Appendix B.8

LTE Band 12

1. Effective (Isotropic) Radiated Power Output Data

1.1 B12_1.4MHz_ERP (NPANT004)

1.1.1 Test Result

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	22.93	3.19	23.97	<=34.77	Pass
			2	23.00	3.19	24.04	<=34.77	Pass
			5	22.98	3.19	24.02	<=34.77	Pass
		3	0	23.08	3.19	24.12	<=34.77	Pass
			2	23.10	3.19	24.14	<=34.77	Pass
			3	23.04	3.19	24.08	<=34.77	Pass
		6	0	21.93	3.19	22.97	<=34.77	Pass
	707.5	1	0	23.14	3.19	24.18	<=34.77	Pass
			2	23.19	3.19	24.23	<=34.77	Pass
			5	23.15	3.19	24.19	<=34.77	Pass
		3	0	23.10	3.19	24.14	<=34.77	Pass
			2	23.20	3.19	24.24	<=34.77	Pass
			3	23.14	3.19	24.18	<=34.77	Pass
		6	0	22.17	3.19	23.21	<=34.77	Pass
	715.3	1	0	23.10	3.19	24.14	<=34.77	Pass
			2	23.19	3.19	24.23	<=34.77	Pass
			5	23.10	3.19	24.14	<=34.77	Pass
		3	0	23.19	3.19	24.23	<=34.77	Pass
			2	23.24	3.19	24.28	<=34.77	Pass
			3	23.16	3.19	24.20	<=34.77	Pass
		6	0	22.19	3.19	23.23	<=34.77	Pass
16QAM	699.7	1	0	22.15	3.19	23.19	<=34.77	Pass
			2	22.24	3.19	23.28	<=34.77	Pass
			5	22.13	3.19	23.17	<=34.77	Pass
		3	0	22.09	3.19	23.13	<=34.77	Pass
			2	22.13	3.19	23.17	<=34.77	Pass
			3	22.08	3.19	23.12	<=34.77	Pass
		6	0	21.00	3.19	22.04	<=34.77	Pass
	707.5	1	0	22.16	3.19	23.20	<=34.77	Pass
			2	22.21	3.19	23.25	<=34.77	Pass
			5	22.17	3.19	23.21	<=34.77	Pass
		3	0	22.22	3.19	23.26	<=34.77	Pass
			2	22.26	3.19	23.30	<=34.77	Pass
			3	22.23	3.19	23.27	<=34.77	Pass
		6	0	21.11	3.19	22.15	<=34.77	Pass
	715.3	1	0	22.17	3.19	23.21	<=34.77	Pass
			2	22.20	3.19	23.24	<=34.77	Pass
			5	22.14	3.19	23.18	<=34.77	Pass
		3	0	22.39	3.19	23.43	<=34.77	Pass
			2	22.47	3.19	23.51	<=34.77	Pass
			3	22.41	3.19	23.45	<=34.77	Pass
		6	0	21.20	3.19	22.24	<=34.77	Pass
Note1: ERP=Conducted Power+Antenna Gain-2.15								

1.2 B12_3MHz_ERP

1.2.1 Test Result

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	23.00	3.19	24.04	<=34.77	Pass
			7	23.11	3.19	24.15	<=34.77	Pass
			14	23.02	3.19	24.06	<=34.77	Pass
		8	0	22.08	3.19	23.12	<=34.77	Pass
			4	22.12	3.19	23.16	<=34.77	Pass
			7	22.07	3.19	23.11	<=34.77	Pass
		15	0	22.08	3.19	23.12	<=34.77	Pass
	707.5	1	0	23.19	3.19	24.23	<=34.77	Pass
			7	23.25	3.19	24.29	<=34.77	Pass
			14	23.15	3.19	24.19	<=34.77	Pass
		8	0	22.23	3.19	23.27	<=34.77	Pass
			4	22.25	3.19	23.29	<=34.77	Pass
			7	22.22	3.19	23.26	<=34.77	Pass
		15	0	22.25	3.19	23.29	<=34.77	Pass
	714.5	1	0	23.19	3.19	24.23	<=34.77	Pass
			7	23.30	3.19	24.34	<=34.77	Pass
			14	23.22	3.19	24.26	<=34.77	Pass
		8	0	22.25	3.19	23.29	<=34.77	Pass
			4	22.28	3.19	23.32	<=34.77	Pass
			7	22.24	3.19	23.28	<=34.77	Pass
		15	0	22.25	3.19	23.29	<=34.77	Pass
16QAM	700.5	1	0	22.64	3.19	23.68	<=34.77	Pass
			7	22.76	3.19	23.80	<=34.77	Pass
			14	22.64	3.19	23.68	<=34.77	Pass
		8	0	21.27	3.19	22.31	<=34.77	Pass
			4	21.32	3.19	22.36	<=34.77	Pass
			7	21.22	3.19	22.26	<=34.77	Pass
		15	0	21.22	3.19	22.26	<=34.77	Pass
	707.5	1	0	22.31	3.19	23.35	<=34.77	Pass
			7	22.44	3.19	23.48	<=34.77	Pass
			14	22.33	3.19	23.37	<=34.77	Pass
		8	0	21.20	3.19	22.24	<=34.77	Pass
			4	21.25	3.19	22.29	<=34.77	Pass
			7	21.20	3.19	22.24	<=34.77	Pass
		15	0	21.24	3.19	22.28	<=34.77	Pass
	714.5	1	0	22.31	3.19	23.35	<=34.77	Pass
			7	22.34	3.19	23.38	<=34.77	Pass
			14	22.22	3.19	23.26	<=34.77	Pass
		8	0	21.38	3.19	22.42	<=34.77	Pass
			4	21.41	3.19	22.45	<=34.77	Pass
			7	21.28	3.19	22.32	<=34.77	Pass
		15	0	21.35	3.19	22.39	<=34.77	Pass
Note1: ERP=Conducted Power+Antenna Gain-2.15								

1.3 B12_5MHz_ERP

1.3.1 Test Result

Band: 12 / Bandwidth: 5MHz / NTNV								
Modulation	Frequency (MHz)	RB Allocation		Conducted Power (dBm)	Gain (dBi)	ERP (dBm)		Verdict
		Size	Offset			Result	Limit	
QPSK	701.5	1	0	23.04	3.19	24.08	<=34.77	Pass
			13	23.17	3.19	24.21	<=34.77	Pass
			24	23.15	3.19	24.19	<=34.77	Pass
		12	0	22.11	3.19	23.15	<=34.77	Pass
			6	22.16	3.19	23.20	<=34.77	Pass
			13	22.21	3.19	23.25	<=34.77	Pass
		25	0	22.24	3.19	23.28	<=34.77	Pass
	707.5	1	0	23.24	3.19	24.28	<=34.77	Pass
			13	23.24	3.19	24.28	<=34.77	Pass
			24	23.14	3.19	24.18	<=34.77	Pass
		12	0	22.28	3.19	23.32	<=34.77	Pass
			6	22.29	3.19	23.33	<=34.77	Pass
			13	22.23	3.19	23.27	<=34.77	Pass
		25	0	22.28	3.19	23.32	<=34.77	Pass
	713.5	1	0	23.19	3.19	24.23	<=34.77	Pass
			13	23.29	3.19	24.33	<=34.77	Pass
			24	23.23	3.19	24.27	<=34.77	Pass
		12	0	22.27	3.19	23.31	<=34.77	Pass
			6	22.31	3.19	23.35	<=34.77	Pass
			13	22.26	3.19	23.30	<=34.77	Pass
		25	0	22.28	3.19	23.32	<=34.77	Pass
16QAM	701.5	1	0	21.98	3.19	23.02	<=34.77	Pass
			13	22.07	3.19	23.11	<=34.77	Pass
			24	22.06	3.19	23.10	<=34.77	Pass
		12	0	21.14	3.19	22.18	<=34.77	Pass
			6	21.21	3.19	22.25	<=34.77	Pass
			13	21.25	3.19	22.29	<=34.77	Pass
		25	0	21.29	3.19	22.33	<=34.77	Pass
	707.5	1	0	22.43	3.19	23.47	<=34.77	Pass
			13	22.54	3.19	23.58	<=34.77	Pass
			24	22.46	3.19	23.50	<=34.77	Pass
		12	0	21.34	3.19	22.38	<=34.77	Pass
			6	21.34	3.19	22.38	<=34.77	Pass
			13	21.35	3.19	22.39	<=34.77	Pass
		25	0	21.29	3.19	22.33	<=34.77	Pass
	713.5	1	0	22.38	3.19	23.42	<=34.77	Pass
			13	22.45	3.19	23.49	<=34.77	Pass
			24	22.34	3.19	23.38	<=34.77	Pass
		12	0	21.30	3.19	22.34	<=34.77	Pass
			6	21.32	3.19	22.36	<=34.77	Pass
			13	21.26	3.19	22.30	<=34.77	Pass
		25	0	21.31	3.19	22.35	<=34.77	Pass
Note1: ERP=Conducted Power+Antenna Gain-2.15								

1.4 B12_10MHz_ERP

1.4.1 Test Result

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	23.05	3.19	24.09	<=34.77	Pass
			25	23.18	3.19	24.22	<=34.77	Pass
			49	23.12	3.19	24.16	<=34.77	Pass
		25	0	22.24	3.19	23.28	<=34.77	Pass
			13	22.31	3.19	23.35	<=34.77	Pass
			25	22.30	3.19	23.34	<=34.77	Pass
		50	0	22.25	3.19	23.29	<=34.77	Pass
	707.5	1	0	23.08	3.19	24.12	<=34.77	Pass
			25	23.17	3.19	24.21	<=34.77	Pass
			49	23.14	3.19	24.18	<=34.77	Pass
		25	0	22.30	3.19	23.34	<=34.77	Pass
			13	22.32	3.19	23.36	<=34.77	Pass
			25	22.29	3.19	23.33	<=34.77	Pass
		50	0	22.30	3.19	23.34	<=34.77	Pass
	711	1	0	23.27	3.19	24.31	<=34.77	Pass
			25	23.22	3.19	24.26	<=34.77	Pass
			49	23.19	3.19	24.23	<=34.77	Pass
		25	0	22.30	3.19	23.34	<=34.77	Pass
			13	22.33	3.19	23.37	<=34.77	Pass
			25	22.30	3.19	23.34	<=34.77	Pass
		50	0	22.30	3.19	23.34	<=34.77	Pass
16QAM	704	1	0	22.71	3.19	23.75	<=34.77	Pass
			25	22.73	3.19	23.77	<=34.77	Pass
			49	22.67	3.19	23.71	<=34.77	Pass
		25	0	21.32	3.19	22.36	<=34.77	Pass
			13	21.35	3.19	22.39	<=34.77	Pass
			25	21.37	3.19	22.41	<=34.77	Pass
		50	0	21.32	3.19	22.36	<=34.77	Pass
	707.5	1	0	22.27	3.19	23.31	<=34.77	Pass
			25	22.38	3.19	23.42	<=34.77	Pass
			49	22.36	3.19	23.40	<=34.77	Pass
		25	0	21.32	3.19	22.36	<=34.77	Pass
			13	21.35	3.19	22.39	<=34.77	Pass
			25	21.32	3.19	22.36	<=34.77	Pass
		50	0	21.31	3.19	22.35	<=34.77	Pass
	711	1	0	22.26	3.19	23.30	<=34.77	Pass
			25	22.28	3.19	23.32	<=34.77	Pass
			49	22.22	3.19	23.26	<=34.77	Pass
		25	0	21.43	3.19	22.47	<=34.77	Pass
			13	21.45	3.19	22.49	<=34.77	Pass
			25	21.41	3.19	22.45	<=34.77	Pass
		50	0	21.35	3.19	22.39	<=34.77	Pass
Note1: ERP=Conducted Power+Antenna Gain-2.15								

2. Frequency Stability

2.4 B12_10MHz

2.4.1 Test Result

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	704	50	0	20	3.135	4.766	0.0068	/	Pass
					3.7	2.677	0.0038	/	Pass
					4.4	2.027	0.0029	/	Pass
				-30	3.7	4.913	0.0070	/	Pass
				-20	3.7	2.432	0.0035	/	Pass
				-10	3.7	3.709	0.0053	/	Pass
				0	3.7	-0.494	-0.0007	/	Pass
				10	3.7	1.049	0.0015	/	Pass
				30	3.7	1.153	0.0016	/	Pass
				40	3.7	-1.814	-0.0026	/	Pass
				50	3.7	-0.610	-0.0009	/	Pass
	707.5	50	0	20	3.135	-0.550	-0.0008	/	Pass
					3.7	-6.009	-0.0085	/	Pass
					4.4	-1.361	-0.0019	/	Pass
				-30	3.7	-6.485	-0.0092	/	Pass
				-20	3.7	0.520	0.0007	/	Pass
				-10	3.7	0.982	0.0014	/	Pass
				0	3.7	1.573	0.0022	/	Pass
				10	3.7	1.896	0.0027	/	Pass
				30	3.7	1.667	0.0024	/	Pass
				40	3.7	0.168	0.0002	/	Pass
				50	3.7	0.682	0.0010	/	Pass
	711	50	0	20	3.135	-2.024	-0.0028	/	Pass
					3.7	1.167	0.0016	/	Pass
					4.4	-3.476	-0.0049	/	Pass
				-30	3.7	-3.985	-0.0056	/	Pass
				-20	3.7	2.675	0.0038	/	Pass
				-10	3.7	0.513	0.0007	/	Pass
				0	3.7	2.790	0.0039	/	Pass
				10	3.7	-0.576	-0.0008	/	Pass
				30	3.7	4.332	0.0061	/	Pass
				40	3.7	-2.425	-0.0034	/	Pass
				50	3.7	2.427	0.0034	/	Pass
16QAM	704	50	0	20	3.135	2.753	0.0039	/	Pass
					3.7	1.081	0.0015	/	Pass
					4.4	-0.519	-0.0007	/	Pass
				-30	3.7	-0.226	-0.0003	/	Pass
				-20	3.7	3.694	0.0052	/	Pass
				-10	3.7	1.288	0.0018	/	Pass
				0	3.7	4.418	0.0063	/	Pass
				10	3.7	4.594	0.0065	/	Pass
				30	3.7	5.553	0.0079	/	Pass
				40	3.7	1.928	0.0027	/	Pass
				50	3.7	3.382	0.0048	/	Pass

	707.5	50	0	20	3.135	-2.662	-0.0038	/	Pass
					3.7	-3.853	-0.0054	/	Pass
					4.4	-1.262	-0.0018	/	Pass
				-30	3.7	-2.665	-0.0038	/	Pass
				-20	3.7	-1.997	-0.0028	/	Pass
				-10	3.7	-5.173	-0.0073	/	Pass
				0	3.7	-1.918	-0.0027	/	Pass
				10	3.7	-1.775	-0.0025	/	Pass
				30	3.7	-2.072	-0.0029	/	Pass
				40	3.7	-3.160	-0.0045	/	Pass
				50	3.7	-1.809	-0.0026	/	Pass
	711	50	0	20	3.135	1.742	0.0025	/	Pass
					3.7	0.110	0.0002	/	Pass
					4.4	-2.932	-0.0041	/	Pass
				-30	3.7	-0.856	-0.0012	/	Pass
				-20	3.7	-2.121	-0.0030	/	Pass
				-10	3.7	-3.893	-0.0055	/	Pass
				0	3.7	2.976	0.0042	/	Pass
				10	3.7	-2.906	-0.0041	/	Pass
				30	3.7	-1.450	-0.0020	/	Pass
				40	3.7	-4.577	-0.0064	/	Pass
				50	3.7	1.347	0.0019	/	Pass

3. 99% & 26dB Bandwidth

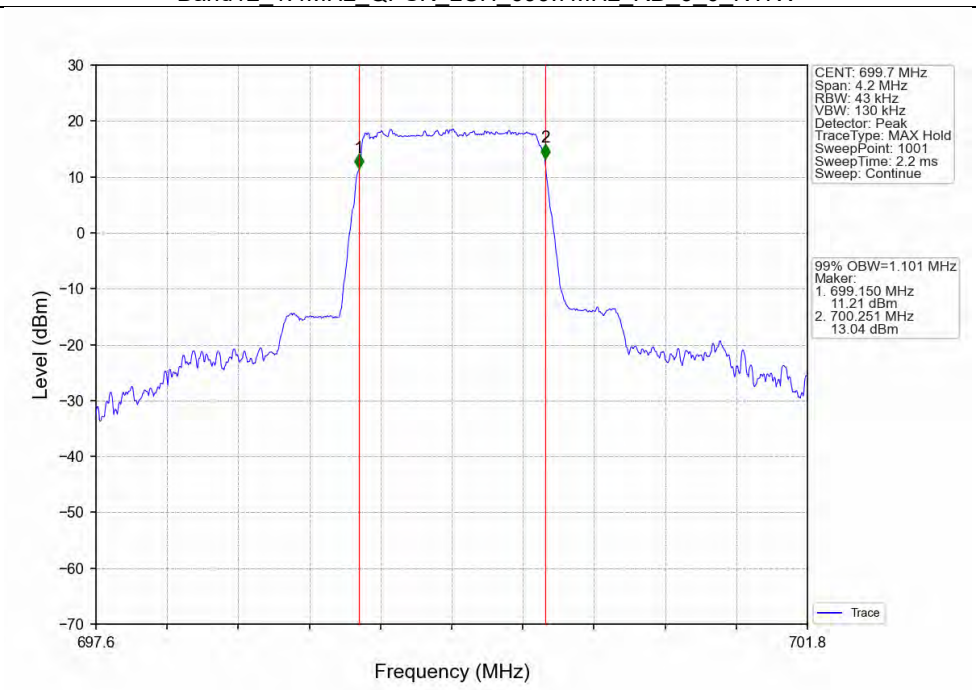
3.1 Band12_OBW

3.1.1 Test Result

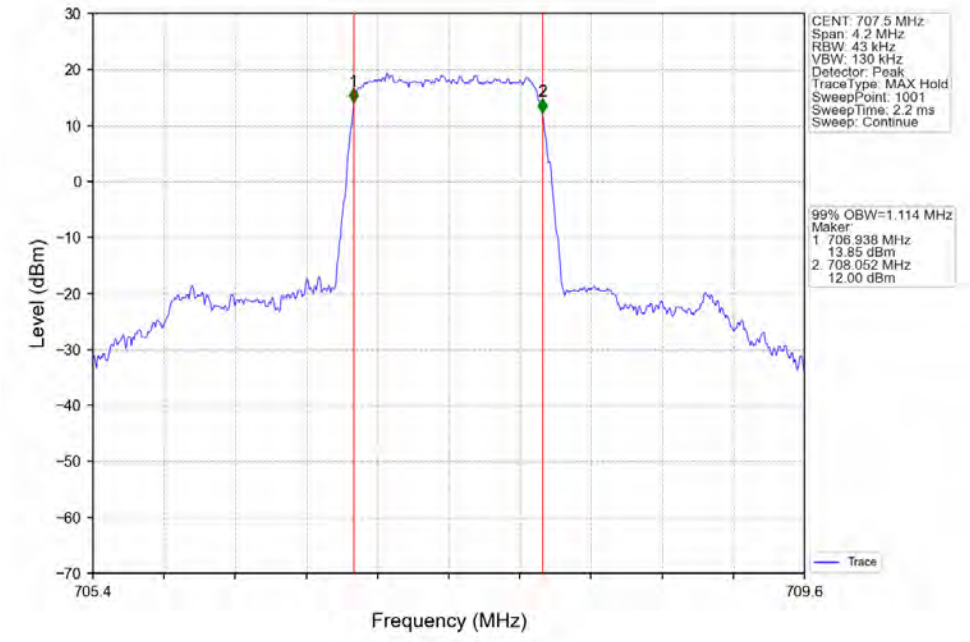
Band: 12 / NTNV							
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		99% Occupied Bandwidth (MHz)		Verdict
			Size	Offset	Result	Limit	
1.4	QPSK	699.7	6	0	1.101	/	Pass
		707.5	6	0	1.114	/	Pass
		715.3	6	0	1.106	/	Pass
	16QAM	699.7	6	0	1.107	/	Pass
		707.5	6	0	1.106	/	Pass
		715.3	6	0	1.109	/	Pass
3	QPSK	700.5	15	0	2.738	/	Pass
		707.5	15	0	2.757	/	Pass
		714.5	15	0	2.741	/	Pass
	16QAM	700.5	15	0	2.740	/	Pass
		707.5	15	0	2.738	/	Pass
		714.5	15	0	2.737	/	Pass
5	QPSK	701.5	25	0	4.565	/	Pass
		707.5	25	0	4.561	/	Pass
		713.5	25	0	4.555	/	Pass
	16QAM	701.5	25	0	4.533	/	Pass
		707.5	25	0	4.585	/	Pass
		713.5	25	0	4.555	/	Pass
10	QPSK	704	50	0	9.001	/	Pass
		707.5	50	0	9.046	/	Pass
		711	50	0	9.088	/	Pass
	16QAM	704	50	0	9.008	/	Pass
		707.5	50	0	9.056	/	Pass
		711	50	0	9.100	/	Pass

3.1.2 Test Graph

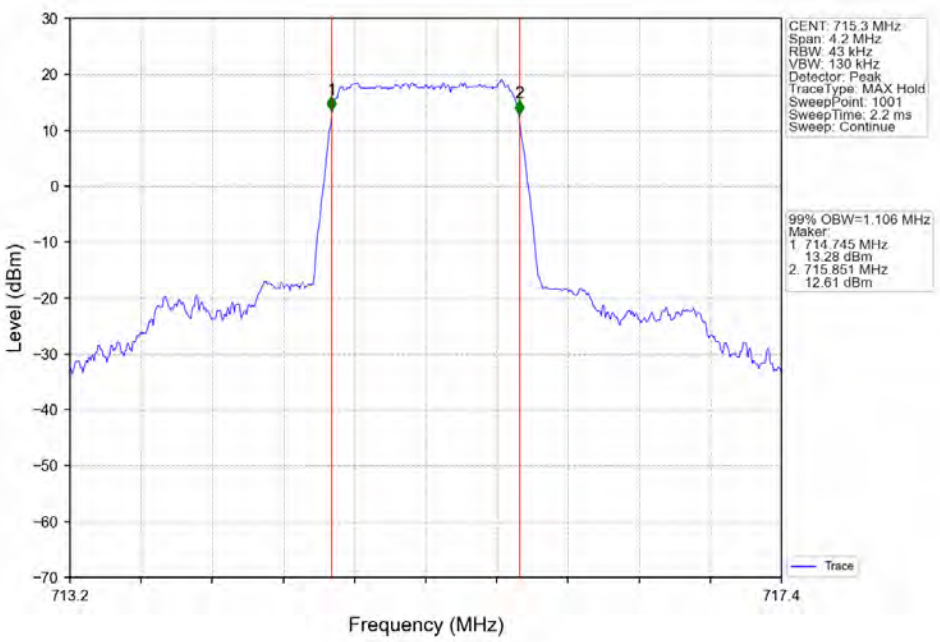
Band12_1.4MHz_QPSK_LCH_699.7MHz_RB_6_0_NTNV



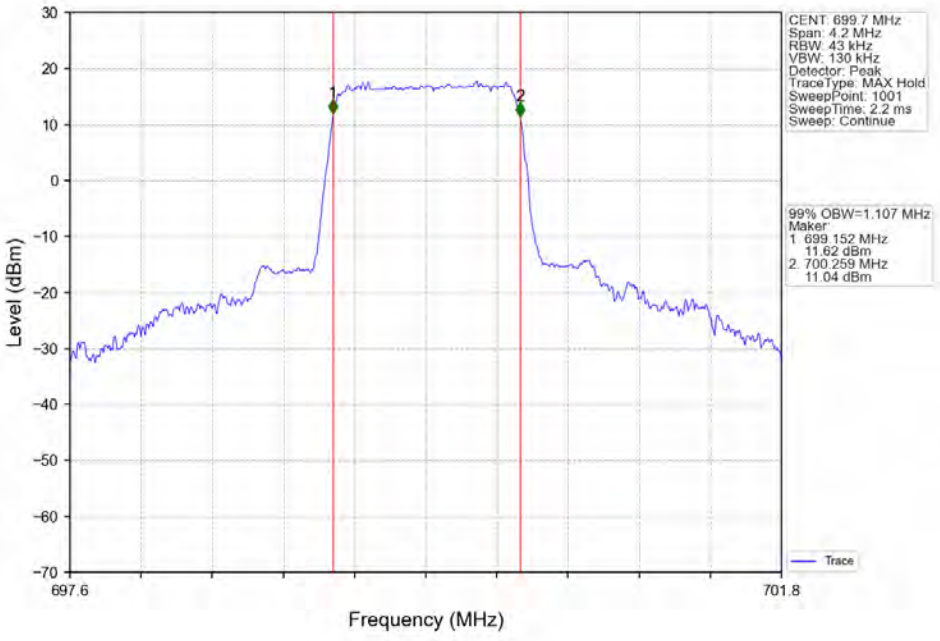
Band12_1.4MHz_QPSK_MCH_707.5MHz_RB_6_0_NTNV



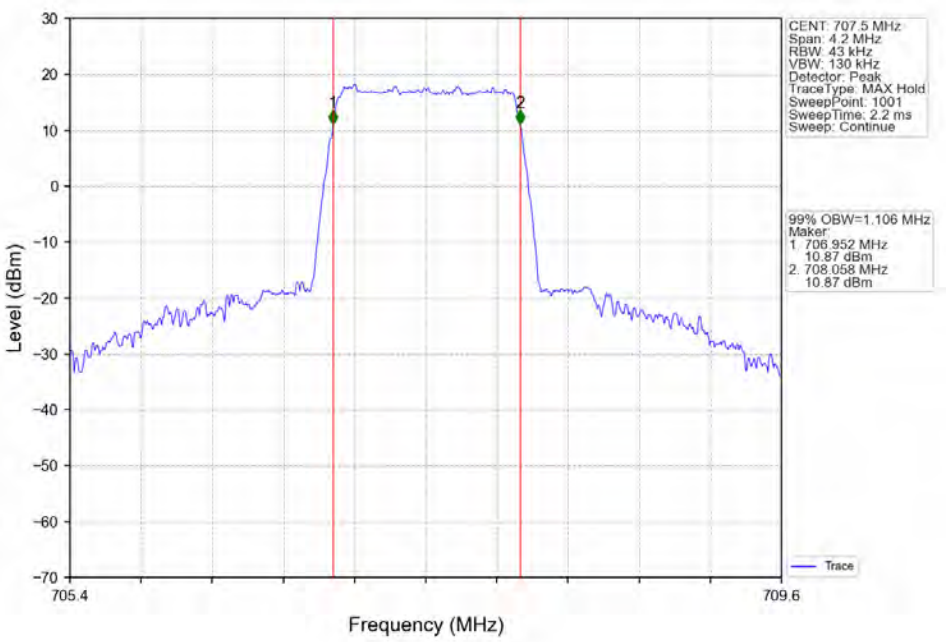
Band12_1.4MHz_QPSK_HCH_715.3MHz_RB_6_0_NTNV



