Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Digital combined Power amplifier

Test Model: T-B240DTB

Environmental Conditions

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

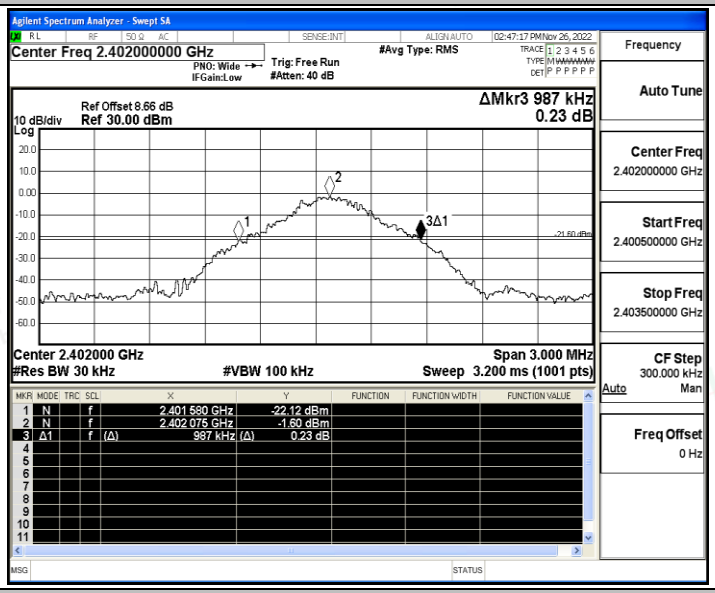
A.1 20dB Emission Bandwidth

Test Result

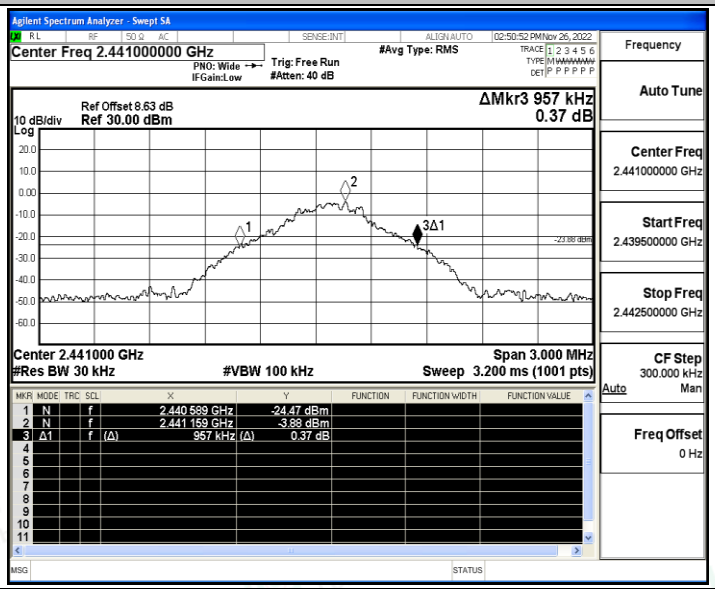
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Verdict
DH5	Ant1	2402	0.987	2401.580	2402.567	PASS
		2441	0.957	2440.589	2441.546	PASS
		2480	1.026	2479.565	2480.591	PASS
2DH5	Ant1	2402	1.371	2401.400	2402.771	PASS
		2441	1.386	2440.385	2441.771	PASS
		2480	1.362	2479.391	2480.753	PASS
3DH5	Ant1	2402	1.299	2401.430	2402.729	PASS
		2441	1.305	2440.430	2441.735	PASS
		2480	1.323	2479.400	2480.723	PASS

Test Graphs

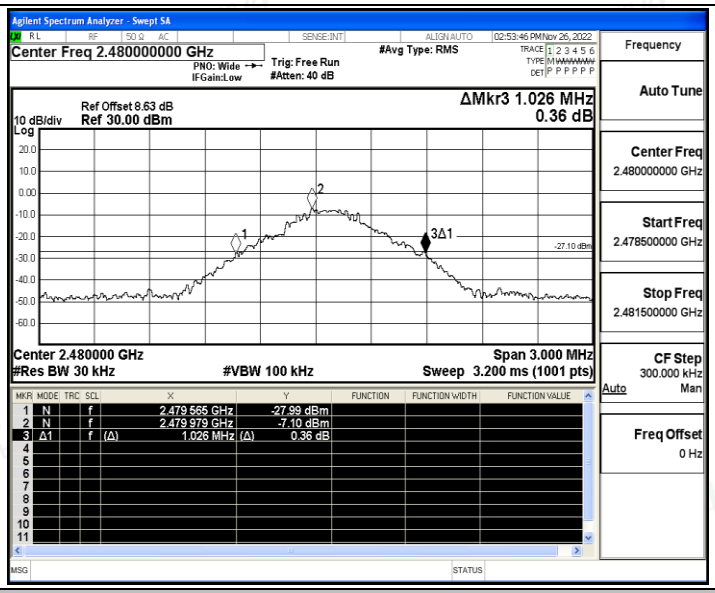
DH5_Ant1_2402



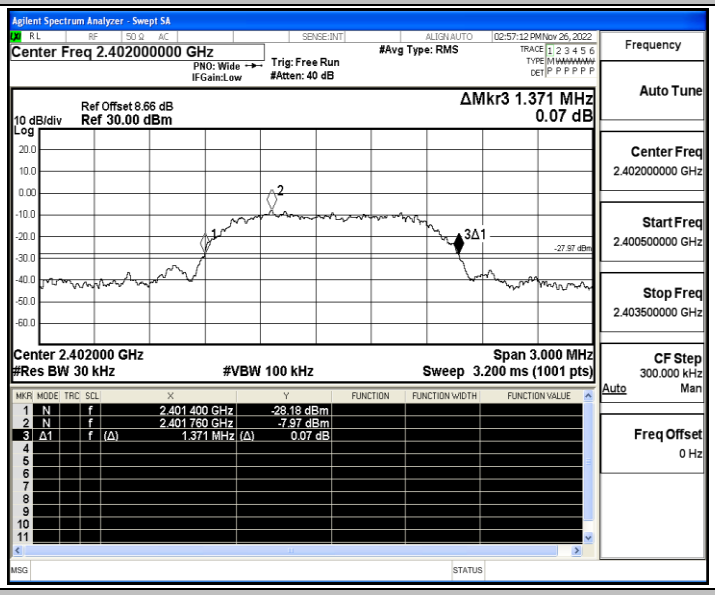
DH5_Ant1_2441



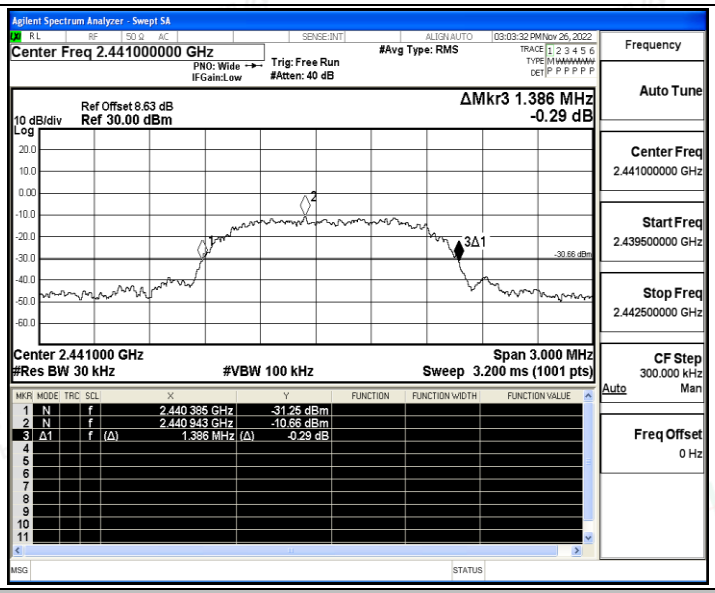
DH5_Ant1_2480



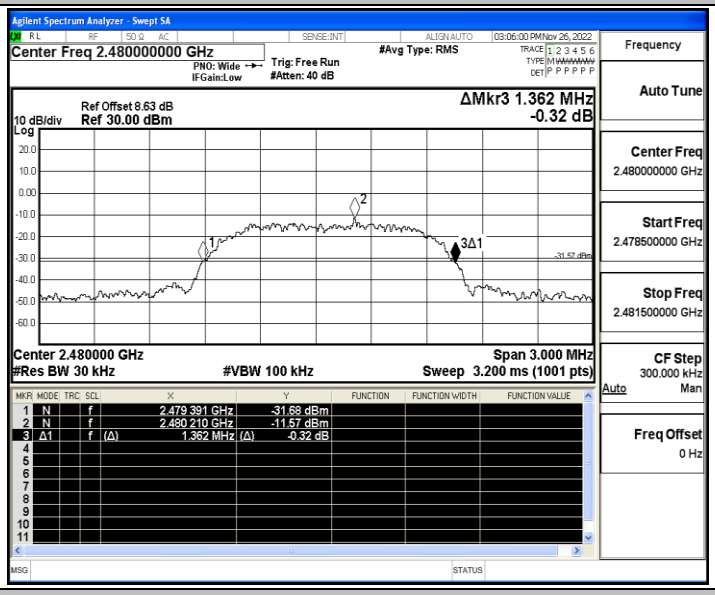
2DH5_Ant1_2402



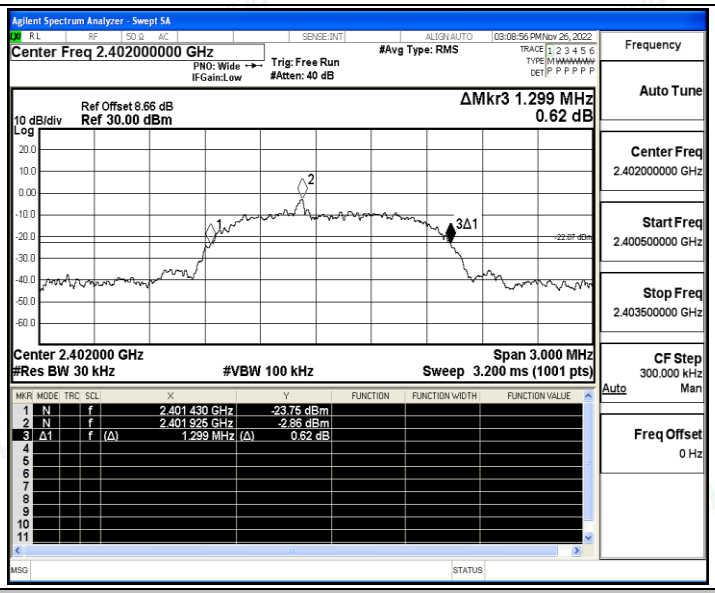
2DH5_Ant1_2441



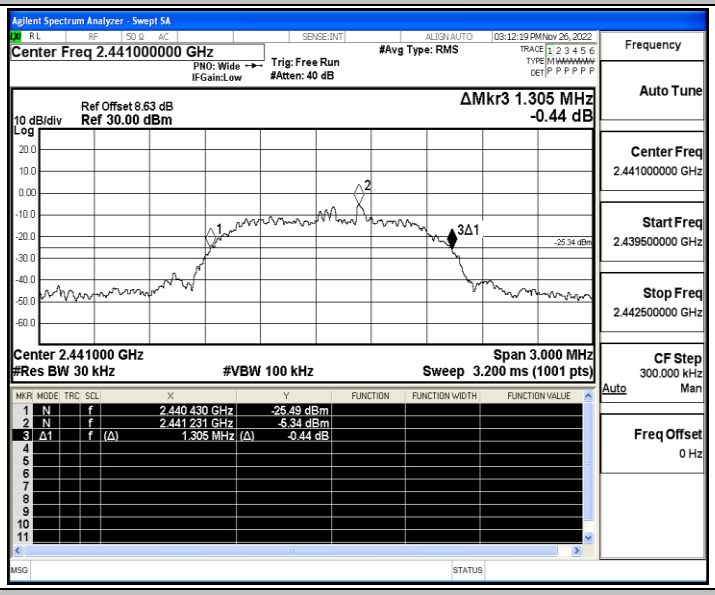
2DH5_Ant1_2480



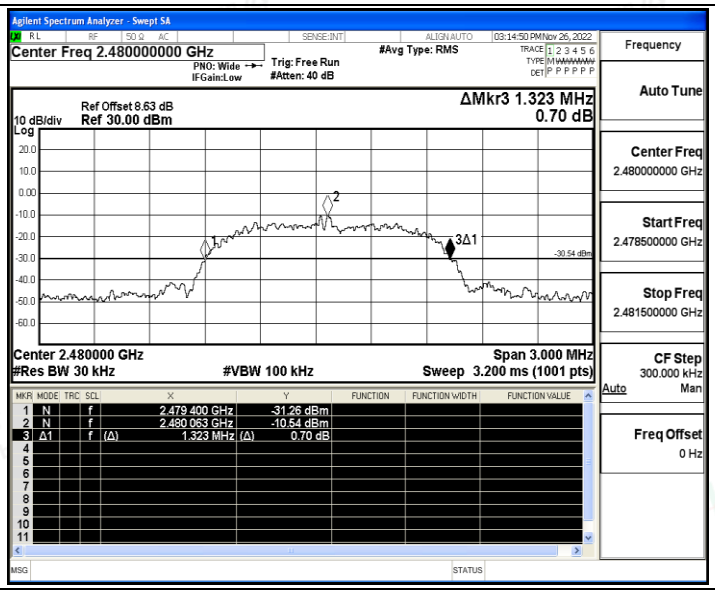
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
03:14:50 PM Nov 26, 2022
Frequency
Auto Tune
Ref Offset 8.63 dB
10 dB/div
Log
Ref 30.00 dBm
ΔMkr3 1.323 MHz
0.70 dB
-30.54 dBm
Center 2.480000 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3.000 MHz
Sweep 3.200 ms (1001 pts)
1 N 1 f 2.479 400 GHz -31.26 dBm
2 N 1 f 2.480 063 GHz -10.54 dBm
3 Δ1 1 f (Δ) 1.323 MHz (Δ) 0.70 dB
Center Freq
2.480000000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.481500000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz

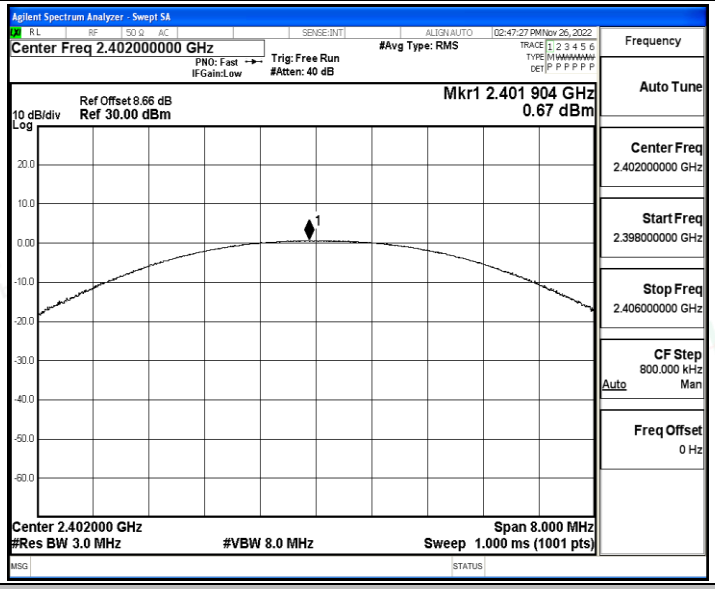
A.2 Maximum conducted output power

Test Result

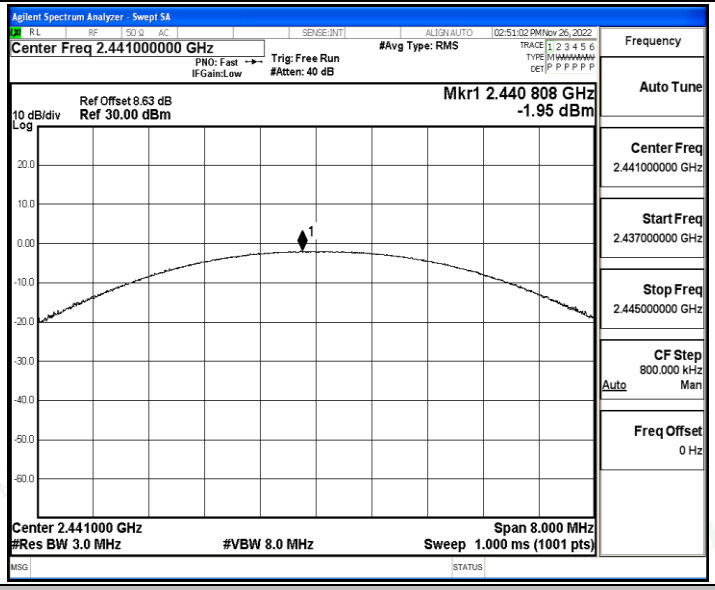
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	0.67	≤20.97	PASS
		2441	-1.95	≤20.97	PASS
		2480	-4.31	≤20.97	PASS
2DH5	Ant1	2402	0.75	≤20.97	PASS
		2441	-1.94	≤20.97	PASS
		2480	-4.24	≤20.97	PASS
3DH5	Ant1	2402	1.36	≤20.97	PASS
		2441	-1.66	≤20.97	PASS
		2480	-4.21	≤20.97	PASS

