



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: SPEAKER BOX

Test Model: PDWR59BTB

Environmental Conditions

Temperature:	23.8 ° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Nick Peng
Supervised by:	Ling Zhu





A.1 20dB Emission Bandwidth

Test Result

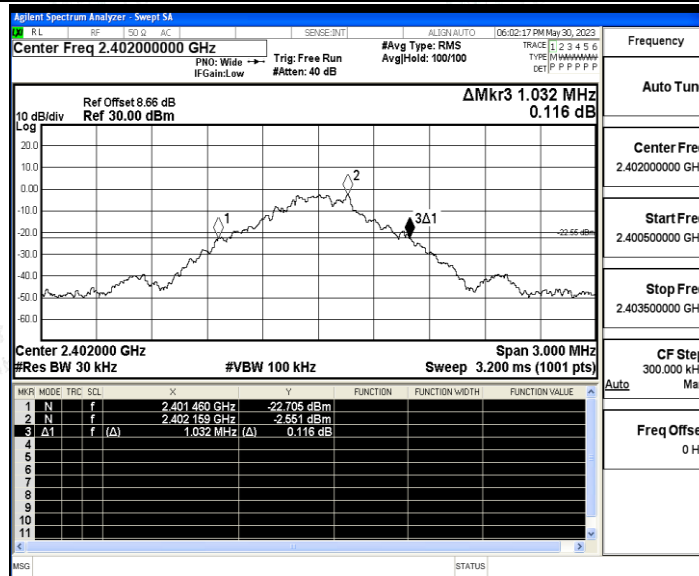
TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	1.032	2401.460	2402.492	---	---
		2441	0.975	2440.517	2441.492	---	---
		2480	1.044	2479.454	2480.498	---	---
2DH5	Ant1	2402	1.332	2401.325	2402.657	---	---
		2441	1.296	2440.352	2441.648	---	---
		2480	1.317	2479.331	2480.648	---	---
3DH5	Ant1	2402	1.311	2401.337	2402.648	---	---
		2441	1.287	2440.346	2441.633	---	---
		2480	1.272	2479.343	2480.615	---	---



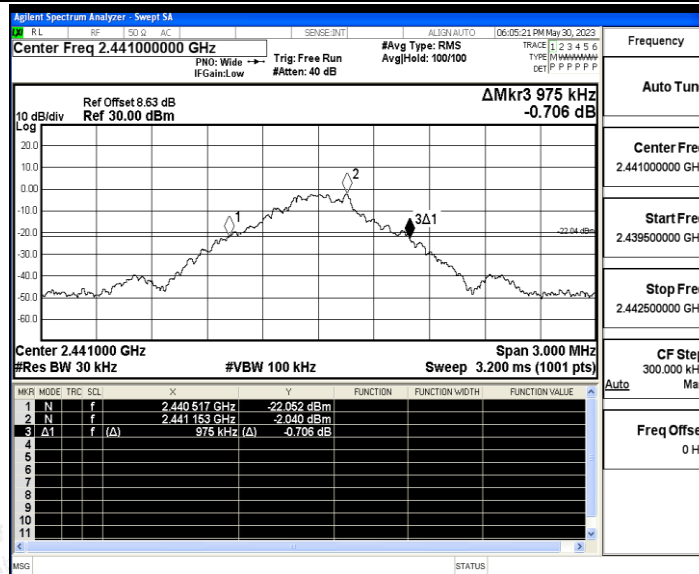


Test Graphs

DH5_Ant1_2402

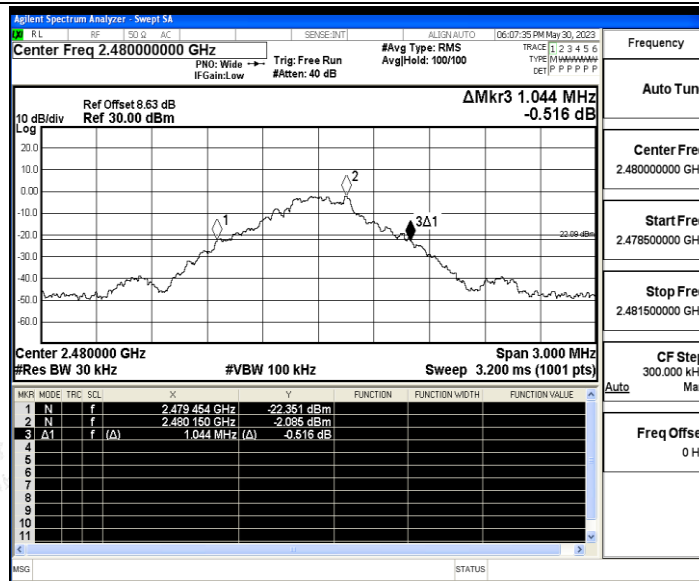


DH5_Ant1_2441

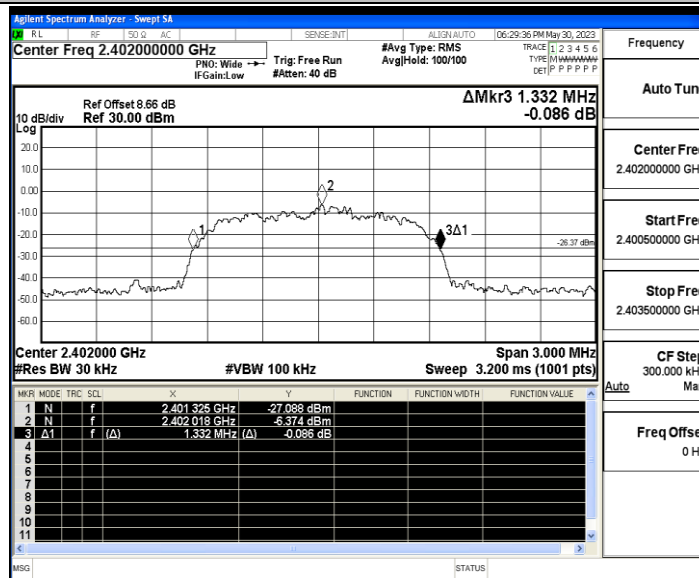


DH5_Ant1_2480



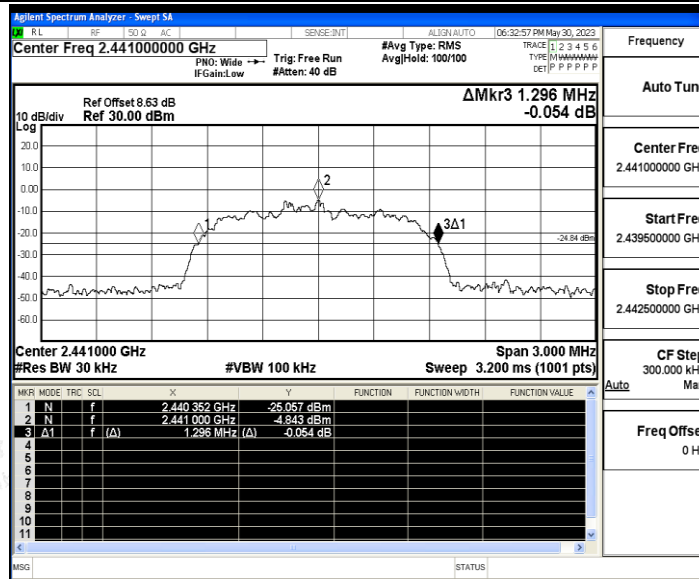


2DH5_Ant1_2402

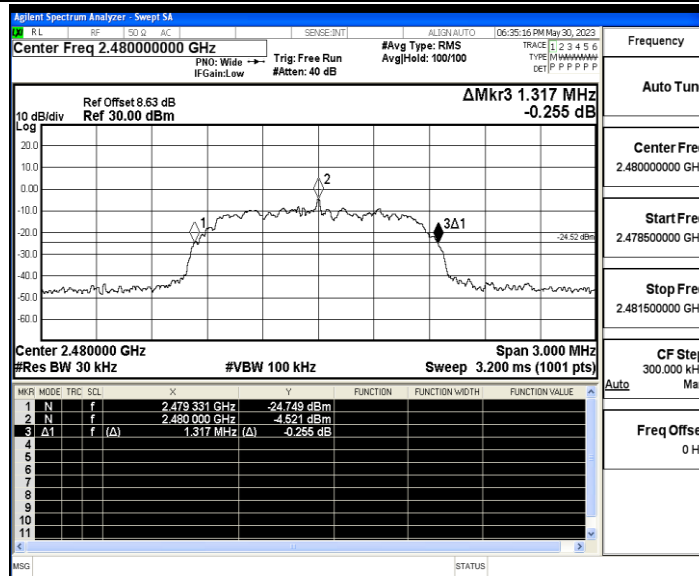


2DH5_Ant1_2441



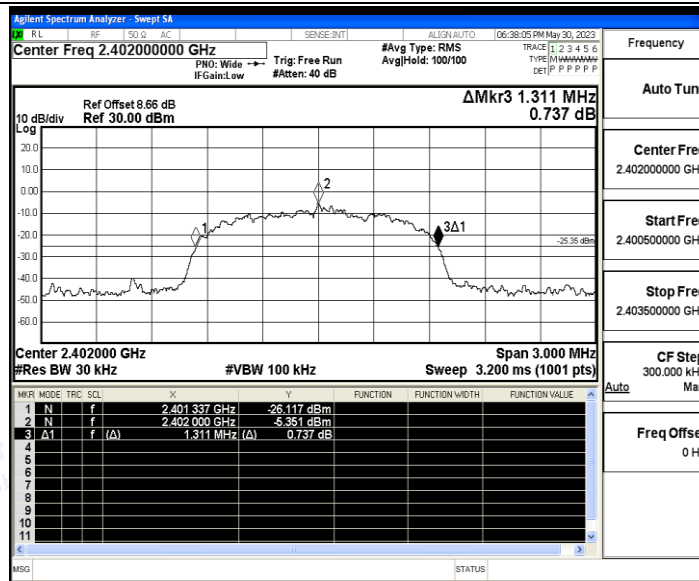


2DH5_Ant1_2480

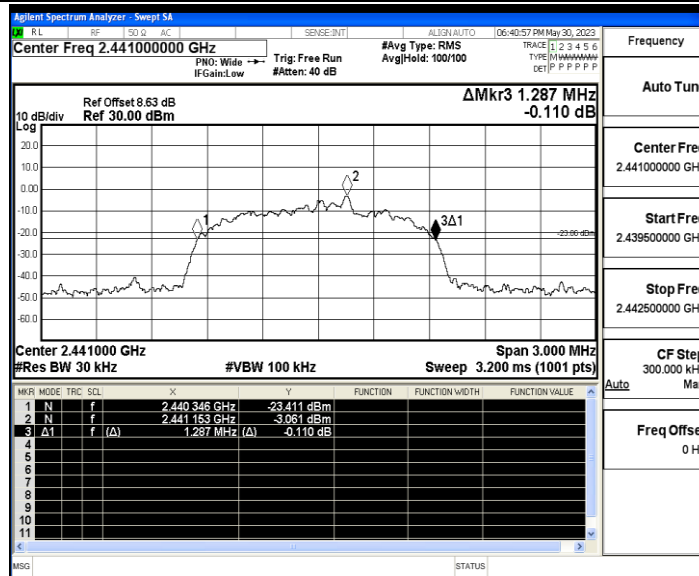


3DH5_Ant1_2402



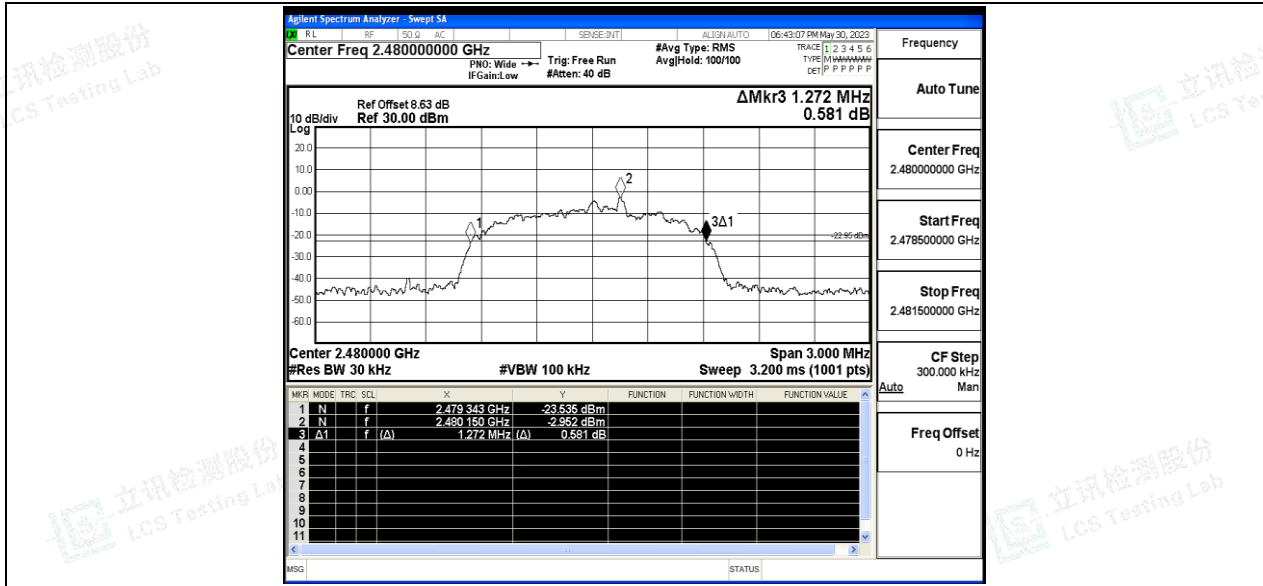


3DH5_Ant1_2441



3DH5_Ant1_2480







A.2 Maximum conducted output power

Test Result Peak

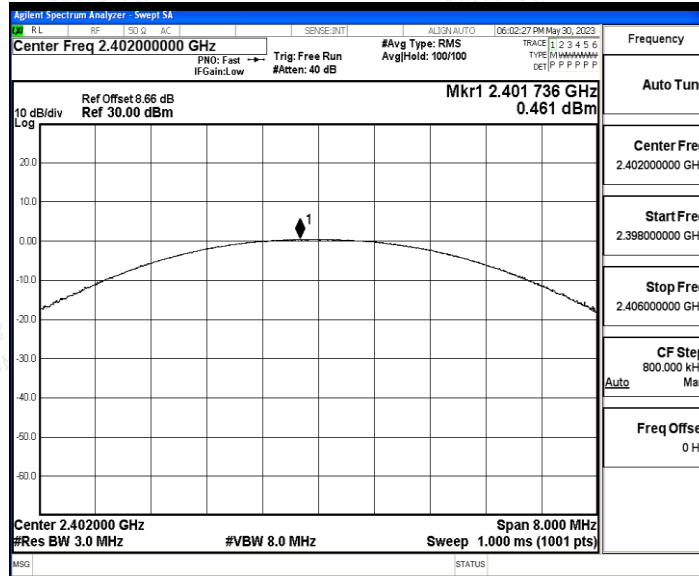
Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	0.46	≤20.97	PASS
		2441	0.66	≤20.97	PASS
		2480	0.78	≤20.97	PASS
2DH5	Ant1	2402	0.23	≤20.97	PASS
		2441	0.29	≤20.97	PASS
		2480	0.55	≤20.97	PASS
3DH5	Ant1	2402	0.26	≤20.97	PASS
		2441	0.38	≤20.97	PASS
		2480	0.57	≤20.97	PASS



