

Appendix B for KSCR2307001146AT-B12

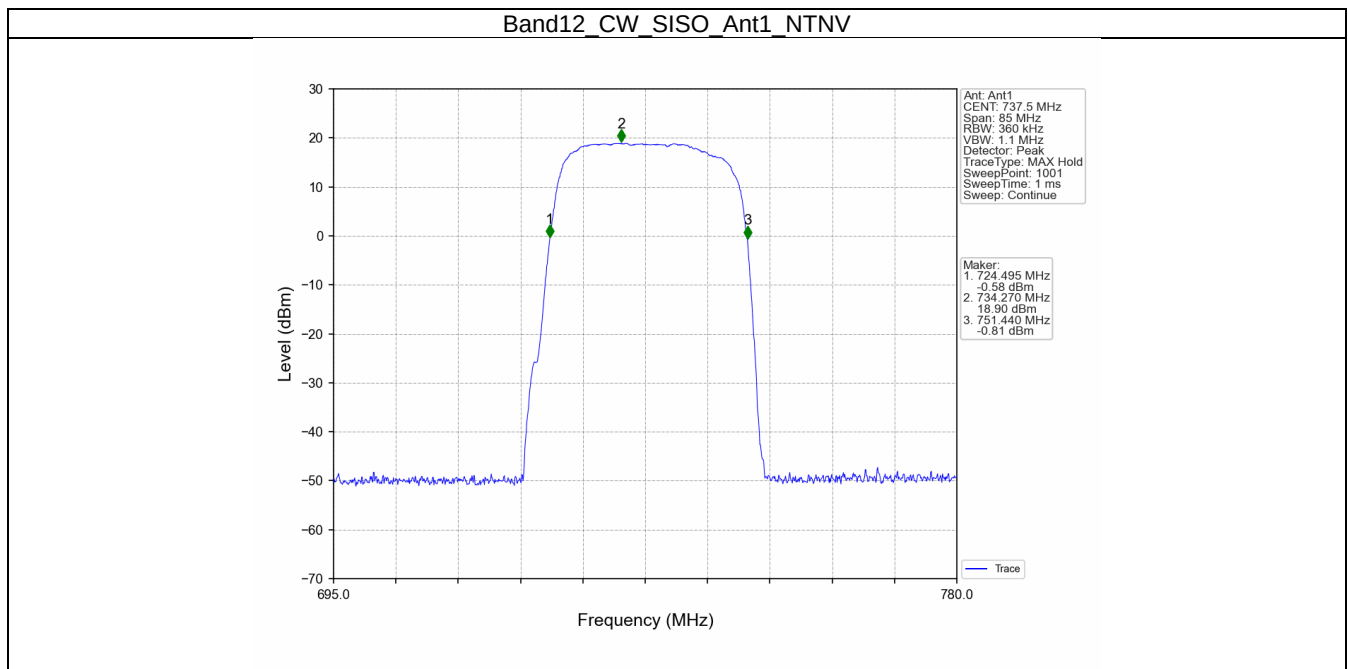
1. Out of band rejection

1.1 Band12

1.1.1 Test Result

Band: 12 / NTN							
Signal	Sweep Frequency Range (MHz)	TX Type	ANT	F0 (MHz)	FL (MHz)	FH (MHz)	Verdict
CW	695 - 780	SISO	1	734.270	724.495	751.440	Pass

1.1.2 Test Graph



2. AGC threshold

2.1 Band12

2.1.1 Test Result

Band: 12 / NTNV					
Signal	Frequency (MHz)	TX Type	ANT	AGC Threshold (dBm)	Verdict
AWGN	734.27	SISO	1	-5.50	Pass
GMSK	734.27	SISO	1	-5.50	Pass

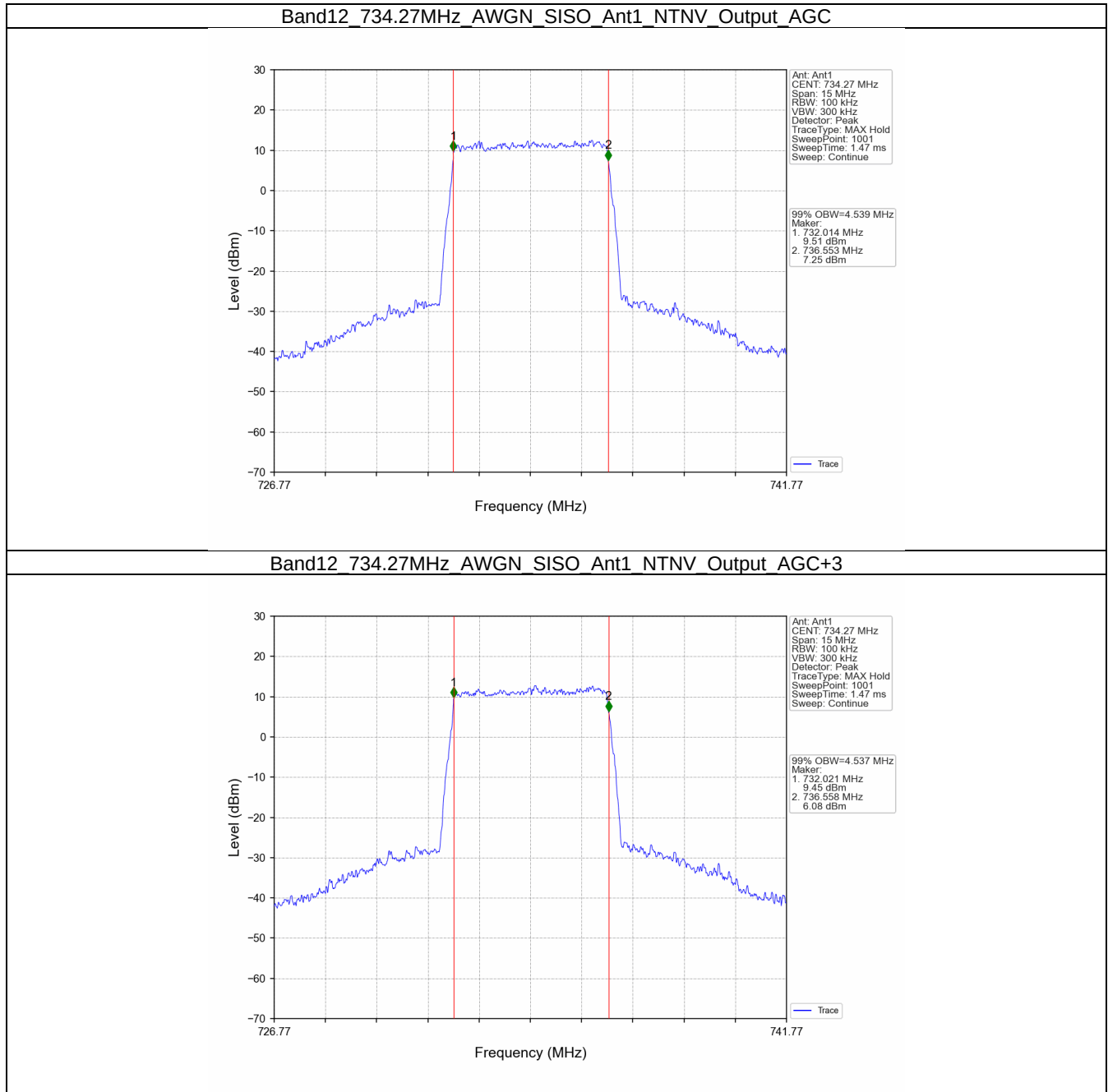
3. Input-versus-output signal comparison

3.1 Band12_OBW

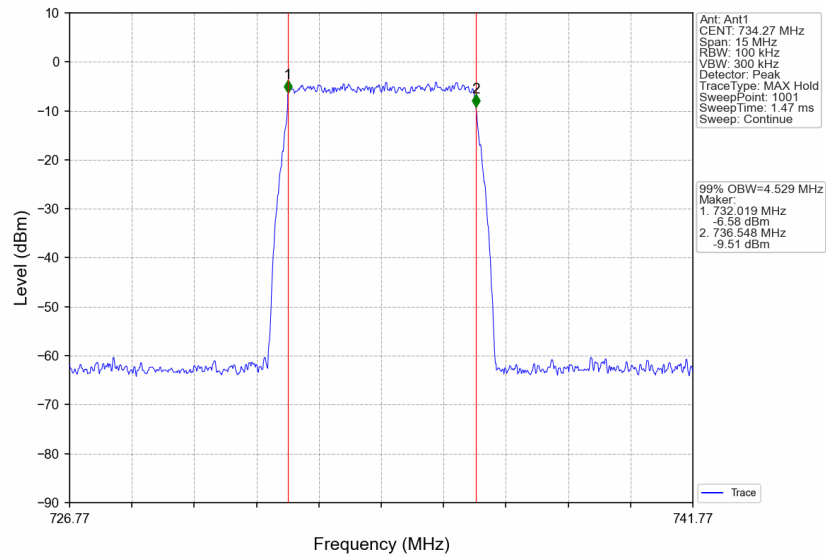
3.1.1 Test Result

Band: 12 / NTNV									
Signal			TX Type	ANT	99% OBW (MHz)		Discrepancy (%)	Limit (%)	Verdict
Type	Level (dBm)	Frequency (MHz)			Output	Input			
AWGN	-5.5	734.27	SISO	1	4.539	4.529	0.2208	5	Pass
	-2.5	734.27	SISO	1	4.537	4.525	0.2652	5	Pass
GMSK	-5.5	734.27	SISO	1	0.244	0.244	0.0000	5	Pass
	-2.5	734.27	SISO	1	0.244	0.244	0.0000	5	Pass

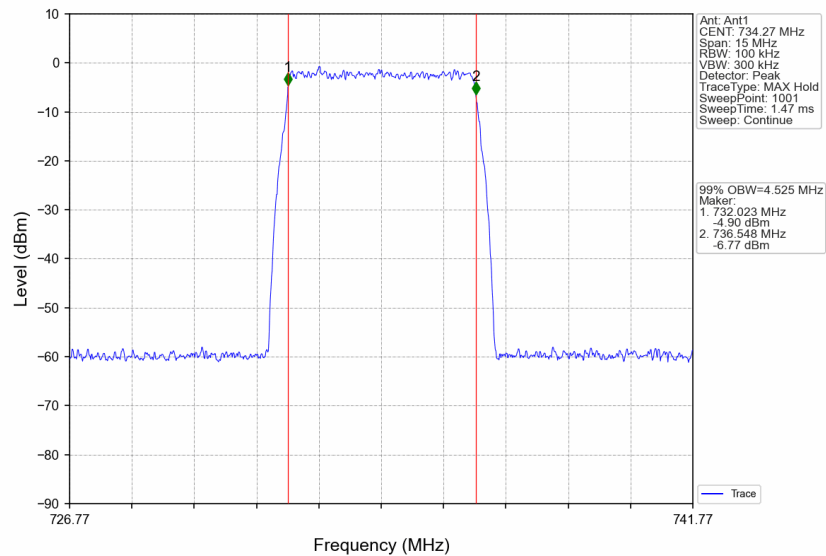
3.1.2 Test Graph



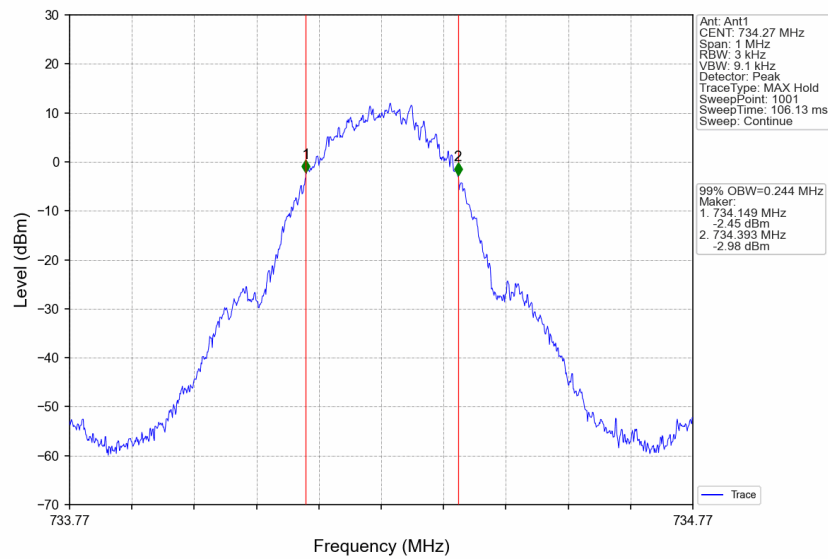
Band12_734.27MHz_AWGN_SISO_Ant1_NTNV_Input_AGC



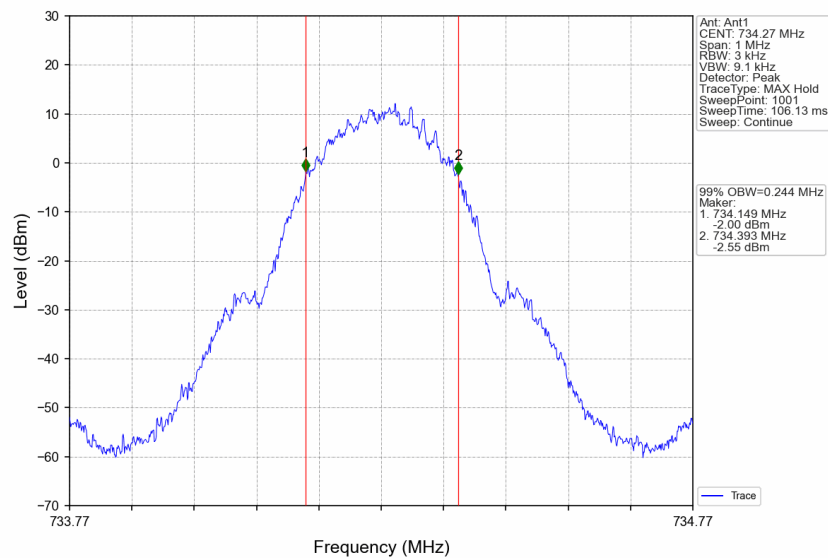
Band12_734.27MHz_AWGN_SISO_Ant1_NTNV_Input_AGC+3



