

Case No. : <u>GTS20240914011-1-01</u>	
Ambient Condition: <u>23</u> °C, <u>52</u> %RH	
According Standard: ■Part15C	
Test Date: <u>2024.9.24</u>	Test Engineer: <u>Evan ouyang</u>

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	0.855	2401.577	2402.432	---	---
		2441	0.864	2440.553	2441.417	---	---
		2480	0.885	2479.550	2480.435	---	---
2DH1	Ant1	2402	1.185	2401.391	2402.576	---	---
		2441	1.245	2440.370	2441.615	---	---
		2480	1.251	2479.367	2480.618	---	---

Test Graphs

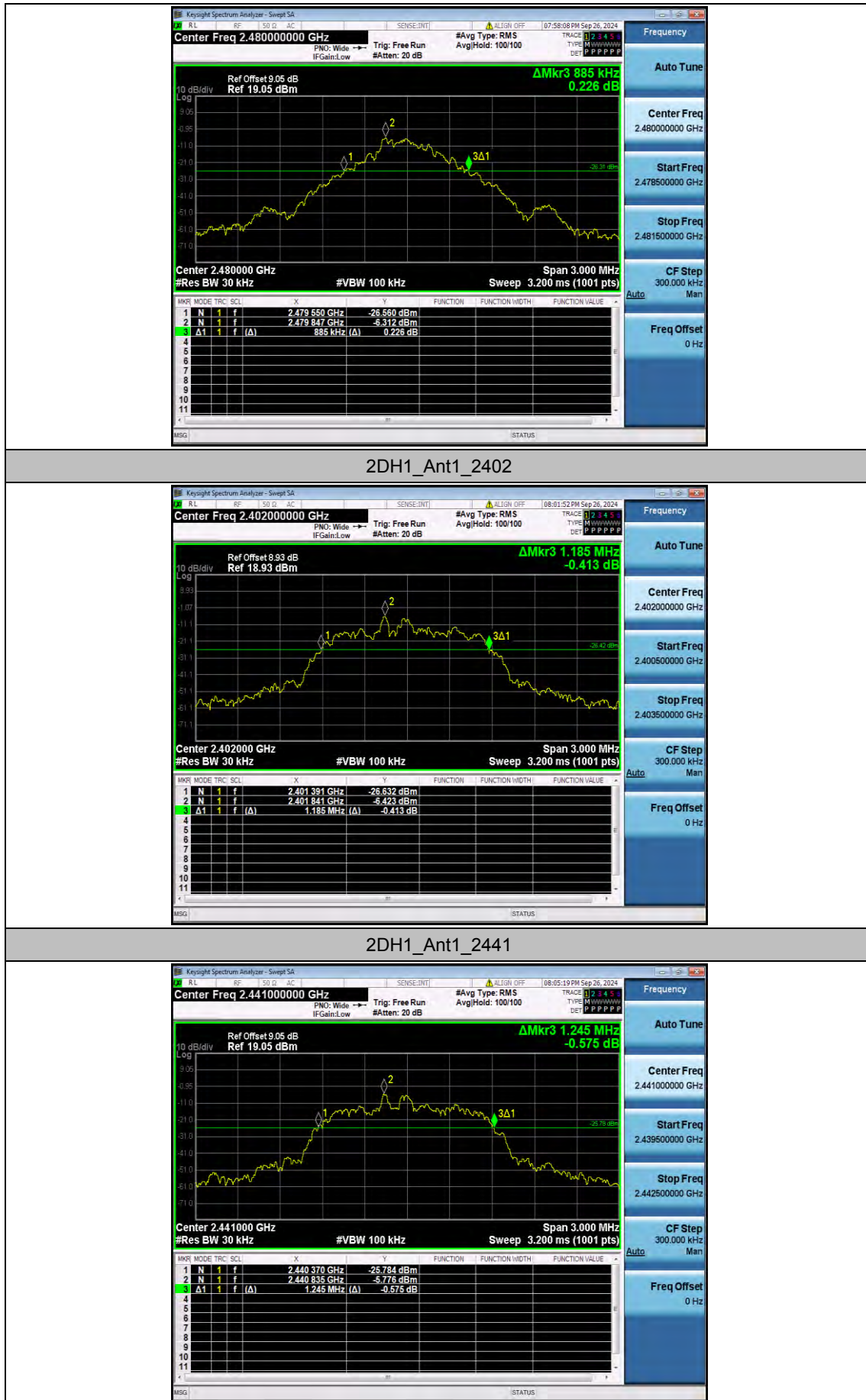
DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



2DH1_Ant1_2480

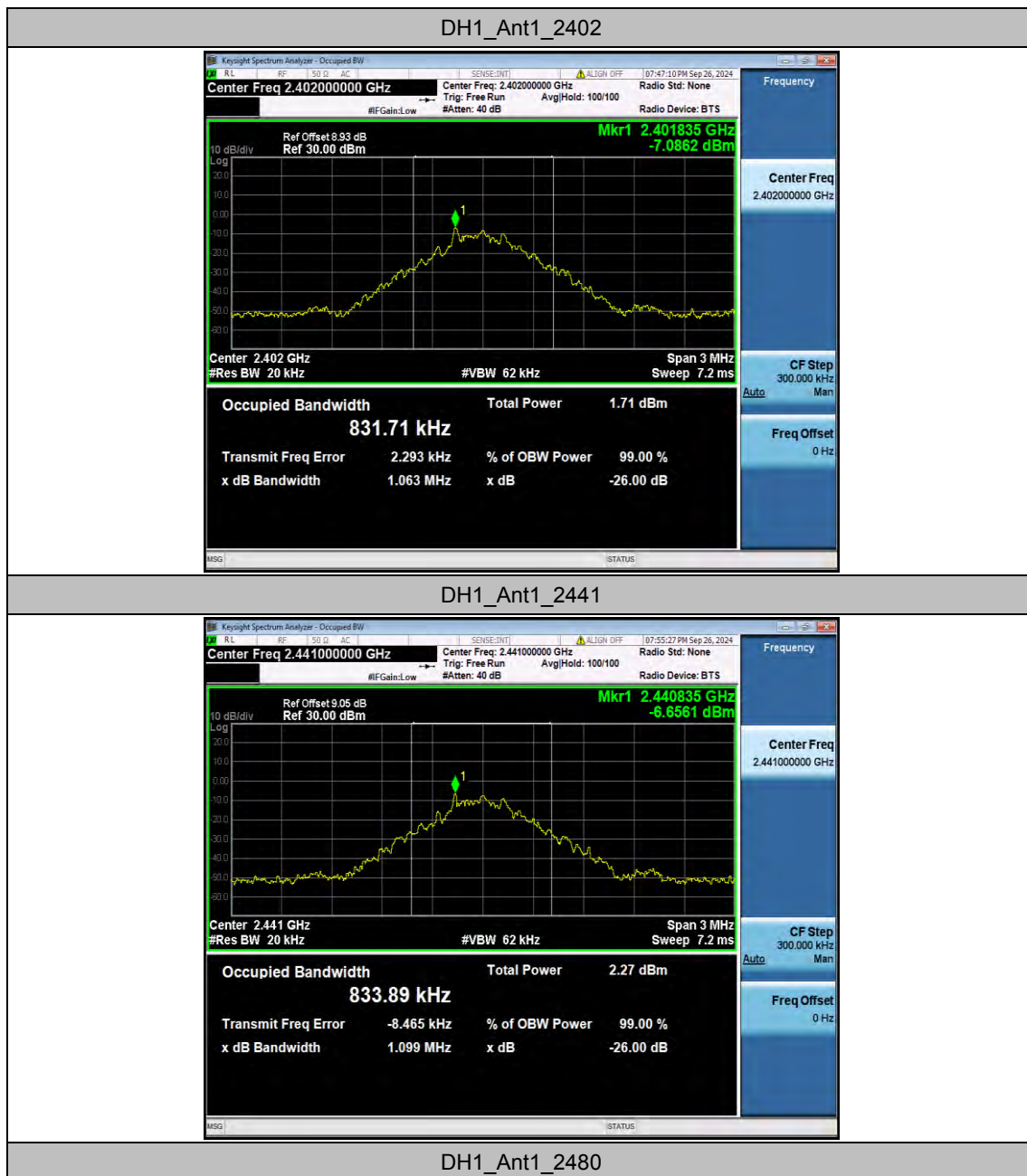


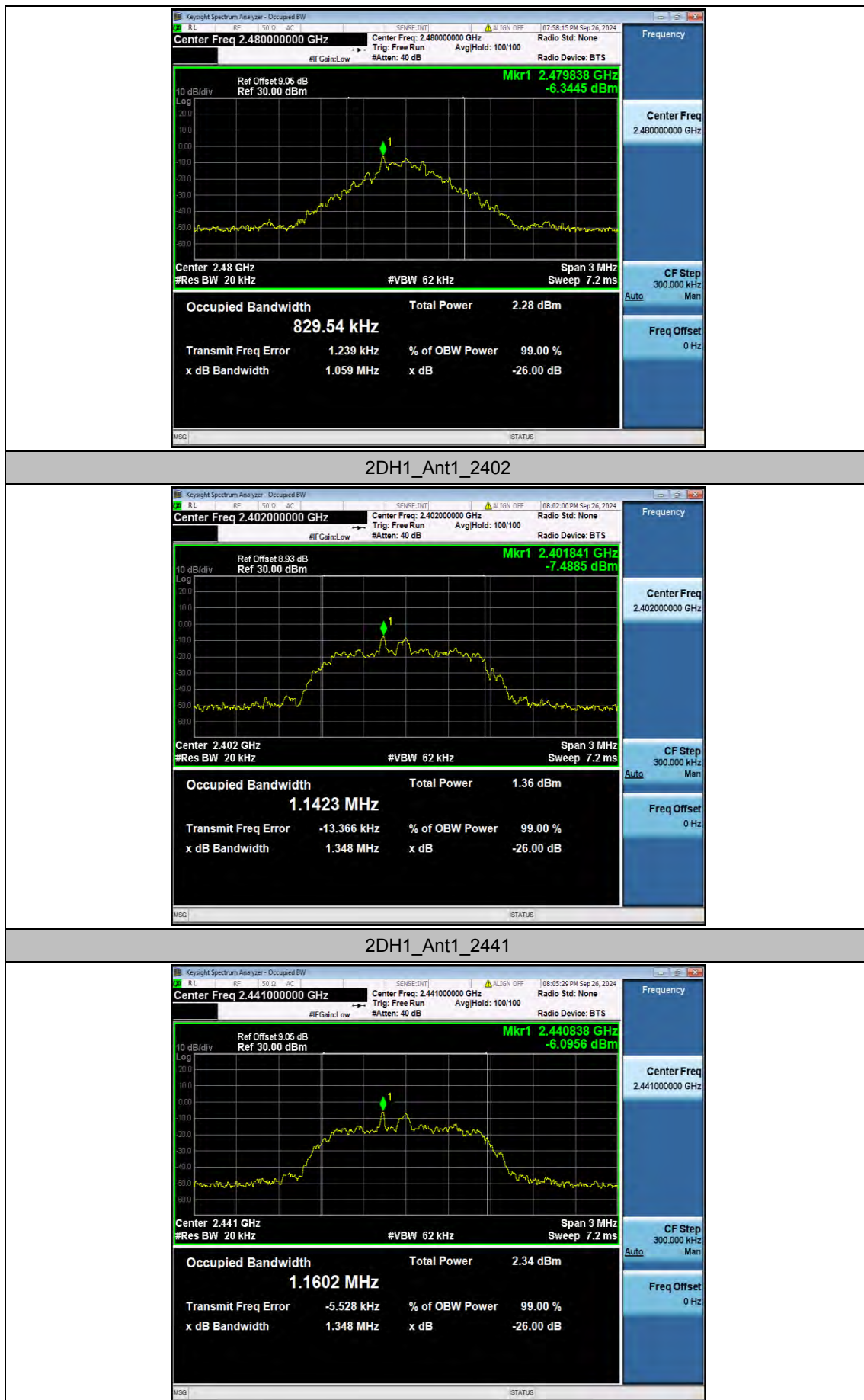
Appendix A.2: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH1	Ant1	2402	0.83171	2401.5864	2402.4181	---	---
		2441	0.83389	2440.5746	2441.4085	---	---
		2480	0.82954	2479.5865	2480.4160	---	---
2DH1	Ant1	2402	1.1423	2401.4155	2402.5578	---	---
		2441	1.1602	2440.4144	2441.5746	---	---
		2480	1.1575	2479.4152	2480.5727	---	---

