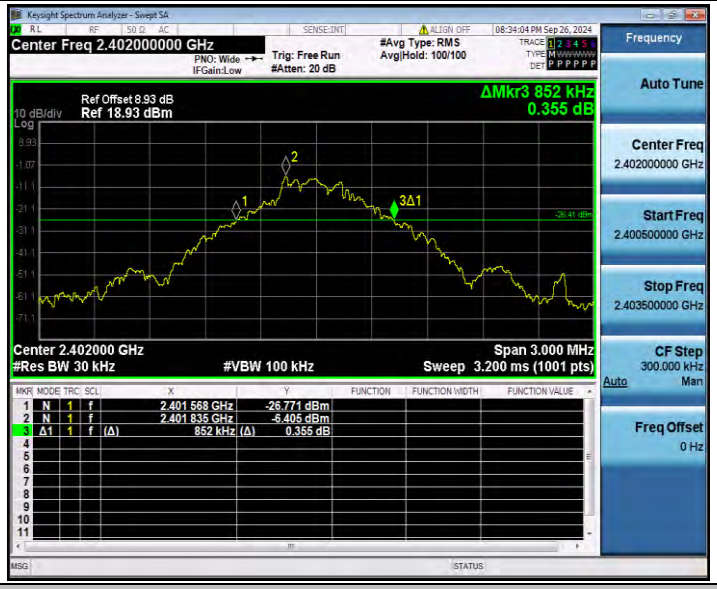
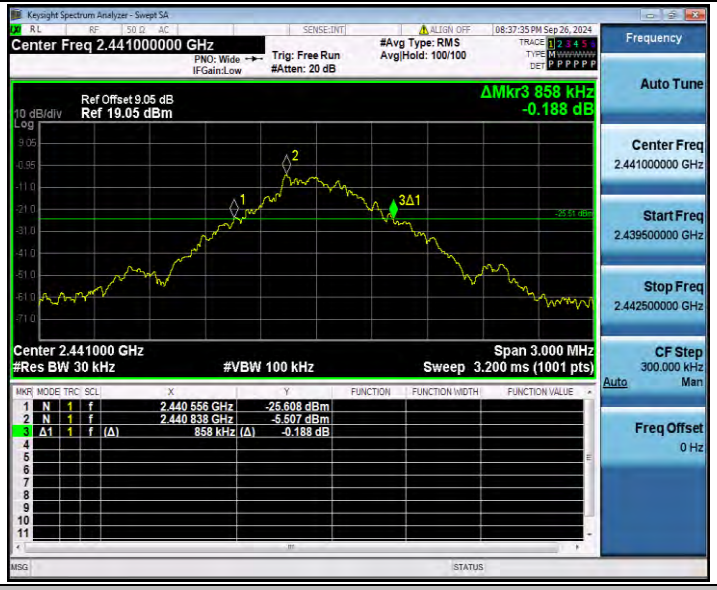
Case No. : GTS20240903013-1-01	
Ambient Condition: 23 ℃, 52 %RH	
According Standard: ■Part15C	
Test Date: 2024.9.24	**Test Engineer:** Evan ouyang

Appendix A.1: 20dB Emission Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	20dB EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH1	Ant1	2402	0.852	2401.568	2402.420	---	---
		2441	0.858	2440.556	2441.414	---	---
		2480	0.846	2479.562	2480.408	---	---
2DH1	Ant1	2402	1.290	2401.337	2402.627	---	---
		2441	1.227	2440.370	2441.597	---	---
		2480	1.245	2479.370	2480.615	---	---

Test Graphs

DH1_Ant1_2402

DH1_Ant1_2441

DH1_Ant1_2480

2DH1_Ant1_2402

2DH1_Ant1_2441

2DH1_Ant1_2480


Appendix A.2: Occupied Channel Bandwidth

Test Result

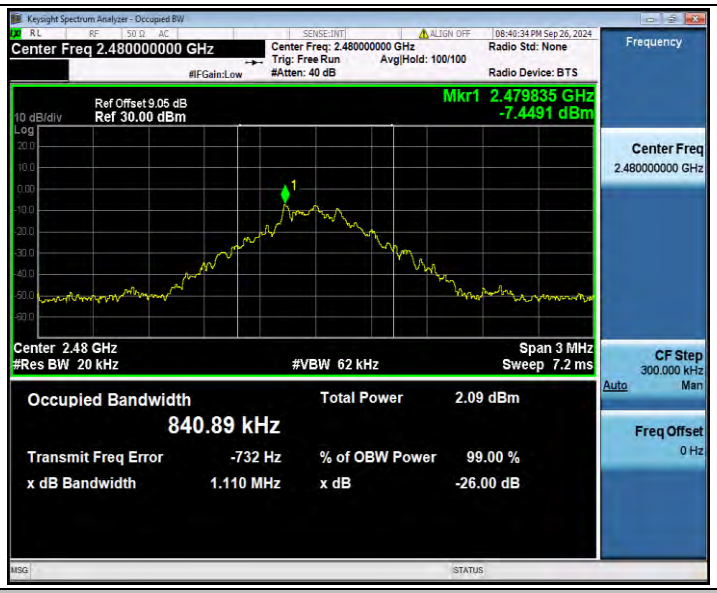
TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH1	Ant1	2402	0.83357	2401.5807	2402.4142	---	---
		2441	0.83079	2440.5876	2441.4184	---	---
		2480	0.84089	2479.5788	2480.4197	---	---
2DH1	Ant1	2402	1.1589	2401.4127	2402.5716	---	---
		2441	1.1616	2440.4128	2441.5744	---	---
		2480	1.1652	2479.4107	2480.5759	---	---

Test Graphs

DH1_Ant1_2402

DH1_Ant1_2441

DH1_Ant1_2480



2DH1_Ant1_2402

2DH1_Ant1_2441

2DH1_Ant1_2480


Appendix A.3: Maximum conducted output power

Test Result Peak

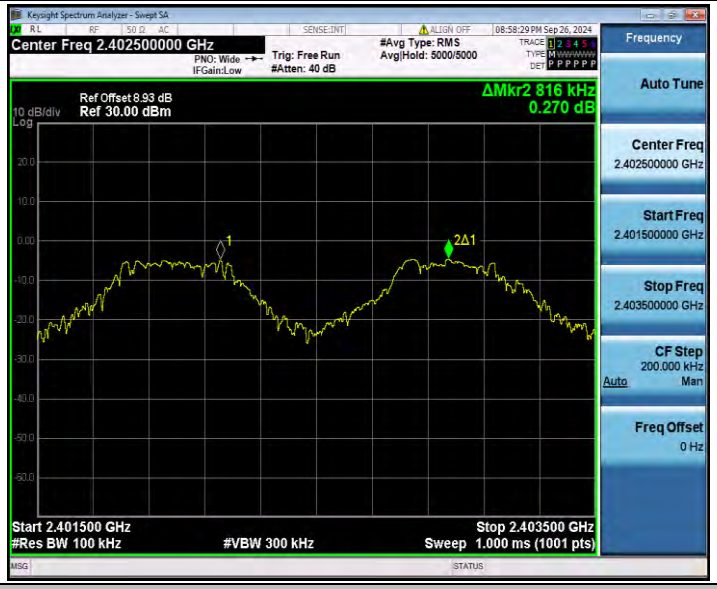
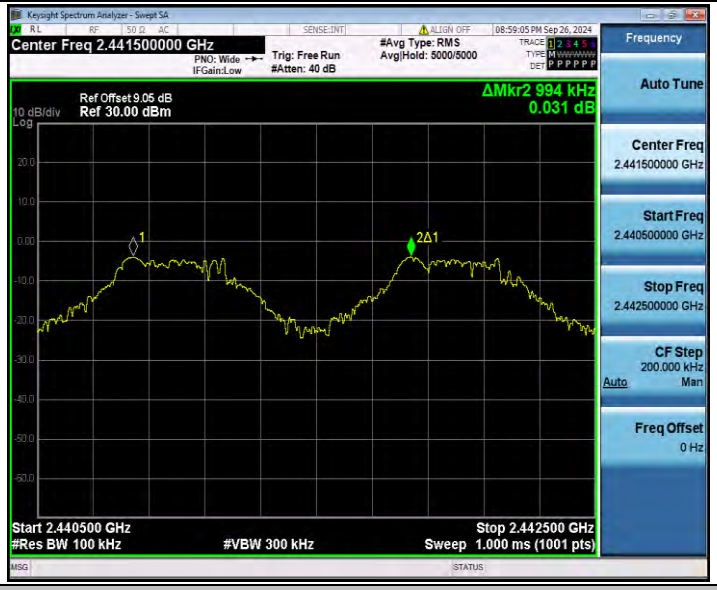
Test Mode	Antenna	Freq(MHz)	Conducted Peak Powert[dBm]	Conducted Limit[dBm]	Verdict
DH1	Ant1	2402	-4.21	≤20.97	PASS
		2441	-3.42	≤20.97	PASS
		2480	-3.60	≤20.97	PASS
2DH1	Ant1	2402	-3.31	≤20.97	PASS
		2441	-2.64	≤20.97	PASS
		2480	-2.82	≤20.97	PASS

