

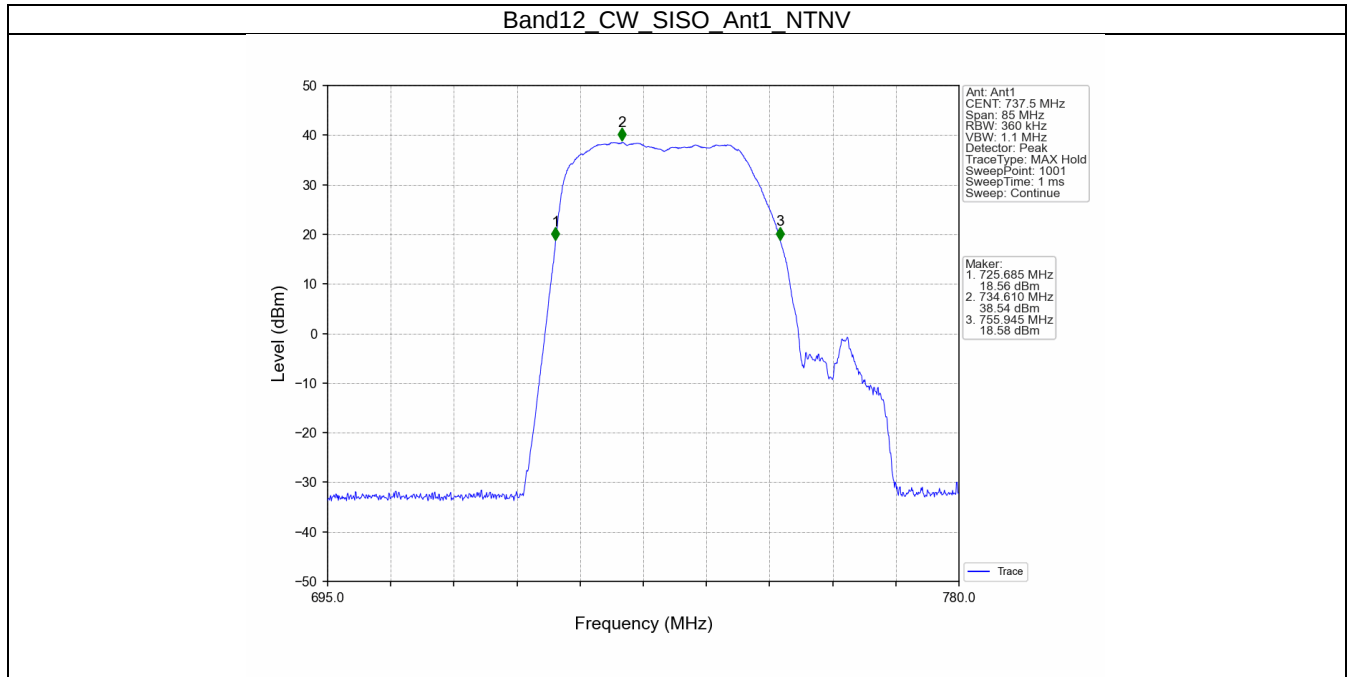
1. Out of band rejection

1.1 Band12

1.1.1 Test Result

Band: 12 / NTNV							
Signal	Sweep Frequency Range (MHz)	TX Type	ANT	F0 (MHz)	FL (MHz)	FH (MHz)	Verdict
CW	695 - 780	SISO	1	734.610	725.685	755.945	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
GMSK 0.2MHz	734.61	SISO	1	-3.40	Pass
AWGN 5MHz	734.61	SISO	1	-3.40	Pass

3. Input-versus-output signal comparison

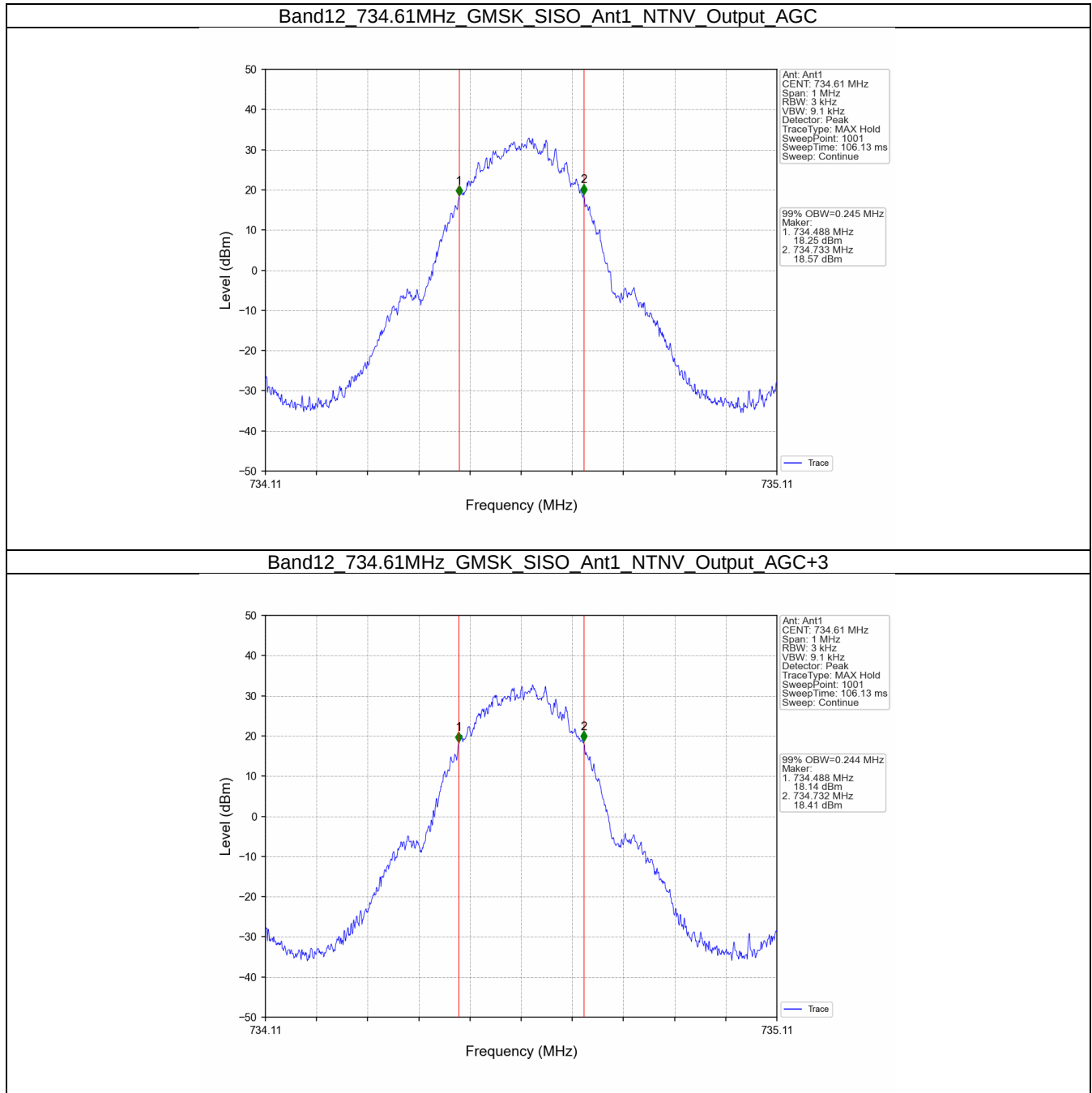
3.1 Band12_OBW

3.1.1 Test Result

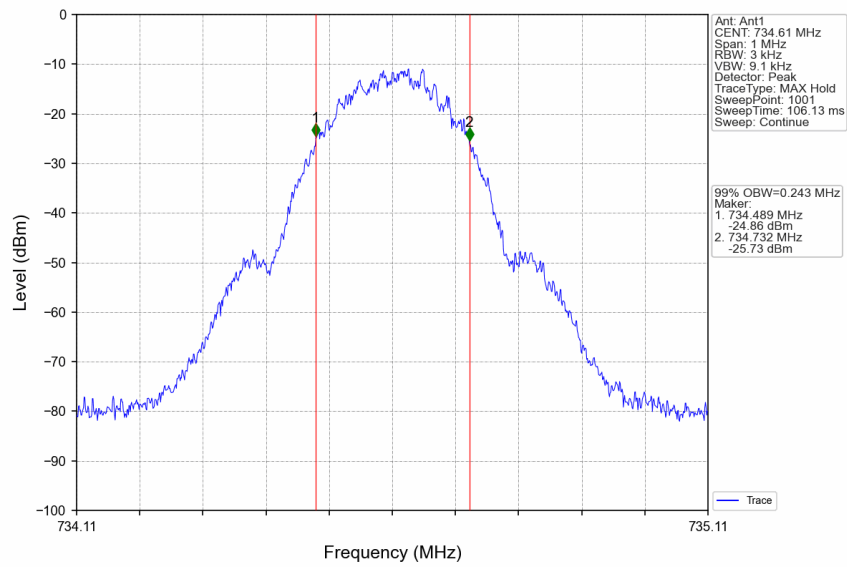
Band: 12 / NTNV									
Signal			TX Type	ANT	99% OBW (MHz)		Deviation (%)	Limit (%)	Verdict
Type	Level (dBm)	Frequency (MHz)			Output	Input			
GMSK 0.2MHz	-3.4	734.61	SISO	1	0.245	0.243	0.82	<5.00	Pass
	-0.4	734.61	SISO	1	0.244	0.244	0.00	<5.00	Pass
AWGN 5MHz	-3.4	734.61	SISO	1	4.545	4.531	0.31	<5.00	Pass
	-0.4	734.61	SISO	1	4.540	4.528	0.27	<5.00	Pass

Deviation= [(Output - Input)/ Input] * 100

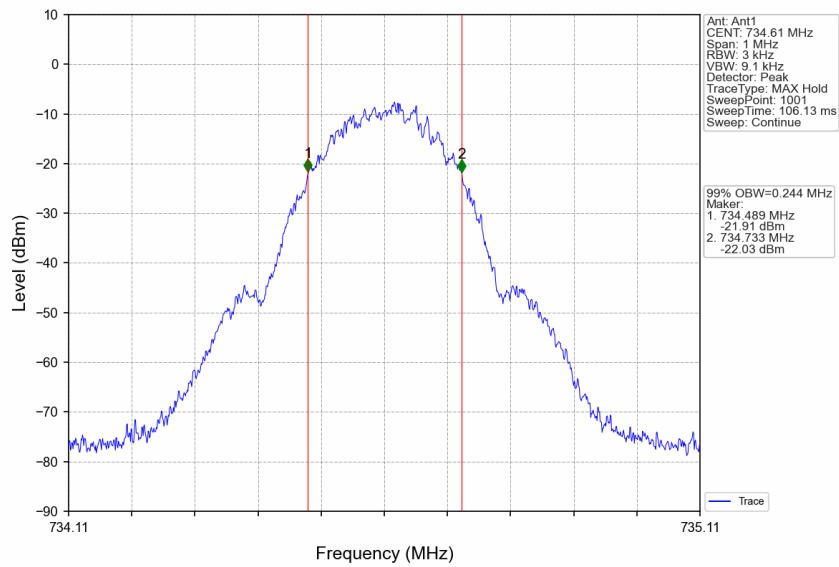
3.1.2 Test Graph



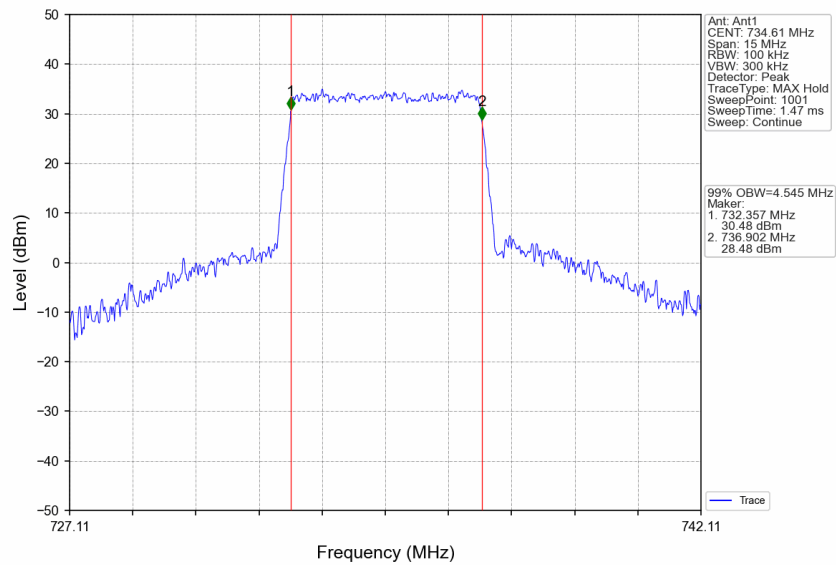
Band12_734.61MHz_GMSK_SISO_Ant1_NTNV_Input_AGC



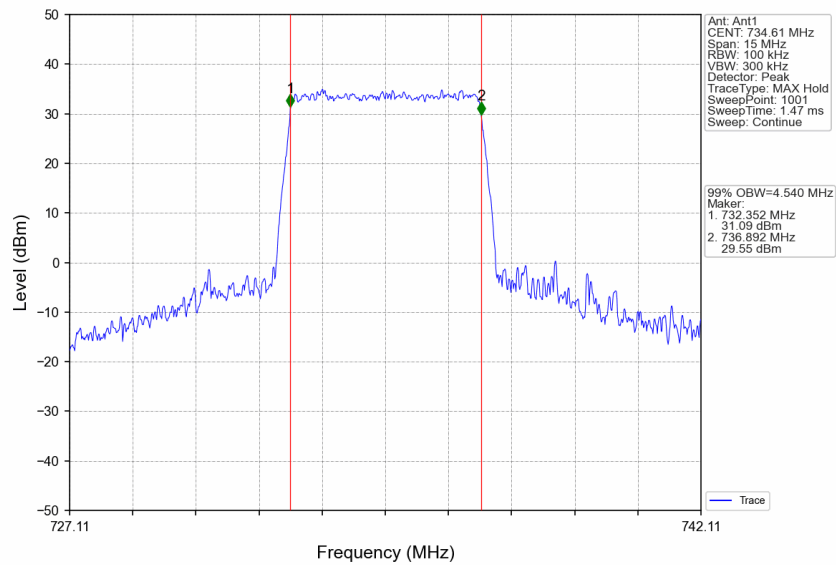
Band12_734.61MHz_GMSK_SISO_Ant1_NTNV_Input_AGC+3



