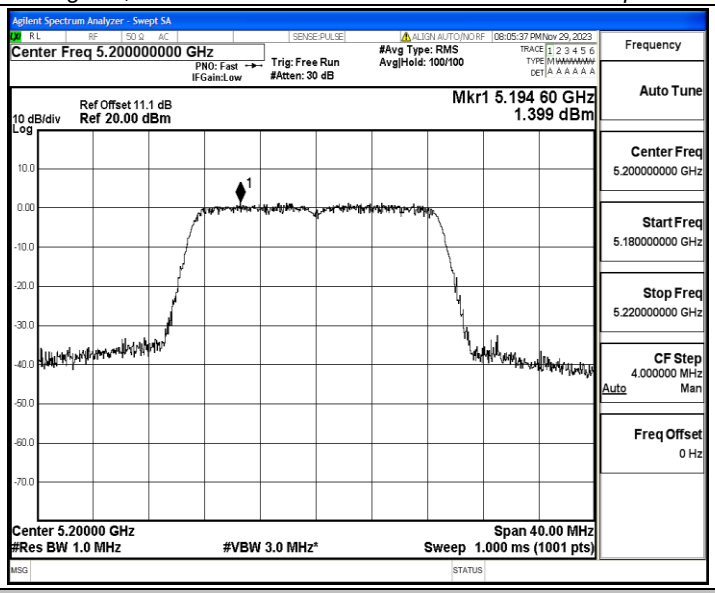
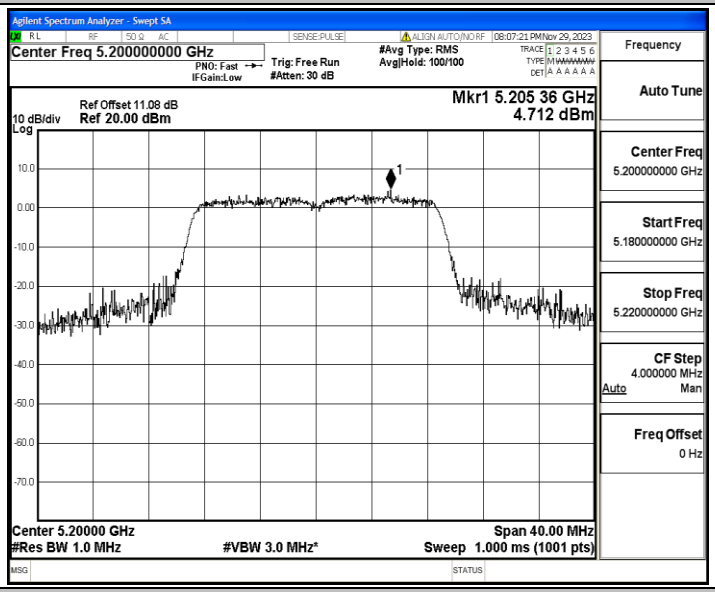


11AC20MIMO_Ant2_5200



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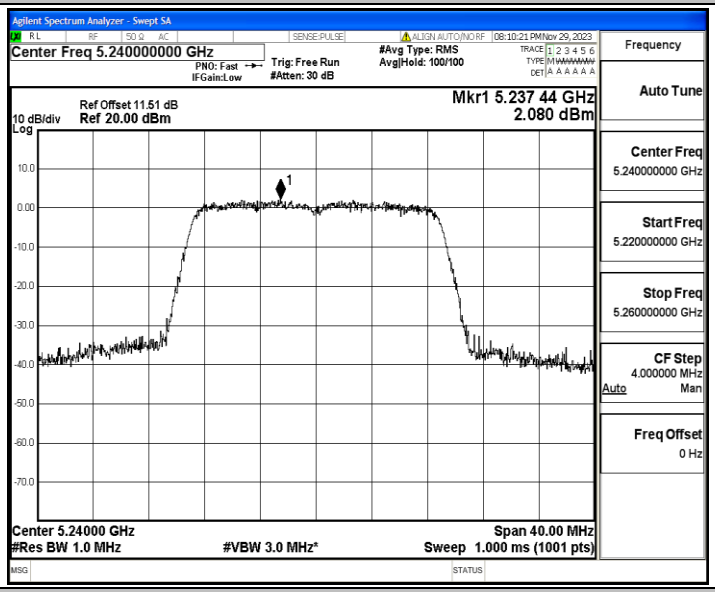
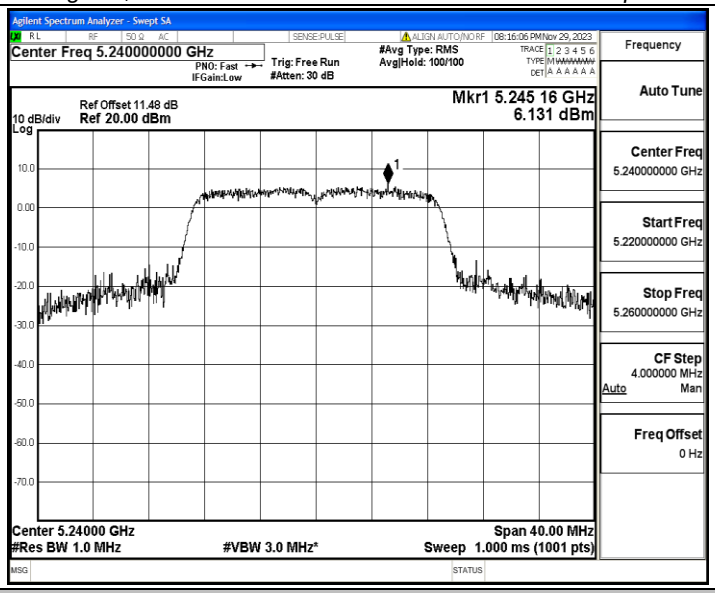


11AC20MIMO_Ant2_5240



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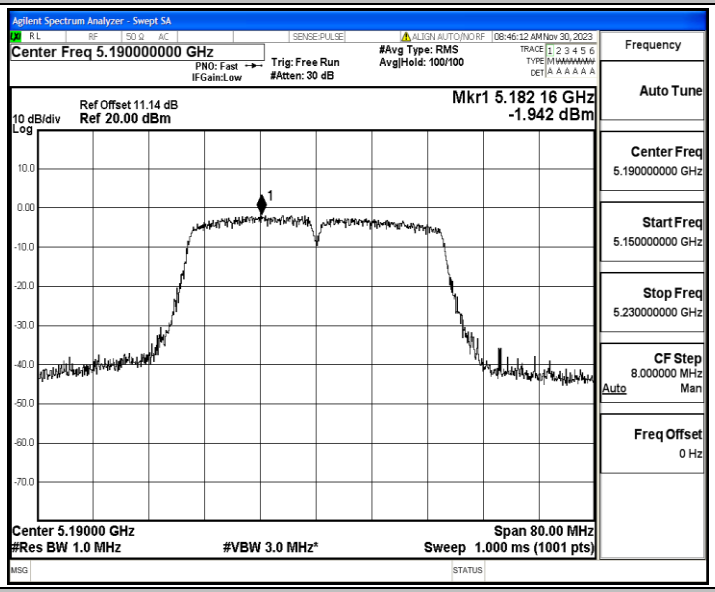

