Appendix Test Data

Report No.:	18220WC40005601	Test Sample No.:	1-2-2
Start Test Date:	2024.1.16	Finish Test Date:	2024.1.17
Test Engineer:	Hayman Chen	Auditor:	Rick Luo
Temperature:	25.3℃	Relative Humidity:	46%
Pressure:	101kPa		

Appendix A: 20dB Emission Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.957	2401.526	2402.483	---	---
		2441	0.960	2440.523	2441.483	---	---
		2480	0.951	2479.526	2480.477	---	---
2DH5	Ant1	2402	1.314	2401.334	2402.648	---	---
		2441	1.335	2440.322	2441.657	---	---
		2480	1.275	2479.370	2480.645	---	---
3DH5	Ant1	2402	1.314	2401.334	2402.648	---	---
		2441	1.314	2440.343	2441.657	---	---
		2480	1.299	2479.349	2480.648	---	---

Test Graphs

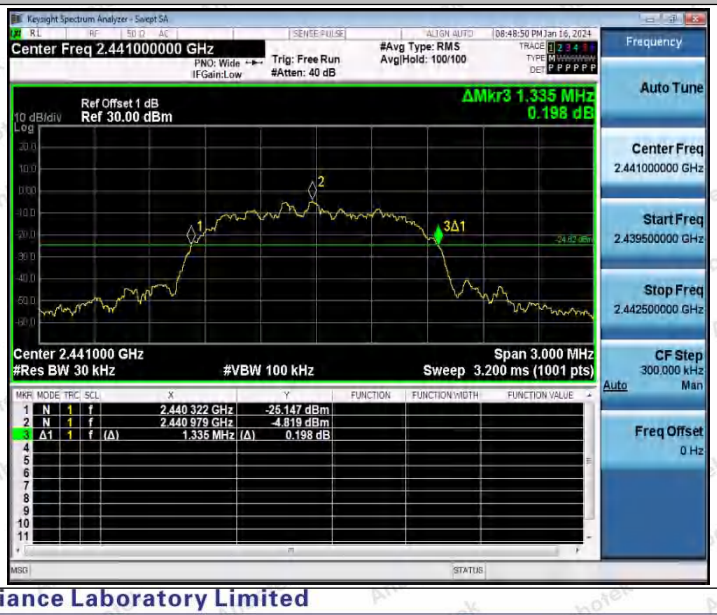
DH5_Ant1_2402

DH5_Ant1_2441

DH5_Ant1_2480

2DH5_Ant1_2402

2DH5_Ant1_2441



2DH5_Ant1_2480

3DH5_Ant1_2402

3DH5_Ant1_2441

3DH5_Ant1_2480

Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.85420	2401.5603	2402.4145	---	---
		2441	0.85068	2440.5647	2441.4153	---	---
		2480	0.85907	2479.5628	2480.4219	---	---
2DH5	Ant1	2402	1.1818	2401.4000	2402.5818	---	---
		2441	1.1855	2440.3994	2441.5849	---	---
		2480	1.1900	2479.3956	2480.5856	---	---
3DH5	Ant1	2402	1.1810	2401.4017	2402.5827	---	---
		2441	1.1845	2440.4011	2441.5856	---	---
		2480	1.1774	2479.4066	2480.5840	---	---

Test Graphs

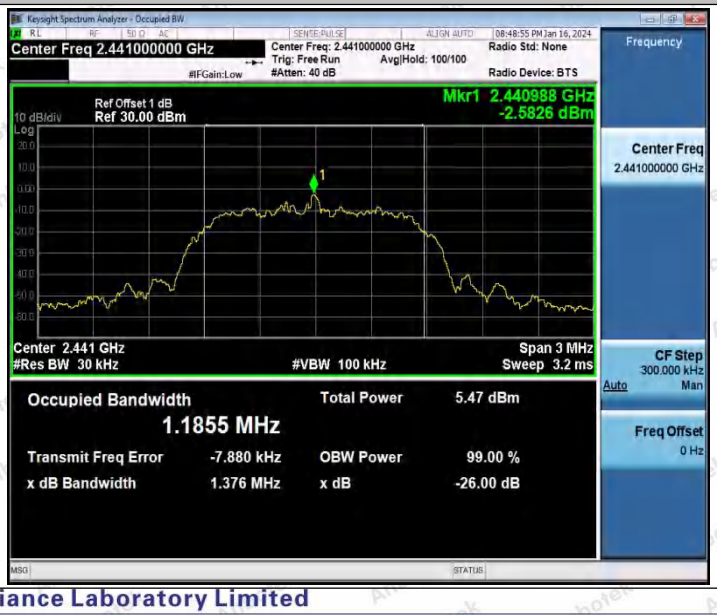
DH5_Ant1_2402

DH5_Ant1_2441

DH5_Ant1_2480

2DH5_Ant1_2402

2DH5_Ant1_2441



2DH5_Ant1_2480

3DH5_Ant1_2402

3DH5_Ant1_2441

3DH5_Ant1_2480

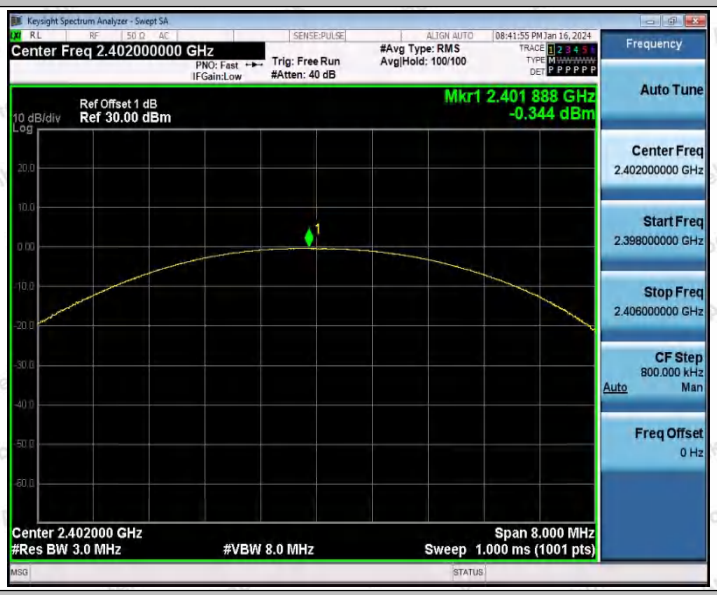
Appendix C: Maximum conducted output power

Test Result Peak

Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	-0.34	≤20.97	PASS
		2441	-0.31	≤20.97	PASS
		2480	-0.31	≤20.97	PASS
2DH5	Ant1	2402	0.6	≤20.97	PASS
		2441	0.59	≤20.97	PASS
		2480	0.59	≤20.97	PASS
3DH5	Ant1	2402	1.01	≤20.97	PASS
		2441	**1.02**	≤20.97	PASS
		2480	0.94	≤20.97	PASS

Test Graphs

DH5_Ant1_2402

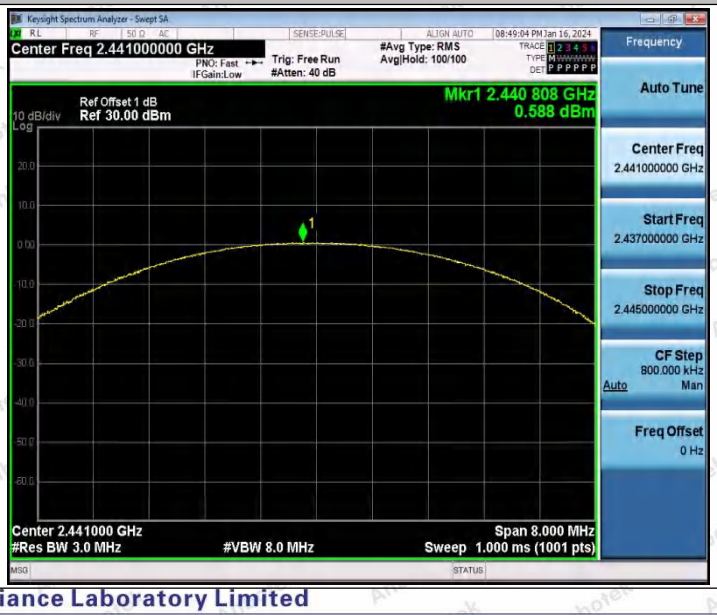


DH5_Ant1_2441

DH5_Ant1_2480

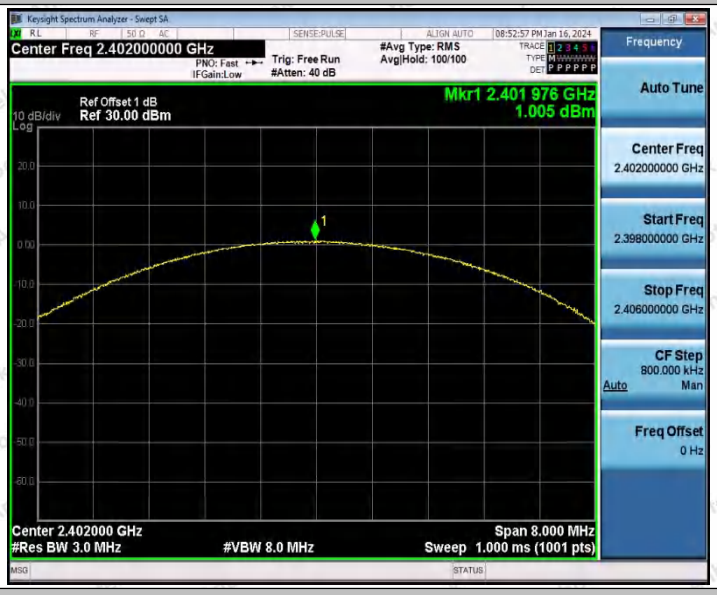
2DH5_Ant1_2402

2DH5_Ant1_2441



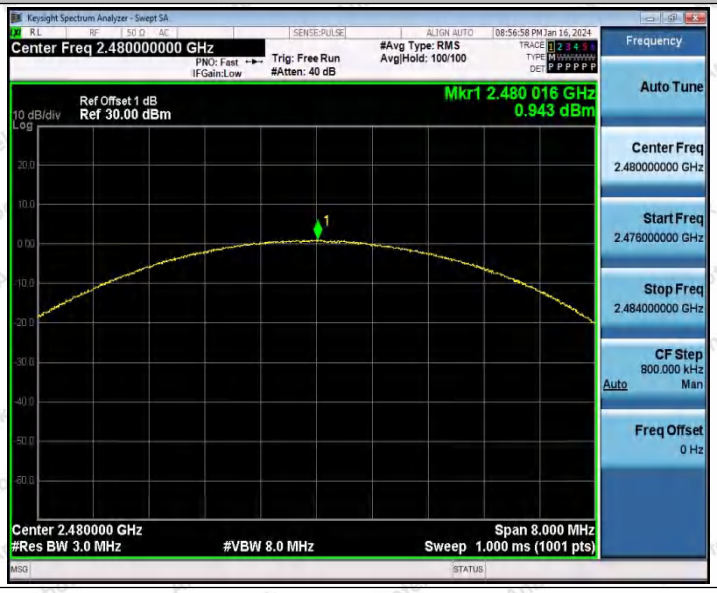
2DH5_Ant1_2480

3DH5_Ant1_2402



3DH5_Ant1_2441

3DH5_Ant1_2480



Appendix D: Carrier frequency separation

Test Result

TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.012	≥0.960	PASS
2DH5	Ant1	Hop	0.988	≥0.890	PASS
3DH5	Ant1	Hop	0.982	≥0.876	PASS

