

Appendix: 2.4G Wi-Fi

Contents

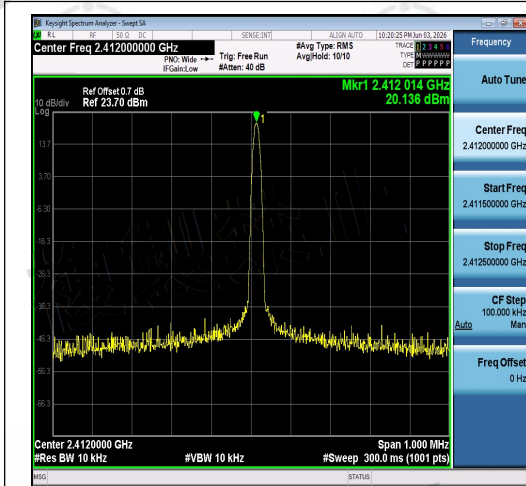
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Appendix A: Frequency Error

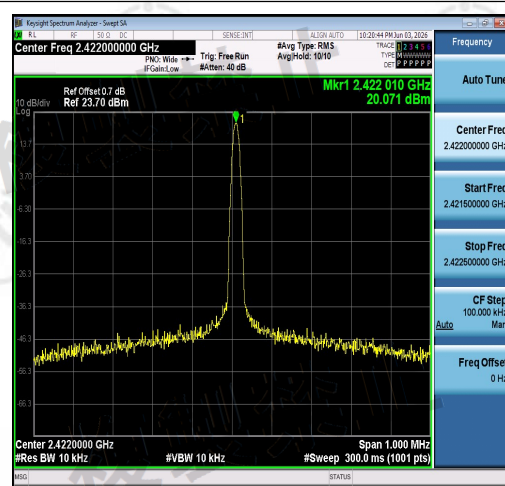
Test Result

TestCondition	TestMode	Antenna	Frequency[MHz]	CenterFreq[MHz]	Result[ppm]	Limit[ppm]	Verdict
NTNV	CW	Ant1	2412	2412.014	5.80431	±50	PASS
NTNV	CW	Ant1	2422	2422.01	4.12882	±50	PASS
NTNV	CW	Ant1	2442	2442.01	4.09500	±50	PASS
NTNV	CW	Ant1	2462	2462.009	3.65557	±50	PASS
NTNV	CW	Ant1	2472	2472.008	3.23625	±50	PASS

