

Case No. : <u>CTA24111500601</u>	
Ambient Condition: <u>23</u> °C, <u>52</u> %RH	
According Standard: ■Part15C	
Test Date: <u>2024.10.15</u>	Test Engineer: <u>Lushan Kong</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	0.888	2401.544	2402.432	---	---
		2441	0.858	2440.550	2441.408	---	---
		2480	0.891	2479.541	2480.432	---	---
2DH1	Ant1	2402	1.290	2401.334	2402.624	---	---
		2441	1.254	2440.364	2441.618	---	---
		2480	1.233	2479.364	2480.597	---	---

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	0.84734	2401.5727	2402.4200	---	---
		2441	0.84390	2440.5772	2441.4211	---	---
		2480	0.85651	2479.5652	2480.4217	---	---
2DH1	Ant1	2402	1.1624	2401.4054	2402.5678	---	---
		2441	1.1592	2440.4070	2441.5662	---	---
		2480	1.1660	2479.4025	2480.5685	---	---

Test Graphs

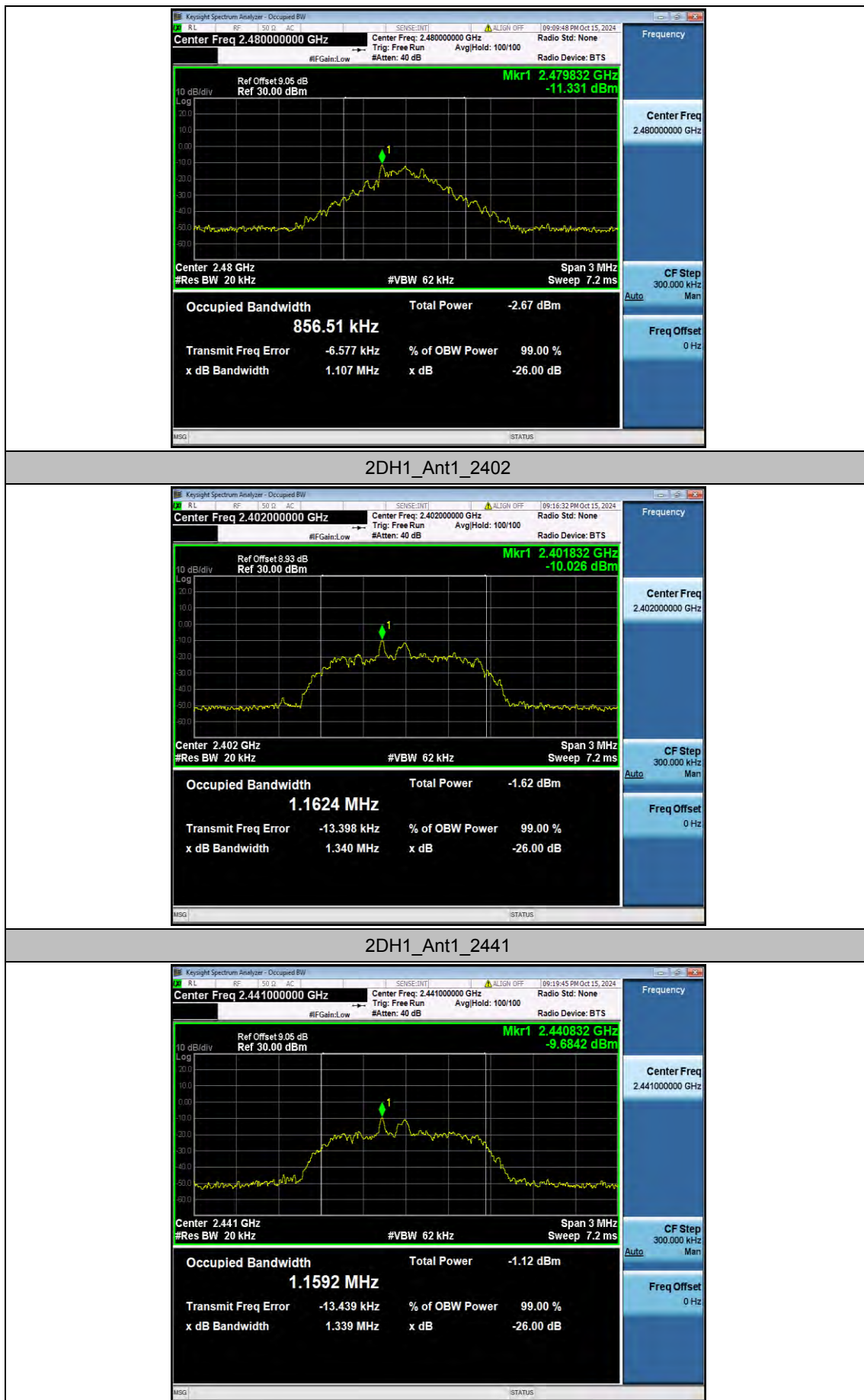
DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



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	-7.70	≤ 20.97	PASS
		2441	-7.63	≤ 20.97	PASS
		2480	-8.08	≤ 20.97	PASS
2DH1	Ant1	2402	-6.43	≤ 20.97	PASS
		2441	-6.06	≤ 20.97	PASS
		2480	-6.91	≤ 20.97	PASS

Appendix A.4: Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH1	Ant1	Hop_2402	0.998	≥ 0.594	PASS
		Hop_2441	1.132	≥ 0.594	PASS
		Hop_2480	0.686	≥ 0.594	PASS
2DH1	Ant1	Hop_2402	0.998	≥ 0.860	PASS
		Hop_2441	1.134	≥ 0.860	PASS
		Hop_2480	0.996	≥ 0.860	PASS

