

1. Effective (Isotropic) Radiated Power Output Data

1.1 Test Result

1.1.1 B12_1.4MHz_ERP

Band: 12 / Bandwidth: 1.4MHz / NTNV								
Modulation	Frequency (MHz)	RB Allocation		Conducted Power (dBm)	Gain (dBi)	ERP (dBm)		Verdict
		Size	Offset			Result	Limit	
QPSK	699.7	1	0	22.67	-2.32	18.20	<=34.77	Pass
			5	22.71	-2.32	18.24	<=34.77	Pass
		6	0	21.69	-2.32	17.22	<=34.77	Pass
	707.5	1	0	22.81	-2.32	18.34	<=34.77	Pass
			5	22.79	-2.32	18.32	<=34.77	Pass
		6	0	21.76	-2.32	17.29	<=34.77	Pass
	715.3	1	0	22.60	-2.32	18.13	<=34.77	Pass
			5	22.63	-2.32	18.16	<=34.77	Pass
		6	0	21.67	-2.32	17.20	<=34.77	Pass
16QAM	699.7	1	0	21.80	-2.32	17.33	<=34.77	Pass
			5	21.81	-2.32	17.34	<=34.77	Pass
		6	0	20.66	-2.32	16.19	<=34.77	Pass
	707.5	1	0	21.84	-2.32	17.37	<=34.77	Pass
			5	21.80	-2.32	17.33	<=34.77	Pass
		6	0	20.77	-2.32	16.30	<=34.77	Pass
	715.3	1	0	21.72	-2.32	17.25	<=34.77	Pass
			5	21.72	-2.32	17.25	<=34.77	Pass
		6	0	20.67	-2.32	16.20	<=34.77	Pass

Note1: ERP=Conducted Power+Antenna Gain-2.15

1.1.2 B12_3MHz_ERP

Band: 12 / Bandwidth: 3MHz / NTNV								
Modulation	Frequency (MHz)	RB Allocation		Conducted Power (dBm)	Gain (dBi)	ERP (dBm)		Verdict
		Size	Offset			Result	Limit	
QPSK	700.5	1	0	22.75	-2.32	18.28	<=34.77	Pass
			14	22.74	-2.32	18.27	<=34.77	Pass
		15	0	21.73	-2.32	17.26	<=34.77	Pass
	707.5	1	0	22.88	-2.32	18.41	<=34.77	Pass
			14	22.88	-2.32	18.41	<=34.77	Pass
		15	0	21.81	-2.32	17.34	<=34.77	Pass
	714.5	1	0	22.77	-2.32	18.30	<=34.77	Pass
			14	22.71	-2.32	18.24	<=34.77	Pass
		15	0	21.69	-2.32	17.22	<=34.77	Pass
16QAM	700.5	1	0	22.33	-2.32	17.86	<=34.77	Pass
			14	22.33	-2.32	17.86	<=34.77	Pass
		15	0	20.79	-2.32	16.32	<=34.77	Pass
	707.5	1	0	22.03	-2.32	17.56	<=34.77	Pass
			14	21.98	-2.32	17.51	<=34.77	Pass
		15	0	20.78	-2.32	16.31	<=34.77	Pass
	714.5	1	0	21.79	-2.32	17.32	<=34.77	Pass
			14	21.67	-2.32	17.20	<=34.77	Pass
		15	0	20.73	-2.32	16.26	<=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	22.86	-2.32	18.39	<=34.77	Pass
			24	22.84	-2.32	18.37	<=34.77	Pass
		25	0	21.86	-2.32	17.39	<=34.77	Pass
	707.5	1	0	22.93	-2.32	18.46	<=34.77	Pass
			24	22.86	-2.32	18.39	<=34.77	Pass
		25	0	21.84	-2.32	17.37	<=34.77	Pass
	713.5	1	0	22.96	-2.32	18.49	<=34.77	Pass
			24	22.72	-2.32	18.25	<=34.77	Pass
		25	0	21.77	-2.32	17.30	<=34.77	Pass
16QAM	701.5	1	0	21.73	-2.32	17.26	<=34.77	Pass
			24	21.73	-2.32	17.26	<=34.77	Pass
		25	0	20.90	-2.32	16.43	<=34.77	Pass
	707.5	1	0	22.18	-2.32	17.71	<=34.77	Pass
			24	22.09	-2.32	17.62	<=34.77	Pass
		25	0	20.83	-2.32	16.36	<=34.77	Pass
	713.5	1	0	22.04	-2.32	17.57	<=34.77	Pass
			24	21.85	-2.32	17.38	<=34.77	Pass
		25	0	20.75	-2.32	16.28	<=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	23.01	-2.32	18.54	<=34.77	Pass
			49	22.95	-2.32	18.48	<=34.77	Pass
		50	0	21.91	-2.32	17.44	<=34.77	Pass
	707.5	1	0	23.13	-2.32	18.66	<=34.77	Pass
			49	22.94	-2.32	18.47	<=34.77	Pass
		50	0	21.91	-2.32	17.44	<=34.77	Pass
	711	1	0	23.15	-2.32	18.68	<=34.77	Pass
			49	22.89	-2.32	18.42	<=34.77	Pass
		50	0	21.89	-2.32	17.42	<=34.77	Pass
16QAM	704	1	0	22.60	-2.32	18.13	<=34.77	Pass
			49	22.55	-2.32	18.08	<=34.77	Pass
		50	0	20.91	-2.32	16.44	<=34.77	Pass
	707.5	1	0	22.26	-2.32	17.79	<=34.77	Pass
			49	22.11	-2.32	17.64	<=34.77	Pass
		50	0	20.90	-2.32	16.43	<=34.77	Pass
	711	1	0	22.17	-2.32	17.70	<=34.77	Pass
			49	21.93	-2.32	17.46	<=34.77	Pass
		50	0	20.90	-2.32	16.43	<=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	12	2.303	0.0033	-2.5 to 2.5	Pass
					24	0.443	0.0006	-2.5 to 2.5	Pass
					48	0.300	0.0004	-2.5 to 2.5	Pass
				-30	24	0.901	0.0013	-2.5 to 2.5	Pass
				-20	24	0.501	0.0007	-2.5 to 2.5	Pass
				-10	24	-0.086	-0.0001	-2.5 to 2.5	Pass
				0	24	0.043	0.0001	-2.5 to 2.5	Pass
				10	24	0.172	0.0002	-2.5 to 2.5	Pass
				30	24	-0.672	-0.0009	-2.5 to 2.5	Pass
				40	24	-0.401	-0.0006	-2.5 to 2.5	Pass
				50	24	-0.644	-0.0009	-2.5 to 2.5	Pass

3. 99% & 26dB Bandwidth

3.1 Test Result

3.1.1 Band12_OBW

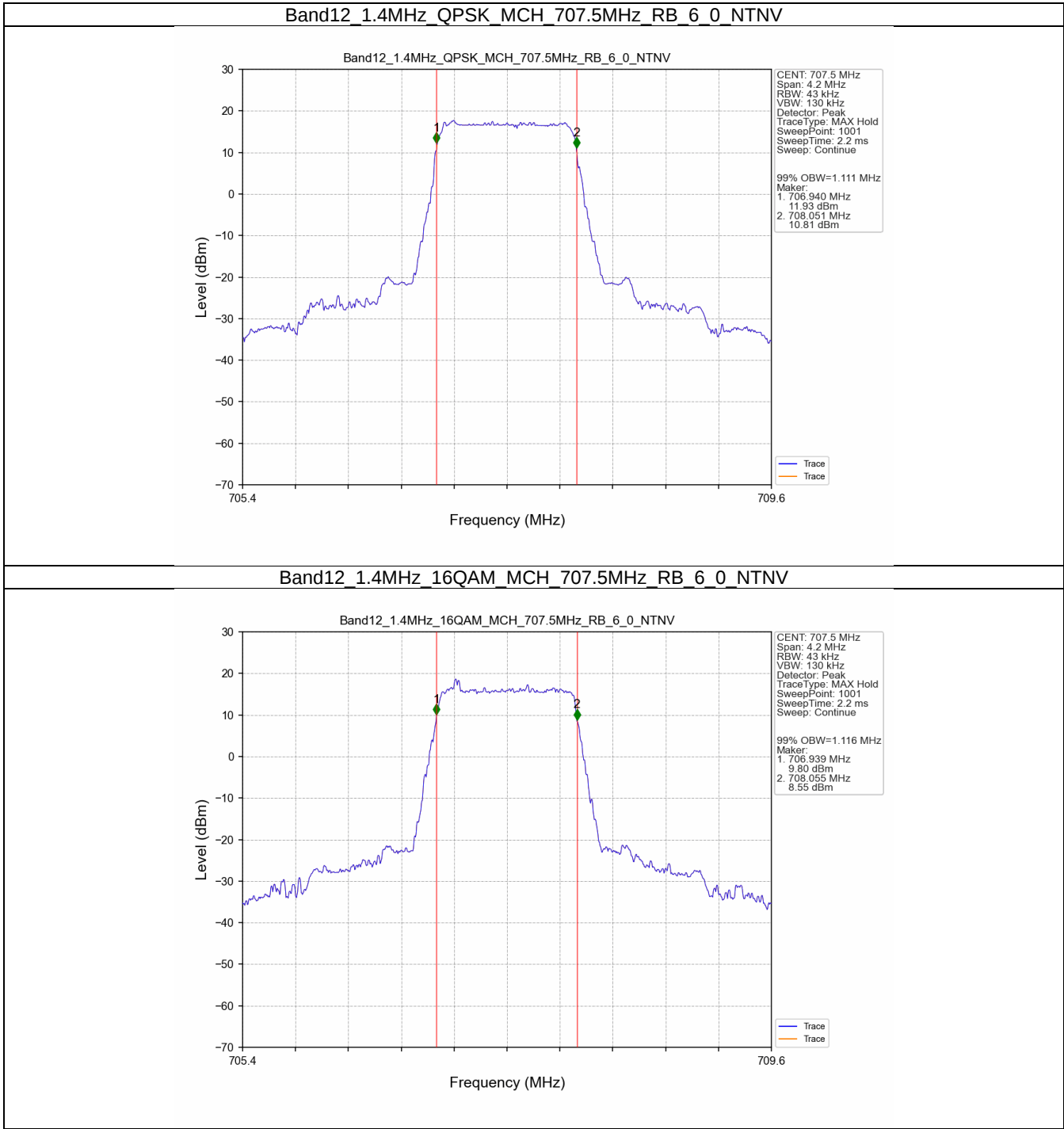
Band: 12 / NTNV							
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		99% Occupied Bandwidth (MHz)		Verdict
			Size	Offset	Result	Limit	
1.4	QPSK	707.5	6	0	1.111	/	Pass
	16QAM	707.5	6	0	1.116	/	Pass
3	QPSK	707.5	15	0	2.742	/	Pass
	16QAM	707.5	15	0	2.735	/	Pass
5	QPSK	707.5	25	0	4.564	/	Pass
	16QAM	707.5	25	0	4.525	/	Pass
10	QPSK	707.5	50	0	9.046	/	Pass
	16QAM	707.5	50	0	9.012	/	Pass

