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

Product Name: Bone Conduction Headphones

Trade Mark: Qaekie

Test Model: Q20

FCC ID: 2BCR3-Q20

Environmental Conditions

Temperature:	25.5°C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

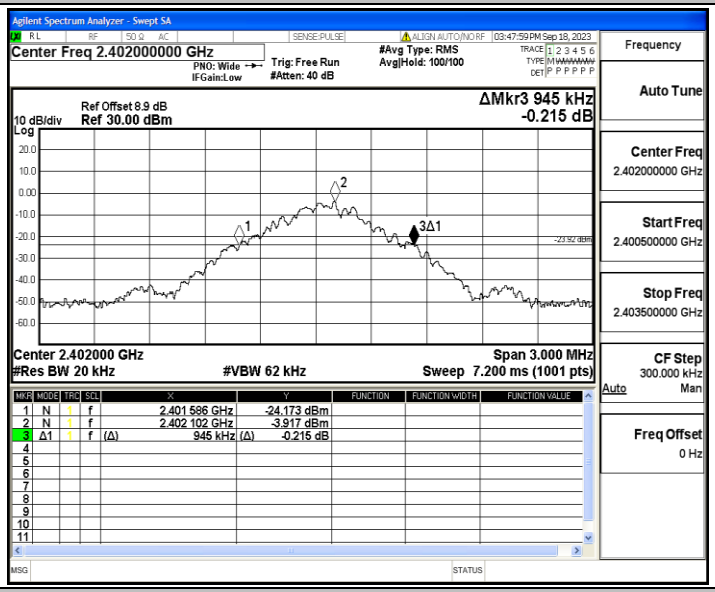
Appendix A: 20dB Emission Bandwidth

Test Result

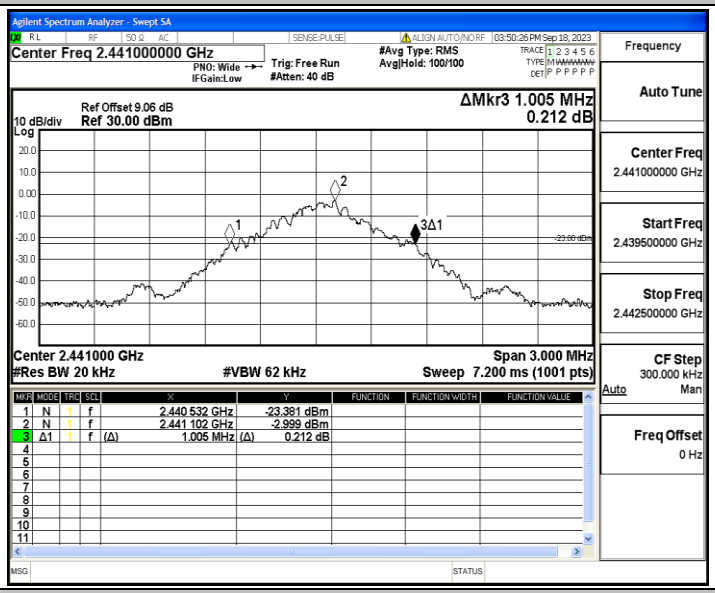
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.945	2401.586	2402.531	---	---
		2441	1.005	2440.532	2441.537	---	---
		2480	0.987	2479.535	2480.522	---	---
2DH5	Ant1	2402	1.368	2401.364	2402.732	---	---
		2441	1.314	2440.388	2441.702	---	---
		2480	1.350	2479.376	2480.726	---	---

Test Graphs

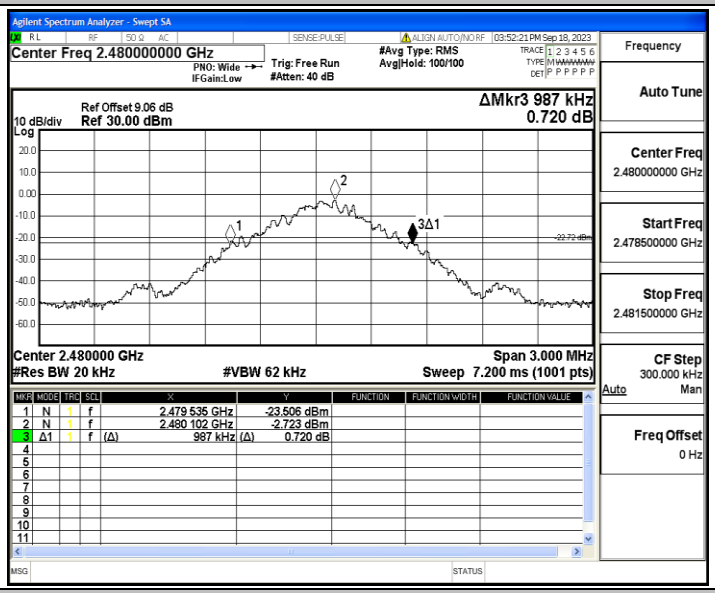
DH5_Ant1_2402



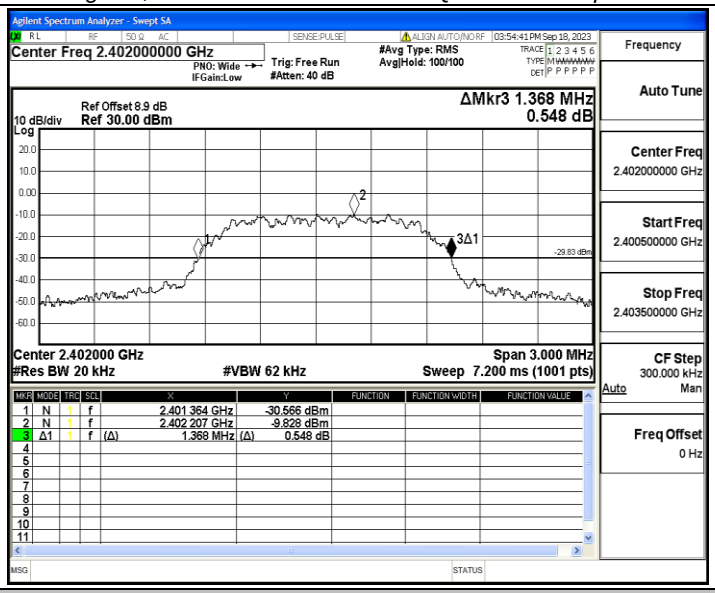
DH5_Ant1_2441



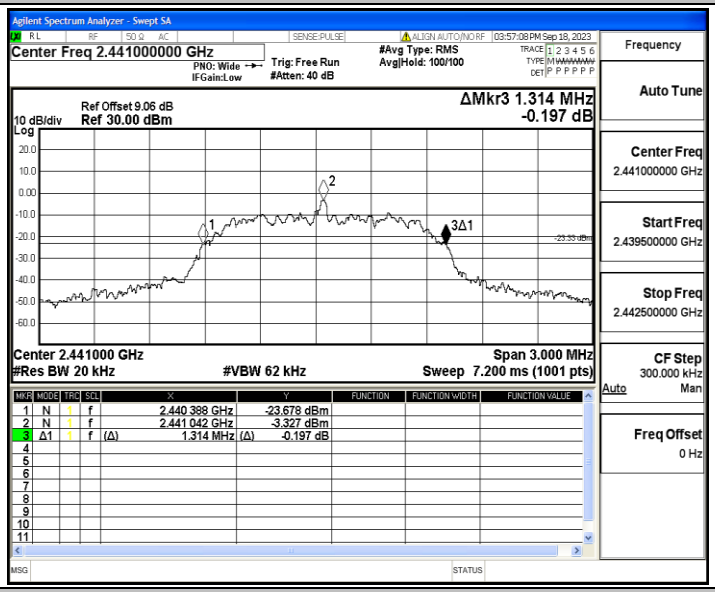
DH5_Ant1_2480



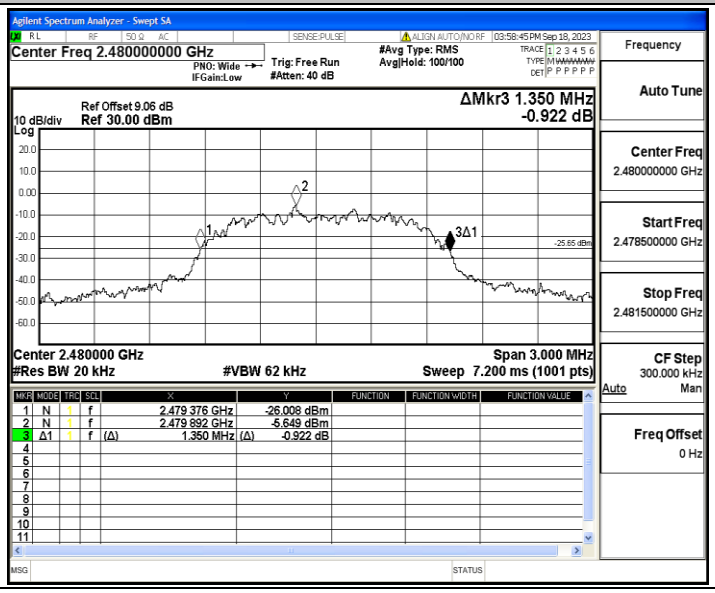
2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



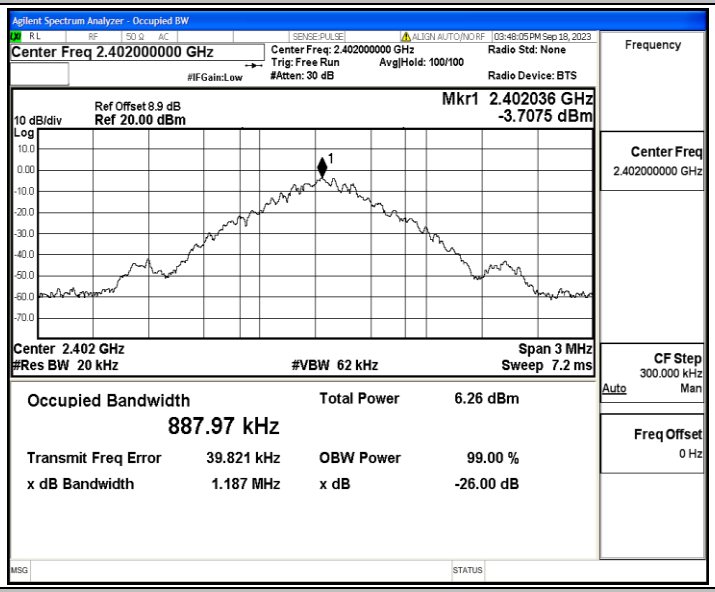
Appendix B: Occupied Channel Bandwidth

Test Result

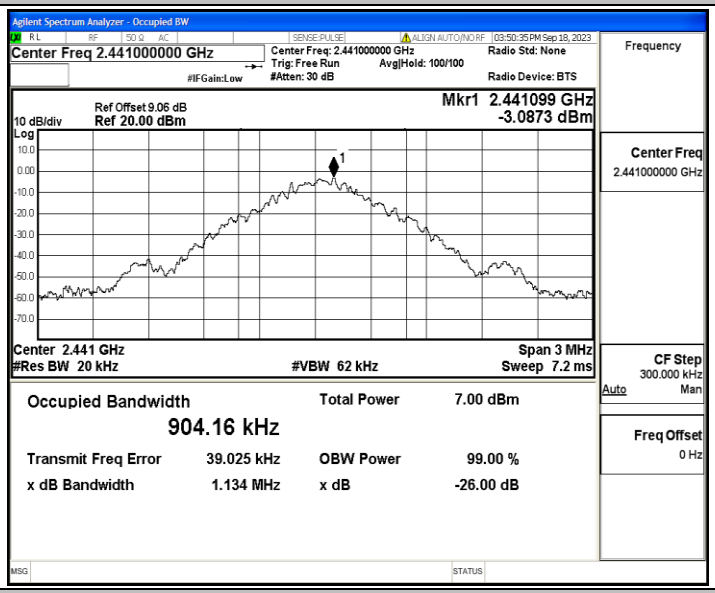
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.88797	2401.5958	2402.4838	---	---
		2441	0.90416	2440.5870	2441.4911	---	---
		2480	0.90821	2479.5866	2480.4948	---	---
2DH5	Ant1	2402	1.1908	2401.4489	2402.6397	---	---
		2441	1.1939	2440.4500	2441.6439	---	---
		2480	1.2016	2479.4462	2480.6478	---	---

