



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Bluetooth headset

Test Model: SOUNDWAVE A1

Environmental Conditions

Temperature:	23.4° C
Relative Humidity:	51.3%
ATM Pressure:	100.0 kPa
Test Engineer:	monkey.Li
Supervised by:	Libu



A.1 20dB Emission Bandwidth

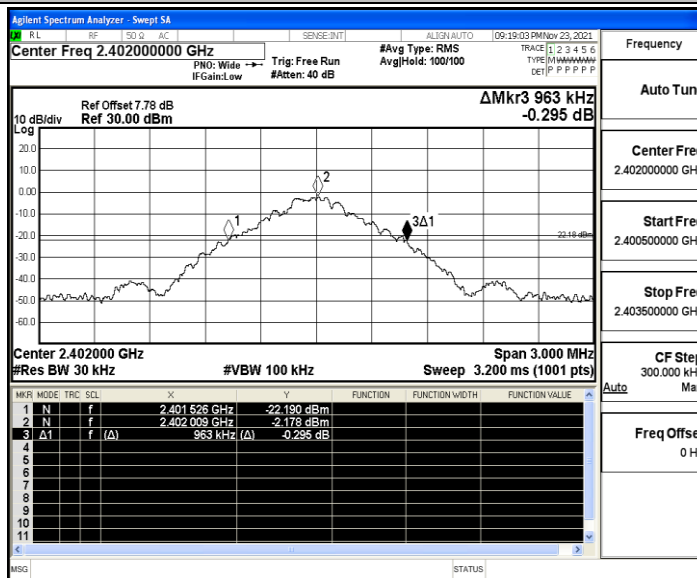
Test Result

TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.963	2401.526	2402.489	---	PASS
		2441	0.963	2440.523	2441.486	---	PASS
		2480	0.963	2479.526	2480.489	---	PASS
2DH5	Ant1	2402	1.290	2401.358	2402.648	---	PASS
		2441	1.305	2440.340	2441.645	---	PASS
		2480	1.323	2479.328	2480.651	---	PASS
3DH5	Ant1	2402	1.359	2401.316	2402.675	---	PASS
		2441	1.287	2440.364	2441.651	---	PASS
		2480	1.302	2479.343	2480.645	---	PASS

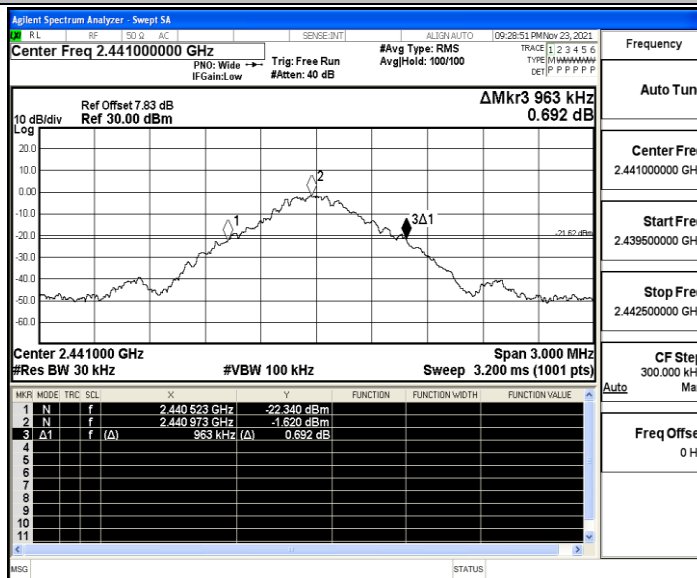


Test Graphs

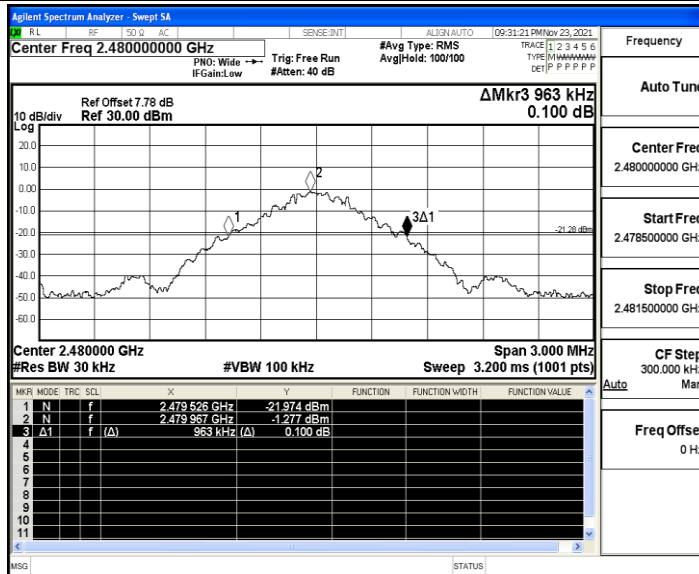
DH5_Ant1_2402



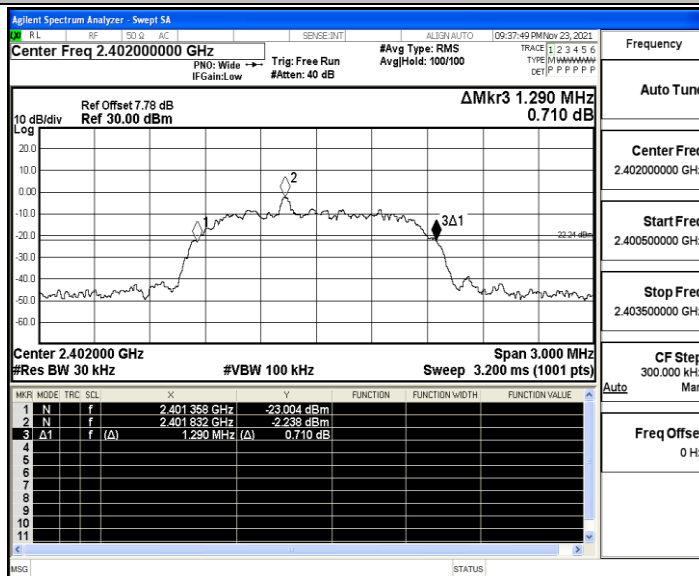
DH5_Ant1_2441



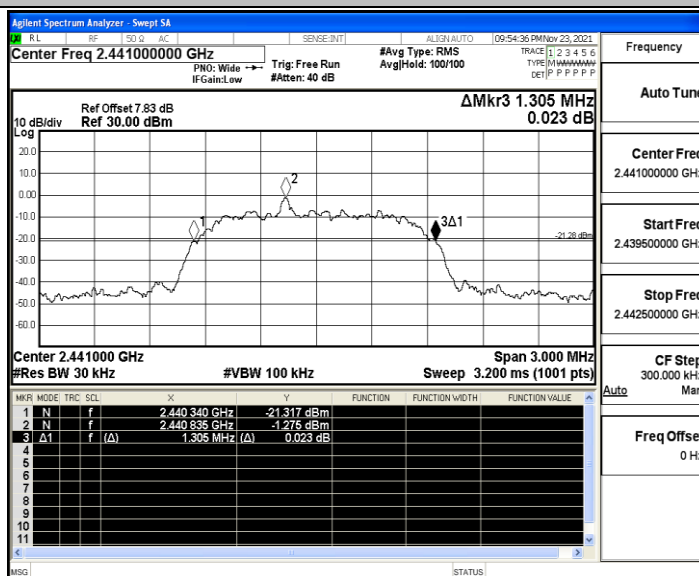
DH5_Ant1_2480



2DH5_Ant1_2402

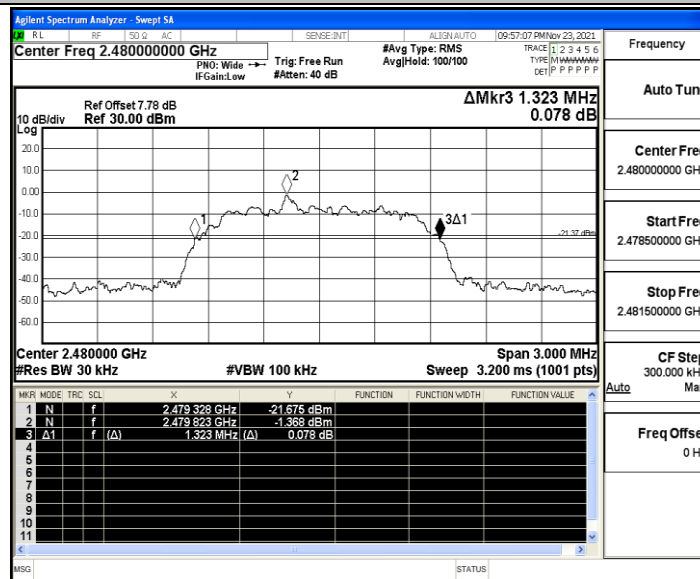


2DH5_Ant1_2441

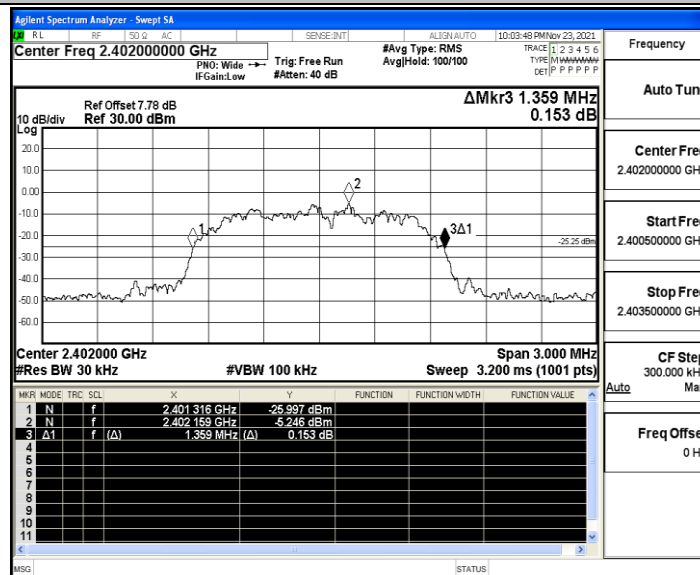




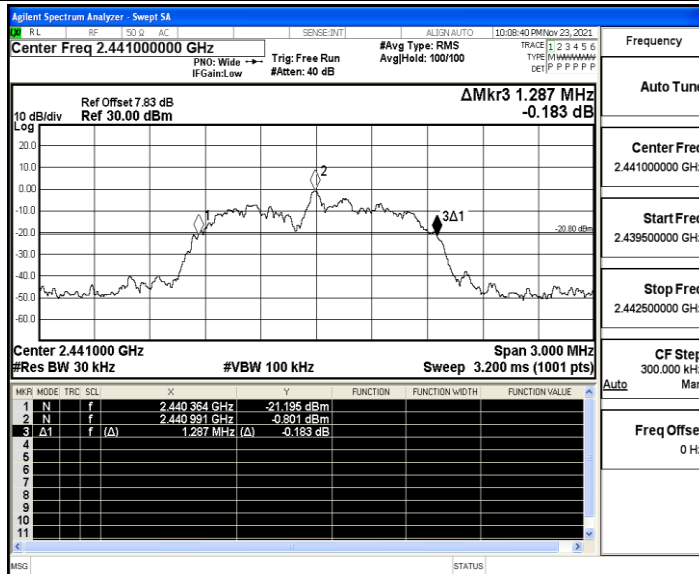
2DH5_Ant1_2480



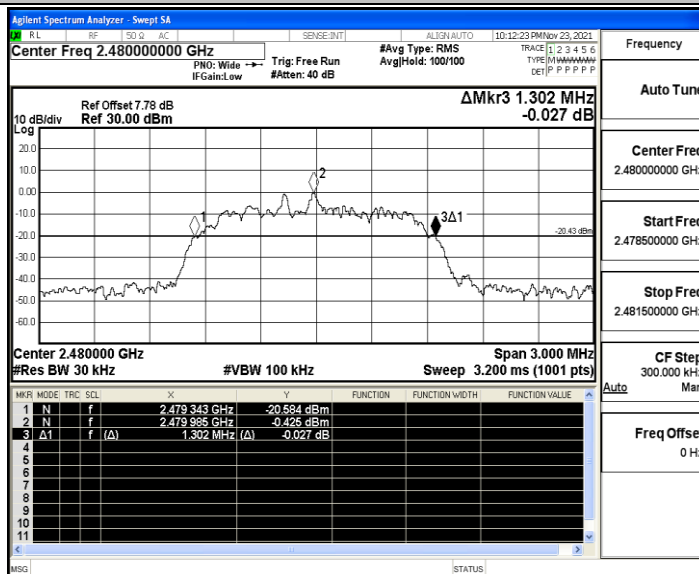
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



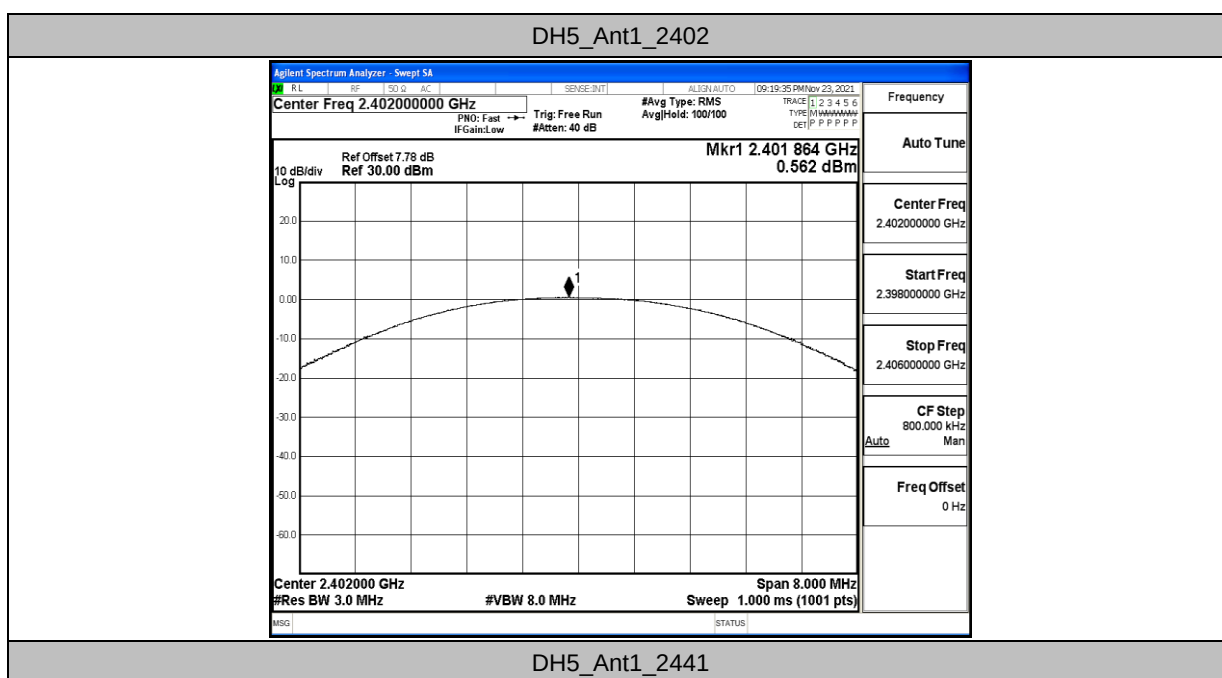


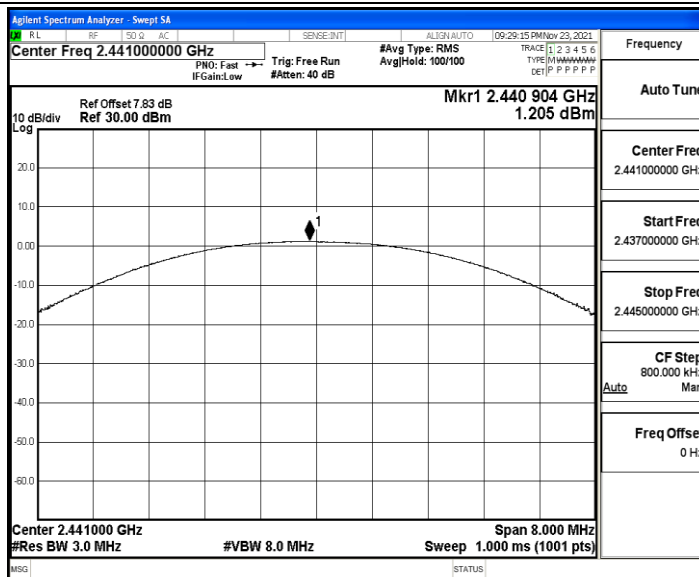
A.2 Maximum conducted output power

Test Result

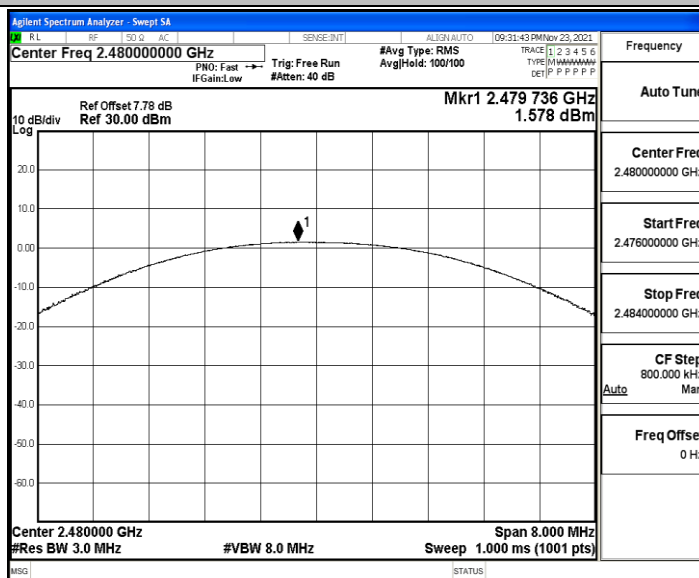
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	0.56	≤30	PASS
		2441	1.21	≤30	PASS
		2480	1.58	≤30	PASS
2DH5	Ant1	2402	1.35	≤20.97	PASS
		2441	2.24	≤20.97	PASS
		2480	2.71	≤20.97	PASS
3DH5	Ant1	2402	1.61	≤20.97	PASS
		2441	2.28	≤20.97	PASS
		2480	2.88	≤20.97	PASS