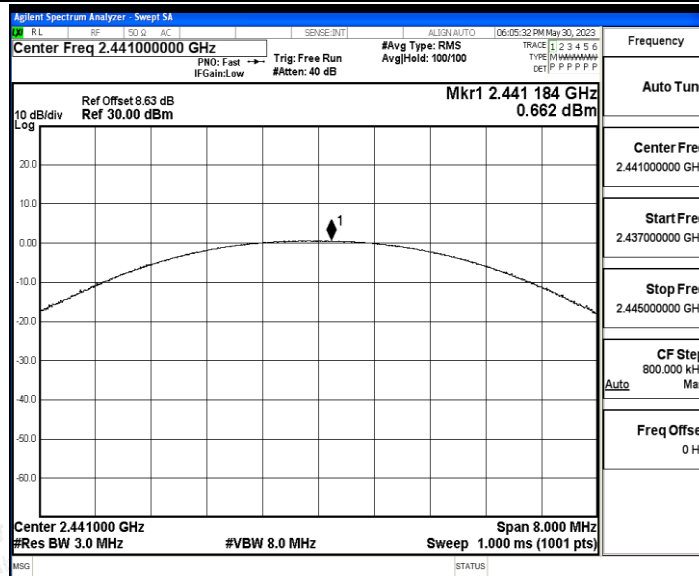


Test Graphs

DH5_Ant1_2402

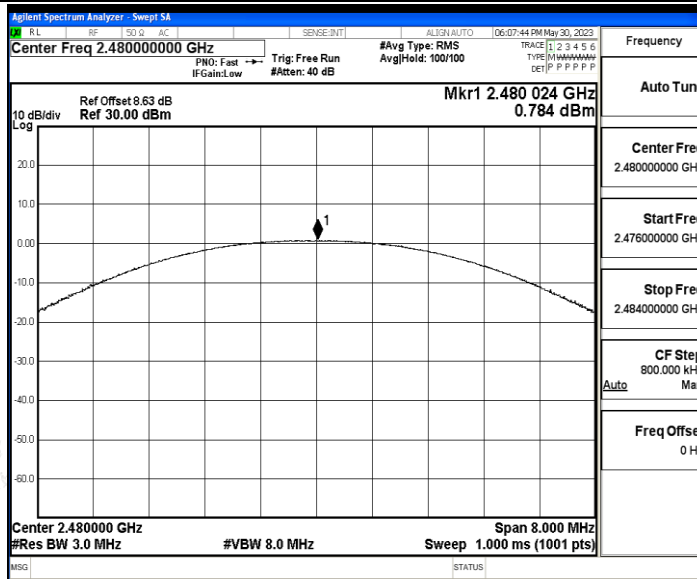


DH5_Ant1_2441

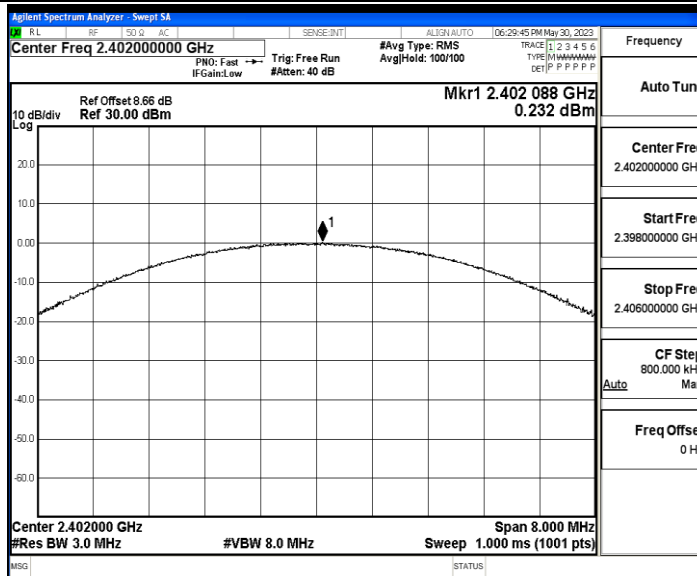


DH5_Ant1_2480



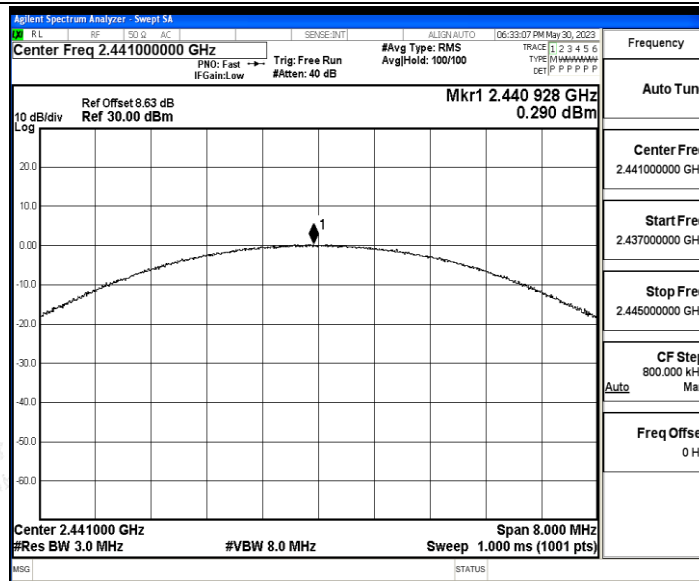


2DH5_Ant1_2402

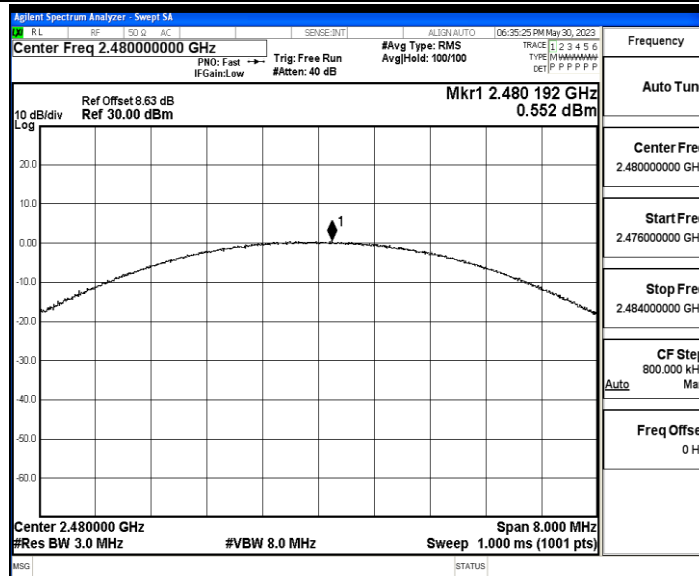


2DH5_Ant1_2441



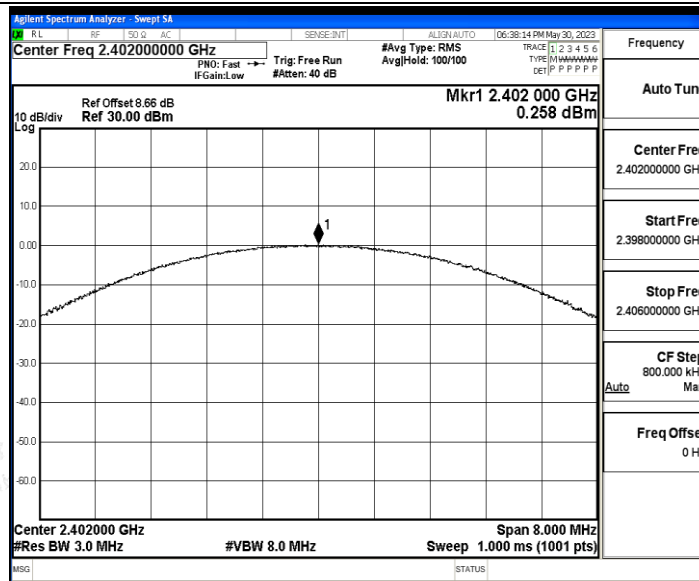


2DH5_Ant1_2480

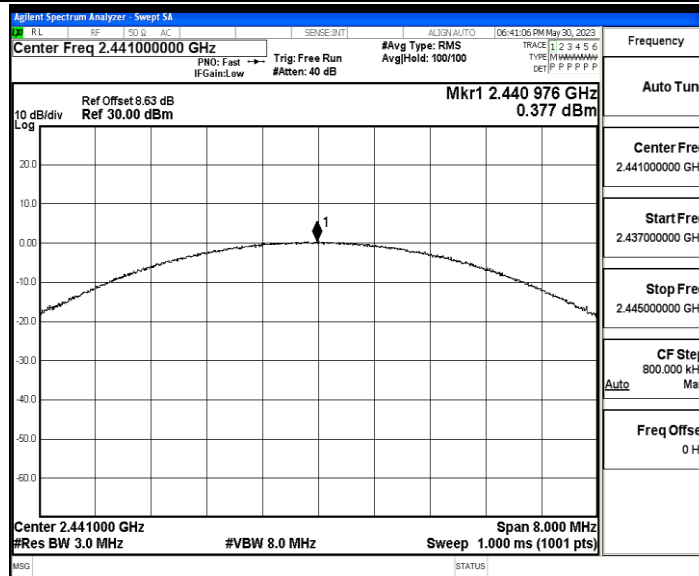


3DH5_Ant1_2402



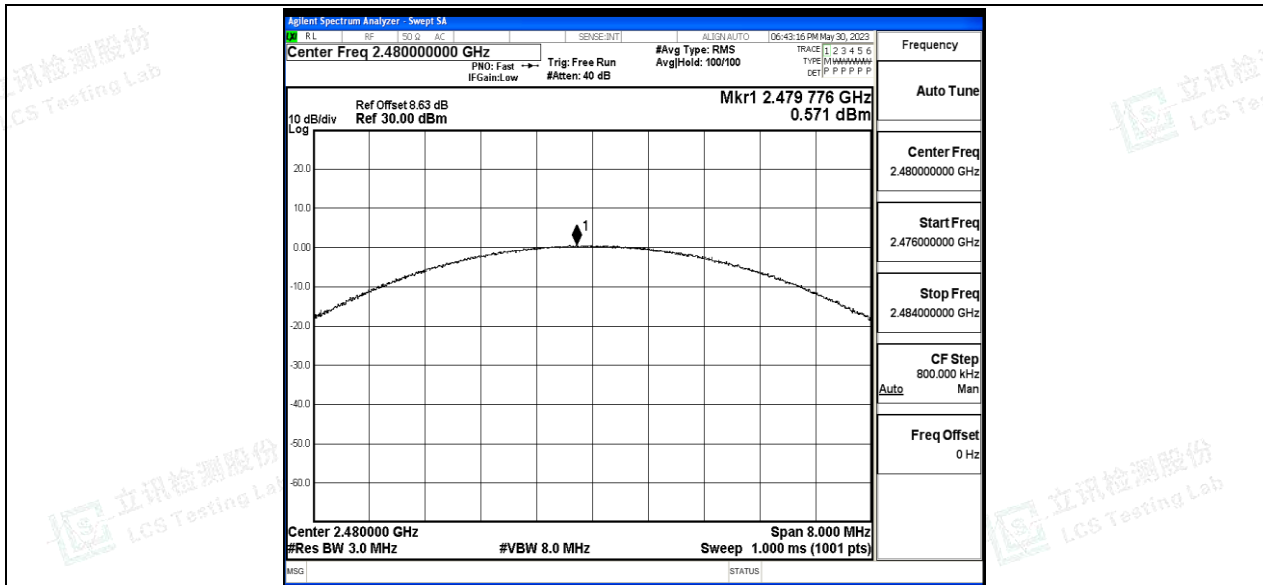


3DH5_Ant1_2441



3DH5_Ant1_2480







A.3 Carrier frequency separation

Test Result

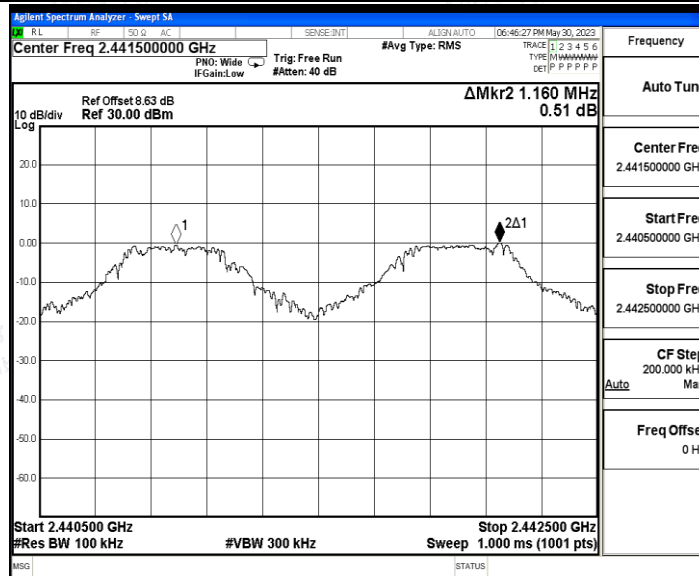
TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.16	≥ 0.696	PASS
2DH5	Ant1	Hop	1.026	≥ 0.888	PASS
3DH5	Ant1	Hop	1.066	≥ 0.874	PASS



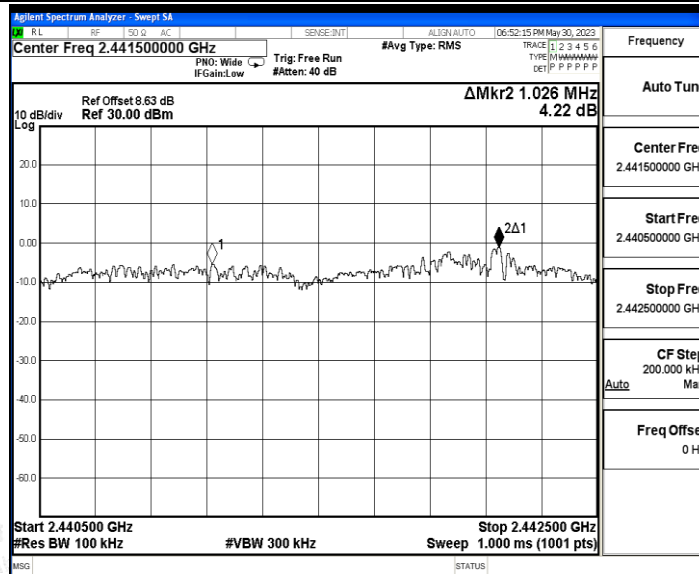


Test Graphs

DH5_Ant1_Hop

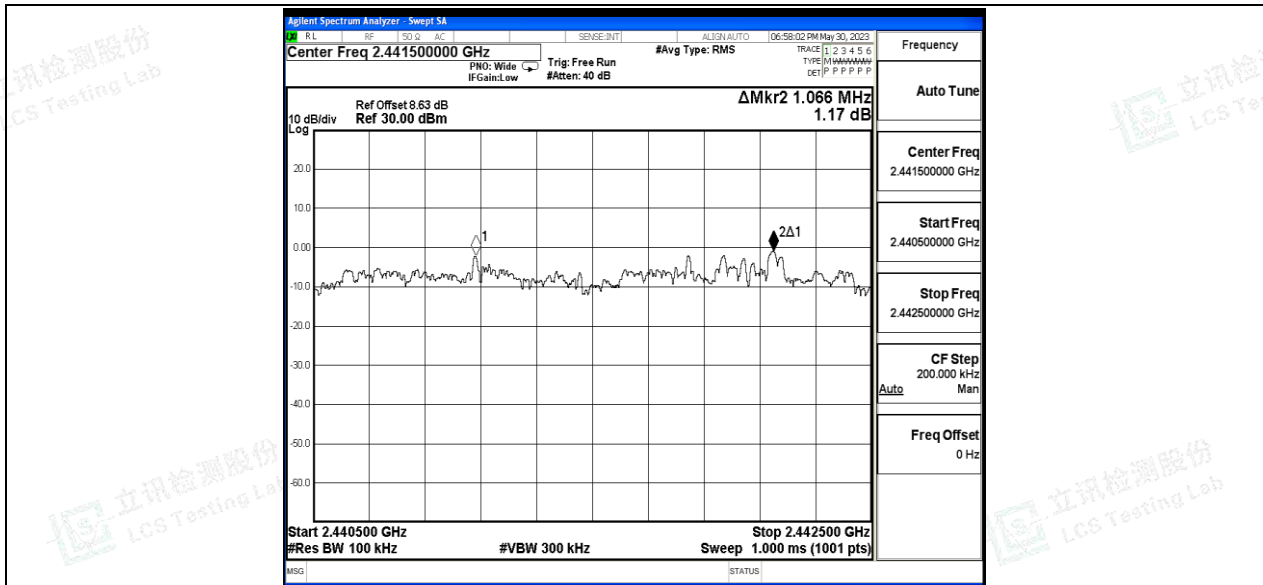


2DH5_Ant1_Hop



3DH5_Ant1_Hop







A.4 Time of occupancy

Test Result

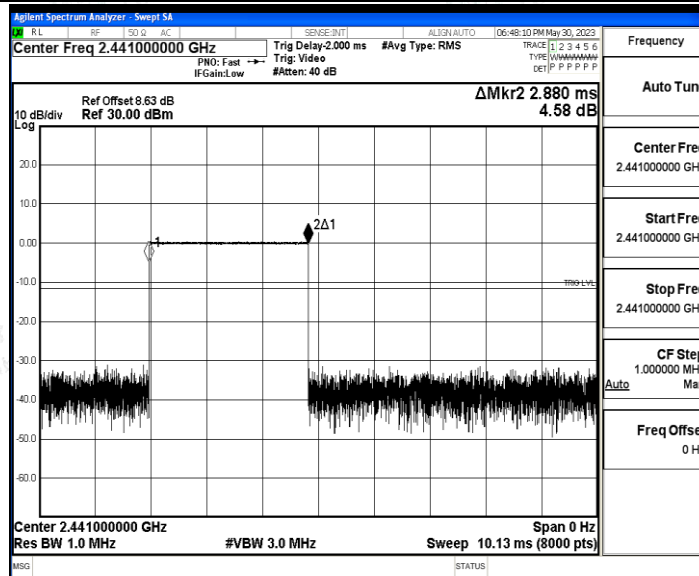
TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.880	106.67	0.307	≤0.4	PASS
2DH5	Ant1	Hop	2.884	106.67	0.308	≤0.4	PASS
3DH5	Ant1	Hop	2.885	106.67	0.308	≤0.4	PASS



