

Appendix C for KSCR2307001146AT-B13

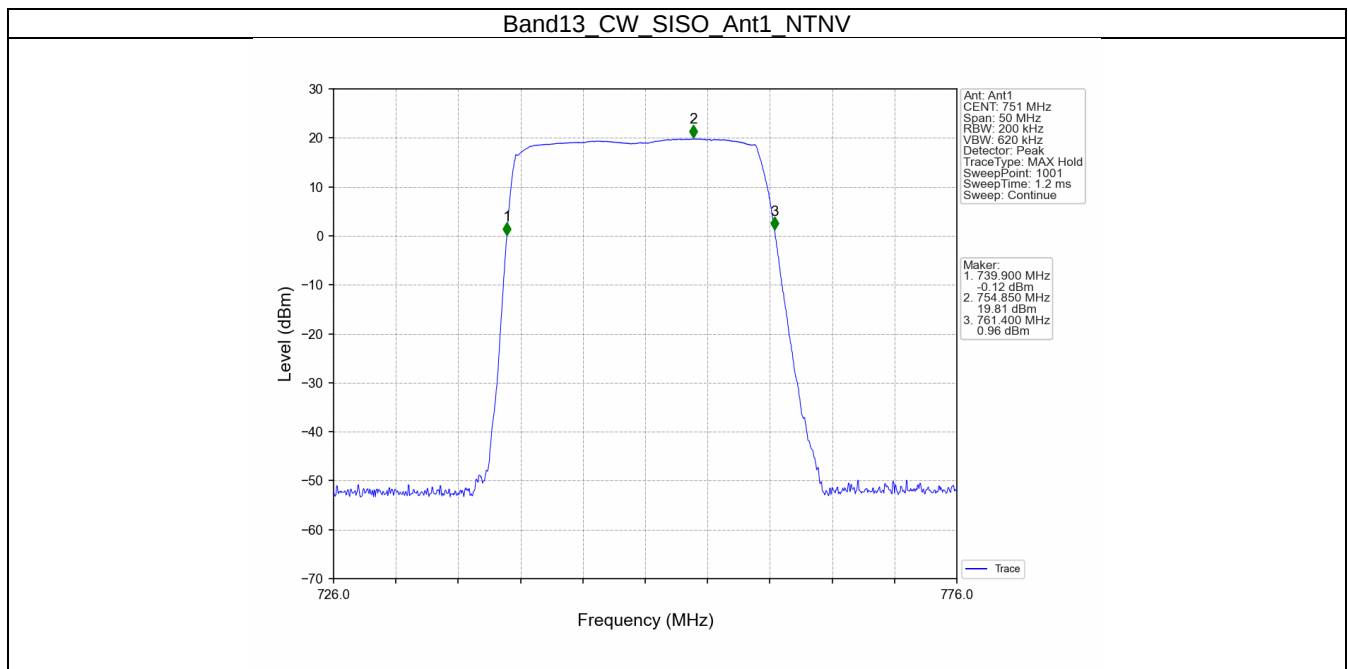
1. Out of band rejection

1.1 Band13

1.1.1 Test Result

Band: 13 / NTNV							
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

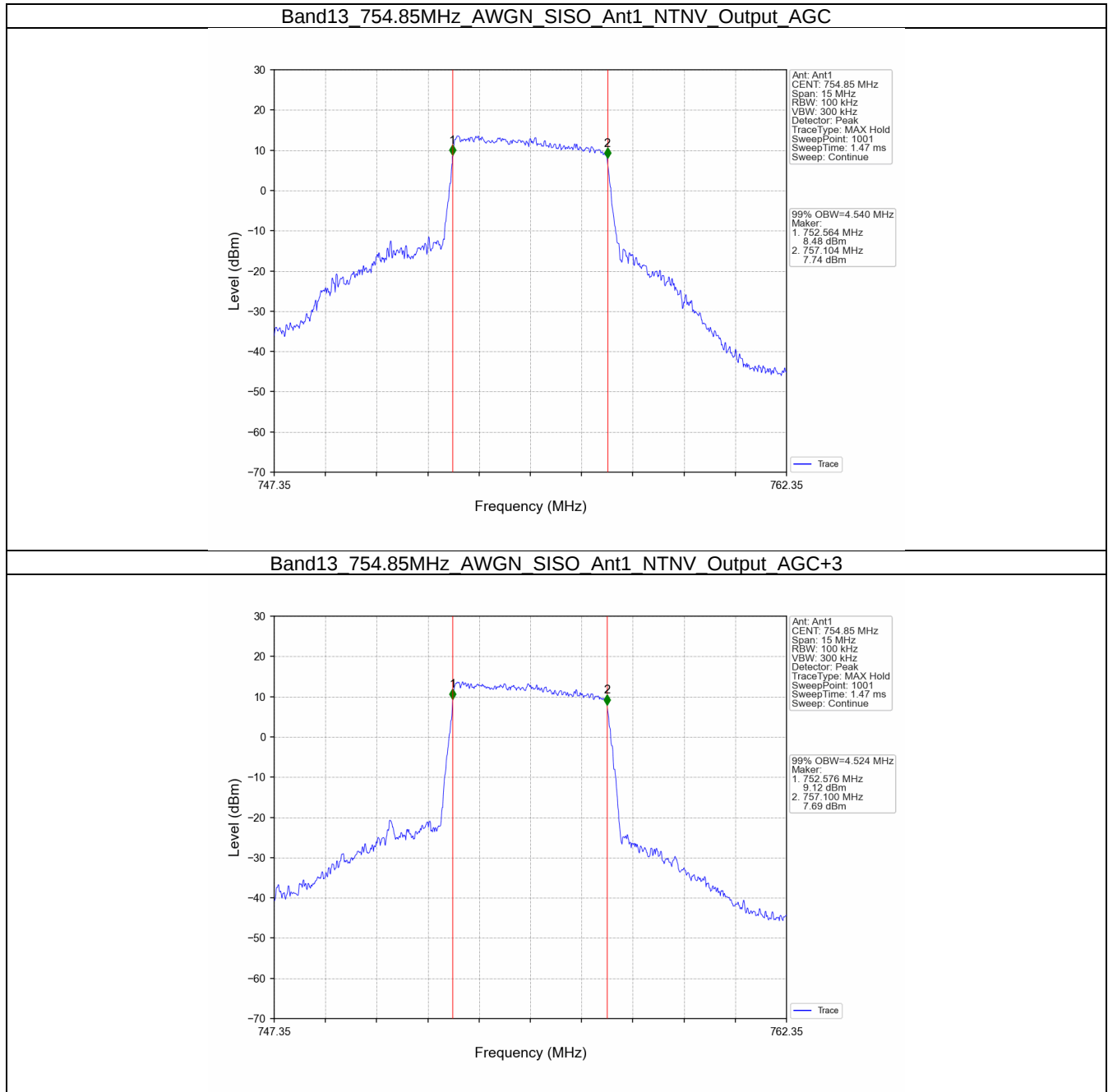
3. Input-versus-output signal comparison

3.1 Band13_OBW

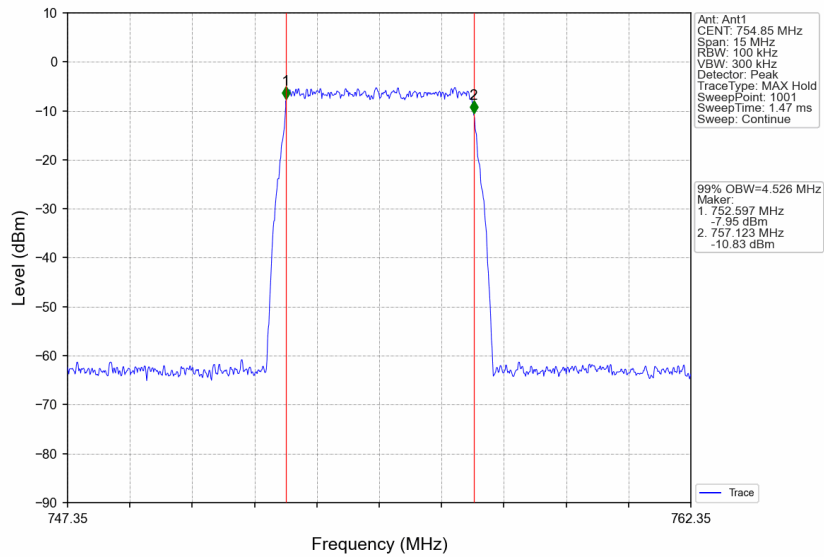
3.1.1 Test Result

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

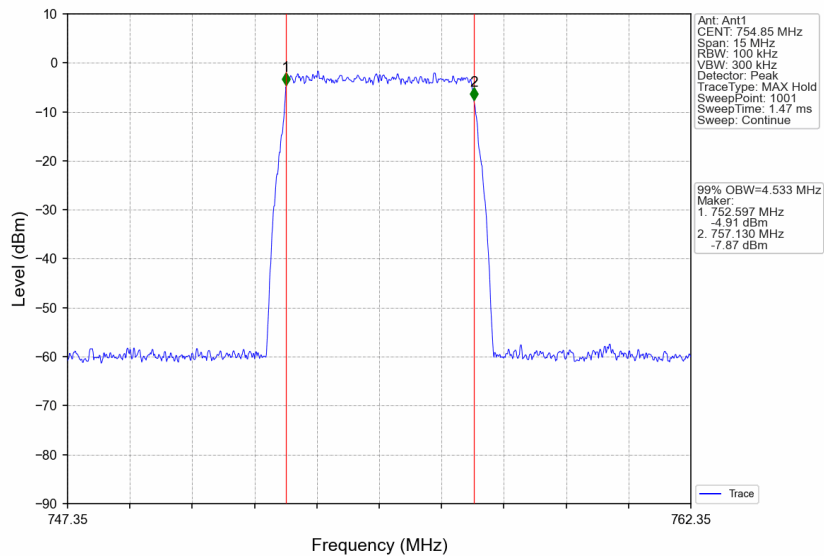
3.1.2 Test Graph



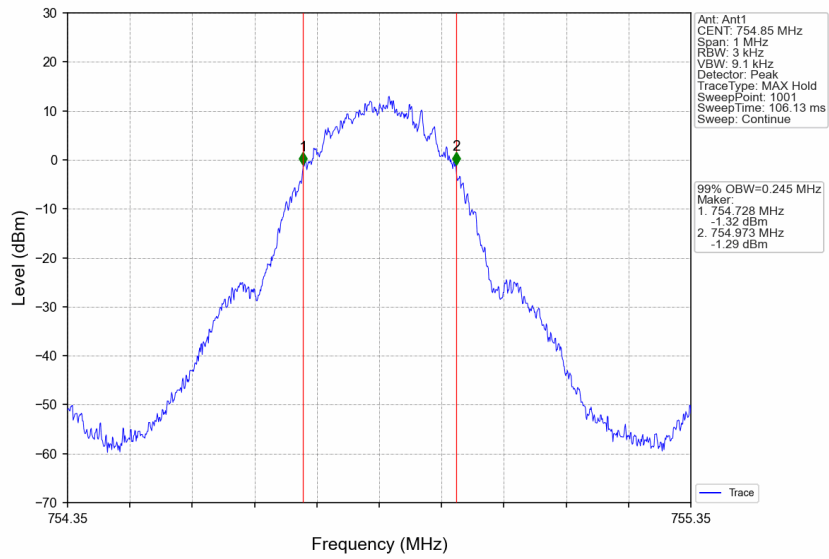
Band13_754.85MHz_AWGN_SISO_Ant1_NTNV_Input_AGC



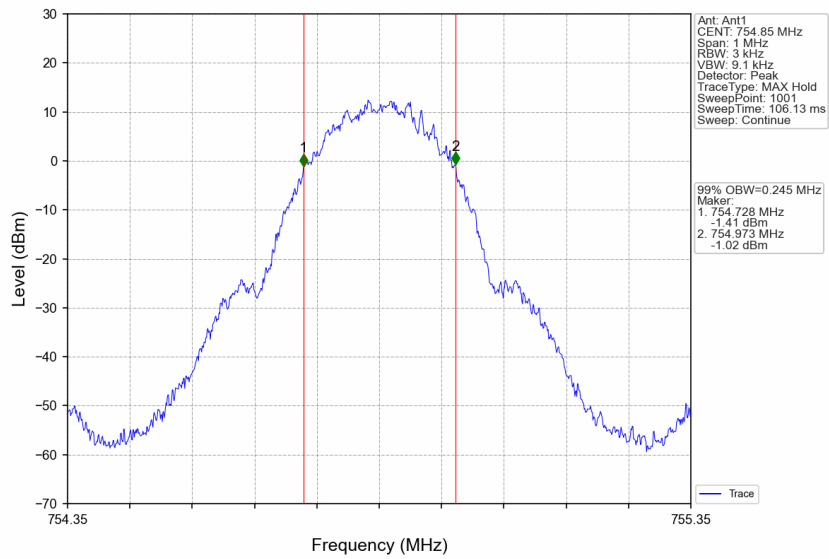
Band13_754.85MHz_AWGN_SISO_Ant1_NTNV_Input_AGC+3



