

## Appendix Test Data for BT(BDR/EDR) (Conducted Measurement)

Product Name: TWS earbuds

Trade Mark: N/A

Test Model: W401W

FCC ID: 2A047-W401

### Environmental Conditions

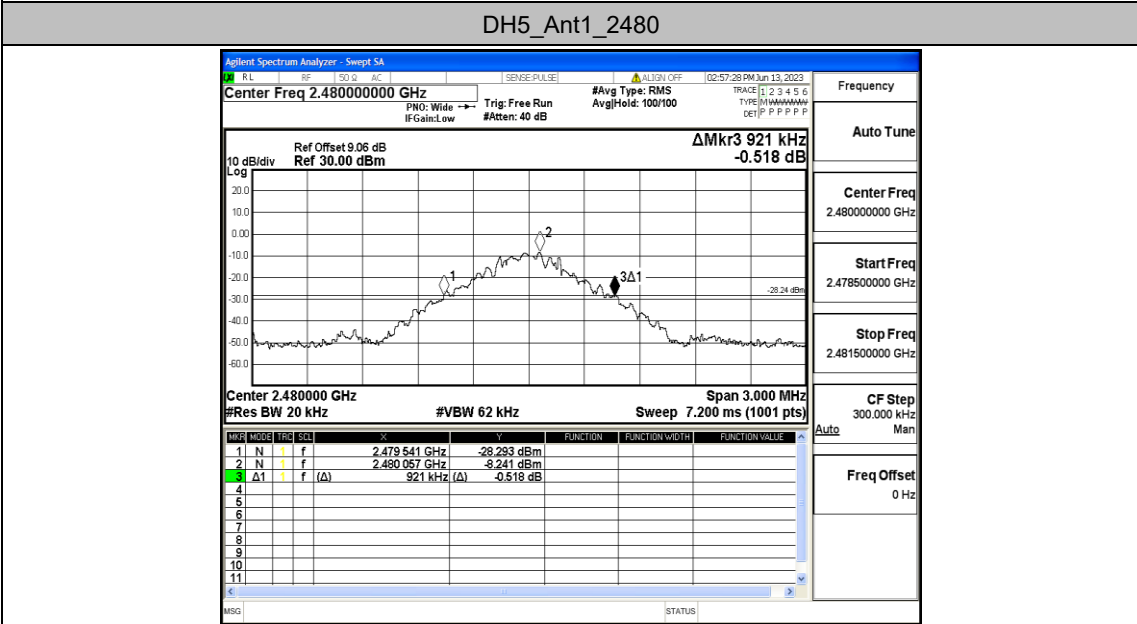
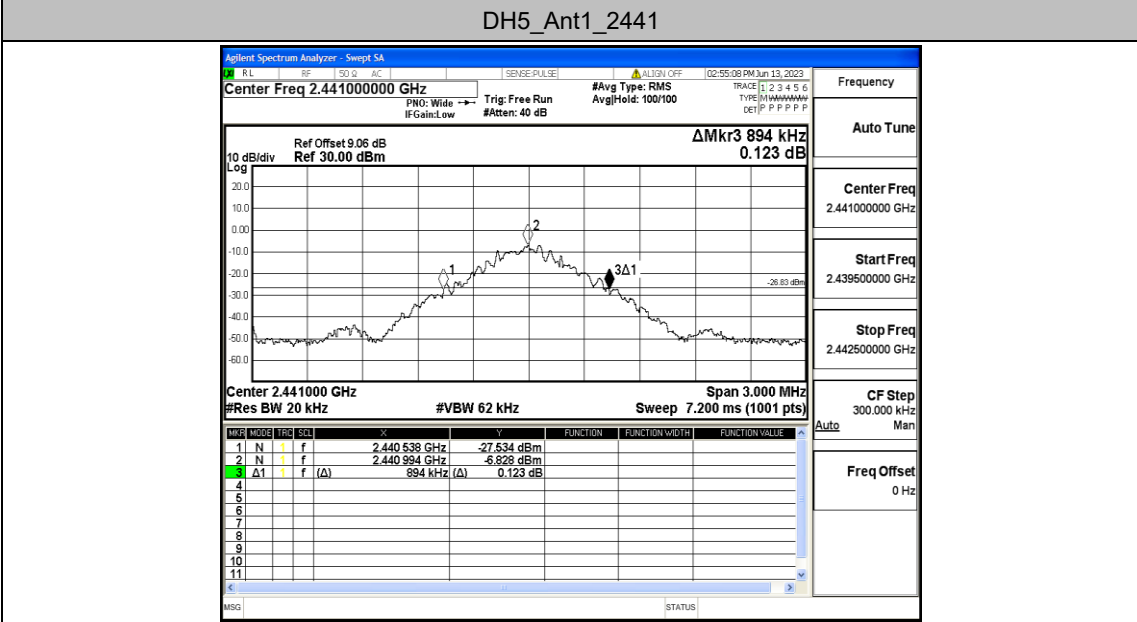
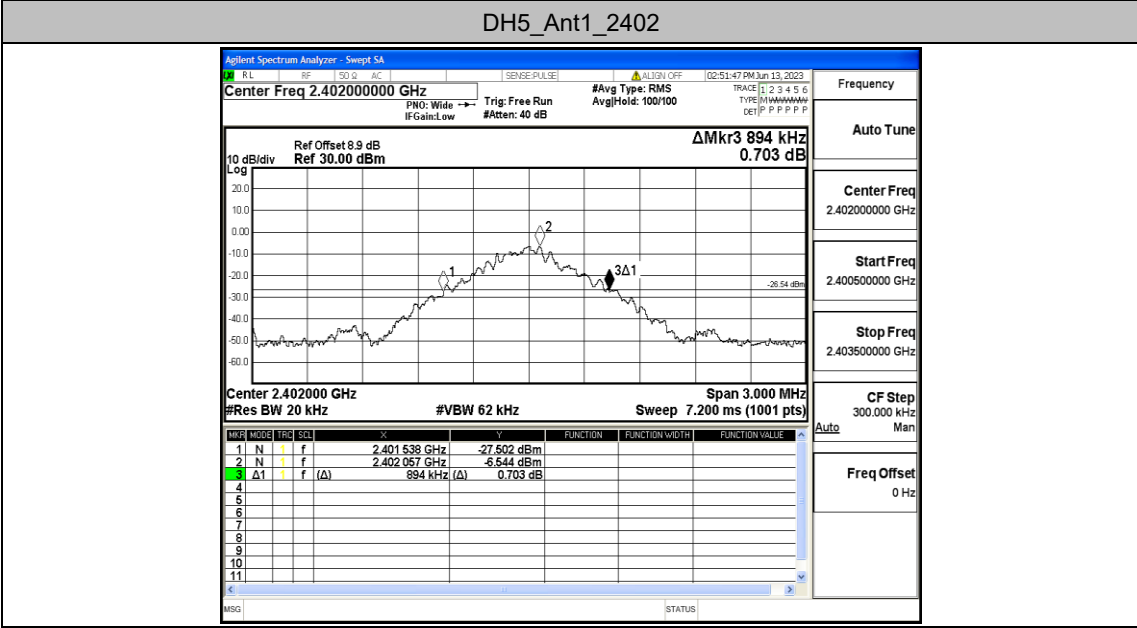
Temperature:	25.5°C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

## Appendix A: 20dB Emission Bandwidth

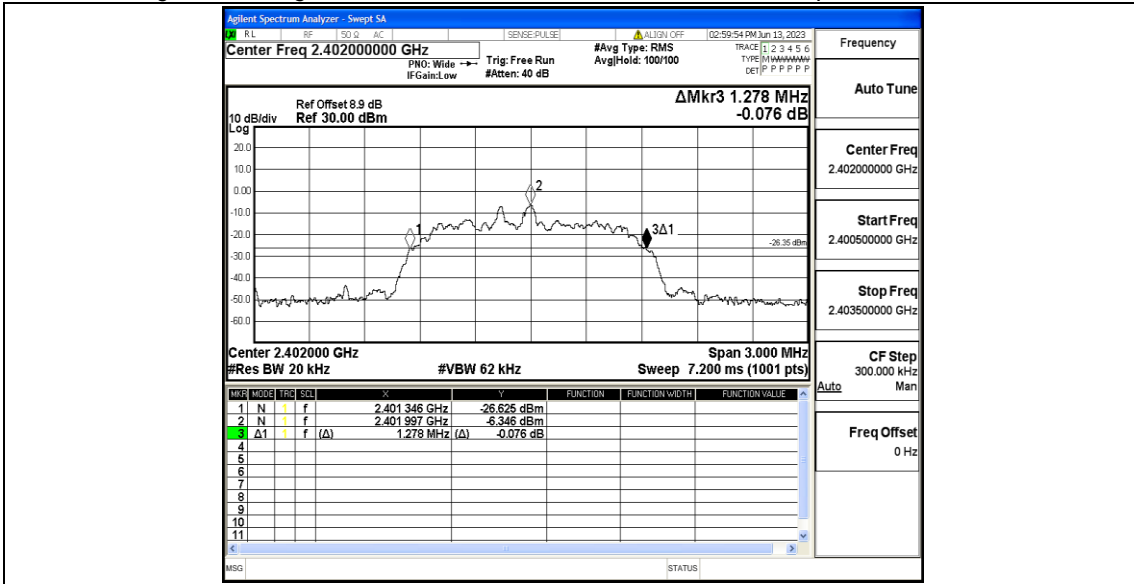
### Test Result

TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.894	2401.538	2402.432	---	---
		2441	0.894	2440.538	2441.432	---	---
		2480	0.921	2479.541	2480.462	---	---
2DH5	Ant1	2402	1.278	2401.346	2402.624	---	---
		2441	1.290	2440.343	2441.633	---	---
		2480	1.308	2479.340	2480.648	---	---

