

Appendix C for KSCR2401000129AT-B13

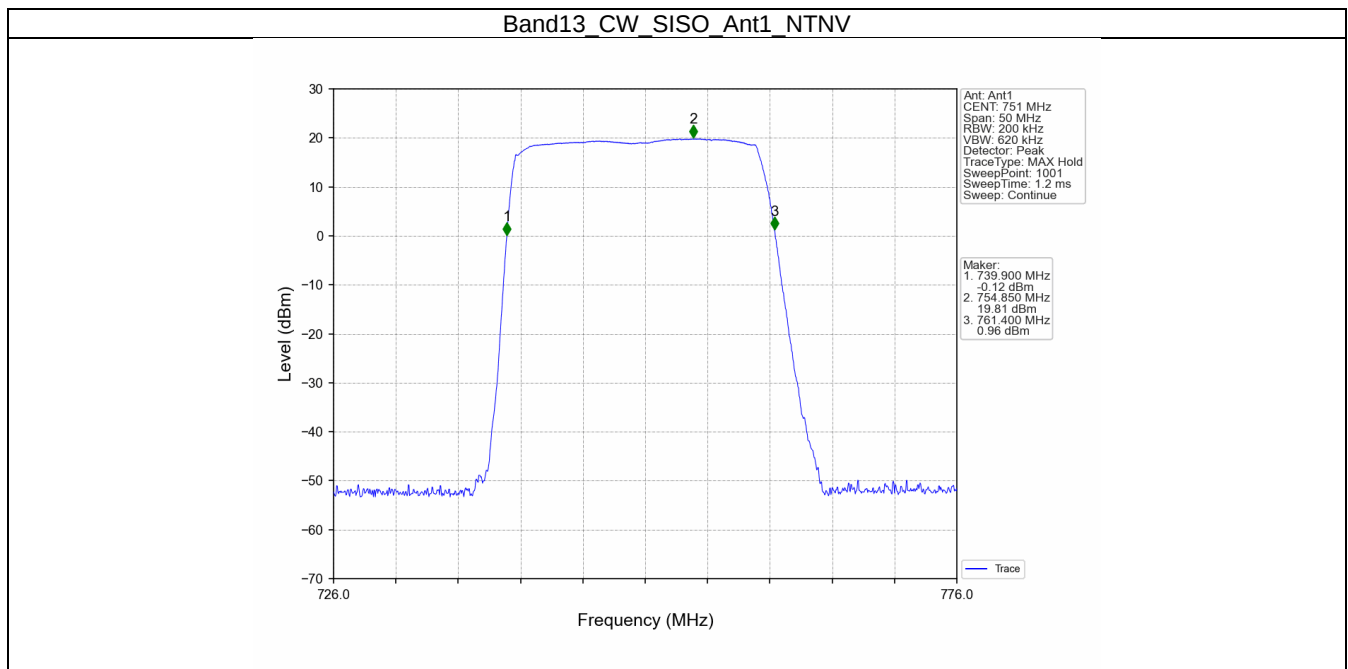
1. Out of band rejection

1.1 Band13

1.1.1 Test Result

Band: 13 / NTN							
Signal	Sweep Frequency Range (MHz)	TX Type	ANT	F0 (MHz)	FL (MHz)	FH (MHz)	Verdict
CW	726 - 776	SISO	1	754.850	739.900	761.400	Pass

1.1.2 Test Graph



2. AGC threshold

2.1 Band13

2.1.1 Test Result

Band: 13 / NTNV					
Signal	Frequency (MHz)	TX Type	ANT	AGC Threshold (dBm)	Verdict
AWGN	754.85	SISO	1	-6.00	Pass
GMSK	754.85	SISO	1	-6.00	Pass

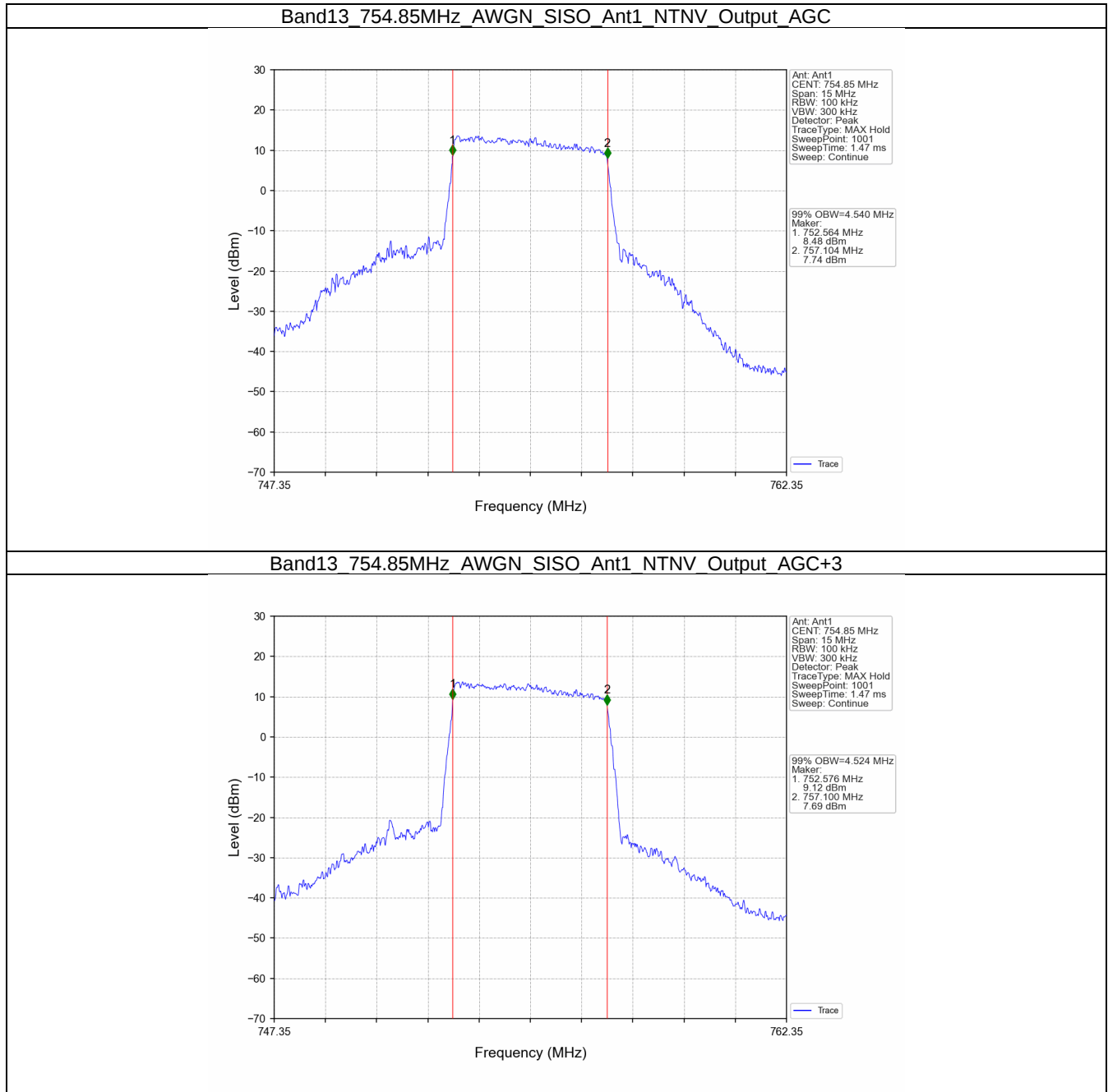
3. Input-versus-output signal comparison

3.1 Band13_OBW

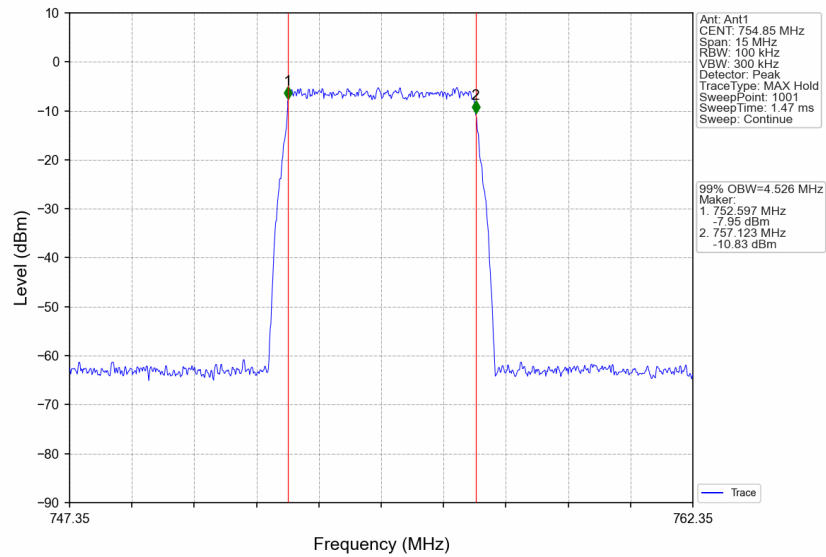
3.1.1 Test Result

Band: 13 / NTNV									
Signal			TX Type	ANT	99% OBW (MHz)		Discrepancy (%)	Limit (%)	Verdict
Type	Level (dBm)	Frequency (MHz)			Output	Input			
AWGN	-6	754.85	SISO	1	4.540	4.526	0.3093	5	Pass
	-3	754.85	SISO	1	4.524	4.533	-0.1990	5	Pass
GMSK	-6	754.85	SISO	1	0.245	0.243	0.8230	5	Pass
	-3	754.85	SISO	1	0.245	0.244	0.4098	5	Pass

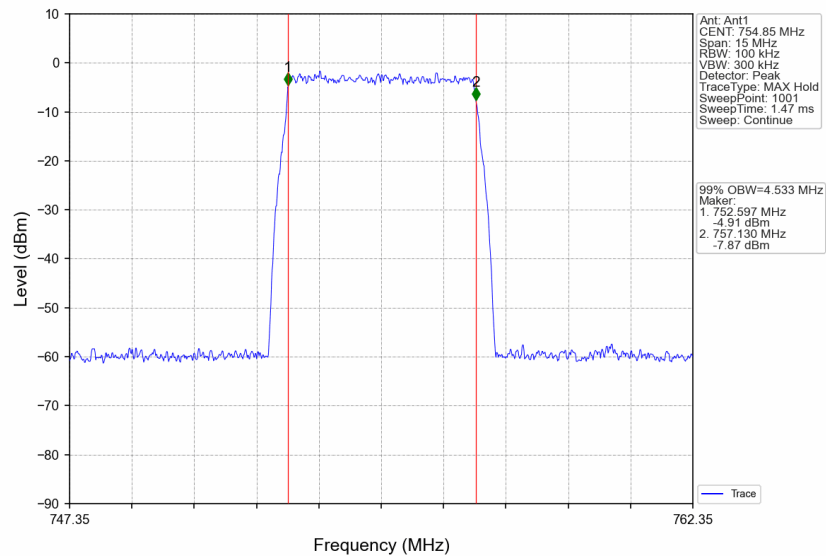
3.1.2 Test Graph



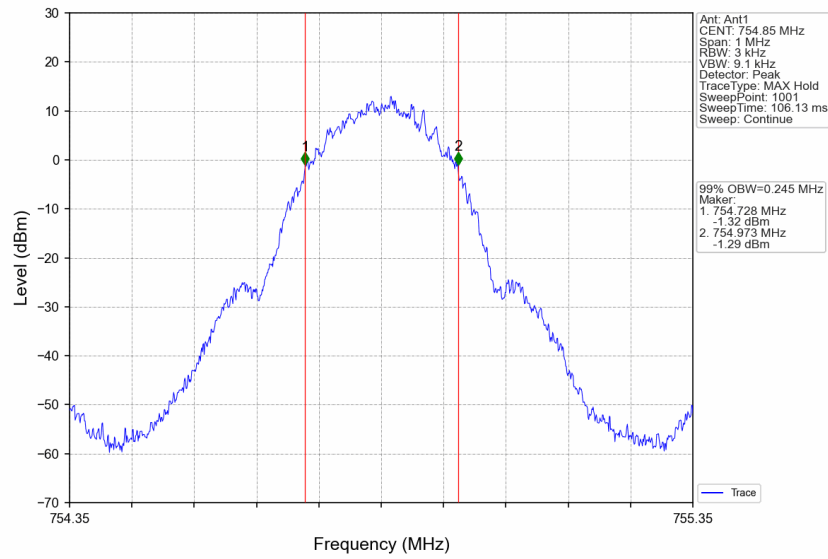
Band13_754.85MHz_AWGN_SISO_Ant1_NTNV_Input_AGC



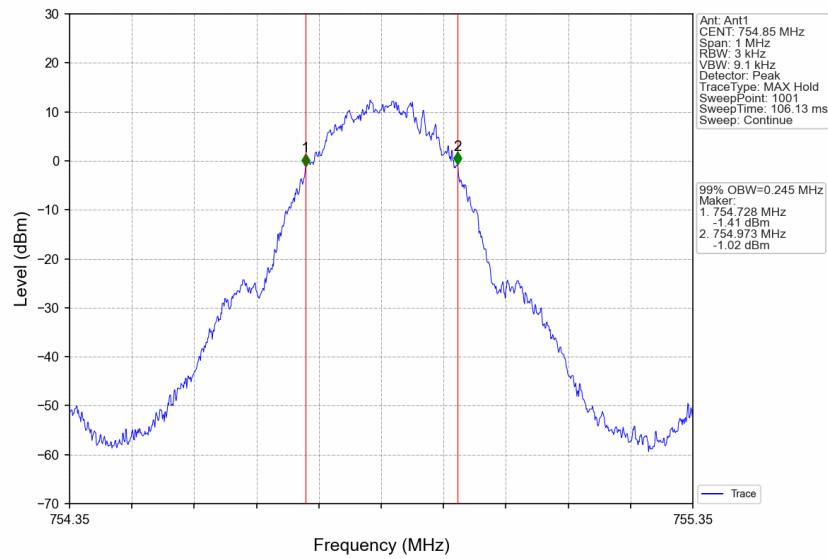
Band13_754.85MHz_AWGN_SISO_Ant1_NTNV_Input_AGC+3