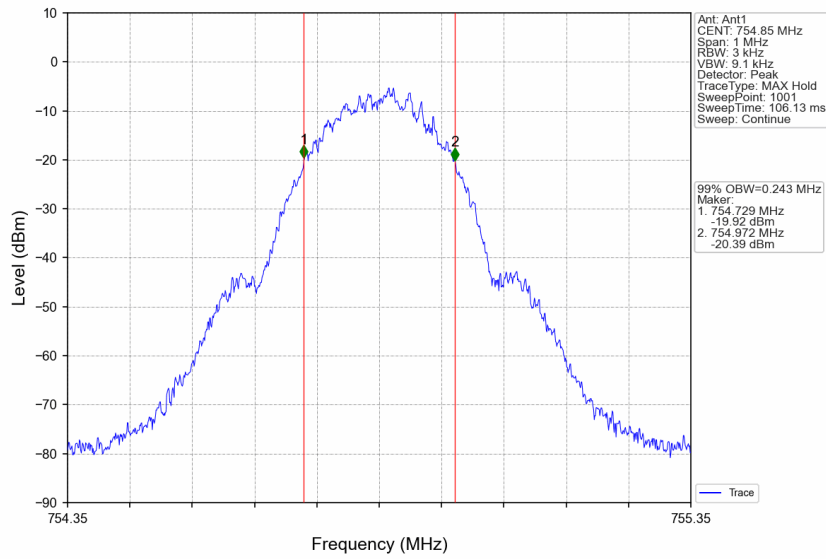
Band13 754.85MHz GMSK SISO Ant1 NTN Output AGC



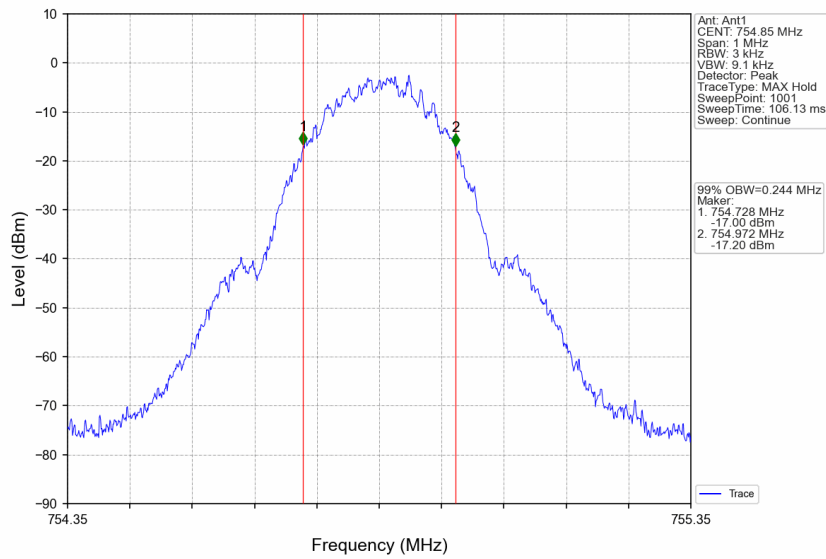
Band13 754.85MHz GMSK SISO Ant1 NTN Output AGC+3



Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_Input_AGC



Band13_754.85MHz_GMSK_SISO_Ant1_NTNV_Input_AGC+3

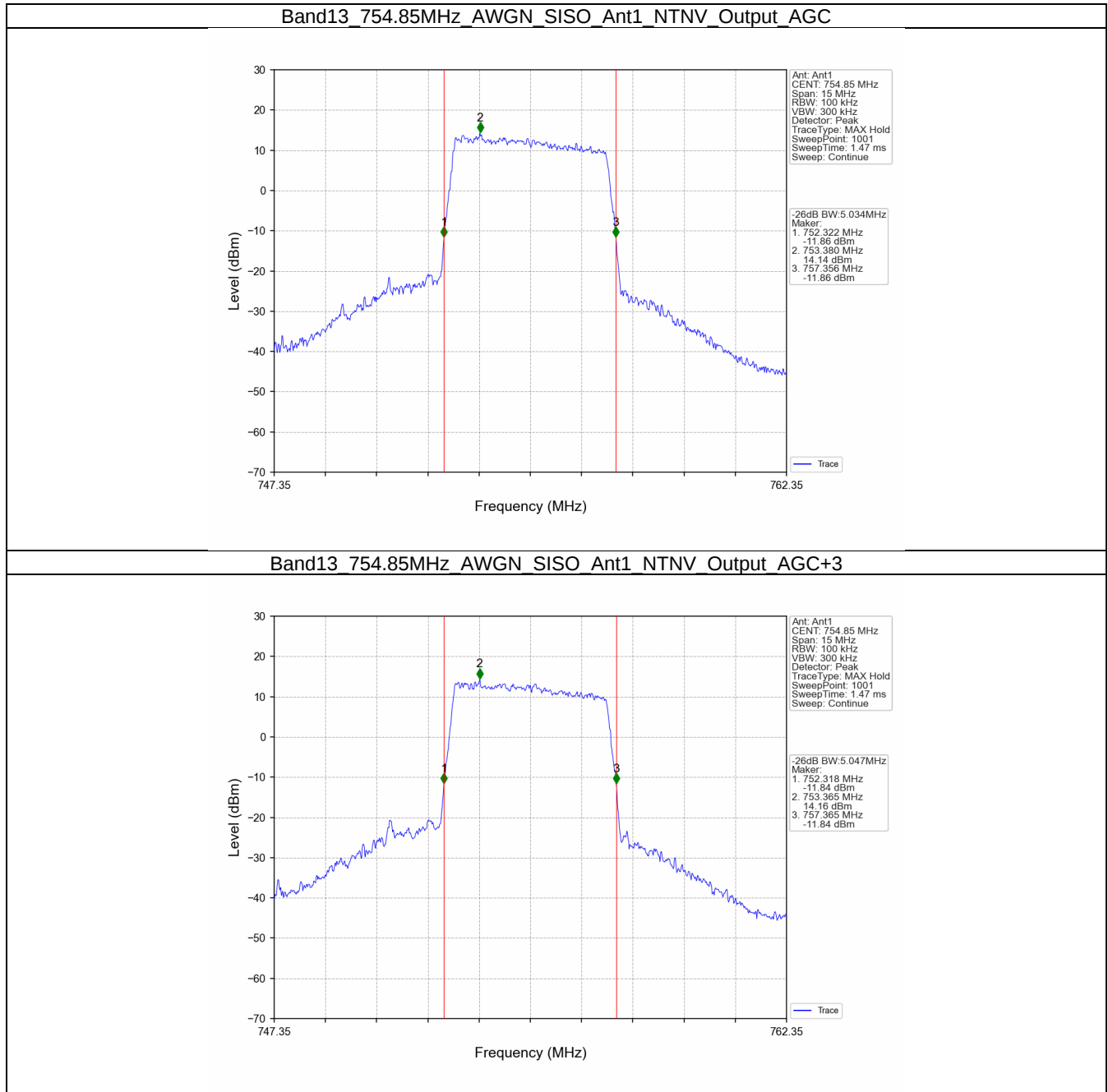


3.2 Band13_EBW

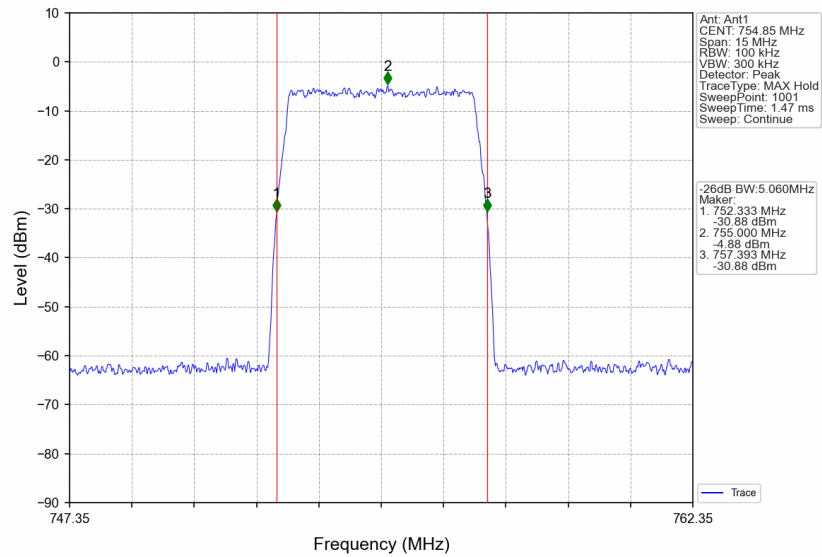
3.2.1 Test Result

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

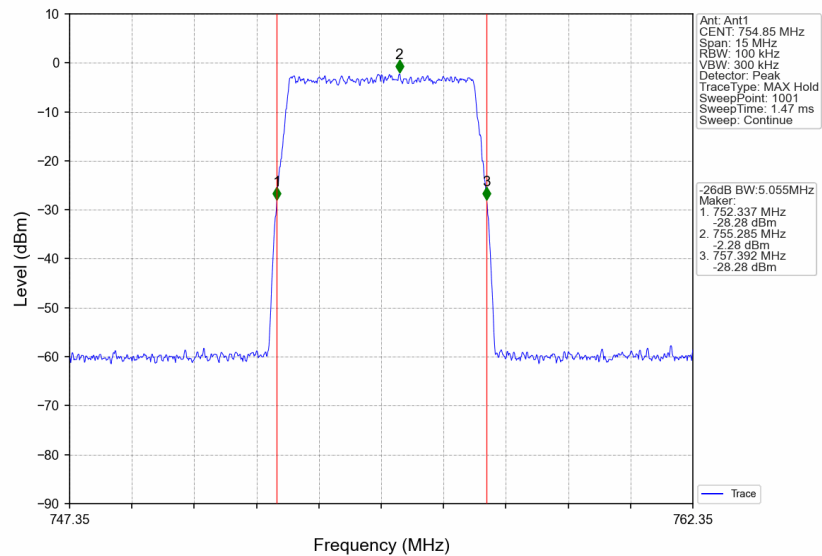
3.2.2 Test Graph



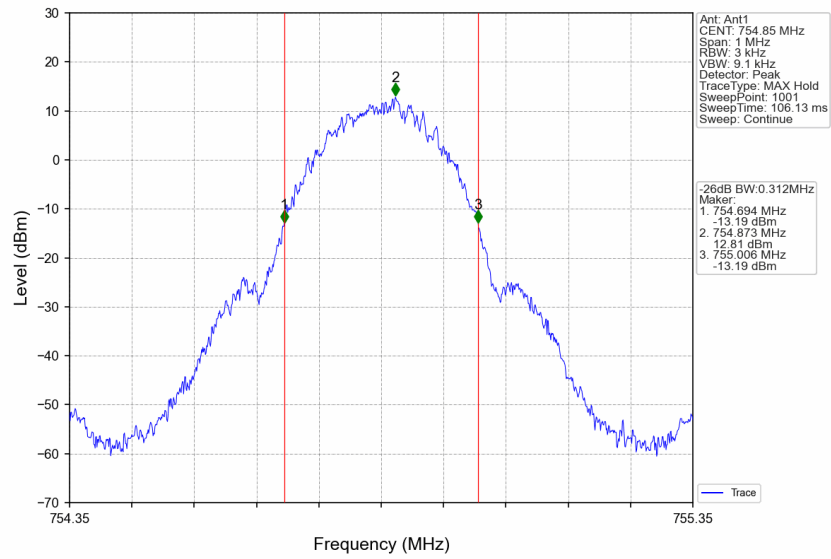
Band13_754.85MHz_AWGN_SISO_Ant1_NTNV_Input_AGC



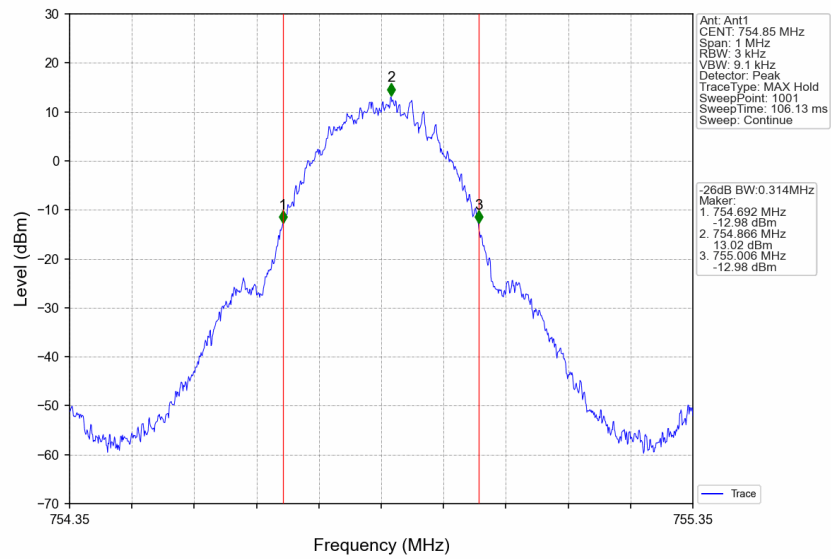
Band13_754.85MHz_AWGN_SISO_Ant1_NTNV_Input_AGC+3



