Appendix A

RF Test Data for BT V5.0(BDR/EDR) (Conducted Measurement)

Product Name: Wireless headset

Trade Mark: WINTORY

Test Model: WINTORY W1

Environmental Conditions

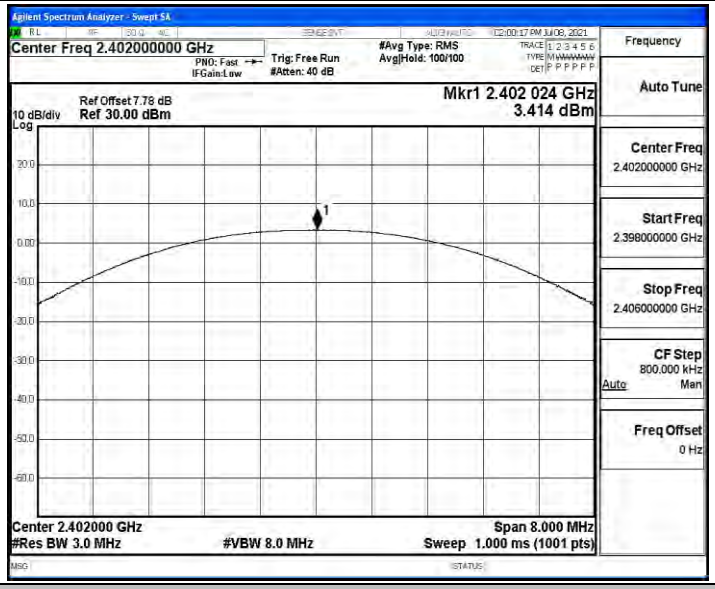
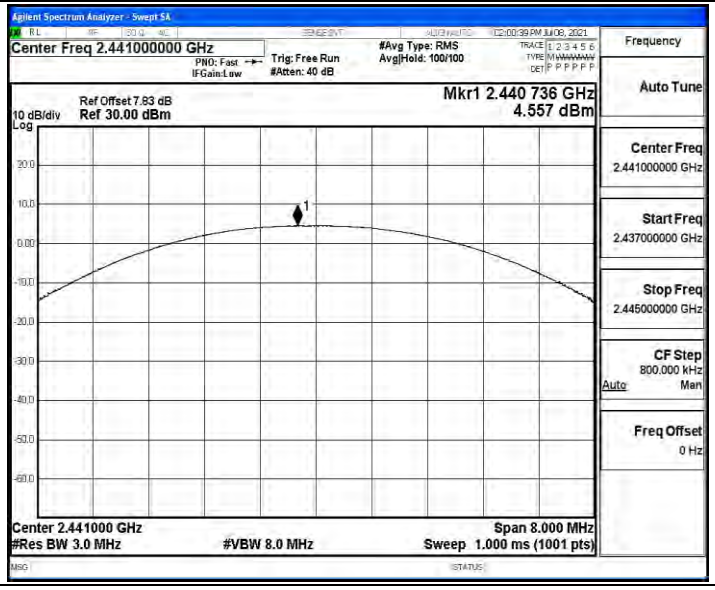
Temperature:	22.5 ° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

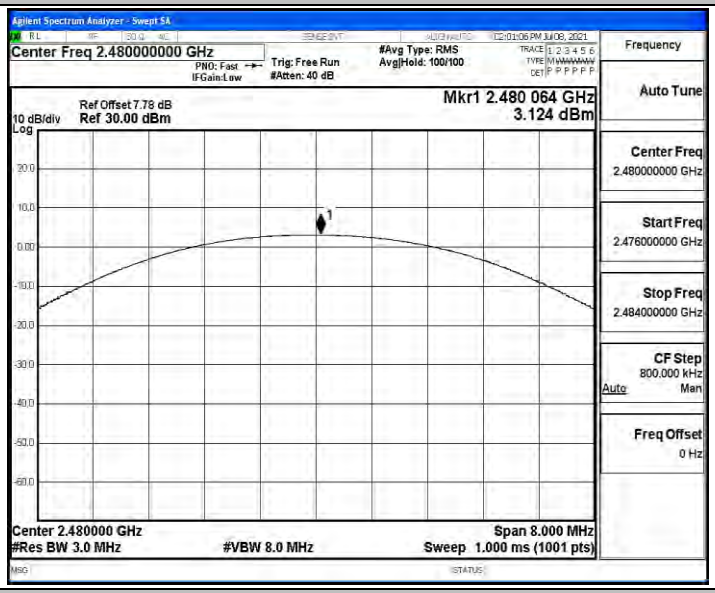
Appendix A.1: Maximum conducted output power

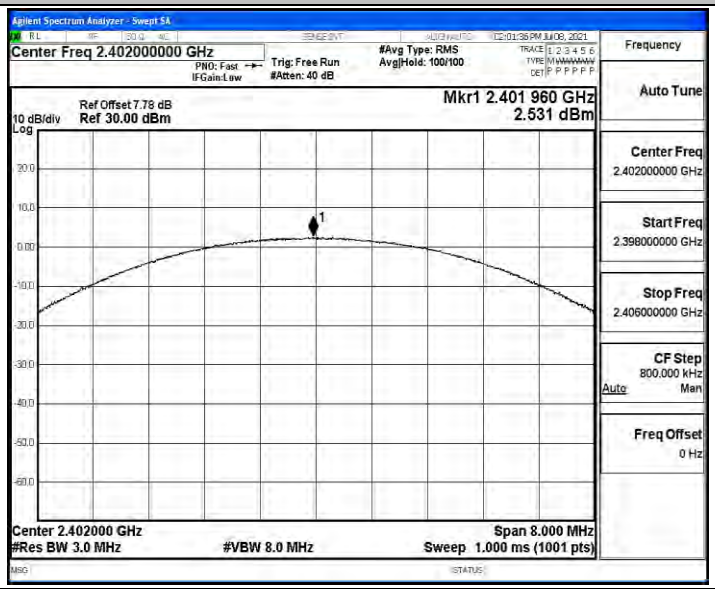
Test Result

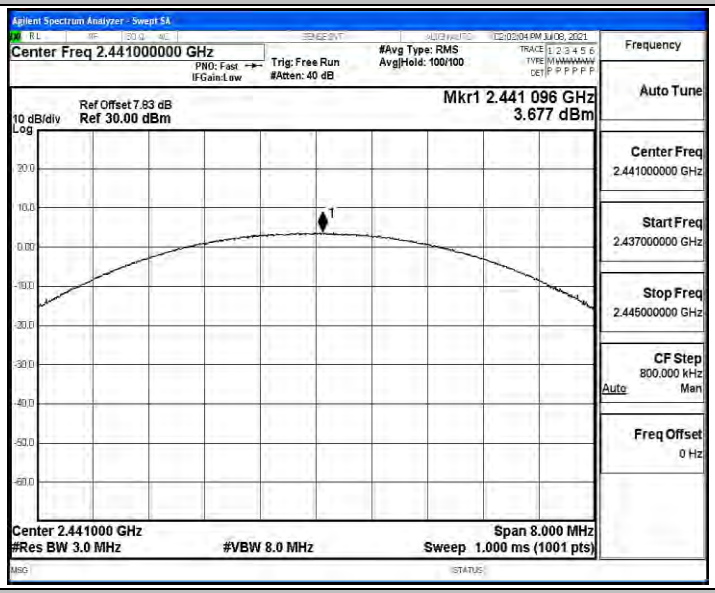
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	3.41	≤20.97	PASS
		2441	4.56	≤20.97	PASS
		2480	3.12	≤20.97	PASS
2DH5	Ant1	2402	2.53	≤20.97	PASS
		2441	3.68	≤20.97	PASS
		2480	2.36	≤20.97	PASS
3DH5	Ant1	2402	2.66	≤20.97	PASS
		2441	3.86	≤20.97	PASS
		2480	2.48	≤20.97	PASS

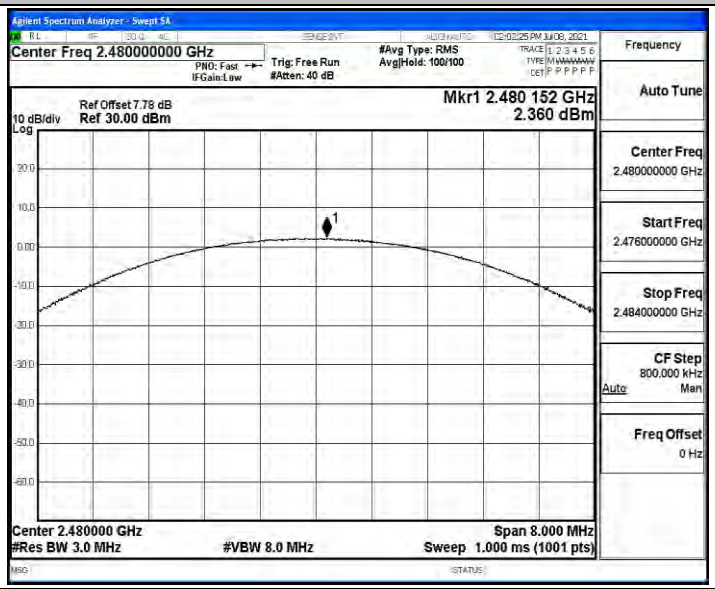
Test Graphs

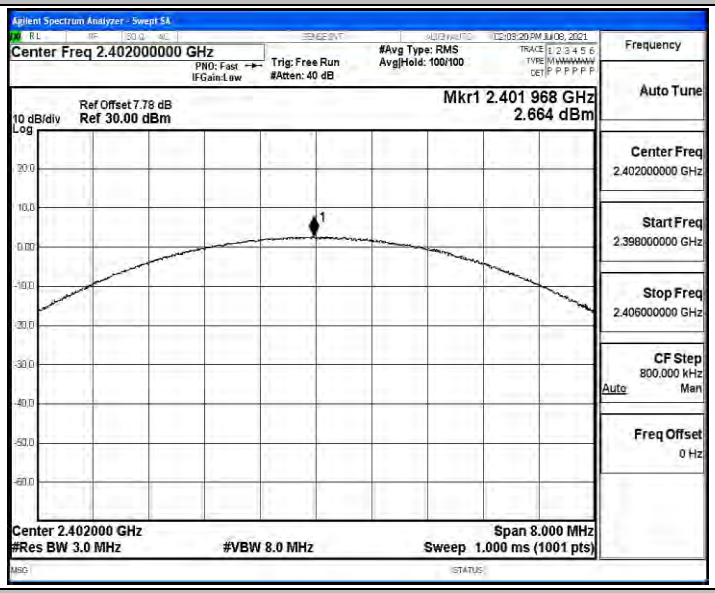
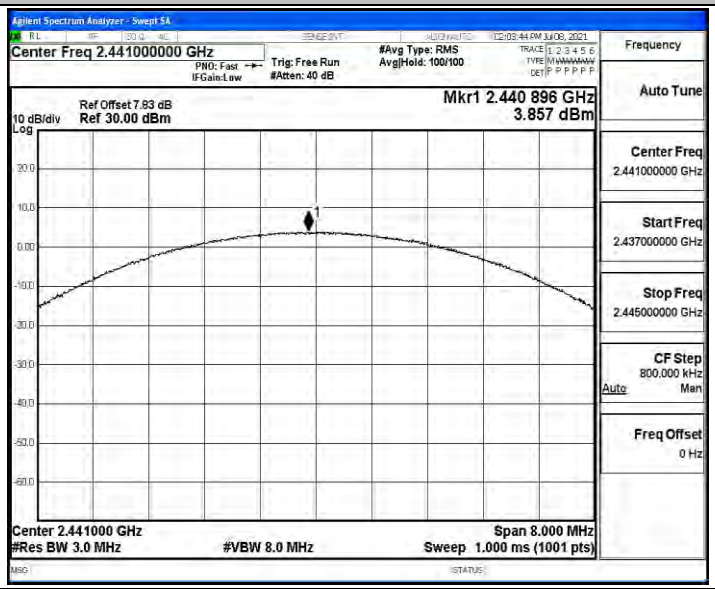
DH5_Ant1_2402

DH5_Ant1_2441


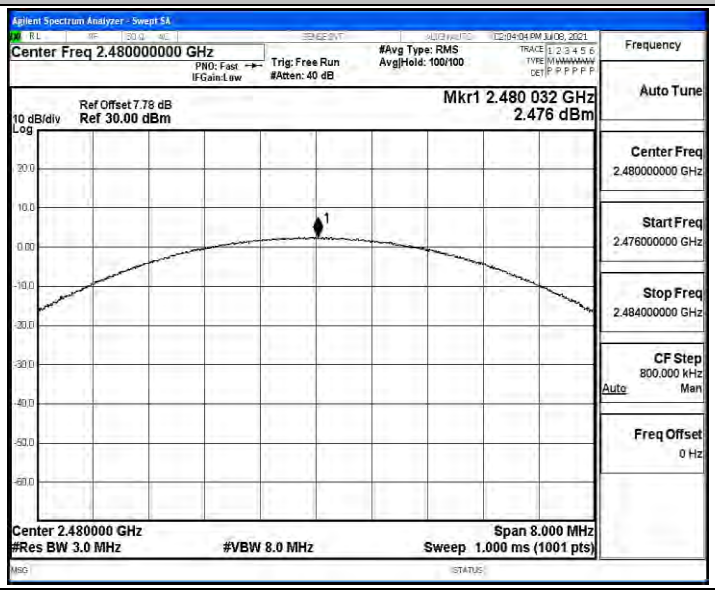
DH5_Ant1_2480


2DH5_Ant1_2402


2DH5_Ant1_2441


2DH5_Ant1_2480


3DH5_Ant1_2402

3DH5_Ant1_2441


3DH5_Ant1_2480


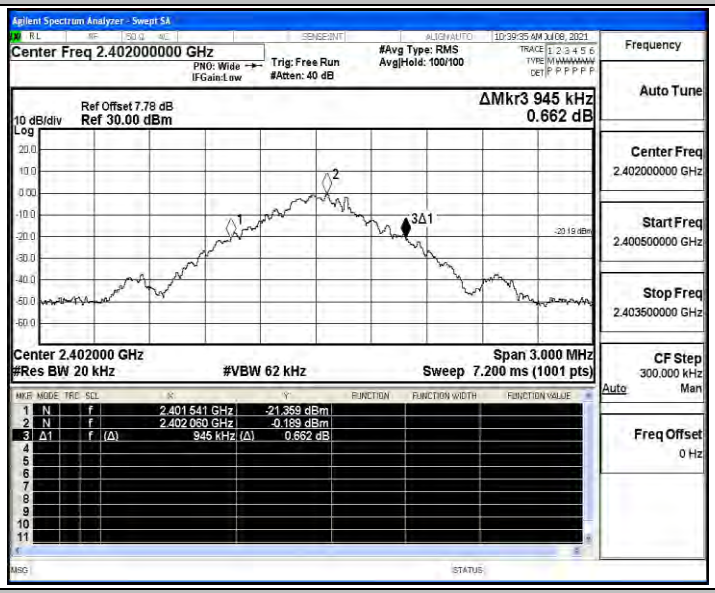
Appendix A.2.1: 20dB Emission Bandwidth

Test Result

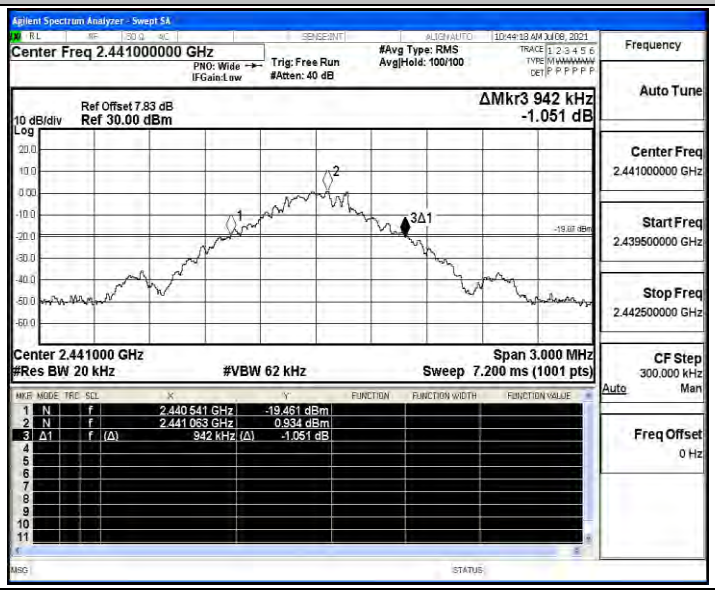
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.945	2401.541	2402.486	---	PASS
		2441	0.942	2440.541	2441.483	---	PASS
		2480	0.942	2479.541	2480.483	---	PASS
2DH5	Ant1	2402	1.317	2401.346	2402.663	---	PASS
		2441	1.263	2440.373	2441.636	---	PASS
		2480	1.317	2479.343	2480.660	---	PASS
3DH5	Ant1	2402	1.278	2401.355	2402.633	---	PASS
		2441	1.272	2440.355	2441.627	---	PASS
		2480	1.281	2479.352	2480.633	---	PASS

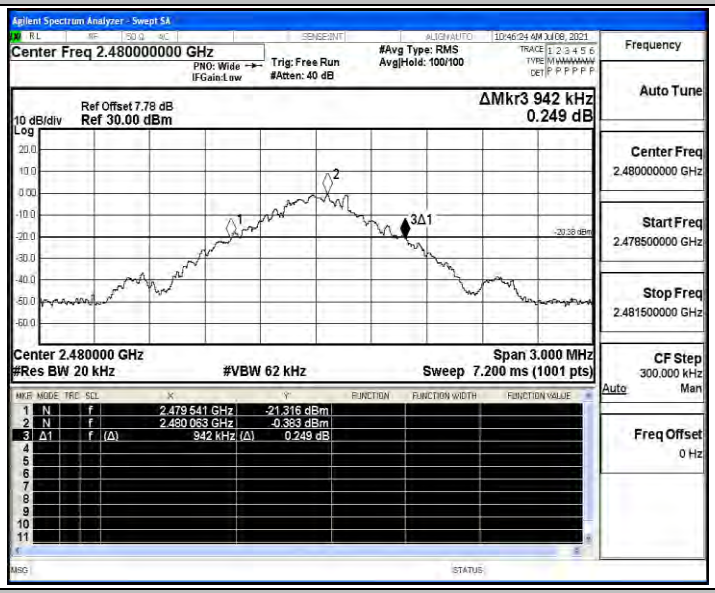
Test Graphs

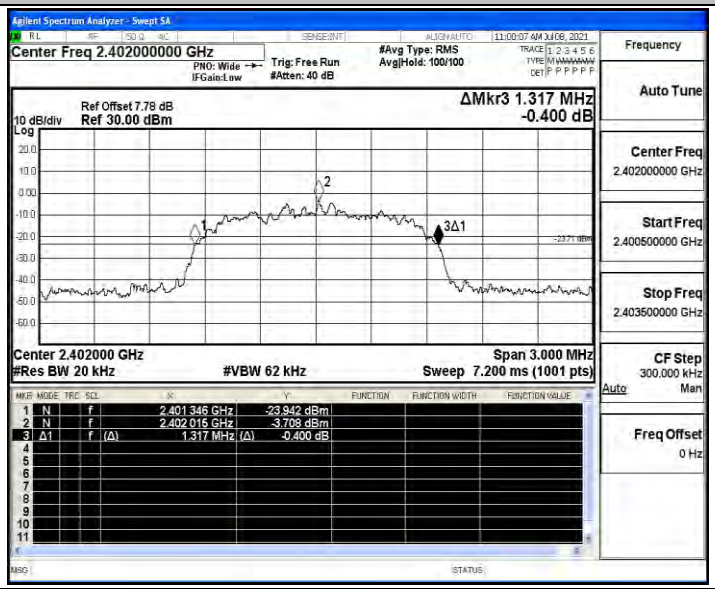
DH5_Ant1_2402

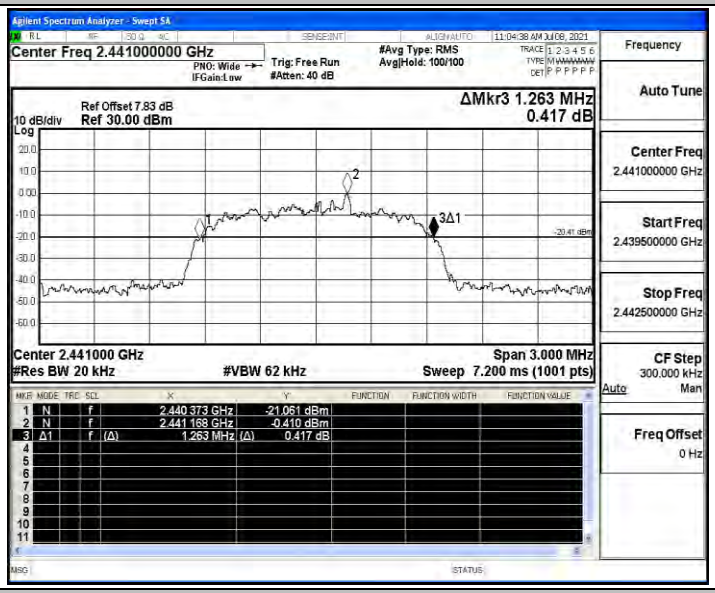
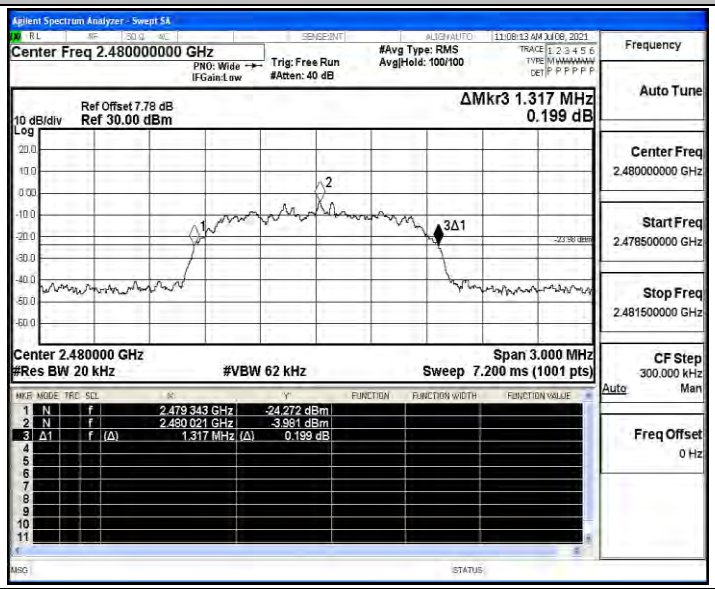