Appendix A.4: Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH1	Ant1	Hop_2402	0.816	≥0.572	PASS
		Hop_2441	0.994	≥0.572	PASS
		Hop_2480	0.998	≥0.572	PASS
2DH1	Ant1	Hop_2402	1	≥0.860	PASS
		Hop_2441	0.872	≥0.860	PASS
		Hop_2480	0.996	≥0.860	PASS

Test Graphs

DH1_Ant1_Hop_2402

DH1_Ant1_Hop_2441

DH1_Ant1_Hop_2480

2DH1_Ant1_Hop_2402

2DH1_Ant1_Hop_2441

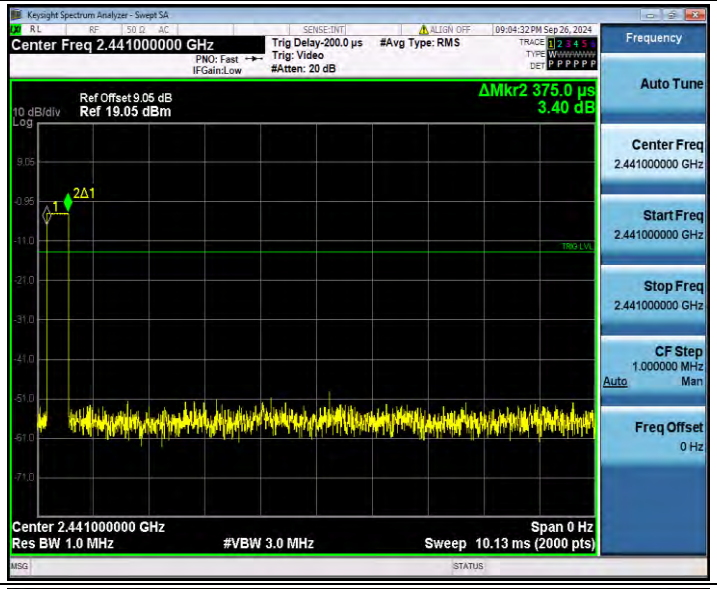
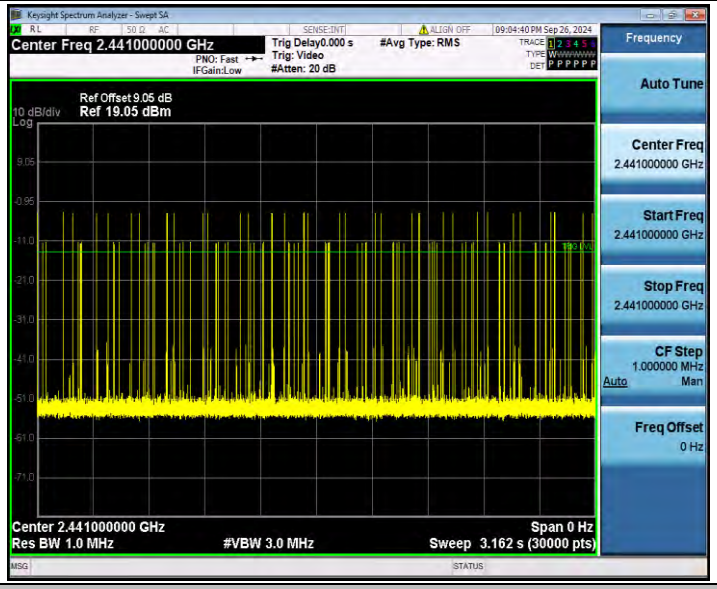
2DH1_Ant1_Hop_2480


Appendix A.5: Time of occupancy

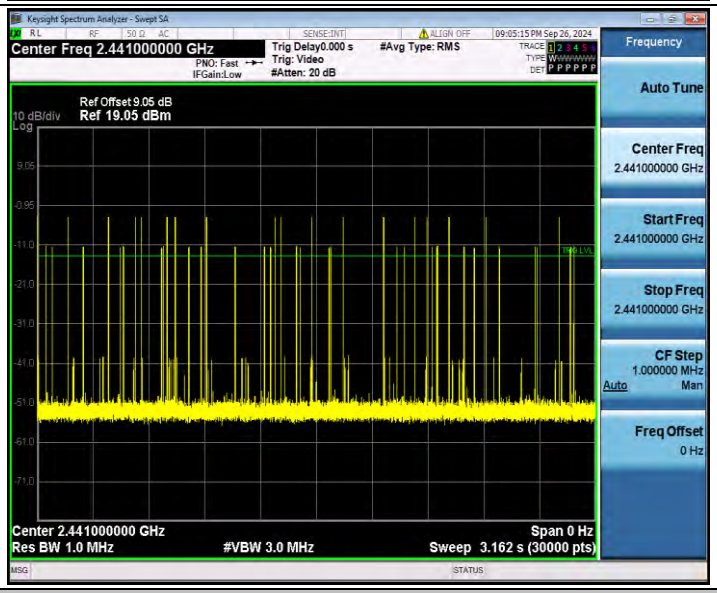
Test Result

TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.375	330	0.124	≤0.4	PASS
DH3	Ant1	Hop	1.631	180	0.294	≤0.4	PASS
DH5	Ant1	Hop	2.883	120	0.346	≤0.4	PASS
2DH1	Ant1	Hop	0.385	330	0.127	≤0.4	PASS
2DH3	Ant1	Hop	1.631	140	0.228	≤0.4	PASS
2DH5	Ant1	Hop	2.883	100	0.288	≤0.4	PASS

Test Graphs

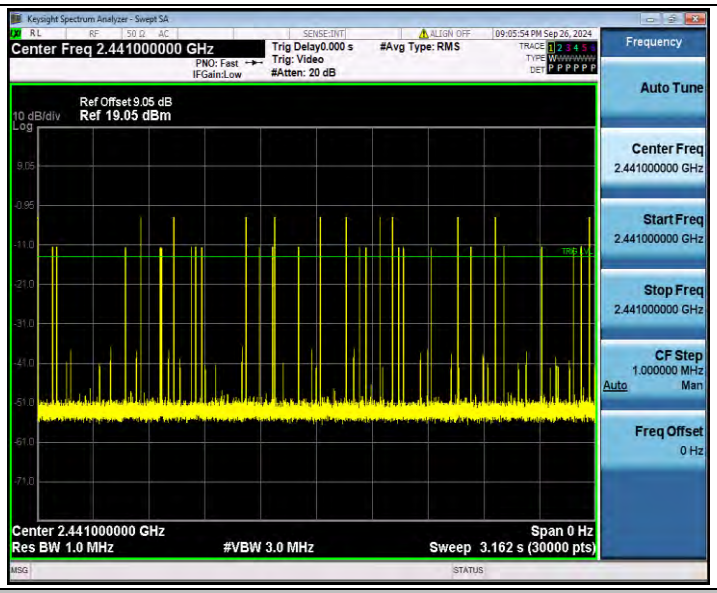
DH1_Ant1_Hop


DH3_Ant1_Hop


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig Delay-200.0 µs
Trig: Video
#Atten: 20 dB
#Avg Type: RMS
09:05:07 PM Sep 26, 2024
Frequency
Auto Tune
Ref Offset 9.05 dB
10 dB/div
Ref 19.05 dBm
ΔMkr2 1.631 ms
0.05 dB
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
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 10.13 ms (2000 pts)

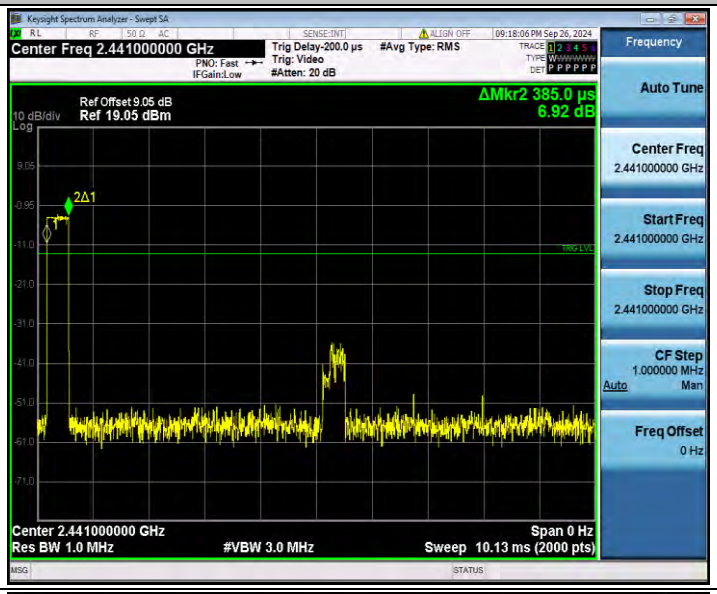

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig Delay0.000 s
Trig: Video
#Atten: 20 dB
#Avg Type: RMS
09:05:15 PM Sep 26, 2024
Frequency
Auto Tune
Ref Offset 9.05 dB
10 dB/div
Ref 19.05 dBm
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 3.162 s (30000 pts)