3.1.2 Band12_XDB

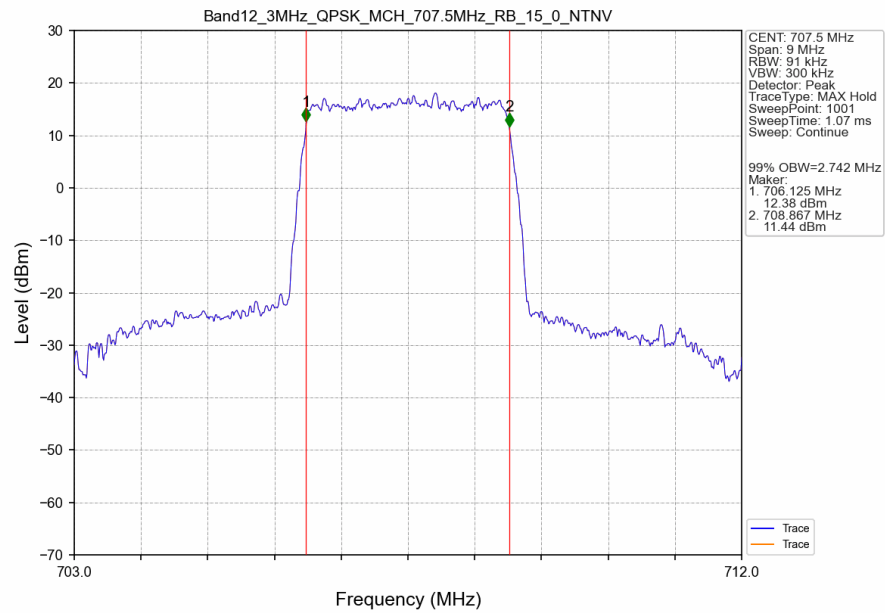
Band: 12 / NTNV							
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		26dB Bandwidth (MHz)		Verdict
			Size	Offset	Result	Limit	
1.4	QPSK	707.5	6	0	1.320	/	Pass
	16QAM	707.5	6	0	1.313	/	Pass
3	QPSK	707.5	15	0	3.060	/	Pass
	16QAM	707.5	15	0	3.069	/	Pass
5	QPSK	707.5	25	0	5.060	/	Pass
	16QAM	707.5	25	0	5.097	/	Pass
10	QPSK	707.5	50	0	10.070	/	Pass
	16QAM	707.5	50	0	10.043	/	Pass

3.2 Test Graph

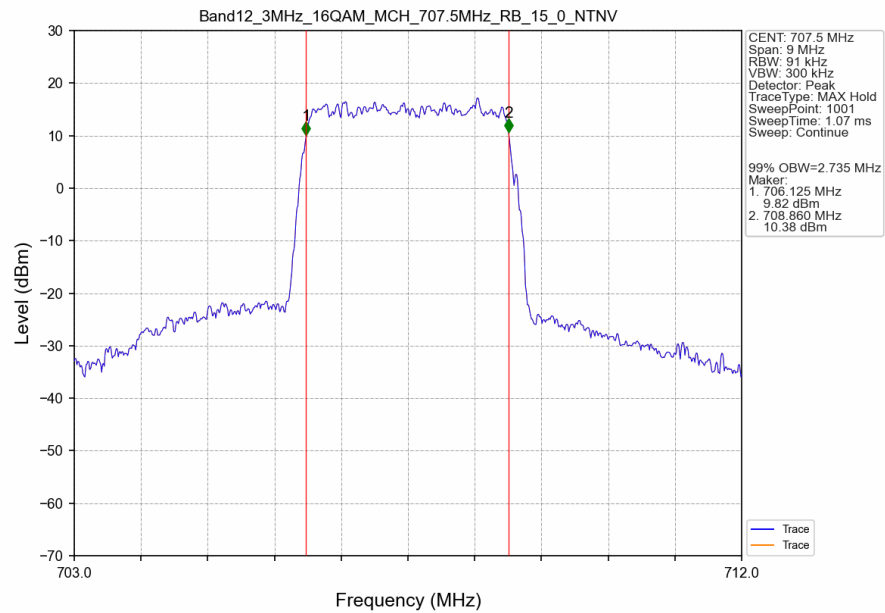
3.2.1 Band12_OBW



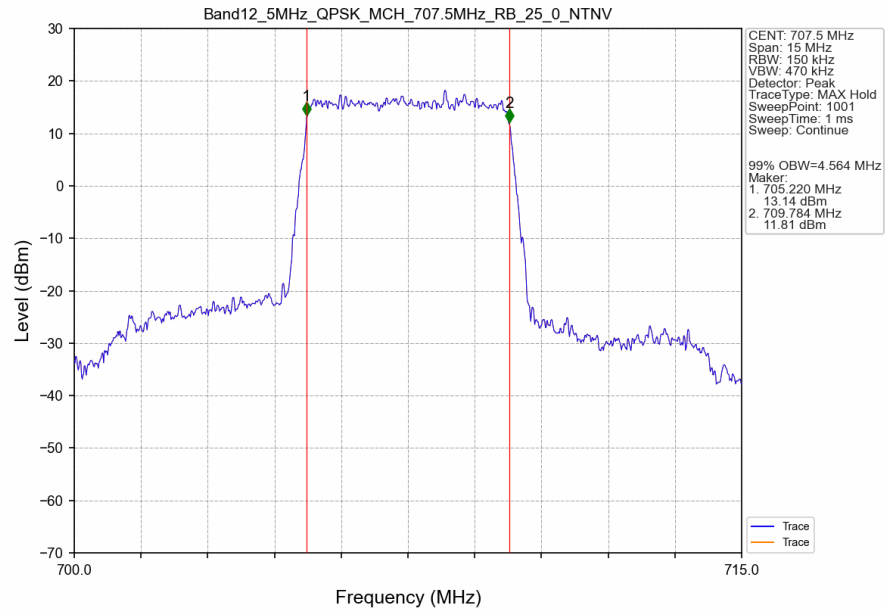
Band12 3MHz QPSK MCH 707.5MHz RB 15 0 NTNV



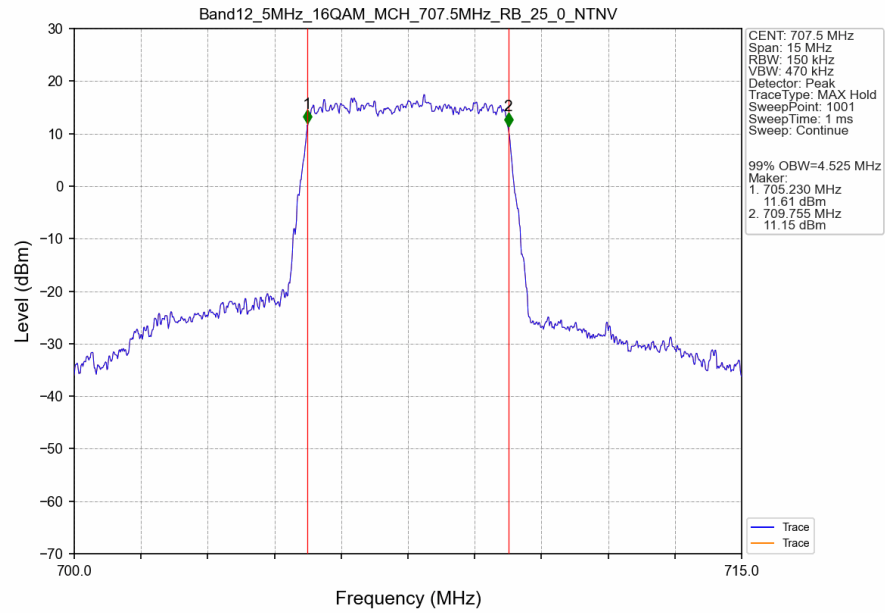
Band12 3MHz 16QAM MCH 707.5MHz RB 15 0 NTNV



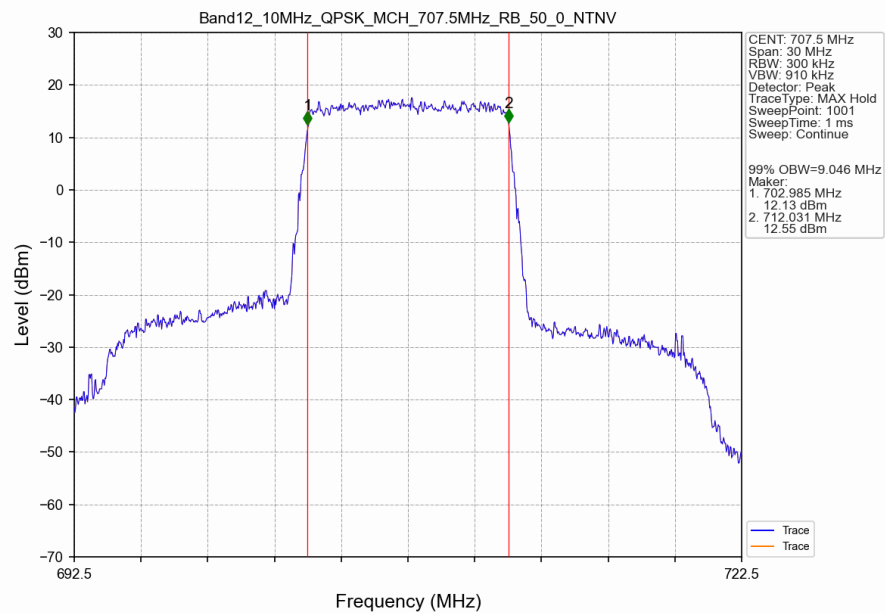
Band12 5MHz QPSK MCH 707.5MHz RB 25 0 NTV



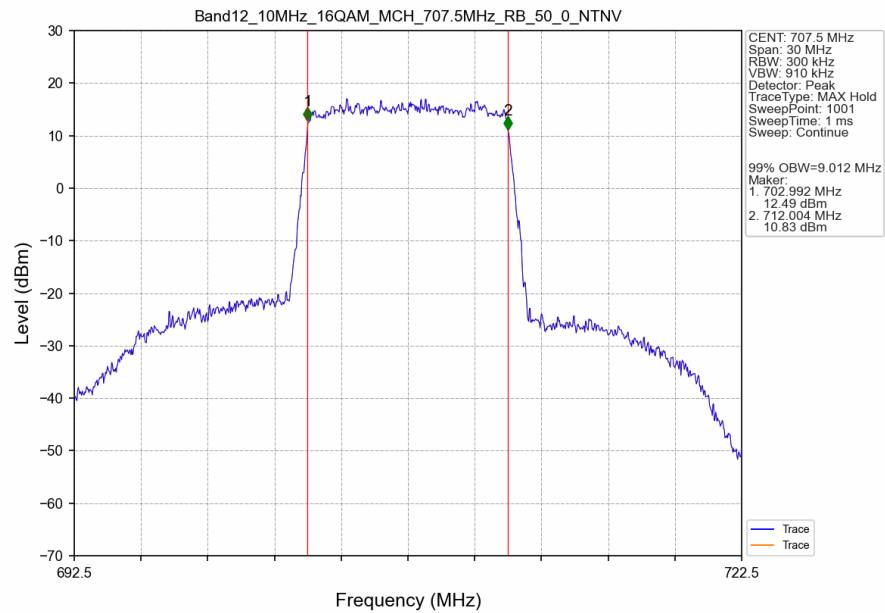
Band12 5MHz 16QAM MCH 707.5MHz RB 25 0 NTV