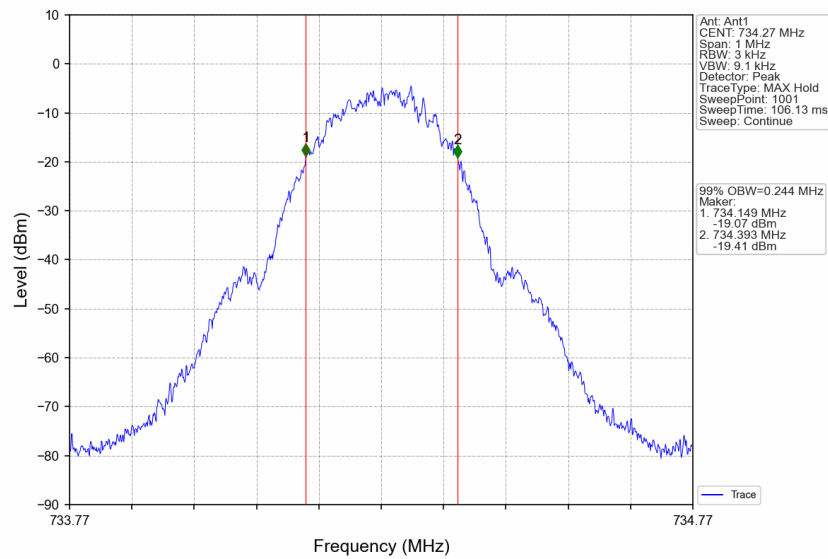
Band12_734.27MHz_GMSK_SISO_Ant1_NTNV_Output_AGC



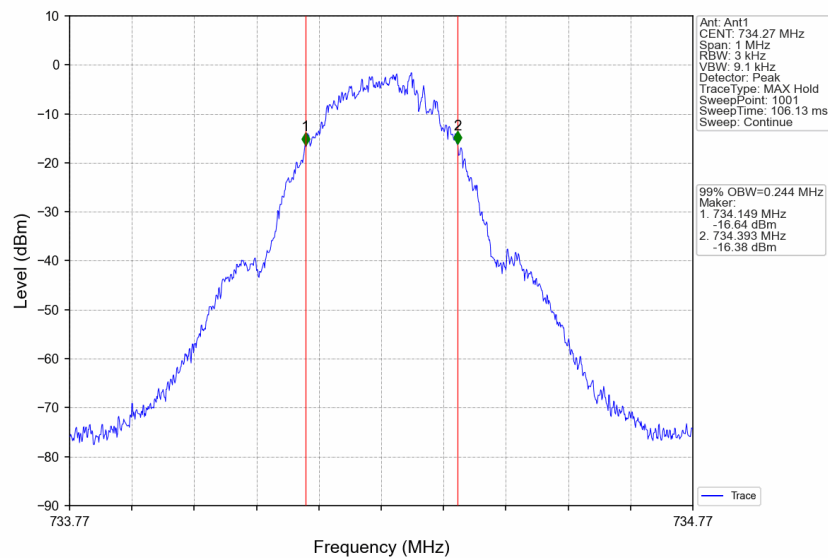
Band12_734.27MHz_GMSK_SISO_Ant1_NTNV_Output_AGC+3



Band12_734.27MHz_GMSK_SISO_Ant1_NTNV_Input_AGC



Band12_734.27MHz_GMSK_SISO_Ant1_NTNV_Input_AGC+3

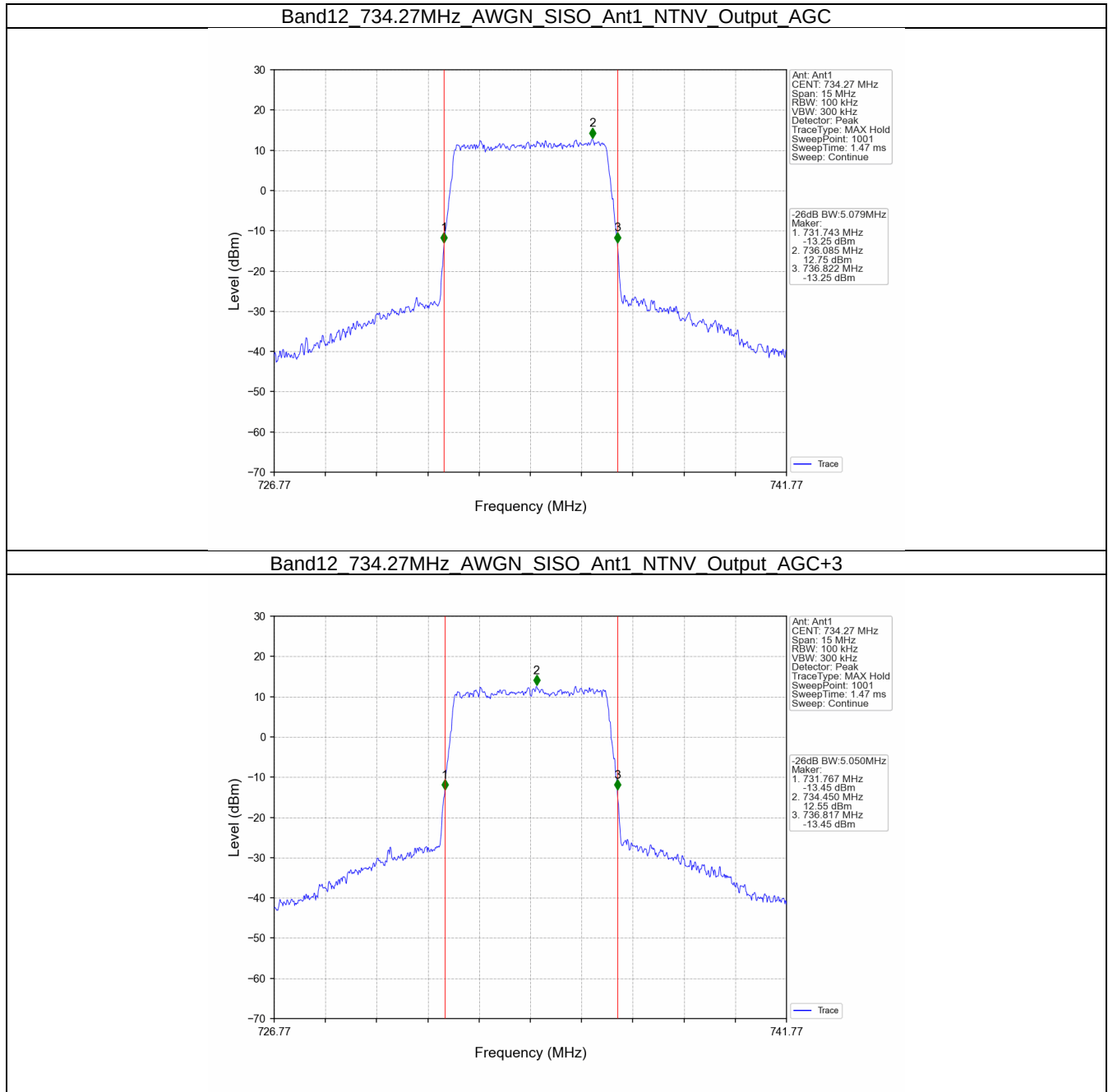


3.2 Band12_EBW

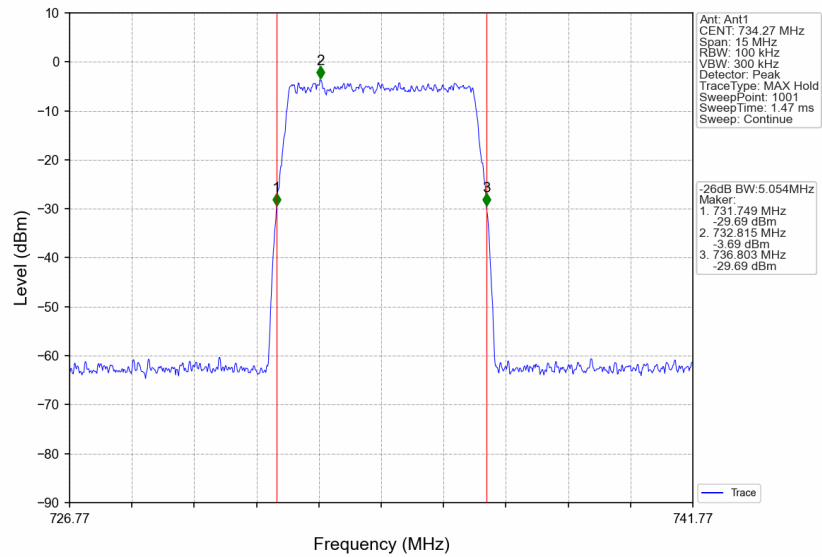
3.2.1 Test Result

Band: 12 / NTNV									
Signal			TX Type	ANT	26dB EBW (MHz)		Discrepancy (%)	Limit (%)	Verdict
Type	Level (dBm)	Frequency (MHz)			Output	Input			
AWGN	-5.5	734.27	SISO	1	5.079	5.054	0.4947	5	Pass
	-2.5	734.27	SISO	1	5.050	5.063	-0.2570	5	Pass
GMSK	-5.5	734.27	SISO	1	0.315	0.316	-0.3160	5	Pass
	-2.5	734.27	SISO	1	0.313	0.314	-0.3180	5	Pass

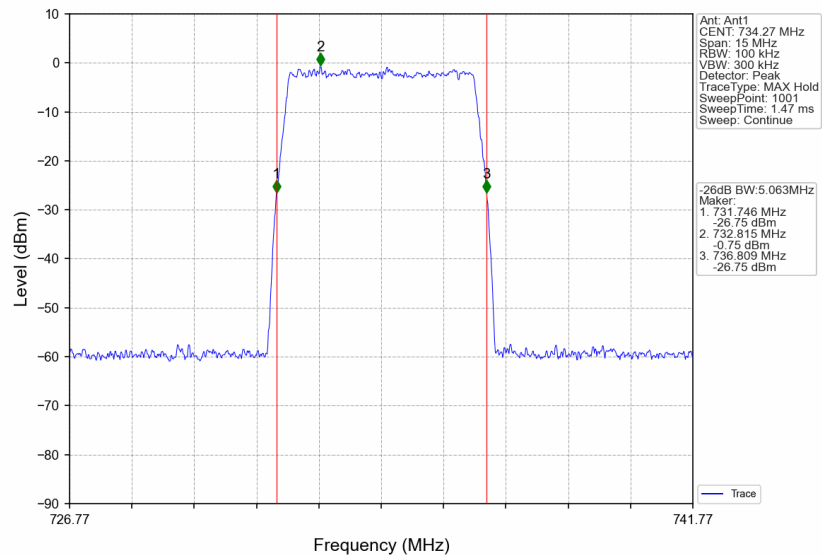
3.2.2 Test Graph



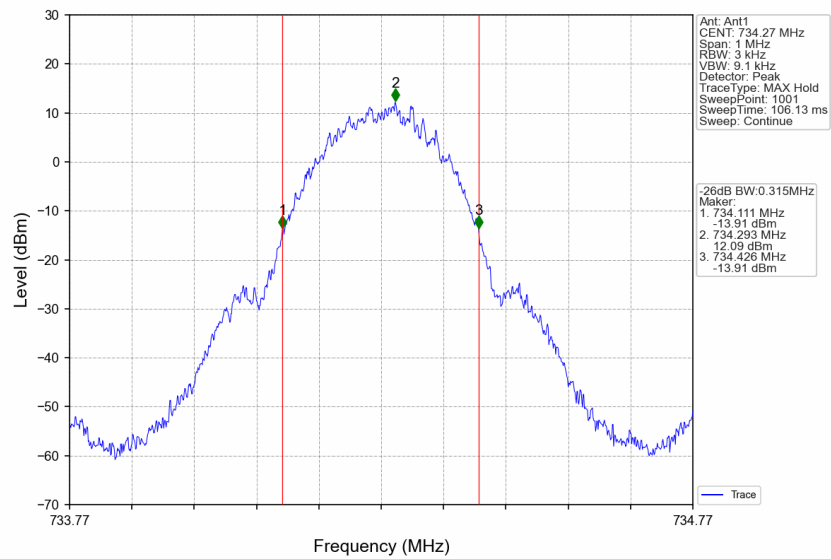
Band12_734.27MHz_AWGN_SISO_Ant1_NTNV_Input_AGC



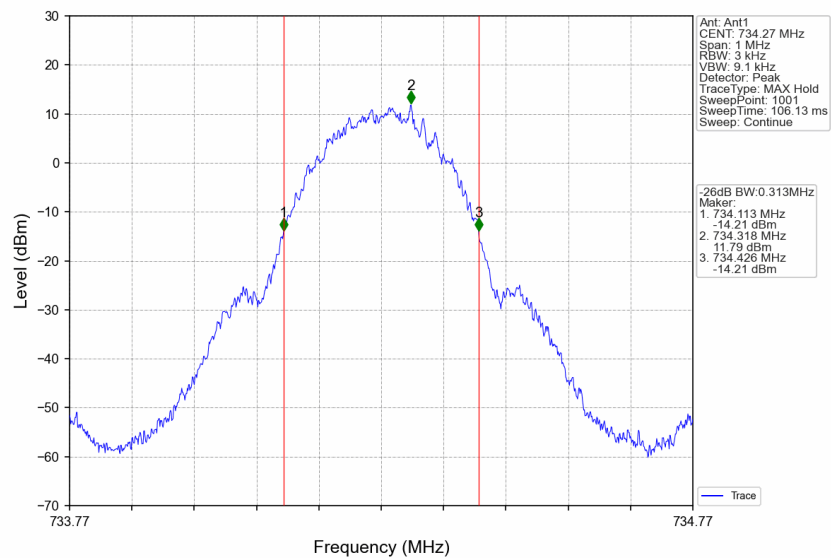
Band12_734.27MHz_AWGN_SISO_Ant1_NTNV_Input_AGC+3



