

Appendix A

RF Test Data for BT(BDR/EDR) (Conducted Measurement)

Product Name: WIRELESS HEADPHONES

Trade Mark: TZUMI, SoundPlay

Test Model: RH10

FCC ID: 2ATOY-RH10

Environmental Conditions

Temperature:	22.8° C
Relative Humidity:	56%
ATM Pressure:	100.0 kPa
Test Engineer:	Nancy Li
Supervised by:	Hugo Chen

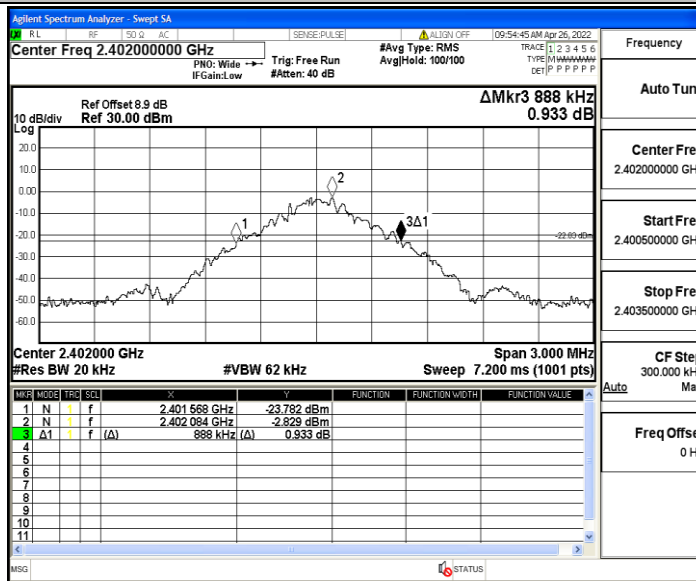
Appendix A: 20dB Emission Bandwidth

Test Result

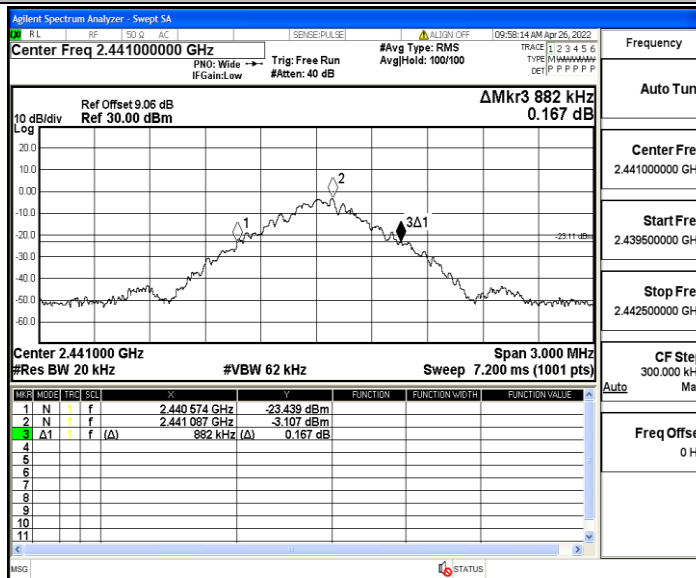
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.888	2401.568	2402.456	---	---
		2441	0.882	2440.574	2441.456	---	---
		2480	0.891	2479.568	2480.459	---	---
2DH5	Ant1	2402	1.257	2401.400	2402.657	---	---
		2441	1.260	2440.397	2441.657	---	---
		2480	1.251	2479.400	2480.651	---	---
3DH5	Ant1	2402	1.296	2401.376	2402.672	---	---
		2441	1.293	2440.376	2441.669	---	---
		2480	1.245	2479.397	2480.642	---	---

