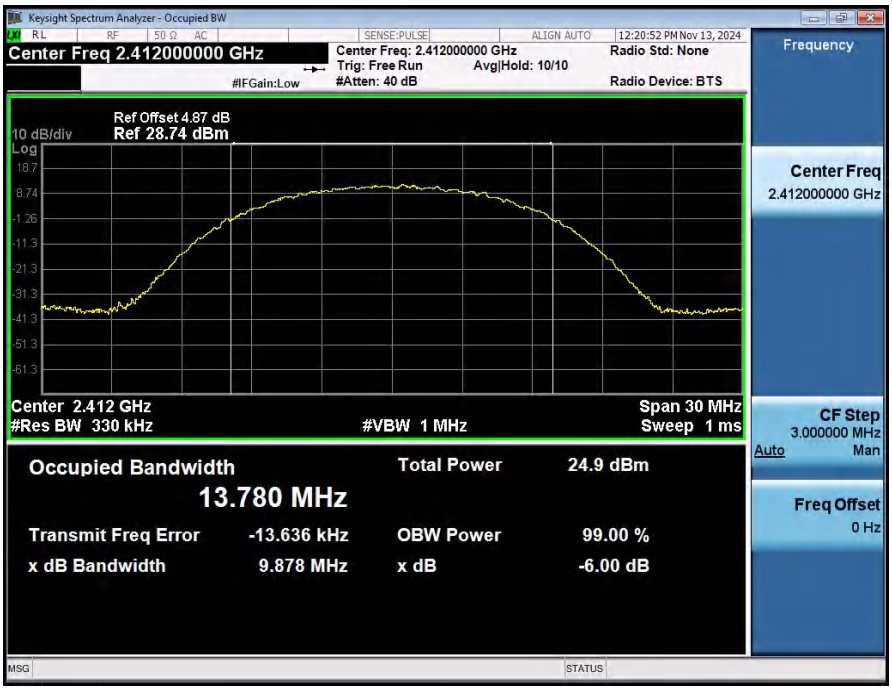
Appendix Test Data

Report No.:	1812C40121412502	Test Sample No.:	1-2-2
Start Test Date:	2024.10.28	Finish Test Date:	2024.11.28
Test Engineer:	Joker Huang	Auditor:	Justin Feng
Temperature:	22.6℃	Relative Humidity:	53%
Pressure:	101kPa		

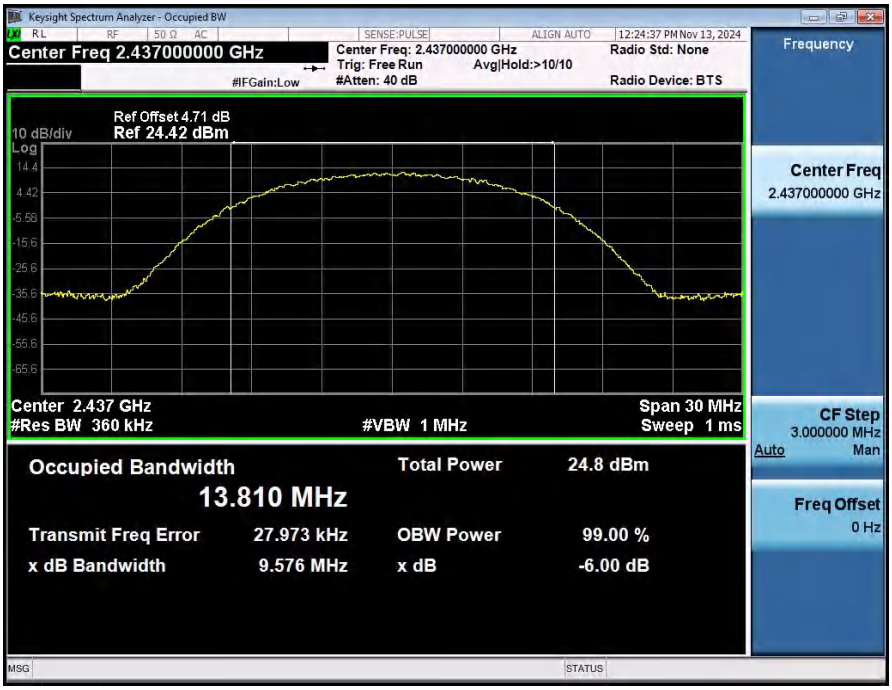
Appendix A: -6dB Bandwidth

Condition	Antenna	Modulation	Frequency (MHz)	-6dB BW(MHz)	limit(kHz)	Result
NVNT	ANT1	802.11b	2412.00	9.88	500	Pass
NVNT	ANT1	802.11b	2437.00	9.58	500	Pass
NVNT	ANT1	802.11b	2462.00	9.91	500	Pass
NVNT	ANT1	802.11g	2412.00	16.46	500	Pass
NVNT	ANT1	802.11g	2437.00	16.50	500	Pass
NVNT	ANT1	802.11g	2462.00	16.53	500	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	17.75	500	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	17.76	500	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	17.76	500	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	36.18	500	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	36.17	500	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	36.06	500	Pass

-6dB_Bandwidth_NVNT_ANT1_802_11b_2412

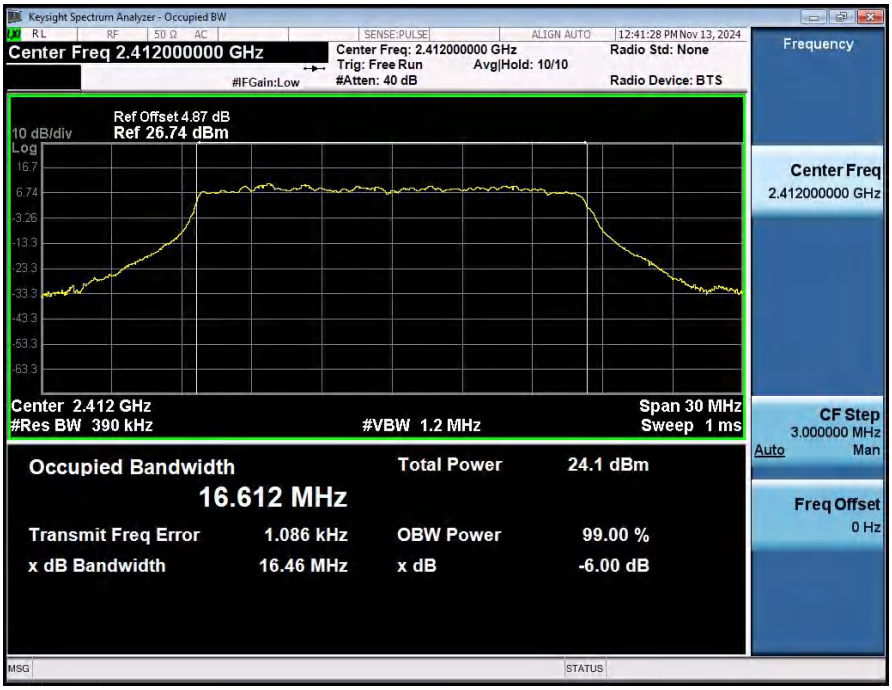


-6dB_Bandwidth_NVNT_ANT1_802_11b_2437

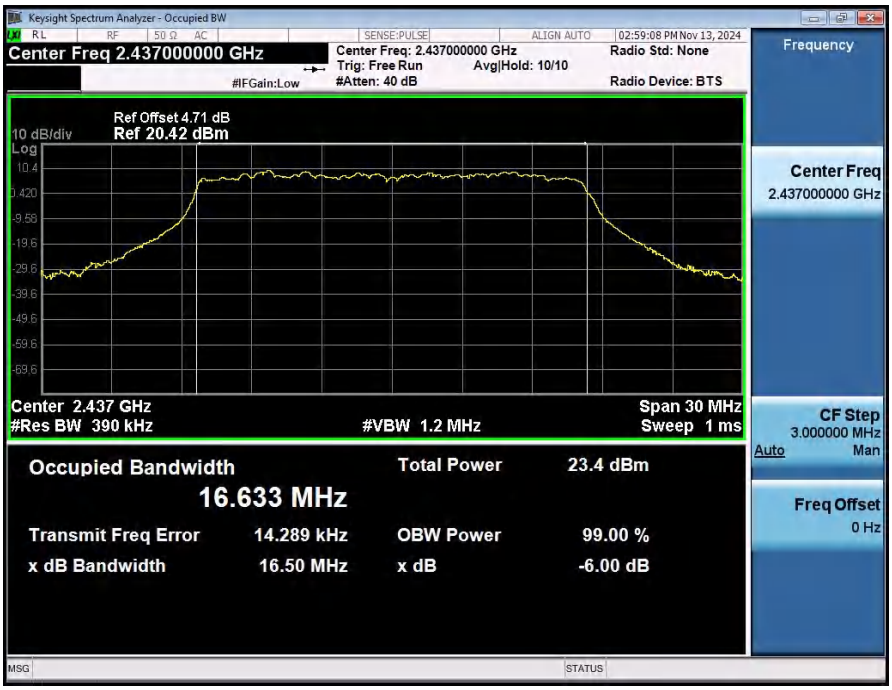


-6dB_Bandwidth_NVNT_ANT1_802_11b_2462

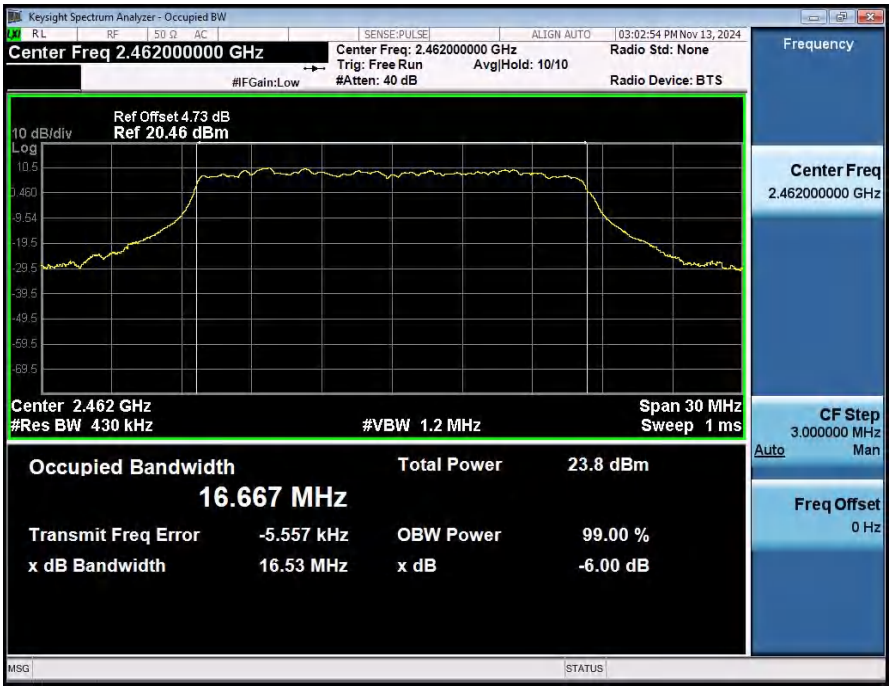
-6dB_Bandwidth_NVNT_ANT1_802_11g_2412



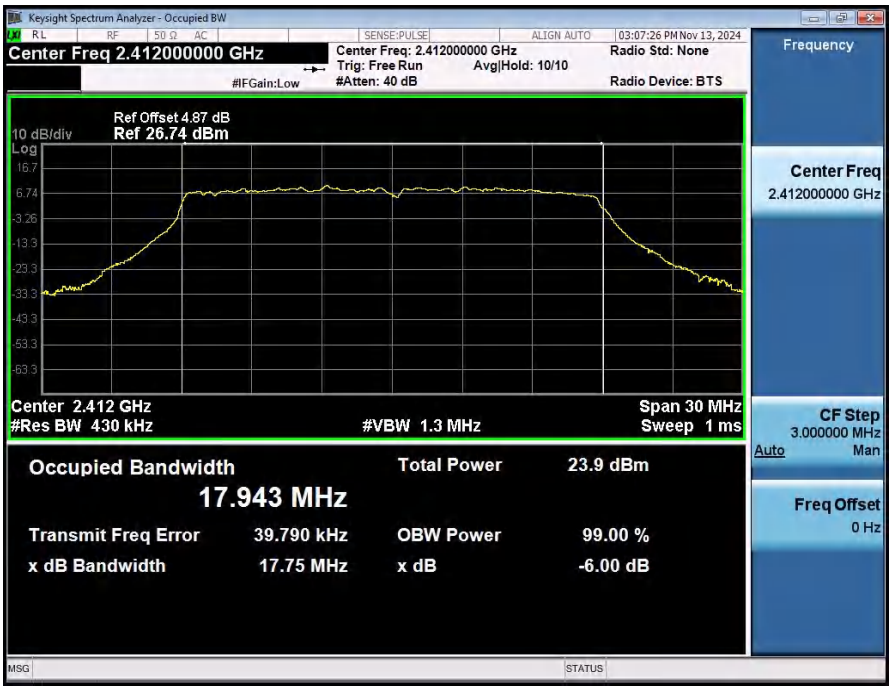
-6dB_Bandwidth_NVNT_ANT1_802_11g_2437



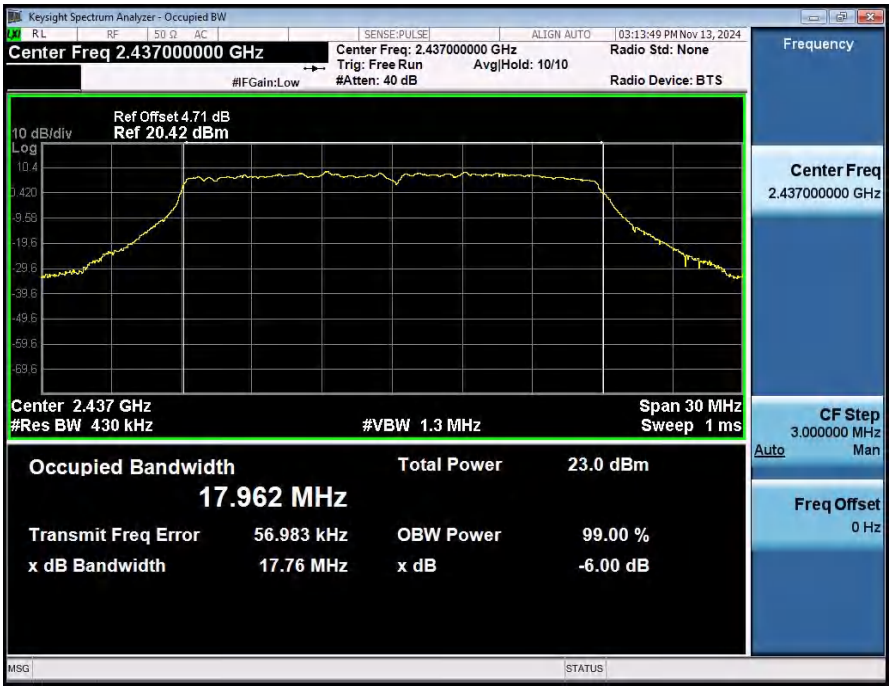
-6dB_Bandwidth_NVNT_ANT1_802_11g_2462



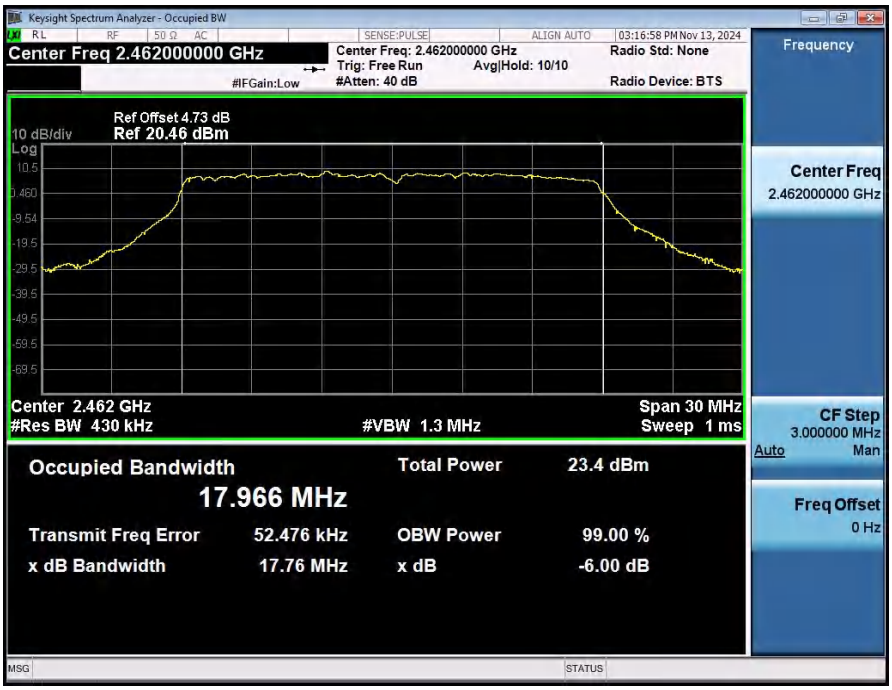
-6dB_Bandwidth_NVNT_ANT1_802_11n(HT20)_2412