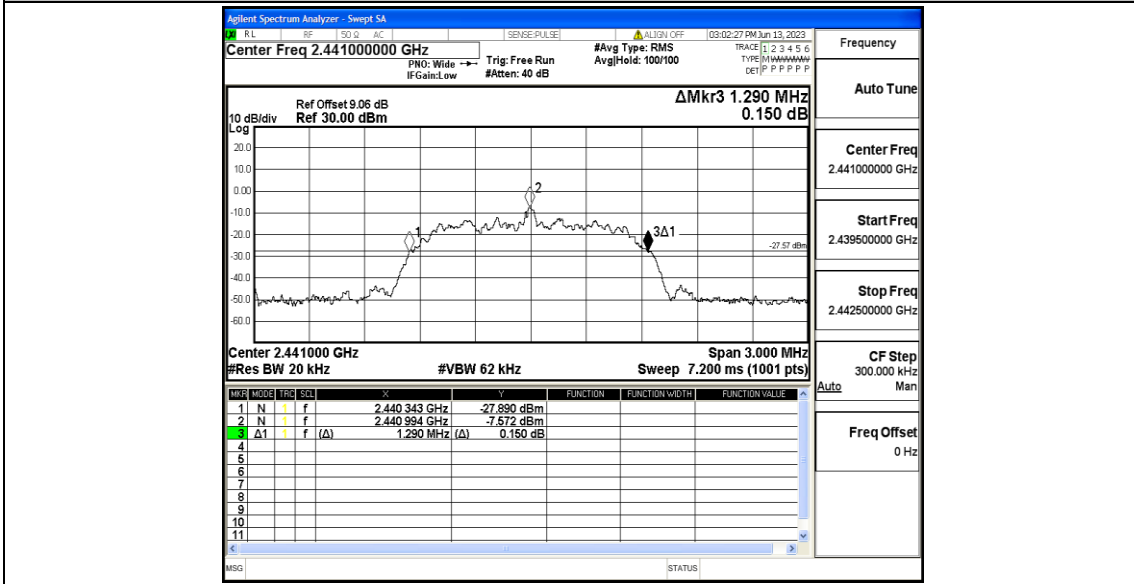
### Test Graphs



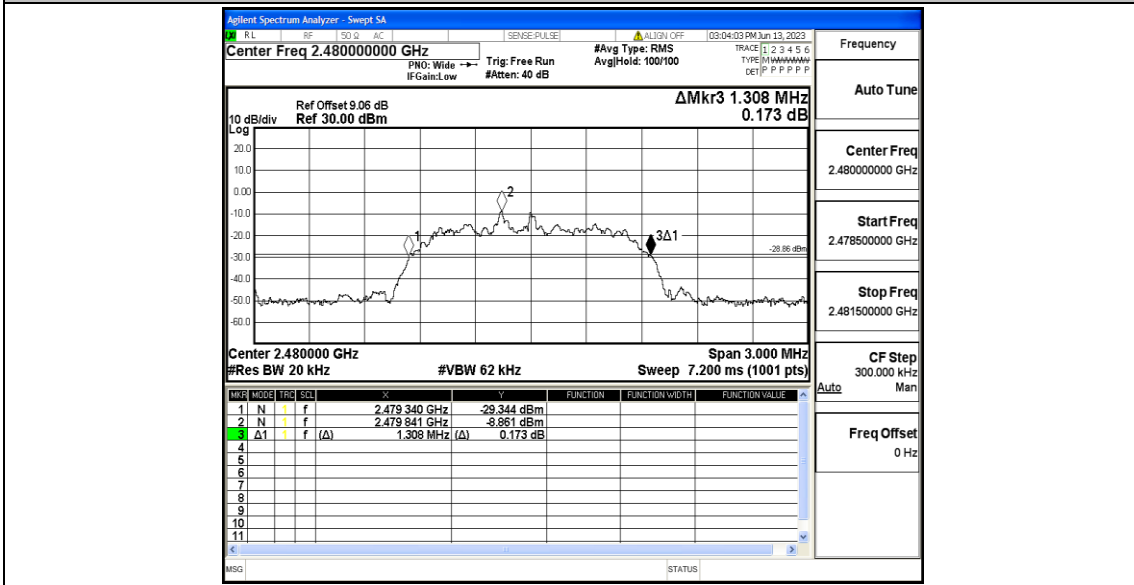
2DH5\_Ant1\_2402



2DH5\_Ant1\_2441



2DH5\_Ant1\_2480

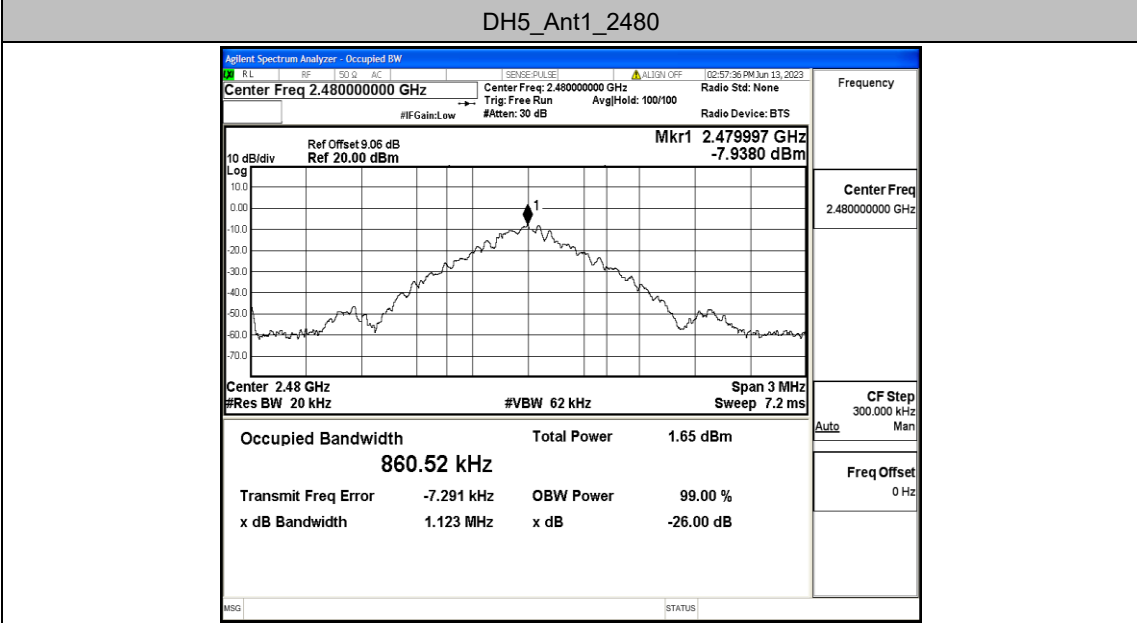
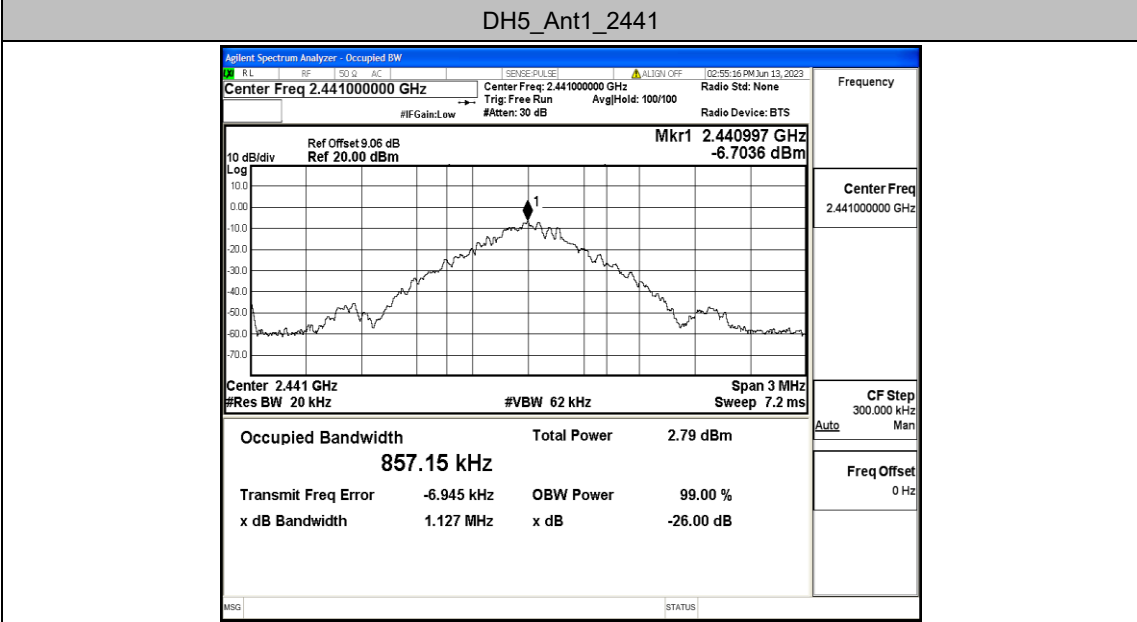
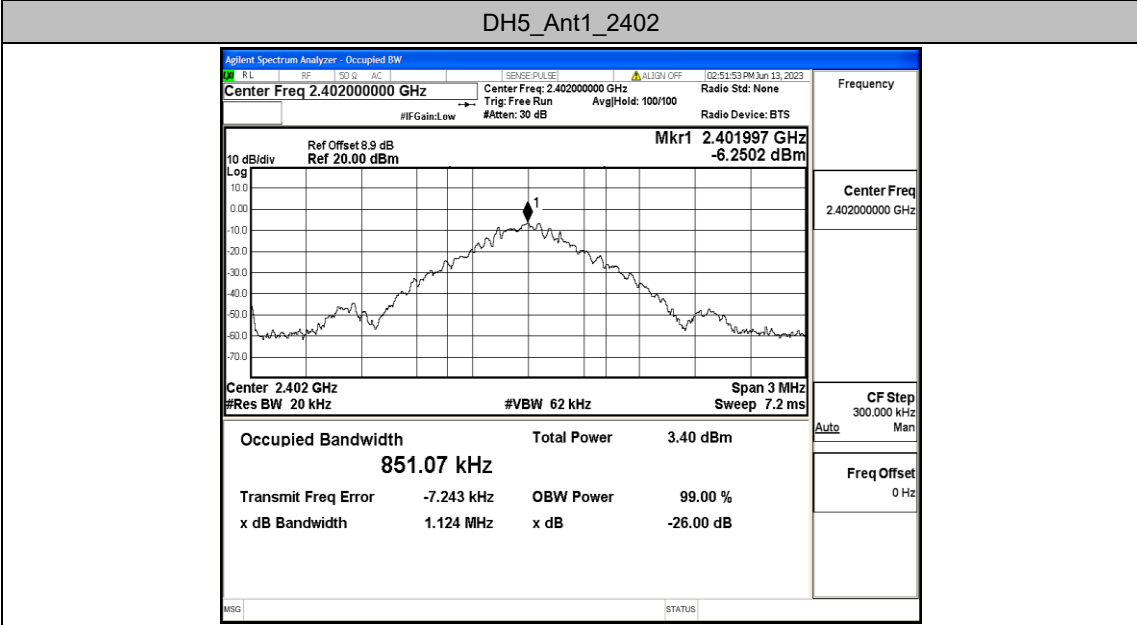


## Appendix B: Occupied Channel Bandwidth

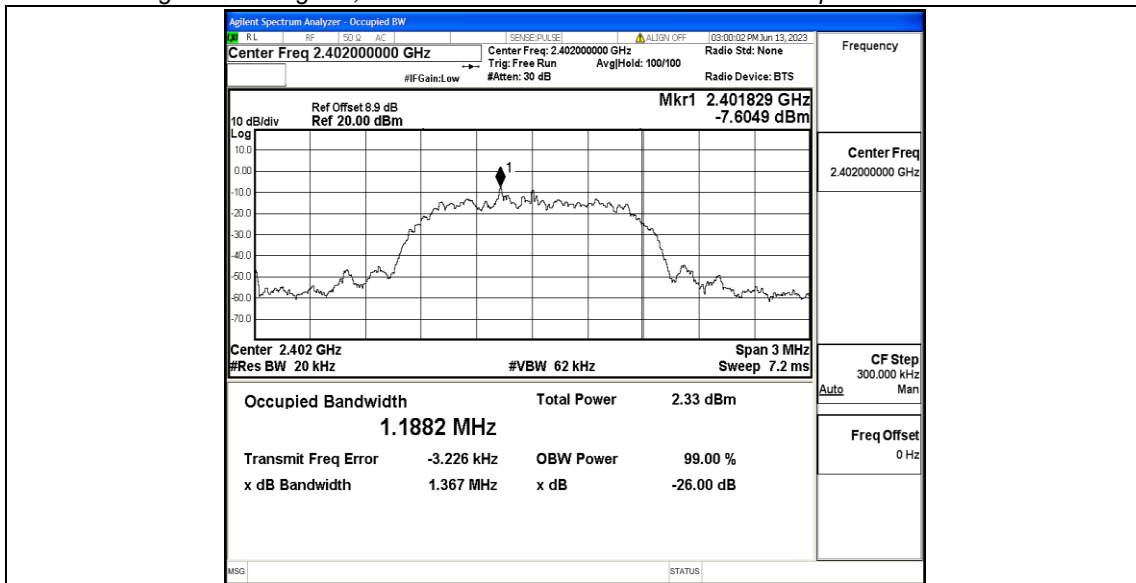
### Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.85107	2401.5672	2402.4183	---	---
		2441	0.85715	2440.5645	2441.4216	---	---
		2480	0.86052	2479.5625	2480.4230	---	---
2DH5	Ant1	2402	1.1882	2401.4027	2402.5909	---	---
		2441	1.1760	2440.4068	2441.5828	---	---
		2480	1.1806	2479.4051	2480.5857	---	---