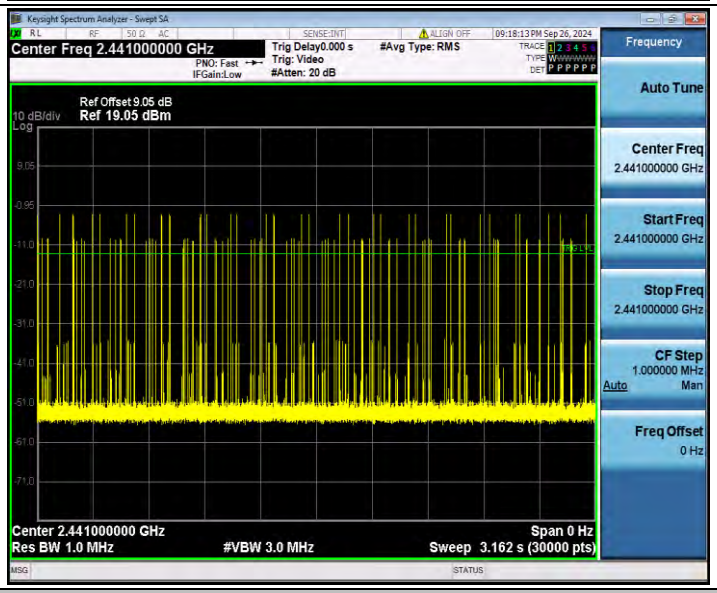
DH5_Ant1_Hop


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig Delay-200.0 µs
Trig: Video
#Atten: 20 dB
#Avg Type: RMS
09:05:47 PM Sep 26, 2024
Frequency
Auto Tune
Ref Offset 9.05 dB
10 dB/div
Ref 19.05 dBm
ΔMkr2 2.883 ms
13.33 dB
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
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 10.13 ms (2000 pts)

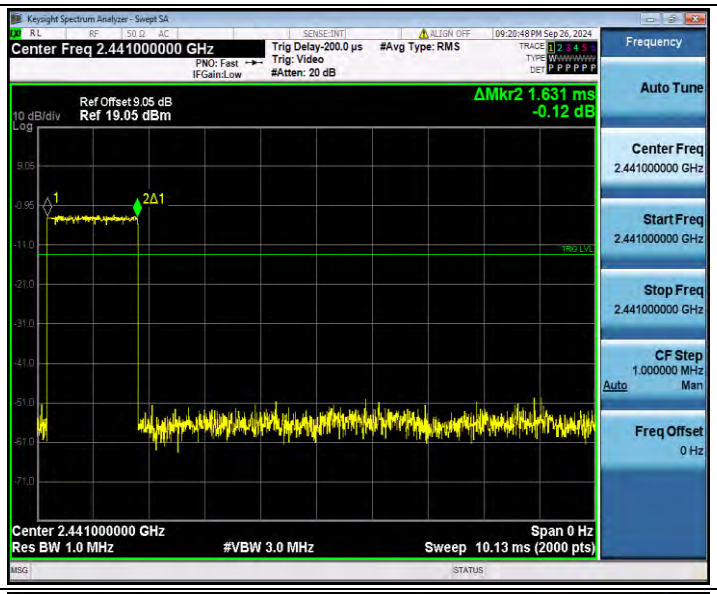


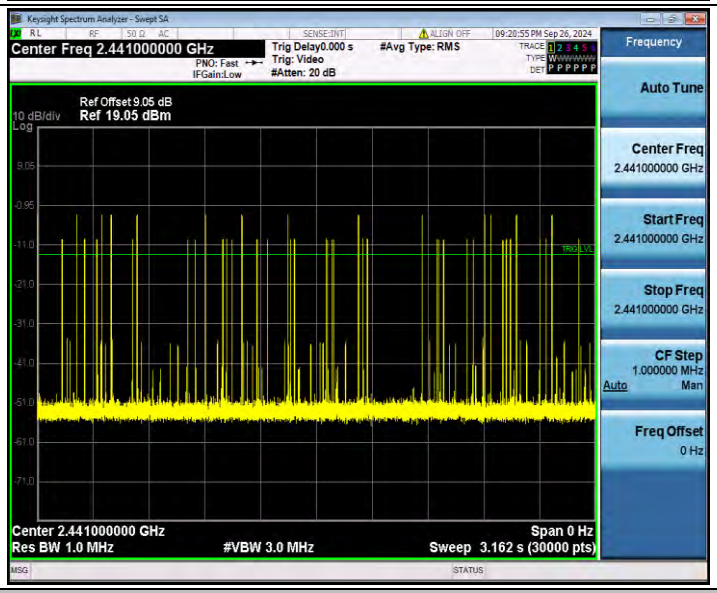
2DH1_Ant1_Hop



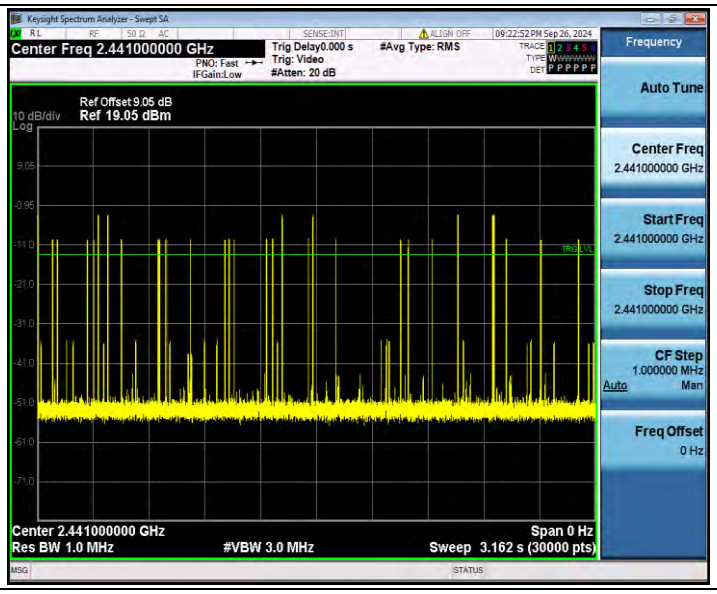


2DH3_Ant1_Hop





2DH5_Ant1_Hop

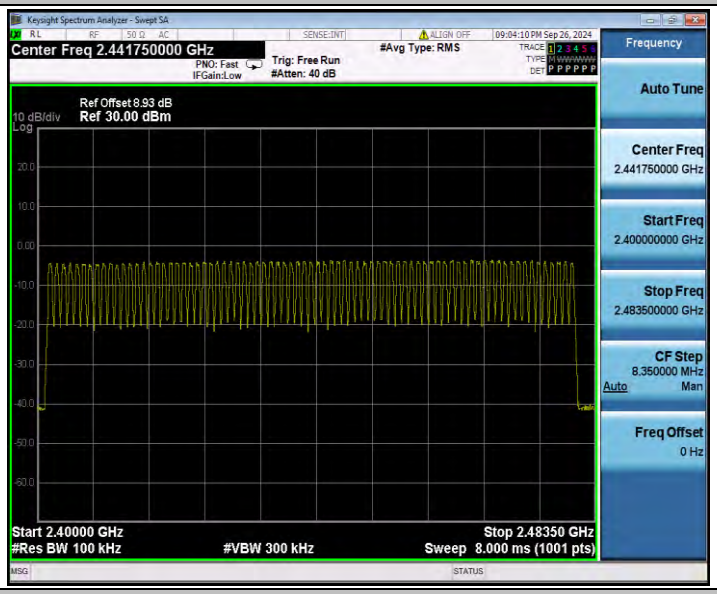
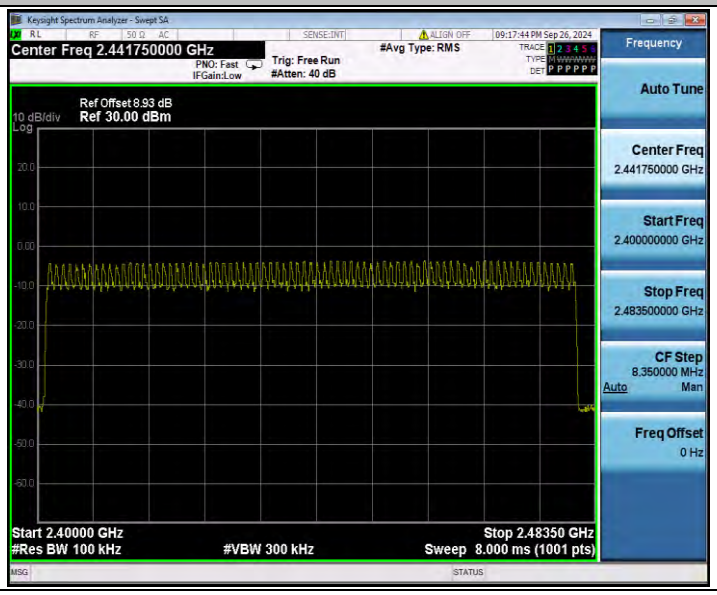

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig Delay0.000 s
Trig: Video
#Atten: 20 dB
#Avg Type: RMS
09:22:52 PM Sep 26, 2024
Frequency
Auto Tune
Ref Offset 9.05 dB
10 dB/div
Log
Ref 19.05 dBm
9.05
-0.95
-11.0
-21.0
-31.0
-41.0
-51.0
-61.0
-71.0
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 3.162 s (30000 pts)
MSG
STATUS

