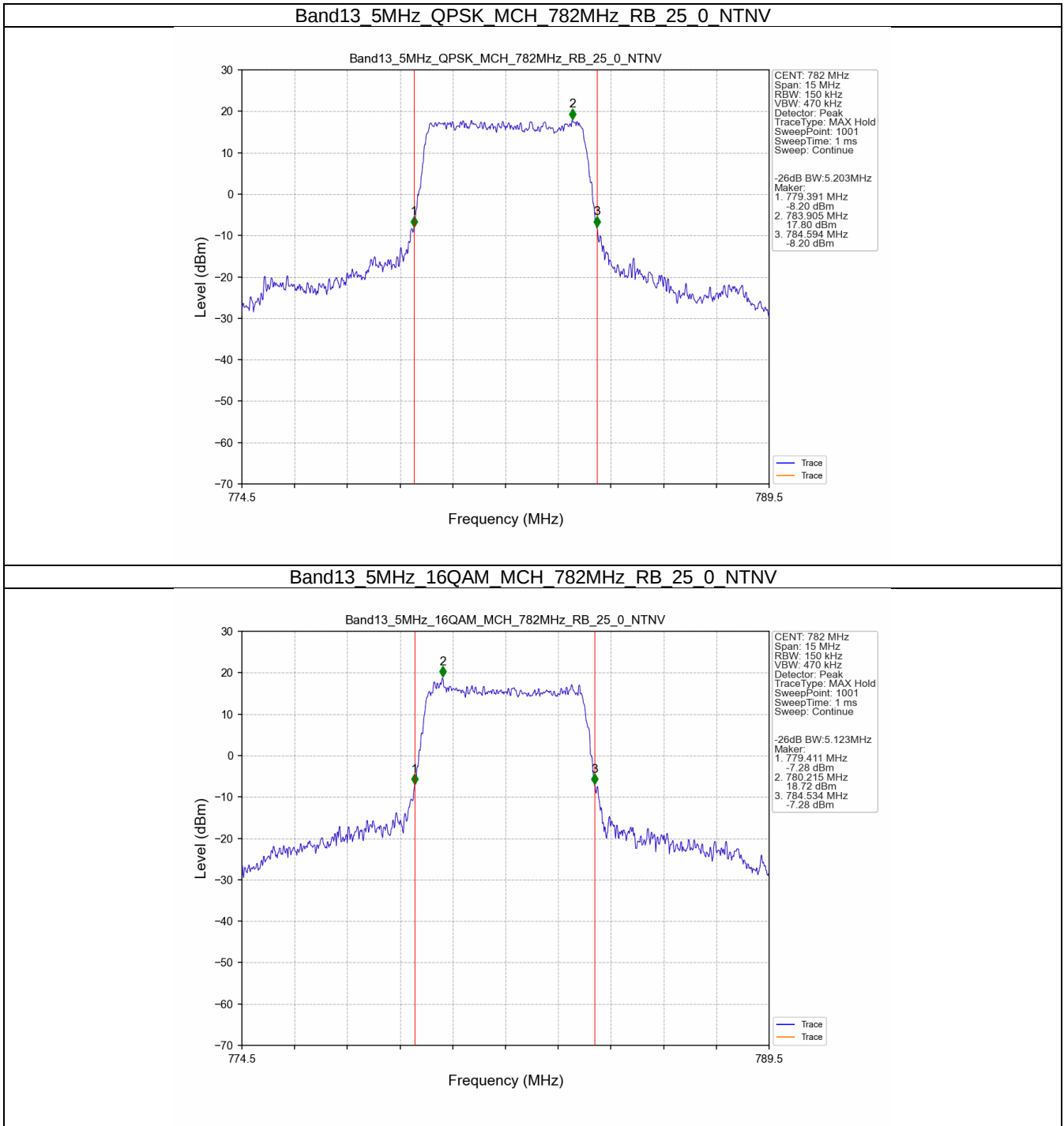
Band13 10MHz QPSK MCH 782MHz RB 50 0 NTV



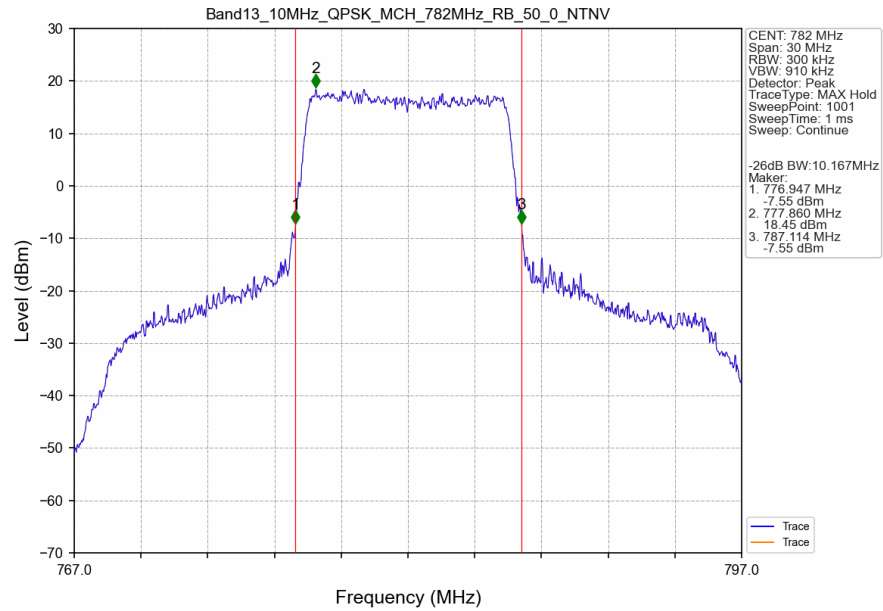
Band13 10MHz 16QAM MCH 782MHz RB 50 0 NTV



