

Appendix A

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

Product Name: True Wireless Earbuds

Trade Mark: Tranya

Test Model: T10-B

FCC ID: 2A4AX-T10B

Environmental Conditions

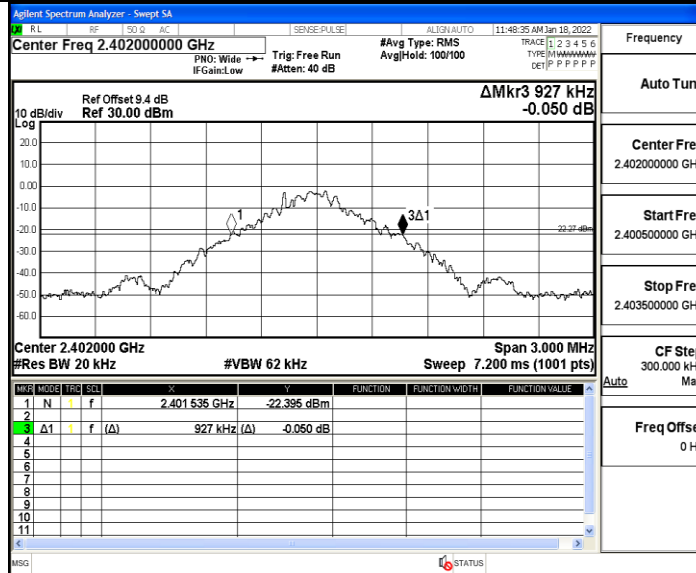
Temperature:	22.8° C
Relative Humidity:	56%
ATM Pressure:	100.0 kPa
Test Engineer:	Nancy Li
Supervised by:	Hugo Chen

A.1 20 dB Bandwidth

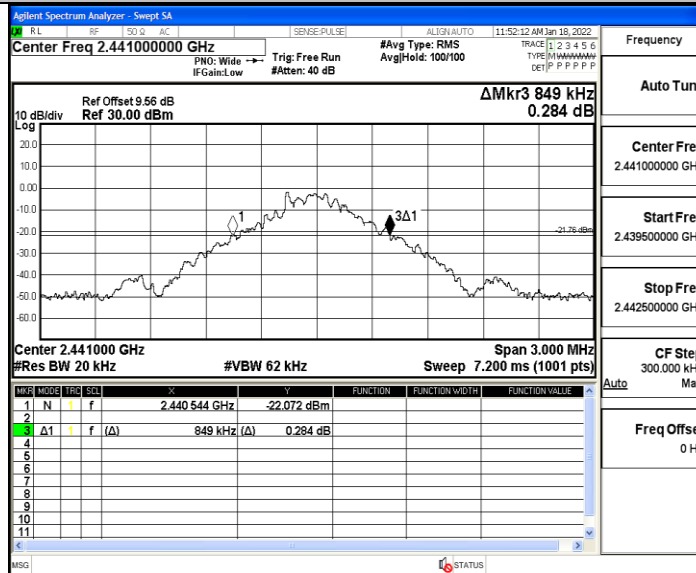
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.927	2401.535	2402.462	---	PASS
		2441	0.849	2440.544	2441.393	---	PASS
		2480	0.924	2479.532	2480.456	---	PASS
2DH5	Ant1	2402	1.200	2401.394	2402.594	---	PASS
		2441	1.323	2440.331	2441.654	---	PASS
		2480	1.332	2479.325	2480.657	---	PASS
3DH5	Ant1	2402	1.338	2401.316	2402.654	---	PASS
		2441	1.233	2440.361	2441.594	---	PASS
		2480	1.236	2479.358	2480.594	---	PASS

Test Graph

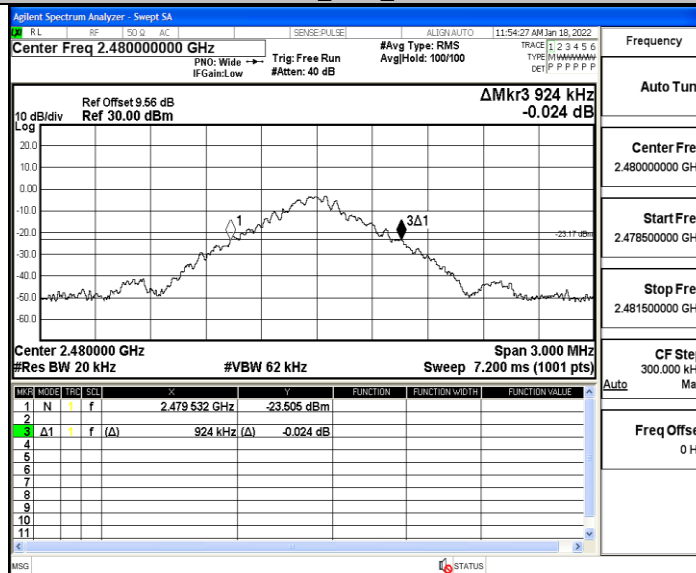
DH5_Ant1_2402



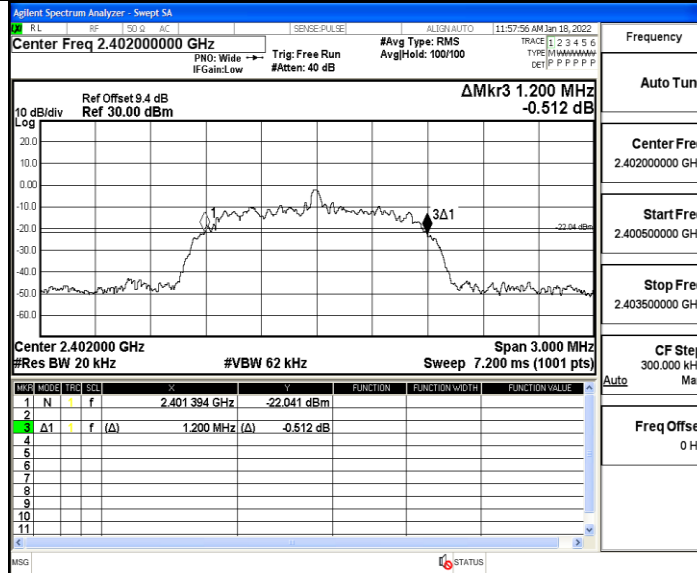
DH5_Ant1_2441



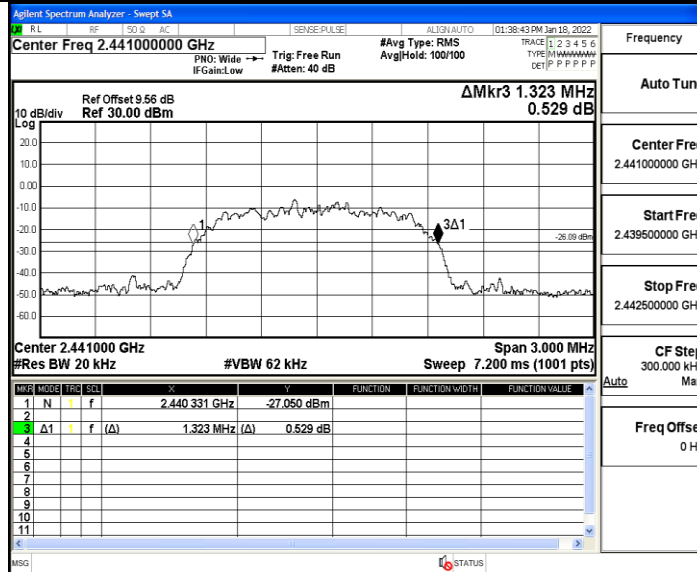
DH5_Ant1_2480



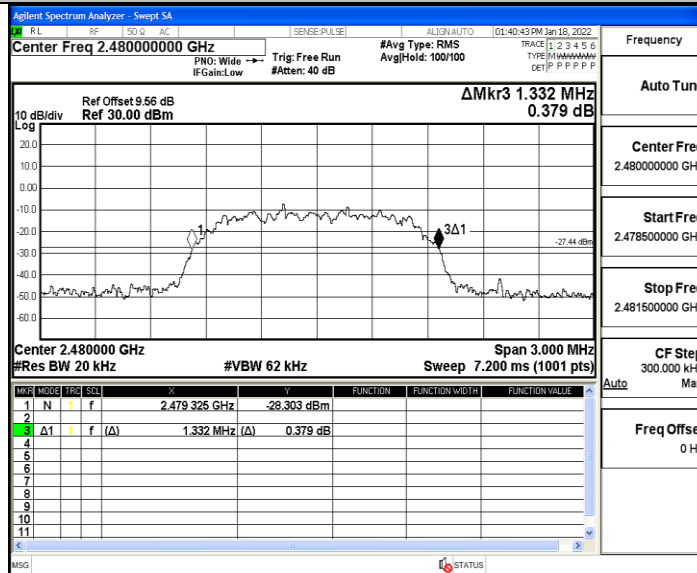
2DH5_Ant1_2402



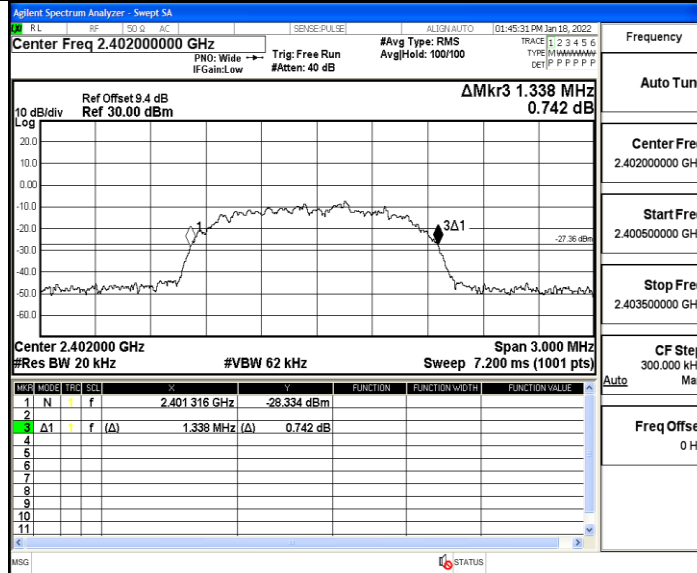
2DH5_Ant1_2441



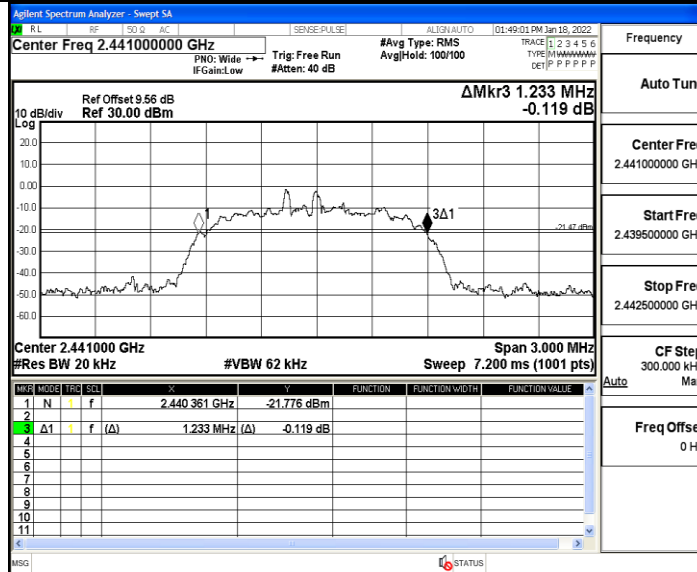
2DH5_Ant1_2480



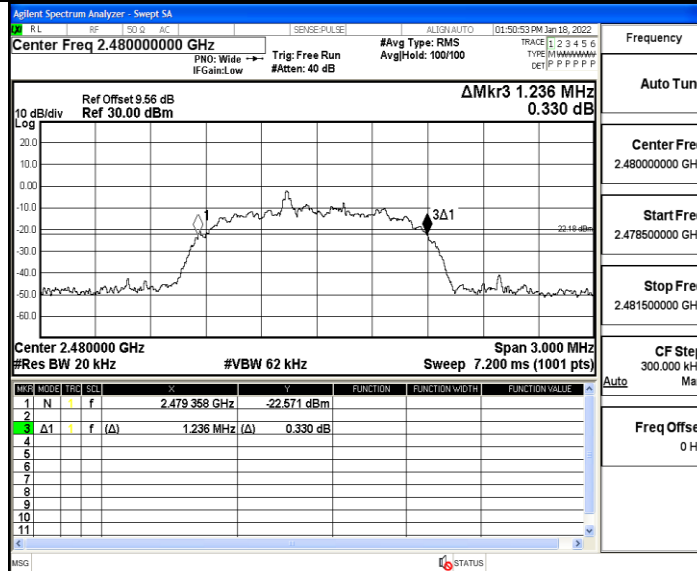
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480