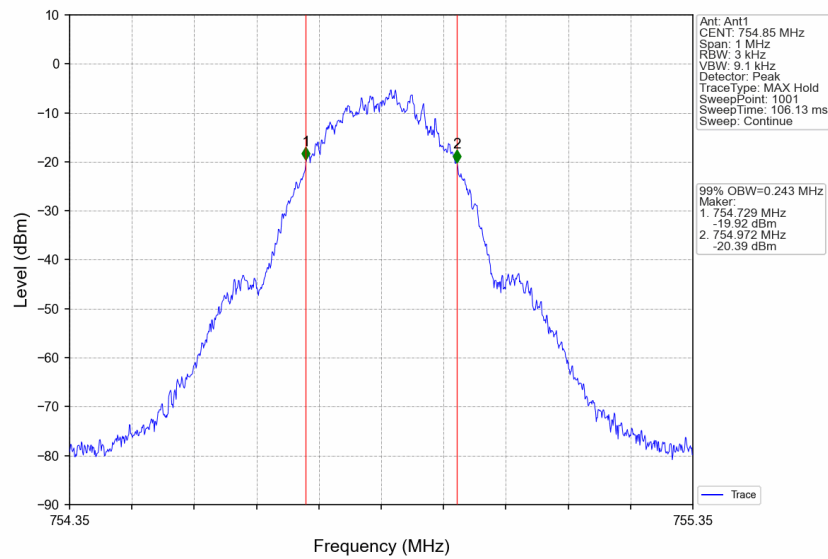
Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_Output_AGC



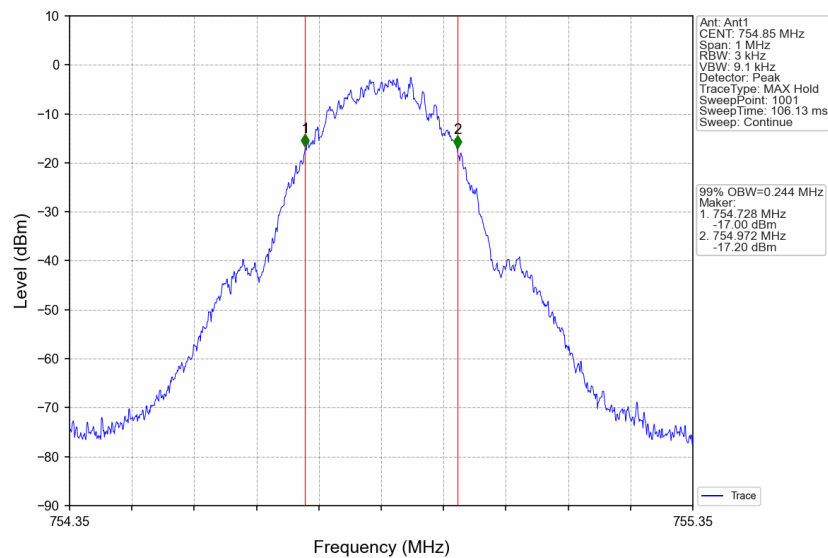
Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_Output_AGC+3



Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_Input_AGC



Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_Input_AGC+3

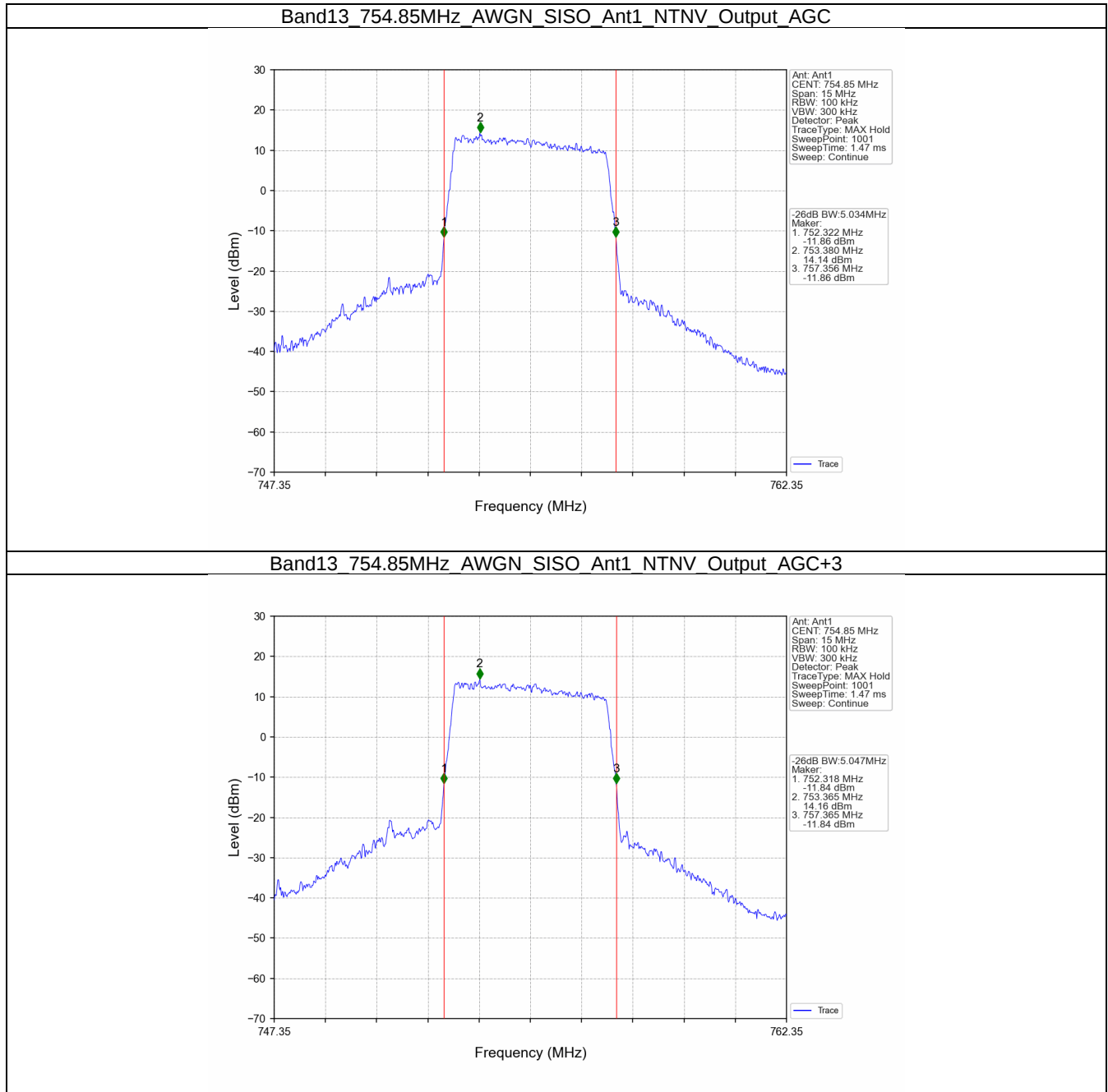


3.2 Band13_EBW

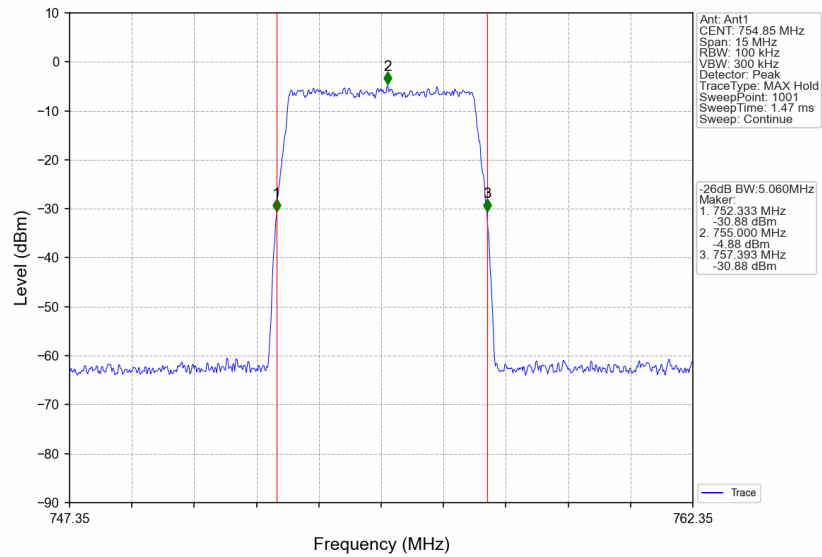
3.2.1 Test Result

Band: 13 / NTNV									
Signal			TX Type	ANT	26dB EBW (MHz)		Discrepancy (%)	Limit (%)	Verdict
Type	Level (dBm)	Frequency (MHz)			Output	Input			
AWGN	-6	754.85	SISO	1	5.034	5.060	-0.514	5%	Pass
	-3	754.85	SISO	1	5.047	5.055	-0.158	5%	Pass
GMSK	-6	754.85	SISO	1	0.312	0.315	-0.952	5%	Pass
	-3	754.85	SISO	1	0.314	0.317	-0.946	5%	Pass

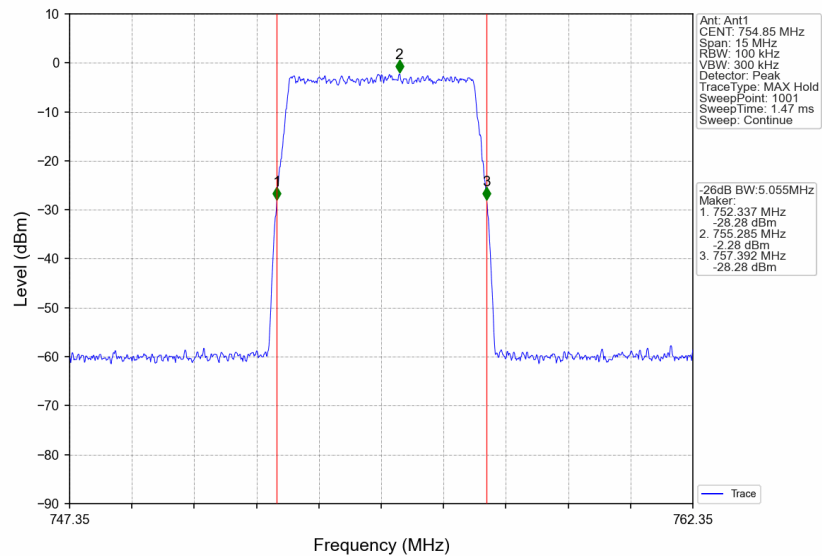
3.2.2 Test Graph



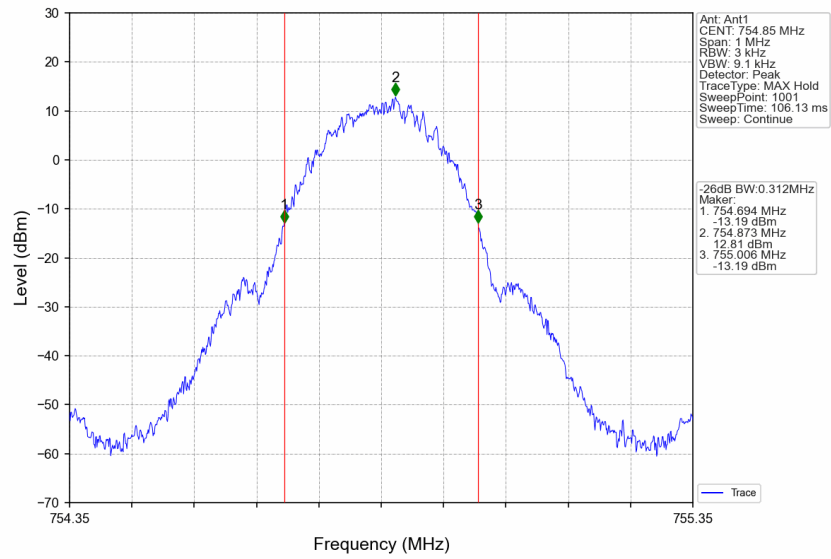
Band13_754.85MHz_AWGN_SISO_Ant1_NTNV_Input_AGC



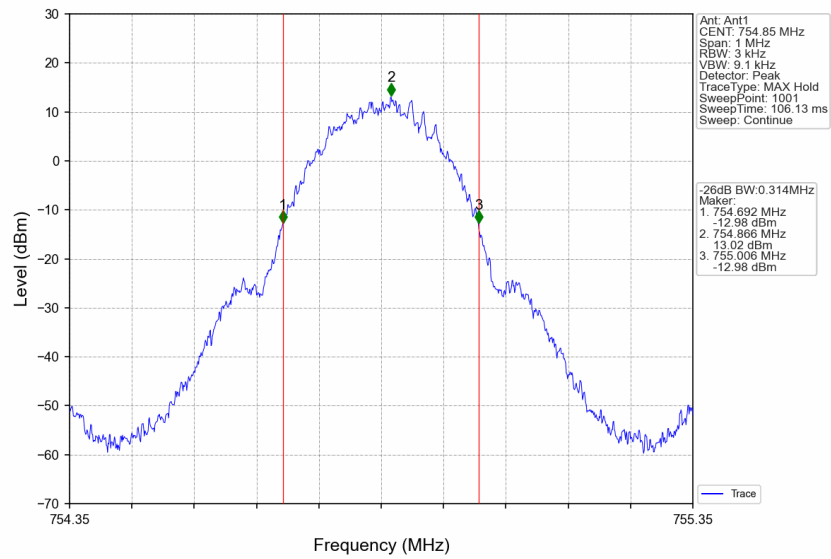
Band13_754.85MHz_AWGN_SISO_Ant1_NTNV_Input_AGC+3



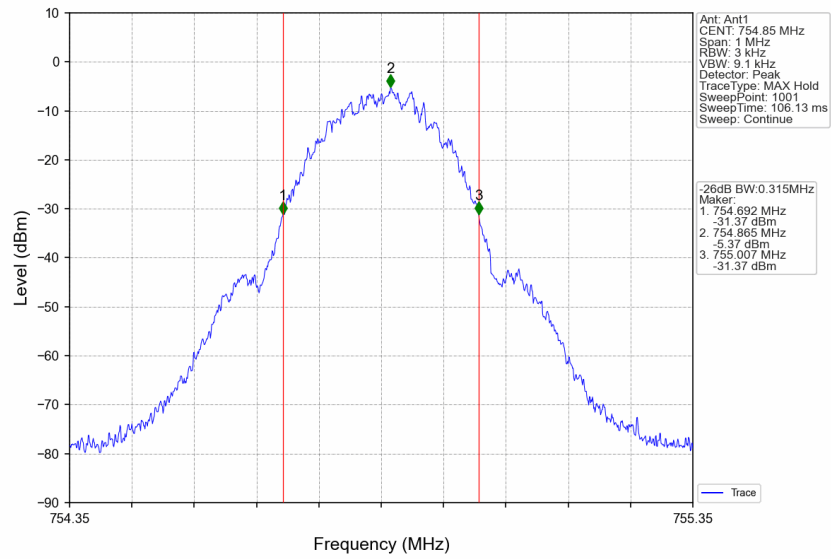
Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_Output_AGC



