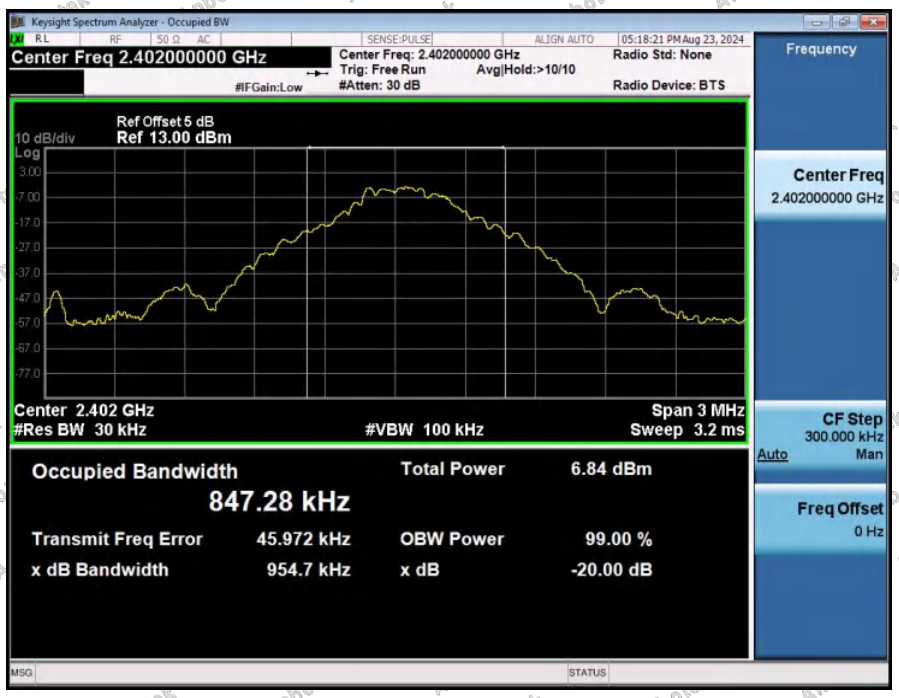
Appendix Test Data

Report No.:	1812C40026212501	Test Sample No.:	1-2-2
Start Test Date:	2024.8.23	Finish Test Date:	2024.8.23
Test Engineer:	Jokes Huang	Auditor:	Justin Feng
Temperature:	25.5℃	Relative Humidity:	47%
Pressure:	101kPa		

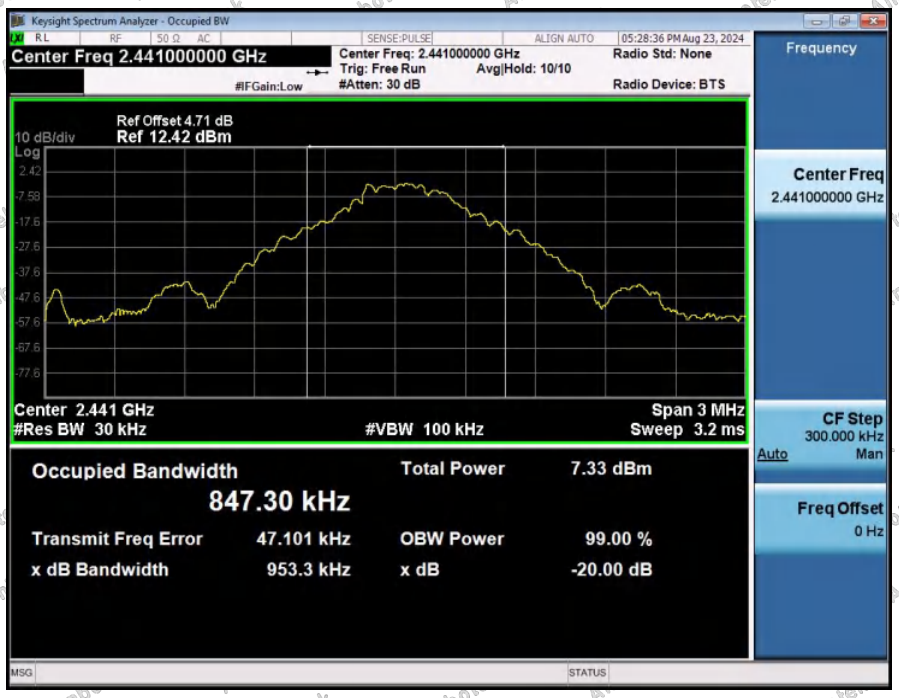
Appendix A: -20dB Bandwidth

Condition	Antenna	Modulation	Frequency (MHz)	-20dB BW(MHz)	if larger than CFS
NVNT	ANT1	1-DH5	2402.00	0.955	No
NVNT	ANT1	1-DH5	2441.00	0.953	No
NVNT	ANT1	1-DH5	2480.00	0.954	No
NVNT	ANT1	2-DH5	2402.00	1.306	Yes
NVNT	ANT1	2-DH5	2441.00	1.307	Yes
NVNT	ANT1	2-DH5	2480.00	1.305	Yes
NVNT	ANT1	3-DH5	2402.00	1.296	Yes
NVNT	ANT1	3-DH5	2441.00	1.298	Yes
NVNT	ANT1	3-DH5	2480.00	1.301	Yes