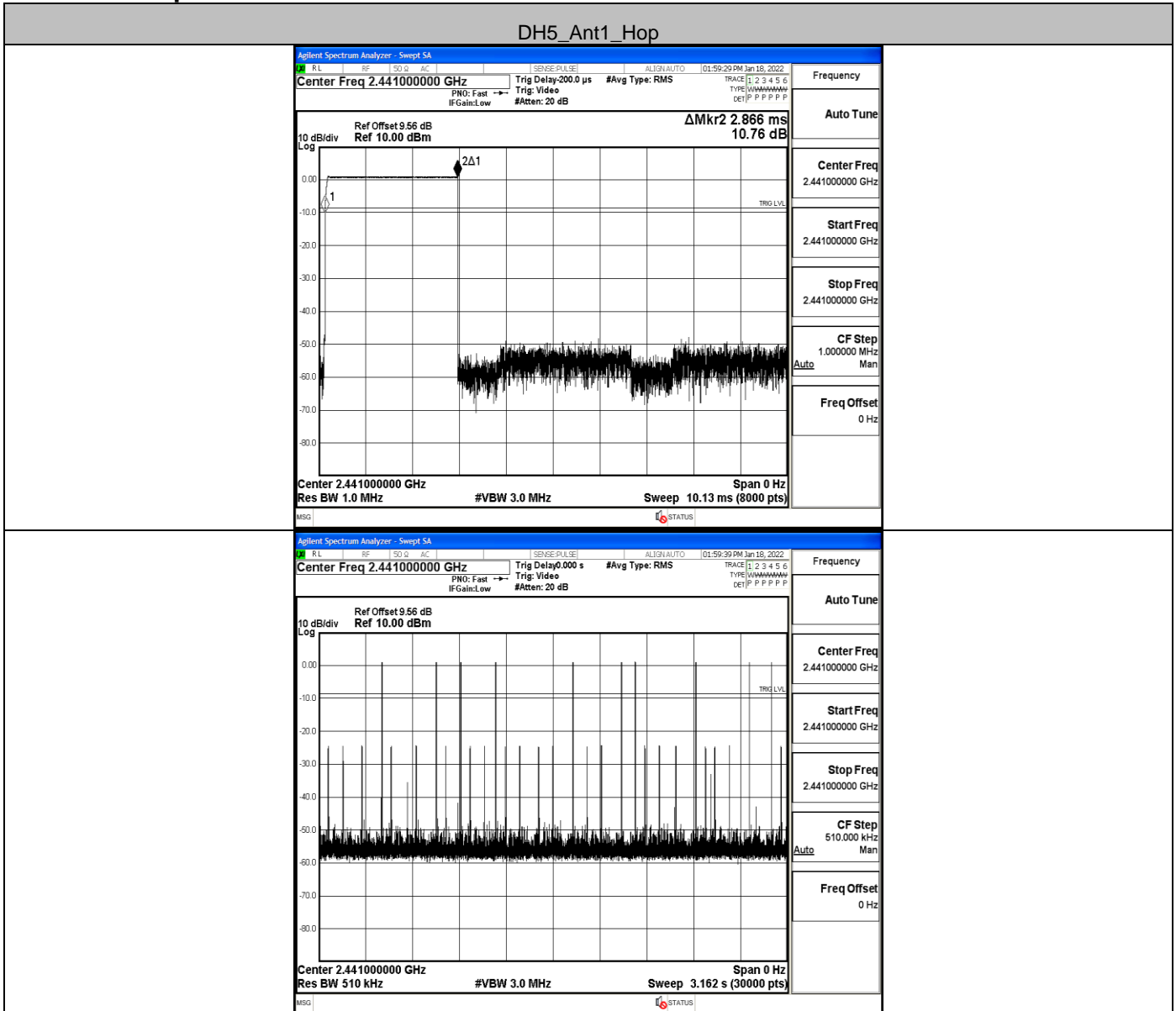


A.2 Dwell Time

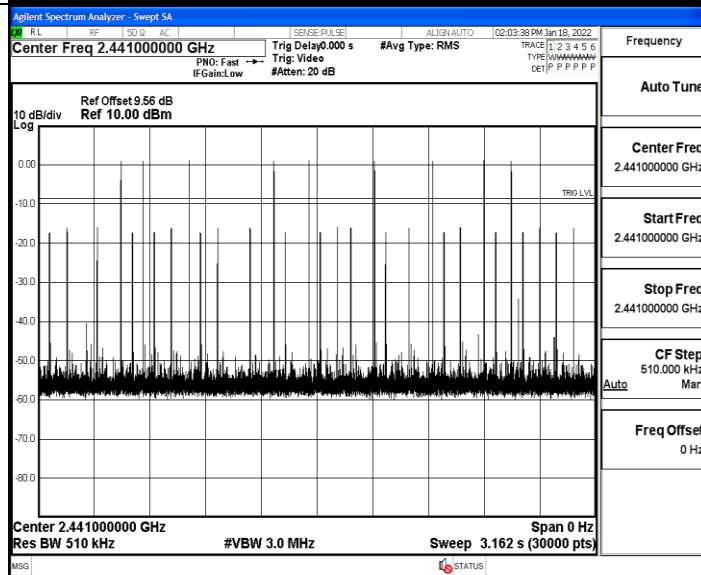
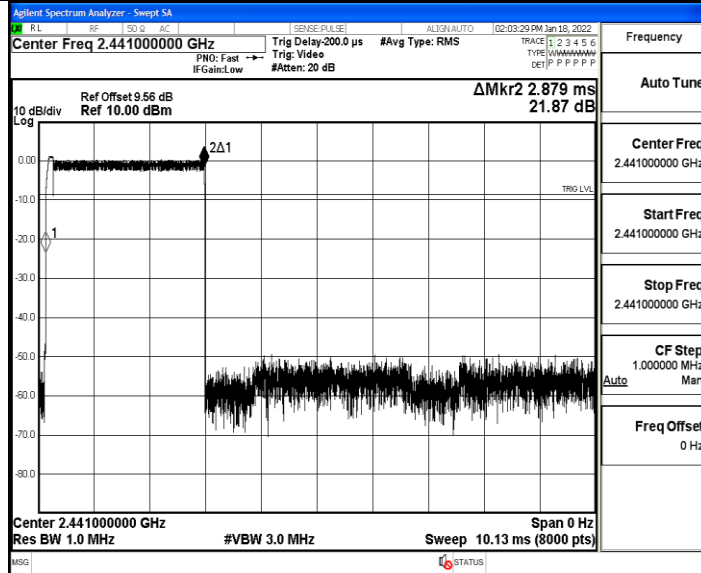
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.87	110	0.315	≤0.4	PASS
2DH5	Ant1	Hop	2.88	100	0.288	≤0.4	PASS
3DH5	Ant1	Hop	2.87	120	0.344	≤0.4	PASS

Test Graph

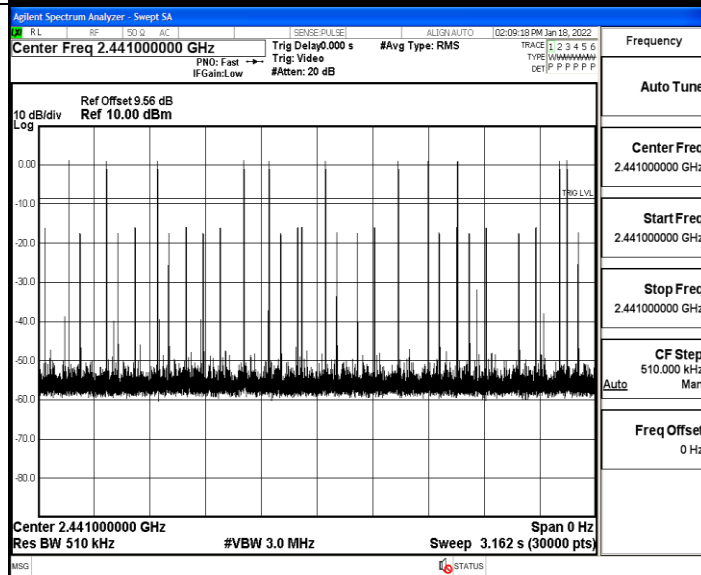
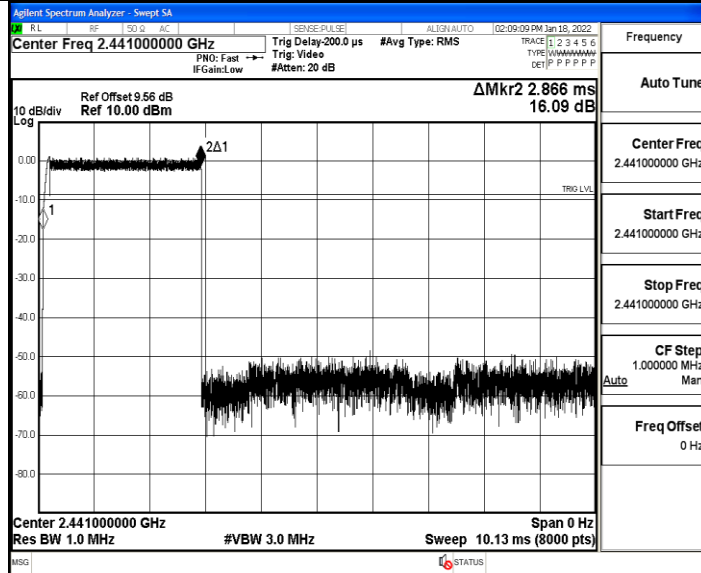
DH5_Ant1_Hop



2DH5_Ant1_Hop



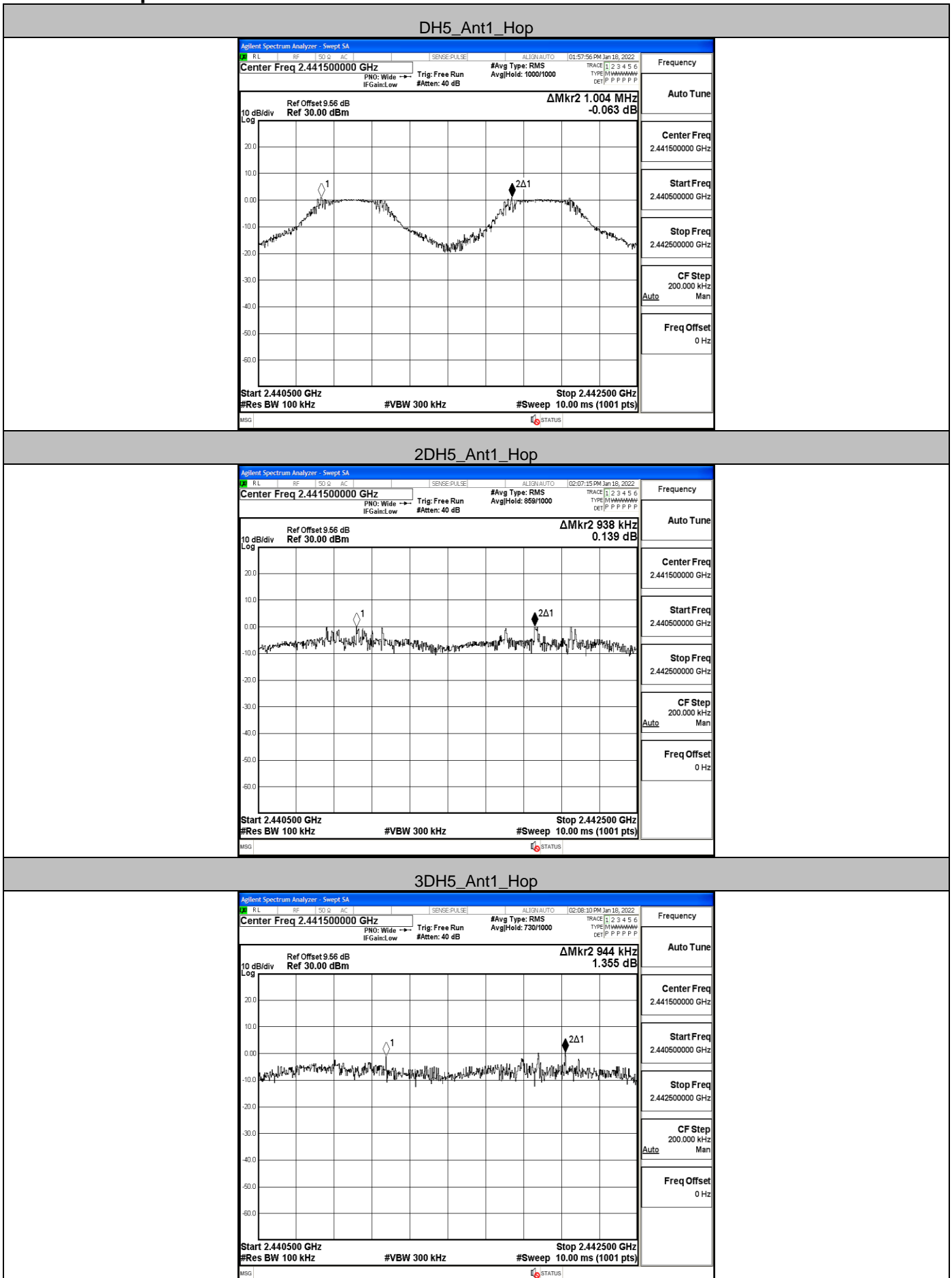
3DH5_Ant1_Hop



A.3 Carrier Frequency Separation

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.004	≥ 0.927	PASS
2DH5	Ant1	Hop	0.938	≥ 0.888	PASS
3DH5	Ant1	Hop	0.944	≥ 0.892	PASS

