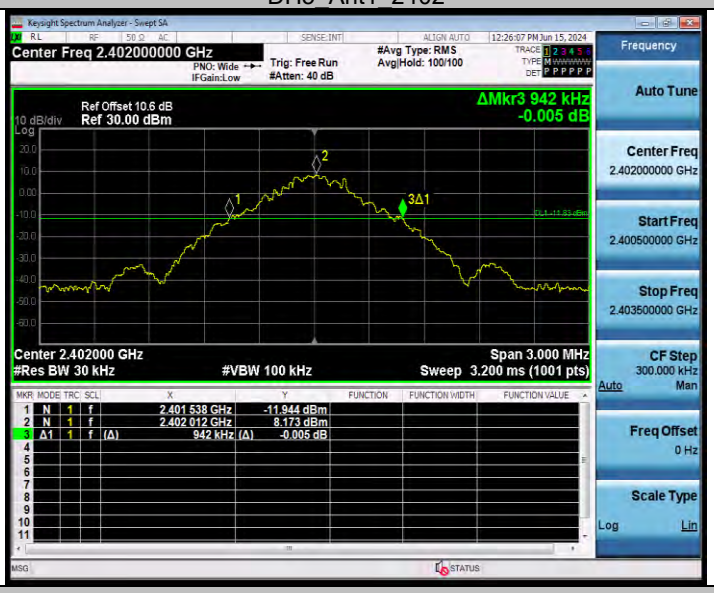
APPENDIX A:BT

20DB EMISSION BANDWIDTH
TEST RESULT

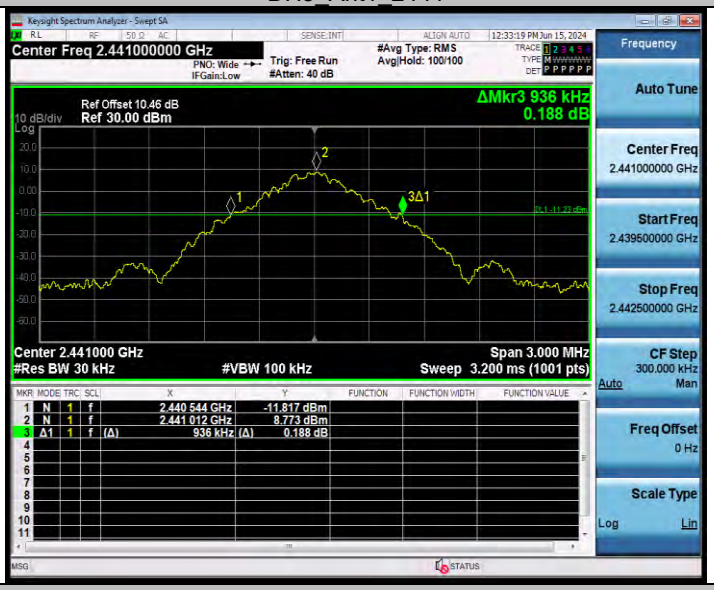
TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.942	2401.538	2402.480	---	---
		2441	0.936	2440.544	2441.480	---	---
		2480	0.939	2479.544	2480.483	---	---
2DH5	Ant1	2402	1.329	2401.331	2402.660	---	---
		2441	1.362	2440.319	2441.681	---	---
		2480	1.350	2479.322	2480.672	---	---
3DH5	Ant1	2402	1.290	2401.364	2402.654	---	---
		2441	1.335	2440.328	2441.663	---	---
		2480	1.338	2479.325	2480.663	---	---

TEST GRAPHS

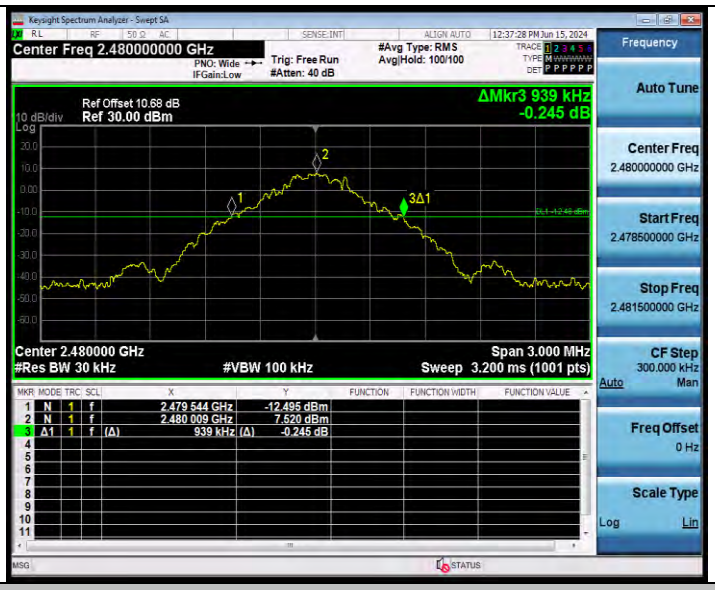
DH5_Ant1_2402



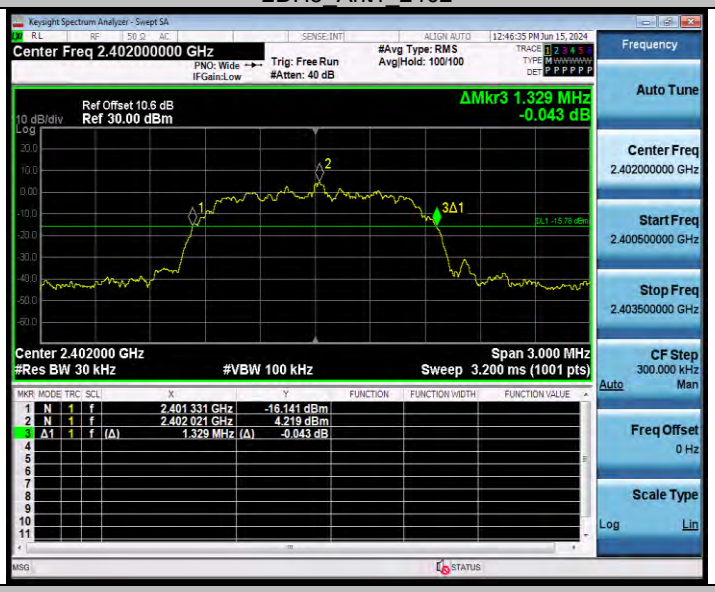
DH5_Ant1_2441



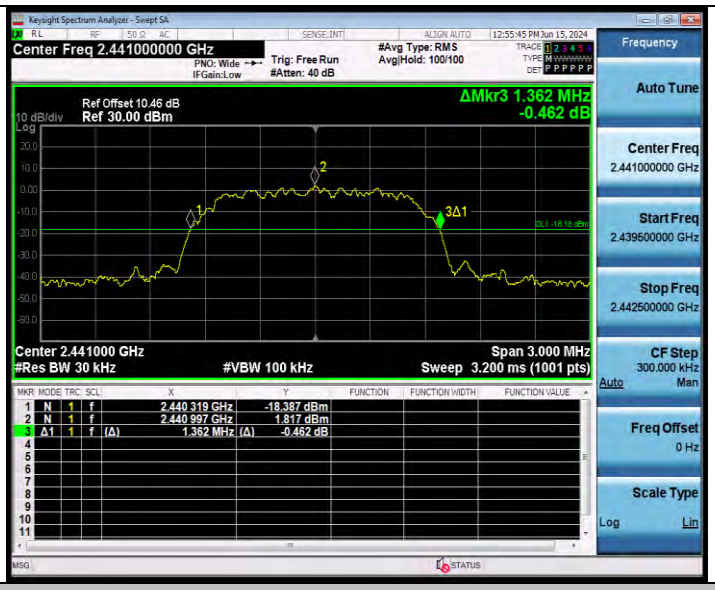
DH5_Ant1_2480



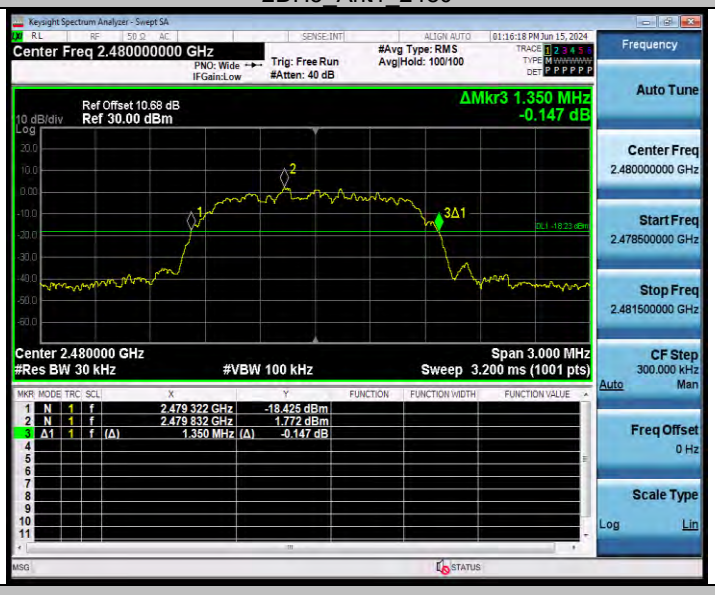
2DH5_Ant1_2402



2DH5_Ant1_2441

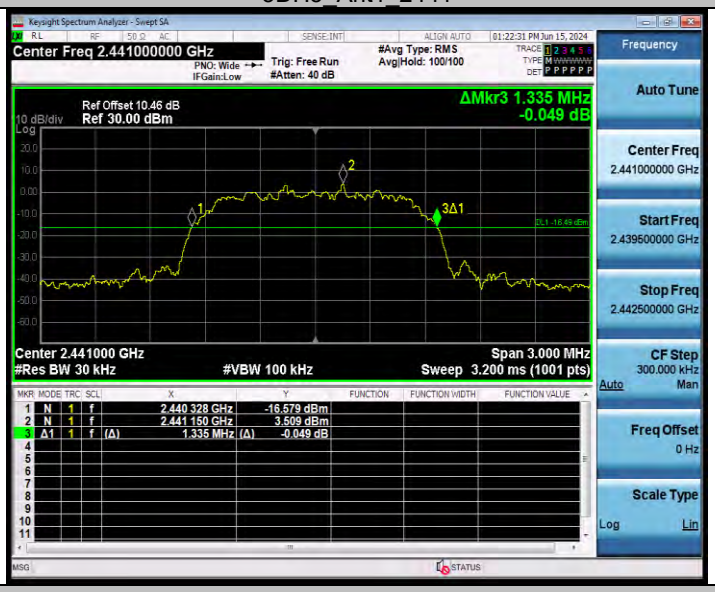


2DH5_Ant1_2480



3DH5_Ant1_2402

3DH5_Ant1_2441



3DH5_Ant1_2480

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold: 100/100
01:25:23 PM Jun 15, 2024
Ref Offset 10.68 dB
10 dB/div
Ref 30.00 dBm
Log
ΔMkr3 1.338 MHz
0.093 dB
Center 2.480000 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3.000 MHz
Sweep 3.200 ms (1001 pts)
1 N 1 f 2.479 325 GHz -17.623 dBm
2 N 1 f 2.480 153 GHz 2.631 dBm
3 Δ1 1 f (Δ) 1.338 MHz (Δ) 0.093 dB
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.481500000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