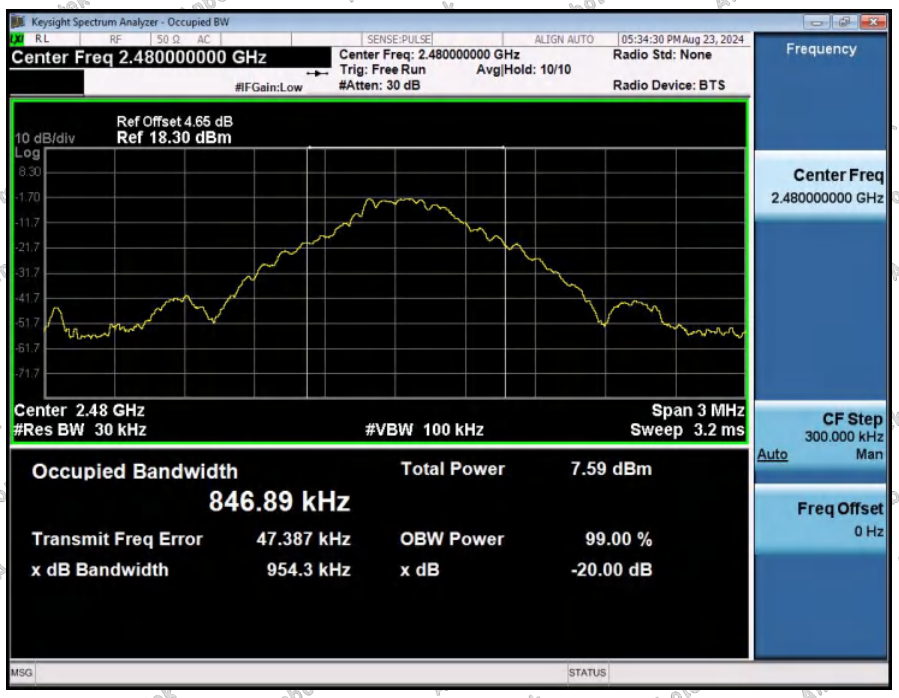
-20dB_Bandwidth_NVNT_ANT1_1-DH5_2402_00



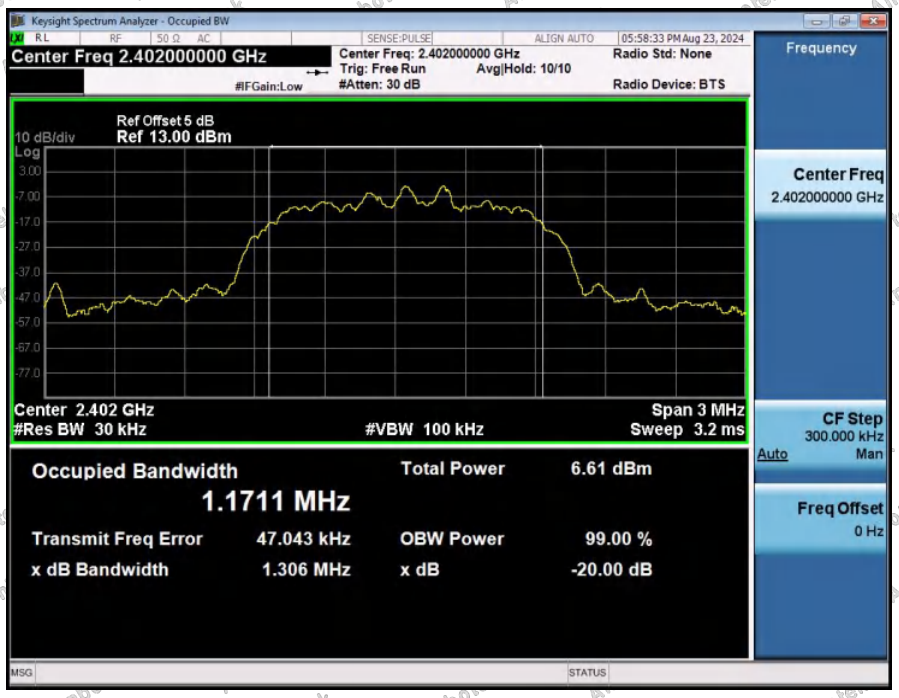
-20dB_Bandwidth_NVNT_ANT1_1-DH5_2441_00



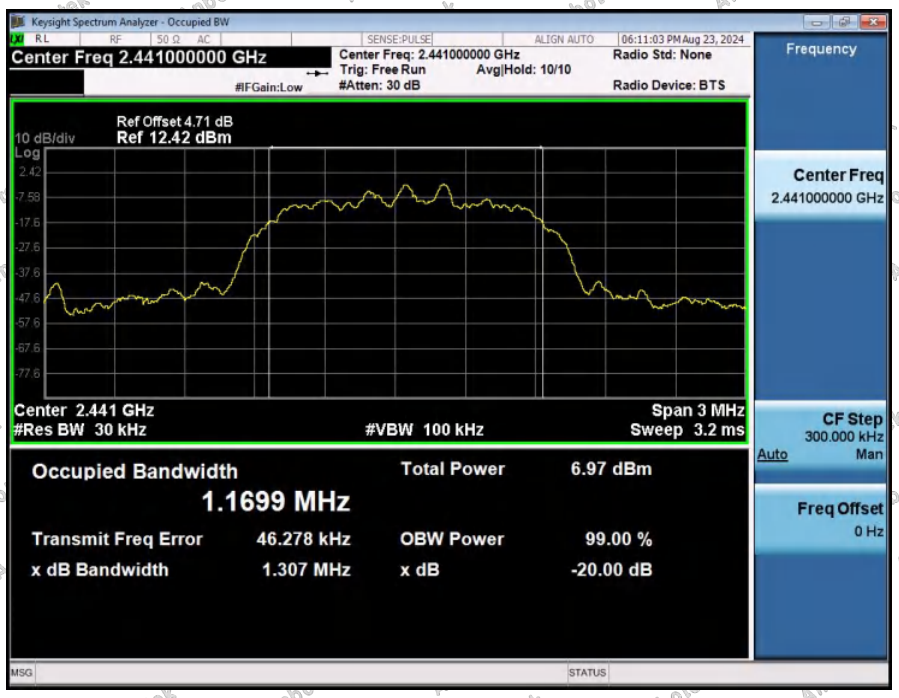
-20dB_Bandwidth_NVNT_ANT1_1-DH5_2480_00



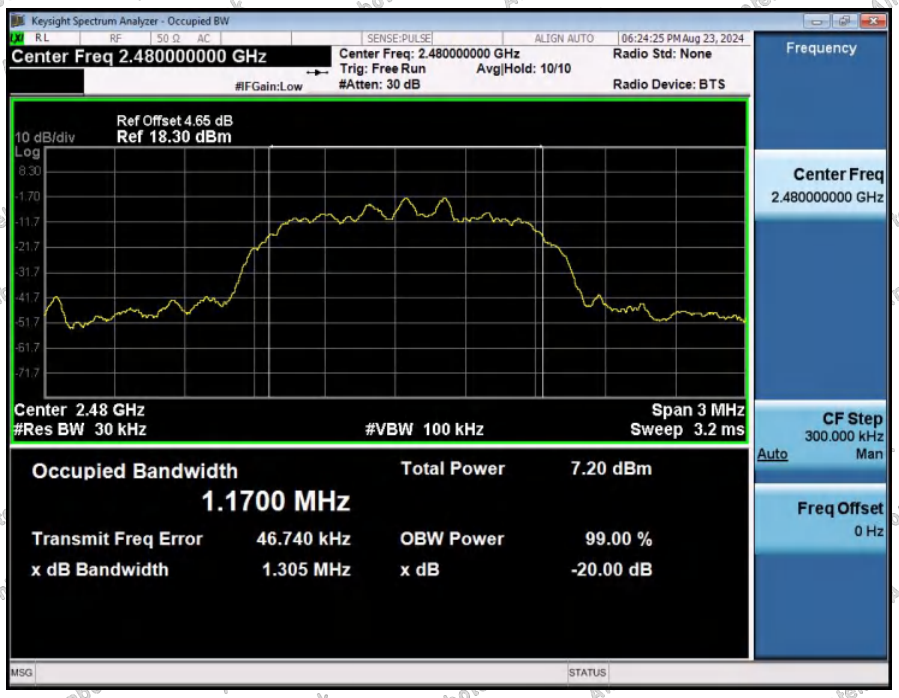
-20dB_Bandwidth_NVNT_ANT1_2-DH5_2402_00



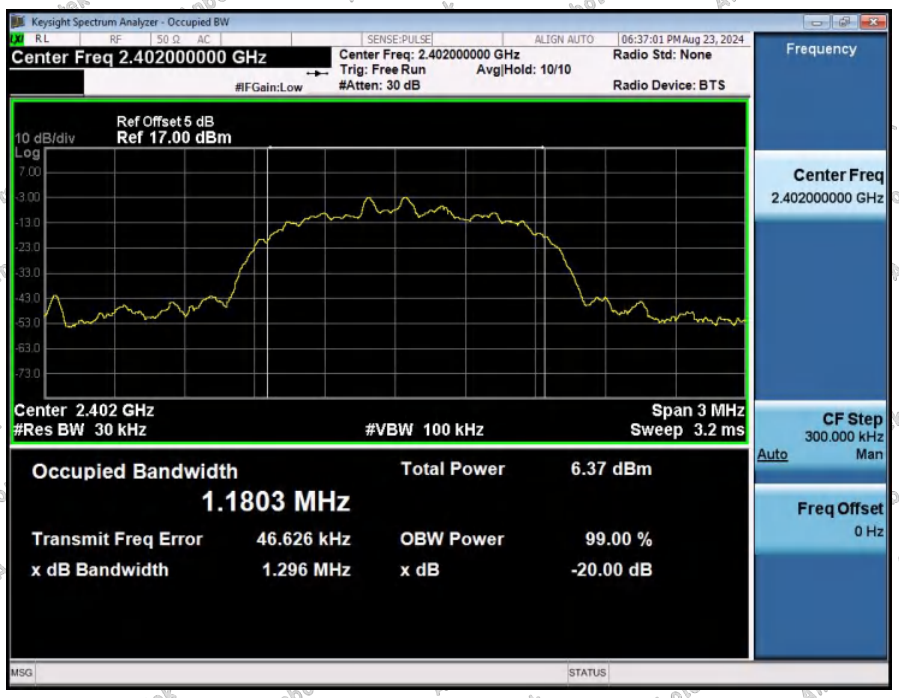
-20dB_Bandwidth_NVNT_ANT1_2-DH5_2441_00



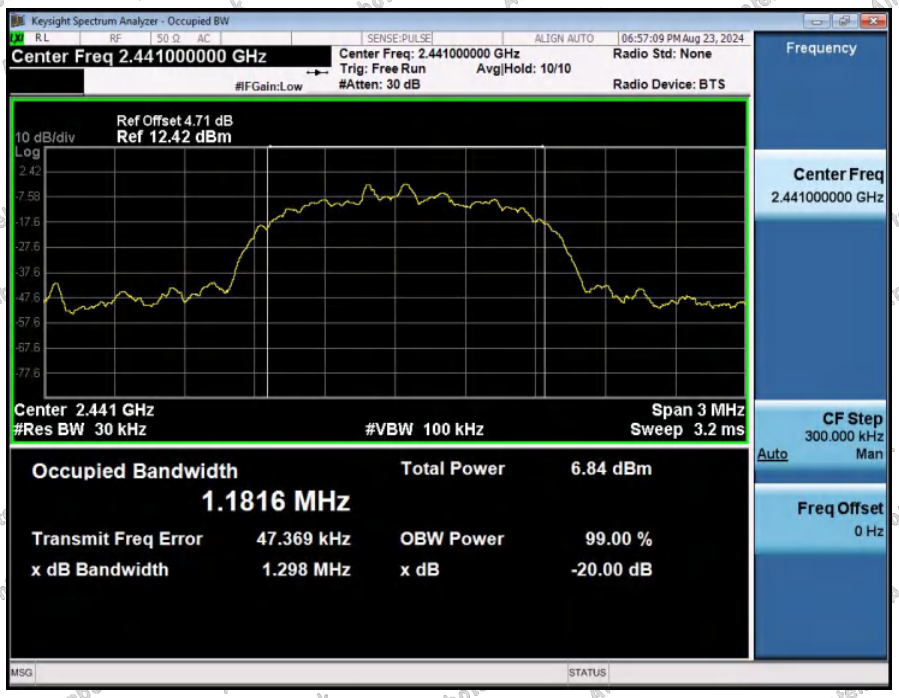
-20dB_Bandwidth_NVNT_ANT1_2-DH5_2480_00



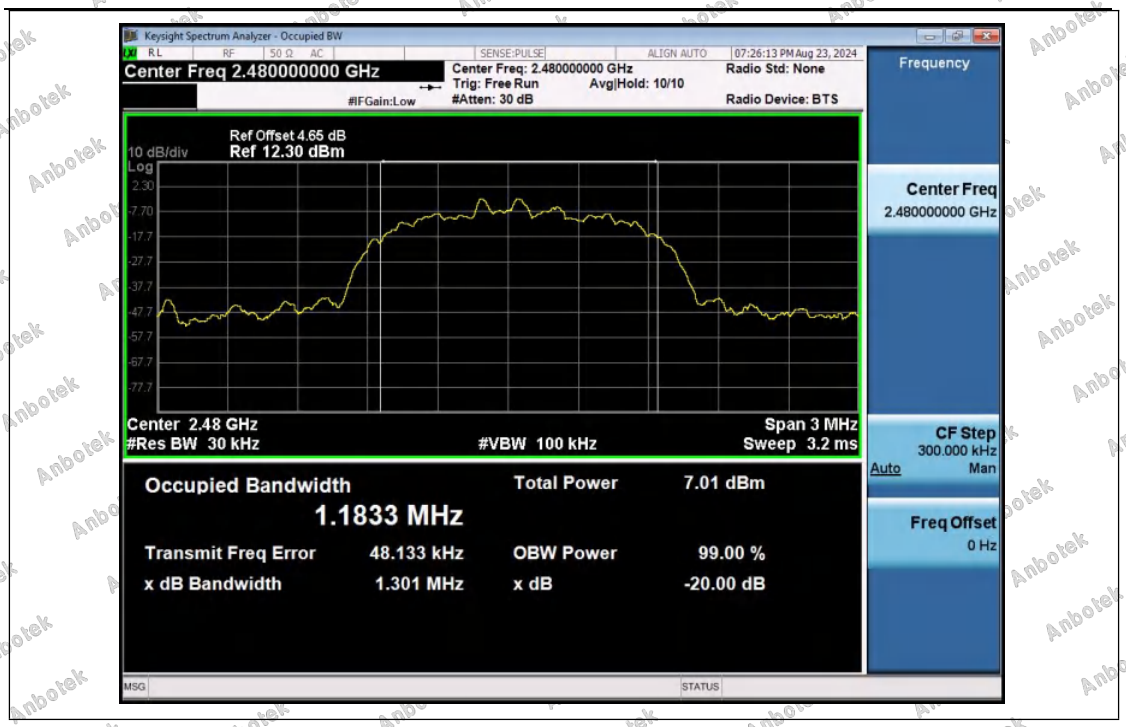
-20dB_Bandwidth_NVNT_ANT1_3-DH5_2402_00



-20dB_Bandwidth_NVNT_ANT1_3-DH5_2441_00



-20dB_Bandwidth_NVNT_ANT1_3-DH5_2480_00

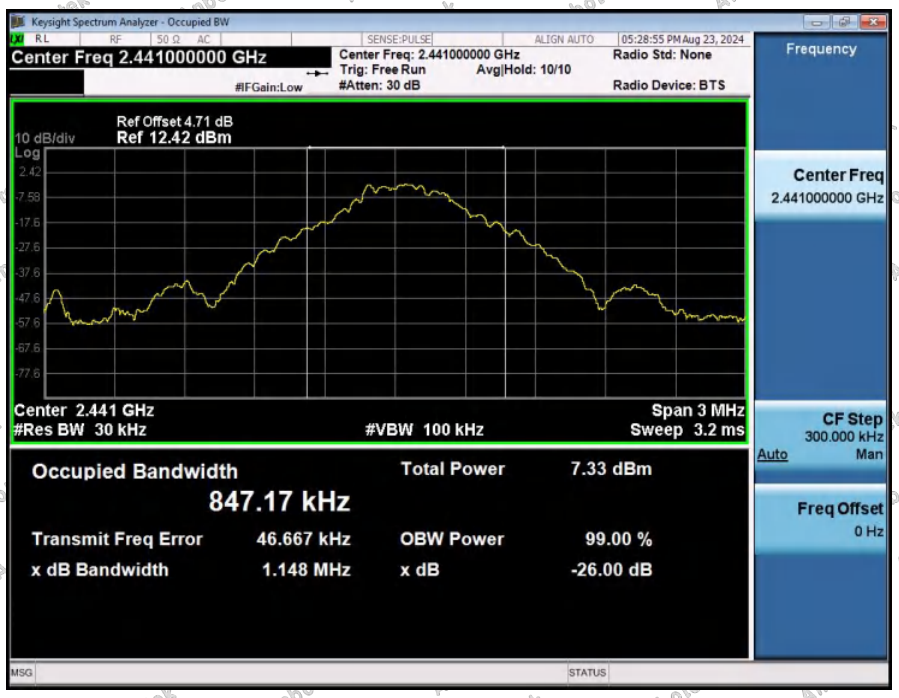

Keysight Spectrum Analyzer - Occupied BW
RL
RF
50 Ω
AC
SENSE:PULSE
ALIGN AUTO
07:26:13 PM Aug 23, 2024
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold: 10/10
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 4.65 dB
10 dB/div
Ref 12.30 dBm
Log
2.30
-7.70
-17.7
-27.7
-37.7
-47.7
-57.7
-67.7
-77.7
Center Freq
2.480000000 GHz
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3 MHz
Sweep 3.2 ms
CF Step
300.000 kHz
Auto
Man
Occupied Bandwidth
1.1833 MHz
Total Power
7.01 dBm
Transmit Freq Error
48.133 kHz
OBW Power
99.00 %
x dB Bandwidth
1.301 MHz
x dB
-20.00 dB
Freq Offset
0 Hz
MSG
STATUS

Appendix B: 99% Occupied Bandwidth

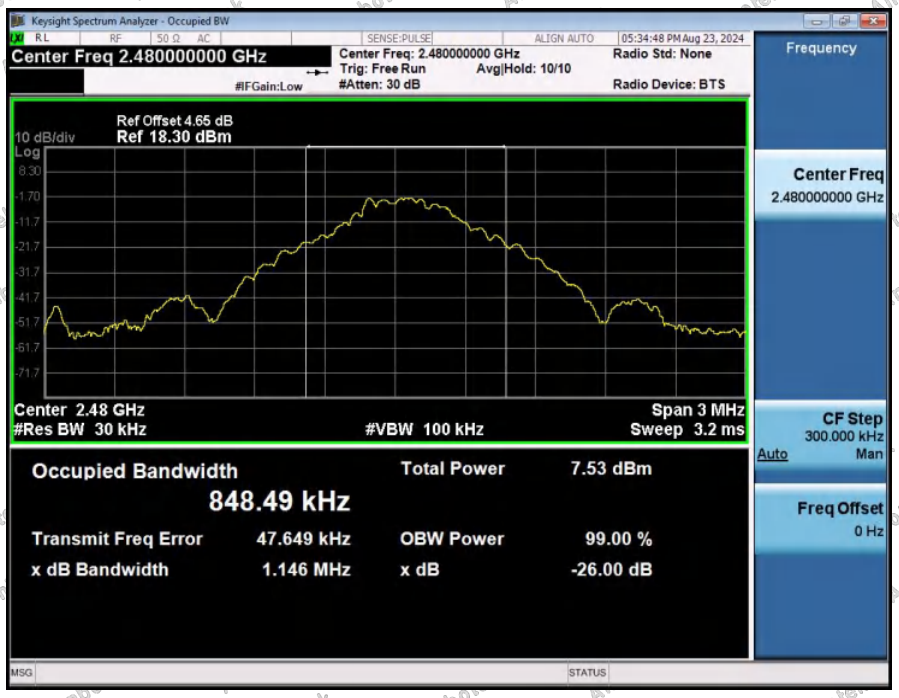
Condition	Antenna	Modulation	Frequency (MHz)	99%%BW(MHz)
NVNT	ANT1	1-DH5	2402.00	0.848
NVNT	ANT1	1-DH5	2441.00	0.847
NVNT	ANT1	1-DH5	2480.00	0.848
NVNT	ANT1	2-DH5	2402.00	1.170
NVNT	ANT1	2-DH5	2441.00	1.169
NVNT	ANT1	2-DH5	2480.00	1.170
NVNT	ANT1	3-DH5	2402.00	1.181
NVNT	ANT1	3-DH5	2441.00	1.184
NVNT	ANT1	3-DH5	2480.00	1.183

99%_Occupied_Bandwidth_NVNT_ANT1_1-DH5_2402_00

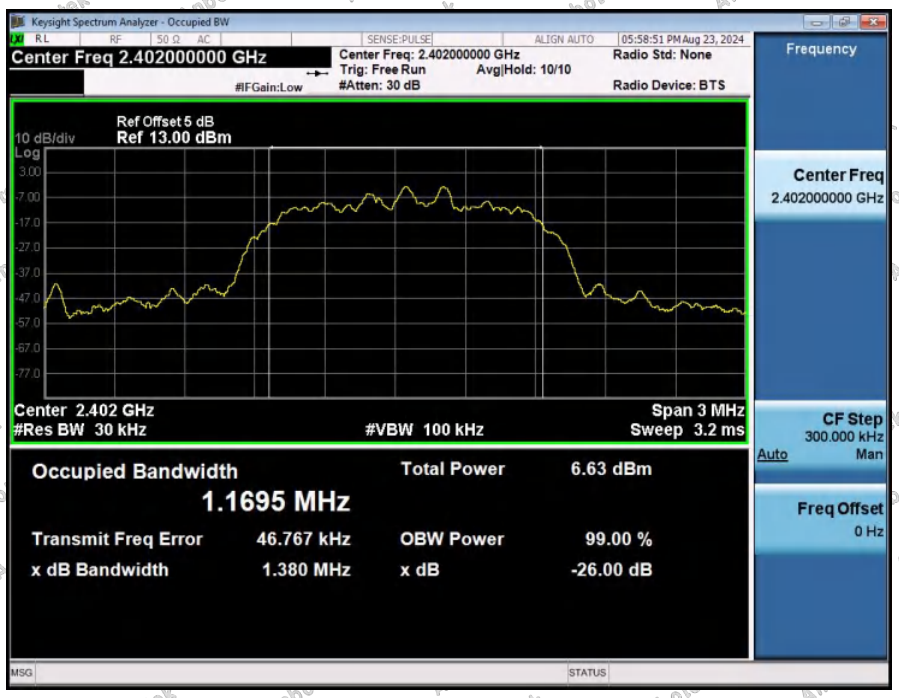
99%_Occupied_Bandwidth_NVNT_ANT1_1-DH5_2441_00



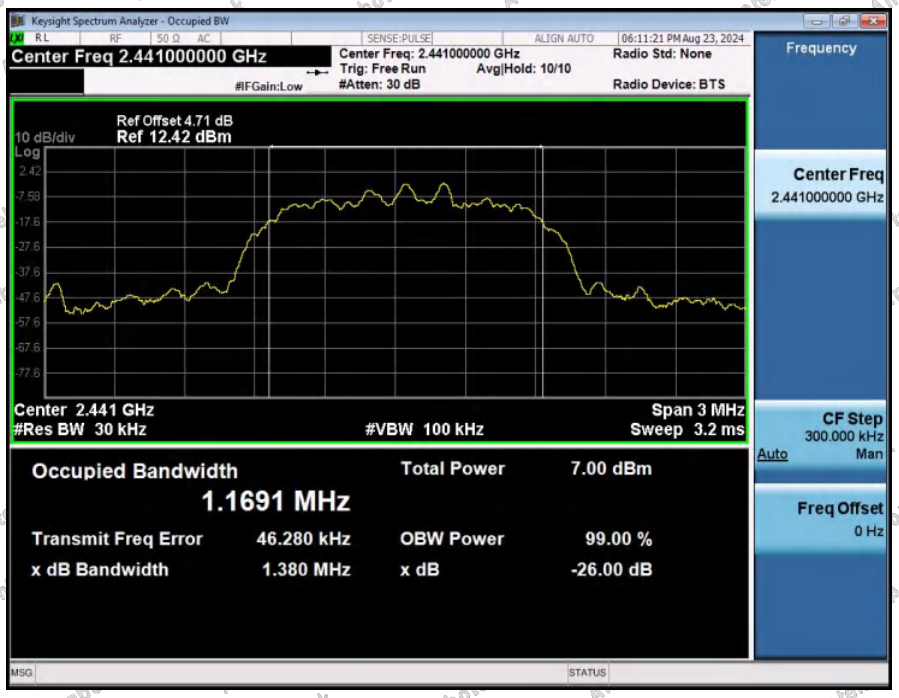
99%_Occupied_Bandwidth_NVNT_ANT1_1-DH5_2480_00



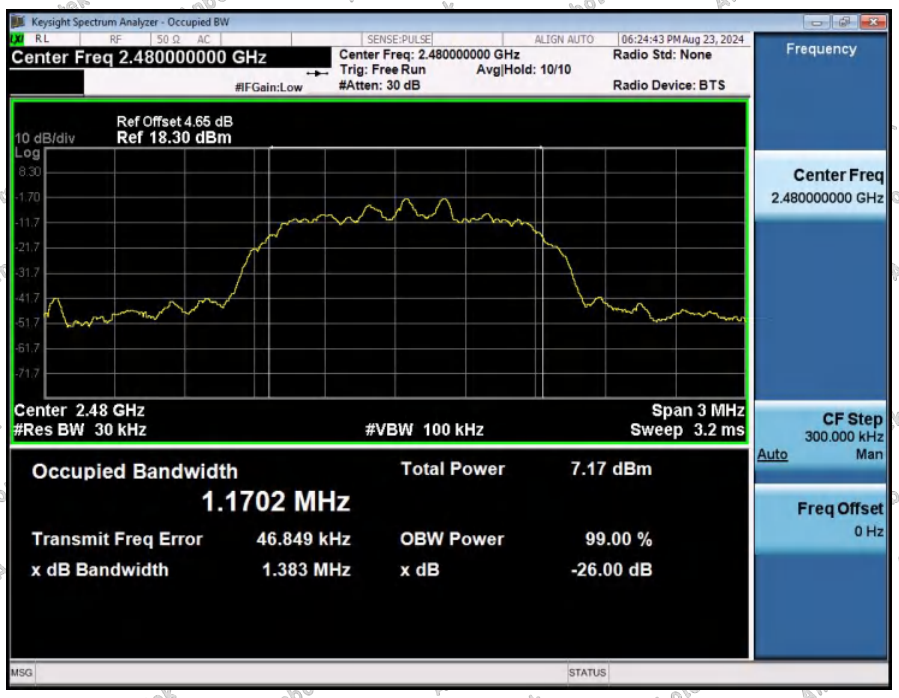
99%_Occupied_Bandwidth_NVNT_ANT1_2-DH5_2402_00



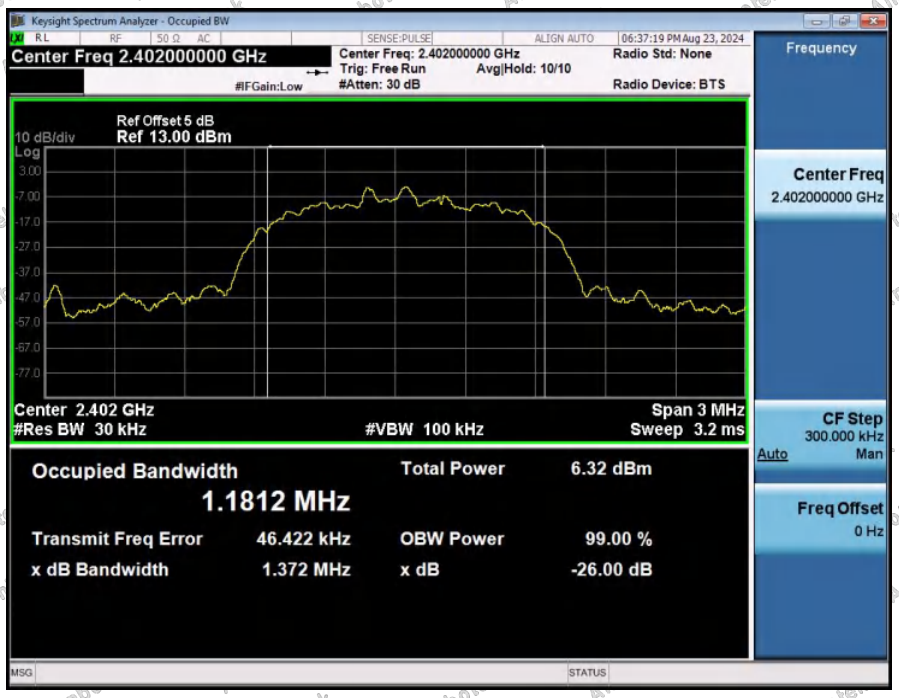
99%_Occupied_Bandwidth_NVNT_ANT1_2-DH5_2441_00



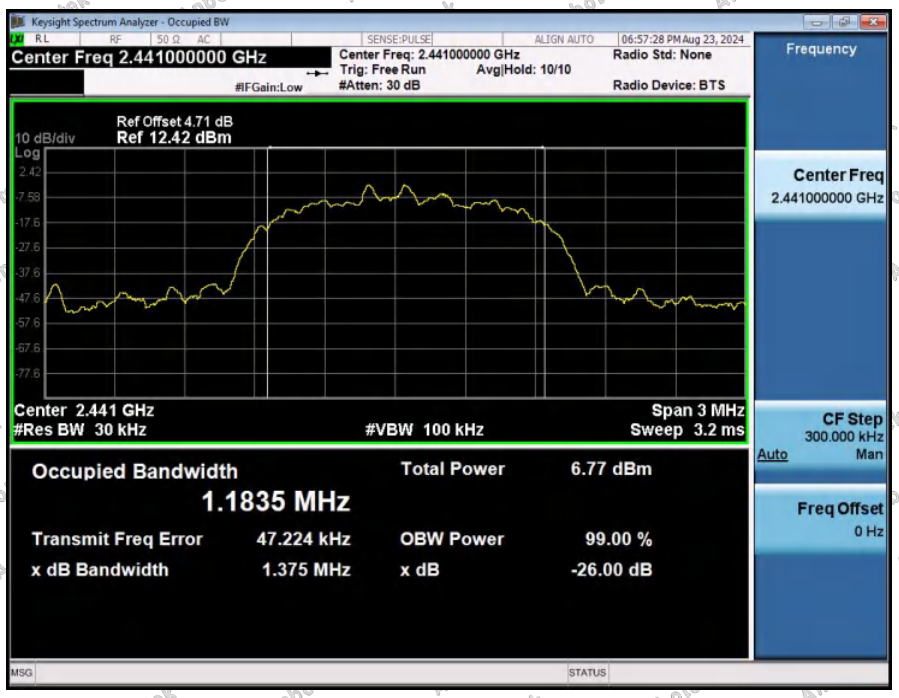
99%_Occupied_Bandwidth_NVNT_ANT1_2-DH5_2480_00