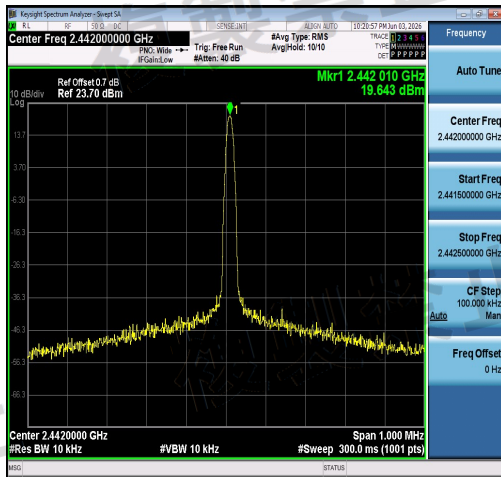
Test Graphs



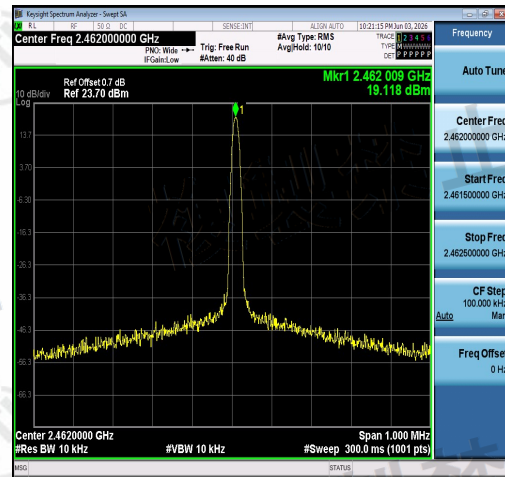
NTNV-CW-Ant1-2412-PASS



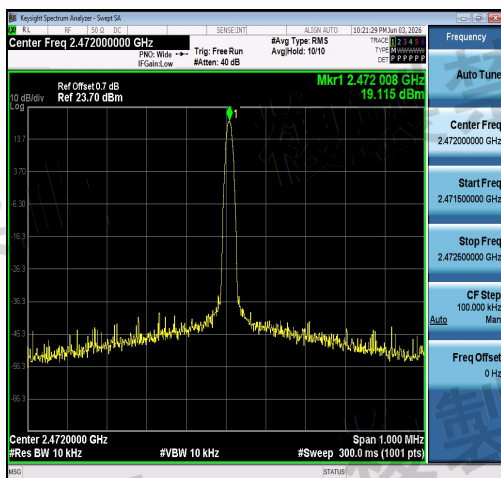
NTNV-CW-Ant1-2422-PASS



NTNV-CW-Ant1-2442-PASS



NTNV-CW-Ant1-2462-PASS



NTNV-CW-Ant1-2472-PASS

Appendix B: Antenna Power

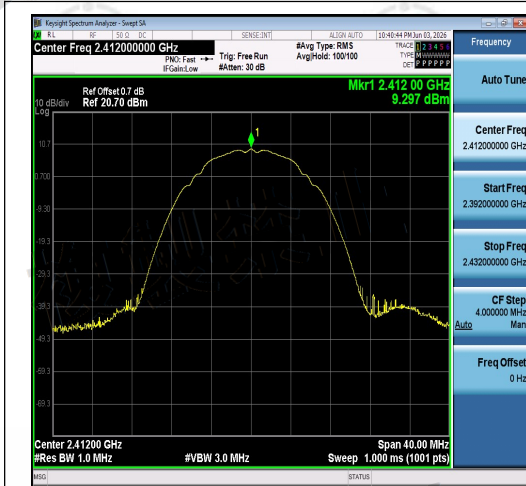
Test Result PSD

Test Mode	Antenna	Frequency [MHz]	Raw (dBm/MHz)	DC Factor [dBm]	Result [dBm/MHz]	Result(mW/MHz)	Limit(mW/MHz)	Verdict
11B	Ant1	2412	3.35	0.00	3.35	2.1627	≤10	PASS
11B	Ant1	2442	3.81	0.00	3.81	2.4044	≤10	PASS
11B	Ant1	2472	3.64	0.00	3.64	2.3121	≤10	PASS
11G	Ant1	2412	-0.23	0.00	-0.23	0.9484	≤10	PASS
11G	Ant1	2442	-1.13	0.00	-1.13	0.7709	≤10	PASS
11G	Ant1	2472	-0.57	0.00	-0.57	0.8770	≤10	PASS
11N20SISO	Ant1	2412	-0.26	0.00	-0.26	0.9419	≤10	PASS
11N20SISO	Ant1	2442	-0.30	0.00	-0.30	0.9333	≤10	PASS
11N20SISO	Ant1	2472	-0.27	0.00	-0.27	0.9397	≤10	PASS
11N40SISO	Ant1	2422	-3.00	0.00	-3.00	0.5012	≤5	PASS
11N40SISO	Ant1	2442	-2.79	0.00	-2.79	0.5260	≤5	PASS
11N40SISO	Ant1	2462	-5.31	0.00	-5.31	0.2944	≤5	PASS

Test Condition	Test Mode	Antenna	Frequency[MHz]	Power (mW/MHz)	Rated Power (mW/MHz)	Result (%)	Limit (%)	Verdict
NTNV	11B	Ant1	2412	2.1627	2.5	-13.49	20	PASS
NTNV	11B	Ant1	2442	2.4044	2.5	-3.82	20	PASS
NTNV	11B	Ant1	2472	2.3121	2.5	-7.52	20	PASS
NTNV	11G	Ant1	2412	0.9484	1	-5.16	20	PASS
NTNV	11G	Ant1	2442	0.7709	1	-22.91	20	PASS
NTNV	11G	Ant1	2472	0.8770	1	-12.30	20	PASS
NTNV	11N20SISO	Ant1	2412	0.9419	1	-5.81	20	PASS
NTNV	11N20SISO	Ant1	2442	0.9333	1	-6.67	20	PASS
NTNV	11N20SISO	Ant1	2472	0.9397	1	-6.03	20	PASS
NTNV	11N40SISO	Ant1	2422	0.5012	0.6	-16.47	20	PASS
NTNV	11N40SISO	Ant1	2442	0.5260	0.6	-12.33	20	PASS
NTNV	11N40SISO	Ant1	2462	0.2944	0.6	-50.93	20	PASS

Test Condition	Test Mode	Antenna	Frequency[MHz]	Result(dBm/MHz)	EIRP(dBm/MHz)	Limit(dBm/MHz)	Verdict
NTNV	11B	Ant1	2412	3.35	6.35	≤12.14	PASS
NTNV	11B	Ant1	2442	3.81	6.81	≤12.14	PASS
NTNV	11B	Ant1	2472	3.64	6.64	≤12.14	PASS
NTNV	11G	Ant1	2412	1.37	4.37	≤12.14	PASS
NTNV	11G	Ant1	2442	0.37	3.37	≤12.14	PASS
NTNV	11G	Ant1	2472	0.96	3.96	≤12.14	PASS
NTNV	11N20SISO	Ant1	2412	1.35	4.35	≤12.14	PASS
NTNV	11N20SISO	Ant1	2442	1.31	4.31	≤12.14	PASS
NTNV	11N20SISO	Ant1	2472	1.34	4.34	≤12.14	PASS
NTNV	11N40SISO	Ant1	2422	-0.10	2.90	≤9.13	PASS
NTNV	11N40SISO	Ant1	2442	0.04	3.04	≤9.13	PASS
NTNV	11N40SISO	Ant1	2462	-2.34	0.66	≤9.13	PASS