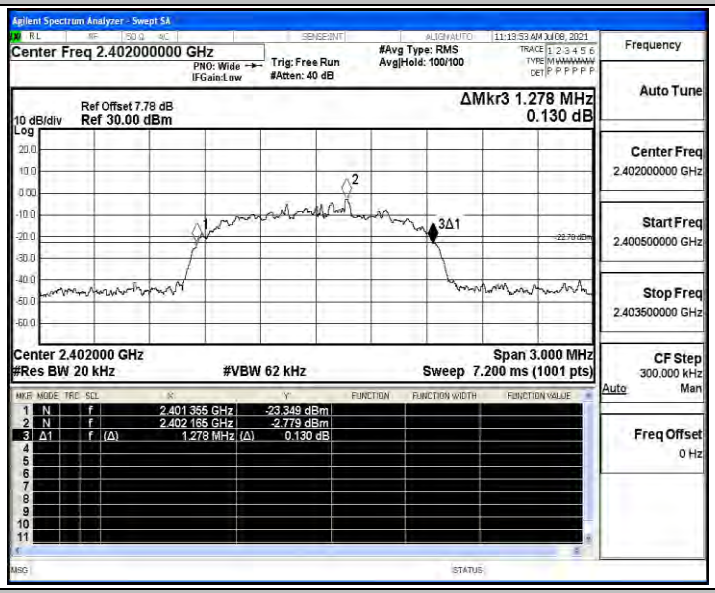
DH5_Ant1_2441

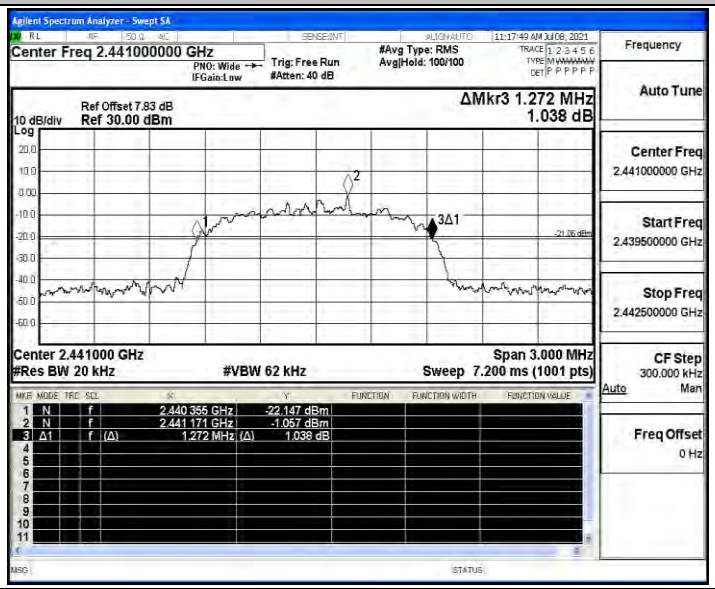


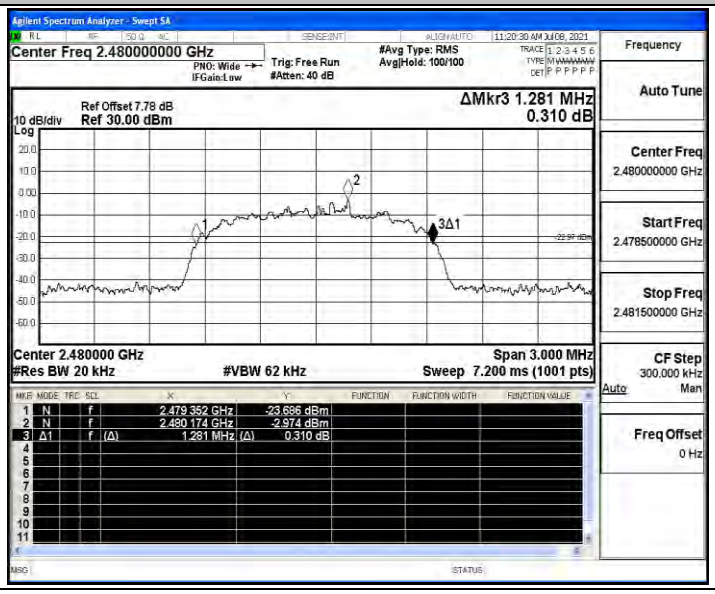
DH5_Ant1_2480


2DH5_Ant1_2402


2DH5_Ant1_2441

2DH5_Ant1_2480


3DH5_Ant1_2402


3DH5_Ant1_2441


3DH5_Ant1_2480


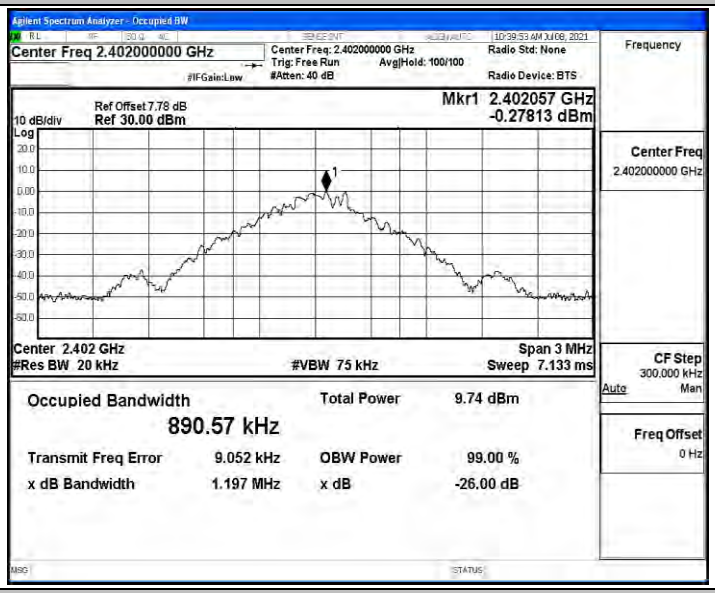
Appendix A.2.2: Occupied Channel Bandwidth

Test Result

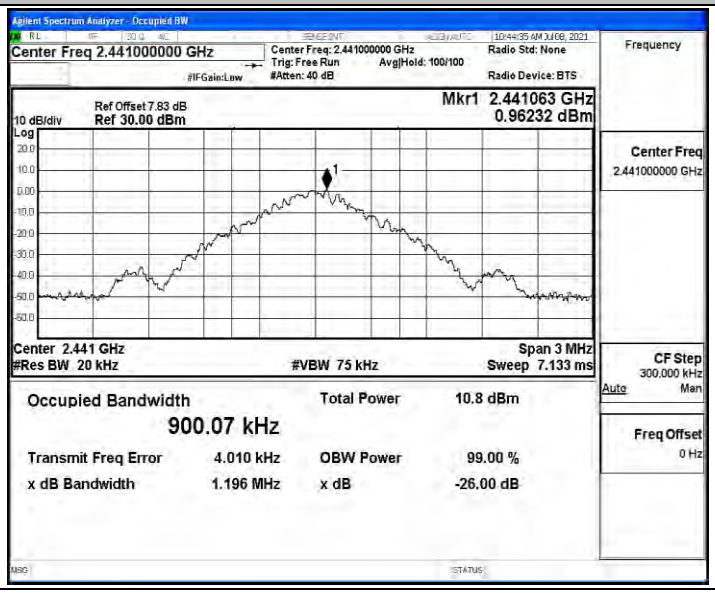
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.89057	2401.564	2402.454	---	PASS
		2441	0.90007	2440.554	2441.454	---	PASS
		2480	0.90446	2479.550	2480.455	---	PASS
2DH5	Ant1	2402	1.1844	2401.413	2402.597	---	PASS
		2441	1.1866	2440.410	2441.596	---	PASS
		2480	1.1832	2479.411	2480.594	---	PASS
3DH5	Ant1	2402	1.1989	2401.397	2402.596	---	PASS
		2441	1.1952	2440.399	2441.595	---	PASS
		2480	1.1938	2479.400	2480.594	---	PASS

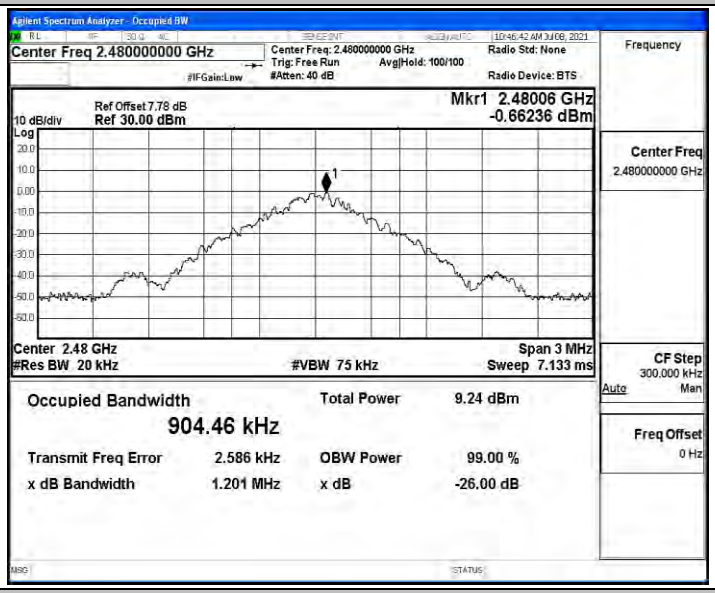
Test Graphs

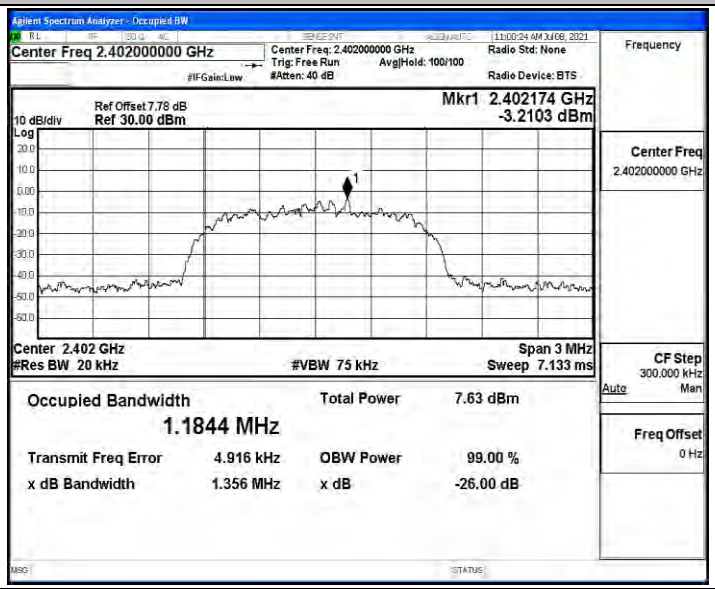
DH5_Ant1_2402

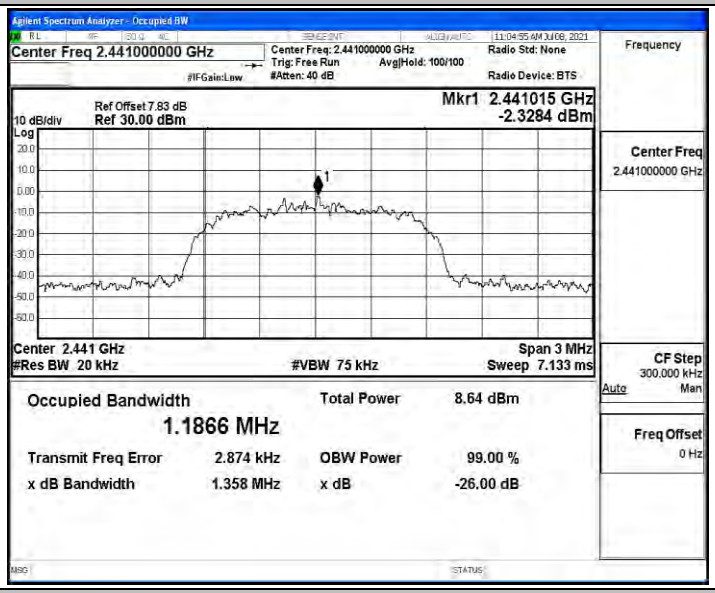
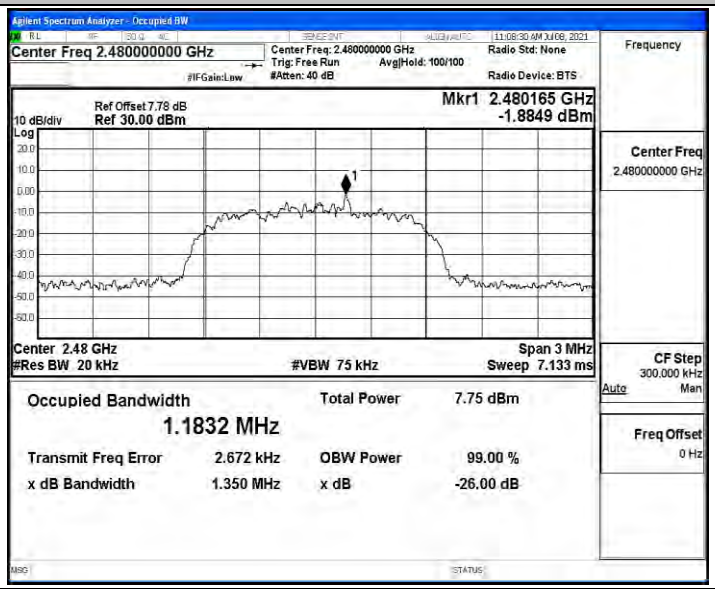


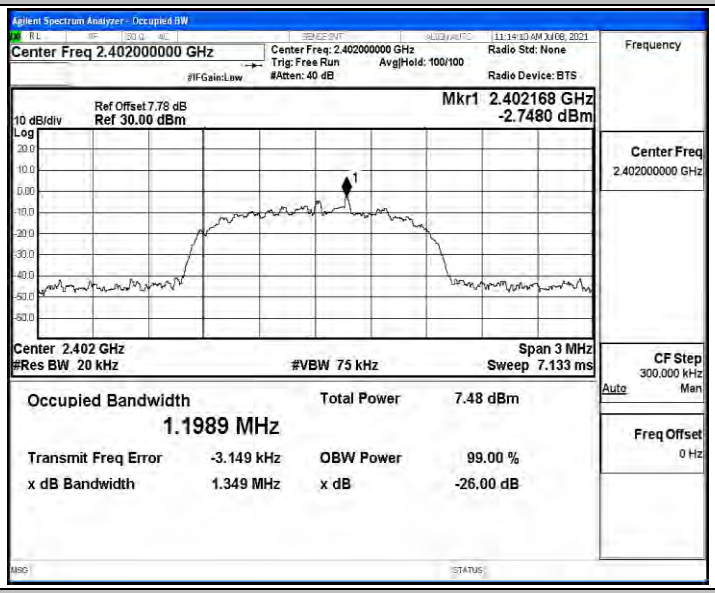
DH5_Ant1_2441

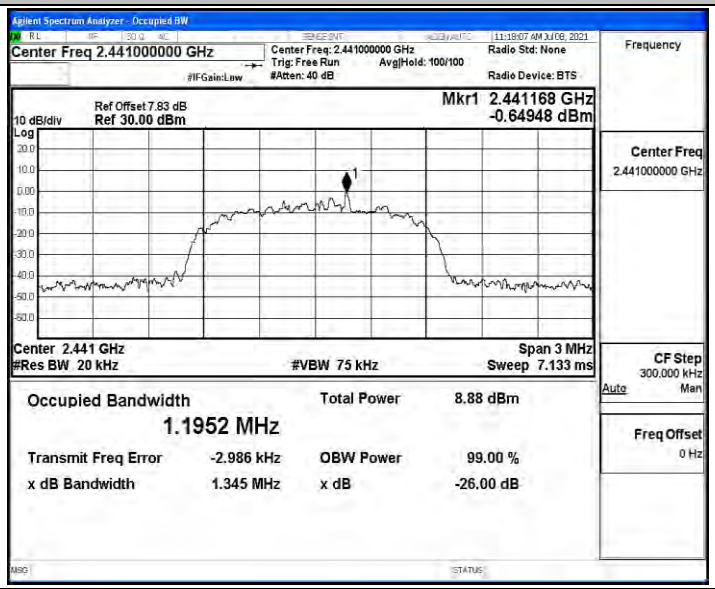


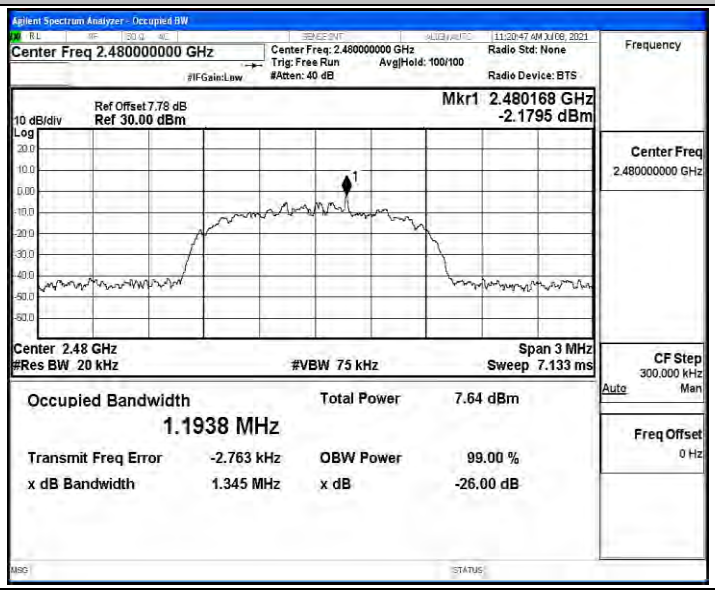
DH5_Ant1_2480


2DH5_Ant1_2402


2DH5_Ant1_2441

2DH5_Ant1_2480


3DH5_Ant1_2402


3DH5_Ant1_2441


3DH5_Ant1_2480


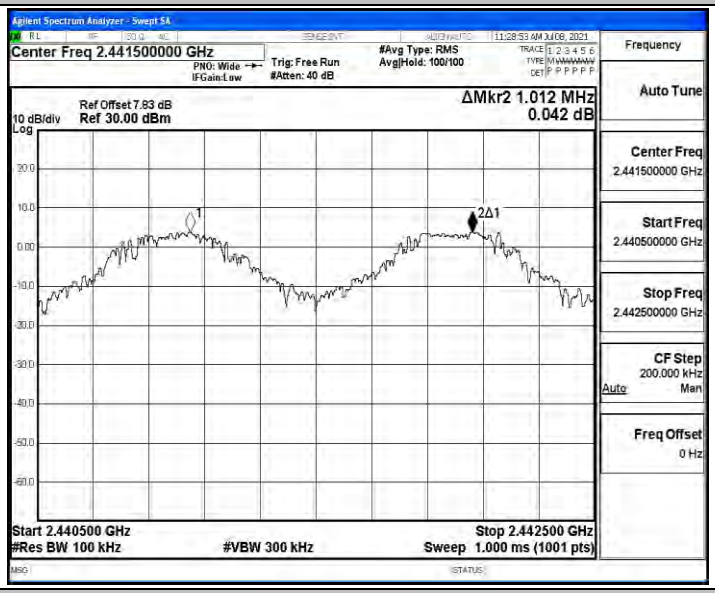
Appendix A.3: Carrier frequency separation

Test Result

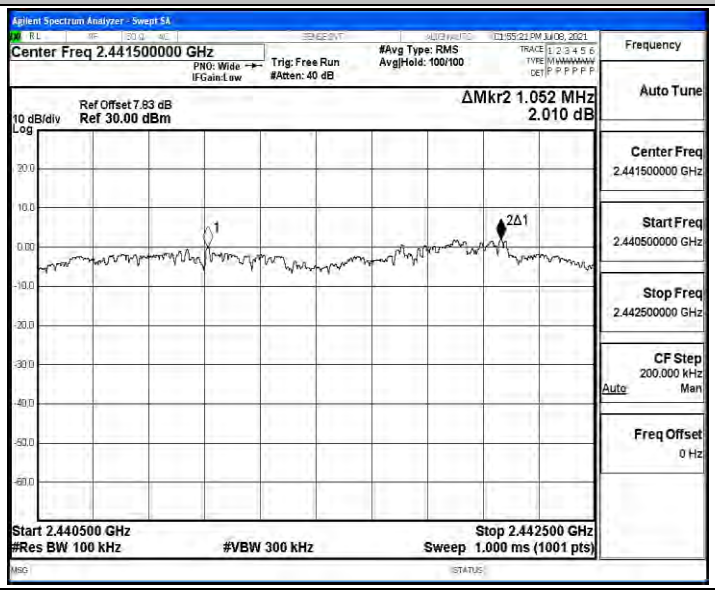
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	Hop	1.012	≥0.945	PASS
2DH5	Ant1	Hop	1.052	≥0.878	PASS
3DH5	Ant1	Hop	1.018	≥0.854	PASS