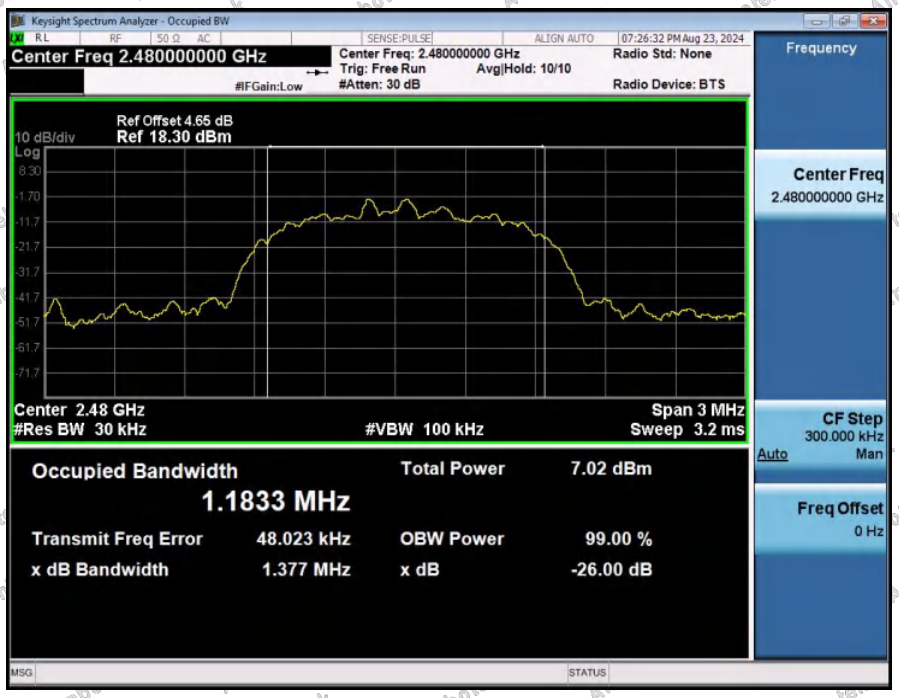
99%_Occupied_Bandwidth_NVNT_ANT1_3-DH5_2402_00



99%_Occupied_Bandwidth_NVNT_ANT1_3-DH5_2441_00



99%_Occupied_Bandwidth_NVNT_ANT1_3-DH5_2480_00



Appendix C: Peak Output Power

Condition	Antenna	Modulation	Frequency (MHz)	Max. Conducted Power(dBm)	Max. Conducted Power(mW)	Limit(mW)	Result
NVNT	ANT1	1-DH5	2402.00	-0.60	0.87	1000	Pass
NVNT	ANT1	1-DH5	2441.00	-0.08	0.98	1000	Pass
NVNT	ANT1	1-DH5	2480.00	0.16	1.04	1000	Pass
NVNT	ANT1	2-DH5	2402.00	0.31	1.07	125	Pass
NVNT	ANT1	2-DH5	2441.00	0.66	1.16	125	Pass
NVNT	ANT1	2-DH5	2480.00	0.85	1.22	125	Pass
NVNT	ANT1	3-DH5	2402.00	0.52	1.13	125	Pass
NVNT	ANT1	3-DH5	2441.00	0.93	1.24	125	Pass
NVNT	ANT1	3-DH5	2480.00	1.12	1.30	125	Pass

Peak_Output_Power_NVNT_ANT1_1-DH5_2402_00

Peak_Output_Power_NVNT_ANT1_1-DH5_2441_00

Peak_Output_Power_NVNT_ANT1_1-DH5_2480_00

Peak_Output_Power_NVNT_ANT1_2-DH5_2402_00

Peak_Output_Power_NVNT_ANT1_2-DH5_2441_00

Peak_Output_Power_NVNT_ANT1_2-DH5_2480_00

Peak_Output_Power_NVNT_ANT1_3-DH5_2402_00

Peak_Output_Power_NVNT_ANT1_3-DH5_2441_00

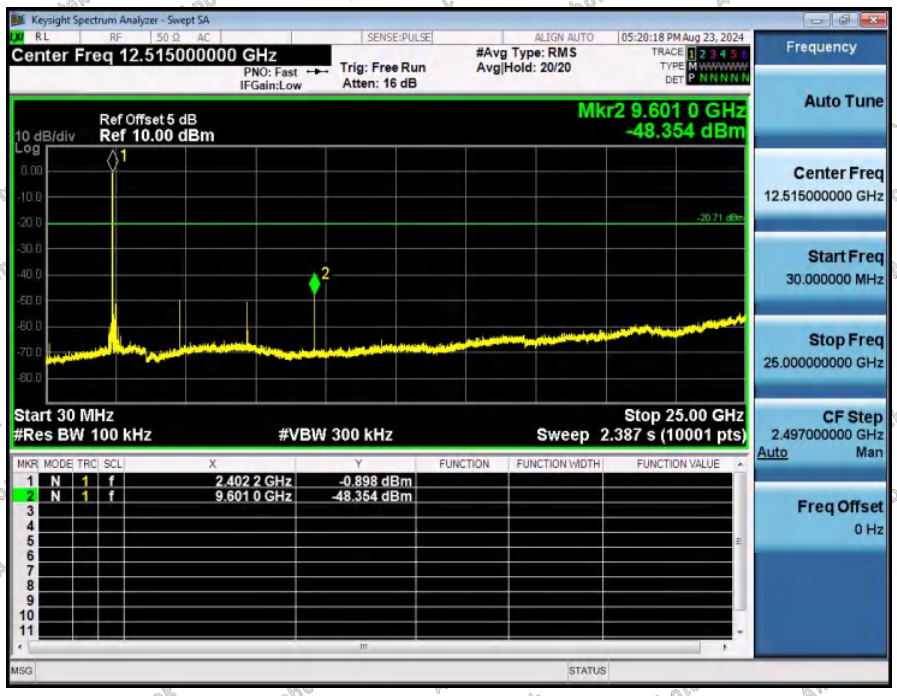
Peak_Output_Power_NVNT_ANT1_3-DH5_2480_00

Appendix D: Spurious Emissions

Condition	Antenna	Modulation	TX Mode	Spurious MAX.Value(dBm)	Limit	Result
NVNT	ANT1	1-DH5	2402.00	-48.354	-20.708	Pass
NVNT	ANT1	1-DH5	2441.00	-47.585	-20.155	Pass
NVNT	ANT1	1-DH5	2480.00	-46.779	-19.893	Pass
NVNT	ANT1	2-DH5	2402.00	-48.032	-20.713	Pass
NVNT	ANT1	2-DH5	2441.00	-46.944	-20.430	Pass
NVNT	ANT1	2-DH5	2480.00	-47.100	-20.140	Pass
NVNT	ANT1	3-DH5	2402.00	-48.247	-20.787	Pass
NVNT	ANT1	3-DH5	2441.00	-47.222	-20.445	Pass
NVNT	ANT1	3-DH5	2480.00	-47.186	-20.430	Pass

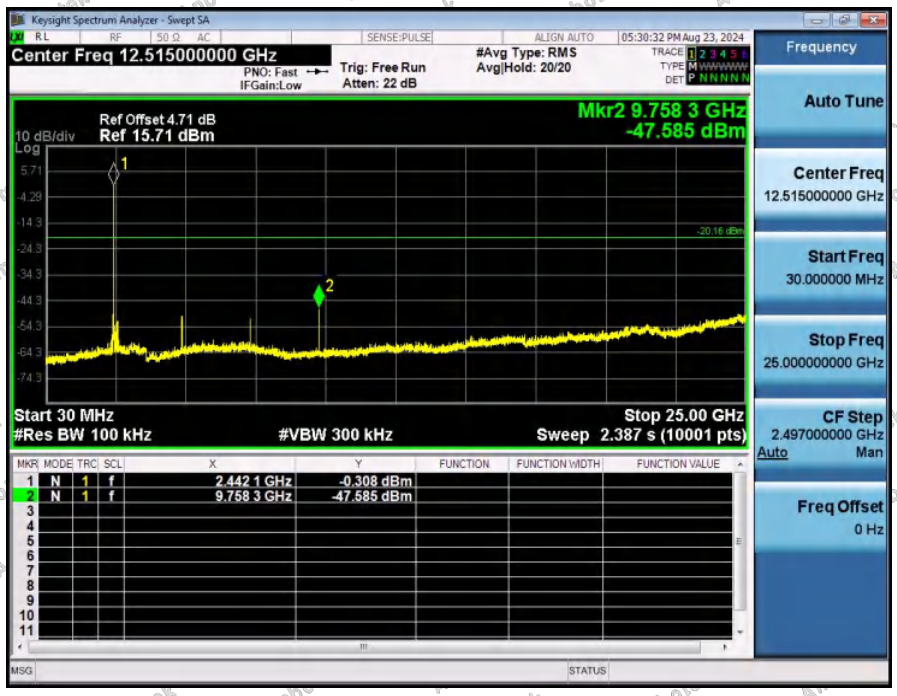
1_Reference_Level_NVNT_ANT1_1-DH5_2402_00

2_Spurious_Emissions_NVNT_ANT1_1-DH5_2402_00



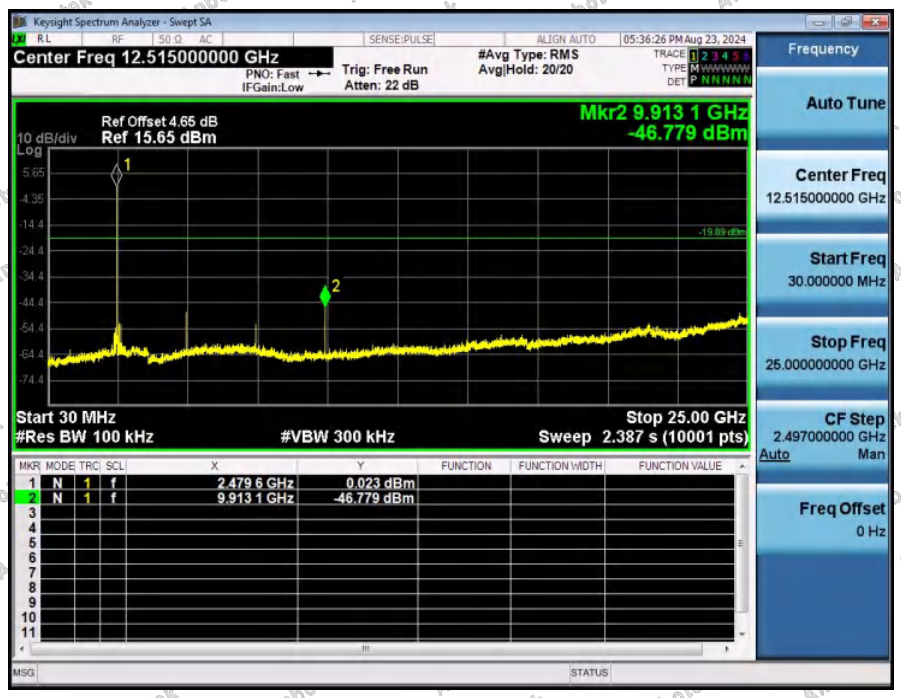
1_Reference_Level_NVNT_ANT1_1-DH5_2441_00

2_Spurious_Emissions_NVNT_ANT1_1-DH5_2441_00



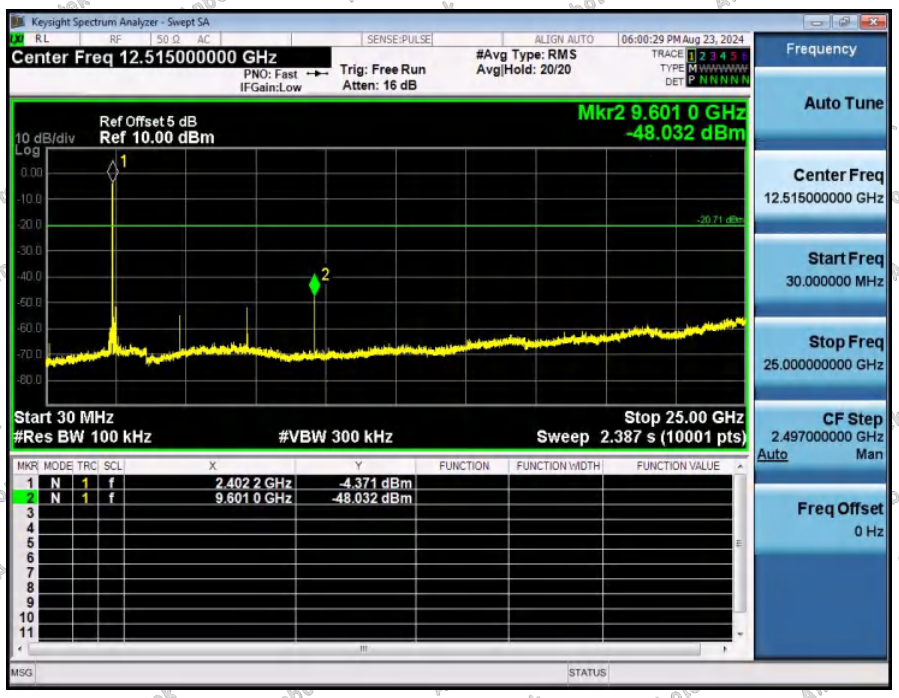
1_Reference_Level_NVNT_ANT1_1-DH5_2480_00

2_Spurious_Emissions_NVNT_ANT1_1-DH5_2480_00

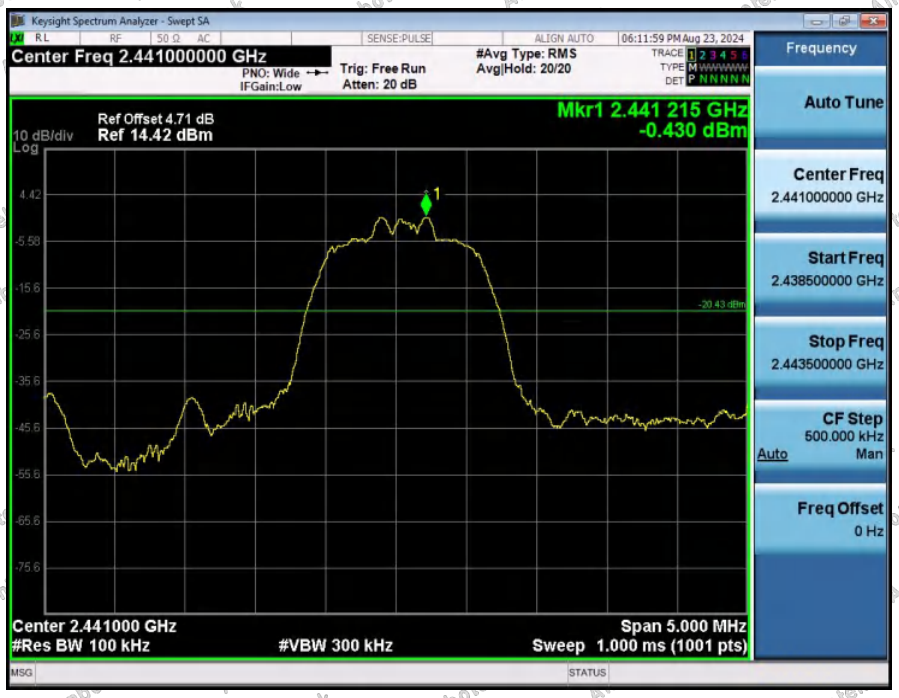


1_Reference_Level_NVNT_ANT1_2-DH5_2402_00

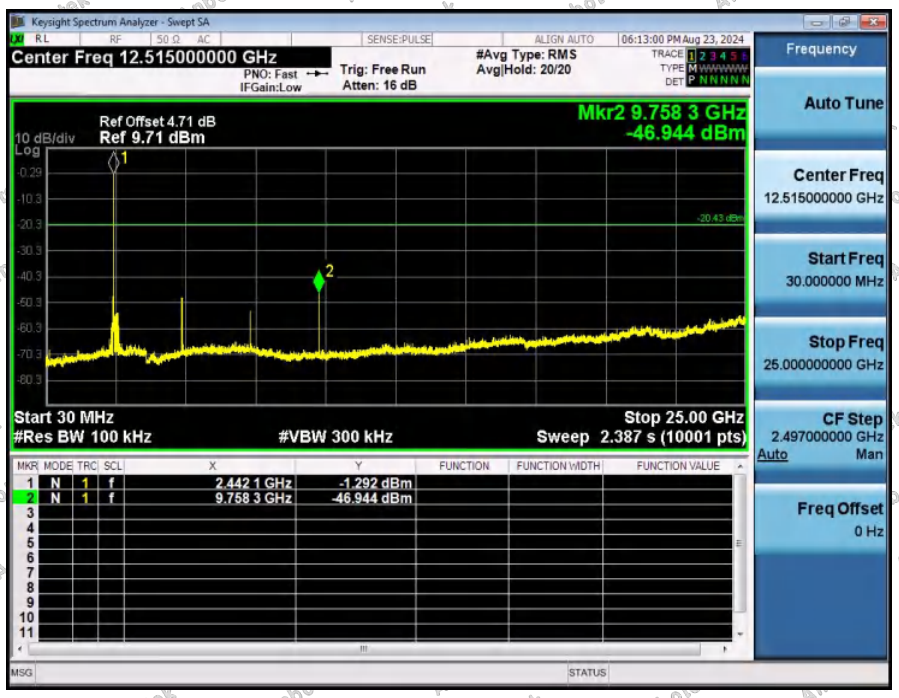
2_Spurious_Emissions_NVNT_ANT1_2-DH5_2402_00



