

1.1.1 B12_1.4MHz_ERP

Note1: ERP=Conducted Power+Antenna Gain-2.15

1.1.2 B12_3MHz_ERP

Band: 12 / Bandwidth: 3MHz / NTVN										
Modulation	Frequency (MHz)	RB Allocation		Conducted Power (dBm)	Gain (dBi)	ERP (dBm)		Verdict		
		Size	Offset			Result	Limit			
QPSK	700.5	1	0	22.06	-0.50	19.41	<=34.77	Pass		
			7	22.39	-0.50	19.74	<=34.77	Pass		
			14	22.34	-0.50	19.69	<=34.77	Pass		
		8	0	21.37	-0.50	18.72	<=34.77	Pass		
			4	21.48	-0.50	18.83	<=34.77	Pass		
			7	21.41	-0.50	18.76	<=34.77	Pass		
		15	0	21.38	-0.50	18.73	<=34.77	Pass		
		707.5	1	0	22.71	-0.50	20.06	<=34.77	Pass	
				7	22.75	-0.50	20.10	<=34.77	Pass	
	14			22.45	-0.50	19.80	<=34.77	Pass		
	8		0	21.70	-0.50	19.05	<=34.77	Pass		
			4	21.61	-0.50	18.96	<=34.77	Pass		
			7	21.62	-0.50	18.97	<=34.77	Pass		
	15	0	21.55	-0.50	18.90	<=34.77	Pass			
	714.5	1	0	22.78	-0.50	20.13	<=34.77	Pass		
			7	23.01	-0.50	20.36	<=34.77	Pass		
			14	22.70	-0.50	20.05	<=34.77	Pass		
		8	0	21.81	-0.50	19.16	<=34.77	Pass		
			4	21.68	-0.50	19.03	<=34.77	Pass		
			7	21.61	-0.50	18.96	<=34.77	Pass		
		15	0	21.73	-0.50	19.08	<=34.77	Pass		
		16QAM	700.5	1	0	21.74	-0.50	19.09	<=34.77	Pass
					7	21.93	-0.50	19.28	<=34.77	Pass
	14				21.74	-0.50	19.09	<=34.77	Pass	
8	0			20.54	-0.50	17.89	<=34.77	Pass		
	4			20.15	-0.50	17.50	<=34.77	Pass		
	7			20.30	-0.50	17.65	<=34.77	Pass		
15	0			20.17	-0.50	17.52	<=34.77	Pass		
707.5	1			0	21.45	-0.50	18.80	<=34.77	Pass	
				7	21.49	-0.50	18.84	<=34.77	Pass	
			14	21.22	-0.50	18.57	<=34.77	Pass		
	8		0	20.47	-0.50	17.82	<=34.77	Pass		
			4	20.46	-0.50	17.81	<=34.77	Pass		
			7	20.37	-0.50	17.72	<=34.77	Pass		
15	0		20.51	-0.50	17.86	<=34.77	Pass			
714.5	1		0	22.02	-0.50	19.37	<=34.77	Pass		
			7	22.26	-0.50	19.61	<=34.77	Pass		
			14	21.99	-0.50	19.34	<=34.77	Pass		
	8		0	20.92	-0.50	18.27	<=34.77	Pass		
			4	20.80	-0.50	18.15	<=34.77	Pass		
			7	20.75	-0.50	18.10	<=34.77	Pass		
	15		0	20.65	-0.50	18.00	<=34.77	Pass		
	Note1: ERP=Conducted Power+Antenna Gain-2.15									

1.1.3 B12_5MHz_ERP

Band: 12 / Bandwidth: 5MHz / NTVN										
Modulation	Frequency (MHz)	RB Allocation		Conducted Power (dBm)	Gain (dBi)	ERP (dBm)		Verdict		
		Size	Offset			Result	Limit			
QPSK	701.5	1	0	22.12	-0.50	19.47	<=34.77	Pass		
			13	22.40	-0.50	19.75	<=34.77	Pass		
			24	22.35	-0.50	19.70	<=34.77	Pass		
		12	0	21.35	-0.50	18.70	<=34.77	Pass		
			6	21.50	-0.50	18.85	<=34.77	Pass		
			13	21.61	-0.50	18.96	<=34.77	Pass		
		25	0	21.49	-0.50	18.84	<=34.77	Pass		
		707.5	1	0	22.28	-0.50	19.63	<=34.77	Pass	
				13	22.51	-0.50	19.86	<=34.77	Pass	
	24			22.11	-0.50	19.46	<=34.77	Pass		
	12		0	21.58	-0.50	18.93	<=34.77	Pass		
			6	21.52	-0.50	18.87	<=34.77	Pass		
			13	21.62	-0.50	18.97	<=34.77	Pass		
	25	0	21.66	-0.50	19.01	<=34.77	Pass			
	713.5	1	0	22.51	-0.50	19.86	<=34.77	Pass		
			13	22.81	-0.50	20.16	<=34.77	Pass		
			24	22.58	-0.50	19.93	<=34.77	Pass		
		12	0	21.67	-0.50	19.02	<=34.77	Pass		
			6	21.91	-0.50	19.26	<=34.77	Pass		
			13	21.70	-0.50	19.05	<=34.77	Pass		
		25	0	21.60	-0.50	18.95	<=34.77	Pass		
		16QAM	701.5	1	0	20.95	-0.50	18.30	<=34.77	Pass
					13	21.12	-0.50	18.47	<=34.77	Pass
	24				20.89	-0.50	18.24	<=34.77	Pass	
12	0			20.29	-0.50	17.64	<=34.77	Pass		
	6			20.44	-0.50	17.79	<=34.77	Pass		
	13			20.45	-0.50	17.80	<=34.77	Pass		
25	0			20.56	-0.50	17.91	<=34.77	Pass		
707.5	1		0	22.01	-0.50	19.36	<=34.77	Pass		
			13	22.37	-0.50	19.72	<=34.77	Pass		
			24	21.94	-0.50	19.29	<=34.77	Pass		
	12		0	20.30	-0.50	17.65	<=34.77	Pass		
			6	20.60	-0.50	17.95	<=34.77	Pass		
			13	20.58	-0.50	17.93	<=34.77	Pass		
25	0		20.59	-0.50	17.94	<=34.77	Pass			
713.5	1		0	21.51	-0.50	18.86	<=34.77	Pass		
			13	21.88	-0.50	19.23	<=34.77	Pass		
			24	21.61	-0.50	18.96	<=34.77	Pass		
	12		0	20.36	-0.50	17.71	<=34.77	Pass		
		6	20.53	-0.50	17.88	<=34.77	Pass			
		13	20.80	-0.50	18.15	<=34.77	Pass			
	25	0	20.67	-0.50	18.02	<=34.77	Pass			
Note1: ERP=Conducted Power+Antenna Gain-2.15										

1.1.4 B12_10MHz_ERP

Band: 12 / Bandwidth: 10MHz / NTNV										
Modulation	Frequency (MHz)	RB Allocation		Conducted Power (dBm)	Gain (dBi)	ERP (dBm)		Verdict		
		Size	Offset			Result	Limit			
QPSK	704	1	0	22.39	-0.50	19.74	<=34.77	Pass		
			25	22.58	-0.50	19.93	<=34.77	Pass		
			49	22.53	-0.50	19.88	<=34.77	Pass		
		25	0	21.45	-0.50	18.80	<=34.77	Pass		
			13	21.57	-0.50	18.92	<=34.77	Pass		
			25	21.50	-0.50	18.85	<=34.77	Pass		
		50	0	21.53	-0.50	18.88	<=34.77	Pass		
		707.5	1	0	22.55	-0.50	19.90	<=34.77	Pass	
				25	22.56	-0.50	19.91	<=34.77	Pass	
	49			22.39	-0.50	19.74	<=34.77	Pass		
	25		0	21.57	-0.50	18.92	<=34.77	Pass		
			13	21.60	-0.50	18.95	<=34.77	Pass		
			25	21.63	-0.50	18.98	<=34.77	Pass		
	50	0	21.65	-0.50	19.00	<=34.77	Pass			
	711	1	0	22.82	-0.50	20.17	<=34.77	Pass		
			25	23.02	-0.50	20.37	<=34.77	Pass		
			49	22.54	-0.50	19.89	<=34.77	Pass		
		25	0	21.70	-0.50	19.05	<=34.77	Pass		
			13	21.82	-0.50	19.17	<=34.77	Pass		
			25	21.73	-0.50	19.08	<=34.77	Pass		
		50	0	21.78	-0.50	19.13	<=34.77	Pass		
		16QAM	704	1	0	21.82	-0.50	19.17	<=34.77	Pass
					25	22.11	-0.50	19.46	<=34.77	Pass
	49				21.45	-0.50	18.80	<=34.77	Pass	
	25			0	20.43	-0.50	17.78	<=34.77	Pass	
				13	20.43	-0.50	17.78	<=34.77	Pass	
				25	20.59	-0.50	17.94	<=34.77	Pass	
50	0			20.38	-0.50	17.73	<=34.77	Pass		
707.5	1			0	22.08	-0.50	19.43	<=34.77	Pass	
				25	22.88	-0.50	20.23	<=34.77	Pass	
			49	22.14	-0.50	19.49	<=34.77	Pass		
	25		0	20.54	-0.50	17.89	<=34.77	Pass		
			13	20.85	-0.50	18.20	<=34.77	Pass		
			25	20.47	-0.50	17.82	<=34.77	Pass		
50	0		20.59	-0.50	17.94	<=34.77	Pass			
711	1		0	21.57	-0.50	18.92	<=34.77	Pass		
			25	21.67	-0.50	19.02	<=34.77	Pass		
			49	21.35	-0.50	18.70	<=34.77	Pass		
	25		0	20.72	-0.50	18.07	<=34.77	Pass		
			13	20.93	-0.50	18.28	<=34.77	Pass		
			25	20.85	-0.50	18.20	<=34.77	Pass		
	50		0	20.63	-0.50	17.98	<=34.77	Pass		
	Note1: ERP=Conducted Power+Antenna Gain-2.15									

2. Frequency Stability

2.1 Test Result

2.1.1 B12_10MHz

Band: 12 / Bandwidth: 10MHz									
Modulation	Frequency (MHz)	RB Allocation		Temp. (°C)	Voltage (VDC)	Freq. Error (Hz)	Freq. vs. Rated (ppm)		Verdict
		Size	Offset				Result	Limit	
QPSK	707.5	50	0	20	3.27	-0.162	-0.0002	-2.5 to 2.5	Pass
					3.85	-0.999	-0.0014	-2.5 to 2.5	Pass
					4.43	-1.684	-0.0024	-2.5 to 2.5	Pass
				-30	3.85	-0.175	-0.0002	-2.5 to 2.5	Pass
				-20	3.85	-0.676	-0.0010	-2.5 to 2.5	Pass
				-10	3.85	0.313	0.0004	-2.5 to 2.5	Pass
				0	3.85	-0.157	-0.0002	-2.5 to 2.5	Pass
				10	3.85	-0.224	-0.0003	-2.5 to 2.5	Pass
				30	3.85	-0.672	-0.0009	-2.5 to 2.5	Pass
				40	3.85	-0.829	-0.0012	-2.5 to 2.5	Pass
				50	3.85	-0.219	-0.0003	-2.5 to 2.5	Pass