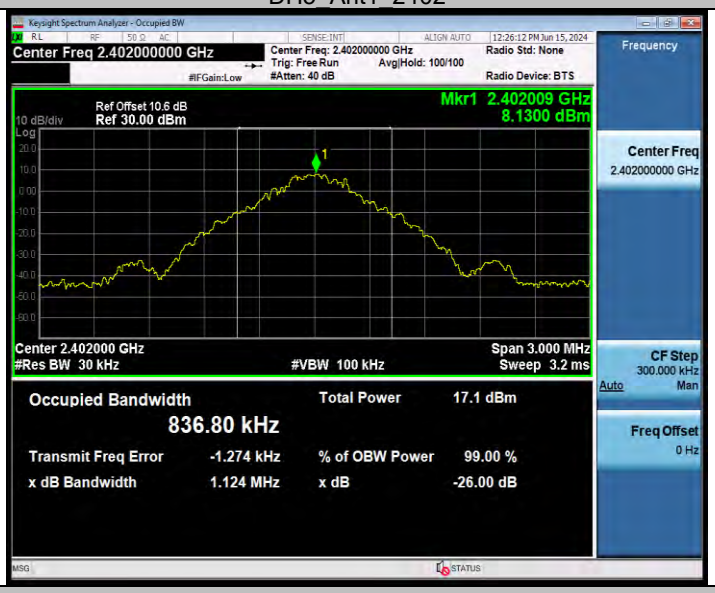
OCCUPIED CHANNEL BANDWIDTH

TEST RESULT

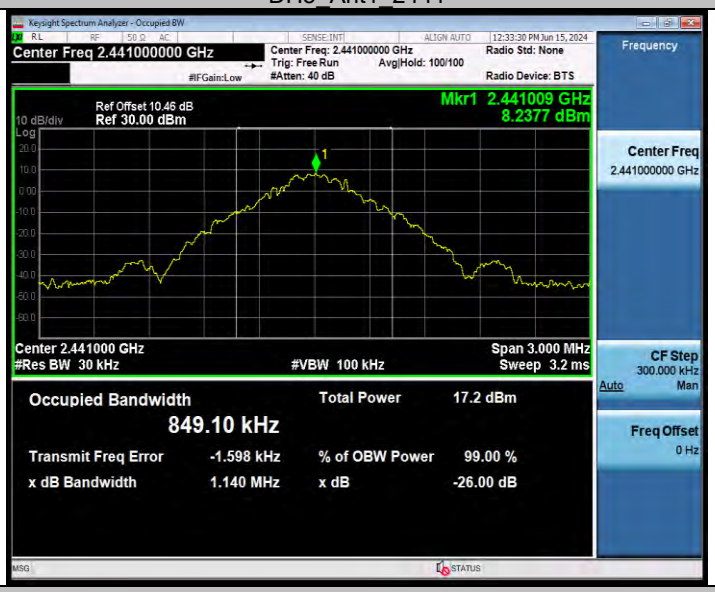
TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.83680	2401.5803	2402.4171	---	---
		2441	0.84910	2440.5739	2441.4230	---	---
		2480	0.84072	2479.5746	2480.4153	---	---
2DH5	Ant1	2402	1.2009	2401.4001	2402.6010	---	---
		2441	1.1873	2440.4034	2441.5907	---	---
		2480	1.1926	2479.4007	2480.5933	---	---
3DH5	Ant1	2402	1.1890	2401.4024	2402.5914	---	---
		2441	1.1936	2440.4013	2441.5949	---	---
		2480	1.1859	2479.4027	2480.5886	---	---

TEST GRAPHS

DH5_Ant1_2402



DH5_Ant1_2441



DH5_Ant1_2480

2DH5_Ant1_2402

2DH5_Ant1_2441

2DH5_Ant1_2480

3DH5_Ant1_2402

3DH5_Ant1_2441

3DH5_Ant1_2480

Keysight Spectrum Analyzer - Occupied BW
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
01:25:35 PM Jun 15, 2024
Frequency
Ref Offset 10.68 dB
10 dB/div
Ref 30.00 dBm
Mkr1 2.48003 GHz
4.2030 dBm
Center Freq
2.480000000 GHz
Center 2.480000 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3.000 MHz
Sweep 3.2 ms
CF Step
300.000 kHz
Auto
Man
Occupied Bandwidth
1.1859 MHz
Total Power
13.6 dBm
Transmit Freq Error
-4.400 kHz
% of OBW Power
99.00 %
x dB Bandwidth
1.377 MHz
x dB
-26.00 dB
Freq Offset
0 Hz
MSG
STATUS

MAXIMUM CONDUCTED OUTPUT POWER
TEST RESULT

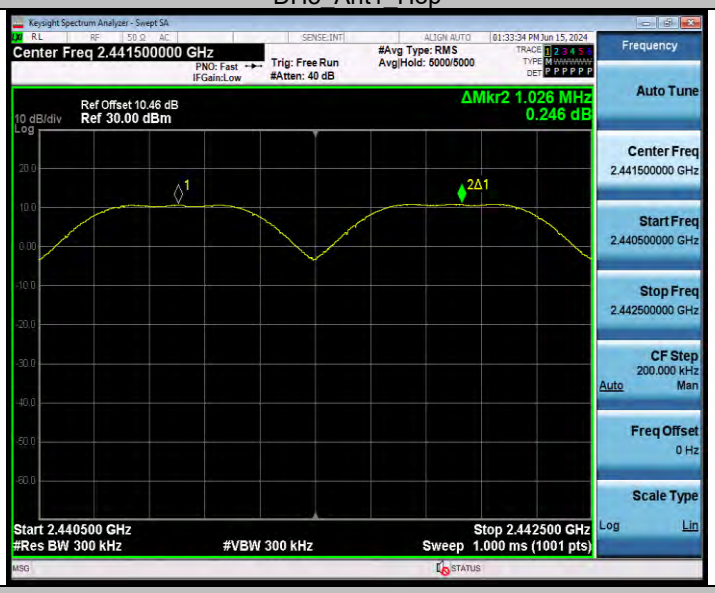
TestMode	Antenna	Frequency [MHz]	Average power [dBm]	Peak Power [dBm]	Peak power [mw]	Conducted Limit [dBm]	Verdict	Power Setting
DH5	Ant1	2402	10.1	10.09	10.21	≤20.97	PASS	Defult
		2441	10.97	10.96	12.47	≤20.97	PASS	Defult
		2480	9.66	9.67	9.27	≤20.97	PASS	Defult
2DH5	Ant1	2402	6.81	9.24	8.39	≤20.97	PASS	Defult
		2441	7.71	10.13	10.30	≤20.97	PASS	Defult
		2480	6.32	8.76	7.52	≤20.97	PASS	Defult
3DH5	Ant1	2402	6.8	9.54	8.99	≤20.97	PASS	Defult
		2441	7.7	10.46	11.12	≤20.97	PASS	Defult
		2480	6.31	9.11	8.15	≤20.97	PASS	Defult

CARRIER FREQUENCY SEPARATION
TEST RESULT

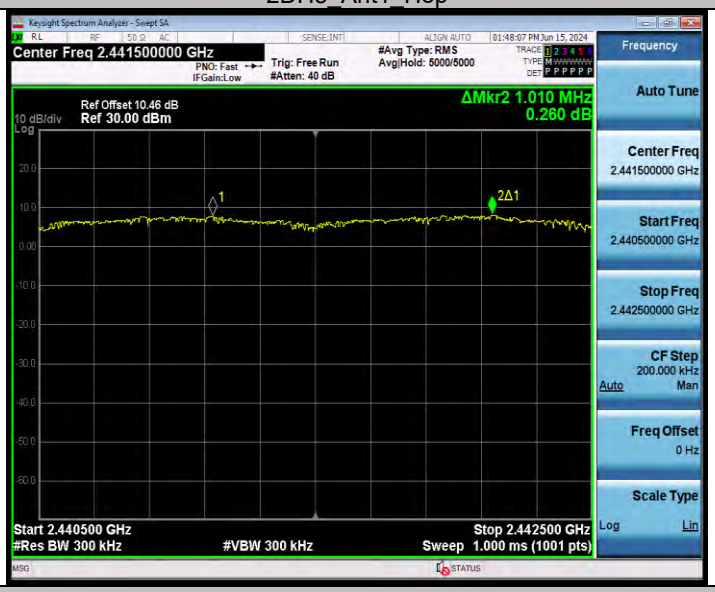
TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.026	≥0.942	PASS
2DH5	Ant1	Hop	1.01	≥0.908	PASS
3DH5	Ant1	Hop	1.156	≥0.892	PASS

TEST GRAPHS

DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441500000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold: 5000/5000
01:51:09 PM Jun 15, 2024
Ref Offset 10.46 dB
10 dB/div
Ref 30.00 dBm
Log
ΔMkr2 1.156 MHz
0.351 dB
Start 2.440500 GHz
#Res BW 300 kHz
#VBW 300 kHz
Stop 2.442500 GHz
Sweep 1.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.441500000 GHz
Start Freq
2.440500000 GHz
Stop Freq
2.442500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

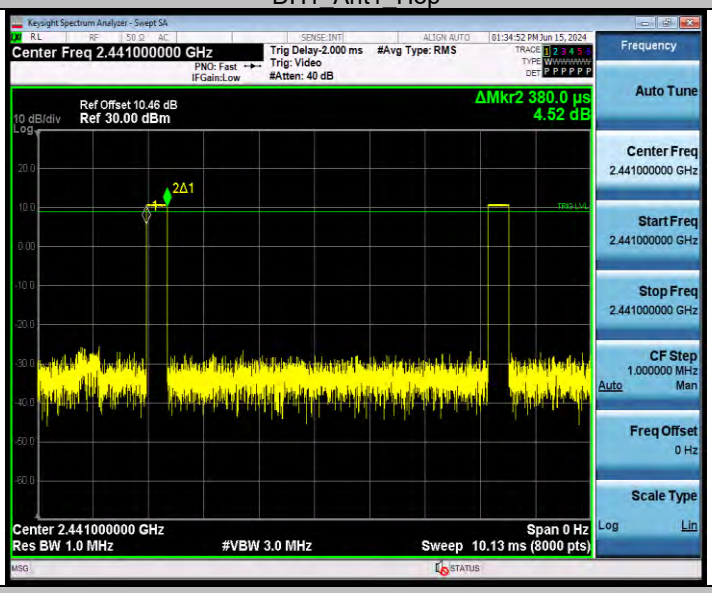
TIME OF OCCUPANCY
TEST RESULT

TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.380	320	0.122	≤0.4	PASS
DH3	Ant1	Hop	1.637	160	0.262	≤0.4	PASS
DH5	Ant1	Hop	2.884	106.67	0.308	≤0.4	PASS
2DH1	Ant1	Hop	0.386	320	0.124	≤0.4	PASS
2DH3	Ant1	Hop	1.638	160	0.262	≤0.4	PASS
2DH5	Ant1	Hop	2.885	106.67	0.308	≤0.4	PASS
3DH1	Ant1	Hop	0.386	320	0.124	≤0.4	PASS
3DH3	Ant1	Hop	1.637	160	0.262	≤0.4	PASS
3DH5	Ant1	Hop	2.888	106.67	0.308	≤0.4	PASS

