

1. Effective (Isotropic) Radiated Power Output Data

1.1 Test Result

1.1.1 B13_5MHz_ERP

Band: 13 / Bandwidth: 5MHz / NTV								
Modulation	Frequency (MHz)	RB Allocation		Conducted Power (dBm)	Gain (dBi)	ERP (dBm)		Verdict
		Size	Offset			Result	Limit	
QPSK	779.5	1	0	22.71	4.45	25.01	<=34.77	Pass
			13	22.70	4.45	25.00	<=34.77	Pass
			24	22.71	4.45	25.01	<=34.77	Pass
		12	0	21.77	4.45	24.07	<=34.77	Pass
			6	21.77	4.45	24.07	<=34.77	Pass
			13	21.65	4.45	23.95	<=34.77	Pass
		25	0	21.68	4.45	23.98	<=34.77	Pass
	782	1	0	22.58	4.45	24.88	<=34.77	Pass
			13	22.61	4.45	24.91	<=34.77	Pass
			24	22.51	4.45	24.81	<=34.77	Pass
		12	0	21.80	4.45	24.10	<=34.77	Pass
			6	21.86	4.45	24.16	<=34.77	Pass
			13	21.80	4.45	24.10	<=34.77	Pass
	25	0	21.79	4.45	24.09	<=34.77	Pass	
	784.5	1	0	22.66	4.45	24.96	<=34.77	Pass
			13	22.62	4.45	24.92	<=34.77	Pass
			24	22.61	4.45	24.91	<=34.77	Pass
		12	0	21.86	4.45	24.16	<=34.77	Pass
			6	21.99	4.45	24.29	<=34.77	Pass
			13	21.90	4.45	24.20	<=34.77	Pass
		25	0	21.77	4.45	24.07	<=34.77	Pass
16QAM	779.5	1	0	21.29	4.45	23.59	<=34.77	Pass
			13	20.73	4.45	23.03	<=34.77	Pass
			24	21.19	4.45	23.49	<=34.77	Pass
		12	0	20.54	4.45	22.84	<=34.77	Pass
			6	20.81	4.45	23.11	<=34.77	Pass
			13	20.62	4.45	22.92	<=34.77	Pass
		25	0	20.79	4.45	23.09	<=34.77	Pass
	782	1	0	21.49	4.45	23.79	<=34.77	Pass
			13	22.60	4.45	24.90	<=34.77	Pass
			24	22.44	4.45	24.74	<=34.77	Pass
		12	0	20.67	4.45	22.97	<=34.77	Pass
			6	20.79	4.45	23.09	<=34.77	Pass
			13	20.85	4.45	23.15	<=34.77	Pass
	25	0	20.88	4.45	23.18	<=34.77	Pass	
	784.5	1	0	21.56	4.45	23.86	<=34.77	Pass
			13	21.65	4.45	23.95	<=34.77	Pass
			24	20.99	4.45	23.29	<=34.77	Pass
		12	0	20.82	4.45	23.12	<=34.77	Pass
			6	20.96	4.45	23.26	<=34.77	Pass
			13	20.84	4.45	23.14	<=34.77	Pass
		25	0	20.94	4.45	23.24	<=34.77	Pass
Note1: ERP=Conducted Power+Antenna Gain-2.15								

1.1.2 B13_10MHz_ERP

Band: 13 / Bandwidth: 10MHz / NTNV						
Modulation	Frequency	RB Allocation	Conducted Power	Gain	ERP (dBm)	Verdict

	(MHz)	Size	Offset	(dBm)	(dBi)	Result	Limit	
QPSK	782	1	0	22.90	4.45	25.20	<=34.77	Pass
			25	22.99	4.45	25.29	<=34.77	Pass
			49	22.72	4.45	25.02	<=34.77	Pass
		25	0	21.80	4.45	24.10	<=34.77	Pass
			13	21.87	4.45	24.17	<=34.77	Pass
			25	21.85	4.45	24.15	<=34.77	Pass
		50	0	21.85	4.45	24.15	<=34.77	Pass
16QAM	782	1	0	22.35	4.45	24.65	<=34.77	Pass
			25	22.67	4.45	24.97	<=34.77	Pass
			49	22.20	4.45	24.50	<=34.77	Pass
		25	0	20.98	4.45	23.28	<=34.77	Pass
			13	20.95	4.45	23.25	<=34.77	Pass
			25	21.03	4.45	23.33	<=34.77	Pass
		50	0	20.89	4.45	23.19	<=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	3.55	-0.479	-0.0006	/	Pass
					4	0.336	0.0004	/	Pass
					4.4	-1.015	-0.0013	/	Pass
				-30	4	-0.166	-0.0002	/	Pass
				-20	4	-0.178	-0.0002	/	Pass
				-10	4	-0.511	-0.0007	/	Pass
				0	4	-0.602	-0.0008	/	Pass
				10	4	-0.543	-0.0007	/	Pass
				30	4	1.138	0.0015	/	Pass
				40	4	0.198	0.0003	/	Pass
				50	4	1.058	0.0014	/	Pass
16QAM	782	50	0	20	3.55	0.095	0.0001	/	Pass
					4	0.758	0.0010	/	Pass
					4.4	0.484	0.0006	/	Pass
				-30	4	0.415	0.0005	/	Pass
				-20	4	1.790	0.0023	/	Pass
				-10	4	1.666	0.0021	/	Pass
				0	4	2.176	0.0028	/	Pass
				10	4	1.136	0.0015	/	Pass
				30	4	1.030	0.0013	/	Pass
				40	4	1.627	0.0021	/	Pass
				50	4	0.268	0.0003	/	Pass

3. 99% & 26dB Bandwidth

3.1 Test Result

3.1.1 Band13_OBW

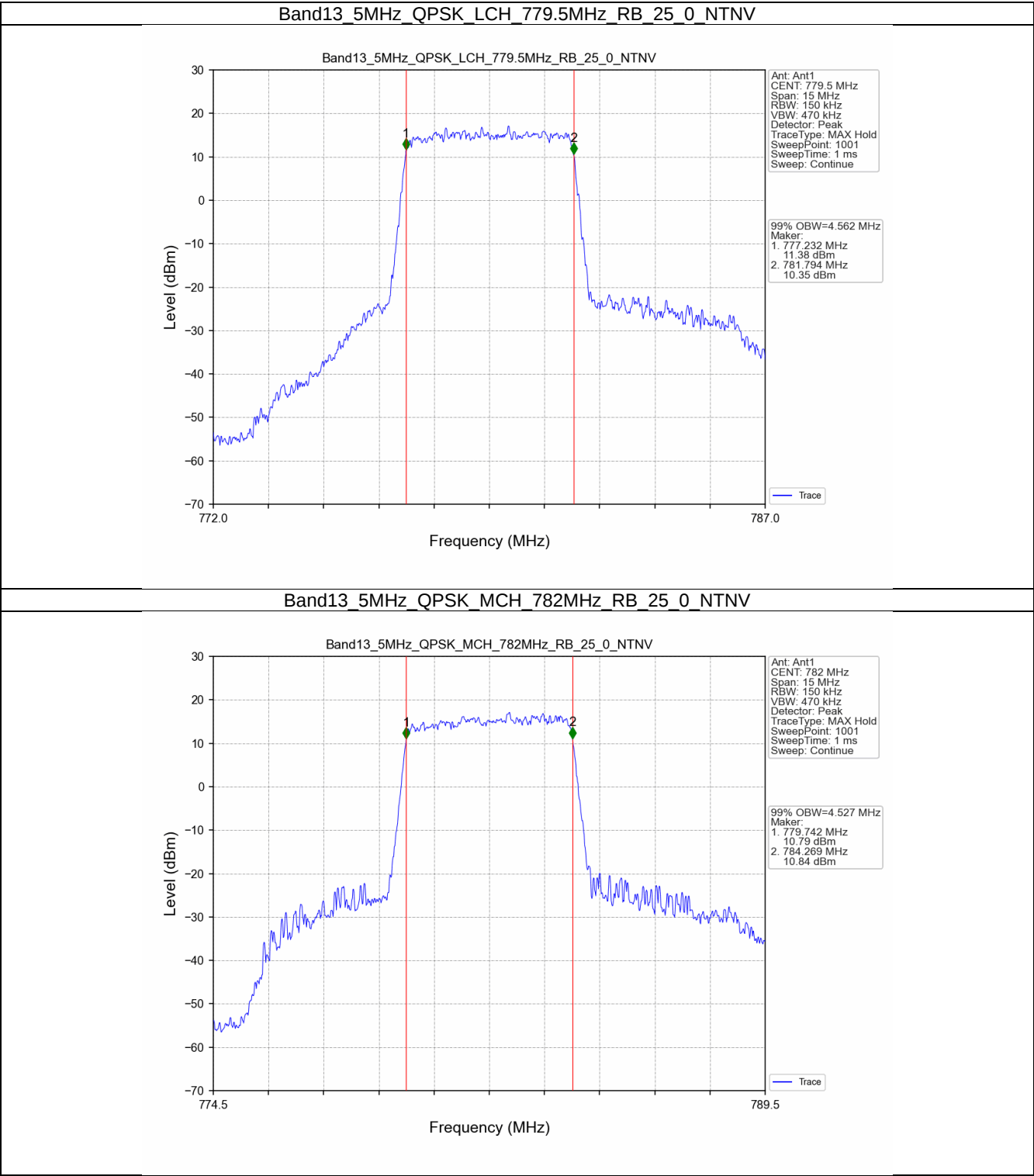
Band: 13 / NTNV							
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		99% Occupied Bandwidth (MHz)		Verdict
			Size	Offset	Result	Limit	
5	QPSK	779.5	25	0	4.562	/	Pass
		782	25	0	4.527	/	Pass
		784.5	25	0	4.517	/	Pass
	16QAM	779.5	25	0	4.527	/	Pass
		782	25	0	4.544	/	Pass
		784.5	25	0	4.538	/	Pass
10	QPSK	782	50	0	9.013	/	Pass
	16QAM	782	50	0	9.002	/	Pass

3.1.2 Band13_XDB

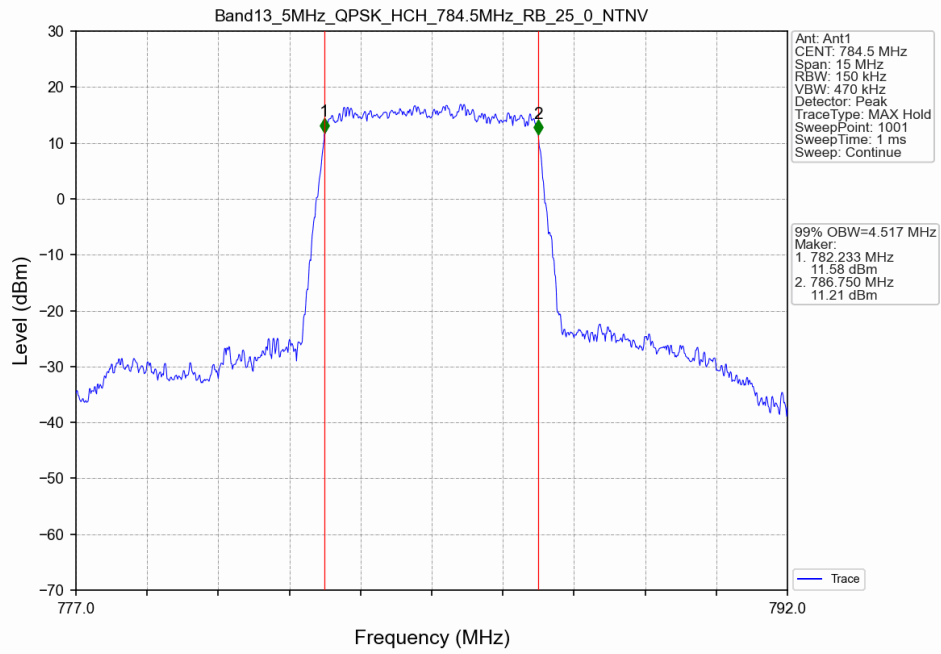
Band: 13 / NTNV							
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		26dB Bandwidth (MHz)		Verdict
			Size	Offset	Result	Limit	
5	QPSK	779.5	25	0	5.070	/	Pass
		782	25	0	5.052	/	Pass
		784.5	25	0	5.084	/	Pass
	16QAM	779.5	25	0	5.045	/	Pass
		782	25	0	5.069	/	Pass
		784.5	25	0	5.091	/	Pass
10	QPSK	782	50	0	9.973	/	Pass
	16QAM	782	50	0	9.929	/	Pass