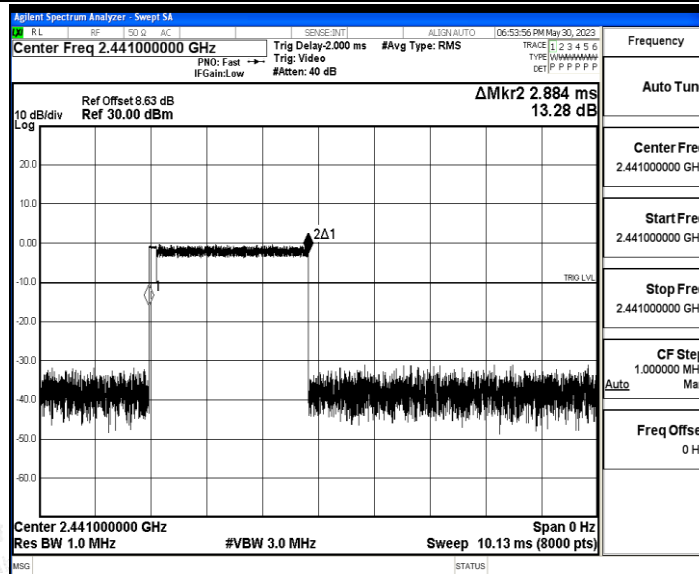


Test Graphs

DH5_Ant1_Hop

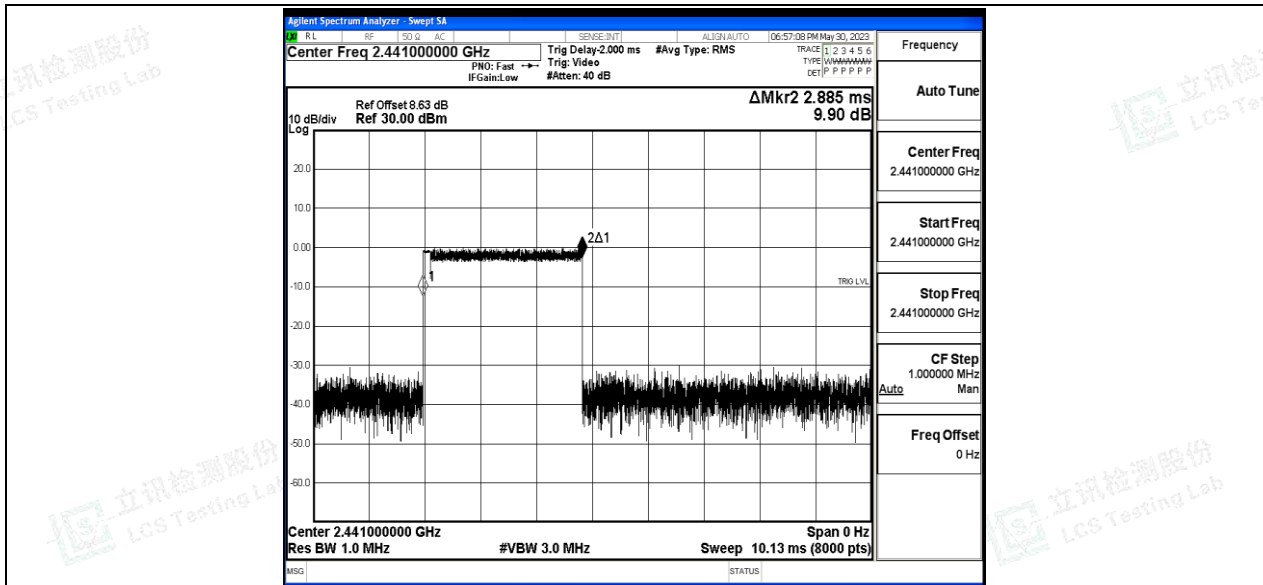


2DH5_Ant1_Hop



3DH5_Ant1_Hop







A.5 Number of hopping channels

Test Result

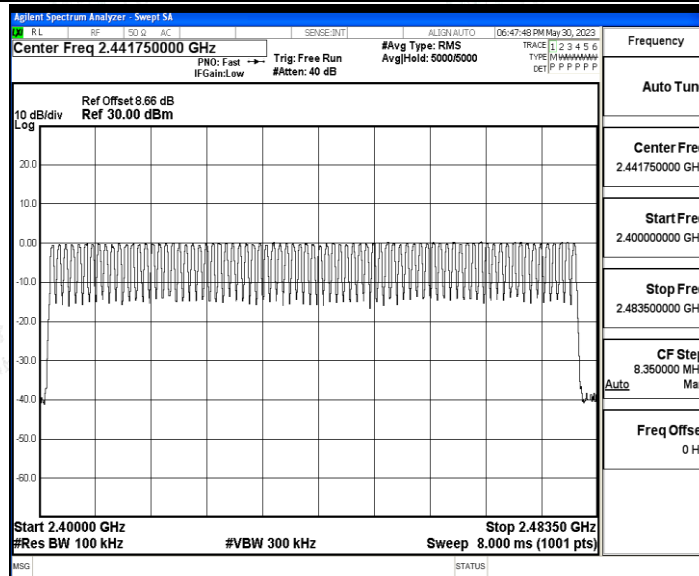
TestMode	Antenna	Frequency[MHz]	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS



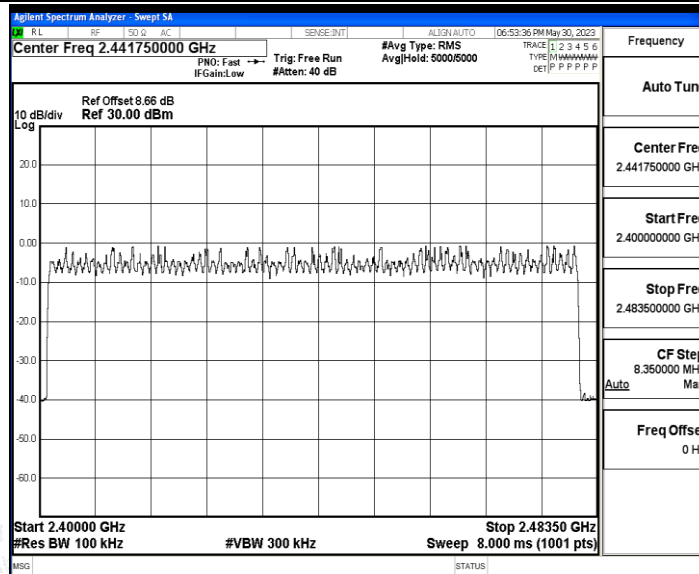


Test Graphs

DH5_Ant1_Hop

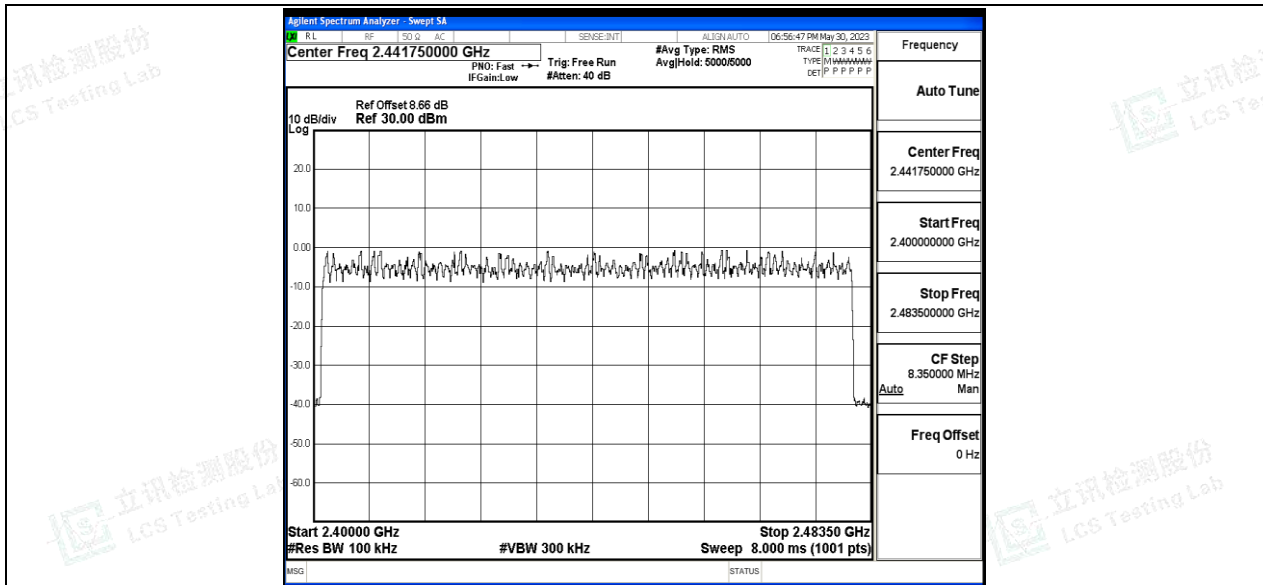


2DH5_Ant1_Hop



3DH5_Ant1_Hop







A.6 Band edge measurements

Test Result

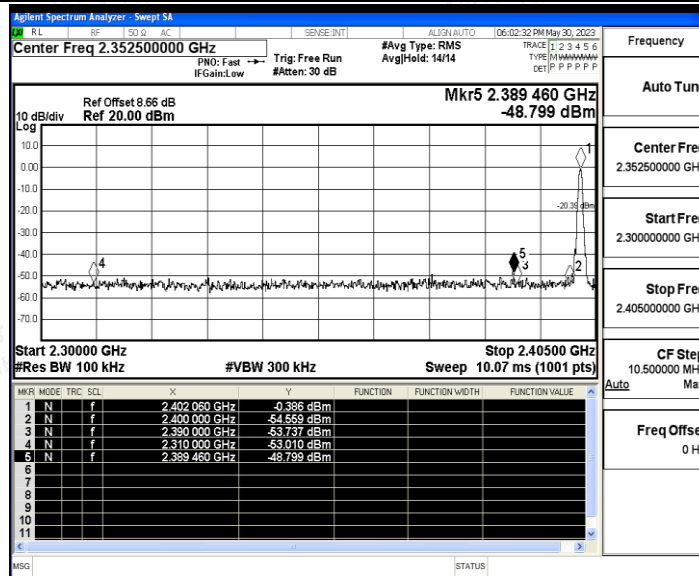
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-0.39	-48.8	≤ -20.39	PASS
		High	2480	-0.53	-49.29	≤ -20.53	PASS
		Low	Hop_2402	-0.74	-47.39	≤ -20.74	PASS
		High	Hop_2480	-0.13	-47.03	≤ -20.13	PASS
2DH5	Ant1	Low	2402	-3.60	-50.34	≤ -23.6	PASS
		High	2480	-4.48	-48.27	≤ -24.48	PASS
		Low	Hop_2402	-5.01	-49.22	≤ -25.01	PASS
		High	Hop_2480	-1.18	-47.56	≤ -21.18	PASS
3DH5	Ant1	Low	2402	-5.66	-50.32	≤ -25.66	PASS
		High	2480	-4.34	-49.2	≤ -24.34	PASS
		Low	Hop_2402	-4.07	-49.21	≤ -24.07	PASS
		High	Hop_2480	-1.08	-47.41	≤ -21.08	PASS