Test Graphs

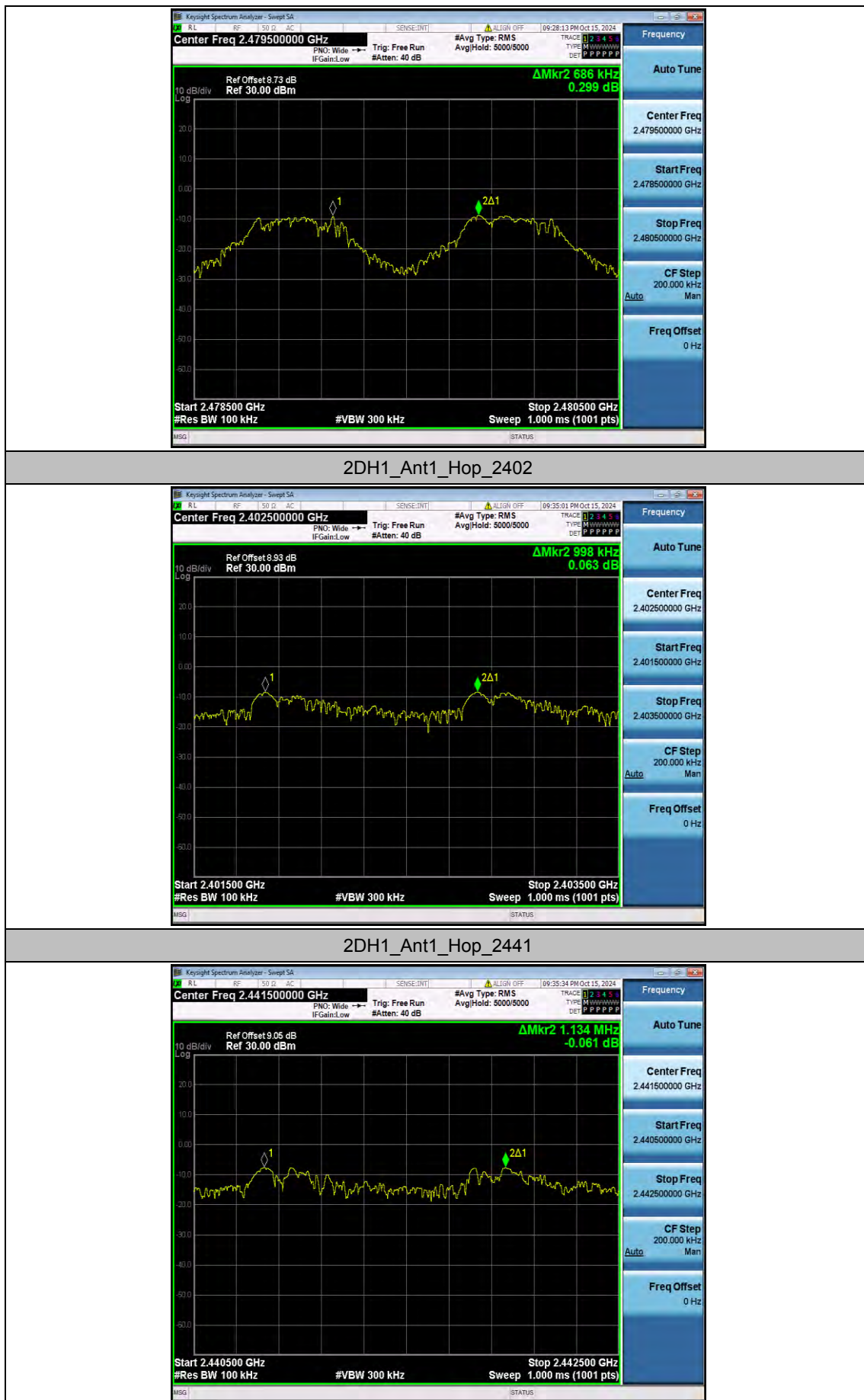
DH1_Ant1_Hop_2402



DH1_Ant1_Hop_2441



DH1_Ant1_Hop_2480



2DH1_Ant1_Hop_2480

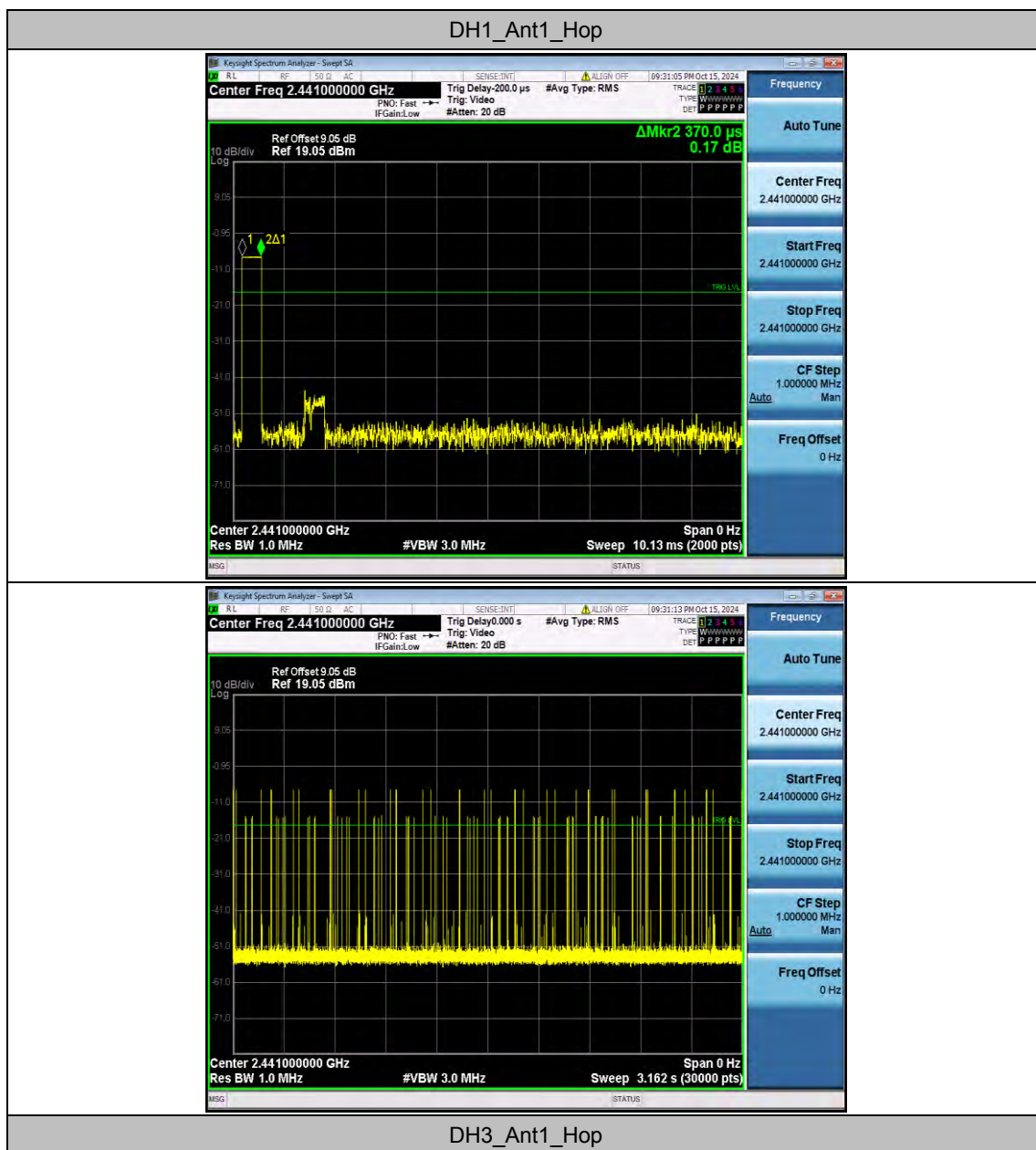


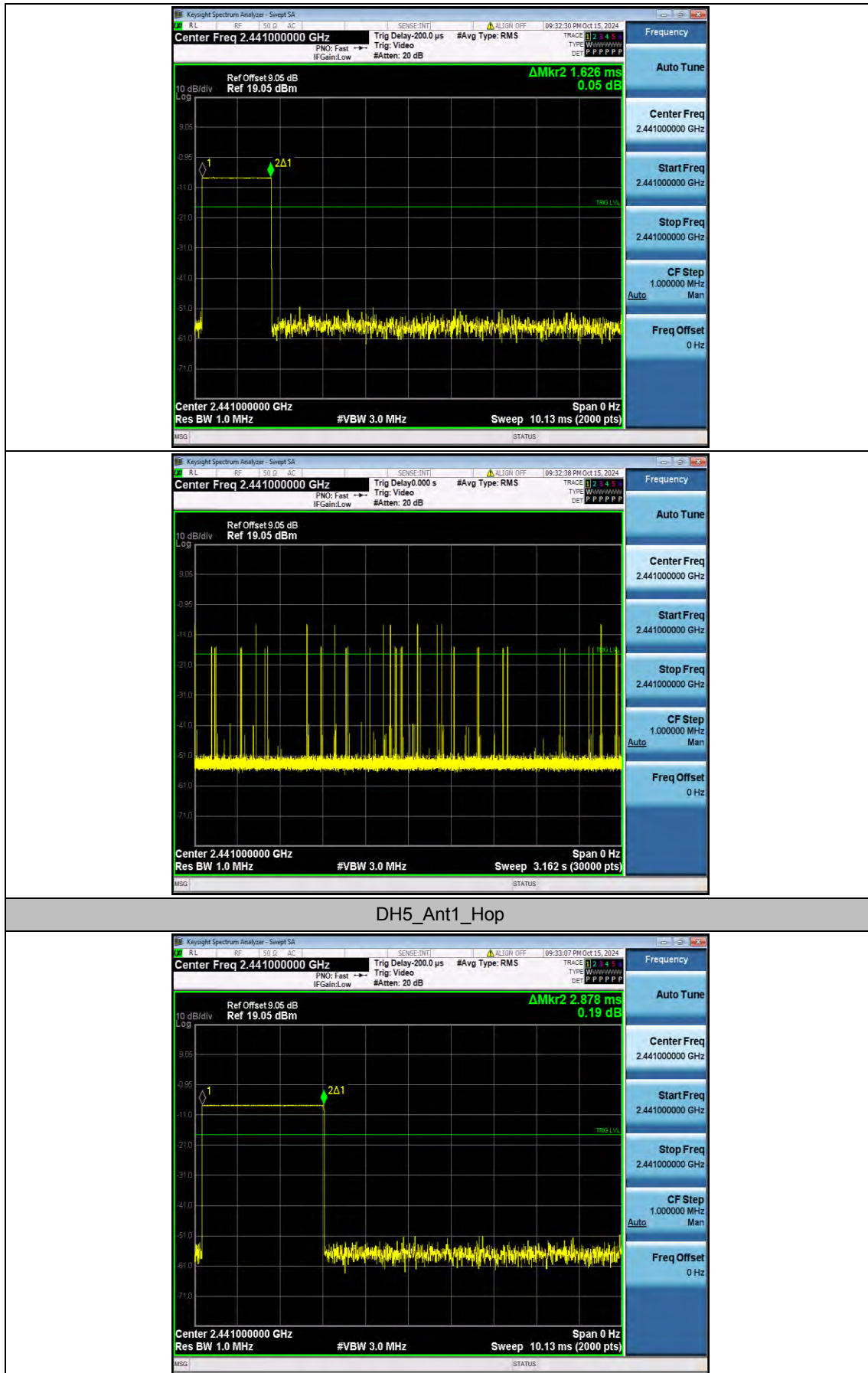
Appendix A.5: Time of occupancy

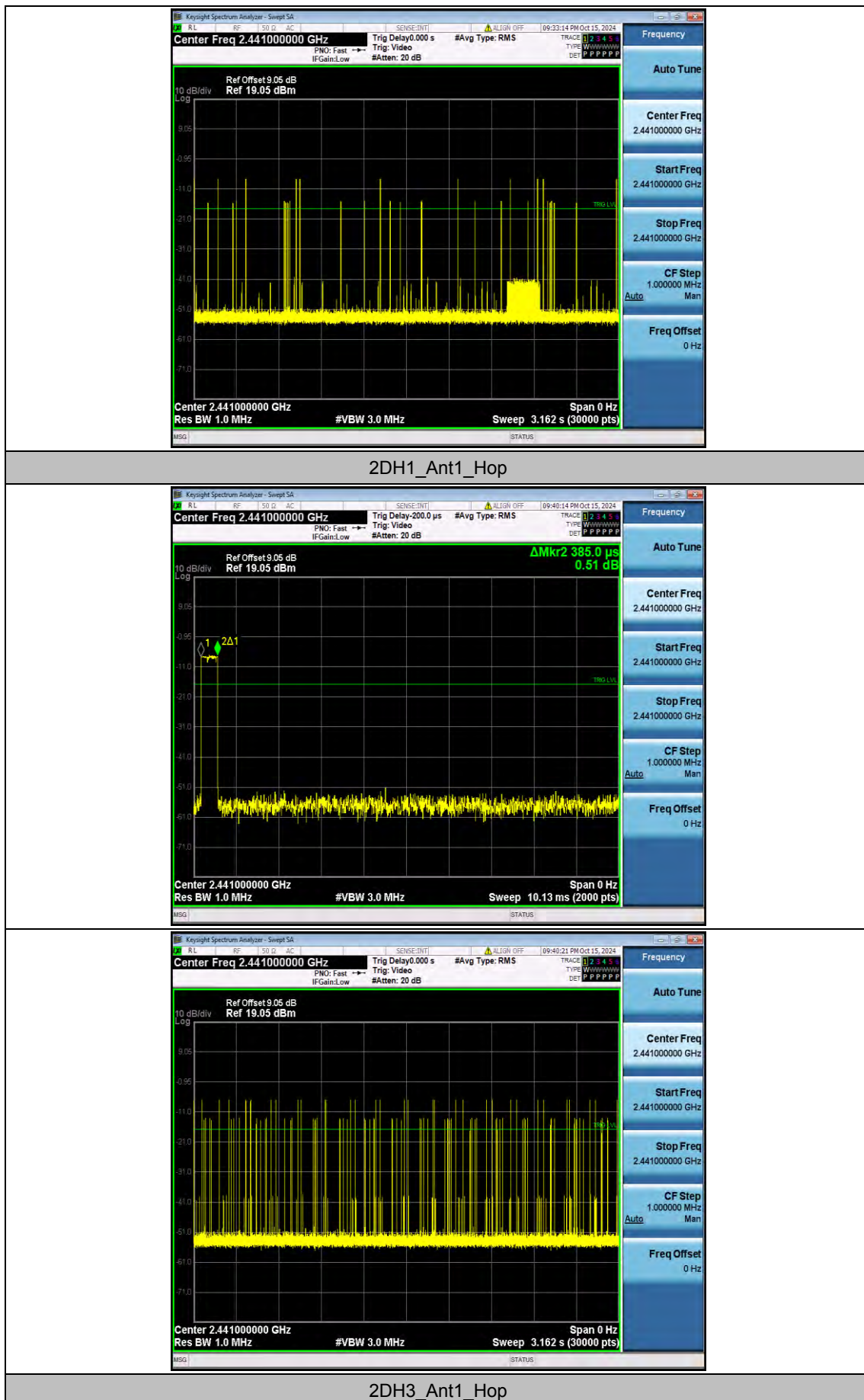
Test Result

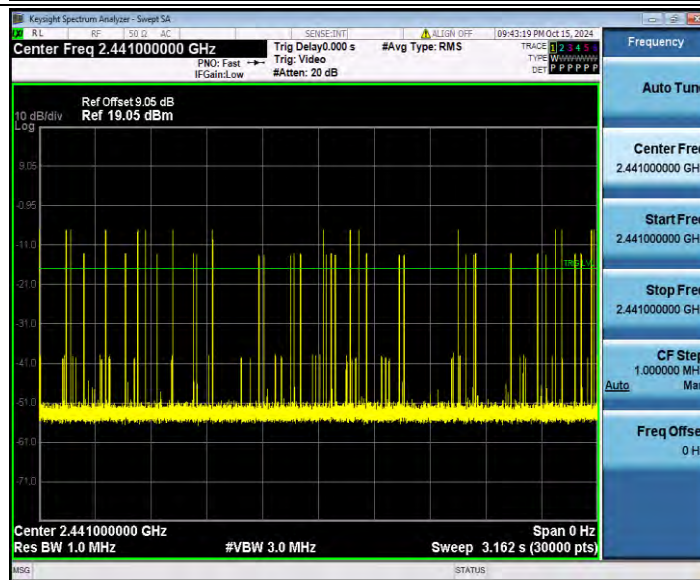
TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.370	330	0.122	≤0.4	PASS
DH3	Ant1	Hop	1.626	100	0.163	≤0.4	PASS
DH5	Ant1	Hop	2.878	110	0.317	≤0.4	PASS
2DH1	Ant1	Hop	0.385	330	0.127	≤0.4	PASS
2DH3	Ant1	Hop	1.637	160	0.262	≤0.4	PASS