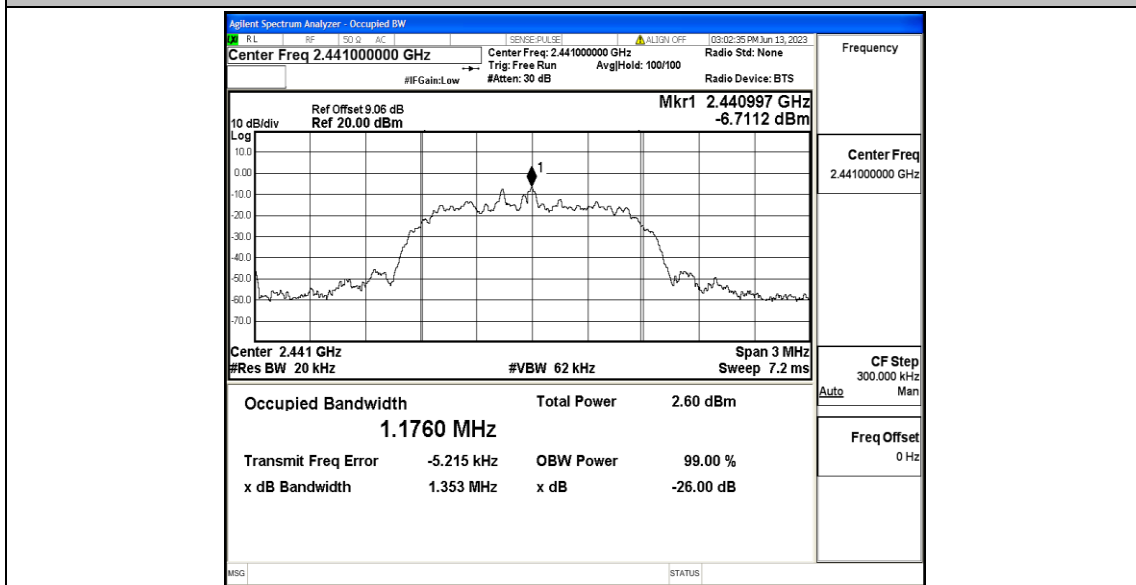
Test Graphs



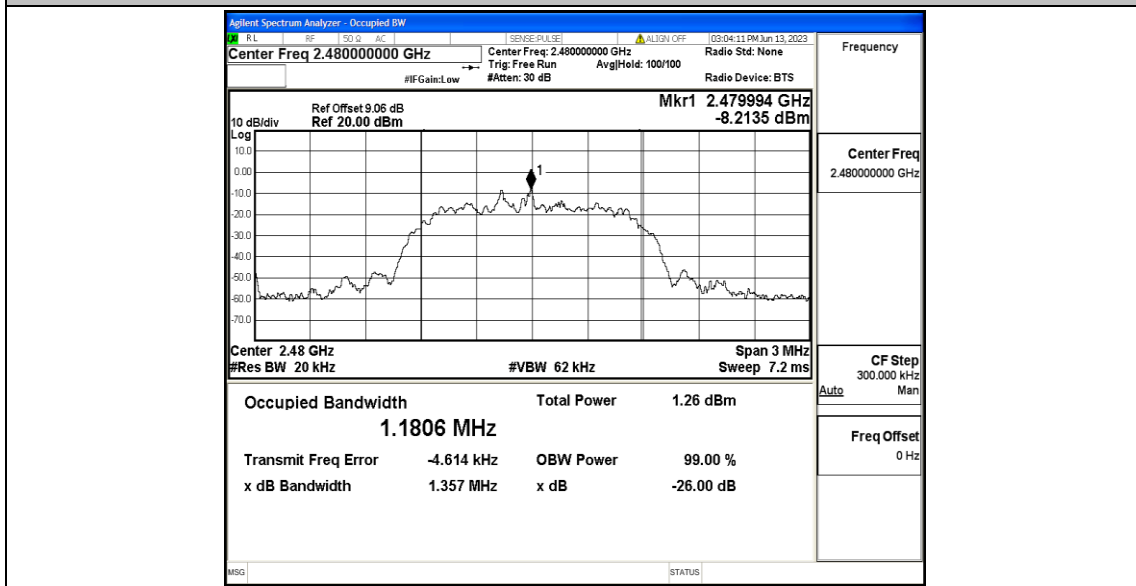
**2DH5\_Ant1\_2402**



2DH5\_Ant1\_2441



2DH5\_Ant1\_2480

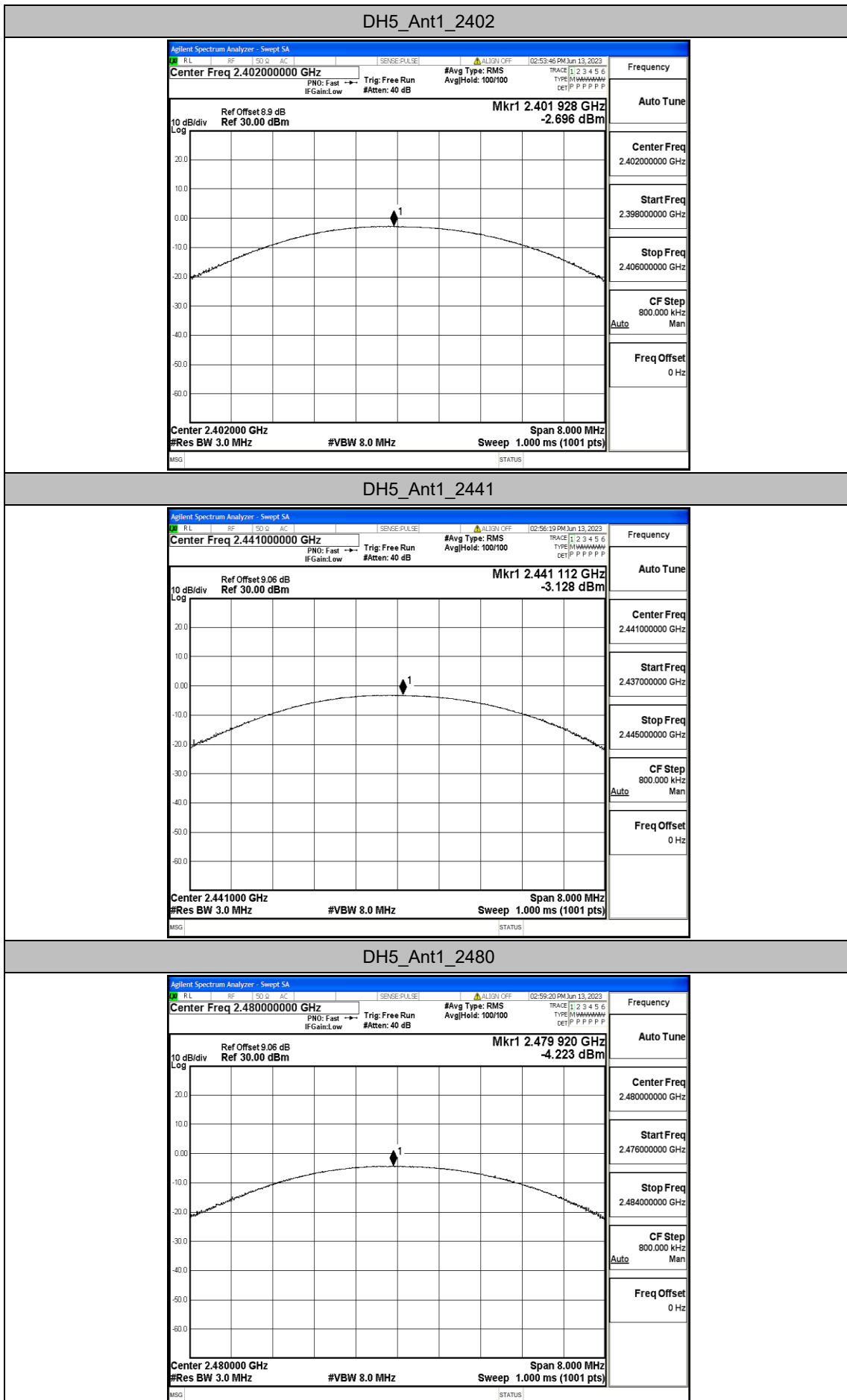


## Appendix C: Maximum Peak conducted output power

### Test Result

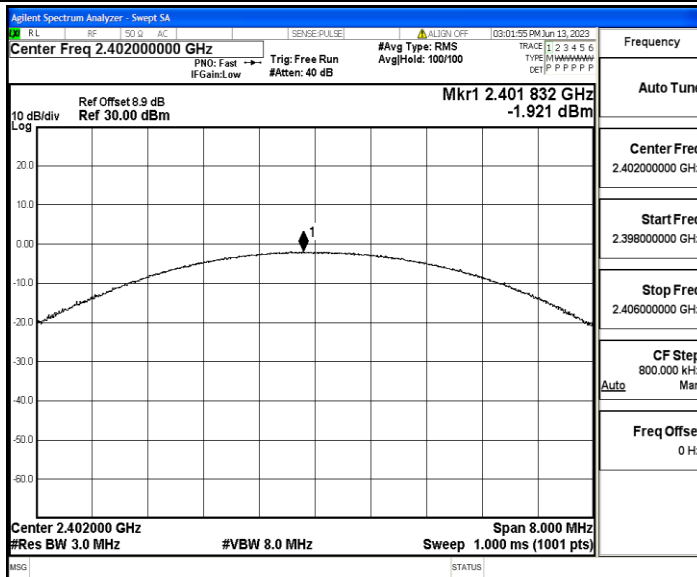
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	-2.7	≤30	PASS
		2441	-3.13	≤30	PASS
		2480	-4.22	≤30	PASS
2DH5	Ant1	2402	-1.92	≤20.97	PASS
		2441	-2.44	≤20.97	PASS
		2480	-3.58	≤20.97	PASS

### Test Graphs

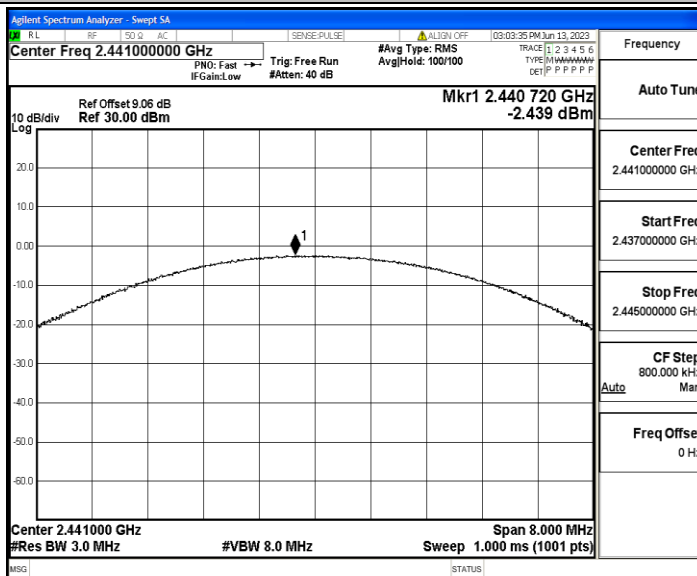




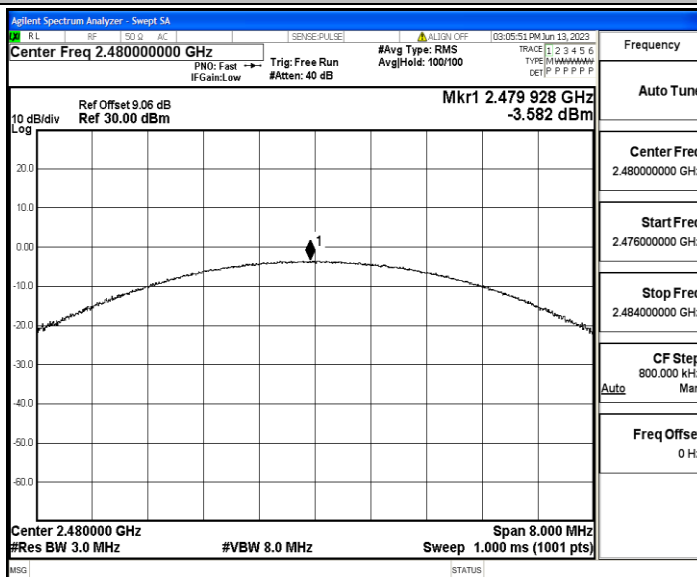
2DH5\_Ant1\_2402



2DH5\_Ant1\_2441



2DH5\_Ant1\_2480

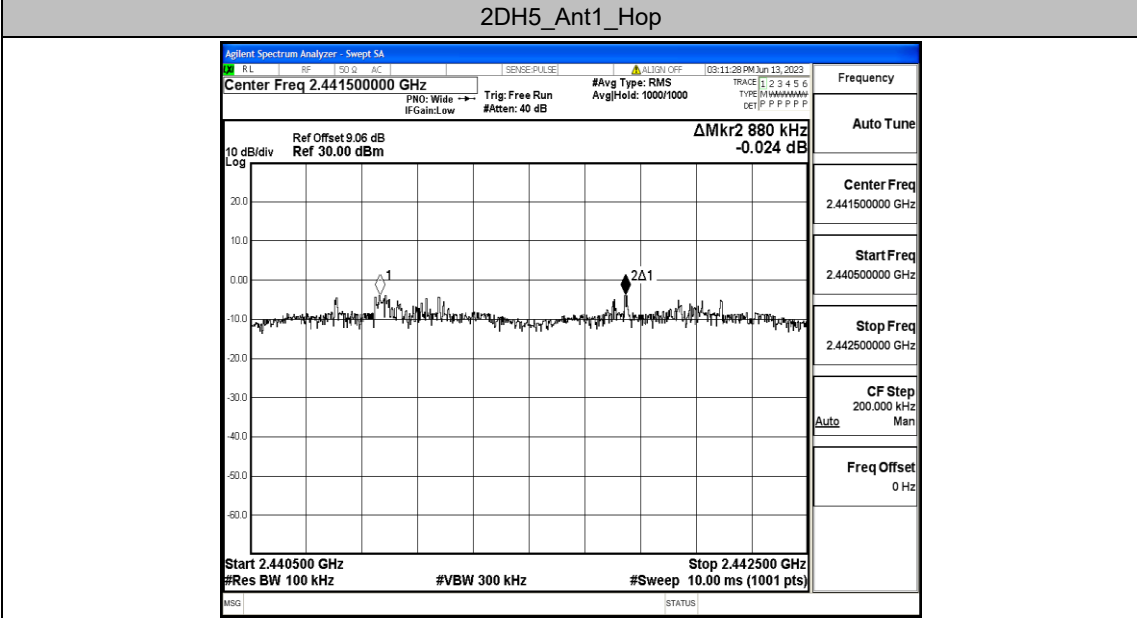
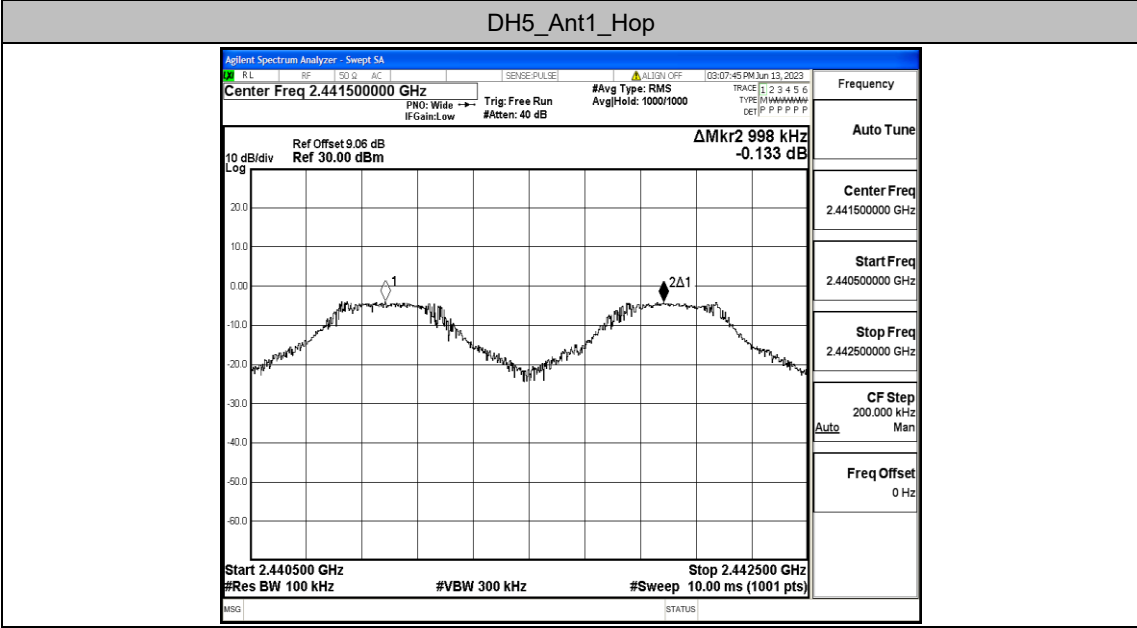


## Appendix D: Carrier frequency separation

### Test Result

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.998	$\geq 0.921$	PASS
2DH5	Ant1	Hop	0.88	$\geq 0.872$	PASS