Test Graphs

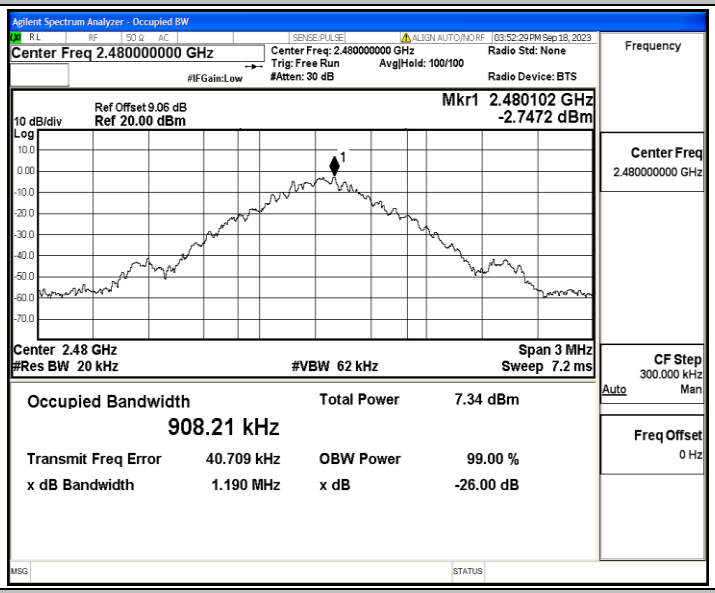
DH5_Ant1_2402



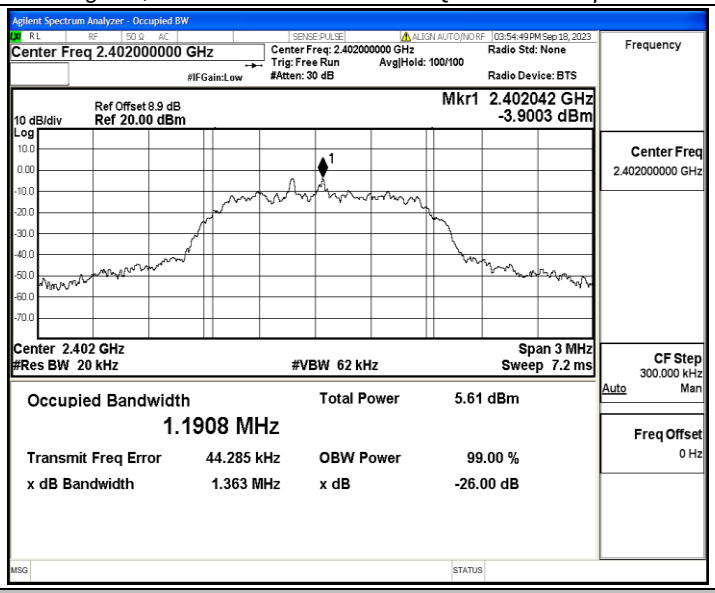
DH5_Ant1_2441



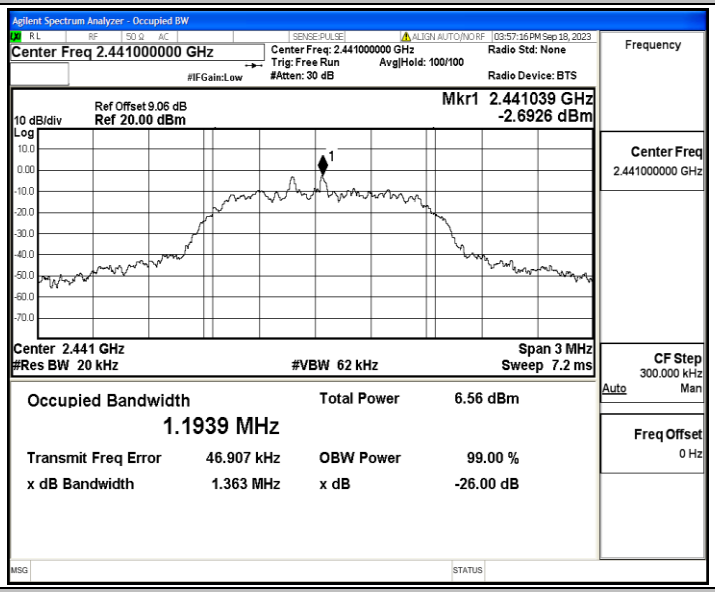
DH5_Ant1_2480



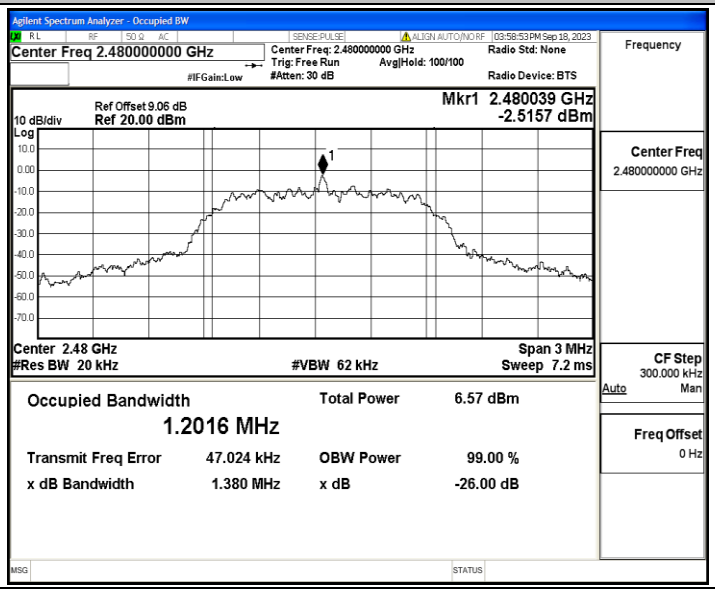
2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



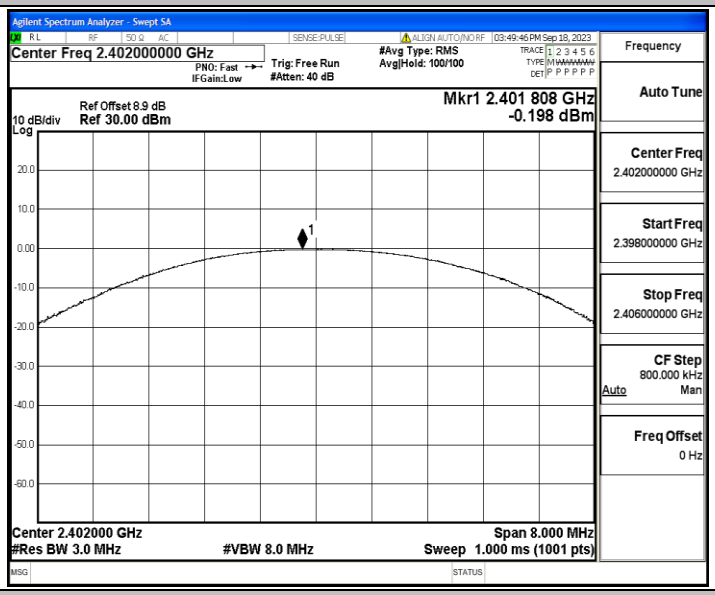
Appendix C: Maximum Peak conducted output power

Test Result

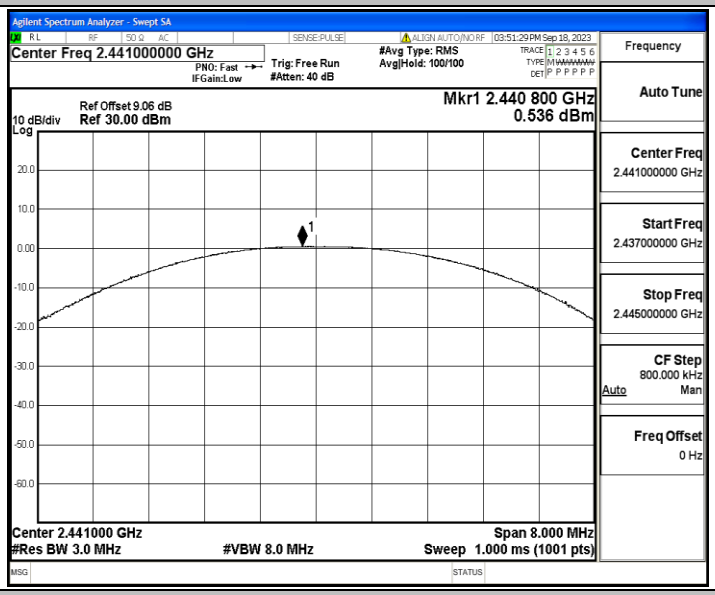
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	-0.2	≤30	PASS
		2441	0.54	≤30	PASS
		2480	0.88	≤30	PASS
2DH5	Ant1	2402	0.49	≤20.97	PASS
		2441	1.32	≤20.97	PASS
		2480	1.56	≤20.97	PASS