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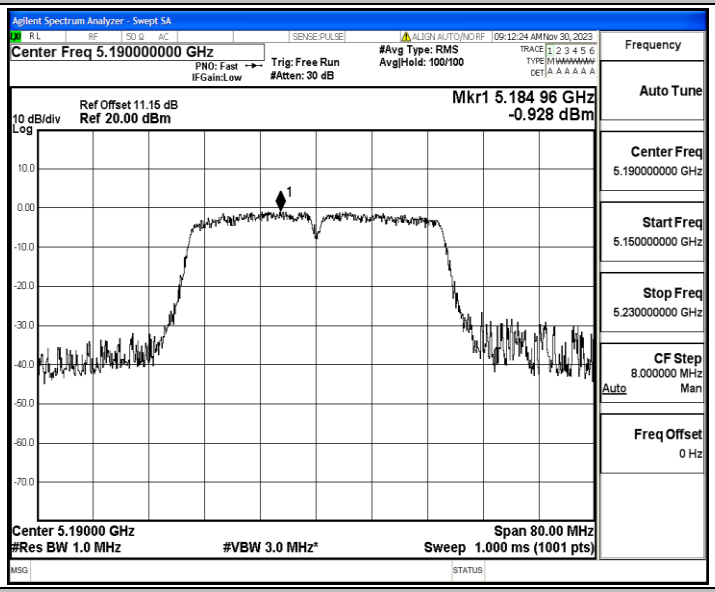

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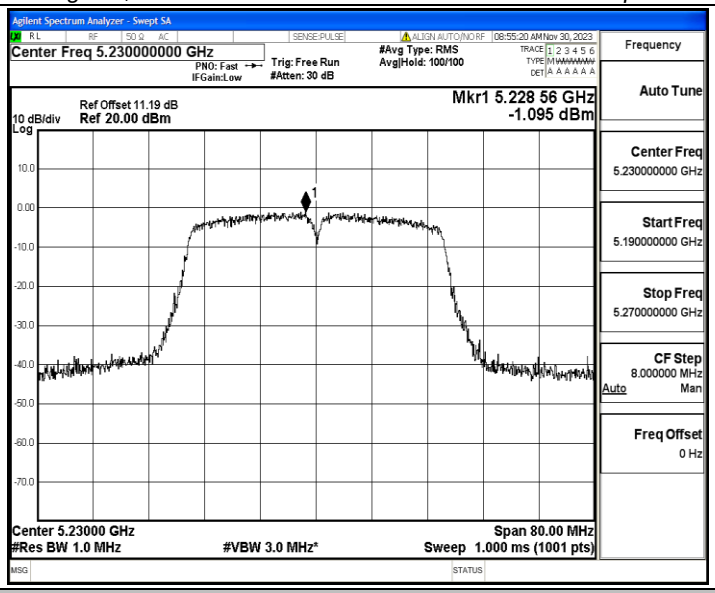
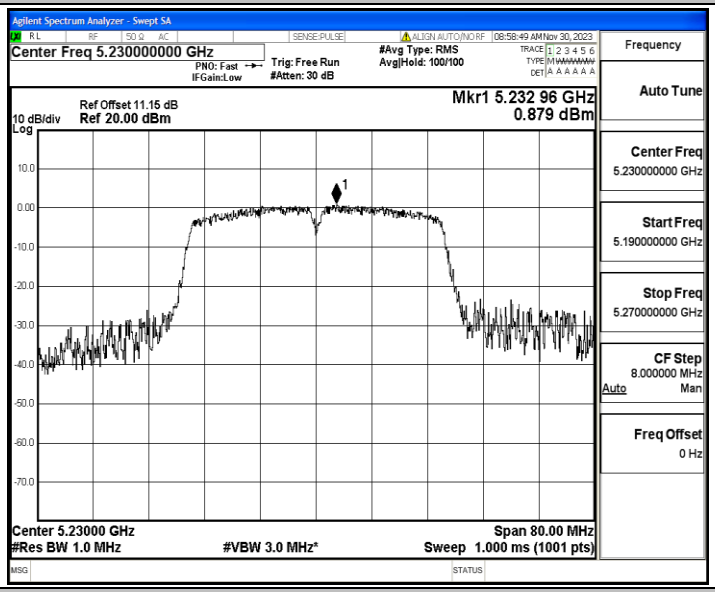
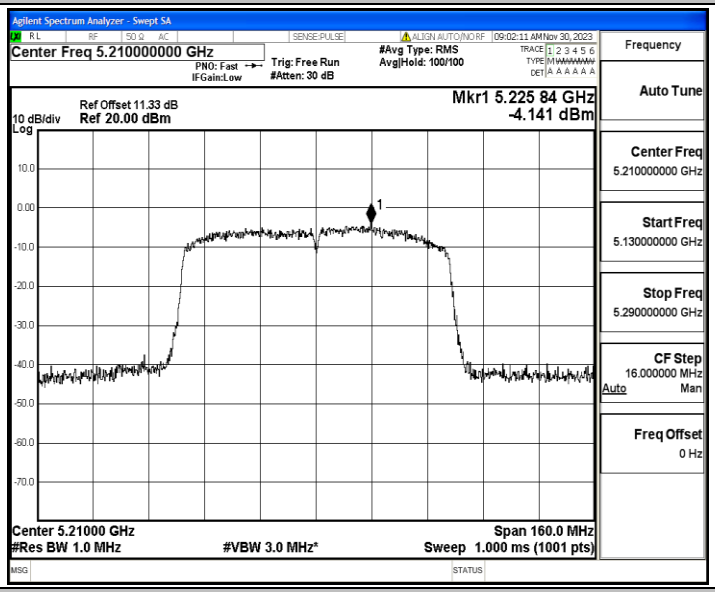


