

Appendix A

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

Product Name: Smartphone

Trade Mark: Vortex

Test Model: V20

FCC ID: 2A2EB-V20

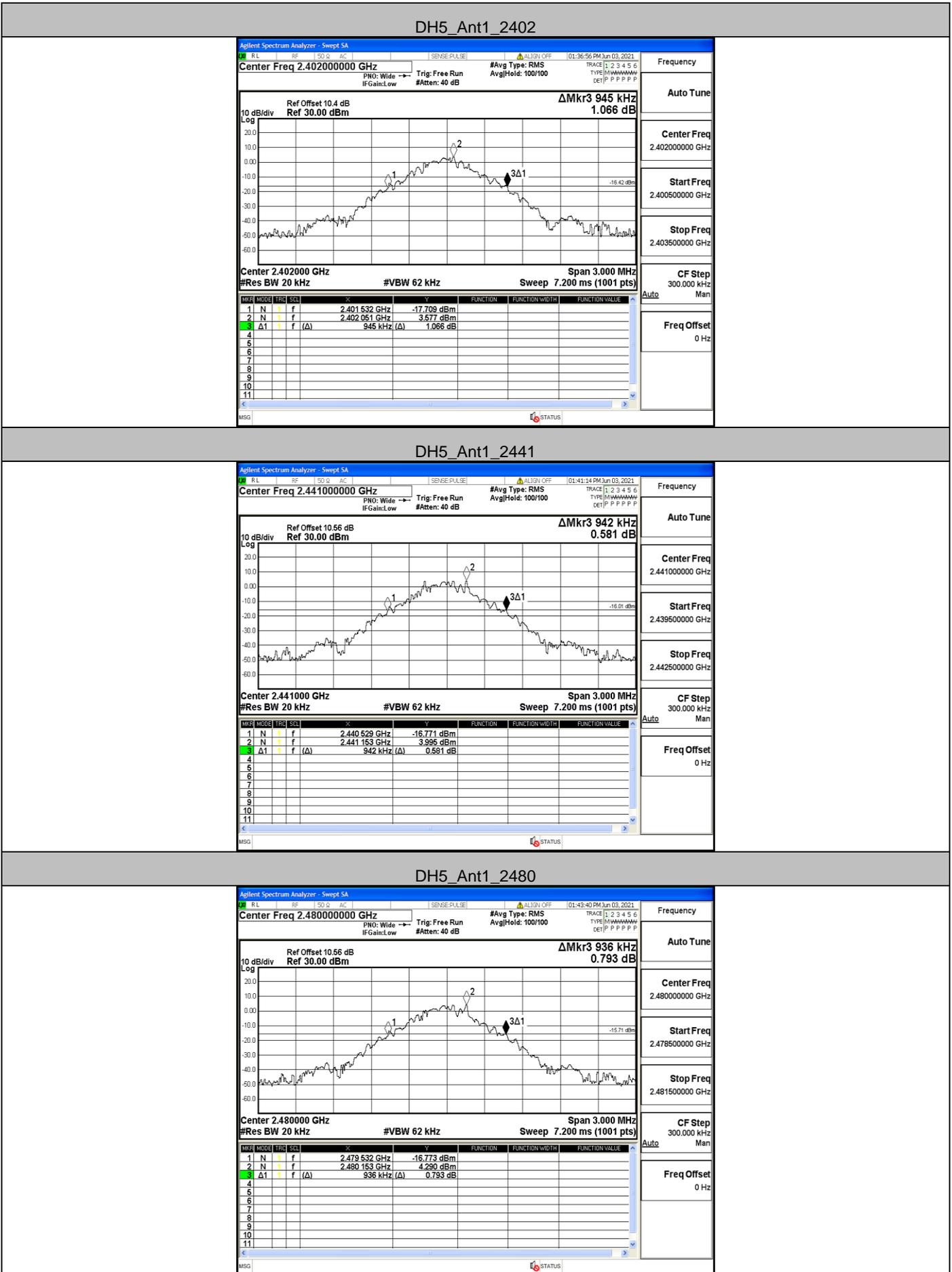
Environmental Conditions

Temperature:	23.5°C
Relative Humidity:	57%
ATM Pressure:	100.0 kPa
Test Engineer:	Nancy Li
Supervised by:	Hugo Chen

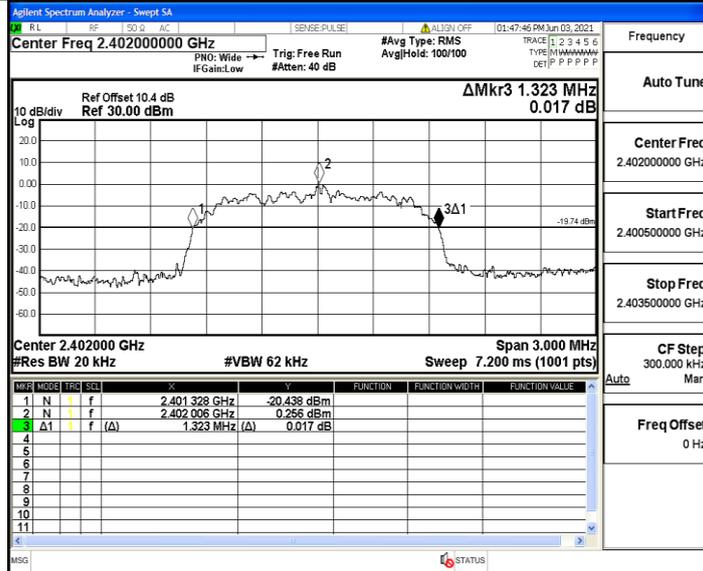
Appendix A: 20dB Emission Bandwidth Test Result

TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.945	2401.532	2402.477	---	PASS
		2441	0.942	2440.529	2441.471	---	PASS
		2480	0.936	2479.532	2480.468	---	PASS
2DH5	Ant1	2402	1.323	2401.328	2402.651	---	PASS
		2441	1.314	2440.331	2441.645	---	PASS
		2480	1.320	2479.328	2480.648	---	PASS
3DH5	Ant1	2402	1.317	2401.331	2402.648	---	PASS
		2441	1.278	2440.340	2441.618	---	PASS
		2480	1.281	2479.337	2480.618	---	PASS

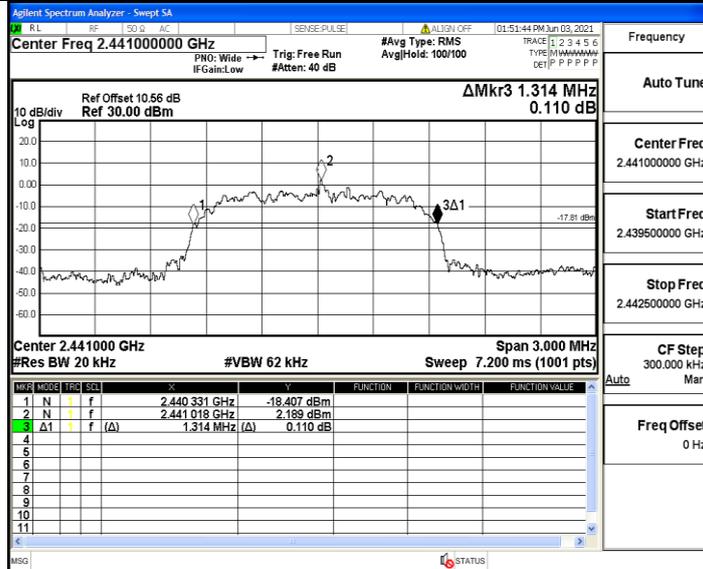
Test Graphs



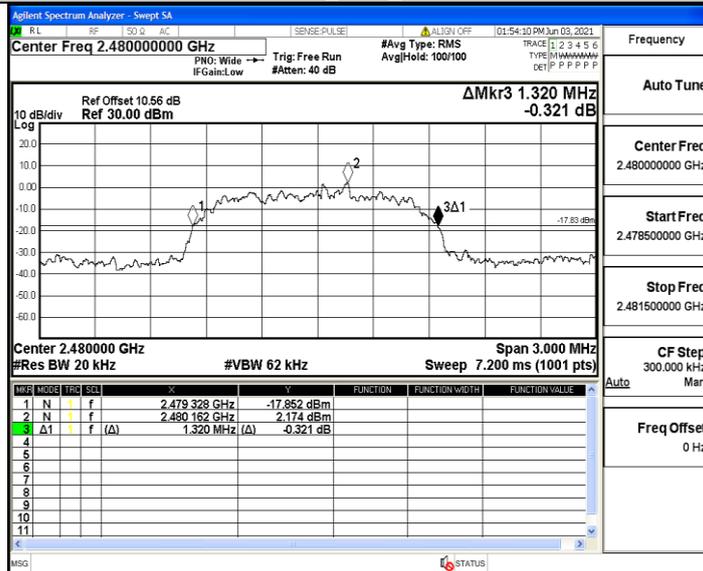
2DH5_Ant1_2402



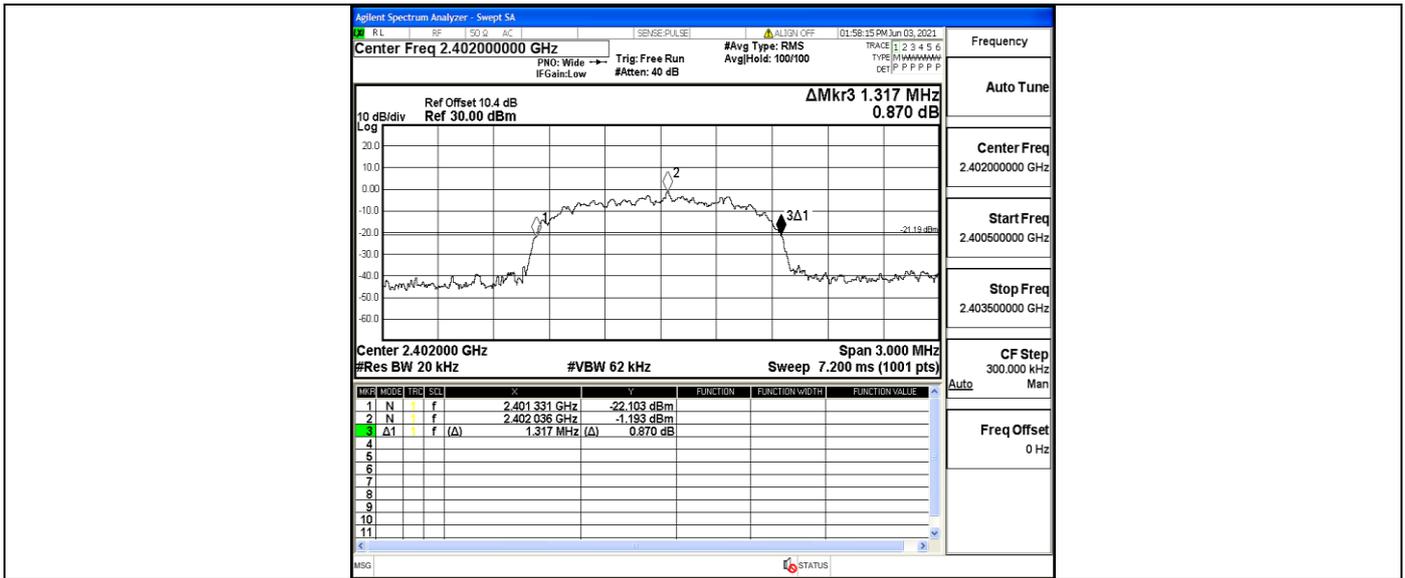
2DH5_Ant1_2441



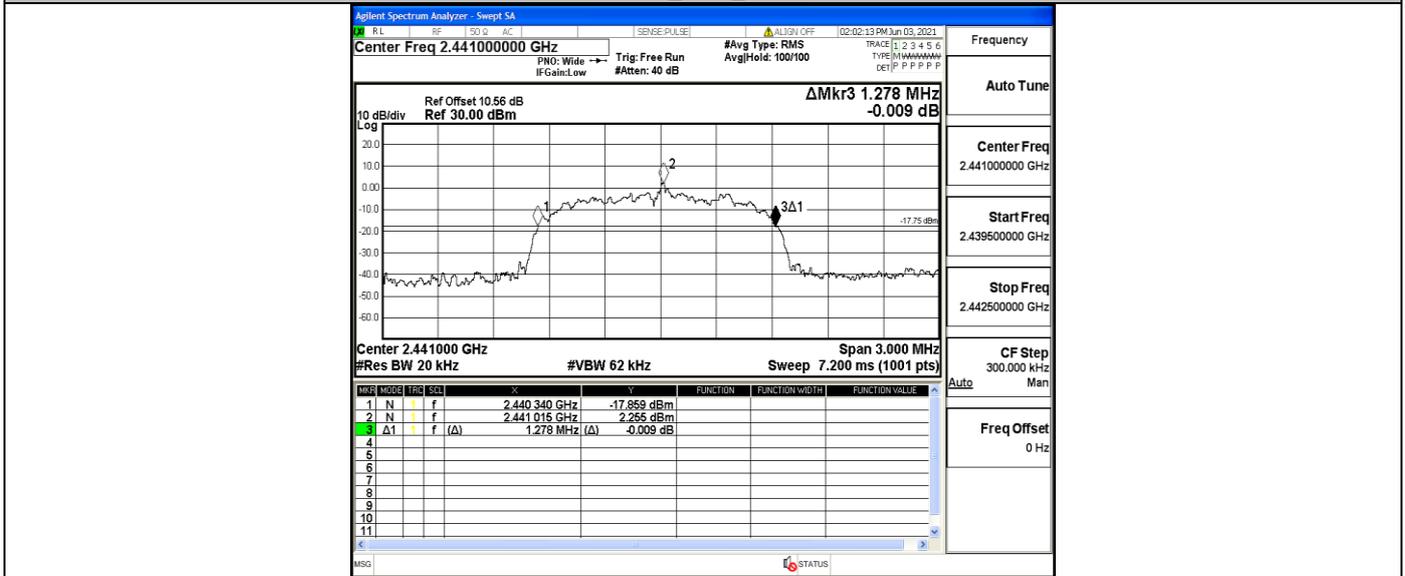
2DH5_Ant1_2480



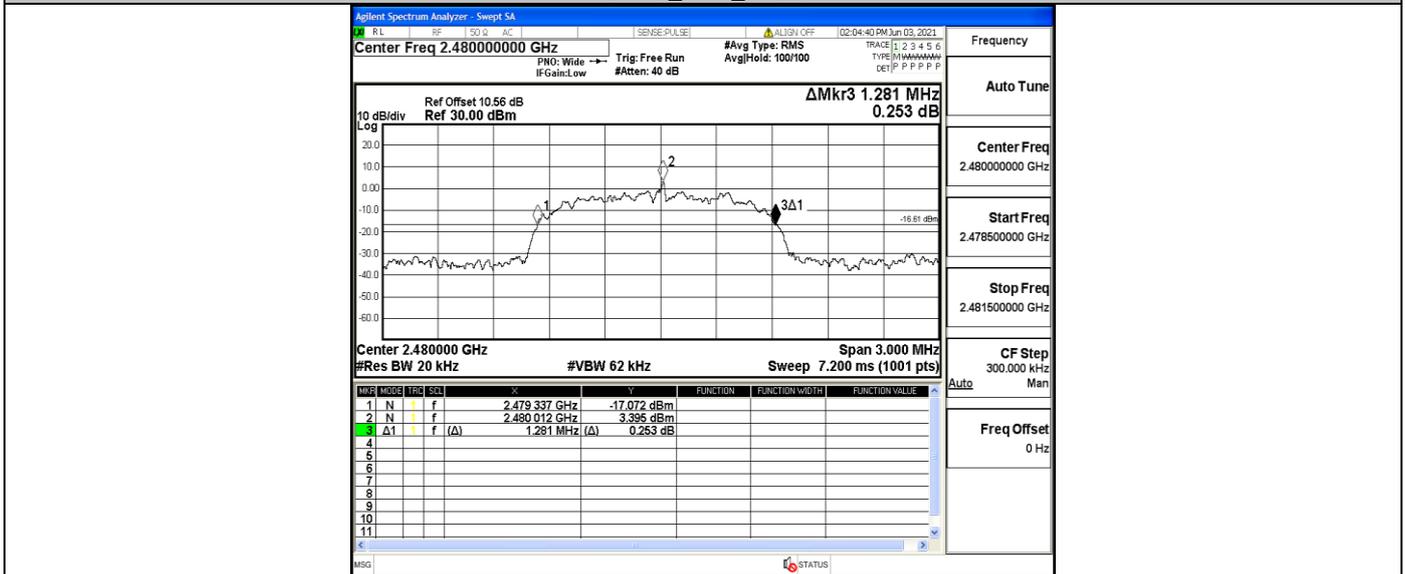
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



Appendix B: Occupied Channel Bandwidth Test Result

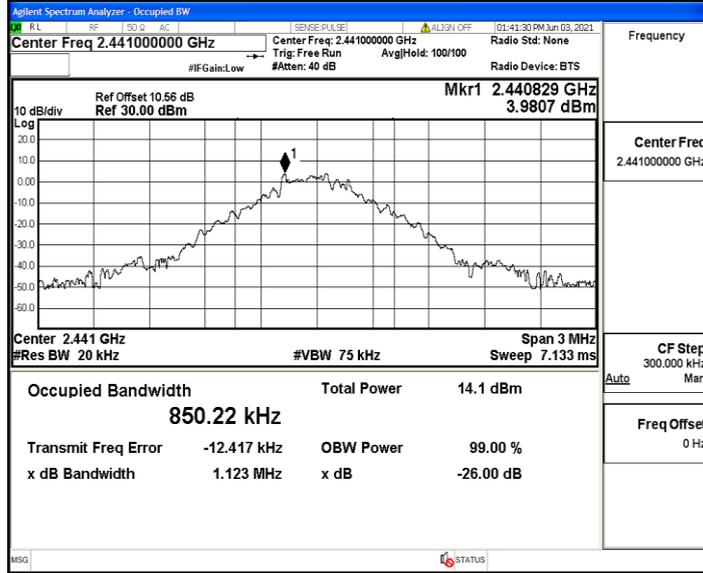
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.84115	2401.575	2402.416	---	PASS
		2441	0.85022	2440.562	2441.413	---	PASS
		2480	0.84742	2479.561	2480.408	---	PASS
2DH5	Ant1	2402	1.1905	2401.397	2402.588	---	PASS
		2441	1.1920	2440.394	2441.586	---	PASS
		2480	1.1992	2479.389	2480.589	---	PASS
3DH5	Ant1	2402	1.1973	2401.386	2402.584	---	PASS
		2441	1.2029	2440.380	2441.582	---	PASS
		2480	1.2111	2479.373	2480.584	---	PASS