### Test Graphs

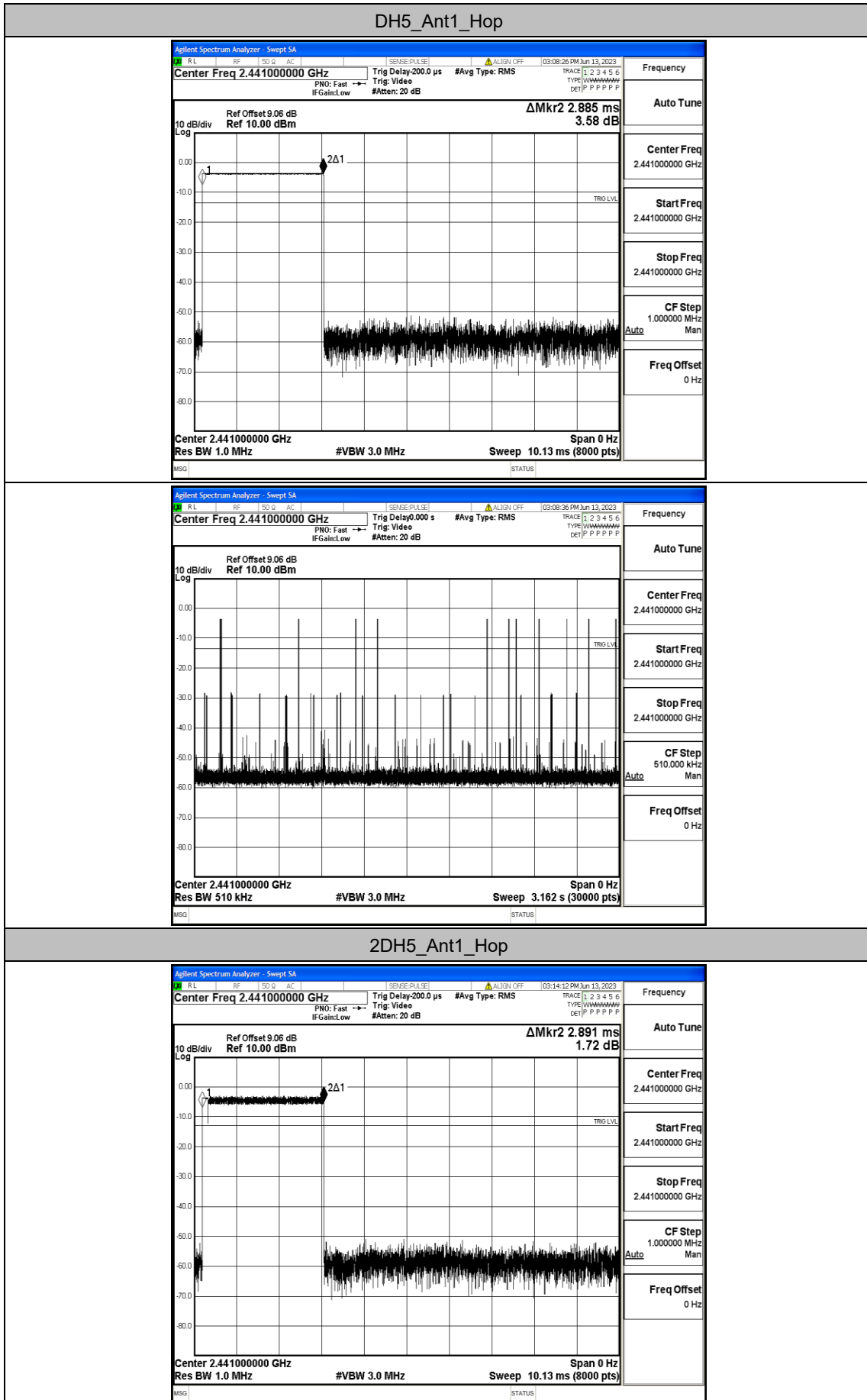


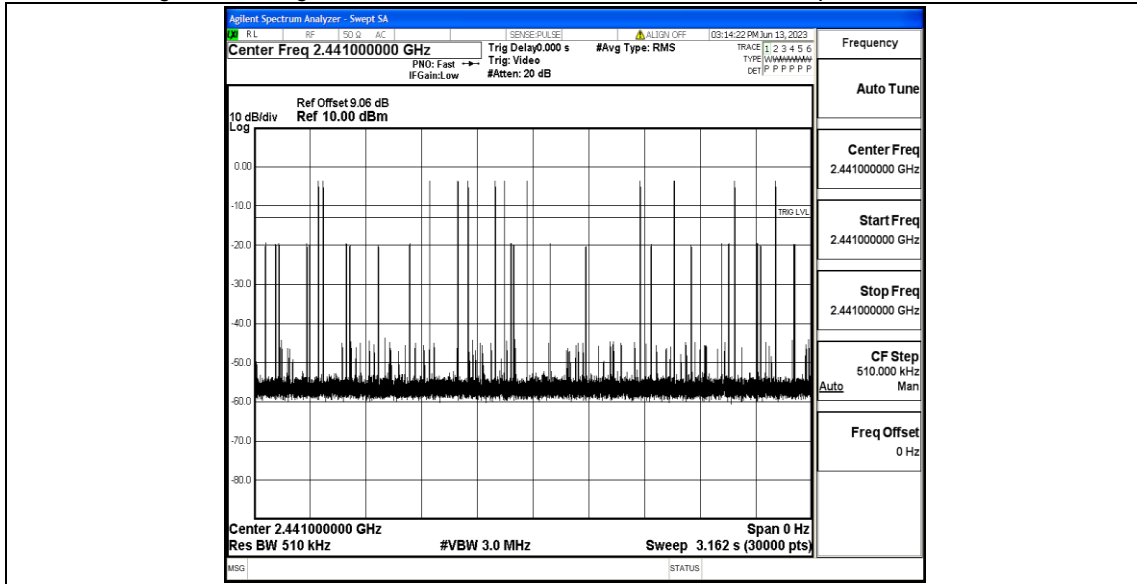
## Appendix E: Time of occupancy

### Test Result

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.885	130	0.375	≤0.4	PASS
2DH5	Ant1	Hop	2.891	130	0.376	≤0.4	PASS

### Test Graphs



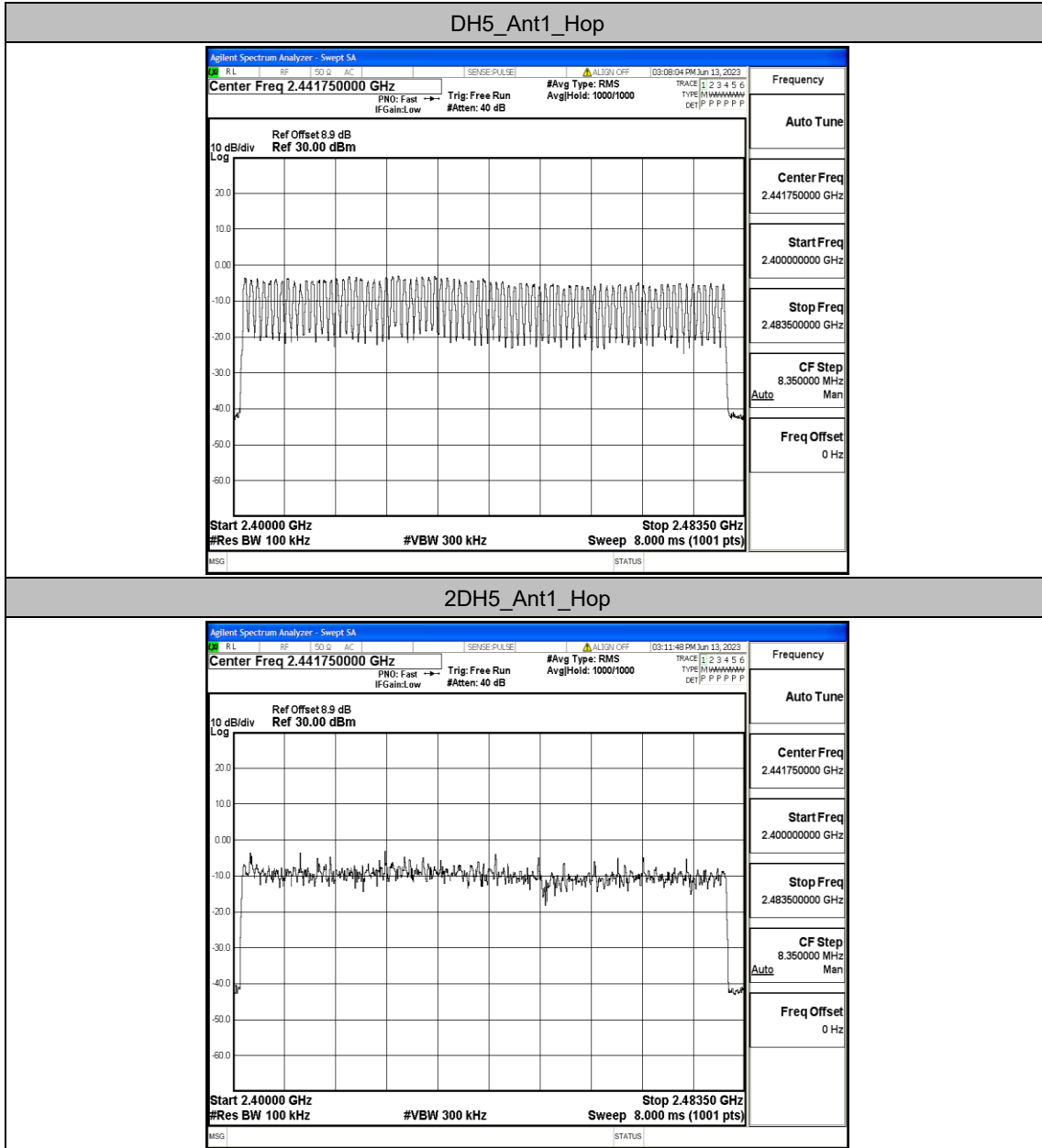


## Appendix F: Number of hopping channels

### Test Result

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

### Test Graphs





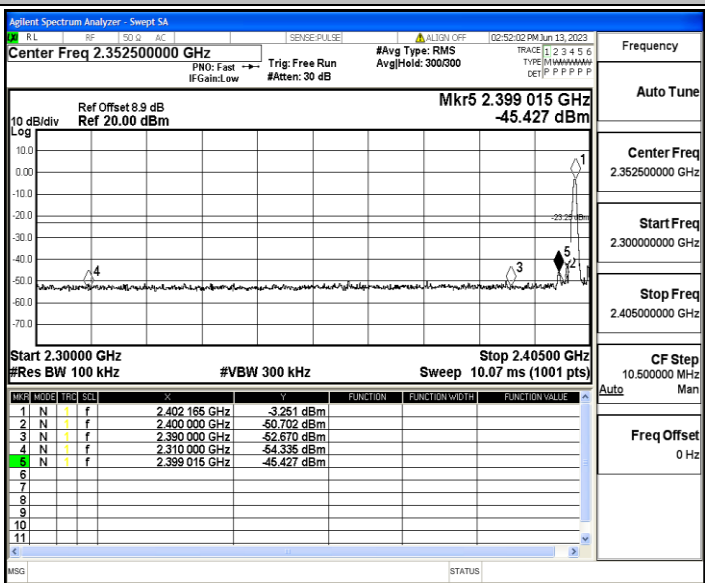
## Appendix G: Band edge measurements

### Test Result

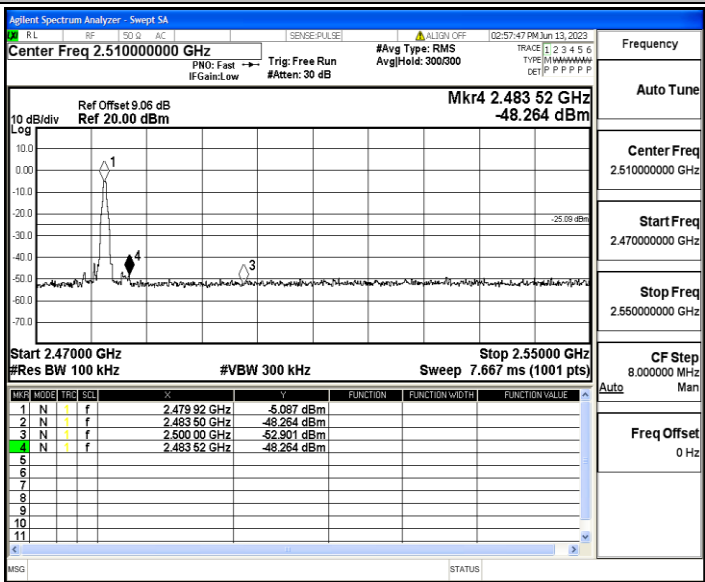
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-3.25	-45.43	≤-23.25	PASS
		High	2480	-5.09	-48.26	≤-25.09	PASS
		Low	Hop_2402	-4.29	-50.68	≤-24.29	PASS
		High	Hop_2480	-5.10	-48.99	≤-25.1	PASS
2DH5	Ant1	Low	2402	-3.11	-46.48	≤-23.11	PASS
		High	2480	-4.83	-48.89	≤-24.83	PASS
		Low	Hop_2402	-4.55	-50.45	≤-24.55	PASS
		High	Hop_2480	-6.20	-49.59	≤-26.2	PASS

