



Appendix A

RF Test Data for BT V5.0(DSS) (Conducted Measurement)

Product Name: Bluetooth Speaker

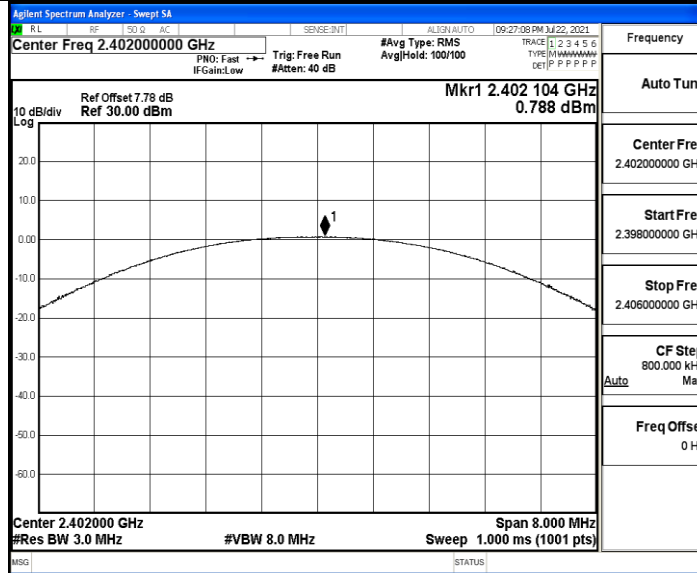
Test Model: ESS-209

Environmental Conditions

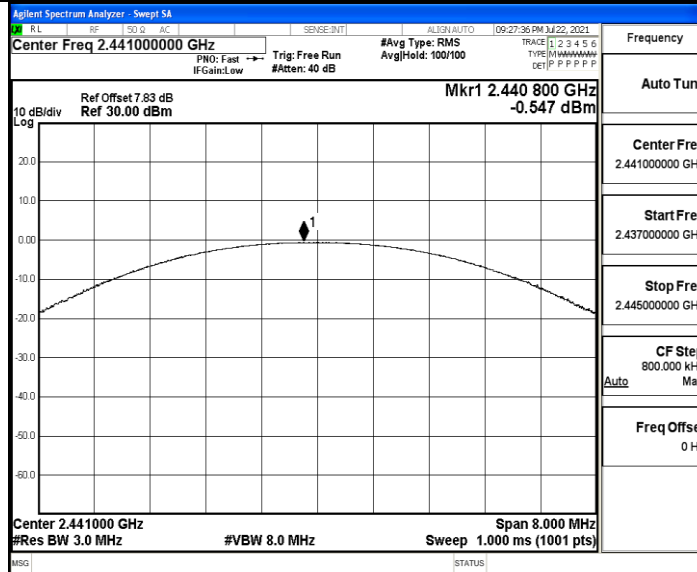
Temperature:	21.6 ° C
Relative Humidity:	52.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Carl Fu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

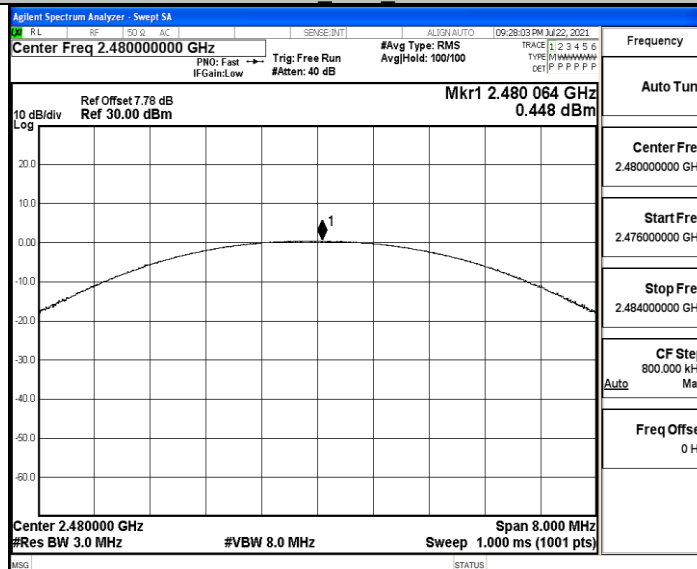
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	0.79	≤20.97	PASS
		2441	-0.55	≤20.97	PASS
		2480	0.45	≤20.97	PASS
2DH5	Ant1	2402	-0.4	≤20.97	PASS
		2441	-1.36	≤20.97	PASS
		2480	-0.42	≤20.97	PASS
3DH5	Ant1	2402	-0.01	≤20.97	PASS
		2441	-1.17	≤20.97	PASS
		2480	-0.31	≤20.97	PASS



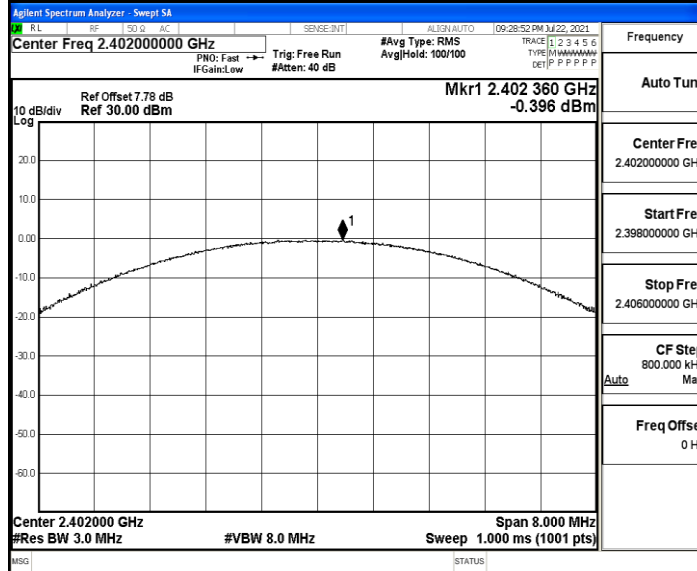
DH5_Ant1_2402



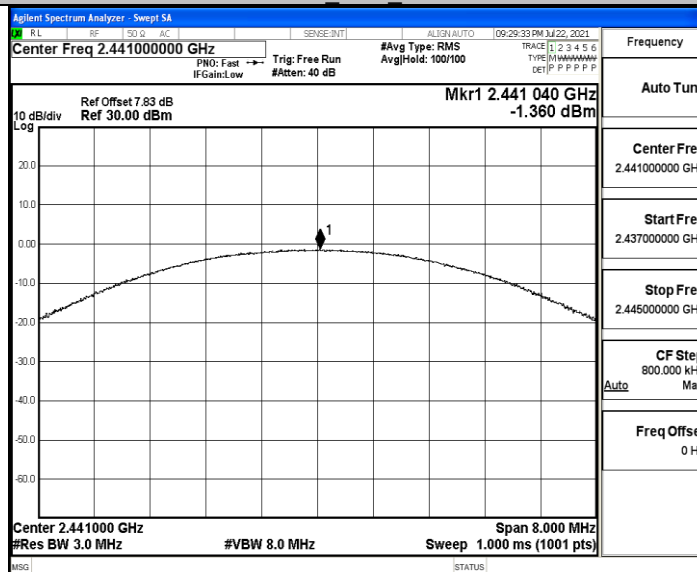
DH5_Ant1_2441



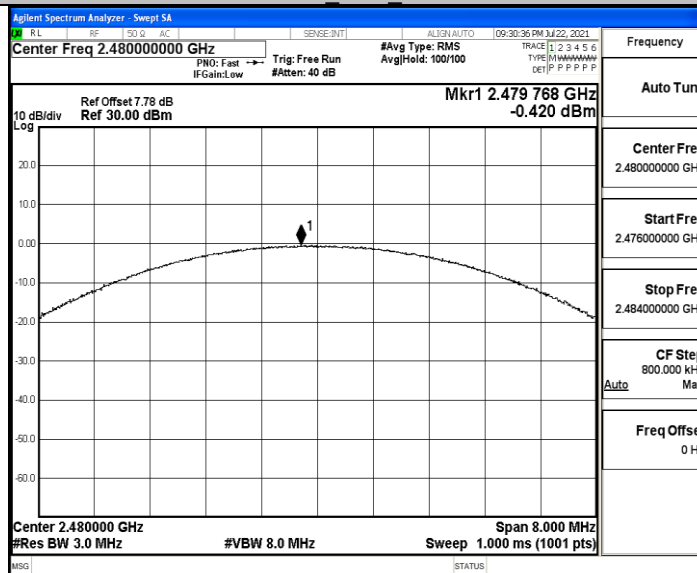
DH5_Ant1_2480



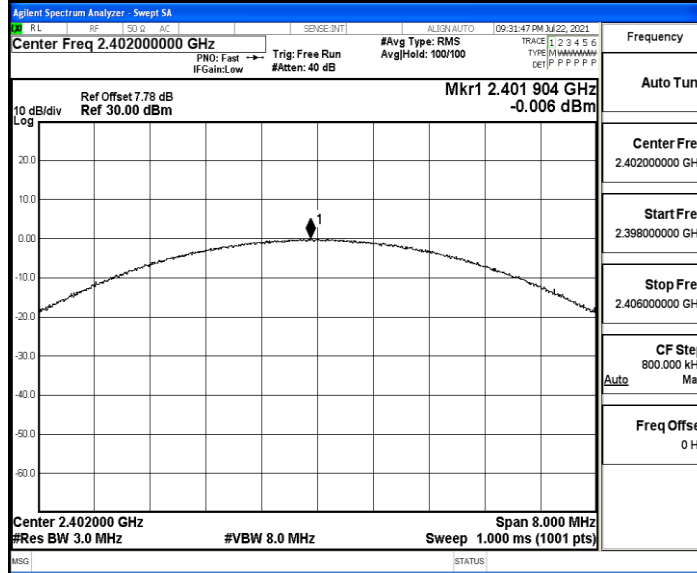
2DH5_Ant1_2402



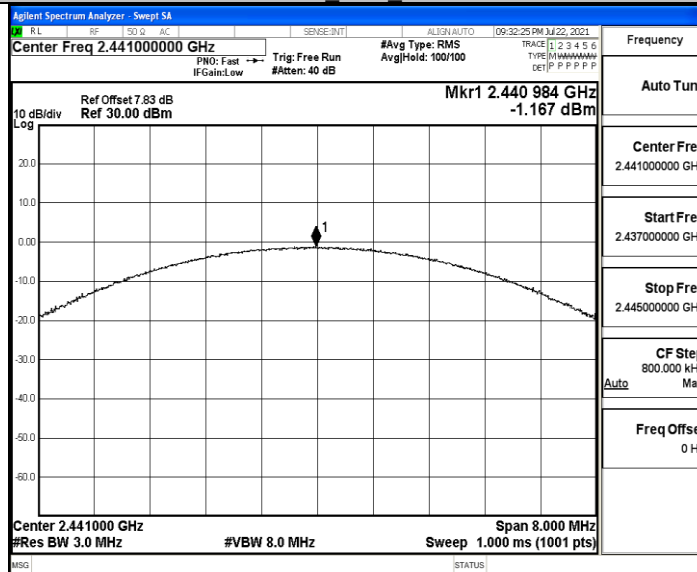
2DH5_Ant1_2441



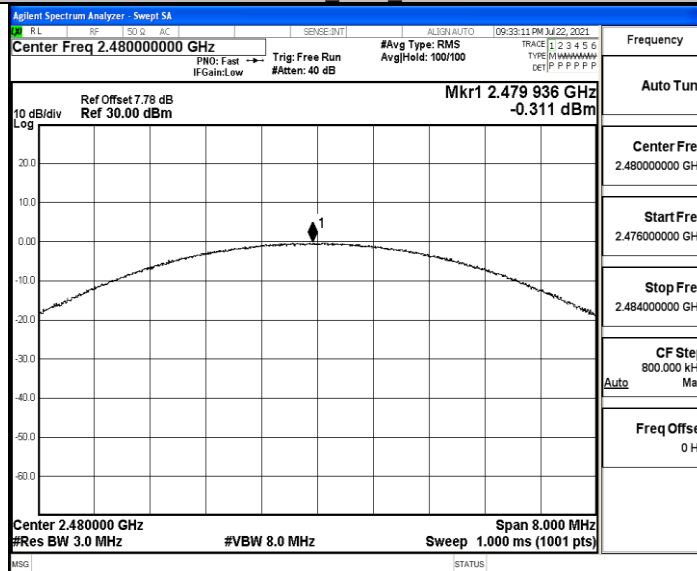
2DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441