Test Graphs

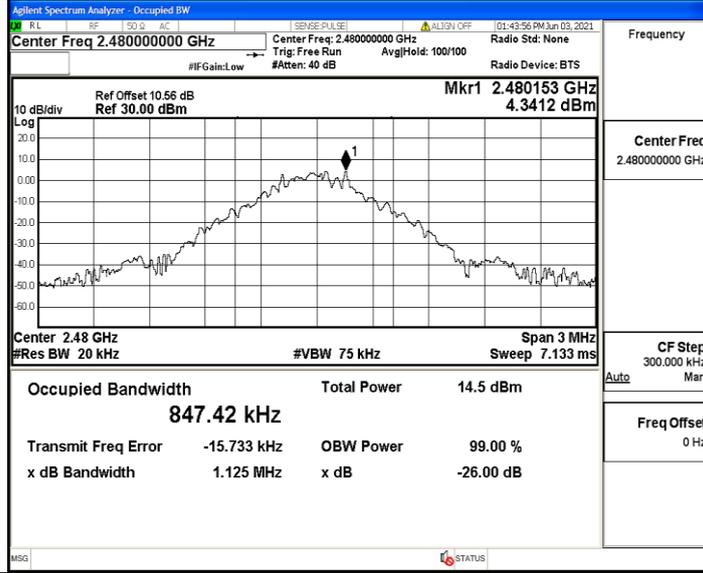
DH5_Ant1_2402



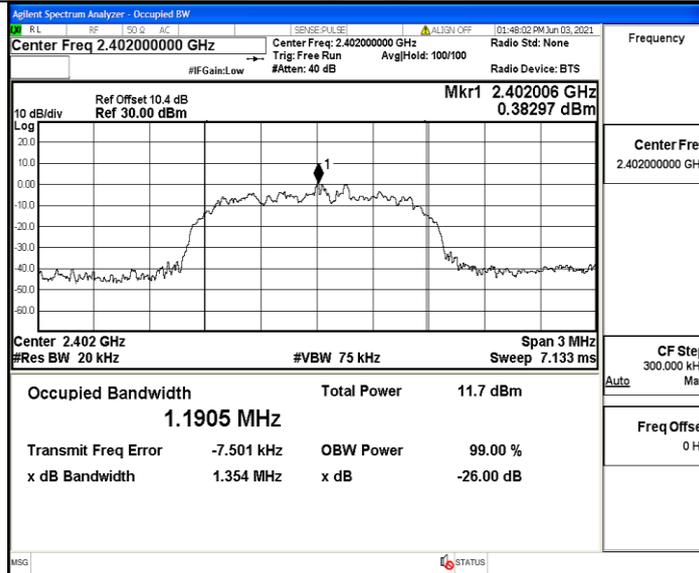
DH5_Ant1_2441



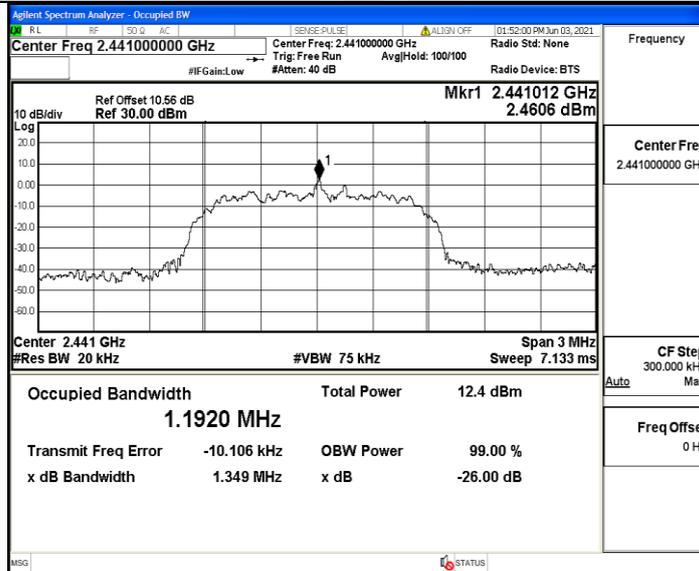
DH5_Ant1_2480



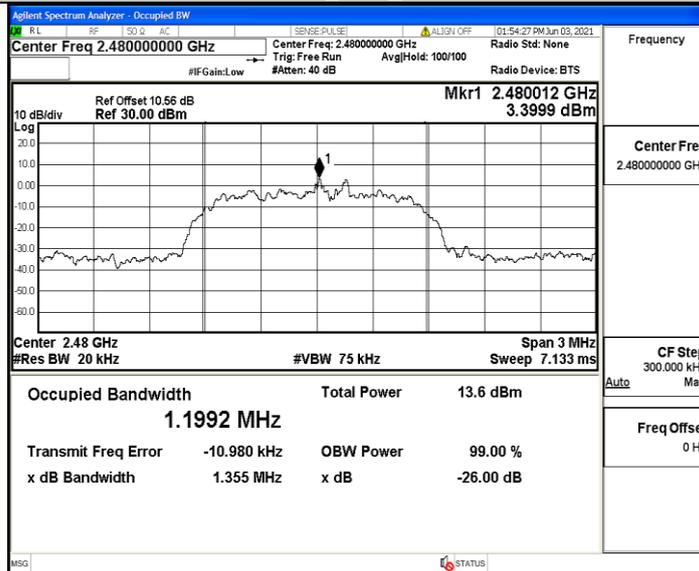
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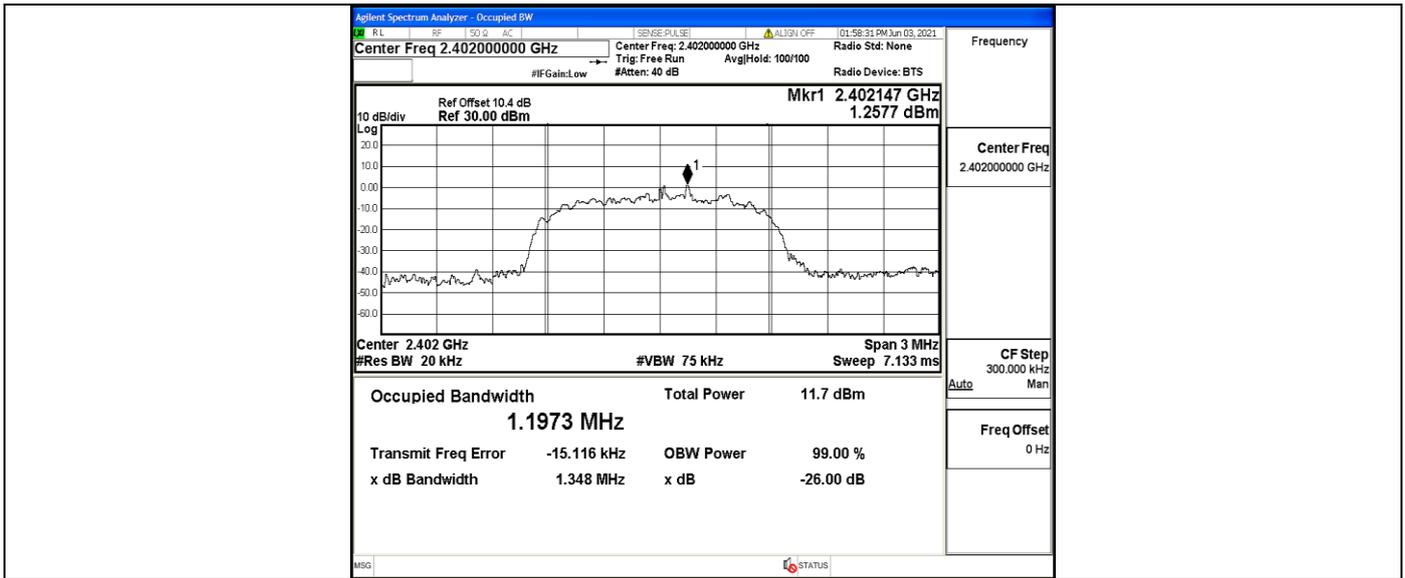
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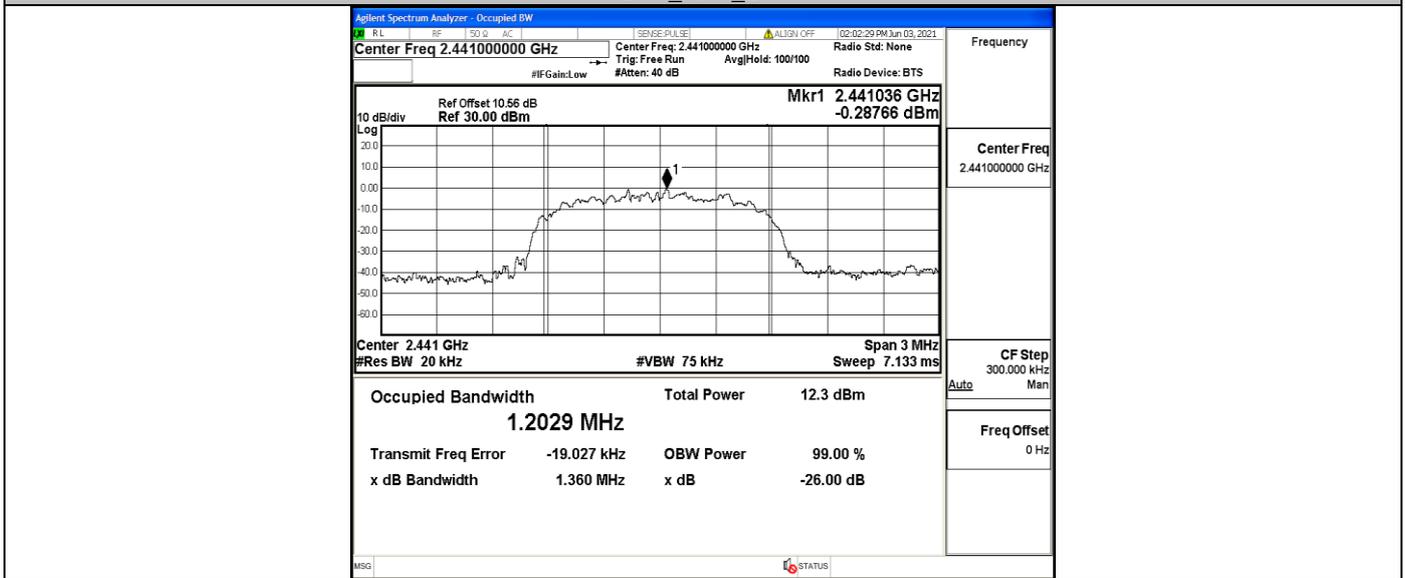
2DH5_Ant1_2480



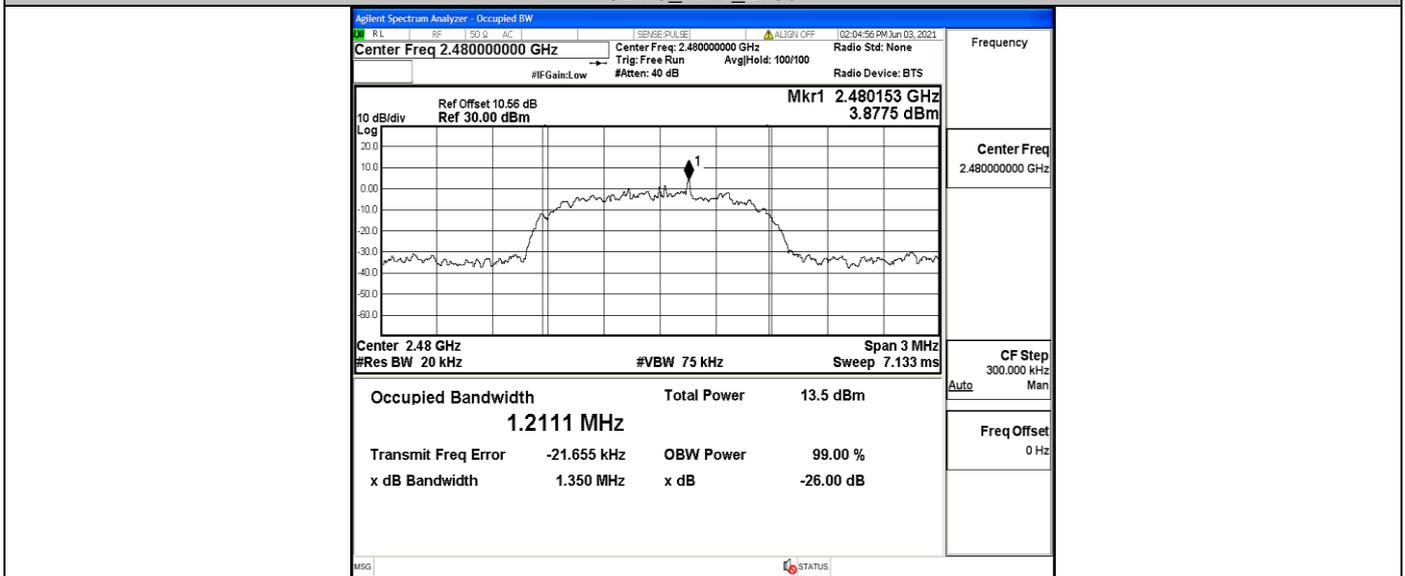
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480

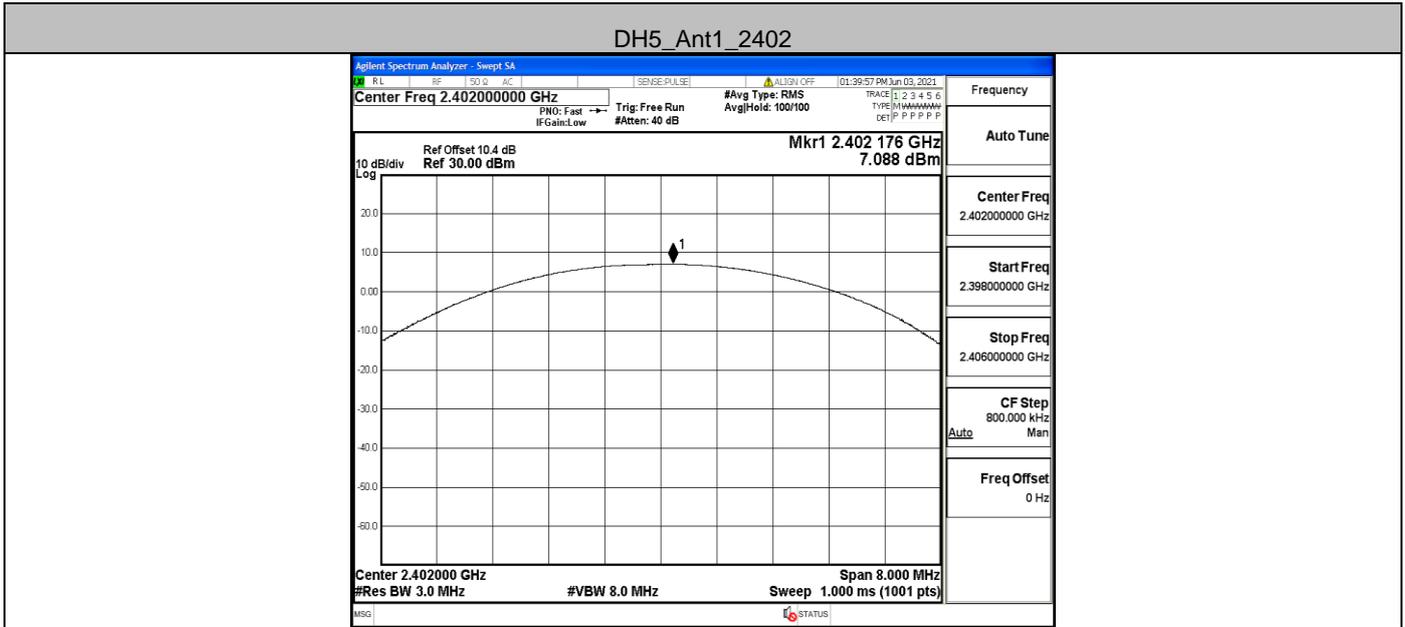


Appendix C: Maximum conducted output power Test Result

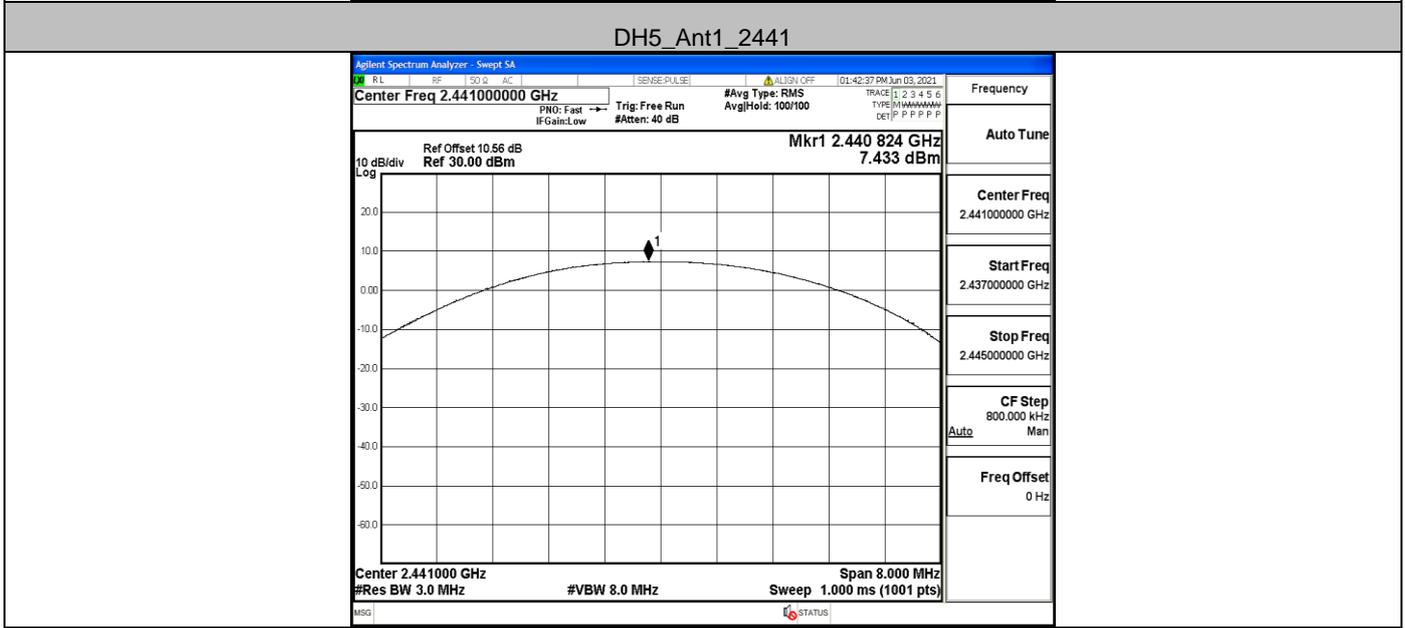
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	7.09	<=20.97	PASS
		2441	7.43	<=20.97	PASS
		2480	7.7	<=20.97	PASS
2DH5	Ant1	2402	7.25	<=20.97	PASS
		2441	8.06	<=20.97	PASS
		2480	8.61	<=20.97	PASS
3DH5	Ant1	2402	7.52	<=20.97	PASS
		2441	8.42	<=20.97	PASS
		2480	8.89	<=20.97	PASS