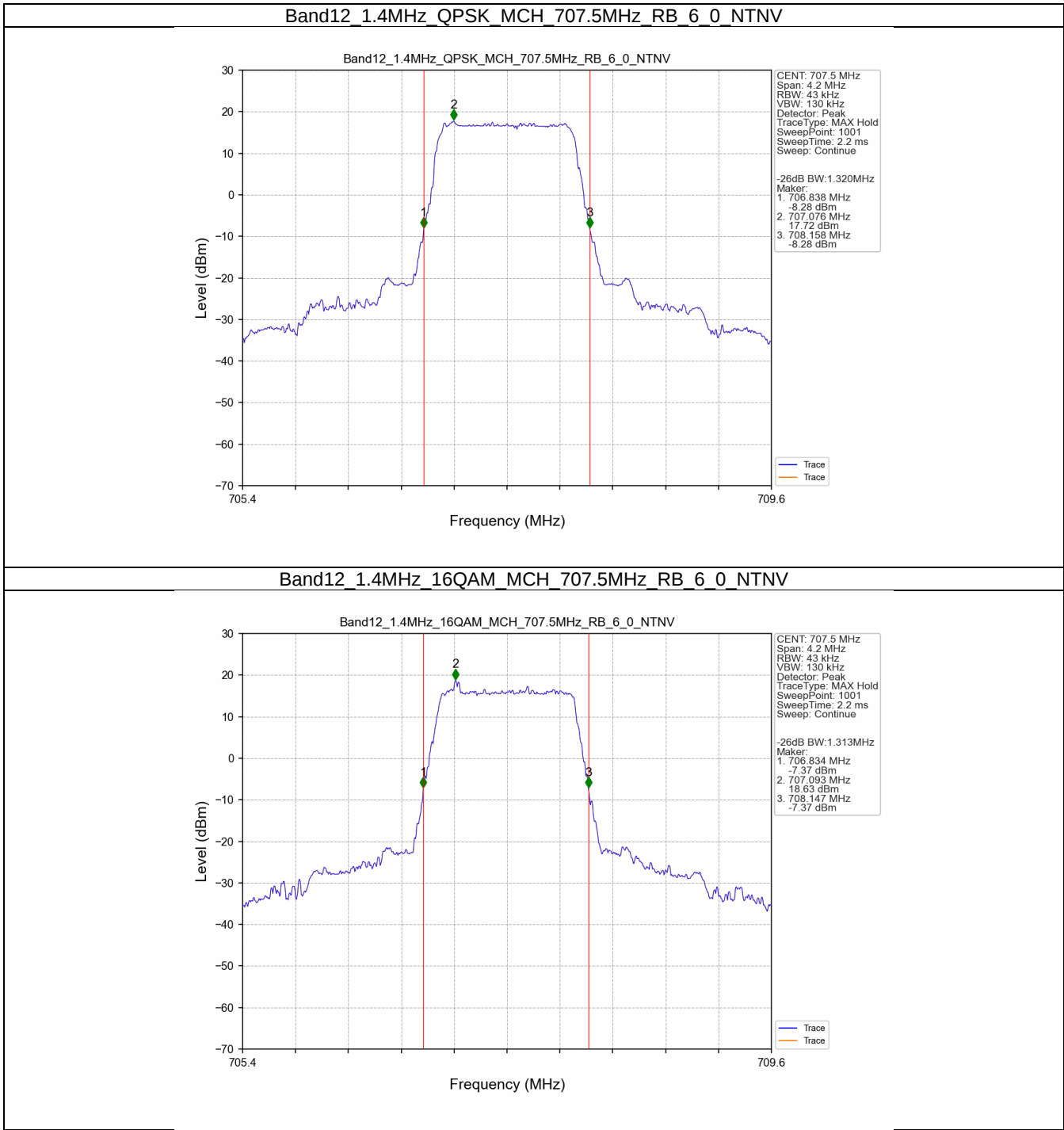
Band12 10MHz QPSK MCH 707.5MHz RB 50 0 NTV



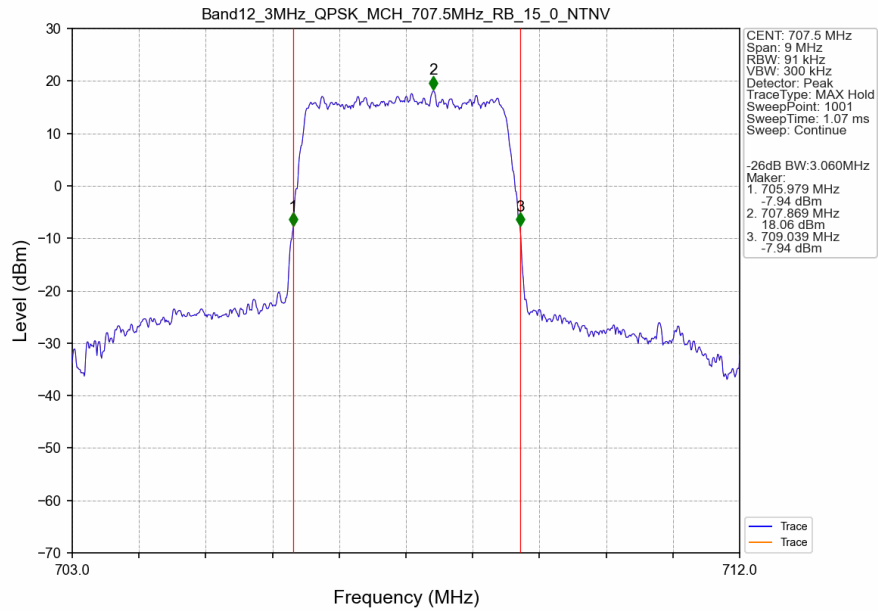
Band12 10MHz 16QAM MCH 707.5MHz RB 50 0 NTV



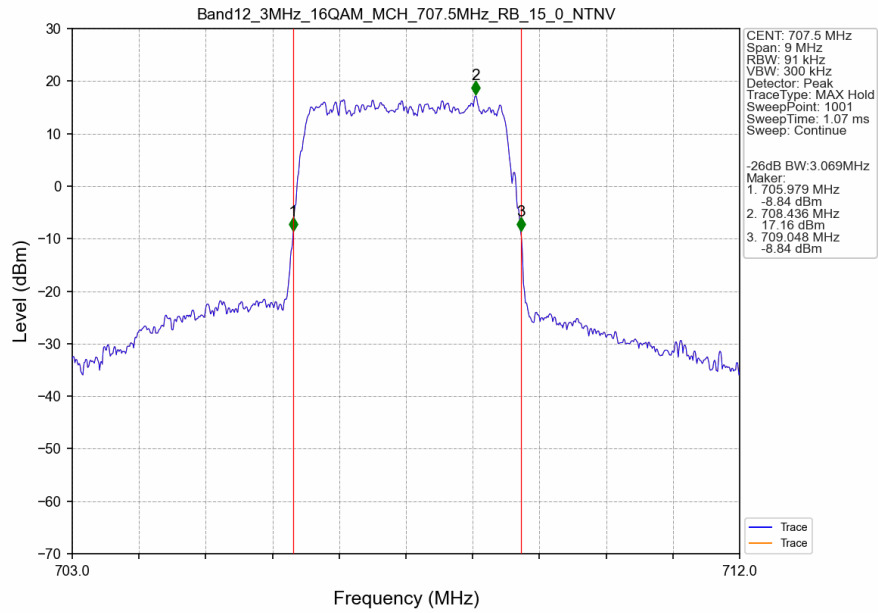
3.2.2 Band12_XDB



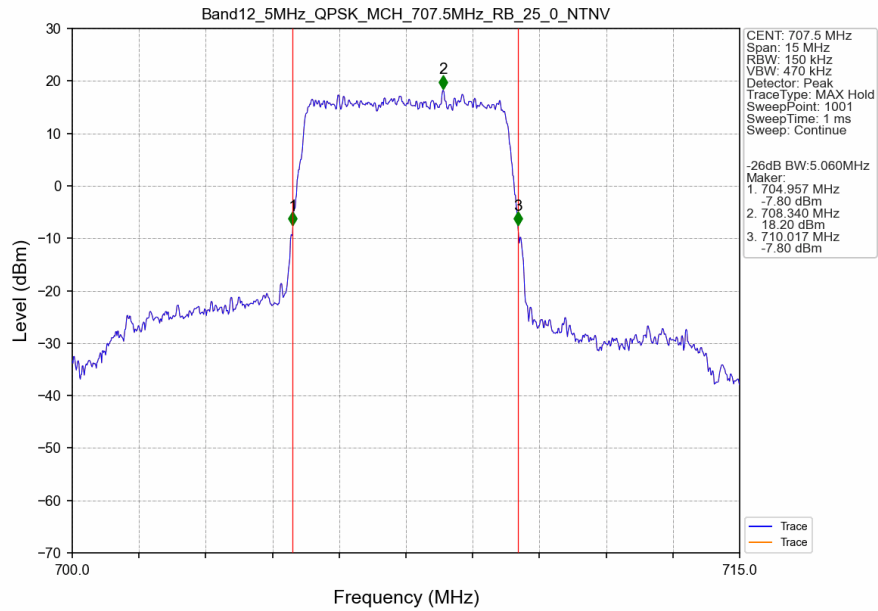
Band12 3MHz QPSK MCH 707.5MHz RB 15 0 NTV



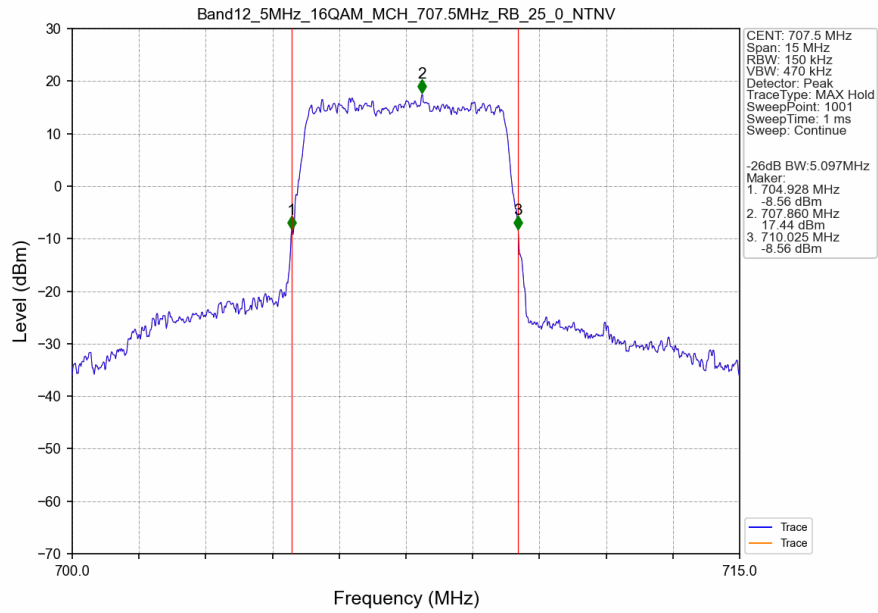
Band12 3MHz 16QAM MCH 707.5MHz RB 15 0 NTV



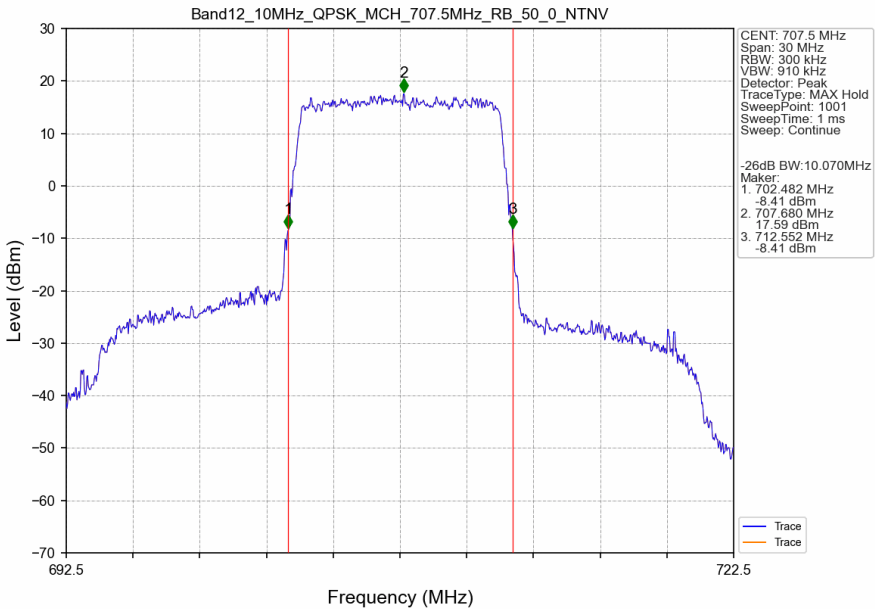
Band12 5MHz QPSK MCH 707.5MHz RB 25 0 NTV



