

Appendix Test Data for WLAN(2.4G) (Conducted Measurement)

Product Name: Smart Gateway

Trade Mark: N/A

Test Model: DSGW-090J

FCC ID: 2AWWFDSGW-090J

Environmental Conditions

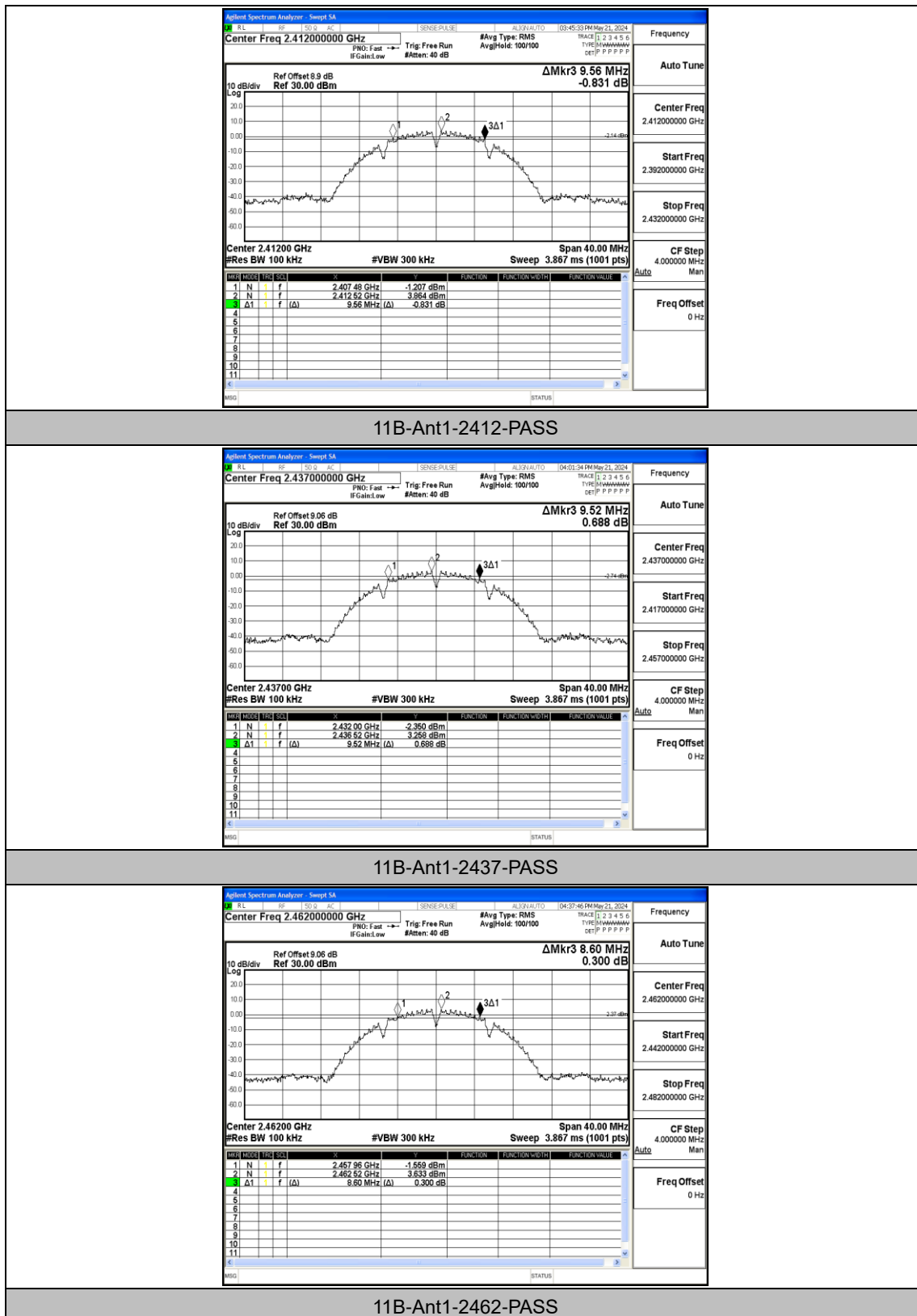
Temperature:	23.8℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Hugo Chen
NOTE	N/A

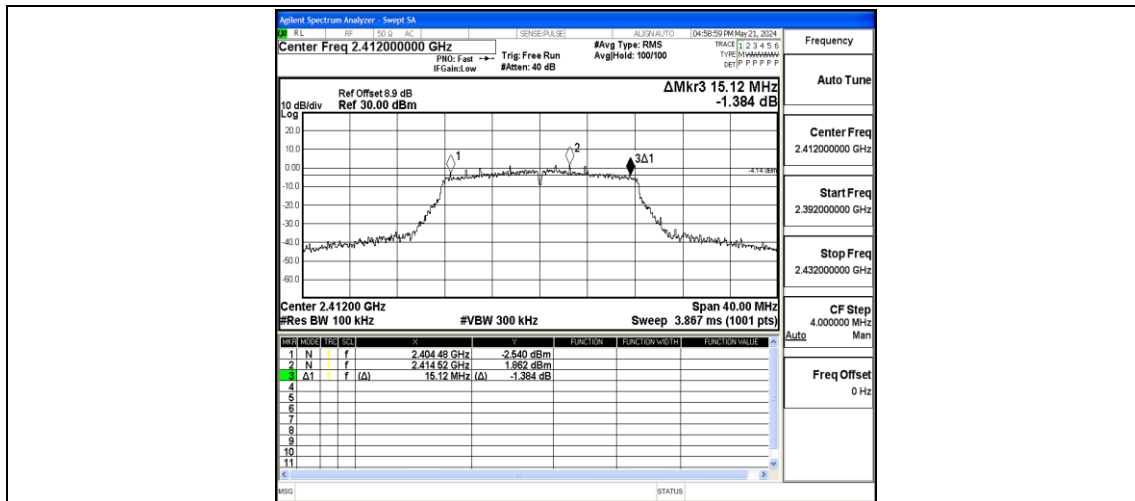
Appendix A: DTS Bandwidth

Test Result

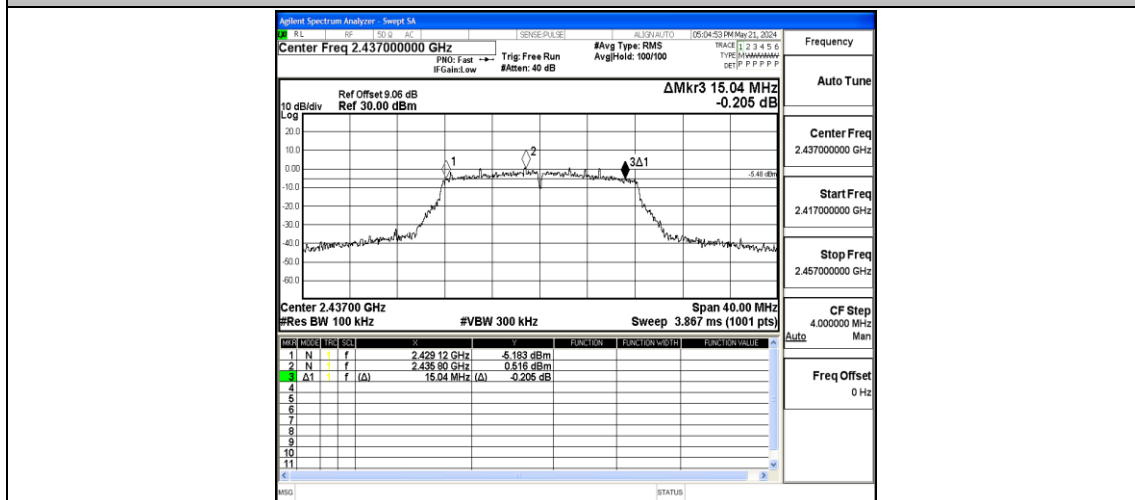
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.560	2407.480	2417.040	0.5	PASS
11B	Ant1	2437	9.520	2432.000	2441.520	0.5	PASS
11B	Ant1	2462	8.600	2457.960	2466.560	0.5	PASS
11G	Ant1	2412	15.120	2404.480	2419.600	0.5	PASS
11G	Ant1	2437	15.040	2429.120	2444.160	0.5	PASS
11G	Ant1	2462	15.040	2454.480	2469.520	0.5	PASS
11N20SISO	Ant1	2412	15.080	2404.480	2419.560	0.5	PASS
11N20SISO	Ant1	2437	13.200	2429.440	2442.640	0.5	PASS
11N20SISO	Ant1	2462	13.240	2455.400	2468.640	0.5	PASS
11N40SISO	Ant1	2422	34.960	2404.560	2439.520	0.5	PASS
11N40SISO	Ant1	2437	33.760	2420.760	2454.520	0.5	PASS
11N40SISO	Ant1	2452	32.560	2435.680	2468.240	0.5	PASS