Test Graphs

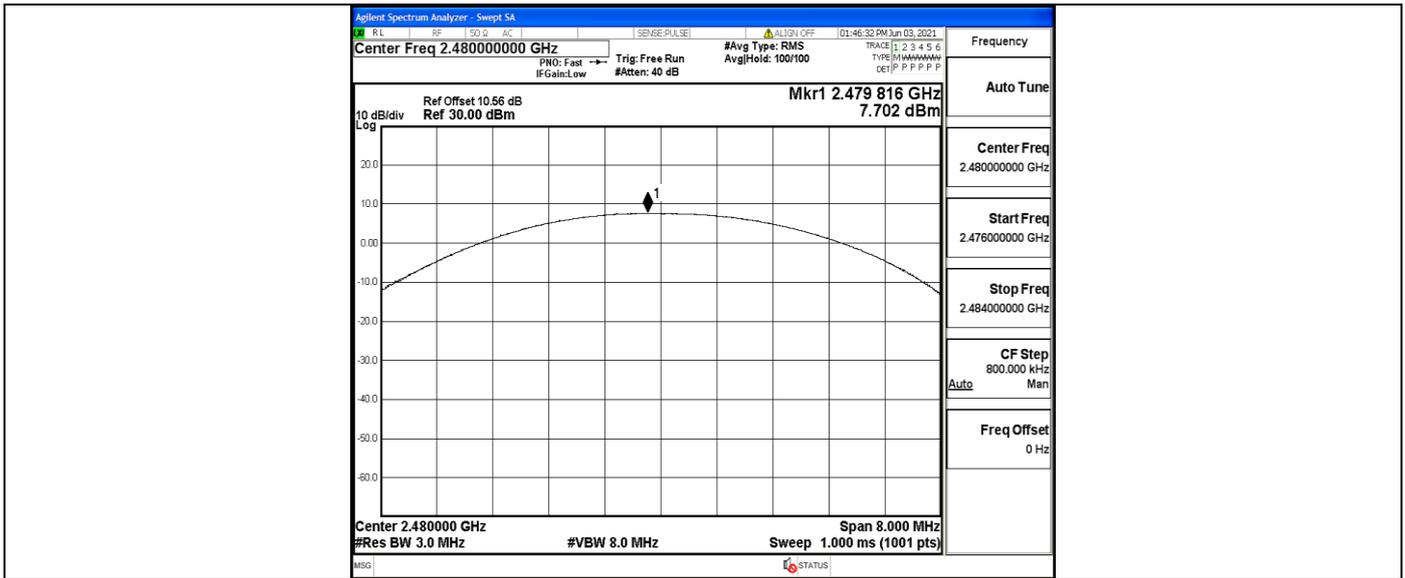
DH5_Ant1_2402



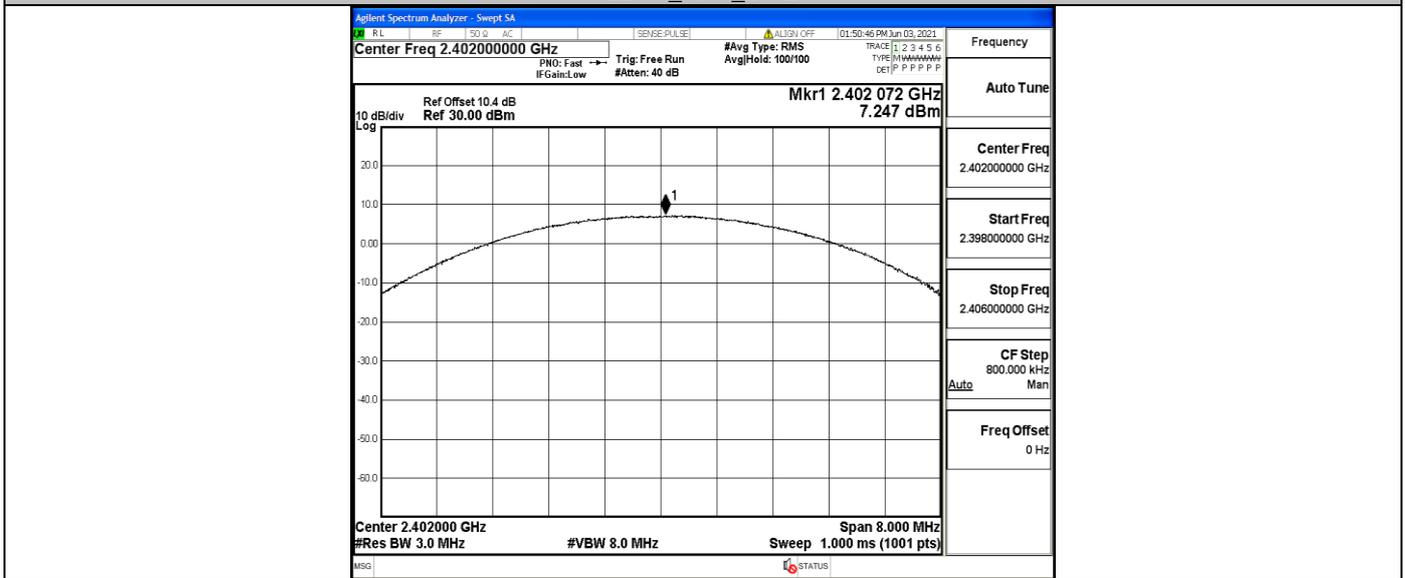
DH5_Ant1_2441



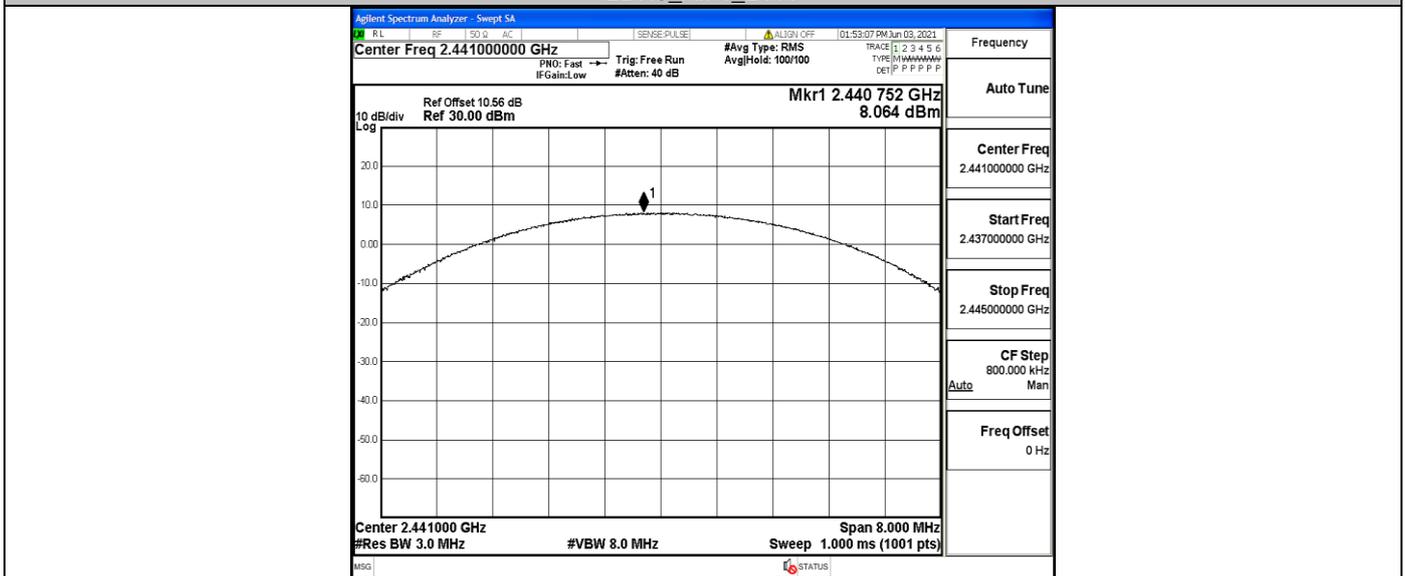
DH5_Ant1_2480



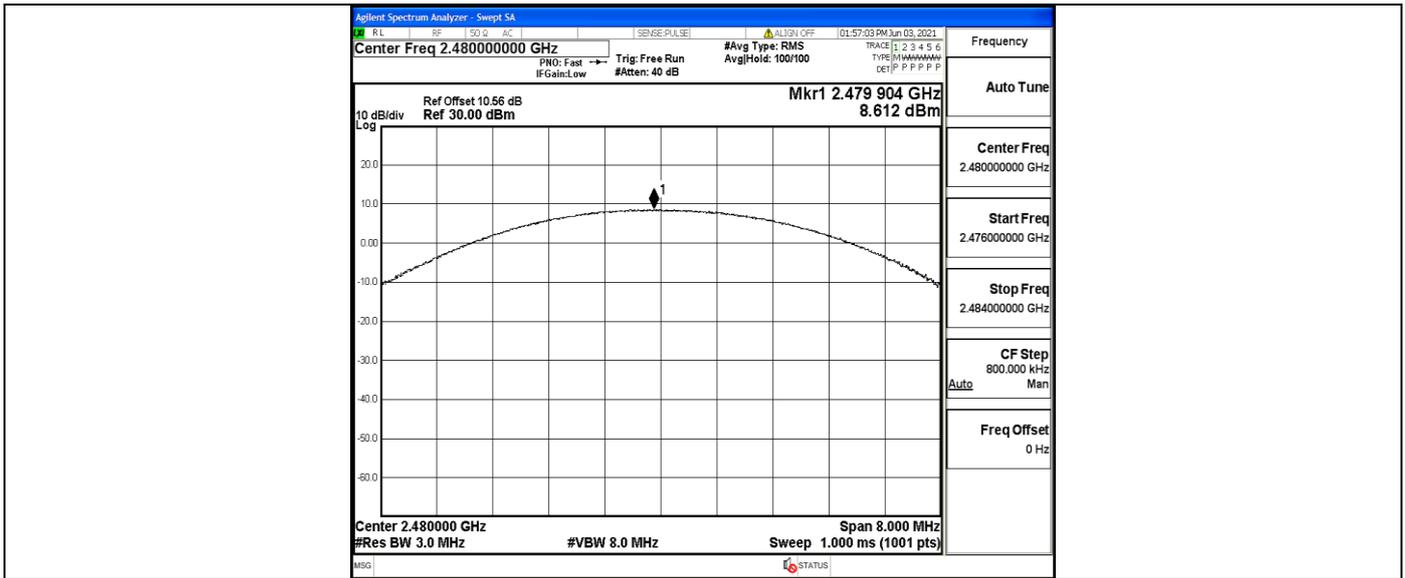
2DH5_Ant1_2402



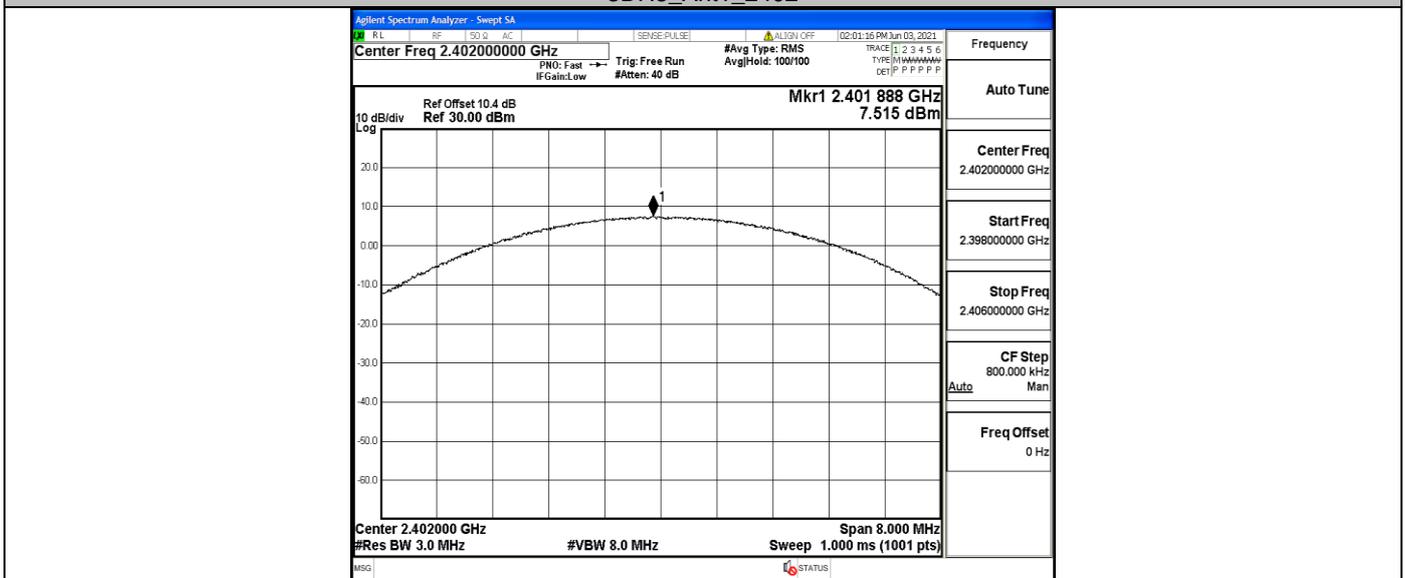
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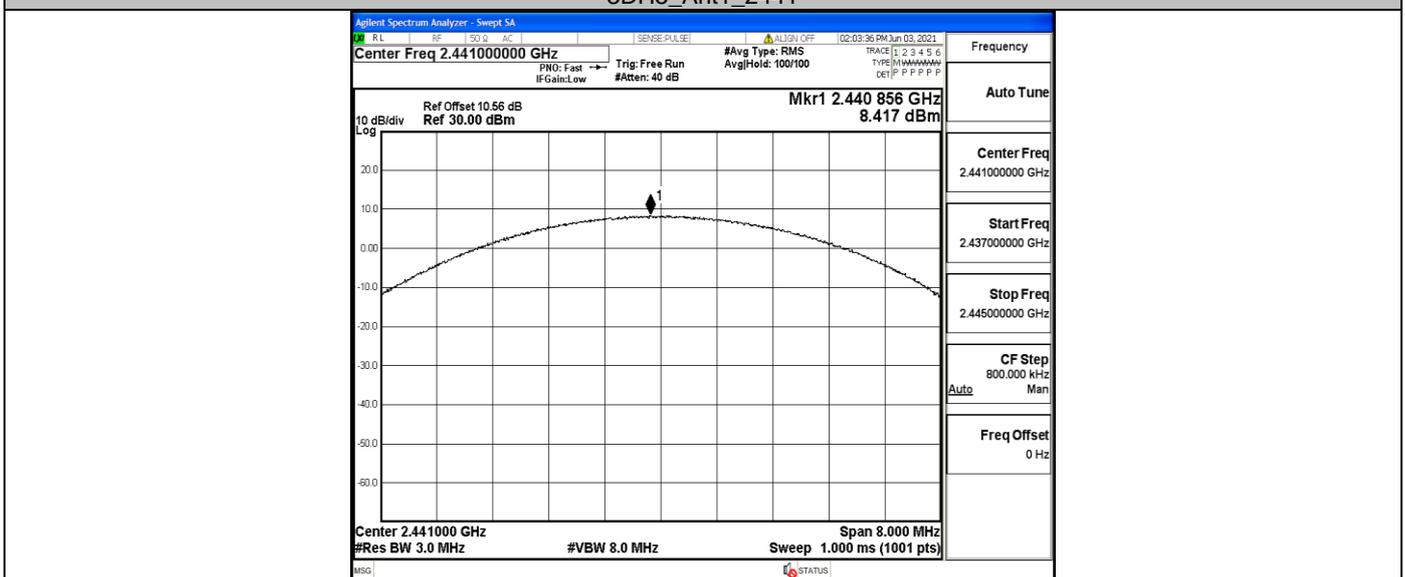
2DH5_Ant1_2480



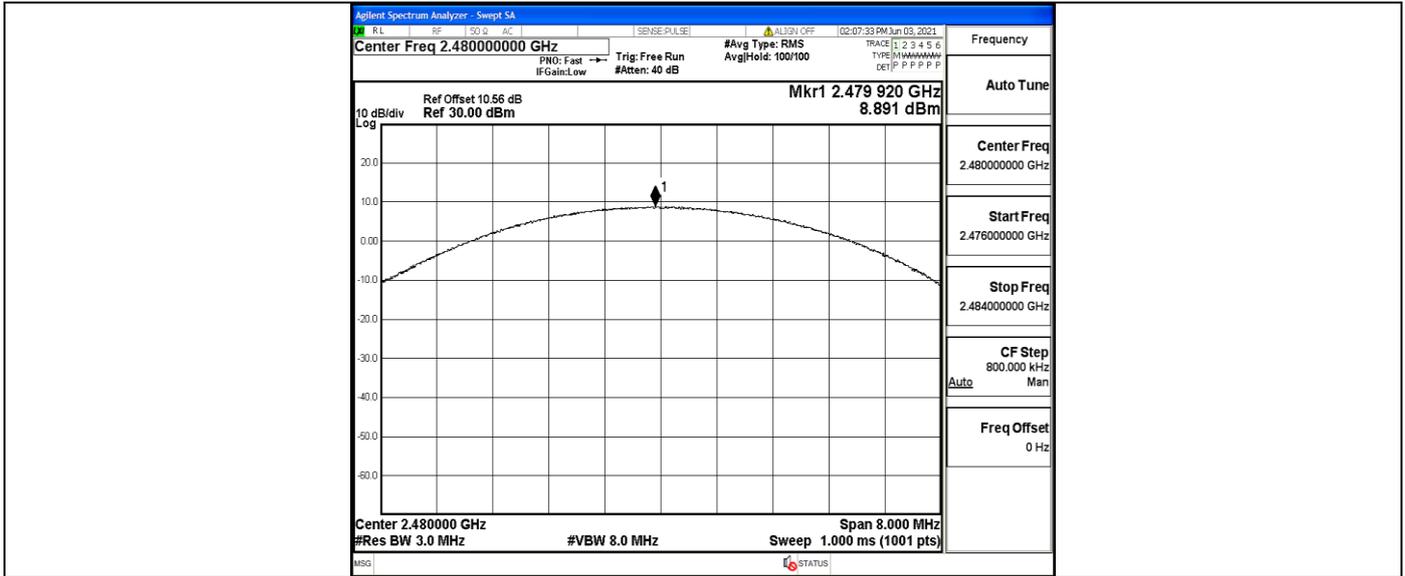
3DH5_Ant1_2402



3DH5_Ant1_2441



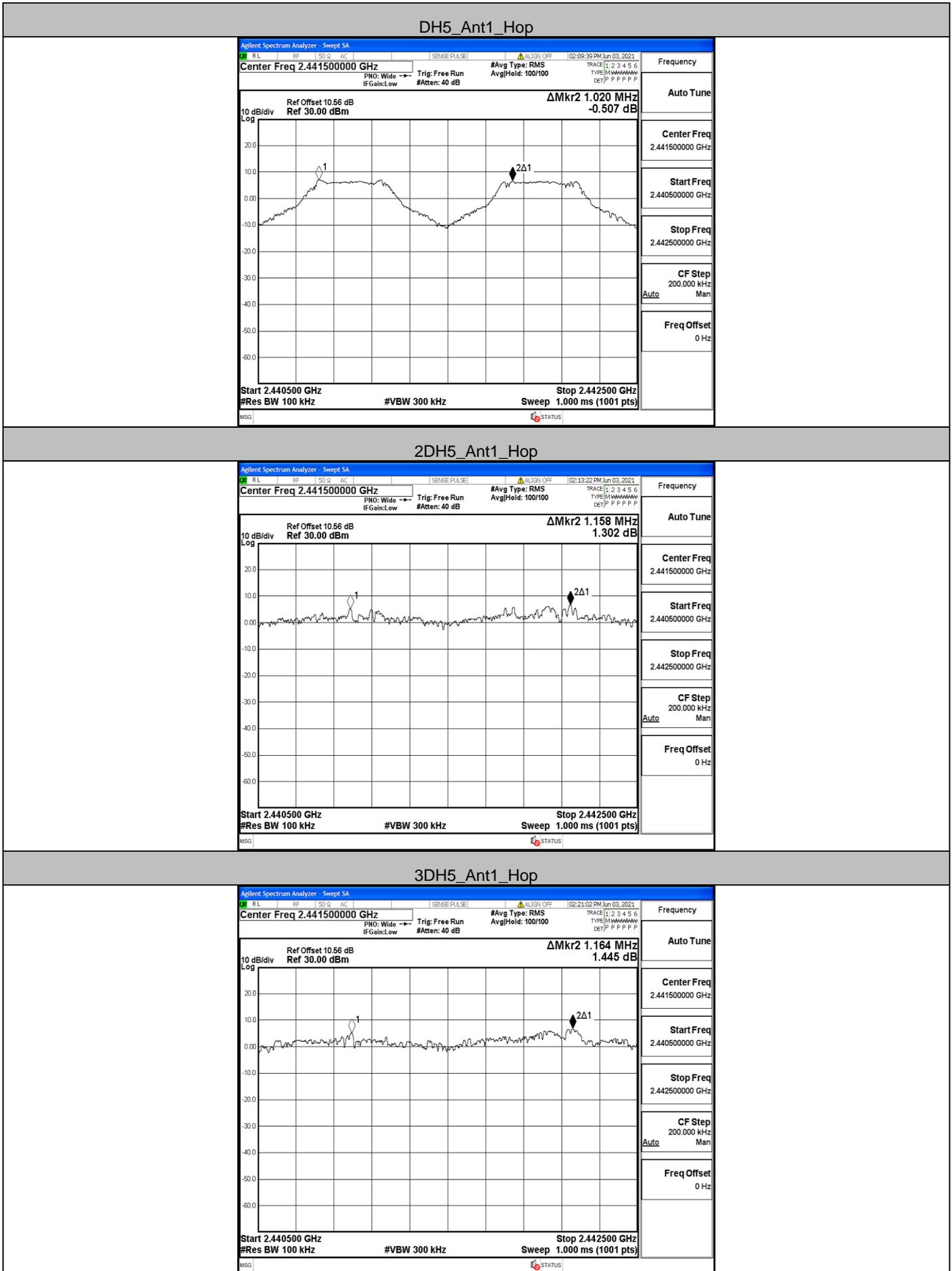
3DH5_Ant1_2480



Appendix D: Carrier frequency separation**Test Result**

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.02	≥ 0.945	PASS
2DH5	Ant1	Hop	1.158	≥ 0.882	PASS
3DH5	Ant1	Hop	1.164	≥ 0.878	PASS