2DH5	Ant1	Hop	2.878	110	0.317	≤0.4	PASS

Test Graphs









Keysight Spectrum Analyzer - Swept SA

Center Freq 2.441000000 GHz

Trig Delay: 200.0 μ s

#Avg Type: RMS

Ref Offset: 9.05 dB

Ref: 19.05 dBm

Log

10 dB/div

0.95

-0.95

-11.0

-21.0

-31.0

-41.0

-51.0

-61.0

-71.0

2.441

Δ Mkr2 2.878 ms

0.19 dB

Center Freq 2.441000000 GHz

Start Freq 2.441000000 GHz

Stop Freq 2.441000000 GHz

CF Step 1.000000 MHz

Auto

Freq Offset 0 Hz

Center 2.441000000 GHz

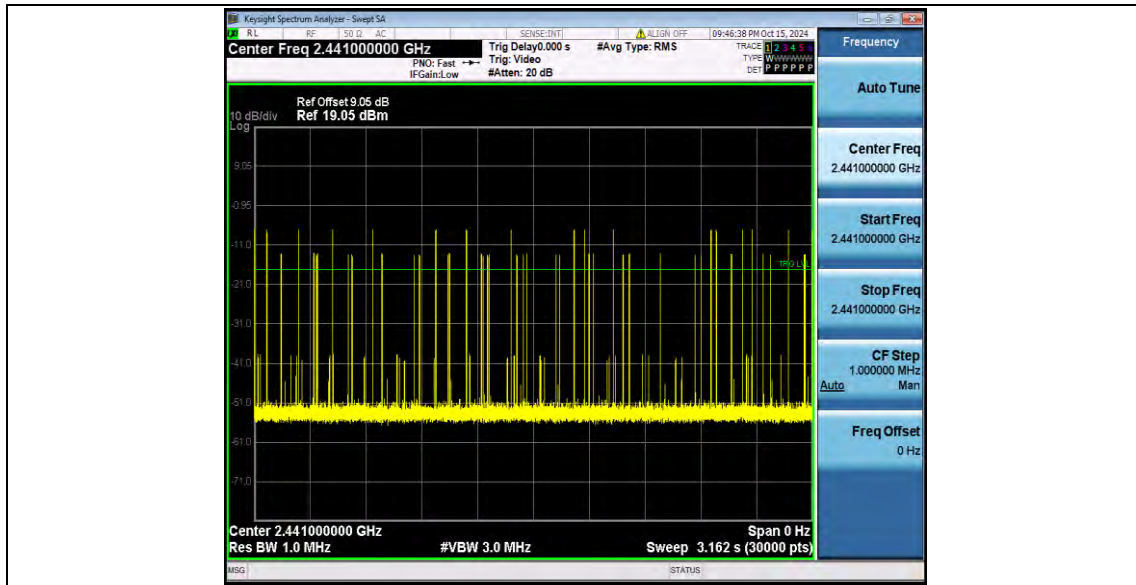
Res BW 1.0 MHz

#VBW 3.0 MHz

Span 0 Hz

Sweep 10.13 ms (2000 pts)