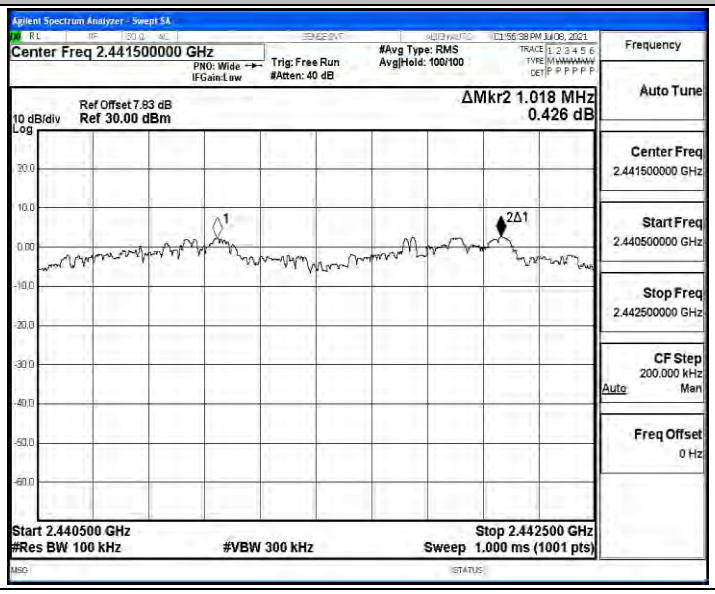
Test Graphs

DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop


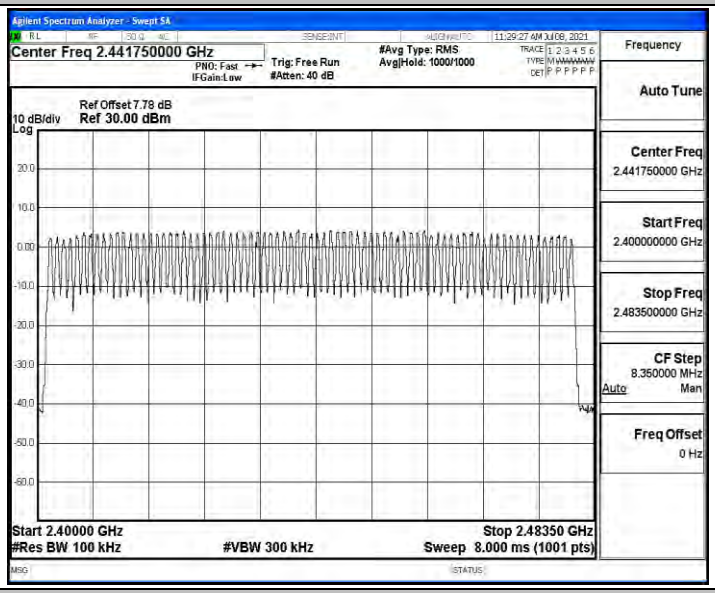
Appendix A.4: Number of hopping channels

Test Result

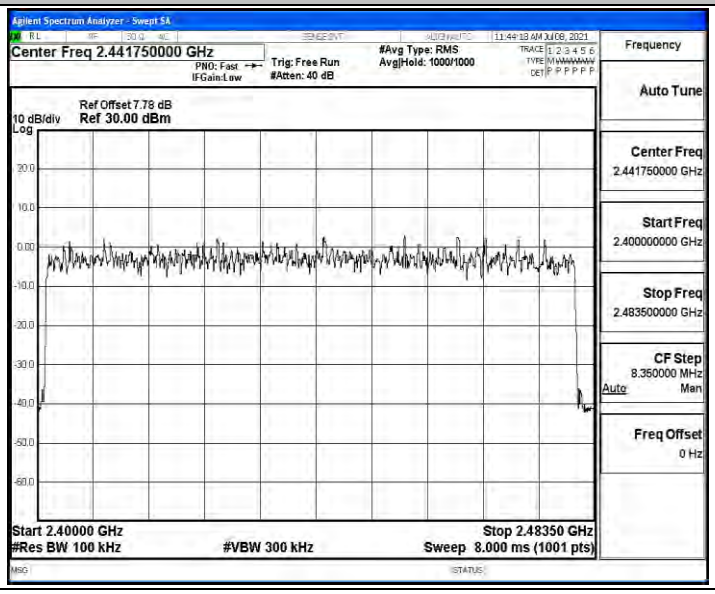
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

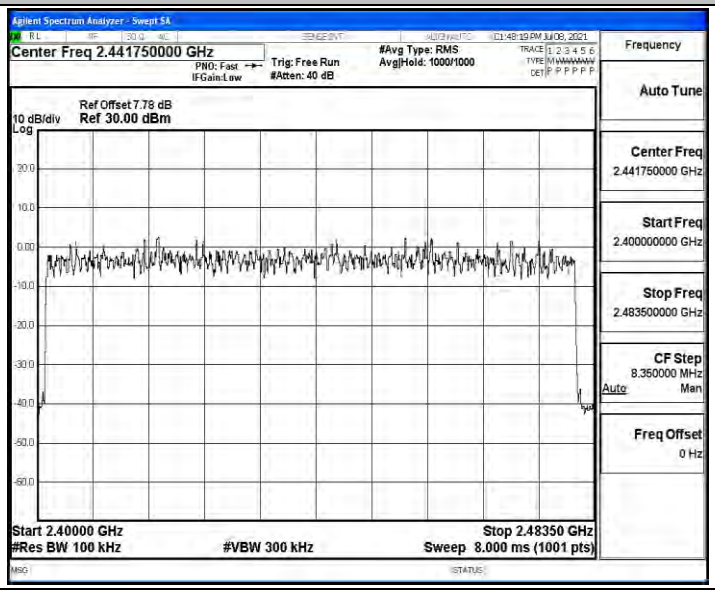
Test Graphs

DH5_Ant1_Hop



2DH5_Ant1_Hop



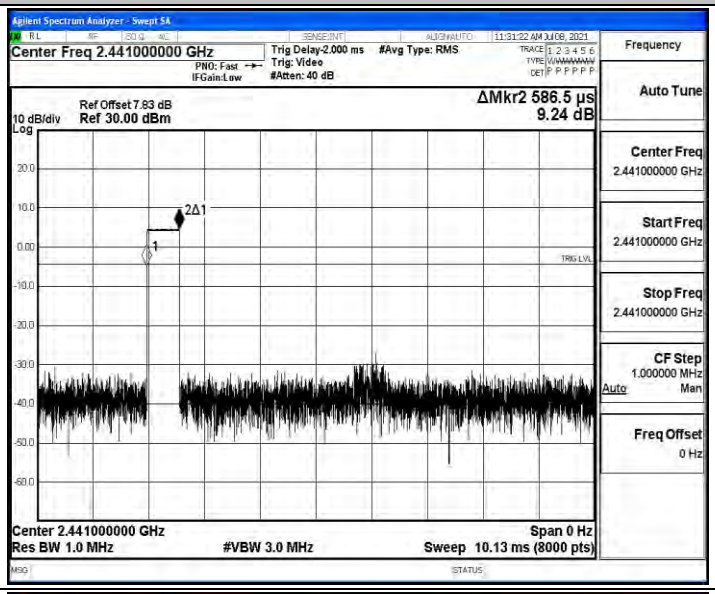
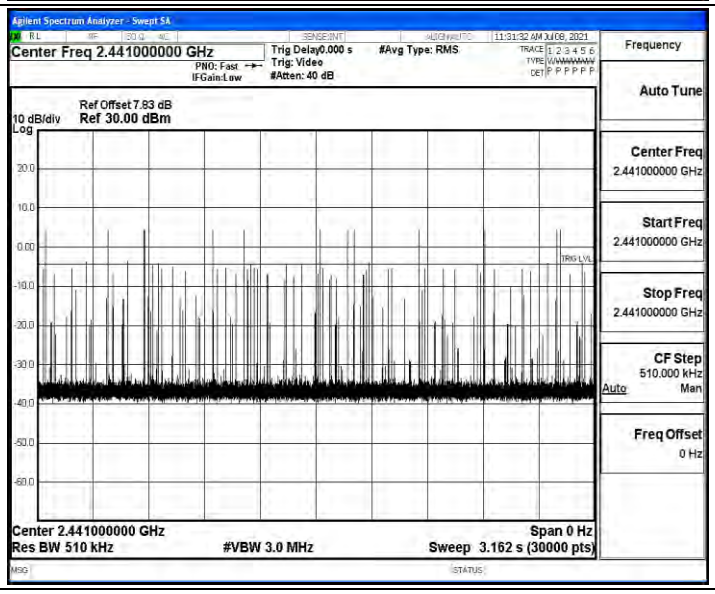
3DH5_Ant1_Hop


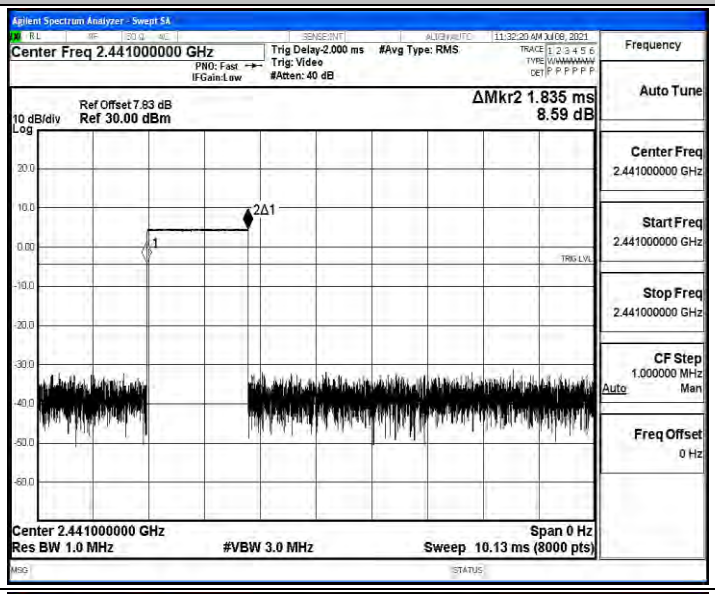
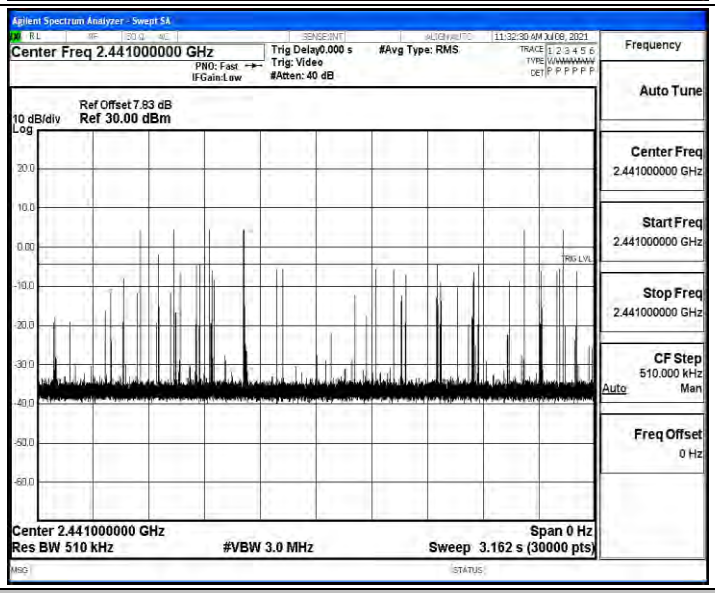
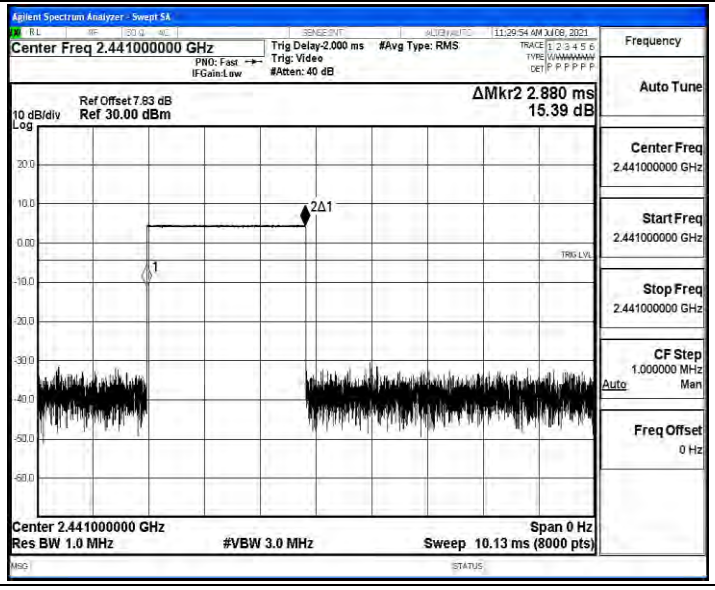
Appendix A.5.1: Time of occupancy

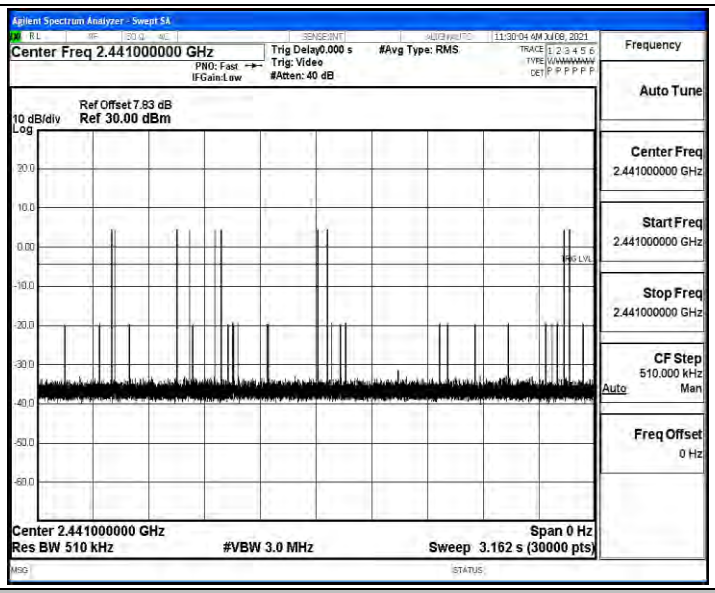
Test Result

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.59	130	0.076	≤0.4	PASS
DH3	Ant1	Hop	1.84	70	0.128	≤0.4	PASS
DH5	Ant1	Hop	2.88	110	0.317	≤0.4	PASS
2DH1	Ant1	Hop	0.59	50	0.029	≤0.4	PASS
2DH3	Ant1	Hop	1.84	70	0.128	≤0.4	PASS
2DH5	Ant1	Hop	2.88	100	0.288	≤0.4	PASS
3DH1	Ant1	Hop	0.59	90	0.053	≤0.4	PASS
3DH3	Ant1	Hop	1.84	70	0.128	≤0.4	PASS
3DH5	Ant1	Hop	2.88	70	0.202	≤0.4	PASS

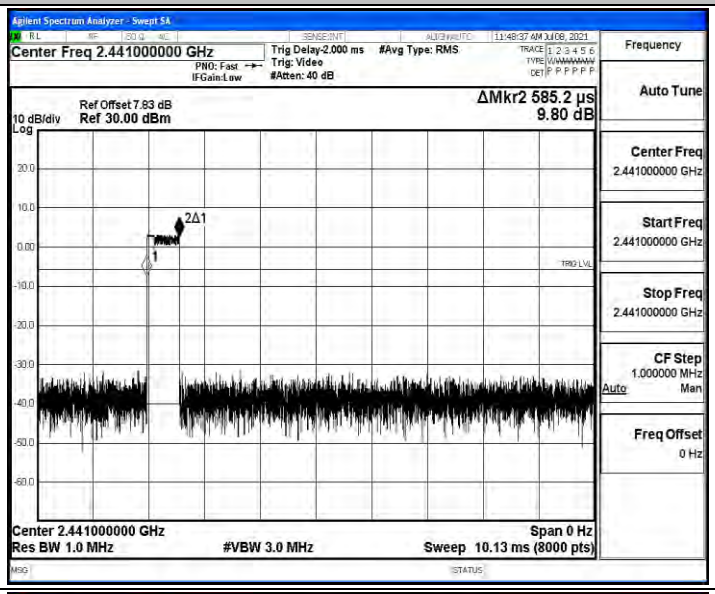
Test Graphs

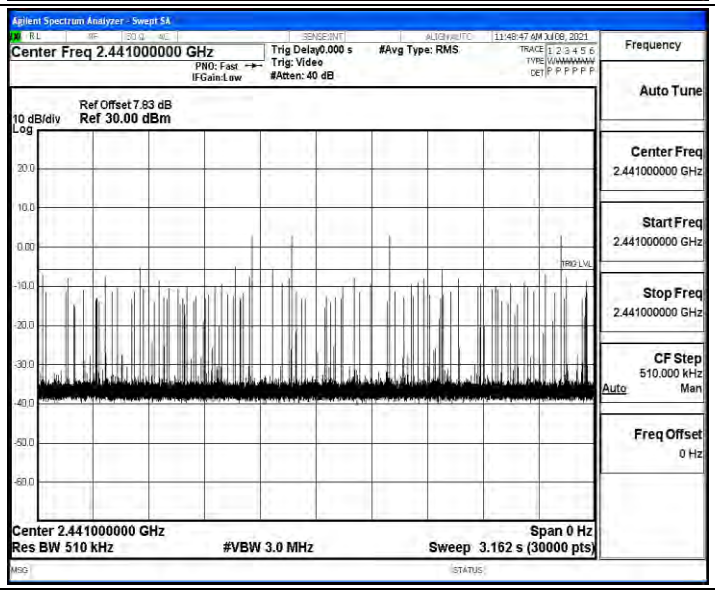
DH1_Ant1_Hop



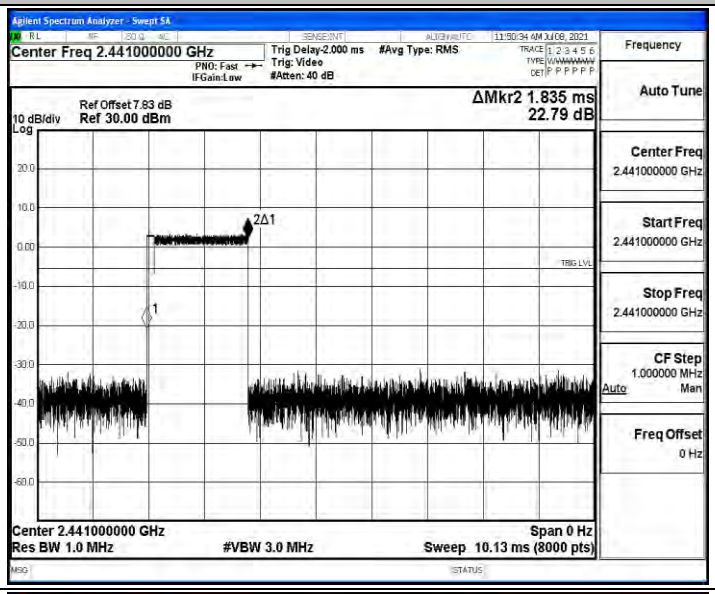
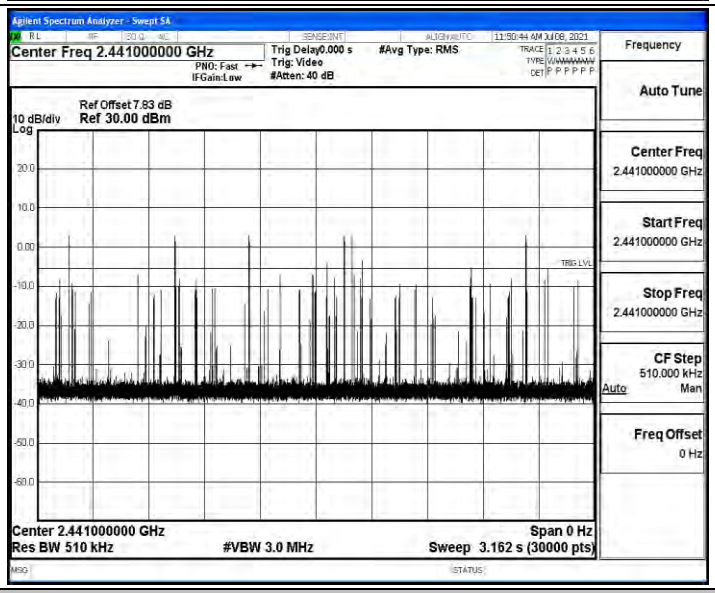
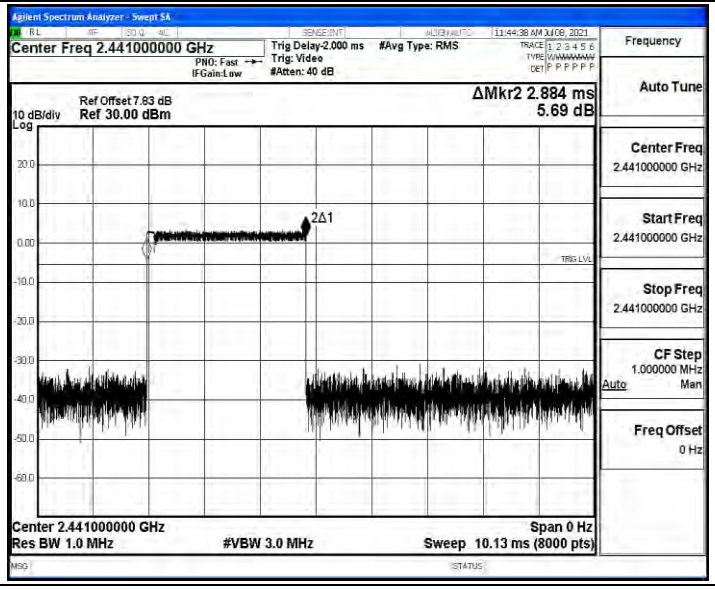
DH3_Ant1_Hop