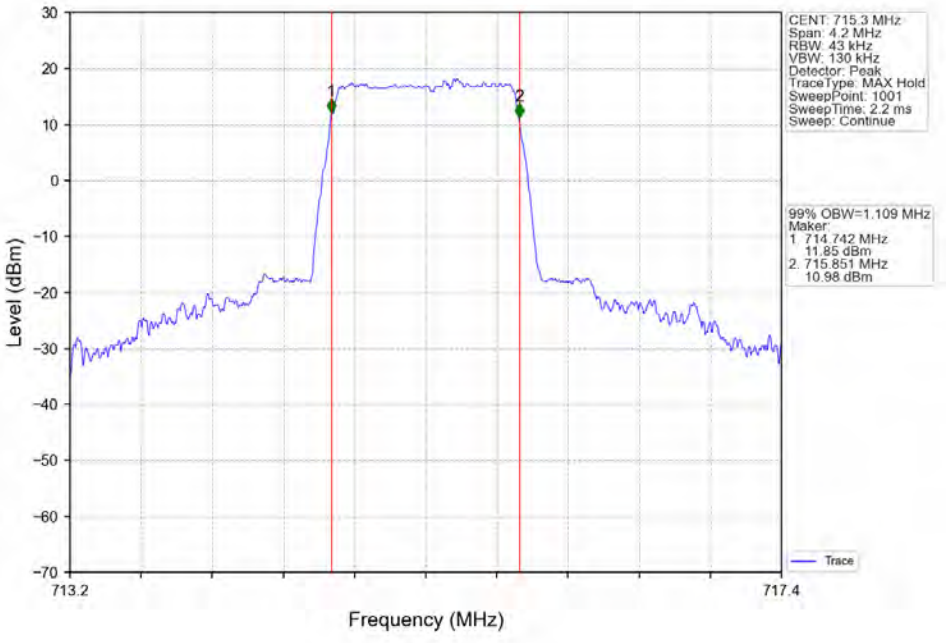
Band12_1.4MHz_16QAM_LCH_699.7MHz_RB_6_0_NTNV



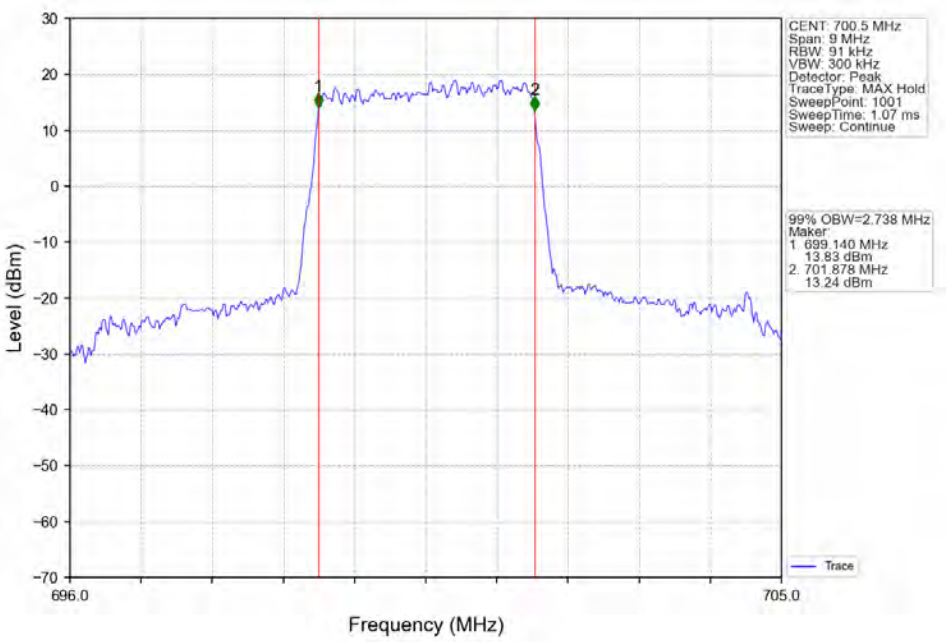
Band12_1.4MHz_16QAM_MCH_707.5MHz_RB_6_0_NTNV



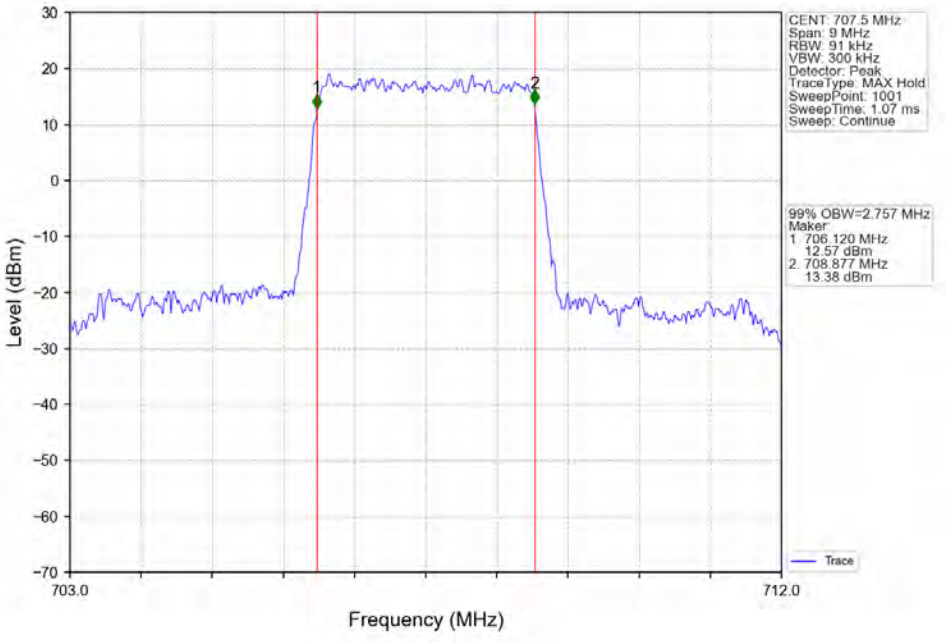
Band12_1.4MHz_16QAM_HCH_715.3MHz_RB_6_0_NTNV



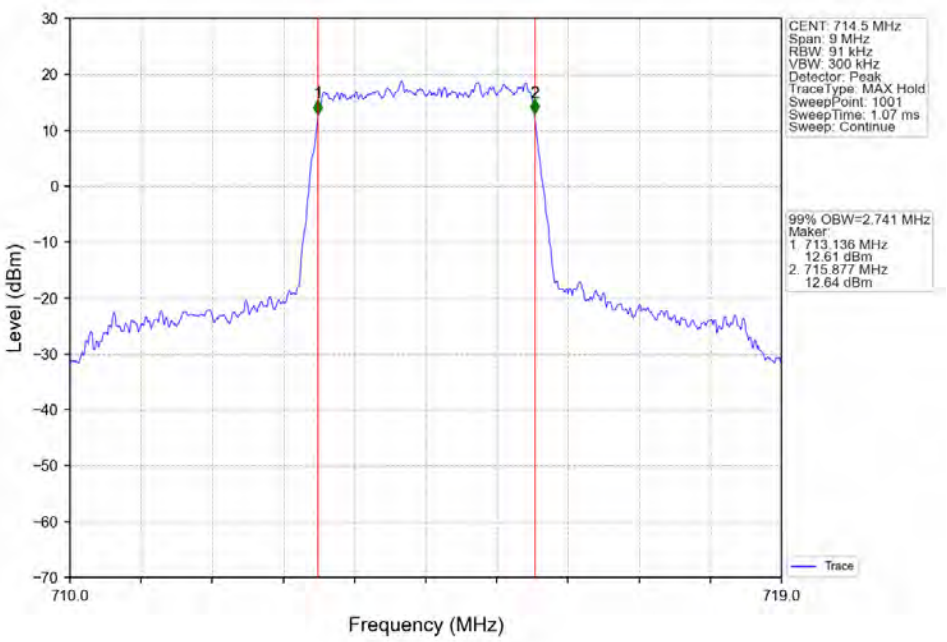
Band12_3MHz_QPSK_LCH_700.5MHz_RB_15_0_NTNV



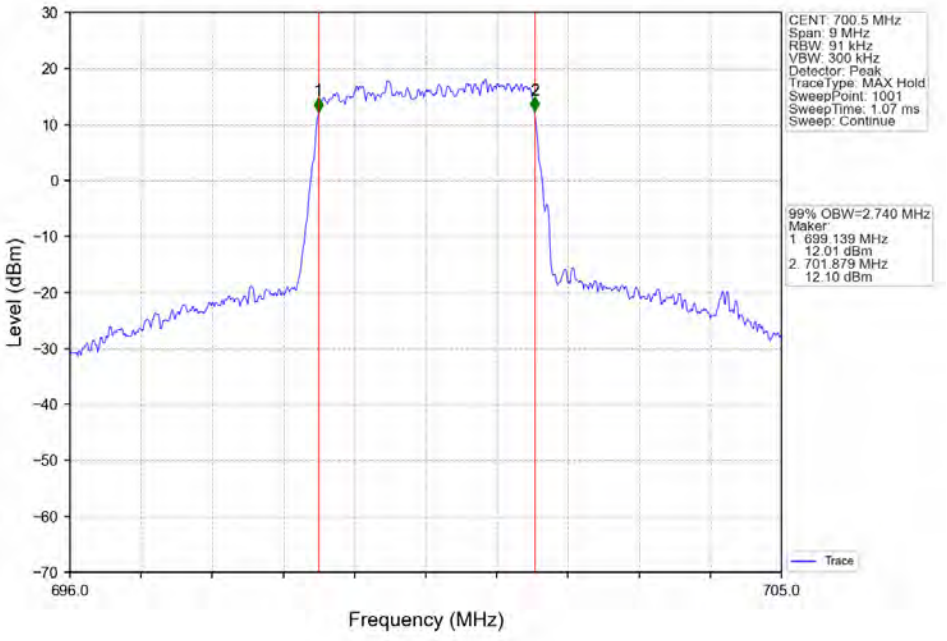
Band12_3MHz_QPSK_MCH_707.5MHz_RB_15_0_NTNV



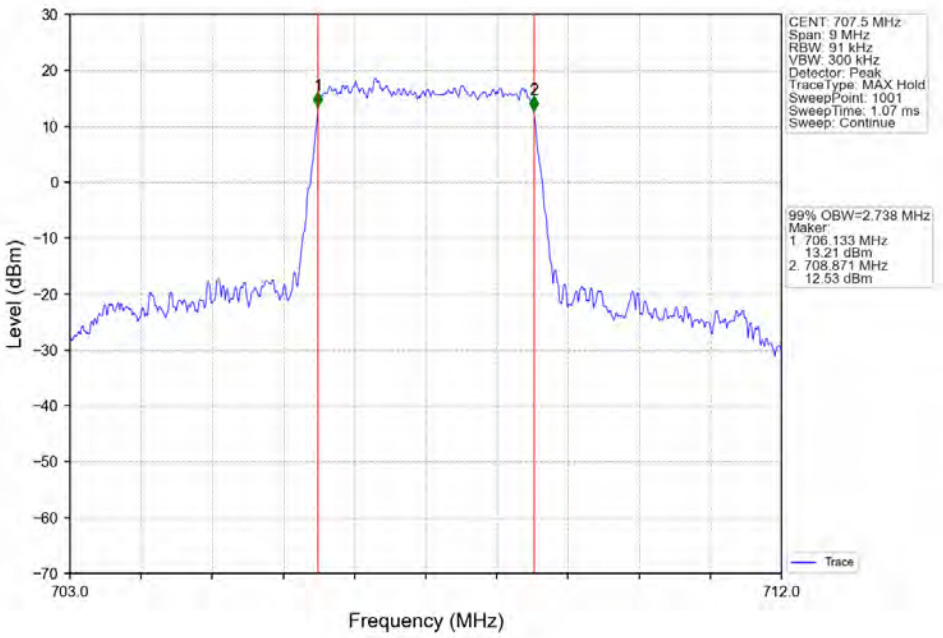
Band12_3MHz_QPSK_HCH_714.5MHz_RB_15_0_NTNV



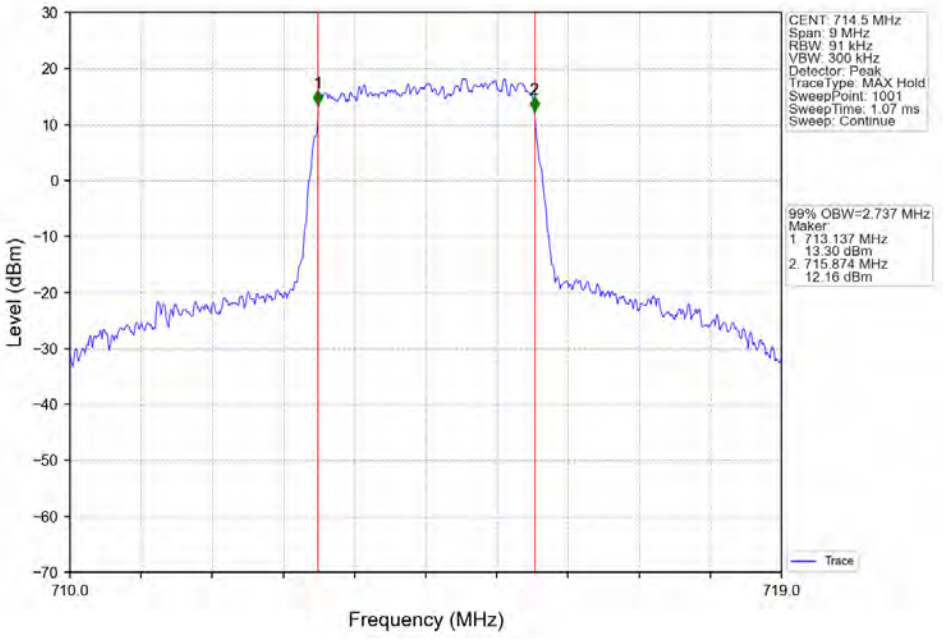
Band12_3MHz_16QAM_LCH_700.5MHz_RB_15_0_NTNV



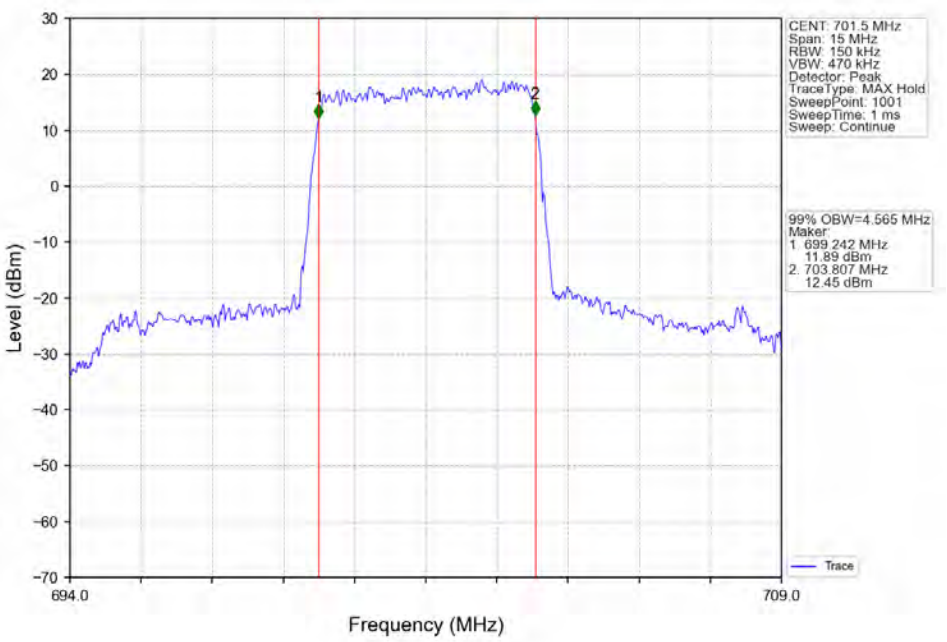
Band12_3MHz_16QAM_MCH_707.5MHz_RB_15_0_NTNV



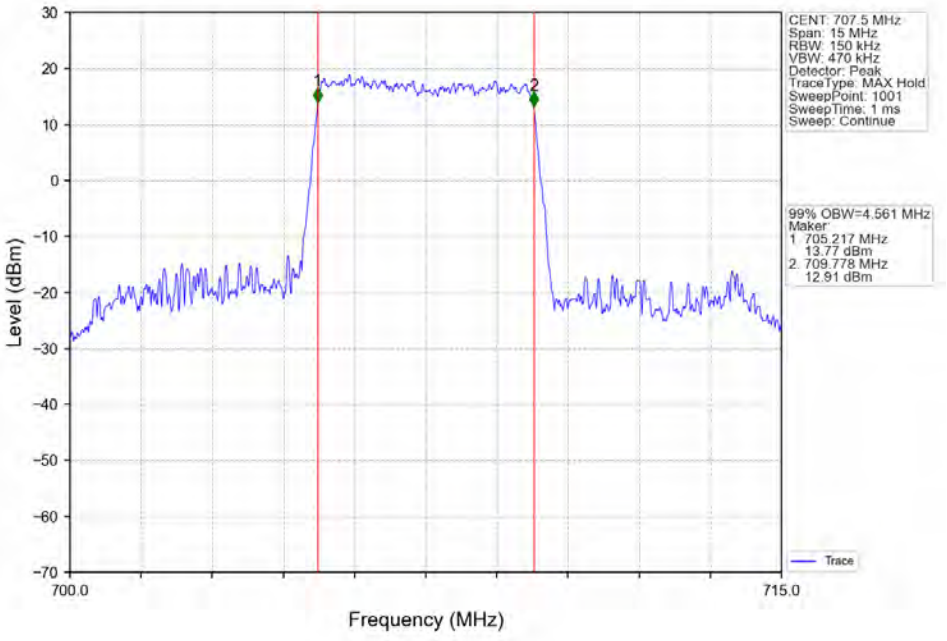
Band12_3MHz_16QAM_HCH_714.5MHz_RB_15_0_NTNV



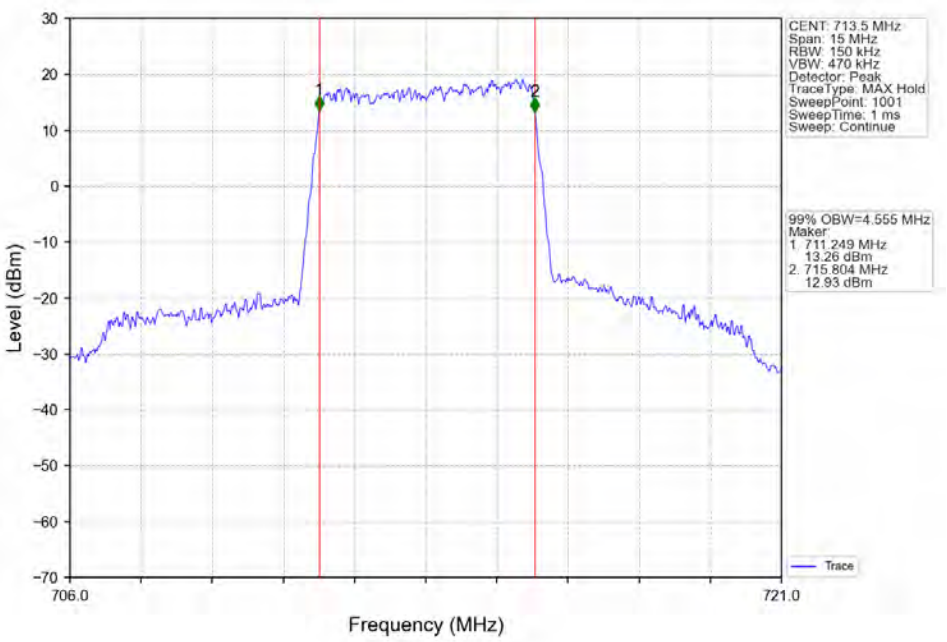
Band12_5MHz_QPSK_LCH_701.5MHz_RB_25_0_NTNV



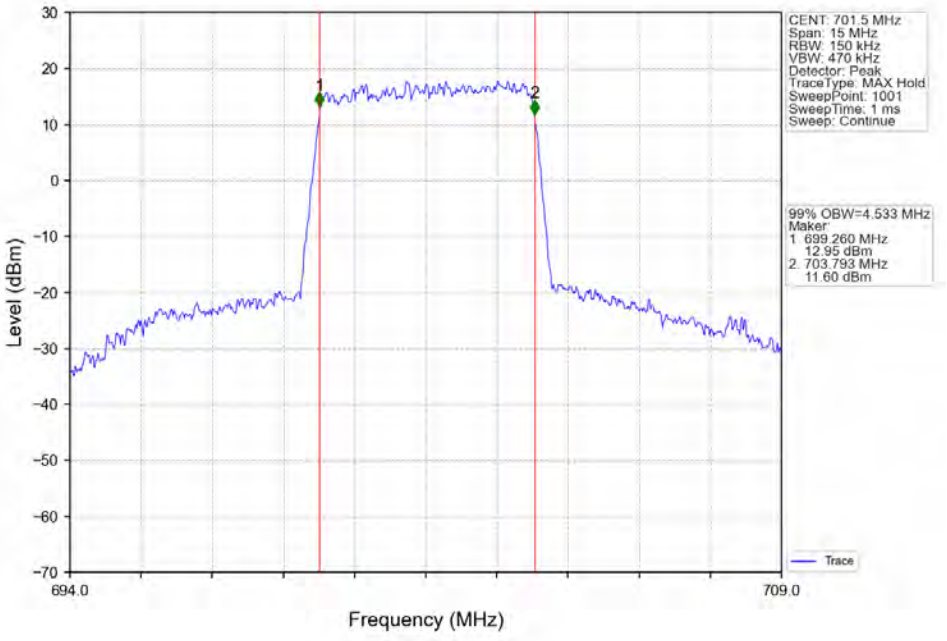
Band12_5MHz_QPSK_MCH_707.5MHz_RB_25_0_NTNV



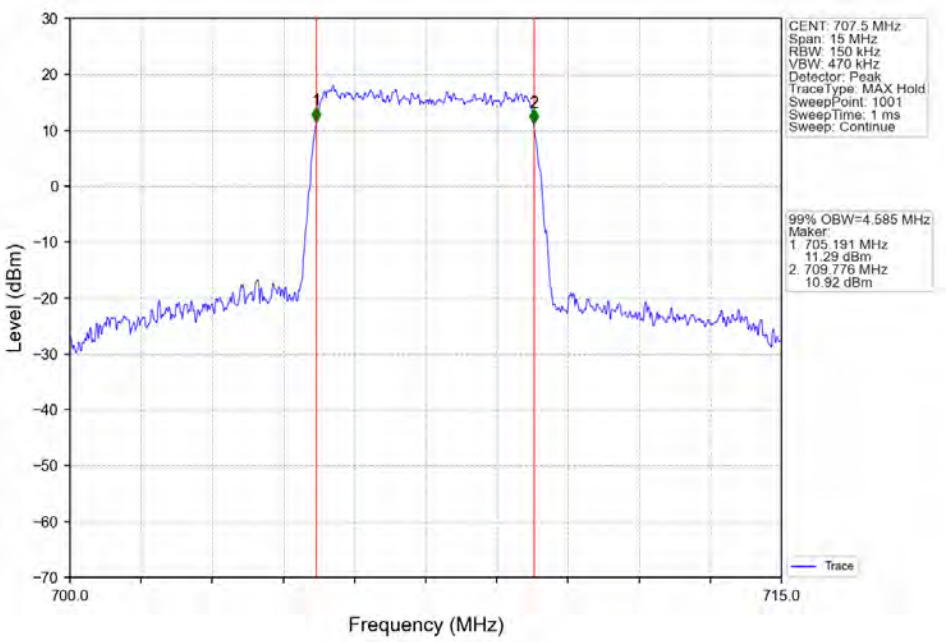
Band12_5MHz_QPSK_HCH_713.5MHz_RB_25_0_NTNV



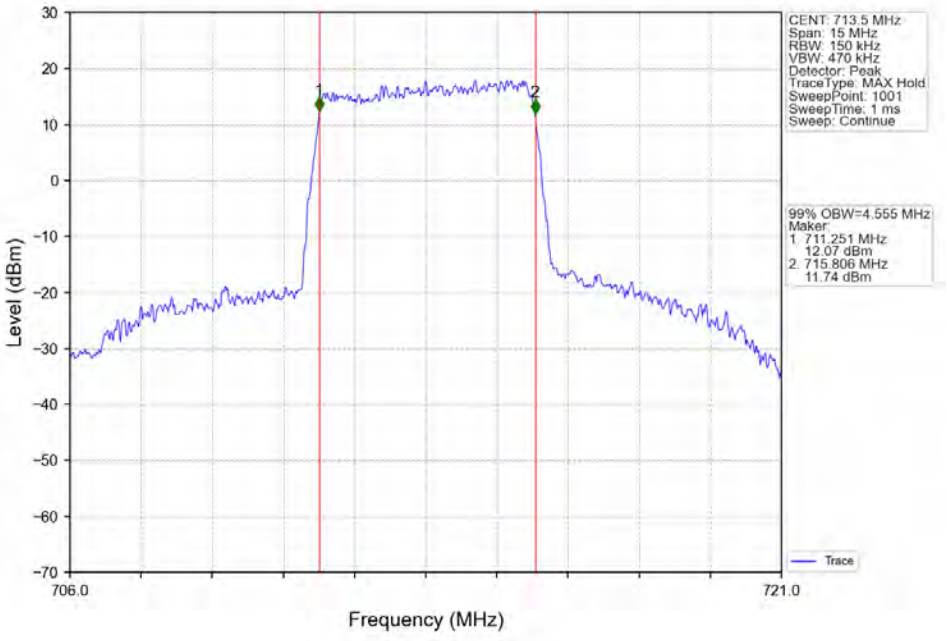
Band12_5MHz_16QAM_LCH_701.5MHz_RB_25_0_NTNV



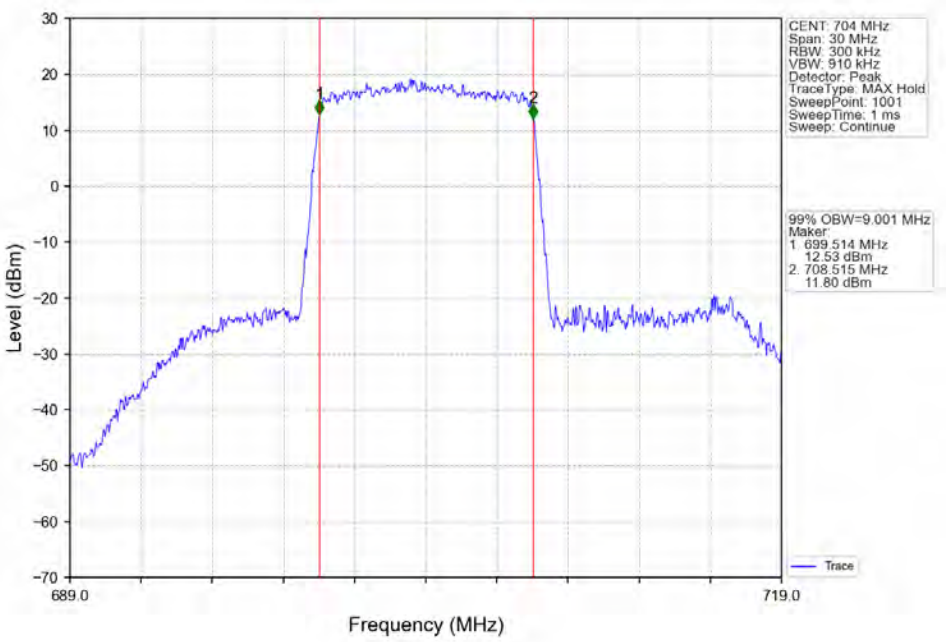
Band12_5MHz_16QAM_MCH_707.5MHz_RB_25_0_NTNV



