

Appendix A

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

Product Name: Bluetooth Headphone

Trade Mark: Charlxee

Test Model: S-Unicorn-Pink

FCC ID: 2A4MMS-UNICORN-PINK

Environmental Conditions

Temperature:	23.8℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Nancy Li
Supervised by:	Hugo Chen

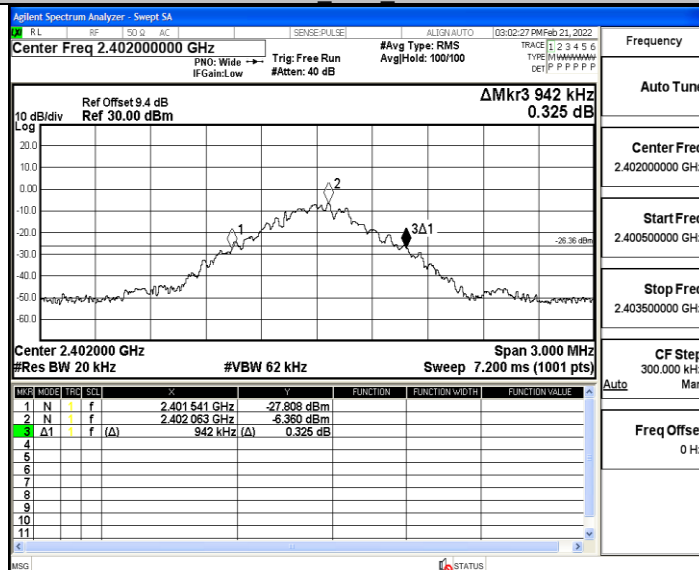
Appendix A: 20dB Emission Bandwidth

Test Result

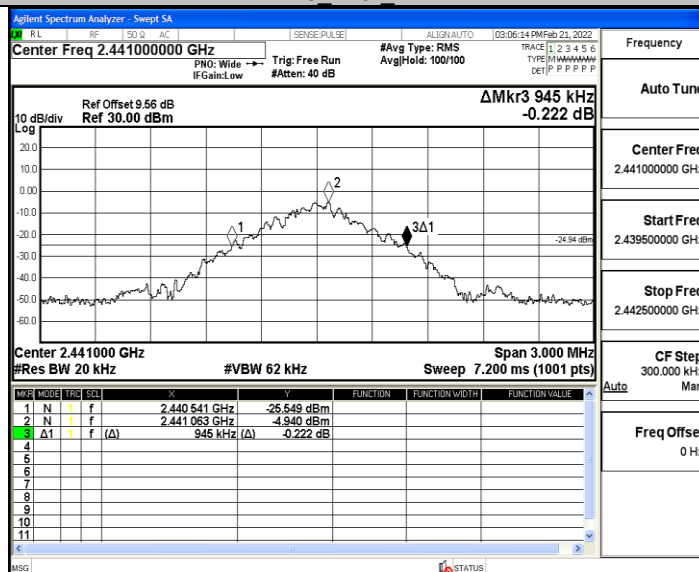
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.942	2401.541	2402.483	---	PASS
		2441	0.945	2440.541	2441.486	---	PASS
		2480	0.945	2479.541	2480.486	---	PASS
2DH5	Ant1	2402	1.314	2401.343	2402.657	---	PASS
		2441	1.311	2440.343	2441.654	---	PASS
		2480	1.305	2479.346	2480.651	---	PASS

Test Graphs

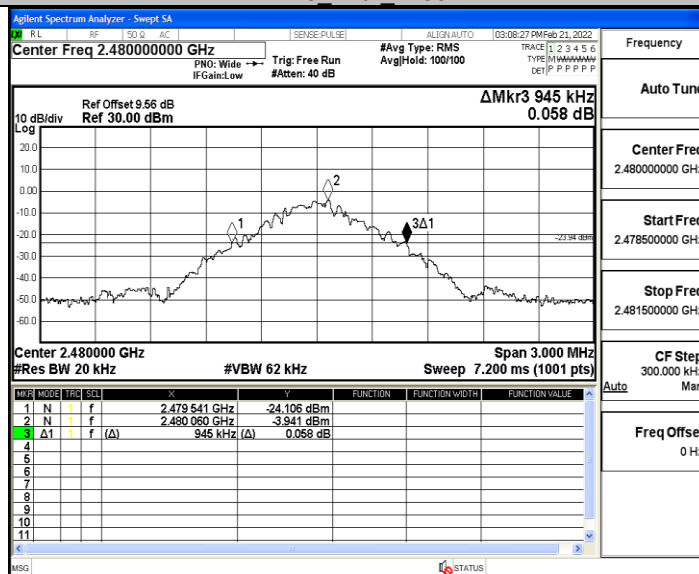
DH5_Ant1_2402



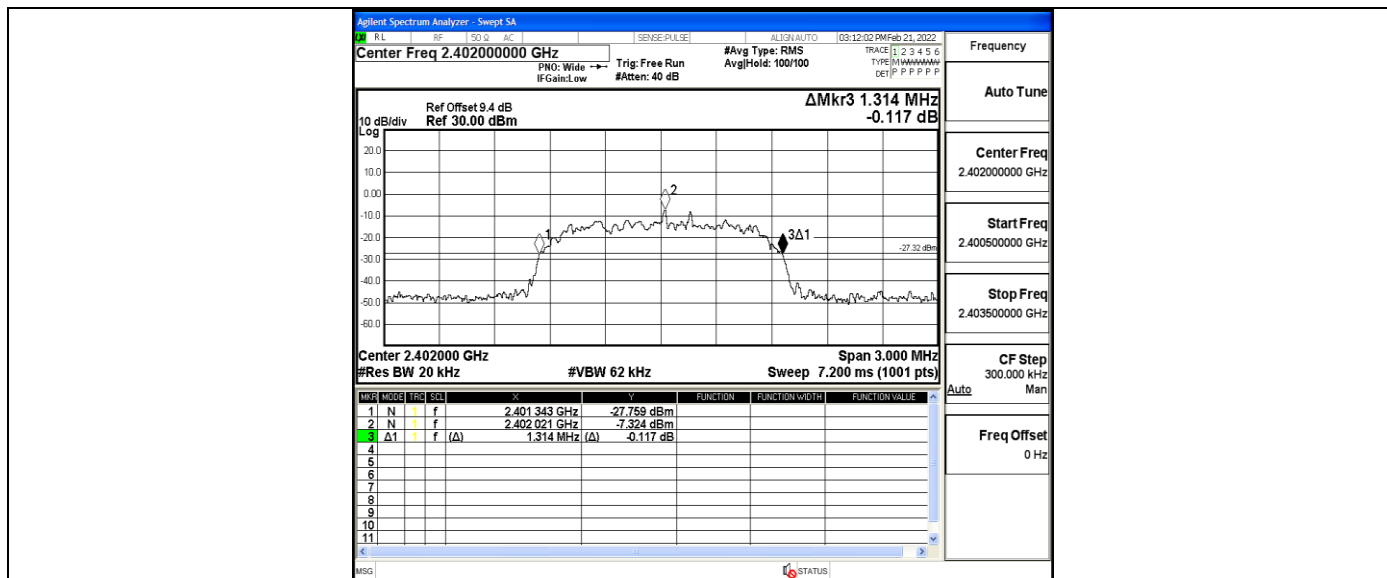
DH5_Ant1_2441



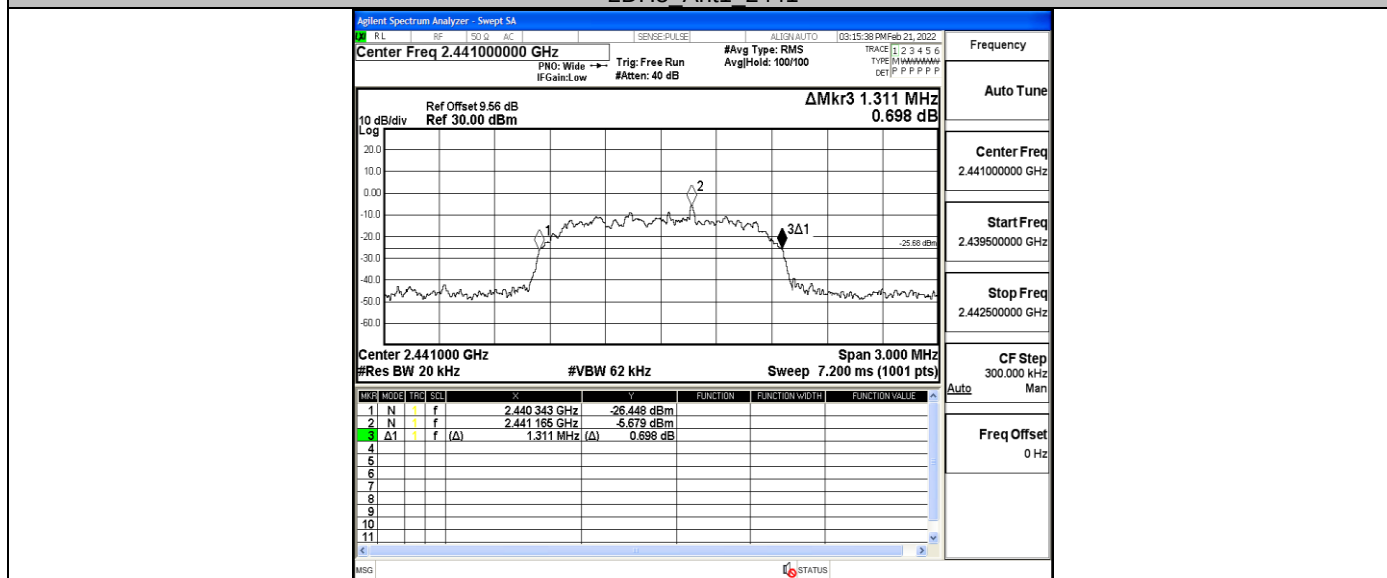
DH5_Ant1_2480



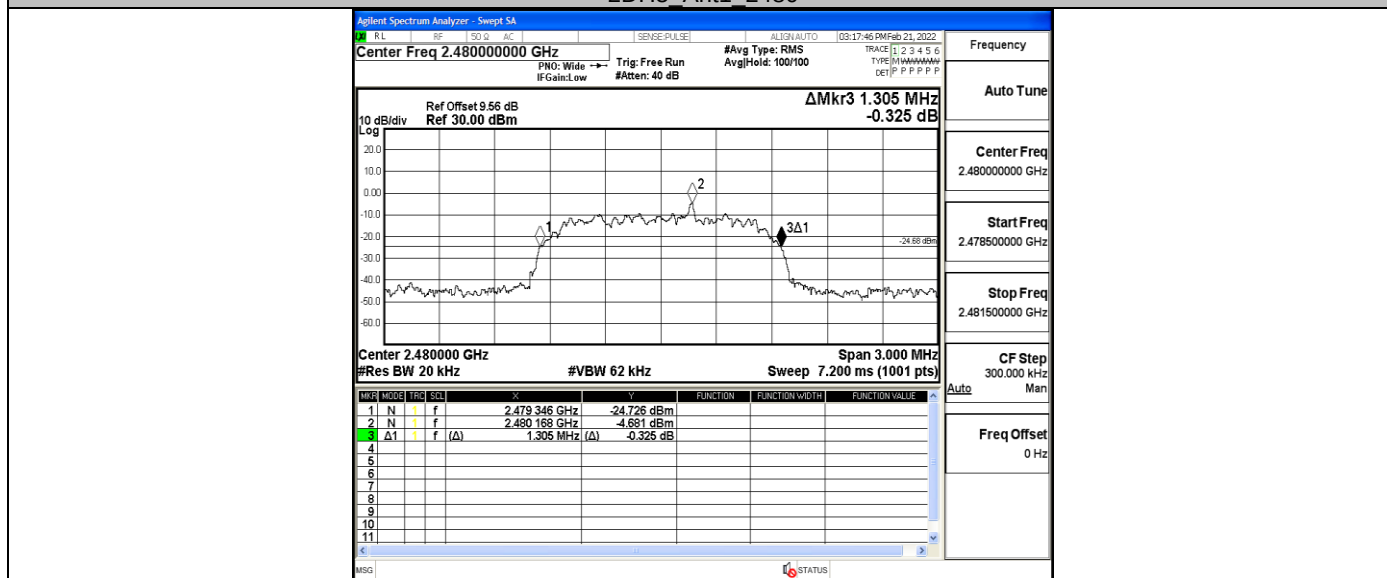
2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.85706	2401.570	2402.427	---	PASS
		2441	0.83137	2440.584	2441.416	---	PASS
		2480	0.84648	2479.575	2480.422	---	PASS
2DH5	Ant1	2402	1.1857	2401.407	2402.593	---	PASS
		2441	1.1921	2440.406	2441.598	---	PASS
		2480	1.1917	2479.406	2480.598	---	PASS