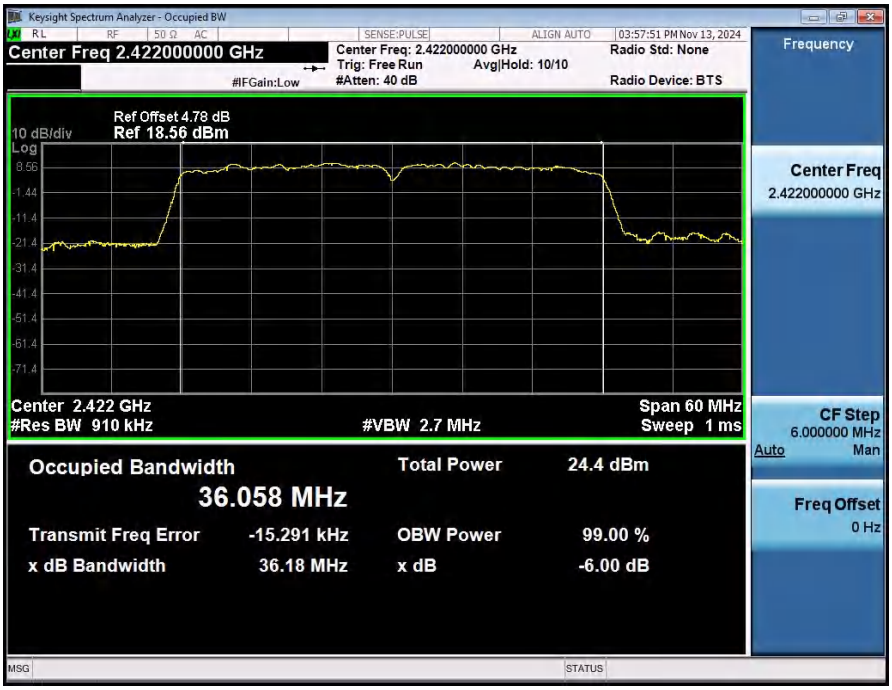
-6dB_Bandwidth_NVNT_ANT1_802_11n(HT20)_2437



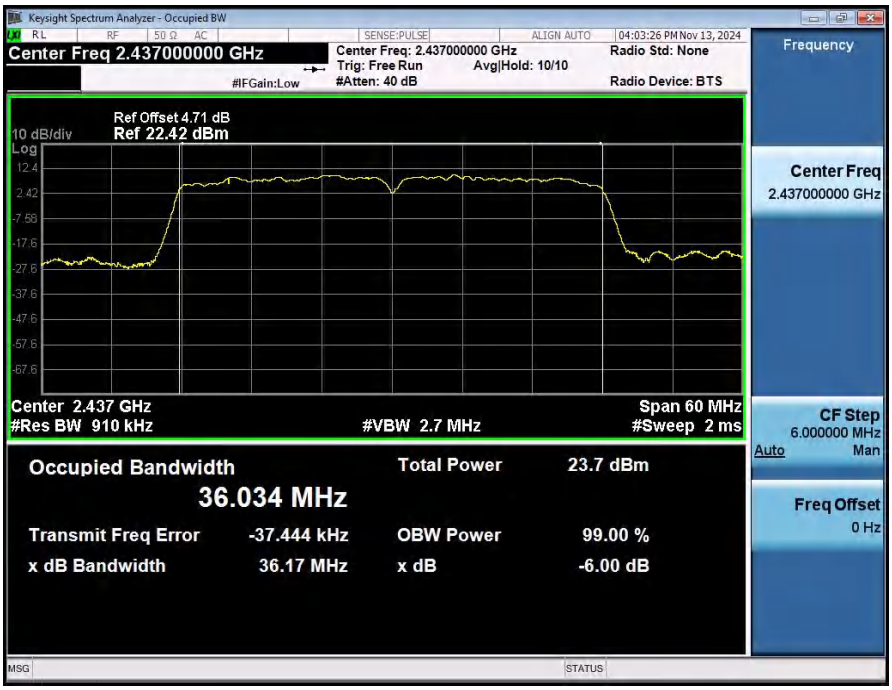
-6dB_Bandwidth_NVNT_ANT1_802_11n(HT20)_2462



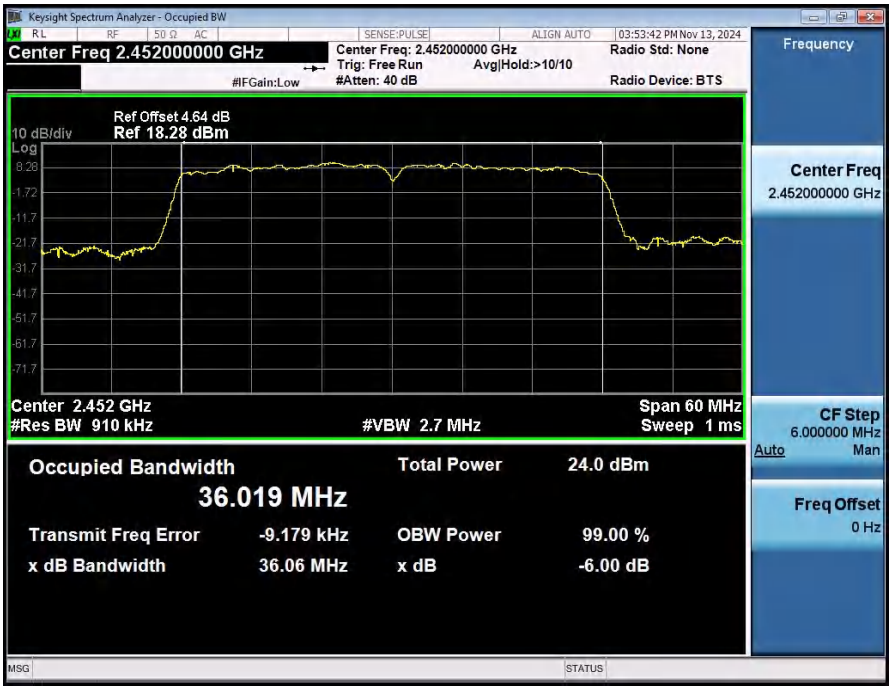
-6dB_Bandwidth_NVNT_ANT1_802_11n(HT40)_2422



-6dB_Bandwidth_NVNT_ANT1_802_11n(HT40)_2437



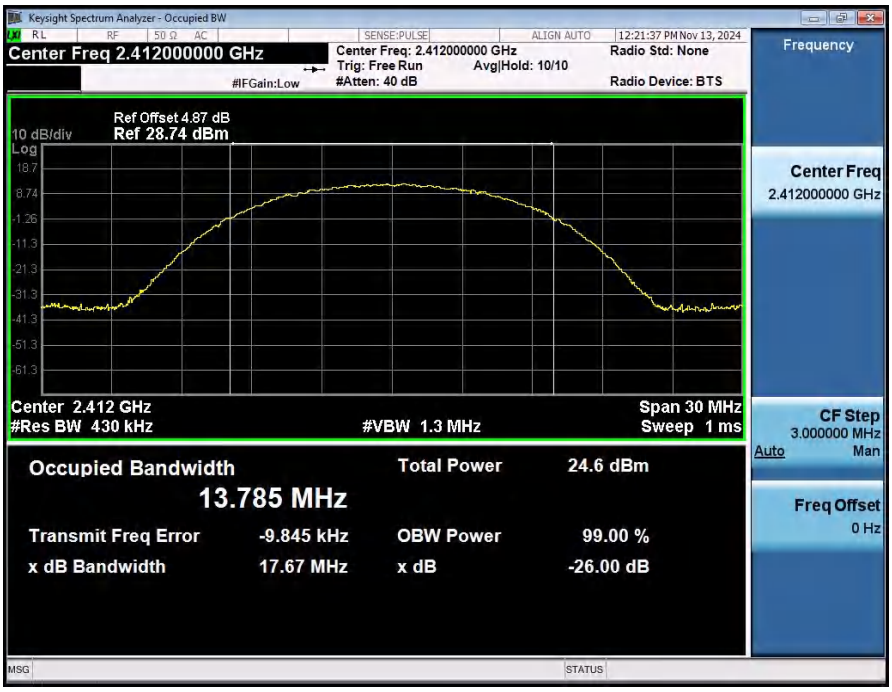
-6dB_Bandwidth_NVNT_ANT1_802_11n(HT40)_2452



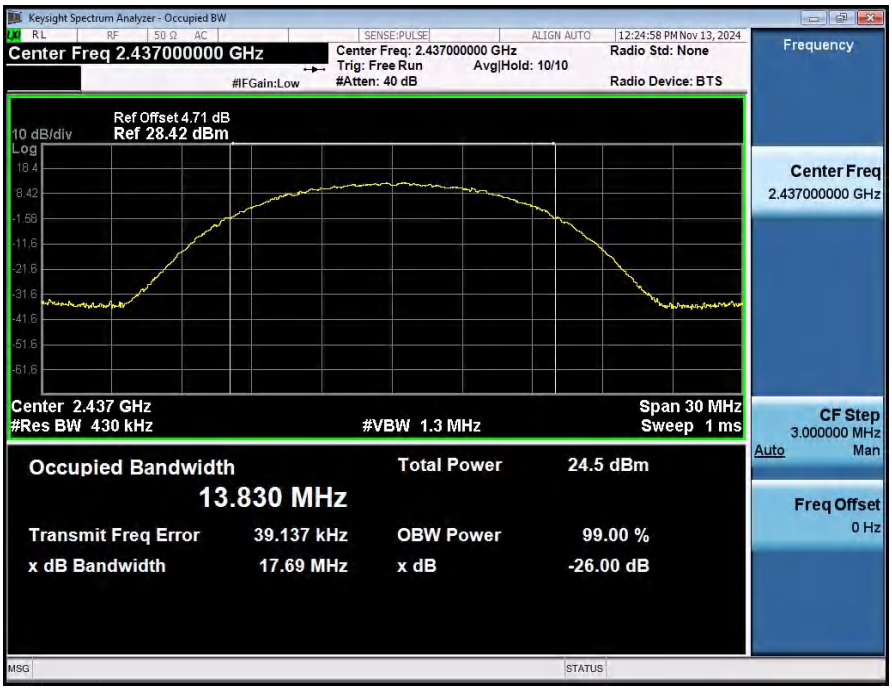
Appendix B: 99% Occupied Bandwidth

Condition	Antenna	Modulation	Frequency (MHz)	99%BW(MHz)
NVNT	ANT1	802.11b	2412.00	13.785
NVNT	ANT1	802.11b	2437.00	13.830
NVNT	ANT1	802.11b	2462.00	13.825
NVNT	ANT1	802.11g	2412.00	16.680
NVNT	ANT1	802.11g	2437.00	16.703
NVNT	ANT1	802.11g	2462.00	16.712
NVNT	ANT1	802.11n(HT20)	2412.00	17.995
NVNT	ANT1	802.11n(HT20)	2437.00	18.012
NVNT	ANT1	802.11n(HT20)	2462.00	18.045
NVNT	ANT1	802.11n(HT40)	2422.00	36.043
NVNT	ANT1	802.11n(HT40)	2437.00	36.029
NVNT	ANT1	802.11n(HT40)	2452.00	36.025

99%_Occupied_Bandwidth_NVNT_ANT1_802_11b_2412

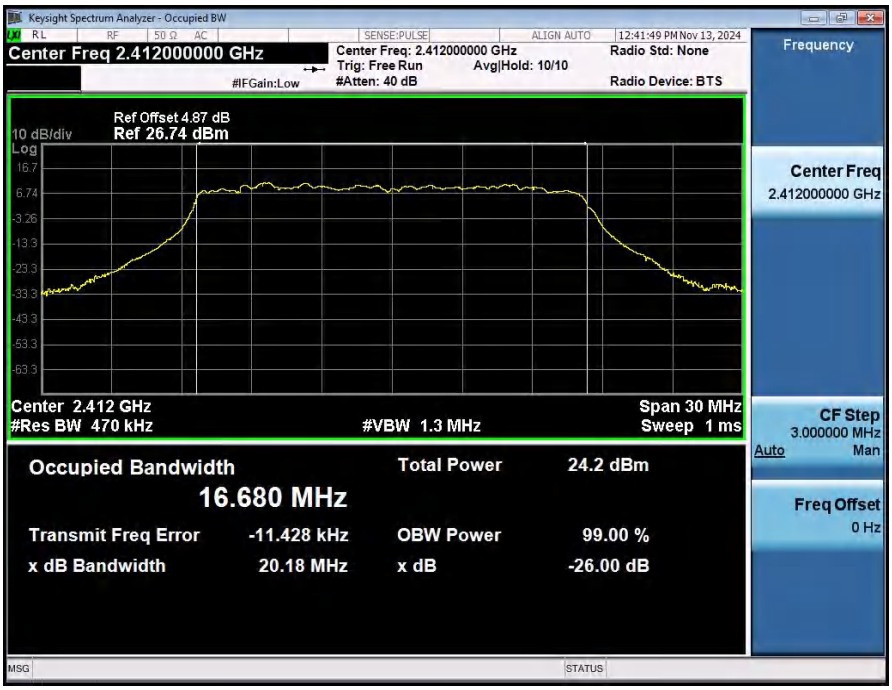


99%_Occupied_Bandwidth_NVNT_ANT1_802_11b_2437

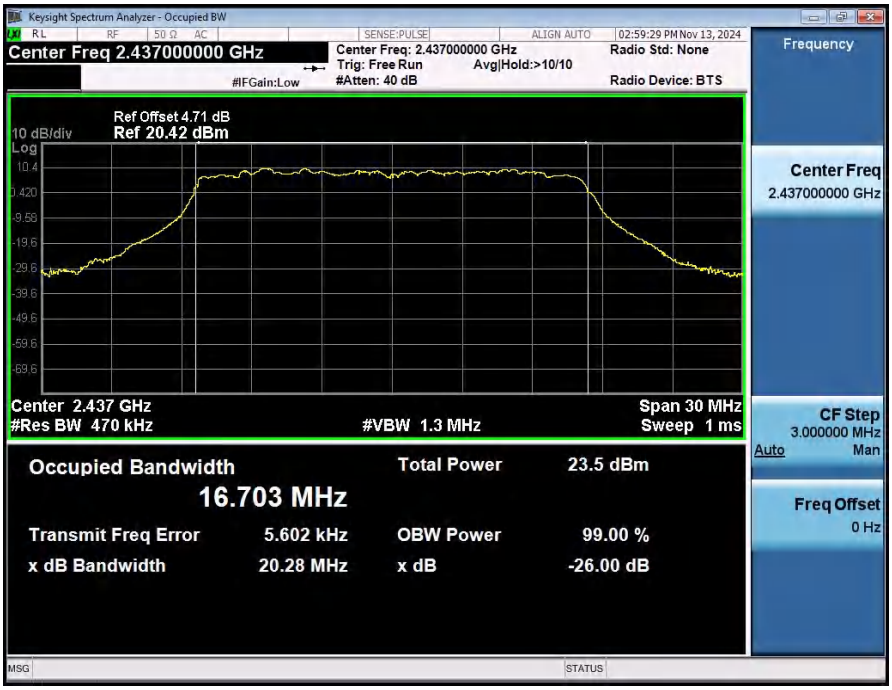


99%_Occupied_Bandwidth_NVNT_ANT1_802_11b_2462

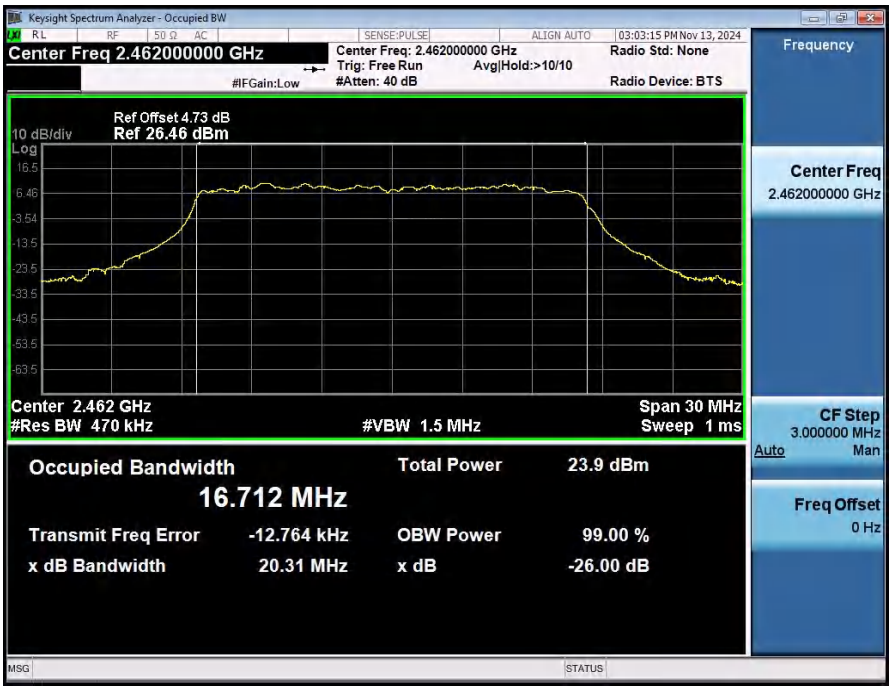
99%_Occupied_Bandwidth_NVNT_ANT1_802_11g_2412