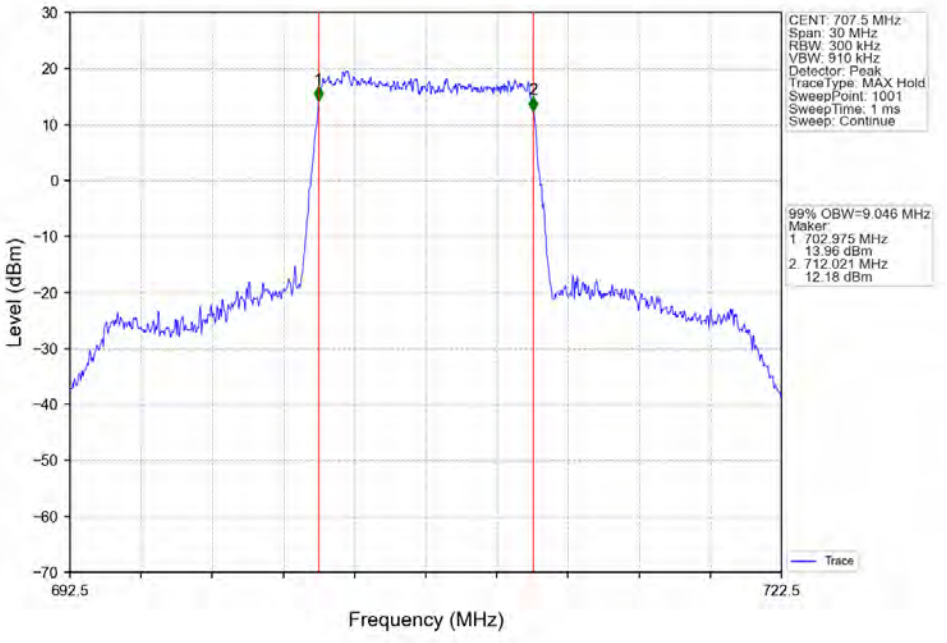
Band12_5MHz_16QAM_HCH_713.5MHz_RB_25_0_NTNV



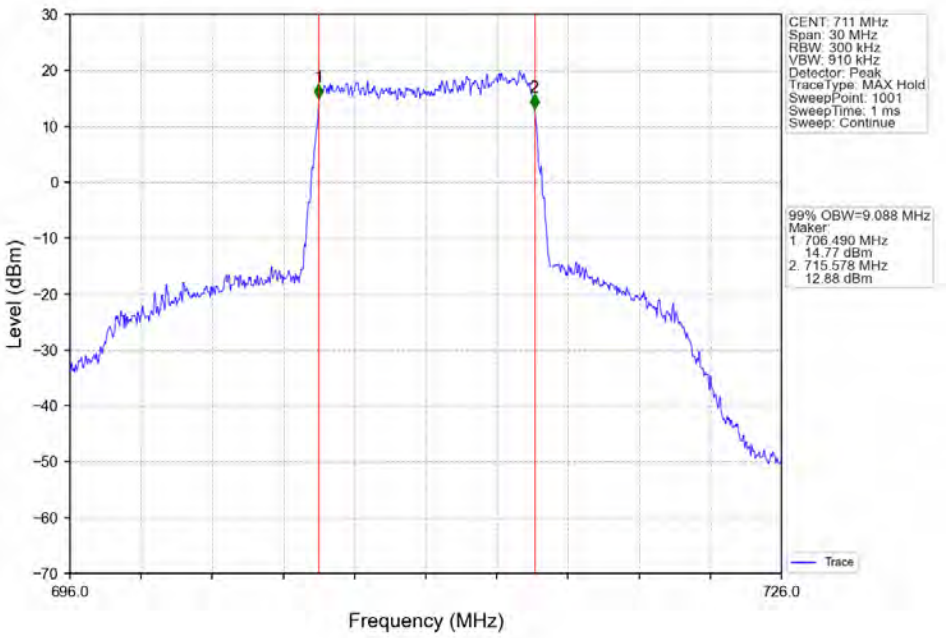
Band12_10MHz_QPSK_LCH_704MHz_RB_50_0_NTNV



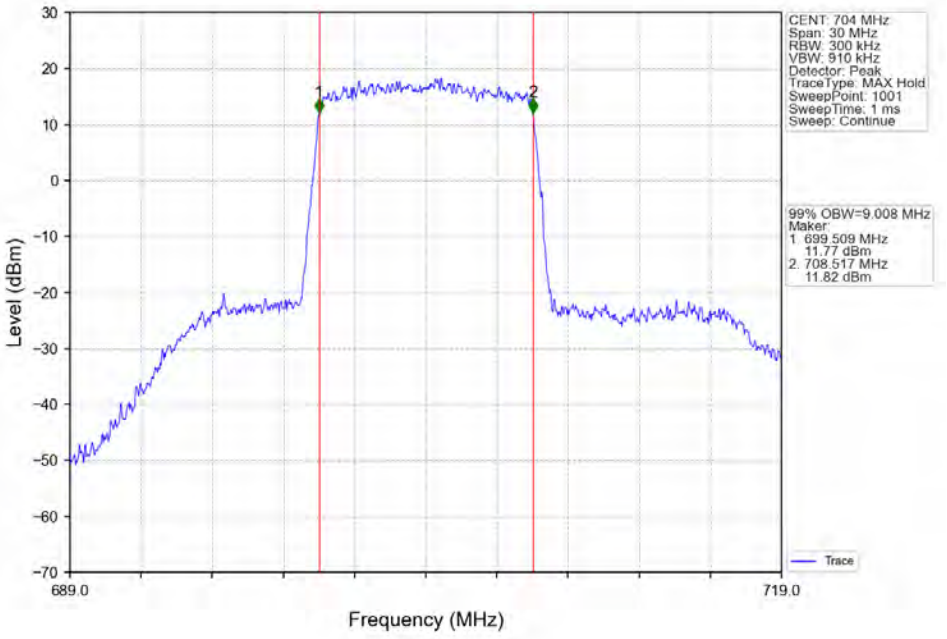
Band12_10MHz_QPSK_MCH_707.5MHz_RB_50_0_NTNV



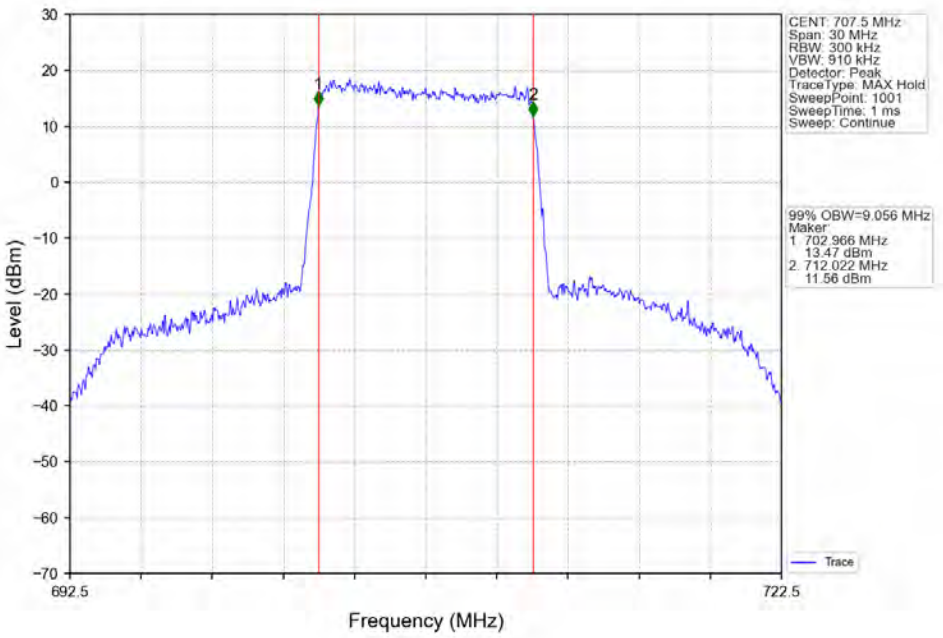
Band12_10MHz_QPSK_HCH_711MHz_RB_50_0_NTNV



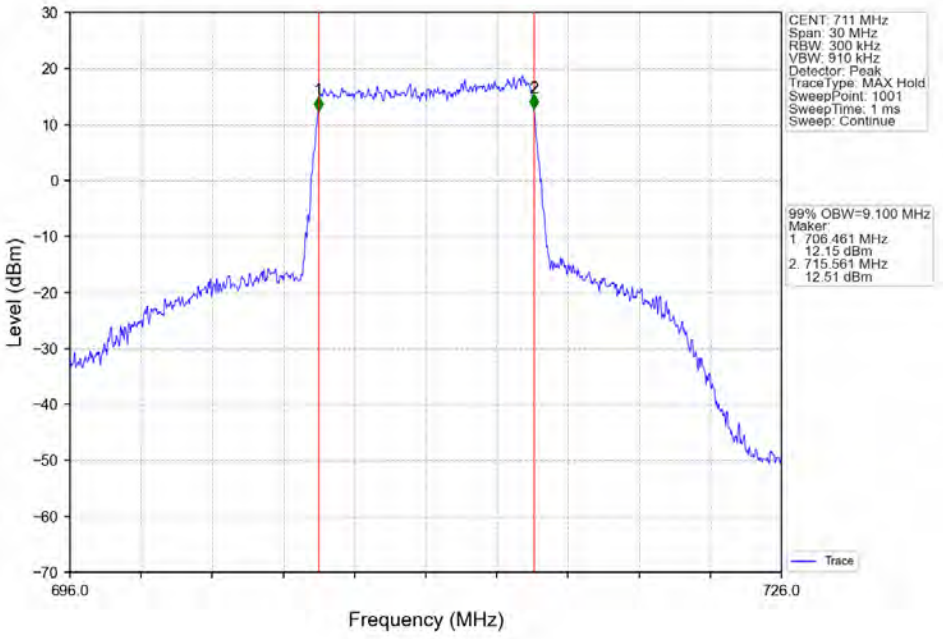
Band12_10MHz_16QAM_LCH_704MHz_RB_50_0_NTNV



Band12_10MHz_16QAM_MCH_707.5MHz_RB_50_0_NTNV



Band12_10MHz_16QAM_HCH_711MHz_RB_50_0_NTNV



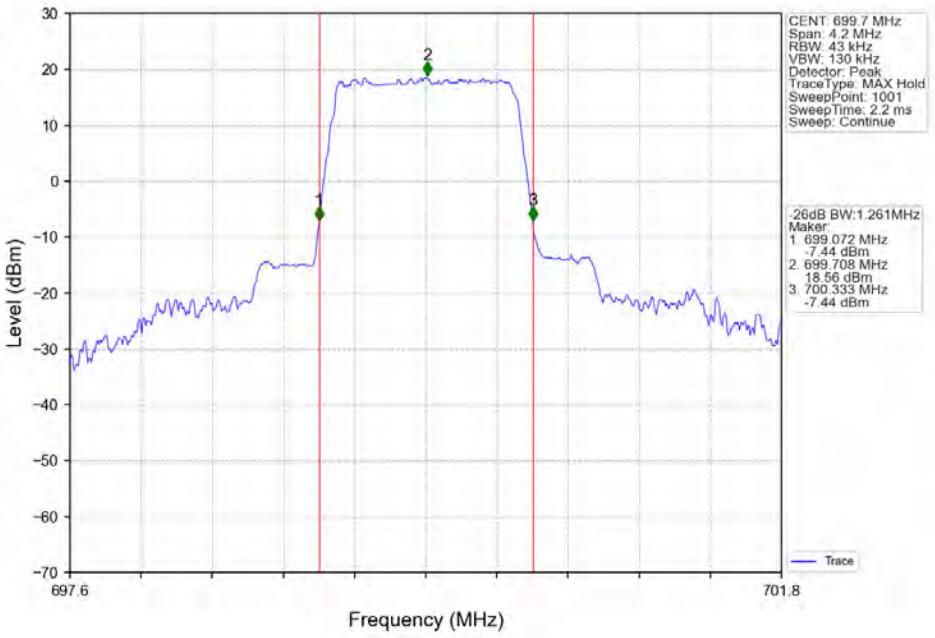
3.2 Band12_XDB

3.2.1 Test Result

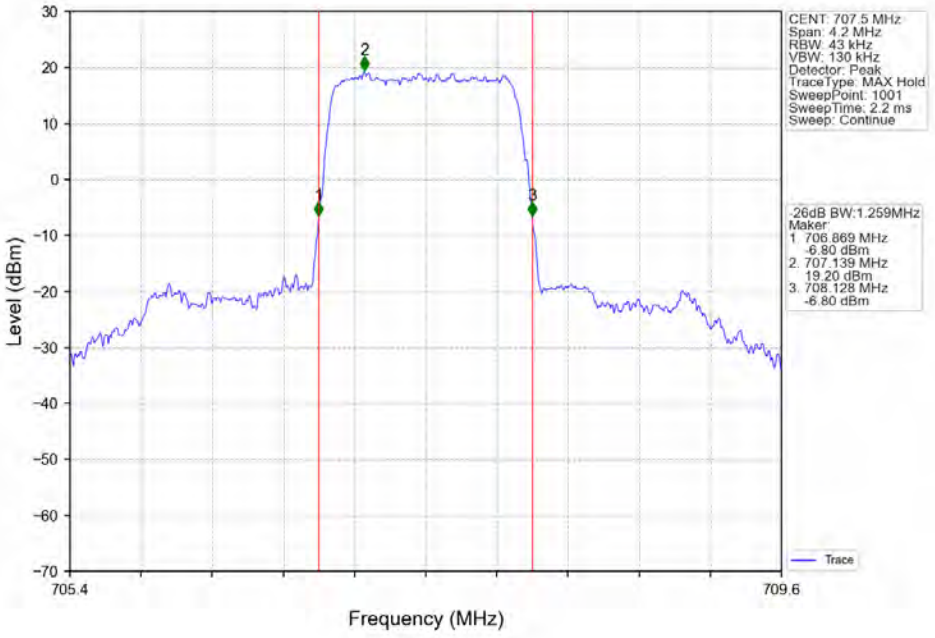
Band: 12 / NTNV							
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		26dB Bandwidth (MHz)		Verdict
			Size	Offset	Result	Limit	
1.4	QPSK	699.7	6	0	1.261	/	Pass
		707.5	6	0	1.259	/	Pass
		715.3	6	0	1.263	/	Pass
	16QAM	699.7	6	0	1.256	/	Pass
		707.5	6	0	1.269	/	Pass
		715.3	6	0	1.274	/	Pass
3	QPSK	700.5	15	0	3.070	/	Pass
		707.5	15	0	3.076	/	Pass
		714.5	15	0	3.075	/	Pass
	16QAM	700.5	15	0	3.080	/	Pass
		707.5	15	0	3.054	/	Pass
		714.5	15	0	3.052	/	Pass
5	QPSK	701.5	25	0	5.016	/	Pass
		707.5	25	0	5.050	/	Pass
		713.5	25	0	5.037	/	Pass
	16QAM	701.5	25	0	5.040	/	Pass
		707.5	25	0	5.086	/	Pass
		713.5	25	0	5.085	/	Pass
10	QPSK	704	50	0	9.891	/	Pass
		707.5	50	0	9.994	/	Pass
		711	50	0	10.037	/	Pass
	16QAM	704	50	0	9.902	/	Pass
		707.5	50	0	9.969	/	Pass
		711	50	0	10.013	/	Pass

3.2.2 Test Graph

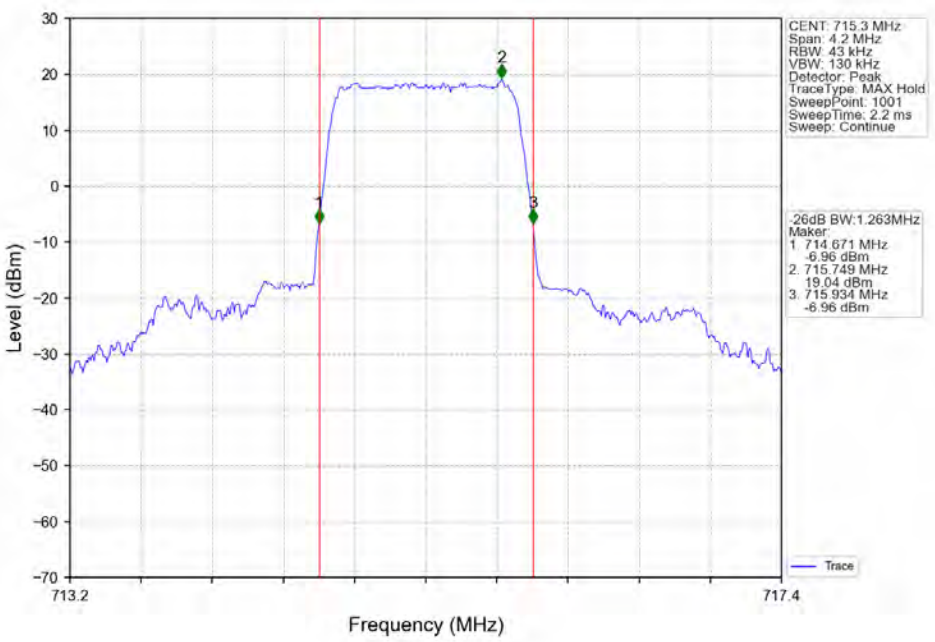
Band12_1.4MHz_QPSK_LCH_699.7MHz_RB_6_0_NTNV



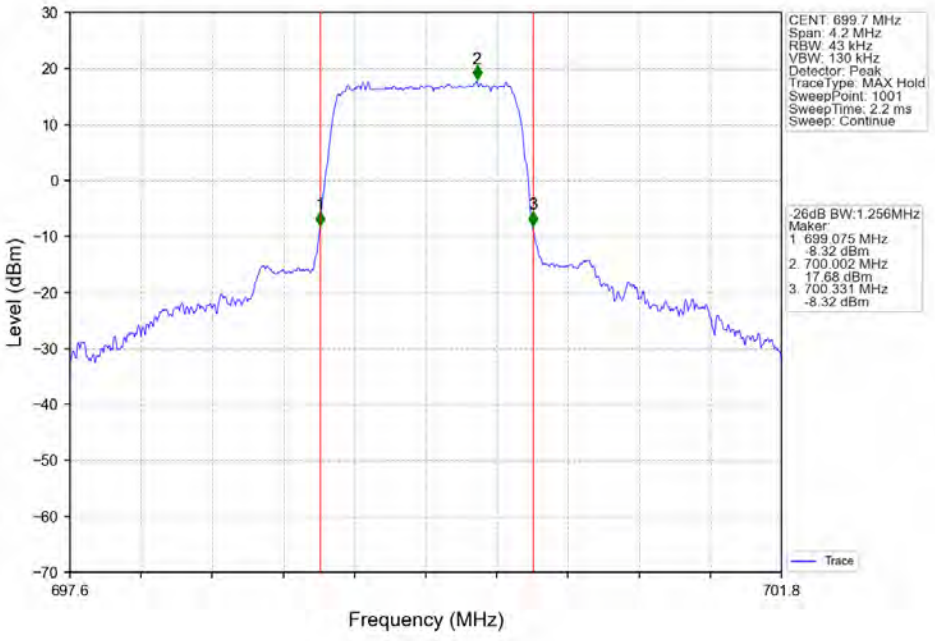
Band12_1.4MHz_QPSK_MCH_707.5MHz_RB_6_0_NTNV



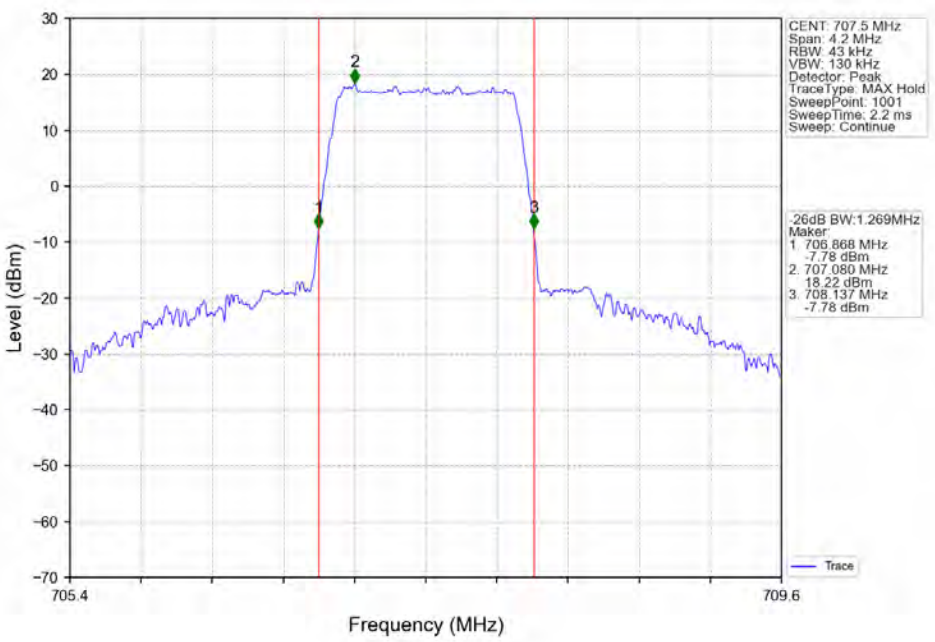
Band12_1.4MHz_QPSK_HCH_715.3MHz_RB_6_0_NTNV



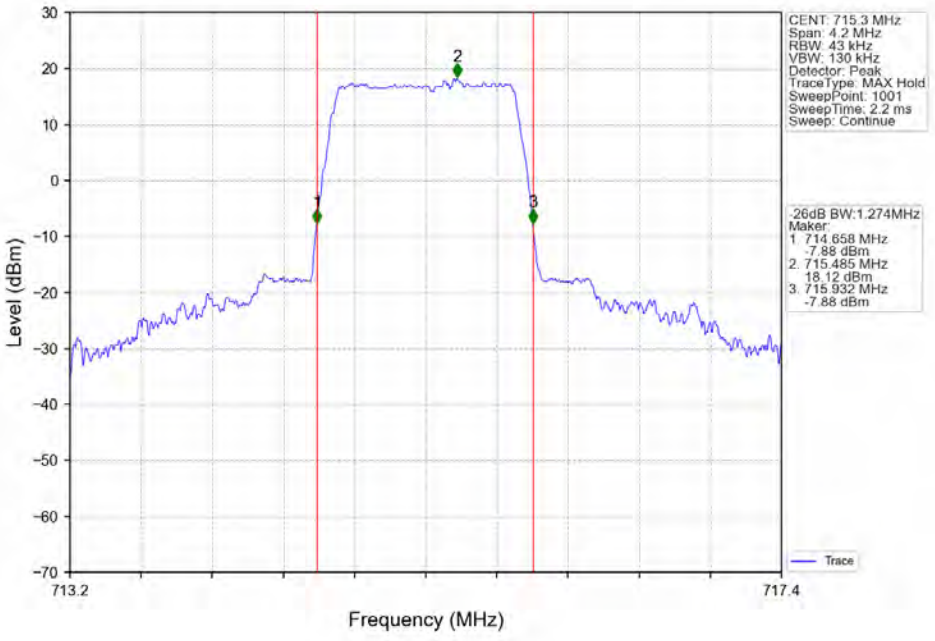
Band12_1.4MHz_16QAM_LCH_699.7MHz_RB_6_0_NTNV



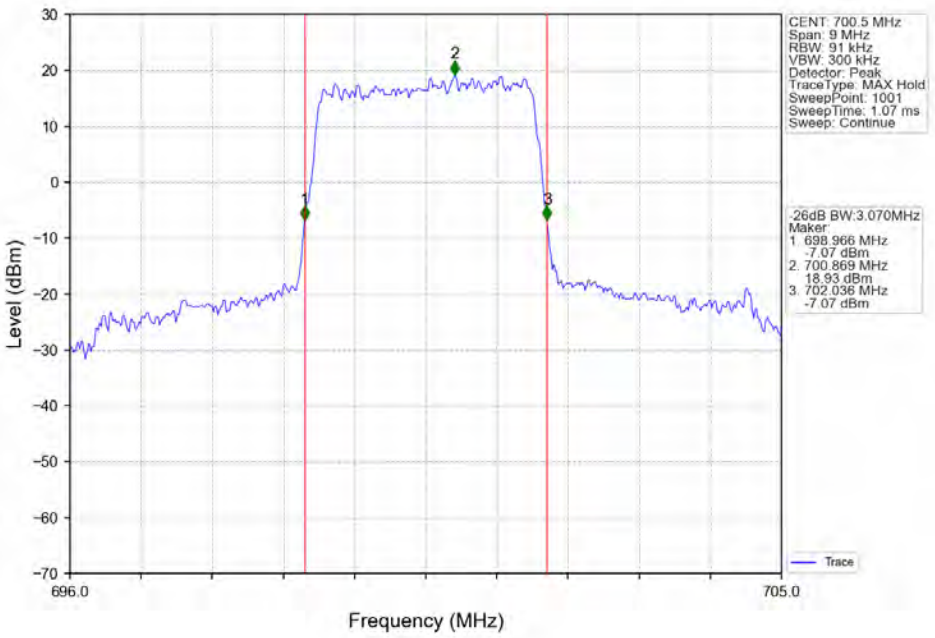
Band12_1.4MHz_16QAM_MCH_707.5MHz_RB_6_0_NTNV



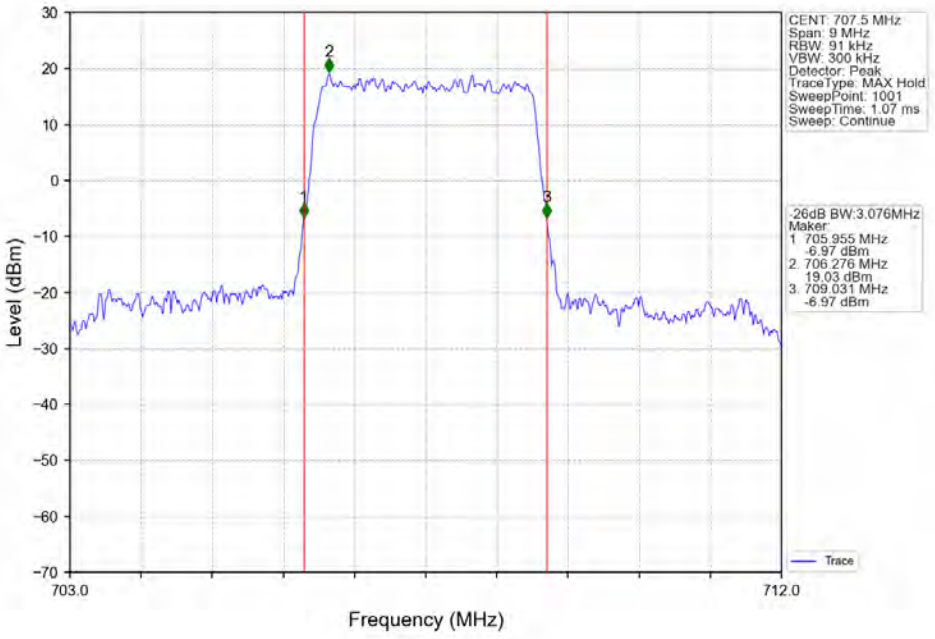
Band12_1.4MHz_16QAM_HCH_715.3MHz_RB_6_0_NTNV