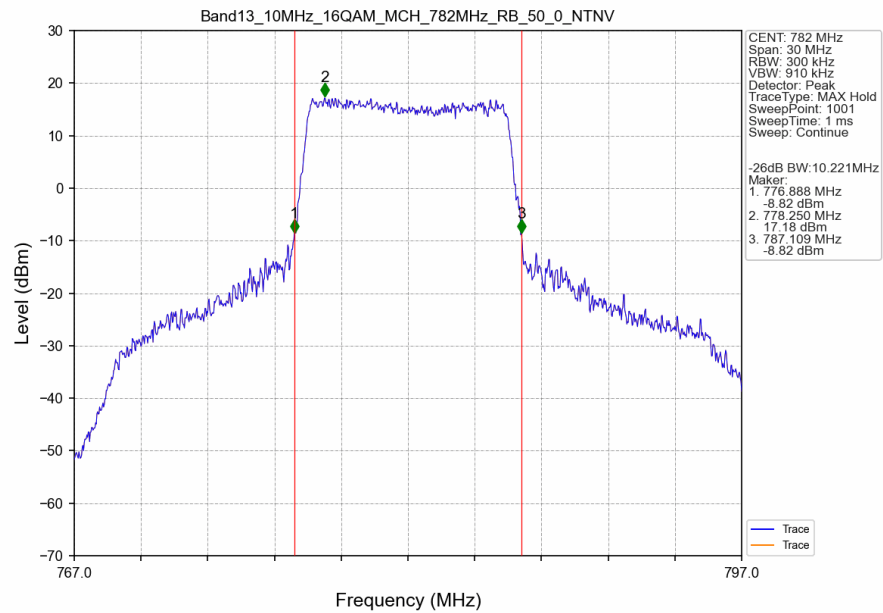
3.2.2 Band13_XDB



Band13 10MHz QPSK MCH 782MHz RB 50 0 NTV



Band13 10MHz 16QAM MCH 782MHz RB 50 0 NTV



4. Peak-Average Ratio

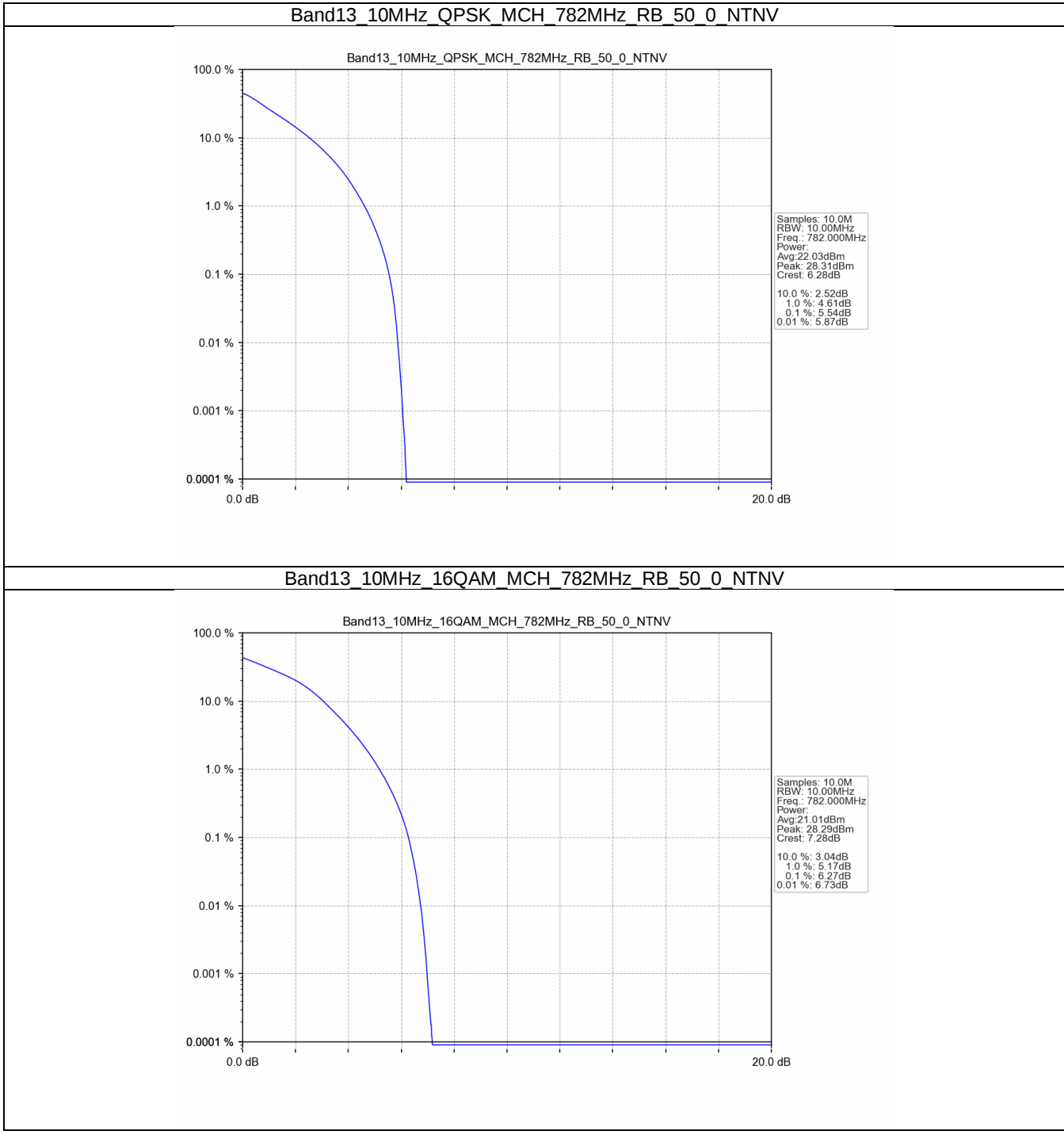
4.1 Test Result

4.1.1 B13_10MHz

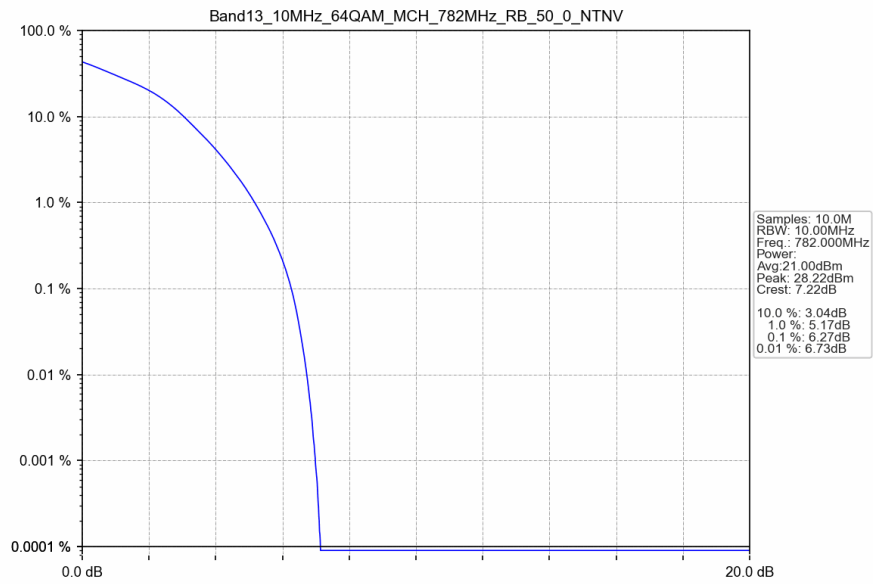
Band: 13 / Bandwidth: 10MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Peak-Average Ratio (dB)		Verdict
		Size	Offset	Result	Limit	
QPSK	782	50	0	5.54	<=13	Pass
16QAM	782	50	0	6.27	<=13	Pass
64QAM	782	50	0	6.27	<=13	Pass
256QAM	782	50	0	6.93	<=13	Pass