3. 99% & 26dB Bandwidth

3.1 Test Result

3.1.1 Band12_OBW

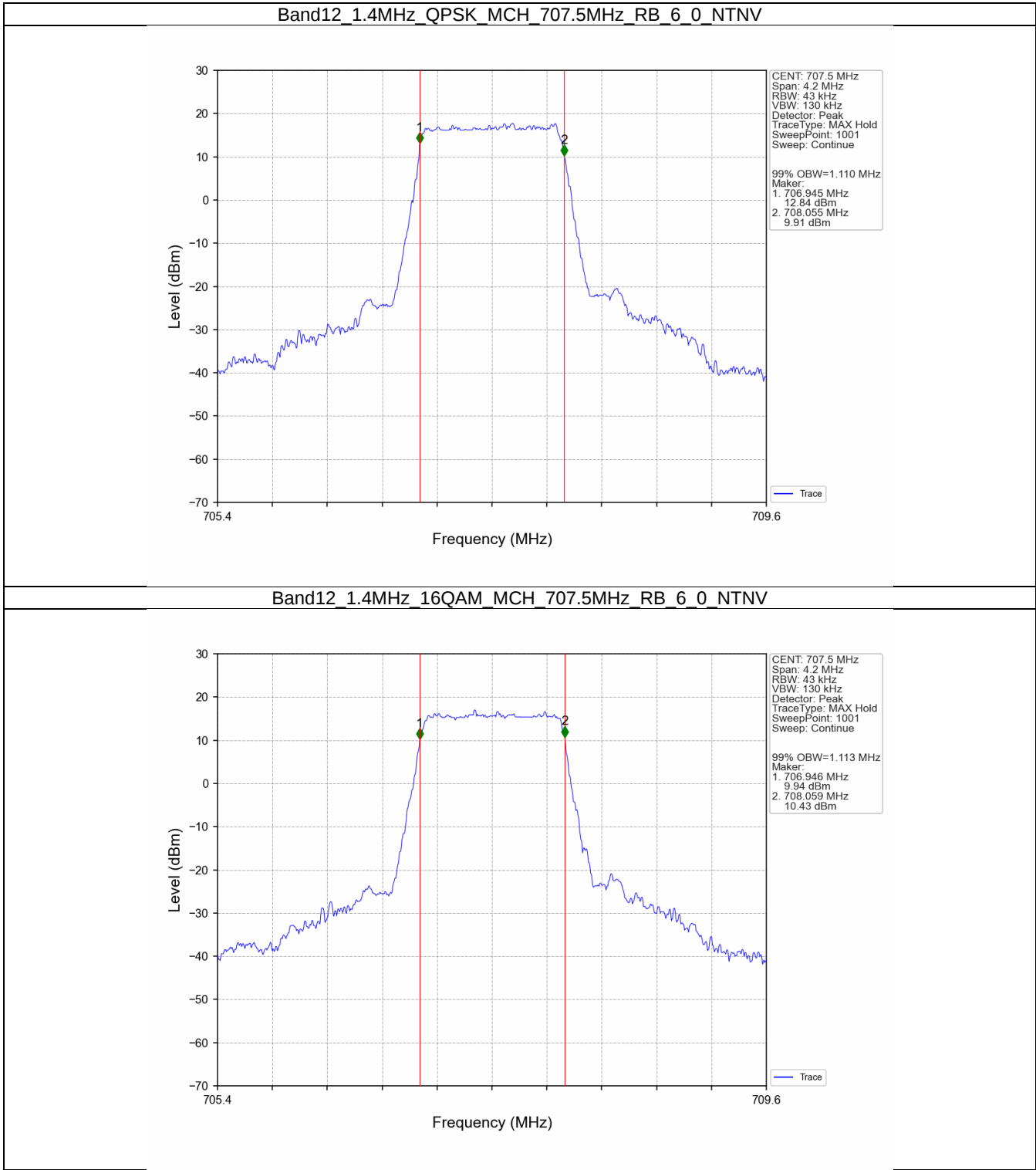
Band: 12 / NTNV							
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		99% Occupied Bandwidth (MHz)		Verdict
			Size	Offset	Result	Limit	
1.4	QPSK	707.5	6	0	1.110	/	Pass
	16QAM	707.5	6	0	1.113	/	Pass
3	QPSK	707.5	15	0	2.746	/	Pass
	16QAM	707.5	15	0	2.728	/	Pass
5	QPSK	707.5	25	0	4.550	/	Pass
	16QAM	707.5	25	0	4.545	/	Pass
10	QPSK	707.5	50	0	9.053	/	Pass
	16QAM	707.5	50	0	9.024	/	Pass

3.1.2 Band12_XDB

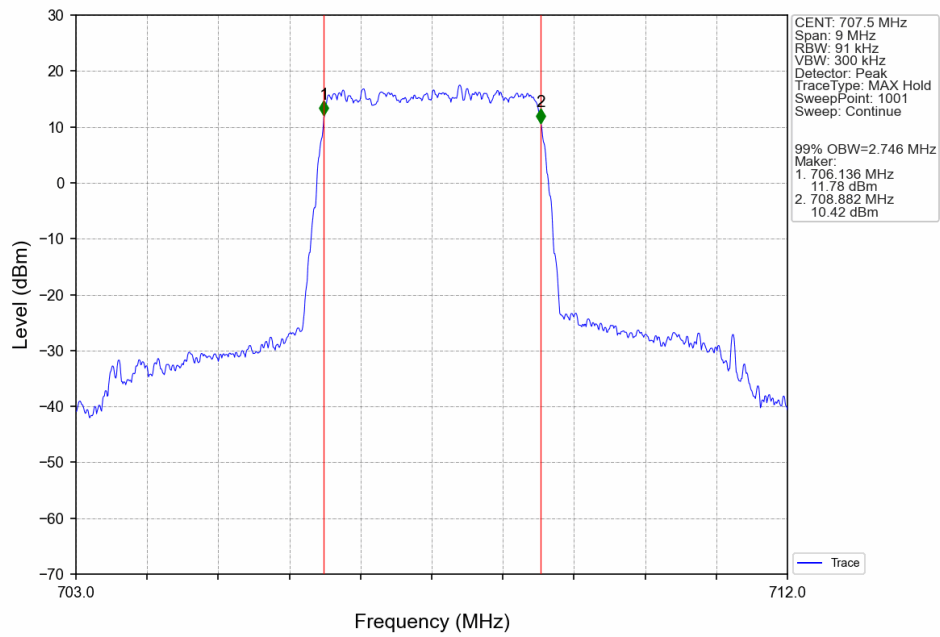
Band: 12 / NTNV							
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		26dB Bandwidth (MHz)		Verdict
			Size	Offset	Result	Limit	
1.4	QPSK	707.5	6	0	1.303	/	Pass
	16QAM	707.5	6	0	1.324	/	Pass
3	QPSK	707.5	15	0	3.052	/	Pass
	16QAM	707.5	15	0	3.046	/	Pass
5	QPSK	707.5	25	0	5.114	/	Pass
	16QAM	707.5	25	0	5.025	/	Pass
10	QPSK	707.5	50	0	10.053	/	Pass
	16QAM	707.5	50	0	9.993	/	Pass

3.2 Test Graph

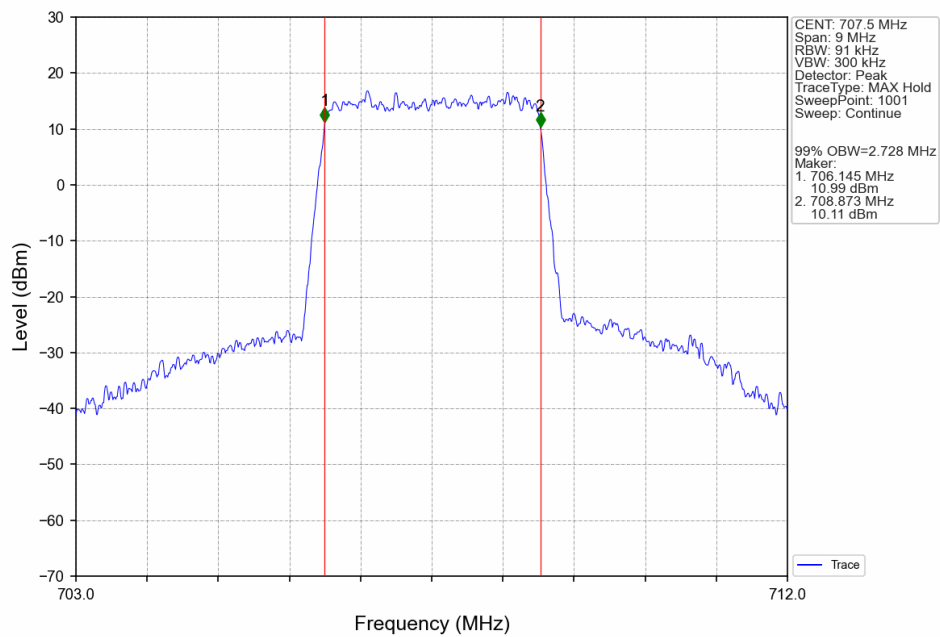
3.2.1 Band12_OBW



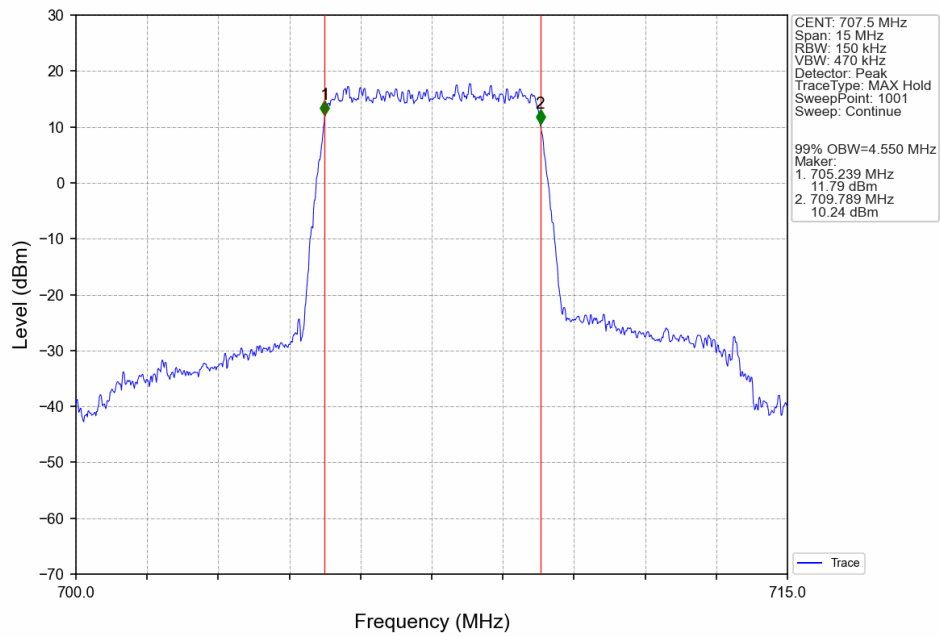
Band12 3MHz QPSK MCH 707.5MHz RB 15 0 NTV



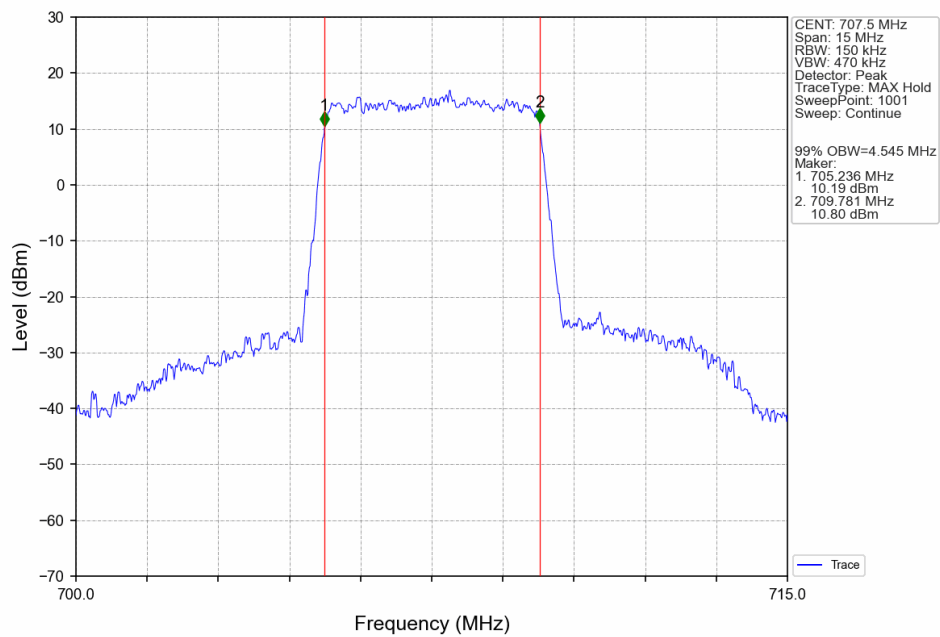
Band12 3MHz 16QAM MCH 707.5MHz RB 15 0 NTV



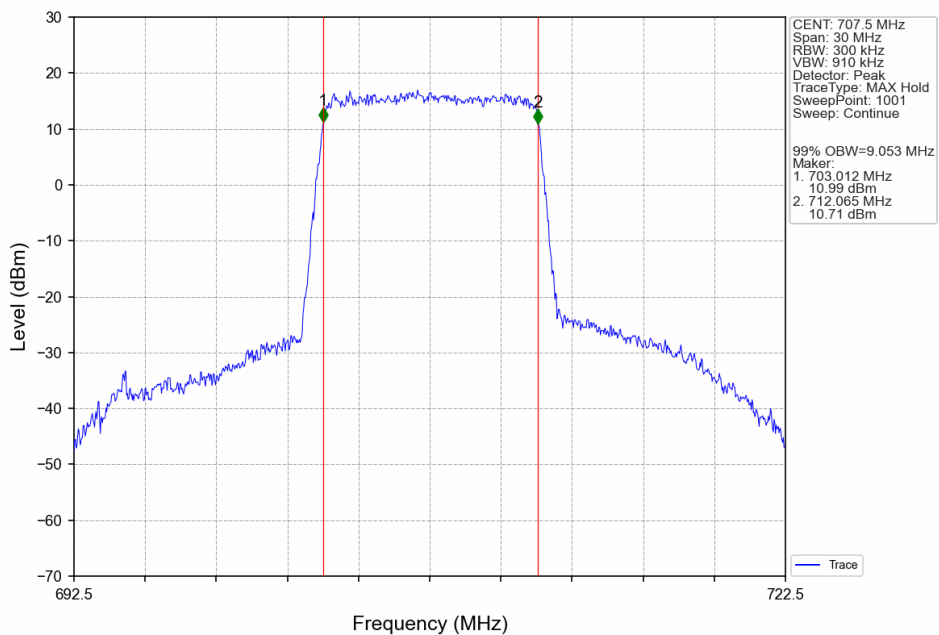
Band12 5MHz QPSK MCH 707.5MHz RB 25 0 NTV