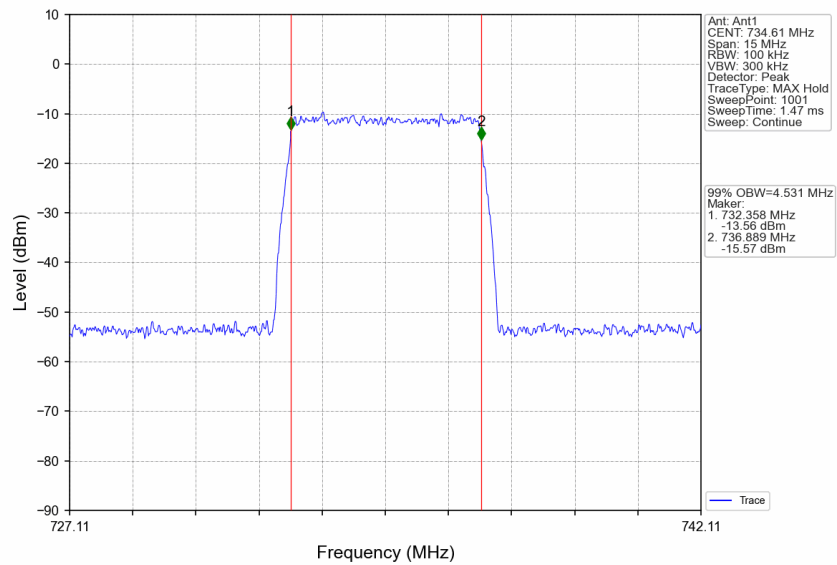
Band12_734.61MHz_AWGN_SISO_Ant1_NTNV_Output_AGC



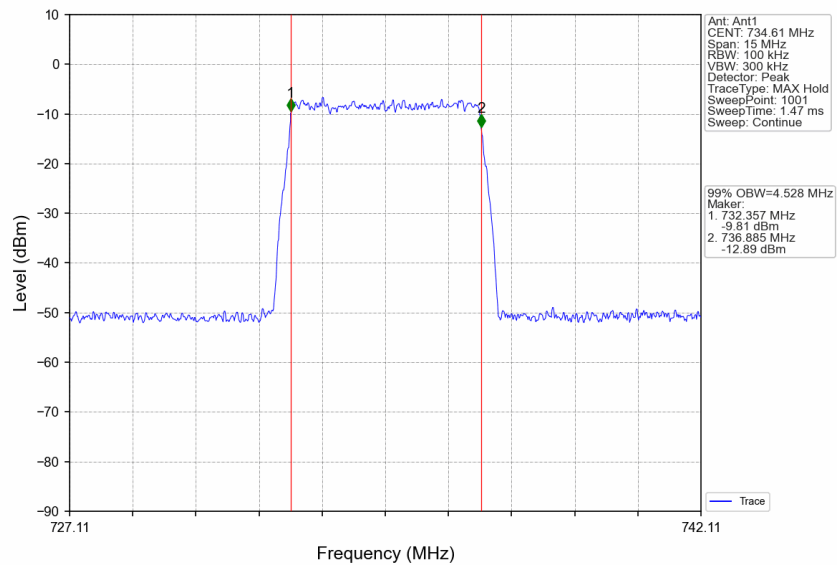
Band12_734.61MHz_AWGN_SISO_Ant1_NTNV_Output_AGC+3



Band12_734.61MHz_AWGN_SISO_Ant1_NTNV_Input_AGC



Band12_734.61MHz_AWGN_SISO_Ant1_NTNV_Input_AGC+3



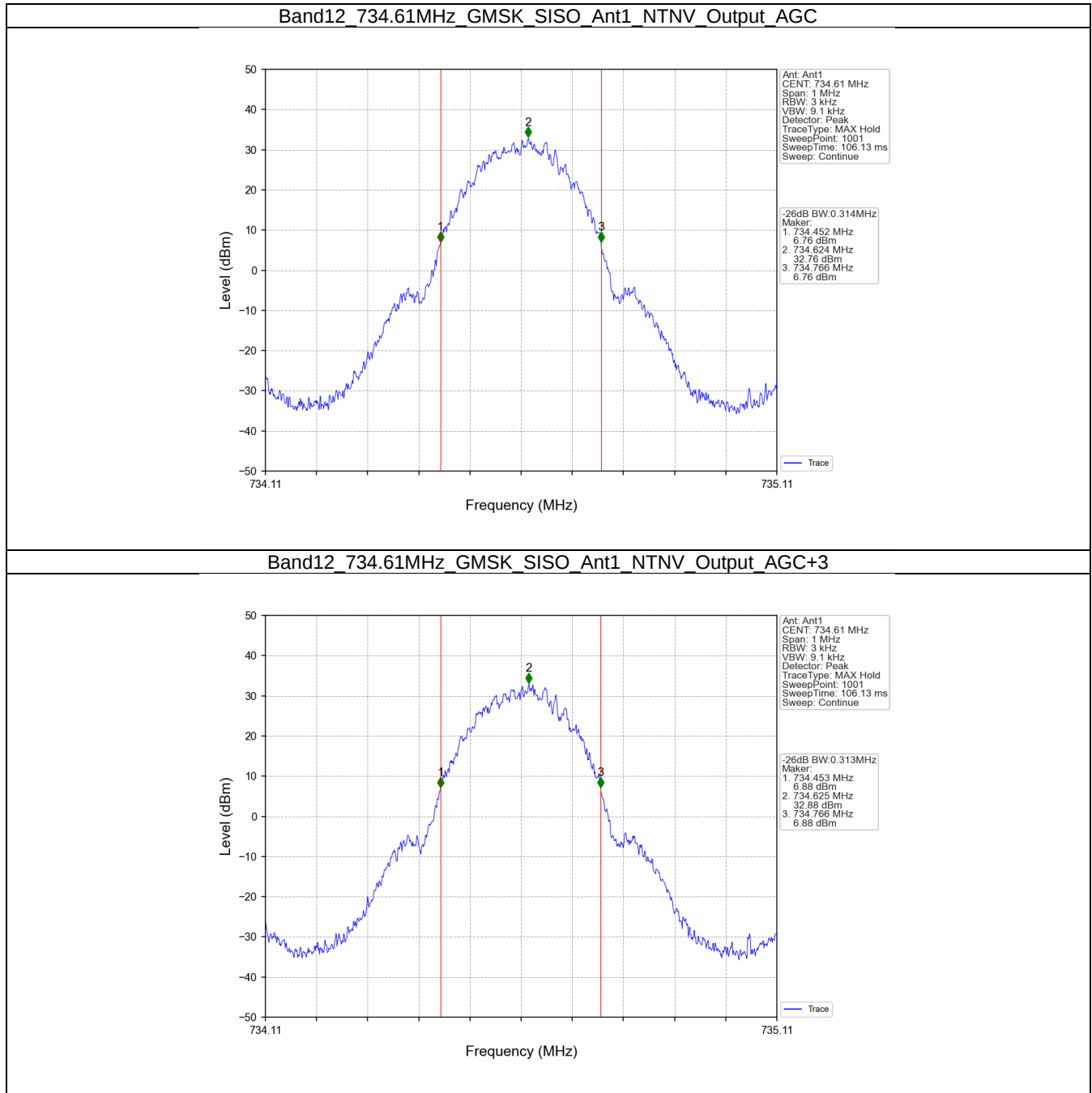
3.2 Band12_EBW

3.2.1 Test Result

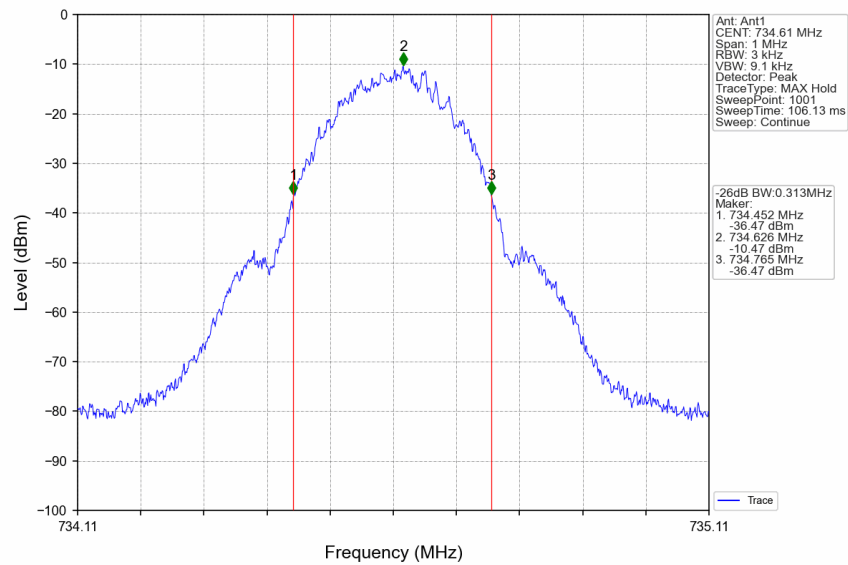
Band: 12 / NTNV									
Signal			TX Type	ANT	26dB EBW (MHz)		Deviation (%)	Limit (%)	Verdict
Type	Level (dBm)	Frequency (MHz)			Output	Input			
GMSK	-3.4	734.61	SISO	1	0.314	0.313	0.32	<5.00	Pass
0.2MHz	-0.4	734.61	SISO	1	0.313	0.313	0.00	<5.00	Pass
AWGN	-3.4	734.61	SISO	1	5.067	5.050	0.34	<5.00	Pass
5MHz	-0.4	734.61	SISO	1	5.070	5.071	0.02	<5.00	Pass

Deviation= [(Output - Input)/ Input] * 100

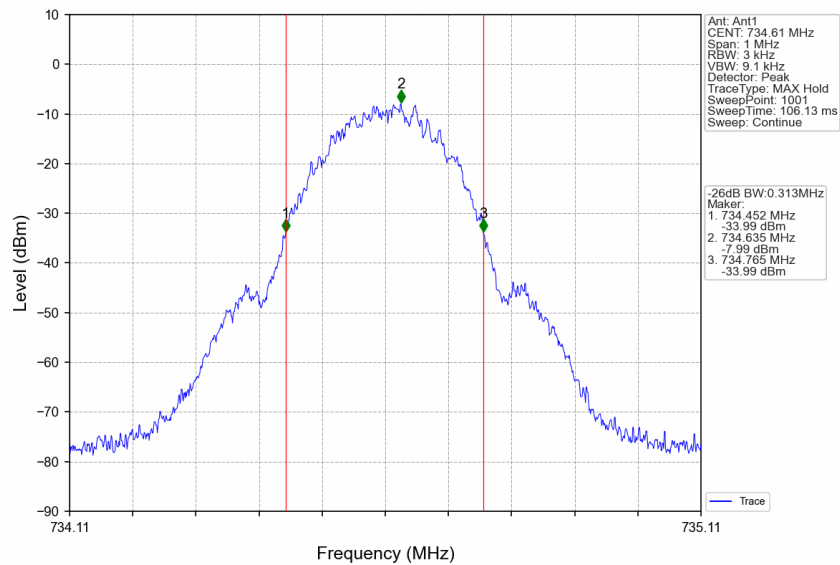
3.2.2 Test Graph



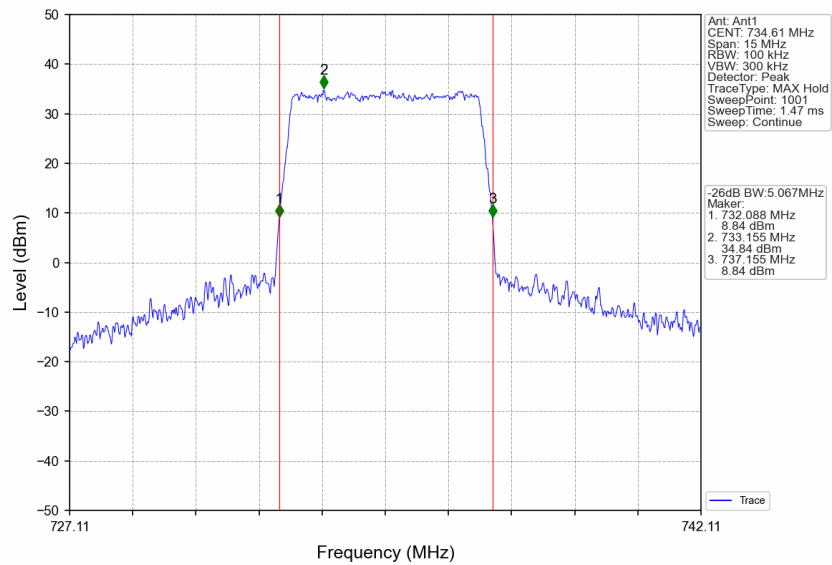
Band12_734.61MHz_GMSK_SISO_Ant1_NTNV_Input_AGC



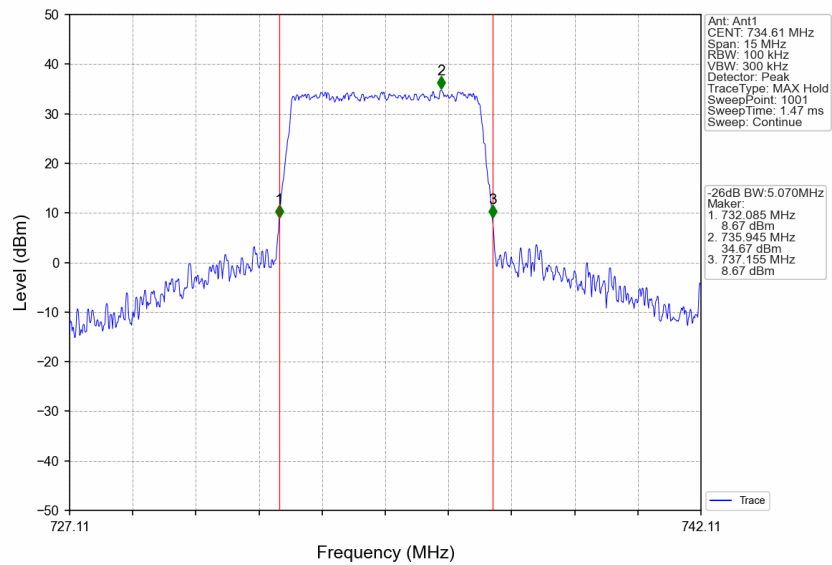
Band12_734.61MHz_GMSK_SISO_Ant1_NTNV_Input_AGC+3