Test Graphs

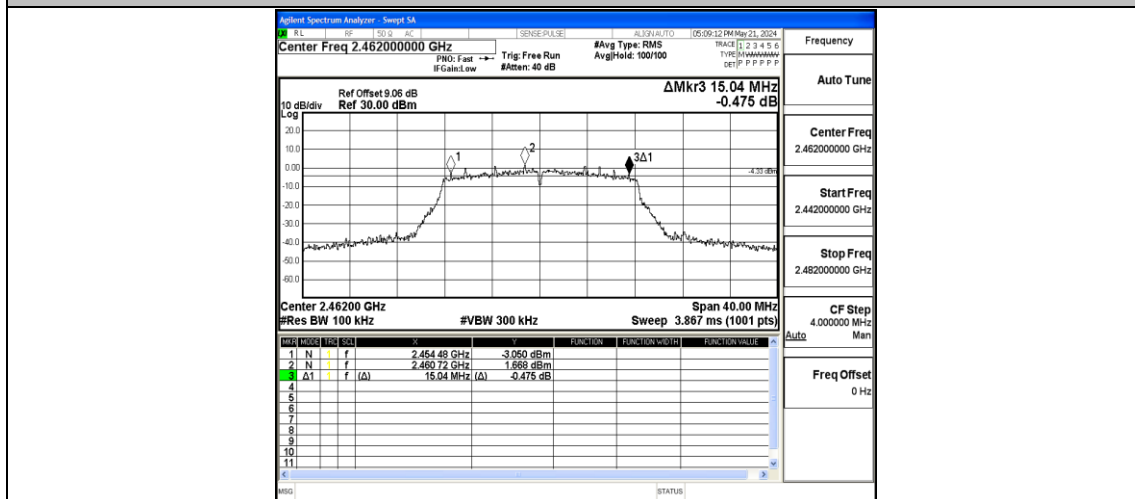




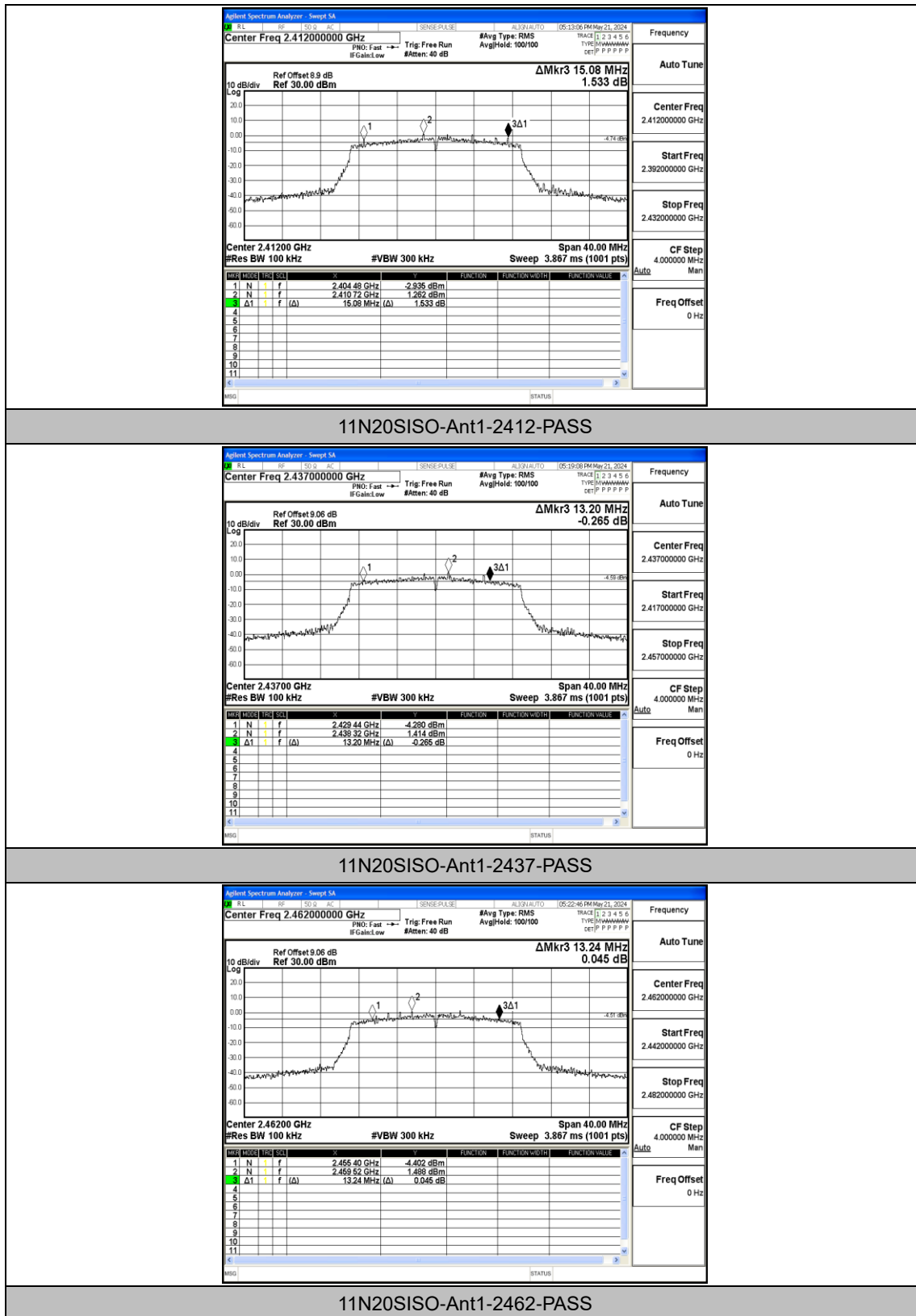
11G-Ant1-2412-PASS

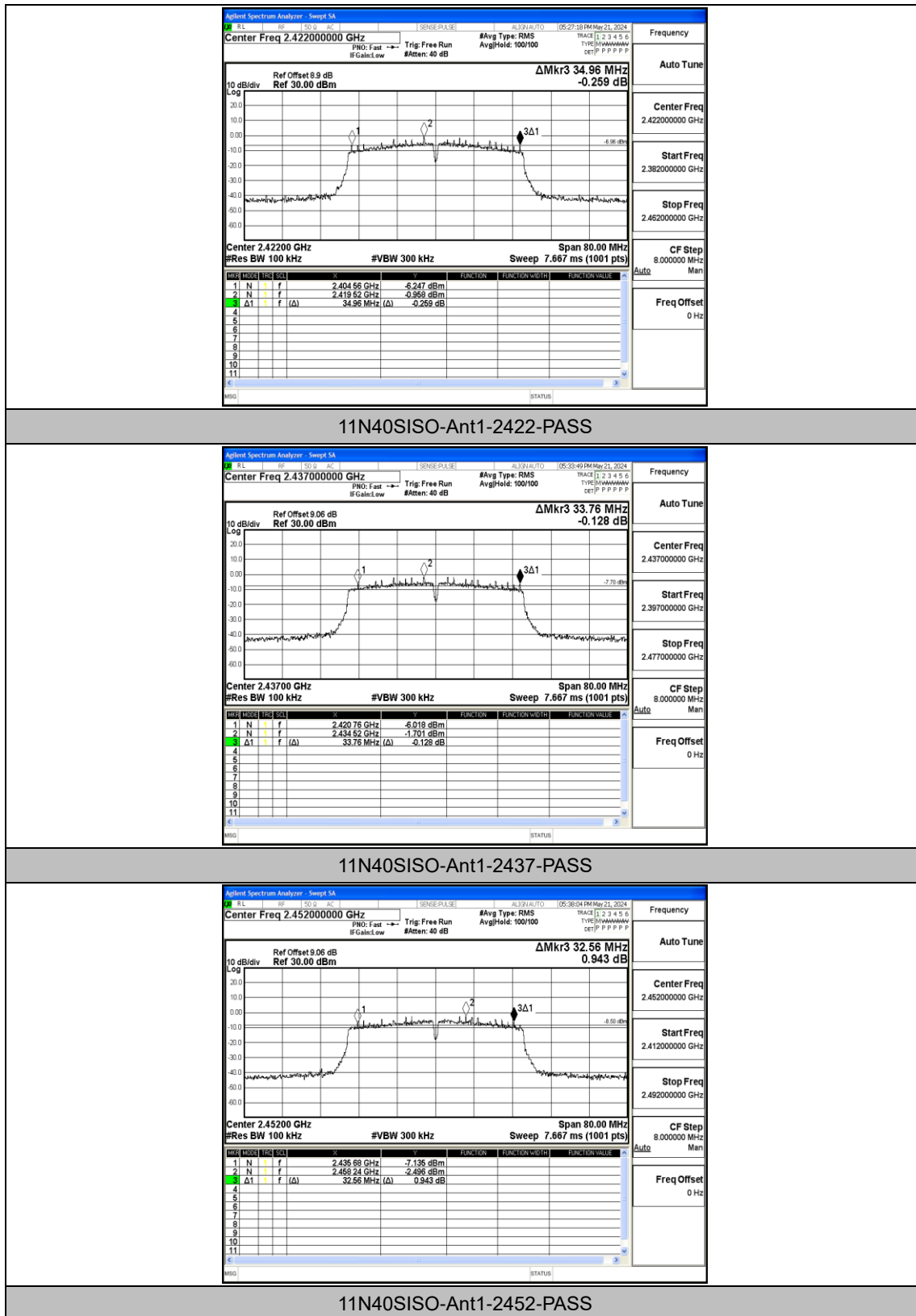


11G-Ant1-2437-PASS



11G-Ant1-2462-PASS



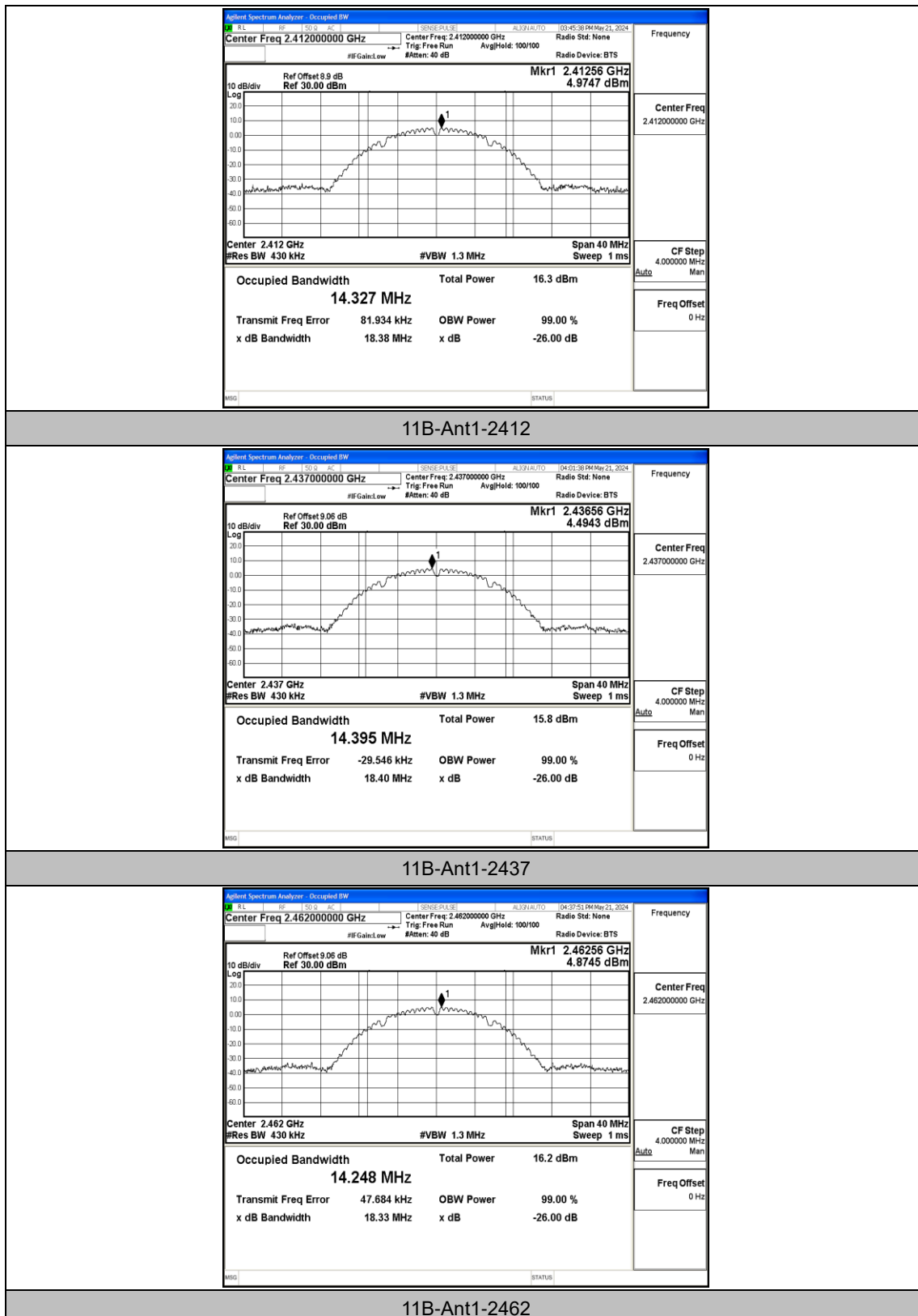


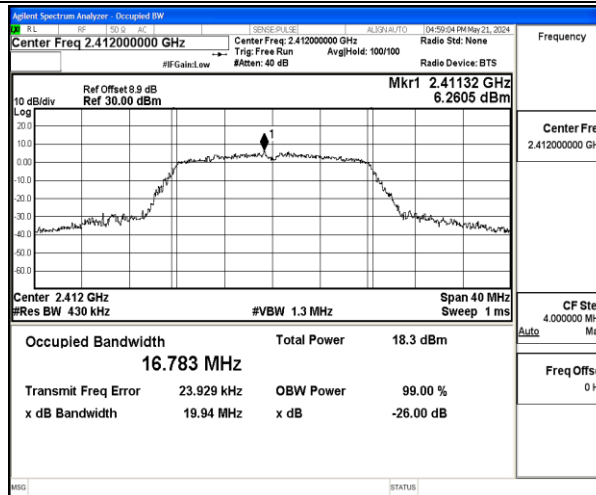
Appendix B: Occupied Channel Bandwidth

Test Result

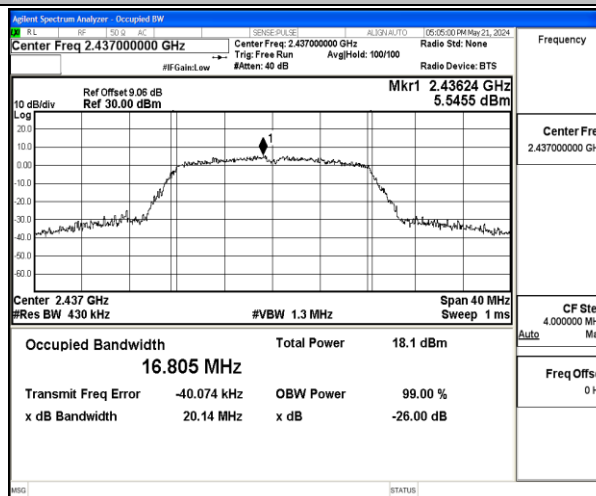
TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	14.327	2404.9184	2419.2454	---	---
11B	Ant1	2437	14.395	2429.7730	2444.1680	---	---
11B	Ant1	2462	14.248	2454.9237	2469.1717	---	---
11G	Ant1	2412	16.783	2403.6324	2420.4154	---	---
11G	Ant1	2437	16.805	2428.5574	2445.3624	---	---
11G	Ant1	2462	16.700	2453.6765	2470.3765	---	---
11N20SISO	Ant1	2412	17.729	2403.1948	2420.9238	---	---
11N20SISO	Ant1	2437	17.730	2428.1333	2445.8633	---	---
11N20SISO	Ant1	2462	17.703	2453.2096	2470.9126	---	---
11N40SISO	Ant1	2422	35.782	2404.1884	2439.9704	---	---
11N40SISO	Ant1	2437	36.007	2419.0473	2455.0543	---	---