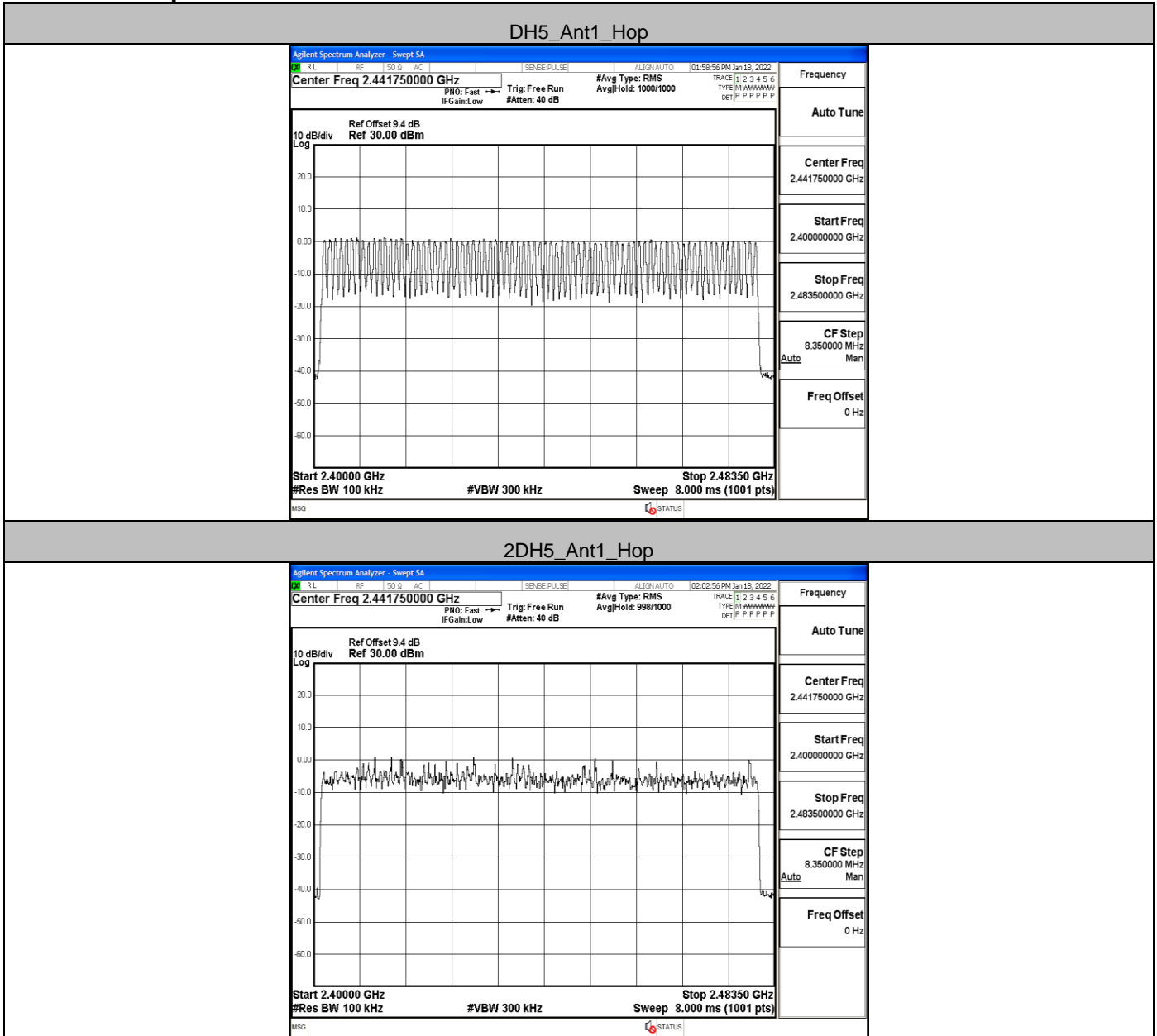
Test Graph



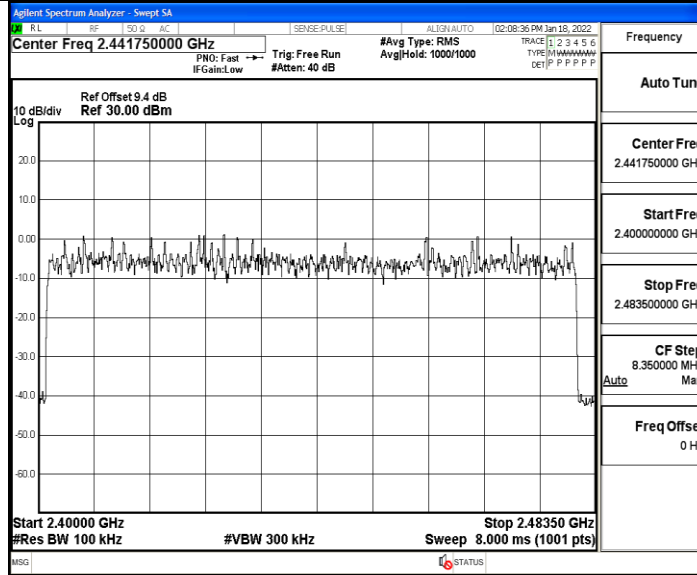
A.4 Hopping Channel Number

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 Graph



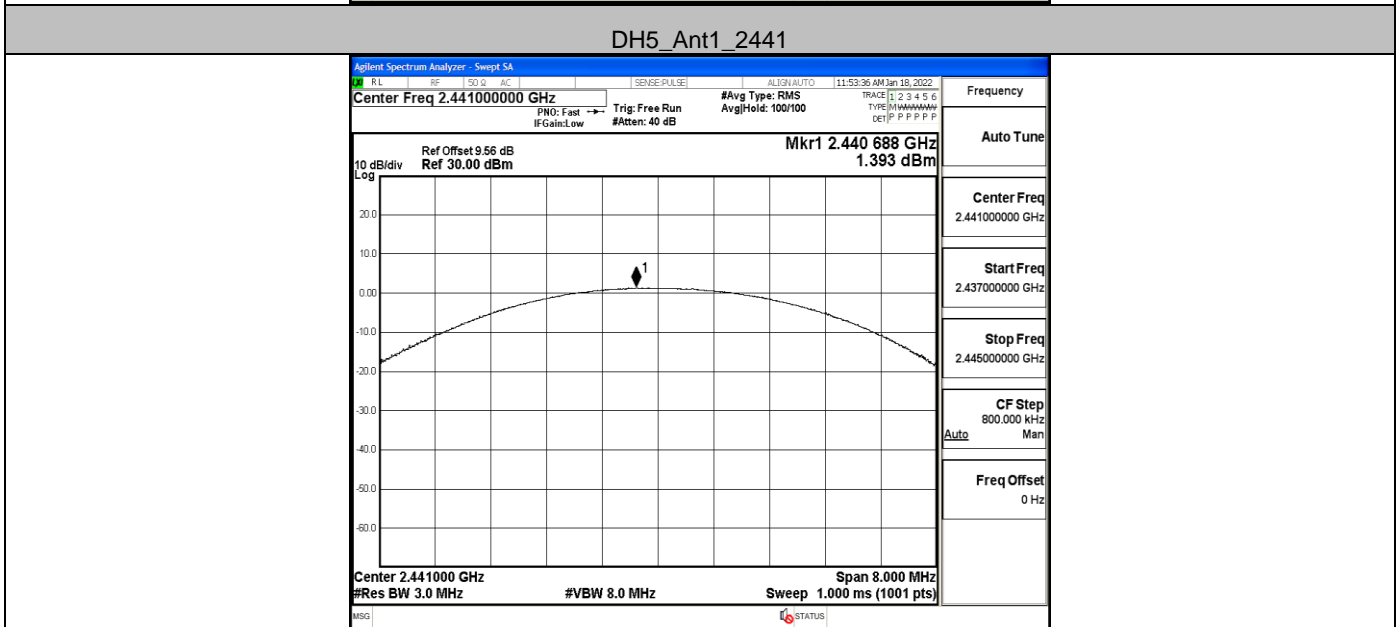
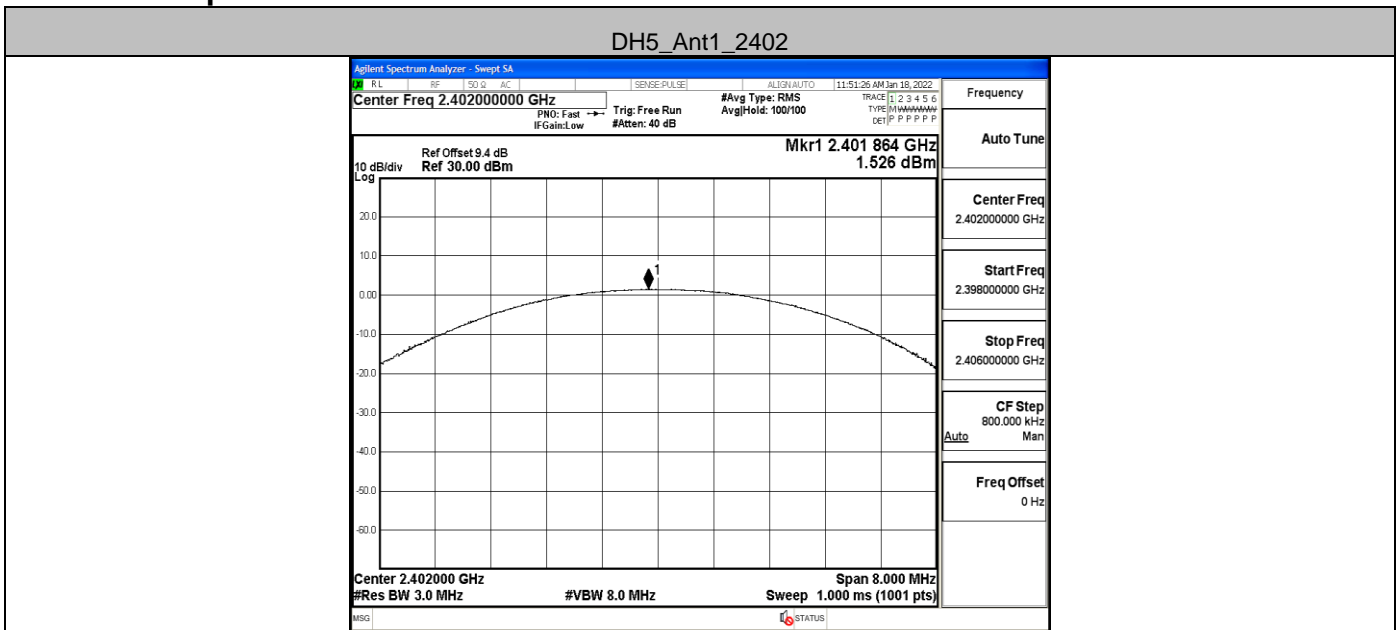
3DH5_Ant1_Hop



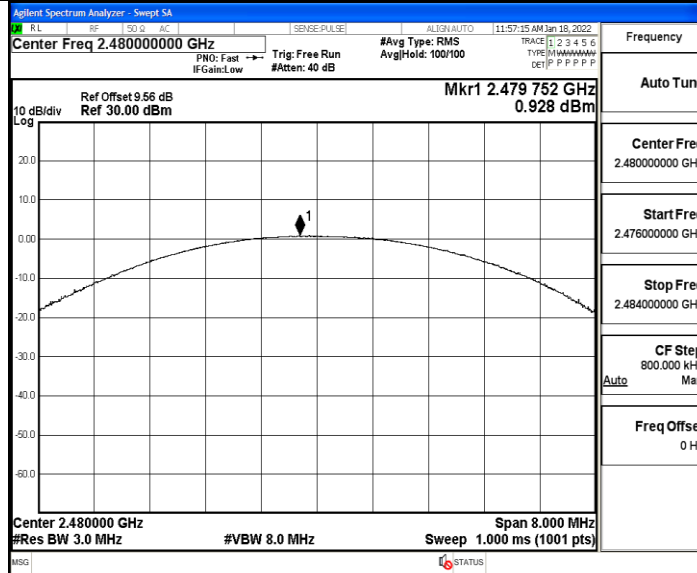
A.5 Conducted Peak Output Power

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	1.53	≤30	PASS
		2441	1.39	≤30	PASS
		2480	0.93	≤30	PASS
2DH5	Ant1	2402	1.62	≤20.97	PASS
		2441	1.47	≤20.97	PASS
		2480	0.91	≤20.97	PASS
3DH5	Ant1	2402	1.58	≤20.97	PASS
		2441	1.38	≤20.97	PASS
		2480	0.86	≤20.97	PASS

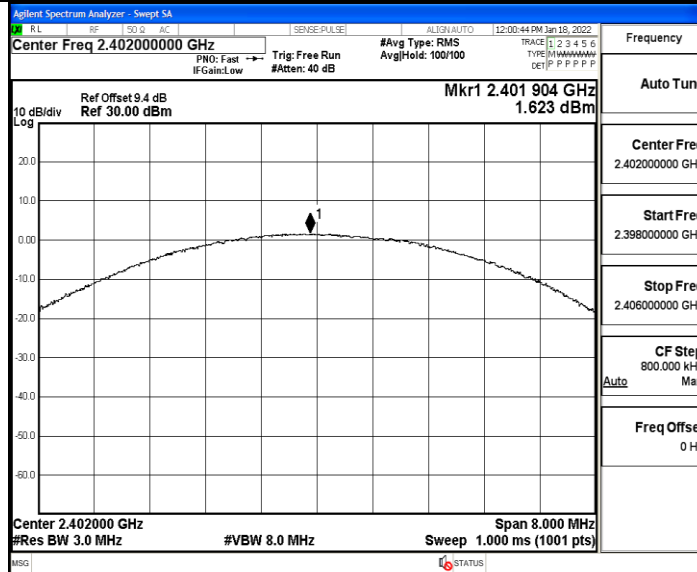
Test Graph



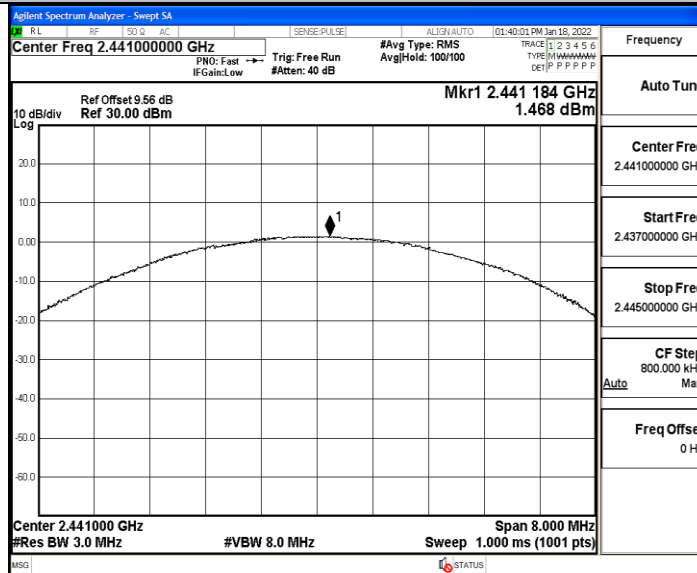
DH5_Ant1_2480



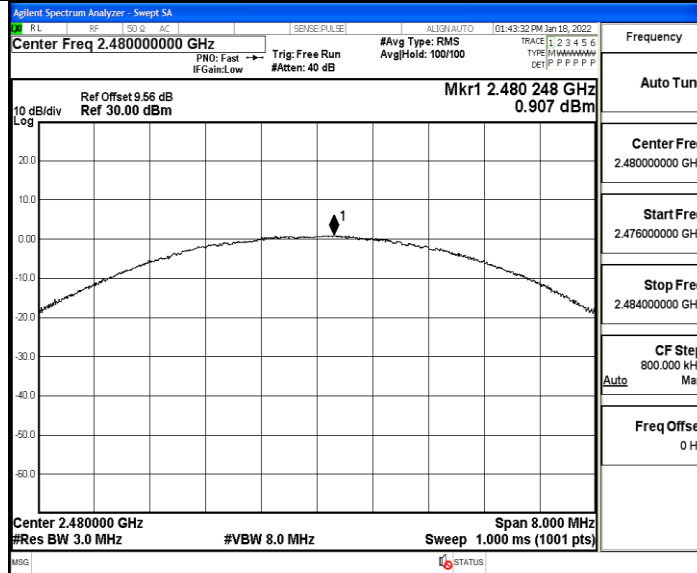
2DH5_Ant1_2402



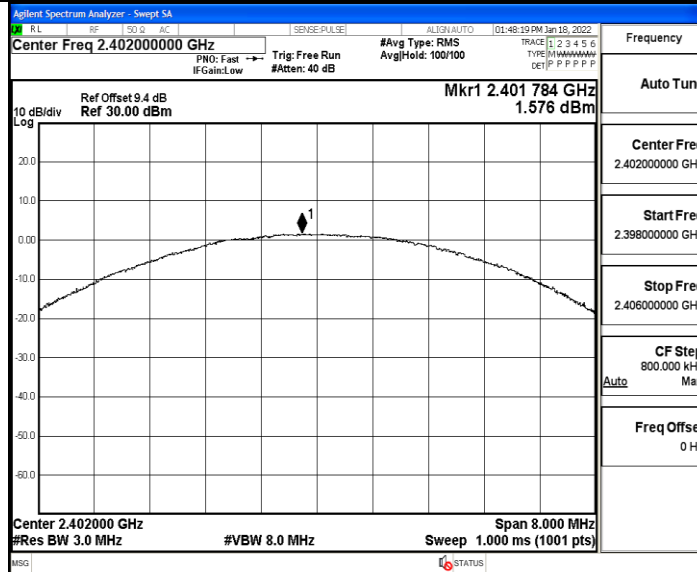
2DH5_Ant1_2441



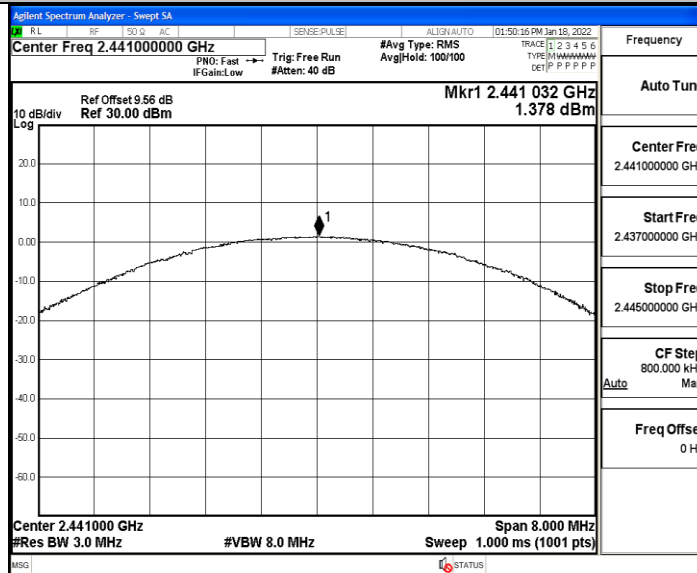
2DH5_Ant1_2480



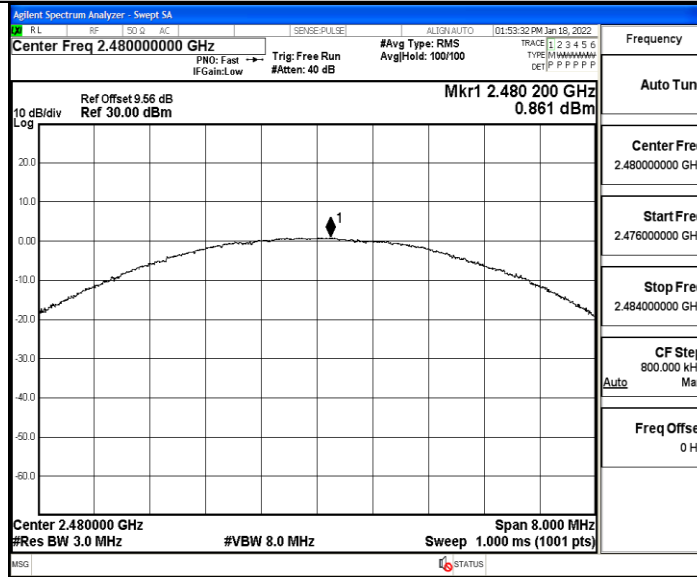
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480