Test Graphs

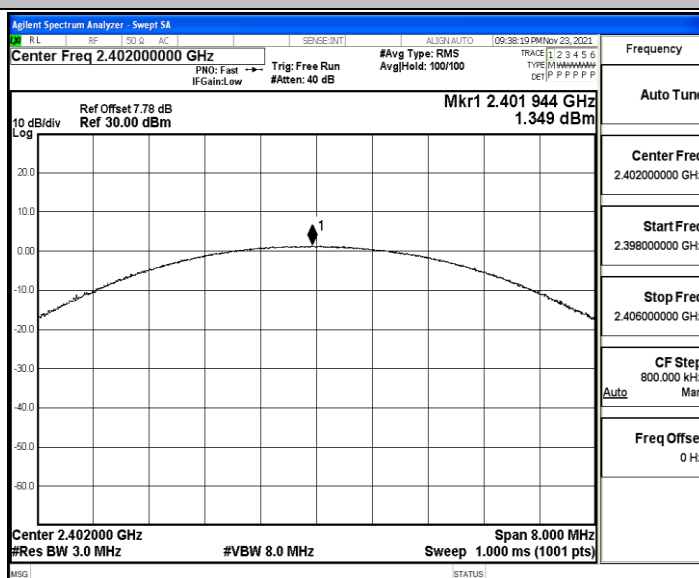




DH5_Ant1_2480

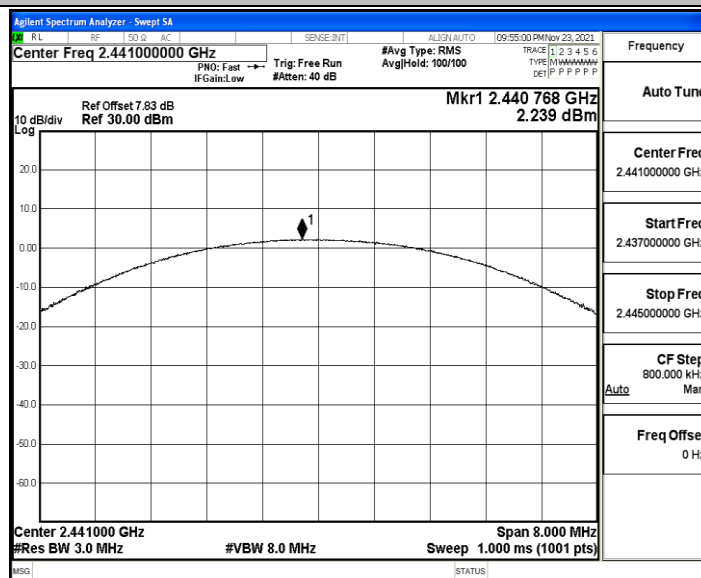


2DH5_Ant1_2402

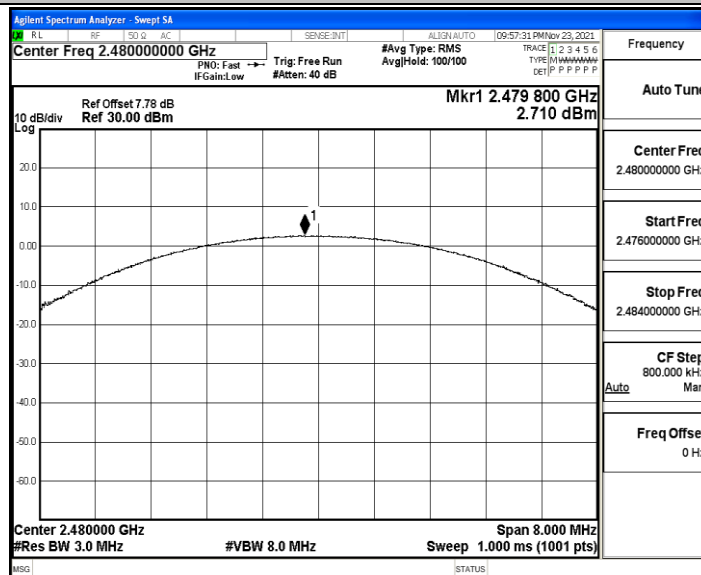




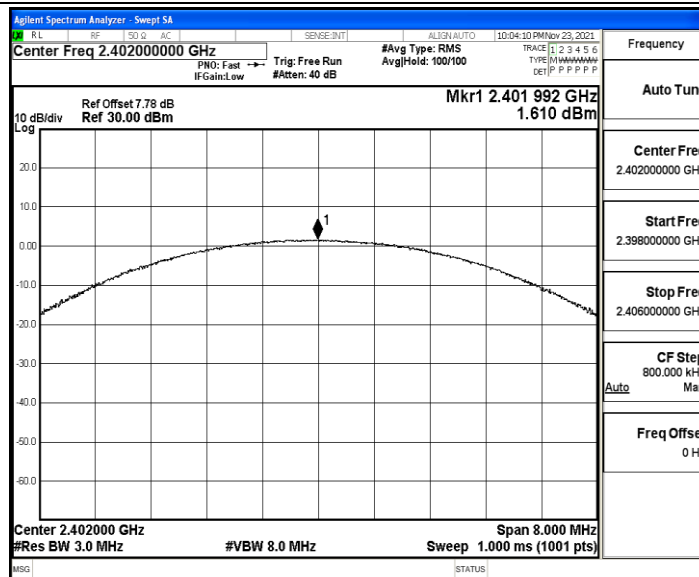
2DH5_Ant1_2441



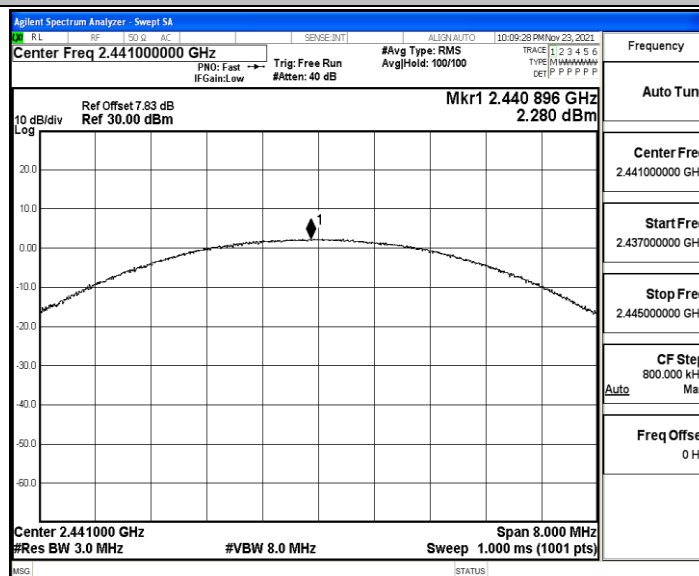
2DH5_Ant1_2480



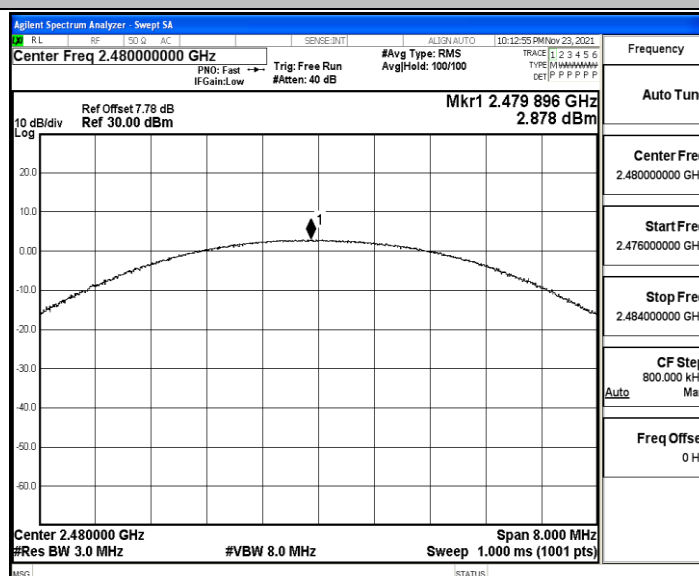
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



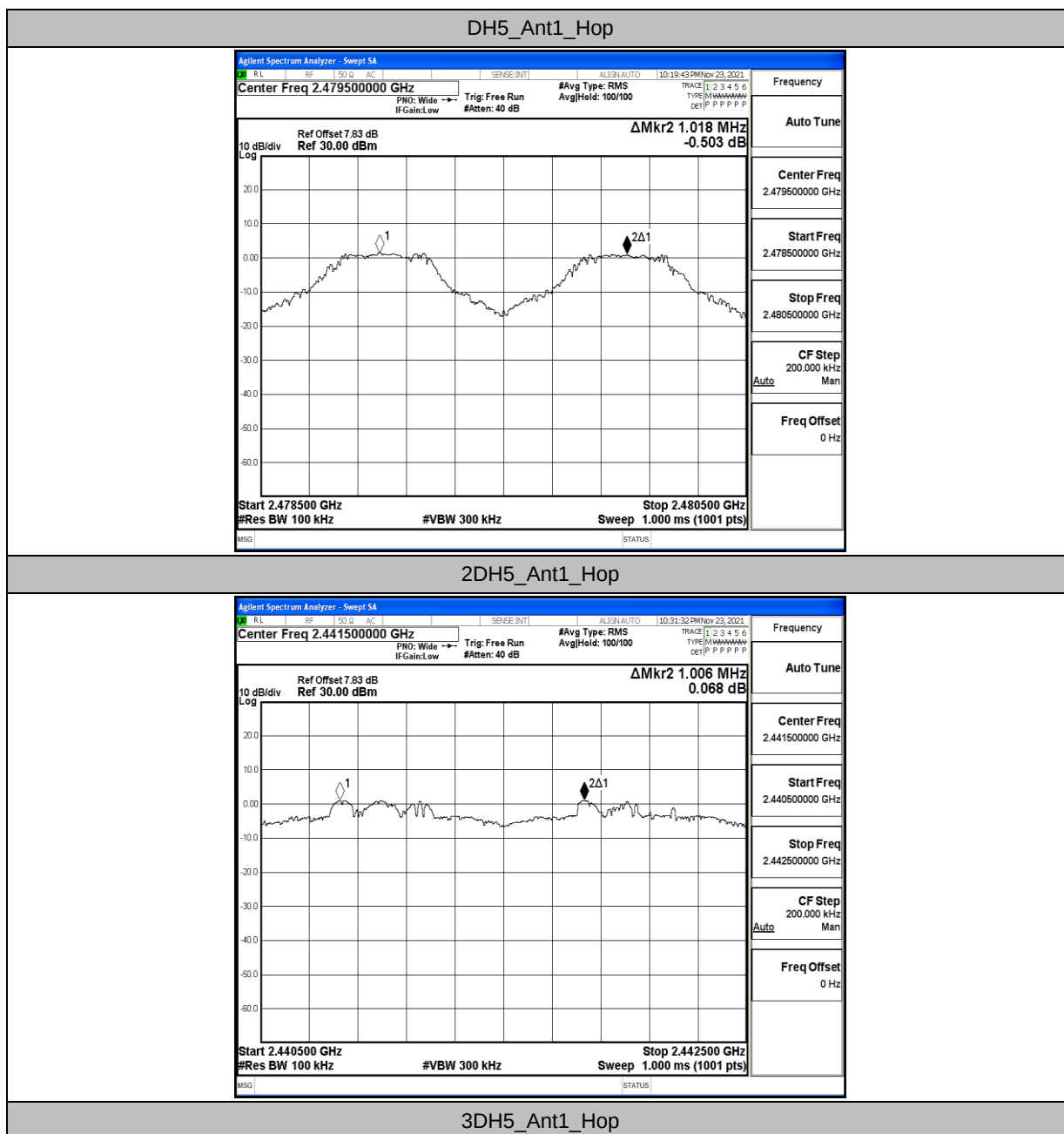


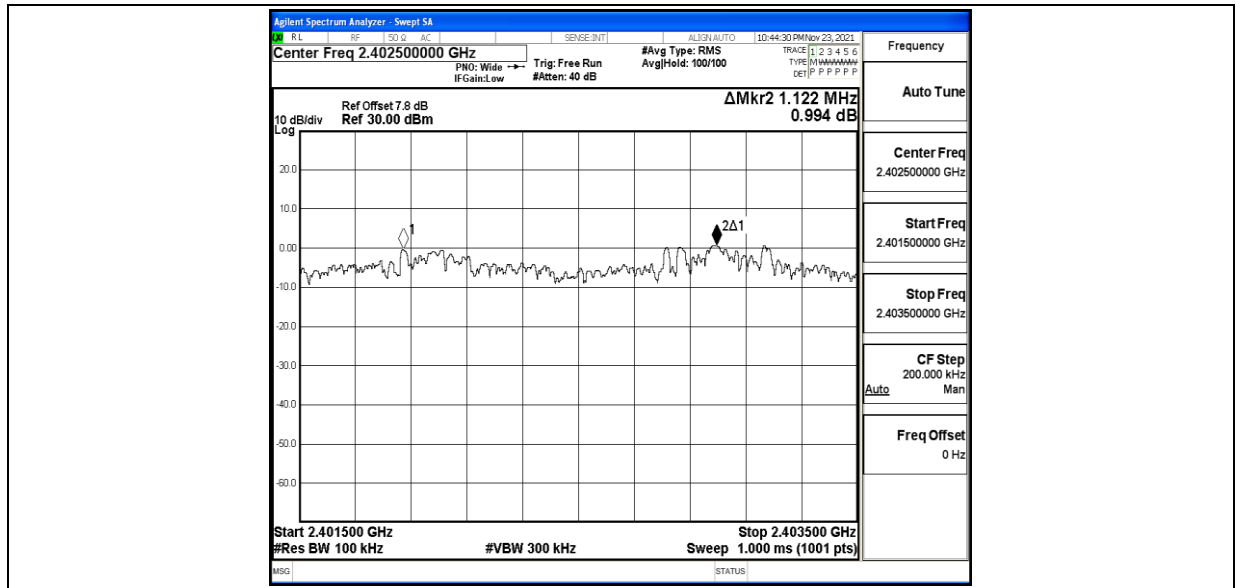
A.3 Carrier frequency separation

Test Result

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.018	≥ 0.963	PASS
2DH5	Ant1	Hop	1.006	≥ 0.882	PASS
3DH5	Ant1	Hop	1.122	≥ 0.906	PASS