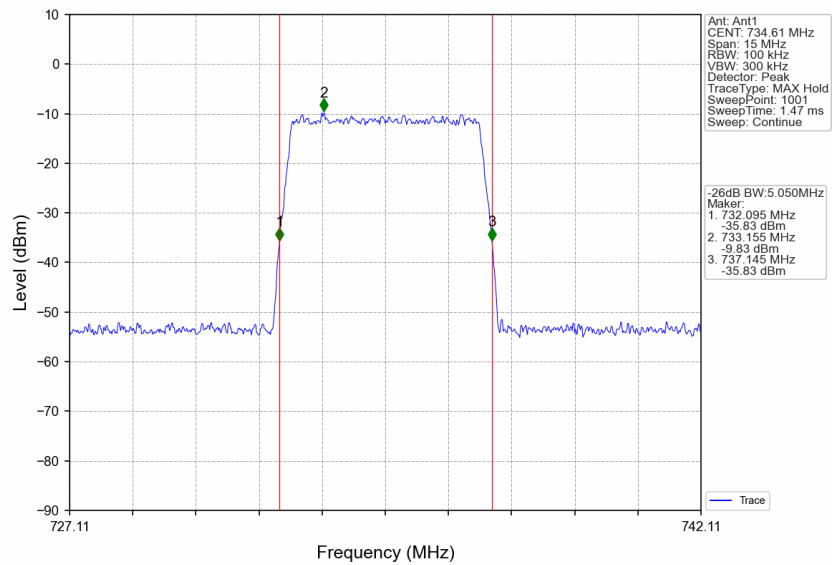
Band12_734.61MHz_AWGN_SISO_Ant1_NTNV_Output_AGC



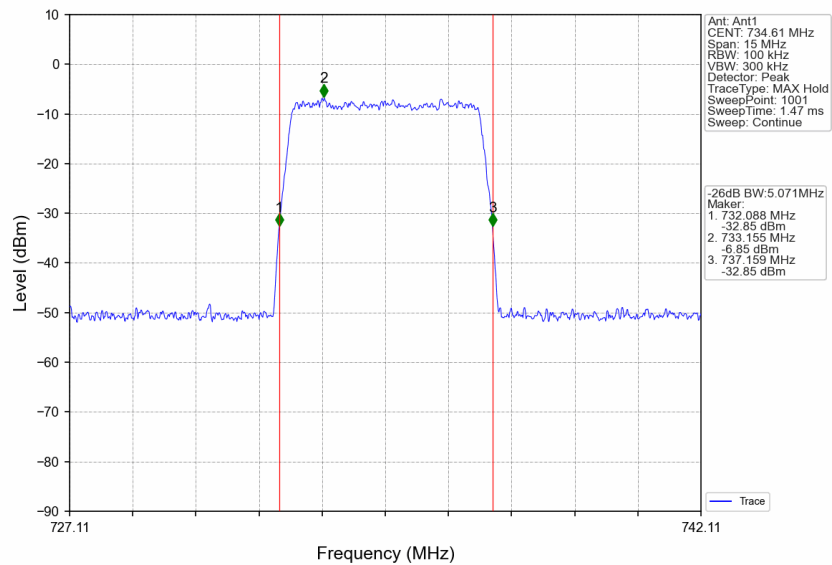
Band12_734.61MHz_AWGN_SISO_Ant1_NTNV_Output_AGC+3



Band12_734.61MHz_AWGN_SISO_Ant1_NTNV_Input_AGC



Band12_734.61MHz_AWGN_SISO_Ant1_NTNV_Input_AGC+3



4. Input/output power and amplifier/booster gain

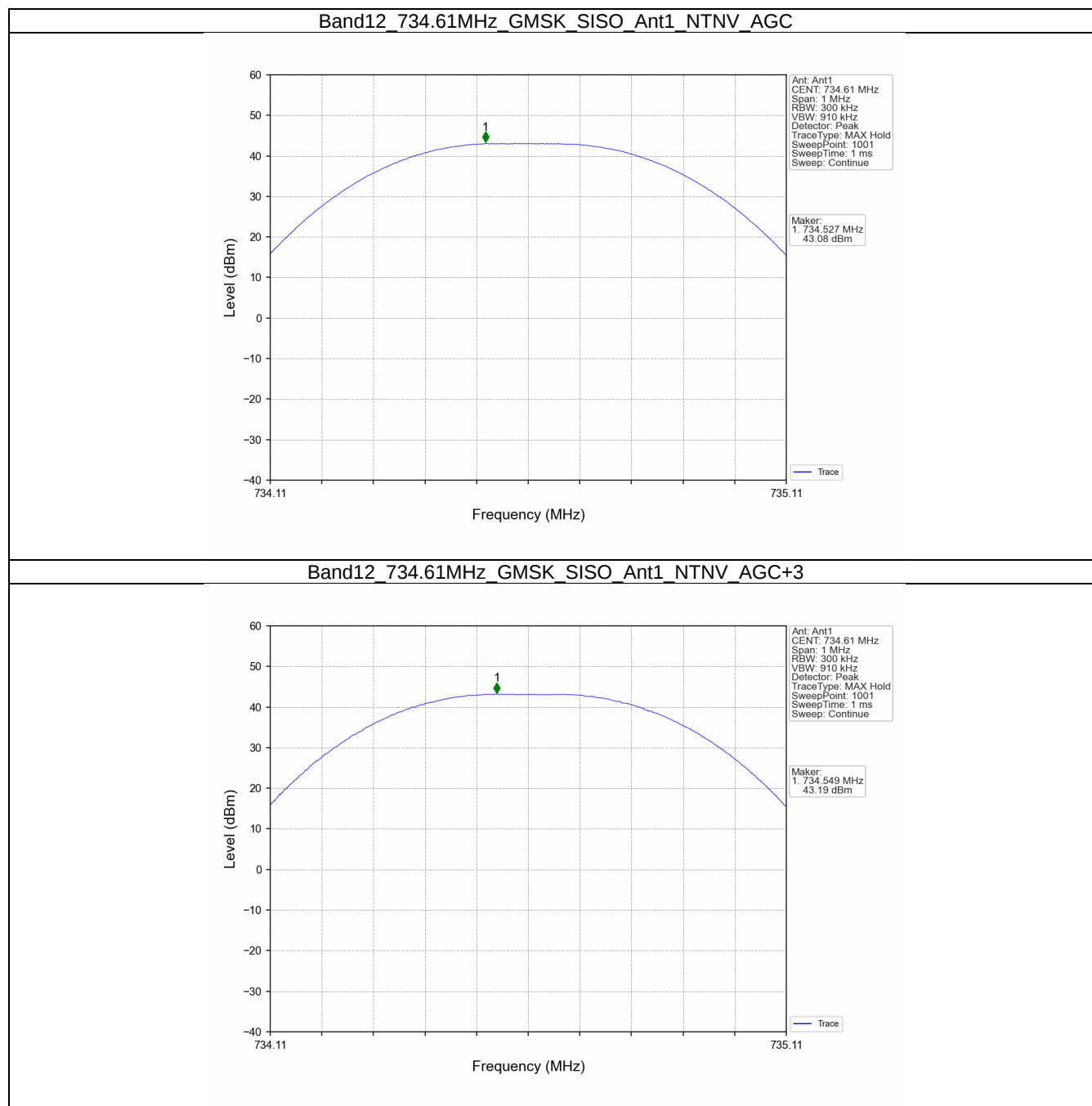
4.1 Band12_ERP

4.1.1 Test Result

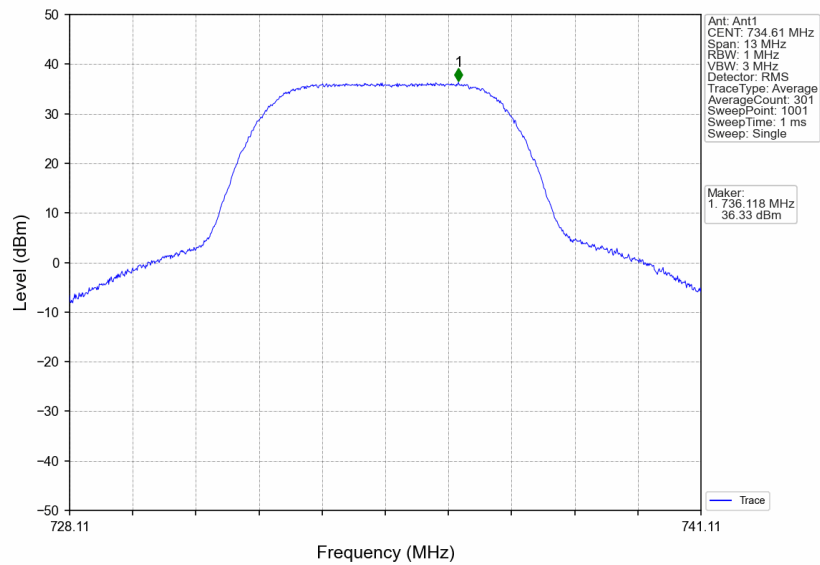
Band: 12 / NTNV										
Signal			TX Type	ANT	Conducted Power (dBm/MHz)		ERP (dBm/MHz)		Booster Gain (dB)	Verdict
Type	Level (dBm)	Frequency (MHz)			Output	Input	Result	Limit		
GMSK	-3.4	734.61	SISO	1	43.08	-3.35	55.93	<=63.01	46.43	Pass
0.2MHz	-0.4	734.61	SISO	1	43.19	-0.38	56.04	<=63.01	/	Pass
AWGN	-3.4	734.61	SISO	1	36.33	-10.29	49.18	<=63.01	46.62	Pass
5MHz	-0.4	734.61	SISO	1	36.40	-7.28	49.25	<=63.01	/	Pass

Band: 12 / NTNV						
Signal			Conducted Power (dBm)	ERP (dBm)	Limit (dBm)	Verdict
Type	Level (dBm)	Frequency (MHz)	SISO	SISO		
GMSK	-3.4	734.61	43.08	55.93	/	Pass
0.2MHz	-0.4	734.61	43.19	56.04	/	Pass
AWGN	-3.4	734.61	43.32	56.17	/	Pass
5MHz	-0.4	734.61	43.39	56.24	/	Pass

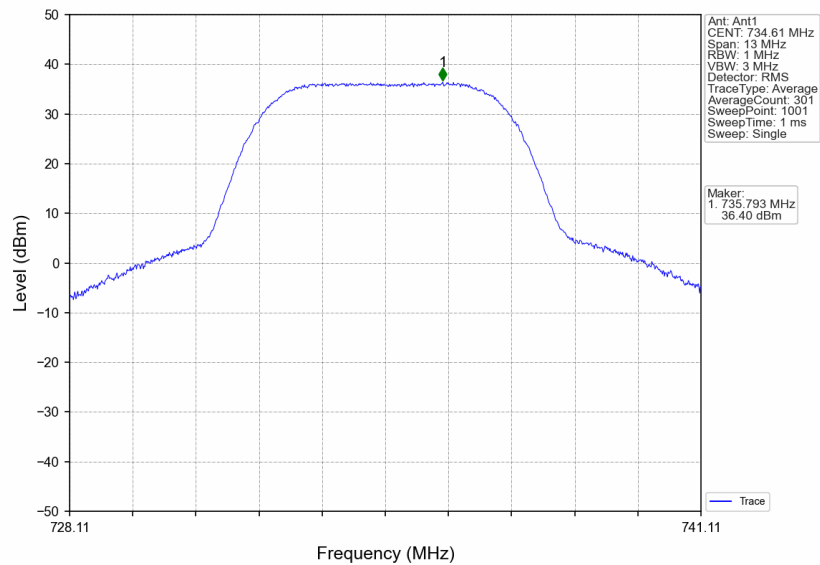
4.1.2 Test Graph



Band12_734.61MHz_AWGN_SISO_Ant1_NTNV_AGC



Band12_734.61MHz_AWGN_SISO_Ant1_NTNV_AGC+3



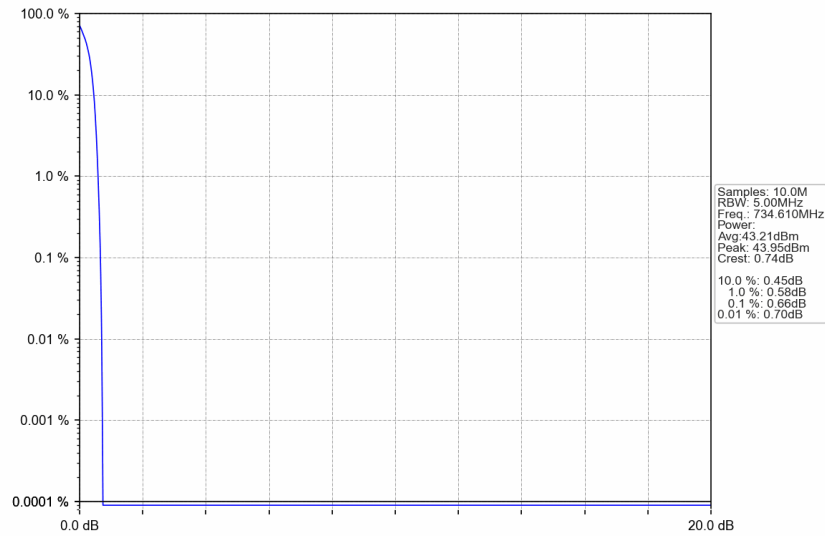
4.2 Band12_PAPR

4.2.1 Test Result

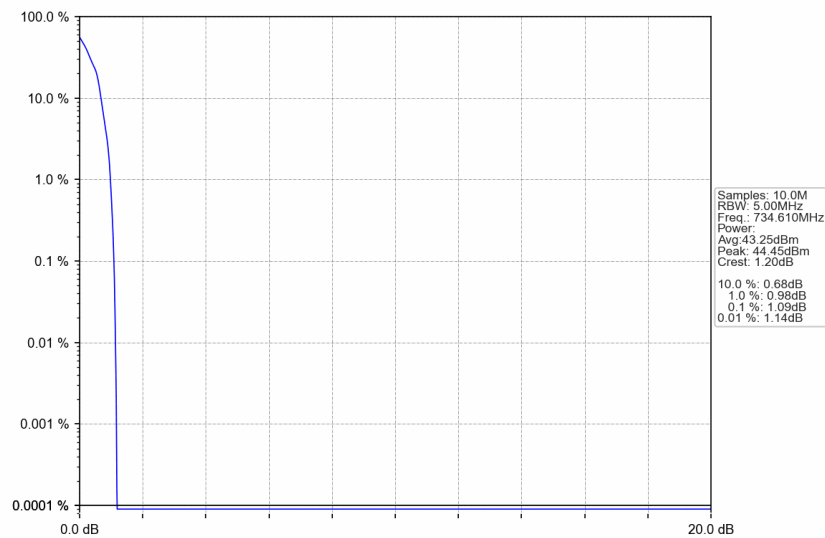
Band: 12 / NTNV							
Signal			TX Type	ANT	PAPR (dB)		Verdict
Type	Level (dBm)	Frequency (MHz)			Result	Limit	
GMSK	-3.4	734.61	SISO	1	0.66	<=13	Pass
0.2MHz	-0.4	734.61	SISO	1	1.09	<=13	Pass
AWGN	-3.4	734.61	SISO	1	8.38	<=13	Pass
5MHz	-0.4	734.61	SISO	1	8.35	<=13	Pass