Test Graphs





2DH1_Ant1_2480



Appendix A.3: Maximum conducted output power

Test Result Peak

Test Mode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH1	Ant1	2402	-4.15	≤20.97	PASS
		2441	-3.45	≤20.97	PASS
		2480	-3.49	≤20.97	PASS
2DH1	Ant1	2402	-3.13	≤20.97	PASS
		2441	-2.48	≤20.97	PASS
		2480	-2.97	≤20.97	PASS

Appendix A.4: Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH1	Ant1	Hop_2402	0.868	≥ 0.590	PASS
		Hop_2441	0.846	≥ 0.590	PASS
		Hop_2480	1.002	≥ 0.590	PASS
2DH1	Ant1	Hop_2402	0.862	≥ 0.834	PASS
		Hop_2441	1.024	≥ 0.834	PASS
		Hop_2480	1	≥ 0.834	PASS

Test Graphs

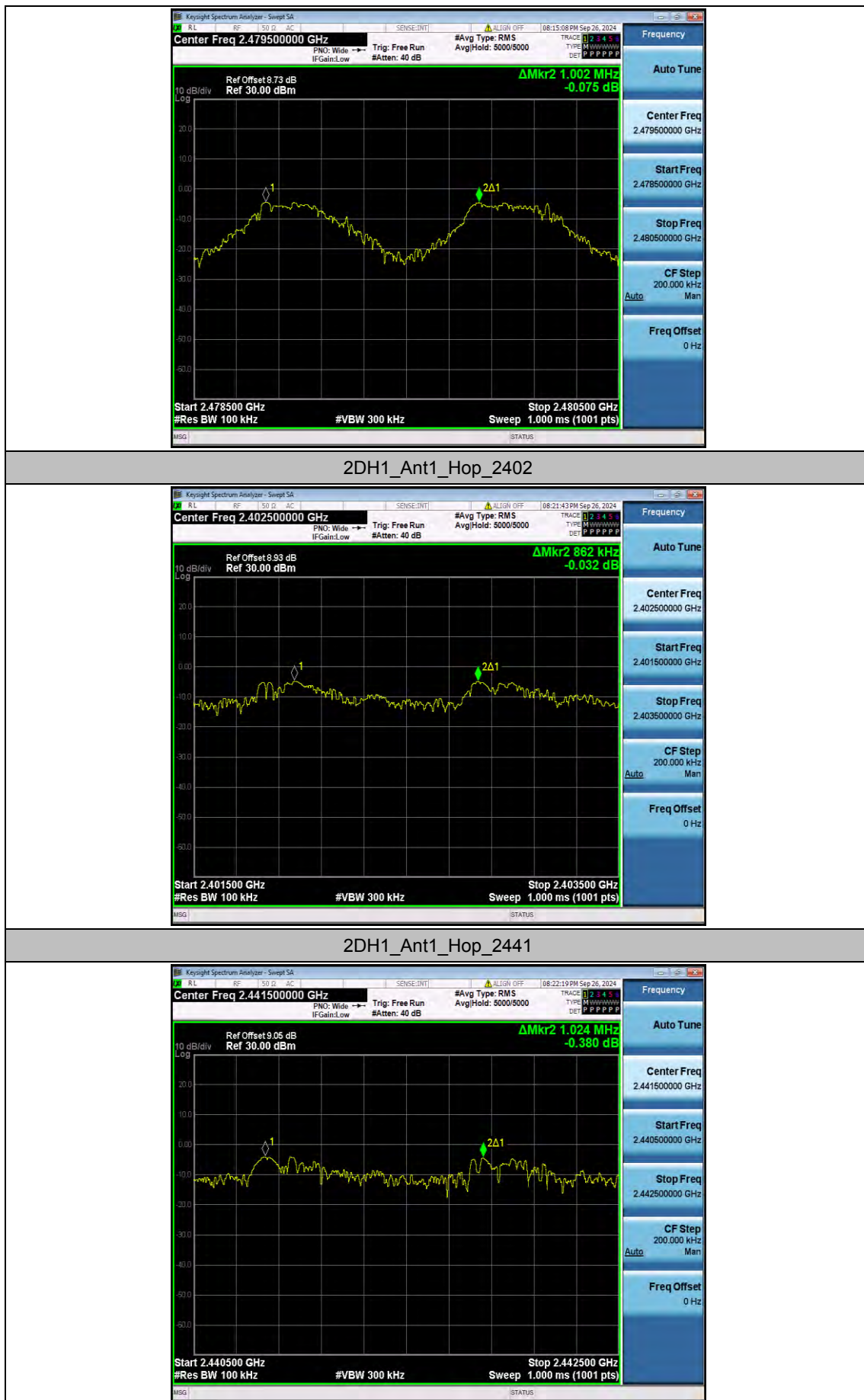
DH1_Ant1_Hop_2402



DH1_Ant1_Hop_2441



DH1_Ant1_Hop_2480



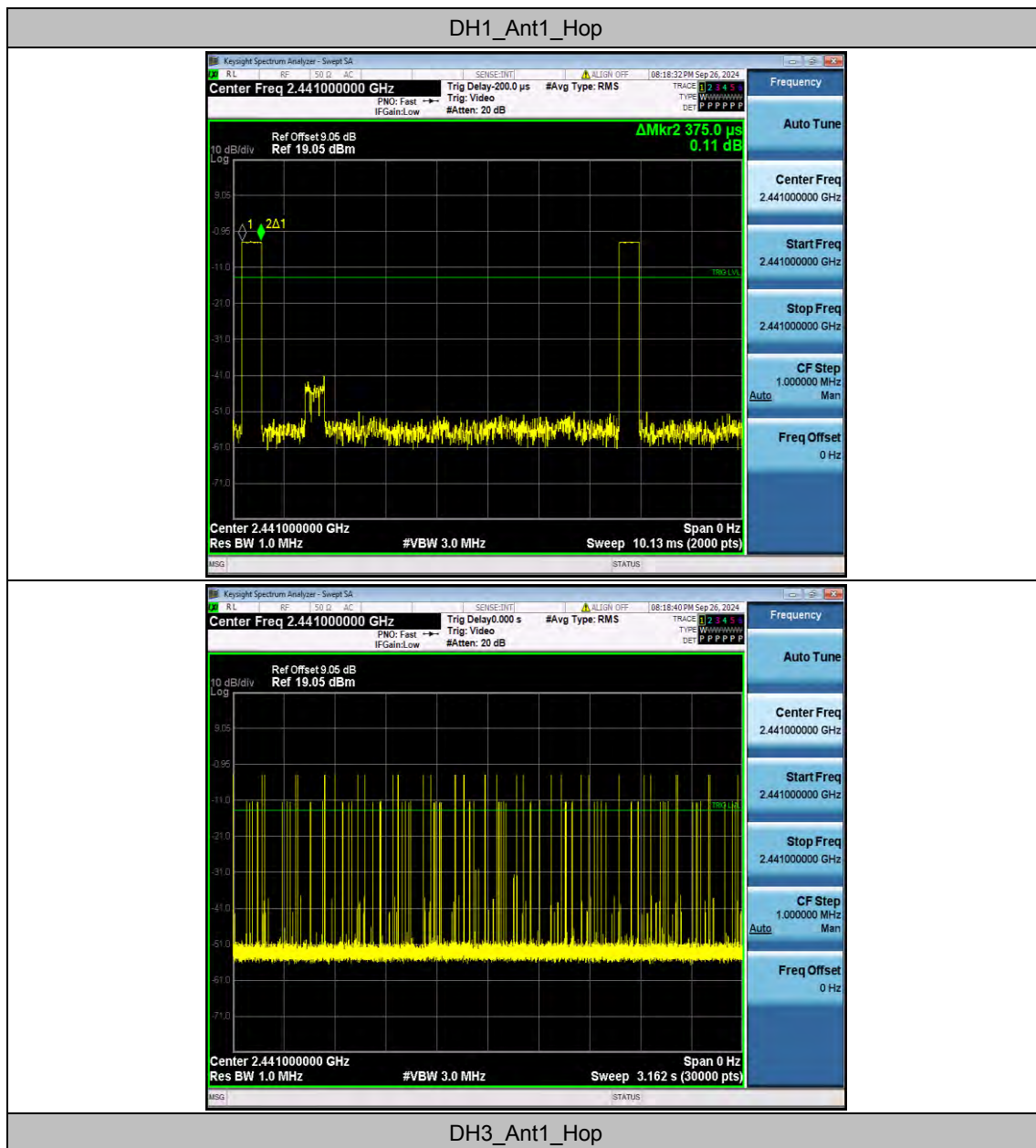


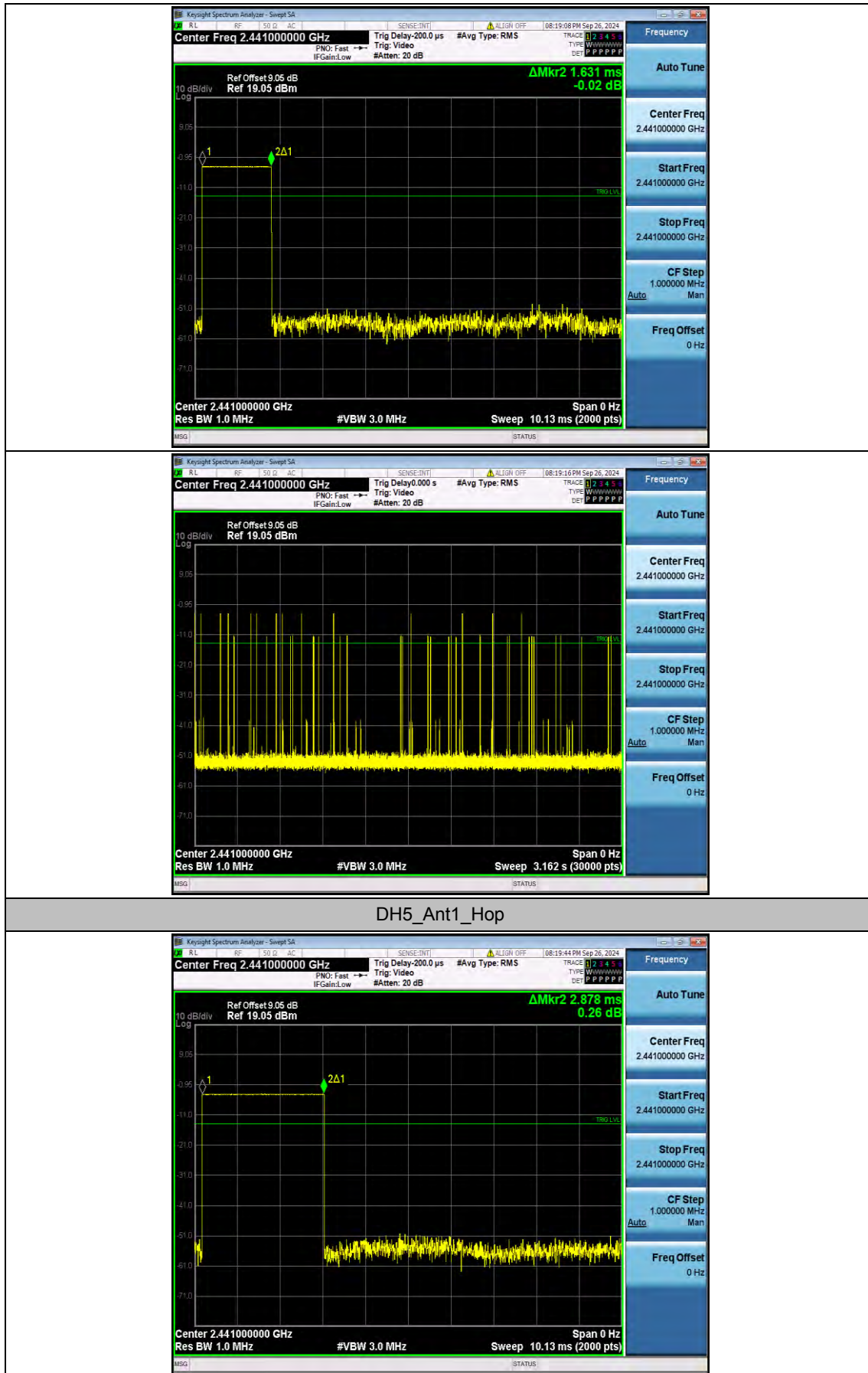
Appendix A.5: Time of occupancy

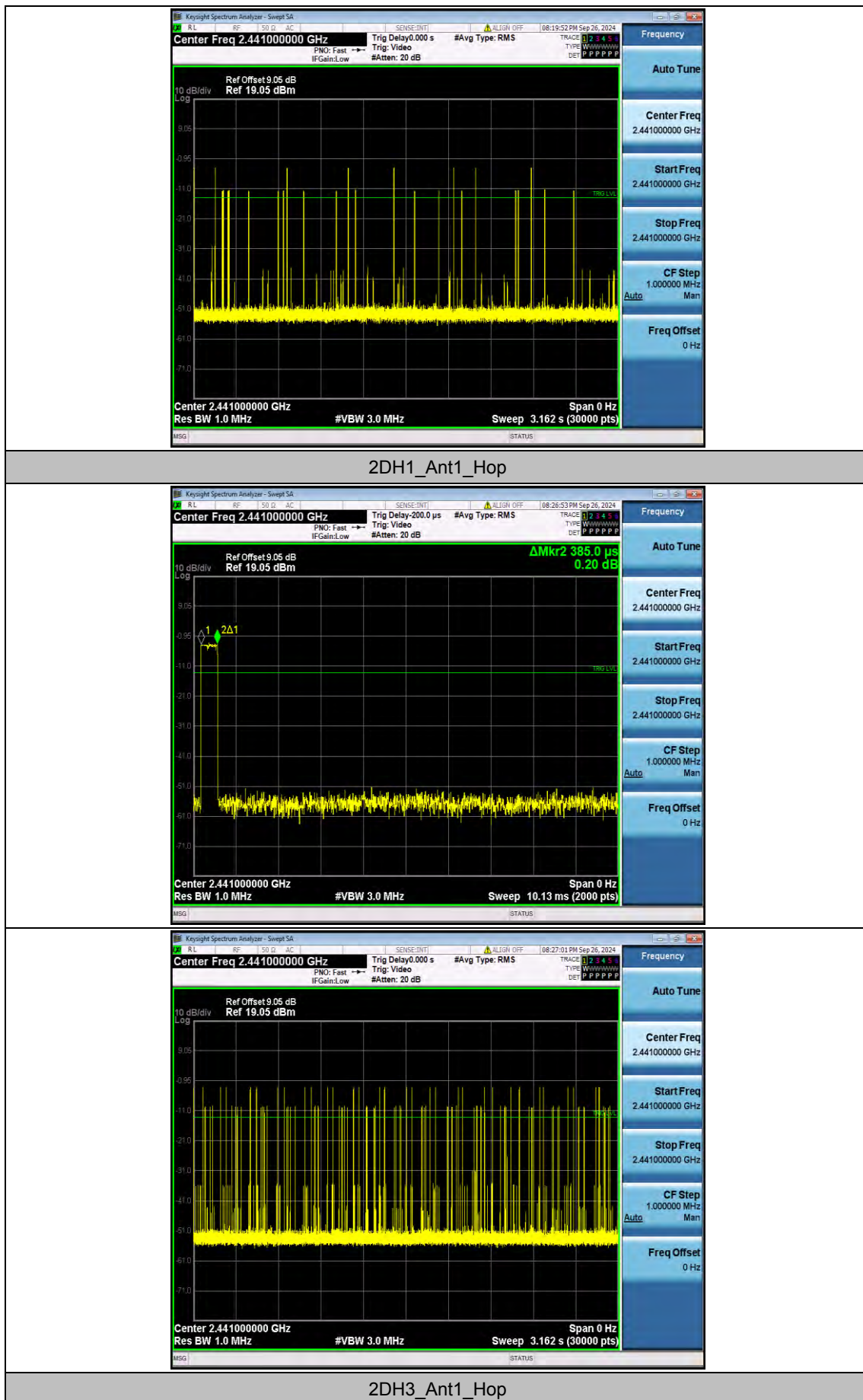
Test Result

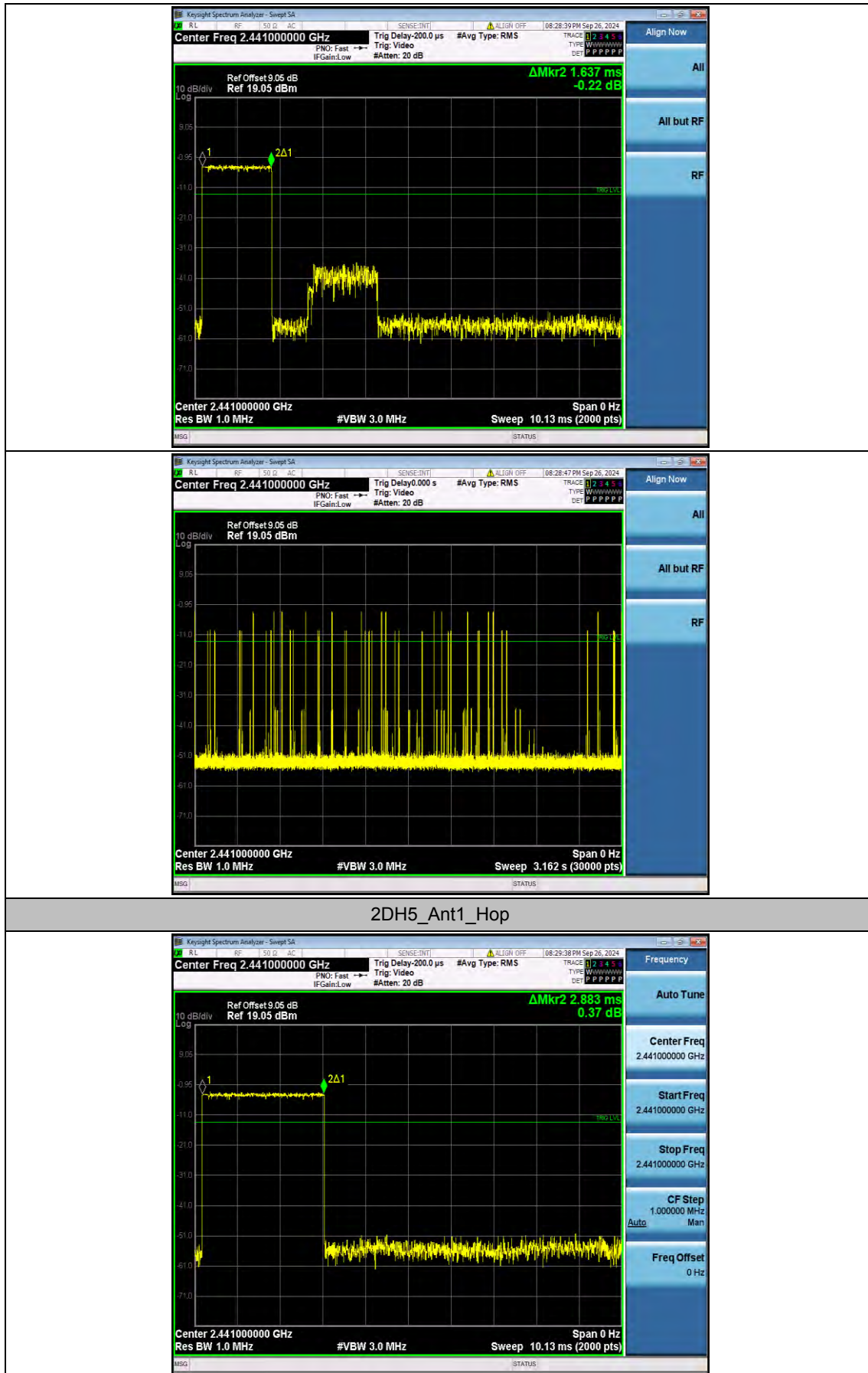
TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.375	320	0.12	≤0.4	PASS
DH3	Ant1	Hop	1.631	150	0.245	≤0.4	PASS
DH5	Ant1	Hop	2.878	80	0.23	≤0.4	PASS
2DH1	Ant1	Hop	0.385	320	0.123	≤0.4	PASS
2DH3	Ant1	Hop	1.637	160	0.262	≤0.4	PASS
2DH5	Ant1	Hop	2.883	130	0.375	≤0.4	PASS