Test Graphs





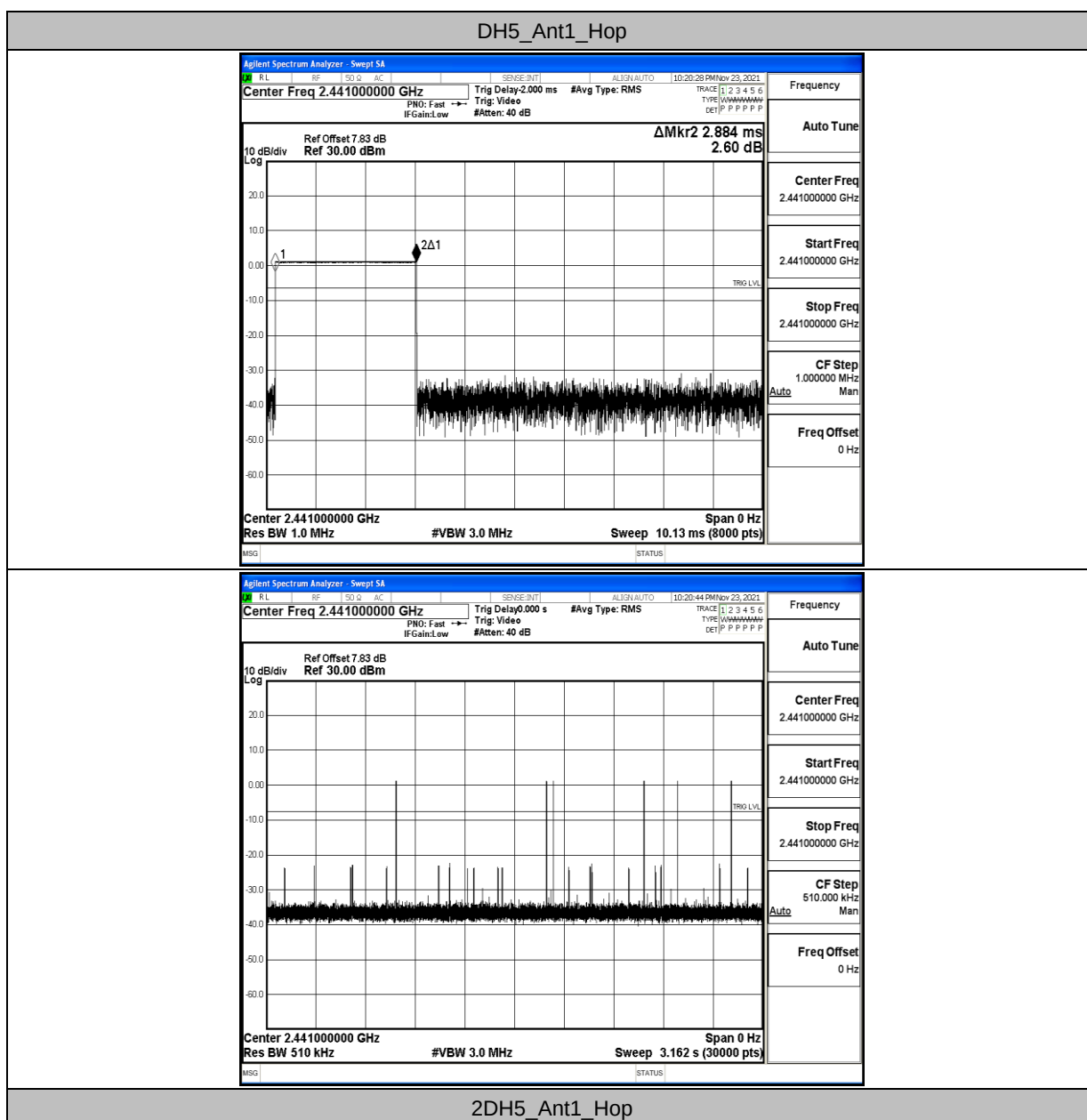


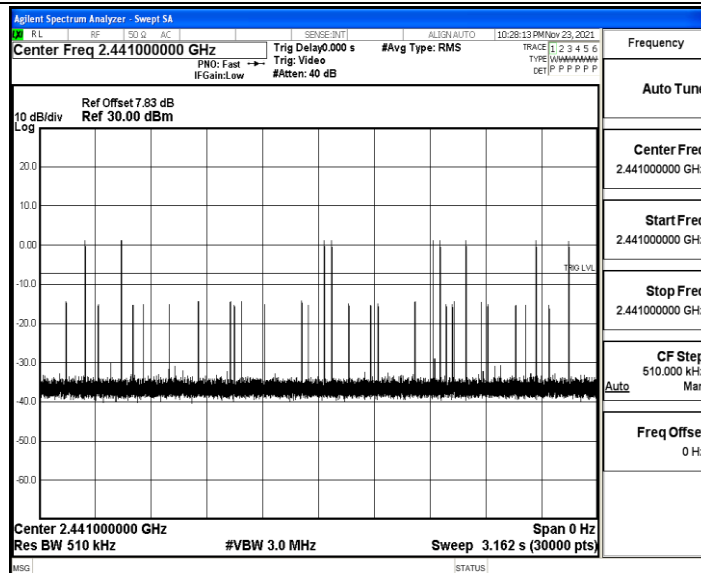
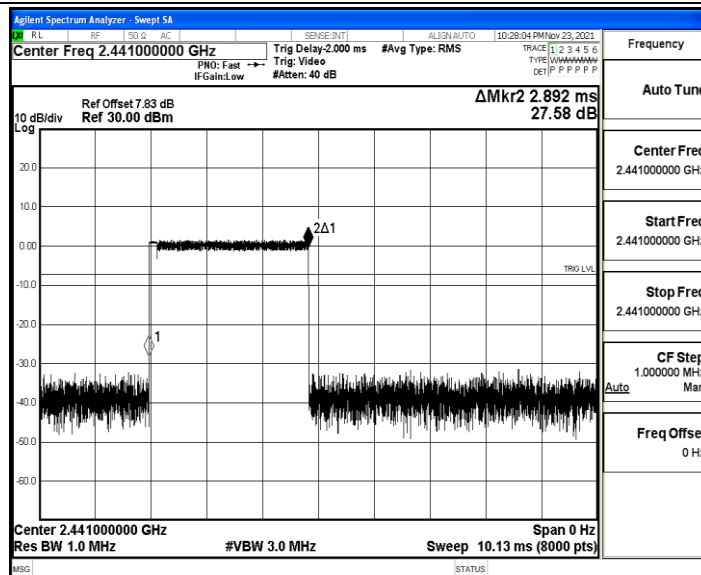
A.4 Time of occupancy

Test Result

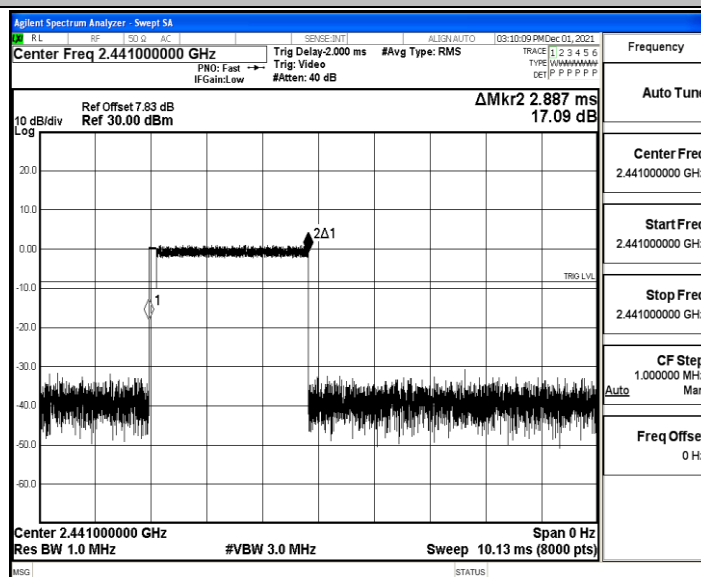
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.88	80	0.231	≤0.4	PASS
2DH5	Ant1	Hop	2.89	100	0.289	≤0.4	PASS
3DH5	Ant1	Hop	2.89	110	0.318	≤0.4	PASS