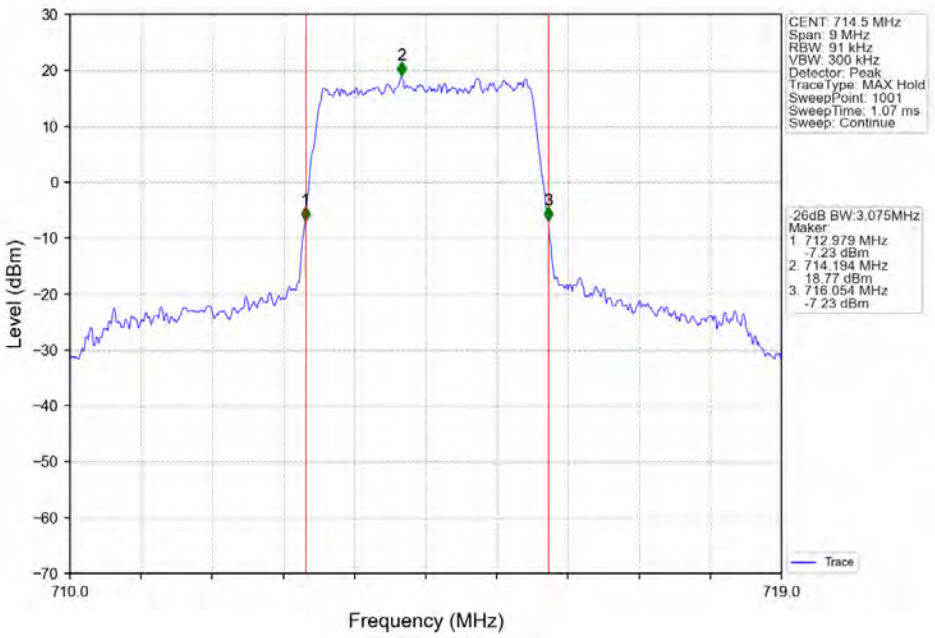
Band12_3MHz_QPSK_LCH_700.5MHz_RB_15_0_NTNV



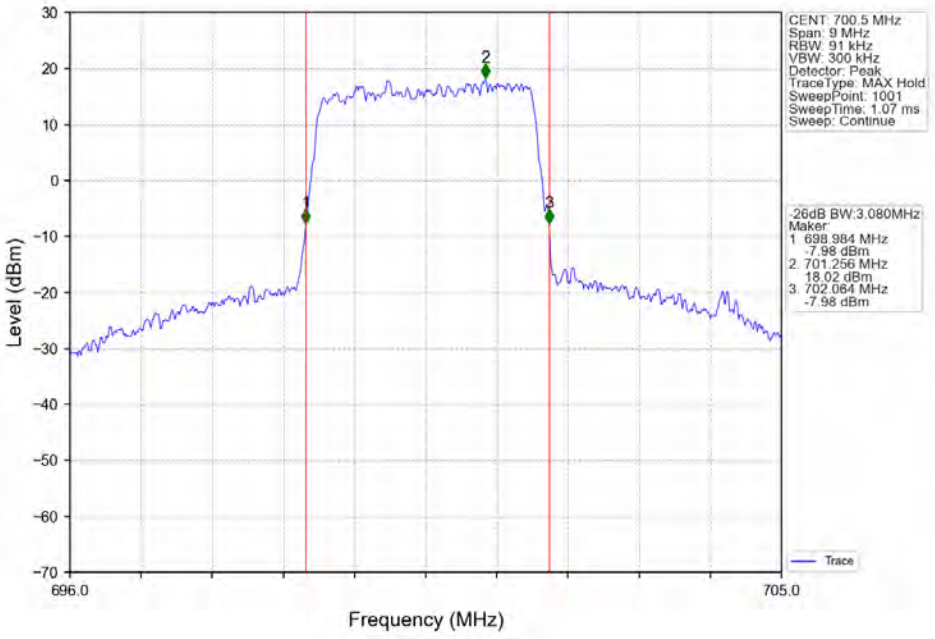
Band12_3MHz_QPSK_MCH_707.5MHz_RB_15_0_NTNV



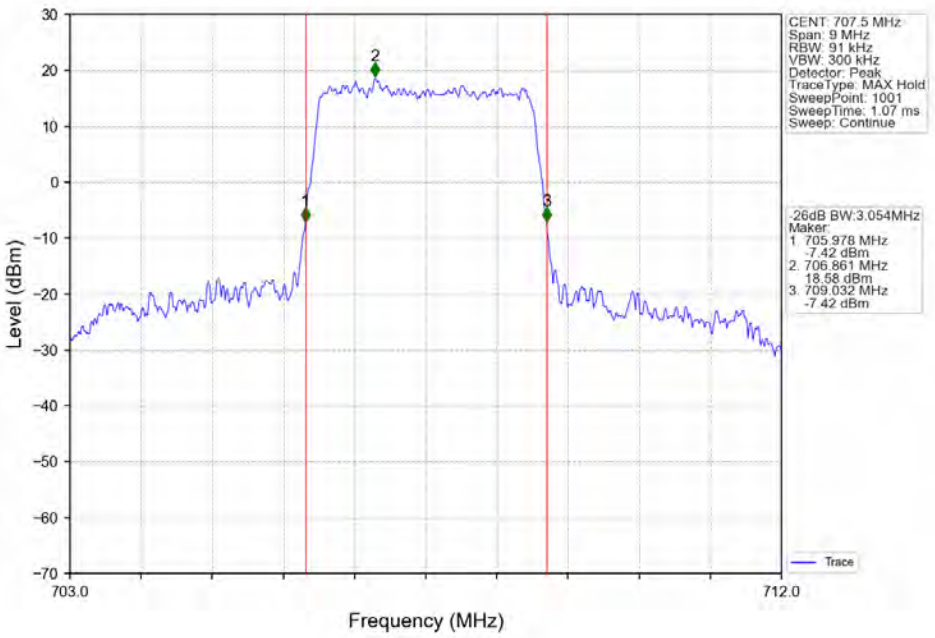
Band12_3MHz_QPSK_HCH_714.5MHz_RB_15_0_NTNV



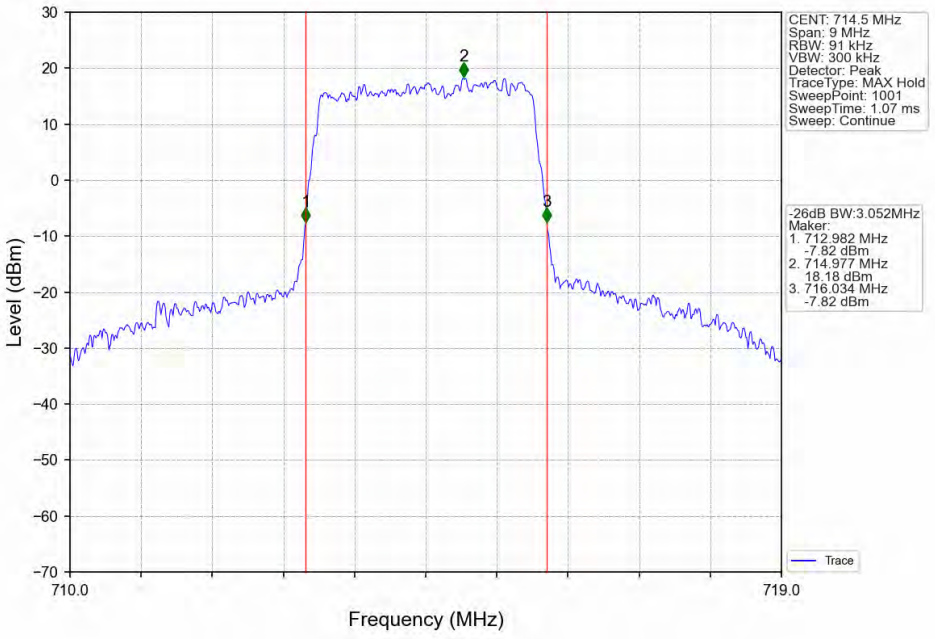
Band12_3MHz_16QAM_LCH_700.5MHz_RB_15_0_NTNV



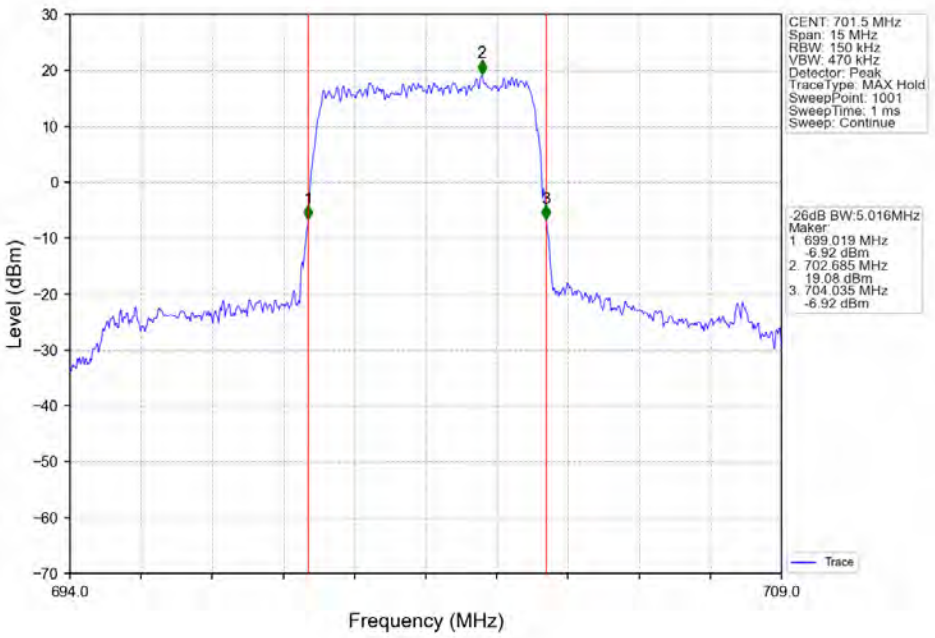
Band12_3MHz_16QAM_MCH_707.5MHz_RB_15_0_NTNV



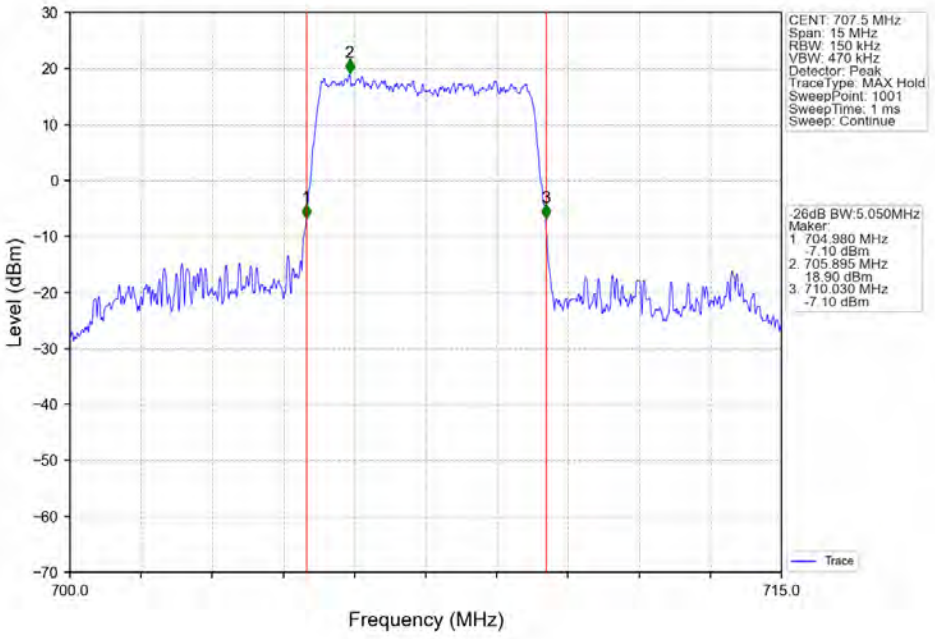
Band12_3MHz_16QAM_HCH_714.5MHz_RB_15_0_NTNV



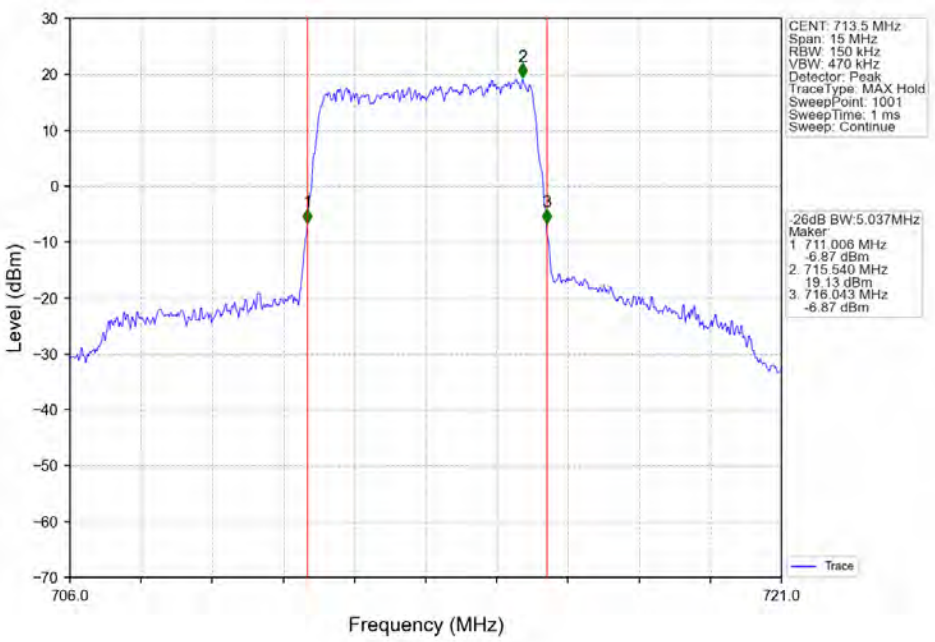
Band12_5MHz_QPSK_LCH_701.5MHz_RB_25_0_NTNV



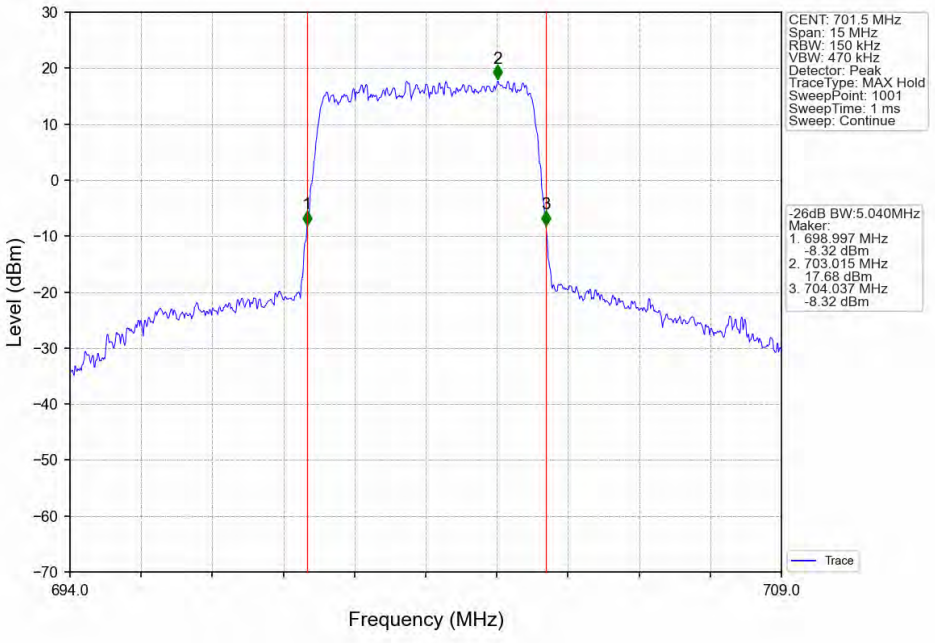
Band12_5MHz_QPSK_MCH_707.5MHz_RB_25_0_NTNV



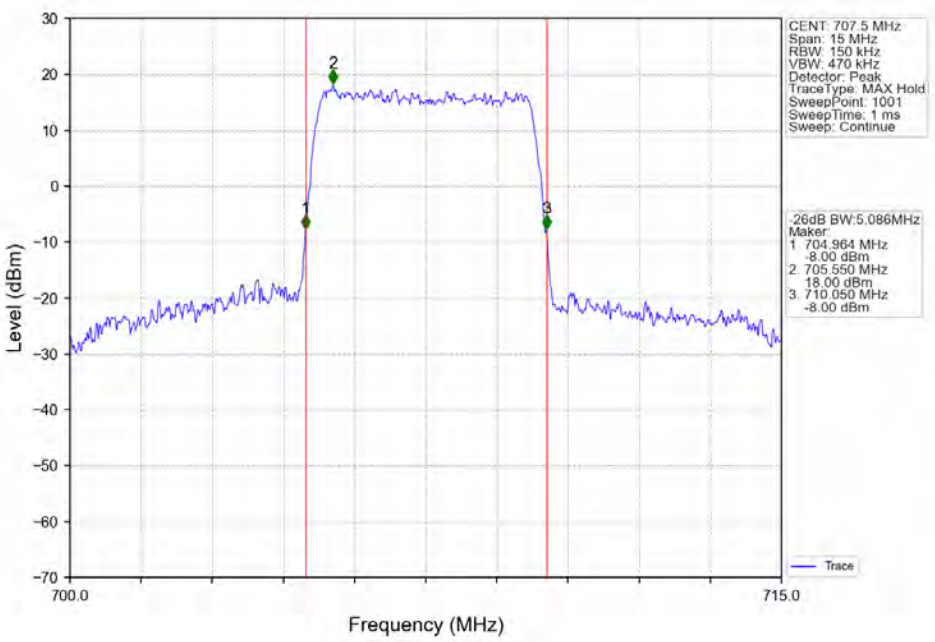
Band12_5MHz_QPSK_HCH_713.5MHz_RB_25_0_NTNV



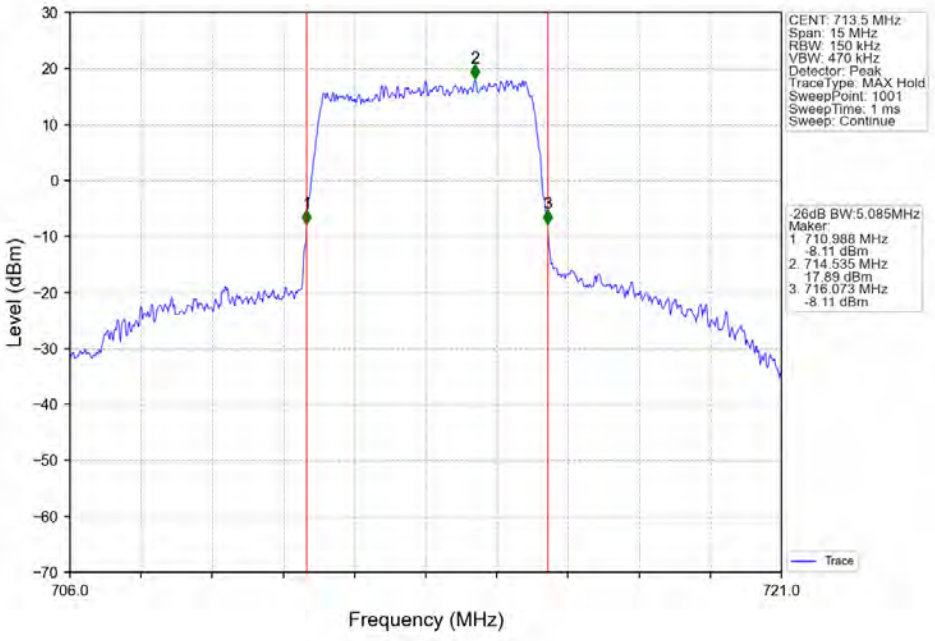
Band12_5MHz_16QAM_LCH_701.5MHz_RB_25_0_NTNV



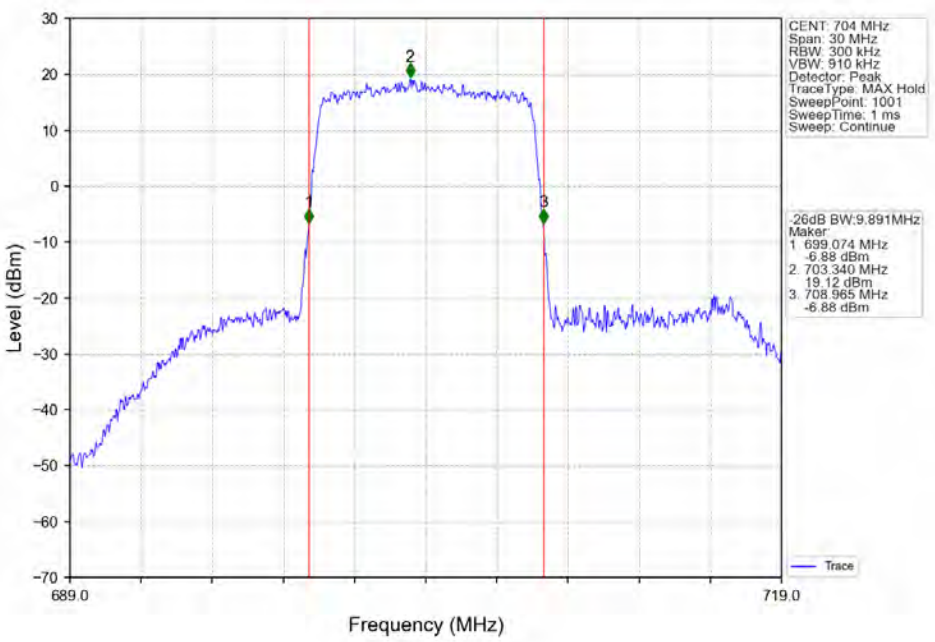
Band12_5MHz_16QAM_MCH_707.5MHz_RB_25_0_NTNV



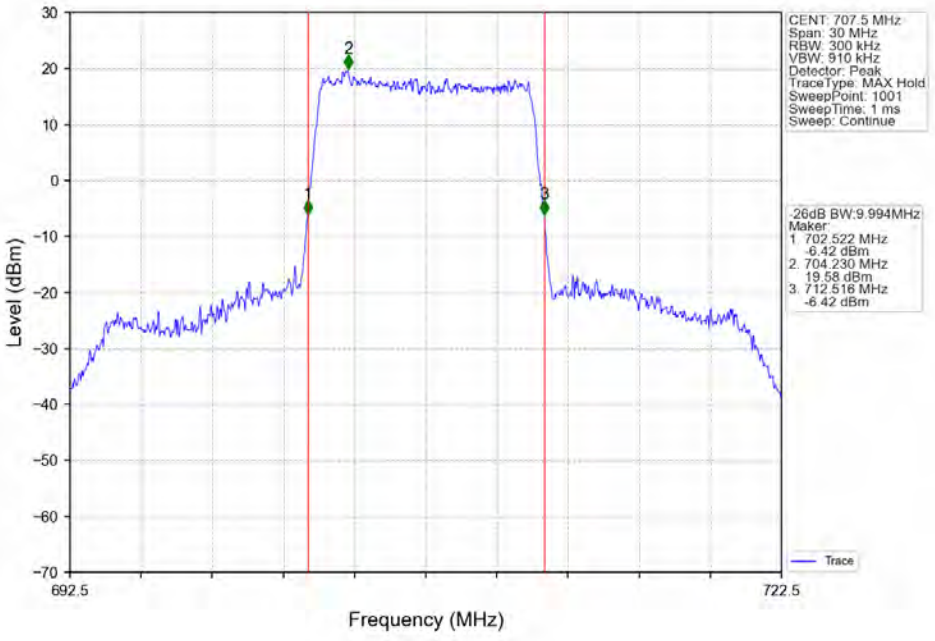
Band12_5MHz_16QAM_HCH_713.5MHz_RB_25_0_NTNV



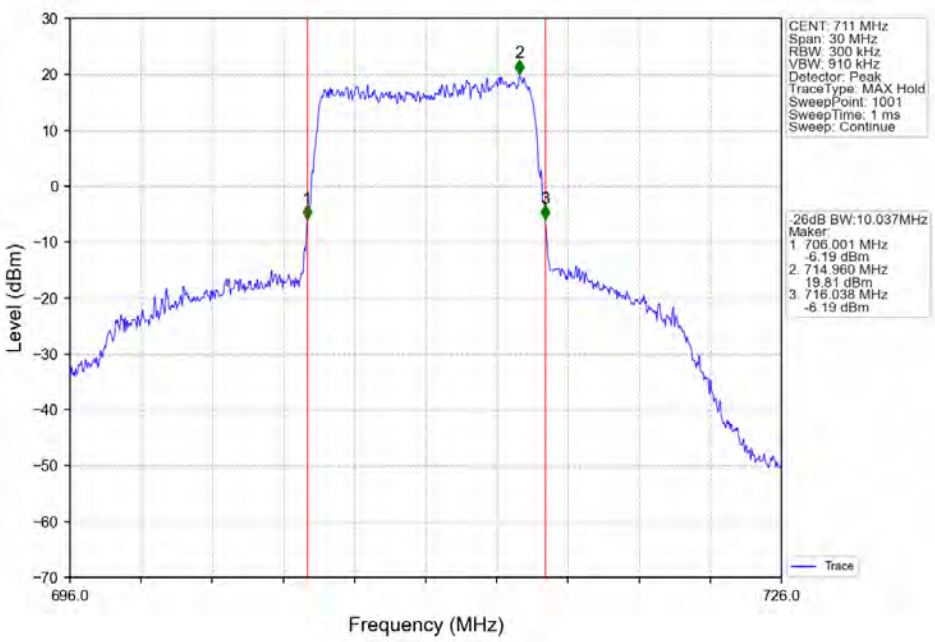
Band12_10MHz_QPSK_LCH_704MHz_RB_50_0_NTNV



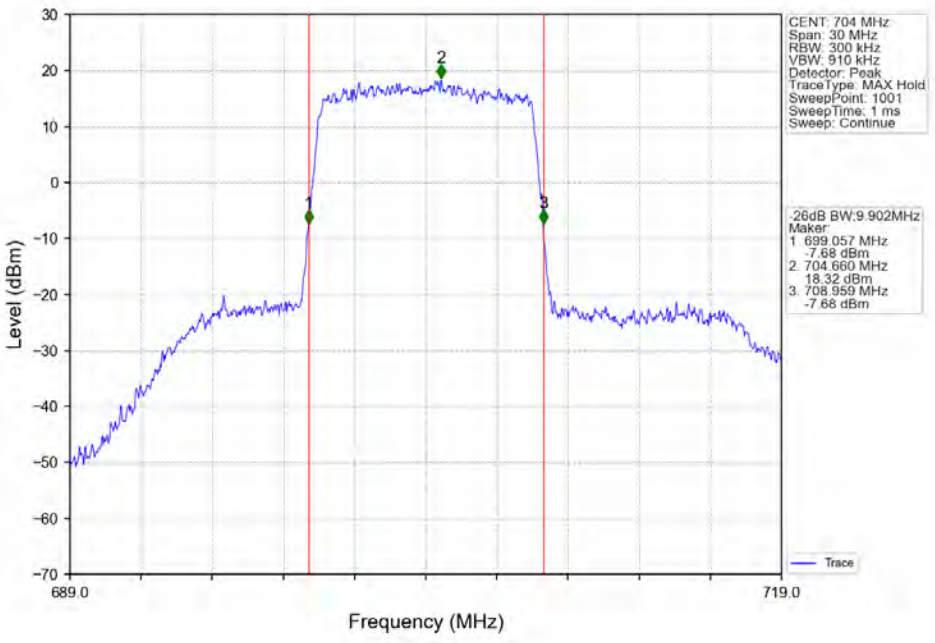
Band12_10MHz_QPSK_MCH_707.5MHz_RB_50_0_NTNV