Test Graphs

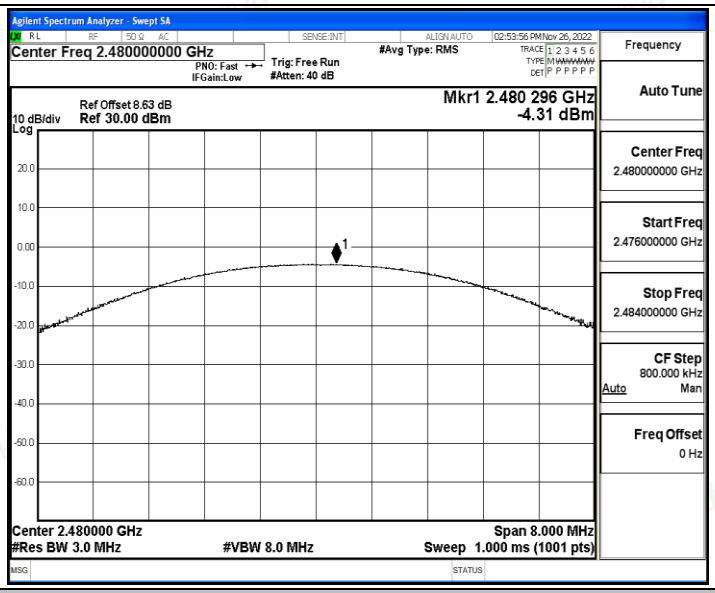
DH5_Ant1_2402



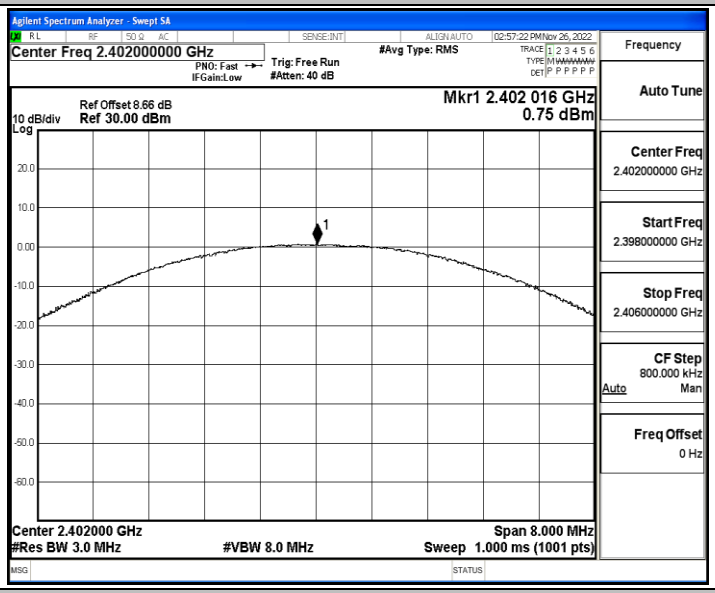
DH5_Ant1_2441



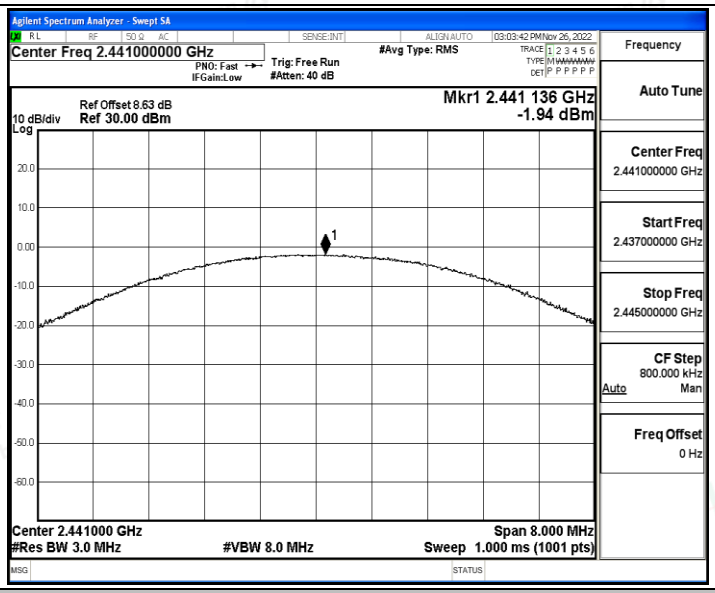
DH5_Ant1_2480



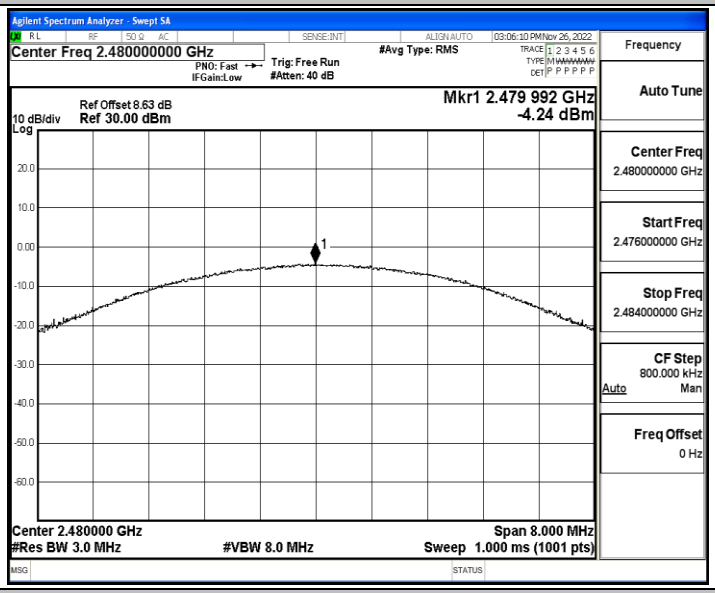
2DH5_Ant1_2402



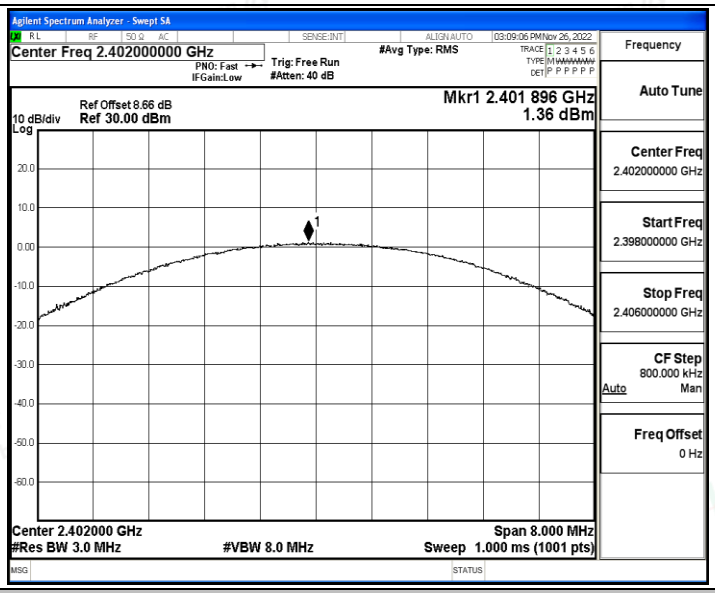
2DH5_Ant1_2441



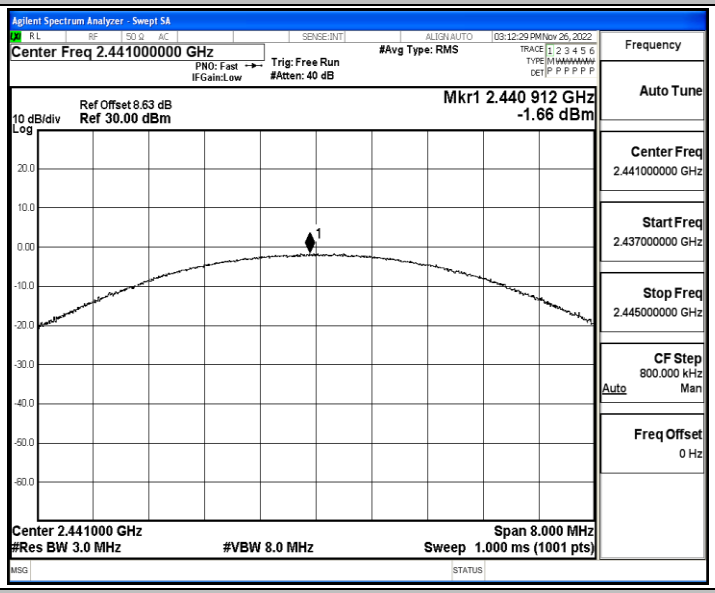
2DH5_Ant1_2480



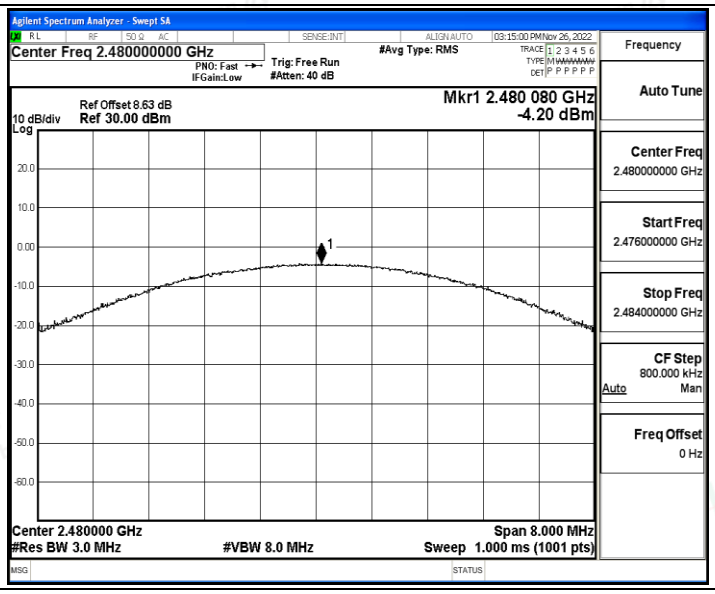
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
03:15:00 PM Nov 26, 2022
Frequency
Auto Tune
Ref Offset 8.63 dB
10 dB/div Ref 30.00 dBm
Log
Mkr1 2.480 080 GHz
-4.20 dBm
Center Freq
2.480000000 GHz
Start Freq
2.476000000 GHz
Stop Freq
2.484000000 GHz
CF Step
800.000 kHz
Auto Man
Freq Offset
0 Hz
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Span 8.000 MHz
Sweep 1.000 ms (1001 pts)

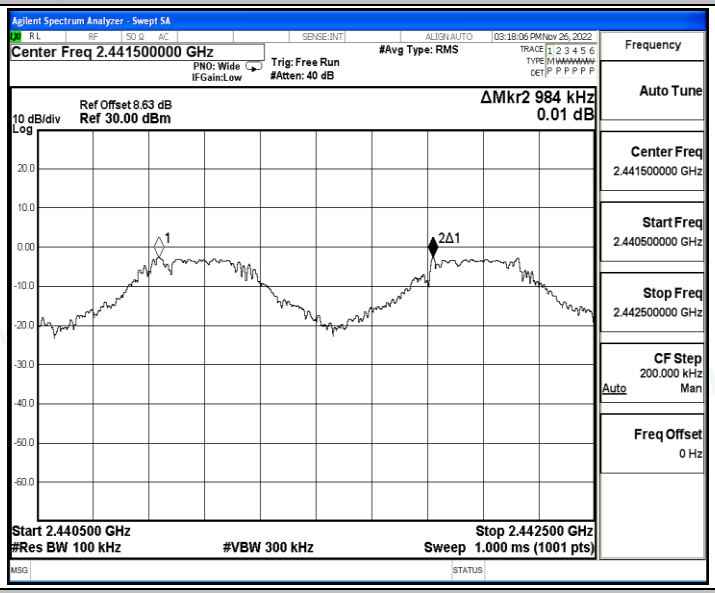
A.3 Carrier frequency separation

Test Result

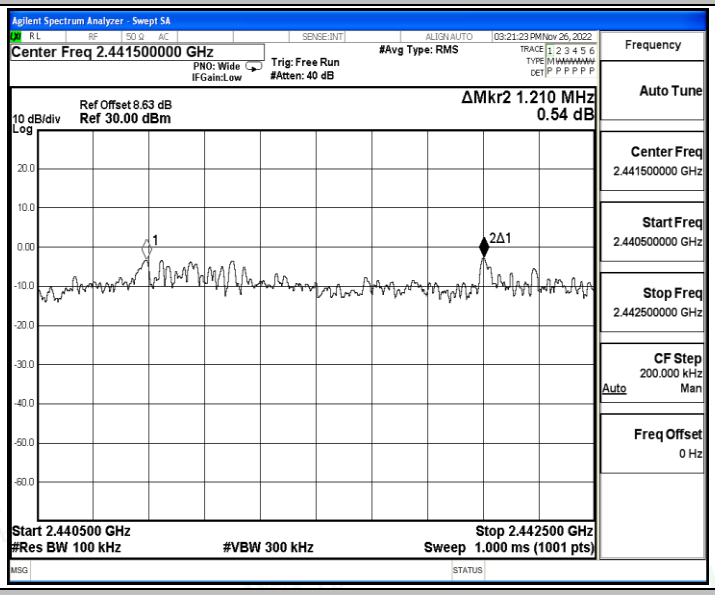
TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.984	≥0.684	PASS
2DH5	Ant1	Hop	1.21	≥0.924	PASS
3DH5	Ant1	Hop	1.006	≥0.882	PASS

Test Graphs

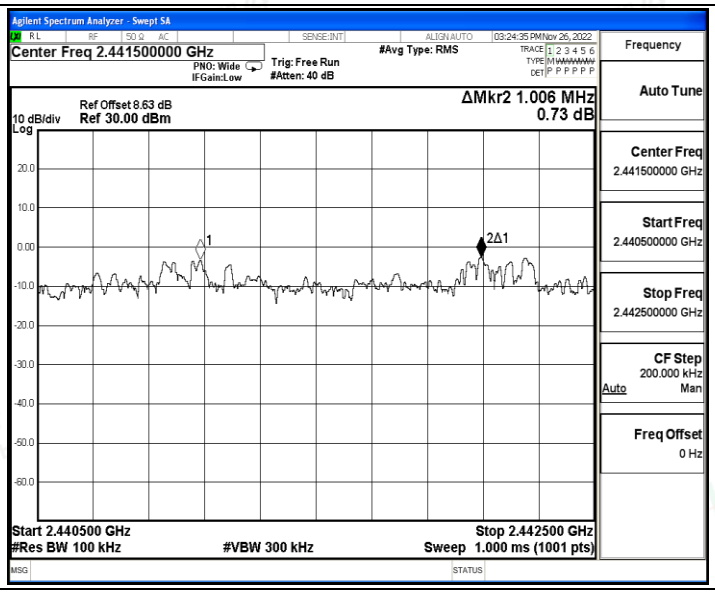
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441500000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
03:24:35 PM Nov 26, 2022
Frequency
Auto Tune
Ref Offset 8.63 dB
10 dB/div Ref 30.00 dBm
Log
ΔMkr2 1.006 MHz
0.73 dB
Center Freq
2.441500000 GHz
Start Freq
2.440500000 GHz
Stop Freq
2.442500000 GHz
CF Step
200.000 kHz
Auto Man
Freq Offset
0 Hz
Start 2.440500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.442500 GHz
Sweep 1.000 ms (1001 pts)