Test Graphs

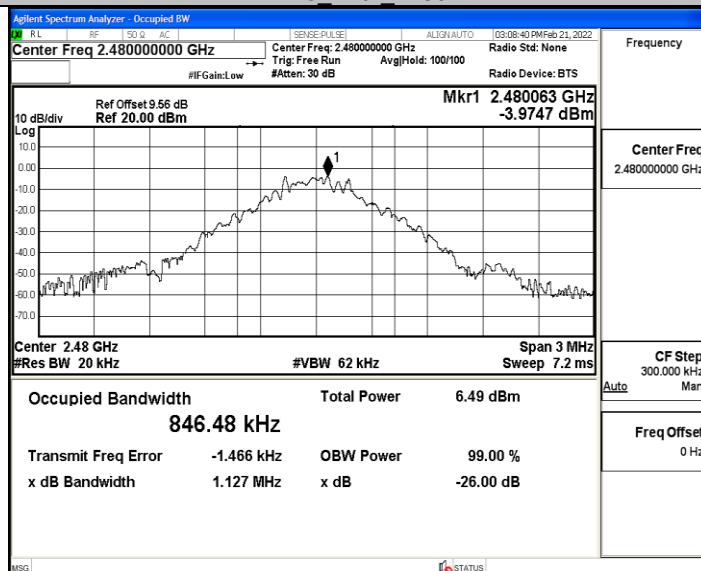
DH5_Ant1_2402



DH5_Ant1_2441



DH5_Ant1_2480



2DH5_Ant1_2402



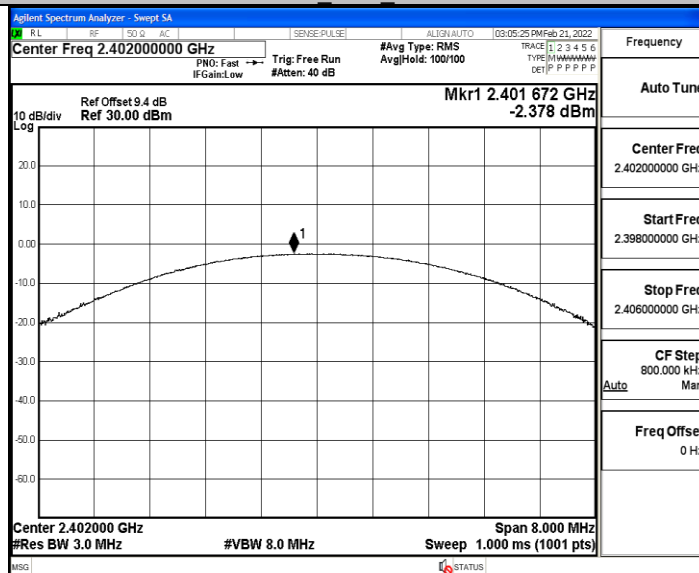
Appendix C: Maximum conducted output power

Test Result

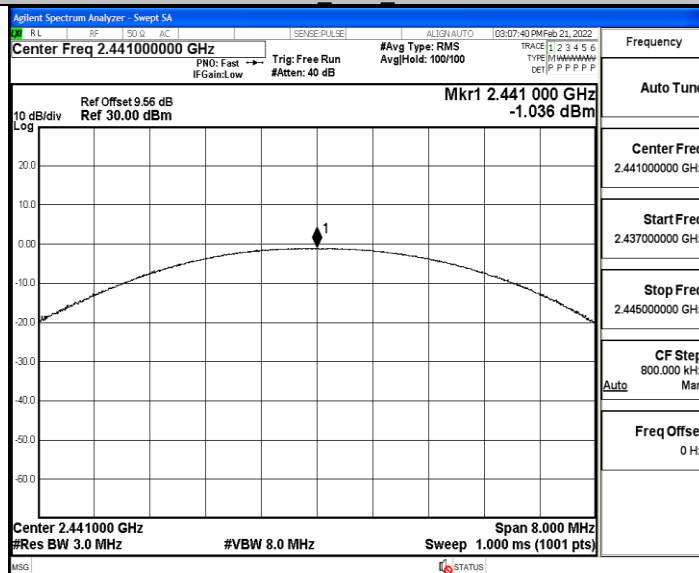
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	-2.38	<=30.00	PASS
		2441	-1.04	<=30.00	PASS
		2480	-0.08	<=30.00	PASS
2DH5	Ant1	2402	-0.75	<=20.97	PASS
		2441	0.77	<=20.97	PASS
		2480	1.69	<=20.97	PASS

Test Graphs

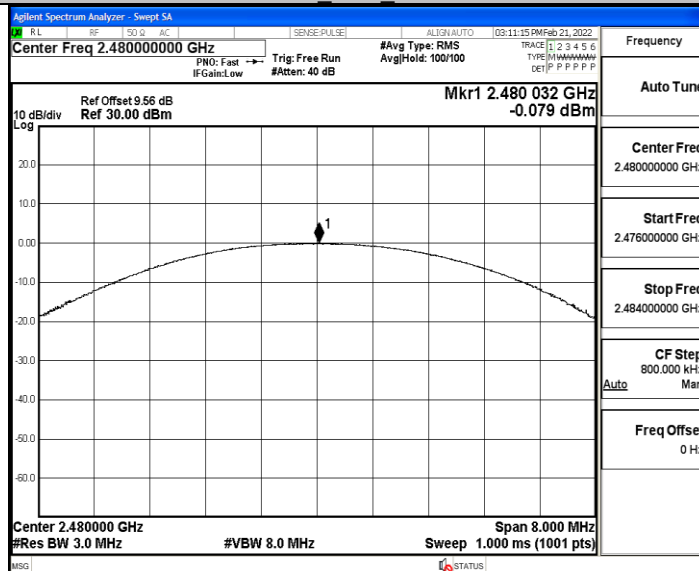
DH5_Ant1_2402



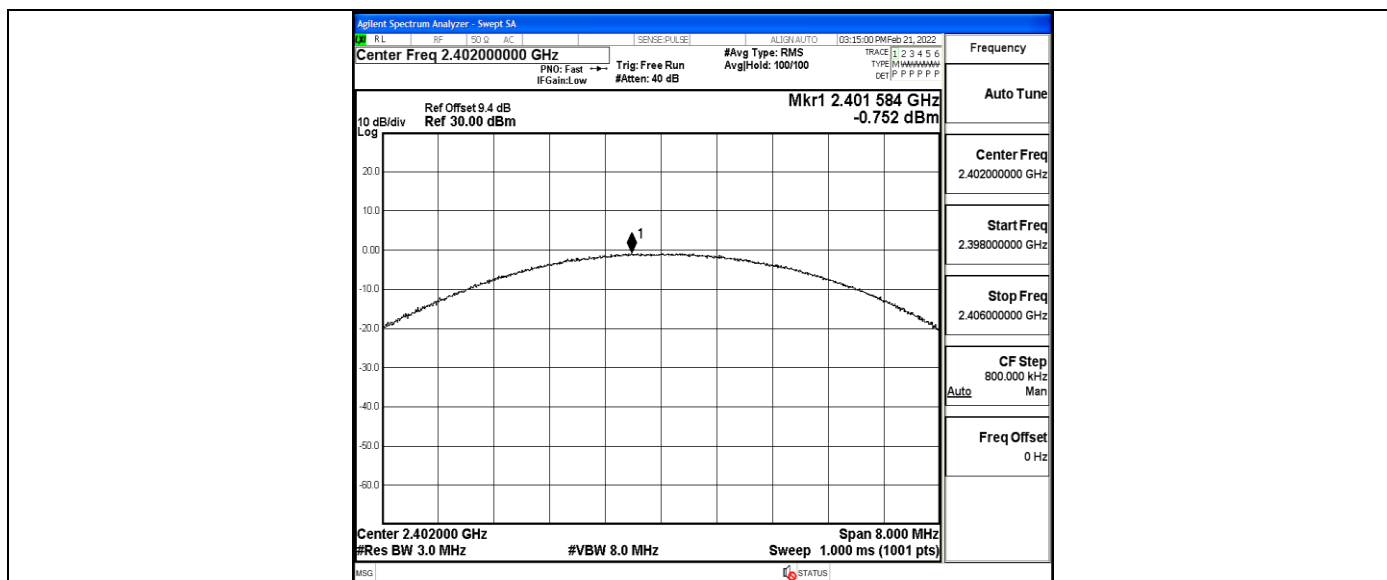
DH5_Ant1_2441



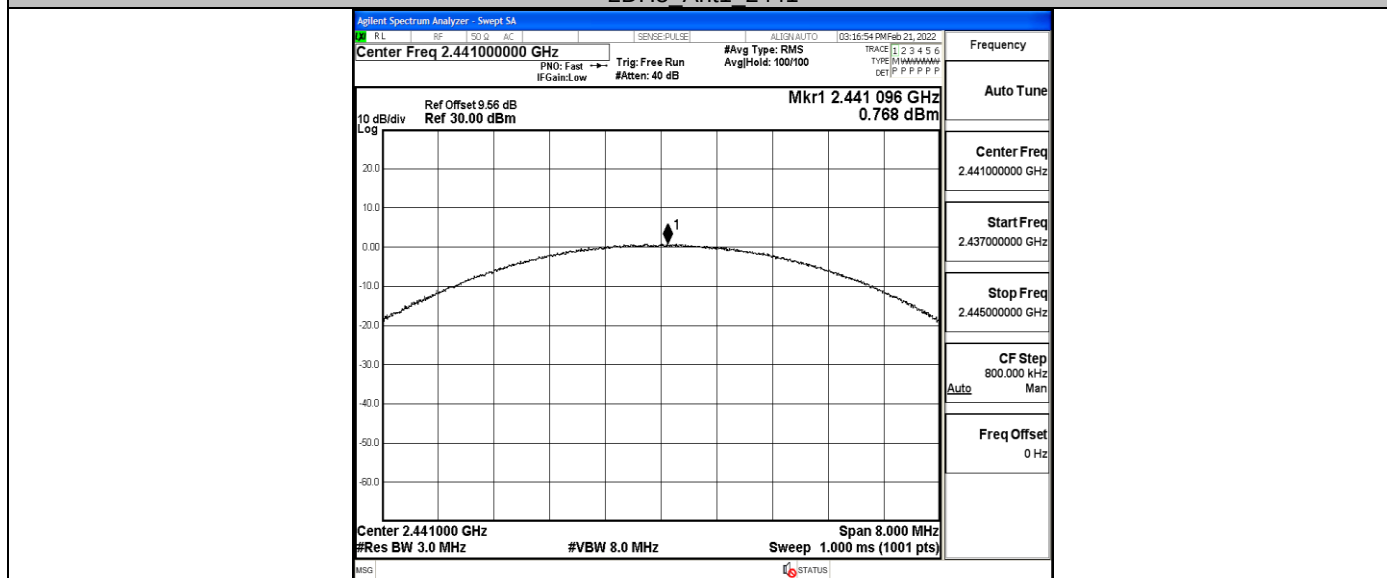
DH5_Ant1_2480



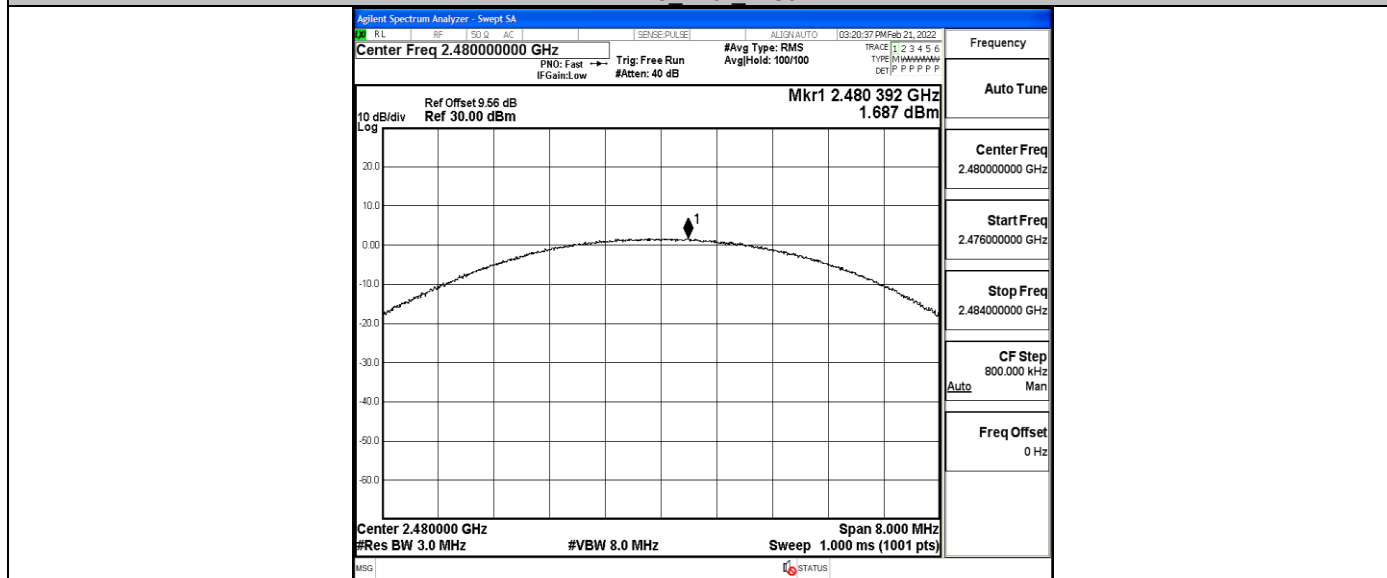
2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480