NOTE: TotalHops =[1600/(Send and receive Number*79)]*0.4*79;
Send and receive Number : DH1/2DH1/3DH1=2; DH3/2DH3/3DH3=4; DH5/2DH5/3DH5=6

TEST GRAPHS

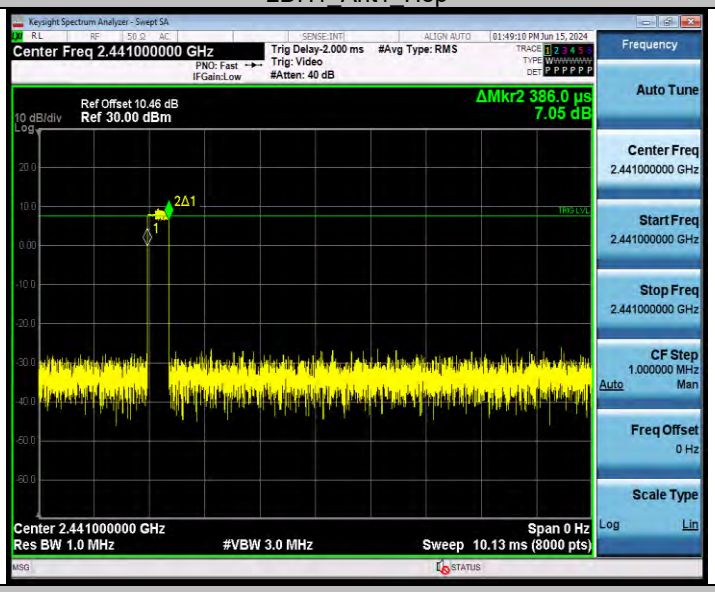
DH1_Ant1_Hop



DH3_Ant1_Hop

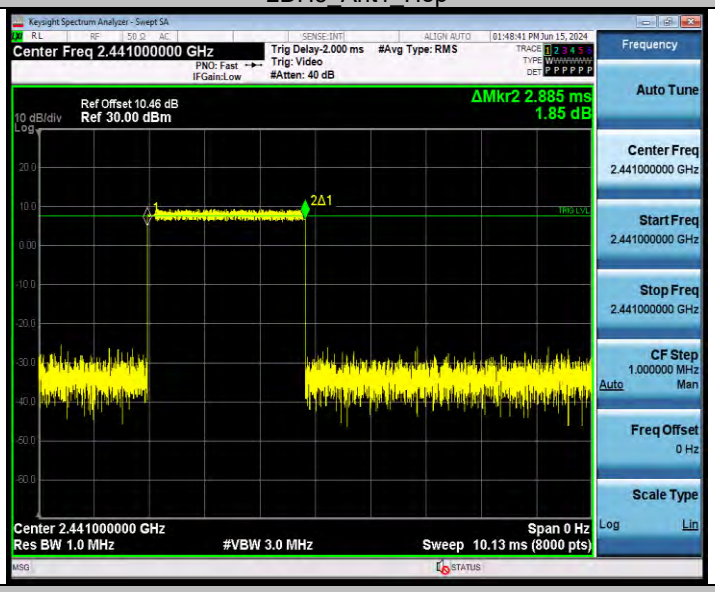
DH5_Ant1_Hop

2DH1_Ant1_Hop



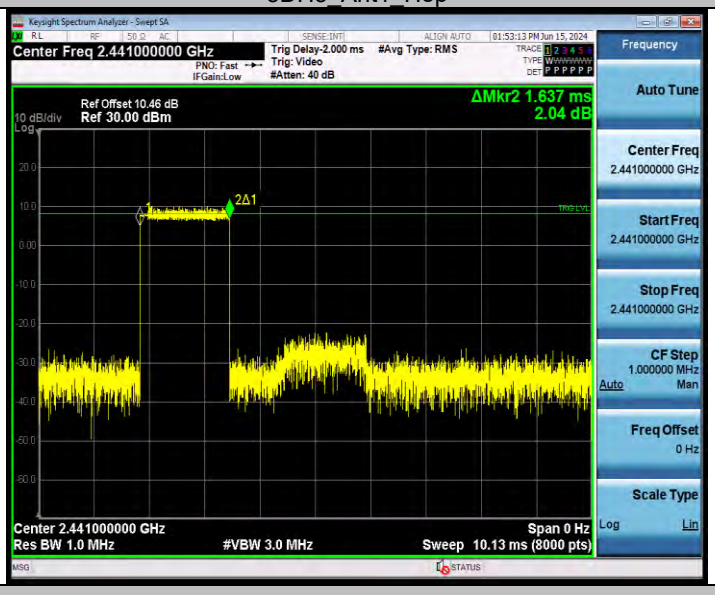
2DH3_Ant1_Hop

2DH5_Ant1_Hop



3DH1_Ant1_Hop

3DH3_Ant1_Hop



3DH5_Ant1_Hop

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig Delay-2.000 ms
Trig: Video
#Atten: 40 dB
#Avg Type: RMS
01:51:47 PM Jun 15, 2024
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
Scale Type
Log
Lin
Ref Offset 10.46 dB
10 dB/div
Ref 30.00 dBm
Log
ΔMkr2 2.888 ms
6.74 dB
2Δ1
1
Center 2.441000000 GHz
Span 0 Hz
Res BW 1.0 MHz
#VBW 3.0 MHz
Sweep 10.13 ms (8000 pts)

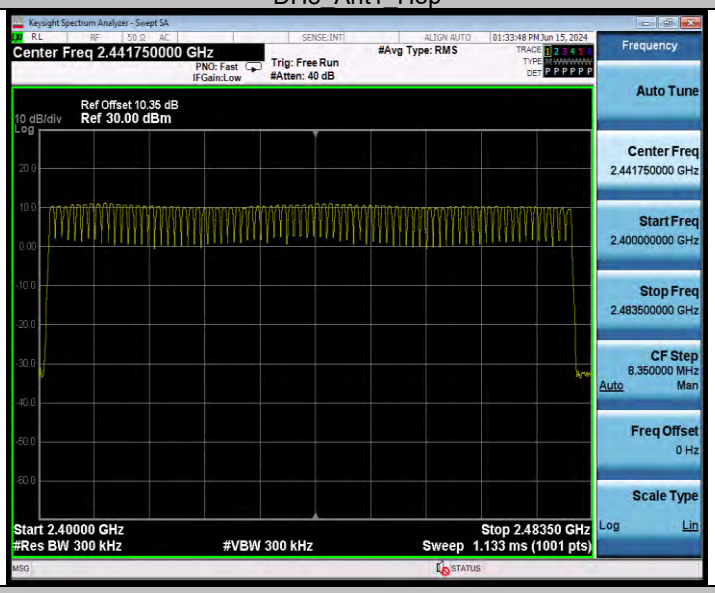
NUMBER OF HOPPING CHANNELS

TEST RESULT

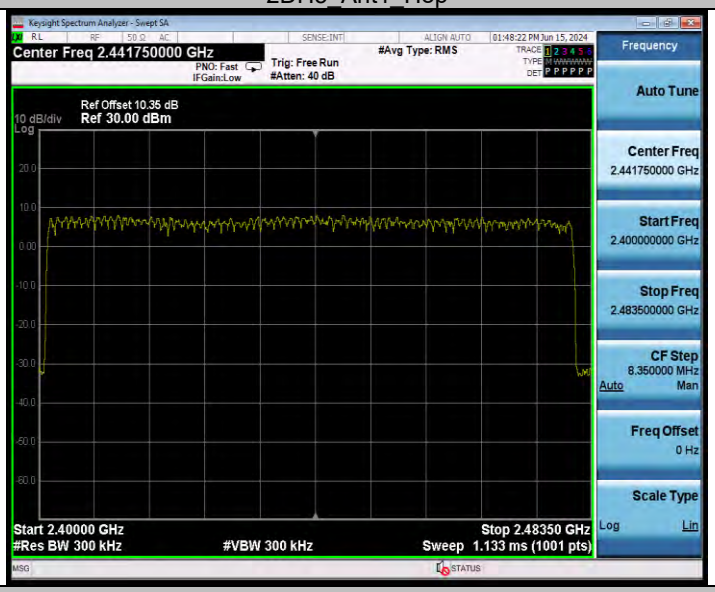
TestMode	Antenna	Frequency[MHz]	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

TEST GRAPHS

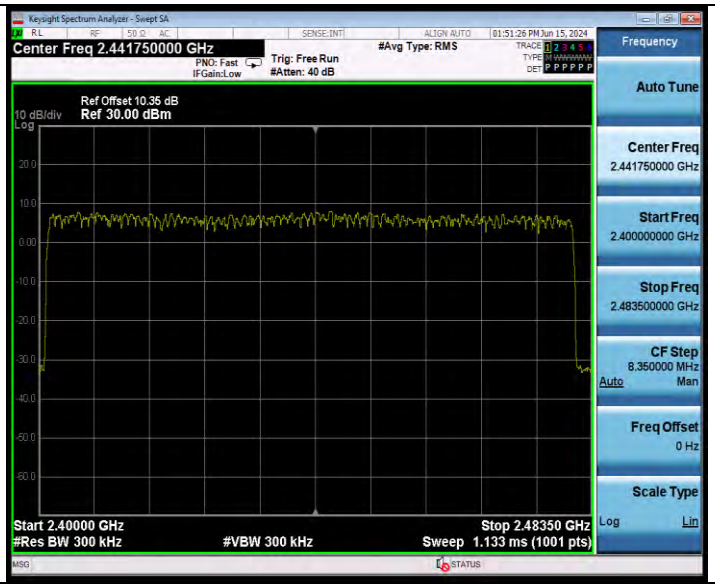
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441750000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
01:51:26 PM Jun 15, 2024
Ref Offset 10.35 dB
10 dB/div
Ref 30.00 dBm
Log
Start 2.40000 GHz
#Res BW 300 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 1.133 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.441750000 GHz
Start Freq
2.400000000 GHz
Stop Freq
2.483500000 GHz
CF Step
8.350000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