Test Graphs

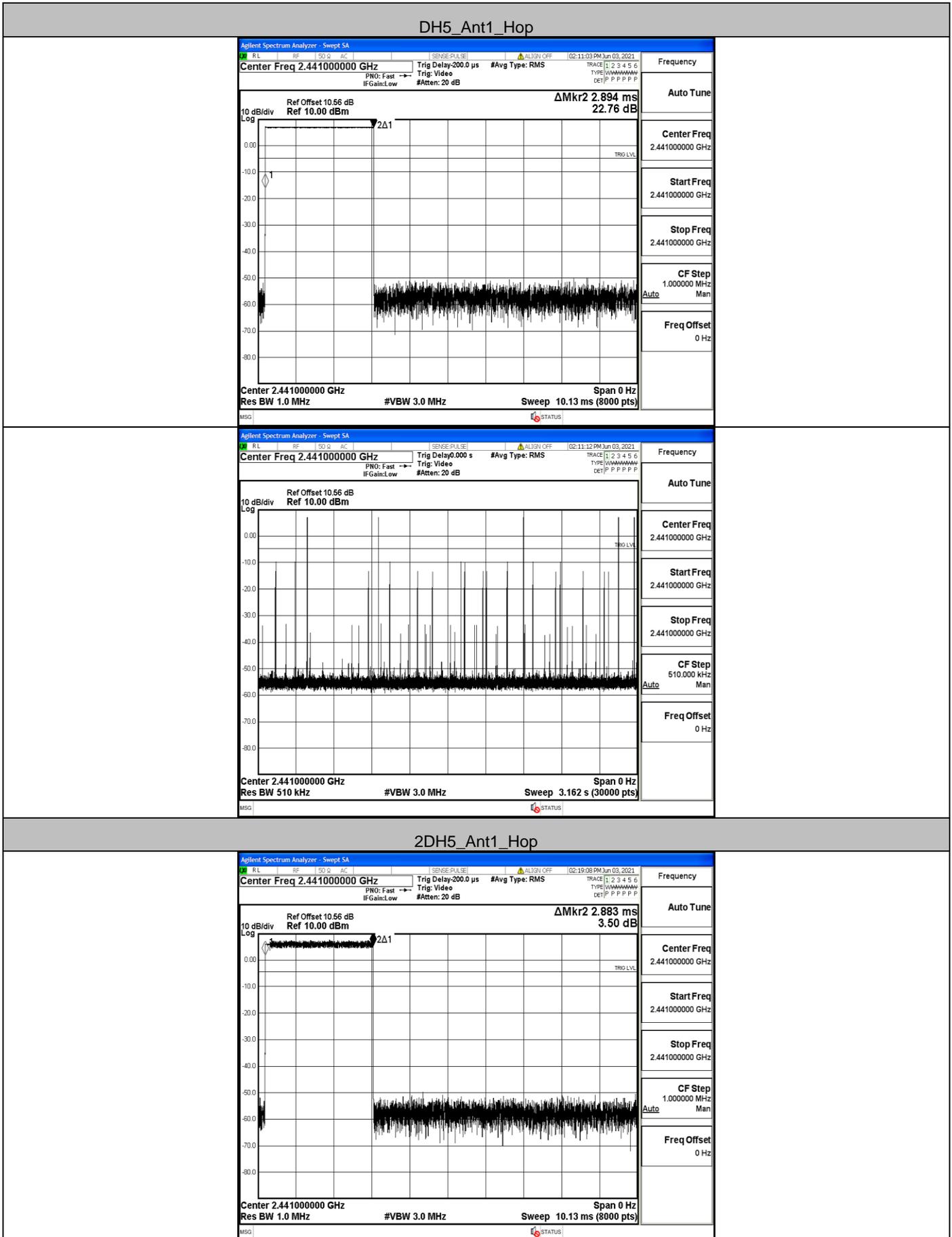


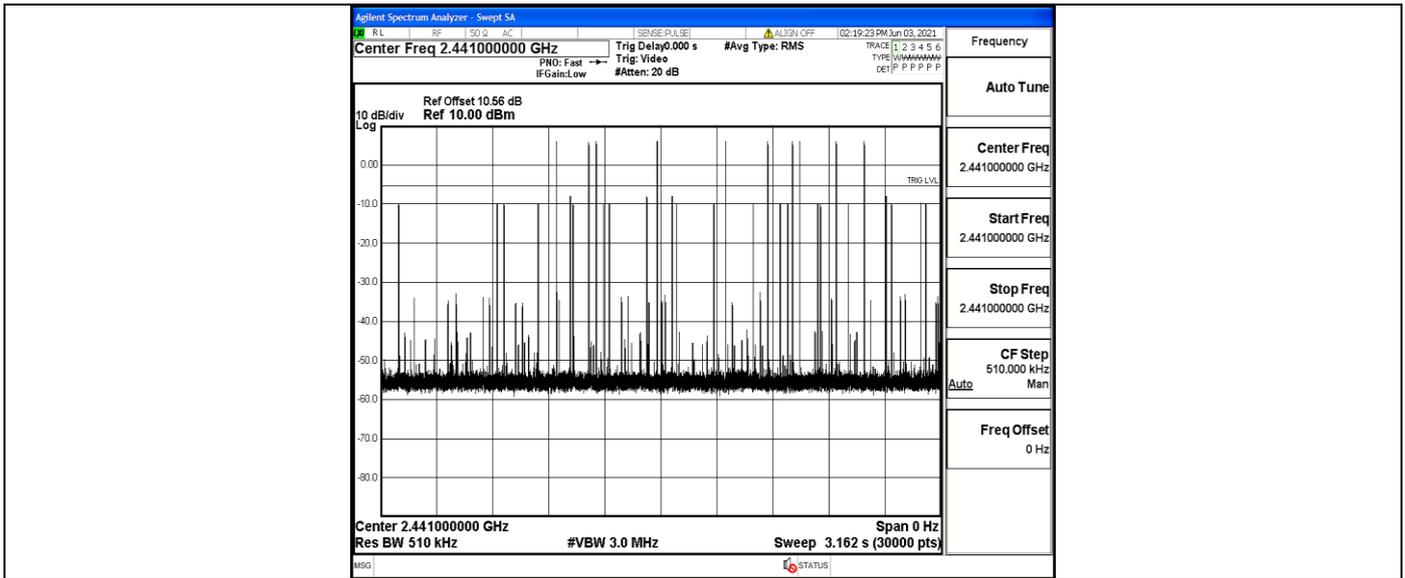
Appendix E: Time of occupancy

Test Result

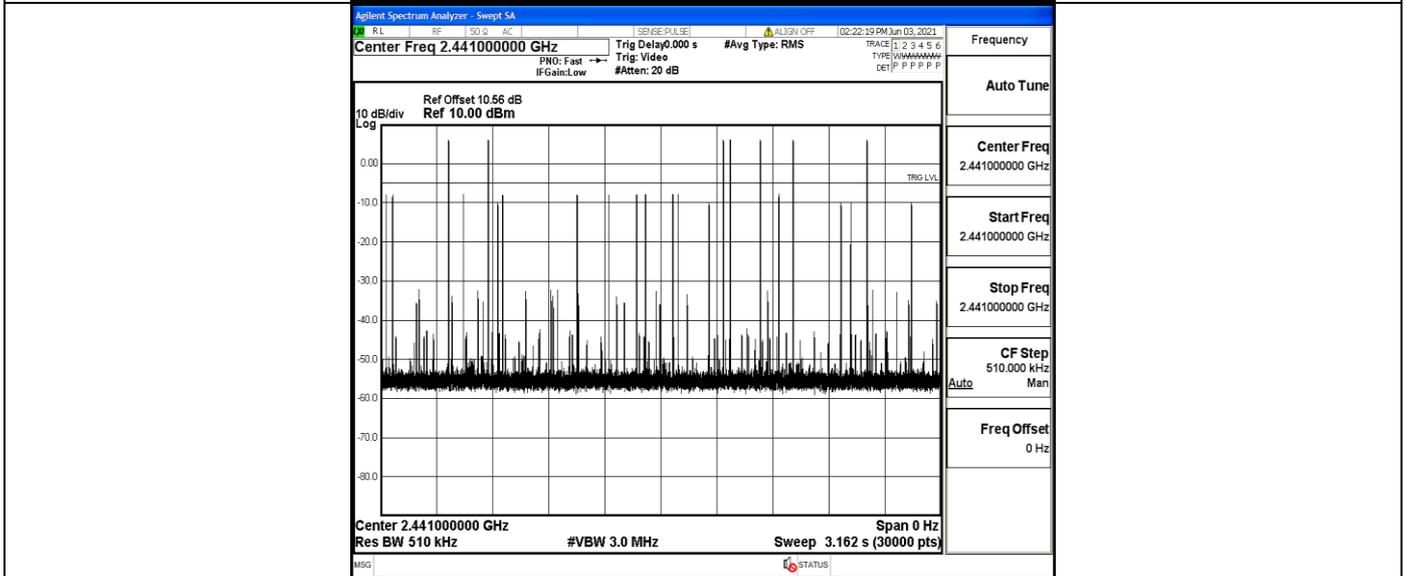
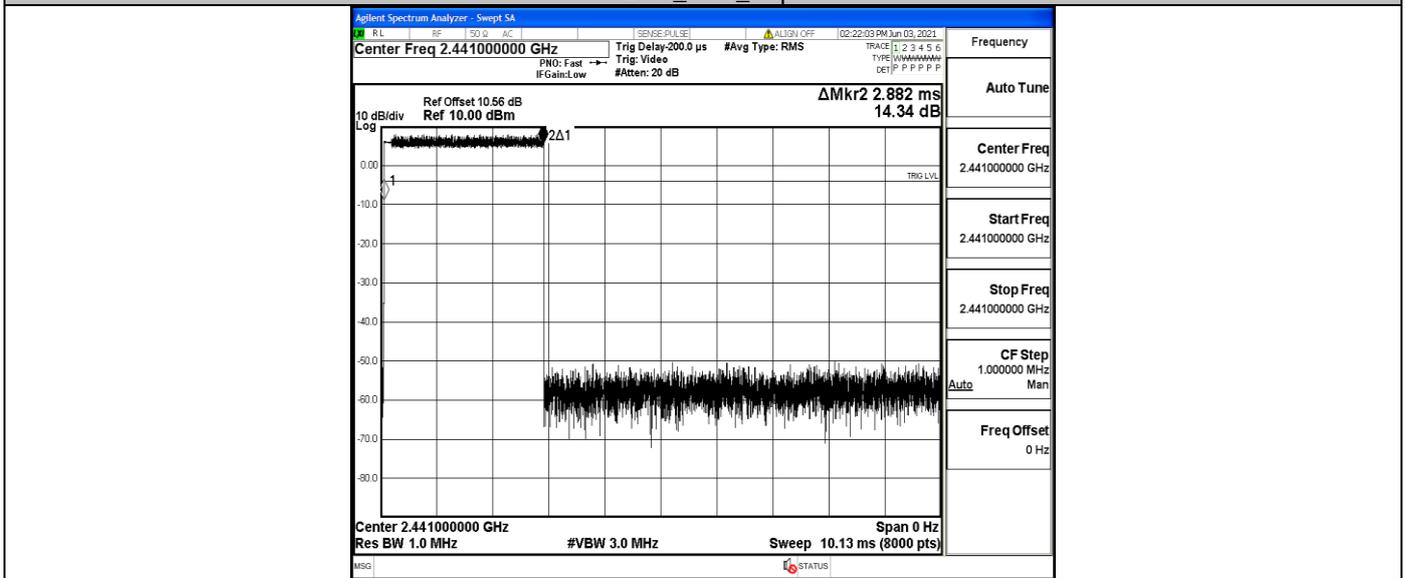
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.89	60	0.174	<=0.4	PASS
2DH5	Ant1	Hop	2.88	110	0.317	<=0.4	PASS
3DH5	Ant1	Hop	2.88	80	0.231	<=0.4	PASS

Test Graphs





3DH5_Ant1_Hop

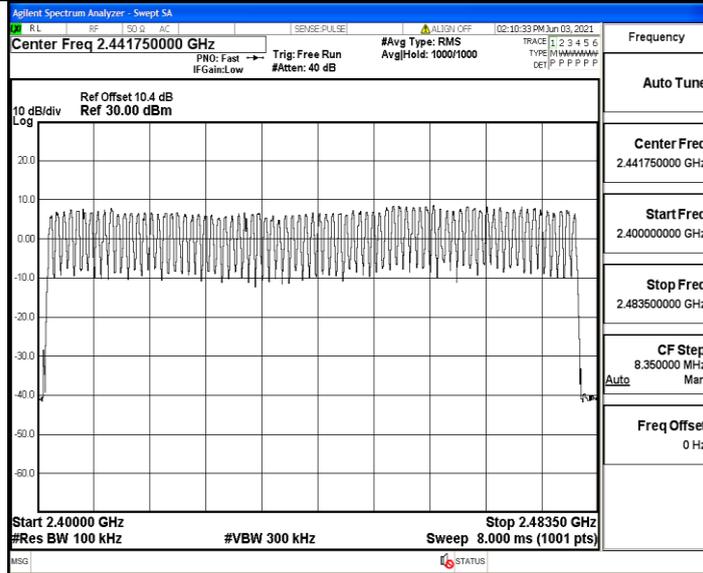


Appendix F: Number of hopping channels**Test Result**

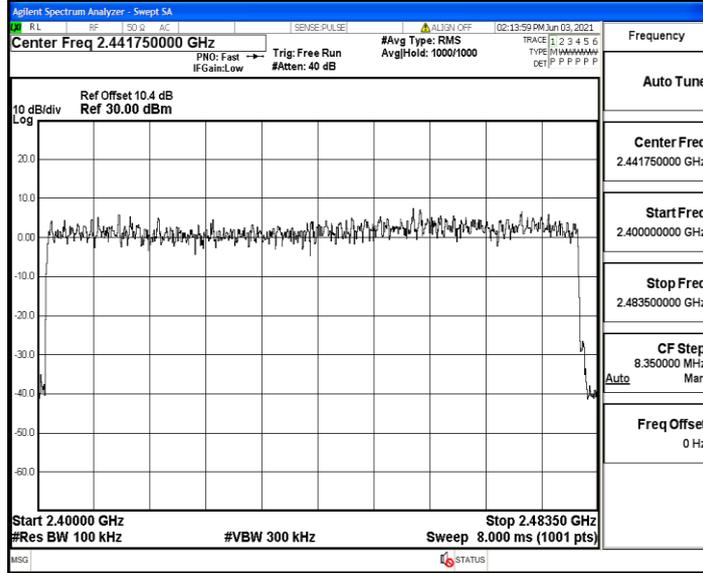
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	>=15	PASS
2DH5	Ant1	Hop	79	>=15	PASS
3DH5	Ant1	Hop	79	>=15	PASS

Test Graphs

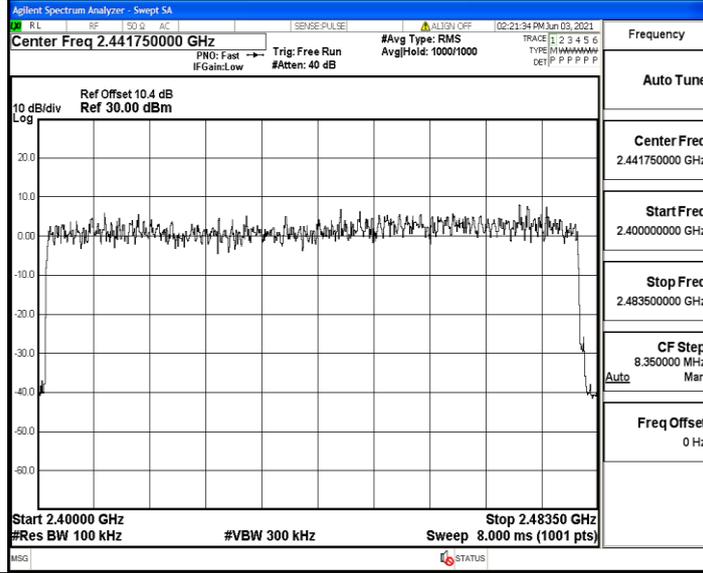
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop



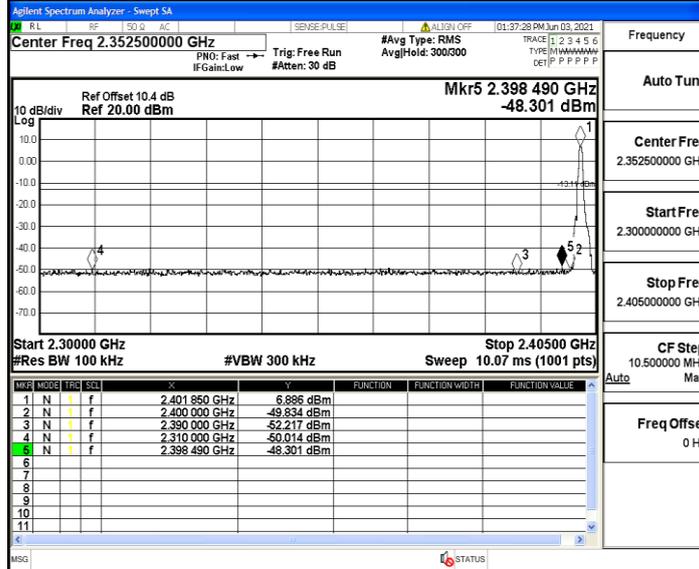
Appendix G: Band edge measurements

Test Result

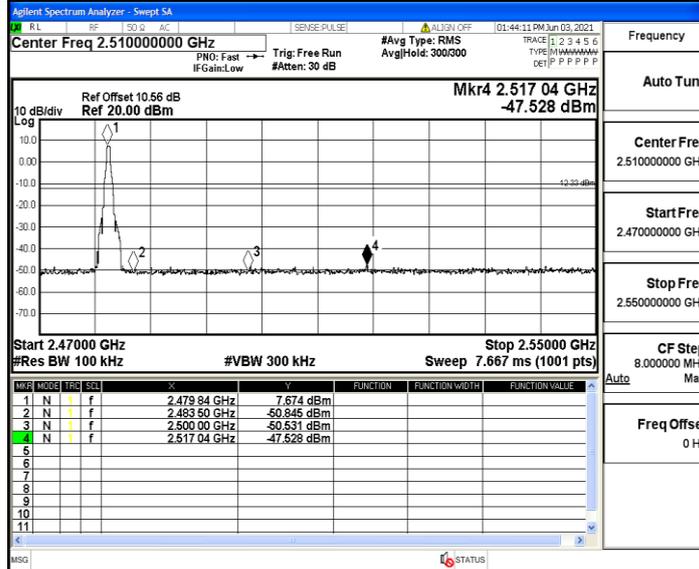
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	6.89	-48.3	<=-13.11	PASS
		High	2480	7.67	-47.53	<=-12.33	PASS
		Low	Hop_2402	6.65	-49.04	<=-13.35	PASS
		High	Hop_2480	7.93	-47.76	<=-12.07	PASS
2DH5	Ant1	Low	2402	5.16	-45.87	<=-14.85	PASS
		High	2480	6.66	-48.03	<=-13.34	PASS
		Low	Hop_2402	3.91	-48.97	<=-16.09	PASS
		High	Hop_2480	5.52	-46.87	<=-14.48	PASS
3DH5	Ant1	Low	2402	4.30	-44.99	<=-15.7	PASS
		High	2480	6.96	-47.33	<=-13.04	PASS
		Low	Hop_2402	2.88	-48.63	<=-17.12	PASS
		High	Hop_2480	6.74	-47.71	<=-13.26	PASS

