

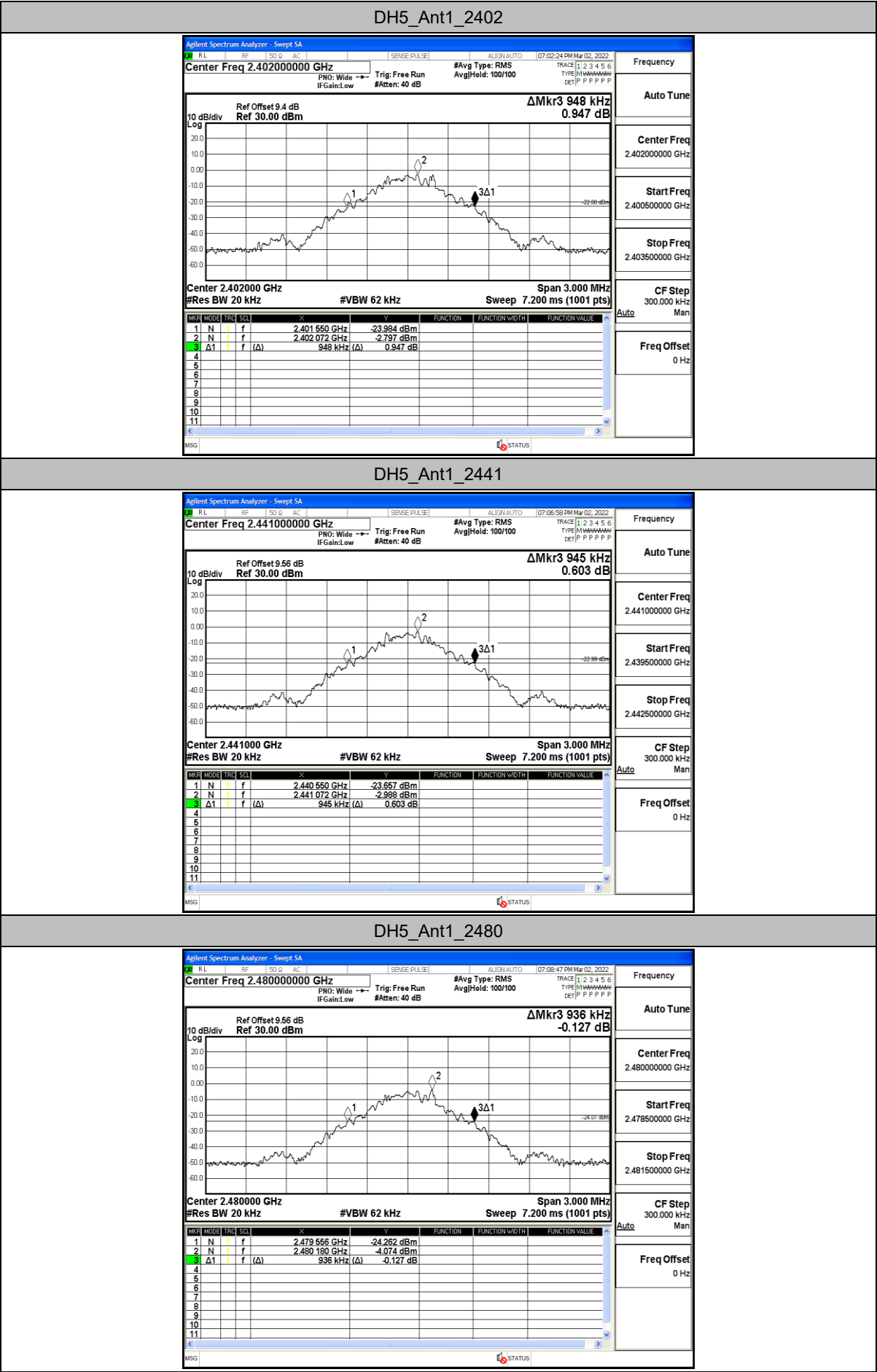
RF Test Data for BT(BDR/EDR) (Conducted Measurement)**Product Name: 4K Dongle****Trade Mark: MSTICK****Test Model: MG-S02L****FCC ID: 2AWC3-MG-S02L****Environmental Conditions**

Temperature:	25.5°C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

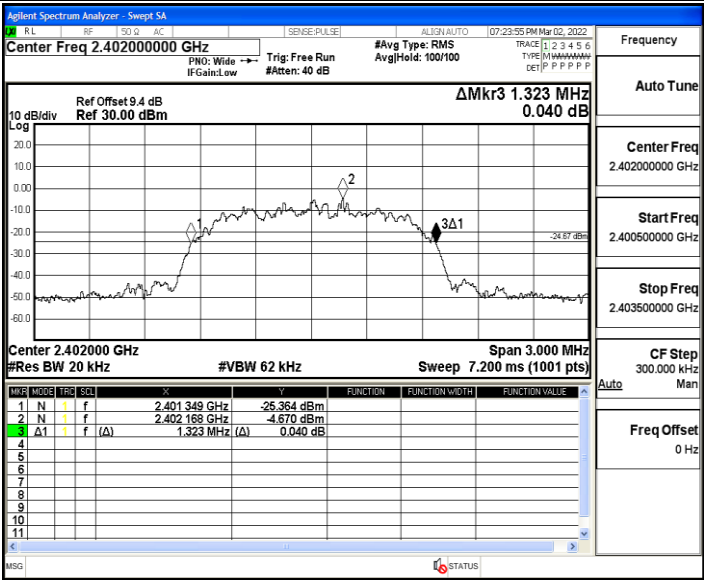
Appendix A: 20dB Emission Bandwidth**Test Result**

TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.948	2401.550	2402.498	---	PASS
		2441	0.945	2440.550	2441.495	---	PASS
		2480	0.936	2479.556	2480.492	---	PASS
2DH5	Ant1	2402	1.323	2401.349	2402.672	---	PASS
		2441	1.314	2440.355	2441.669	---	PASS
		2480	1.326	2479.349	2480.675	---	PASS
3DH5	Ant1	2402	1.260	2401.367	2402.627	---	PASS
		2441	1.275	2440.364	2441.639	---	PASS
		2480	1.302	2479.358	2480.660	---	PASS

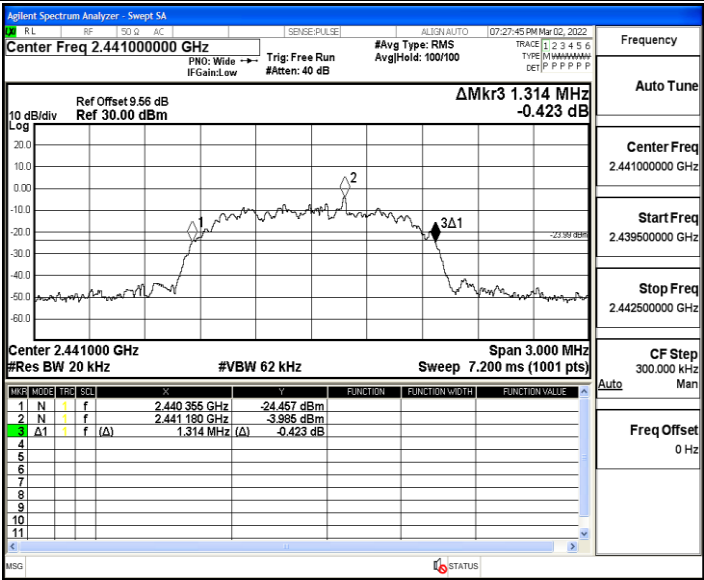
Test Graphs



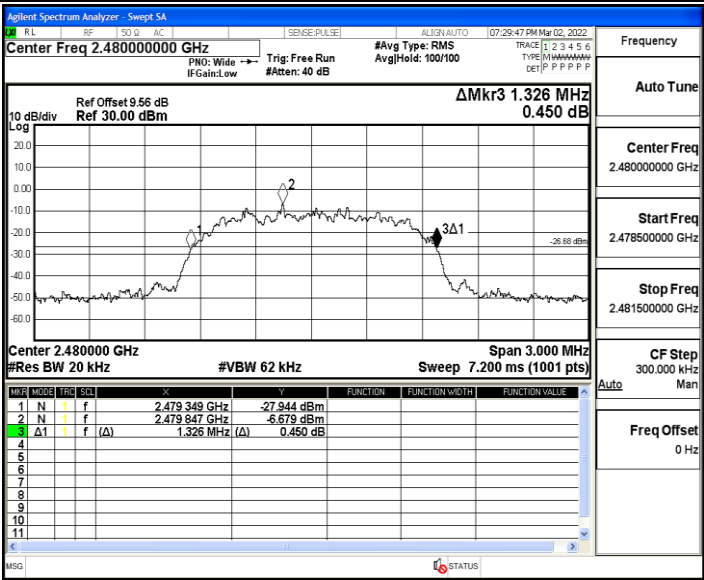
2DH5_Ant1_2402



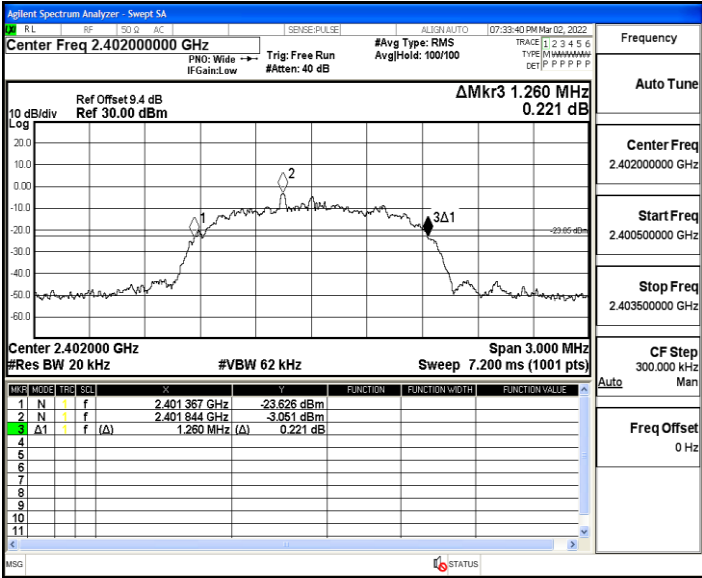
2DH5_Ant1_2441



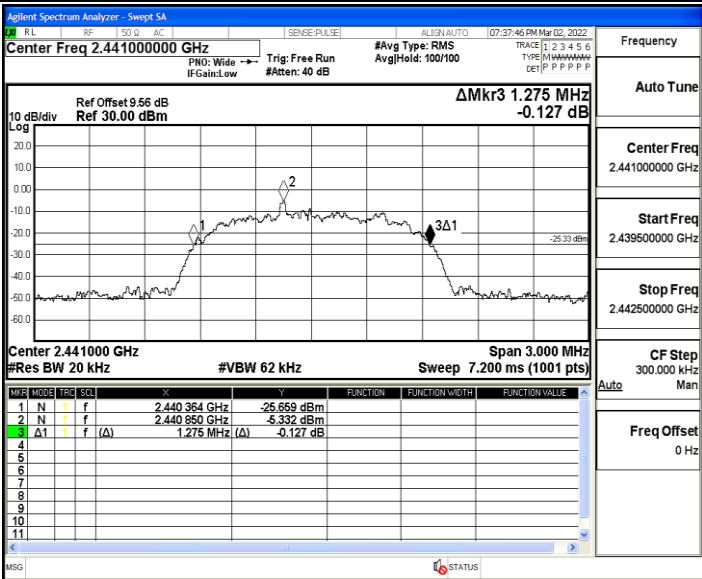
2DH5_Ant1_2480



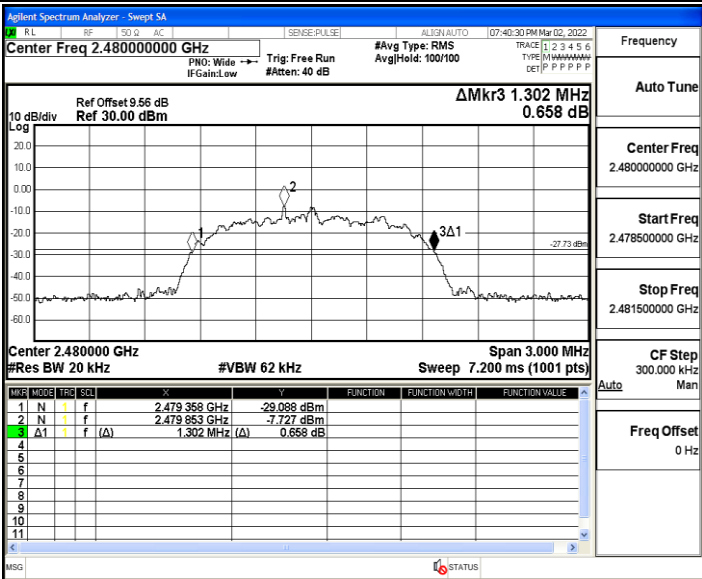
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480