11N40SISO	Ant1	2452	35.958	2434.1314	2470.0894	---	---

Test Graphs

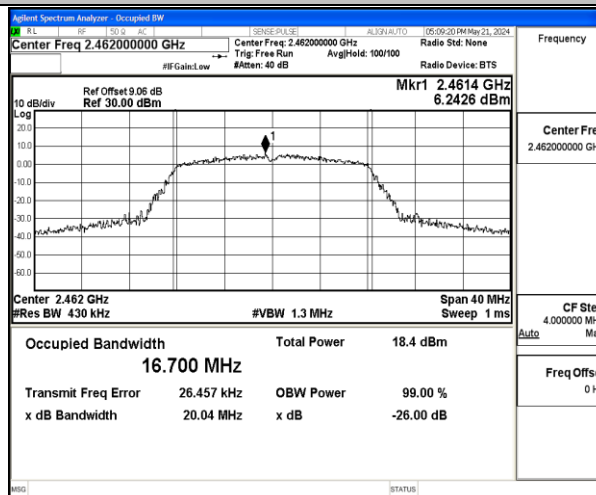




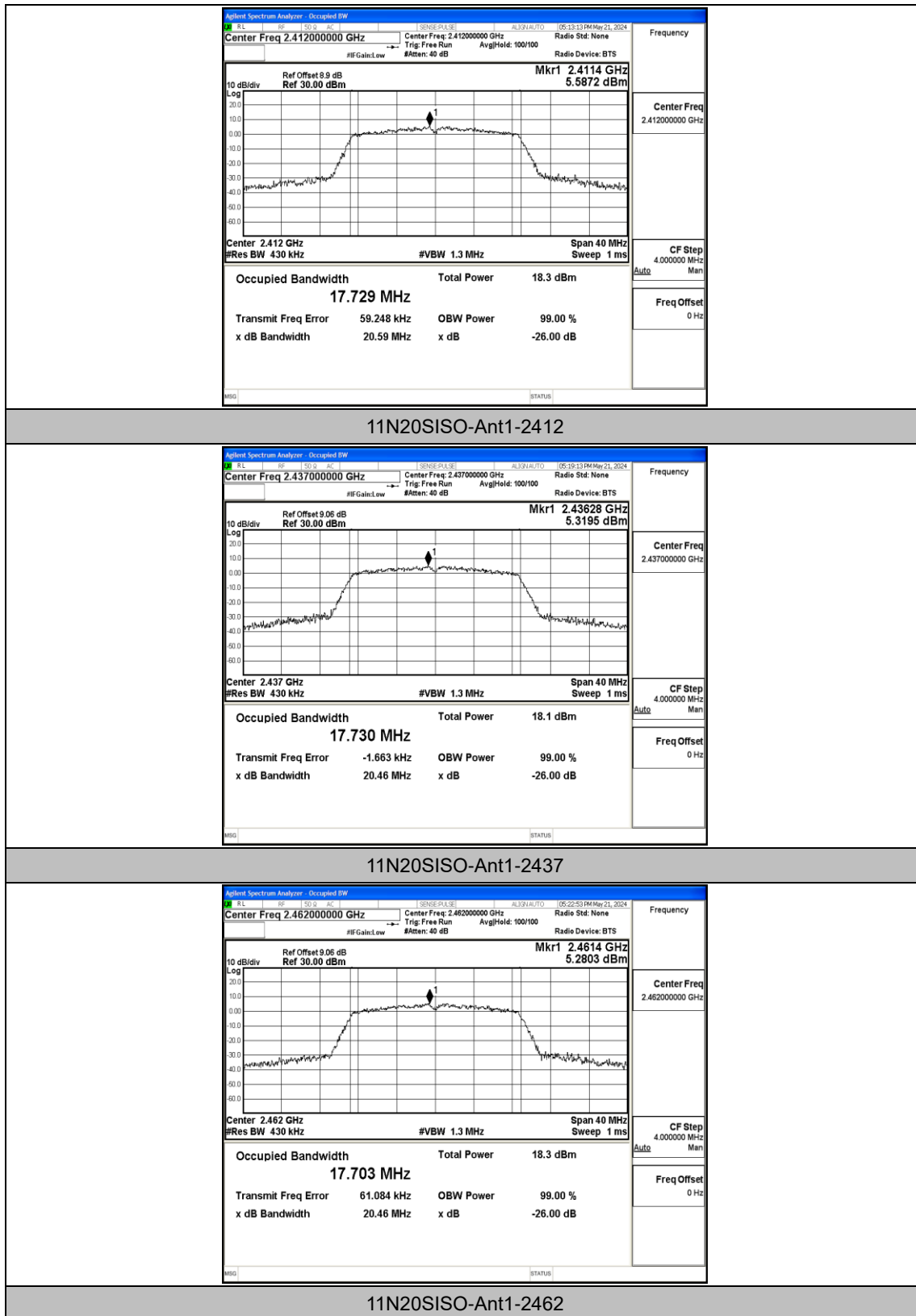
11G-Ant1-2412

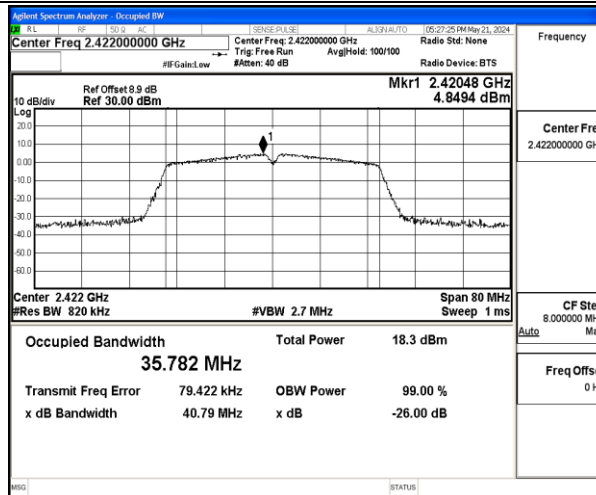


11G-Ant1-2437

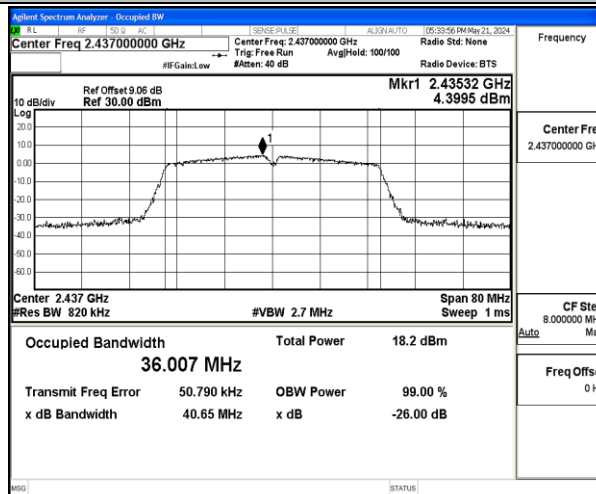


11G-Ant1-2462

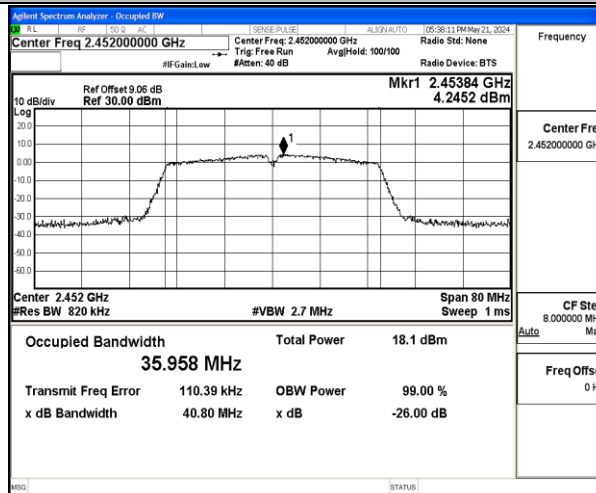




11N40SISO-Ant1-2422



11N40SISO-Ant1-2437



11N40SISO-Ant1-2452

Appendix C: Maximum Average conducted output power

Test Result

TestMode	Antenna	Frequency[MHz]	Conducted Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	13.34	≤30.00	PASS
11B	Ant1	2437	12.78	≤30.00	PASS
11B	Ant1	2462	13.27	≤30.00	PASS
11G	Ant1	2412	12.46	≤30.00	PASS
11G	Ant1	2437	12.27	≤30.00	PASS
11G	Ant1	2462	12.69	≤30.00	PASS
11N20SISO	Ant1	2412	12.38	≤30.00	PASS
11N20SISO	Ant1	2437	11.91	≤30.00	PASS
11N20SISO	Ant1	2462	12.36	≤30.00	PASS
11N40SISO	Ant1	2422	11.07	≤30.00	PASS
11N40SISO	Ant1	2437	10.92	≤30.00	PASS
11N40SISO	Ant1	2452	11.53	≤30.00	PASS