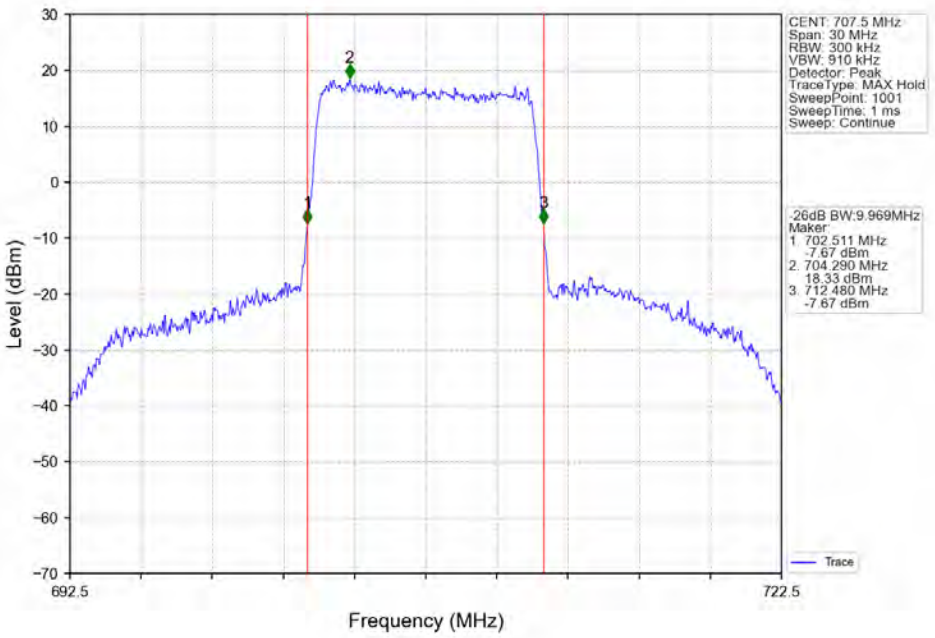
Band12_10MHz_QPSK_HCH_711MHz_RB_50_0_NTNV



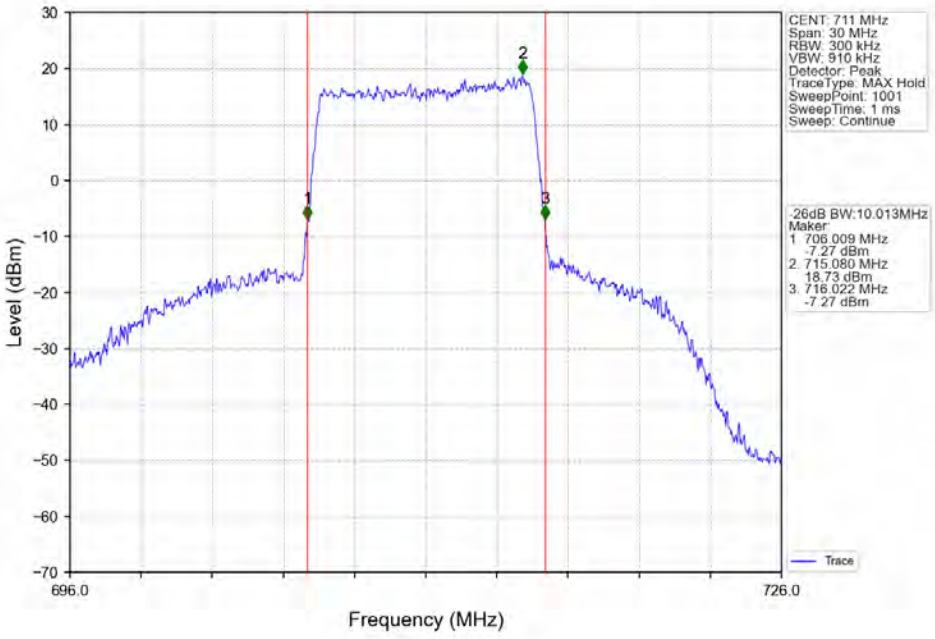
Band12_10MHz_16QAM_LCH_704MHz_RB_50_0_NTNV



Band12_10MHz_16QAM_MCH_707.5MHz_RB_50_0_NTNV



Band12_10MHz_16QAM_HCH_711MHz_RB_50_0_NTNV



4. Peak-Average Ratio

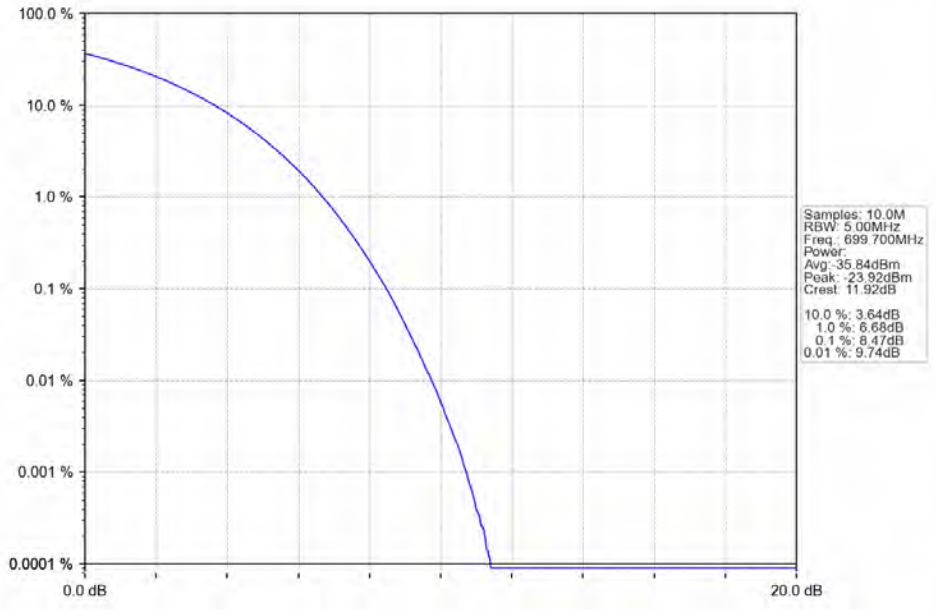
4.1 B12_1.4MHz

4.1.1 Test Result

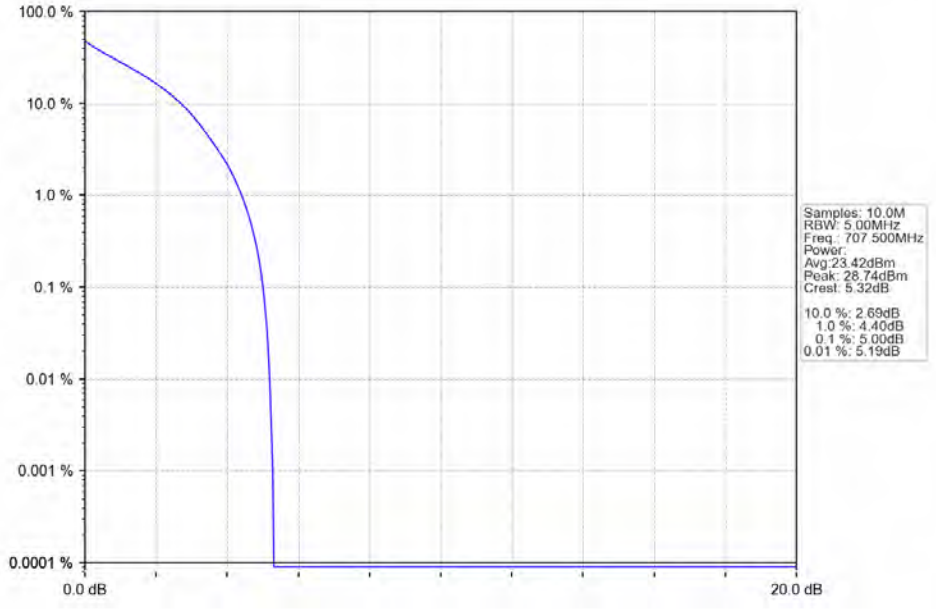
Band: 12 / Bandwidth: 1.4MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Peak-Average Ratio (dB)		Verdict
		Size	Offset	Result	Limit	
QPSK	699.7	6	0	8.47	<=13	Pass
	707.5	6	0	5.00	<=13	Pass
	715.3	6	0	5.57	<=13	Pass
16QAM	699.7	6	0	6.54	<=13	Pass
	707.5	6	0	5.88	<=13	Pass
	715.3	6	0	6.39	<=13	Pass

4.1.2 Test Graph

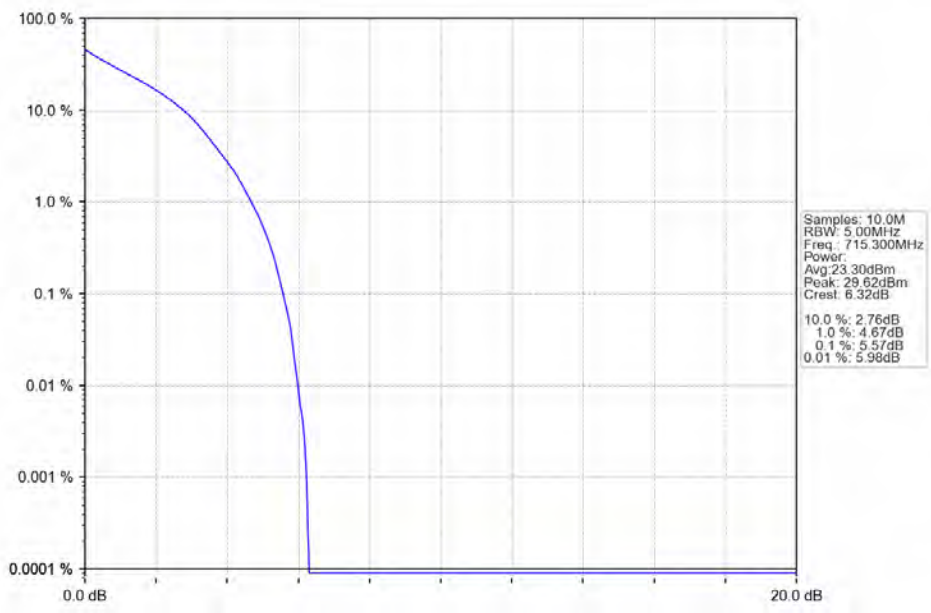
Band12_1.4MHz_QPSK_LCH_699.7MHz_RB_6_0_NTNV



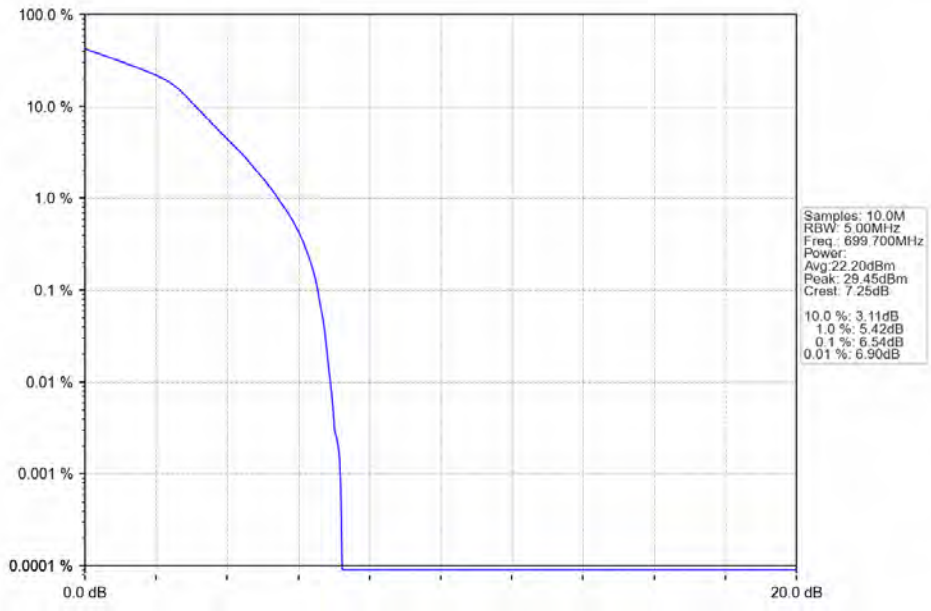
Band12_1.4MHz_QPSK_MCH_707.5MHz_RB_6_0_NTNV



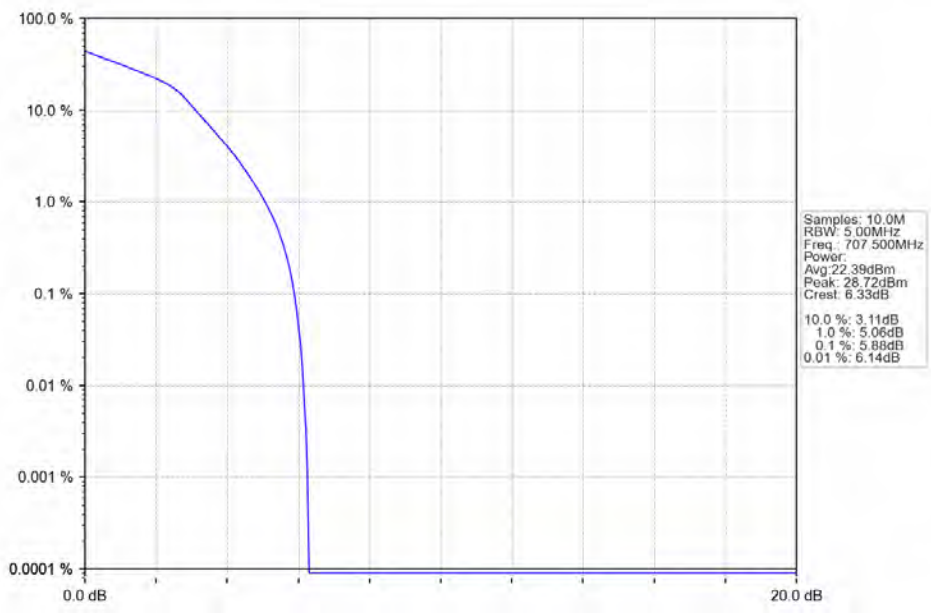
Band12_1.4MHz_QPSK_HCH_715.3MHz_RB_6_0_NTNV



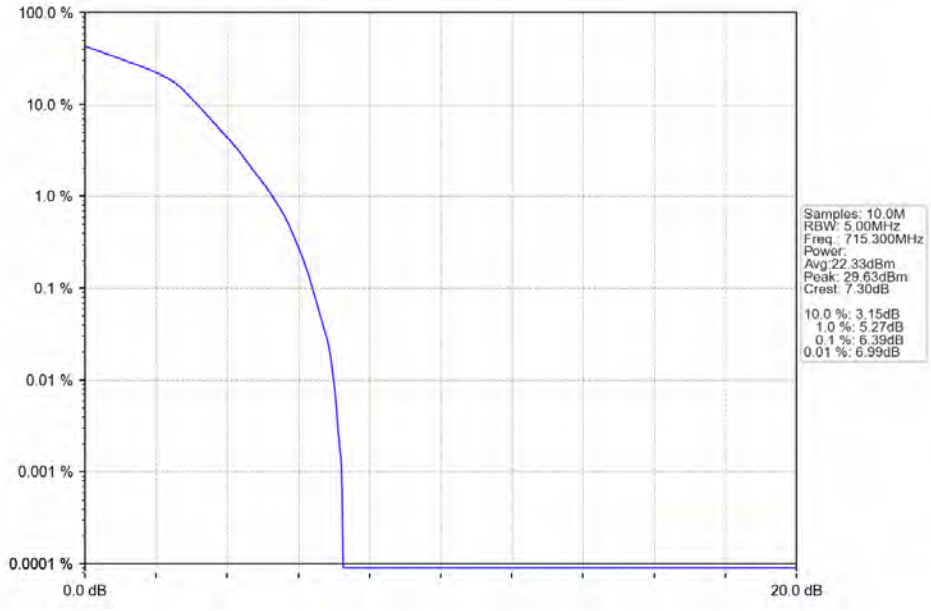
Band12_1.4MHz_16QAM_LCH_699.7MHz_RB_6_0_NTNV



Band12_1.4MHz_16QAM_MCH_707.5MHz_RB_6_0_NTNV



Band12_1.4MHz_16QAM_HCH_715.3MHz_RB_6_0_NTNV



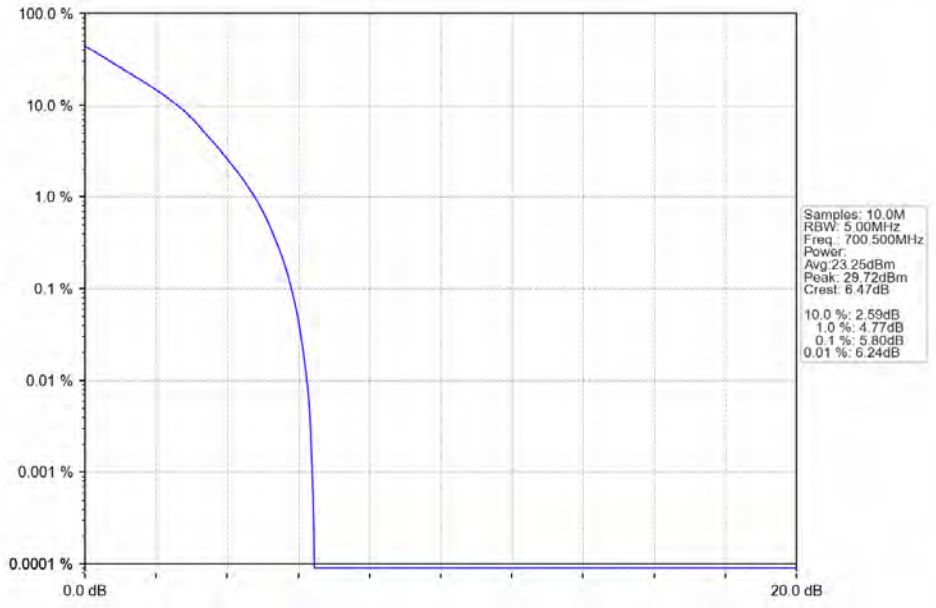
4.2 B12_3MHz

4.2.1 Test Result

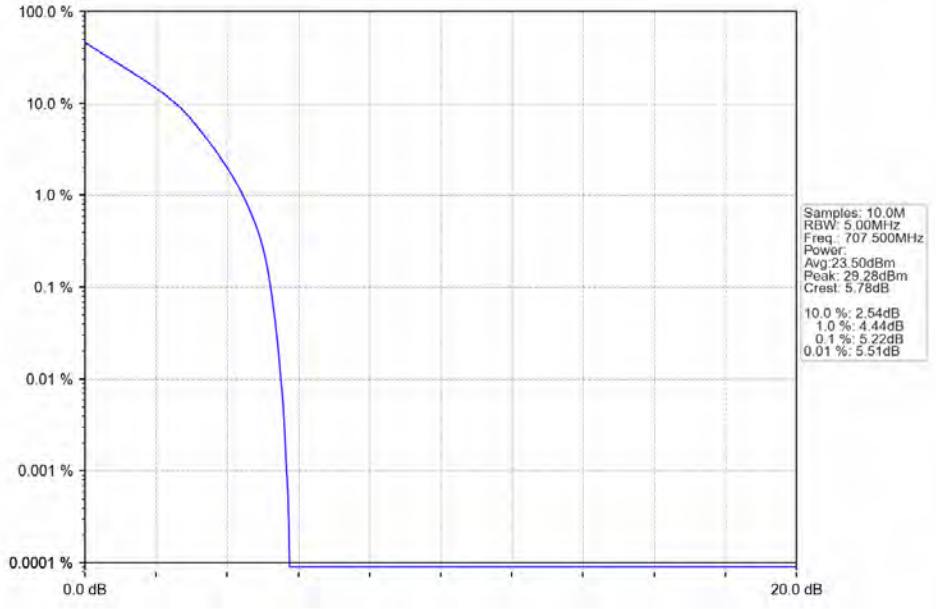
Band: 12 / Bandwidth: 3MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Peak-Average Ratio (dB)		Verdict
		Size	Offset	Result	Limit	
QPSK	700.5	15	0	5.80	<=13	Pass
	707.5	15	0	5.22	<=13	Pass
	714.5	15	0	5.79	<=13	Pass
16QAM	700.5	15	0	6.63	<=13	Pass
	707.5	15	0	6.04	<=13	Pass
	714.5	15	0	6.58	<=13	Pass

4.2.2 Test Graph

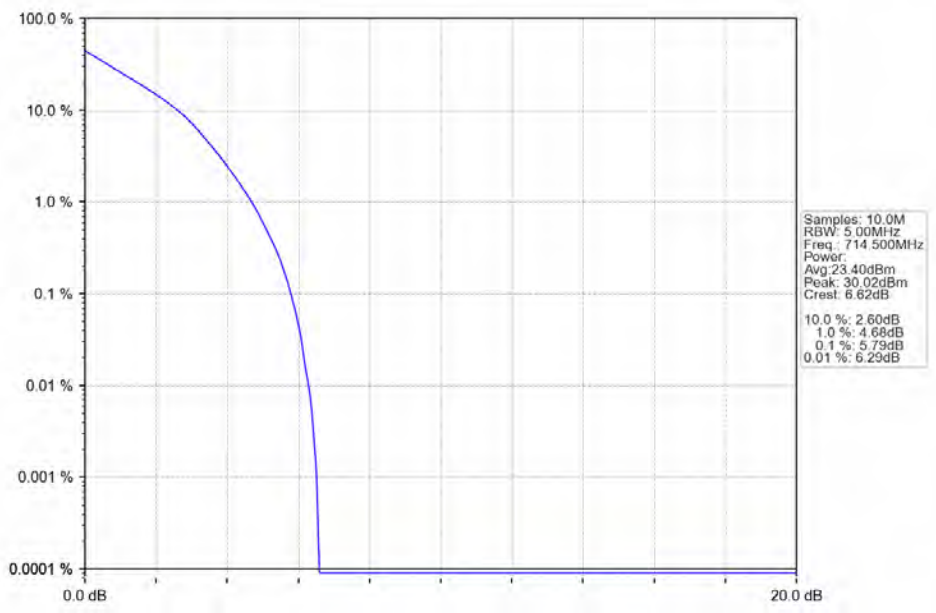
Band12_3MHz_QPSK_LCH_700.5MHz_RB_15_0_NTNV



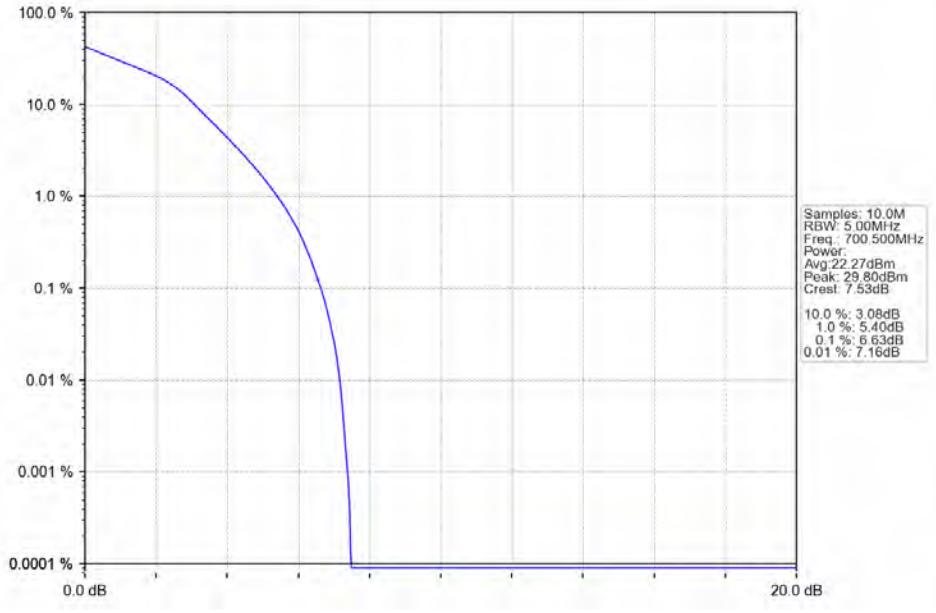
Band12_3MHz_QPSK_MCH_707.5MHz_RB_15_0_NTNV



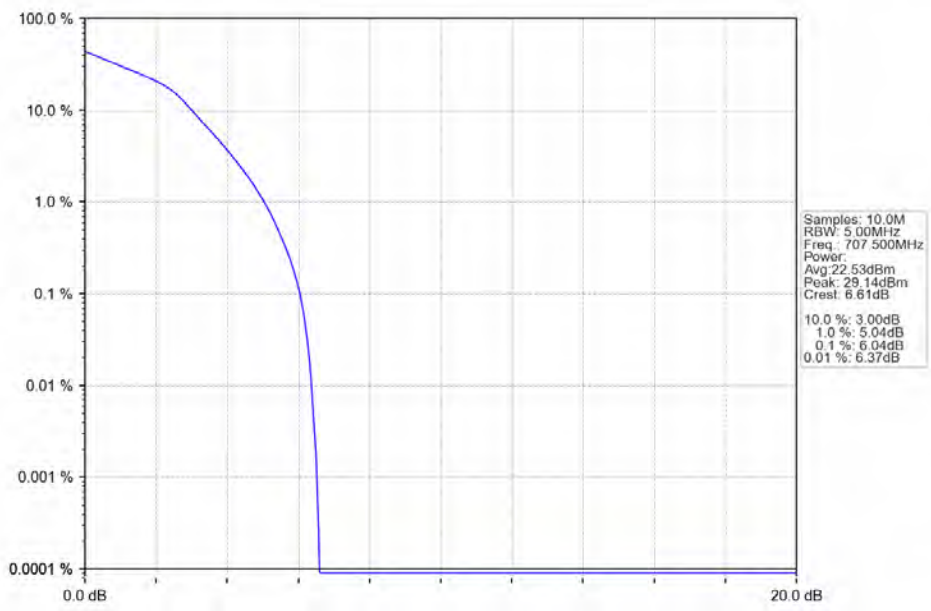
Band12_3MHz_QPSK_HCH_714.5MHz_RB_15_0_NTNV



