Table of Contents

1. -6dB Bandwidth 2
2. 99% Occupied Bandwidth 9
3. Duty Cycle 16
4. MAX. Output Power 23
5. Power Spectral Density 24
6. Bandedge 31
7. Spurious Emission 39

FCC ID WIFI2.4
FCC_2.4G_WIFI (Part15.247) Test Data

1. -6dB Bandwidth

Condition	Antenna	Modulation	Frequency (MHz)	-6dB BW(MHz)	limit(kHz)	Result
NVNT	ANT1	802.11b	2412.00	8.61	500	Pass
NVNT	ANT1	802.11b	2437.00	8.59	500	Pass
NVNT	ANT1	802.11b	2462.00	8.58	500	Pass
NVNT	ANT1	802.11g	2412.00	16.12	500	Pass
NVNT	ANT1	802.11g	2437.00	16.35	500	Pass
NVNT	ANT1	802.11g	2462.00	16.11	500	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	17.13	500	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	17.38	500	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	17.04	500	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	35.87	500	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	36.01	500	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	35.82	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

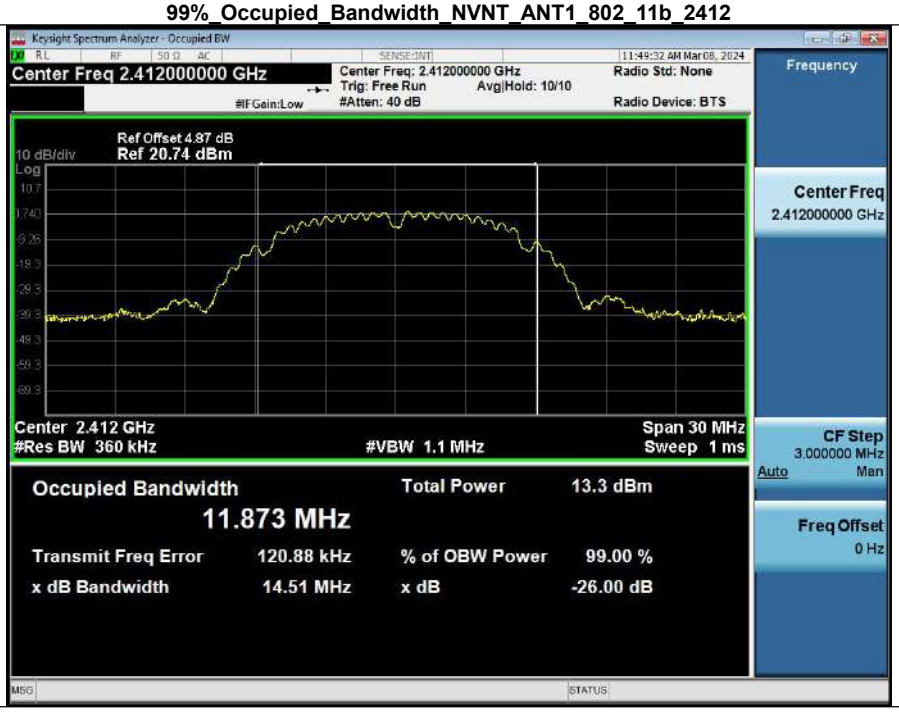
-6dB_Bandwidth_NVNT_ANT1_802_11n(HT40)_2452

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
03:01:19 PM Mar 08, 2024
Frequency
Ref Offset 4.64 dB
10 dB/div
Ref 16.28 dBm
Center Freq
2.452000000 GHz
Center 2.452 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 60 MHz
Sweep 5.8 ms
CF Step
6.000000 MHz
Auto
Man
Occupied Bandwidth
35.945 MHz
Total Power 18.1 dBm
Transmit Freq Error 109.64 kHz
% of OBW Power 99.00 %
x dB Bandwidth 35.82 MHz
x dB -6.00 dB
Freq Offset
0 Hz
MSG
STATUS

2. 99% Occupied Bandwidth

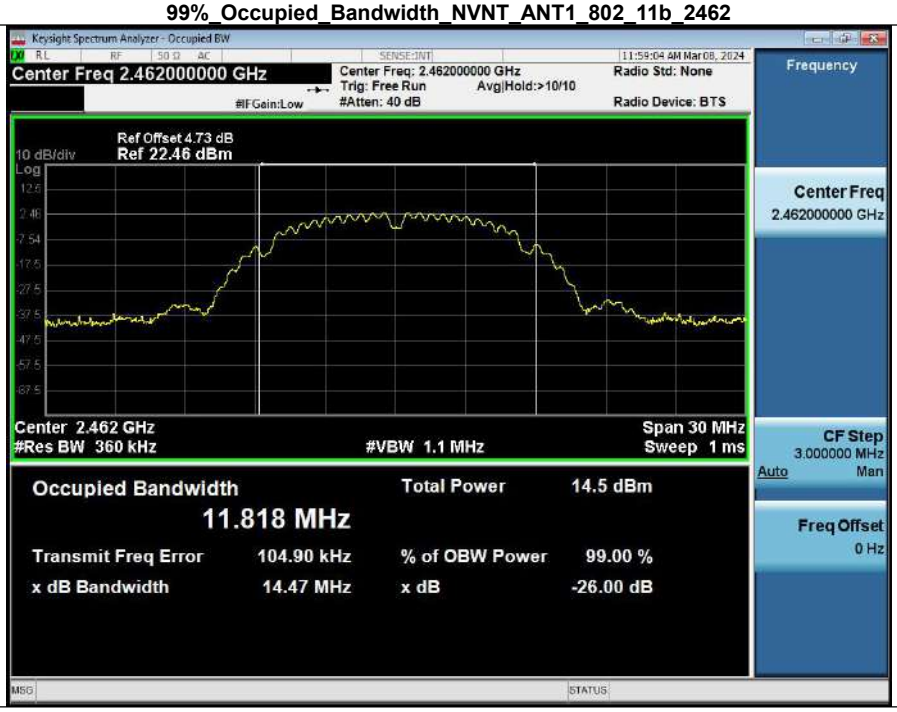
Condition	Antenna	Modulation	Frequency (MHz)	99%%BW(MHz)
NVNT	ANT1	802.11b	2412.00	11.873
NVNT	ANT1	802.11b	2437.00	11.867
NVNT	ANT1	802.11b	2462.00	11.818
NVNT	ANT1	802.11g	2412.00	17.309
NVNT	ANT1	802.11g	2437.00	17.146
NVNT	ANT1	802.11g	2462.00	17.182
NVNT	ANT1	802.11n(HT20)	2412.00	17.936
NVNT	ANT1	802.11n(HT20)	2437.00	17.845
NVNT	ANT1	802.11n(HT20)	2462.00	17.848
NVNT	ANT1	802.11n(HT40)	2422.00	36.553
NVNT	ANT1	802.11n(HT40)	2437.00	36.519
NVNT	ANT1	802.11n(HT40)	2452.00	36.556

99%_Occupied_Bandwidth_NVNT_ANT1_802_11b_2412



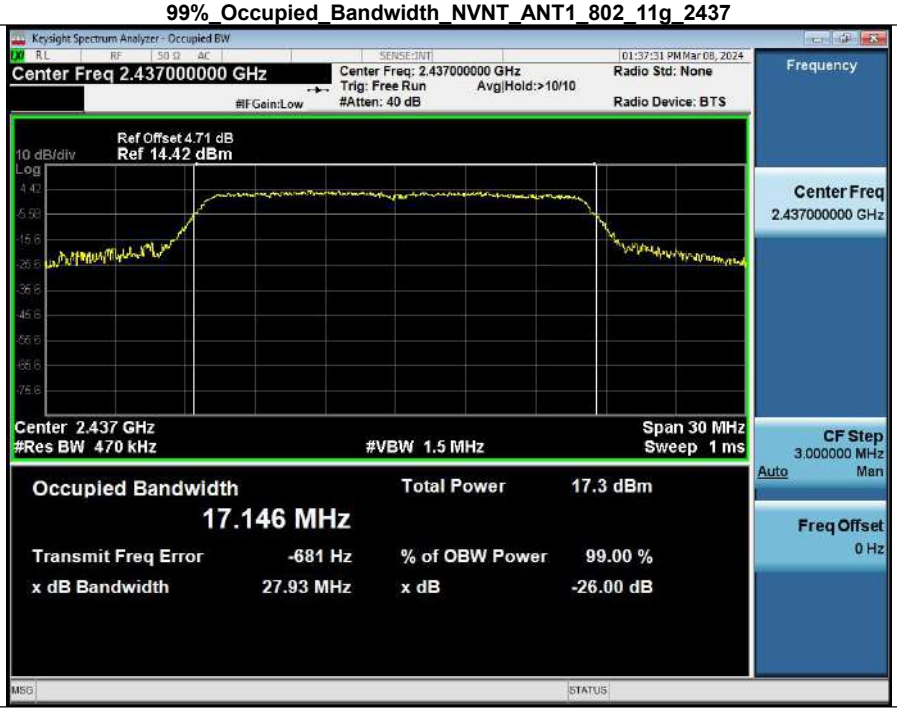
99%_Occupied_Bandwidth_NVNT_ANT1_802_11b_2437