Test Graphs

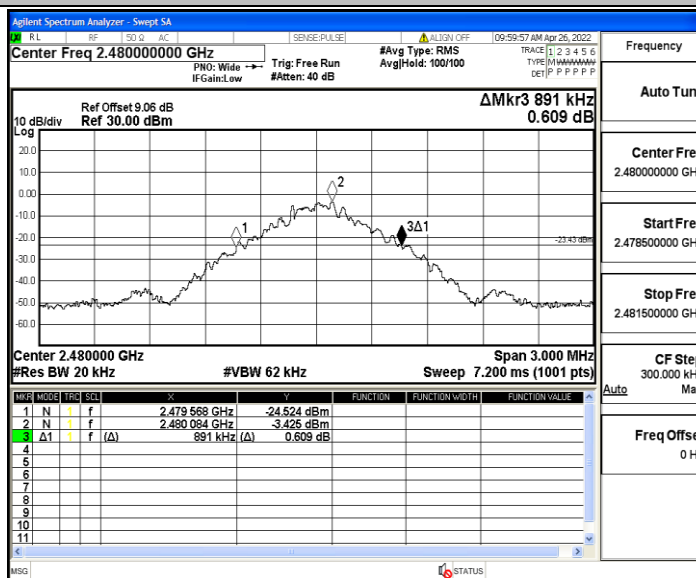
DH5_Ant1_2402



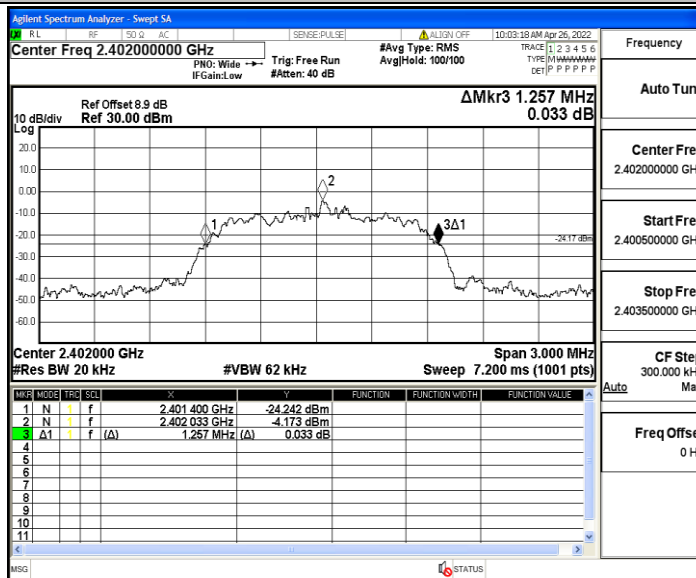
DH5_Ant1_2441



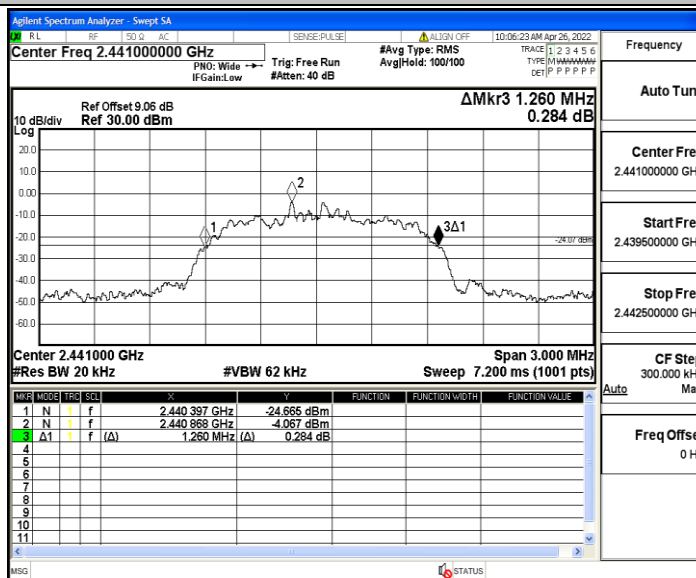
DH5_Ant1_2480



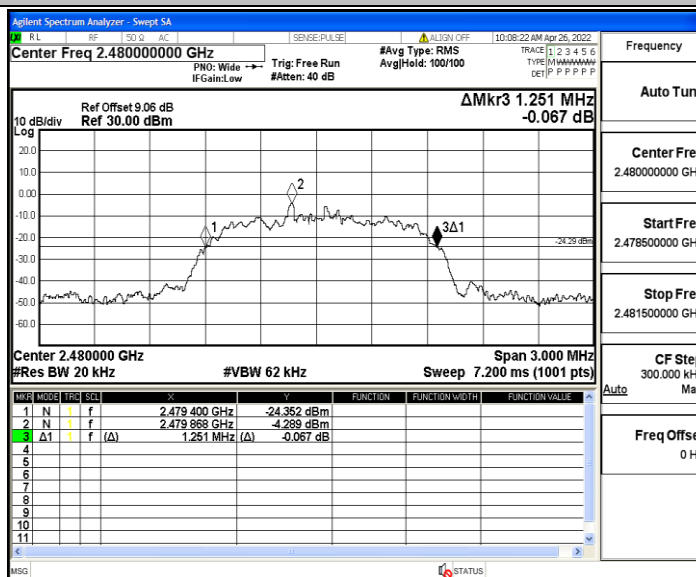
2DH5_Ant1_2402



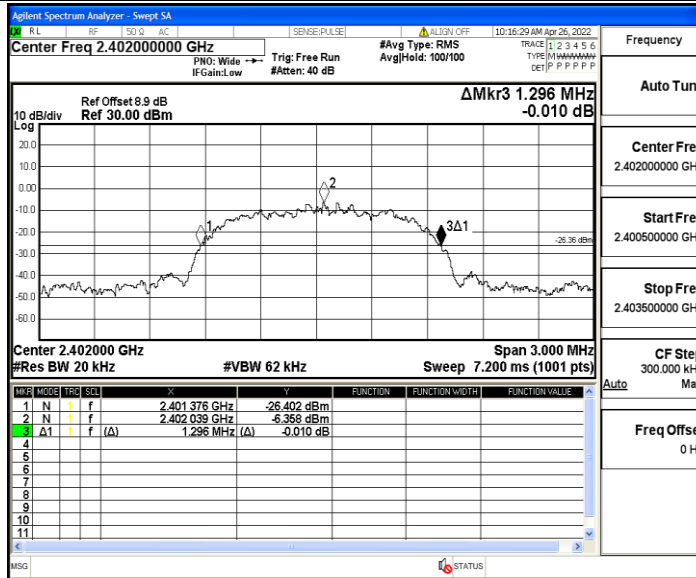
2DH5_Ant1_2441



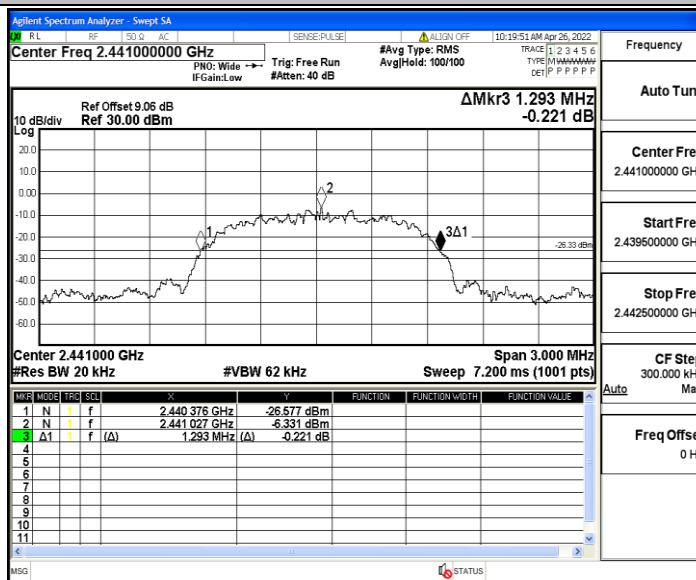
2DH5_Ant1_2480



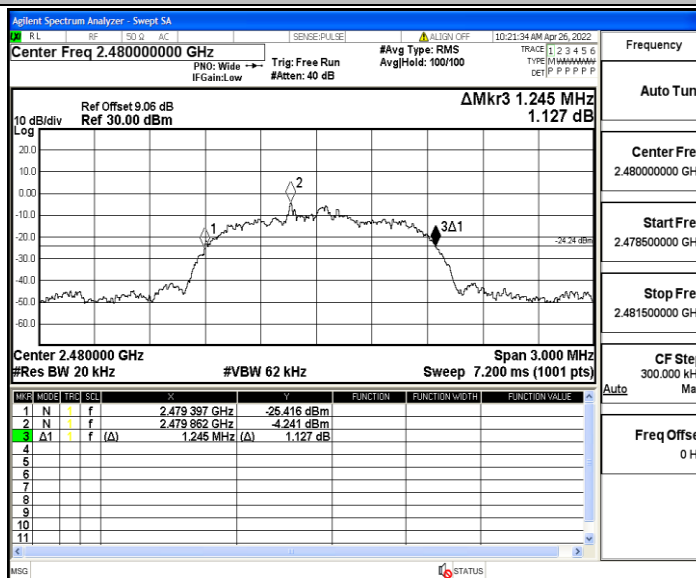
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



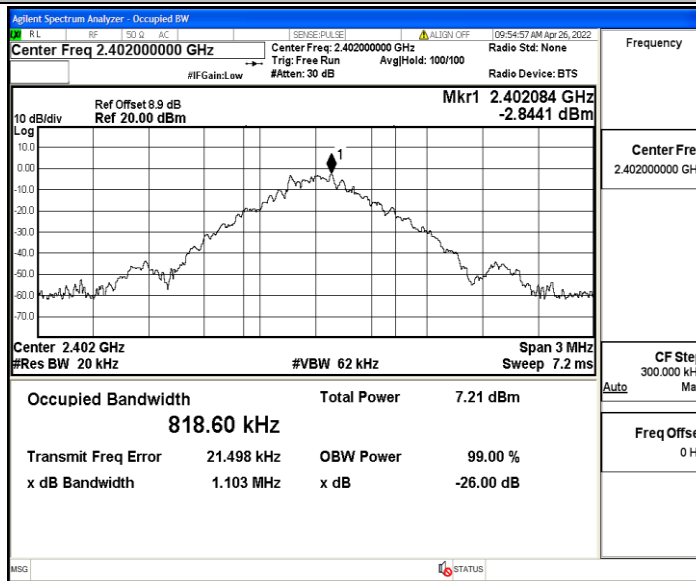
Appendix B: Occupied Channel Bandwidth

Test Result

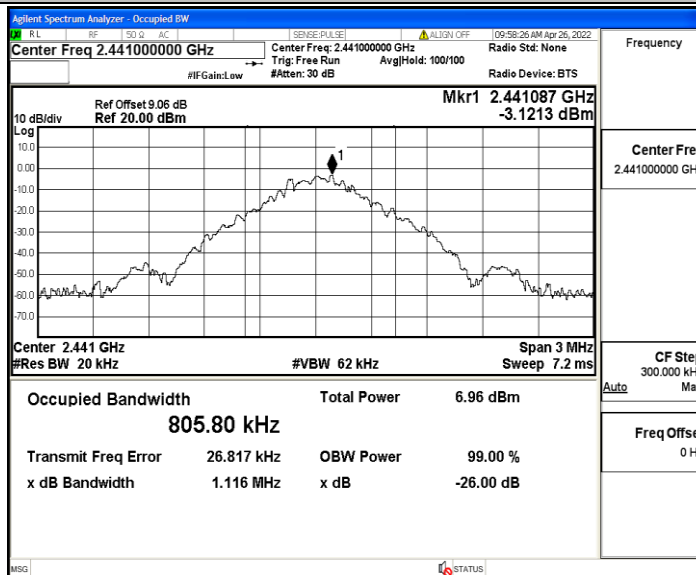
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.81860	2401.612	2402.431	---	---
		2441	0.80580	2440.624	2441.430	---	---
		2480	0.80974	2479.620	2480.430	---	---
2DH5	Ant1	2402	1.1650	2401.442	2402.607	---	---
		2441	1.1680	2440.442	2441.610	---	---
		2480	1.1582	2479.446	2480.604	---	---
3DH5	Ant1	2402	1.1702	2401.437	2402.607	---	---
		2441	1.1569	2440.447	2441.604	---	---
		2480	1.1584	2479.445	2480.603	---	---