Test Graphs

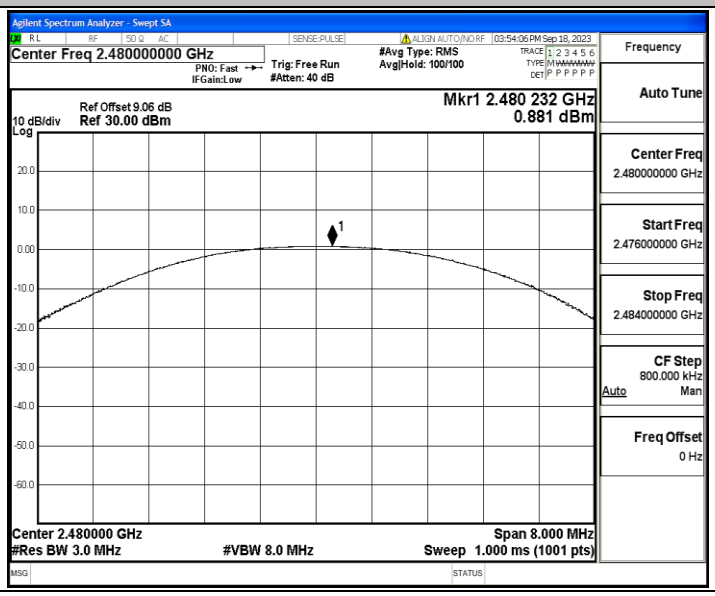
DH5_Ant1_2402



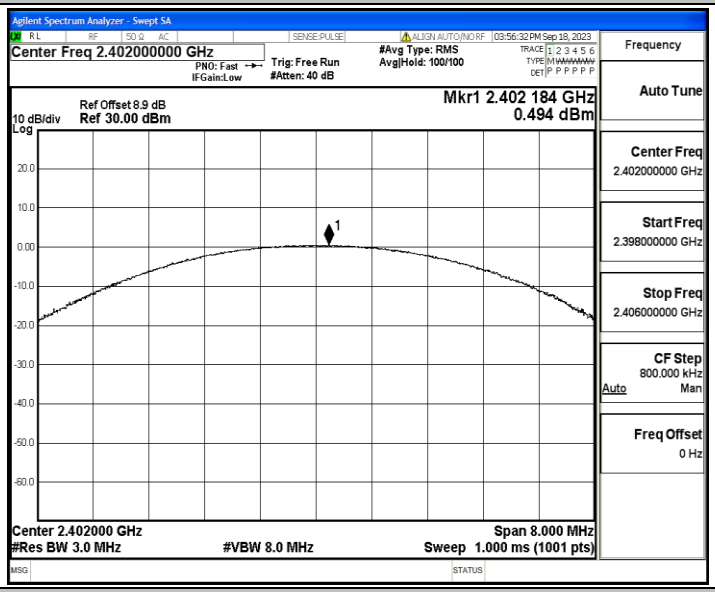
DH5_Ant1_2441



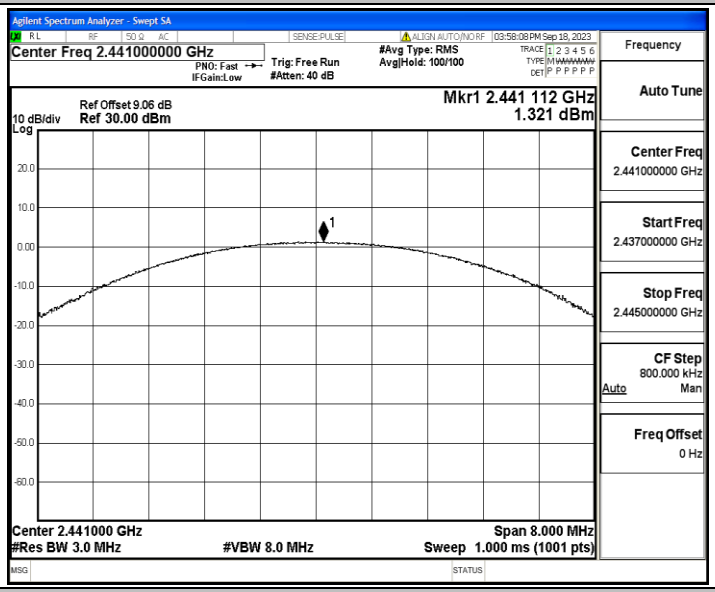
DH5_Ant1_2480



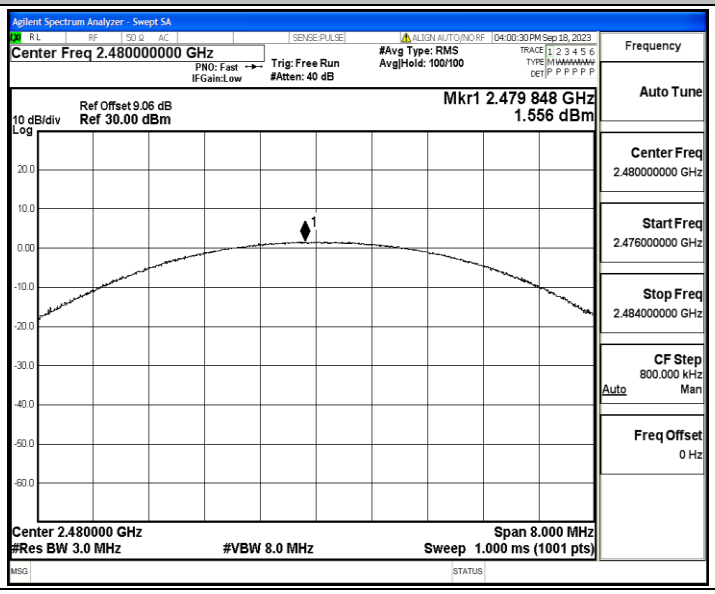
2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



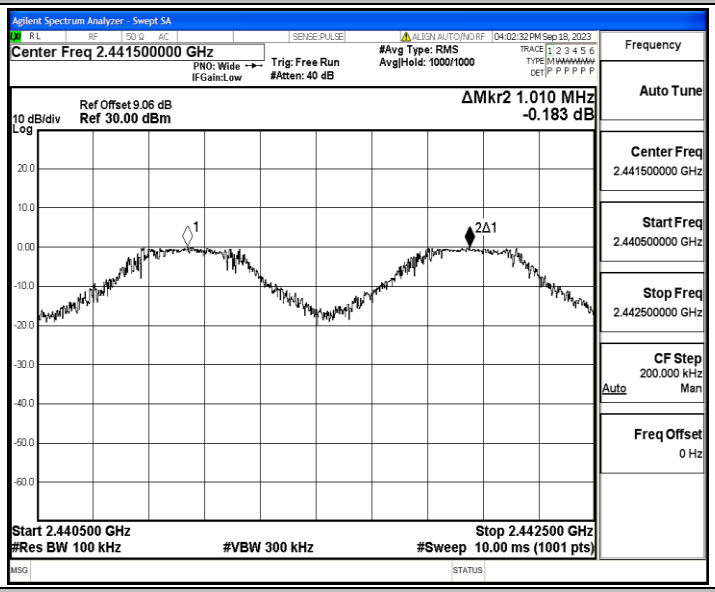
Appendix D: Carrier frequency separation

Test Result

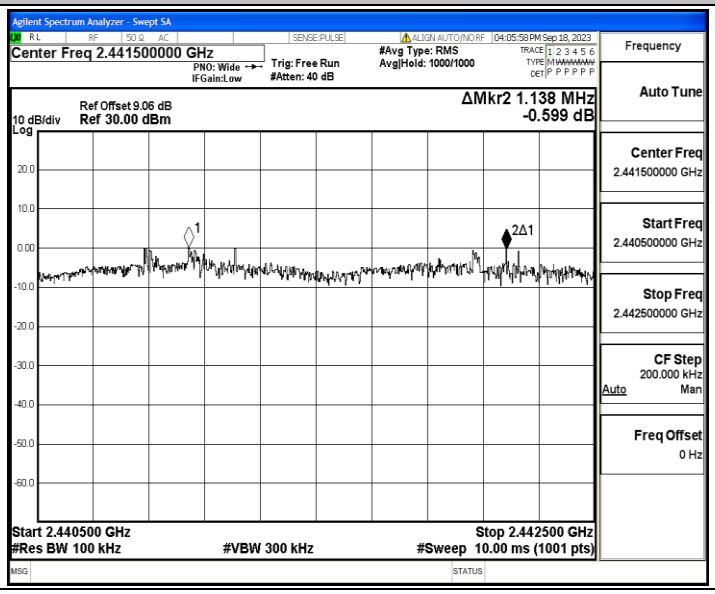
TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.01	≥1.005	PASS
2DH5	Ant1	Hop	1.138	≥0.912	PASS

Test Graphs

DH5_Ant1_Hop



2DH5_Ant1_Hop



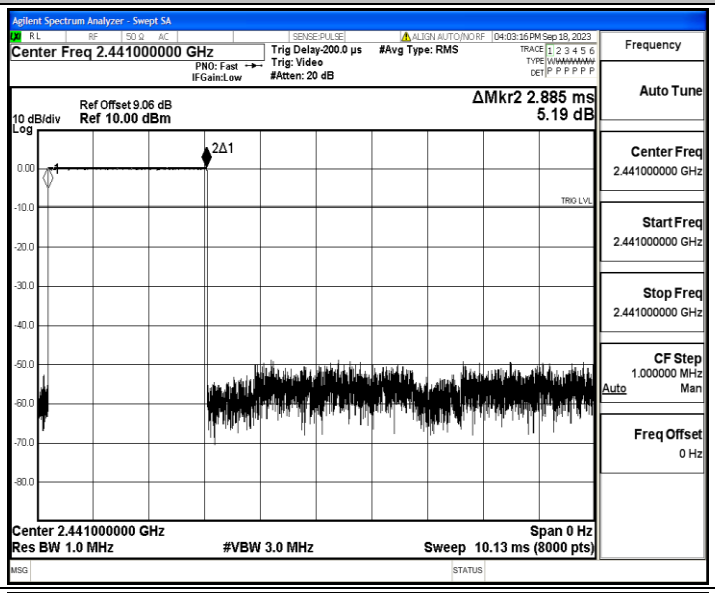
Appendix E: Time of occupancy

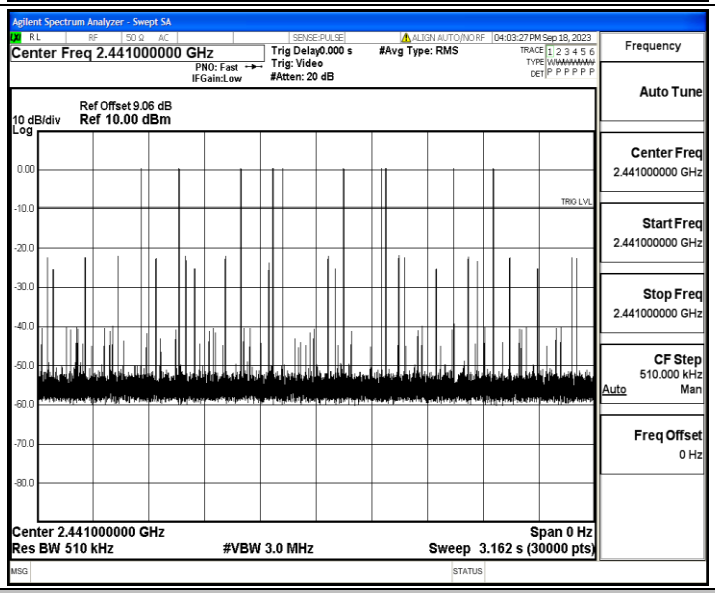
Test Result

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.885	110	0.317	≤0.4	PASS
2DH5	Ant1	Hop	2.891	100	0.289	≤0.4	PASS

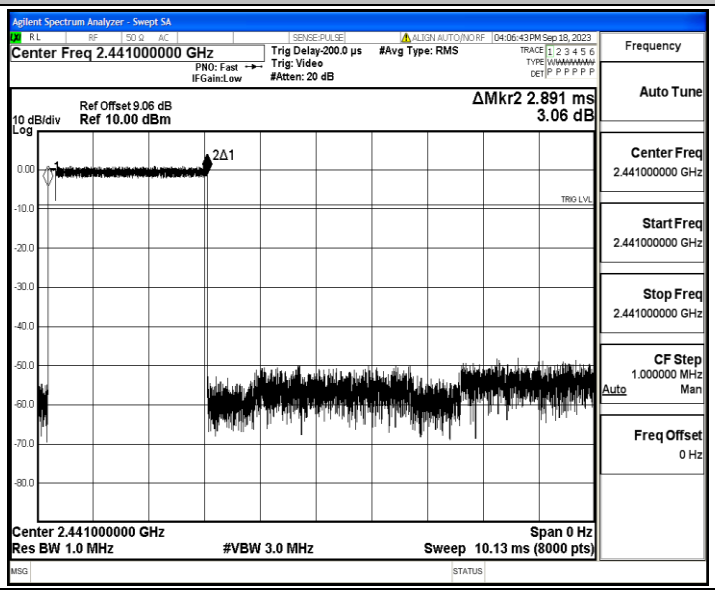
Test Graphs

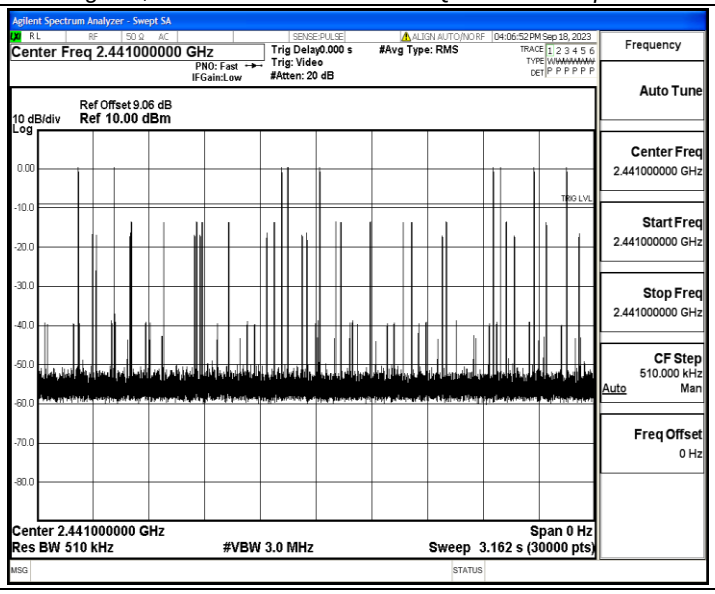
DH5_Ant1_Hop





2DH5_Ant1_Hop




Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig Delay0.000 s
Trig: Video
#Atten: 20 dB
#Avg Type: RMS
04:06:52 PM Sep 18, 2023
Frequency
Auto Tune
Ref Offset 9.06 dB
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
TRIG LVL
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
Center 2.441000000 GHz
Span 0 Hz
Res BW 510 kHz
#VBW 3.0 MHz
Sweep 3.162 s (30000 pts)
MSG
STATUS