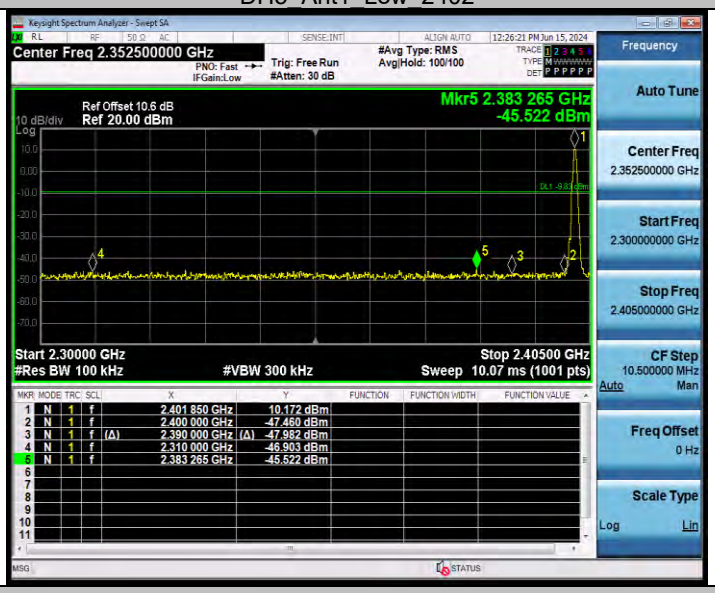
BAND EDGE MEASUREMENTS

TEST RESULT

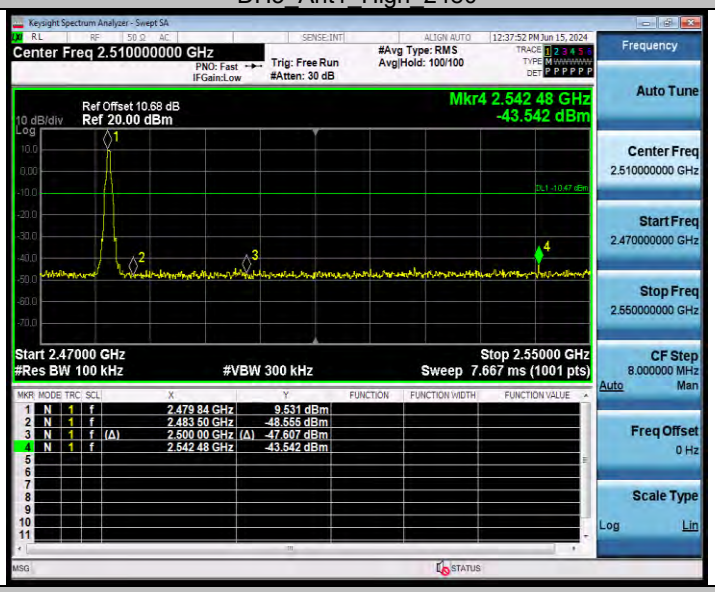
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	10.17	-45.52	≤-9.83	PASS
		High	2480	9.53	-43.54	≤-10.47	PASS
		Low	Hop_2402	9.60	-45.67	≤-10.41	PASS
		High	Hop_2480	10.29	-44.59	≤-9.71	PASS
2DH5	Ant1	Low	2402	7.04	-45.13	≤-12.96	PASS
		High	2480	6.78	-44.41	≤-13.23	PASS
		Low	Hop_2402	2.32	-44.99	≤-17.68	PASS
		High	Hop_2480	4.57	-45	≤-15.44	PASS
3DH5	Ant1	Low	2402	6.92	-45.38	≤-13.08	PASS
		High	2480	6.32	-45.15	≤-13.68	PASS
		Low	Hop_2402	0.26	-45.65	≤-19.74	PASS
		High	Hop_2480	4.77	-43.79	≤-15.23	PASS