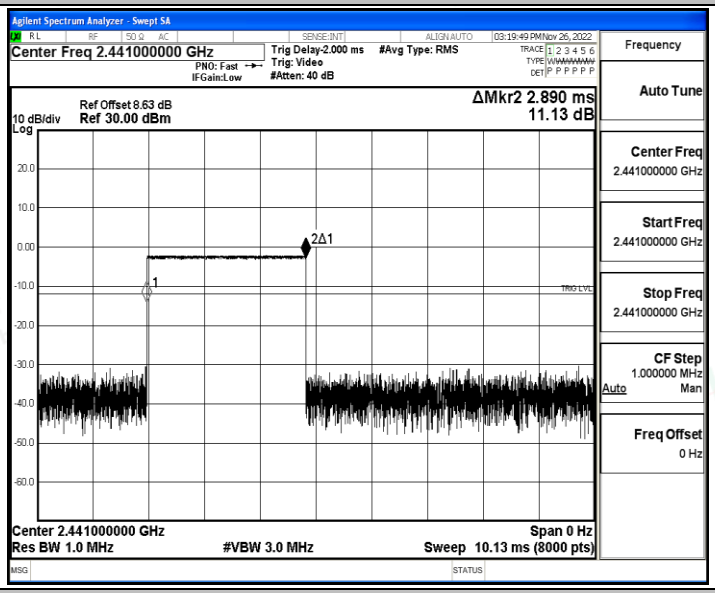
A.4 Time of occupancy

Test Result

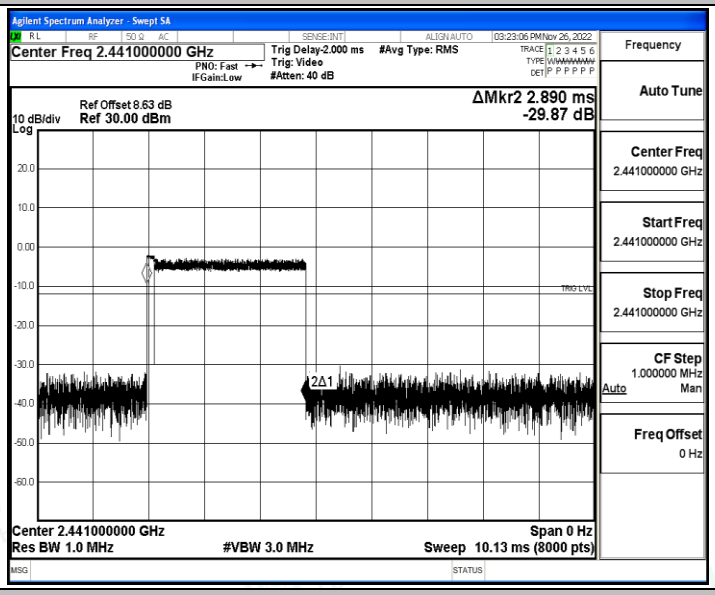
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.89	106.67	0.308	≤0.4	PASS
2DH5	Ant1	Hop	2.89	106.67	0.308	≤0.4	PASS
3DH5	Ant1	Hop	2.89	106.67	0.308	≤0.4	PASS

Test Graphs

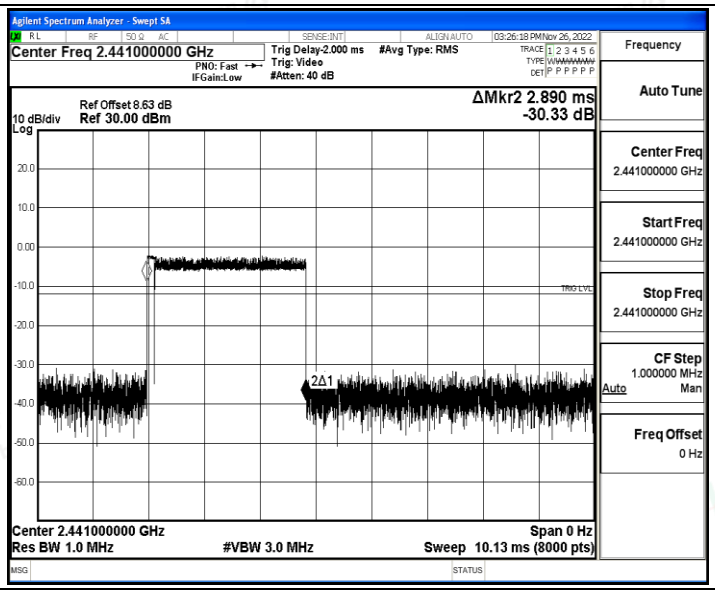
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig Delay-2.000 ms
Trig: Video
#Avg Type: RMS
#Atten: 40 dB
03:26:18 PM Nov 26, 2022
Ref Offset 8.63 dB
10 dB/div Ref 30.00 dBm
Log
ΔMkr2 2.890 ms
-30.33 dB
2Δ1
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 10.13 ms (8000 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

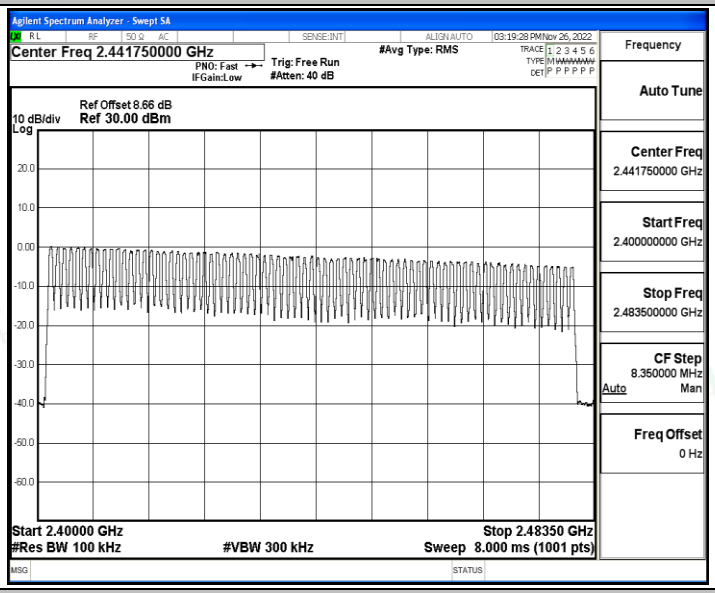
A.5 Number of hopping channels

Test Result

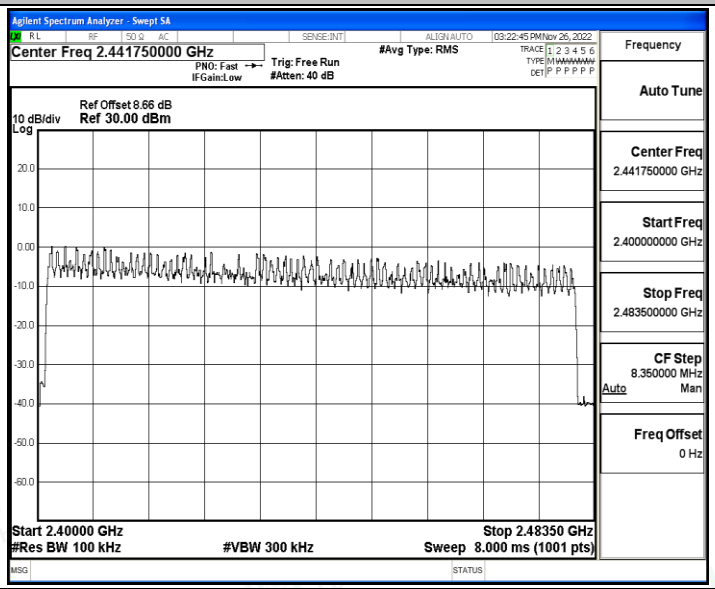
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

Test Graphs

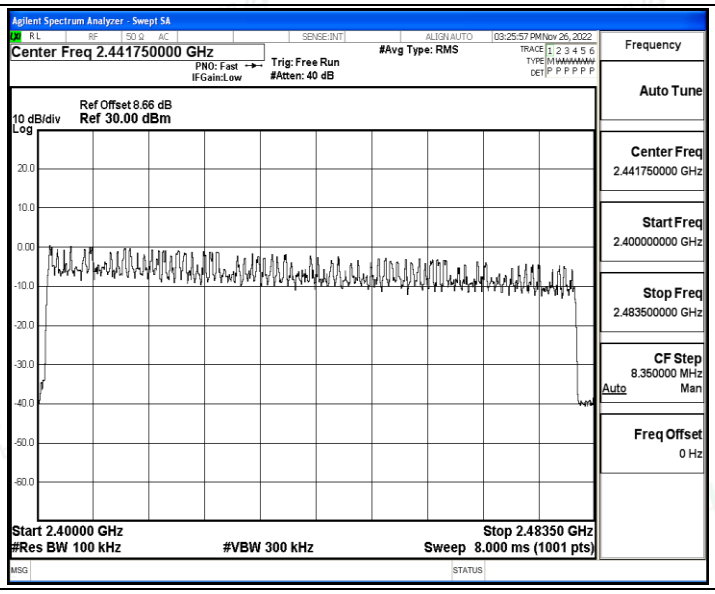
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441750000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
03:25:57 PM Nov 26, 2022
Ref Offset 8.66 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
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 8.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.441750000 GHz
Start Freq
2.400000000 GHz
Stop Freq
2.483500000 GHz
CF Step
8.350000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

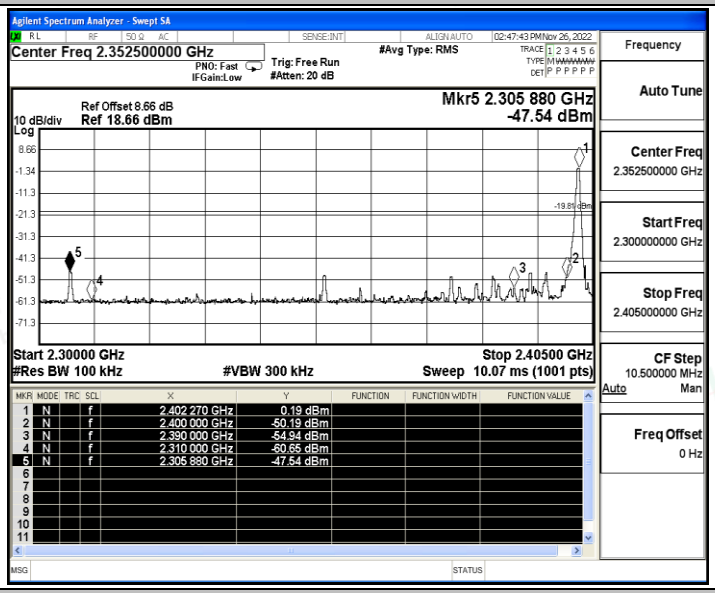
A.6 Band edge measurements

Test Result

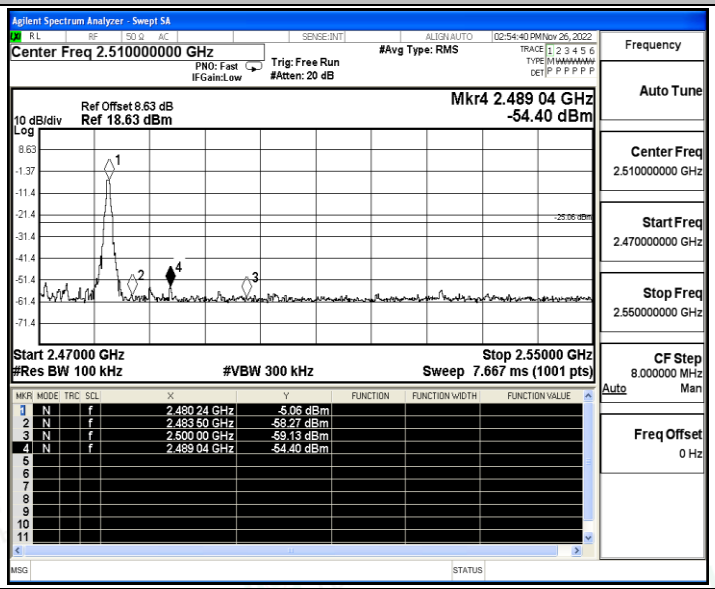
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	0.19	-47.54	≤-19.81	PASS
		High	2480	-5.06	-54.4	≤-25.06	PASS
		Low	Hop_2402	-0.15	-45.81	≤-20.15	PASS
		High	Hop_2480	-4.48	-52.38	≤-24.48	PASS
2DH5	Ant1	Low	2402	-3.12	-49.79	≤-23.12	PASS
		High	2480	-10.29	-58.15	≤-30.29	PASS
		Low	Hop_2402	-4.27	-46.57	≤-24.27	PASS
		High	Hop_2480	-4.79	-53.69	≤-24.79	PASS
3DH5	Ant1	Low	2402	-5.27	-50.83	≤-25.27	PASS
		High	2480	-10.73	-56.98	≤-30.73	PASS
		Low	Hop_2402	-5.17	-45.27	≤-25.17	PASS
		High	Hop_2480	-6.66	-54.28	≤-26.66	PASS