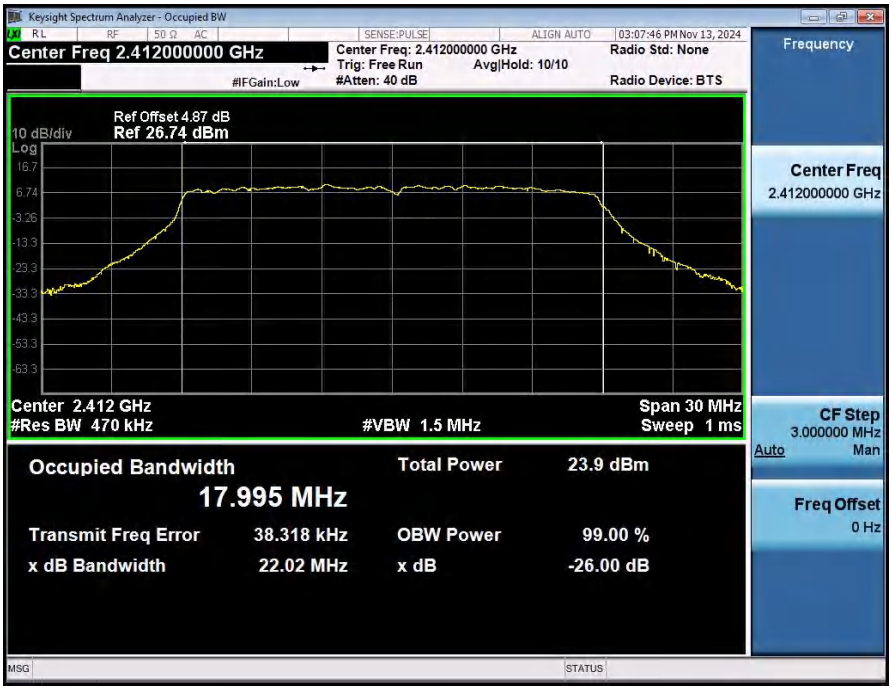
99%_Occupied_Bandwidth_NVNT_ANT1_802_11g_2437



99%_Occupied_Bandwidth_NVNT_ANT1_802_11g_2462

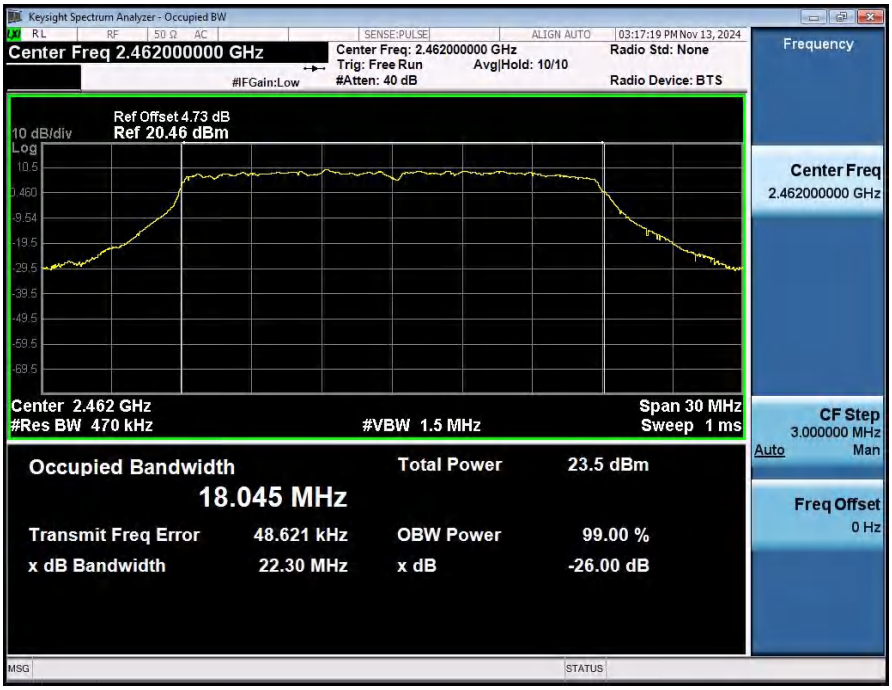


99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT20)_2412

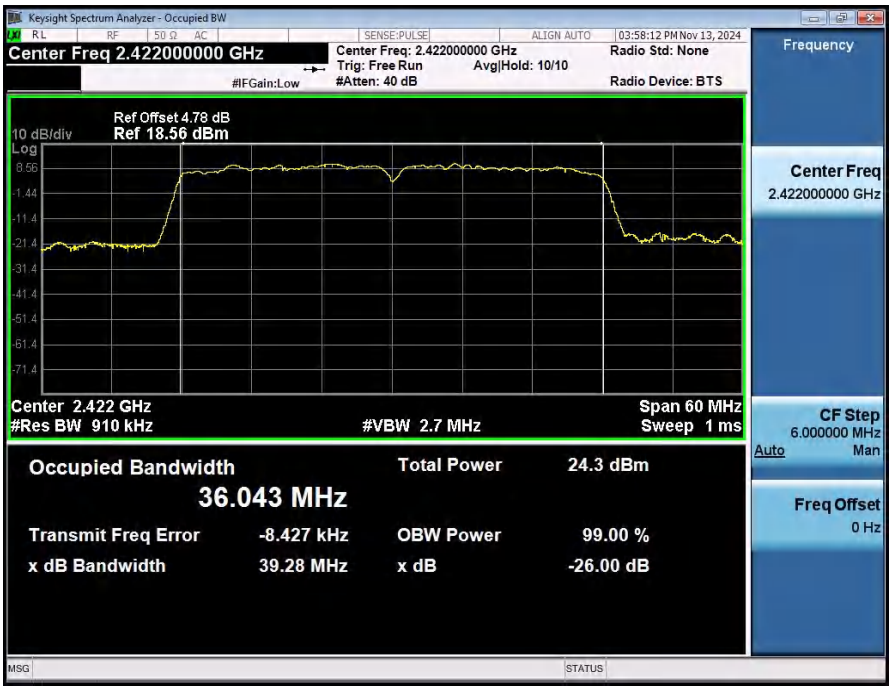


99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT20)_2437

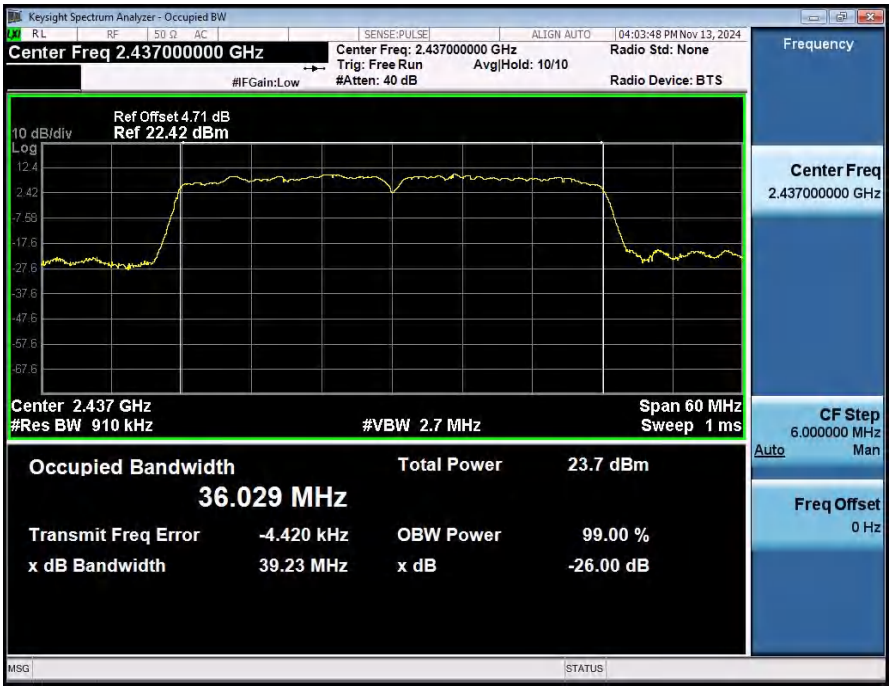
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT20)_2462



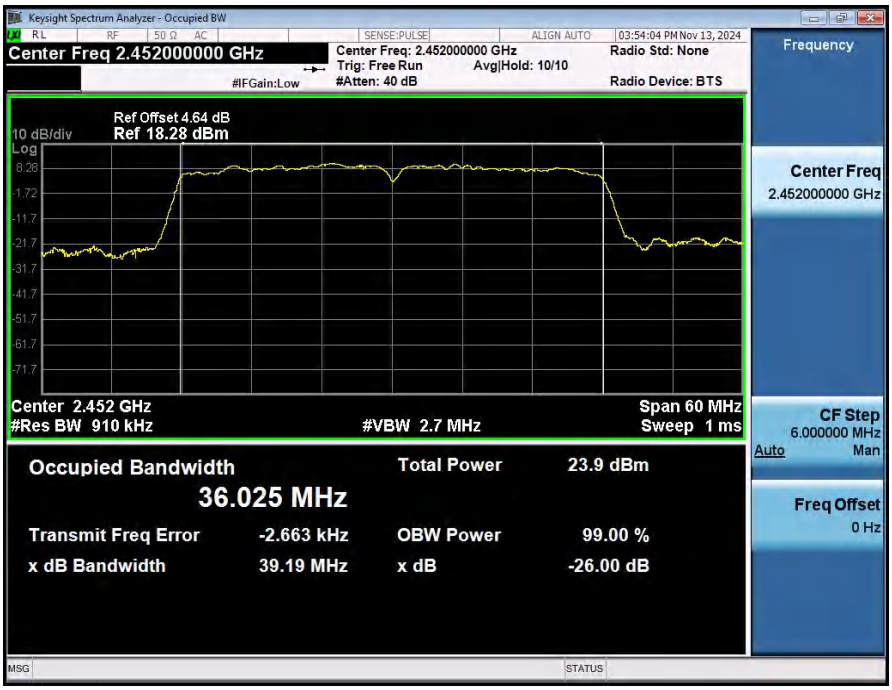
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT40)_2422



99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT40)_2437



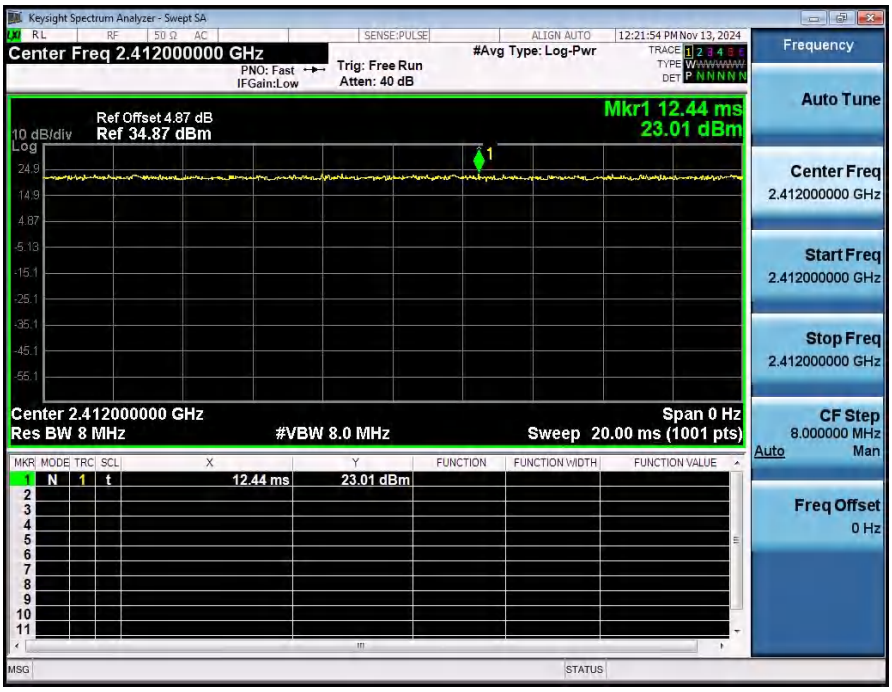
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT40)_2452


Keysight Spectrum Analyzer - Occupied BW
Center Freq 2.452000000 GHz
Center Freq: 2.452000000 GHz
Trig: Free Run
Avg|Hold: 10/10
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
03:54:04 PM Nov 13, 2024
Frequency
Ref Offset 4.64 dB
10 dB/div
Ref 18.28 dBm
Center Freq
2.452000000 GHz
Center 2.452 GHz
#Res BW 910 kHz
#VBW 2.7 MHz
Span 60 MHz
Sweep 1 ms
CF Step
6.000000 MHz
Auto
Man
Occupied Bandwidth
36.025 MHz
Total Power 23.9 dBm
Transmit Freq Error -2.663 kHz
OBW Power 99.00 %
x dB Bandwidth 39.19 MHz
x dB -26.00 dB
Freq Offset
0 Hz
MSG
STATUS

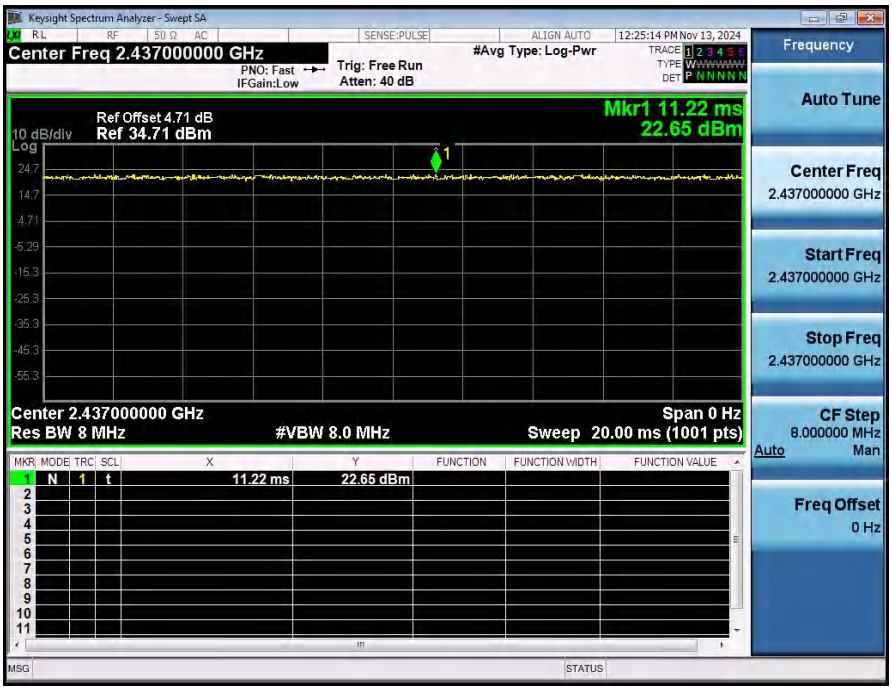
Appendix C: Duty Cycle

Condition	Antenna	Modulation	Frequency (MHz)	Duty cycle(%)	Duty factor(dB)
NVNT	ANT1	802.11b	2412.00	100	0.00
NVNT	ANT1	802.11b	2437.00	100	0.00
NVNT	ANT1	802.11b	2462.00	100	0.00
NVNT	ANT1	802.11g	2412.00	31.58	5.01
NVNT	ANT1	802.11g	2437.00	32.43	4.89
NVNT	ANT1	802.11g	2462.00	32.43	4.89
NVNT	ANT1	802.11n(HT20)	2412.00	33.33	4.77
NVNT	ANT1	802.11n(HT20)	2437.00	30.56	5.15
NVNT	ANT1	802.11n(HT20)	2462.00	33.33	4.77
NVNT	ANT1	802.11n(HT40)	2422.00	21.88	6.60
NVNT	ANT1	802.11n(HT40)	2437.00	21.88	6.60
NVNT	ANT1	802.11n(HT40)	2452.00	19.35	7.13