DH5_Ant1_Hop


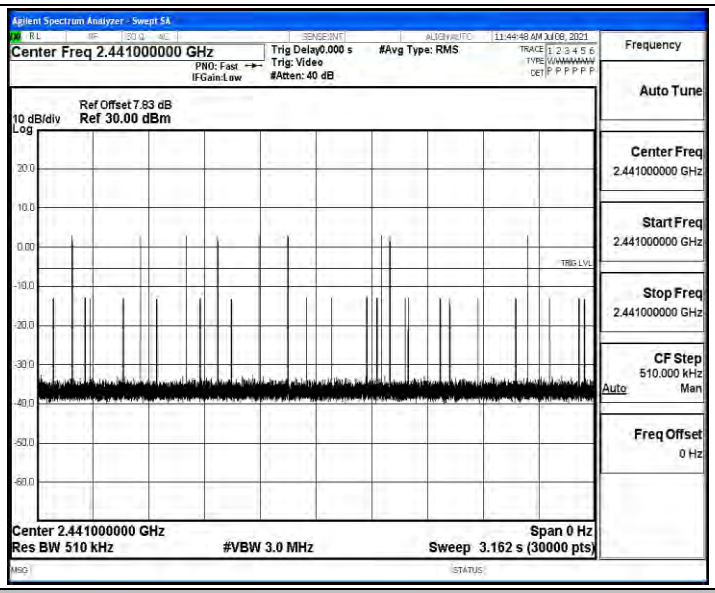


2DH1_Ant1_Hop

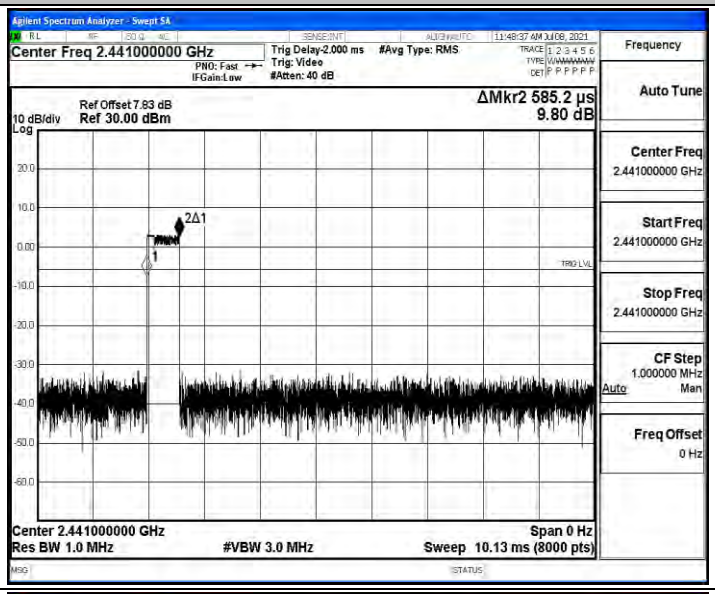


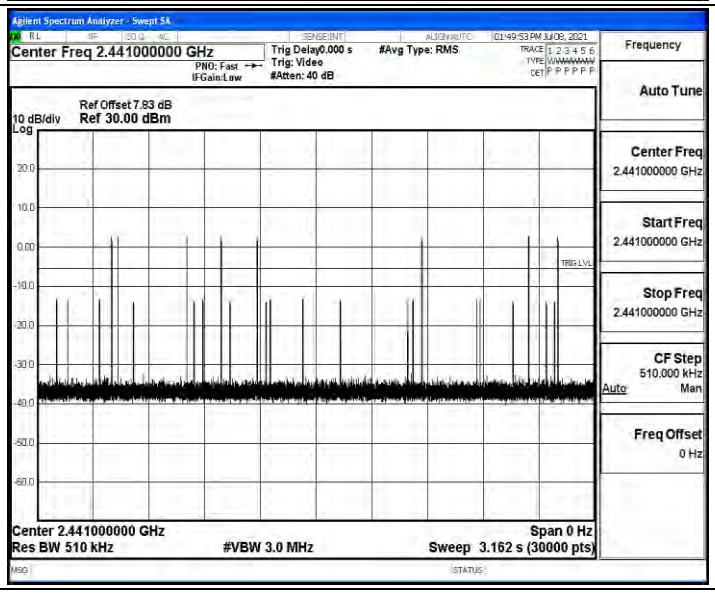


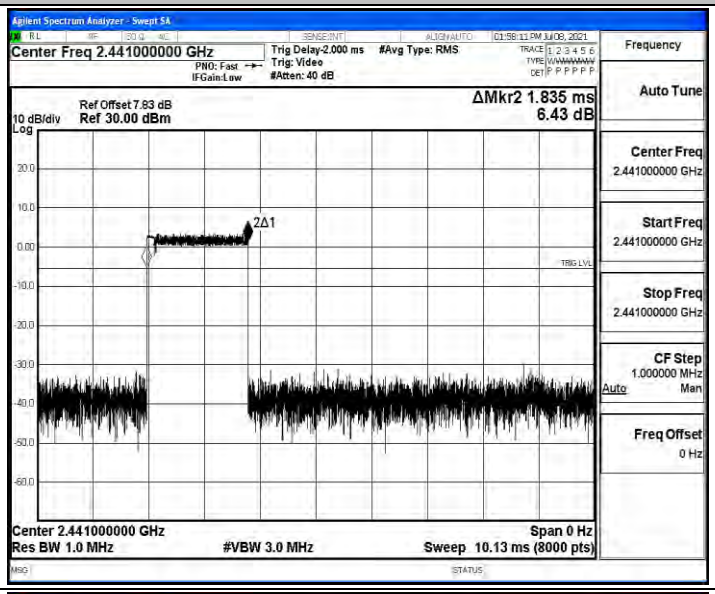
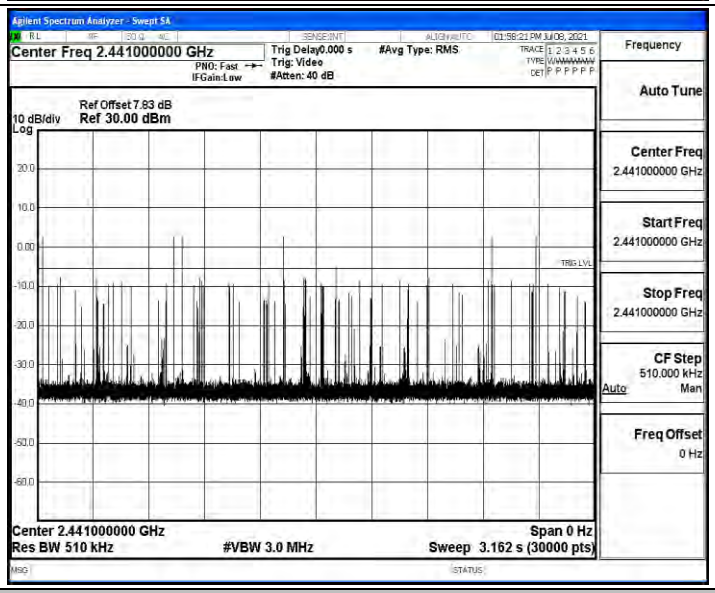
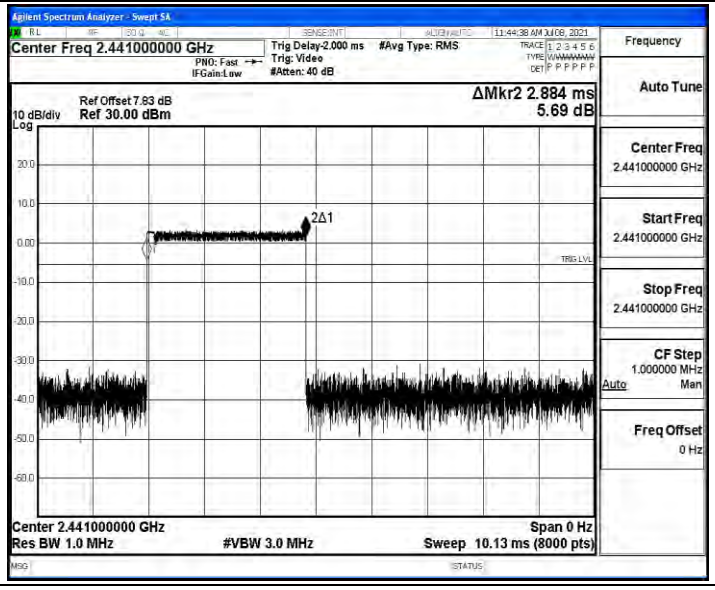
2DH3_Ant1_Hop


2DH5_Ant1_Hop


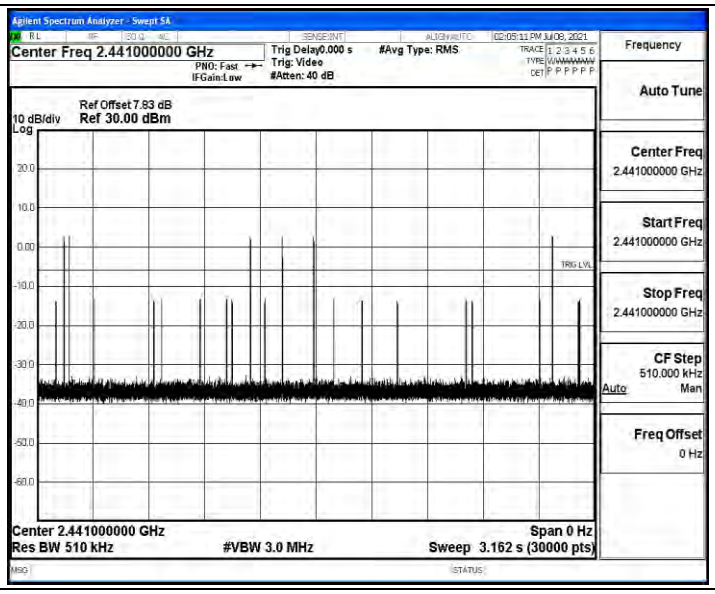


3DH1_Ant1_Hop





3DH3_Ant1_Hop


3DH5_Ant1_Hop



Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig Delay 0.000 s
Trig: Video
#Avg Type: RMS
#Atten: 40 dB
02:05:11 PM Jul 08, 2021
Ref Offset 7.83 dB
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
TRIG LVL
Center 2.441000000 GHz
Res BW 510 kHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 3.162 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
510.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

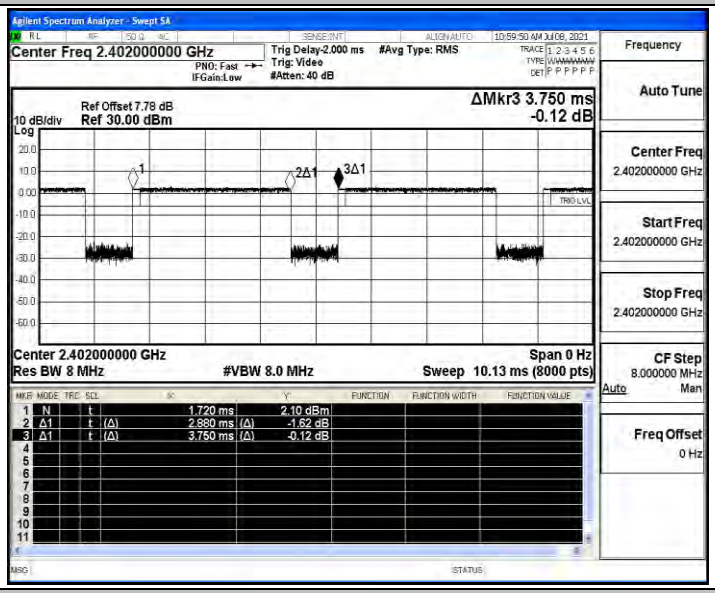
Appendix A.5.2: Duty Cycle

Test Result

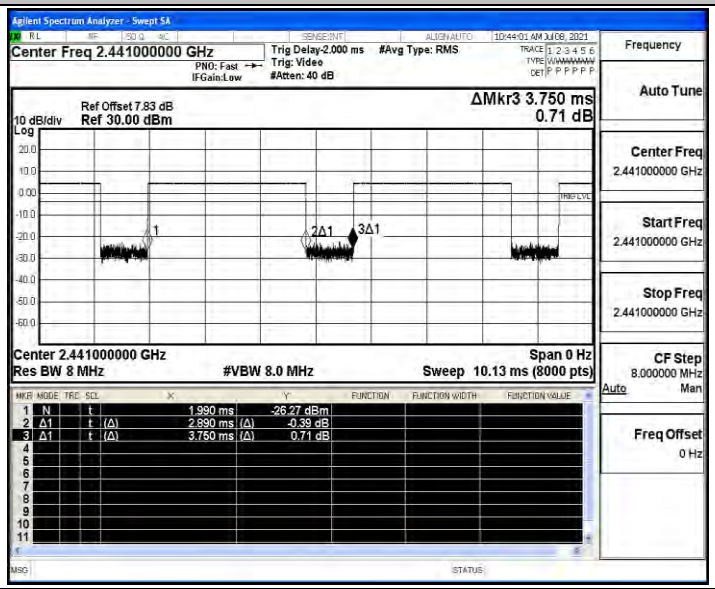
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
DH5	Ant1	2402	2.88	3.75	0.7680	76.80	1.13	---	PASS
		2441	2.89	3.75	0.7707	77.07	1.13	---	PASS
		2480	2.88	3.74	0.7701	77.01	1.13	---	PASS
2DH5	Ant1	2402	2.88	3.75	0.7680	76.80	1.15	---	PASS
		2441	2.89	3.75	0.7707	77.07	1.13	---	PASS
		2480	2.88	3.74	0.7701	77.01	1.13	---	PASS
3DH5	Ant1	2402	2.89	3.75	0.7707	77.07	1.13	---	PASS
		2441	2.89	3.75	0.7707	77.07	1.13	---	PASS
		2480	2.88	3.74	0.7701	77.01	1.13	---	PASS

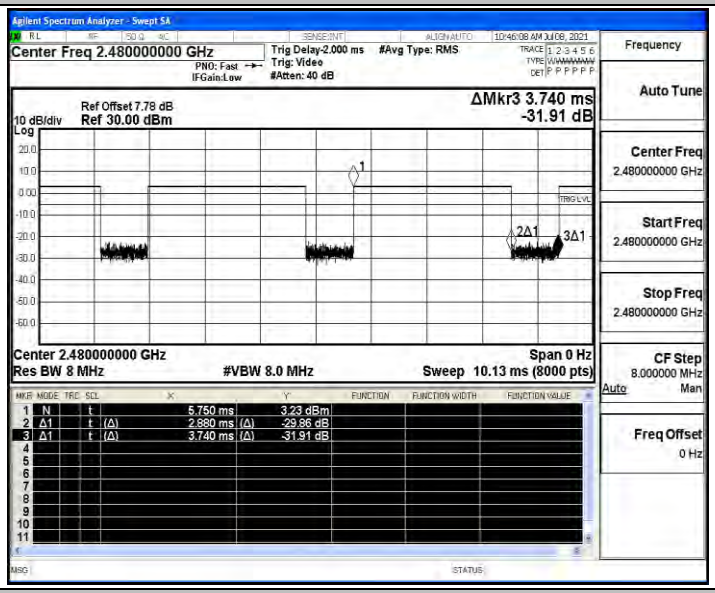
Test Graphs

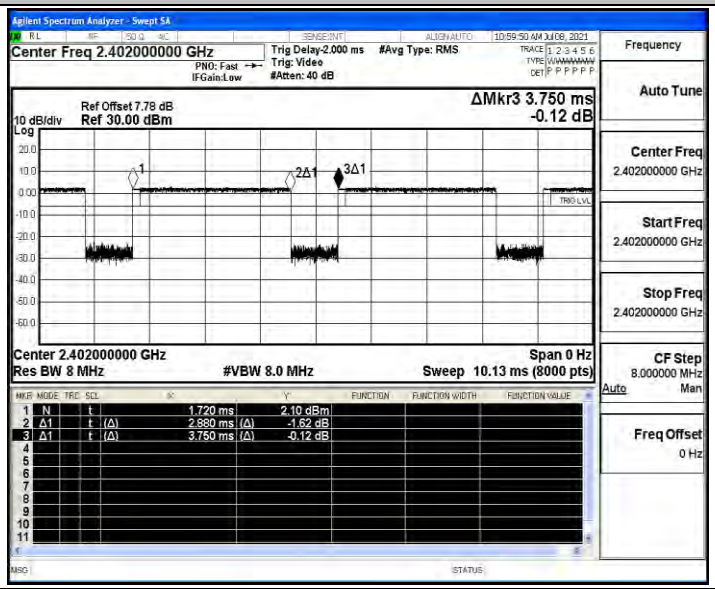
DH5_Ant1_2402

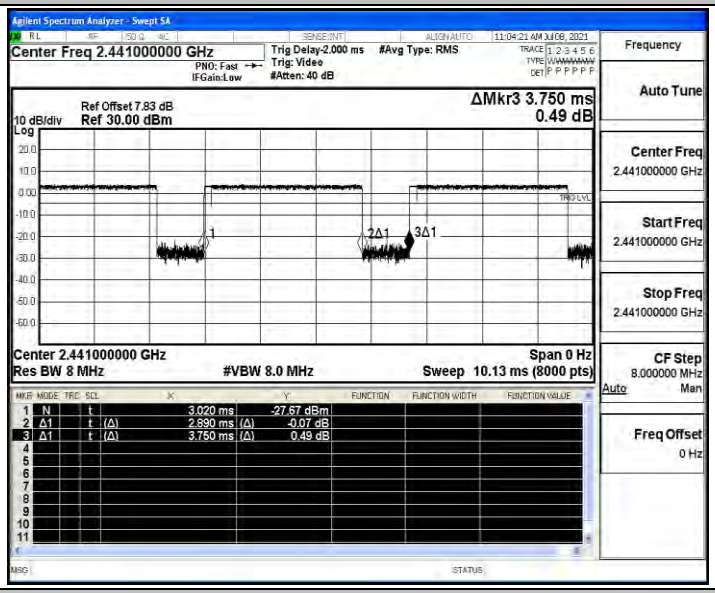
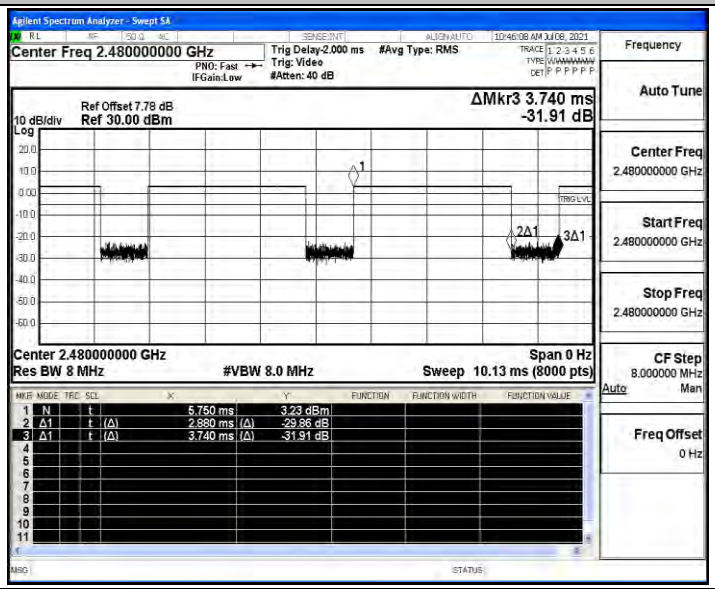