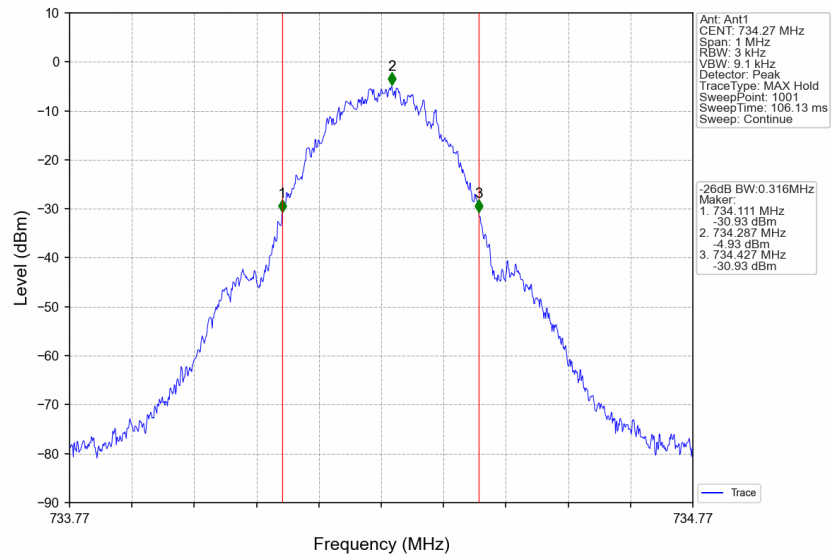
Band12_734.27MHz_GMSK_SISO_Ant1_NTNV_Output_AGC



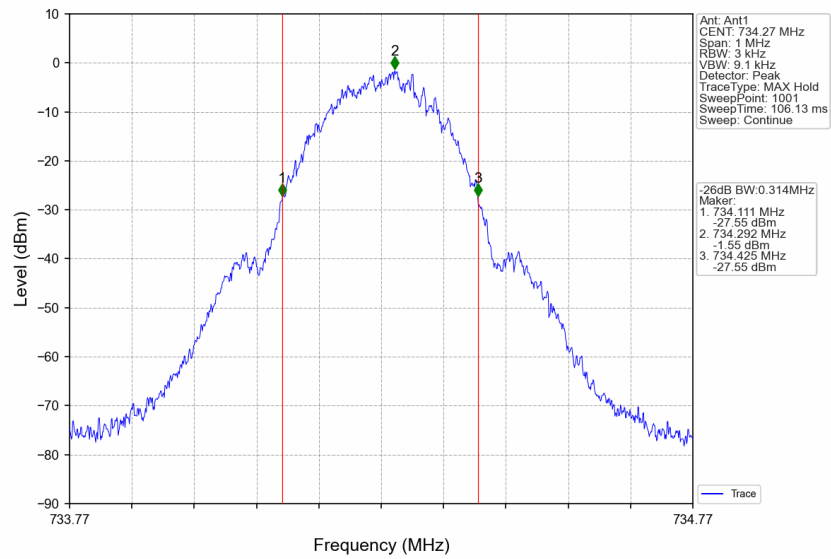
Band12_734.27MHz_GMSK_SISO_Ant1_NTNV_Output_AGC+3



Band12_734.27MHz_GMSK_SISO_Ant1_NTNV_Input_AGC



Band12_734.27MHz_GMSK_SISO_Ant1_NTNV_Input_AGC+3



4. Input/output power and amplifier/booster gain

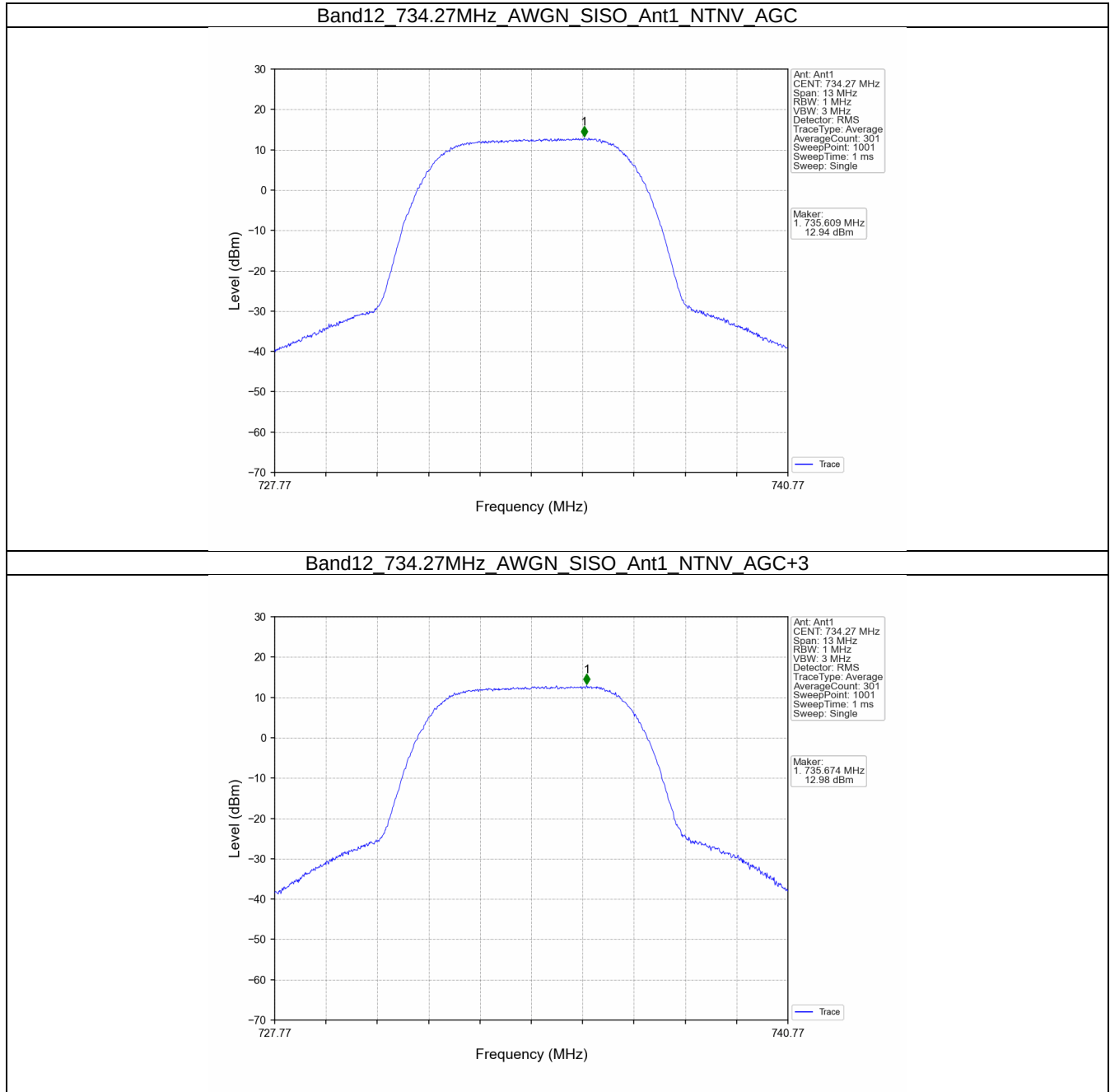
4.1 Band12_ERP

4.1.1 Test Result

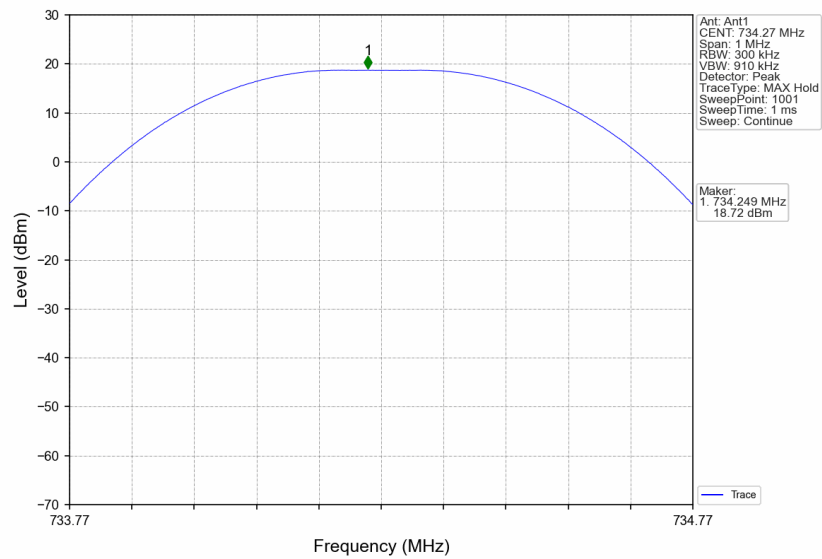
Band: 12 / NTNV										
Signal			TX Type	ANT	Conducted Power (dBm/MHz)		ERP (dBm/MHz)		Booster Gain (dB)	Verdict
Type	Level (dBm)	Frequency (MHz)			Output	Input	Result	Limit		
AWGN	-5.5	734.27	SISO	1	12.94	-11.89	13.85	<=60	24.83	Pass
	-2.5	734.27	SISO	1	12.98	-8.74	13.89	<=60	/	Pass
GMSK	-5.5	734.27	SISO	1	18.72	-5.93	19.63	<=60	24.65	Pass
	-2.5	734.27	SISO	1	18.78	-2.11	19.69	<=60	/	Pass

728MHz-746MHz / NTNV							
Operation Band	Frequency (MHz)	Signal Type	Signal Level	Input Power (dBm)	Total Output Power (dBm)	ERP (dBm)	Gain (dB)
728MHz-746MHz	734.27	AWGN	Pre-AGC	-5.5	18.45	19.36	/
			3dB Above AGC	-2.5	18.49	19.40	/
	734.27	GMSK	Pre-AGC	-5.5	18.57	19.48	/
			3dB Above AGC	-2.5	18.63	19.54	/

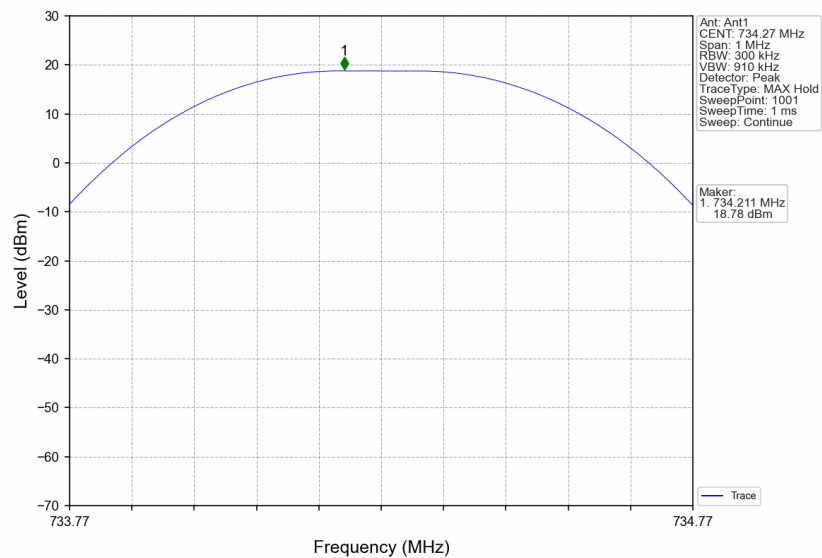
4.1.2 Test Graph



Band12 734.27MHz GMSK SISO Ant1 NTN AGC



Band12 734.27MHz GMSK SISO Ant1 NTN AGC+3

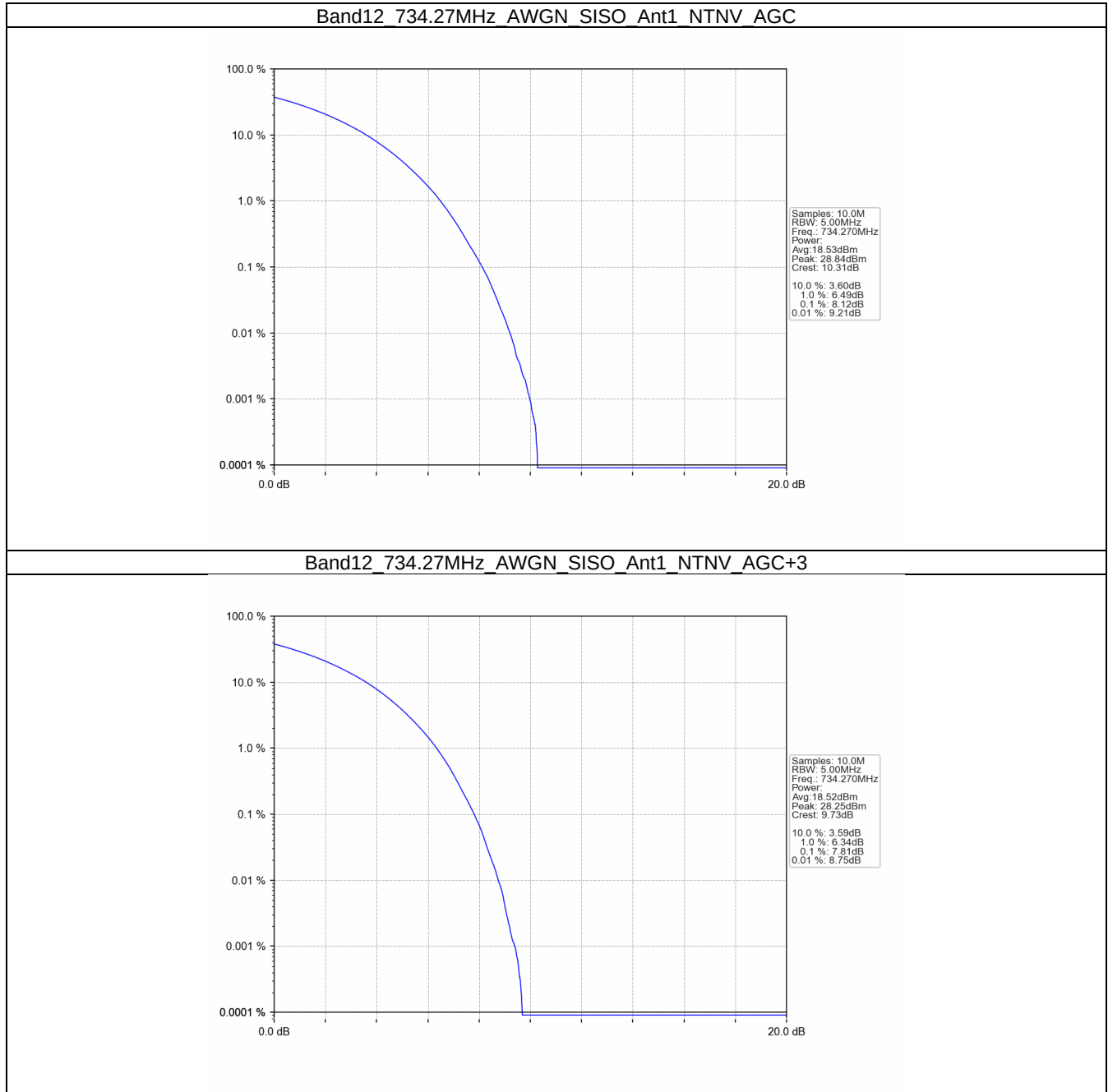


4.2 Band12_PAPR

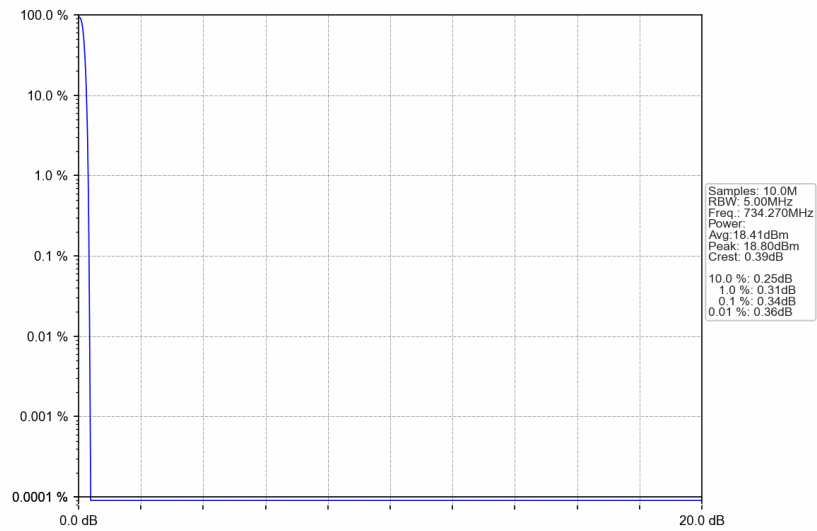
4.2.1 Test Result

Band: 12 / NTNV							
Signal			TX Type	ANT	PAPR (dB)		Verdict
Type	Level (dBm)	Frequency (MHz)			Result	Limit	
AWGN	-5.5	734.27	SISO	1	8.12	<=13	Pass
	-2.5	734.27	SISO	1	7.81	<=13	Pass
GMSK	-5.5	734.27	SISO	1	0.34	<=13	Pass
	-2.5	734.27	SISO	1	0.37	<=13	Pass