Test Graphs

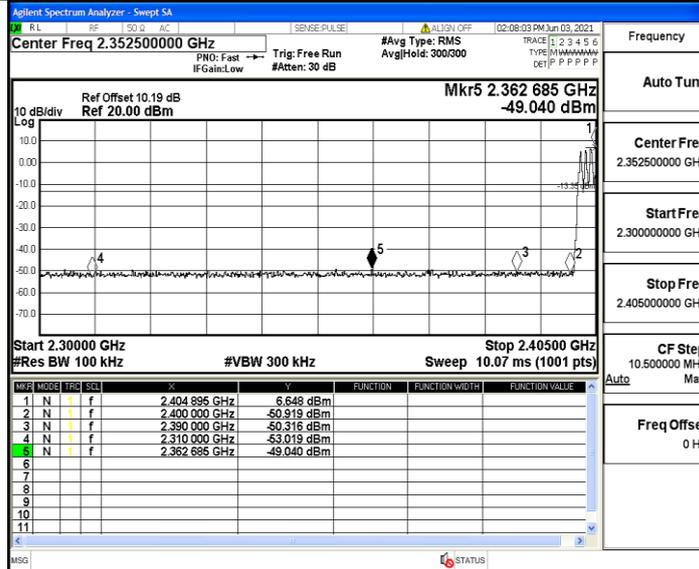
DH5_Ant1_Low_2402



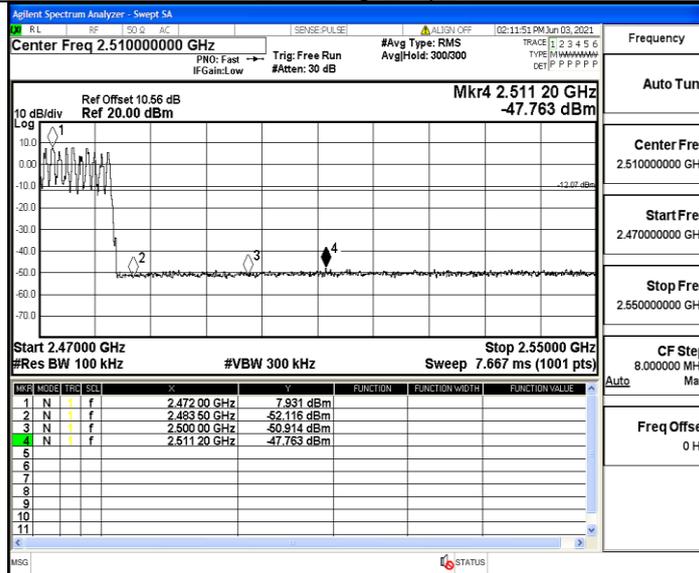
DH5_Ant1_High_2480



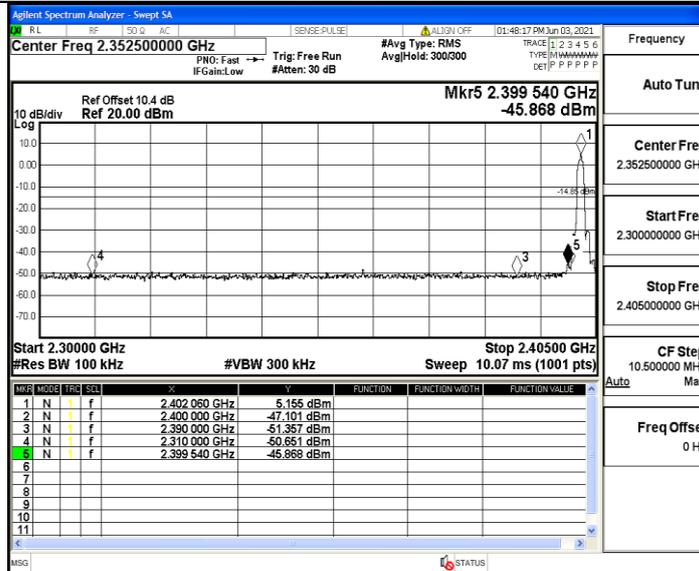
DH5_Ant1_Low_Hop_2402



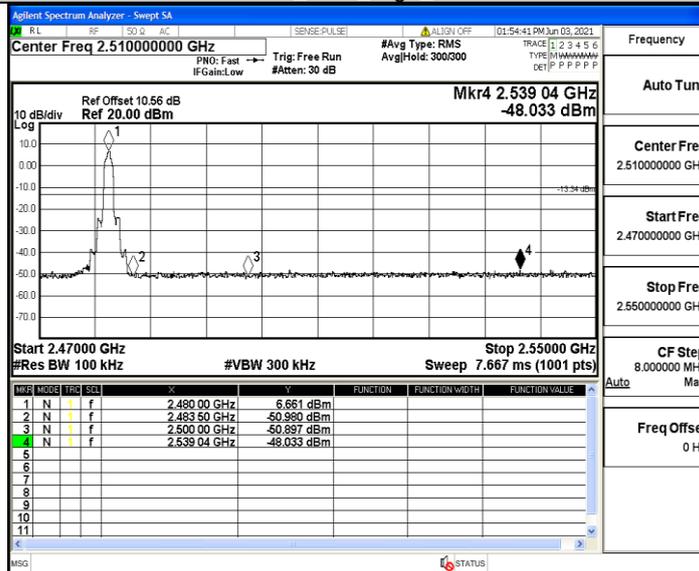
DH5_Ant1_High_Hop_2480



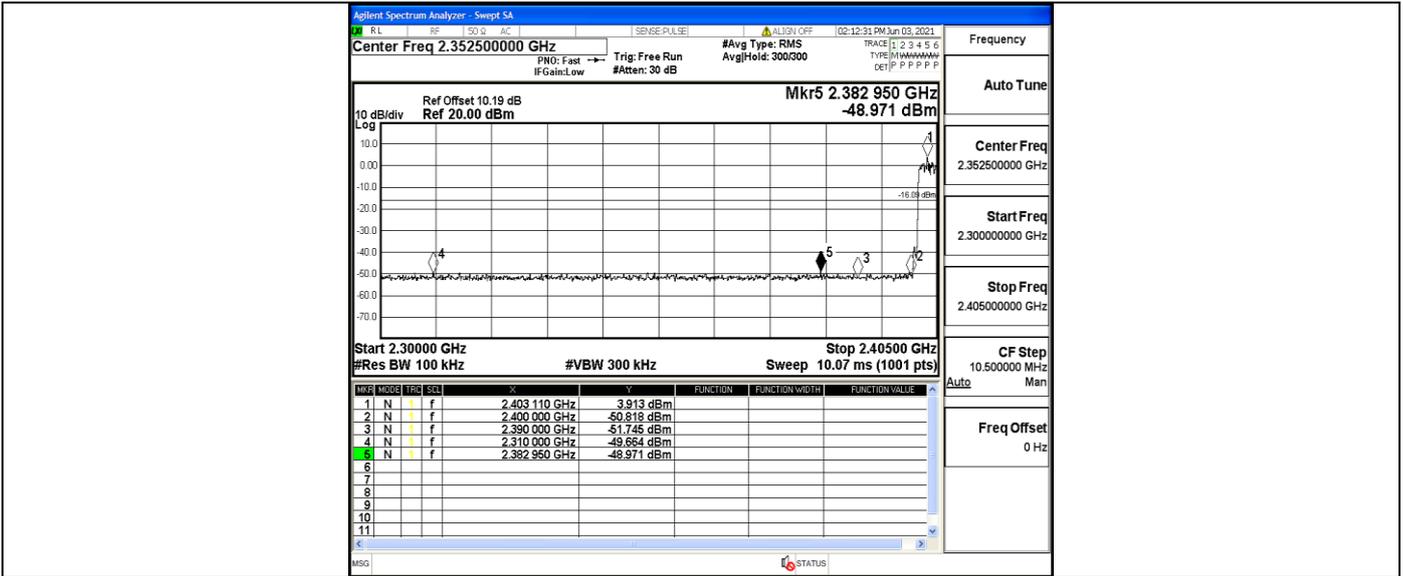
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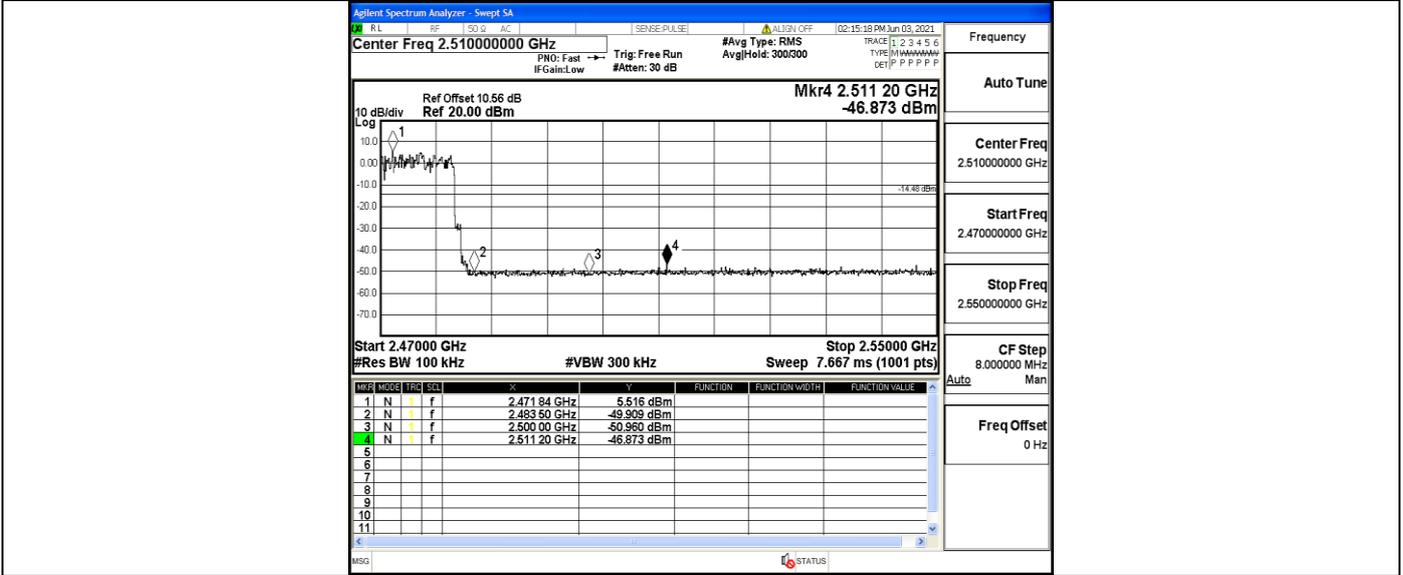
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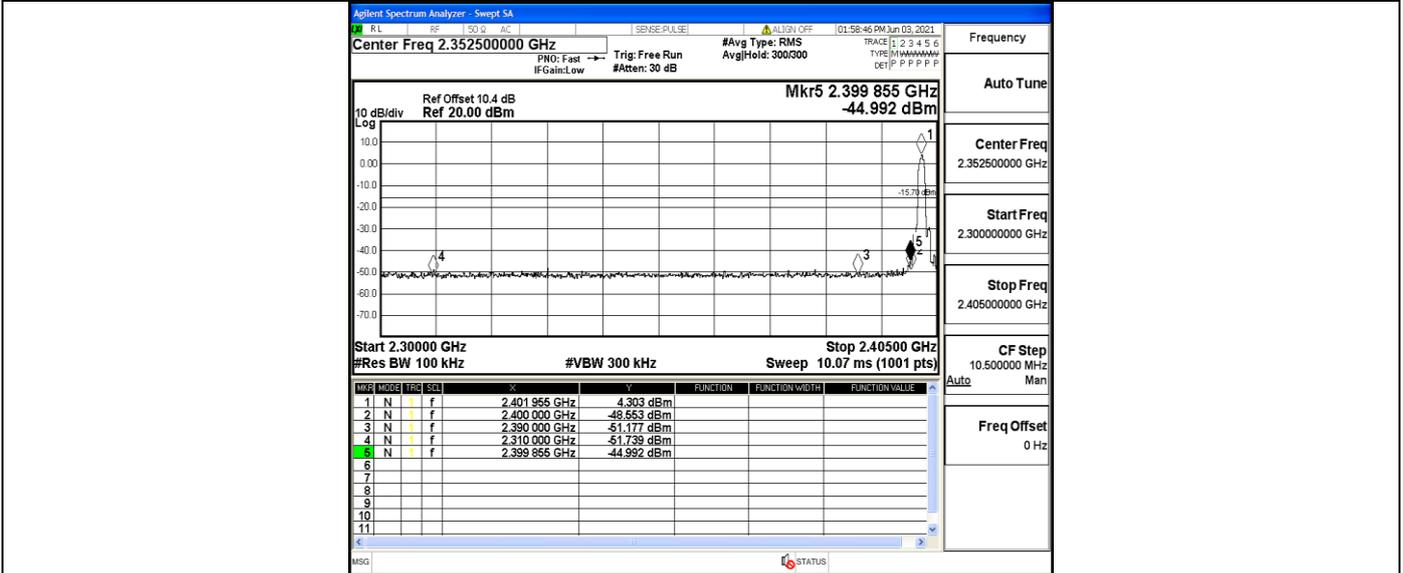
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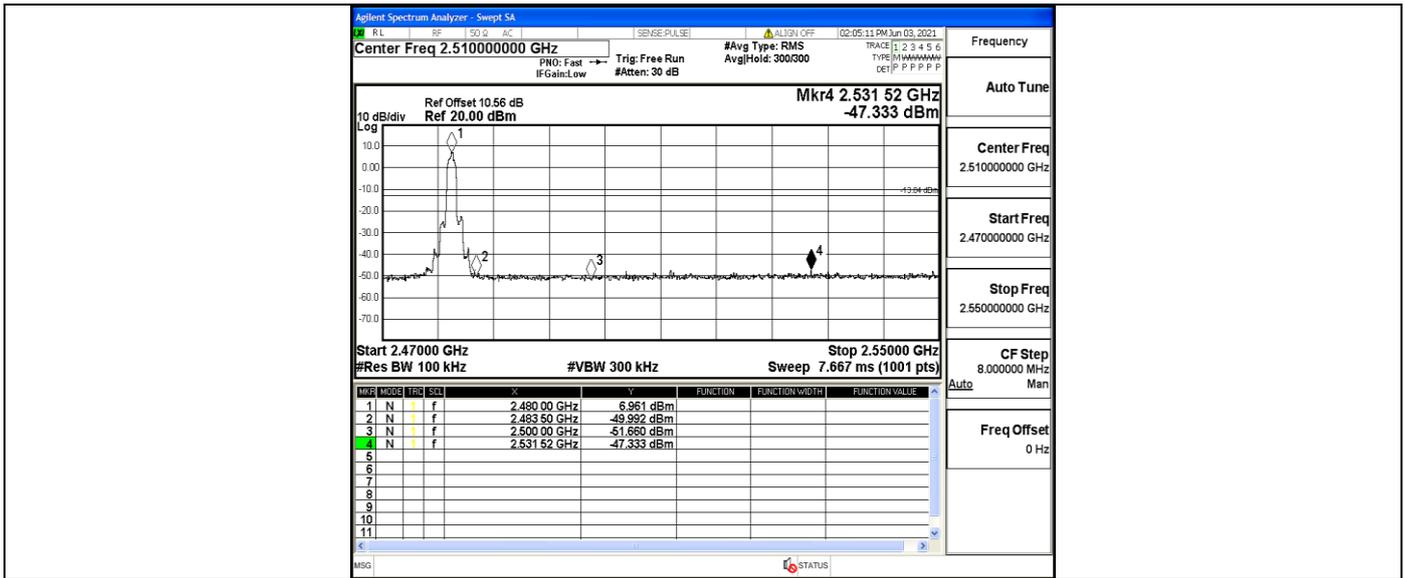
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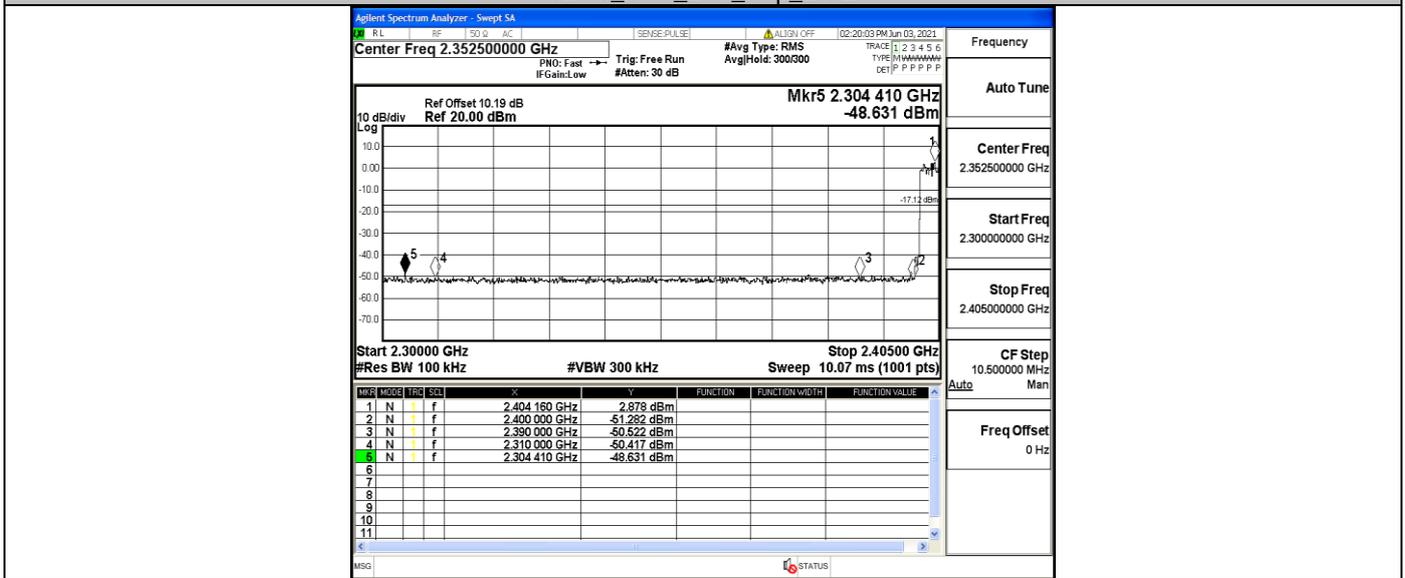
3DH5_Ant1_Low_2402



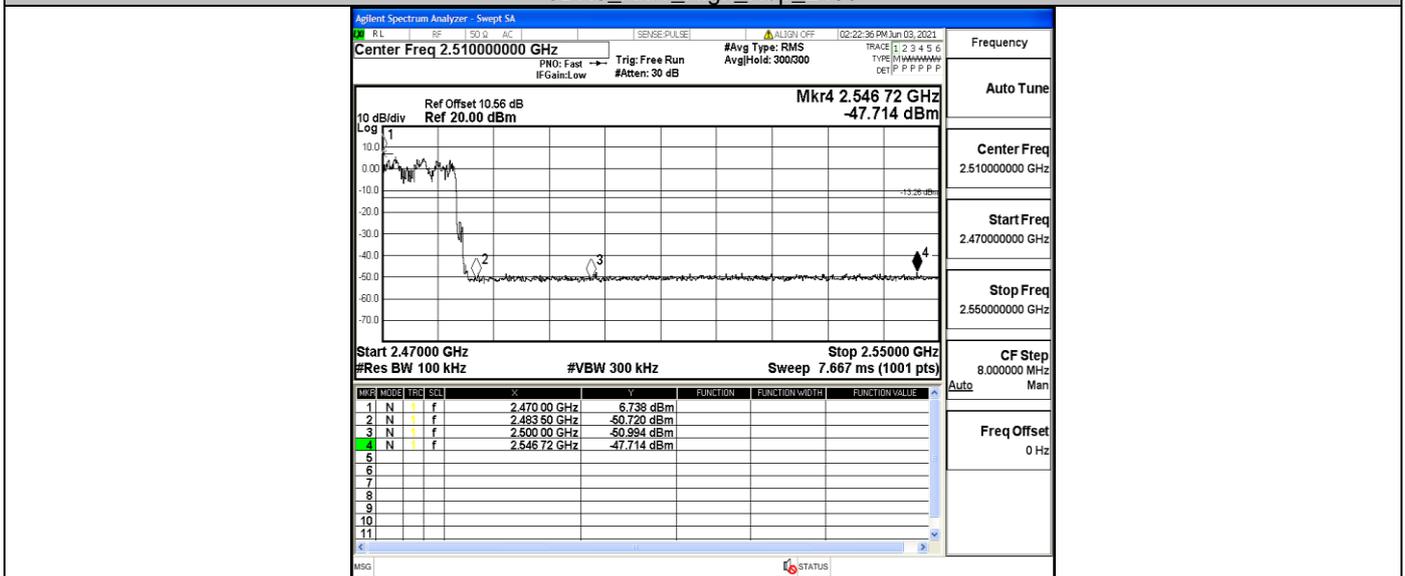
3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480

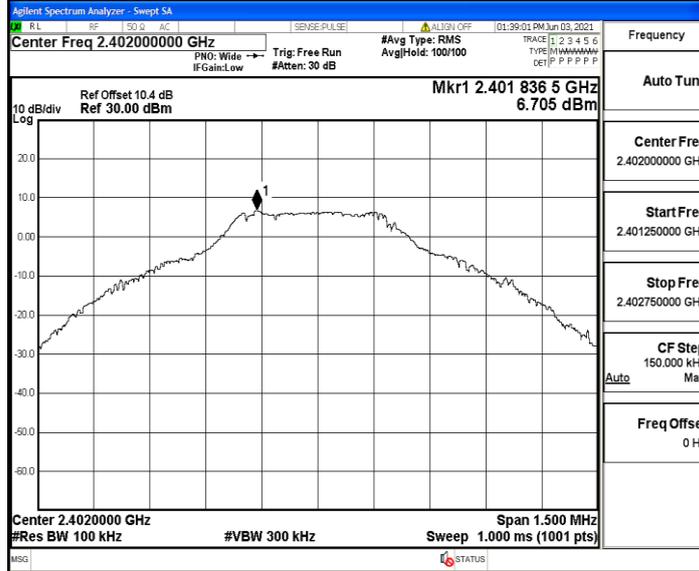


Appendix H: Conducted Spurious Emission Test Result

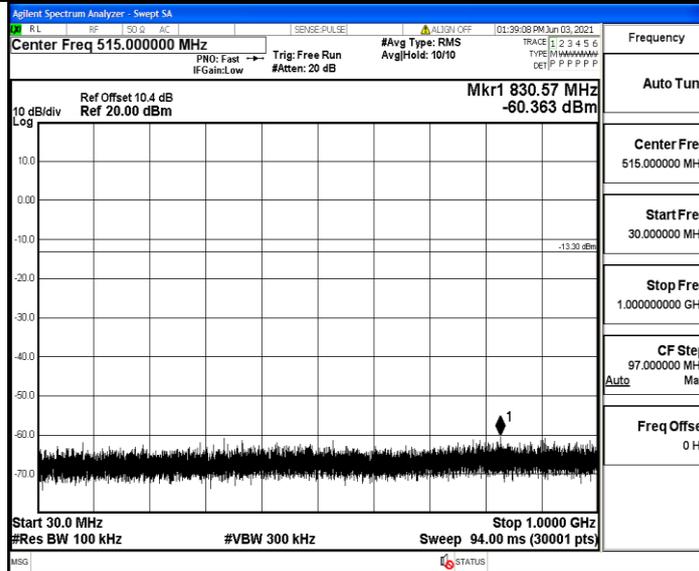
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	6.71	6.71	---	PASS
			30~1000	6.71	-60.36	<=-13.3	PASS
			1000~26500	6.71	-47.43	<=-13.3	PASS
		2441	Reference	7.26	7.26	---	PASS
			30~1000	7.26	-60.32	<=-12.74	PASS
			1000~26500	7.26	-49.96	<=-12.74	PASS
		2480	Reference	7.62	7.62	---	PASS
			30~1000	7.62	-60.47	<=-12.38	PASS
			1000~26500	7.62	-51.57	<=-12.38	PASS
2DH5	Ant1	2402	Reference	4.47	4.47	---	PASS
			30~1000	4.47	-60.77	<=-15.53	PASS
			1000~26500	4.47	-51.04	<=-15.53	PASS
		2441	Reference	5.72	5.72	---	PASS
			30~1000	5.72	-60.42	<=-14.28	PASS
			1000~26500	5.72	-51.25	<=-14.28	PASS
		2480	Reference	6.16	6.16	---	PASS
			30~1000	6.16	-60.92	<=-13.84	PASS
			1000~26500	6.16	-51.03	<=-13.84	PASS
3DH5	Ant1	2402	Reference	5.36	5.36	---	PASS
			30~1000	5.36	-59.97	<=-14.64	PASS
			1000~26500	5.36	-51.03	<=-14.64	PASS
		2441	Reference	6.00	6.00	---	PASS
			30~1000	6.00	-61.4	<=-14	PASS
			1000~26500	6.00	-51.38	<=-14	PASS
		2480	Reference	7.08	7.08	---	PASS
			30~1000	7.08	-60.86	<=-12.93	PASS
			1000~26500	7.08	-51.43	<=-12.93	PASS