Test Graphs

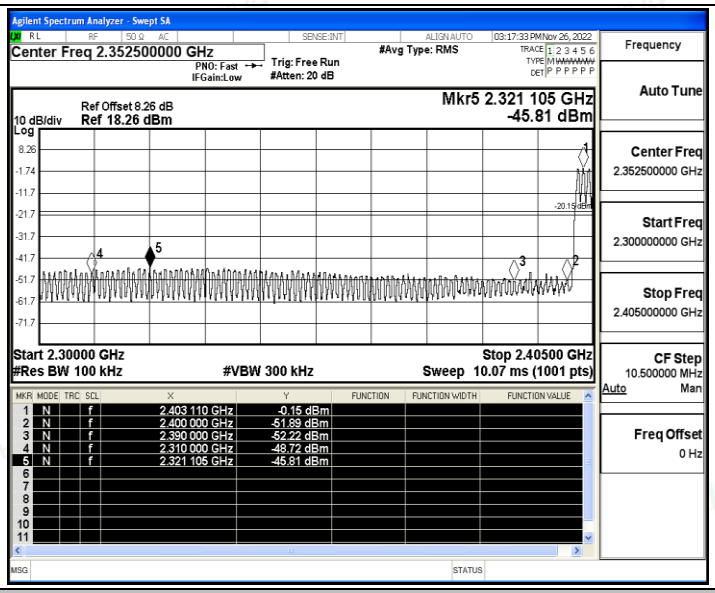
DH5_Ant1_Low_2402



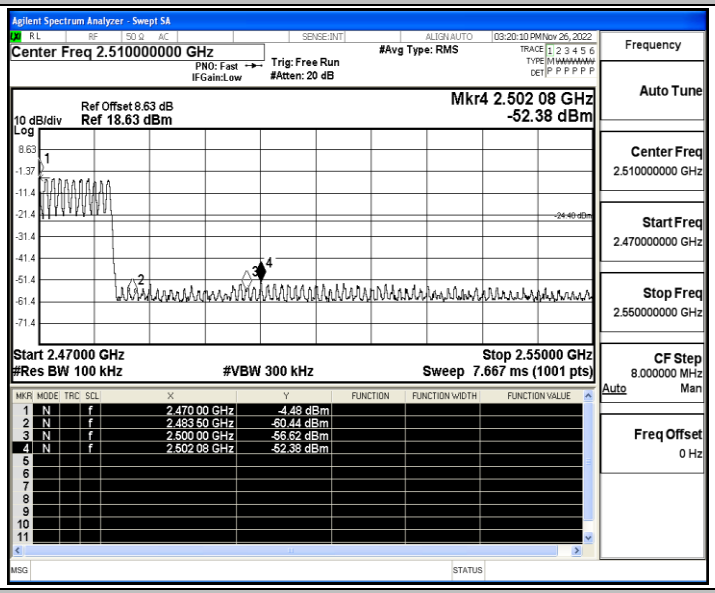
DH5_Ant1_High_2480



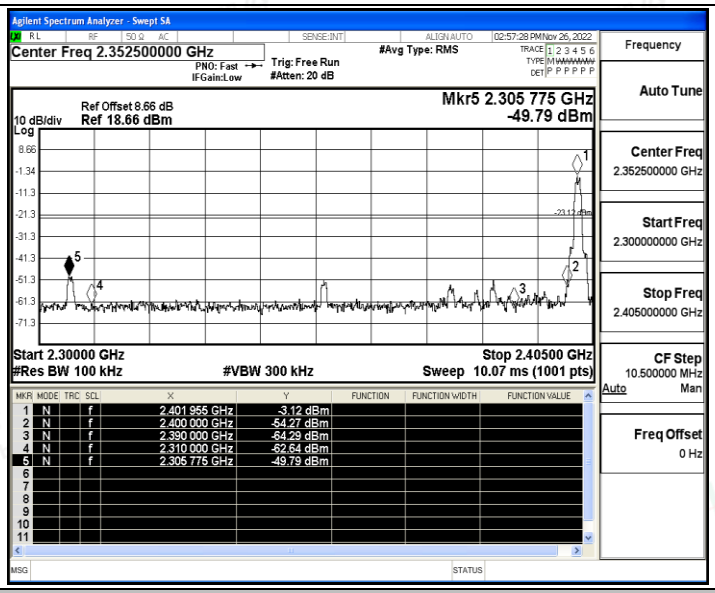
DH5_Ant1_Low_Hop_2402



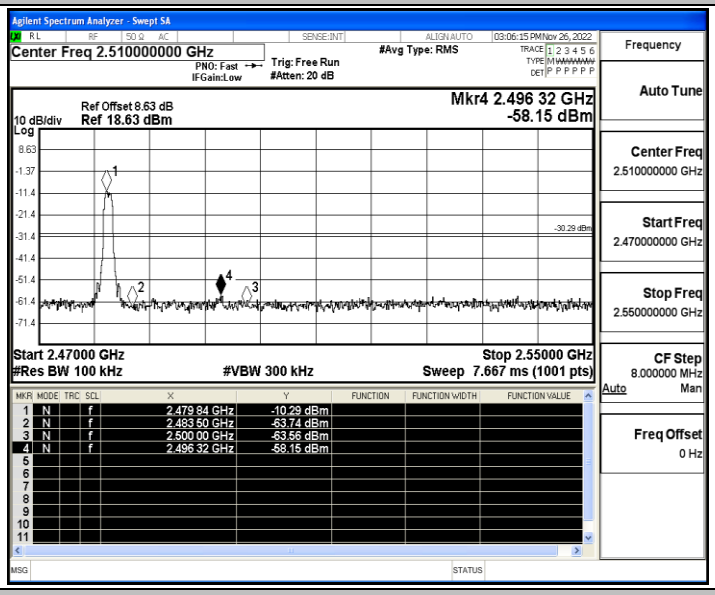
DH5_Ant1_High_Hop_2480



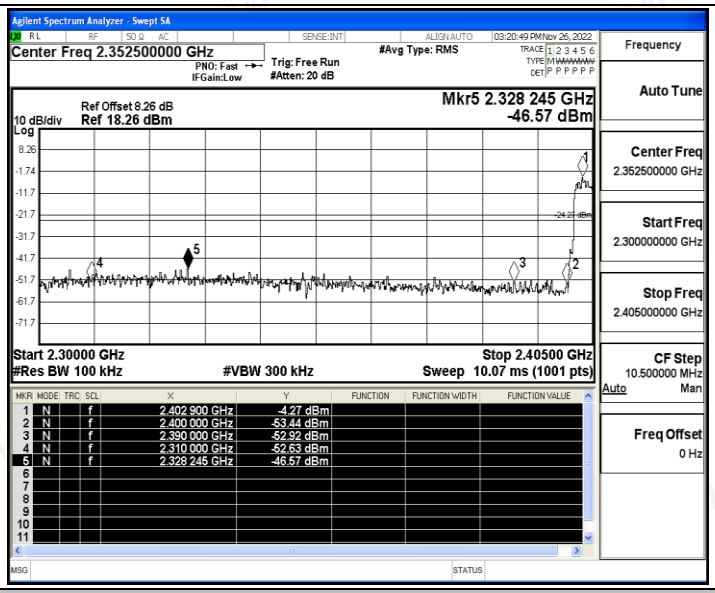
2DH5_Ant1_Low_2402



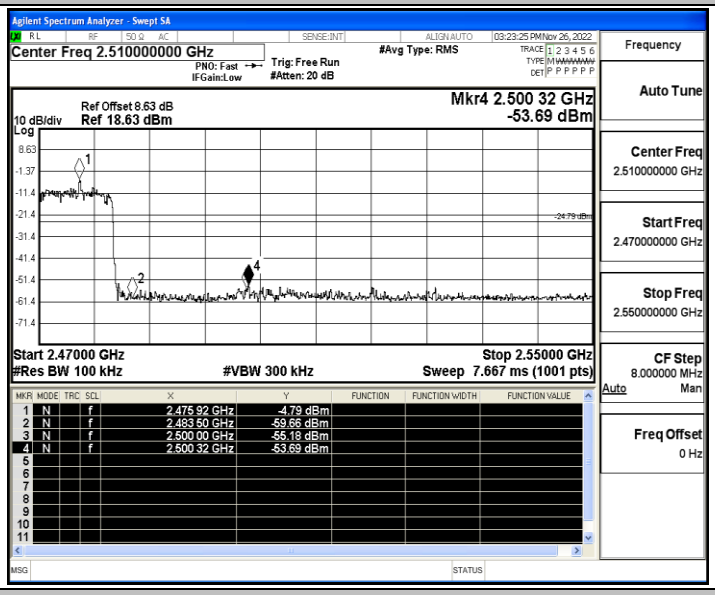
2DH5_Ant1_High_2480



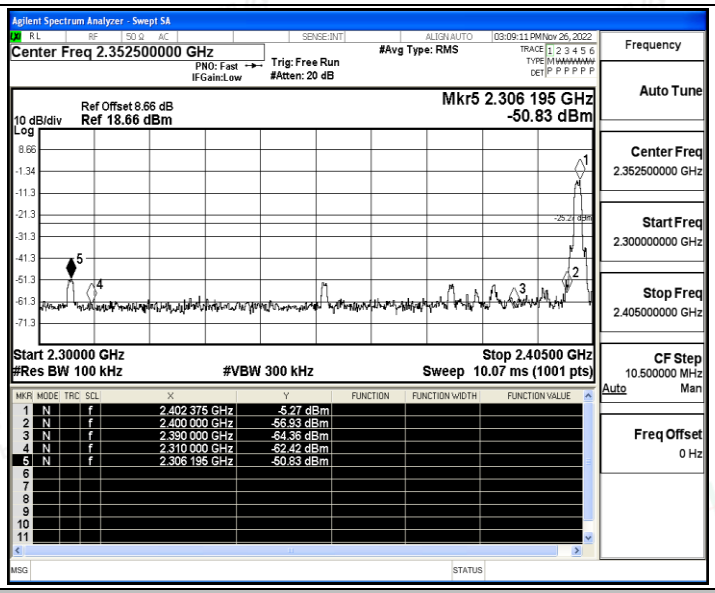
2DH5_Ant1_Low_Hop_2402



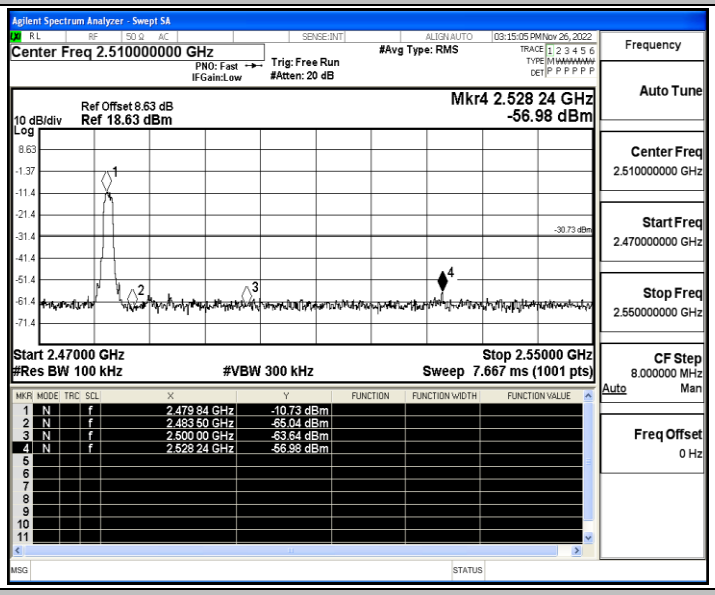
2DH5_Ant1_High_Hop_2480



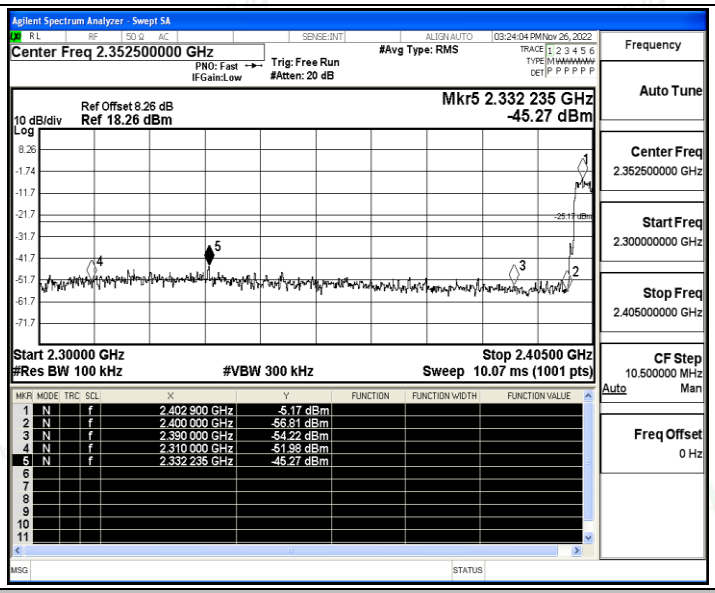
3DH5_Ant1_Low_2402



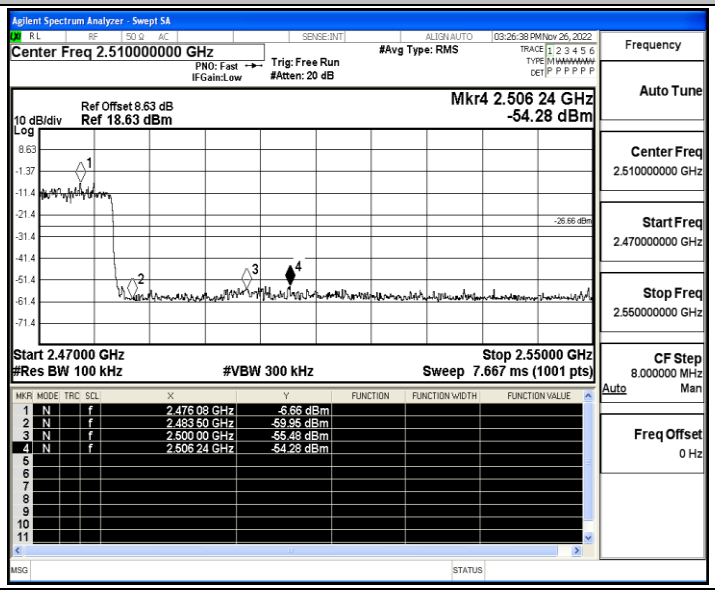
3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480



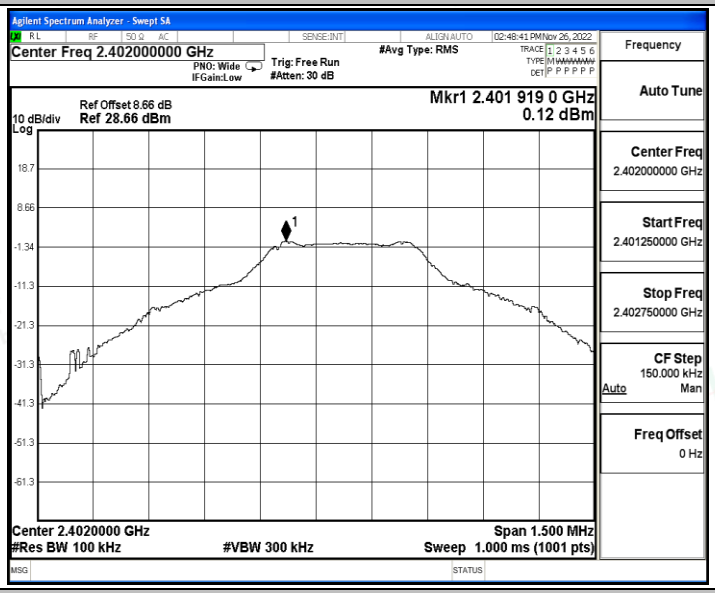
A.7 Conducted Spurious Emission

Test Result

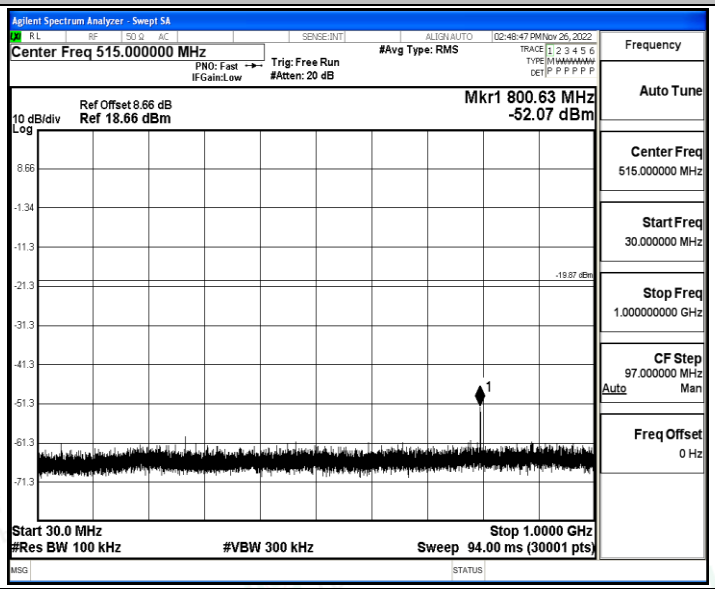
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	0.13	0.13	---	PASS
			30~1000	0.13	-52.07	≤-19.87	PASS
			1000~26500	0.13	-23.73	≤-19.87	PASS
		2441	Reference	-2.73	-2.73	---	PASS
			30~1000	-2.73	-54.37	≤-22.73	PASS
			1000~26500	-2.73	-34.98	≤-22.73	PASS
		2480	Reference	-5.75	-5.75	---	PASS
			30~1000	-5.75	-56.48	≤-25.75	PASS
			1000~26500	-5.75	-39.76	≤-25.75	PASS
2DH5	Ant1	2402	Reference	-7.06	-7.06	---	PASS
			30~1000	-7.06	-54.41	≤-27.06	PASS
			1000~26500	-7.06	-34.72	≤-27.06	PASS
		2441	Reference	-7.88	-7.88	---	PASS
			30~1000	-7.88	-58.27	≤-27.88	PASS
			1000~26500	-7.88	-33.79	≤-27.88	PASS
		2480	Reference	-5.87	-5.87	---	PASS
			30~1000	-5.87	-58.16	≤-25.87	PASS
			1000~26500	-5.87	-45.47	≤-25.87	PASS
3DH5	Ant1	2402	Reference	-1.72	-1.72	---	PASS
			30~1000	-1.72	-52.1	≤-21.72	PASS
			1000~26500	-1.72	-23.92	≤-21.72	PASS
		2441	Reference	-6.82	-6.82	---	PASS
			30~1000	-6.82	-58.5	≤-26.82	PASS
			1000~26500	-6.82	-38.68	≤-26.82	PASS
		2480	Reference	-9.24	-9.24	---	PASS
			30~1000	-9.24	-59	≤-29.24	PASS
			1000~26500	-9.24	-41.4	≤-29.24	PASS