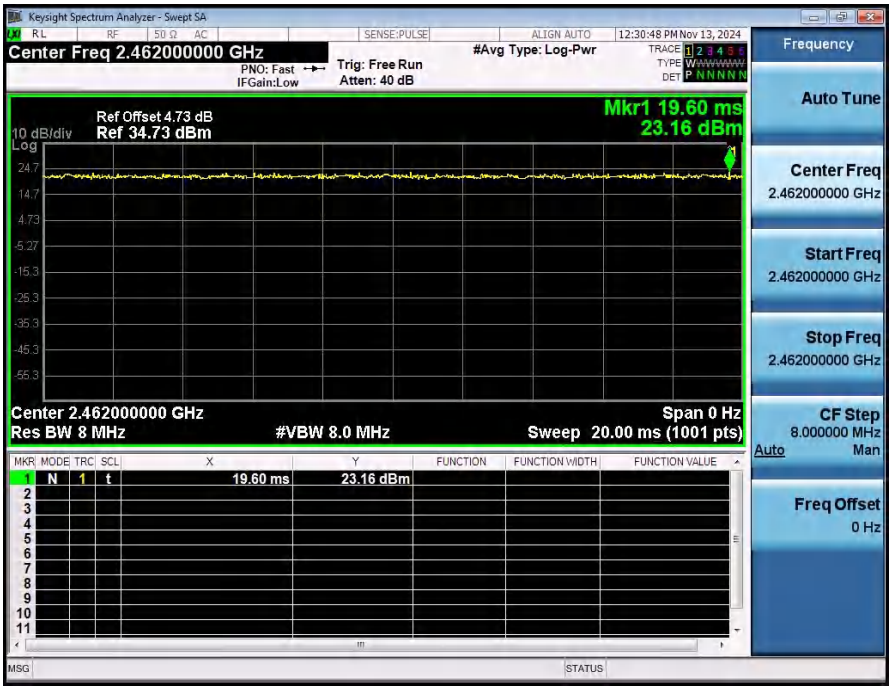
Duty_Cycle_NVNT_ANT1_802_11b_2412



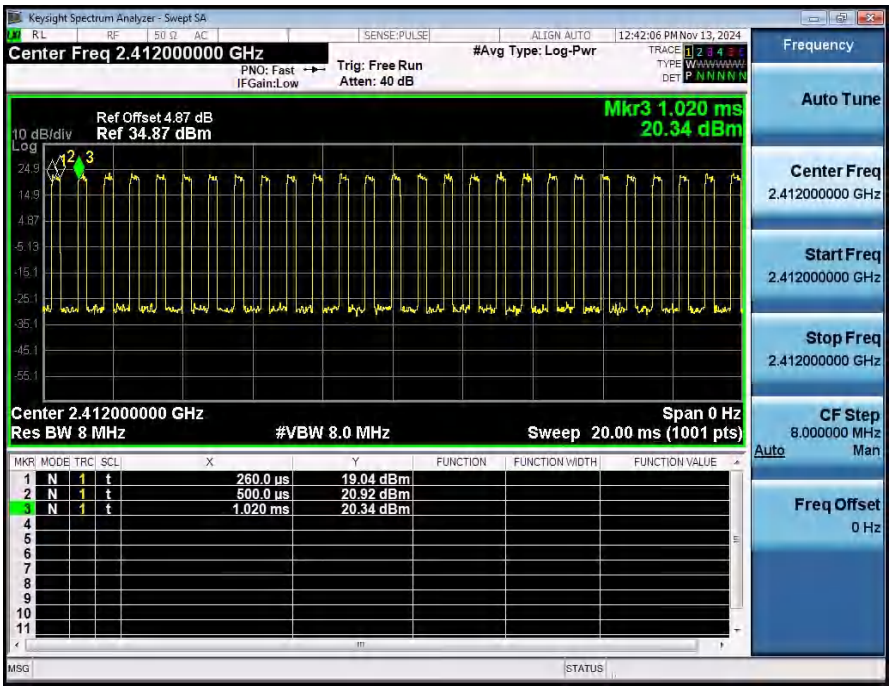
Duty_Cycle_NVNT_ANT1_802_11b_2437



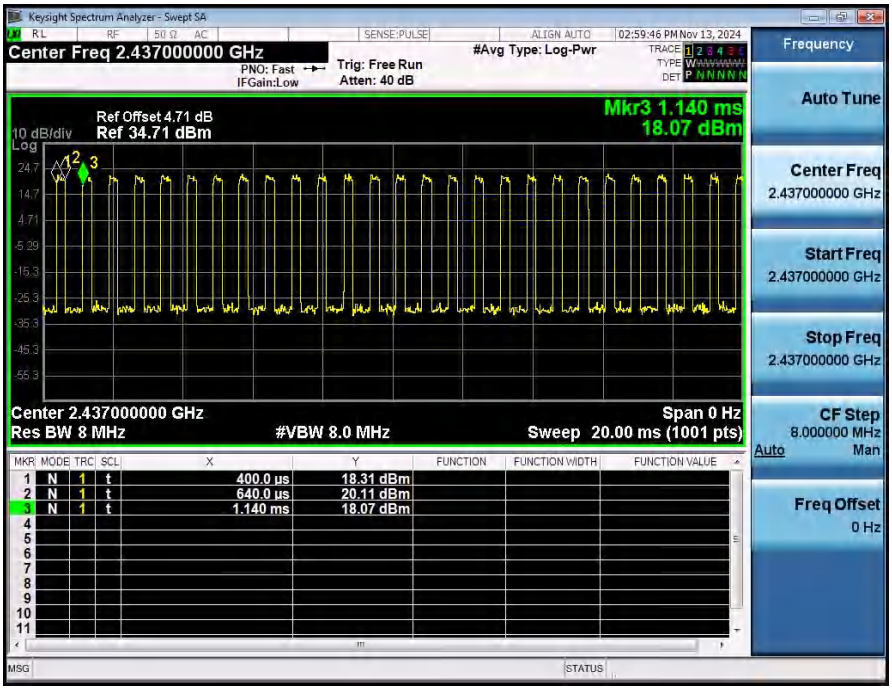
Duty_Cycle_NVNT_ANT1_802_11b_2462



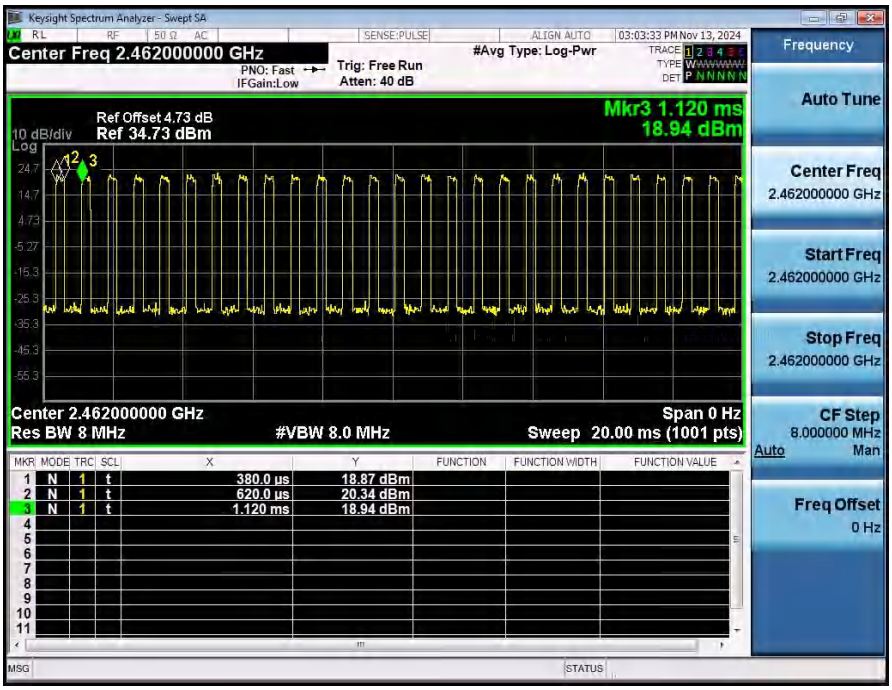
Duty_Cycle_NVNT_ANT1_802_11g_2412



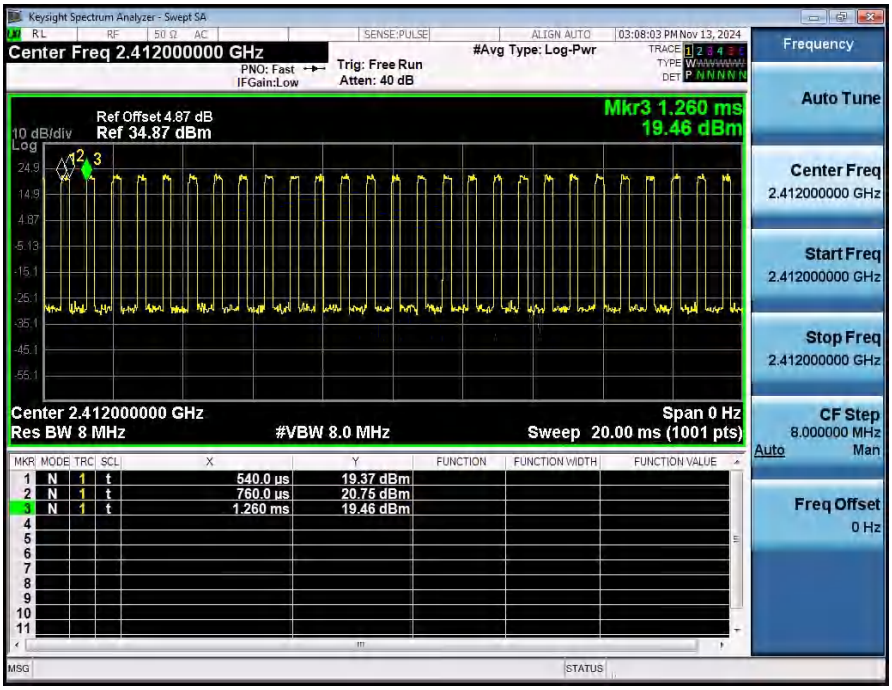
Duty_Cycle_NVNT_ANT1_802_11g_2437



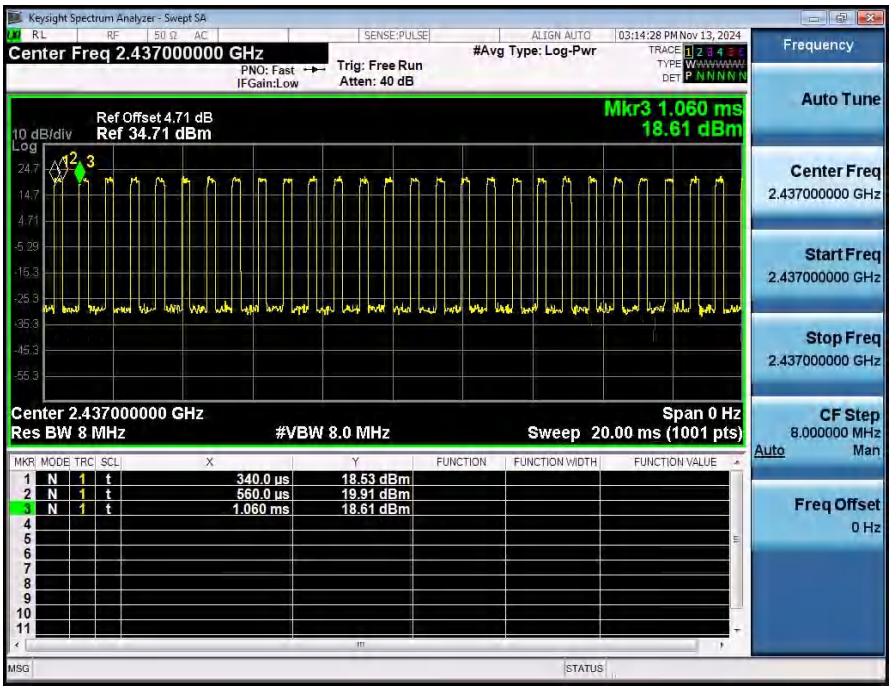
Duty_Cycle_NVNT_ANT1_802_11g_2462



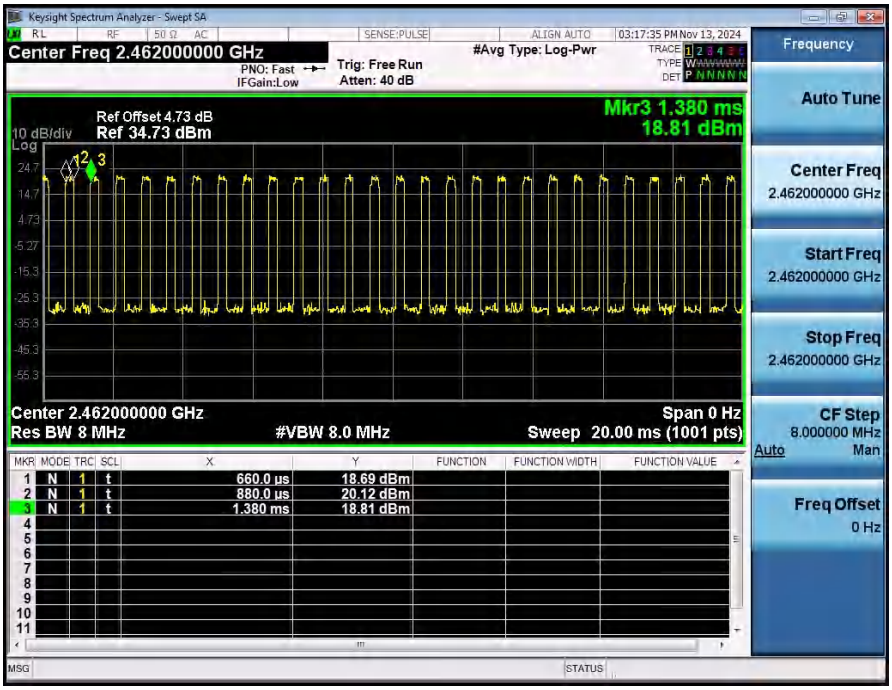
Duty_Cycle_NVNT_ANT1_802_11n(HT20)_2412



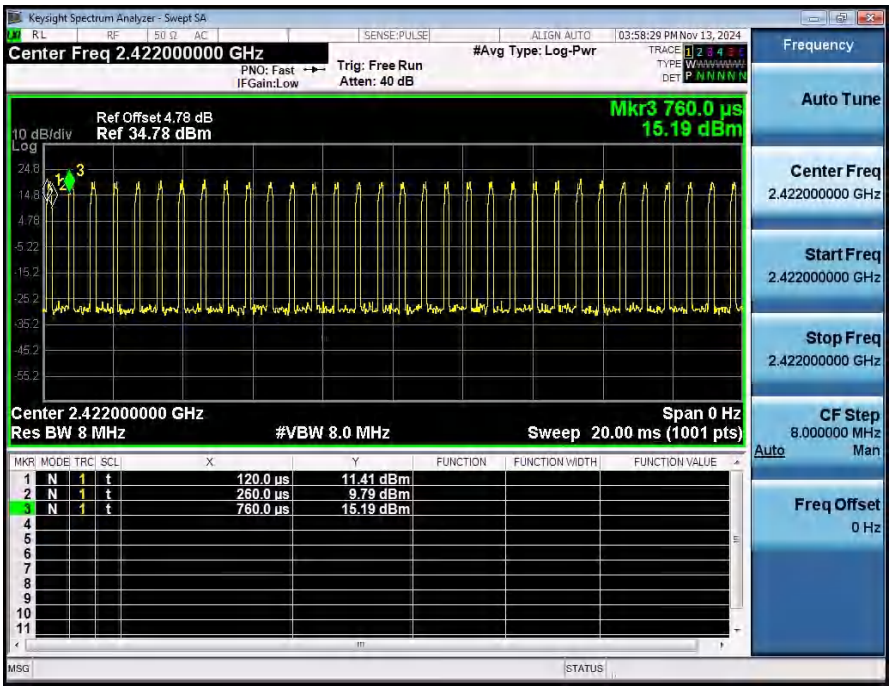
Duty_Cycle_NVNT_ANT1_802_11n(HT20)_2437



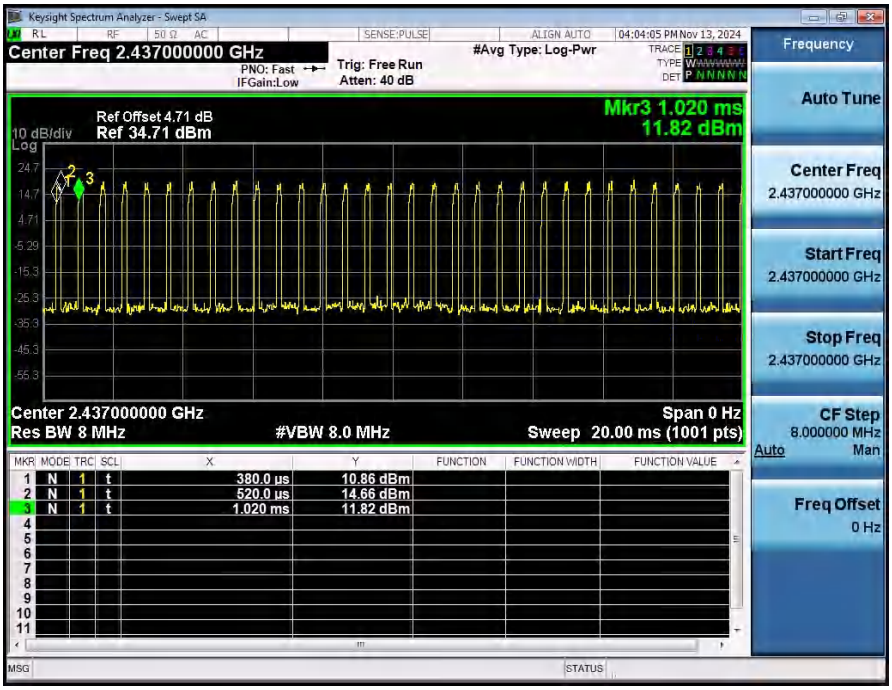
Duty_Cycle_NVNT_ANT1_802_11n(HT20)_2462



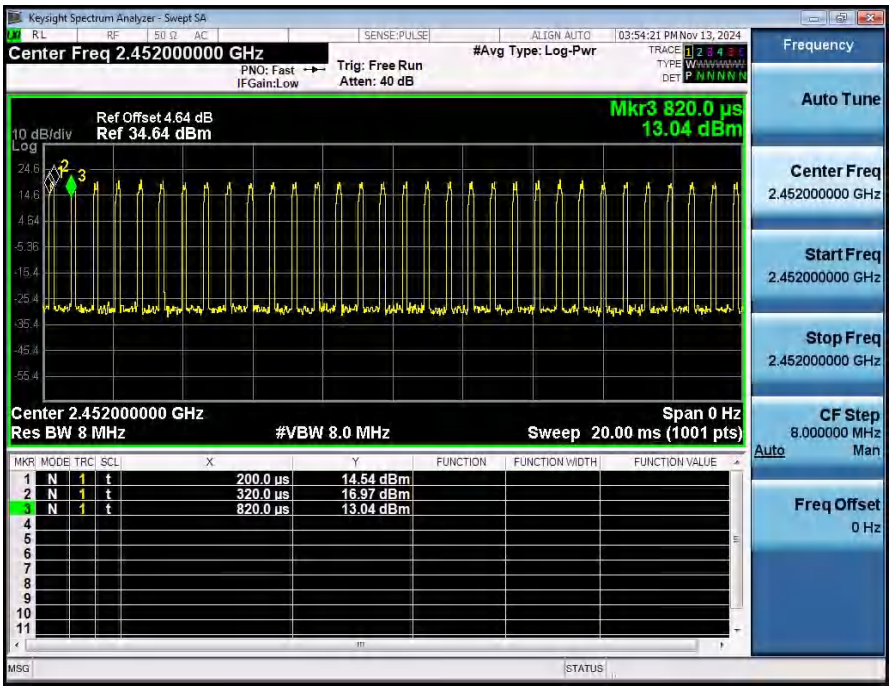
Duty_Cycle_NVNT_ANT1_802_11n(HT40)_2422



Duty_Cycle_NVNT_ANT1_802_11n(HT40)_2437



Duty_Cycle_NVNT_ANT1_802_11n(HT40)_2452

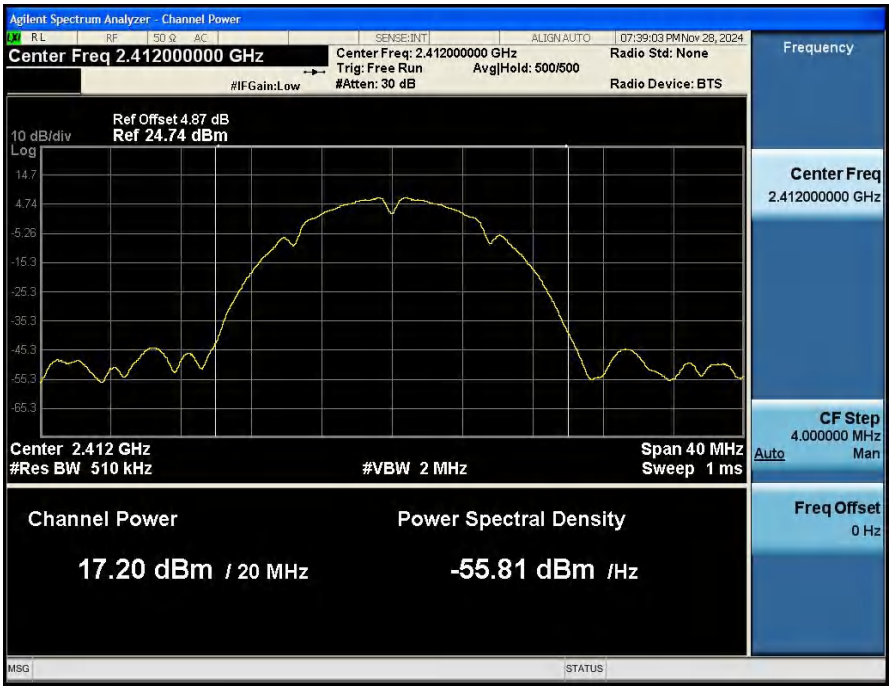

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.452000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 40 dB
#Avg Type: Log-Pwr
03:54:21 PM Nov 13, 2024
Ref Offset 4.64 dB
10 dB/div
Ref 34.64 dBm
Log
Mkr3 820.0 µs
13.04 dBm
Center 2.452000000 GHz
Res BW 8 MHz
#VBW 8.0 MHz
Span 0 Hz
Sweep 20.00 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 t 200.0 µs 14.54 dBm
2 N 1 t 320.0 µs 16.97 dBm
3 N 1 t 820.0 µs 13.04 dBm
Frequency
Auto Tune
Center Freq
2.452000000 GHz
Start Freq
2.452000000 GHz
Stop Freq
2.452000000 GHz
CF Step
8.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

Appendix D: MAX. Output Power