TEST GRAPHS

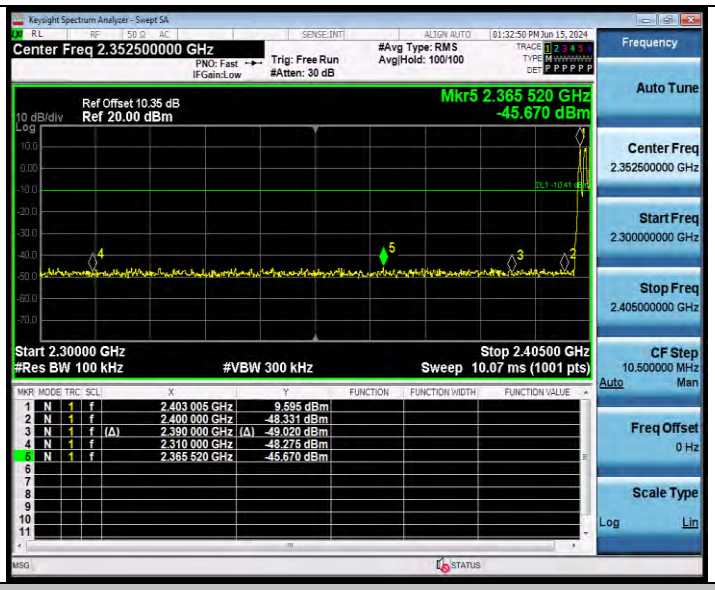
DH5_Ant1_Low_2402



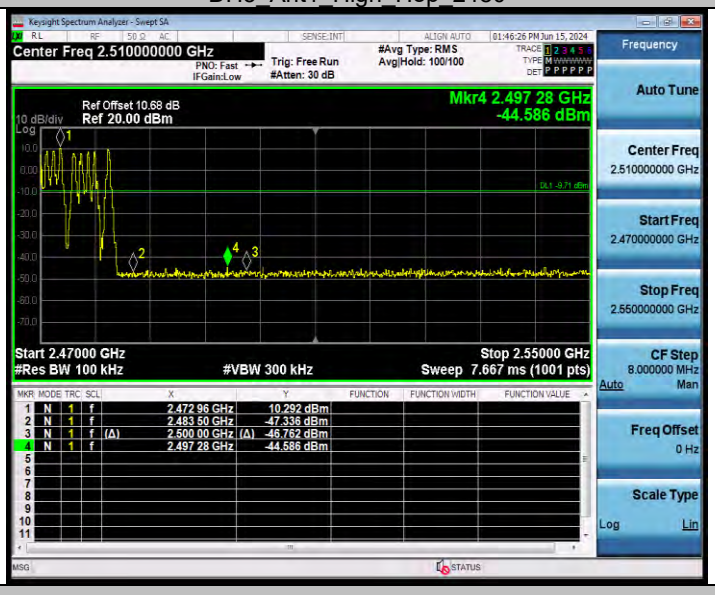
DH5_Ant1_High_2480



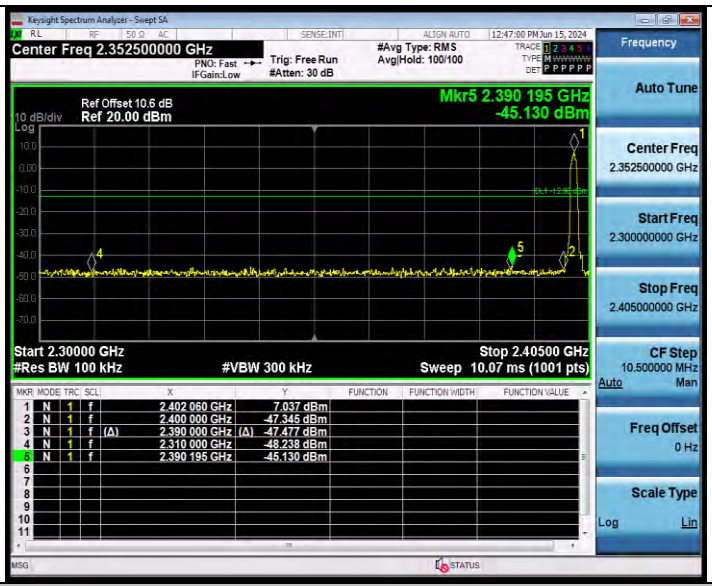
DH5_Ant1_Low_Hop_2402



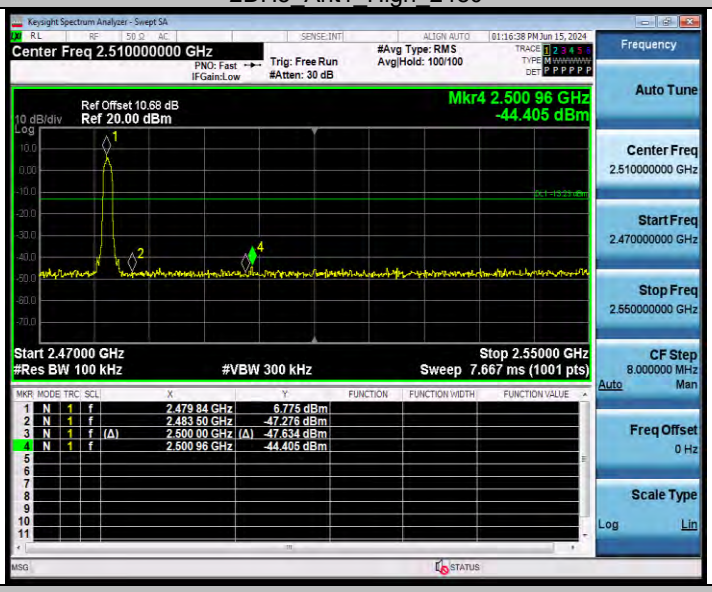
DH5_Ant1_High_Hop_2480



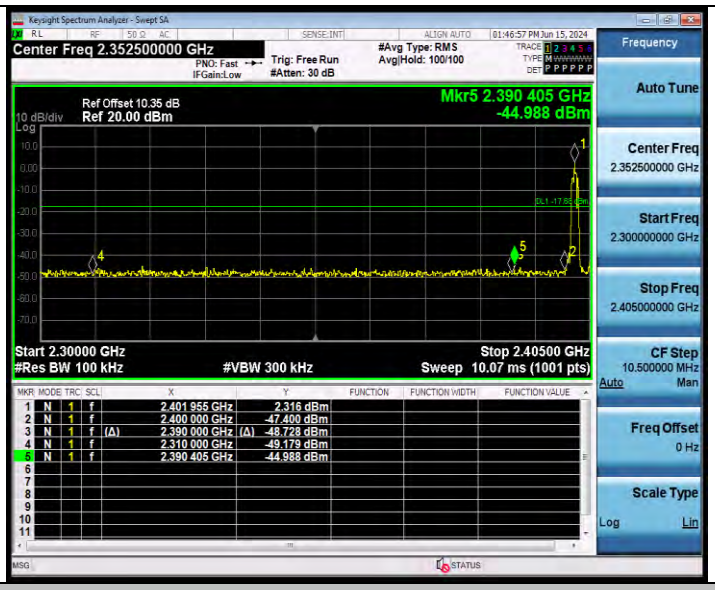
2DH5_Ant1_Low_2402



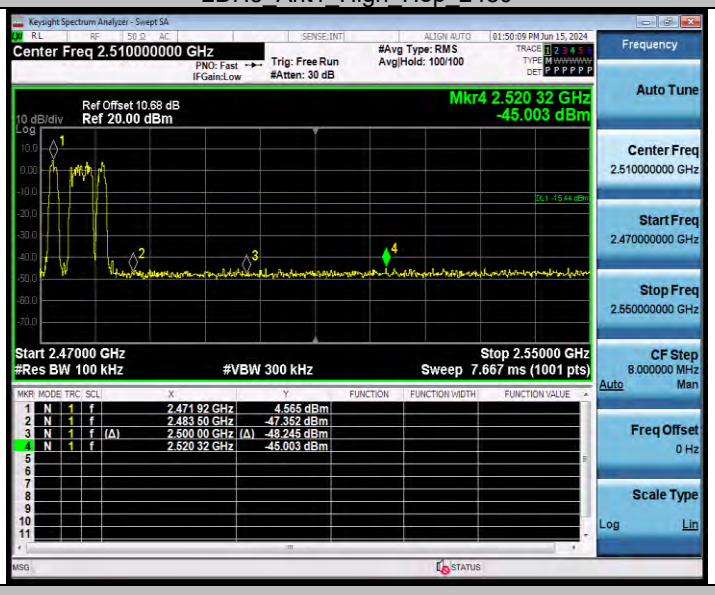
2DH5_Ant1_High_2480



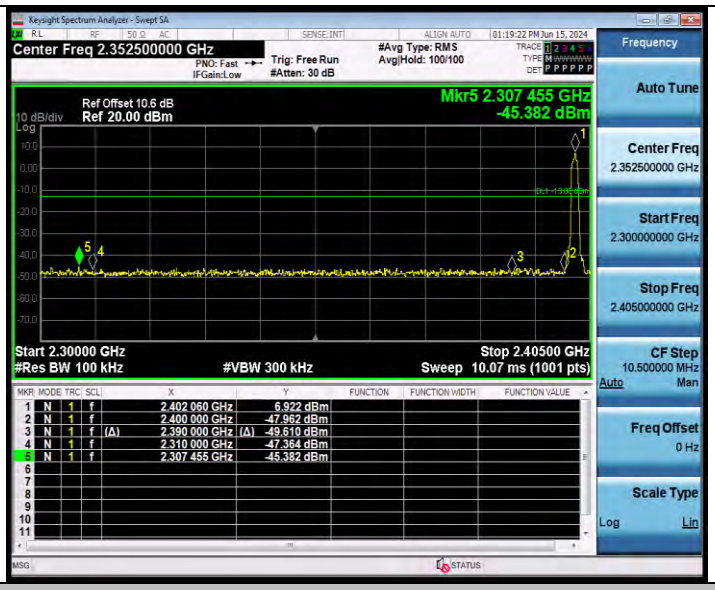
2DH5_Ant1_Low_Hop_2402



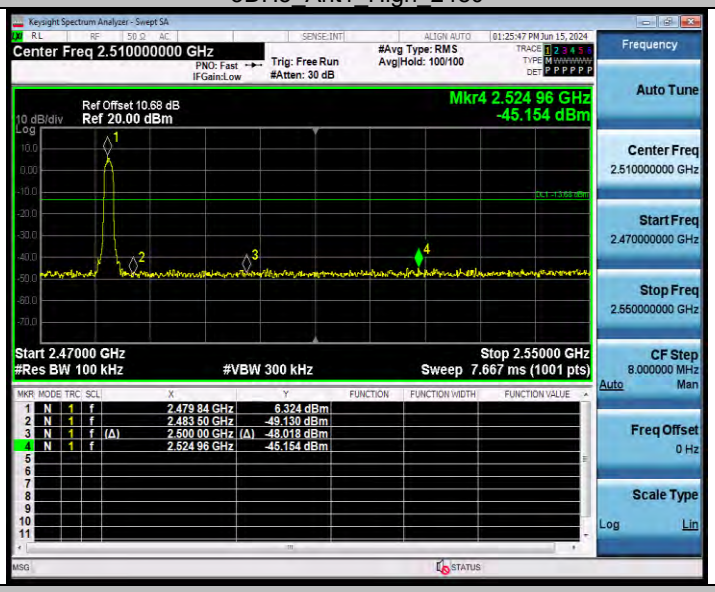
2DH5_Ant1_High_Hop_2480



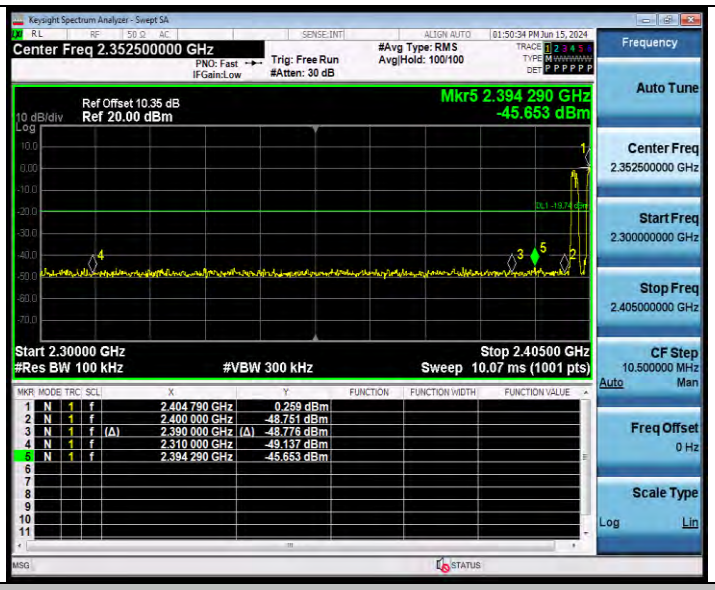
3DH5_Ant1_Low_2402



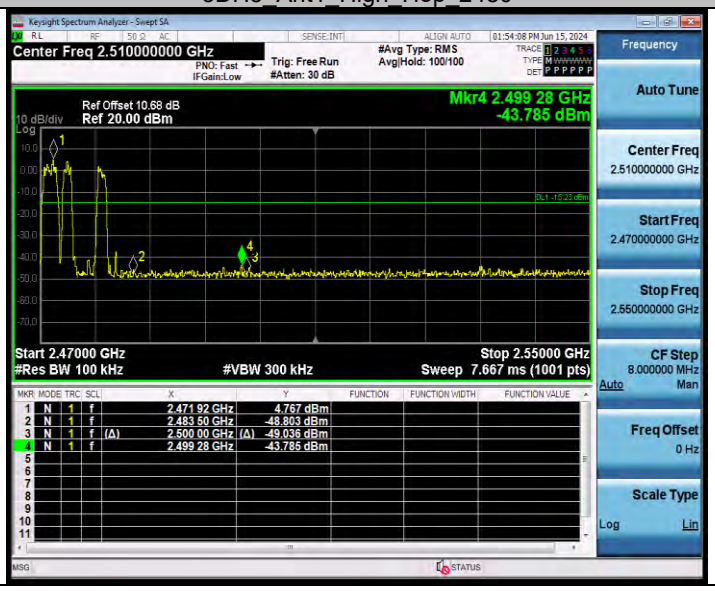
3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480

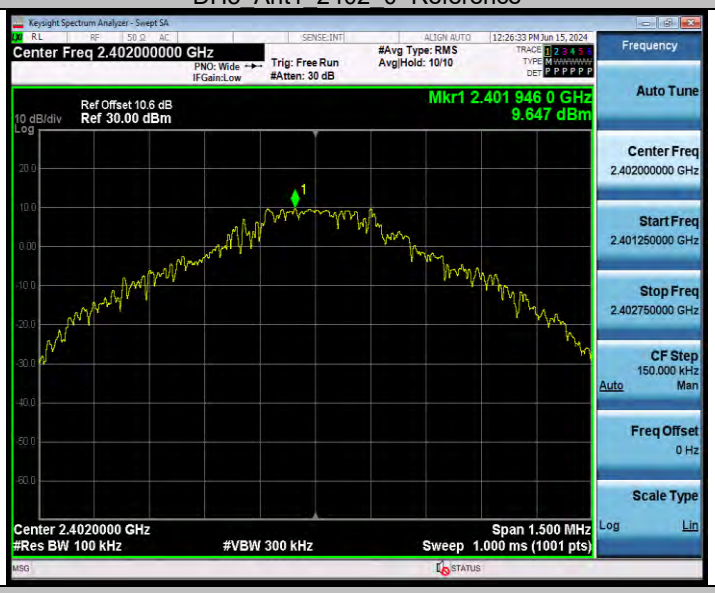


CONDUCTED SPURIOUS EMISSION
TEST RESULT

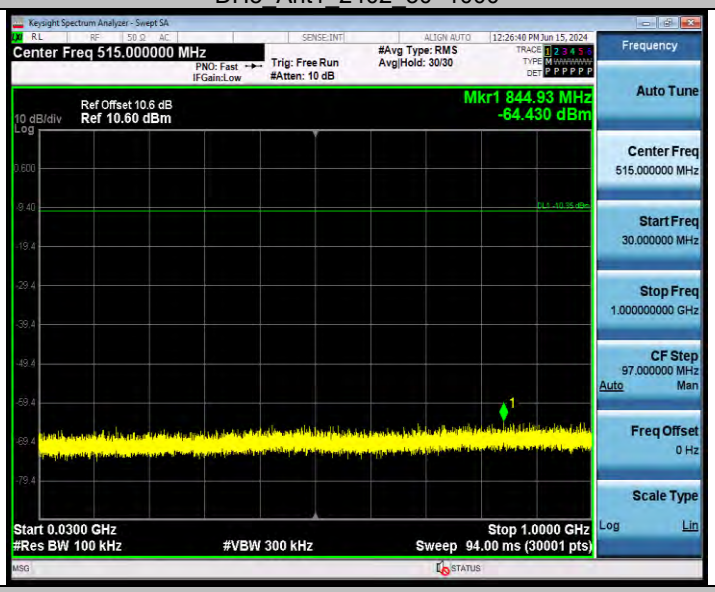
TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	9.65	9.65	---	PASS
			30~1000	9.65	-64.43	≤-10.35	PASS
			1000~26500	9.65	-45.02	≤-10.35	PASS
		2441	Reference	9.70	9.70	---	PASS
			30~1000	9.70	-63.88	≤-10.3	PASS
			1000~26500	9.70	-44.56	≤-10.3	PASS
		2480	Reference	9.14	9.14	---	PASS
			30~1000	9.14	-63.8	≤-10.86	PASS
			1000~26500	9.14	-44.47	≤-10.86	PASS
2DH5	Ant1	2402	Reference	7.35	7.35	---	PASS
			30~1000	7.35	-63.77	≤-12.65	PASS
			1000~26500	7.35	-45.18	≤-12.65	PASS
		2441	Reference	6.67	6.67	---	PASS
			30~1000	6.67	-64.83	≤-13.33	PASS
			1000~26500	6.67	-45.09	≤-13.33	PASS
		2480	Reference	3.87	3.87	---	PASS
			30~1000	3.87	-63.44	≤-16.13	PASS
			1000~26500	3.87	-45.12	≤-16.13	PASS
3DH5	Ant1	2402	Reference	5.45	5.45	---	PASS
			30~1000	5.45	-63.94	≤-14.55	PASS
			1000~26500	5.45	-44.71	≤-14.55	PASS
		2441	Reference	7.55	7.55	---	PASS
			30~1000	7.55	-64.21	≤-12.45	PASS
			1000~26500	7.55	-45.28	≤-12.45	PASS
		2480	Reference	6.75	6.75	---	PASS
			30~1000	6.75	-64.33	≤-13.25	PASS
			1000~26500	6.75	-44.12	≤-13.25	PASS