3.2 Test Graph

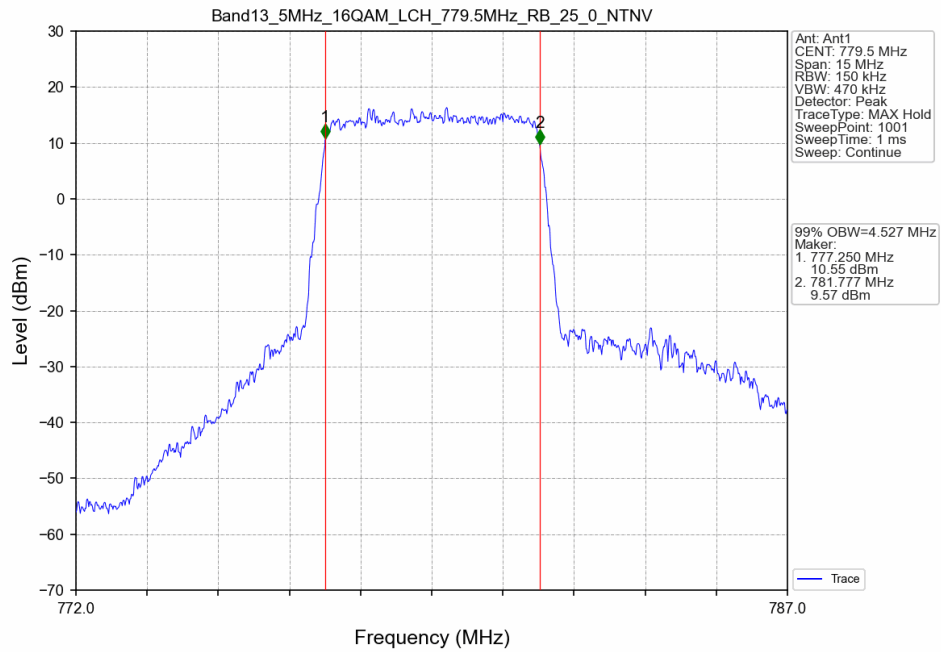
3.2.1 Band13_OBW



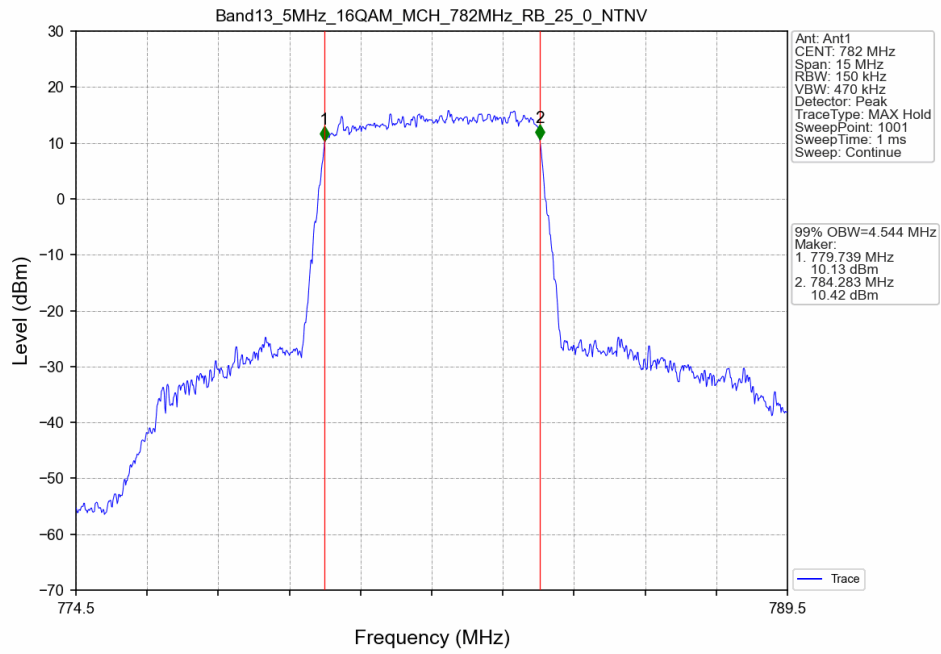
Band13_5MHz_QPSK_HCH_784.5MHz_RB_25_0_NTNV



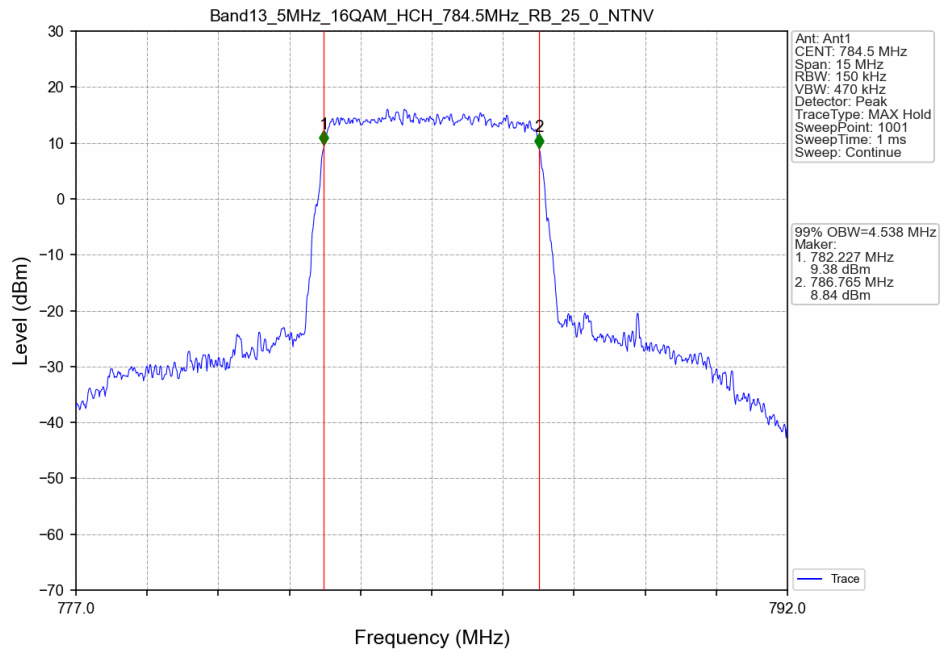
Band13_5MHz_16QAM_LCH_779.5MHz_RB_25_0_NTNV



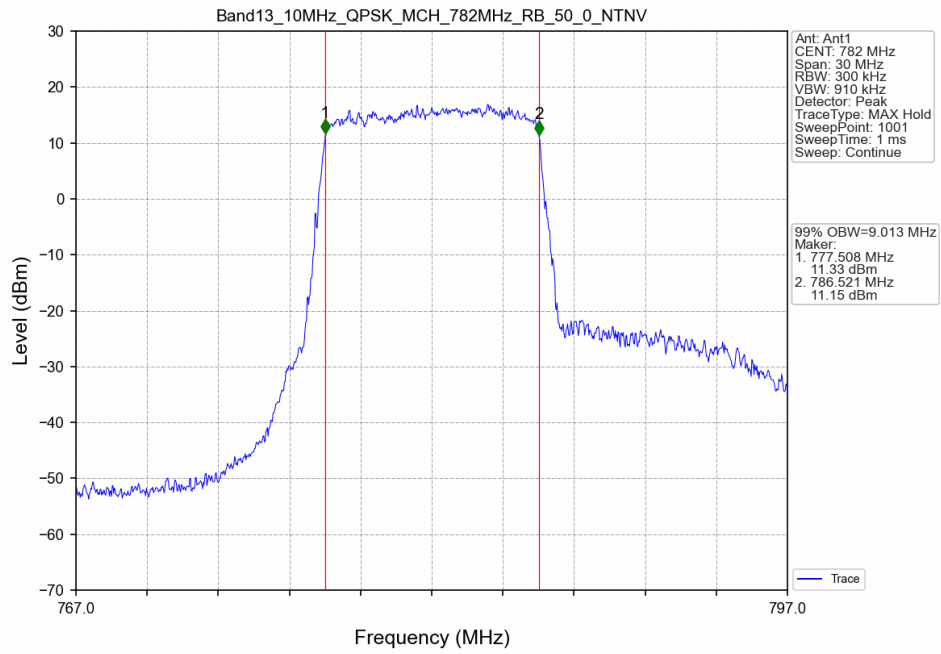
Band13_5MHz_16QAM_MCH_782MHz_RB_25_0_NTNV



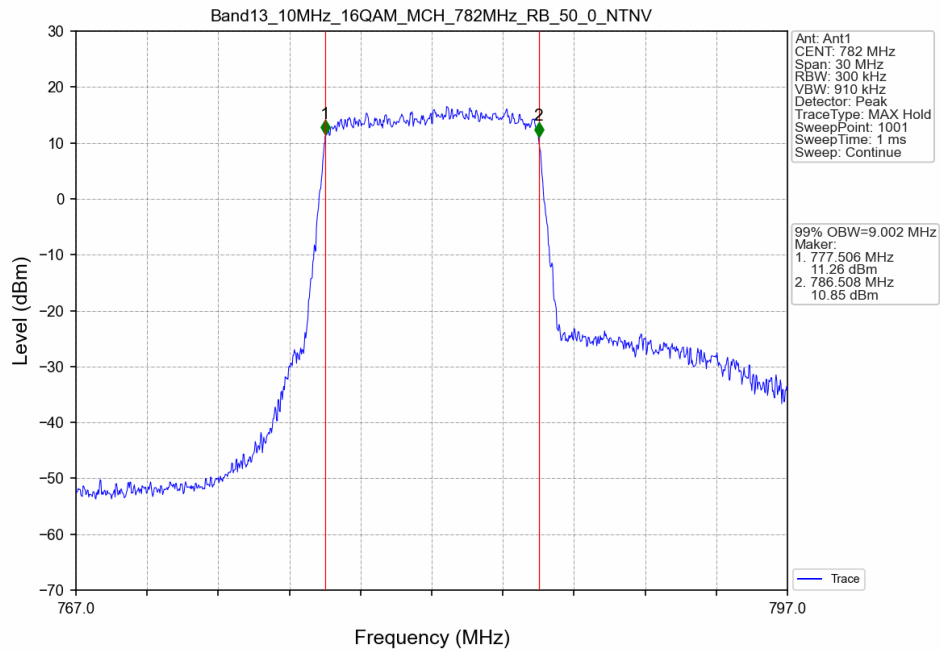
Band13_5MHz_16QAM_HCH_784.5MHz_RB_25_0_NTNV