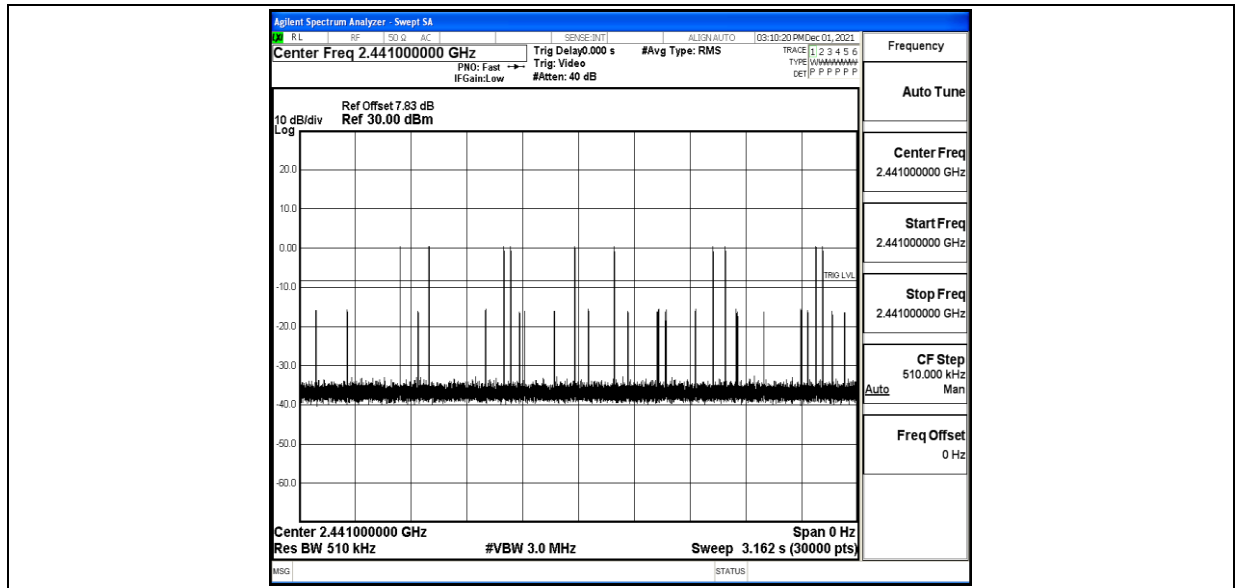
Test Graphs





3DH5_Ant1_Hop





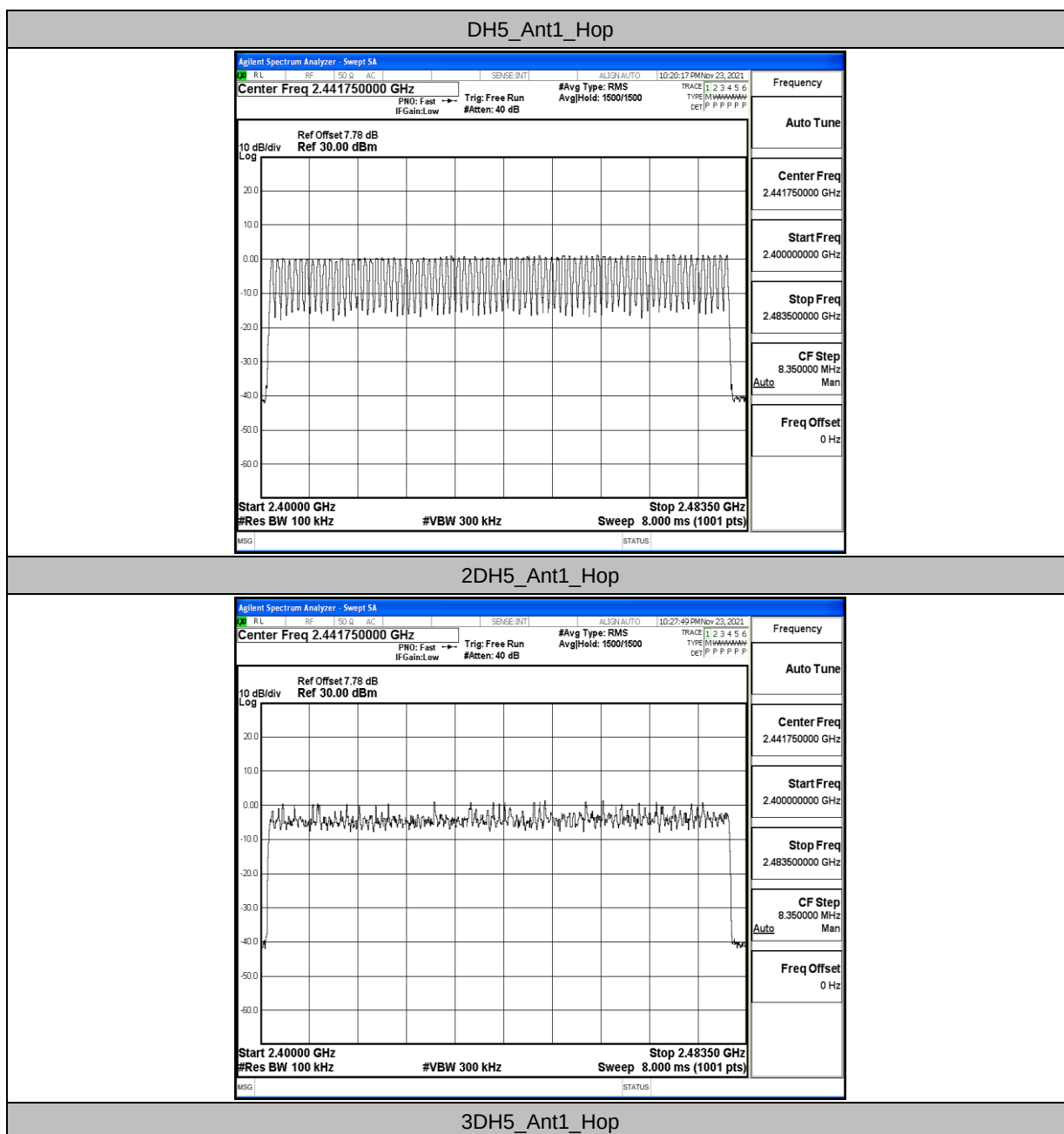


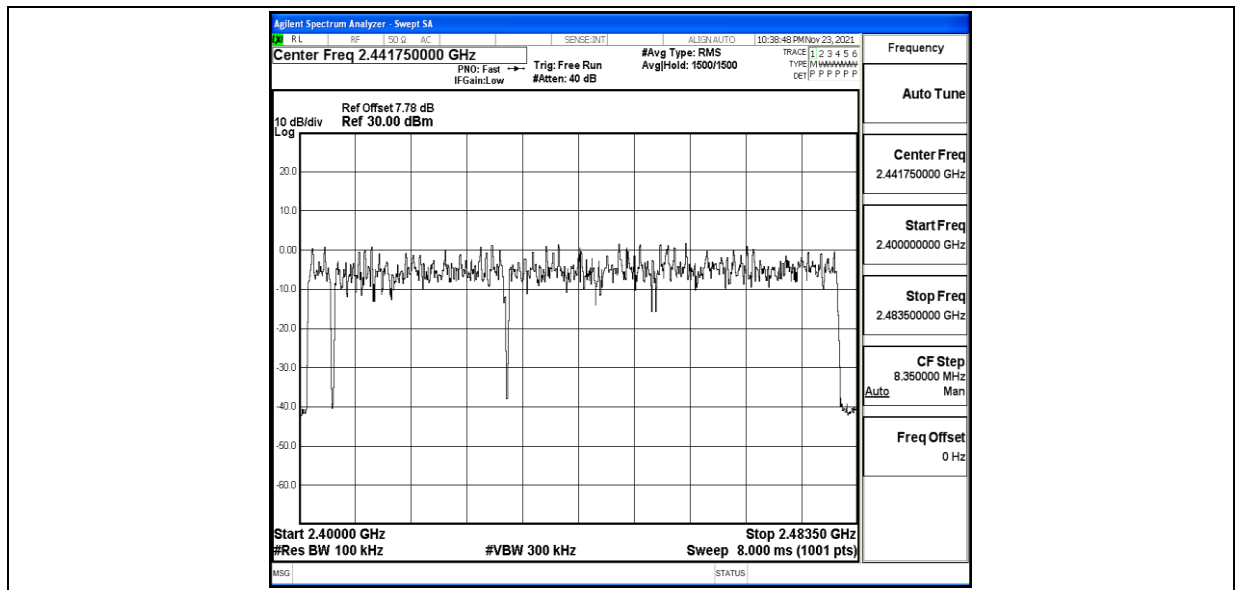
A.5 Number of hopping channels

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







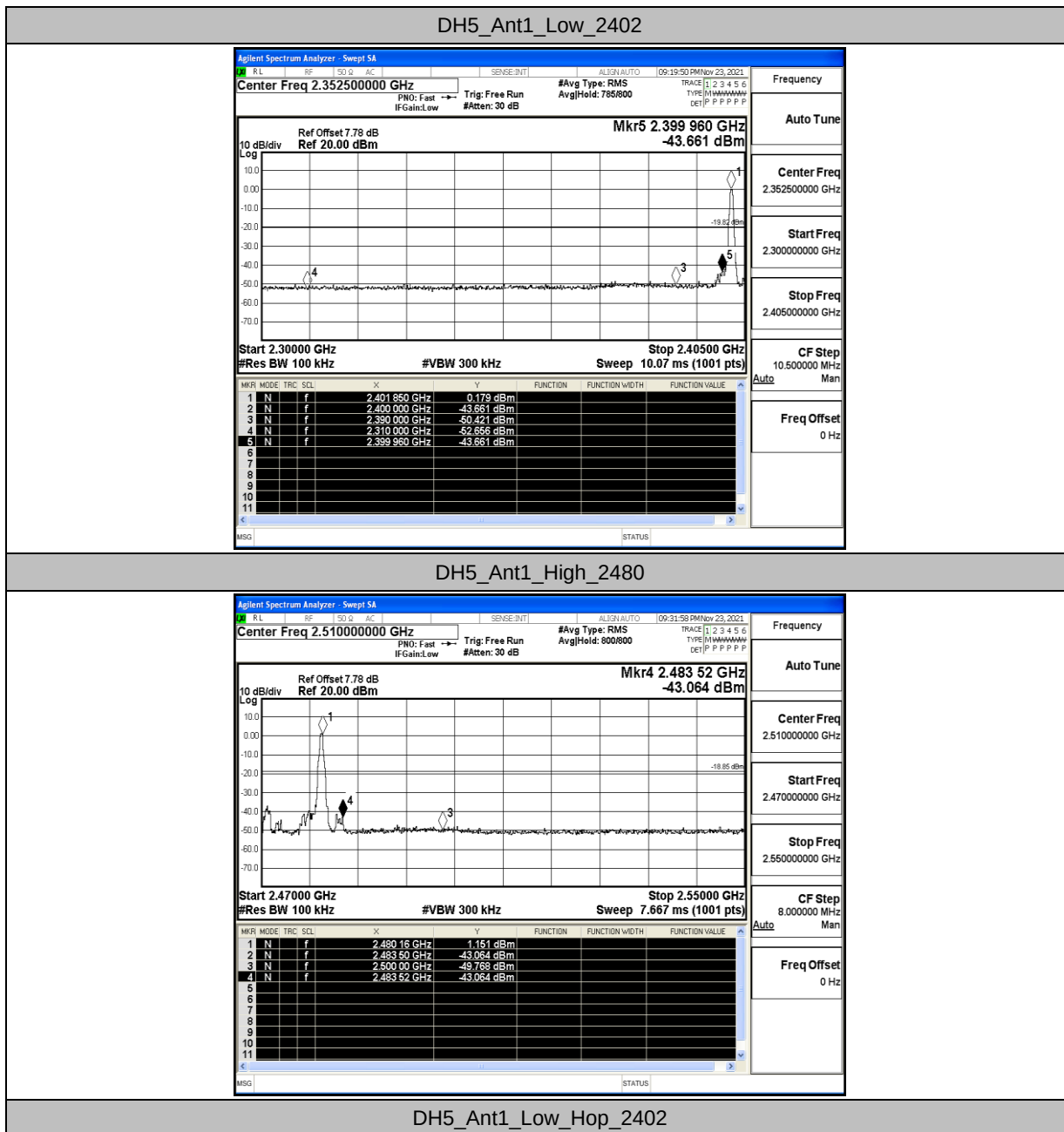
A.6 Band edge measurements

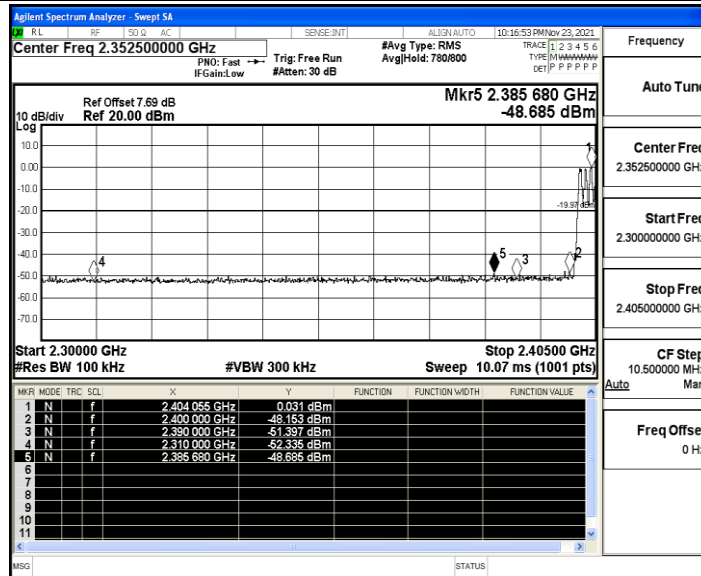
Test Result

TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	0.18	-43.66	≤ -19.82	PASS
		High	2480	1.15	-43.06	≤ -18.85	PASS
		Low	Hop_2402	0.03	-48.69	≤ -19.97	PASS
		High	Hop_2480	1.36	-48.76	≤ -18.64	PASS
2DH5	Ant1	Low	2402	0.22	-42.8	≤ -19.78	PASS
		High	2480	1.69	-45.32	≤ -18.31	PASS
		Low	Hop_2402	-2.51	-49.17	≤ -22.51	PASS
		High	Hop_2480	1.20	-48.39	≤ -18.8	PASS
3DH5	Ant1	Low	2402	0.49	-45.15	≤ -19.51	PASS
		High	2480	1.91	-45.99	≤ -18.09	PASS
		Low	Hop_2402	-2.82	-49.81	≤ -22.82	PASS
		High	Hop_2480	0.36	-48.92	≤ -19.64	PASS