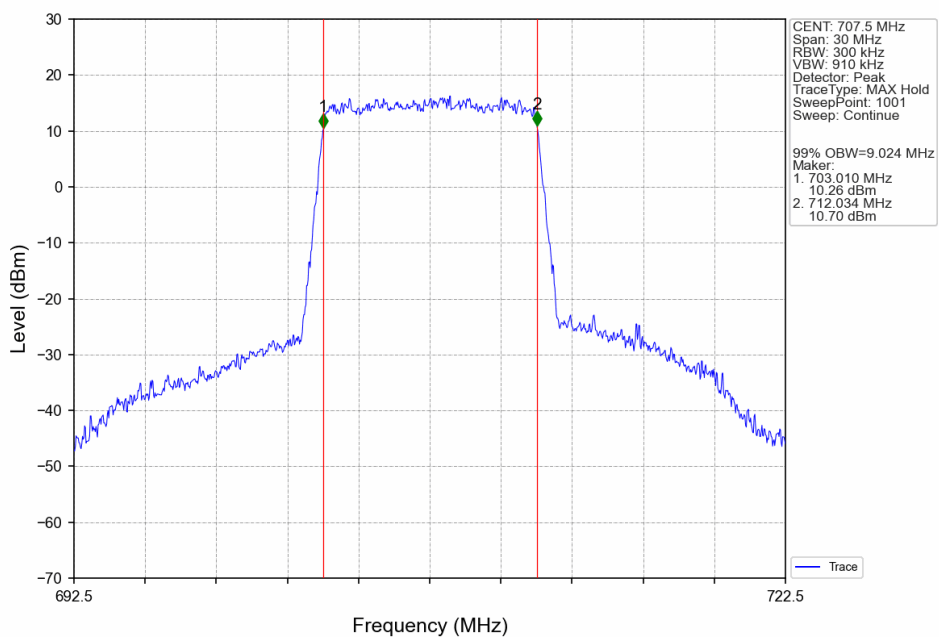
Band12 5MHz 16QAM MCH 707.5MHz RB 25 0 NTV



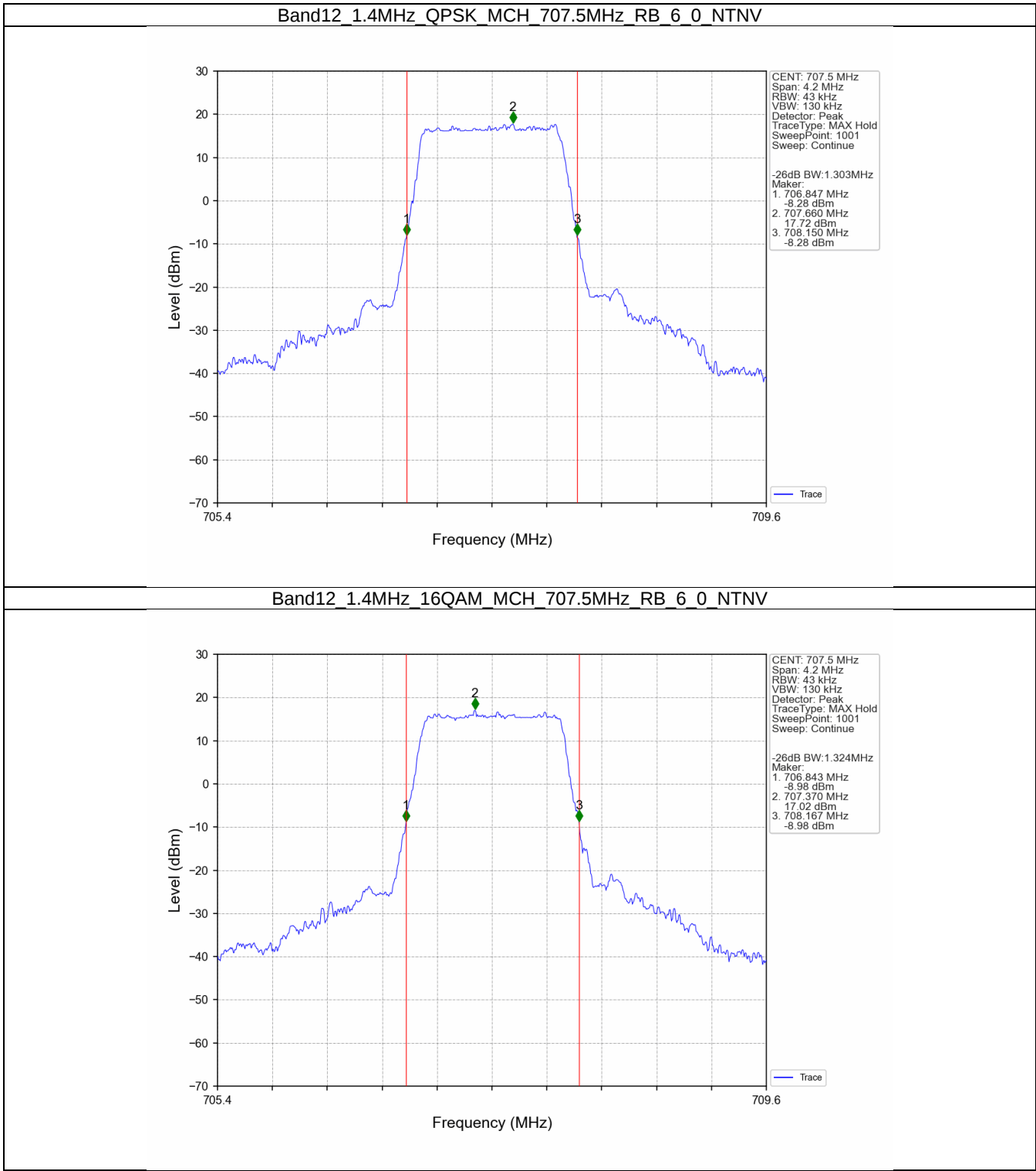
Band12 10MHz QPSK MCH 707.5MHz RB 50 0 NTNV



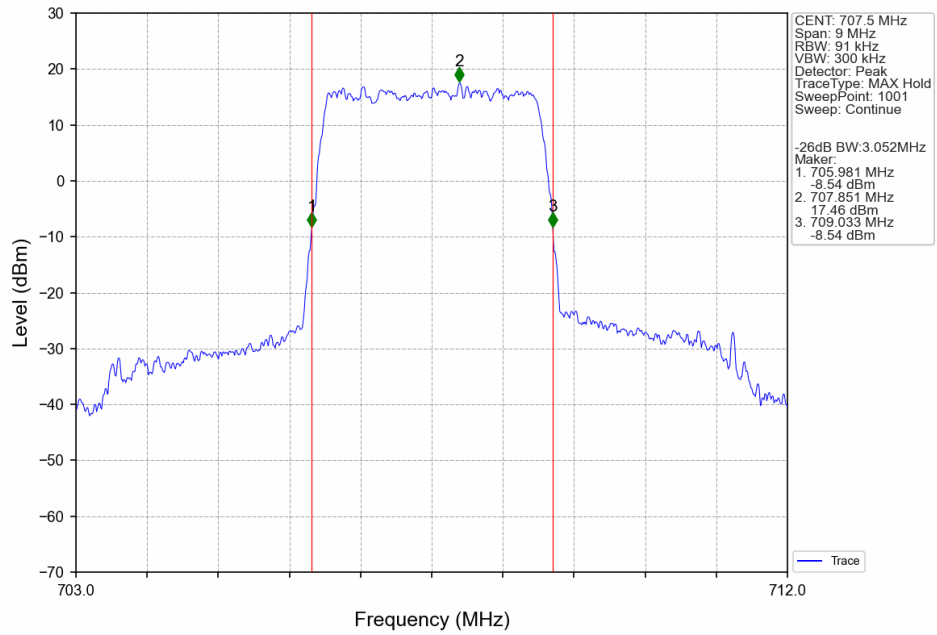
Band12 10MHz 16QAM MCH 707.5MHz RB 50 0 NTNV



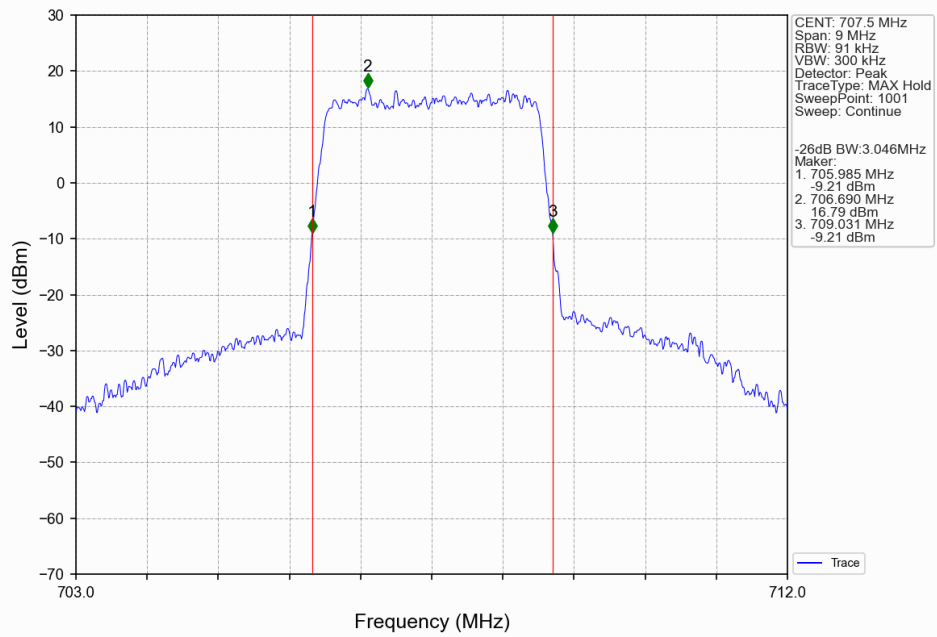
3.2.2 Band12_XDB



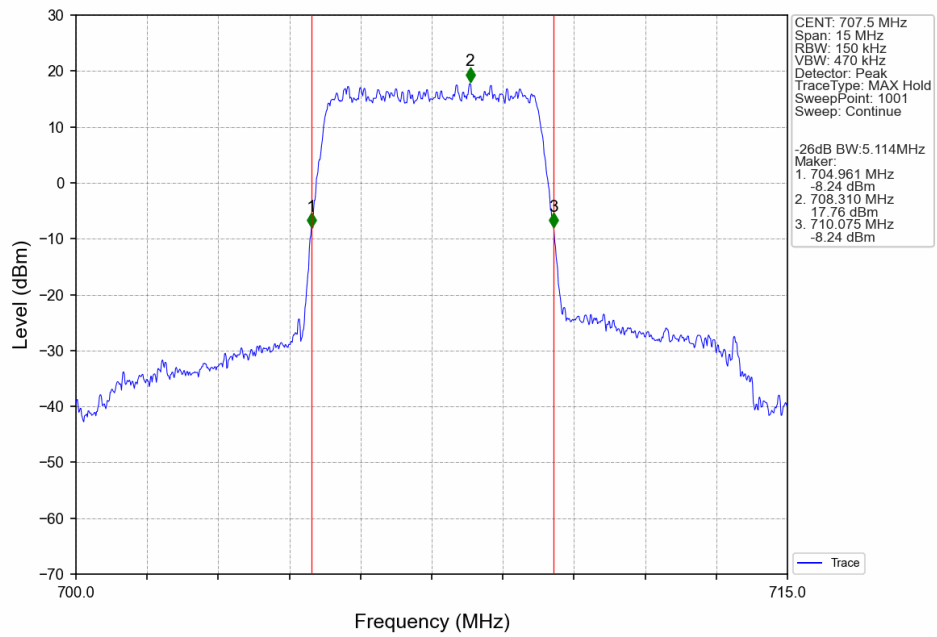
Band12 3MHz QPSK MCH 707.5MHz RB 15 0 NTV