Test Graphs

DH5_Ant1_Hop

2DH5_Ant1_Hop

3DH5_Ant1_Hop

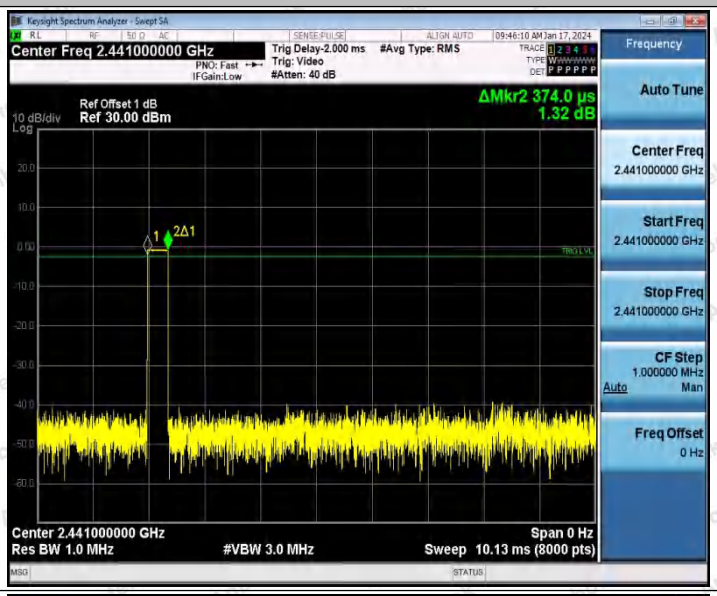
Appendix E: Time of occupancy

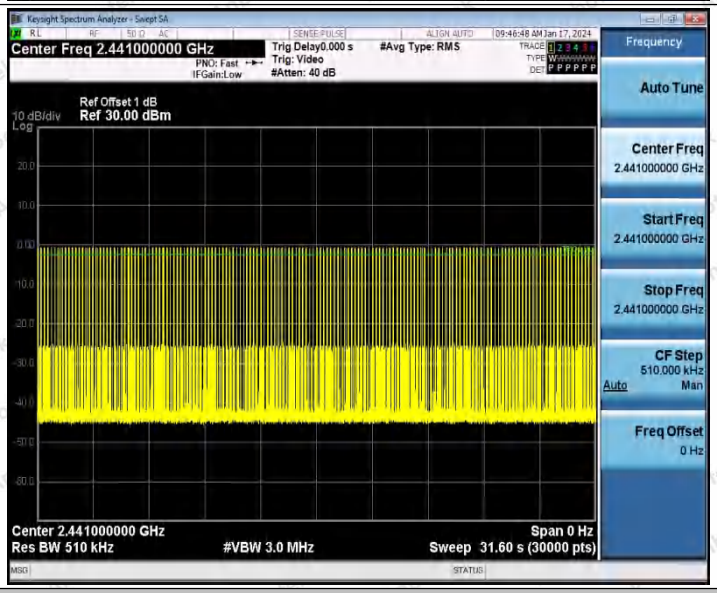
Test Result

TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.374	319	0.119	≤0.4	PASS
DH3	Ant1	Hop	1.630	162	0.264	≤0.4	PASS
DH5	Ant1	Hop	2.878	99	0.285	≤0.4	PASS
2DH1	Ant1	Hop	0.384	319	0.122	≤0.4	PASS
2DH3	Ant1	Hop	1.637	164	0.268	≤0.4	PASS
2DH5	Ant1	Hop	2.884	109	0.314	≤0.4	PASS
3DH1	Ant1	Hop	0.385	316	0.122	≤0.4	PASS
3DH3	Ant1	Hop	1.634	154	0.252	≤0.4	PASS
3DH5	Ant1	Hop	2.887	102	0.294	≤0.4	PASS

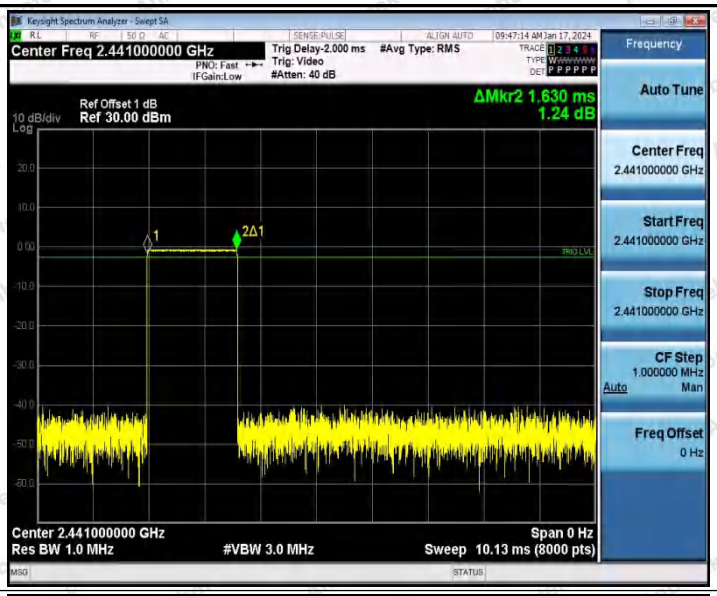
Test Graphs

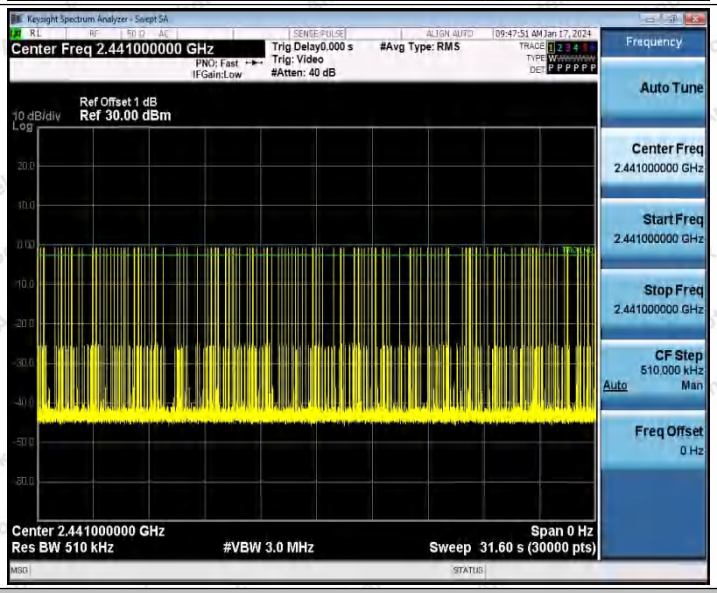
DH1_Ant1_Hop





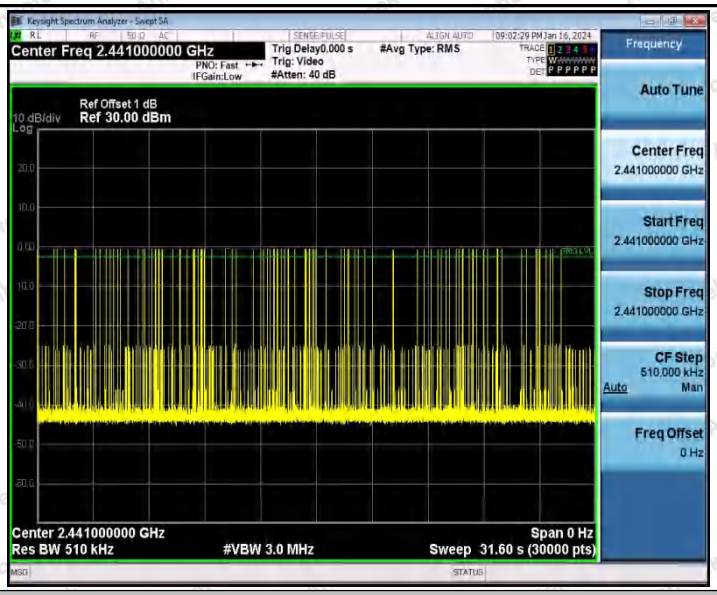
DH3_Ant1_Hop


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay-2.000 ms
#Avg Type: RMS
Trig: Video
#Atten: 40 dB
PNO: Fast
IFGain:Low
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
ΔMkr2 1.630 ms
1.24 dB
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 10.13 ms (8000 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

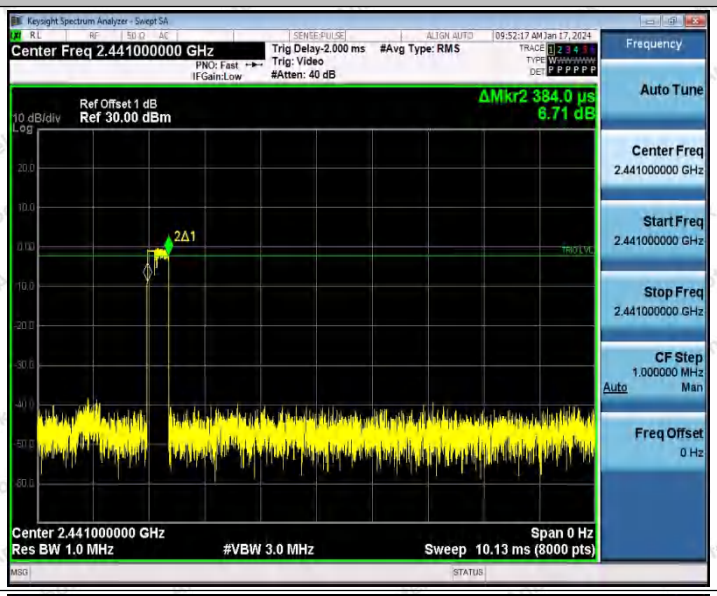

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay0.000 s
#Avg Type: RMS
Trig: Video
#Atten: 40 dB
PNO: Fast
IFGain:Low
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
Center 2.441000000 GHz
Res BW 510 kHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 31.60 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
510.000 kHz
Auto
Man
Freq Offset
0 Hz

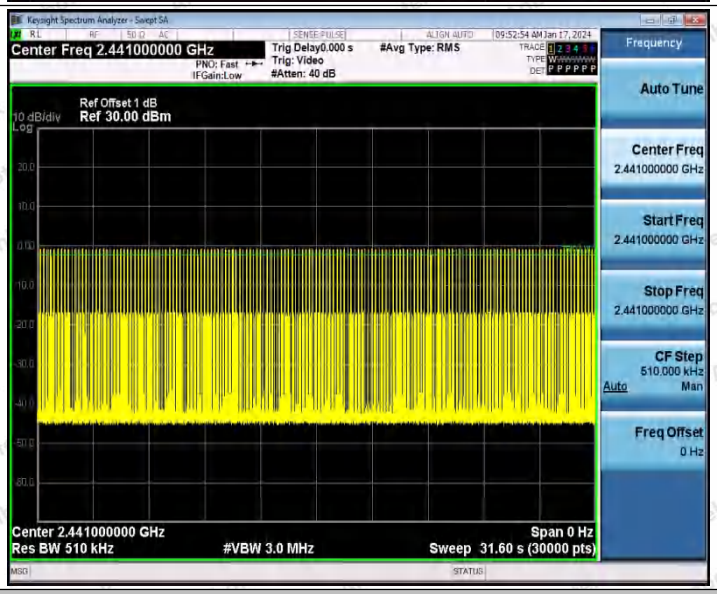
DH5_Ant1_Hop

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay-2.000 ms
#Avg Type: RMS
Trig: Video
#Atten: 40 dB
PNO: Fast
IFGain:Low
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
ΔMkr2 2.878 ms
3.91 dB
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 10.13 ms (8000 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