Test Graphs

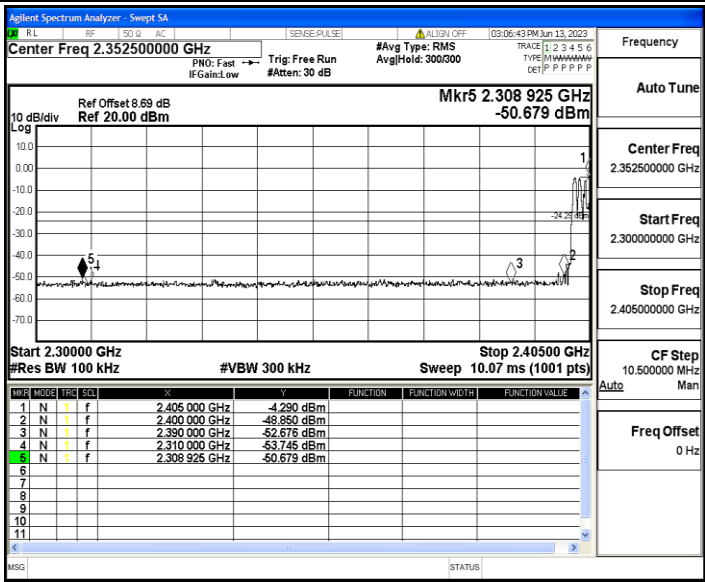
DH5\_Ant1\_Low\_2402



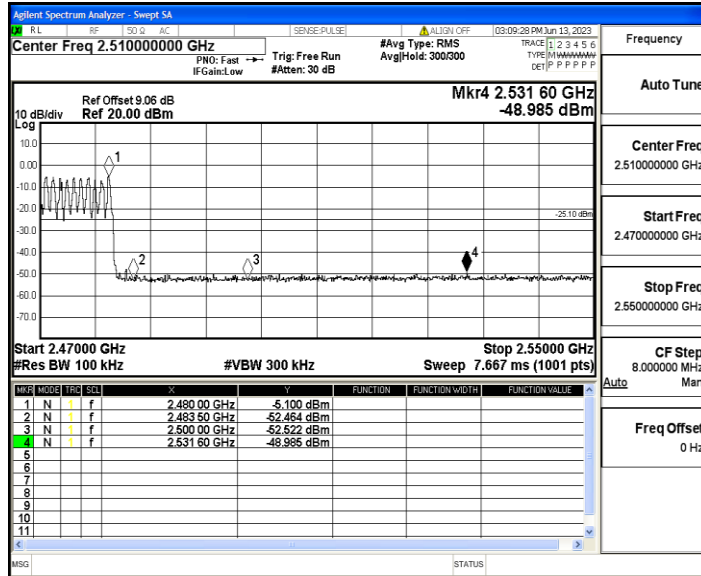
DH5\_Ant1\_High\_2480



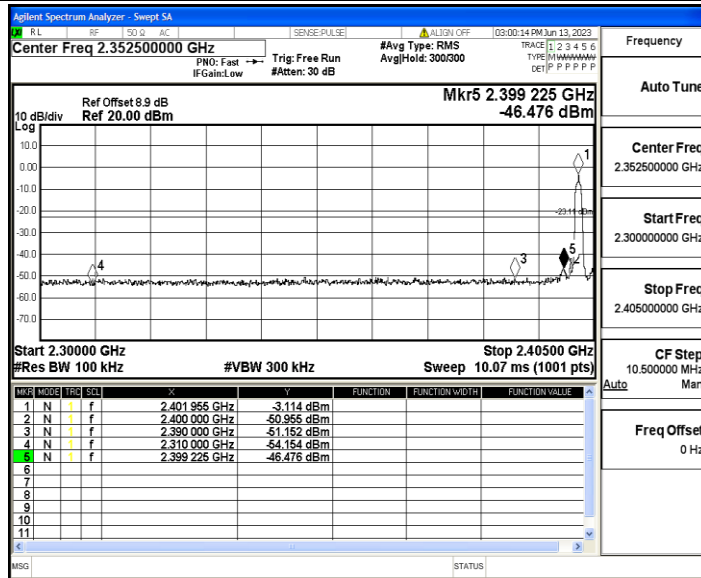
DH5\_Ant1\_Low\_Hop\_2402



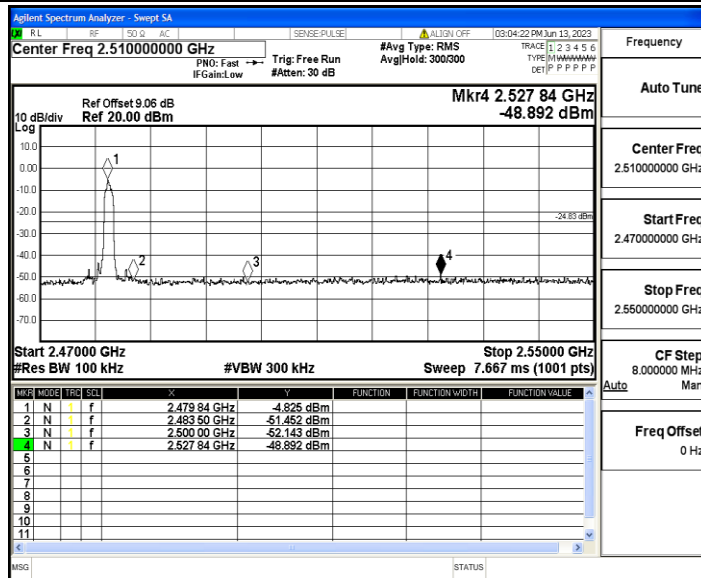
DH5\_Ant1\_High\_Hop\_2480



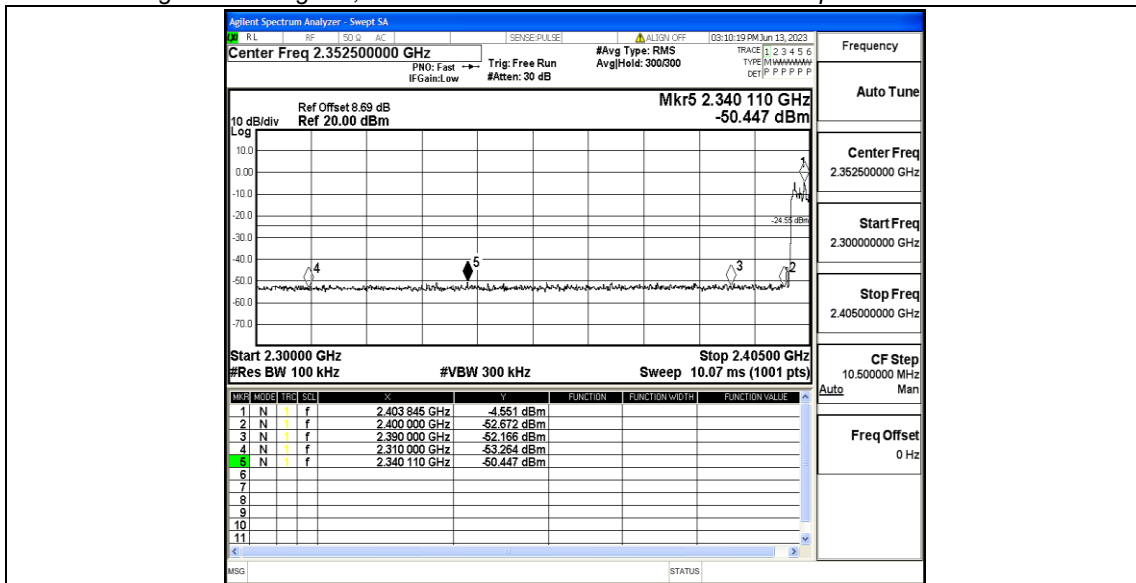
2D5\_Ant1\_Low\_2402



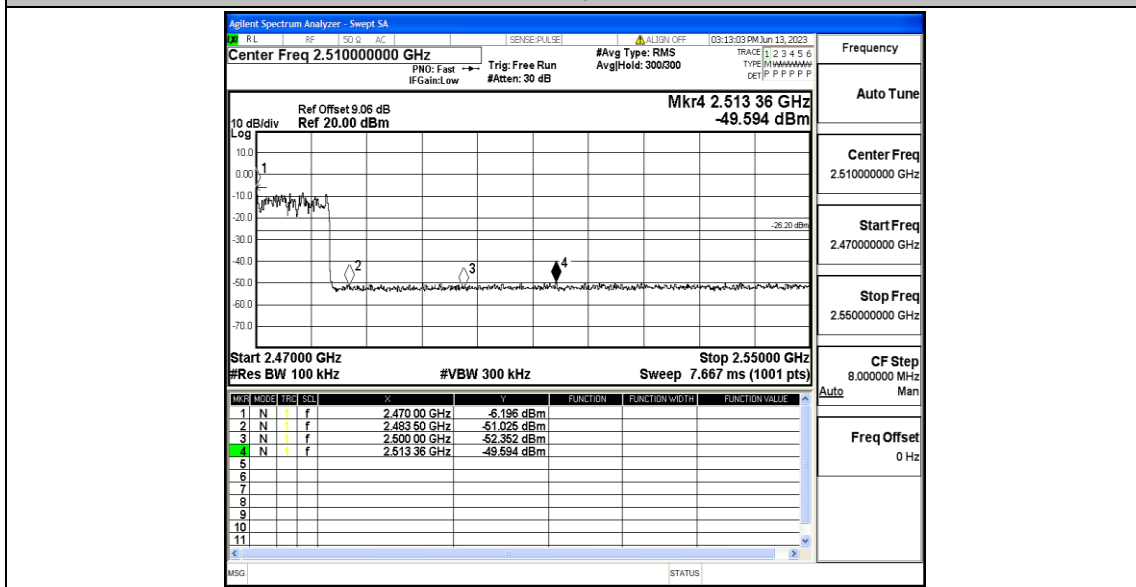
2D5\_Ant1\_High\_2480



2D5\_Ant1\_Low\_Hop\_2402



2DH5\_Ant1\_High\_Hop\_2480

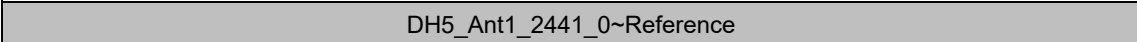
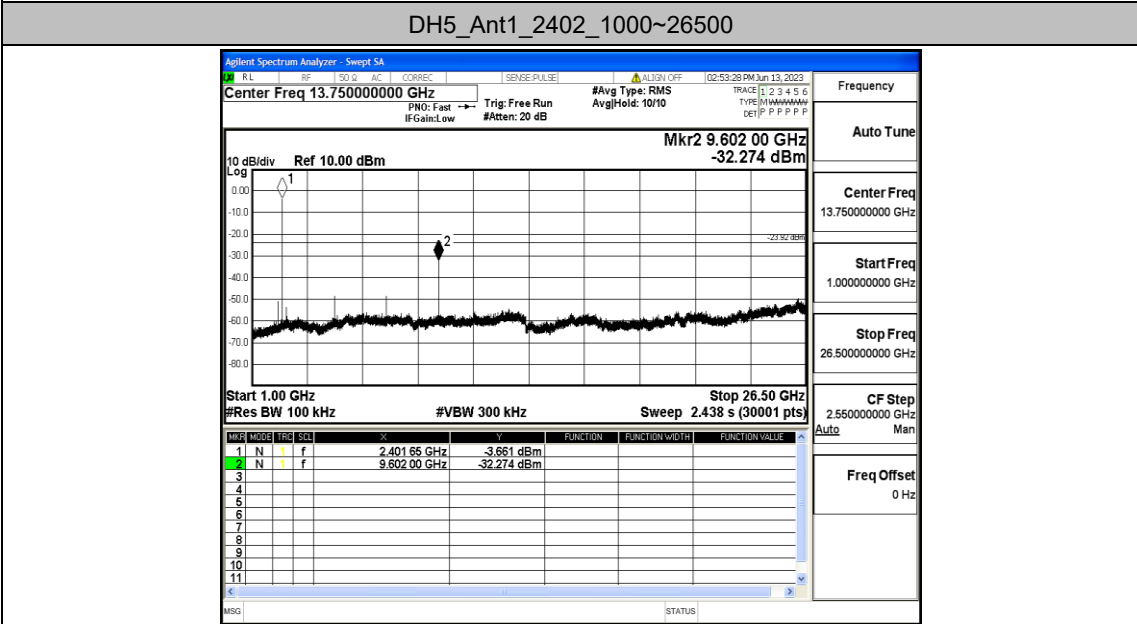
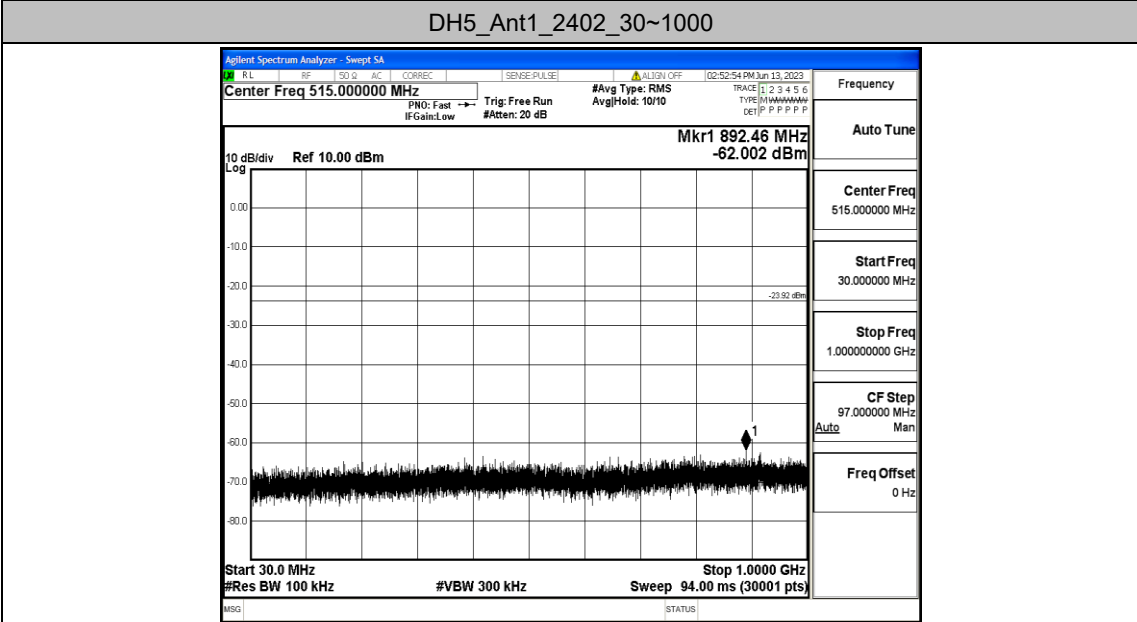
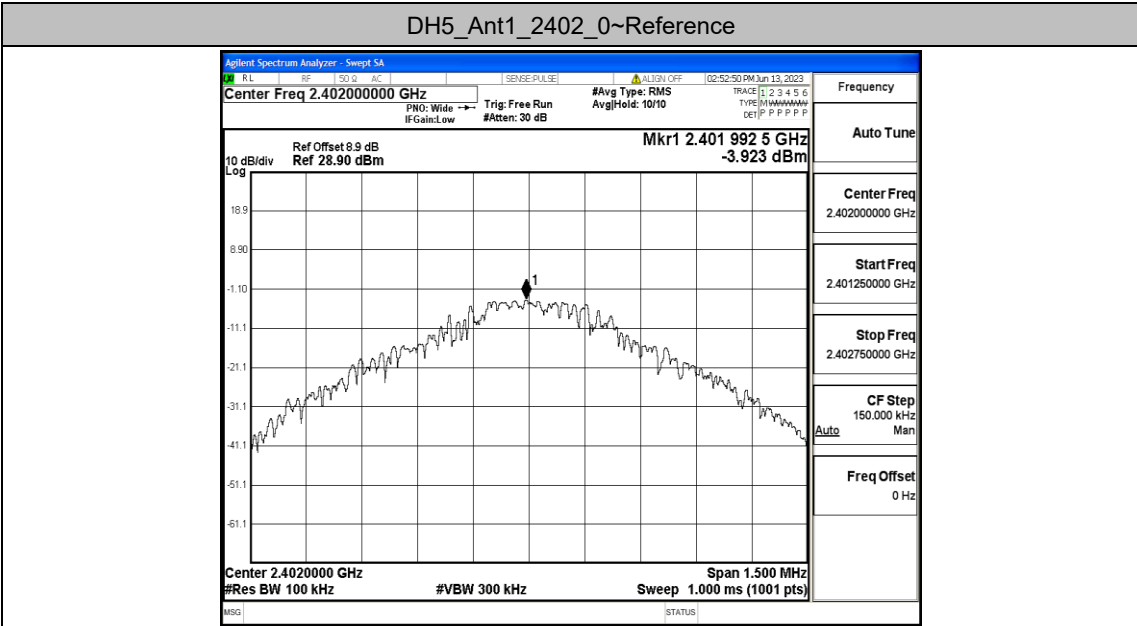


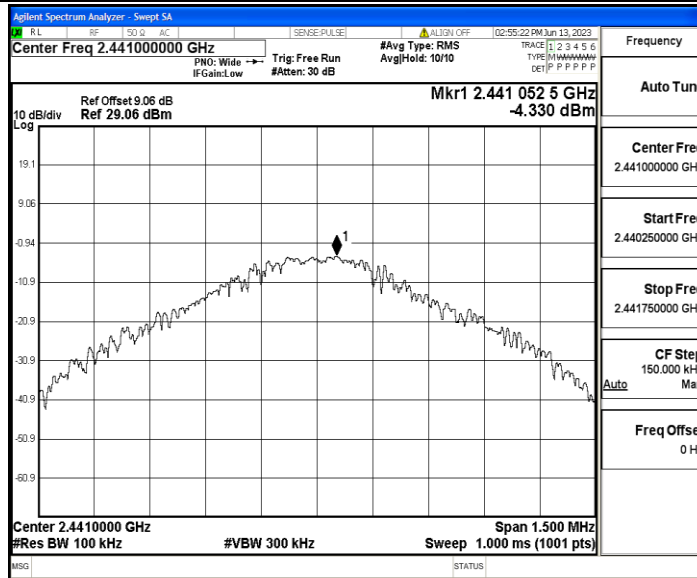
## Appendix H: Conducted Spurious Emission