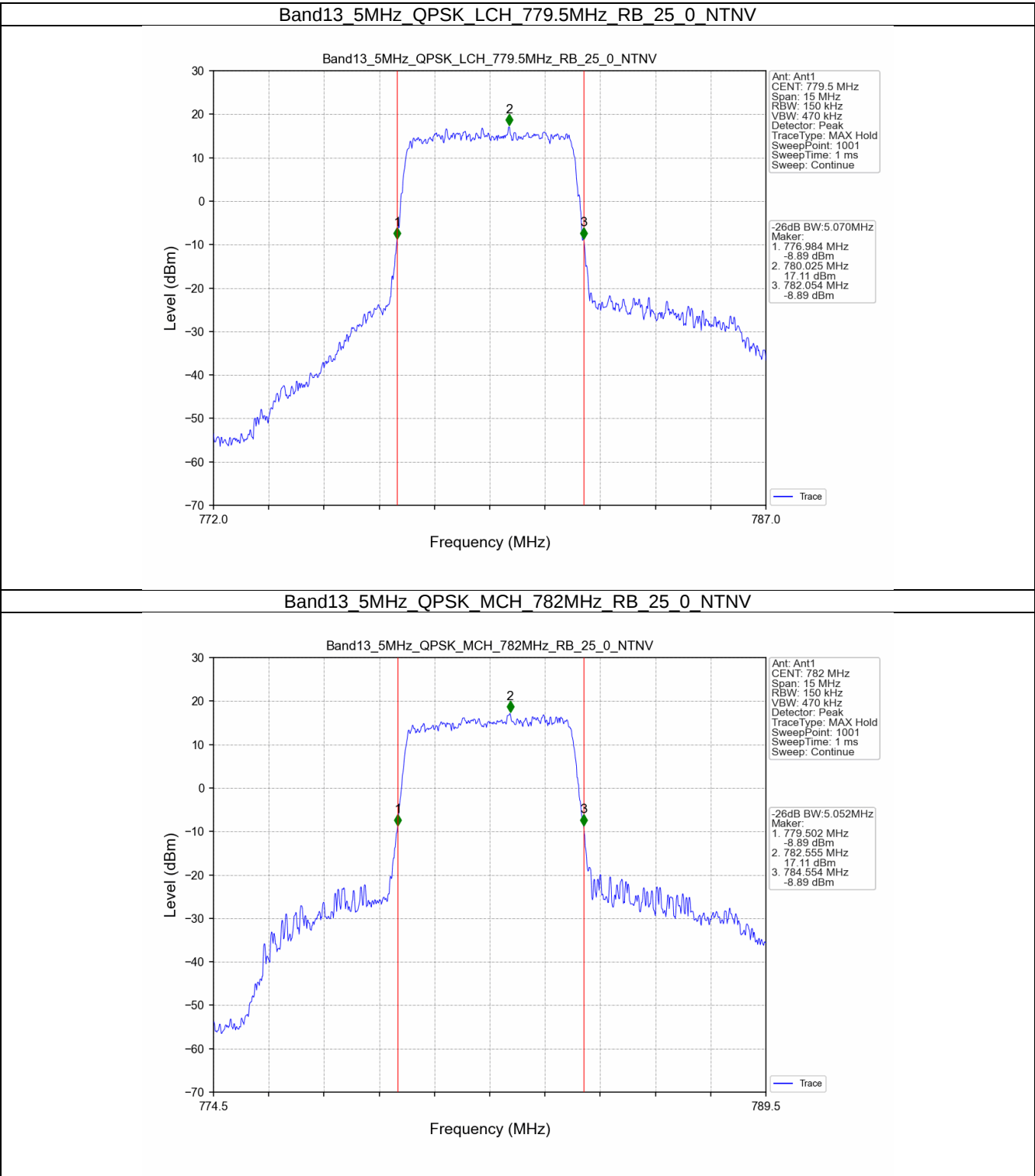
Band13_10MHz_QPSK_MCH_782MHz_RB_50_0_NTNV



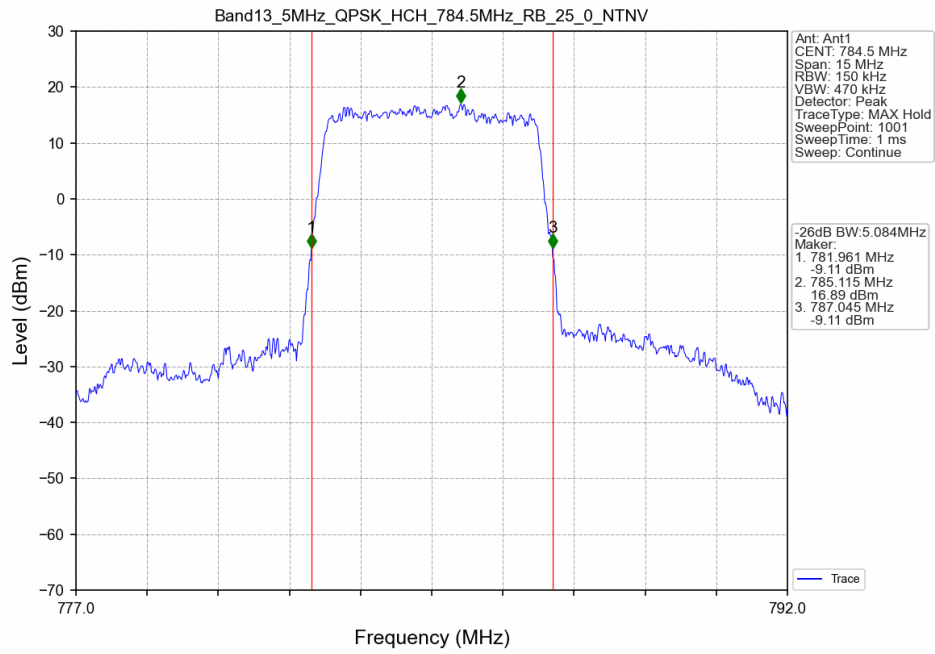
Band13_10MHz_16QAM_MCH_782MHz_RB_50_0_NTNV



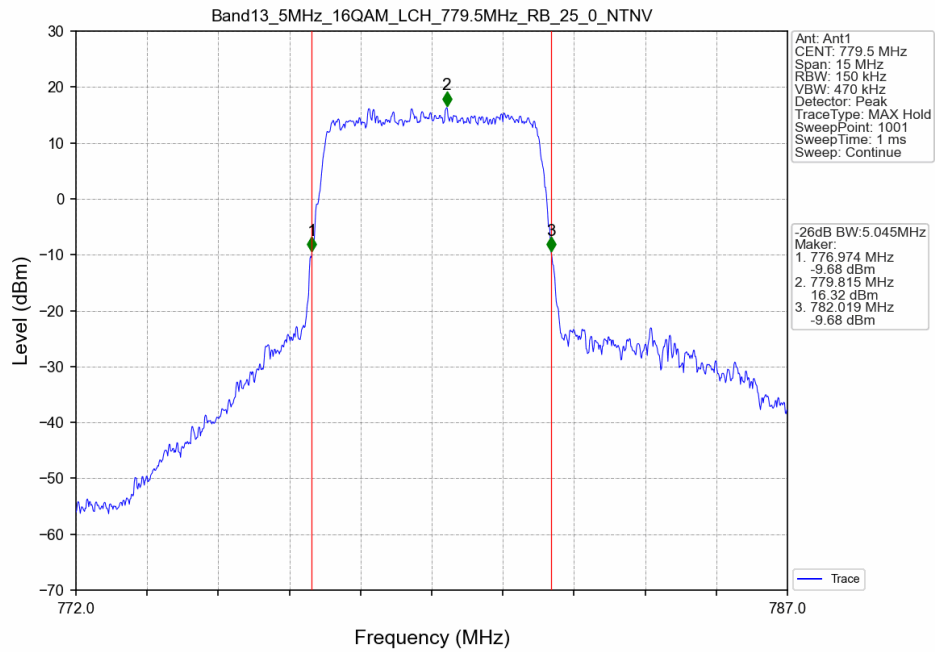
3.2.2 Band13_XDB



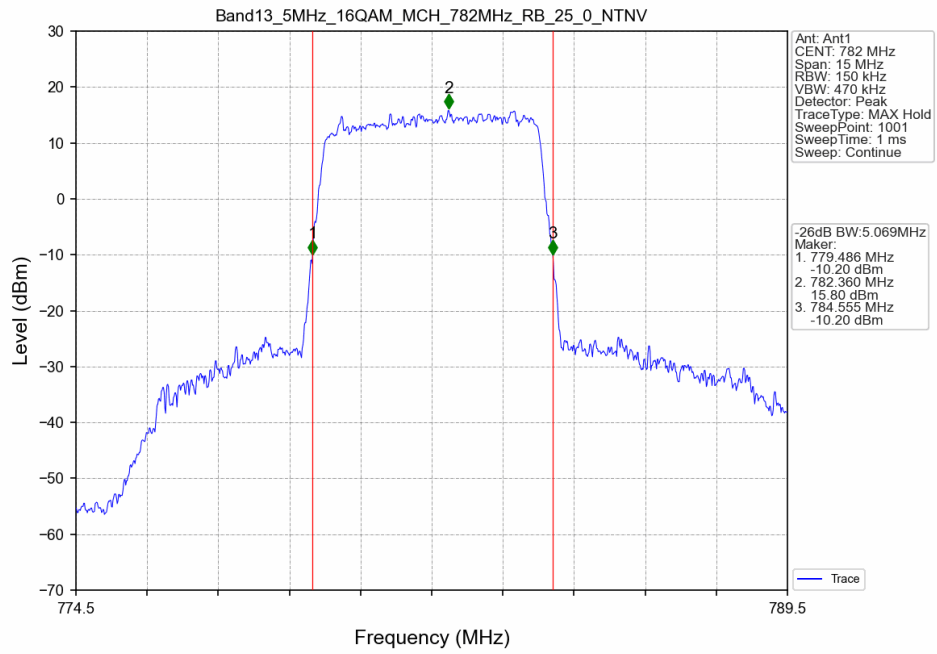
Band13_5MHz_QPSK_HCH_784.5MHz_RB_25_0_NTNV



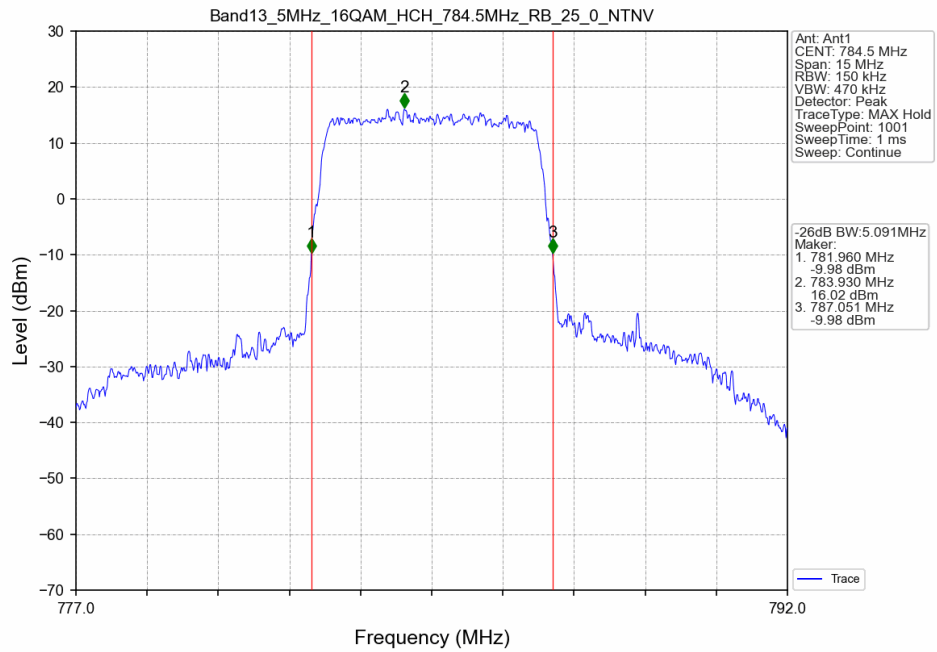
Band13_5MHz_16QAM_LCH_779.5MHz_RB_25_0_NTNV