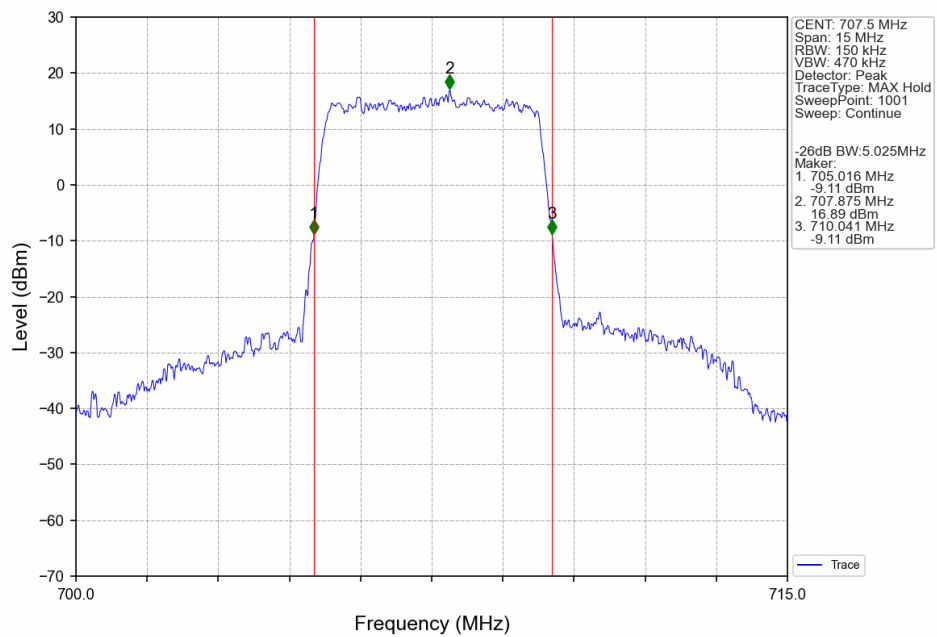
Band12 3MHz 16QAM MCH 707.5MHz RB 15 0 NTV



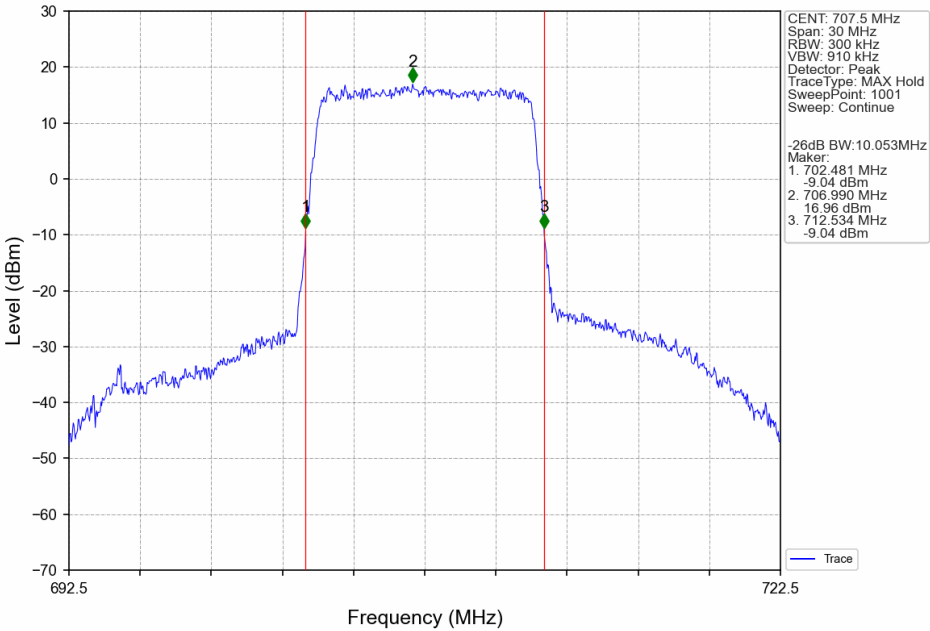
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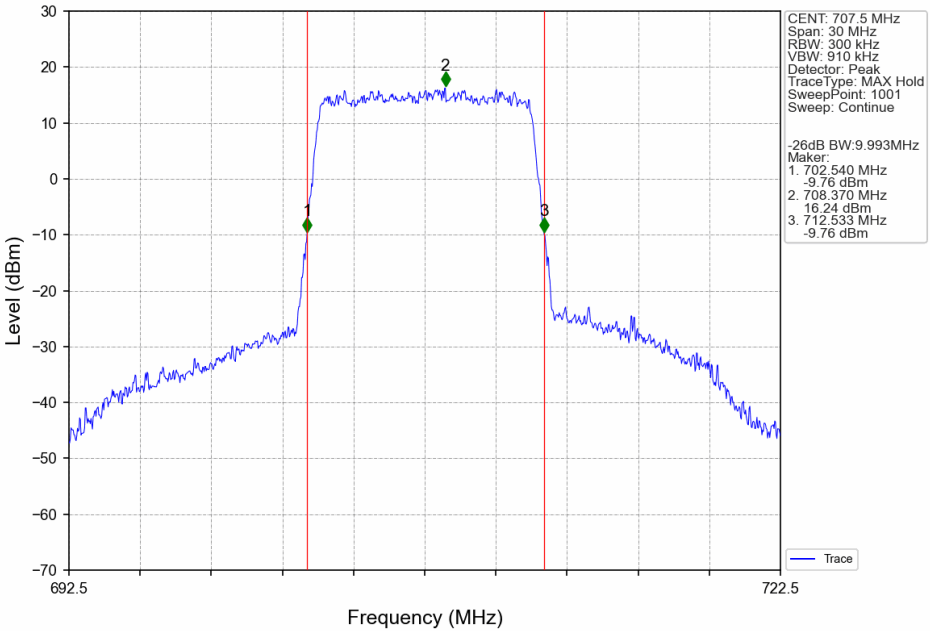
Band12 5MHz 16QAM MCH 707.5MHz RB 25 0 NTNV



Band12 10MHz QPSK MCH 707.5MHz RB 50 0 NTNV



Band12 10MHz 16QAM MCH 707.5MHz RB 50 0 NTNV



4. Peak-Average Ratio

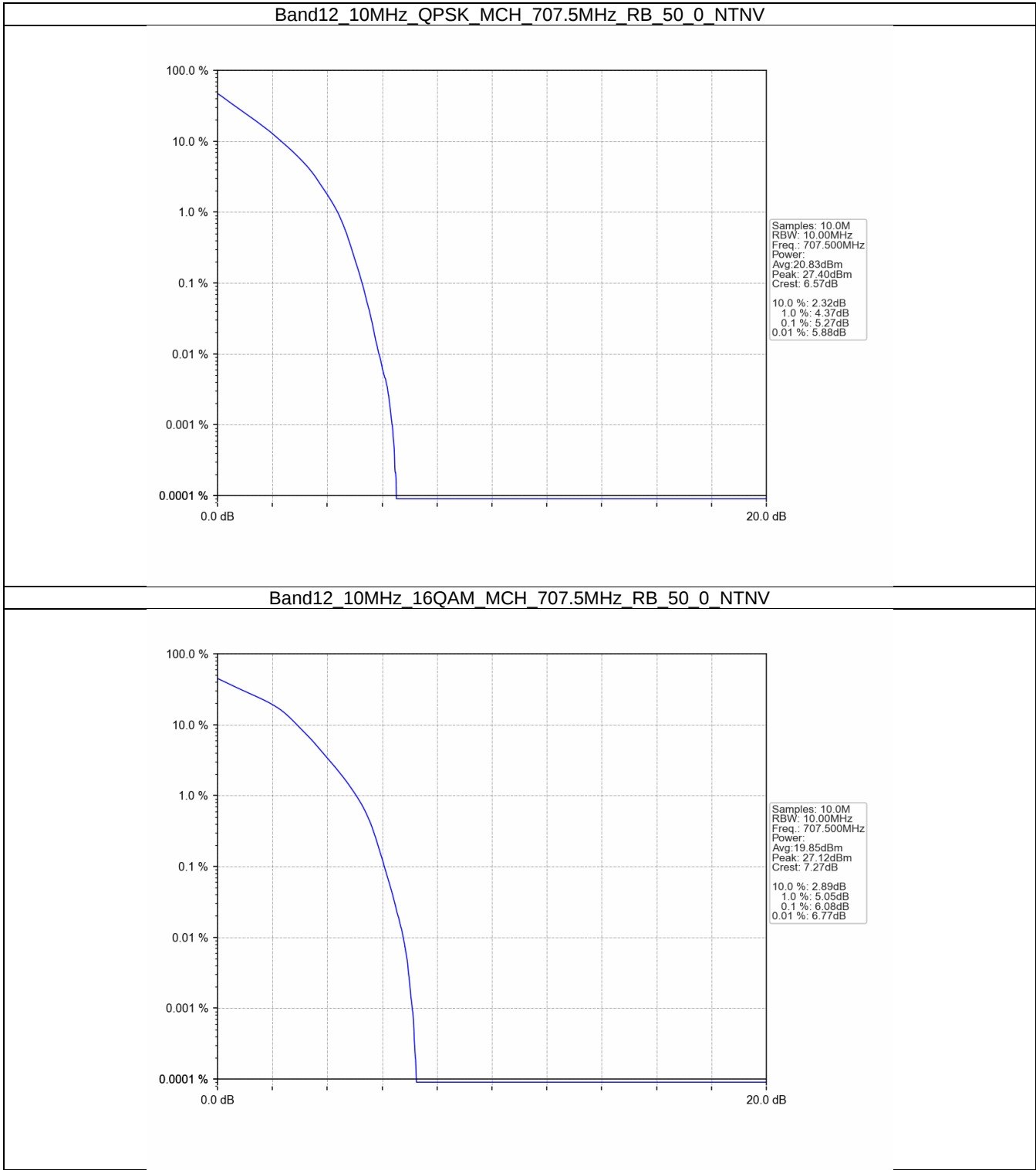
4.1 Test Result

4.1.1 B12_10MHz

Band: 12 / Bandwidth: 10MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Peak-Average Ratio (dB)		Verdict
		Size	Offset	Result	Limit	
QPSK	707.5	50	0	5.27	<=13	Pass
16QAM	707.5	50	0	6.08	<=13	Pass

4.2 Test Graph

4.2.1 B12_10MHz



5. Spurious Emission

5.1 Test Result

5.1.1 B12_1.4MHz

Band: 12 / Bandwidth: 1.4MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Spurious Emission		Verdict
		Size	Offset	Result	Limit	
QPSK	699.7	1	0	Refer To Test Graph		Pass
		6	0	Refer To Test Graph		Pass
	707.5	1	0	Refer To Test Graph		Pass
	715.3	1	0	Refer To Test Graph		Pass
			5	Refer To Test Graph		Pass
		6	0	Refer To Test Graph		Pass

5.1.2 B12_3MHz

Band: 12 / Bandwidth: 3MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Spurious Emission		Verdict
		Size	Offset	Result	Limit	
QPSK	700.5	1	0	Refer To Test Graph		Pass
		15	0	Refer To Test Graph		Pass
	707.5	1	0	Refer To Test Graph		Pass
	714.5	1	0	Refer To Test Graph		Pass
			14	Refer To Test Graph		Pass
		15	0	Refer To Test Graph		Pass