STATUS

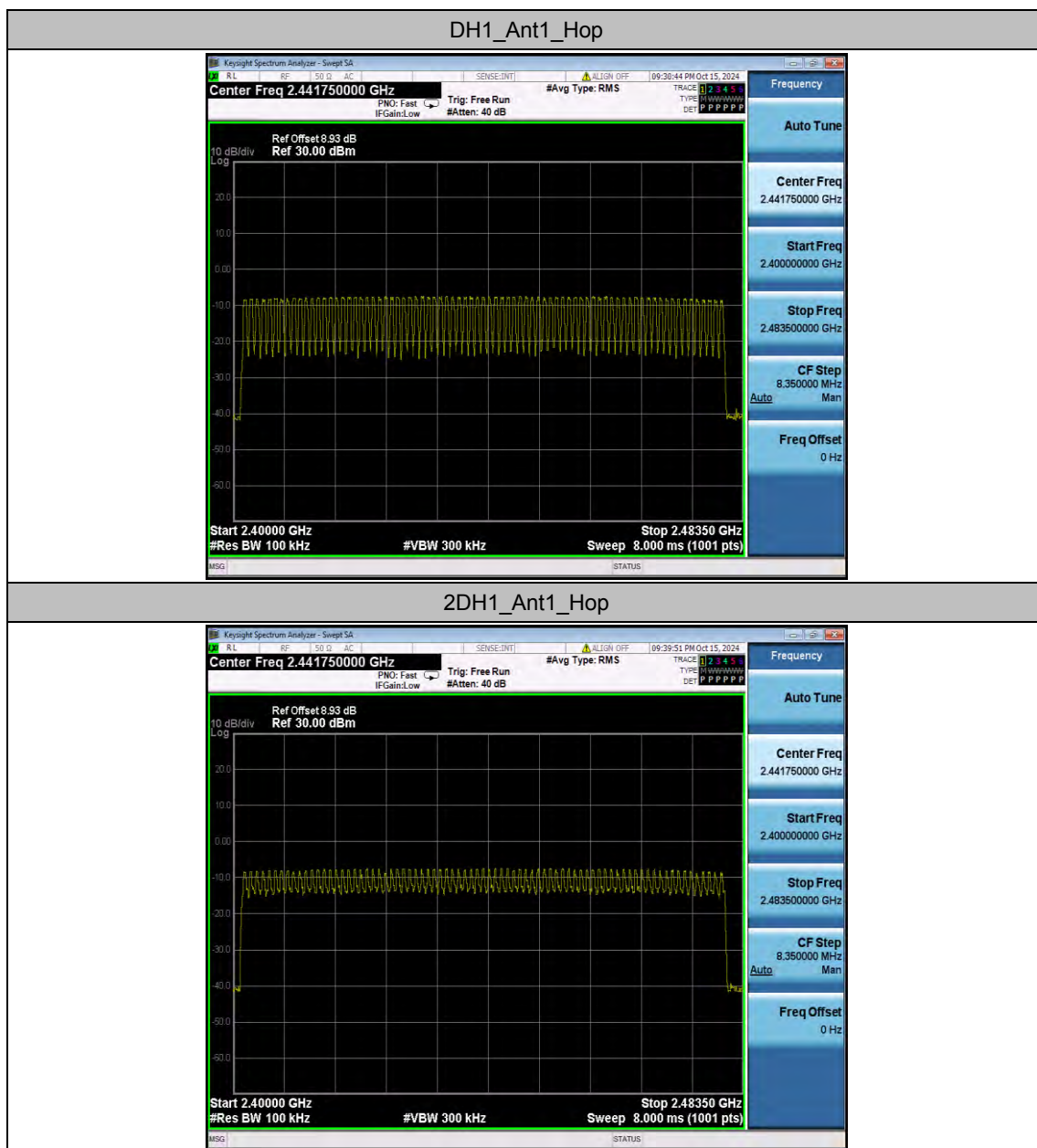


Appendix A.6: Number of hopping channels

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



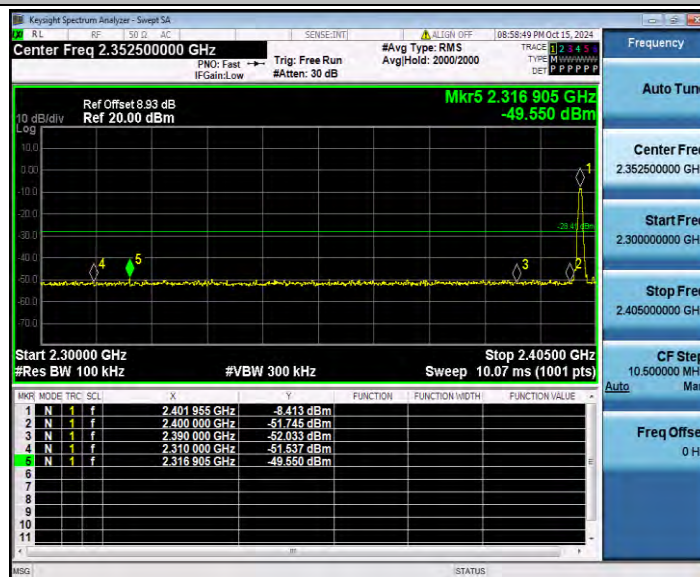
Appendix A.7: Band edge measurements

Test Result

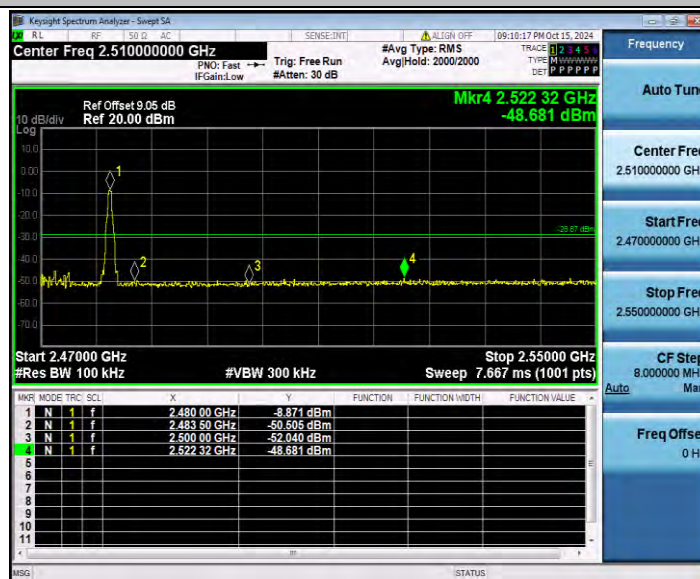
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	Low	2402	-8.41	-49.55	≤ -28.41	PASS
		High	2480	-8.87	-48.68	≤ -28.87	PASS
		Low	Hop_2402	-8.61	-42.1	≤ -28.61	PASS
		High	Hop_2480	-8.35	-48.75	≤ -28.35	PASS
2DH1	Ant1	Low	2402	-7.73	-49.97	≤ -27.73	PASS
		High	2480	-8.19	-47.8	≤ -28.19	PASS
		Low	Hop_2402	-8.48	-49.88	≤ -28.48	PASS
		High	Hop_2480	-8.65	-49.4	≤ -28.65	PASS