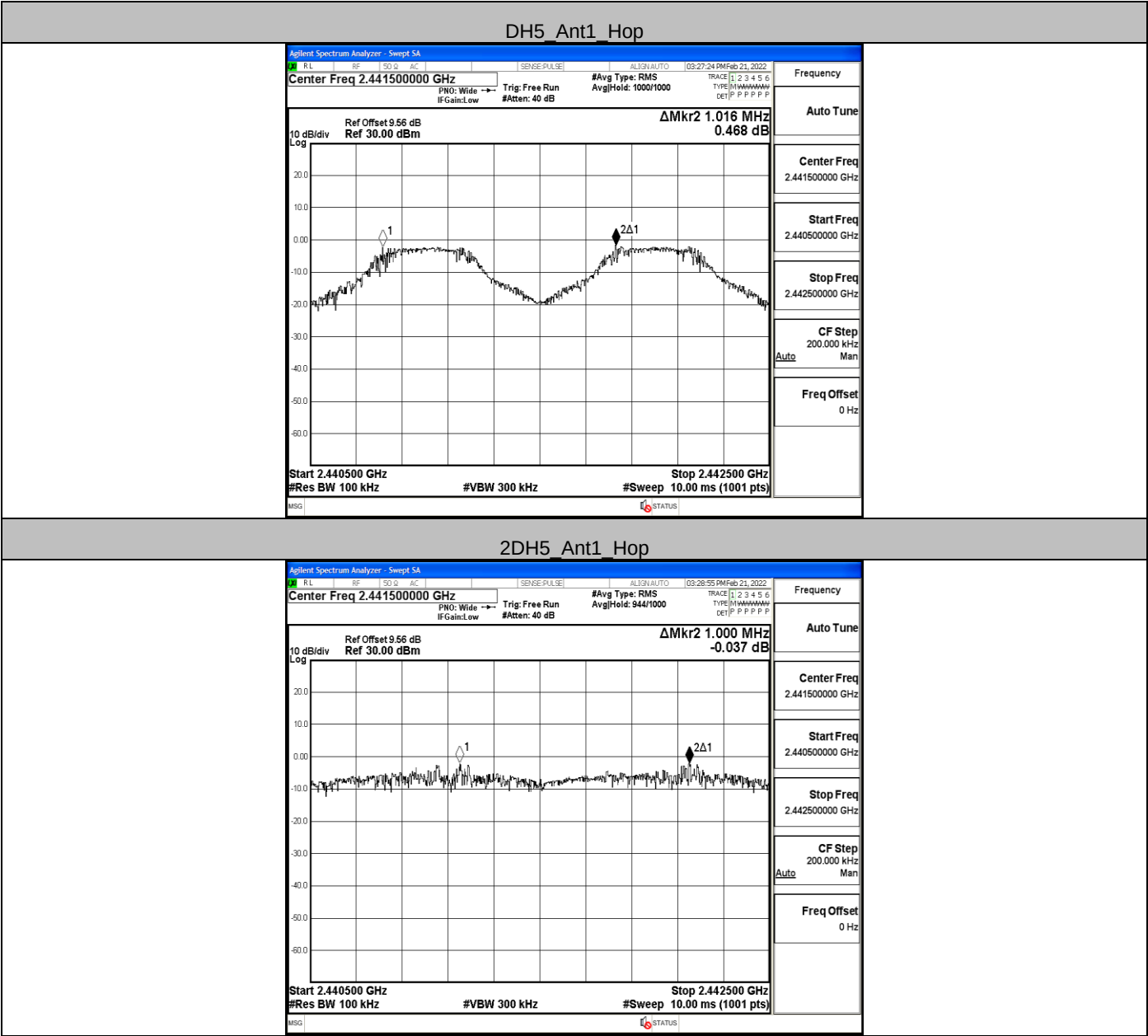


Appendix D: Carrier frequency separation

Test Result

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.016	≥ 0.942	PASS
2DH5	Ant1	Hop	1.000	≥ 0.878	PASS

Test Graphs

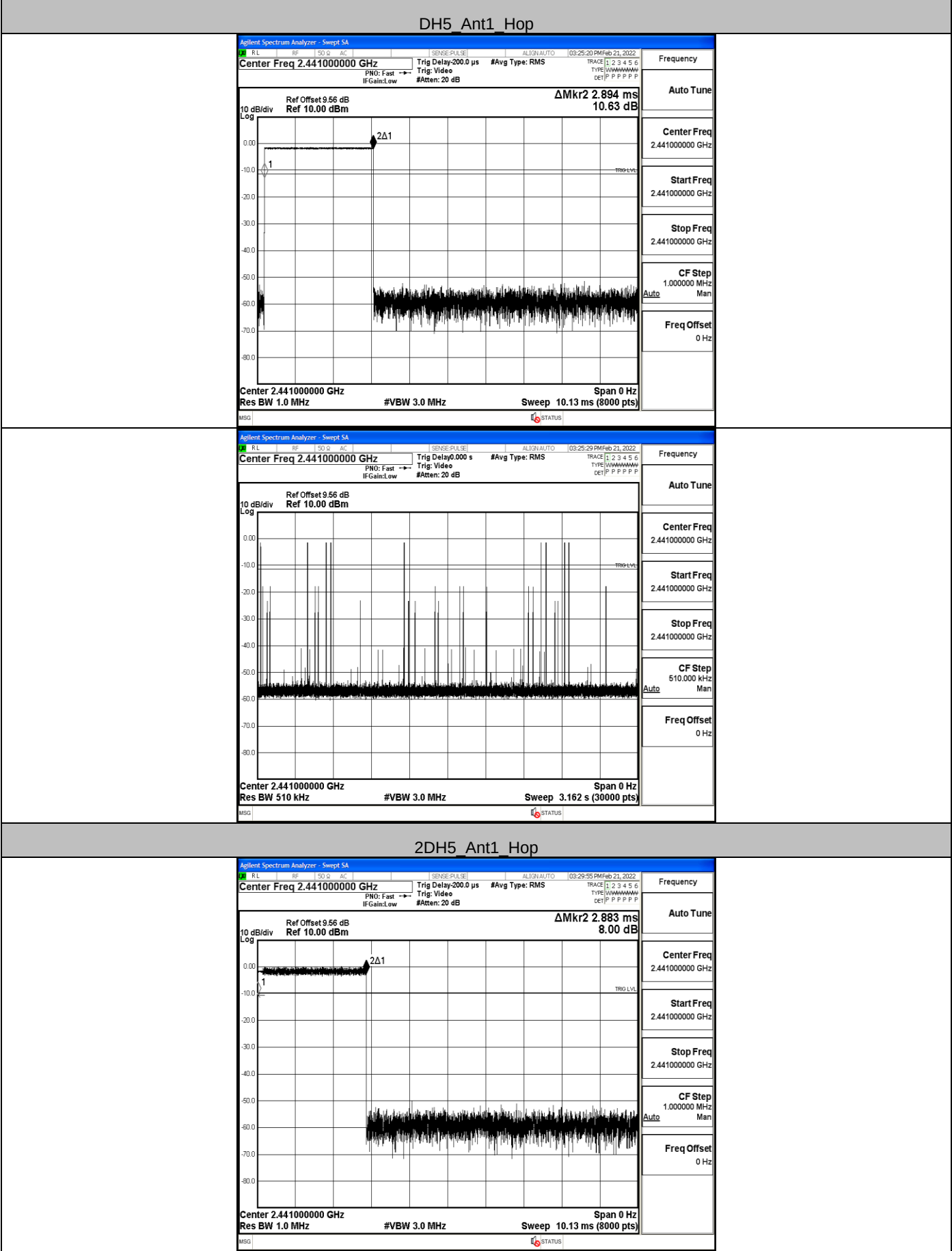


Appendix E: Time of occupancy

Test Result

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.89	100	0.289	<=0.4	PASS
2DH5	Ant1	Hop	2.88	80	0.231	<=0.4	PASS