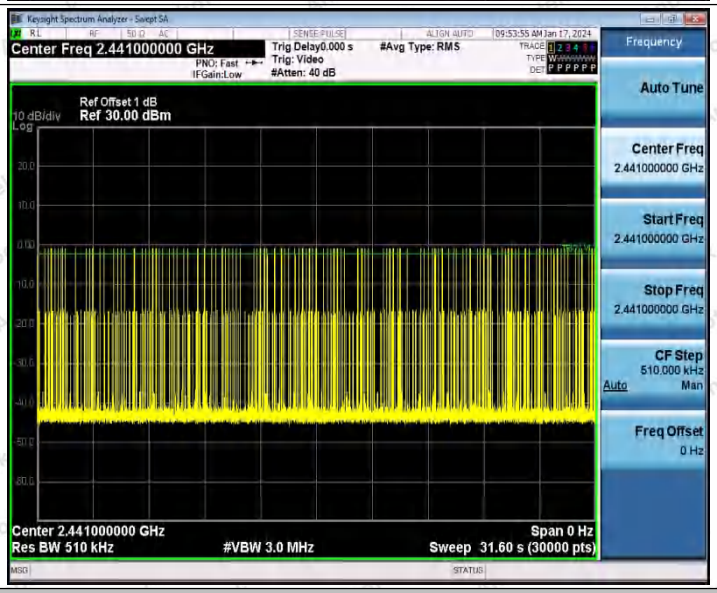


2DH1_Ant1_Hop

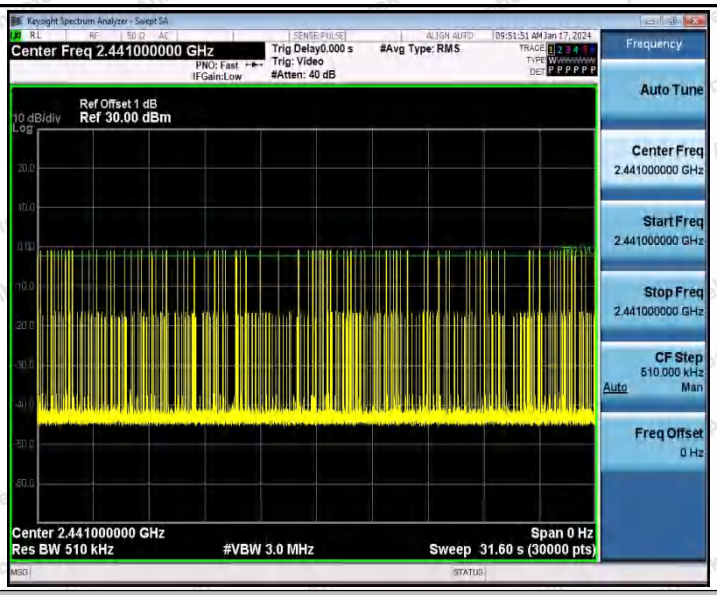




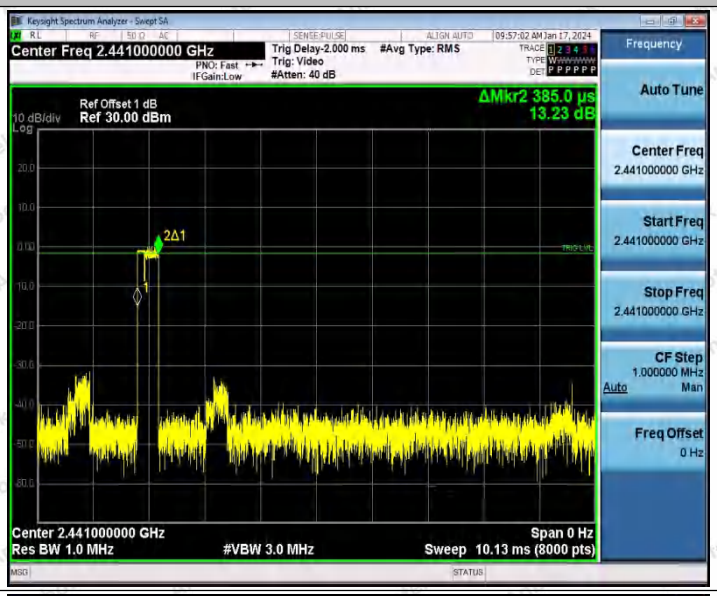
2DH3_Ant1_Hop

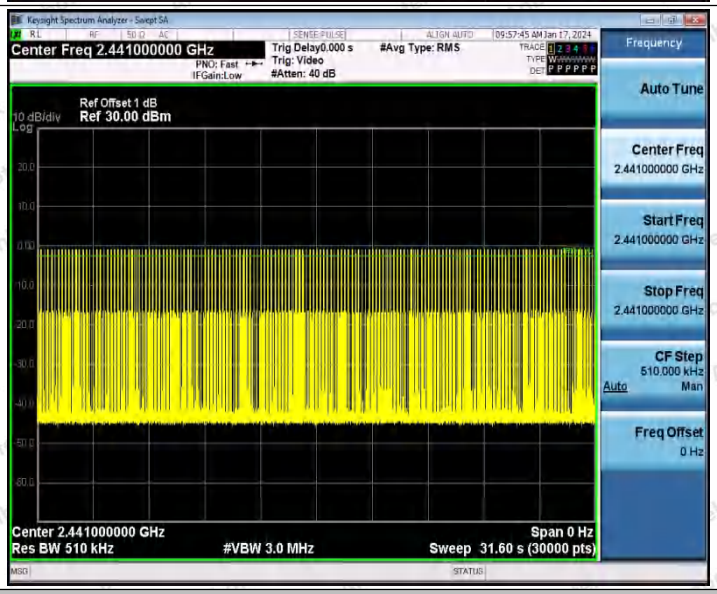


2DH5_Ant1_Hop

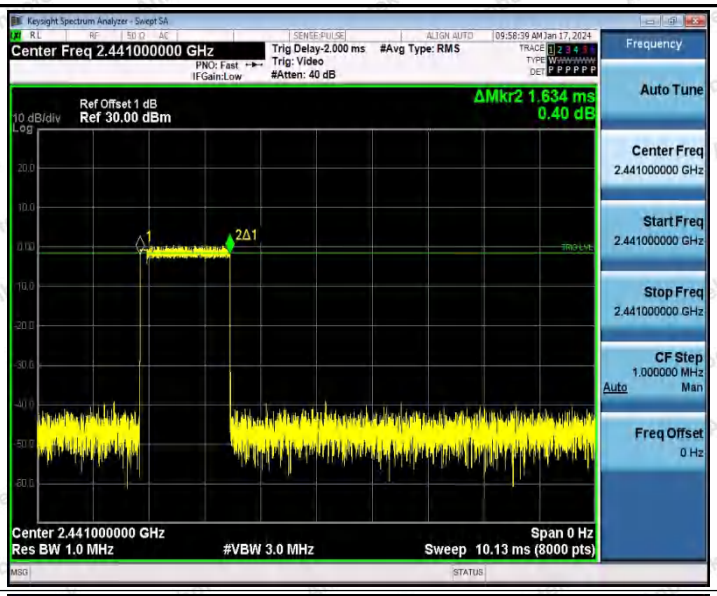


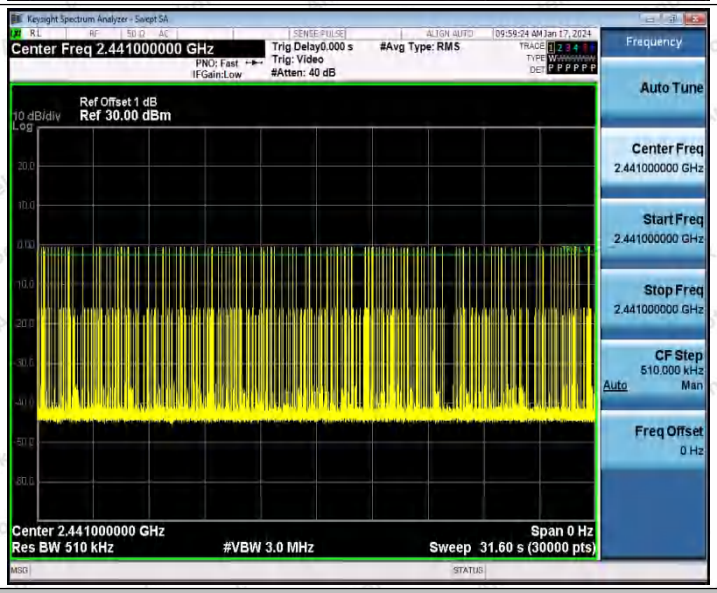
3DH1_Ant1_Hop



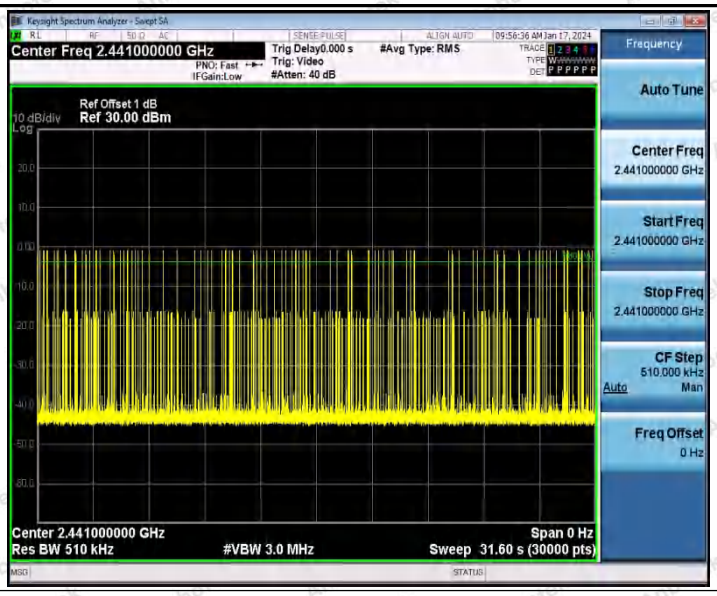


3DH3_Ant1_Hop





3DH5_Ant1_Hop


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig Delay0.000 s
Trig: Video
#Atten: 40 dB
#Avg Type: RMS
09:56:36 AM Jan 17, 2024
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
510.000 kHz
Auto
Man
Freq Offset
0 Hz
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
Log
Center 2.441000000 GHz
Res BW 510 kHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 31.60 s (30000 pts)
MSG
STATUS