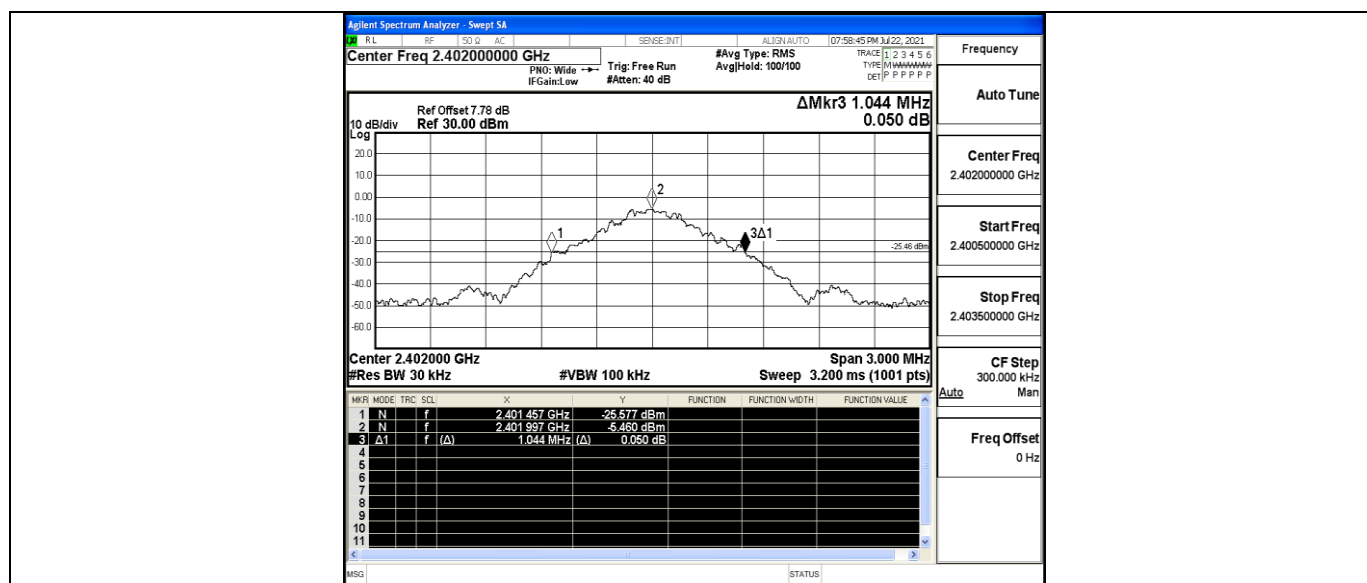


3DH5_Ant1_2480

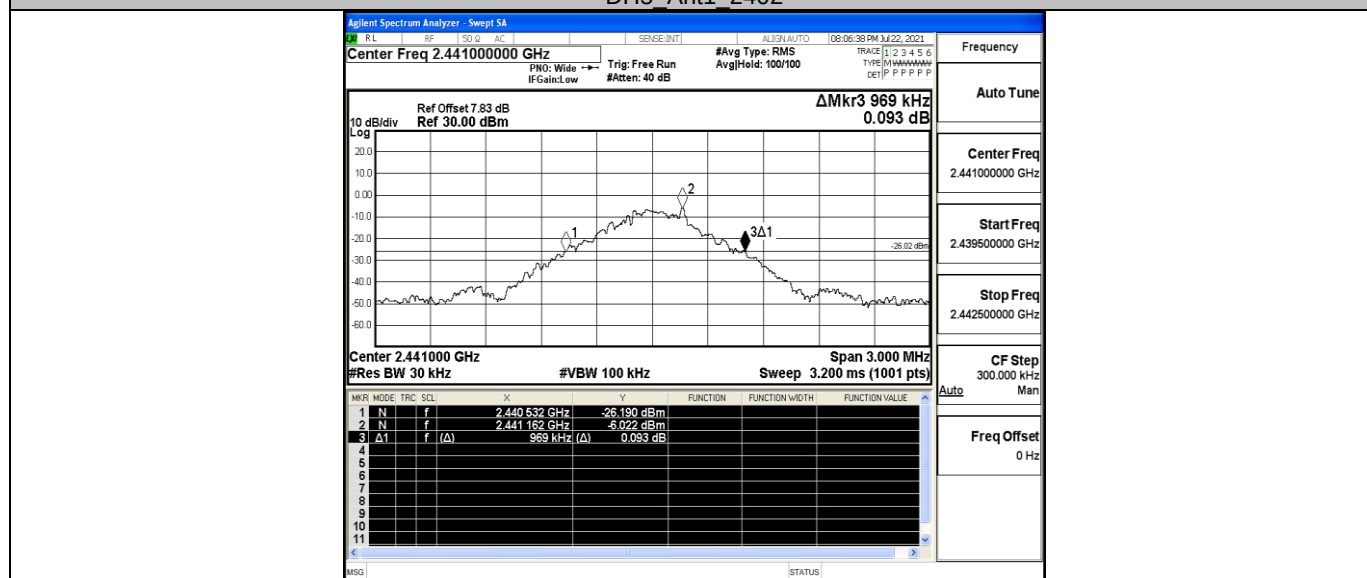


A.2 20dB Bandwidth

TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	1.044	2401.457	2402.501	---	PASS
		2441	0.969	2440.532	2441.501	---	PASS
		2480	0.957	2479.535	2480.492	---	PASS
2DH5	Ant1	2402	1.326	2401.334	2402.660	---	PASS
		2441	1.329	2440.334	2441.663	---	PASS
		2480	1.332	2479.331	2480.663	---	PASS
3DH5	Ant1	2402	1.323	2401.340	2402.663	---	PASS
		2441	1.314	2440.343	2441.657	---	PASS
		2480	1.320	2479.340	2480.660	---	PASS

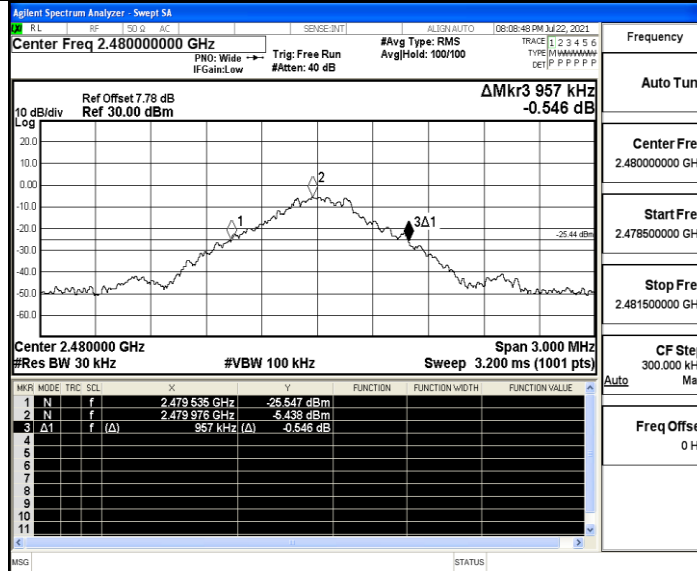


DH5 Ant1 2402

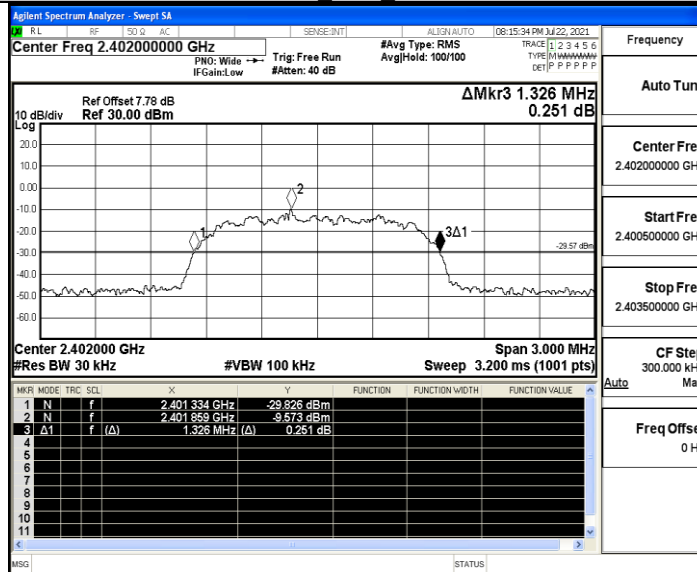




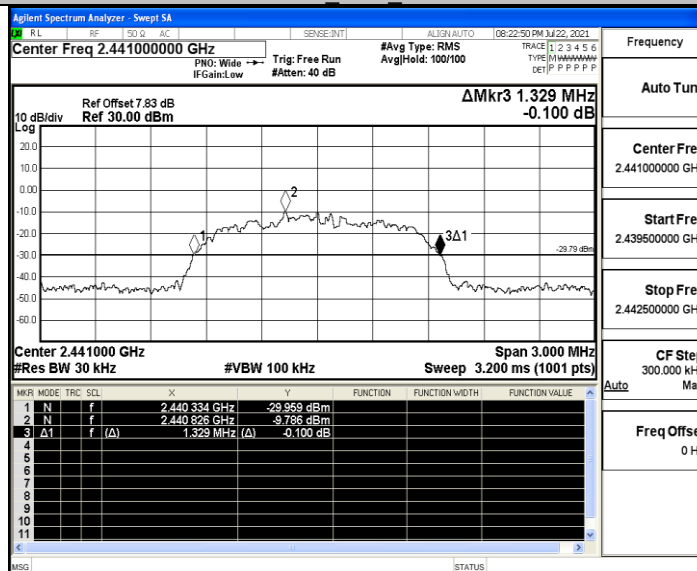
DH5_Ant1_2441



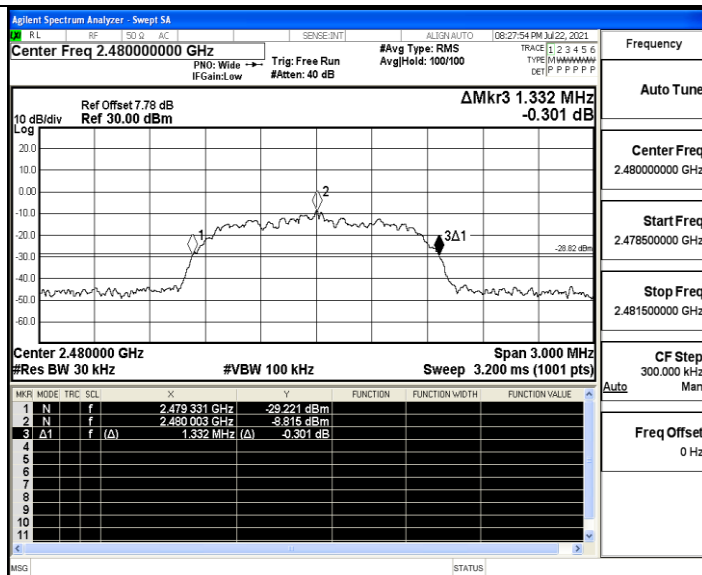
DH5_Ant1_2480



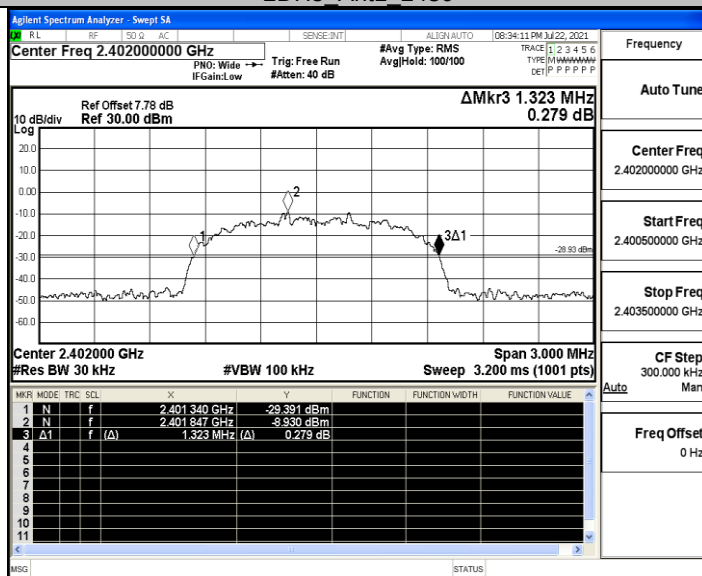
2DH5_Ant1_2402



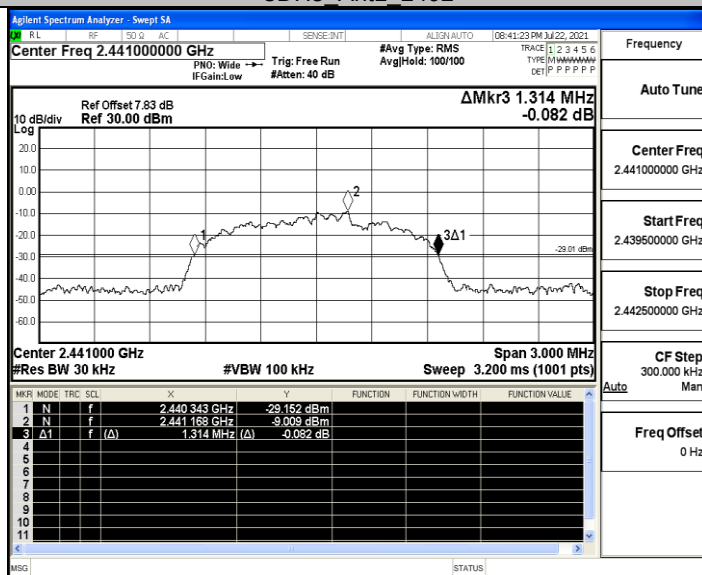
2DH5_Ant1_2441



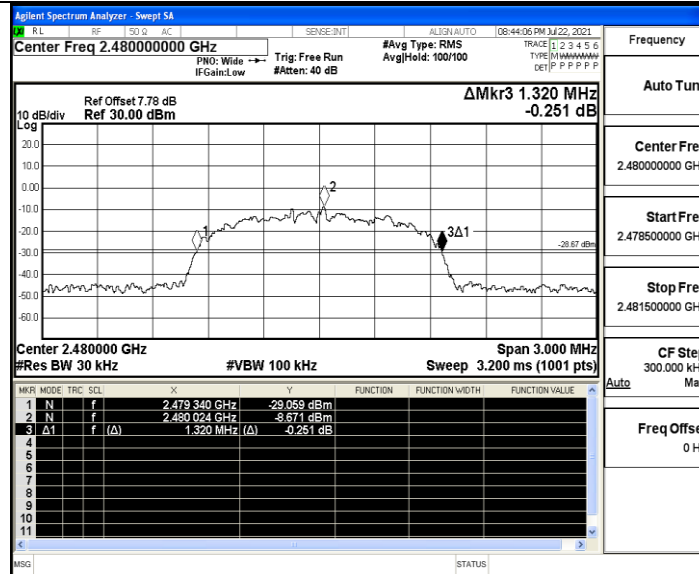
2DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441