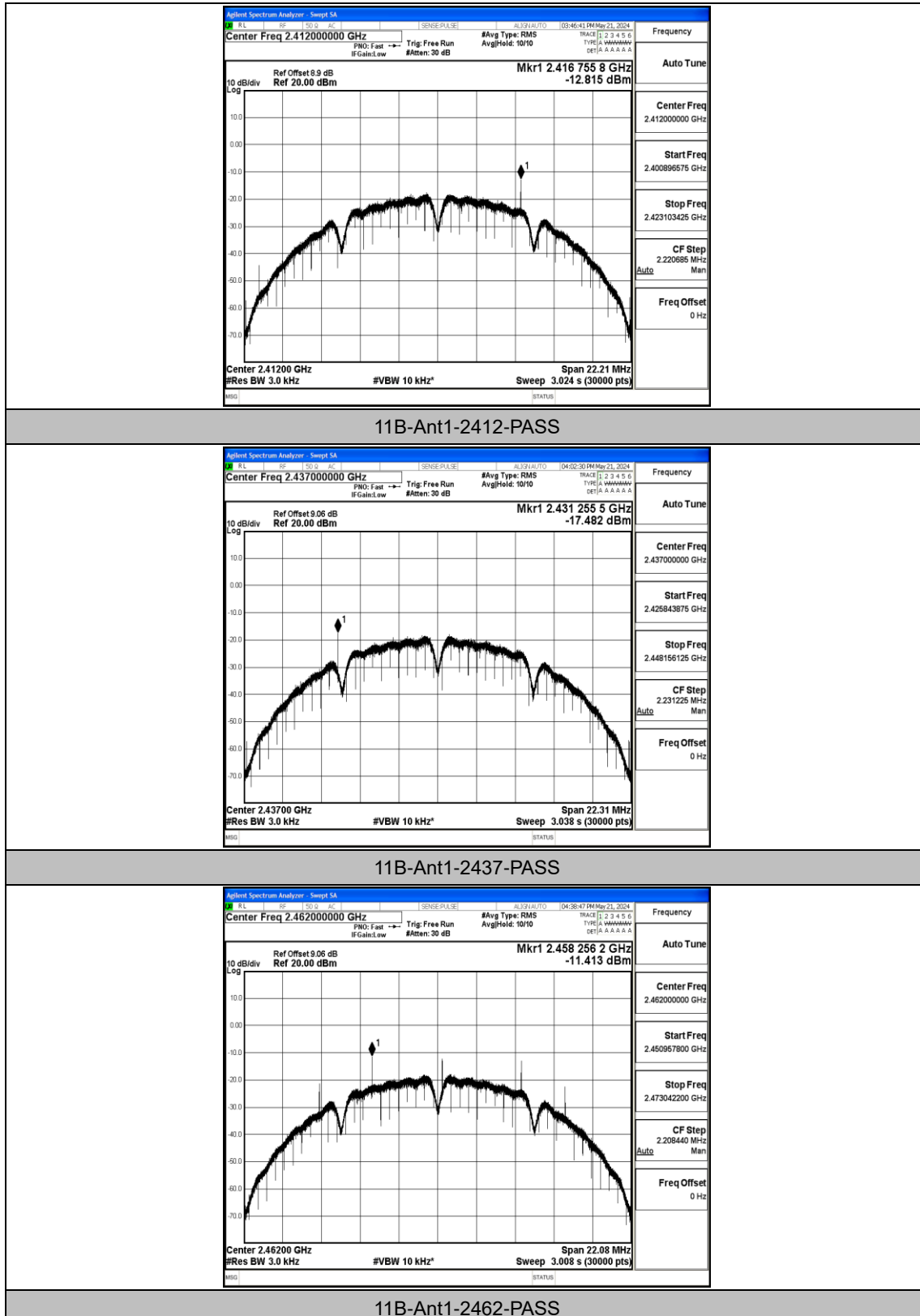
Note: The Duty Cycle Factor is compensated in the result.

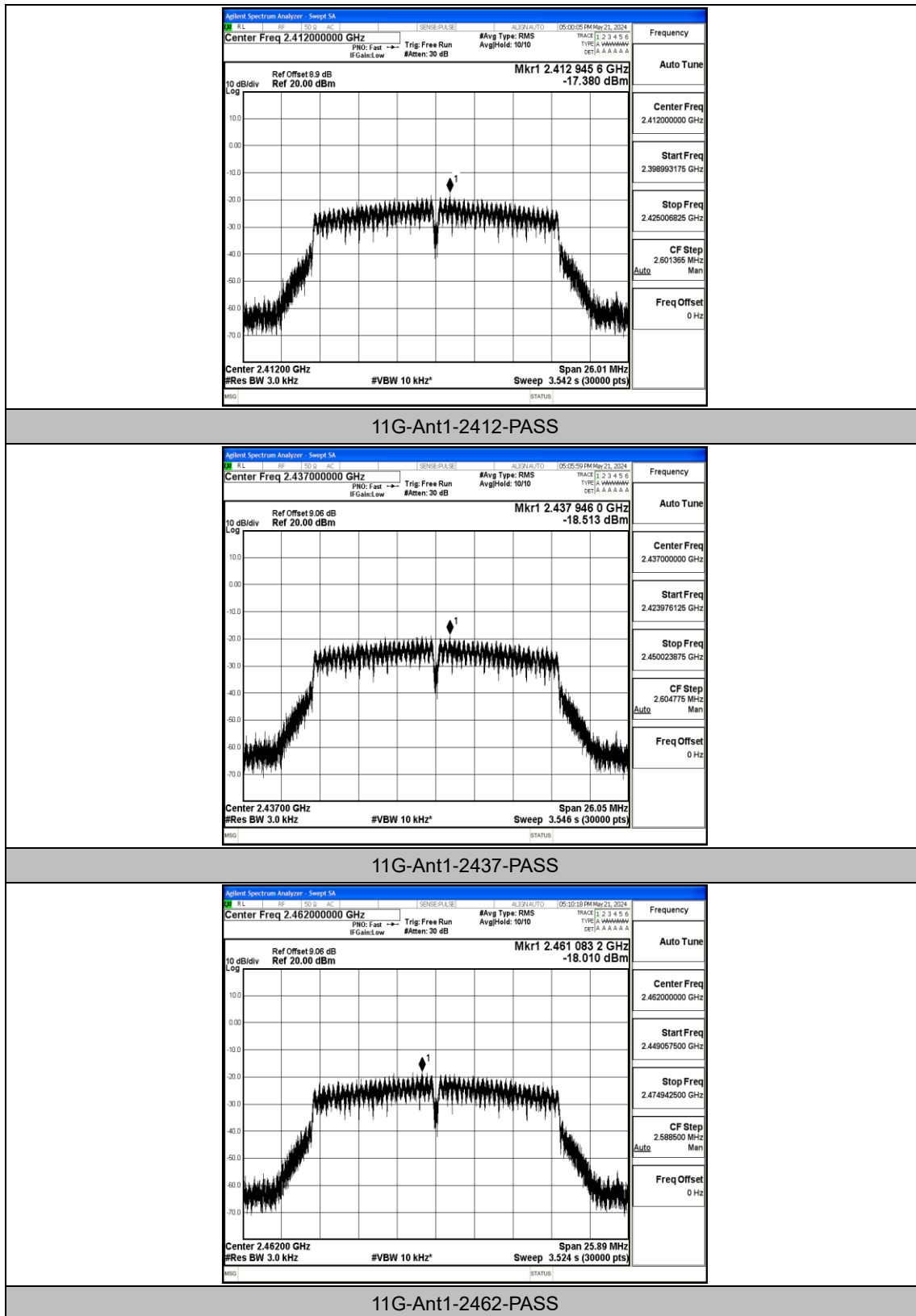
Appendix D: Maximum Average power spectral density