### Test Result

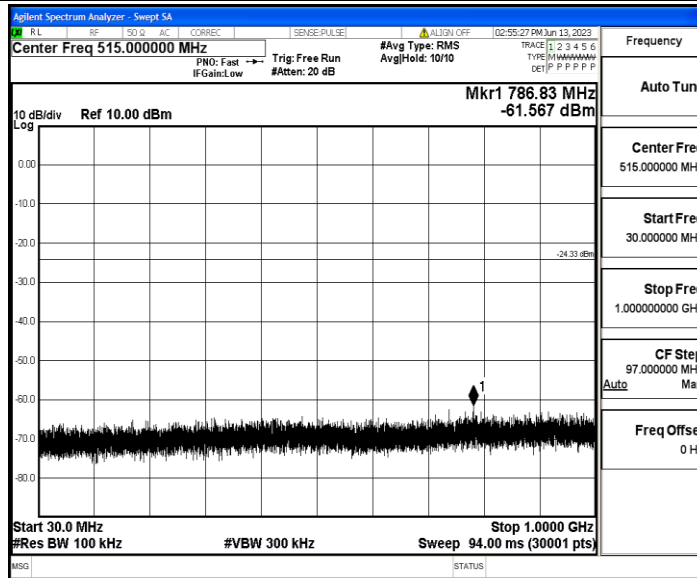
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-3.92	-3.92	---	PASS
			30~1000	-3.92	-62	≤-23.92	PASS
			1000~26500	-3.92	-32.27	≤-23.92	PASS
		2441	Reference	-4.33	-4.33	---	PASS
			30~1000	-4.33	-61.57	≤-24.33	PASS
			1000~26500	-4.33	-31.78	≤-24.33	PASS
		2480	Reference	-5.65	-5.65	---	PASS
			30~1000	-5.65	-63.08	≤-25.65	PASS
			1000~26500	-5.65	-33.3	≤-25.65	PASS
2DH5	Ant1	2402	Reference	-3.49	-3.49	---	PASS
			30~1000	-3.49	-63.01	≤-23.49	PASS
			1000~26500	-3.49	-32.17	≤-23.49	PASS
		2441	Reference	-7.00	-7.00	---	PASS
			30~1000	-7.00	-62.32	≤-27	PASS
			1000~26500	-7.00	-31.88	≤-27	PASS
		2480	Reference	-9.62	-9.62	---	PASS
			30~1000	-9.62	-63.28	≤-29.62	PASS
			1000~26500	-9.62	-33.29	≤-29.62	PASS