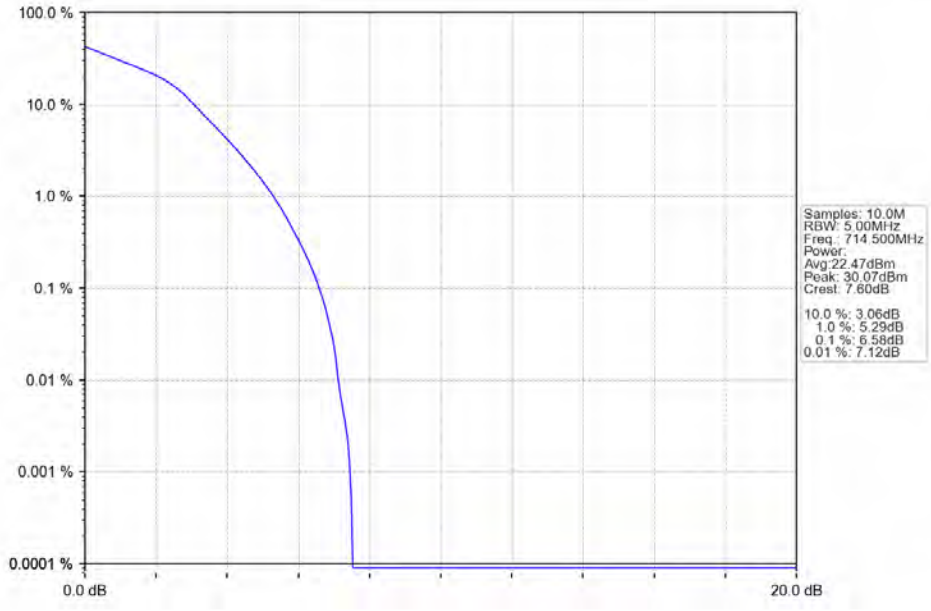
Band12_3MHz_16QAM_LCH_700.5MHz_RB_15_0_NTNV



Band12_3MHz_16QAM_MCH_707.5MHz_RB_15_0_NTNV



Band12_3MHz_16QAM_HCH_714.5MHz_RB_15_0_NTNV



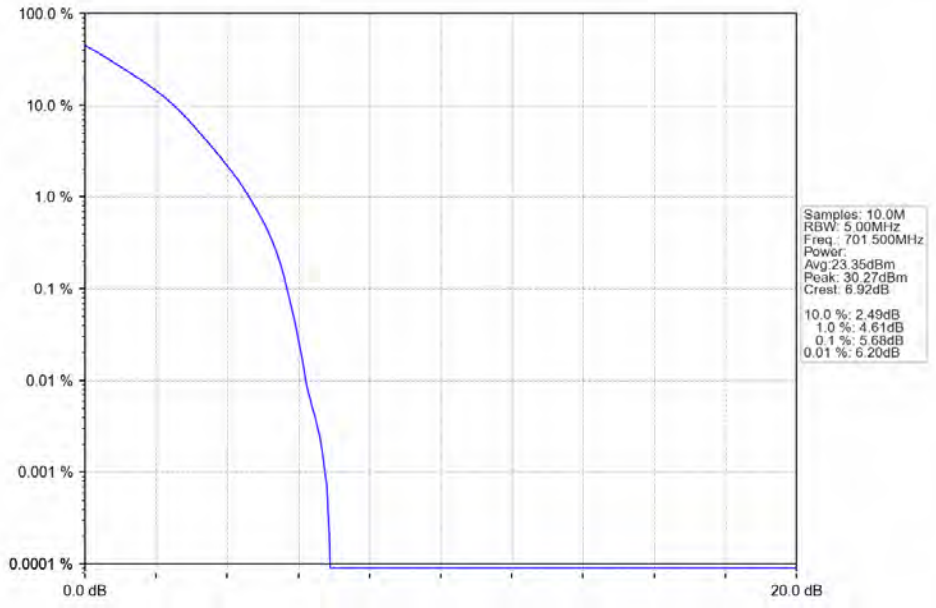
4.3 B12_5MHz

4.3.1 Test Result

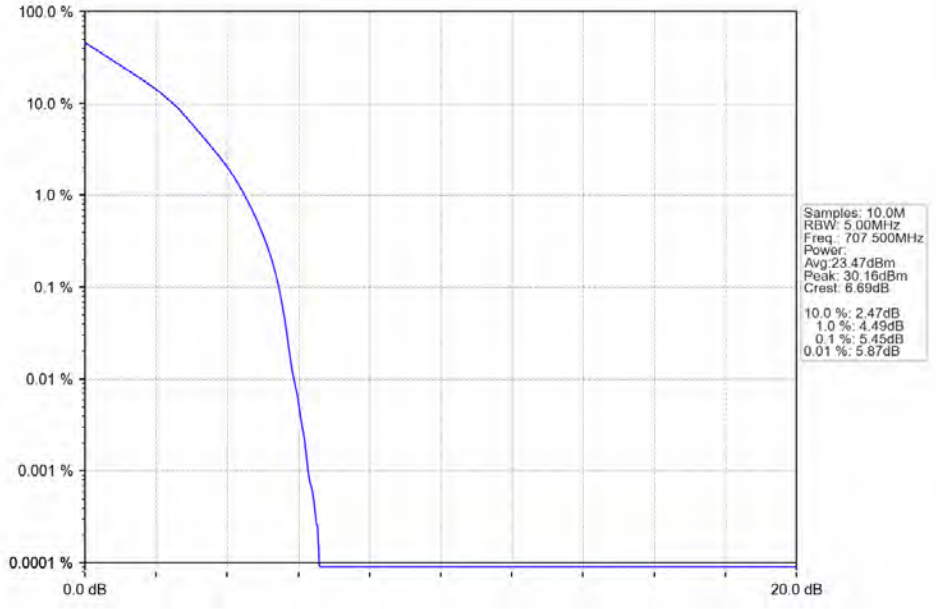
Band: 12 / Bandwidth: 5MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Peak-Average Ratio (dB)		Verdict
		Size	Offset	Result	Limit	
QPSK	701.5	25	0	5.68	<=13	Pass
	707.5	25	0	5.45	<=13	Pass
	713.5	25	0	5.78	<=13	Pass
16QAM	701.5	25	0	6.45	<=13	Pass
	707.5	25	0	6.21	<=13	Pass
	713.5	25	0	6.59	<=13	Pass

4.3.2 Test Graph

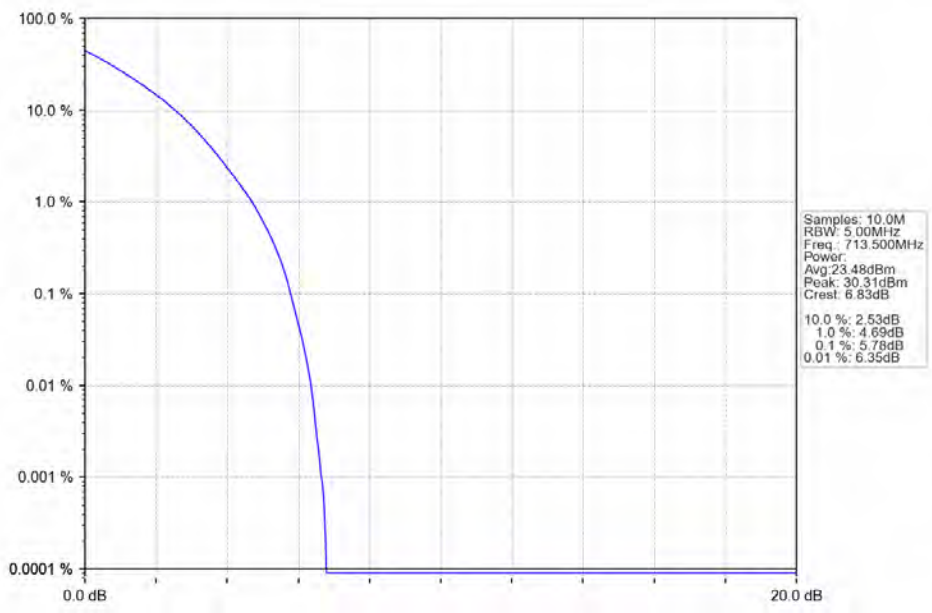
Band12_5MHz_QPSK_LCH_701.5MHz_RB_25_0_NTNV



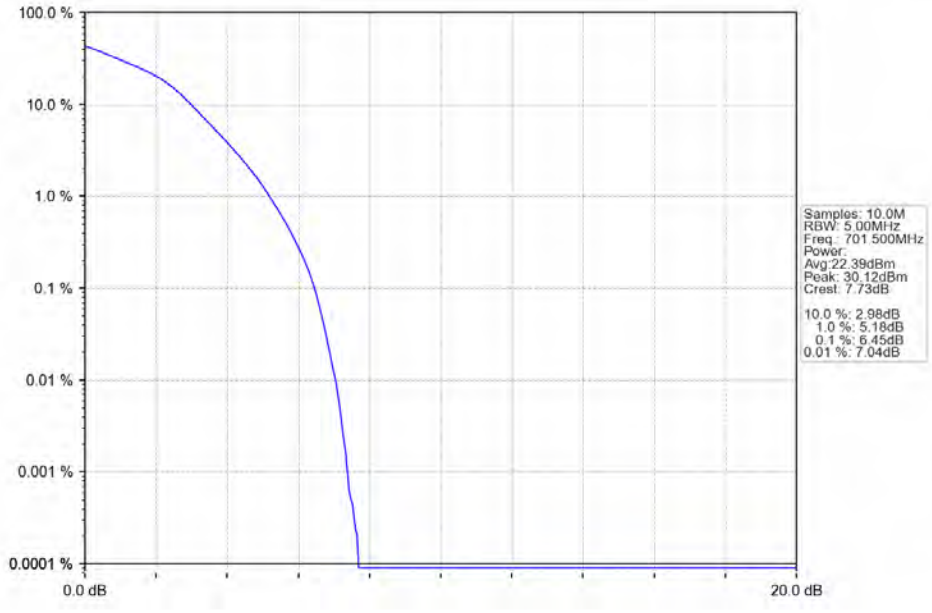
Band12_5MHz_QPSK_MCH_707.5MHz_RB_25_0_NTNV



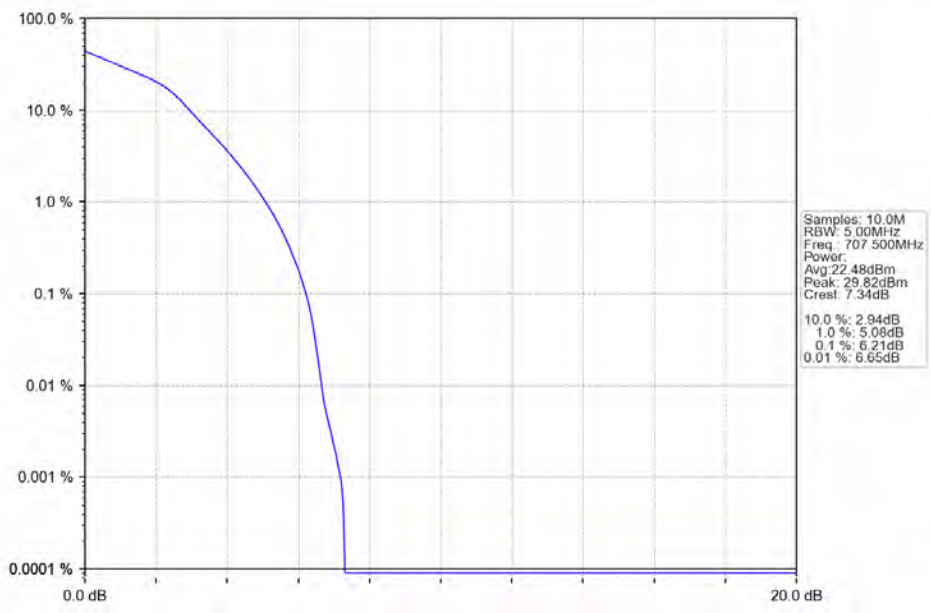
Band12_5MHz_QPSK_HCH_713.5MHz_RB_25_0_NTNV



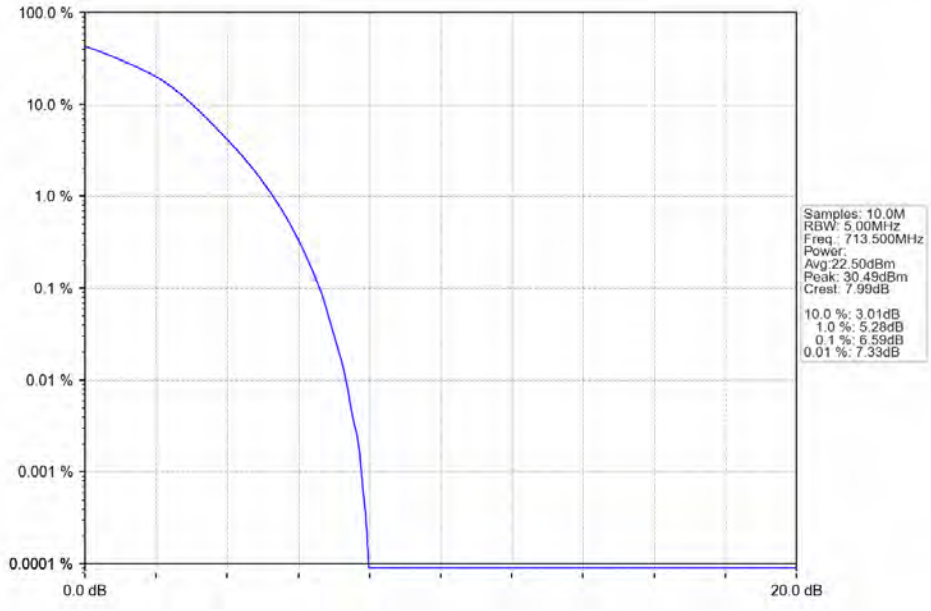
Band12_5MHz_16QAM_LCH_701.5MHz_RB_25_0_NTNV



Band12_5MHz_16QAM_MCH_707.5MHz_RB_25_0_NTNV



Band12_5MHz_16QAM_HCH_713.5MHz_RB_25_0_NTNV



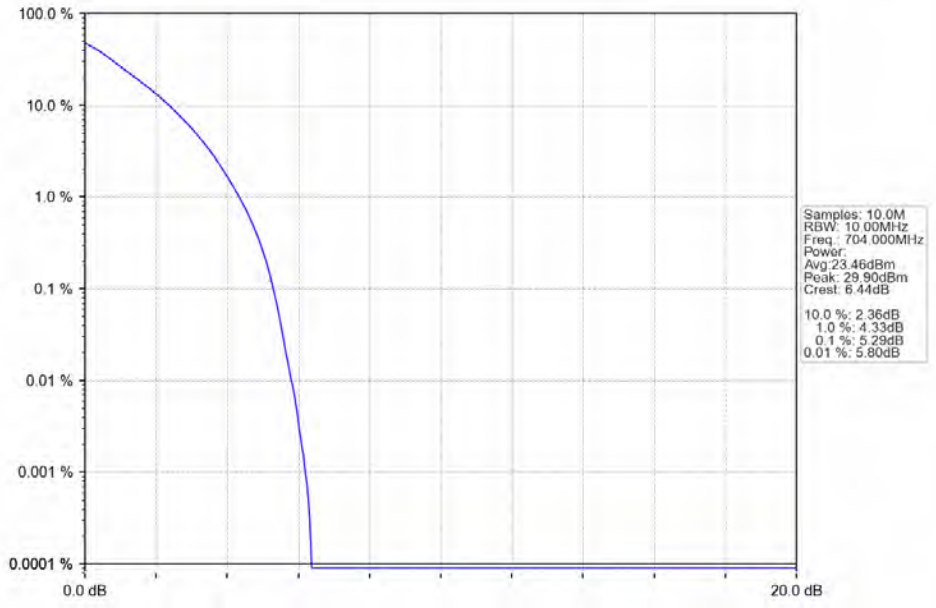
4.4 B12_10MHz

4.4.1 Test Result

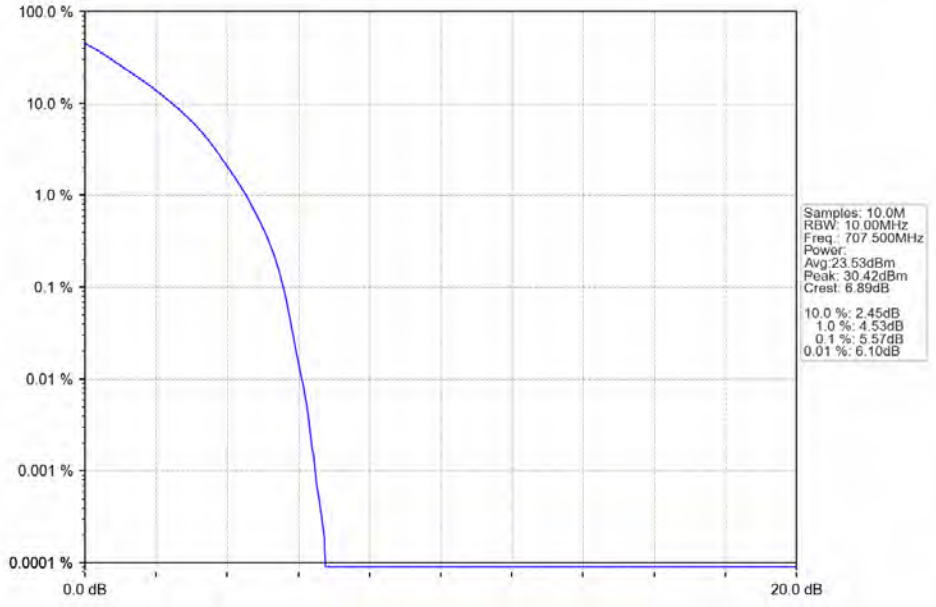
Band: 12 / Bandwidth: 10MHz / NTNV						
Modulation	Frequency (MHz)	RB Allocation		Peak-Average Ratio (dB)		Verdict
		Size	Offset	Result	Limit	
QPSK	704	50	0	5.29	<=13	Pass
	707.5	50	0	5.57	<=13	Pass
	711	50	0	5.73	<=13	Pass
16QAM	704	50	0	6.16	<=13	Pass
	707.5	50	0	6.35	<=13	Pass
	711	50	0	6.53	<=13	Pass

4.4.2 Test Graph

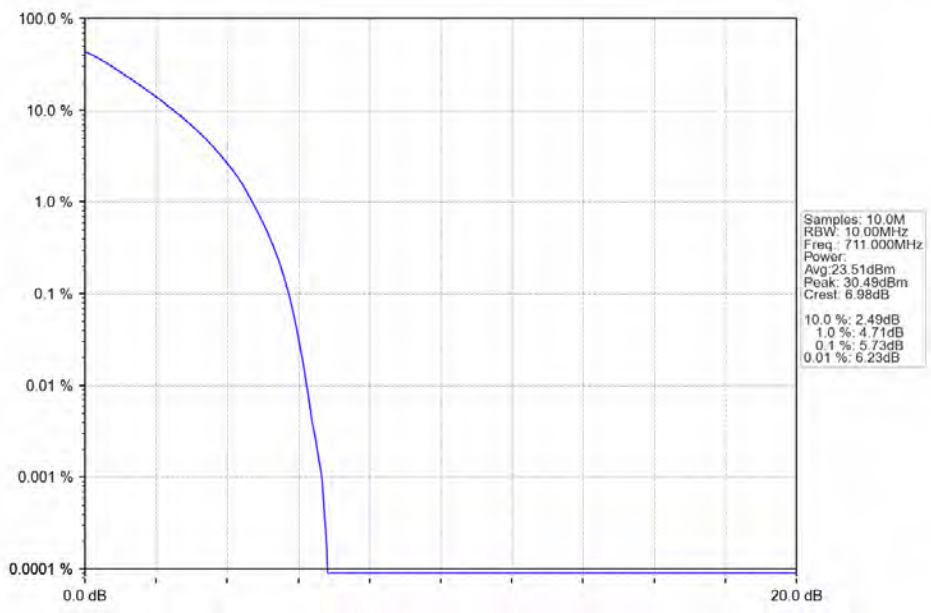
Band12_10MHz_QPSK_LCH_704MHz_RB_50_0_NTNV



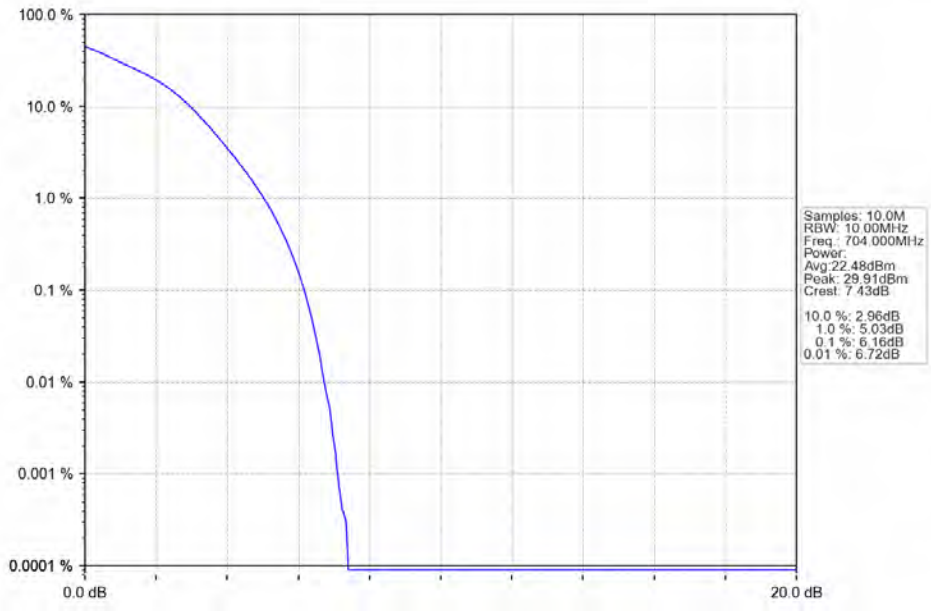
Band12_10MHz_QPSK_MCH_707.5MHz_RB_50_0_NTNV



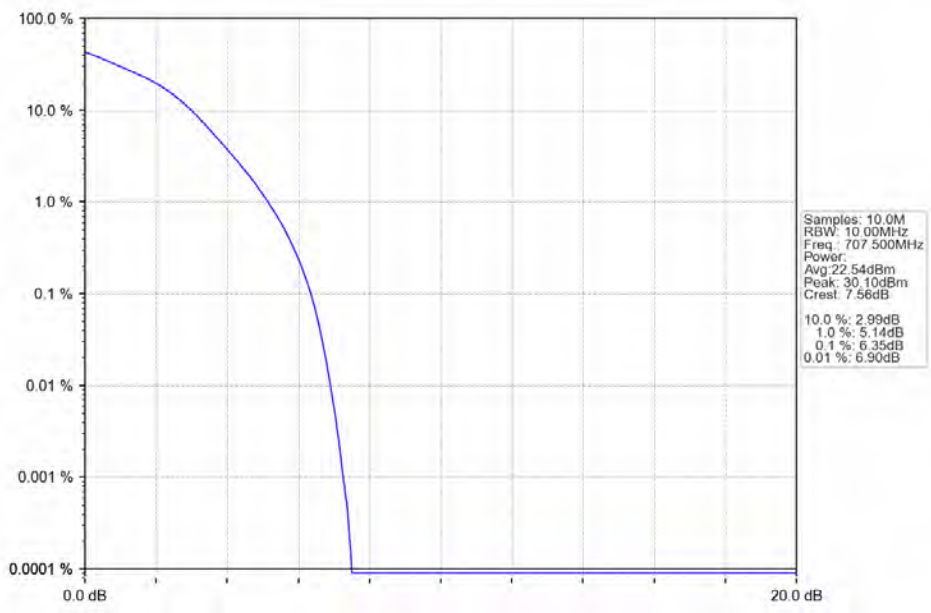
Band12_10MHz_QPSK_HCH_711MHz_RB_50_0_NTNV



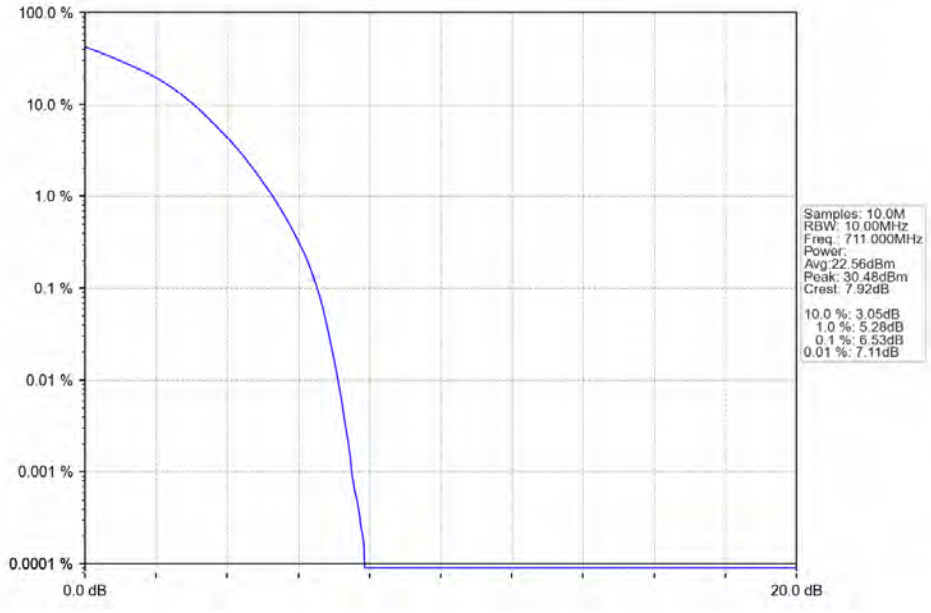
Band12_10MHz_16QAM_LCH_704MHz_RB_50_0_NTNV