Appendix F: Number of hopping channels

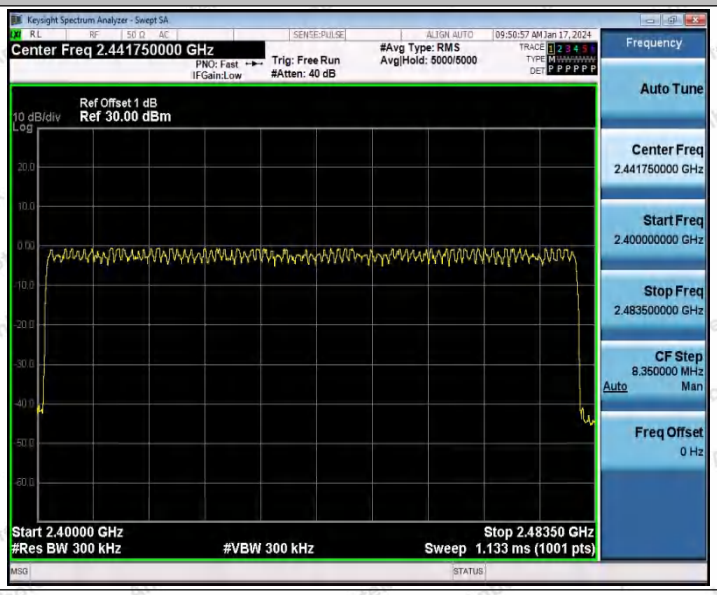
Test Result

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

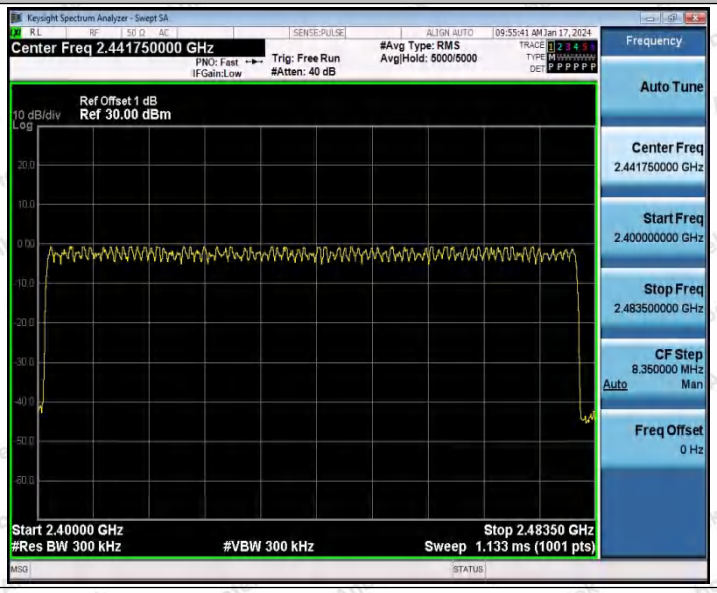
Test Graphs

DH5_Ant1_Hop

2DH5_Ant1_Hop



3DH5_Ant1_Hop



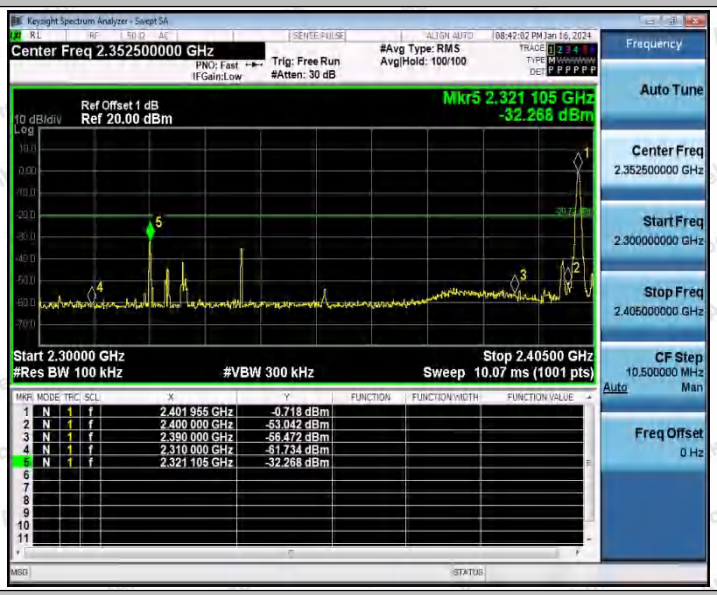
Appendix G: Band edge measurements

Test Result

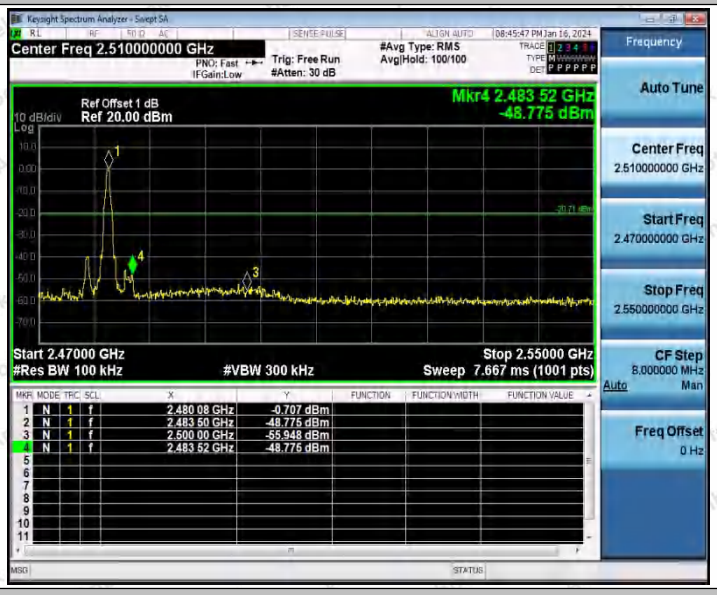
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-0.72	-32.27	≤-20.72	PASS
		High	2480	-0.71	-48.78	≤-20.71	PASS
		Low	Hop_2402	-0.52	-52.46	≤-20.52	PASS
		High	Hop_2480	-0.67	-52.84	≤-20.67	PASS
2DH5	Ant1	Low	2402	-1.52	-41.51	≤-21.52	PASS
		High	2480	-1.50	-52.76	≤-21.5	PASS
		Low	Hop_2402	-1.43	-53.81	≤-21.43	PASS
		High	Hop_2480	-1.74	-55.11	≤-21.74	PASS
3DH5	Ant1	Low	2402	-2.16	-43.15	≤-22.16	PASS
		High	2480	-0.58	-47.87	≤-20.58	PASS
		Low	Hop_2402	-2.95	-52.26	≤-22.95	PASS
		High	Hop_2480	-0.81	-55.54	≤-20.81	PASS