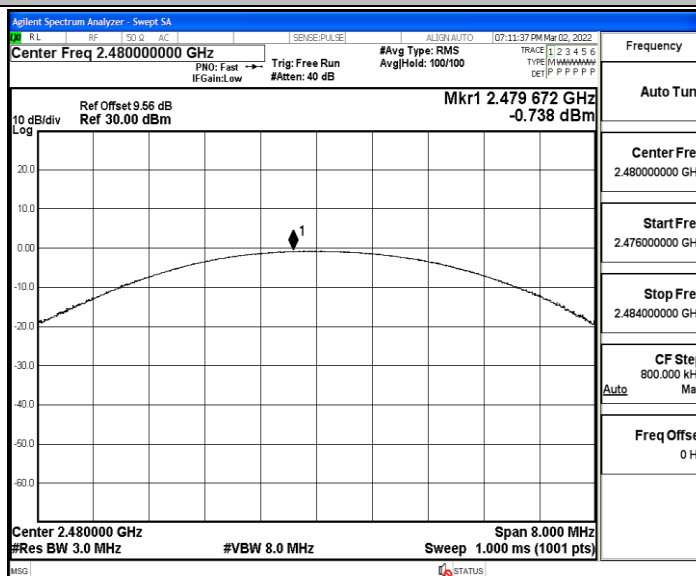
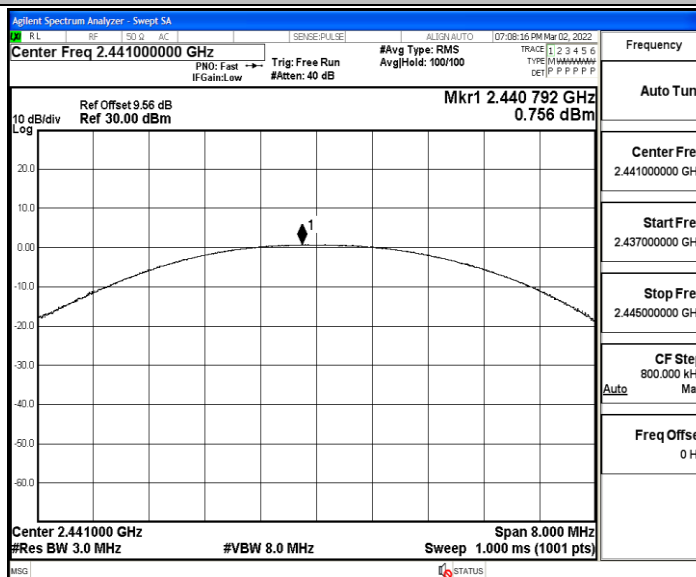
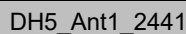
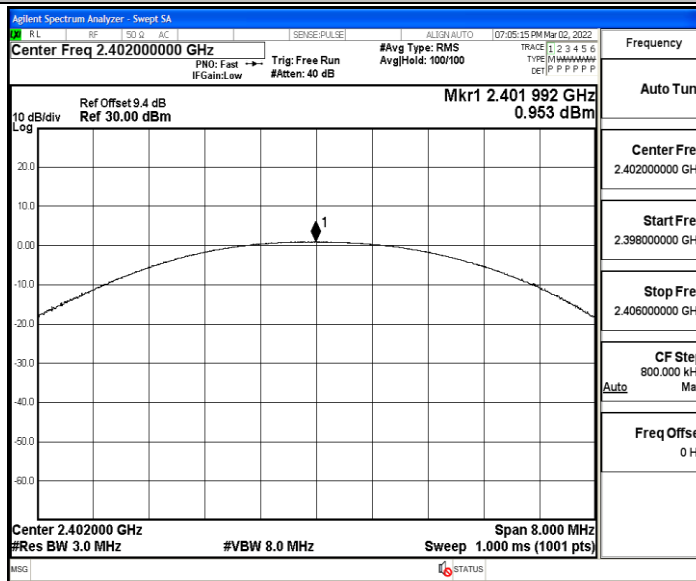


Appendix B: Maximum conducted output power

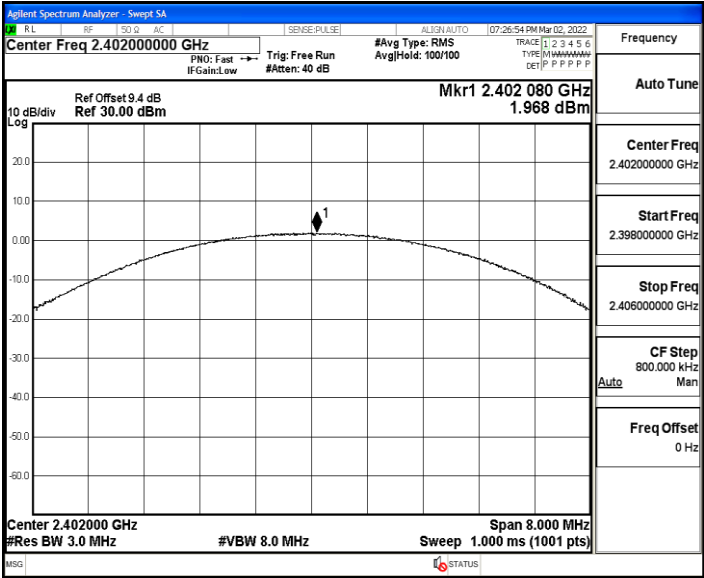
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	0.95	≤30.00	PASS
		2441	0.76	≤30.00	PASS
		2480	-0.74	≤30.00	PASS
2DH5	Ant1	2402	1.97	≤20.97	PASS
		2441	1.77	≤20.97	PASS
		2480	0.35	≤20.97	PASS
3DH5	Ant1	2402	0.99	≤20.97	PASS
		2441	0.51	≤20.97	PASS
		2480	-1.06	≤20.97	PASS

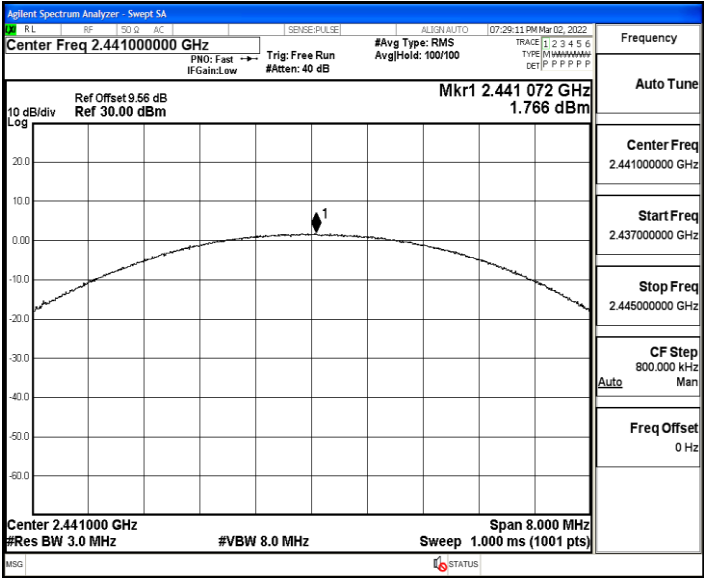
Test Graphs



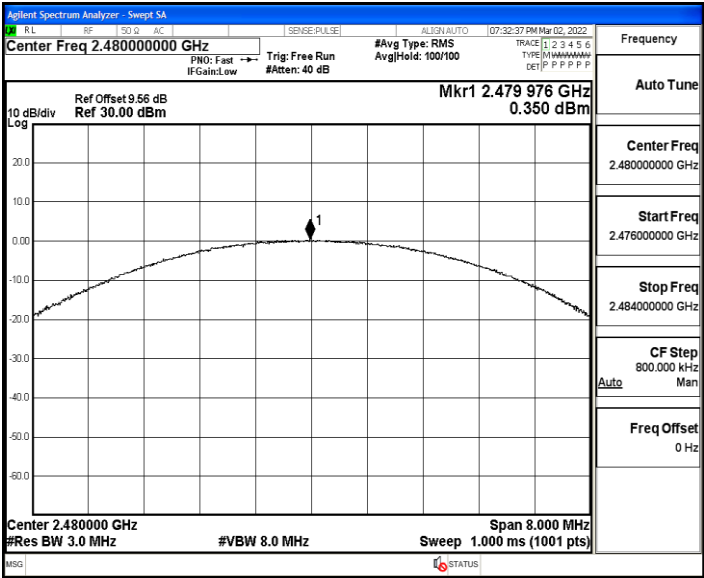
2DH5_Ant1_2402



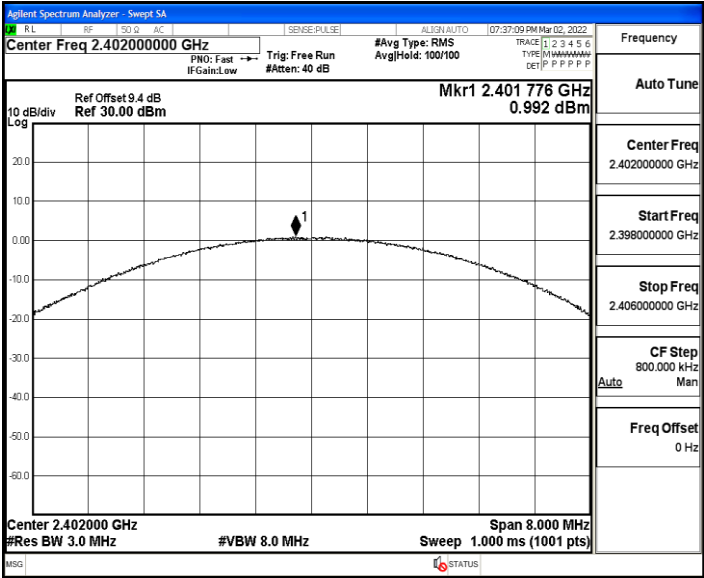
2DH5_Ant1_2441



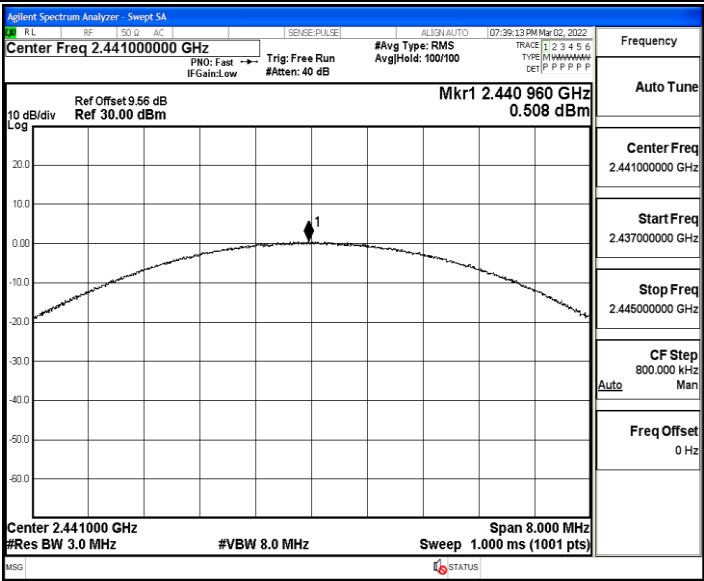
2DH5_Ant1_2480



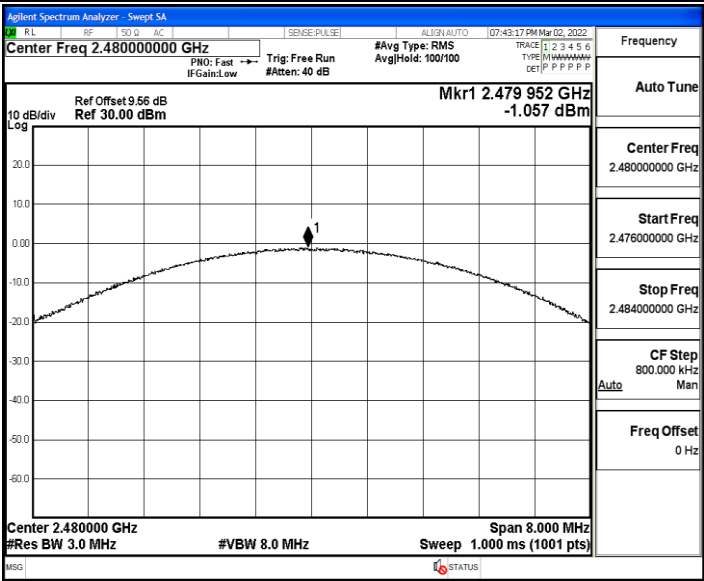
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480

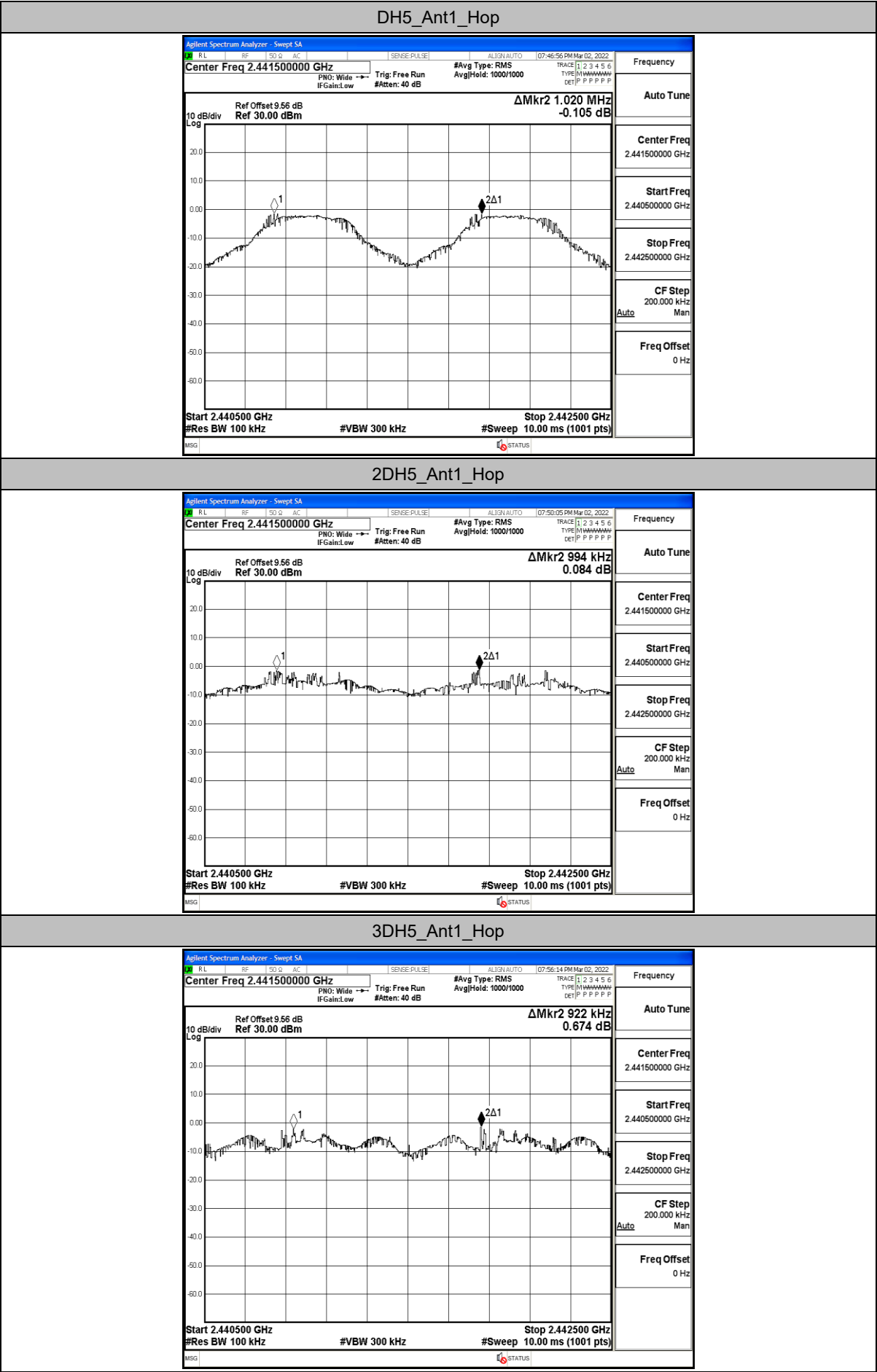


Appendix C: Carrier frequency separation

Test Result

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.02	≥0.948	PASS
2DH5	Ant1	Hop	0.994	≥0.890	PASS
3DH5	Ant1	Hop	0.922	≥0.870	PASS