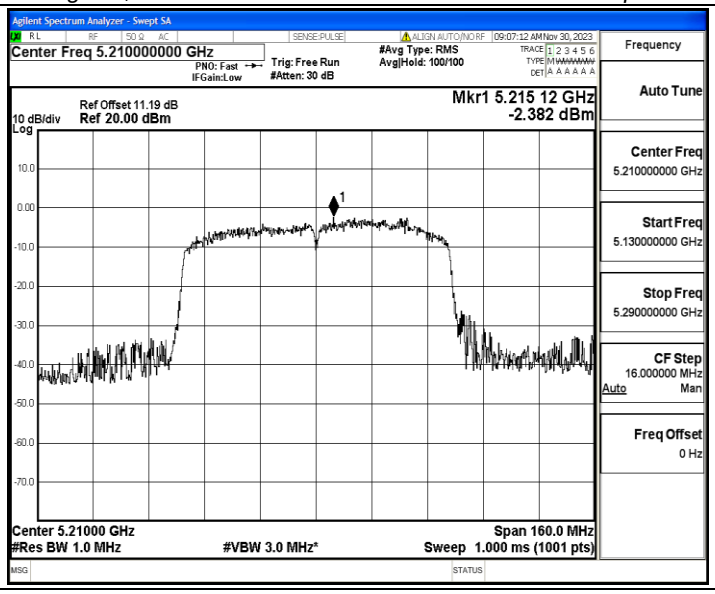
11AC40MIMO_Ant2_5230



11AC80MIMO_Ant1_5210



11AC80MIMO_Ant2_5210


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.210000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 100/100
09:07:12 AM Nov 30, 2023
Ref Offset 11.19 dB
10 dB/div Ref 20.00 dBm
Log
Mkr1 5.215 12 GHz
-2.382 dBm
Center 5.21000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Span 160.0 MHz
Sweep 1.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
5.210000000 GHz
Start Freq
5.130000000 GHz
Stop Freq
5.290000000 GHz
CF Step
16.000000 MHz
Auto Man
Freq Offset
0 Hz

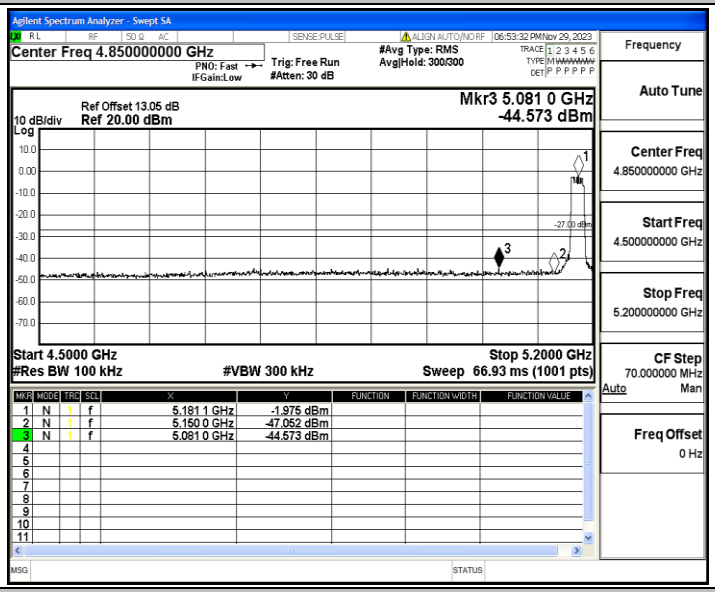
Appendix D: Band edge measurements

Test Result

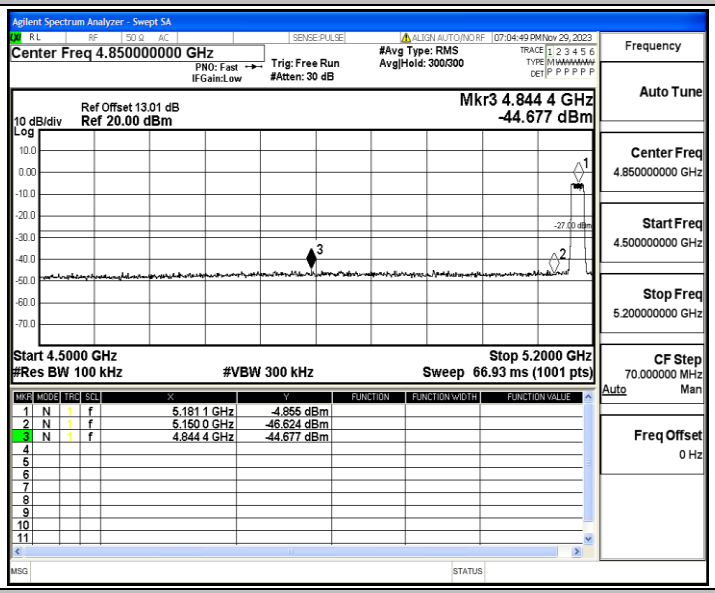
TestMode	Antenna	ChName	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	Low	5180	-44.57	≤-27	PASS
	Ant2	Low	5180	-44.68	≤-27	PASS
	Ant1	High	5240	-44.59	≤-27	PASS
	Ant2	High	5240	-44.17	≤-27	PASS
11N20MIMO	Ant1	Low	5180	-44.9	≤-27	PASS
	Ant2	Low	5180	-44.72	≤-27	PASS
	Ant1	High	5240	-45.04	≤-27	PASS
	Ant2	High	5240	-44.14	≤-27	PASS
11N40MIMO	Ant1	Low	5190	-44.79	≤-27	PASS
	Ant2	Low	5190	-44.93	≤-27	PASS
	Ant1	High	5230	-45.07	≤-27	PASS
	Ant2	High	5230	-44.87	≤-27	PASS
11AC20MIMO	Ant1	Low	5180	-44.8	≤-27	PASS
	Ant2	Low	5180	-43.51	≤-27	PASS
	Ant1	High	5240	-44.67	≤-27	PASS
	Ant2	High	5240	-44.42	≤-27	PASS
11AC40MIMO	Ant1	Low	5190	-44.83	≤-27	PASS
	Ant2	Low	5190	-42.34	≤-27	PASS
	Ant1	High	5230	-44.05	≤-27	PASS
	Ant2	High	5230	-45.2	≤-27	PASS
11AC80MIMO	Ant1	Low	5210	-43.56	≤-27	PASS
	Ant2	Low	5210	-42.03	≤-27	PASS
	Ant1	High	5210	-44.92	≤-27	PASS
	Ant2	High	5210	-44.74	≤-27	PASS