1_Reference_Level_NVNT_ANT1_2-DH5_2441_00

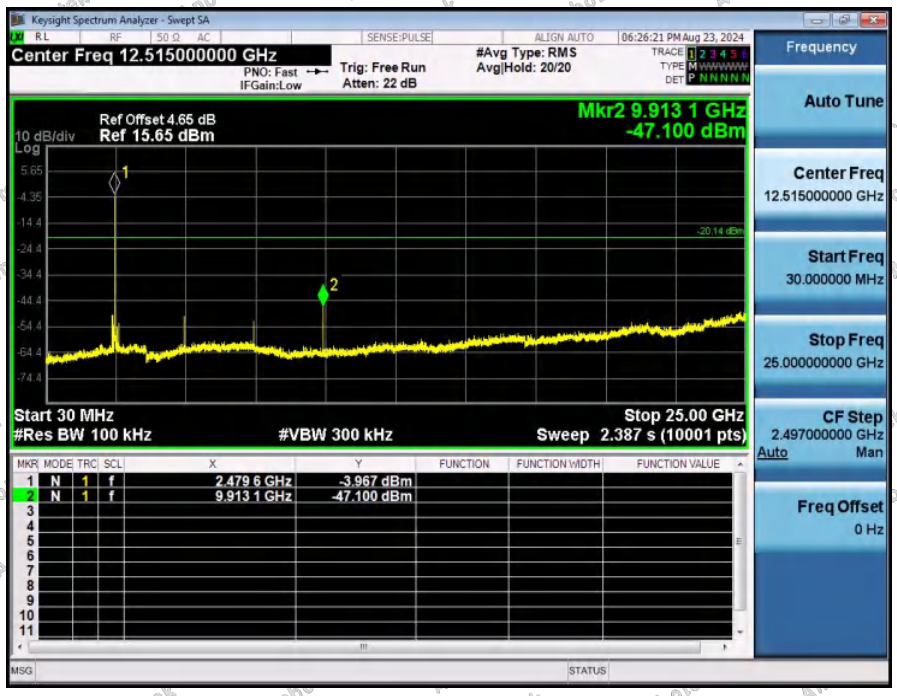


2_Spurious_Emissions_NVNT_ANT1_2-DH5_2441_00



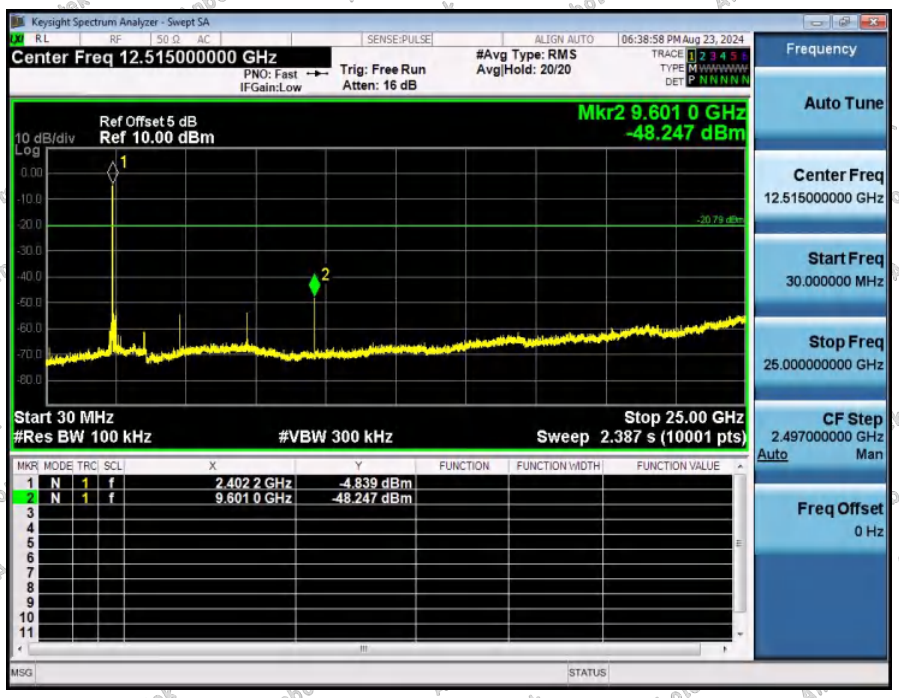
1_Reference_Level_NVNT_ANT1_2-DH5_2480_00

2_Spurious_Emissions_NVNT_ANT1_2-DH5_2480_00

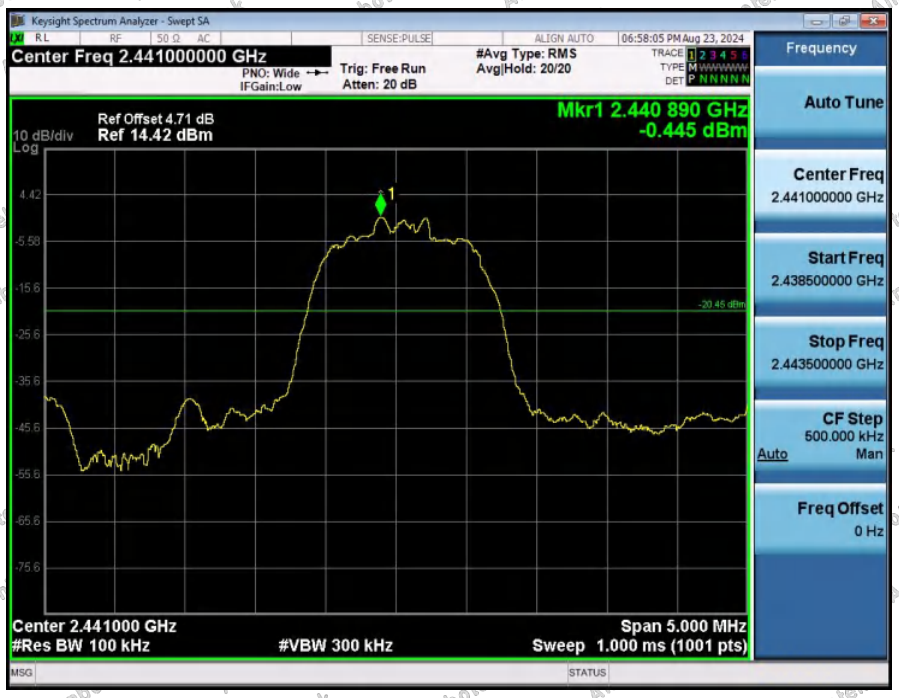


1_Reference_Level_NVNT_ANT1_3-DH5_2402_00

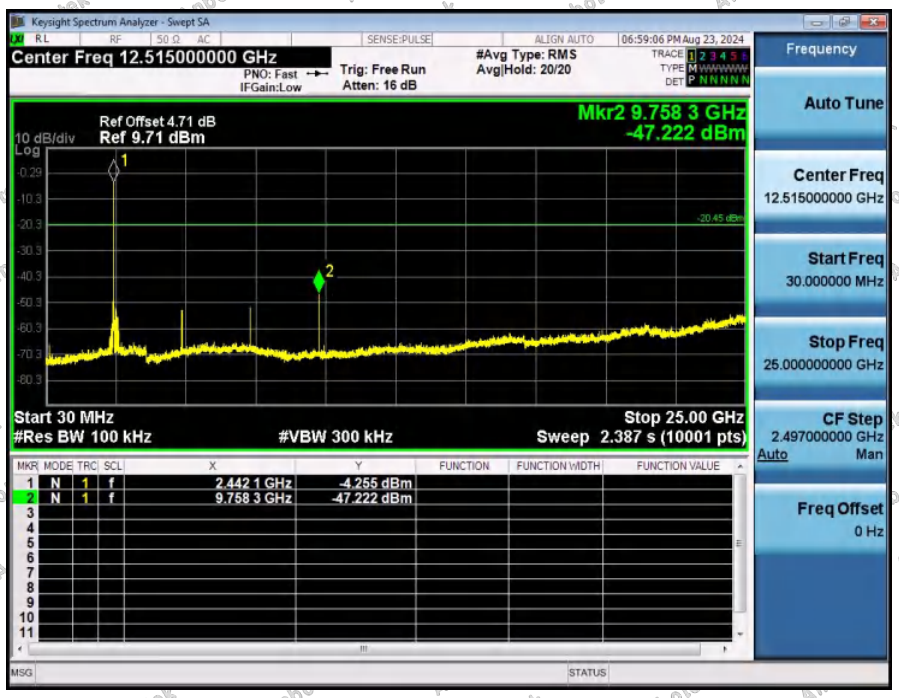
2_Spurious_Emissions_NVNT_ANT1_3-DH5_2402_00



1_Reference_Level_NVNT_ANT1_3-DH5_2441_00

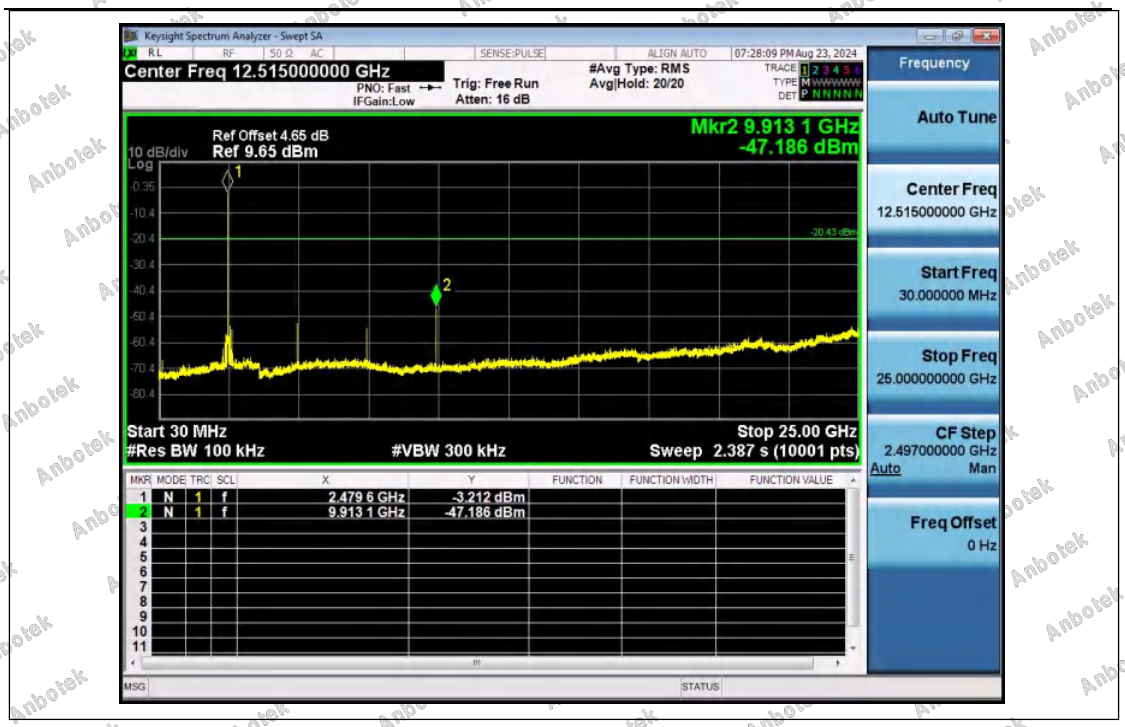


2_Spurious_Emissions_NVNT_ANT1_3-DH5_2441_00



1_Reference_Level_NVNT_ANT1_3-DH5_2480_00

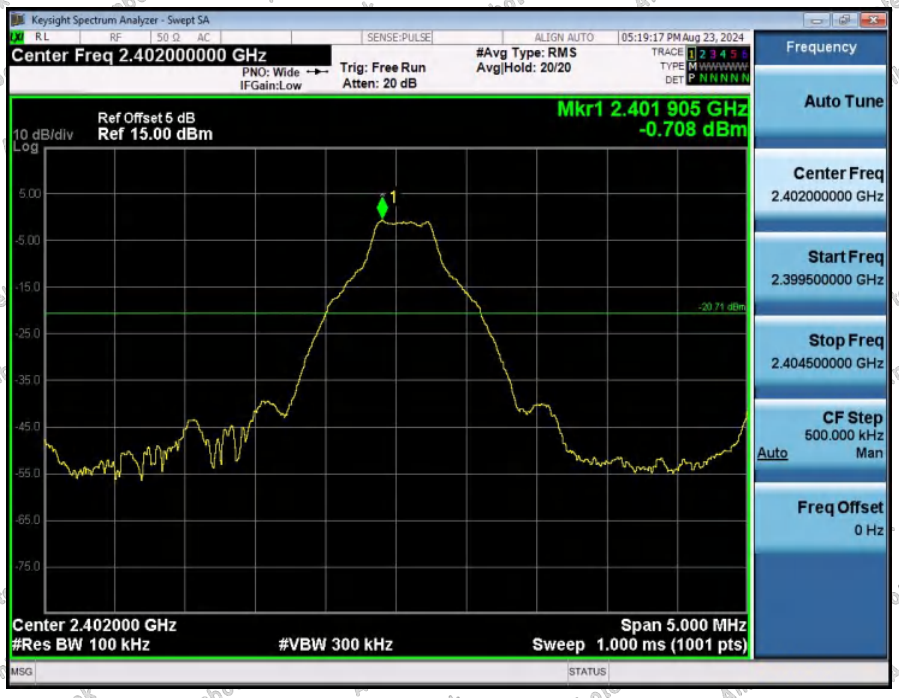
2_Spurious_Emissions_NVNT_ANT1_3-DH5_2480_00


Keysight Spectrum Analyzer - Swept SA
Center Freq 12.515000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
#Avg Type: RMS
Avg|Hold: 20/20
07:28:09 PM Aug 23, 2024
Ref Offset 4.65 dB
10 dB/div
Ref 9.65 dBm
Log
Mkr2 9.913 1 GHz
-47.186 dBm
-20.43 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 2.479 6 GHz -3.212 dBm
2 N 1 f 9.913 1 GHz -47.186 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

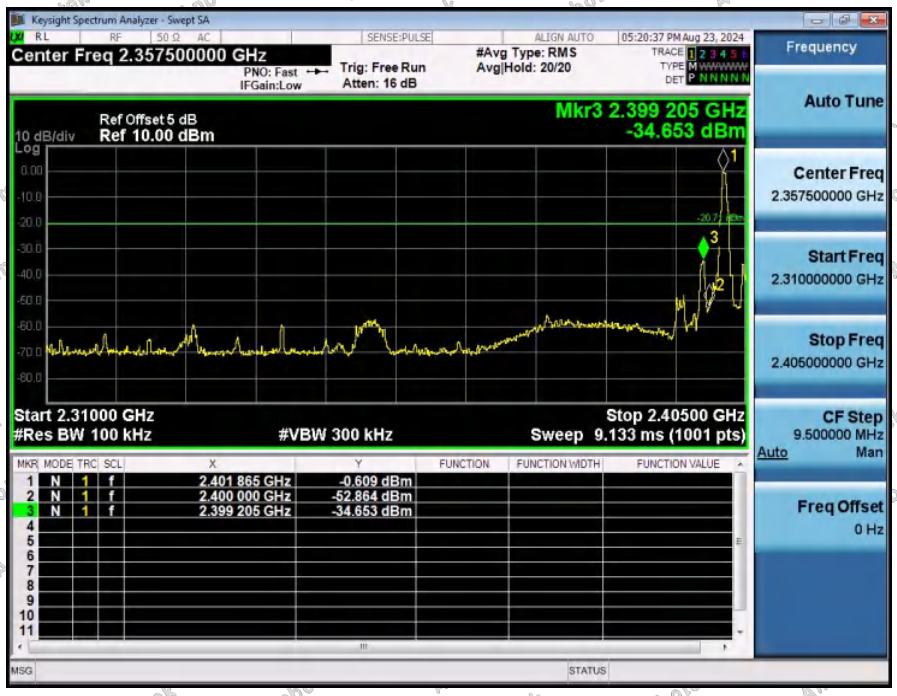
Appendix E: Bandedge

Condition	Antenna	Modulation	TX Mode	Bandedge MAX.Value	Limit	Result
NVNT	ANT1	1-DH5	2402.00	-34.653	-20.708	Pass
NVNT	ANT1	1-DH5	Hopping_LCH	-36.174	-19.672	Pass
NVNT	ANT1	1-DH5	2480.00	-36.330	-19.893	Pass
NVNT	ANT1	1-DH5	Hopping_HCH	-36.722	-20.100	Pass
NVNT	ANT1	2-DH5	2402.00	-35.336	-20.713	Pass
NVNT	ANT1	2-DH5	Hopping_LCH	-36.379	-19.893	Pass
NVNT	ANT1	2-DH5	2480.00	-36.155	-20.140	Pass
NVNT	ANT1	2-DH5	Hopping_HCH	-36.396	-20.192	Pass
NVNT	ANT1	3-DH5	2402.00	-34.897	-20.787	Pass
NVNT	ANT1	3-DH5	Hopping_LCH	-35.061	-19.843	Pass
NVNT	ANT1	3-DH5	2480.00	-36.811	-20.430	Pass
NVNT	ANT1	3-DH5	Hopping_HCH	-44.949	-20.313	Pass