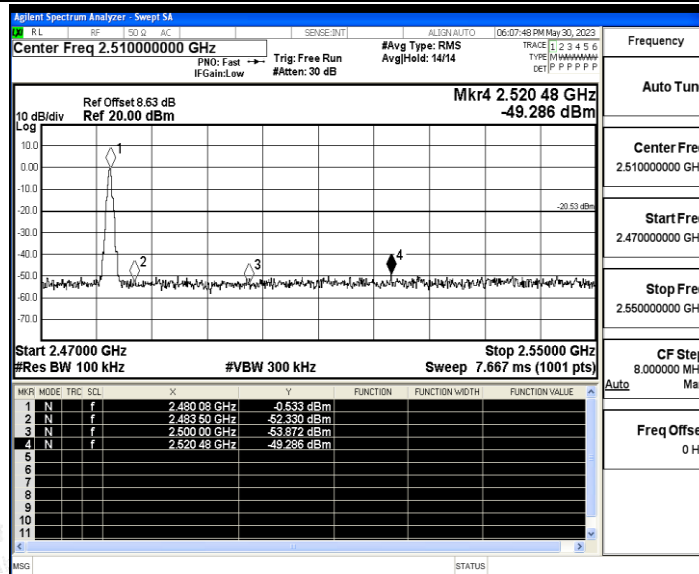


Test Graphs

DH5_Ant1_Low_2402

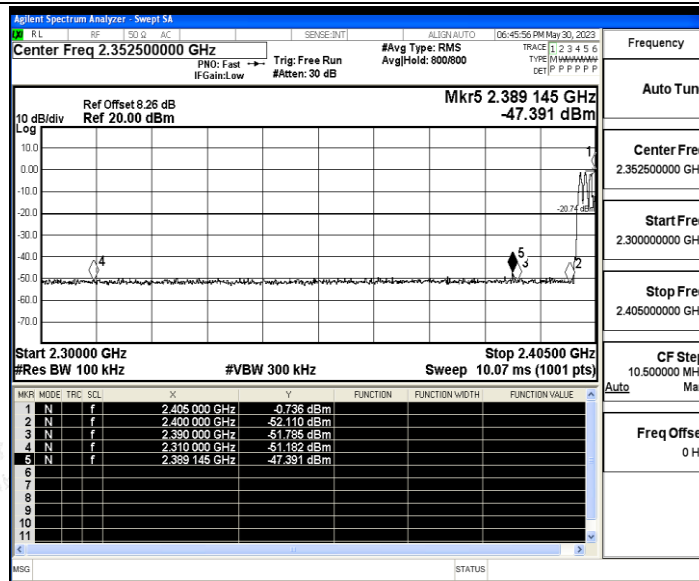


DH5_Ant1_High_2480

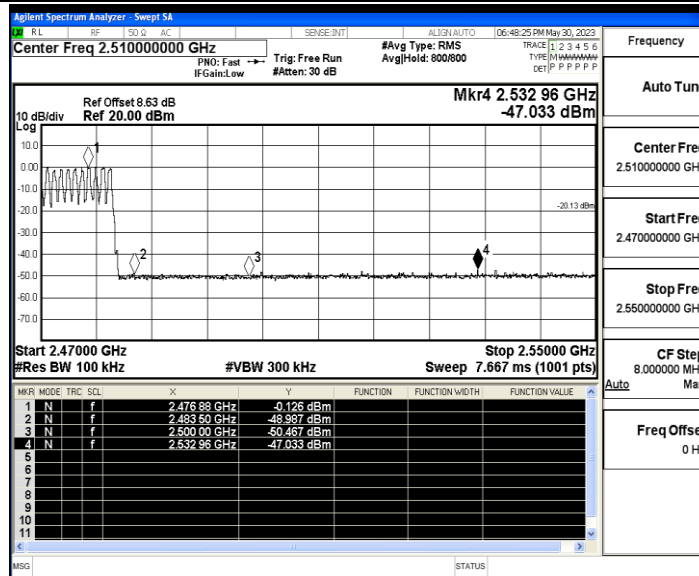


DH5_Ant1_Low_Hop_2402



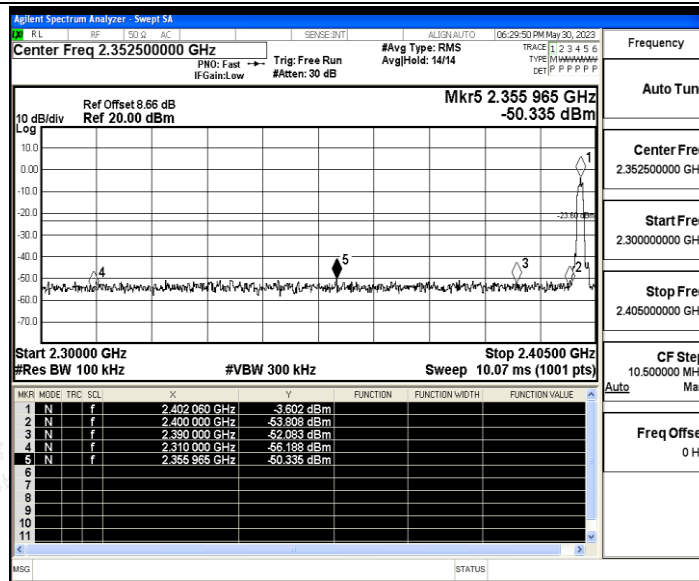


DH5_Ant1_High_Hop_2480

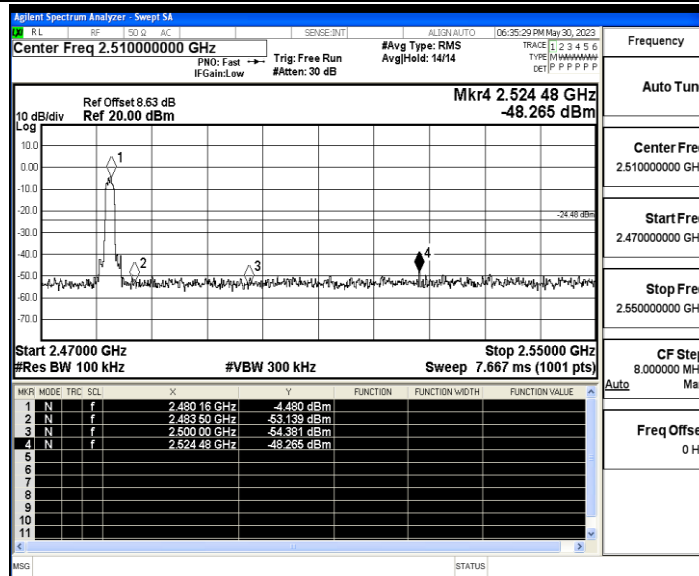


2DH5_Ant1_Low_2402



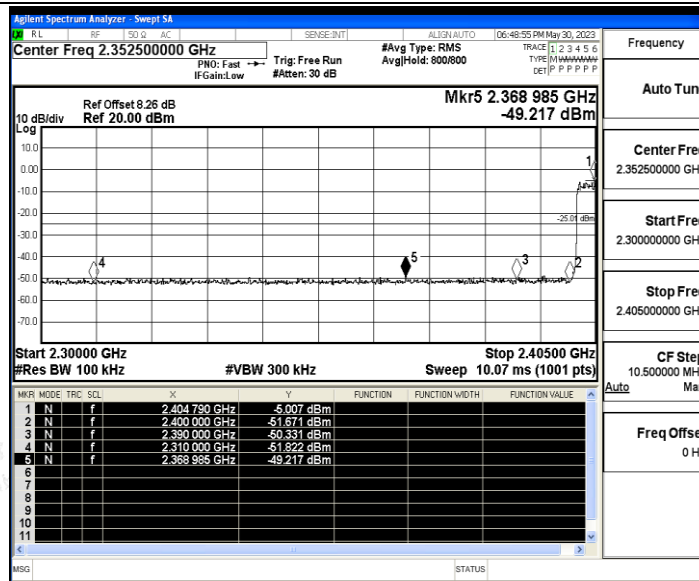


2DH5_Ant1_High_2480

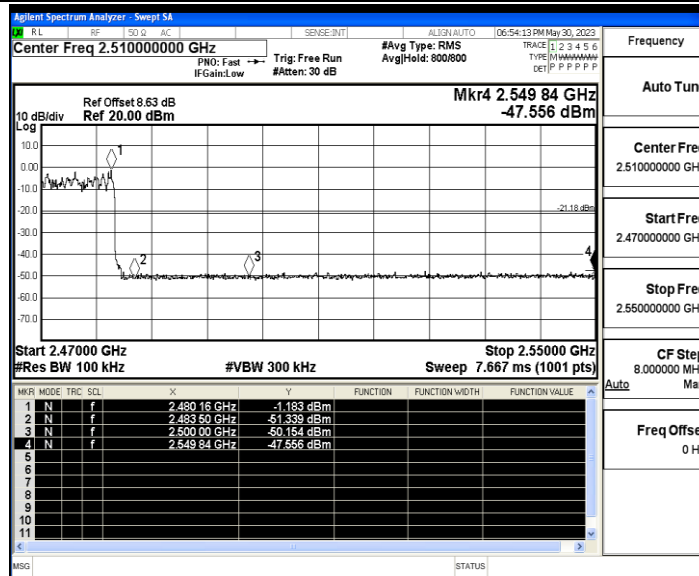


2DH5_Ant1_Low_Hop_2402



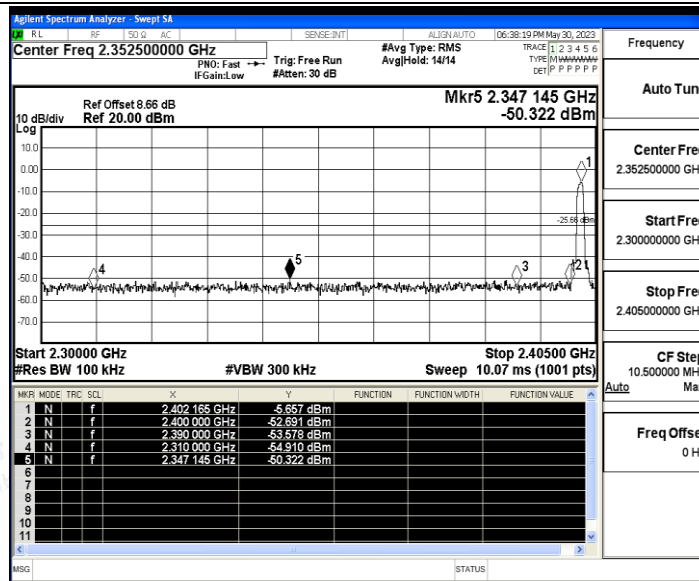


2DH5_Ant1_High_Hop_2480

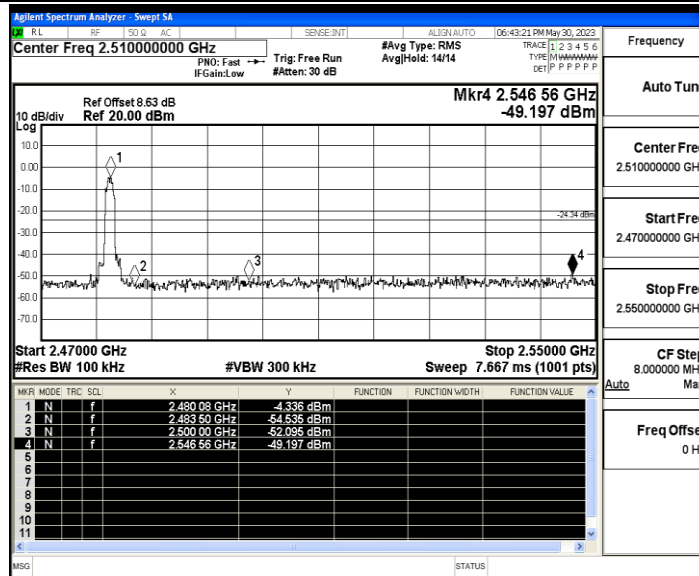


3DH5_Ant1_Low_2402



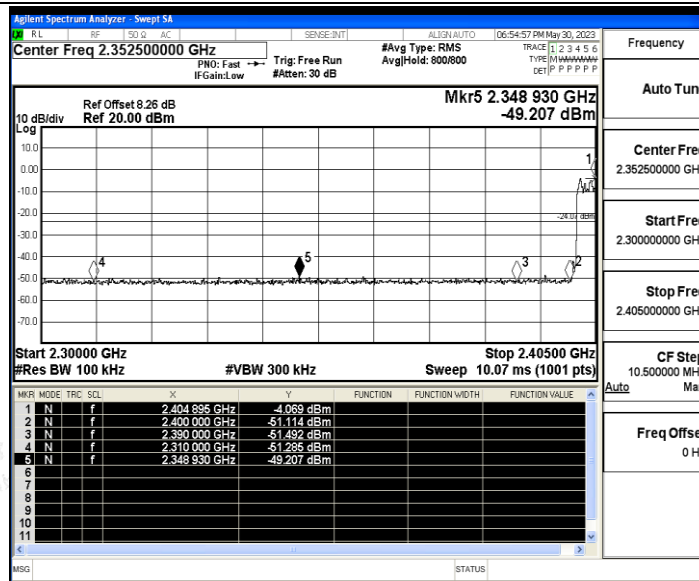


3DH5_Ant1_High_2480

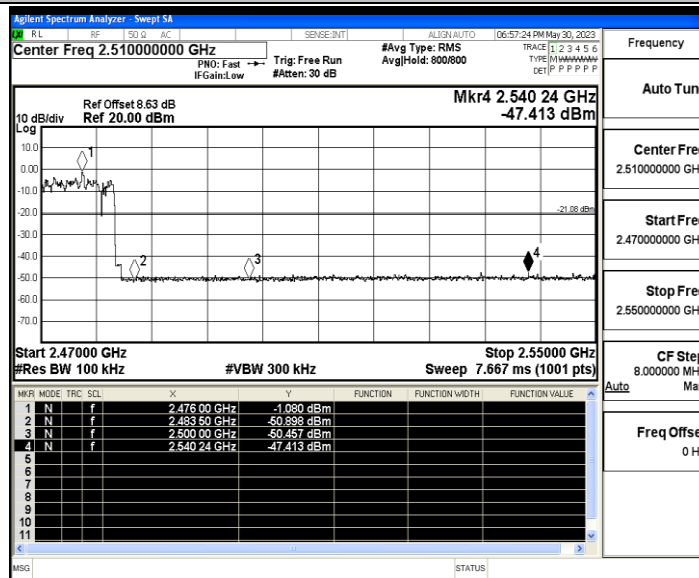


3DH5_Ant1_Low_Hop_2402





3DH5_Ant1_High_Hop_2480





A.7 Conducted Spurious Emission

Test Result

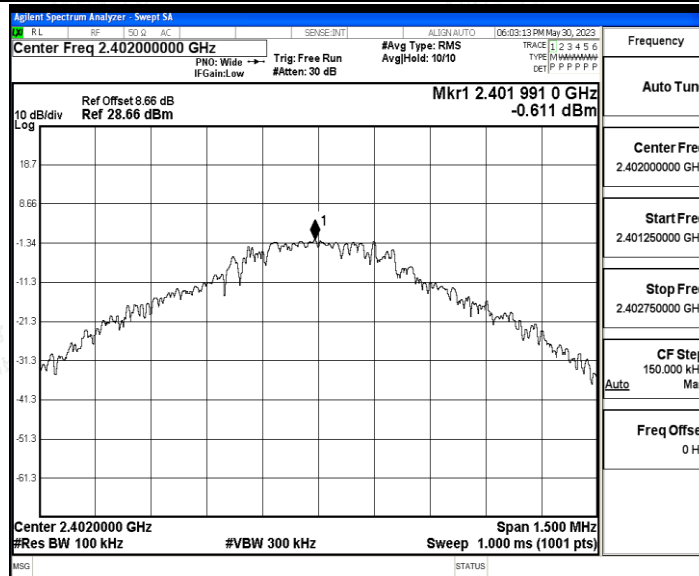
TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-0.61	-0.61	---	PASS
			30~1000	-0.61	-50.34	≤-20.61	PASS
			1000~26500	-0.61	-46.37	≤-20.61	PASS
		2441	Reference	-0.69	-0.69	---	PASS
			30~1000	-0.69	-54.43	≤-20.69	PASS
			1000~26500	-0.69	-46.05	≤-20.69	PASS
		2480	Reference	-0.41	-0.41	---	PASS
			30~1000	-0.41	-44.89	≤-20.41	PASS
			1000~26500	-0.41	-46.47	≤-20.41	PASS
2DH5	Ant1	2402	Reference	-2.00	-2.00	---	PASS
			30~1000	-2.00	-60.45	≤-22	PASS
			1000~26500	-2.00	-46.32	≤-22	PASS
		2441	Reference	-4.81	-4.81	---	PASS
			30~1000	-4.81	-60.77	≤-24.81	PASS
			1000~26500	-4.81	-46.61	≤-24.81	PASS
		2480	Reference	-5.47	-5.47	---	PASS
			30~1000	-5.47	-60.84	≤-25.47	PASS
			1000~26500	-5.47	-46.45	≤-25.47	PASS
3DH5	Ant1	2402	Reference	-4.94	-4.94	---	PASS
			30~1000	-4.94	-60.66	≤-24.94	PASS
			1000~26500	-4.94	-46.78	≤-24.94	PASS
		2441	Reference	-2.16	-2.16	---	PASS
			30~1000	-2.16	-48.06	≤-22.16	PASS
			1000~26500	-2.16	-45.74	≤-22.16	PASS
		2480	Reference	-1.70	-1.70	---	PASS
			30~1000	-1.70	-50.78	≤-21.7	PASS
			1000~26500	-1.70	-45.68	≤-21.7	PASS