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

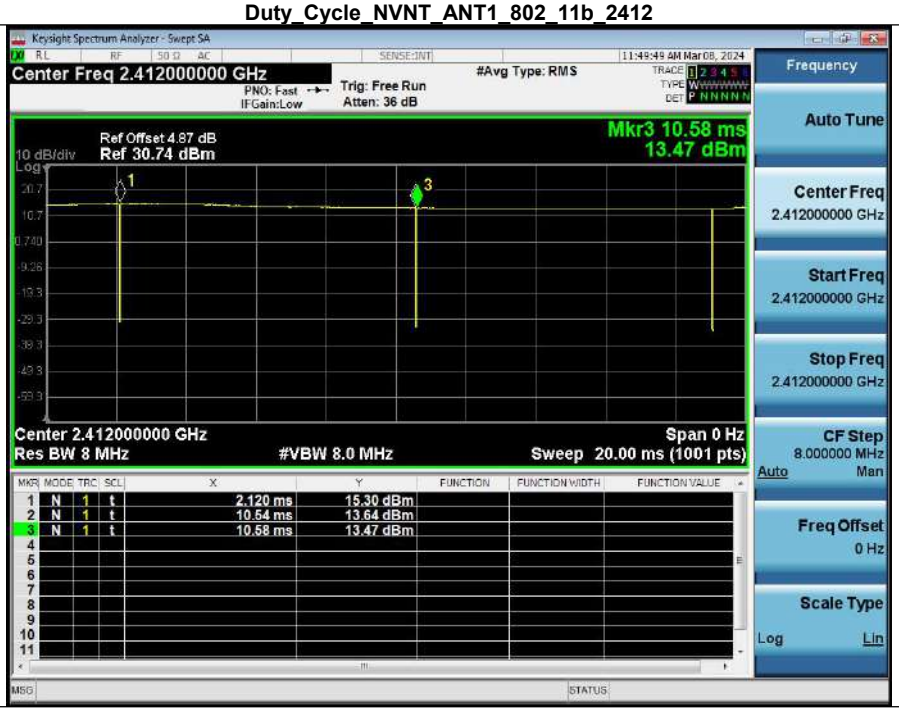
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT40)_2452

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
03:01:40 PM Mar 08, 2024
Frequency
Ref Offset 4.64 dB
10 dB/div
Ref 16.28 dBm
Center Freq
2.452000000 GHz
Center 2.452 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 60 MHz
Sweep 1 ms
CF Step
6.000000 MHz
Auto
Man
Occupied Bandwidth
36.556 MHz
Total Power
19.0 dBm
Transmit Freq Error
329.64 kHz
% of OBW Power
99.00 %
x dB Bandwidth
52.37 MHz
x dB
-26.00 dB
Freq Offset
0 Hz
MSG
STATUS

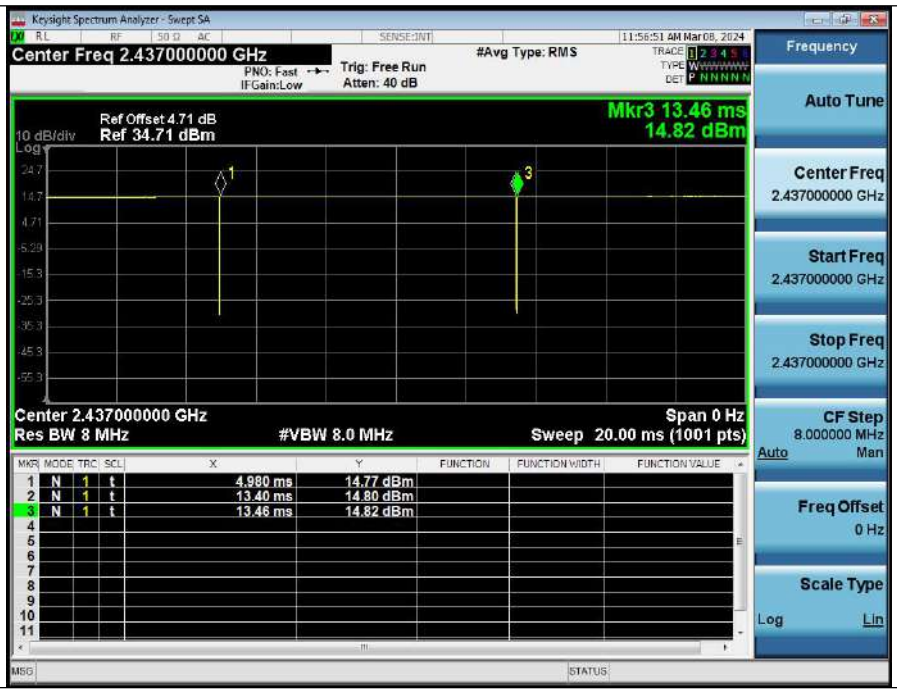
3. Duty Cycle

Condition	Antenna	Modulation	Frequency (MHz)	Duty cycle(%)	Duty factor(dB)
NVNT	ANT1	802.11b	2412.00	99.76	0.00
NVNT	ANT1	802.11b	2437.00	99.53	0.00
NVNT	ANT1	802.11b	2462.00	99.76	0.00
NVNT	ANT1	802.11g	2412.00	98.61	0.00
NVNT	ANT1	802.11g	2437.00	97.26	0.12
NVNT	ANT1	802.11g	2462.00	97.26	0.12
NVNT	ANT1	802.11n(HT20)	2412.00	96.77	0.14
NVNT	ANT1	802.11n(HT20)	2437.00	96.77	0.14
NVNT	ANT1	802.11n(HT20)	2462.00	96.77	0.14
NVNT	ANT1	802.11n(HT40)	2422.00	93.75	0.28
NVNT	ANT1	802.11n(HT40)	2437.00	96.88	0.14
NVNT	ANT1	802.11n(HT40)	2452.00	93.75	0.28