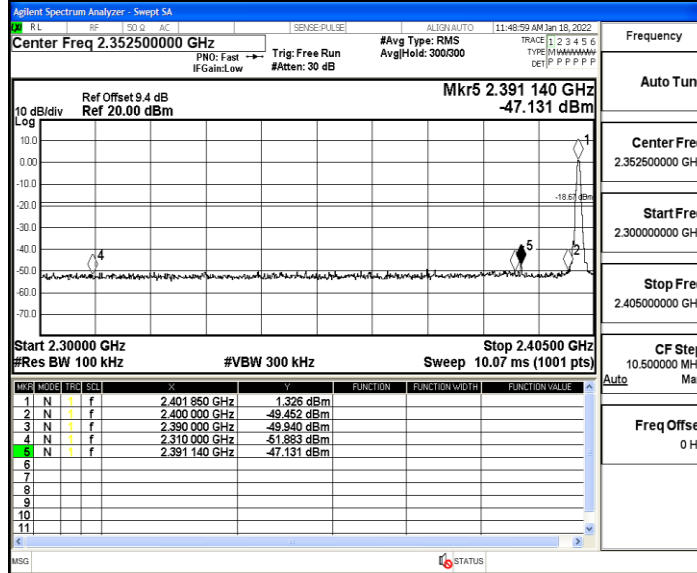


A.6 Band-edge for RF Conducted Emissions

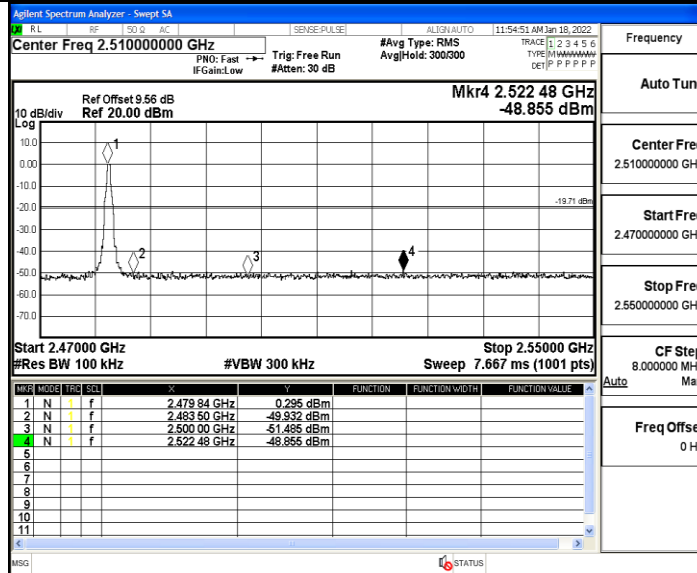
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	1.33	-47.13	≤-18.67	PASS
		High	2480	0.30	-48.86	≤-19.71	PASS
		Low	Hop_2402	0.46	-49.76	≤-19.54	PASS
		High	Hop_2480	0.30	-48.79	≤-19.7	PASS
2DH5	Ant1	Low	2402	-1.98	-48.79	≤-21.98	PASS
		High	2480	-0.76	-49.2	≤-20.76	PASS
		Low	Hop_2402	-4.35	-50.17	≤-24.35	PASS
		High	Hop_2480	-1.22	-48.98	≤-21.22	PASS
3DH5	Ant1	Low	2402	1.14	-45.72	≤-18.86	PASS
		High	2480	-0.41	-48.58	≤-20.41	PASS
		Low	Hop_2402	-3.36	-50.38	≤-23.36	PASS
		High	Hop_2480	-4.37	-48.74	≤-24.37	PASS