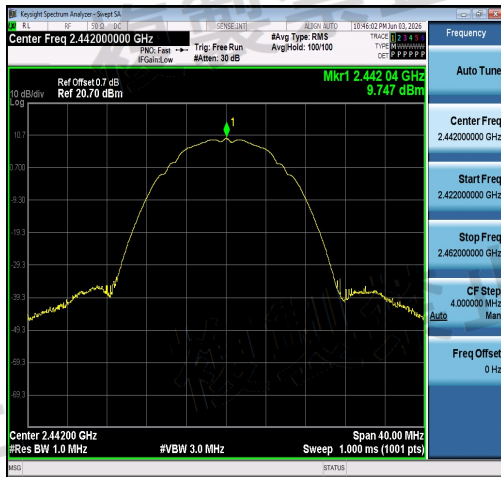
Test Graphs



NTNV-11B-Ant1-2412-PASS



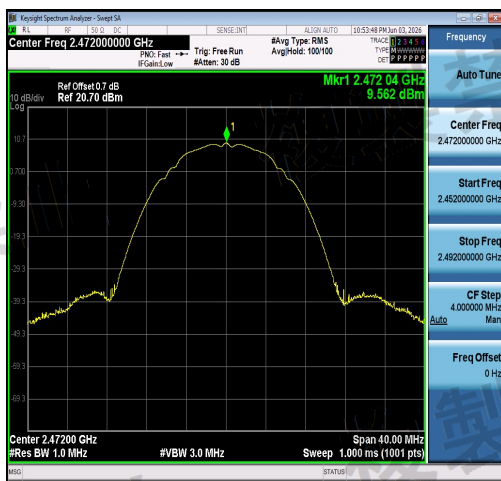
NTNV-11B-Ant1-2412-PASS



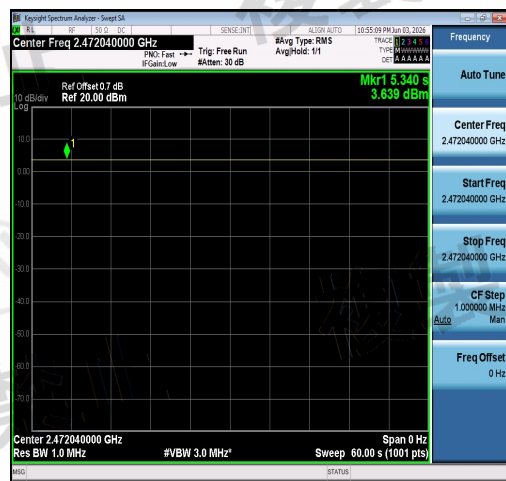
NTNV-11B-Ant1-2442-PASS



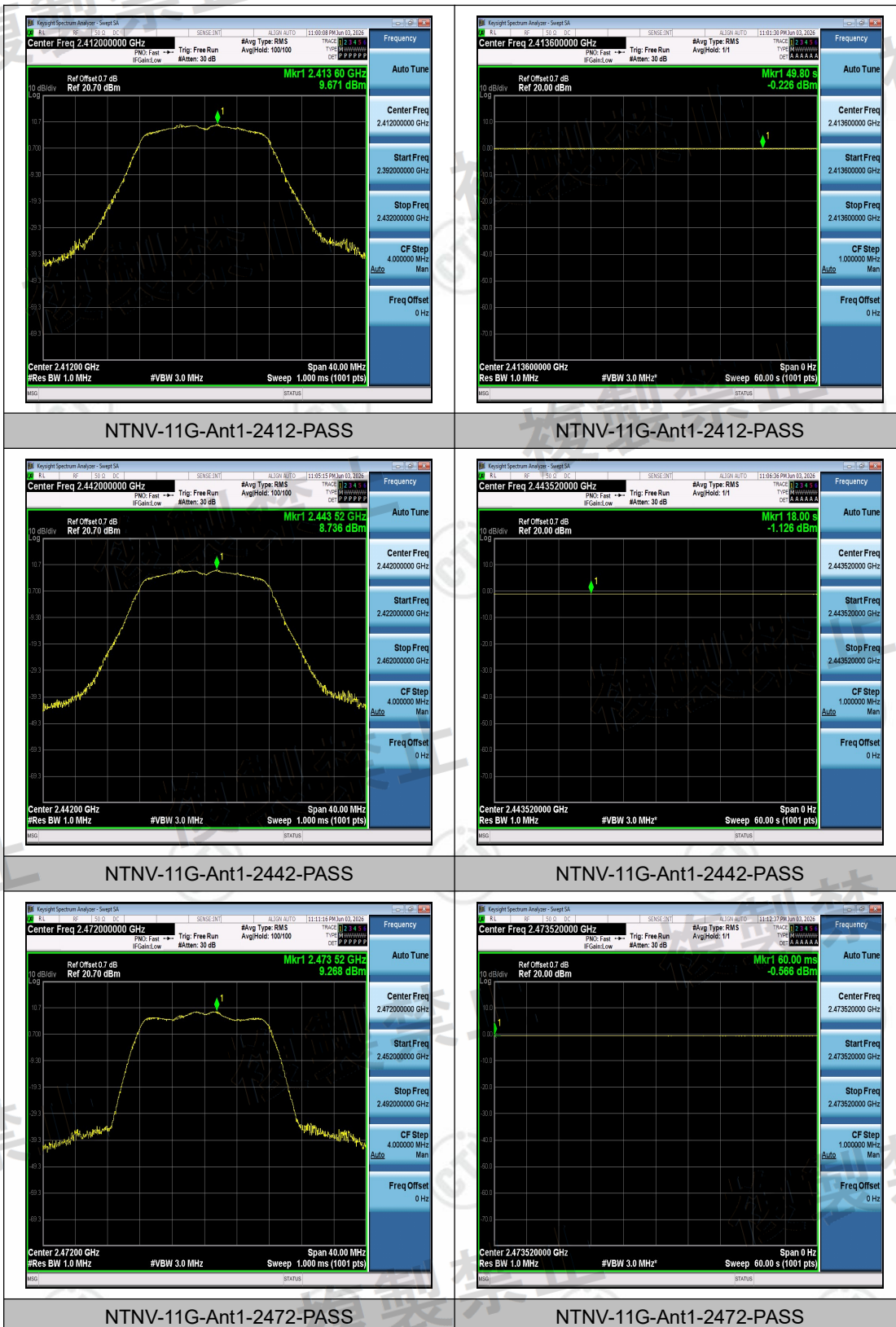
NTNV-11B-Ant1-2442-PASS



NTNV-11B-Ant1-2472-PASS



NTNV-11B-Ant1-2472-PASS



NTNV-11G-Ant1-2412-PASS

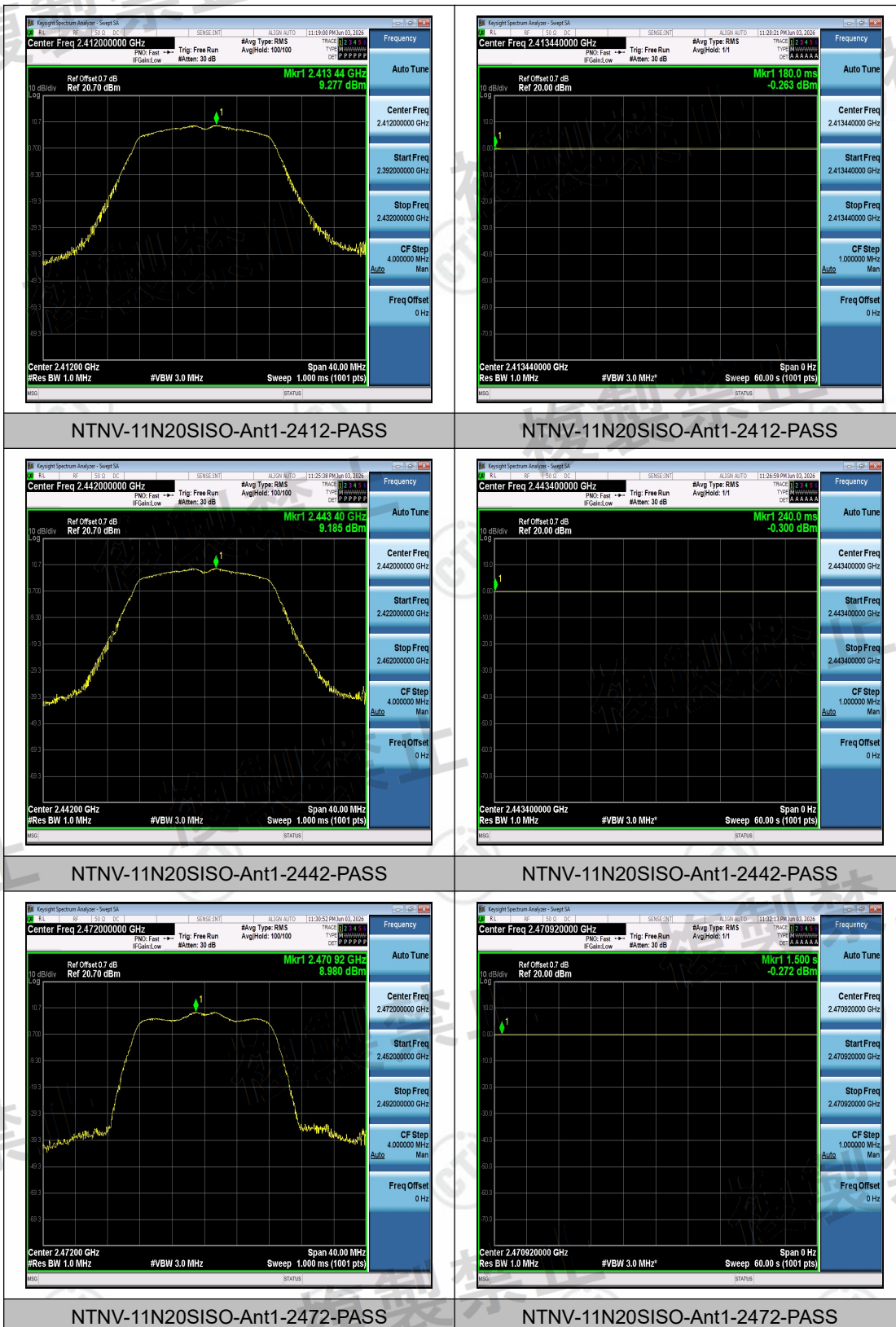