Test Graphs

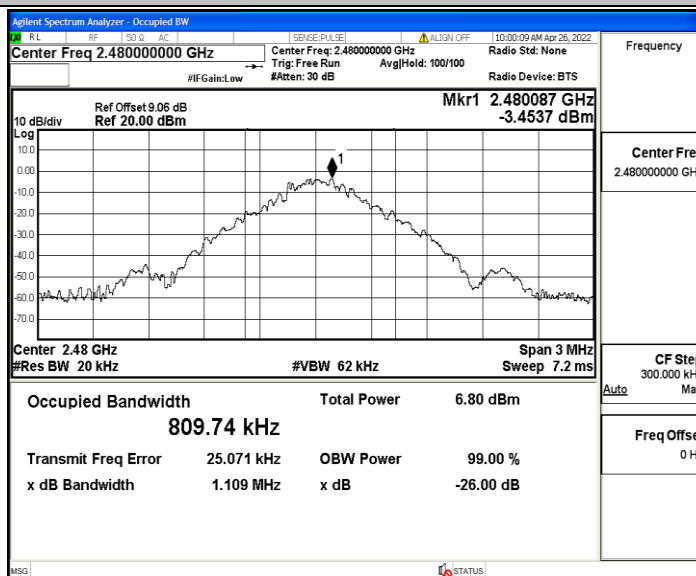
DH5_Ant1_2402



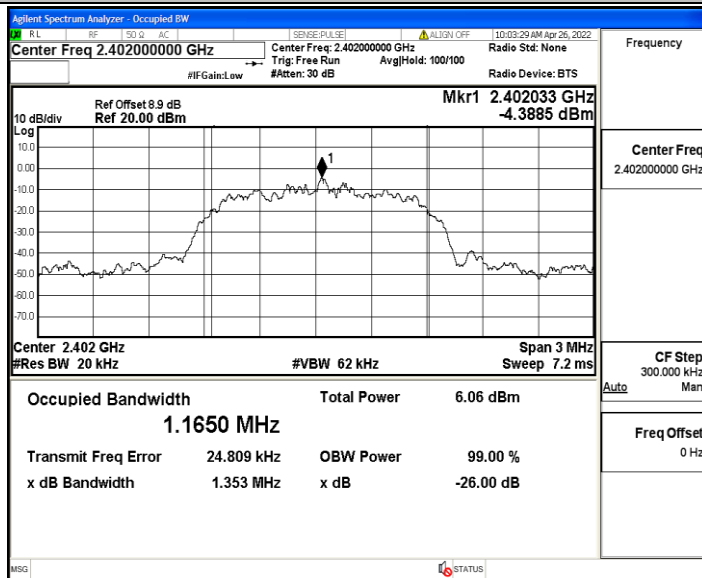
DH5_Ant1_2441



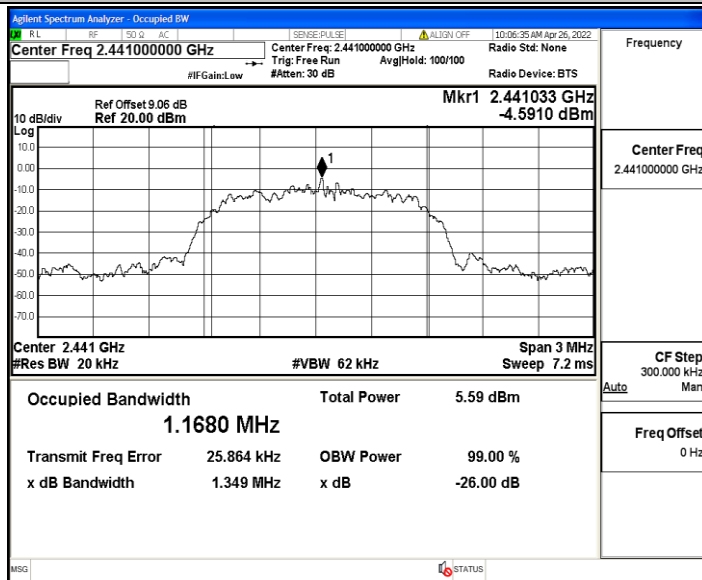
DH5_Ant1_2480



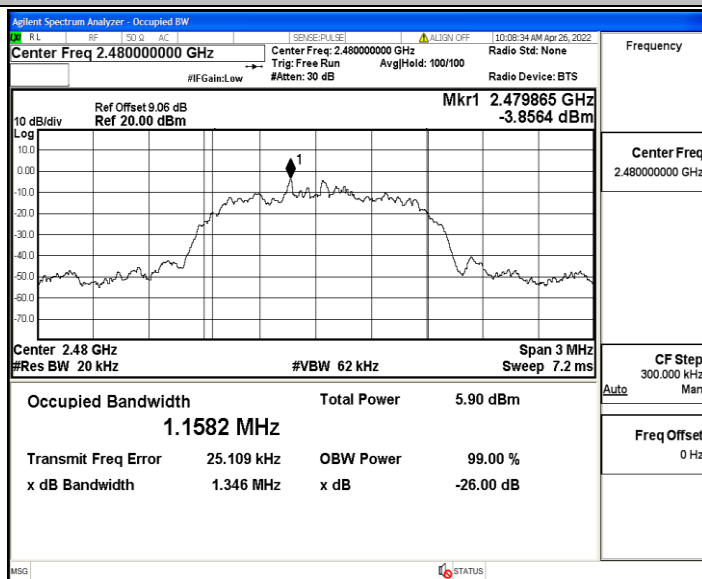
2DH5_Ant1_2402



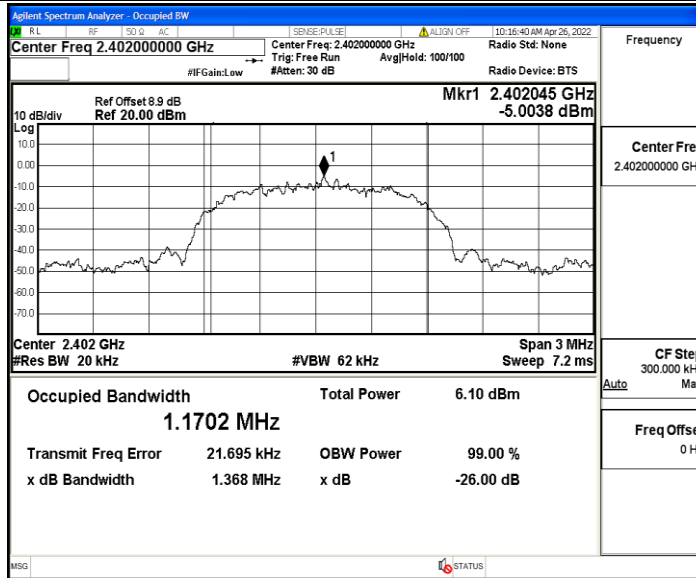
2DH5_Ant1_2441



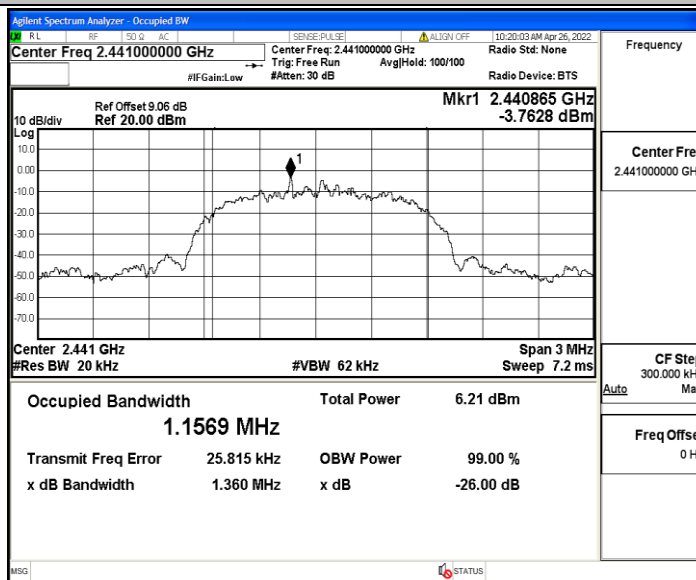
2DH5_Ant1_2480



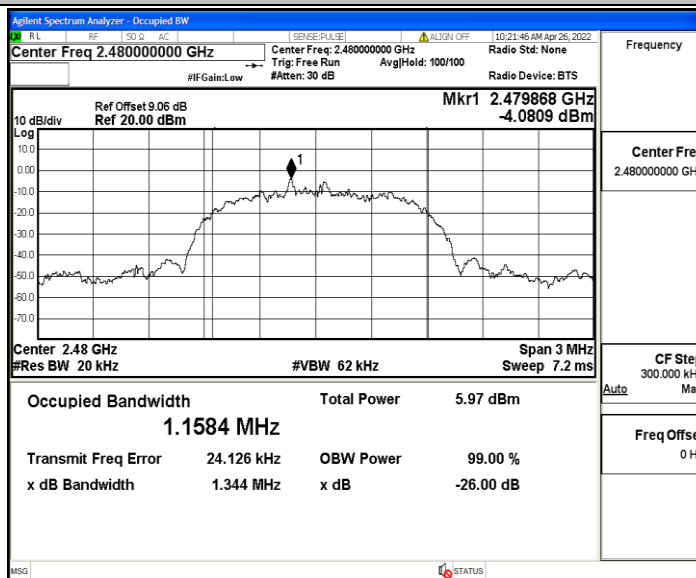
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480

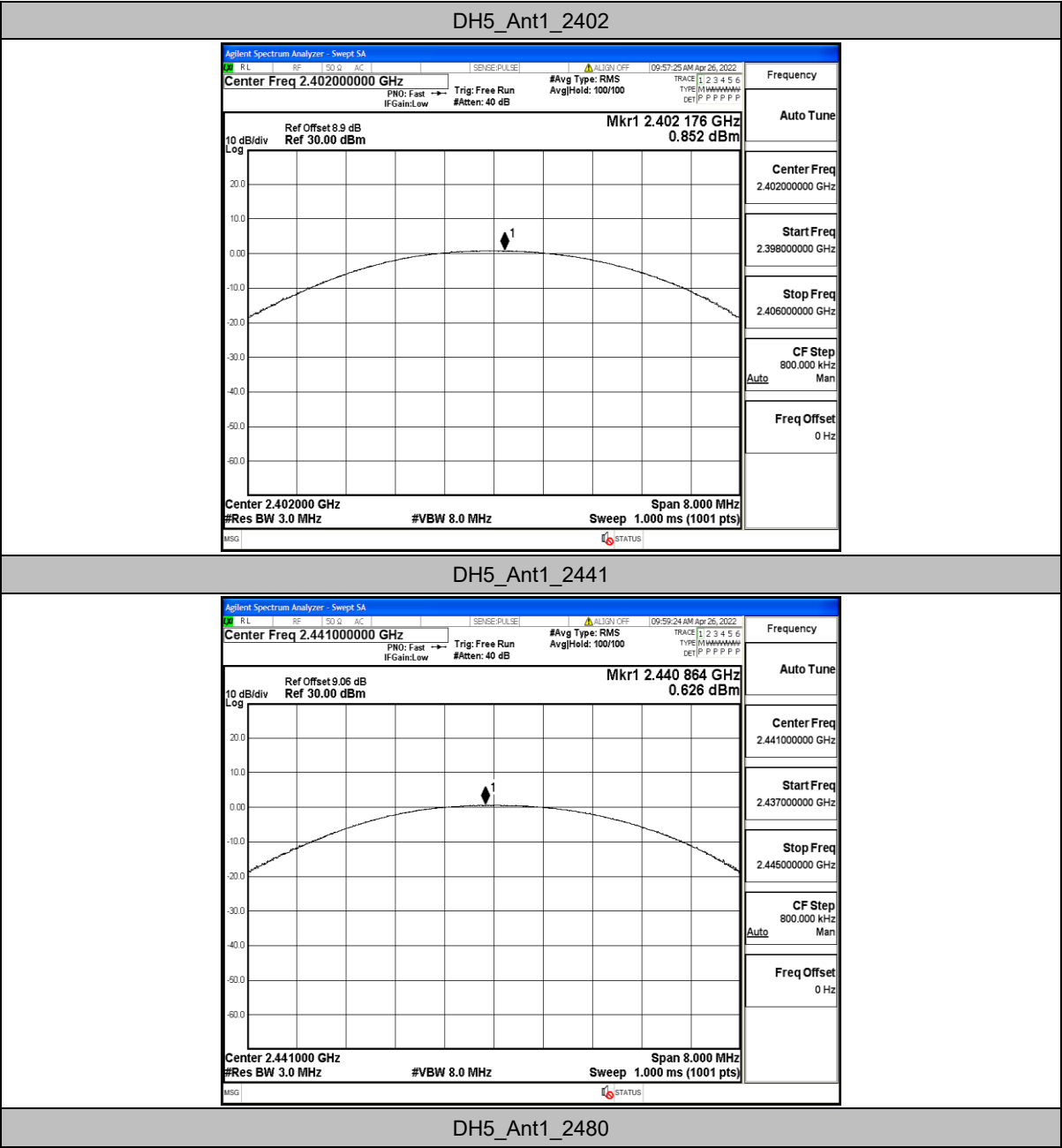


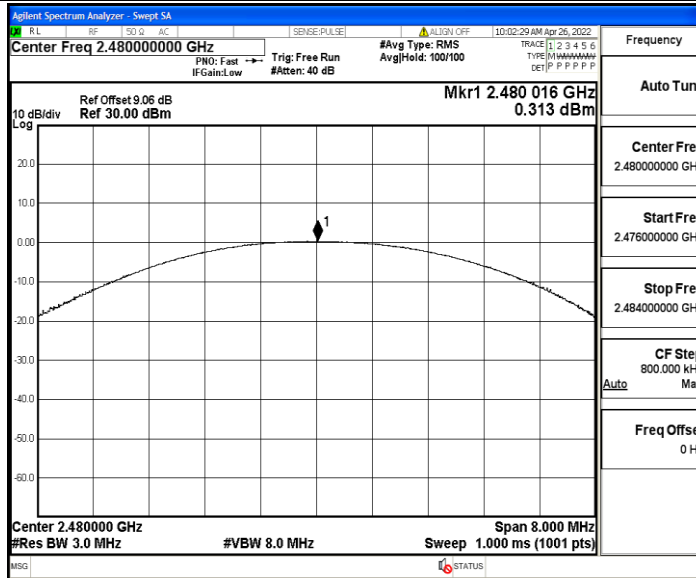
Appendix C: Maximum conducted output power