TEST GRAPHS

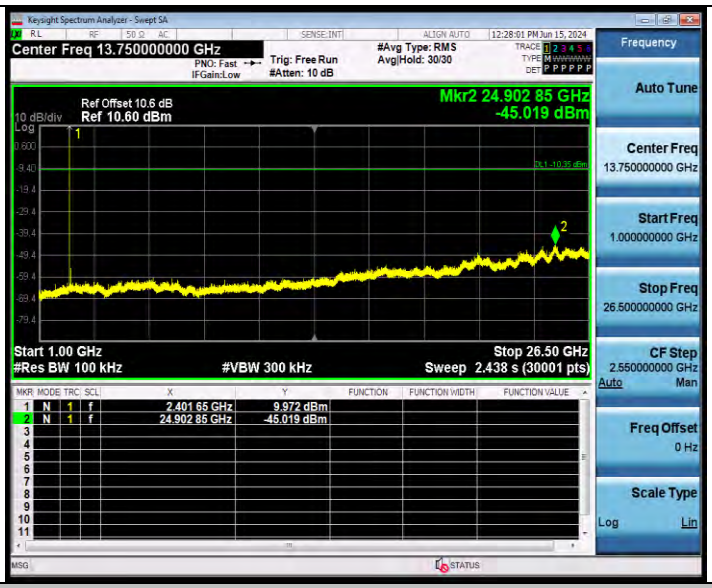
DH5_Ant1_2402_0~Reference



DH5_Ant1_2402_30~1000



DH5_Ant1_2402_1000~26500



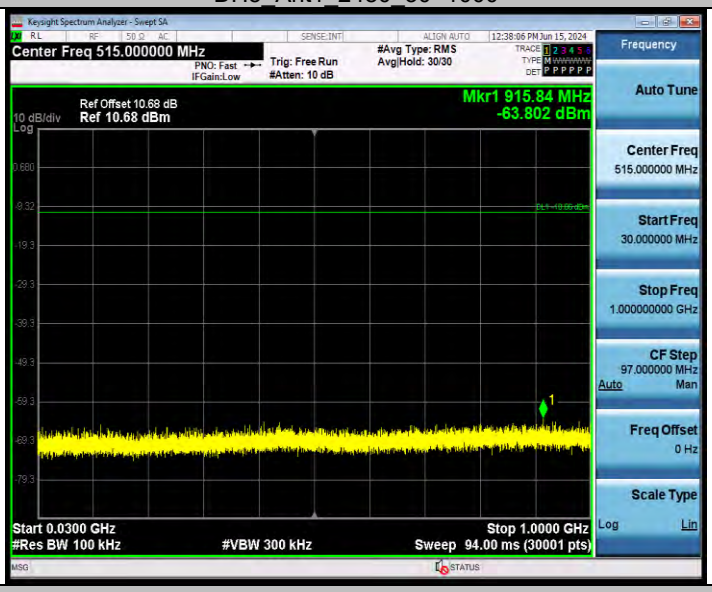
DH5_Ant1_2441_0~Reference

DH5_Ant1_2441_30~1000

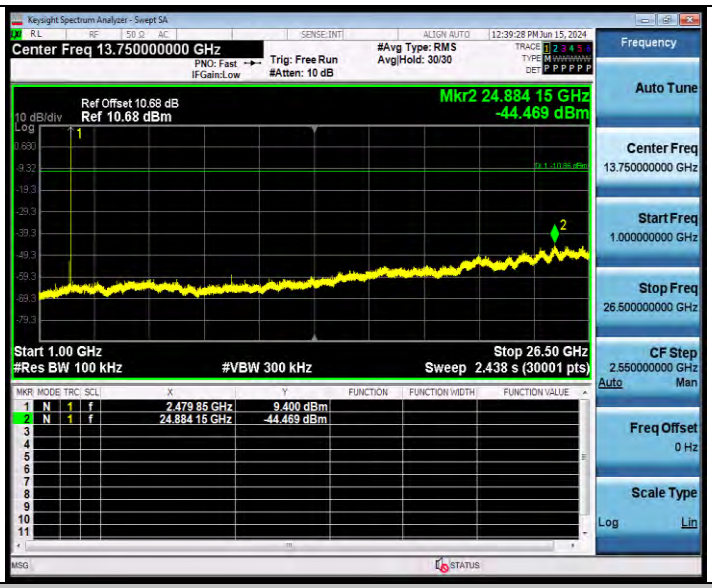
DH5_Ant1_2441_1000~26500

DH5_Ant1_2480_0~Reference

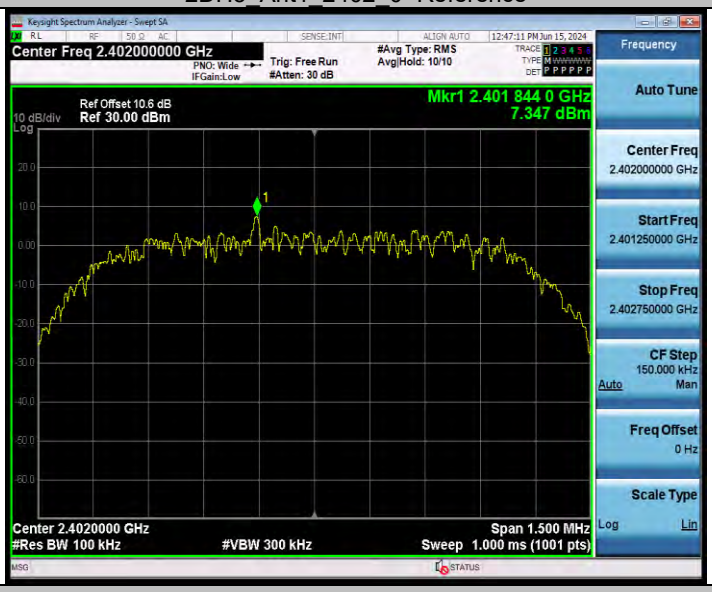
DH5_Ant1_2480_30~1000



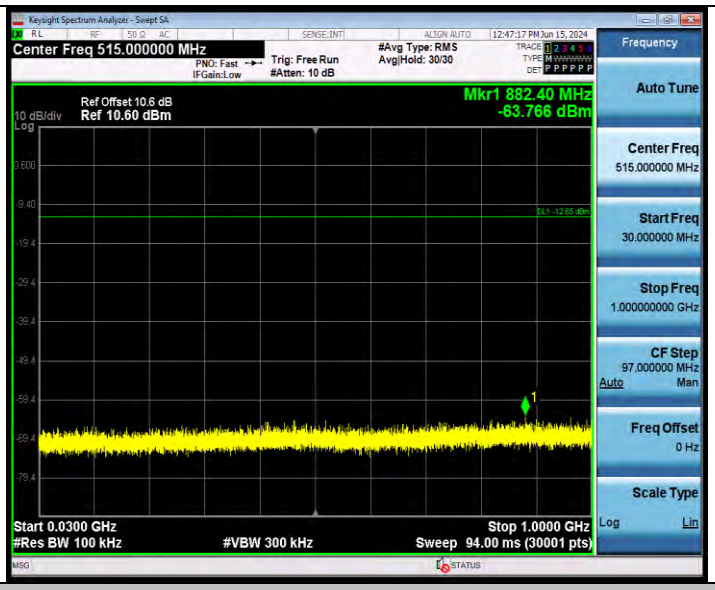
DH5_Ant1_2480_1000~26500



2DH5_Ant1_2402_0~Reference



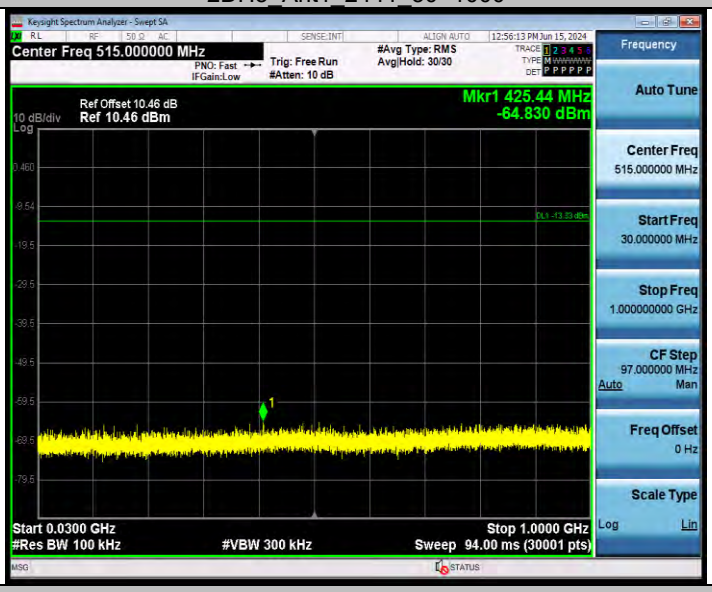
2DH5_Ant1_2402_30~1000



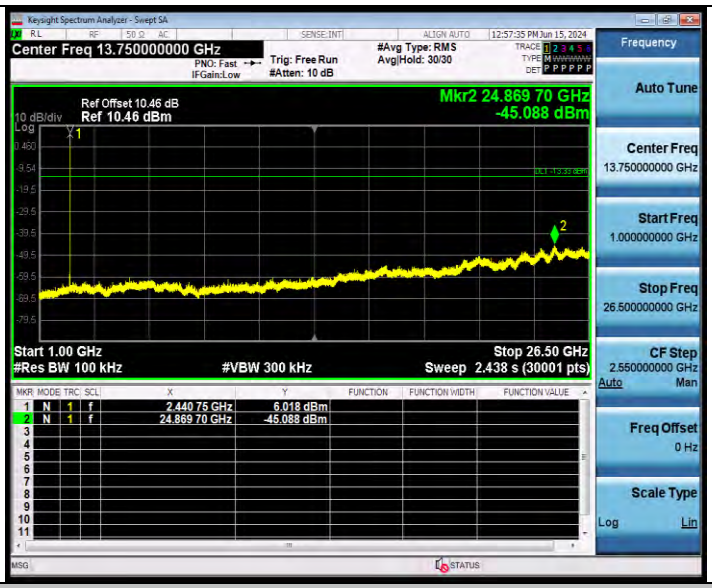
2DH5_Ant1_2402_1000~26500

2DH5_Ant1_2441_0~Reference

2DH5_Ant1_2441_30~1000

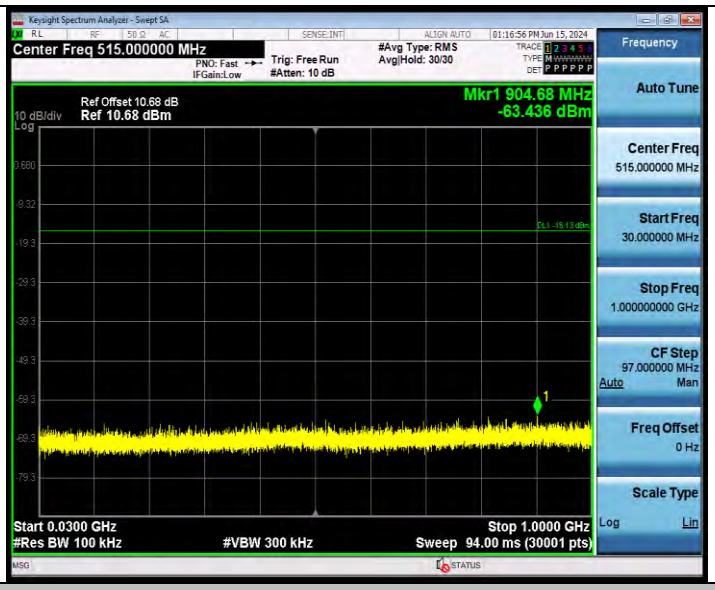


2DH5_Ant1_2441_1000~26500

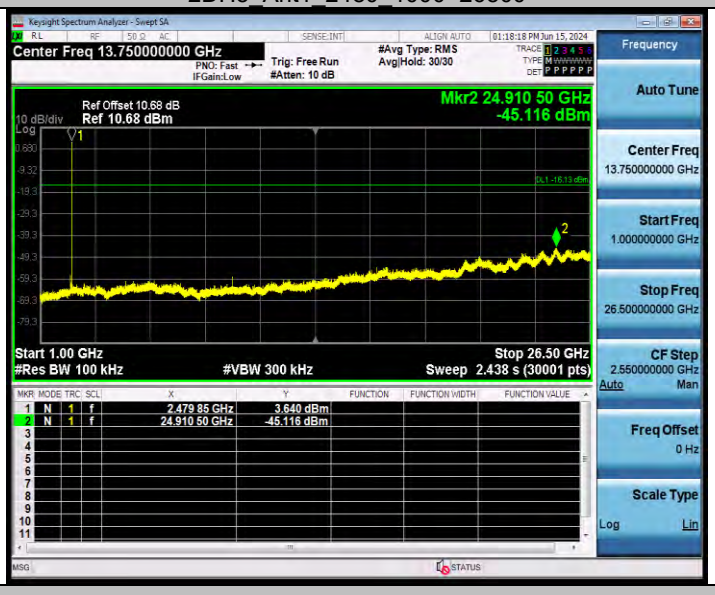


2DH5_Ant1_2480_0~Reference

2DH5_Ant1_2480_30~1000

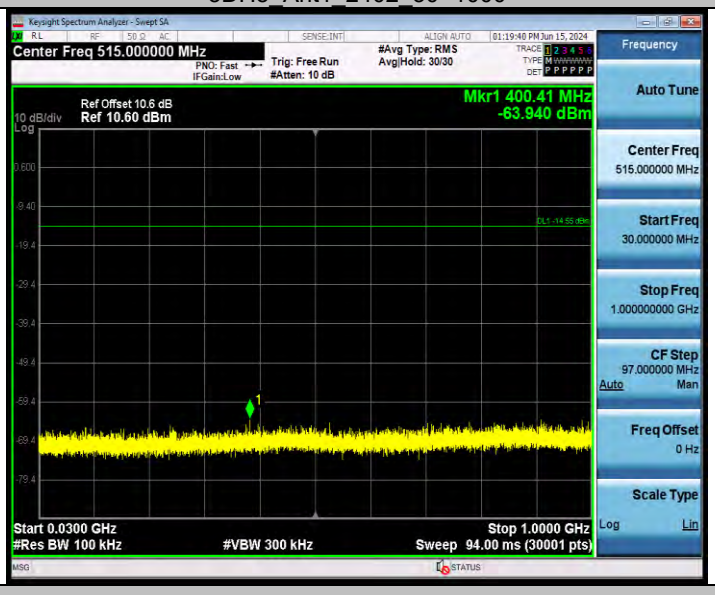


2DH5_Ant1_2480_1000~26500

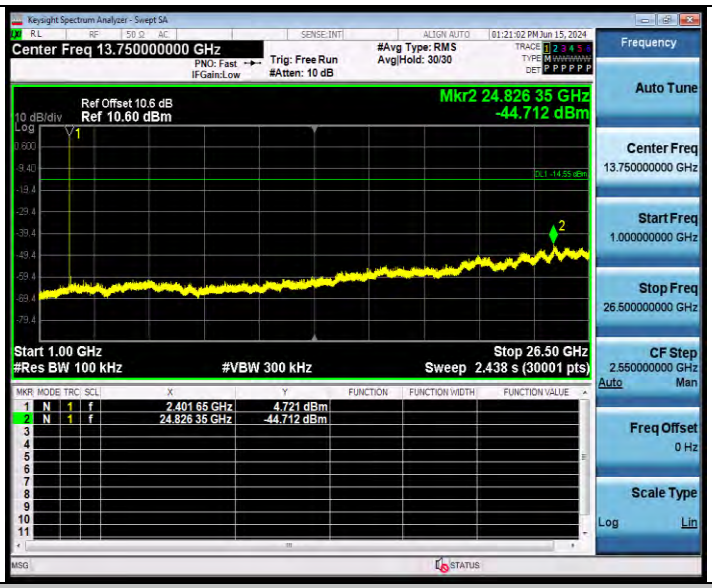


3DH5_Ant1_2402_0~Reference

3DH5_Ant1_2402_30~1000

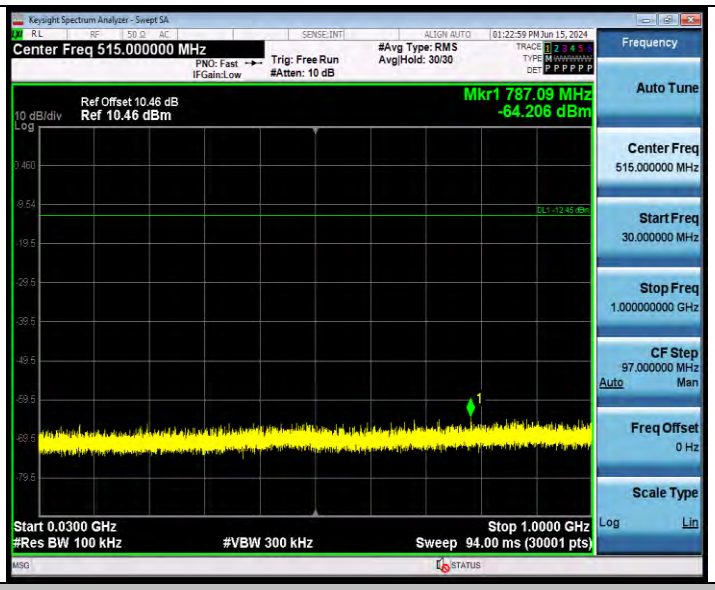