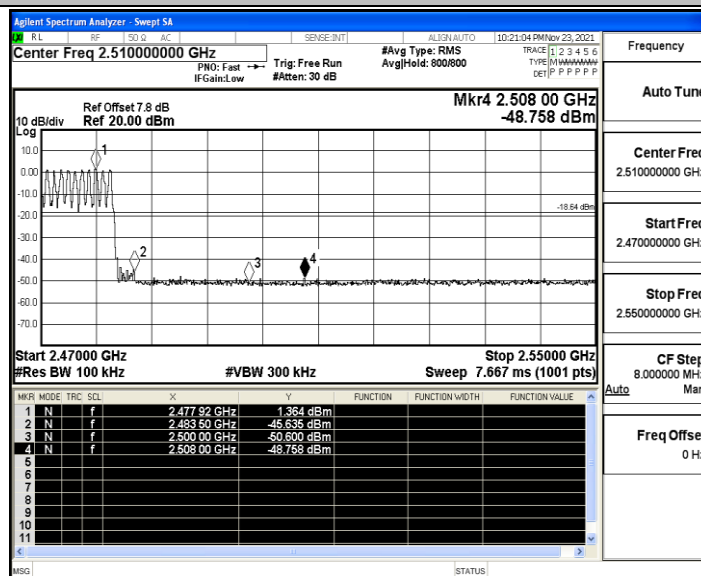


Test Graphs

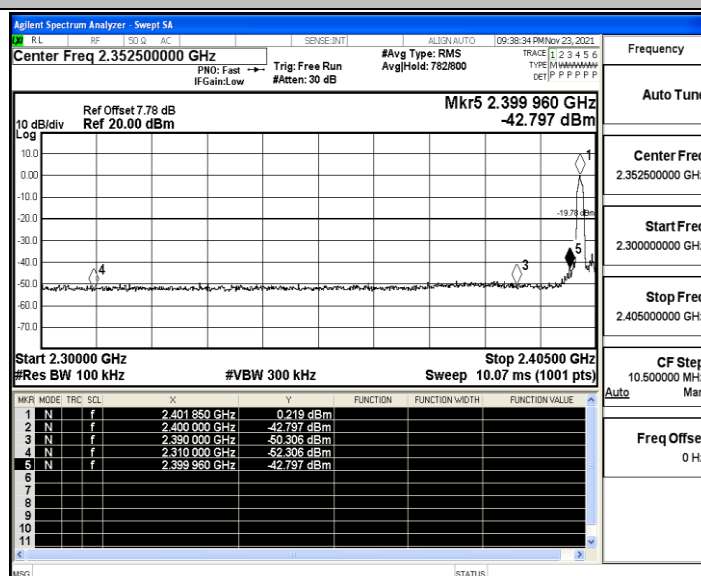




DH5_Ant1_High_Hop_2480

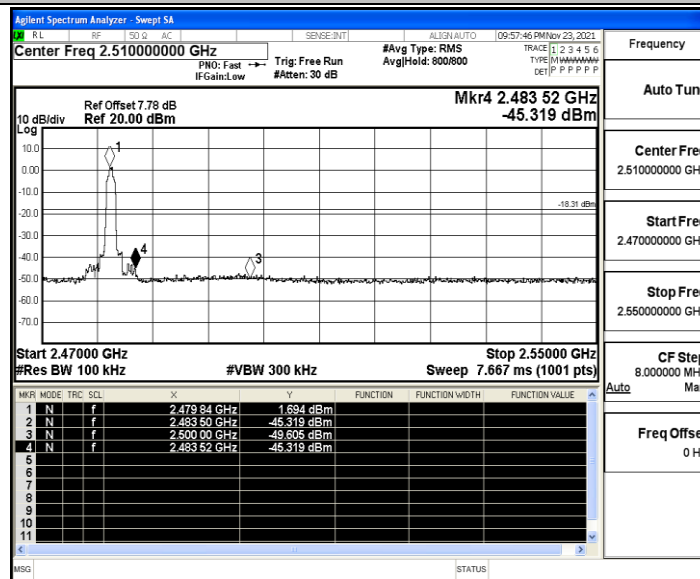


2DH5_Ant1_Low_2402

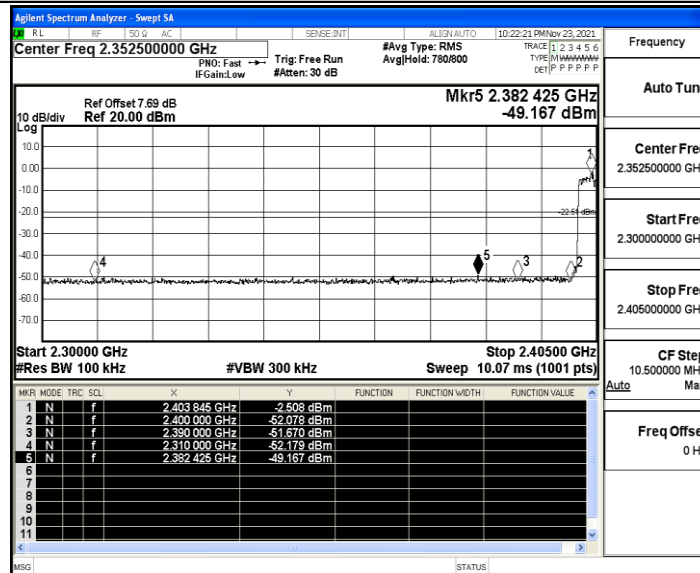




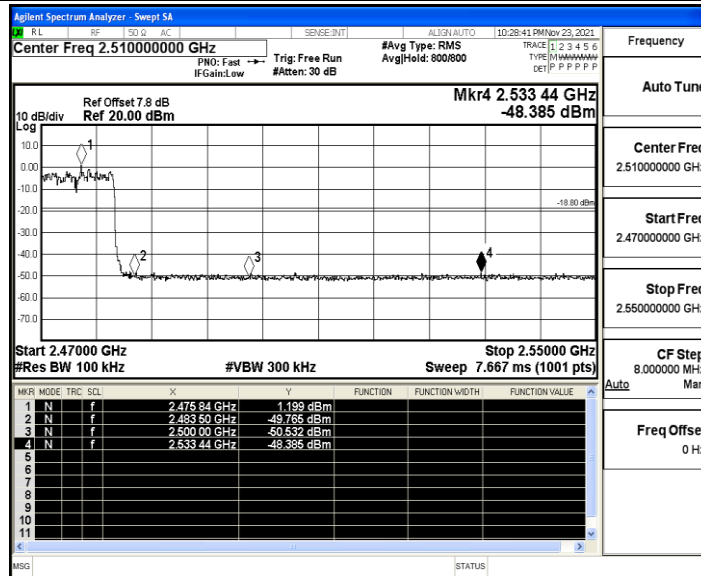
2DH5_Ant1_High_2480



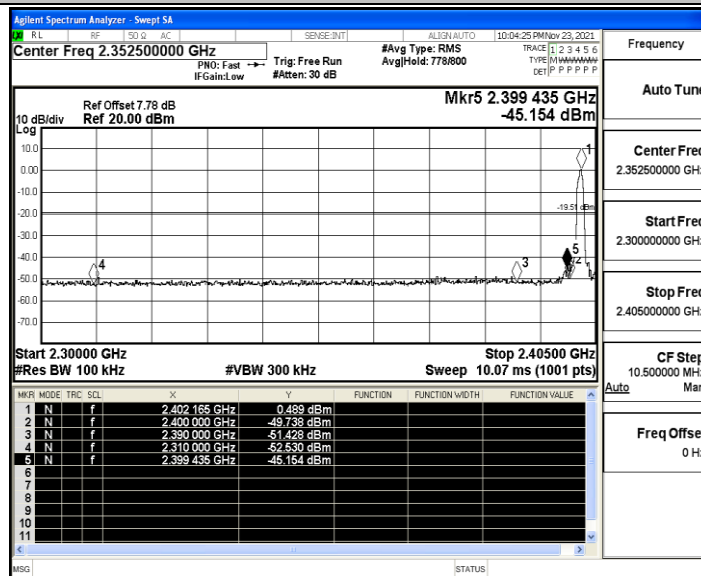
2DH5_Ant1_Low_Hop_2402



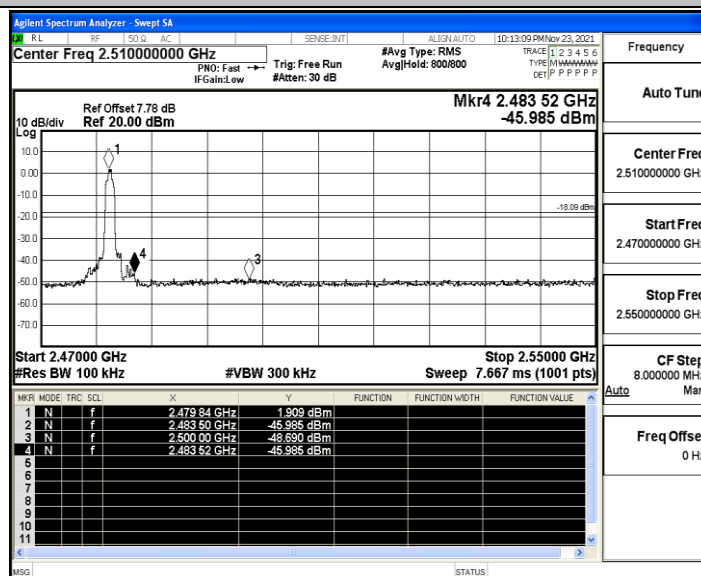
2DH5_Ant1_High_Hop_2480



3DH5_Ant1_Low_2402

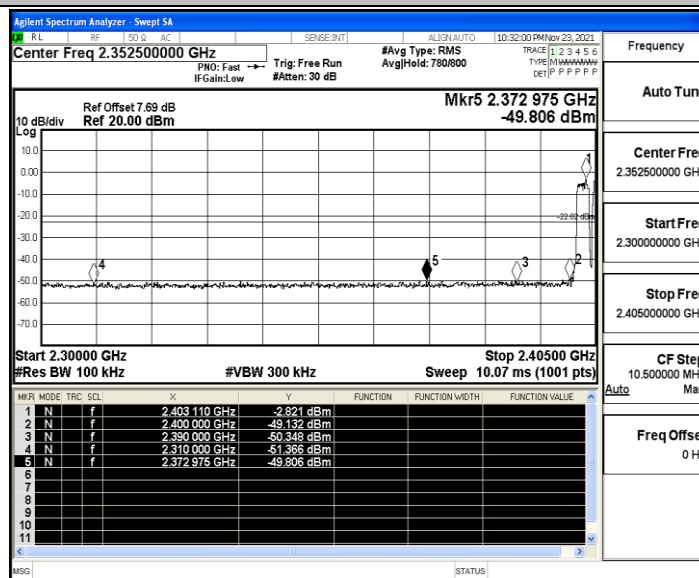


3DH5_Ant1_High_2480

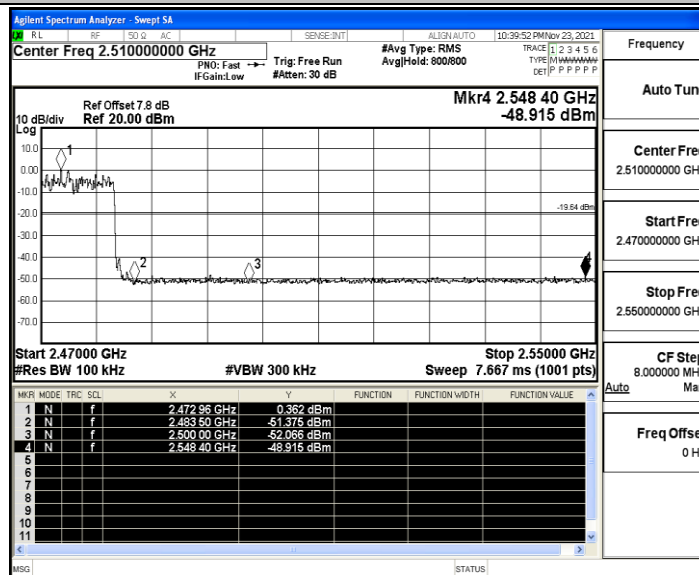




3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480





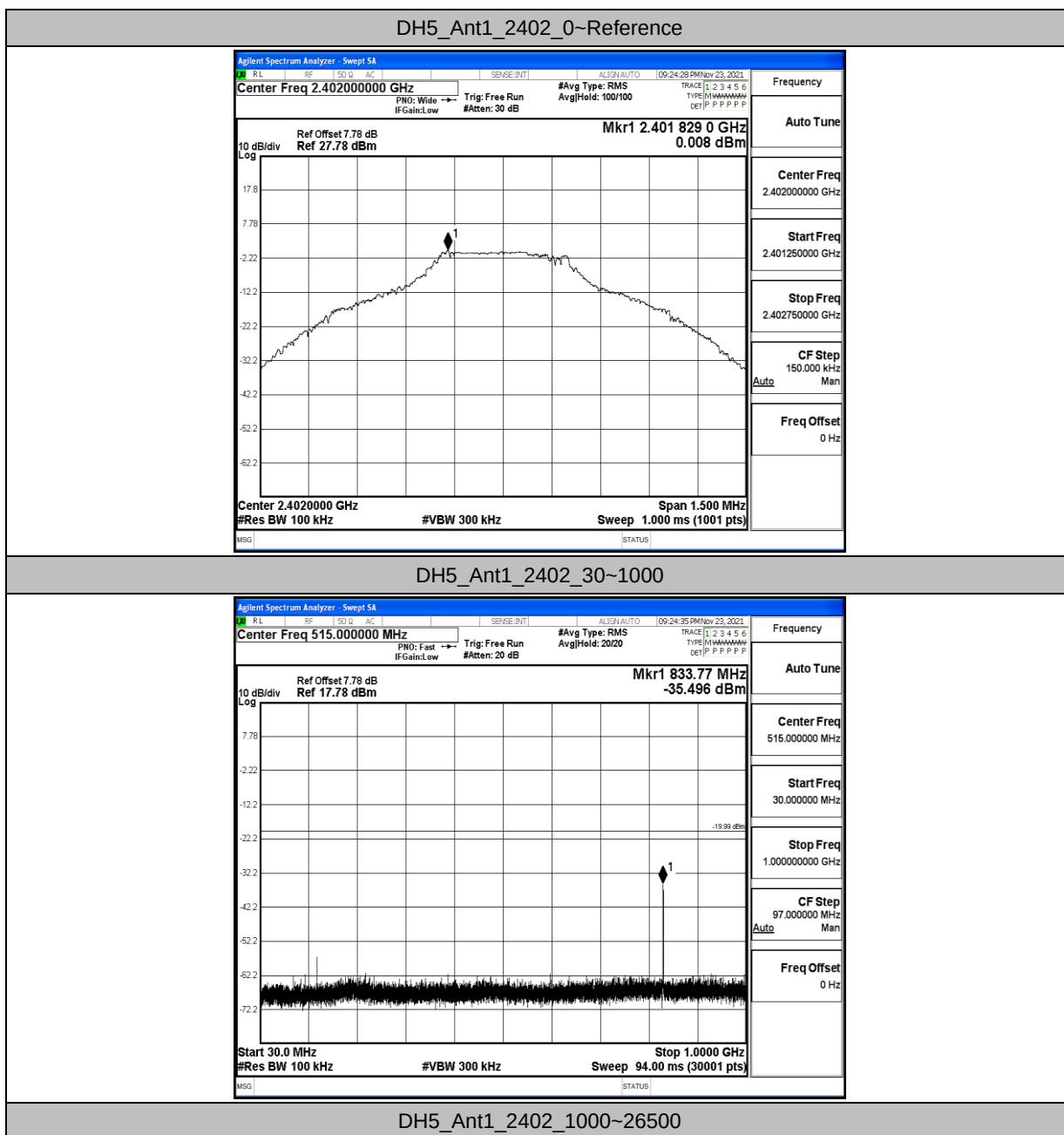
A.7 Conducted Spurious Emission

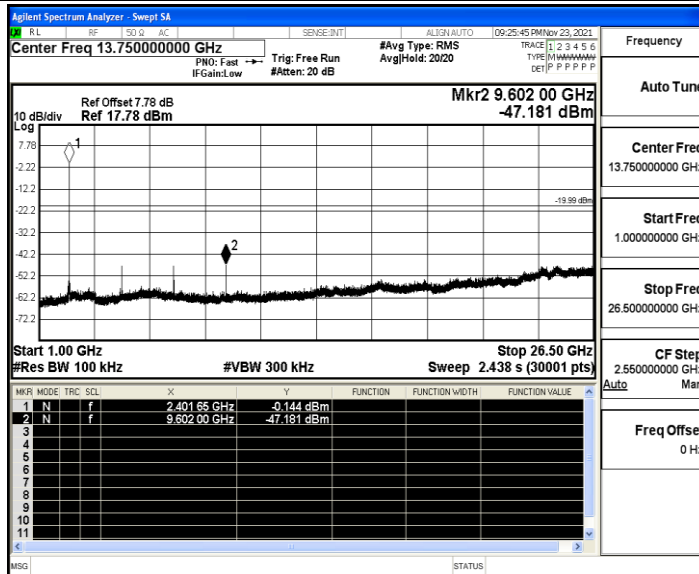
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	0.01	0.01	---	PASS
			30~1000	0.01	-35.5	≤ -19.99	PASS
			1000~26500	0.01	-47.18	≤ -19.99	PASS
		2441	Reference	0.33	0.33	---	PASS
			30~1000	0.33	-56.84	≤ -19.67	PASS
			1000~26500	0.33	-45.99	≤ -19.67	PASS
		2480	Reference	1.01	1.01	---	PASS
			30~1000	1.01	-56.97	≤ -18.99	PASS
			1000~26500	1.01	-45.78	≤ -18.99	PASS
2DH5	Ant1	2402	Reference	-2.86	-2.86	---	PASS
			30~1000	-2.86	-56.92	≤ -22.86	PASS
			1000~26500	-2.86	-45.8	≤ -22.86	PASS
		2441	Reference	1.16	1.16	---	PASS
			30~1000	1.16	-57.55	≤ -18.84	PASS
			1000~26500	1.16	-45.98	≤ -18.84	PASS
		2480	Reference	1.38	1.38	---	PASS
			30~1000	1.38	-58.41	≤ -18.62	PASS
			1000~26500	1.38	-46.93	≤ -18.62	PASS
3DH5	Ant1	2402	Reference	0.60	0.60	---	PASS
			30~1000	0.60	-58.34	≤ -19.4	PASS
			1000~26500	0.60	-47.07	≤ -19.4	PASS
		2441	Reference	1.20	1.20	---	PASS
			30~1000	1.20	-59.35	≤ -18.81	PASS
			1000~26500	1.20	-46.32	≤ -18.81	PASS
		2480	Reference	1.96	1.96	---	PASS
			30~1000	1.96	-59.53	≤ -18.04	PASS
			1000~26500	1.96	-46.64	≤ -18.04	PASS