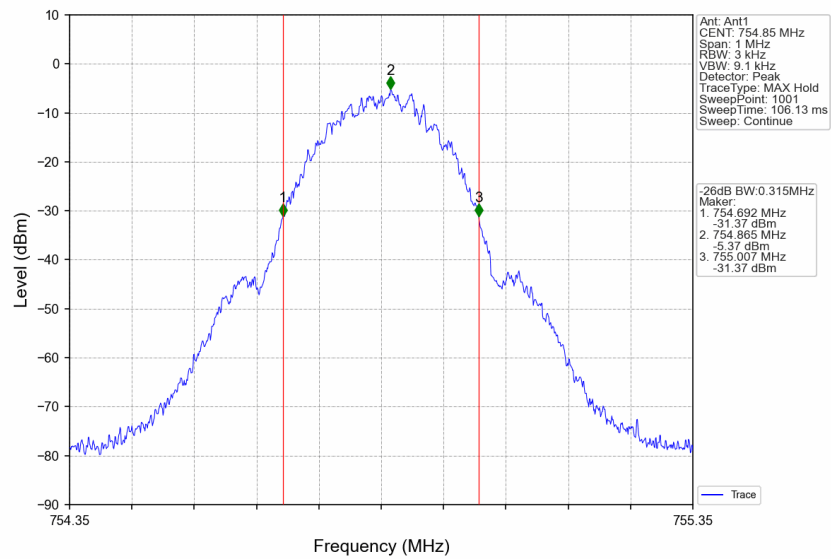
Band13 754.85MHz GMSK SISO Ant1 NTN Output AGC



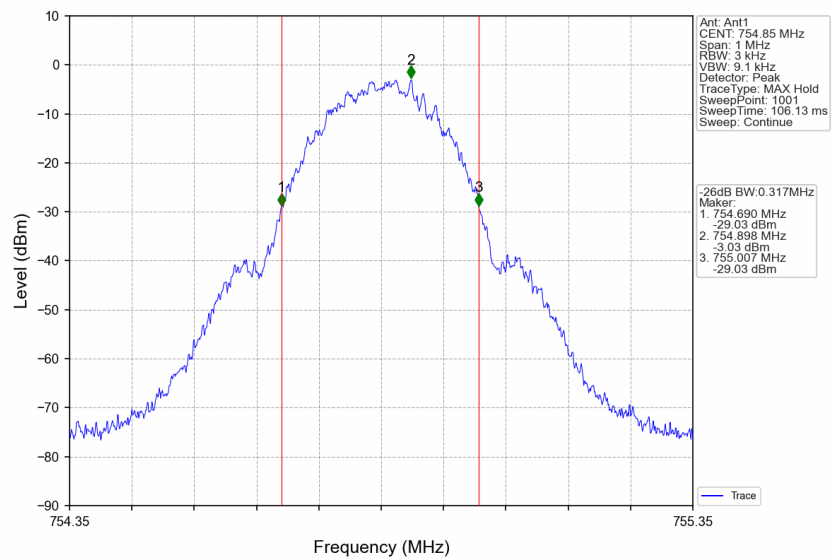
Band13 754.85MHz GMSK SISO Ant1 NTN Output AGC+3



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

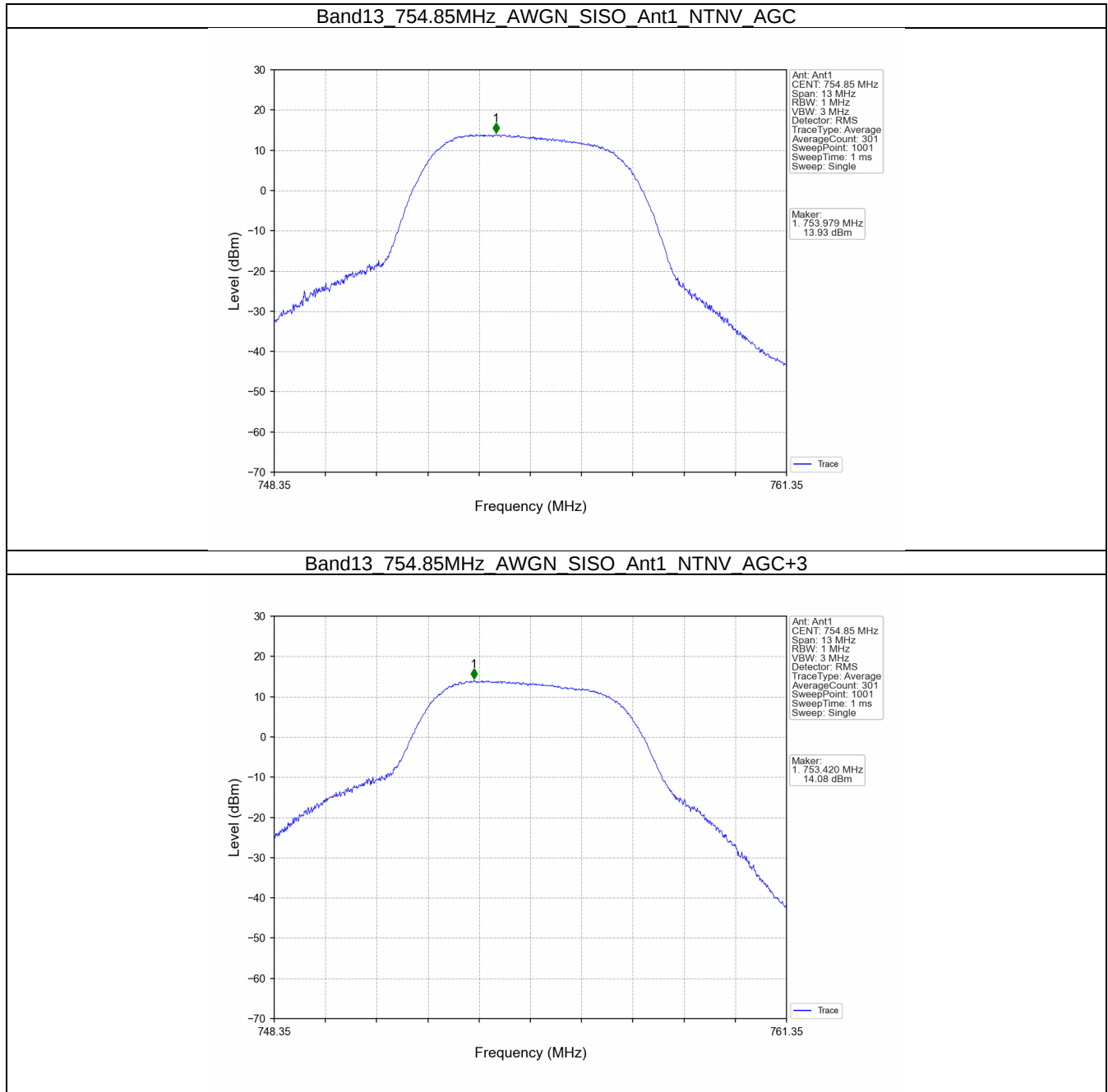
4.1 Band13_ERP

4.1.1 Test Result

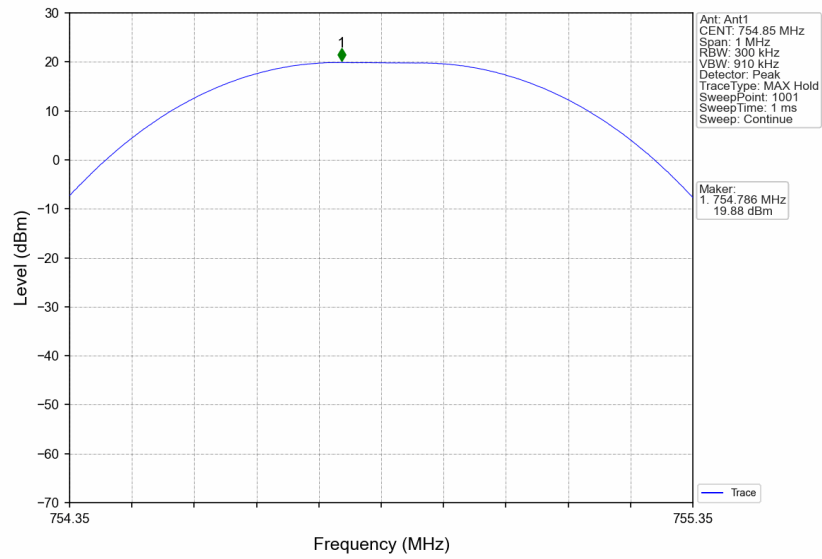
Band: 13 / NTNV										
Signal			TX Type	ANT	Conducted Power (dBm/MHz)		ERP (dBm/MHz)		Booster Gain (dB)	Verdict
Type	Level (dBm)	Frequency (MHz)			Output	Input	Result	Limit		
AWGN	-6	754.85	SISO	1	13.93	-10.92	14.84	<=60	24.85	Pass
	-3	754.85	SISO	1	14.08	-7.70	14.99	<=60	/	Pass
GMSK	-6	754.85	SISO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