Band12_10MHz_16QAM_MCH_707.5MHz_RB_50_0_NTNV



Band12_10MHz_16QAM_HCH_711MHz_RB_50_0_NTNV



5. Spurious Emission & Band Edge

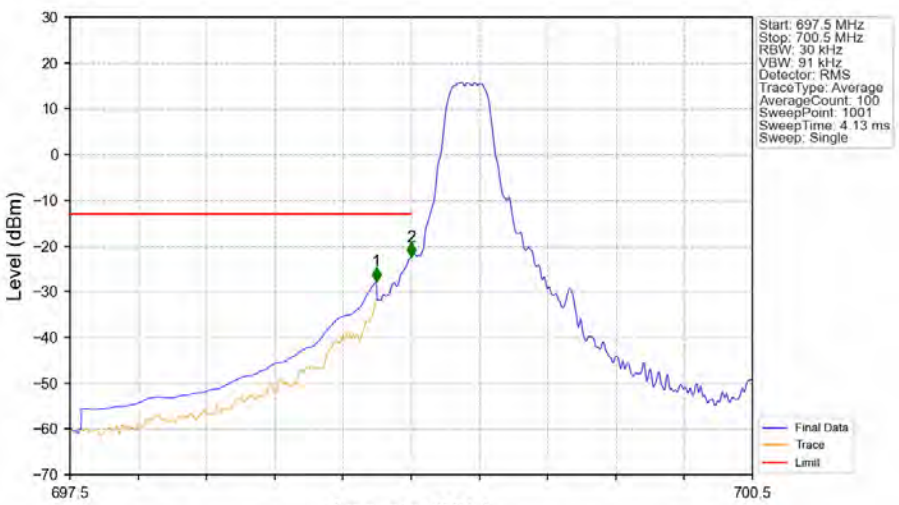
5.1 B12_1.4MHz

5.1.1 Test Result

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

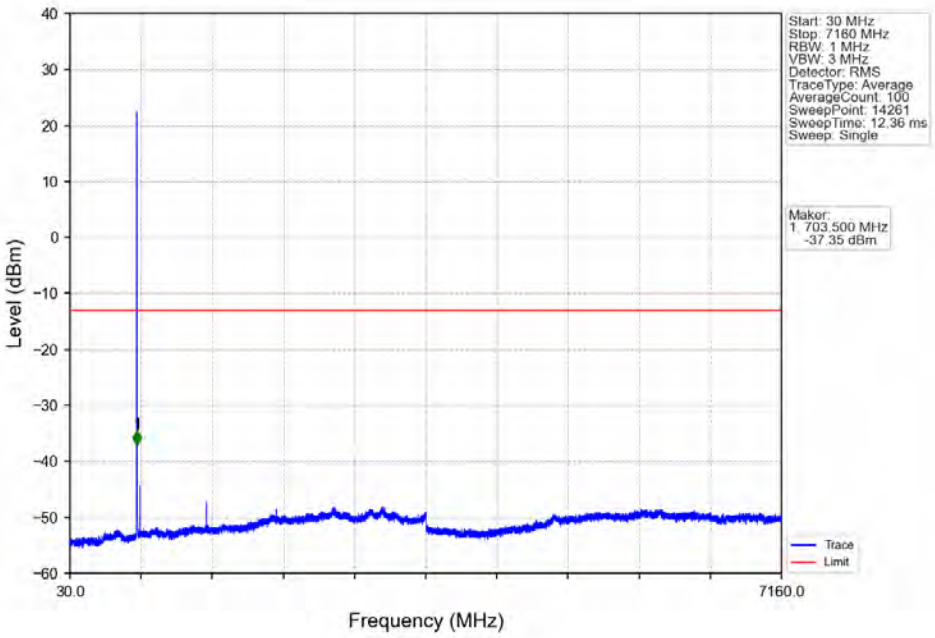
5.1.2 Test Graph

Band12_1.4MHz_QPSK_LCH_699.7MHz_RB_1_0_NTNV

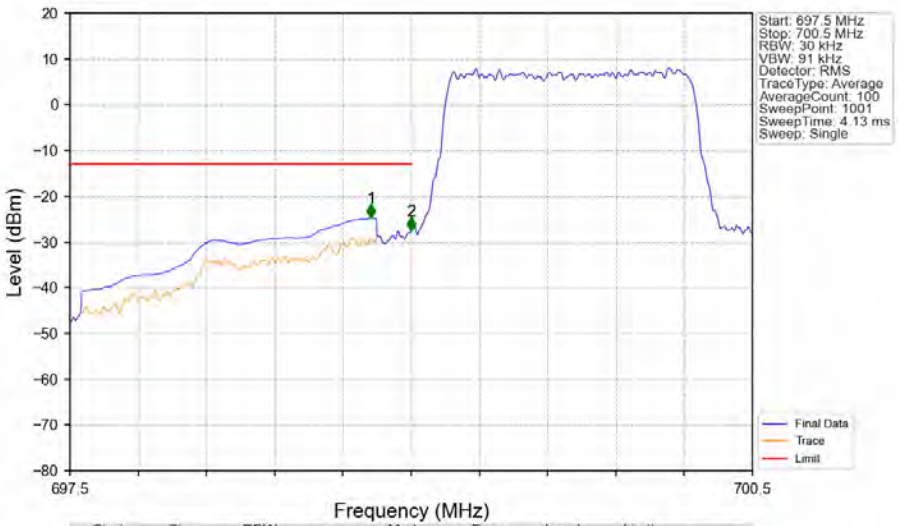


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
697.5	698.9	0.1	CHP	1	698.847	-27.78	-13	Pass
698.9	699	0.03	/	2	699.000	-22.42	-13	Pass
699	700.5	0.03	/	/	/	/	/	/

Band12_1.4MHz_QPSK_LCH_699.7MHz_RB_1_0_NTNV

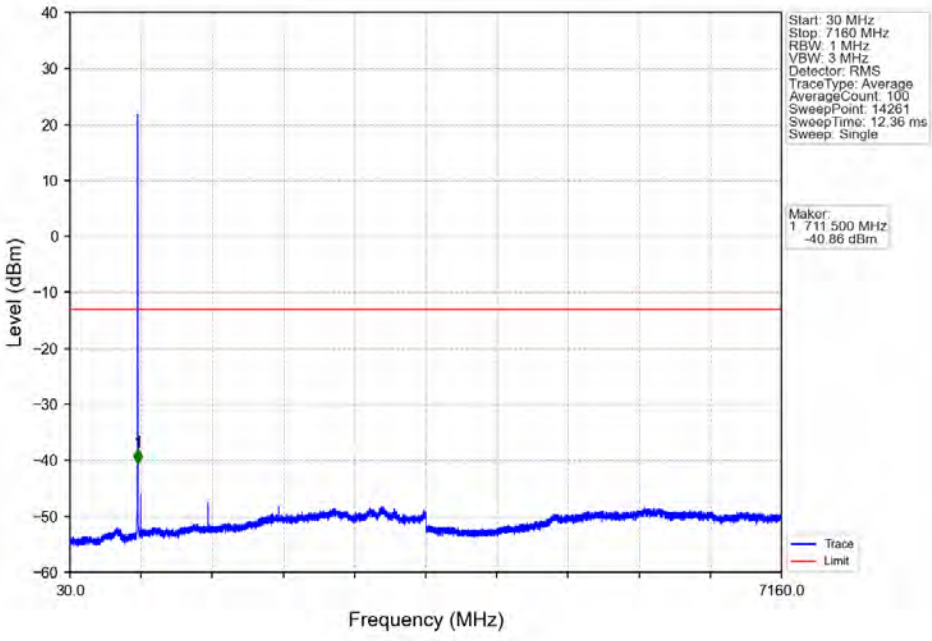


Band12_1.4MHz_QPSK_LCH_699.7MHz_RB_6_0_NTNV

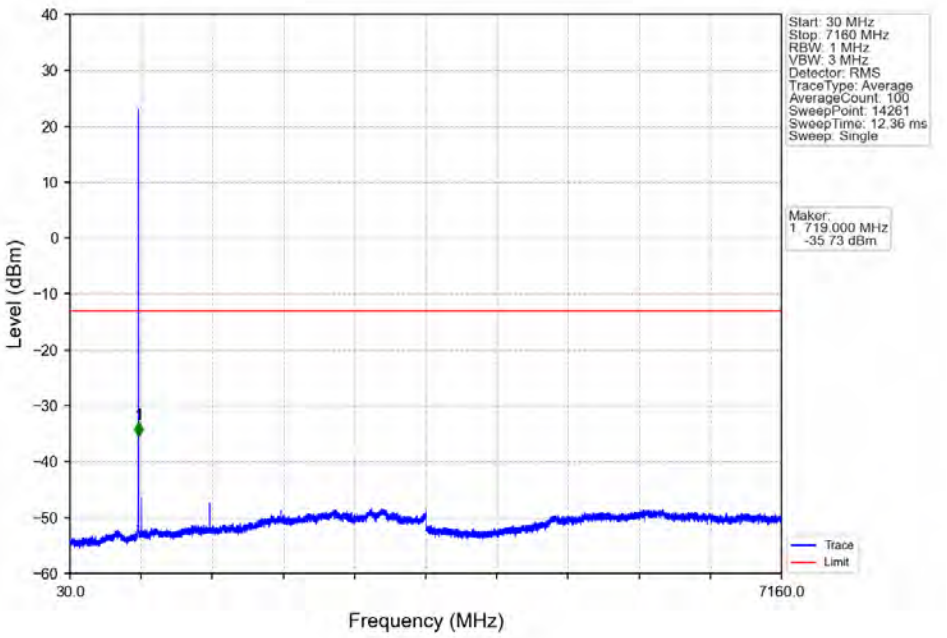


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
697.5	698.9	0.1	CHP	1	698.823	-24.80	-13	Pass
698.9	699	0.03	/	2	699.000	-27.63	-13	Pass
699	700.5	0.03	/	/	/	/	/	/

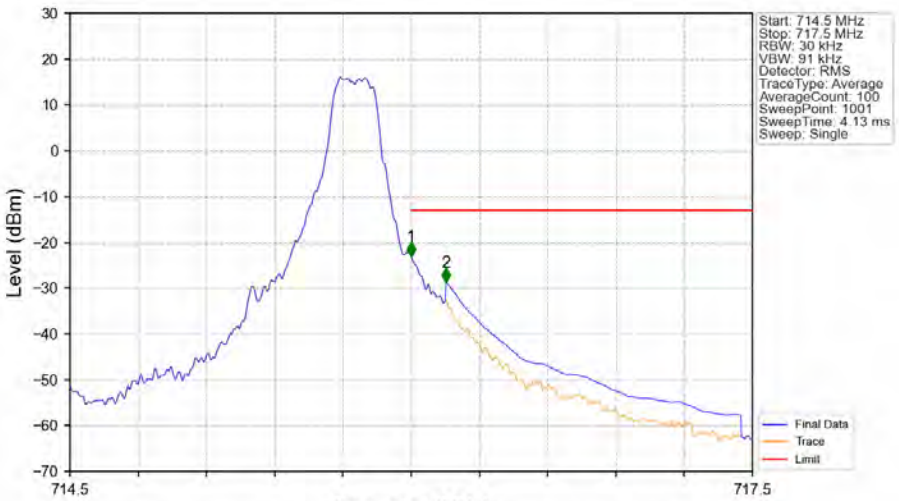
Band12_1.4MHz_QPSK_MCH_707.5MHz_RB_1_0_NTNV



Band12_1.4MHz_QPSK_HCH_715.3MHz_RB_1_0_NTNV

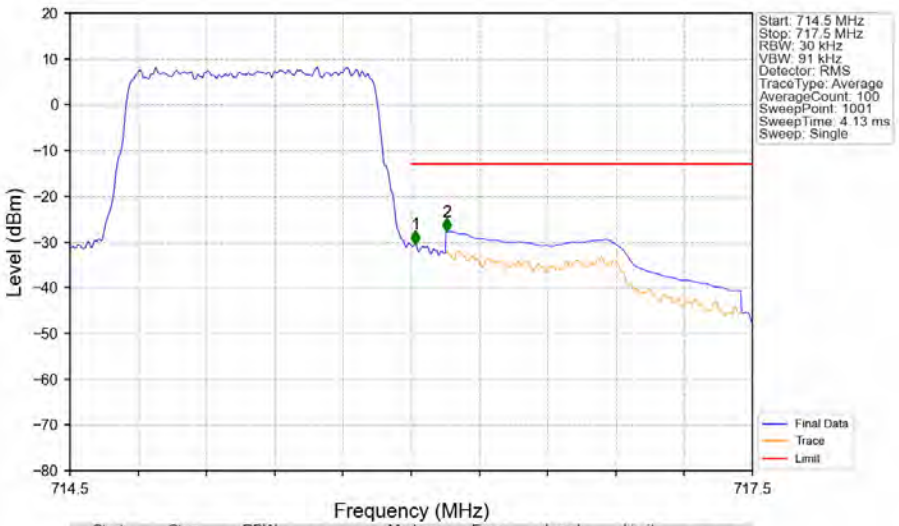


Band12_1.4MHz_QPSK_HCH_715.3MHz_RB_1_5_NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
714.5	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.000	-23.07	-13	Pass
716.1	717.5	0.1	CHP	2	716.153	-28.73	-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
714.5	716	0.03	/	/	/	/	/	/
716	716.1	0.03	/	1	716.018	-30.56	-13	Pass
716.1	717.5	0.1	CHP	2	716.156	-27.76	-13	Pass

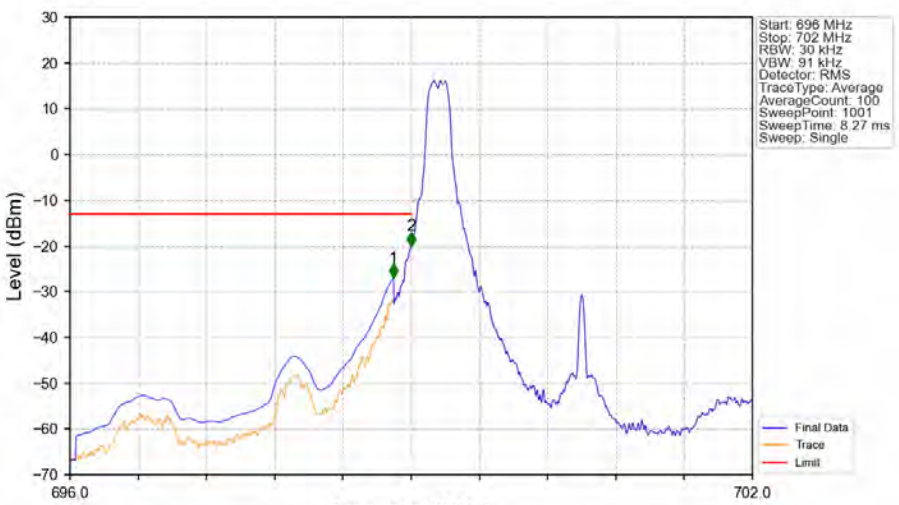
5.2 B12_3MHz

5.2.1 Test Result

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

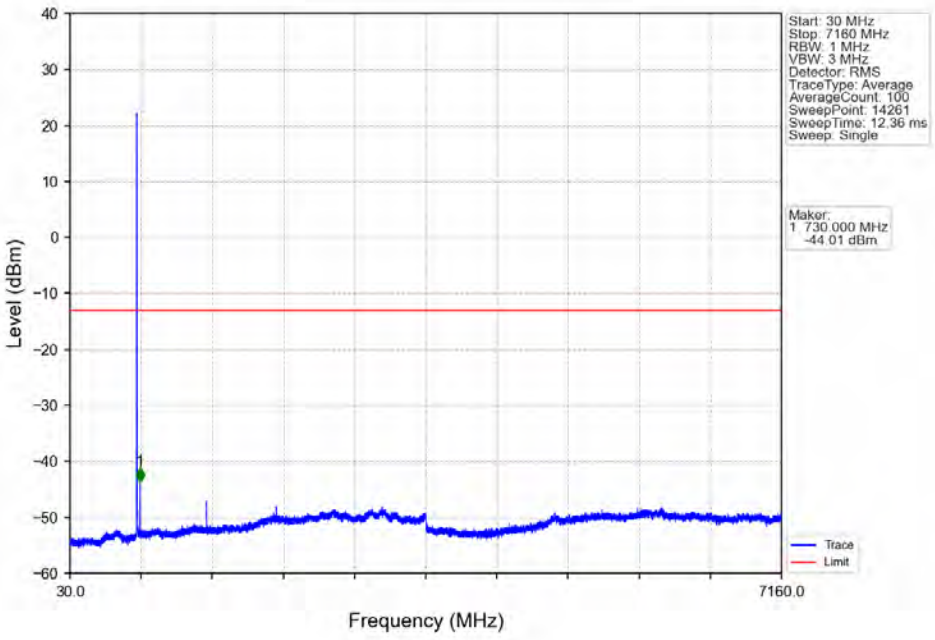
5.2.2 Test Graph

Band12_3MHz_QPSK_LCH_700.5MHz_RB_1_0_NTNV

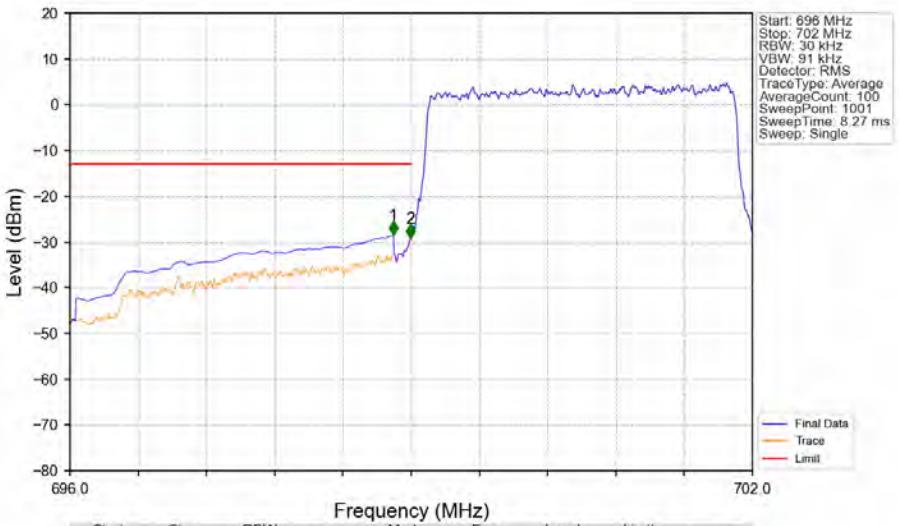


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
696	698.9	0.1	CHP	1	698.844	-26.94	-13	Pass
698.9	699	0.03	/	2	699.000	-20.01	-13	Pass
699	702	0.03	/	/	/	/	/	/

Band12_3MHz_QPSK_LCH_700.5MHz_RB_1_0_NTNV

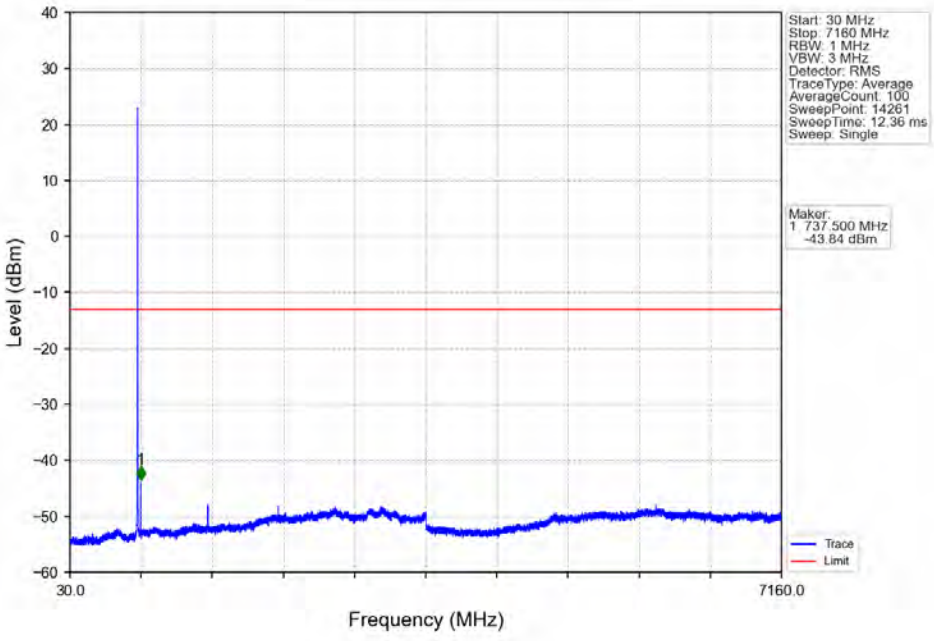


Band12_3MHz_QPSK_LCH_700.5MHz_RB_15_0_NTNV

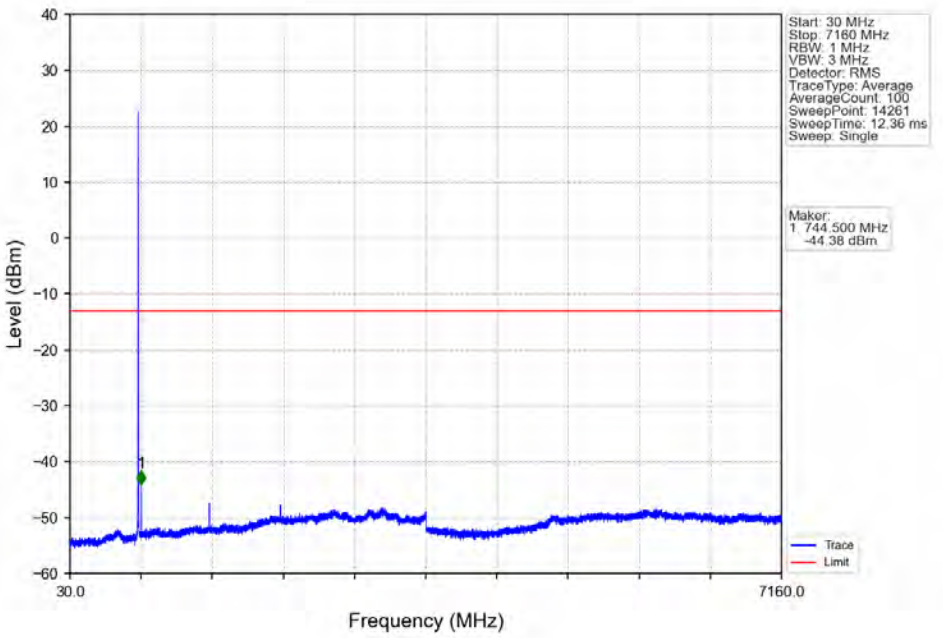


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
696	698.9	0.1	CHP	1	698.844	-28.52	-13	Pass
698.9	699	0.03	/	2	698.994	-29.17	-13	Pass
699	702	0.03	/	/	/	/	/	/

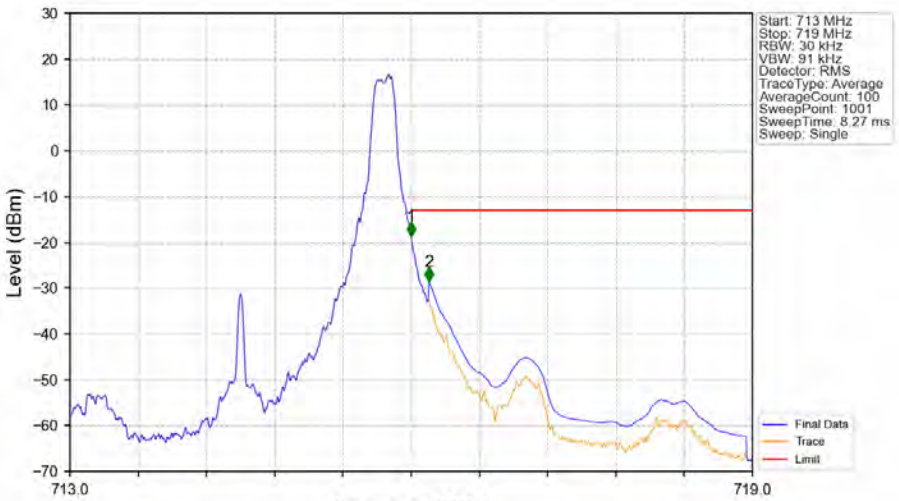
Band12_3MHz_QPSK_MCH_707.5MHz_RB_1_0_NTNV



Band12_3MHz_QPSK_HCH_714.5MHz_RB_1_0_NTNV

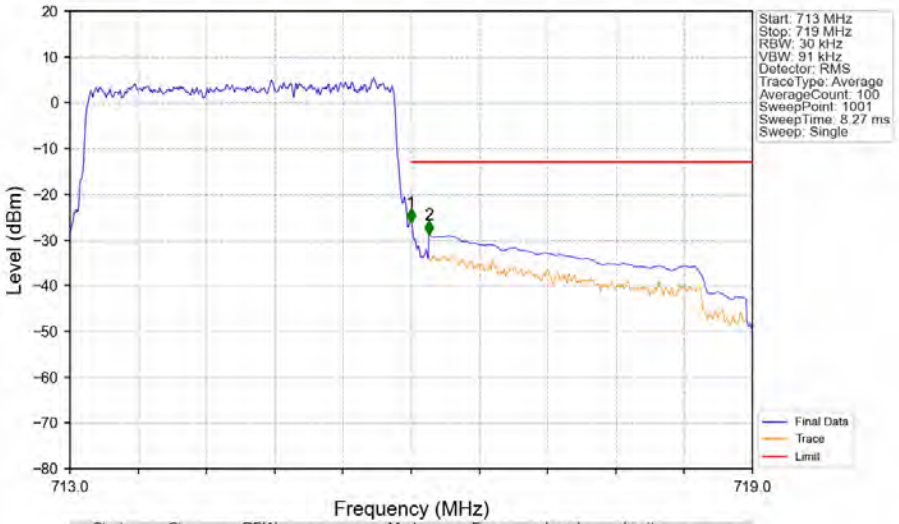


Band12_3MHz_QPSK_HCH_714.5MHz_RB_1_14_NTNV



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	716.000	-18.69	-13	Pass
716.1	719	0.1	CHP	2	716.156	-28.54	-13	Pass

Band12_3MHz_QPSK_HCH_714.5MHz_RB_15_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	716.000	-26.20	-13	Pass
716.1	719	0.1	CHP	2	716.156	-28.82	-13	Pass

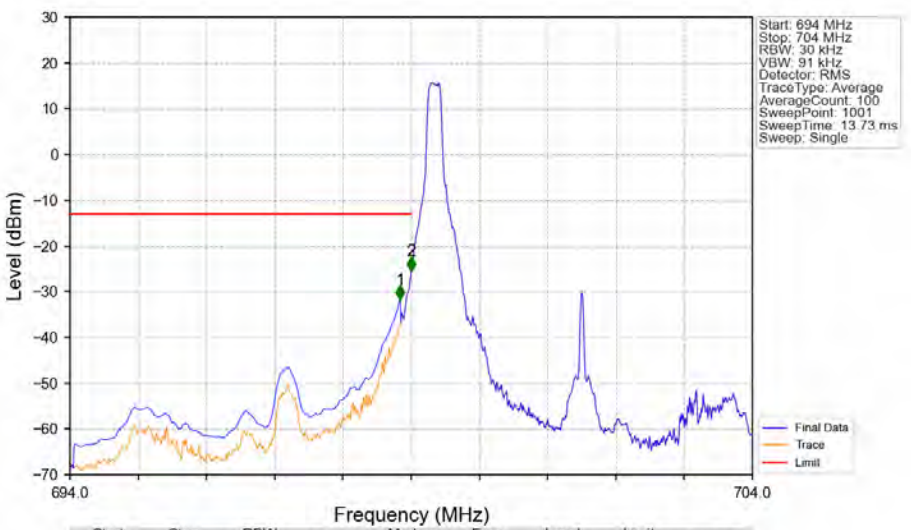
5.3 B12_5MHz

5.3.1 Test Result

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

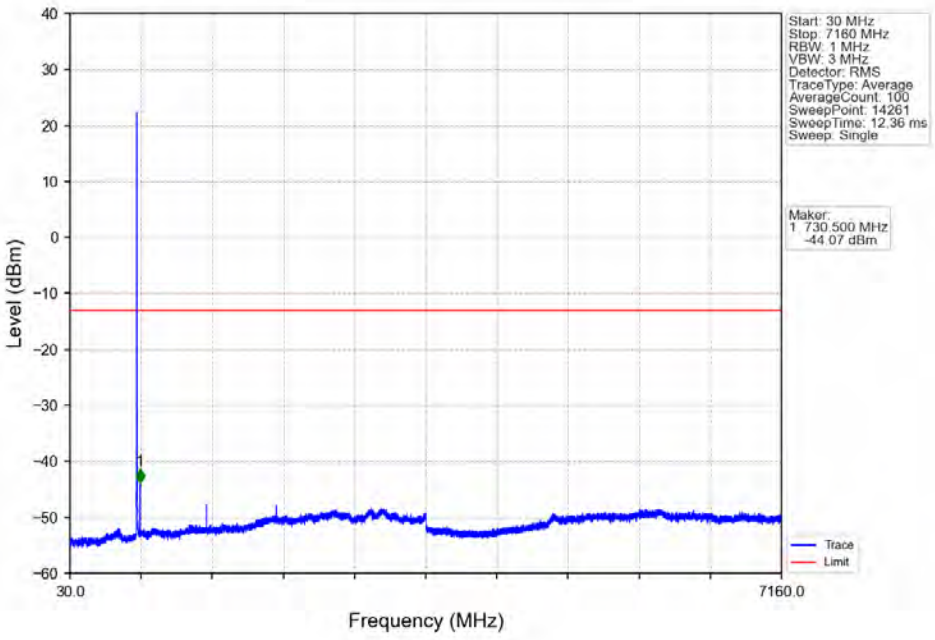
5.3.2 Test Graph

Band12_5MHz_QPSK_LCH_701.5MHz_RB_1_0_NTNV

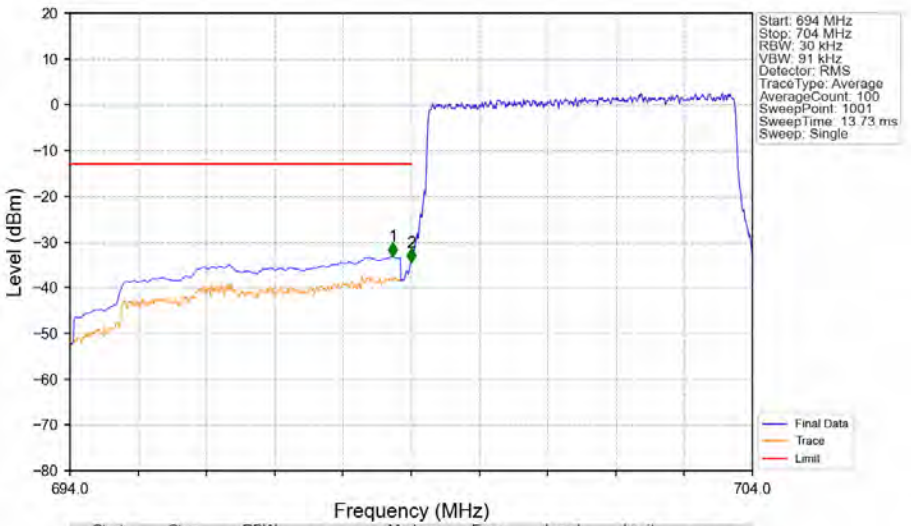


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
694	698.9	0.1	CHP	1	698.840	-31.69	-13	Pass
698.9	699	0.03	/	2	699.000	-25.49	-13	Pass
699	704	0.03	/	/	/	/	/	/