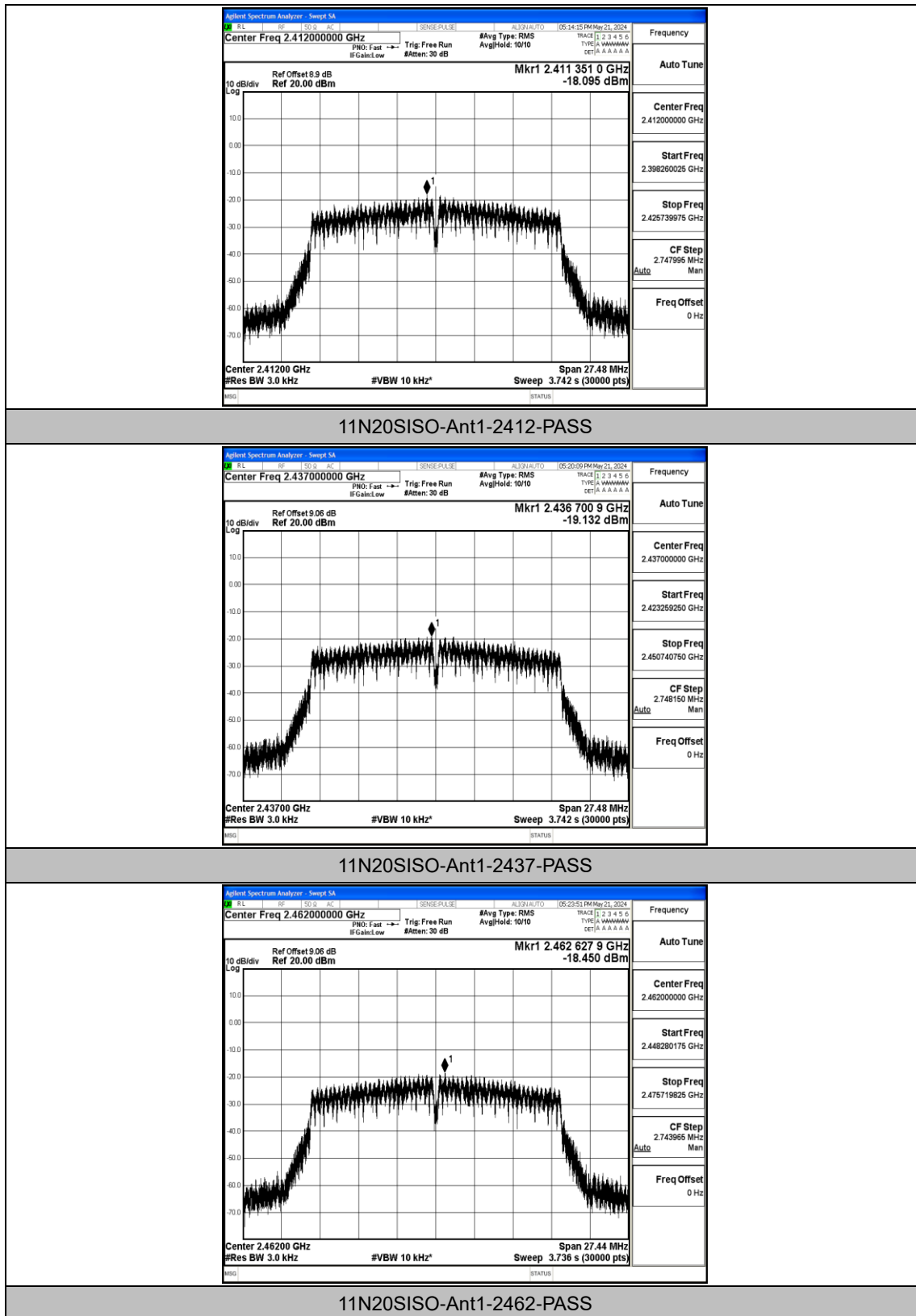
Test Result

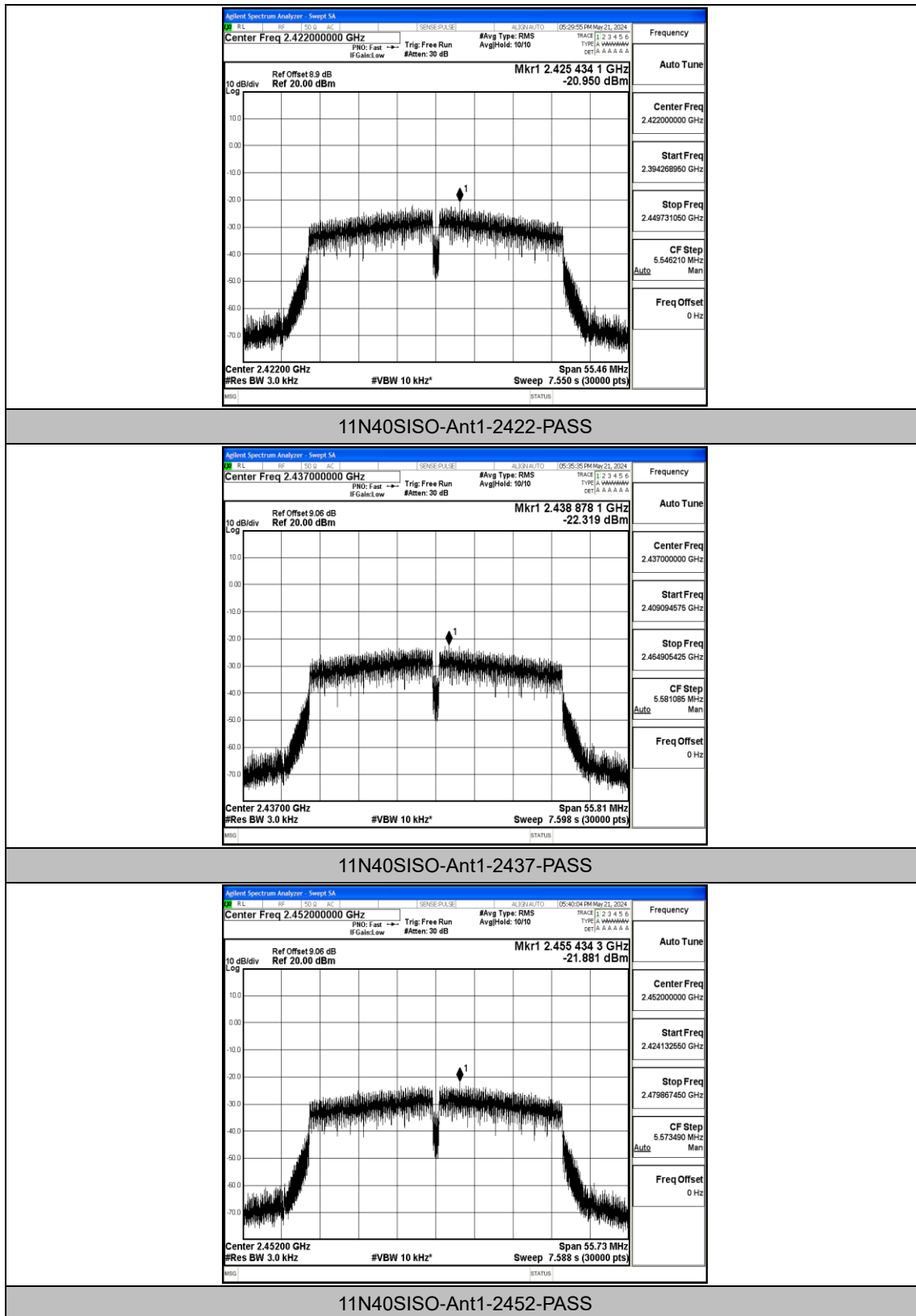
TestMode	Antenna	Frequency[MHz]	Reading Value[dBm]	Duty Cycle Factor[dB]	Result[dBm/3-100 kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-12.82	0.10	-12.72	≤8.00	PASS
11B	Ant1	2437	-17.48	0.04	-17.44	≤8.00	PASS
11B	Ant1	2462	-11.41	0.06	-11.35	≤8.00	PASS
11G	Ant1	2412	-17.38	0.48	-16.90	≤8.00	PASS
11G	Ant1	2437	-18.51	0.48	-18.03	≤8.00	PASS
11G	Ant1	2462	-18.01	0.62	-17.39	≤8.00	PASS
11N20SI SO	Ant1	2412	-18.1	0.55	-17.55	≤8.00	PASS
11N20SI SO	Ant1	2437	-19.13	0.43	-18.70	≤8.00	PASS
11N20SI SO	Ant1	2462	-18.45	0.40	-18.05	≤8.00	PASS
11N40SI SO	Ant1	2422	-20.95	0.44	-20.51	≤8.00	PASS
11N40SI SO	Ant1	2437	-22.32	0.50	-21.82	≤8.00	PASS
11N40SI SO	Ant1	2452	-21.88	1.10	-20.78	≤8.00	PASS

Test Graphs









Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	0~Reference	2.16	2.16	---	PASS
11B	Ant1	2412	30~1000	2.16	-62.72	≤-27.84	PASS
11B	Ant1	2412	1000~26500	2.16	-49.95	≤-27.84	PASS
11B	Ant1	2437	0~Reference	1.26	1.26	---	PASS
11B	Ant1	2437	30~1000	1.26	-62.75	≤-28.74	PASS
11B	Ant1	2437	1000~26500	1.26	-49.92	≤-28.74	PASS
11B	Ant1	2462	0~Reference	2.41	2.41	---	PASS
11B	Ant1	2462	30~1000	2.41	-62.84	≤-27.59	PASS
11B	Ant1	2462	1000~26500	2.41	-49.52	≤-27.59	PASS
11G	Ant1	2412	0~Reference	0.36	0.36	---	PASS
11G	Ant1	2412	30~1000	0.36	-62.55	≤-29.64	PASS
11G	Ant1	2412	1000~26500	0.36	-50.09	≤-29.64	PASS
11G	Ant1	2437	0~Reference	-0.53	-0.53	---	PASS
11G	Ant1	2437	30~1000	-0.53	-62.62	≤-30.53	PASS
11G	Ant1	2437	1000~26500	-0.53	-49.49	≤-30.53	PASS
11G	Ant1	2462	0~Reference	1.44	1.44	---	PASS
11G	Ant1	2462	30~1000	1.44	-61.52	≤-28.56	PASS
11G	Ant1	2462	1000~26500	1.44	-50.78	≤-28.56	PASS
11N20SISO	Ant1	2412	0~Reference	0.31	0.31	---	PASS
11N20SISO	Ant1	2412	30~1000	0.31	-61.93	≤-29.69	PASS
11N20SISO	Ant1	2412	1000~26500	0.31	-50.91	≤-29.69	PASS
11N20SISO	Ant1	2437	0~Reference	-1.67	-1.67	---	PASS
11N20SISO	Ant1	2437	30~1000	-1.67	-62.39	≤-31.67	PASS
11N20SISO	Ant1	2437	1000~26500	-1.67	-50.42	≤-31.67	PASS
11N20SISO	Ant1	2462	0~Reference	-1.13	-1.13	---	PASS
11N20SISO	Ant1	2462	30~1000	-1.13	-59.76	≤-31.13	PASS
11N20SISO	Ant1	2462	1000~26500	-1.13	-50.77	≤-31.13	PASS
11N40SISO	Ant1	2422	0~Reference	-3.06	-3.06	---	PASS
11N40SISO	Ant1	2422	30~1000	-3.06	-59.29	≤-33.06	PASS
11N40SISO	Ant1	2422	1000~26500	-3.06	-48.69	≤-33.06	PASS
11N40SISO	Ant1	2437	0~Reference	-3.70	-3.70	---	PASS
11N40SISO	Ant1	2437	30~1000	-3.70	-59.08	≤-33.7	PASS
11N40SISO	Ant1	2437	1000~26500	-3.70	-50.58	≤-33.7	PASS
11N40SISO	Ant1	2452	0~Reference	-2.13	-2.13	---	PASS
11N40SISO	Ant1	2452	30~1000	-2.13	-59.2	≤-32.13	PASS
11N40SISO	Ant1	2452	1000~26500	-2.13	-50.21	≤-32.13	PASS

Signal Spectrum Analyzer - Sweep SA

Center Freq 2.41200000 GHz

PRO: Fast → IF Gain: Low

Trig: Free Run

#Att: 30 dB

ALTAUTO

06:25:58 PM May 21, 2024

TRAC [1 2 3 4 5 6]

TYP: CHAN: AM

DEP: P P P P P

Frequency

Auto Tun

Center Freq 2.41200000 GHz

Start Freq 2.397000000 GHz

Stop Freq 2.427000000 GHz

CF Step 3.000000 MHz

Auto

Freq Offset 0 Hz

10 dB/div

Ref Offset 8.9 dB

Ref 28.90 dBm

Mkr1 2.415 00 GHz

2.156 dBm

Center 2.41200 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 30.00 MHz

Sweep 2.933 ms (1001 pts)

Agilent Spectrum Analyzer - Screenshot

Center Freq 515.000000 MHz

PRF: Fast
#Gate: Low

Trig: Free Run
#Atten: 20 dB

SENSE: PLUSE

AUTO

Avg Type: RMS
Avg/Hold: 10/10

16:26:02 PM May 21, 2024

TRACE 1 1 2 3 4 5 6

TYPE: NORM

DEP: P P P P P

Frequency

Auto Tune

Center Freq
515.000000 MHz

Span
30.000000 MHz

Stop Freq
1.000000 GHz

CF Stop
97.000000 MHz

Freq Offset
0 Hz

10 dB/div

Ref 10.00 dBm

Mkr1 995.51 MHz
-62.721 dBm

-72.721 dBm

Start 30.0 MHz
#Res BW 100 kHz

#VBW 300 kHz

Sweep 94.00 ms (30001 pts)

Stop 1.0000 GHz

STATUS

Agilent Spectrum Analyzer - Screenshot

11.3 GHz Center Freq 13.750000000 GHz

Center Freq 13.750000000 GHz

10 dB/div Ref 10.00 dBm

Log

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

-70.0

-80.0

1

Mkr2 26.072 45 GHz

-49.945 dBm

-78.84 dBm

Start 1.00 GHz

Stop 26.50 GHz

Res BW 100 kHz

#VBW 300 kHz

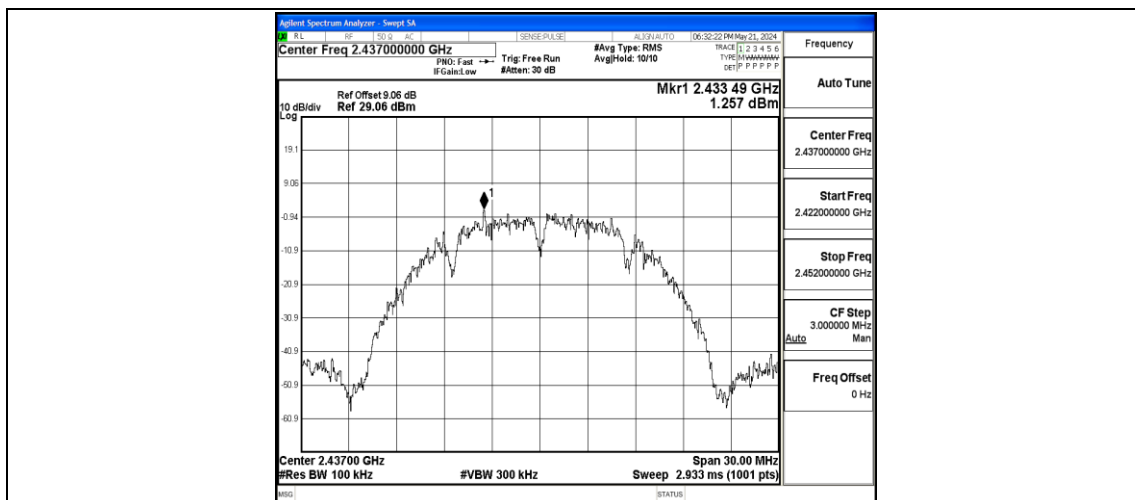
Sweep 2.438 s (30001 pts)

