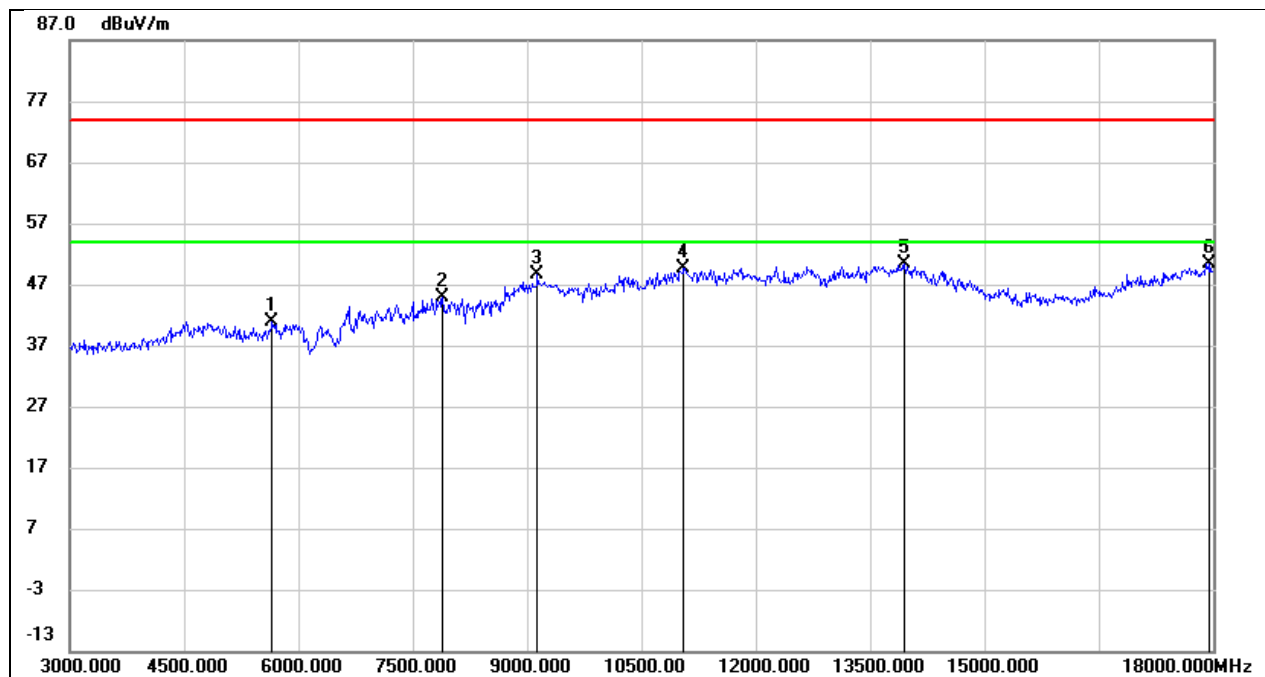
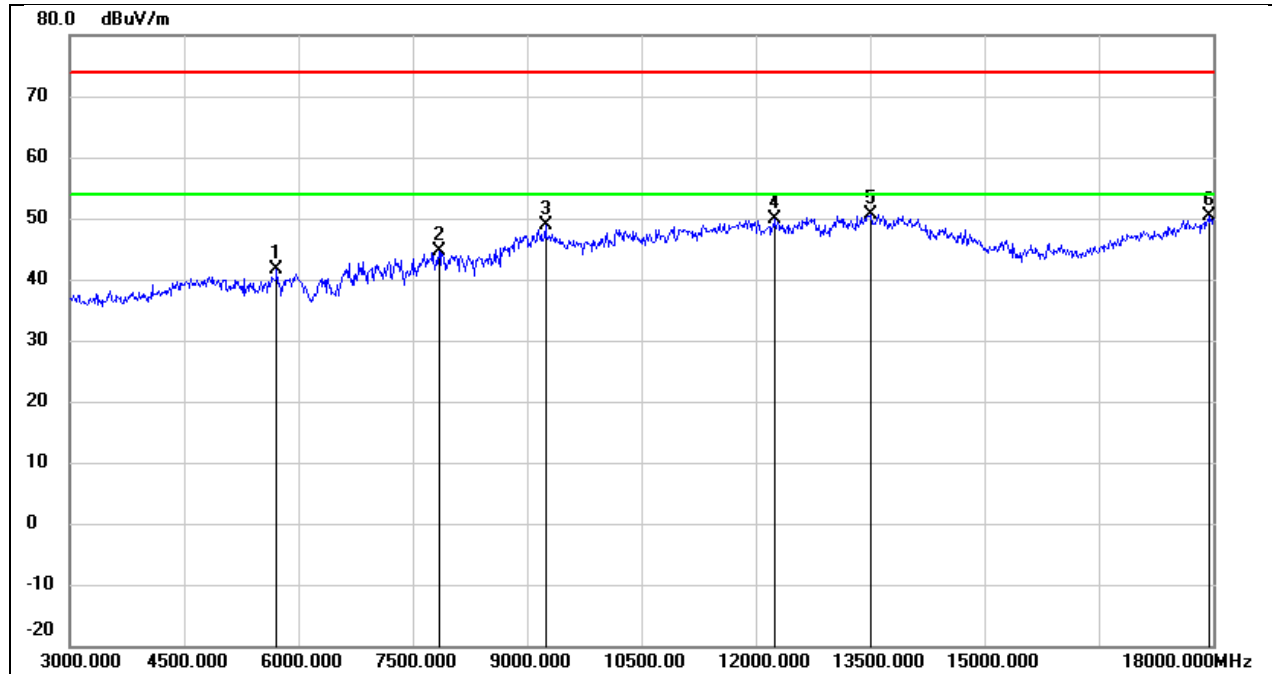


Test Mode:	802.11ax HE40	Frequency(MHz):	2452
Polarity:	Horizontal	Test Voltage:	DC 48 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5655.000	39.66	1.29	40.95	74.00	-33.05	peak
2	7890.000	38.57	6.31	44.88	74.00	-29.12	peak
3	9135.000	38.20	10.55	48.75	74.00	-25.25	peak
4	11055.000	34.74	14.96	49.70	74.00	-24.30	peak
5	13950.000	28.52	21.86	50.38	74.00	-23.62	peak
6	17955.000	24.93	25.42	50.35	74.00	-23.65	peak

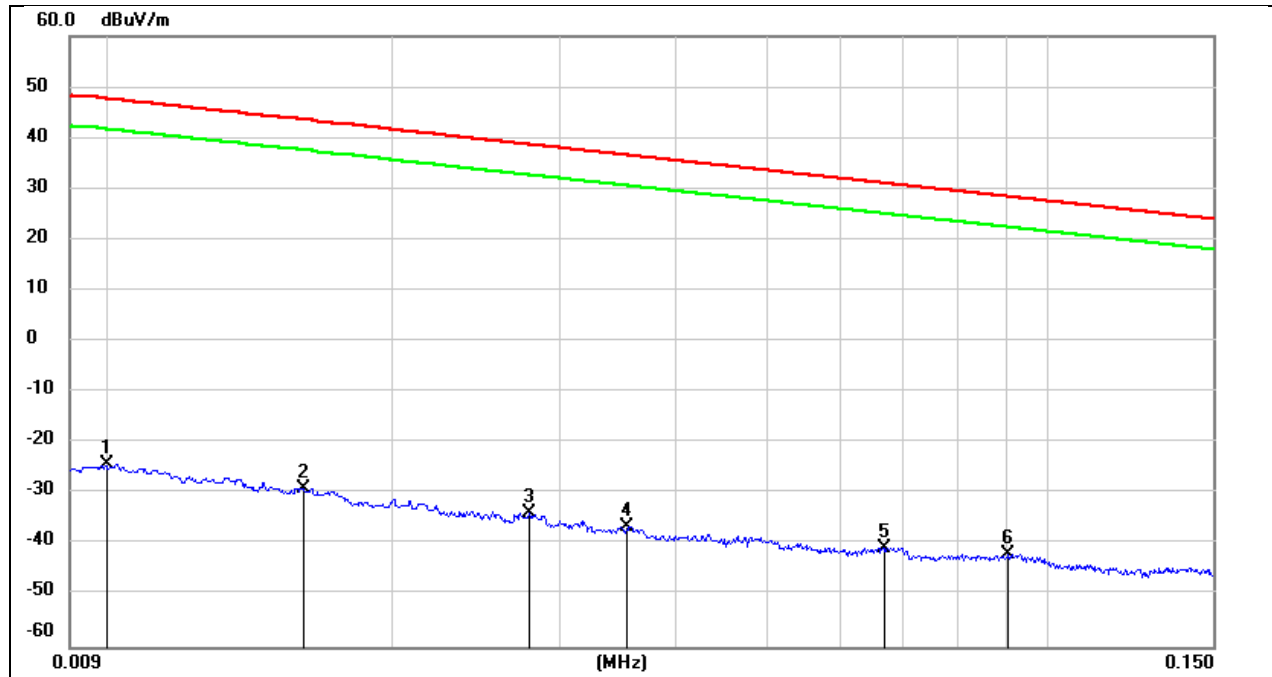
Test Mode:	802.11ax HE40	Frequency(MHz):	2452
Polarity:	Vertical	Test Voltage:	DC 48 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5715.000	40.05	1.46	41.51	74.00	-32.49	peak
2	7845.000	38.28	6.32	44.60	74.00	-29.40	peak
3	9240.000	38.18	10.58	48.76	74.00	-25.24	peak
4	12240.000	31.99	17.79	49.78	74.00	-24.22	peak
5	13500.000	29.84	20.90	50.74	74.00	-23.26	peak
6	17955.000	24.98	25.42	50.40	74.00	-23.60	peak

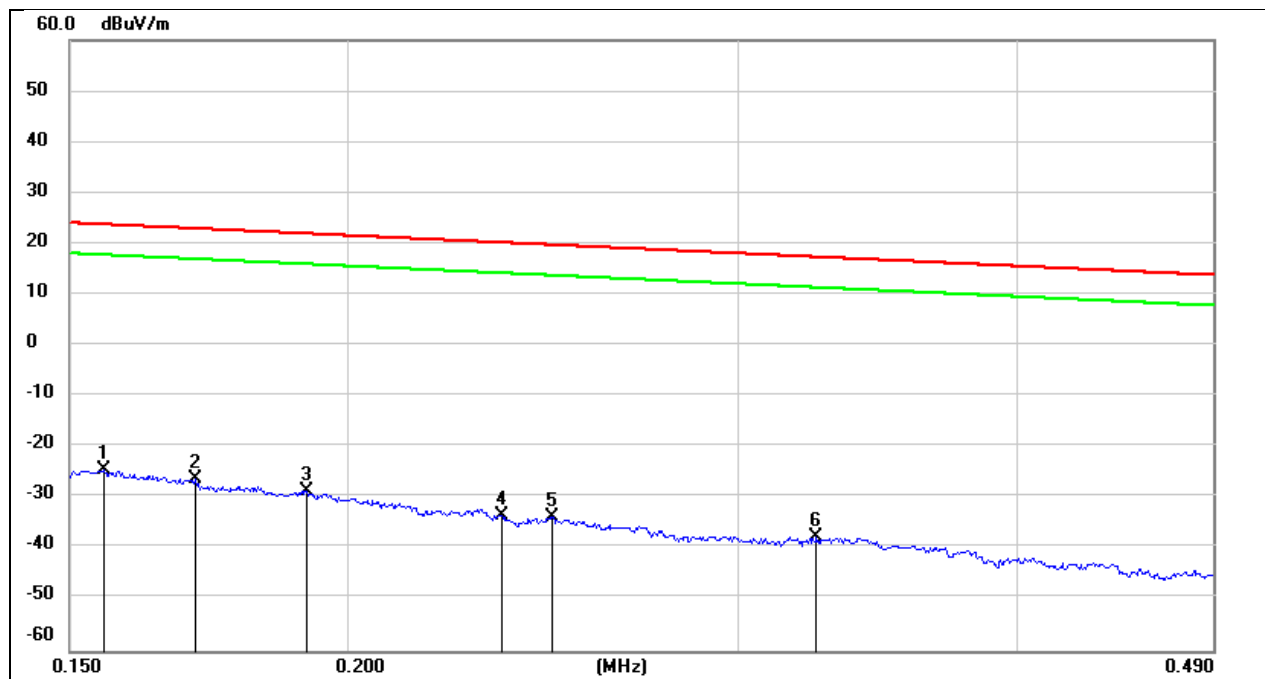
8.7. SPURIOUS EMISSIONS(9 KHZ~30 MHZ) WORST CASE