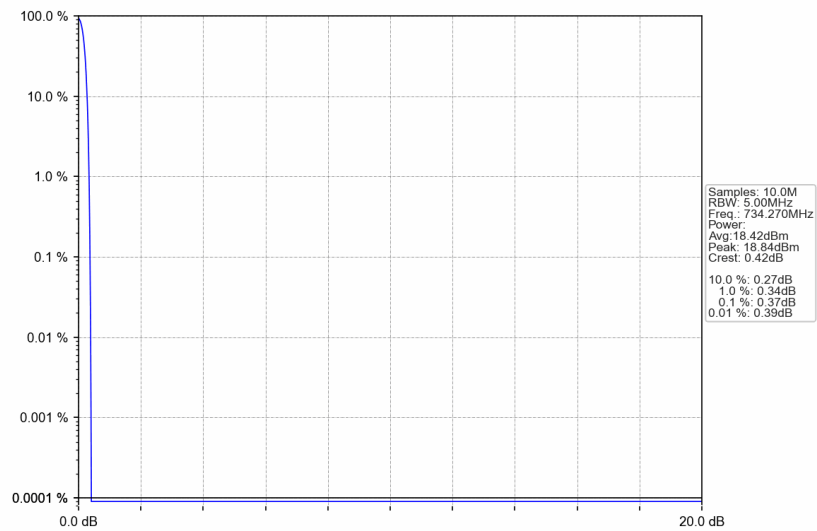
4.2.2 Test Graph



Band12 734.27MHz GMSK SISO Ant1 NTN AGC



Band12 734.27MHz GMSK SISO Ant1 NTN AGC+3



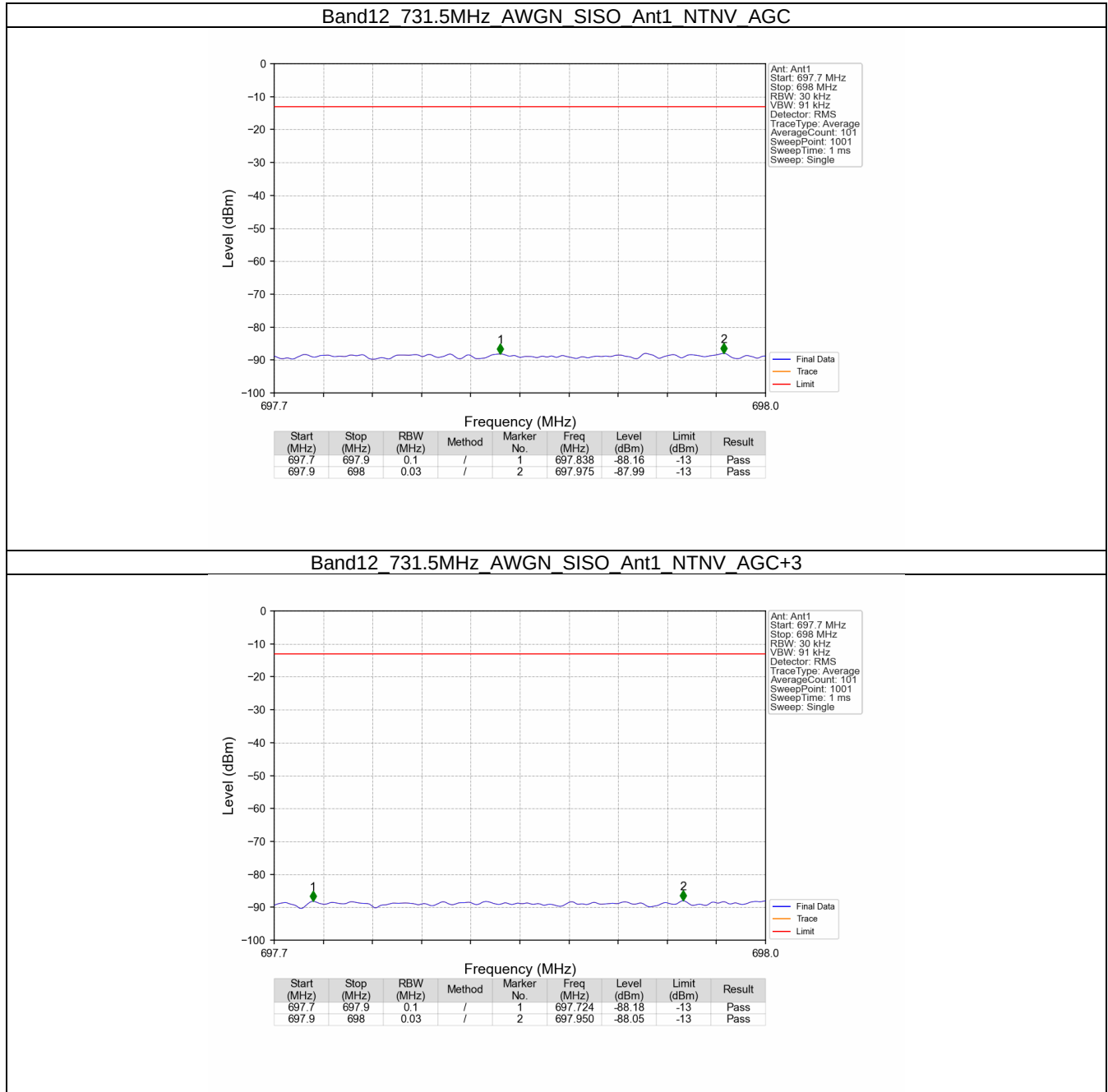
5. Out-of-band/out-of-block (including intermodulation) emissions

5.1 Band12

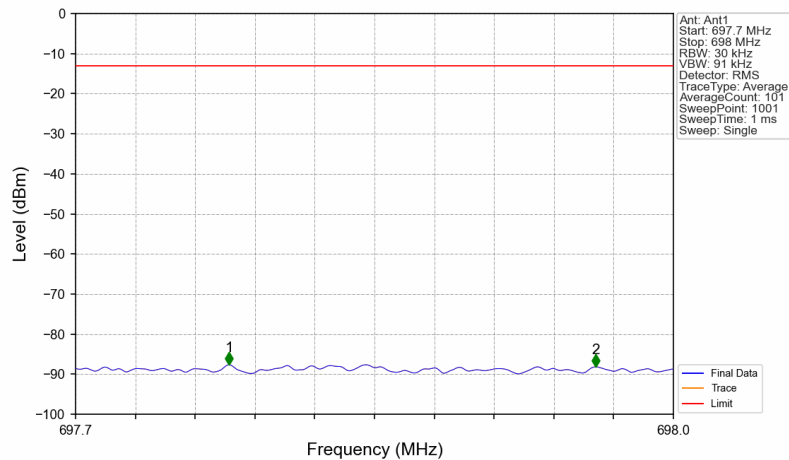
5.1.1 Test Result

Band: 12 / NTNV									
Signal				Channel	TX Type	ANT	OOB (dBm)		Verdict
Input	Type	Level (dBm)	Frequency (MHz)				Result	Limit	
Two	AWGN	-5.5	731.5	LCH	SISO	1	-87.99	Refer To Test Graph	Pass
		-2.5	731.5	LCH	SISO	1	-88.05	Refer To Test Graph	Pass
One	AWGN	-5.5	731.5	LCH	SISO	1	-87.66	Refer To Test Graph	Pass
		-2.5	731.5	LCH	SISO	1	-88.10	Refer To Test Graph	Pass
Two	AWGN	-5.5	743.5	HCH	SISO	1	-87.76	Refer To Test Graph	Pass
		-2.5	743.5	HCH	SISO	1	-87.75	Refer To Test Graph	Pass
One	AWGN	-5.5	743.5	HCH	SISO	1	-87.52	Refer To Test Graph	Pass
		-2.5	743.5	HCH	SISO	1	-87.50	Refer To Test Graph	Pass
Two	GMSK	-5.5	729.1	LCH	SISO	1	-87.58	Refer To Test Graph	Pass
		-2.5	729.1	LCH	SISO	1	-87.76	Refer To Test Graph	Pass
One	GMSK	-5.5	729.1	LCH	SISO	1	-87.83	Refer To Test Graph	Pass
		-2.5	729.1	LCH	SISO	1	-87.78	Refer To Test Graph	Pass
Two	GMSK	-5.5	745.9	HCH	SISO	1	-87.69	Refer To Test Graph	Pass
		-2.5	745.9	HCH	SISO	1	-87.74	Refer To Test Graph	Pass
One	GMSK	-5.5	745.9	HCH	SISO	1	-87.51	Refer To Test Graph	Pass
		-2.5	745.9	HCH	SISO	1	-87.81	Refer To Test Graph	Pass

5.1.2 Test Graph

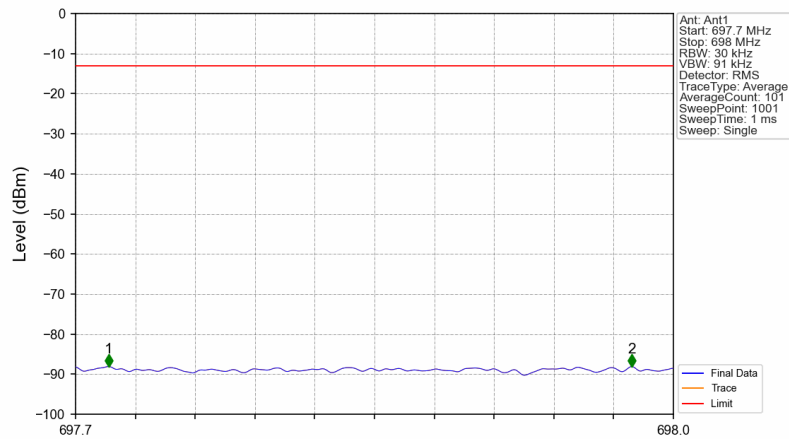


Band12 731.5MHz AWGN SISO Ant1 NTN AGC



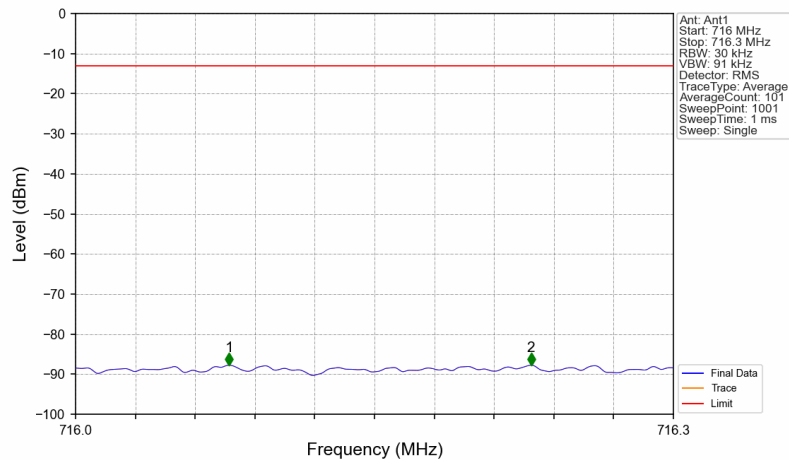
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
697.7	697.9	0.1	/	1	697.777	-87.66	-13	Pass
697.9	698	0.03	/	2	697.961	-88.18	-13	Pass

Band12 731.5MHz AWGN SISO Ant1 NTN AGC+3



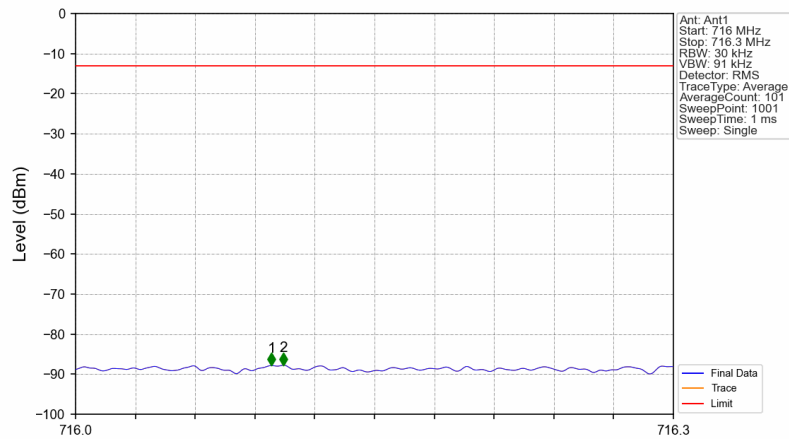
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
697.7	697.9	0.1	/	1	697.716	-88.10	-13	Pass
697.9	698	0.03	/	2	697.979	-88.11	-13	Pass