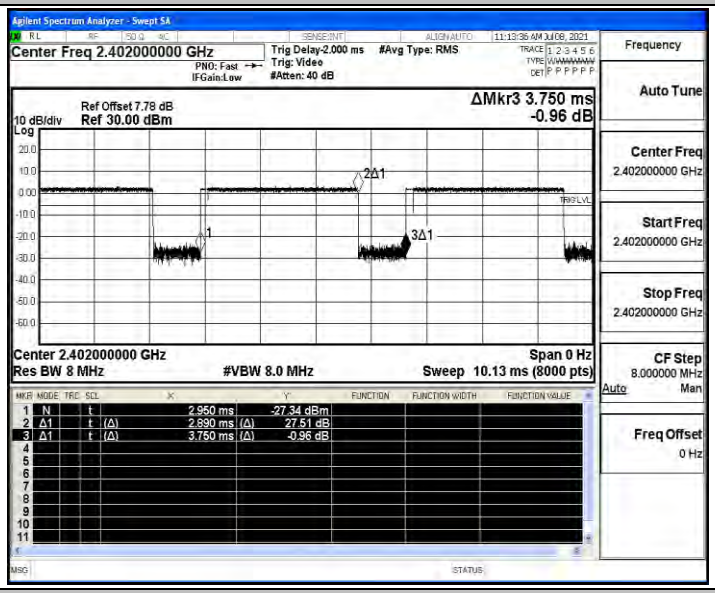
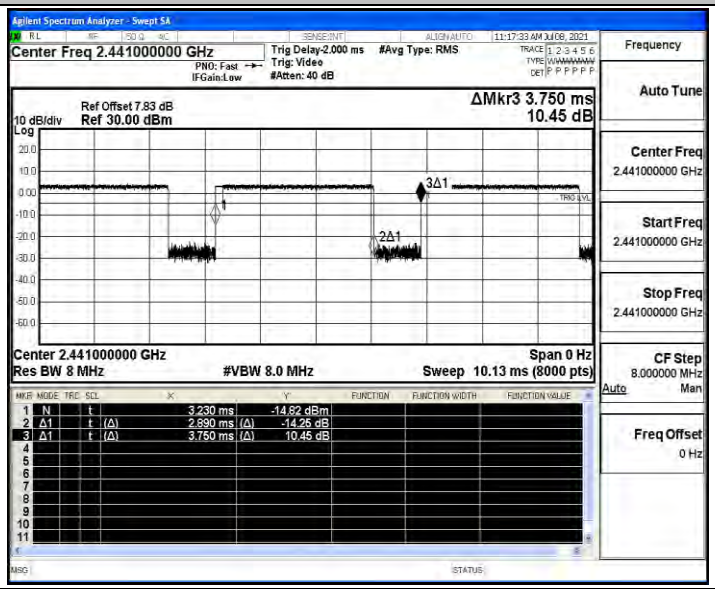
DH5_Ant1_2441

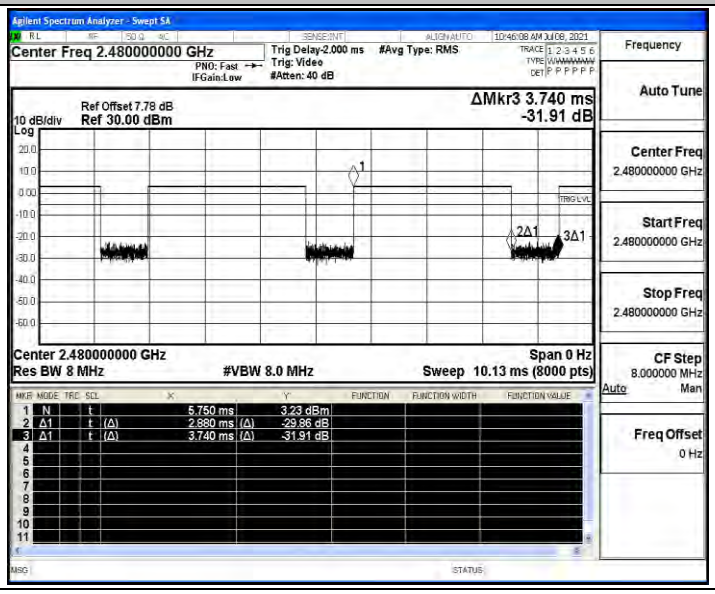


DH5_Ant1_2480


2DH5_Ant1_2402


2DH5_Ant1_2441

2DH5_Ant1_2480


3DH5_Ant1_2402

3DH5_Ant1_2441


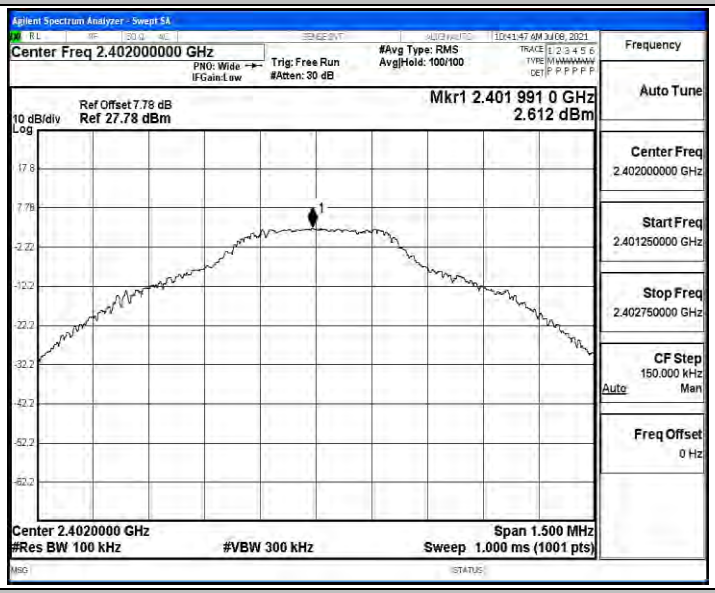
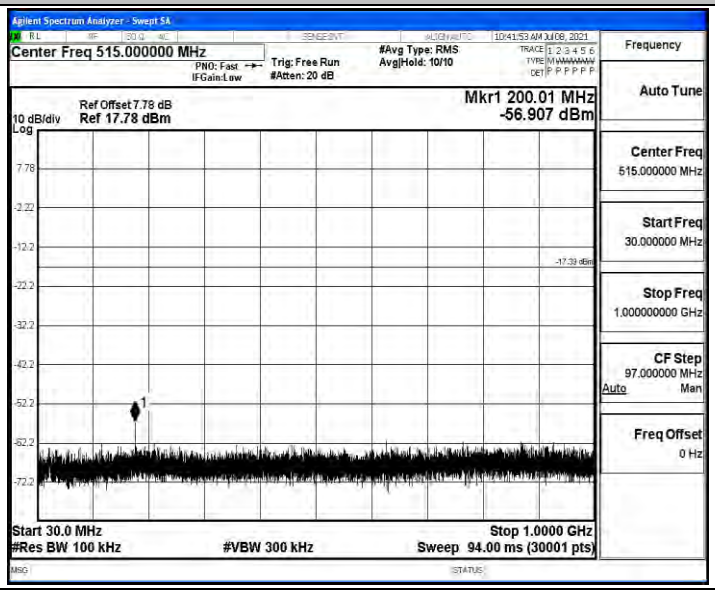
3DH5_Ant1_2480


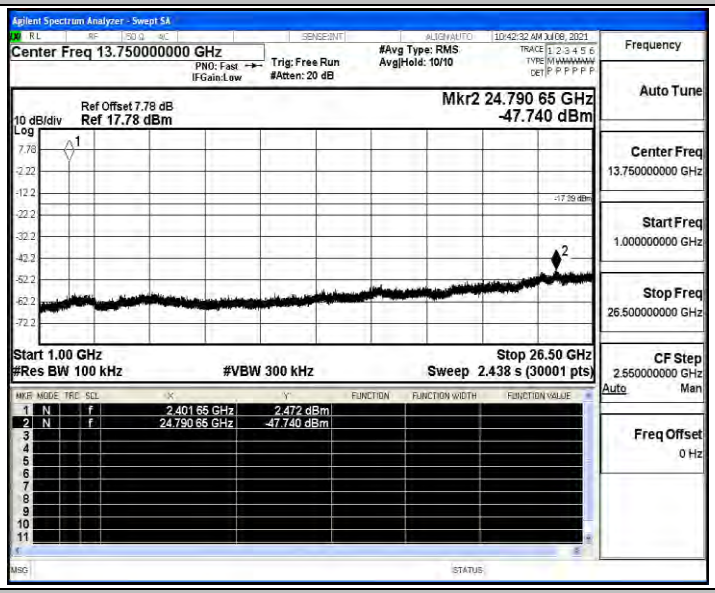
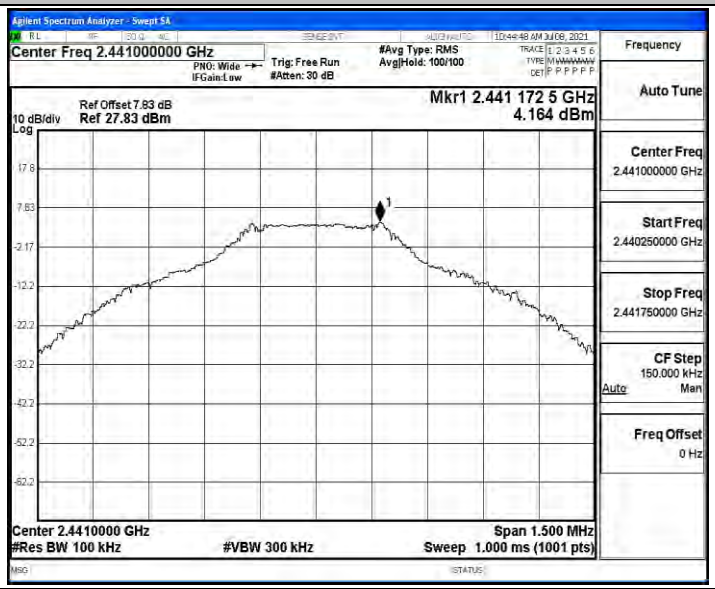
Appendix A.6: Conducted Spurious Emission

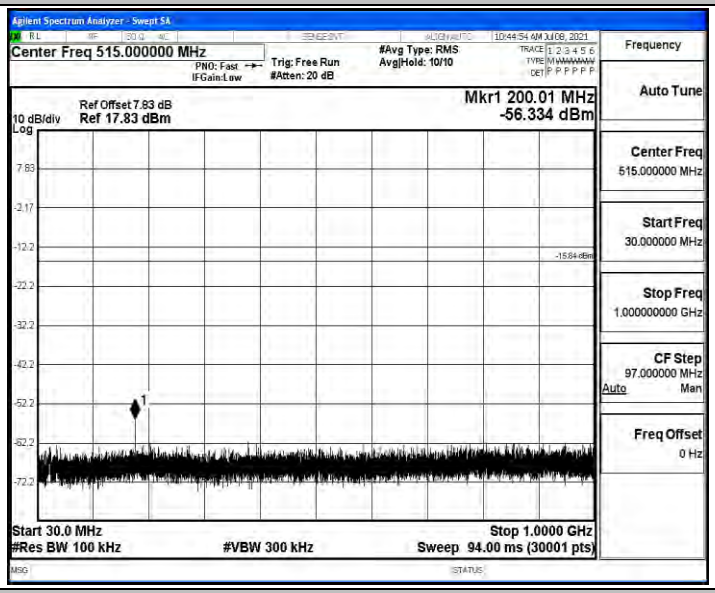
Test Result

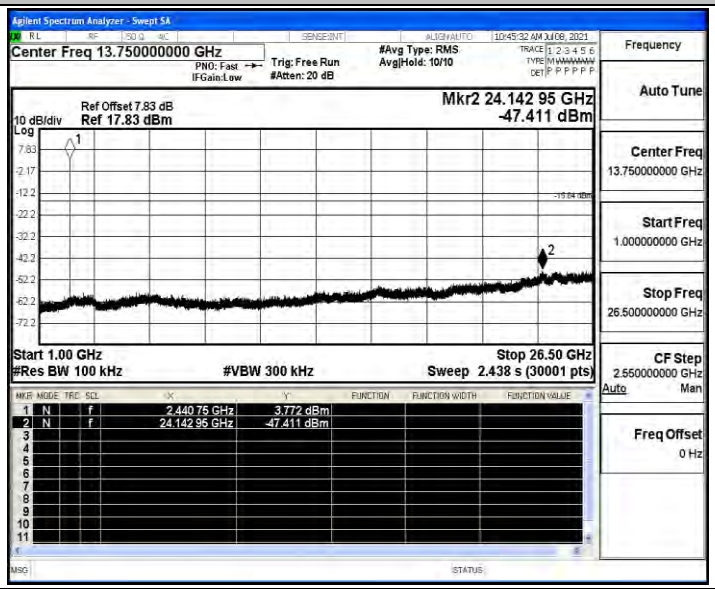
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	2.61	2.61	---	PASS
			30~1000	2.61	-56.91	≤-17.39	PASS
			1000~26500	2.61	-47.74	≤-17.39	PASS
		2441	Reference	4.16	4.16	---	PASS
			30~1000	4.16	-56.33	≤-15.84	PASS
			1000~26500	4.16	-47.41	≤-15.84	PASS
		2480	Reference	2.36	2.36	---	PASS
			30~1000	2.36	-58.21	≤-17.64	PASS
			1000~26500	2.36	-47.47	≤-17.64	PASS
2DH5	Ant1	2402	Reference	0.53	0.53	---	PASS
			30~1000	0.53	-57.39	≤-19.47	PASS
			1000~26500	0.53	-47.67	≤-19.47	PASS
		2441	Reference	2.69	2.69	---	PASS
			30~1000	2.69	-57.16	≤-17.31	PASS
			1000~26500	2.69	-47.79	≤-17.31	PASS
		2480	Reference	-1.89	-1.89	---	PASS
			30~1000	-1.89	-57.19	≤-21.89	PASS
			1000~26500	-1.89	-47.55	≤-21.89	PASS
3DH5	Ant1	2402	Reference	0.82	0.82	---	PASS
			30~1000	0.82	-57.22	≤-19.18	PASS
			1000~26500	0.82	-47.89	≤-19.18	PASS
		2441	Reference	2.28	2.28	---	PASS
			30~1000	2.28	-56.39	≤-17.72	PASS
			1000~26500	2.28	-47.52	≤-17.72	PASS
		2480	Reference	0.69	0.69	---	PASS
			30~1000	0.69	-58.44	≤-19.31	PASS
			1000~26500	0.69	-47.53	≤-19.31	PASS