5.1.3 B12_5MHz

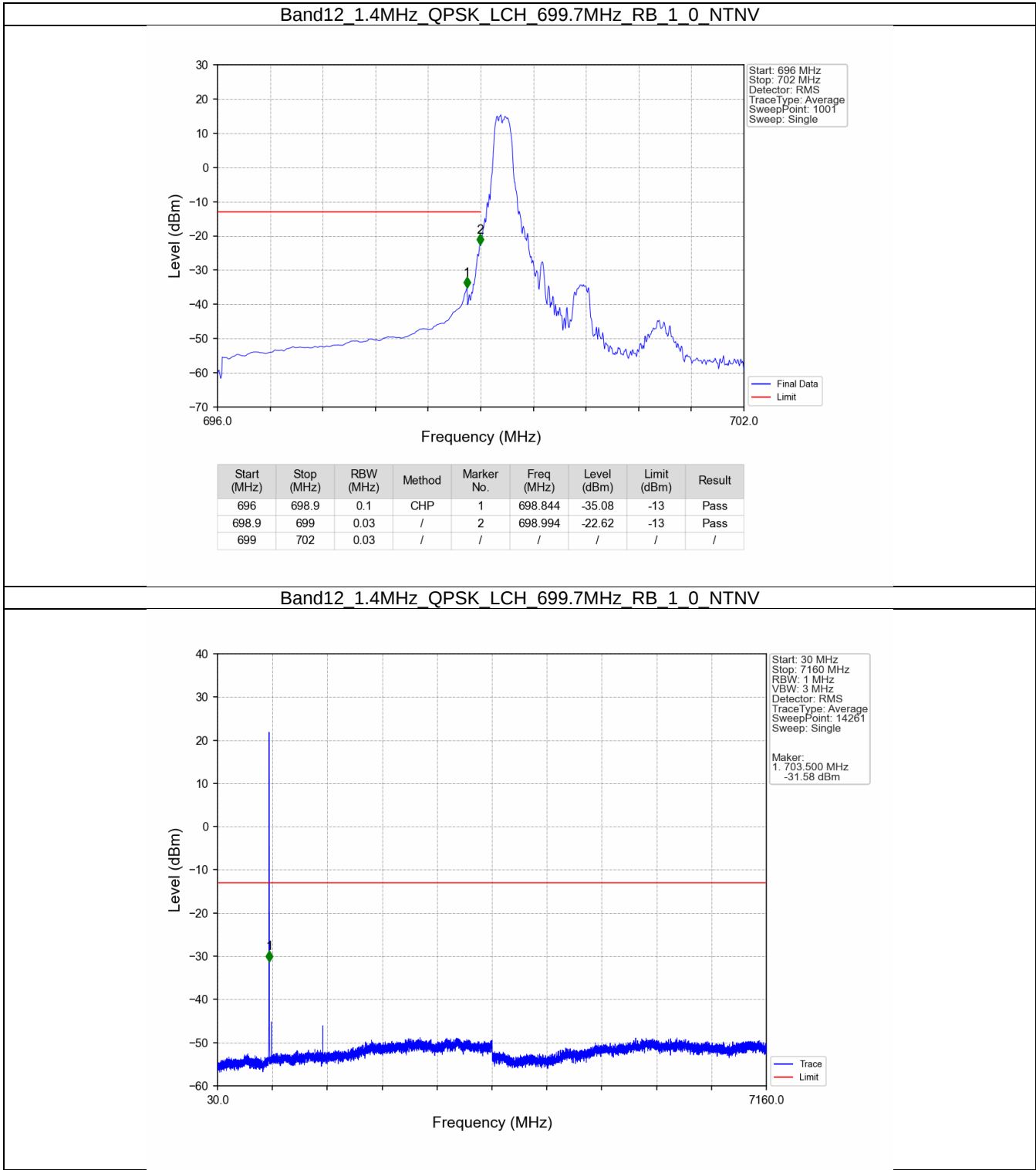
Band: 12 / Bandwidth: 5MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Spurious Emission		Verdict
		Size	Offset	Result	Limit	
QPSK	701.5	1	0	Refer To Test Graph		Pass
		25	0	Refer To Test Graph		Pass
	707.5	1	0	Refer To Test Graph		Pass
	713.5	1	0	Refer To Test Graph		Pass
			24	Refer To Test Graph		Pass
		25	0	Refer To Test Graph		Pass

5.1.4 B12_10MHz

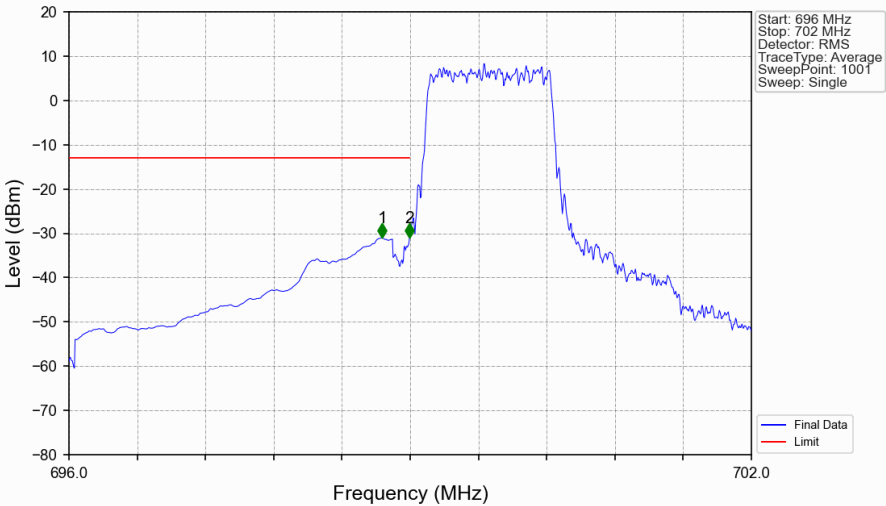
Band: 12 / Bandwidth: 10MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Spurious Emission		Verdict
		Size	Offset	Result	Limit	
QPSK	704	1	0	Refer To Test Graph		Pass
		50	0	Refer To Test Graph		Pass
	707.5	1	0	Refer To Test Graph		Pass
	711	1	0	Refer To Test Graph		Pass
			49	Refer To Test Graph		Pass
		50	0	Refer To Test Graph		Pass

5.2 Test Graph

5.2.1 B12_1.4MHz

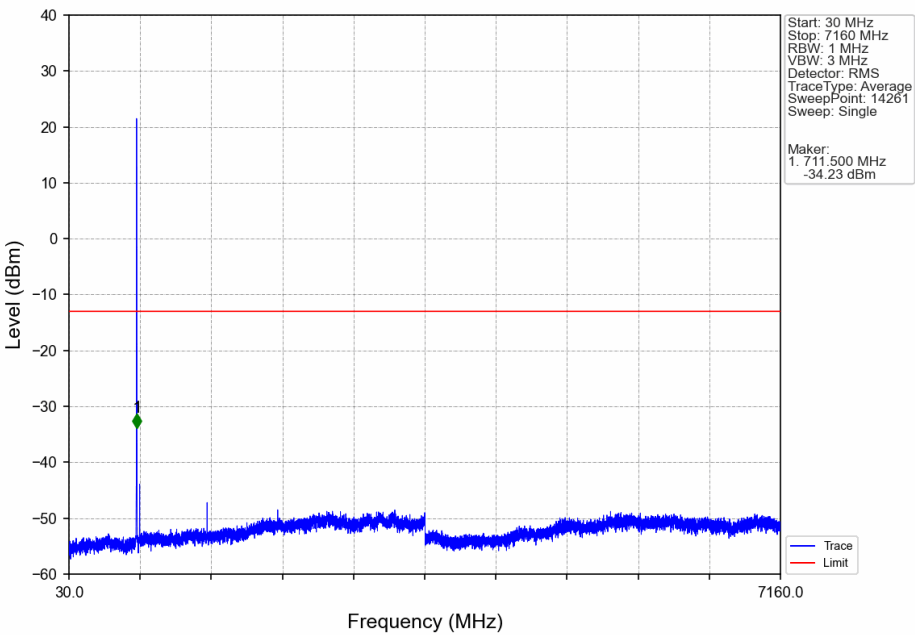


Band12 1.4MHz QPSK LCH 699.7MHz RB 6 0 NTNV

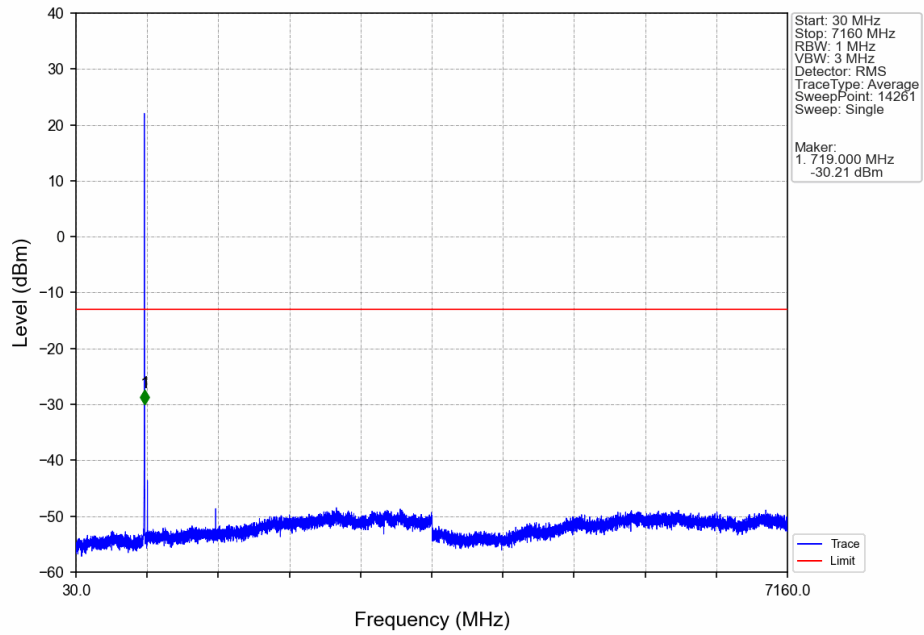


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
696	698.9	0.1	CHP	1	698.754	-31.02	-13	Pass
698.9	699	0.03	/	2	698.994	-30.97	-13	Pass
699	702	0.03	/	/	/	/	/	/

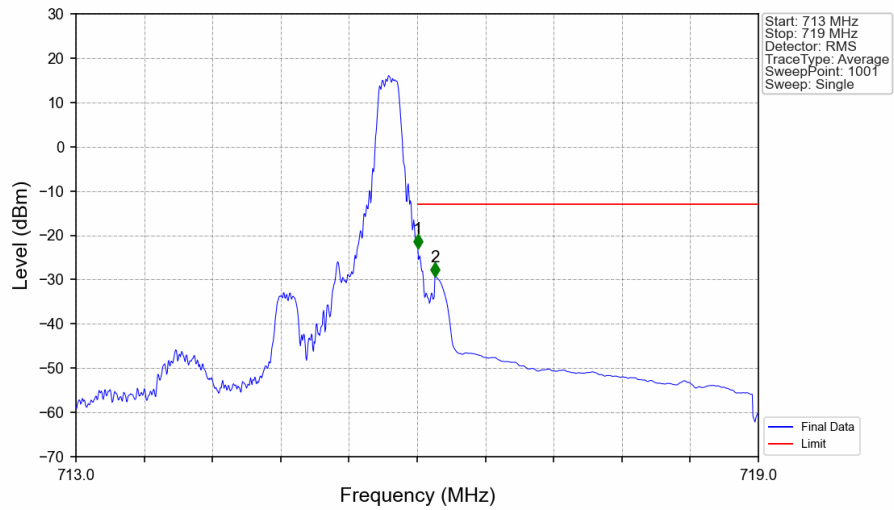
Band12 1.4MHz QPSK MCH 707.5MHz RB 1 0 NTNV



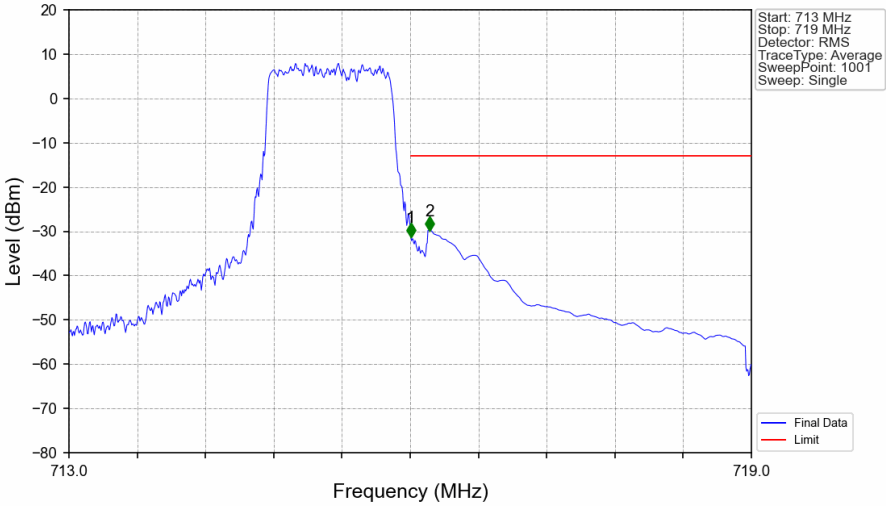
Band12 1.4MHz QPSK HCH 715.3MHz RB 1 0 NTV