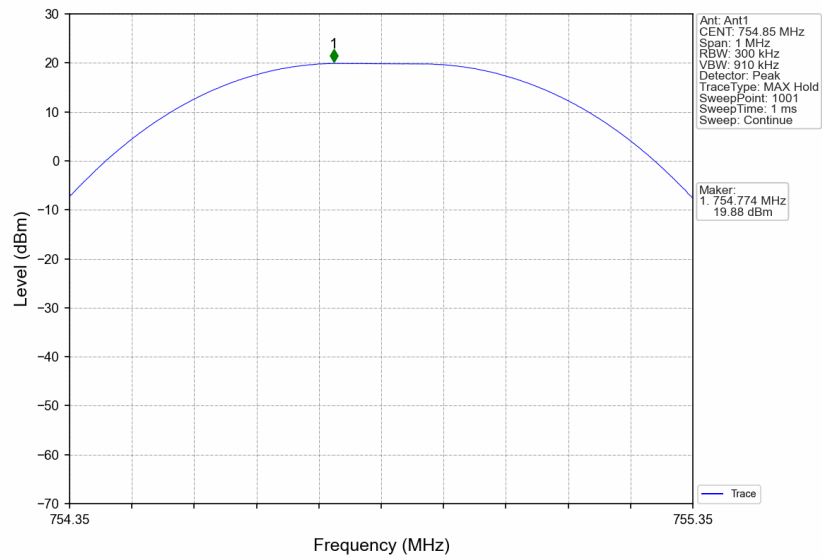
4.1.2 Test Graph



Band13 754.85MHz GMSK SISO Ant1 NTN AGC



Band13 754.85MHz GMSK SISO Ant1 NTN AGC+3

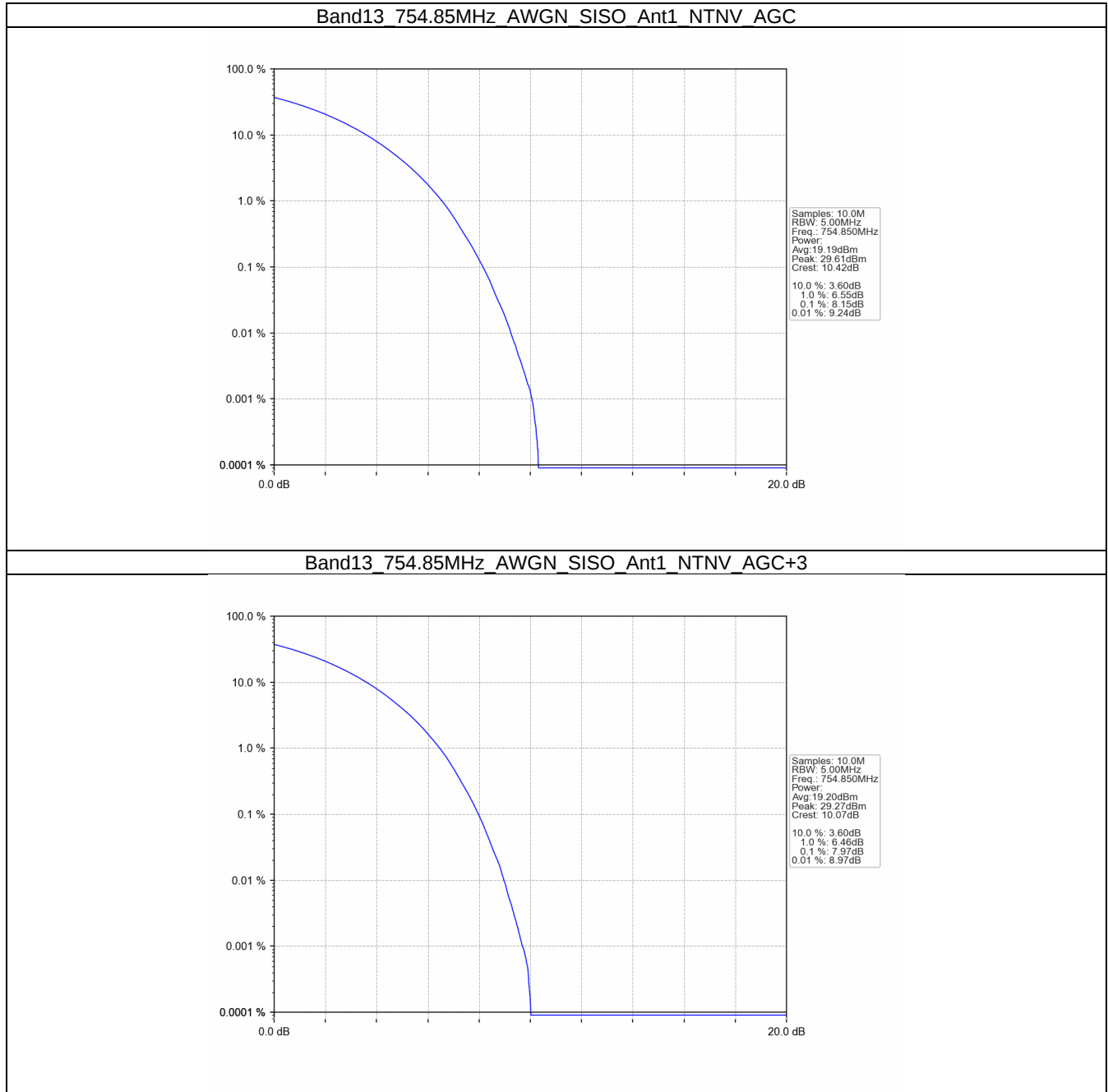


4.2 Band13_PAPR

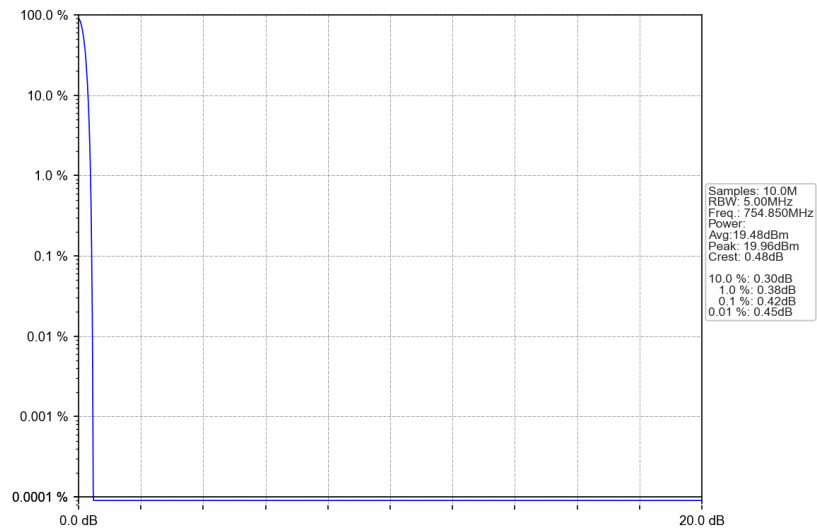
4.2.1 Test Result

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

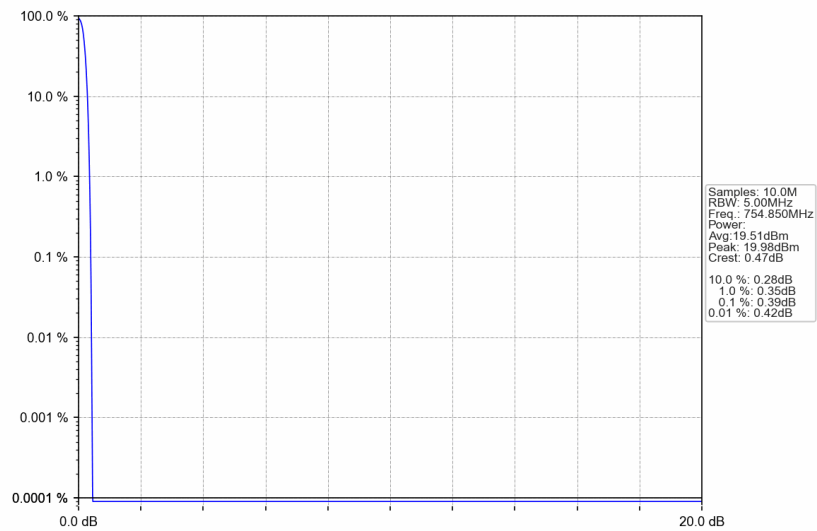
4.2.2 Test Graph



Band13 754.85MHz GMSK SISO Ant1 NTN AGC



Band13 754.85MHz GMSK SISO Ant1 NTN AGC+3



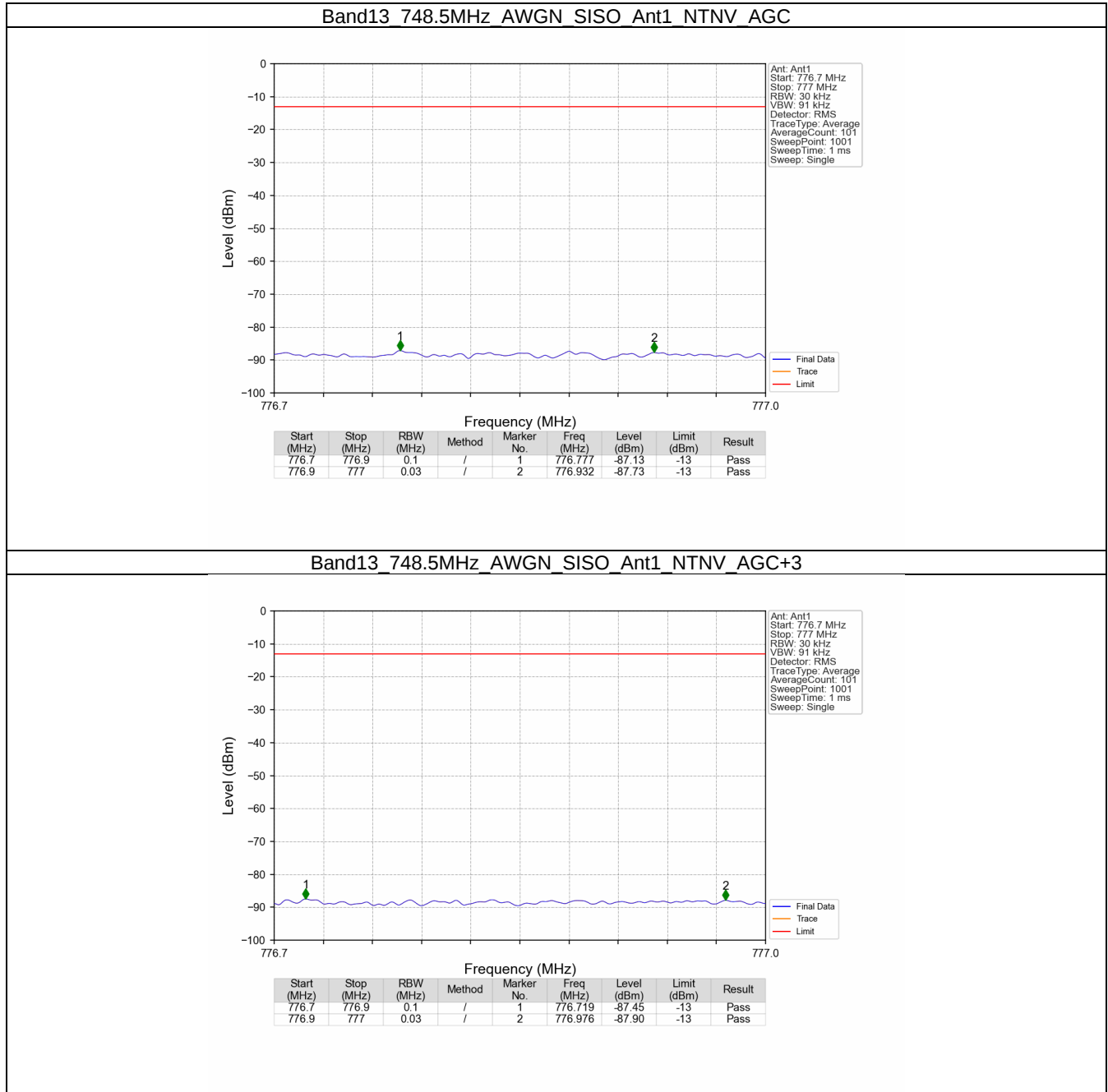
5. Out-of-band/out-of-block (including intermodulation) emissions