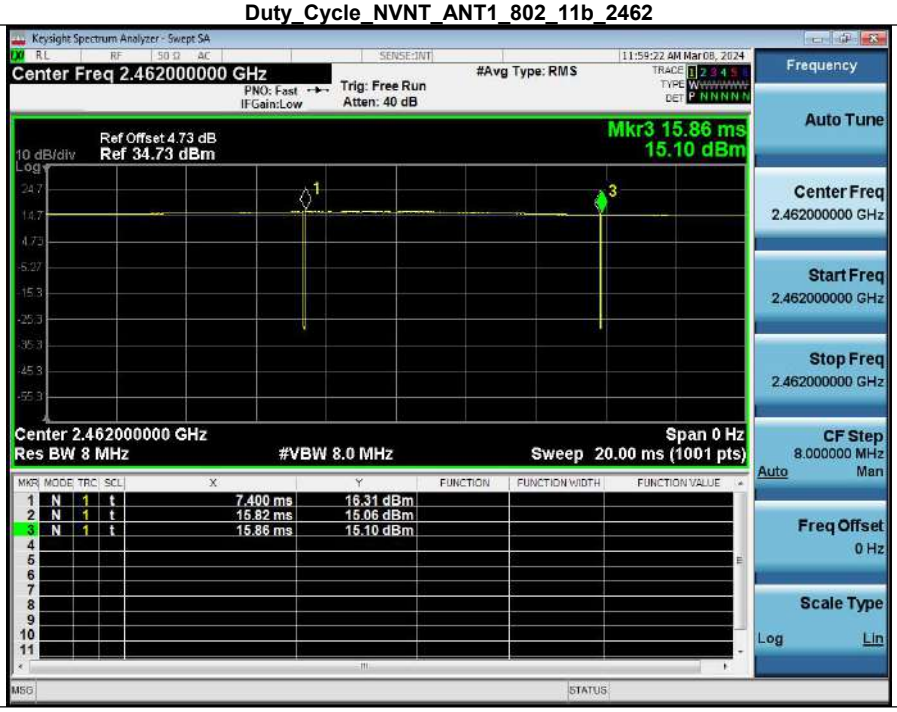
Duty_Cycle_NVNT_ANT1_802_11b_2412



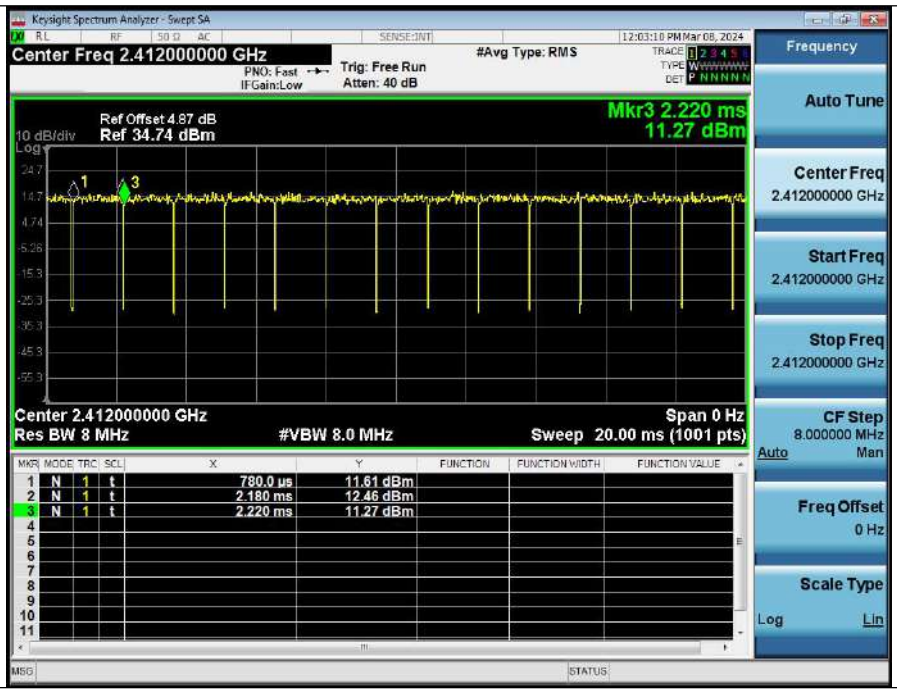
Duty_Cycle_NVNT_ANT1_802_11b_2437



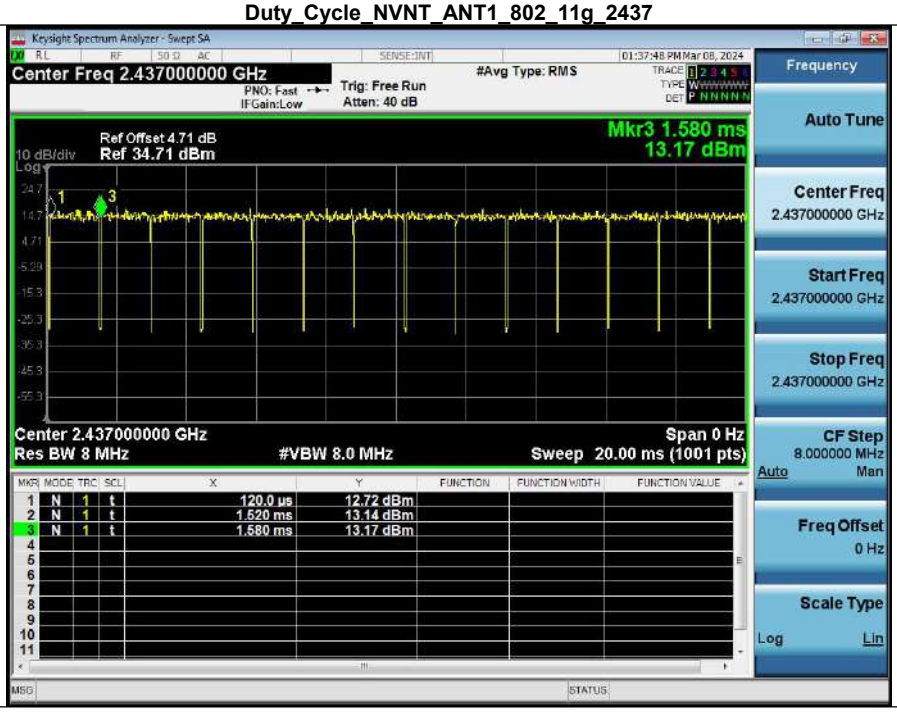
Duty_Cycle_NVNT_ANT1_802_11b_2462



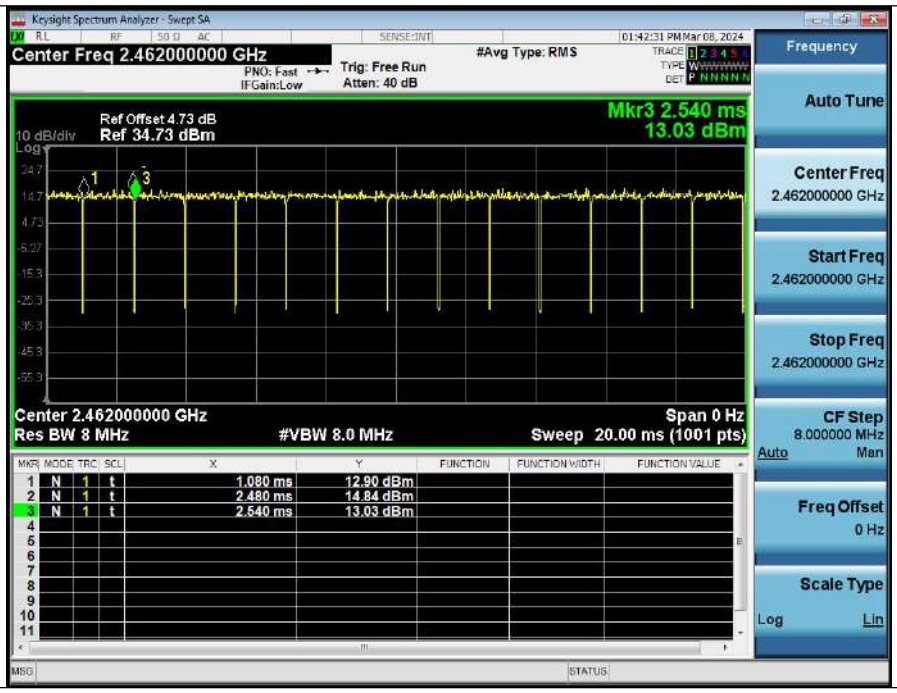
Duty_Cycle_NVNT_ANT1_802_11g_2412



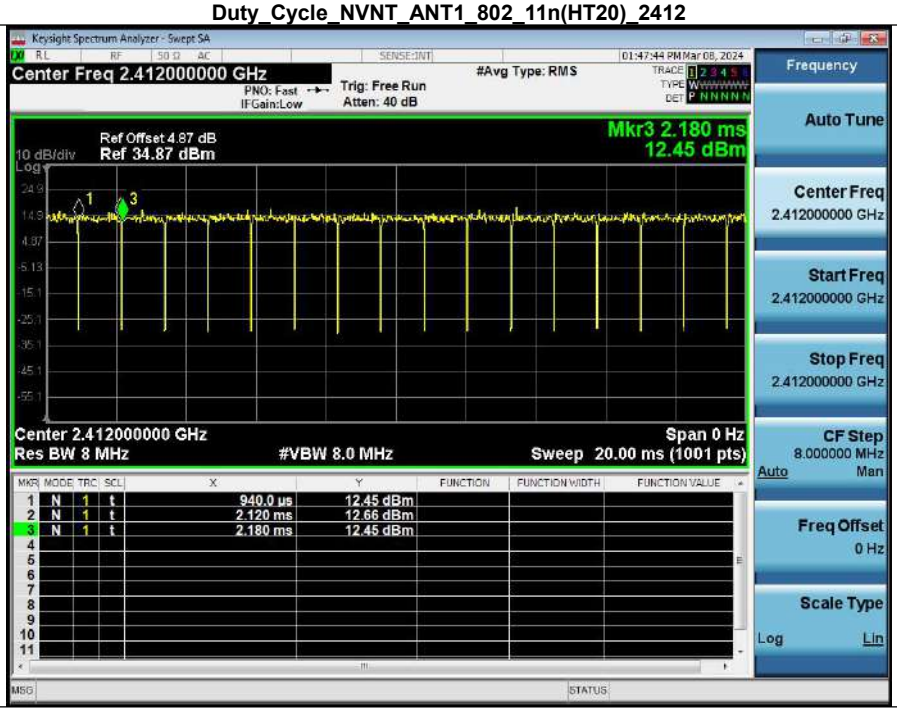
Duty_Cycle_NVNT_ANT1_802_11g_2437



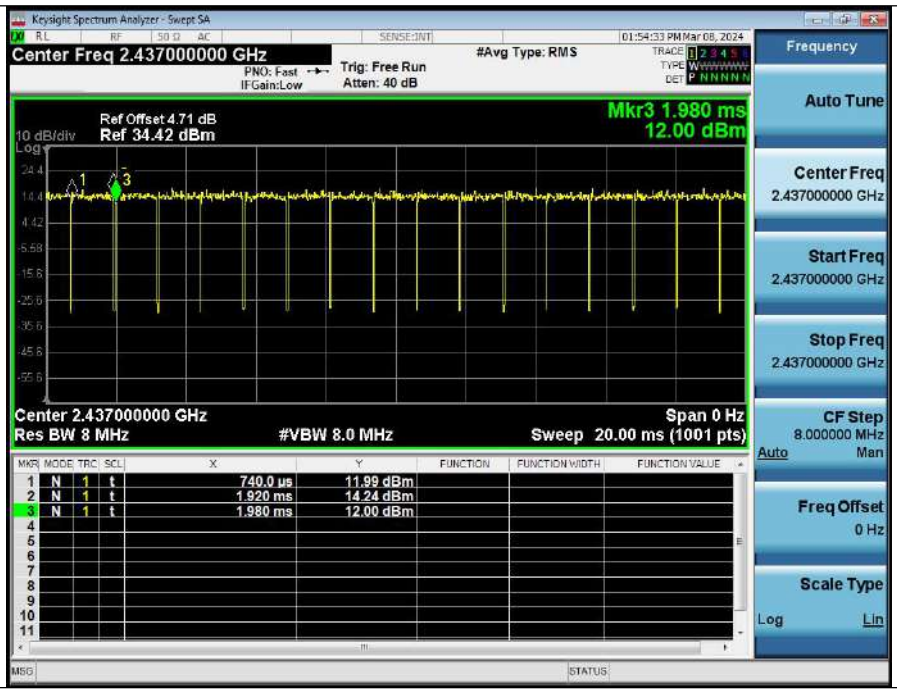
Duty_Cycle_NVNT_ANT1_802_11g_2462



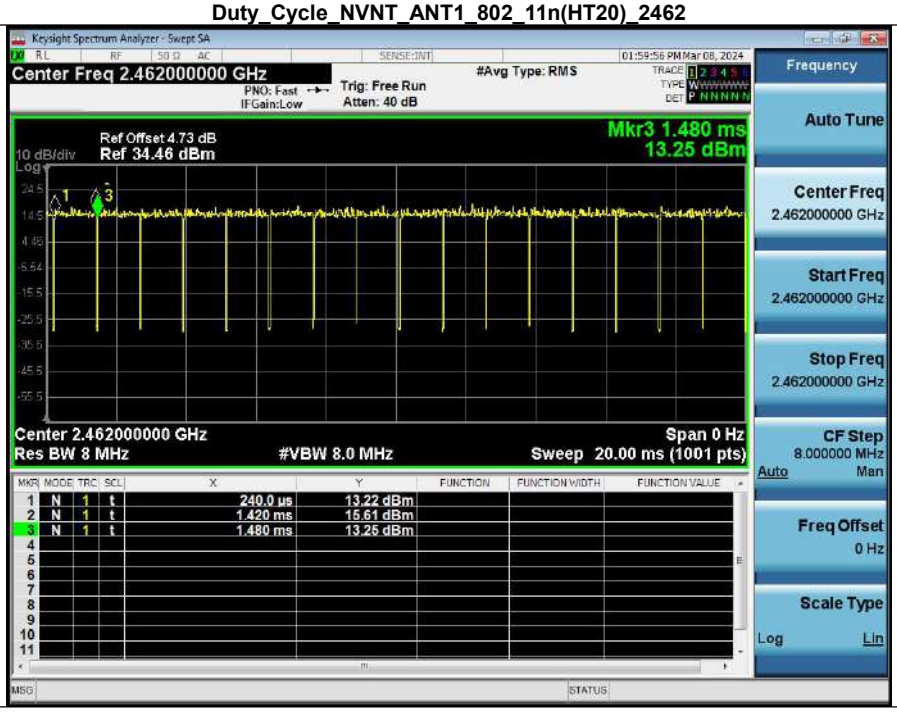
Duty_Cycle_NVNT_ANT1_802_11n(HT20)_2412



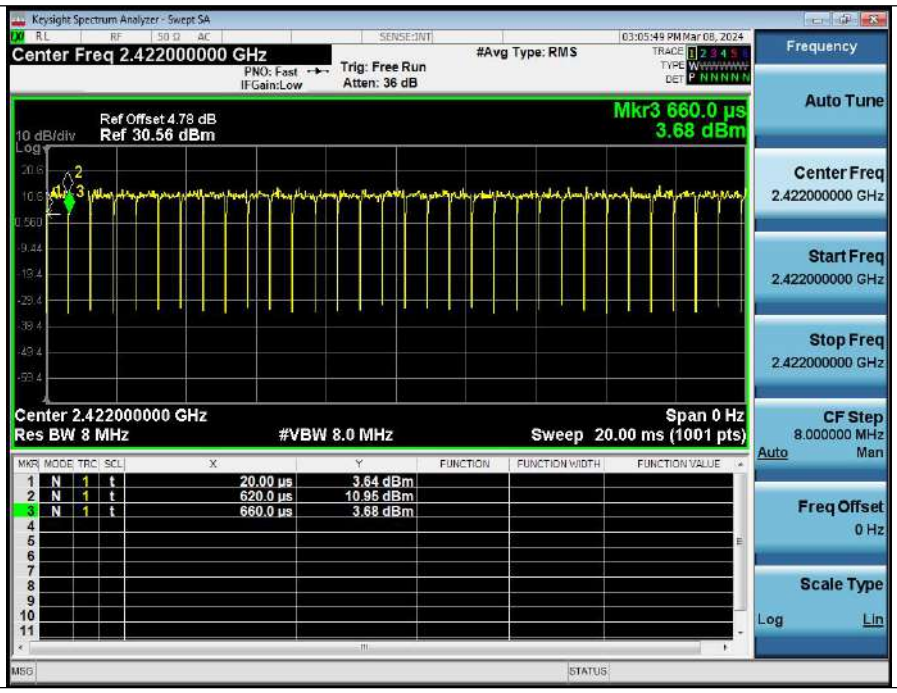