Test Graphs

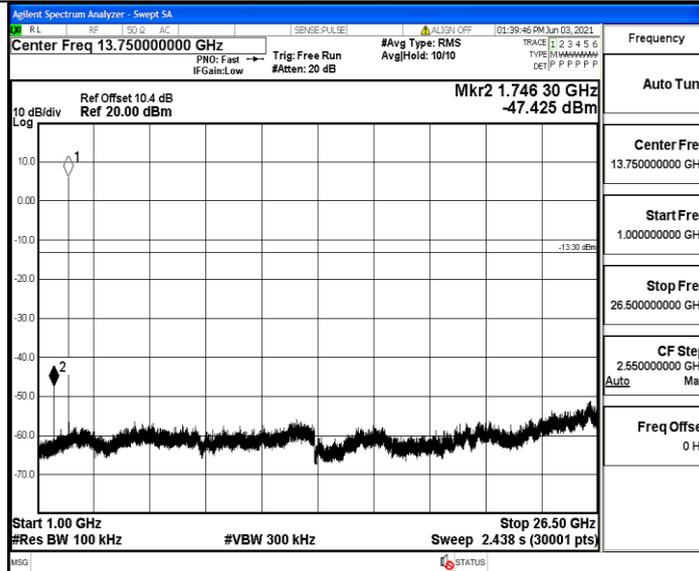
DH5_Ant1_2402_0~Reference



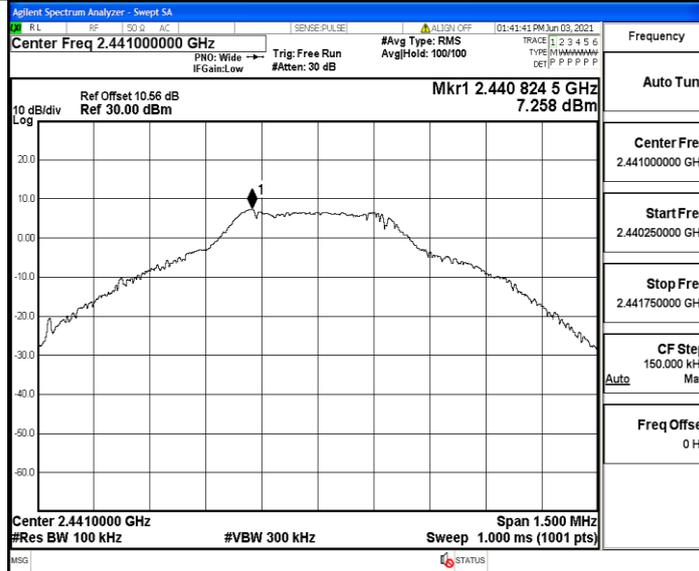
DH5_Ant1_2402_30~1000



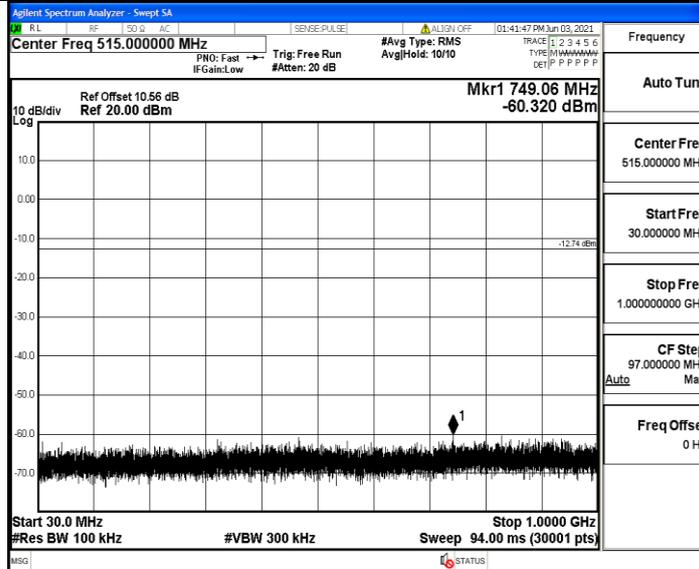
DH5_Ant1_2402_1000~26500



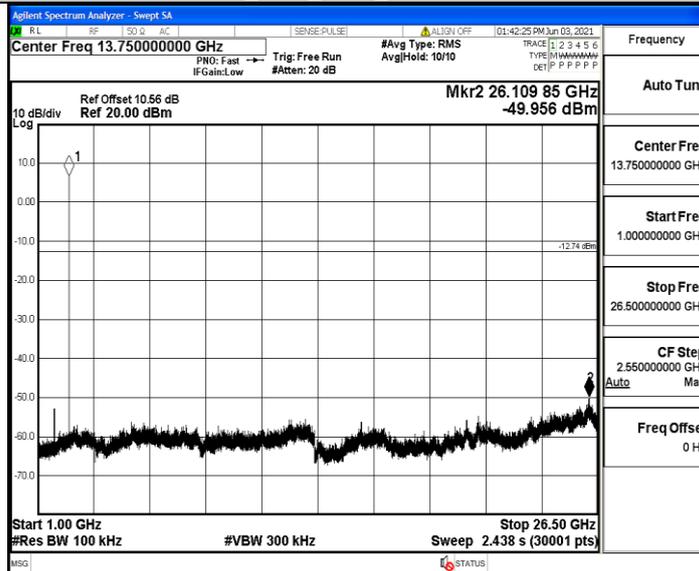
DH5_Ant1_2441_0~Reference



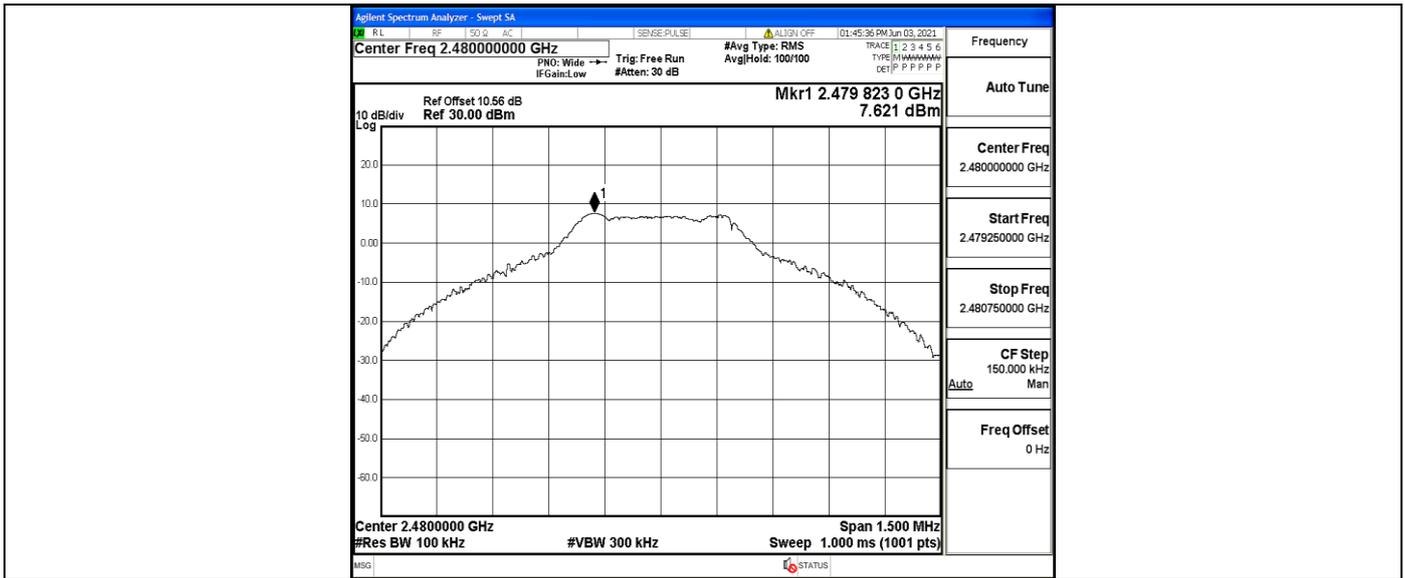
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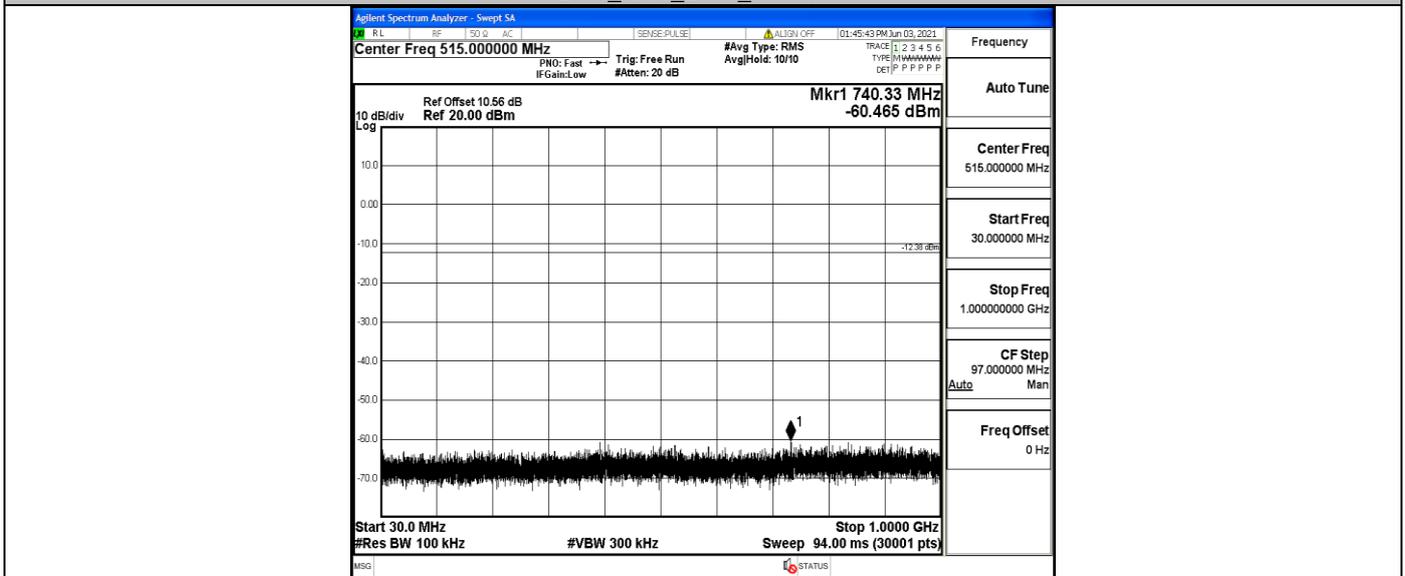
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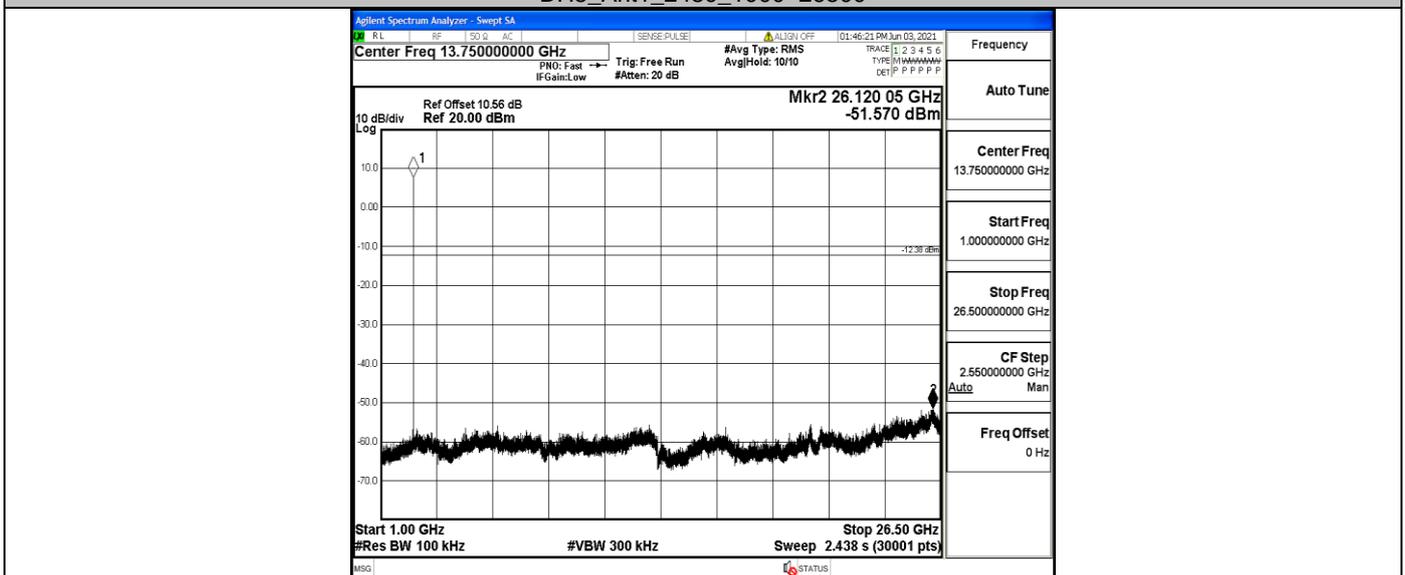
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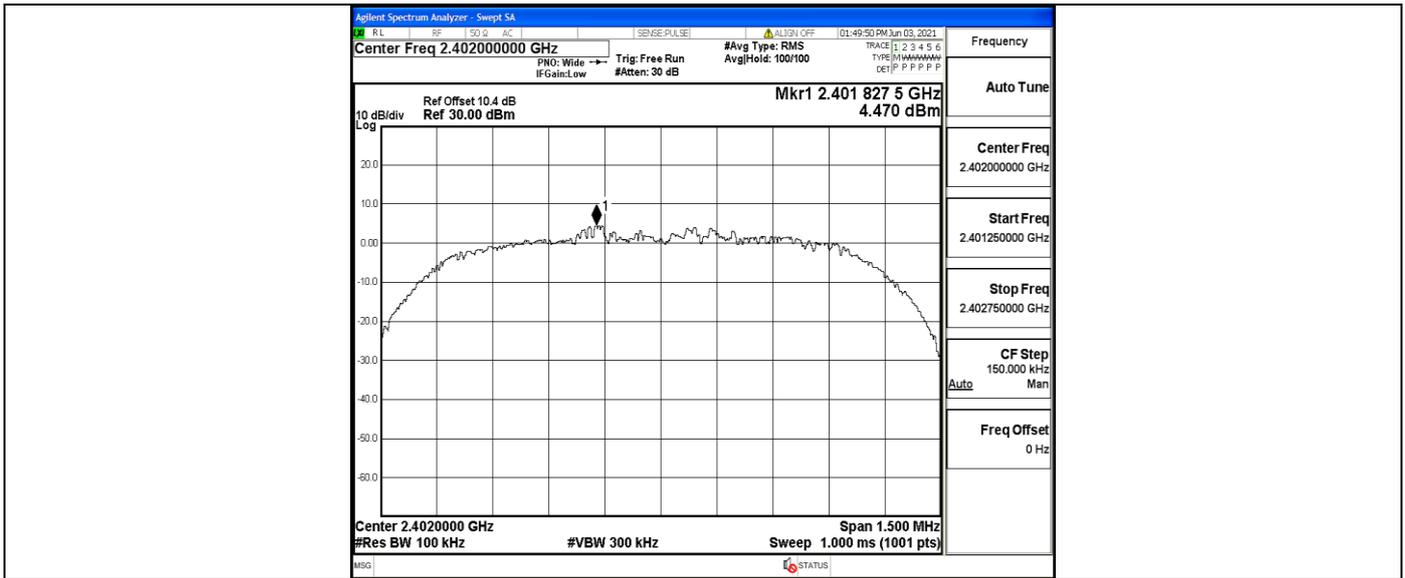
DH5_Ant1_2480_30~1000



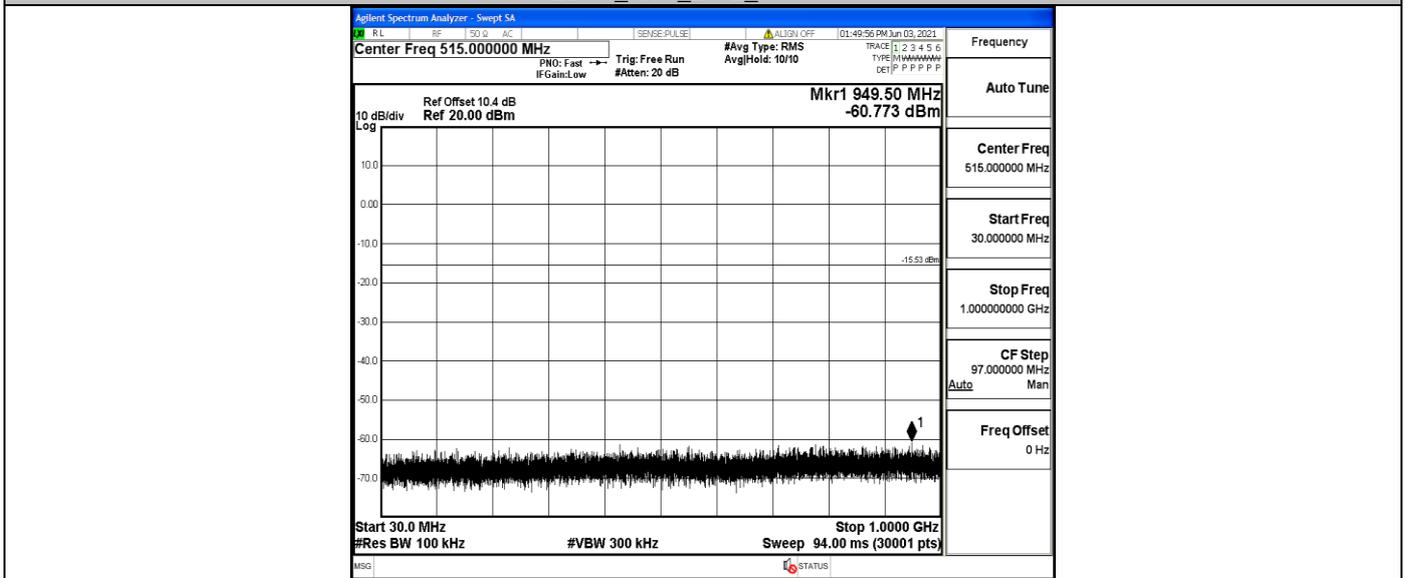
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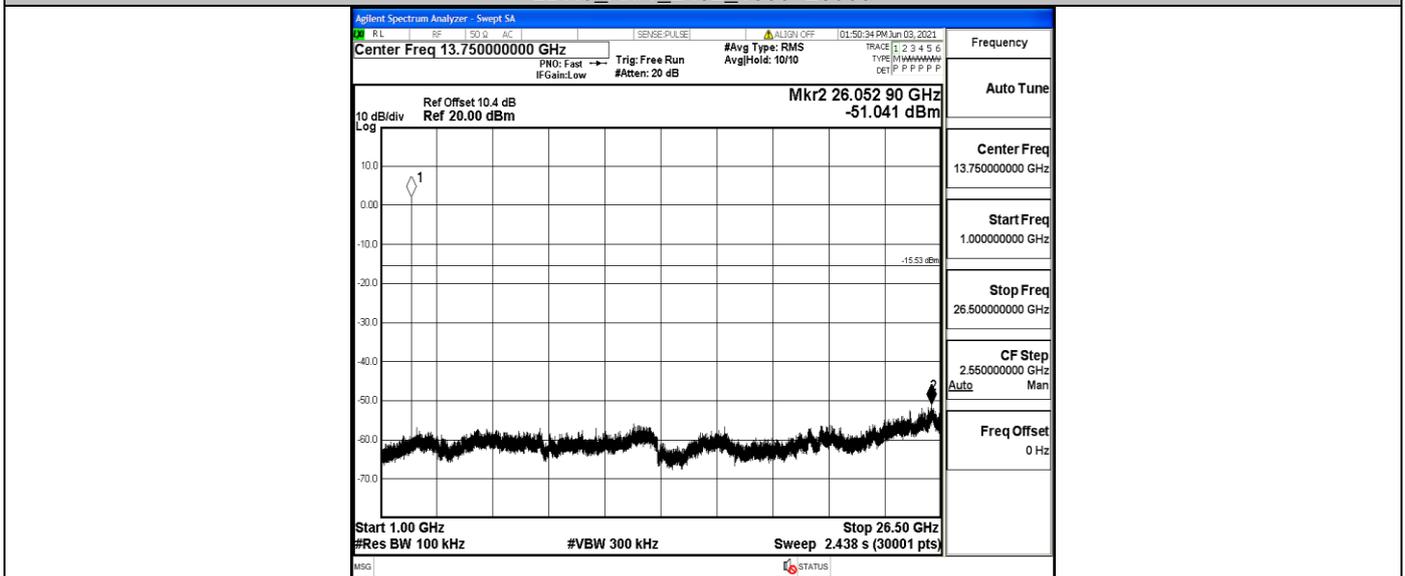
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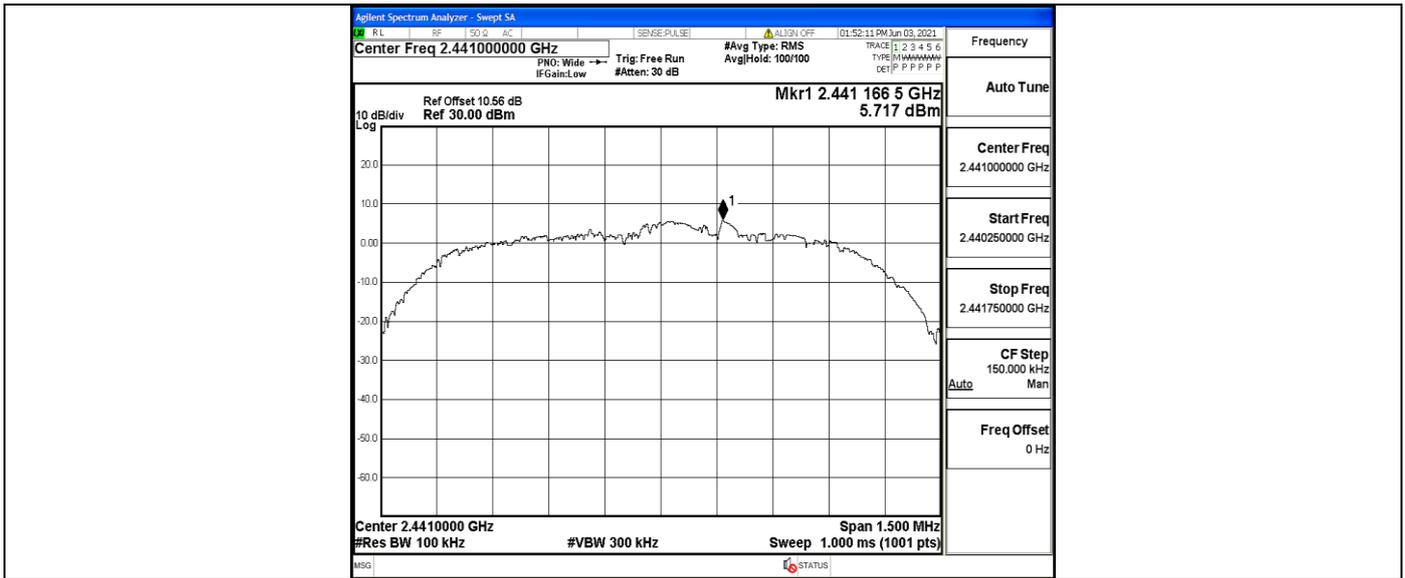
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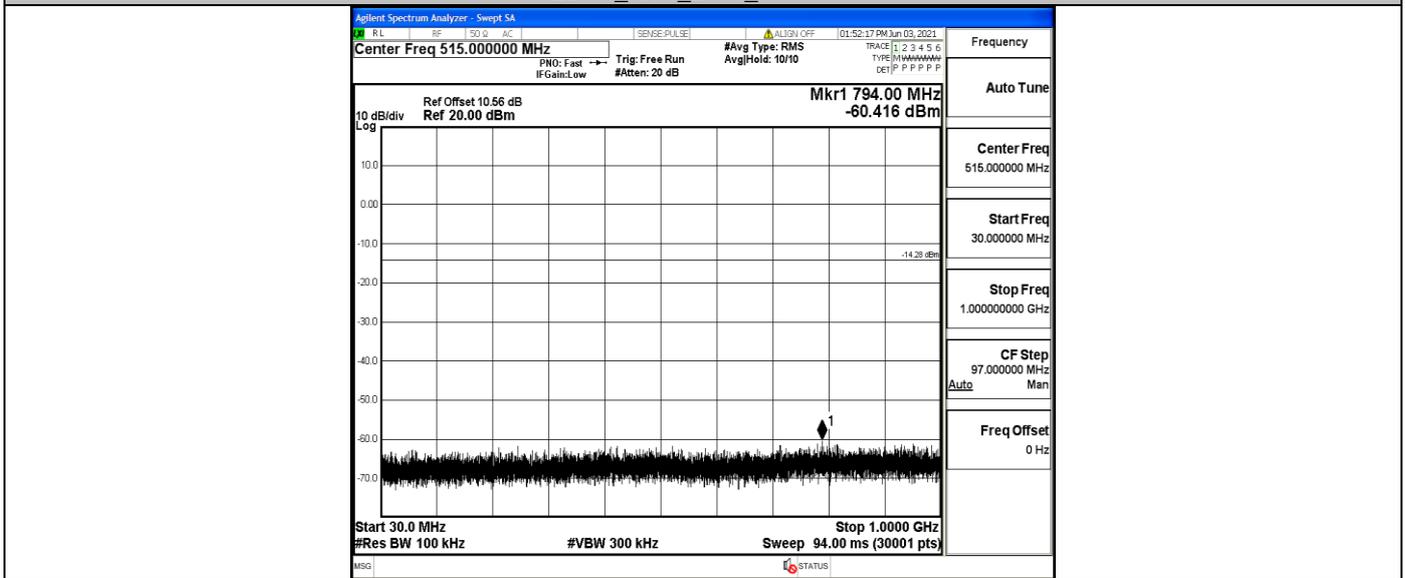
2DH5_Ant1_2402_1000~26500