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 48 V



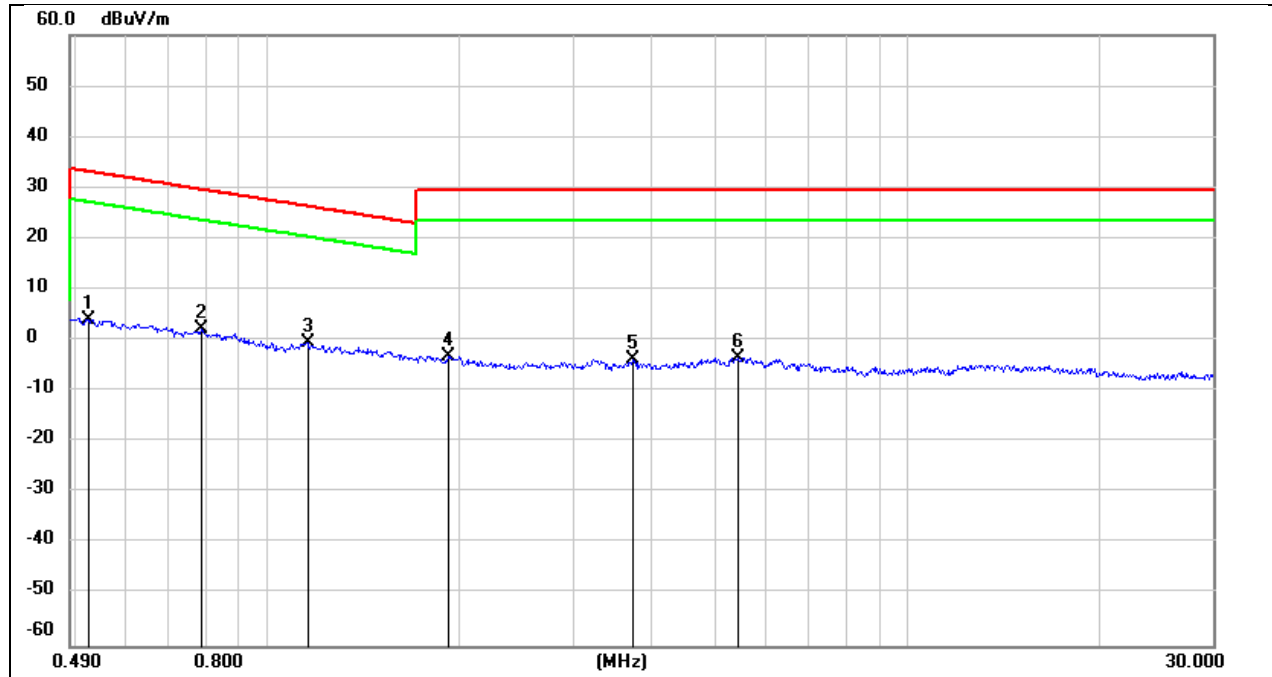
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0100	77.35	-101.40	-24.05	47.60	-71.65	peak
2	0.0160	72.47	-101.37	-28.90	43.52	-72.42	peak
3	0.0279	67.67	-101.38	-33.71	38.69	-72.40	peak
4	0.0354	64.97	-101.41	-36.44	36.62	-73.06	peak
5	0.0666	60.93	-101.55	-40.62	31.13	-71.75	peak
6	0.0908	59.88	-101.72	-41.84	28.44	-70.28	peak

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 48 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1554	77.27	-101.65	-24.38	23.77	-48.15	peak
2	0.1708	75.43	-101.67	-26.24	22.96	-49.20	peak
3	0.1917	73.04	-101.70	-28.66	21.95	-50.61	peak
4	0.2346	68.35	-101.77	-33.42	20.19	-53.61	peak
5	0.2472	67.95	-101.80	-33.85	19.74	-53.59	peak
6	0.3251	64.21	-101.88	-37.67	17.36	-55.03	peak

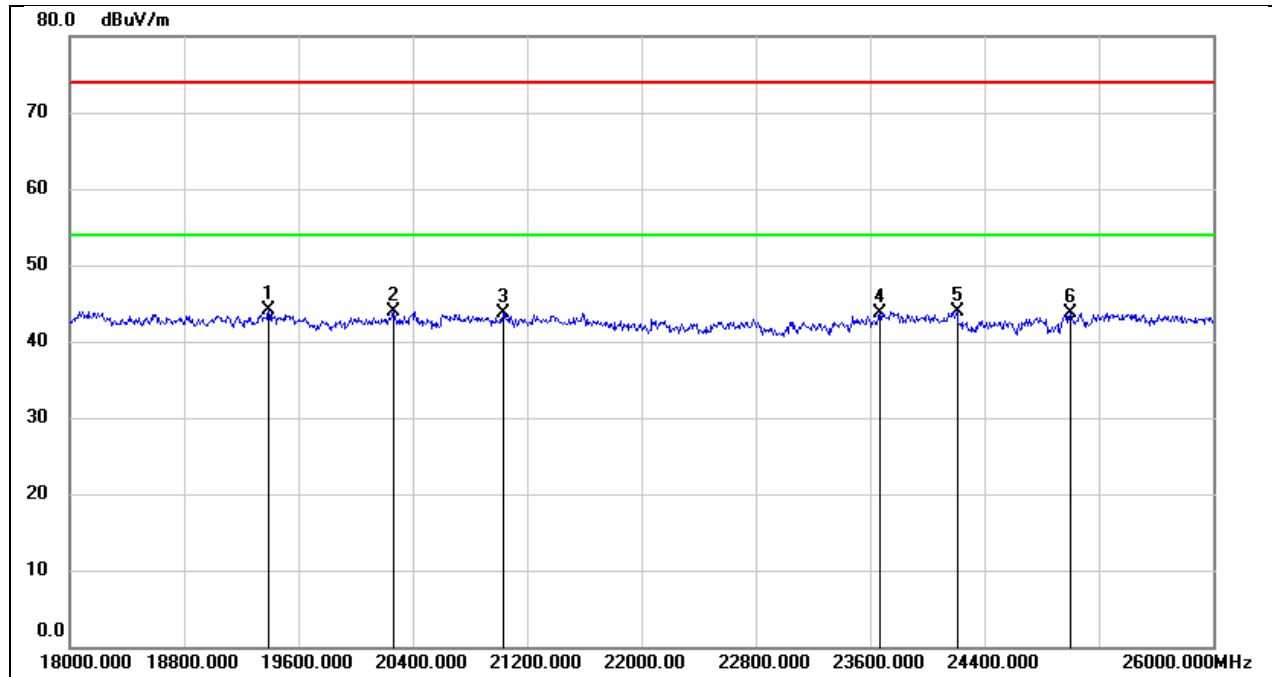
Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 48 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.5252	66.06	-62.07	3.99	33.20	-29.21	peak
2	0.7861	64.33	-62.14	2.19	29.69	-27.50	peak
3	1.1531	61.75	-62.20	-0.45	26.37	-26.82	peak
4	1.9128	58.73	-61.87	-3.14	29.54	-32.68	peak
5	3.7100	57.70	-61.41	-3.71	29.54	-33.25	peak
6	5.4477	57.91	-61.42	-3.51	29.54	-33.05	peak

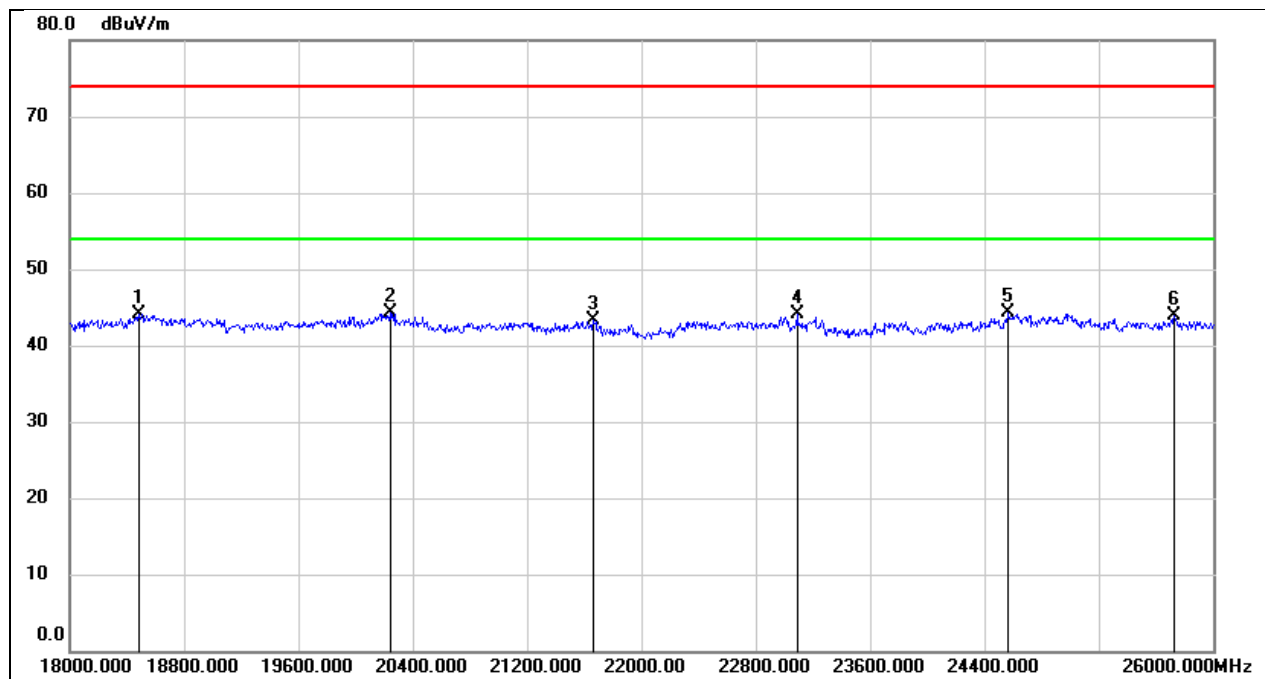
8.8. SPURIOUS EMISSIONS(18 GHZ~26 GHZ) WORST CASE

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 48 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19392.000	49.62	-5.57	44.05	74.00	-29.95	peak
2	20264.000	49.47	-5.60	43.87	74.00	-30.13	peak
3	21032.000	48.65	-4.87	43.78	74.00	-30.22	peak
4	23664.000	46.82	-3.18	43.64	74.00	-30.36	peak
5	24208.000	46.71	-2.81	43.90	74.00	-30.10	peak
6	25000.000	45.86	-2.10	43.76	74.00	-30.24	peak

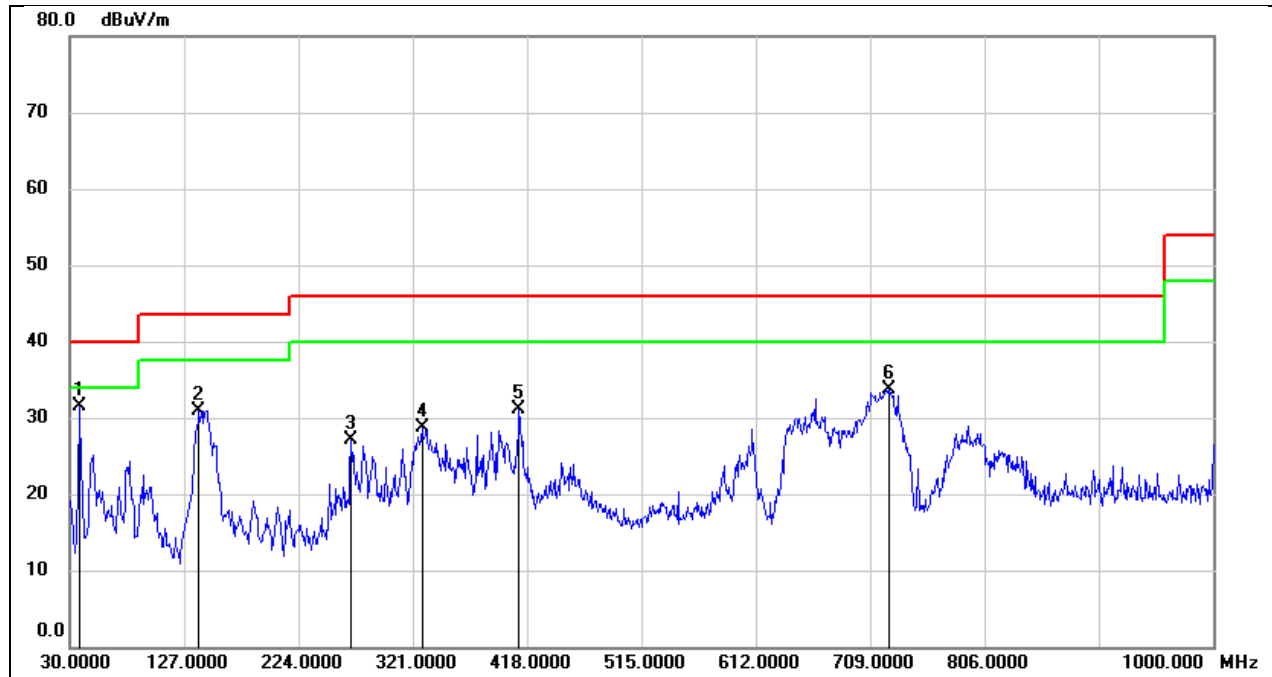
Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Vertical	Test Voltage:	DC 48 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18480.000	49.34	-5.28	44.06	74.00	-29.94	peak
2	20240.000	49.82	-5.61	44.21	74.00	-29.79	peak
3	21664.000	47.73	-4.45	43.28	74.00	-30.72	peak
4	23088.000	47.52	-3.41	44.11	74.00	-29.89	peak
5	24568.000	46.60	-2.33	44.27	74.00	-29.73	peak
6	25728.000	44.61	-0.72	43.89	74.00	-30.11	peak