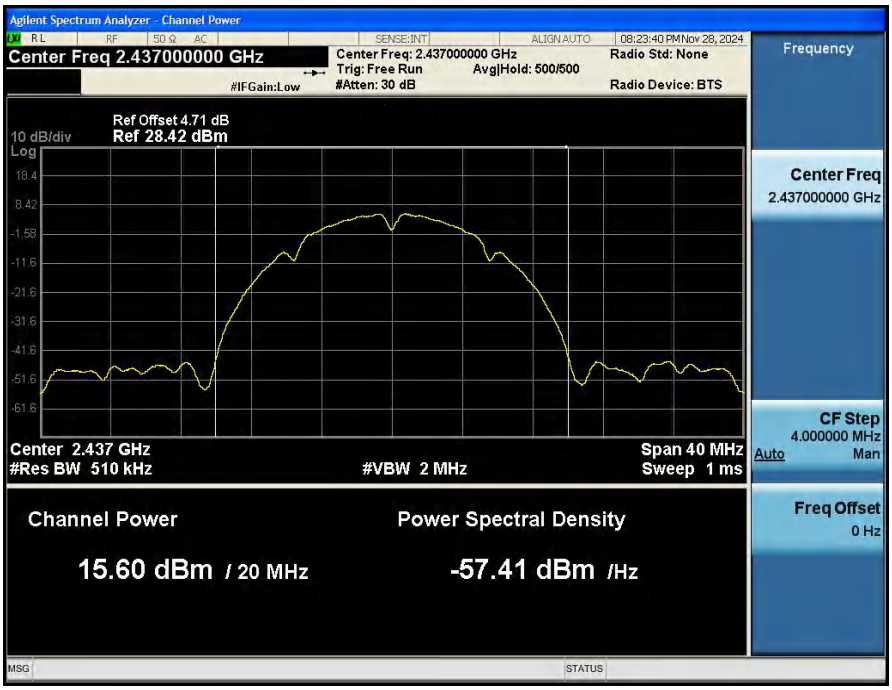
Condition	Antenna	Modulation	Frequency (MHz)	Detector	Conducted Power (dBm)	Duty factor (dB)	Total Power (dBm)	Limit (dBm)	Result
NVNT	ANT1	802.11b	2412.00	RMS	17.20	0.25	17.45	30	Pass
NVNT	ANT1	802.11b	2437.00	RMS	15.60	0.25	15.85	30	Pass
NVNT	ANT1	802.11b	2462.00	RMS	15.37	0.20	15.57	30	Pass
NVNT	ANT1	802.11g	2412.00	RMS	16.32	1.43	17.75	30	Pass
NVNT	ANT1	802.11g	2437.00	RMS	14.90	0.94	15.84	30	Pass
NVNT	ANT1	802.11g	2462.00	RMS	14.68	1.36	16.04	30	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	RMS	15.88	1.46	17.34	30	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	RMS	14.62	1.44	16.06	30	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	RMS	14.38	1.44	15.82	30	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	RMS	14.24	2.60	16.84	30	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	RMS	14.27	2.52	16.79	30	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	RMS	14.13	2.37	16.50	30	Pass

Note: 1. The cable loss are compensated in the graph.

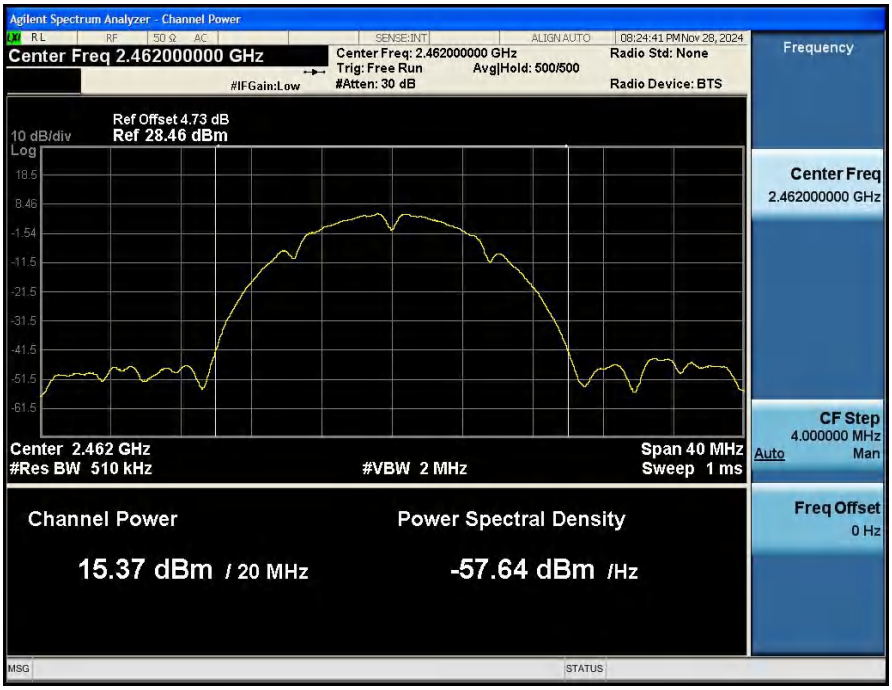
MAX__Output_Power_NVNT_ANT1_802_11b_2412



MAX__Output_Power_NVNT_ANT1_802_11b_2437



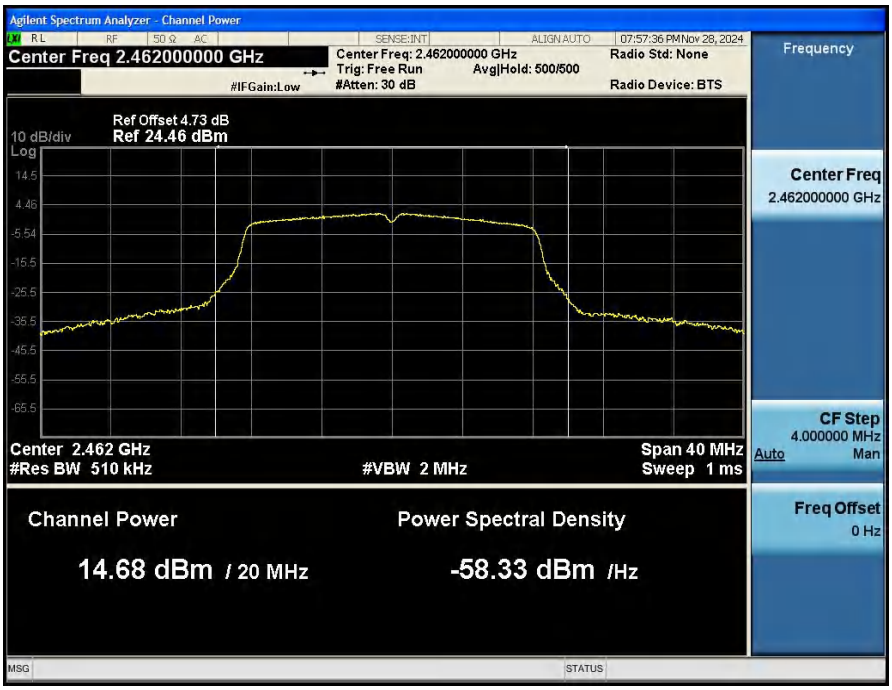
MAX__Output_Power_NVNT_ANT1_802_11b_2462



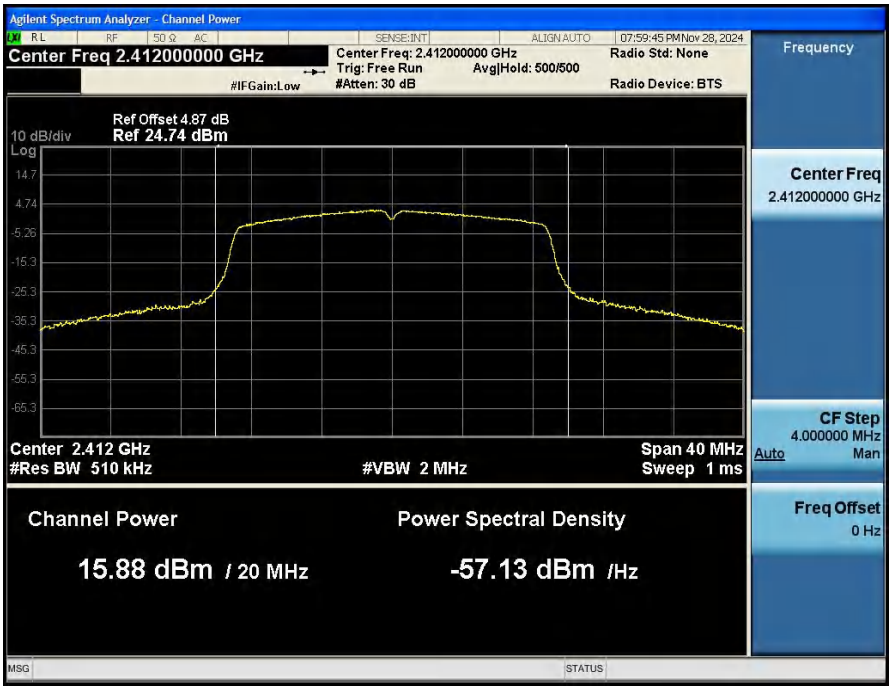
MAX__Output_Power_NVNT_ANT1_802_11g_2412

MAX__Output_Power_NVNT_ANT1_802_11g_2437

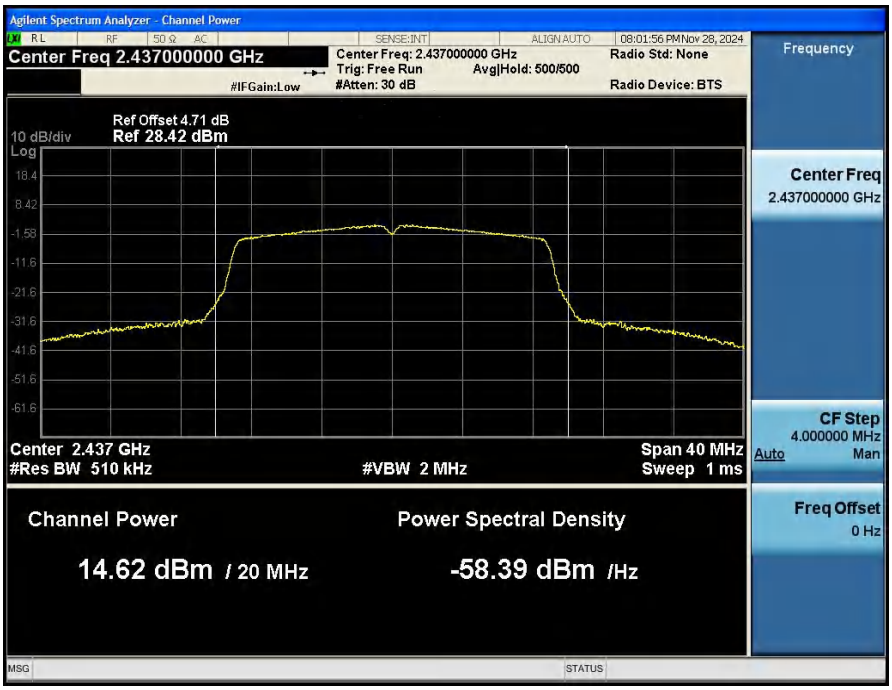
MAX__Output_Power_NVNT_ANT1_802_11g_2462



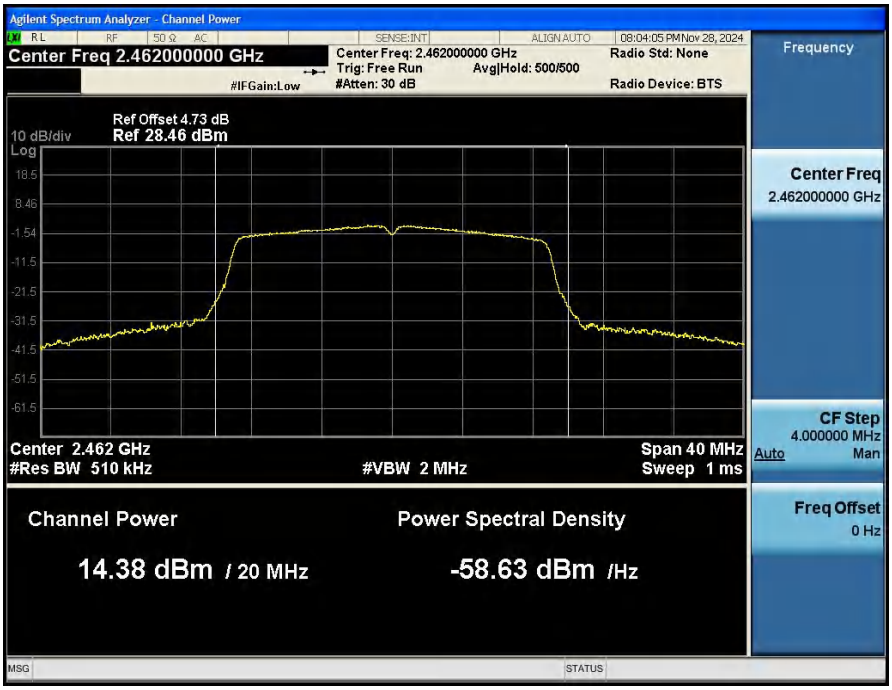
MAX__Output_Power_NVNT_ANT1_802_11n(HT20)_2412