Band12 1.4MHz QPSK HCH 715.3MHz RB 1 5 NTV

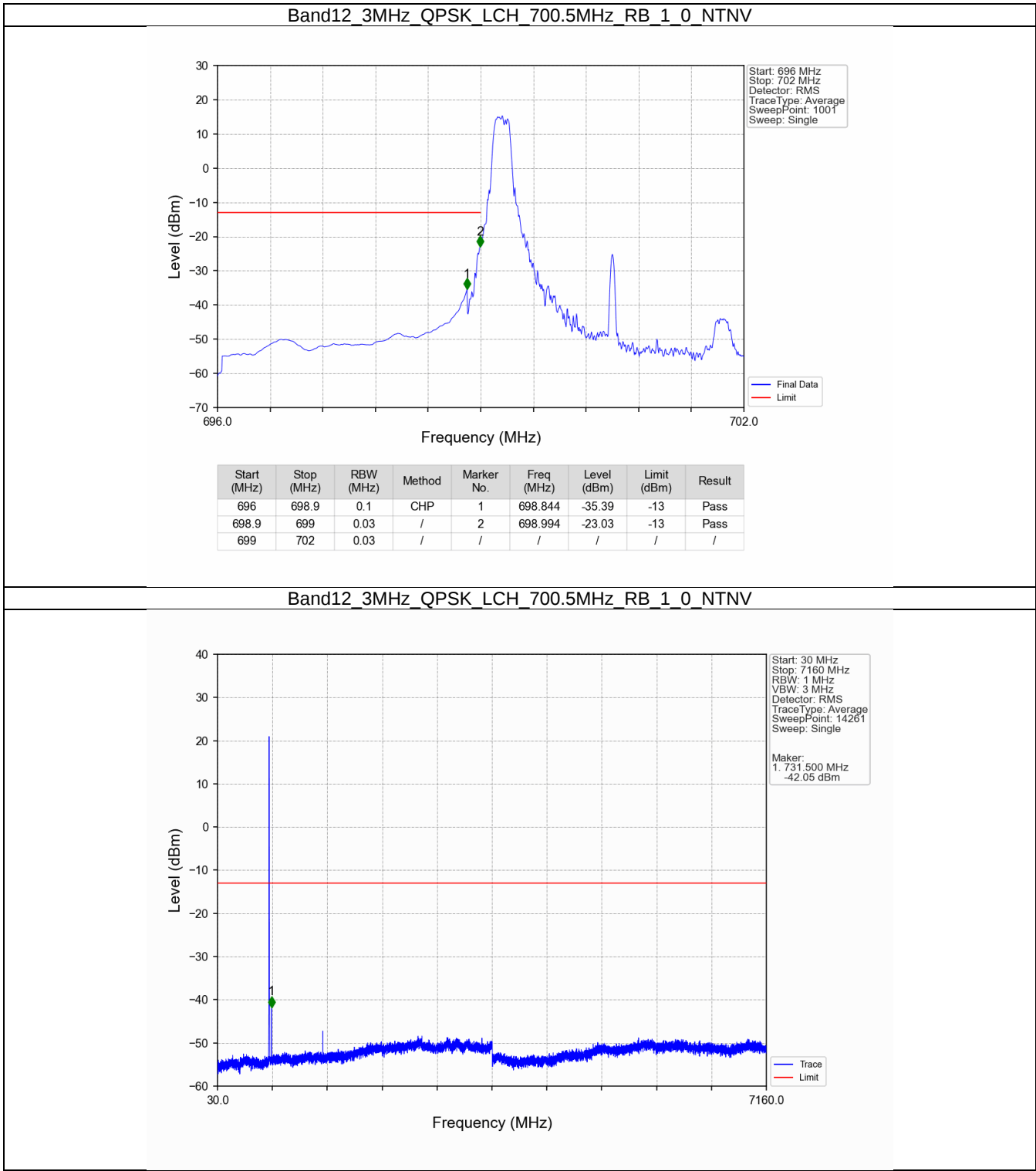


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
713	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.006	-23.02	-13	Pass
716.1	719	0.1	CHP	2	716.156	-29.41	-13	Pass

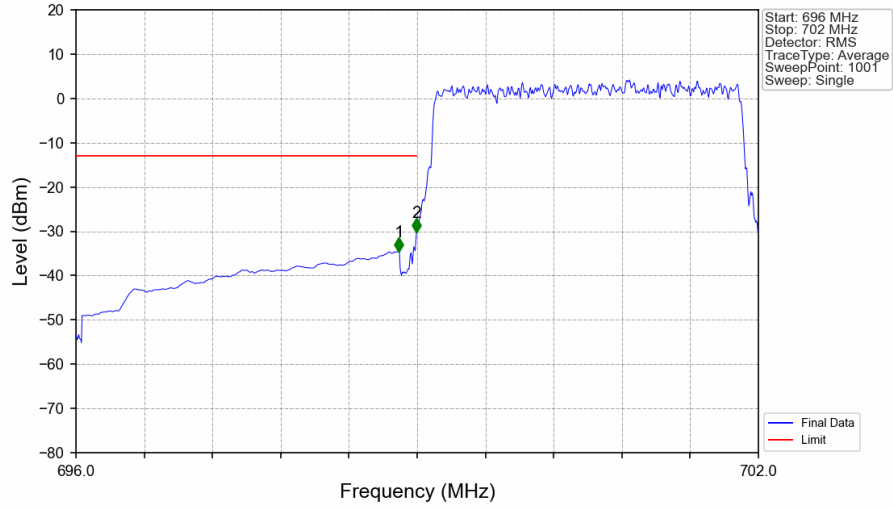


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
713	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.006	-31.28	-13	Pass
716.1	719	0.1	CHP	2	716.168	-29.77	-13	Pass

5.2.2 B12_3MHz

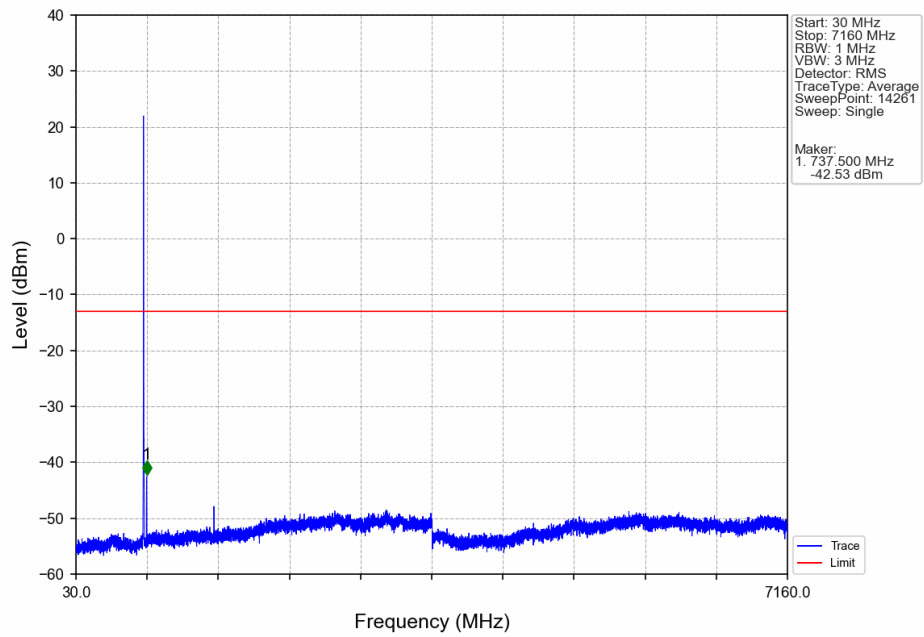


Band12 3MHz QPSK LCH 700.5MHz RB 15 0 NTNV

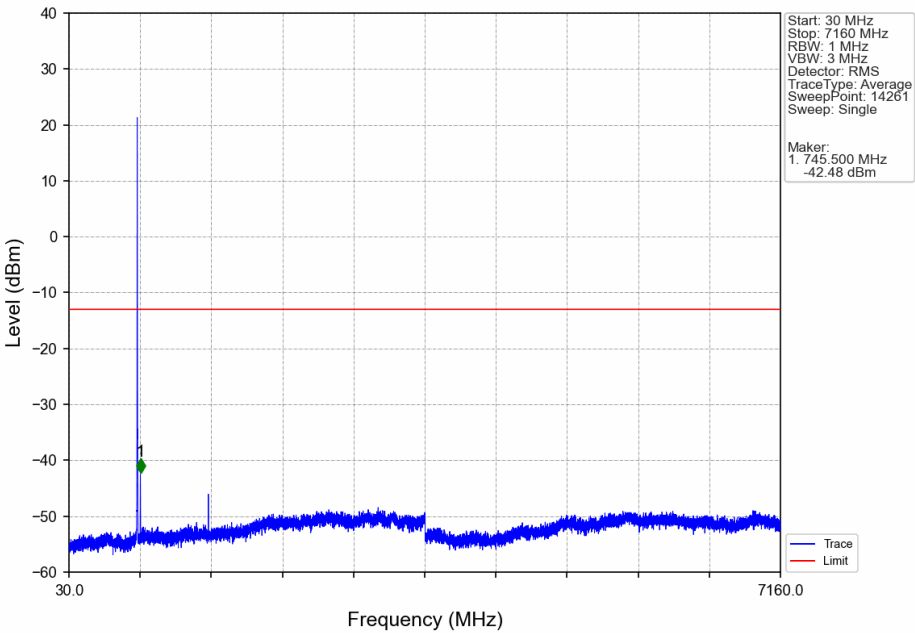


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
696	698.9	0.1	CHP	1	698.838	-34.57	-13	Pass
698.9	699	0.03	/	2	698.994	-30.13	-13	Pass
699	702	0.03	/	/	/	/	/	/

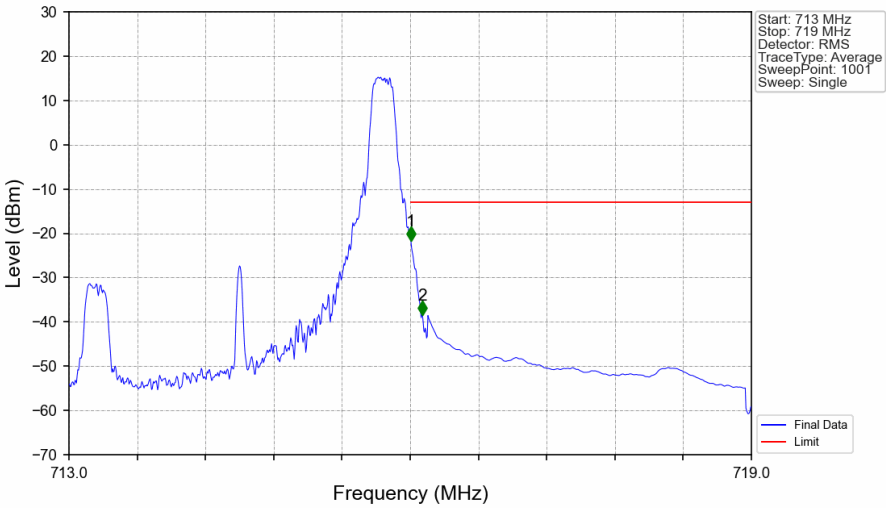
Band12 3MHz QPSK MCH 707.5MHz RB 1 0 NTNV