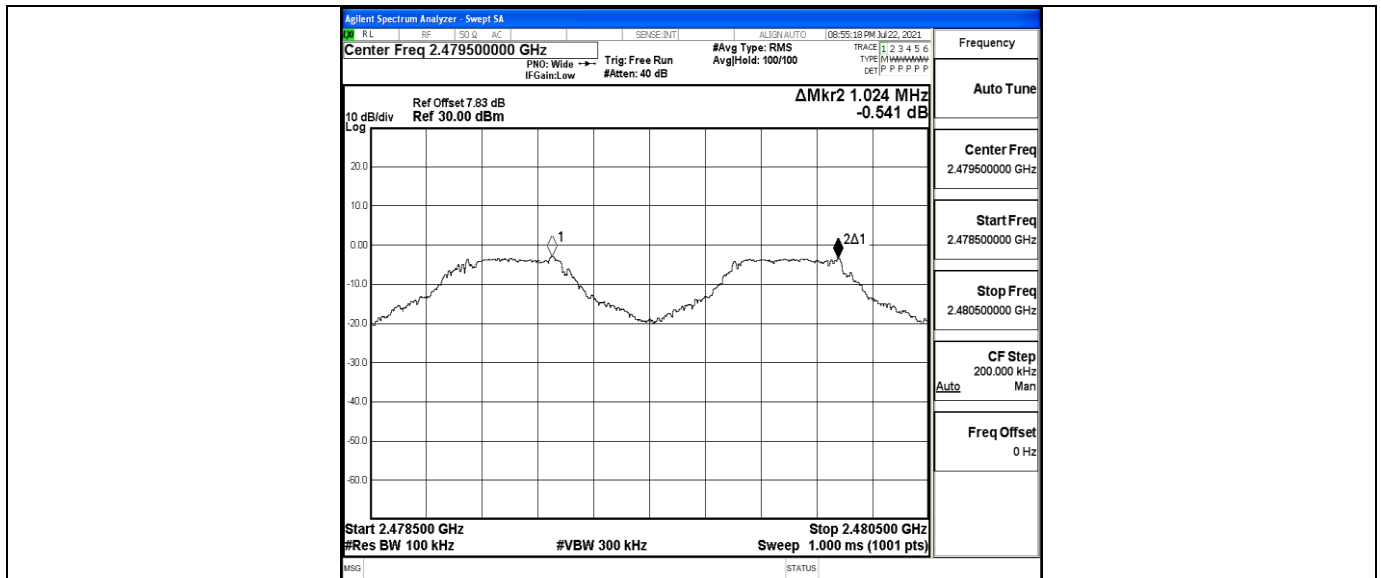


3DH5_Ant1_2480

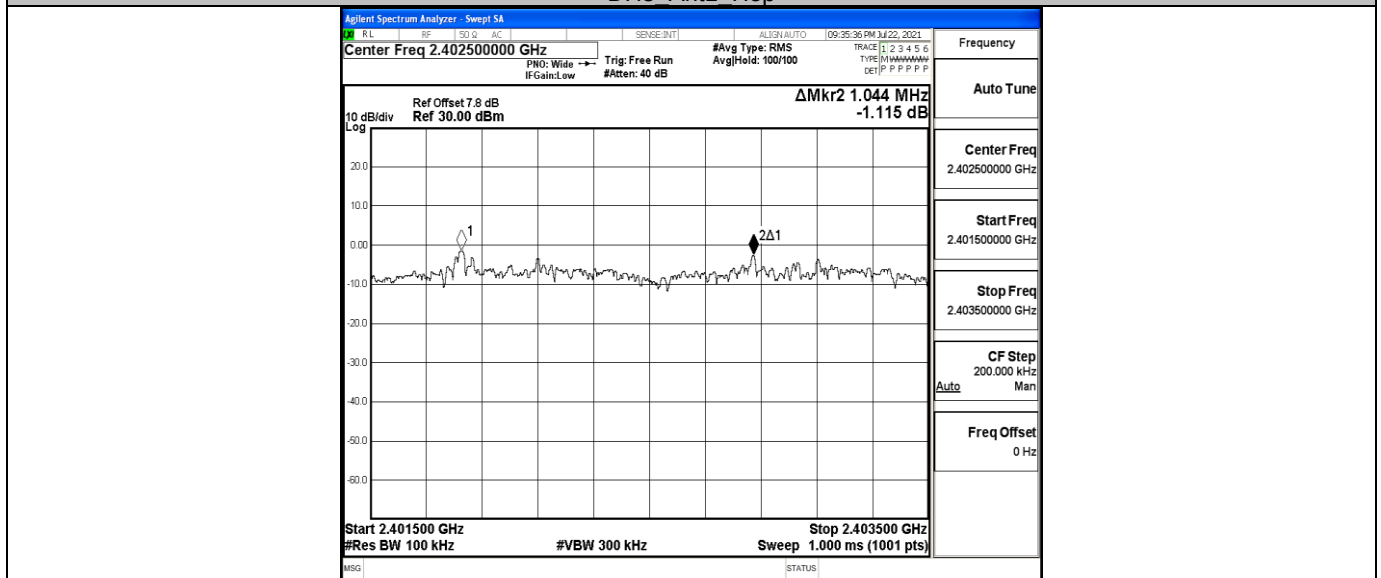


A.3 Carrier Frequency Separation

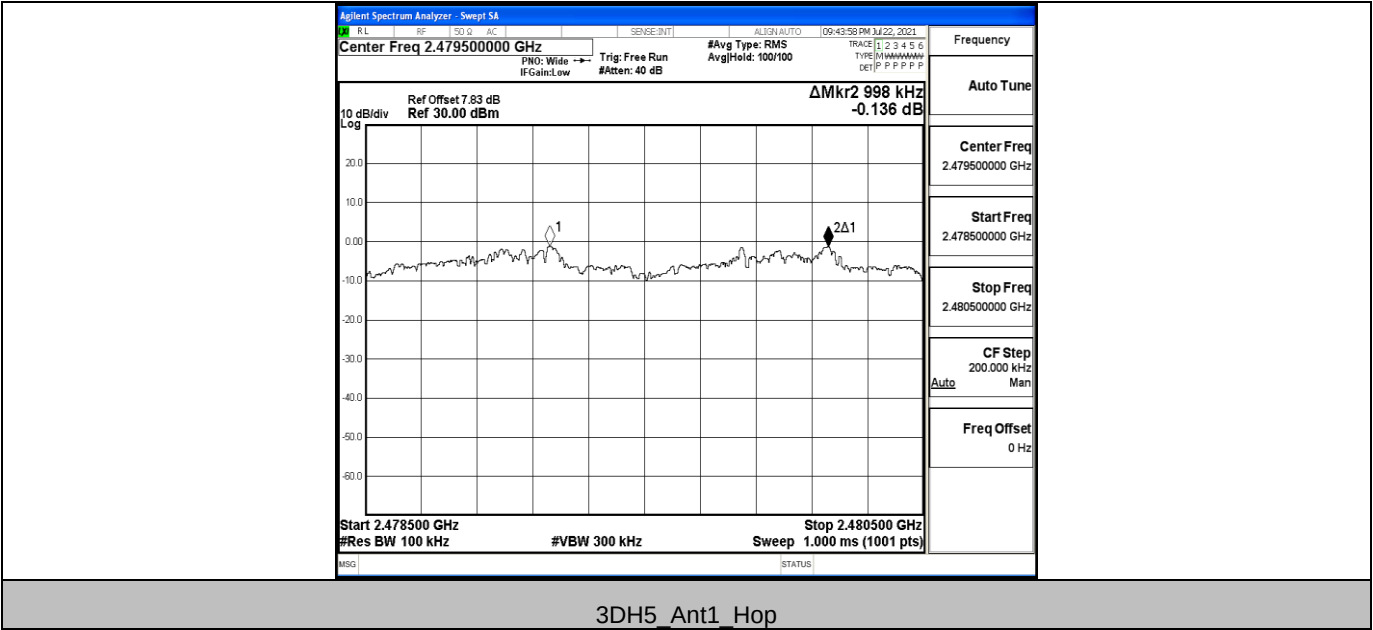
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	Hop	1.024	≥ 0.696	PASS
2DH5	Ant1	Hop	1.044	≥ 0.888	PASS
3DH5	Ant1	Hop	0.998	≥ 0.882	PASS