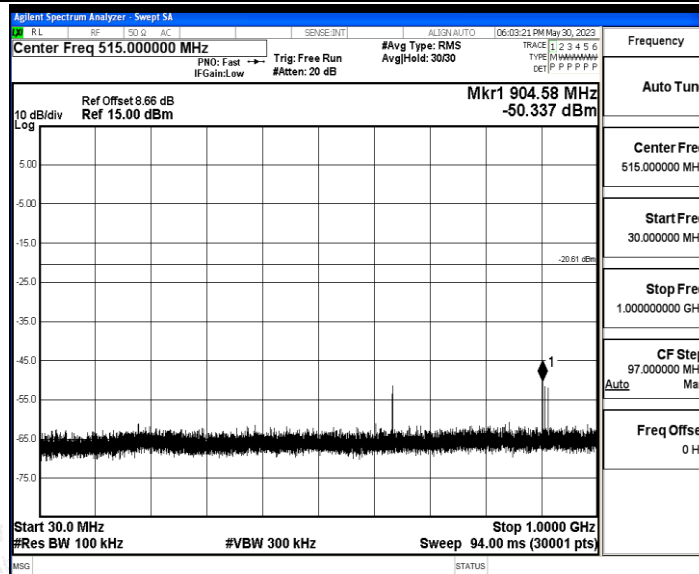


Test Graphs

DH5_Ant1_2402_0~Reference

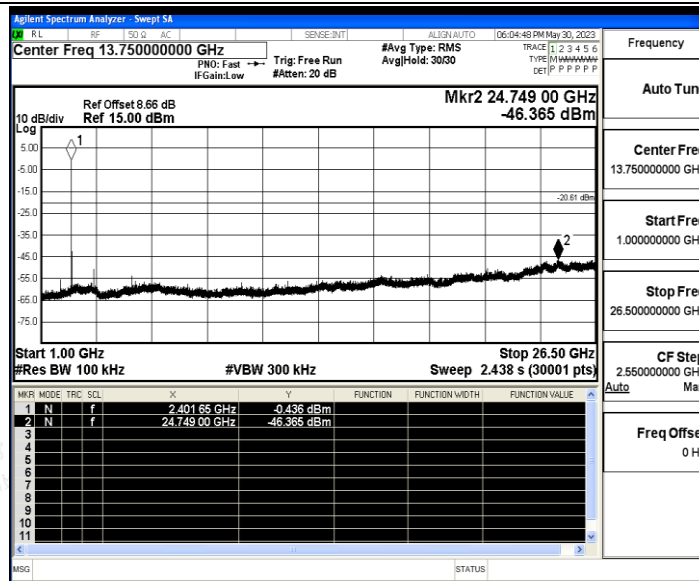


DH5_Ant1_2402_30~1000

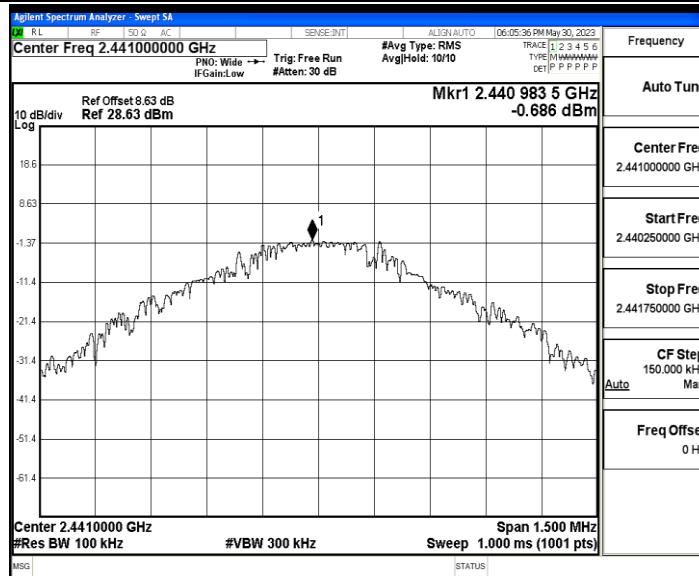


DH5_Ant1_2402_1000~26500



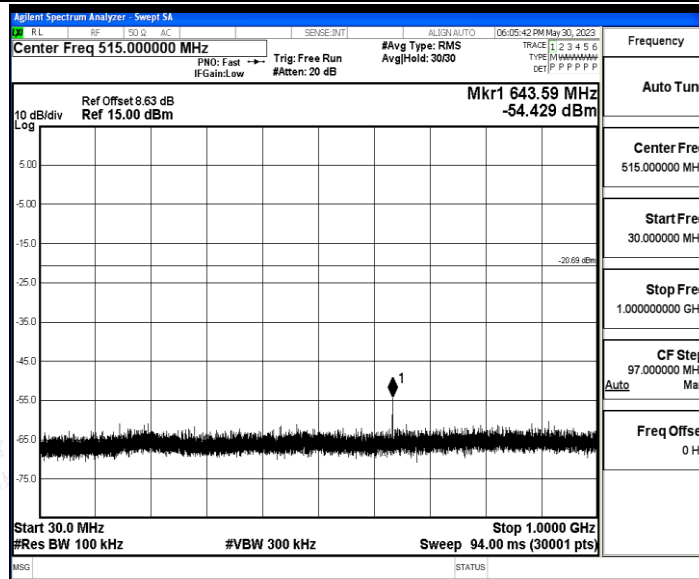


DH5_Ant1_2441_0~Reference

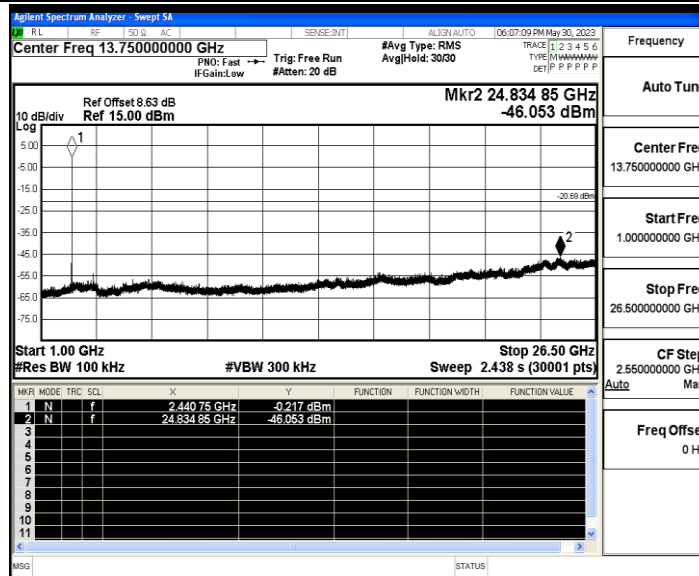


DH5_Ant1_2441_30~1000



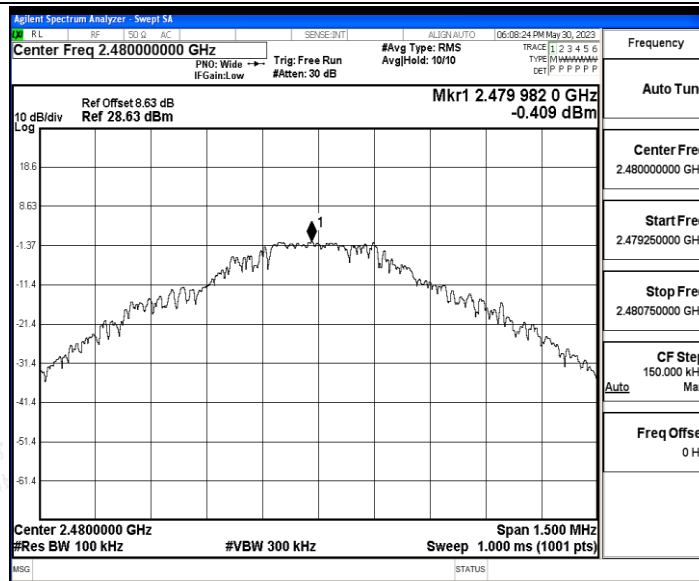


DH5_Ant1_2441_1000~26500

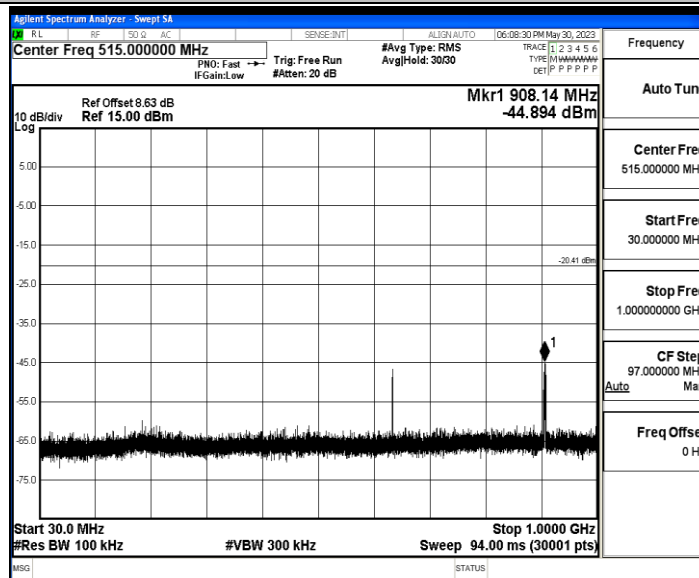


DH5_Ant1_2480_0~Reference



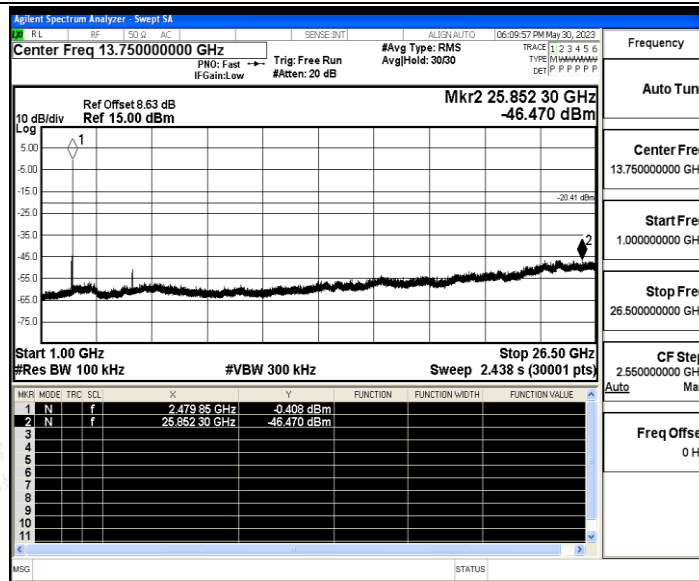


DH5_Ant1_2480_30~1000

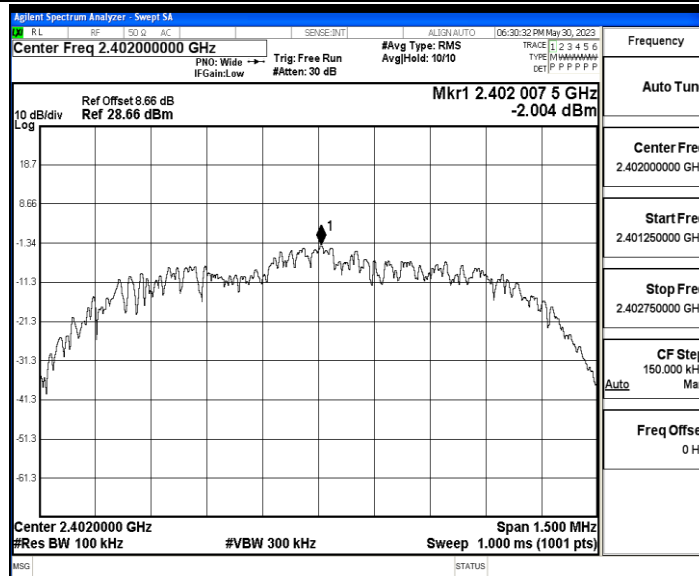


DH5_Ant1_2480_1000~26500



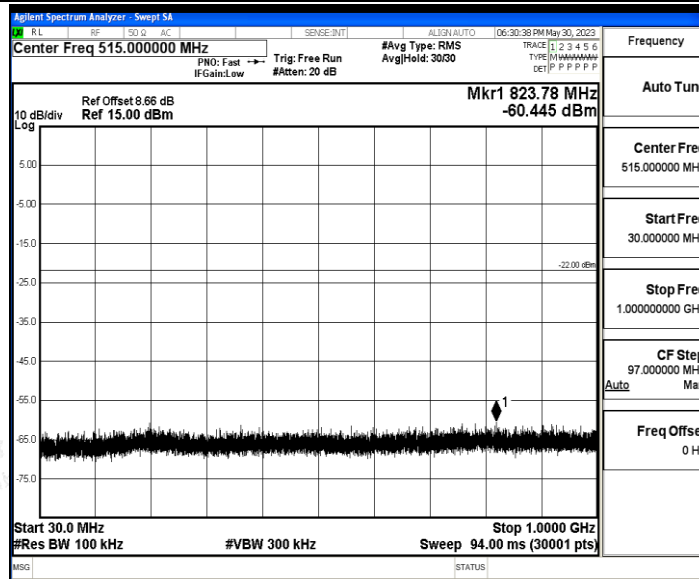


2DH5_Ant1_2402_0~Reference

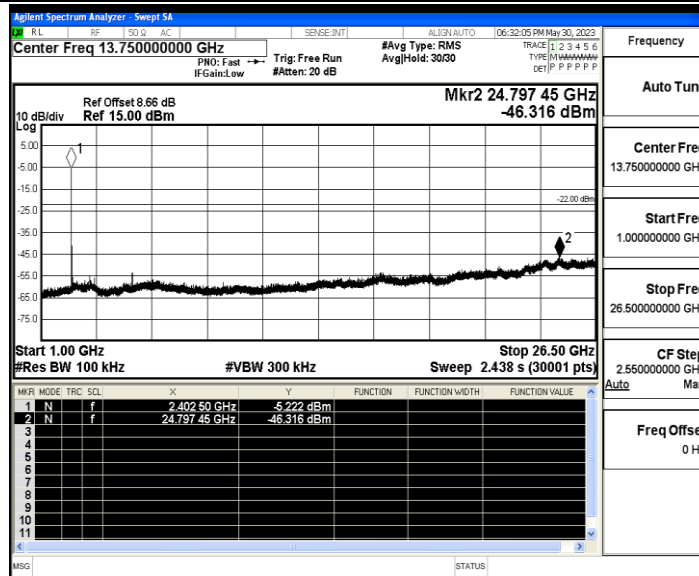


2DH5_Ant1_2402_30~1000



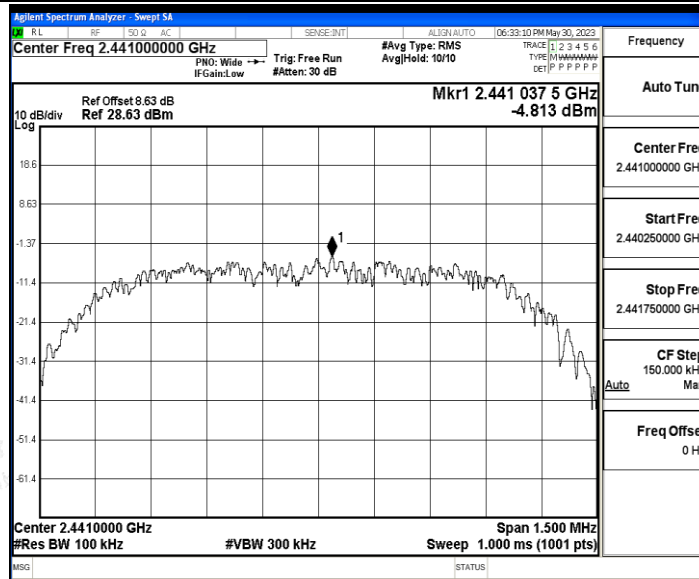


2DH5_Ant1_2402_1000~26500

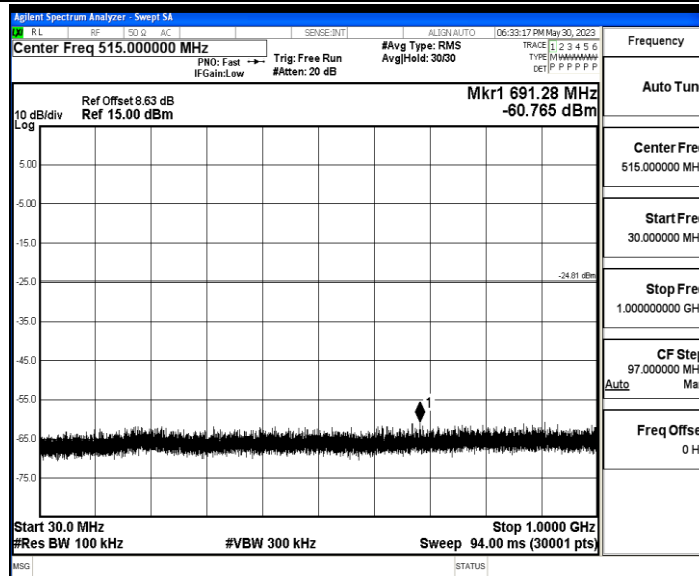


2DH5_Ant1_2441_0~Reference



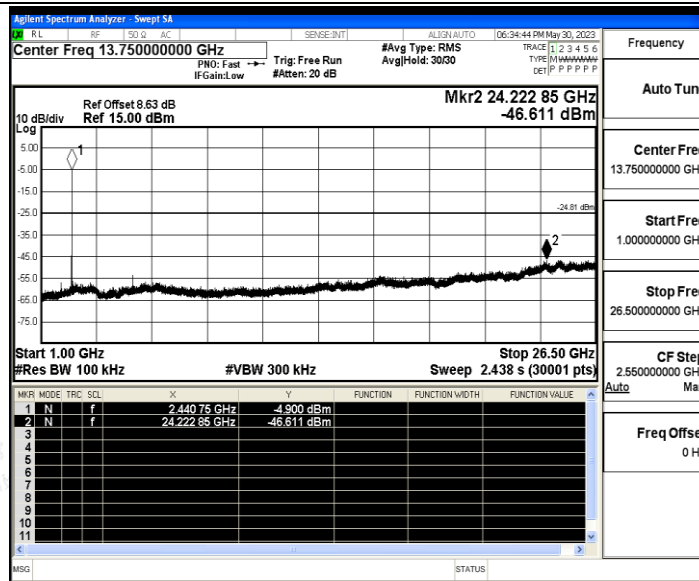


2DH5_Ant1_2441_30~1000

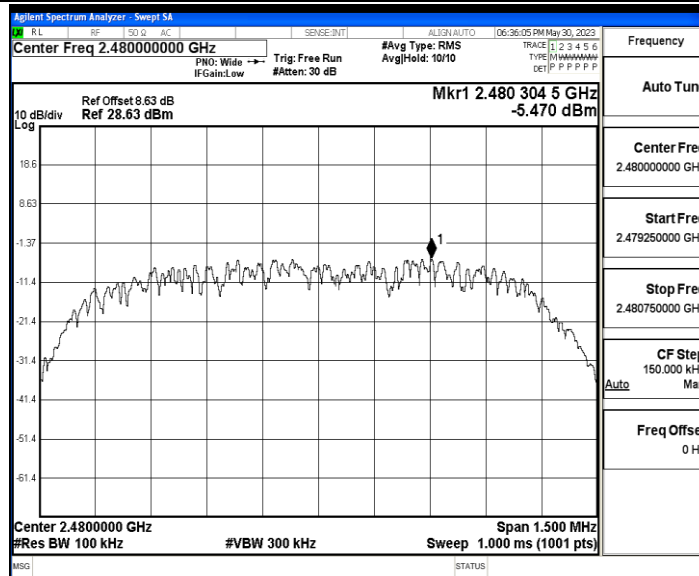


2DH5_Ant1_2441_1000~26500



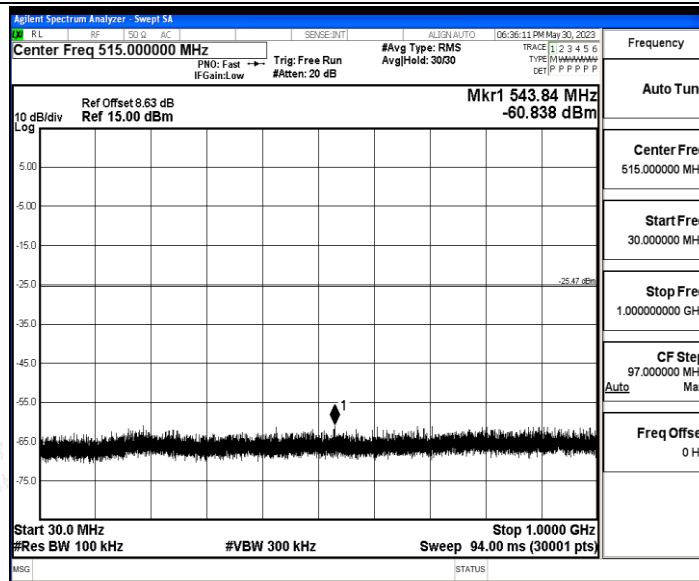


2DH5_Ant1_2480_0~Reference

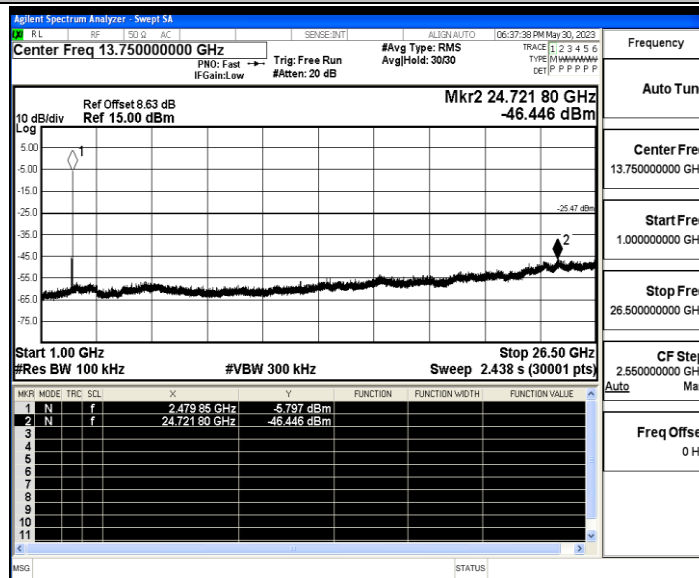


2DH5_Ant1_2480_30~1000



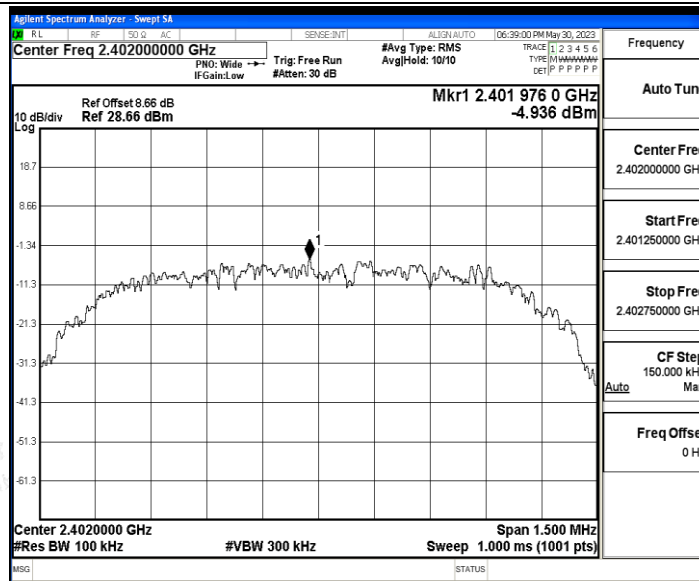


2DH5_Ant1_2480_1000~26500

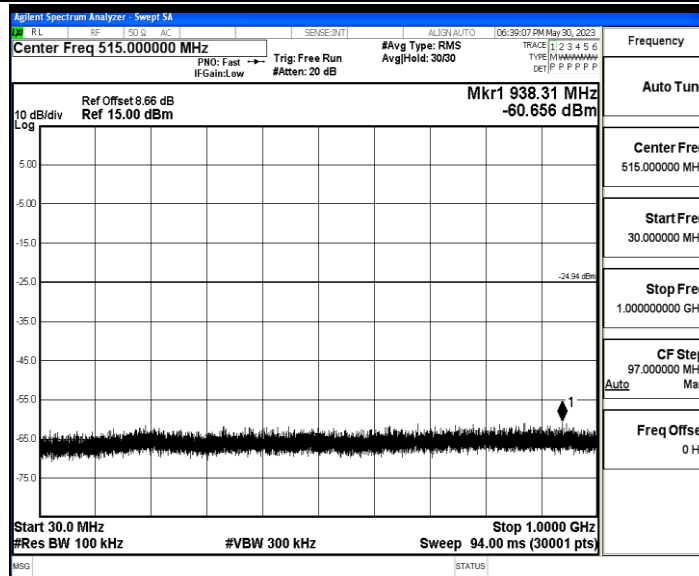


3DH5_Ant1_2402_0~Reference



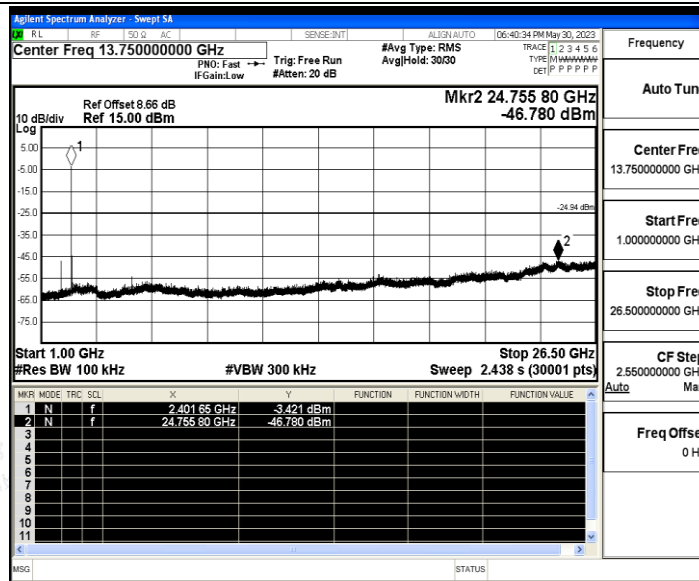


3DH5_Ant1_2402_30~1000

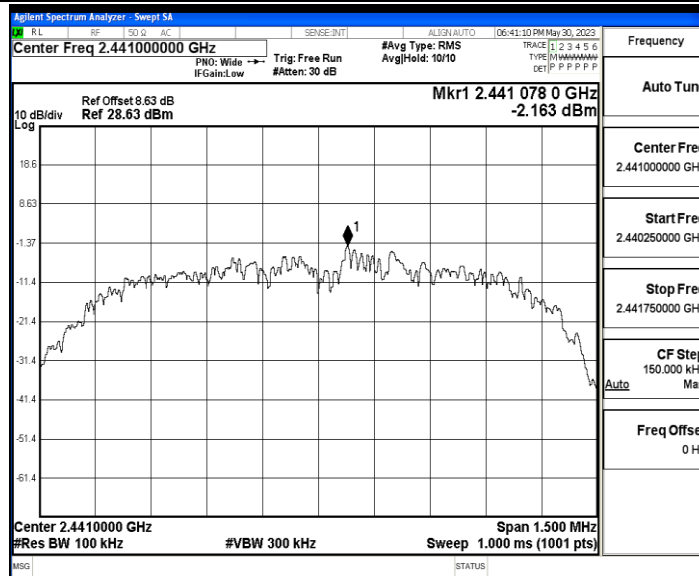


3DH5_Ant1_2402_1000~26500



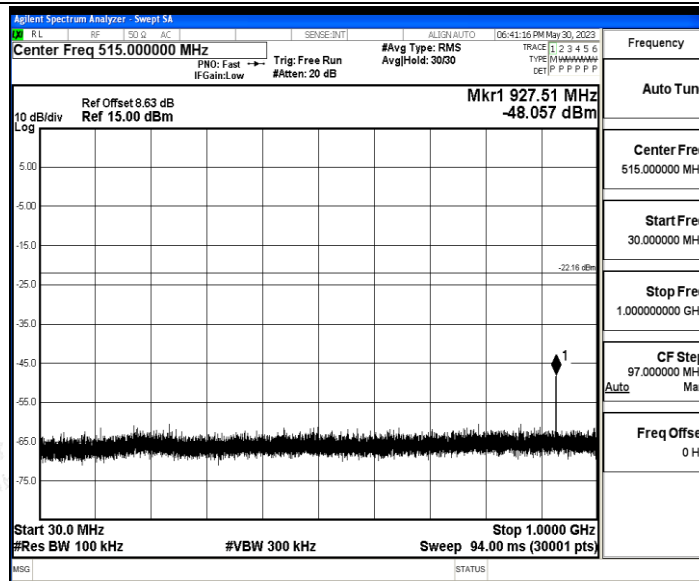


3DH5_Ant1_2441_0~Reference

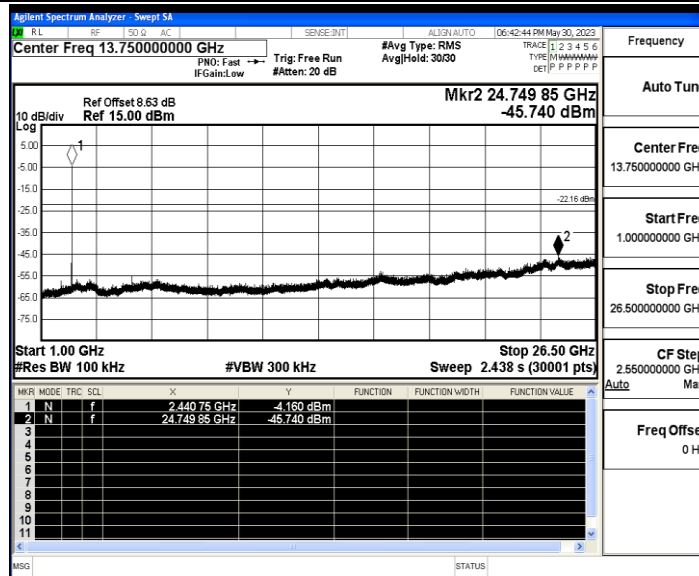


3DH5_Ant1_2441_30~1000