Row	Freq	Mag	Unit
1	2.415 25 GHz	2.440	dBm
2	26.072 45 GHz	-49.945	dBm

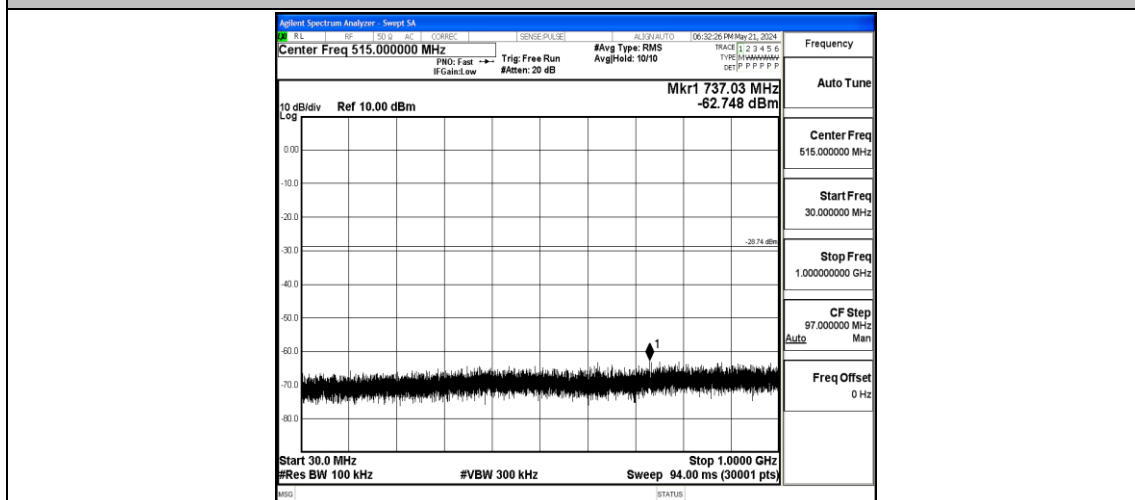
Auto

Freq Offs 0

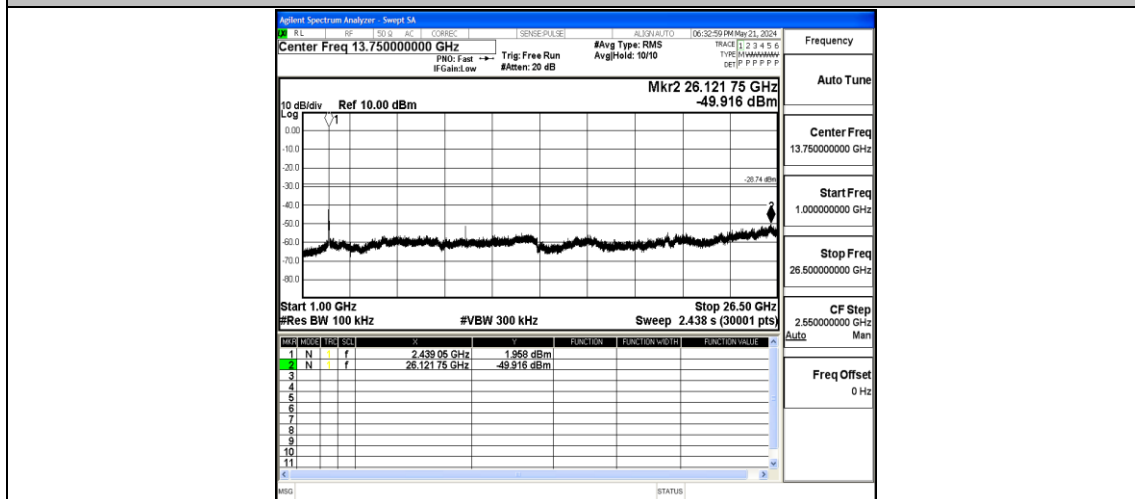
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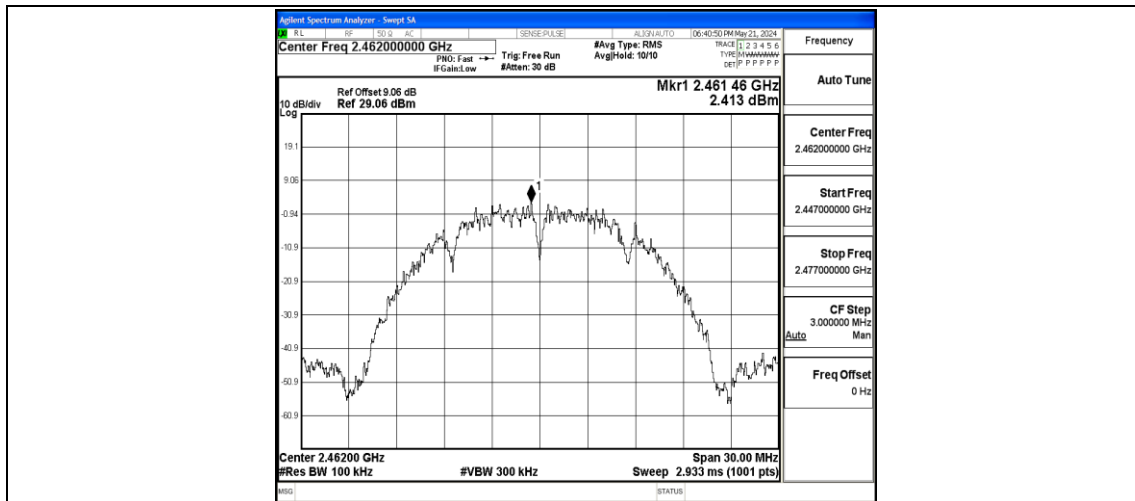
11B-Ant1-2437-0~Reference-PASS