DH5 Ant1 Hop



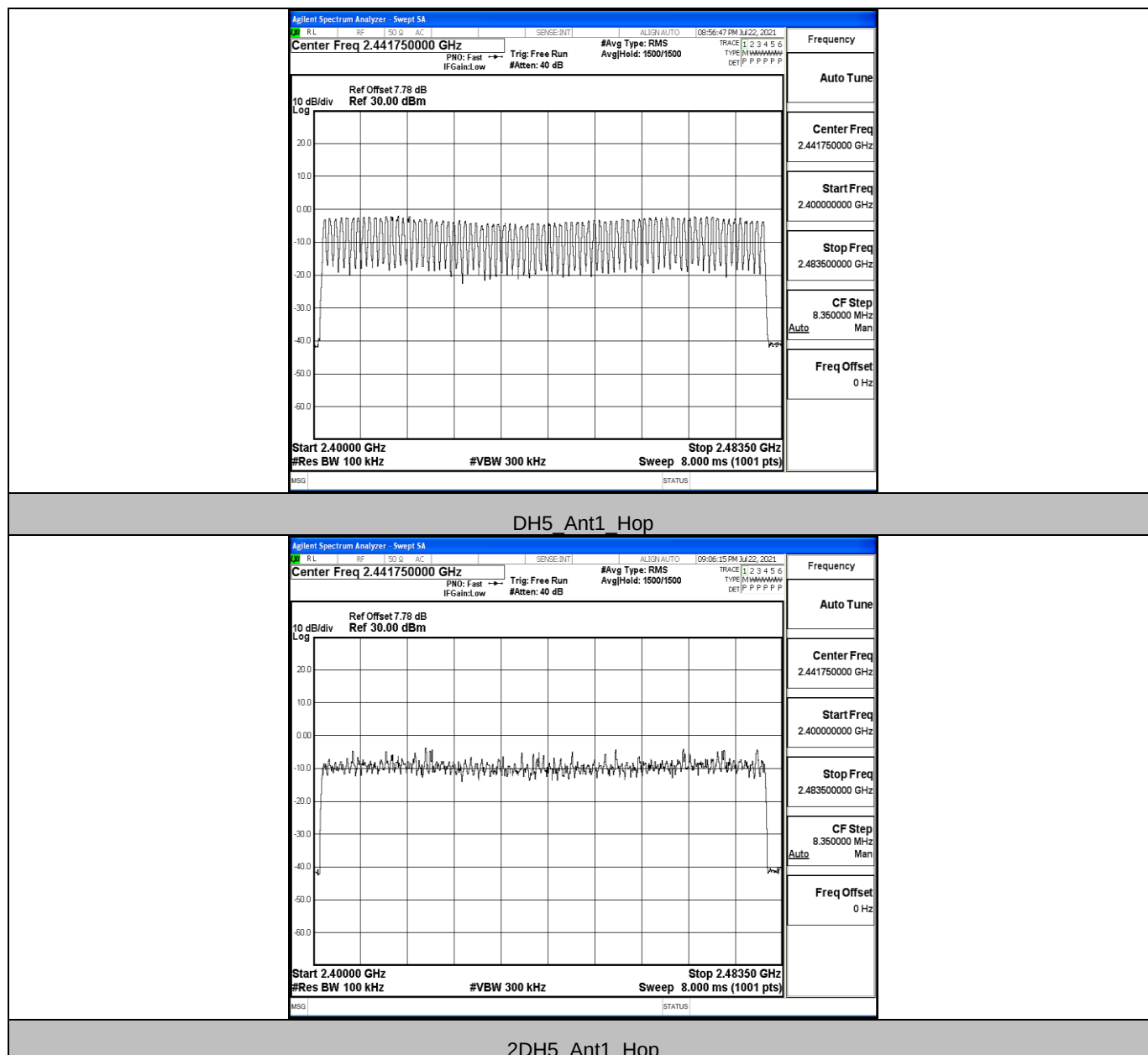
2DH5 Ant1 Hop

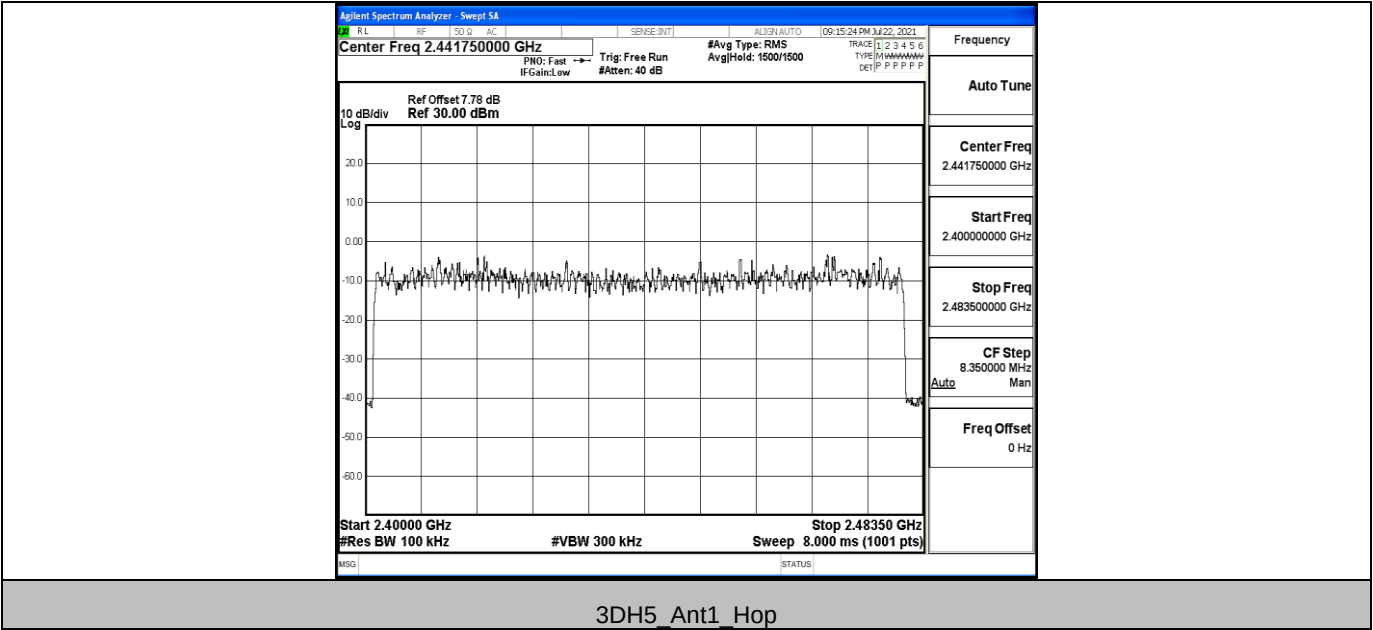




A.4 Hopping Channel Number

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

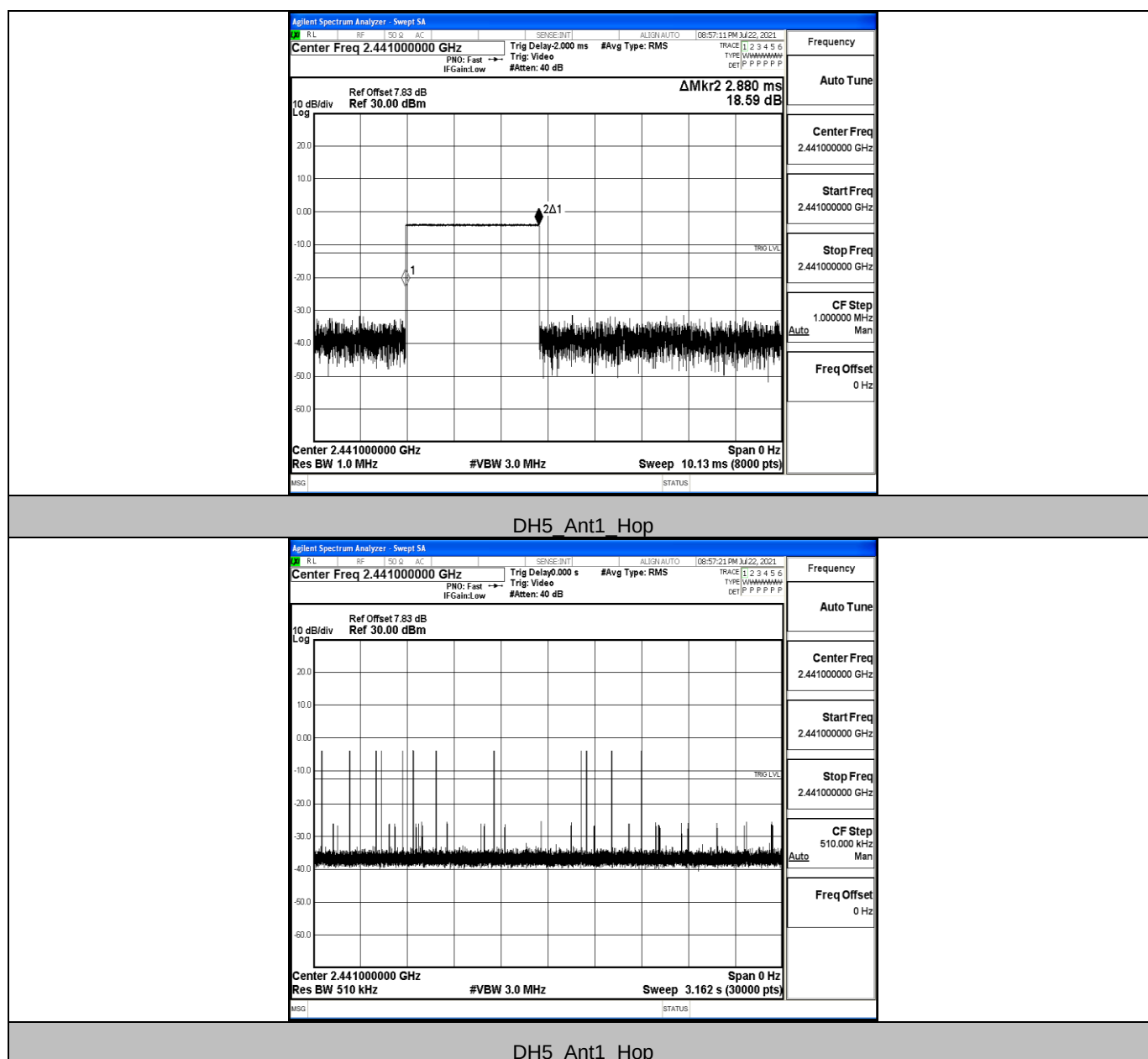


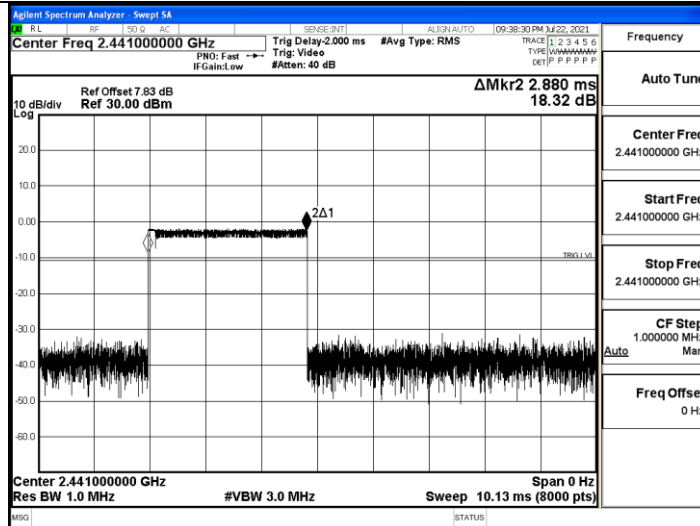




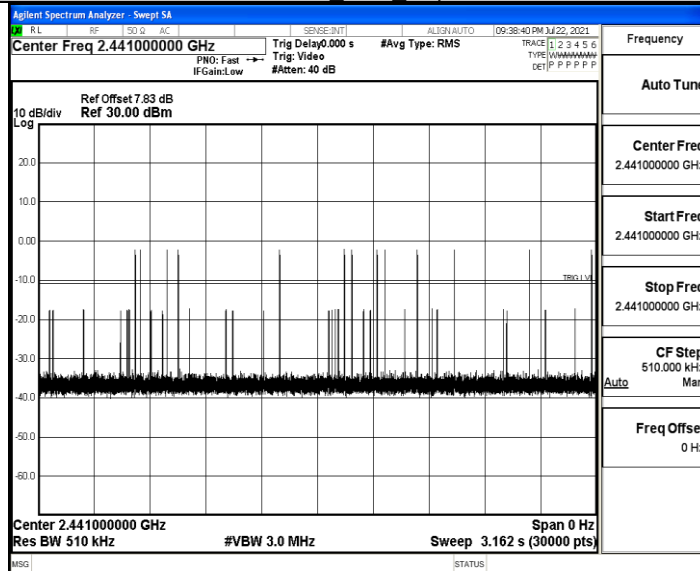
A.5 Dwell Time

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.88	130	0.374	≤0.4	PASS
2DH5	Ant1	Hop	2.88	130	0.374	≤0.4	PASS
3DH5	Ant1	Hop	2.89	130	0.375	≤0.4	PASS

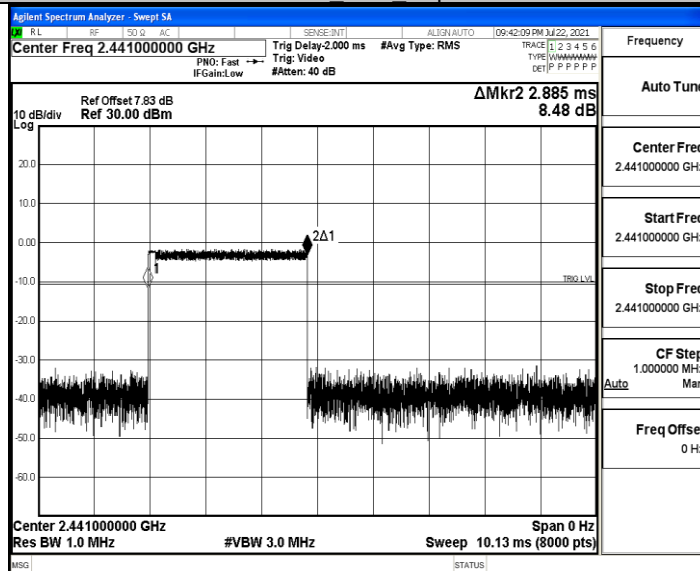




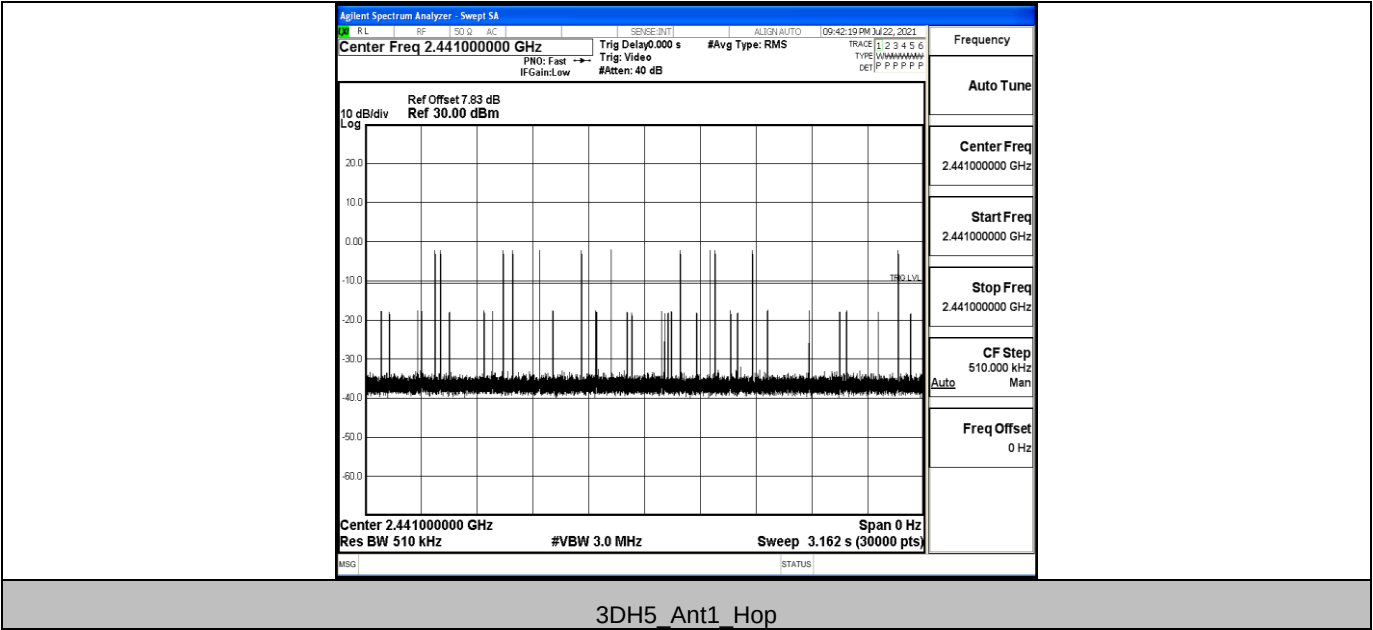
2DH5_Ant1_Hop



2DH5_Ant1_Hop



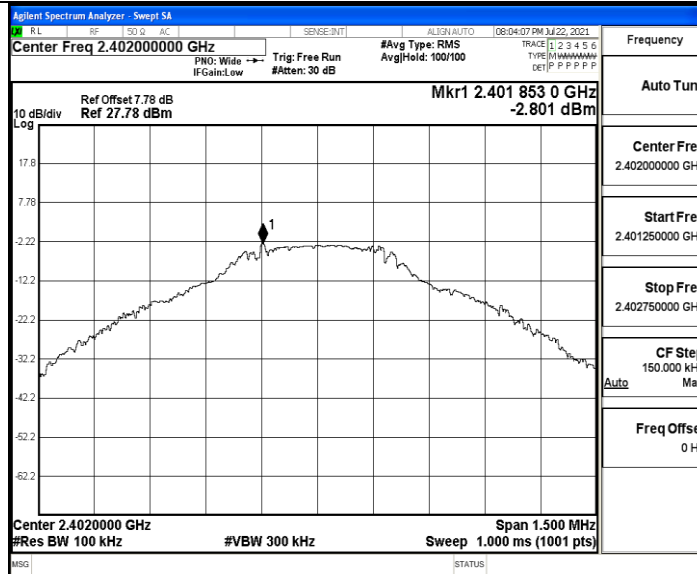
3DH5_Ant1_Hop



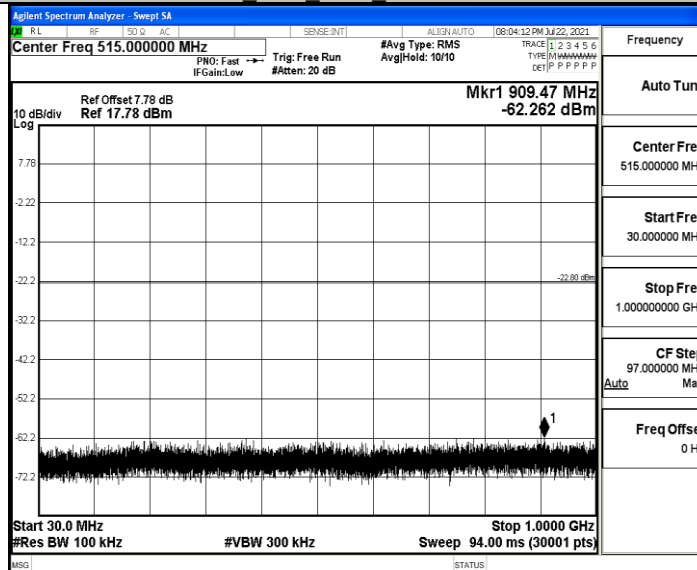


A.6 RF Conducted Spurious Emissions

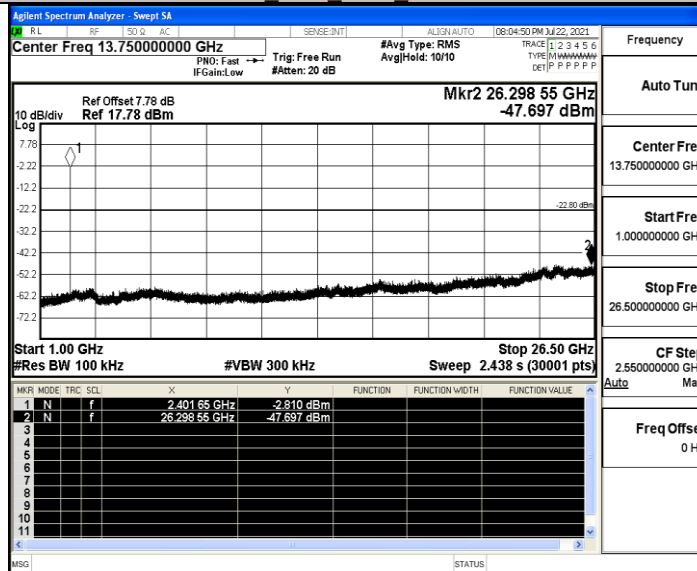
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-2.80	-2.80	---	PASS
			30~1000	-2.80	-62.26	≤ -22.8	PASS
			1000~26500	-2.80	-47.7	≤ -22.8	PASS
		2441	Reference	-4.55	-4.55	---	PASS
			30~1000	-4.55	-61.25	≤ -24.55	PASS
			1000~26500	-4.55	-47.86	≤ -24.55	PASS
		2480	Reference	-3.10	-3.10	---	PASS
			30~1000	-3.10	-61.88	≤ -23.1	PASS
			1000~26500	-3.10	-47.92	≤ -23.1	PASS
2DH5	Ant1	2402	Reference	-4.83	-4.83	---	PASS
			30~1000	-4.83	-61.15	≤ -24.83	PASS
			1000~26500	-4.83	-47.83	≤ -24.83	PASS
		2441	Reference	-8.25	-8.25	---	PASS
			30~1000	-8.25	-61.57	≤ -28.25	PASS
			1000~26500	-8.25	-47.08	≤ -28.25	PASS
		2480	Reference	-5.05	-5.05	---	PASS
			30~1000	-5.05	-62.26	≤ -25.05	PASS
			1000~26500	-5.05	-47.22	≤ -25.05	PASS
3DH5	Ant1	2402	Reference	-5.18	-5.18	---	PASS
			30~1000	-5.18	-61.83	≤ -25.18	PASS
			1000~26500	-5.18	-48.18	≤ -25.18	PASS
		2441	Reference	-5.30	-5.30	---	PASS
			30~1000	-5.30	-61.02	≤ -25.3	PASS
			1000~26500	-5.30	-47.55	≤ -25.3	PASS
		2480	Reference	-4.43	-4.43	---	PASS
			30~1000	-4.43	-61.59	≤ -24.43	PASS
			1000~26500	-4.43	-46.88	≤ -24.43	PASS