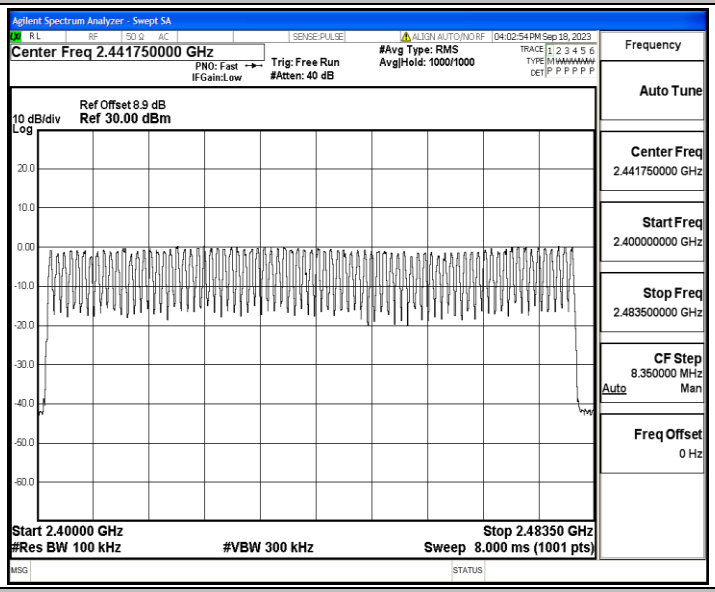
Appendix F: Number of hopping channels

Test Result

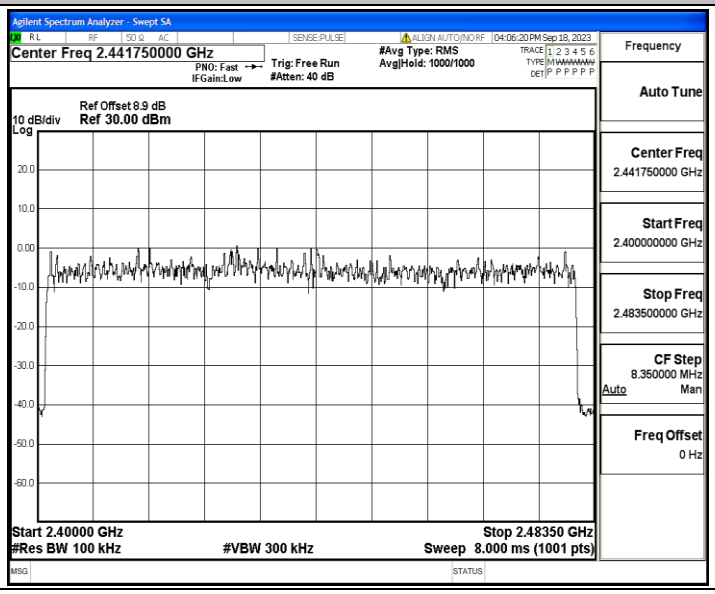
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS

Test Graphs

DH5_Ant1_Hop



2DH5_Ant1_Hop



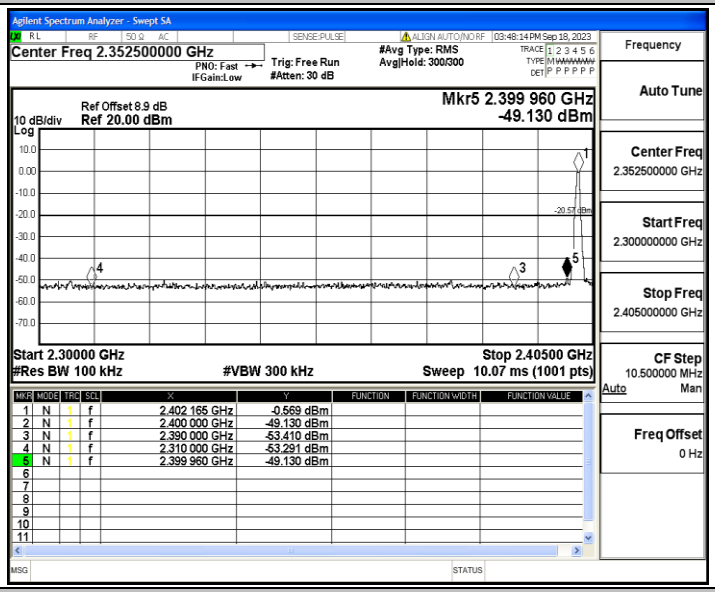
Appendix G: Band edge measurements

Test Result

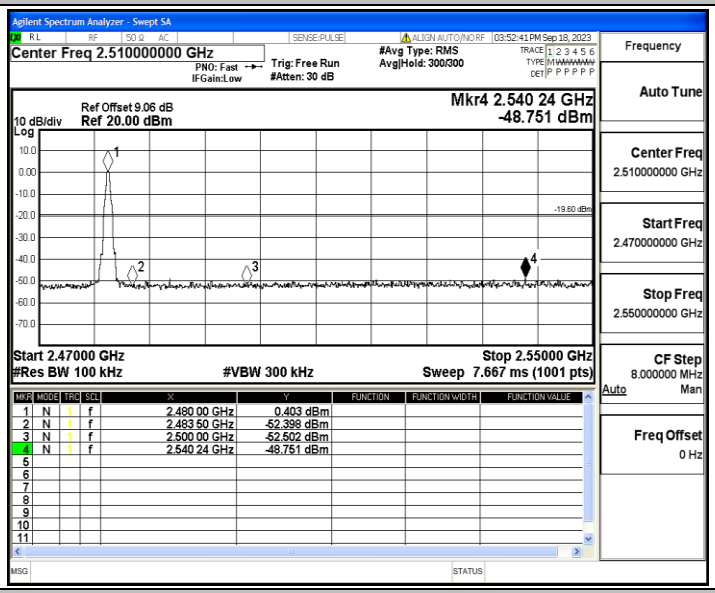
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-0.57	-49.13	≤-20.57	PASS
		High	2480	0.40	-48.75	≤-19.6	PASS
		Low	Hop_2402	-0.93	-49.32	≤-20.93	PASS
		High	Hop_2480	0.10	-48.07	≤-19.9	PASS
2DH5	Ant1	Low	2402	-0.64	-49.9	≤-20.64	PASS
		High	2480	0.53	-48.75	≤-19.47	PASS
		Low	Hop_2402	-4.16	-50.03	≤-24.16	PASS
		High	Hop_2480	-1.07	-49.1	≤-21.07	PASS