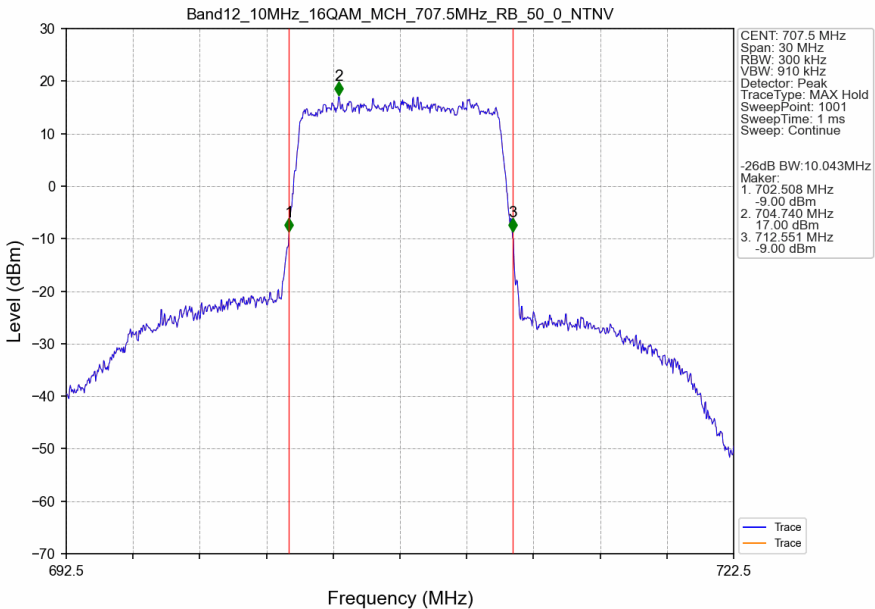
Band12 5MHz 16QAM MCH 707.5MHz RB 25 0 NTV



Band12 10MHz QPSK MCH 707.5MHz RB 50 0 NTN



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



4. Peak-Average Ratio

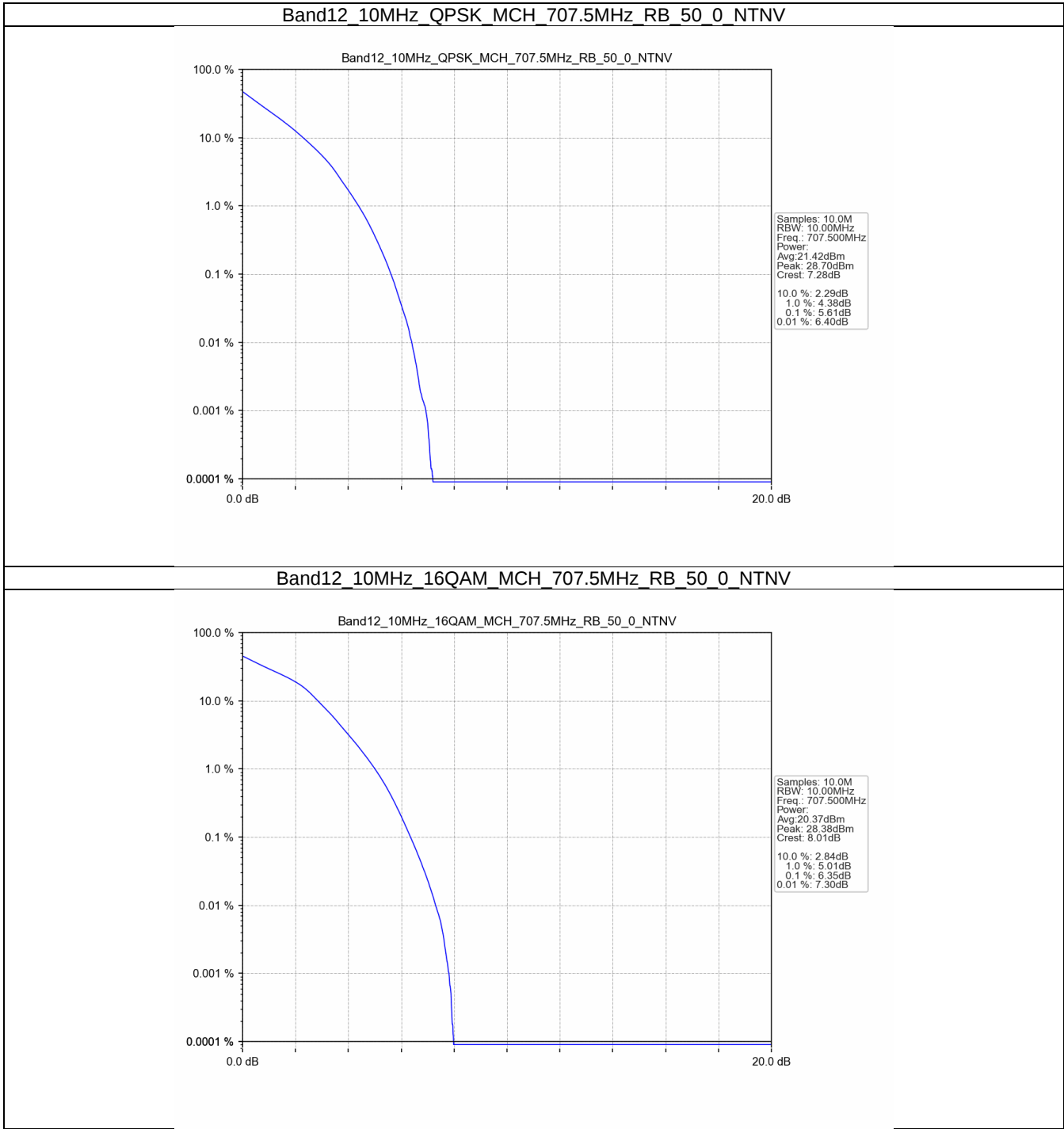
4.1 Test Result

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	5.61	<=13	Pass
16QAM	707.5	50	0	6.35	<=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

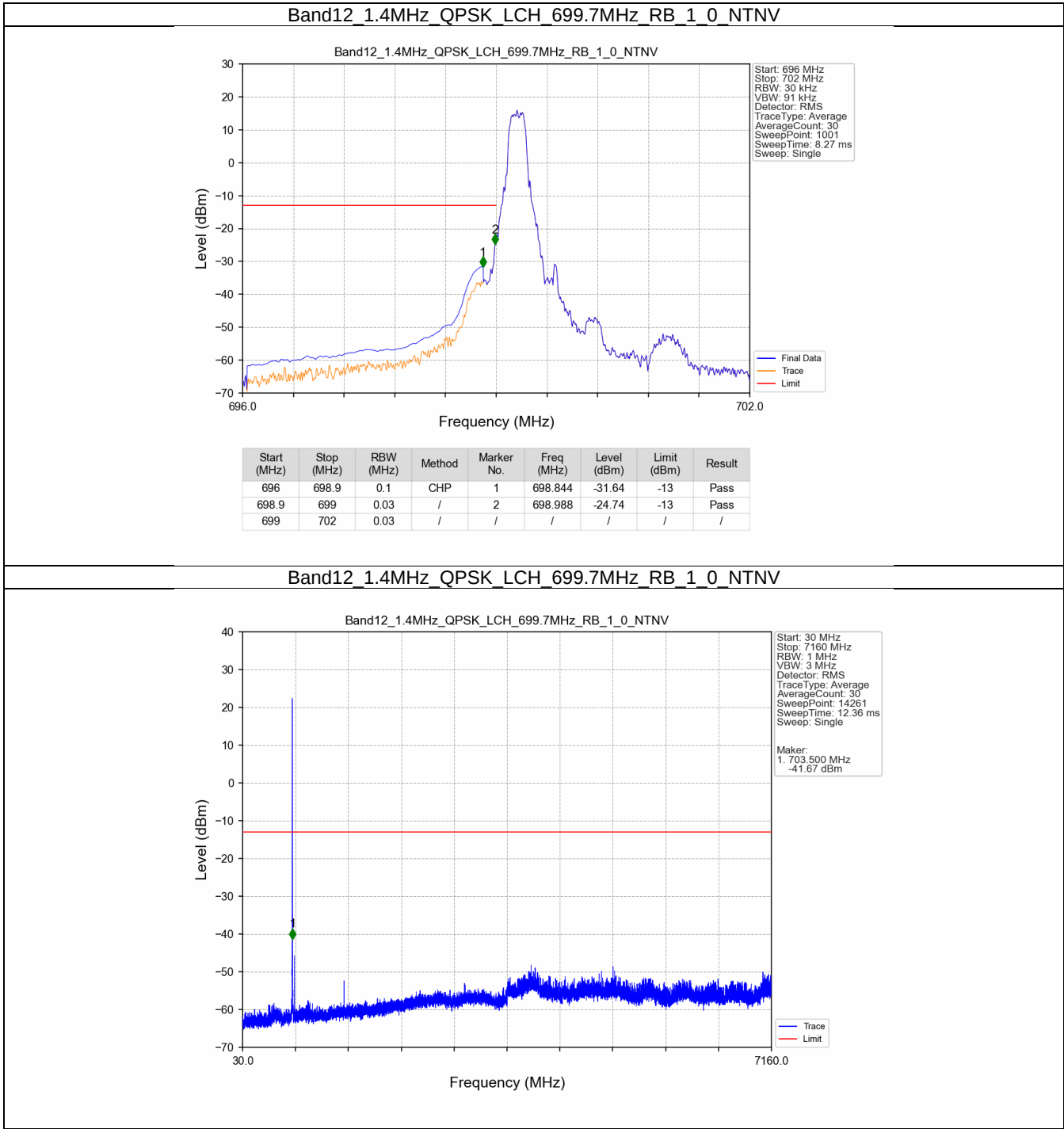
Band: 12 / Bandwidth: 5MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Spurious Emission		Verdict
		Size	Offset	Result	Limit	
QPSK	701.5	1	0	Refer To Test Graph		Pass
		25	0	Refer To Test Graph		Pass
	707.5	1	0	Refer To Test Graph		Pass
	713.5	1	0	Refer To Test Graph		Pass
			24	Refer To Test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

5.1.4 B12_10MHz

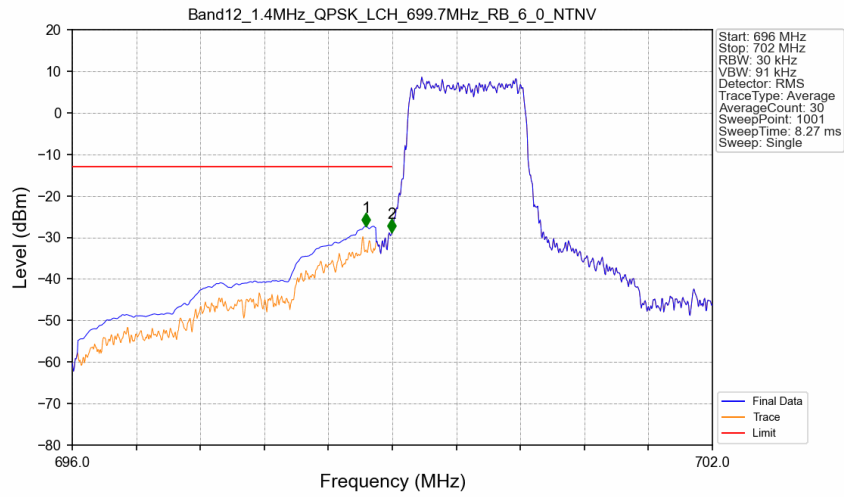
Band: 12 / Bandwidth: 10MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Spurious Emission		Verdict
		Size	Offset	Result	Limit	
QPSK	704	1	0	Refer To Test Graph		Pass
		50	0	Refer To Test Graph		Pass
	707.5	1	0	Refer To Test Graph		Pass
	711	1	0	Refer To Test Graph		Pass
			49	Refer To Test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