Test Graphs

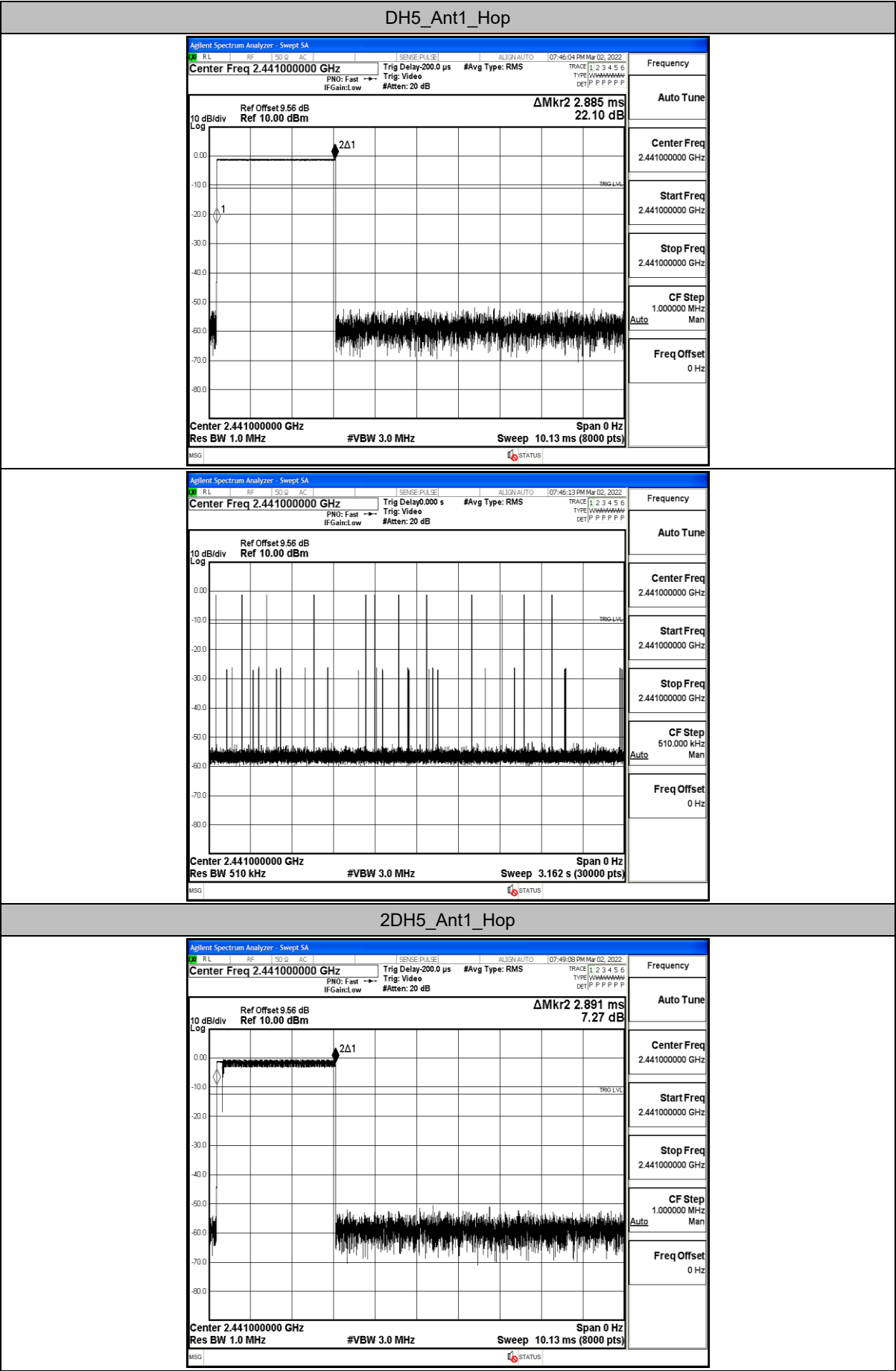


Appendix D: Time of occupancy

Test Result

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.89	130	0.375	≤0.4	PASS
2DH5	Ant1	Hop	2.89	100	0.289	≤0.4	PASS
3DH5	Ant1	Hop	2.89	100	0.289	≤0.4	PASS

Test Graphs



2DH5_Ant1_Hop

Agilent Spectrum Analyzer - Swept SA

RLRF50QAC

SENSE:PULSE

ALIGN:AUTO

07:49:03 PM Mar 02, 2022

Center Freq 2.441000000 GHz

Trig Delay:200.0 μ s

#Avg Type: RMS

TRACE 1 2 3 4 5 6

TYPE: (V) (M) (M) (M) (M) (M)

DET: (P) (P) (P) (P) (P) (P)

Ref Offset:9.56 dB

Ref 10.00 dBm

Δ Mkr2 2.891 ms

7.27 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

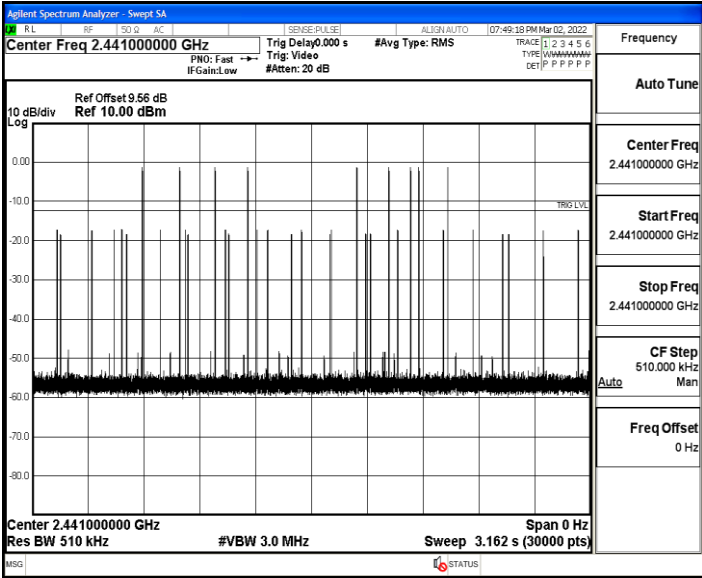
Center Freq
2.441000000 GHz

Start Freq
2.441000000 GHz

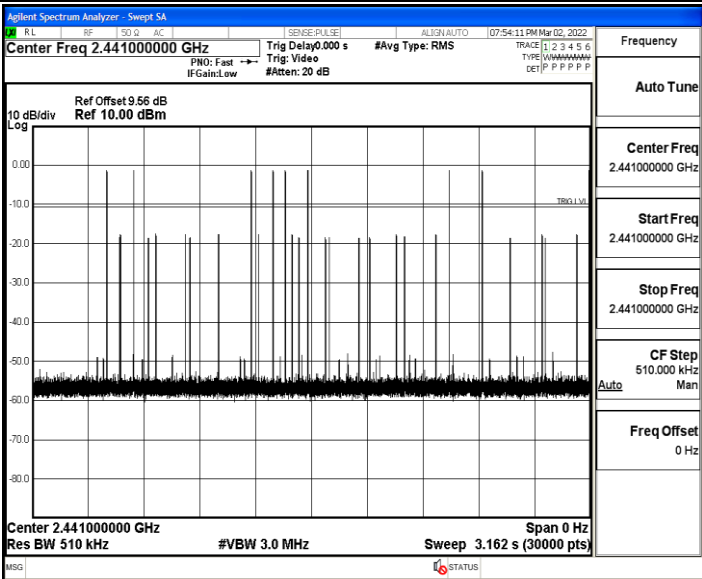
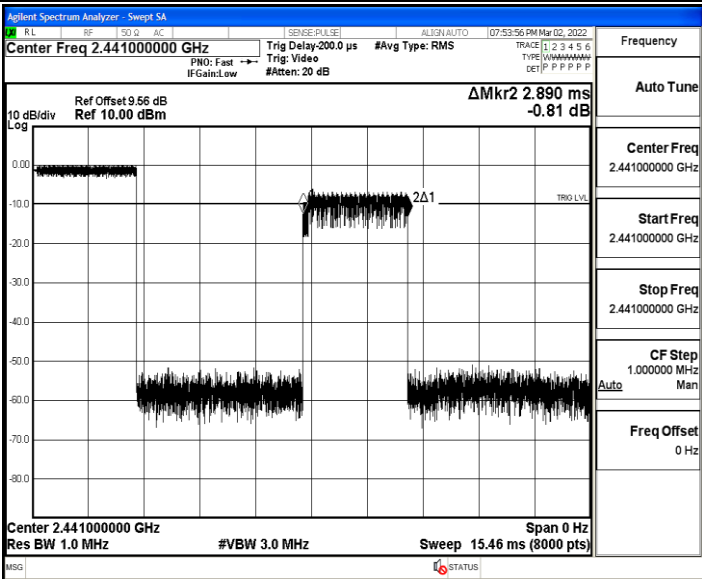
Stop Freq
2.441000000 GHz