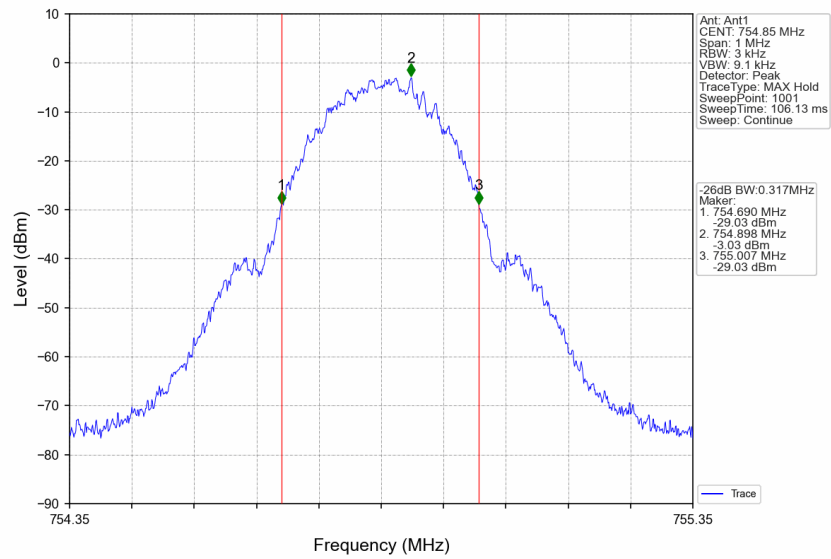
Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_Output_AGC+3



Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_Input_AGC



Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_Input_AGC+3



4. Input/output power and amplifier/booster gain

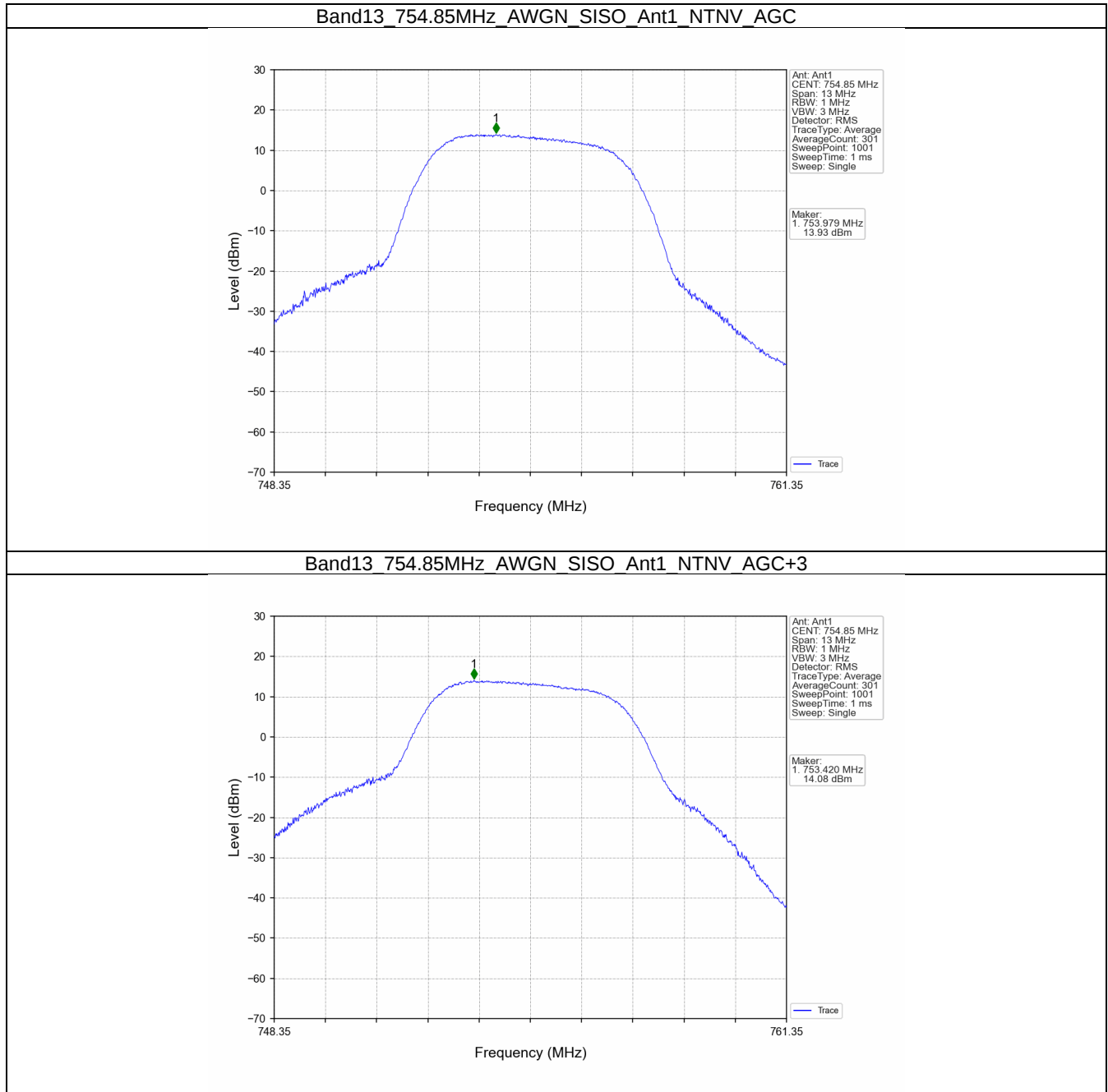
4.1 Band13_ERP

4.1.1 Test Result

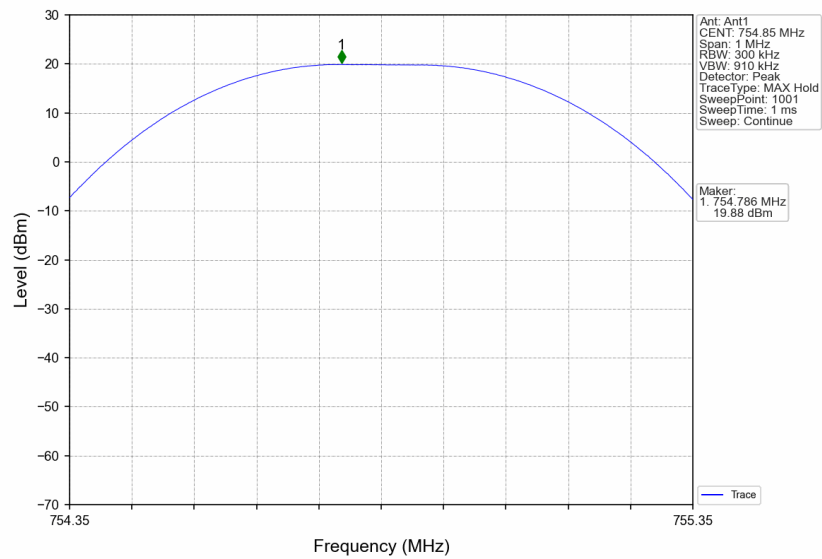
Band: 13 / NTNV										
Signal			TX Type	ANT	Conducted Power (dBm/MHz)		ERP (dBm/MHz)		Booster Gain (dB)	Verdict
Type	Level (dBm)	Frequency (MHz)			Output	Input	Result	Limit		
AWGN	-6	754.85	SISO	1	13.93	-10.92	14.84	<=60	24.85	Pass
	-3	754.85	SISO	1	14.08	-7.70	14.99	<=60	/	Pass
GMSK	-6	754.85	SISO	1	19.88	-5.07	20.79	<=60	24.95	Pass
	-3	754.85	SISO	1	19.88	-2.65	20.79	<=60	/	Pass

746MHz-756MHz / NTNV							
Operation Band	Frequency (MHz)	Signal Type	Signal Level	Input Power (dBm)	Total Output Power (dBm)	ERP (dBm)	Gain (dB)
746MHz-756MHz	754.85	AWGN	Pre-AGC	-6	18.52	19.43	/
			3dB Above AGC	-3	18.61	19.52	/
	754.85	GMSK	Pre-AGC	-6	18.75	19.66	/
			3dB Above AGC	-3	18.89	19.80	/

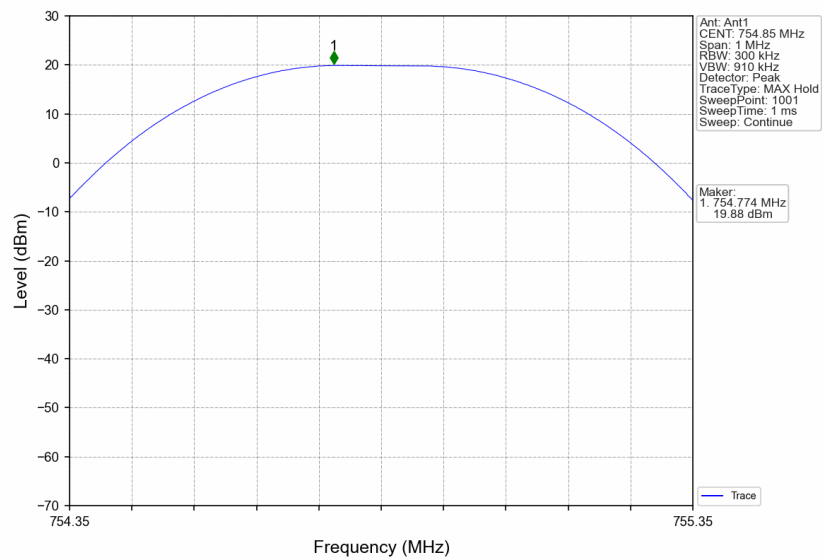
4.1.2 Test Graph



Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_AGC



Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_AGC+3

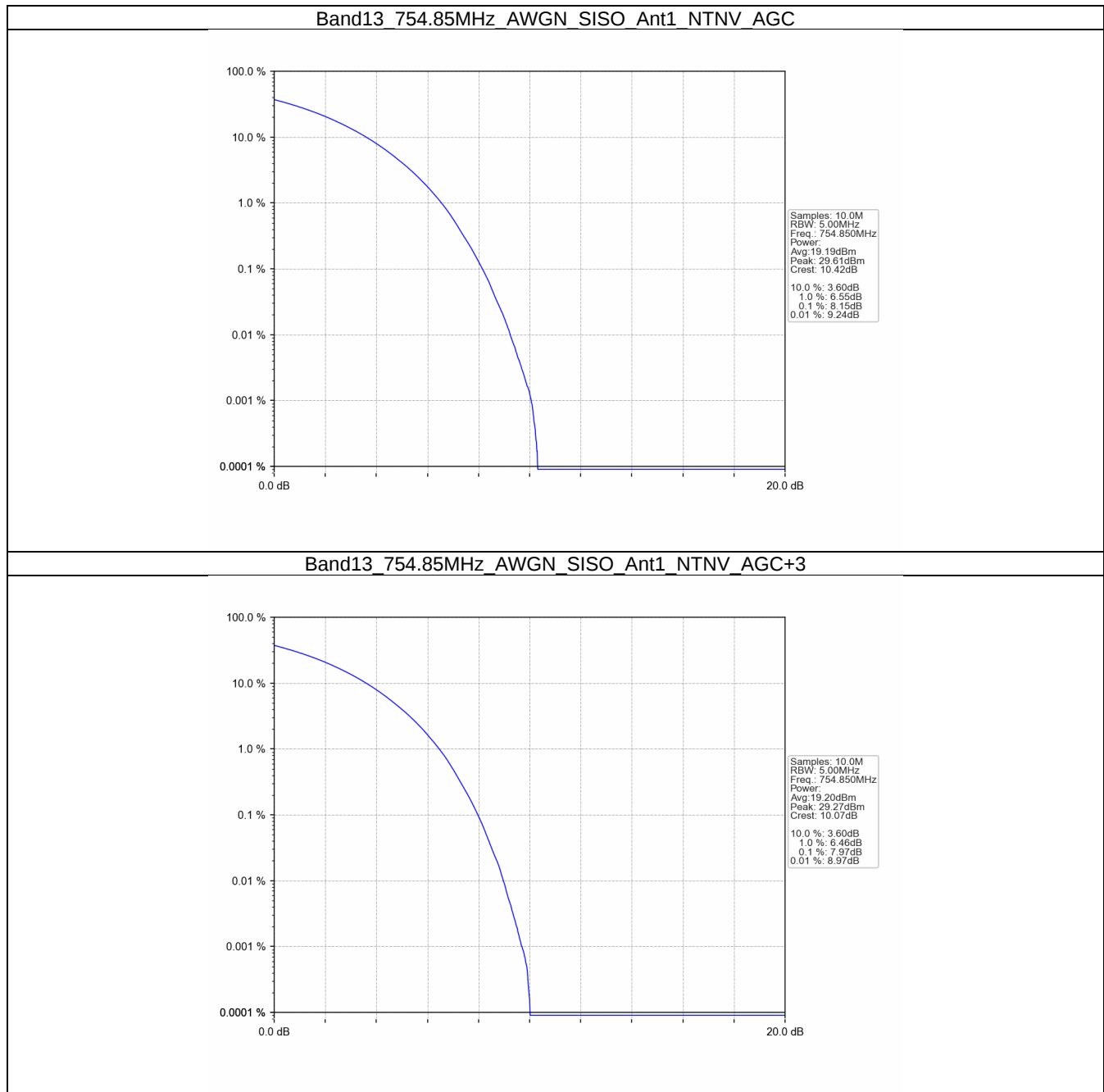


4.2 Band13_PAPR

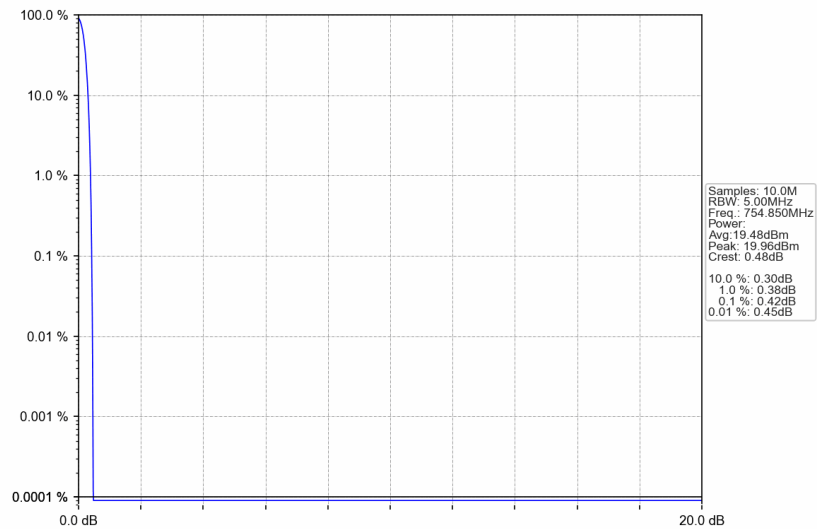
4.2.1 Test Result

Band: 13 / NTNV							
Signal			TX Type	ANT	PAPR (dB)		Verdict
Type	Level (dBm)	Frequency (MHz)			Result	Limit	
AWGN	-6	754.85	SISO	1	8.15	<=13	Pass
	-3	754.85	SISO	1	7.97	<=13	Pass
GMSK	-6	754.85	SISO	1	0.42	<=13	Pass
	-3	754.85	SISO	1	0.39	<=13	Pass