Test Graphs

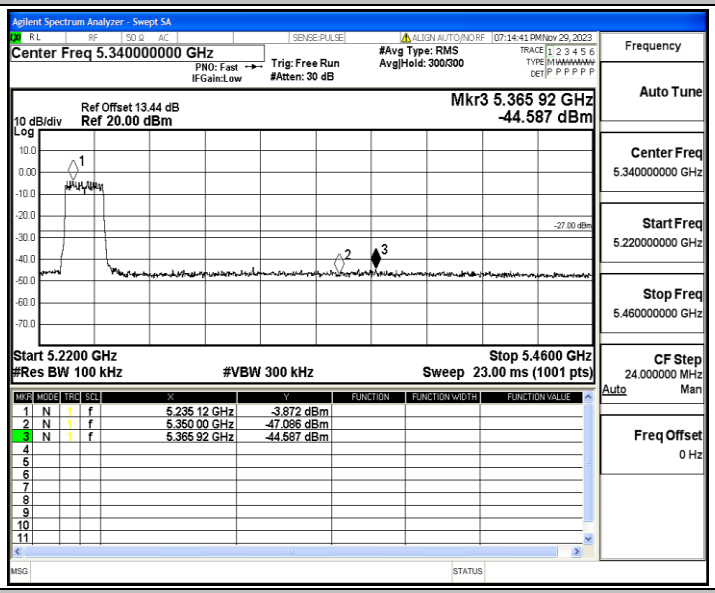
11A_Ant1_Low_5180



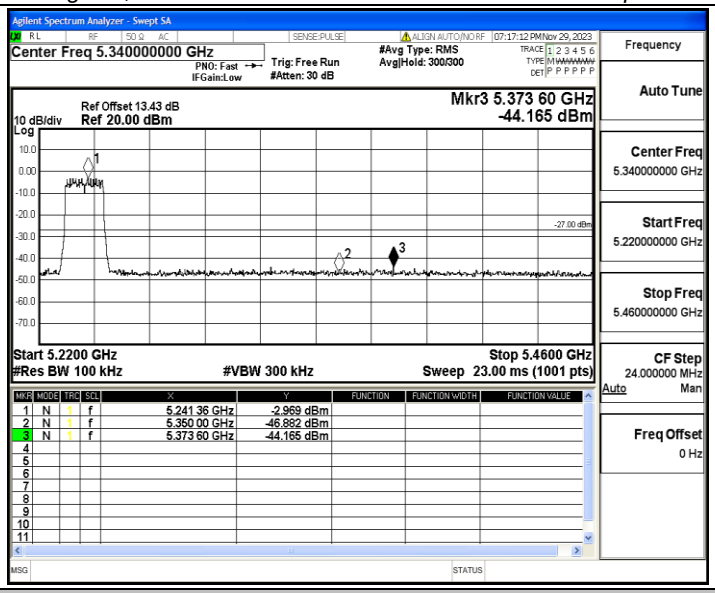
11A_Ant2_Low_5180



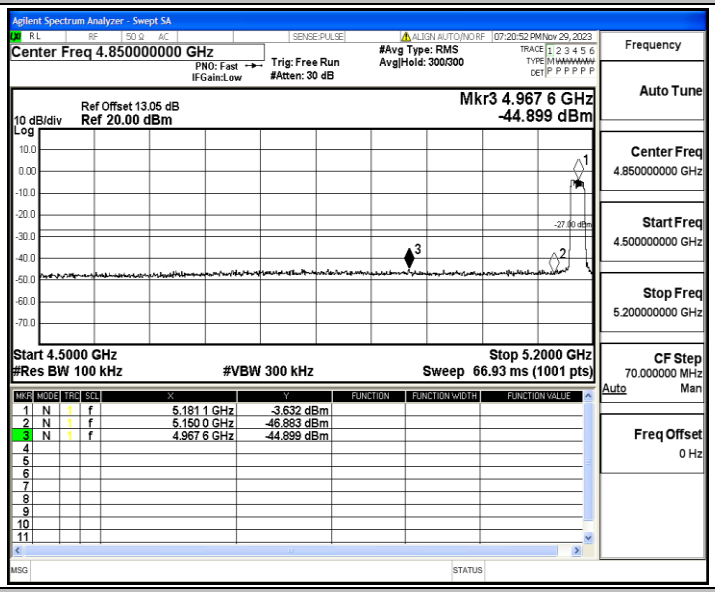
11A_Ant1_High_5240



11A_Ant2_High_5240



11N20MIMO_Ant1_Low_5180



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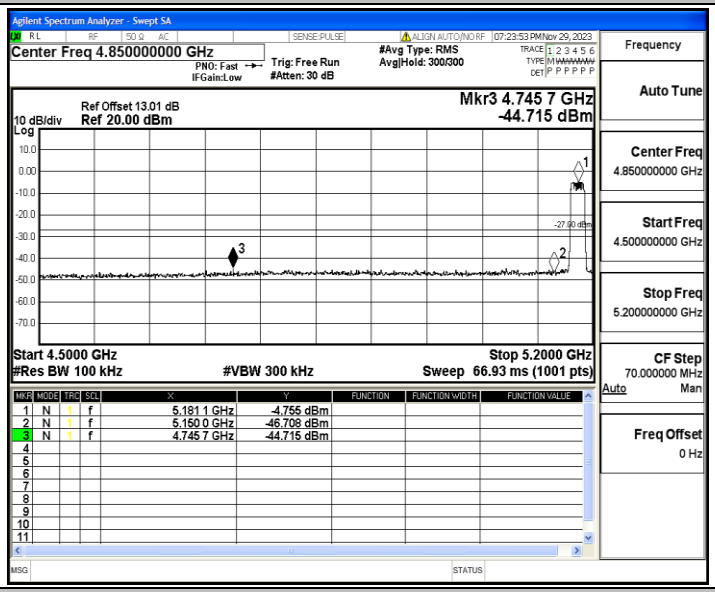