Duty_Cycle_NVNT_ANT1_802_11n(HT20)_2437



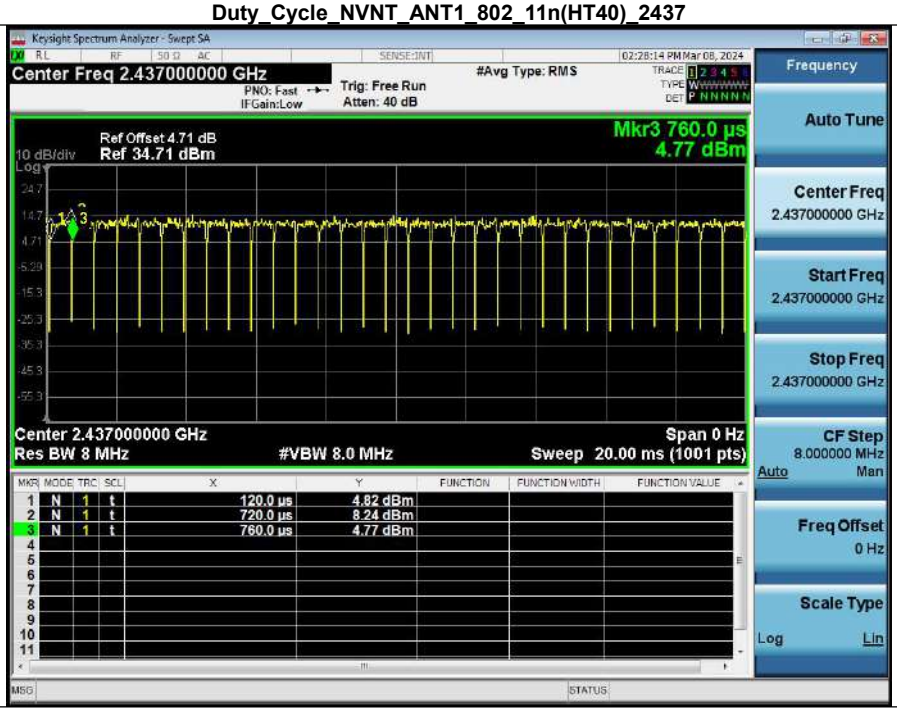
Duty_Cycle_NVNT_ANT1_802_11n(HT20)_2462



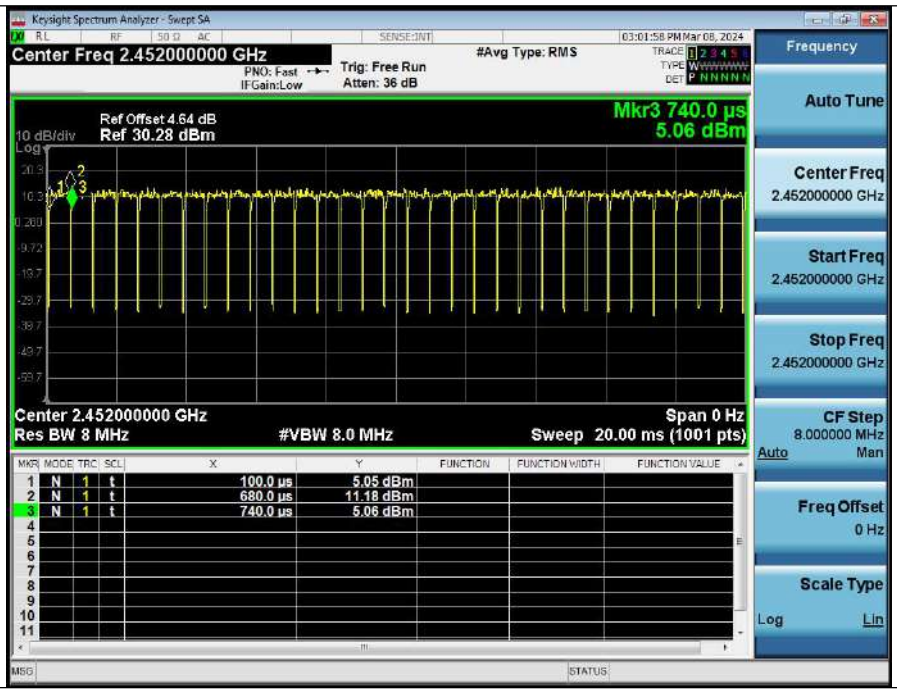
Duty_Cycle_NVNT_ANT1_802_11n(HT40)_2422



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: 36 dB
#Avg Type: RMS
03:01:58 PM Mar 08, 2024
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
Scale Type
Log
Lin
Ref Offset 4.64 dB
10 dB/div
Ref 30.28 dBm
Mkr3 740.0 µs
5.06 dBm
Center 2.452000000 GHz
Res BW 8 MHz
#VBW 8.0 MHz
Span 0 Hz
Sweep 20.00 ms (1001 pts)
1 N 1 t 100.0 µs 5.05 dBm
2 N 1 t 680.0 µs 11.18 dBm
3 N 1 t 740.0 µs 5.06 dBm
MSG
STATUS