Test Graphs



2DH5 Ant1 Hop

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.441000000 GHz

Ref Offset 9.56 dB

Ref 10.00 dBm

10 dB/div

Log

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

-70.0

-80.0

2Δ1

1

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

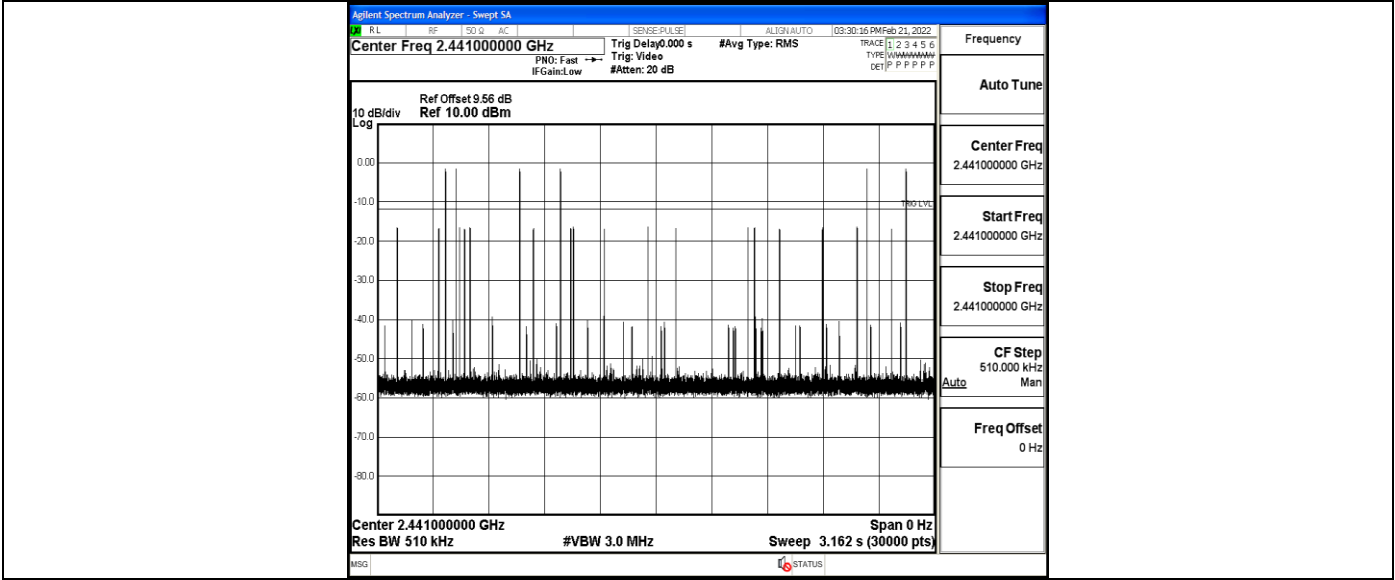
Start Freq 2.441000000 GHz

Stop Freq 2.441000000 GHz

CF Step 1.000000 MHz

Auto

Freq Offset 0 Hz

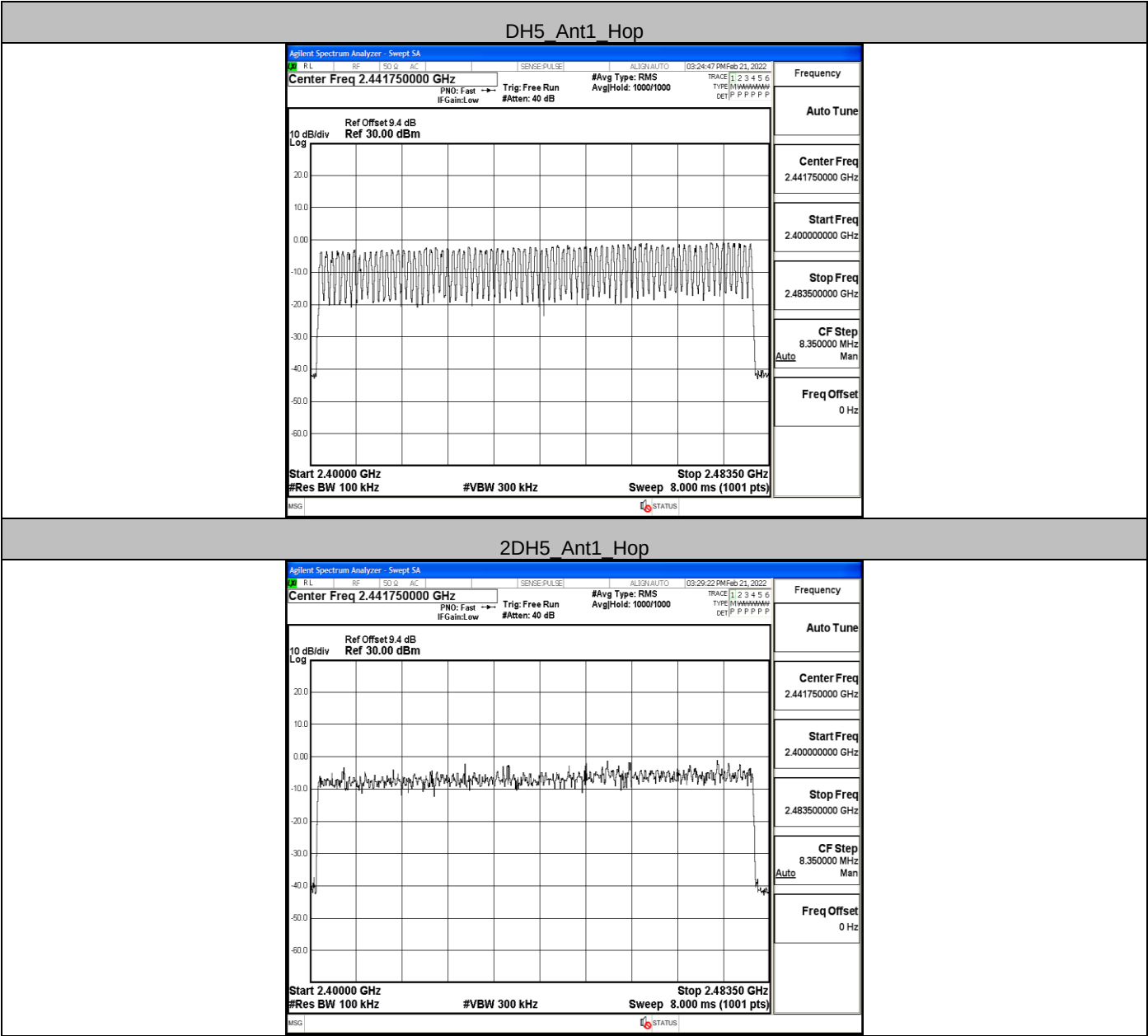


Appendix F: Number of hopping channels

Test Result

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

Test Graphs



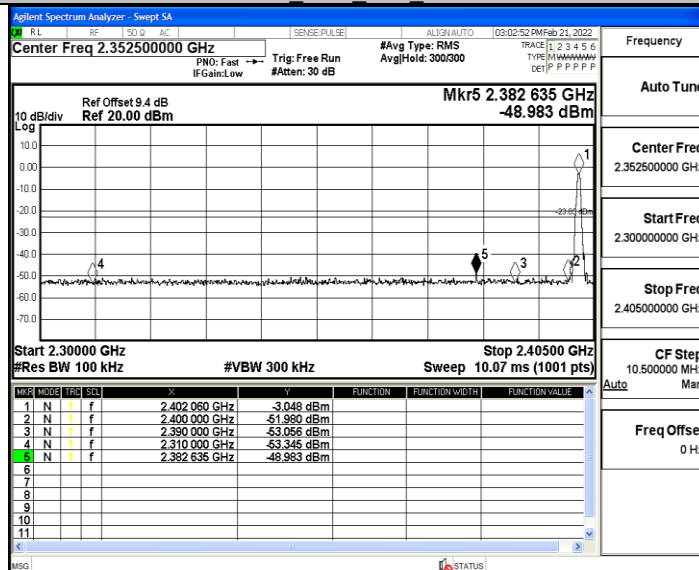
Appendix G: Band edge measurements

Test Result

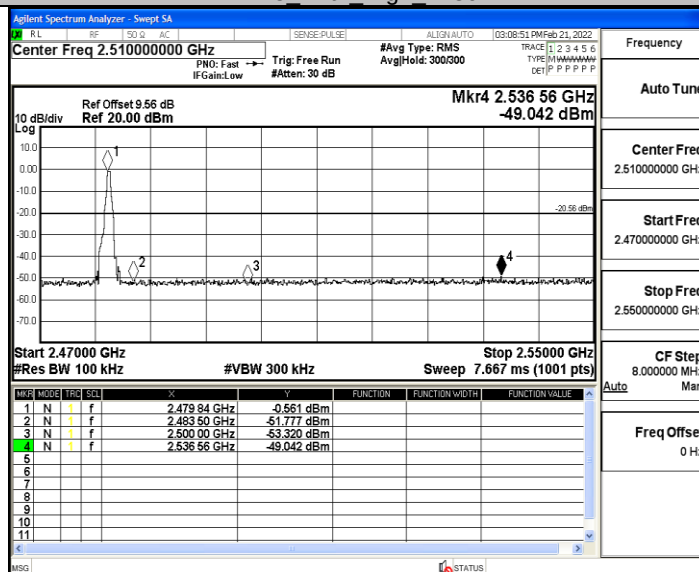
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-3.05	-48.98	≤ -23.05	PASS
		High	2480	-0.56	-49.04	≤ -20.56	PASS
		Low	Hop_2402	-3.76	-50.57	≤ -23.76	PASS
		High	Hop_2480	-1.03	-48.99	≤ -21.03	PASS
2DH5	Ant1	Low	2402	-3.94	-49.86	≤ -23.94	PASS
		High	2480	-1.03	-49.29	≤ -21.03	PASS
		Low	Hop_2402	-6.62	-50.64	≤ -26.62	PASS
		High	Hop_2480	-3.06	-49.67	≤ -23.06	PASS