Appendix A.6: Number of hopping channels

Test Result

TestMode	Antenna	Freq(MHz)	Result[Num]	Limit[Num]	Verdict
DH1	Ant1	Hop	79	≥15	PASS
2DH1	Ant1	Hop	79	≥15	PASS

Test Graphs

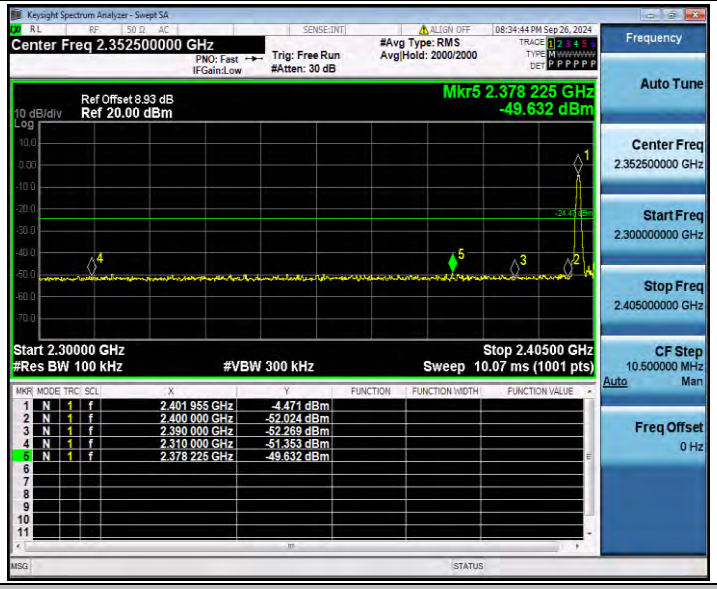
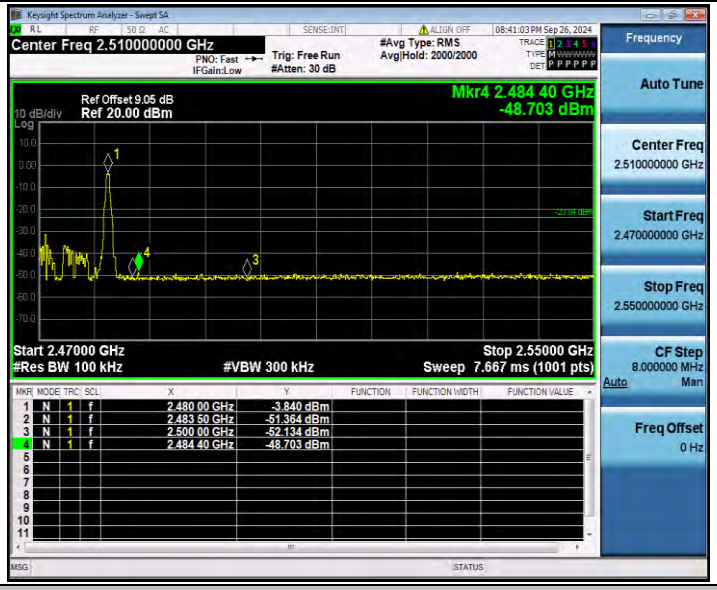
DH1_Ant1_Hop

2DH1_Ant1_Hop


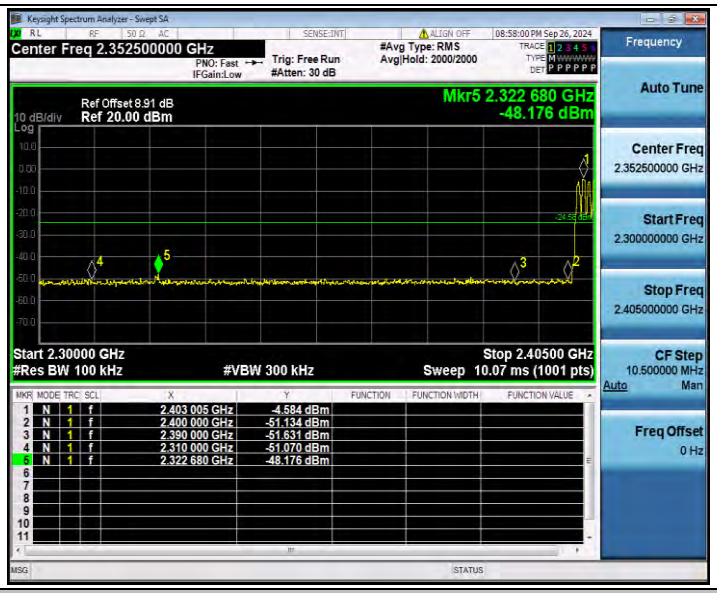
Appendix A.7: Band edge measurements

Test Result

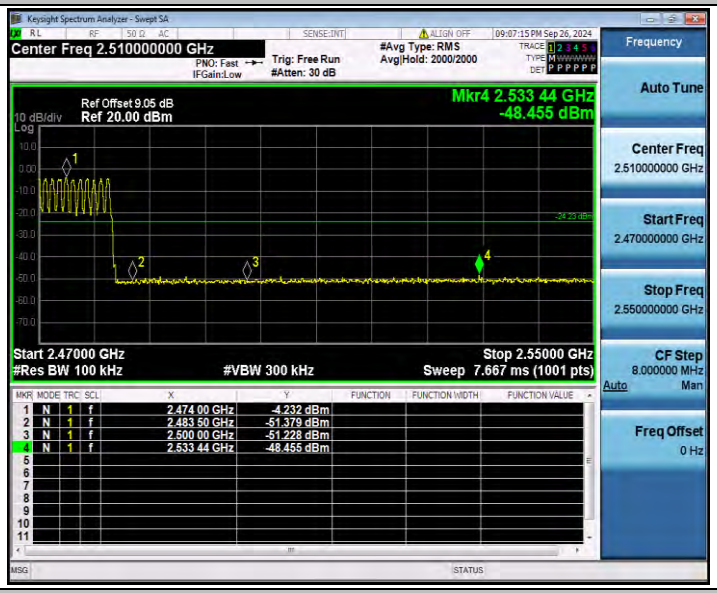
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	Low	2402	-4.47	-49.63	≤-24.47	PASS
		High	2480	-3.84	-48.7	≤-23.84	PASS
		Low	Hop_2402	-4.58	-48.18	≤-24.58	PASS
		High	Hop_2480	-4.23	-48.46	≤-24.23	PASS
2DH1	Ant1	Low	2402	-4.61	-49.41	≤-24.61	PASS
		High	2480	-3.85	-47.84	≤-23.85	PASS
		Low	Hop_2402	-4.62	-49	≤-24.62	PASS
		High	Hop_2480	-5.21	-48.35	≤-25.21	PASS