Test Graphs

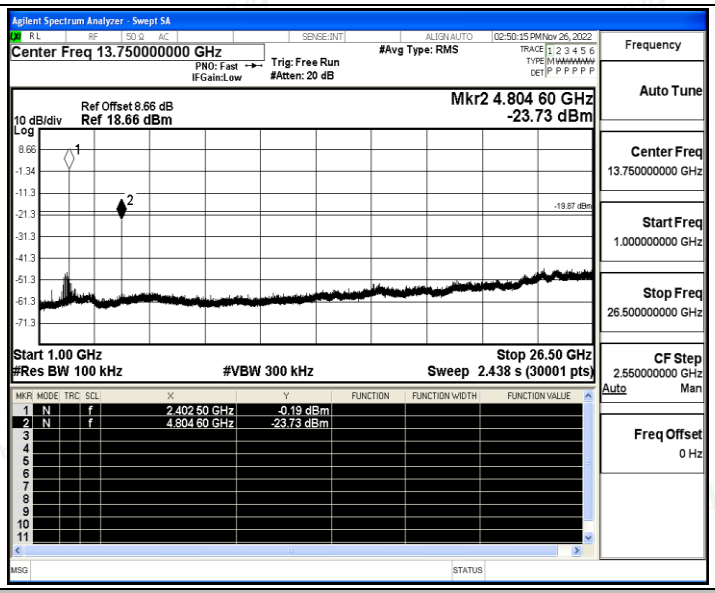
DH5_Ant1_2402_0~Reference



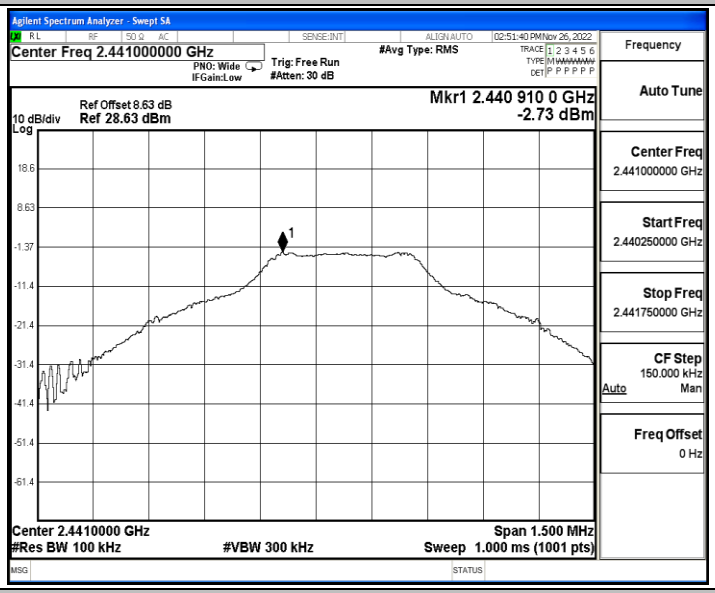
DH5_Ant1_2402_30~1000



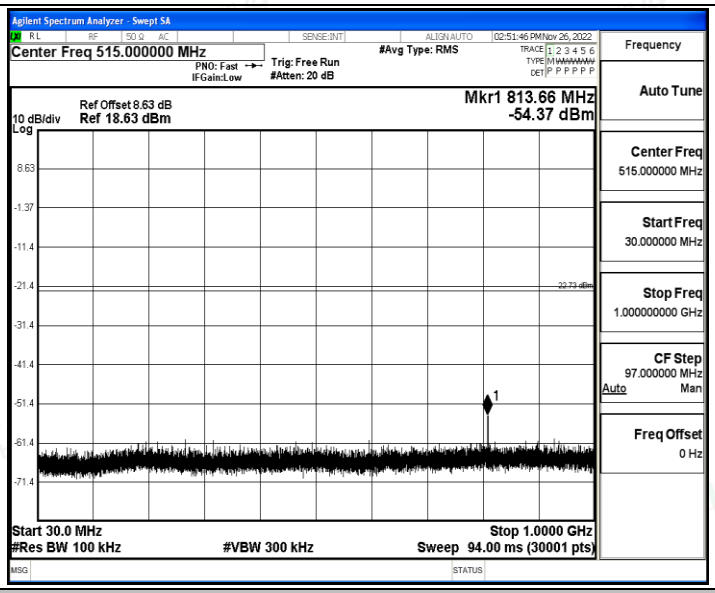
DH5_Ant1_2402_1000~26500



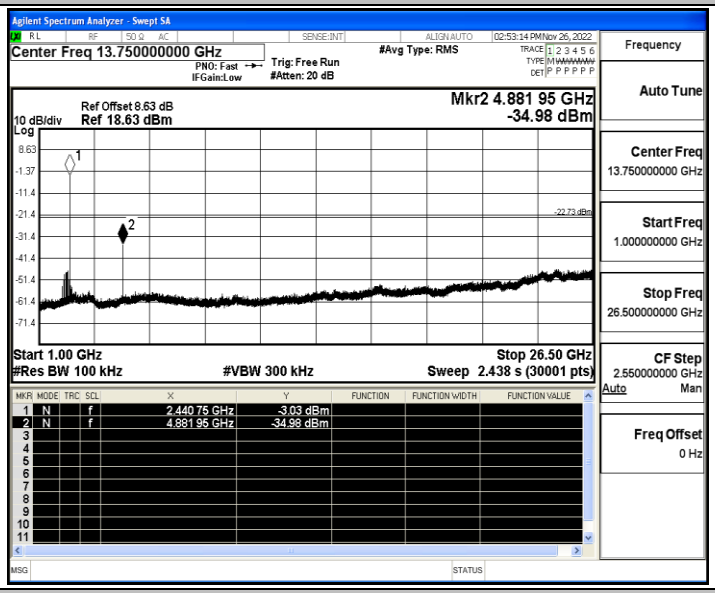
DH5_Ant1_2441_0~Reference



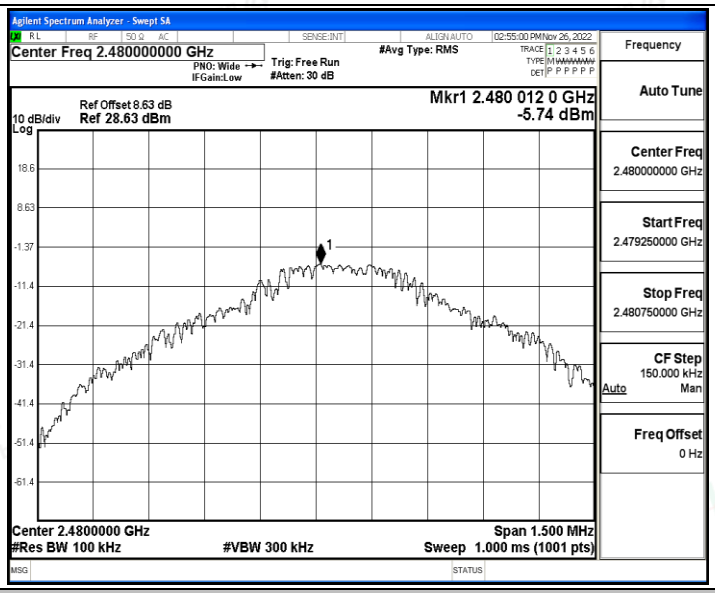
DH5_Ant1_2441_30~1000



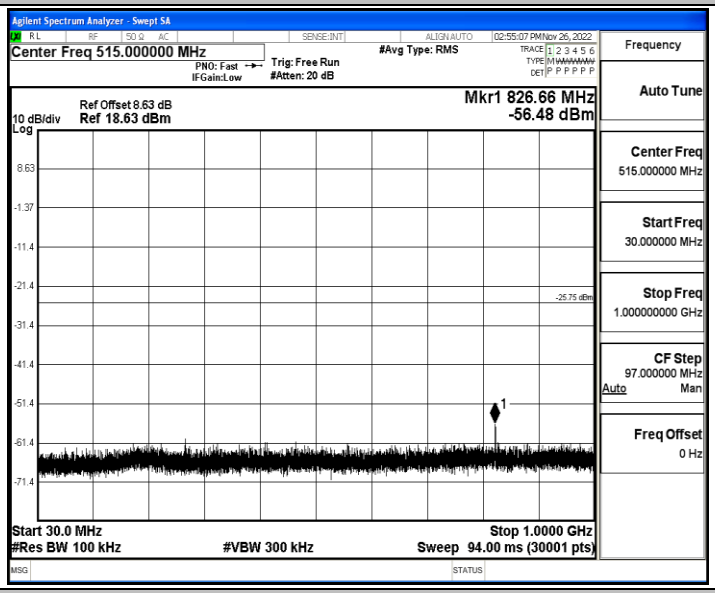
DH5_Ant1_2441_1000~26500



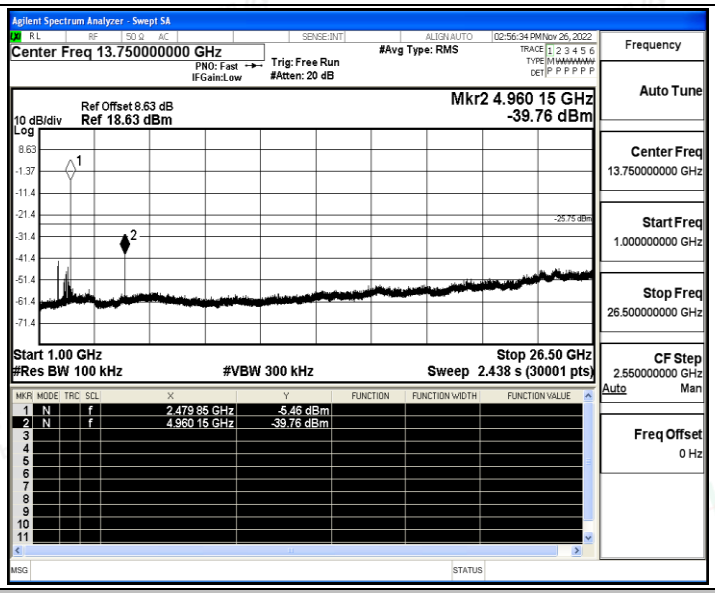
DH5_Ant1_2480_0~Reference



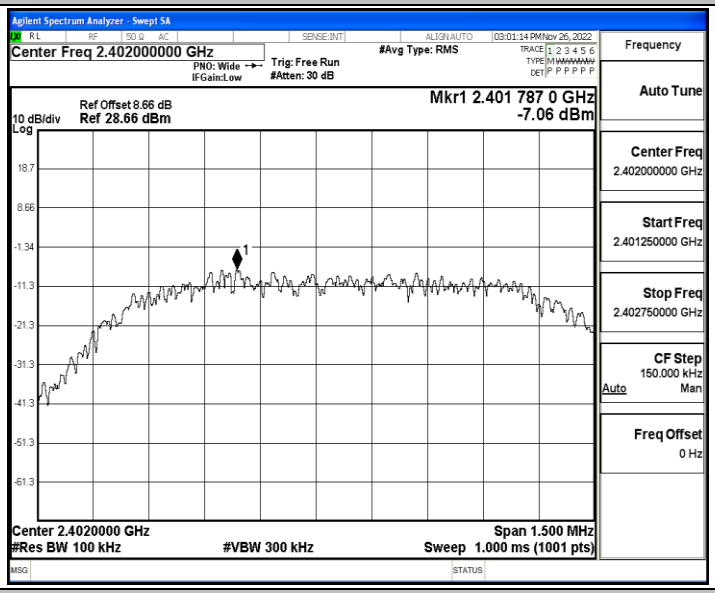
DH5_Ant1_2480_30~1000



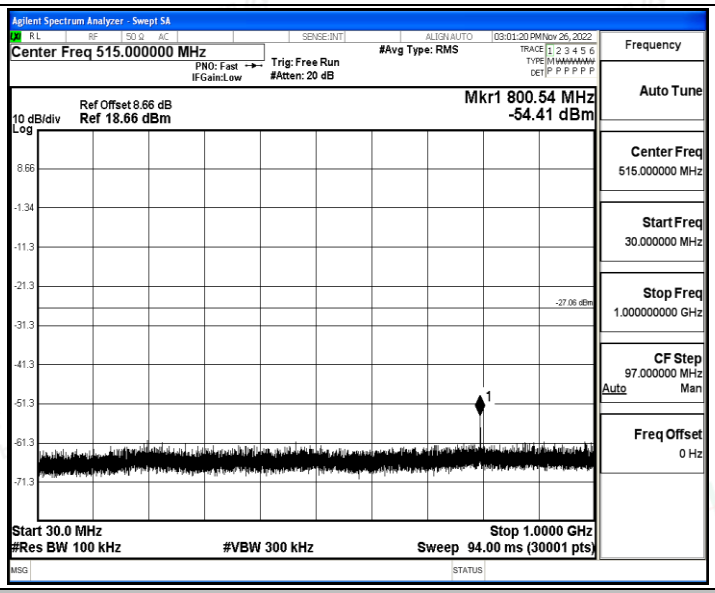
DH5_Ant1_2480_1000~26500



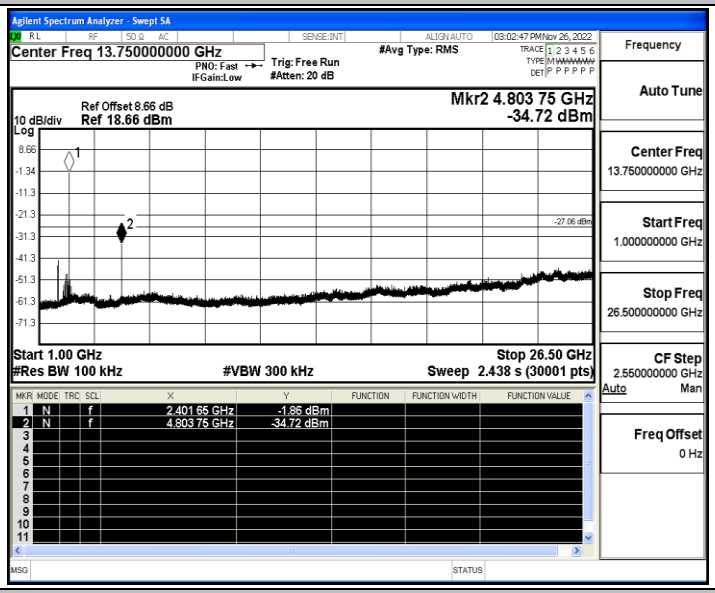
2DH5_Ant1_2402_0~Reference



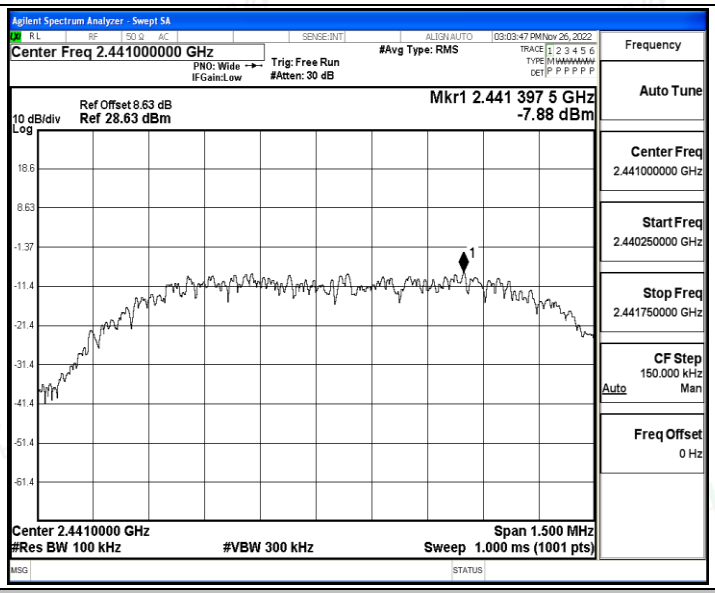
2DH5_Ant1_2402_30~1000



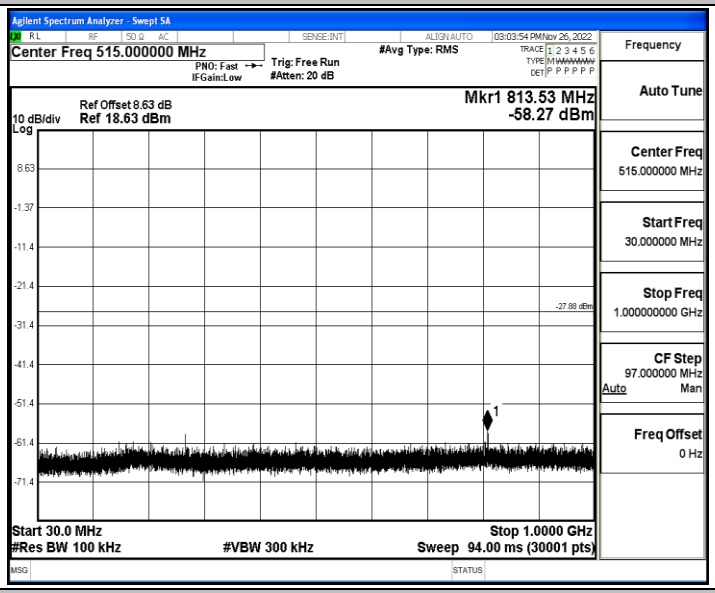
2DH5_Ant1_2402_1000~26500



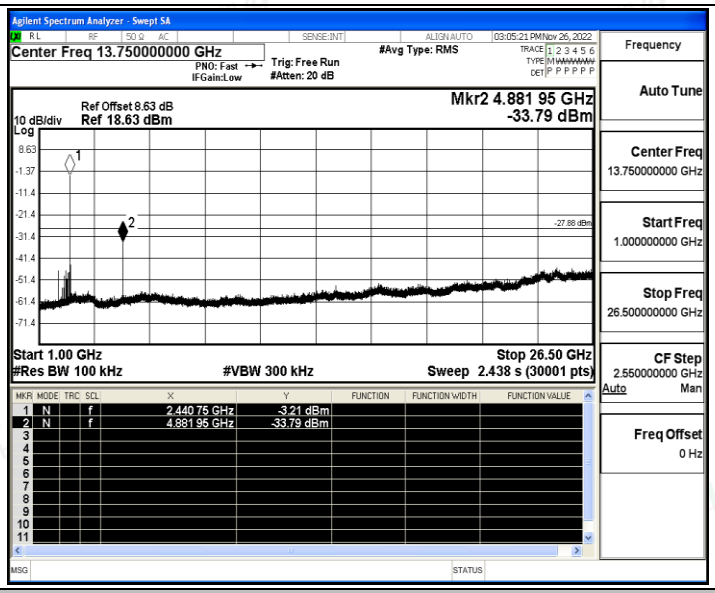
2DH5_Ant1_2441_0~Reference



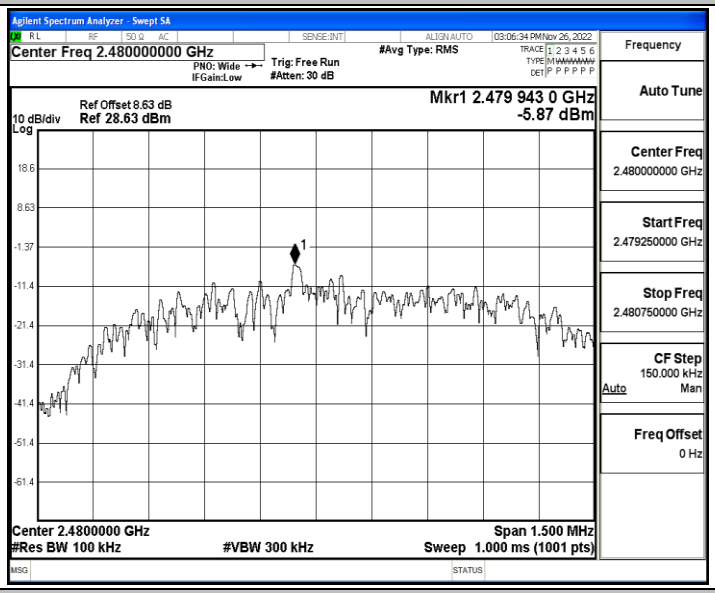
2DH5_Ant1_2441_30~1000



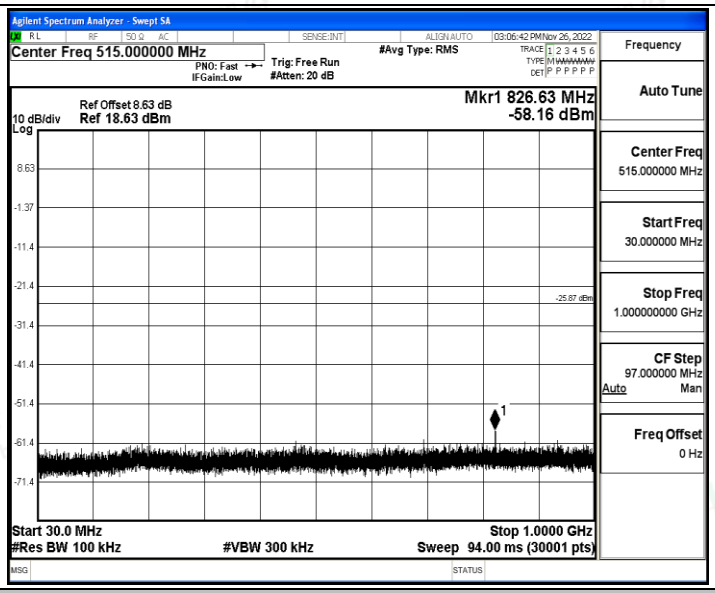
2DH5_Ant1_2441_1000~26500



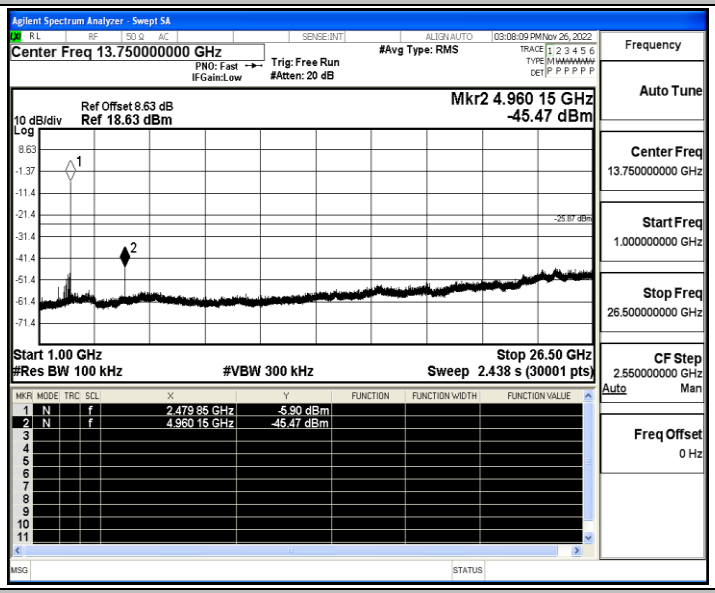
2DH5_Ant1_2480_0~Reference



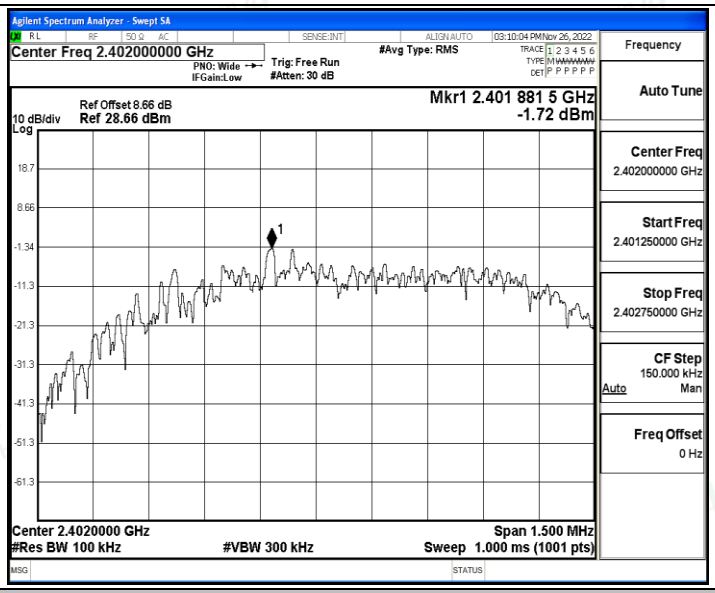
2DH5_Ant1_2480_30~1000



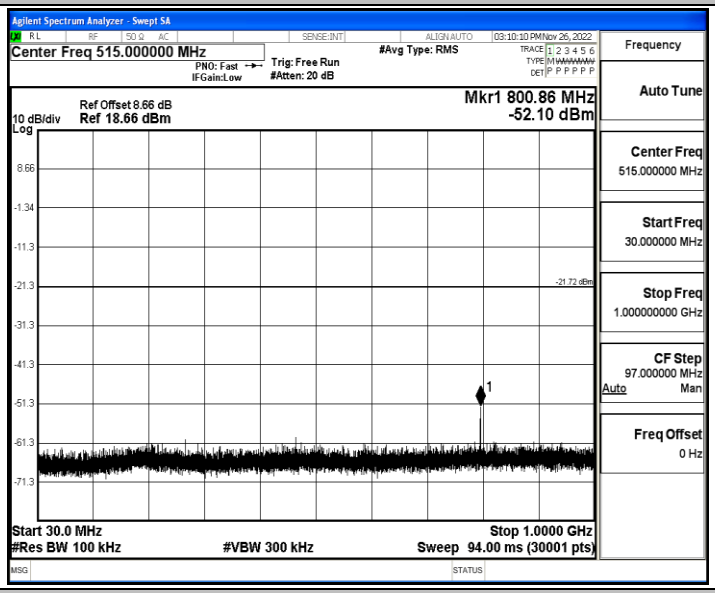
2DH5_Ant1_2480_1000~26500



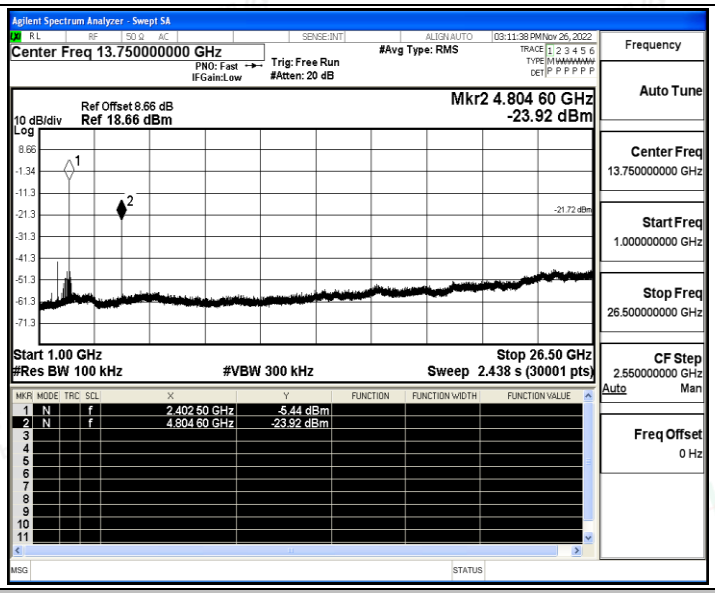
3DH5_Ant1_2402_0~Reference



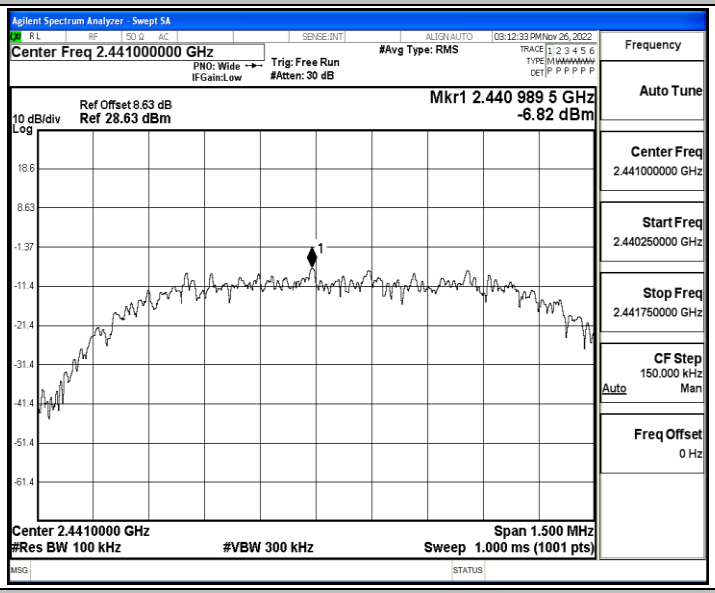
3DH5_Ant1_2402_30~1000



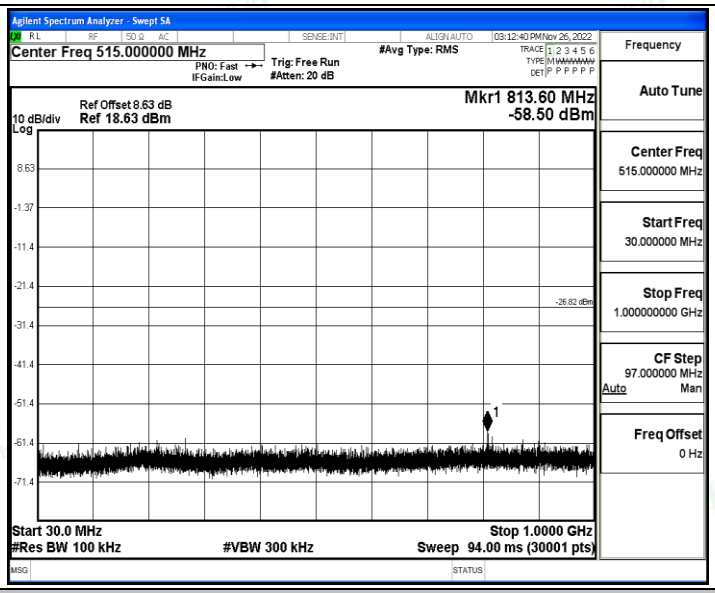
3DH5_Ant1_2402_1000~26500



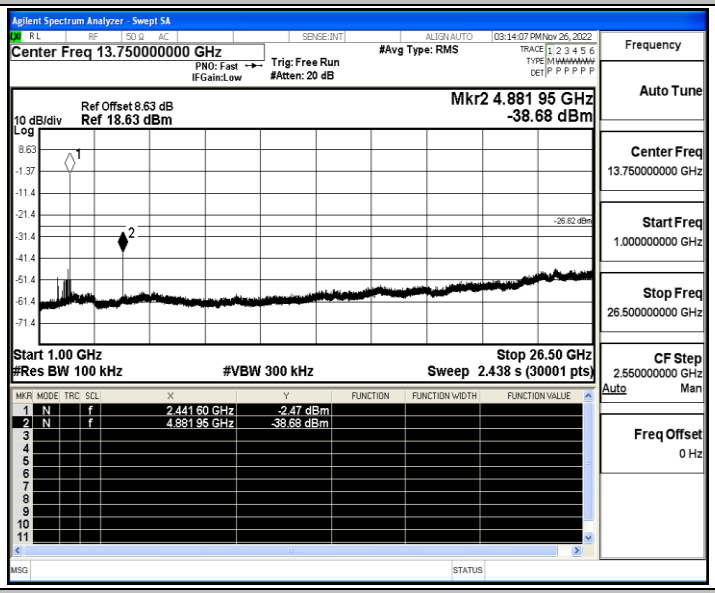
3DH5_Ant1_2441_0~Reference



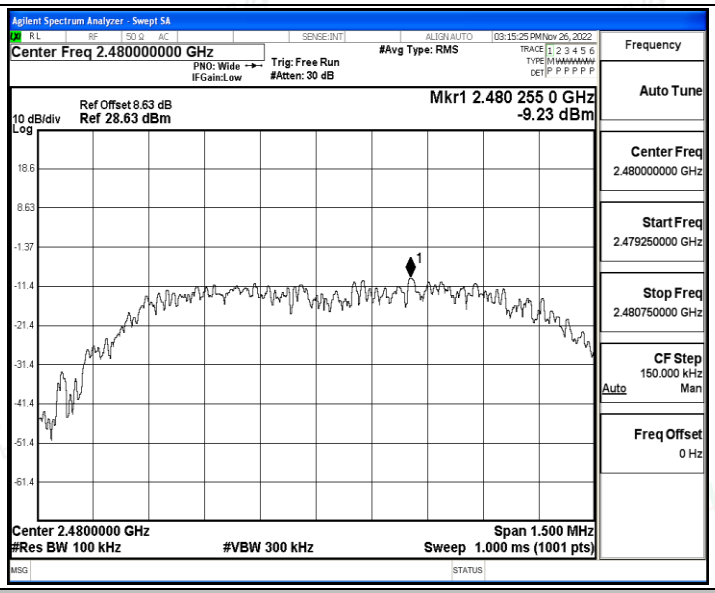
3DH5_Ant1_2441_30~1000



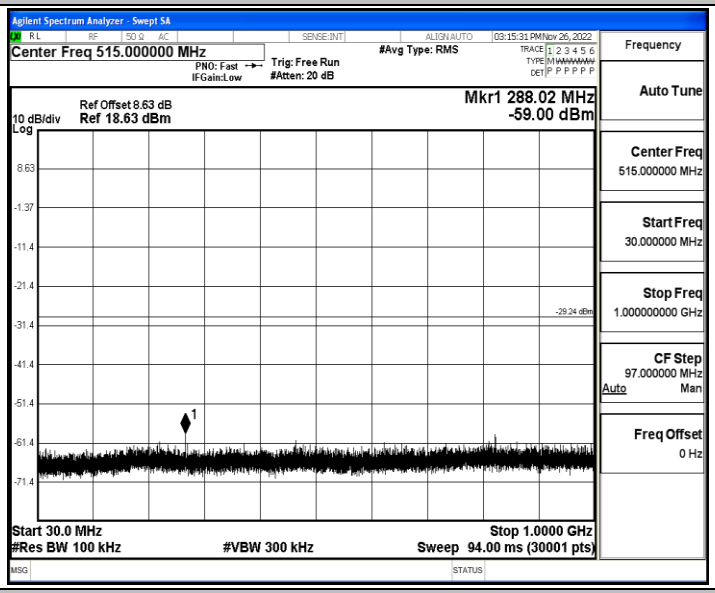
3DH5_Ant1_2441_1000~26500