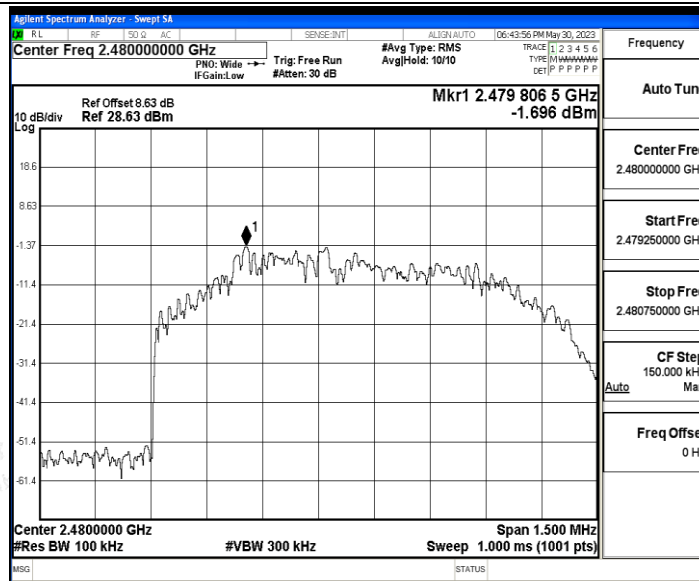


3DH5_Ant1_2441_1000~26500

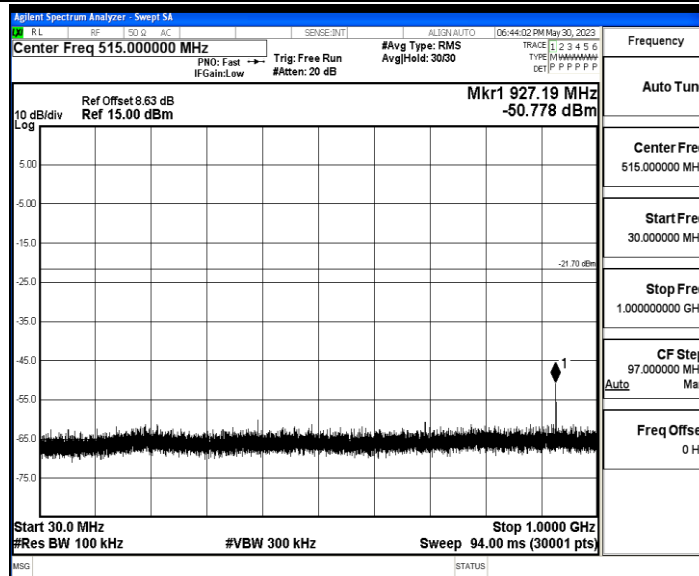


3DH5_Ant1_2480_0~Reference



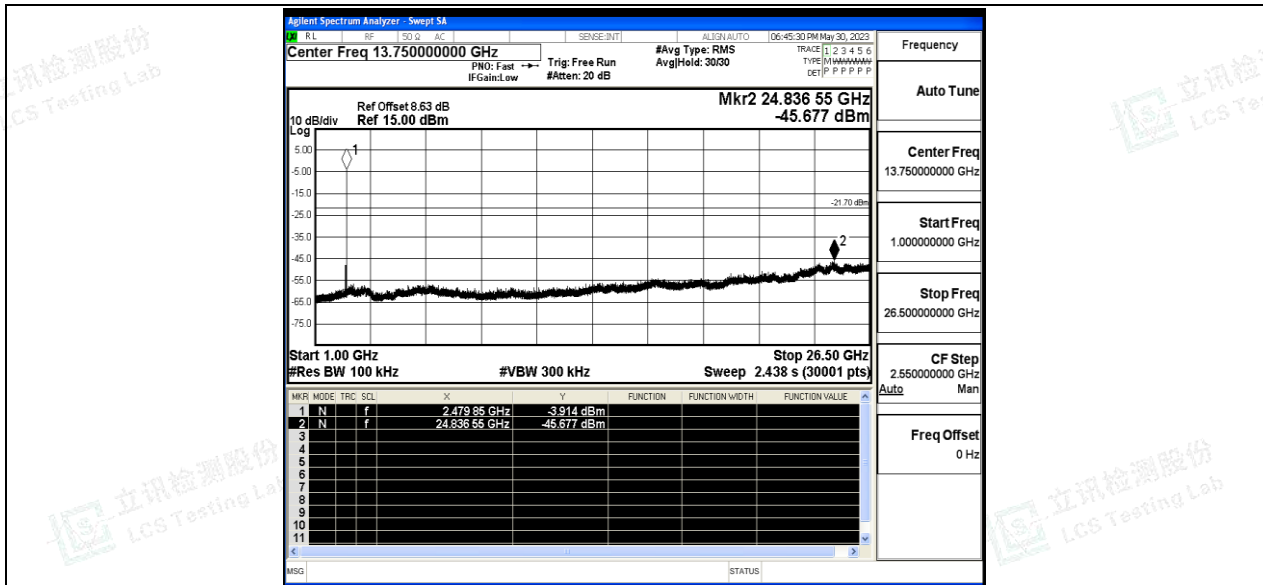


3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500







A.8 Emissions in Restricted Bands

Test Result

TestM ode	Antenna	ChName	Frequency [MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-48.24	≤-41.20	46.96	≤54	PASS
				AV	2386.730	-47.79	≤-41.20	47.41	≤54	PASS
				AV	2390.000	-47.94	≤-41.20	47.26	≤54	PASS
				Peak	2310.000	-43.31	≤-21.20	51.89	≤74	PASS
				Peak	2367.830	-37.39	≤-21.20	57.81	≤74	PASS
				Peak	2390.000	-43.1	≤-21.20	52.10	≤74	PASS
		High	2480	AV	2483.500	-47.23	≤-41.20	47.97	≤54	PASS
				AV	2499.200	-47.14	≤-41.20	48.06	≤54	PASS
				AV	2500.000	-47.29	≤-41.20	47.91	≤54	PASS
				Peak	2483.500	-41.99	≤-21.20	53.21	≤74	PASS
				Peak	2496.960	-38.66	≤-21.20	56.54	≤74	PASS
				Peak	2500.000	-41.31	≤-21.20	53.89	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-40.47	≤-21.20	54.73	≤74	PASS
				Peak	2353.655	-36.66	≤-21.20	58.54	≤74	PASS
				Peak	2390.000	-40.49	≤-21.20	54.71	≤74	PASS
		High	Hop_2480	Peak	2483.500	-38.72	≤-21.20	56.48	≤74	PASS
				Peak	2492.880	-36.91	≤-21.20	58.29	≤74	PASS
				Peak	2500.000	-37.8	≤-21.20	57.40	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-48.2	≤-41.20	47.00	≤54	PASS
				AV	2389.460	-47.79	≤-41.20	47.41	≤54	PASS
				AV	2390.000	-47.95	≤-41.20	47.25	≤54	PASS
				Peak	2310.000	-42.62	≤-21.20	52.58	≤74	PASS
				Peak	2319.320	-38.52	≤-21.20	56.68	≤74	PASS
				Peak	2390.000	-40.81	≤-21.20	54.39	≤74	PASS
		High	2480	AV	2483.500	-47.2	≤-41.20	48.00	≤54	PASS