Test Result

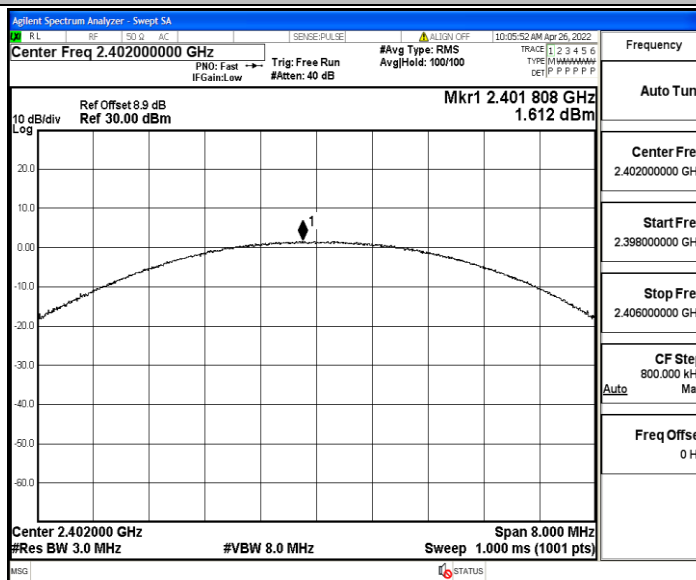
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	0.85	≤30	PASS
		2441	0.63	≤30	PASS
		2480	0.31	≤30	PASS
2DH5	Ant1	2402	1.61	≤20.97	PASS
		2441	1.35	≤20.97	PASS
		2480	0.97	≤20.97	PASS
3DH5	Ant1	2402	2.28	≤20.97	PASS
		2441	1.89	≤20.97	PASS
		2480	1.53	≤20.97	PASS

Test Graphs

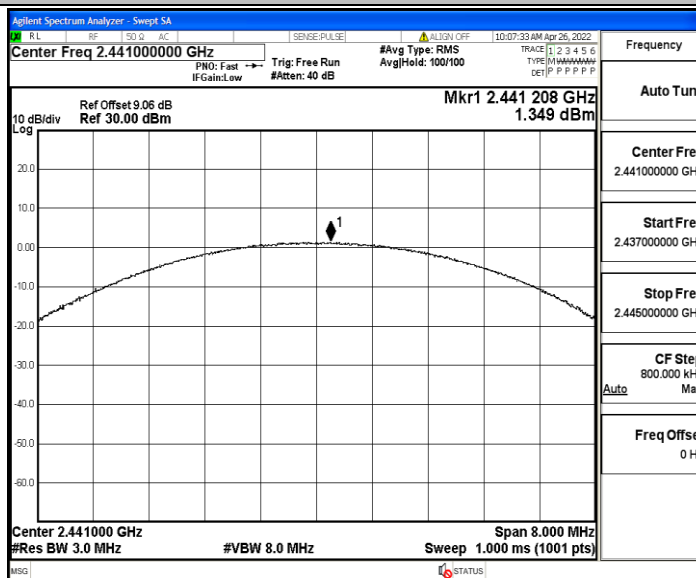




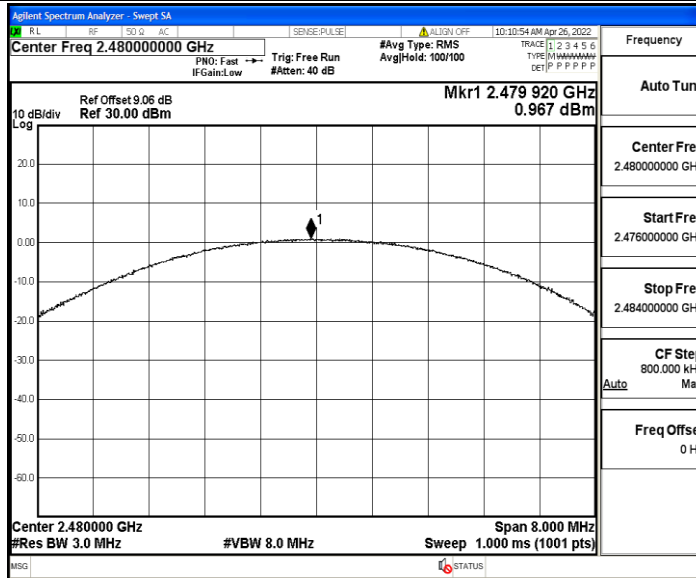
2DH5_Ant1_2402



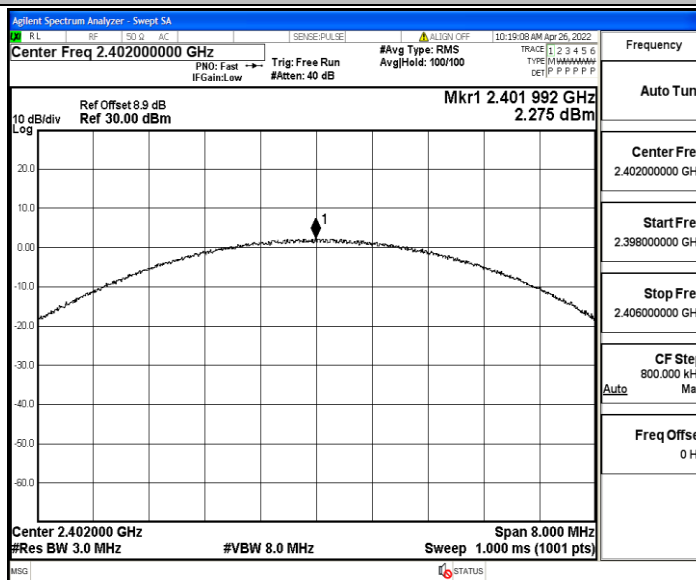
2DH5_Ant1_2441



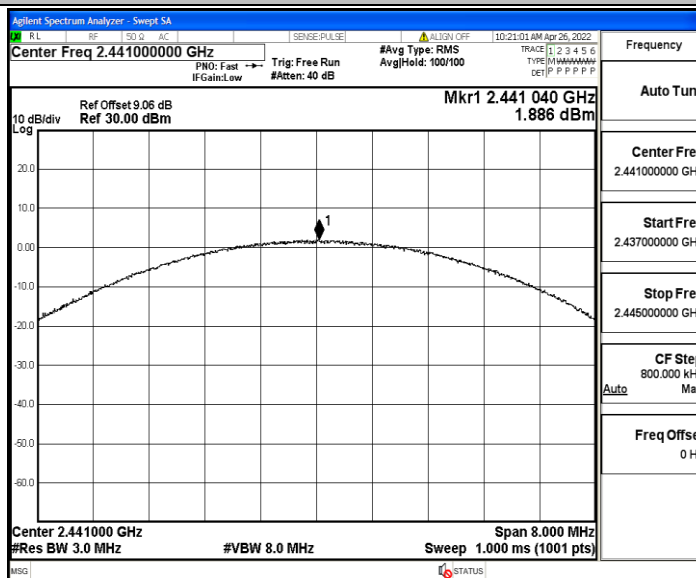
2DH5_Ant1_2480



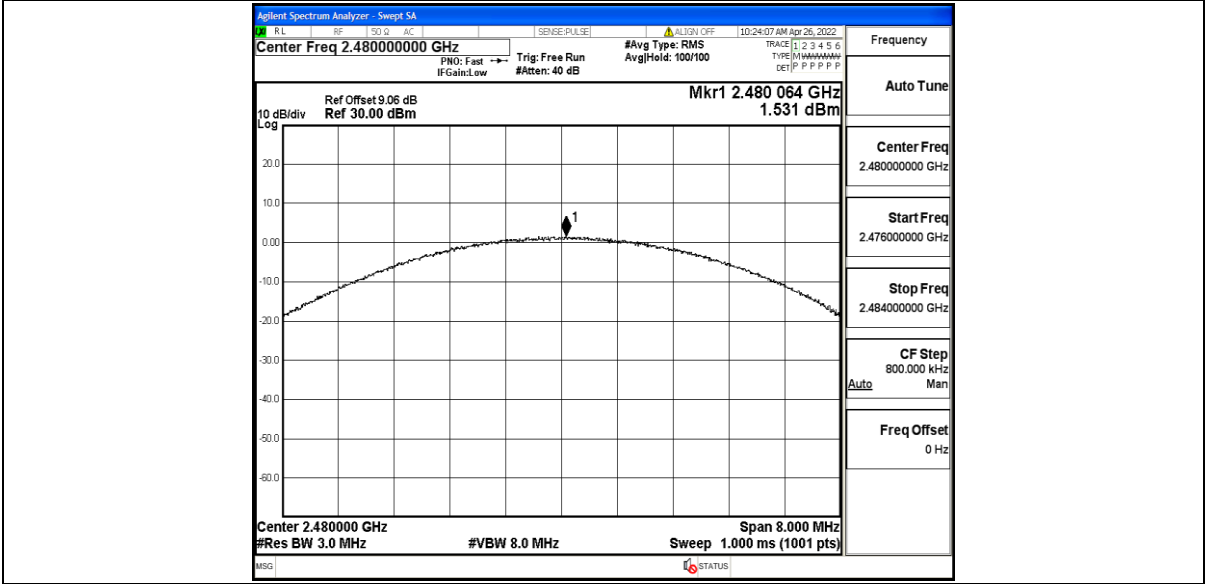
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