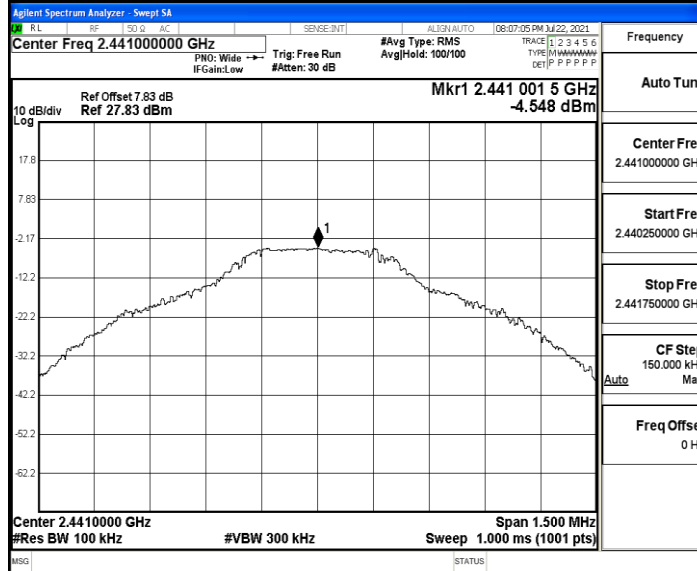
DH5_Ant1_2402_0-Reference



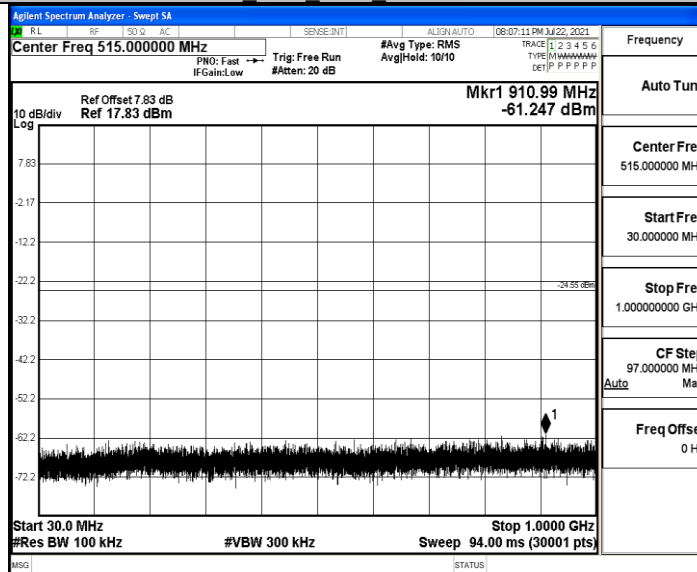
DH5_Ant1_2402_30~1000



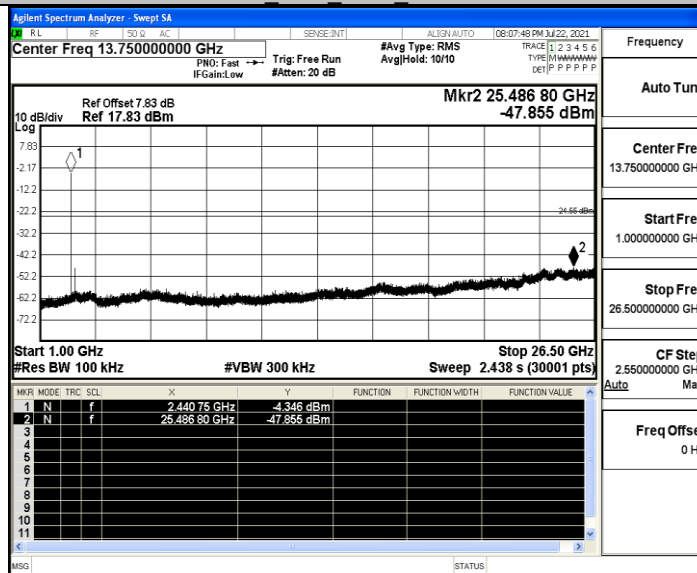
DH5_Ant1_2402_1000~26500



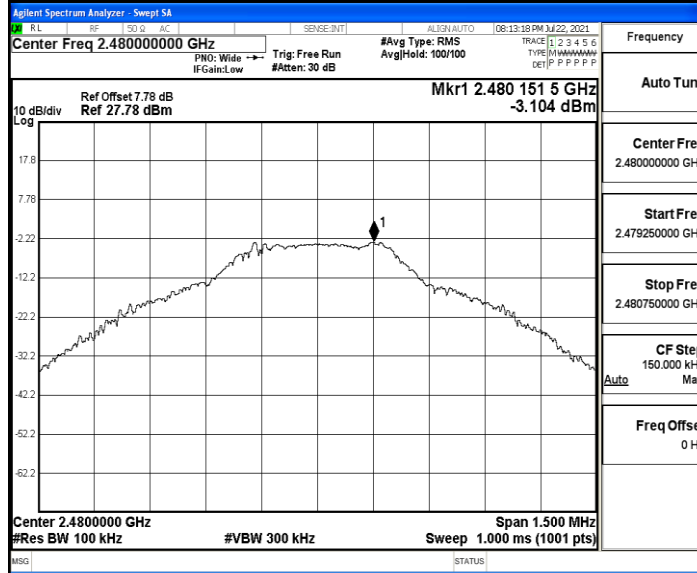
DH5_Ant1_2441_0-Reference



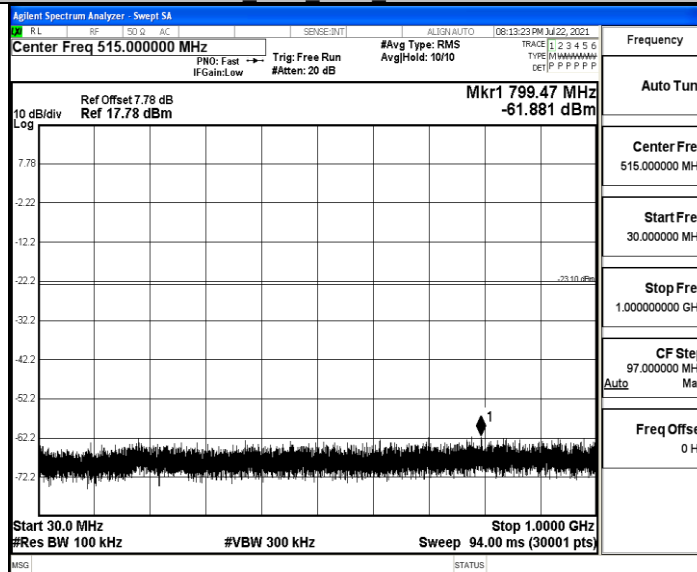
DH5_Ant1_2441_30~1000



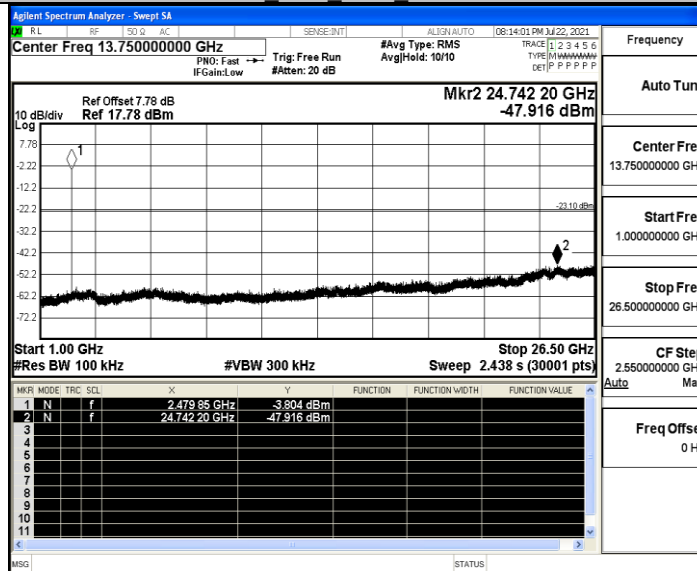
DH5_Ant1_2441_1000~26500



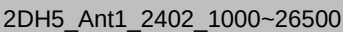
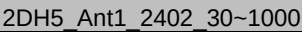
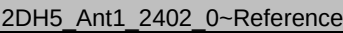
DH5_Ant1_2480_0-Reference