MAX__Output_Power_NVNT_ANT1_802_11n(HT20)_2437



MAX__Output_Power_NVNT_ANT1_802_11n(HT20)_2462



MAX__Output_Power_NVNT_ANT1_802_11n(HT40)_2422

MAX__Output_Power_NVNT_ANT1_802_11n(HT40)_2437

MAX__Output_Power_NVNT_ANT1_802_11n(HT40)_2452

Agilent Spectrum Analyzer - Channel Power
Center Freq 2.452000000 GHz
Center Freq: 2.452000000 GHz
Trig: Free Run
Avg|Hold: 500/500
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
08:12:06 PM Nov 28, 2024
Frequency
Ref Offset 4.64 dB
10 dB/div
Ref 26.28 dBm
Log
16.3
6.28
-3.72
-13.7
-23.7
-33.7
-43.7
-53.7
-63.7
Center Freq
2.452000000 GHz
Center 2.452 GHz
#Res BW 510 kHz
#VBW 2 MHz
Span 60 MHz
Sweep 1 ms
CF Step
6.000000 MHz
Auto
Man
Channel Power
14.13 dBm / 40 MHz
Power Spectral Density
-61.89 dBm /Hz
Freq Offset
0 Hz
MSG
STATUS

Appendix E: Power Spectral Density

Condition	Antenna	Modulation	Frequency (MHz)	SA_PSD (dBm/30kHz)	Duty factor (dB)	RB factor (dB)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
NVNT	ANT1	802.11b	2412.00	4.41	0.00	-10.00	-5.59	8	Pass
NVNT	ANT1	802.11b	2437.00	4.20	0.00	-10.00	-5.80	8	Pass
NVNT	ANT1	802.11b	2462.00	4.26	0.00	-10.00	-5.74	8	Pass
NVNT	ANT1	802.11g	2412.00	1.47	5.01	-10.00	-3.52	8	Pass
NVNT	ANT1	802.11g	2437.00	0.80	4.89	-10.00	-4.31	8	Pass
NVNT	ANT1	802.11g	2462.00	1.05	4.89	-10.00	-4.06	8	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	1.64	4.77	-10.00	-3.59	8	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	0.92	5.15	-10.00	-3.93	8	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	0.86	4.77	-10.00	-4.37	8	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	-1.13	6.60	-10.00	-4.53	8	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	-1.84	6.60	-10.00	-5.24	8	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	-1.49	7.13	-10.00	-4.36	8	Pass

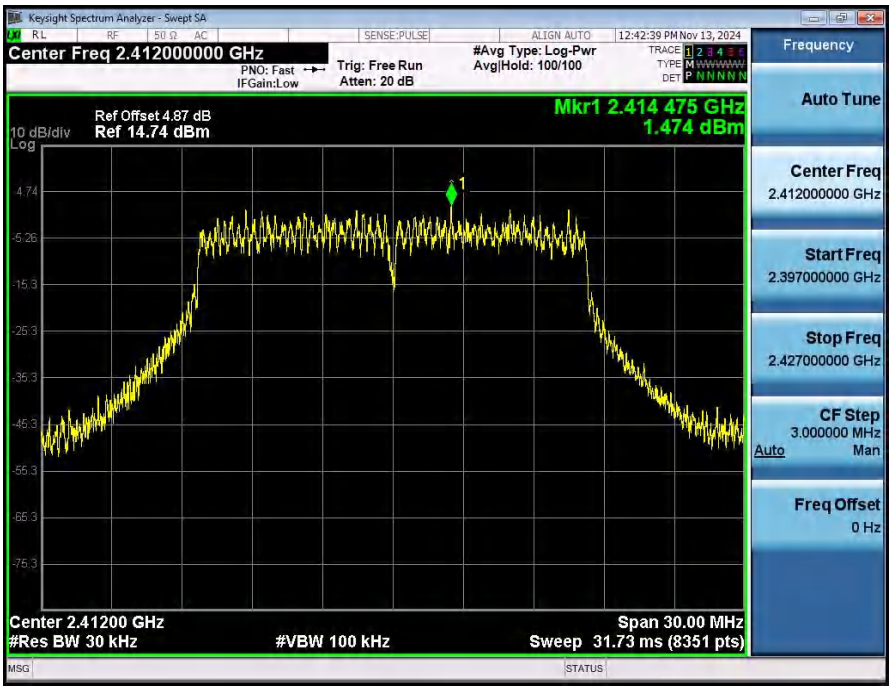
Note: 1. The cable loss are compensated in the graph.

Power_Spectral_Density_NVNT_ANT1_802_11b_2412

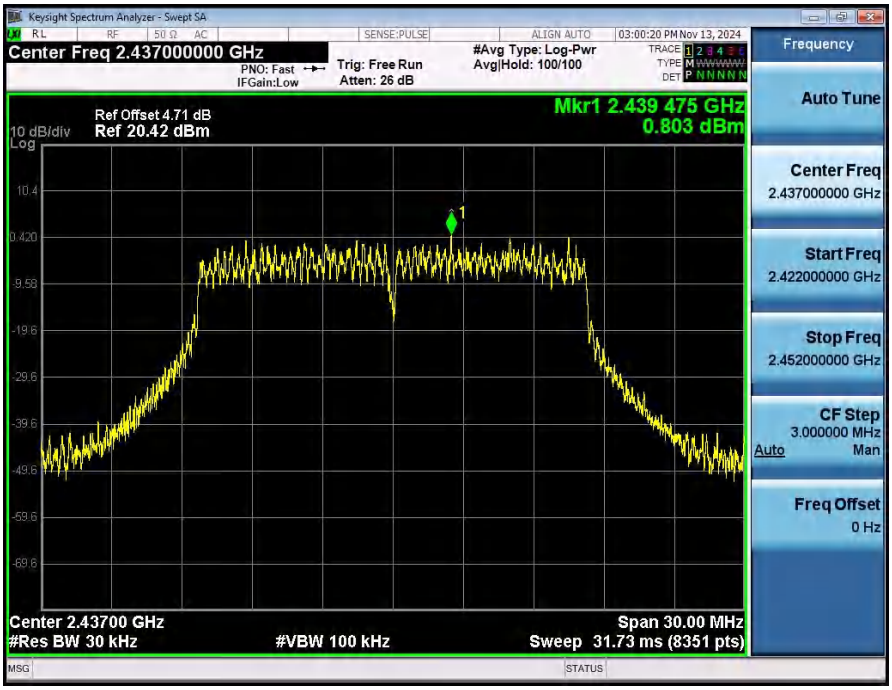
Power_Spectral_Density_NVNT_ANT1_802_11b_2437

Power_Spectral_Density_NVNT_ANT1_802_11b_2462

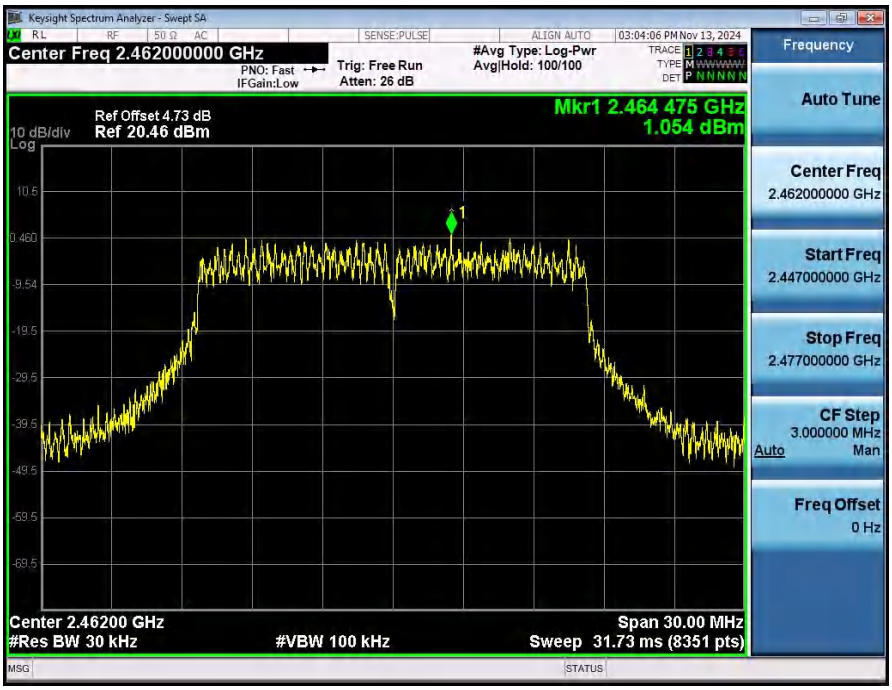
Power_Spectral_Density_NVNT_ANT1_802_11g_2412



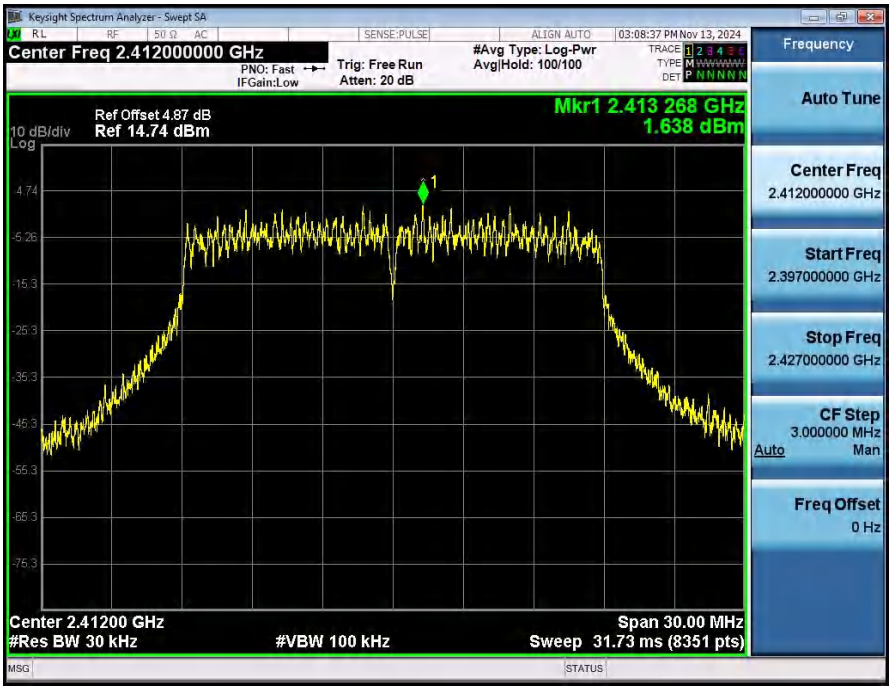
Power_Spectral_Density_NVNT_ANT1_802_11g_2437



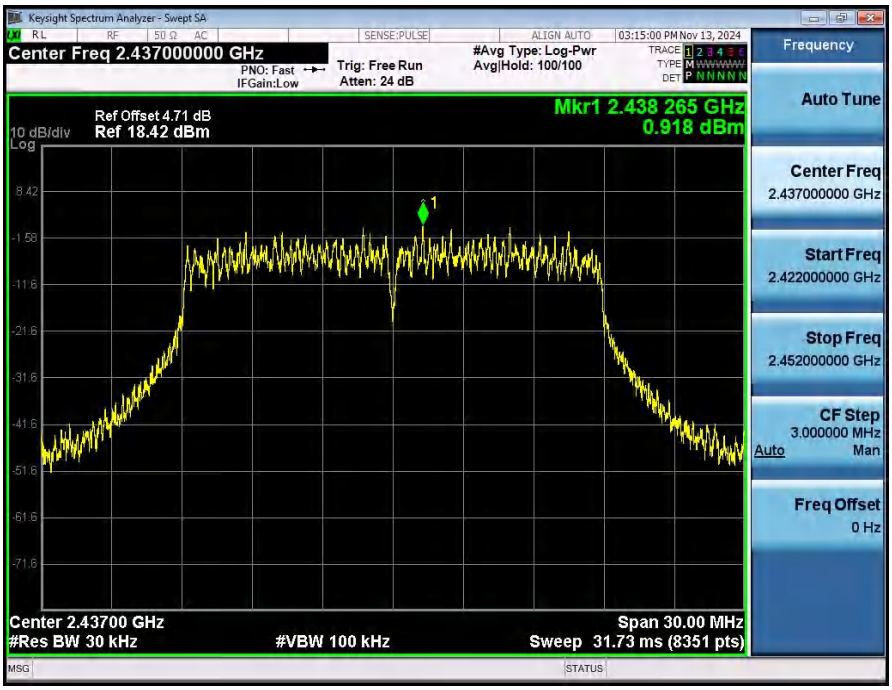
Power_Spectral_Density_NVNT_ANT1_802_11g_2462



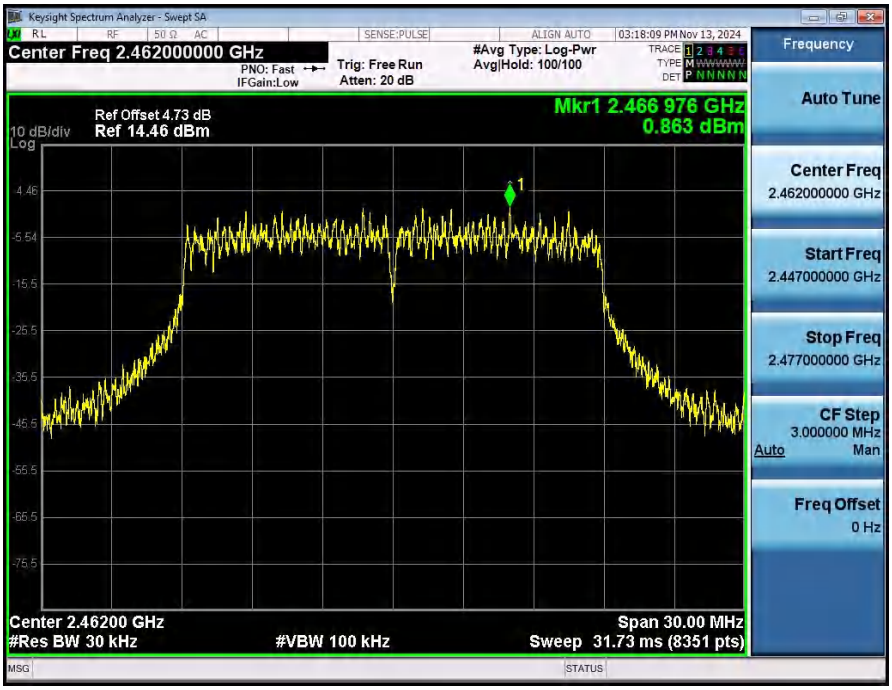
Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_2412



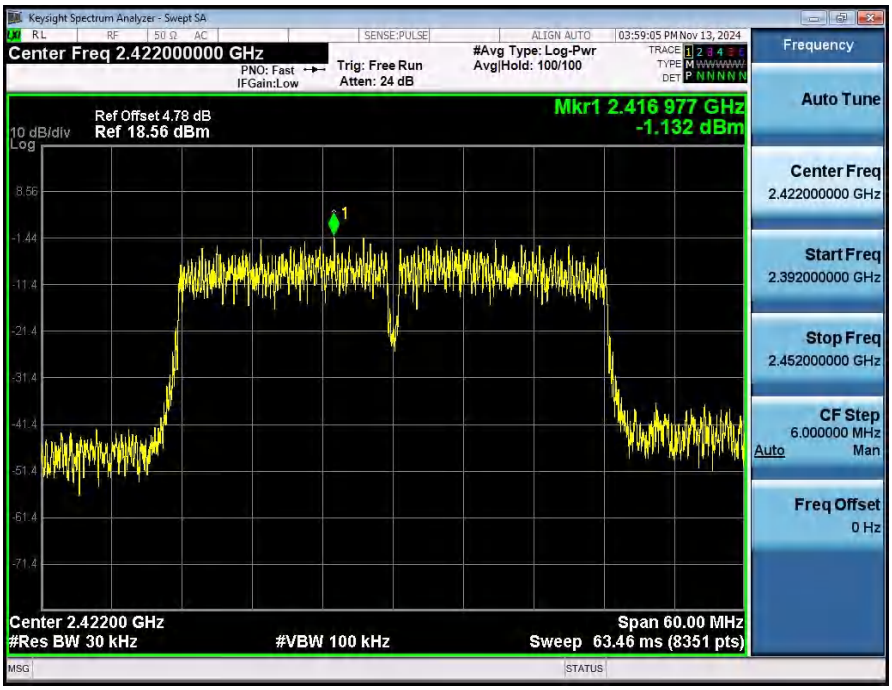
Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_2437