4.2 Test Graph

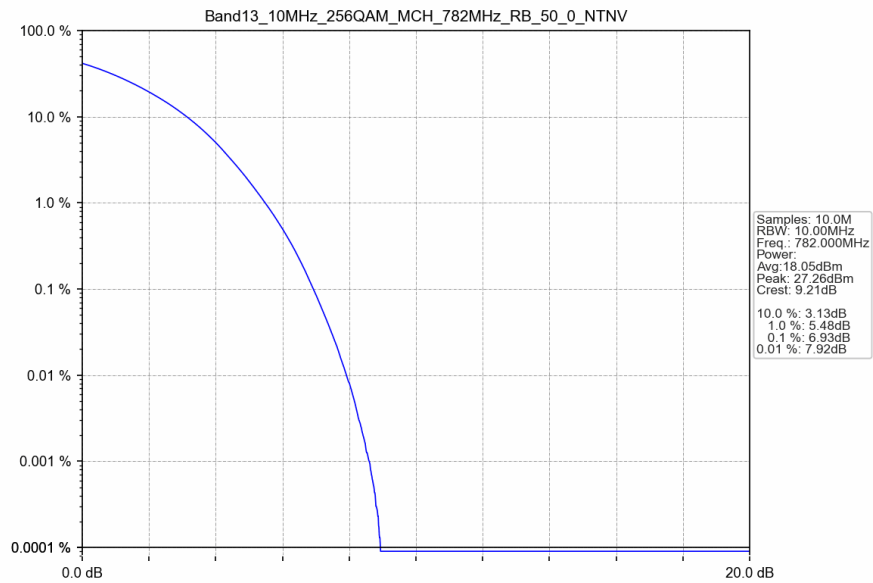
4.2.1 B13_10MHz



Band13 10MHz 64QAM MCH 782MHz RB 50 0 NTNV



Band13 10MHz 256QAM MCH 782MHz RB 50 0 NTNV



5. Spurious Emission

5.1 Test Result

5.1.1 B13_5MHz

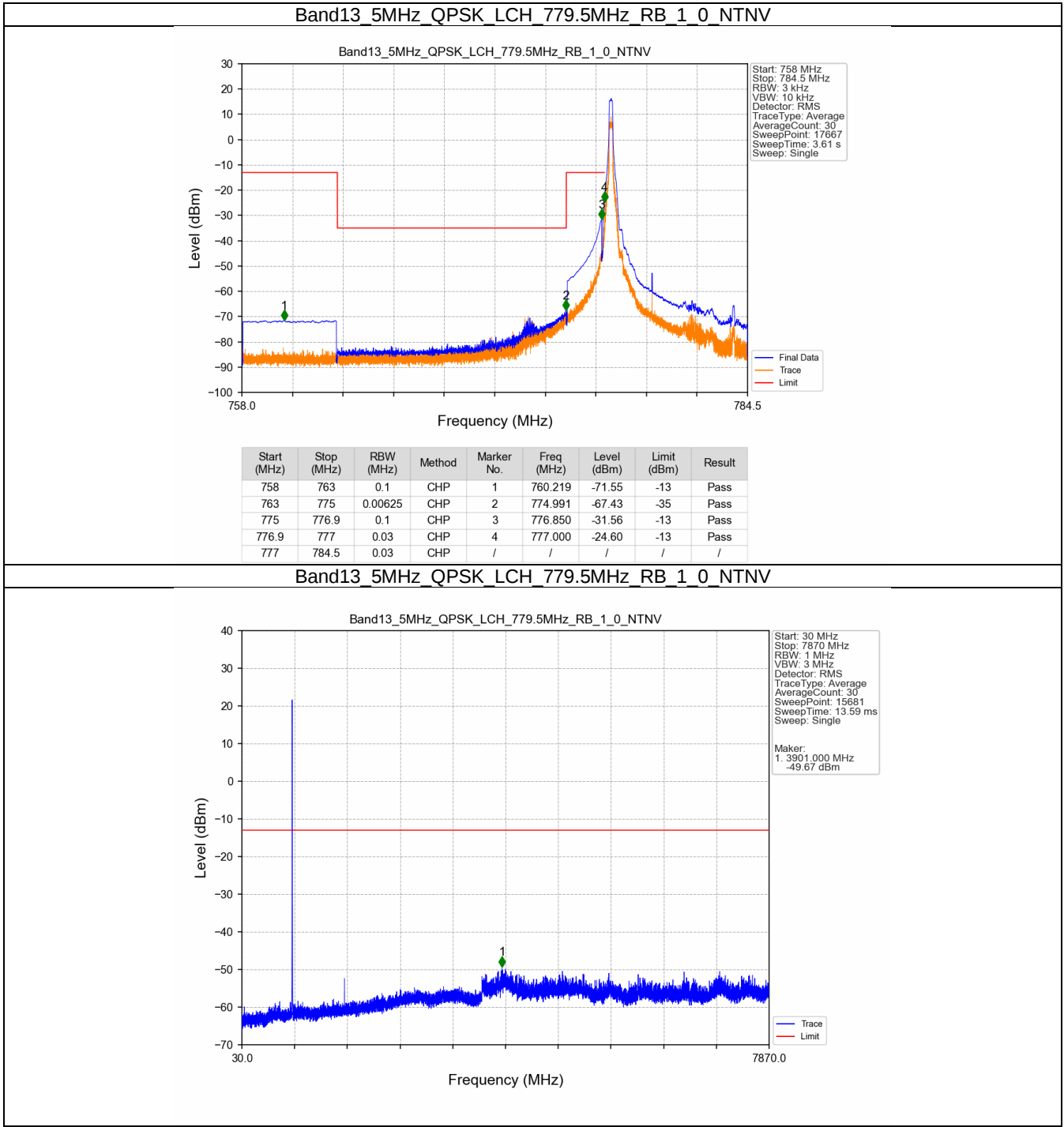
Band: 13 / Bandwidth: 5MHz / NTV						
Modulation	Frequency (MHz)	RB Allocation		Spurious Emission		Verdict
		Size	Offset	Result	Limit	
QPSK	779.5	1	0	Refer To Test Graph		Pass
		25	0	Refer To Test Graph		Pass