4.2.2 Test Graph

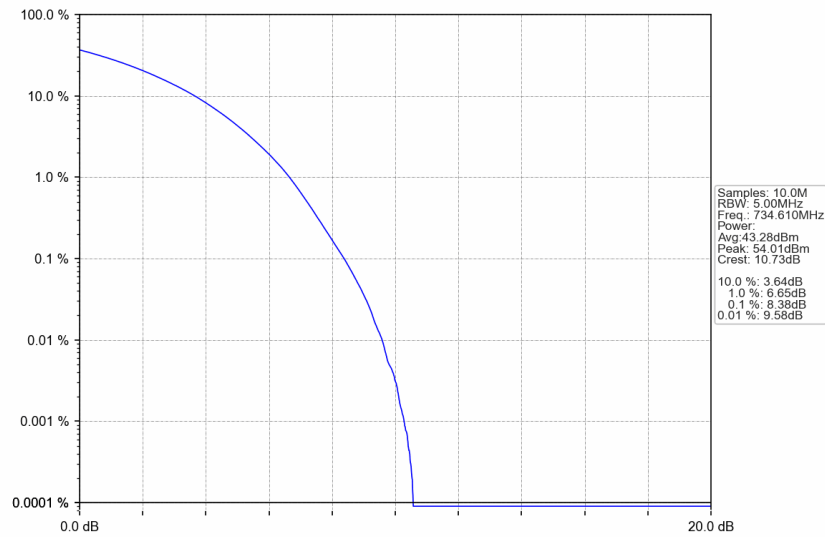
Band12_734.61MHz_GMSK_SISO_Ant1_NTNV_AGC



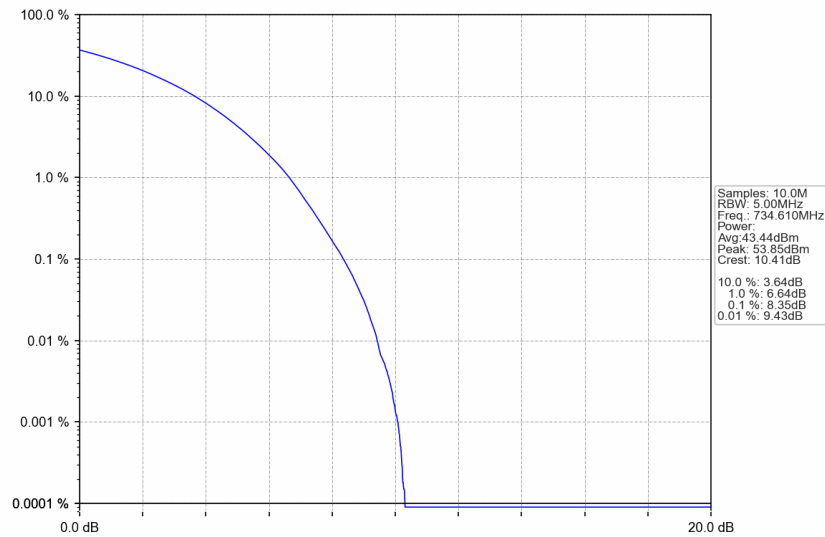
Band12_734.61MHz_GMSK_SISO_Ant1_NTNV_AGC+3



Band12_734.61MHz_AWGN_SISO_Ant1_NTNV_AGC



Band12_734.61MHz_AWGN_SISO_Ant1_NTNV_AGC+3



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

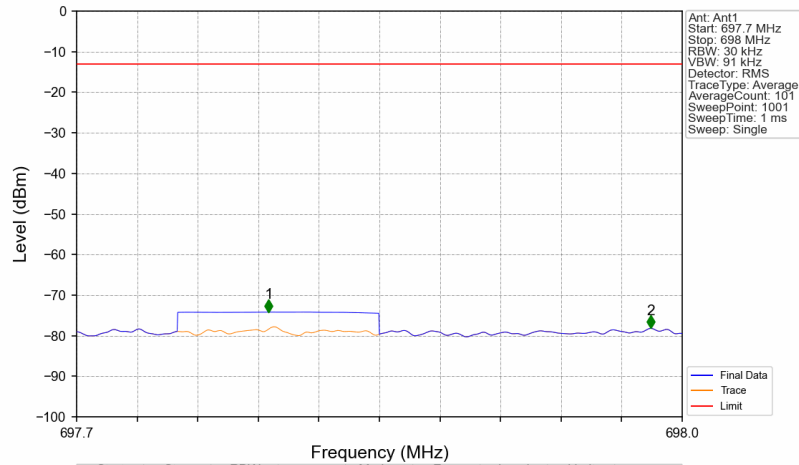
5.1 Band12

5.1.1 Test Result

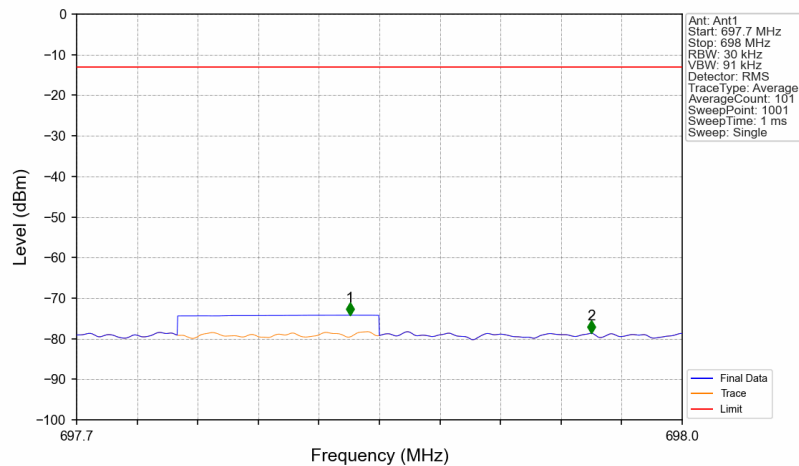
Band: 12 / NTNV									
Signal				Channel	TX Type	ANT	OOB (dBm)		Verdict
Input	Type	Level (dBm)	Frequency (MHz)				Result	Limit	
Two	GMSK 0.2MHz	-3.4	729.2	LCH	SISO	1	-74.19	Refer To Test Graph	Pass
		-0.4	729.2	LCH	SISO	1	-74.21	Refer To Test Graph	Pass
One	GMSK 0.2MHz	-3.4	729.2	LCH	SISO	1	-74.26	Refer To Test Graph	Pass
		-0.4	729.2	LCH	SISO	1	-74.20	Refer To Test Graph	Pass
Two	GMSK 0.2MHz	-3.4	745.8	HCH	SISO	1	-74.22	Refer To Test Graph	Pass
		-0.4	745.8	HCH	SISO	1	-74.27	Refer To Test Graph	Pass
One	GMSK 0.2MHz	-3.4	745.8	HCH	SISO	1	-74.35	Refer To Test Graph	Pass
		-0.4	745.8	HCH	SISO	1	-74.17	Refer To Test Graph	Pass
Two	AWGN 5MHz	-3.4	731.5	LCH	SISO	1	-74.09	Refer To Test Graph	Pass
		-0.4	731.5	LCH	SISO	1	-74.15	Refer To Test Graph	Pass
One	AWGN 5MHz	-3.4	731.5	LCH	SISO	1	-74.35	Refer To Test Graph	Pass
		-0.4	731.5	LCH	SISO	1	-74.05	Refer To Test Graph	Pass
Two	AWGN 5MHz	-3.4	743.5	HCH	SISO	1	-74.03	Refer To Test Graph	Pass
		-0.4	743.5	HCH	SISO	1	-74.10	Refer To Test Graph	Pass
One	AWGN 5MHz	-3.4	743.5	HCH	SISO	1	-74.13	Refer To Test Graph	Pass
		-0.4	743.5	HCH	SISO	1	-74.21	Refer To Test Graph	Pass

5.1.2 Test Graph

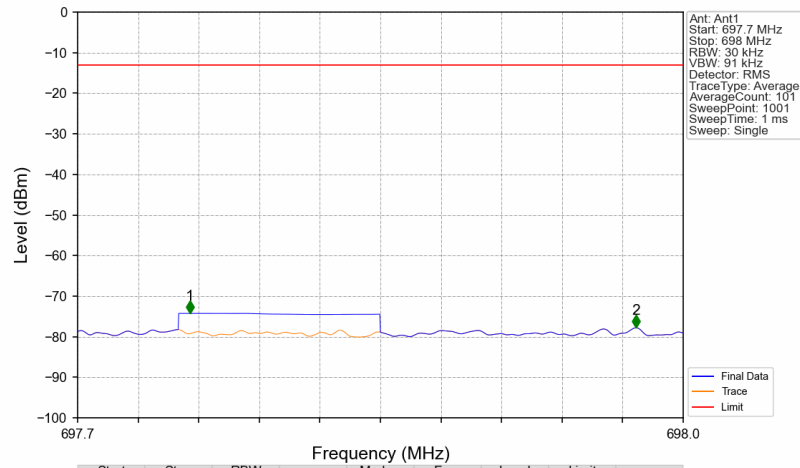
Band12_729.2MHz_GMSK_SISO_Ant1_NTNV_AGC



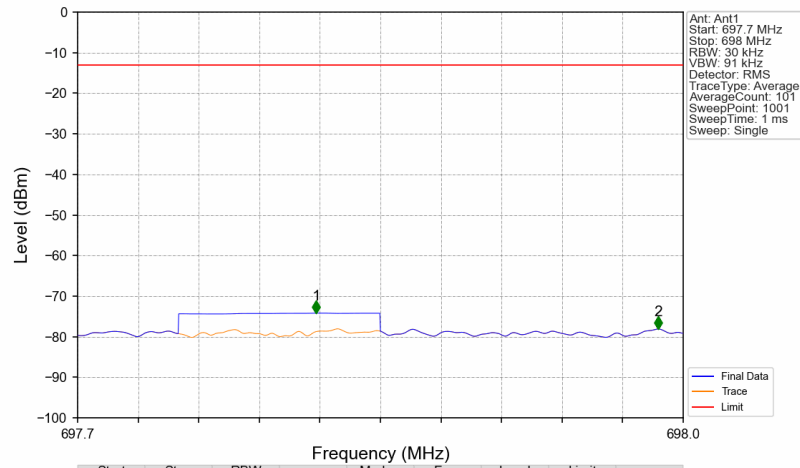
Band12_729.2MHz_GMSK_SISO_Ant1_NTNV_AGC+3



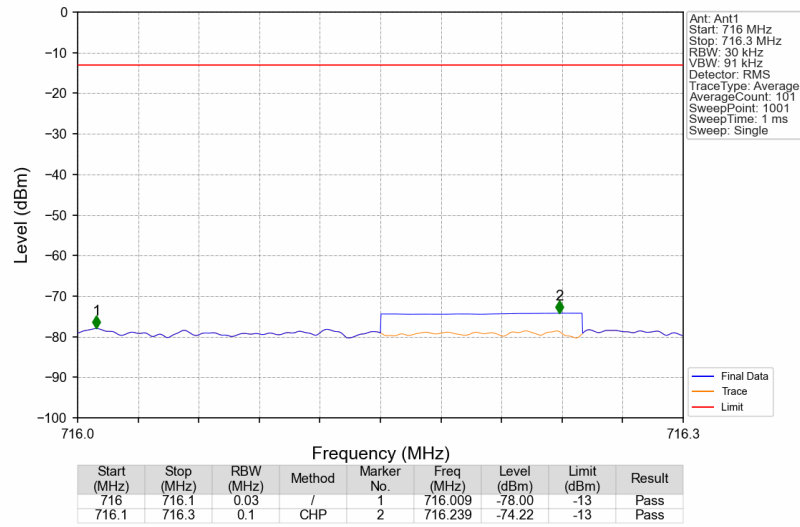
Band12_729.2MHz_GMSK_SISO_Ant1_NTNV_AGC



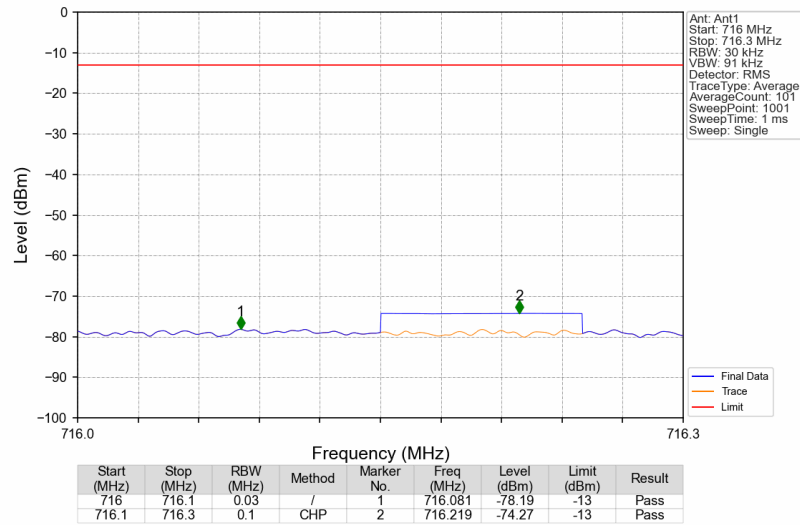
Band12_729.2MHz_GMSK_SISO_Ant1_NTNV_AGC+3