Band12 3MHz QPSK HCH 714.5MHz RB 1 0 NTN

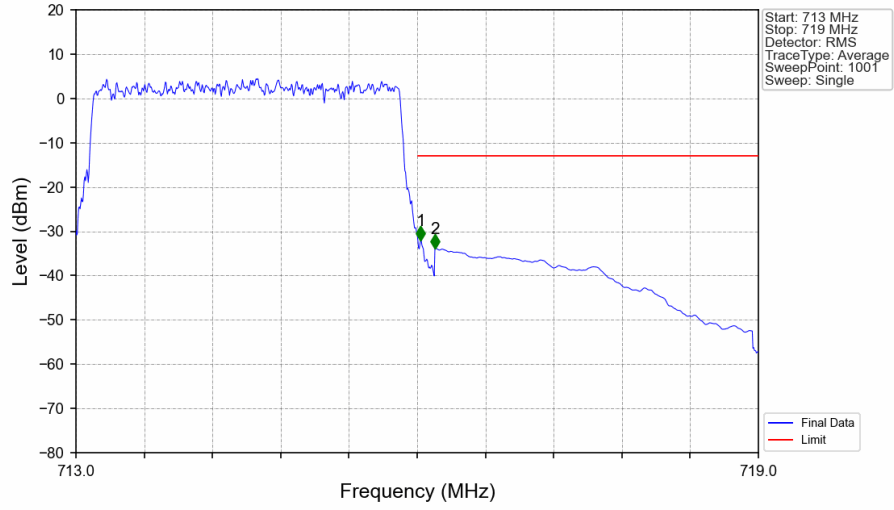


Band12 3MHz QPSK HCH 714.5MHz RB 1 14 NTN



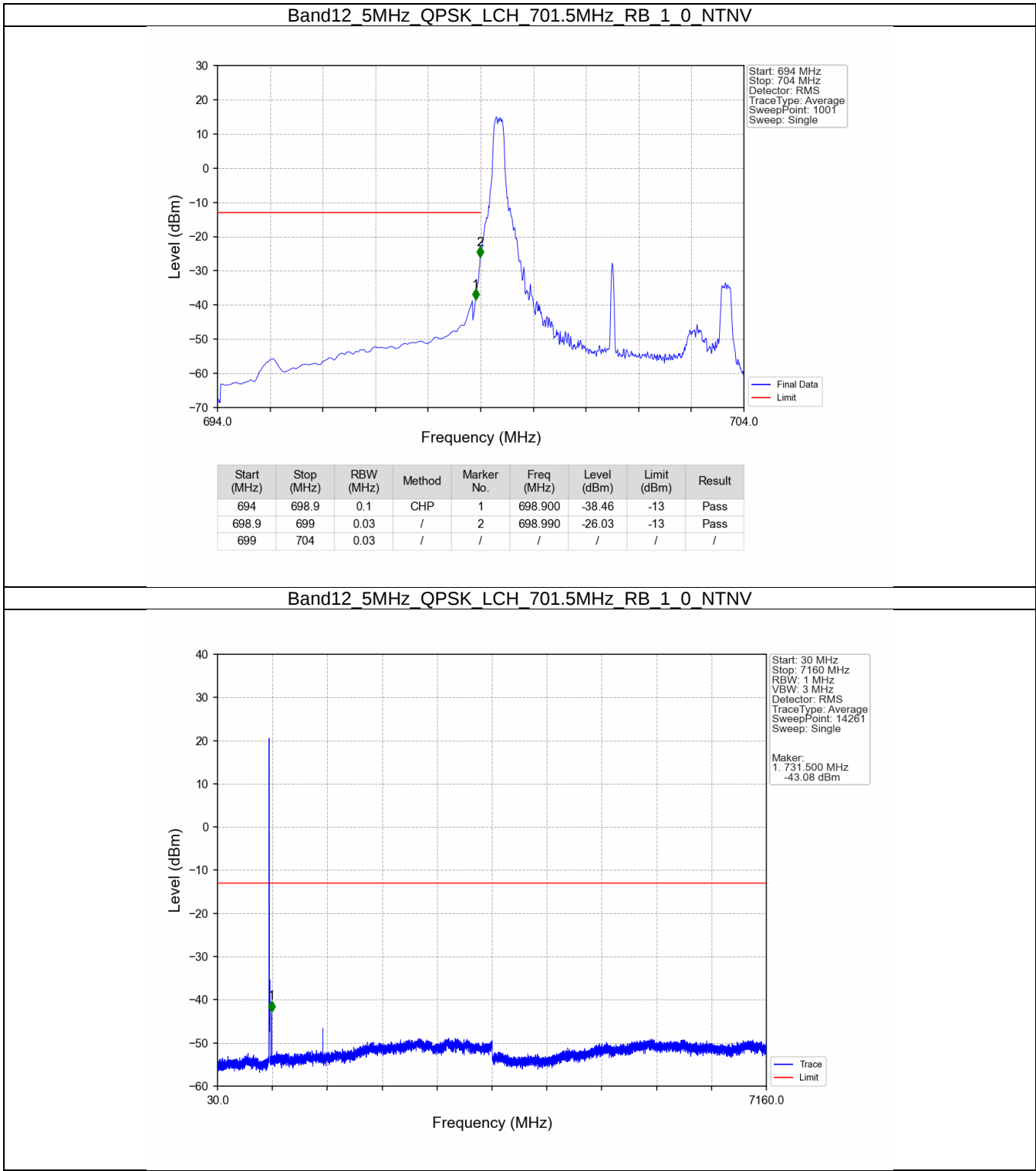
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
713	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.006	-21.71	-13	Pass
716.1	719	0.1	CHP	2	716.108	-38.39	-13	Pass

Band12 3MHz QPSK HCH 714.5MHz RB 15 0 NTV

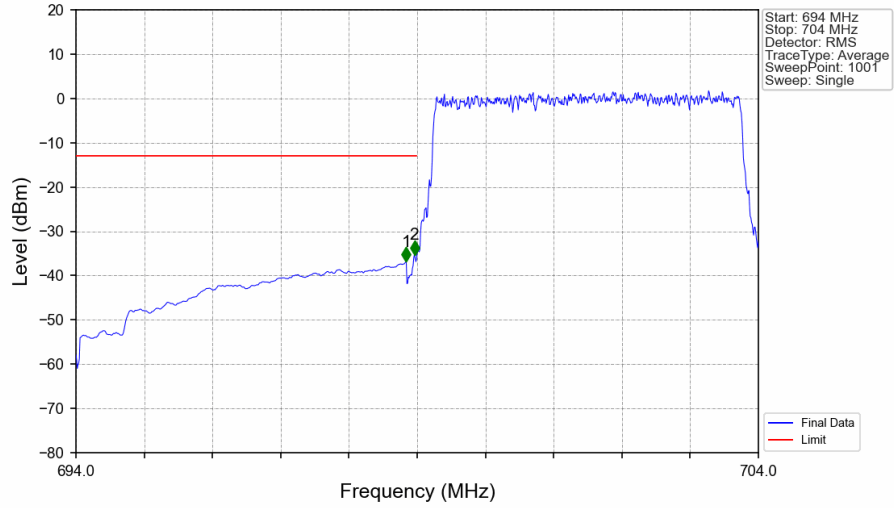


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
713	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.030	-31.97	-13	Pass
716.1	719	0.1	CHP	2	716.156	-33.85	-13	Pass

5.2.3 B12_5MHz

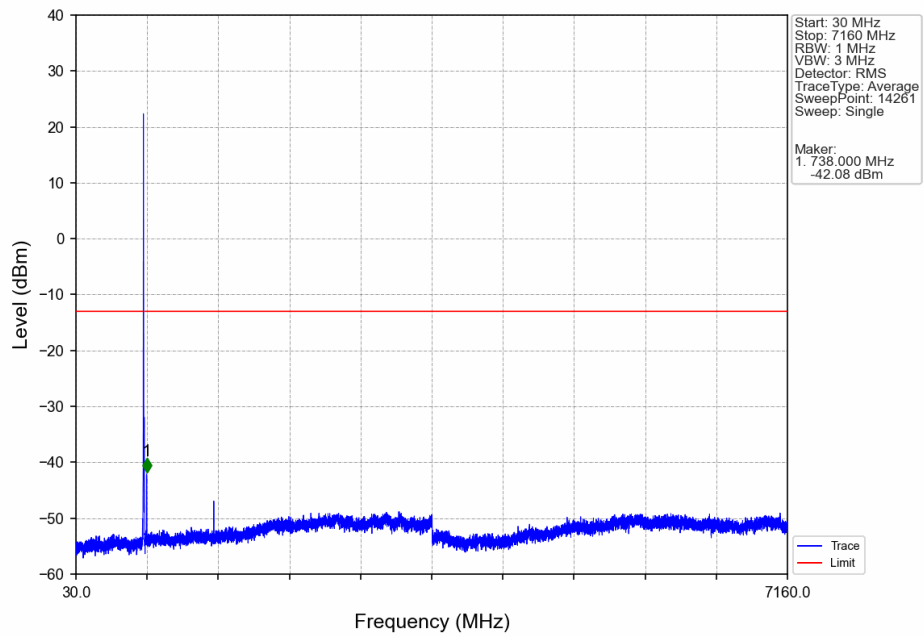


Band12 5MHz QPSK LCH 701.5MHz RB 25 0 NTNV

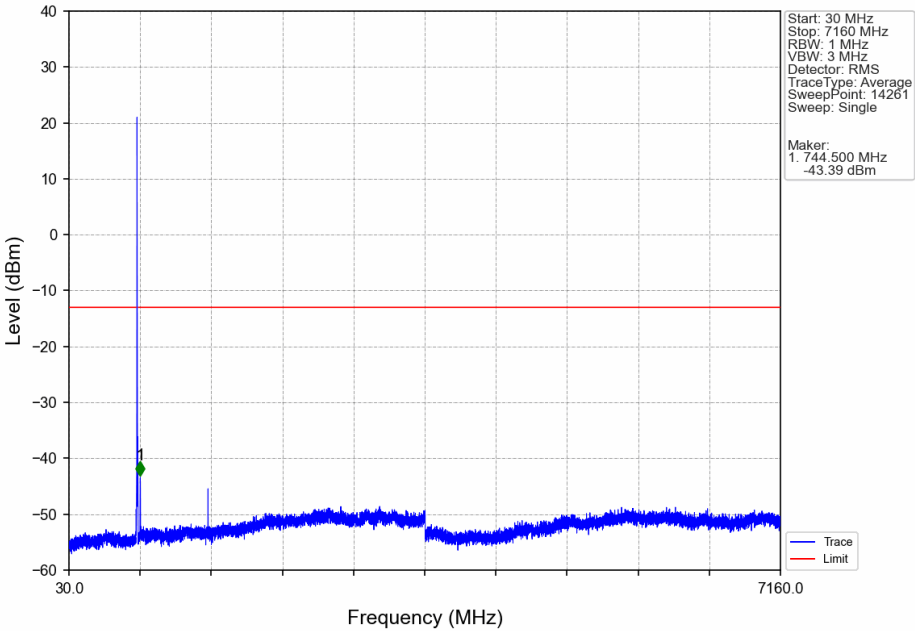


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
694	698.9	0.1	CHP	1	698.840	-36.84	-13	Pass
698.9	699	0.03	/	2	698.960	-35.23	-13	Pass
699	704	0.03	/	/	/	/	/	/

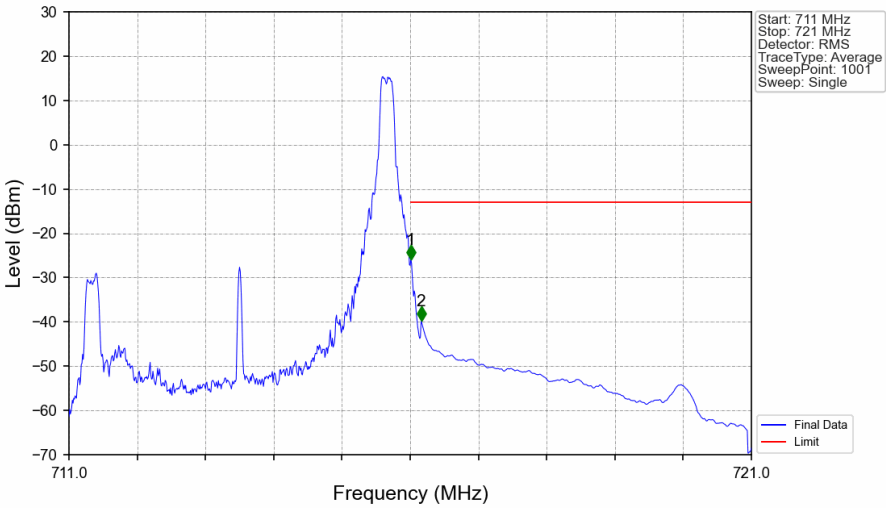
Band12 5MHz QPSK MCH 707.5MHz RB 1 0 NTNV