Test Graphs

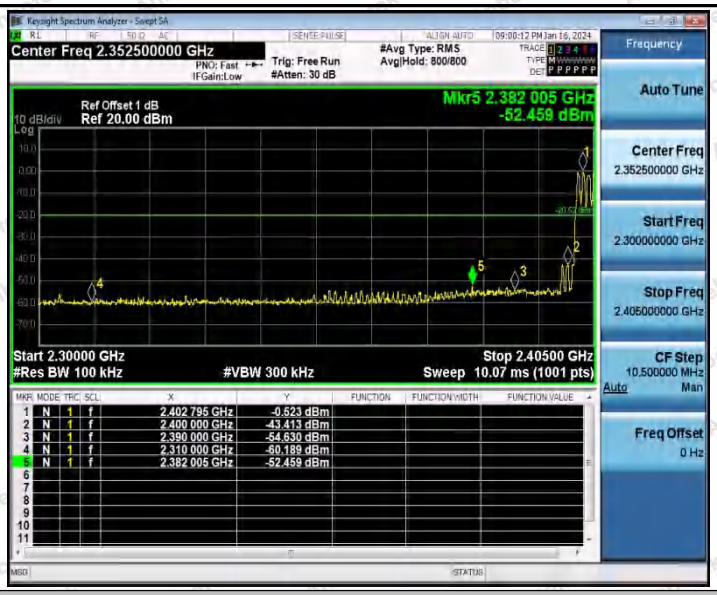
DH5_Ant1_Low_2402



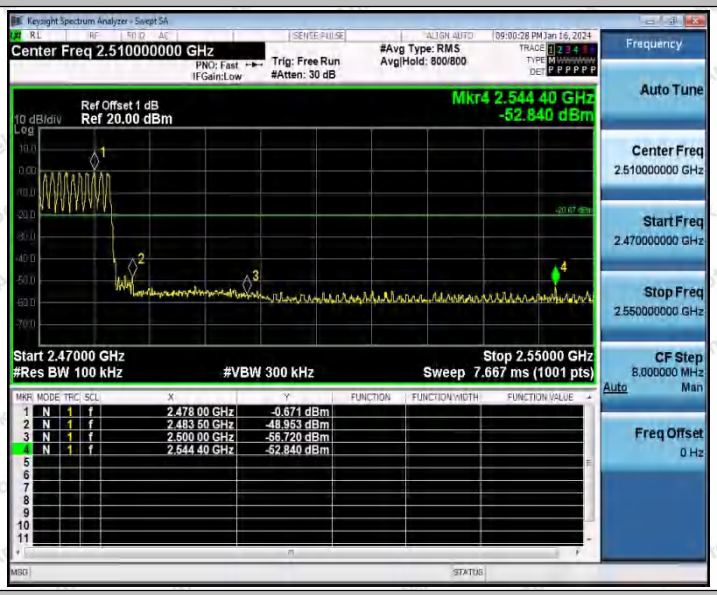
DH5_Ant1_High_2480



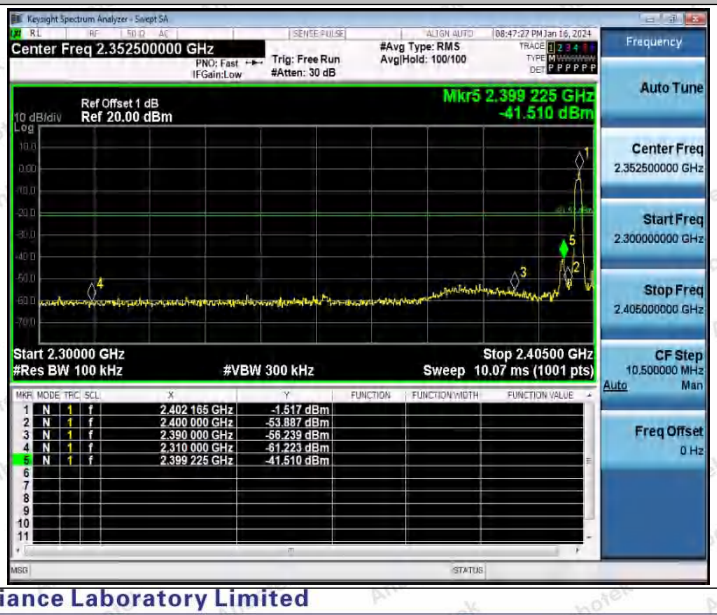
DH5_Ant1_Low_Hop_2402



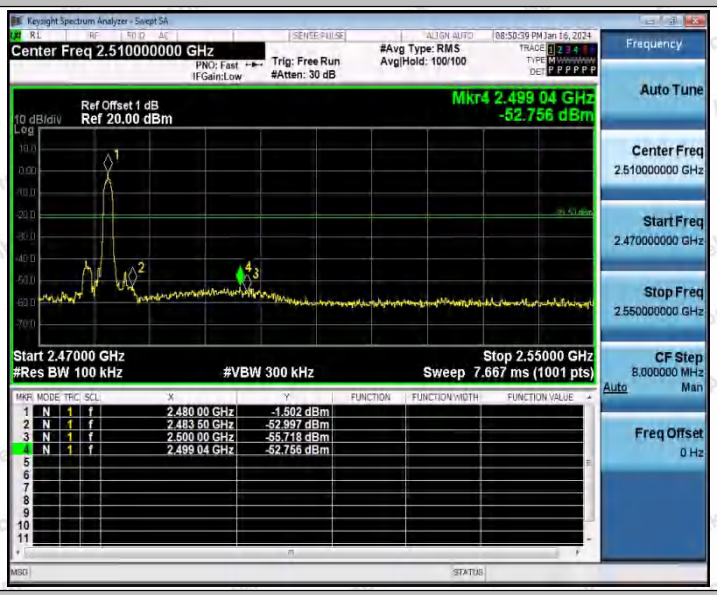
DH5_Ant1_High_Hop_2480



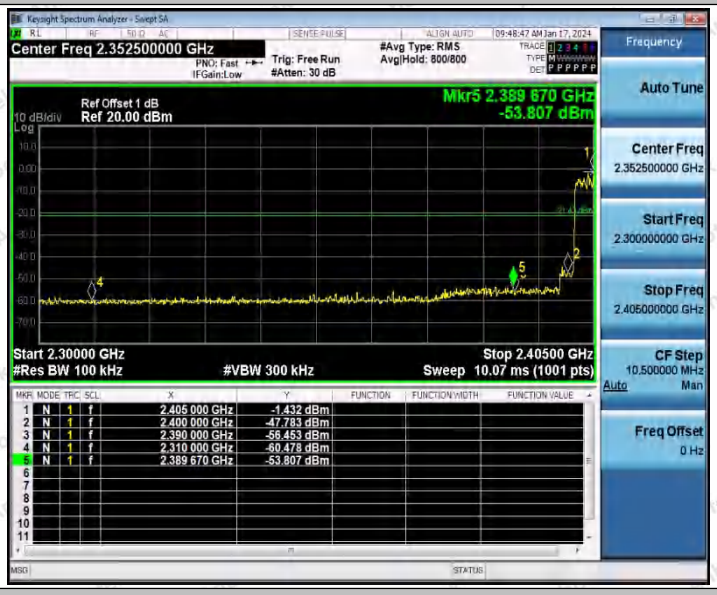
2DH5_Ant1_Low_2402



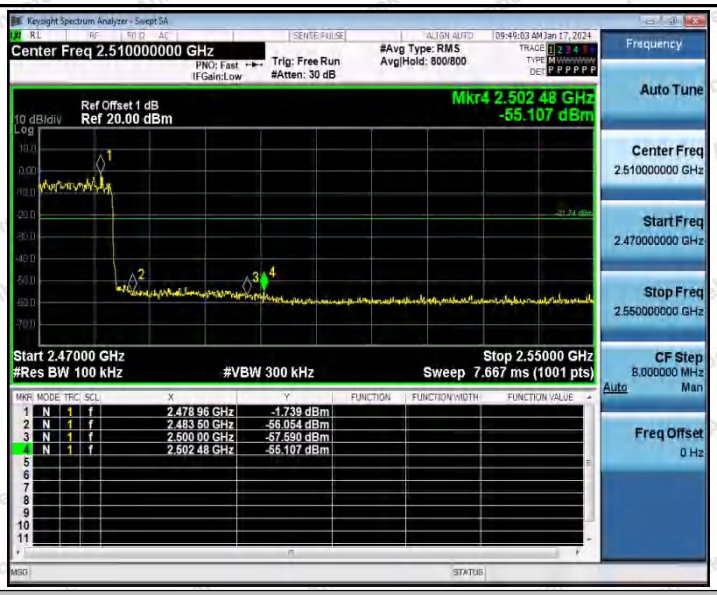
2DH5_Ant1_High_2480



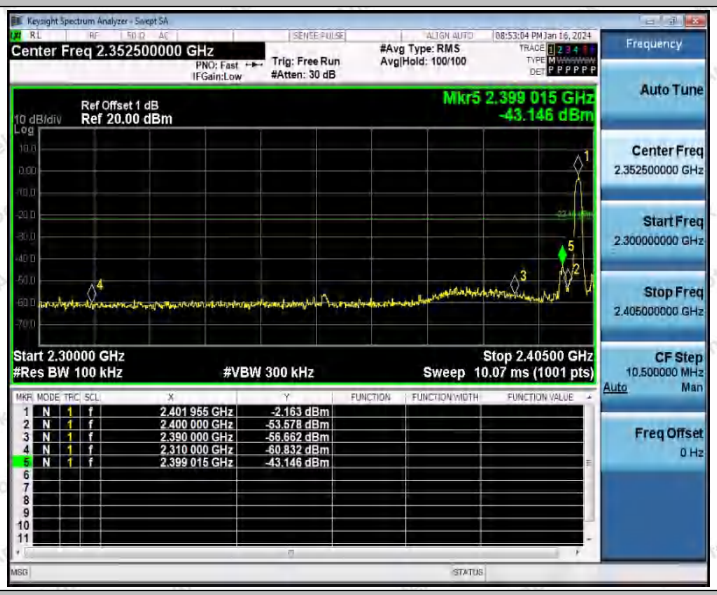
2DH5_Ant1_Low_Hop_2402



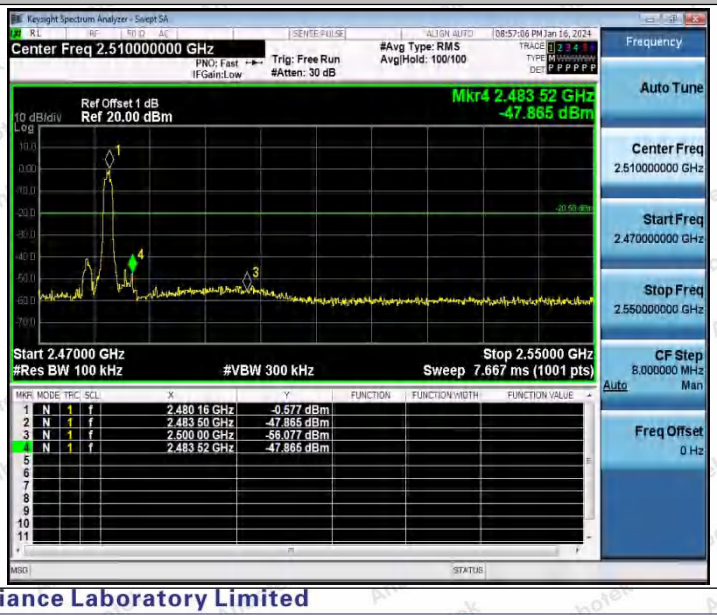
2DH5_Ant1_High_Hop_2480



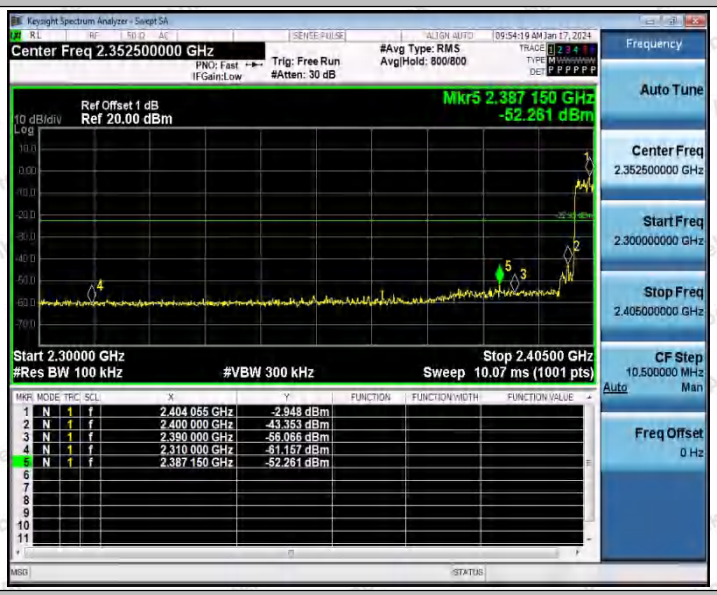
3DH5_Ant1_Low_2402



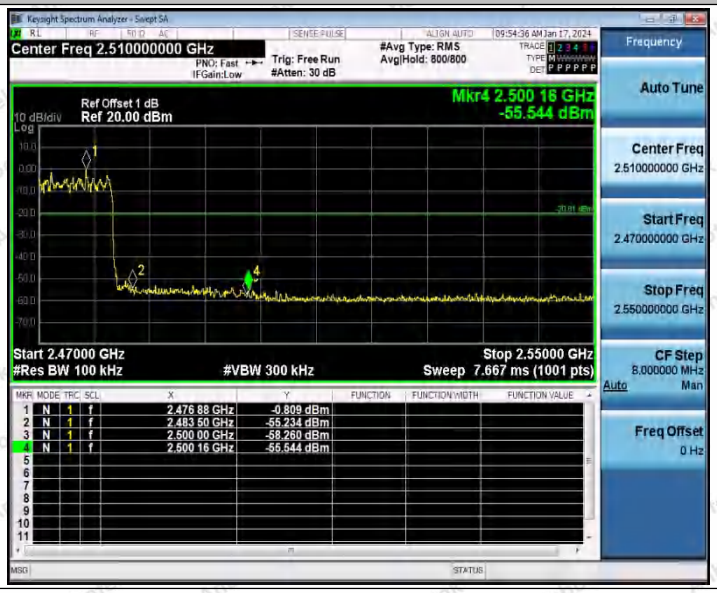
3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480



Appendix H: Conducted Spurious Emission

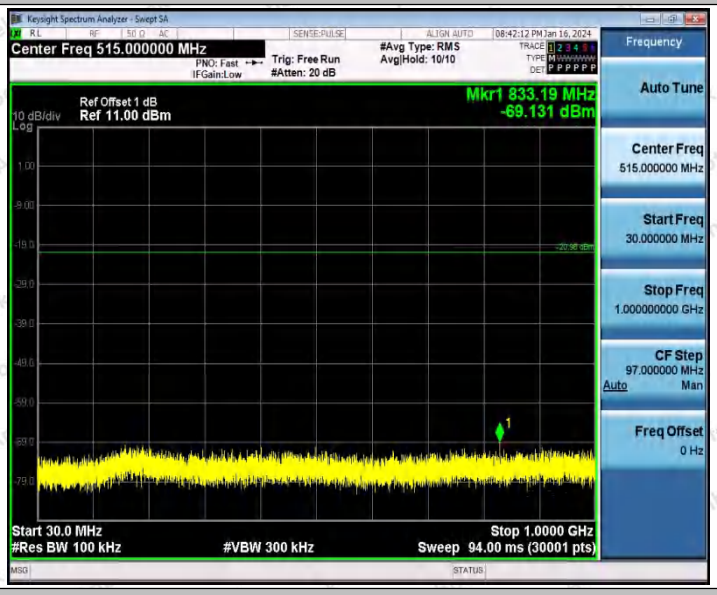
Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-0.98	-0.98	---	PASS
			30~1000	-0.98	-69.13	≤-20.98	PASS
			1000~26500	-0.98	-48.47	≤-20.98	PASS
		2441	Reference	-0.96	-0.96	---	PASS
			30~1000	-0.96	-69.17	≤-20.96	PASS
			1000~26500	-0.96	-48.49	≤-20.96	PASS
		2480	Reference	-1.21	-1.21	---	PASS
			30~1000	-1.21	-68.46	≤-21.21	PASS
			1000~26500	-1.21	-51.82	≤-21.21	PASS
2DH5	Ant1	2402	Reference	-1.94	-1.94	---	PASS
			30~1000	-1.94	-69.58	≤-21.94	PASS
			1000~26500	-1.94	-48.28	≤-21.94	PASS
		2441	Reference	-3.92	-3.92	---	PASS
			30~1000	-3.92	-69.26	≤-23.92	PASS
			1000~26500	-3.92	-48.32	≤-23.92	PASS
		2480	Reference	-4.47	-4.47	---	PASS
			30~1000	-4.47	-68.66	≤-24.47	PASS
			1000~26500	-4.47	-52.12	≤-24.47	PASS
3DH5	Ant1	2402	Reference	-2.08	-2.08	---	PASS
			30~1000	-2.08	-69.56	≤-22.08	PASS
			1000~26500	-2.08	-48.29	≤-22.08	PASS
		2441	Reference	-0.98	-0.98	---	PASS
			30~1000	-0.98	-69.53	≤-20.98	PASS
			1000~26500	-0.98	-48.41	≤-20.98	PASS
		2480	Reference	-1.10	-1.10	---	PASS
			30~1000	-1.10	-69.38	≤-21.1	PASS
			1000~26500	-1.10	-52.88	≤-21.1	PASS