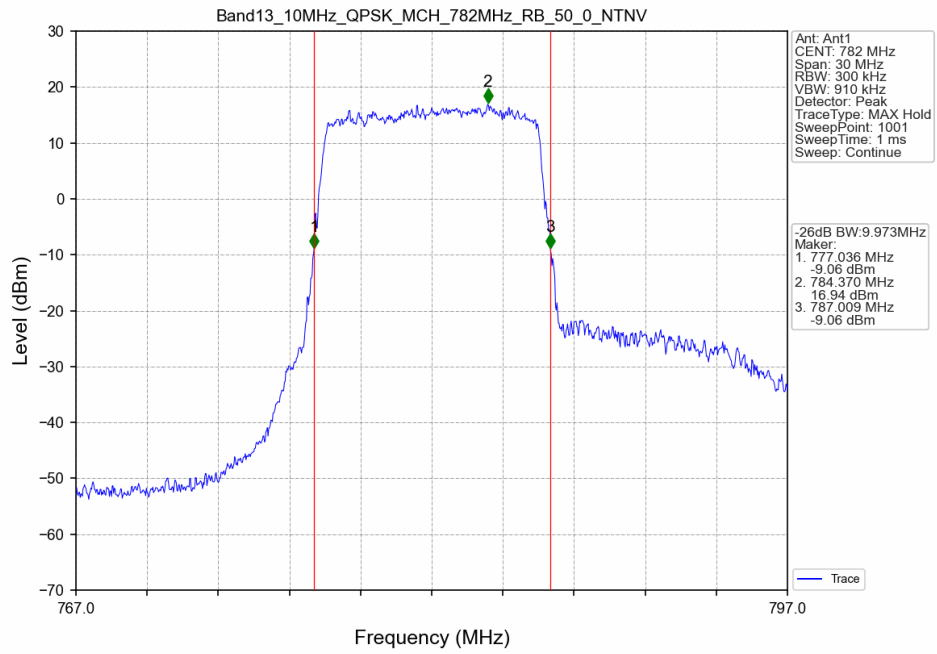
Band13_5MHz_16QAM_MCH_782MHz_RB_25_0_NTNV



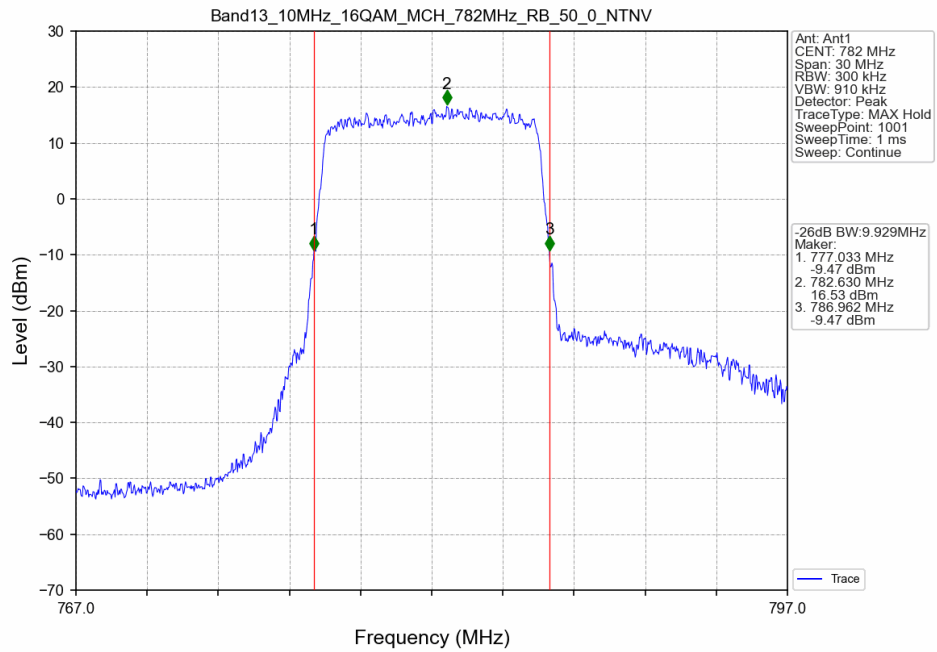
Band13_5MHz_16QAM_HCH_784.5MHz_RB_25_0_NTNV



Band13_10MHz_QPSK_MCH_782MHz_RB_50_0_NTNV



Band13_10MHz_16QAM_MCH_782MHz_RB_50_0_NTNV



4. Peak-Average Ratio

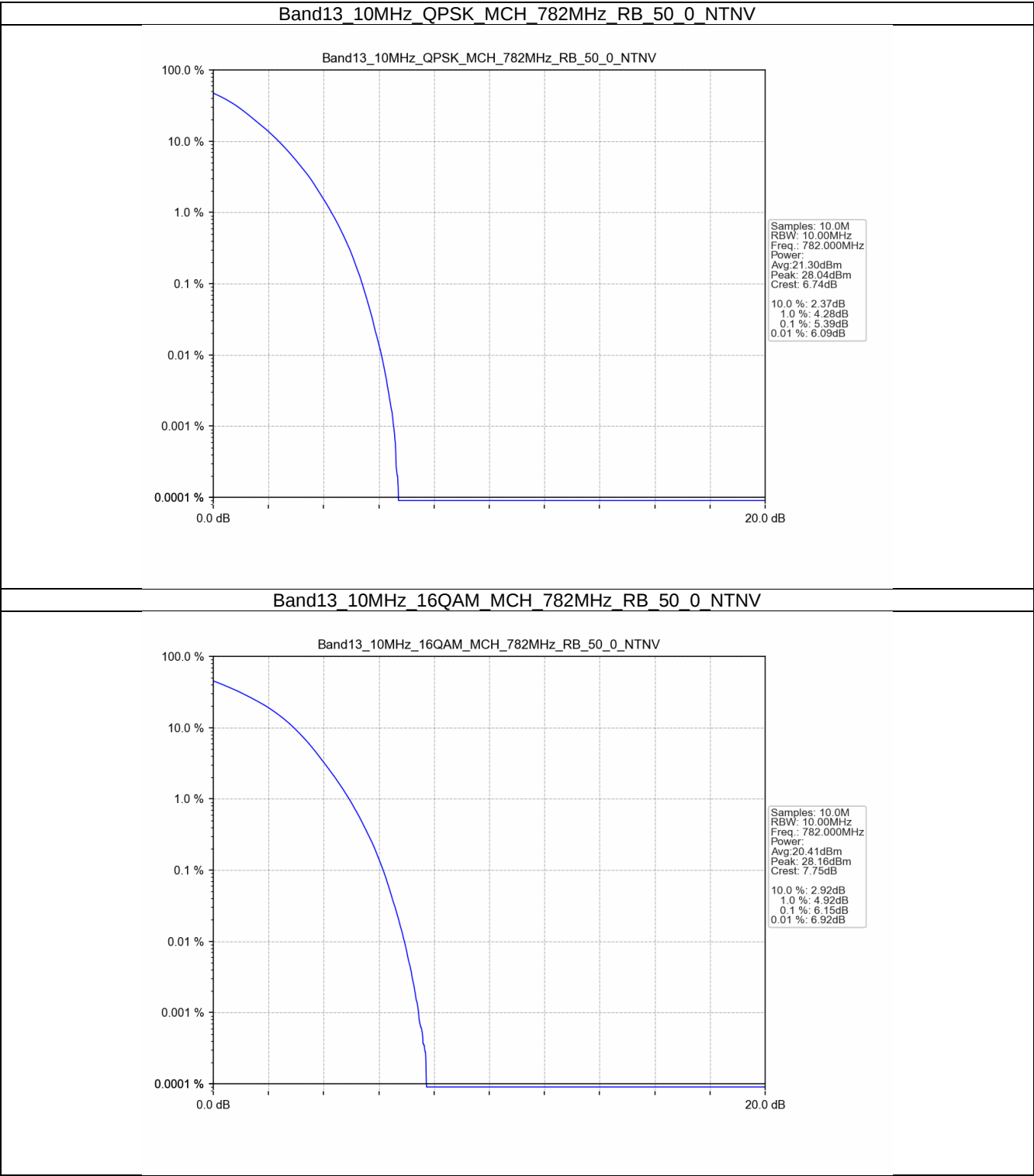
4.1 Test Result

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	5.39	<=13	Pass
16QAM	782	50	0	6.15	<=13	Pass

4.2 Test Graph

4.2.1 B13_10MHz



5. Spurious Emission & Band Edges

5.1 Test Result

5.1.1 B13_5MHz

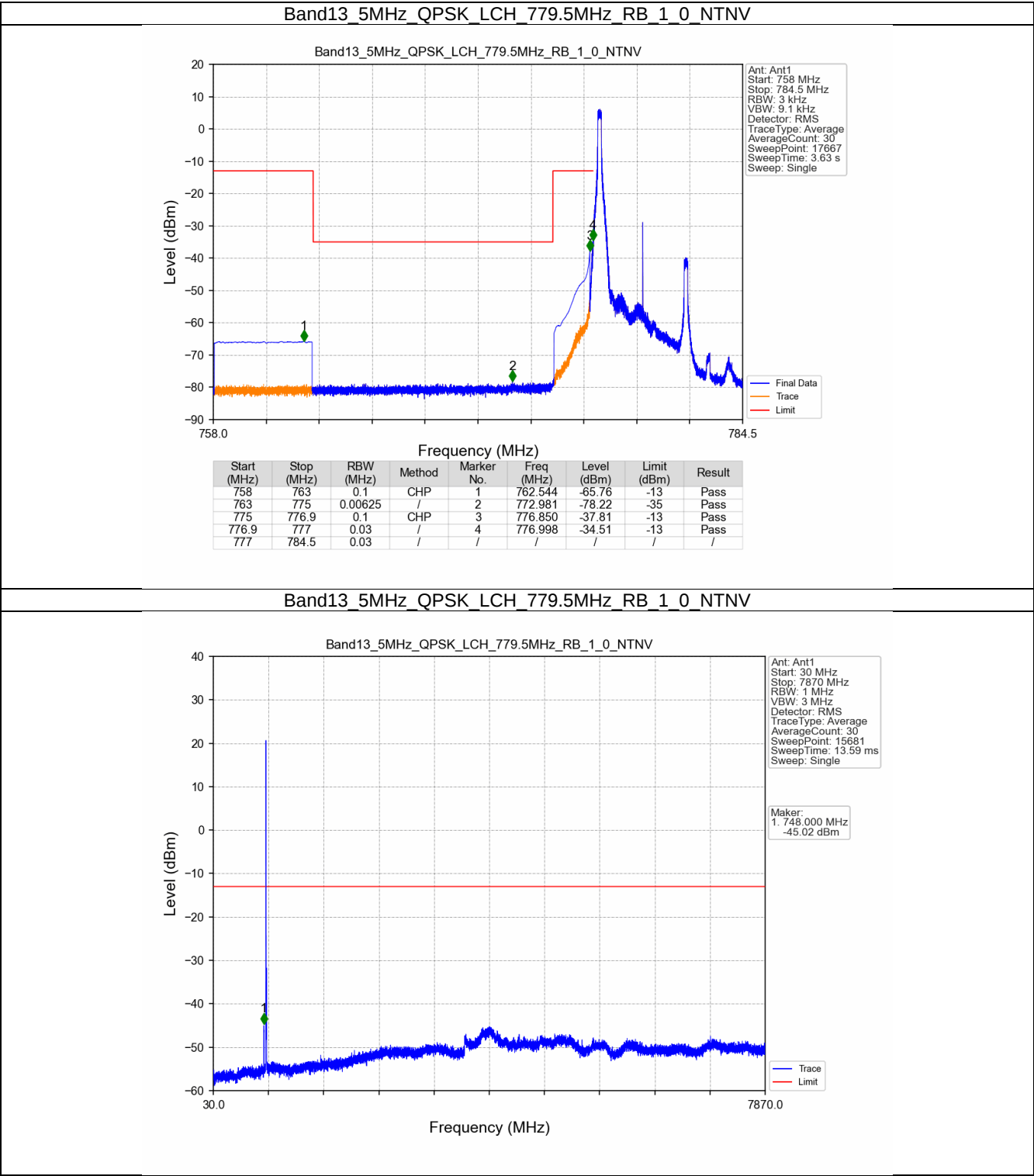
Band: 13 / Bandwidth: 5MHz / NTVN						
Modulation	Frequency (MHz)	RB Allocation		Spurious Emission		Verdict
		Size	Offset	Result	Limit	
QPSK	779.5	1	0	Refer To Test Graph		Pass
		25	0	Refer To Test Graph		Pass
	782	1	0	Refer To Test Graph		Pass
	784.5	1	0	Refer To Test Graph		Pass
			24	Refer To Test Graph		Pass
		25	0	Refer To Test Graph		Pass
16QAM	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