Test Graphs

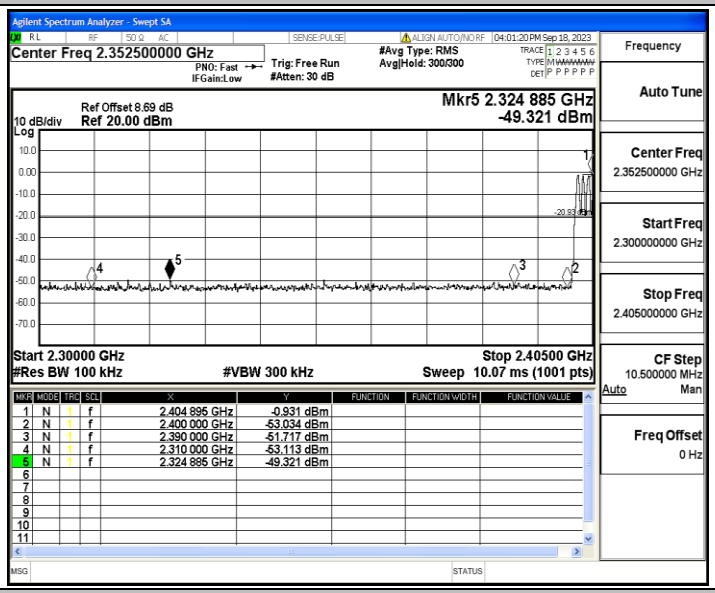
DH5_Ant1_Low_2402



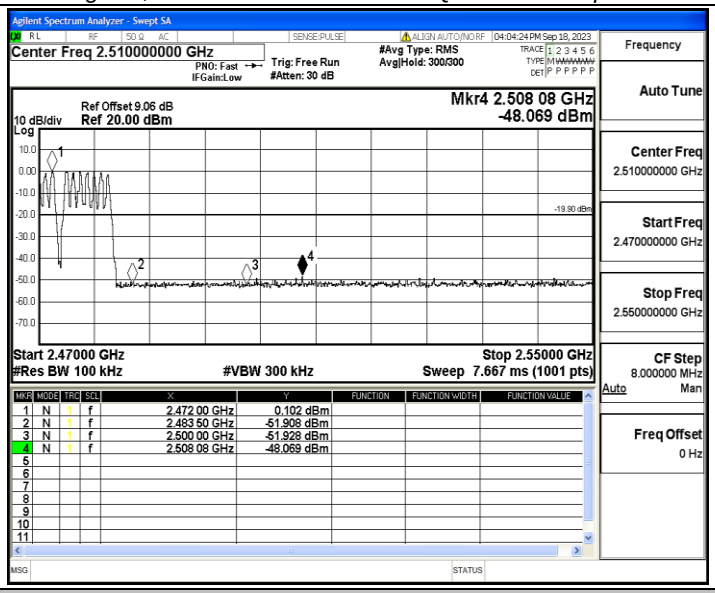
DH5_Ant1_High_2480



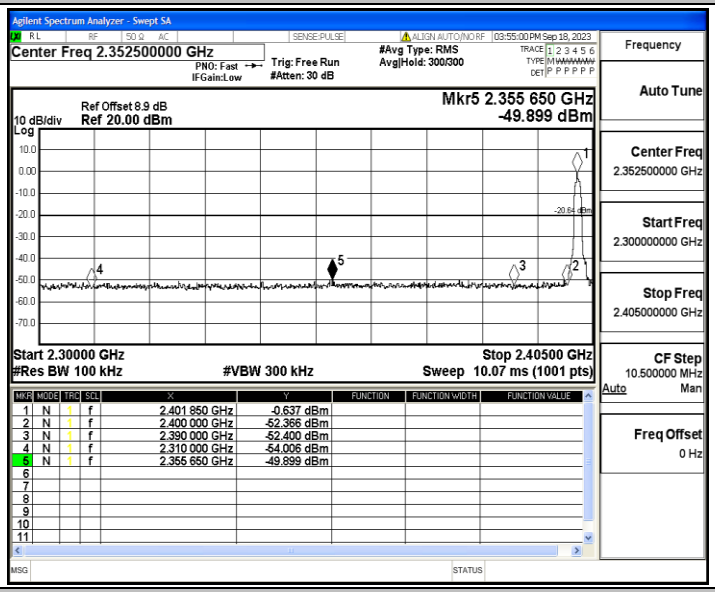
DH5_Ant1_Low_Hop_2402



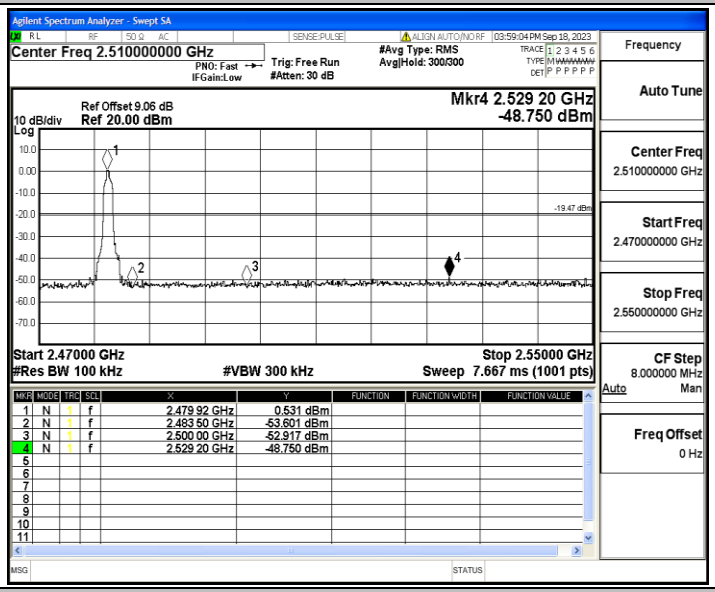
DH5_Ant1_High_Hop_2480



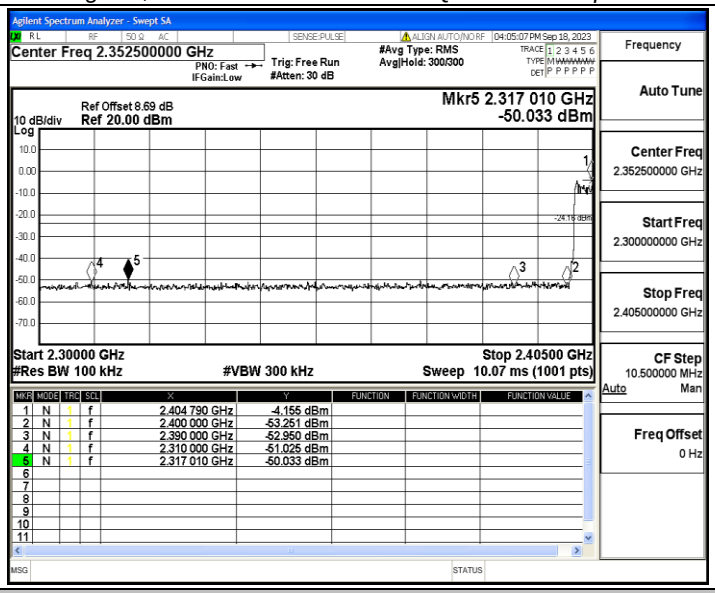
2DH5_Ant1_Low_2402



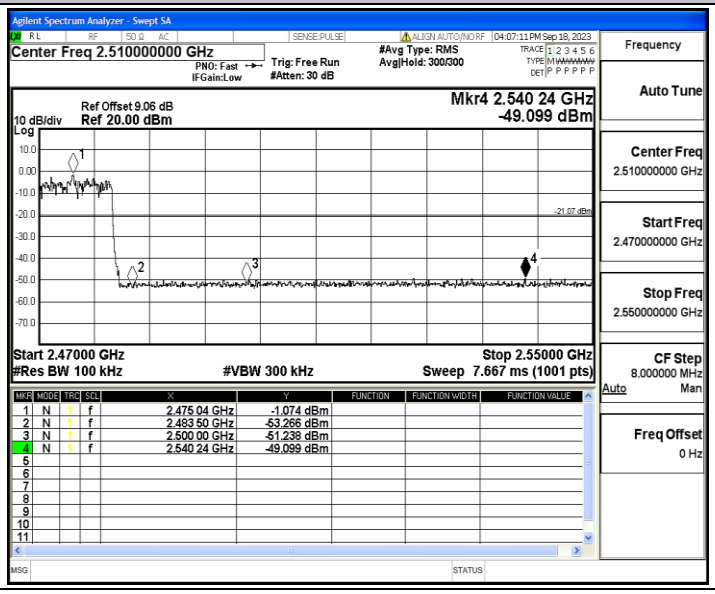
2DH5_Ant1_High_2480



2DH5_Ant1_Low_Hop_2402



2DH5_Ant1_High_Hop_2480



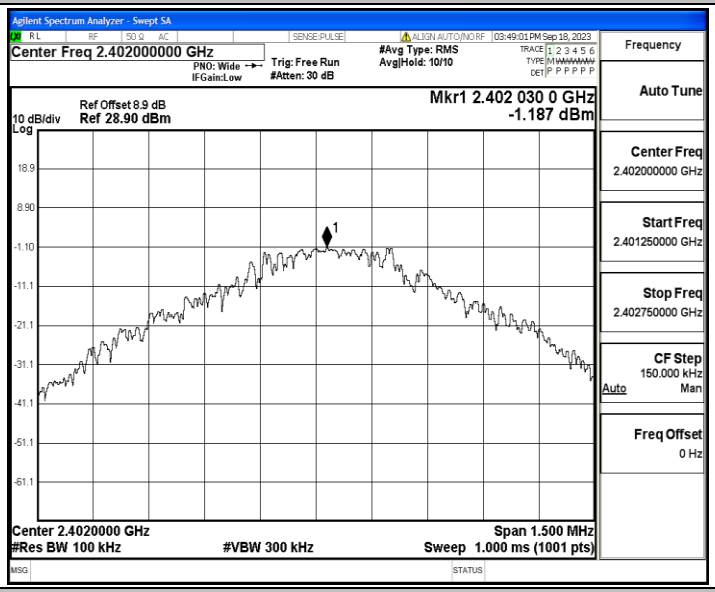
Appendix H: Conducted Spurious Emission

Test Result

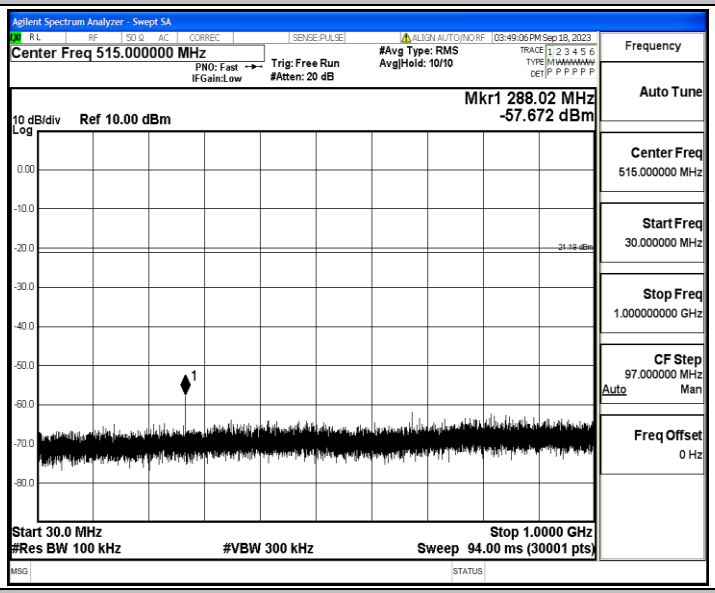
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-1.19	-1.19	---	PASS
			30~1000	-1.19	-57.67	≤-21.19	PASS
			1000~26500	-1.19	-43.85	≤-21.19	PASS
		2441	Reference	-0.54	-0.54	---	PASS
			30~1000	-0.54	-62.53	≤-20.54	PASS
			1000~26500	-0.54	-41.72	≤-20.54	PASS
		2480	Reference	-0.24	-0.24	---	PASS
			30~1000	-0.24	-62.94	≤-20.24	PASS
			1000~26500	-0.24	-43.26	≤-20.24	PASS
2DH5	Ant1	2402	Reference	-2.36	-2.36	---	PASS
			30~1000	-2.36	-62.22	≤-22.36	PASS
			1000~26500	-2.36	-44.28	≤-22.36	PASS
		2441	Reference	-0.72	-0.72	---	PASS
			30~1000	-0.72	-50.98	≤-20.72	PASS
			1000~26500	-0.72	-41.81	≤-20.72	PASS
		2480	Reference	-3.33	-3.33	---	PASS
			30~1000	-3.33	-62.85	≤-23.33	PASS
			1000~26500	-3.33	-43.17	≤-23.33	PASS

Test Graphs

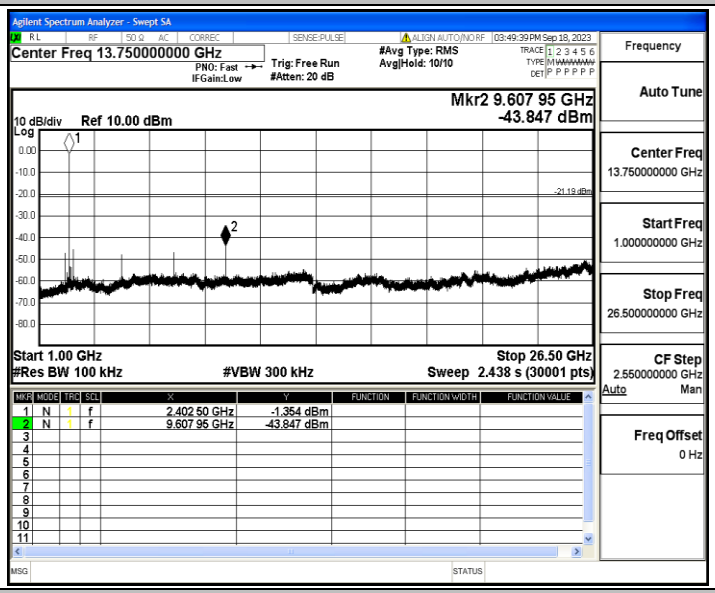
DH5_Ant1_2402_0~Reference



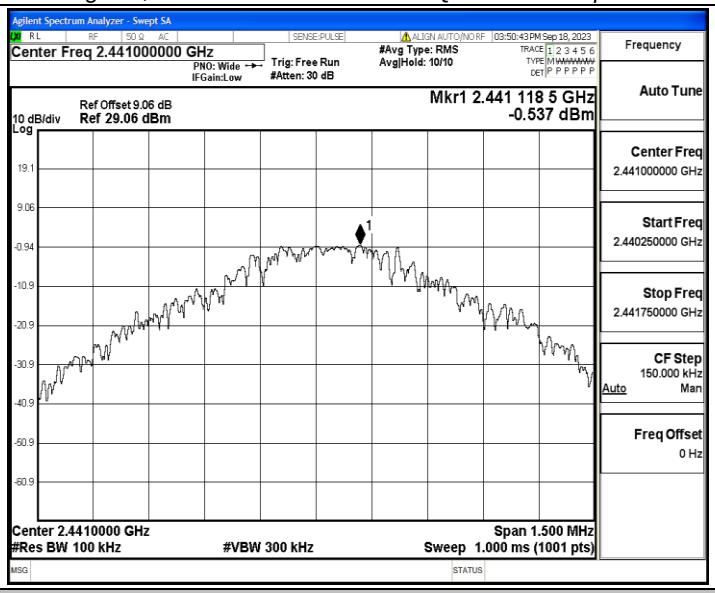
DH5_Ant1_2402_30~1000



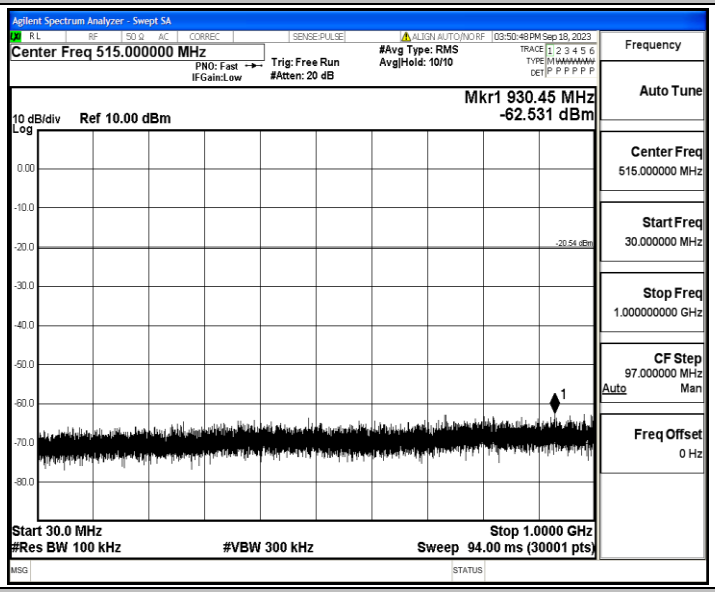
DH5_Ant1_2402_1000~26500



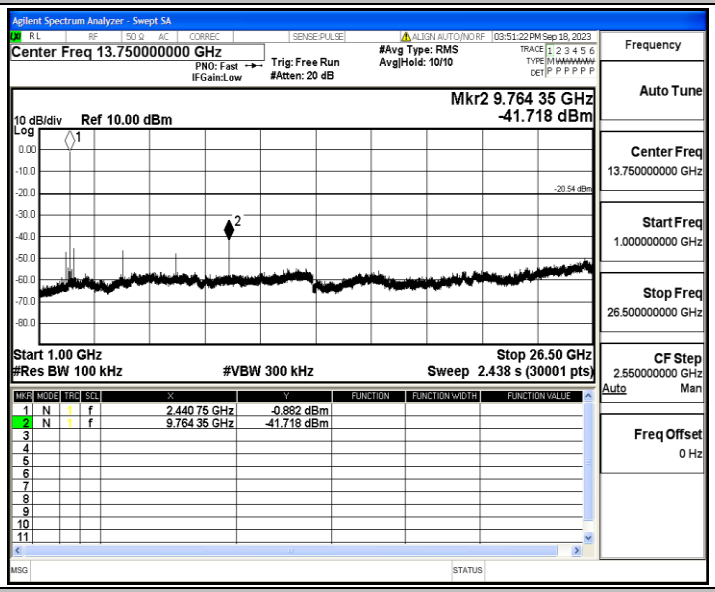
DH5_Ant1_2441_0~Reference



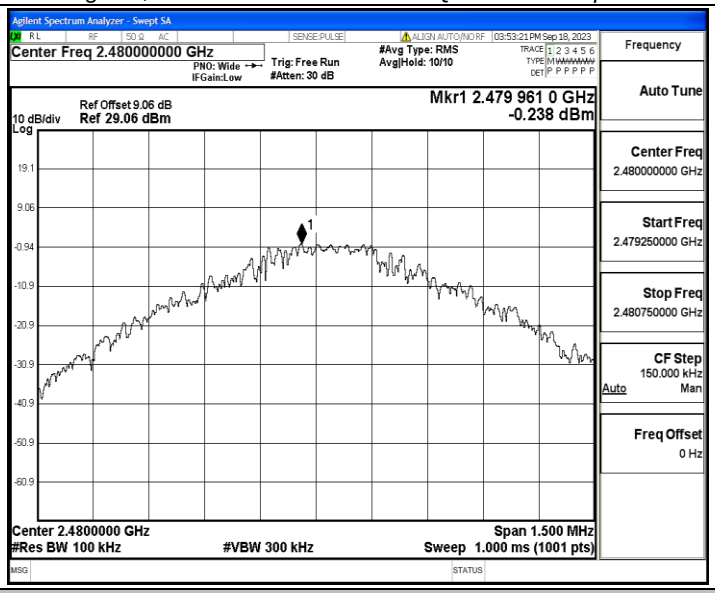
DH5_Ant1_2441_30~1000



DH5_Ant1_2441_1000~26500



DH5_Ant1_2480_0~Reference



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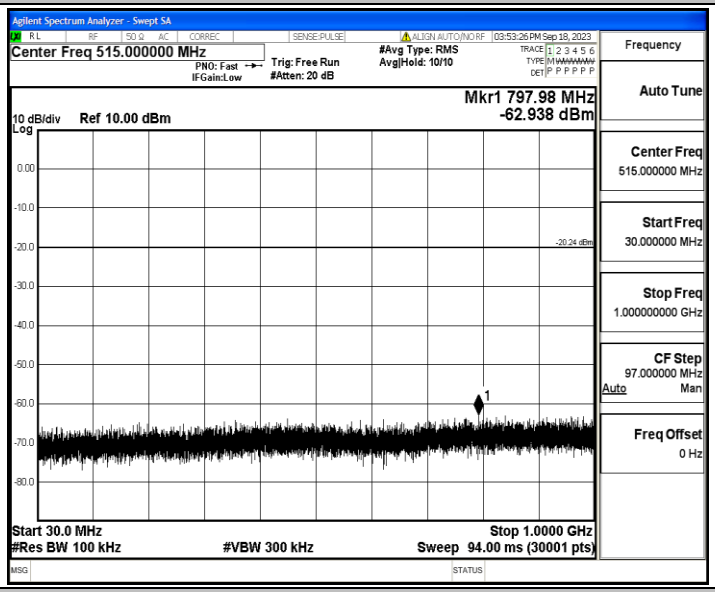