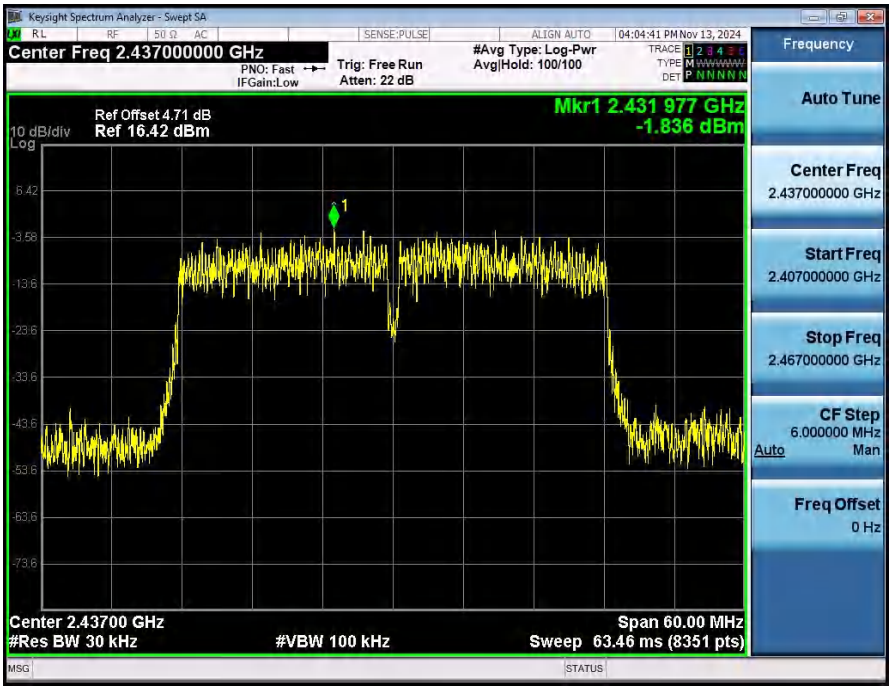
Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_2462



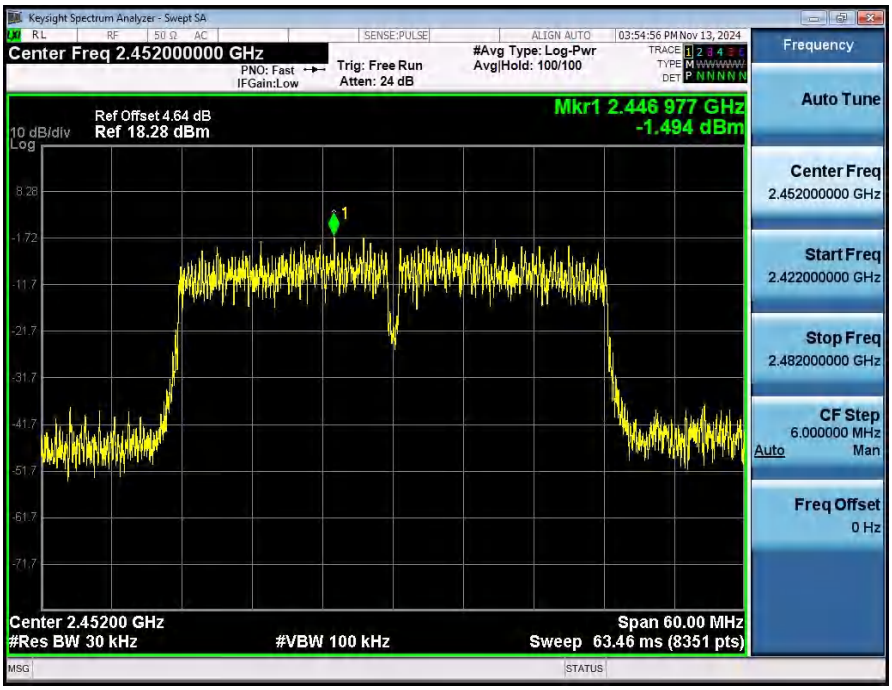
Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_2422



Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_2437



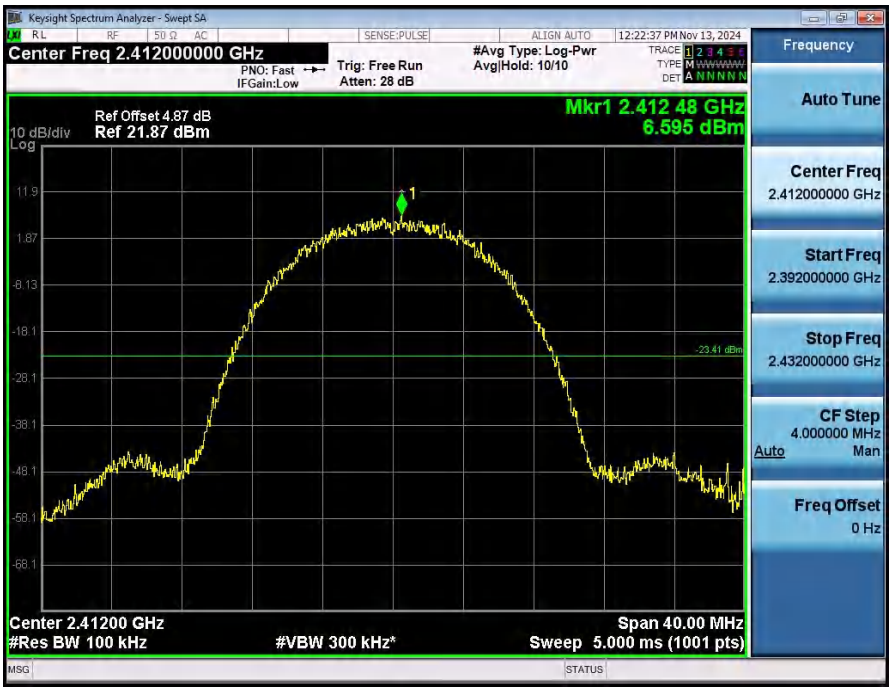
Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_2452


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.452000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 24 dB
#Avg Type: Log-Pwr
Avg|Hold: 100/100
03:54:56 PM Nov 13, 2024
Ref Offset 4.64 dB
10 dB/div
Ref 18.28 dBm
Mkr1 2.446 977 GHz
-1.494 dBm
Center 2.45200 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 60.00 MHz
Sweep 63.46 ms (8351 pts)
Frequency
Auto Tune
Center Freq
2.452000000 GHz
Start Freq
2.422000000 GHz
Stop Freq
2.482000000 GHz
CF Step
6.000000 MHz
Auto
Man
Freq Offset
0 Hz

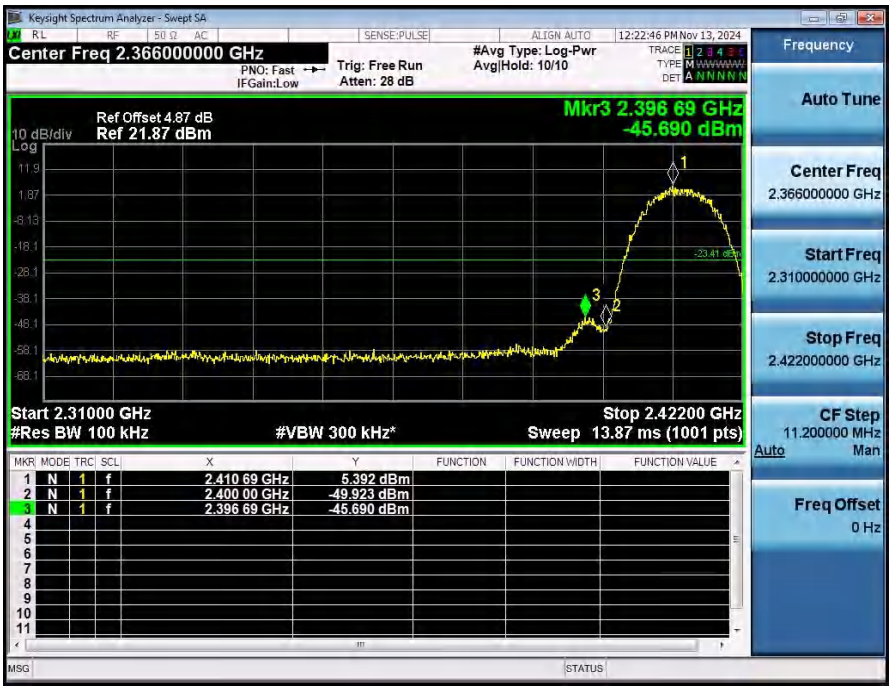
Appendix F: Bandedge

Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark_ frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	2412.00	2396.688	-45.690	-23.405	Pass
NVNT	ANT1	802.11b	2462.00	2487.520	-53.354	-23.081	Pass
NVNT	ANT1	802.11g	2412.00	2399.712	-39.522	-26.488	Pass
NVNT	ANT1	802.11g	2462.00	2485.408	-44.468	-26.847	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	2399.712	-37.145	-26.007	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	2484.832	-41.666	-26.771	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	2384.448	-41.560	-30.430	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	2484.428	-36.223	-31.001	Pass

1_Reference_Level_NVNT_ANT1_802_11b_2412

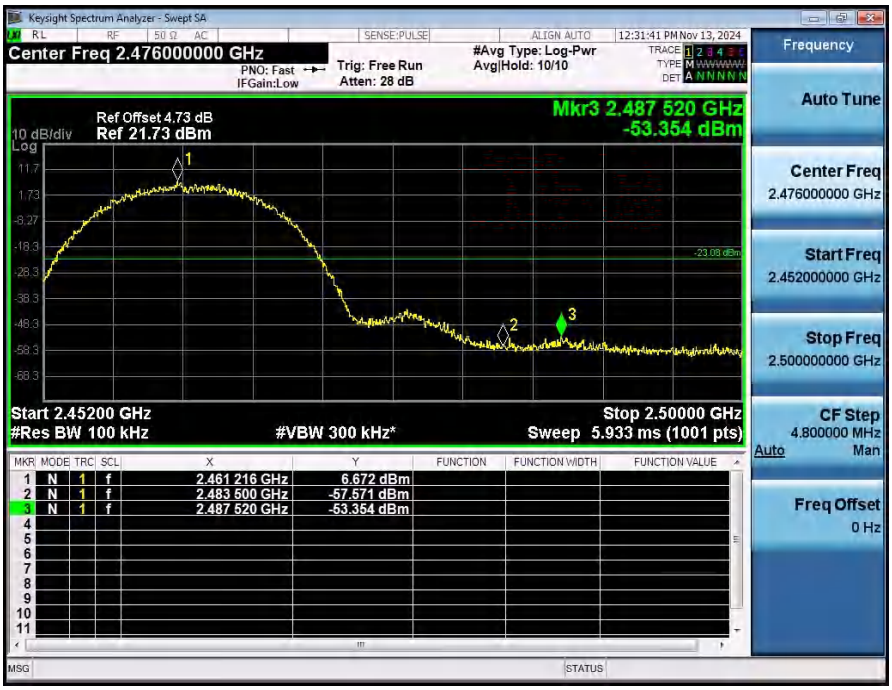


2_Bandedge_NVNT_ANT1_802_11b_2412

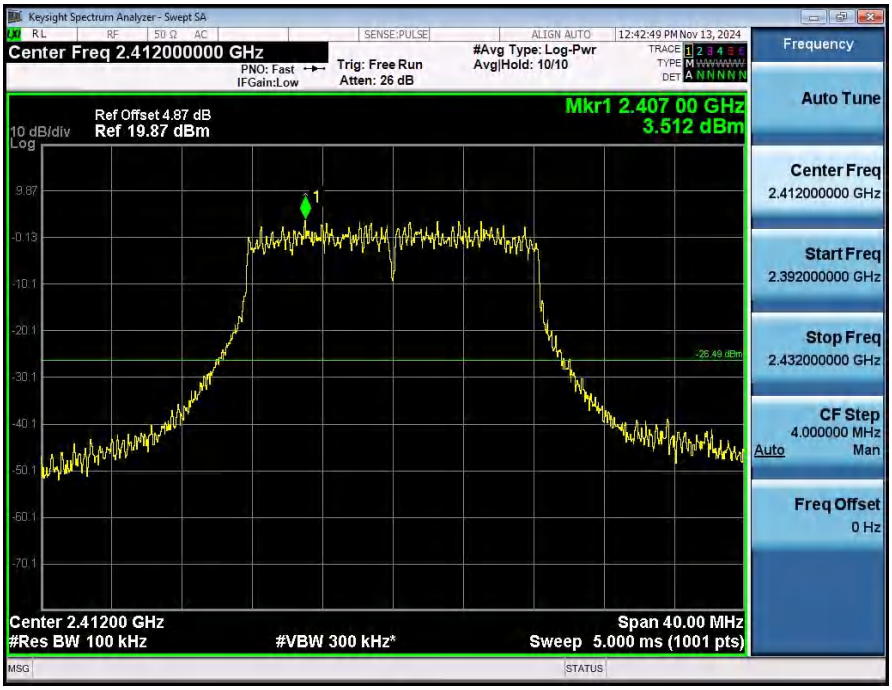


1_Reference_Level_NVNT_ANT1_802_11b_2462

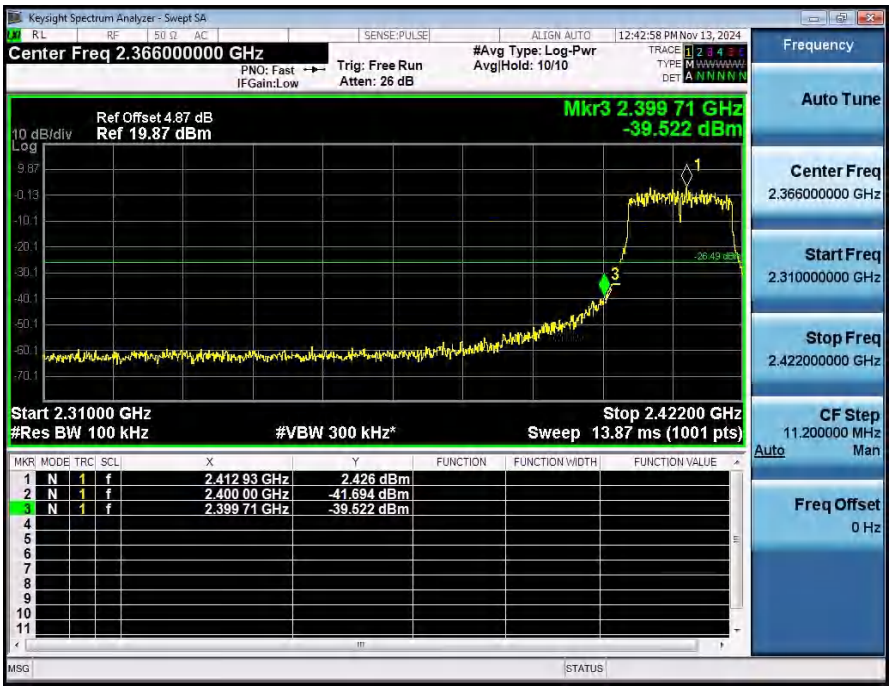
2_Bandedge_NVNT_ANT1_802_11b_2462



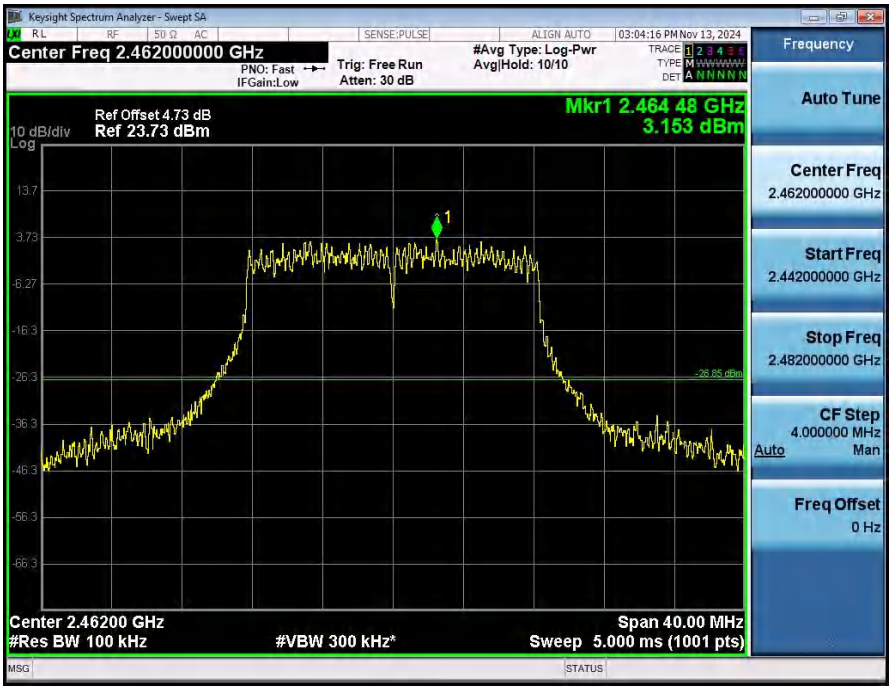
1_Reference_Level_NVNT_ANT1_802_11g_2412