### Test Graphs

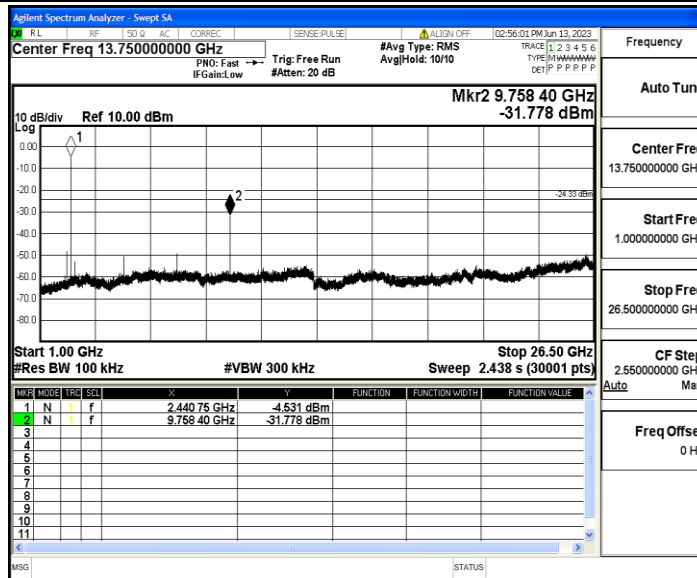




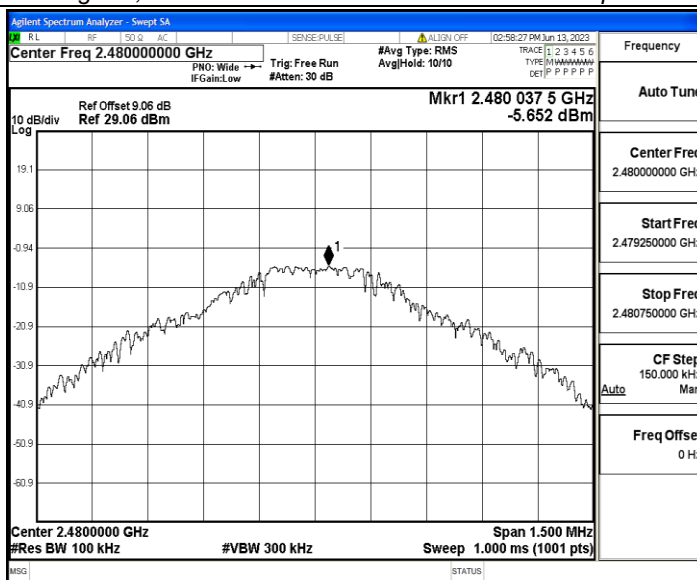
DH5\_Ant1\_2441\_30~1000



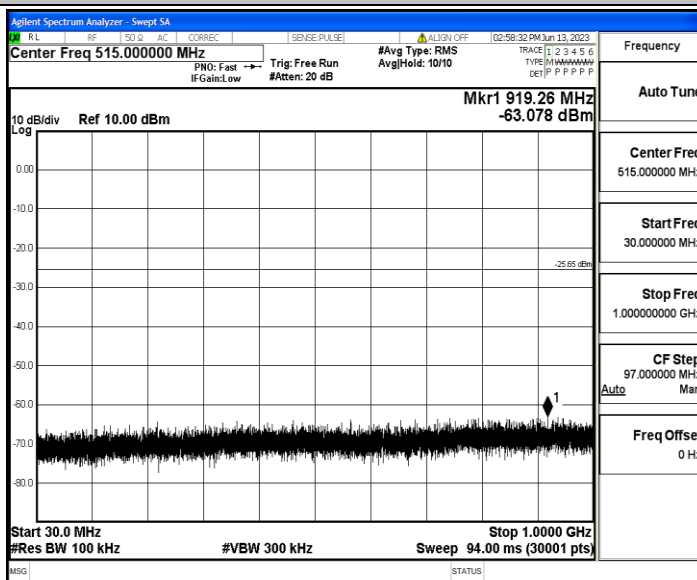
DH5\_Ant1\_2441\_1000~26500



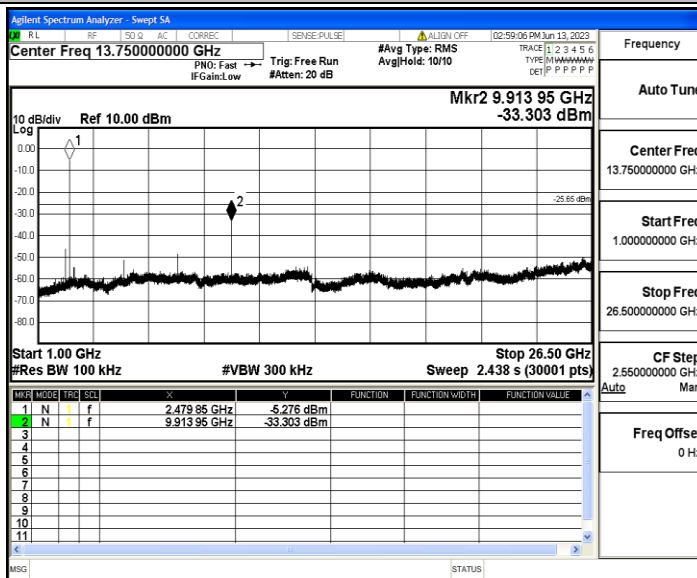
DH5\_Ant1\_2480\_0~Reference



DH5\_Ant1\_2480\_30~1000

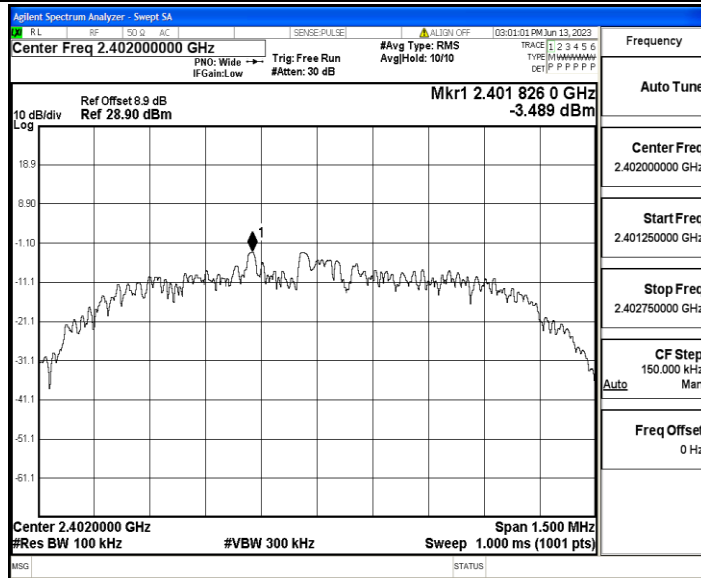


DH5\_Ant1\_2480\_1000~26500

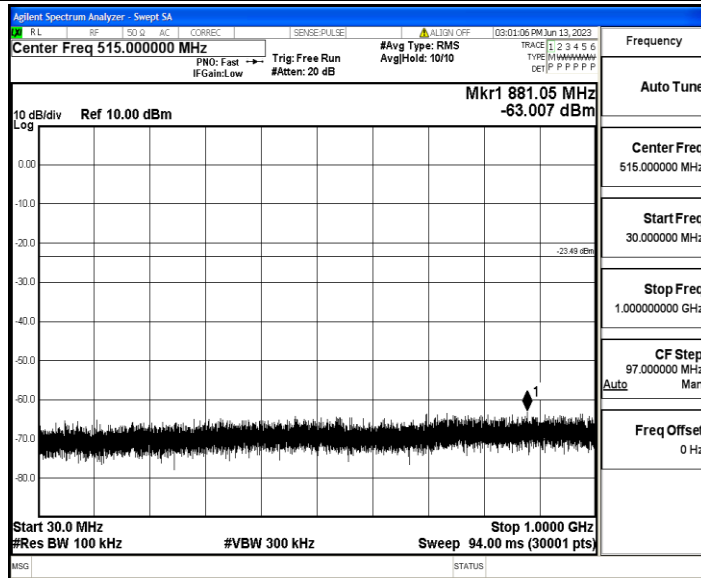


2DH5\_Ant1\_2402\_0~Reference

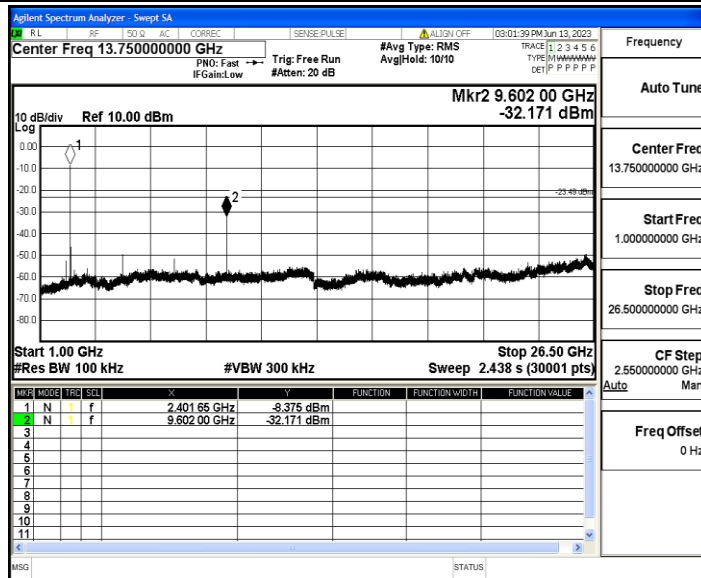




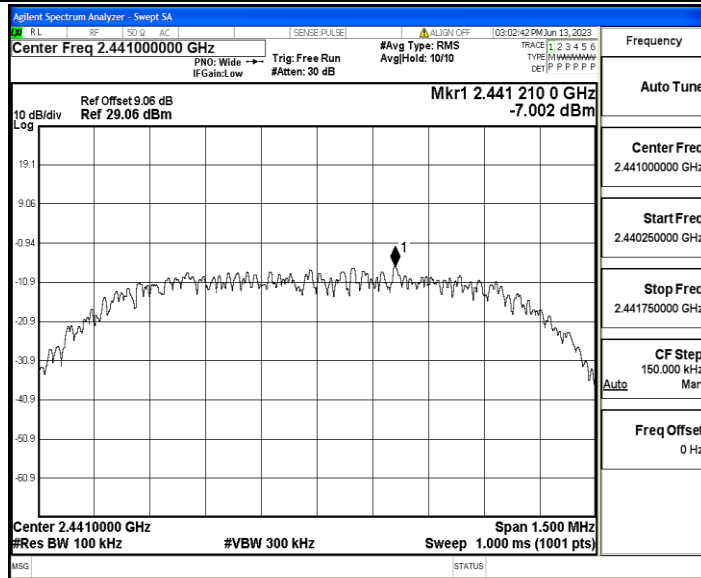
2DH5\_Ant1\_2402\_30~1000



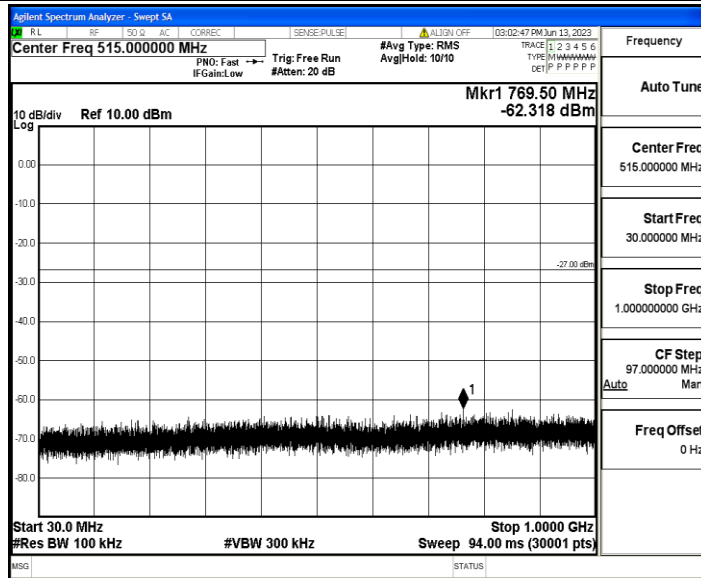
2DH5\_Ant1\_2402\_1000~26500



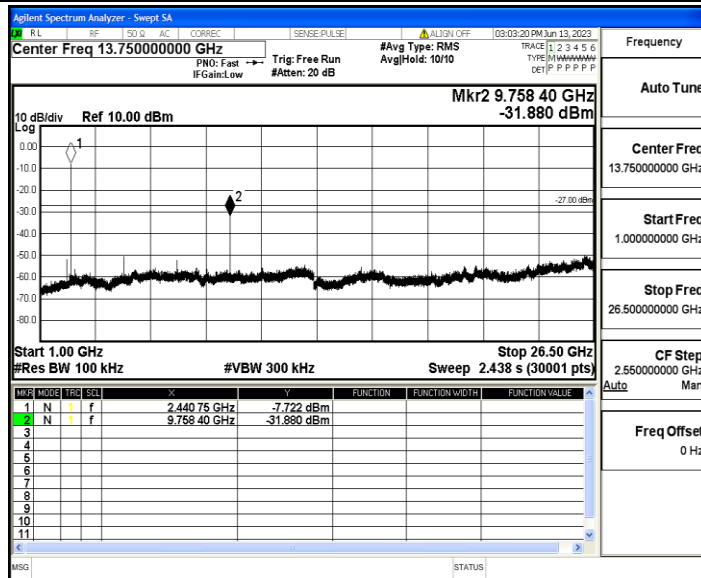
2DH5\_Ant1\_2441\_0~Reference



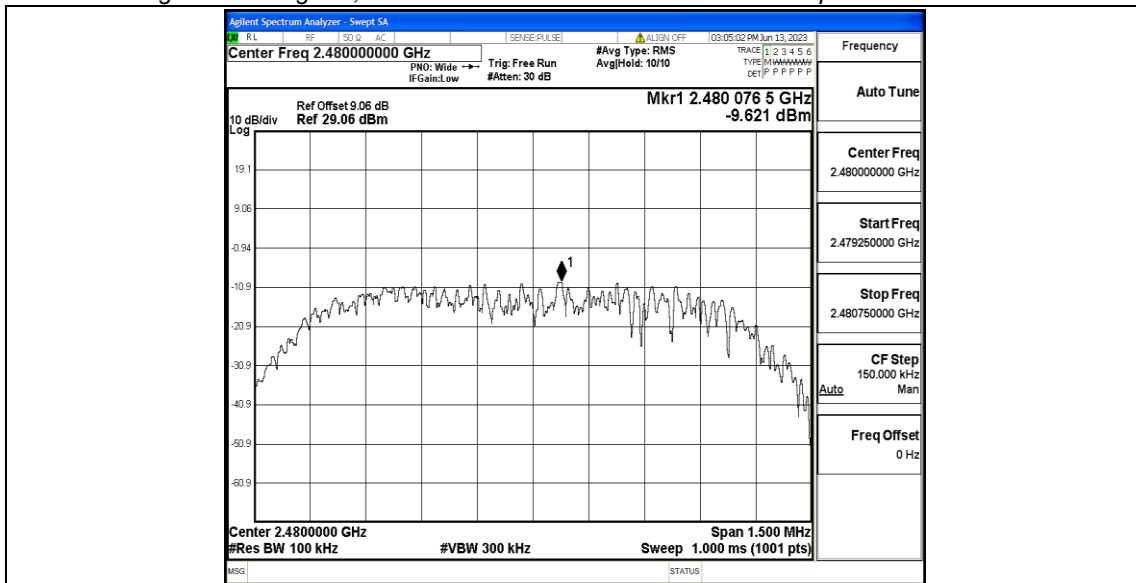
2DH5\_Ant1\_2441\_30~1000



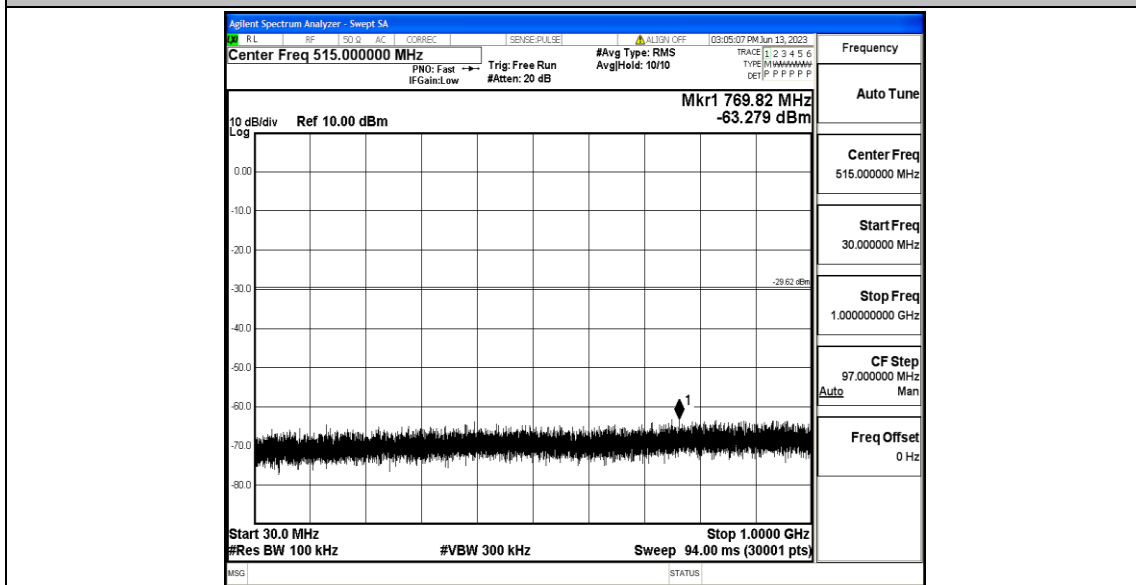
2DH5\_Ant1\_2441\_1000~26500



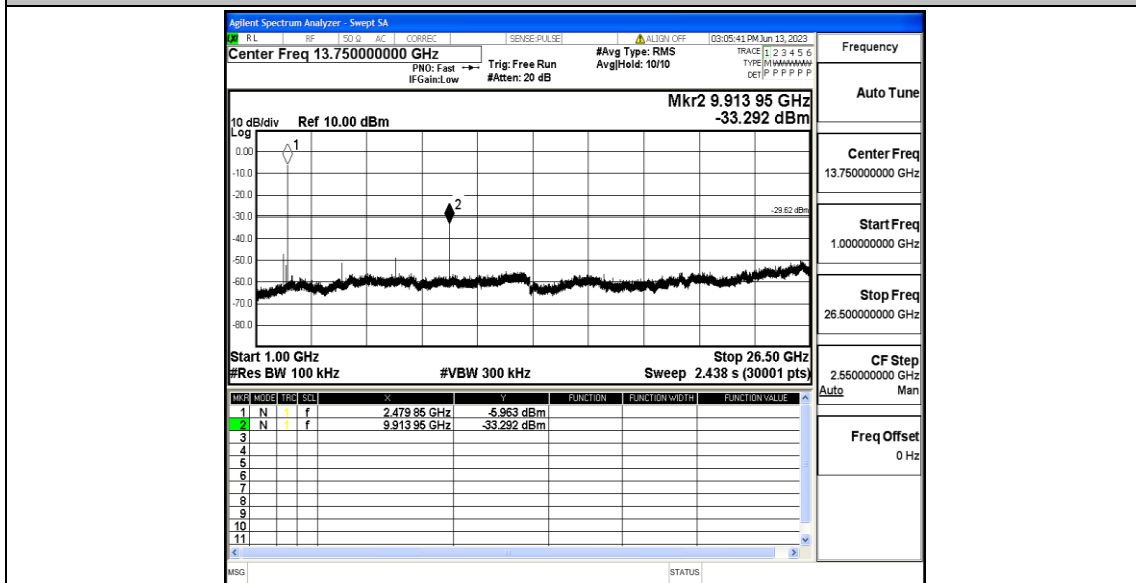
2DH5\_Ant1\_2480\_0~Reference



2DH5\_Ant1\_2480\_30~1000



2DH5\_Ant1\_2480\_1000~26500

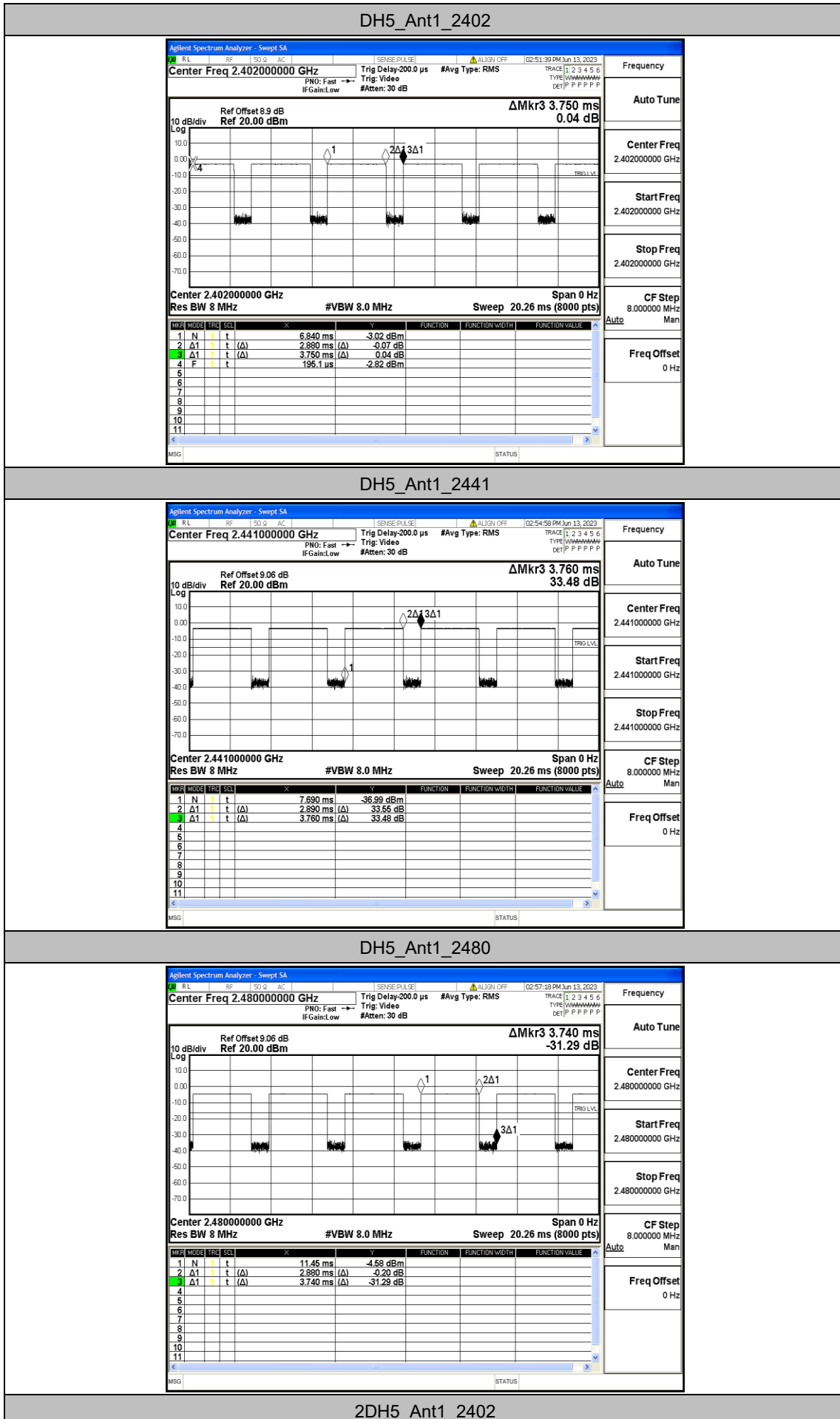


## Appendix I: Duty Cycle

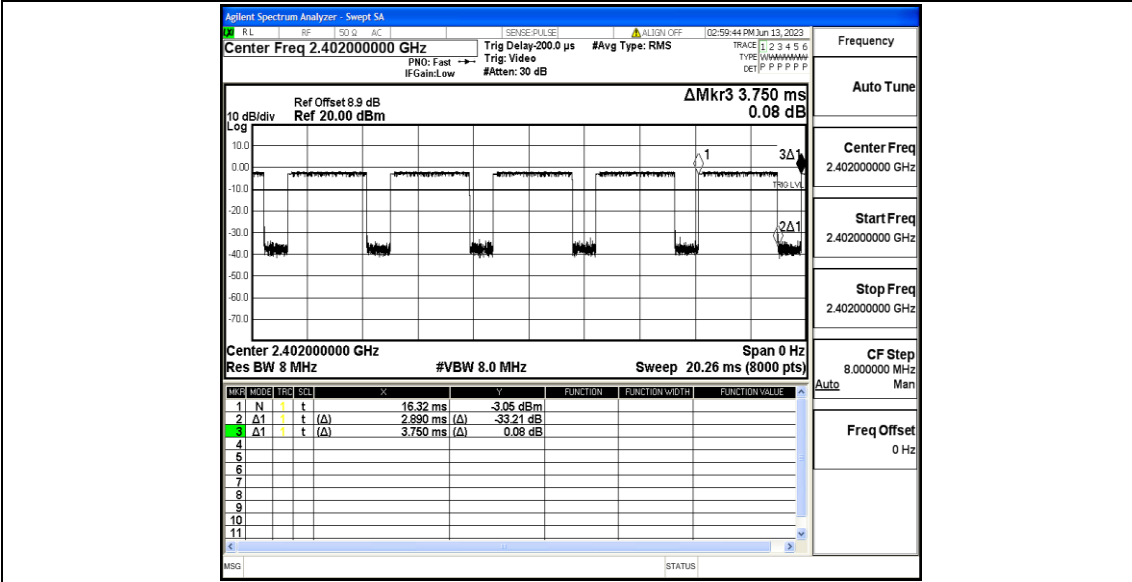
### Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T[kHz]
DH5	Ant1	2402	2.88	3.75	76.80	0.35
		2441	2.89	3.76	76.86	0.35
		2480	2.88	3.74	77.01	0.35
2DH5	Ant1	2402	2.89	3.75	77.07	0.35
		2441	2.89	3.75	77.07	0.35
		2480	2.89	3.75	77.07	0.35