Band12 743.5MHz AWGN SISO Ant1 NTN AGC



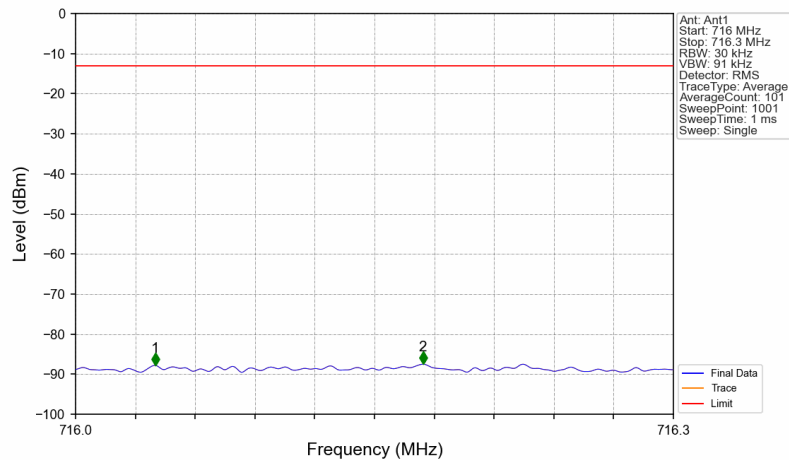
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
716	716.1	0.03	/	1	716.077	-87.77	-13	Pass
716.1	716.3	0.1	/	2	716.229	-87.76	-13	Pass

Band12 743.5MHz AWGN SISO Ant1 NTN AGC+3

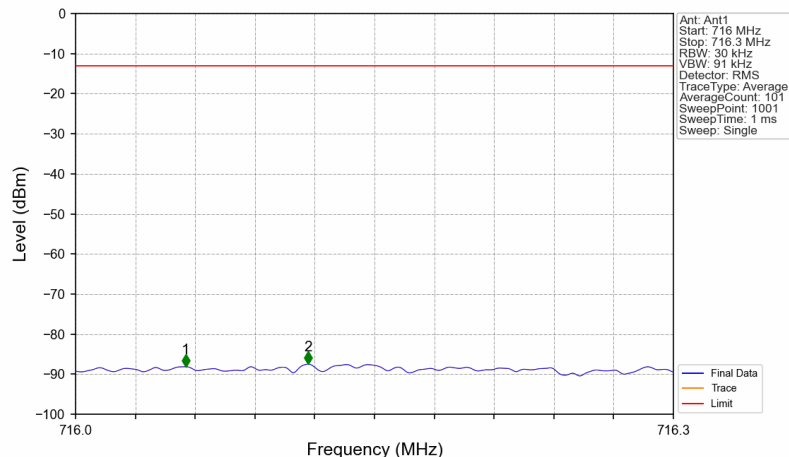


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
716	716.1	0.03	/	1	716.098	-87.86	-13	Pass
716.1	716.3	0.1	/	2	716.104	-87.75	-13	Pass

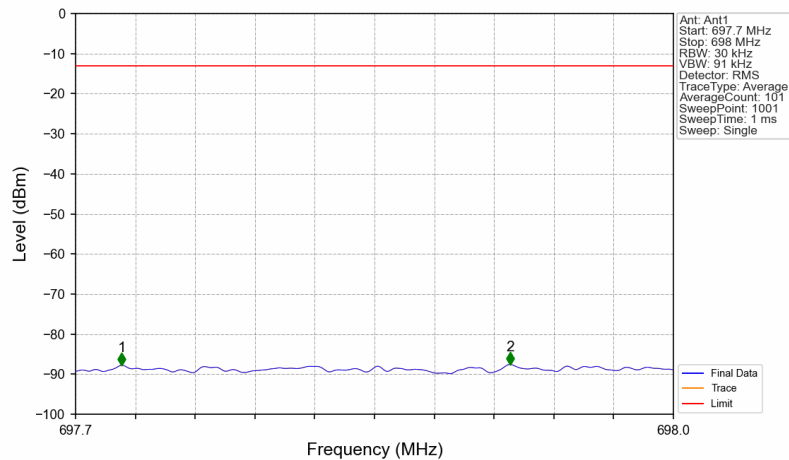
Band12 743.5MHz AWGN SISO Ant1 NTN AGC



Band12 743.5MHz AWGN SISO Ant1 NTN AGC+3

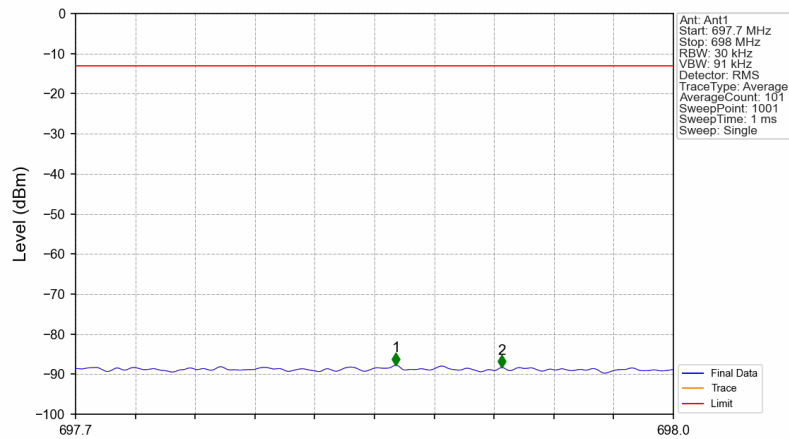


Band12 729.1MHz GMSK SISO Ant1 NTN AGC



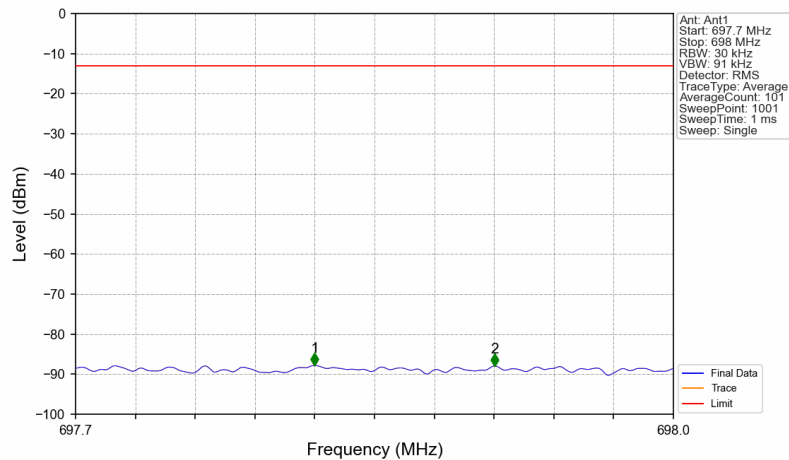
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
697.7	697.9	0.1	/	1	697.723	-87.77	-13	Pass
697.9	698	0.03	/	2	697.918	-87.58	-13	Pass

Band12_729.1MHz_GMSK_SISO_Ant1_NTNV_AGC+3



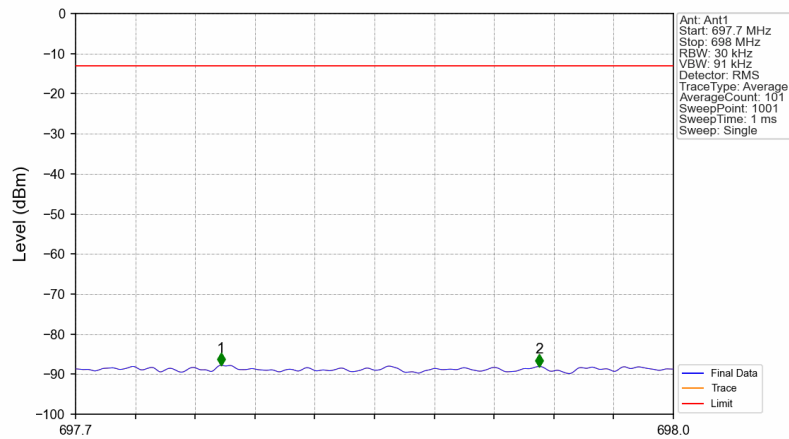
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
697.7	697.9	0.1	/	1	697.861	-87.76	-13	Pass
697.9	698	0.03	/	2	697.914	-88.34	-13	Pass

Band12 729.1MHz GMSK SISO Ant1 NTN AGC



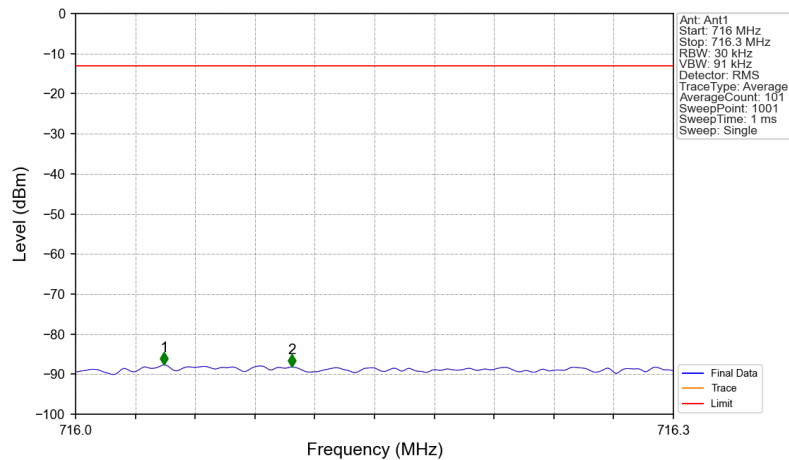
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
697.7	697.9	0.1	/	1	697.820	-87.83	-13	Pass
697.9	698	0.03	/	2	697.910	-87.96	-13	Pass

Band12_729.1MHz_GMSK_SISO_Ant1_NTNV_AGC+3



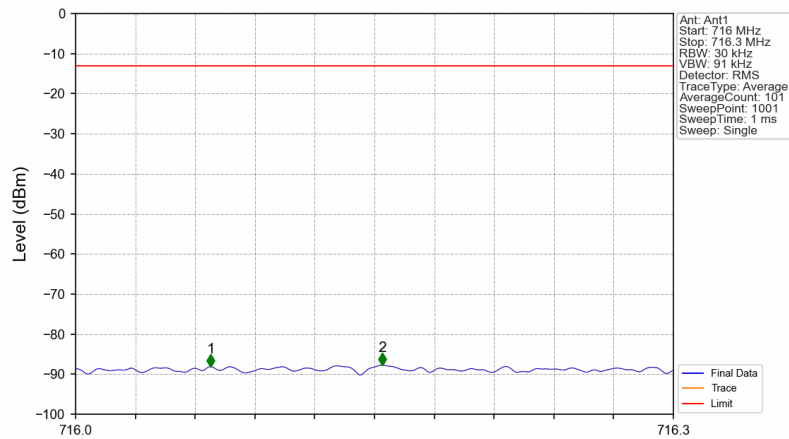
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
697.7	697.9	0.1	/	1	697.773	-87.78	-13	Pass
697.9	698	0.03	/	2	697.933	-88.09	-13	Pass

Band12 745.9MHz GMSK SISO Ant1 NTN AGC



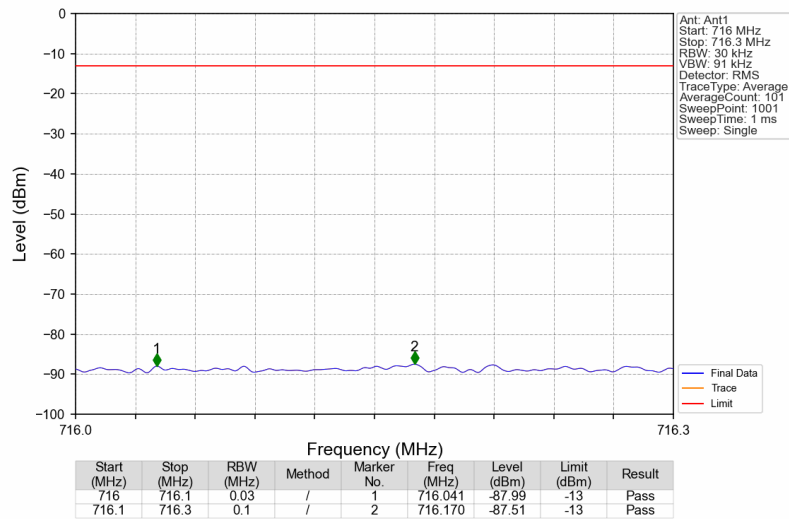
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
716	716.1	0.03	/	1	716.044	-87.69	-13	Pass
716.1	716.3	0.1	/	2	716.109	-88.22	-13	Pass

Band12 745.9MHz GMSK SISO Ant1 NTN AGC+3

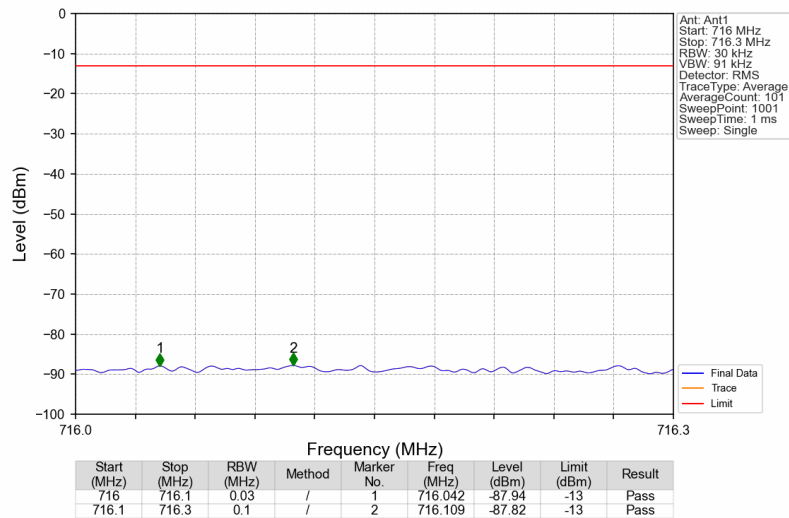


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
716	716.1	0.03	/	1	716.068	-88.09	-13	Pass
716.1	716.3	0.1	/	2	716.154	-87.74	-13	Pass