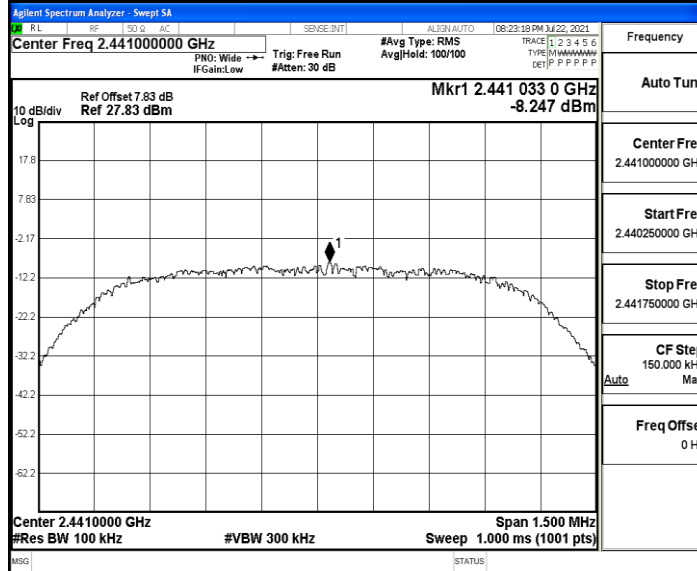


DH5_Ant1_2480_30~1000

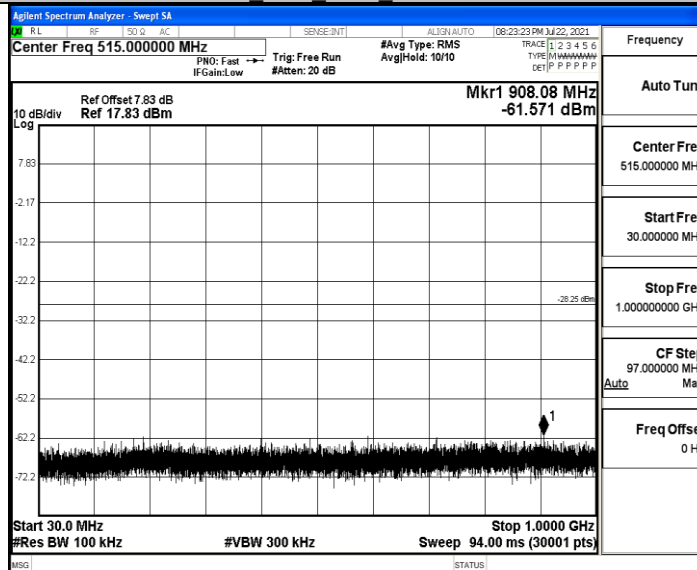


DH5_Ant1_2480_1000~26500

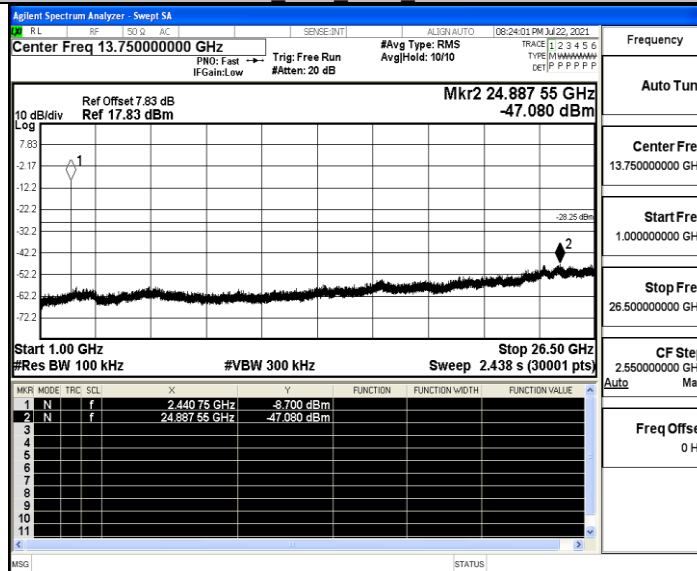




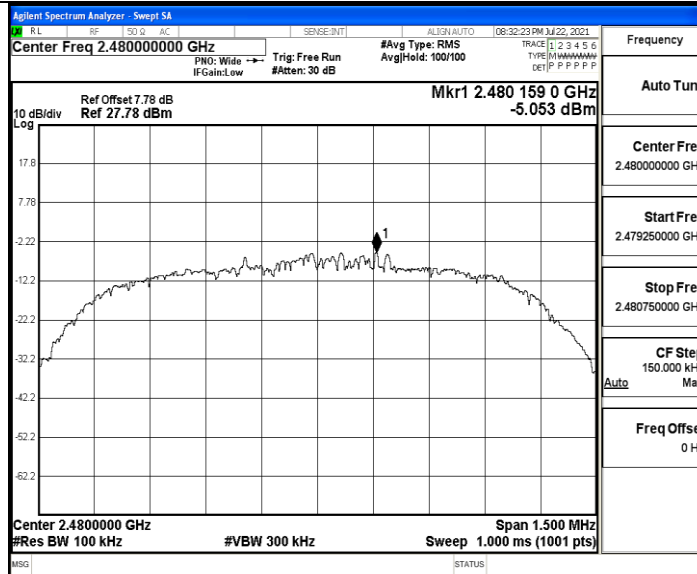
2DH5 Ant1 2441 0~Reference



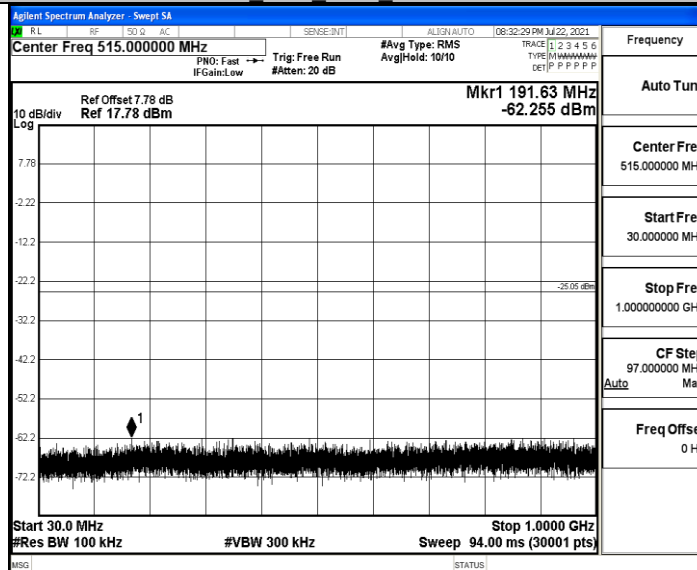
2DH5 Ant1 2441 30~1000



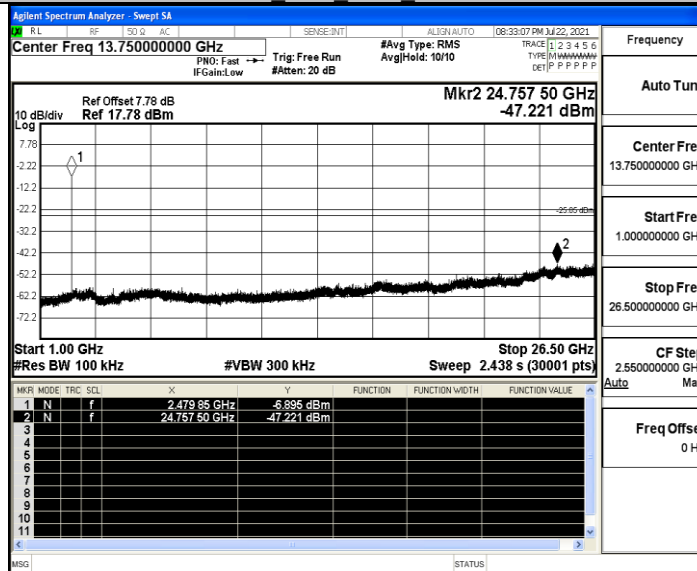
2DH5 Ant1 2441 1000~26500



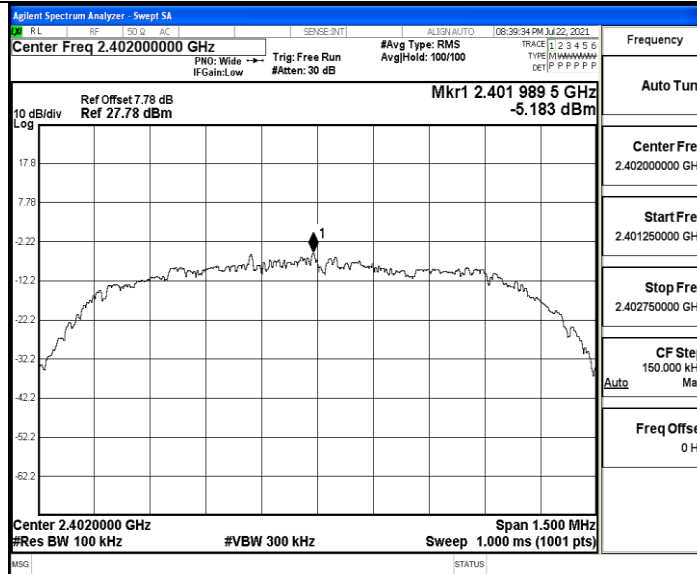
2DH5 Ant1 2480 0~Reference



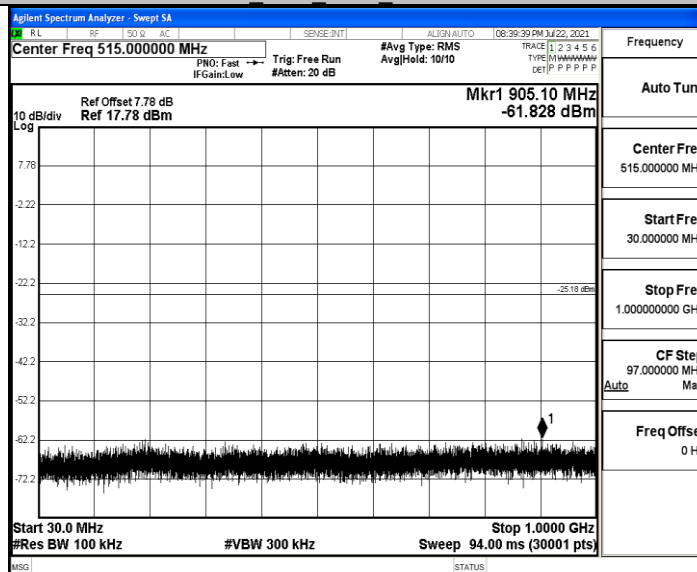
2DH5 Ant1 2480 30~1000



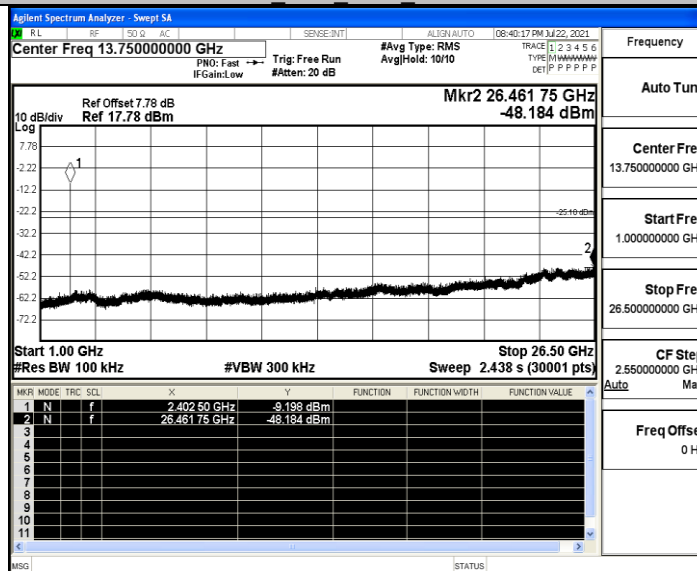
2DH5 Ant1 2480 1000~26500



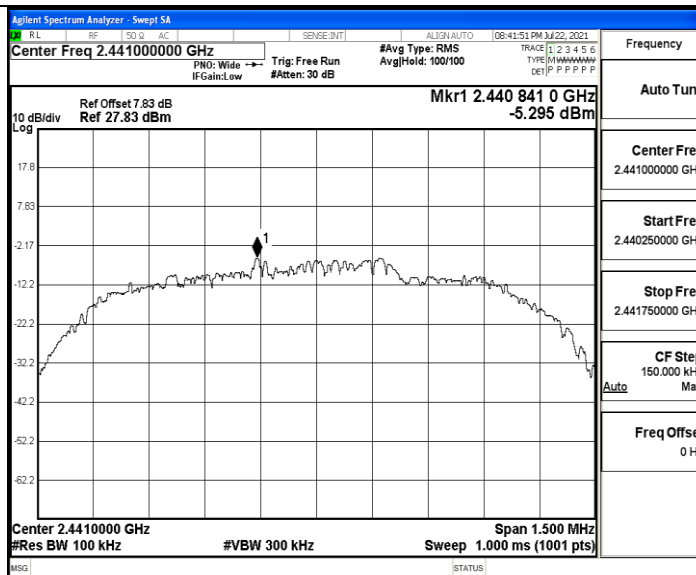
3DH5_Ant1_2402_0~Reference



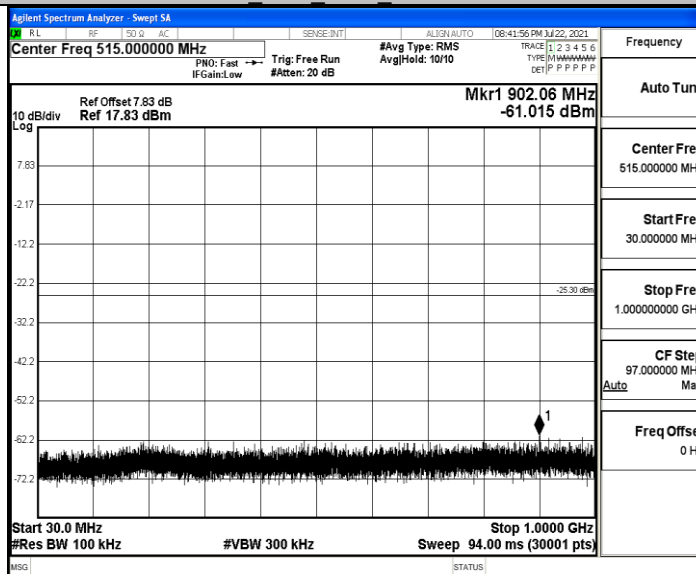
3DH5_Ant1_2402_30~1000



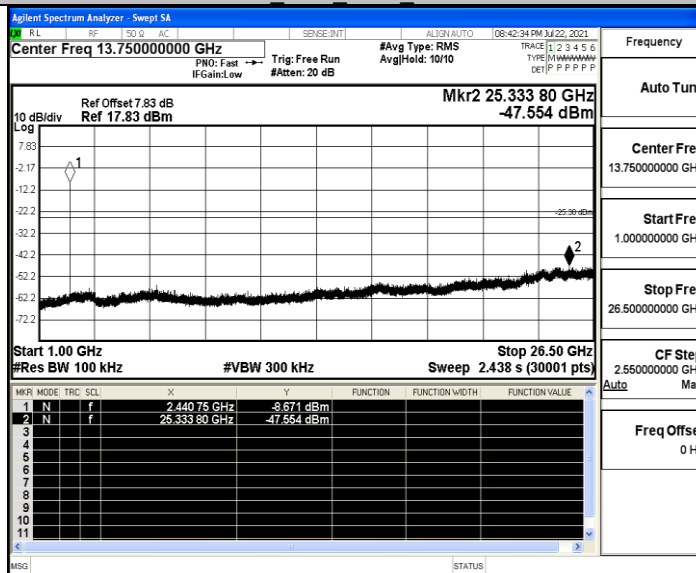
3DH5_Ant1_2402_1000~26500



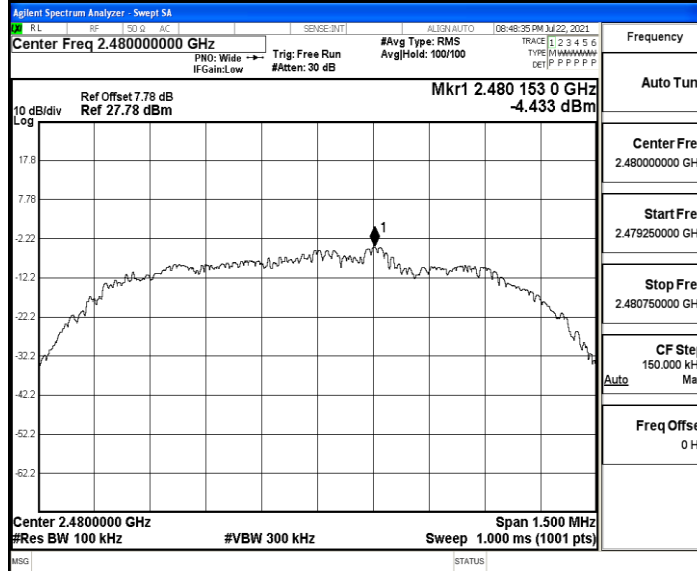
3DH5_Ant1_2441_0~Reference



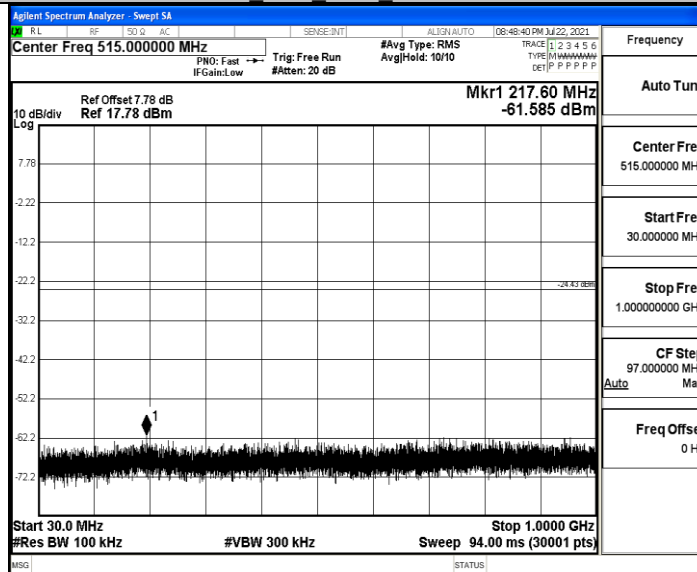
3DH5_Ant1_2441_30~1000



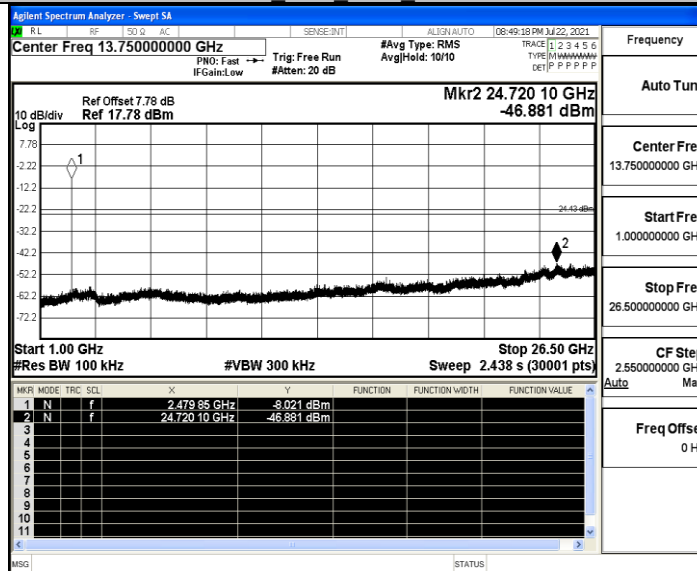
3DH5_Ant1_2441_1000~26500



3DH5 Ant1 2480 0~Reference



3DH5 Ant1 2480 30~1000

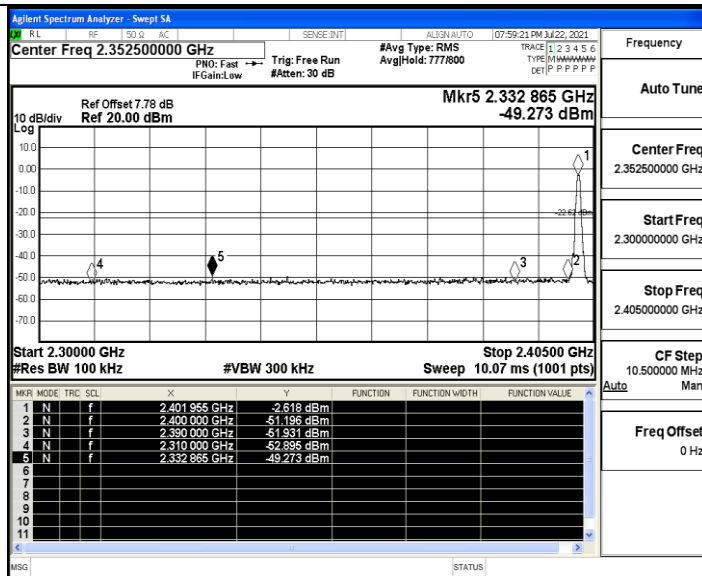


3DH5 Ant1 2480 1000~26500

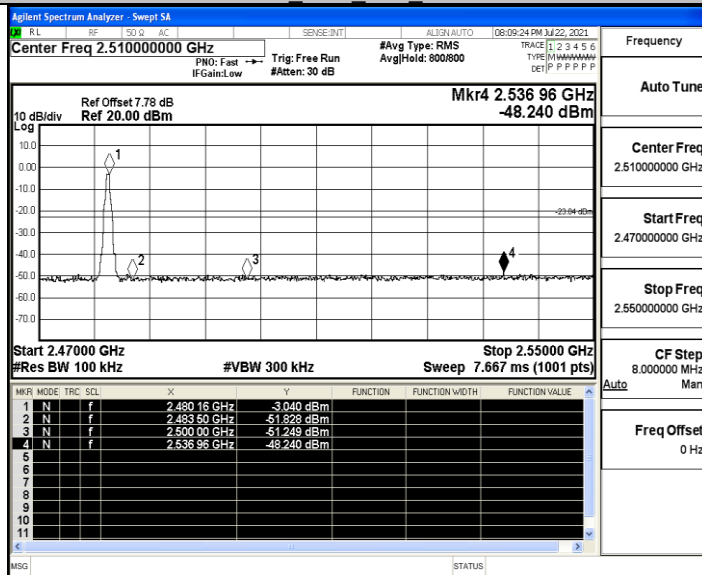


A.7 Band edge measurements

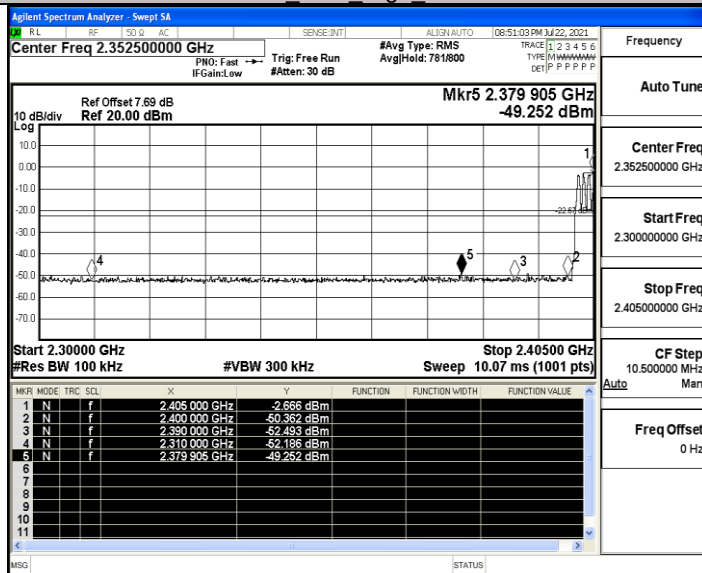
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-2.62	-49.27	≤ -22.62	PASS
		High	2480	-3.04	-48.24	≤ -23.04	PASS
		Low	Hop_2402	-2.67	-49.25	≤ -22.67	PASS
		High	Hop_2480	-2.69	-48.88	≤ -23.49	PASS
2DH5	Ant1	Low	2402	-4.28	-49.65	≤ -24.28	PASS
		High	2480	-4.32	-48.29	≤ -24.32	PASS
		Low	Hop_2402	-8.10	-49.78	≤ -28.1	PASS
		High	Hop_2480	-3.49	-48.63	≤ -23.49	PASS
3DH5	Ant1	Low	2402	-4.20	-49.93	≤ -24.2	PASS
		High	2480	-4.32	-48.42	≤ -24.32	PASS
		Low	Hop_2402	-7.95	-49.56	≤ -27.95	PASS
		High	Hop_2480	-3.80	-48.43	≤ -23.8	PASS