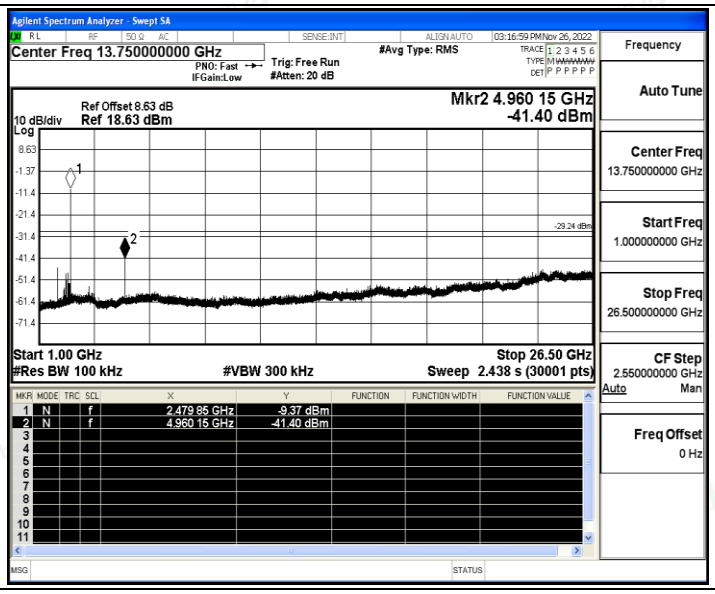
3DH5_Ant1_2480_0~Reference



3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
03:16:59 PM Nov 26, 2022
Ref Offset 8.63 dB
10 dB/div
Ref 18.63 dBm
Log
Mkr2 4.960 15 GHz
-41.40 dBm
-29.24 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
1 N 1 f 2.479 85 GHz -9.37 dBm
2 N 1 f 4.960 15 GHz -41.40 dBm
Frequency
Auto Tune
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto
Man
Freq Offset
0 Hz

A.8 Emissions in Restricted Bands

Test Result

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	-56.42	≤-41.20	42.19	≤54	PASS
				AV	2354.075	-45.64	≤-41.20	52.97	≤54	PASS
				AV	2390.000	-53.22	≤-41.20	45.39	≤54	PASS
				Peak	2310.000	-52.09	≤-21.20	46.52	≤74	PASS
				Peak	2378.225	-42.29	≤-21.20	56.32	≤74	PASS
				Peak	2390.000	-49.36	≤-21.20	49.25	≤74	PASS
		High	2480	AV	2483.500	-54.71	≤-41.20	43.90	≤54	PASS
				AV	2485.760	-51.96	≤-41.20	46.65	≤54	PASS
				AV	2500.000	-55.6	≤-41.20	43.01	≤54	PASS
				Peak	2483.500	-51.64	≤-21.20	46.97	≤74	PASS
				Peak	2487.760	-46.42	≤-21.20	52.19	≤74	PASS
				Peak	2500.000	-49.92	≤-21.20	48.69	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-42.64	≤-21.20	55.97	≤74	PASS
				Peak	2321.840	-39.36	≤-21.20	59.25	≤74	PASS
				Peak	2390.000	-43.27	≤-21.20	55.34	≤74	PASS
		High	Hop_2480	Peak	2483.500	-48.03	≤-21.20	50.58	≤74	PASS
				Peak	2500.000	-42.91	≤-21.20	55.70	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-56.47	≤-41.20	42.14	≤54	PASS
				AV	2354.180	-46.77	≤-41.20	51.84	≤54	PASS
				AV	2390.000	-53.47	≤-41.20	45.14	≤54	PASS
				Peak	2310.000	-50.33	≤-21.20	48.28	≤74	PASS
				Peak	2353.655	-42.35	≤-21.20	56.26	≤74	PASS
				Peak	2390.000	-47.72	≤-21.20	50.89	≤74	PASS