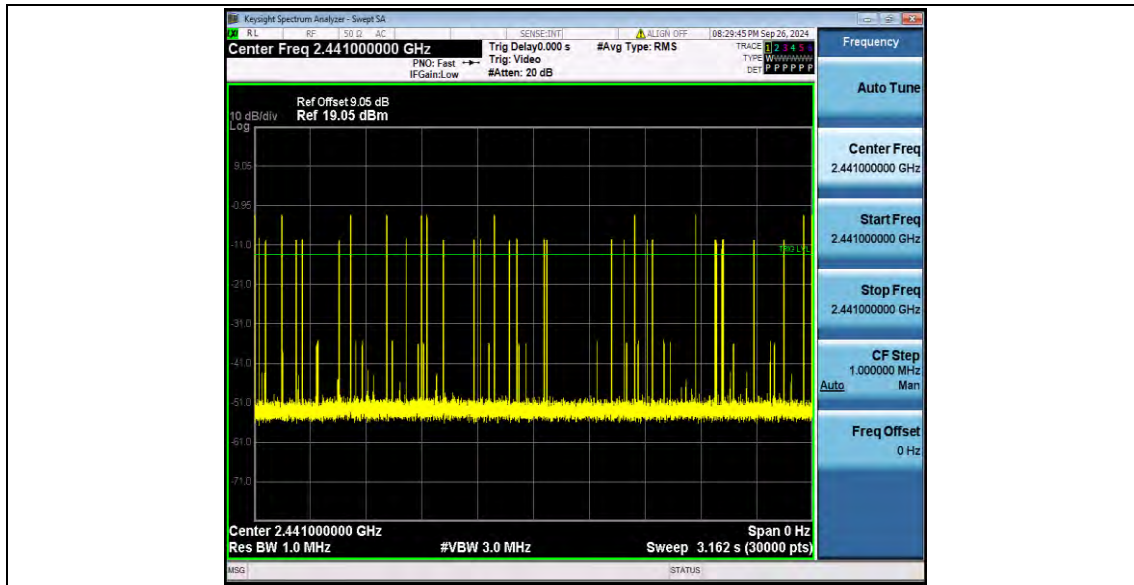
Test Graphs









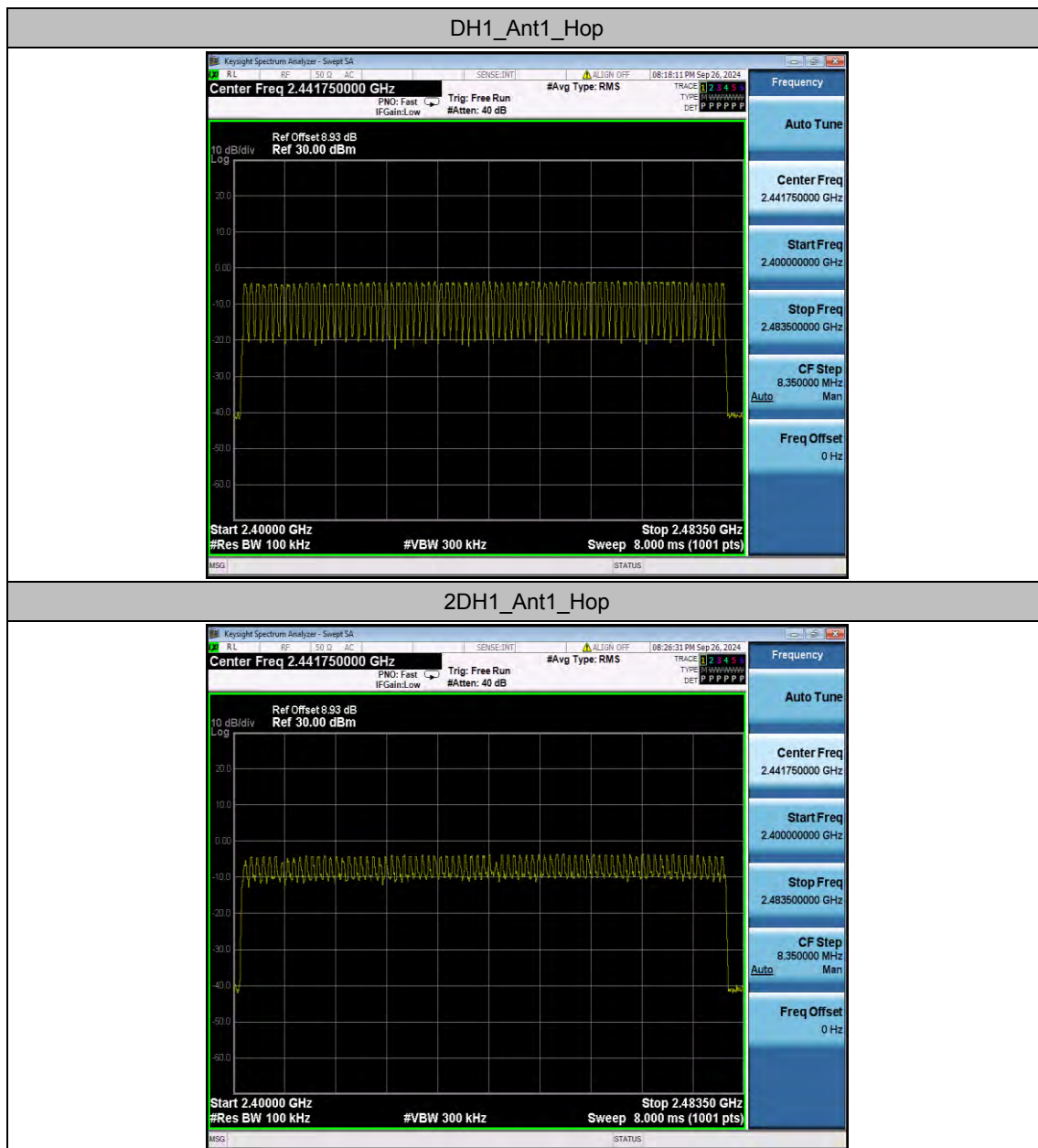


Appendix A.6: Number of hopping channels

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



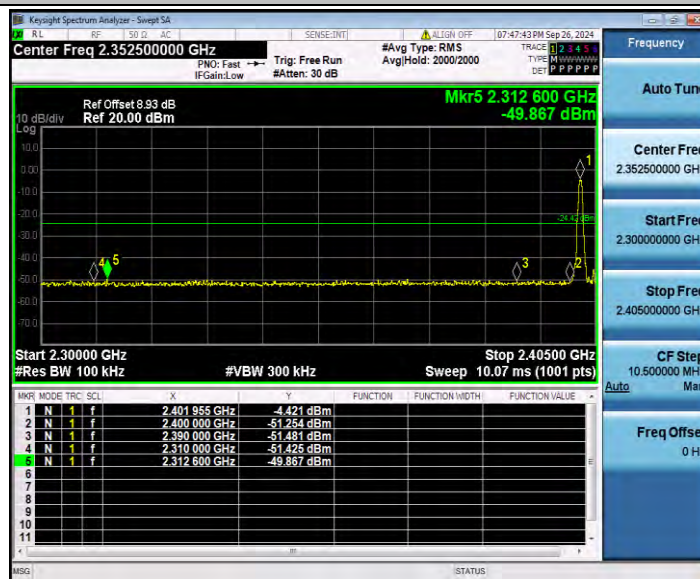
Appendix A.7: Band edge measurements

Test Result

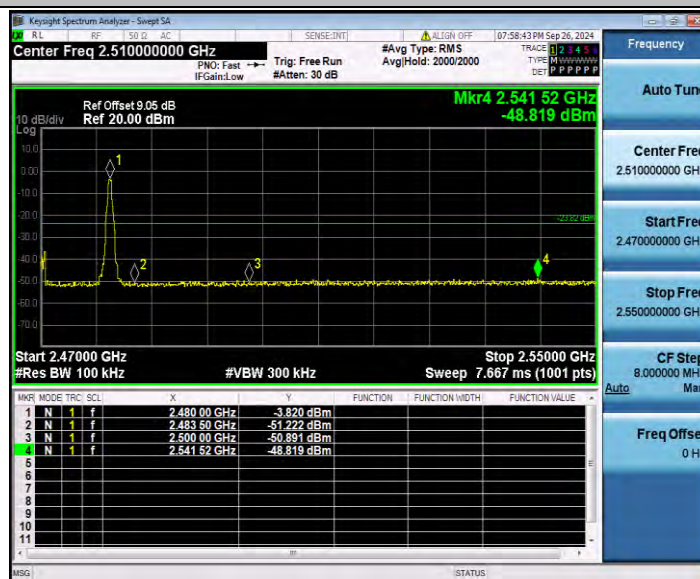
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	Low	2402	-4.42	-49.87	≤ -24.42	PASS
		High	2480	-3.82	-48.82	≤ -23.82	PASS
		Low	Hop_2402	-4.56	-42.08	≤ -24.56	PASS
		High	Hop_2480	-4.33	-48.82	≤ -24.33	PASS
2DH1	Ant1	Low	2402	-4.25	-36.25	≤ -24.25	PASS
		High	2480	-3.88	-47.91	≤ -23.88	PASS
		Low	Hop_2402	-4.67	-47.03	≤ -24.67	PASS
		High	Hop_2480	-4.09	-48.86	≤ -24.09	PASS