CF Step
1.000000 MHz
Auto

Freq Offset
0 Hz



3DH5_Ant1_Hop

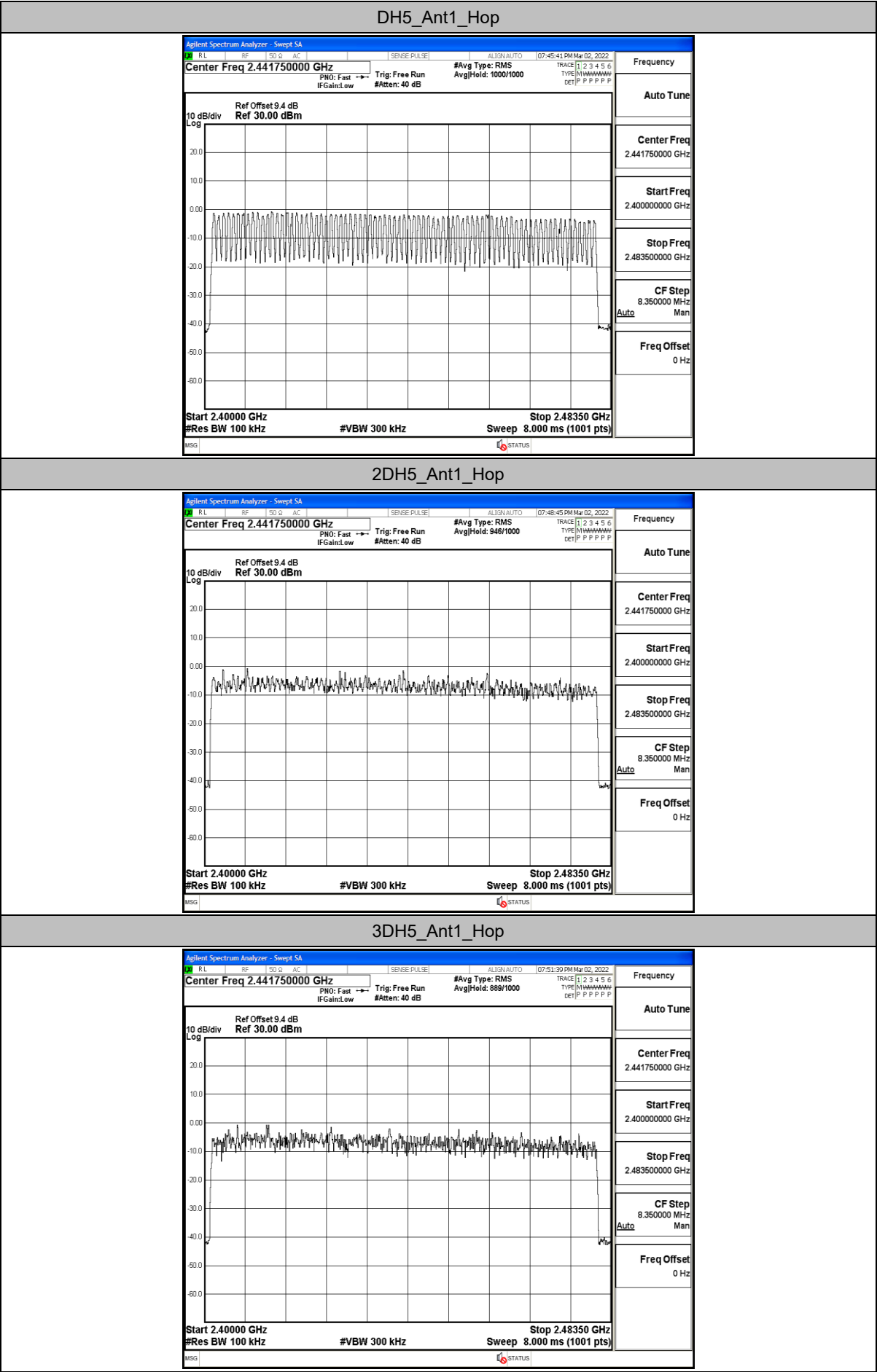


Appendix E: Number of hopping channels

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

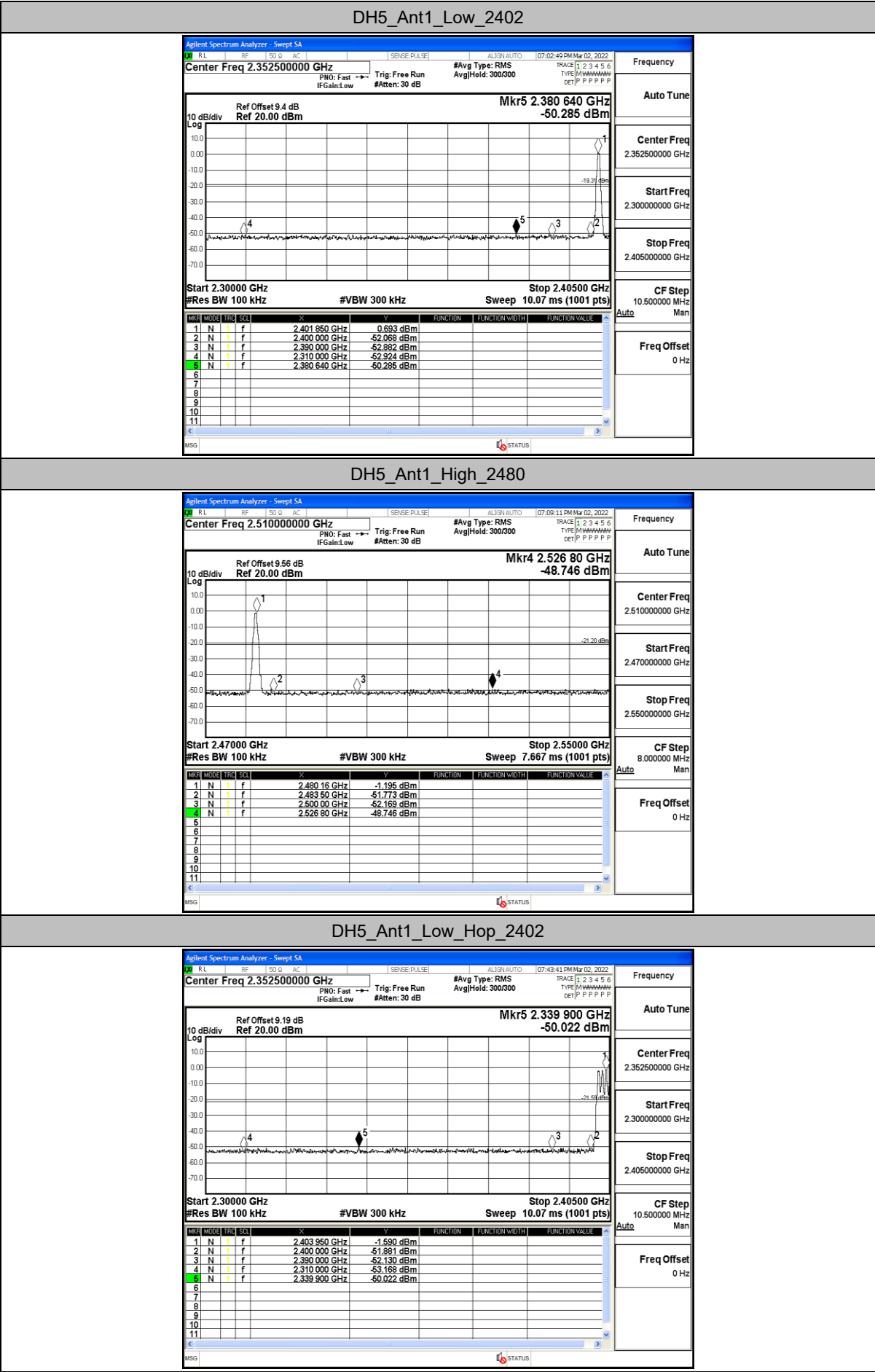


Appendix F: Band edge measurements

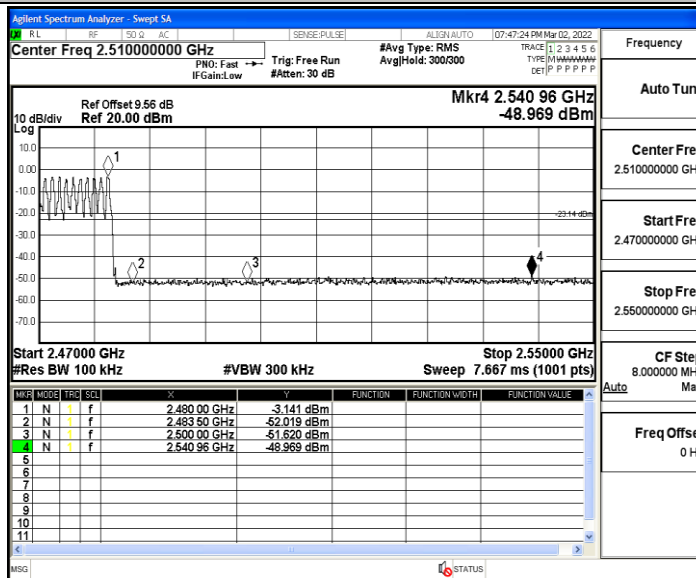
Test Result

TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	0.69	-50.29	≤-19.31	PASS
		High	2480	-1.20	-48.75	≤-21.2	PASS
		Low	Hop_2402	-1.59	-50.02	≤-21.59	PASS
		High	Hop_2480	-3.14	-48.97	≤-23.14	PASS
2DH5	Ant1	Low	2402	0.37	-49.99	≤-19.63	PASS
		High	2480	-1.39	-48.57	≤-21.39	PASS
		Low	Hop_2402	-4.01	-50.19	≤-24.01	PASS
		High	Hop_2480	-2.84	-48.48	≤-22.84	PASS
3DH5	Ant1	Low	2402	0.23	-50.16	≤-19.78	PASS
		High	2480	-3.07	-48.43	≤-23.07	PASS
		Low	Hop_2402	-3.58	-50.26	≤-23.58	PASS
		High	Hop_2480	-3.00	-48.94	≤-23	PASS

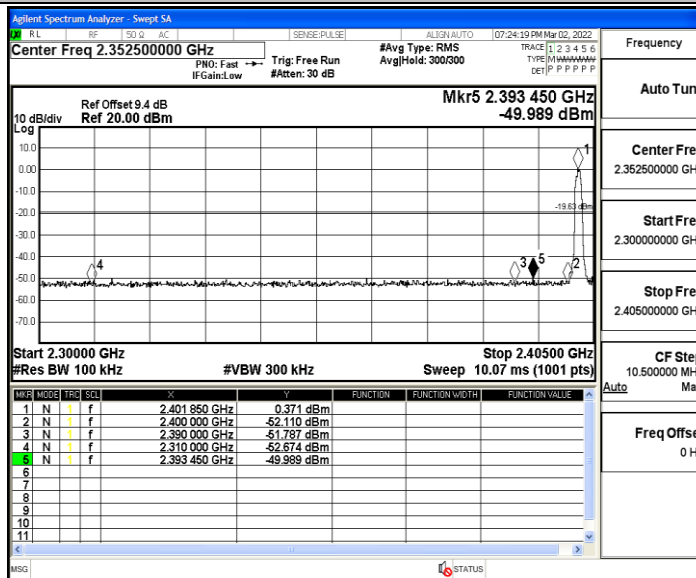
Test Graphs



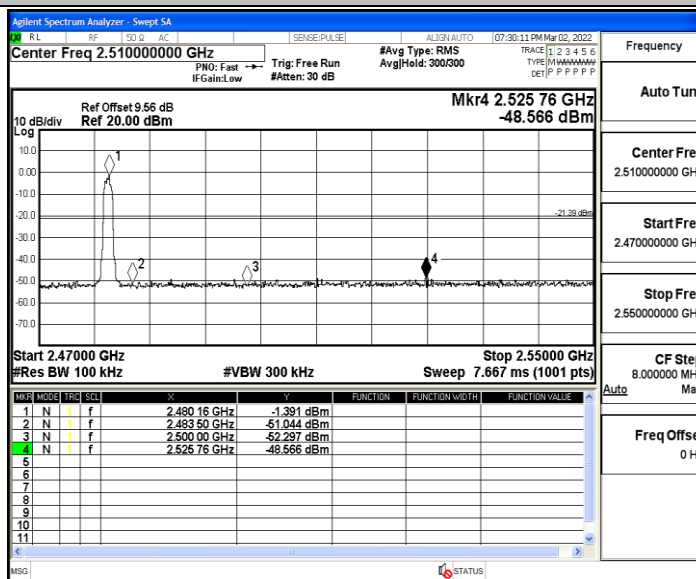
DH5_Ant1_High_Hop_2480



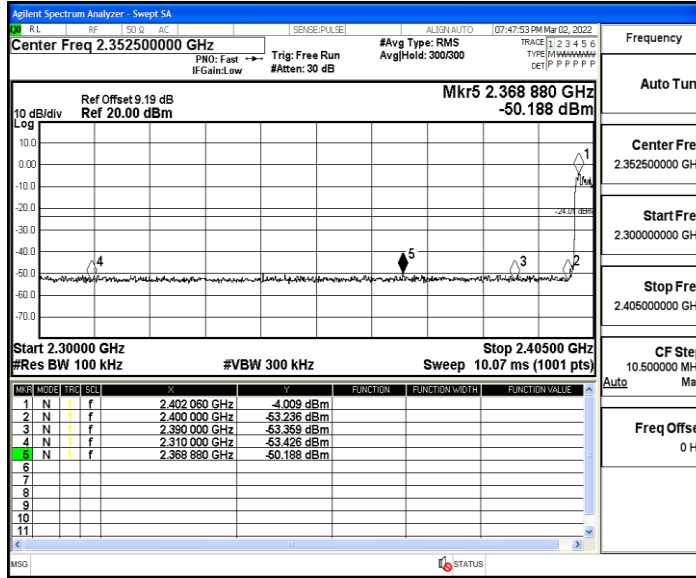
2DH5_Ant1_Low_2402



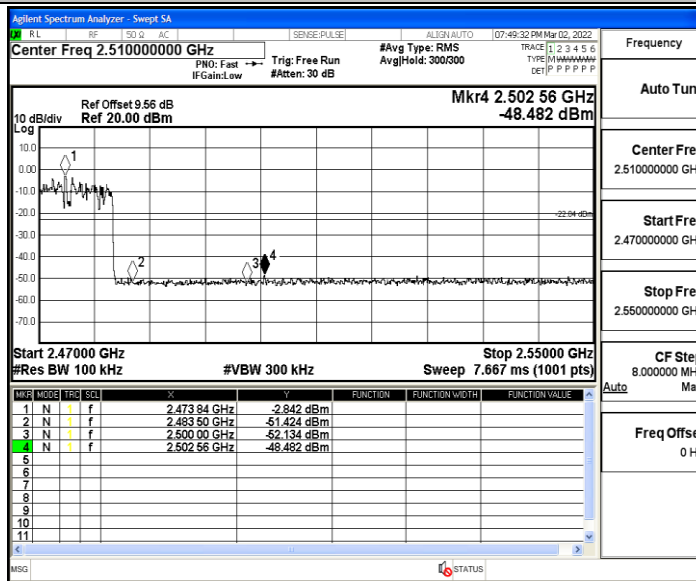
2DH5_Ant1_High_2480



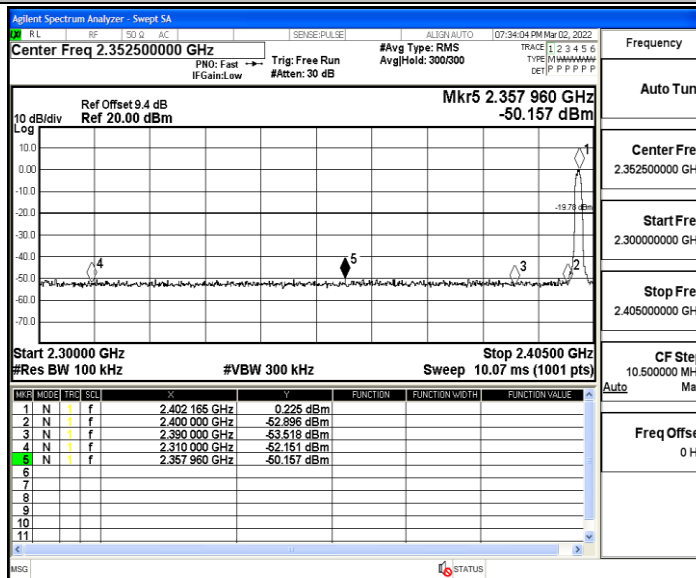
2DH5_Ant1_Low_Hop_2402



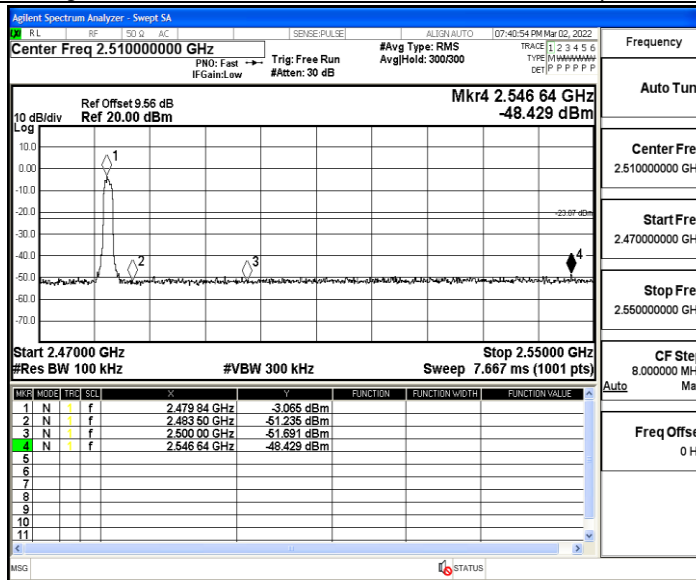
2DH5_Ant1_High_Hop_2480



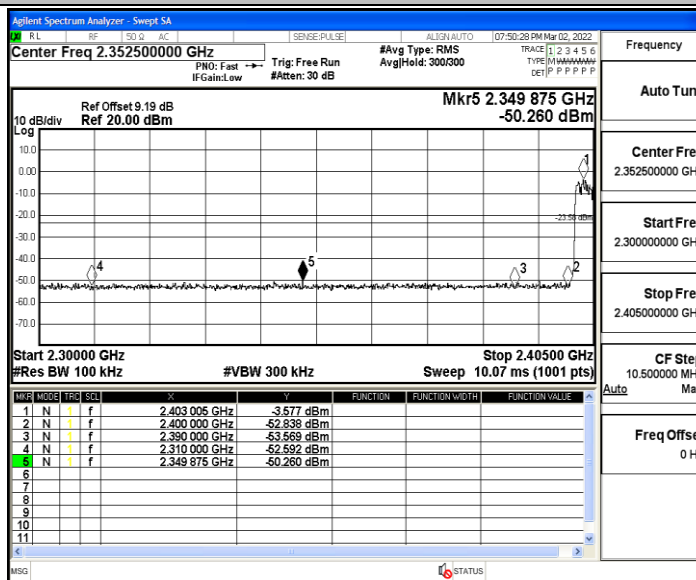
3DH5_Ant1_Low_2402



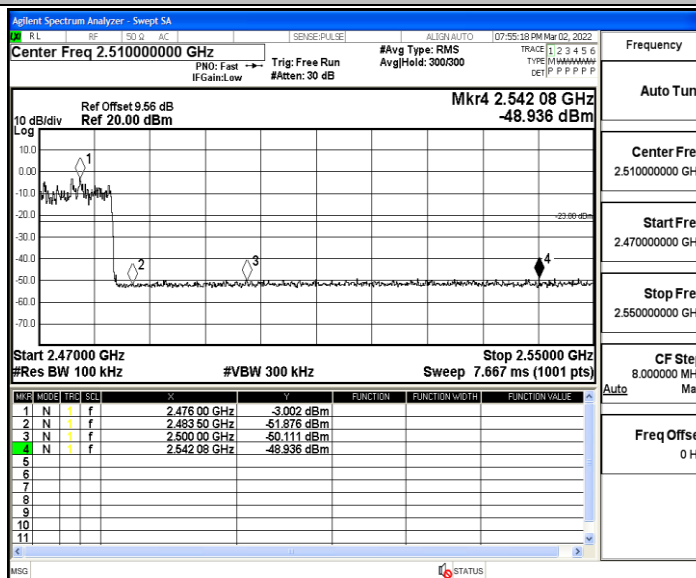
3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480