Test Graph

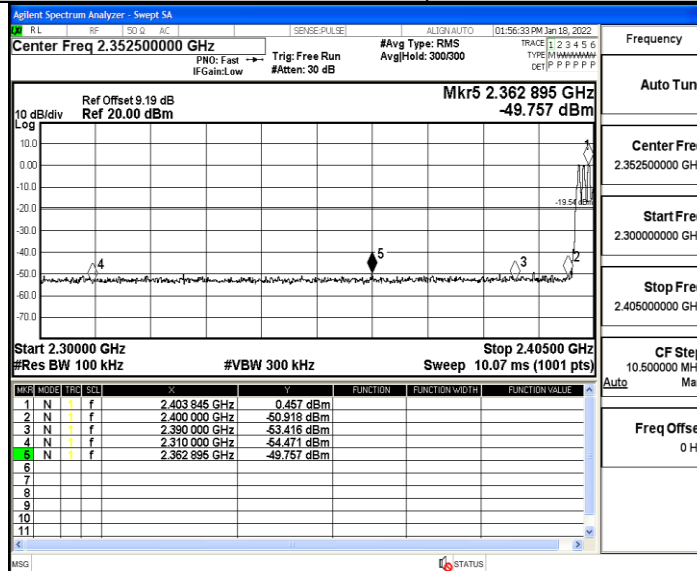
DH5_Ant1_Low_2402



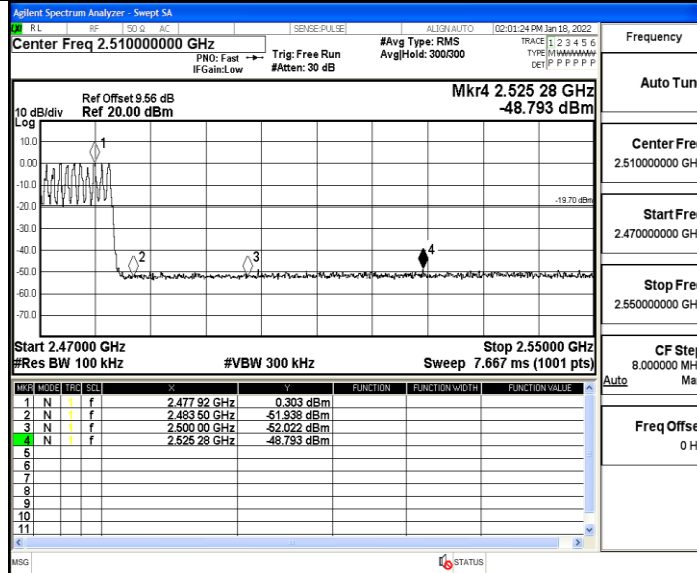
DH5_Ant1_High_2480



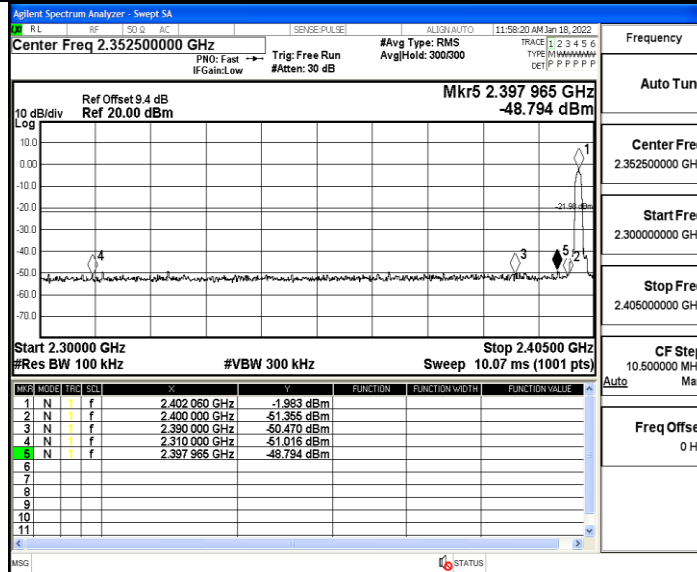
DH5_Ant1_Low_Hop_2402



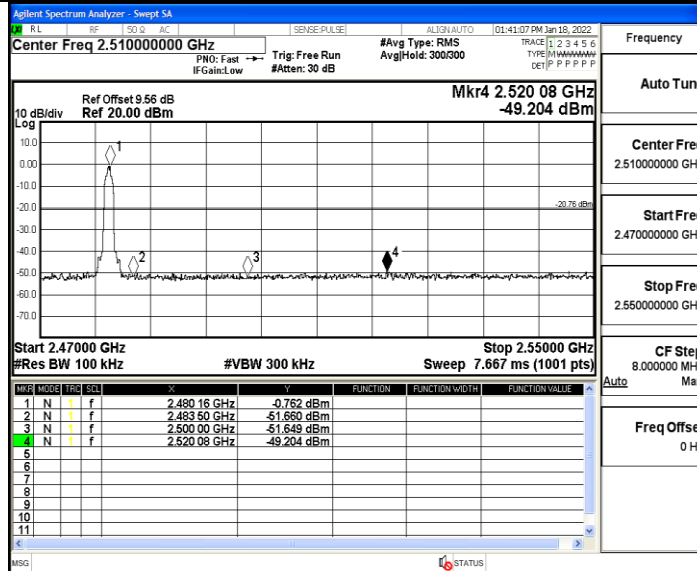
DH5_Ant1_High_Hop_2480



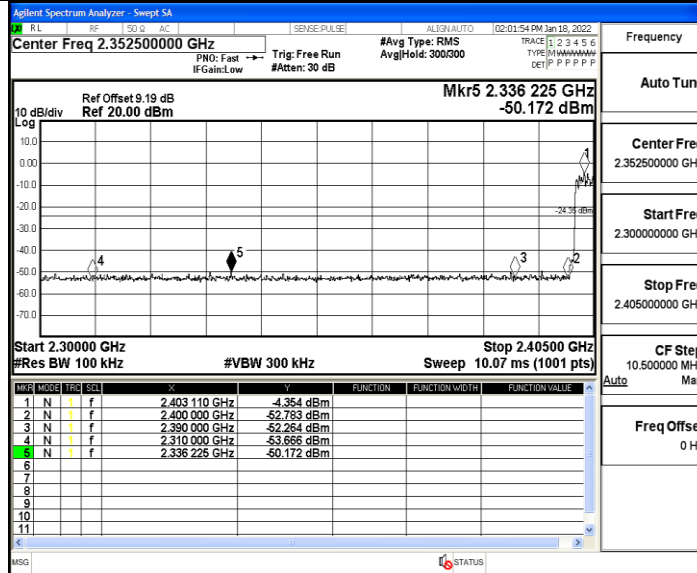
2DH5_Ant1_Low_2402



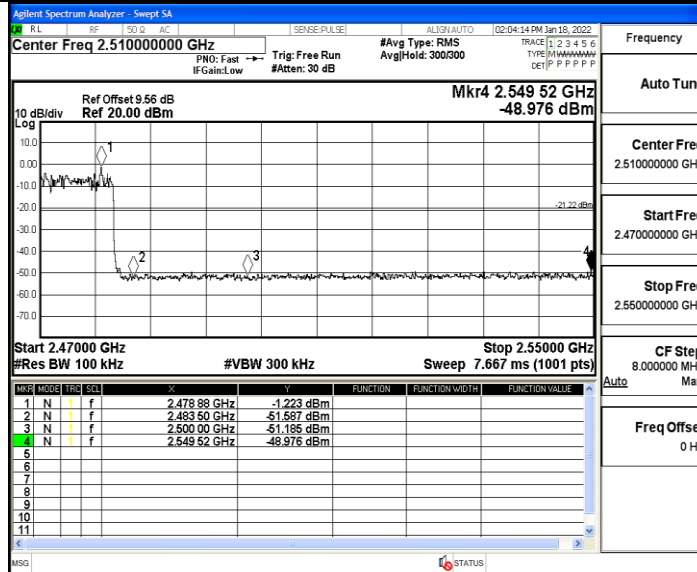
2DH5_Ant1_High_2480



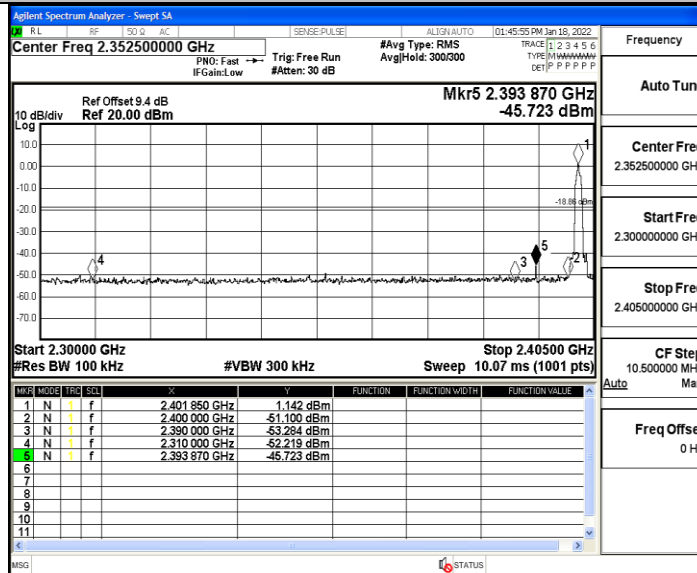
2DH5_Ant1_Low_Hop_2402



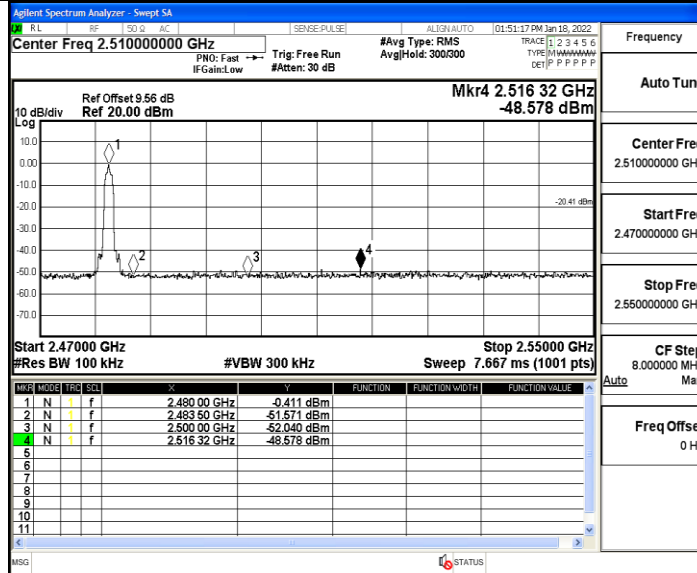
2DH5_Ant1_High_Hop_2480



3DH5_Ant1_Low_2402

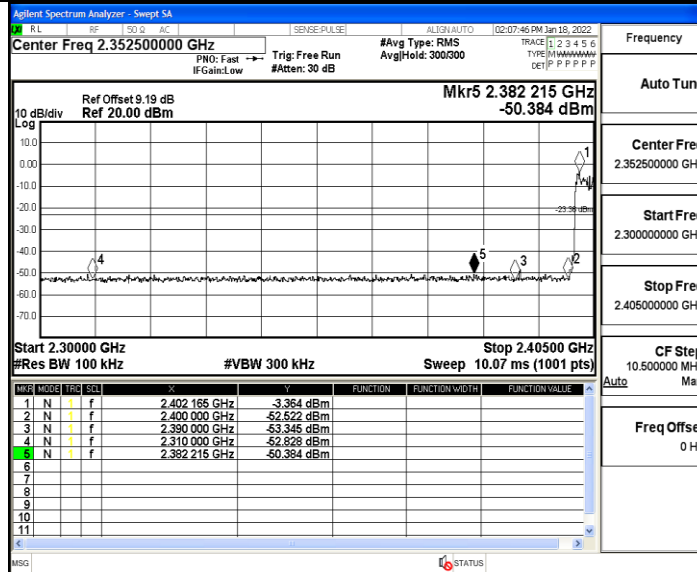


3DH5_Ant1_High_2480



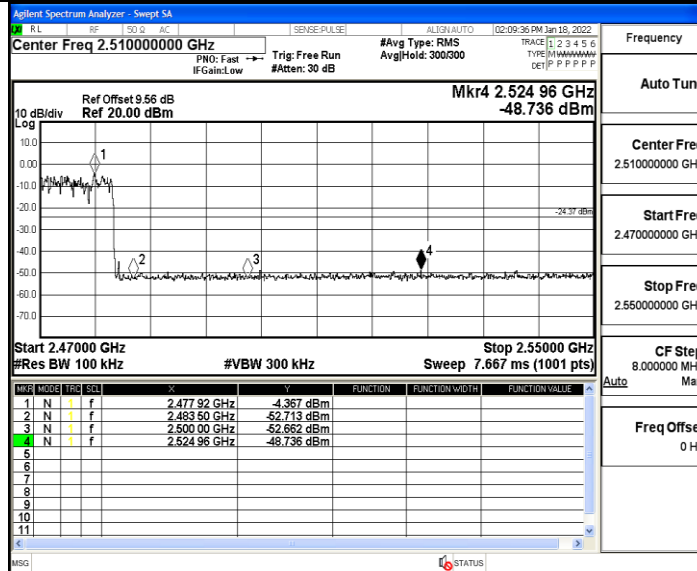
Frequency
Auto Tune
Center Freq
2.510000000 GHz
Start Freq
2.470000000 GHz
Stop Freq
2.550000000 GHz
CF Step
8.000000 MHz
Auto Man
Freq Offset
0 Hz

3DH5_Ant1_Low_Hop_2402



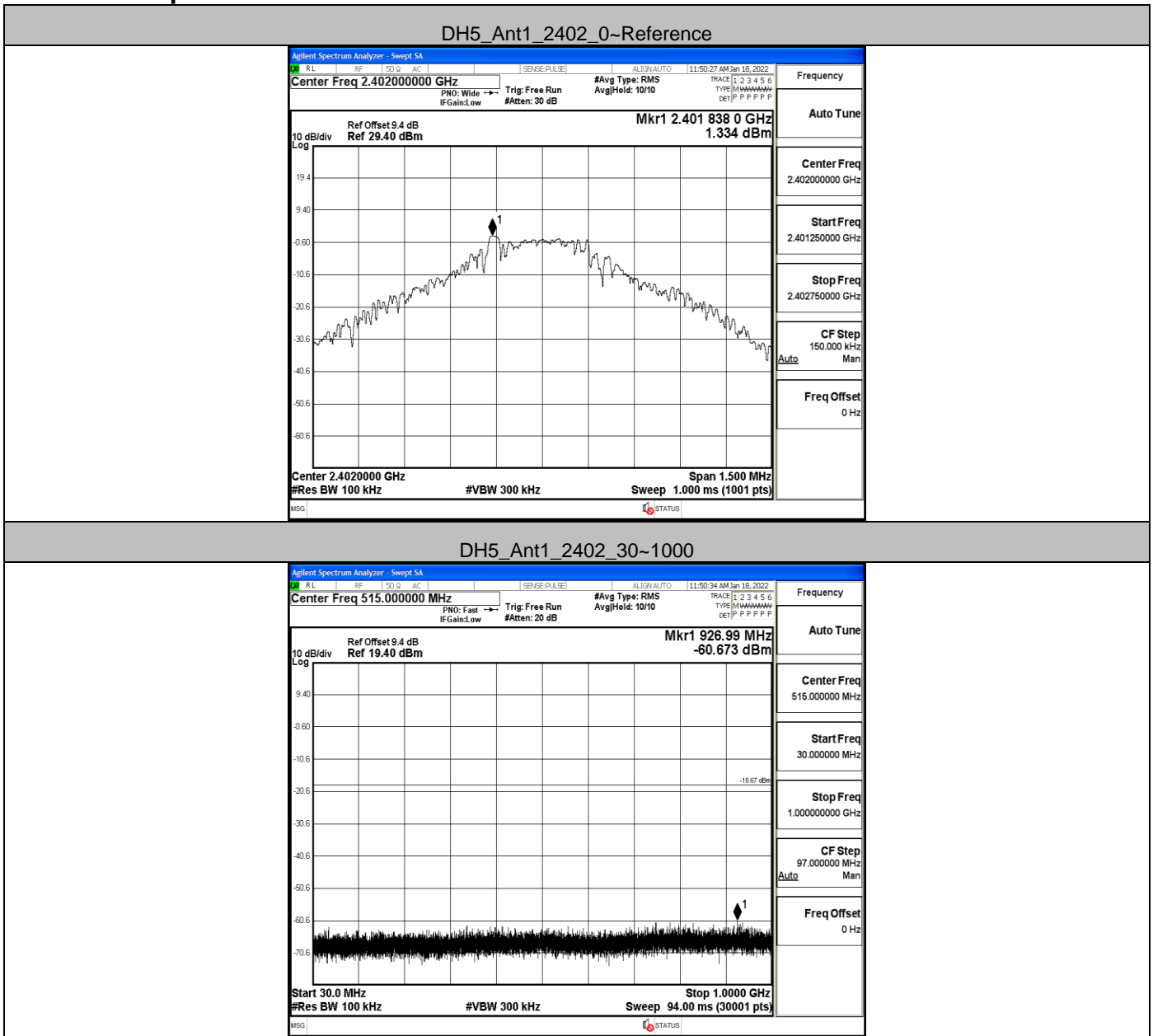
Frequency
Auto Tune
Center Freq
2.352500000 GHz
Start Freq
2.300000000 GHz
Stop Freq
2.405000000 GHz
CF Step
10.500000 MHz
Auto Man
Freq Offset
0 Hz

3DH5_Ant1_High_Hop_2480

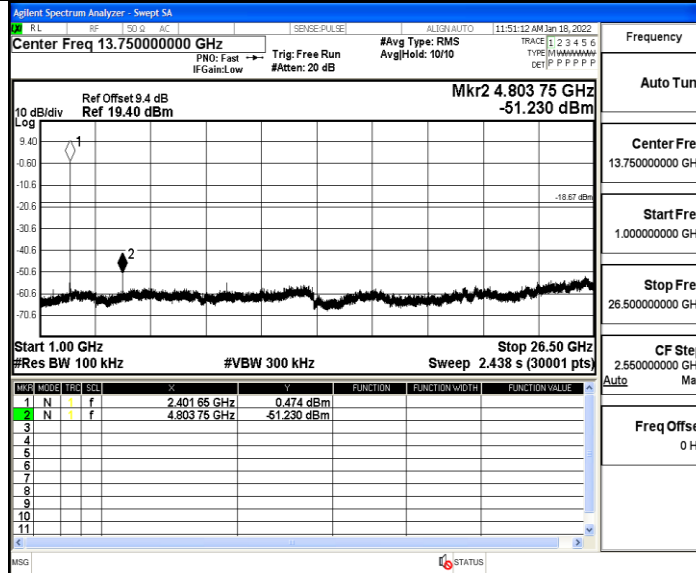


Frequency
Auto Tune
Center Freq
2.510000000 GHz
Start Freq
2.470000000 GHz
Stop Freq
2.550000000 GHz
CF Step
8.000000 MHz
Auto Man
Freq Offset
0 Hz

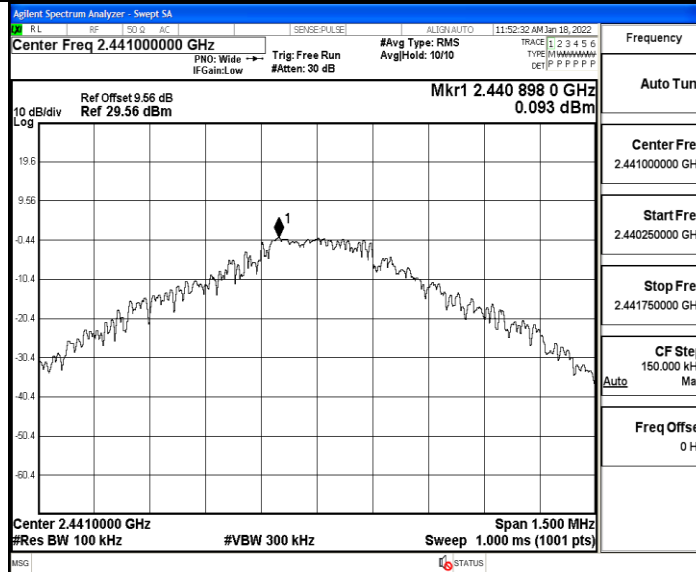
A.7 RF Conducted Spurious Emissions Test Graph