	782	1	0	Refer To Test Graph		Pass
	784.5	1	0	Refer To Test Graph		Pass
			24	Refer To Test Graph		Pass
		25	0	Refer To Test Graph		Pass

5.1.2 B13_10MHz

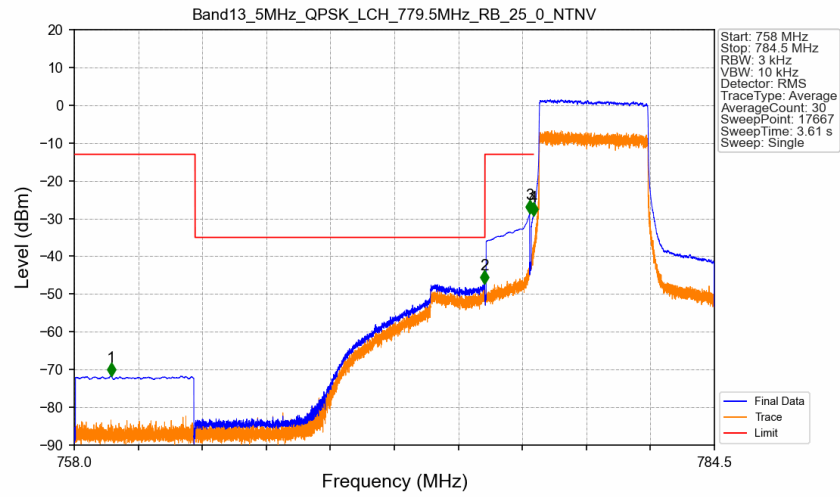
Band: 13 / Bandwidth: 10MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Spurious Emission		Verdict
		Size	Offset	Result	Limit	
QPSK	782	1	0	Refer To Test Graph		Pass
		50	0	Refer To Test Graph		Pass
	782	1	49	Refer To Test Graph		Pass
		50	0	Refer To Test Graph		Pass