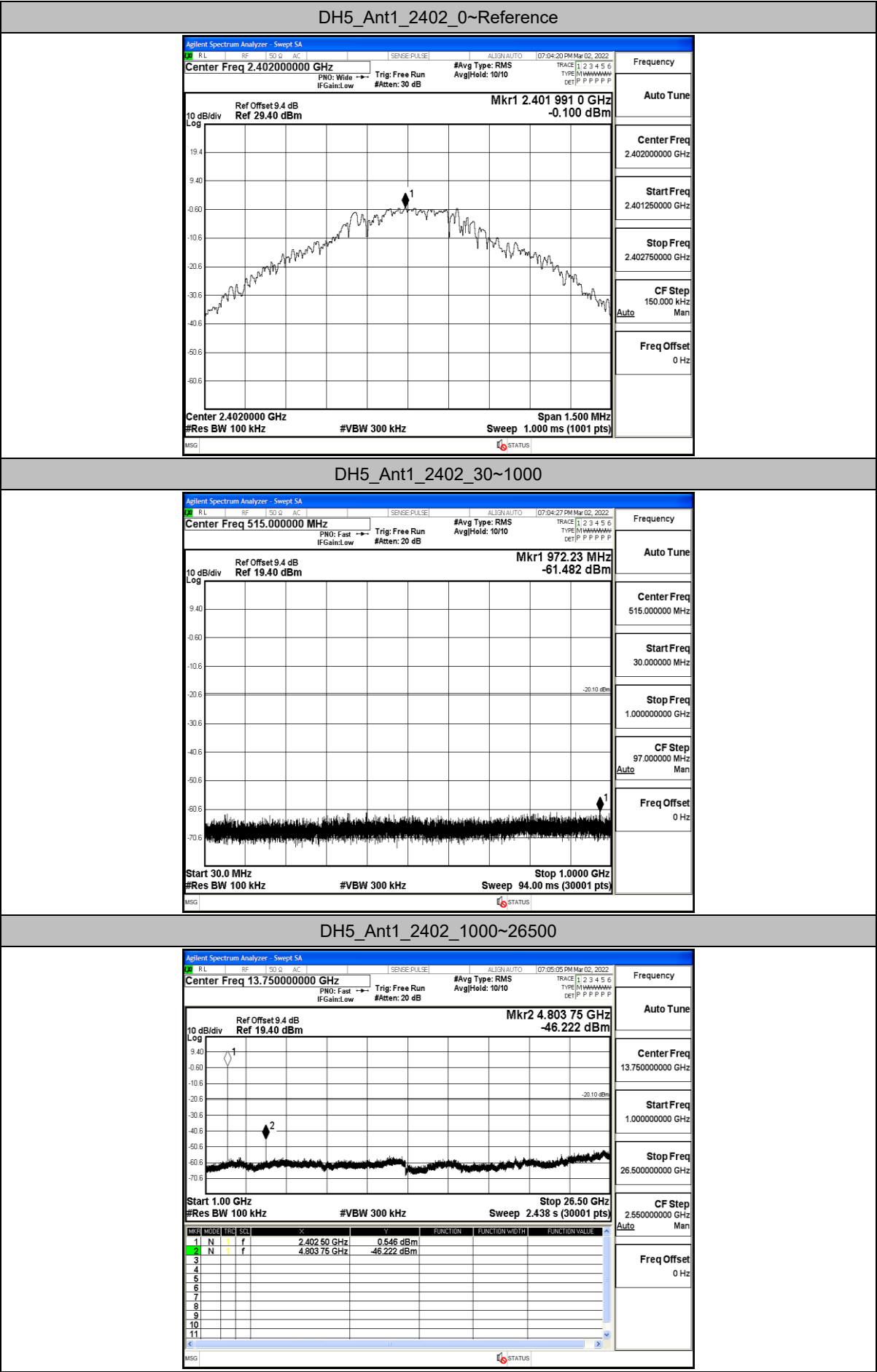


Appendix G: Conducted Spurious Emission

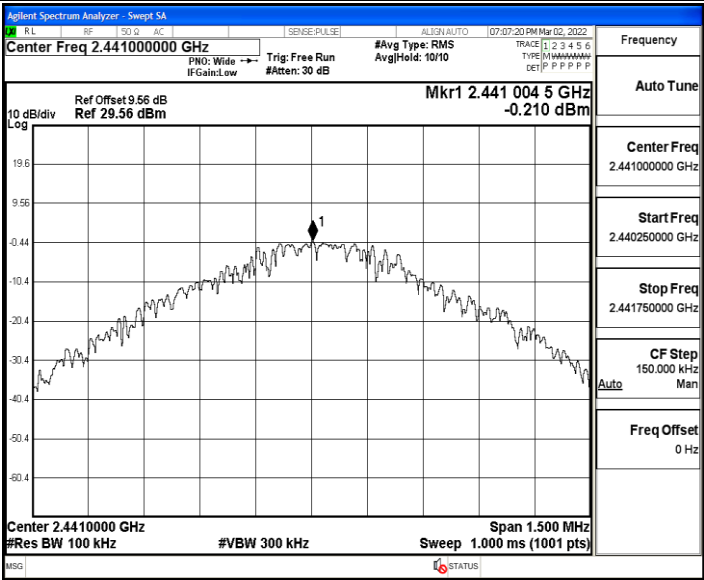
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-0.10	-0.10	---	PASS
			30~1000	-0.10	-61.48	≤-20.1	PASS
			1000~26500	-0.10	-46.22	≤-20.1	PASS
		2441	Reference	-0.21	-0.21	---	PASS
			30~1000	-0.21	-61.25	≤-20.21	PASS
			1000~26500	-0.21	-50.29	≤-20.21	PASS
		2480	Reference	-1.58	-1.58	---	PASS
			30~1000	-1.58	-61.1	≤-21.58	PASS
			1000~26500	-1.58	-51.8	≤-21.58	PASS
2DH5	Ant1	2402	Reference	-2.34	-2.34	---	PASS
			30~1000	-2.34	-60.53	≤-22.34	PASS
			1000~26500	-2.34	-48.55	≤-22.34	PASS
		2441	Reference	0.06	0.06	---	PASS
			30~1000	0.06	-60.78	≤-19.94	PASS
			1000~26500	0.06	-51.78	≤-19.94	PASS
		2480	Reference	-4.92	-4.92	---	PASS
			30~1000	-4.92	-60.6	≤-24.92	PASS
			1000~26500	-4.92	-51.71	≤-24.92	PASS
3DH5	Ant1	2402	Reference	0.22	0.22	---	PASS
			30~1000	0.22	-61.14	≤-19.78	PASS
			1000~26500	0.22	-48.83	≤-19.78	PASS
		2441	Reference	-3.23	-3.23	---	PASS
			30~1000	-3.23	-61.26	≤-23.23	PASS
			1000~26500	-3.23	-50.88	≤-23.23	PASS
		2480	Reference	-5.91	-5.91	---	PASS
			30~1000	-5.91	-60.89	≤-25.91	PASS
			1000~26500	-5.91	-50.29	≤-25.91	PASS