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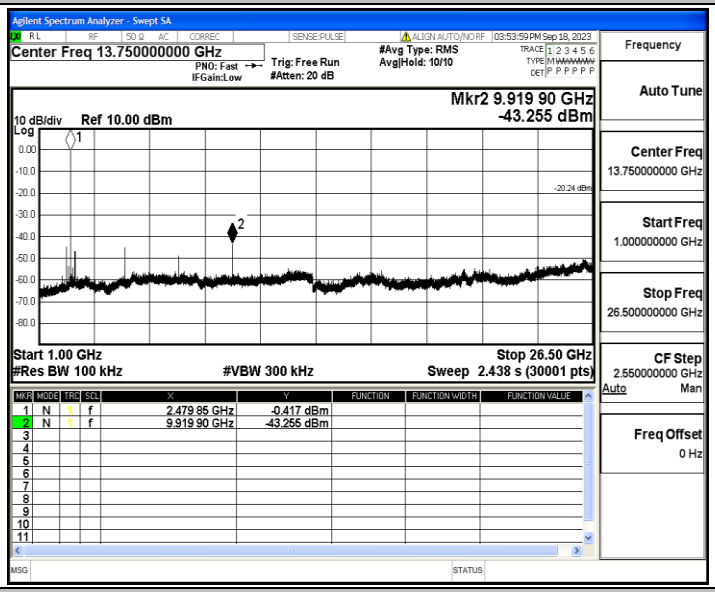

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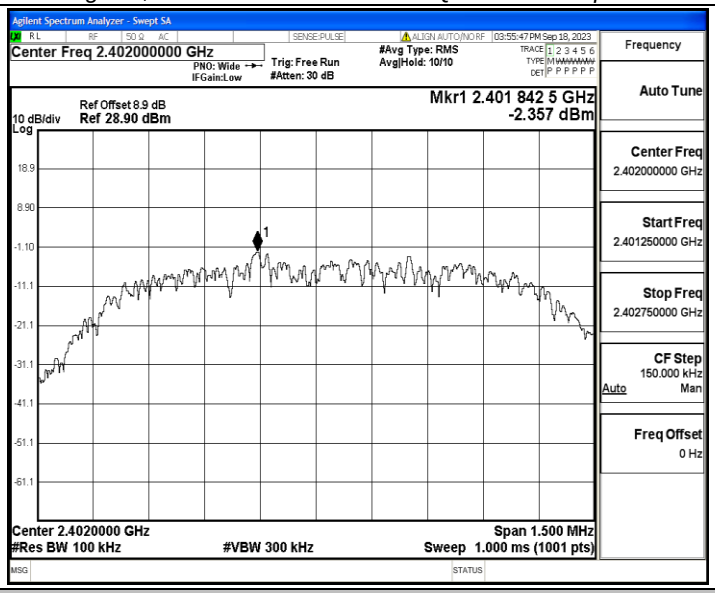

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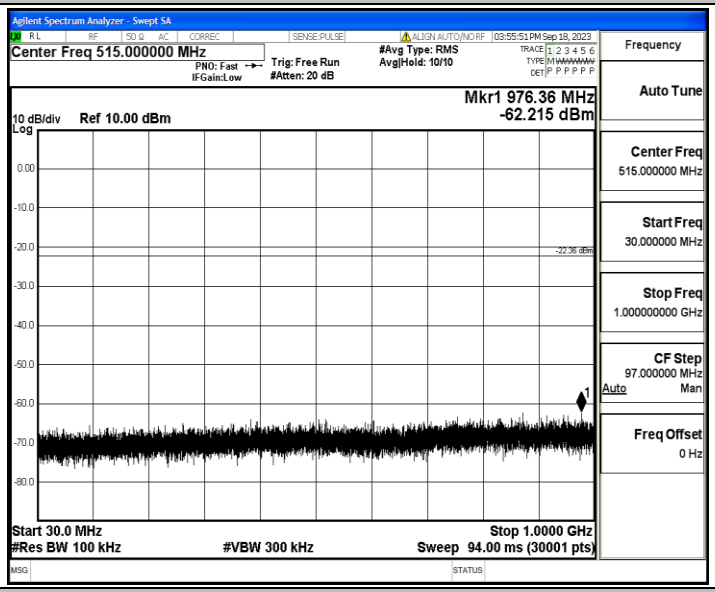

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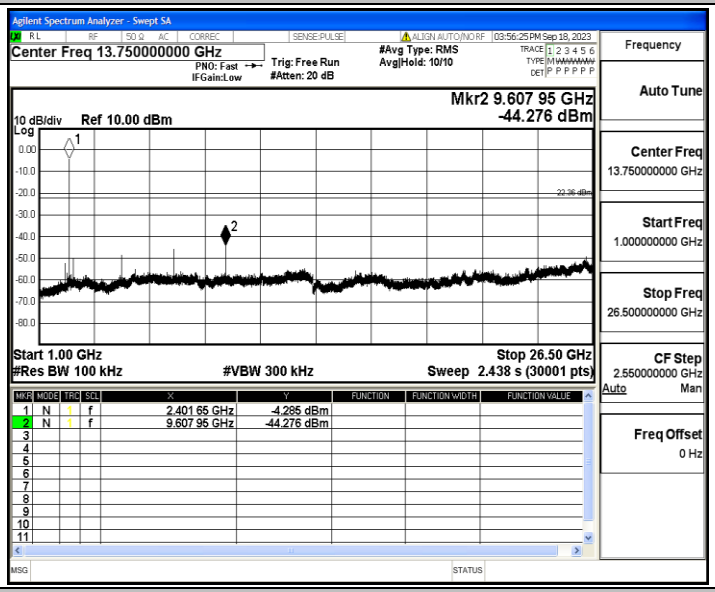

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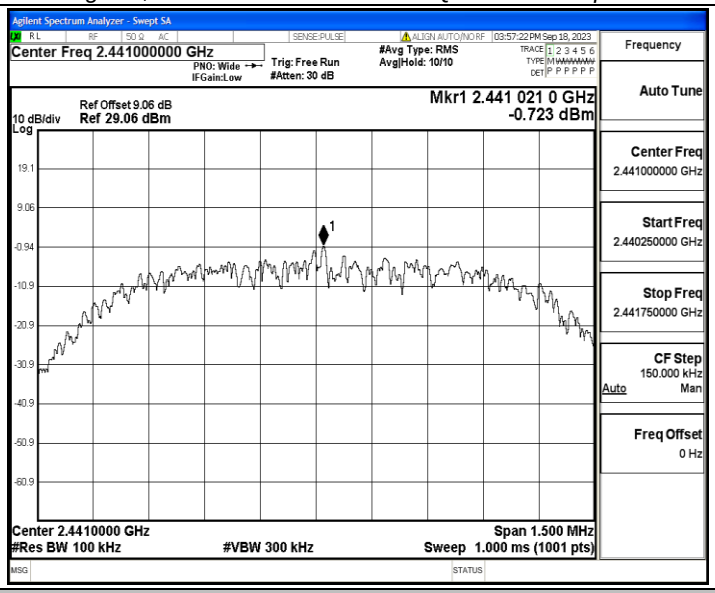

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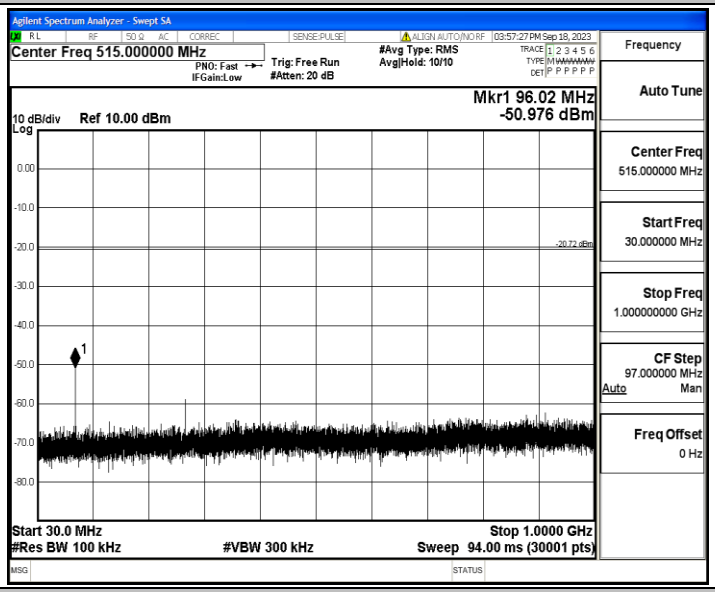

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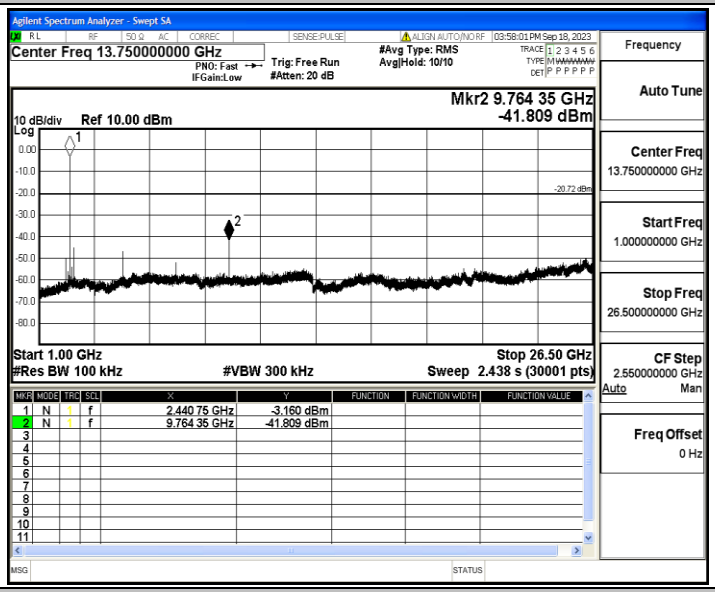

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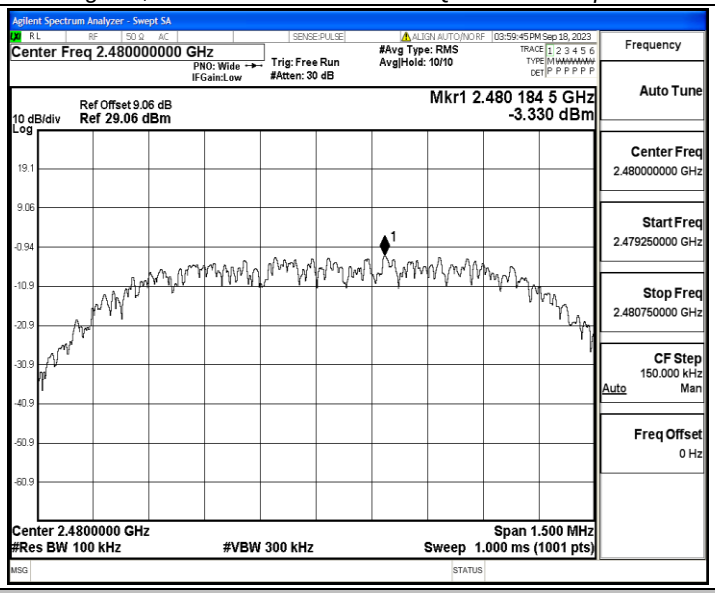