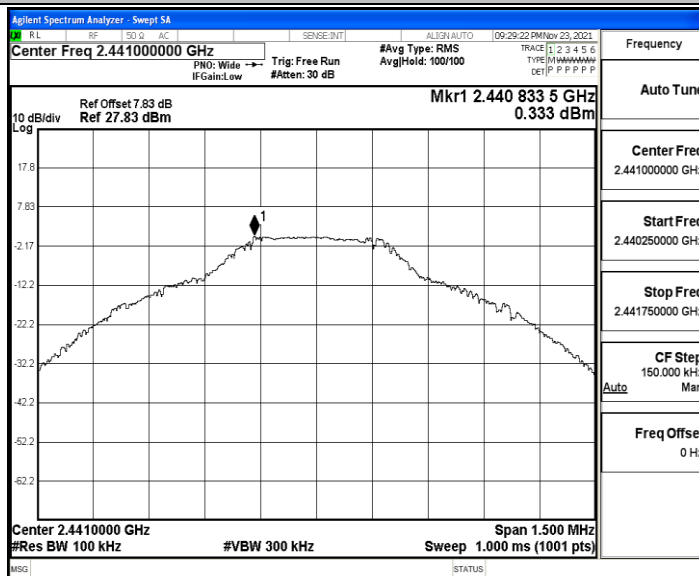


Test Graphs

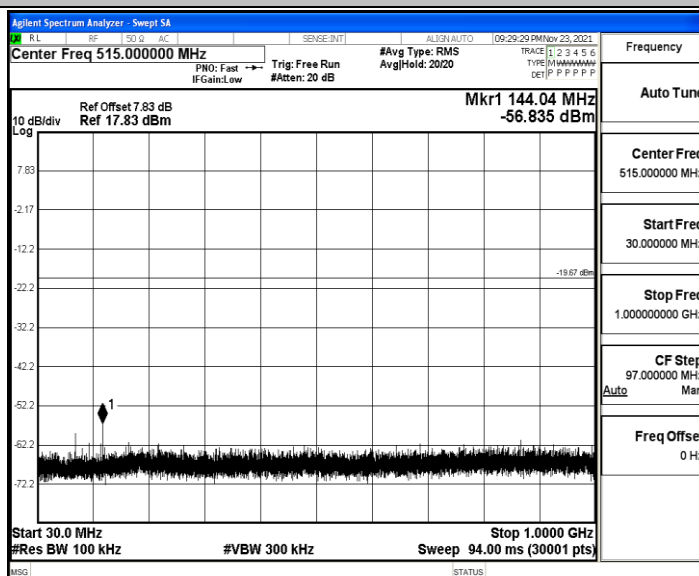




DH5_Ant1_2441_0~Reference

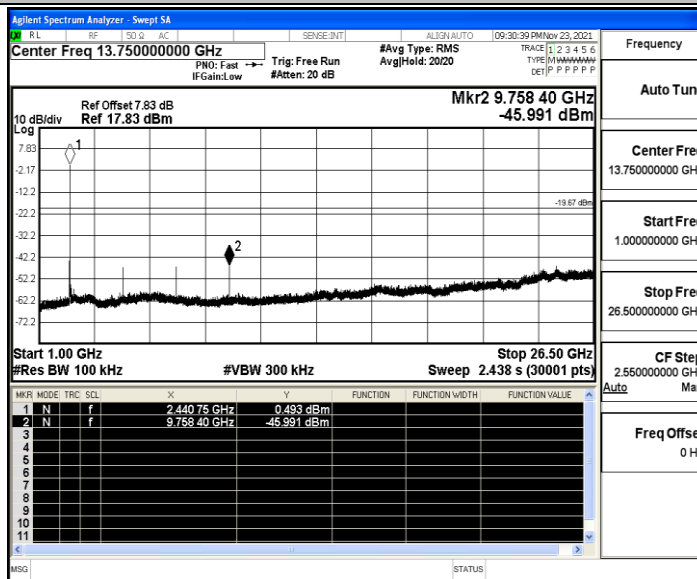


DH5_Ant1_2441_30~1000

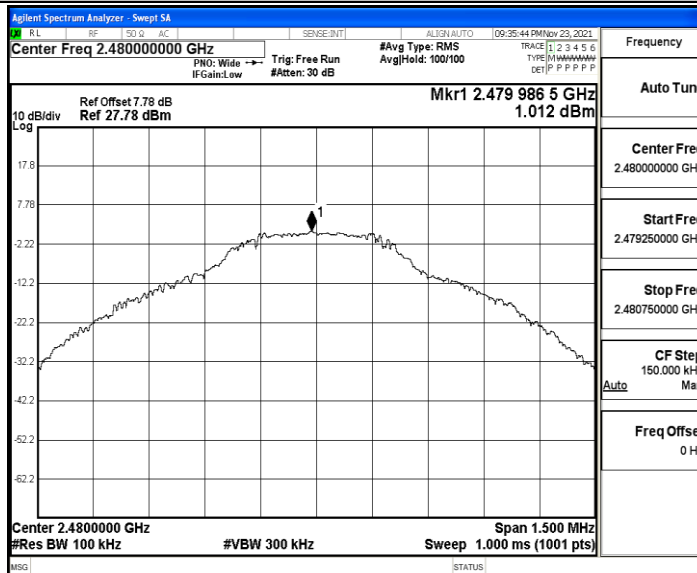




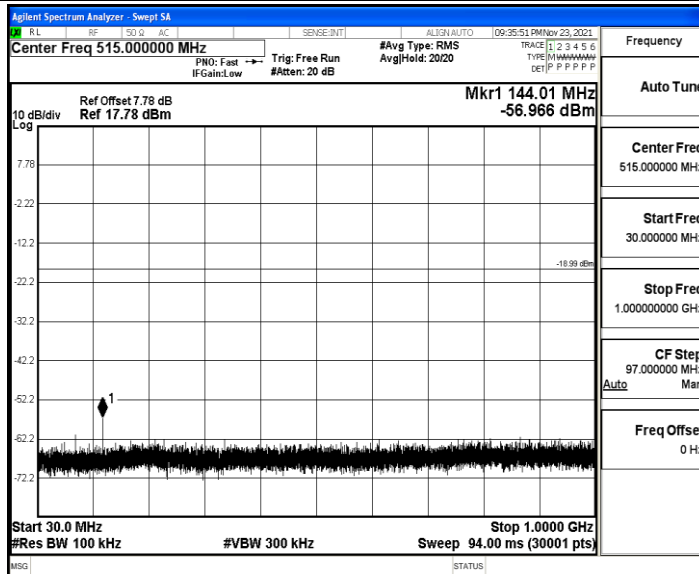
DH5_Ant1_2441_1000~26500



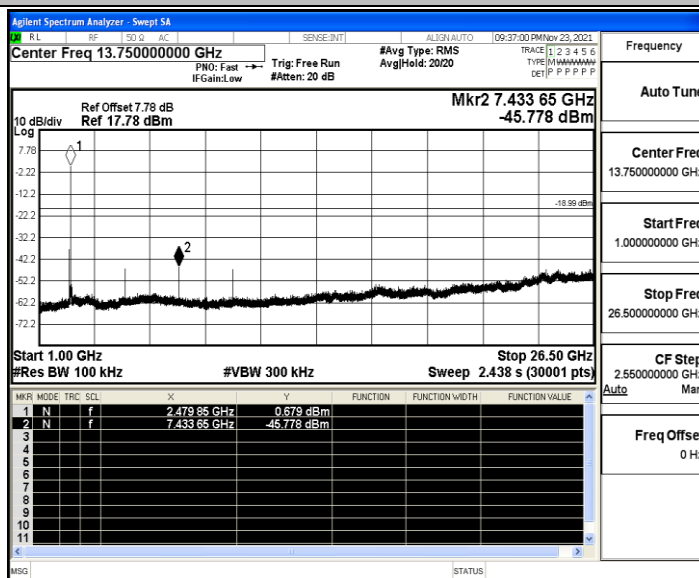
DH5_Ant1_2480_0~Reference



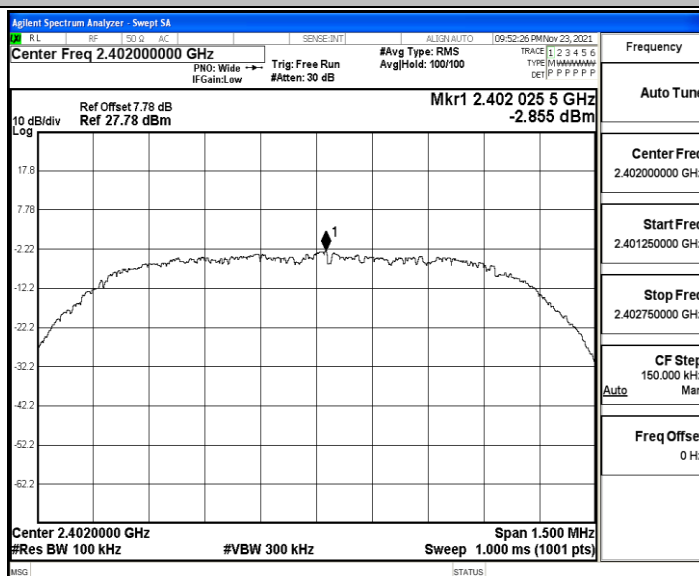
DH5_Ant1_2480_30~1000



DH5_Ant1_2480_1000~26500

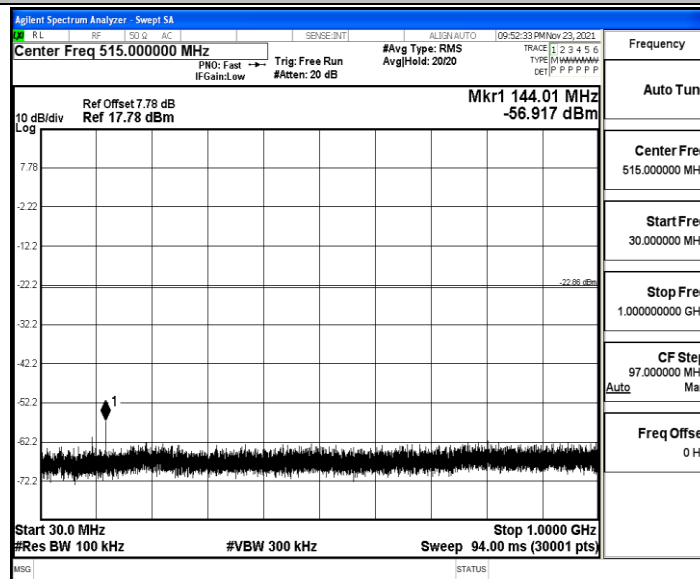


2DH5_Ant1_2402_0~Reference

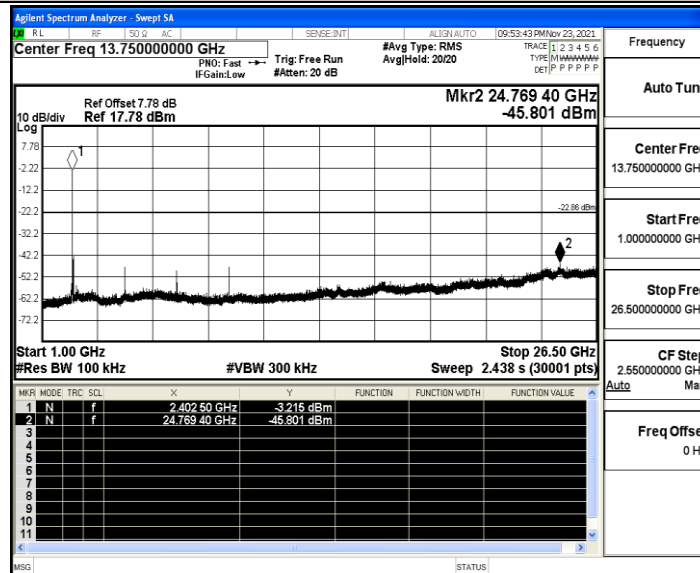




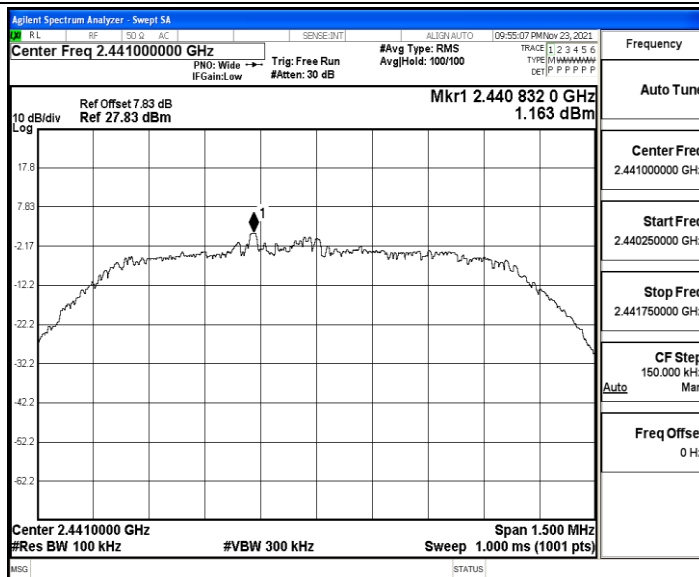
2DH5_Ant1_2402_30~1000



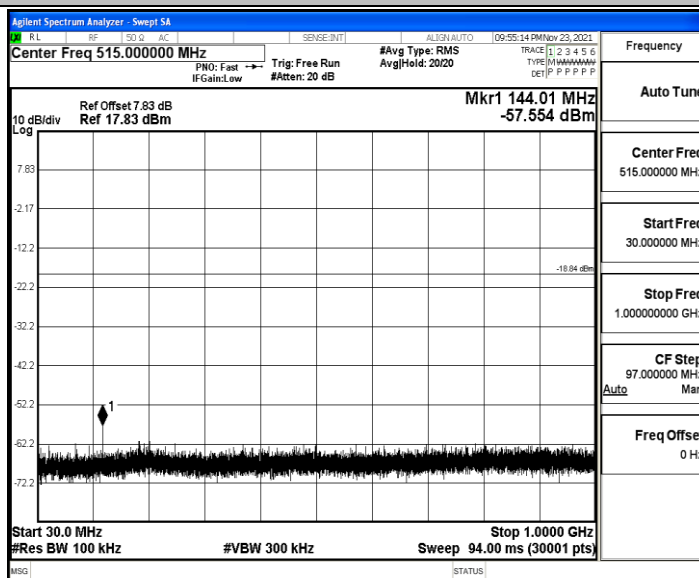
2DH5_Ant1_2402_1000~26500



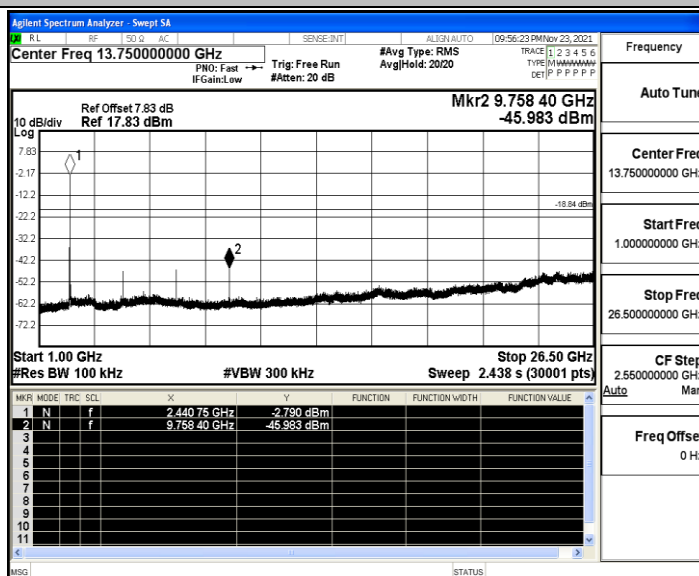
2DH5_Ant1_2441_0~Reference



2DH5_Ant1_2441_30~1000

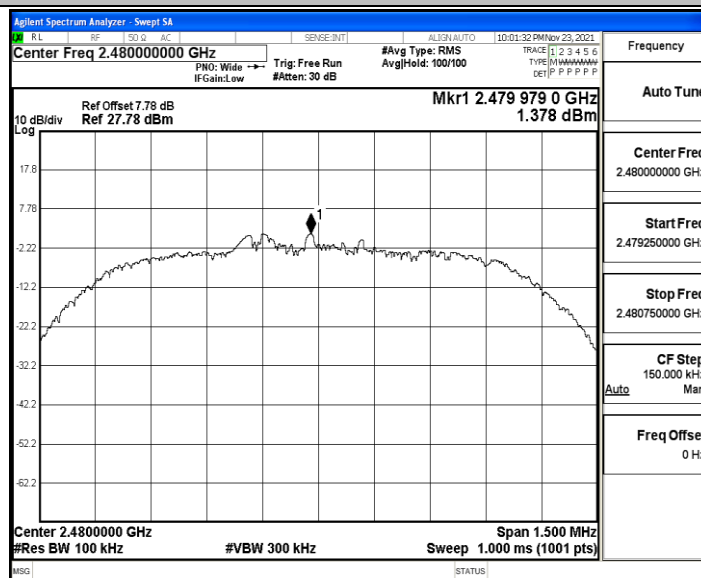


2DH5_Ant1_2441_1000~26500

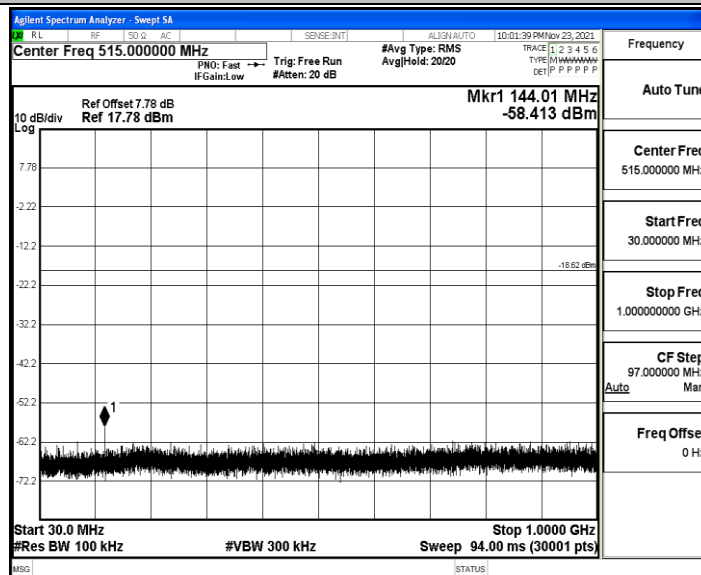




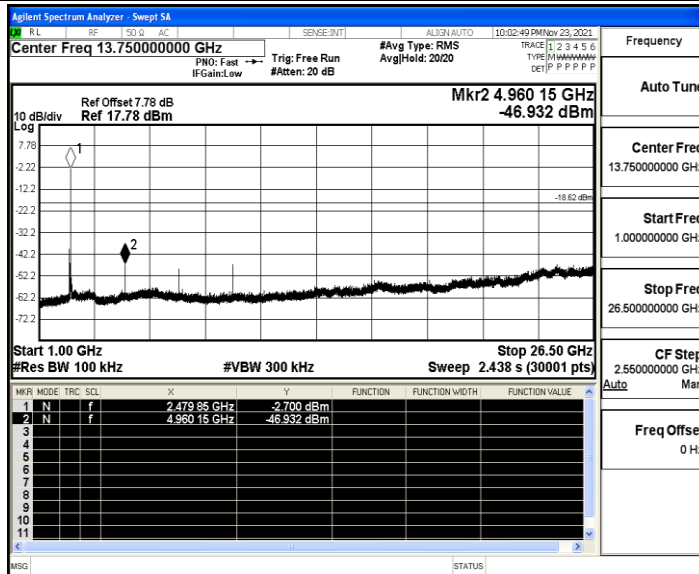
2DH5_Ant1_2480_0~Reference



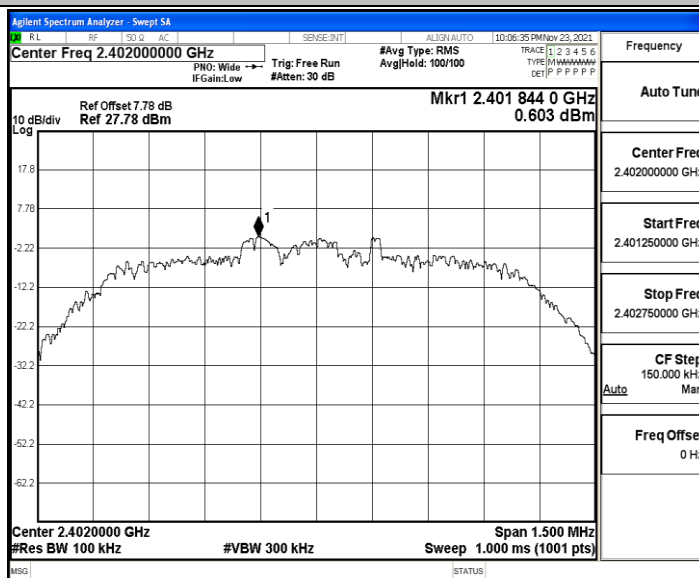
2DH5_Ant1_2480_30~1000



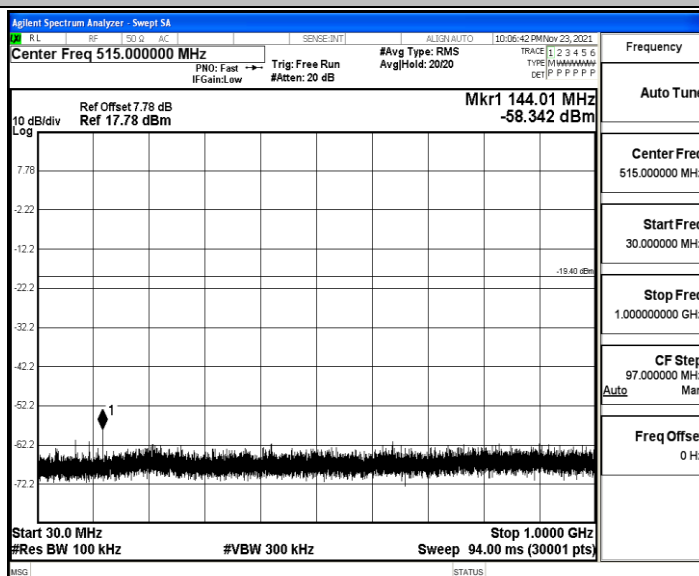
2DH5_Ant1_2480_1000~26500



3DH5_Ant1_2402_0~Reference

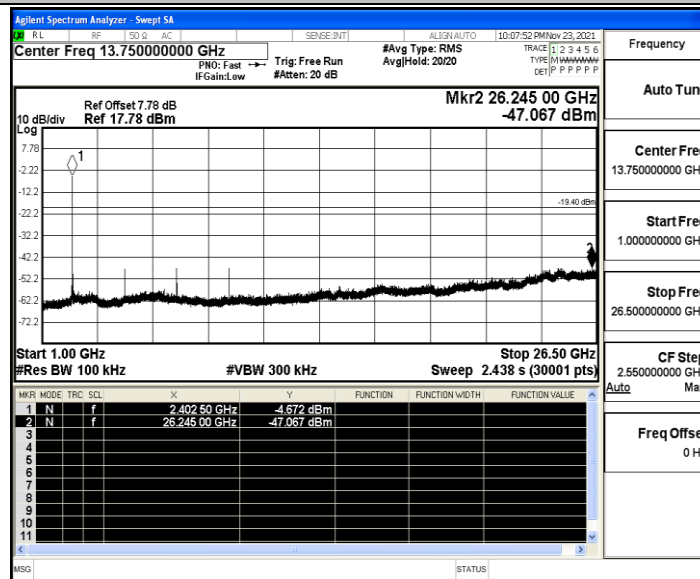


3DH5_Ant1_2402_30~1000

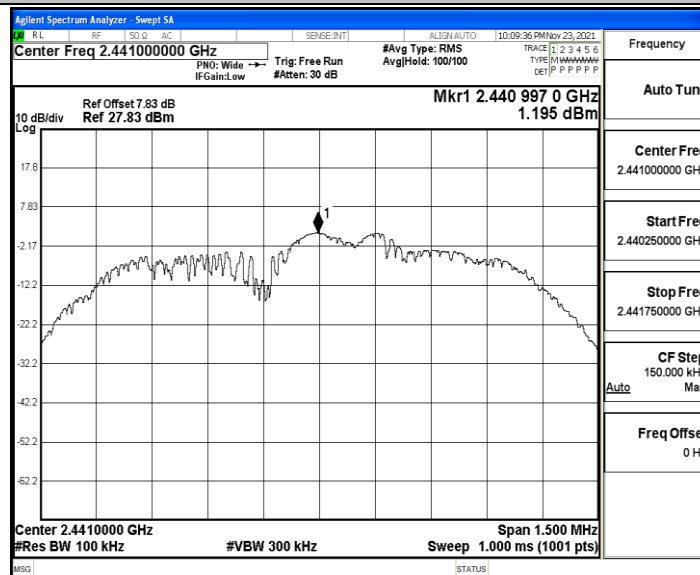




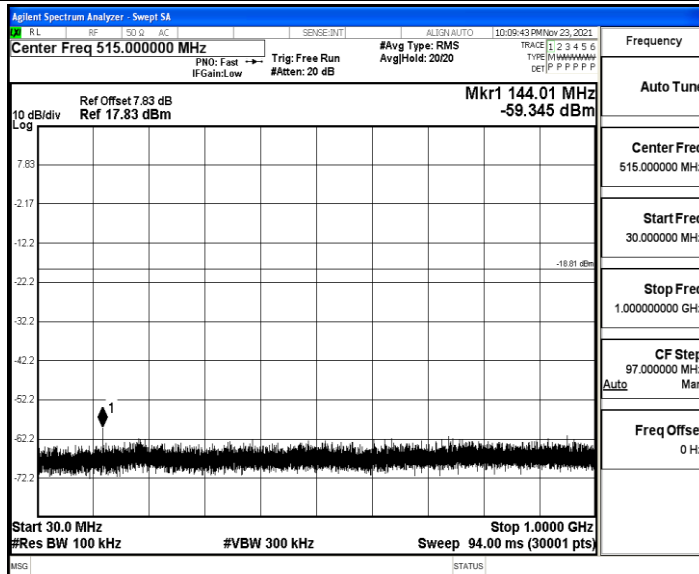
3DH5_Ant1_2402_1000~26500



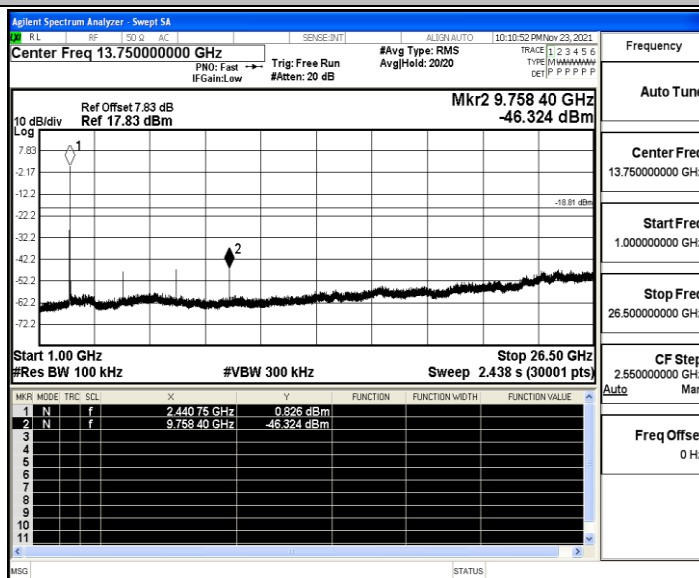
3DH5_Ant1_2441_0~Reference



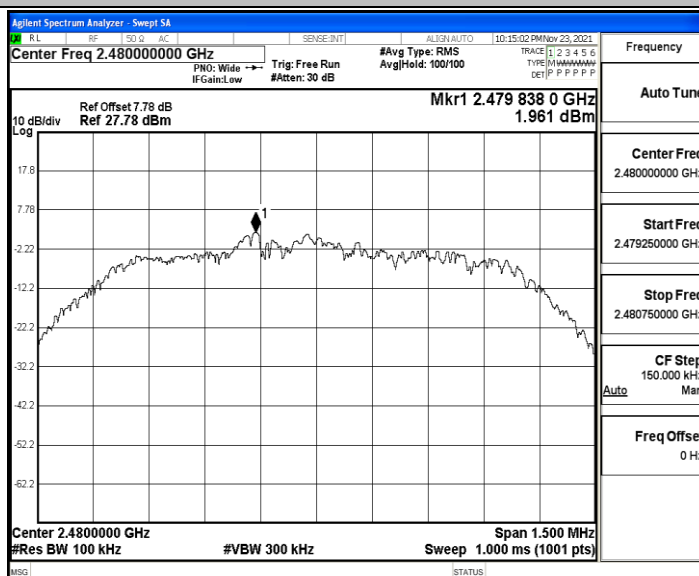
3DH5_Ant1_2441_30~1000



3DH5_Ant1_2441_1000~26500

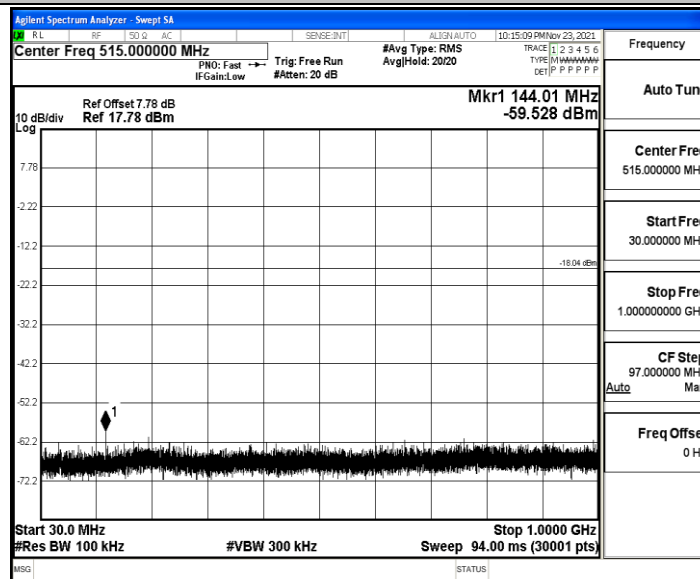


3DH5_Ant1_2480_0~Reference

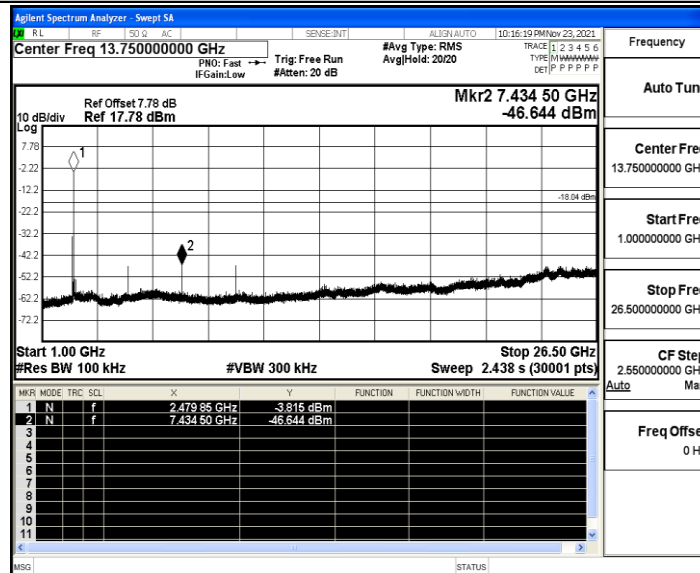




3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500





A.8 Emissions in Restricted Bands

Test Result

TestMode	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH5	2402	AV	2310.000	-48.91	≤-41.20	46.29	≤54	PASS
		AV	2381.060	-47.04	≤-41.20	48.16	≤54	PASS
		AV	2390.000	-47.51	≤-41.20	47.69	≤54	PASS
		Peak	2310.000	-40.61	≤-21.20	54.59	≤74	PASS
		Peak	2378.435	-37.4	≤-21.20	57.80	≤74	PASS
		Peak	2390.000	-39.76	≤-21.20	55.44	≤74	PASS
	2480	AV	2483.500	-42.1	≤-41.20	53.10	≤54	PASS
		AV	2483.520	-42.1	≤-41.20	53.10	≤54	PASS
		AV	2500.000	-46.36	≤-41.20	48.84	≤54	PASS
		Peak	2483.500	-36.15	≤-21.20	59.05	≤74	PASS