		High	2480	AV	2483.500	-54.76	≤-41.20	43.85	≤54	PASS
				AV	2489.040	-53.69	≤-41.20	44.92	≤54	PASS
				AV	2500.000	-55.59	≤-41.20	43.02	≤54	PASS
				Peak	2483.500	-50.76	≤-21.20	47.85	≤74	PASS
				Peak	2495.680	-45.73	≤-21.20	52.88	≤74	PASS
				Peak	2500.000	-50.11	≤-21.20	48.50	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-41.3	≤-21.20	57.31	≤74	PASS
				Peak	2314.280	-40.51	≤-21.20	58.10	≤74	PASS
				Peak	2390.000	-45.1	≤-21.20	53.51	≤74	PASS
		High	Hop_2480	Peak	2483.500	-46.49	≤-21.20	52.12	≤74	PASS
				Peak	2499.040	-43.82	≤-21.20	54.79	≤74	PASS
				Peak	2500.000	-46.28	≤-21.20	52.33	≤74	PASS

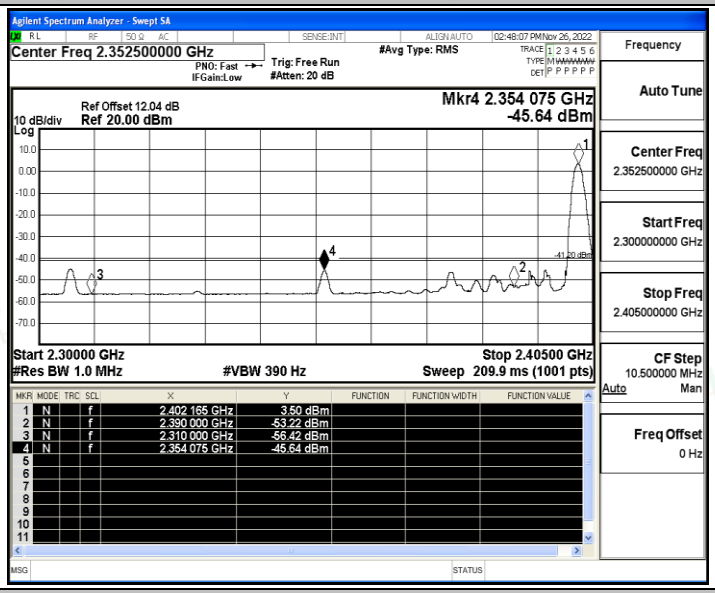
3DH5	Ant1	Low	2402	AV	2310.000	-56.5	≤-41.20	42.11	≤54	PASS
				AV	2354.180	-45.75	≤-41.20	52.86	≤54	PASS
				AV	2390.000	-52.64	≤-41.20	45.97	≤54	PASS
				Peak	2310.000	-50.35	≤-21.20	48.26	≤74	PASS
				Peak	2353.655	-42.33	≤-21.20	56.28	≤74	PASS
				Peak	2390.000	-47.33	≤-21.20	51.28	≤74	PASS
		High	2480	AV	2483.500	-54.64	≤-41.20	43.97	≤54	PASS
				AV	2489.280	-54.49	≤-41.20	44.12	≤54	PASS
				AV	2500.000	-55.62	≤-41.20	42.99	≤54	PASS
				Peak	2483.500	-51.87	≤-21.20	46.74	≤74	PASS
				Peak	2490.400	-45.38	≤-21.20	53.23	≤74	PASS
				Peak	2500.000	-50.27	≤-21.20	48.34	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-43.36	≤-21.20	55.25	≤74	PASS
				Peak	2328.665	-39.8	≤-21.20	58.81	≤74	PASS
				Peak	2390.000	-44.75	≤-21.20	53.86	≤74	PASS
		High	Hop_2480	Peak	2483.500	-47.13	≤-21.20	51.48	≤74	PASS
				Peak	2488.640	-45.1	≤-21.20	53.51	≤74	PASS
				Peak	2500.000	-46.47	≤-21.20	52.14	≤74	PASS

Note：

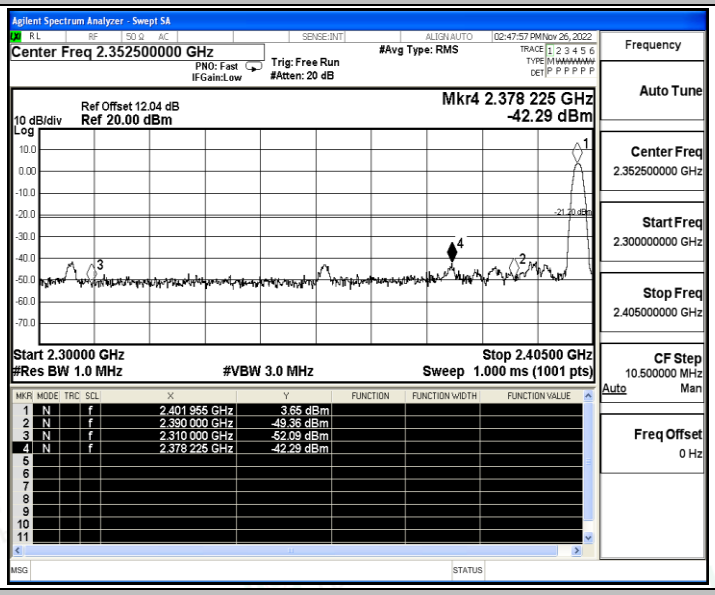
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