Test Graphs

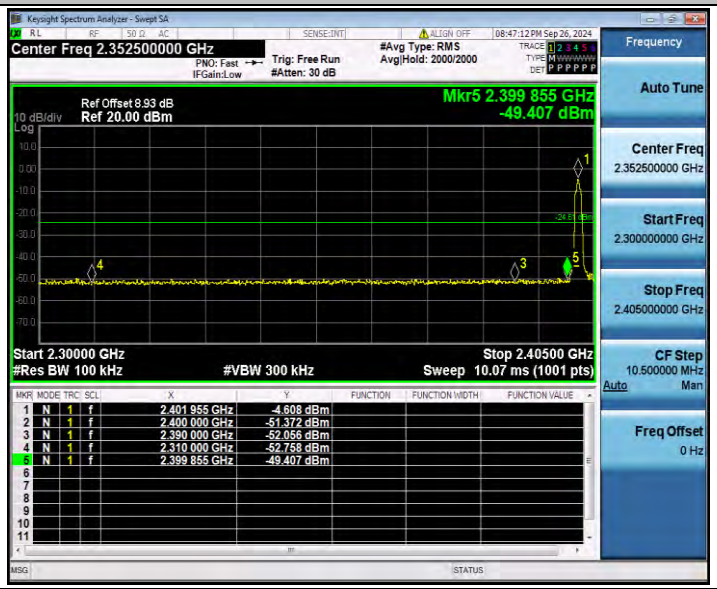
DH1_Ant1_Low_2402

DH1_Ant1_High_2480

DH1_Ant1_Low_Hop_2402

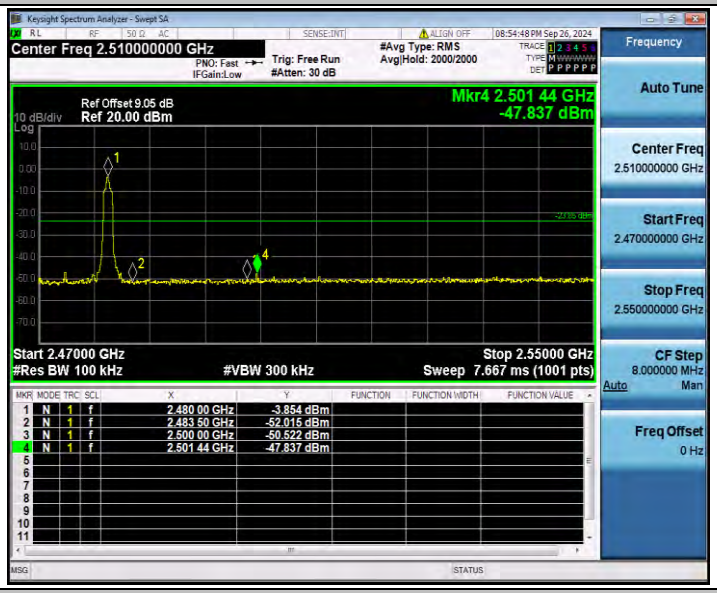
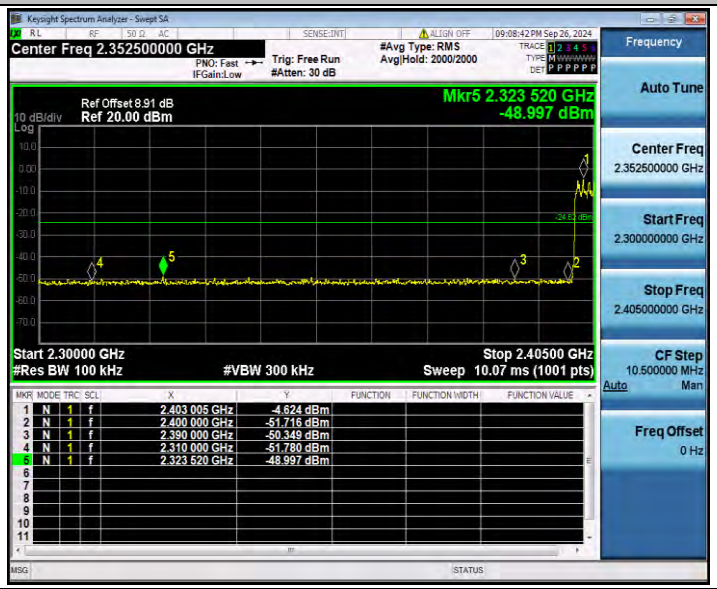


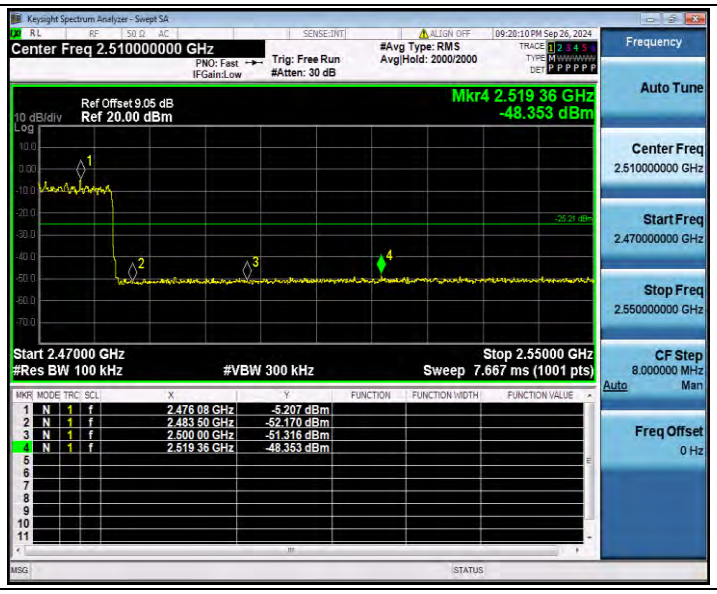
DH1_Ant1_High_Hop_2480



2DH1_Ant1_Low_2402



2DH1_Ant1_High_2480

2DH1_Ant1_Low_Hop_2402

2DH1_Ant1_High_Hop_2480

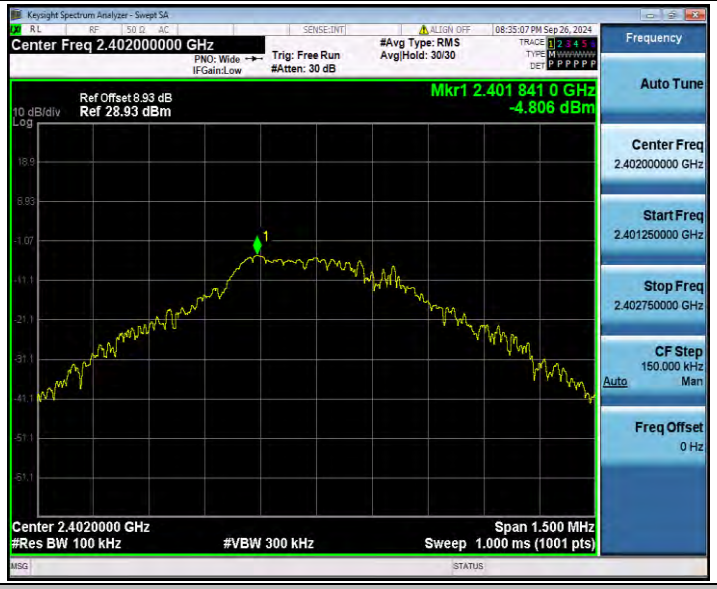
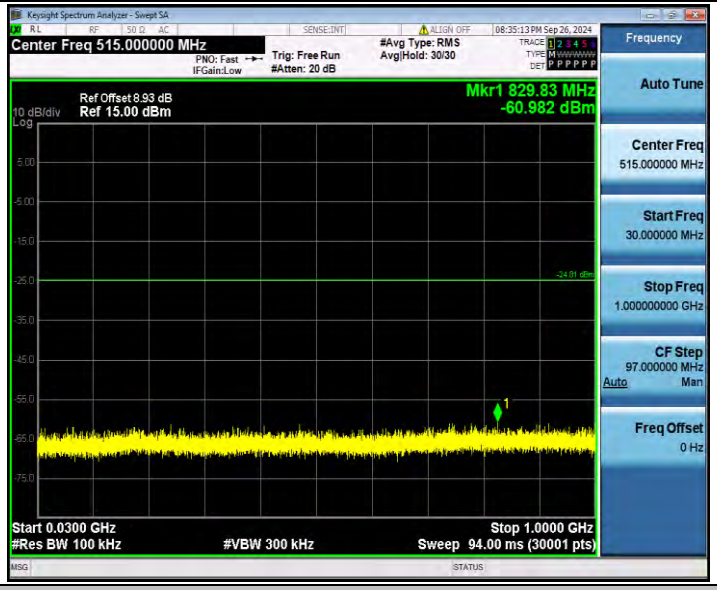

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.510000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 2000/2000
09:20:10 PM Sep 26, 2024
Frequency
Auto Tune
Ref Offset 9.05 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr4 2.519 36 GHz
-48.353 dBm
-25.21 dBm
Center Freq
2.510000000 GHz
Start Freq
2.470000000 GHz
Stop Freq
2.550000000 GHz
CF Step
8.000000 MHz
Auto
Man
Freq Offset
0 Hz
Start 2.47000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.55000 GHz
Sweep 7.667 ms (1001 pts)
1 N 1 f 2.476 08 GHz -5.207 dBm
2 N 1 f 2.483 50 GHz -52.170 dBm
3 N 1 f 2.500 00 GHz -51.316 dBm
4 N 1 f 2.519 36 GHz -48.353 dBm
MSG
STATUS

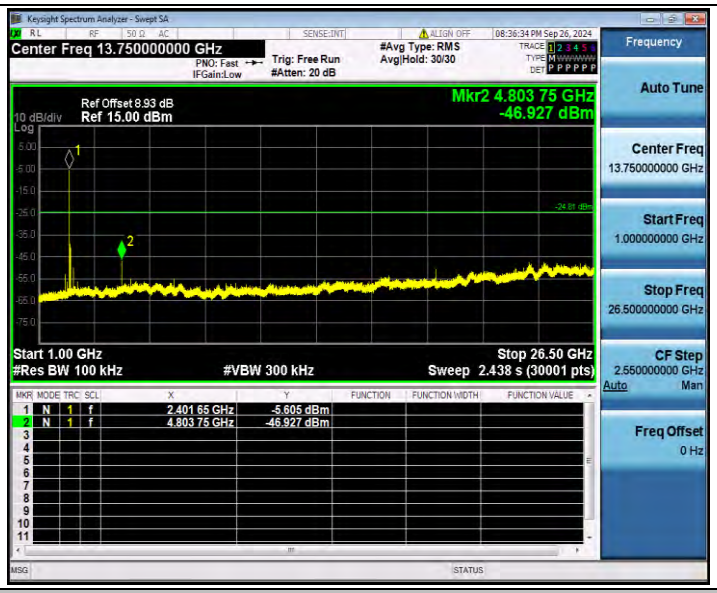
Appendix A.8: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	2402	Reference	-4.81	-4.81	---	PASS
			30~1000	-4.81	-60.98	≤-24.81	PASS
			1000~26500	-4.81	-46.93	≤-24.81	PASS
		2441	Reference	-3.99	-3.99	---	PASS
			30~1000	-3.99	-59.77	≤-23.99	PASS
			1000~26500	-3.99	-45.33	≤-23.99	PASS
		2480	Reference	-4.17	-4.17	---	PASS
			30~1000	-4.17	-60.57	≤-24.17	PASS
			1000~26500	-4.17	-47.53	≤-24.17	PASS
2DH1	Ant1	2402	Reference	-4.88	-4.88	---	PASS
			30~1000	-4.88	-60.23	≤-24.88	PASS
			1000~26500	-4.88	-48.05	≤-24.88	PASS
		2441	Reference	-3.98	-3.98	---	PASS
			30~1000	-3.98	-58.57	≤-23.98	PASS
			1000~26500	-3.98	-46.97	≤-23.98	PASS
		2480	Reference	-4.31	-4.31	---	PASS
			30~1000	-4.31	-60.84	≤-24.31	PASS
			1000~26500	-4.31	-46.37	≤-24.31	PASS