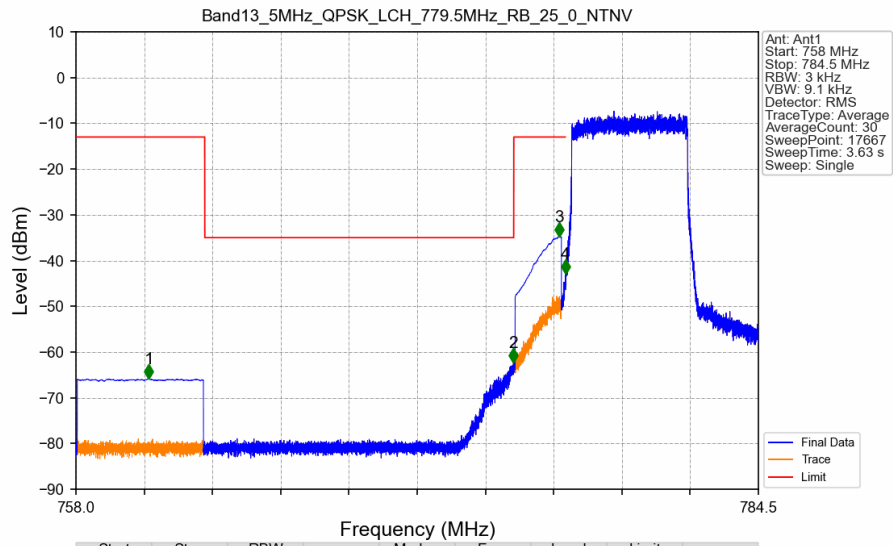
Band: 13 / Bandwidth: 10MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Spurious Emission		Verdict
		Size	Offset	Result	Limit	
QPSK	782	1	0	Refer To Test Graph		Pass
		50	0	Refer To Test Graph		Pass
	782	1	49	Refer To Test Graph		Pass
		50	0	Refer To Test Graph		Pass
16QAM	782	1	0	Refer To 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

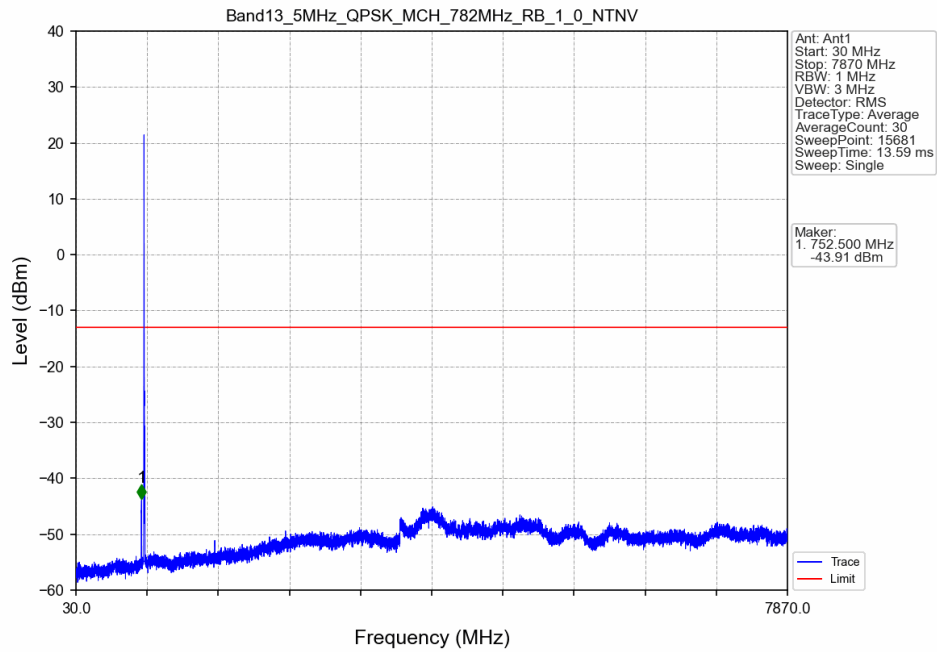
5.2.1 B13_5MHz



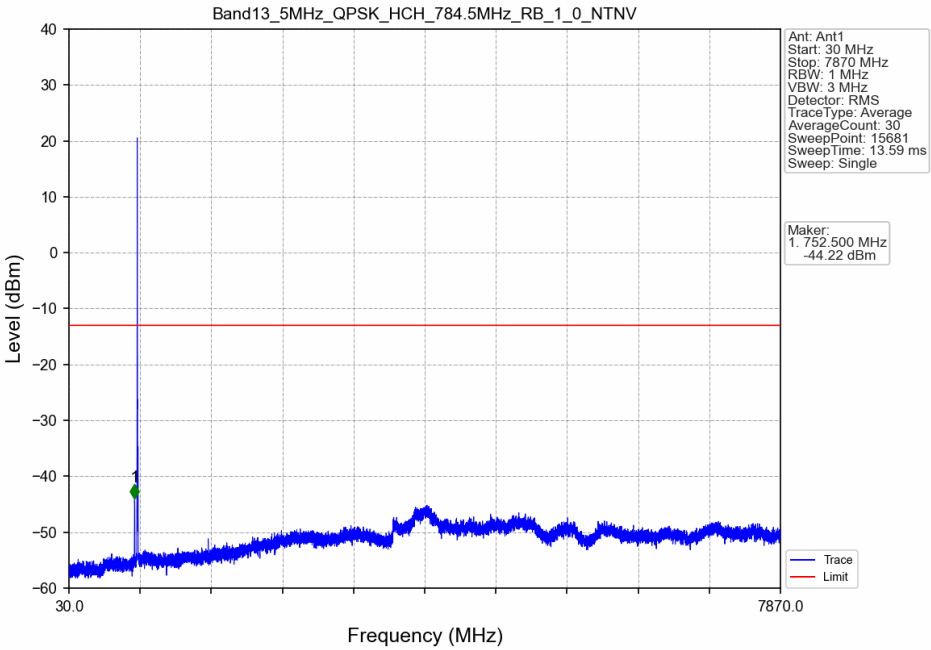
Band13_5MHz_QPSK_LCH_779.5MHz_RB_25_0_NTNV



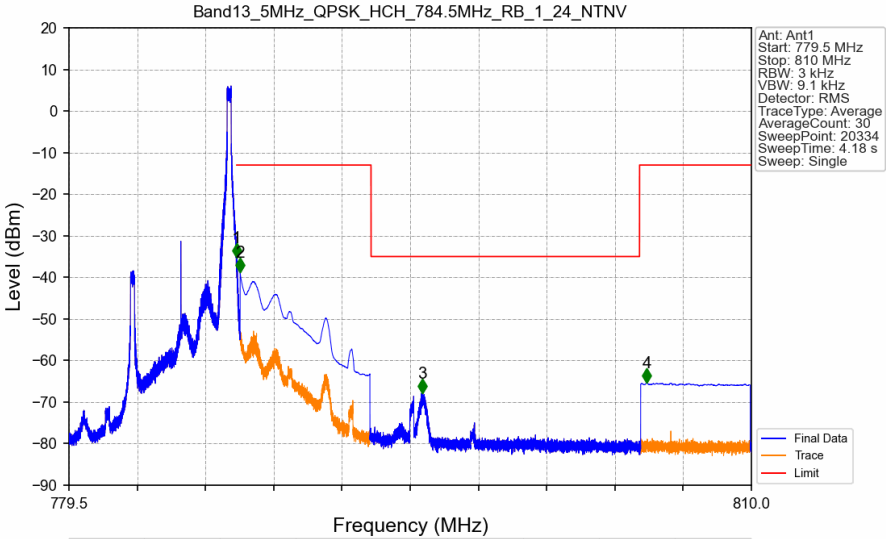
Band13_5MHz_QPSK_MCH_782MHz_RB_1_0_NTNV



Band13 5MHz QPSK HCH 784.5MHz RB 1 0 NTN

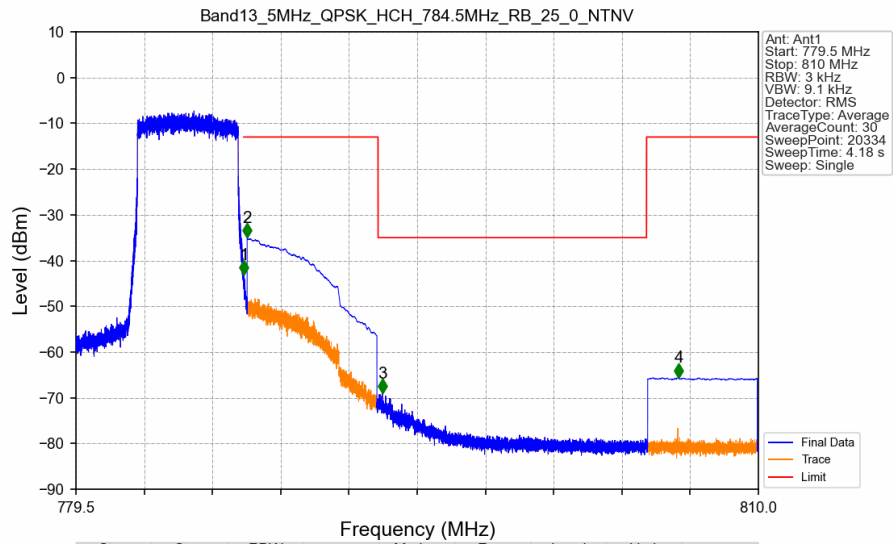


Band13 5MHz QPSK HCH 784.5MHz RB 1 24 NTN



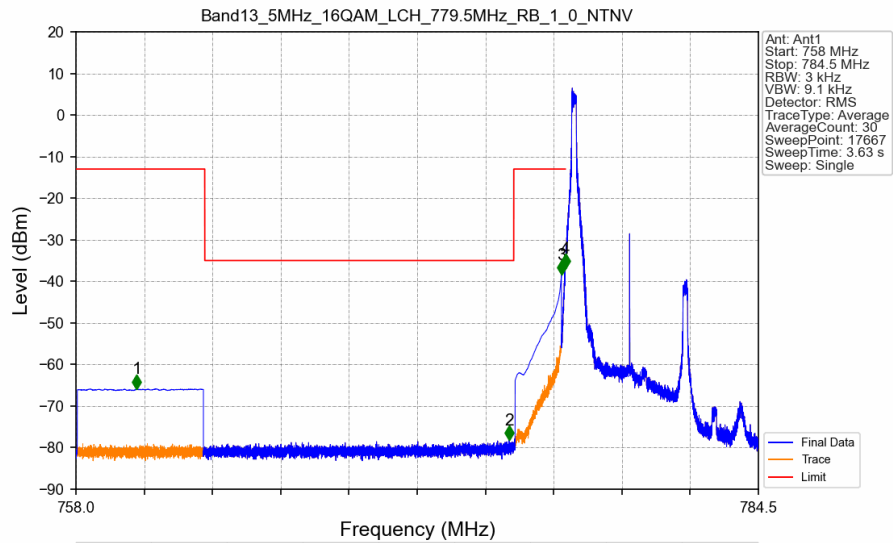
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
779.5	787	0.03	/	/	/	/	/	/
787	787.1	0.03	/	1	787.000	-35.23	-13	Pass
787.1	793	0.1	CHP	2	787.150	-38.82	-13	Pass
793	805	0.00625	/	3	795.304	-67.91	-35	Pass
805	810	0.1	CHP	4	805.321	-65.42	-13	Pass