5.1 Band13

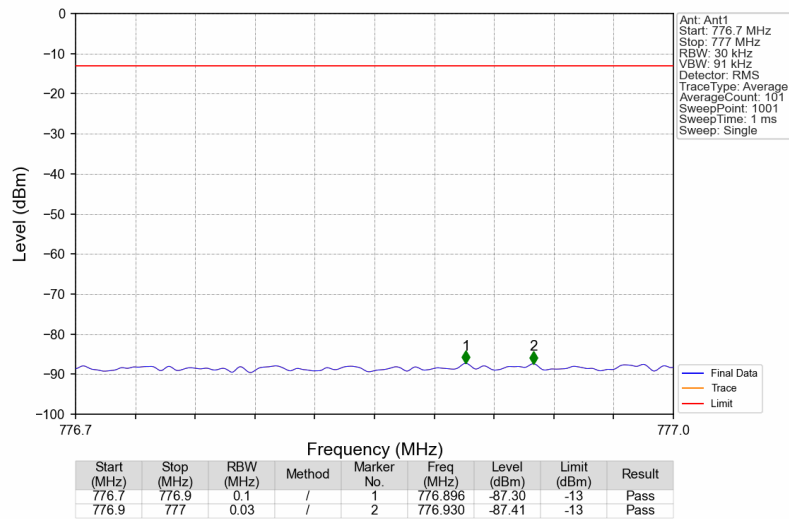
5.1.1 Test Result

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

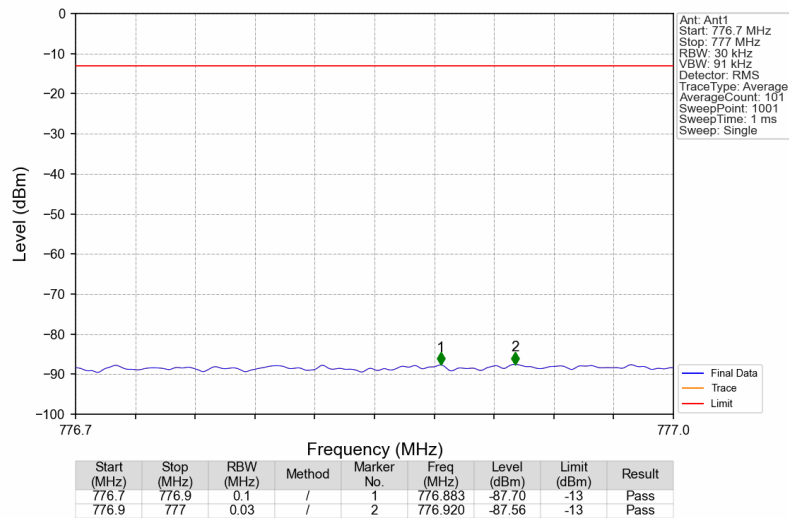
5.1.2 Test Graph



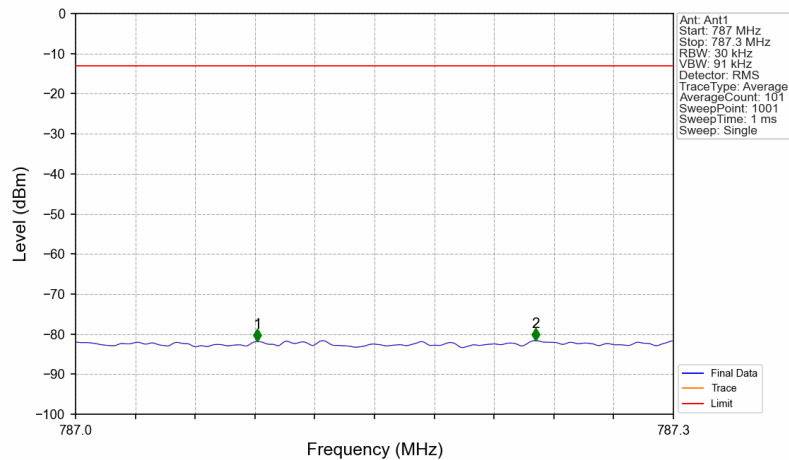
Band13 748.5MHz AWGN SISO Ant1 NTN AGC



Band13 748.5MHz AWGN SISO Ant1 NTN AGC+3

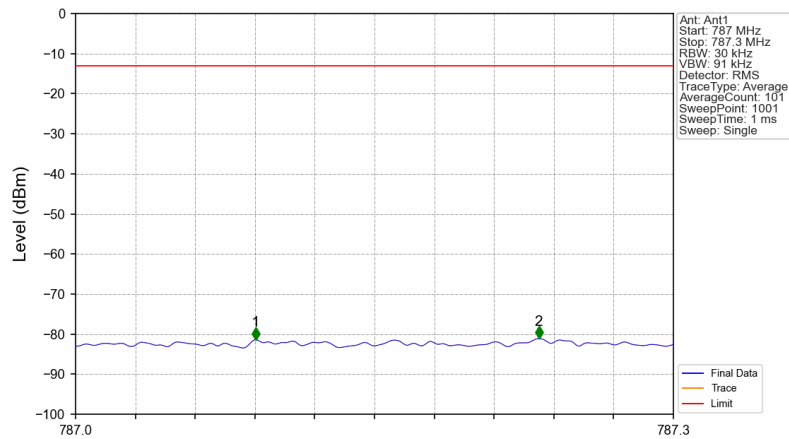


Band13 753.5MHz AWGN SISO Ant1 NTN AGC



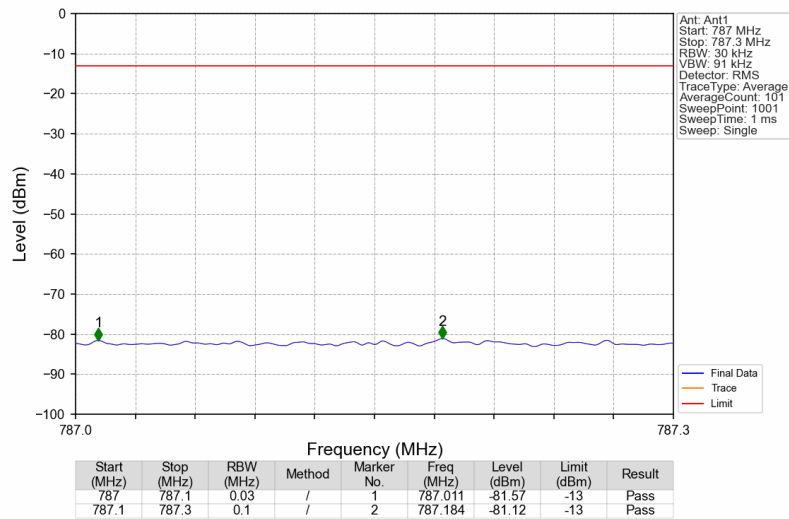
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
787	787.1	0.03	/	1	787.091	-81.86	-13	Pass
787.1	787.3	0.1	/	2	787.231	-81.61	-13	Pass

Band13 753.5MHz AWGN SISO Ant1 NTN AGC+3

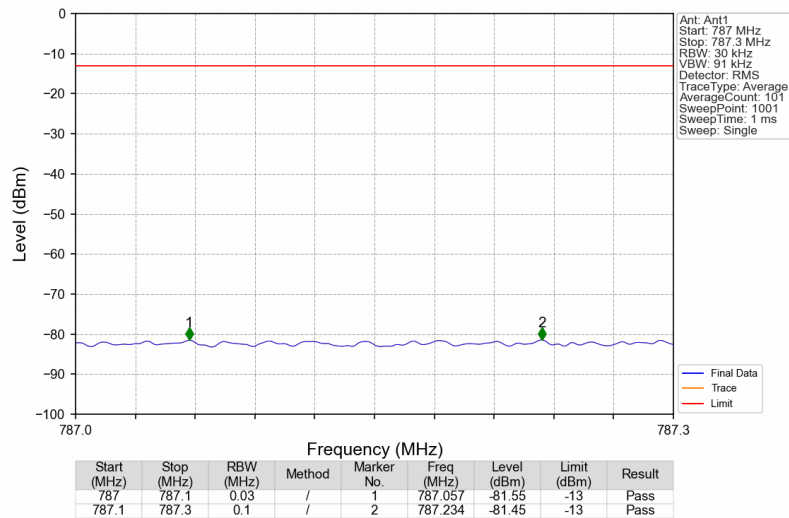


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
787	787.1	0.03	/	1	787.090	-81.41	-13	Pass
787.1	787.3	0.1	/	2	787.232	-81.16	-13	Pass

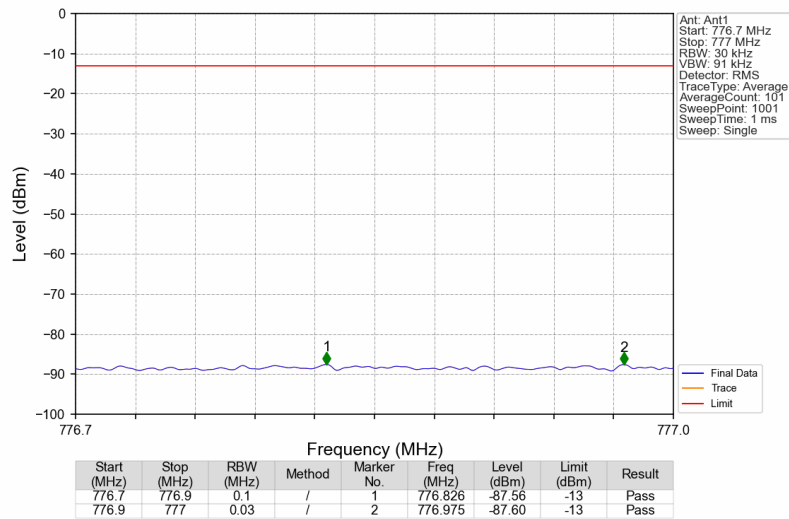
Band13 753.5MHz AWGN SISO Ant1 NTN AGC



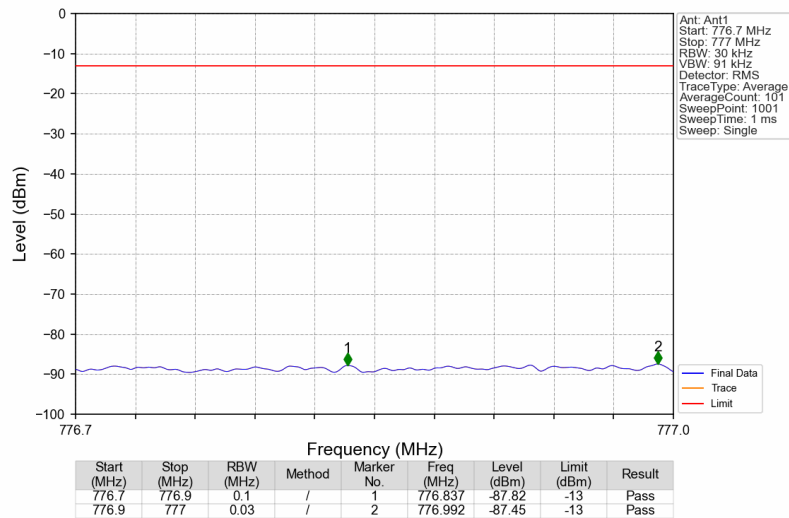
Band13 753.5MHz AWGN SISO Ant1 NTN AGC+3



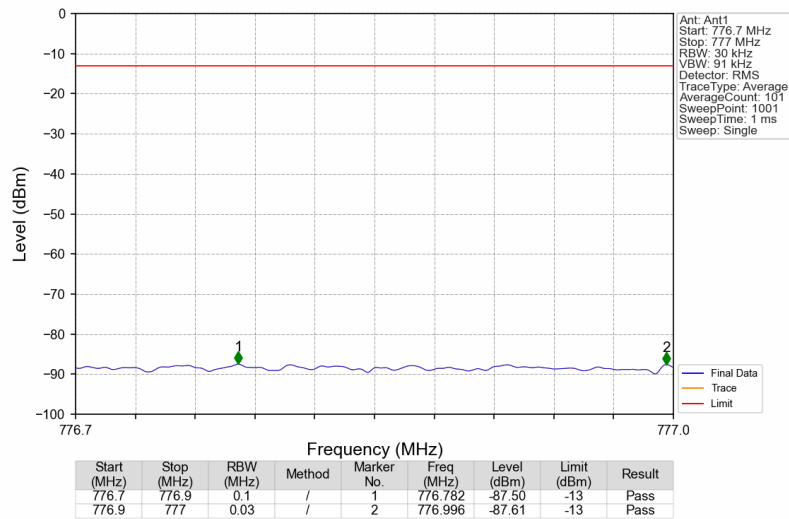
Band13_746.1MHz_GMSK_SISO_Ant1_NTNV_AGC



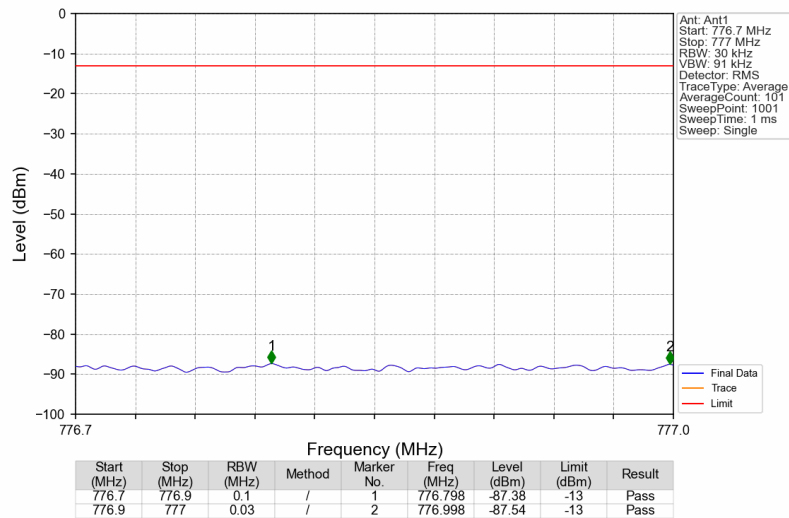
Band13_746.1MHz_GMSK_SISO_Ant1_NTNV_AGC+3



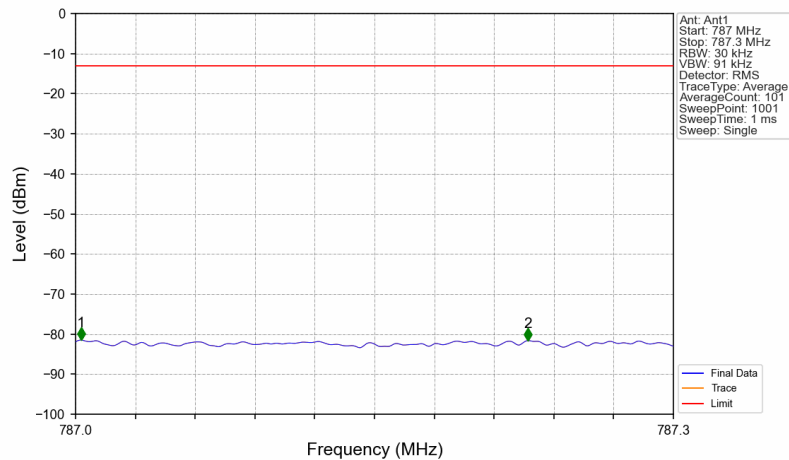
Band13_746.1MHz_GMSK_SISO_Ant1_NTNV_AGC



Band13_746.1MHz_GMSK_SISO_Ant1_NTNV_AGC+3

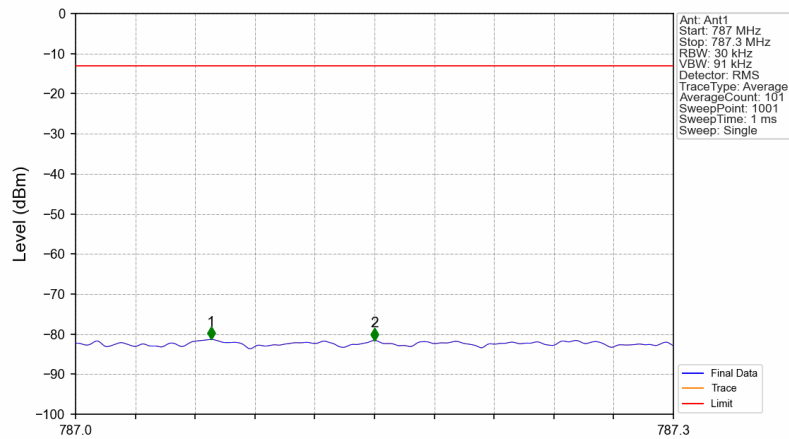


Band13_755.9MHz_GMSK_SISO_Ant1_NTNV_AGC



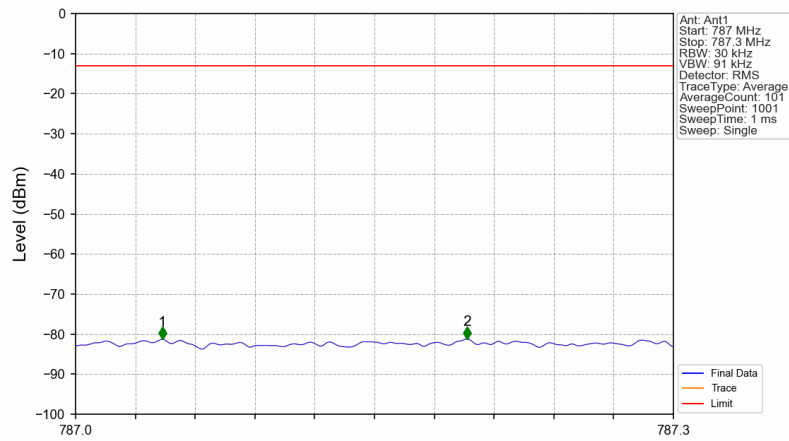
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
787	787.1	0.03	/	1	787.003	-81.49	-13	Pass
787.1	787.3	0.1	/	2	787.227	-81.62	-13	Pass