Test Graphs

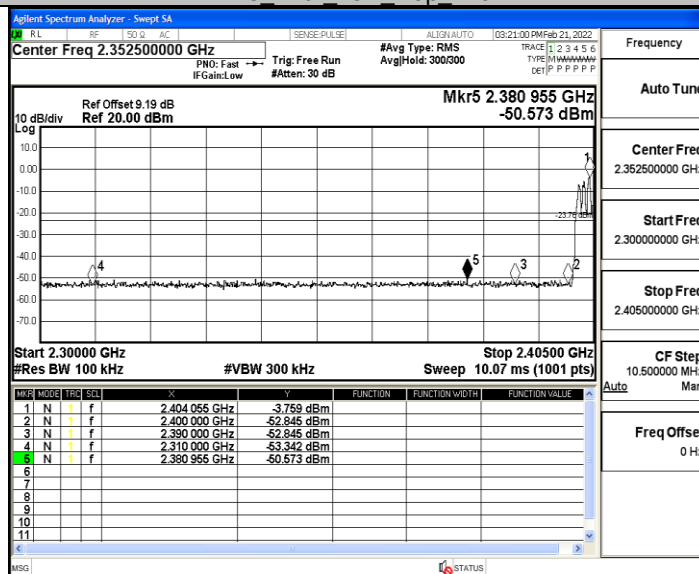
DH5_Ant1_Low_2402



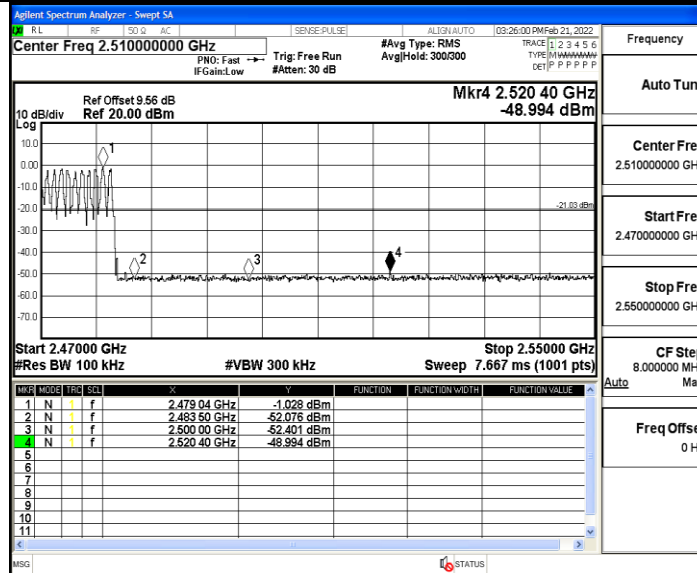
DH5_Ant1_High_2480



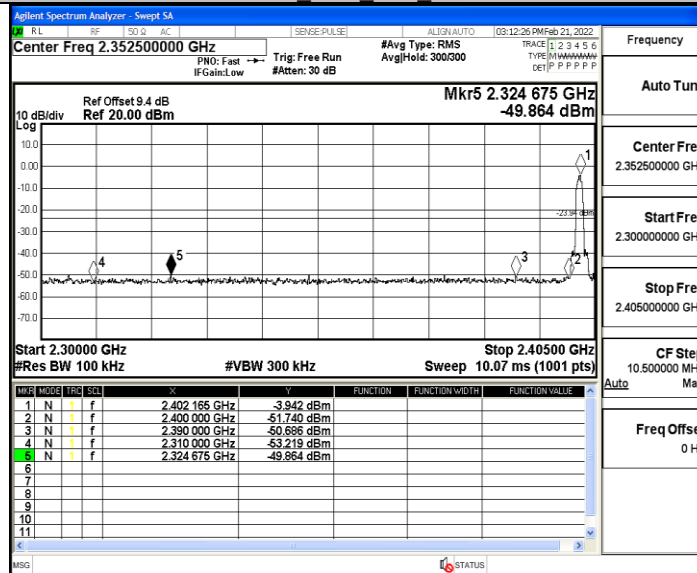
DH5_Ant1_Low_Hop_2402



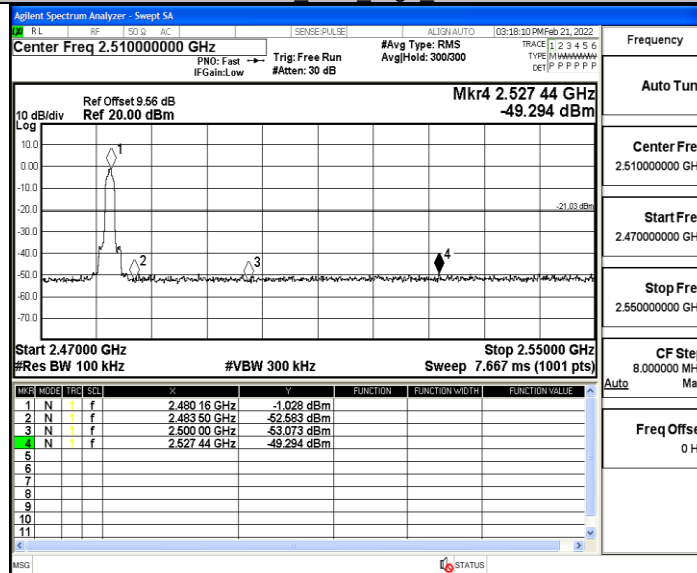
DH5_Ant1_High_Hop_2480



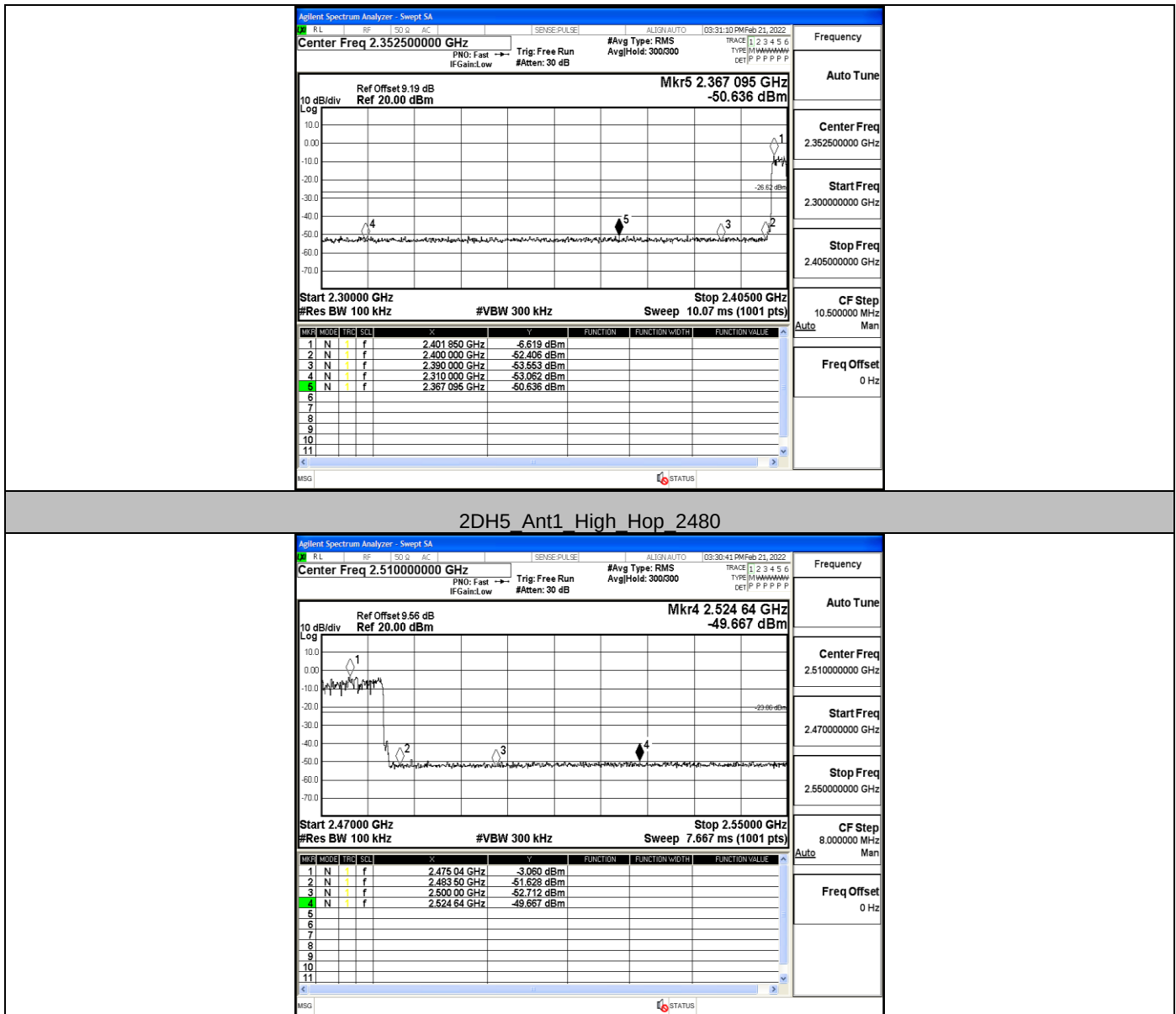
2DH5 Ant1 Low 2402



2DH5 Ant1 High 2480



2DH5 Ant1 Low Hop 2402



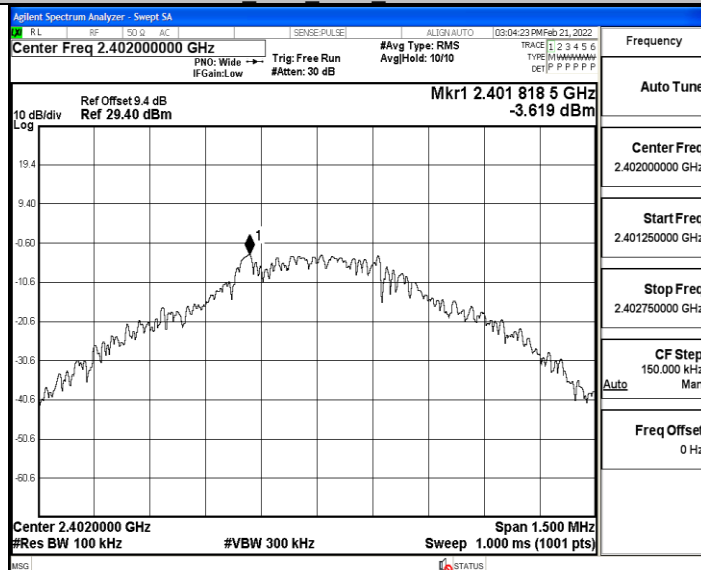
Appendix H: Conducted Spurious Emission

Test Result

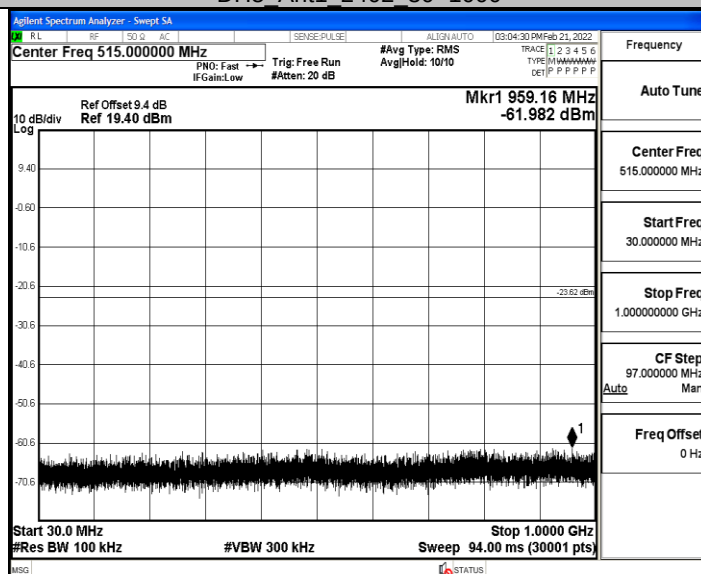
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-3.62	-3.62	---	PASS
			30~1000	-3.62	-61.98	≤ -23.62	PASS
			1000~26500	-3.62	-52.04	≤ -23.62	PASS
		2441	Reference	-2.07	-2.07	---	PASS
			30~1000	-2.07	-61.49	≤ -22.07	PASS
			1000~26500	-2.07	-52.6	≤ -22.07	PASS
		2480	Reference	-1.06	-1.06	---	PASS
			30~1000	-1.06	-60.45	≤ -21.06	PASS
			1000~26500	-1.06	-52.23	≤ -21.06	PASS
2DH5	Ant1	2402	Reference	-3.73	-3.73	---	PASS
			30~1000	-3.73	-61.38	≤ -23.73	PASS
			1000~26500	-3.73	-51.35	≤ -23.73	PASS
		2441	Reference	-5.30	-5.30	---	PASS
			30~1000	-5.30	-61.34	≤ -25.3	PASS
			1000~26500	-5.30	-52.59	≤ -25.3	PASS
		2480	Reference	-1.21	-1.21	---	PASS
			30~1000	-1.21	-60.15	≤ -21.21	PASS
			1000~26500	-1.21	-52.59	≤ -21.21	PASS