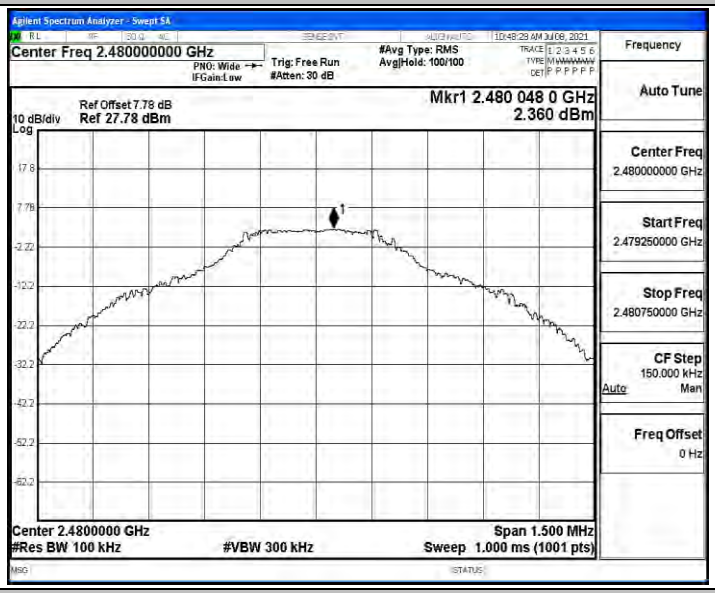
Test Graphs

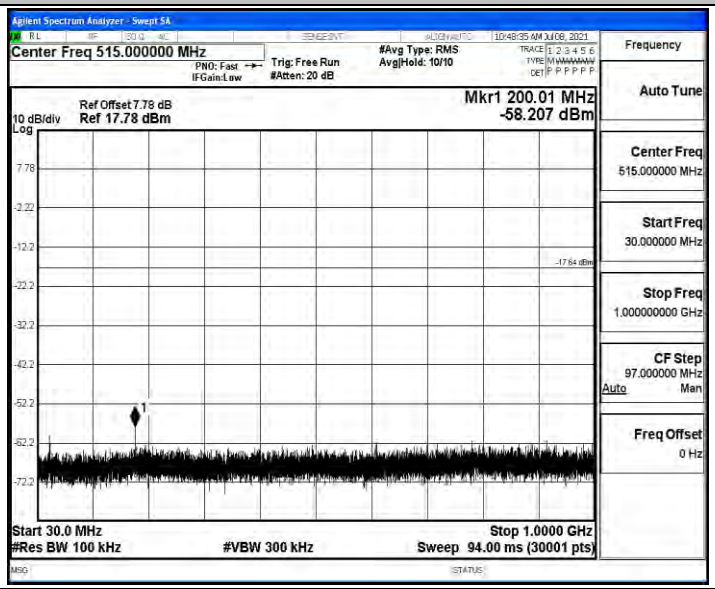
DH5_Ant1_2402_0~Reference

DH5_Ant1_2402_30~1000


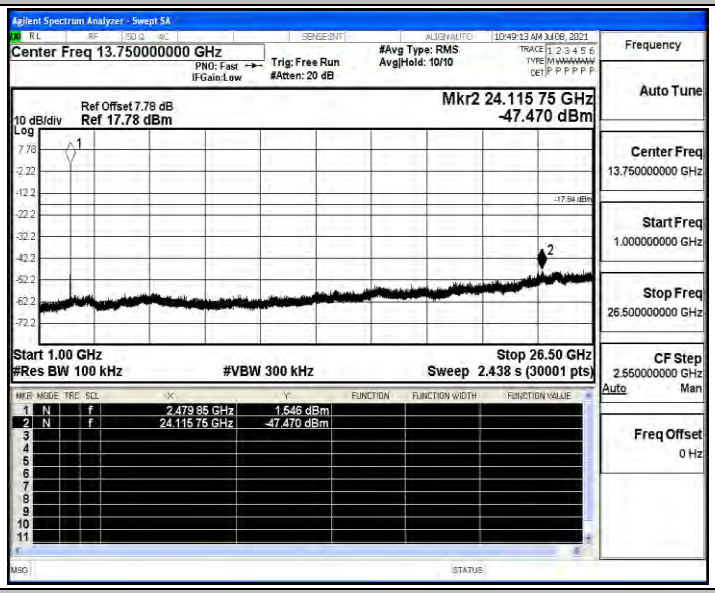
DH5_Ant1_2402_1000~26500

DH5_Ant1_2441_0~Reference


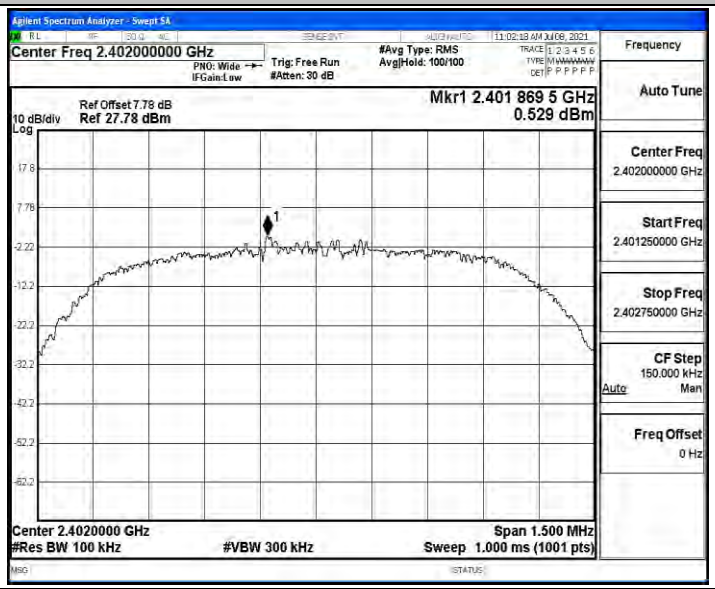
DH5_Ant1_2441_30~1000


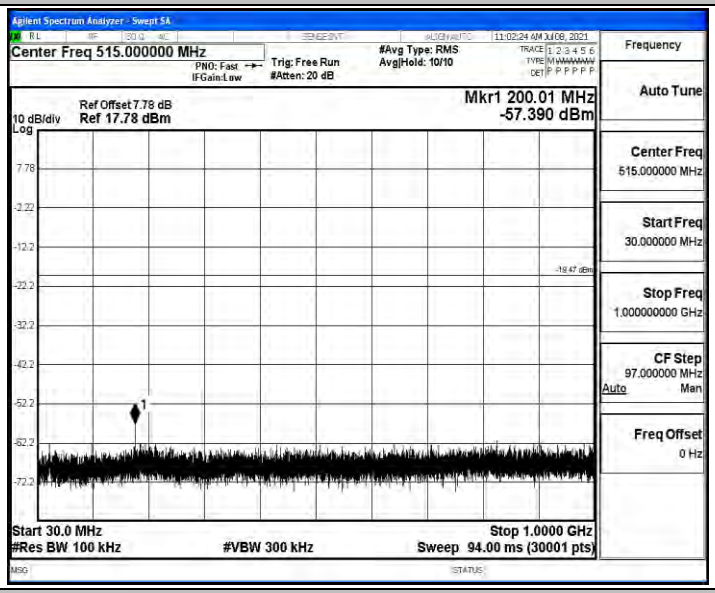
DH5_Ant1_2441_1000~26500


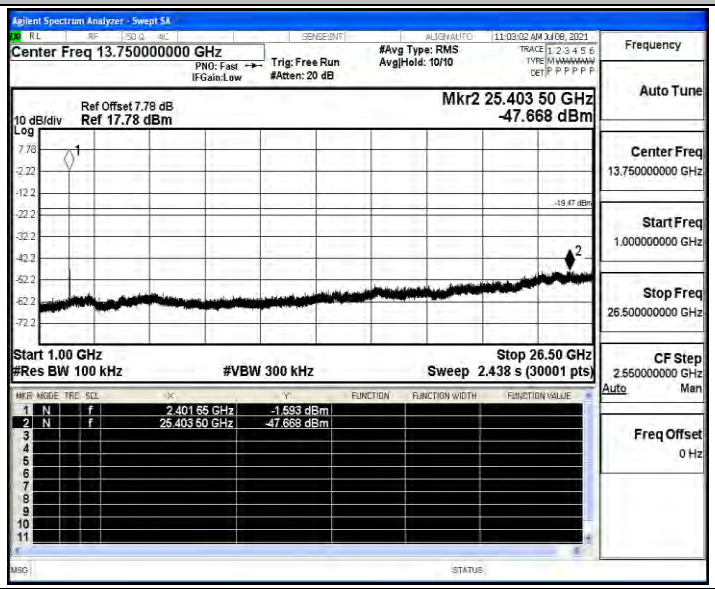
DH5_Ant1_2480_0~Reference


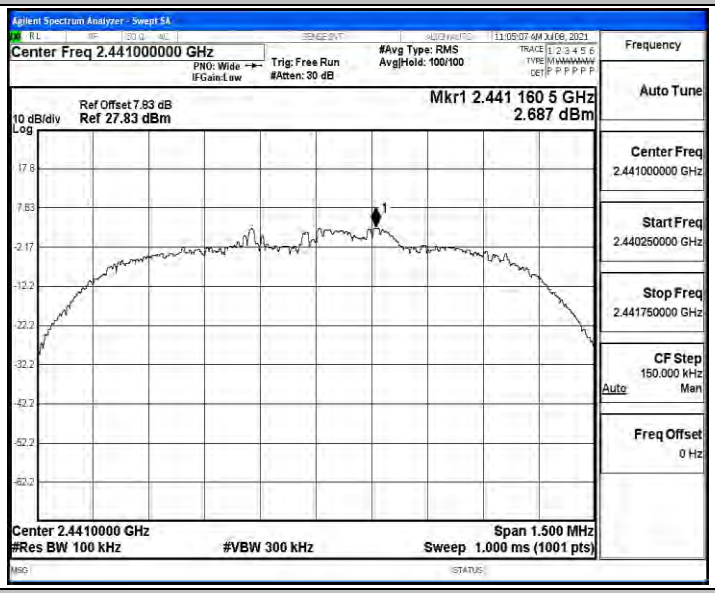
DH5_Ant1_2480_30~1000


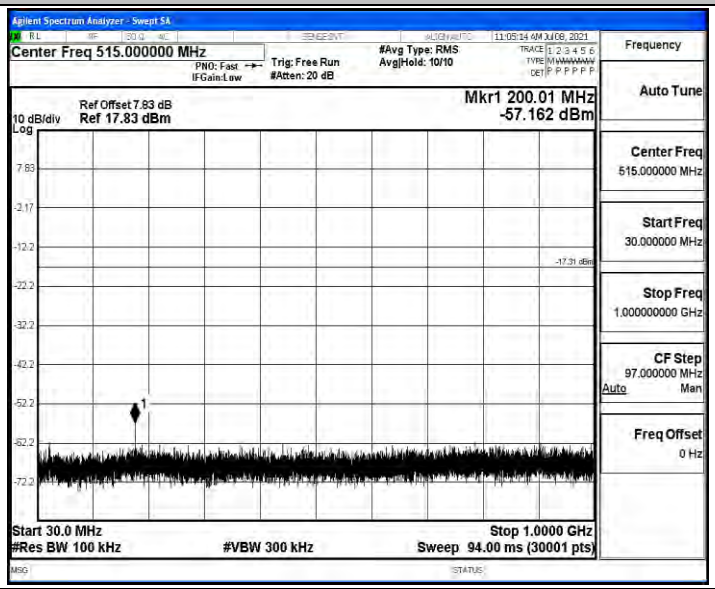
DH5_Ant1_2480_1000~26500


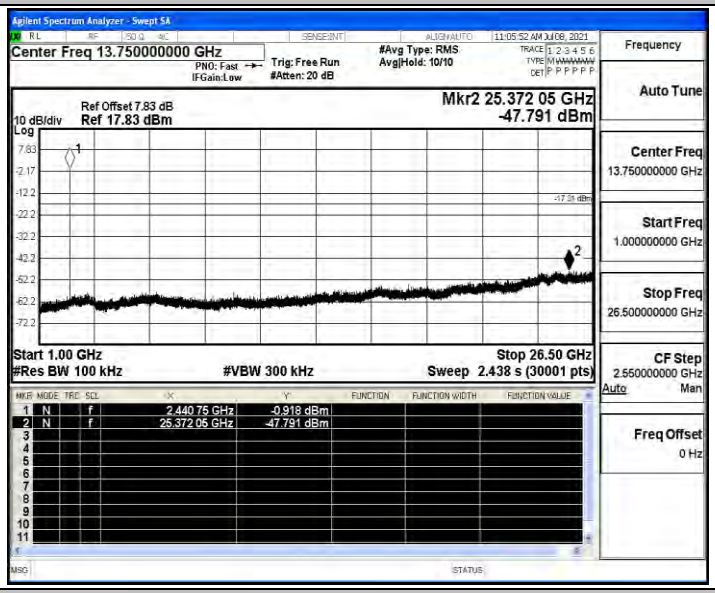
2DH5_Ant1_2402_0~Reference


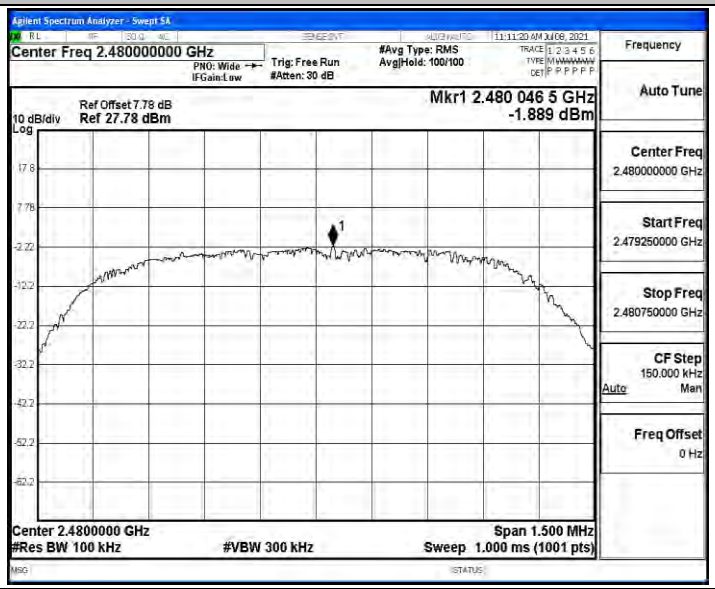
2DH5_Ant1_2402_30~1000


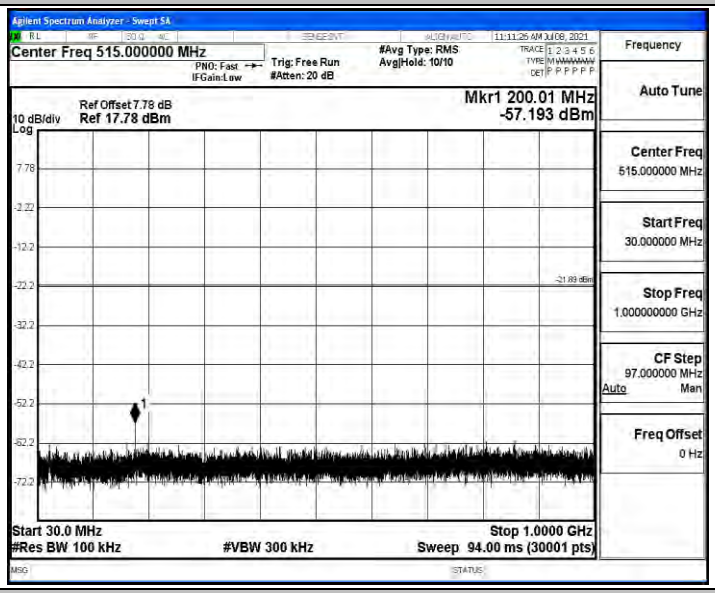
2DH5_Ant1_2402_1000~26500


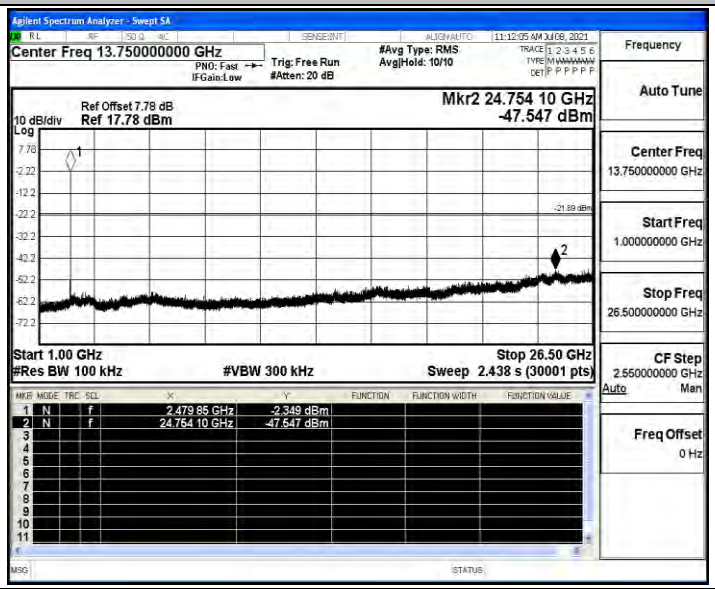
2DH5_Ant1_2441_0~Reference


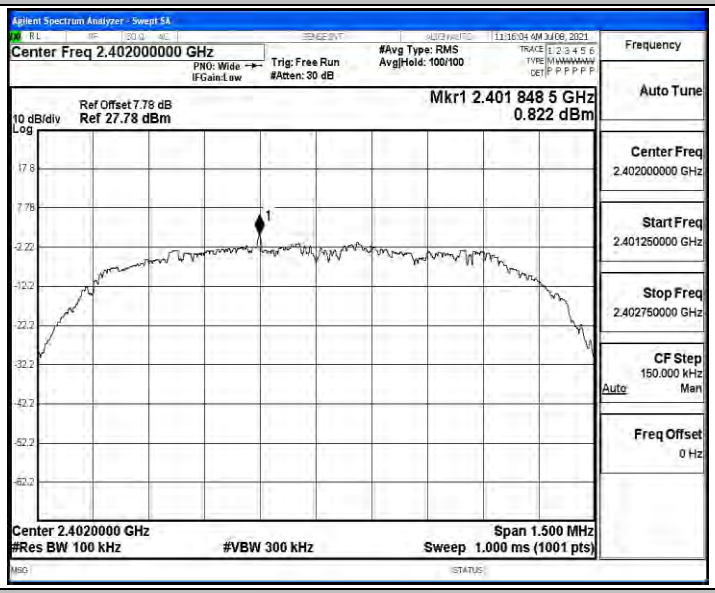
2DH5_Ant1_2441_30~1000


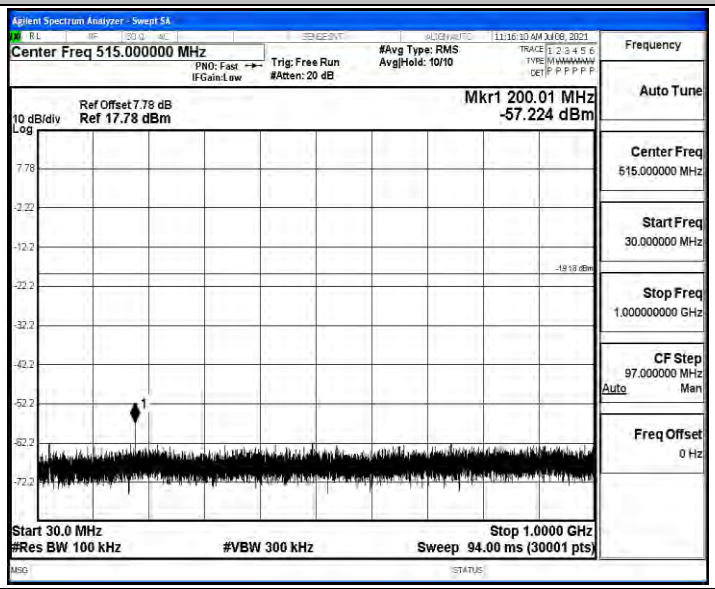
2DH5_Ant1_2441_1000~26500


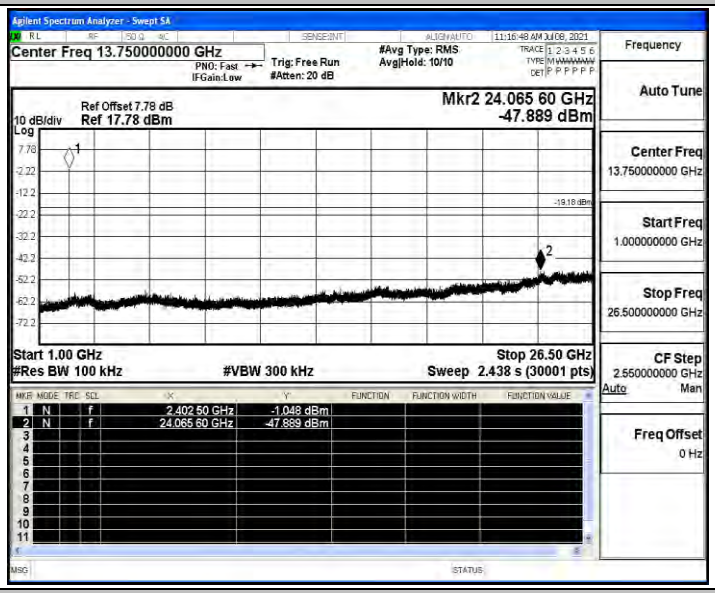
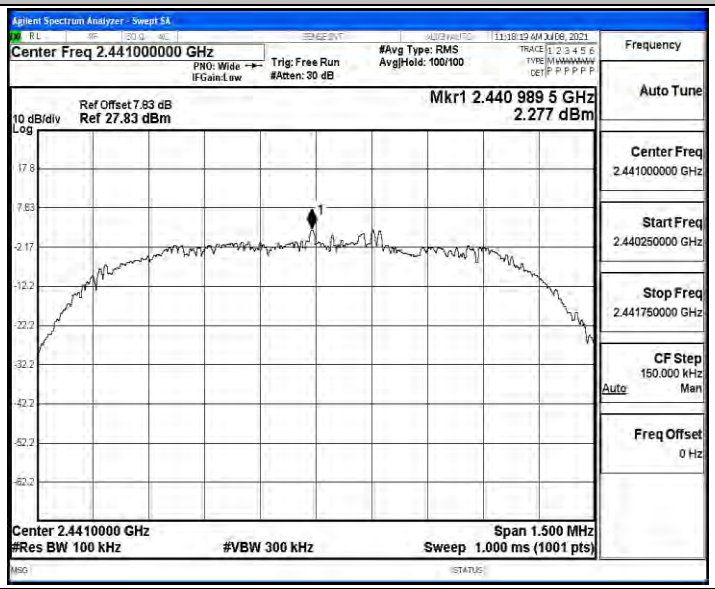
2DH5_Ant1_2480_0~Reference