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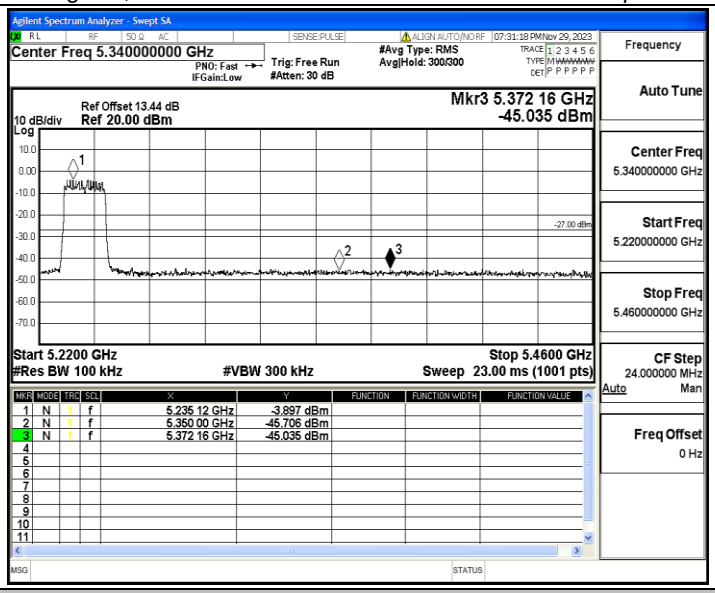
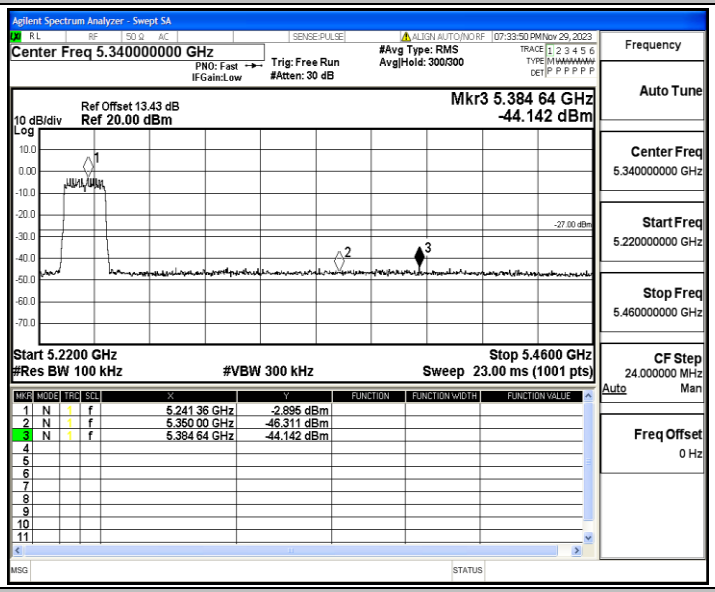
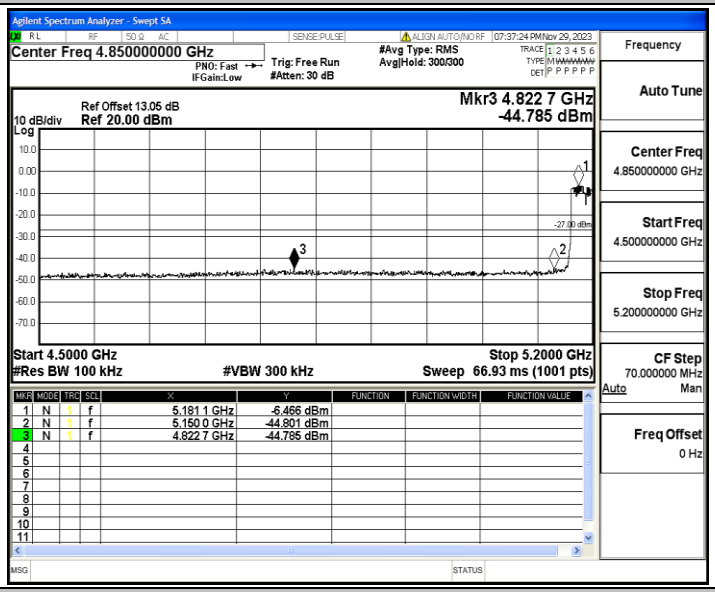