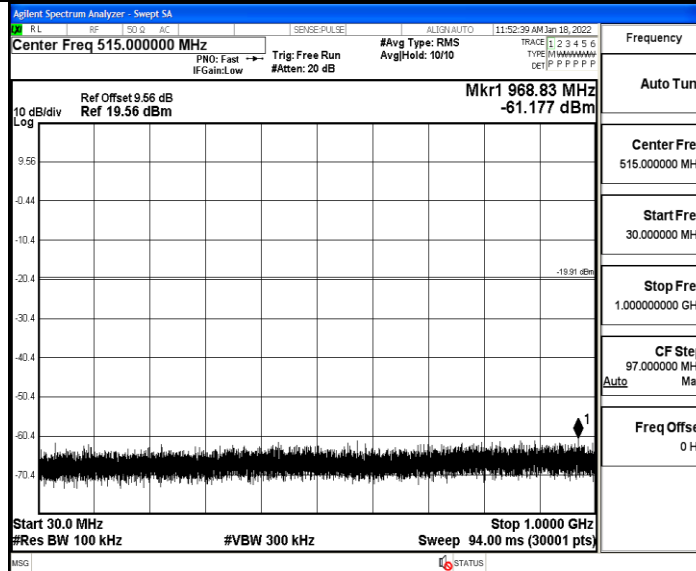
DH5_Ant1_2402_1000~26500



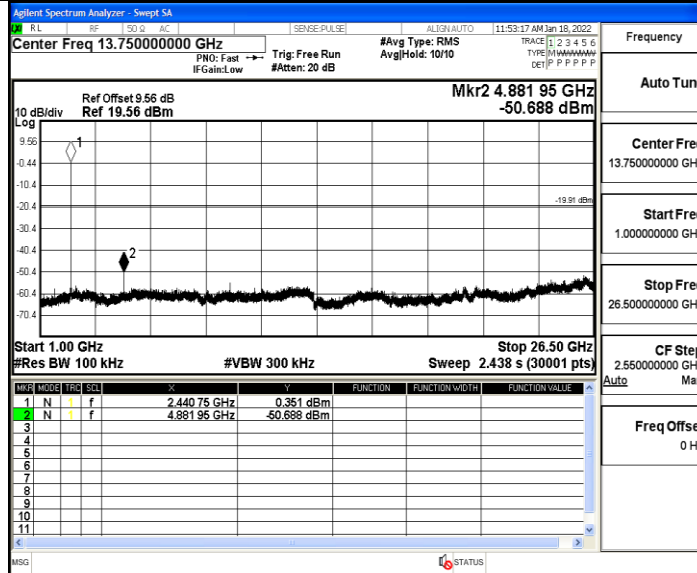
DH5_Ant1_2441_0~Reference



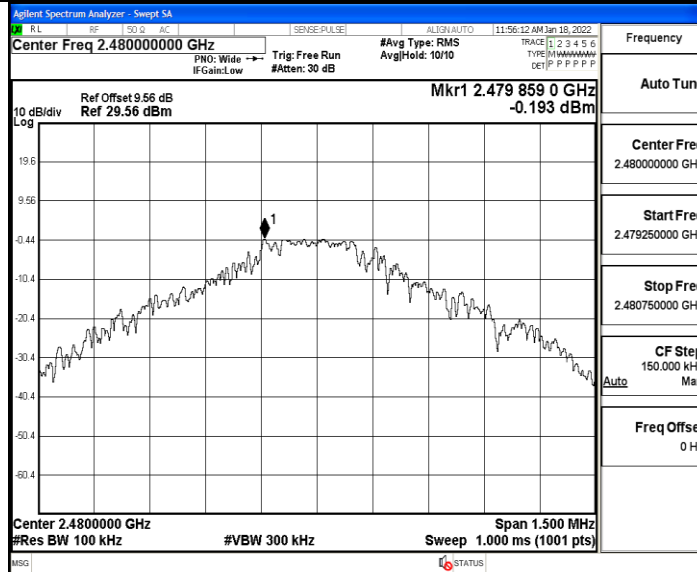
DH5_Ant1_2441_30~1000



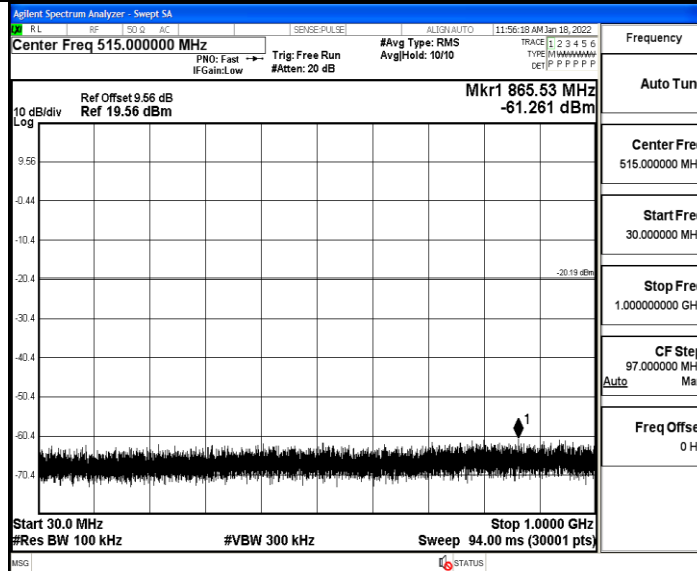
DH5_Ant1_2441_1000~26500



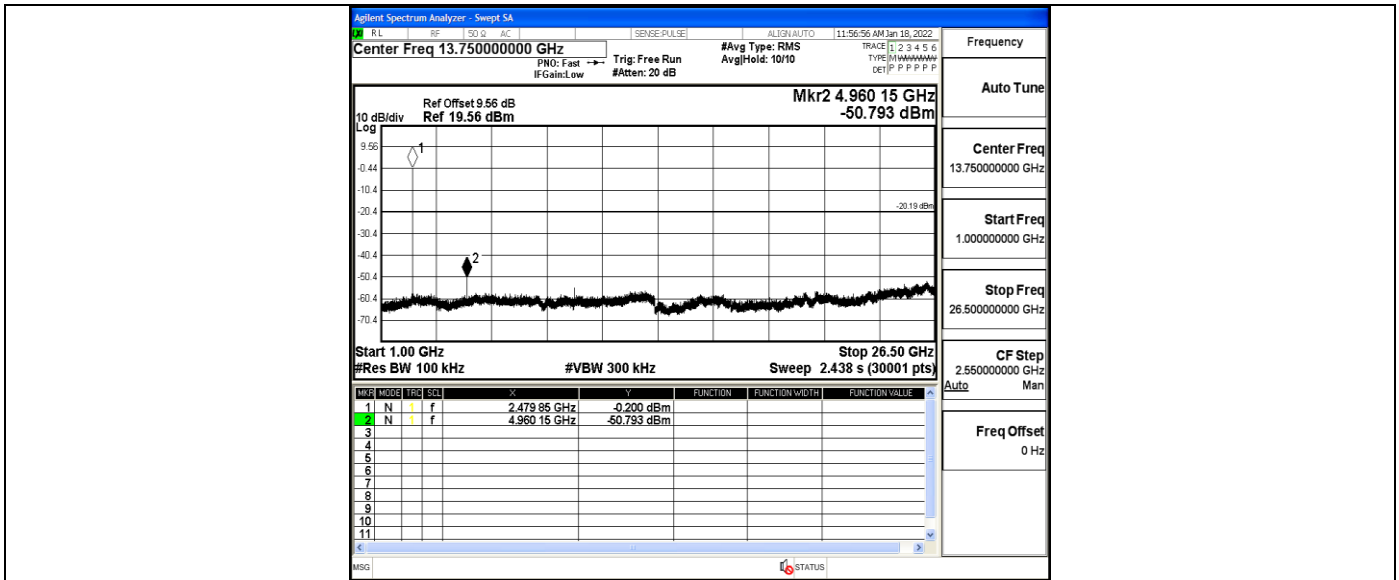
DH5_Ant1_2480_0~Reference



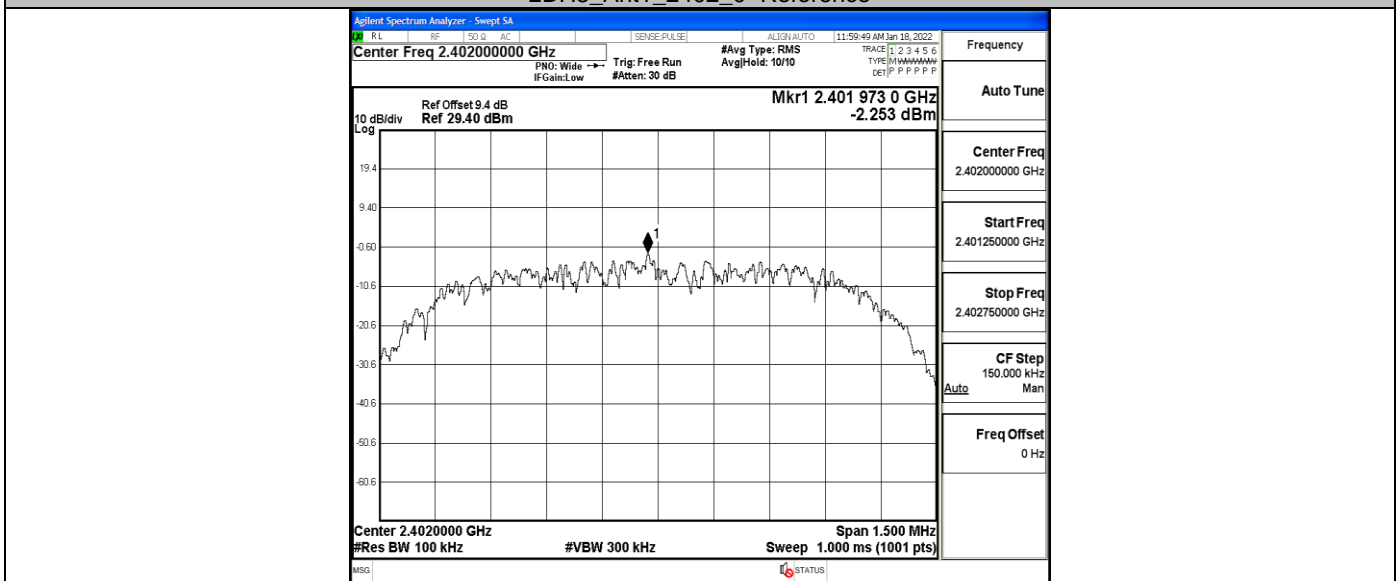
DH5_Ant1_2480_30~1000



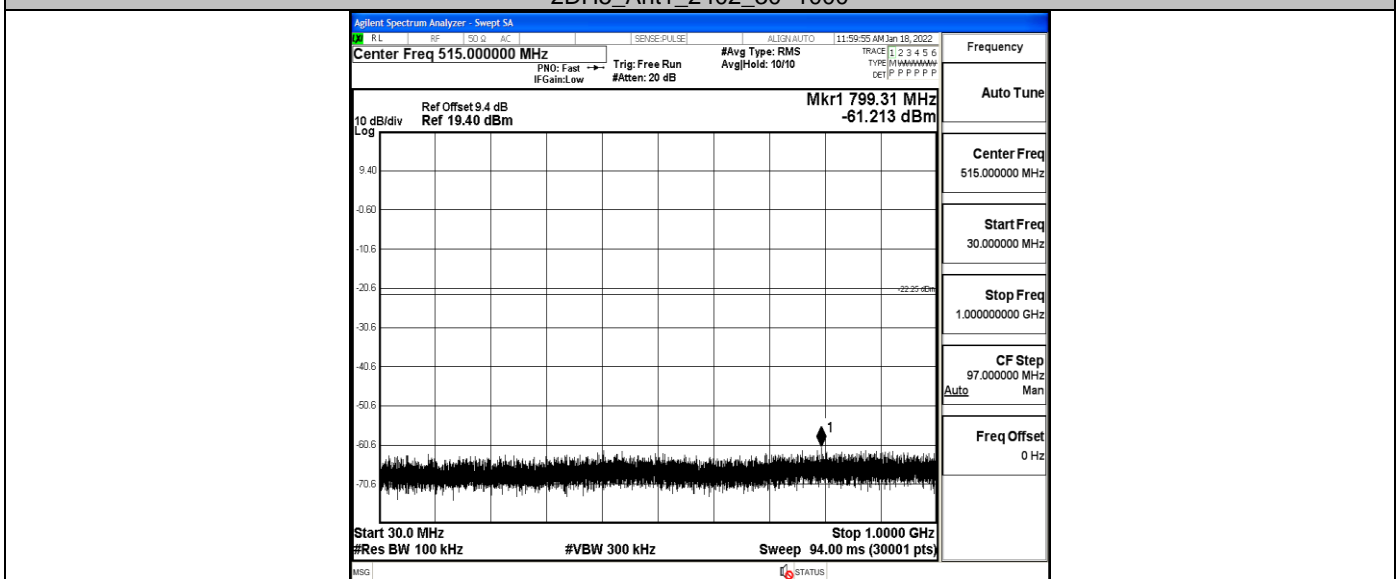
DH5_Ant1_2480_1000~26500



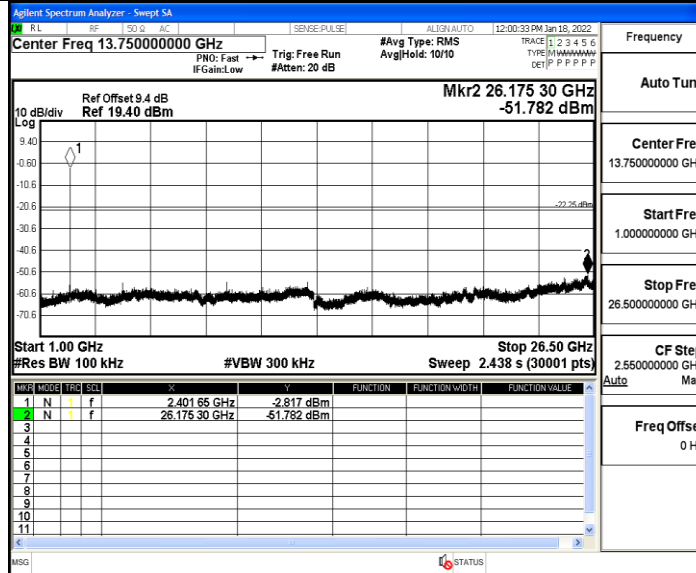
2DH5_Ant1_2402_0~Reference



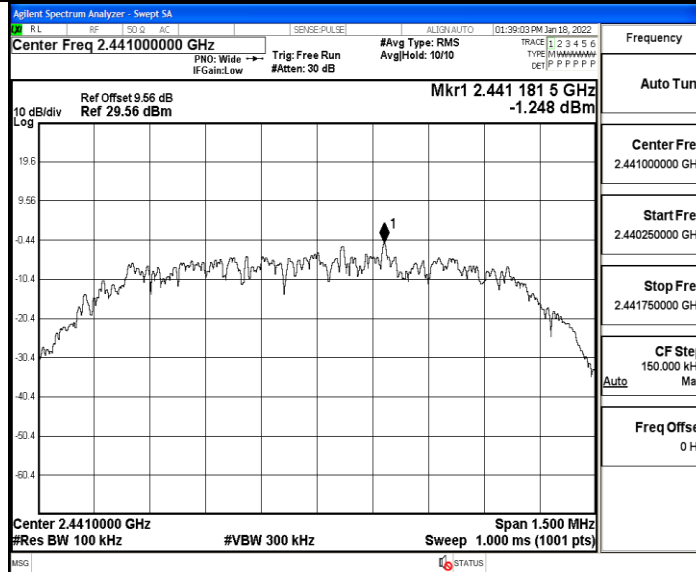
2DH5_Ant1_2402_30~1000



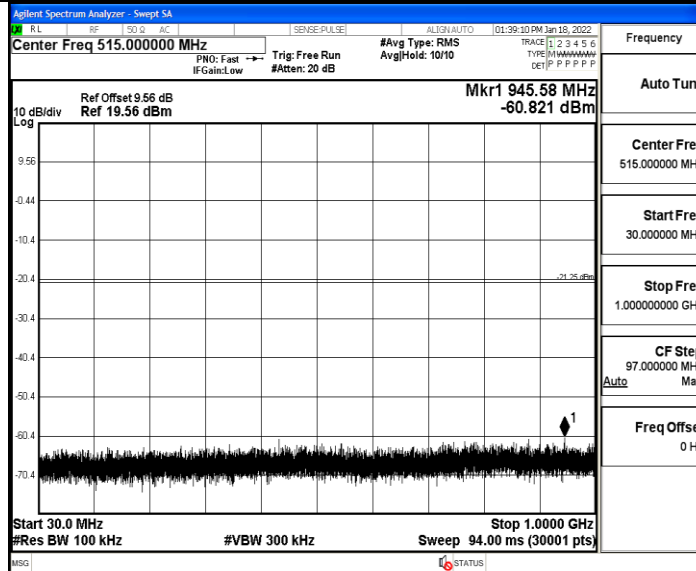
2DH5_Ant1_2402_1000~26500



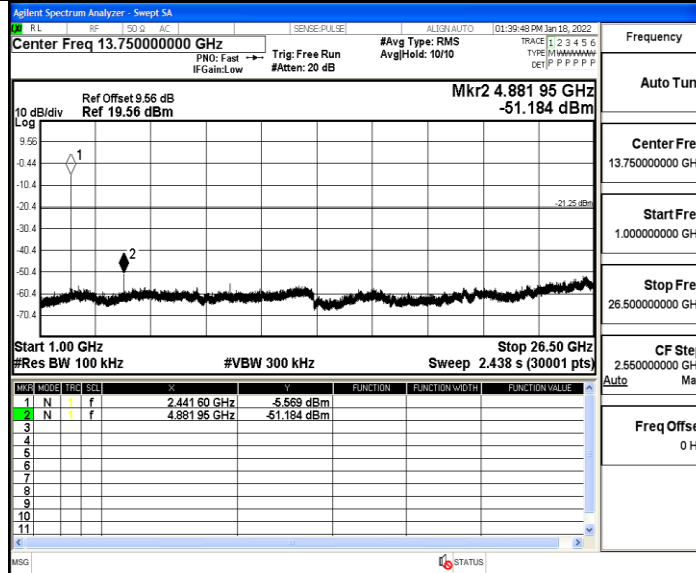
2DH5_Ant1_2441_0~Reference



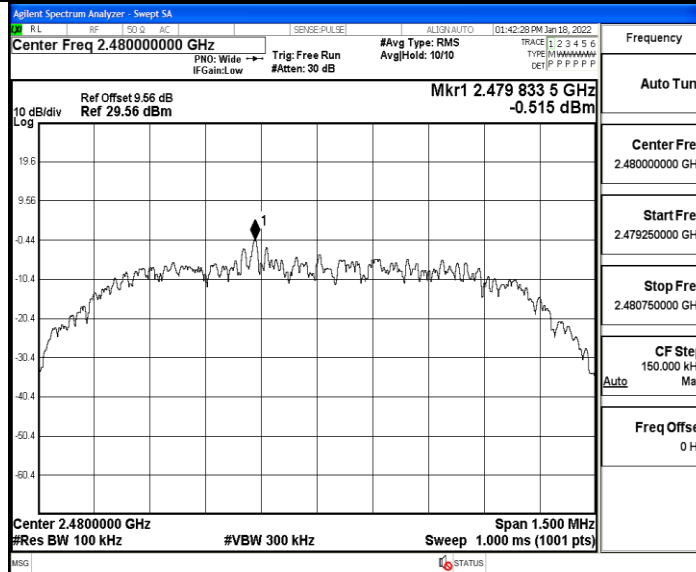
2DH5_Ant1_2441_30~1000



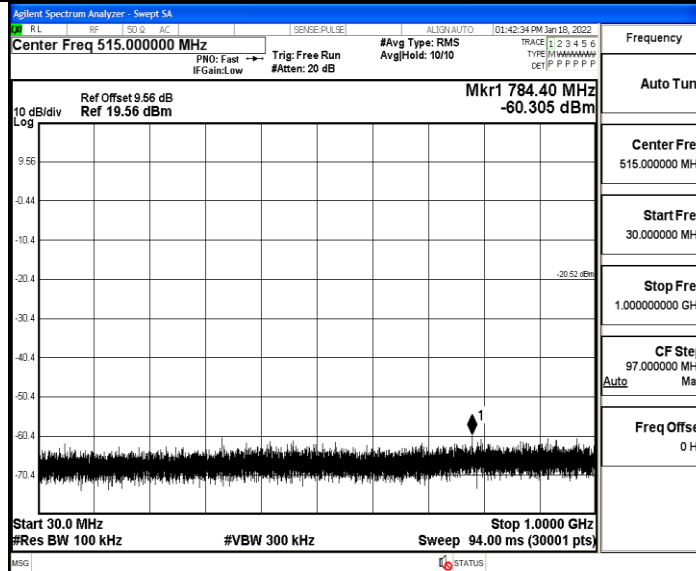
2DH5_Ant1_2441_1000~26500