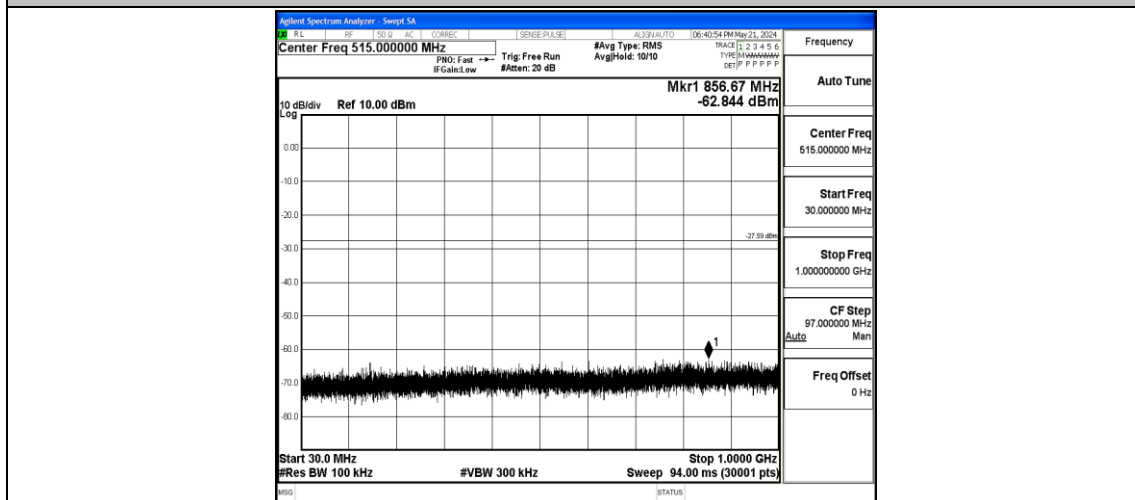
11B-Ant1-2437-30~1000-PASS



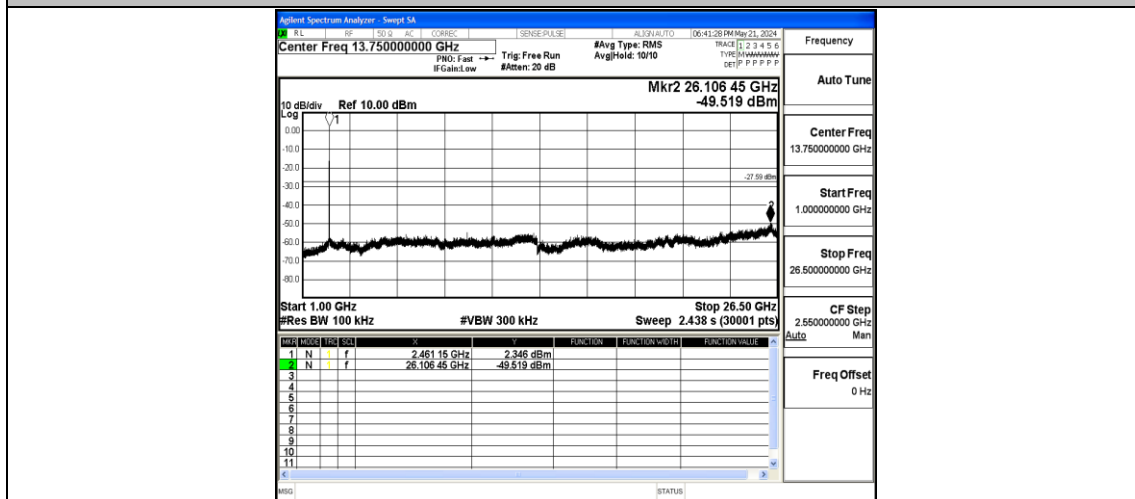
11B-Ant1-2437-1000~26500-PASS



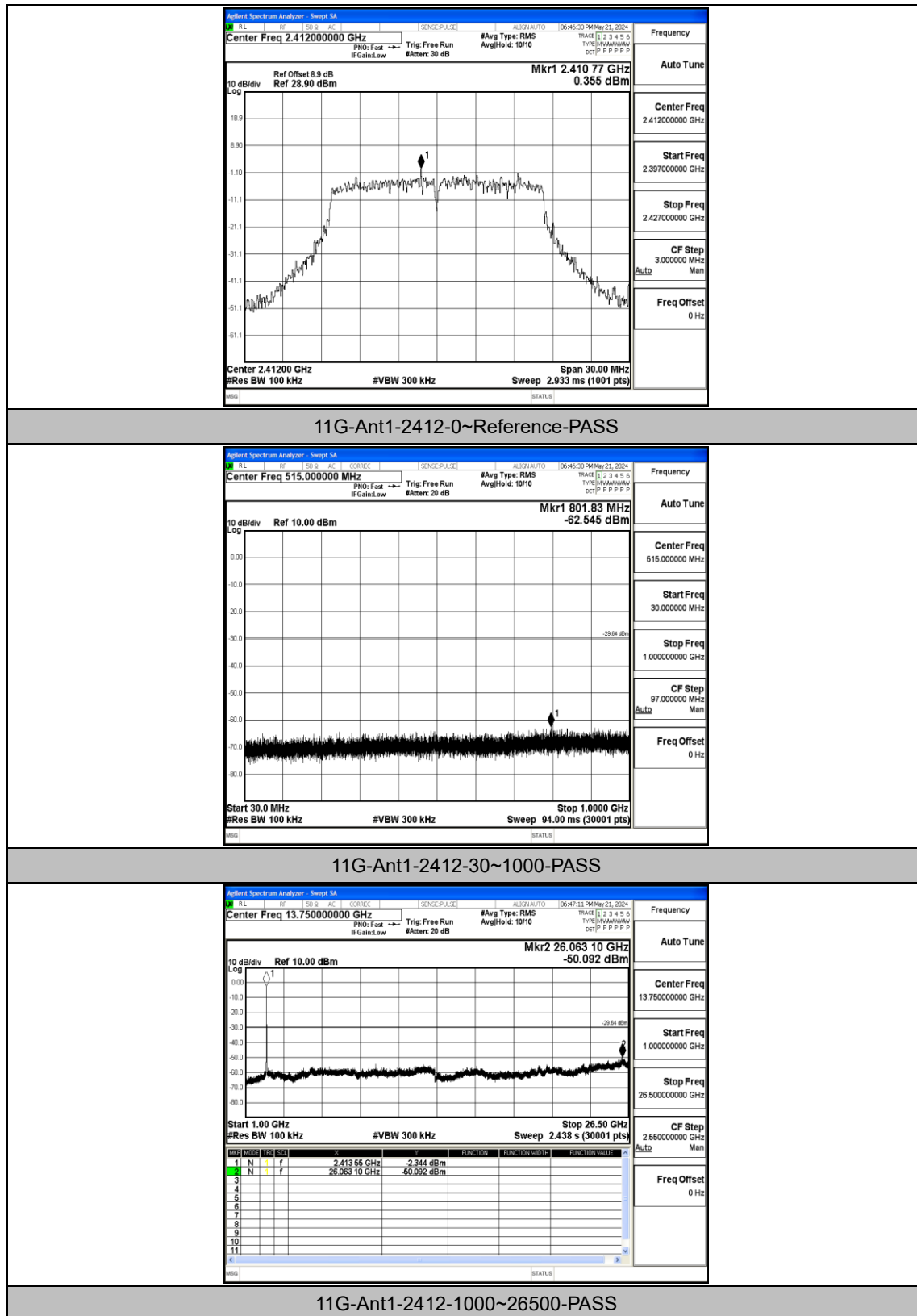
11B-Ant1-2462-0~Reference-PASS

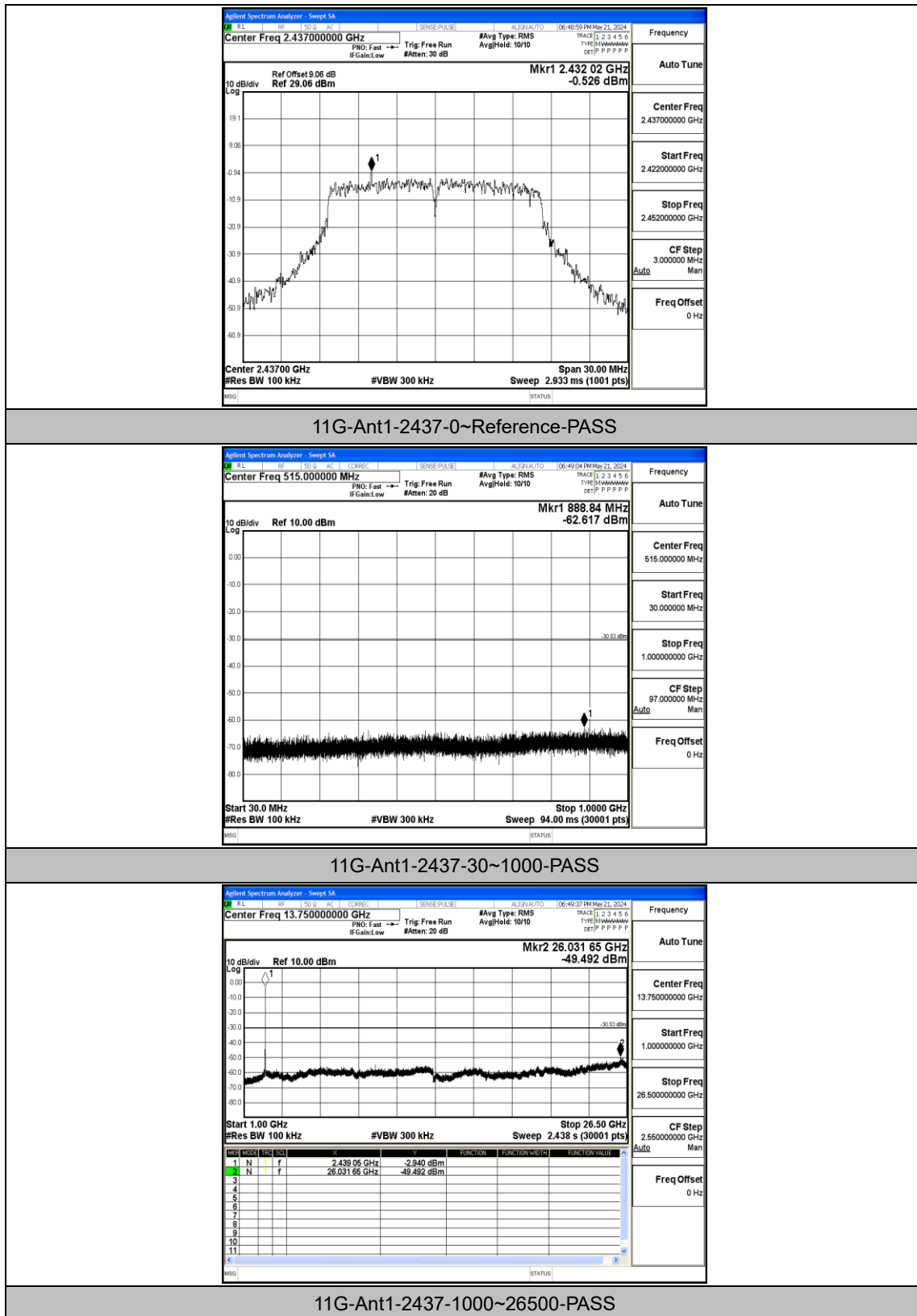


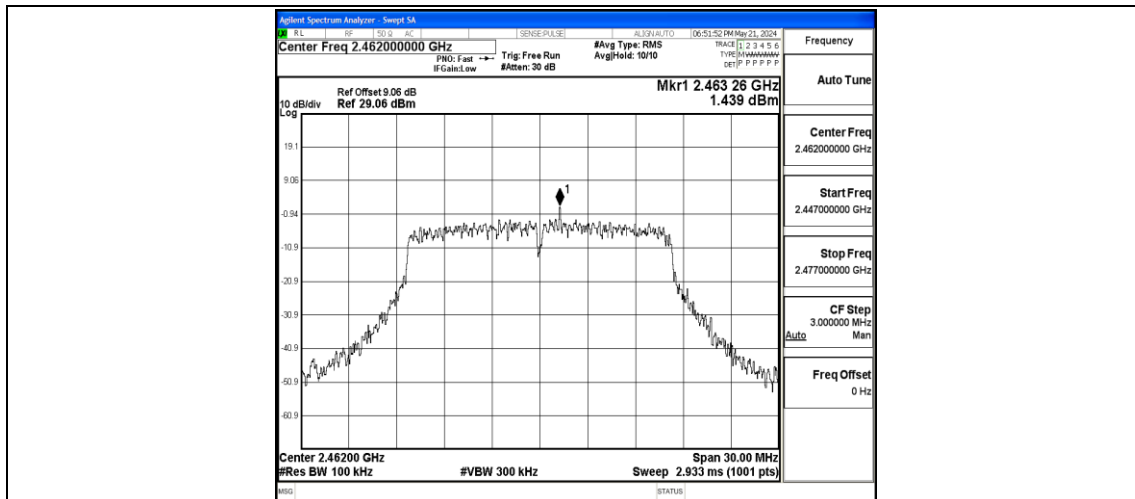
11B-Ant1-2462-30~1000-PASS



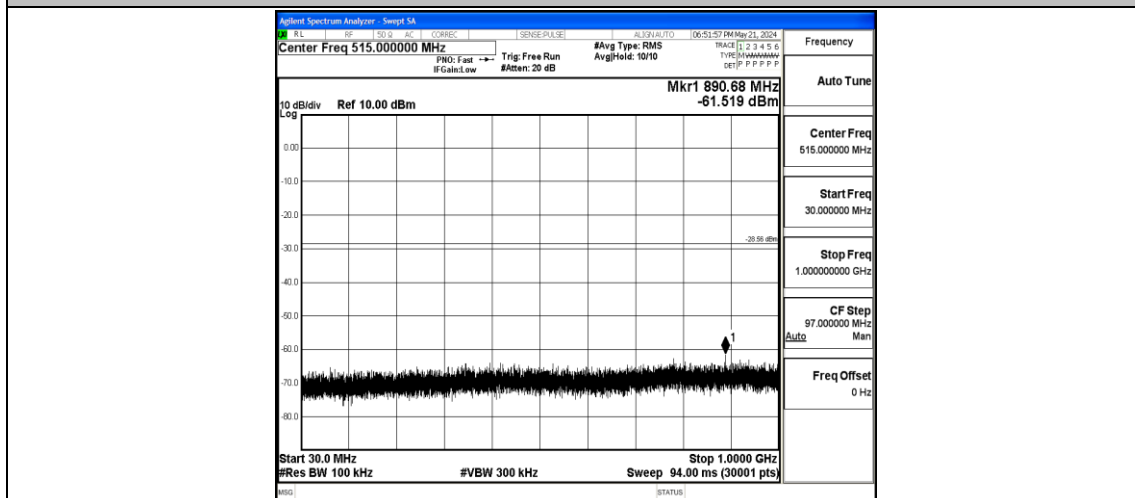
11B-Ant1-2462-1000~26500-PASS



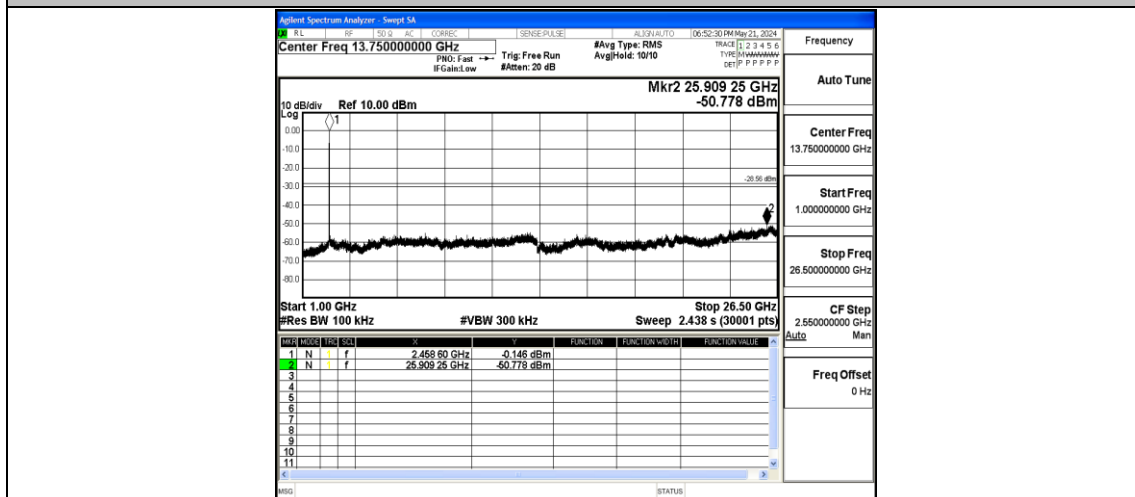




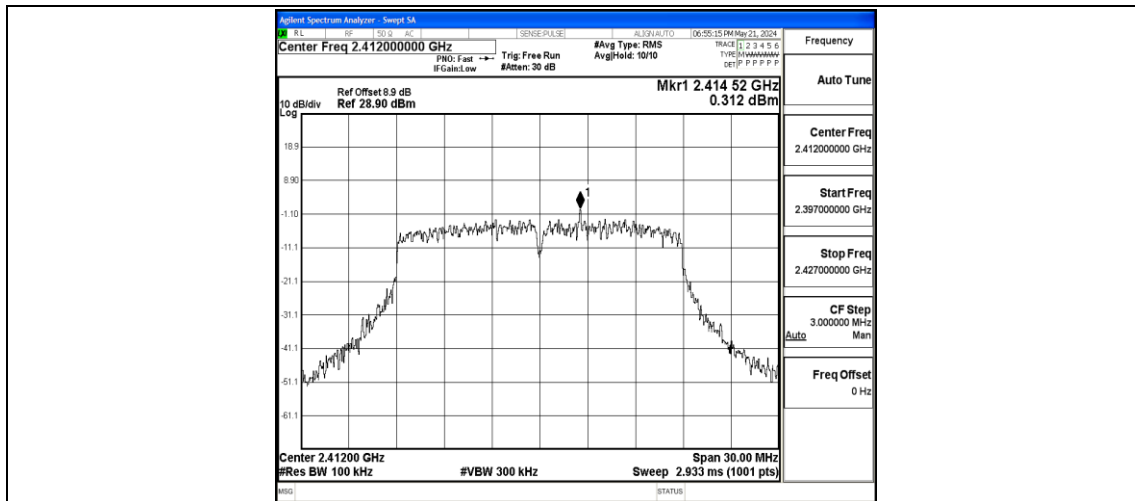
11G-Ant1-2462-0~Reference-PASS