		Peak	2483.600	-35.52	≤-21.20	59.68	≤74	PASS
		Peak	2500.000	-38.12	≤-21.20	57.08	≤74	PASS
	Hop_240 2	Peak	2310.000	-39.27	≤-21.20	55.93	≤74	PASS
		Peak	2369.405	-38.5	≤-21.20	56.70	≤74	PASS
		Peak	2390.000	-40.26	≤-21.20	54.94	≤74	PASS
	Hop_248 0	Peak	2483.500	-37.1	≤-21.20	58.10	≤74	PASS
		Peak	2486.000	-36.77	≤-21.20	58.43	≤74	PASS
		Peak	2500.000	-38.95	≤-21.20	56.25	≤74	PASS
2DH5	2402	AV	2310.000	-48.81	≤-41.20	46.39	≤54	PASS
		AV	2381.270	-46.93	≤-41.20	48.27	≤54	PASS
		AV	2390.000	-47.69	≤-41.20	47.51	≤54	PASS
		Peak	2310.000	-40.35	≤-21.20	54.85	≤74	PASS
		Peak	2389.775	-36.87	≤-21.20	58.33	≤74	PASS
		Peak	2390.000	-39.15	≤-21.20	56.05	≤74	PASS
	2480	AV	2483.500	-44.18	≤-41.20	51.02	≤54	PASS
		AV	2483.520	-44.18	≤-41.20	51.02	≤54	PASS
		AV	2500.000	-45.92	≤-41.20	49.28	≤54	PASS
		Peak	2483.500	-37.21	≤-21.20	57.99	≤74	PASS
		Peak	2484.000	-35.95	≤-21.20	59.25	≤74	PASS
		Peak	2500.000	-37.84	≤-21.20	57.36	≤74	PASS
	Hop_240 2	Peak	2310.000	-41.69	≤-21.20	53.51	≤74	PASS
		Peak	2387.990	-37.33	≤-21.20	57.87	≤74	PASS
		Peak	2390.000	-39.21	≤-21.20	55.99	≤74	PASS
	Hop_248 0	Peak	2483.500	-39.95	≤-21.20	55.25	≤74	PASS
		Peak	2488.240	-36.48	≤-21.20	58.72	≤74	PASS
		Peak	2500.000	-37.97	≤-21.20	57.23	≤74	PASS
3DH5	2402	AV	2310.000	-48.6	≤-41.20	46.60	≤54	PASS



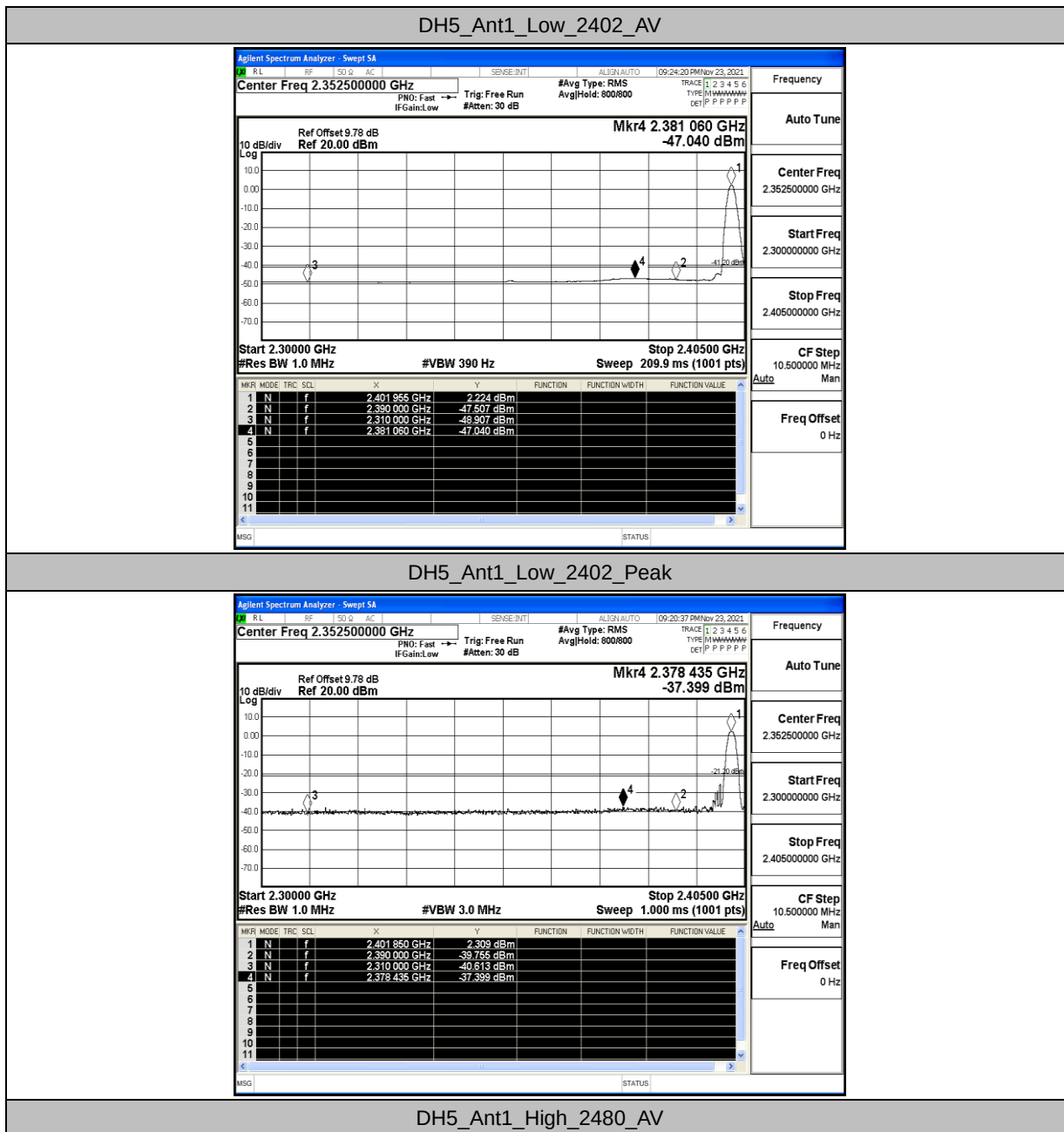
		AV	2382.950	-46.71	≤ -41.20	48.49	≤ 54	PASS
		AV	2390.000	-47.71	≤ -41.20	47.49	≤ 54	PASS
		Peak	2310.000	-40.42	≤ -21.20	54.78	≤ 74	PASS
		Peak	2384.945	-37.81	≤ -21.20	57.39	≤ 74	PASS
		Peak	2390.000	-40.52	≤ -21.20	54.68	≤ 74	PASS
	2480	AV	2483.500	-44.12	≤ -41.20	51.08	≤ 54	PASS
		AV	2483.520	-44.12	≤ -41.20	51.08	≤ 54	PASS
		AV	2500.000	-45.72	≤ -41.20	49.48	≤ 54	PASS
		Peak	2483.500	-37.08	≤ -21.20	58.12	≤ 74	PASS
		Peak	2495.440	-34.88	≤ -21.20	60.32	≤ 74	PASS
		Peak	2500.000	-39.16	≤ -21.20	56.04	≤ 74	PASS
	Hop_240 2	Peak	2310.000	-40.56	≤ -21.20	54.64	≤ 74	PASS
		Peak	2368.355	-38.29	≤ -21.20	56.91	≤ 74	PASS
		Peak	2390.000	-40.66	≤ -21.20	54.54	≤ 74	PASS
	Hop_248 0	Peak	2483.500	-39.73	≤ -21.20	55.47	≤ 74	PASS
		Peak	2497.280	-36.9	≤ -21.20	58.30	≤ 74	PASS
		Peak	2500.000	-40.35	≤ -21.20	54.85	≤ 74	PASS

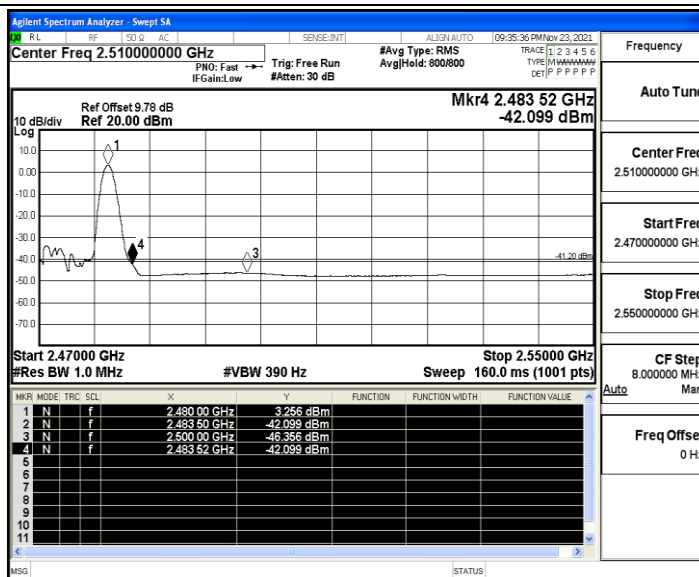
Note:

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.