3DH5_Ant1_2402_1000~26500



3DH5_Ant1_2441_0~Reference

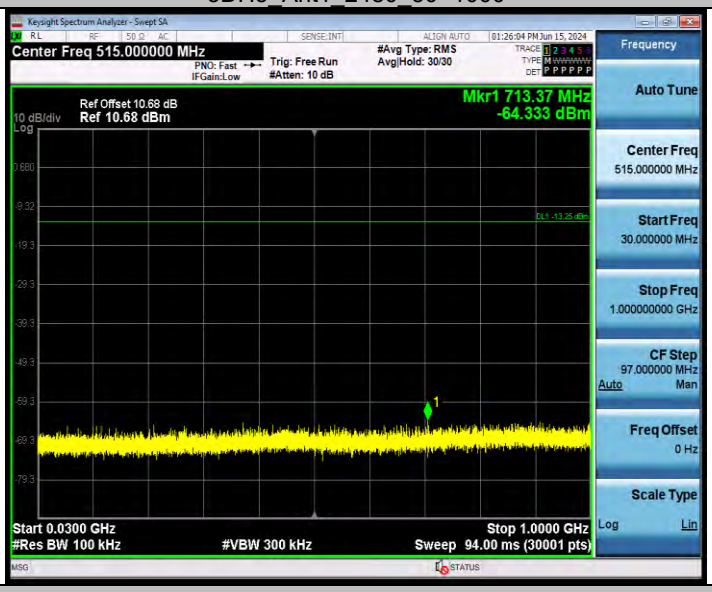
3DH5_Ant1_2441_30~1000



3DH5_Ant1_2441_1000~26500

3DH5_Ant1_2480_0~Reference

3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500

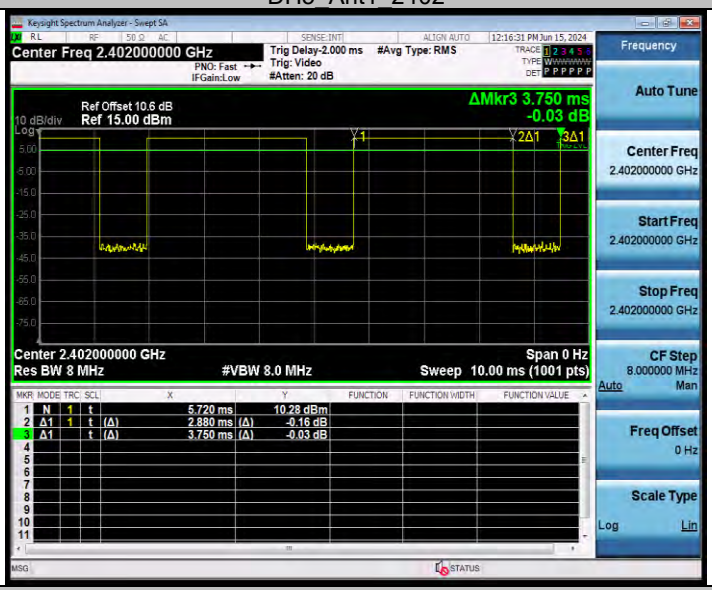
Keysight Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
#Avg Type: RMS
Avg|Hold: 30/30
01:27:27 PM Jun 15, 2024
Ref Offset 10.68 dB
10 dB/div
Ref 10.68 dBm
Log
Mkr2 24.889 25 GHz
-44.118 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
1 N 1 f 2.479 85 GHz 3.383 dBm
2 N 1 f 24.889 25 GHz -44.118 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
Scale Type
Log
Lin

DUTY CYCLE
TEST RESULT

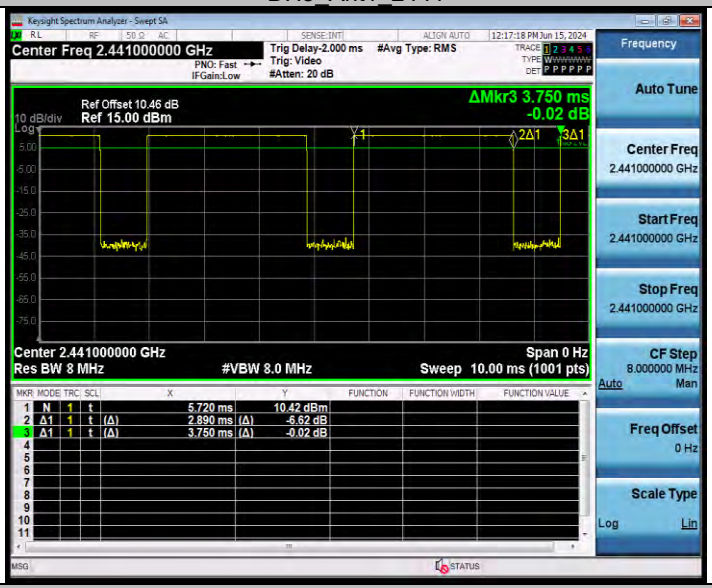
TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
DH5	Ant1	2402	2.88	3.75	76.80	1.15
		2441	2.89	3.75	77.07	1.13
		2480	2.89	3.75	77.07	1.13
2DH5	Ant1	2402	2.89	3.75	77.07	1.13
		2441	2.88	3.75	76.80	1.15
		2480	2.89	3.75	77.07	1.13
3DH5	Ant1	2402	2.89	3.75	77.07	1.13
		2441	2.89	3.75	77.07	1.13
		2480	2.89	3.75	77.07	1.13