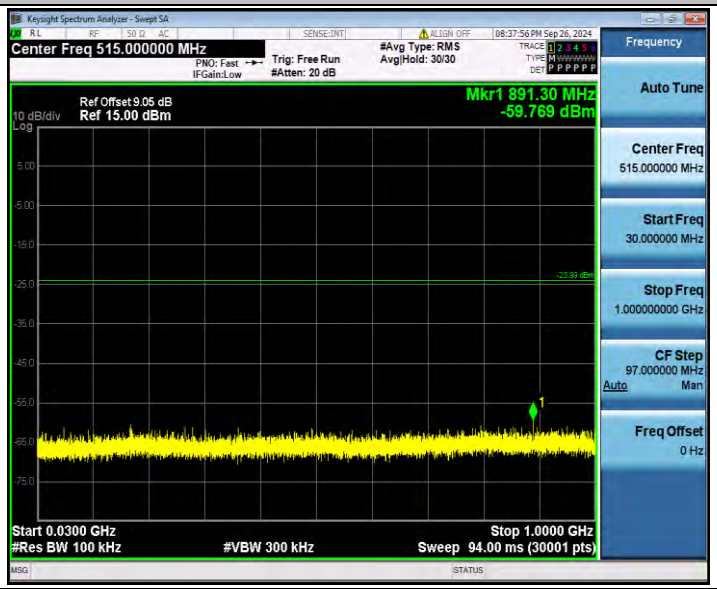
Test Graphs

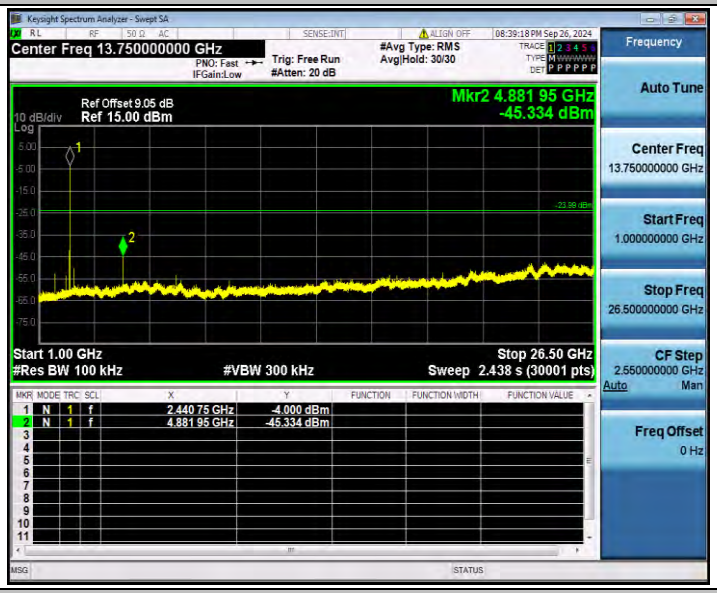
DH1_Ant1_2402_0~Reference

DH1_Ant1_2402_30~1000

DH1_Ant1_2402_1000~26500



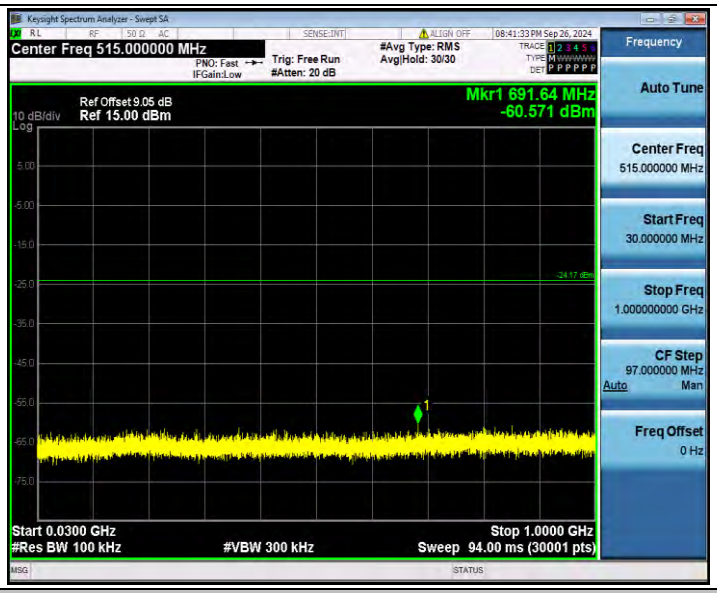
DH1_Ant1_2441_0~Reference

DH1_Ant1_2441_30~1000

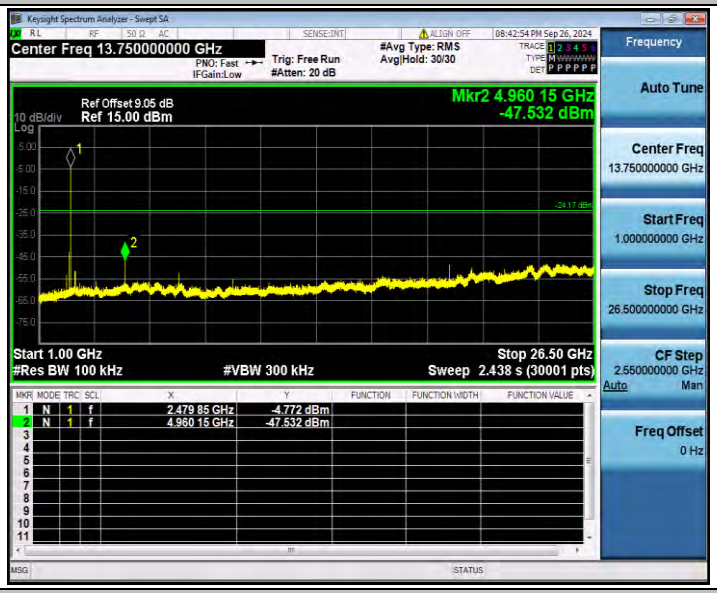


DH1_Ant1_2441_1000~26500

DH1_Ant1_2480_0~Reference

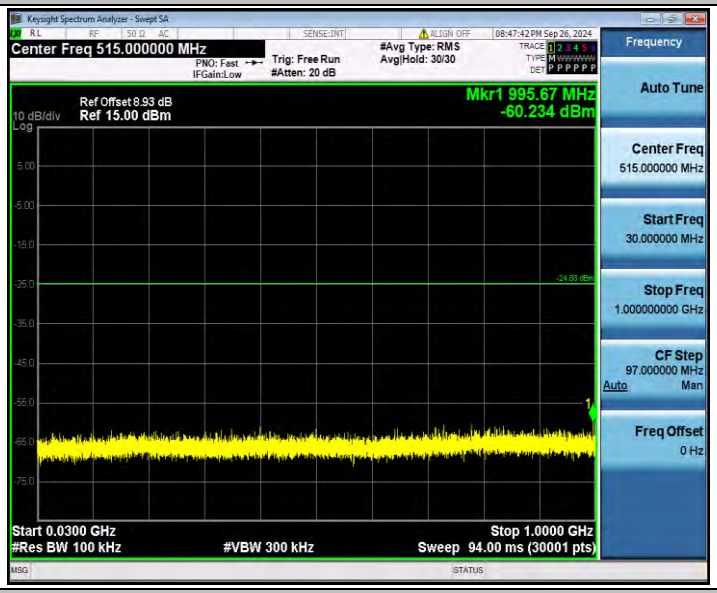
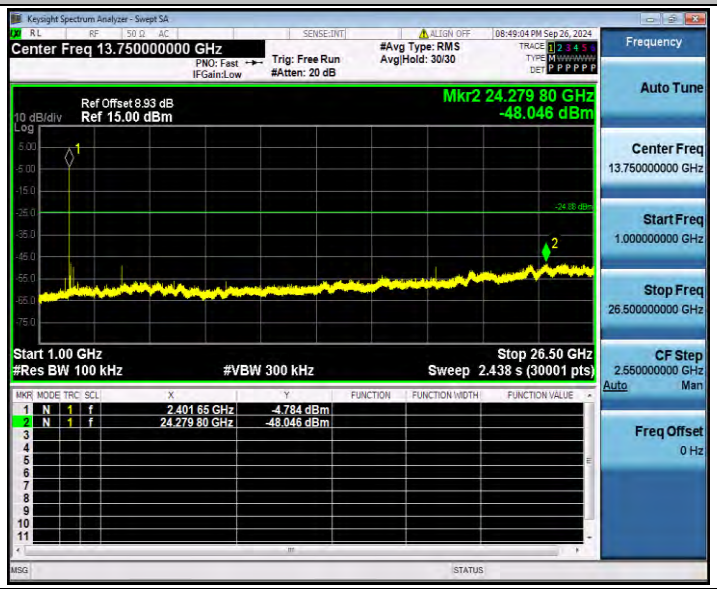
DH1_Ant1_2480_30~1000