Band13_755.9MHz_GMSK_SISO_Ant1_NTNV_AGC+3



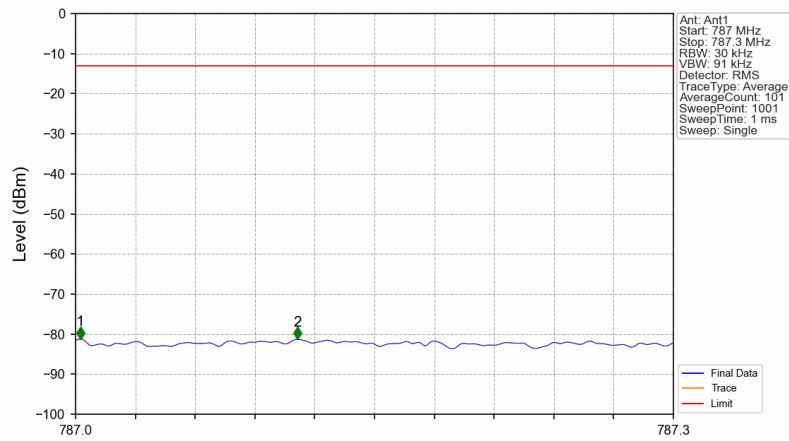
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
787	787.1	0.03	/	1	787.068	-81.36	-13	Pass
787.1	787.3	0.1	/	2	787.150	-81.57	-13	Pass