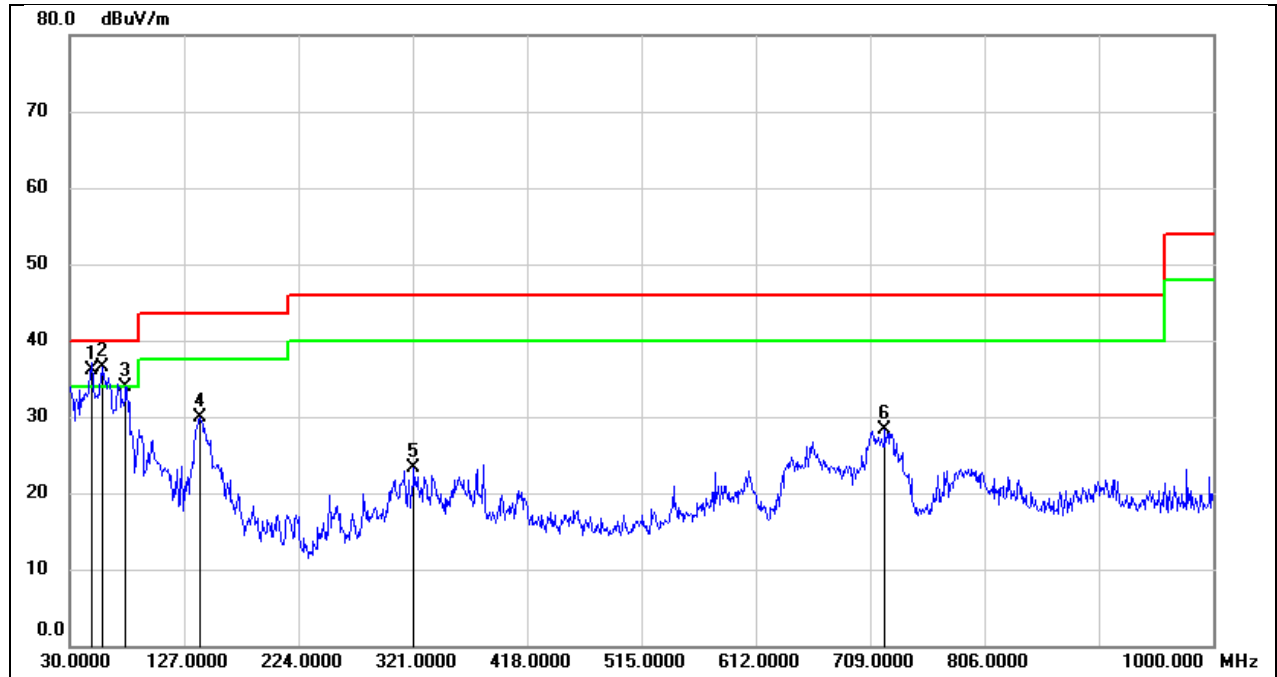
8.9. SPURIOUS EMISSIONS(30 MHZ~1 GHZ) WORST CASE

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 48 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	37.7599	50.92	-19.44	31.48	40.00	-8.52	QP
2	139.6100	49.87	-18.87	31.00	43.50	-12.50	QP
3	268.6200	44.70	-17.61	27.09	46.00	-18.91	QP
4	328.7600	42.63	-13.91	28.72	46.00	-17.28	QP
5	411.2100	43.69	-12.65	31.04	46.00	-14.96	QP
6	724.5200	41.22	-7.50	33.72	46.00	-12.28	QP

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Vertical	Test Voltage:	DC 48 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	48.4300	56.55	-20.44	36.11	40.00	-3.89	QP
2	58.1300	56.79	-20.35	36.44	40.00	-3.56	QP
3	77.5300	55.21	-21.34	33.87	40.00	-6.13	QP
4	140.5800	48.67	-18.83	29.84	43.50	-13.66	QP
5	321.9700	37.51	-14.16	23.35	46.00	-22.65	QP
6	721.6100	35.81	-7.52	28.29	46.00	-17.71	QP

9. ANTENNA REQUIREMENT

REQUIREMENT

Please refer to FCC part 15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC part 15.247(b)(4)

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DESCRIPTION

Pass

10. AC POWER LINE CONDUCTED EMISSION

LIMITS

Please refer to CFR 47 FCC §15.207 (a).

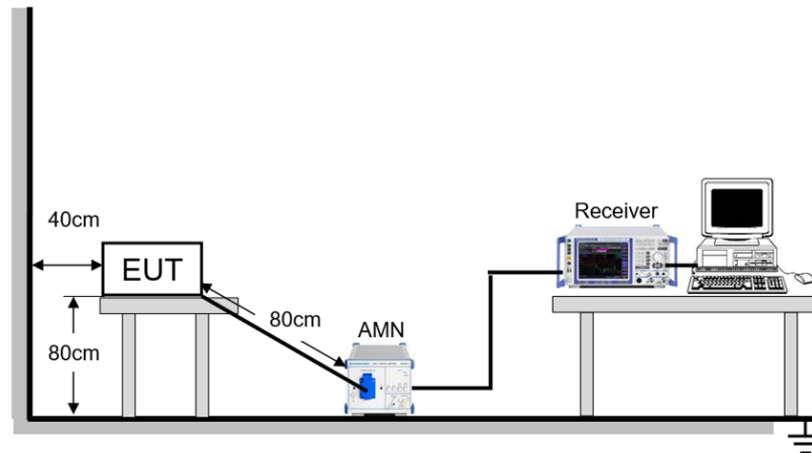
FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

TEST PROCEDURE

The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

TEST SETUP



TEST ENVIRONMENT

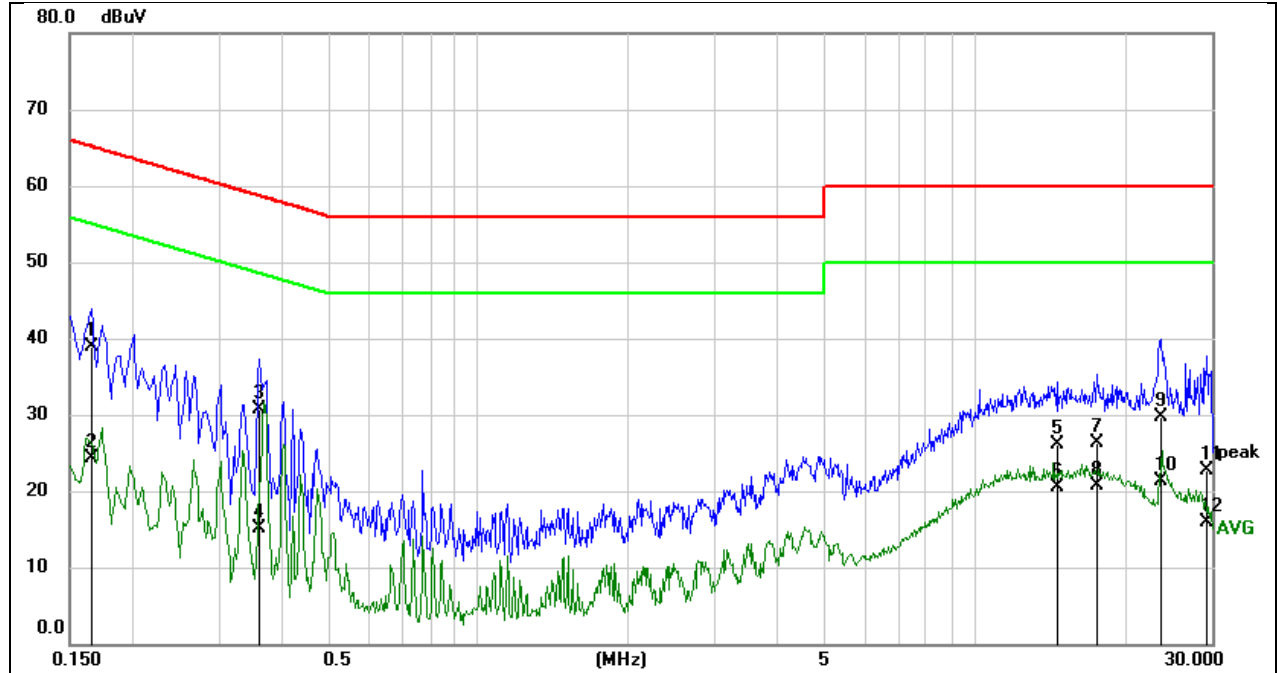
Temperature	24.3°C	Relative Humidity	58.2%
Atmosphere Pressure	101kPa	Test Voltage	AC 120 V, 60 Hz

TEST DATE / ENGINEER

Test Date	November 21, 2023	Test By	Wite Chen
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TEST RESULTS

Test Mode:	802.11b	Frequency(MHz):	2412
Line:	Line		



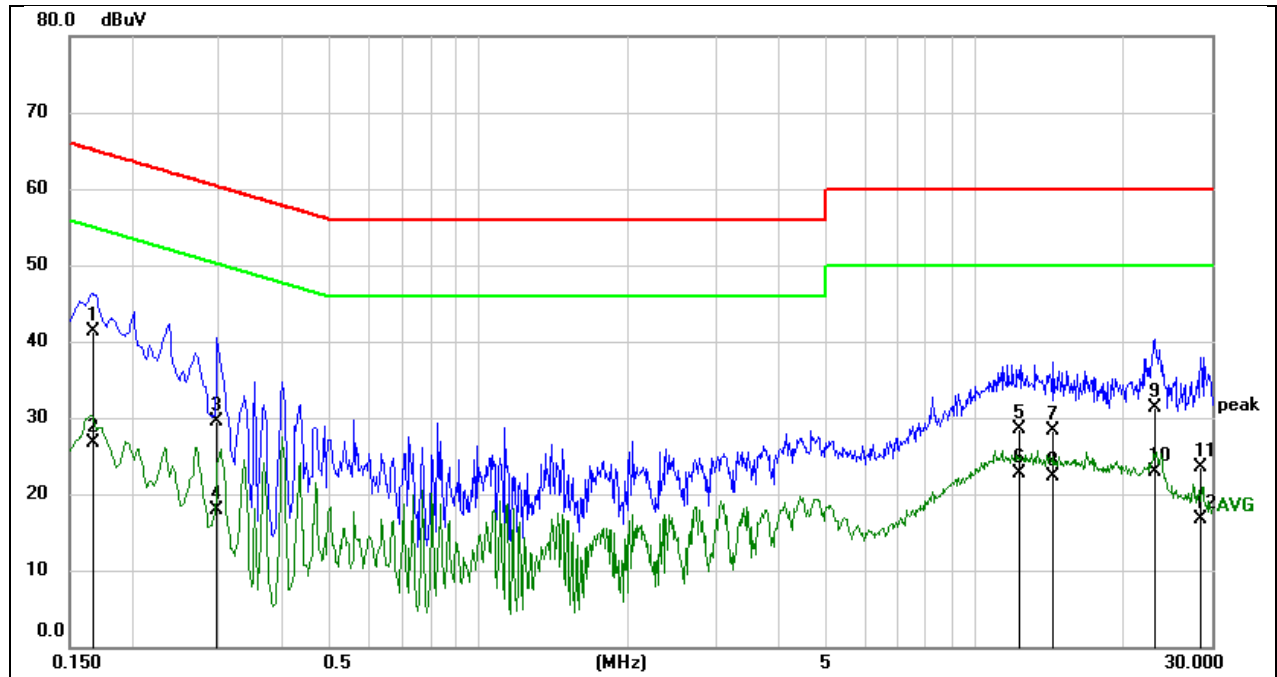
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1651	29.33	9.52	38.85	65.20	-26.35	QP
2	0.1651	14.74	9.52	24.26	55.20	-30.94	AVG
3	0.3599	21.16	9.54	30.70	58.73	-28.03	QP
4	0.3599	5.54	9.54	15.08	48.73	-33.65	AVG
5	14.6564	16.41	9.66	26.07	60.00	-33.93	QP
6	14.6564	10.86	9.66	20.52	50.00	-29.48	AVG
7	17.7125	16.68	9.70	26.38	60.00	-33.62	QP
8	17.7125	11.07	9.70	20.77	50.00	-29.23	AVG
9	23.7363	20.09	9.71	29.80	60.00	-30.20	QP
10	23.7363	11.59	9.71	21.30	50.00	-28.70	AVG
11	29.2996	13.02	9.71	22.73	60.00	-37.27	QP
12	29.2996	6.10	9.71	15.81	50.00	-34.19	AVG

Note:

1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.