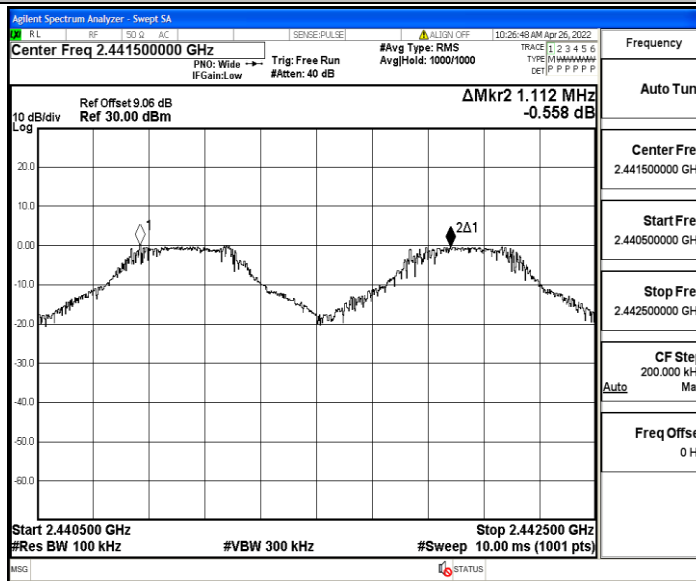
Appendix D: Carrier frequency separation

Test Result

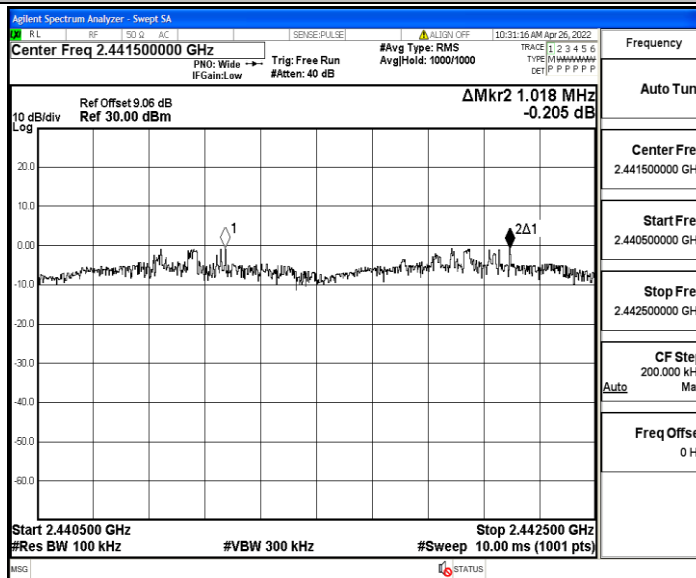
TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.112	≥0.891	PASS
2DH5	Ant1	Hop	1.018	≥0.840	PASS
3DH5	Ant1	Hop	0.91	≥0.864	PASS

Test Graphs

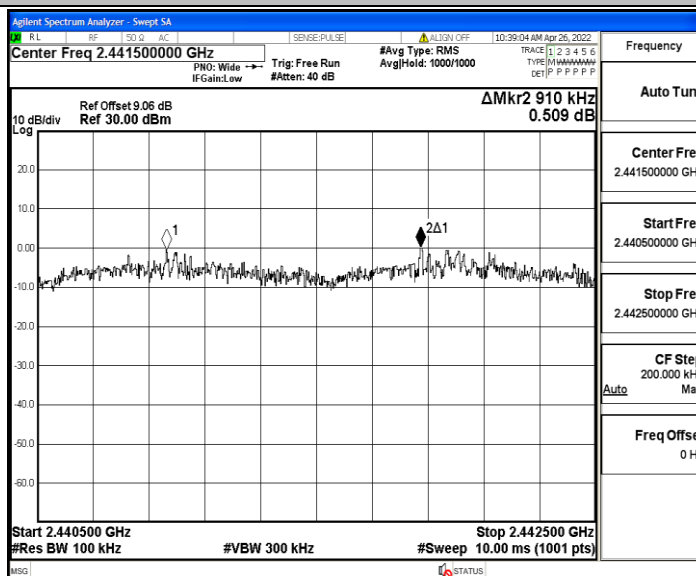
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop

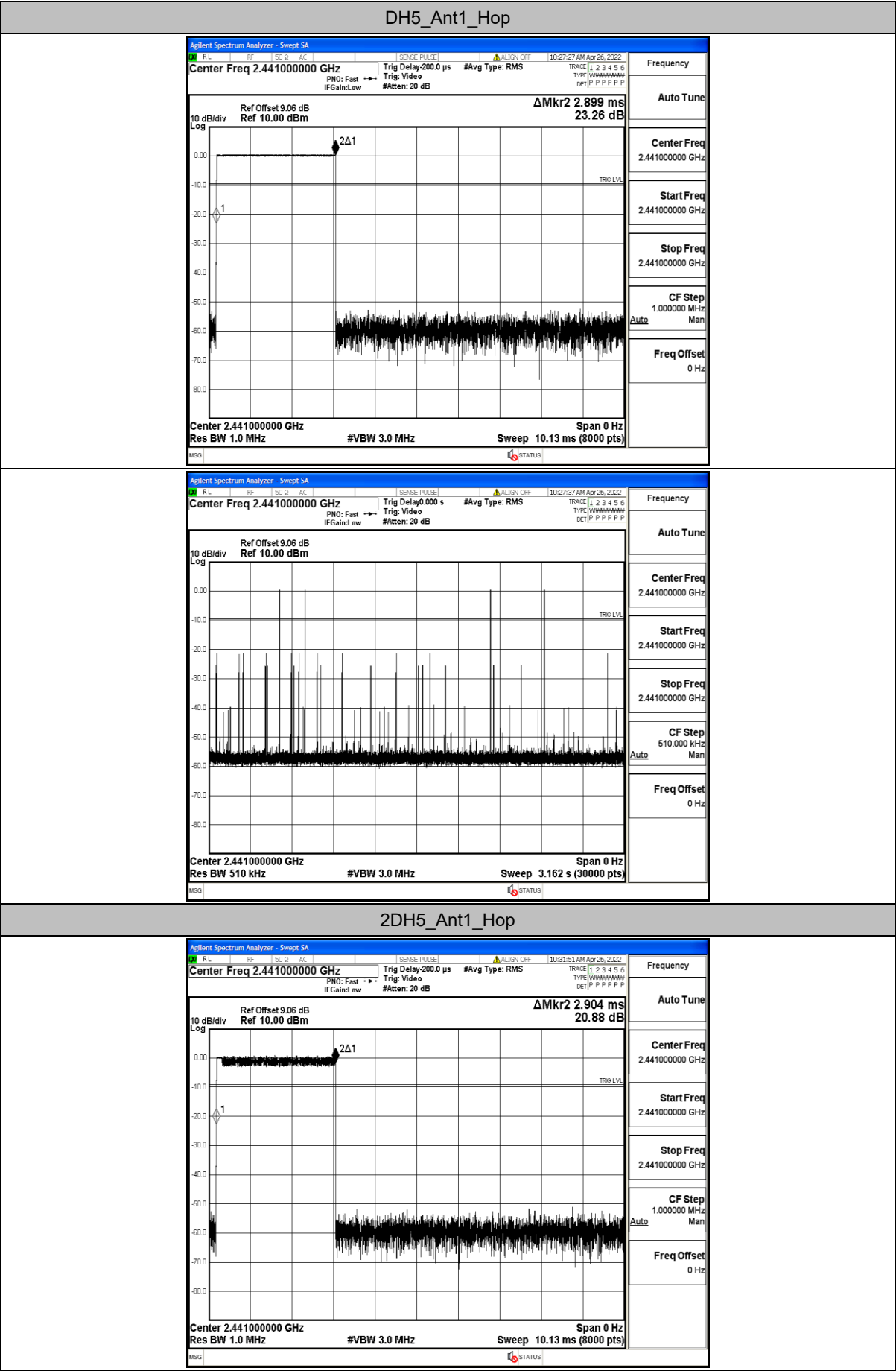


Appendix E: Time of occupancy

Test Result

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.90	50	0.145	≤0.4	PASS
2DH5	Ant1	Hop	2.90	110	0.319	≤0.4	PASS
3DH5	Ant1	Hop	2.91	130	0.378	≤0.4	PASS

Test Graphs



2DH5_Ant1_Hop

Agilent Spectrum Analyzer - Swept SA

RL

RF

50 Ω

AC

Center Freq 2.441000000 GHz

Trig Delay: 200.0 μs

#Avg Type: RMS

10:31:51 AM Apr 26, 2022

TRACE 1 2 3 4 5 6

TYPE (WWWWWWWW)

DETP P P P P P P

Ref Offset 9.06 dB

Ref 10.00 dBm

ΔMkr2 2.904 ms

20.88 dB

10 dB/div

Log

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

-70.0

-80.0

Center 2.441000000 GHz

Res BW 1.0 MHz

#VBW 3.0 MHz

Sweep 10.13 ms (8000 pts)