Test Graphs

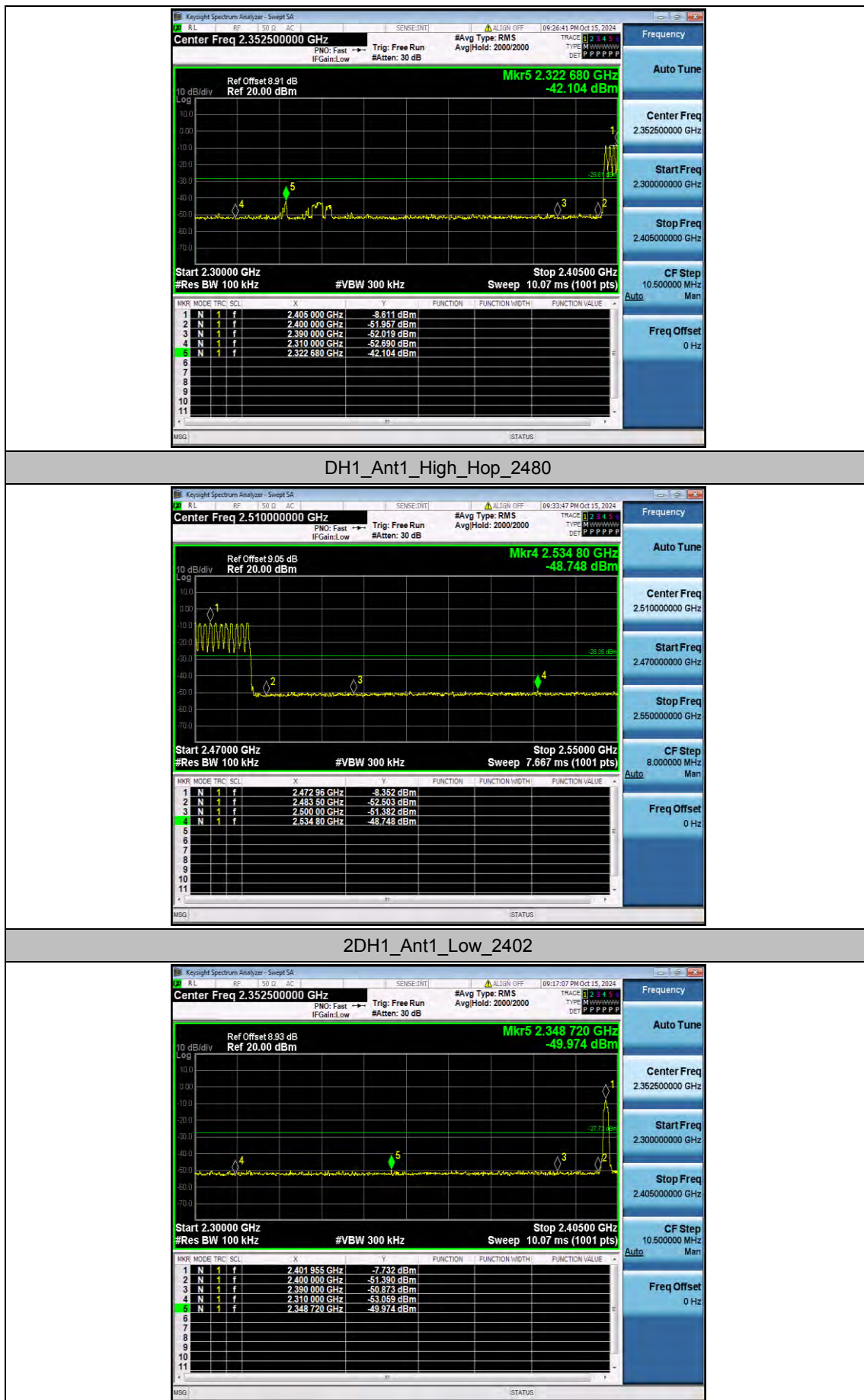
DH1_Ant1_Low_2402



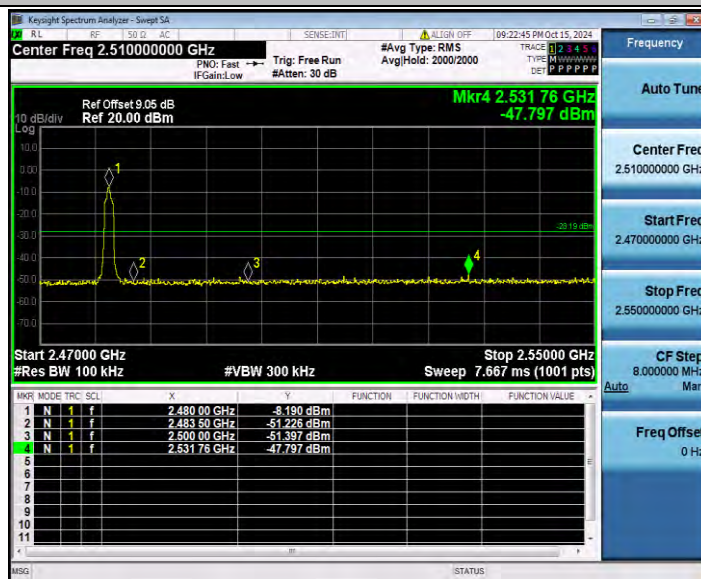
DH1_Ant1_High_2480



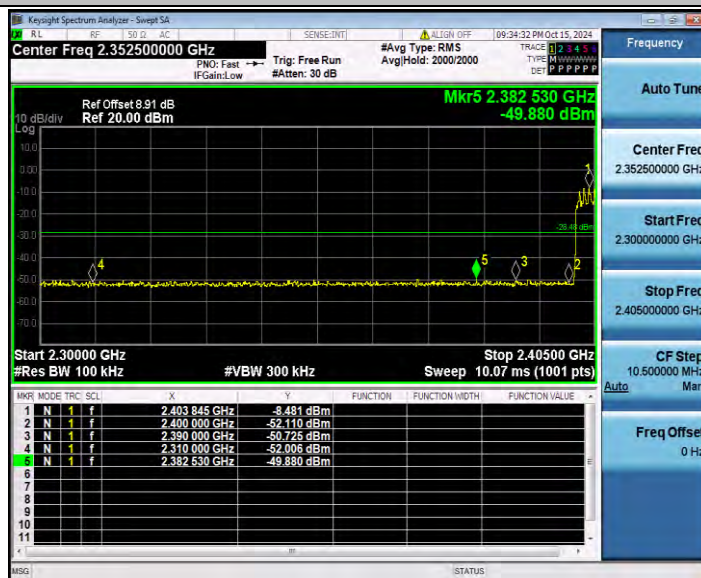
DH1_Ant1_Low_Hop_2402



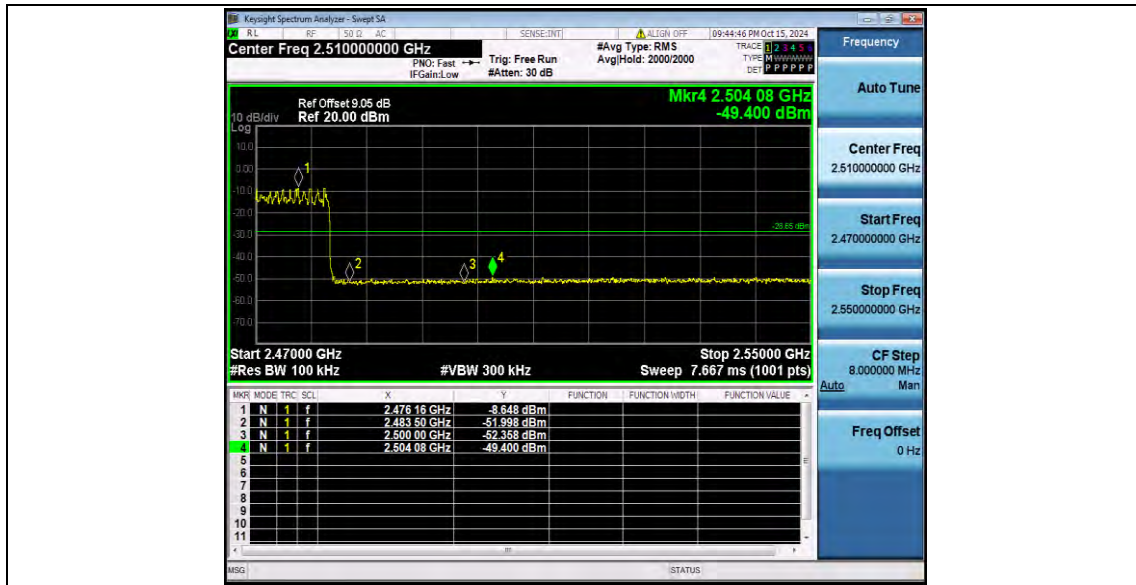
2DH1_Ant1_High_2480



2DH1_Ant1_Low_Hop_2402



2DH1_Ant1_High_Hop_2480

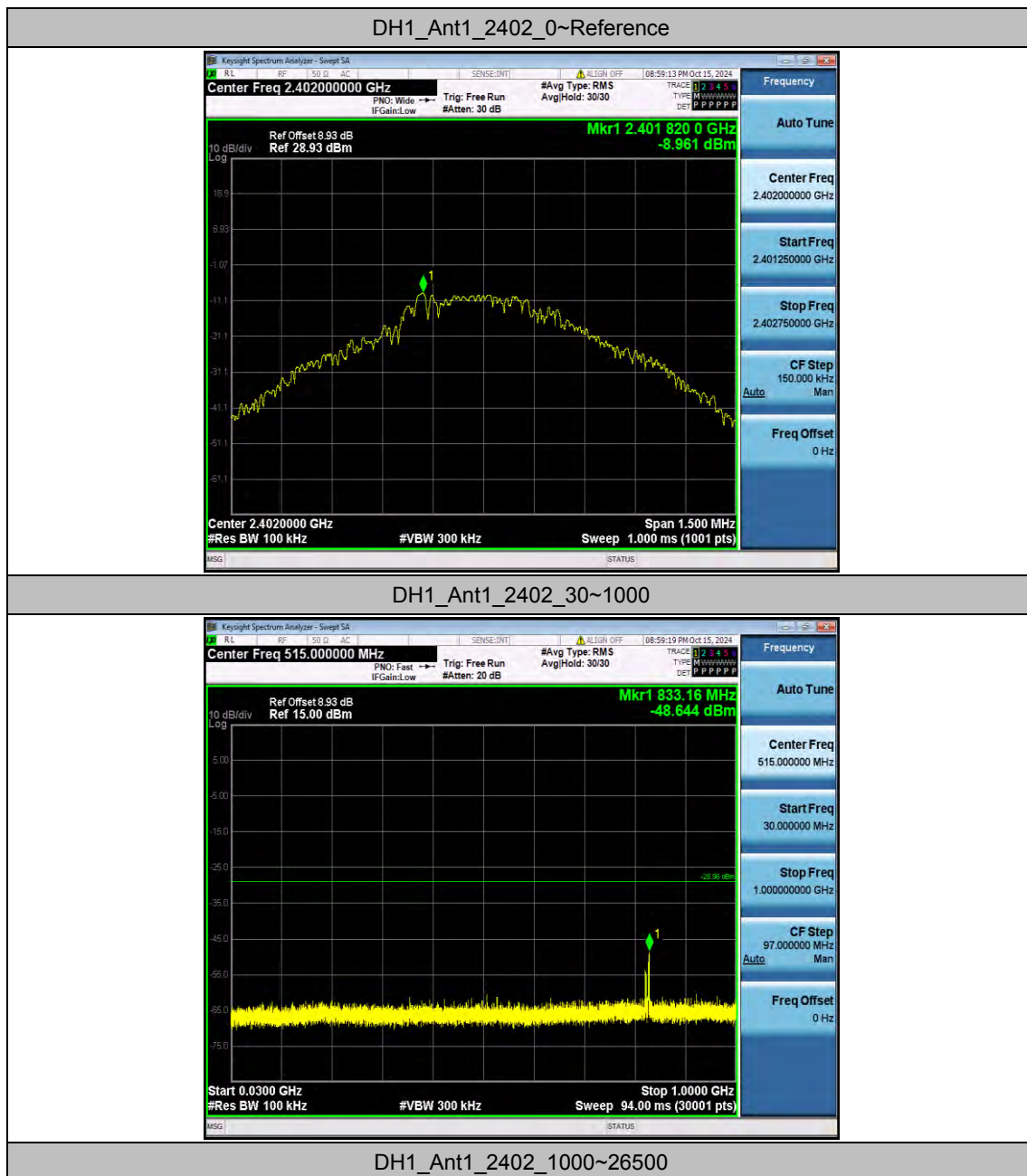


Appendix A.8: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	2402	Reference	-8.96	-8.96	---	PASS
			30~1000	-8.96	-48.64	≤ -28.96	PASS
			1000~26500	-8.96	-44.16	≤ -28.96	PASS
		2441	Reference	-9.16	-9.16	---	PASS
			30~1000	-9.16	-59.9	≤ -29.16	PASS
			1000~26500	-9.16	-47.11	≤ -29.16	PASS
		2480	Reference	-9.57	-9.57	---	PASS
			30~1000	-9.57	-60.16	≤ -29.57	PASS
			1000~26500	-9.57	-45.3	≤ -29.57	PASS
2DH1	Ant1	2402	Reference	-8.46	-8.46	---	PASS
			30~1000	-8.46	-60.58	≤ -28.46	PASS
			1000~26500	-8.46	-47.13	≤ -28.46	PASS
		2441	Reference	-7.60	-7.60	---	PASS
			30~1000	-7.60	-60.85	≤ -27.6	PASS
			1000~26500	-7.60	-45.54	≤ -27.6	PASS
		2480	Reference	-8.42	-8.42	---	PASS
			30~1000	-8.42	-60.41	≤ -28.42	PASS
			1000~26500	-8.42	-41.93	≤ -28.42	PASS