Band13_5MHz_QPSK_HCH_784.5MHz_RB_25_0_NTNV



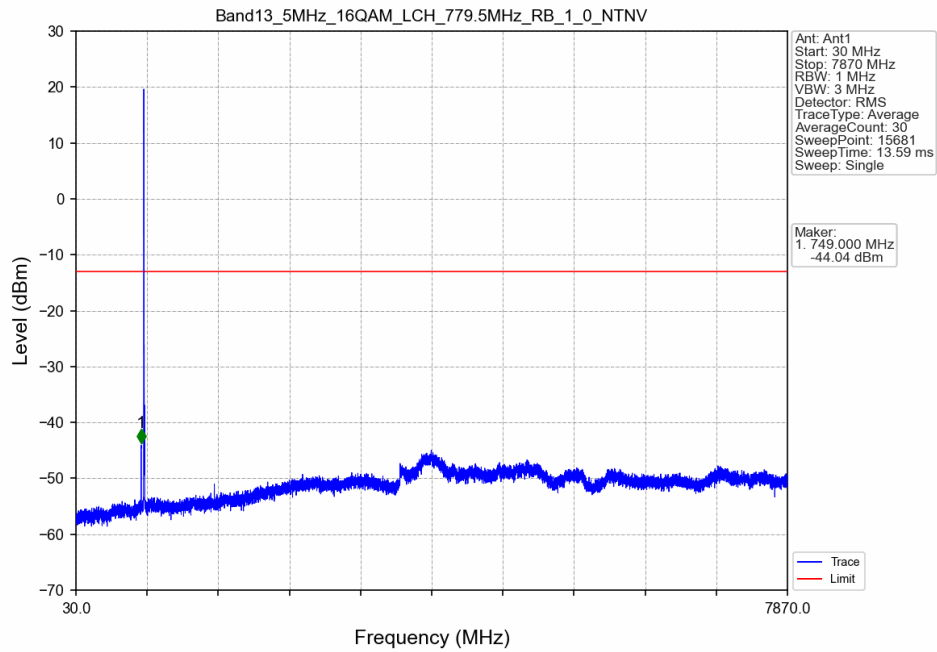
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
779.5	787	0.03	/	/	/	/	/	/
787	787.1	0.03	/	1	787.012	-43.03	-13	Pass
787.1	793	0.1	CHP	2	787.150	-34.97	-13	Pass
793	805	0.00625	/	3	793.194	-68.98	-35	Pass
805	810	0.1	CHP	4	806.434	-65.60	-13	Pass

Band13_5MHz_16QAM_LCH_779.5MHz_RB_1_0_NTNV

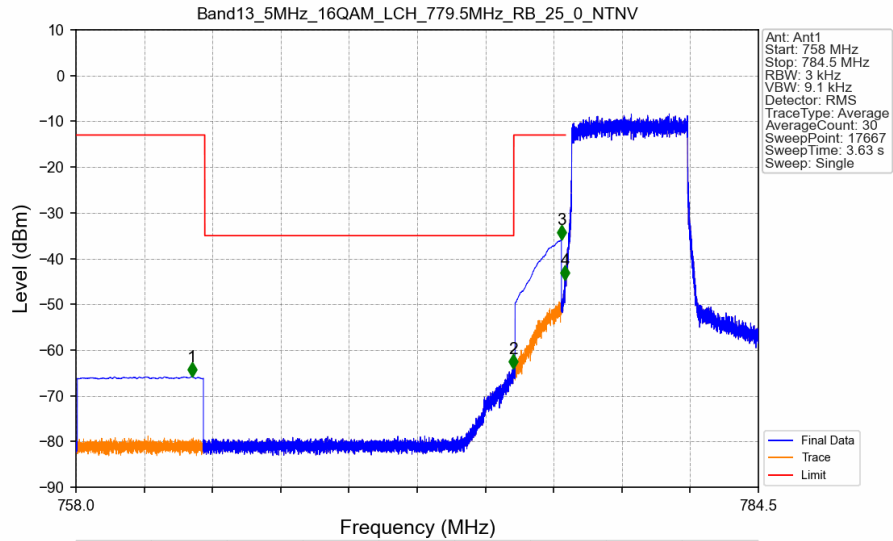


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
758	763	0.1	CHP	1	760.364	-65.86	-13	Pass
763	775	0.00625	/	2	774.817	-78.23	-35	Pass
775	776.9	0.1	CHP	3	776.850	-38.48	-13	Pass
776.9	777	0.03	/	4	777.000	-36.87	-13	Pass
777	784.5	0.03	/	/	/	/	/	/

Band13_5MHz_16QAM_LCH_779.5MHz_RB_1_0_NTNV

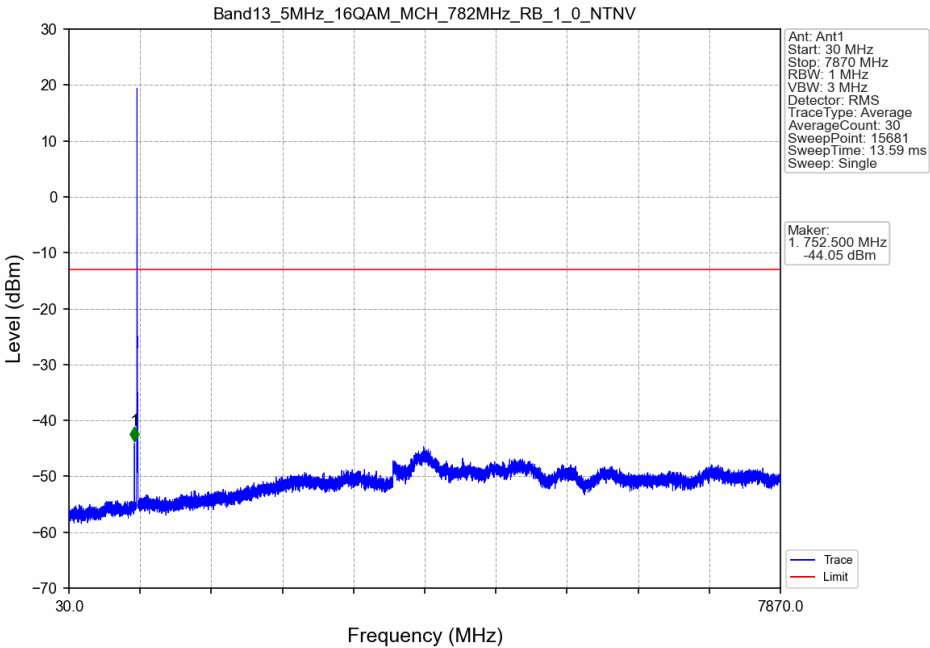


Band13_5MHz_16QAM_LCH_779.5MHz_RB_25_0_NTNV

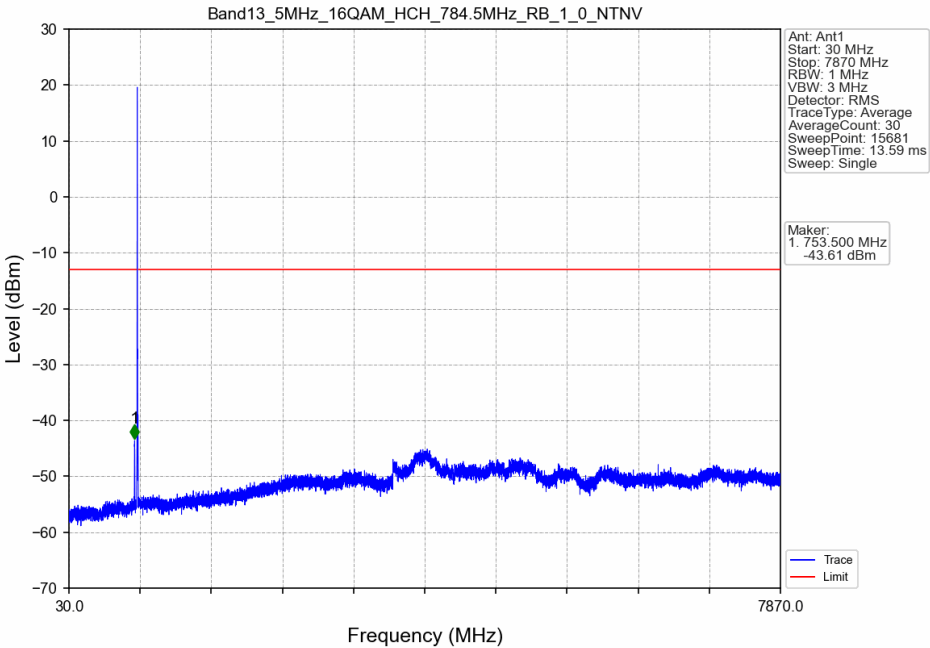


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
758	763	0.1	CHP	1	762.512	-65.83	-13	Pass
763	775	0.00625	/	2	774.985	-64.15	-35	Pass
775	776.9	0.1	CHP	3	776.850	-35.86	-13	Pass
776.9	777	0.03	/	4	776.986	-44.63	-13	Pass
777	784.5	0.03	/	/	/	/	/	/

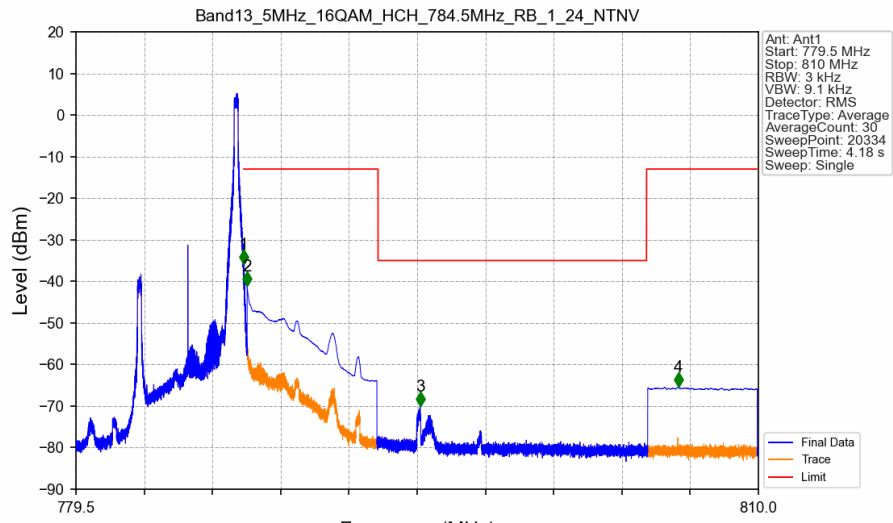
Band13_5MHz_16QAM_MCH_782MHz_RB_1_0_NTNV