TEST GRAPHS

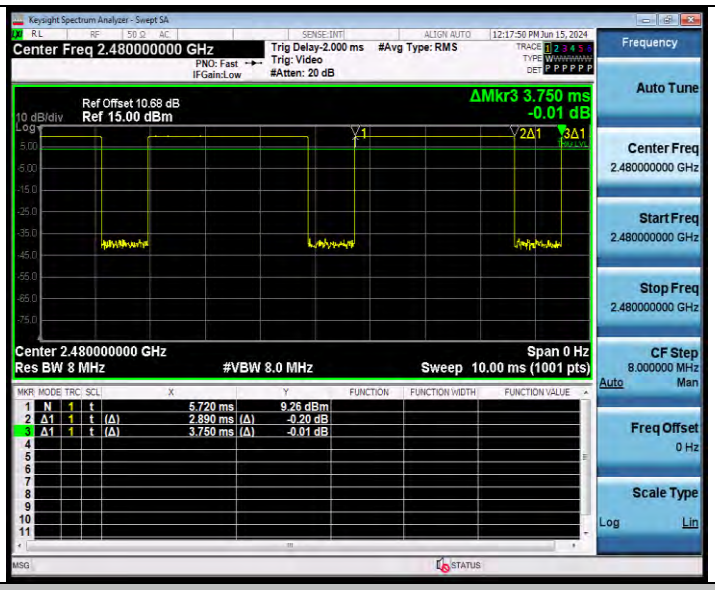
DH5_Ant1_2402



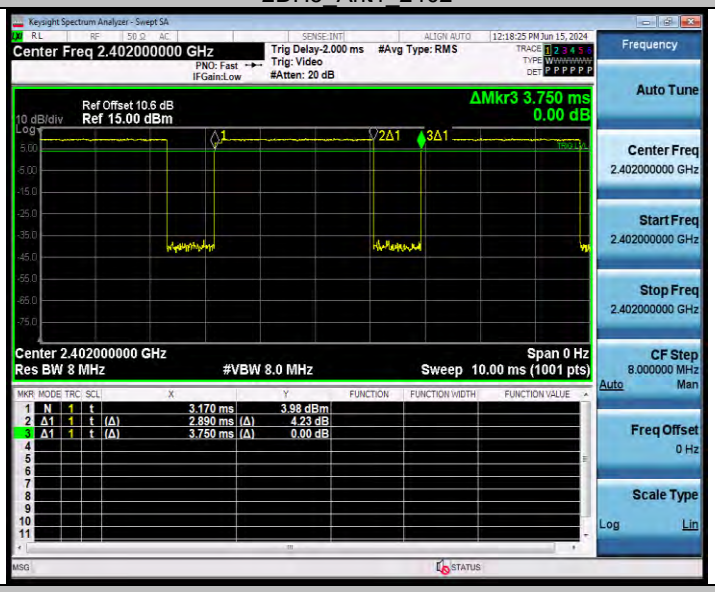
DH5_Ant1_2441



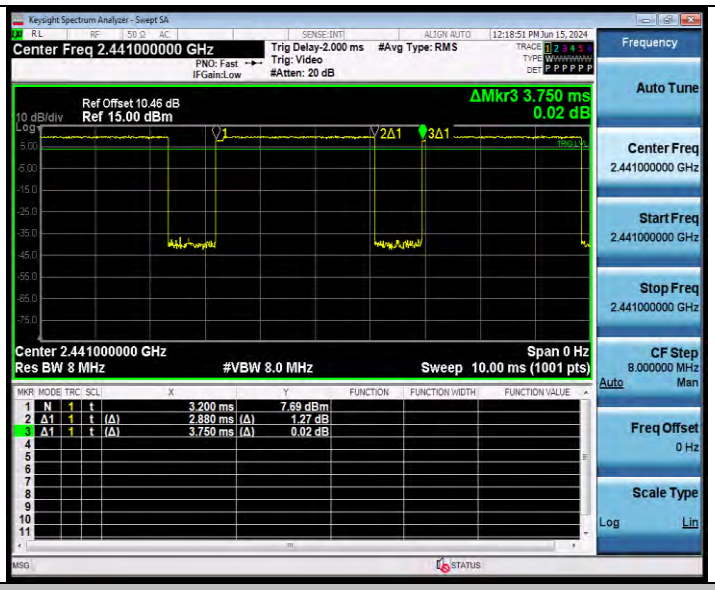
DH5_Ant1_2480



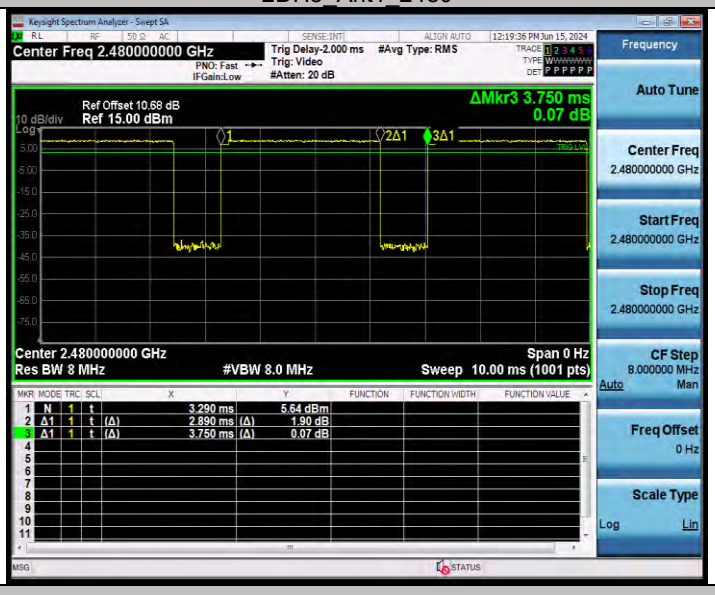
2DH5_Ant1_2402



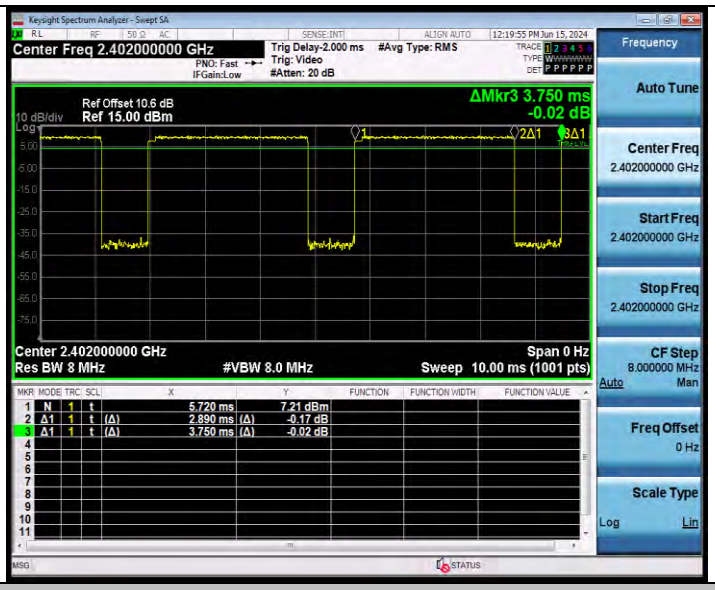
2DH5_Ant1_2441



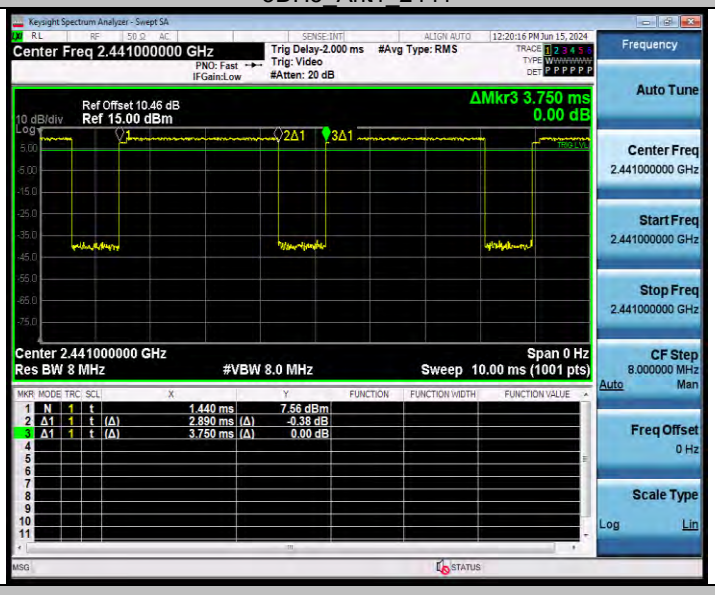
2DH5_Ant1_2480



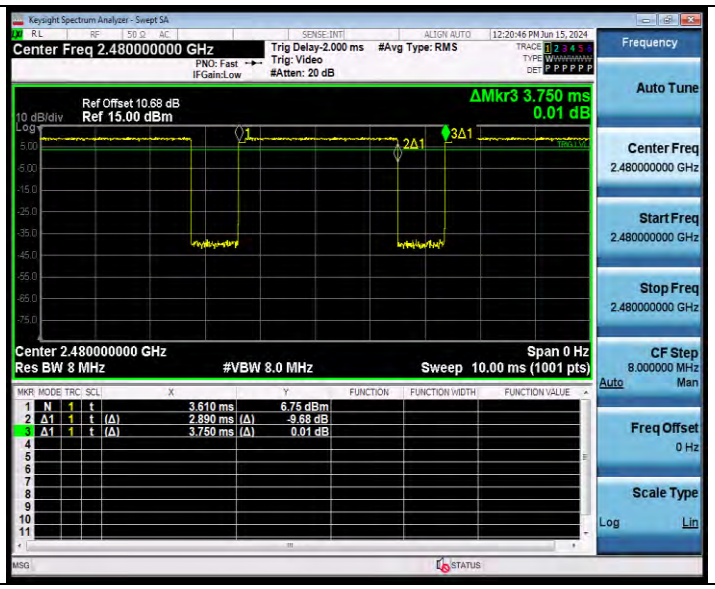
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig Delay-2.000 ms
Trig: Video
#Atten: 20 dB
#Avg Type: RMS
12:20:46 PM Jun 15, 2024
Ref Offset 10.68 dB
10 dB/div
Ref 15.00 dBm
ΔMkr3 3.750 ms
0.01 dB
Center 2.480000000 GHz
Res BW 8 MHz
#VBW 8.0 MHz
Span 0 Hz
Sweep 10.00 ms (1001 pts)
1 N 1 t 3.810 ms 6.75 dBm
2 Δ1 1 t (Δ) 2.890 ms (Δ) -9.68 dB
3 Δ1 1 t (Δ) 3.750 ms (Δ) 0.01 dB
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.480000000 GHz
Stop Freq
2.480000000 GHz
CF Step
8.000000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

--END--