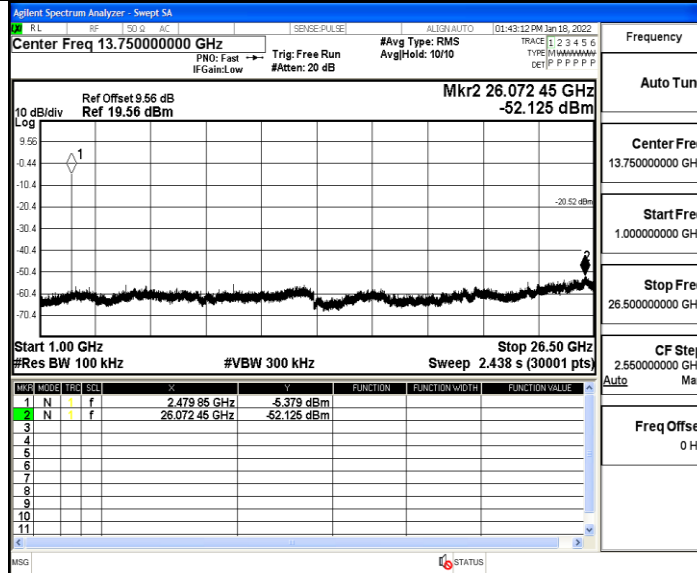
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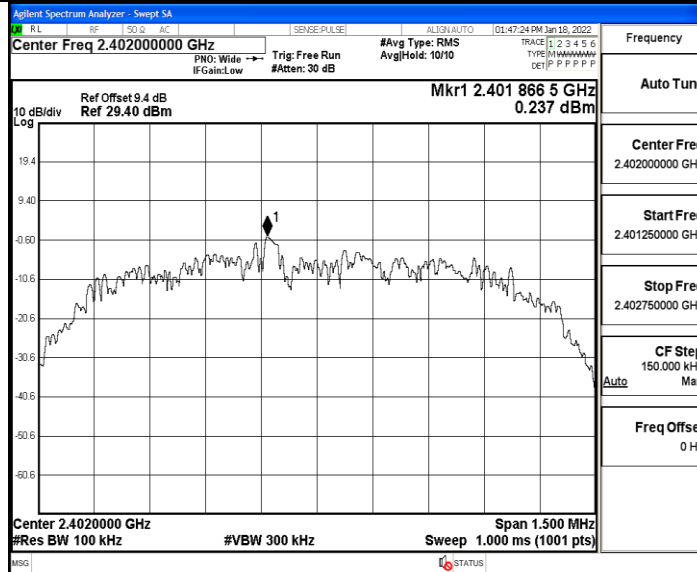
2DH5_Ant1_2480_30~1000



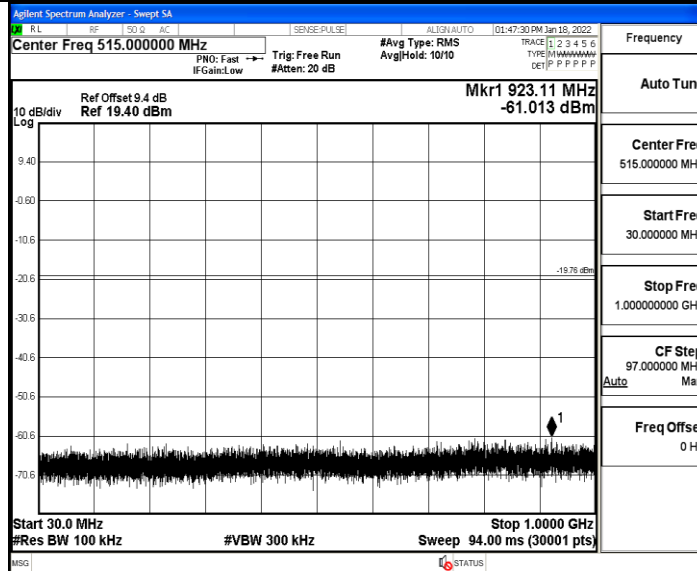
2DH5_Ant1_2480_1000~26500



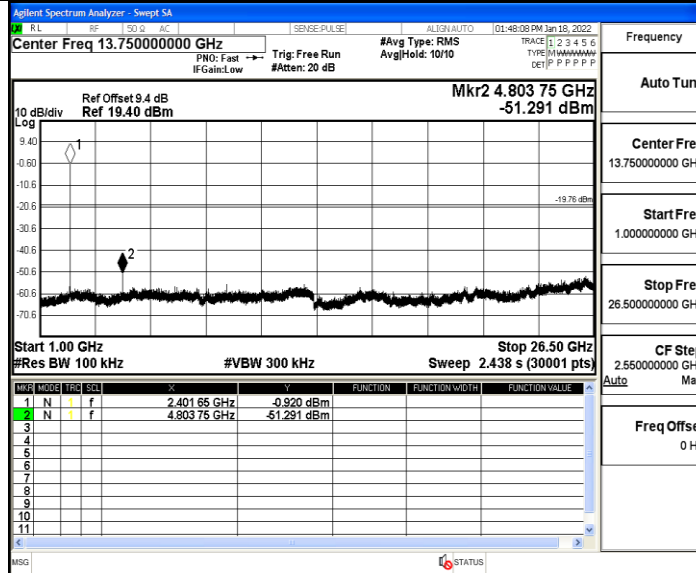
3DH5_Ant1_2402_0~Reference



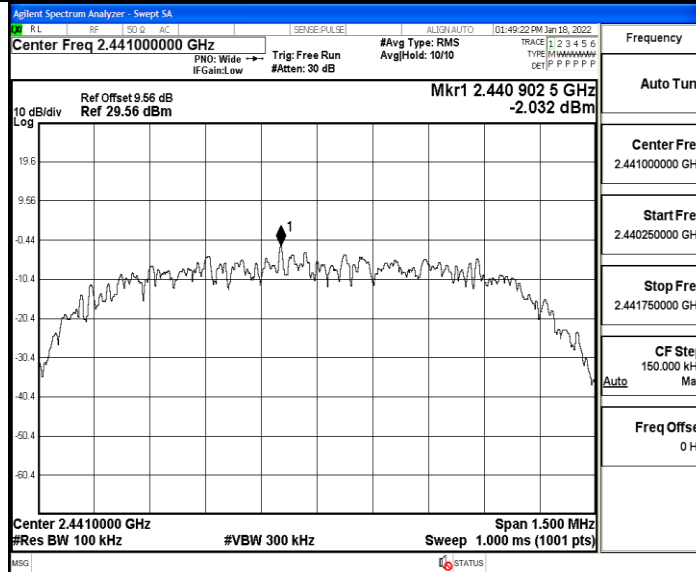
3DH5_Ant1_2402_30~1000



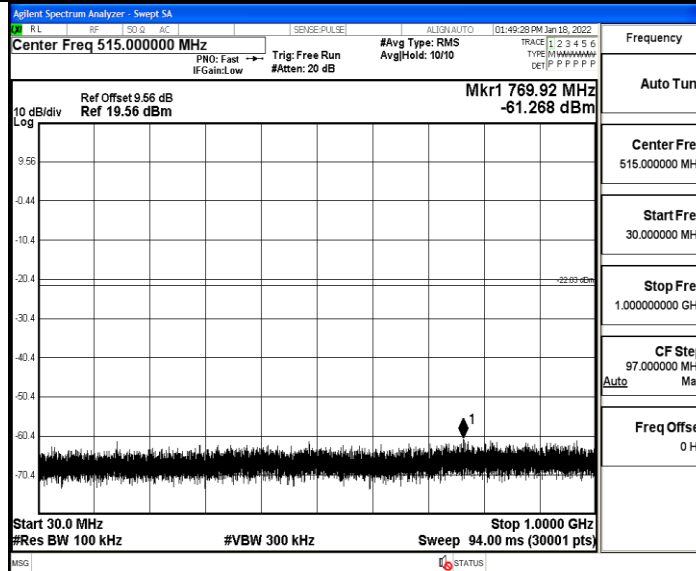
3DH5_Ant1_2402_1000~26500



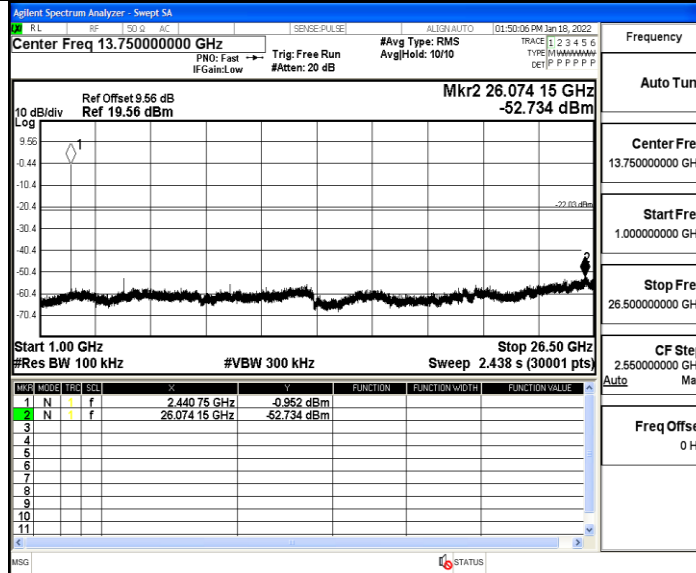
3DH5_Ant1_2441_0~Reference



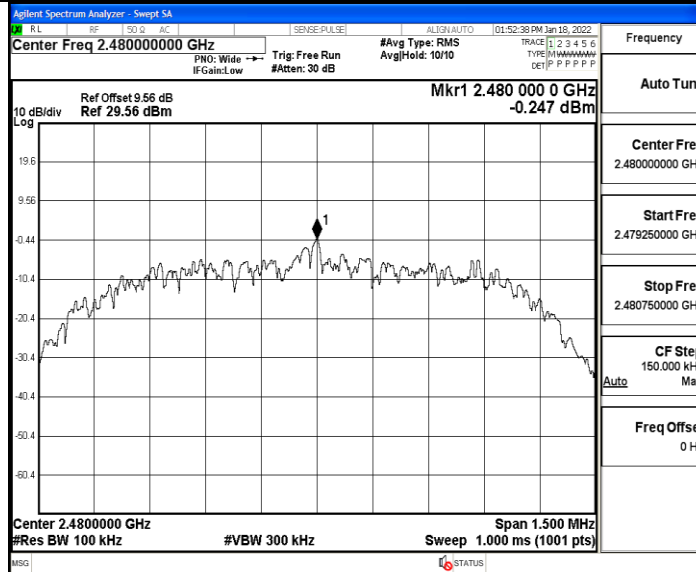
3DH5_Ant1_2441_30~1000



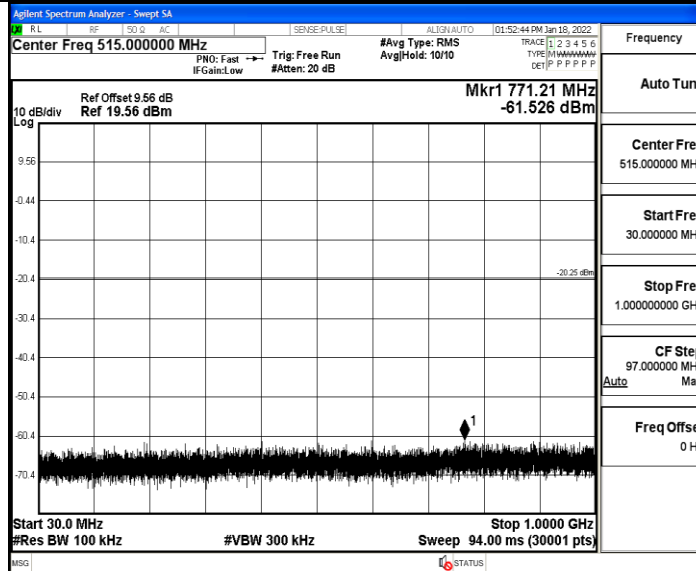
3DH5_Ant1_2441_1000~26500



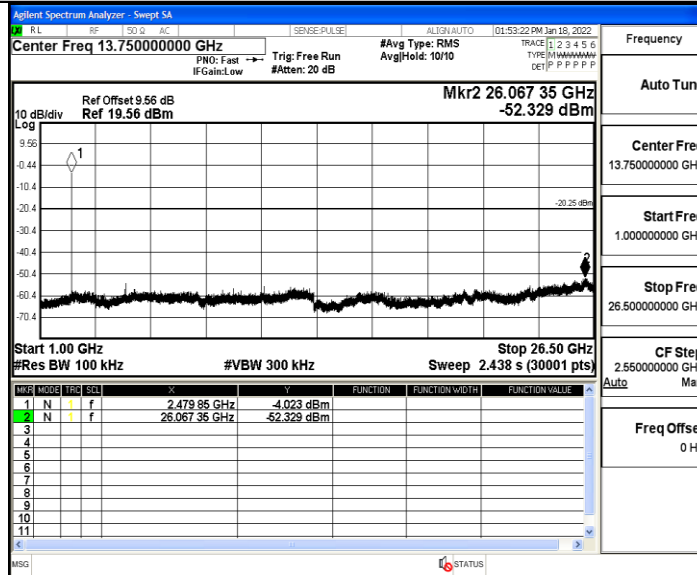
3DH5_Ant1_2480_0~Reference



3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000-26500



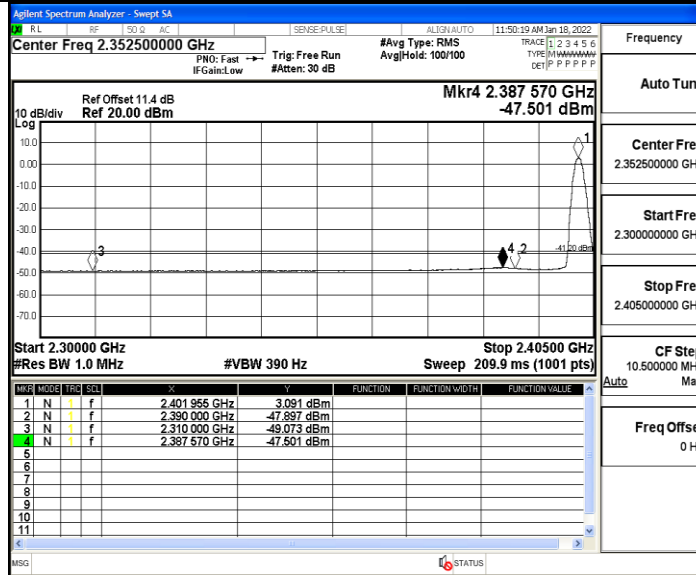
A.8 Restrict-band band-edge measurements