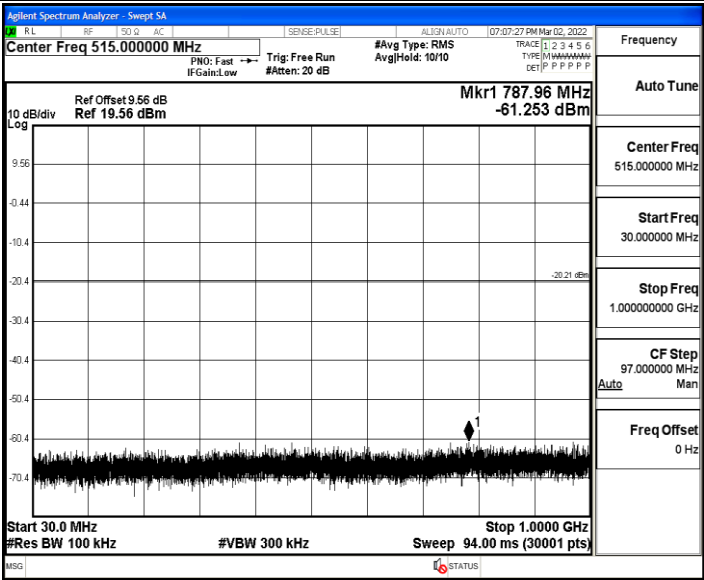
Test Graphs



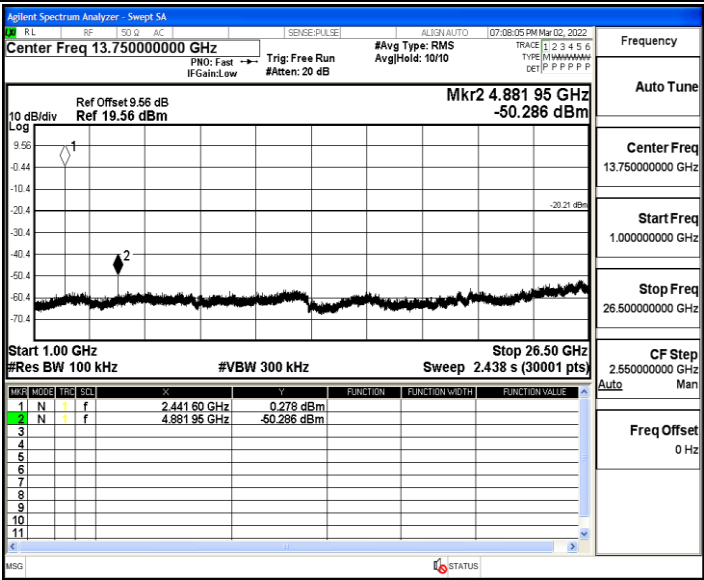
DH5_Ant1_2441_0~Reference



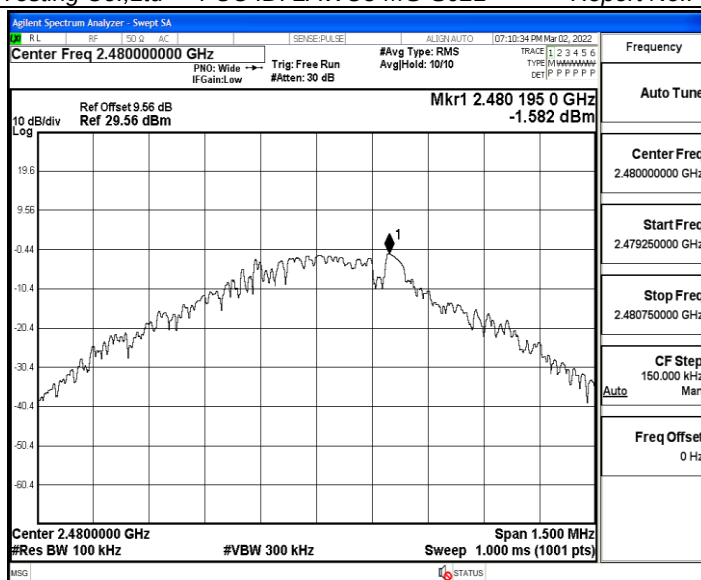
DH5_Ant1_2441_30~1000



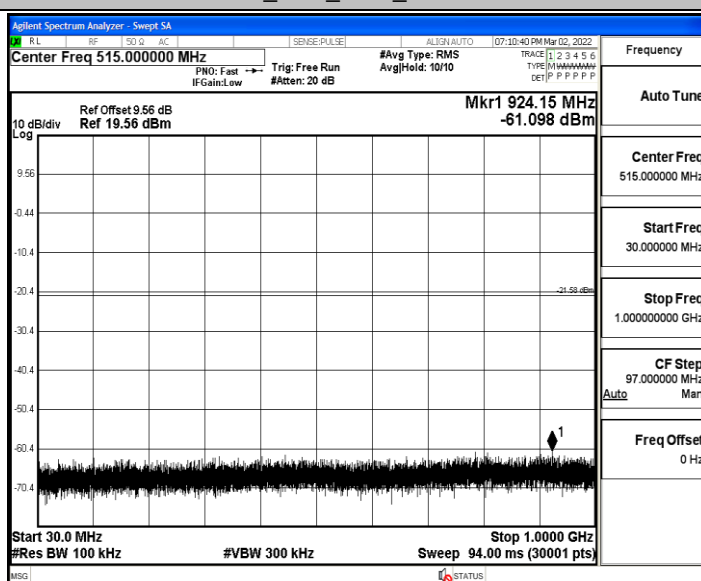
DH5_Ant1_2441_1000~26500



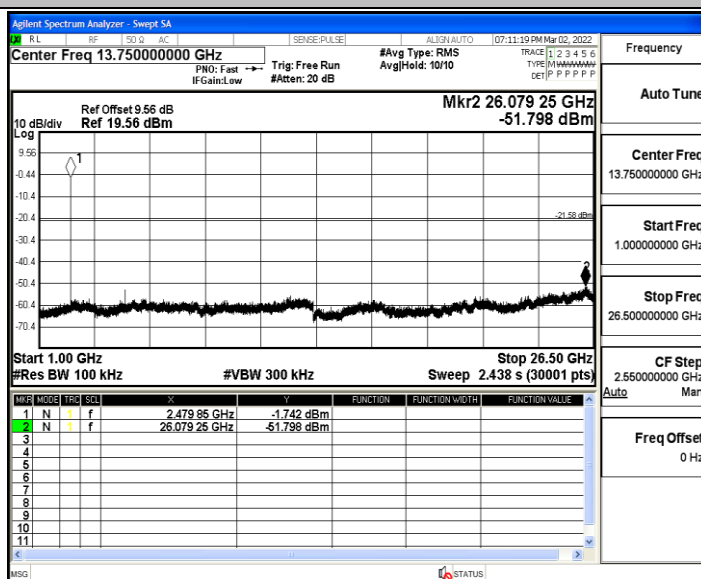
DH5_Ant1_2480_0~Reference



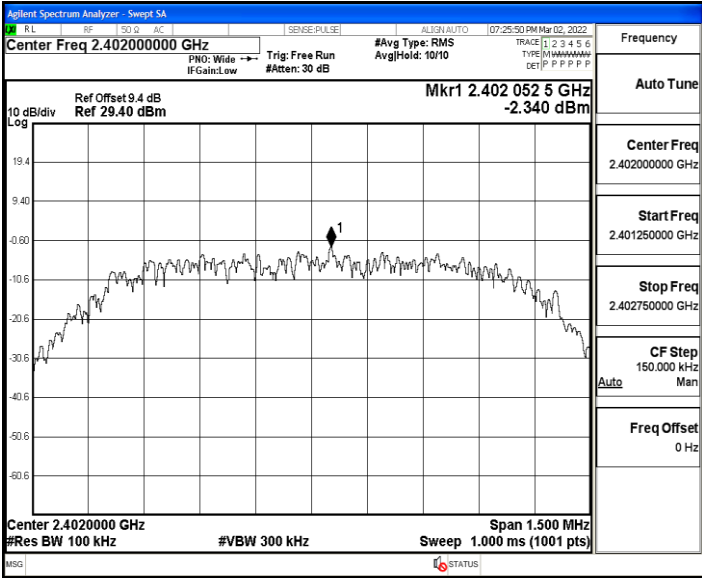
DH5	Ant1	2480	30~1000
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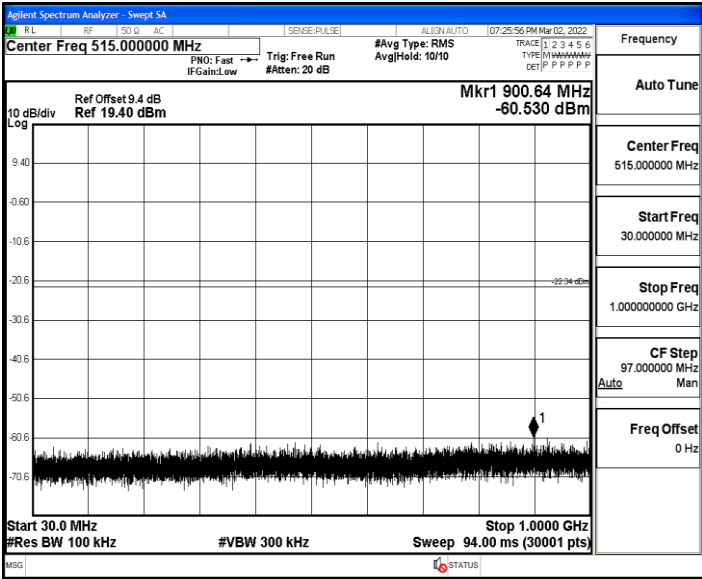
DH5	Ant1	2480	1000~26500
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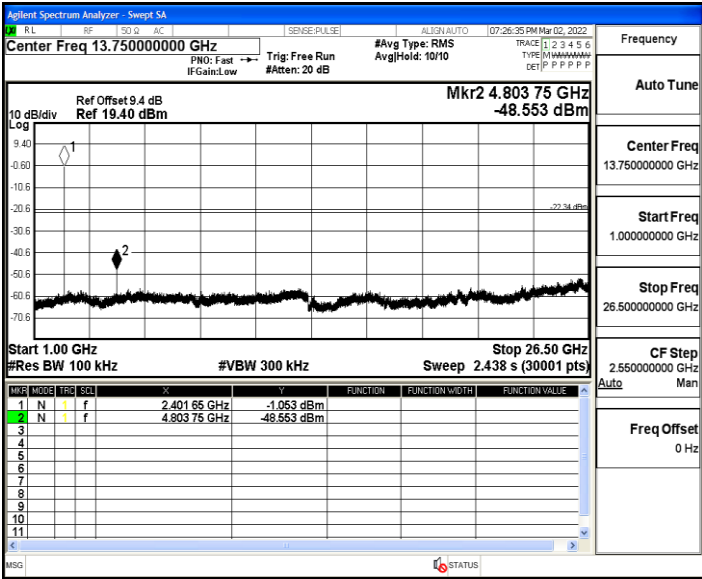
2DH5 Ant1 2402 0~Reference