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

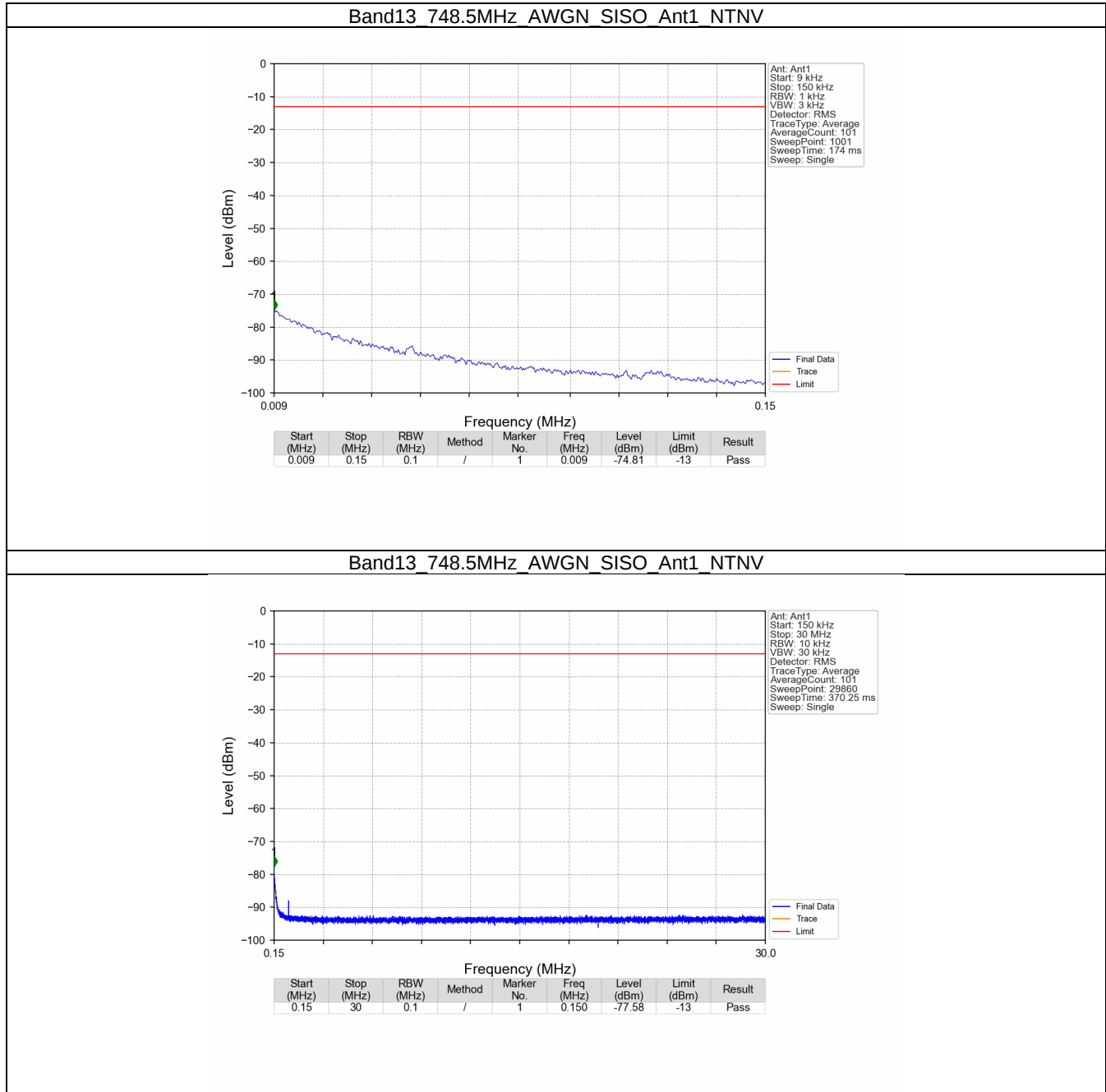
6. Spurious emissions

6.1 Band13

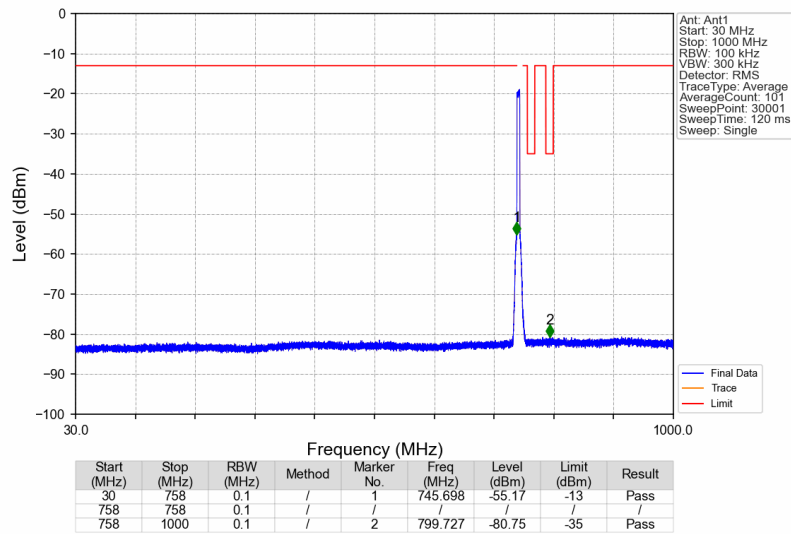
6.1.1 Test Result

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

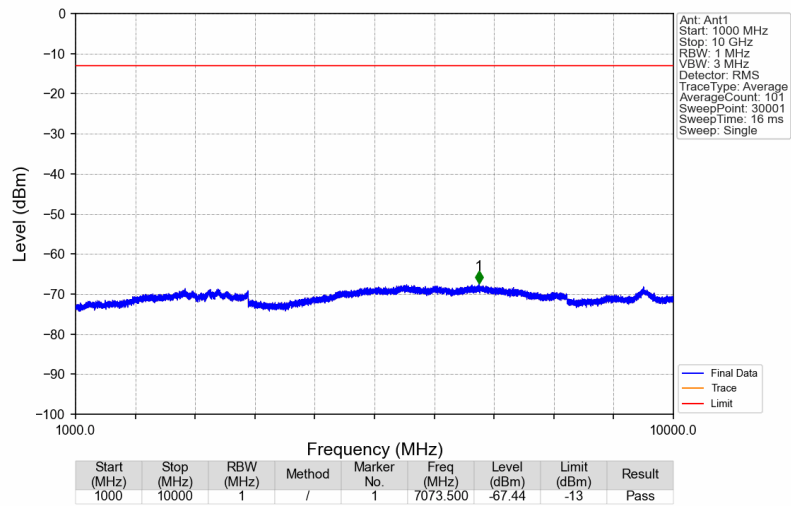
6.1.2 Test Graph



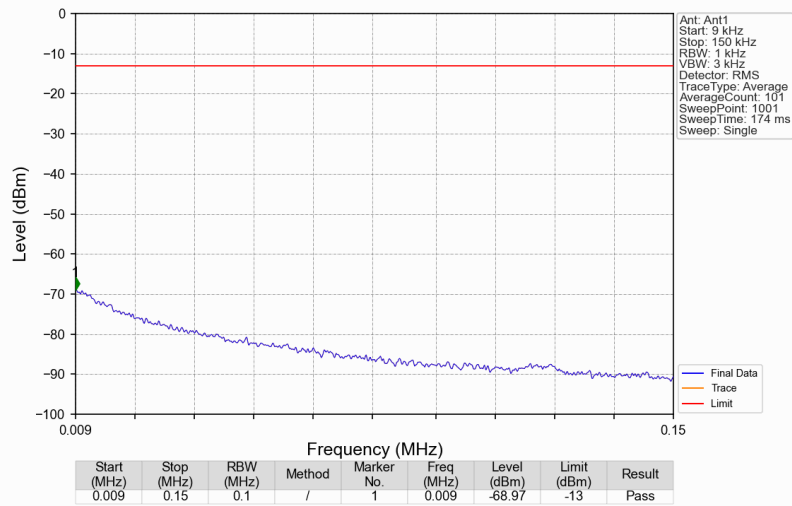
Band13 748.5MHz AWGN SISO Ant1 NTN



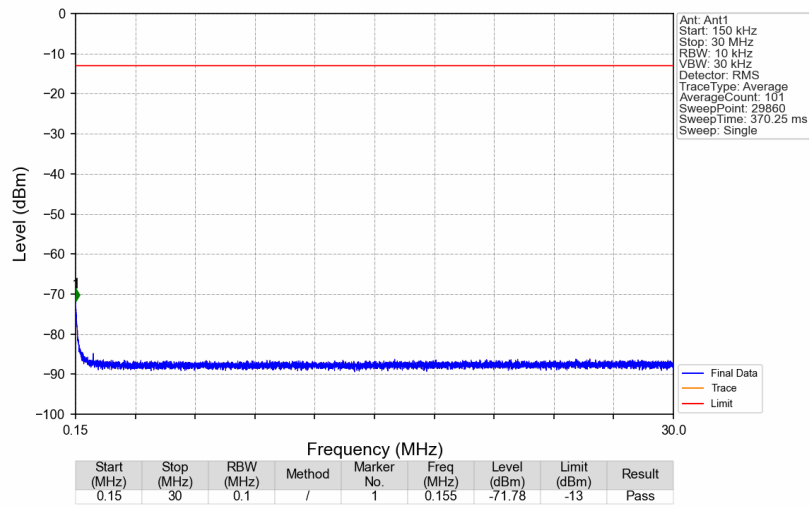
Band13 748.5MHz AWGN SISO Ant1 NTN



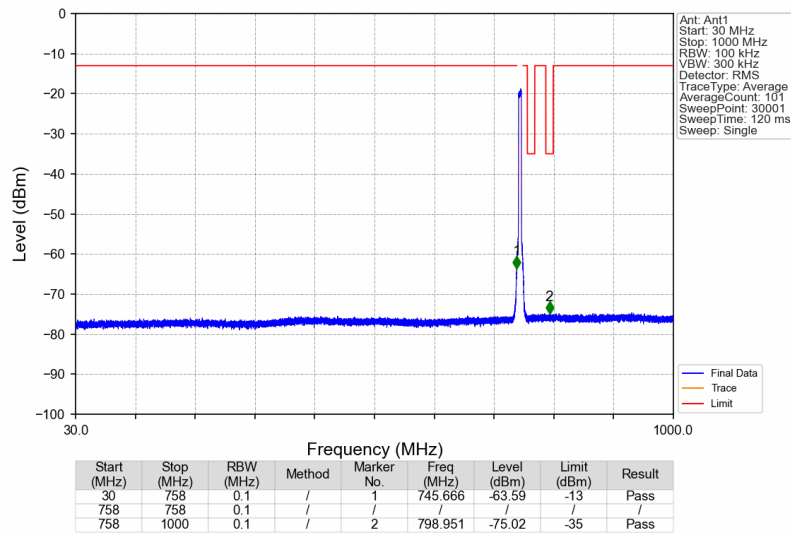
Band13_751MHz_AWGN_SISO_Ant1_NTNV



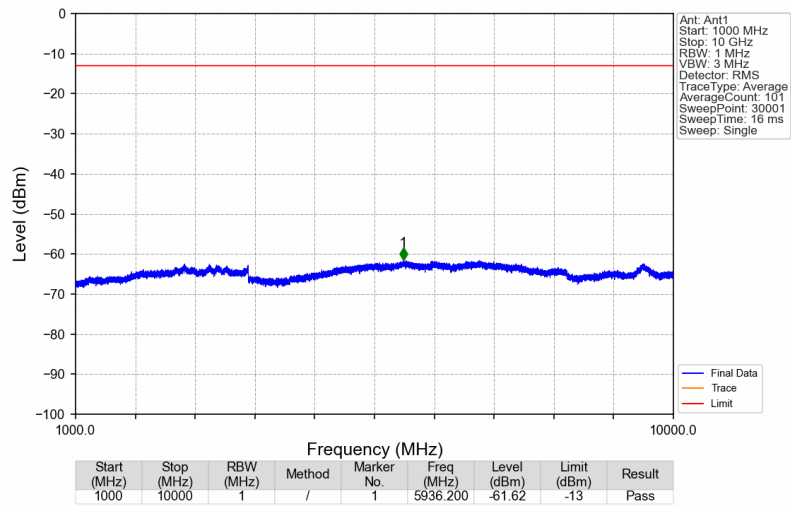
Band13_751MHz_AWGN_SISO_Ant1_NTNV



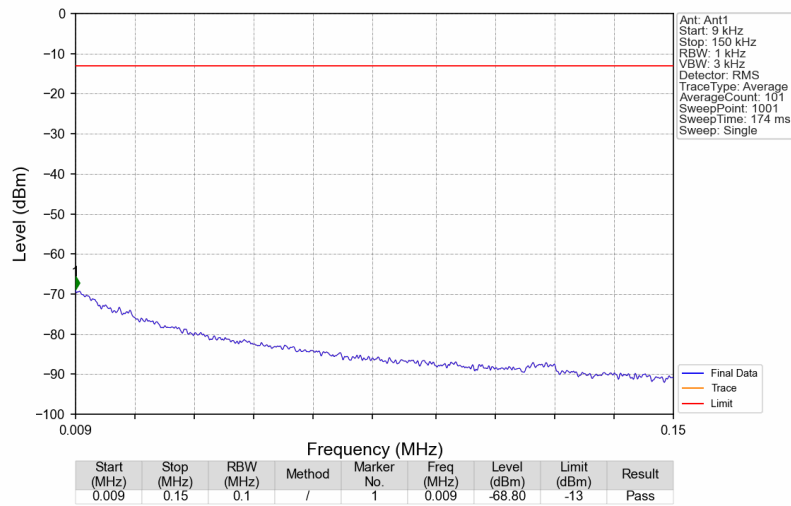
Band13 751MHz AWGN SISO Ant1 NTV



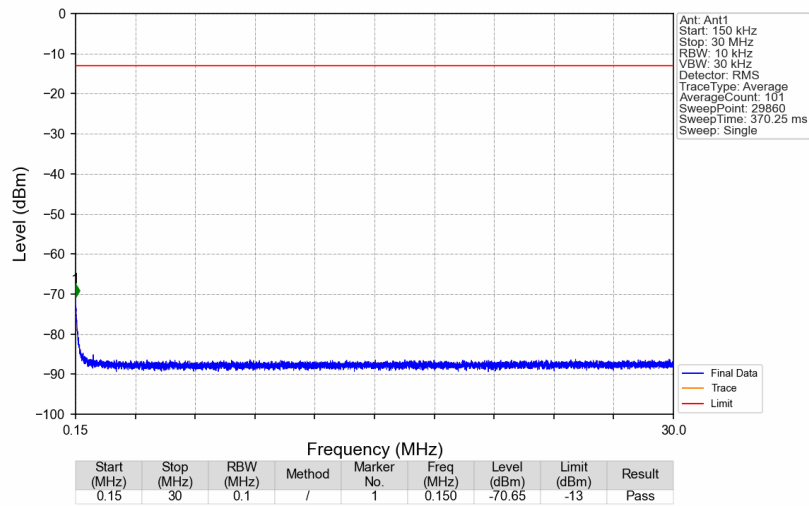
Band13 751MHz AWGN SISO Ant1 NTV



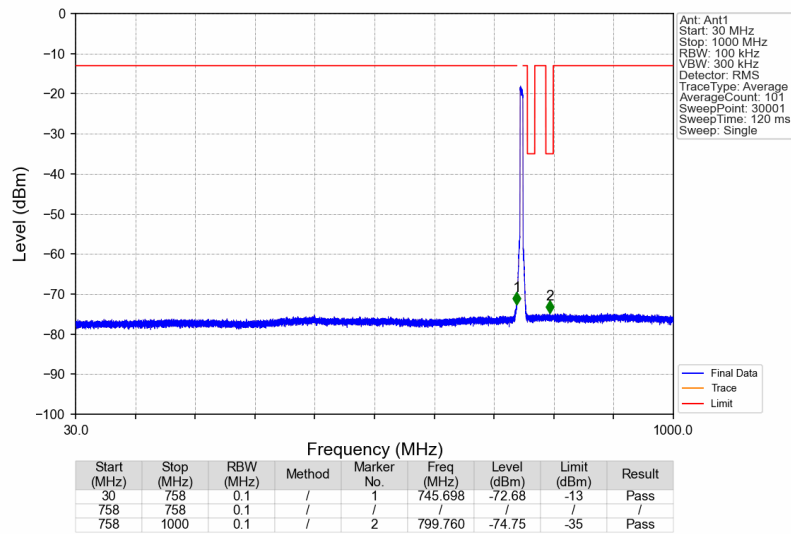
Band13 753.5MHz AWGN SISO Ant1 NTN



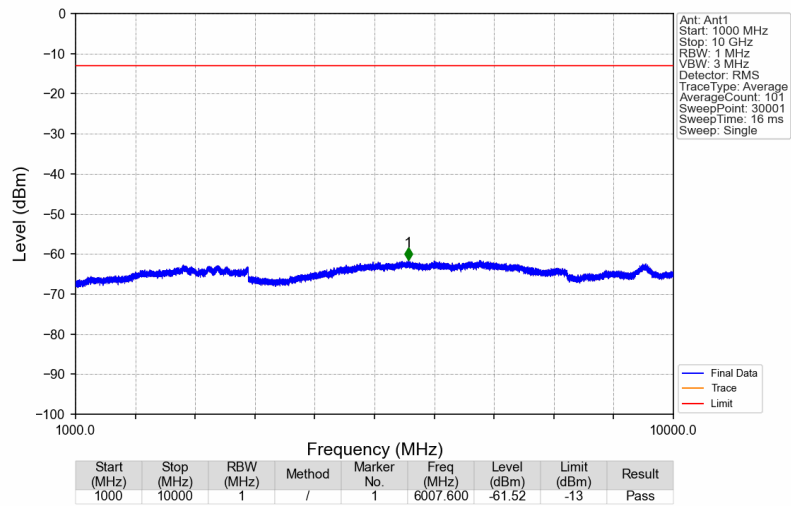
Band13 753.5MHz AWGN SISO Ant1 NTN



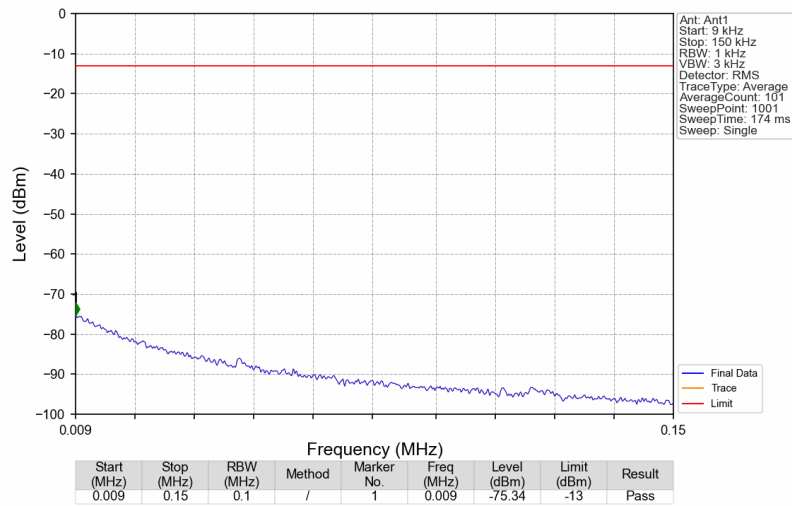