Test Mode:	802.11b	Frequency(MHz):	2412
Line:	Neutral		



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1675	31.80	9.53	41.33	65.08	-23.75	QP
2	0.1675	17.19	9.53	26.72	55.08	-28.36	AVG
3	0.2959	19.93	9.56	29.49	60.36	-30.87	QP
4	0.2959	8.30	9.56	17.86	50.36	-32.50	AVG
5	12.3356	18.75	9.66	28.41	60.00	-31.59	QP
6	12.3356	13.03	9.66	22.69	50.00	-27.31	AVG
7	14.4566	18.55	9.66	28.21	60.00	-31.79	QP
8	14.4566	12.60	9.66	22.26	50.00	-27.74	AVG
9	23.1295	21.63	9.73	31.36	60.00	-28.64	QP
10	23.1295	13.19	9.73	22.92	50.00	-27.08	AVG
11	28.5324	13.70	9.72	23.42	60.00	-36.58	QP
12	28.5324	7.01	9.72	16.73	50.00	-33.27	AVG

Note:

1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.

11. TEST DATA

Horizontal Antenna

Appendix A1: Duty Cycle

Test Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
11B	11.83	12.37	0.9563	95.63	0.19	0.08	0.5
11G	1.965	2.185	0.8993	89.93	0.46	0.51	1
11N20MIMO	5.43	5.651	0.9609	96.09	0.17	0.18	0.5
11N40MIMO	5.429	5.658	0.9595	95.95	0.18	0.18	0.5
11AX20MIMO	5.446	5.675	0.9596	95.96	0.18	0.18	0.5
11AX40MIMO	5.443	5.671	0.9598	95.98	0.18	0.18	0.5

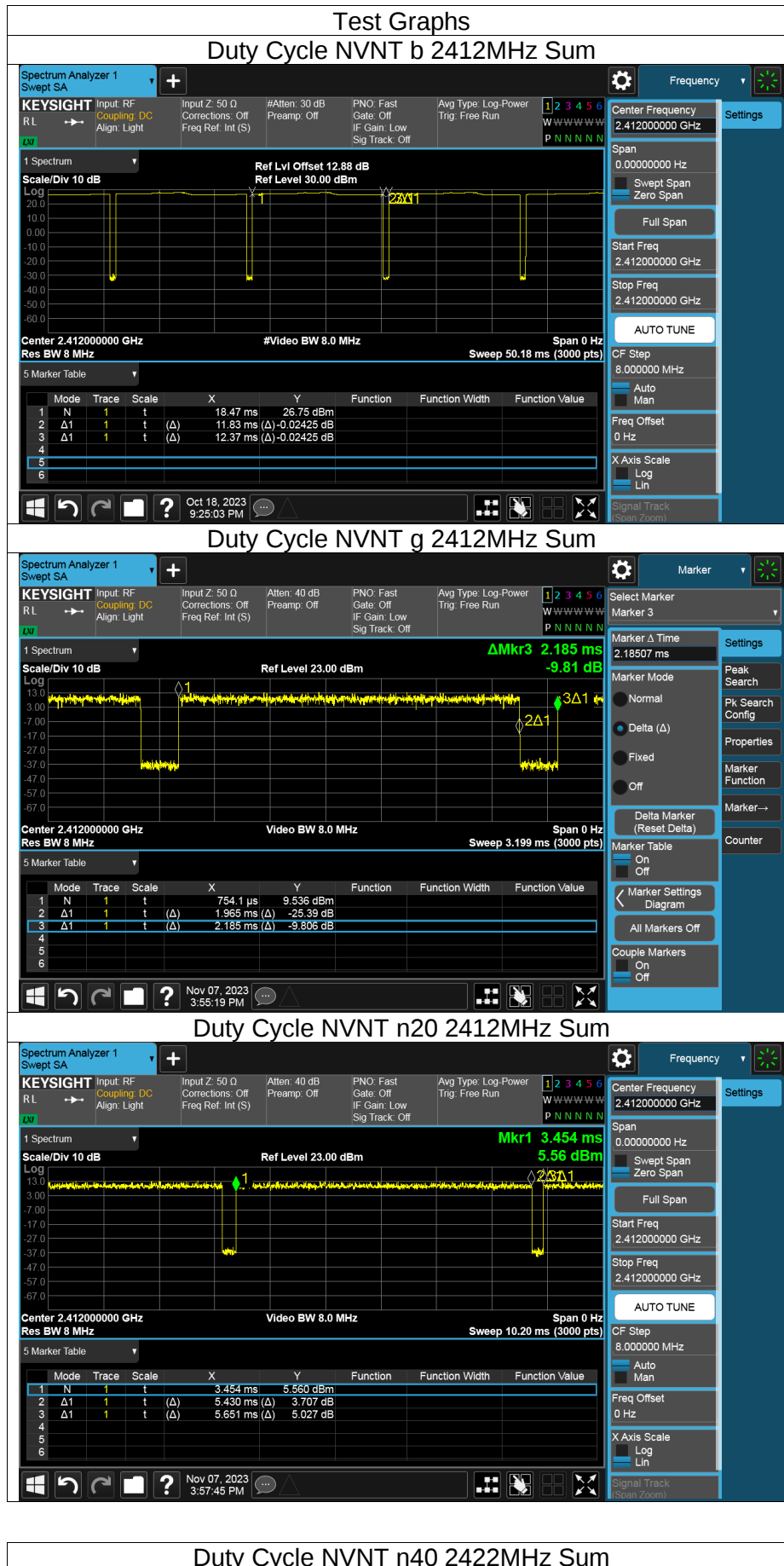
Note:

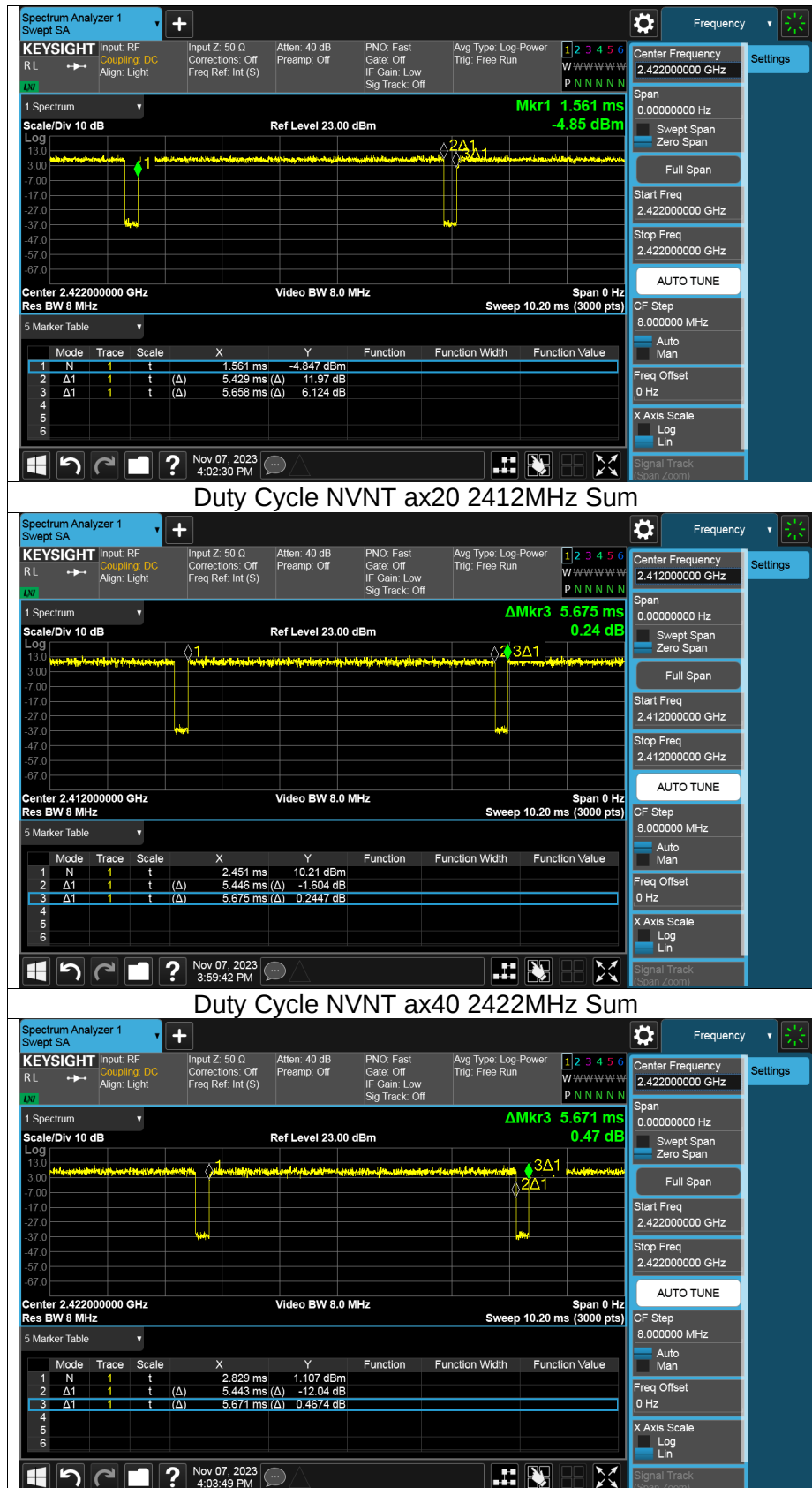
Duty Cycle Correction Factor=10log (1/x).

Where: x is Duty Cycle (Linear)

Where: T is On Time

If that calculated VBW is not available on the analyzer then the next higher value should be used.





Appendix B1: Maximum Conducted Output Power

Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
b	2412	Ant1	23.29	30	Pass
b	2412	Ant2	22.86	30	Pass
b	2412	Sum	26.09	30	Pass
b	2417	Ant1	23.37	30	Pass
b	2417	Ant2	22.82	30	Pass
b	2417	Sum	26.11	30	Pass
b	2437	Ant1	23.53	30	Pass
b	2437	Ant2	22.97	30	Pass
b	2437	Sum	26.27	30	Pass
b	2457	Ant1	23.40	30	Pass
b	2457	Ant2	22.87	30	Pass
b	2457	Sum	26.15	30	Pass
b	2462	Ant1	22.81	30	Pass
b	2462	Ant2	22.46	30	Pass
b	2462	Sum	25.65	30	Pass
g	2412	Ant1	19.68	30	Pass
g	2412	Ant2	19.58	30	Pass
g	2412	Sum	22.64	30	Pass
g	2417	Ant1	21.12	30	Pass
g	2417	Ant2	20.86	30	Pass
g	2417	Sum	24.00	30	Pass
g	2437	Ant1	23.52	30	Pass
g	2437	Ant2	22.88	30	Pass
g	2437	Sum	26.22	30	Pass
g	2457	Ant1	21.03	30	Pass
g	2457	Ant2	20.61	30	Pass
g	2457	Sum	23.84	30	Pass
g	2462	Ant1	18.36	30	Pass
g	2462	Ant2	17.82	30	Pass
g	2462	Sum	21.11	30	Pass
n20	2412	Ant1	20.94	30	Pass
n20	2412	Ant2	20.72	30	Pass
n20	2412	Sum	23.84	30	Pass
n20	2417	Ant1	21.90	30	Pass
n20	2417	Ant2	21.76	30	Pass
n20	2417	Sum	24.84	30	Pass
n20	2437	Ant1	22.97	30	Pass
n20	2437	Ant2	22.73	30	Pass
n20	2437	Sum	25.86	30	Pass
n20	2457	Ant1	21.89	30	Pass
n20	2457	Ant2	21.58	30	Pass
n20	2457	Sum	24.75	30	Pass
n20	2462	Ant1	18.54	30	Pass
n20	2462	Ant2	18.23	30	Pass
n20	2462	Sum	21.40	30	Pass
n40	2422	Ant1	19.41	30	Pass
n40	2422	Ant2	19.19	30	Pass
n40	2422	Sum	22.31	30	Pass
n40	2427	Ant1	20.10	30	Pass
n40	2427	Ant2	20.01	30	Pass

n40	2427	Sum	23.07	30	Pass
n40	2437	Ant1	20.45	30	Pass
n40	2437	Ant2	20.00	30	Pass
n40	2437	Sum	23.24	30	Pass
n40	2447	Ant1	17.88	30	Pass
n40	2447	Ant2	17.33	30	Pass
n40	2447	Sum	20.62	30	Pass
n40	2452	Ant1	17.20	30	Pass
n40	2452	Ant2	16.73	30	Pass
n40	2452	Sum	19.98	30	Pass
ax20	2412	Ant1	20.40	30	Pass
ax20	2412	Ant2	20.26	30	Pass
ax20	2412	Sum	23.34	30	Pass
ax20	2417	Ant1	21.67	30	Pass
ax20	2417	Ant2	21.60	30	Pass
ax20	2417	Sum	24.65	30	Pass
ax20	2437	Ant1	22.87	30	Pass
ax20	2437	Ant2	22.49	30	Pass
ax20	2437	Sum	25.69	30	Pass
ax20	2457	Ant1	20.75	30	Pass
ax20	2457	Ant2	20.52	30	Pass
ax20	2457	Sum	23.65	30	Pass
ax20	2462	Ant1	17.39	30	Pass
ax20	2462	Ant2	17.01	30	Pass
ax20	2462	Sum	20.21	30	Pass
ax40	2422	Ant1	19.91	30	Pass
ax40	2422	Ant2	19.77	30	Pass
ax40	2422	Sum	22.85	30	Pass
ax40	2427	Ant1	19.83	30	Pass
ax40	2427	Ant2	19.69	30	Pass
ax40	2427	Sum	22.77	30	Pass
ax40	2437	Ant1	20.52	30	Pass
ax40	2437	Ant2	20.12	30	Pass
ax40	2437	Sum	23.33	30	Pass
ax40	2447	Ant1	17.92	30	Pass
ax40	2447	Ant2	17.56	30	Pass
ax40	2447	Sum	20.75	30	Pass
ax40	2452	Ant1	16.89	30	Pass
ax40	2452	Ant2	16.47	30	Pass
ax40	2452	Sum	19.70	30	Pass