Band12 745.9MHz GMSK SISO Ant1 NTN AGC



Band12 745.9MHz GMSK SISO Ant1 NTN AGC+3



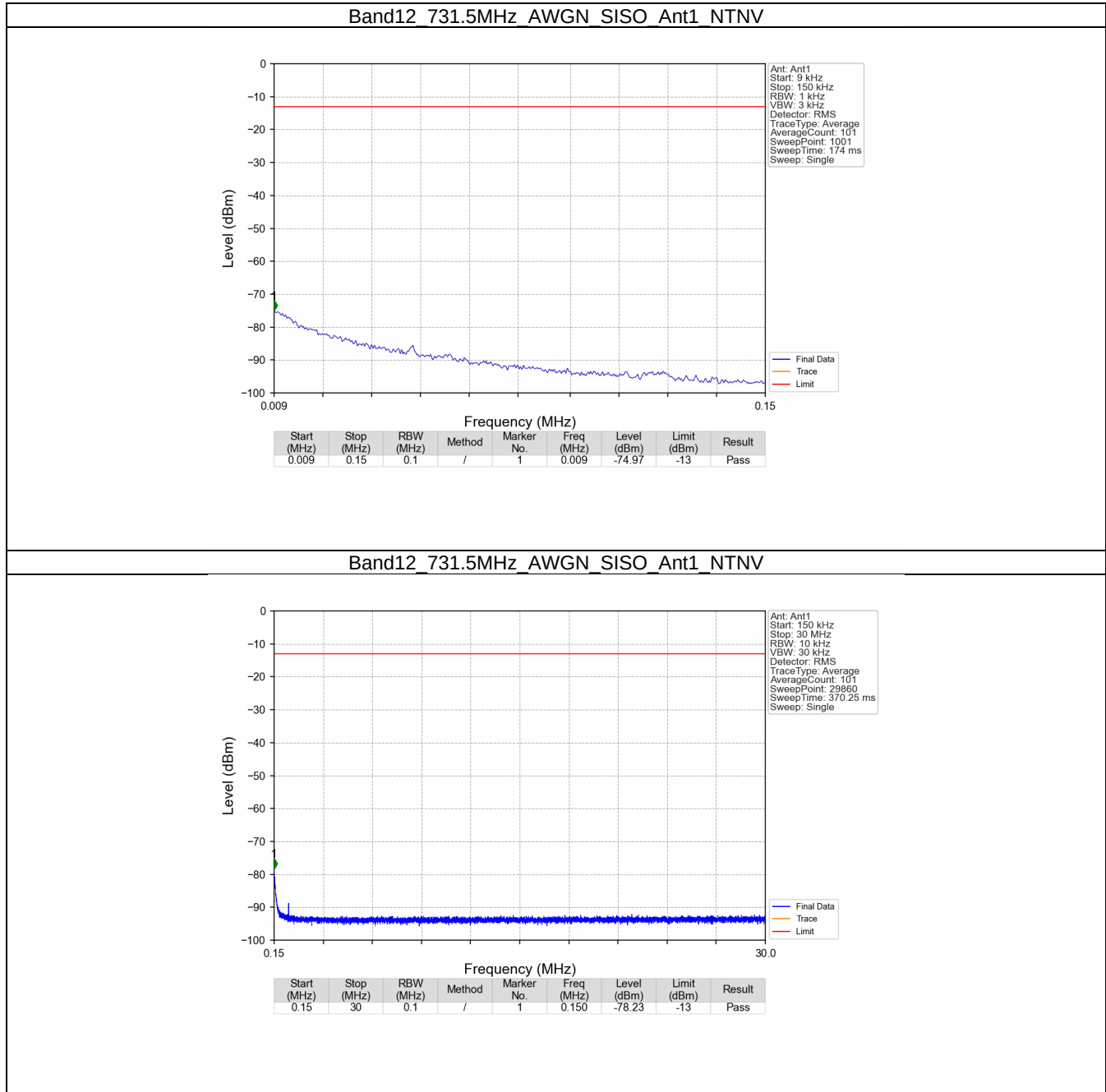
6. Spurious emissions

6.1 Band12

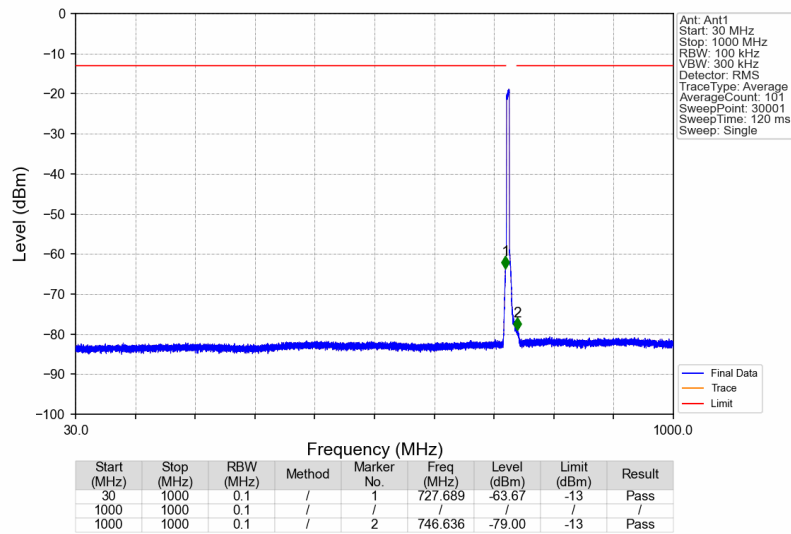
6.1.1 Test Result

Band: 12 / NTNV								
Signal			Channel	TX Type	ANT	SE (dBm)		Verdict
Type	Level (dBm)	Frequency (MHz)				Result	Limit	
AWGN	-5.5	731.5	LCH	SISO	1	Refer To Test Graph		Pass
		737.5	MCH	SISO	1	Refer To Test Graph		Pass
		743.5	HCH	SISO	1	Refer To Test Graph		Pass
GMSK	-5.5	729.1	LCH	SISO	1	Refer To Test Graph		Pass
		737.5	MCH	SISO	1	Refer To Test Graph		Pass
		745.9	HCH	SISO	1	Refer To Test Graph		Pass