Band12_5MHz_QPSK_LCH_701.5MHz_RB_1_0_NTNV

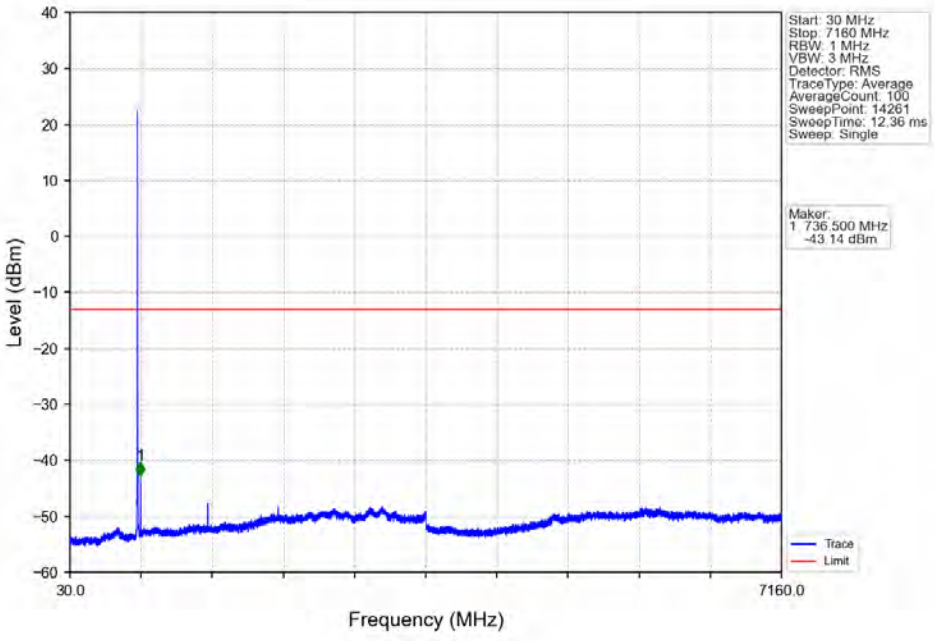


Band12_5MHz_QPSK_LCH_701.5MHz_RB_25_0_NTNV

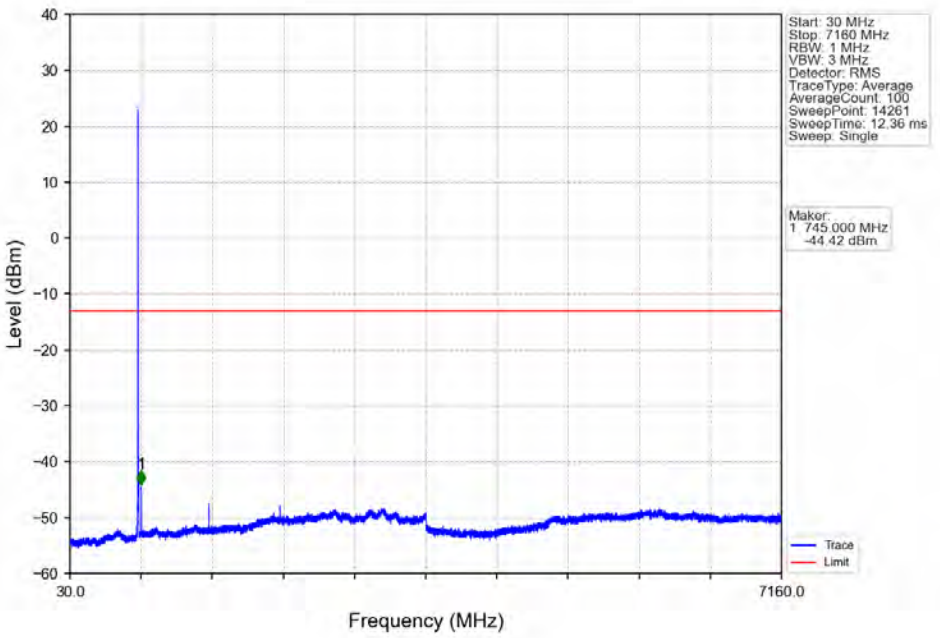


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
694	698.9	0.1	CHP	1	698.730	-33.18	-13	Pass
698.9	699	0.03	/	2	699.000	-34.49	-13	Pass
699	704	0.03	/	/	/	/	/	/

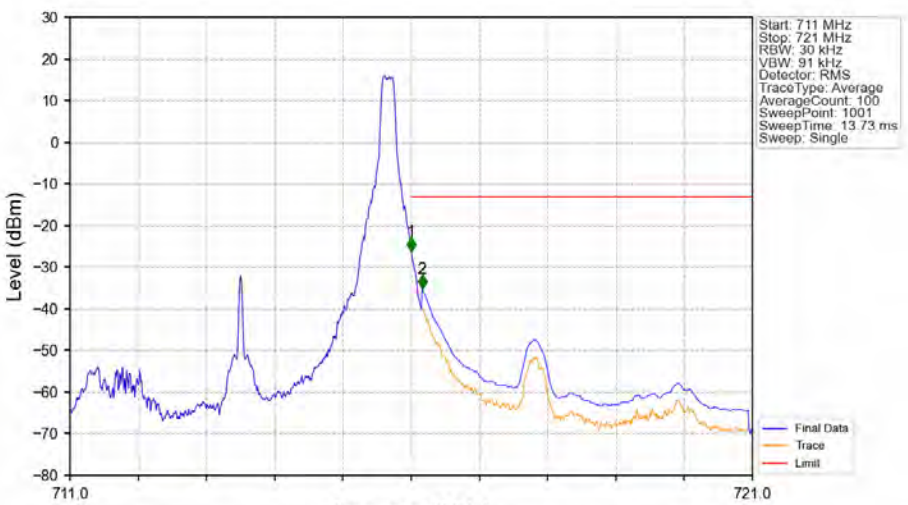
Band12_5MHz_QPSK_MCH_707.5MHz_RB_1_0_NTNV



Band12_5MHz_QPSK_HCH_713.5MHz_RB_1_0_NTNV

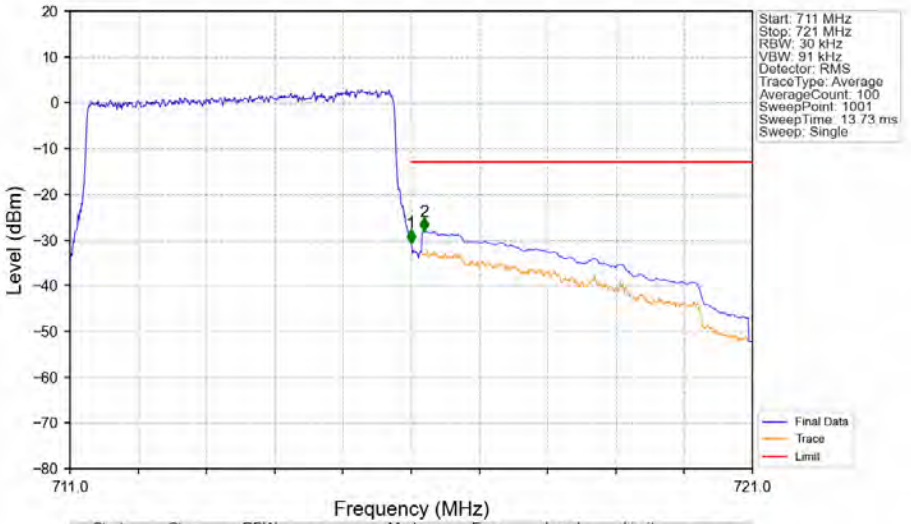


Band12_5MHz_QPSK_HCH_713.5MHz_RB_1_24_NTNV



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	716.000	-26.35	-13	Pass
716.1	721	0.1	CHP	2	716.160	-35.14	-13	Pass

Band12_5MHz_QPSK_HCH_713.5MHz_RB_25_0_NTNV



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	716.000	-30.73	-13	Pass
716.1	721	0.1	CHP	2	716.190	-28.17	-13	Pass

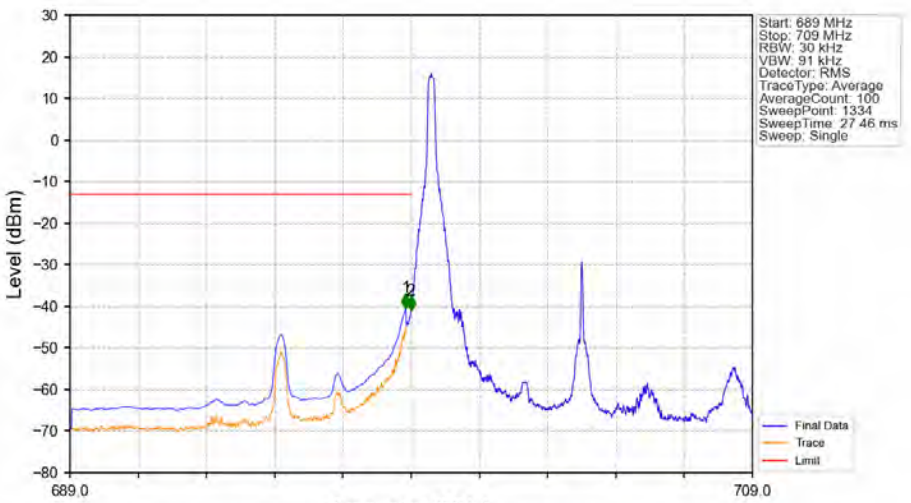
5.4 B12_10MHz

5.4.1 Test Result

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

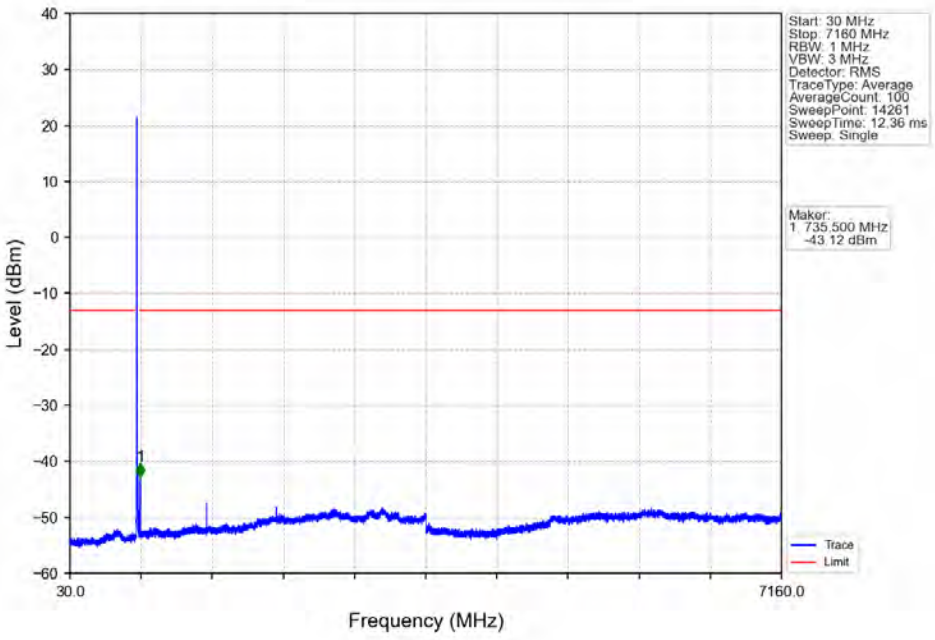
5.4.2 Test Graph

Band12_10MHz_QPSK_LCH_704MHz_RB_1_0_NTNV

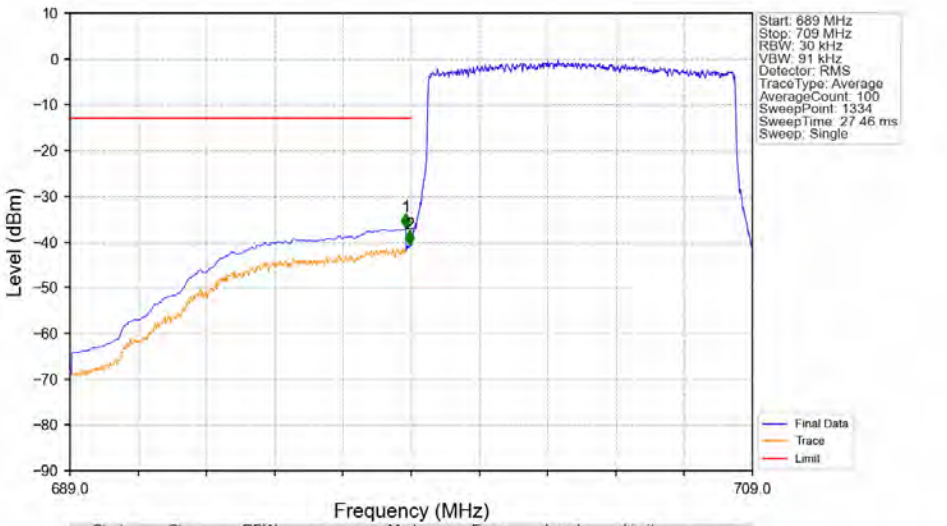


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
689	698.9	0.1	CHP	1	698.842	-40.34	-13	Pass
698.9	699	0.03	/	2	698.992	-41.06	-13	Pass
699	709	0.03	/	/	/	/	/	/

Band12_10MHz_QPSK_LCH_704MHz_RB_1_0_NTNV

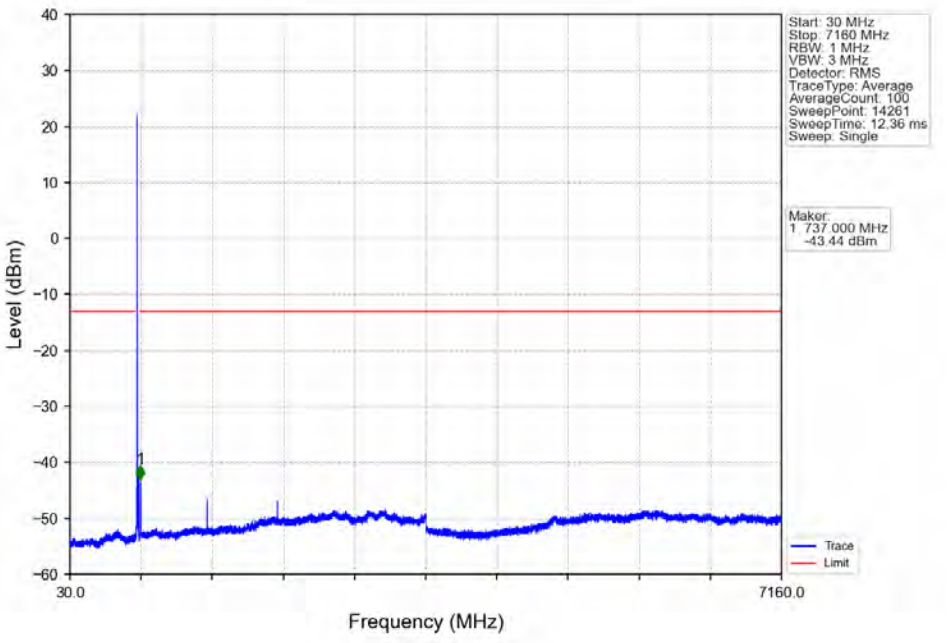


Band12_10MHz_QPSK_LCH_704MHz_RB_50_0_NTNV

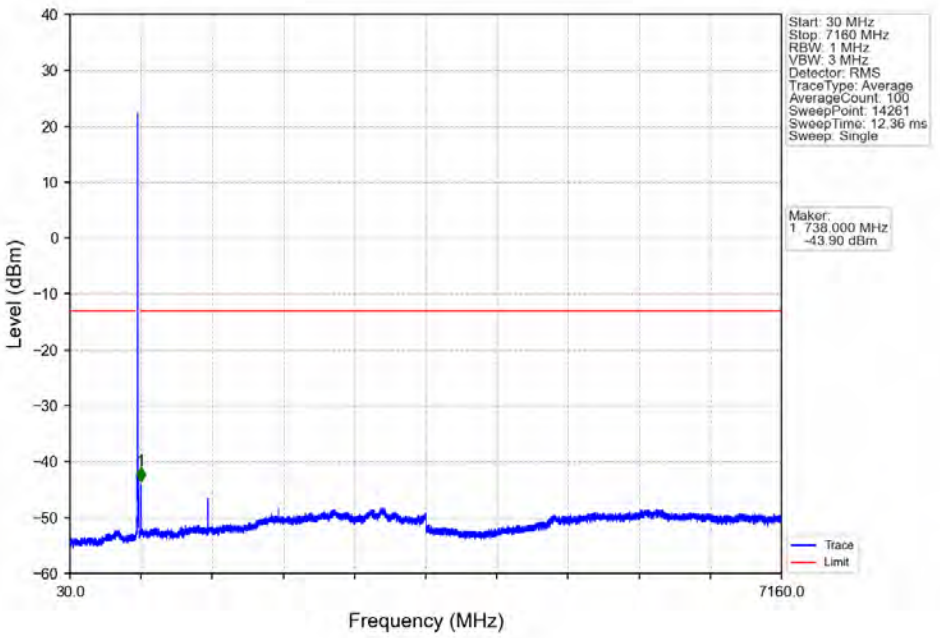


Start (MHz)	Stop (MHz)	RBW (MHz)	Method	Marker No	Freq (MHz)	Level (dBm)	Limit (dBm)	Result
689	698.9	0.1	CHP	1	698.842	-36.85	-13	Pass
698.9	699	0.03	/	2	698.962	-40.54	-13	Pass
699	709	0.03	/	/	/	/	/	/

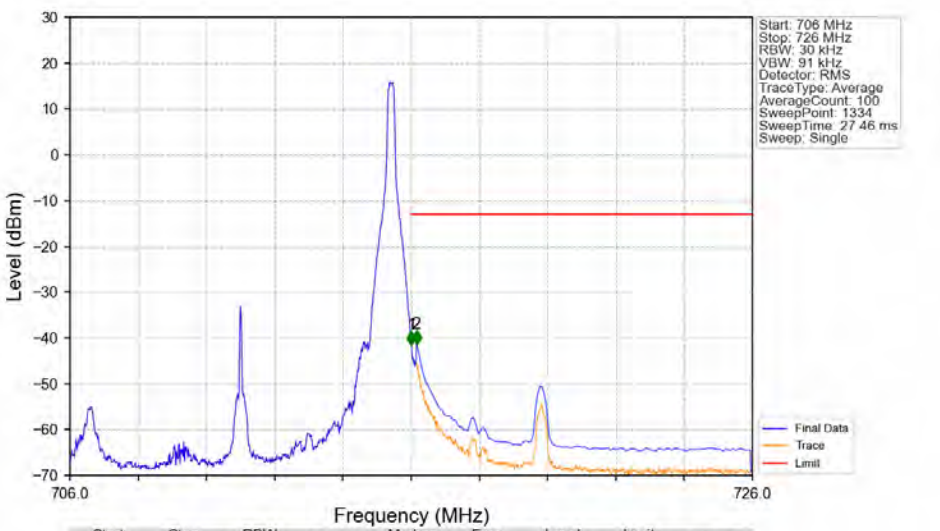
Band12_10MHz_QPSK_MCH_707.5MHz_RB_1_0_NTNV



Band12_10MHz_QPSK_HCH_711MHz_RB_1_0_NTNV

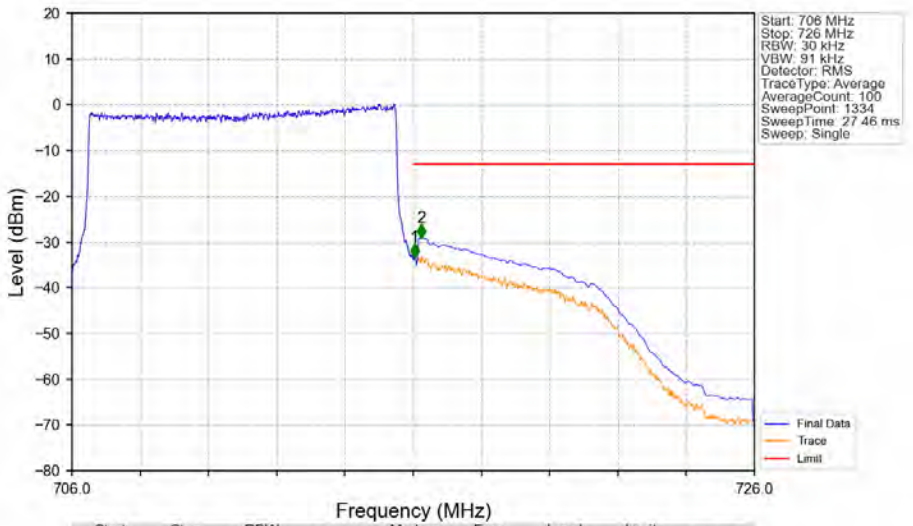


Band12_10MHz_QPSK_HCH_711MHz_RB_1_49_NTNV



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	-41.54	-13	Pass
716.1	726	0.1	CHP	2	716.158	-41.37	-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	-33.37	-13	Pass
716.1	726	0.1	CHP	2	716.248	-29.12	-13	Pass

6. Field Strength of Spurious Radiation

Test Band = LTE Band 12_ TM1
Test Channel = Low Channel

Final Data List								
NO.	Frequency [MHz]	Reading [dBµV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1399.18	48.46	-47.29	25.10	-68.99	-13.00	55.99	Horizontal
2	2098.77	47.14	-45.69	26.52	-67.29	-13.00	54.29	Horizontal
3	2798.36	37.11	-44.44	28.65	-73.94	-13.00	60.94	Horizontal
4	3497.95	36.32	-43.32	29.60	-72.66	-13.00	59.66	Horizontal
5	4197.54	35.70	-42.36	31.62	-70.30	-13.00	57.30	Horizontal
6	4897.13	36.01	-41.48	32.97	-67.76	-13.00	54.76	Horizontal

Final Data List								
NO.	Frequency [MHz]	Reading [dBµV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1399.18	42.76	-47.29	25.10	-74.69	-13.00	61.69	Vertical
2	2098.77	39.40	-45.69	26.52	-75.03	-13.00	62.03	Vertical
3	2798.36	36.61	-44.44	28.65	-74.44	-13.00	61.44	Vertical
4	3497.95	35.25	-43.32	29.60	-73.73	-13.00	60.73	Vertical
5	4197.54	35.30	-42.36	31.62	-70.70	-13.00	57.70	Vertical
6	4897.13	35.26	-41.48	32.97	-68.51	-13.00	55.51	Vertical

Test Band = LTE Band 12_ TM1
Test Channel = Mid Channel

Final Data List								
NO.	Frequency [MHz]	Reading [dBµV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1406.18	47.16	-47.28	25.08	-70.29	-13.00	57.29	Horizontal
2	2109.27	44.80	-45.68	26.54	-69.60	-13.00	56.60	Horizontal
3	2812.36	37.19	-44.41	28.71	-73.77	-13.00	60.77	Horizontal
4	3515.45	35.66	-43.31	29.65	-73.25	-13.00	60.25	Horizontal
5	4218.54	35.72	-42.34	31.65	-70.23	-13.00	57.23	Horizontal
6	4921.63	34.82	-41.43	33.03	-68.84	-13.00	55.84	Horizontal

Final Data List								
NO.	Frequency [MHz]	Reading [dBµV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1406.18	41.22	-47.28	25.08	-76.23	-13.00	63.23	Vertical
2	2109.27	38.35	-45.68	26.54	-76.05	-13.00	63.05	Vertical
3	2812.36	36.08	-44.41	28.71	-74.88	-13.00	61.88	Vertical
4	3515.45	34.98	-43.31	29.65	-73.93	-13.00	60.93	Vertical
5	4218.54	34.36	-42.34	31.65	-71.59	-13.00	58.59	Vertical
6	4921.63	34.62	-41.43	33.03	-69.04	-13.00	56.04	Vertical

Test Band = LTE Band 12_ TM1
Test Channel = High Channel

Final Data List								
NO.	Frequency [MHz]	Reading [dBµV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1413.18	49.97	-47.26	25.07	-67.49	-13.00	54.49	Horizontal
2	2119.77	44.73	-45.67	26.56	-69.64	-13.00	56.64	Horizontal
3	2826.36	36.35	-44.37	28.77	-74.51	-13.00	61.51	Horizontal
4	3532.95	36.23	-43.29	29.71	-72.61	-13.00	59.61	Horizontal
5	4239.54	34.83	-42.32	31.68	-71.06	-13.00	58.06	Horizontal
6	4946.13	35.30	-41.38	33.08	-68.26	-13.00	55.26	Horizontal

Final Data List								
NO.	Frequency [MHz]	Reading [dBµV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1413.18	43.54	-47.26	25.07	-73.92	-13.00	60.92	Vertical
2	2119.77	39.09	-45.67	26.56	-75.28	-13.00	62.28	Vertical
3	2826.36	35.37	-44.37	28.77	-75.49	-13.00	62.49	Vertical
4	3532.95	35.65	-43.29	29.71	-73.19	-13.00	60.19	Vertical
5	4239.54	34.20	-42.32	31.68	-71.69	-13.00	58.69	Vertical
6	4946.13	34.02	-41.38	33.08	-69.54	-13.00	56.54	Vertical

Remark:
1) The field strength is calculated by adding the Antenna Factor, Cable Factor & AMP. The basic equation with a sample calculation is as follows:
AF = Antenna Factor(dB/m)
Factor = Cable Factor(dB) - Preamplifier (dB)
Level = Reading Level + AF + Factor -95.26
Margin = Limit – Level

---End of Attachment---