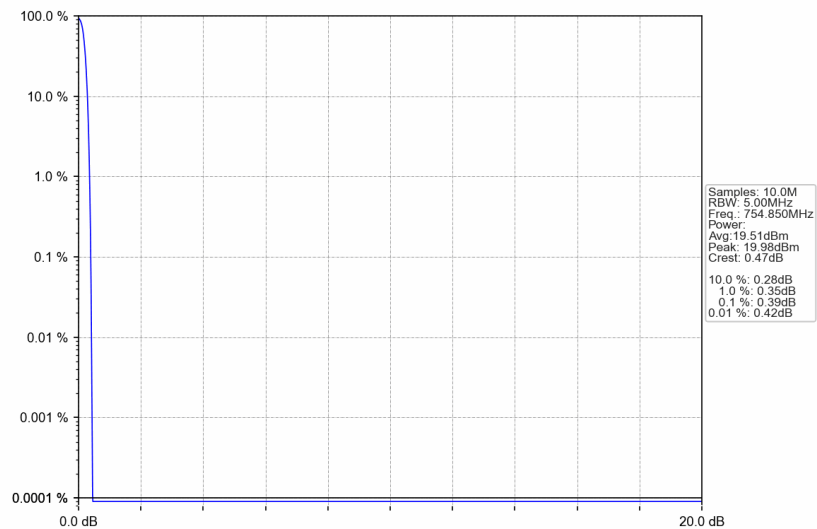
4.2.2 Test Graph



Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_AGC



Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_AGC+3



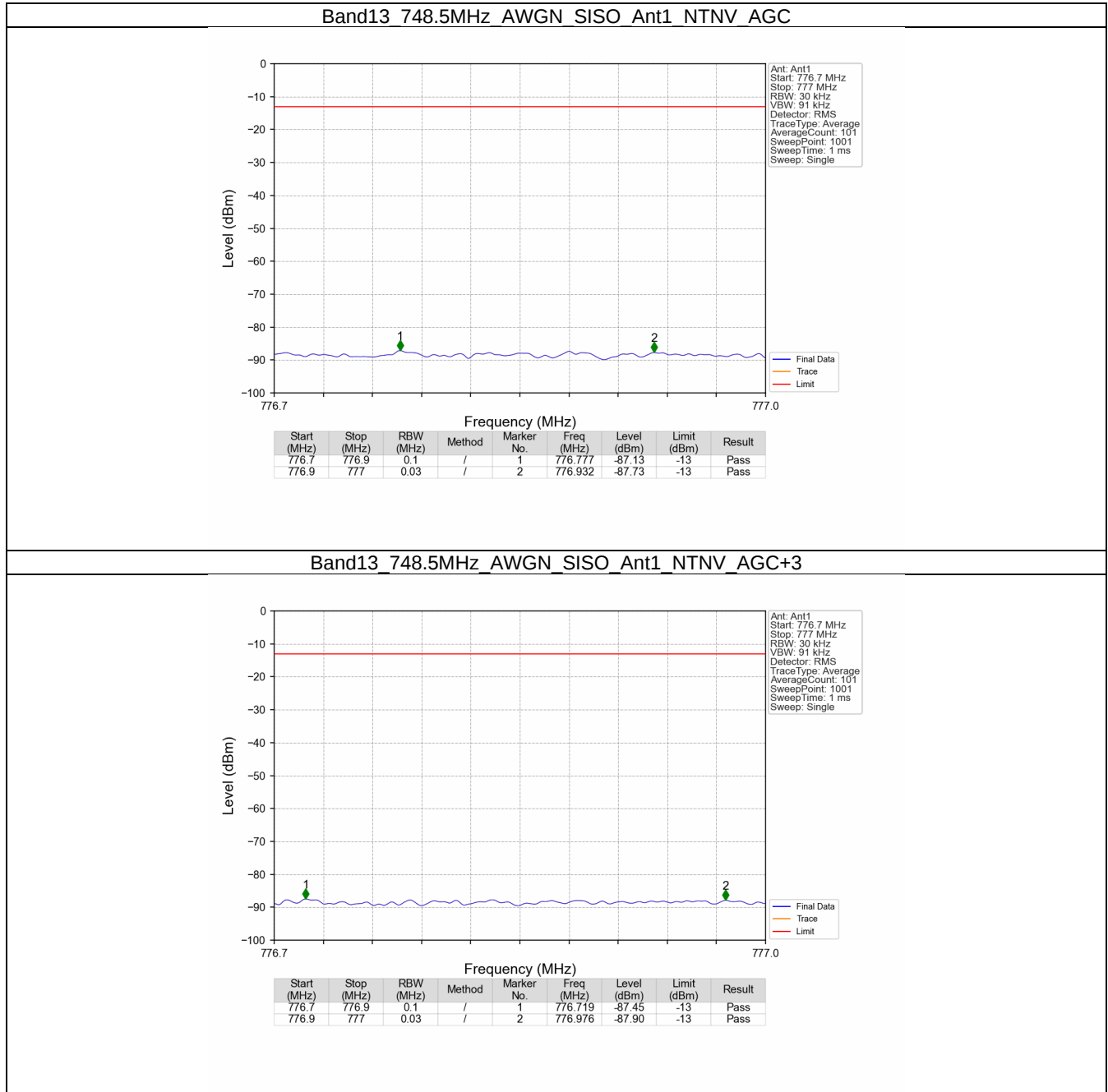
5. Out-of-band/out-of-block (including intermodulation) emissions

5.1 Band13

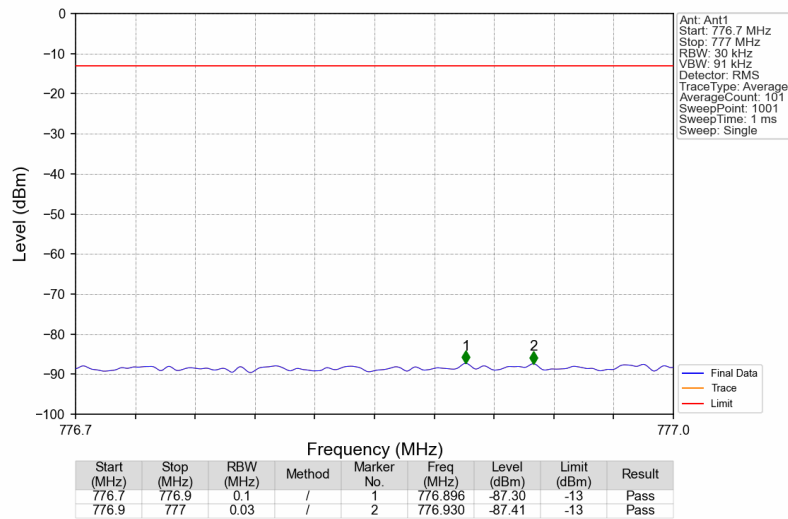
5.1.1 Test Result

Band: 13 / NTNV									
Signal				Channel	TX Type	ANT	OOB (dBm)		Verdict
Input	Type	Level (dBm)	Frequency (MHz)				Result	Limit	
Two	AWGN	-6	748.5	LCH	SISO	1	-87.13	Refer To Test Graph	Pass
		-3	748.5	LCH	SISO	1	-87.45	Refer To Test Graph	Pass
One	AWGN	-6	748.5	LCH	SISO	1	-87.30	Refer To Test Graph	Pass
		-3	748.5	LCH	SISO	1	-87.56	Refer To Test Graph	Pass
Two	AWGN	-6	753.5	HCH	SISO	1	-81.61	Refer To Test Graph	Pass
		-3	753.5	HCH	SISO	1	-81.17	Refer To Test Graph	Pass
One	AWGN	-6	753.5	HCH	SISO	1	-81.12	Refer To Test Graph	Pass
		-3	753.5	HCH	SISO	1	-81.45	Refer To Test Graph	Pass
Two	GMSK	-6	746.1	LCH	SISO	1	-87.56	Refer To Test Graph	Pass
		-3	746.1	LCH	SISO	1	-87.45	Refer To Test Graph	Pass
One	GMSK	-6	746.1	LCH	SISO	1	-87.50	Refer To Test Graph	Pass
		-3	746.1	LCH	SISO	1	-87.38	Refer To Test Graph	Pass
Two	GMSK	-6	755.9	HCH	SISO	1	-81.49	Refer To Test Graph	Pass
		-3	755.9	HCH	SISO	1	-81.36	Refer To Test Graph	Pass
One	GMSK	-6	755.9	HCH	SISO	1	-81.23	Refer To Test Graph	Pass
		-3	755.9	HCH	SISO	1	-81.23	Refer To Test Graph	Pass

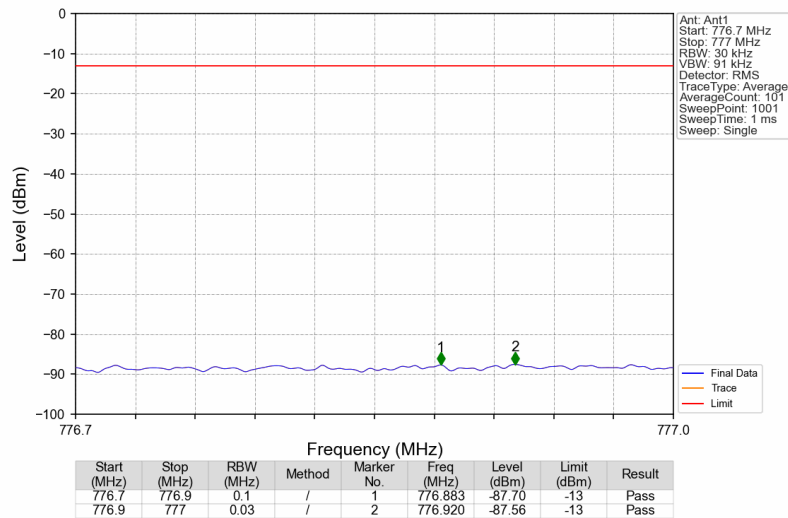
5.1.2 Test Graph



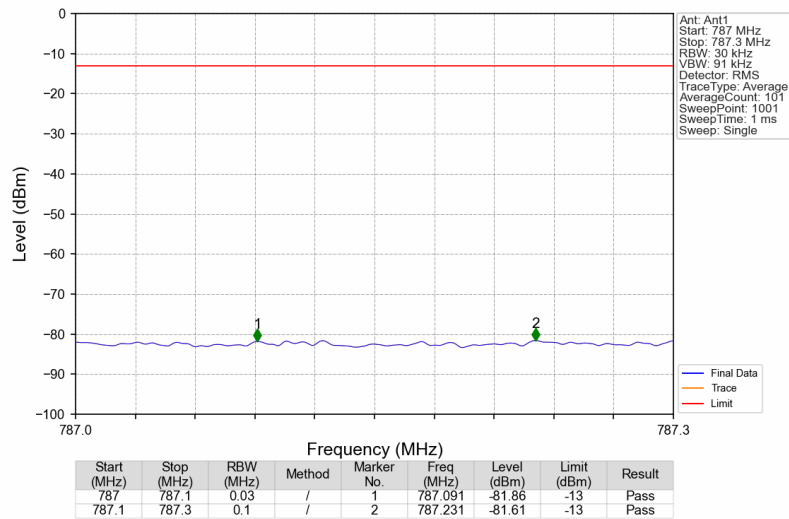
Band13_748.5MHz_AWGN_SISO_Ant1_NTNV_AGC



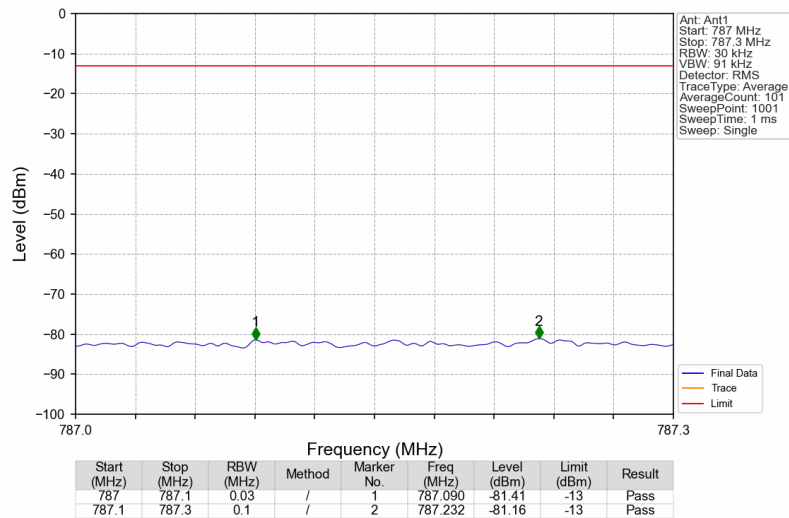
Band13_748.5MHz_AWGN_SISO_Ant1_NTNV_AGC+3