Test Graphs

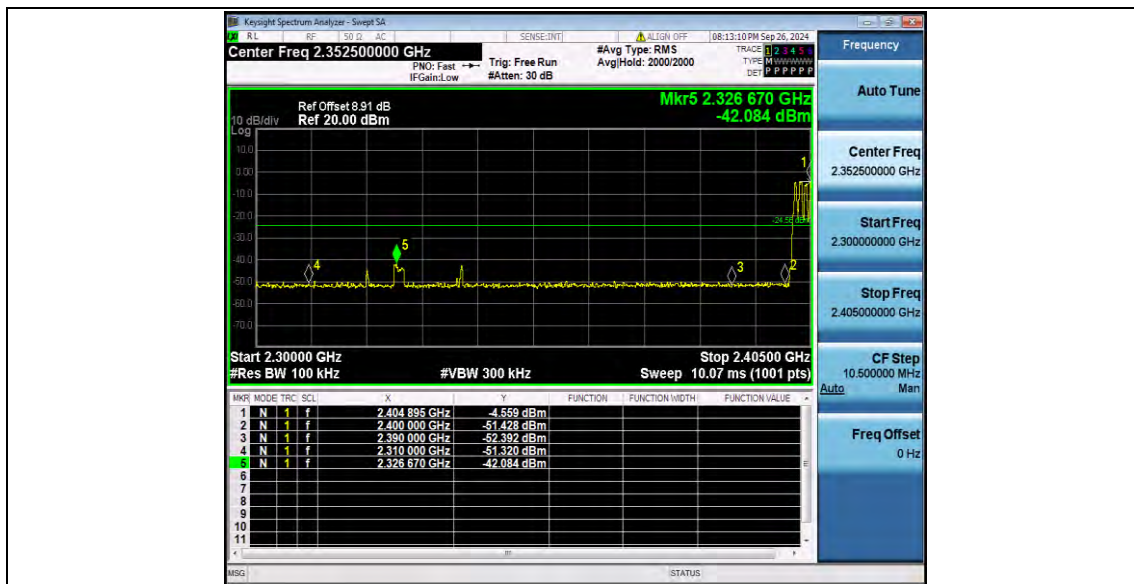
DH1_Ant1_Low_2402



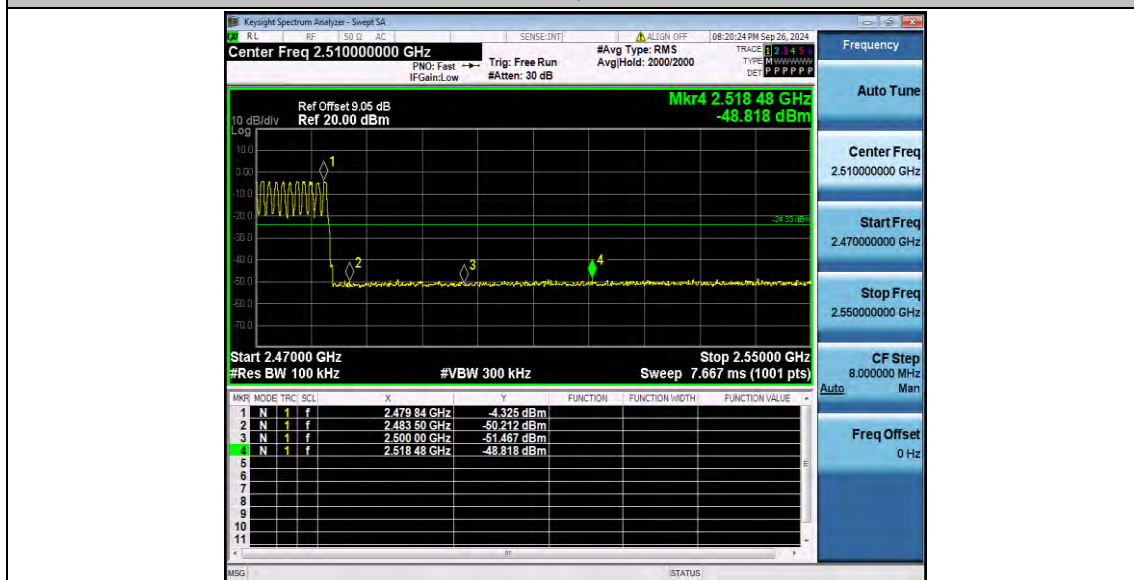
DH1_Ant1_High_2480



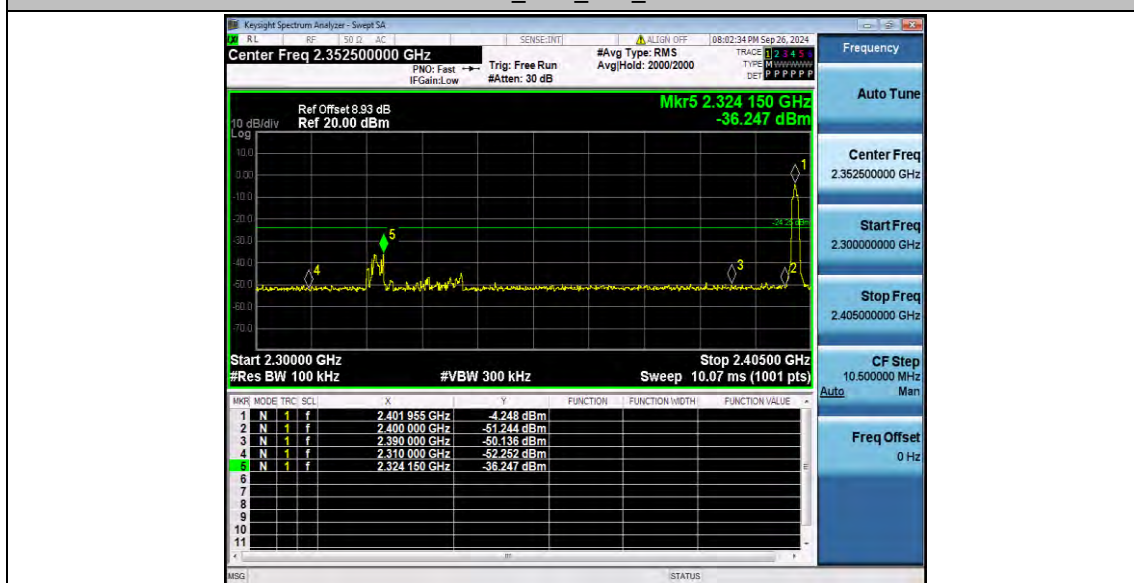
DH1_Ant1_Low_Hop_2402



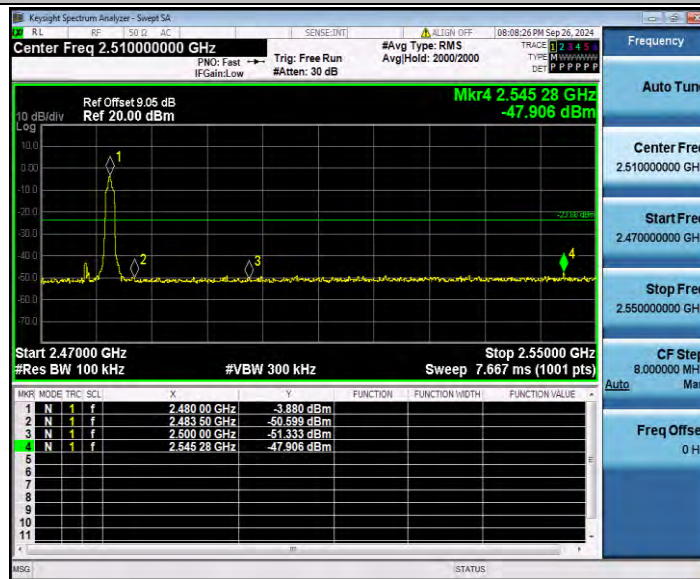
DH1_Ant1_High_Hop_2480



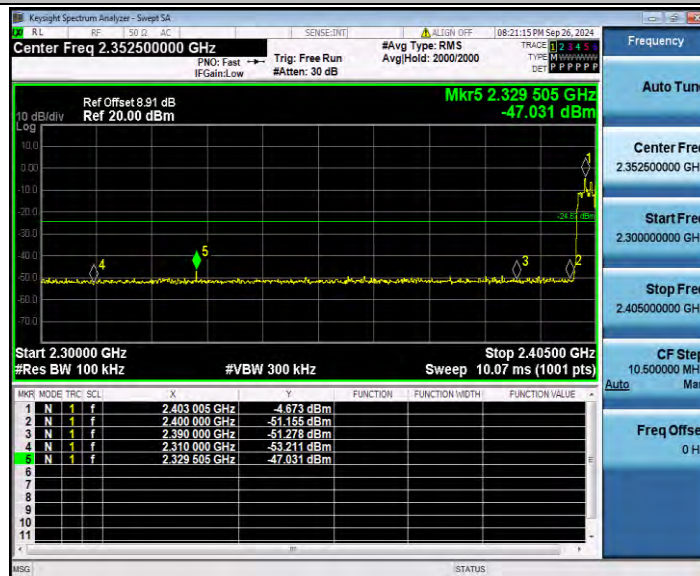
2DH1_Ant1_Low_2402



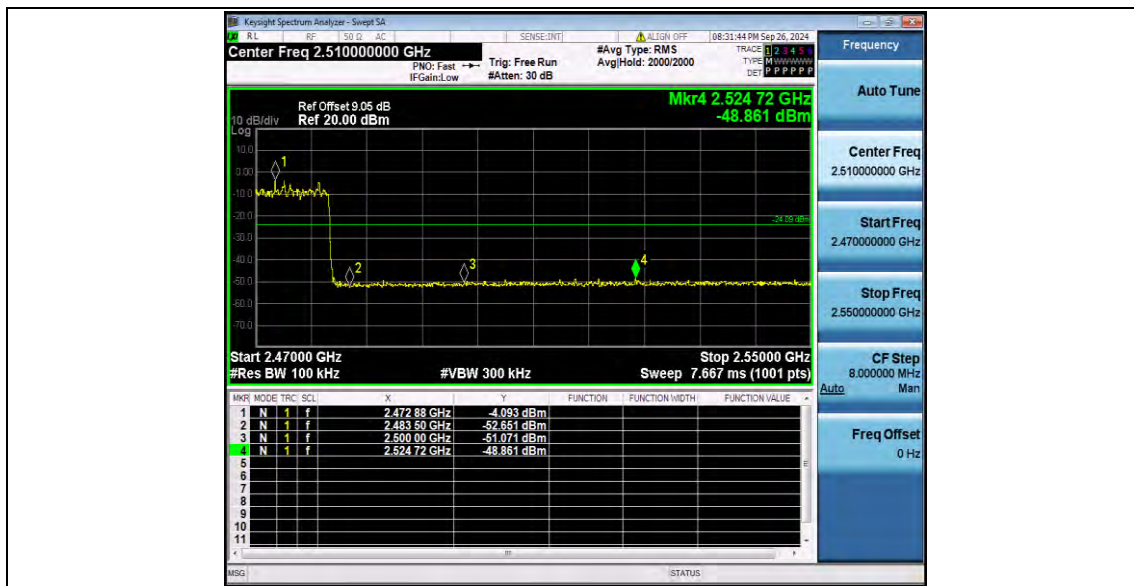
2DH1_Ant1_High_2480



2DH1_Ant1_Low_Hop_2402



2DH1_Ant1_High_Hop_2480

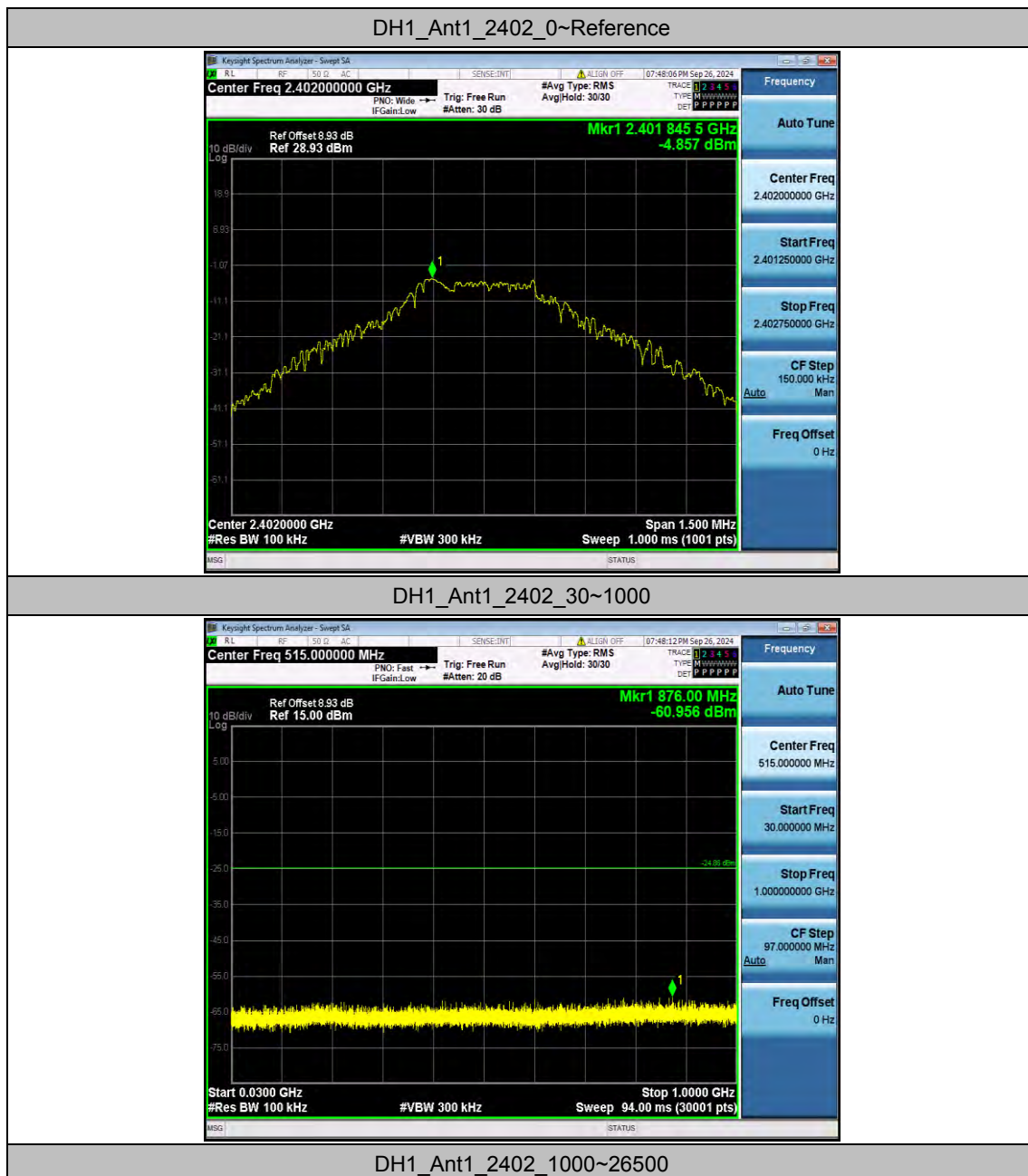


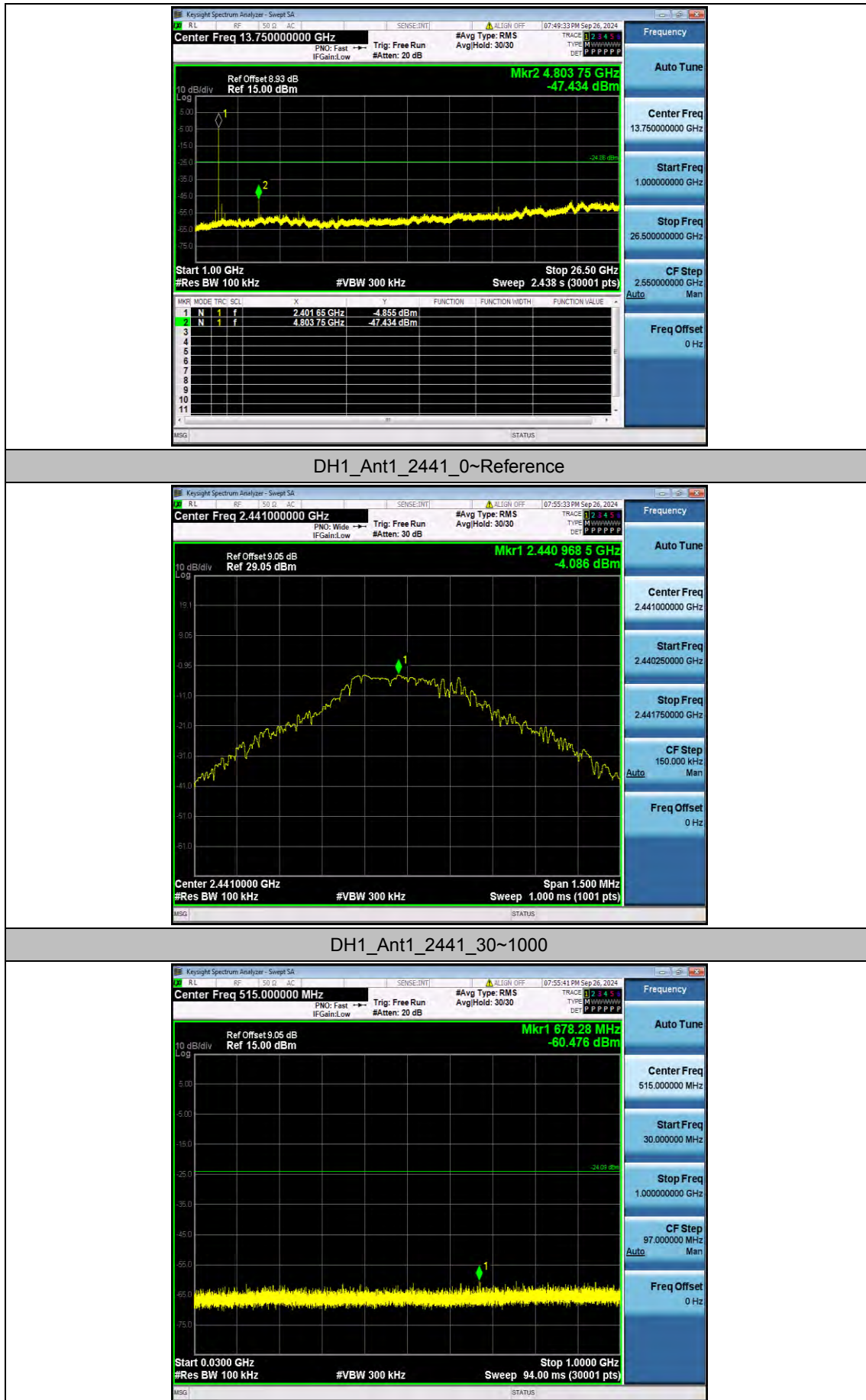
Appendix A.8: Conducted Spurious Emission

Test Result

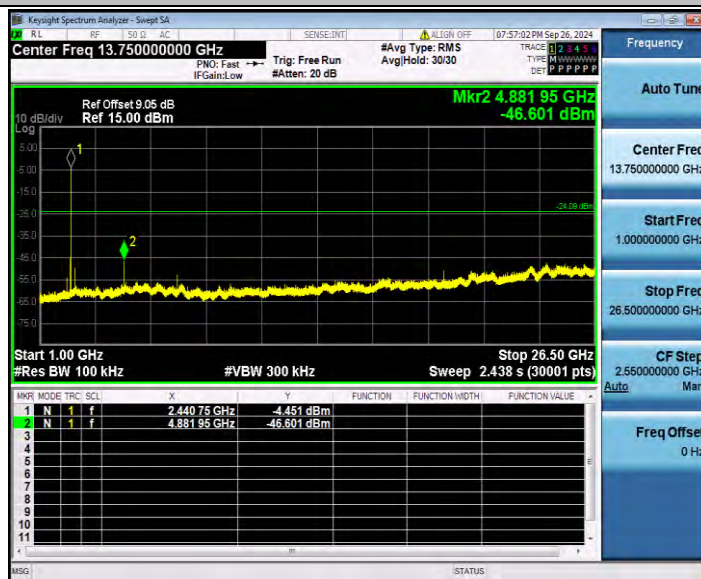
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	2402	Reference	-4.86	-4.86	---	PASS
			30~1000	-4.86	-60.96	≤ -24.86	PASS
			1000~26500	-4.86	-47.43	≤ -24.86	PASS
		2441	Reference	-4.09	-4.09	---	PASS
			30~1000	-4.09	-60.48	≤ -24.09	PASS
			1000~26500	-4.09	-46.6	≤ -24.09	PASS
		2480	Reference	-4.19	-4.19	---	PASS
			30~1000	-4.19	-60.22	≤ -24.19	PASS
			1000~26500	-4.19	-46.72	≤ -24.19	PASS
2DH1	Ant1	2402	Reference	-4.82	-4.82	---	PASS
			30~1000	-4.82	-61.02	≤ -24.82	PASS
			1000~26500	-4.82	-34.68	≤ -24.82	PASS
		2441	Reference	-4.01	-4.01	---	PASS
			30~1000	-4.01	-60.13	≤ -24.01	PASS
			1000~26500	-4.01	-40.6	≤ -24.01	PASS
		2480	Reference	-4.71	-4.71	---	PASS
			30~1000	-4.71	-60.95	≤ -24.71	PASS
			1000~26500	-4.71	-44.74	≤ -24.71	PASS