NTNV-11G-Ant1-2412-PASS

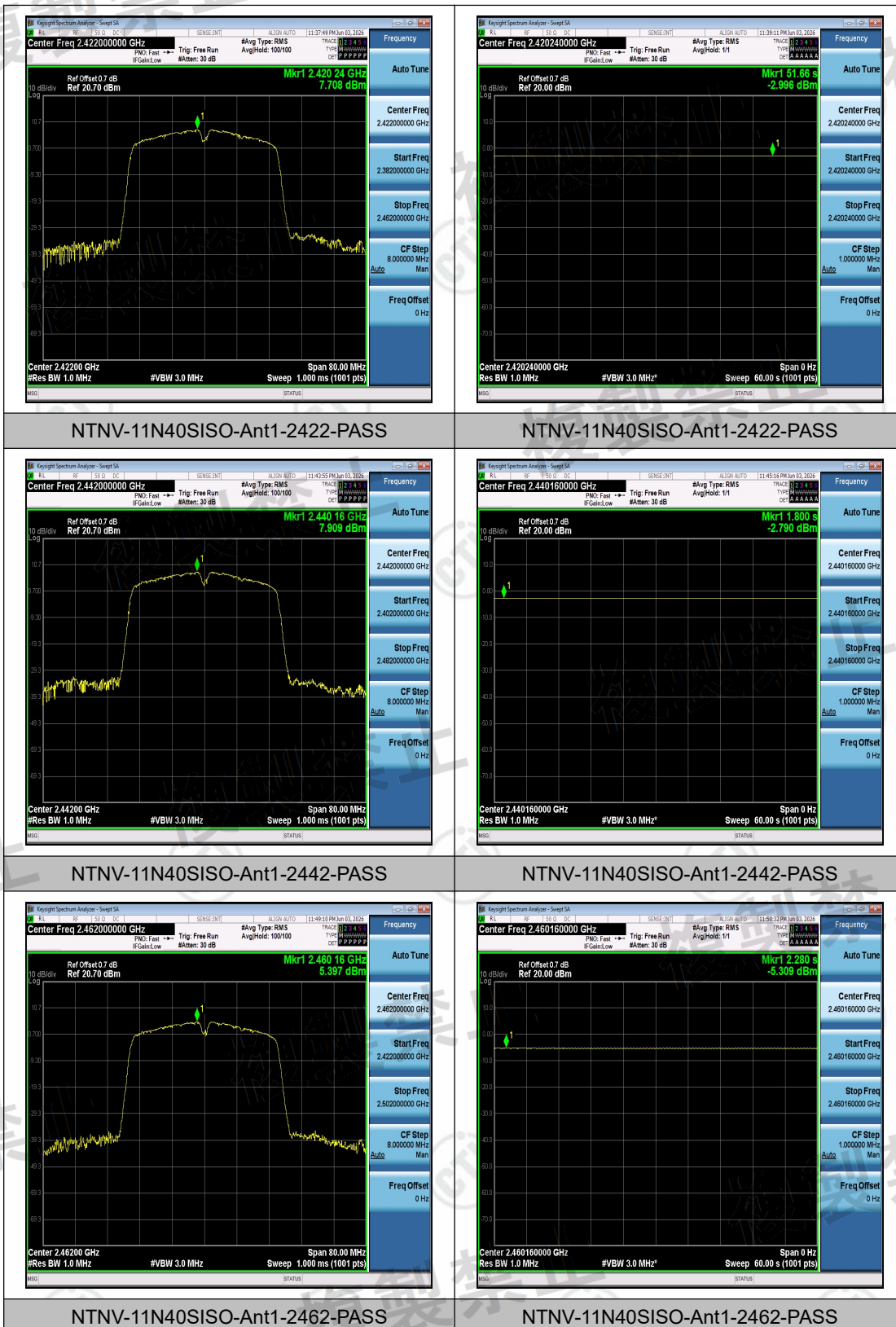
NTNV-11G-Ant1-2442-PASS

NTNV-11G-Ant1-2442-PASS

NTNV-11G-Ant1-2472-PASS

NTNV-11G-Ant1-2472-PASS



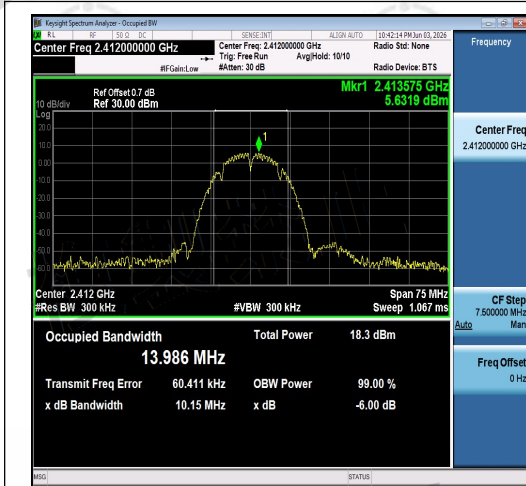


Appendix C: Occupied Bandwidth

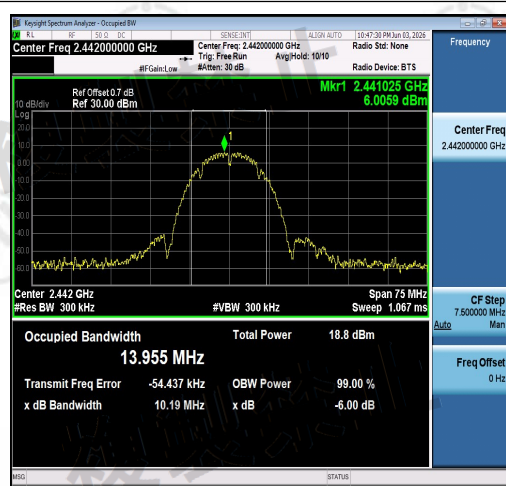
Test Result

Test Condition	TestMode	Antenna	Frequency[MHz]	Result [MHz]	Limit [MHz]	Verdict
NTNV	11B	Ant1	2412	13.986	≤26	PASS
NTNV	11B	Ant1	2442	13.955	≤26	PASS
NTNV	11B	Ant1	2472	13.970	≤26	PASS
NTNV	11G	Ant1	2412	16.387	≤26	PASS
NTNV	11G	Ant1	2442	16.413	≤26	PASS
NTNV	11G	Ant1	2472	16.371	≤26	PASS
NTNV	11N20SISO	Ant1	2412	17.511	≤26	PASS
NTNV	11N20SISO	Ant1	2442	17.526	≤26	PASS
NTNV	11N20SISO	Ant1	2472	17.377	≤26	PASS
NTNV	11N40SISO	Ant1	2422	35.746	26-40	PASS
NTNV	11N40SISO	Ant1	2442	35.608	26-40	PASS
NTNV	11N40SISO	Ant1	2462	35.664	26-40	PASS