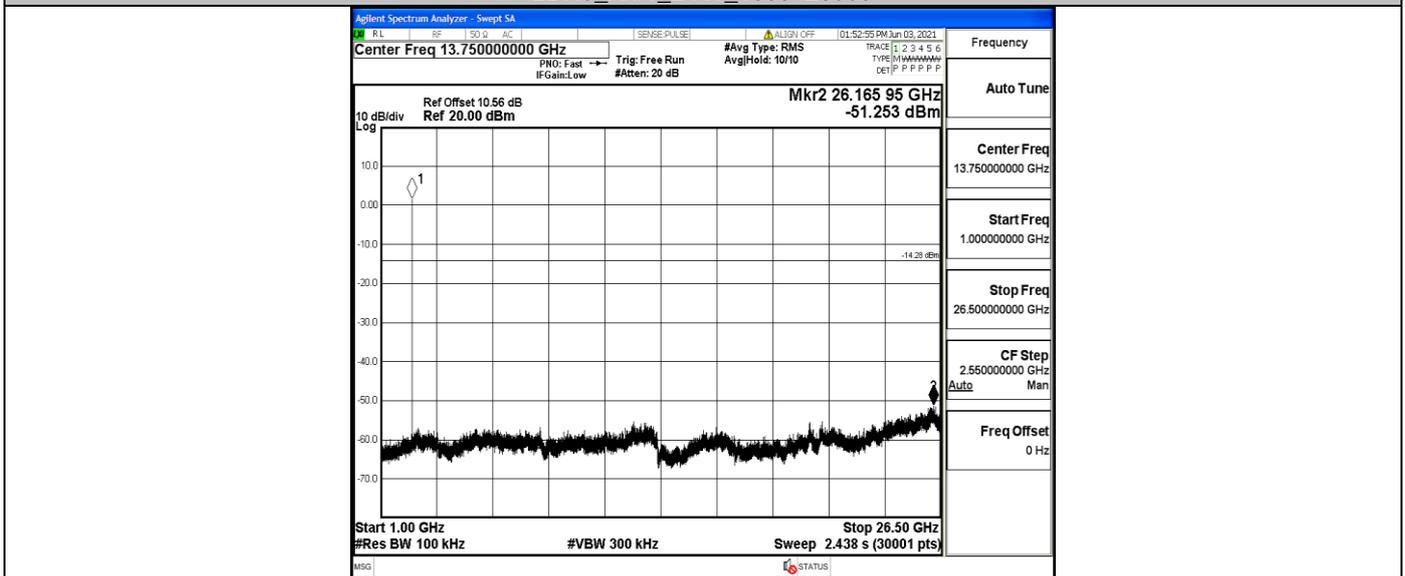
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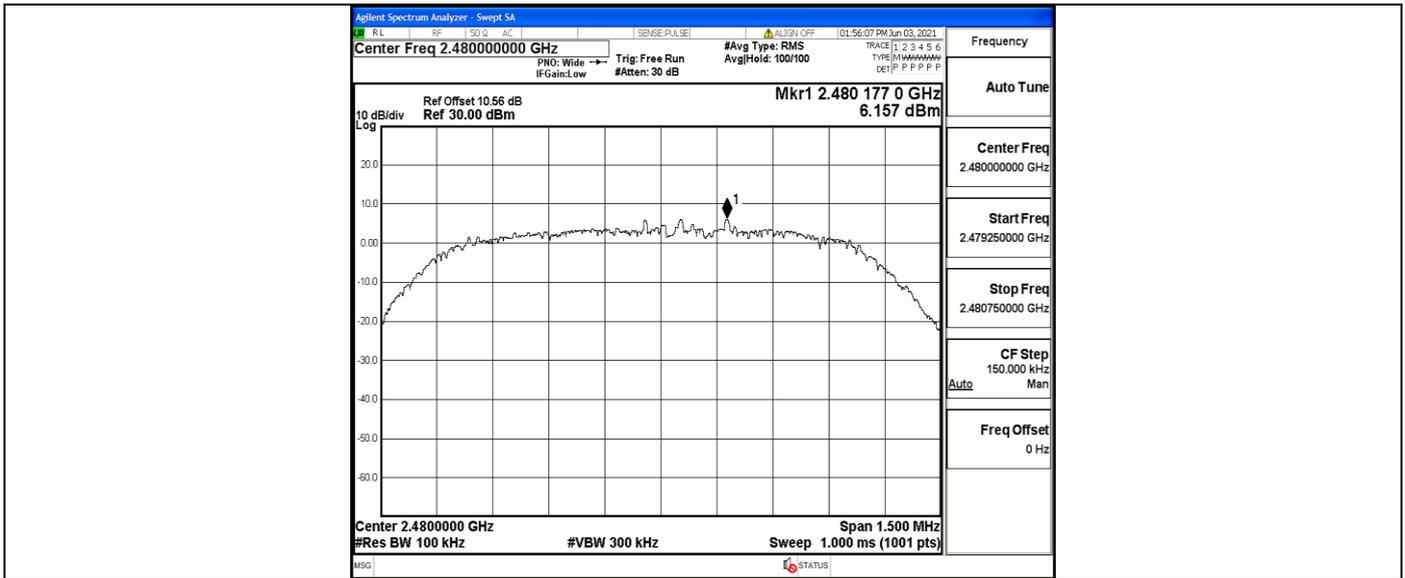
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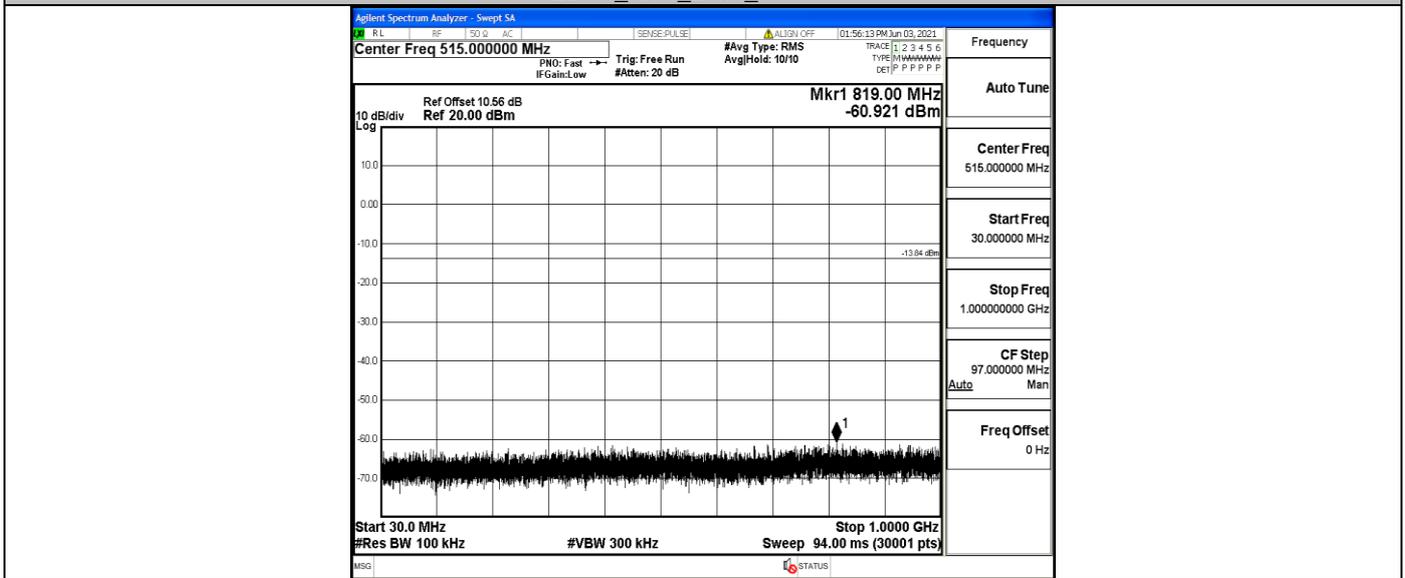
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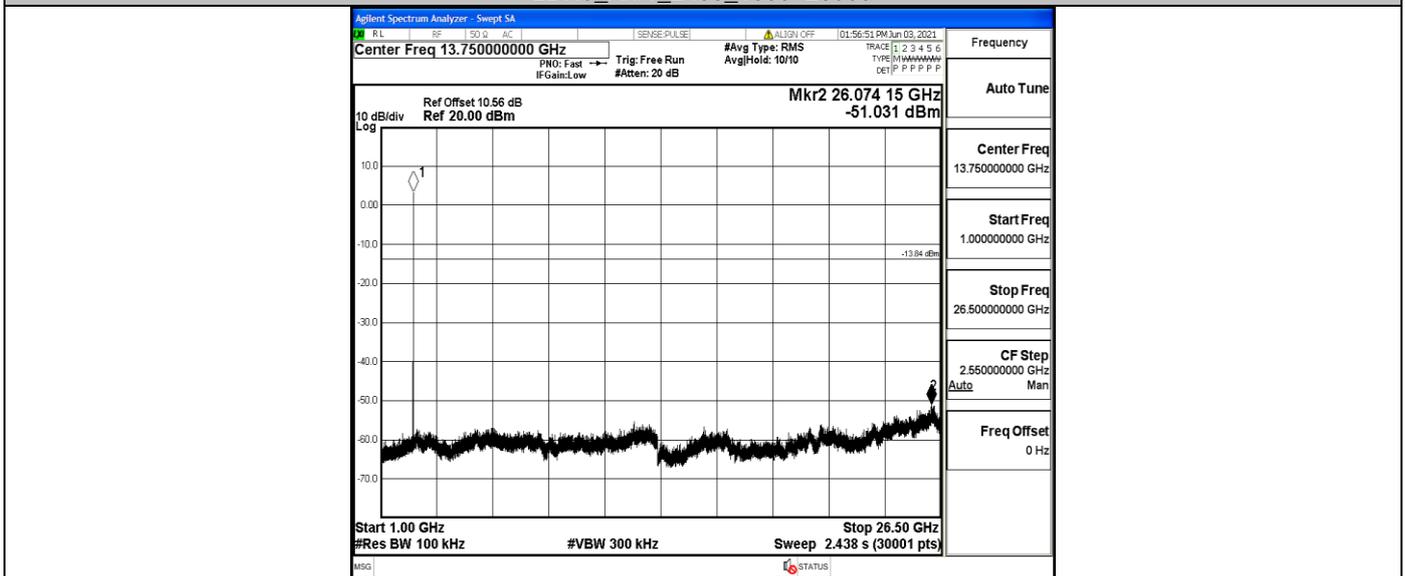
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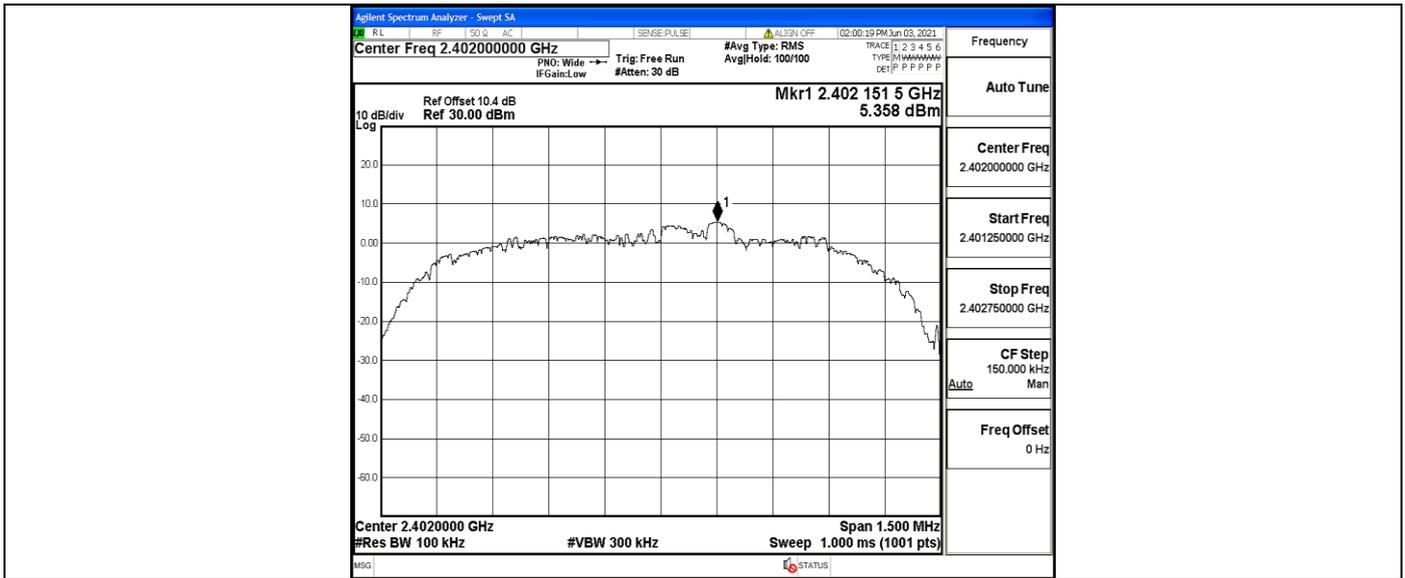
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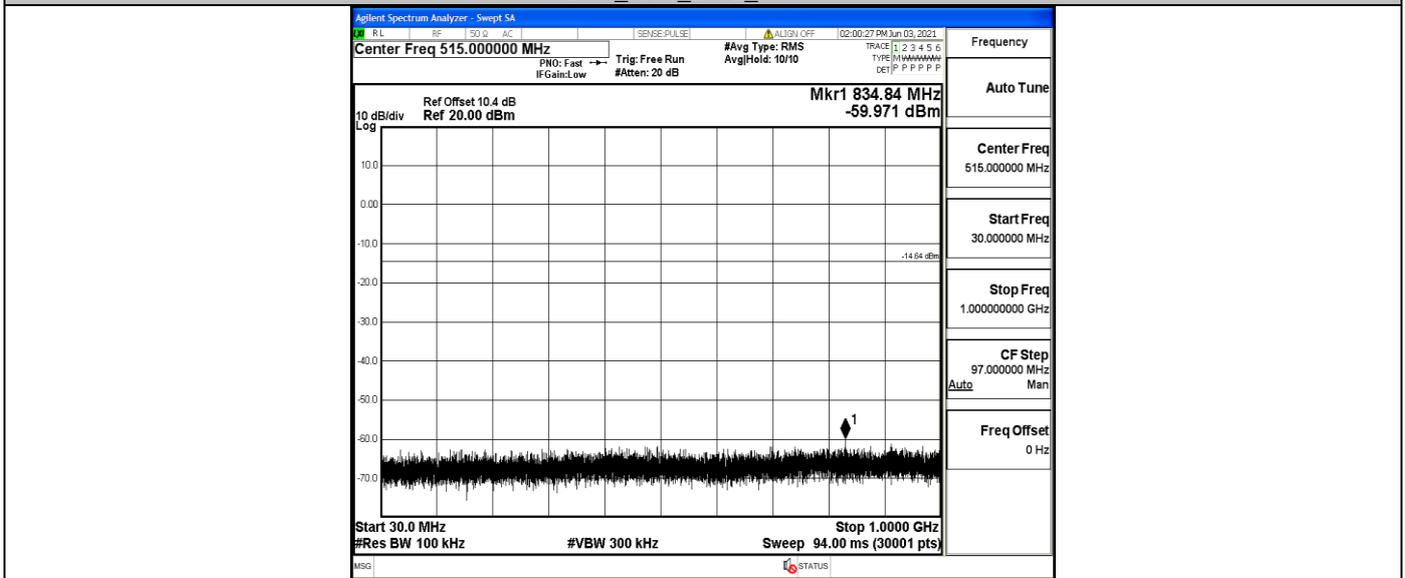
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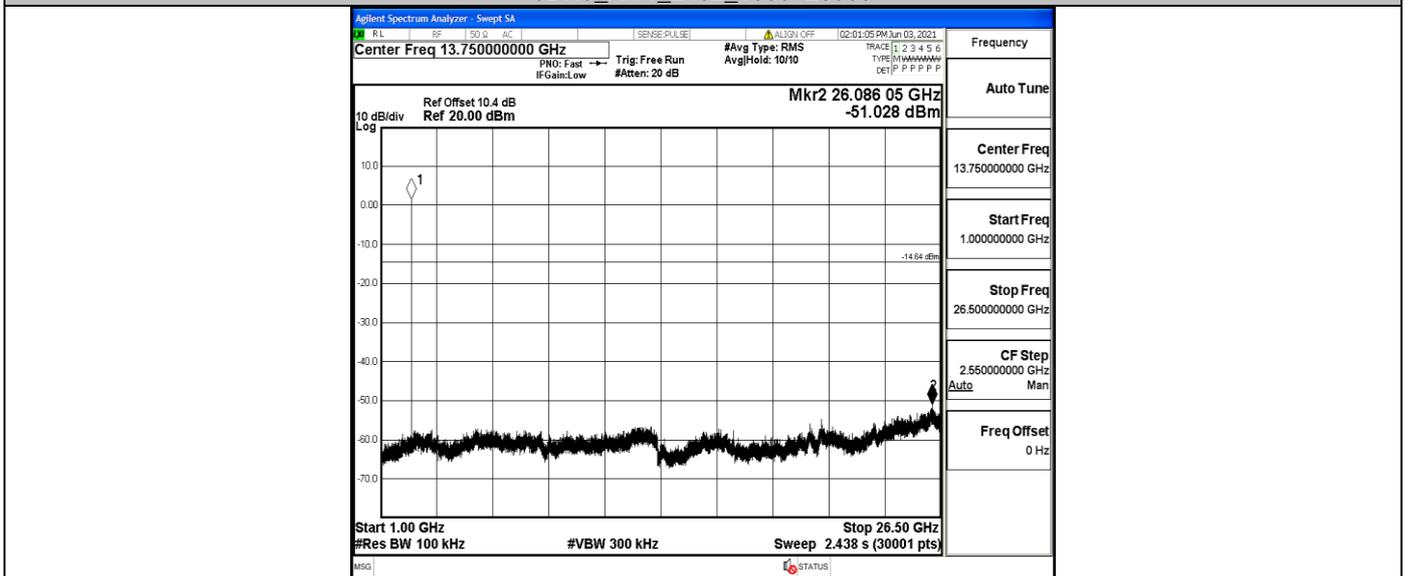
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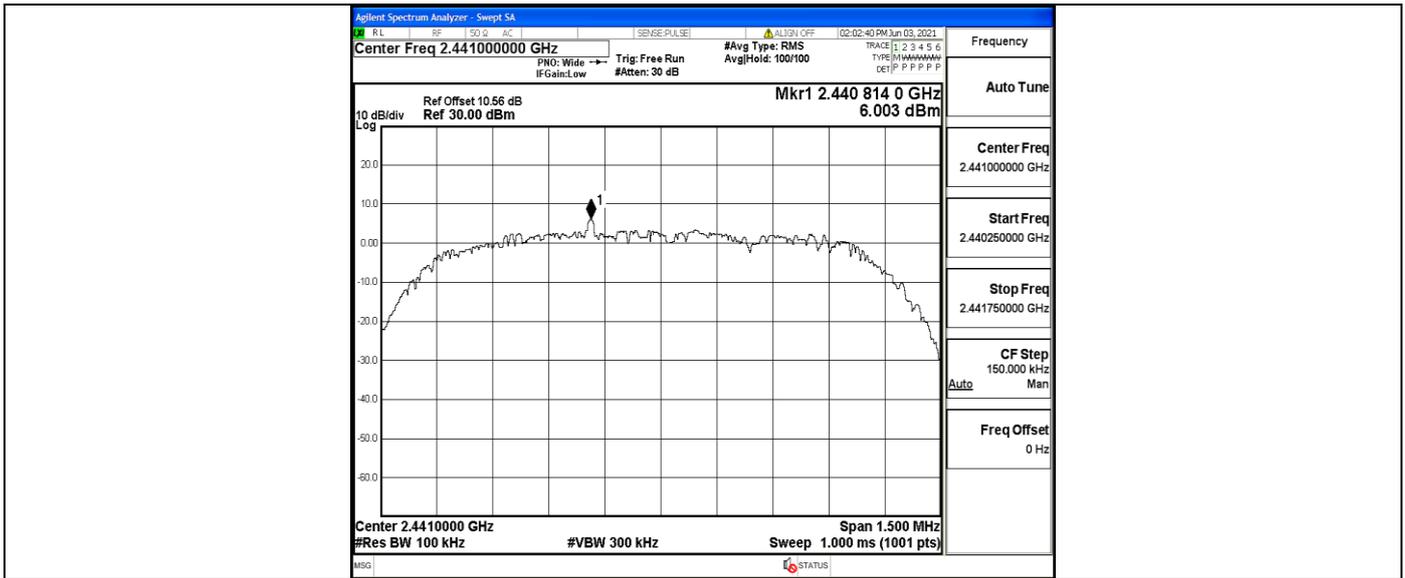
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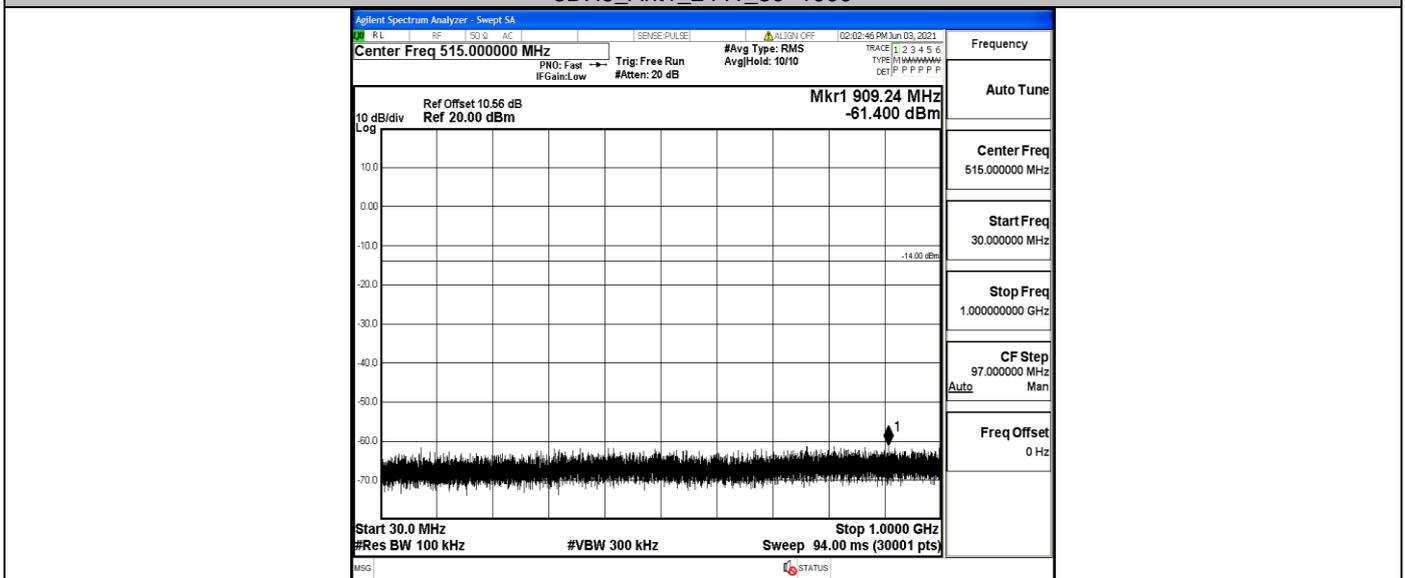
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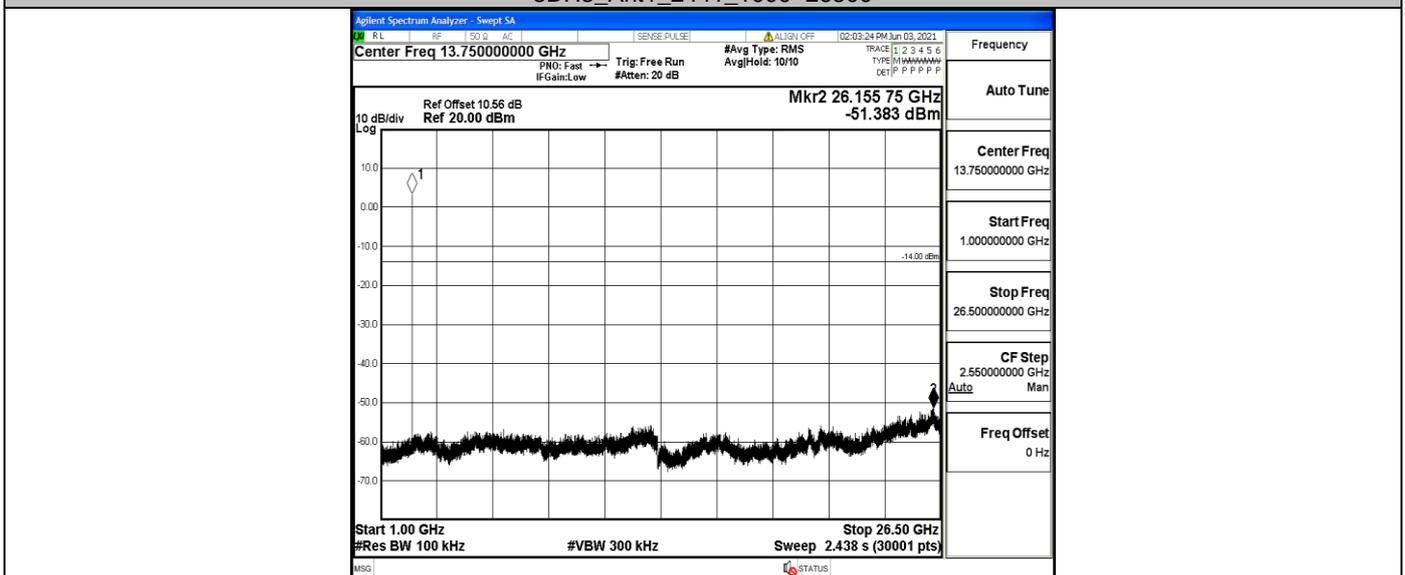
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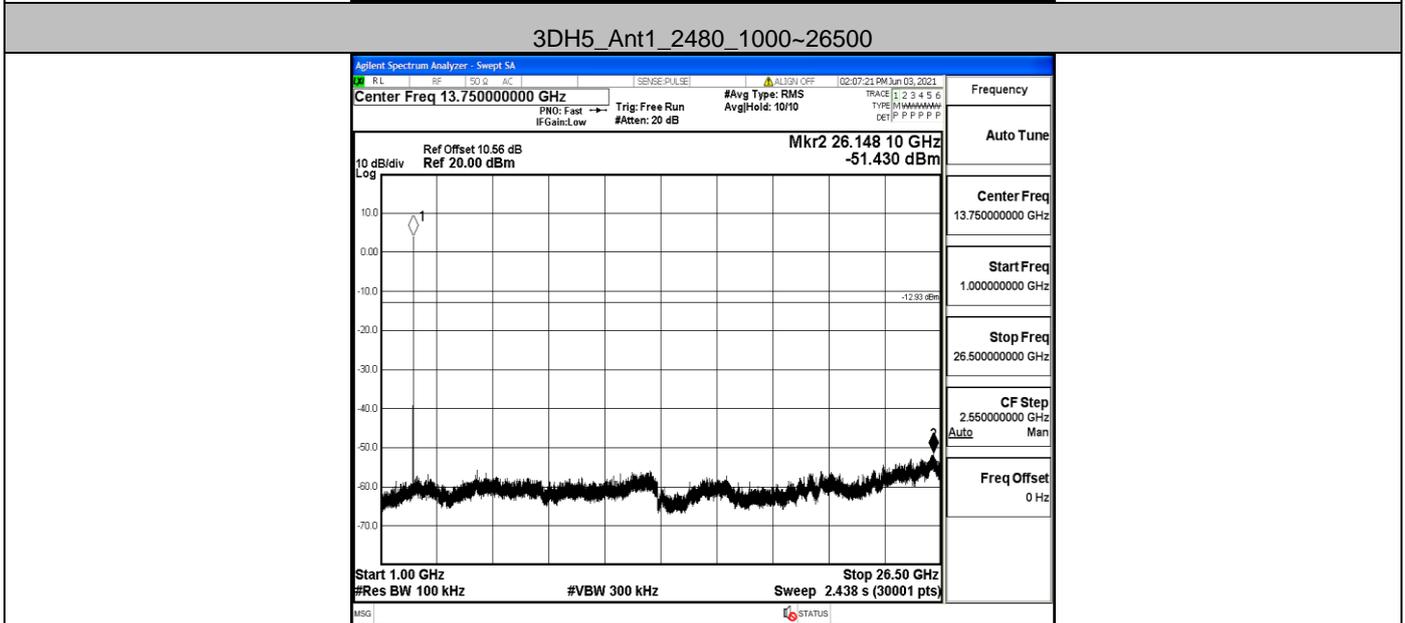
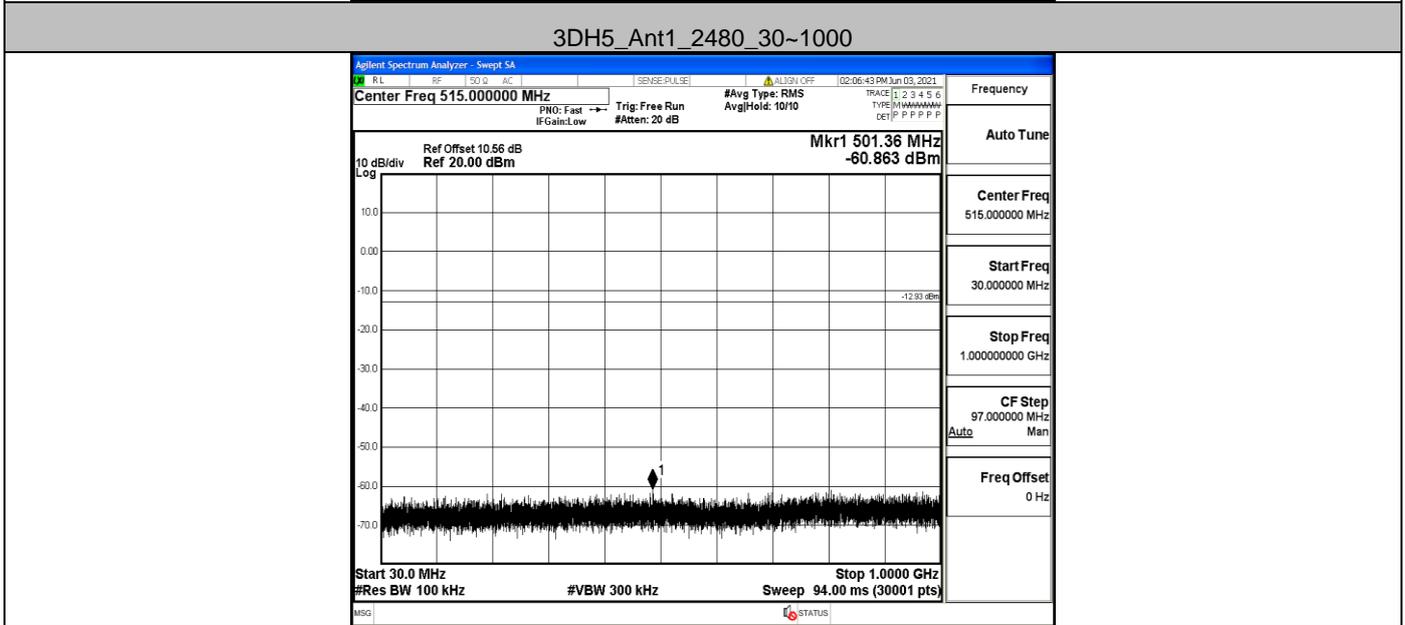
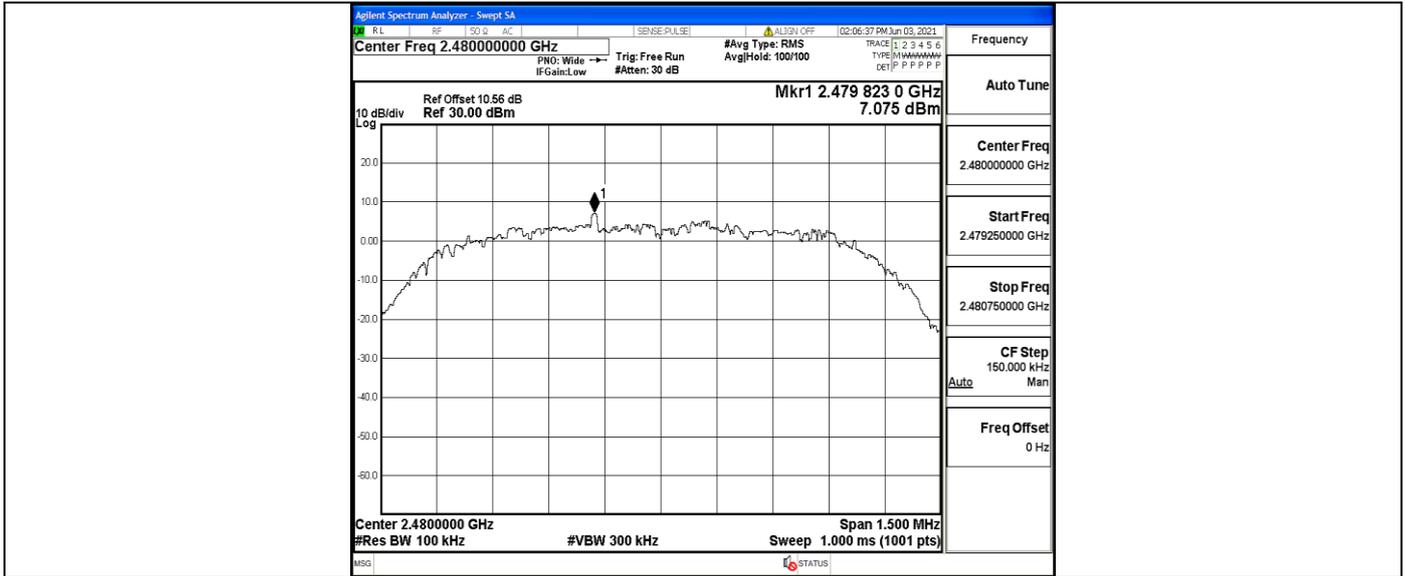
3DH5_Ant1_2441_30~1000