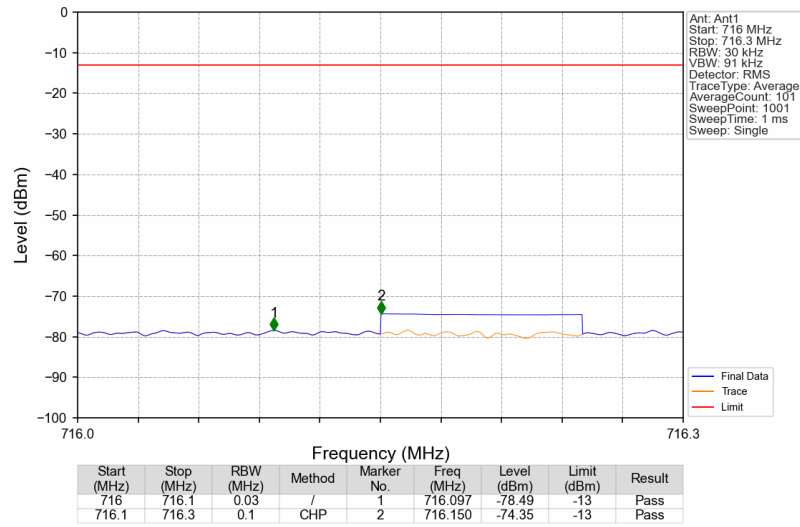
Band12_745.8MHz_GMSK_SISO_Ant1_NTNV_AGC



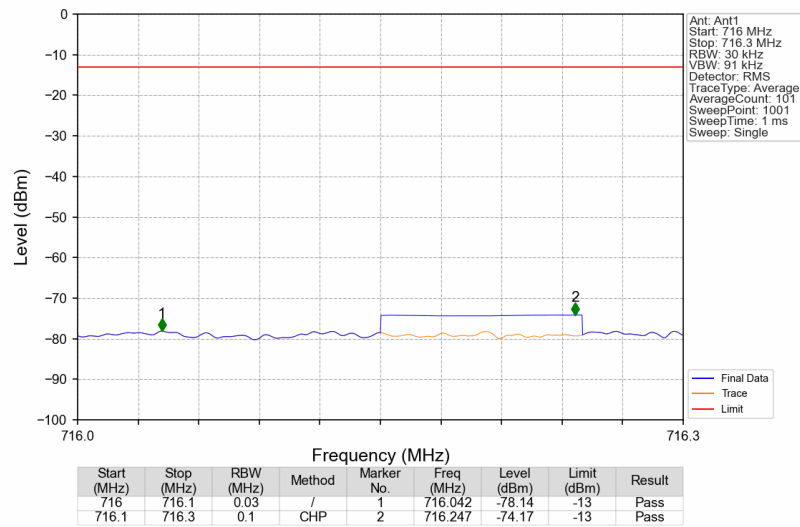
Band12_745.8MHz_GMSK_SISO_Ant1_NTNV_AGC+3



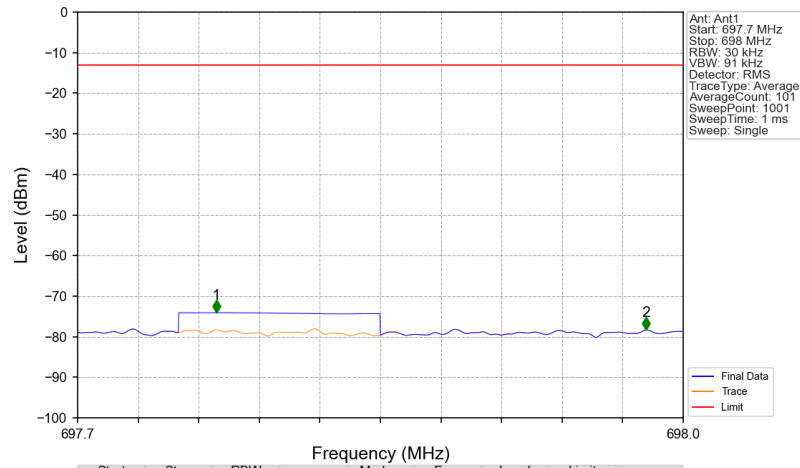
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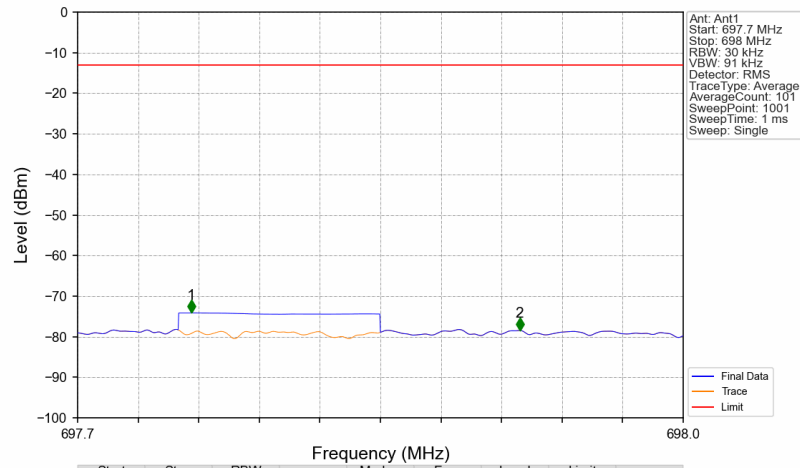
Band12_745.8MHz_GMSK_SISO_Ant1_NTNV_AGC+3



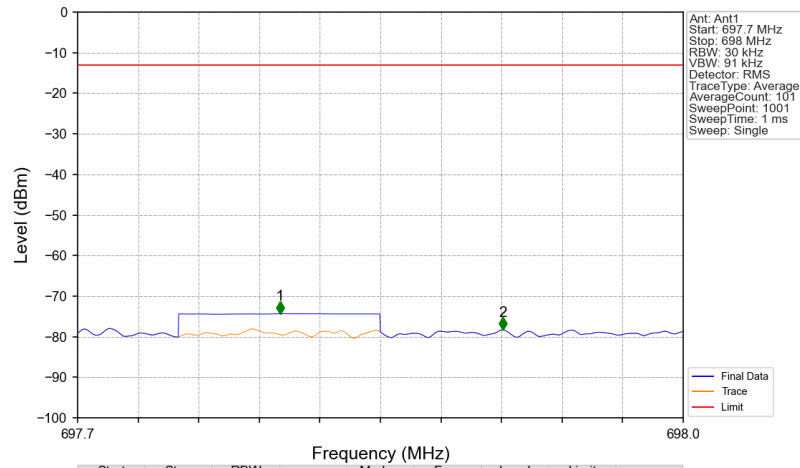
Band12_731.5MHz_AWGN_SISO_Ant1_NTNV_AGC



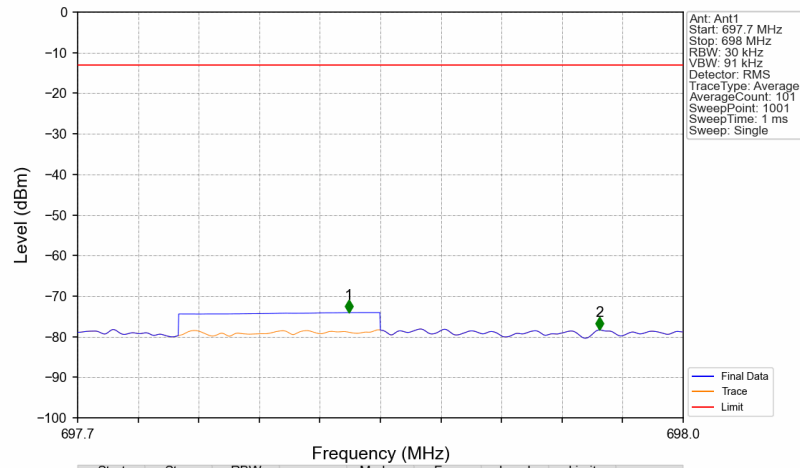
Band12_731.5MHz_AWGN_SISO_Ant1_NTNV_AGC+3



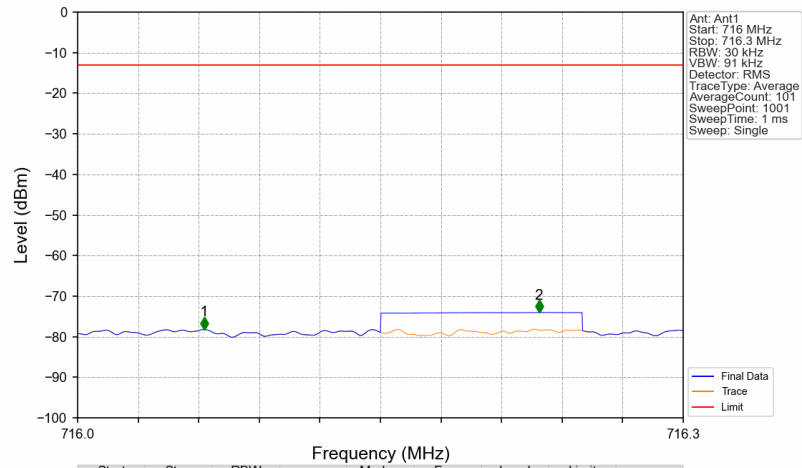
Band12_731.5MHz_AWGN_SISO_Ant1_NTNV_AGC



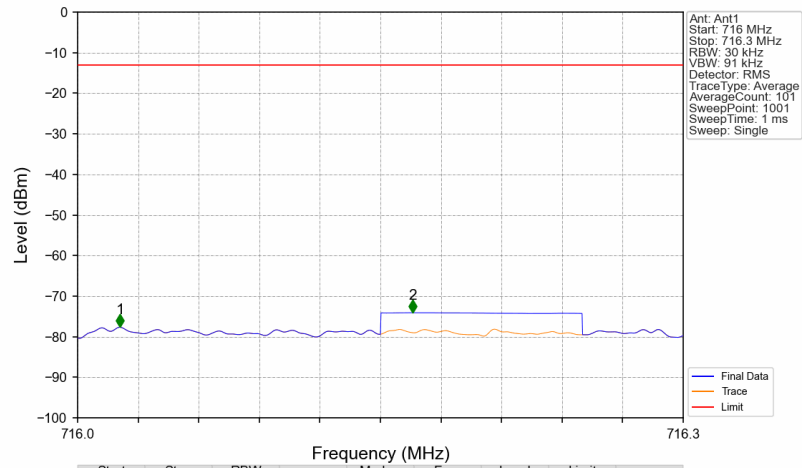
Band12_731.5MHz_AWGN_SISO_Ant1_NTNV_AGC+3



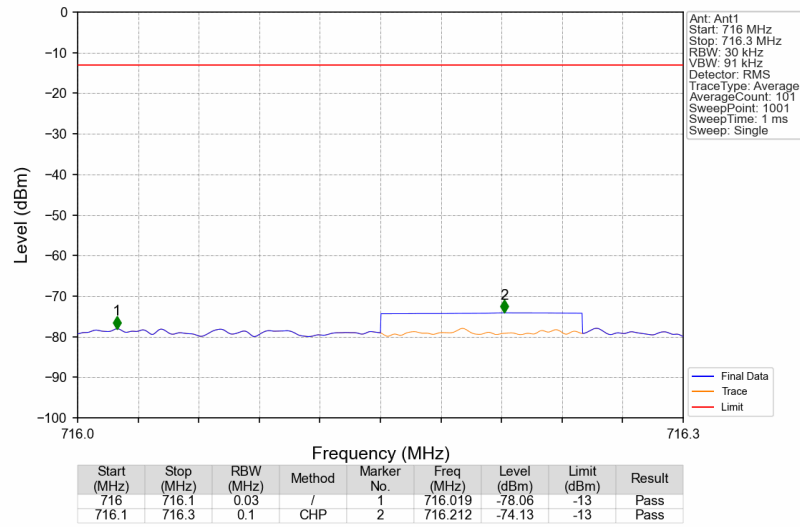
Band12_743.5MHz_AWGN_SISO_Ant1_NTNV_AGC



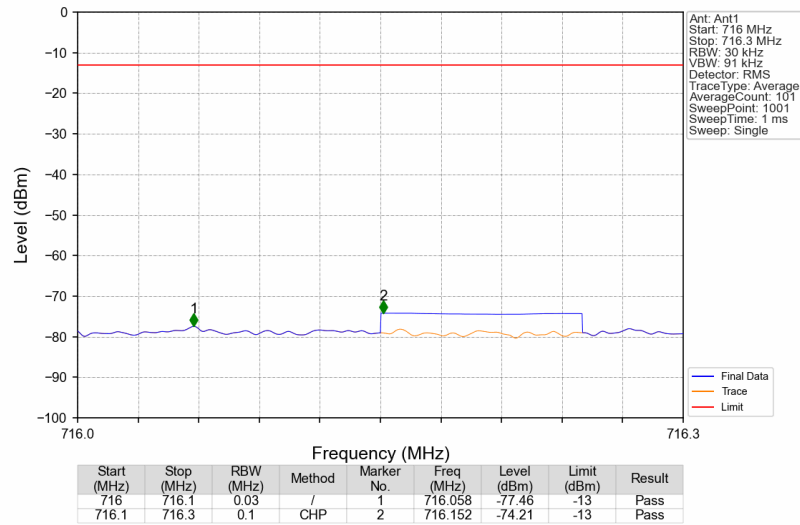
Band12_743.5MHz_AWGN_SISO_Ant1_NTNV_AGC+3