1_Reference_Level_NVNT_ANT1_1-DH5_2402_00

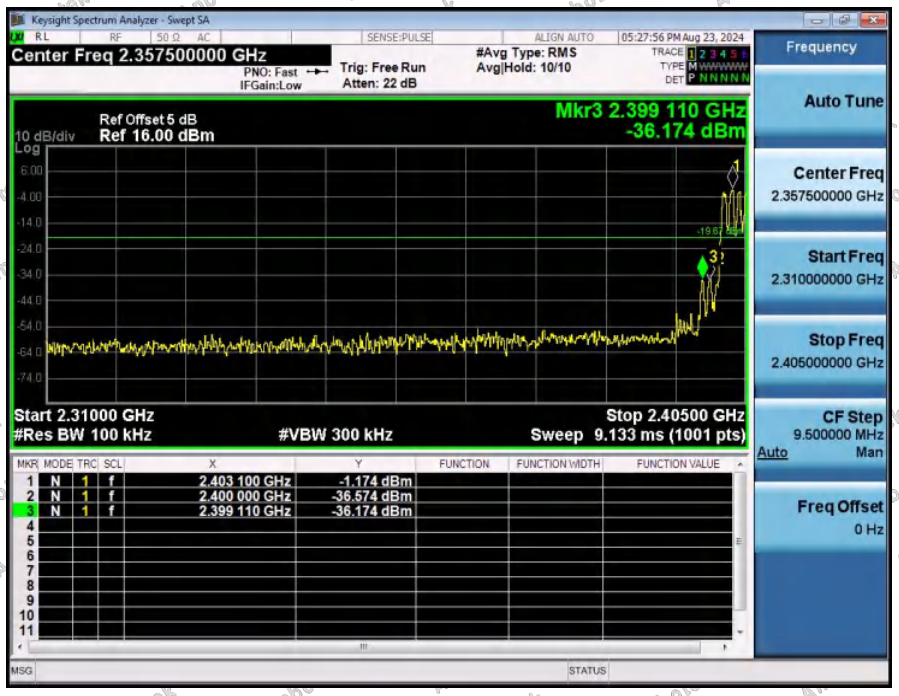


2_Bandedge_NVNT_ANT1_1-DH5_2402_00



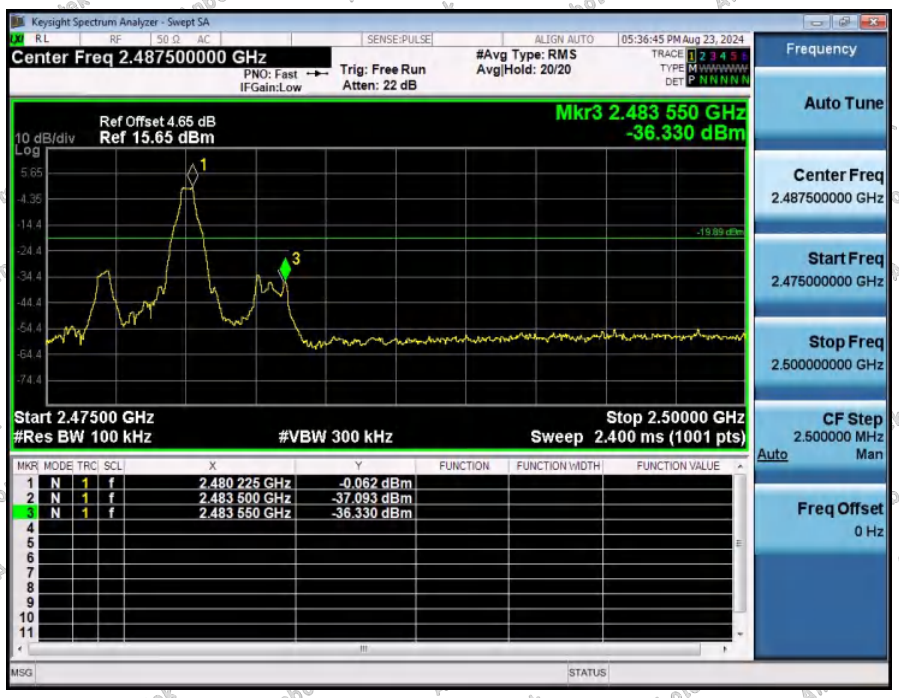
1_Reference_Level_Hopping_NVNT_ANT1_1-DH5_Hopping

2_Band_Edge_(Hopping)_NVNT_ANT1_1-DH5_Hopping



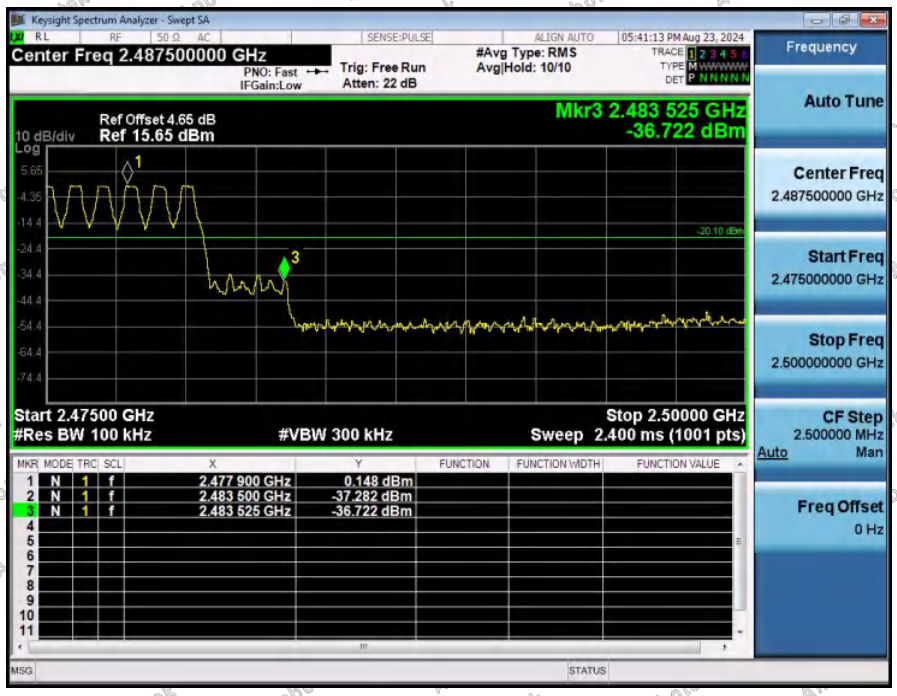
1_Reference_Level_NVNT_ANT1_1-DH5_2480_00

2_Bandedge_NVNT_ANT1_1-DH5_2480_00

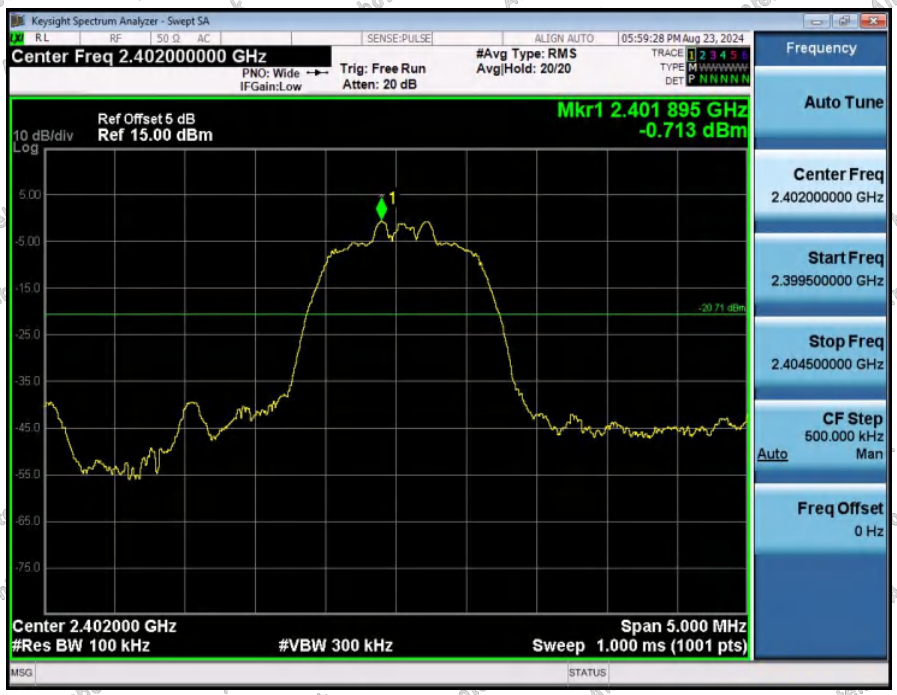


1_Reference_Level_Hopping_NVNT_ANT1_1-DH5_Hopping

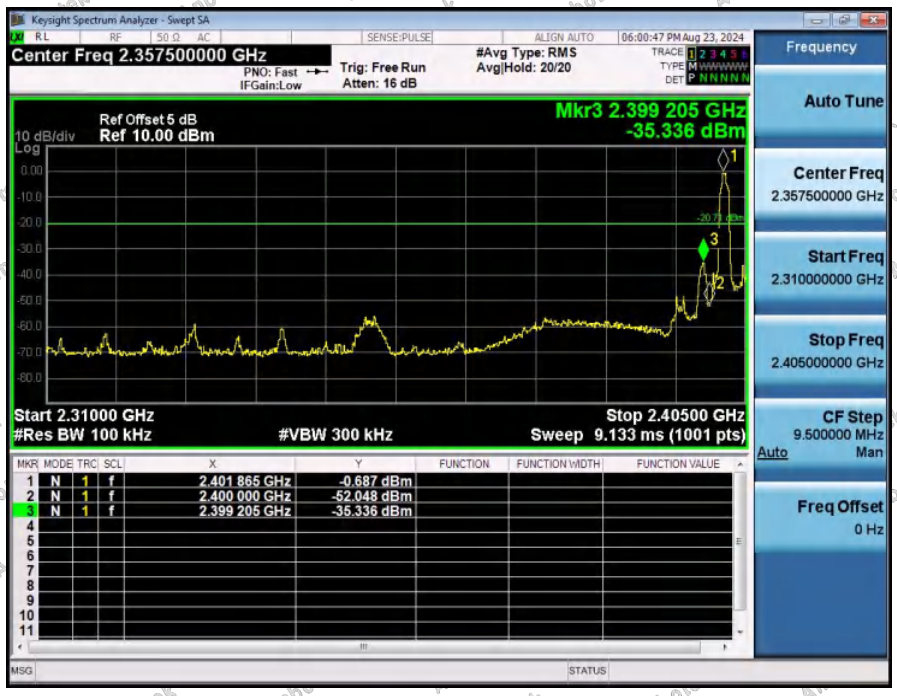
2_Band_Edge_(Hopping)_NVNT_ANT1_1-DH5_Hopping



1_Reference_Level_NVNT_ANT1_2-DH5_2402_00

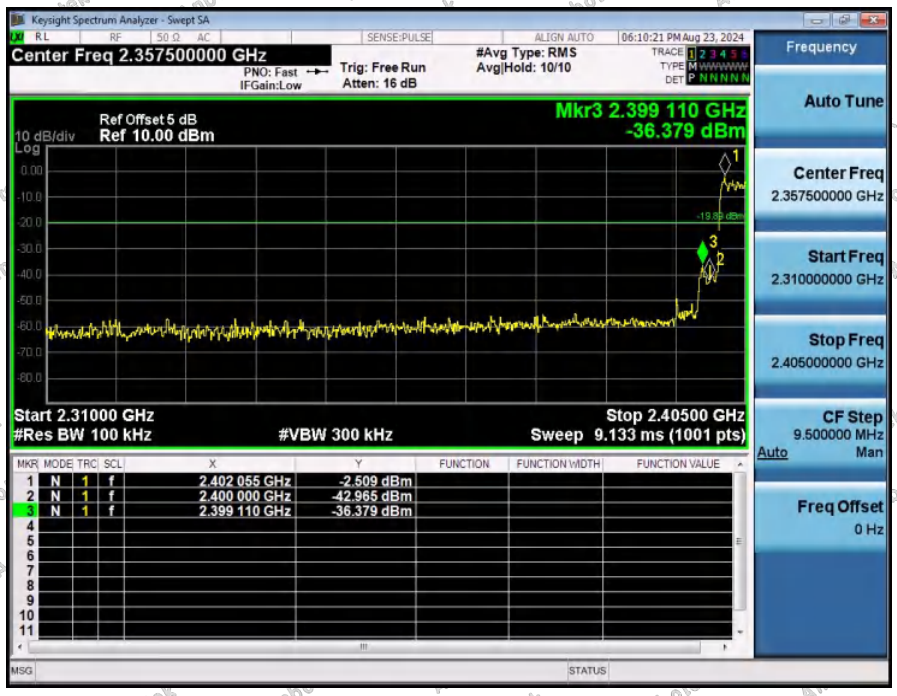


2_Bandedge_NVNT_ANT1_2-DH5_2402_00



1_Reference_Level_Hopping_NVNT_ANT1_2-DH5_Hopping

2_Band_Edge_(Hopping)_NVNT_ANT1_2-DH5_Hopping



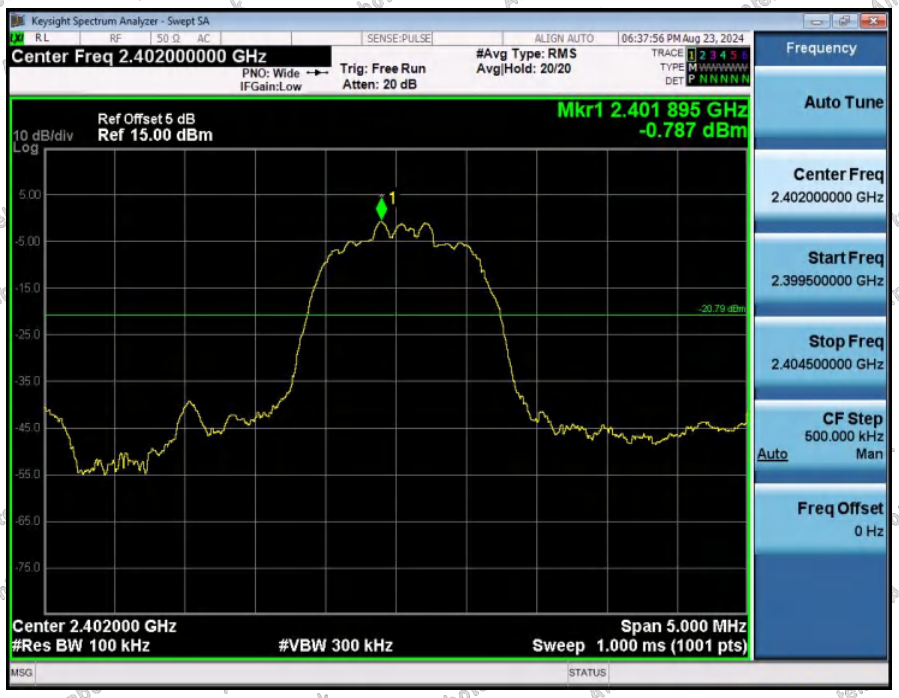
1_Reference_Level_NVNT_ANT1_2-DH5_2480_00

2_Bandedge_NVNT_ANT1_2-DH5_2480_00

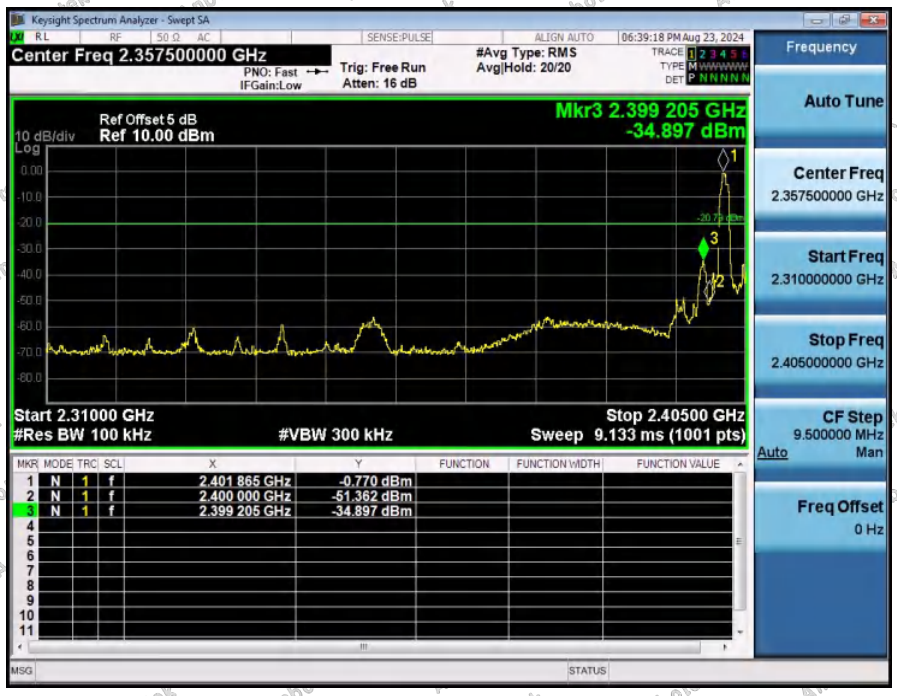
1_Reference_Level_Hopping_NVNT_ANT1_2-DH5_Hopping