Band13 753.5MHz AWGN SISO Ant1 NTN



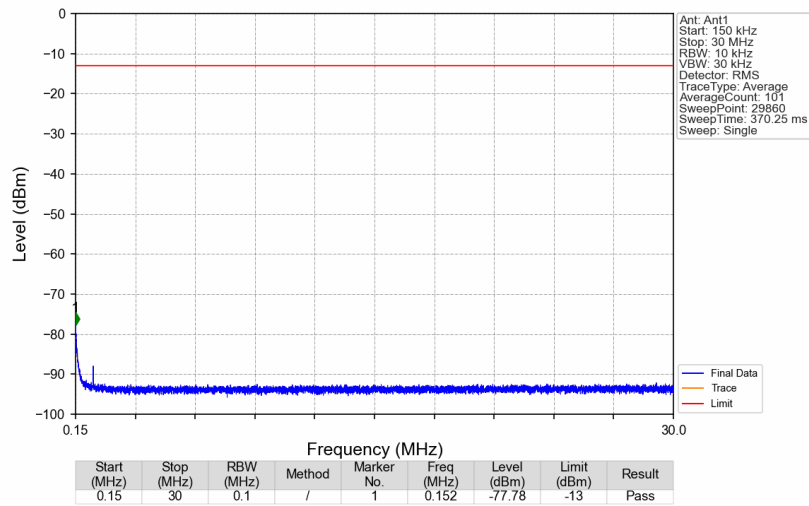
Band13 753.5MHz AWGN SISO Ant1 NTN



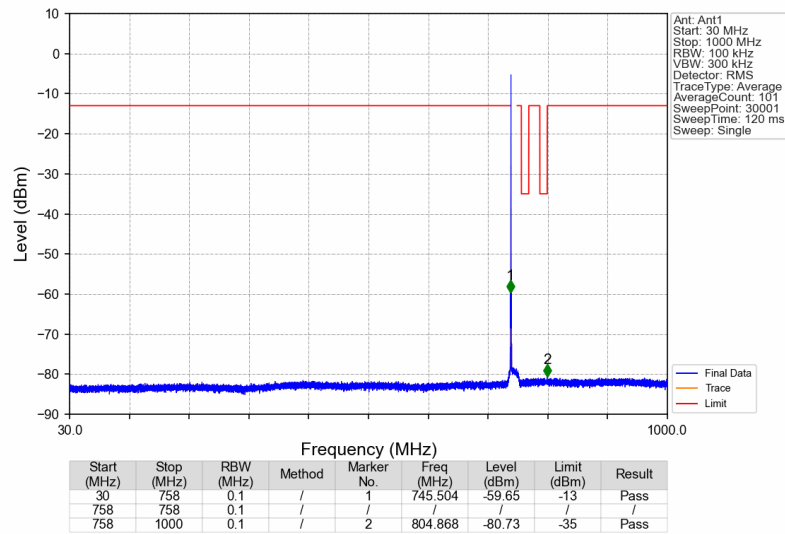
Band13 746.1MHz GMSK SISO Ant1 NTN



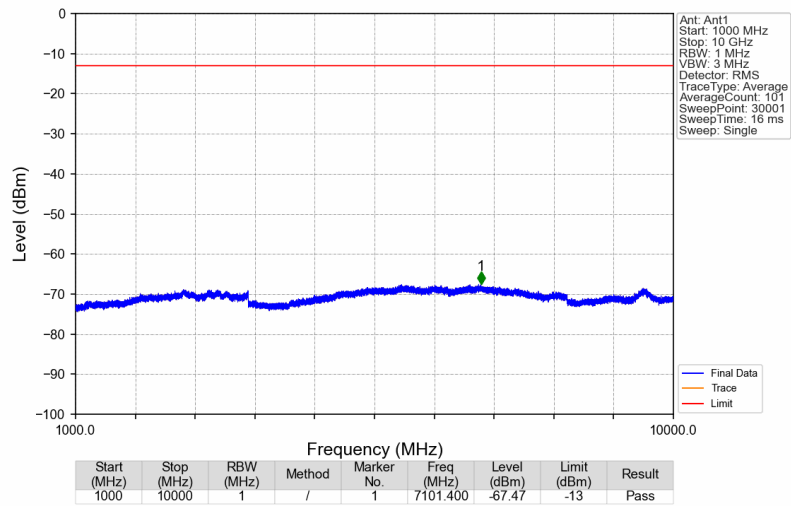
Band13 746.1MHz GMSK SISO Ant1 NTN



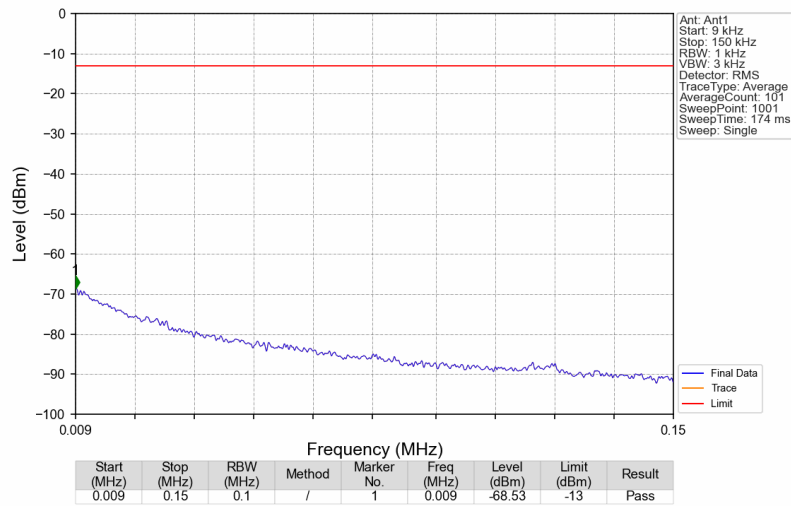
Band13 746.1MHz GMSK SISO Ant1 NTN



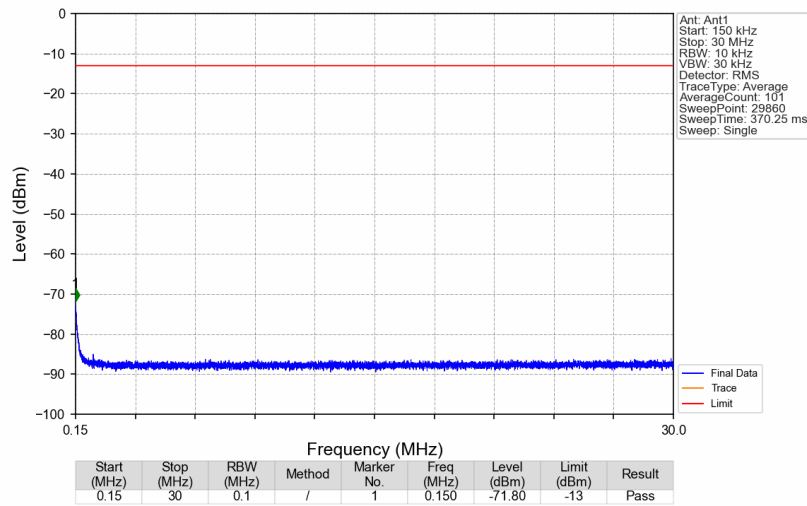
Band13 746.1MHz GMSK SISO Ant1 NTN



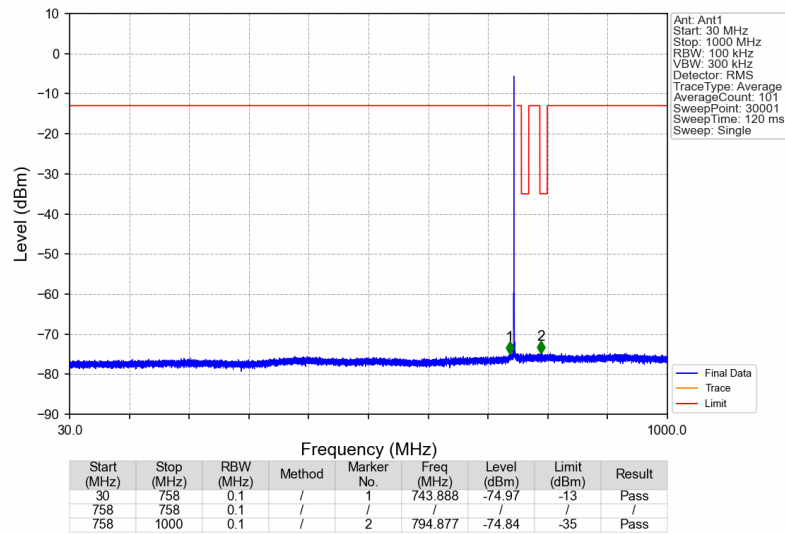
Band13 751MHz_GMSK_SISO_Ant1_NTNV



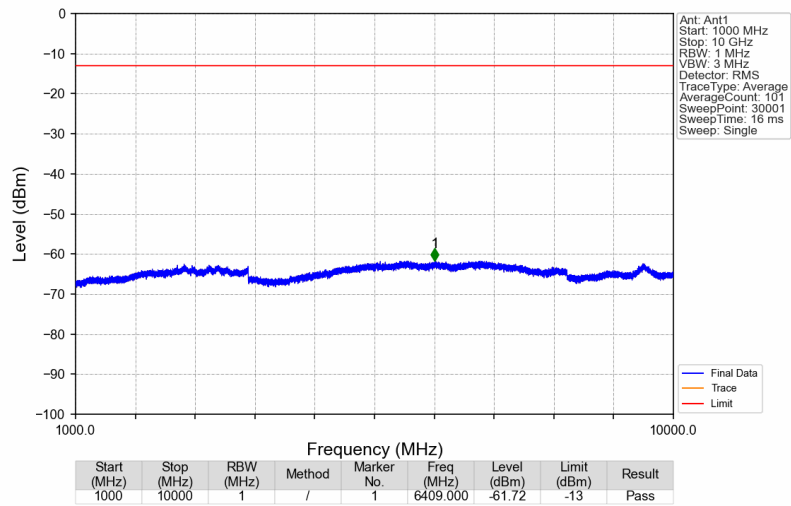
Band13 751MHz_GMSK_SISO_Ant1_NTNV



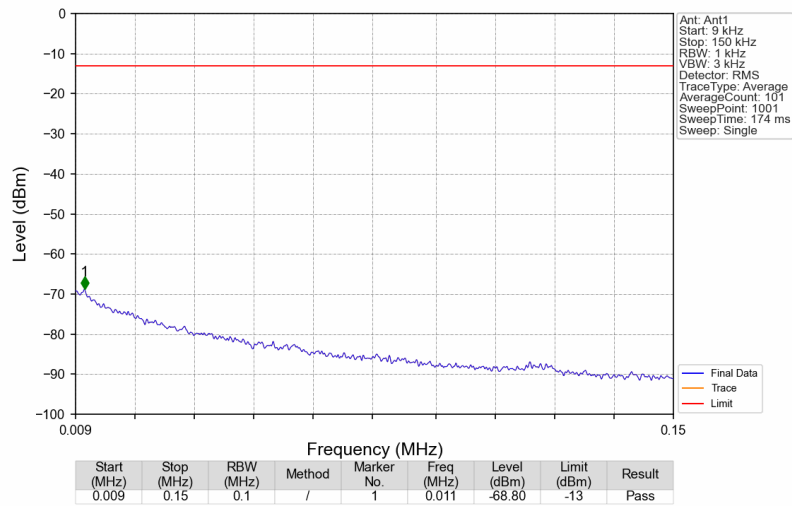
Band13 751MHz_GMSK_SISO_Ant1_NTNV



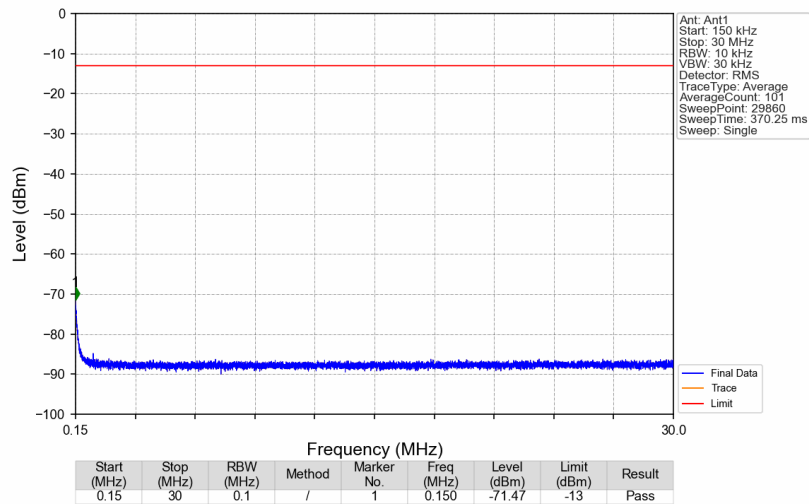
Band13 751MHz_GMSK_SISO_Ant1_NTNV



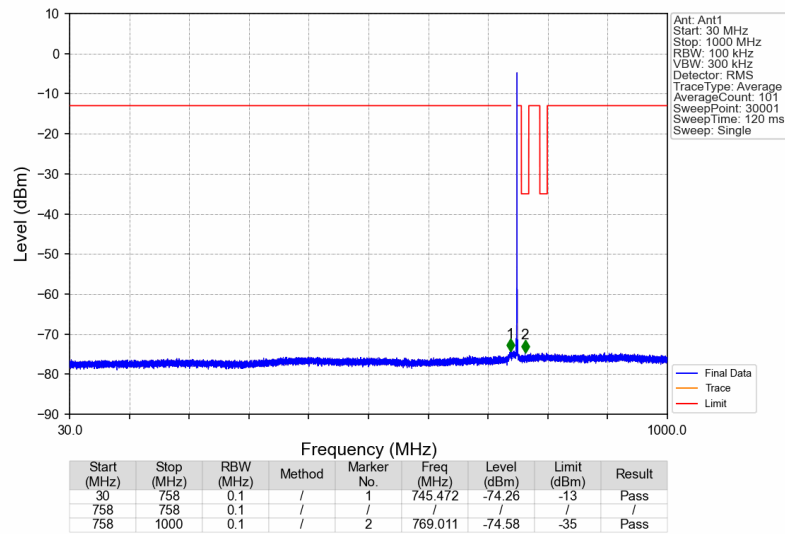
Band13_755.9MHz_GMSK_SISO_Ant1_NTNV



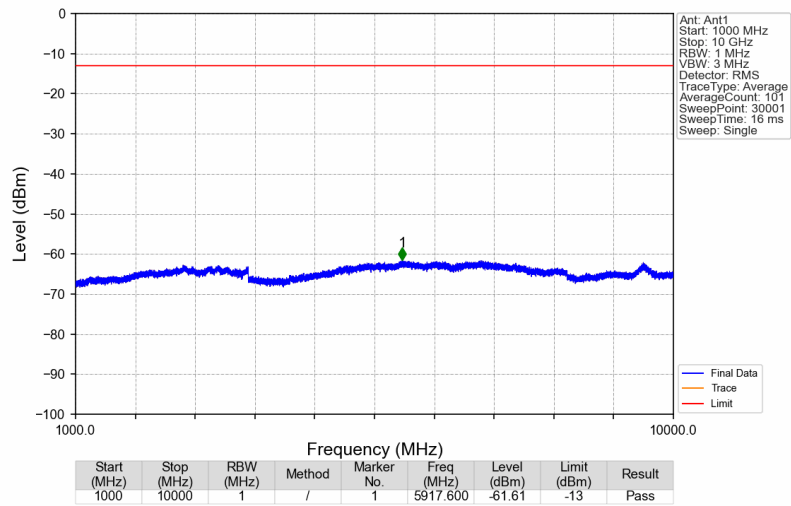
Band13_755.9MHz_GMSK_SISO_Ant1_NTNV



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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