Band12_743.5MHz_AWGN_SISO_Ant1_NTNV_AGC



Band12_743.5MHz_AWGN_SISO_Ant1_NTNV_AGC+3



6. Spurious emissions

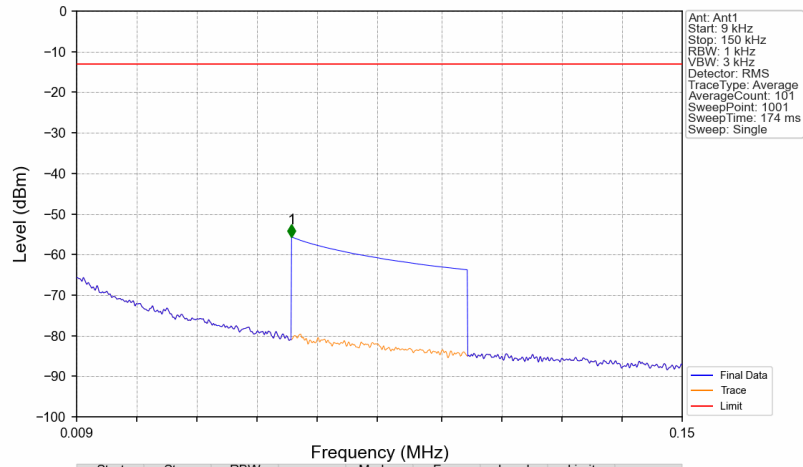
6.1 Band12

6.1.1 Test Result

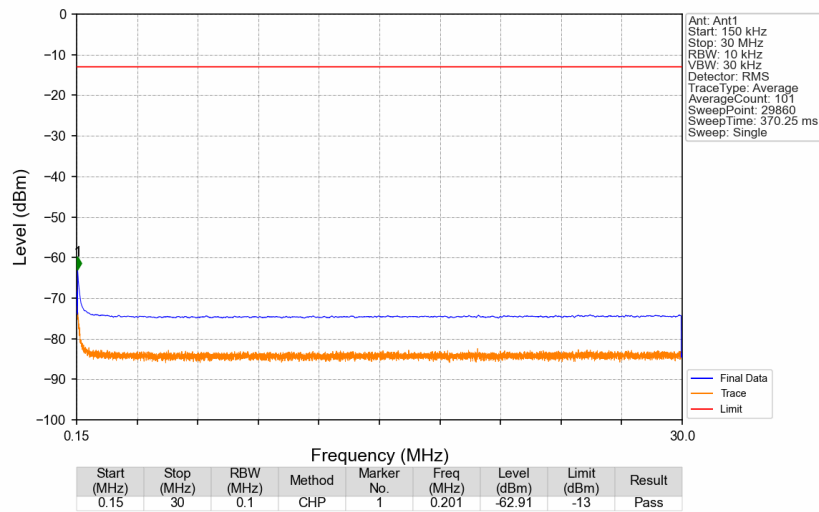
Band: 12 / NTNV								
Signal			Channel	TX Type	ANT	SE (dBm)		Verdict
Type	Level (dBm)	Frequency (MHz)				Result	Limit	
GMSK 0.2MHz	-3.4	729.2	LCH	SISO	1	Refer To Test Graph		Pass
		737.5	MCH	SISO	1	Refer To Test Graph		Pass
		745.8	HCH	SISO	1	Refer To Test Graph		Pass
AWGN 5MHz	-3.4	731.5	LCH	SISO	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

6.1.2 Test Graph

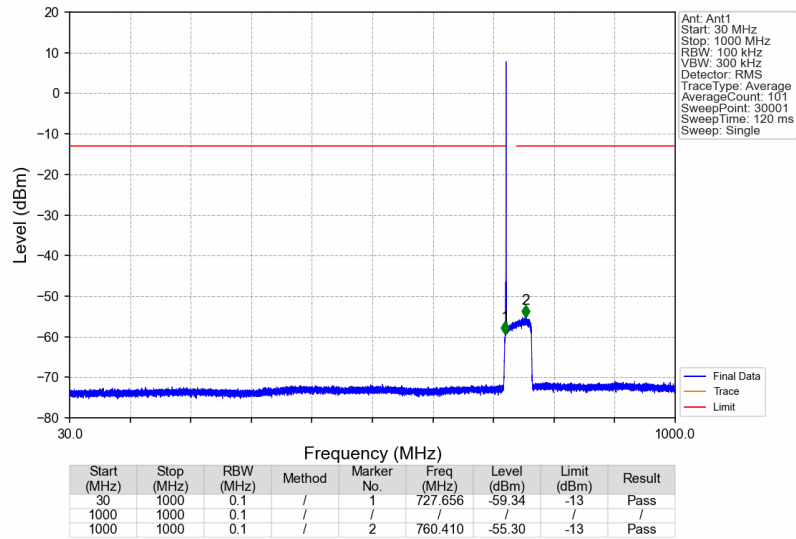
Band12_729.2MHz_GMSK_SISO_Ant1_NTNV



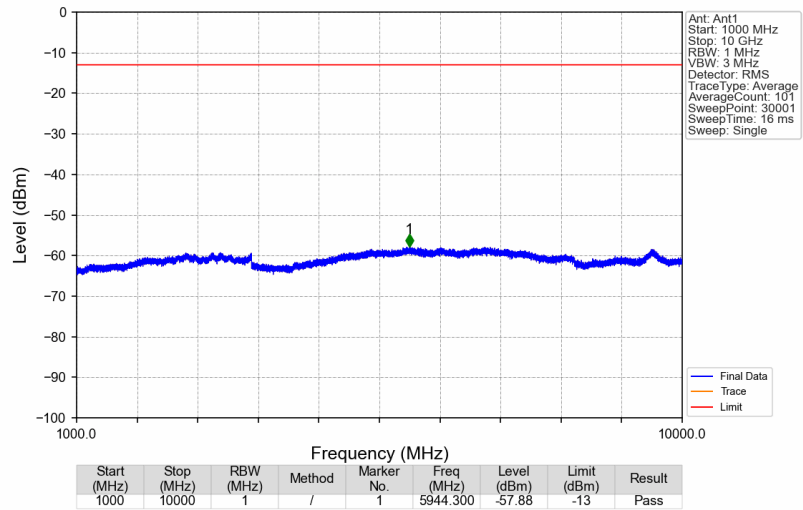
Band12_729.2MHz_GMSK_SISO_Ant1_NTNV



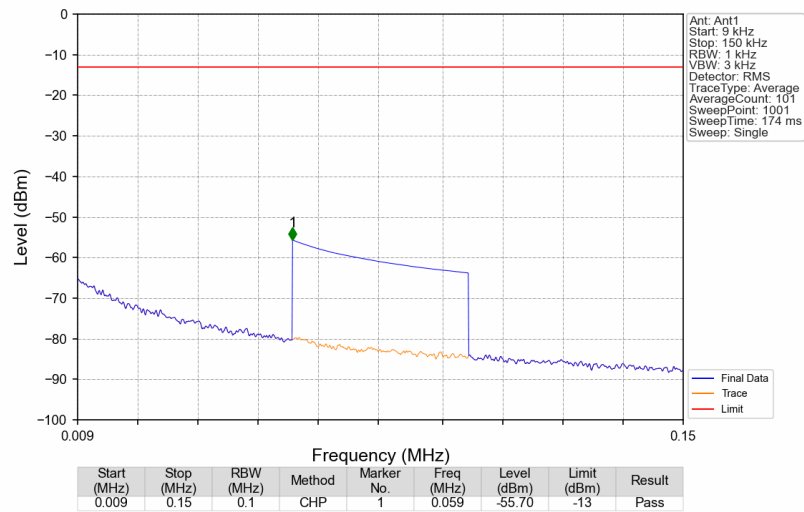
Band12_729.2MHz_GMSK_SISO_Ant1_NTNV



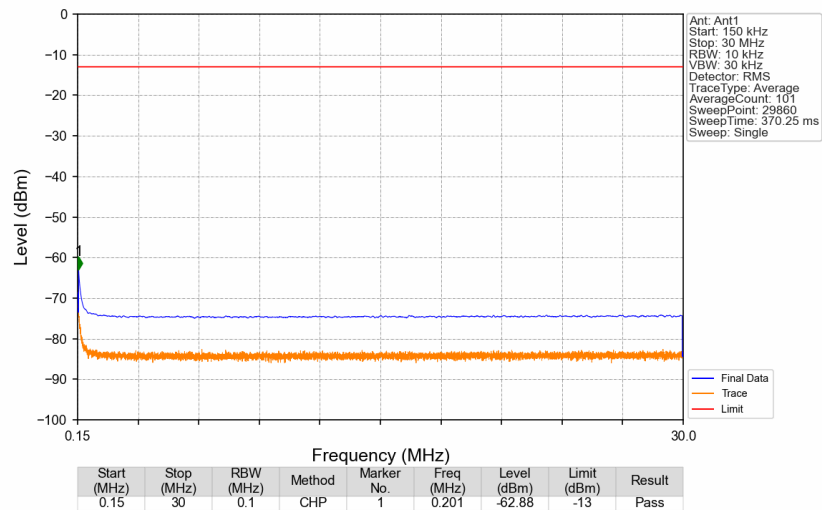
Band12_729.2MHz_GMSK_SISO_Ant1_NTNV



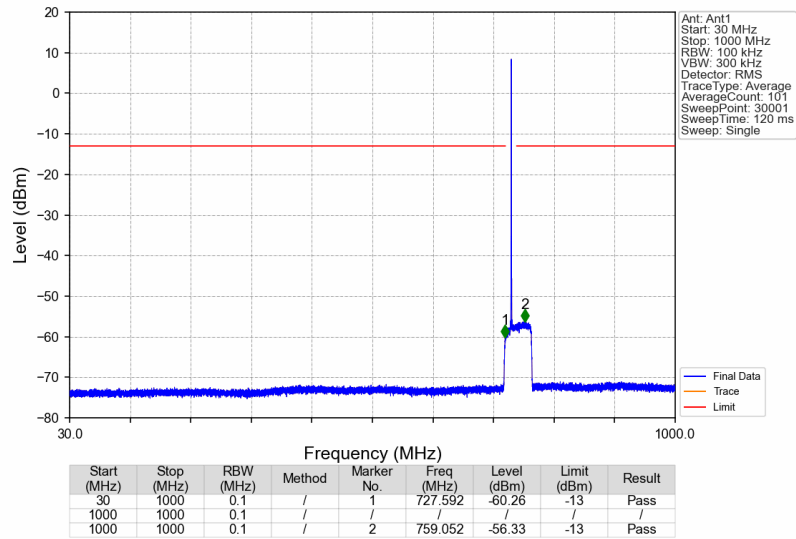
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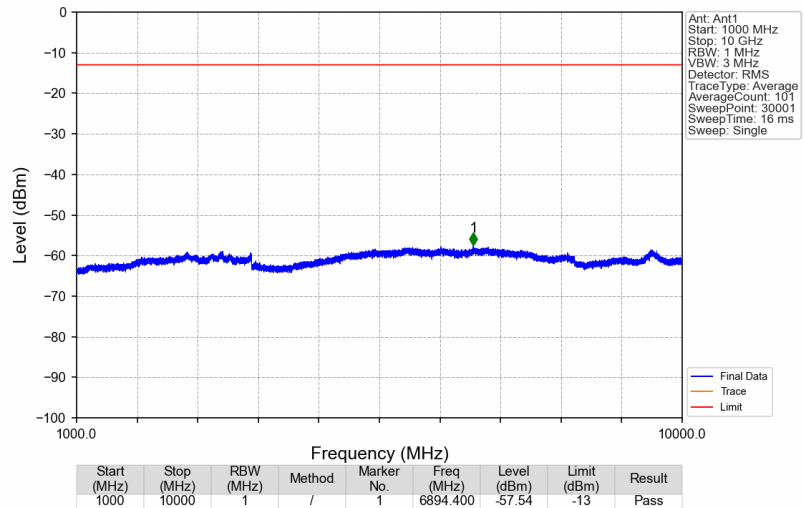
Band12_737.5MHz_GMSK_SISO_Ant1_NTNV