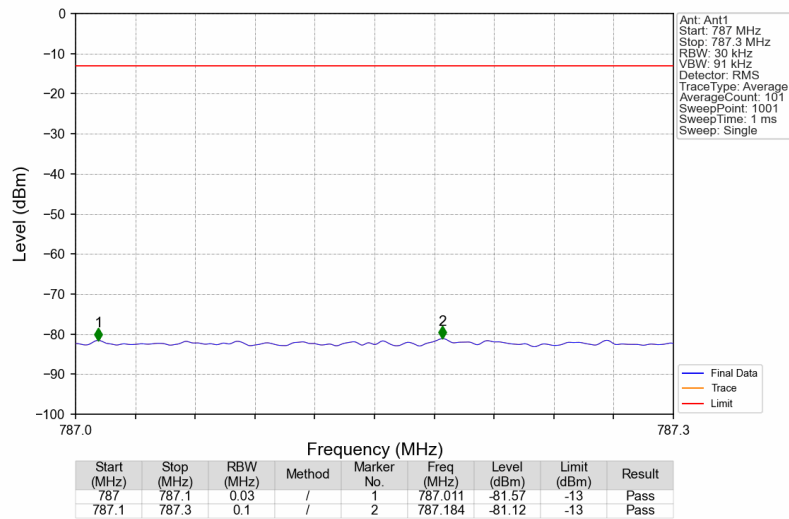
Band13_753.5MHz_AWGN_SISO_Ant1_NTNV_AGC



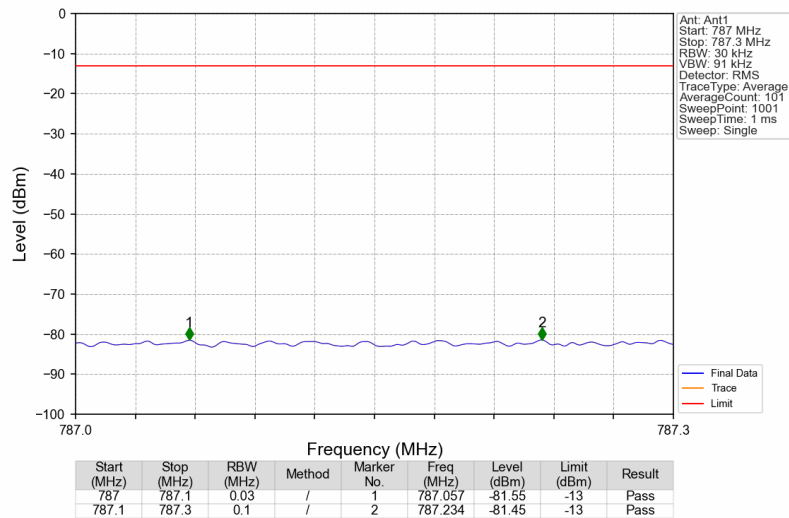
Band13_753.5MHz_AWGN_SISO_Ant1_NTNV_AGC+3



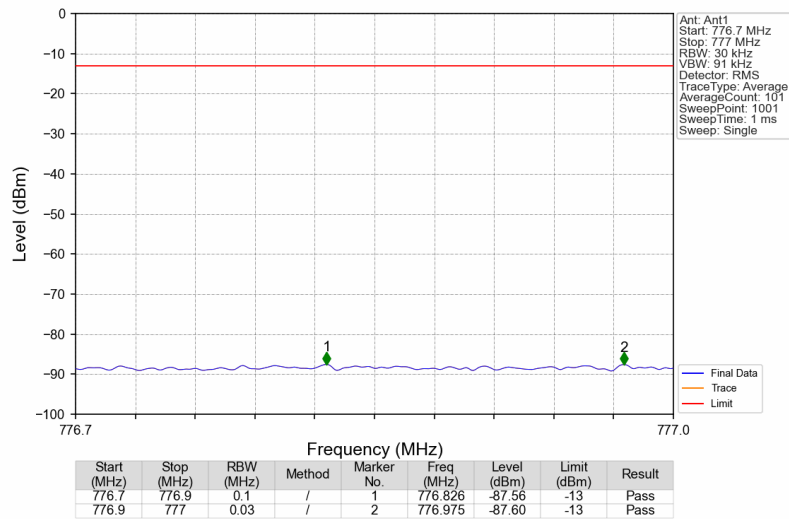
Band13_753.5MHz_AWGN_SISO_Ant1_NTNV_AGC



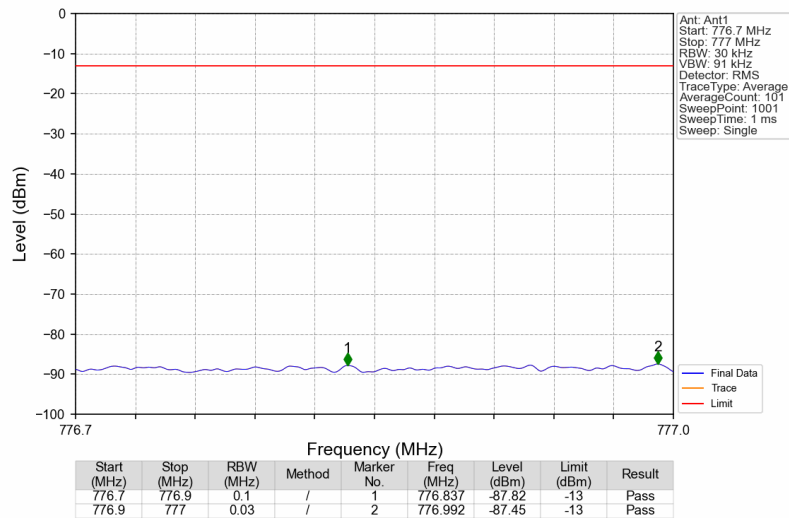
Band13_753.5MHz_AWGN_SISO_Ant1_NTNV_AGC+3



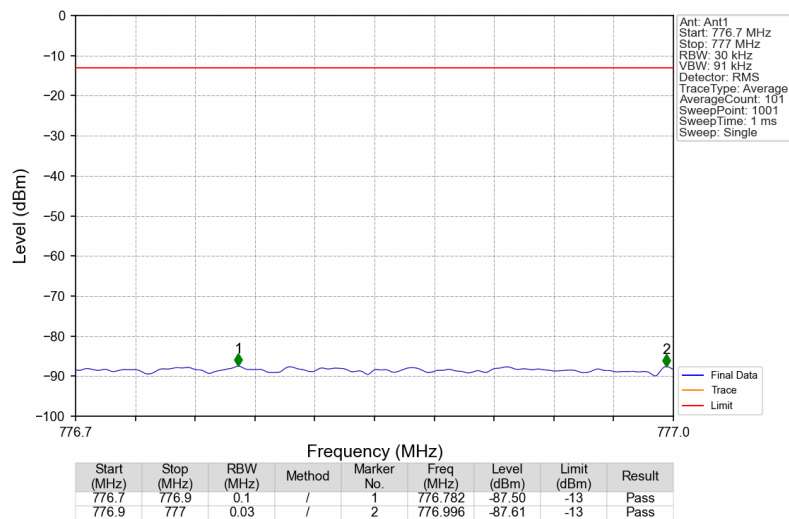
Band13_746.1MHz_GMSK_SISO_Ant1_NTNV_AGC



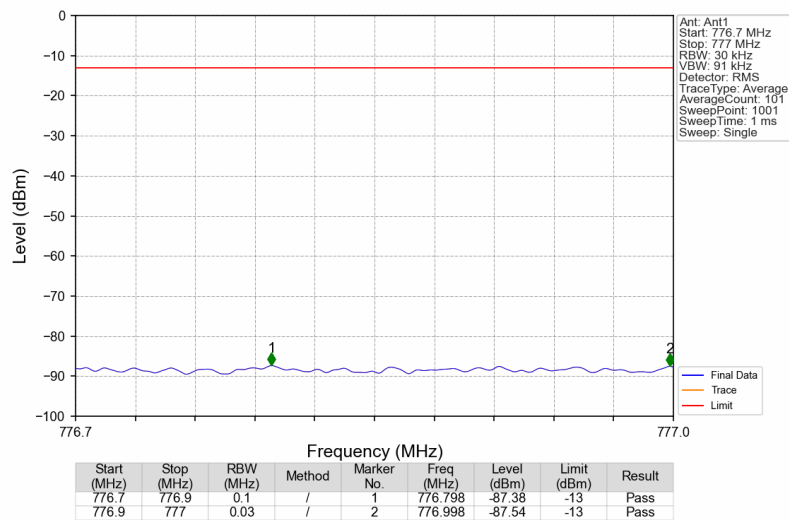
Band13_746.1MHz_GMSK_SISO_Ant1_NTNV_AGC+3



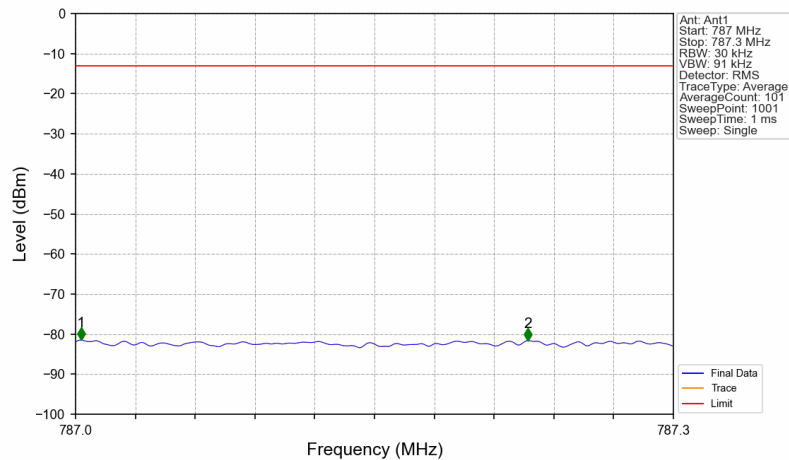
Band13_746.1MHz_GMSK_SISO_Ant1_NTNV_AGC



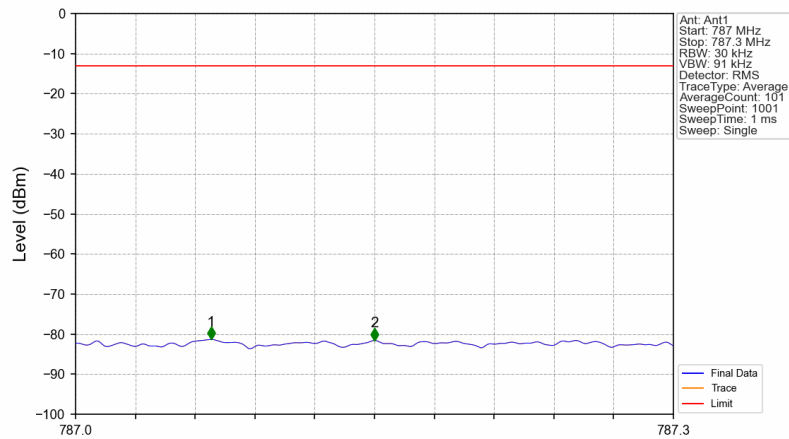
Band13_746.1MHz_GMSK_SISO_Ant1_NTNV_AGC+3



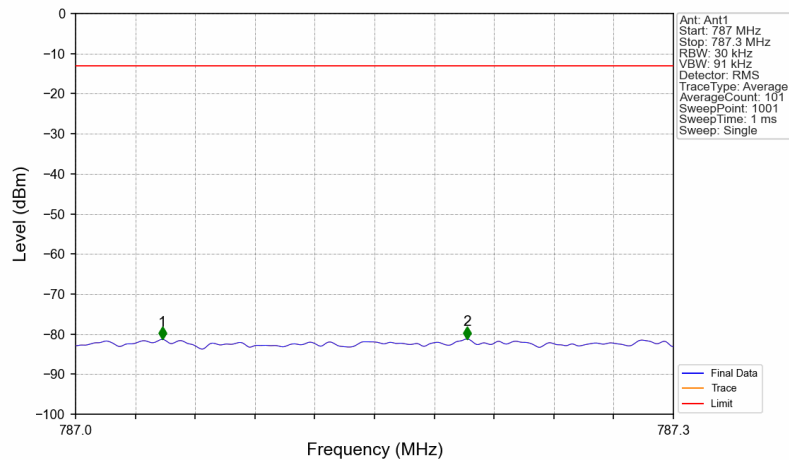
Band13_755.9MHz_GMSK_SISO_Ant1_NTNV_AGC



Band13_755.9MHz_GMSK_SISO_Ant1_NTNV_AGC+3

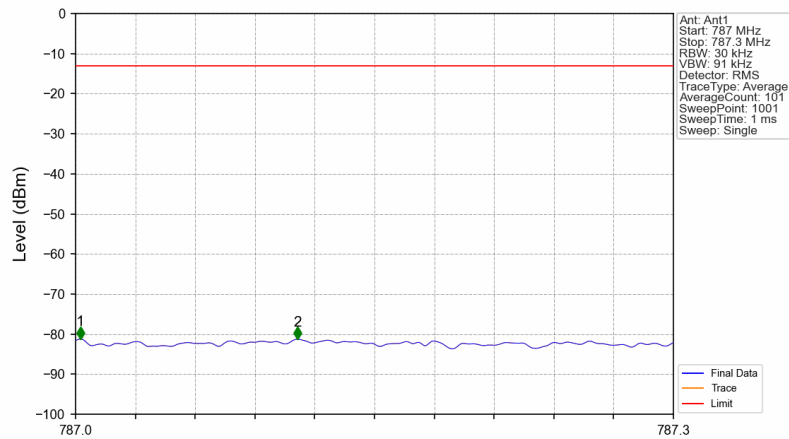


Band13_755.9MHz_GMSK_SISO_Ant1_NTNV_AGC



Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
787	787.1	0.03	/	1	787.043	-81.33	-13	Pass
787.1	787.3	0.1	/	2	787.197	-81.23	-13	Pass

Band13_755.9MHz_GMSK_SISO_Ant1_NTNV_AGC+3



Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
787	787.1	0.03	/	1	787.002	-81.24	-13	Pass
787.1	787.3	0.1	/	2	787.111	-81.32	-13	Pass