4. 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	Peak	12.89	N/A	12.89	30	Pass
NVNT	ANT1	802.11b	2437.00	Peak	13.55	N/A	13.55	30	Pass
NVNT	ANT1	802.11b	2462.00	Peak	14.08	N/A	14.08	30	Pass
NVNT	ANT1	802.11g	2412.00	Peak	17.35	N/A	17.35	30	Pass
NVNT	ANT1	802.11g	2437.00	Peak	17.93	N/A	17.93	30	Pass
NVNT	ANT1	802.11g	2462.00	Peak	18.57	N/A	18.57	30	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	Peak	17.88	N/A	17.88	30	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	Peak	18.57	N/A	18.57	30	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	Peak	19.26	N/A	19.26	30	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	Peak	18.74	N/A	18.74	30	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	Peak	18.71	N/A	18.71	30	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	Peak	18.55	N/A	18.55	30	Pass

5. Power Spectral Density

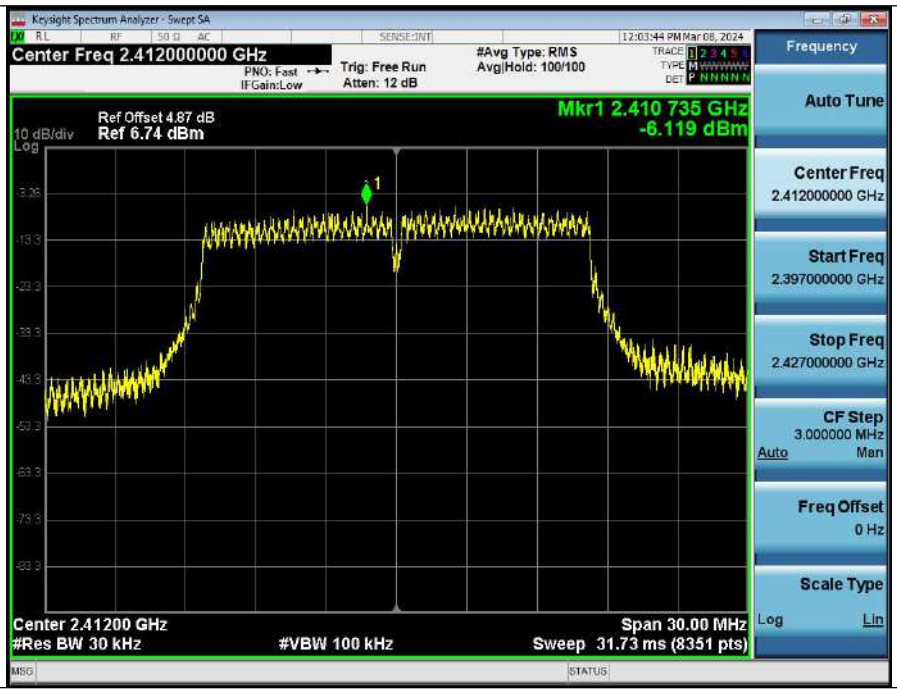
Condition	Antenna	Modulation	Frequency (MHz)	PSD(dBm/30kHz)	Duty factor(dB)	RB factor(dB)	PSD(dBm/3kHz)	limit(dBm/3kHz)	Result
NVNT	ANT1	802.11b	2412.00	-0.16	N/A	-10.00	-10.16	8	Pass
NVNT	ANT1	802.11b	2437.00	-2.08	N/A	-10.00	-12.08	8	Pass
NVNT	ANT1	802.11b	2462.00	2.35	N/A	-10.00	-7.65	8	Pass
NVNT	ANT1	802.11g	2412.00	-6.12	N/A	-10.00	-16.12	8	Pass
NVNT	ANT1	802.11g	2437.00	-5.88	N/A	-10.00	-15.88	8	Pass
NVNT	ANT1	802.11g	2462.00	-5.34	N/A	-10.00	-15.34	8	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	-5.92	N/A	-10.00	-15.92	8	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	-5.46	N/A	-10.00	-15.46	8	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	-4.75	N/A	-10.00	-14.75	8	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	-7.97	N/A	-10.00	-17.97	8	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	-8.78	N/A	-10.00	-18.78	8	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	-8.66	N/A	-10.00	-18.66	8	Pass

Power_Spectral_Density_NVNT_ANT1_802_11b_2412

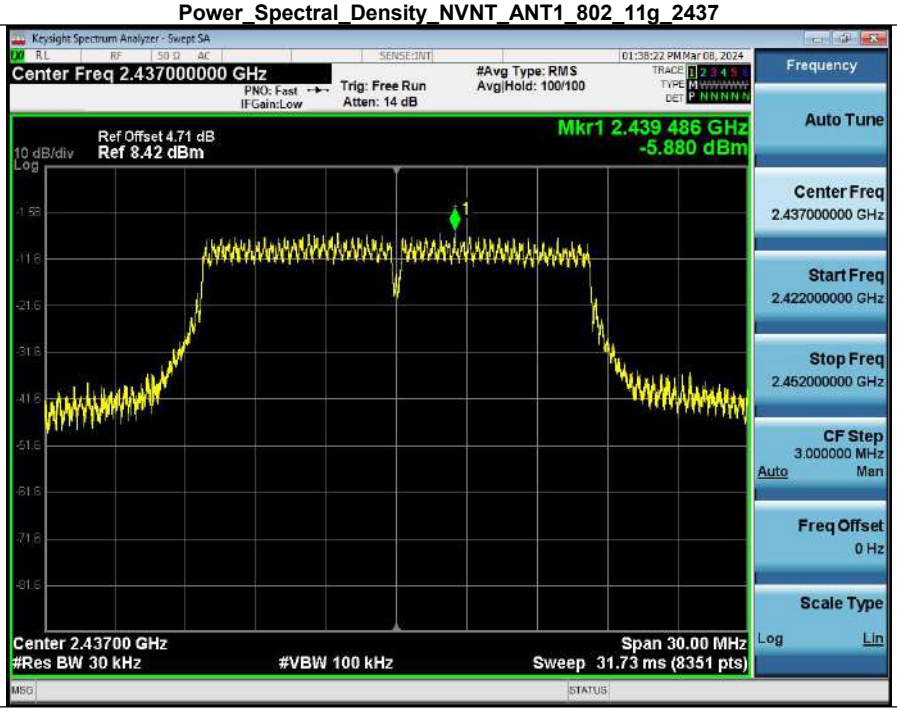
Power_Spectral_Density_NVNT_ANT1_802_11b_2437