Test Graphs

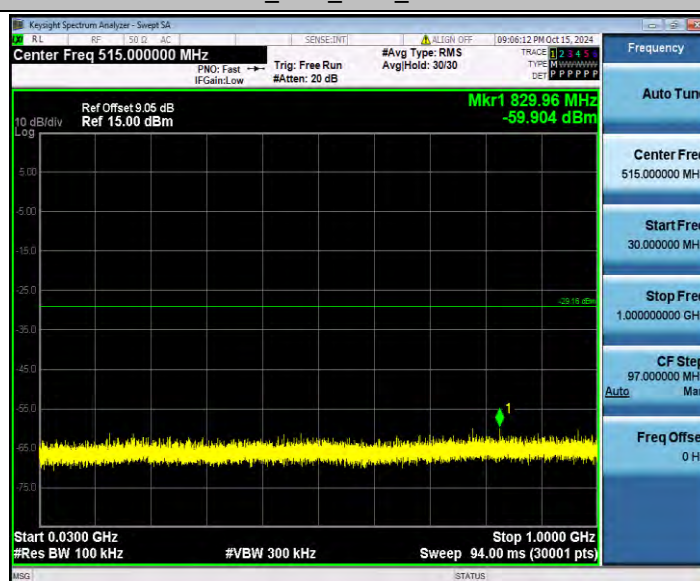




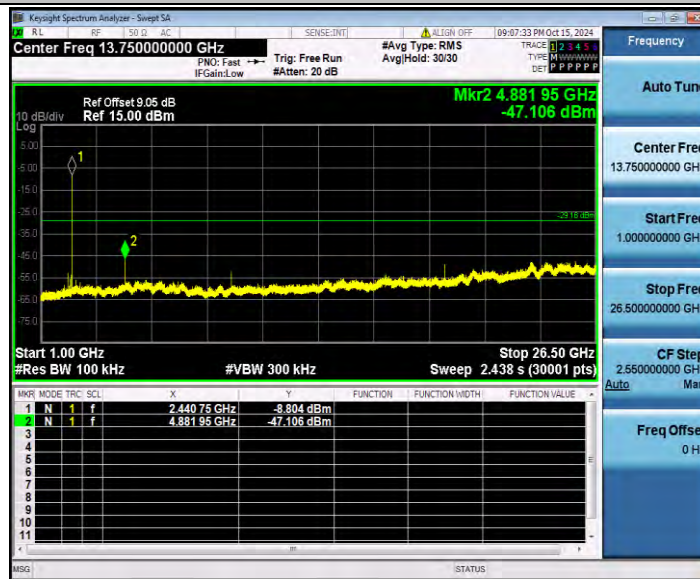
DH1_Ant1_2441_0~Reference



DH1_Ant1_2441_30~1000



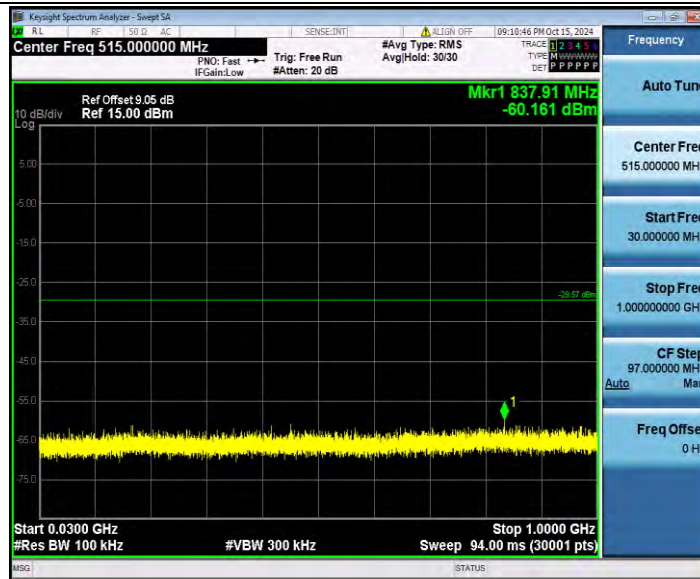
DH1_Ant1_2441_1000~26500



DH1_Ant1_2480_0~Reference



DH1_Ant1_2480_30~1000

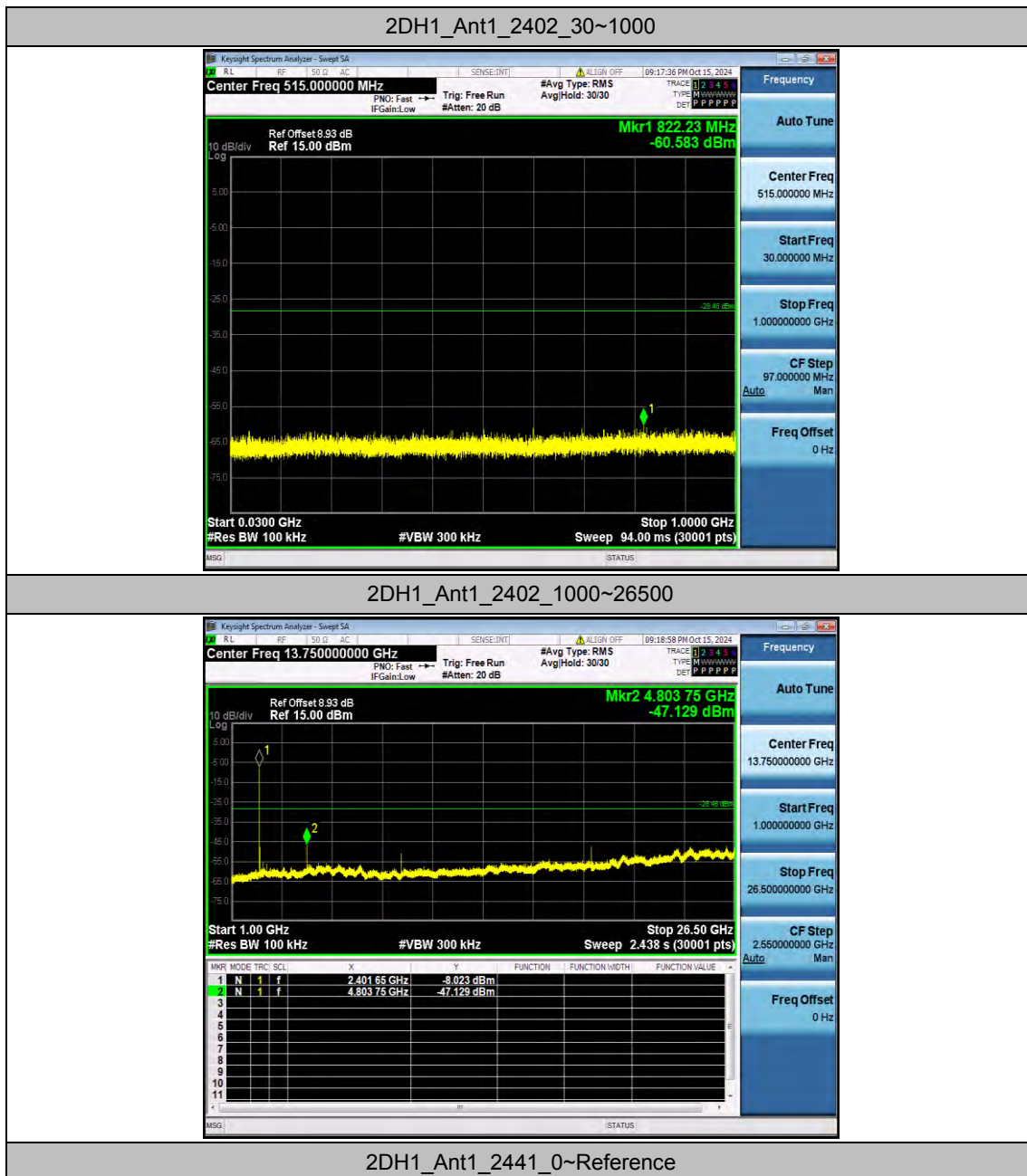


DH1_Ant1_2480_1000~26500



2DH1_Ant1_2402_0~Reference

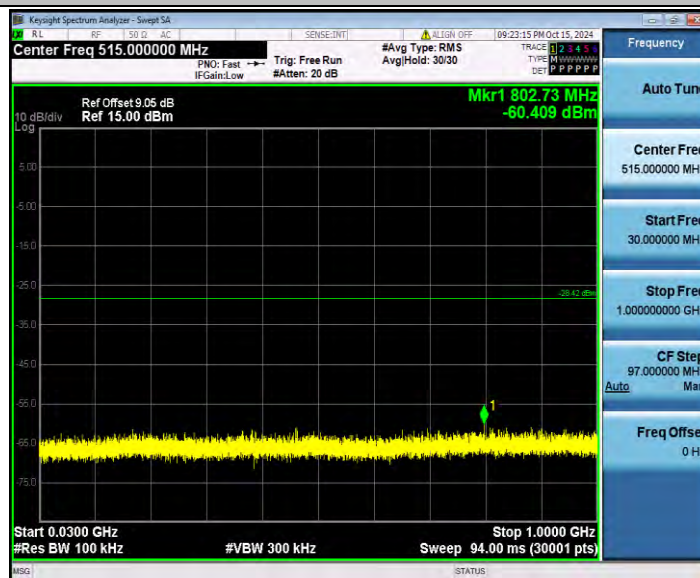




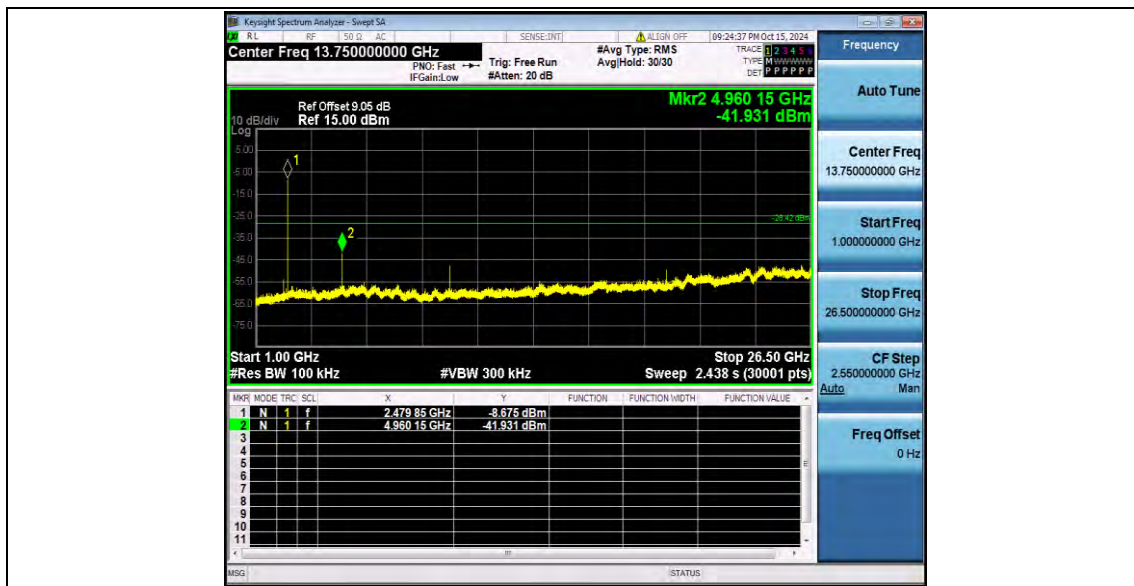
2DH1_Ant1_2480_0~Reference



2DH1_Ant1_2480_30~1000



2DH1_Ant1_2480_1000~26500



Appendix A.9: Emissions in Restricted Bands

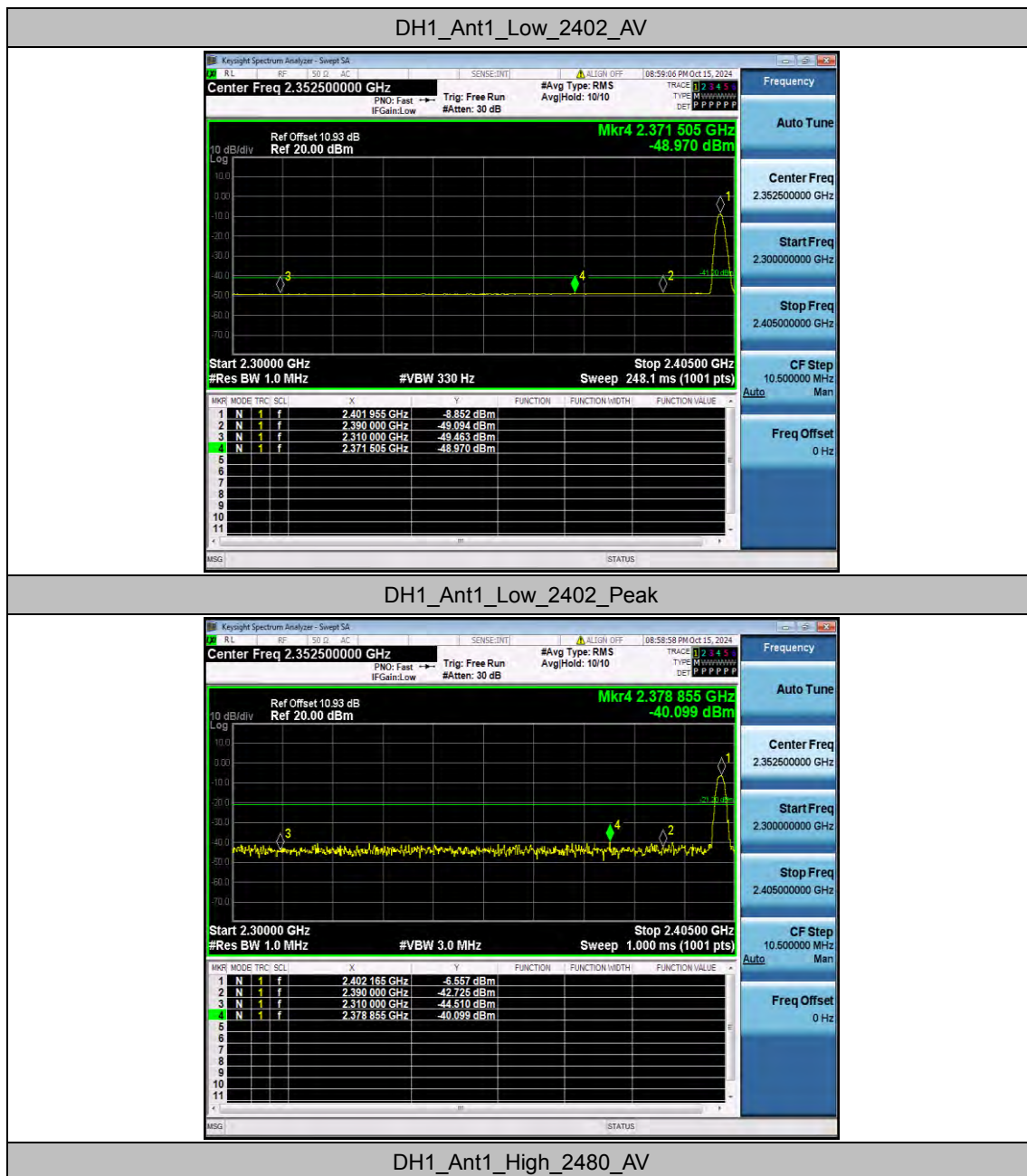
Test Result

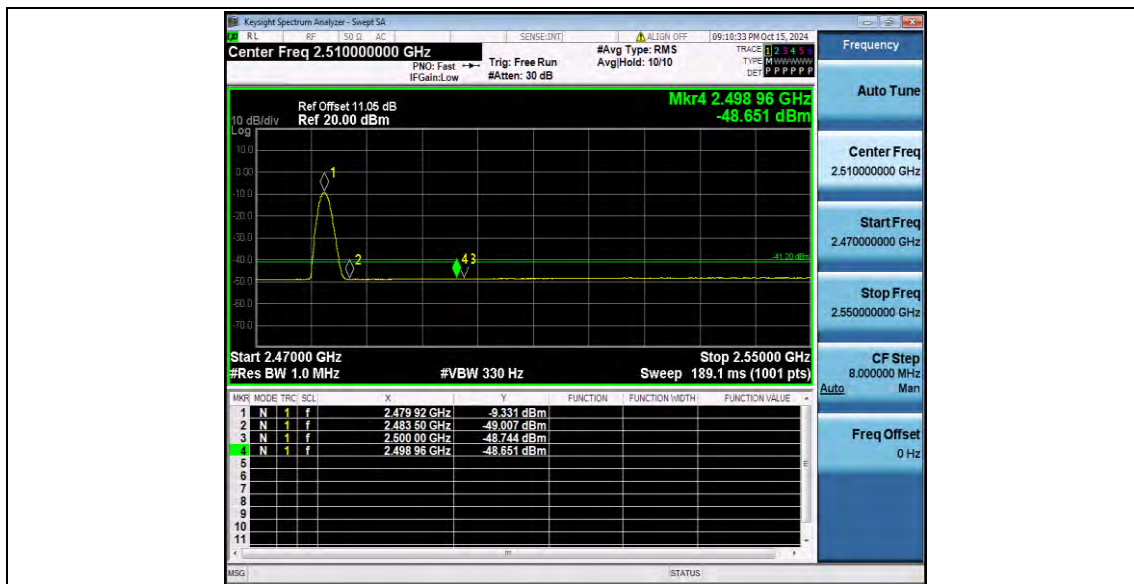
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH1	Ant1	Low	2402	AV	2310.000	-49.46	≤-41.20	45.74	≤54	PASS
				AV	2371.505	-48.97	≤-41.20	46.23	≤54	PASS
				AV	2390.000	-49.09	≤-41.20	46.11	≤54	PASS
				Peak	2310.000	-44.51	≤-21.20	50.69	≤74	PASS