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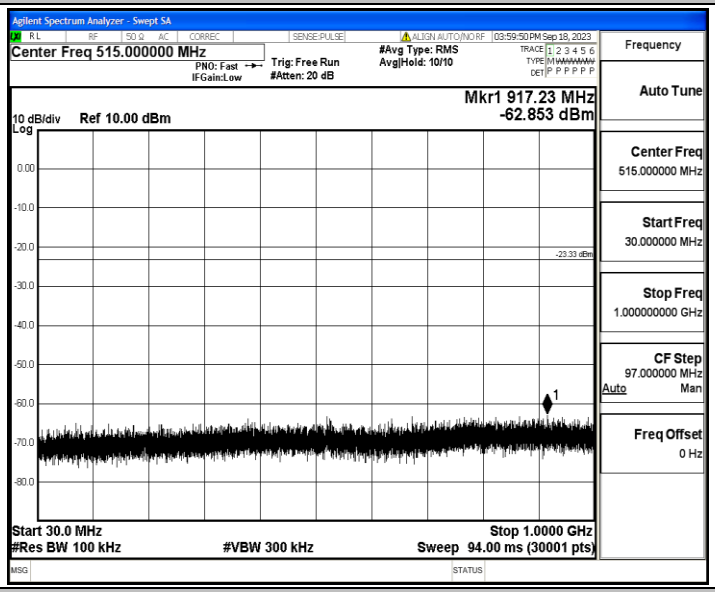

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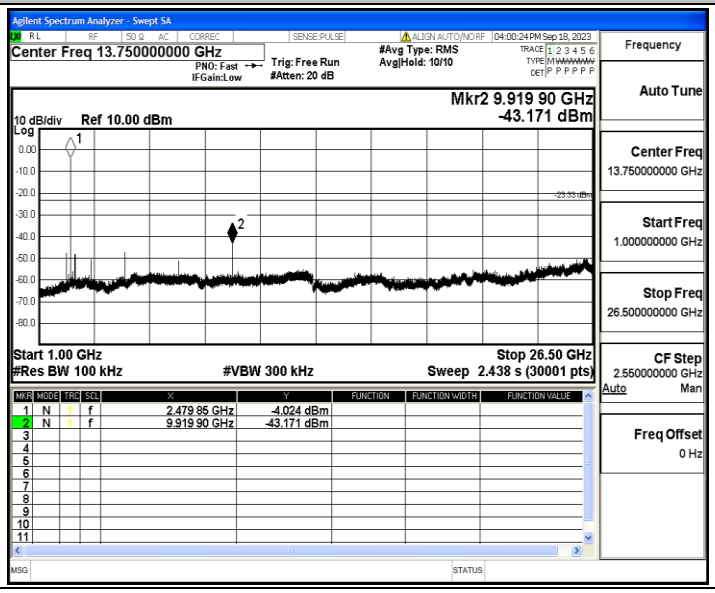


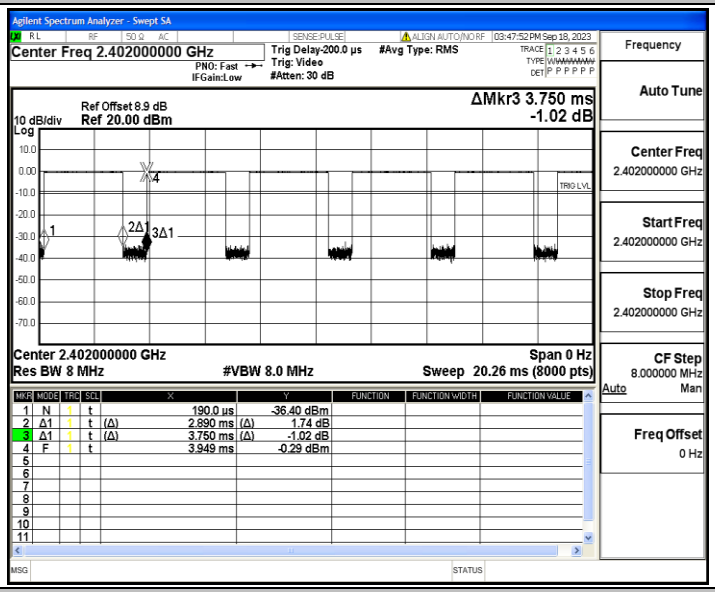
Appendix I: Duty Cycle

Test Result

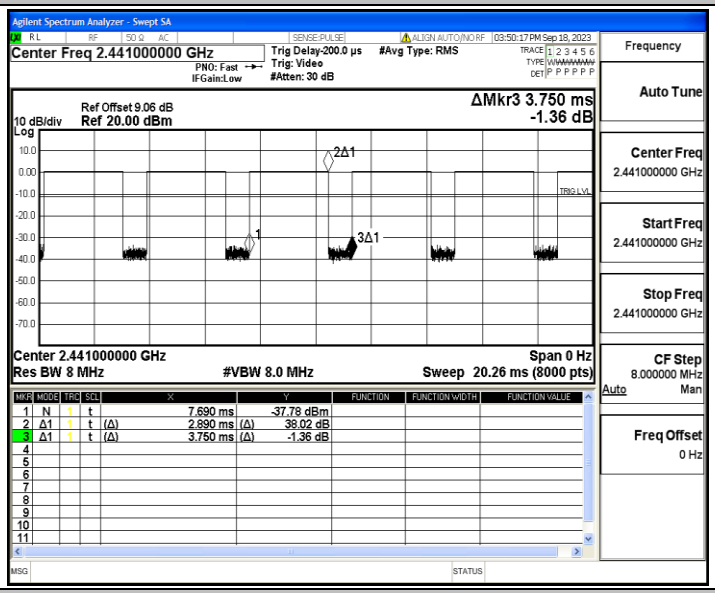
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T[kHz]
DH5	Ant1	2402	2.89	3.75	77.07	0.35
		2441	2.89	3.75	77.07	0.35
		2480	2.88	3.74	77.01	0.35
2DH5	Ant1	2402	2.89	3.75	77.07	0.35
		2441	2.89	3.75	77.07	0.35
		2480	2.89	3.74	77.27	0.35

Test Graphs

DH5_Ant1_2402



DH5_Ant1_2441



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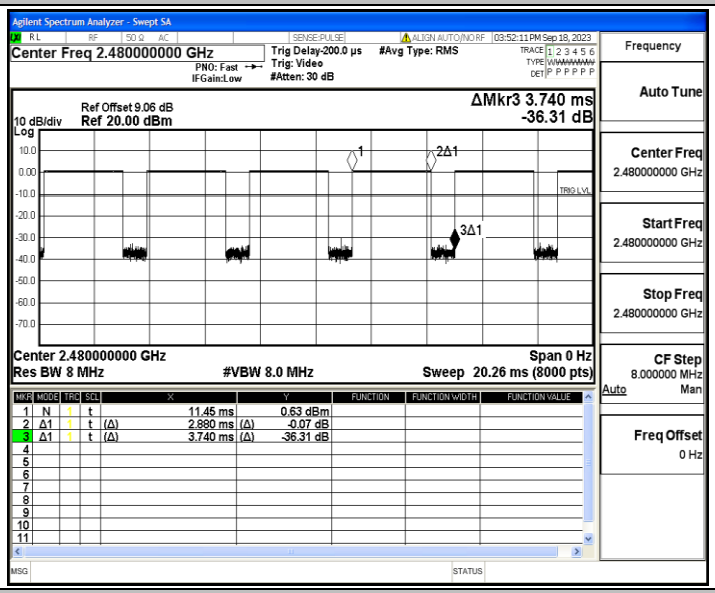

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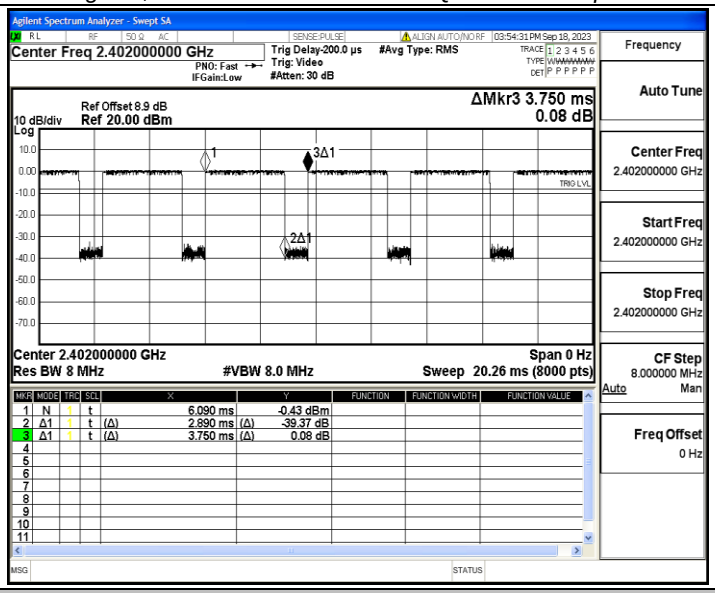

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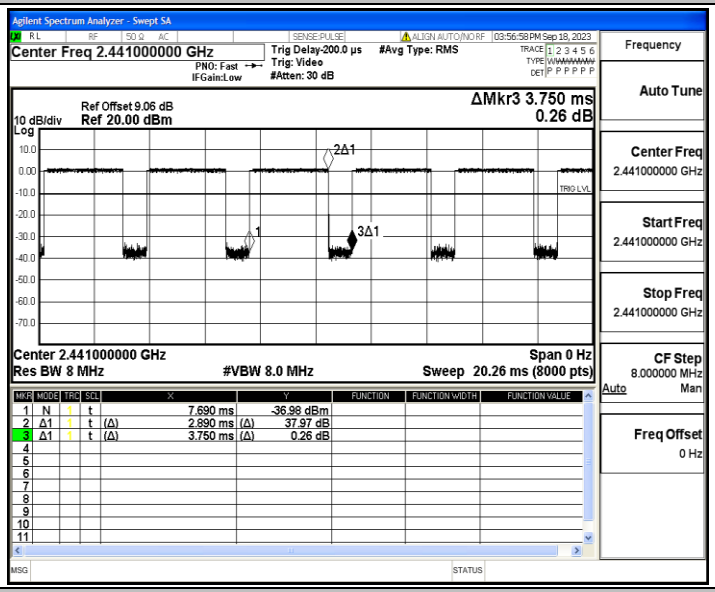

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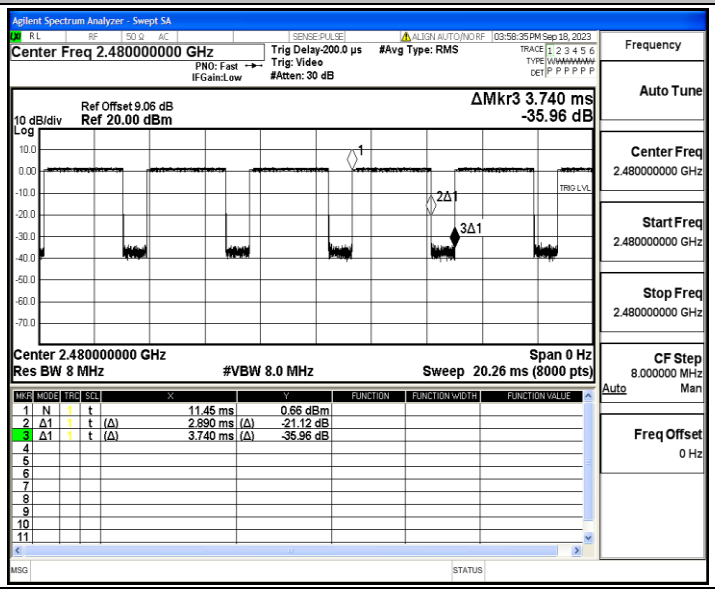