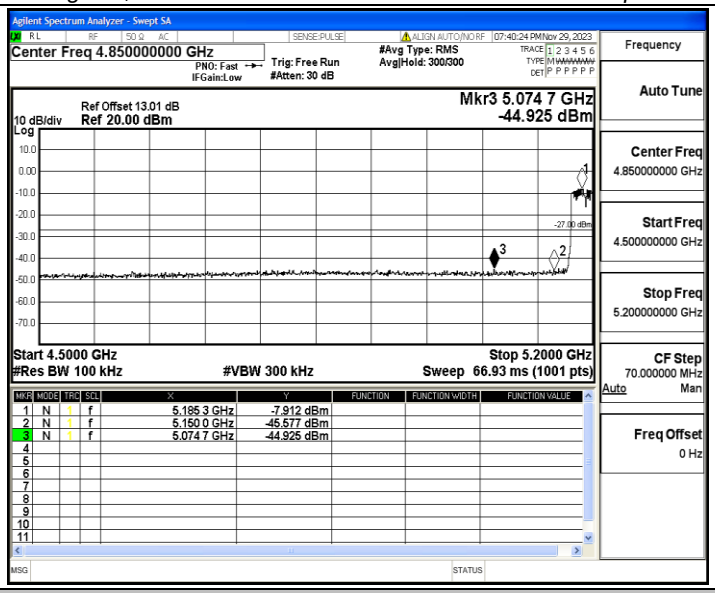
11N20MIMO_Ant2_High_5240



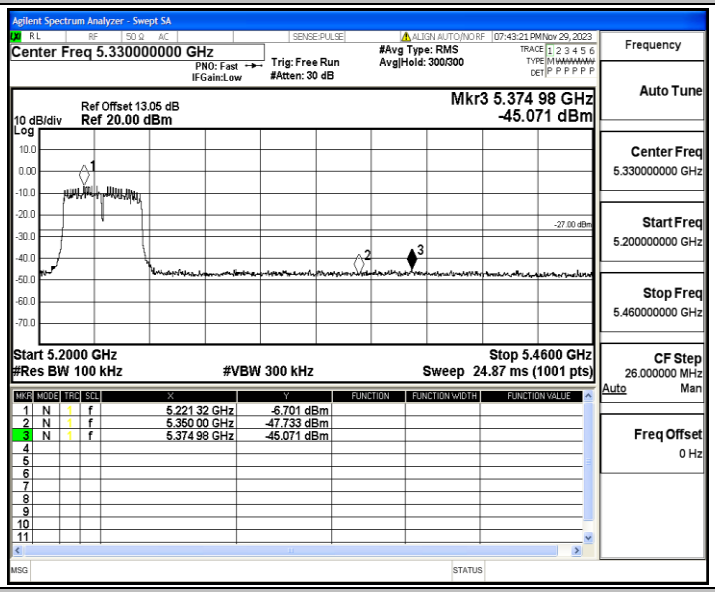
11N40MIMO_Ant1_Low_5190



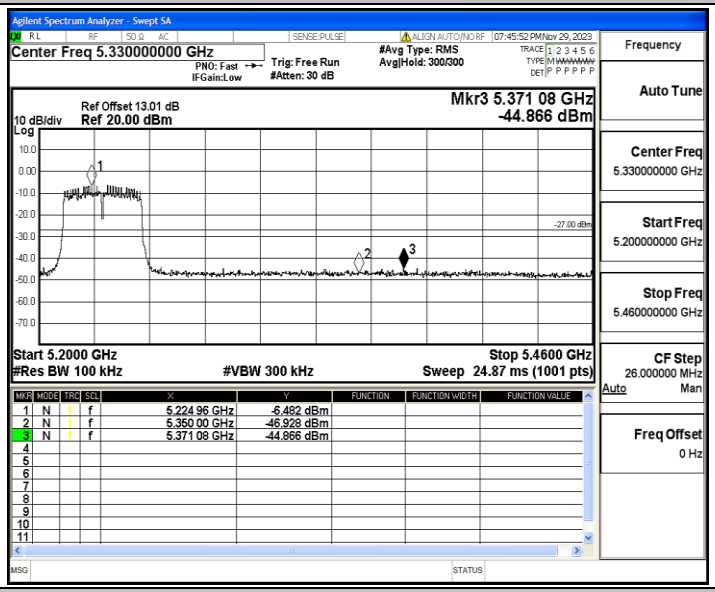
11N40MIMO_Ant2_Low_5190



11N40MIMO_Ant1_High_5230



11N40MIMO_Ant2_High_5230



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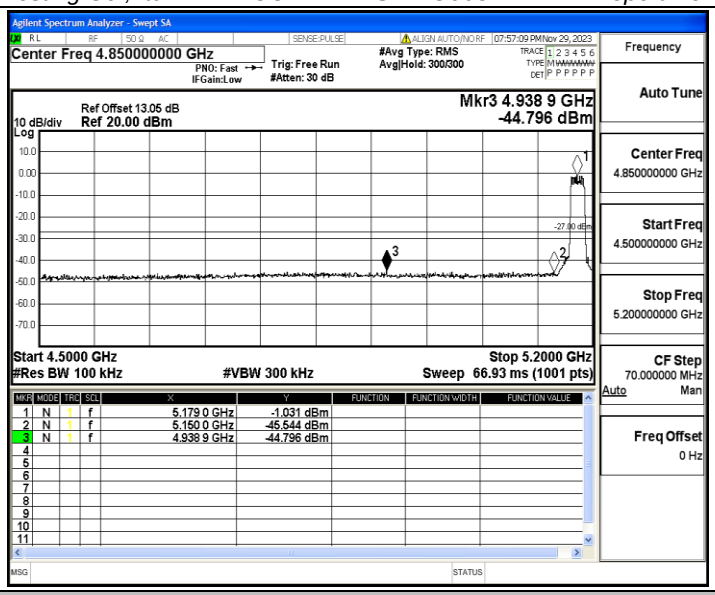

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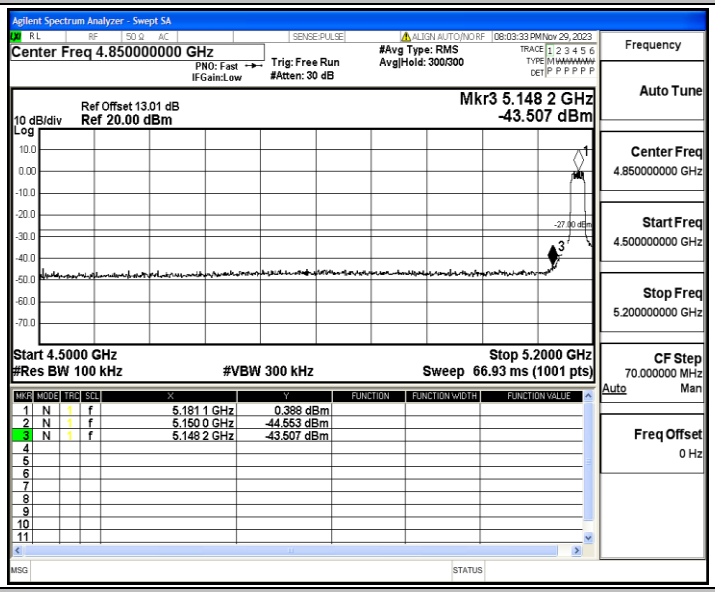

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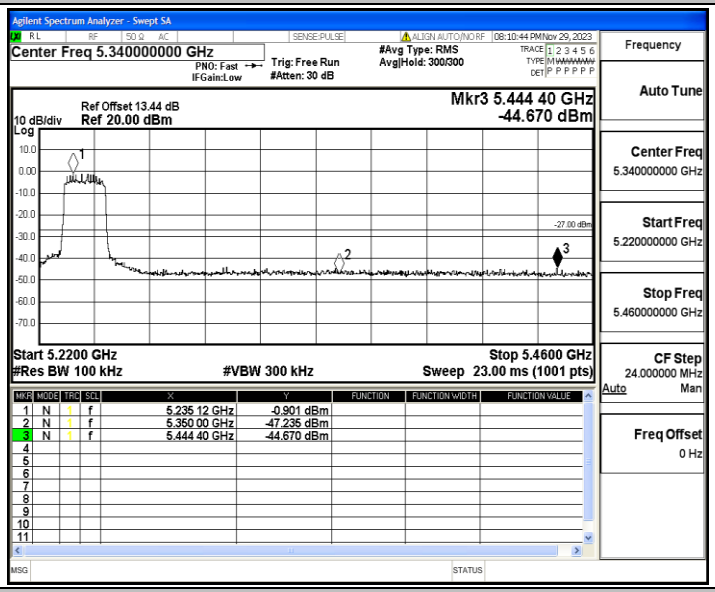

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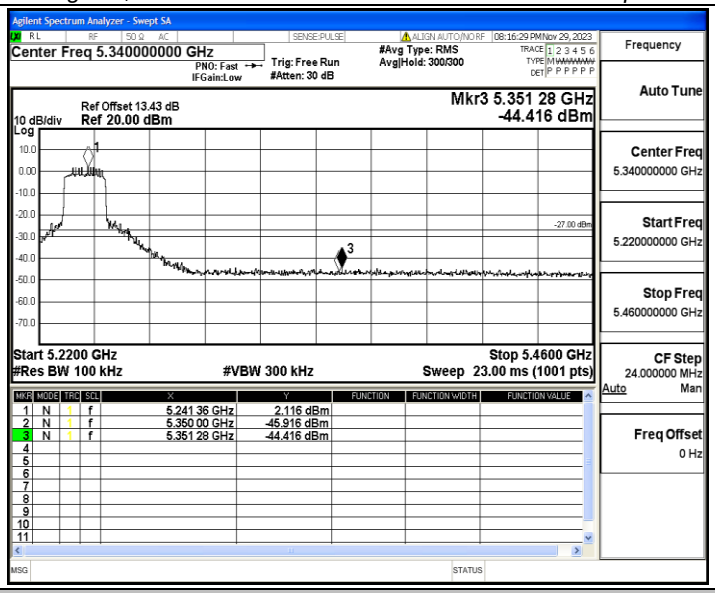