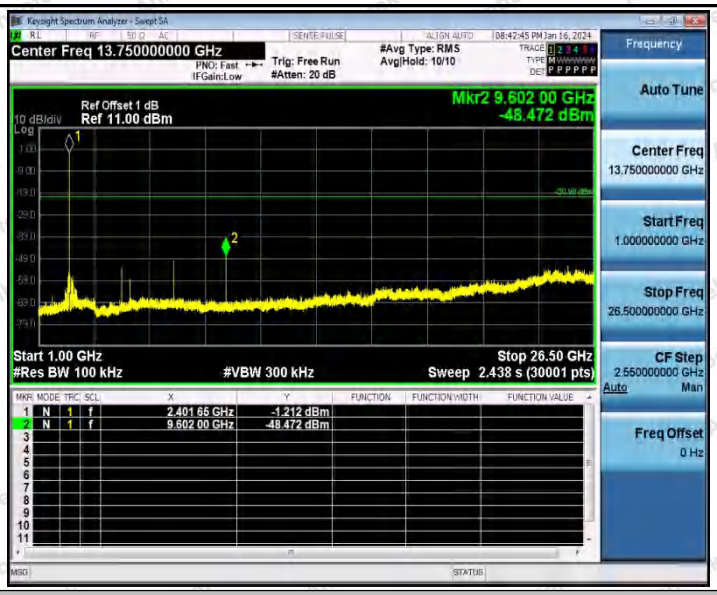
Test Graphs

DH5_Ant1_2402_0~Reference

DH5_Ant1_2402_30~1000

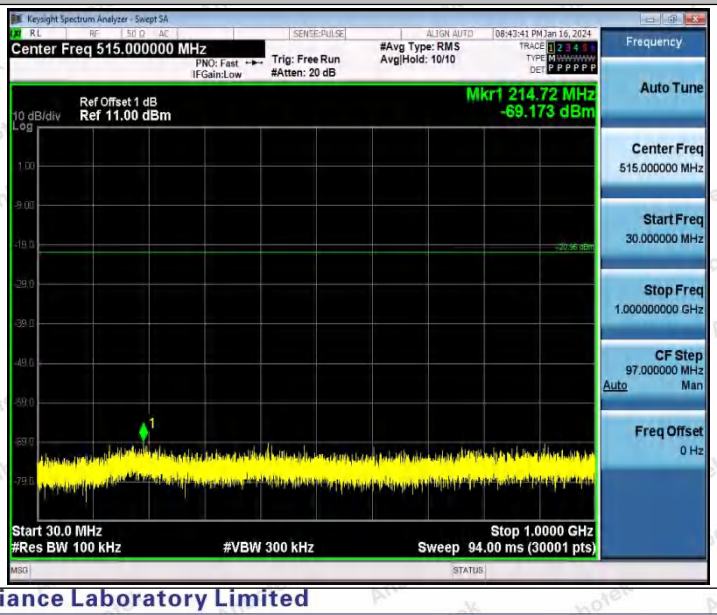


DH5_Ant1_2402_1000~26500

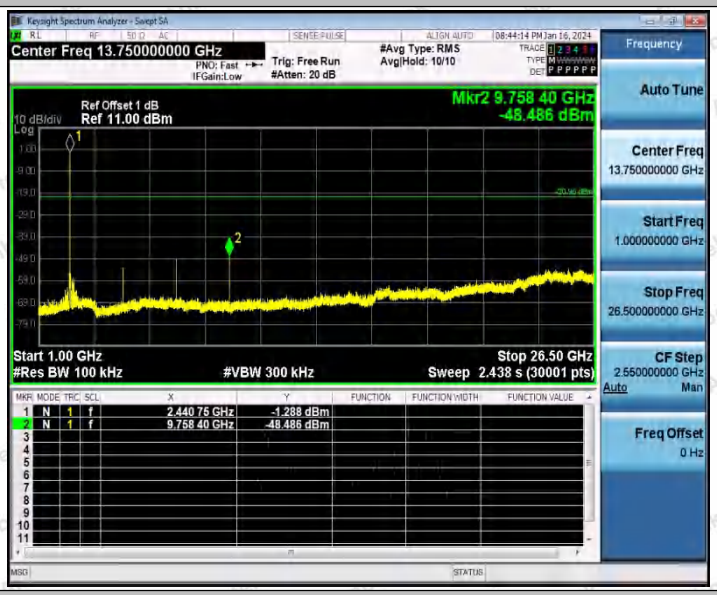


DH5_Ant1_2441_0~Reference

DH5_Ant1_2441_30~1000

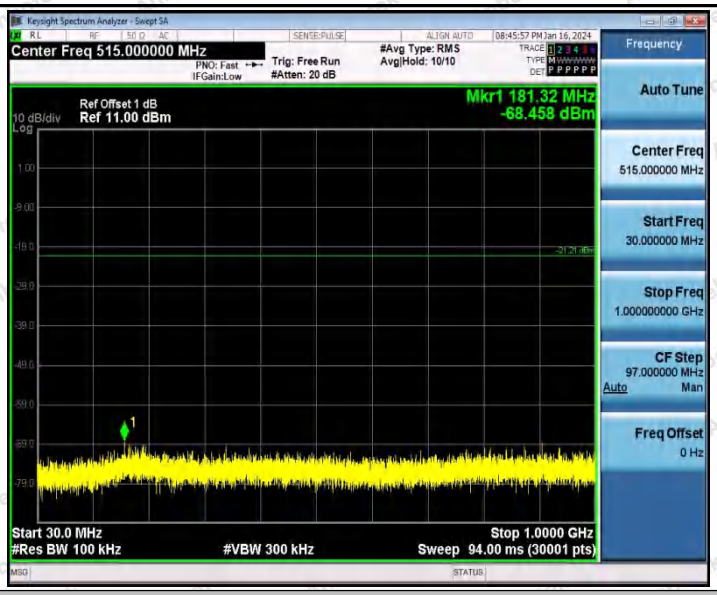


DH5_Ant1_2441_1000~26500



DH5_Ant1_2480_0~Reference

DH5_Ant1_2480_30~1000



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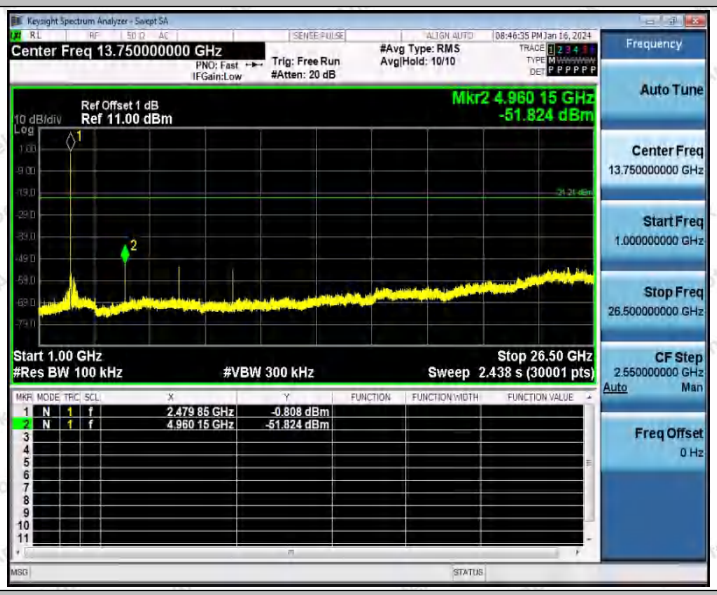
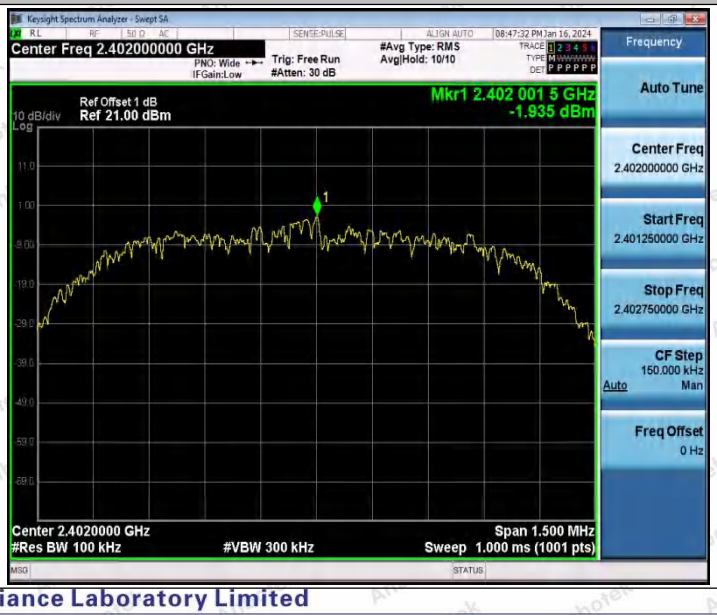
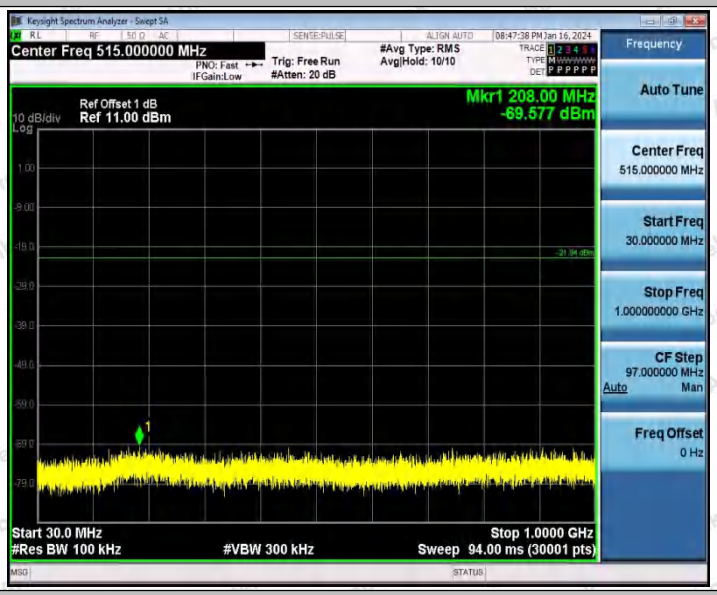


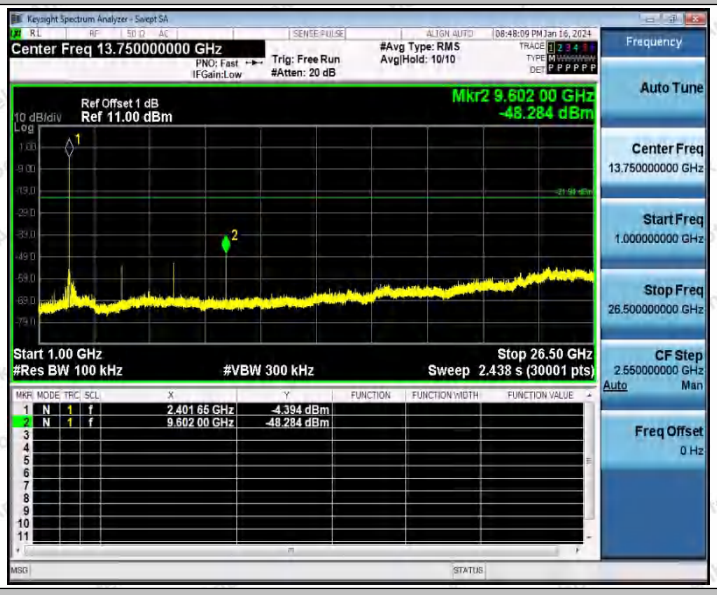
2DH5_Ant1_2402_0~Reference



2DH5_Ant1_2402_30~1000

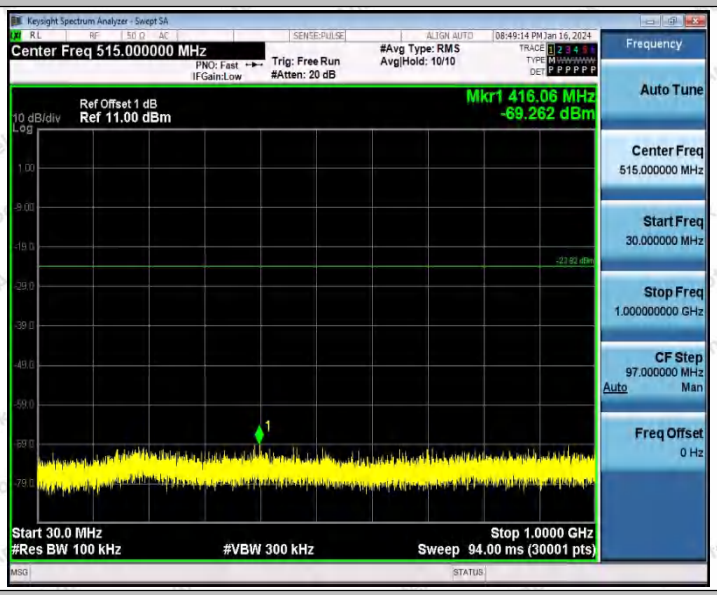


2DH5_Ant1_2402_1000~26500

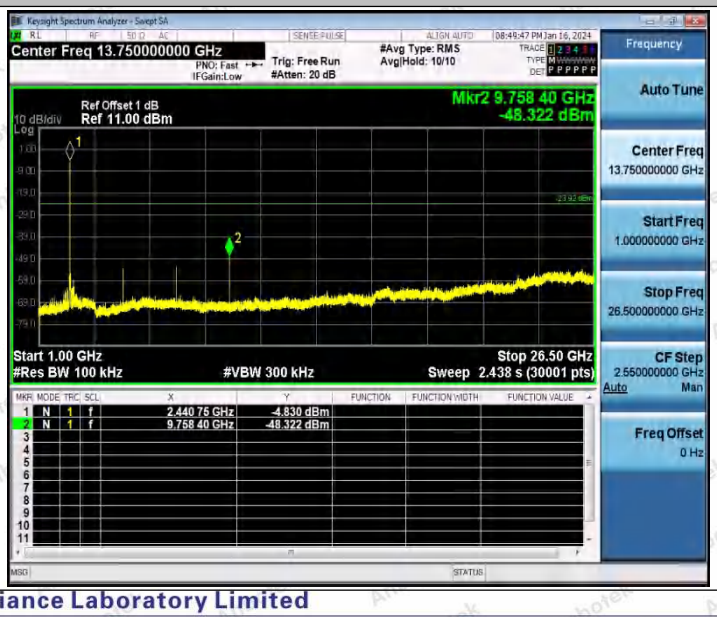


2DH5_Ant1_2441_0~Reference

2DH5_Ant1_2441_30~1000



2DH5_Ant1_2441_1000~26500



2DH5_Ant1_2480_0~Reference

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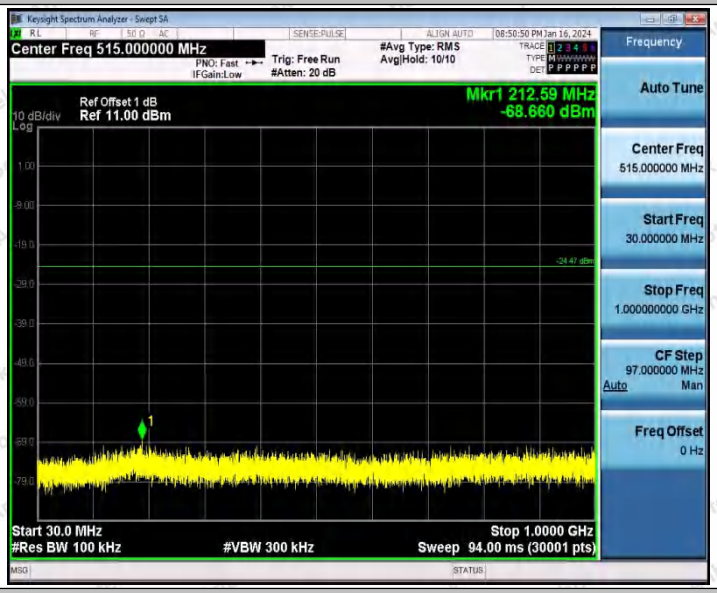