Appendix J: Emissions in Restricted Bands

Test Result

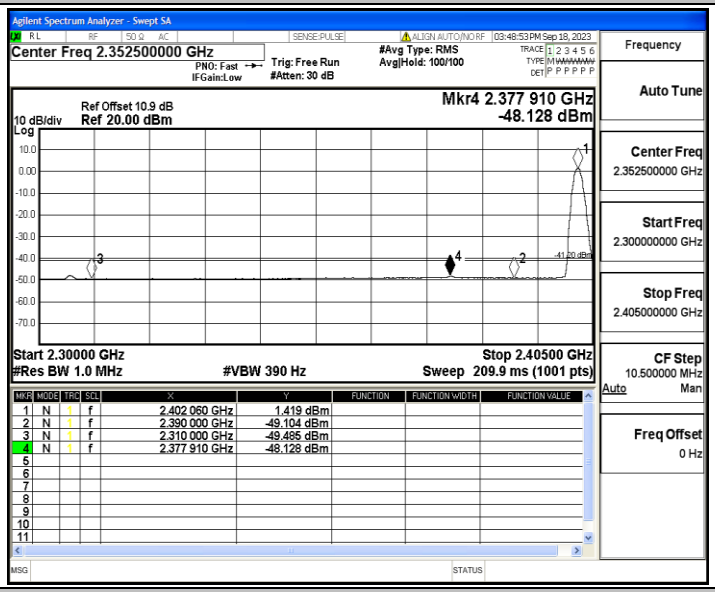
TestMode	Antenna	ChName	Channel	Detector	Freq(MHz)	Result(dBm)	Limit(dBm)	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-49.49	≤-41.20	PASS
				AV	2377.910	-48.13	≤-41.20	PASS
				AV	2390.000	-49.1	≤-41.20	PASS
				Peak	2310.000	-42.19	≤-21.20	PASS
				Peak	2376.860	-38.77	≤-21.20	PASS
				Peak	2390.000	-42.08	≤-21.20	PASS
		High	2480	AV	2483.500	-47.93	≤-41.20	PASS
				AV	2483.520	-47.93	≤-41.20	PASS
				AV	2500.000	-48.43	≤-41.20	PASS
				Peak	2483.500	-40.14	≤-21.20	PASS
				Peak	2492.240	-38.97	≤-21.20	PASS
				Peak	2500.000	-42.16	≤-21.20	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-49.49	≤-41.20	PASS
				AV	2377.700	-48.47	≤-41.20	PASS
				AV	2390.000	-48.97	≤-41.20	PASS
				Peak	2310.000	-42.69	≤-21.20	PASS
				Peak	2384.105	-38.84	≤-21.20	PASS
				Peak	2390.000	-40.72	≤-21.20	PASS
		High	2480	AV	2483.500	-47.89	≤-41.20	PASS
				AV	2483.520	-47.89	≤-41.20	PASS
				AV	2500.000	-48.18	≤-41.20	PASS
				Peak	2483.500	-41.33	≤-21.20	PASS
				Peak	2487.600	-39.16	≤-21.20	PASS
				Peak	2500.000	-39.61	≤-21.20	PASS

Note：

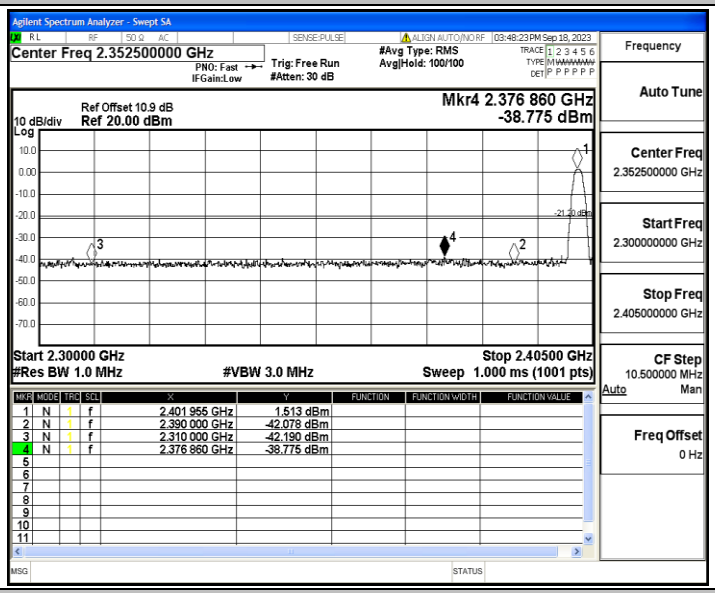
1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

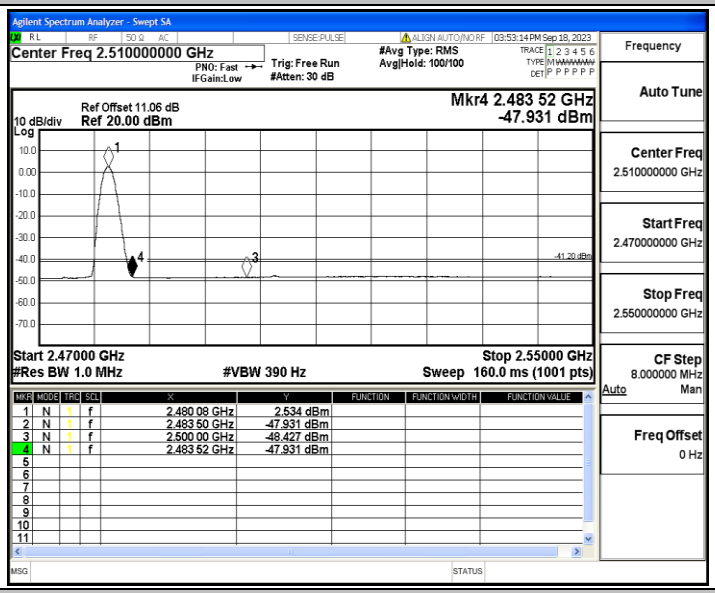
DH5_Ant1_Low_2402_AV



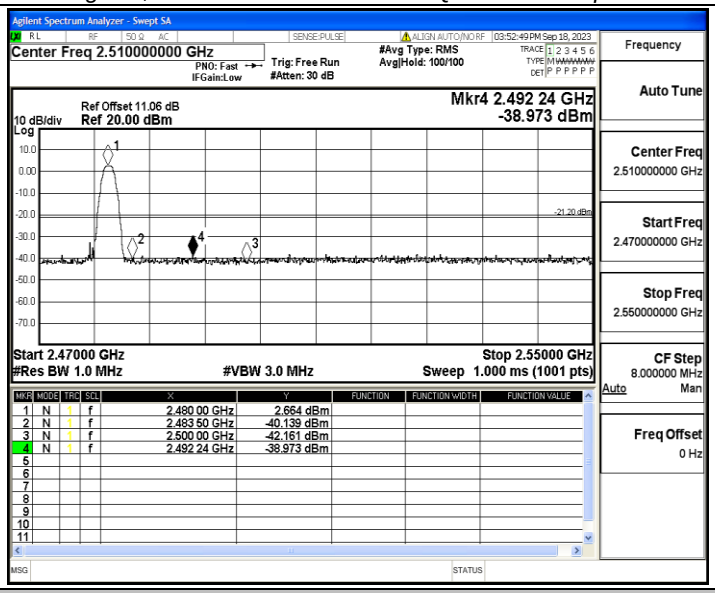
DH5_Ant1_Low_2402_Peak



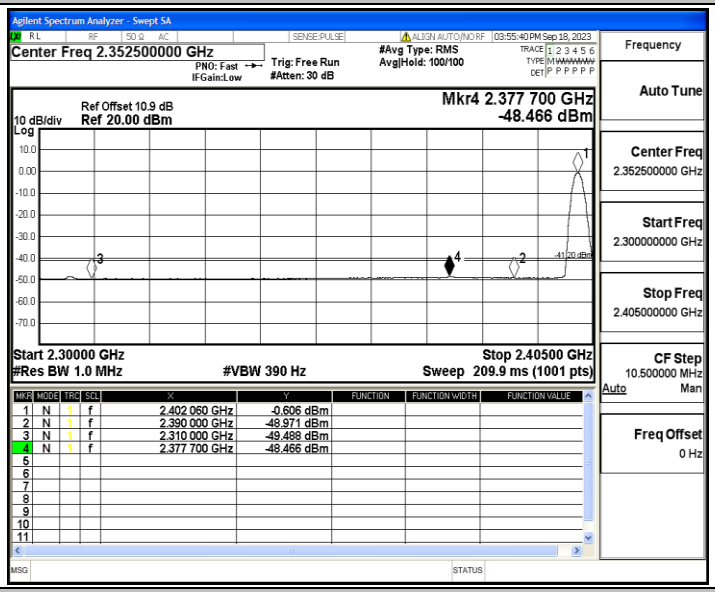
DH5_Ant1_High_2480_AV



DH5_Ant1_High_2480_Peak



2DH5_Ant1_Low_2402_AV



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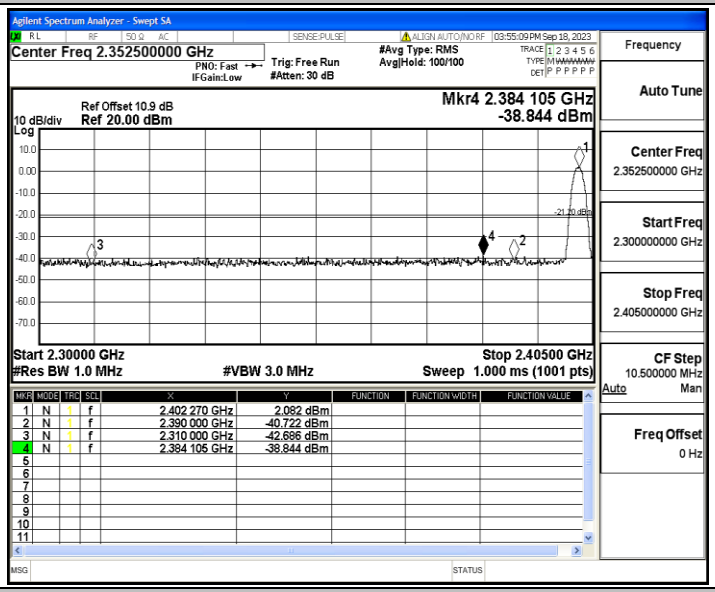

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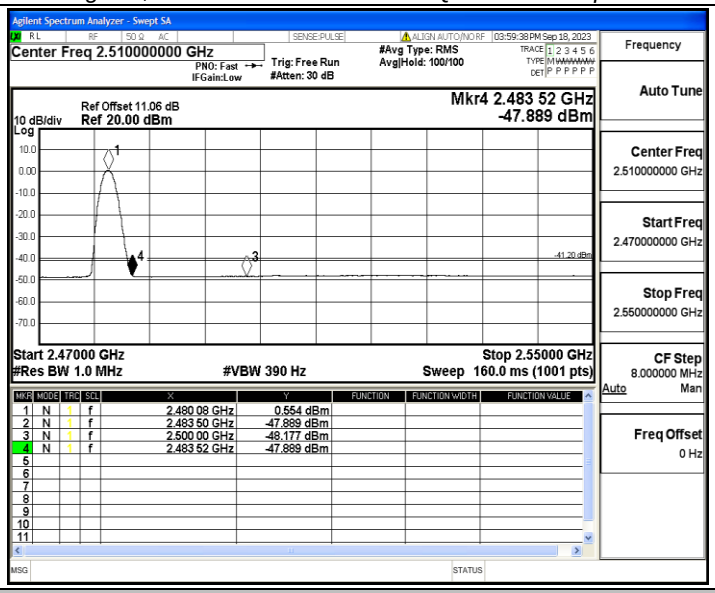
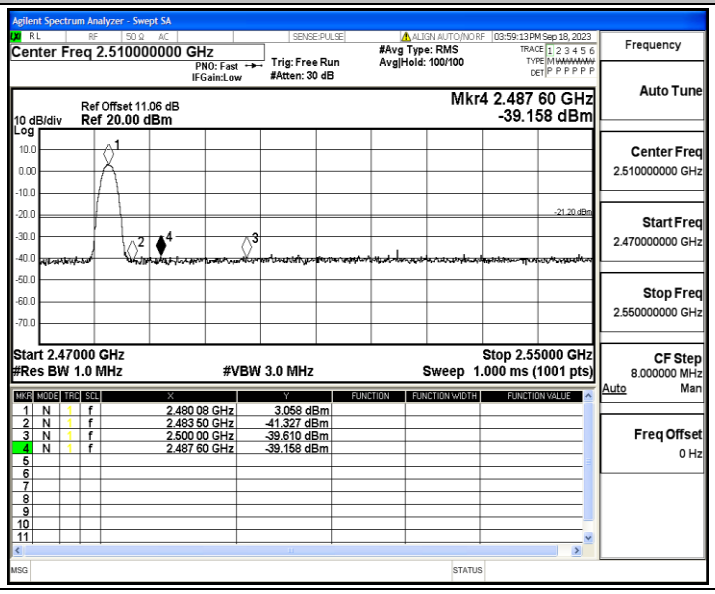
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