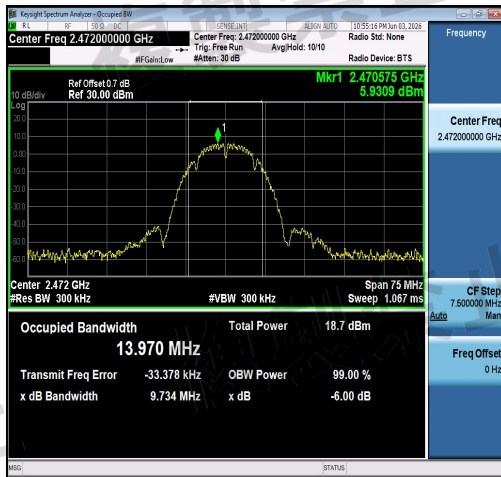
Test Graphs



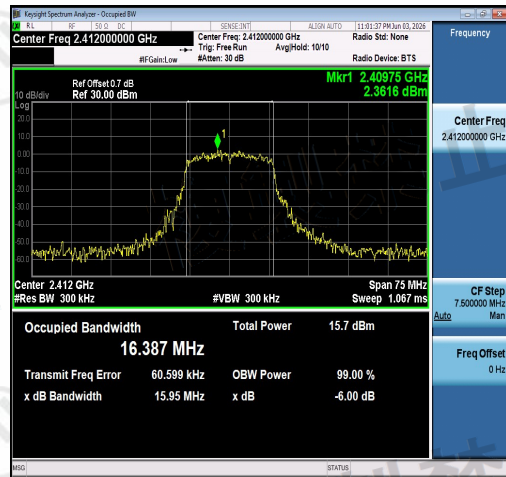
NTNV-11B-Ant1-2412-PASS



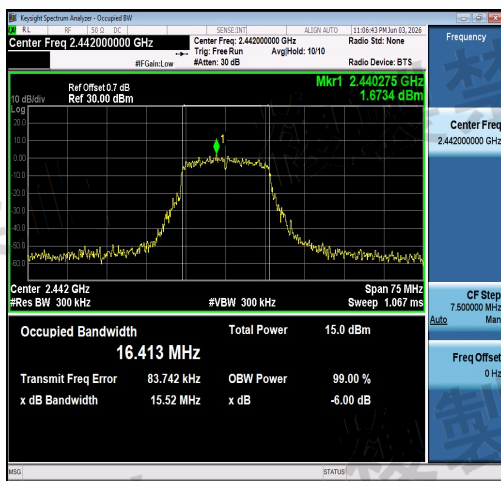
NTNV-11B-Ant1-2442-PASS



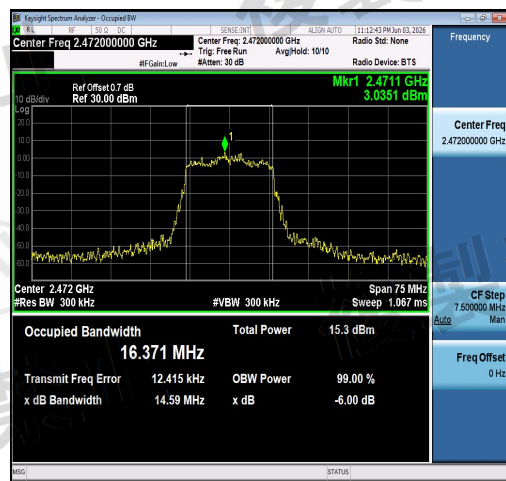
NTNV-11B-Ant1-2472-PASS



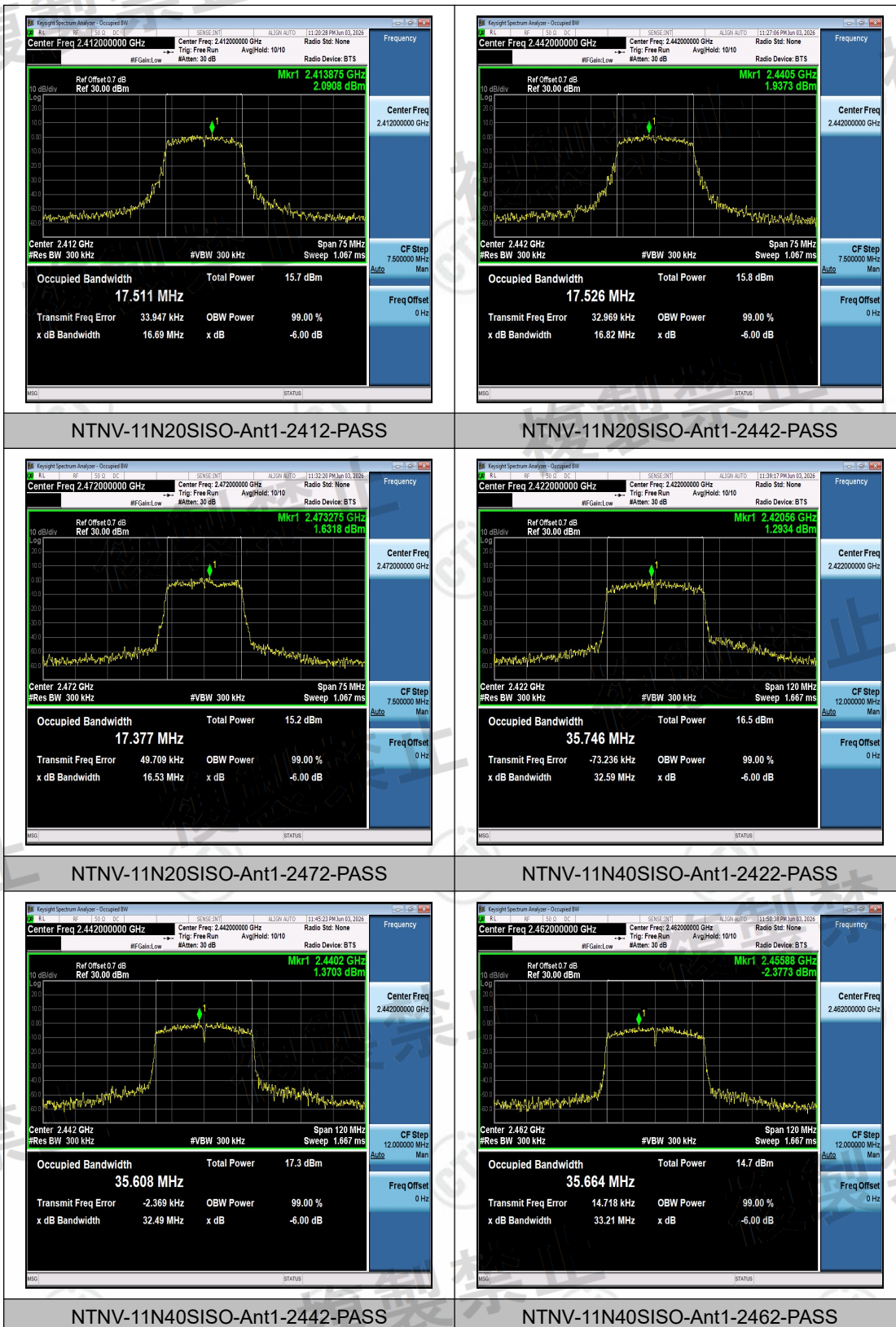
NTNV-11G-Ant1-2412-PASS



NTNV-11G-Ant1-2442-PASS



NTNV-11G-Ant1-2472-PASS



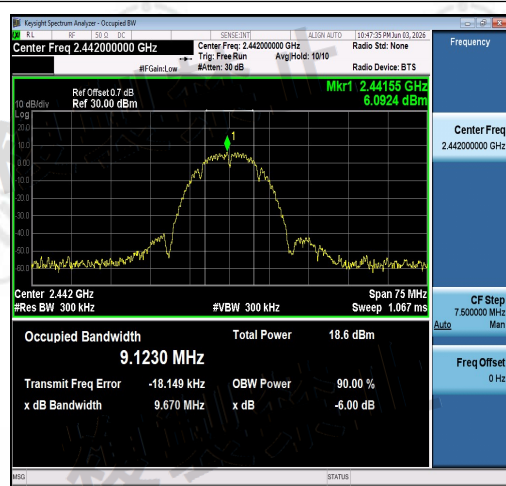
Appendix D: Spread Bandwidth**Test Result**

TestCondition	TestMode	Antenna	Frequency[MHz]	Result [MHz]
NTNV	11B	Ant1	2412	9.117
NTNV	11B	Ant1	2442	9.123
NTNV	11B	Ant1	2472	9.143
NTNV	11G	Ant1	2412	13.821
NTNV	11G	Ant1	2442	13.864
NTNV	11G	Ant1	2472	14.297
NTNV	11N20SISO	Ant1	2412	14.398
NTNV	11N20SISO	Ant1	2442	14.363
NTNV	11N20SISO	Ant1	2472	14.524
NTNV	11N40SISO	Ant1	2422	29.061
NTNV	11N40SISO	Ant1	2442	29.833
NTNV	11N40SISO	Ant1	2462	29.843