5.2 Test Graph

5.2.1 B12_1.4MHz

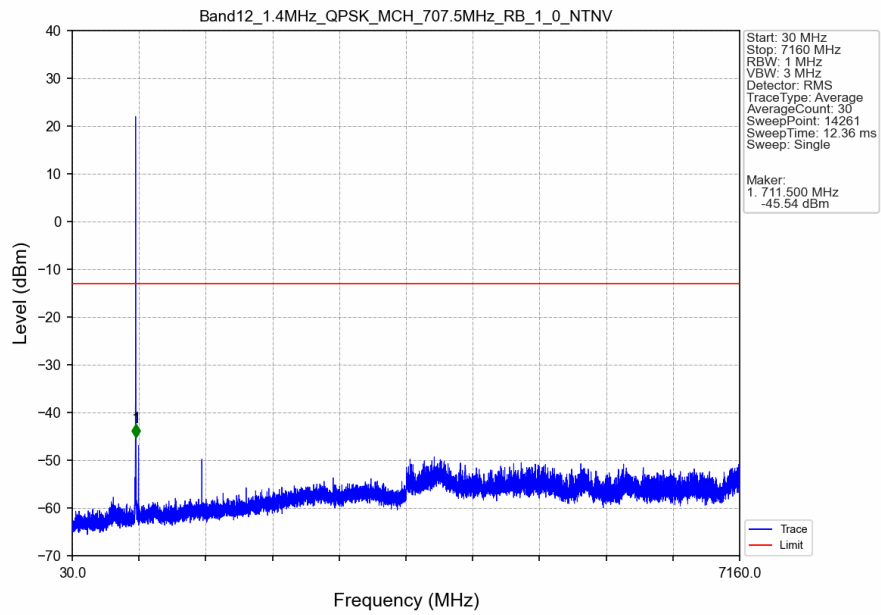


Band12 1.4MHz QPSK LCH 699.7MHz RB 6 0 NTNV

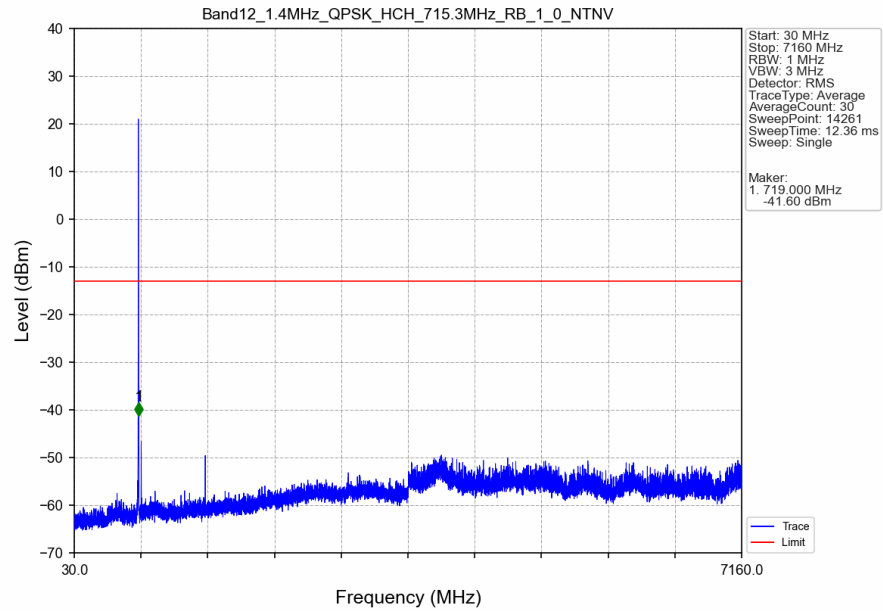


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
696	698.9	0.1	CHP	1	698.754	-27.33	-13	Pass
698.9	699	0.03	/	2	698.994	-28.77	-13	Pass
699	702	0.03	/	/	/	/	/	/

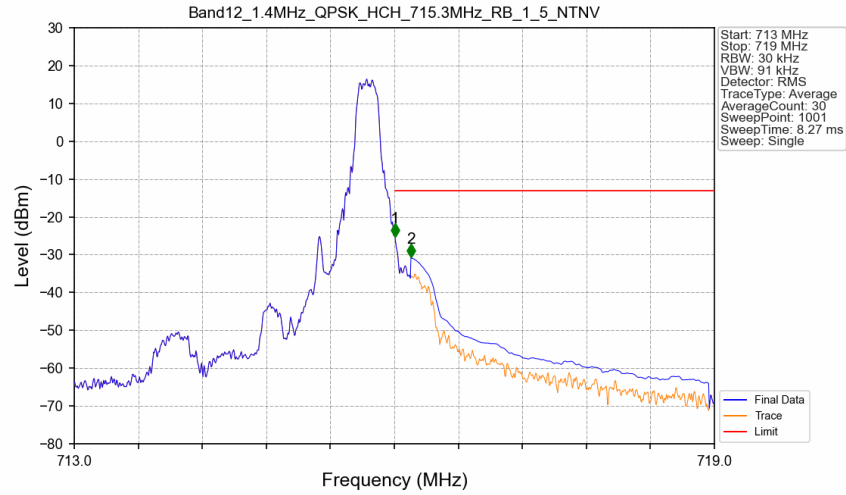
Band12 1.4MHz QPSK MCH 707.5MHz RB 1 0 NTNV



Band12 1.4MHz QPSK HCH 715.3MHz RB 1 0 NTV

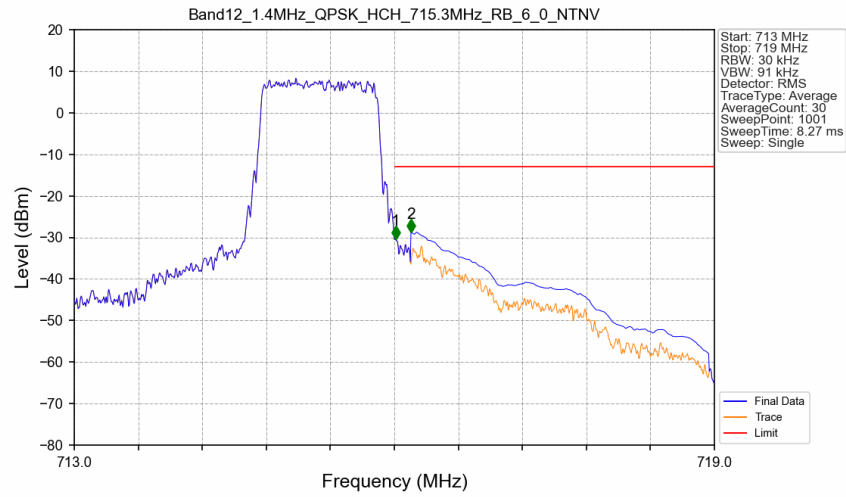


Band12 1.4MHz QPSK HCH 715.3MHz RB 1 5 NTV



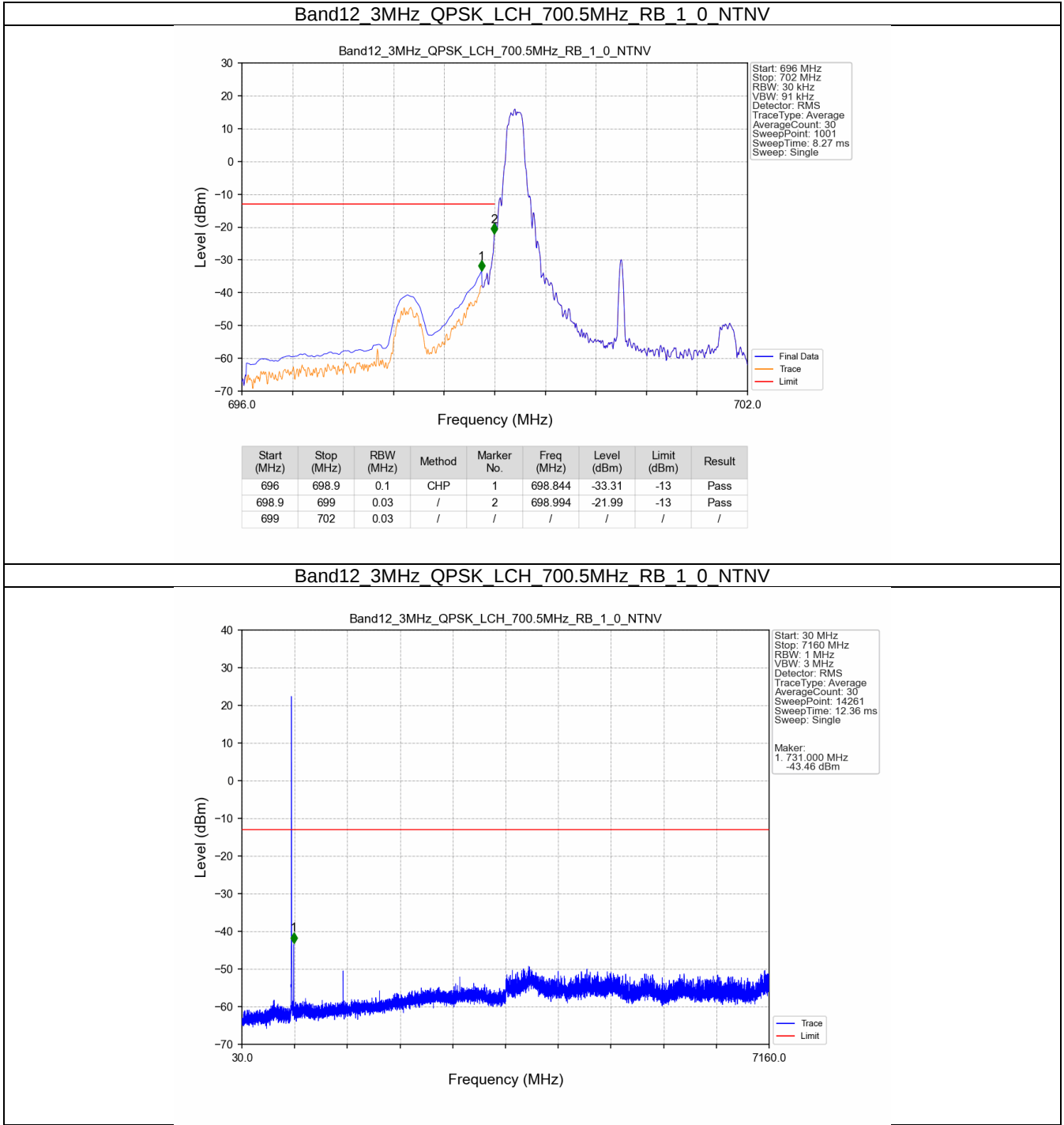
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
713	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.006	-25.19	-13	Pass
716.1	719	0.1	CHP	2	716.156	-30.73	-13	Pass