Test Graphs

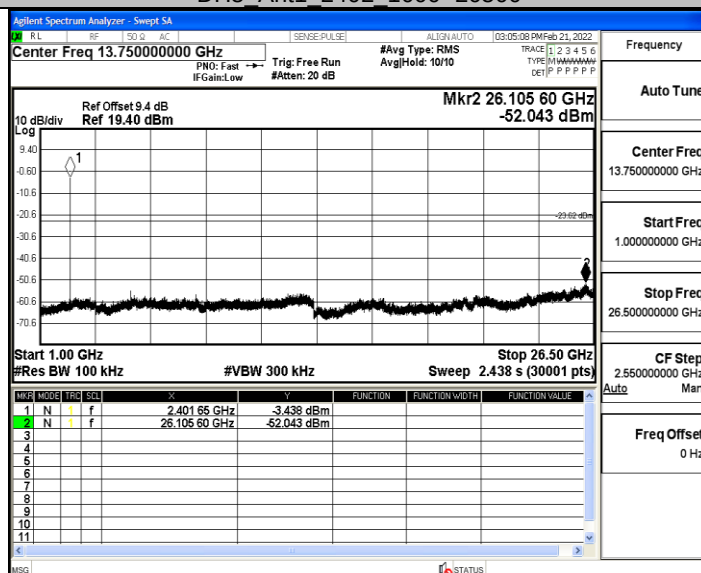
DH5_Ant1_2402_0~Reference



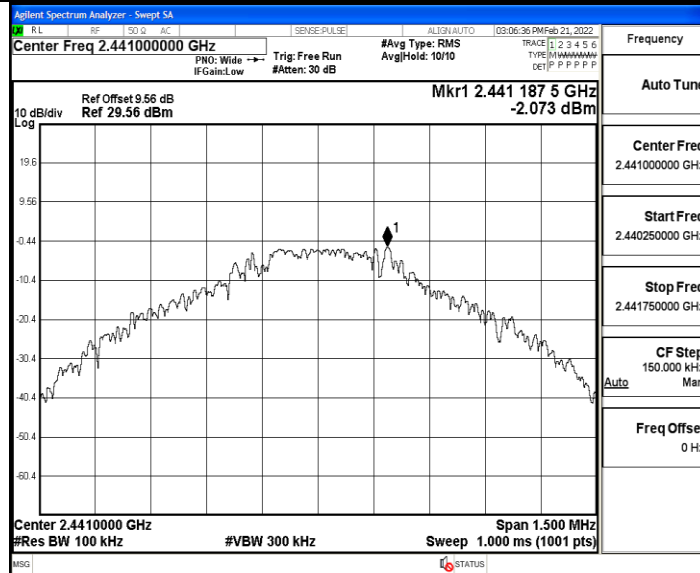
DH5_Ant1_2402_30~1000



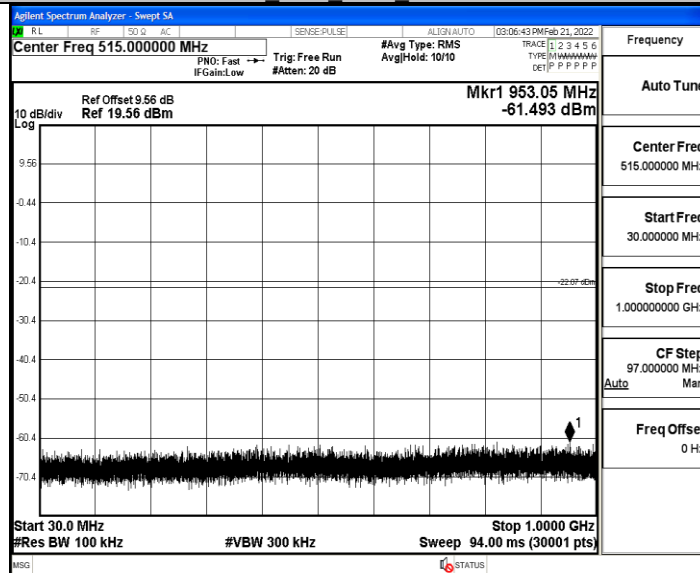
DH5_Ant1_2402_1000~26500



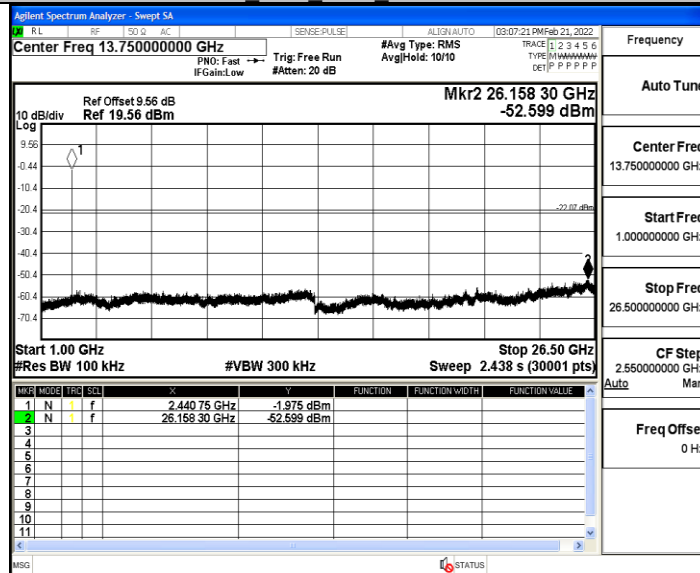
DH5_Ant1_2441_0~Reference



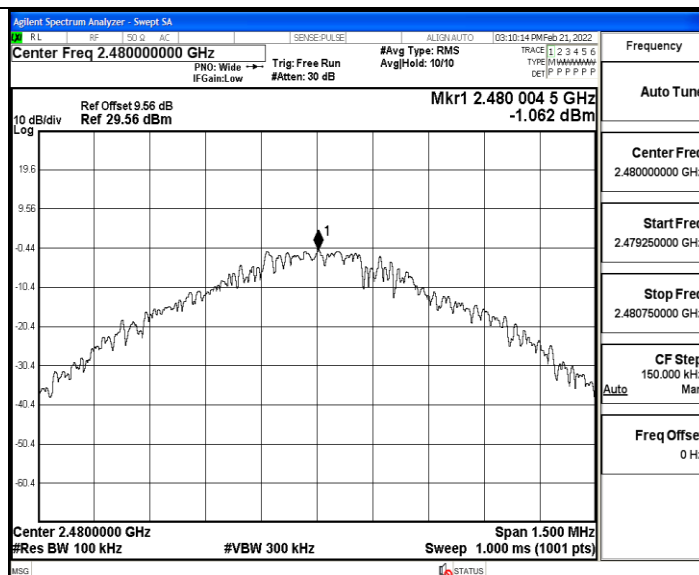
DH5_Ant1_2441_30~1000



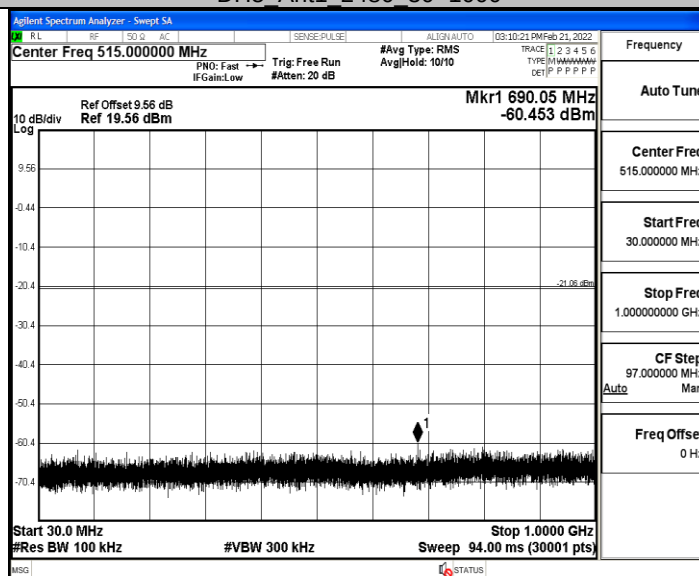
DH5_Ant1_2441_1000~26500



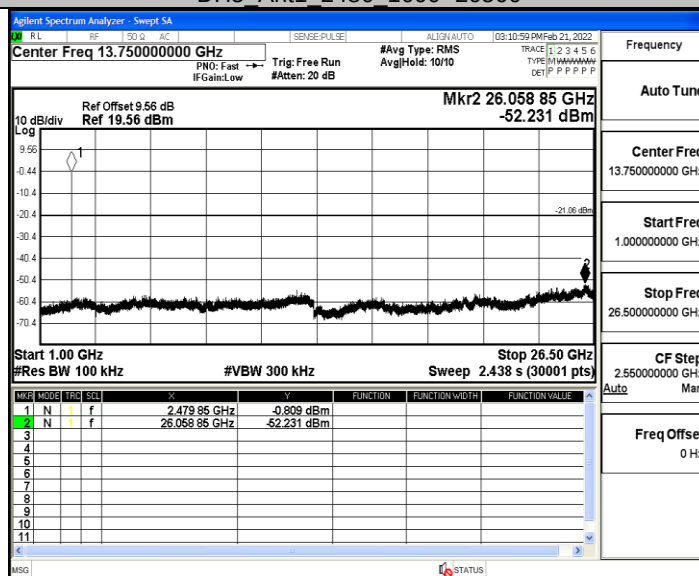
DH5_Ant1_2480_0~Reference



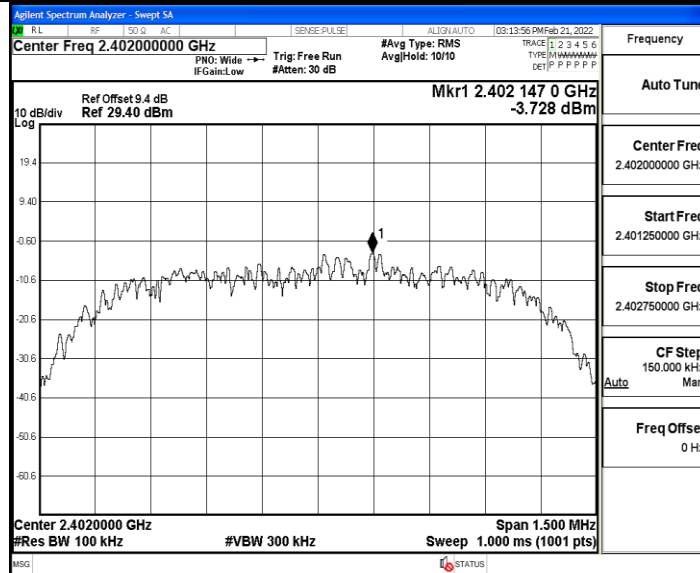
DH5 Ant1 2480 30~1000



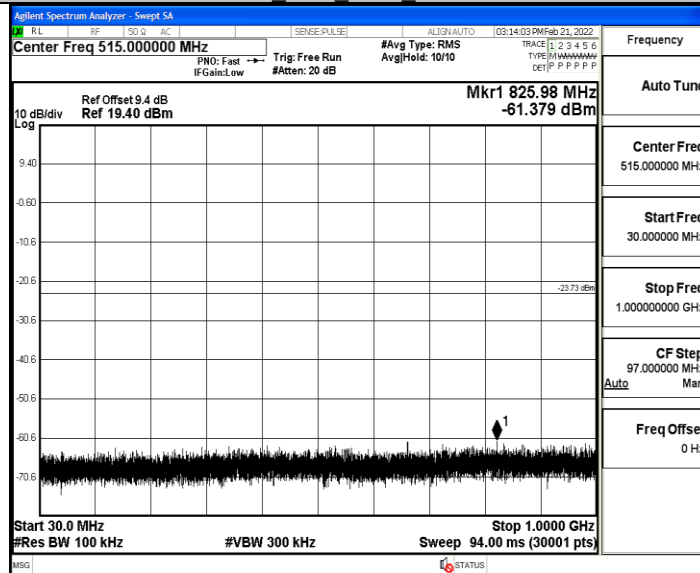
DH5 Ant1 2480 1000~26500



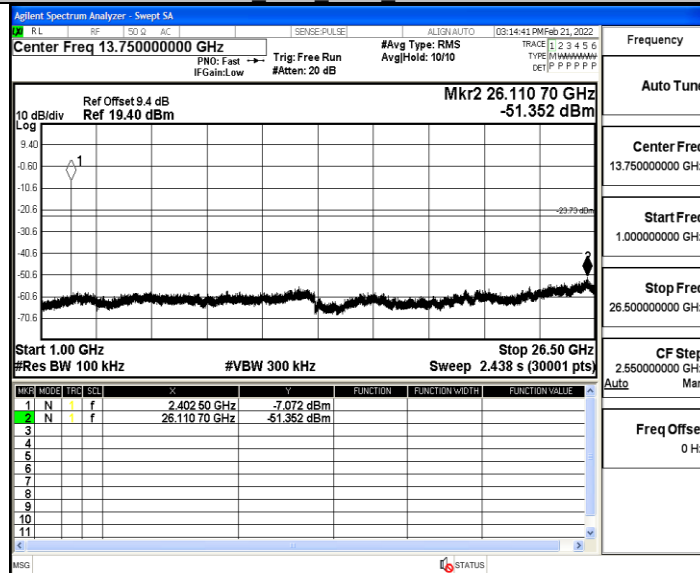
2DH5 Ant1 2402 0~Reference



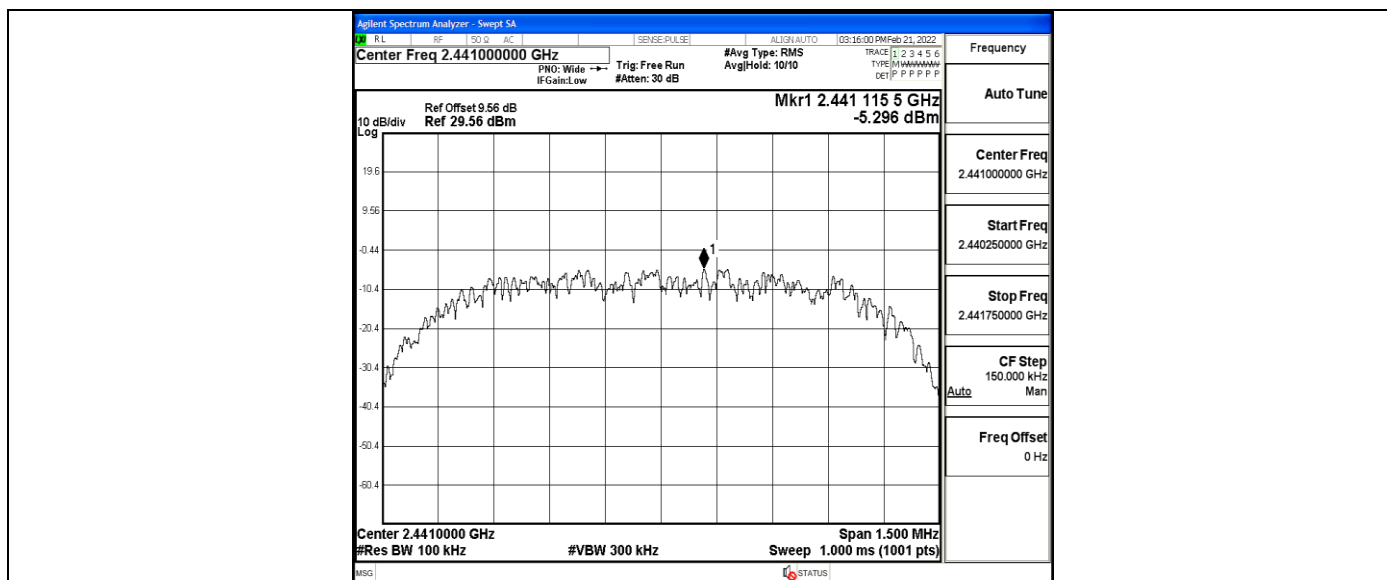
2DH5 Ant1 2402 30~1000



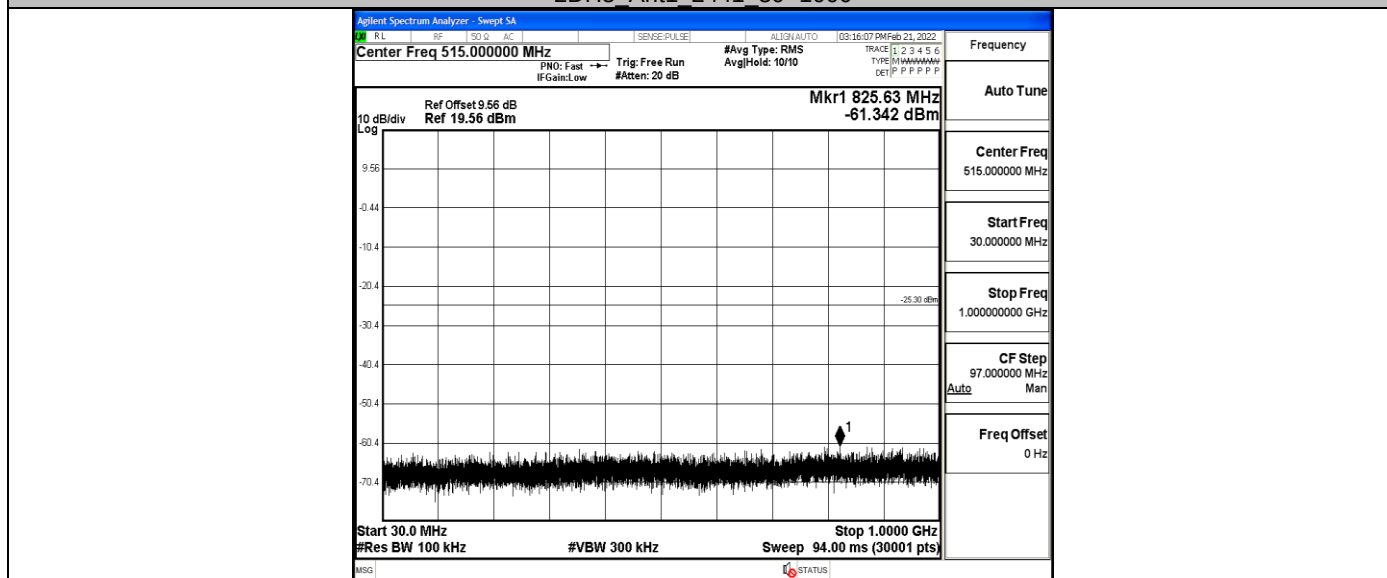