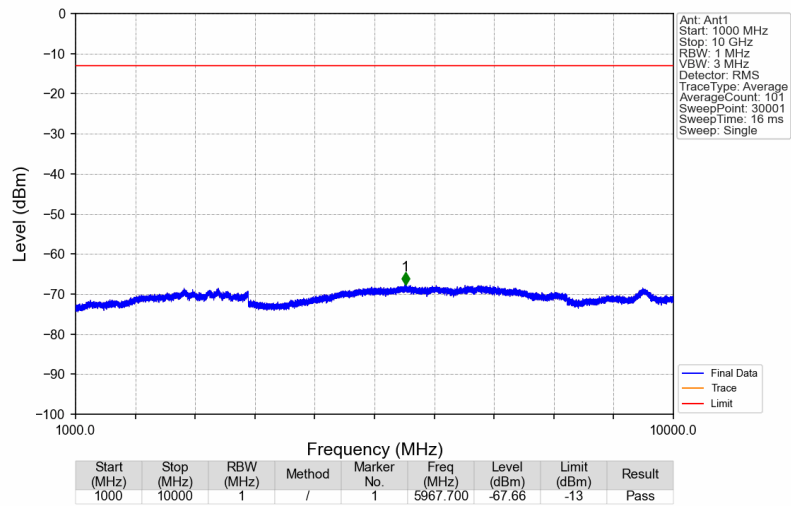
6.1.2 Test Graph



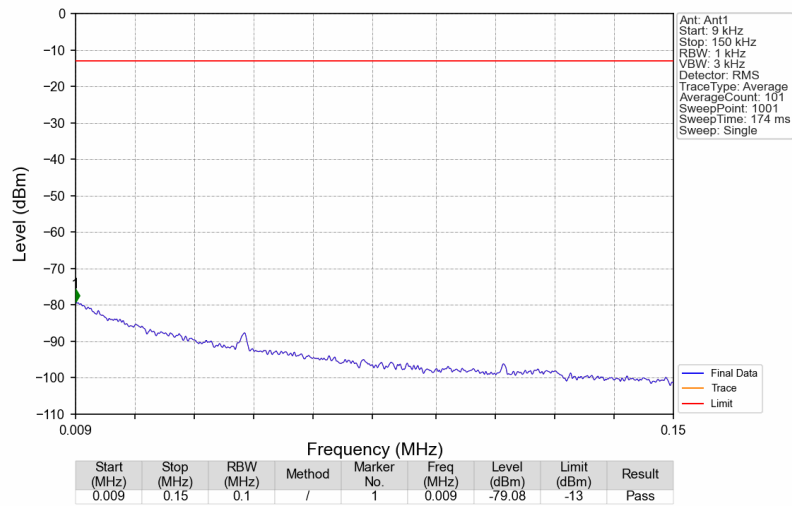
Band12 731.5MHz AWGN SISO Ant1 NTN



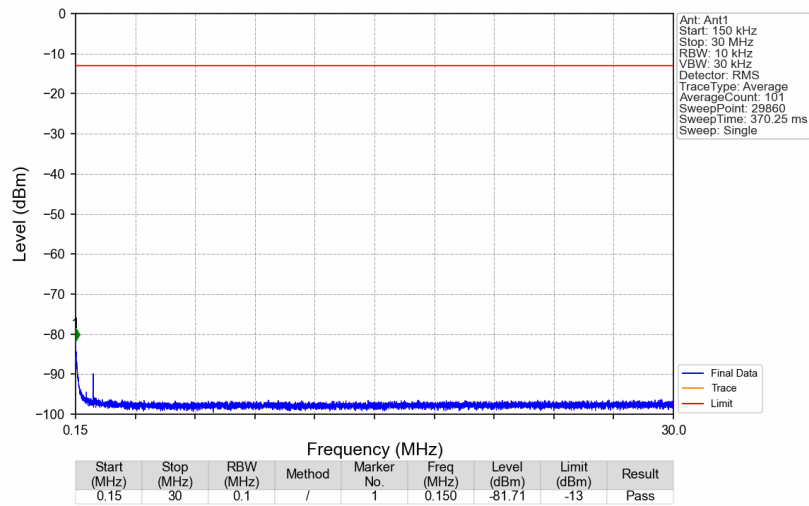
Band12_731.5MHz_AWGN_SISO_Ant1_NTN



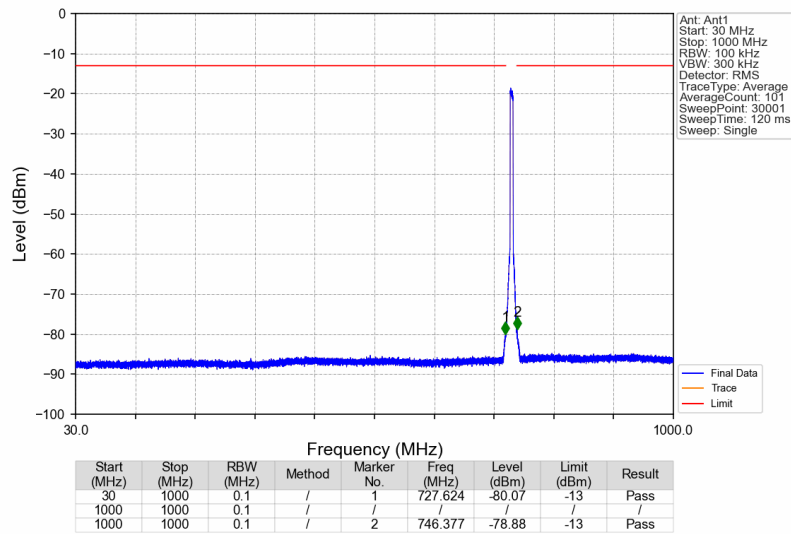
Band12 737.5MHz AWGN SISO Ant1 NTN



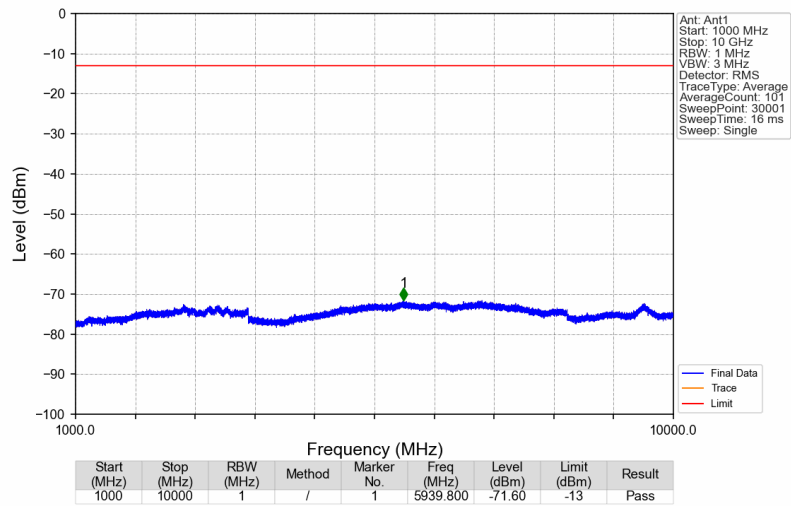
Band12_737.5MHz_AWGN_SISO_Ant1_NTN



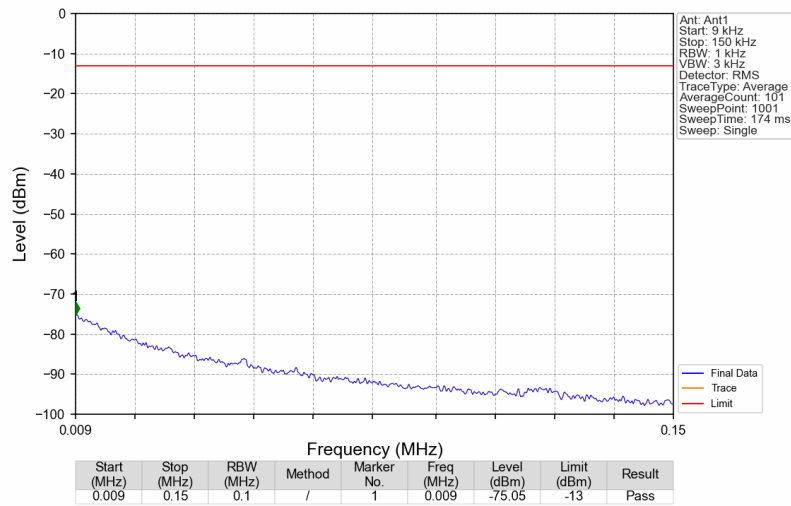
Band12 737.5MHz AWGN SISO Ant1 NTN



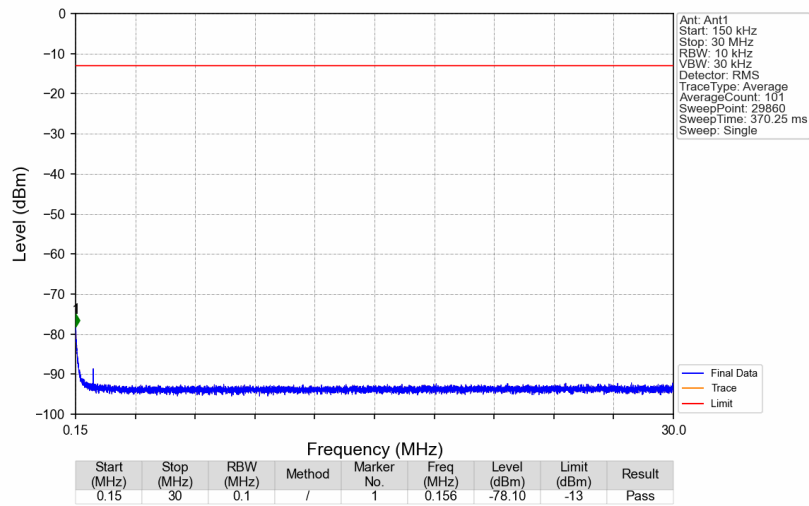
Band12_737.5MHz_AWGN_SISO_Ant1_NTN



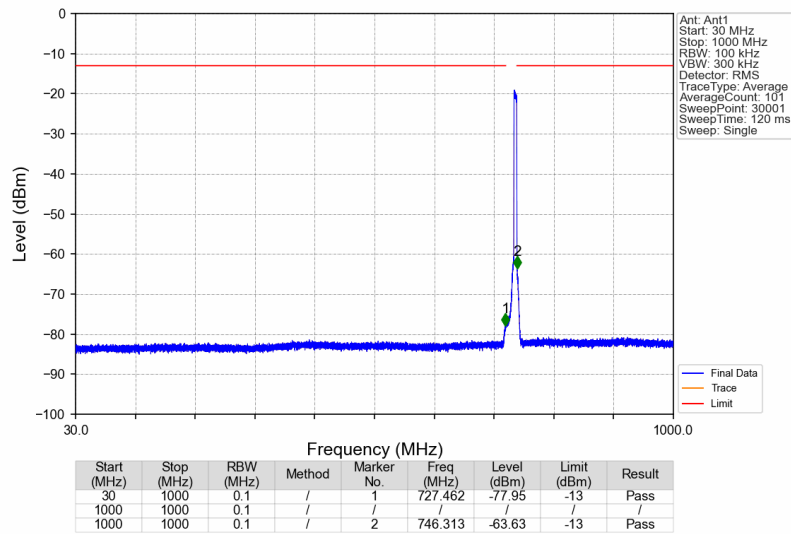
Band12 743.5MHz AWGN SISO Ant1 NTN



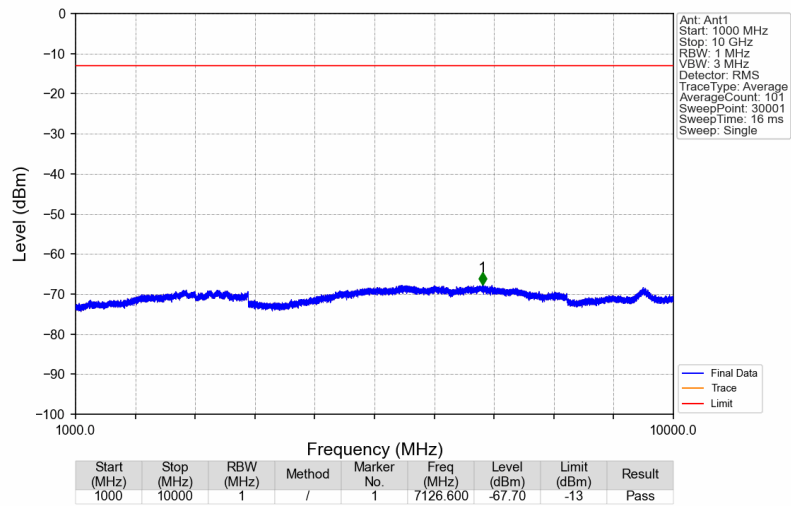
Band12_743.5MHz_AWGN_SISO_Ant1_NTN



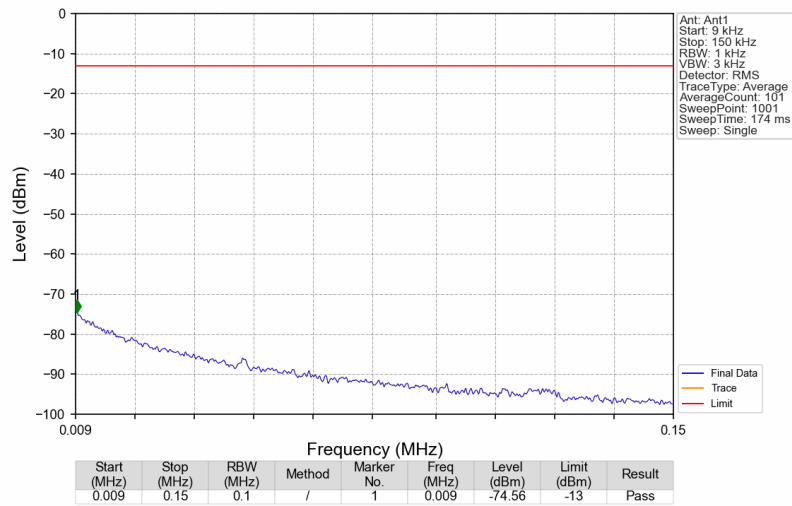
Band12 743.5MHz AWGN SISO Ant1 NTN



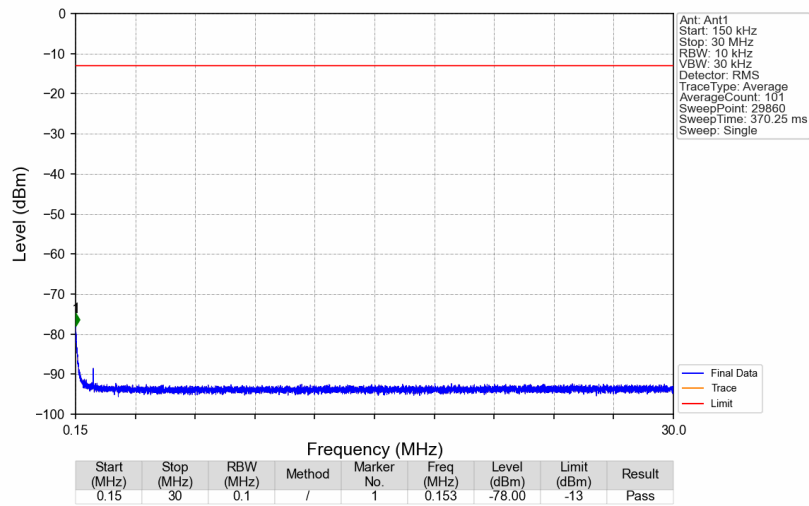
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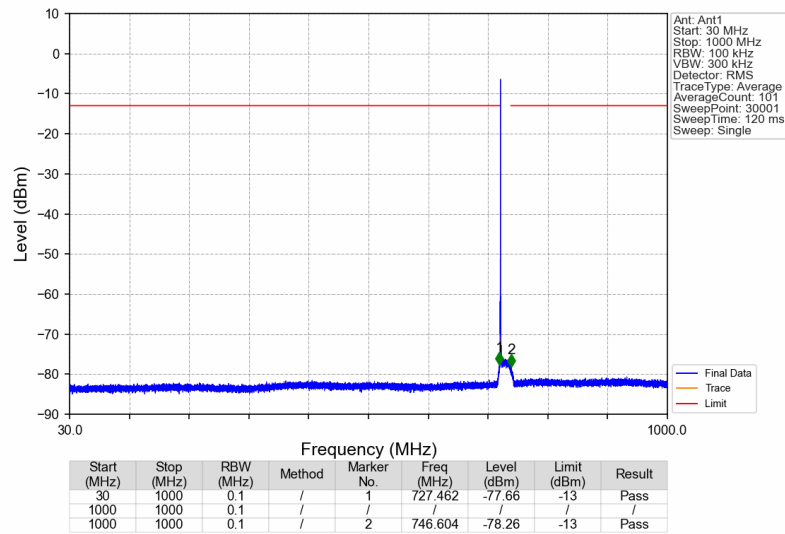
Band12 729.1MHz GMSK SISO Ant1 NTN



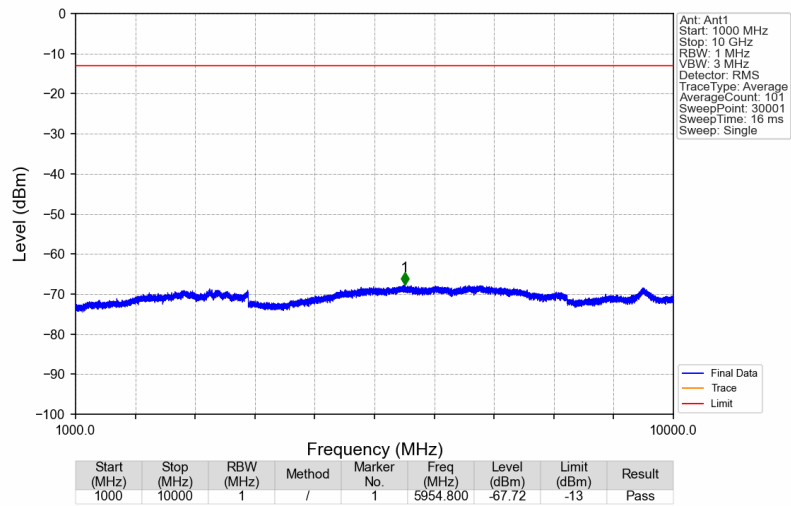
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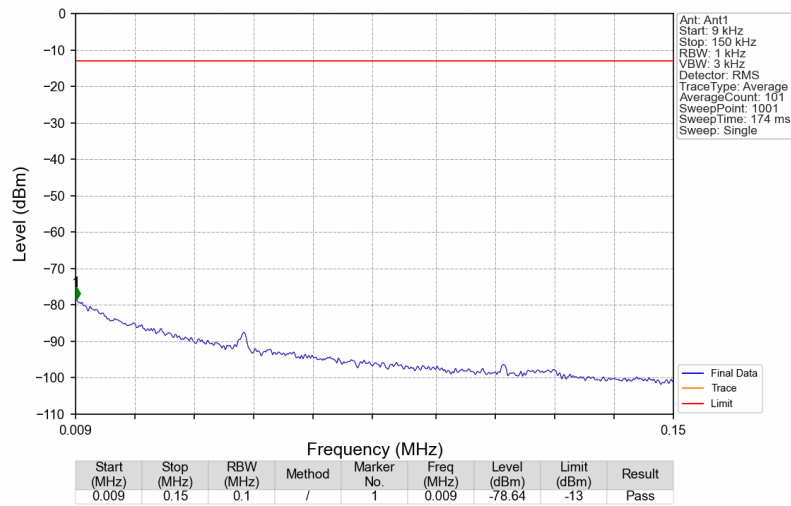
Band12 729.1MHz GMSK SISO Ant1 NTN