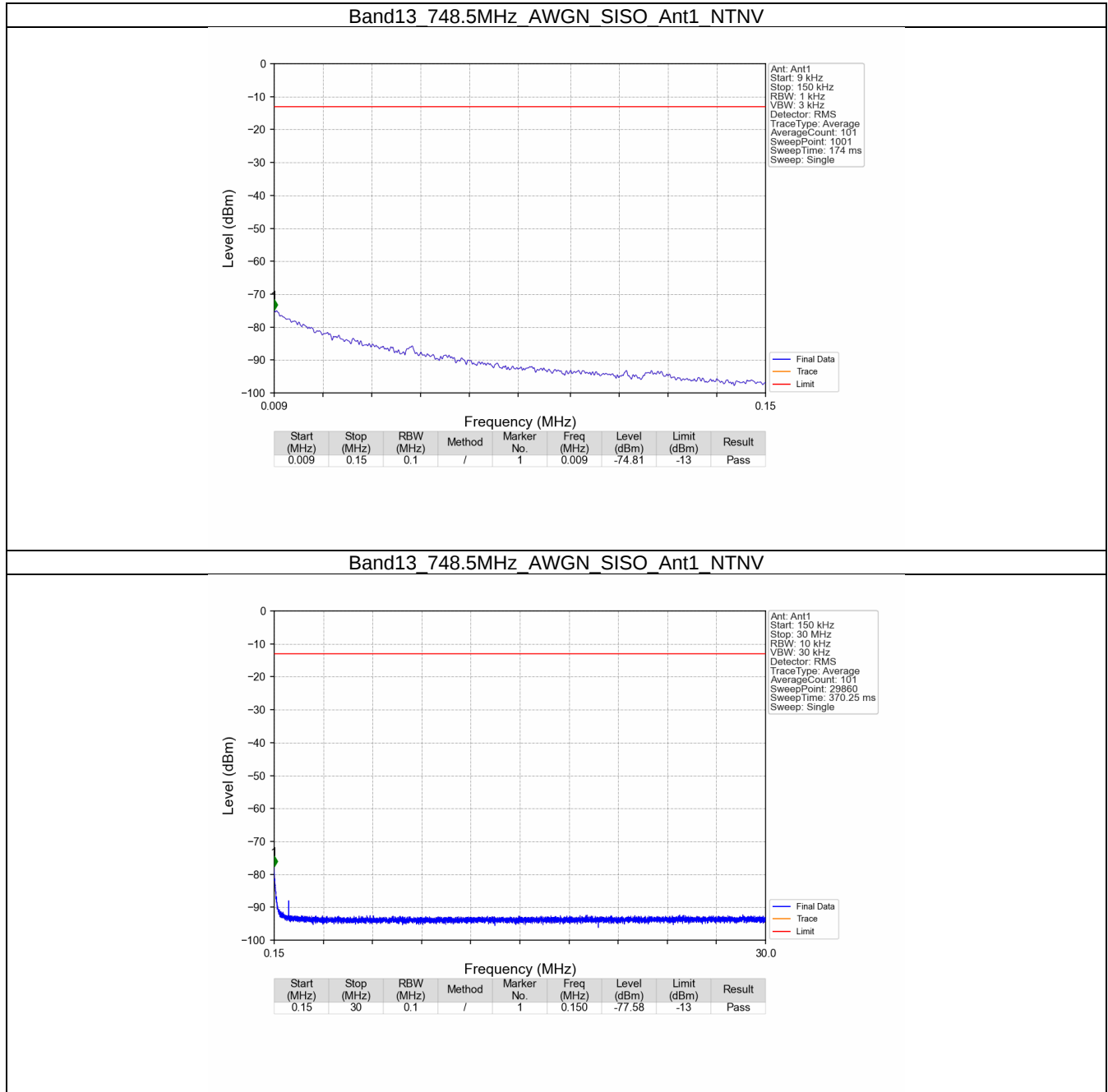
6. Spurious emissions

6.1 Band13

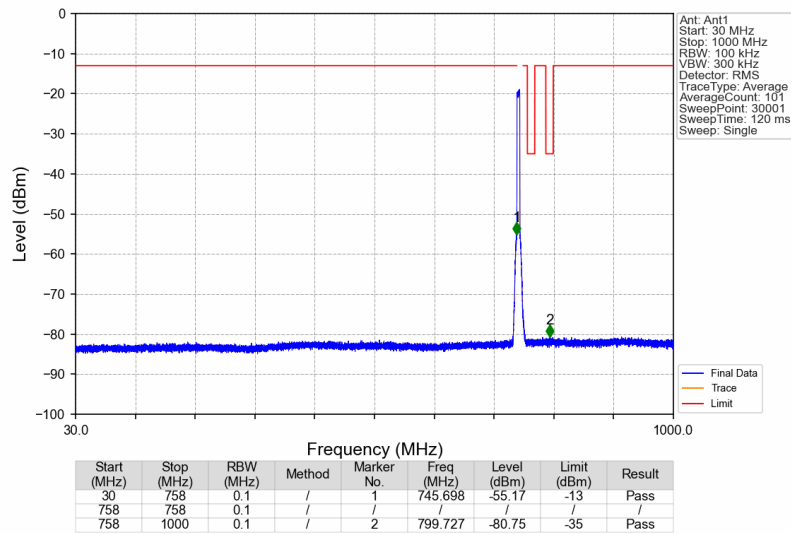
6.1.1 Test Result

Band: 13 / NTNV								
Signal			Channel	TX Type	ANT	SE (dBm)		Verdict
Type	Level (dBm)	Frequency (MHz)				Result	Limit	
AWGN	-6	748.5	LCH	SISO	1	Refer To Test Graph		Pass
		751	MCH	SISO	1	Refer To Test Graph		Pass
		753.5	HCH	SISO	1	Refer To Test Graph		Pass
GMSK	-6	746.1	LCH	SISO	1	Refer To Test Graph		Pass
		751	MCH	SISO	1	Refer To Test Graph		Pass
		755.9	HCH	SISO	1	Refer To Test Graph		Pass