Test Graphs





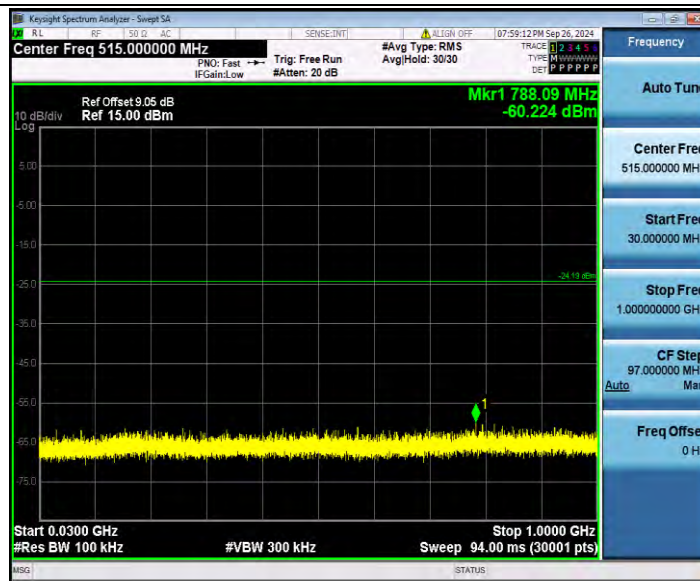
DH1_Ant1_2441_1000~26500



DH1_Ant1_2480_0~Reference



DH1_Ant1_2480_30~1000



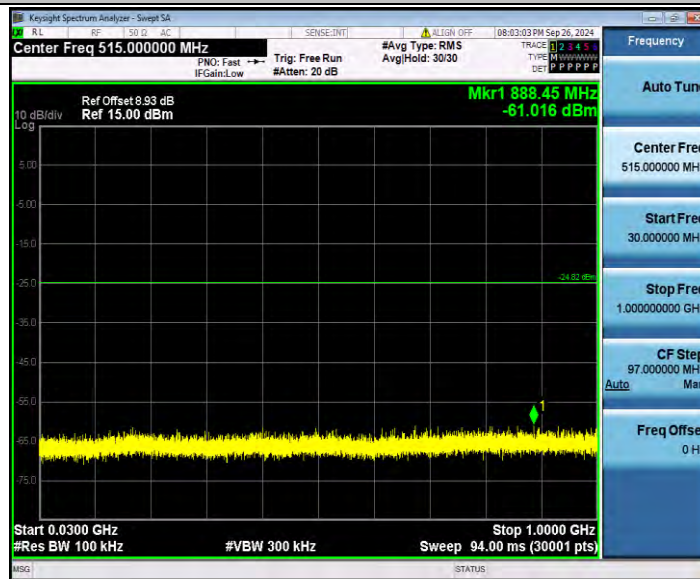
DH1_Ant1_2480_1000~26500



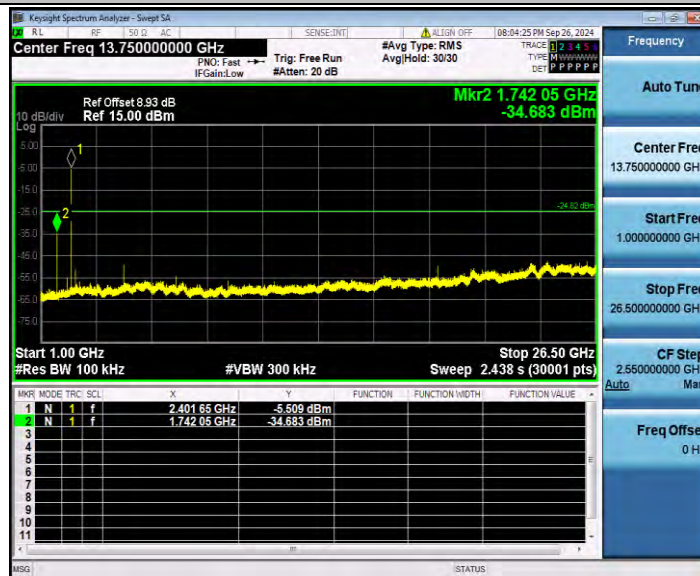
2DH1_Ant1_2402_0~Reference



2DH1_Ant1_2402_30~1000



2DH1_Ant1_2402_1000~26500



2DH1_Ant1_2441_0~Reference

Keysight Spectrum Analyzer - Swept SA

Center Freq 515.000000 MHz

Ref Offset 9.05 dB
Ref 15.00 dBm

Start 0.0300 GHz
#Res BW 100 kHz

Stop 1.0000 GHz
Sweep 94.00 ms (30001 pts)

#VBW 300 kHz

Trig: Free Run
#Atten: 20 dB

#Avg Type: RMS
Avg/Hold: 30/30

ALIGN OFF

08:05:41 PM Sep 26, 2024

TRACE 1 2 x 4 x 5
TYPE M WWWWWW
DET P P P P P P

Frequency

Auto Tune

Center Freq
515.000000 MHz

Start Freq
30.000000 MHz

Stop Freq
1.000000000 GHz

CF Step
97.000000 MHz
Man

Auto

Freq Offset
0 Hz

10 dB/div
Log

Mkr1 996.02 MHz
-60.130 dBm

-20.01 dBm

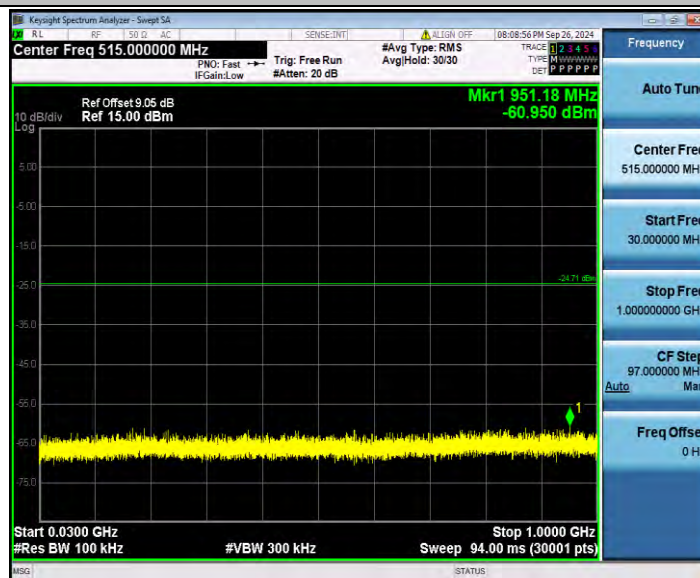
MSG STATUS

[illegible]