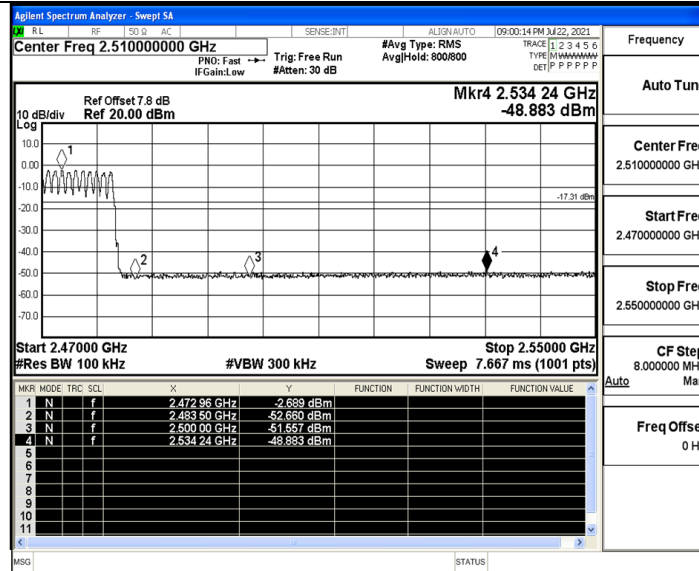
DH5_Ant1_Low_2402



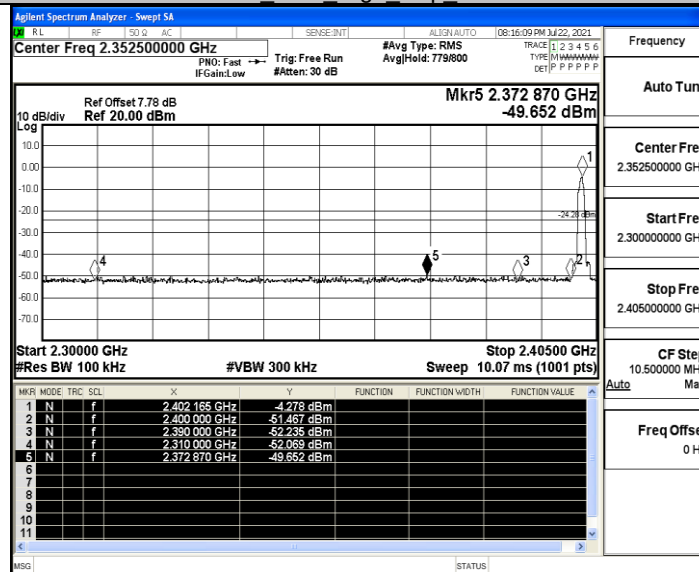
DH5_Ant1_High_2480



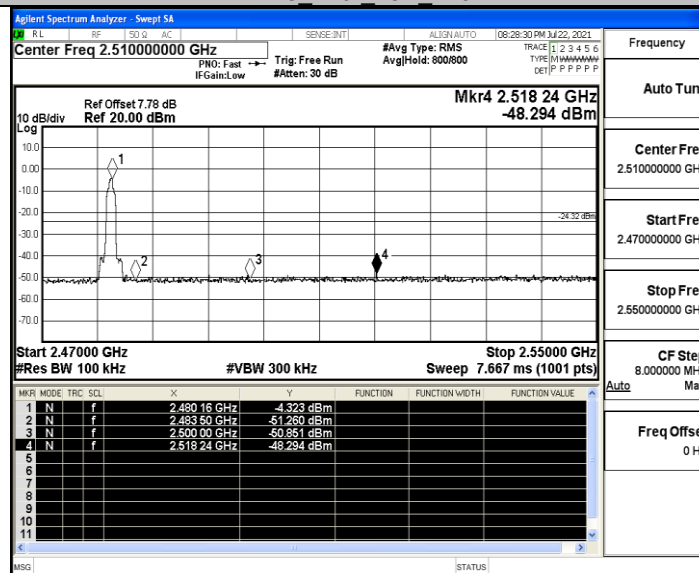
DH5_Ant1_Low_Hop_2402



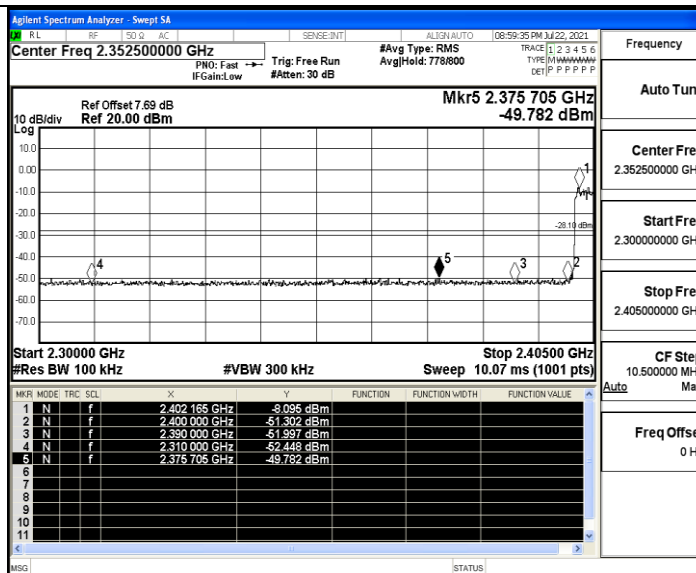
DH5 Ant1_High_Hop_2480



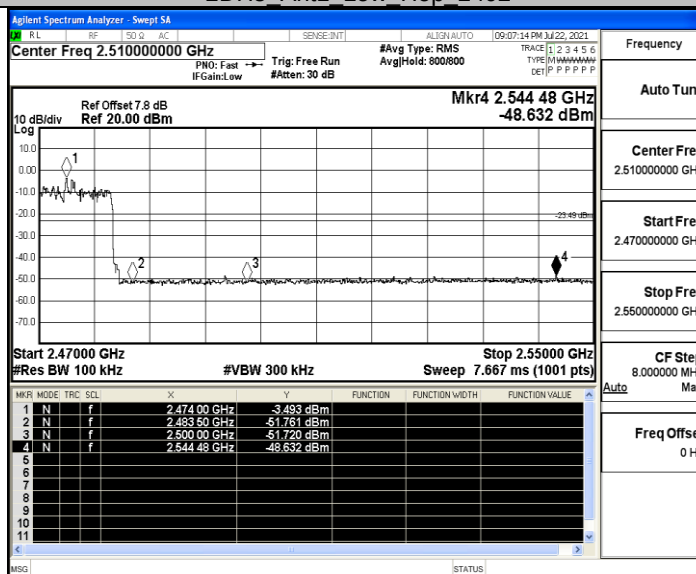
2DH5 Ant1_Low_2402



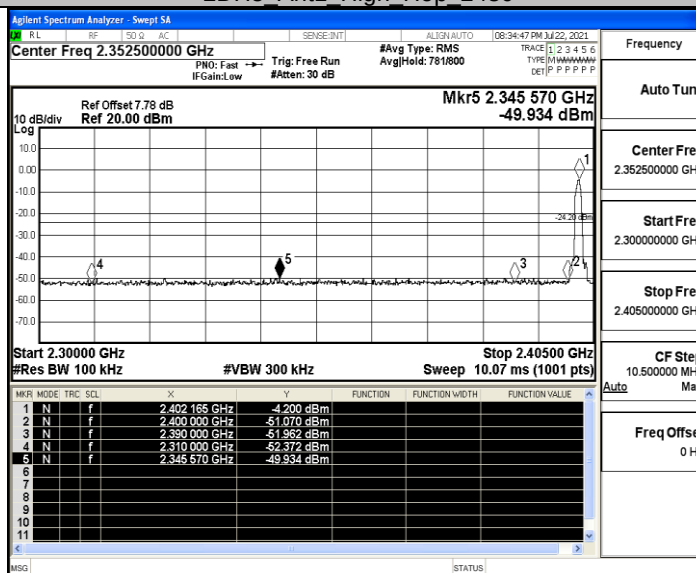
2DH5 Ant1_High_2480



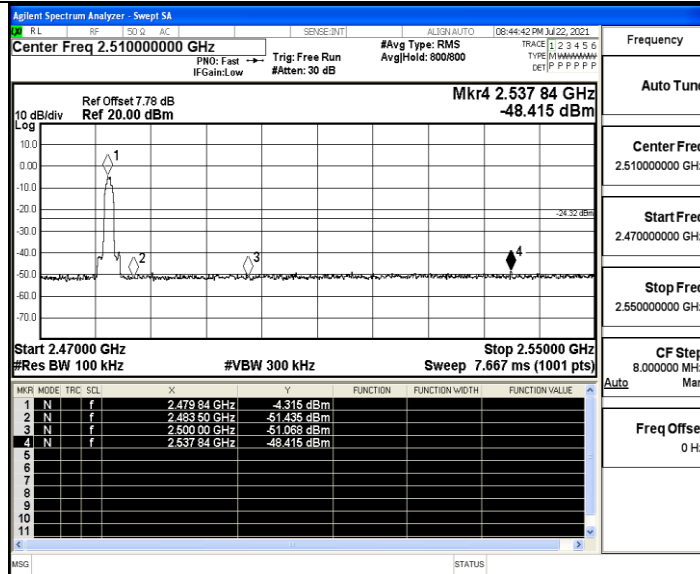
2DH5 Ant1 Low Hop 2402



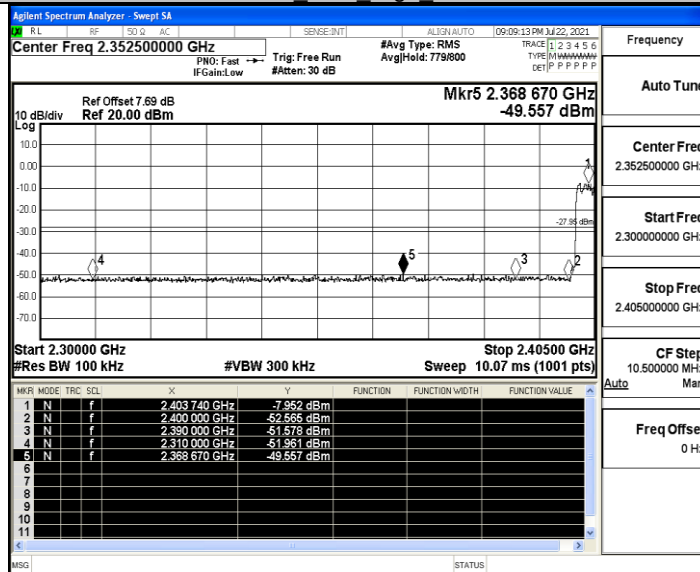
2DH5 Ant1 High Hop 2480



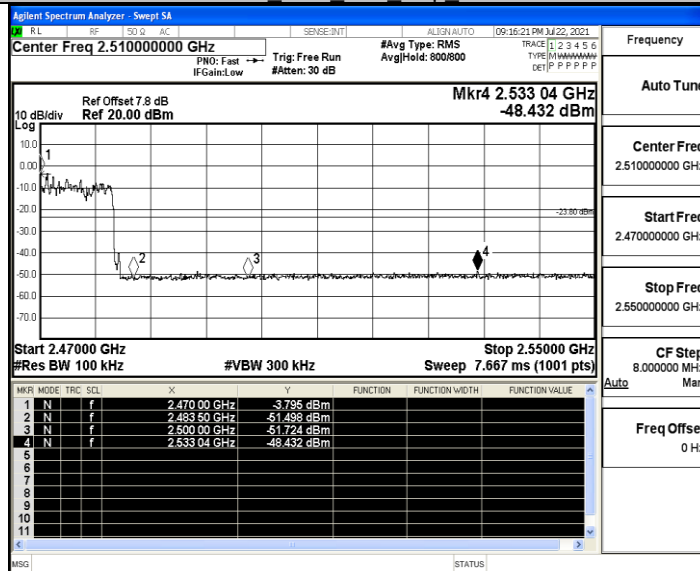
3DH5 Ant1 Low 2402



3DH5 Ant1 High 2480



3DH5 Ant1 Low Hop 2402



3DH5 Ant1 High Hop 2480

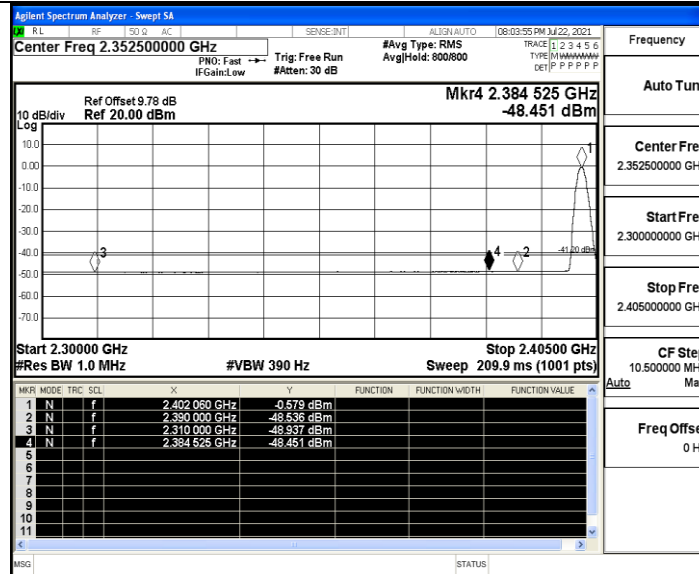
**A.8 Emissions in Restricted Bands**

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-48.94	≤-41.20	46.26	≤54	PASS
				AV	2384.525	-48.45	≤-41.20	46.75	≤54	PASS
				AV	2390.000	-48.54	≤-41.20	46.66	≤54	PASS
				Peak	2310.000	-40.27	≤-21.20	54.93	≤74	PASS
				Peak	2322.680	-38.04	≤-21.20	57.16	≤74	PASS
				Peak	2390.000	-39.65	≤-21.20	55.55	≤74	PASS
		High	2480	AV	2483.500	-48.07	≤-41.20	47.13	≤54	PASS
				AV	2494.240	-47.87	≤-41.20	47.33	≤54	PASS
				AV	2500.000	-47.94	≤-41.20	47.26	≤54	PASS
				Peak	2483.500	-39.53	≤-21.20	55.67	≤74	PASS
				Peak	2490.720	-38.1	≤-21.20	57.10	≤74	PASS
				Peak	2500.000	-39.14	≤-21.20	56.06	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-48.97	≤-41.20	46.23	≤54	PASS
				AV	2388.515	-48.5	≤-41.20	46.70	≤54	PASS
				AV	2390.000	-48.6	≤-41.20	46.60	≤54	PASS
				Peak	2310.000	-41	≤-21.20	54.20	≤74	PASS
				Peak	2359.010	-37.9	≤-21.20	57.30	≤74	PASS
				Peak	2390.000	-40.98	≤-21.20	54.22	≤74	PASS
		High	2480	AV	2483.500	-48.02	≤-41.20	47.18	≤54	PASS
				AV	2493.520	-47.87	≤-41.20	47.33	≤54	PASS
				AV	2500.000	-47.82	≤-41.20	47.38	≤54	PASS
				Peak	2483.500	-39.74	≤-21.20	55.46	≤74	PASS
				Peak	2494.480	-38.14	≤-21.20	57.06	≤74	PASS
				Peak	2500.000	-40.12	≤-21.20	55.08	≤74	PASS
3DH5	Ant1	Low	2402	AV	2310.000	-48.97	≤-41.20	46.23	≤54	PASS
				AV	2385.155	-48.39	≤-41.20	46.81	≤54	PASS
				AV	2390.000	-48.57	≤-41.20	46.63	≤54	PASS
				Peak	2310.000	-39.82	≤-21.20	55.38	≤74	PASS
				Peak	2318.165	-37.91	≤-21.20	57.29	≤74	PASS
				Peak	2390.000	-39.96	≤-21.20	55.24	≤74	PASS
		High	2480	AV	2483.500	-48.06	≤-41.20	47.14	≤54	PASS
				AV	2499.840	-47.87	≤-41.20	47.33	≤54	PASS
				AV	2500.000	-47.97	≤-41.20	47.23	≤54	PASS
				Peak	2483.500	-40.3	≤-21.20	54.90	≤74	PASS
				Peak	2497.360	-37.37	≤-21.20	57.83	≤74	PASS
				Peak	2500.000	-38.35	≤-21.20	56.85	≤74	PASS