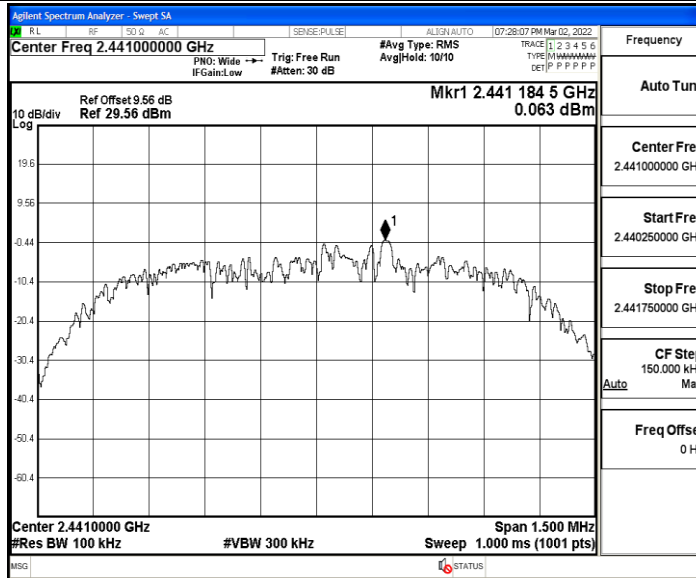
2DH5_Ant1_2402_30~1000



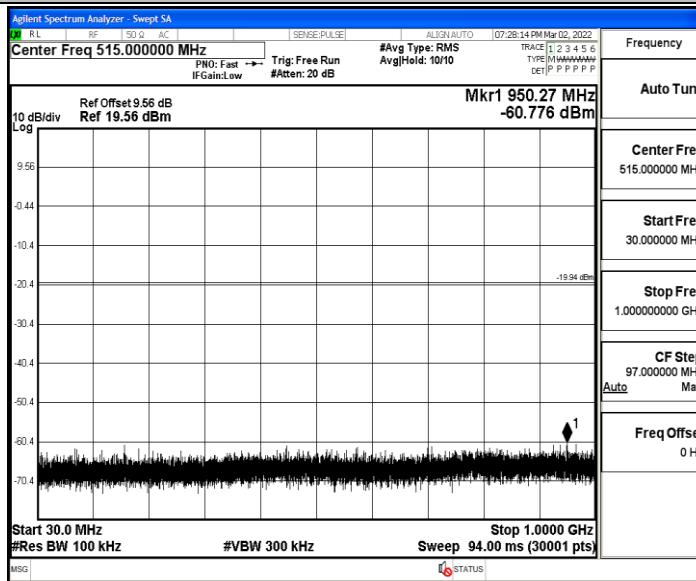
2DH5_Ant1_2402_1000~26500



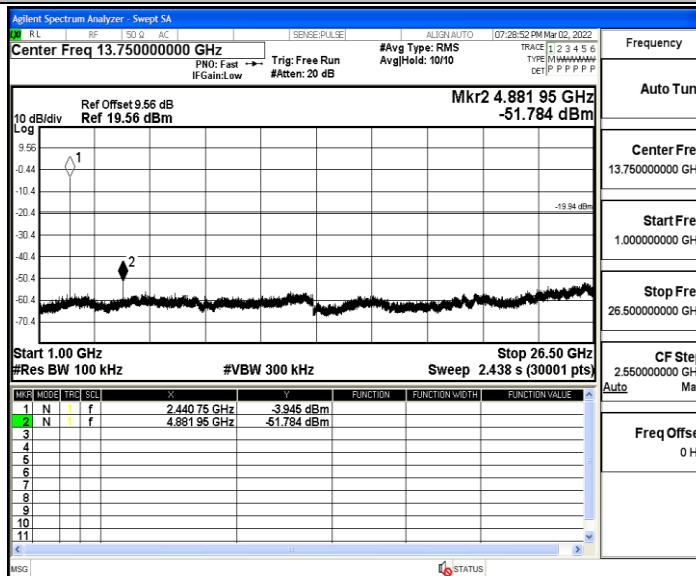
2DH5_Ant1_2441_0~Reference



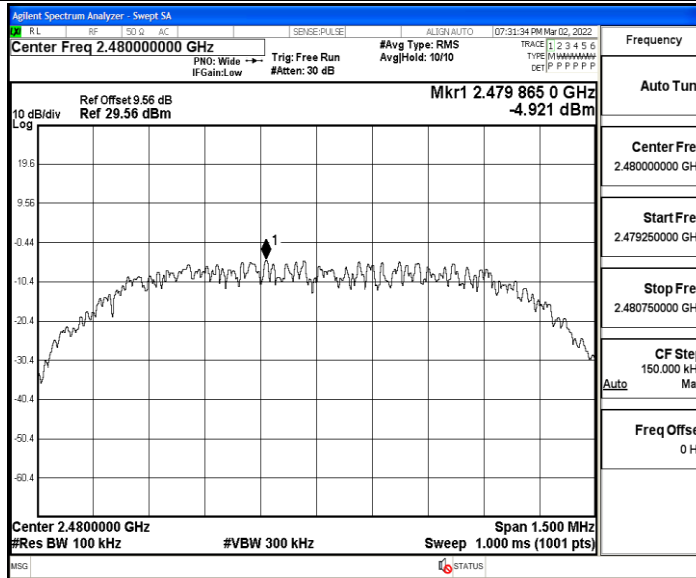
2DH5_Ant1_2441_30~1000



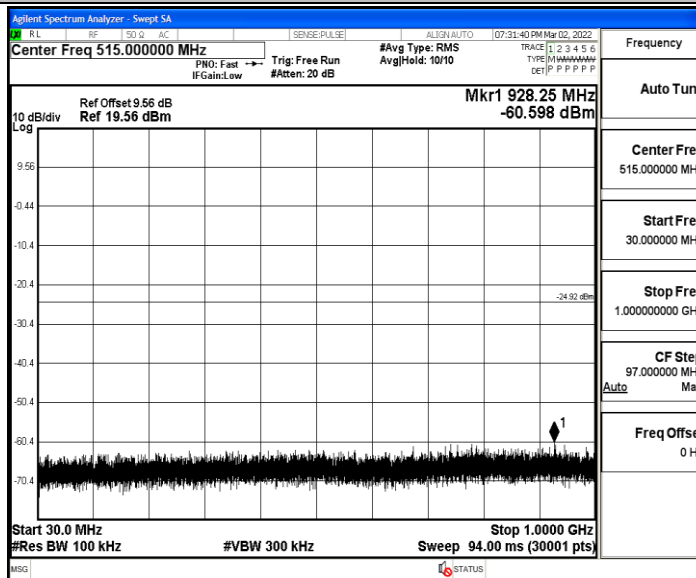
2DH5_Ant1_2441_1000~26500



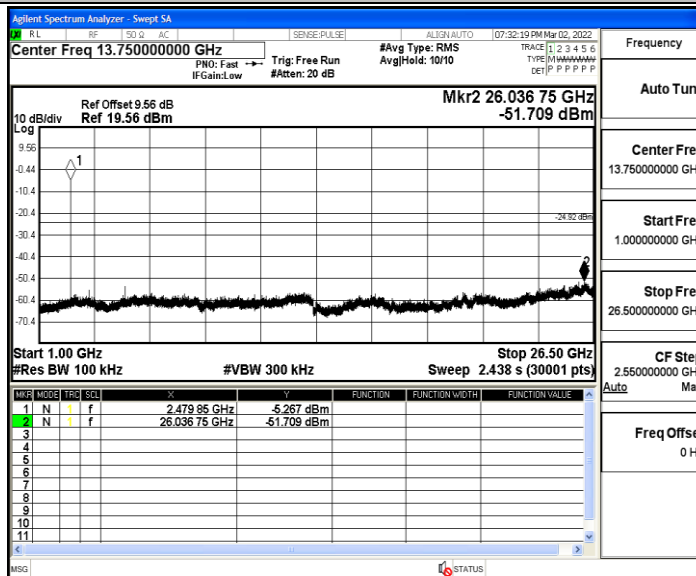
2DH5_Ant1_2480_0~Reference



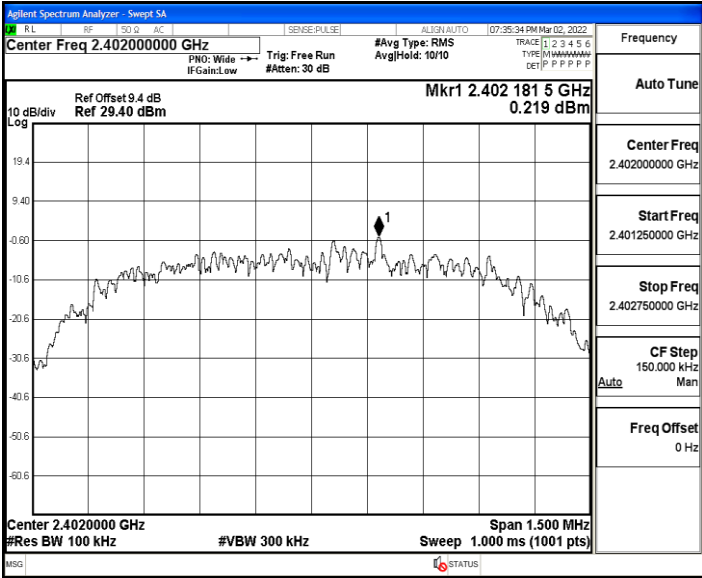
2DH5_Ant1_2480_30~1000



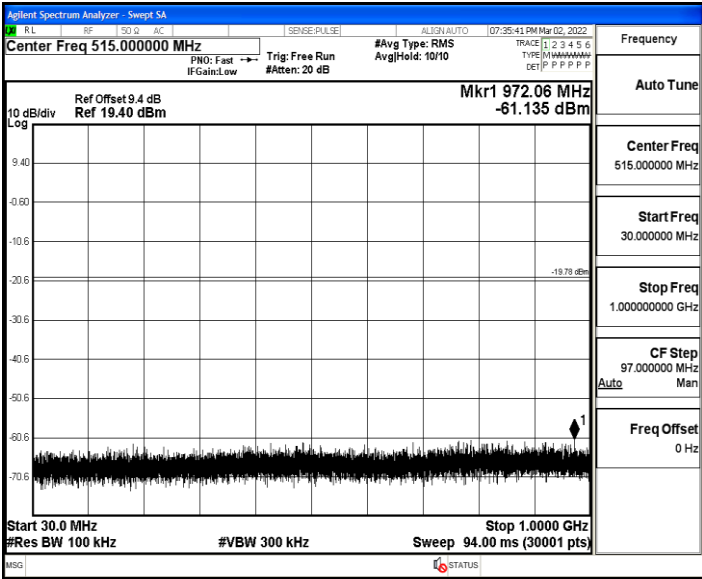
2DH5_Ant1_2480_1000~26500



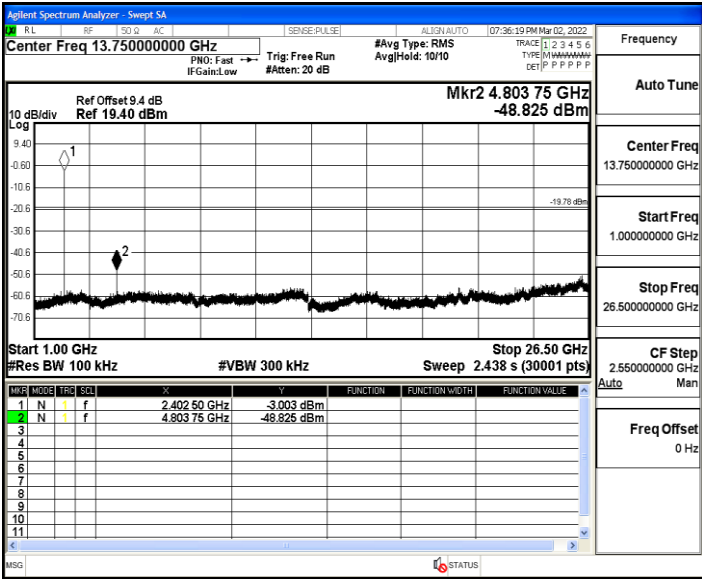
3DH5_Ant1_2402_0~Reference



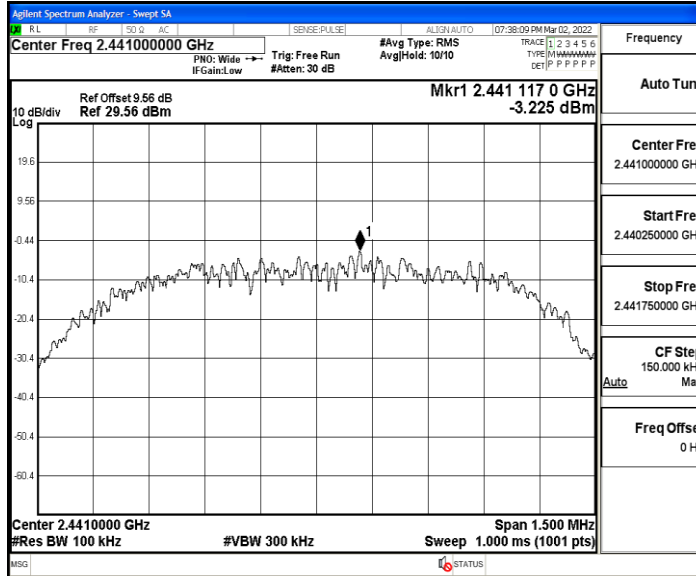
3DH5_Ant1_2402_30~1000



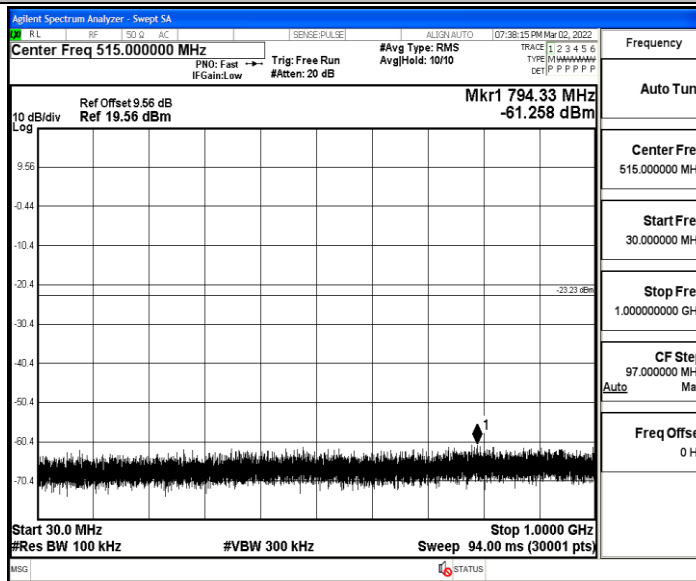
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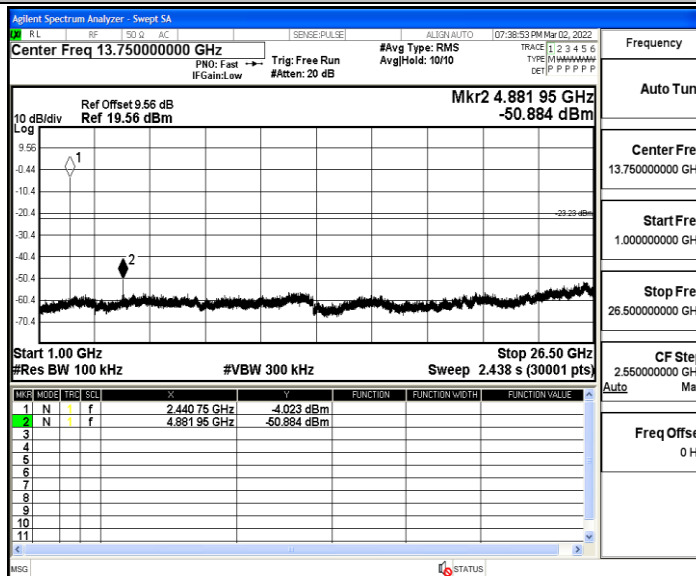
3DH5_Ant1_2441_0~Reference