5.2 Test Graph

5.2.1 B13_5MHz

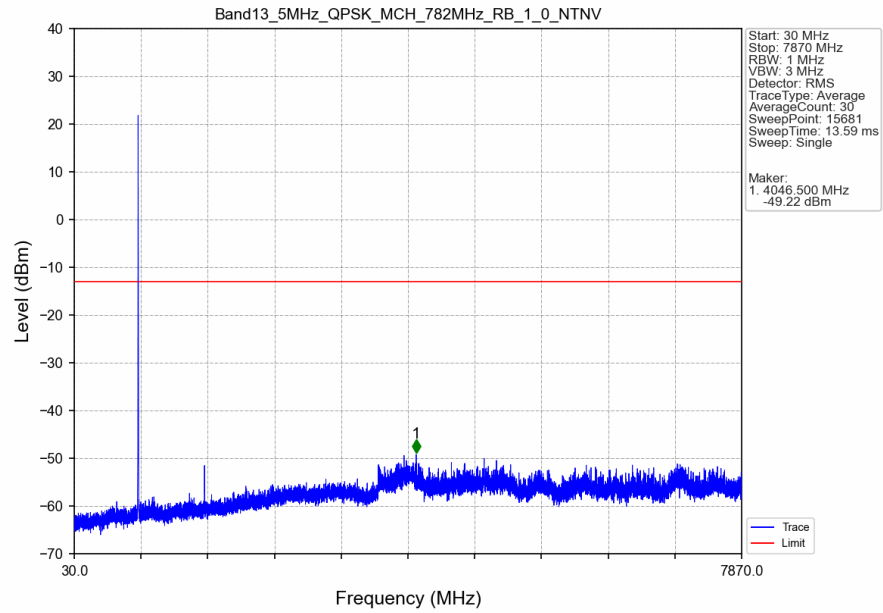


Band13 5MHz QPSK LCH 779.5MHz RB 25 0 NTV

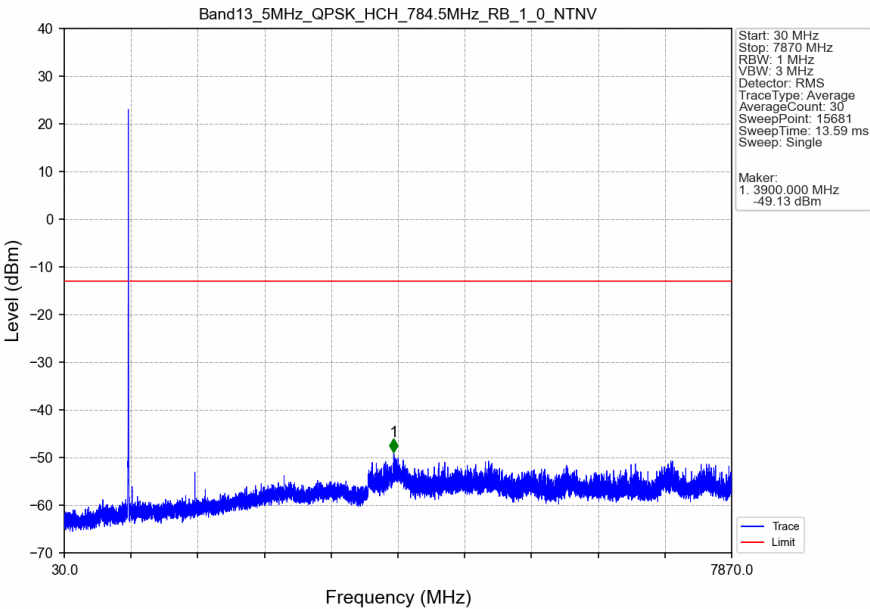


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
758	763	0.1	CHP	1	759.521	-71.70	-13	Pass
763	775	0.00625	CHP	2	774.972	-47.27	-35	Pass
775	776.9	0.1	CHP	3	776.850	-28.72	-13	Pass
776.9	777	0.03	CHP	4	777.000	-29.26	-13	Pass
777	784.5	0.03	CHP	/	/	/	/	/