				AV	2499.600	-47.18	≤-41.20	48.02	≤54	PASS
				AV	2500.000	-47.18	≤-41.20	48.02	≤54	PASS
				Peak	2483.500	-44.05	≤-21.20	51.15	≤74	PASS
				Peak	2488.960	-38.27	≤-21.20	56.93	≤74	PASS
				Peak	2500.000	-43.96	≤-21.20	51.24	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-41.05	≤-21.20	54.15	≤74	PASS
				Peak	2389.040	-37.73	≤-21.20	57.47	≤74	PASS
				Peak	2390.000	-39.24	≤-21.20	55.96	≤74	PASS
		High	Hop_2480	Peak	2483.500	-38.31	≤-21.20	56.89	≤74	PASS
				Peak	2499.680	-36.3	≤-21.20	58.90	≤74	PASS
				Peak	2500.000	-38.88	≤-21.20	56.32	≤74	PASS





3DH5	Ant1	Low	2402	AV	2310.000	-48.24	≤-41.20	46.96	≤54	PASS
				AV	2389.145	-47.71	≤-41.20	47.49	≤54	PASS
				AV	2390.000	-47.78	≤-41.20	47.42	≤54	PASS
				Peak	2310.000	-40.49	≤-21.20	54.71	≤74	PASS
				Peak	2311.445	-39.02	≤-21.20	56.18	≤74	PASS
				Peak	2390.000	-41.84	≤-21.20	53.36	≤74	PASS
		High	2480	AV	2483.500	-47.15	≤-41.20	48.05	≤54	PASS
				AV	2483.520	-47.15	≤-41.20	48.05	≤54	PASS
				AV	2500.000	-47.34	≤-41.20	47.86	≤54	PASS
				Peak	2483.500	-42.48	≤-21.20	52.72	≤74	PASS
				Peak	2495.920	-38.6	≤-21.20	56.60	≤74	PASS
				Peak	2500.000	-42.1	≤-21.20	53.10	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-39.11	≤-21.20	56.09	≤74	PASS
				Peak	2382.215	-37.91	≤-21.20	57.29	≤74	PASS
				Peak	2390.000	-39.87	≤-21.20	55.33	≤74	PASS
		High	Hop_2480	Peak	2483.500	-39.35	≤-21.20	55.85	≤74	PASS
				Peak	2492.000	-36.99	≤-21.20	58.21	≤74	PASS
				Peak	2500.000	-38.68	≤-21.20	56.52	≤74	PASS

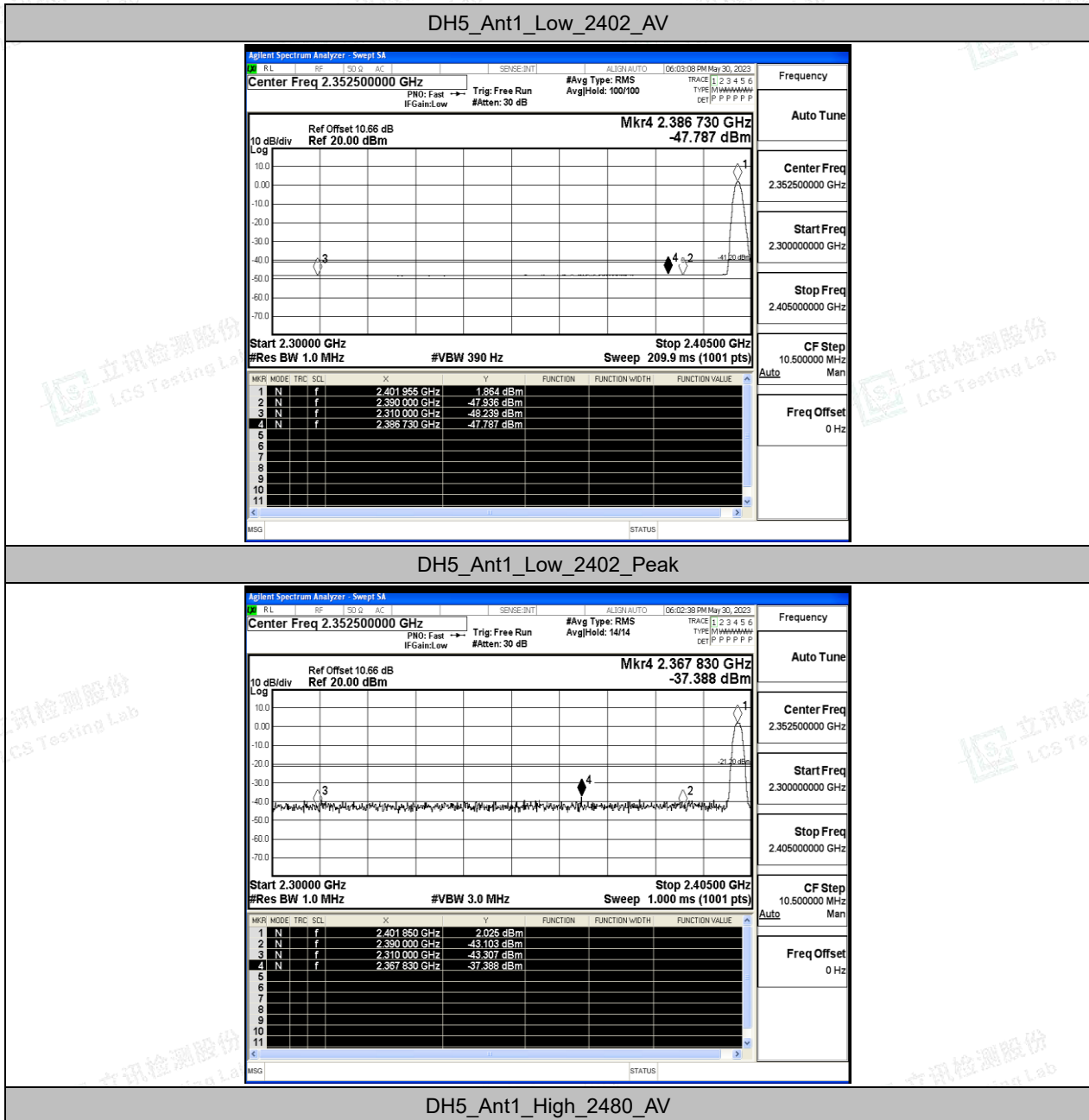
Note:

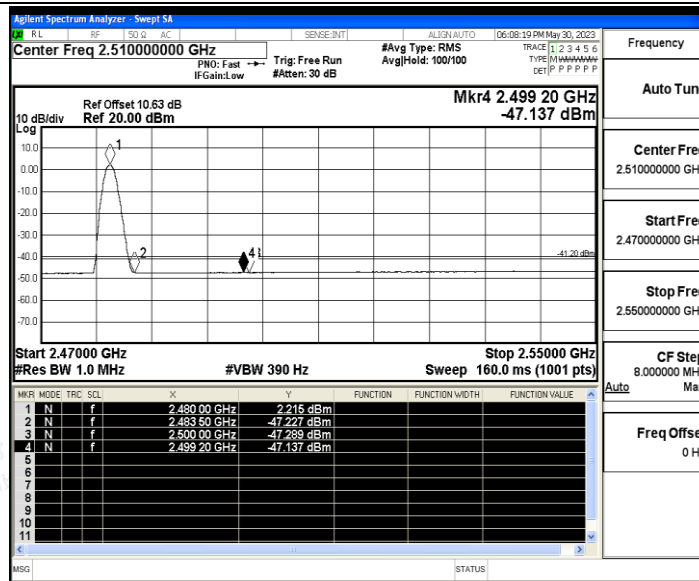
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