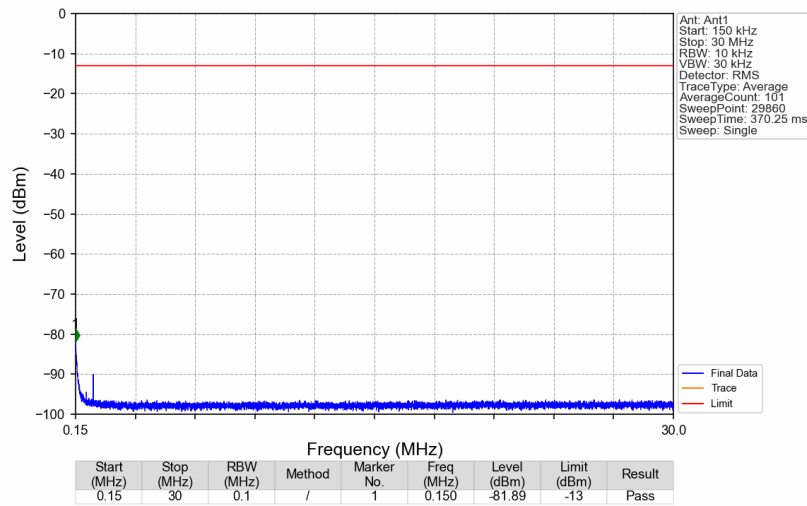
Band12 729.1MHz GMSK SISO Ant1 NTN



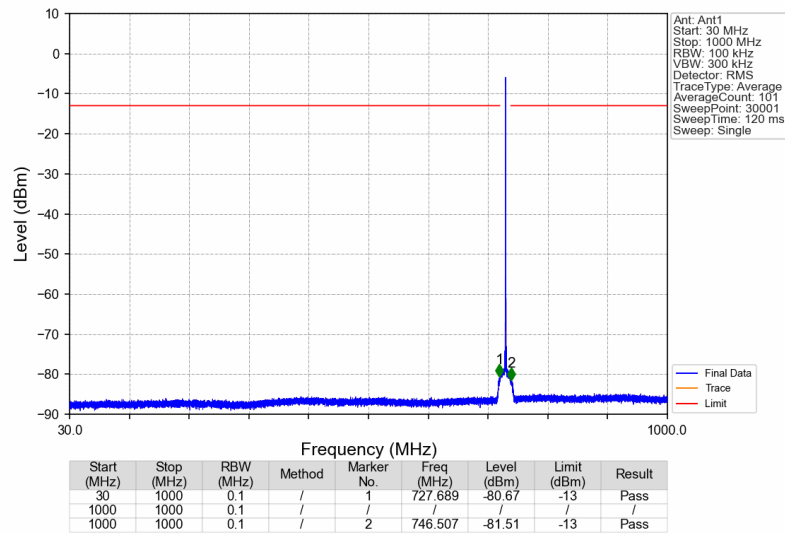
Band12_737.5MHz_GMSK_SISO_Ant1_NTNV



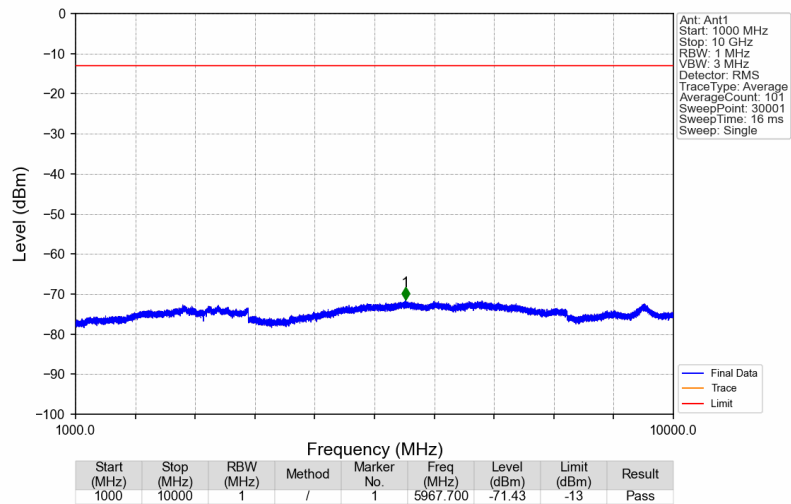
Band12_737.5MHz_GMSK_SISO_Ant1_NTNV



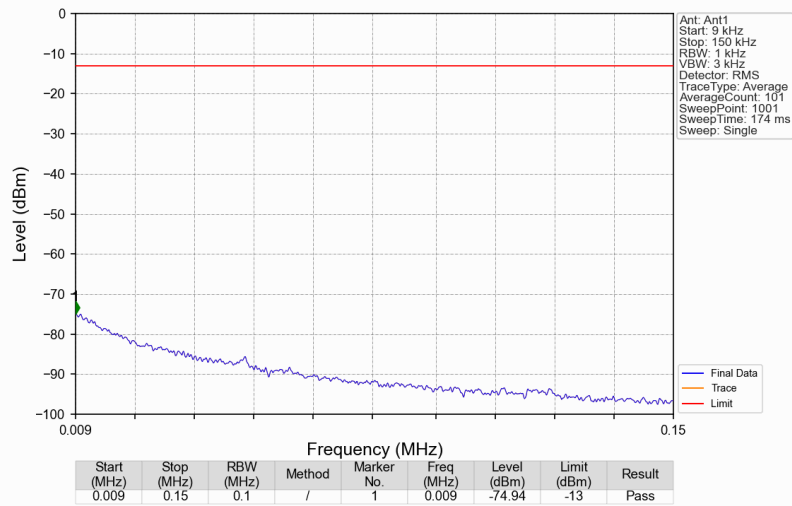
Band12_737.5MHz_GMSK_SISO_Ant1_NTNV



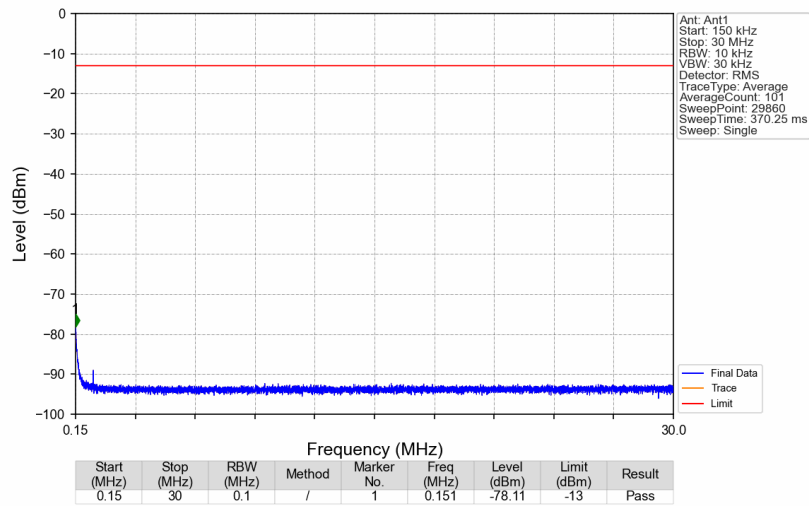
Band12_737.5MHz_GMSK_SISO_Ant1_NTNV



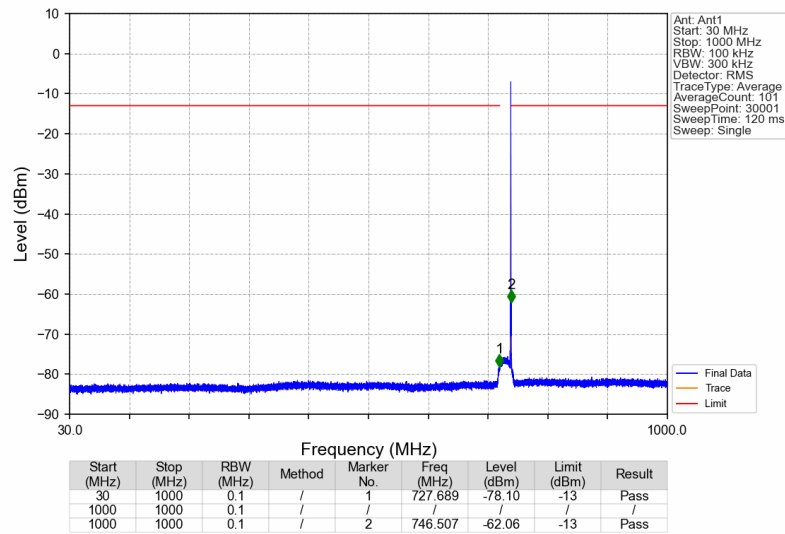
Band12_745.9MHz_GMSK_SISO_Ant1_NTNV



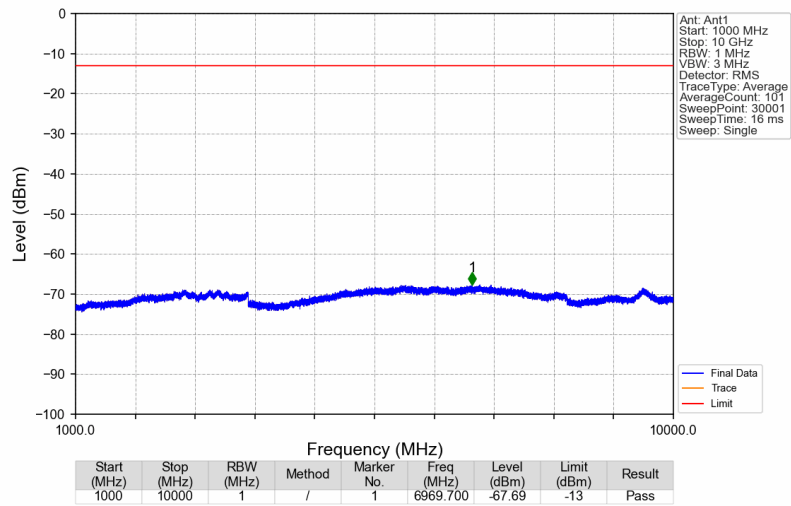
Band12_745.9MHz_GMSK_SISO_Ant1_NTNV



Band12_745.9MHz_GMSK_SISO_Ant1_NTNV



Band12_745.9MHz_GMSK_SISO_Ant1_NTNV



7. Frequency stability measurements

7.1 Band12_Ant1

7.1.1 Test Result

Band: 12 / NTN							
Signal			Temp (°C)	Voltage (VAC)	Freq. Error (Hz)	Tolerance (ppm)	Verdict
Type	Level (dBm)	Frequency (MHz)					
CW	-5.5	729.1	20	102	-188	-0.258	Pass
				120	-185	-0.254	Pass
				138	-185	-0.254	Pass
			-30	120	-185	-0.254	Pass
			-20	120	-188	-0.258	Pass
			-10	120	-189	-0.259	Pass
			0	120	-187	-0.256	Pass
			10	120	-189	-0.259	Pass
			30	120	-185	-0.254	Pass
			40	120	-187	-0.256	Pass
			50	120	-184	-0.252	Pass
		737.5	20	102	-181	-0.248	Pass
				120	-177	-0.240	Pass
				138	-179	-0.243	Pass
			-30	120	-172	-0.233	Pass
			-20	120	-175	-0.237	Pass
			-10	120	-178	-0.241	Pass
			0	120	-182	-0.247	Pass
			10	120	-185	-0.251	Pass
			30	120	-187	-0.254	Pass
			40	120	-179	-0.243	Pass
			50	120	-178	-0.241	Pass
		745.9	20	102	-187	-0.254	Pass
				120	-186	-0.252	Pass
				138	-184	-0.247	Pass
			-30	120	-178	-0.239	Pass
			-20	120	-179	-0.240	Pass
			-10	120	-178	-0.239	Pass
			0	120	-186	-0.249	Pass
			10	120	-185	-0.248	Pass
			30	120	-186	-0.249	Pass



			40	120	-186	-0.249	Pass
			50	120	-182	-0.244	Pass

8. Radiated Spurious Emissions

8.1 Band12_Ant1

8.1.1 Test Result

AWGN_Low channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over limit	Result
MHz	polarization	dBm	dBm	dB	
81.064	Horizontal	-66.71	-13	-53.71	pass
171.408	Horizontal	-60.37	-13	-47.37	pass
382.602	Horizontal	-58.25	-13	-45.25	pass
1663.73	Horizontal	-51.21	-13	-38.21	pass
2829.42	Horizontal	-49.79	-13	-36.79	pass
7151.31	Horizontal	-39.48	-13	-26.48	pass
151.985	Vertical	-63.83	-13	-50.83	pass
255.469	Vertical	-61.39	-13	-48.39	pass
524.826	Vertical	-59.17	-13	-46.17	pass
1643.17	Vertical	-48.12	-13	-35.12	pass
2802.55	Vertical	-50.03	-13	-37.03	pass
7142.86	Vertical	-37.16	-13	-24.16	pass

AWGN_Middle channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over limit	Result
MHz	polarization	dBm	dBm	dB	
85.304	Horizontal	-63.85	-13	-50.85	pass
216.468	Horizontal	-60.84	-13	-47.84	pass
368.512	Horizontal	-63.94	-13	-50.94	pass
1670.73	Horizontal	-50.02	-13	-37.02	pass
2837.03	Horizontal	-48.52	-13	-35.52	pass
7165.18	Horizontal	-38.58	-13	-25.58	pass
173.875	Vertical	-68.44	-13	-55.44	pass
265.579	Vertical	-61.62	-13	-48.62	pass
498.336	Vertical	-62.15	-13	-49.15	pass
1651.50	Vertical	-51.83	-13	-38.83	pass
2794.42	Vertical	-53.57	-13	-40.57	pass
7116.82	Vertical	-37.11	-13	-24.11	pass

AWGN_High channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over limit	Result
MHz	polarization	dBm	dBm	dB	
80.374	Horizontal	-69.12	-13	-56.12	pass
192.118	Horizontal	-59.63	-13	-46.63	pass
696.972	Horizontal	-58.75	-13	-45.75	pass
1678.50	Horizontal	-52.62	-13	-39.62	pass
2751.58	Horizontal	-47.63	-13	-34.63	pass
7242.32	Horizontal	-37.39	-13	-24.39	pass
151.429	Vertical	-65.66	-13	-52.66	pass
528.936	Vertical	-59.72	-13	-46.72	pass
685.762	Vertical	-58.71	-13	-45.71	pass
1676.53	Vertical	-51.47	-13	-38.47	pass
2775.24	Vertical	-52.82	-13	-39.82	pass
7263.61	Vertical	-39.82	-13	-26.82	pass

GMSK_Low channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over limit	Result
MHz	polarization	dBm	dBm	dB	
105.022	Horizontal	-63.51	-13	-50.51	pass
593.499	Horizontal	-58.92	-13	-45.92	pass
801.905	Horizontal	-57.05	-13	-44.05	pass
1753.02	Horizontal	-51.55	-13	-38.55	pass
2821.23	Horizontal	-48.59	-13	-35.59	pass
7099.83	Horizontal	-38.65	-13	-25.65	pass
168.409	Vertical	-63.07	-13	-50.07	pass
518.116	Vertical	-64.65	-13	-51.65	pass
711.932	Vertical	-63.35	-13	-50.35	pass
1782.79	Vertical	-52.85	-13	-39.85	pass
2853.43	Vertical	-52.91	-13	-39.91	pass
7106.72	Vertical	-41.95	-13	-28.95	pass

GMSK_Middle channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over limit	Result
MHz	polarization	dBm	dBm	dB	
90.624	Horizontal	-64.92	-13	-51.92	pass
207.938	Horizontal	-58.41	-13	-45.41	pass
708.422	Horizontal	-61.62	-13	-48.62	pass
1764.15	Horizontal	-47.59	-13	-34.59	pass
2753.15	Horizontal	-51.52	-13	-38.52	pass
7327.11	Horizontal	-40.14	-13	-27.14	pass
118.220	Vertical	-68.35	-13	-55.35	pass
167.025	Vertical	-62.70	-13	-49.70	pass
526.049	Vertical	-60.26	-13	-47.26	pass
1780.92	Vertical	-54.61	-13	-41.61	pass
2785.55	Vertical	-49.27	-13	-36.27	pass
7295.68	Vertical	-38.53	-13	-25.53	pass

GMSK_High channel					
Frequency	Spurious Emission Polarization and Level		Limit	Over limit	Result
MHz	polarization	dBm	dBm	dB	
104.650	Horizontal	-63.85	-13	-50.85	pass
132.135	Horizontal	-62.79	-13	-49.79	pass
560.669	Horizontal	-58.91	-13	-45.91	pass
1777.39	Horizontal	-48.44	-13	-35.44	pass
2747.28	Horizontal	-50.10	-13	-37.10	pass
7303.36	Horizontal	-36.76	-13	-23.76	pass
100.634	Vertical	-68.50	-13	-55.50	pass
183.638	Vertical	-57.28	-13	-44.28	pass
662.332	Vertical	-57.79	-13	-44.79	pass
1768.78	Vertical	-49.40	-13	-36.40	pass
2767.87	Vertical	-54.51	-13	-41.51	pass
7292.92	Vertical	-37.09	-13	-24.09	pass