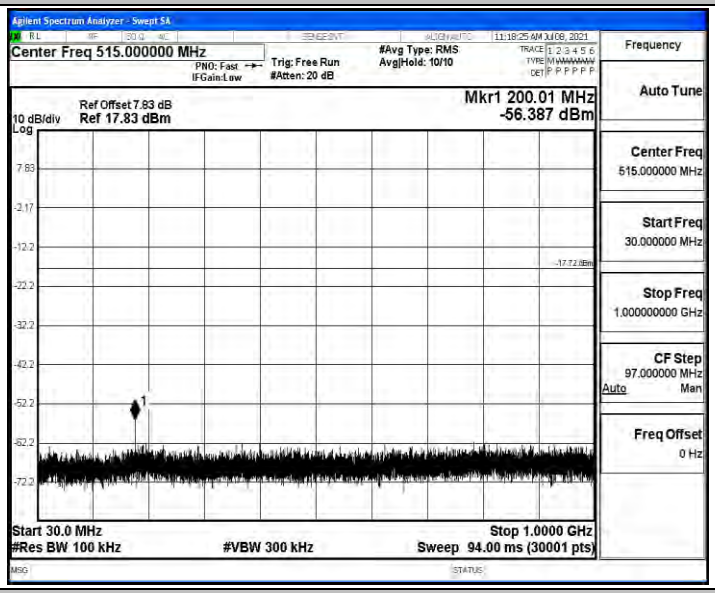
2DH5_Ant1_2480_30~1000


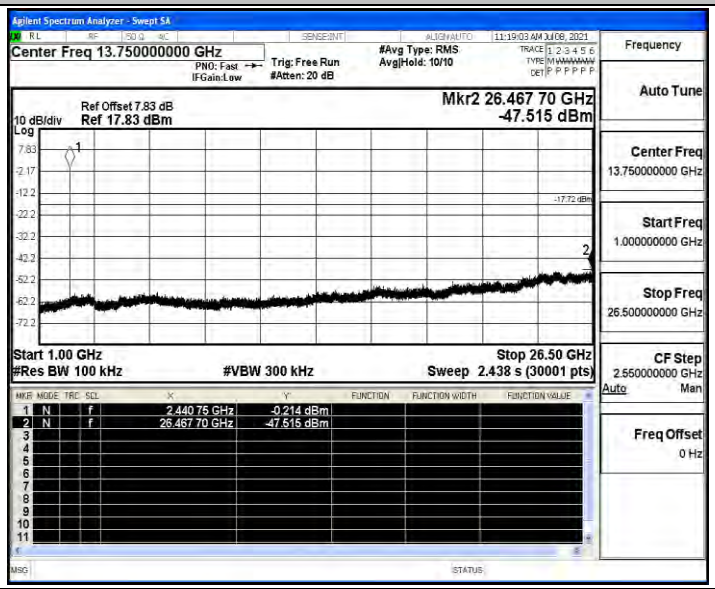
2DH5_Ant1_2480_1000~26500


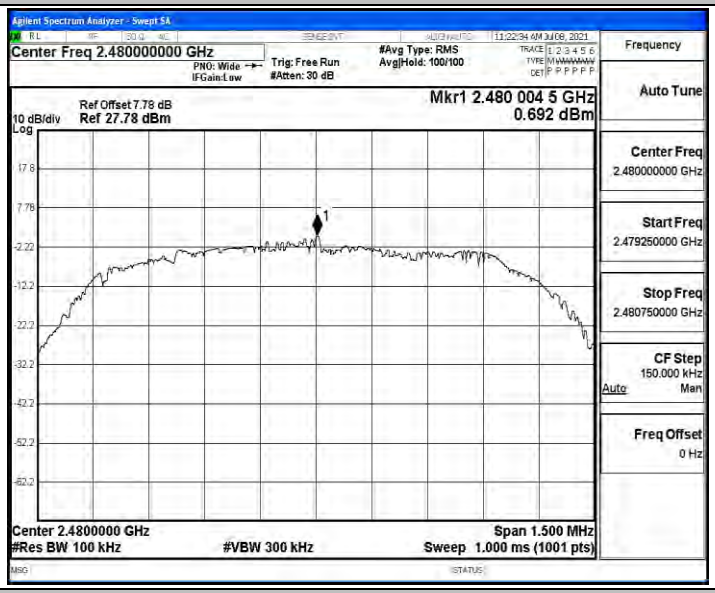
3DH5_Ant1_2402_0~Reference


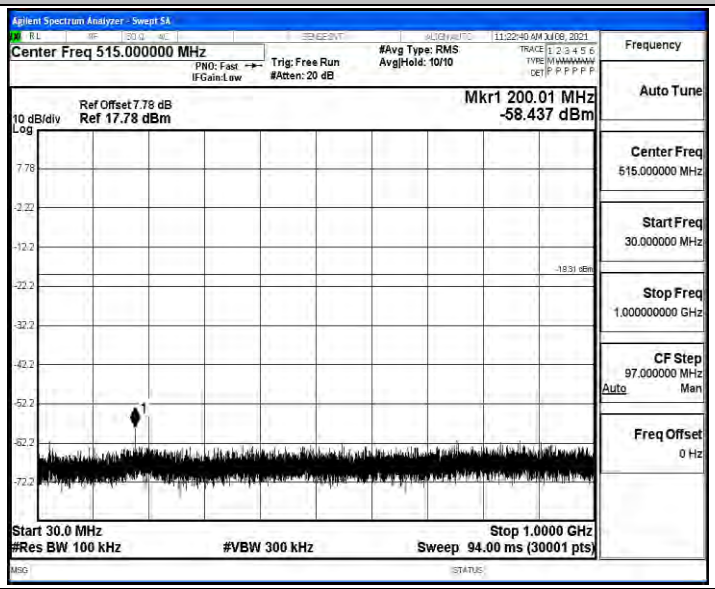
3DH5_Ant1_2402_30~1000


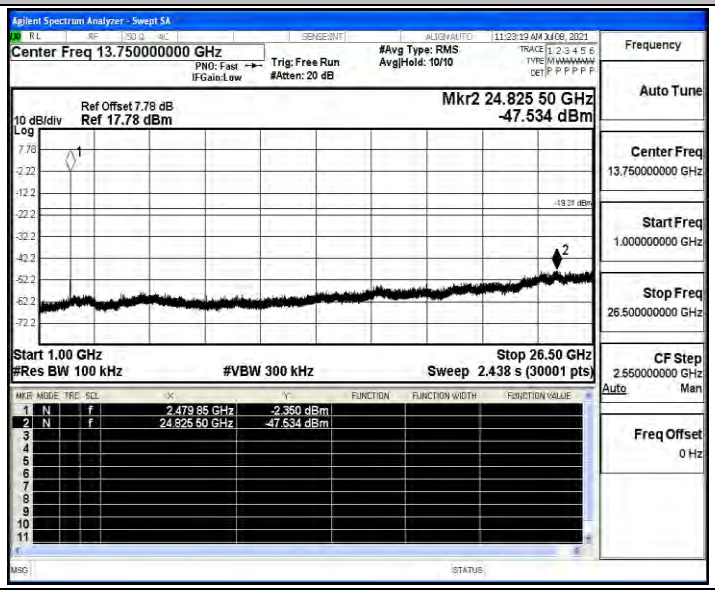
3DH5_Ant1_2402_1000~26500

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


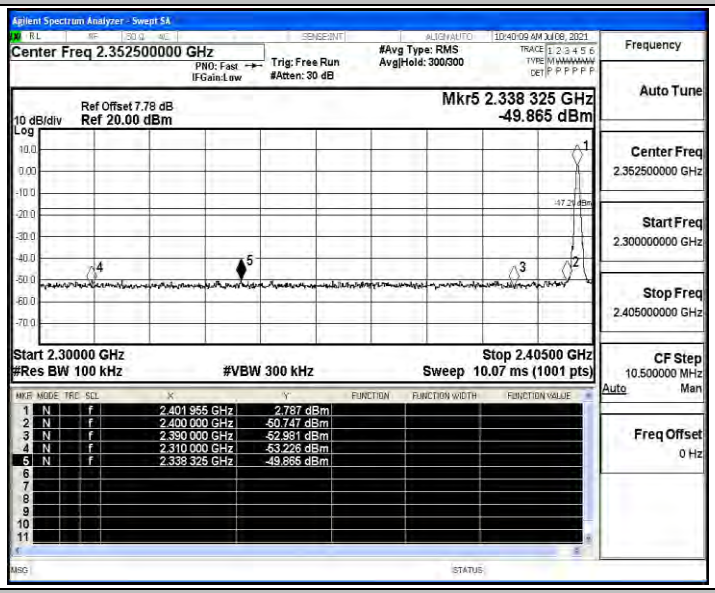
Appendix A.7: Band edge measurements

Test Result

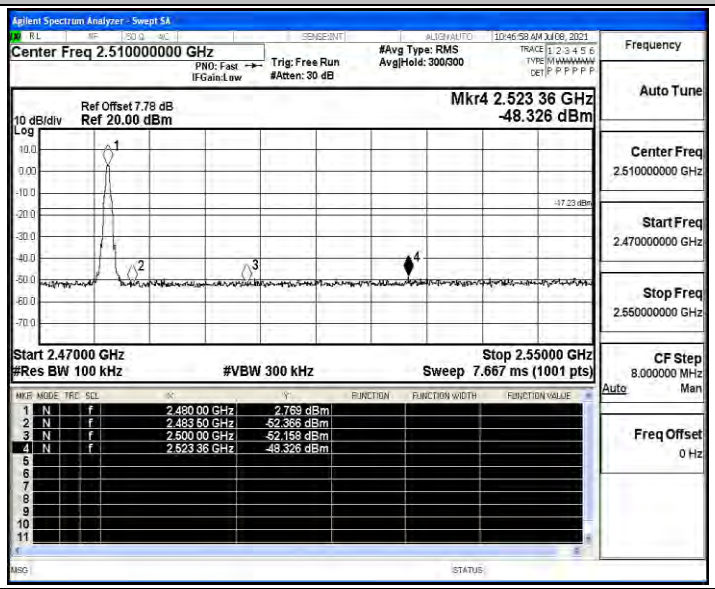
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	2.79	-49.87	≤-17.21	PASS
		High	2480	2.77	-48.33	≤-17.23	PASS
		Low	Hop	2.86	-50.68	≤-17.14	PASS
		High	Hop	3.29	-49.22	≤-16.71	PASS
2DH5	Ant1	Low	2402	1.36	-49.05	≤-18.64	PASS
		High	2480	1.58	-48.68	≤-18.43	PASS
		Low	Hop	-2.50	-49.61	≤-22.5	PASS
		High	Hop	-1.73	-48.33	≤-21.73	PASS
3DH5	Ant1	Low	2402	1.75	-49.23	≤-18.25	PASS
		High	2480	1.49	-48.56	≤-18.51	PASS
		Low	Hop	0.04	-49.75	≤-19.96	PASS
		High	Hop	-1.62	-48.95	≤-21.62	PASS

Test Graphs

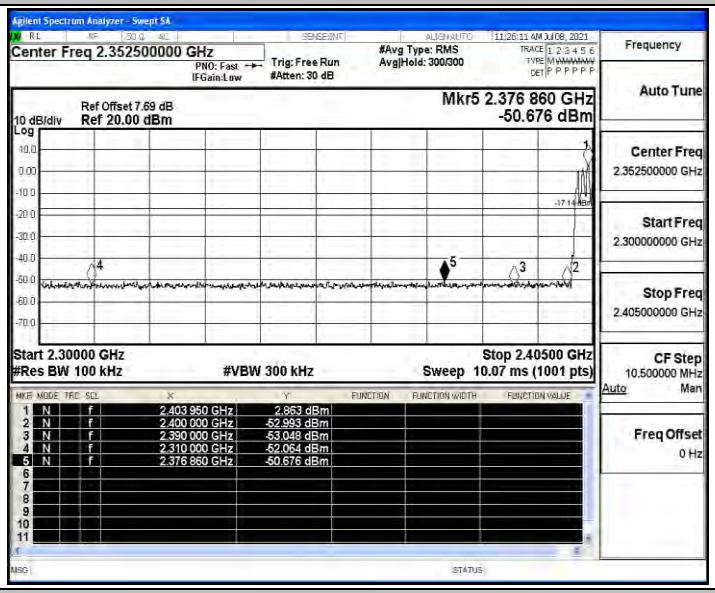
DH5_Ant1_Low_2402



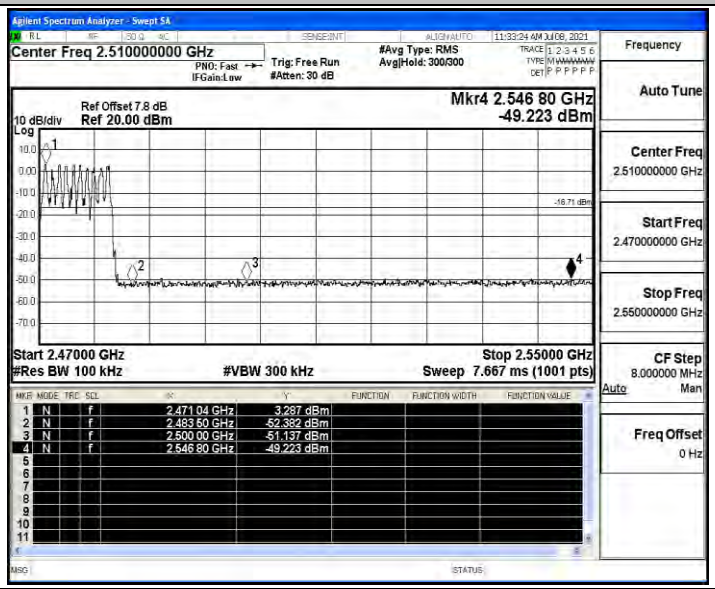
DH5_Ant1_High_2480

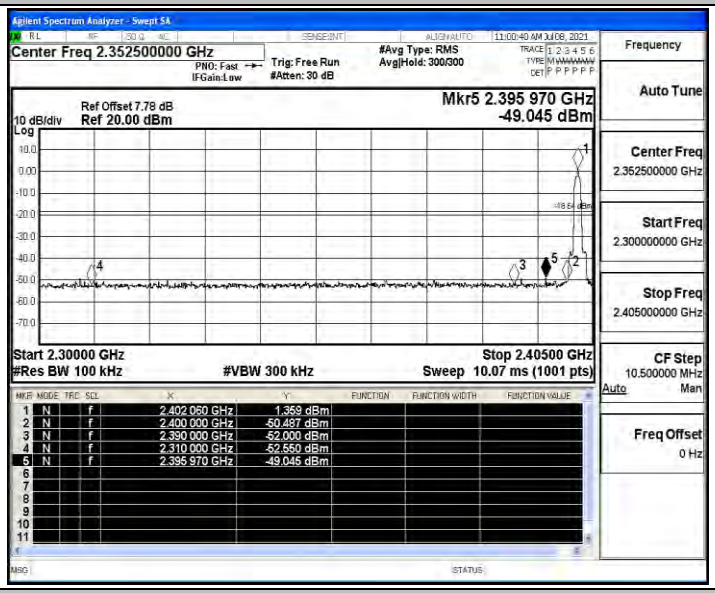


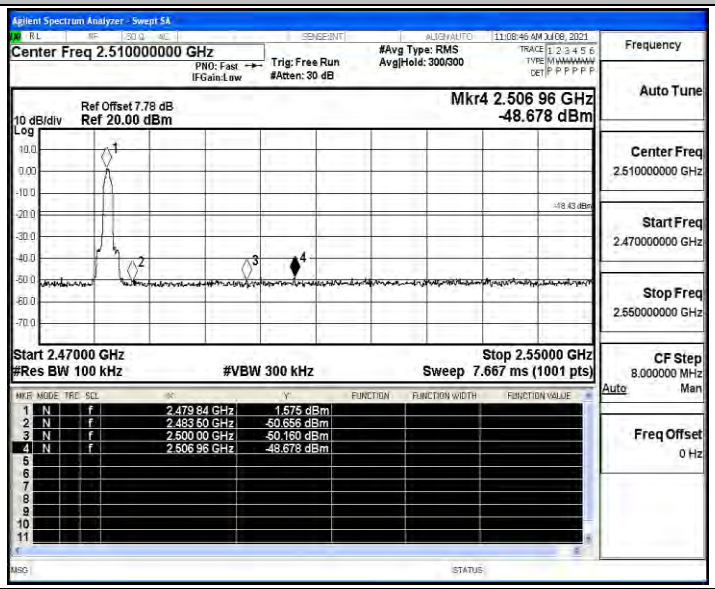
DH5_Ant1_Low_Hop

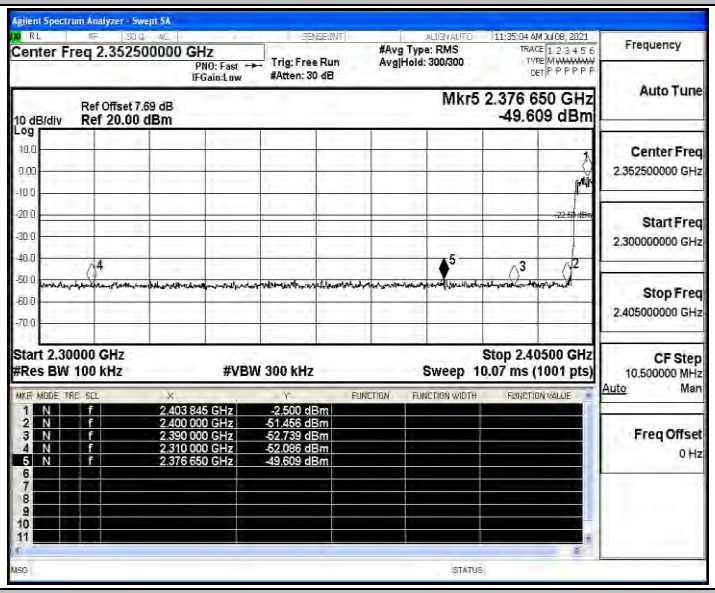


DH5_Ant1_High_Hop



2DH5_Ant1_Low_2402


2DH5_Ant1_High_2480


2DH5_Ant1_Low_Hop


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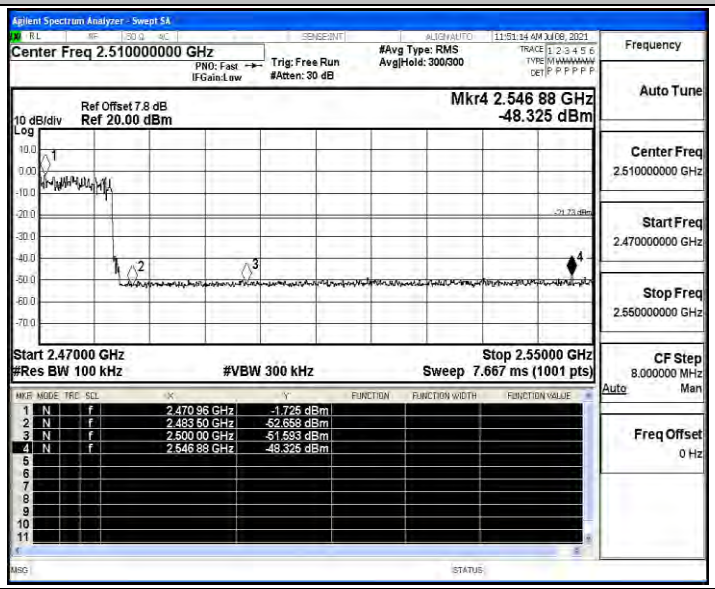
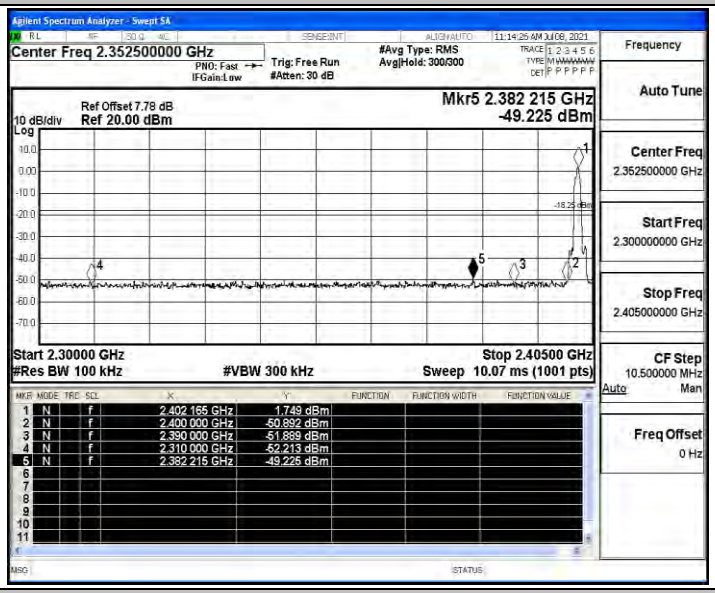


3DH5_Ant1_Low_2402


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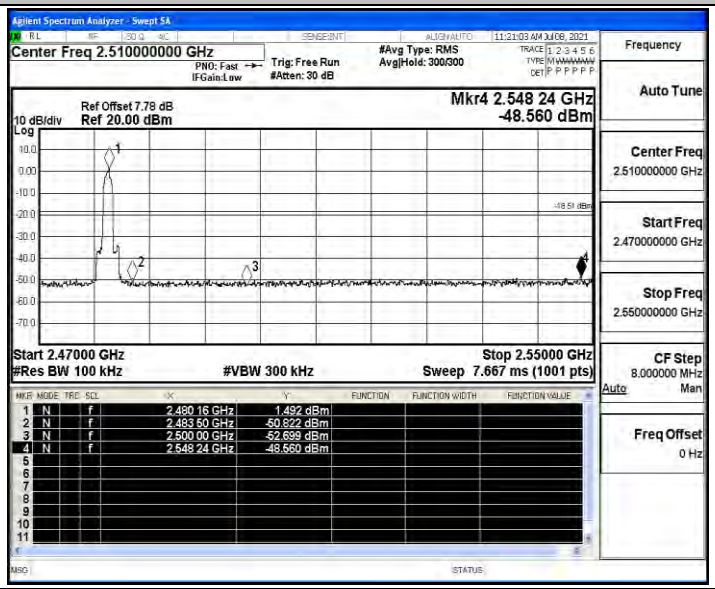

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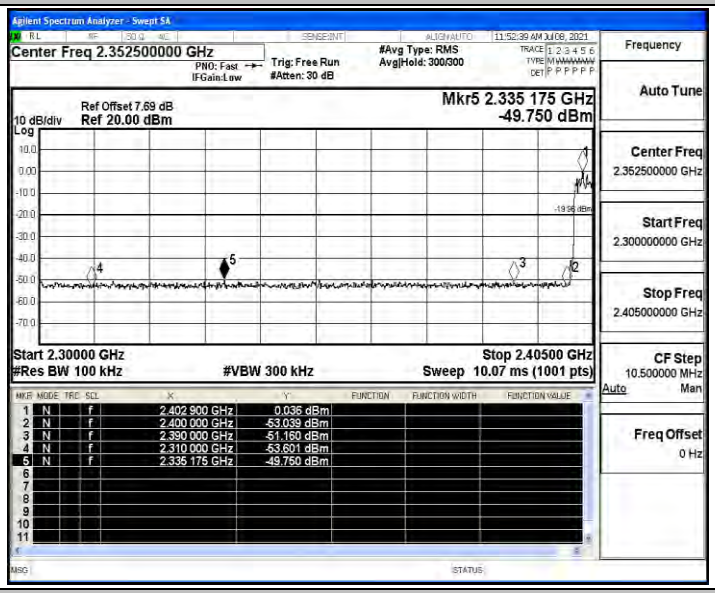

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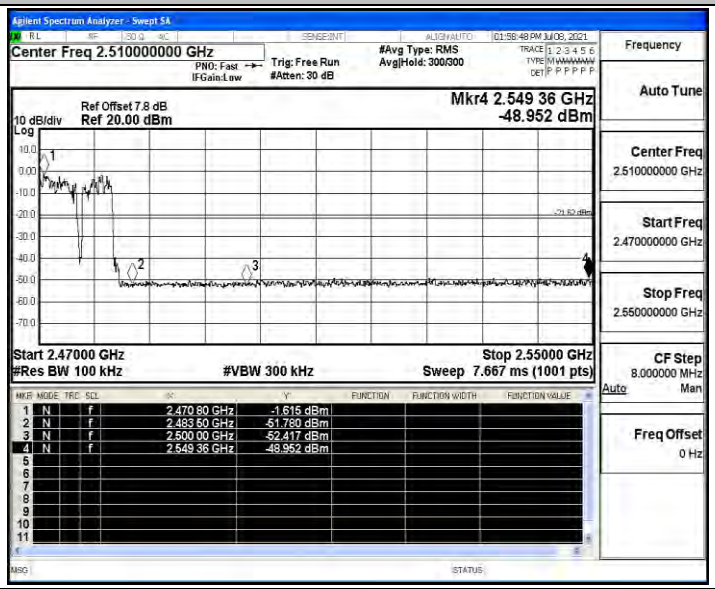


Appendix A.8: Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq	Result	Limit	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-49.1	≤-41.20	PASS
				AV	2387.150	-48.55	≤-41.20	PASS
				AV	2390.000	-48.65	≤-41.20	PASS
				Peak	2310.000	-41.99	≤-21.20	PASS
				Peak	2336.645	-38.4	≤-21.20	PASS
				Peak	2390.000	-41.17	≤-21.20	PASS
		High	2480	AV	2483.500	-47.77	≤-41.20	PASS
				AV	2483.520	-47.77	≤-41.20	PASS
				AV	2500.000	-48	≤-41.20	PASS
				Peak	2483.500	-40.98	≤-21.20	PASS
				Peak	2487.680	-38.5	≤-21.20	PASS
				Peak	2500.000	-40.74	≤-21.20	PASS
		Low	Hop	Peak	2310.000	-41.56	≤-21.20	PASS
				Peak	2370.665	-38.98	≤-21.20	PASS
				Peak	2390.000	-41.92	≤-21.20	PASS
		High	Hop	Peak	2483.500	-41.85	≤-21.20	PASS
				Peak	2491.520	-38.38	≤-21.20	PASS
				Peak	2500.000	-42.12	≤-21.20	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-49.01	≤-41.20	PASS
				AV	2383.055	-48.44	≤-41.20	PASS
				AV	2390.000	-48.72	≤-41.20	PASS
				Peak	2310.000	-43.5	≤-21.20	PASS
				Peak	2387.255	-38.94	≤-21.20	PASS
				Peak	2390.000	-41.17	≤-21.20	PASS
		High	2480	AV	2483.500	-47.68	≤-41.20	PASS
				AV	2483.520	-47.68	≤-41.20	PASS
				AV	2500.000	-47.97	≤-41.20	PASS
				Peak	2483.500	-41.82	≤-21.20	PASS
				Peak	2497.760	-39.44	≤-21.20	PASS
				Peak	2500.000	-43.28	≤-21.20	PASS
3DH5	Ant1	Low	2402	AV	2310.000	-49.06	≤-41.20	PASS
				AV	2389.670	-48.53	≤-41.20	PASS
				AV	2390.000	-48.71	≤-41.20	PASS
				Peak	2310.000	-42.05	≤-21.20	PASS
				Peak	2361.005	-39.32	≤-21.20	PASS
				Peak	2390.000	-42.03	≤-21.20	PASS
		High	2480	AV	2483.500	-47.68	≤-41.20	PASS