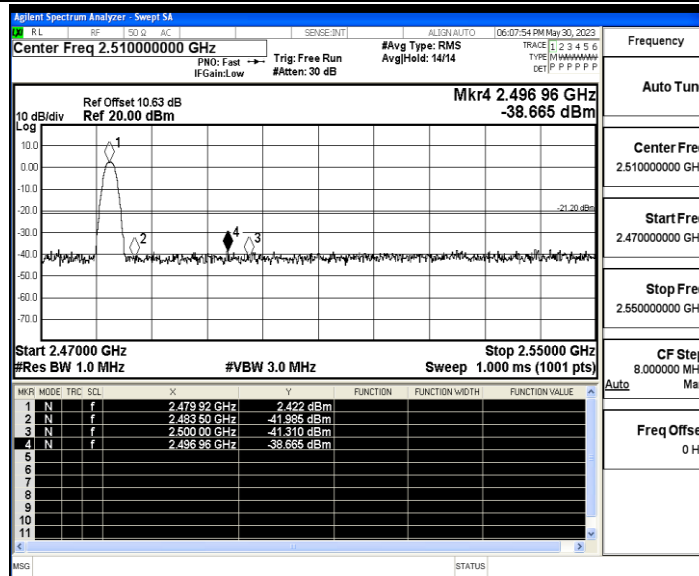


Test Graphs



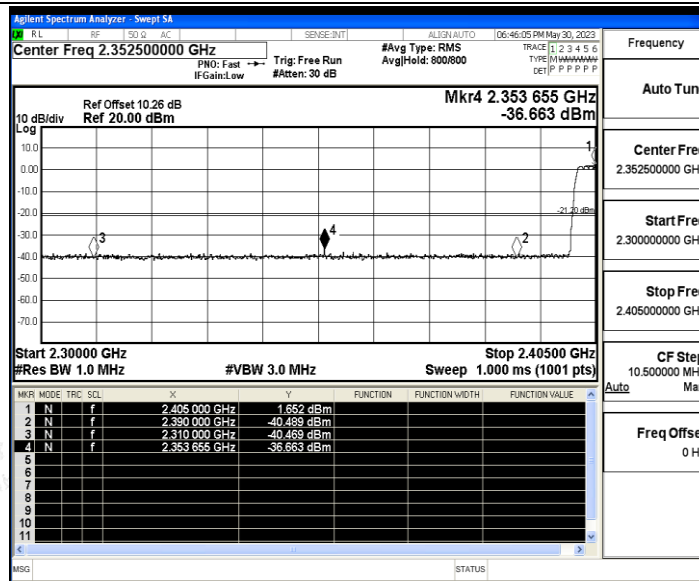


DH5_Ant1_High_2480_Peak

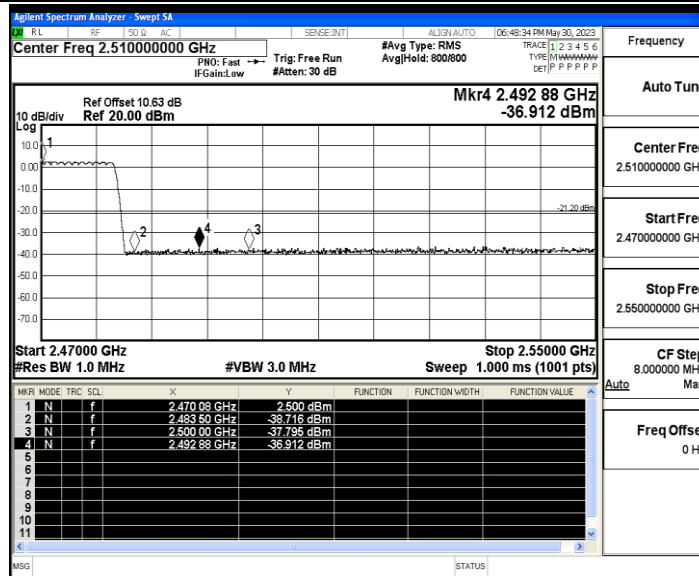


DH5_Ant1_Low_Hop_2402_Peak



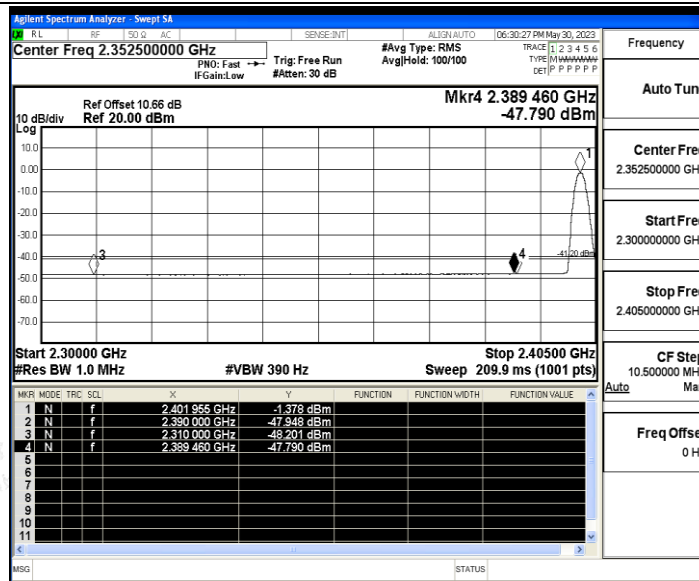


DH5_Ant1_High_Hop_2480_Peak

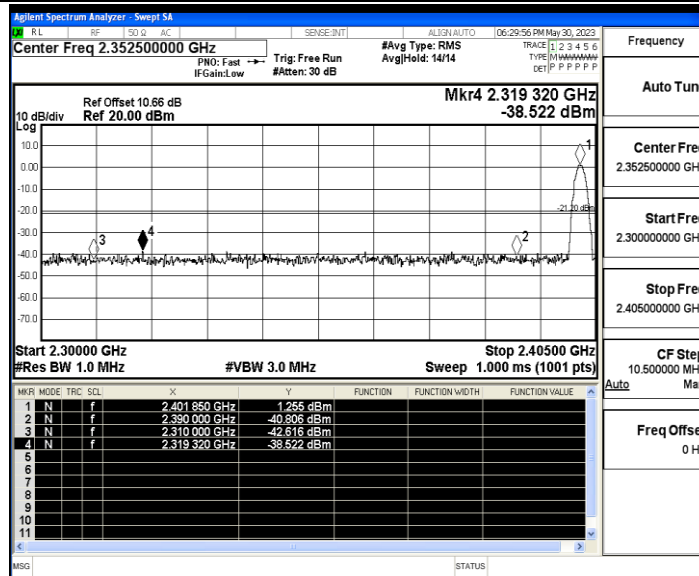


2DH5_Ant1_Low_2402_AV



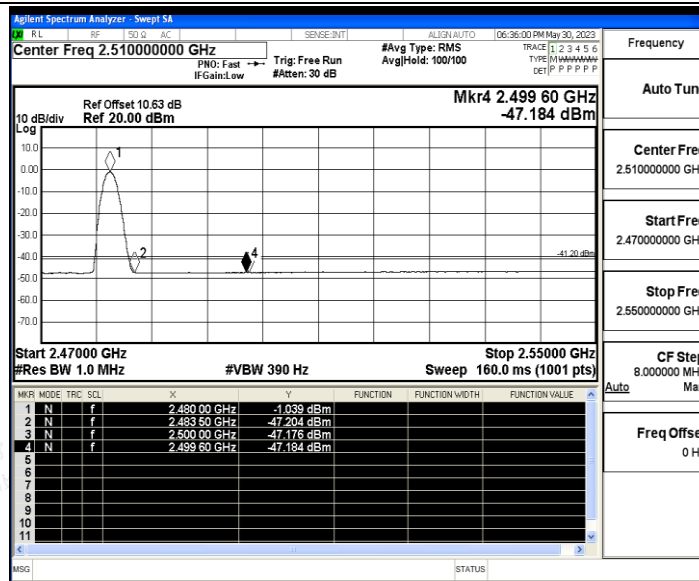


2DH5_Ant1_Low_2402_Peak

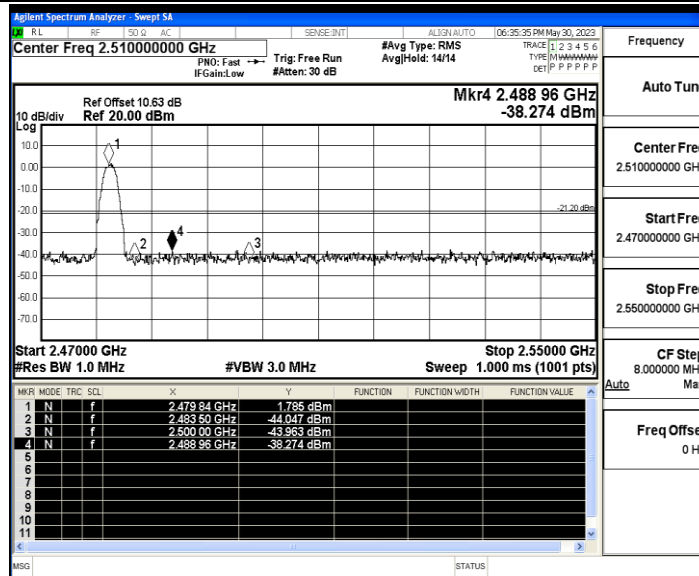


2DH5_Ant1_High_2480_AV



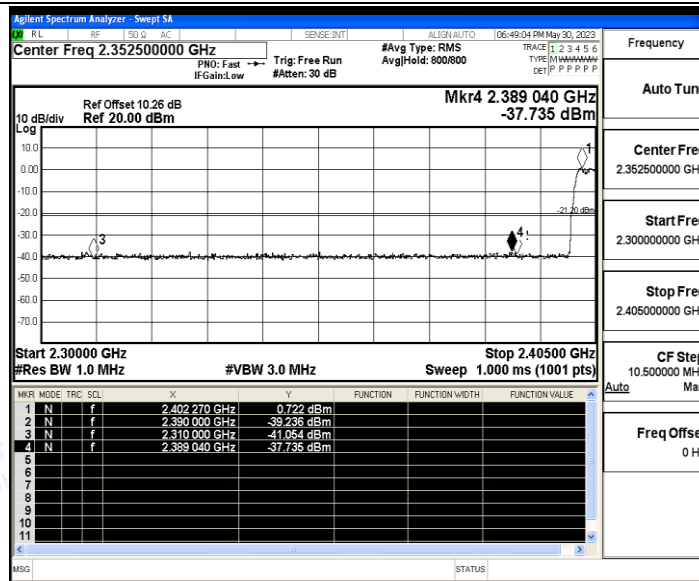


2DH5_Ant1_High_2480_Peak

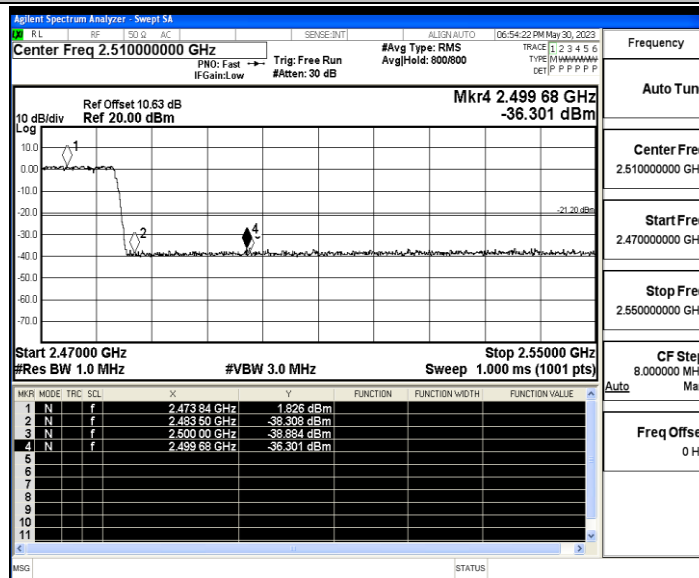


2DH5_Ant1_Low_Hop_2402_Peak



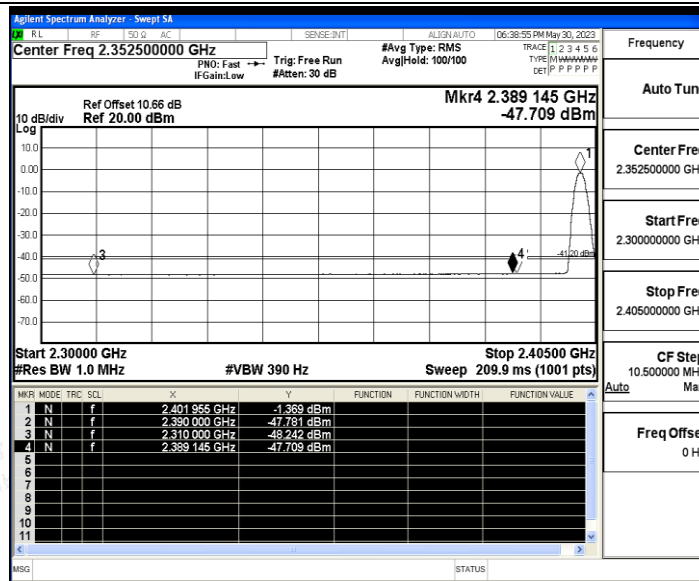


2DH5_Ant1_High_Hop_2480_Peak

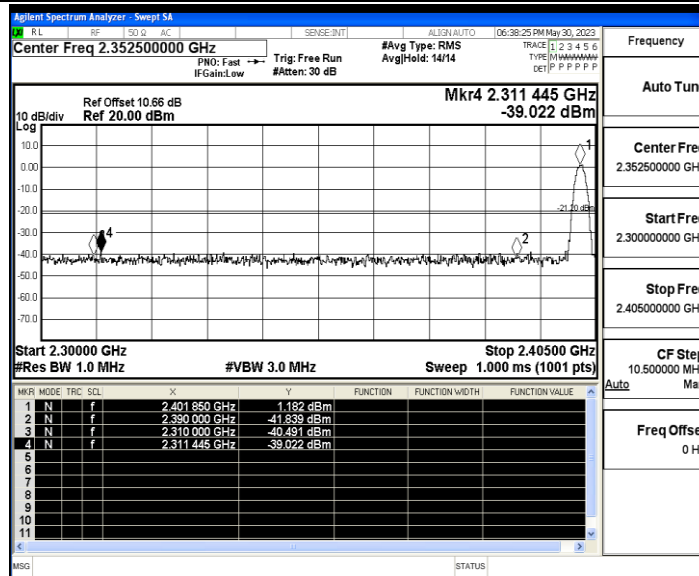


3DH5_Ant1_Low_2402_AV



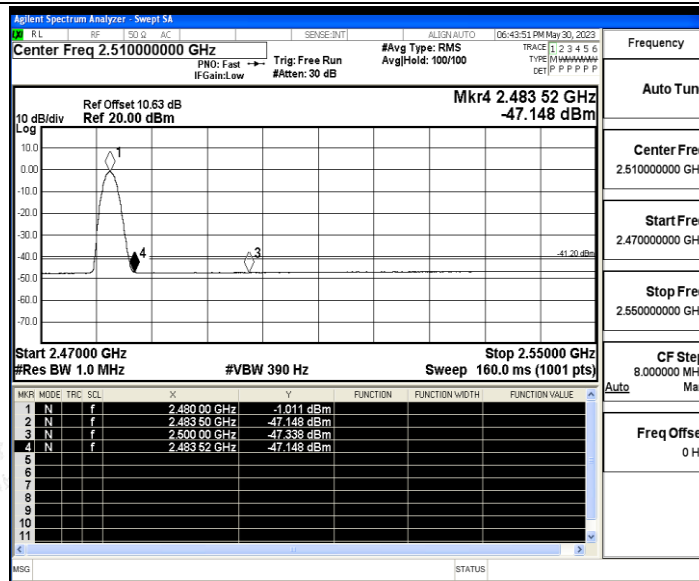


3DH5_Ant1_Low_2402_Peak

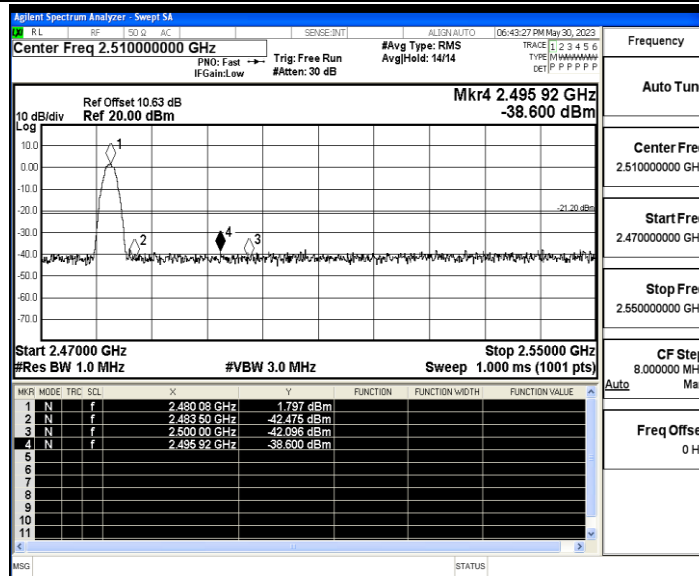


3DH5_Ant1_High_2480_AV



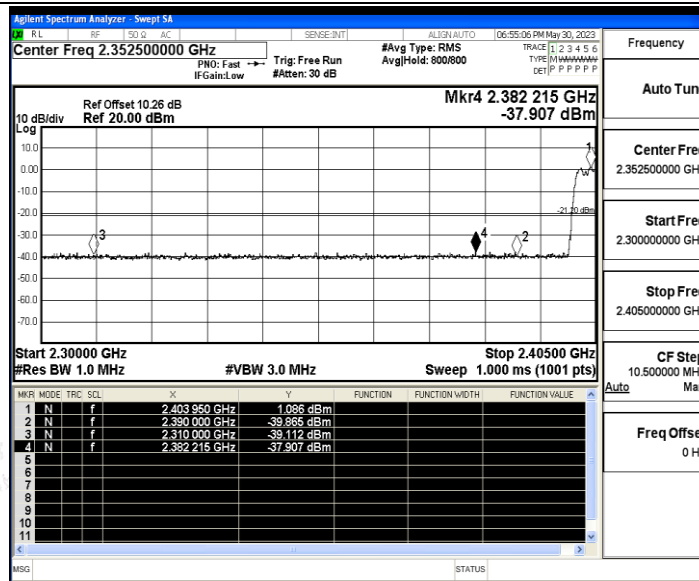


3DH5_Ant1_High_2480_Peak



3DH5_Ant1_Low_Hop_2402_Peak





3DH5_Ant1_High_Hop_2480_Peak