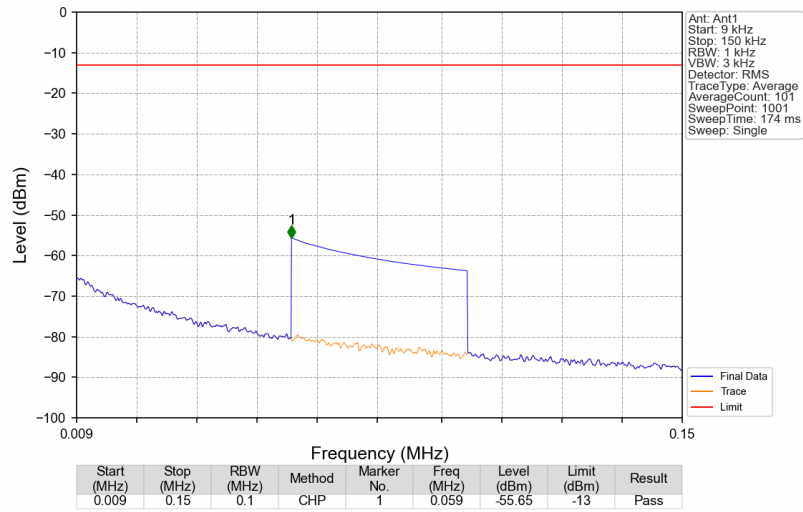
Band12_737.5MHz_GMSK_SISO_Ant1_NTNV



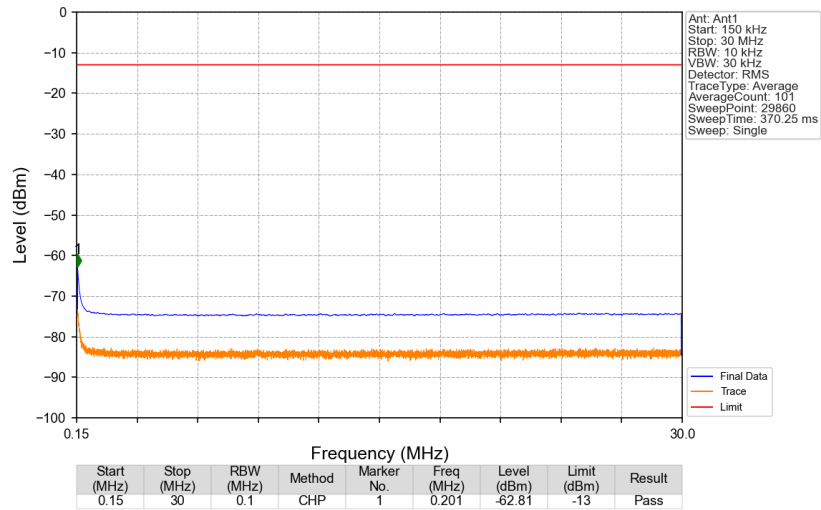
Band12_737.5MHz_GMSK_SISO_Ant1_NTNV



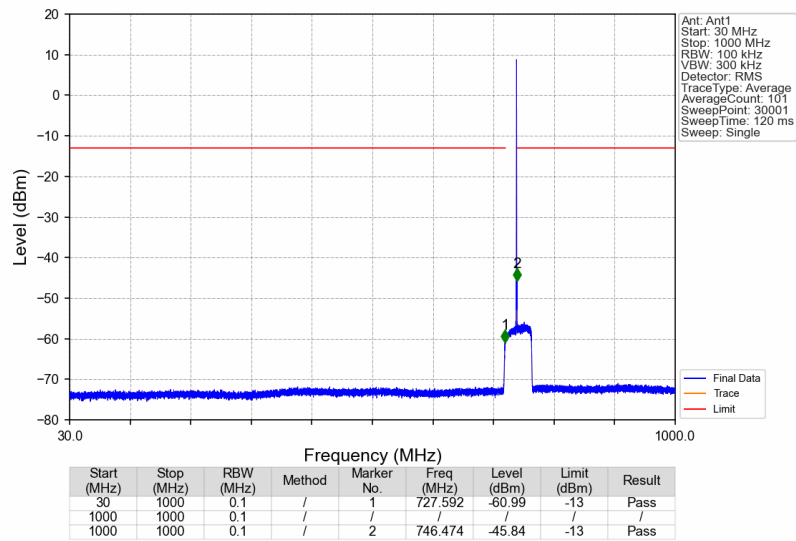
Band12_745.8MHz_GMSK_SISO_Ant1_NTNV



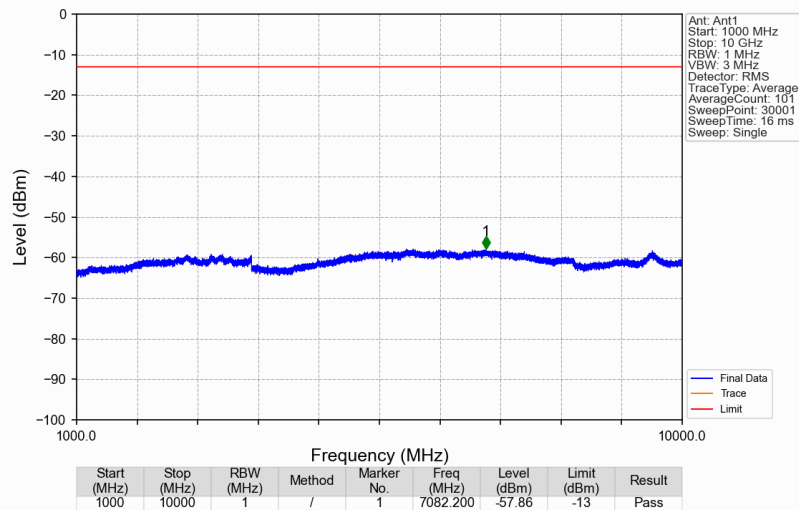
Band12_745.8MHz_GMSK_SISO_Ant1_NTNV



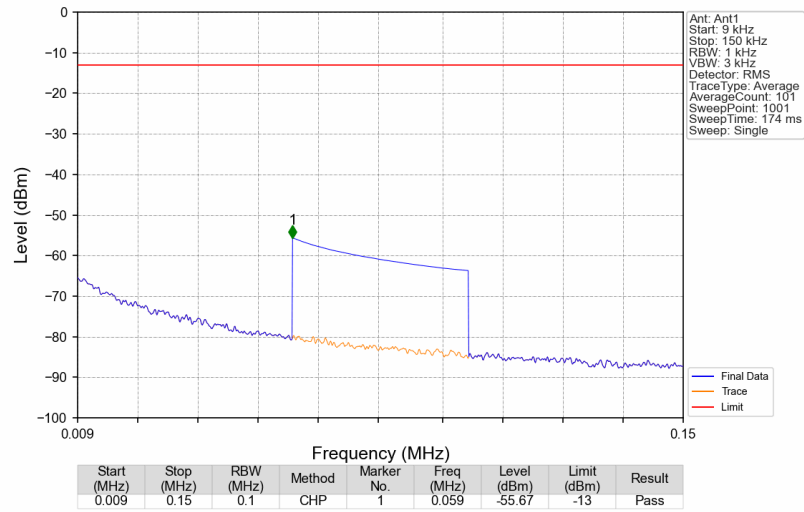
Band12_745.8MHz_GMSK_SISO_Ant1_NTNV



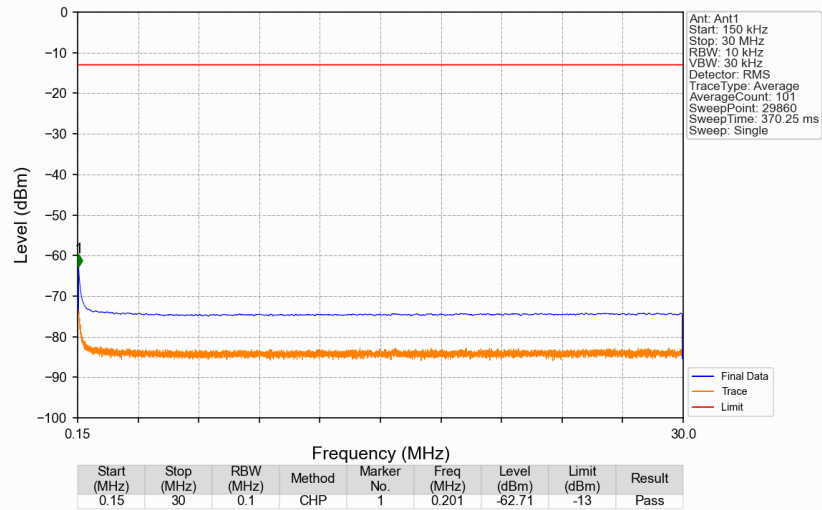
Band12_745.8MHz_GMSK_SISO_Ant1_NTNV



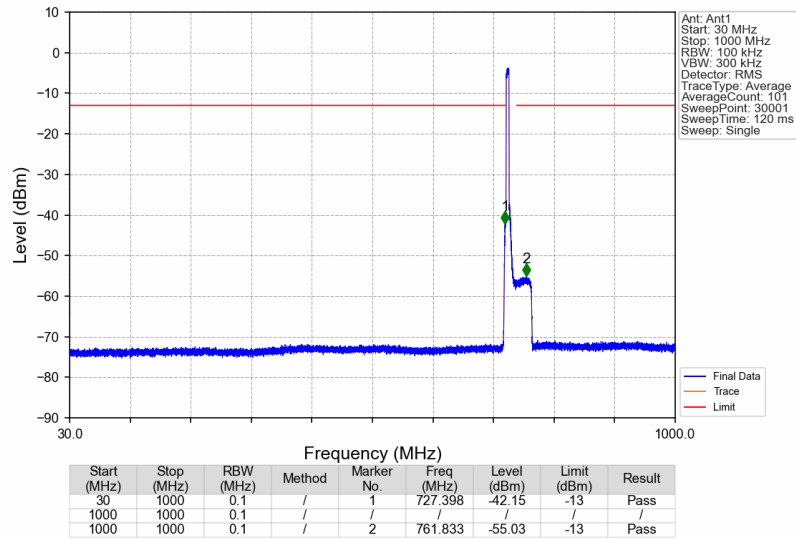
Band12_731.5MHz_AWGN_SISO_Ant1_NTNV



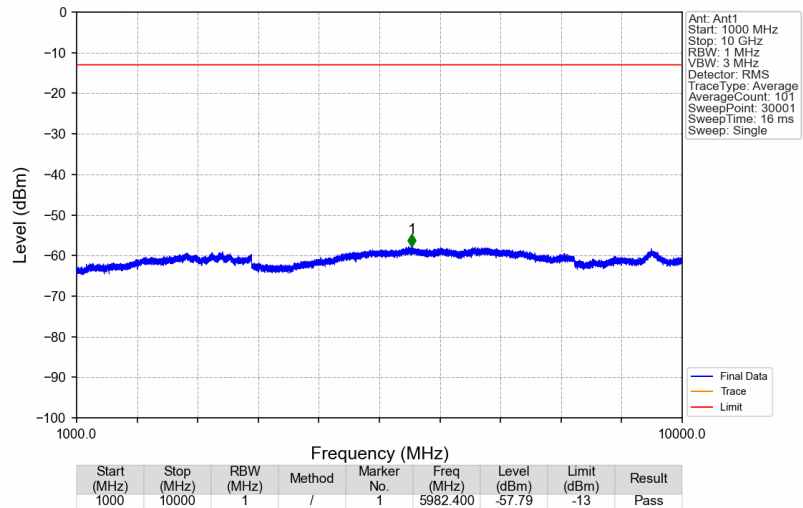
Band12_731.5MHz_AWGN_SISO_Ant1_NTNV



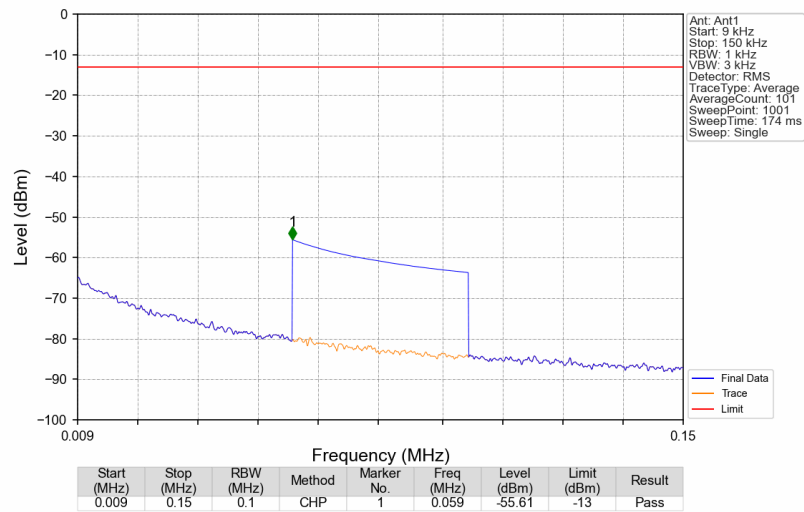
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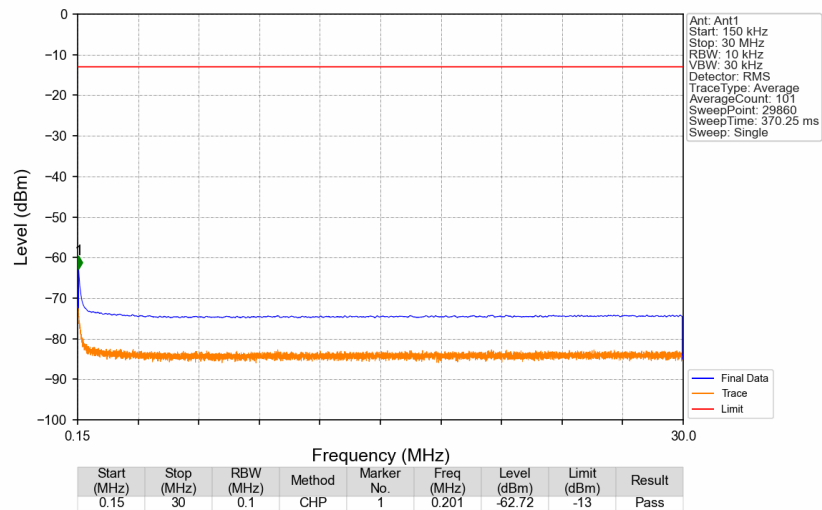
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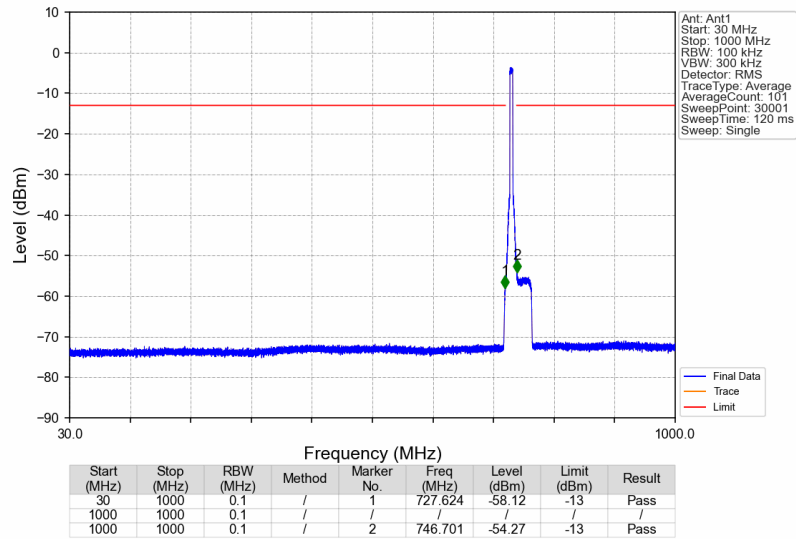
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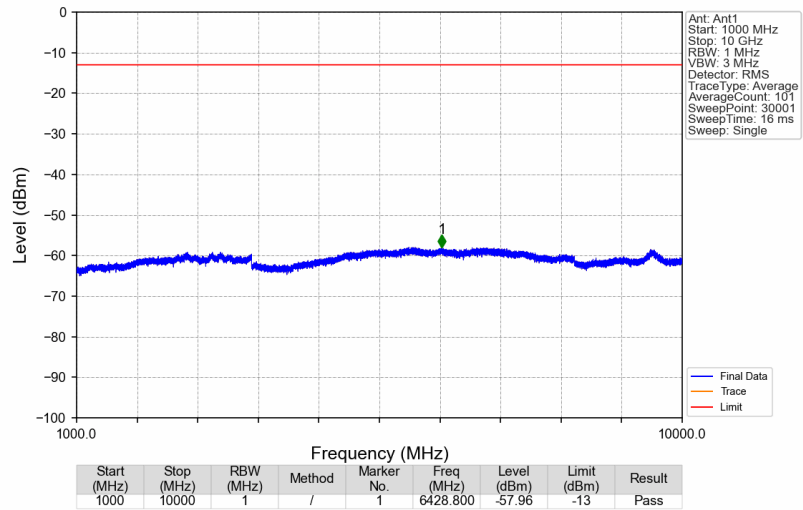
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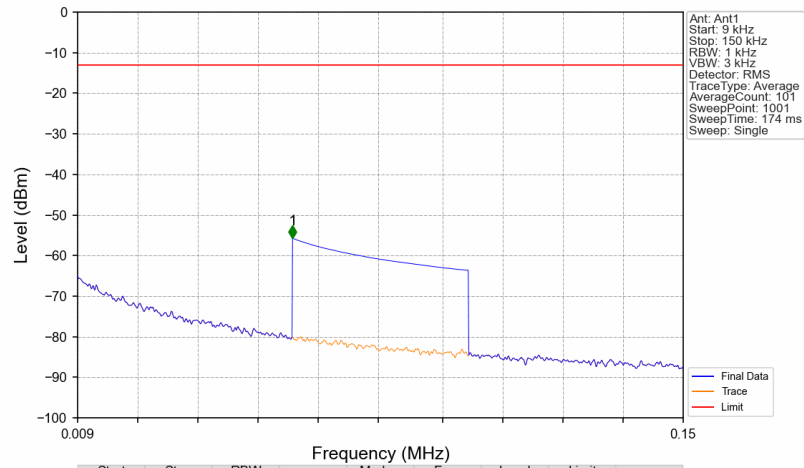
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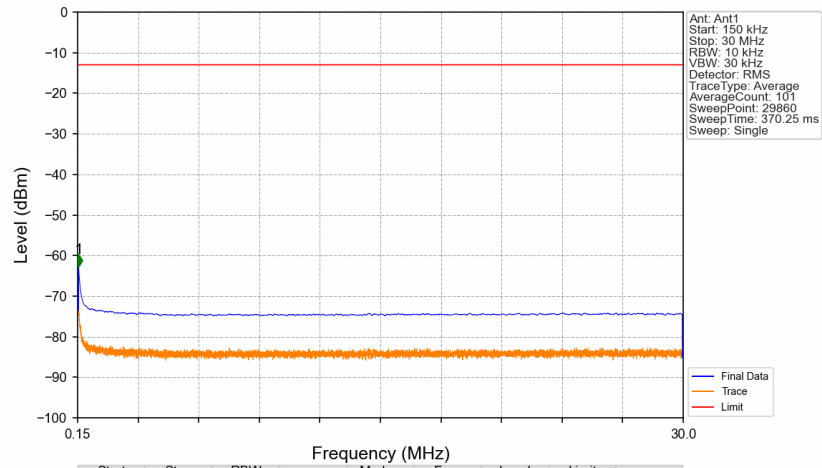
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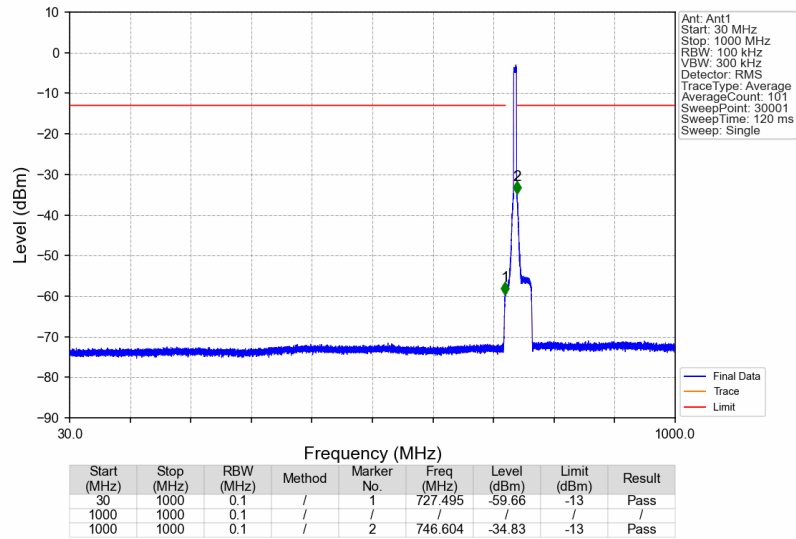
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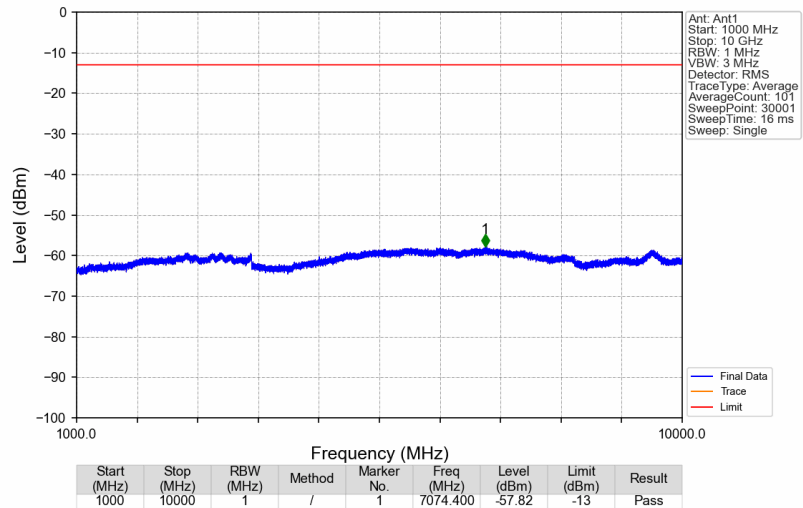
Band12_743.5MHz_AWGN_SISO_Ant1_NTNV



Band12_743.5MHz_AWGN_SISO_Ant1_NTNV



Band12_743.5MHz_AWGN_SISO_Ant1_NTNV



7. Frequency stability measurements

7.1 Band12_Ant1

7.1.1 Test Result

Band: 12 / NTNV							
Signal			Temp (°C)	Voltage (VDC)	Freq. Error (Hz)	Tolerance (ppm)	Verdict
Type	Level (dBm)	Frequency (MHz)					
CW	-3.4	729.1	20	27.5	12	0.0165	Pass
				28.0	11	0.0151	Pass
				28.5	9	0.0123	Pass
			-40	28.0	9	0.0123	Pass
			-30	28.0	10	0.0137	Pass
			-20	28.0	7	0.0096	Pass
			-10	28.0	6	0.0082	Pass
			0	28.0	9	0.0123	Pass
			10	28.0	10	0.0137	Pass
			30	28.0	11	0.0151	Pass
			40	28.0	10	0.0137	Pass
			55	28.0	13	0.0178	Pass
		737.5	20	27.5	10	0.0136	Pass
				28.0	13	0.0176	Pass
				28.5	9	0.0122	Pass
			-40	28.0	10	0.0136	Pass
			-30	28.0	12	0.0163	Pass
			-20	28.0	8	0.0108	Pass
			-10	28.0	9	0.0122	Pass
			0	28.0	7	0.0095	Pass
			10	28.0	10	0.0136	Pass
			30	28.0	13	0.0176	Pass
			40	28.0	14	0.0190	Pass
			55	28.0	11	0.0149	Pass
		745.9	20	27.5	11	0.0147	Pass
				28.0	9	0.0121	Pass
				28.5	10	0.0134	Pass
			-40	28.0	12	0.0161	Pass
			-30	28.0	12	0.0161	Pass
			-20	28.0	13	0.0174	Pass
			-10	28.0	12	0.0161	Pass
			0	28.0	7	0.0094	Pass
			10	28.0	9	0.0121	Pass
			30	28.0	8	0.0107	Pass
			40	28.0	10	0.0134	Pass
			55	28.0	11	0.0147	Pass

8. Radiated Spurious Emissions

8.1 Band12_Ant1

8.1.1 Test Result

GMSK 729.2MHz					
Frequency	Spurious Emission Polarization and Level		Limit	Over Limit	Verdict
MHz	Polarization	dBm	dBm	dB	
367.5	Horizontal	-67.45	-13	-54.45	Pass
593.7	Horizontal	-65.29	-13	-52.29	Pass
957.3	Horizontal	-58.35	-13	-45.35	Pass
1340.3	Horizontal	-61.19	-13	-48.19	Pass
2764.2	Horizontal	-53.33	-13	-40.33	Pass
6475.0	Horizontal	-51.95	-13	-38.95	Pass
357.2	Vertical	-66.51	-13	-53.51	Pass
570.3	Vertical	-62.32	-13	-49.32	Pass