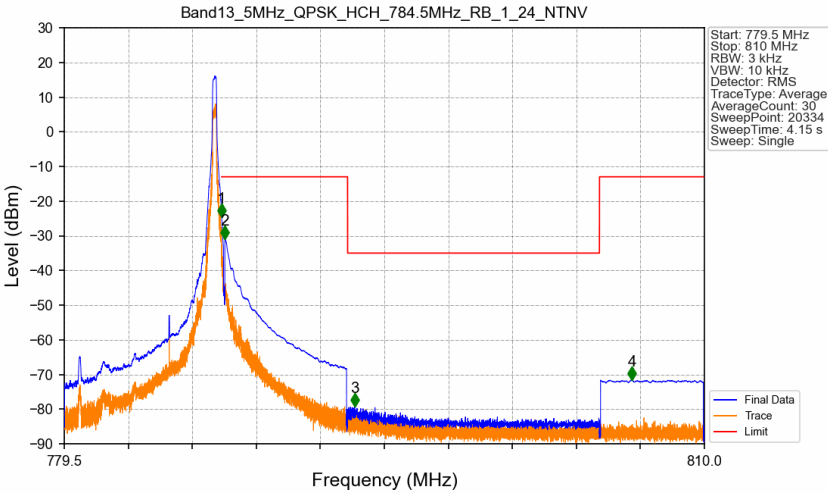
Band13 5MHz QPSK MCH 782MHz RB 1 0 NTV



Band13 5MHz QPSK HCH 784.5MHz RB 1 0 NTN

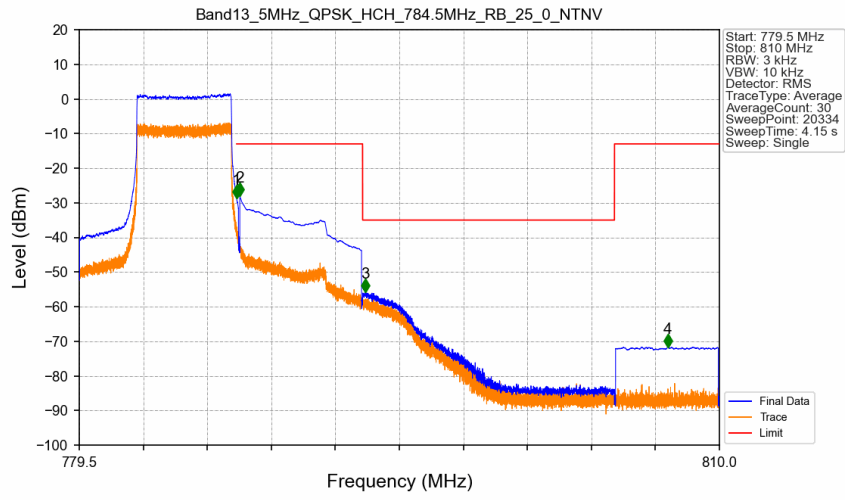


Band13 5MHz QPSK HCH 784.5MHz RB 1 24 NTN



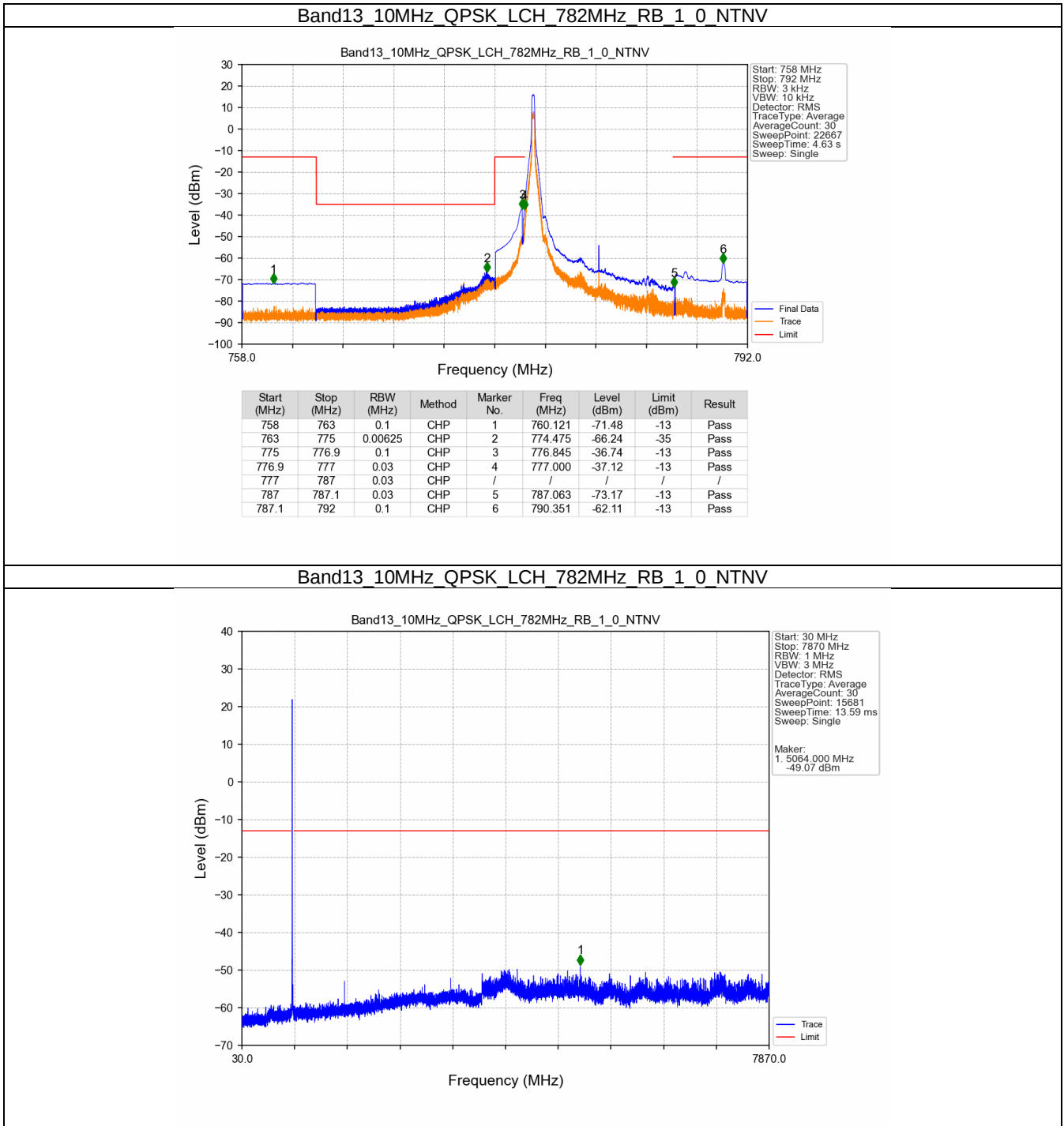
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
779.5	787	0.03	CHP	/	/	/	/	/
787	787.1	0.03	CHP	1	787.000	-24.56	-13	Pass
787.1	793	0.1	CHP	2	787.153	-30.91	-13	Pass
793	805	0.00625	CHP	3	793.329	-79.28	-35	Pass
805	810	0.1	CHP	4	806.547	-71.52	-13	Pass