TestMode	Antenna	ChName	Channel	Detector	Freq(MHz)	Result(dBm)	Limit(dBm)	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-49.07	≤-41.20	PASS
				AV	2387.570	-47.5	≤-41.20	PASS
				AV	2390.000	-47.9	≤-41.20	PASS
				Peak	2310.000	-42.26	≤-21.20	PASS
				Peak	2364.155	-37.55	≤-21.20	PASS
				Peak	2390.000	-39.92	≤-21.20	PASS
		High	2480	AV	2483.500	-47.56	≤-41.20	PASS
				AV	2496.320	-47.52	≤-41.20	PASS
				AV	2500.000	-47.85	≤-41.20	PASS
				Peak	2483.500	-40.97	≤-21.20	PASS
				Peak	2498.560	-38.25	≤-21.20	PASS
				Peak	2500.000	-41.4	≤-21.20	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-49.04	≤-41.20	PASS
				AV	2386.520	-48.13	≤-41.20	PASS
				AV	2390.000	-48.33	≤-41.20	PASS
				Peak	2310.000	-41.5	≤-21.20	PASS
				Peak	2350.820	-38.55	≤-21.20	PASS
				Peak	2390.000	-41.1	≤-21.20	PASS
		High	2480	AV	2483.500	-47.73	≤-41.20	PASS
				AV	2483.520	-47.73	≤-41.20	PASS
				AV	2500.000	-47.95	≤-41.20	PASS
				Peak	2483.500	-42.05	≤-21.20	PASS
				Peak	2491.440	-37.29	≤-21.20	PASS
				Peak	2500.000	-40.85	≤-21.20	PASS
3DH5	Ant1	Low	2402	AV	2310.000	-49.18	≤-41.20	PASS
				AV	2387.360	-48.2	≤-41.20	PASS
				AV	2390.000	-48.37	≤-41.20	PASS
				Peak	2310.000	-42.26	≤-21.20	PASS
				Peak	2386.520	-37.29	≤-21.20	PASS
				Peak	2390.000	-41.08	≤-21.20	PASS
		High	2480	AV	2483.500	-47.84	≤-41.20	PASS
				AV	2483.520	-47.84	≤-41.20	PASS
				AV	2500.000	-47.96	≤-41.20	PASS
				Peak	2483.500	-41.03	≤-21.20	PASS
				Peak	2492.720	-37.52	≤-21.20	PASS
				Peak	2500.000	-40.07	≤-21.20	PASS

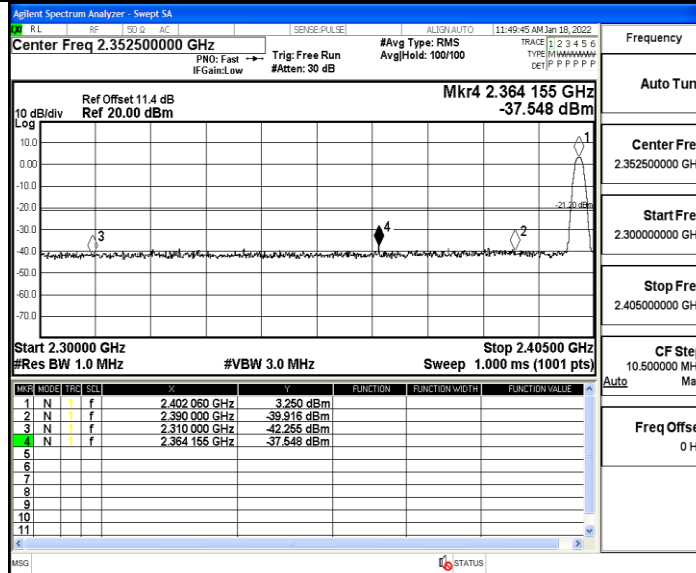
1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

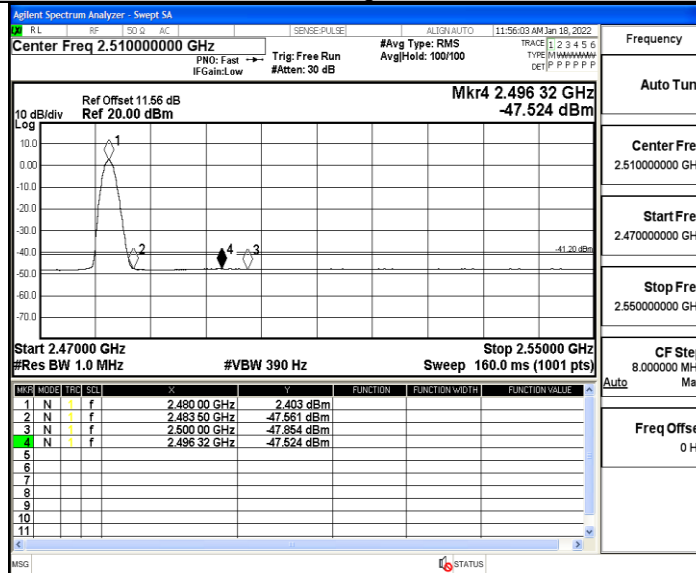
DH5_Ant1_Low_2402_AV



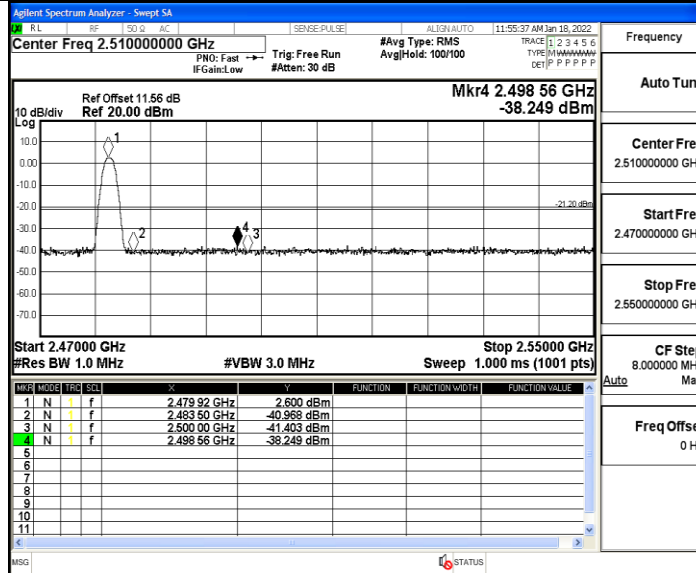
DH5_Ant1_Low_2402_Peak



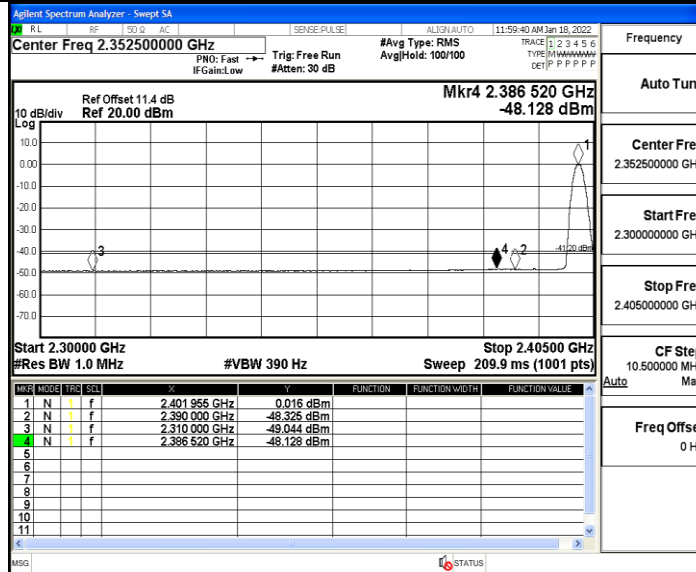
DH5_Ant1_High_2480_AV



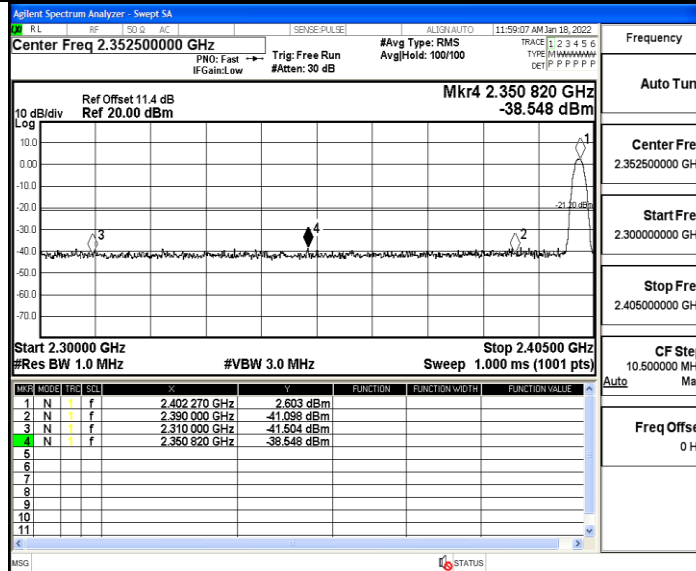
DH5_Ant1_High_2480_Peak



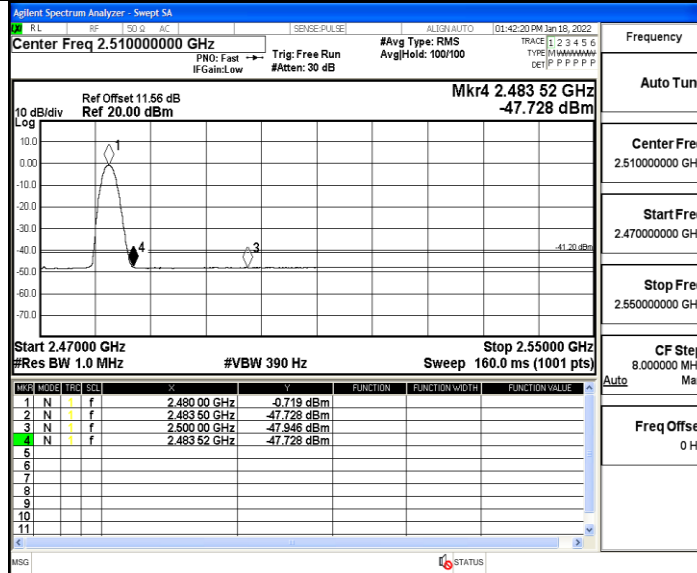
2DH5_Ant1_Low_2402_AV



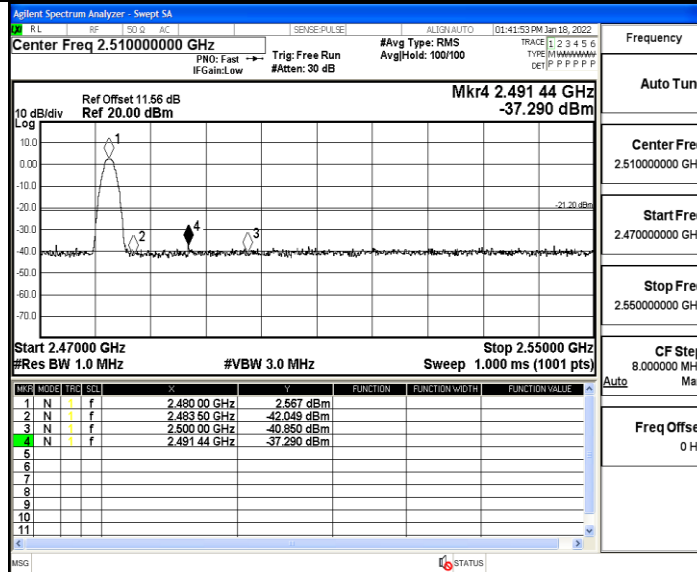
2DH5_Ant1_Low_2402_Peak



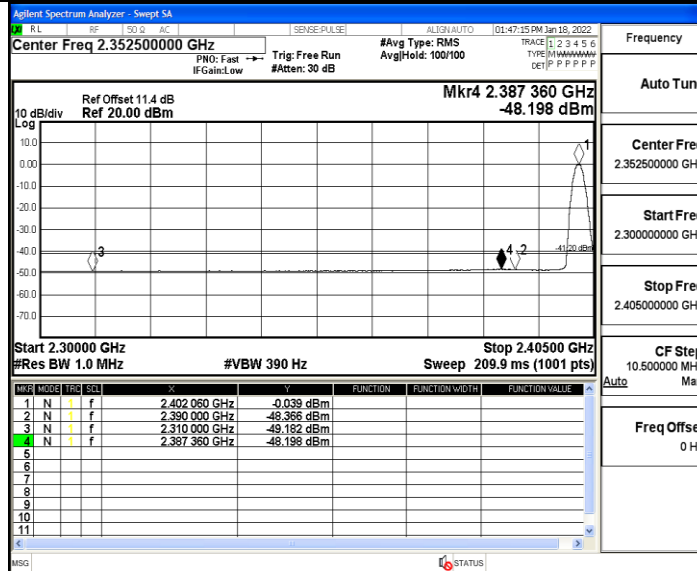
2DH5_Ant1_High_2480_AV



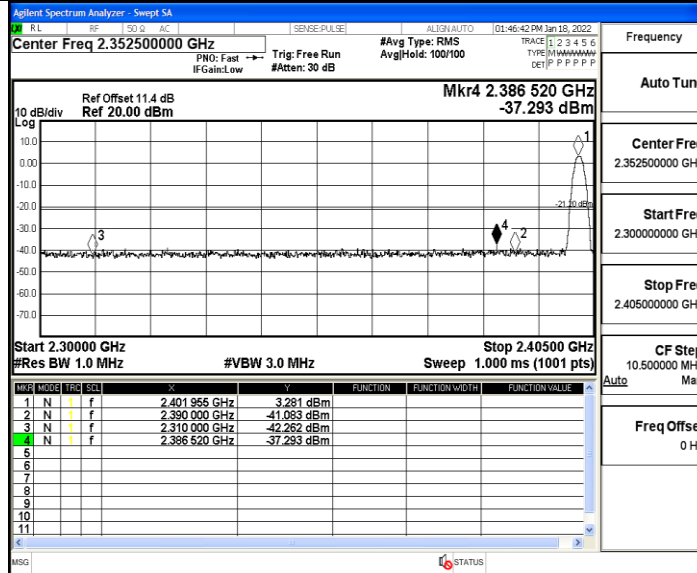
2DH5_Ant1_High_2480_Peak



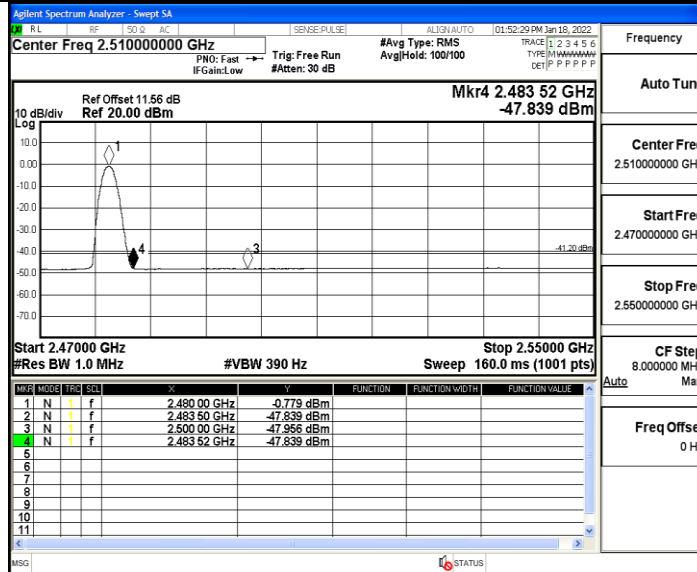
3DH5_Ant1_Low_2402_AV



3DH5_Ant1_Low_2402_Peak



3DH5_Ant1_High_2480_AV



3DH5_Ant1_High_2480_Peak