Note: 1. Conducted Power=Meas. Level+ Correction Factor

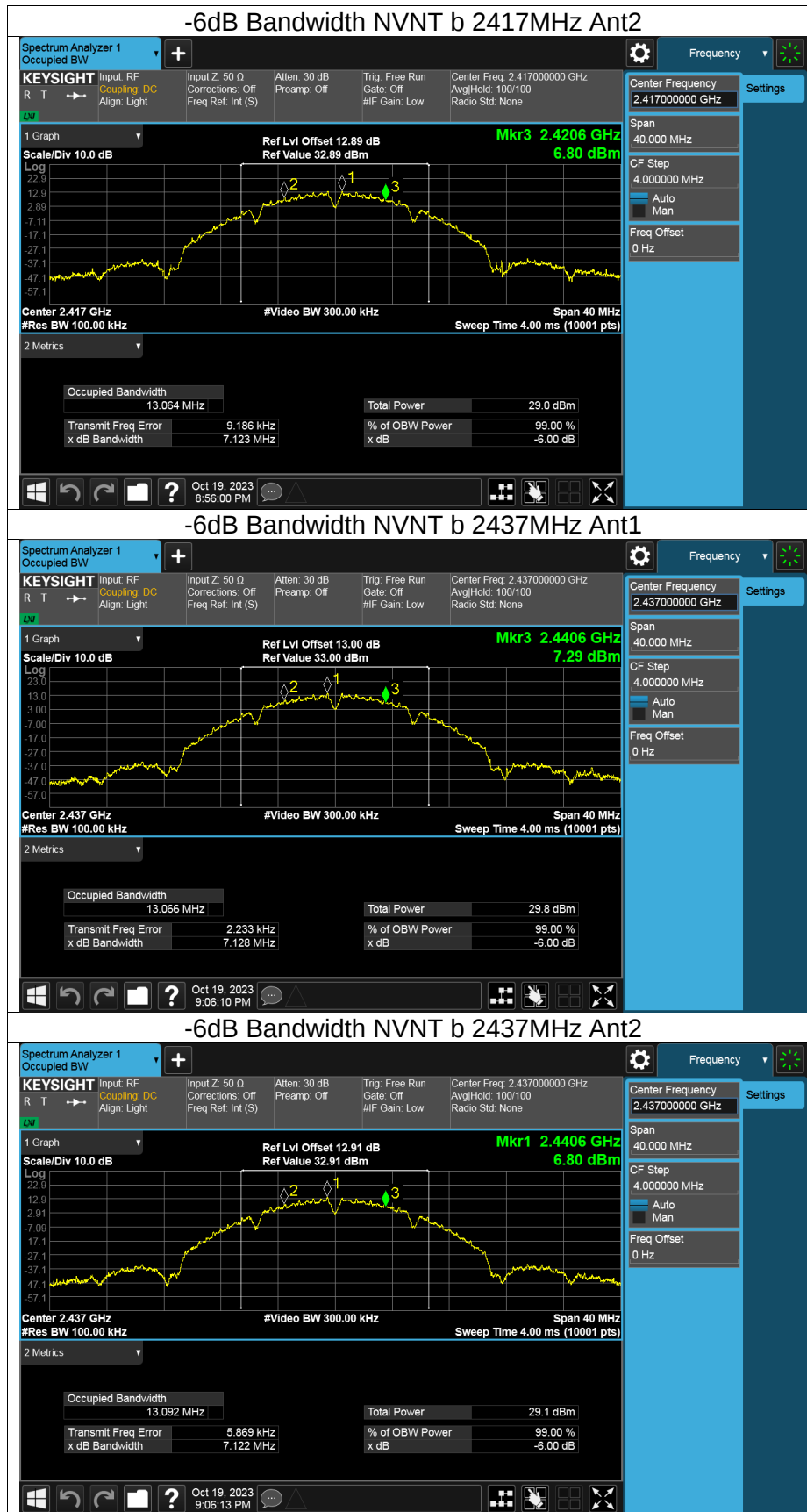
2. The Duty Cycle Factor (refer to section 7.5) had already compensated to the test data.

Appendix C1: -6dB Bandwidth

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	7.571	0.5	Pass
		Ant2	7.114	0.5	Pass
	2417	Ant1	8.056	0.5	Pass
		Ant2	7.123	0.5	Pass
	2437	Ant1	7.128	0.5	Pass
		Ant2	7.122	0.5	Pass
	2457	Ant1	7.121	0.5	Pass
		Ant2	8.058	0.5	Pass
g	2412	Ant1	8.058	0.5	Pass
		Ant2	8.057	0.5	Pass
	2417	Ant1	15.374	0.5	Pass
		Ant2	16.335	0.5	Pass
	2437	Ant1	15.711	0.5	Pass
		Ant2	15.812	0.5	Pass
	2457	Ant1	16.309	0.5	Pass
		Ant2	16.272	0.5	Pass
n20	2412	Ant1	16.285	0.5	Pass
		Ant2	16.284	0.5	Pass
	2417	Ant1	15.112	0.5	Pass
		Ant2	16.312	0.5	Pass
	2437	Ant1	17.556	0.5	Pass
		Ant2	16.507	0.5	Pass
	2457	Ant1	16.936	0.5	Pass
		Ant2	16.287	0.5	Pass
n40	2412	Ant1	17.63	0.5	Pass
		Ant2	16.796	0.5	Pass
	2417	Ant1	16.654	0.5	Pass
		Ant2	15.678	0.5	Pass
	2437	Ant1	16.531	0.5	Pass
		Ant2	17.127	0.5	Pass
	2457	Ant1	35.549	0.5	Pass
		Ant2	36.285	0.5	Pass
ax20	2412	Ant1	35.908	0.5	Pass
		Ant2	36.323	0.5	Pass
	2417	Ant1	35.298	0.5	Pass
		Ant2	36.313	0.5	Pass
	2437	Ant1	36.286	0.5	Pass
		Ant2	36.348	0.5	Pass
	2452	Ant1	36.266	0.5	Pass
		Ant2	36.323	0.5	Pass
ax20	2412	Ant1	17.816	0.5	Pass
		Ant2	17.598	0.5	Pass
	2417	Ant1	17.777	0.5	Pass
		Ant2	18.797	0.5	Pass
	2437	Ant1	18.443	0.5	Pass
		Ant2	18.668	0.5	Pass
	2457	Ant1	17.975	0.5	Pass
		Ant2	18.977	0.5	Pass
ax20	2462	Ant1	18.363	0.5	Pass
		Ant2	17.637	0.5	Pass

ax40	2422	Ant1	37.478	0.5	Pass
		Ant2	37.949	0.5	Pass
	2427	Ant1	37.463	0.5	Pass
		Ant2	36.427	0.5	Pass
	2437	Ant1	37.291	0.5	Pass
		Ant2	37.515	0.5	Pass
	2447	Ant1	37.861	0.5	Pass
		Ant2	36.127	0.5	Pass
	2452	Ant1	37.697	0.5	Pass
		Ant2	37.512	0.5	Pass