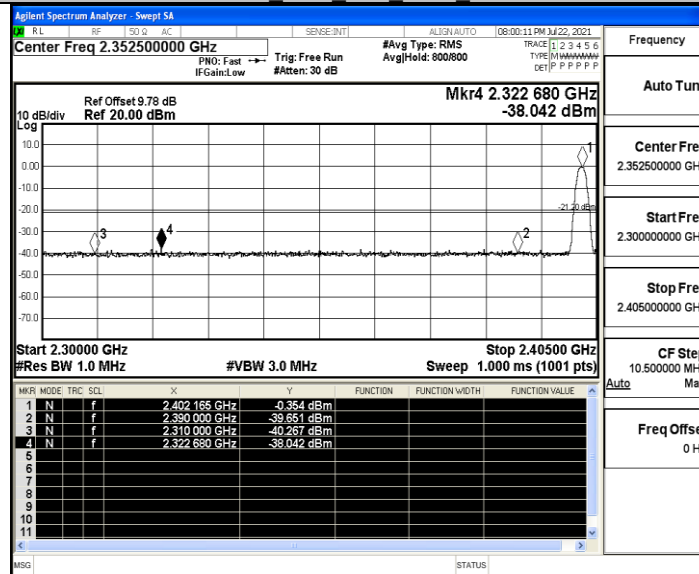


Note :

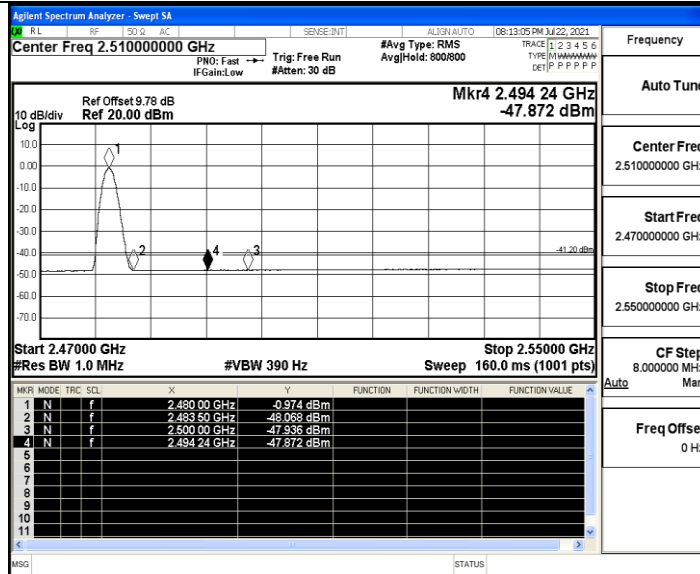
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



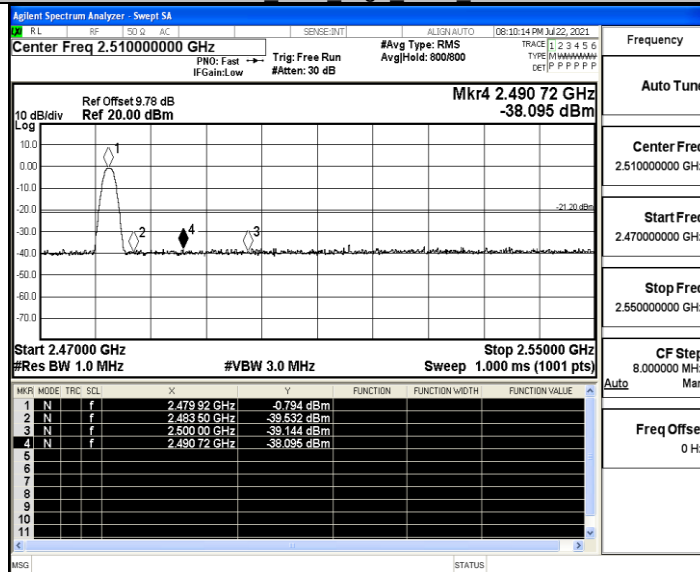
DH5_Ant1_Low_2402_AV



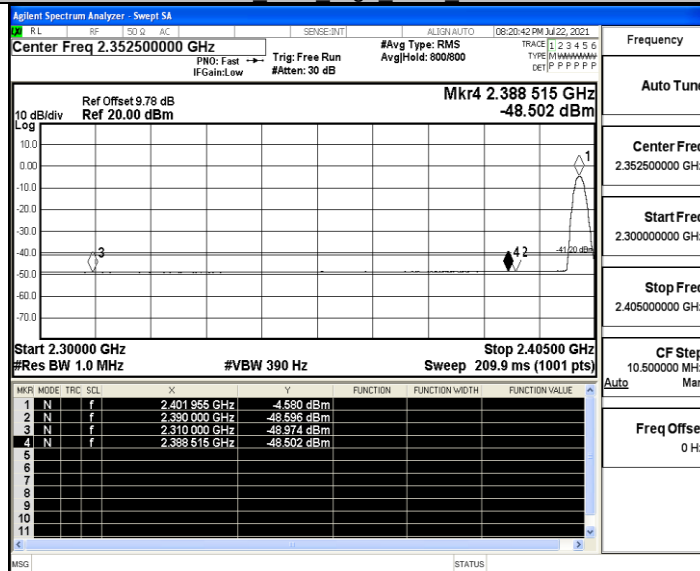
DH5_Ant1_Low_2402_Peak



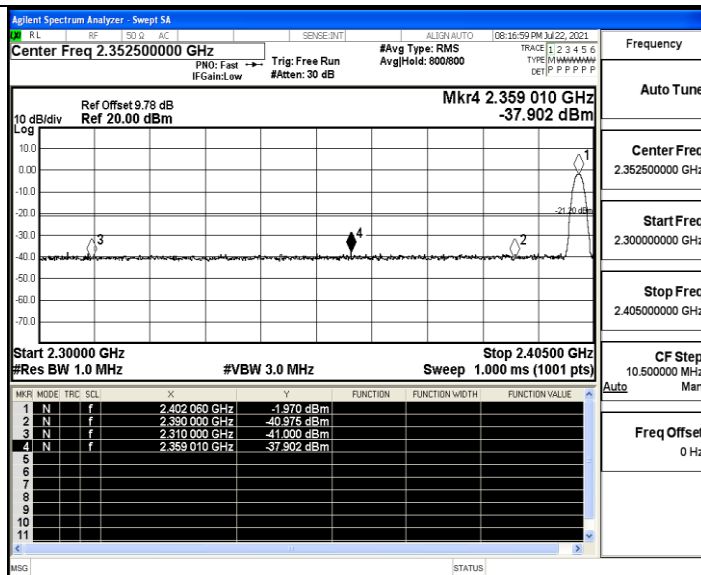
DH5 Ant1 High 2480 AV



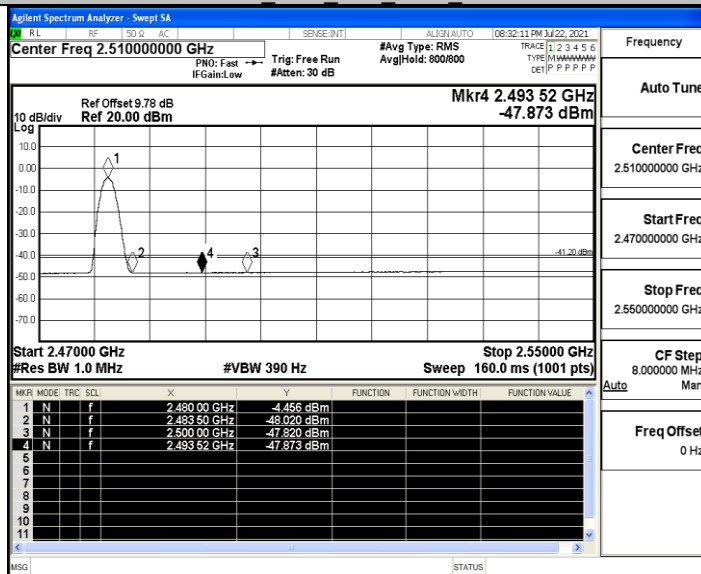
DH5 Ant1 High 2480 Peak



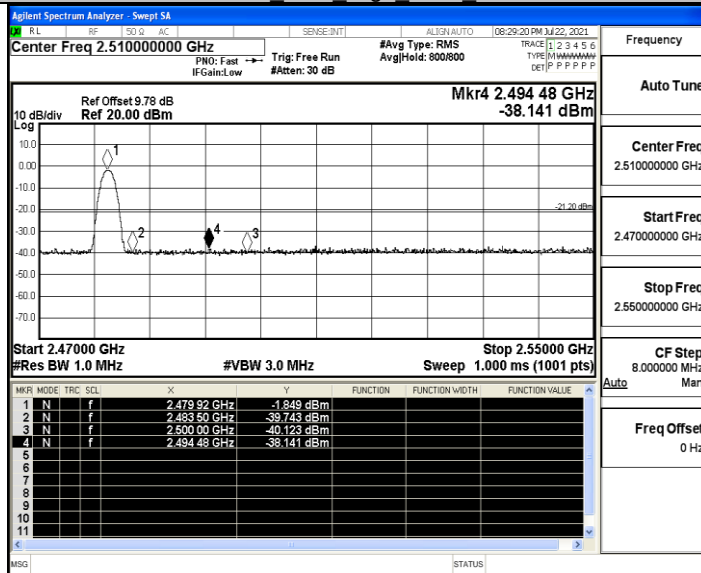
2DH5 Ant1 Low 2402 AV



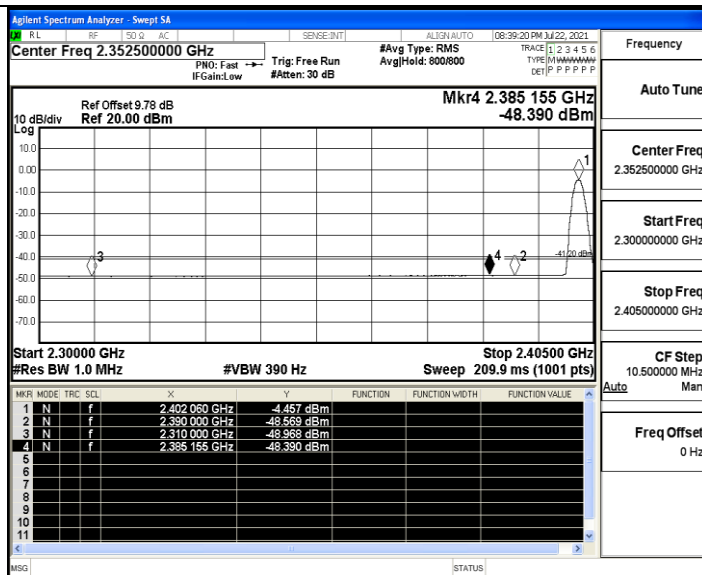
2DH5_Ant1_Low_2402_Peak



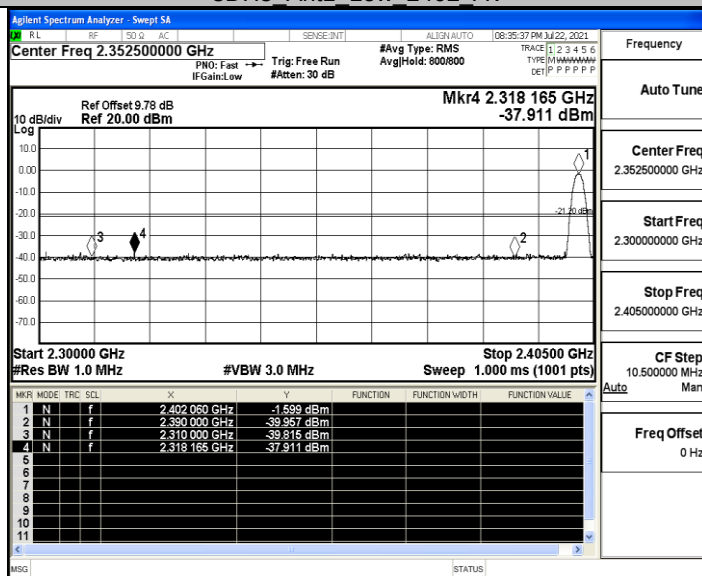
2DH5_Ant1_High_2480_AV



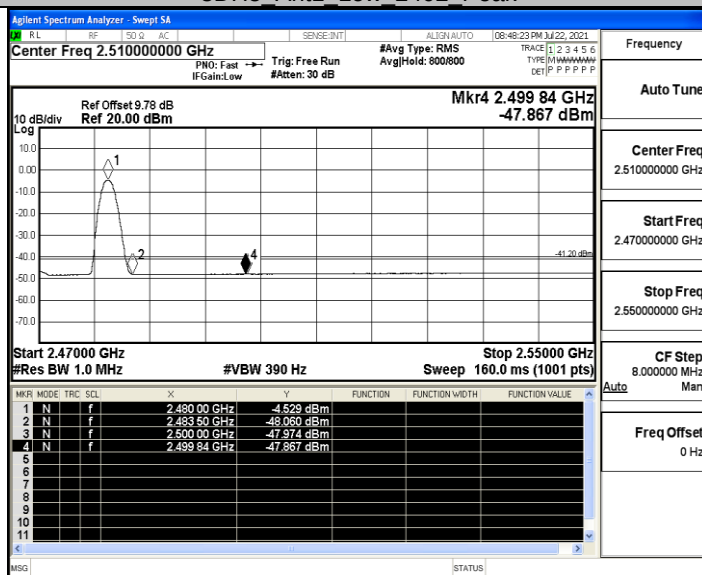
2DH5_Ant1_High_2480_Peak



3DH5_Ant1_Low_2402_AV



3DH5_Ant1_Low_2402_Peak



3DH5_Ant1_High_2480_AV