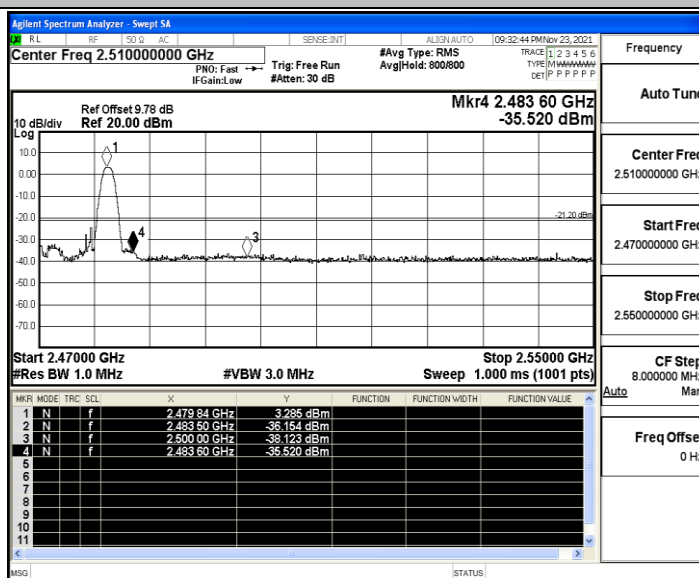


Test Graphs

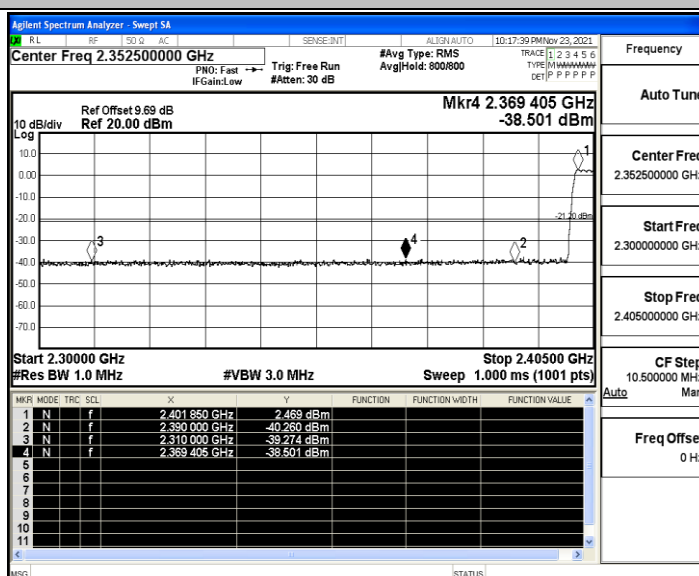




DH5_Ant1_High_2480_Peak

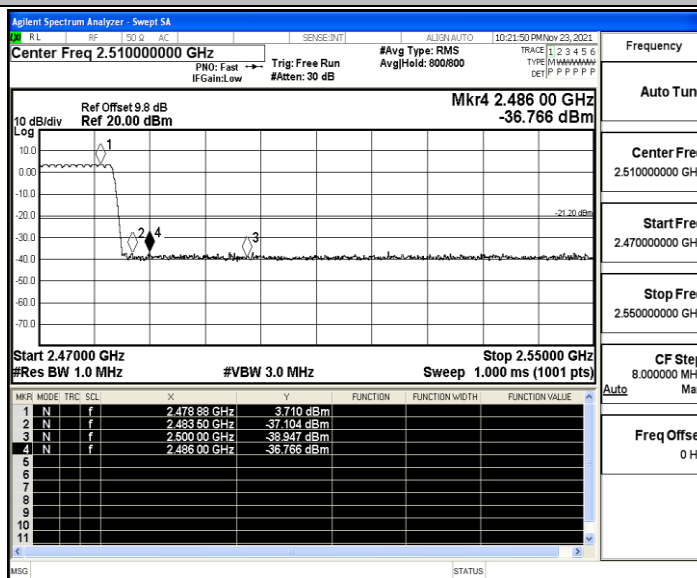


DH5_Ant1_Low_Hop_2402_Peak

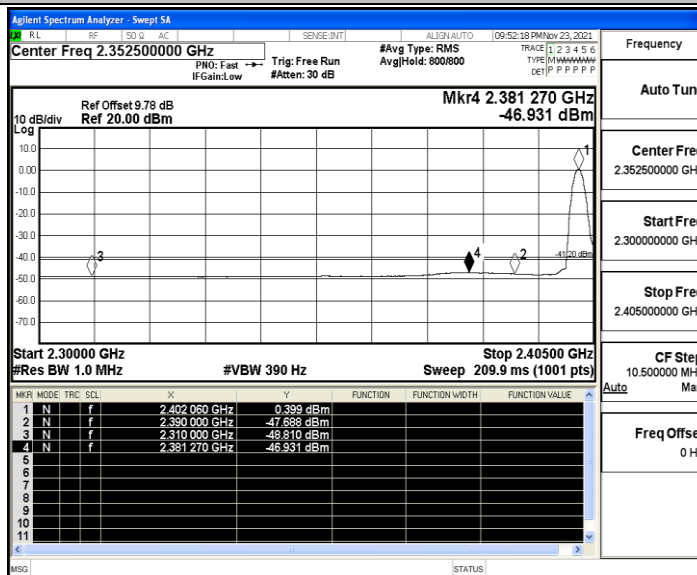




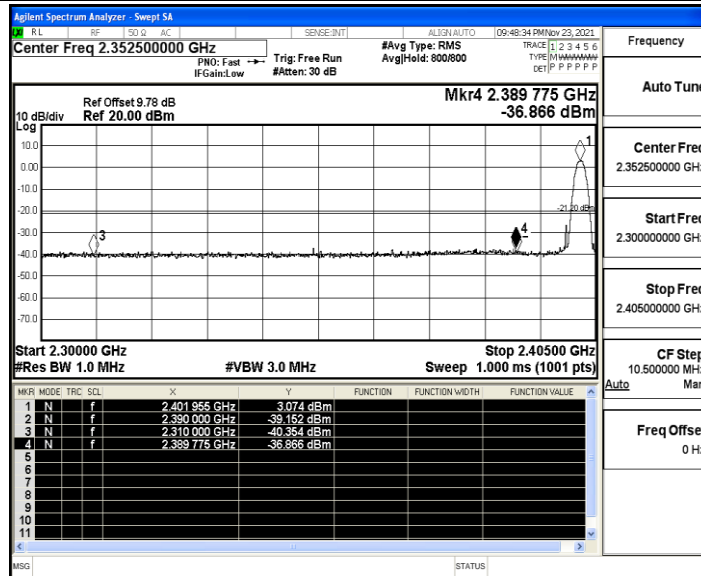
DH5_Ant1_High_Hop_2480_Peak



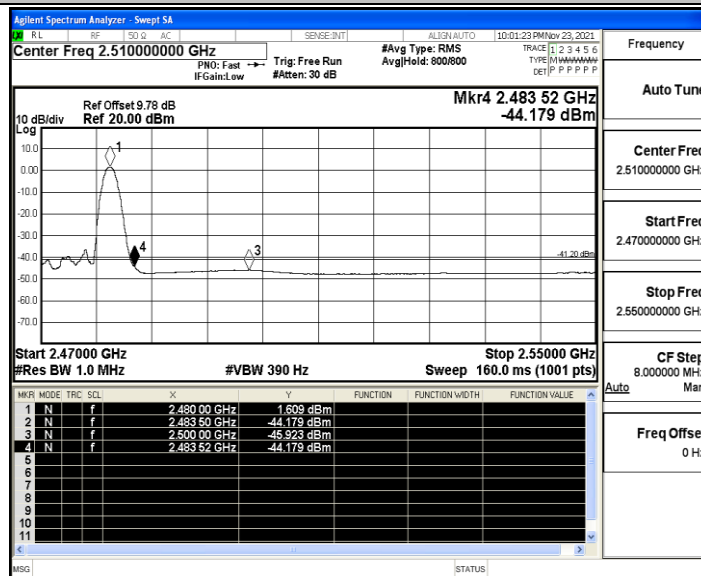
2DH5_Ant1_Low_2402_AV



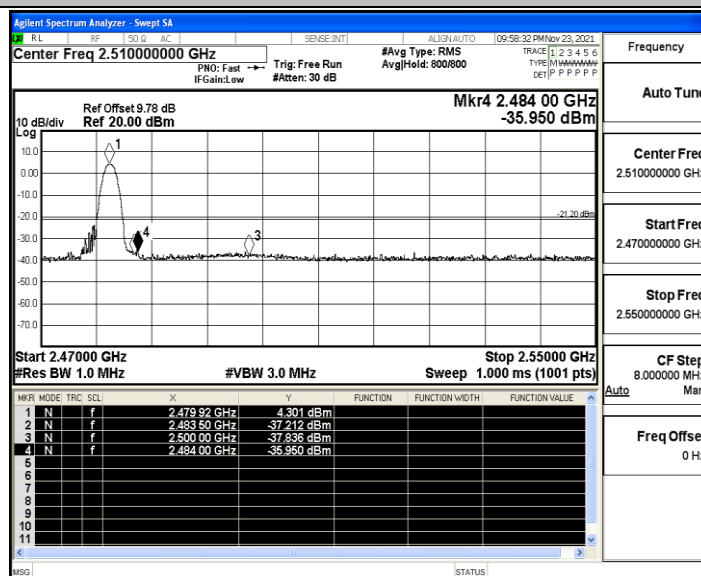
2DH5_Ant1_Low_2402_Peak



2DH5_Ant1_High_2480_AV

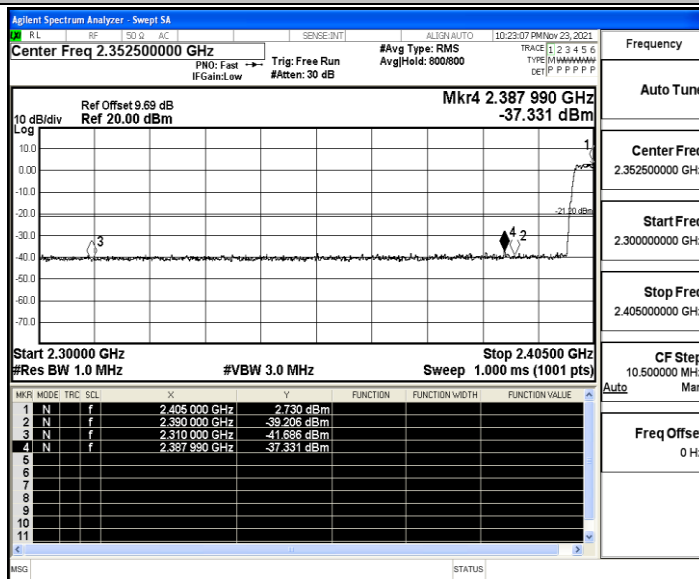


2DH5_Ant1_High_2480_Peak

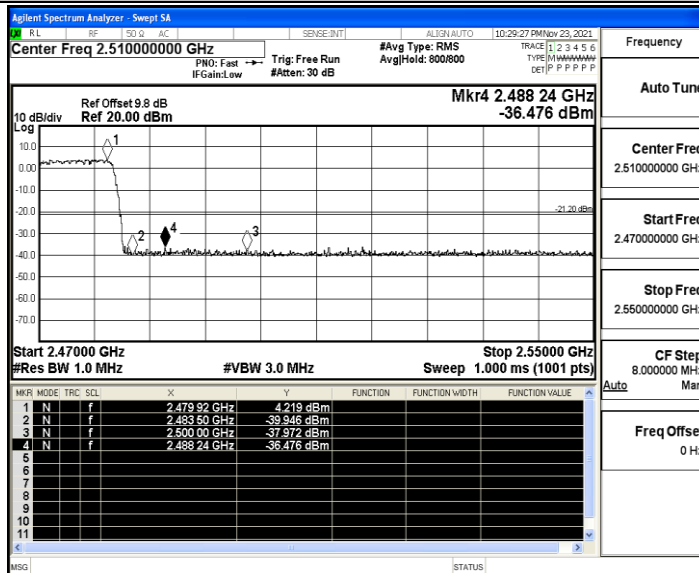




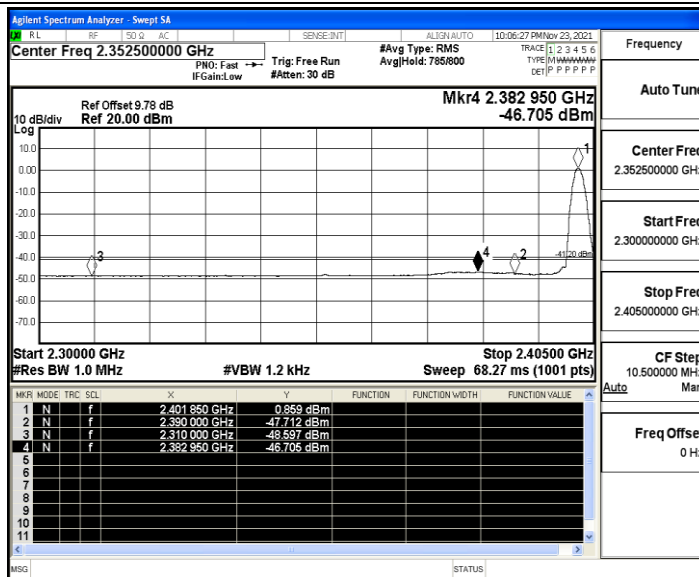
2DH5_Ant1_Low_Hop_2402_Peak



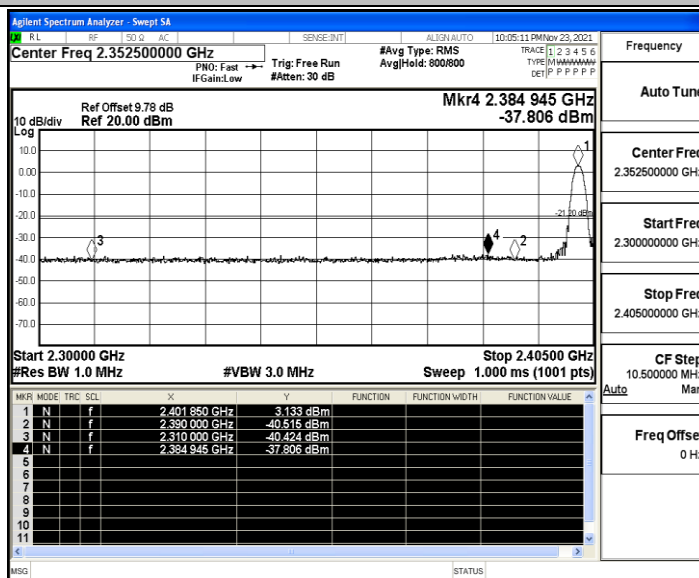
2DH5_Ant1_High_Hop_2480_Peak



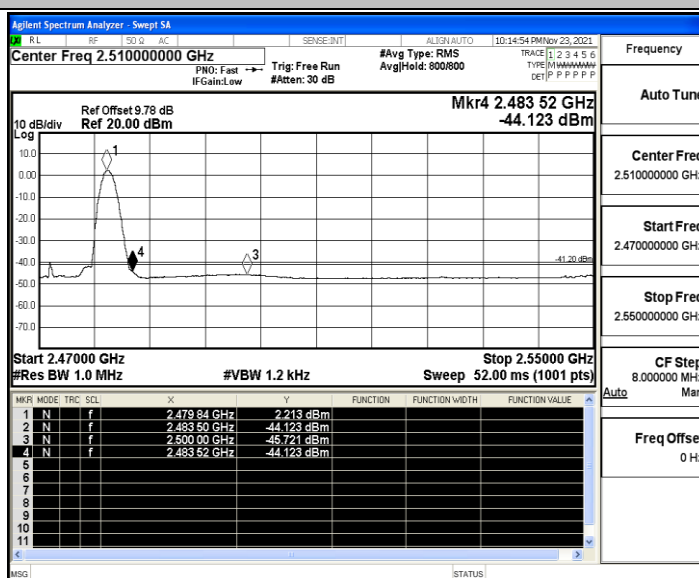
3DH5_Ant1_Low_2402_AV



3DH5_Ant1_Low_2402_Peak

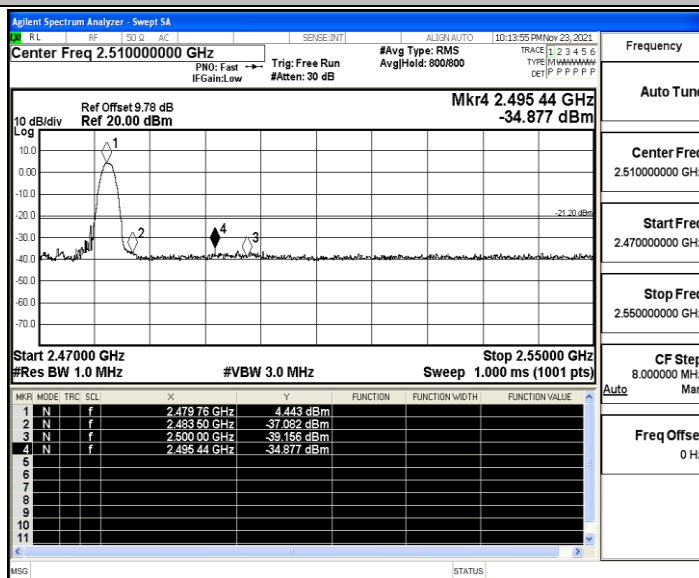


3DH5_Ant1_High_2480_AV

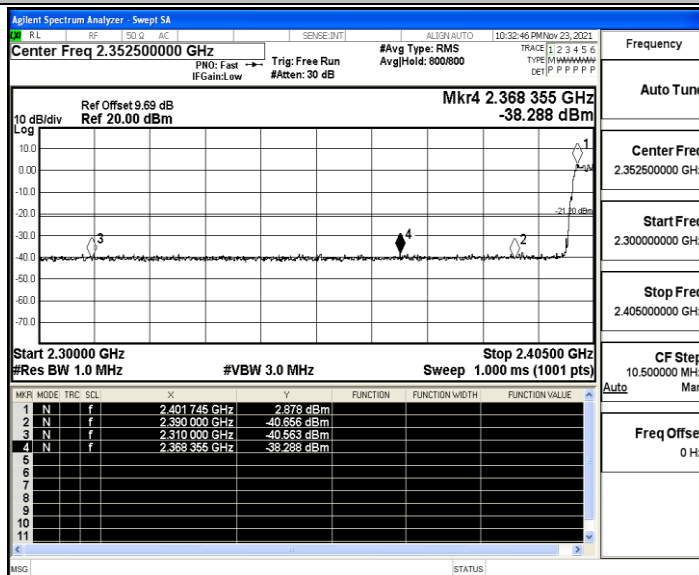




3DH5_Ant1_High_2480_Peak



3DH5_Ant1_Low_Hop_2402_Peak



3DH5_Ant1_High_Hop_2480_Peak