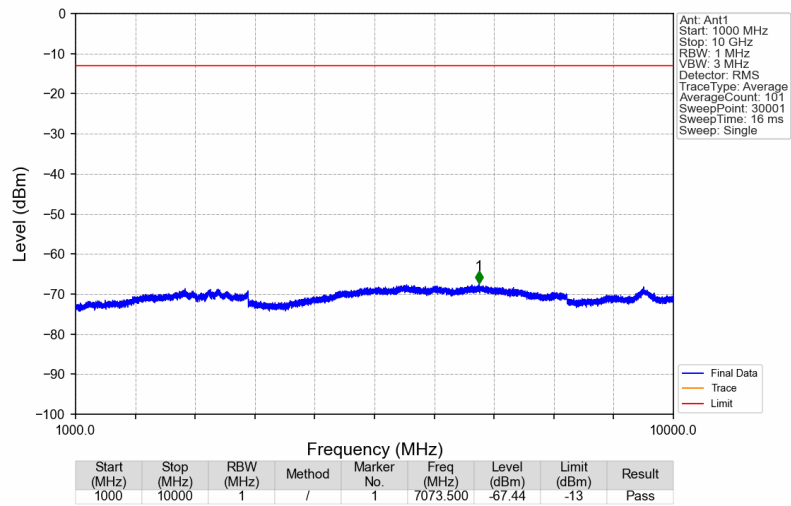
6.1.2 Test Graph



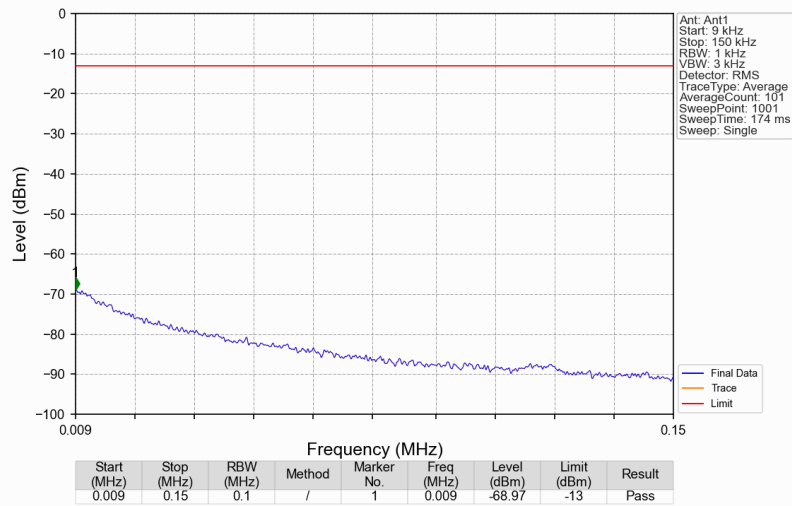
Band13_748.5MHz_AWGN_SISO_Ant1_NTNV



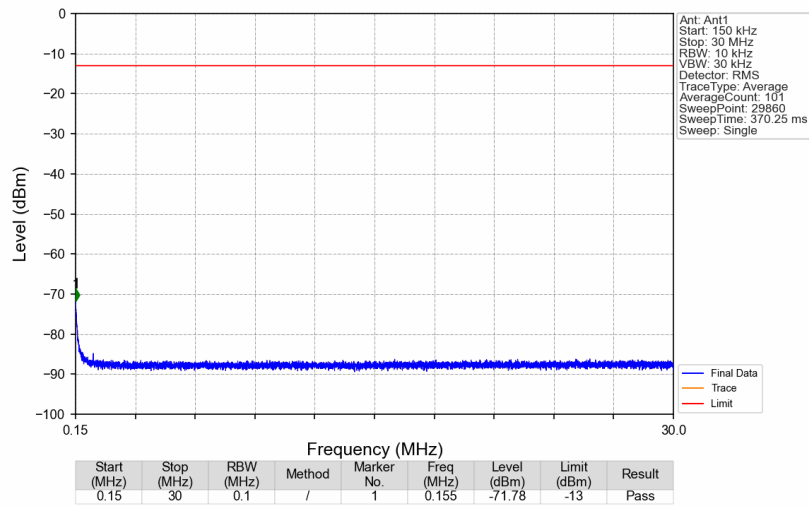
Band13_748.5MHz_AWGN_SISO_Ant1_NTNV



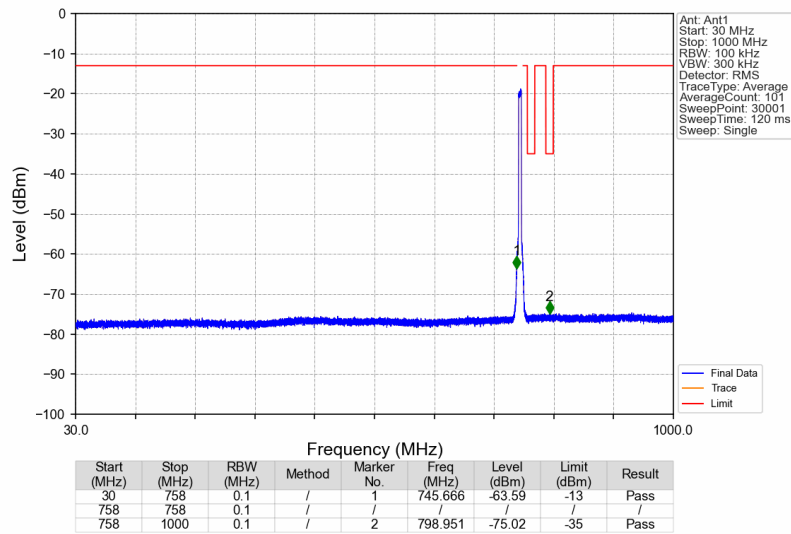
Band13_751MHz_AWGN_SISO_Ant1_NTNV



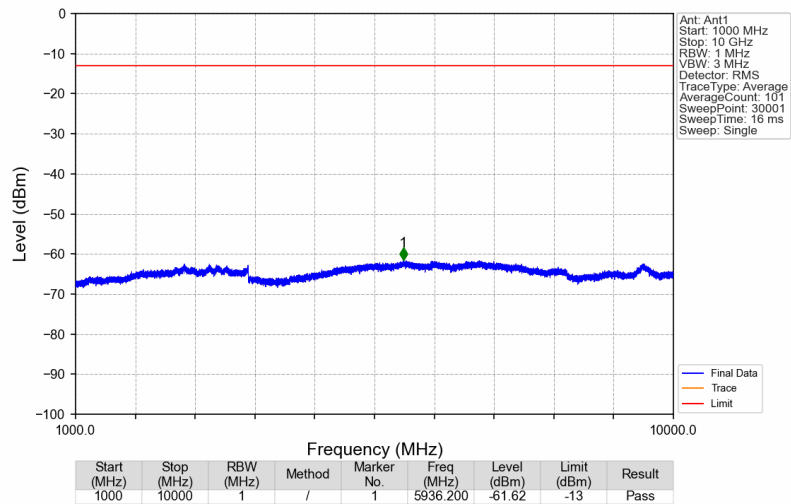
Band13_751MHz_AWGN_SISO_Ant1_NTNV



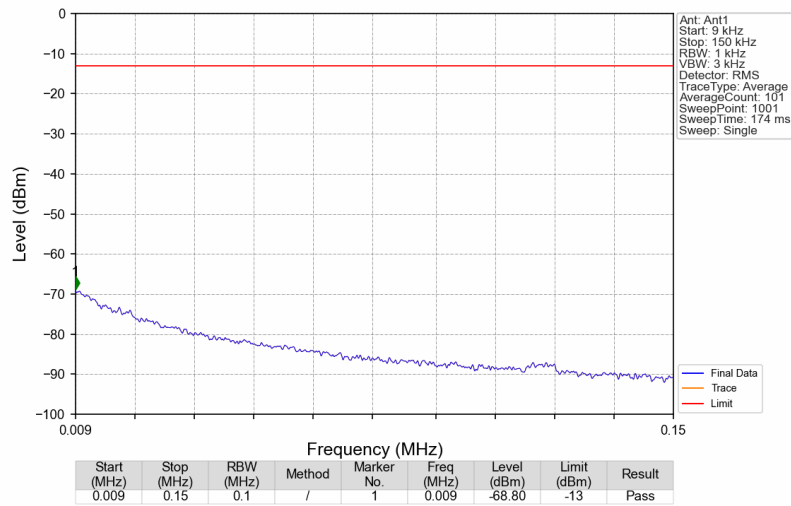
Band13_751MHz_AWGN_SISO_Ant1_NTNV



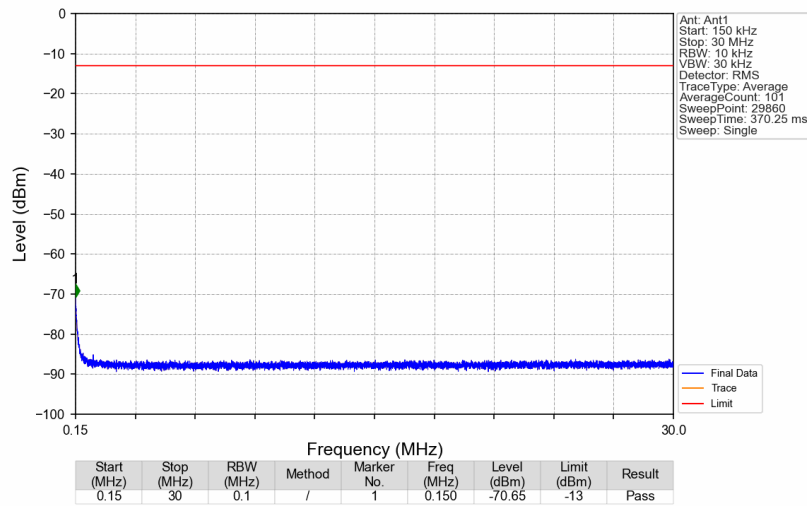
Band13_751MHz_AWGN_SISO_Ant1_NTNV



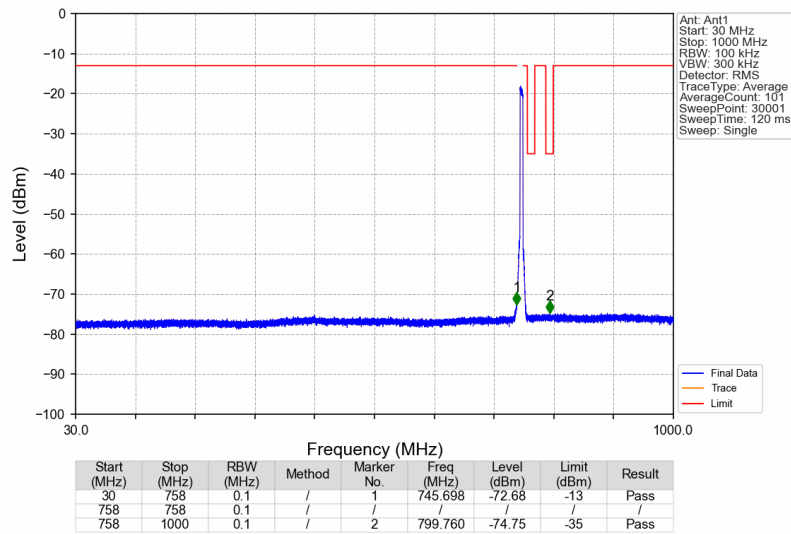
Band13_753.5MHz_AWGN_SISO_Ant1_NTNV



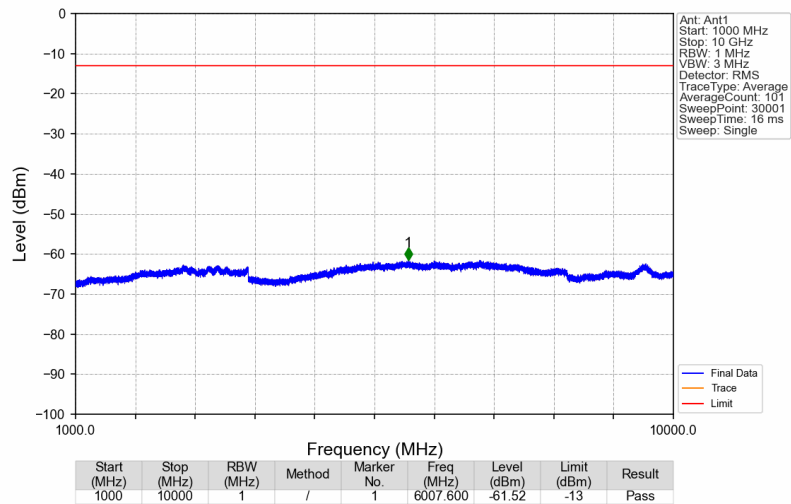
Band13_753.5MHz_AWGN_SISO_Ant1_NTNV



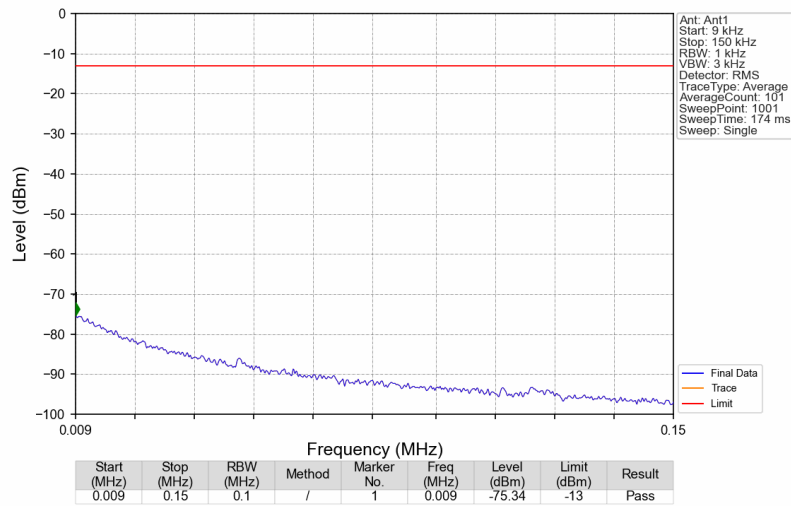
Band13_753.5MHz_AWGN_SISO_Ant1_NTNV



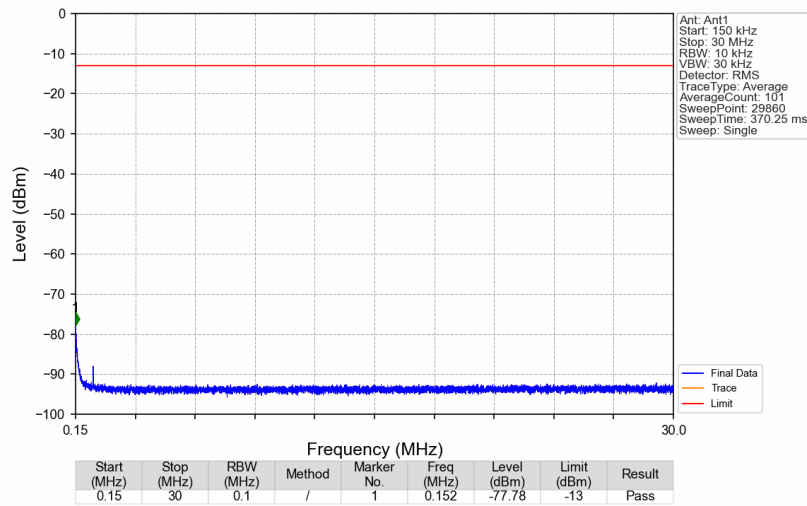
Band13_753.5MHz_AWGN_SISO_Ant1_NTNV



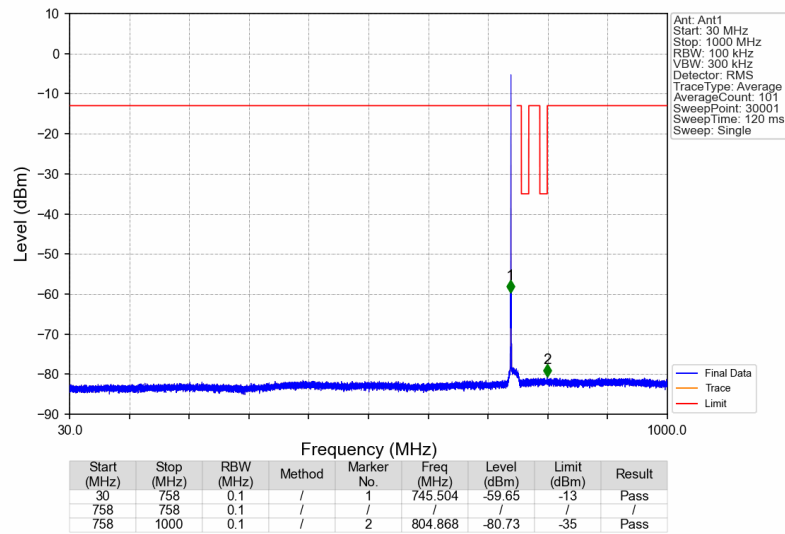
Band13_746.1MHz_GMSK_SISO_Ant1_NTNV



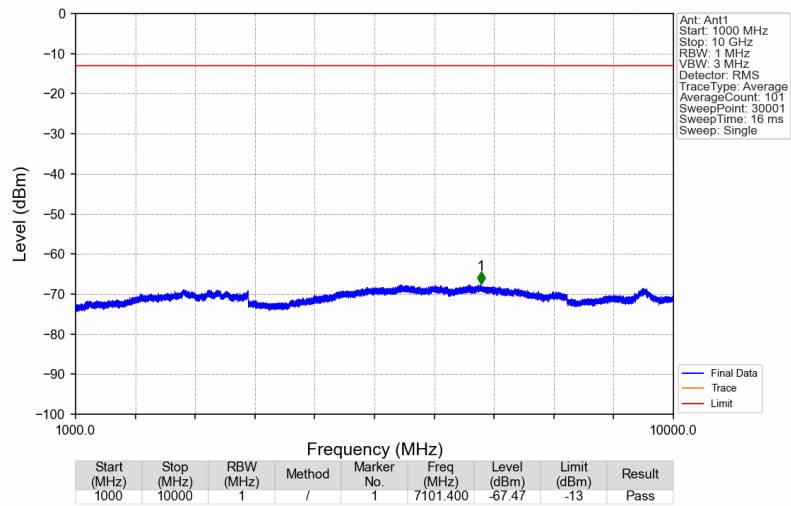
Band13_746.1MHz_GMSK_SISO_Ant1_NTNV



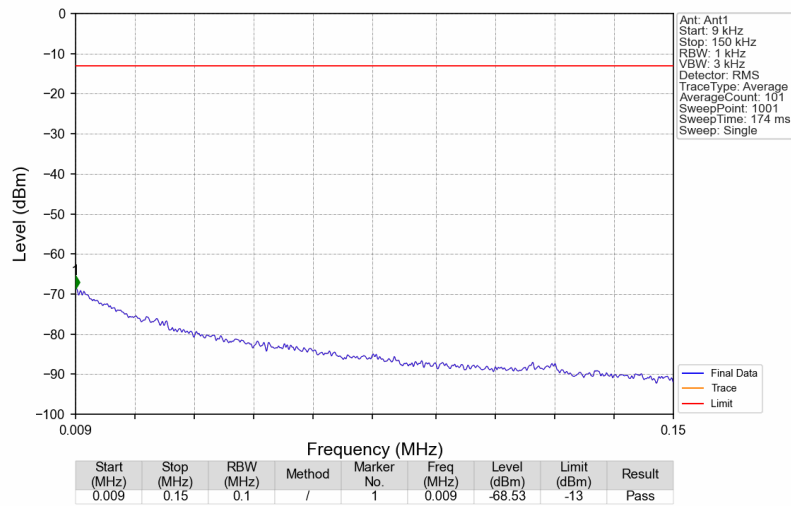
Band13_746.1MHz_GMSK_SISO_Ant1_NTNV



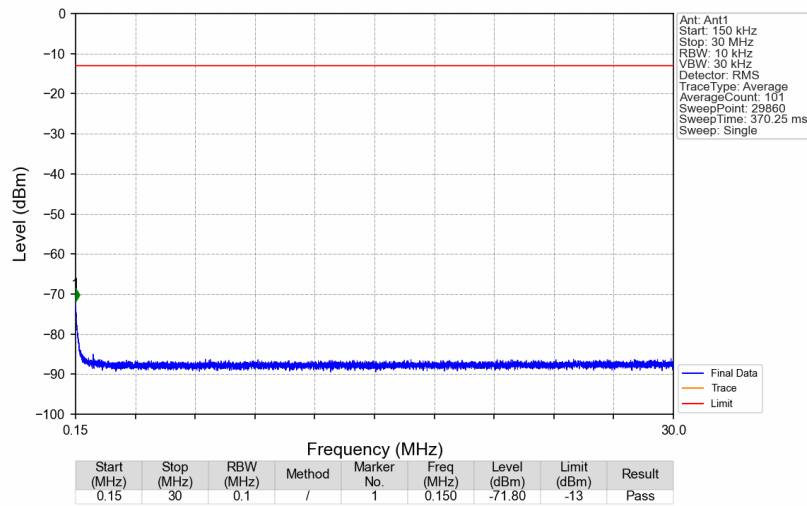
Band13_746.1MHz_GMSK_SISO_Ant1_NTNV



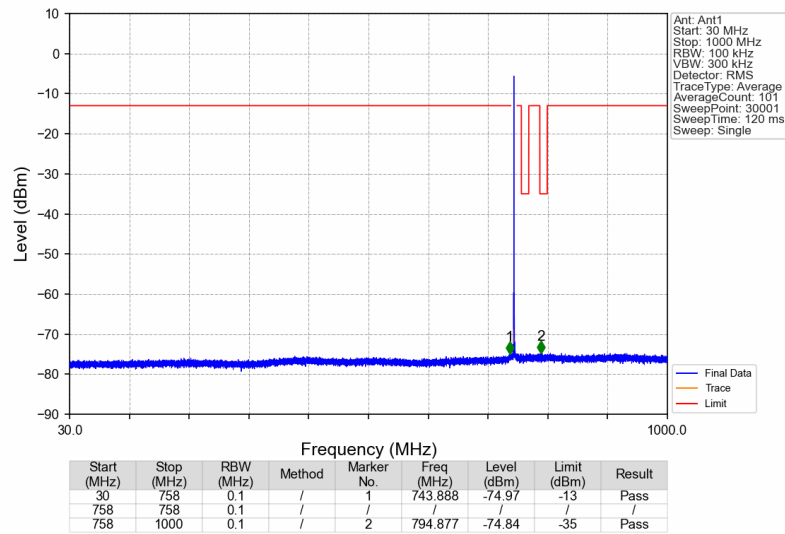
Band13_751MHz_GMSK_SISO_Ant1_NTNV



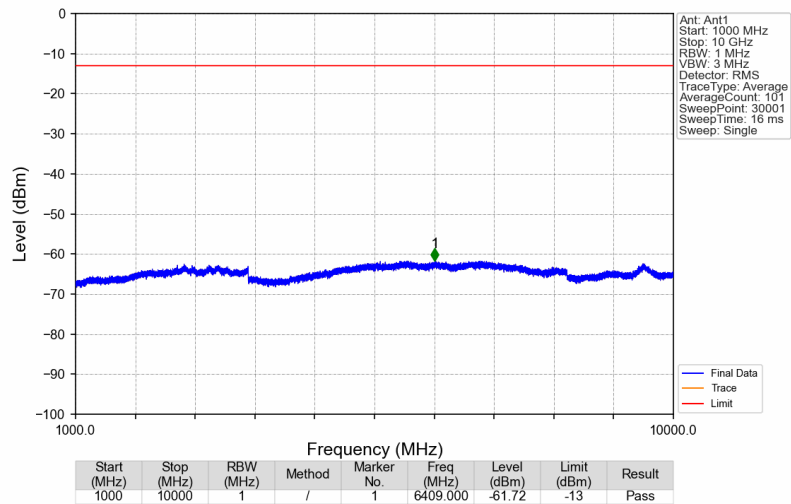
Band13_751MHz_GMSK_SISO_Ant1_NTNV



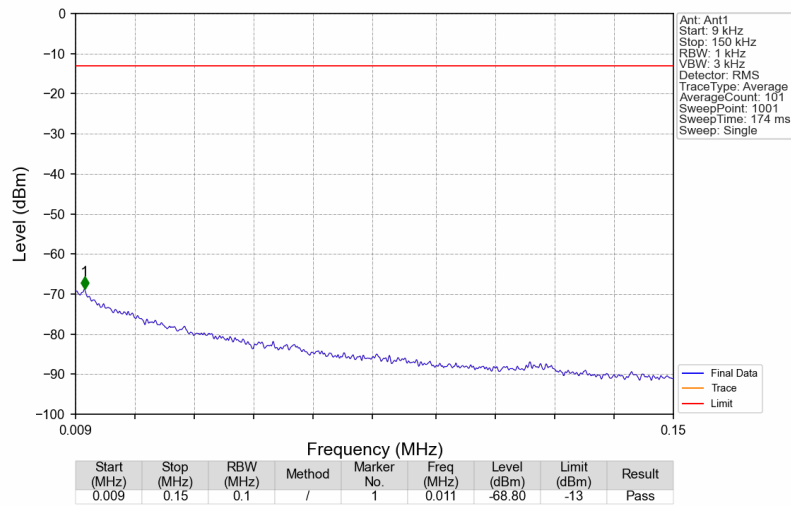
Band13_751MHz_GMSK_SISO_Ant1_NTNV



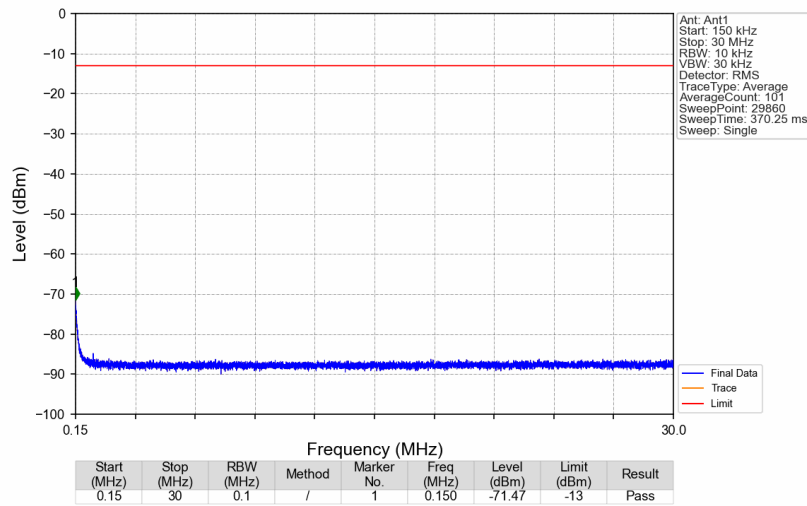
Band13_751MHz_GMSK_SISO_Ant1_NTNV



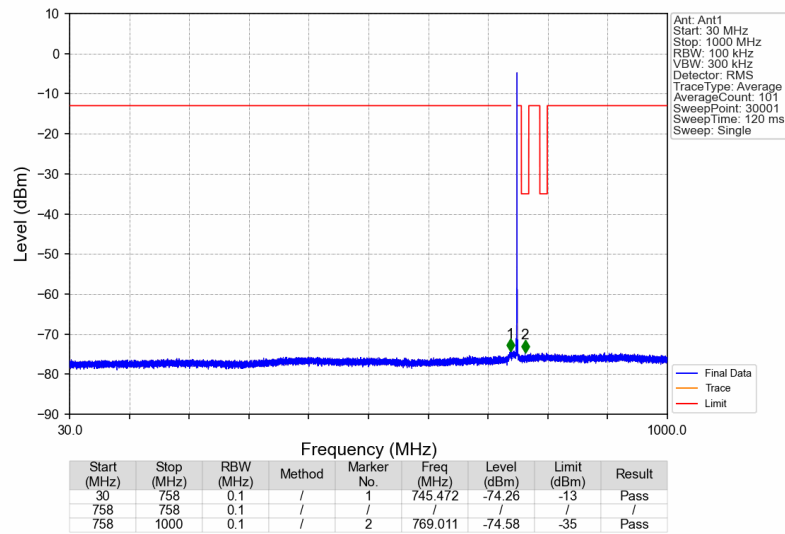
Band13_755.9MHz_GMSK_SISO_Ant1_NTNV



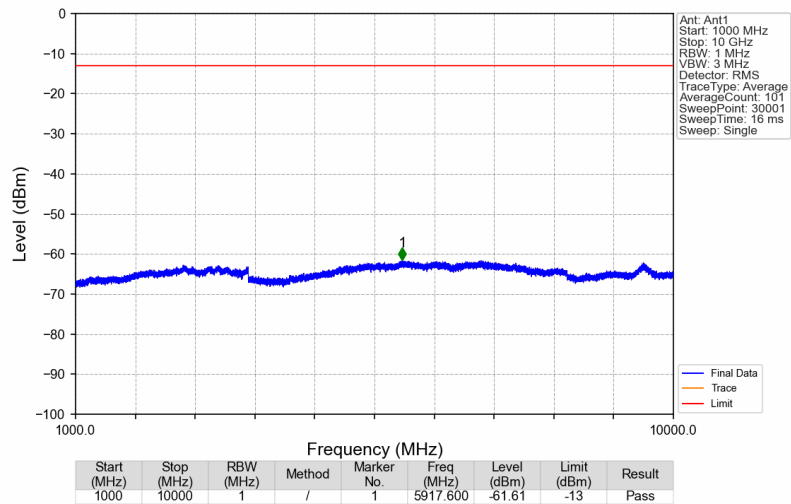
Band13_755.9MHz_GMSK_SISO_Ant1_NTNV



Band13_755.9MHz_GMSK_SISO_Ant1_NTNV



Band13_755.9MHz_GMSK_SISO_Ant1_NTNV



7. Frequency stability measurements

7.1 Band13_Ant1

7.1.1 Test Result

Band: 13 / NTN							
Signal			Temp (°C)	Voltage (VAC)	Freq. Error (Hz)	Tolerance (ppm)	Verdict
Type	Level (dBm)	Frequency (MHz)					
CW	-6	746.1	20	102	-158	-0.212	Pass
				120	-145	-0.194	Pass
				138	-155	-0.208	Pass
			-30	120	-156	-0.209	Pass
			-20	120	-153	-0.205	Pass
			-10	120	-149	-0.200	Pass
			0	120	-157	-0.210	Pass
			10	120	-160	-0.214	Pass
			30	120	-161	-0.216	Pass
			40	120	-147	-0.197	Pass
			50	120	-144	-0.193	Pass
		751	20	102	-151	-0.202	Pass
				120	-167	-0.222	Pass
				138	-169	-0.225	Pass
			-30	120	-165	-0.220	Pass
			-20	120	-162	-0.216	Pass
			-10	120	-170	-0.226	Pass
			0	120	-172	-0.229	Pass
			10	120	-175	-0.233	Pass
			30	120	-177	-0.236	Pass
			40	120	-169	-0.225	Pass
			50	120	-169	-0.225	Pass
		755.9	20	102	-171	-0.228	Pass
				120	-176	-0.234	Pass
				138	-174	-0.230	Pass
			-30	120	-170	-0.225	Pass
			-20	120	-169	-0.224	Pass
			-10	120	-177	-0.234	Pass
			0	120	-173	-0.229	Pass
			10	120	-175	-0.232	Pass
			30	120	-176	-0.233	Pass

			40	120	-170	-0.225	Pass
			50	120	-172	-0.228	Pass

8. Radiated Spurious Emissions

8.1 Band13_Ant1

8.1.1 Test Result

AWGN_Low channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over limit	Result
MHz	polarization	dBm	dBm	dB	
83.544	Horizontal	-69.82	-13	-56.82	pass
173.108	Horizontal	-57.89	-13	-44.89	pass
401.742	Horizontal	-57.45	-13	-44.45	pass
1776.680	Horizontal	-48.93	-13	-35.93	pass
3571.280	Horizontal	-52.90	-13	-39.90	pass
7259.110	Horizontal	-40.00	-13	-27.00	pass
149.995	Vertical	-67.56	-13	-54.56	pass
223.179	Vertical	-62.83	-13	-49.83	pass