2_Bandedge_NVNT_ANT1_802_11g_2412



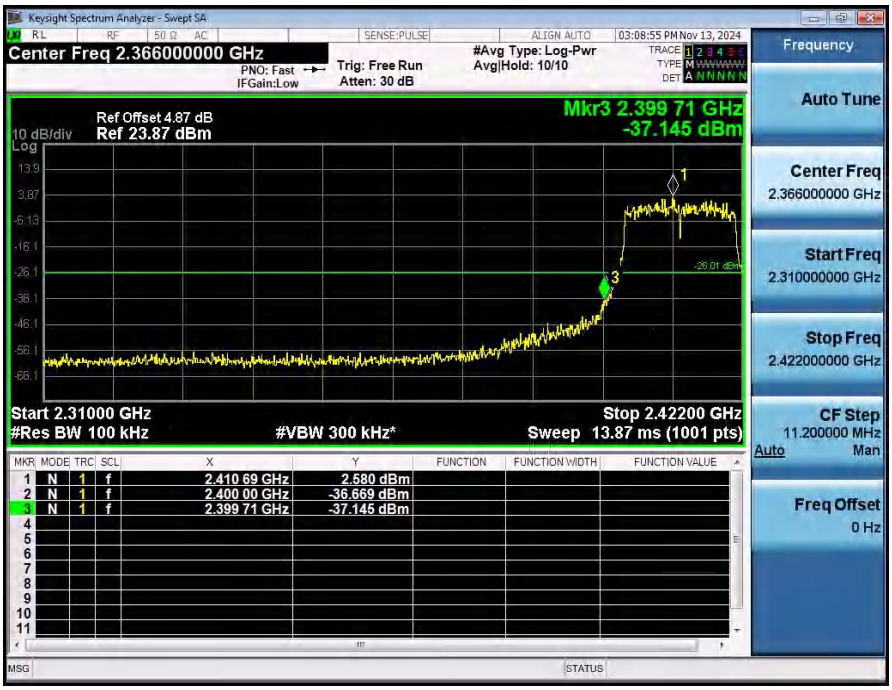
1_Reference_Level_NVNT_ANT1_802_11g_2462



2_Bandedge_NVNT_ANT1_802_11g_2462

1_Reference_Level_NVNT_ANT1_802_11n(HT20)_2412

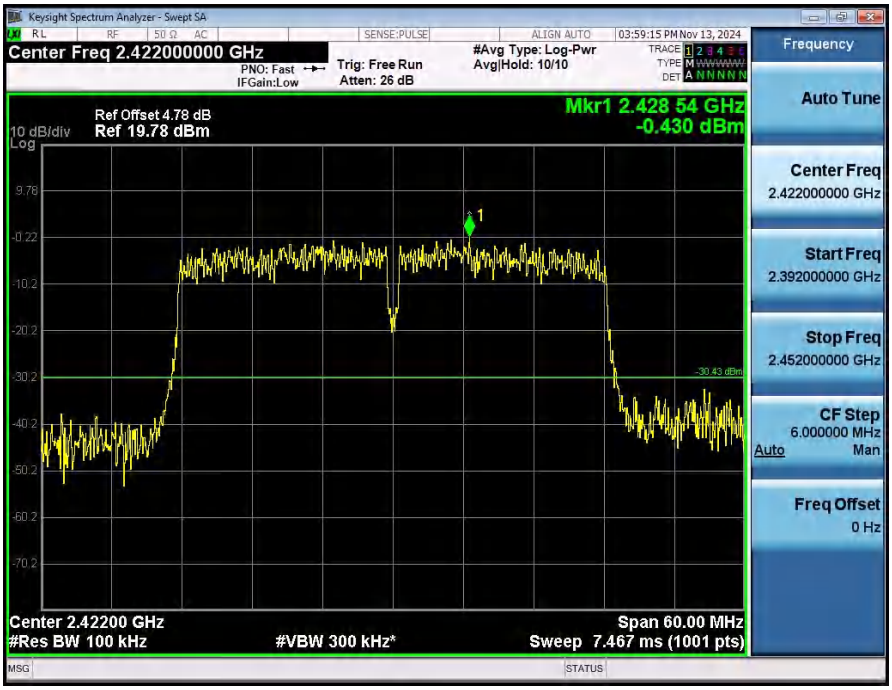
2_Bandedge_NVNT_ANT1_802_11n(HT20)_2412



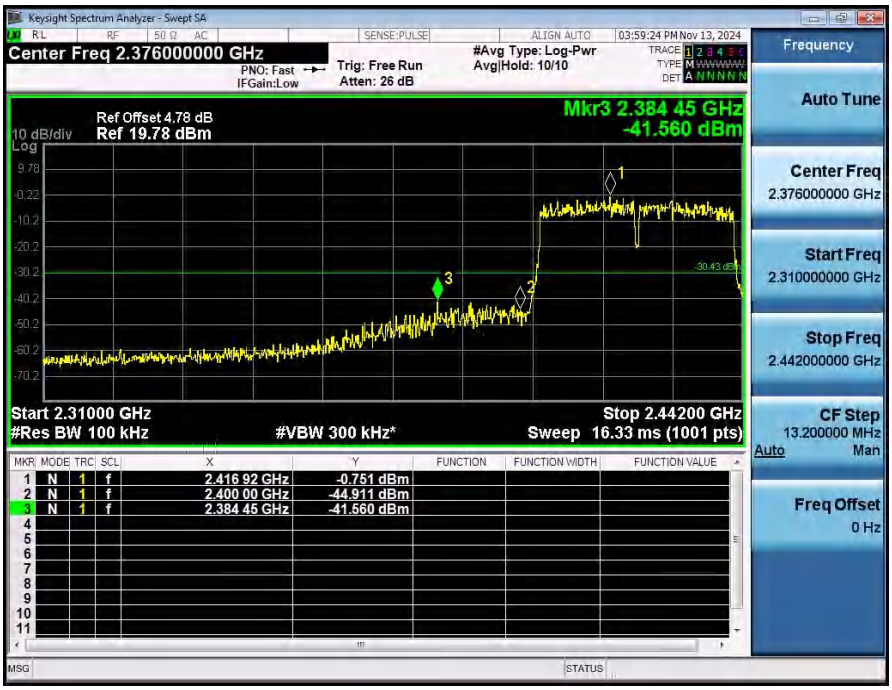
1_Reference_Level_NVNT_ANT1_802_11n(HT20)_2462

2_Bandedge_NVNT_ANT1_802_11n(HT20)_2462

1_Reference_Level_NVNT_ANT1_802_11n(HT40)_2422

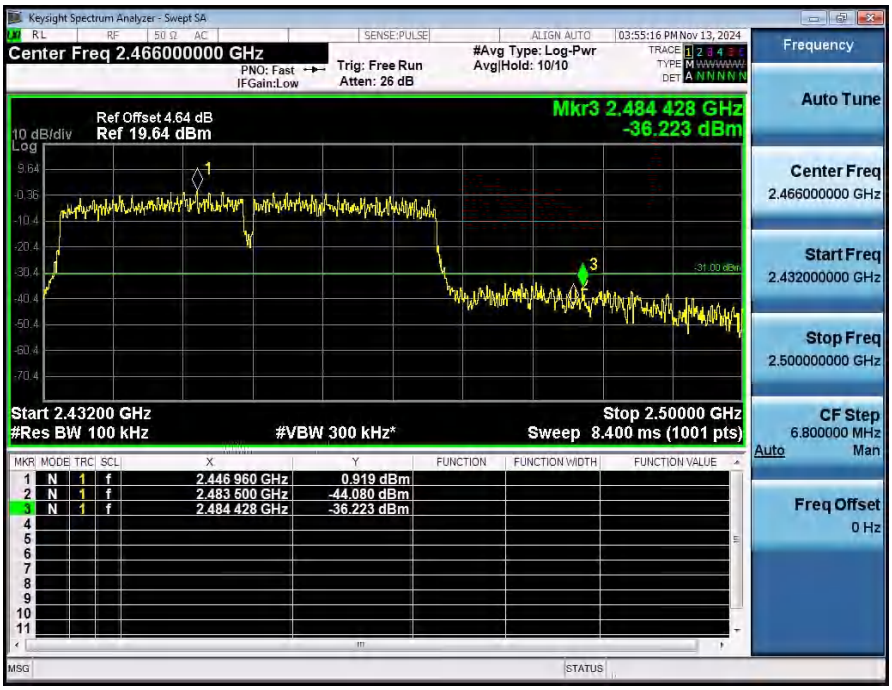


2_Bandedge_NVNT_ANT1_802_11n(HT40)_2422



1_Reference_Level_NVNT_ANT1_802_11n(HT40)_2452

2_Bandedge_NVNT_ANT1_802_11n(HT40)_2452


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.466000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 26 dB
#Avg Type: Log-Pwr
Avg|Hold: 10/10
03:55:16 PM Nov 13, 2024
Ref Offset 4.64 dB
10 dB/div
Ref 19.64 dBm
Mkr3 2.484 428 GHz
-36.223 dBm
Start 2.43200 GHz
#Res BW 100 kHz
#VBW 300 kHz*
Stop 2.50000 GHz
Sweep 8.400 ms (1001 pts)
1 N 1 f 2.446 960 GHz 0.919 dBm
2 N 1 f 2.483 500 GHz -44.080 dBm
3 N 1 f 2.484 428 GHz -36.223 dBm
Frequency
Auto Tune
Center Freq
2.466000000 GHz
Start Freq
2.432000000 GHz
Stop Freq
2.500000000 GHz
CF Step
6.800000 MHz
Auto
Man
Freq Offset
0 Hz

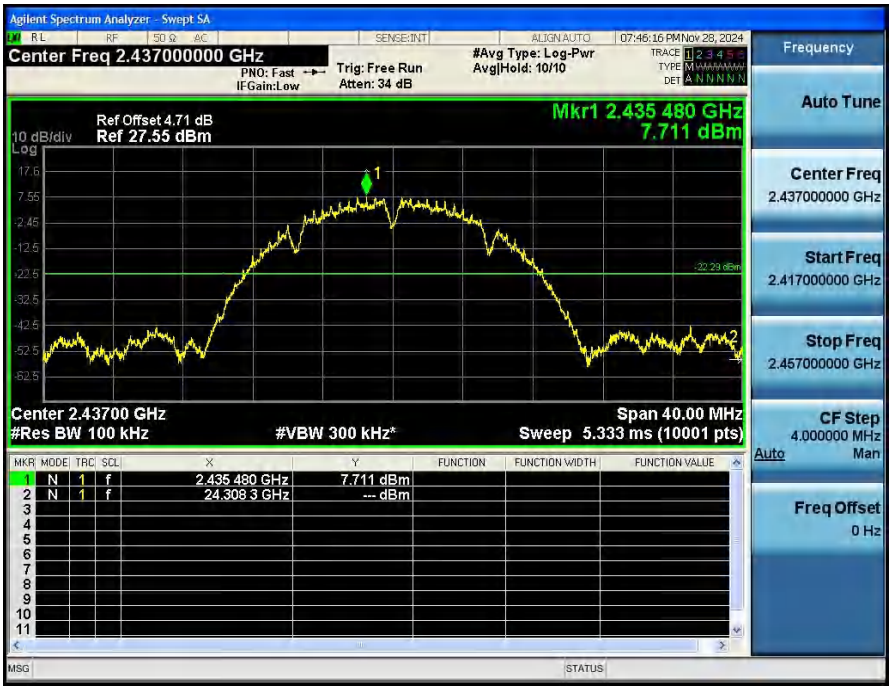
Appendix G: Spurious Emission

Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark_frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	2412.00	24308.331	-55.854	-20.592	Pass
NVNT	ANT1	802.11b	2437.00	24805.234	-51.157	-22.289	Pass
NVNT	ANT1	802.11b	2462.00	5226.257	-59.843	-22.760	Pass
NVNT	ANT1	802.11g	2412.00	24880.144	-59.333	-22.571	Pass
NVNT	ANT1	802.11g	2437.00	24890.132	-62.275	-24.156	Pass
NVNT	ANT1	802.11g	2462.00	24847.683	-62.218	-25.203	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	24840.192	-55.477	-22.892	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	24872.653	-58.131	-24.624	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	24800.240	-58.764	-24.661	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	24870.156	-58.323	-26.576	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	24862.665	-64.915	-27.436	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	24805.234	-64.924	-27.290	Pass

1_Reference_Level_NVNT_ANT1_802_11b_2412

2_Spurious_Emission_NVNT_ANT1_802_11b_2412

1_Reference_Level_NVNT_ANT1_802_11b_2437

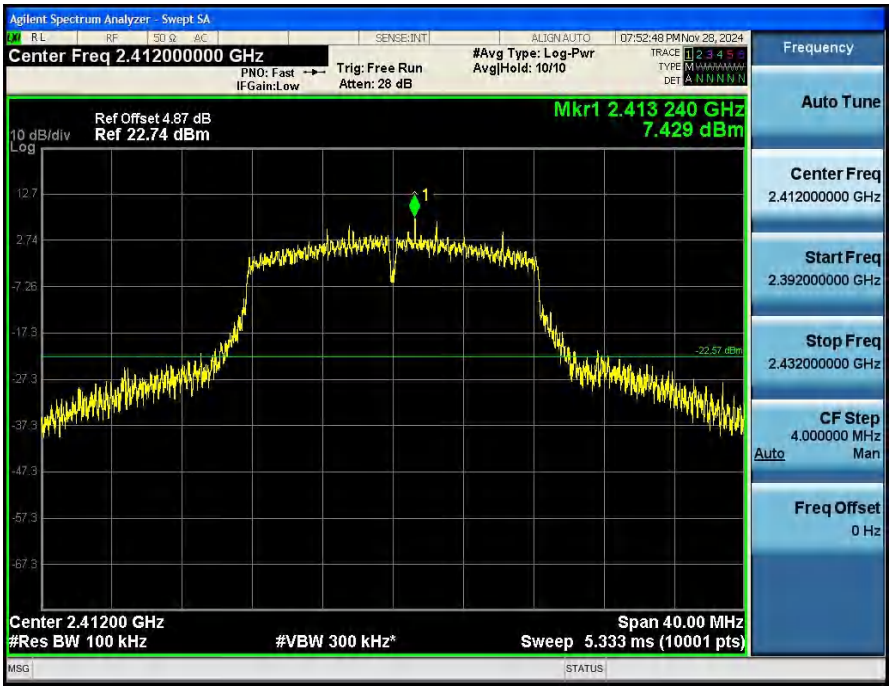


2_Spurious_Emission_NVNT_ANT1_802_11b_2437

1_Reference_Level_NVNT_ANT1_802_11b_2462

2_Spurious_Emission_NVNT_ANT1_802_11b_2462

1_Reference_Level_NVNT_ANT1_802_11g_2412



2_Spurious_Emission_NVNT_ANT1_802_11g_2412

1_Reference_Level_NVNT_ANT1_802_11g_2437

2_Spurious_Emission_NVNT_ANT1_802_11g_2437

1_Reference_Level_NVNT_ANT1_802_11g_2462

2_Spurious_Emission_NVNT_ANT1_802_11g_2462

1_Reference_Level_NVNT_ANT1_802_11n(HT20)_2412

2_Spurious_Emission_NVNT_ANT1_802_11n(HT20)_2412

1_Reference_Level_NVNT_ANT1_802_11n(HT20)_2437

2_Spurious_Emission_NVNT_ANT1_802_11n(HT20)_2437

1_Reference_Level_NVNT_ANT1_802_11n(HT20)_2462

2_Spurious_Emission_NVNT_ANT1_802_11n(HT20)_2462

1_Reference_Level_NVNT_ANT1_802_11n(HT40)_2422

2_Spurious_Emission_NVNT_ANT1_802_11n(HT40)_2422

1_Reference_Level_NVNT_ANT1_802_11n(HT40)_2437

2_Spurious_Emission_NVNT_ANT1_802_11n(HT40)_2437

1_Reference_Level_NVNT_ANT1_802_11n(HT40)_2452

2_Spurious_Emission_NVNT_ANT1_802_11n(HT40)_2452

Agilent Spectrum Analyzer - Swept SA
Center Freq 12.515000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
#Avg Type: Log-Pwr
Avg|Hold: 10/10
08:16:51 PM Nov 28, 2024
Ref Offset 4.64 dB
10 dB/div
Ref 13.64 dBm
Mkr2 24.805 2 GHz
-64.924 dBm
-27.29 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz*
Stop 25.00 GHz
Sweep 3.081 s (10001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 2.454 6 GHz -8.057 dBm
2 N 1 f 24.805 2 GHz -64.924 dBm
Frequency
Auto Tune
Center Freq
12.515000000 GHz
Start Freq
30.000000 MHz
Stop Freq
25.000000000 GHz
CF Step
2.497000000 GHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

---END---