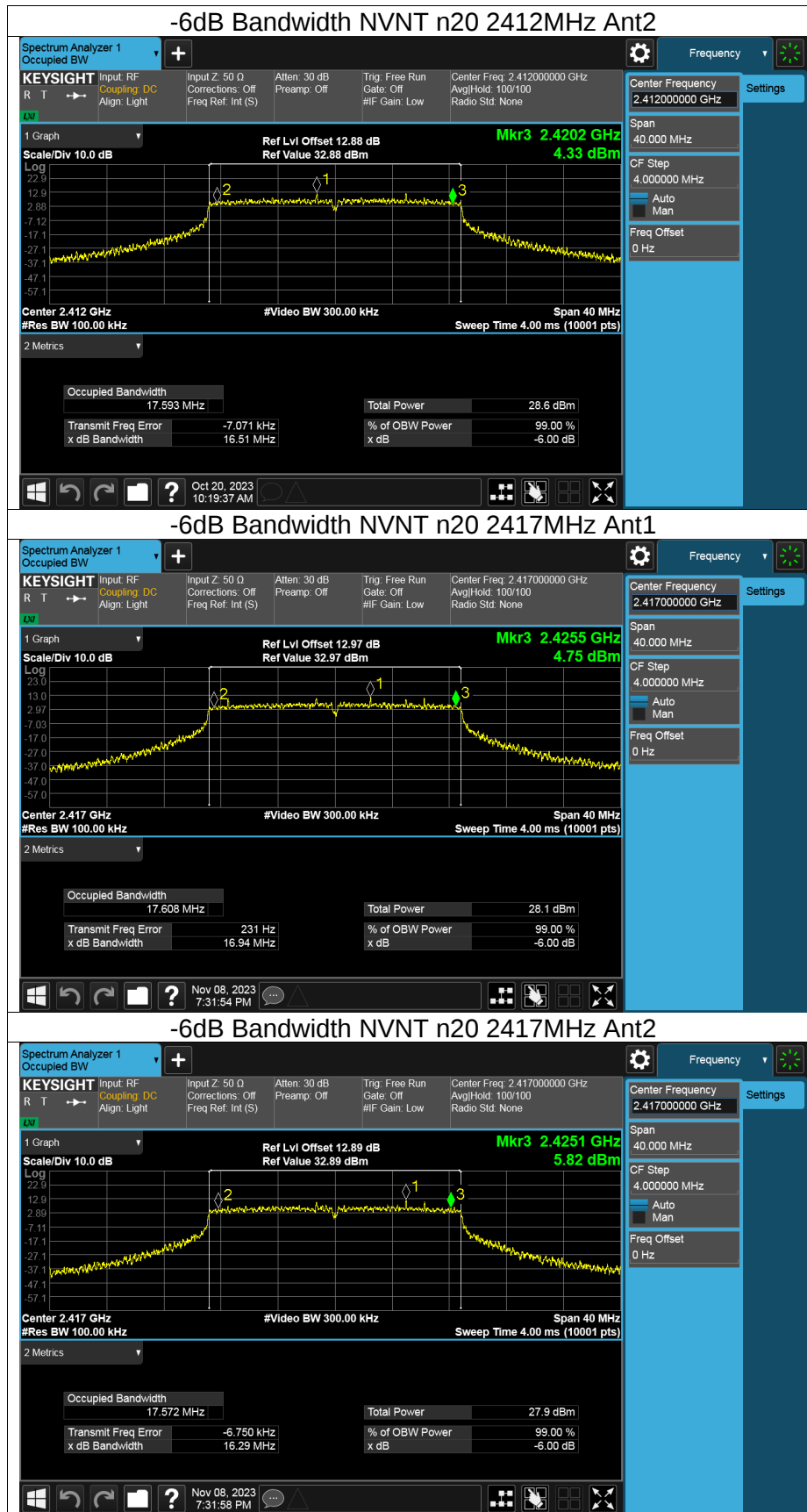






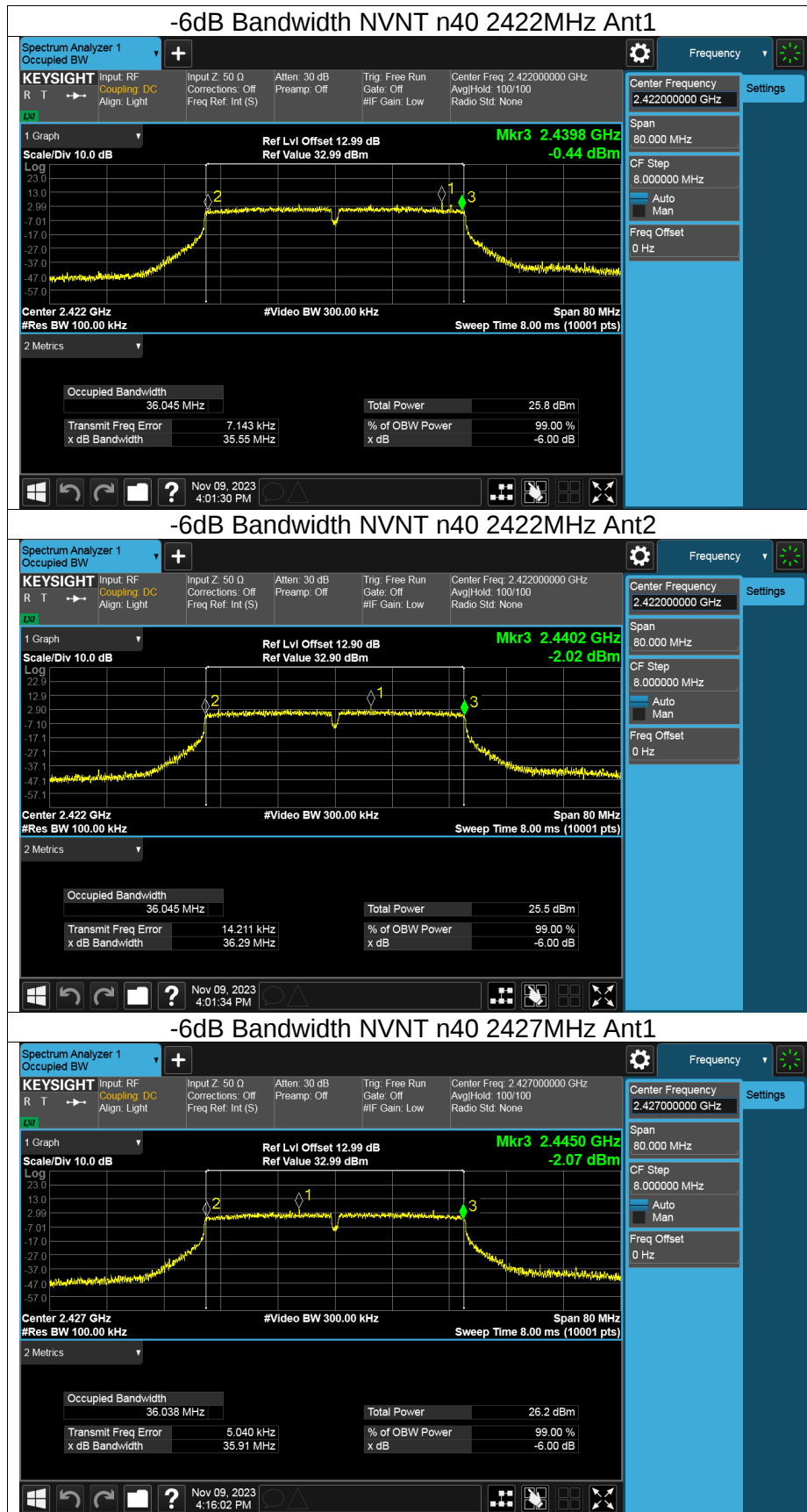


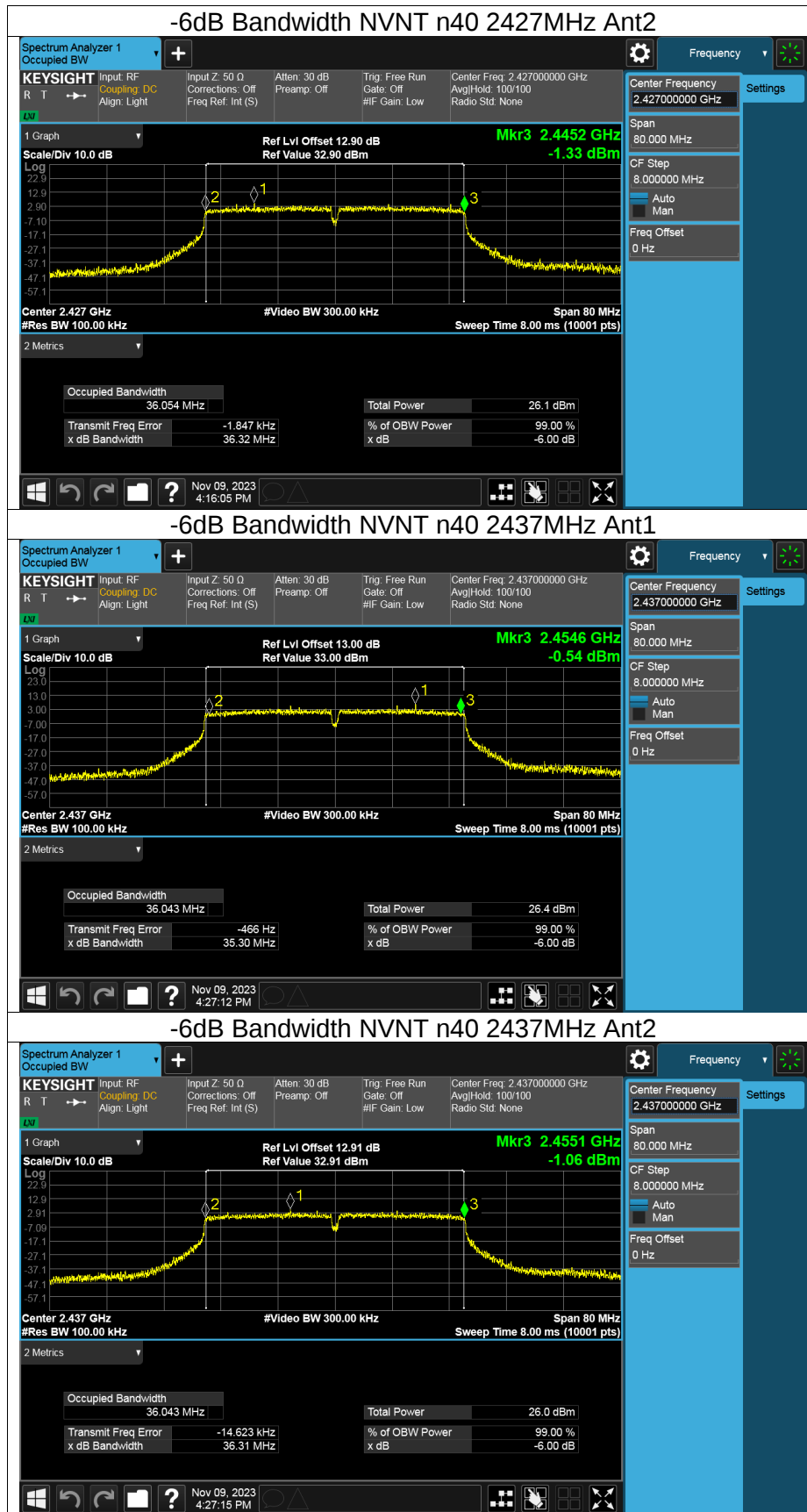


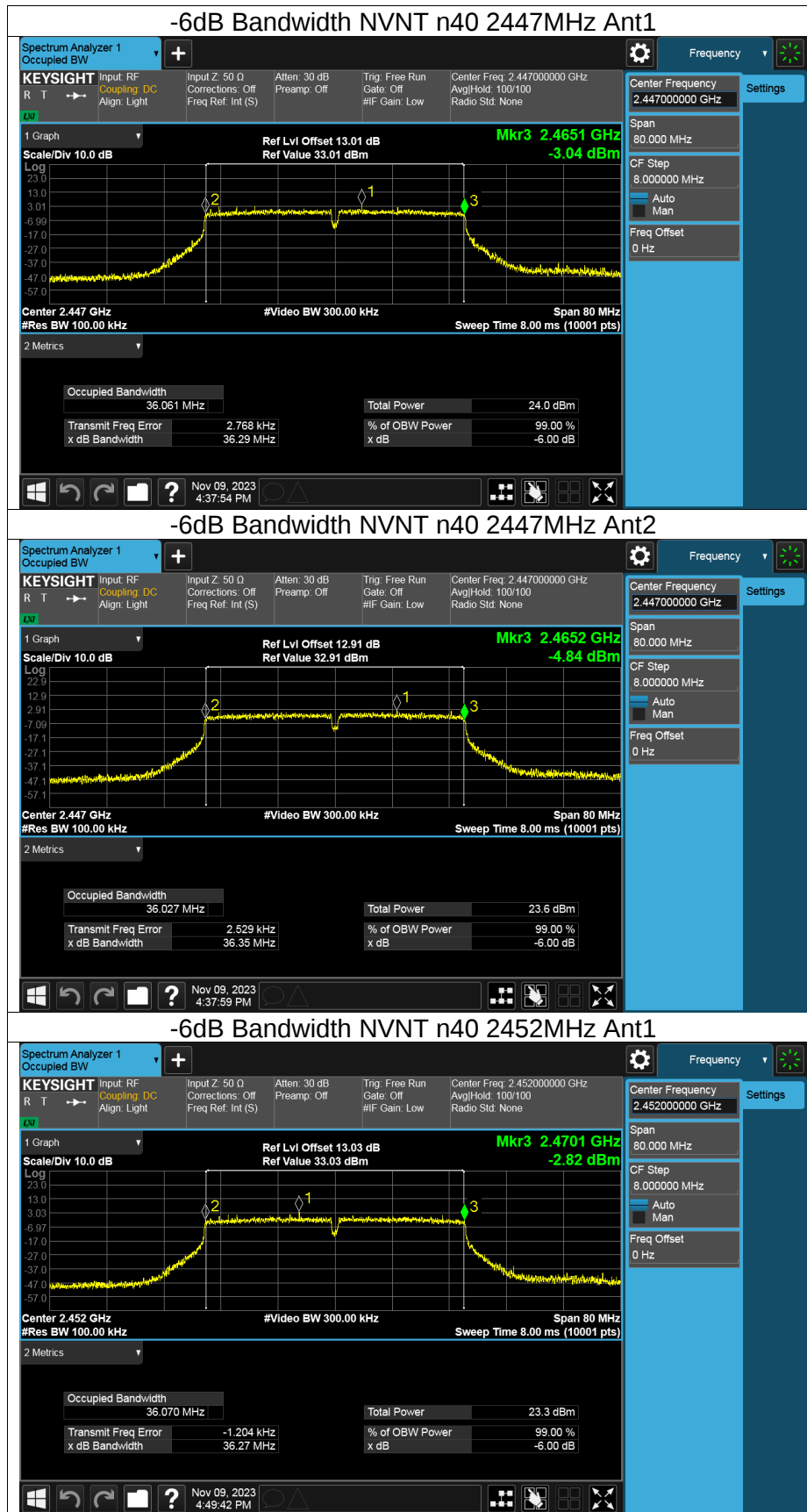


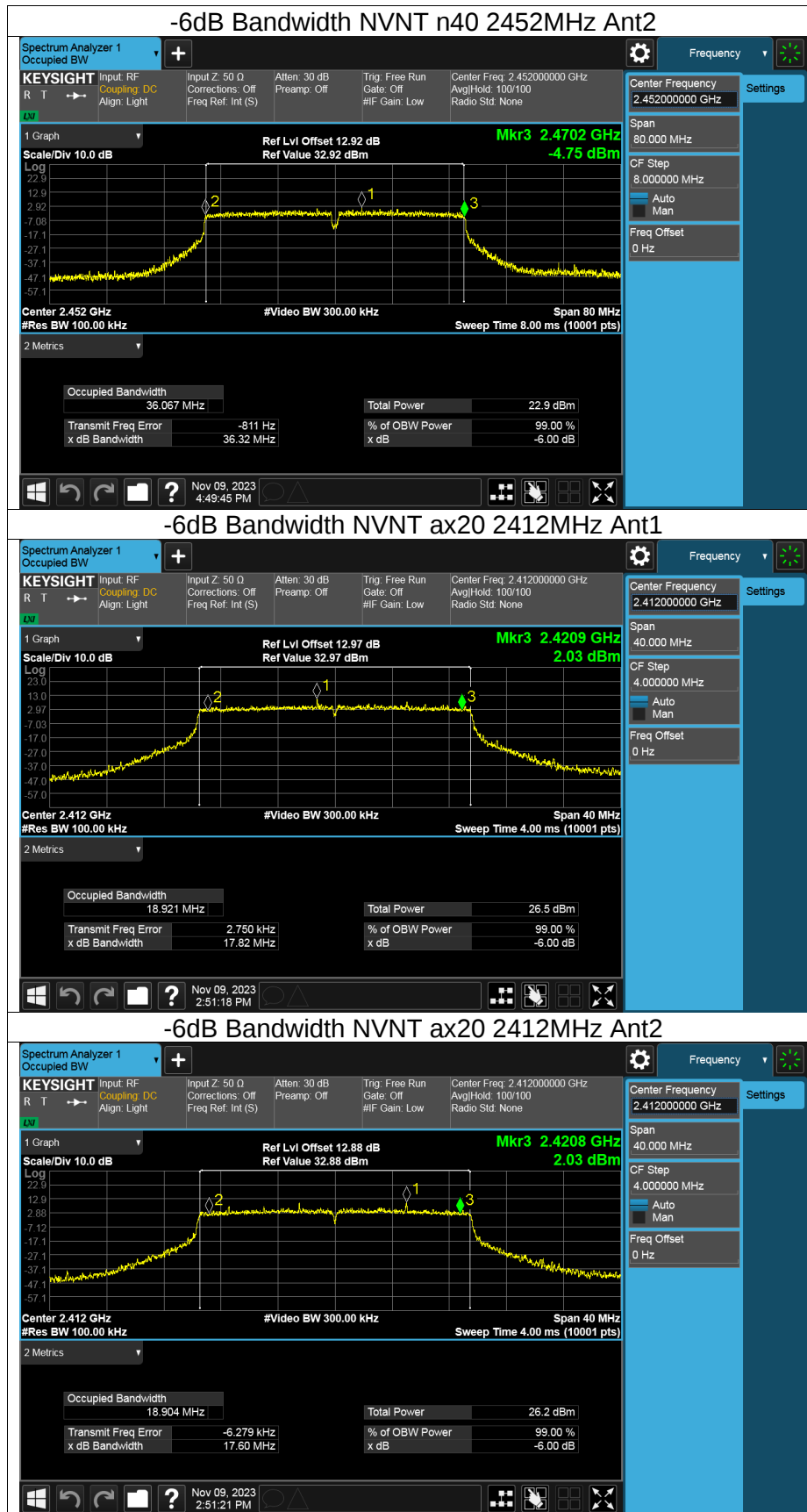


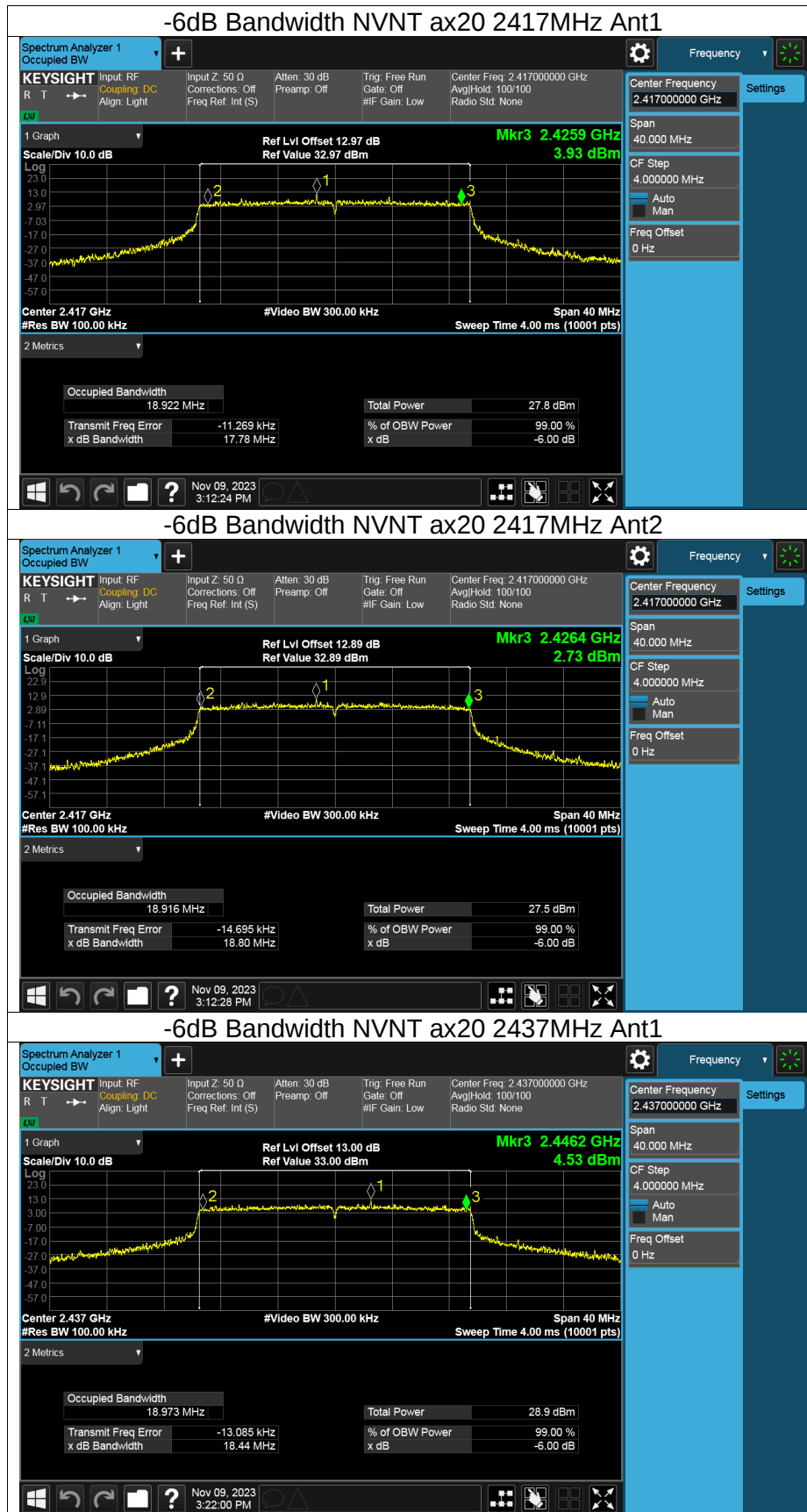


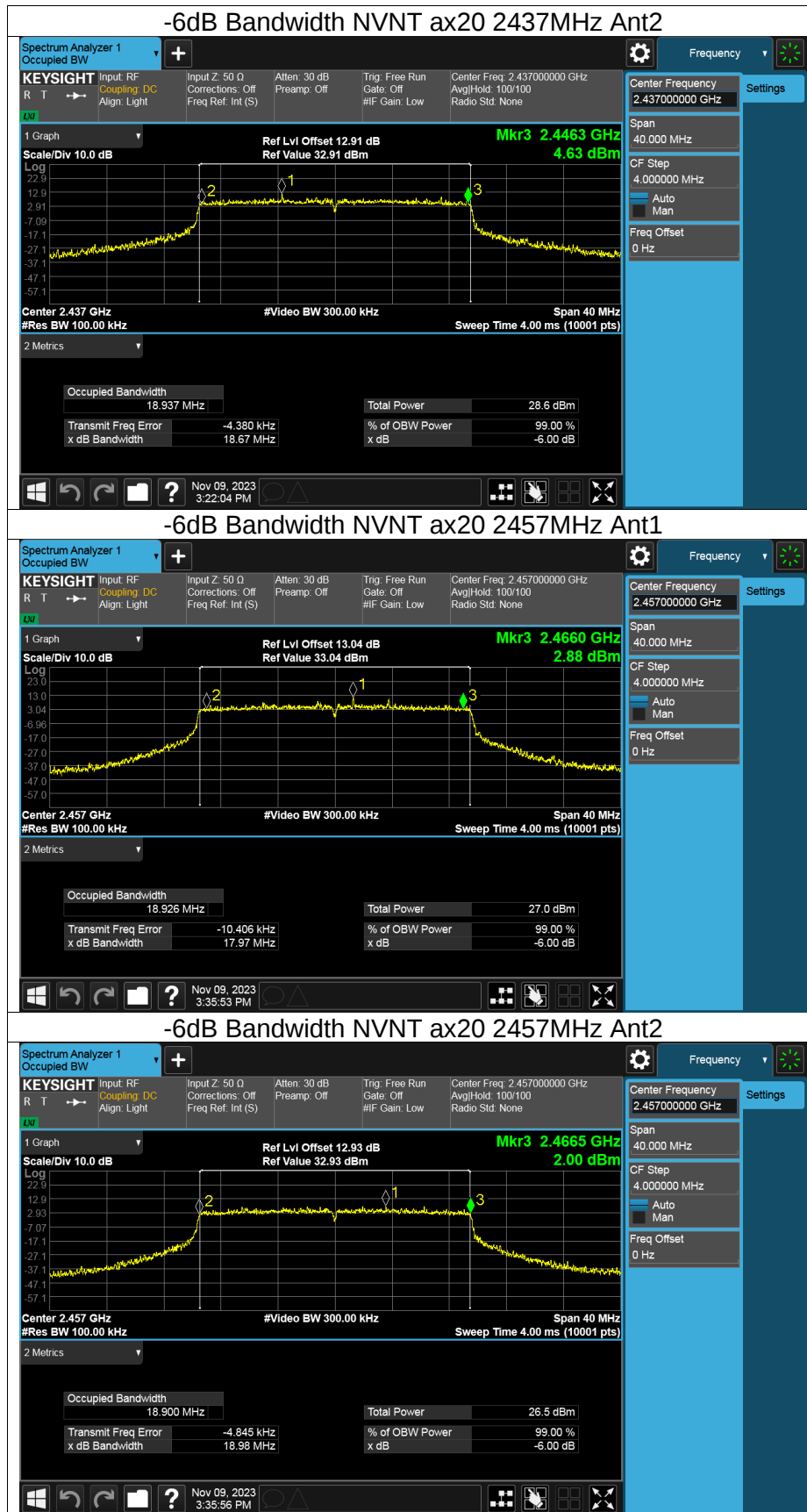


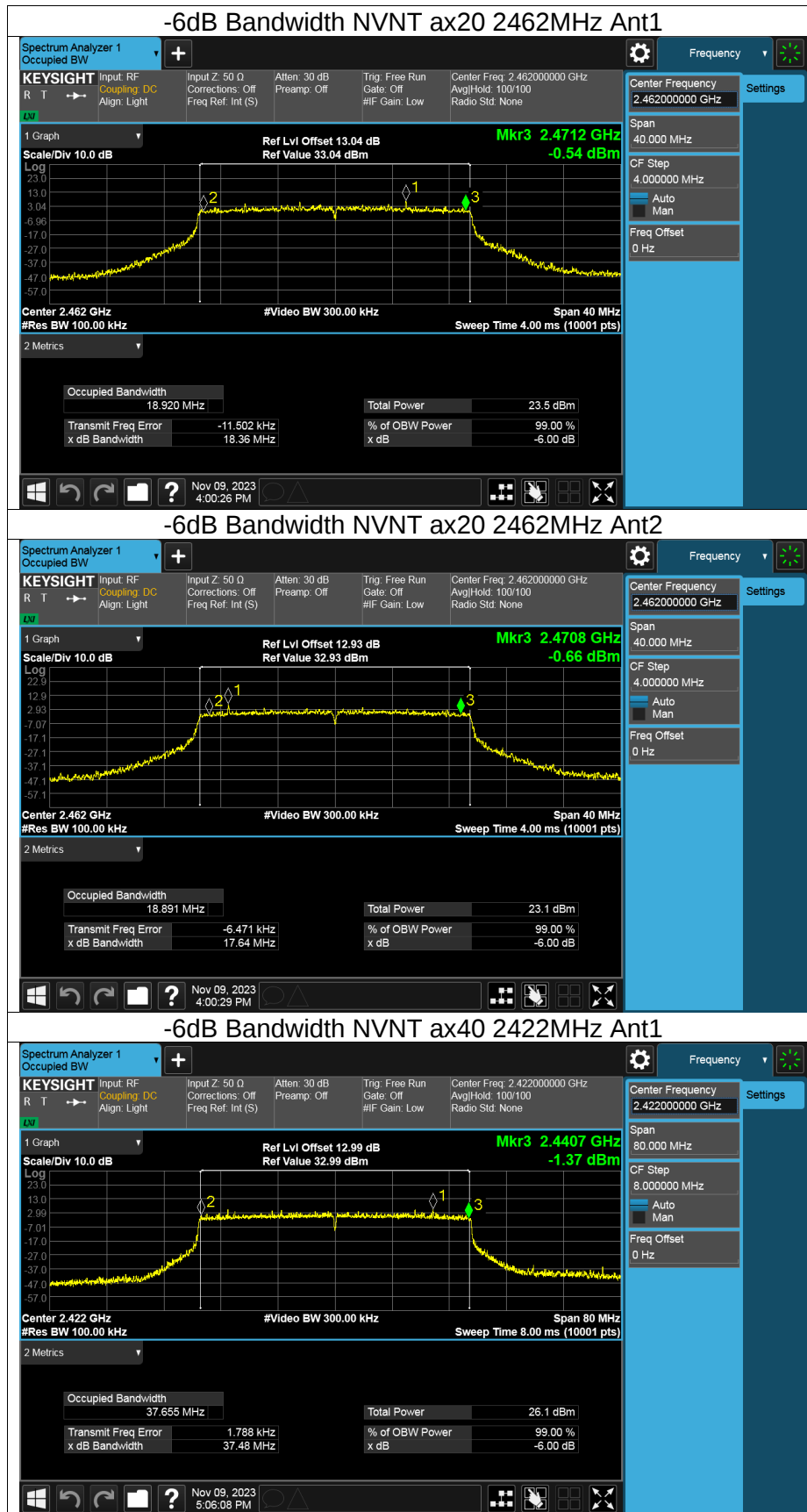


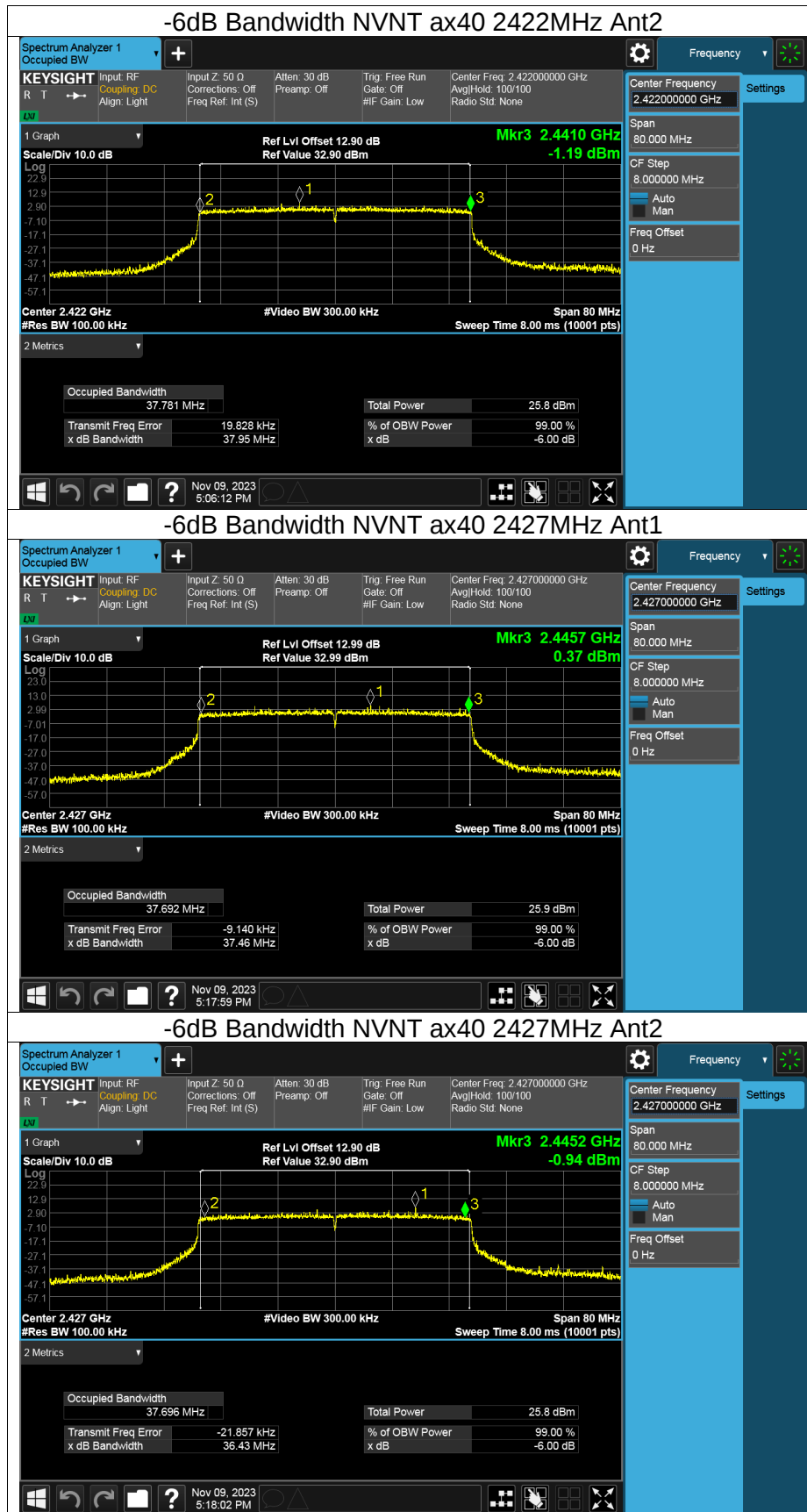


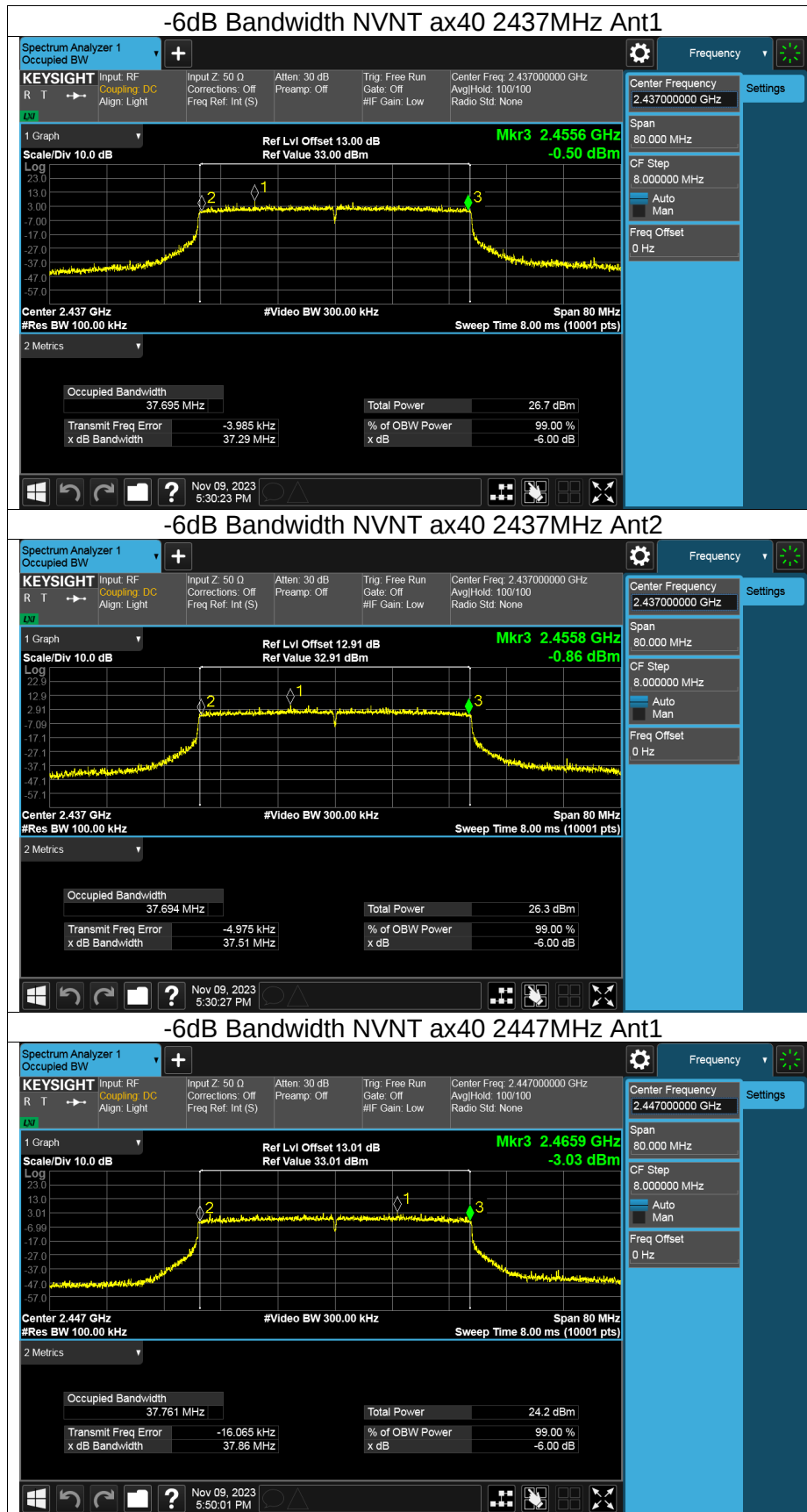


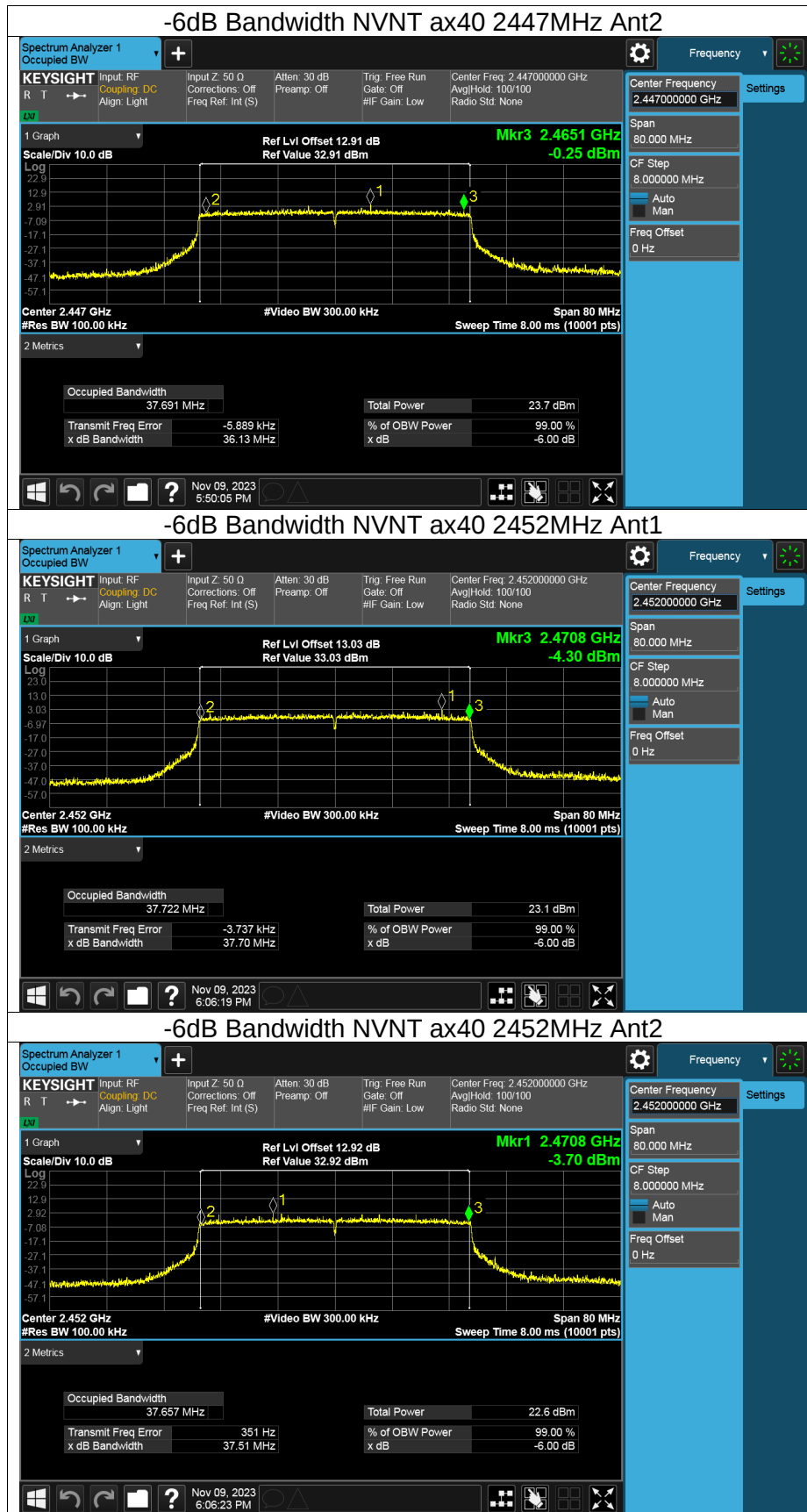












Appendix D1: Occupied Channel Bandwidth

Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
b	2412	Ant1	13.035
		Ant2	13.056
	2417	Ant1	13.05
		Ant2	13.063
	2437	Ant1	13.081
		Ant2	13.083
	2457	Ant1	13.07
		Ant2	13.081
	2462	Ant1	13.085
		Ant2	13.095
g	2412	Ant1	16.45
		Ant2	16.454
	2417	Ant1	16.451
		Ant2	16.455
	2437	Ant1	16.459
		Ant2	16.461
	2457	Ant1	16.466
		Ant2	16.453
	2462	Ant1	16.445
		Ant2	16.476
n20	2412	Ant1	17.68
		Ant2	17.632
	2417	Ant1	17.652
		Ant2	17.585
	2437	Ant1	17.691
		Ant2	17.634
	2457	Ant1	17.624
		Ant2	17.61
	2462	Ant1	17.622
		Ant2	17.593
n40	2422	Ant1	36.037
		Ant2	36.077
	2427	Ant1	36.073
		Ant2	36.043
	2437	Ant1	36.064
		Ant2	36.027
	2447	Ant1	36.028
		Ant2	36.04
	2452	Ant1	36.11
		Ant2	36.036
ax20	2412	Ant1	18.937
		Ant2	18.924

	2417	Ant1	18.958
		Ant2	18.924
	2437	Ant1	18.956
		Ant2	18.951
	2457	Ant1	18.941
		Ant2	18.899
	2462	Ant1	18.897
		Ant2	18.89
ax40	2422	Ant1	37.796
		Ant2	37.68
	2427	Ant1	37.75
		Ant2	37.682
	2437	Ant1	37.706
		Ant2	37.699
	2447	Ant1	37.791
		Ant2	37.747
	2452	Ant1	37.734
		Ant2	37.738