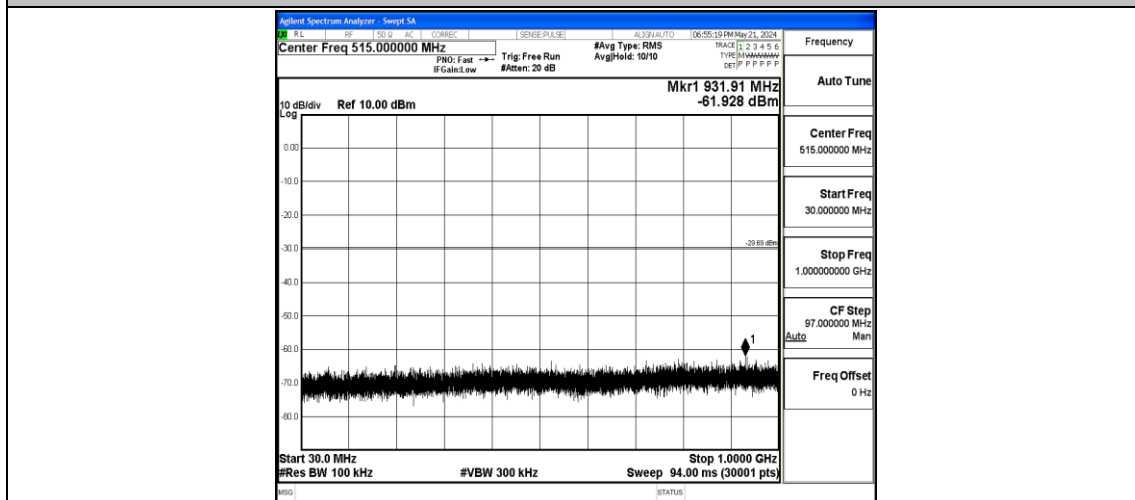
11G-Ant1-2462-30~1000-PASS



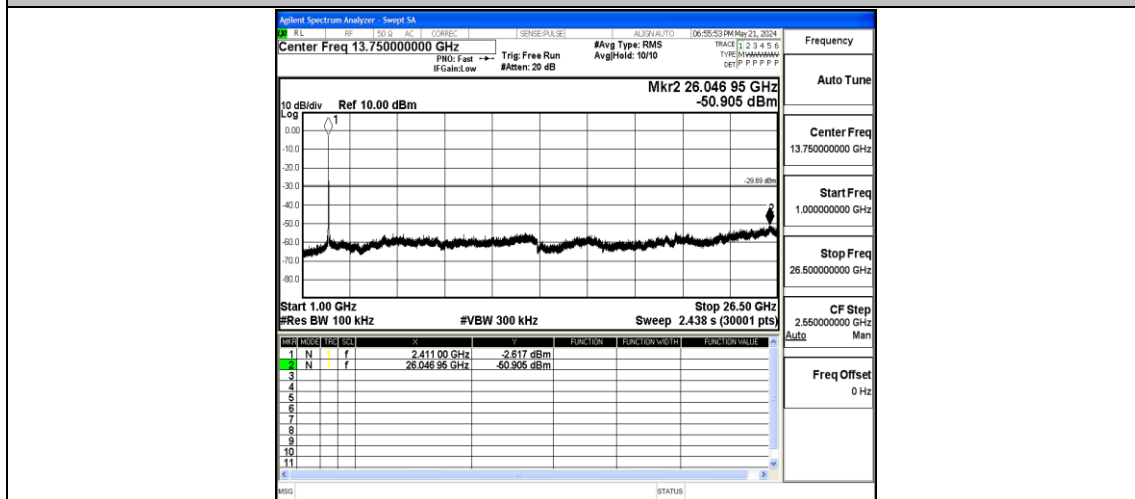
11G-Ant1-2462-1000~26500-PASS



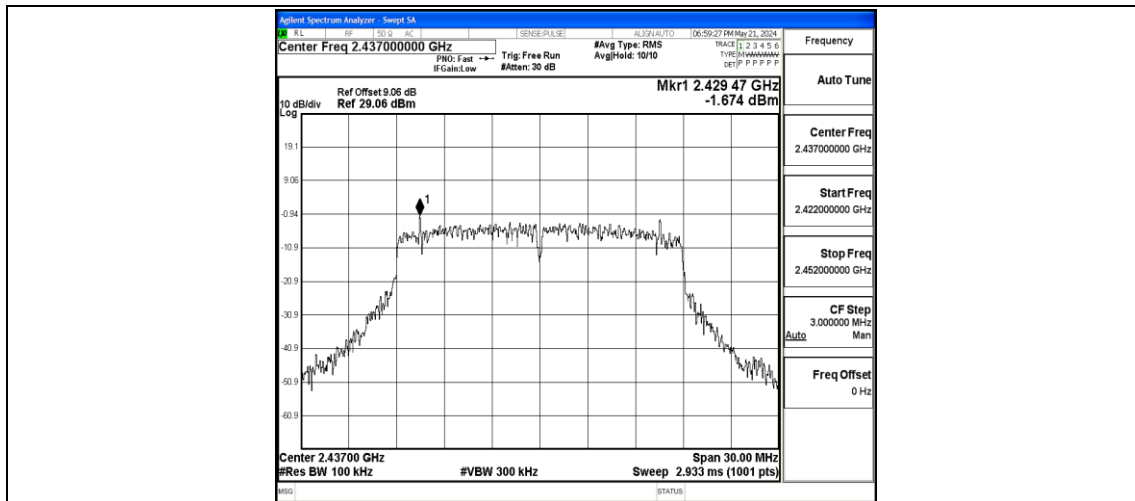
11N20SISO-Ant1-2412-0~Reference-PASS



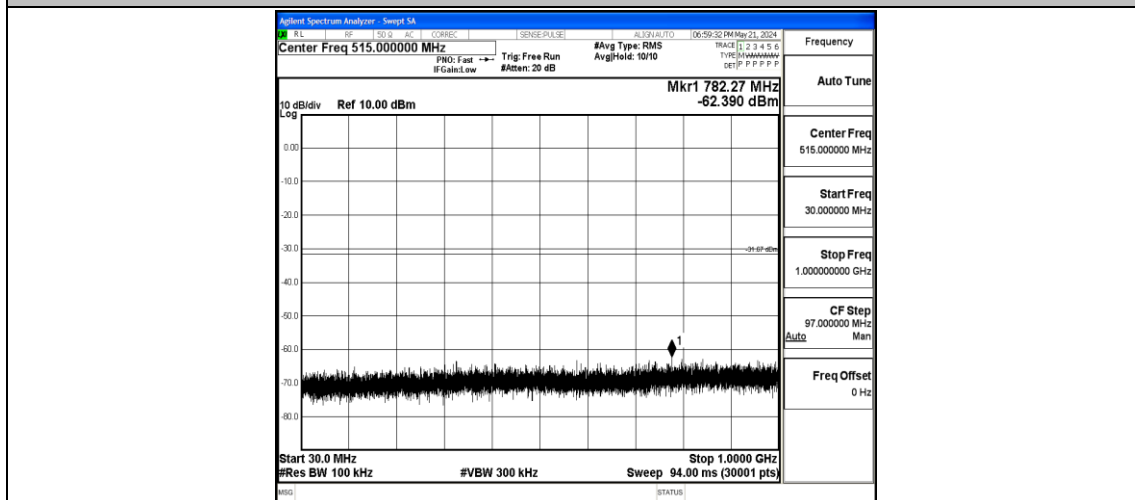
11N20SISO-Ant1-2412-30~1000-PASS



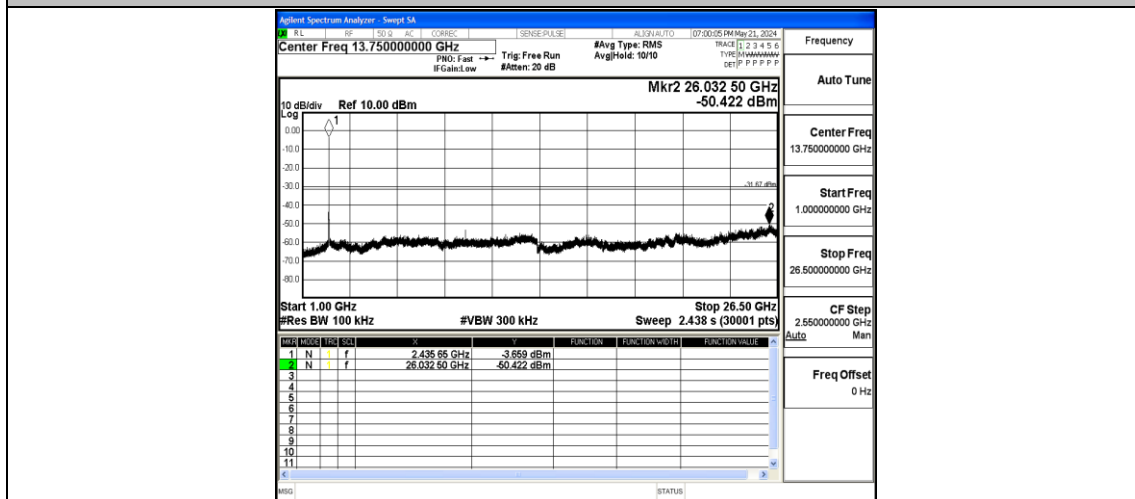
11N20SISO-Ant1-2412-1000~26500-PASS



11N20SISO-Ant1-2437-0~Reference-PASS



11N20SISO-Ant1-2437-30~1000-PASS



11N20SISO-Ant1-2437-1000~26500-PASS