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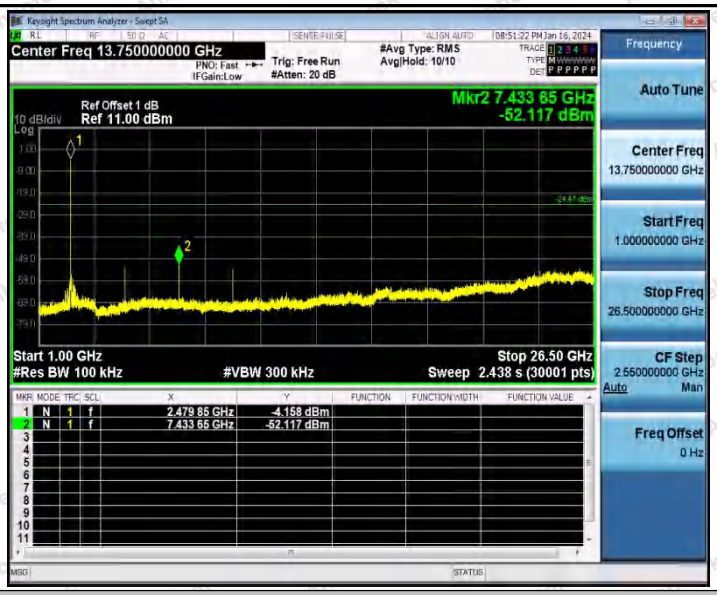
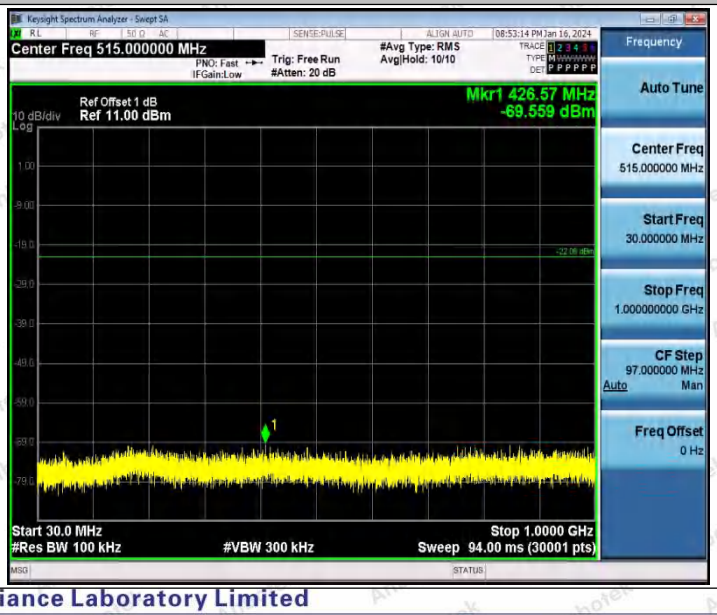
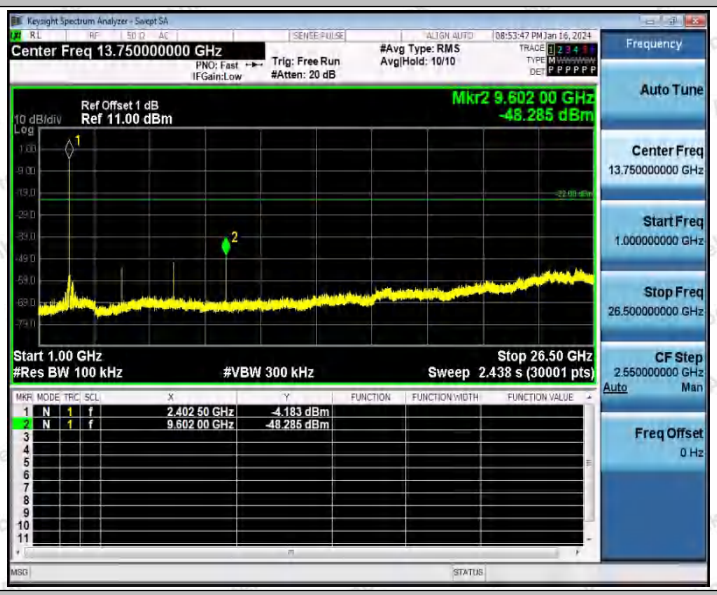