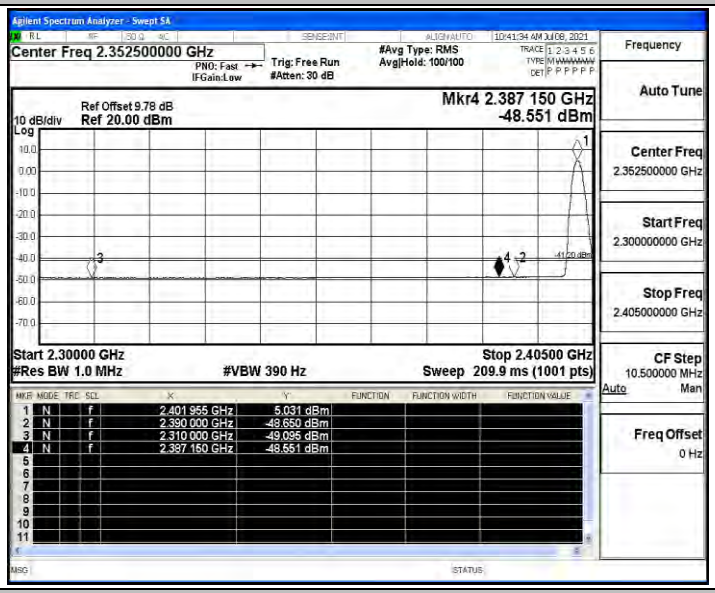
				AV	2483.520	-47.68	≤-41.20	PASS
				AV	2500.000	-47.97	≤-41.20	PASS
				Peak	2483.500	-40.46	≤-21.20	PASS
				Peak	2499.600	-38.51	≤-21.20	PASS
				Peak	2500.000	-40.83	≤-21.20	PASS
		Low	Hop	Peak	2310.000	-41.54	≤-21.20	PASS
				Peak	2327.510	-39.1	≤-21.20	PASS
				Peak	2390.000	-42.65	≤-21.20	PASS
		High	Hop	Peak	2483.500	-40.36	≤-21.20	PASS
				Peak	2483.600	-38.8	≤-21.20	PASS
				Peak	2500.000	-40.15	≤-21.20	PASS

Note：

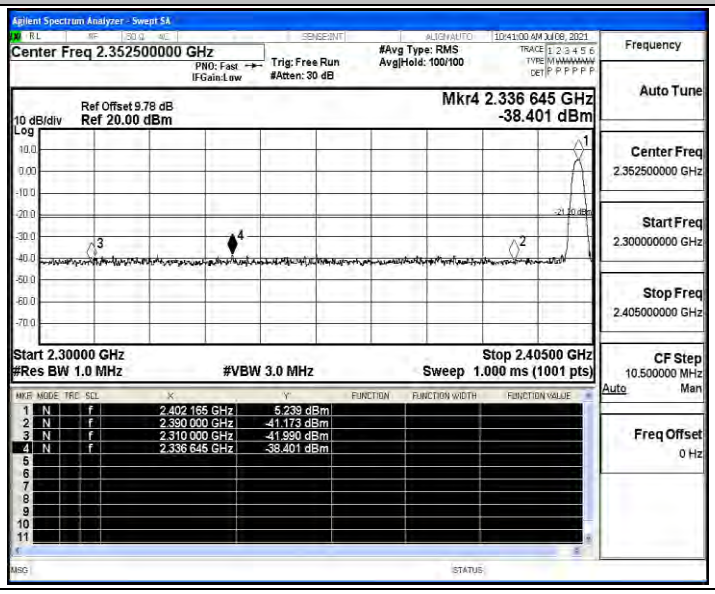
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

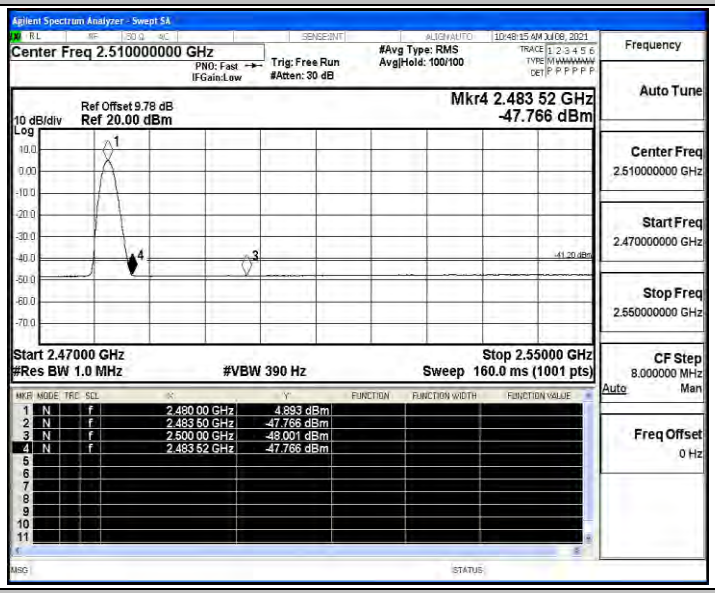
DH5_Ant1_Low_2402_AV



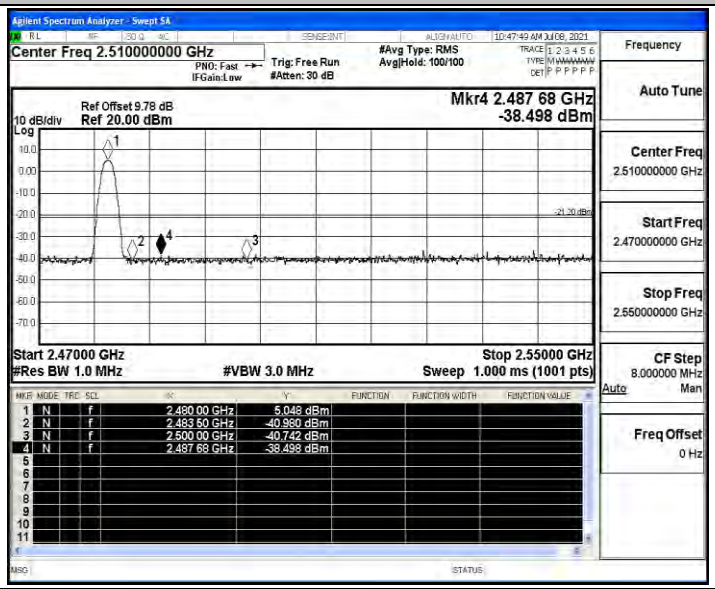
DH5_Ant1_Low_2402_Peak



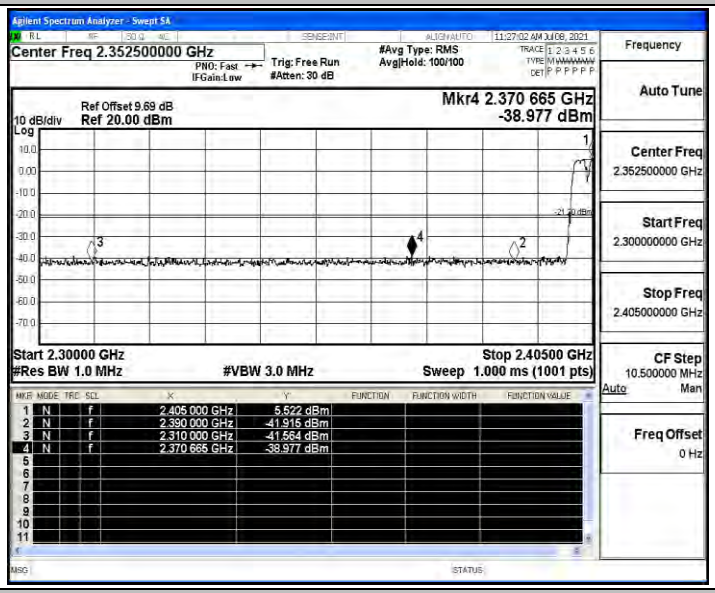
DH5_Ant1_High_2480_AV



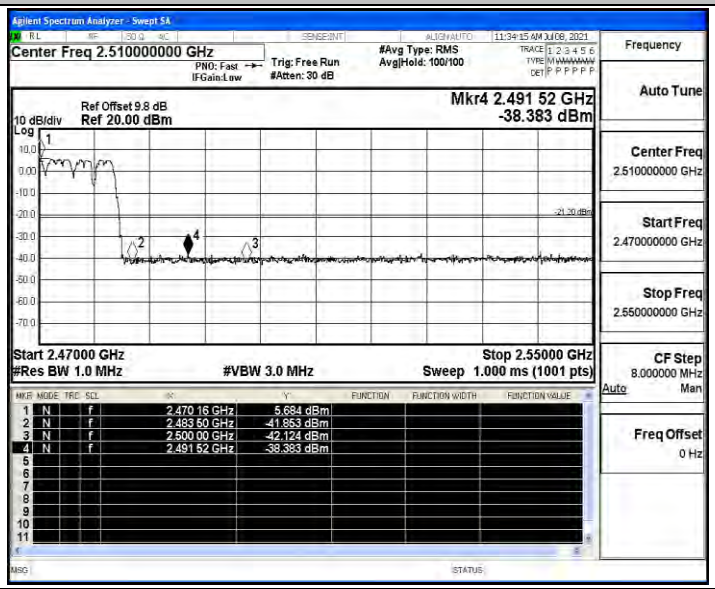
DH5_Ant1_High_2480_Peak



DH5_Ant1_Low_Hop_Peak



DH5_Ant1_High_Hop_Peak



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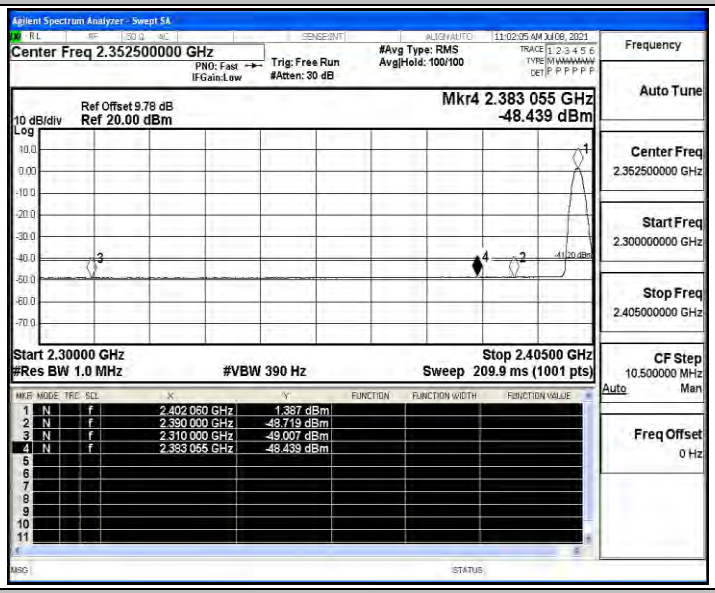
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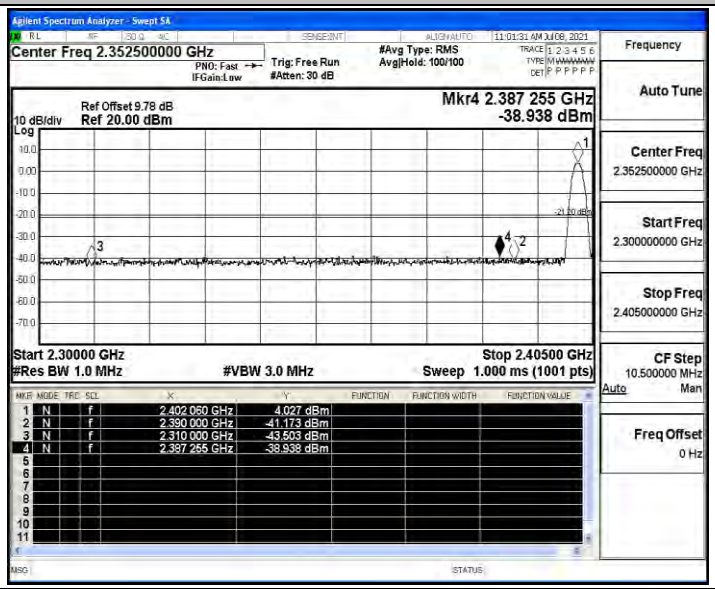

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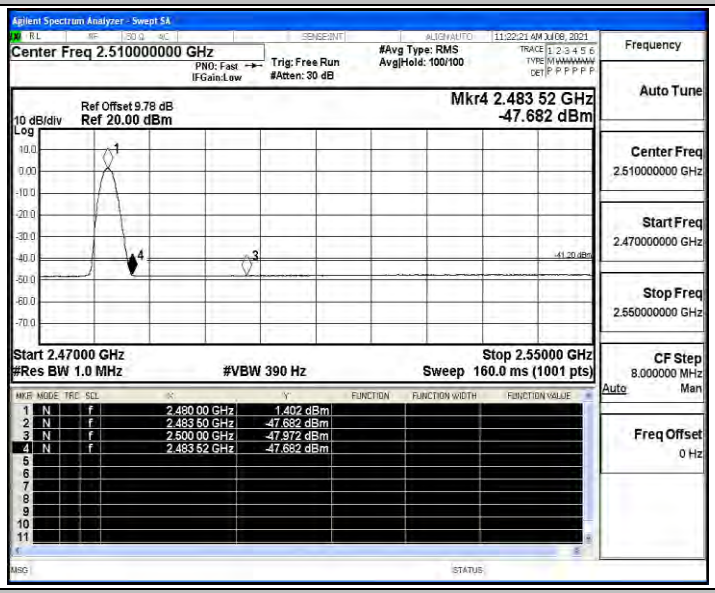
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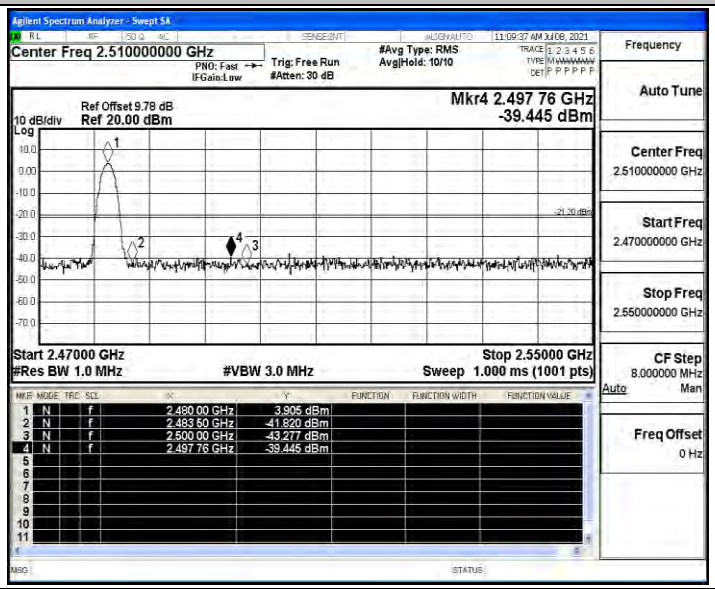

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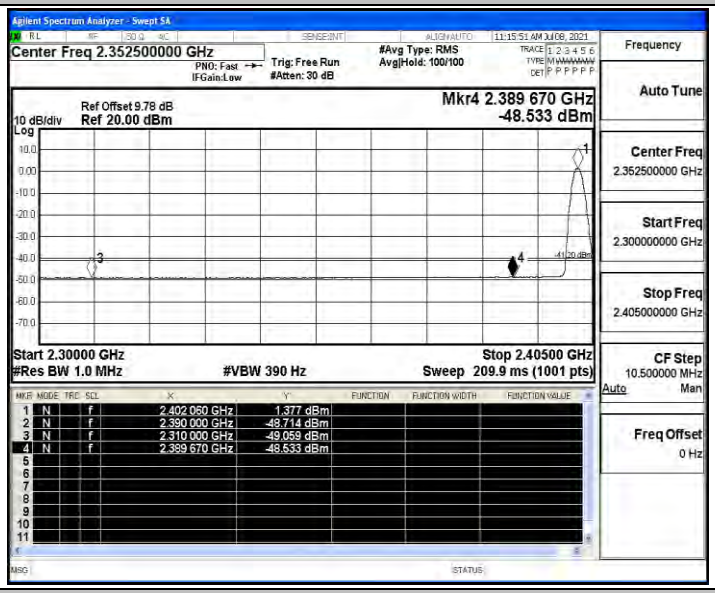
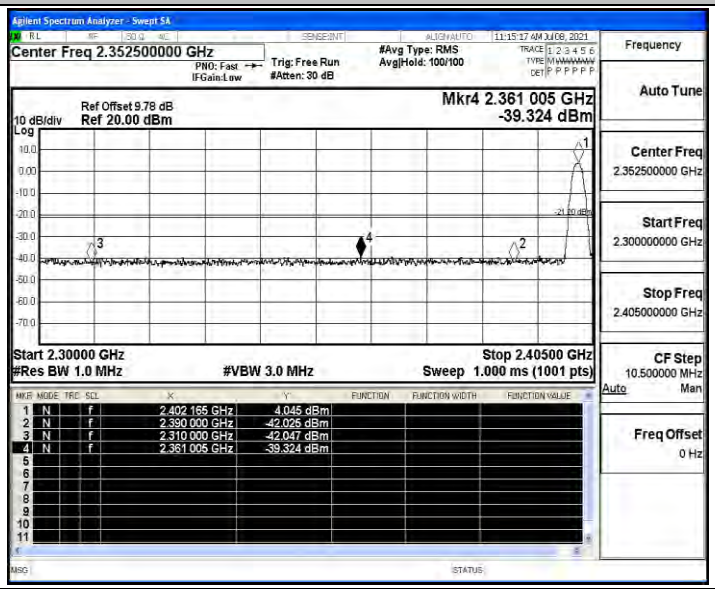

3DH5_Ant1_Low_2402_Peak


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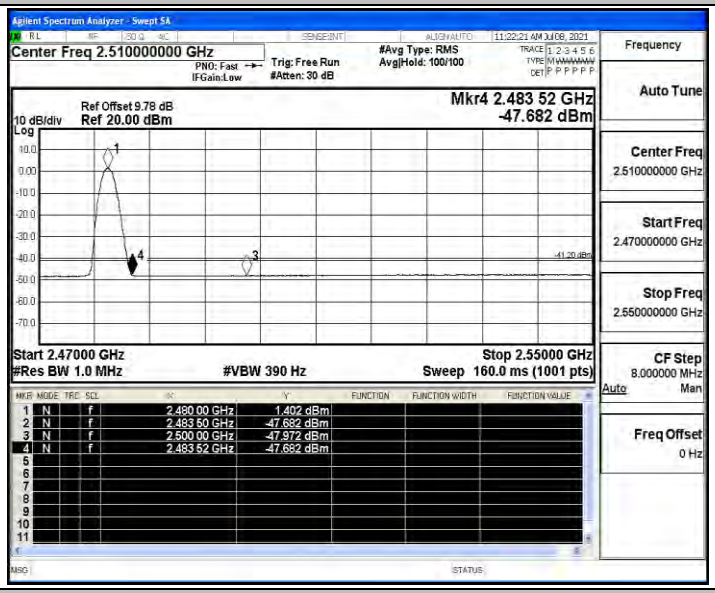
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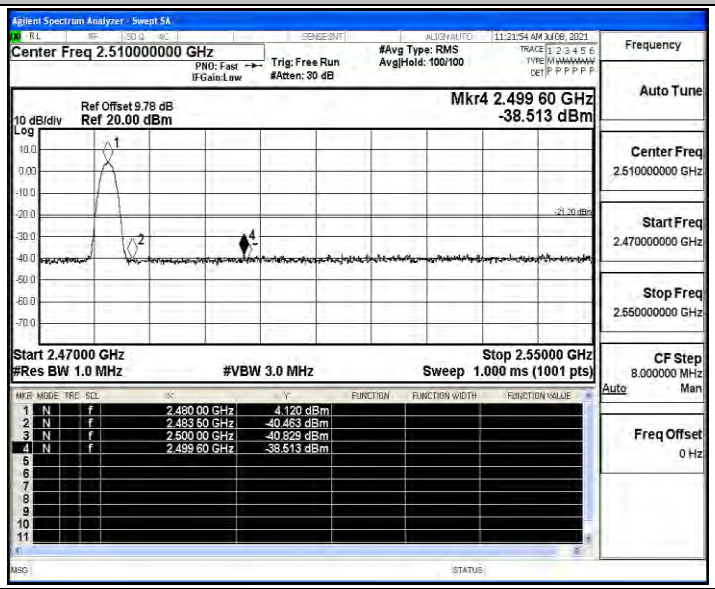

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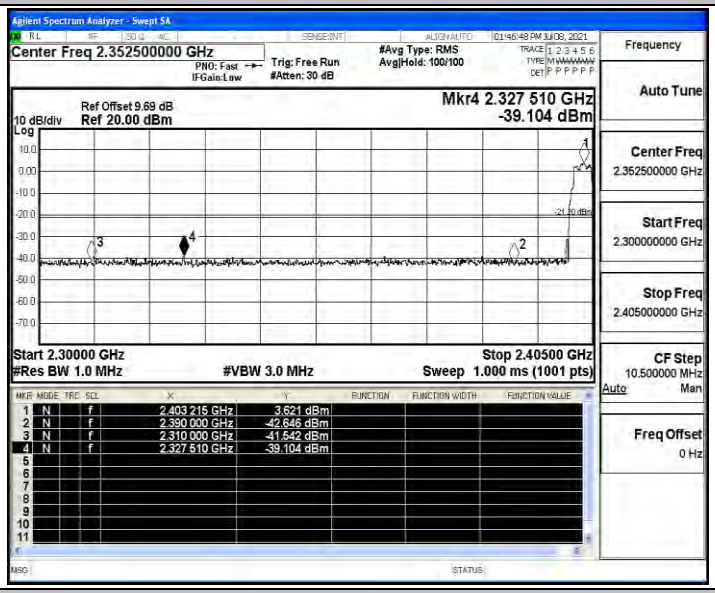

3DH5_Ant1_High_Hop_Peak