Band13_5MHz_16QAM_HCH_784.5MHz_RB_1_0_NTNV

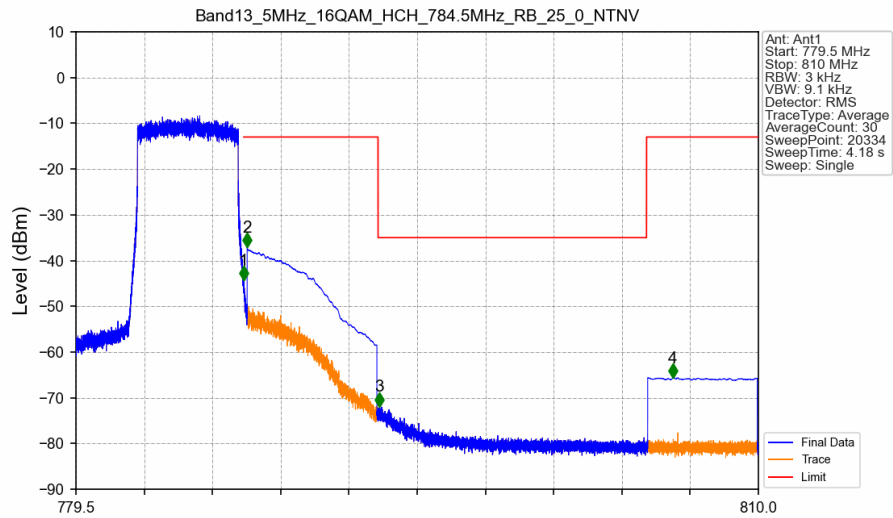


Band13 5MHz 16QAM HCH 784.5MHz RB_1_24_NTNV



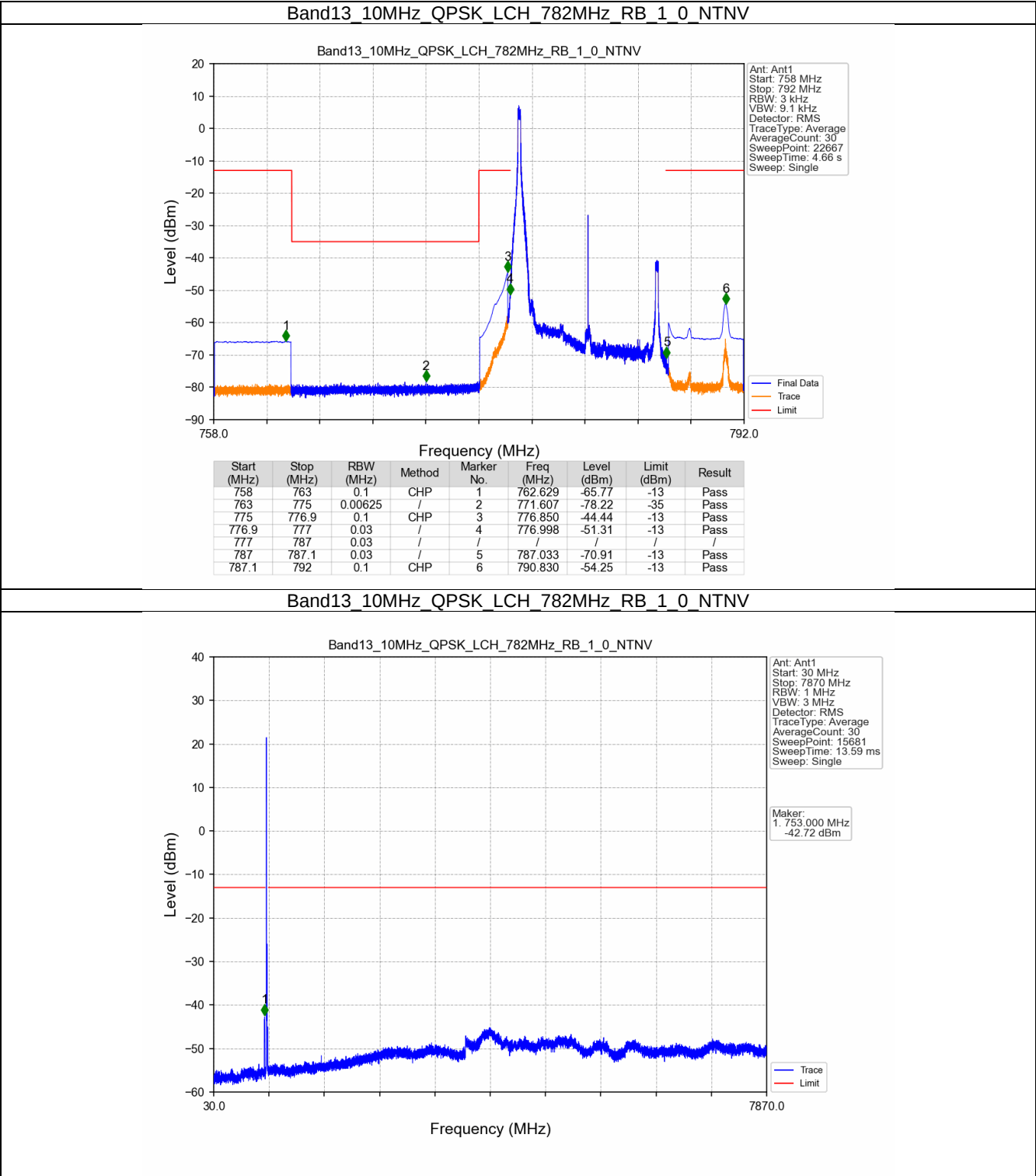
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
779.5	787	0.03	/	1	787.000	-35.90	-13	Pass
787	787.1	0.03	/	2	787.150	-41.07	-13	Pass
787.1	793	0.1	CHP	3	794.883	-70.01	-35	Pass
793	805	0.00625	/	4	806.430	-65.43	-13	Pass
805	810	0.1	CHP					

Band13 5MHz 16QAM HCH 784.5MHz RB_25_0_NTNV

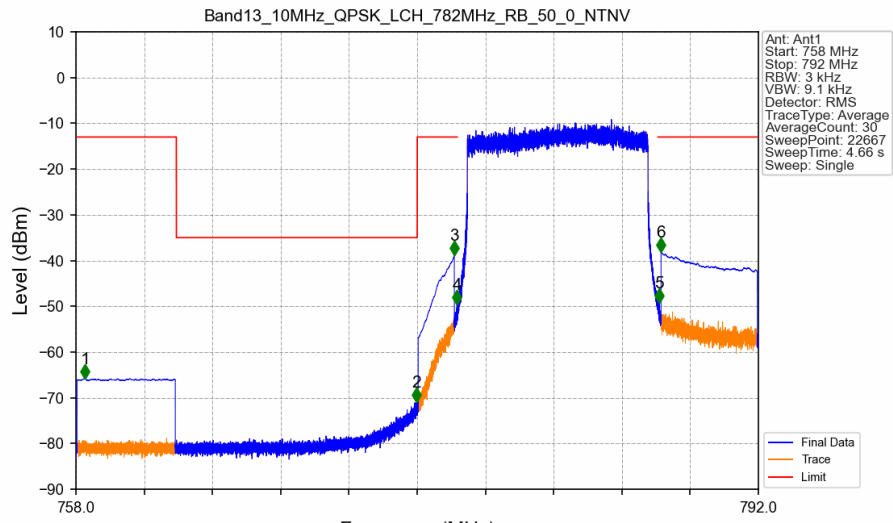


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
779.5	787	0.03	/	1	787.000	-44.35	-13	Pass
787	787.1	0.03	/	2	787.150	-37.07	-13	Pass
787.1	793	0.1	CHP	3	793.071	-71.94	-35	Pass
793	805	0.00625	/	4	806.179	-65.61	-13	Pass
805	810	0.1	CHP					

5.2.2 B13_10MHz

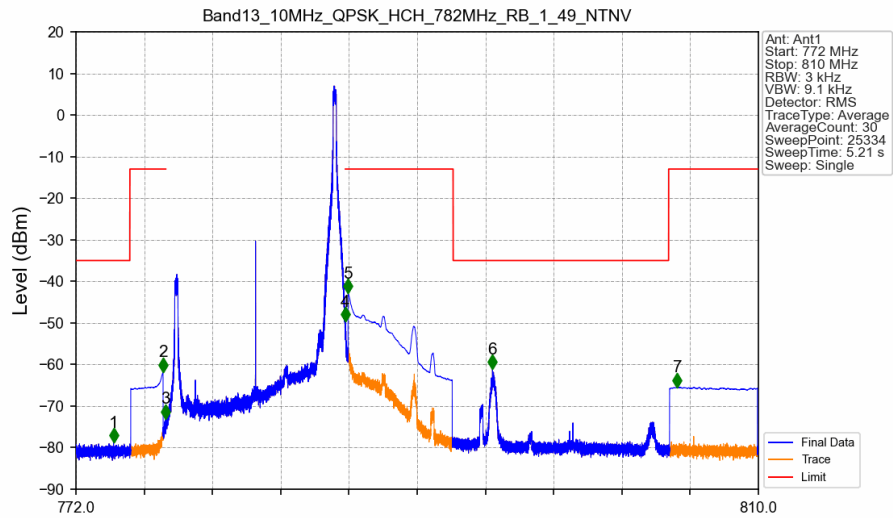


Band13_10MHz_QPSK_LCH_782MHz_RB_50_0_NTNV



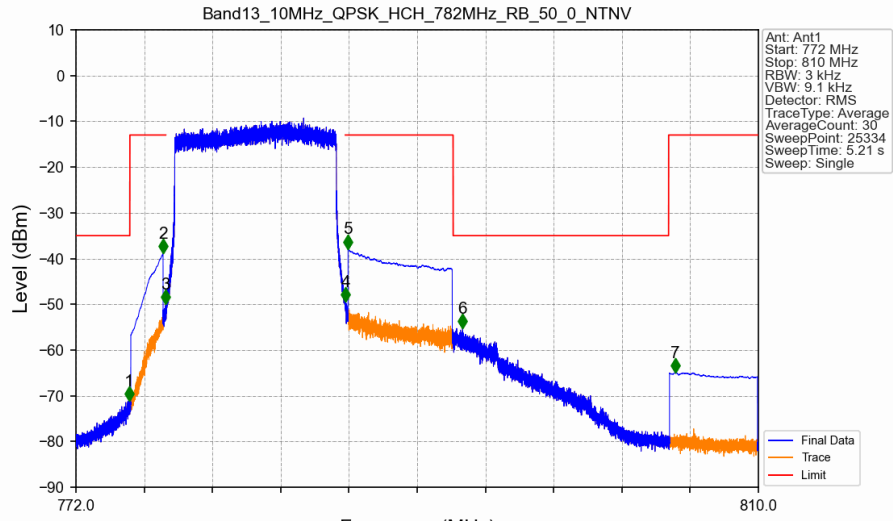
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
758	763	0.1	CHP	1	758.446	-65.84	-13	Pass
763	775	0.00625	/	2	774.976	-70.97	-35	Pass
775	776.9	0.1	CHP	3	776.848	-38.86	-13	Pass
776.9	777	0.03	/	4	776.983	-49.58	-13	Pass
777	787	0.03	/	/	/	/	/	/
787	787.1	0.03	/	5	787.062	-49.22	-13	Pass
787.1	792	0.1	CHP	6	787.150	-38.16	-13	Pass

Band13_10MHz_QPSK_HCH_782MHz_RB_1_49_NTNV



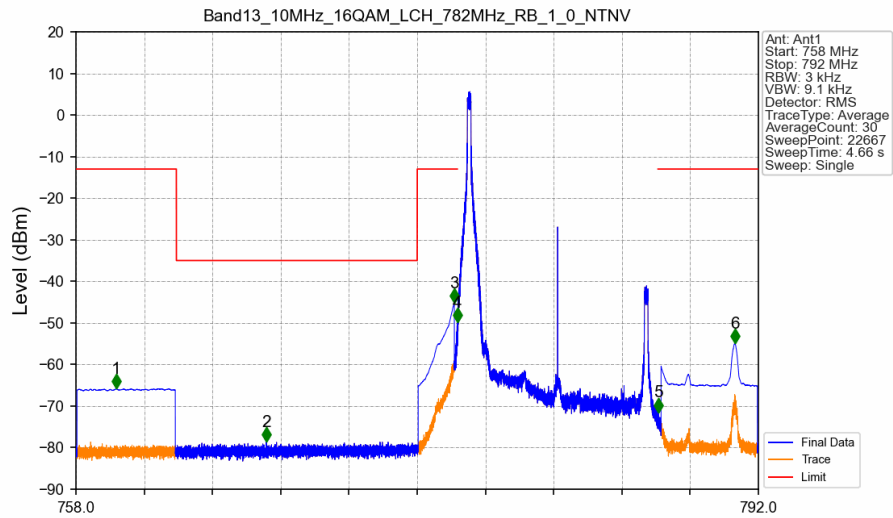
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
772	775	0.00625	/	1	774.093	-78.82	-35	Pass
775	776.9	0.1	CHP	2	776.850	-61.78	-13	Pass
776.9	777	0.03	/	3	776.997	-73.04	-13	Pass
777	787	0.03	/	/	/	/	/	/
787	787.1	0.03	/	4	787.002	-49.61	-13	Pass
787.1	793	0.1	CHP	5	787.150	-42.92	-13	Pass
793	805	0.00625	/	6	795.193	-61.04	-35	Pass
805	810	0.1	CHP	7	805.479	-65.48	-13	Pass