948.6	Vertical	-57.17	-13	-44.17	Pass
1346.6	Vertical	-57.07	-13	-44.07	Pass
2768.4	Vertical	-53.65	-13	-40.65	Pass
6495.5	Vertical	-46.19	-13	-33.19	Pass

GMSK 737.5MHz					
Frequency	Spurious Emission Polarization and Level		Limit	Over Limit	Verdict
MHz	Polarization	dBm	dBm	dB	
374.1	Horizontal	-71.34	-13	-58.34	Pass
592.3	Horizontal	-64.79	-13	-51.79	Pass
932.4	Horizontal	-59.59	-13	-46.59	Pass
1339.6	Horizontal	-58.57	-13	-45.57	Pass
2750.1	Horizontal	-53.59	-13	-40.59	Pass
6505.0	Horizontal	-48.26	-13	-35.26	Pass
398.1	Vertical	-69.49	-13	-56.49	Pass
599.1	Vertical	-62.95	-13	-49.95	Pass
957.8	Vertical	-56.96	-13	-43.96	Pass
1329.0	Vertical	-61.00	-13	-48.00	Pass
2726.1	Vertical	-55.30	-13	-42.30	Pass
6487.3	Vertical	-49.02	-13	-36.02	Pass

GMSK 745.8MHz					
Frequency	Spurious Emission Polarization and Level		Limit	Over Limit	Verdict
MHz	Polarization	dBm	dBm	dB	
376.3	Horizontal	-67.34	-13	-54.34	Pass
607.4	Horizontal	-62.55	-13	-49.55	Pass
949.3	Horizontal	-58.97	-13	-45.97	Pass
1338.8	Horizontal	-59.44	-13	-46.44	Pass
2741.5	Horizontal	-53.50	-13	-40.50	Pass
6486.0	Horizontal	-48.31	-13	-35.31	Pass
382.6	Vertical	-67.03	-13	-54.03	Pass
594.8	Vertical	-64.93	-13	-51.93	Pass
950.7	Vertical	-58.21	-13	-45.21	Pass
1325.9	Vertical	-56.15	-13	-43.15	Pass
2731.4	Vertical	-52.76	-13	-39.76	Pass
6496.3	Vertical	-48.59	-13	-35.59	Pass

AWGN 731.5MHz					
Frequency	Spurious Emission Polarization and Level		Limit	Over Limit	Verdict
MHz	Polarization	dBm	dBm	dB	
407.3	Horizontal	-68.81	-13	-55.81	Pass
588.1	Horizontal	-65.90	-13	-52.90	Pass
953.1	Horizontal	-58.37	-13	-45.37	Pass
1373.6	Horizontal	-60.74	-13	-47.74	Pass
2753.5	Horizontal	-52.21	-13	-39.21	Pass
6508.1	Horizontal	-47.36	-13	-34.36	Pass
357.9	Vertical	-68.79	-13	-55.79	Pass
607.5	Vertical	-63.07	-13	-50.07	Pass
968.8	Vertical	-56.86	-13	-43.86	Pass
1373.8	Vertical	-61.73	-13	-48.73	Pass
2733.4	Vertical	-55.58	-13	-42.58	Pass
6493.9	Vertical	-49.22	-13	-36.22	Pass

AWGN 737.5MHz					
Frequency	Spurious Emission Polarization and Level		Limit	Over Limit	Verdict
MHz	Polarization	dBm	dBm	dB	
384.1	Horizontal	-69.68	-13	-56.68	Pass
602.8	Horizontal	-66.10	-13	-53.10	Pass
962.6	Horizontal	-60.00	-13	-47.00	Pass
1346.2	Horizontal	-56.51	-13	-43.51	Pass
2772.8	Horizontal	-52.81	-13	-39.81	Pass
6480.8	Horizontal	-49.27	-13	-36.27	Pass
365.4	Vertical	-68.36	-13	-55.36	Pass
609.6	Vertical	-62.35	-13	-49.35	Pass
945.4	Vertical	-60.68	-13	-47.68	Pass
1331.8	Vertical	-60.34	-13	-47.34	Pass
2736.4	Vertical	-54.46	-13	-41.46	Pass
6487.0	Vertical	-47.20	-13	-34.20	Pass

AWGN 743.5MHz					
Frequency	Spurious Emission Polarization and Level		Limit	Over Limit	Verdict
MHz	Polarization	dBm	dBm	dB	
374.2	Horizontal	-66.10	-13	-53.10	Pass
586.3	Horizontal	-61.53	-13	-48.53	Pass
963.1	Horizontal	-58.53	-13	-45.53	Pass
1371.4	Horizontal	-60.63	-13	-47.63	Pass
2755.5	Horizontal	-51.78	-13	-38.78	Pass
6477.8	Horizontal	-49.31	-13	-36.31	Pass
360.4	Vertical	-67.07	-13	-54.07	Pass
592.8	Vertical	-65.94	-13	-52.94	Pass
926.5	Vertical	-61.26	-13	-48.26	Pass
1346.4	Vertical	-59.40	-13	-46.40	Pass
2760.8	Vertical	-54.04	-13	-41.04	Pass
6484.3	Vertical	-51.18	-13	-38.18	Pass