2_Band_Edge_(Hopping)_NVNT_ANT1_2-DH5_Hopping

1_Reference_Level_NVNT_ANT1_3-DH5_2402_00

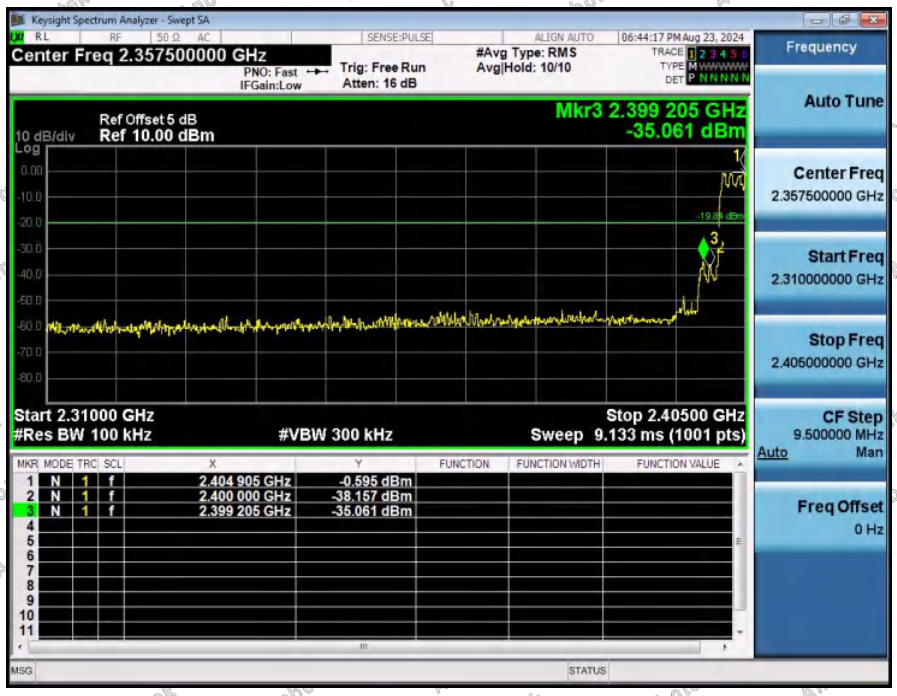


2_Bandedge_NVNT_ANT1_3-DH5_2402_00



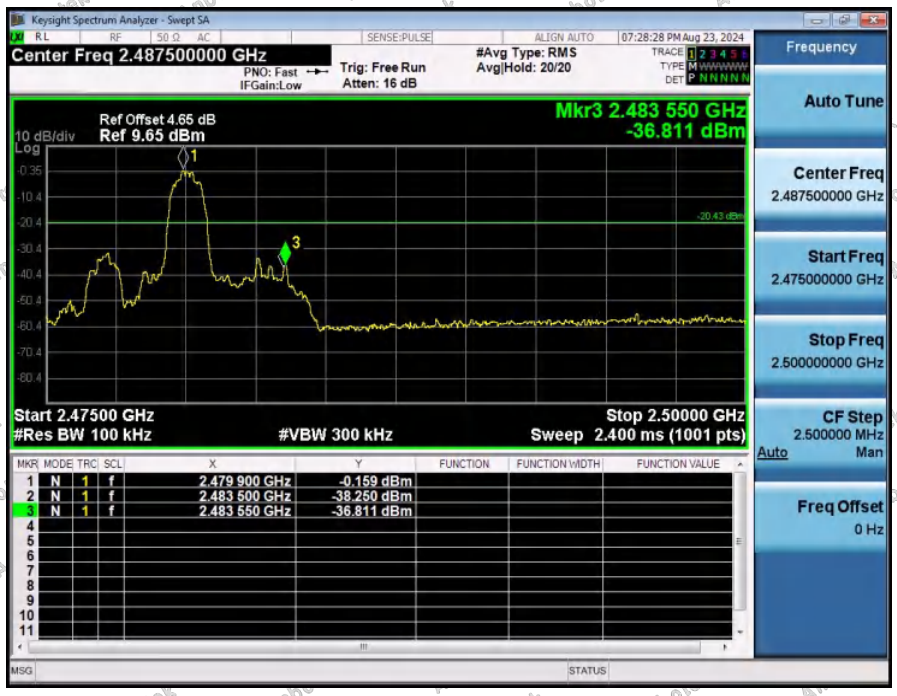
1_Reference_Level_Hopping_NVNT_ANT1_3-DH5_Hopping

2_Band_Edge_(Hopping)_NVNT_ANT1_3-DH5_Hopping



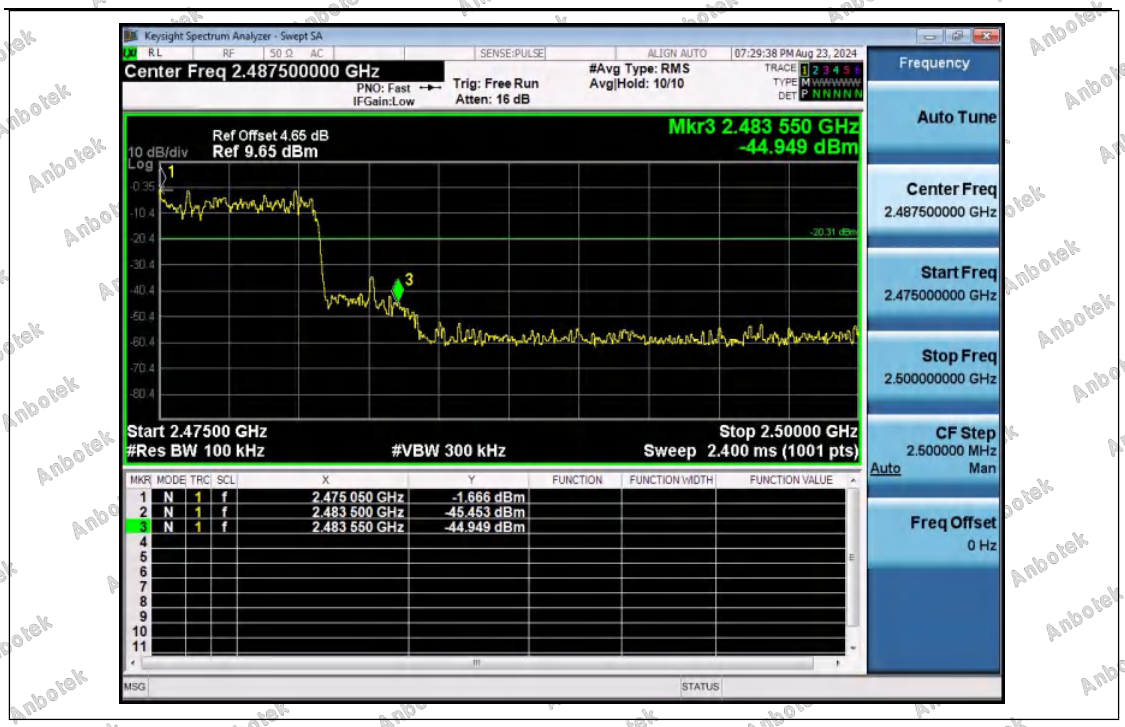
1_Reference_Level_NVNT_ANT1_3-DH5_2480_00

2_Bandedge_NVNT_ANT1_3-DH5_2480_00



1_Reference_Level_Hopping_NVNT_ANT1_3-DH5_Hopping

2_Band_Edge_(Hopping)_NVNT_ANT1_3-DH5_Hopping

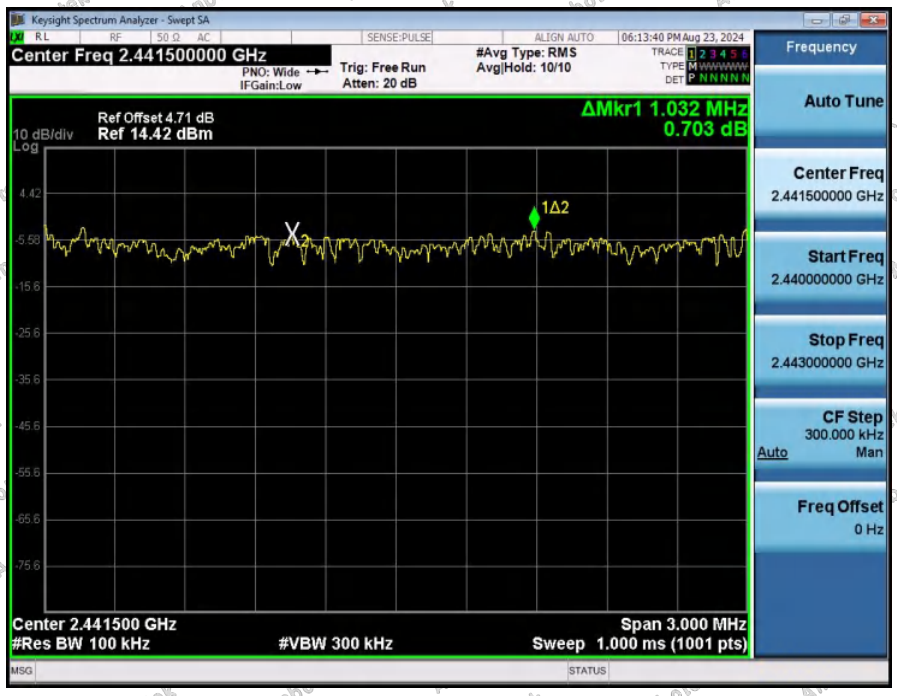

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.487500000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
#Avg Type: RMS
Avg|Hold: 10/10
07:29:38 PM Aug 23, 2024
Ref Offset 4.65 dB
10 dB/div
Ref 9.65 dBm
Log
Mkr3 2.483 550 GHz
-44.949 dBm
-20.31 dBm
Start 2.47500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.50000 GHz
Sweep 2.400 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 2.475 050 GHz -1.666 dBm
2 N 1 f 2.483 500 GHz -45.453 dBm
3 N 1 f 2.483 550 GHz -44.949 dBm
Frequency
Auto Tune
Center Freq
2.487500000 GHz
Start Freq
2.475000000 GHz
Stop Freq
2.500000000 GHz
CF Step
2.500000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

Appendix F: Carrier Frequencies Separation (Hopping)

Condition	Antenna	Modulation	Frequency(MHz)	Hopping NO.0 (MHz)	Hopping NO.1 (MHz)	Carrier Frequencies Separation(MHz)	Limit(MHz)	Result
NVNT	ANT1	1-DH5	2441.00	2441.041	2442.001	0.96	0.955	Pass
NVNT	ANT1	2-DH5	2441.00	2441.056	2442.088	1.03	0.871	Pass
NVNT	ANT1	3-DH5	2441.00	2440.897	2441.887	0.99	0.865	Pass

Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_1-DH5_Hopping

Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_2-DH5_Hopping



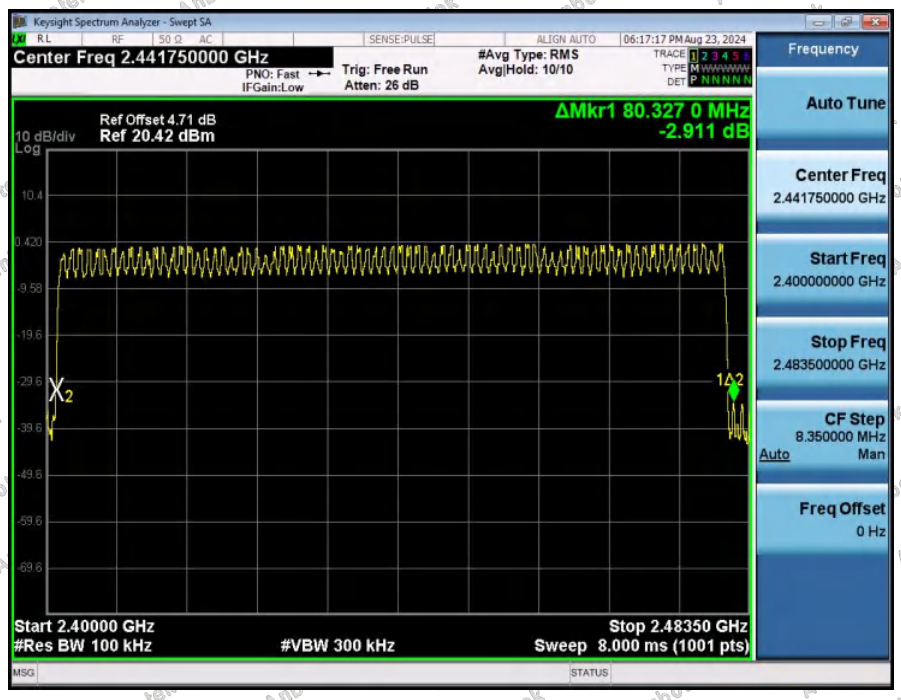
Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_3-DH5_Hopping

Appendix G: Number of Hopping Channel (Hopping)

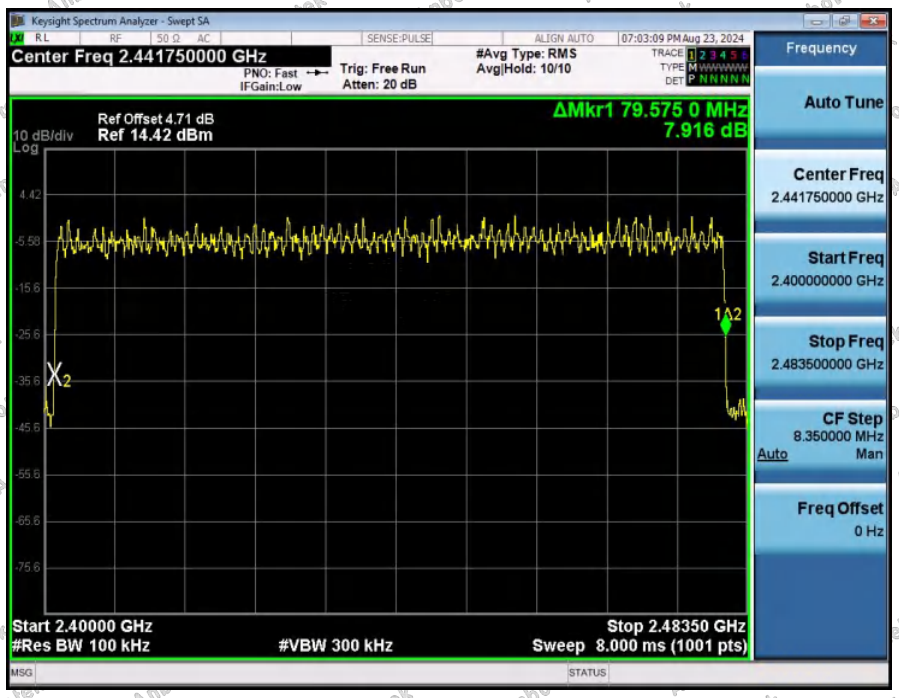
Condition	Antenna	Modulation	Hopping Num	Limit	Result
NVNT	ANT1	1-DH5	79	15	Pass
NVNT	ANT1	2-DH5	79	15	Pass
NVNT	ANT1	3-DH5	79	15	Pass

Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_1-DH5_Hopping

Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_2-DH5_Hopping



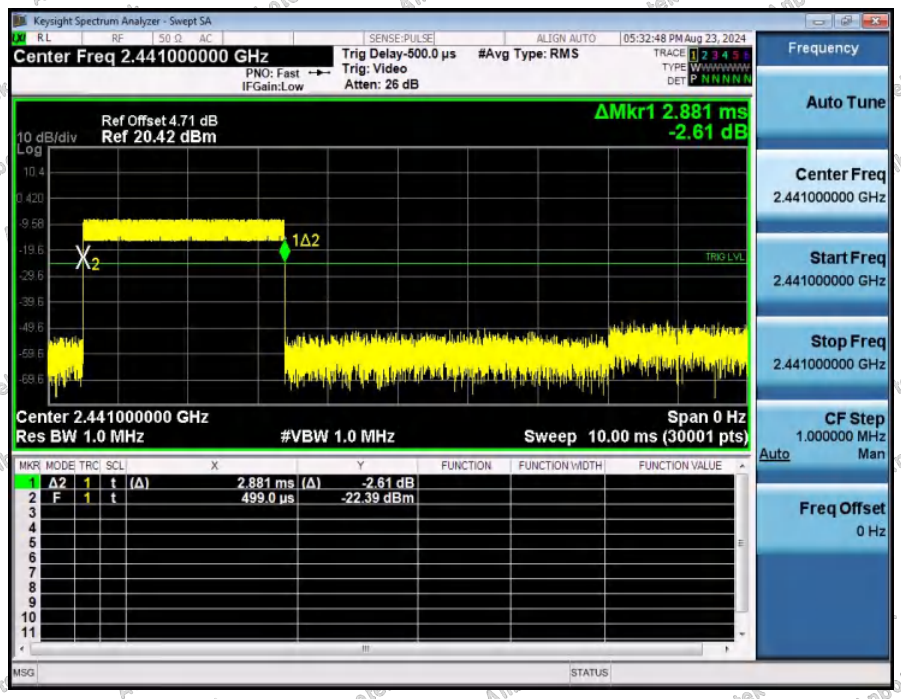
Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_3-DH5_Hopping



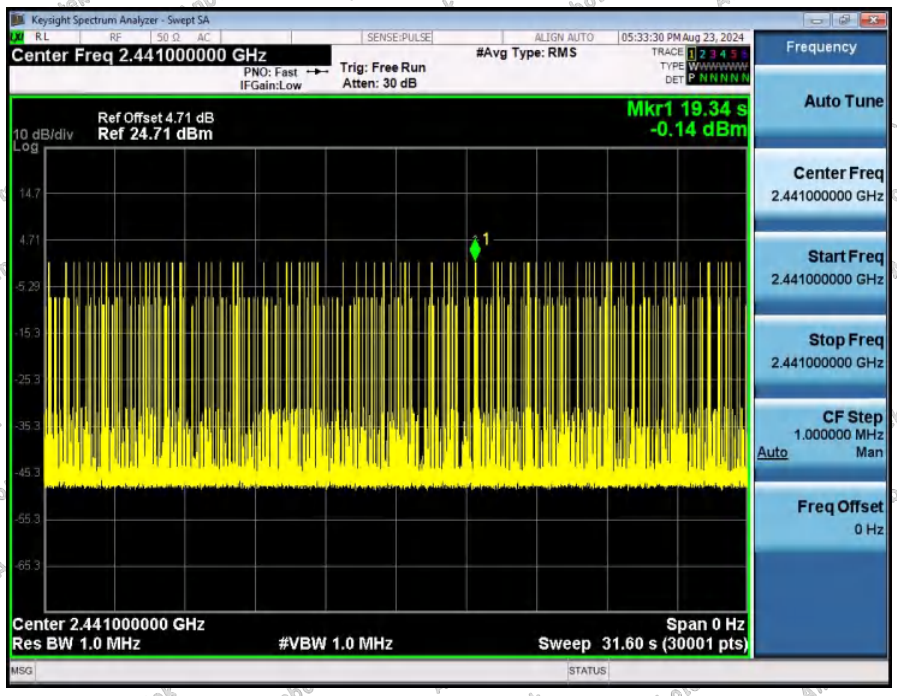
Appendix H: Dwell Time (Hopping)