Span 0 Hz

MSG

STATUS

Frequency

Auto Tune

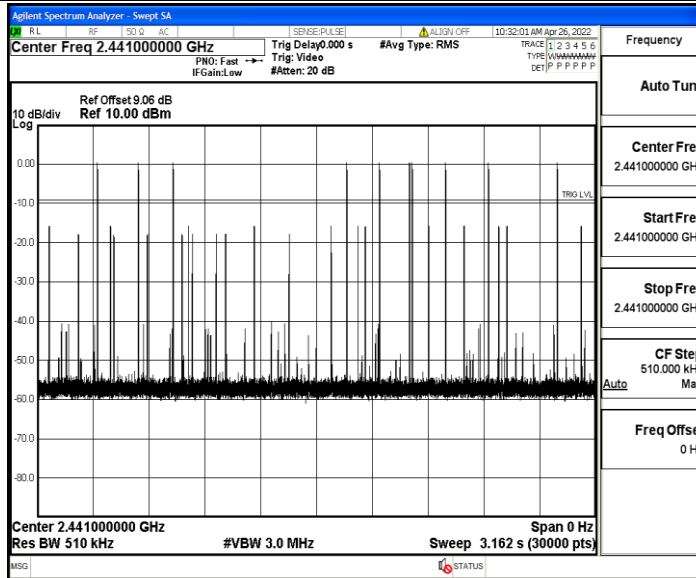
Center Freq
2.441000000 GHz

Start Freq
2.441000000 GHz

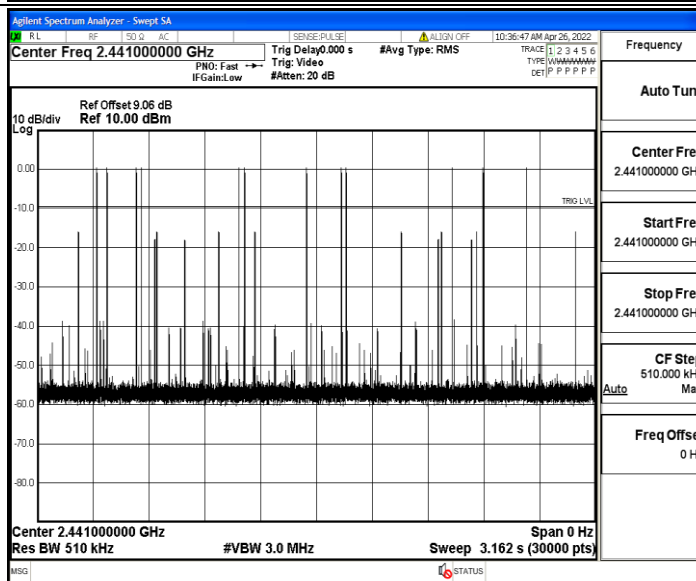
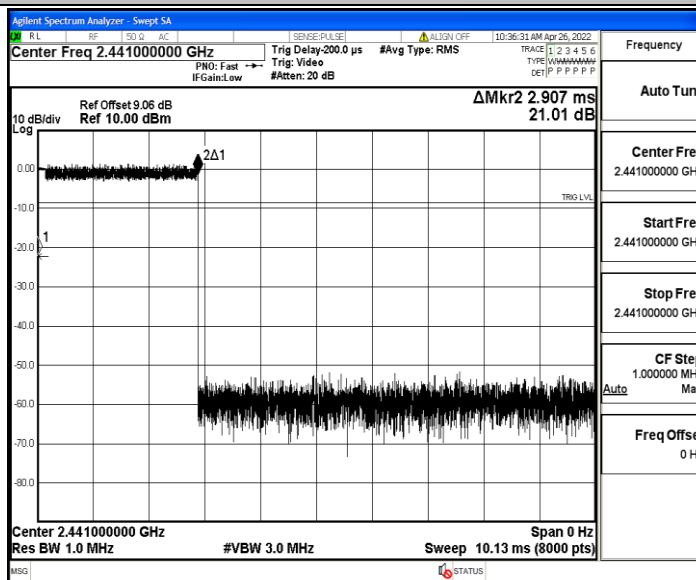
Stop Freq
2.441000000 GHz

CF Step
1.000000 MHz
Auto

Freq Offset
0 Hz



3DH5_Ant1_Hop



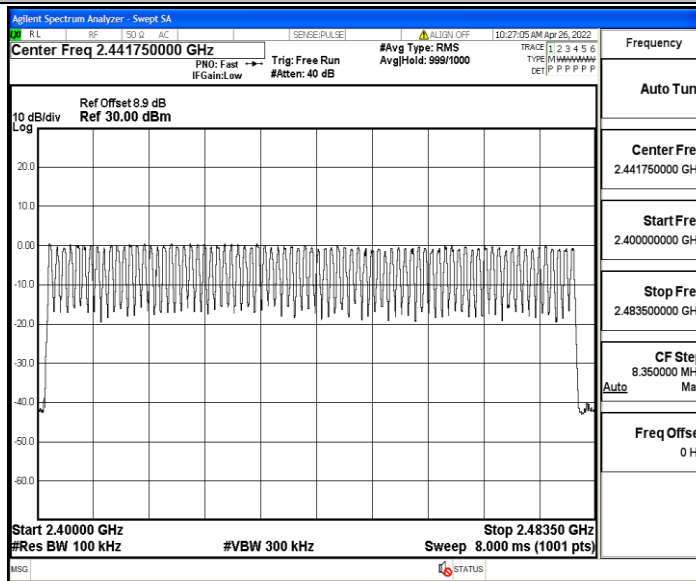
Appendix F: Number of hopping channels

Test Result

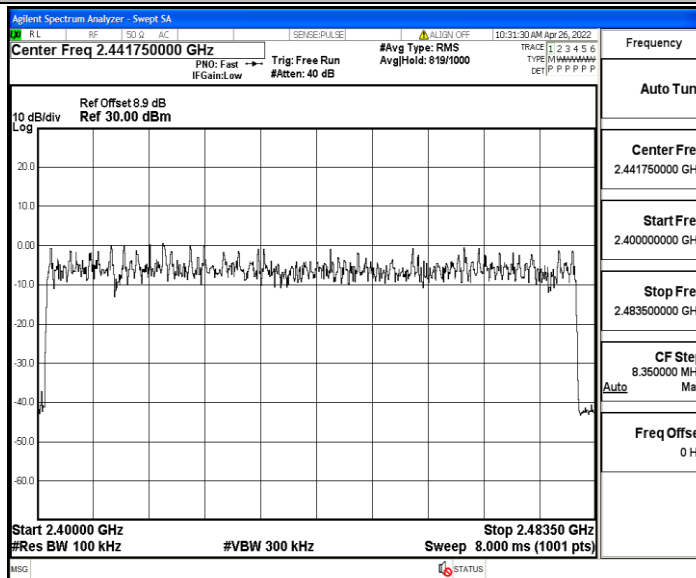
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

Test Graphs

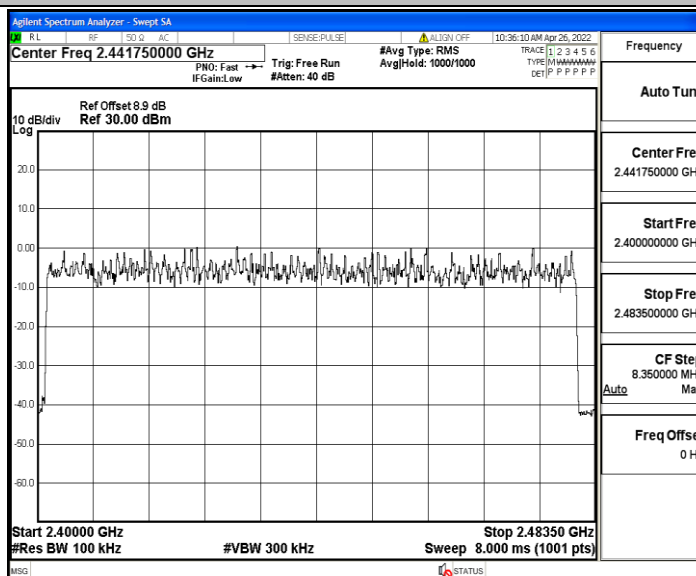
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop



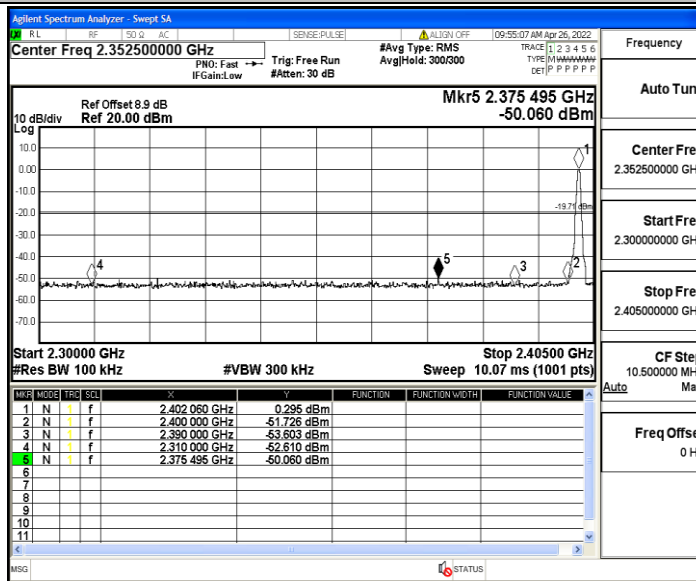
Appendix G: Band edge measurements

Test Result

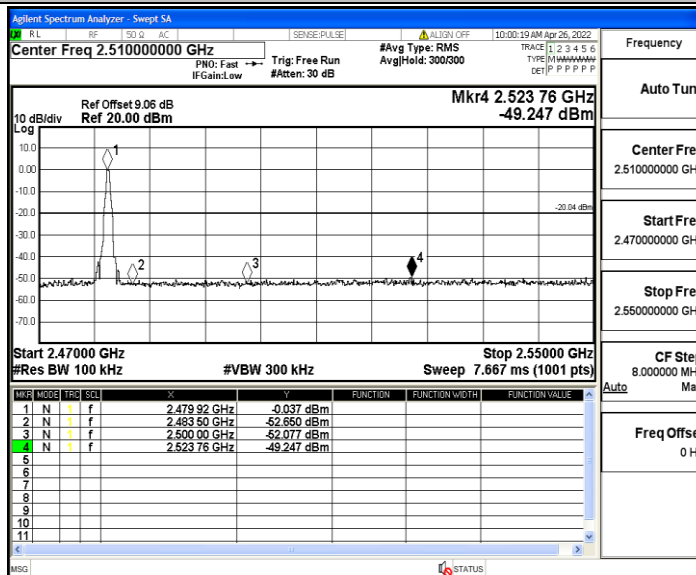
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	0.30	-50.06	≤ -19.71	PASS
		High	2480	-0.04	-49.25	≤ -20.04	PASS
		Low	Hop_2402	-0.12	-49.81	≤ -20.12	PASS
		High	Hop_2480	-0.04	-48.92	≤ -20.04	PASS
2DH5	Ant1	Low	2402	0.27	-50.48	≤ -19.73	PASS
		High	2480	-0.12	-49.18	≤ -20.12	PASS
		Low	Hop_2402	-2.19	-51.18	≤ -22.19	PASS
		High	Hop_2480	-1.50	-49.43	≤ -21.5	PASS
3DH5	Ant1	Low	2402	0.27	-49.88	≤ -19.73	PASS
		High	2480	-1.23	-49.69	≤ -21.23	PASS
		Low	Hop_2402	-4.20	-50.91	≤ -24.2	PASS
		High	Hop_2480	-0.16	-49.72	≤ -20.16	PASS