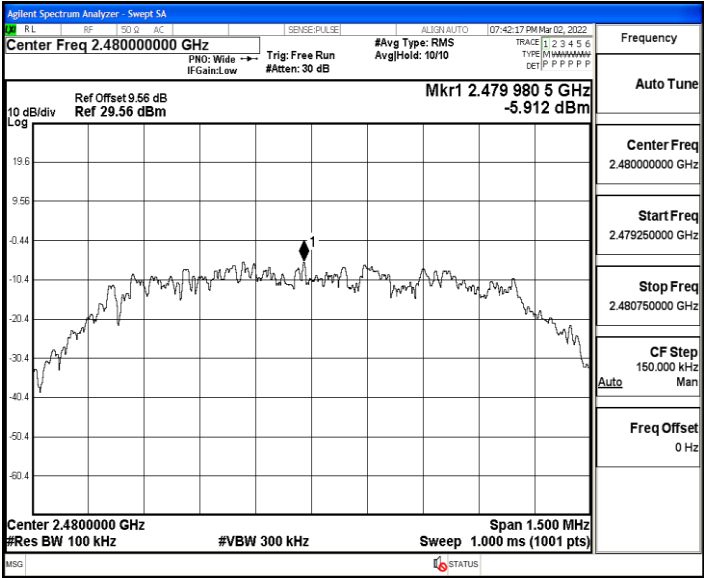
3DH5_Ant1_2441_30~1000



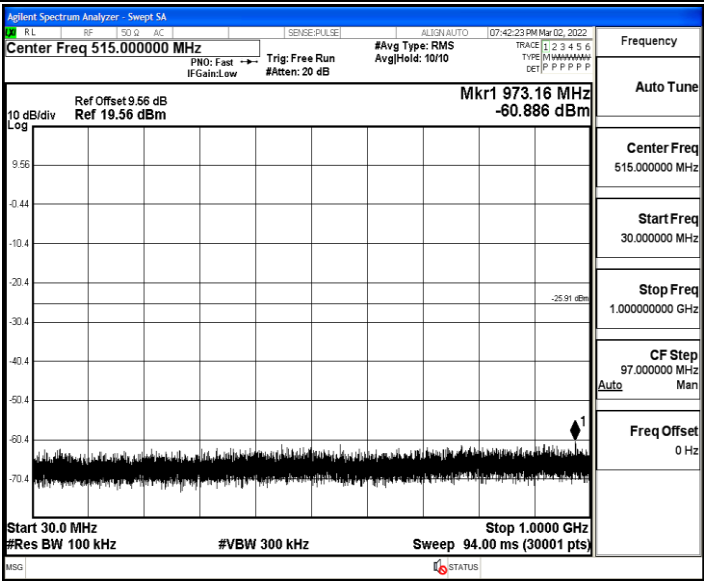
3DH5_Ant1_2441_1000~26500



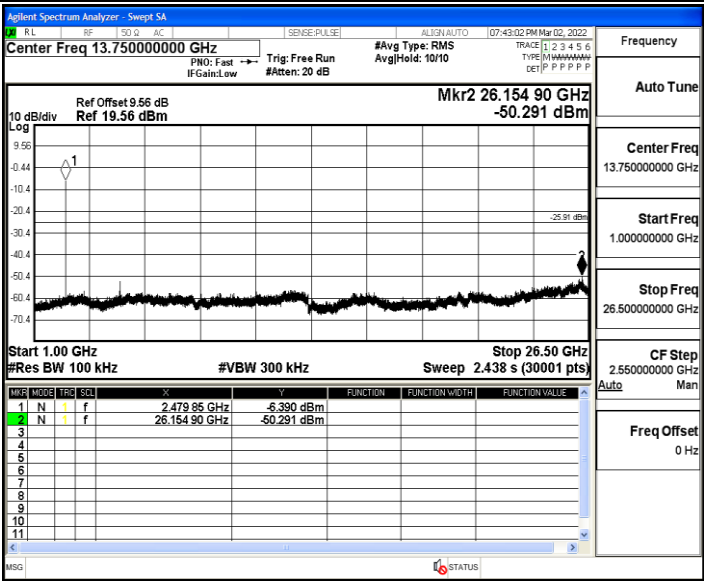
3DH5_Ant1_2480_0~Reference



3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500



Appendix H: Emissions in Restricted Bands

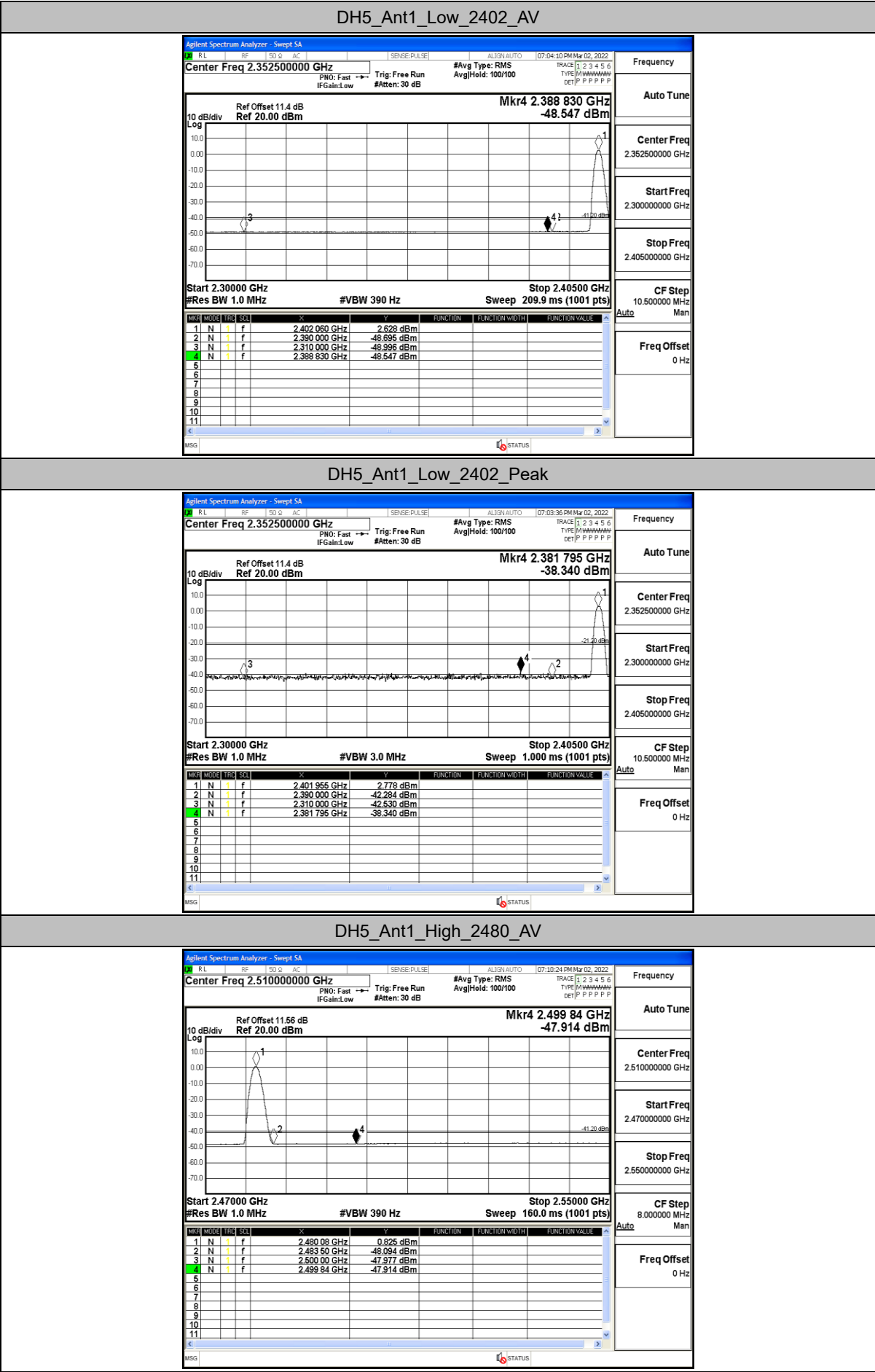
Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq(MHz)	Result(dBm)	Limit(dBm)	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-49	≤-41.20	PASS
				AV	2388.830	-48.55	≤-41.20	PASS
				AV	2390.000	-48.7	≤-41.20	PASS
				Peak	2310.000	-42.53	≤-21.20	PASS
				Peak	2381.795	-38.34	≤-21.20	PASS
				Peak	2390.000	-42.28	≤-21.20	PASS
		High	2480	AV	2483.500	-48.09	≤-41.20	PASS
				AV	2499.840	-47.91	≤-41.20	PASS
				AV	2500.000	-47.98	≤-41.20	PASS
				Peak	2483.500	-40	≤-21.20	PASS
				Peak	2491.200	-38.56	≤-21.20	PASS
				Peak	2500.000	-40.89	≤-21.20	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-48.96	≤-41.20	PASS
				AV	2373.920	-48.59	≤-41.20	PASS
				AV	2390.000	-48.68	≤-41.20	PASS
				Peak	2310.000	-40.59	≤-21.20	PASS
				Peak	2363.735	-38.46	≤-21.20	PASS
				Peak	2390.000	-41.8	≤-21.20	PASS
		High	2480	AV	2483.500	-47.92	≤-41.20	PASS
				AV	2483.520	-47.92	≤-41.20	PASS
				AV	2500.000	-48.05	≤-41.20	PASS
				Peak	2483.500	-41.32	≤-21.20	PASS
				Peak	2496.720	-38.04	≤-21.20	PASS
				Peak	2500.000	-41.39	≤-21.20	PASS
3DH5	Ant1	Low	2402	AV	2310.000	-48.89	≤-41.20	PASS
				AV	2389.880	-48.61	≤-41.20	PASS
				AV	2390.000	-48.75	≤-41.20	PASS
				Peak	2310.000	-39.69	≤-21.20	PASS
				Peak	2336.015	-38.73	≤-21.20	PASS
				Peak	2390.000	-41.08	≤-21.20	PASS
		High	2480	AV	2483.500	-48.11	≤-41.20	PASS
				AV	2498.960	-47.92	≤-41.20	PASS
				AV	2500.000	-48	≤-41.20	PASS
				Peak	2483.500	-42.01	≤-21.20	PASS
				Peak	2496.080	-37.56	≤-21.20	PASS
				Peak	2500.000	-40.09	≤-21.20	PASS

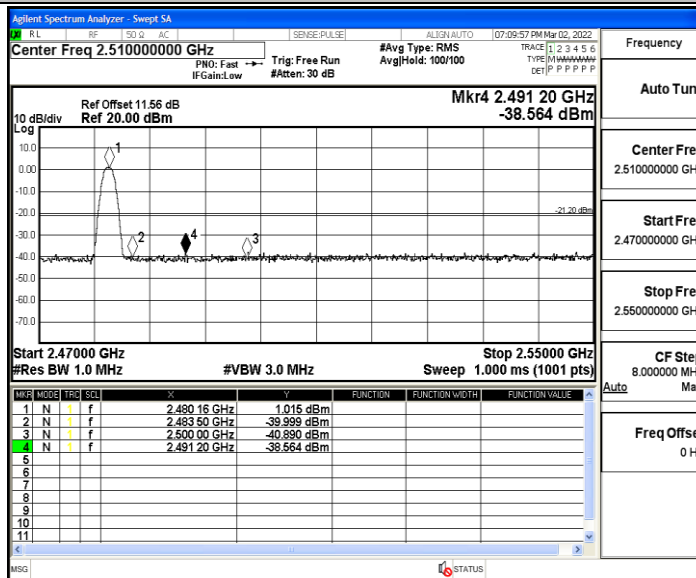
Note:

1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. 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.

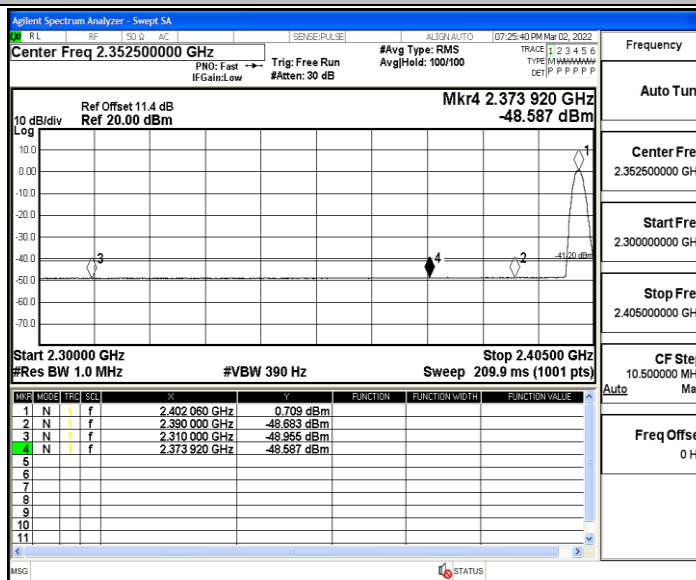
Test Graphs



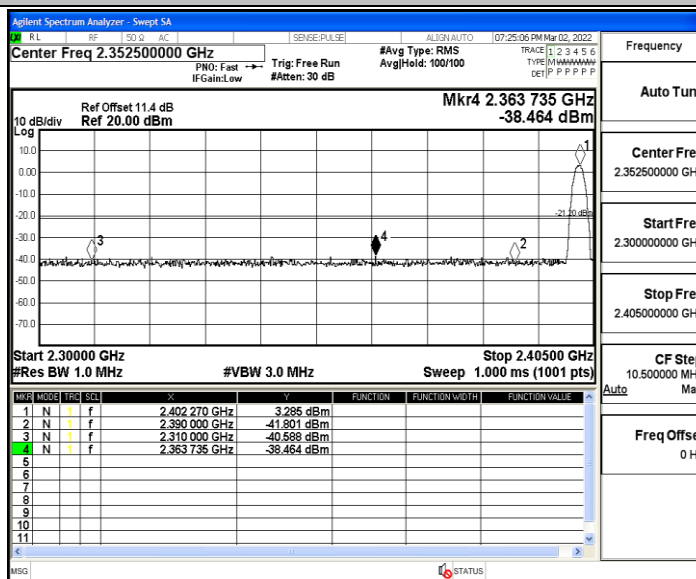
DH5_Ant1_High_2480_Peak



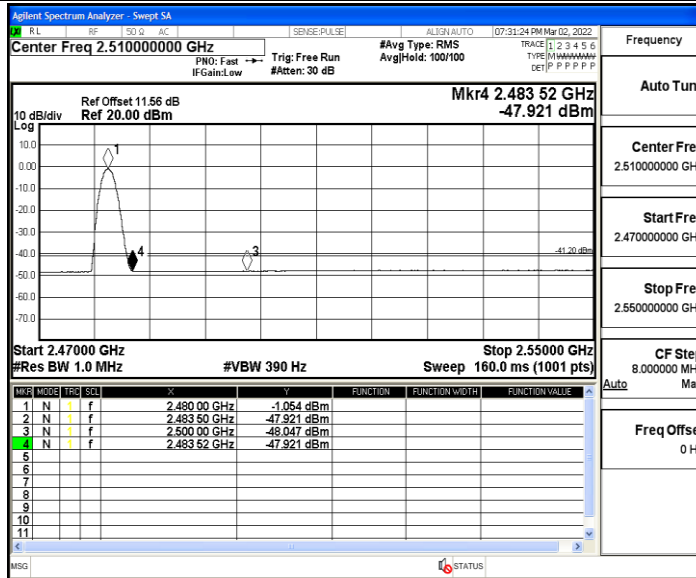
2DH5_Ant1_Low_2402_AV



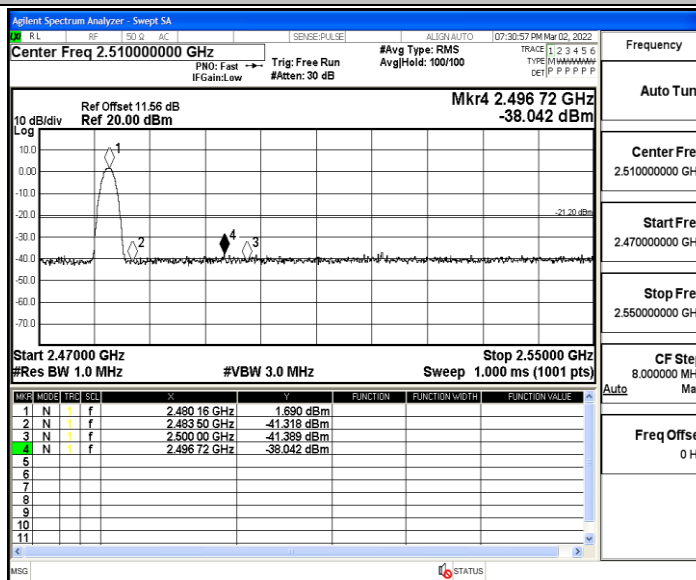
2DH5_Ant1_Low_2402_Peak



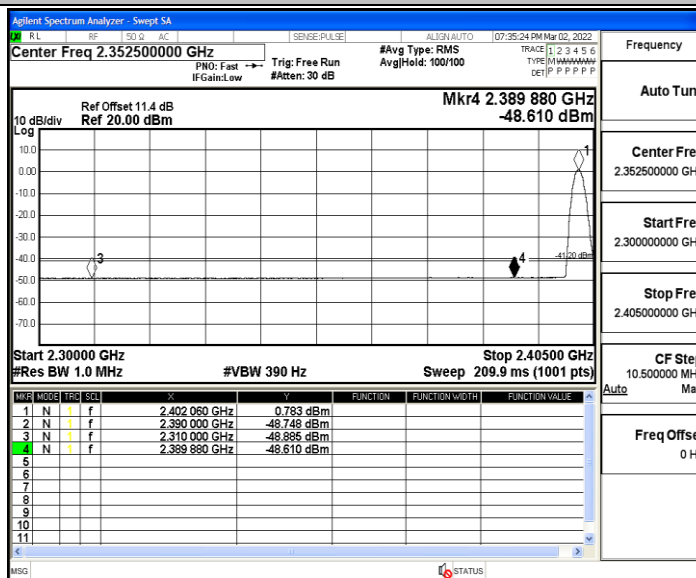
2DH5_Ant1_High_2480_AV



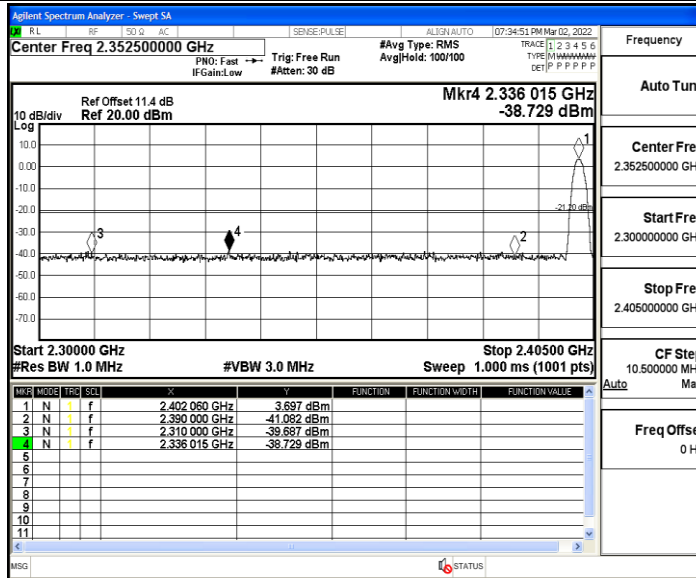
2DH5_Ant1_High_2480_Peak



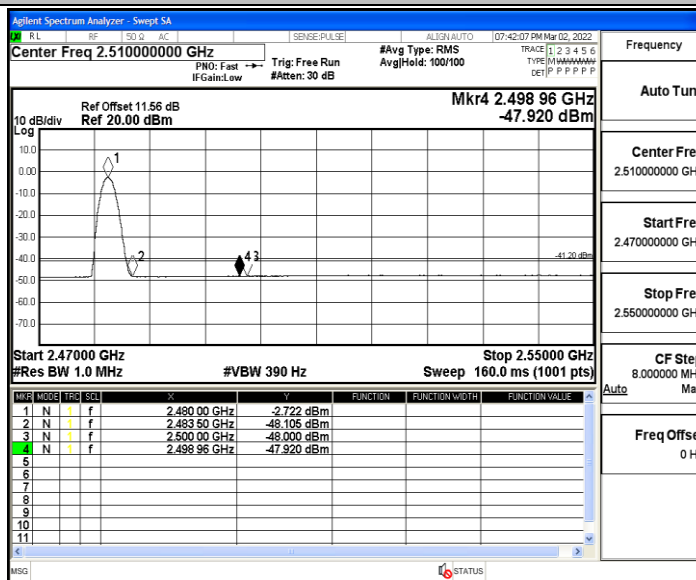
3DH5_Ant1_Low_2402_AV



3DH5_Ant1_Low_2402_Peak



3DH5_Ant1_High_2480_AV



3DH5_Ant1_High_2480_Peak