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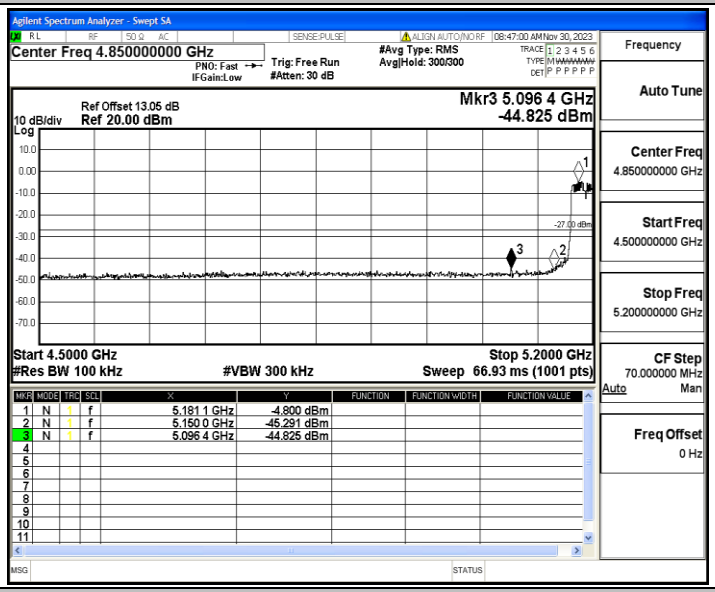

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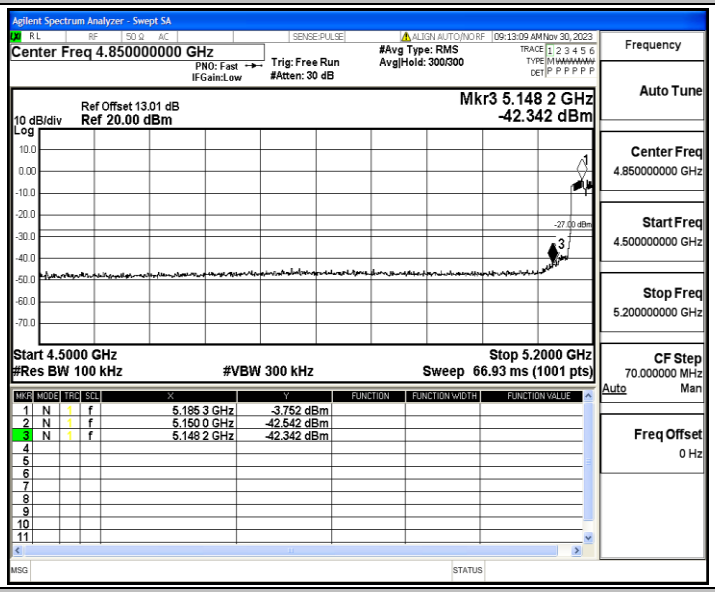

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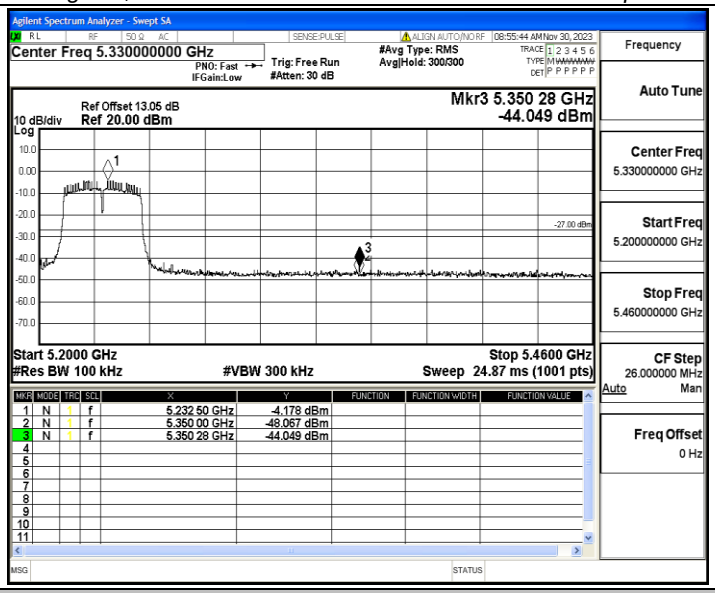

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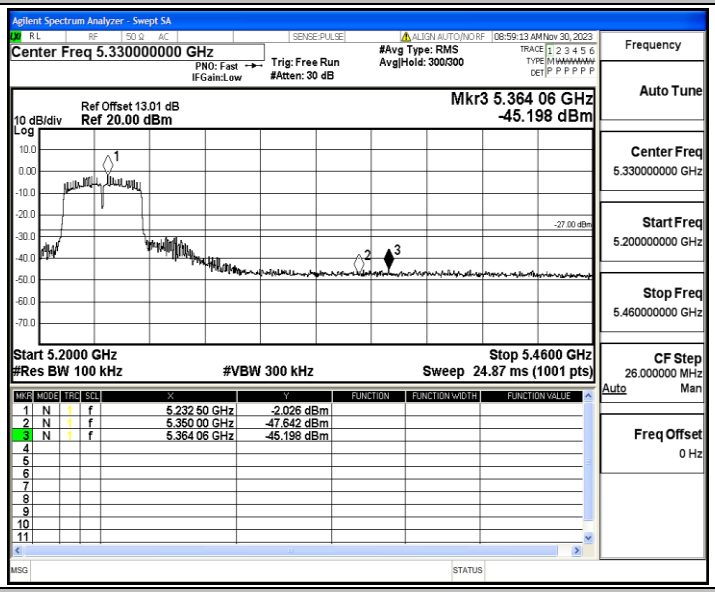

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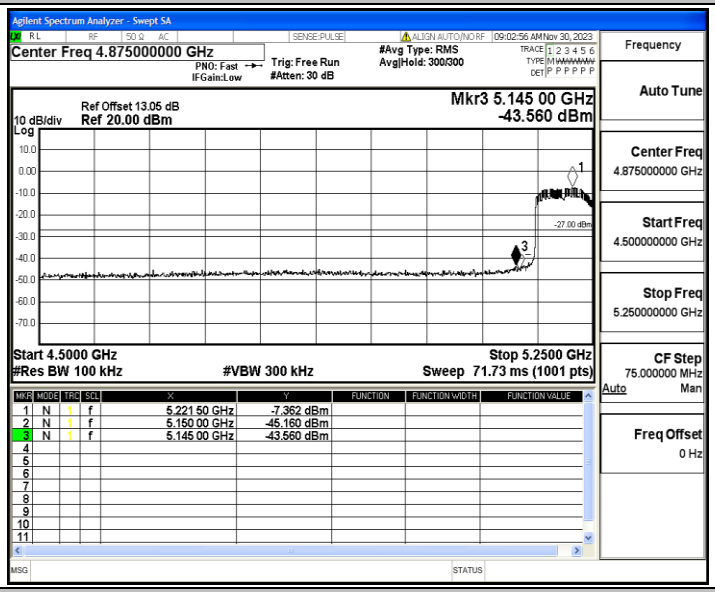