DH1_Ant1_2480_1000~26500



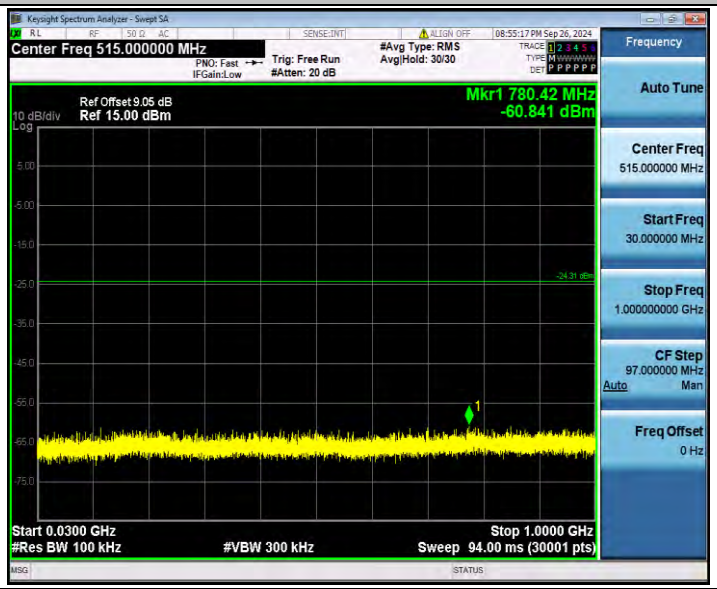
2DH1_Ant1_2402_0~Reference

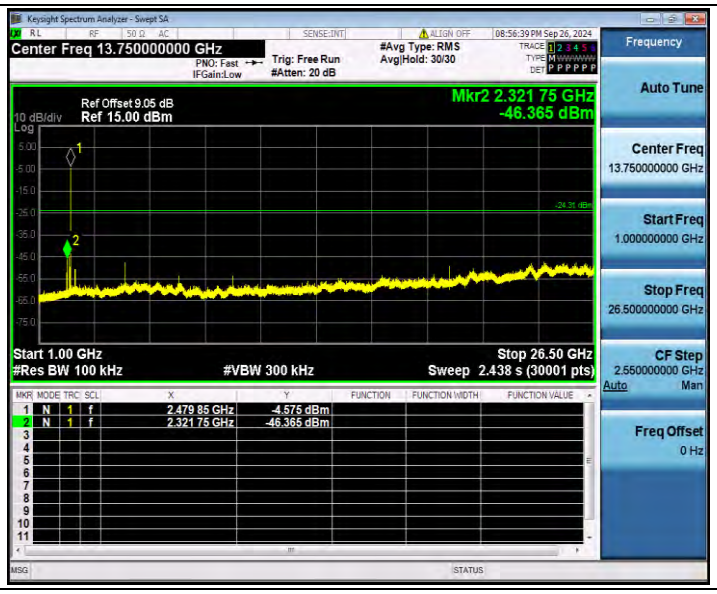
2DH1_Ant1_2402_30~1000

2DH1_Ant1_2402_1000~26500

2DH1_Ant1_2441_0~Reference

2DH1_Ant1_2441_30~1000

2DH1_Ant1_2441_1000~26500

2DH1_Ant1_2480_0~Reference

2DH1_Ant1_2480_30~1000

2DH1_Ant1_2480_1000~26500


Keysight Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 30/30
08:56:39 PM Sep 26, 2024
Ref Offset 9.05 dB
10 dB/div
Ref 15.00 dBm
Log
Mkr2 2.321 75 GHz
-46.365 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
1 N 1 f 2.479 85 GHz -4.575 dBm
2 N 1 f 2.321 75 GHz -46.365 dBm
Frequency
Auto Tune
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto
Man
Freq Offset
0 Hz

Appendix A.9: Emissions in Restricted Bands

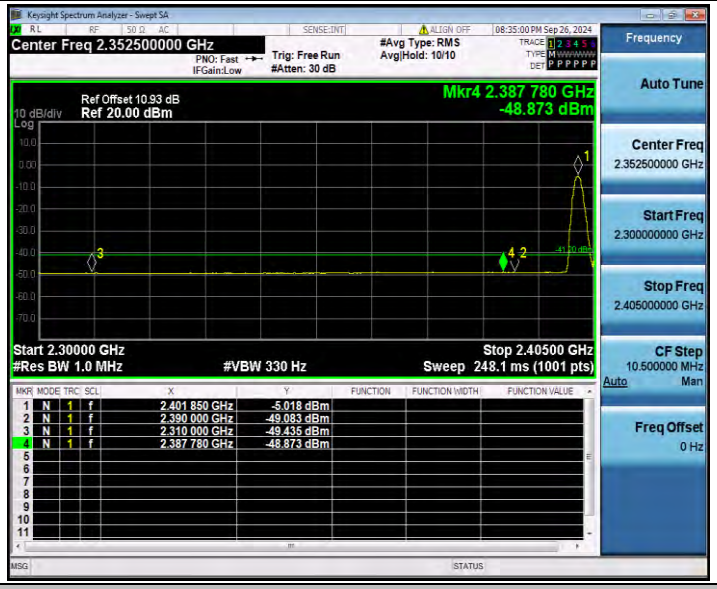
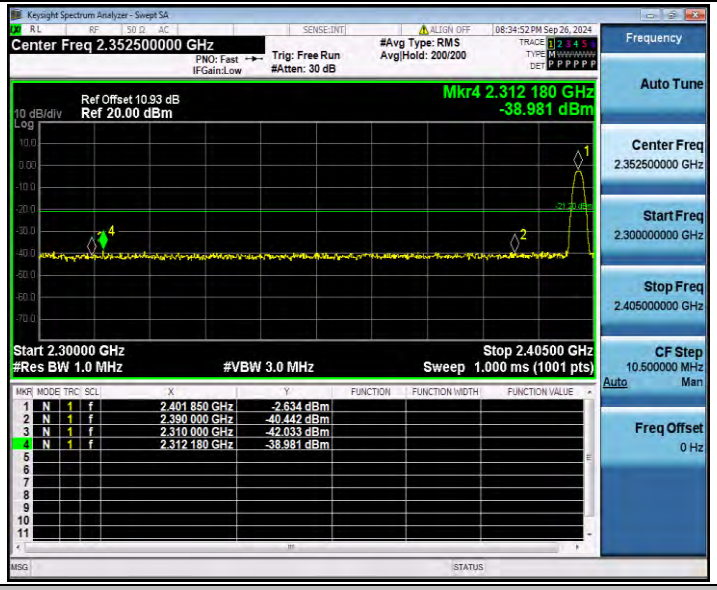
Test Result

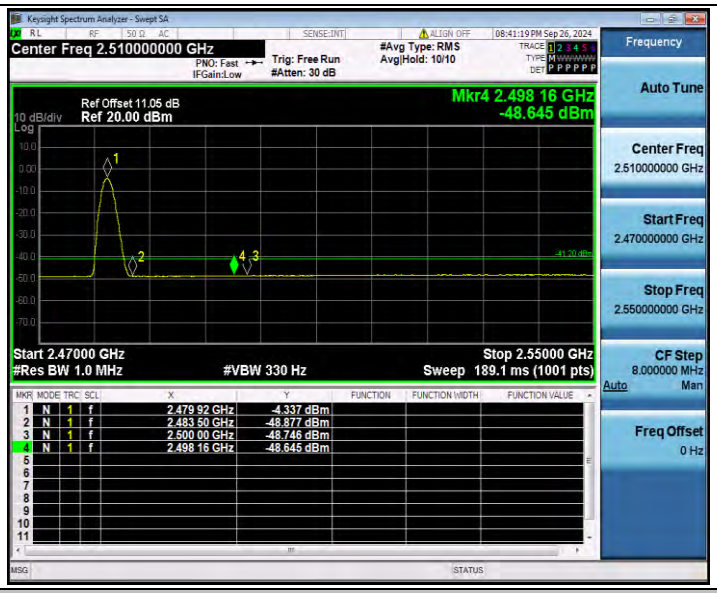
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH1	Ant1	Low	2402	AV	2310.000	-49.44	≤-41.20	45.76	≤54	PASS
				AV	2387.780	-48.87	≤-41.20	46.33	≤54	PASS
				AV	2390.000	-49.08	≤-41.20	46.12	≤54	PASS
				Peak	2310.000	-42.03	≤-21.20	53.17	≤74	PASS
				Peak	2312.180	-38.98	≤-21.20	56.22	≤74	PASS
				Peak	2390.000	-40.44	≤-21.20	54.76	≤74	PASS
		High	2480	AV	2483.500	-48.88	≤-41.20	46.32	≤54	PASS
				AV	2498.160	-48.65	≤-41.20	46.55	≤54	PASS
				AV	2500.000	-48.75	≤-41.20	46.45	≤54	PASS
				Peak	2483.500	-41.6	≤-21.20	53.60	≤74	PASS
				Peak	2490.560	-38.15	≤-21.20	57.05	≤74	PASS
				Peak	2500.000	-41.56	≤-21.20	53.64	≤74	PASS
2DH1	Ant1	Low	2402	AV	2310.000	-49.41	≤-41.20	45.79	≤54	PASS
				AV	2367.095	-48.91	≤-41.20	46.29	≤54	PASS
				AV	2390.000	-49.18	≤-41.20	46.02	≤54	PASS
				Peak	2310.000	-41.86	≤-21.20	53.34	≤74	PASS
				Peak	2344.730	-39.1	≤-21.20	56.10	≤74	PASS
				Peak	2390.000	-41.84	≤-21.20	53.36	≤74	PASS
		High	2480	AV	2483.500	-49.04	≤-41.20	46.16	≤54	PASS
				AV	2497.040	-48.67	≤-41.20	46.53	≤54	PASS
				AV	2500.000	-48.75	≤-41.20	46.45	≤54	PASS
				Peak	2483.500	-40.26	≤-21.20	54.94	≤74	PASS
				Peak	2484.400	-38.58	≤-21.20	56.62	≤74	PASS
				Peak	2500.000	-40.82	≤-21.20	54.38	≤74	PASS