Test Graphs

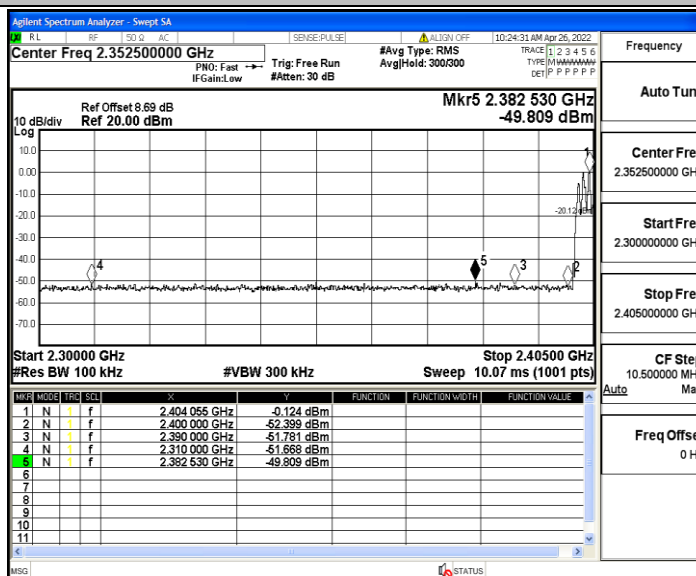
DH5_Ant1_Low_2402



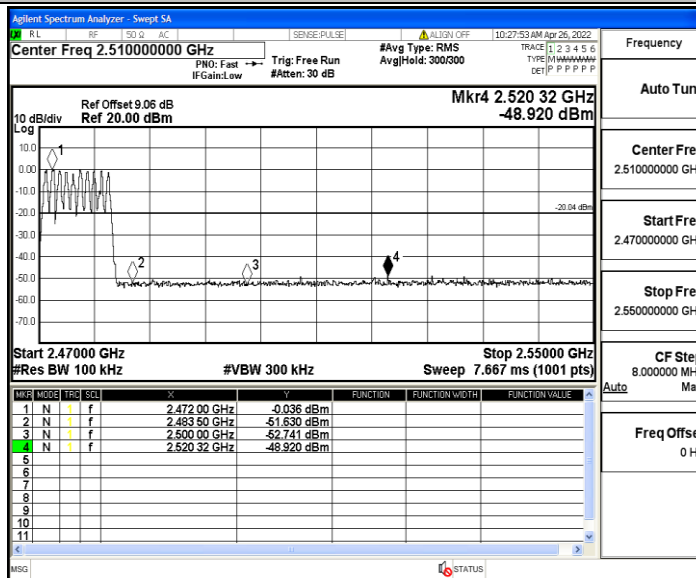
DH5_Ant1_High_2480



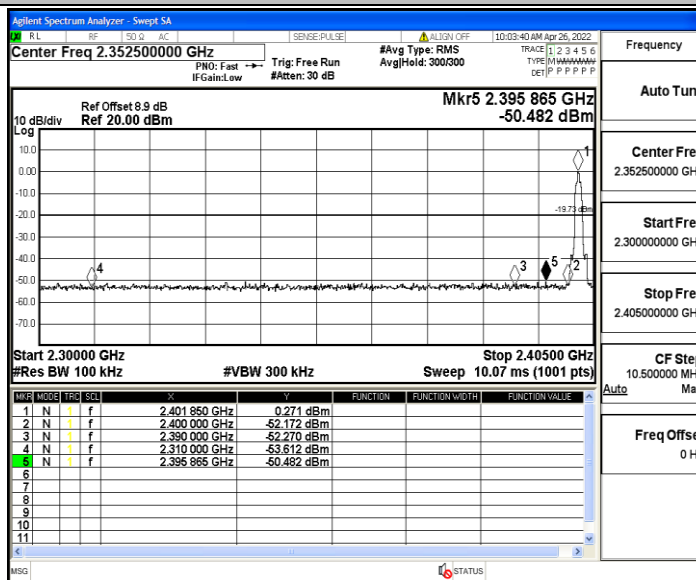
DH5_Ant1_Low_Hop_2402



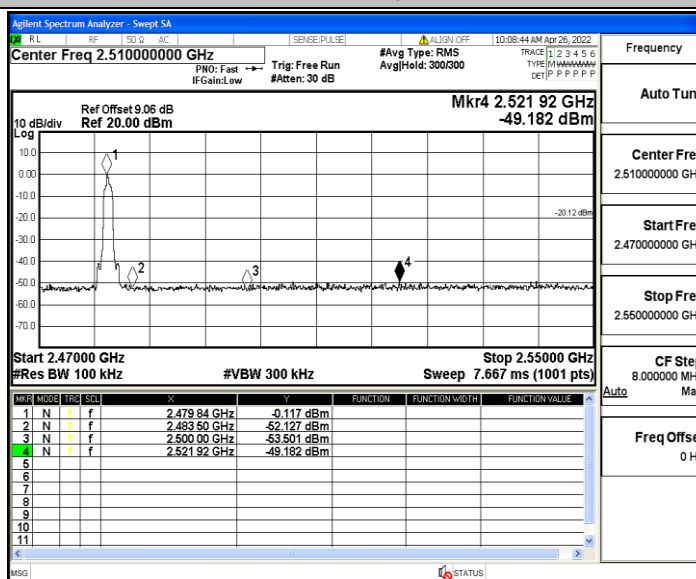
DH5_Ant1_High_Hop_2480



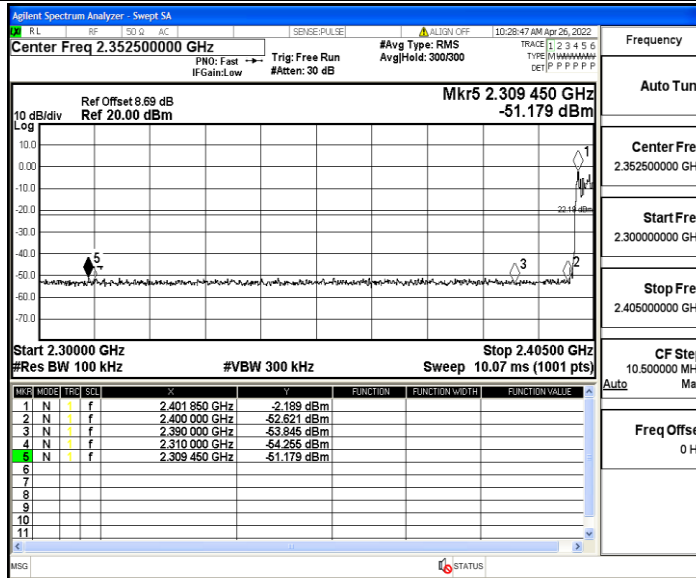
2DH5_Ant1_Low_2402



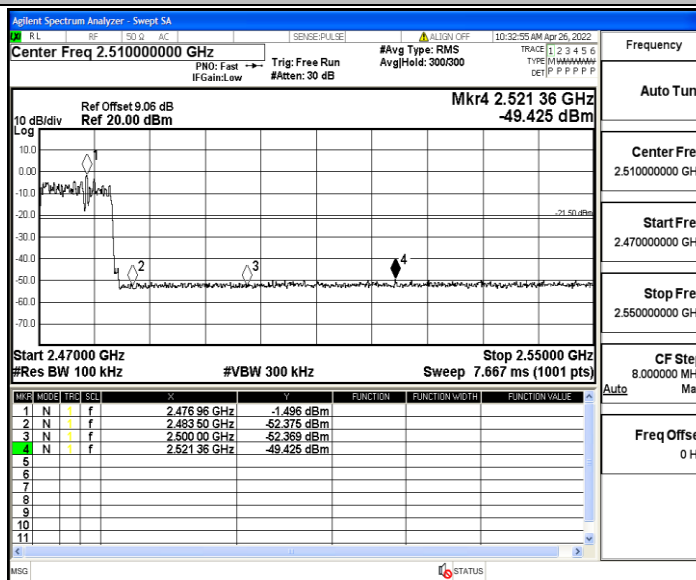
2DH5_Ant1_High_2480



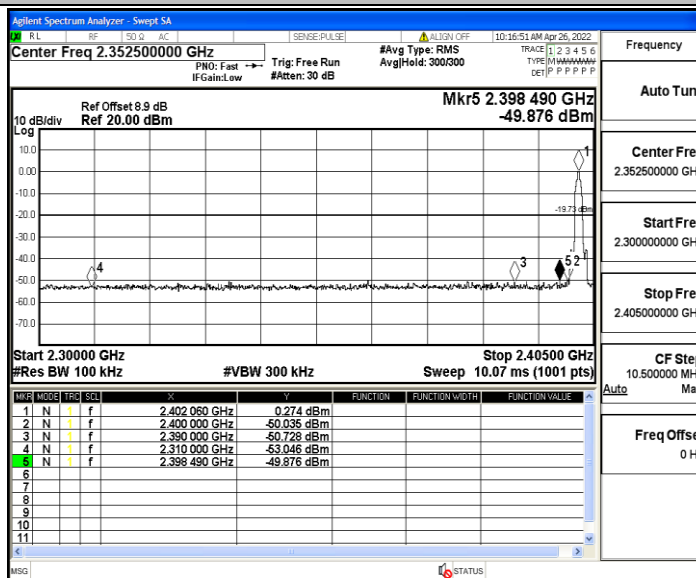
2DH5_Ant1_Low_Hop_2402



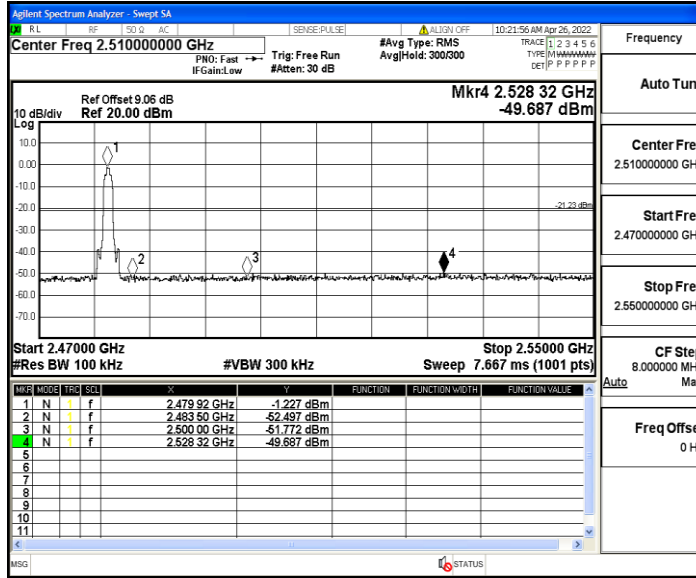
2DH5_Ant1_High_Hop_2480



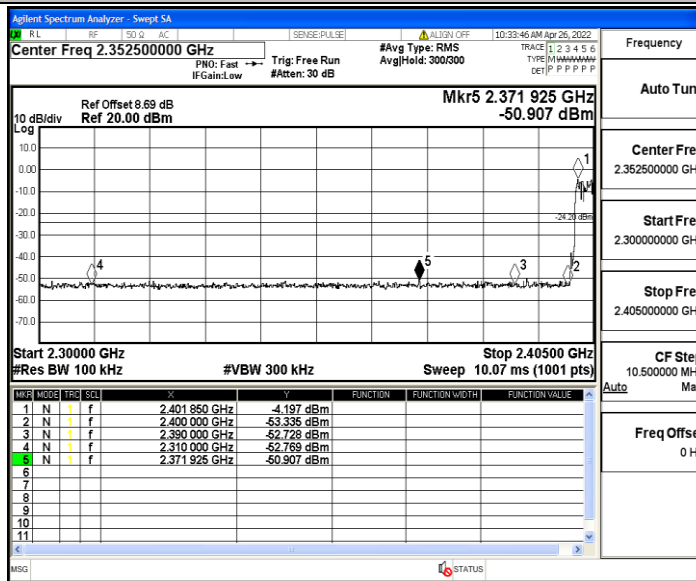
3DH5_Ant1_Low_2402



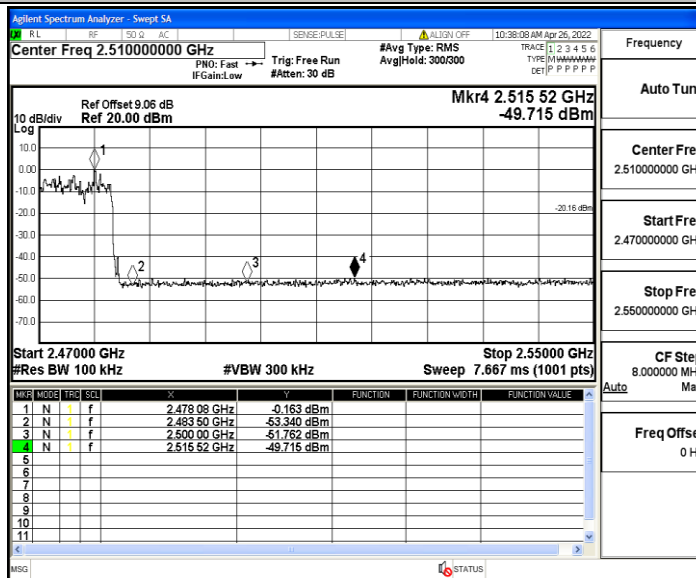
3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480



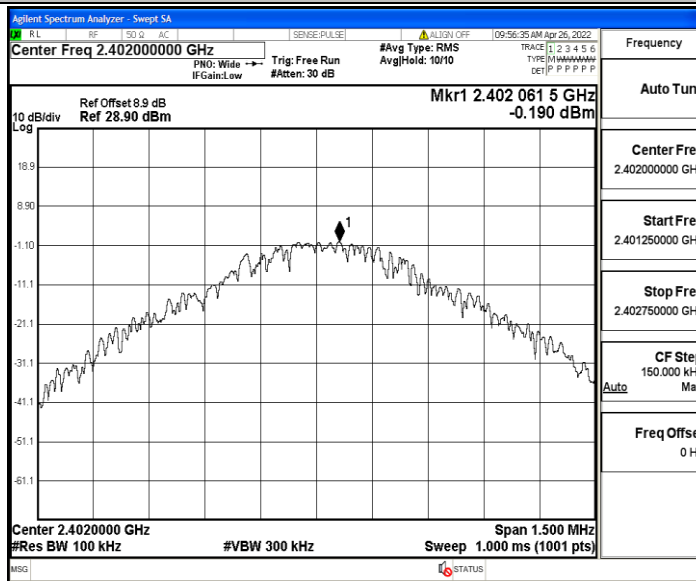
Appendix H: Conducted Spurious Emission

Test Result

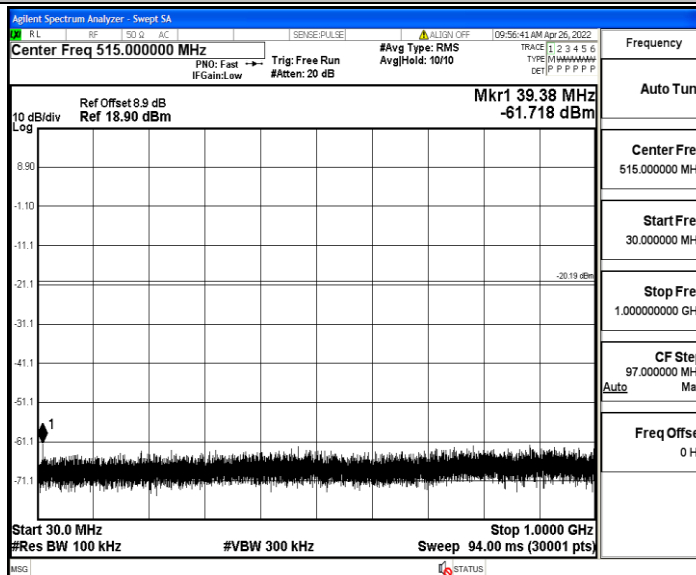
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-0.19	-0.19	---	PASS
			30~1000	-0.19	-61.72	≤-20.19	PASS
			1000~26500	-0.19	-45.24	≤-20.19	PASS
		2441	Reference	-0.56	-0.56	---	PASS
			30~1000	-0.56	-60.97	≤-20.56	PASS
			1000~26500	-0.56	-48.57	≤-20.56	PASS
		2480	Reference	-0.58	-0.58	---	PASS
			30~1000	-0.58	-61.1	≤-20.58	PASS
			1000~26500	-0.58	-47.19	≤-20.58	PASS
2DH5	Ant1	2402	Reference	-3.22	-3.22	---	PASS
			30~1000	-3.22	-61.61	≤-23.22	PASS
			1000~26500	-3.22	-50.25	≤-23.22	PASS
		2441	Reference	-4.28	-4.28	---	PASS
			30~1000	-4.28	-61.58	≤-24.28	PASS
			1000~26500	-4.28	-49.86	≤-24.28	PASS
		2480	Reference	-3.65	-3.65	---	PASS
			30~1000	-3.65	-61.62	≤-23.65	PASS
			1000~26500	-3.65	-49.41	≤-23.65	PASS
3DH5	Ant1	2402	Reference	-4.05	-4.05	---	PASS
			30~1000	-4.05	-61.23	≤-24.05	PASS
			1000~26500	-4.05	-50.98	≤-24.05	PASS
		2441	Reference	-2.24	-2.24	---	PASS
			30~1000	-2.24	-60.87	≤-22.24	PASS
			1000~26500	-2.24	-50.26	≤-22.24	PASS
		2480	Reference	-3.78	-3.78	---	PASS
			30~1000	-3.78	-60.86	≤-23.78	PASS
			1000~26500	-3.78	-44.86	≤-23.78	PASS

Test Graphs

DH5_Ant1_2402_0~Reference



DH5_Ant1_2402_30~1000



DH5_Ant1_2402_1000~26500