2DH5 Ant1 2402 1000~26500



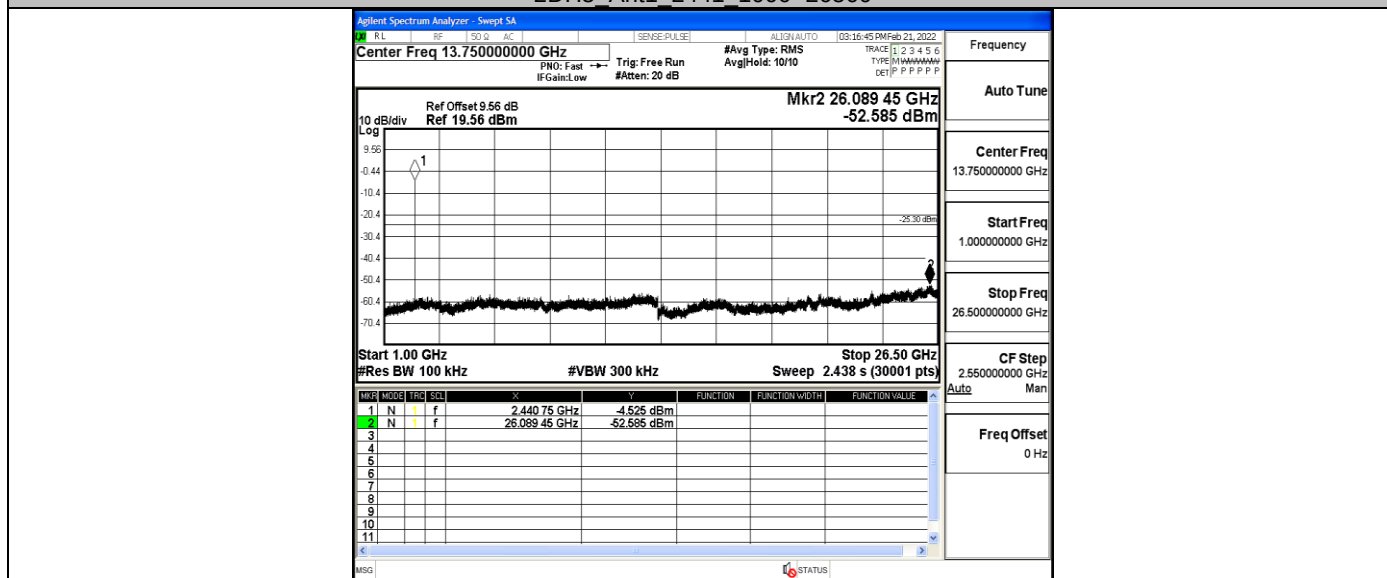
2DH5 Ant1 2441 0~Reference



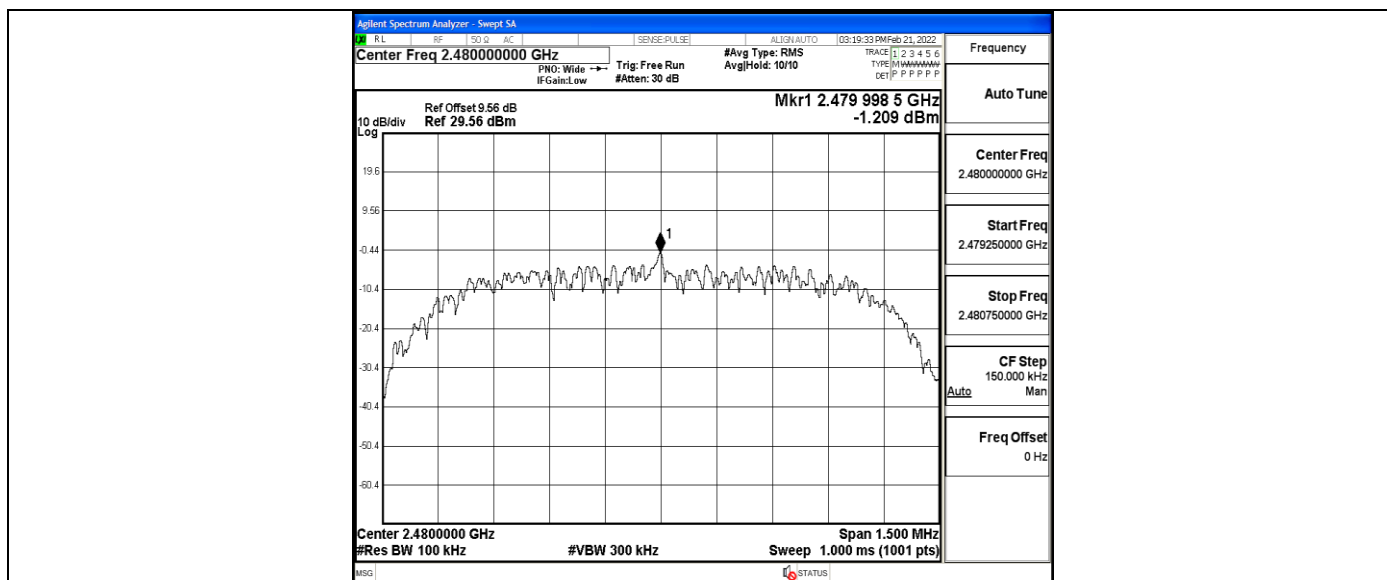
2DH5 Ant1 2441 30~1000



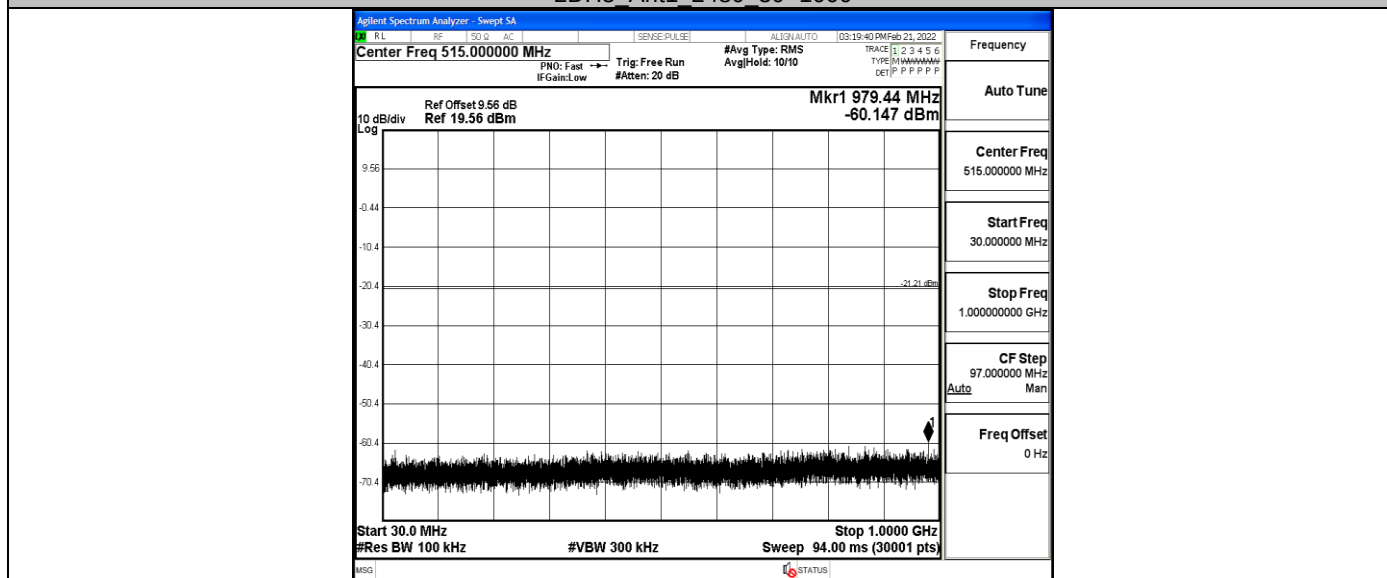
2DH5 Ant1 2441 1000~26500



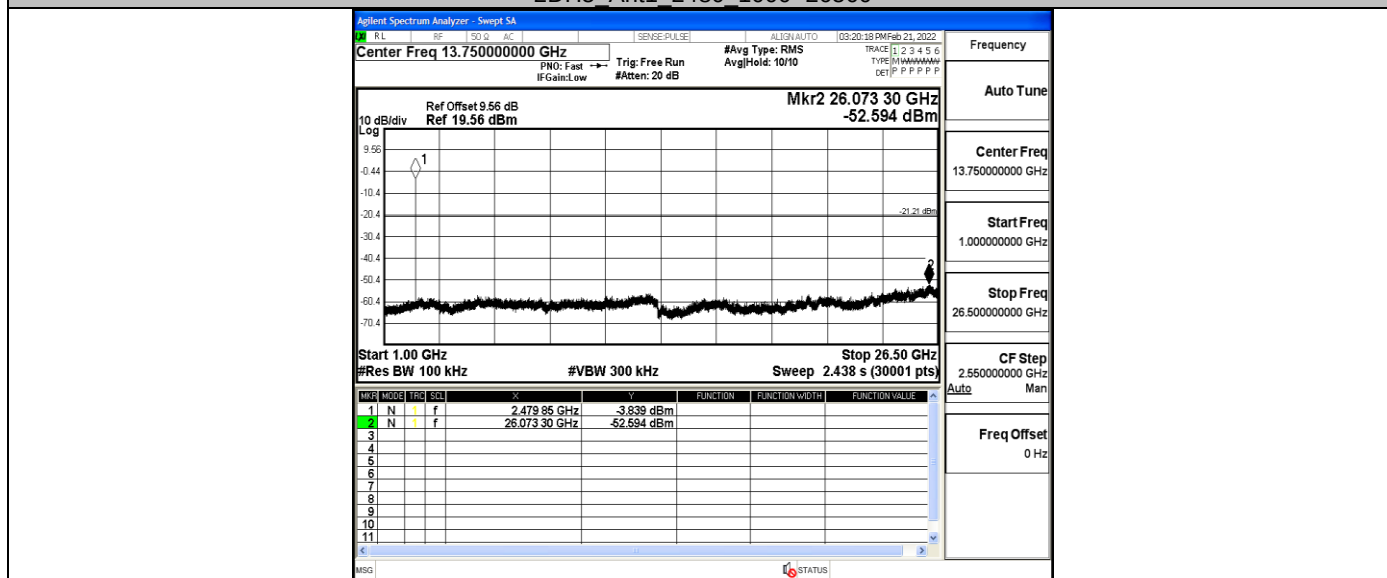
2DH5 Ant1 2480 0~Reference



2DH5 Ant1 2480 30~1000



2DH5 Ant1 2480 1000~26500



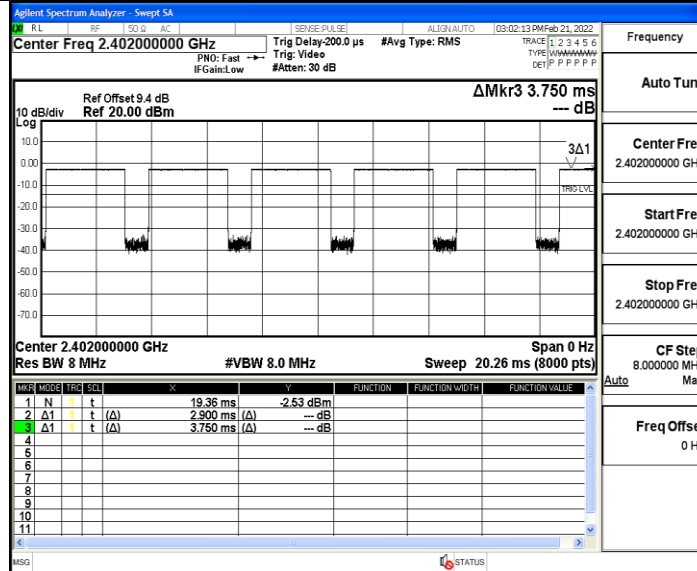
Appendix I: Duty Cycle

Test Result

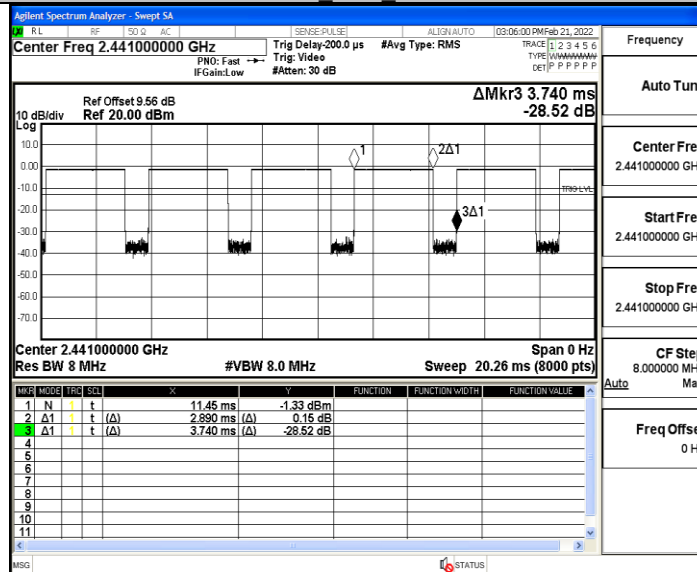
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/B [kHz]
DH5	Ant1	2402	2.90	3.75	77.33	0.34
		2441	2.89	3.74	77.27	0.35
		2480	2.90	3.75	77.33	0.34
2DH5	Ant1	2402	2.88	3.75	76.80	0.35
		2441	2.89	3.75	77.07	0.35
		2480	2.88	3.75	76.80	0.35
3DH5	Ant1	2402	2.90	3.75	77.33	0.34
		2441	2.89	3.74	77.27	0.35
		2480	2.90	3.75	77.33	0.34