Band12 5MHz QPSK HCH 713.5MHz RB 1 0 NTN

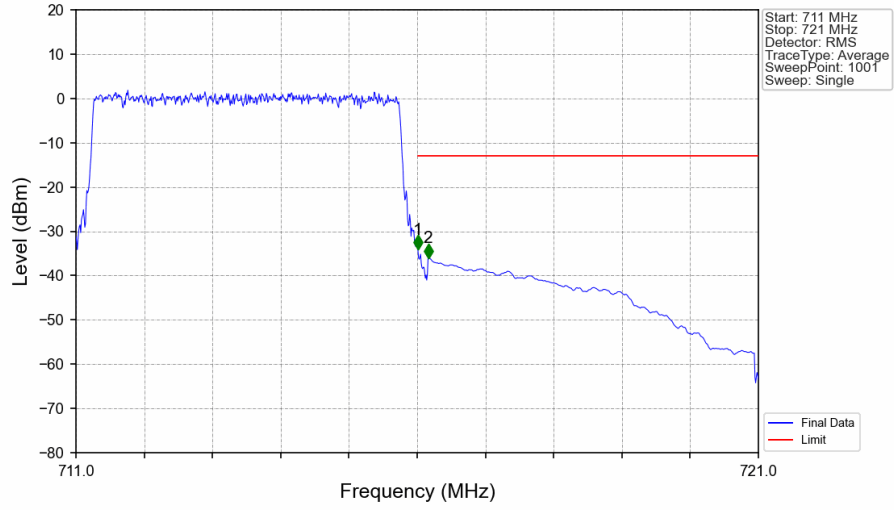


Band12 5MHz QPSK HCH 713.5MHz RB 1 24 NTN



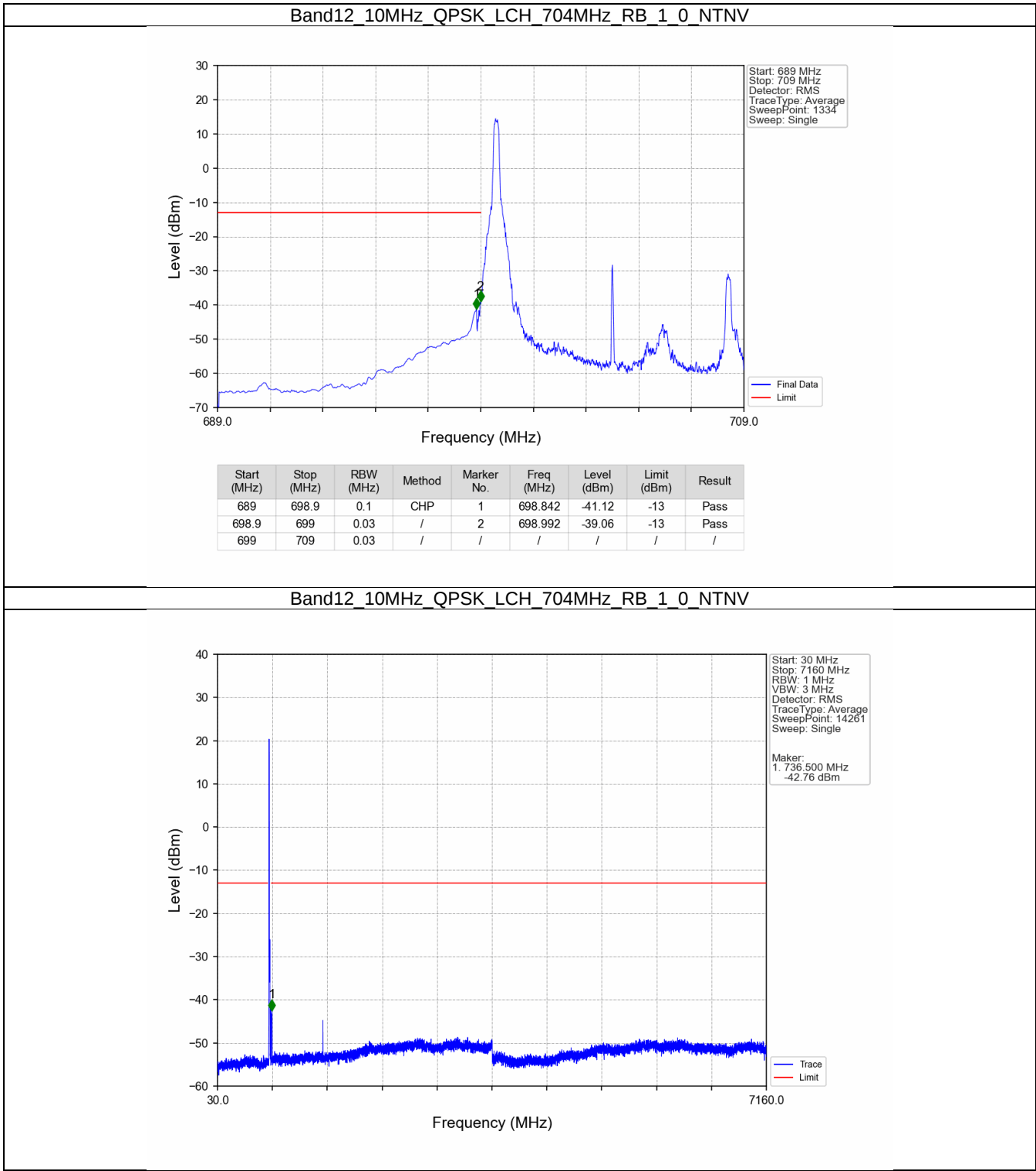
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
711	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.010	-25.79	-13	Pass
716.1	721	0.1	CHP	2	716.160	-39.66	-13	Pass

Band12 5MHz QPSK HCH 713.5MHz RB 25 0 NTV

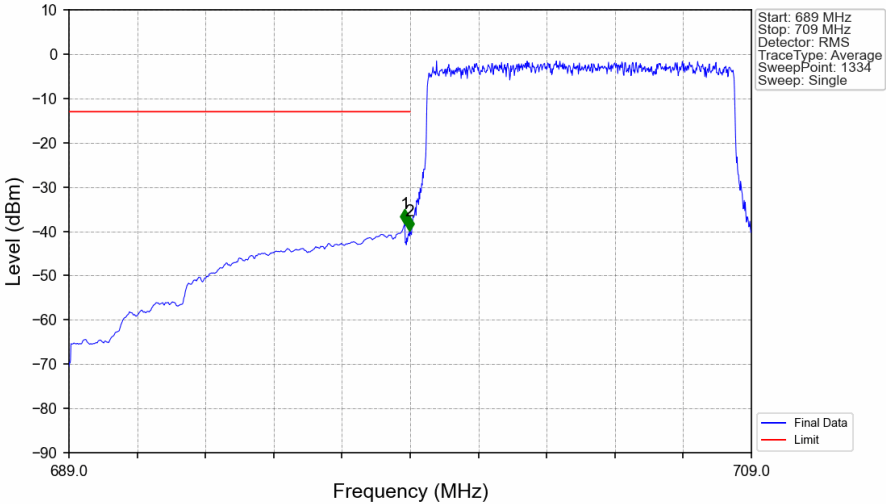


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
711	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.010	-34.06	-13	Pass
716.1	721	0.1	CHP	2	716.160	-35.96	-13	Pass

5.2.4 B12_10MHz

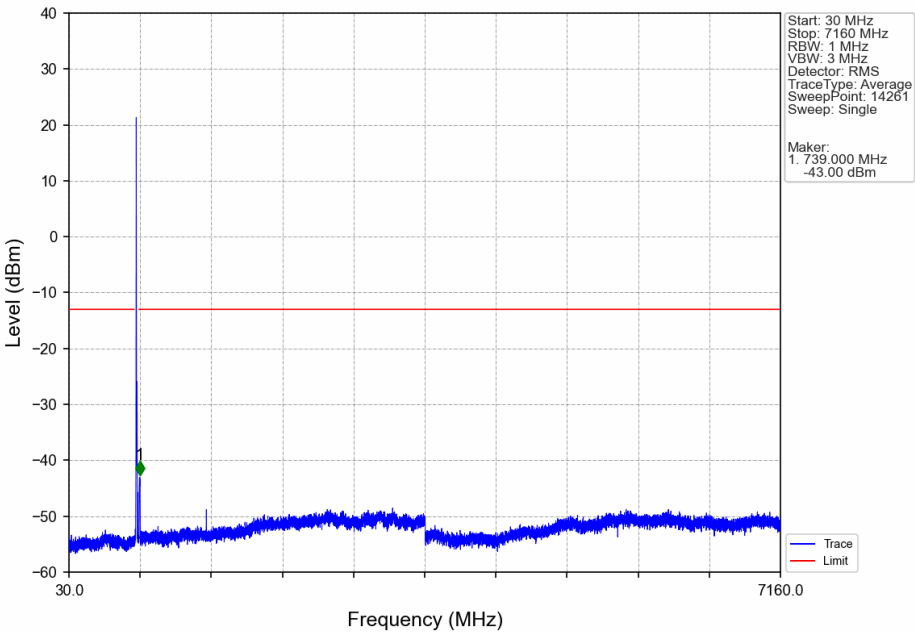


Band12 10MHz QPSK LCH 704MHz RB 50 0 NTNV

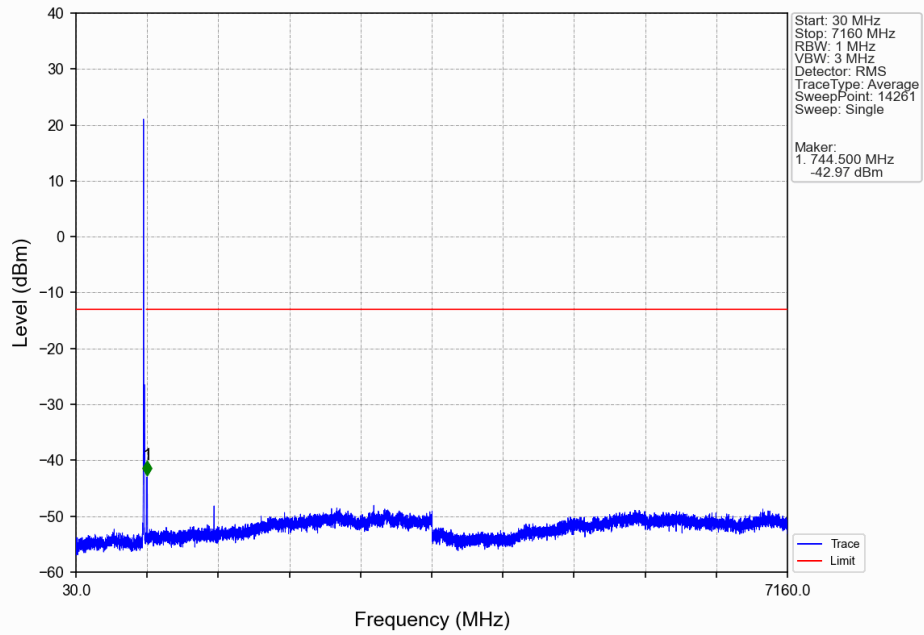


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
689	698.9	0.1	CHP	1	698.842	-38.28	-13	Pass
698.9	699	0.03	/	2	698.977	-39.84	-13	Pass
699	709	0.03	/	/	/	/	/	/

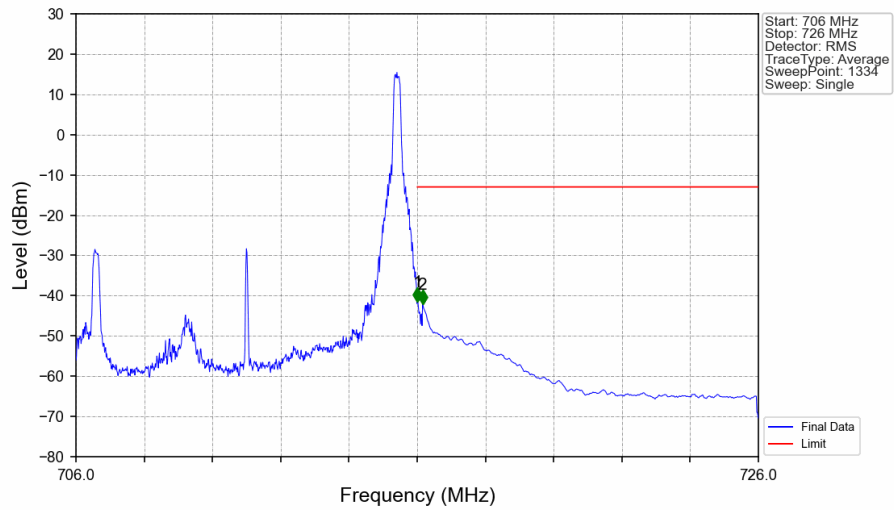
Band12 10MHz QPSK MCH 707.5MHz RB 1 0 NTNV



Band12 10MHz QPSK HCH 711MHz RB 1 0 NTNV

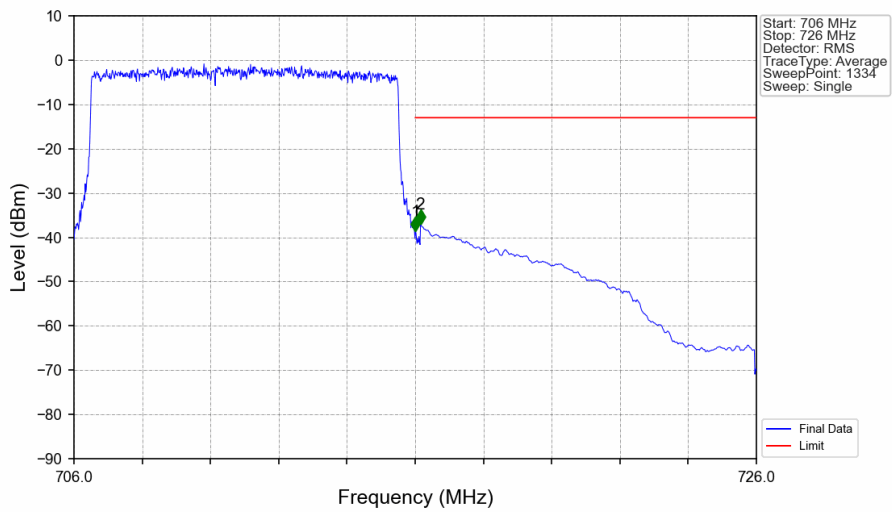


Band12 10MHz QPSK HCH 711MHz RB 1 49 NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
706	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.008	-41.39	-13	Pass
716.1	726	0.1	CHP	2	716.158	-42.08	-13	Pass

Band12 10MHz QPSK HCH 711MHz RB 50 0 NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
706	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.008	-38.50	-13	Pass
716.1	726	0.1	CHP	2	716.158	-36.87	-13	Pass