Band13 5MHz QPSK HCH 784.5MHz RB 25 0 NTNV

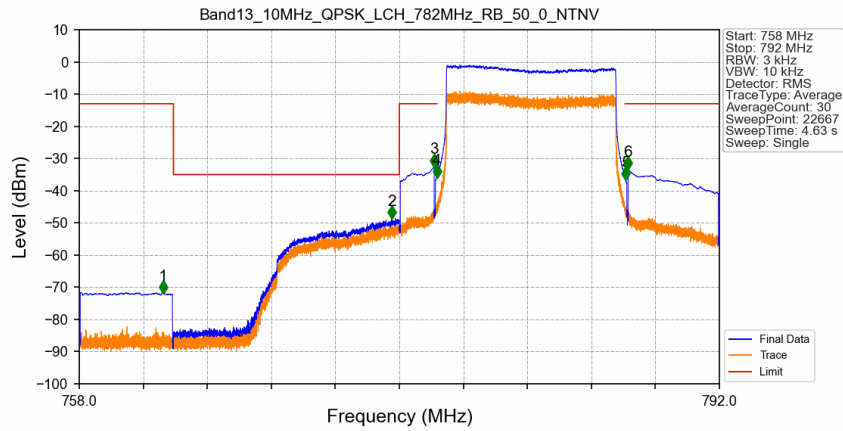


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
779.5	787	0.03	CHP	/	/	/	/	/
787	787.1	0.03	CHP	1	787.000	-28.65	-13	Pass
787.1	793	0.1	CHP	2	787.150	-28.10	-13	Pass
793	805	0.00625	CHP	3	793.116	-55.86	-35	Pass
805	810	0.1	CHP	4	807.543	-71.65	-13	Pass