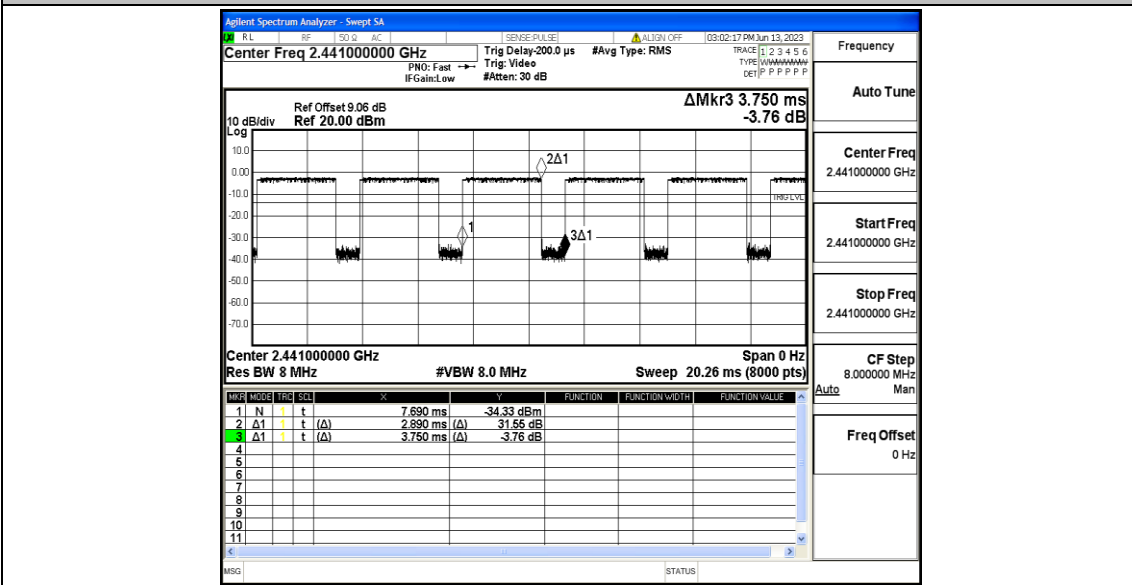
Test Graphs



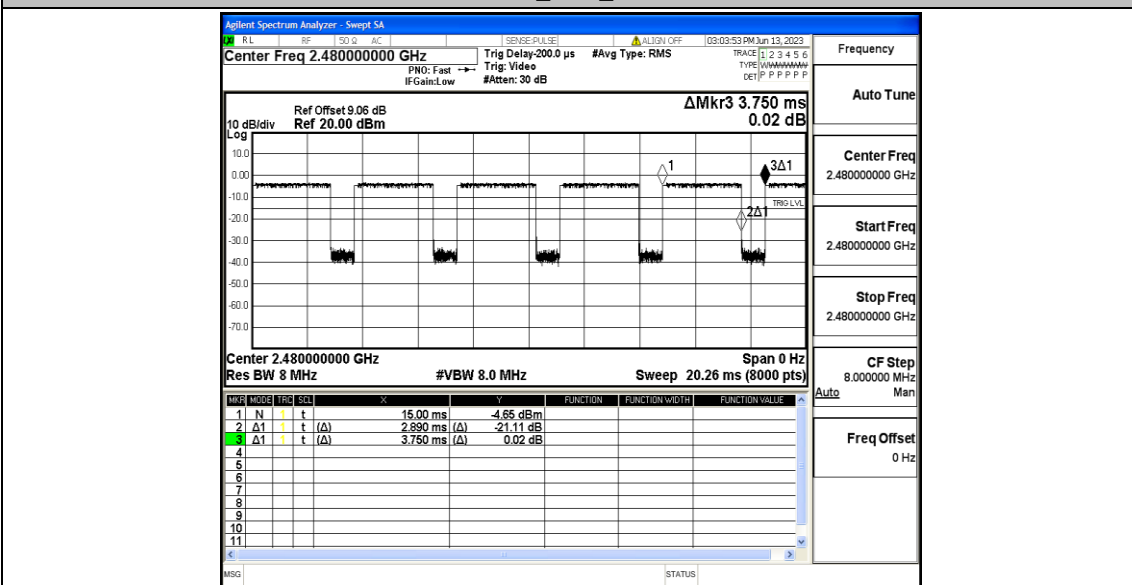
2DH5\_Ant1\_2402



2DH5\_Ant1\_2441



2DH5\_Ant1\_2480



## Appendix J: Emissions in Restricted Bands

### Test Result

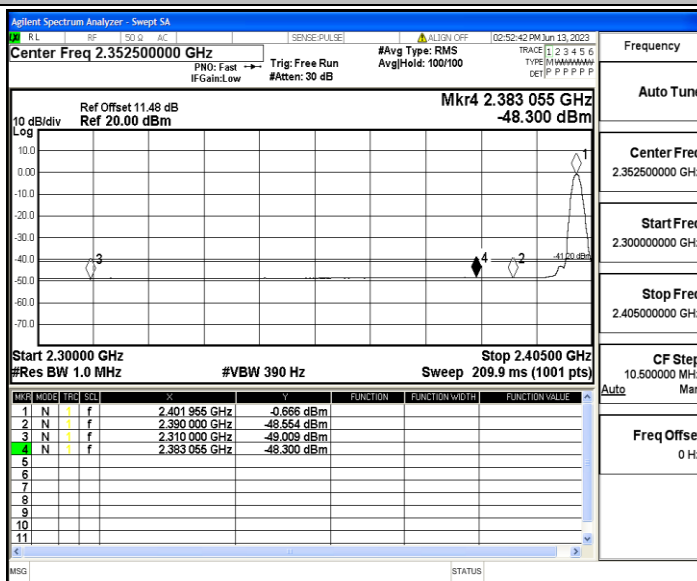
TestMode	Antenna	ChName	Channel	Detector	Freq(MHz)	Result(dBm)	Limit(dBm)	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-49.01	≤-41.20	PASS
				AV	2383.055	-48.3	≤-41.20	PASS
				AV	2390.000	-48.55	≤-41.20	PASS
				Peak	2310.000	-42.39	≤-21.20	PASS
				Peak	2381.585	-38.17	≤-21.20	PASS
				Peak	2390.000	-42.19	≤-21.20	PASS
		High	2480	AV	2483.500	-45.75	≤-41.20	PASS
				AV	2483.520	-45.75	≤-41.20	PASS
				AV	2500.000	-47.88	≤-41.20	PASS
				Peak	2483.500	-38.2	≤-21.20	PASS
				Peak	2494.320	-37.79	≤-21.20	PASS
				Peak	2500.000	-40.4	≤-21.20	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-48.81	≤-41.20	PASS
				AV	2373.605	-48.34	≤-41.20	PASS
				AV	2390.000	-48.52	≤-41.20	PASS
				Peak	2310.000	-40.21	≤-21.20	PASS
				Peak	2353.760	-38.24	≤-21.20	PASS
				Peak	2390.000	-40.1	≤-21.20	PASS
		High	2480	AV	2483.500	-46.65	≤-41.20	PASS
				AV	2483.520	-46.65	≤-41.20	PASS
				AV	2500.000	-47.82	≤-41.20	PASS
				Peak	2483.500	-38.7	≤-21.20	PASS
				Peak	2483.600	-38.41	≤-21.20	PASS
				Peak	2500.000	-40.68	≤-21.20	PASS

Note:

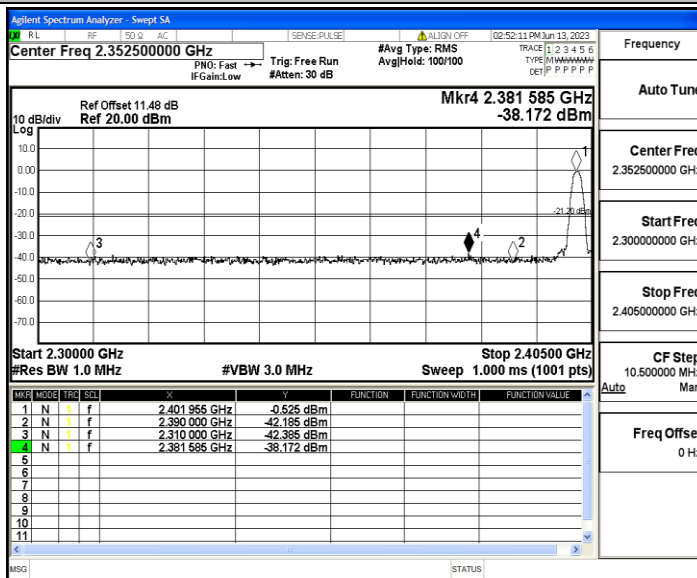
1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

### Test Graphs

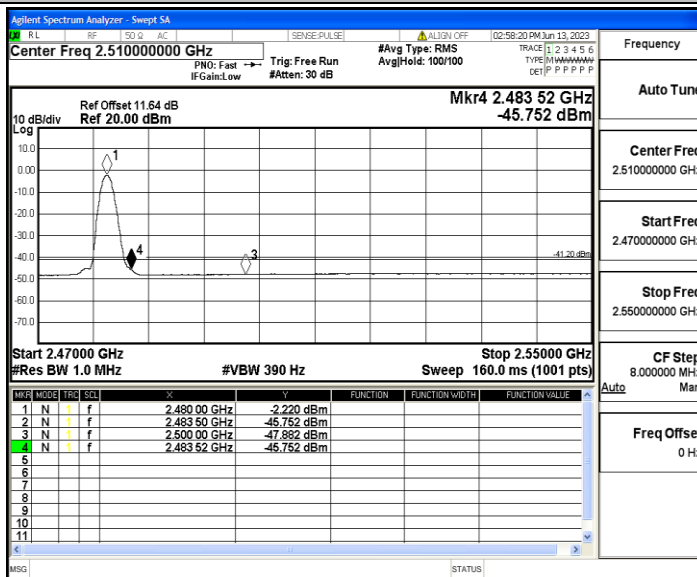
DH5\_Ant1\_Low\_2402\_AV



DH5\_Ant1\_Low\_2402\_Peak

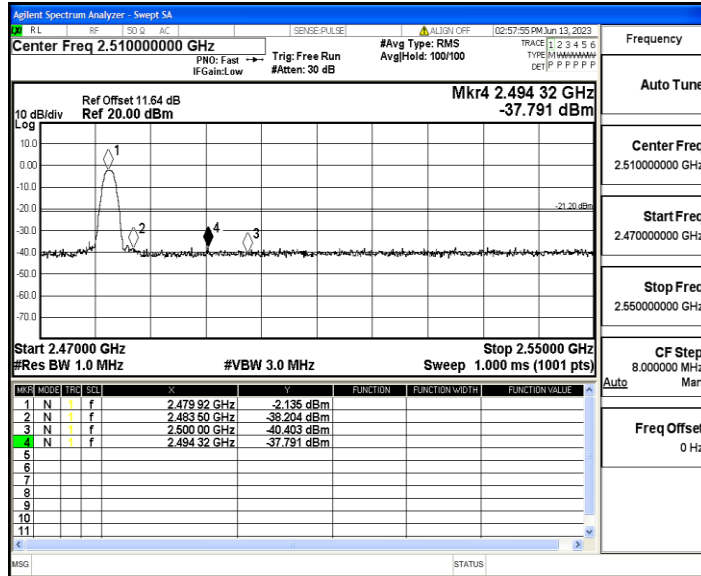


DH5\_Ant1\_High\_2480\_AV

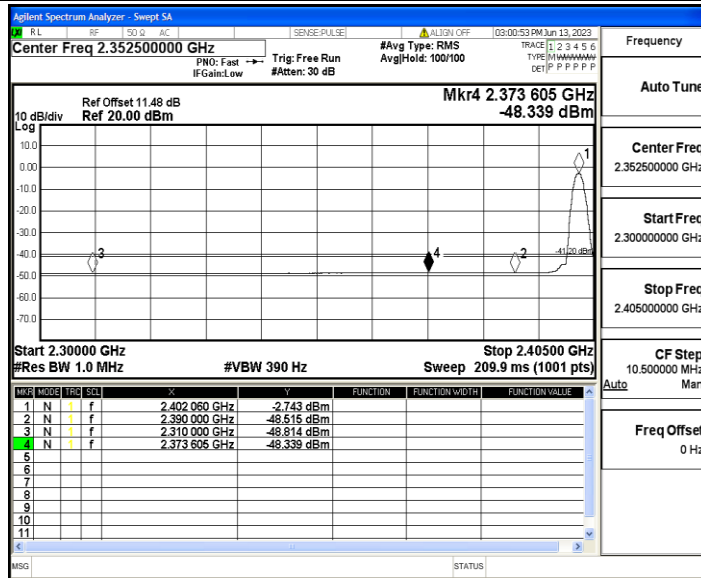


DH5\_Ant1\_High\_2480\_Peak

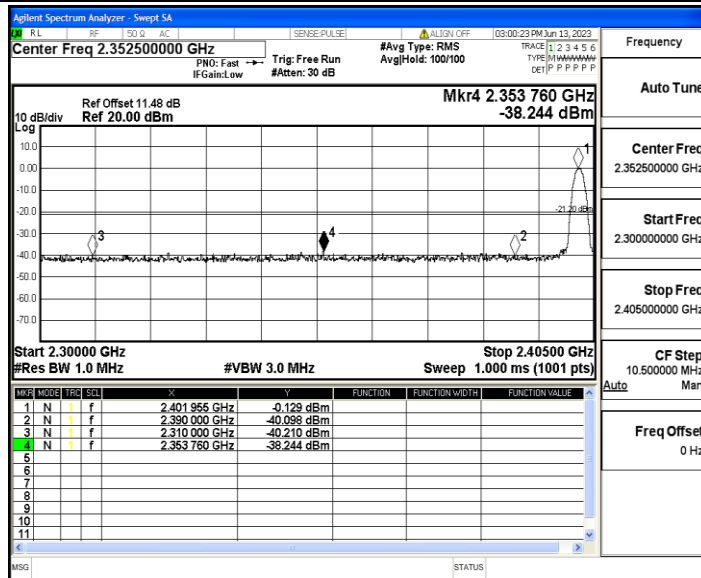




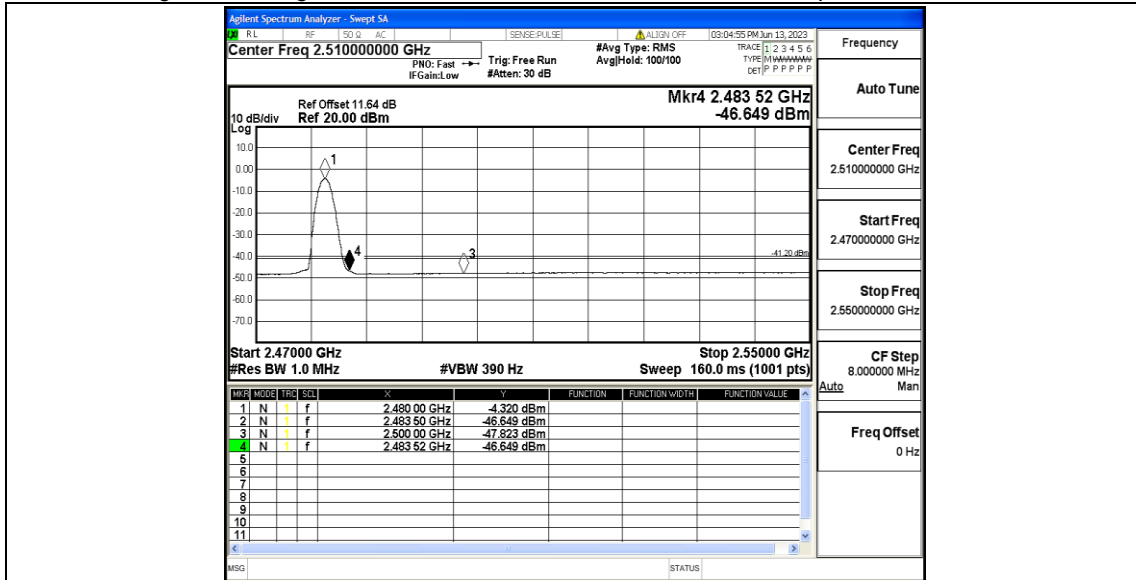
2DH5\_Ant1\_Low\_2402\_AV



2DH5\_Ant1\_Low\_2402\_Peak



2DH5\_Ant1\_High\_2480\_AV



2DH5\_Ant1\_High\_2480\_Peak