Condition	Antenna	Packet Type	Pulse Time(ms)	Hops	Dwell Time(ms)	Limit(s)	Result
NVNT	ANT1	1-DH5	2.881	115.00	331.315	0.40	Pass
NVNT	ANT1	2-DH5	2.887	109.00	314.683	0.40	Pass
NVNT	ANT1	3-DH5	2.889	105.00	303.345	0.40	Pass
NVNT	ANT1	1-DH1	0.377	320.00	120.640	0.40	Pass
NVNT	ANT1	1-DH3	1.634	155.00	253.270	0.40	Pass
NVNT	ANT1	2-DH1	0.387	319.00	123.453	0.40	Pass
NVNT	ANT1	2-DH3	1.639	152.00	249.128	0.40	Pass
NVNT	ANT1	3-DH1	0.388	320.00	124.160	0.40	Pass
NVNT	ANT1	3-DH3	1.638	156.00	255.528	0.40	Pass

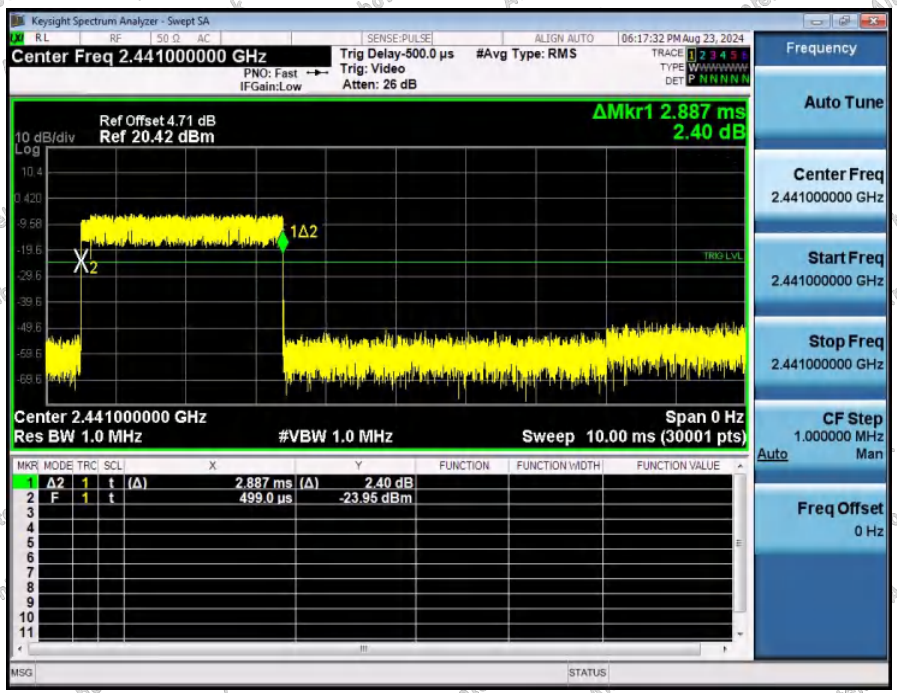
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH5_2441_00_One_Burst_Time



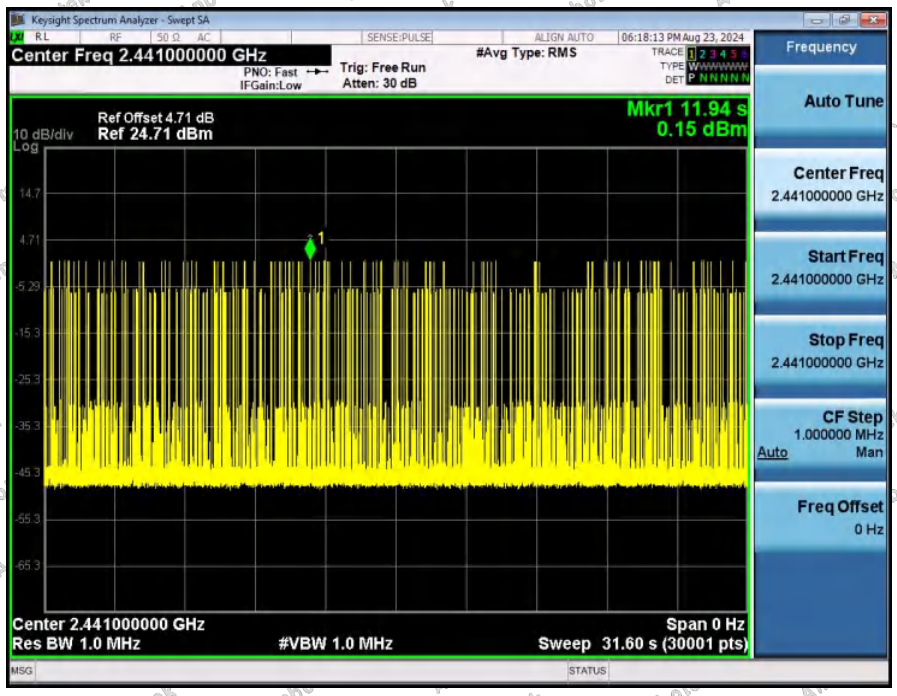
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH5_2441_00_Accumulated



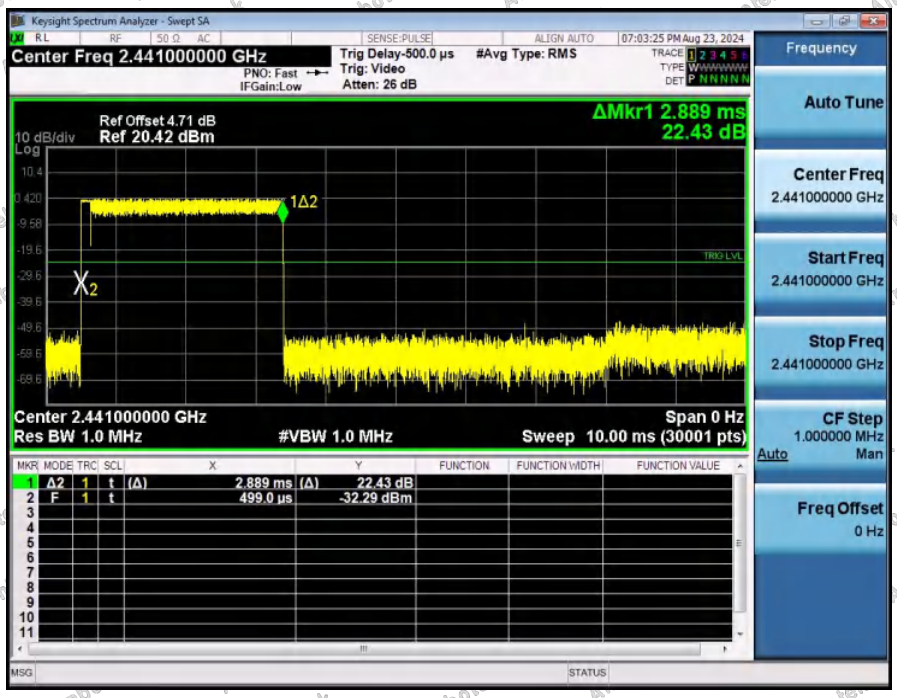
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH5_2441_00_One_Burst_Time



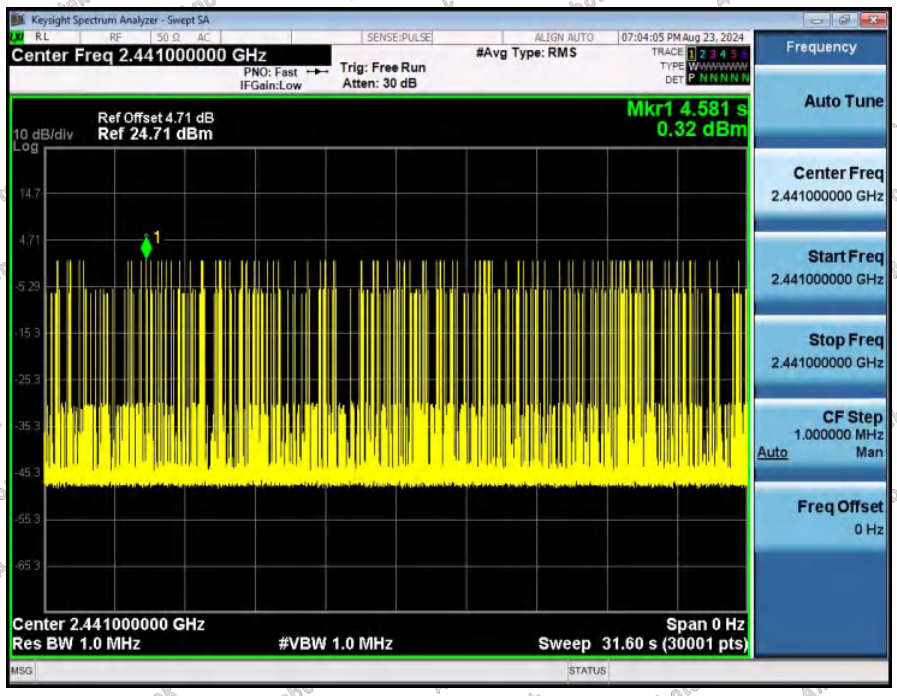
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH5_2441_00_Accumulated



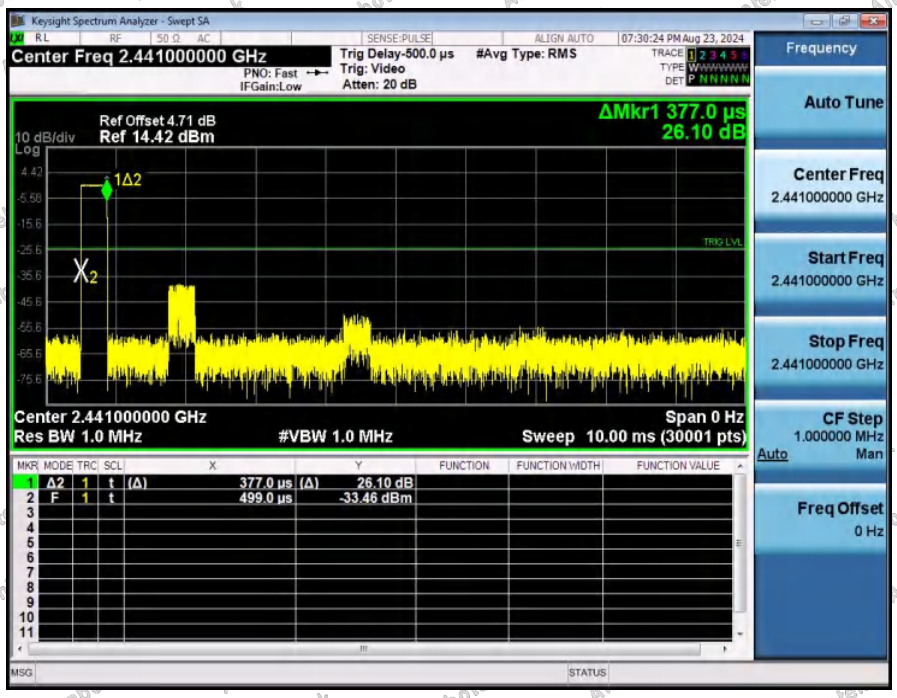
Dwell_Time_(Hopping)_NVNT_ANT1_3-DH5_2441_00_One_Burst_Time



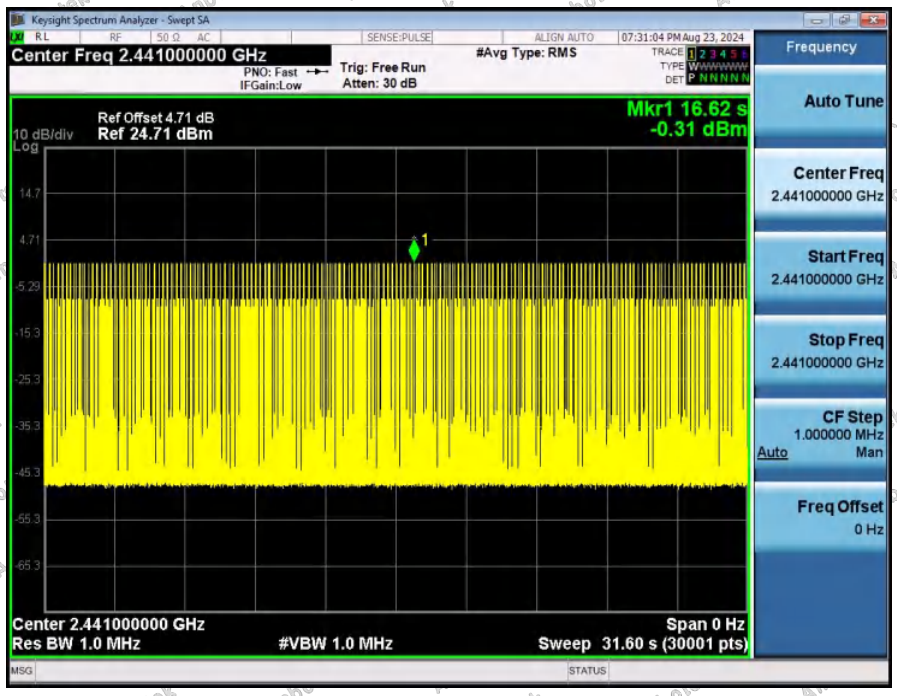
Dwell_Time_(Hopping)_NVNT_ANT1_3-DH5_2441_00_Accumulated



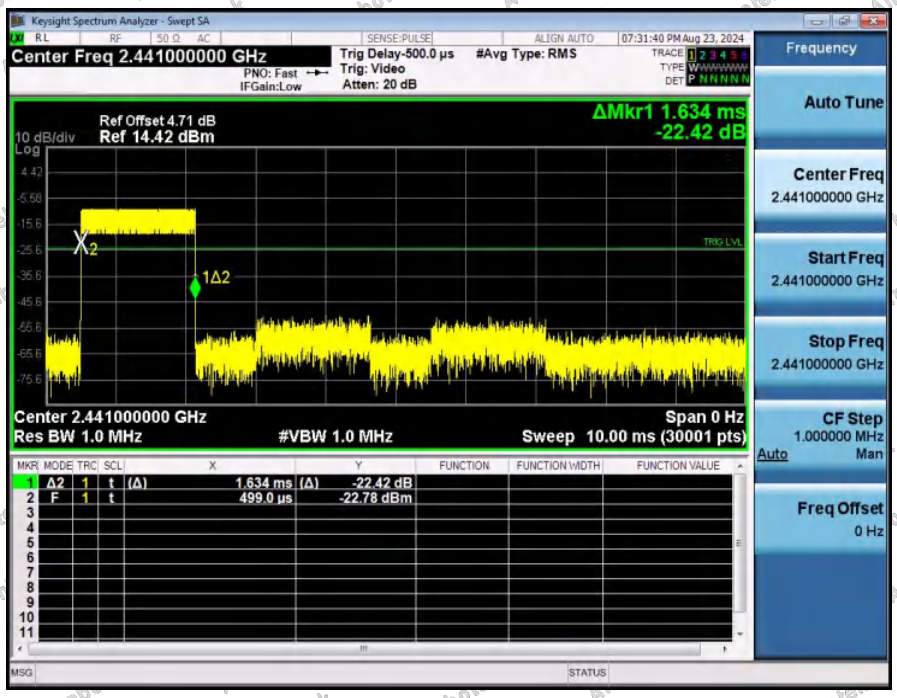
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH1_2441_00_One_Burst_Time



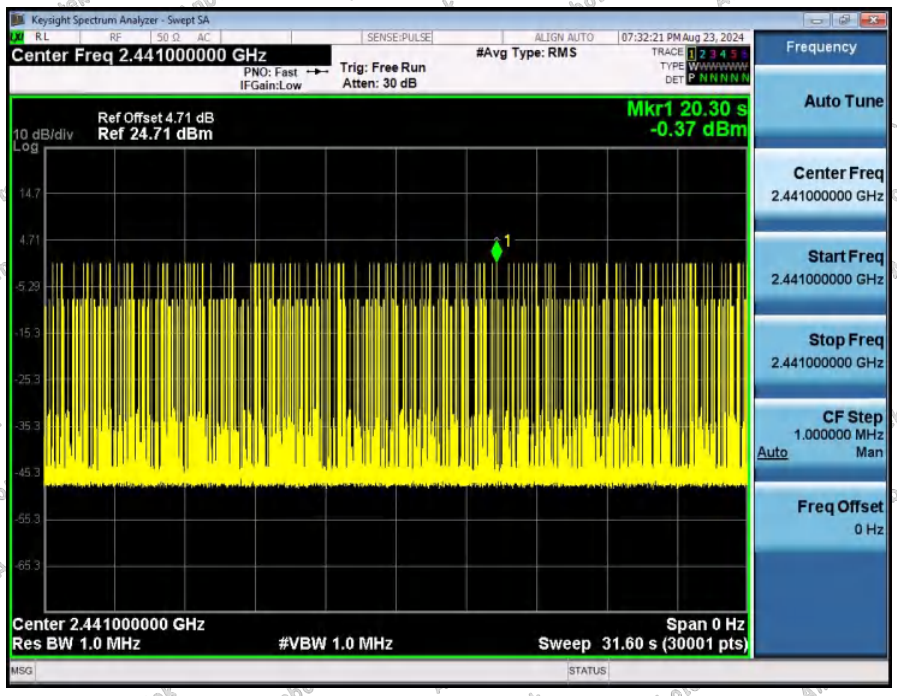
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH1_2441_00_Accumulated