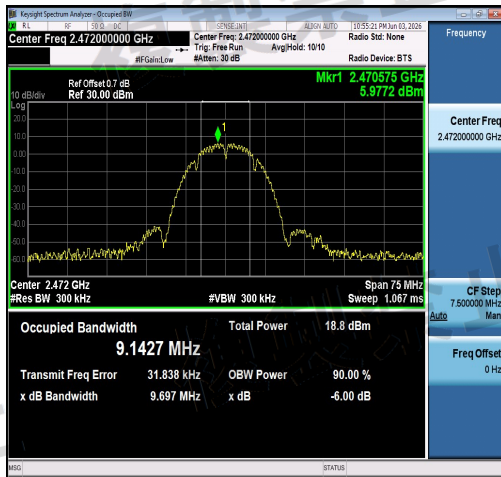
Test Graphs



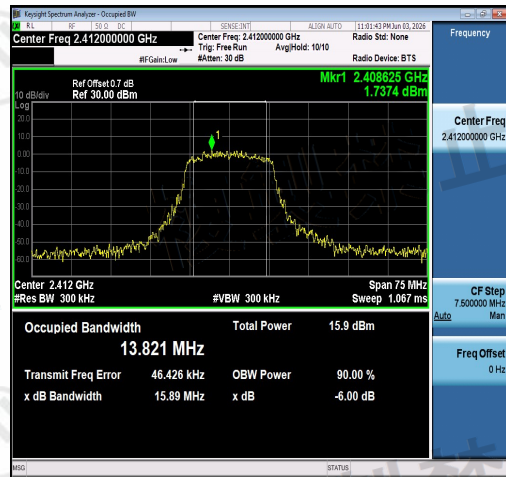
NTNV-11B-Ant1-2412-PASS



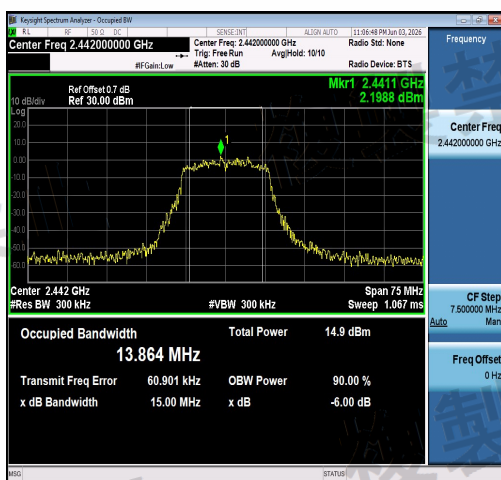
NTNV-11B-Ant1-2442-PASS



NTNV-11B-Ant1-2472-PASS



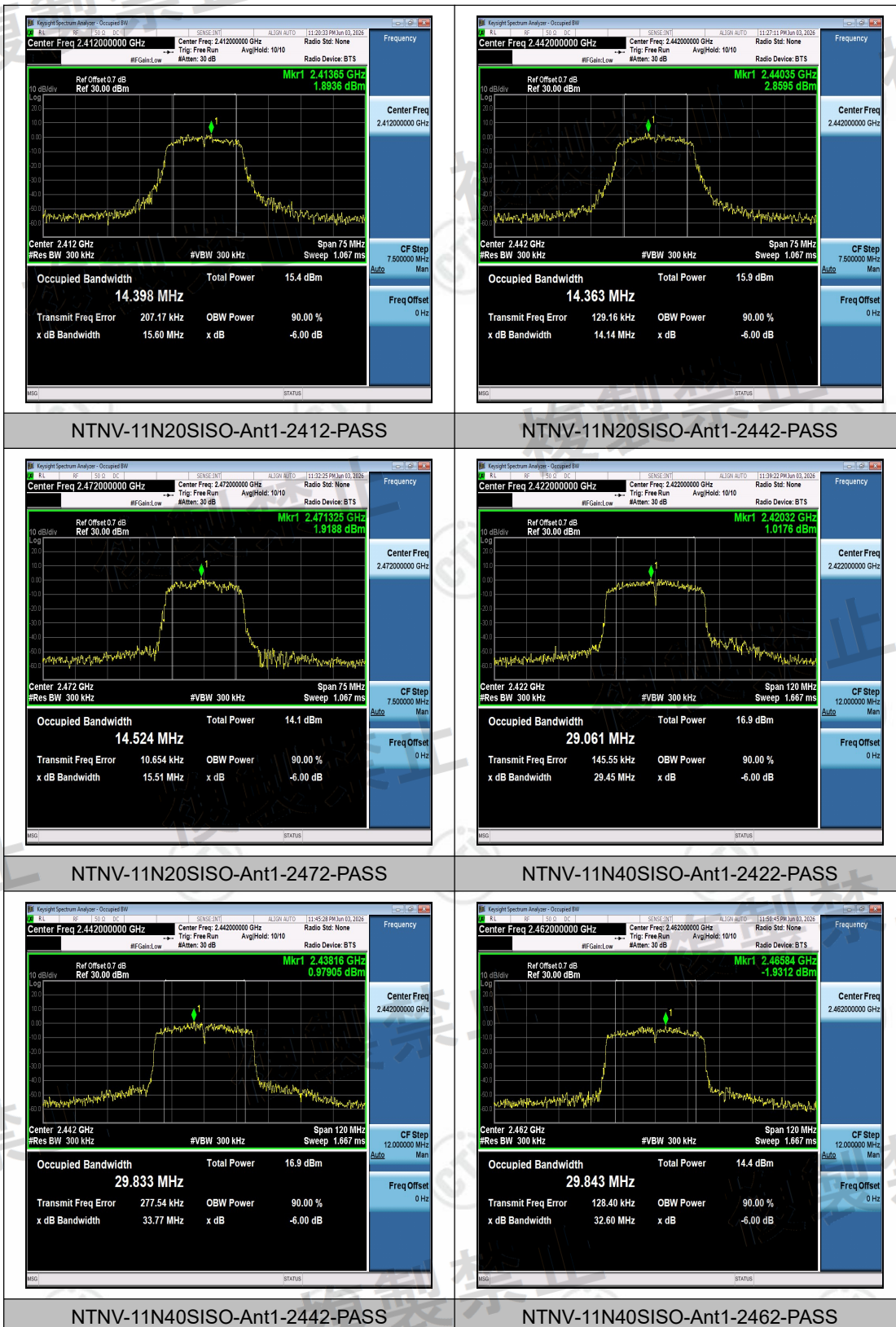
NTNV-11G-Ant1-2412-PASS



NTNV-11G-Ant1-2442-PASS



NTNV-11G-Ant1-2472-PASS



Appendix E: Unwanted Emission Strength

Test Result

Test Condition	TestMode	Antenna	Frequency [MHz]	Freq.Range [MHz]	Result [MHz]	Result [dBm/MHz]	Result [μ W/MHz]	Limit [μ W/MHz]	Verdict
NTNV	11B	Ant1	2412	30~1000	639.89	-57.61	0.00173	≤ 2.5	PASS
NTNV	11B	Ant1	2412	1000~2387	2387.00	-47.81	0.01656	≤ 2.5	PASS
NTNV	11B	Ant1	2412	2387~2400	2399.65	-36.07	0.24717	≤ 25	PASS
NTNV	11B	Ant1	2412	2483.5~2496.5	2488.28	-45.87	0.02588	≤ 25	PASS
NTNV	11B	Ant1	2412	2496.5~13000	4824.08	-48.28	0.01486	≤ 2.5	PASS
NTNV	11B	Ant1	2442	30~1000	959.99	-57.63	0.00173	≤ 2.5	PASS
NTNV	11B	Ant1	2442	1000~2387	2360.30	-48.32	0.01472	≤ 2.5	PASS
NTNV	11B	Ant1	2442	2387~2400	2393.19	-45.85	0.02600	≤ 25	PASS
NTNV	11B	Ant1	2442	2483.5~2496.5	2485.10	-46.23	0.02382	≤ 25	PASS
NTNV	11B	Ant1	2442	2496.5~13000	4883.95	-48.90	0.01288	≤ 2.5	PASS
NTNV	11B	Ant1	2472	30~1000	240.01	-56.83	0.00207	≤ 2.5	PASS
NTNV	11B	Ant1	2472	1000~2387	2310.37	-50.34	0.00925	≤ 2.5	PASS
NTNV	11B	Ant1	2472	2387~2400	2390.13	-45.44	0.02858	≤ 25	PASS
NTNV	11B	Ant1	2472	2483.5~2496.5	2483.62	-34.45	0.35892	≤ 25	PASS
NTNV	11B	Ant1	2472	2496.5~13000	4943.82	-46.85	0.02065	≤ 2.5	PASS
NTNV	11G	Ant1	2412	30~1000	959.99	-56.16	0.00242	≤ 2.5	PASS
NTNV	11G	Ant1	2412	1000~2387	2384.92	-44.52	0.03532	≤ 2.5	PASS
NTNV	11G	Ant1	2412	2387~2400	2400.00	-22.23	5.98412	≤ 25	PASS
NTNV	11G	Ant1	2412	2483.5~2496.5	2492.72	-44.80	0.03311	≤ 25	PASS
NTNV	11G	Ant1	2412	2496.5~13000	2509.10	-48.47	0.01422	≤ 2.5	PASS
NTNV	11G	Ant1	2442	30~1000	959.99	-56.23	0.00238	≤ 2.5	PASS
NTNV	11G	Ant1	2442	1000~2387	2384.57	-47.19	0.01910	≤ 2.5	PASS
NTNV	11G	Ant1	2442	2387~2400	2394.53	-43.87	0.04102	≤ 25	PASS
NTNV	11G	Ant1	2442	2483.5~2496.5	2486.52	-44.69	0.03396	≤ 25	PASS
NTNV	11G	Ant1	2442	2496.5~13000	2498.08	-49.01	0.01256	≤ 2.5	PASS
NTNV	11G	Ant1	2472	30~1000	159.98	-56.08	0.00247	≤ 2.5	PASS
NTNV	11G	Ant1	2472	1000~2387	2385.96	-47.90	0.01622	≤ 2.5	PASS
NTNV	11G	Ant1	2472	2387~2400	2397.16	-43.70	0.04266	≤ 25	PASS
NTNV	11G	Ant1	2472	2483.5~2496.5	2483.52	-32.16	0.60814	≤ 25	PASS