Power_Spectral_Density_NVNT_ANT1_802_11b_2462

Power_Spectral_Density_NVNT_ANT1_802_11g_2412

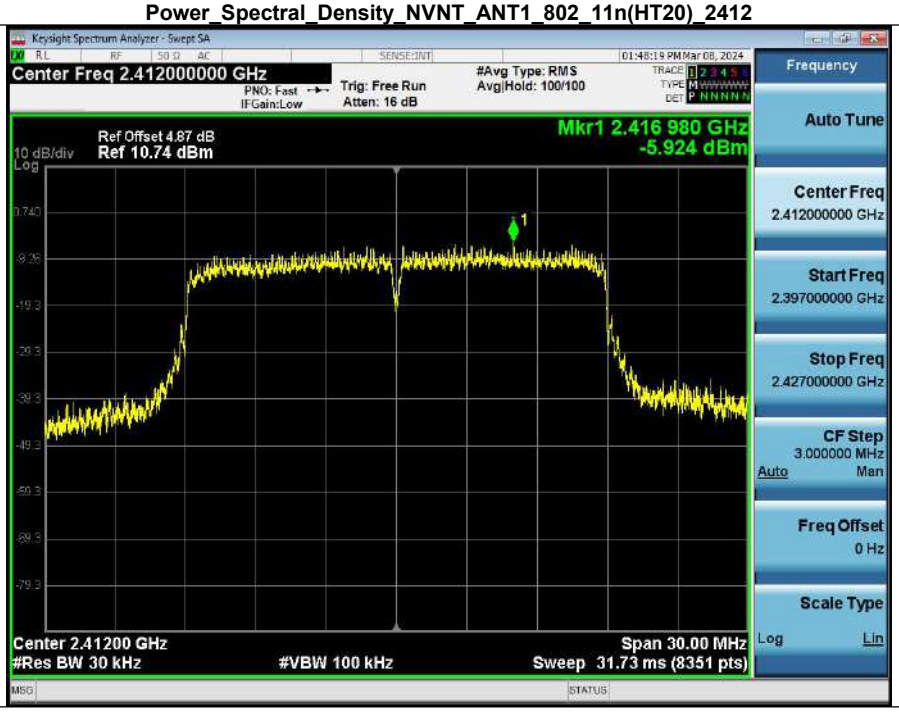


Power_Spectral_Density_NVNT_ANT1_802_11g_2437



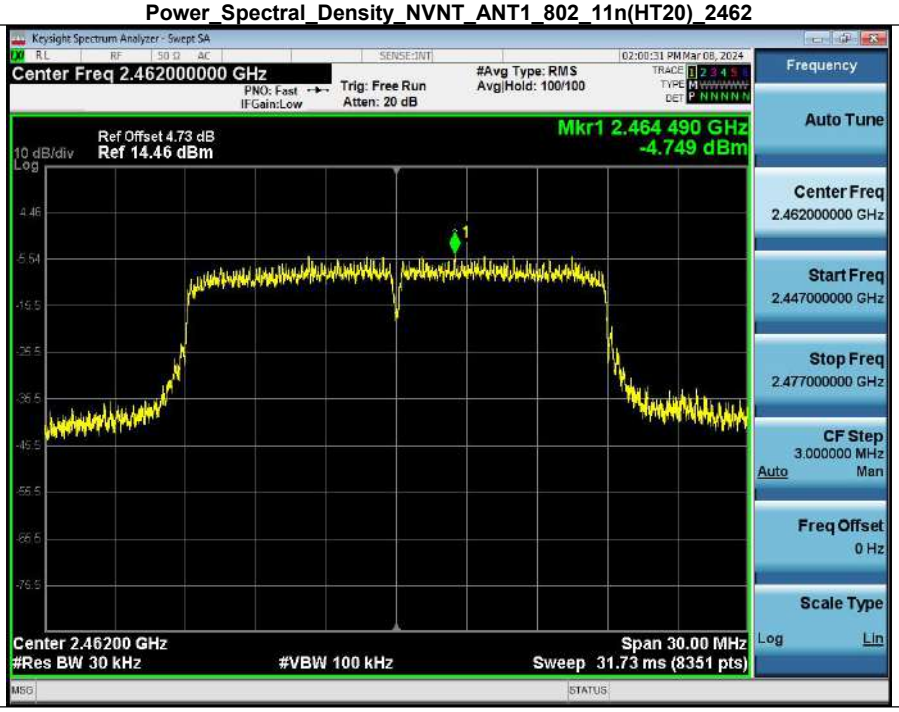
Power_Spectral_Density_NVNT_ANT1_802_11g_2462

Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_2412



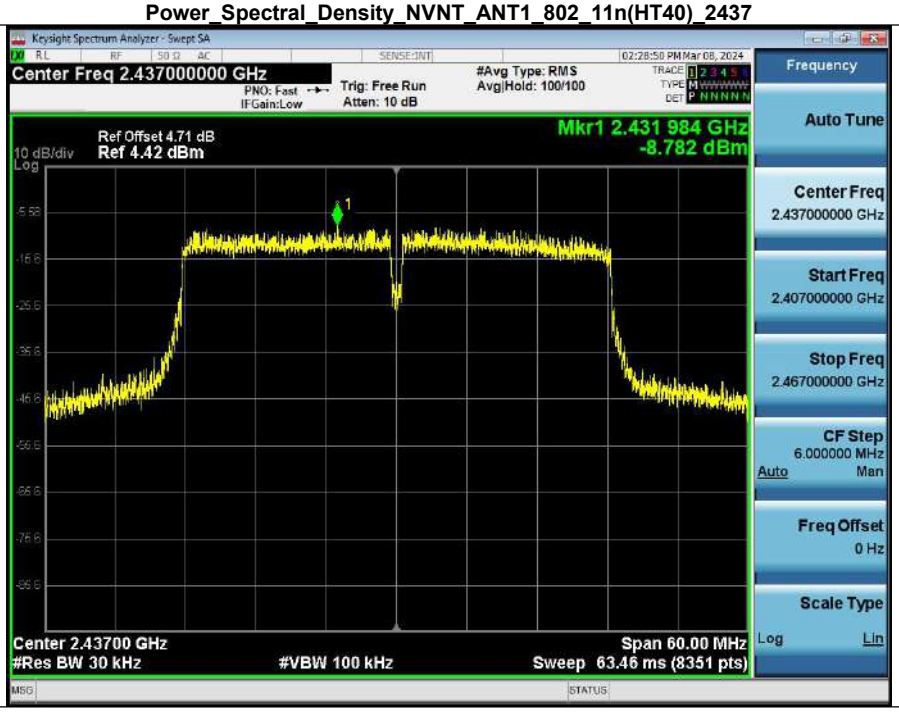
Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_2437

Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_2462

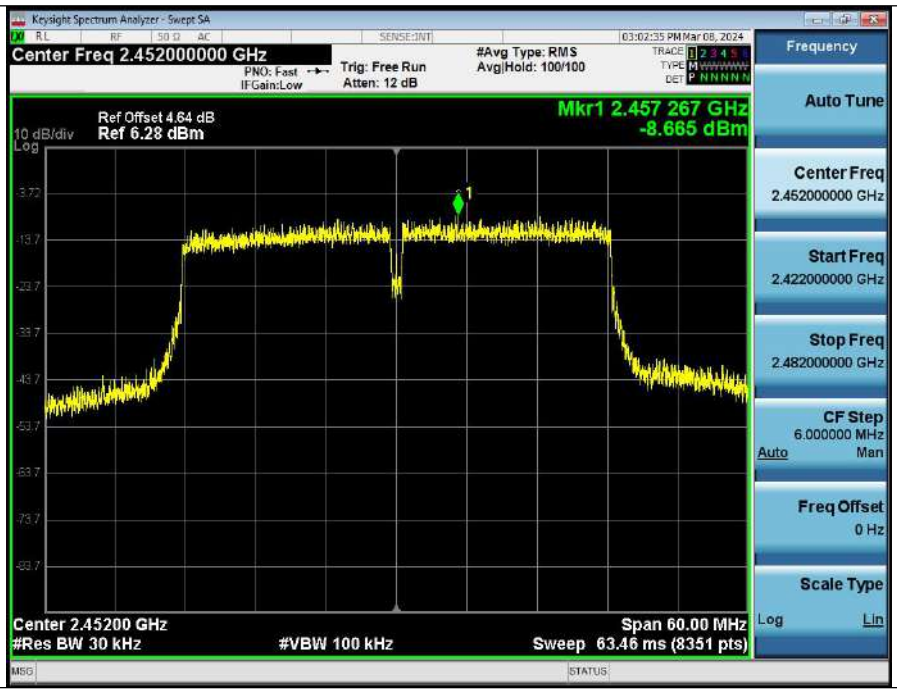


Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_2422

Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_2437



Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_2452

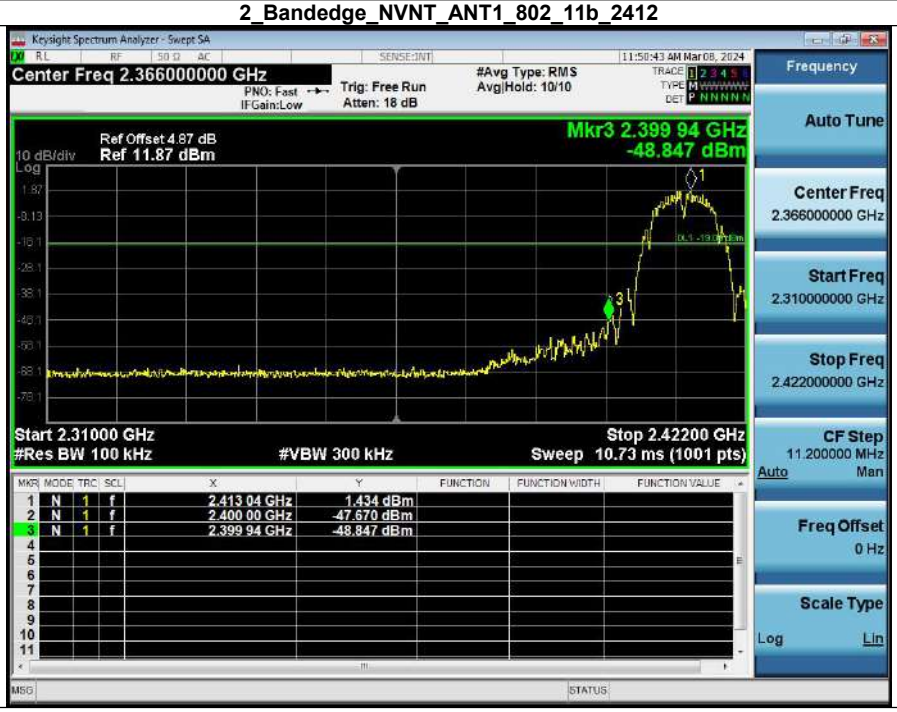

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.452000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 12 dB
#Avg Type: RMS
Avg|Hold: 100/100
03:02:35 PM Mar 08, 2024
Ref Offset 4.64 dB
10 dB/div
Ref 6.28 dBm
Log
Mkr1 2.457 267 GHz
-8.665 dBm
Center 2.45200 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 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
Scale Type
Log
Lin

6. Bandedge

Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark_frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	2412.00	2399.936	-48.847	-19.094	Pass
NVNT	ANT1	802.11b	2462.00	2483.632	-54.127	-17.231	Pass
NVNT	ANT1	802.11g	2412.00	2399.824	-34.042	-21.332	Pass
NVNT	ANT1	802.11g	2462.00	2483.872	-40.520	-20.191	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	2399.712	-30.356	-21.370	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	2483.776	-37.163	-20.273	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	2397.516	-36.269	-23.459	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	2484.768	-38.959	-23.711	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