3DH5_Ant1_2402_0~Reference

3DH5_Ant1_2402_30~1000

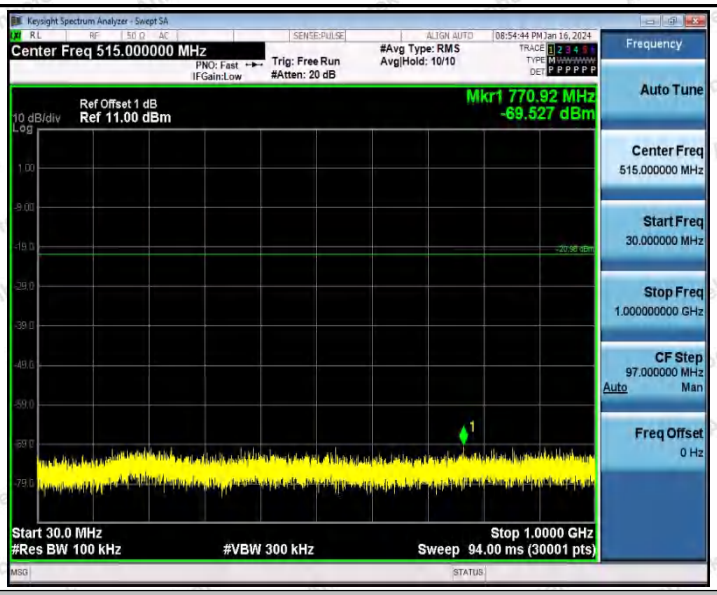


3DH5_Ant1_2402_1000~26500

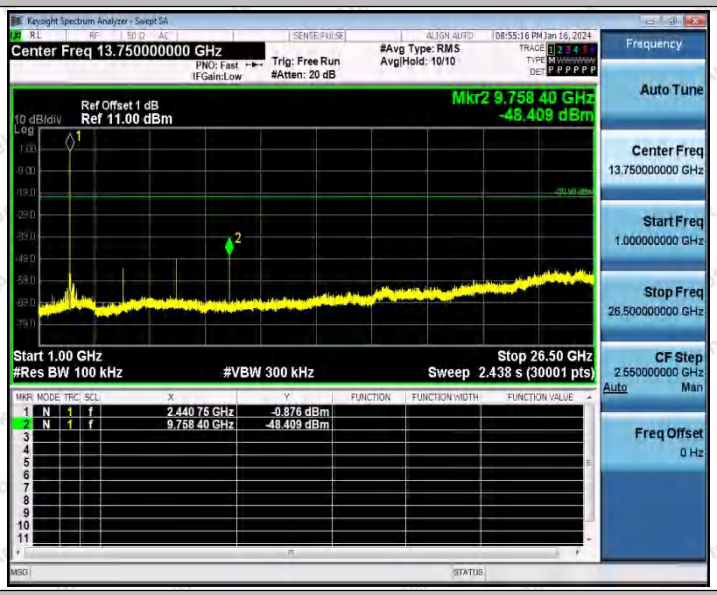


3DH5_Ant1_2441_0~Reference

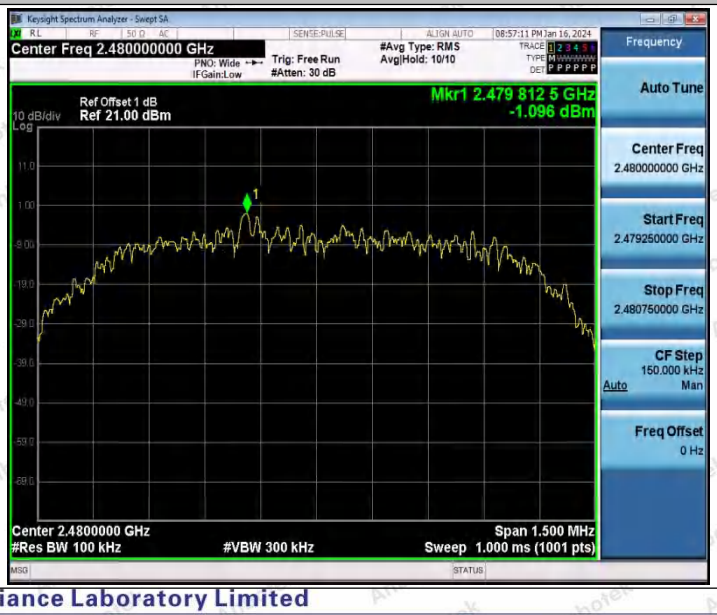
3DH5_Ant1_2441_30~1000



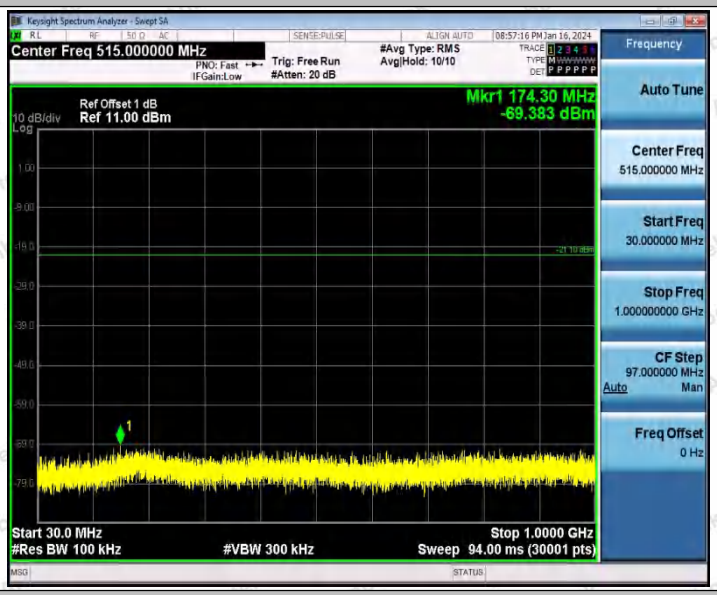
3DH5_Ant1_2441_1000~26500



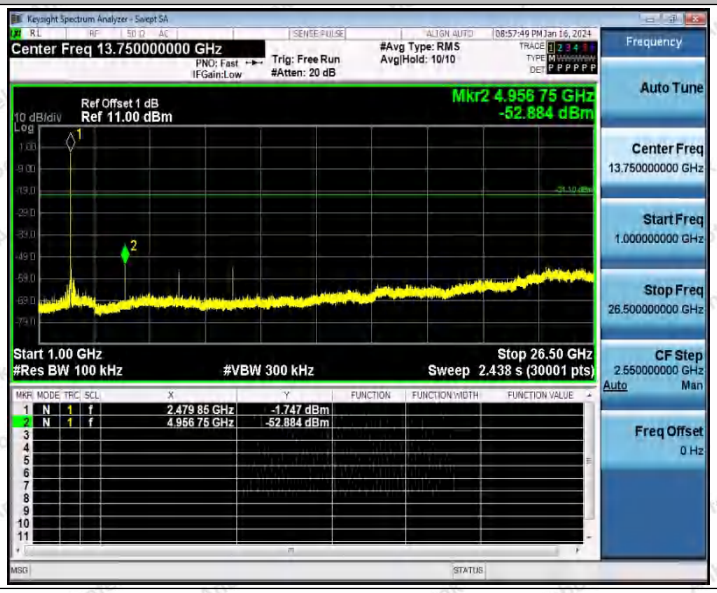
3DH5_Ant1_2480_0~Reference



3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500



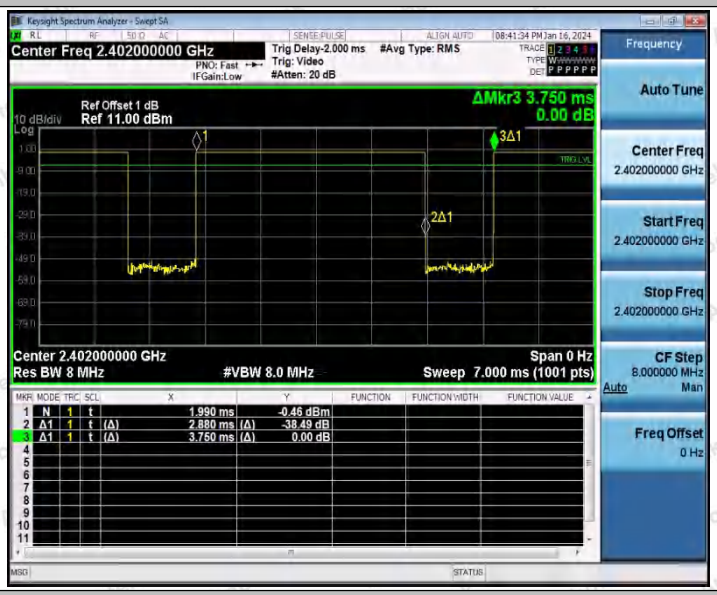
Appendix I: Duty Cycle

Test Result

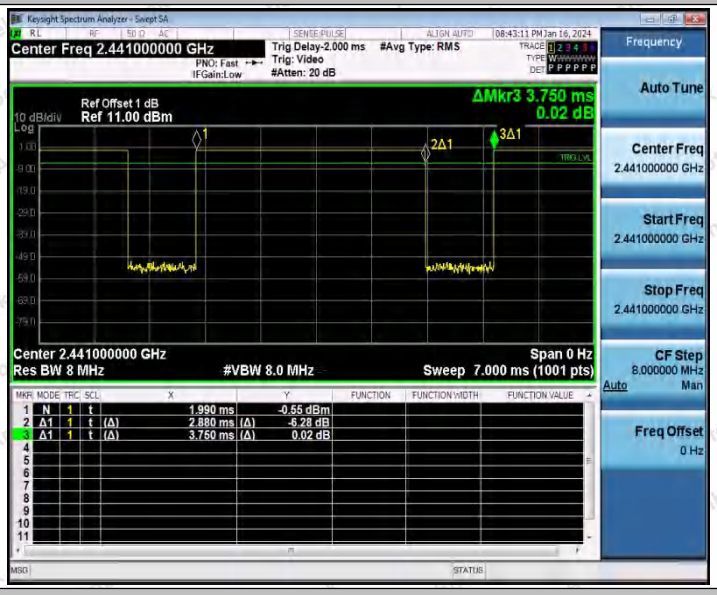
TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
DH5	Ant1	2402	2.88	3.75	76.80	1.15
		2441	2.88	3.75	76.80	1.15
		2480	2.88	3.75	76.80	1.15
2DH5	Ant1	2402	2.89	3.75	77.07	1.13
		2441	2.89	3.75	77.07	1.13
		2480	2.88	3.74	77.01	1.13
3DH5	Ant1	2402	2.89	3.75	77.07	1.13
		2441	2.89	3.75	77.07	1.13
		2480	2.89	3.76	76.86	1.14

Test Graphs

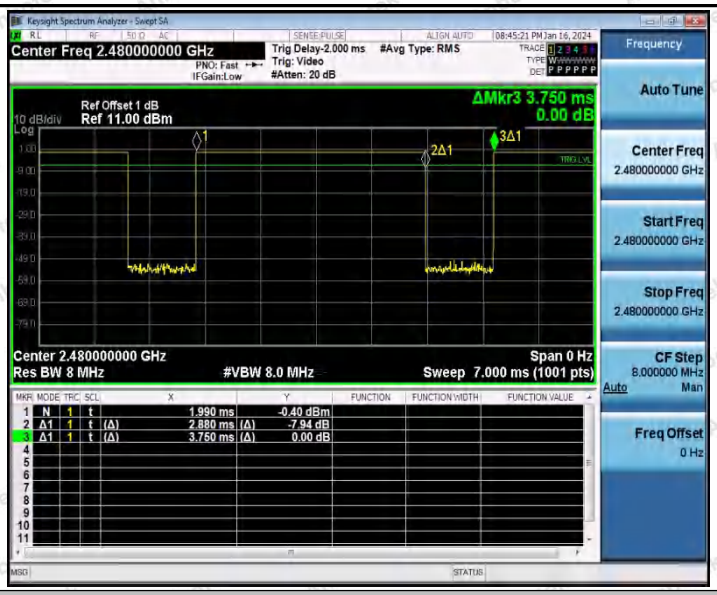
DH5_Ant1_2402



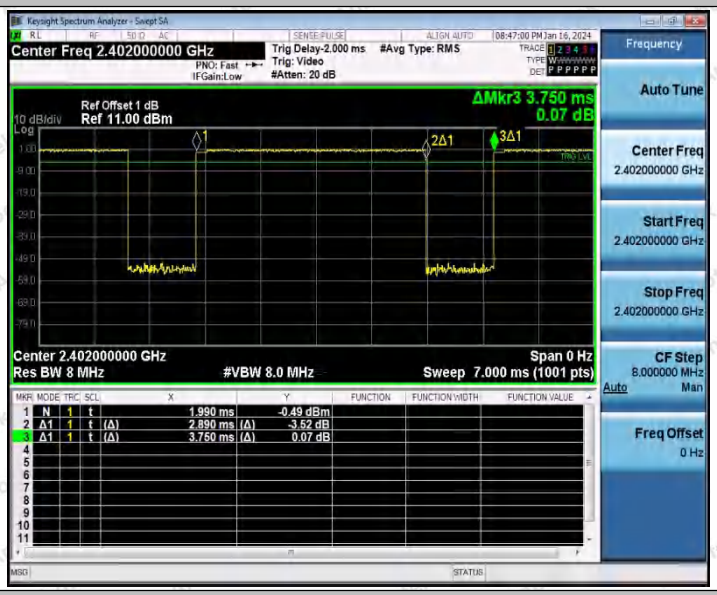
DH5_Ant1_2441



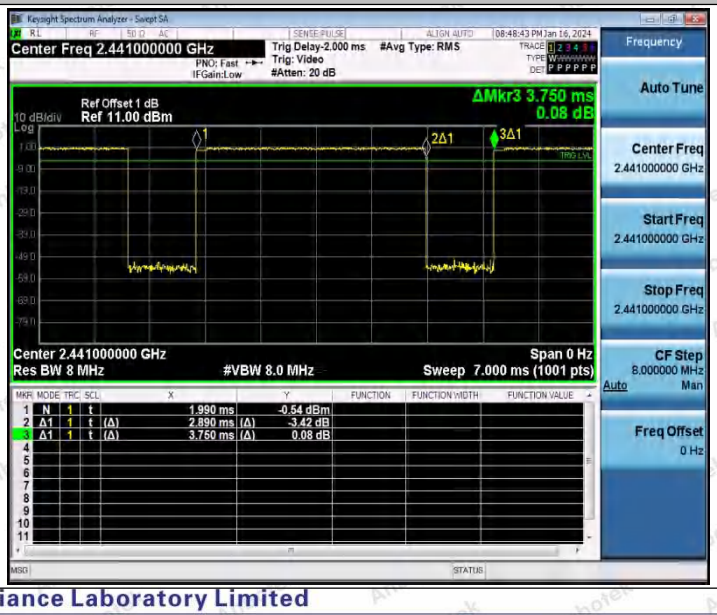
DH5_Ant1_2480



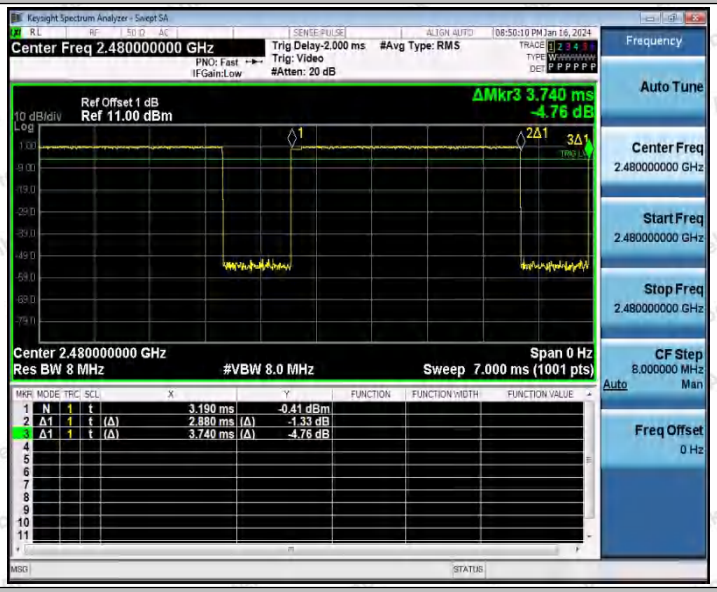
2DH5_Ant1_2402



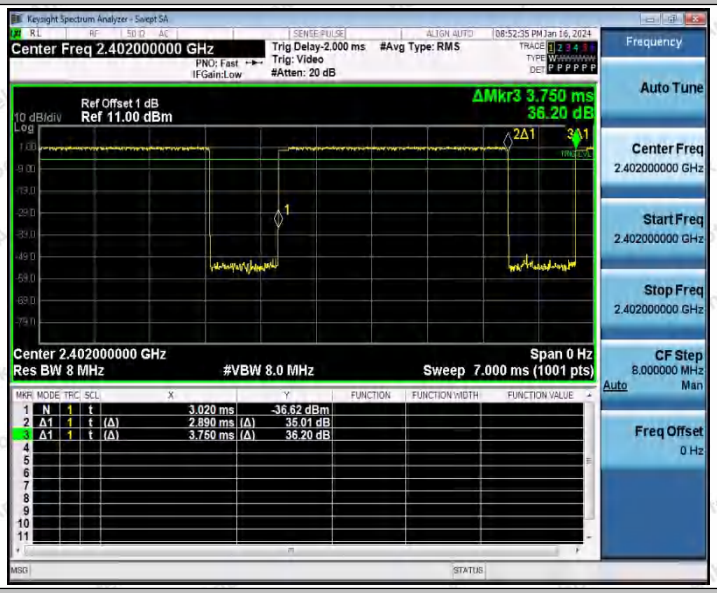
2DH5_Ant1_2441



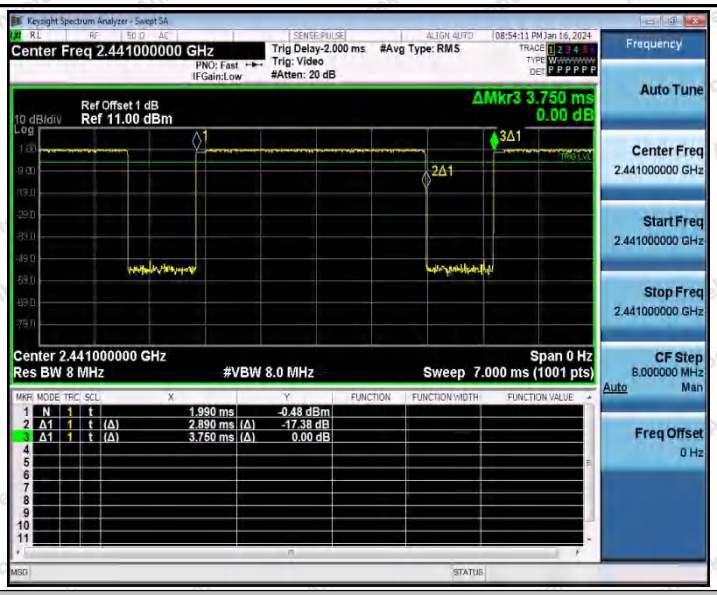
2DH5_Ant1_2480



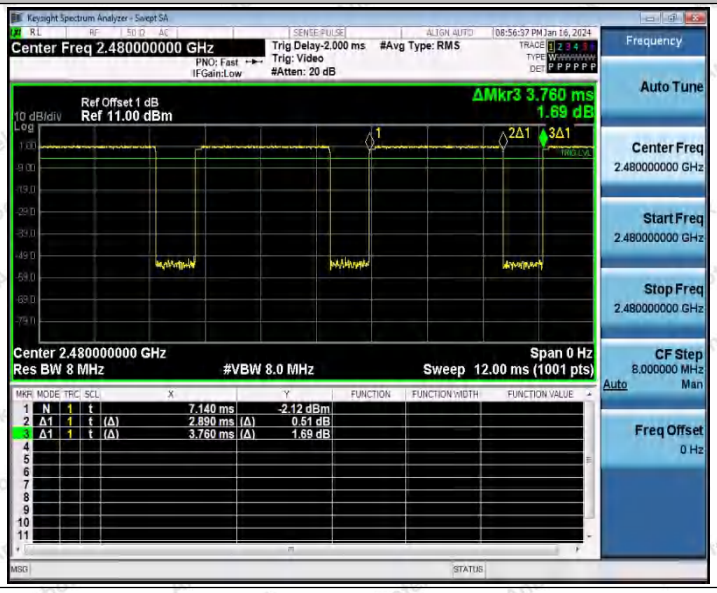
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



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