				Peak	2378.855	-40.1	≤-21.20	55.10	≤74	PASS
				Peak	2390.000	-42.73	≤-21.20	52.47	≤74	PASS
		High	2480	AV	2483.500	-49.01	≤-41.20	46.19	≤54	PASS
				AV	2498.960	-48.65	≤-41.20	46.55	≤54	PASS
				AV	2500.000	-48.74	≤-41.20	46.46	≤54	PASS
				Peak	2483.500	-41.44	≤-21.20	53.76	≤74	PASS
				Peak	2499.760	-38.25	≤-21.20	56.95	≤74	PASS
				Peak	2500.000	-41.44	≤-21.20	53.76	≤74	PASS
2DH1	Ant1	Low	2402	AV	2310.000	-49.72	≤-41.20	45.48	≤54	PASS
				AV	2376.650	-49.17	≤-41.20	46.03	≤54	PASS
				AV	2390.000	-49.3	≤-41.20	45.90	≤54	PASS
				Peak	2310.000	-42.07	≤-21.20	53.13	≤74	PASS
				Peak	2377.910	-39.26	≤-21.20	55.94	≤74	PASS
				Peak	2390.000	-41.82	≤-21.20	53.38	≤74	PASS
		High	2480	AV	2483.500	-48.93	≤-41.20	46.27	≤54	PASS
				AV	2493.120	-48.56	≤-41.20	46.64	≤54	PASS
				AV	2500.000	-48.84	≤-41.20	46.36	≤54	PASS
				Peak	2483.500	-40.81	≤-21.20	54.39	≤74	PASS
				Peak	2495.920	-38.39	≤-21.20	56.81	≤74	PASS
				Peak	2500.000	-41.72	≤-21.20	53.48	≤74	PASS