7. Spurious Emission

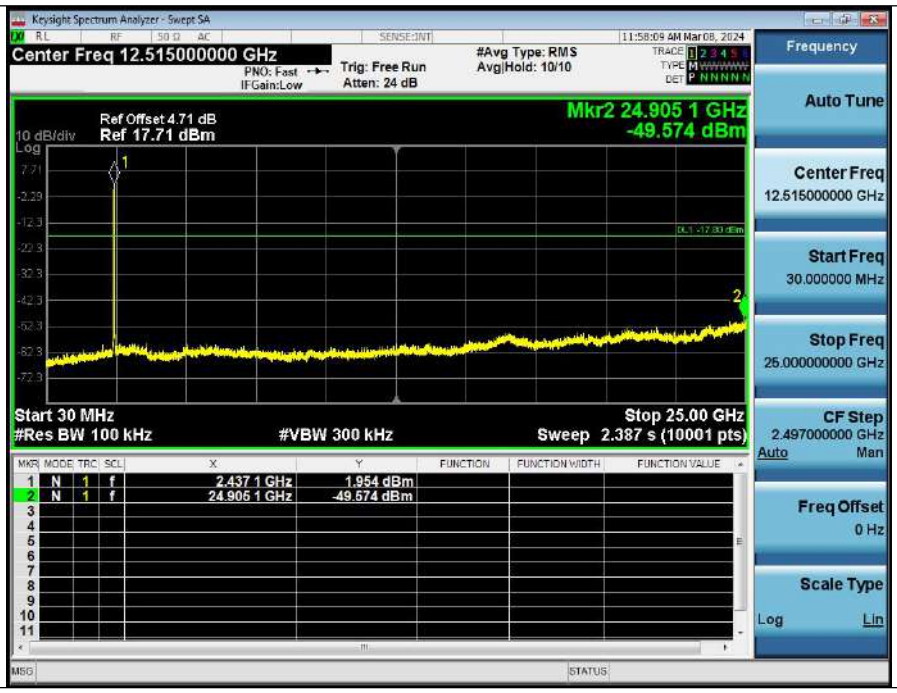
Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark_frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	2412.00	24807.731	-55.765	-19.094	Pass
NVNT	ANT1	802.11b	2437.00	24905.114	-49.574	-17.800	Pass
NVNT	ANT1	802.11b	2462.00	24890.132	-54.576	-17.231	Pass
NVNT	ANT1	802.11g	2412.00	24920.096	-54.828	-21.332	Pass
NVNT	ANT1	802.11g	2437.00	24907.611	-54.540	-21.261	Pass
NVNT	ANT1	802.11g	2462.00	826.543	-56.287	-20.191	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	25000.000	-53.625	-21.370	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	826.543	-53.262	-21.171	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	829.040	-28.283	-20.273	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	24977.527	-55.594	-23.459	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	24987.515	-56.589	-23.694	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	24997.503	-55.906	-23.711	Pass

1_Reference_Level_NVNT_ANT1_802_11b_2412

2_Spurious_Emission_NVNT_ANT1_802_11b_2412

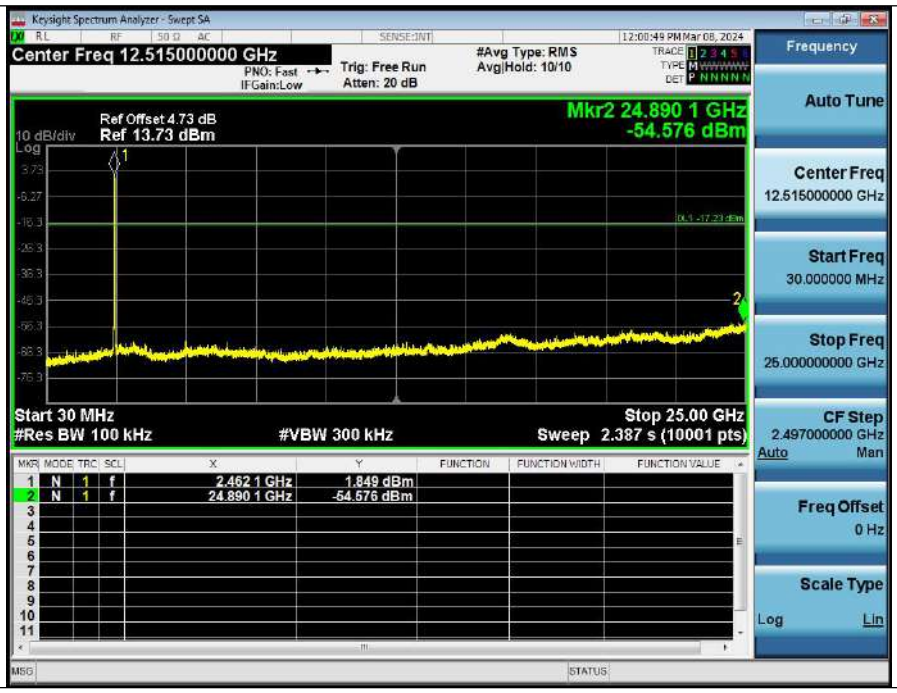
1_Reference_Level_NVNT_ANT1_802_11b_2437

2_Spurious_Emission_NVNT_ANT1_802_11b_2437



1_Reference_Level_NVNT_ANT1_802_11b_2462

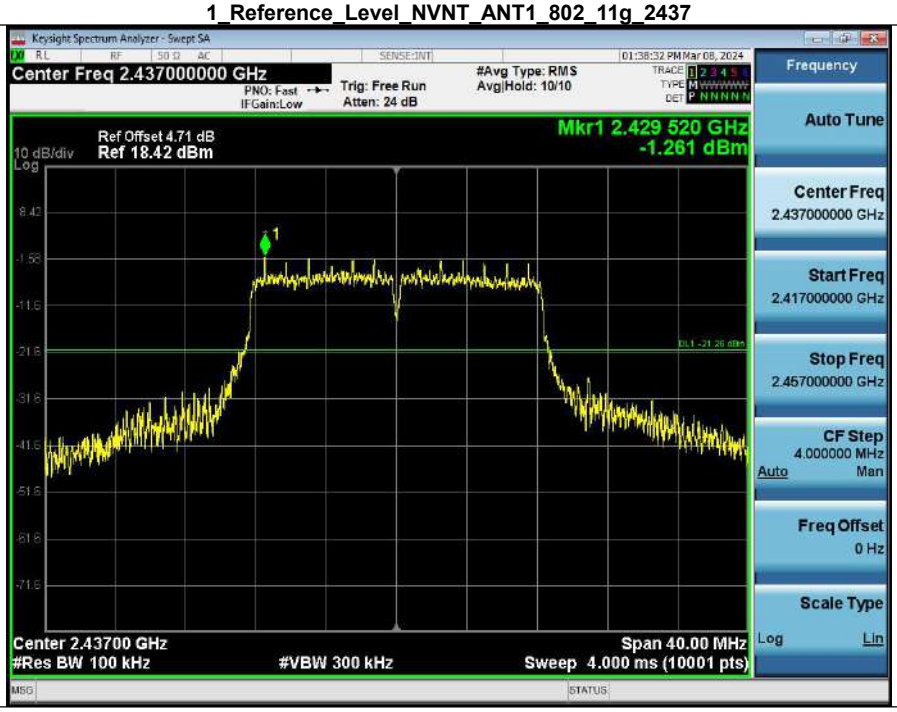
2_Spurious_Emission_NVNT_ANT1_802_11b_2462



1_Reference_Level_NVNT_ANT1_802_11g_2412

2_Spurious_Emission_NVNT_ANT1_802_11g_2412

1_Reference_Level_NVNT_ANT1_802_11g_2437



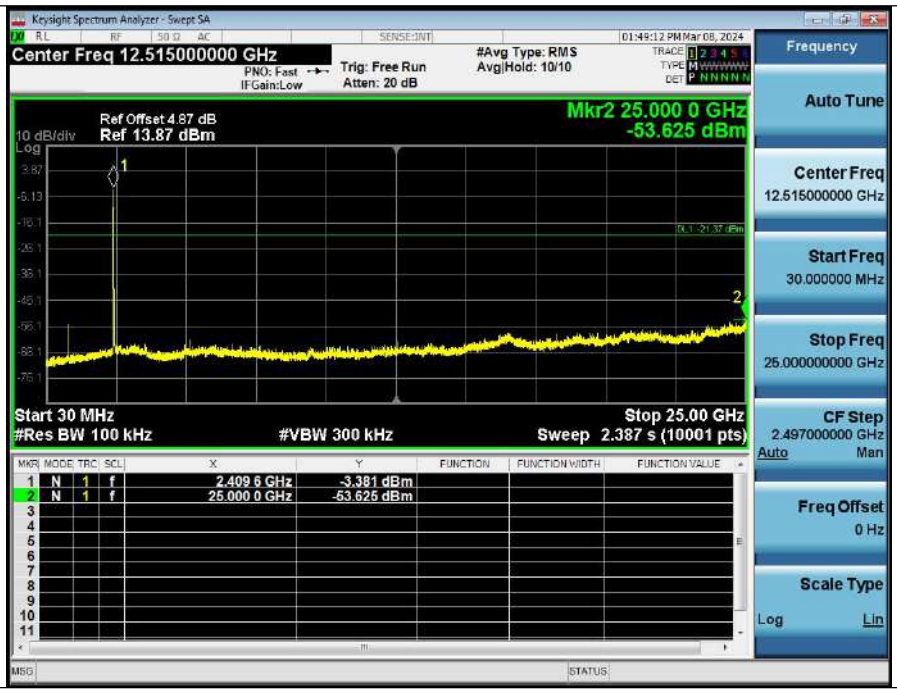
2_Spurious_Emission_NVNT_ANT1_802_11g_2437