Band12 1.4MHz QPSK HCH 715.3MHz RB 6 0 NTNV

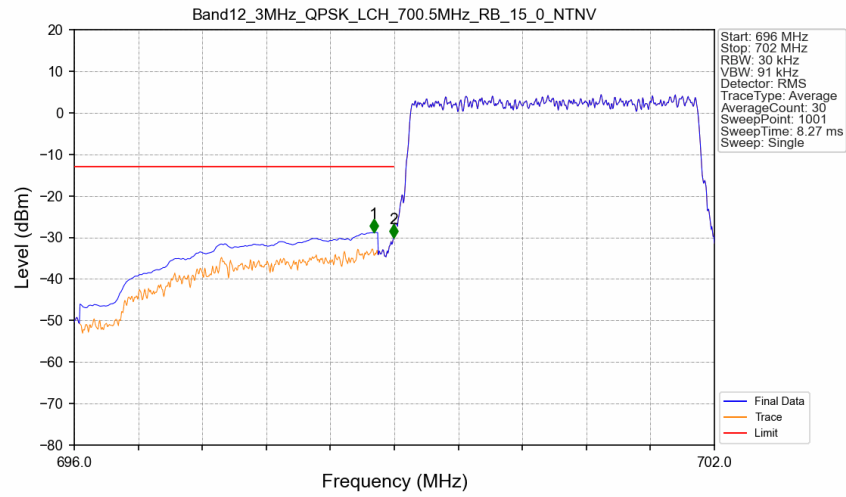


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
713	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.012	-30.42	-13	Pass
716.1	719	0.1	CHP	2	716.156	-28.74	-13	Pass

5.2.2 B12_3MHz

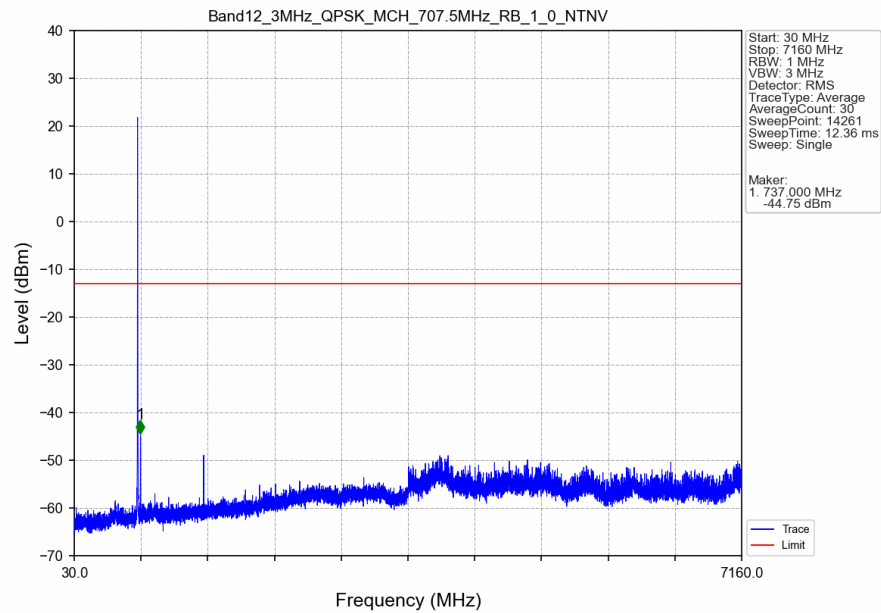


Band12 3MHz QPSK LCH 700.5MHz RB 15 0 NTNV

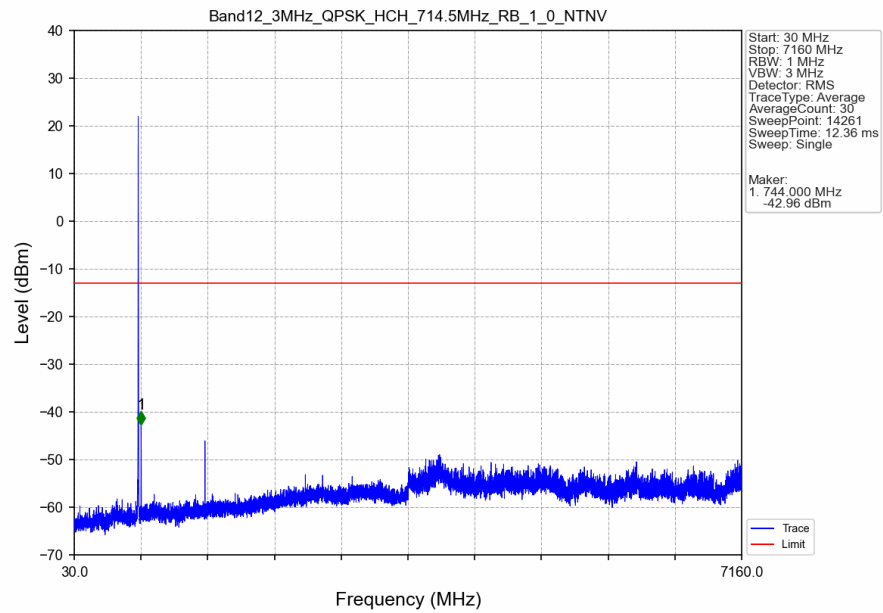


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
696	698.9	0.1	CHP	1	698.808	-28.84	-13	Pass
698.9	699	0.03	/	2	698.994	-29.97	-13	Pass
699	702	0.03	/	/	/	/	/	/

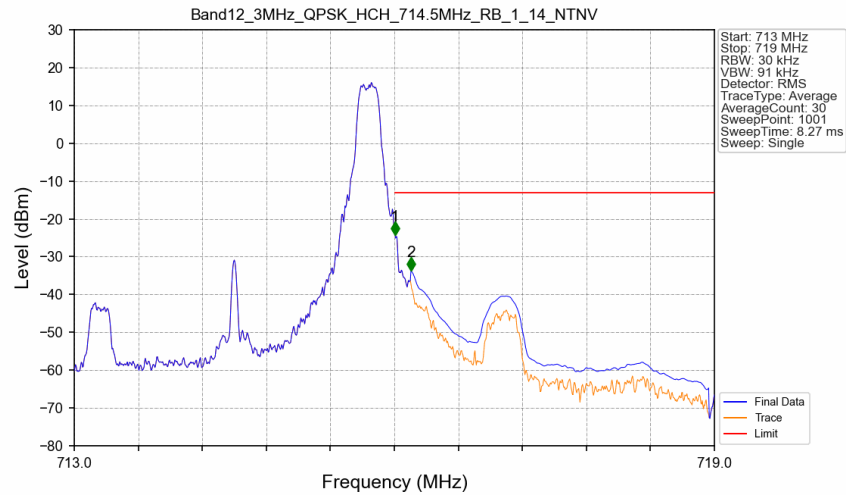
Band12 3MHz QPSK MCH 707.5MHz RB 1 0 NTNV



Band12 3MHz QPSK HCH 714.5MHz RB 1 0 NTV

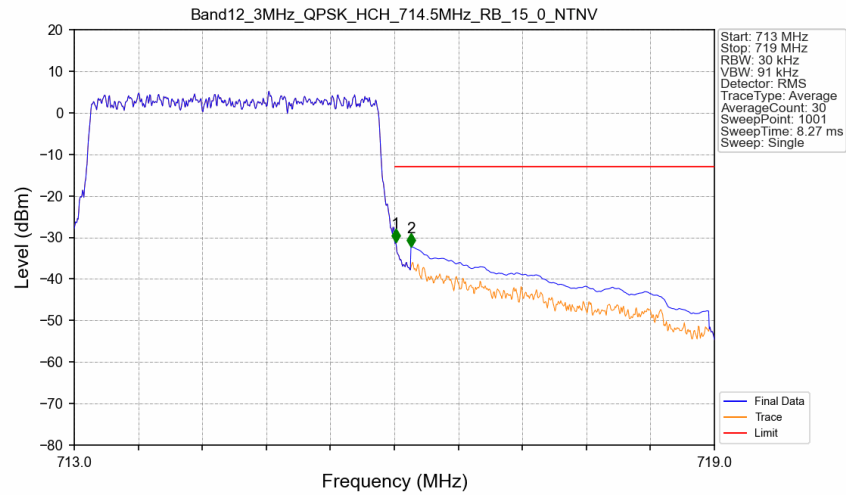


Band12 3MHz QPSK HCH 714.5MHz RB 1 14 NTV



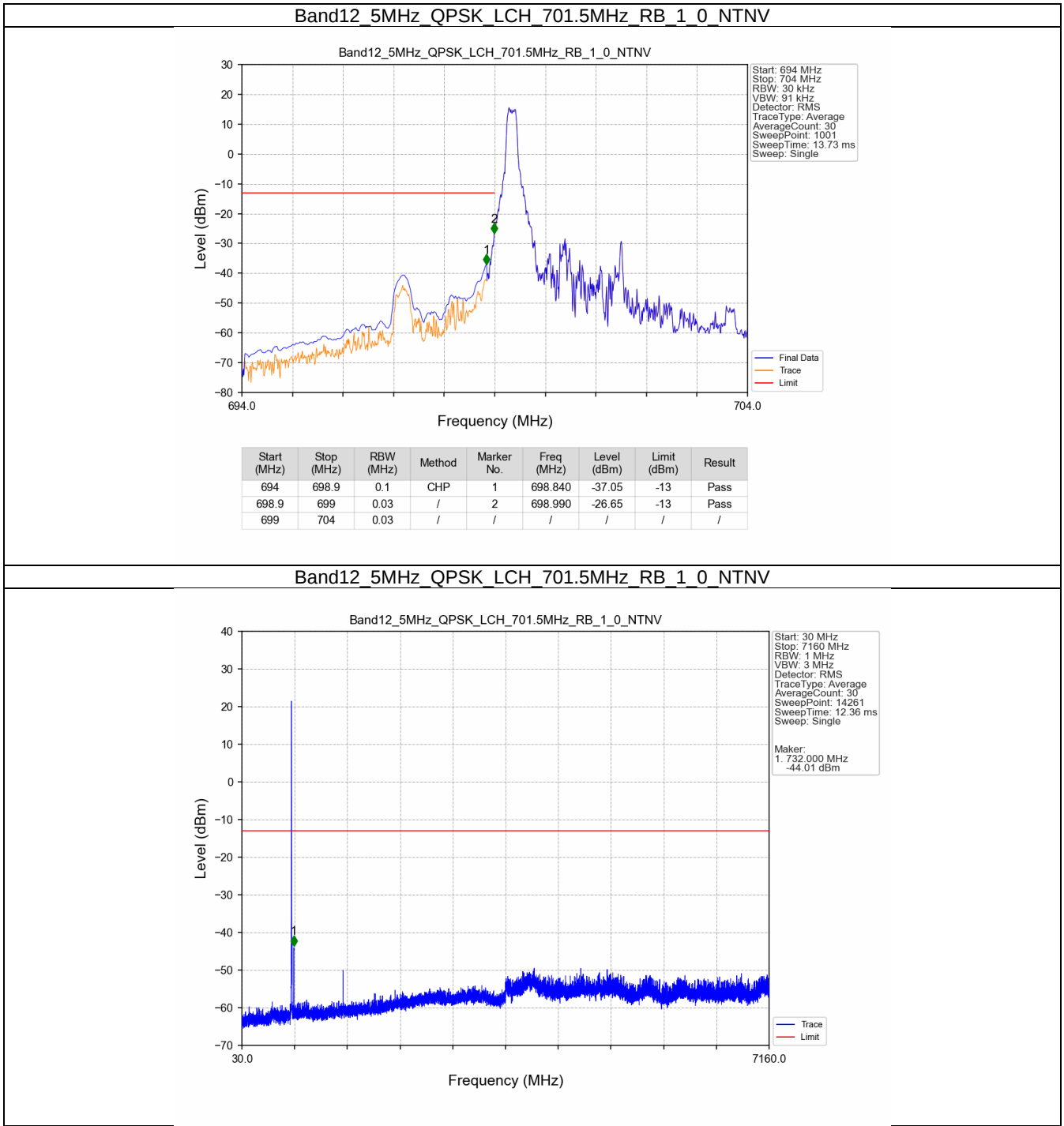
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
713	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.006	-24.20	-13	Pass
716.1	719	0.1	CHP	2	716.156	-33.64	-13	Pass