Test Graphs

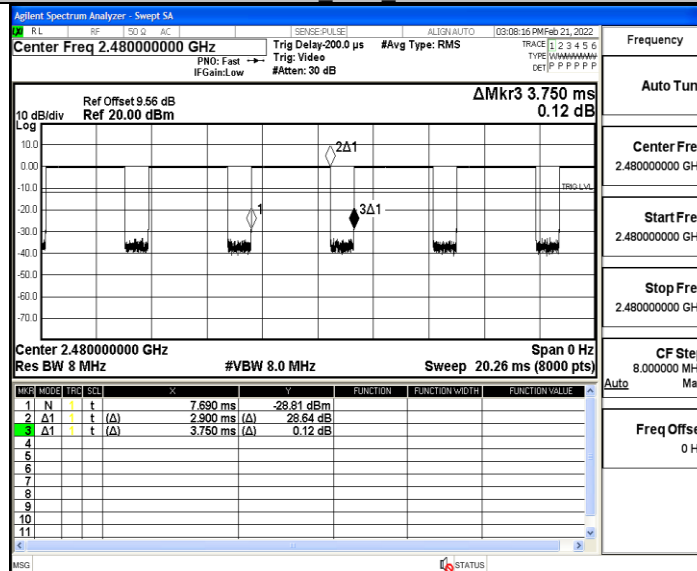
DH5_Ant1_2402



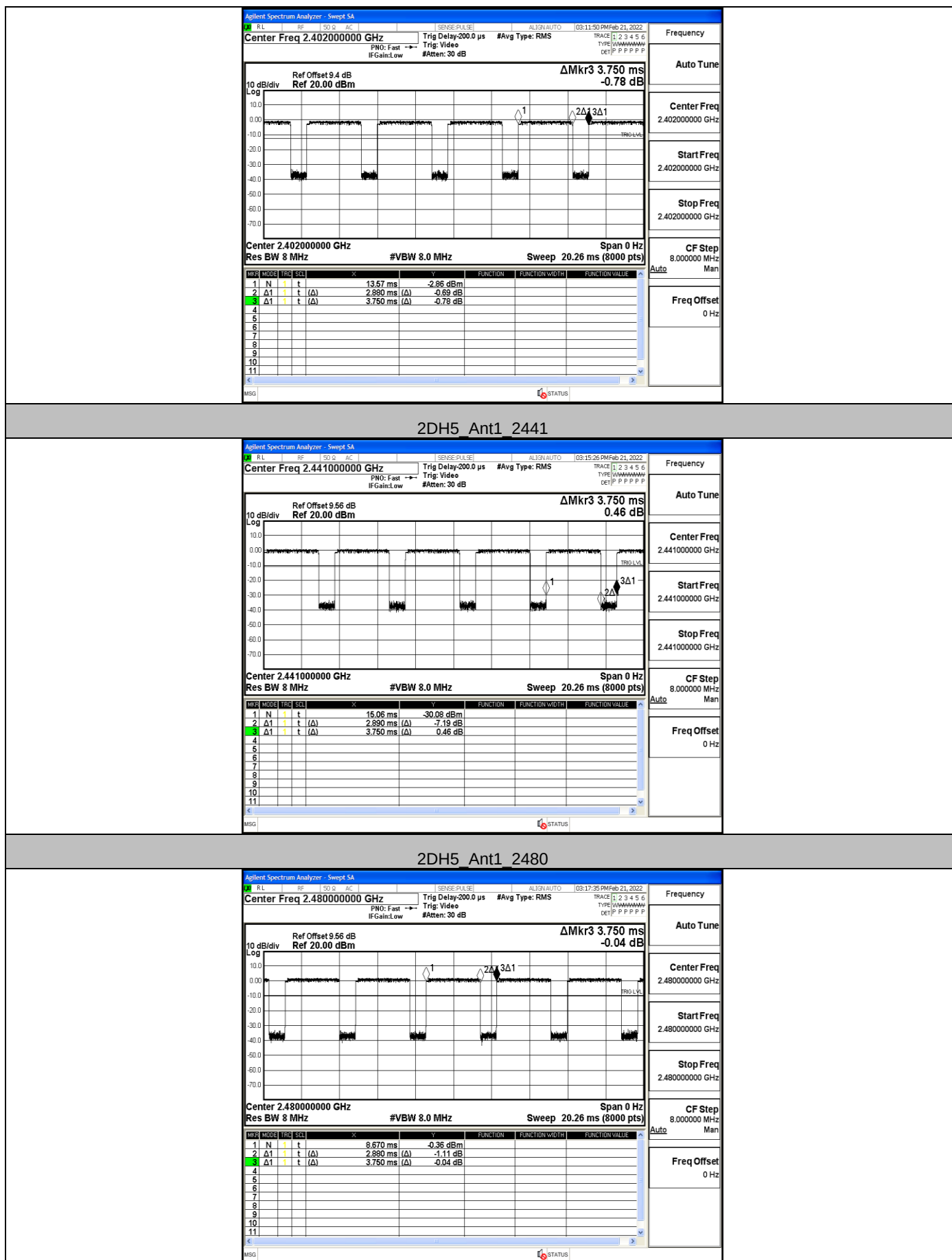
DH5_Ant1_2441



DH5_Ant1_2480



2DH5_Ant1_2402



Appendix J: Emissions in Restricted Bands

Test Result

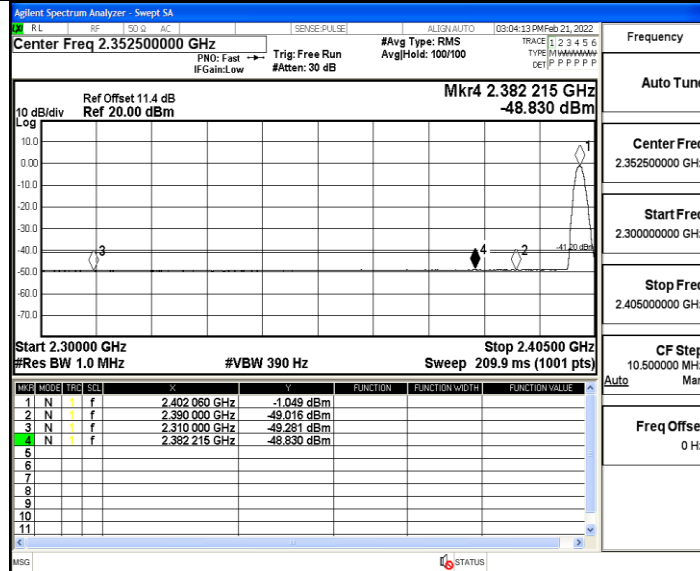
TestMode	Antenna	ChName	Channel	Detector	Freq(MHz)	Result(dBm)	Limit(dBm)	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-49.28	≤-41.20	PASS
				AV	2382.215	-48.83	≤-41.20	PASS
				AV	2390.000	-49.02	≤-41.20	PASS
				Peak	2310.000	-41	≤-21.20	PASS
				Peak	2319.635	-38.97	≤-21.20	PASS
				Peak	2390.000	-40.33	≤-21.20	PASS
		High	2480	AV	2483.500	-48.28	≤-41.20	PASS
				AV	2495.760	-48.21	≤-41.20	PASS
				AV	2500.000	-48.25	≤-41.20	PASS
				Peak	2483.500	-40.55	≤-21.20	PASS
2DH5	Ant1	Low	2402	Peak	2492.560	-38.92	≤-21.20	PASS
				Peak	2500.000	-41.33	≤-21.20	PASS
		High	2480	AV	2310.000	-49.25	≤-41.20	PASS
				AV	2387.990	-48.88	≤-41.20	PASS
				AV	2390.000	-48.99	≤-41.20	PASS
				Peak	2310.000	-42.22	≤-21.20	PASS
				Peak	2318.795	-38.66	≤-21.20	PASS
				Peak	2390.000	-39.52	≤-21.20	PASS
		High	2480	AV	2483.500	-47.9	≤-41.20	PASS
				AV	2483.520	-47.9	≤-41.20	PASS
				AV	2500.000	-48.3	≤-41.20	PASS
				Peak	2483.500	-41.43	≤-21.20	PASS
				Peak	2497.360	-37.9	≤-21.20	PASS
				Peak	2500.000	-41.69	≤-21.20	PASS

Note :

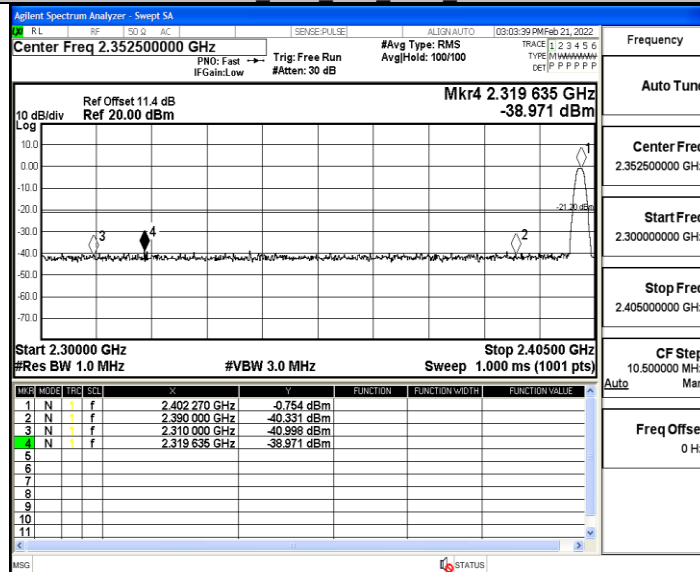
1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

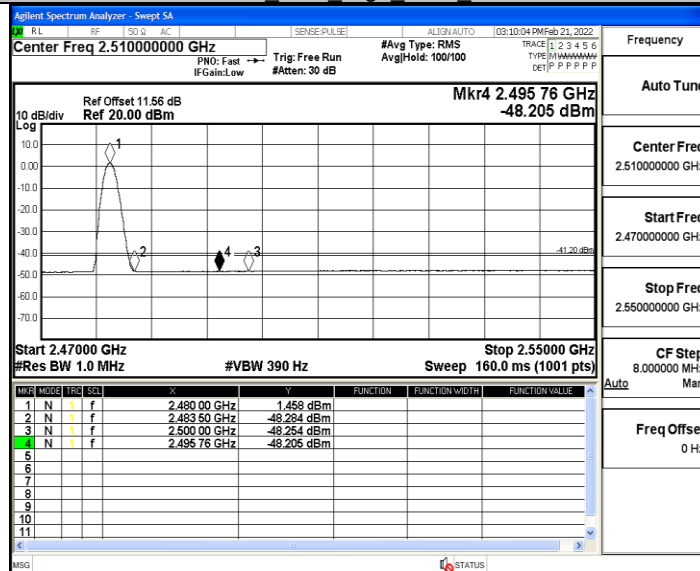
DH5 Ant1 Low 2402 AV



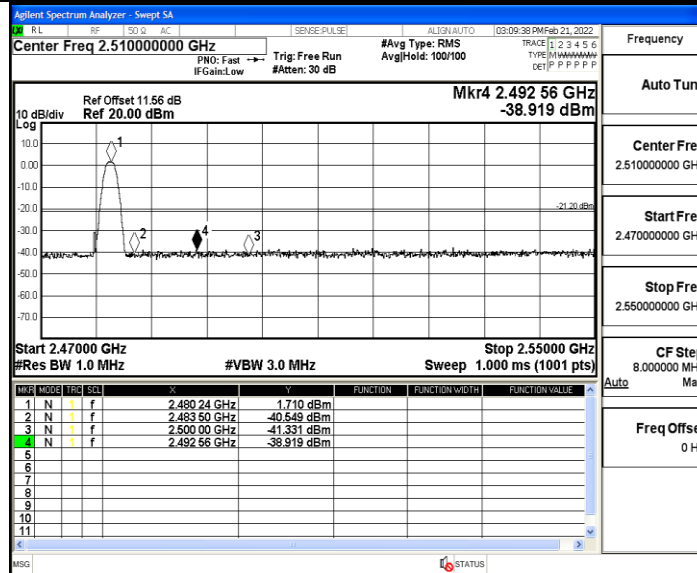
DH5 Ant1 Low 2402 Peak



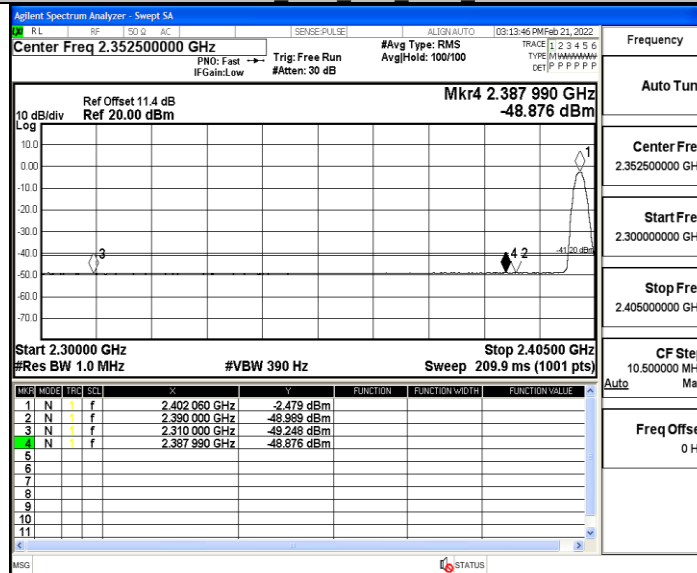
DH5 Ant1 High 2480 AV



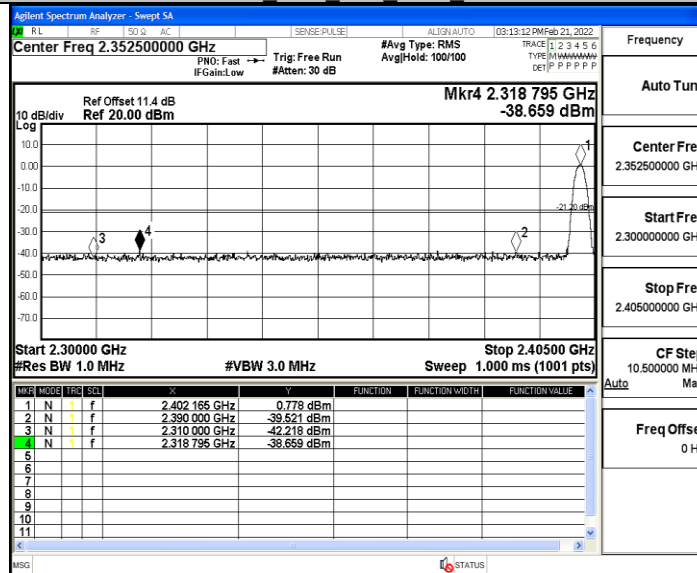
DH5 Ant1 High 2480 Peak



2DH5 Ant1 Low 2402 AV



2DH5 Ant1 Low 2402 Peak



2DH5 Ant1 High 2480 AV