5.2.2 B13_10MHz

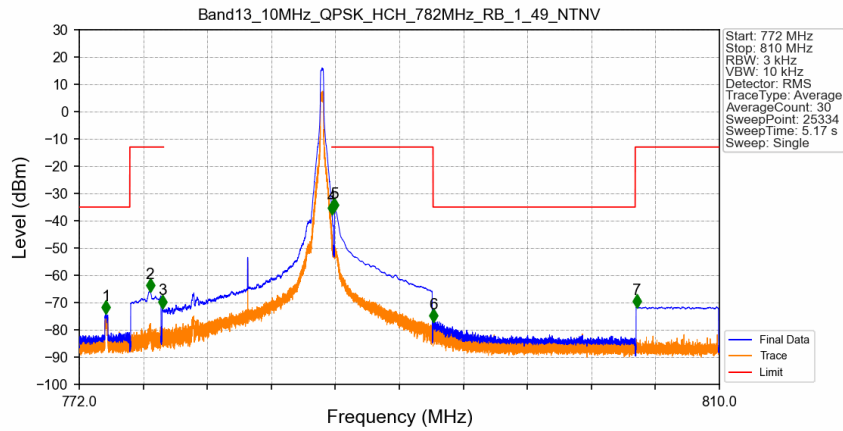


Band13 10MHz QPSK LCH 782MHz RB 50 0 NTNV



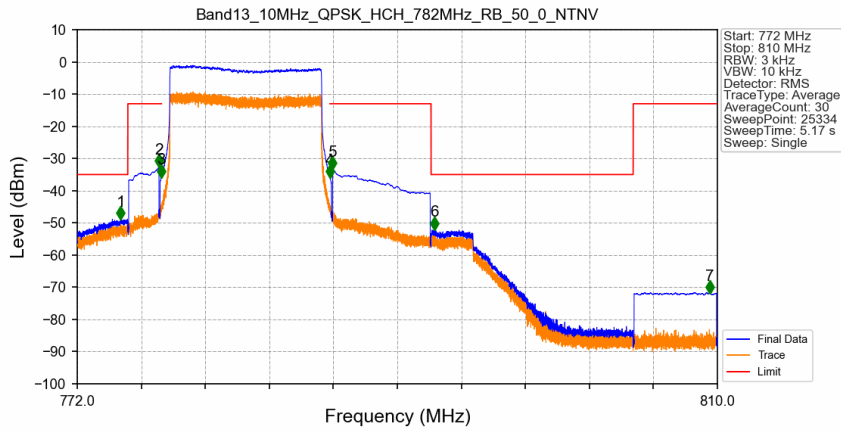
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
758	763	0.1	CHP	1	762.452	-71.61	-13	Pass
763	775	0.00625	CHP	2	774.593	-48.50	-35	Pass
775	776.9	0.1	CHP	3	776.850	-32.32	-13	Pass
776.9	777	0.03	CHP	4	776.998	-35.72	-13	Pass
777	787	0.03	CHP	/	/	/	/	/
787	787.1	0.03	CHP	5	787.000	-36.37	-13	Pass
787.1	792	0.1	CHP	6	787.150	-33.14	-13	Pass

Band13 10MHz QPSK HCH 782MHz RB 1 49 NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
772	775	0.00625	CHP	1	773.587	-73.80	-35	Pass
775	776.9	0.1	CHP	2	776.200	-65.73	-13	Pass
776.9	777	0.03	CHP	3	776.946	-71.69	-13	Pass
777	787	0.03	CHP	/	/	/	/	/
787	787.1	0.03	CHP	4	787.000	-37.36	-13	Pass
787.1	793	0.1	CHP	5	787.153	-36.35	-13	Pass
793	805	0.00625	CHP	6	793.035	-76.76	-35	Pass
805	810	0.1	CHP	7	805.090	-71.50	-13	Pass

Band13 10MHz QPSK HCH 782MHz RB 50 0 NTV



Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
772	775	0.00625	CHP	1	774.582	-48.65	-35	Pass
775	776.9	0.1	CHP	2	776.850	-32.41	-13	Pass
776.9	777	0.03	CHP	3	777.000	-35.60	-13	Pass
777	787	0.03	CHP	/	/	/	/	/
787	787.1	0.03	CHP	4	787.000	-35.81	-13	Pass
787.1	793	0.1	CHP	5	787.150	-33.13	-13	Pass
793	805	0.00625	CHP	6	793.183	-51.86	-35	Pass
805	810	0.1	CHP	7	809.532	-71.63	-13	Pass

6. Field Strength of Spurious Radiation

LTE Band 13 ANT31-Middle channel, Modulation: QPSK, Bandwidth:10MHz, 1RB#0								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1555.0	-70.74	-13	-57.74	-73.88	2.6	5.74	Horizontal	Pass
2332.5	-70.08	-13	-57.08	-72.54	2.96	5.42	Horizontal	Pass
3110.0	-67.5	-13	-54.5	-71.5	3.2	7.2	Horizontal	Pass
1555.0	-70.65	-13	-57.65	-73.79	2.6	5.74	Vertical	Pass
2332.5	-69.56	-13	-56.56	-72.02	2.96	5.42	Vertical	Pass
3110.0	-67.67	-13	-54.67	-71.67	3.2	7.2	Vertical	Pass

LTE Band 13 ANT31-Low channel, Modulation: QPSK, Bandwidth:5MHz, 1RB#0								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1554.5	-70.89	-13	-57.89	-74.03	2.6	5.74	Horizontal	Pass
2331.75	-69.99	-13	-56.99	-72.45	2.96	5.42	Horizontal	Pass
3109.0	-67.32	-13	-54.32	-71.31	3.2	7.19	Horizontal	Pass
1554.5	-70.83	-13	-57.83	-73.97	2.6	5.74	Vertical	Pass
2331.75	-70.0	-13	-57.0	-72.46	2.96	5.42	Vertical	Pass
3109.0	-67.8	-13	-54.8	-71.79	3.2	7.19	Vertical	Pass

LTE Band 13 ANT31-Middle channel, Modulation: QPSK, Bandwidth:5MHz, 1RB#0								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1559.5	-71.25	-40	-31.25	-74.38	2.6	5.73	Horizontal	Pass
2339.25	-70.35	-13	-57.35	-72.82	2.96	5.43	Horizontal	Pass
3119.0	-68.02	-13	-55.02	-72.03	3.21	7.22	Horizontal	Pass
1559.5	-70.97	-40	-30.97	-74.1	2.6	5.73	Vertical	Pass
2339.25	-70.49	-13	-57.49	-72.96	2.96	5.43	Vertical	Pass
3119.0	-68.01	-13	-55.01	-72.02	3.21	7.22	Vertical	Pass

LTE Band 13 ANT31-High channel, Modulation: QPSK, Bandwidth:5MHz, 1RB#0								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1564.5	-71.18	-40	-31.18	-74.3	2.6	5.72	Horizontal	Pass
2346.75	-69.39	-13	-56.39	-71.87	2.97	5.45	Horizontal	Pass
3129.0	-67.73	-13	-54.73	-71.76	3.21	7.24	Horizontal	Pass
1564.5	-71.39	-40	-31.39	-74.51	2.6	5.72	Vertical	Pass
2346.75	-70.49	-13	-57.49	-72.97	2.97	5.45	Vertical	Pass
3129.0	-67.93	-13	-54.93	-71.96	3.21	7.24	Vertical	Pass