Band12 3MHz QPSK HCH 714.5MHz RB 15 0 NTN

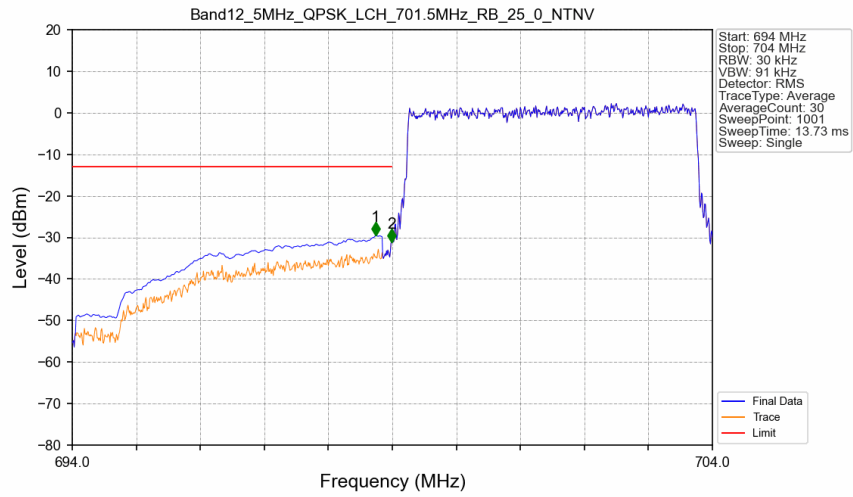


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
713	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.012	-31.15	-13	Pass
716.1	719	0.1	CHP	2	716.156	-32.30	-13	Pass

5.2.3 B12_5MHz

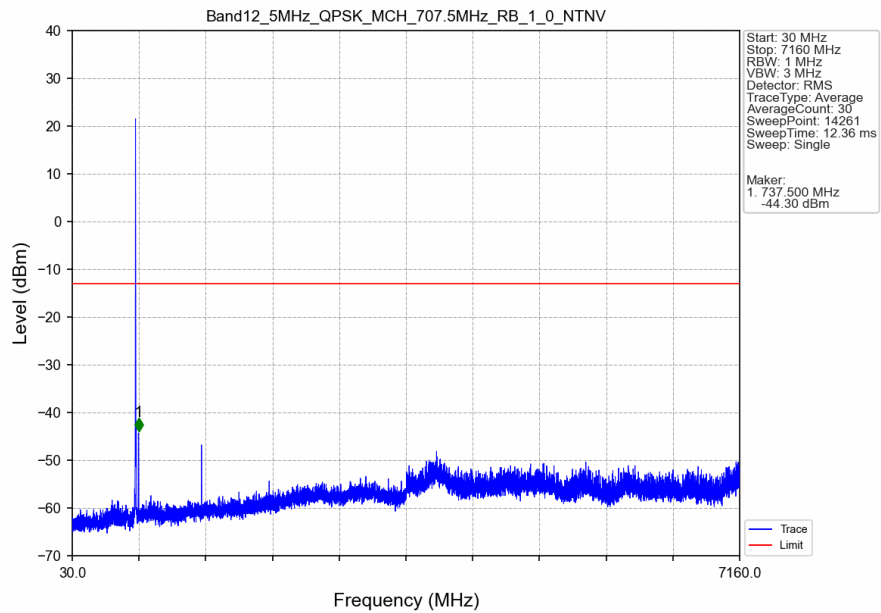


Band12 5MHz QPSK LCH 701.5MHz RB 25 0 NTNV

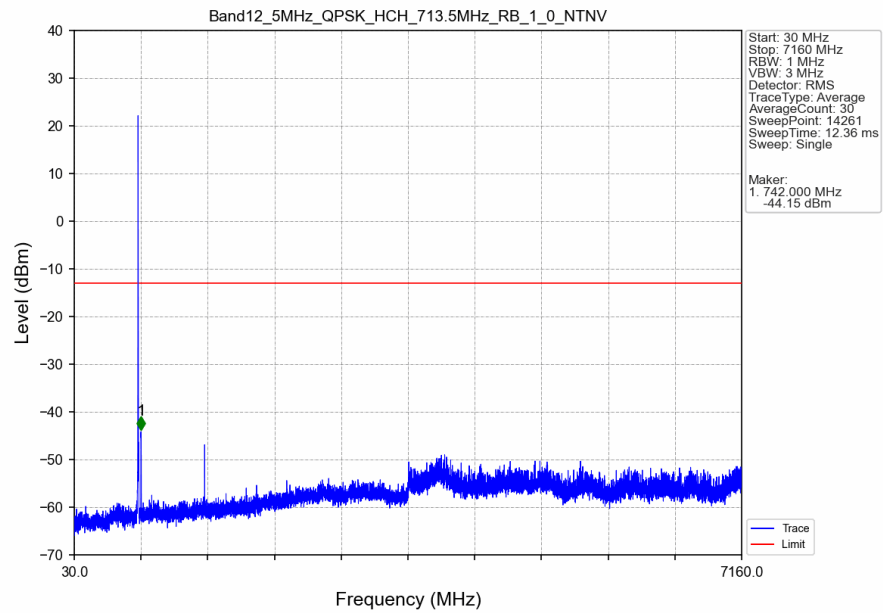


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
694	698.9	0.1	CHP	1	698.740	-29.56	-13	Pass
698.9	699	0.03	/	2	698.990	-31.21	-13	Pass
699	704	0.03	/	/	/	/	/	/

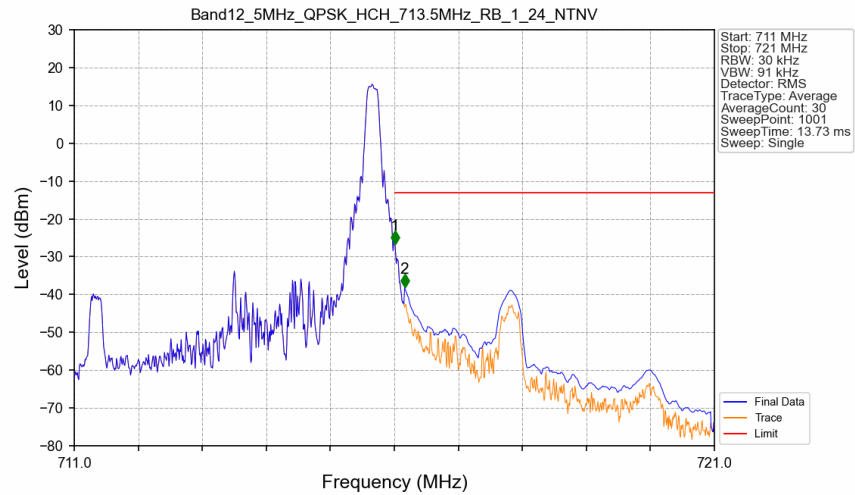
Band12 5MHz QPSK MCH 707.5MHz RB 1 0 NTNV



Band12 5MHz QPSK HCH 713.5MHz RB 1 0 NTV

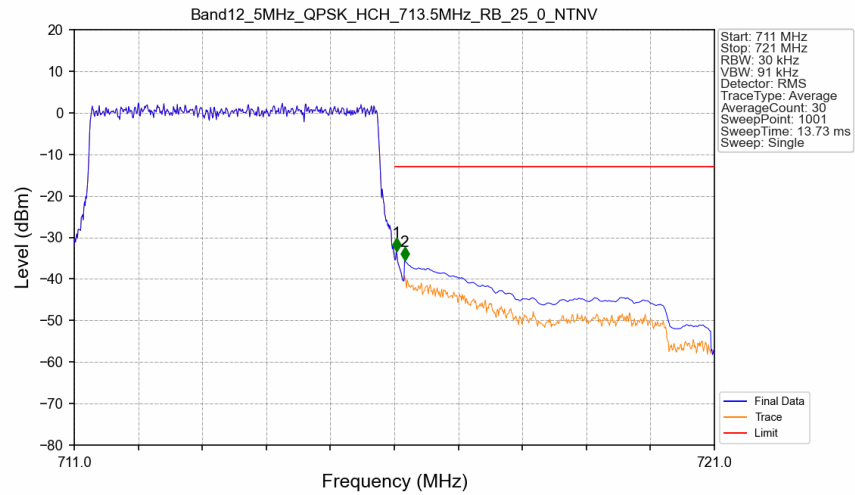


Band12 5MHz QPSK HCH 713.5MHz RB 1 24 NTV



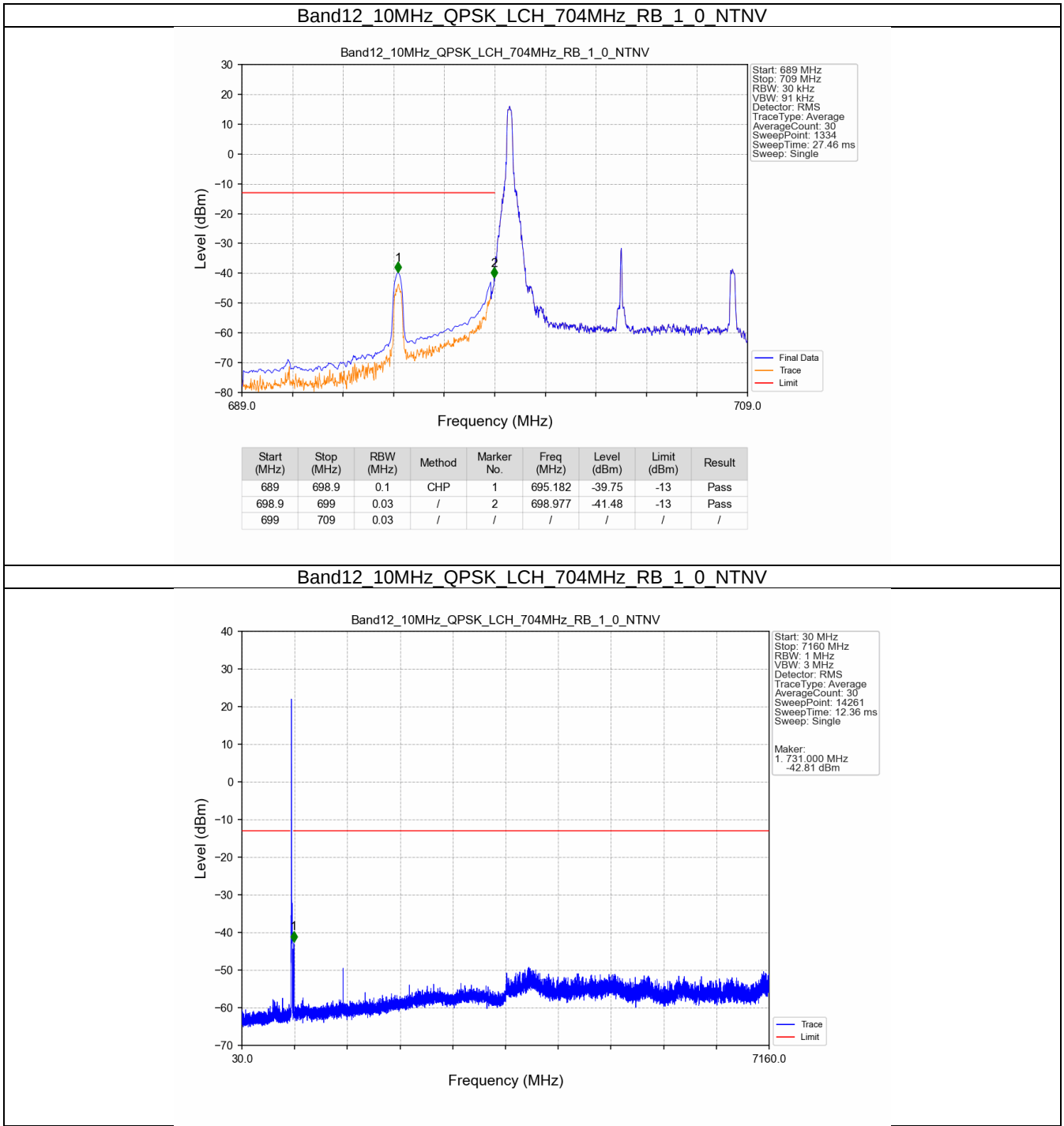
Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
711	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.010	-26.67	-13	Pass
716.1	721	0.1	CHP	2	716.160	-38.10	-13	Pass