Band13_10MHz_QPSK_HCH_782MHz_RB_50_0_NTNV



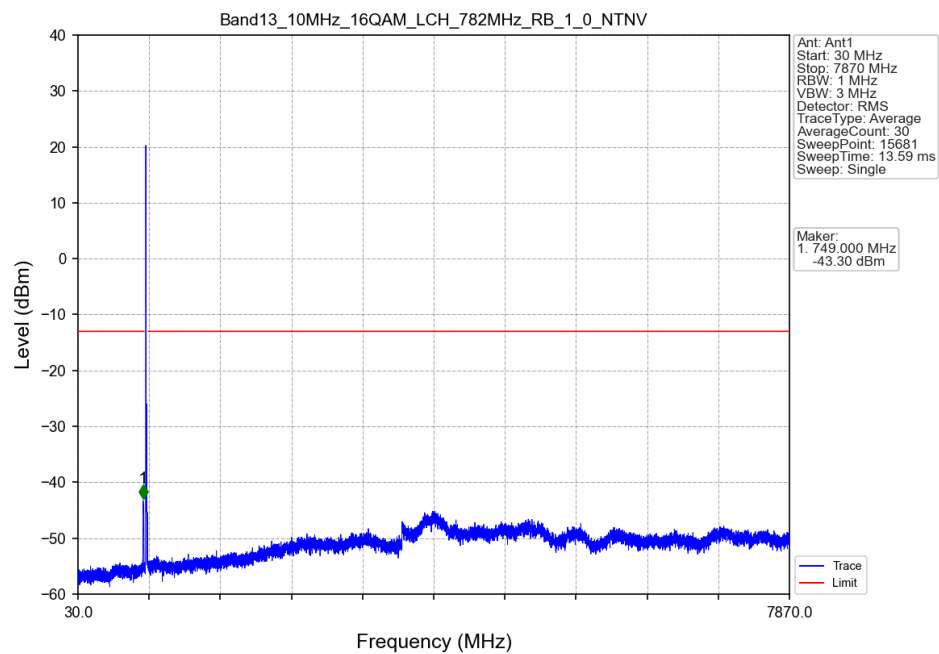
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
772	775	0.00625	/	1	774.954	-71.14	-35	Pass
775	776.9	0.1	CHP	2	776.847	-38.82	-13	Pass
776.9	777	0.03	/	3	777.000	-49.93	-13	Pass
777	787	0.03	/	/	/	/	/	/
787	787.1	0.03	/	4	787.020	-49.44	-13	Pass
787.1	793	0.1	CHP	5	787.150	-37.88	-13	Pass
793	805	0.00625	/	6	793.528	-55.21	-35	Pass
805	810	0.1	CHP	7	805.357	-64.97	-13	Pass

Band13_10MHz_16QAM_LCH_782MHz_RB_1_0_NTNV

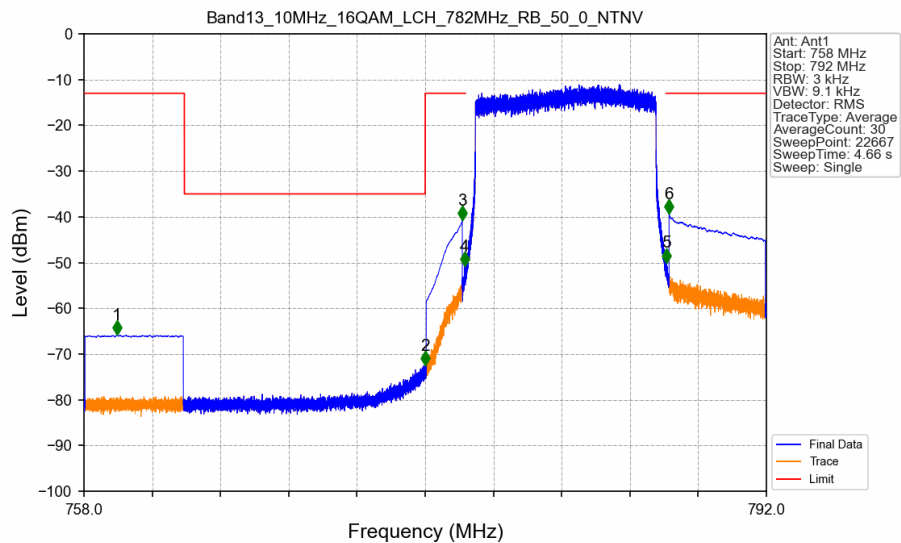


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
758	763	0.1	CHP	1	760.010	-65.79	-13	Pass
763	775	0.00625	/	2	767.486	-78.53	-35	Pass
775	776.9	0.1	CHP	3	776.850	-45.23	-13	Pass
776.9	777	0.03	/	4	776.997	-49.82	-13	Pass
777	787	0.03	/	/	/	/	/	/
787	787.1	0.03	/	5	787.020	-71.50	-13	Pass
787.1	792	0.1	CHP	6	790.831	-54.90	-13	Pass

Band13_10MHz_16QAM_LCH_782MHz_RB_1_0_NTNV

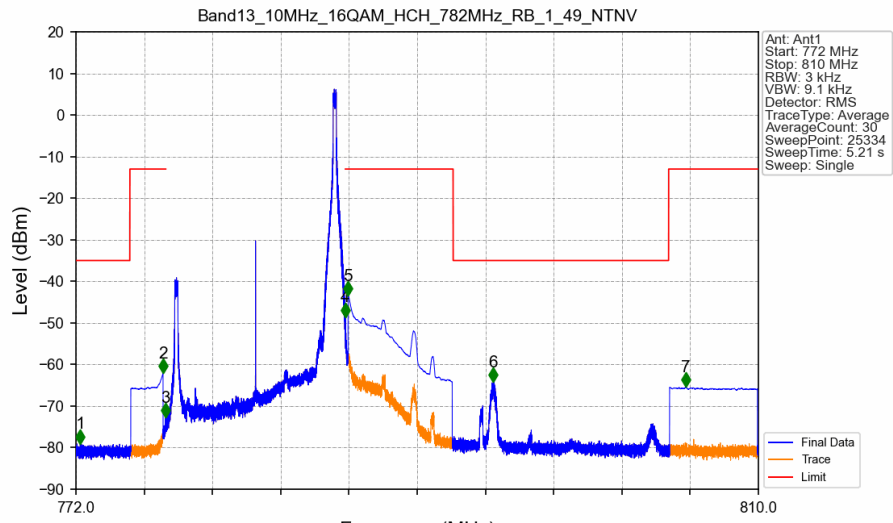


Band13_10MHz_16QAM_LCH_782MHz_RB_50_0_NTNV



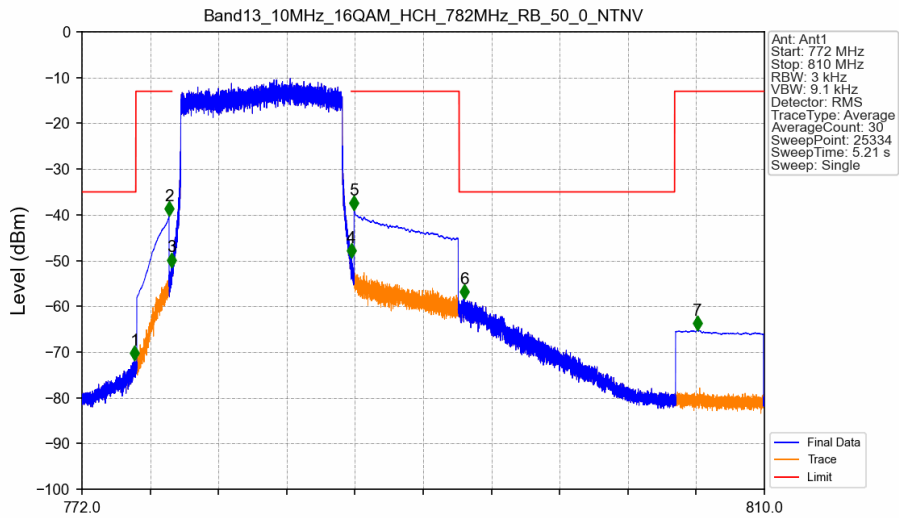
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
758	763	0.1	CHP	1	759.650	-65.81	-13	Pass
763	775	0.00625	/	2	774.999	-72.48	-35	Pass
775	776.9	0.1	CHP	3	776.850	-40.74	-13	Pass
776.9	777	0.03	/	4	776.970	-50.87	-13	Pass
777	787	0.03	/	/	/	/	/	/
787	787.1	0.03	/	5	787.017	-50.00	-13	Pass
787.1	792	0.1	CHP	6	787.150	-39.39	-13	Pass

Band13_10MHz_16QAM_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	/	1	772.240	-79.04	-35	Pass
775	776.9	0.1	CHP	2	776.850	-62.07	-13	Pass
776.9	777	0.03	/	3	776.983	-72.80	-13	Pass
777	787	0.03	/	/	/	/	/	/
787	787.1	0.03	/	4	787.002	-48.59	-13	Pass
787.1	793	0.1	CHP	5	787.150	-43.40	-13	Pass
793	805	0.00625	/	6	795.240	-64.16	-35	Pass
805	810	0.1	CHP	7	805.963	-65.45	-13	Pass

Band13_10MHz_16QAM_HCH_782MHz_RB_50_0_NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
772	775	0.00625	/	1	774.930	-71.77	-35	Pass
775	776.9	0.1	CHP	2	776.850	-40.27	-13	Pass
776.9	777	0.03	/	3	776.970	-51.43	-13	Pass
777	787	0.03	/	/	/	/	/	/
787	787.1	0.03	/	4	787.003	-49.38	-13	Pass
787.1	793	0.1	CHP	5	787.150	-38.99	-13	Pass
793	805	0.00625	/	6	793.285	-58.37	-35	Pass
805	810	0.1	CHP	7	806.280	-65.25	-13	Pass

6. Field Strength of Spurious Radiation

LTE Band 13_5M- Low e channel								
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	-70.22	-13	-57.22	-73.36	2.6	5.74	Horizontal	Pass
2331.75	-69.38	-13	-56.38	-71.84	2.96	5.42	Horizontal	Pass
3109.0	-67.31	-13	-54.31	-71.3	3.2	7.19	Horizontal	Pass
1554.5	-70.76	-13	-57.76	-73.9	2.6	5.74	Vertical	Pass
2331.75	-69.96	-13	-56.96	-72.42	2.96	5.42	Vertical	Pass
3109.0	-67.35	-13	-54.35	-71.34	3.2	7.19	Vertical	Pass

LTE Band 13_5M- Middle channel								
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	-70.25	-13	-57.25	-73.38	2.6	5.73	Horizontal	Pass
2339.25	-69.48	-13	-56.48	-71.95	2.96	5.43	Horizontal	Pass
3119.0	-66.97	-13	-53.97	-70.98	3.21	7.22	Horizontal	Pass
1559.5	-70.83	-13	-57.83	-73.96	2.6	5.73	Vertical	Pass
2339.25	-69.95	-13	-56.95	-72.42	2.96	5.43	Vertical	Pass
3119.0	-67.22	-13	-54.22	-71.23	3.21	7.22	Vertical	Pass

LTE Band 13_5M- High channel								
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	-71.19	-13	-58.19	-74.31	2.6	5.72	Horizontal	Pass
2346.75	-70.18	-13	-57.18	-72.66	2.97	5.45	Horizontal	Pass
3129.0	-67.41	-13	-54.41	-71.44	3.21	7.24	Horizontal	Pass
1564.5	-71.36	-13	-58.36	-74.48	2.6	5.72	Vertical	Pass
2346.75	-70.67	-13	-57.67	-73.15	2.97	5.45	Vertical	Pass
3129.0	-67.56	-13	-54.56	-71.59	3.21	7.24	Vertical	Pass

LTE Band 13_10M- Middle channel								
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	-66.91	-13	-53.91	-70.05	2.6	5.74	Horizontal	Pass
2332.5	-65.75	-13	-52.75	-68.21	2.96	5.42	Horizontal	Pass
3110.0	-65.99	-13	-52.99	-69.99	3.2	7.2	Horizontal	Pass
1555.0	-70.19	-13	-57.19	-73.33	2.6	5.74	Vertical	Pass
2332.5	-69.79	-13	-56.79	-72.25	2.96	5.42	Vertical	Pass
3110.0	-66.78	-13	-53.78	-70.78	3.2	7.2	Vertical	Pass

---End of Attachment---