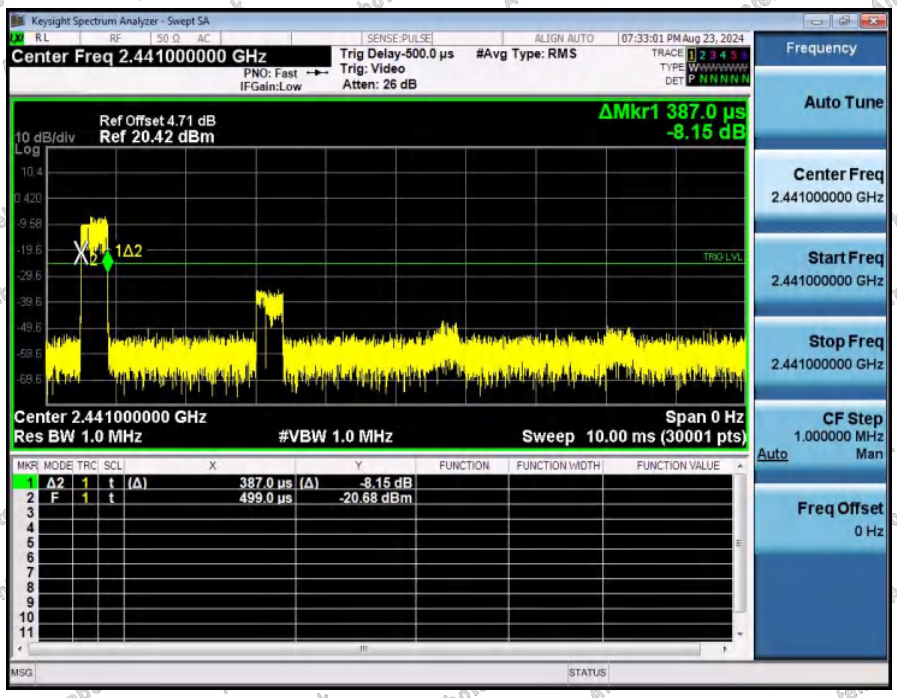
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH3_2441_00_One_Burst_Time



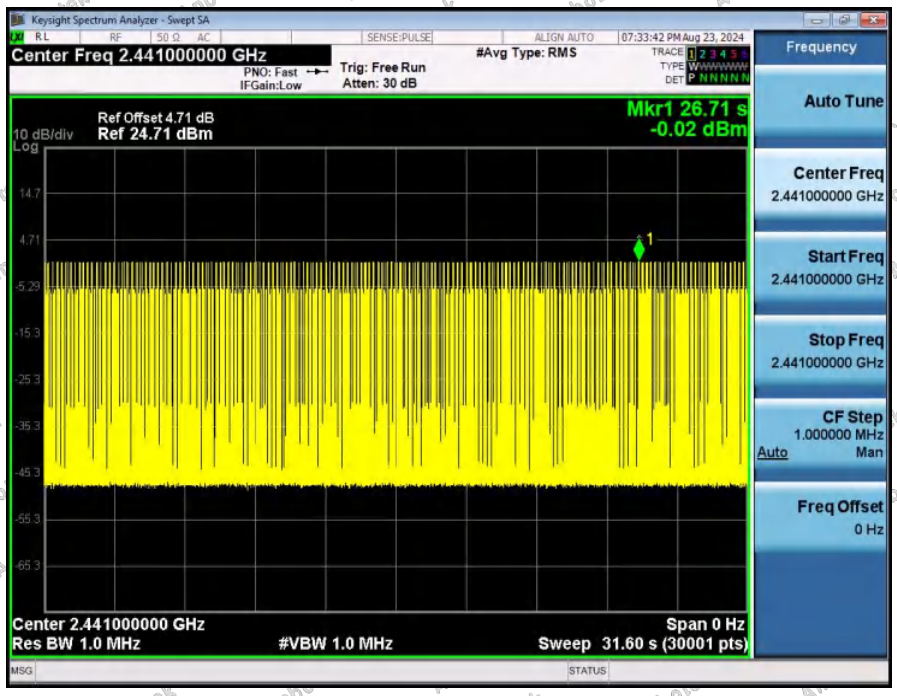
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH3_2441_00_Accumulated



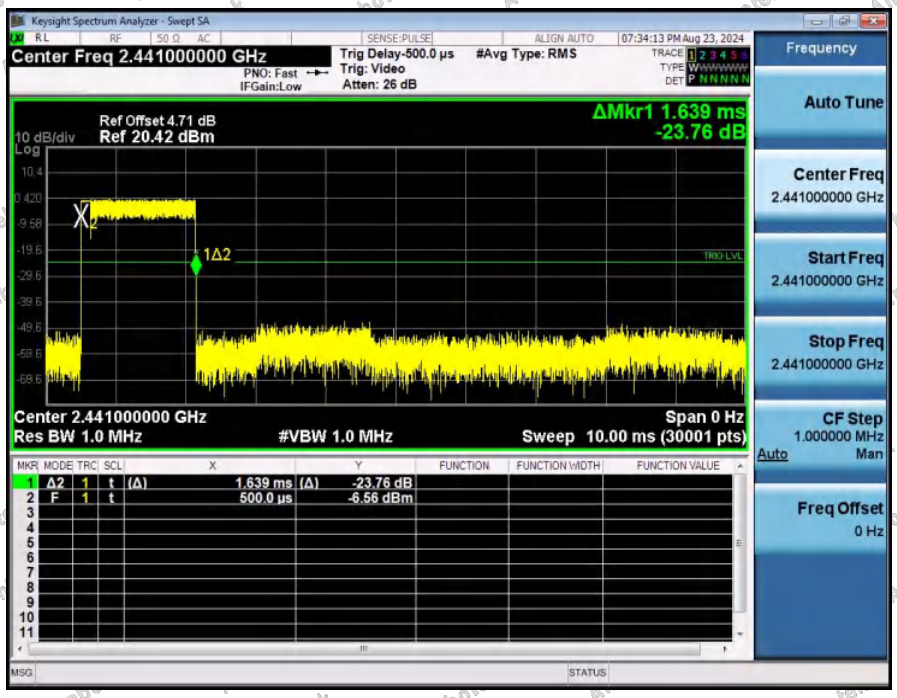
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH1_2441_00_One_Burst_Time



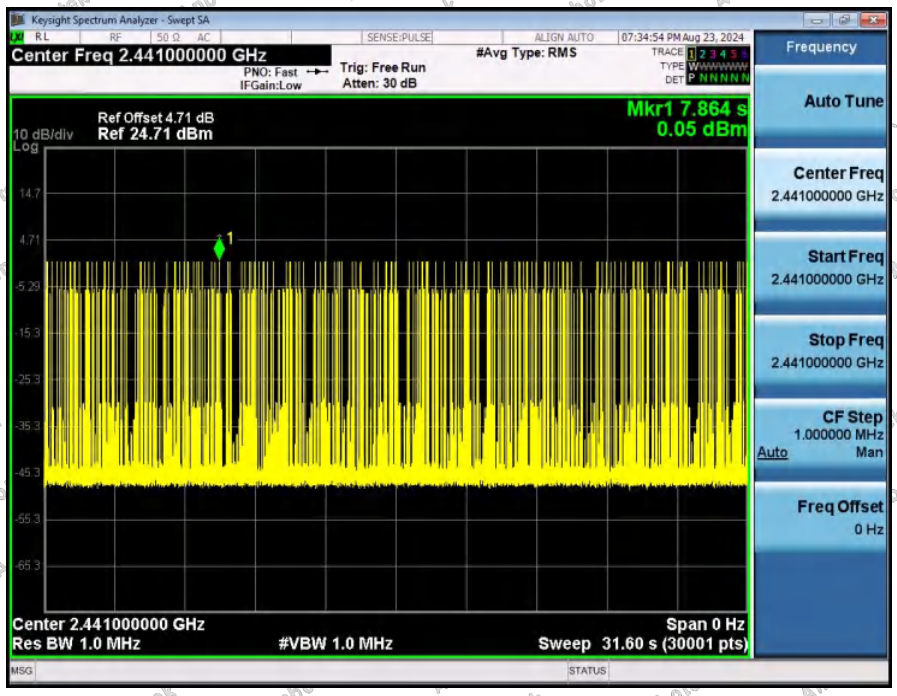
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH1_2441_00_Accumulated



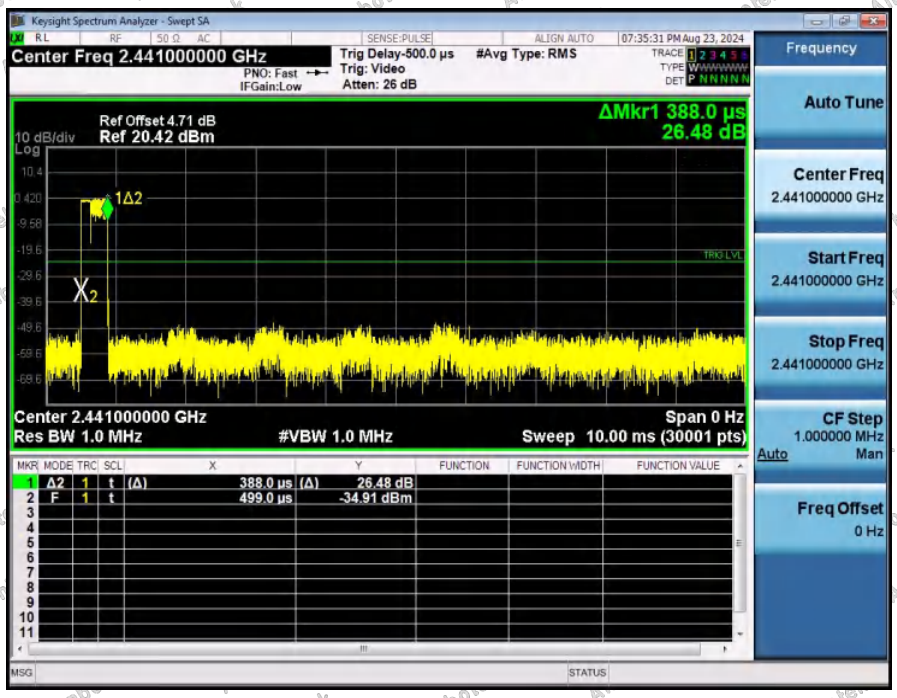
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH3_2441_00_One_Burst_Time



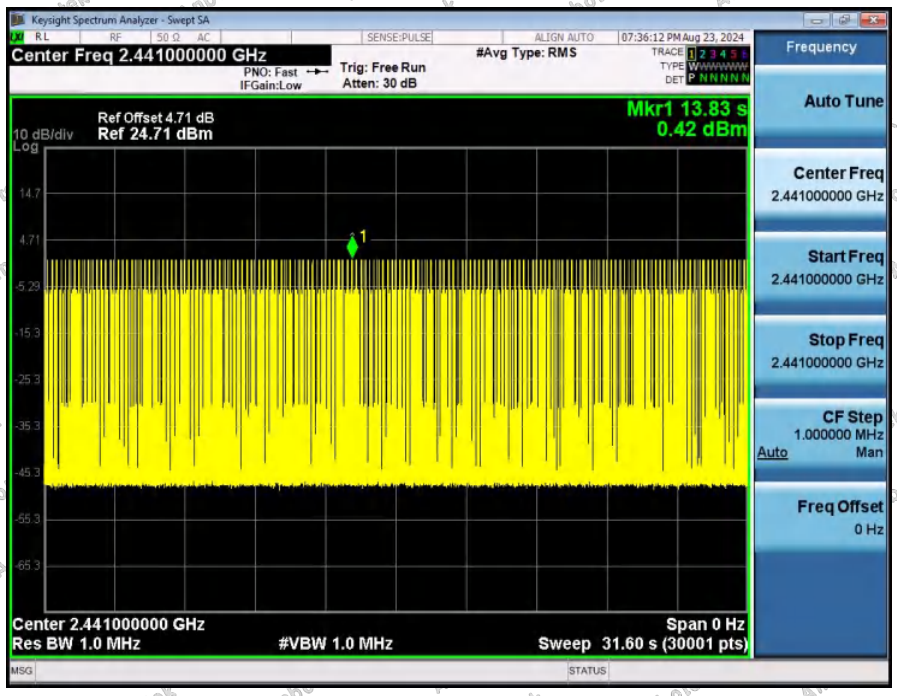
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH3_2441_00_Accumulated



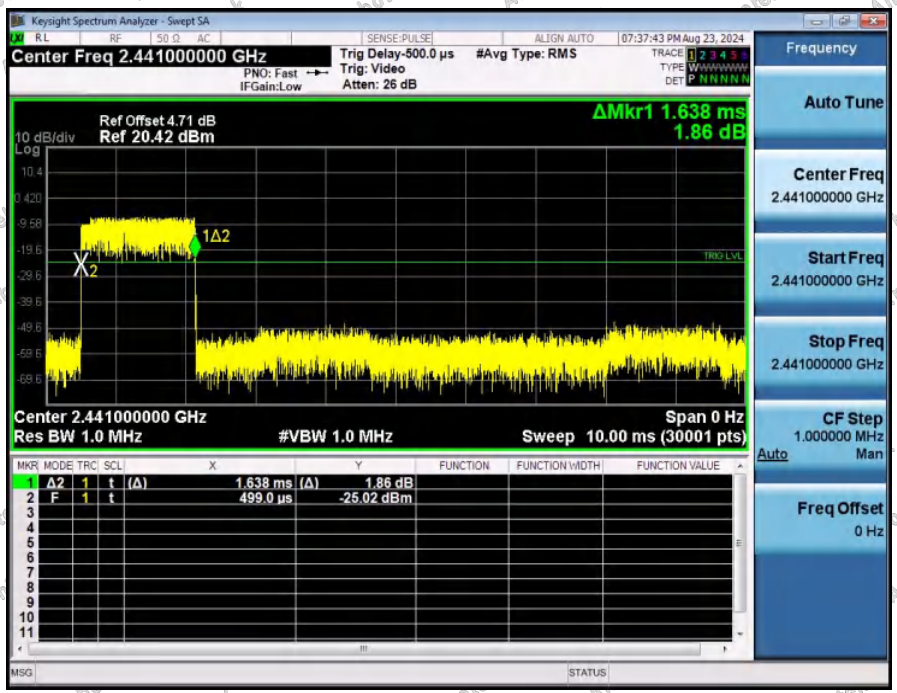
Dwell_Time_(Hopping)_NVNT_ANT1_3-DH1_2441_00_One_Burst_Time



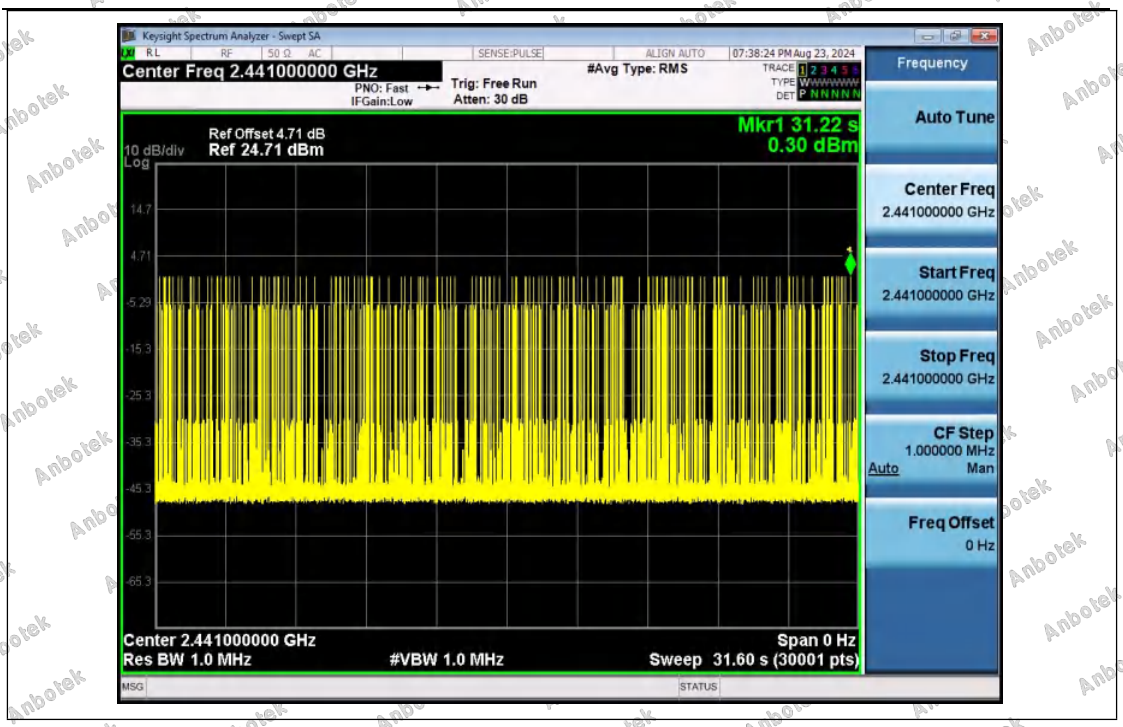
Dwell_Time_(Hopping)_NVNT_ANT1_3-DH1_2441_00_Accumulated



Dwell_Time_(Hopping)_NVNT_ANT1_3-DH3_2441_00_One_Burst_Time



Dwell_Time_(Hopping)_NVNT_ANT1_3-DH3_2441_00_Accumulated


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
#Avg Type: RMS
07:38:24 PM Aug 23, 2024
Ref Offset 4.71 dB
10 dB/div
Ref 24.71 dBm
Log
Mkr1 31.22 s
0.30 dBm
14.7
4.71
-5.29
-15.3
-25.3
-35.3
-45.3
-55.3
-65.3
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 31.60 s (30001 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

---END---