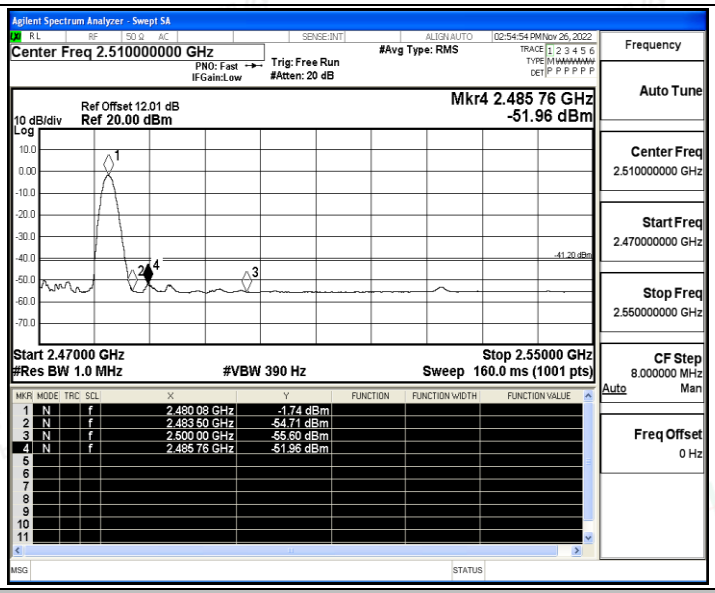
DH5_Ant1_Low_2402_AV



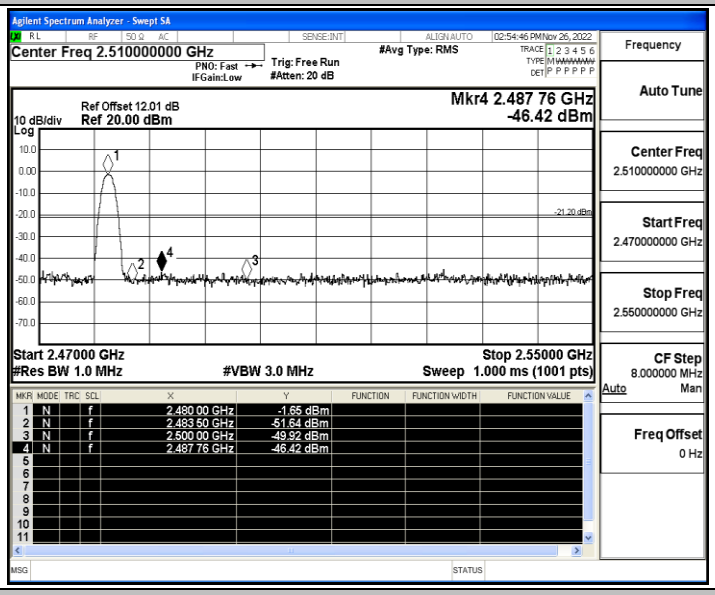
DH5_Ant1_Low_2402_Peak



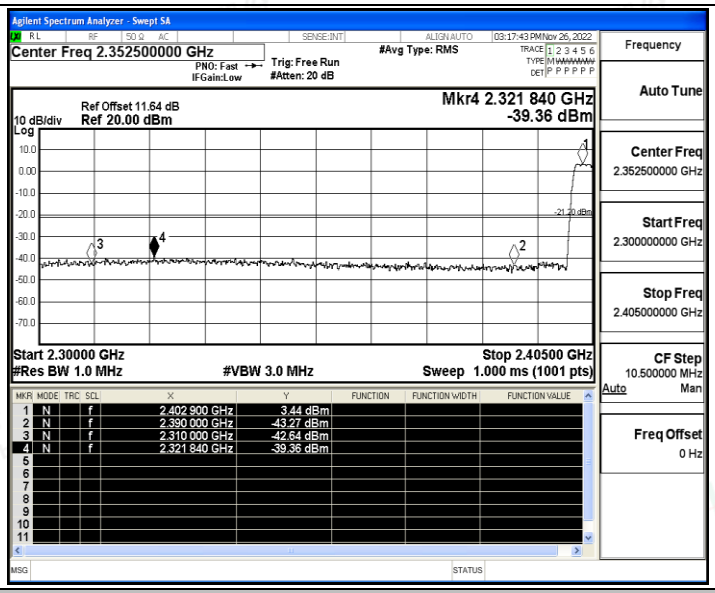
DH5_Ant1_High_2480_AV



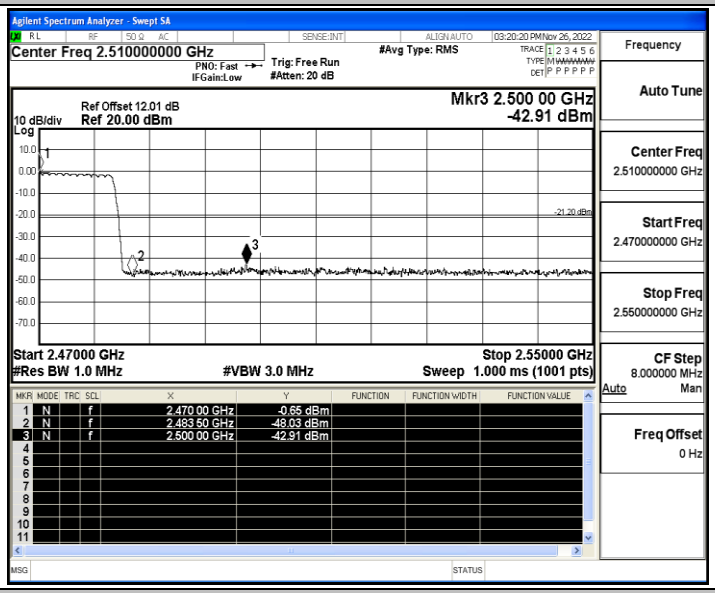
DH5_Ant1_High_2480_Peak



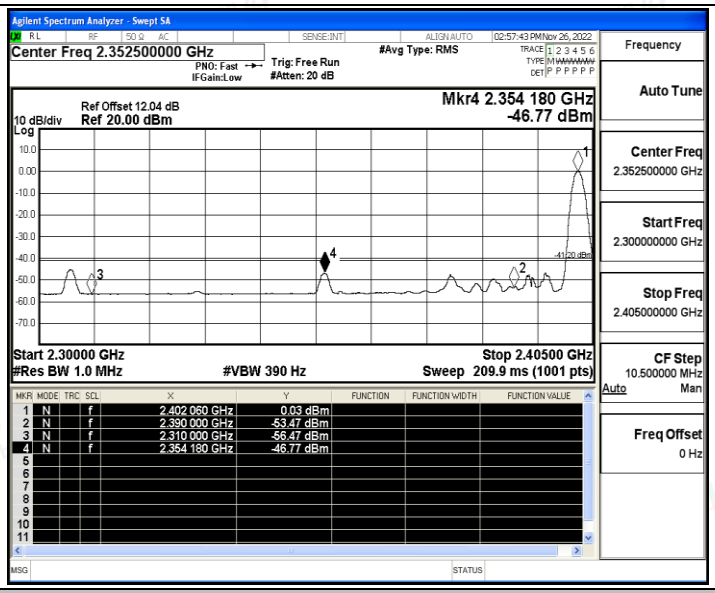
DH5_Ant1_Low_Hop_2402_Peak



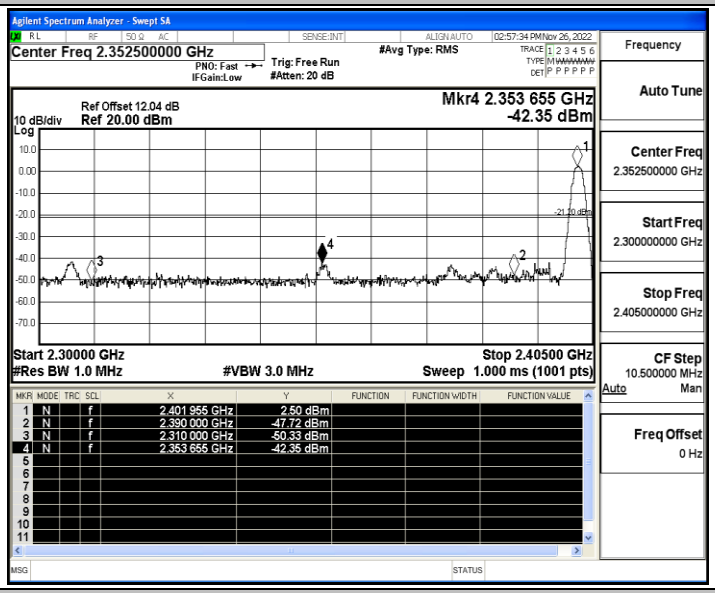
DH5_Ant1_High_Hop_2480_Peak



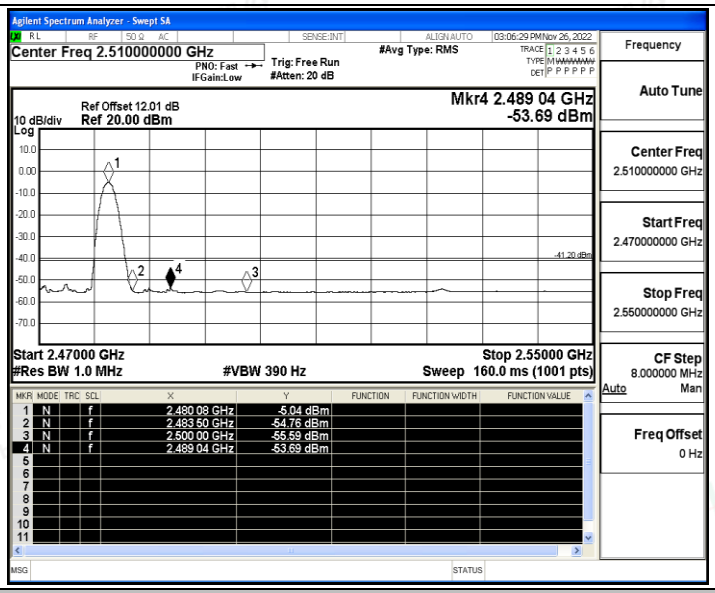
2DH5_Ant1_Low_2402_AV



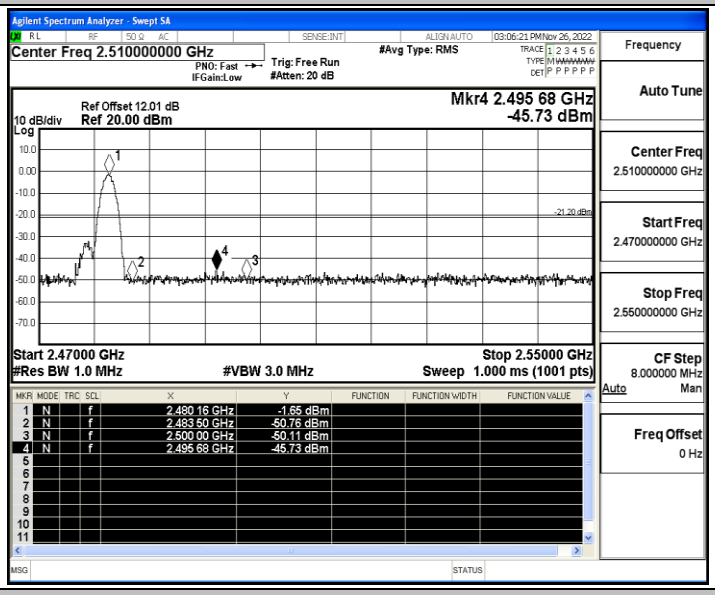
2DH5_Ant1_Low_2402_Peak



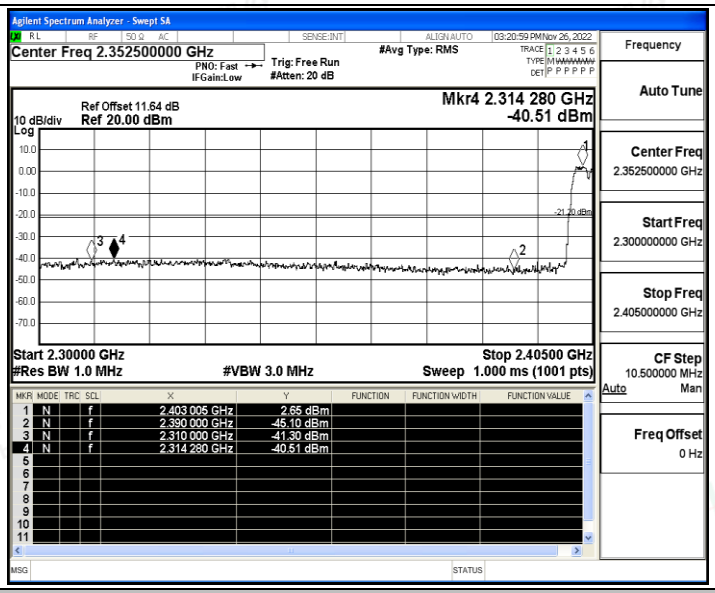
2DH5_Ant1_High_2480_AV



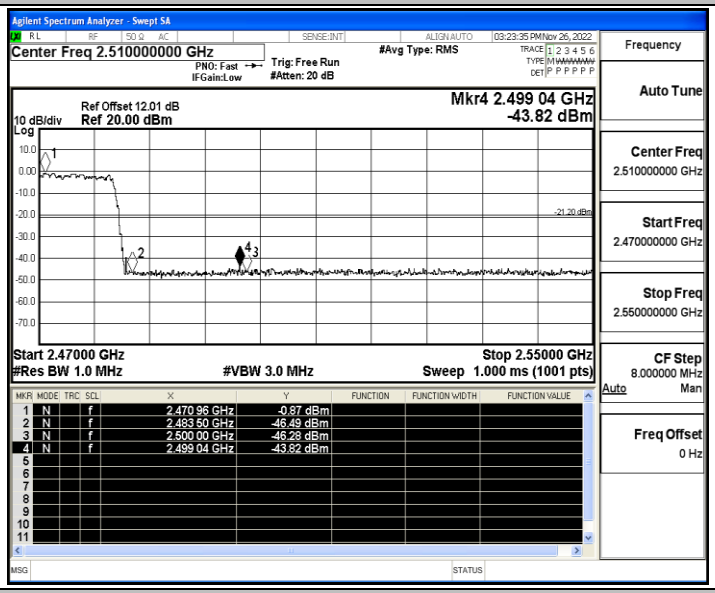
2DH5_Ant1_High_2480_Peak



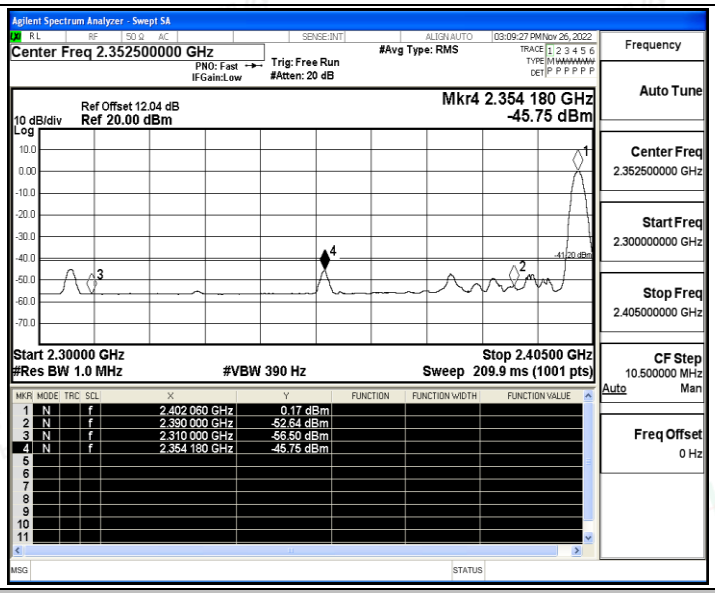
2DH5_Ant1_Low_Hop_2402_Peak



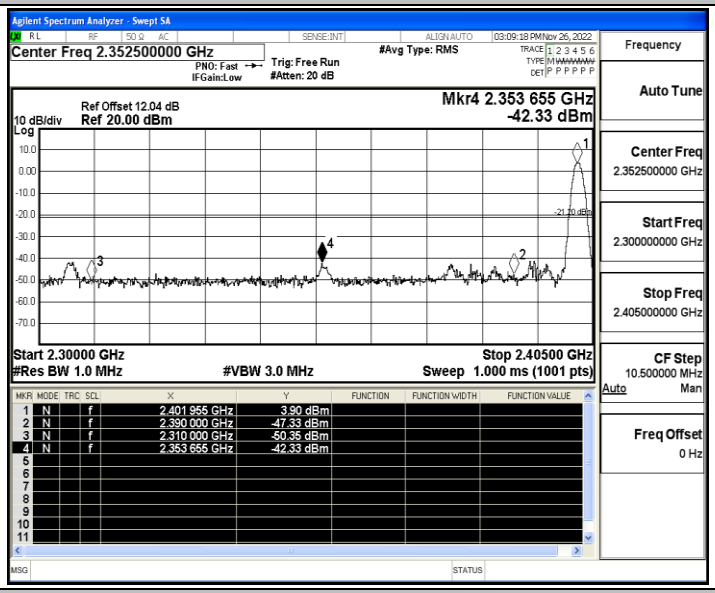
2DH5_Ant1_High_Hop_2480_Peak



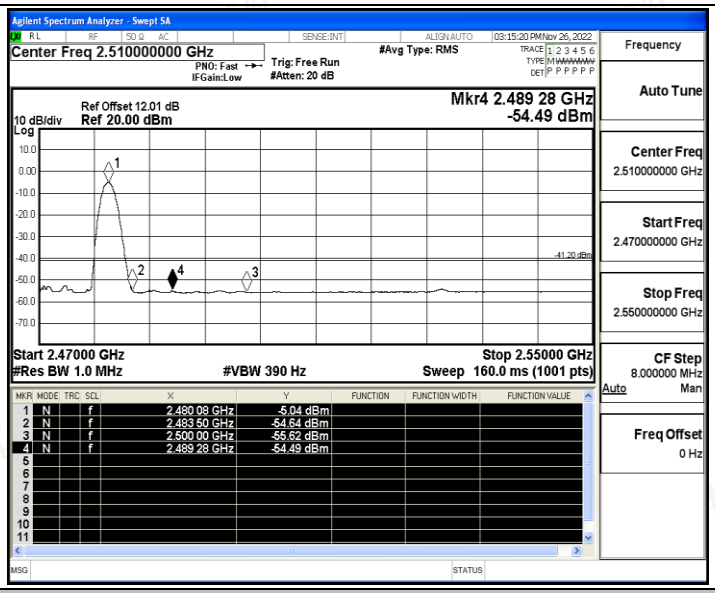
3DH5_Ant1_Low_2402_AV



3DH5_Ant1_Low_2402_Peak



3DH5_Ant1_High_2480_AV



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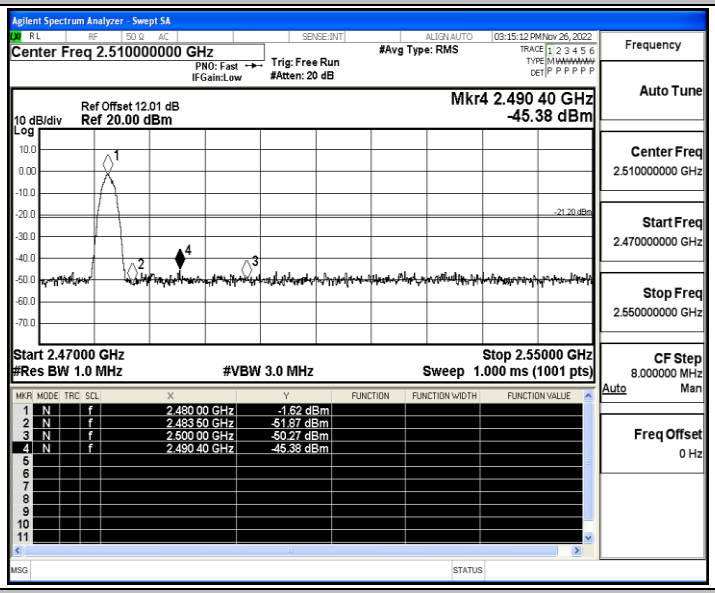
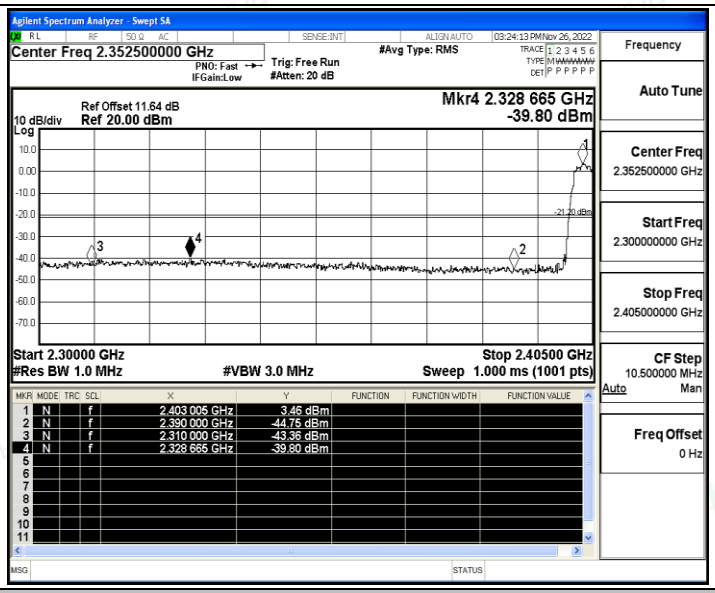


3DH5_Ant1_Low_Hop_2402_Peak



3DH5_Ant1_High_Hop_2480_Peak