1_Reference_Level_NVNT_ANT1_802_11g_2462

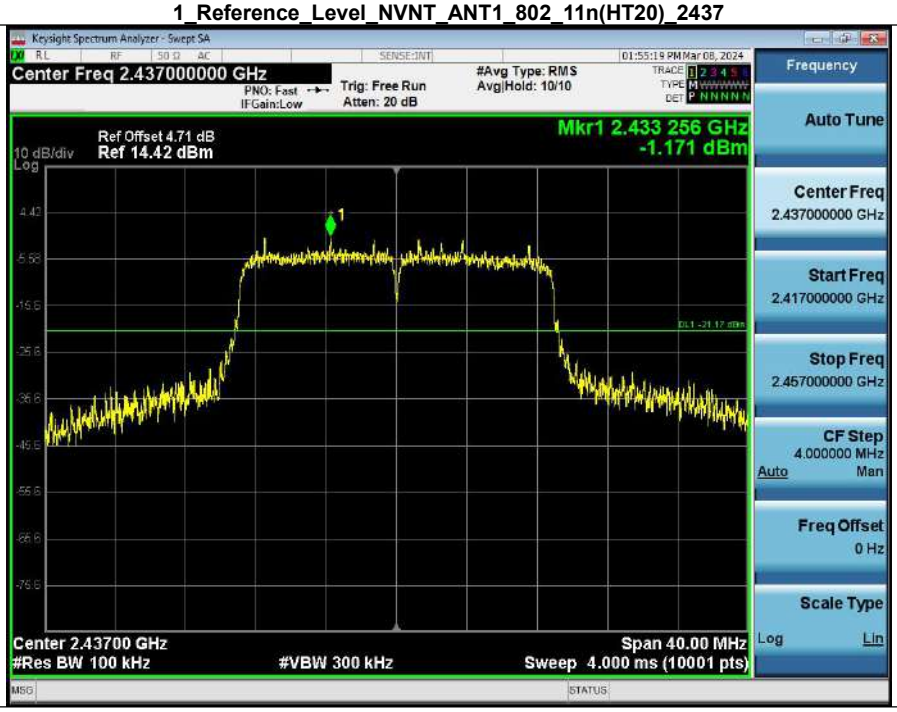
2_Spurious_Emission_NVNT_ANT1_802_11g_2462

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



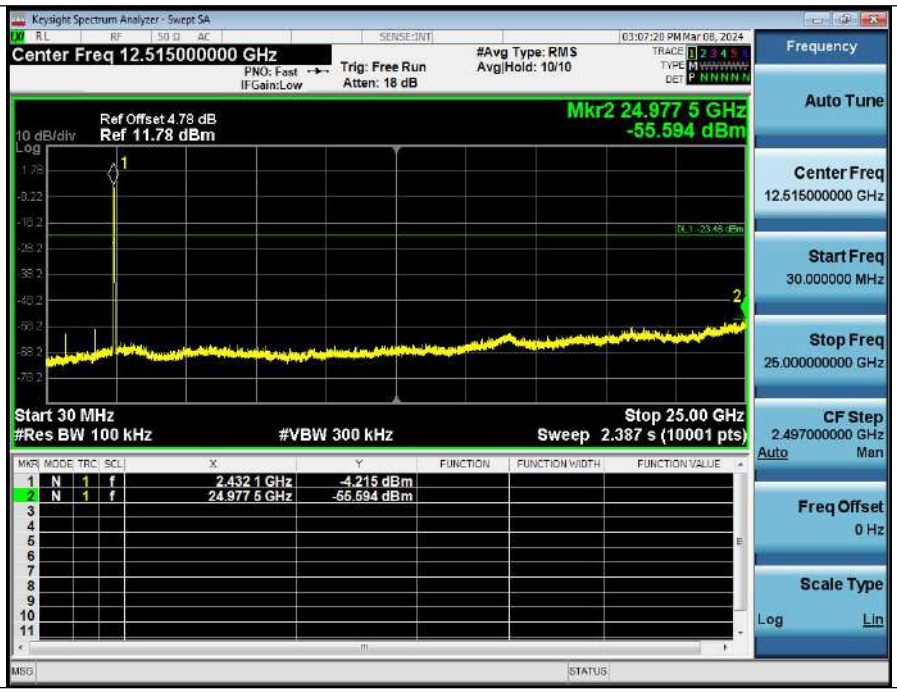
2_Spurious_Emission_NVNT_ANT1_802_11n(HT20)_2437

1_Reference_Level_NVNT_ANT1_802_11n(HT20)_2462

2_Spurious_Emission_NVNT_ANT1_802_11n(HT20)_2462

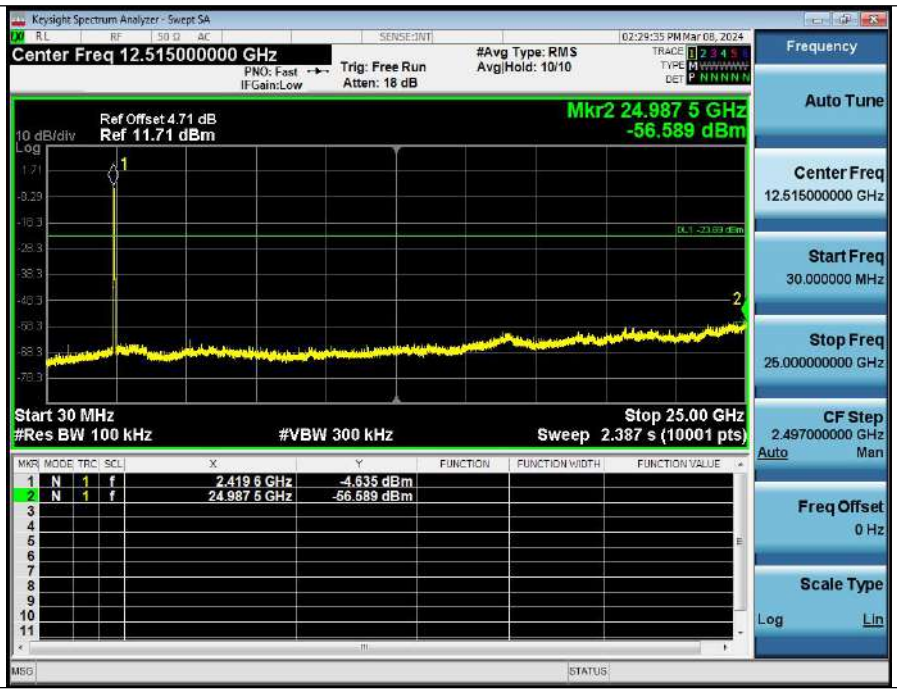
1_Reference_Level_NVNT_ANT1_802_11n(HT40)_2422

2_Spurious_Emission_NVNT_ANT1_802_11n(HT40)_2422



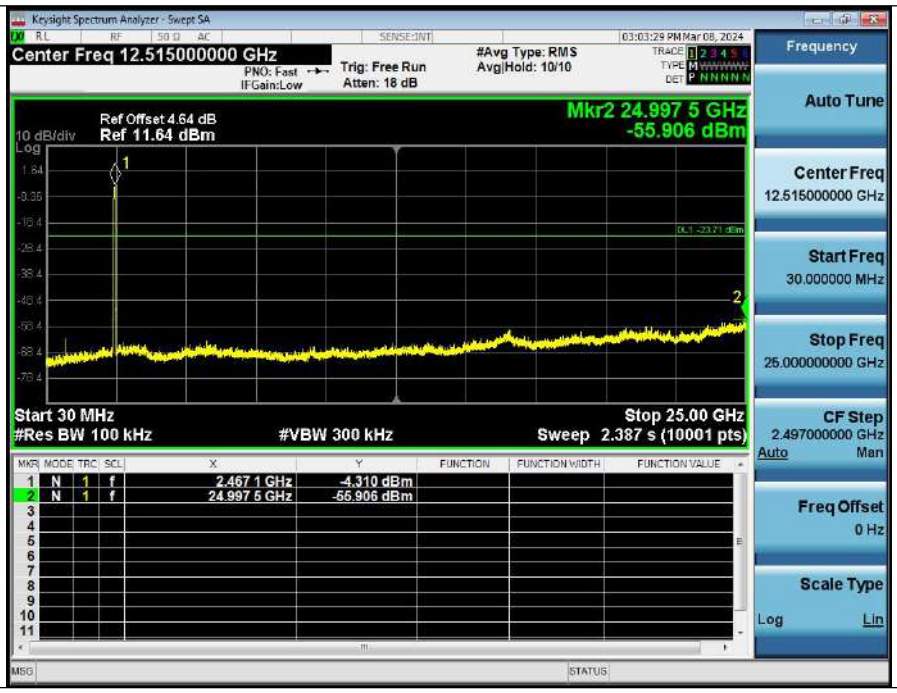
1_Reference_Level_NVNT_ANT1_802_11n(HT40)_2437

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


Keysight Spectrum Analyzer - Swept SA
Center Freq 12.515000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 18 dB
#Avg Type: RMS
Avg|Hold: 10/10
03:03:29 PM Mar 08, 2024
Ref Offset 4.64 dB
10 dB/div
Ref 11.64 dBm
Mkr2 24.997 5 GHz
-55.906 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.00 GHz
Sweep 2.387 s (10001 pts)
1 N 1 f 2.467 1 GHz -4.310 dBm
2 N 1 f 24.997 5 GHz -55.906 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
Scale Type
Log Lin