Note：

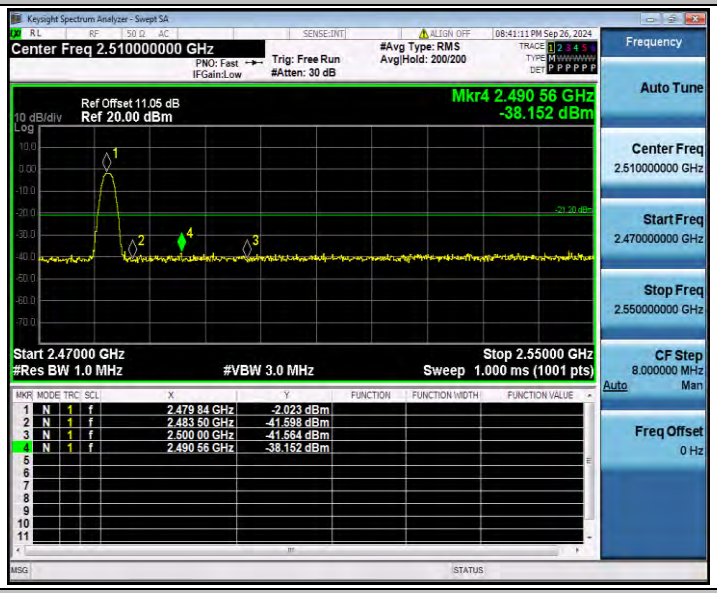
1. The Antenna Gain is compensated in the graph.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
3. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

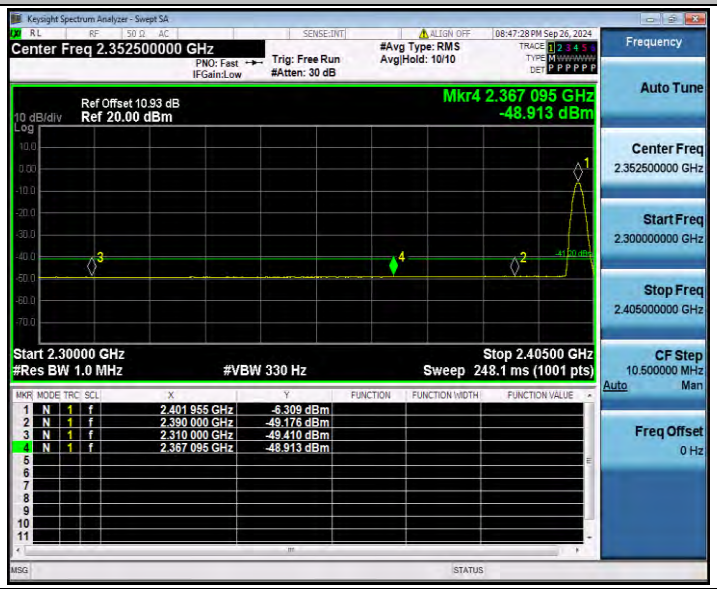
DH1_Ant1_Low_2402_AV

DH1_Ant1_Low_2402_Peak

DH1_Ant1_High_2480_AV

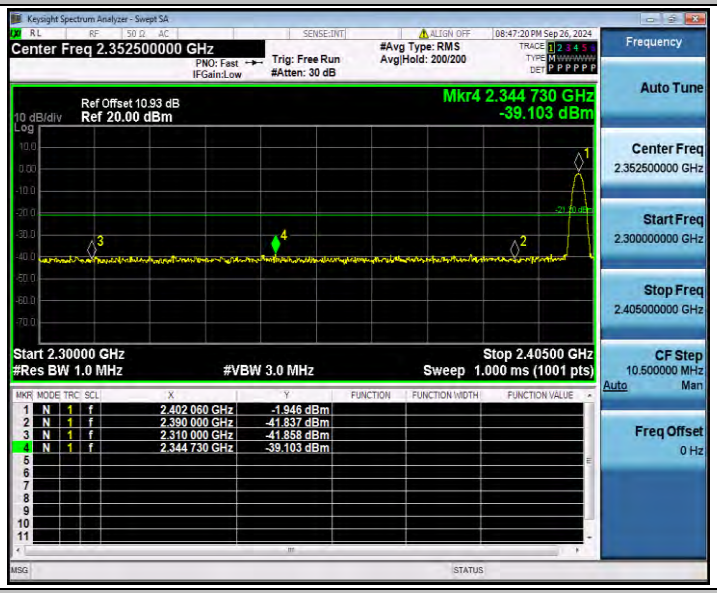
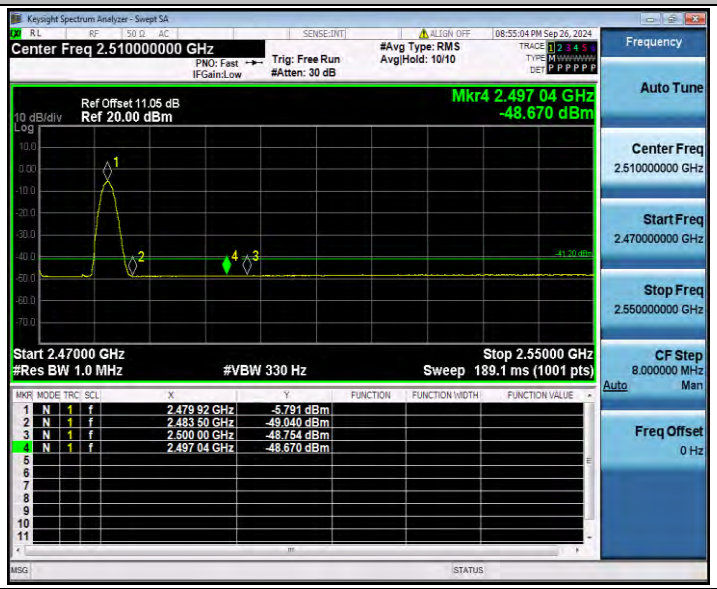


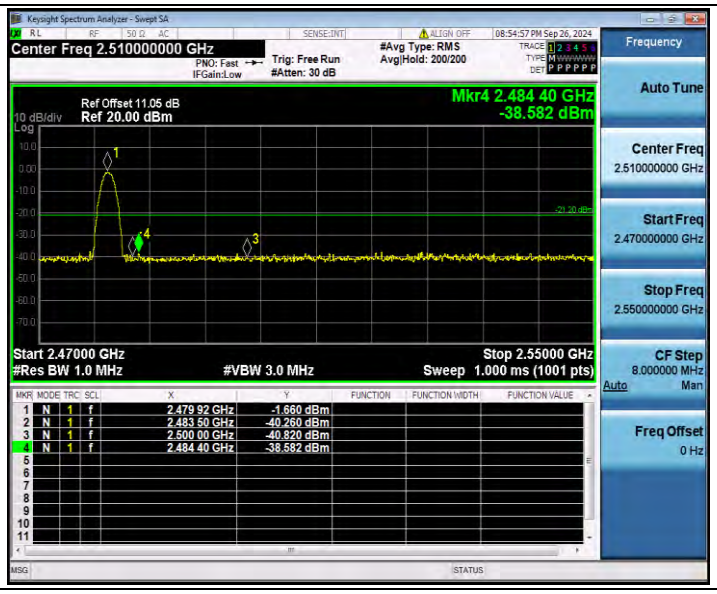
DH1_Ant1_High_2480_Peak



2DH1_Ant1_Low_2402_AV



2DH1_Ant1_Low_2402_Peak

2DH1_Ant1_High_2480_AV

2DH1_Ant1_High_2480_Peak


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.510000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 200/200
08:54:57 PM Sep 26, 2024
Frequency
Auto Tune
Ref Offset 11.05 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr4 2.484 40 GHz
-38.582 dBm
Center Freq
2.510000000 GHz
Start Freq
2.470000000 GHz
Stop Freq
2.550000000 GHz
Start 2.47000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 2.55000 GHz
Sweep 1.000 ms (1001 pts)
CF Step
8.000000 MHz
Auto
Man
Freq Offset
0 Hz
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 2.479 92 GHz -1.660 dBm
2 N 1 f 2.483 50 GHz -40.260 dBm
3 N 1 f 2.500 00 GHz -40.820 dBm
4 N 1 f 2.484 40 GHz -38.582 dBm
MSG
STATUS