3DH5_Ant1_2441_1000~26500



3DH5_Ant1_2480_0~Reference

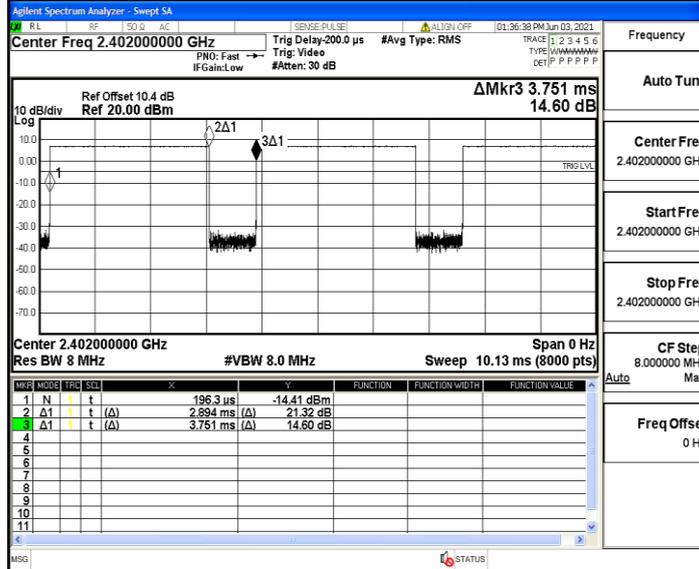


Appendix I: Duty Cycle Test Result

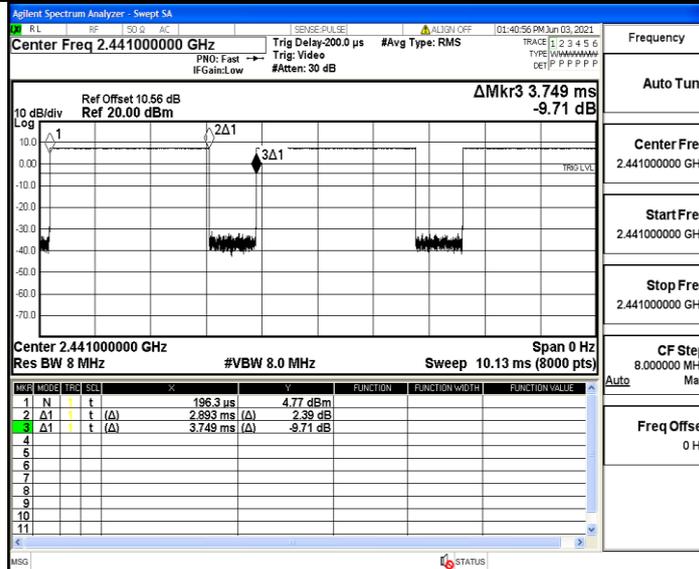
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
DH5	Ant1	2402	2.89	3.75	77.07
		2441	2.89	3.75	77.07
		2480	2.89	3.75	77.07
2DH5	Ant1	2402	2.88	3.75	76.80
		2441	2.88	3.75	76.80
		2480	2.88	3.75	76.80
3DH5	Ant1	2402	2.88	3.75	76.80
		2441	2.88	3.75	76.80
		2480	2.88	3.75	76.80

Test Graphs

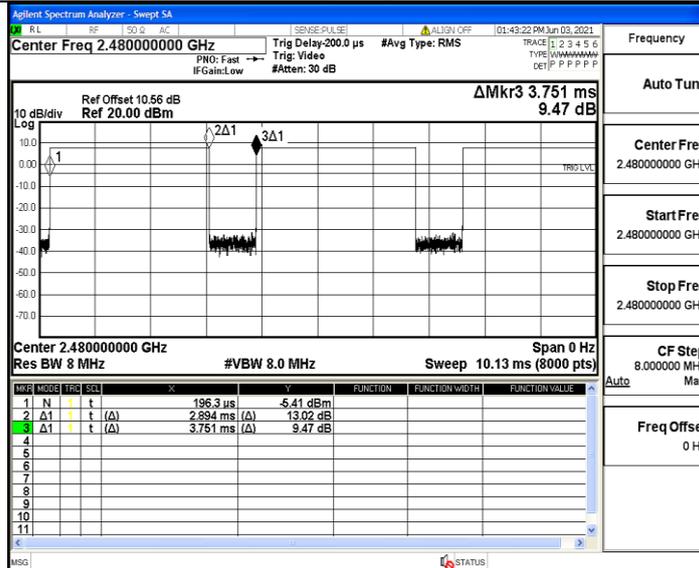
DH5_Ant1_2402



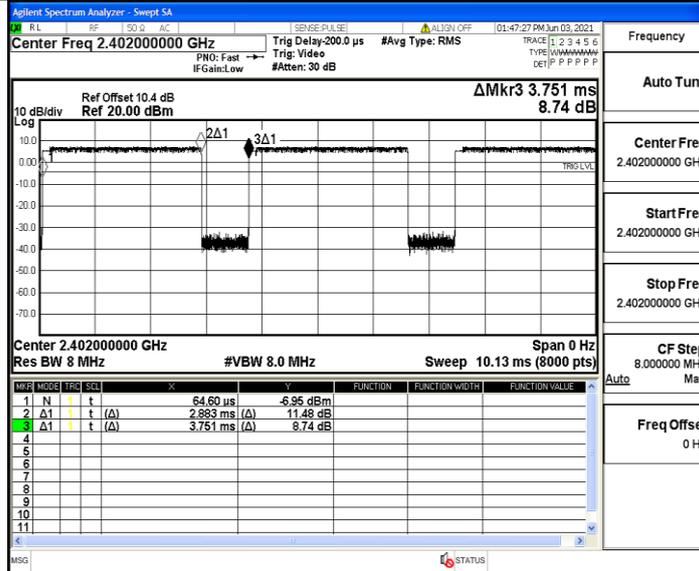
DH5_Ant1_2441



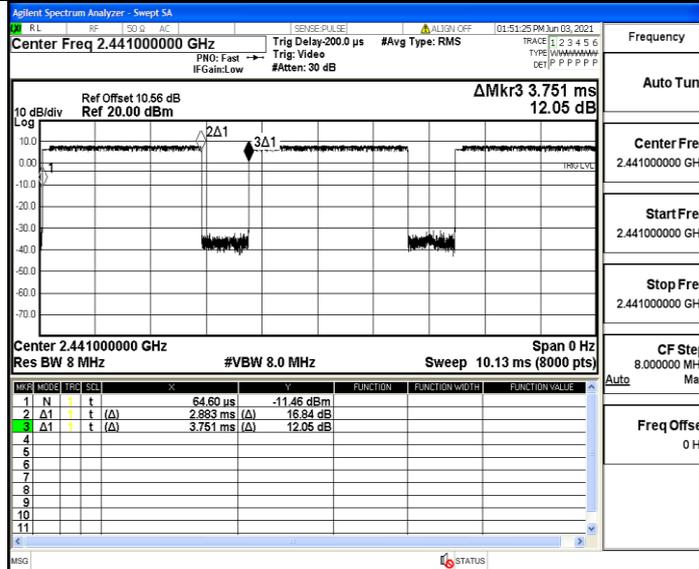
DH5_Ant1_2480



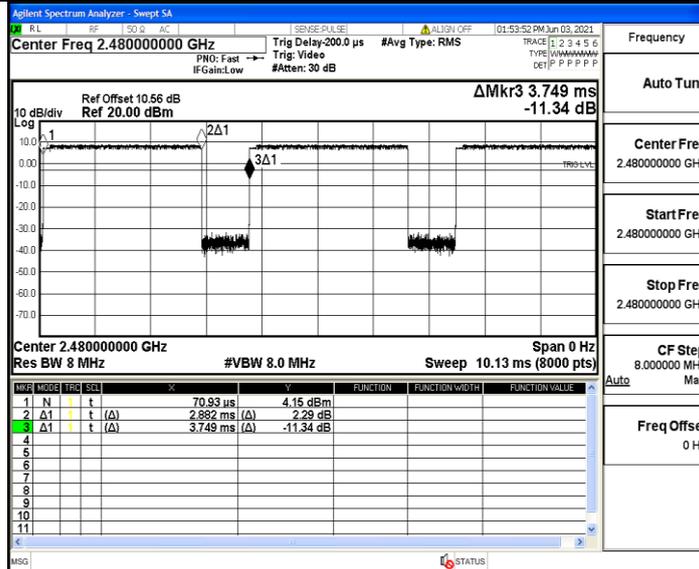
2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



3DH5_Ant1_2402