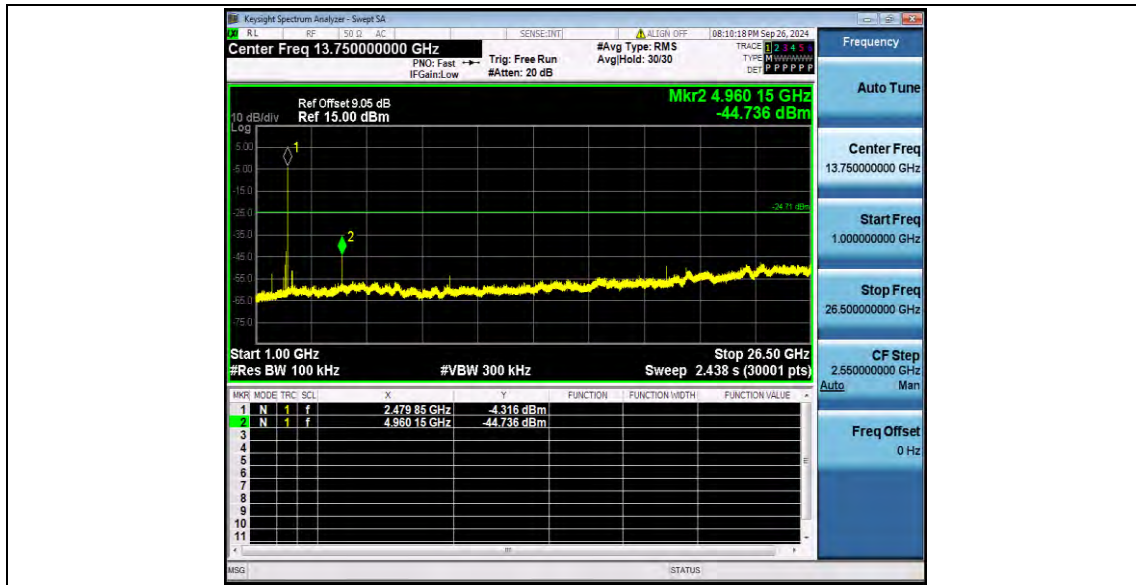
2DH1_Ant1_2480_0~Reference



2DH1_Ant1_2480_30~1000



2DH1_Ant1_2480_1000~26500



Appendix A.9: Emissions in Restricted Bands

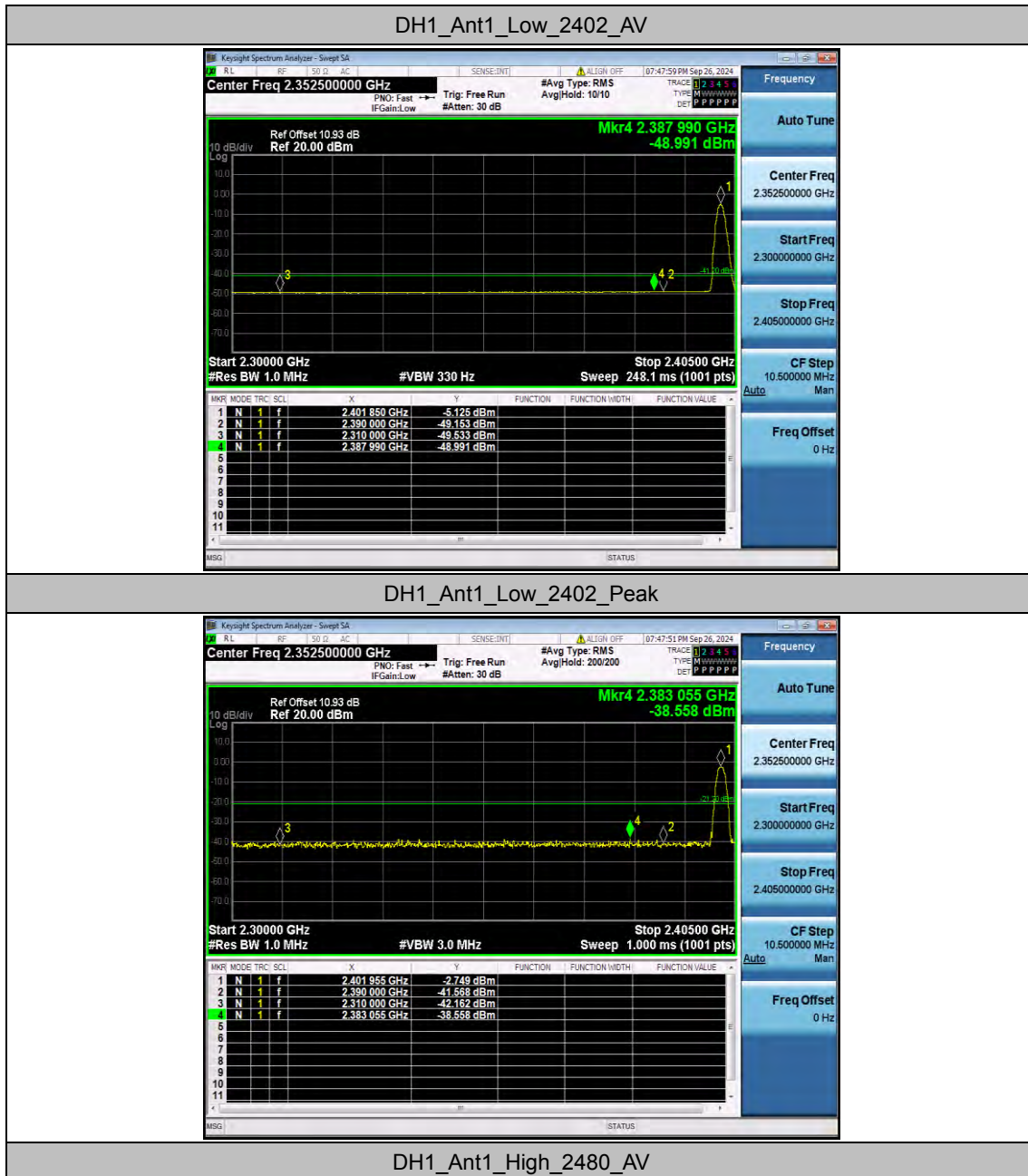
Test Result

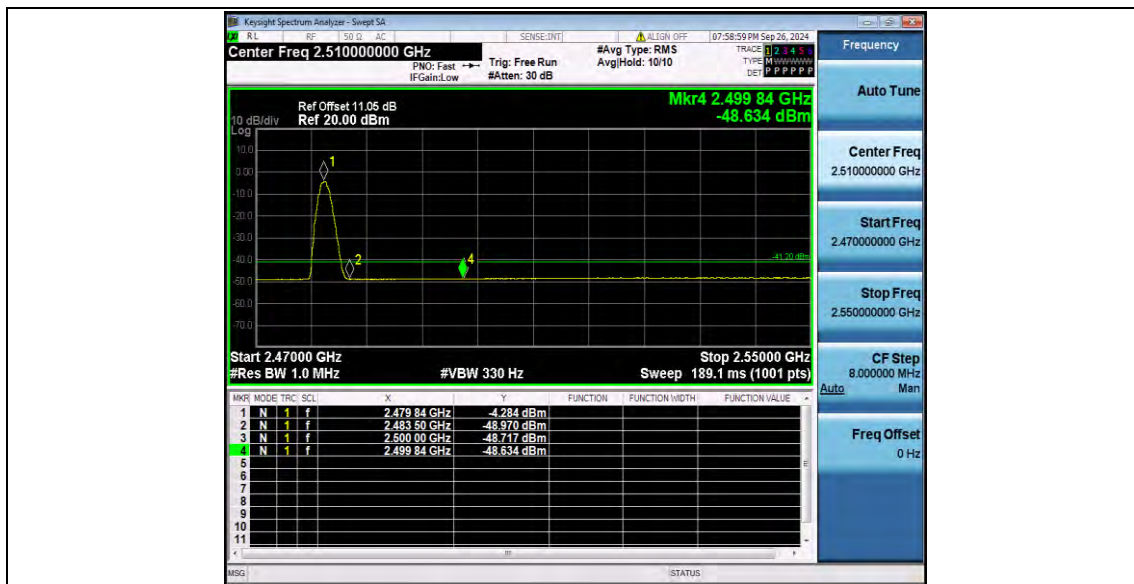
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH1	Ant1	Low	2402	AV	2310.000	-49.53	≤-41.20	45.67	≤54	PASS
				AV	2387.990	-48.99	≤-41.20	46.21	≤54	PASS
				AV	2390.000	-49.15	≤-41.20	46.05	≤54	PASS
				Peak	2310.000	-42.16	≤-21.20	53.04	≤74	PASS
				Peak	2383.055	-38.56	≤-21.20	56.64	≤74	PASS
				Peak	2390.000	-41.57	≤-21.20	53.63	≤74	PASS
		High	2480	AV	2483.500	-48.97	≤-41.20	46.23	≤54	PASS
				AV	2499.840	-48.63	≤-41.20	46.57	≤54	PASS
				AV	2500.000	-48.72	≤-41.20	46.48	≤54	PASS
				Peak	2483.500	-41.63	≤-21.20	53.57	≤74	PASS
				Peak	2492.400	-38.74	≤-21.20	56.46	≤74	PASS
				Peak	2500.000	-40.71	≤-21.20	54.49	≤74	PASS
2DH1	Ant1	Low	2402	AV	2310.000	-49.49	≤-41.20	45.71	≤54	PASS
				AV	2332.025	-45.72	≤-41.20	49.48	≤54	PASS
				AV	2390.000	-49.04	≤-41.20	46.16	≤54	PASS
				Peak	2310.000	-41.93	≤-21.20	53.27	≤74	PASS
				Peak	2329.295	-33.15	≤-21.20	62.05	≤74	PASS
				Peak	2390.000	-41.17	≤-21.20	54.03	≤74	PASS
		High	2480	AV	2483.500	-48.79	≤-41.20	46.41	≤54	PASS
				AV	2498.320	-48.64	≤-41.20	46.56	≤54	PASS
				AV	2500.000	-48.69	≤-41.20	46.51	≤54	PASS
				Peak	2483.500	-41.35	≤-21.20	53.85	≤74	PASS
				Peak	2490.800	-39.16	≤-21.20	56.04	≤74	PASS
				Peak	2500.000	-41.41	≤-21.20	53.79	≤74	PASS

Note:

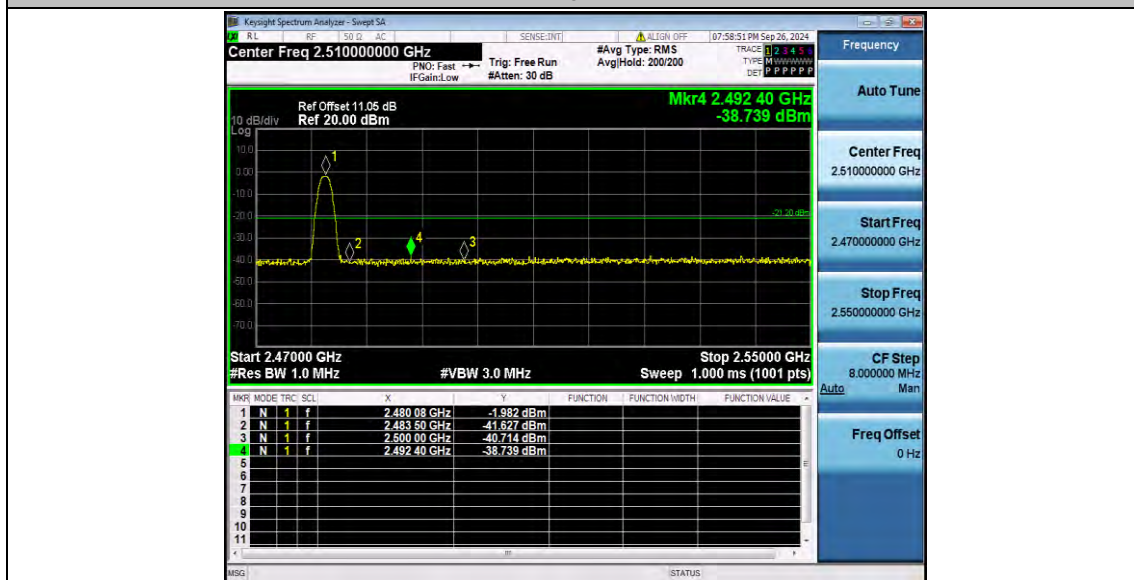
1. The Antenna Gain is compensated in the graph.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
3. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

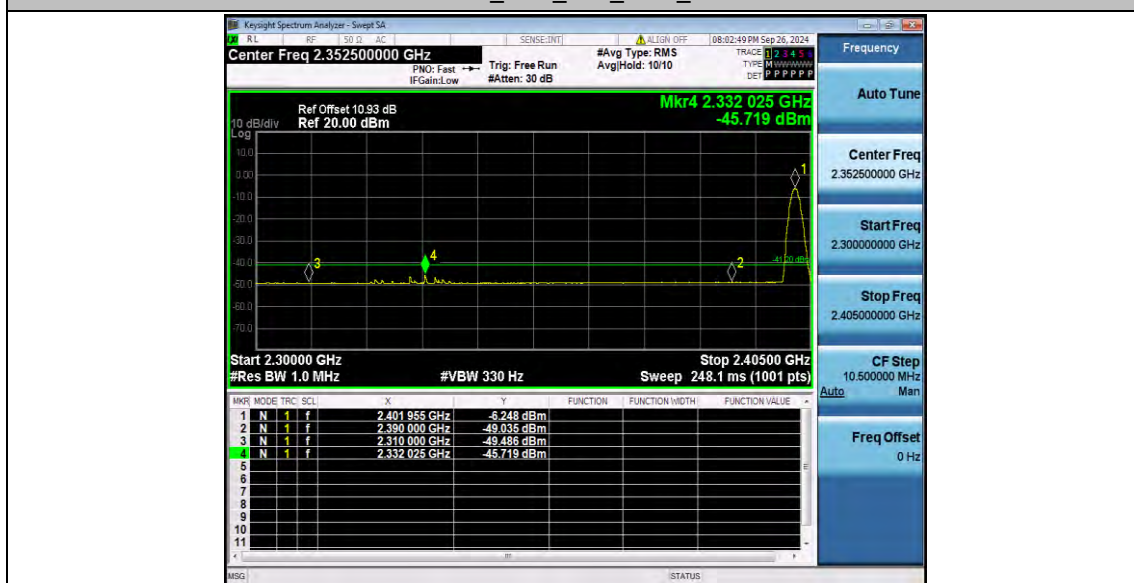




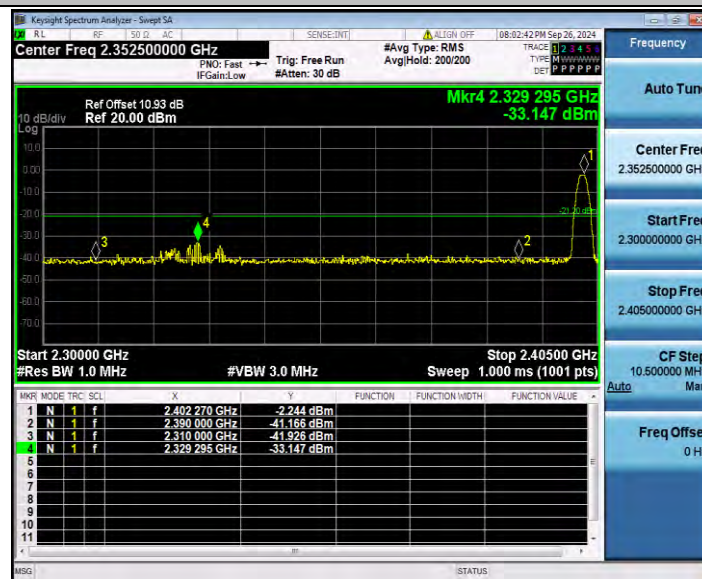
DH1_Ant1_High_2480_Peak



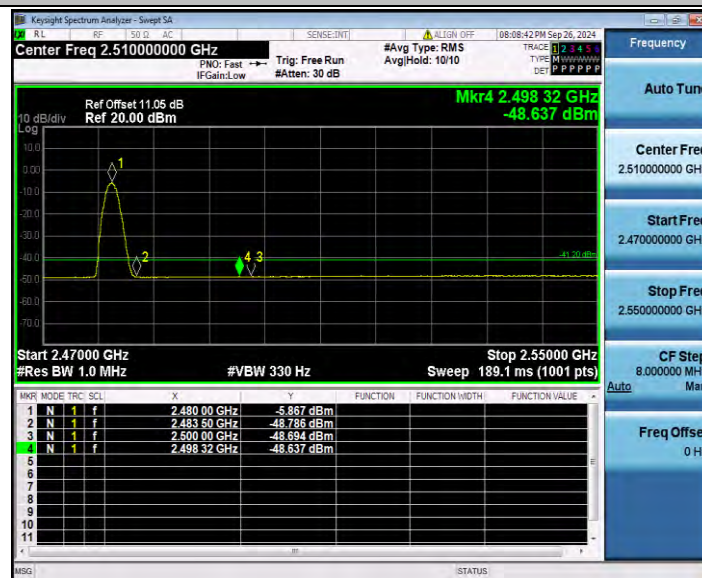
2DH1_Ant1_Low_2402_AV



2DH1_Ant1_Low_2402_Peak



2DH1_Ant1_High_2480_AV



2DH1_Ant1_High_2480_Peak