495.966	Vertical	-62.33	-13	-49.33	pass
1807.070	Vertical	-48.51	-13	-35.51	pass
3563.930	Vertical	-47.72	-13	-34.72	pass
7229.070	Vertical	-40.58	-13	-27.58	pass

AWGN_Middle channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over limit	Result
MHz	polarization	dBm	dBm	dB	
85.390	Horizontal	-66.06	-13	-53.06	pass
133.385	Horizontal	-60.61	-13	-47.61	pass
263.999	Horizontal	-59.83	-13	-46.83	pass
1628.720	Horizontal	-50.63	-13	-37.63	pass
3540.640	Horizontal	-53.39	-13	-40.39	pass
7390.740	Horizontal	-37.89	-13	-24.89	pass
108.494	Vertical	-67.69	-13	-54.69	pass
171.858	Vertical	-62.01	-13	-49.01	pass
361.632	Vertical	-60.81	-13	-47.81	pass
1608.820	Vertical	-51.93	-13	-38.93	pass

3577.260	Vertical	-54.64	-13	-41.64	pass
7351.160	Vertical	-37.51	-13	-24.51	pass

AWGN_High channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over limit	Result
MHz	polarization	dBm	dBm	dB	
119.814	Horizontal	-66.66	-13	-53.66	pass
210.768	Horizontal	-64.81	-13	-51.81	pass
386.142	Horizontal	-56.57	-13	-43.57	pass
1728.350	Horizontal	-48.45	-13	-35.45	pass
3487.690	Horizontal	-51.12	-13	-38.12	pass
7419.880	Horizontal	-42.00	-13	-29.00	pass
163.675	Vertical	-67.01	-13	-54.01	pass
264.309	Vertical	-63.26	-13	-50.26	pass
504.936	Vertical	-62.68	-13	-49.68	pass
1725.050	Vertical	-52.27	-13	-39.27	pass
3473.190	Vertical	-54.99	-13	-41.99	pass
7398.910	Vertical	-39.40	-13	-26.40	pass

GMSK_Low channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over limit	Result
MHz	polarization	dBm	dBm	dB	
110.364	Horizontal	-65.40	-13	-52.4	pass
193.108	Horizontal	-57.20	-13	-44.20	pass
387.962	Horizontal	-63.53	-13	-50.53	pass
1465.310	Horizontal	-53.96	-13	-40.96	pass
3232.360	Horizontal	-53.12	-13	-40.12	pass
6942.760	Horizontal	-39.58	-13	-26.58	pass
69.29	Vertical	-66.08	-13	-53.08	pass
156.175	Vertical	-57.38	-13	-44.38	pass
247.879	Vertical	-63.87	-13	-50.87	pass
1463.070	Vertical	-47.85	-13	-34.85	pass
3198.810	Vertical	-53.73	-13	-40.73	pass

6948.640	Vertical	-39.78	-13	-26.78	pass
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GMSK_Middle channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over limit	Result
MHz	polarization	dBm	dBm	dB	
82.814	Horizontal	-62.46	-13	-49.46	pass
196.228	Horizontal	-57.65	-13	-44.65	pass
391.272	Horizontal	-59.67	-13	-46.67	pass
1482.050	Horizontal	-50.96	-13	-37.96	pass
3251.260	Horizontal	-48.78	-13	-35.78	pass
6920.310	Horizontal	-40.12	-13	-27.12	pass
87.920	Vertical	-64.37	-13	-51.37	pass
134.145	Vertical	-61.82	-13	-48.82	pass
451.309	Vertical	-62.64	-13	-49.64	pass
1468.040	Vertical	-50.62	-13	-37.62	pass
3229.770	Vertical	-55.17	-13	-42.17	pass
6914.010	Vertical	-37.42	-13	-24.42	pass

GMSK_High channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over limit	Result
MHz	polarization	dBm	dBm	dB	
67.990	Horizontal	-69.37	-13	-56.37	pass
133.695	Horizontal	-58.54	-13	-45.54	pass
244.689	Horizontal	-60.45	-13	-47.45	pass
1441.900	Horizontal	-51.34	-13	-38.34	pass
3218.460	Horizontal	-54.79	-13	-41.79	pass
6898.040	Horizontal	-38.38	-13	-25.38	pass
75.630	Vertical	-67.53	-13	-54.53	pass
144.075	Vertical	-64.69	-13	-51.69	pass
263.399	Vertical	-63.59	-13	-50.59	pass
1455.040	Vertical	-52.49	-13	-39.49	pass
3240.410	Vertical	-49.28	-13	-36.28	pass



6909.330	Vertical	-37.49	-13	-24.49	pass
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