Note:

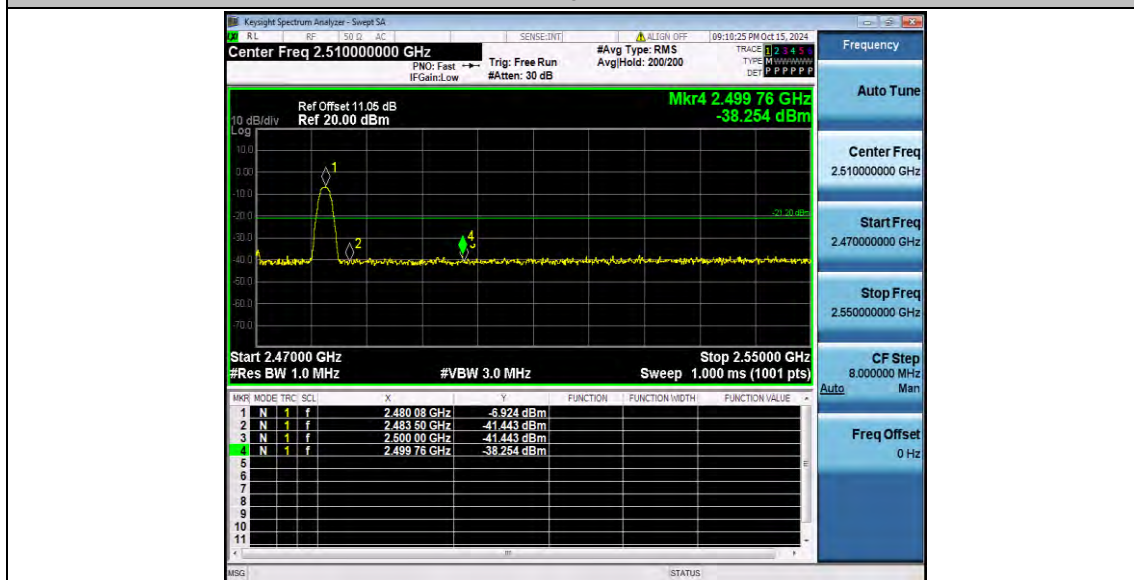
1. The Antenna Gain is compensated in the graph.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
3. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

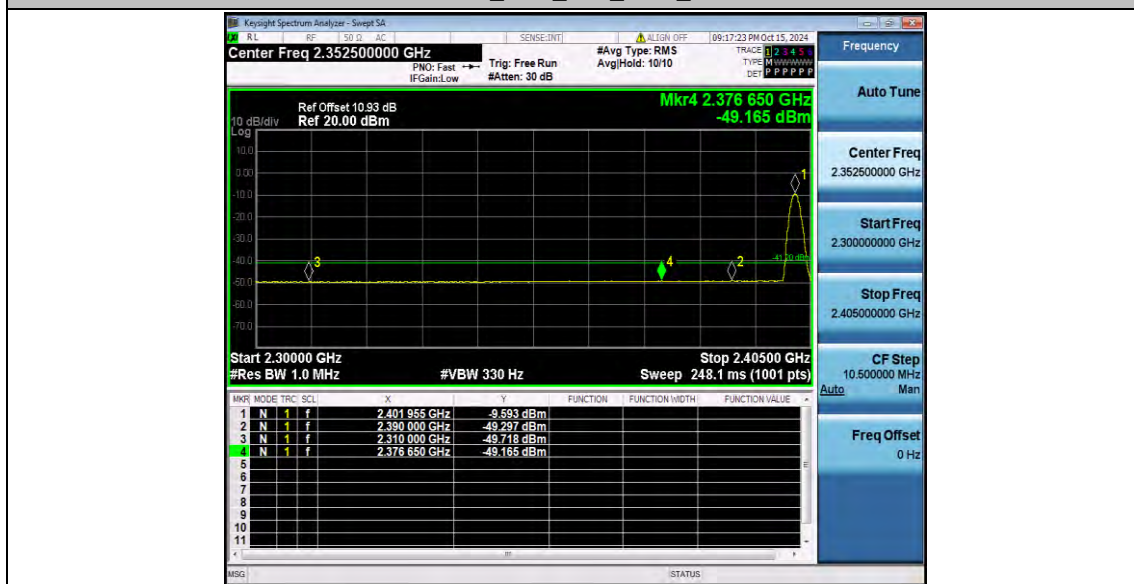




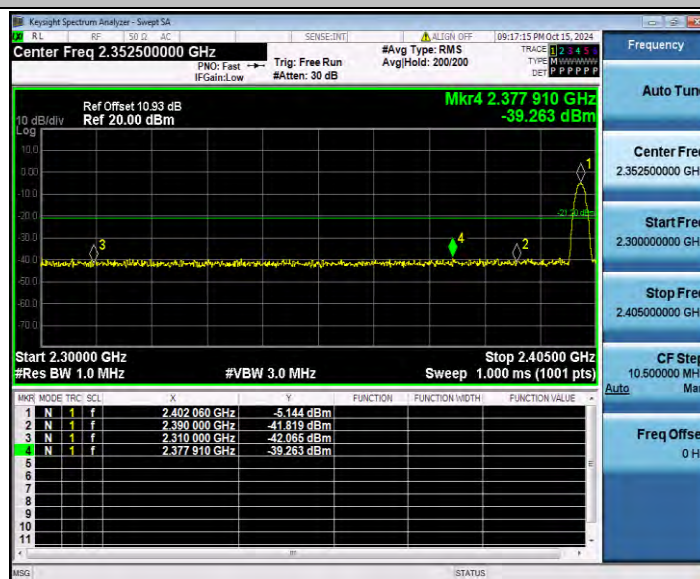
DH1_Ant1_High_2480_Peak



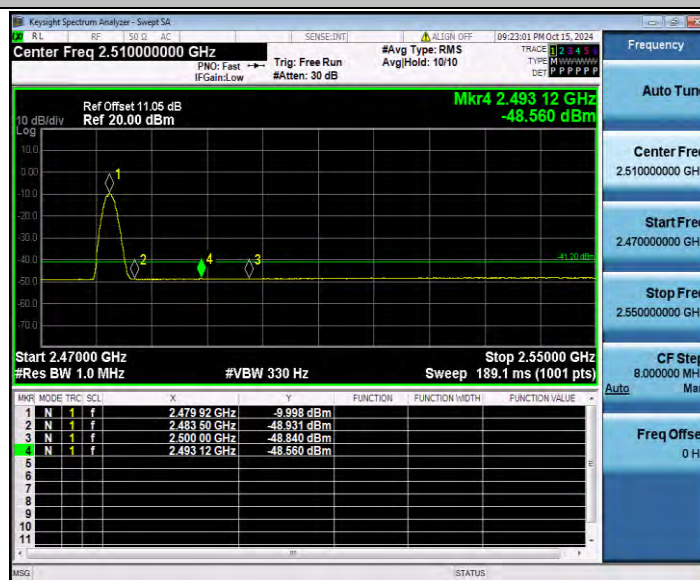
2DH1_Ant1_Low_2402_AV



2DH1_Ant1_Low_2402_Peak



2DH1_Ant1_High_2480_AV



2DH1_Ant1_High_2480_Peak