Band12 5MHz QPSK HCH 713.5MHz RB 25 0 NTN

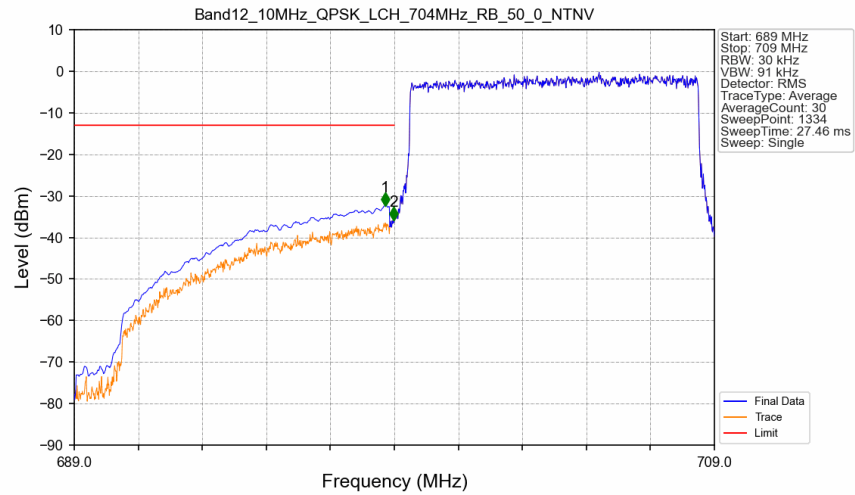


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
711	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.030	-33.39	-13	Pass
716.1	721	0.1	CHP	2	716.160	-35.58	-13	Pass

5.2.4 B12_10MHz

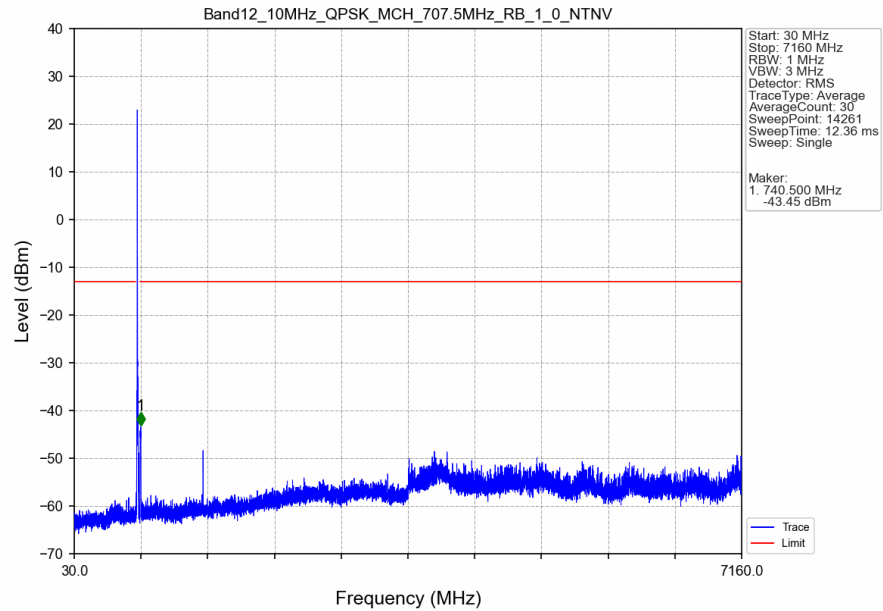


Band12 10MHz QPSK LCH 704MHz RB 50 0 NTN

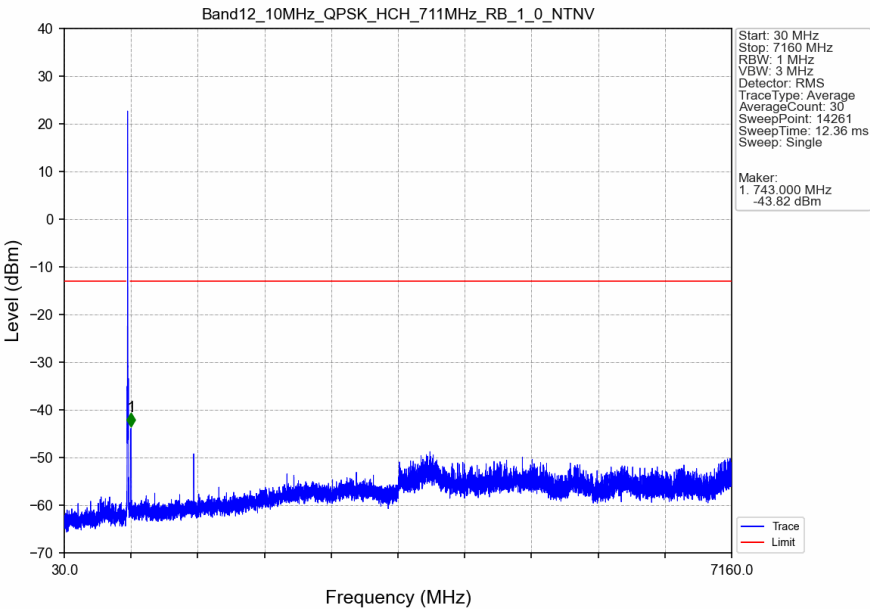


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No.	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
689	698.9	0.1	CHP	1	698.707	-32.35	-13	Pass
698.9	699	0.03	/	2	698.977	-35.87	-13	Pass
699	709	0.03	/	/	/	/	/	/

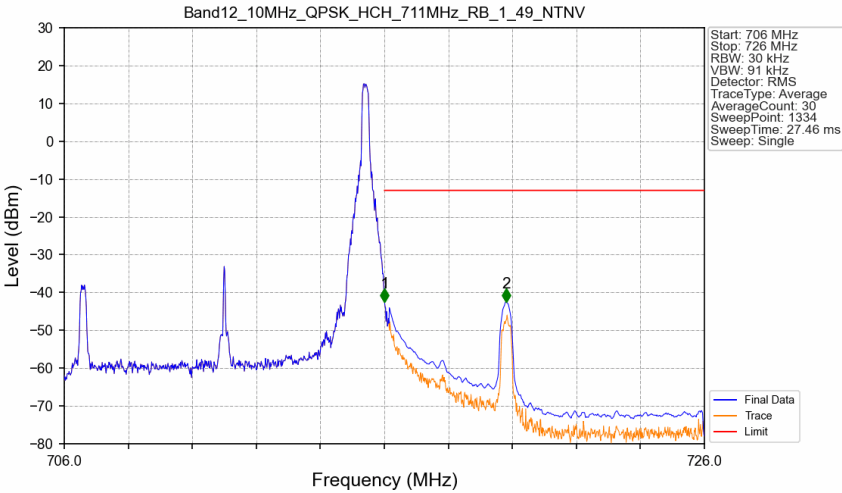
Band12 10MHz QPSK MCH 707.5MHz RB 1 0 NTN



Band12 10MHz QPSK HCH 711MHz RB 1 0 NTN

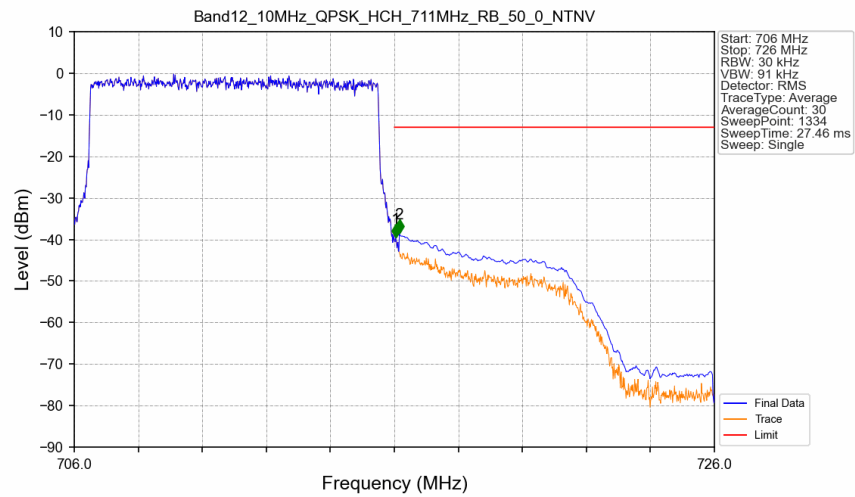


Band12 10MHz QPSK HCH 711MHz RB 1 49 NTN



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	-42.50	-13	Pass
716.1	726	0.1	CHP	2	719.803	-42.54	-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	716.038	-39.55	-13	Pass
716.1	726	0.1	CHP	2	716.158	-38.40	-13	Pass

6. Field Strength of Spurious Radiation

LTE Band 12-Low channel, Modulation: QPSK, Bandwidth:10MHz, 1RB#0				
Frequency	Spurious Emission Level		Limit	Margin
(MHz)	Polaxis	(dBm)	(dBm)	(dB)
1399	H	-53.52	-13	40.52
2098.5	H	-49.51	-13	36.51
2798	H	-56.04	-13	43.04
1399	V	-54.82	-13	41.82
2098.5	V	-51.76	-13	38.76
2798	V	-56.57	-13	43.57

LTE Band 12-Middle channel, Modulation: QPSK, Bandwidth:10MHz, 1RB#0				
Frequency	Spurious Emission Level		Limit	Margin
(MHz)	Polaxis	(dBm)	(dBm)	(dB)
1406	H	-56.4	-13	43.4
2109	H	-52.37	-13	39.37
2812	H	-56.06	-13	43.06
1406	V	-56.09	-13	43.09
2109	V	-50.9	-13	37.9
2812	V	-57.07	-13	44.07

LTE Band 12-High channel, Modulation: QPSK, Bandwidth:10MHz, 1RB#0				
Frequency	Spurious Emission Level		Limit	Margin
(MHz)	Polaxis	(dBm)	(dBm)	(dB)
1413	H	-62.65	-13	49.65
2119.5	H	-53.11	-13	40.11
2826	H	-56.34	-13	43.34
1413	V	-57.35	-13	44.35
2119.5	V	-52.85	-13	39.85
2826	V	-56.8	-13	43.8