NTNV	11G	Ant1	2472	2496.5~13000	2497.03	-46.88	0.02051	≤ 2.5	PASS
NTNV	11N20SISO	Ant1	2412	30~1000	159.98	-55.37	0.00290	≤ 2.5	PASS
NTNV	11N20SISO	Ant1	2412	1000~2387	2382.49	-45.08	0.03105	≤ 2.5	PASS
NTNV	11N20SISO	Ant1	2412	2387~2400	2399.99	-19.02	12.5314 1	≤ 25	PASS
NTNV	11N20SISO	Ant1	2412	2483.5~2496.5	2488.80	-44.27	0.03741	≤ 25	PASS

NTNV	11N20SISO	Ant1	2412	2496.5~13000	2500.70	-49.81	0.01045	≤2.5	PASS
NTNV	11N20SISO	Ant1	2442	30~1000	159.98	-55.33	0.00293	≤2.5	PASS
NTNV	11N20SISO	Ant1	2442	1000~2387	2385.61	-46.82	0.02080	≤2.5	PASS
NTNV	11N20SISO	Ant1	2442	2387~2400	2398.22	-43.50	0.04467	≤25	PASS
NTNV	11N20SISO	Ant1	2442	2483.5~2496.5	2488.24	-44.03	0.03954	≤25	PASS
NTNV	11N20SISO	Ant1	2442	2496.5~13000	2498.60	-48.70	0.01349	≤2.5	PASS
NTNV	11N20SISO	Ant1	2472	30~1000	159.98	-55.35	0.00292	≤2.5	PASS
NTNV	11N20SISO	Ant1	2472	1000~2387	2381.45	-47.49	0.01782	≤2.5	PASS
NTNV	11N20SISO	Ant1	2472	2387~2400	2394.29	-43.87	0.04102	≤25	PASS
NTNV	11N20SISO	Ant1	2472	2483.5~2496.5	2483.50	-31.21	0.75683	≤25	PASS
NTNV	11N20SISO	Ant1	2472	2496.5~13000	2500.18	-47.02	0.01986	≤2.5	PASS
NTNV	11N40SISO	Ant1	2422	30~1000	639.89	-56.41	0.00229	≤2.5	PASS
NTNV	11N40SISO	Ant1	2422	1000~2387	2386.65	-36.52	0.22284	≤2.5	PASS
NTNV	11N40SISO	Ant1	2422	2387~2400	2397.45	-32.86	0.51761	≤25	PASS
NTNV	11N40SISO	Ant1	2422	2483.5~2496.5	2485.80	-43.72	0.04246	≤25	PASS
NTNV	11N40SISO	Ant1	2422	2496.5~13000	2498.60	-48.90	0.01288	≤2.5	PASS
NTNV	11N40SISO	Ant1	2442	30~1000	639.89	-55.74	0.00267	≤2.5	PASS
NTNV	11N40SISO	Ant1	2442	1000~2387	2381.11	-46.09	0.02460	≤2.5	PASS
NTNV	11N40SISO	Ant1	2442	2387~2400	2399.12	-36.68	0.21478	≤25	PASS
NTNV	11N40SISO	Ant1	2442	2483.5~2496.5	2483.56	-36.15	0.24266	≤25	PASS
NTNV	11N40SISO	Ant1	2442	2496.5~13000	2500.70	-46.03	0.02495	≤2.5	PASS
NTNV	11N40SISO	Ant1	2462	30~1000	159.98	-55.75	0.00266	≤2.5	PASS
NTNV	11N40SISO	Ant1	2462	1000~2387	2382.15	-46.94	0.02023	≤2.5	PASS
NTNV	11N40SISO	Ant1	2462	2387~2400	2394.29	-43.73	0.04236	≤25	PASS
NTNV	11N40SISO	Ant1	2462	2483.5~2496.5	2484.77	-35.47	0.28379	≤25	PASS
NTNV	11N40SISO	Ant1	2462	2496.5~13000	2500.70	-41.33	0.07362	≤2.5	PASS

Note:

$\text{dBm}/1\text{MHz} = \text{dBm}/100\text{kHz} + 10 \times \log_{10} (1\text{MHz}/100\text{KHz})$

$\text{dBm}/1\text{MHz} = \text{dBm}/100\text{kHz} + 10$

During the 30M-1000M testing process, a 10 dB factor was added for the test.

Test Graphs