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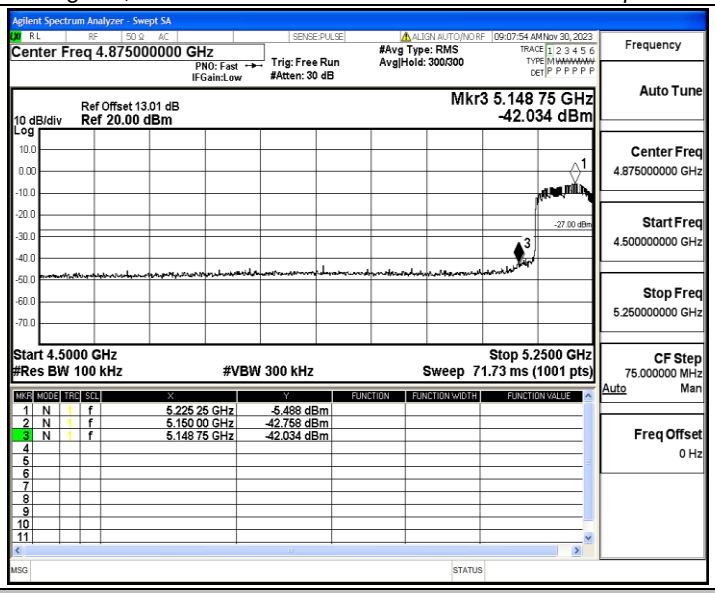

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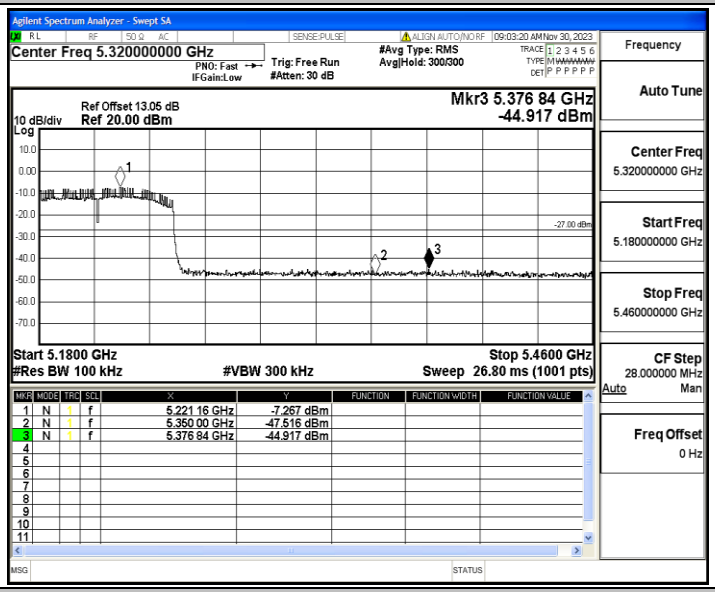

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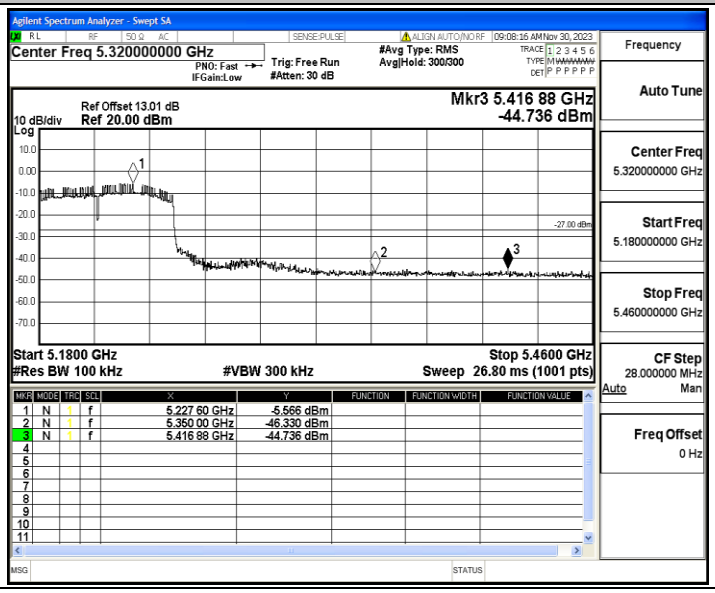


Appendix E: Frequency Stability

Test Result

Ant1

Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5180	20	132	5179.945909	5150 – 5250	PASS
5180	20	108	5179.926334	5150 – 5250	PASS
5180	50	120	5180.013367	5150 – 5250	PASS
5180	40	120	5179.988163	5150 – 5250	PASS
5180	30	120	5179.956621	5150 – 5250	PASS
5180	20	120	5180.046788	5150 – 5250	PASS
5180	10	120	5179.907850	5150 – 5250	PASS
5180	0	120	5180.027211	5150 – 5250	PASS
5180	-10	120	5179.965249	5150 – 5250	PASS
5180	-20	120	5180.066545	5150 – 5250	PASS
5180	-30	120	5179.987854	5150 – 5250	PASS

Ant2

Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5180	20	132	5179.991041	5150 – 5250	PASS
5180	20	108	5179.900297	5150 – 5250	PASS
5180	50	120	5179.914529	5150 – 5250	PASS
5180	40	120	5180.049200	5150 – 5250	PASS
5180	30	120	5180.069646	5150 – 5250	PASS
5180	20	120	5180.038782	5150 – 5250	PASS
5180	10	120	5179.994445	5150 – 5250	PASS
5180	0	120	5180.059821	5150 – 5250	PASS
5180	-10	120	5179.997238	5150 – 5250	PASS
5180	-20	120	5180.045989	5150 – 5250	PASS
5180	-30	120	5179.974594	5150 – 5250	PASS

Ant1

Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5200	20	132	5199.996372	5150 – 5250	PASS
5200	20	108	5199.954086	5150 – 5250	PASS
5200	50	120	5199.937763	5150 – 5250	PASS
5200	40	120	5199.975870	5150 – 5250	PASS
5200	30	120	5199.946724	5150 – 5250	PASS
5200	20	120	5200.026781	5150 – 5250	PASS
5200	10	120	5199.943607	5150 – 5250	PASS
5200	0	120	5199.911094	5150 – 5250	PASS
5200	-10	120	5199.995046	5150 – 5250	PASS
5200	-20	120	5200.058142	5150 – 5250	PASS
5200	-30	120	5200.085064	5150 – 5250	PASS

Ant2

Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5200	20	132	5199.999813	5150 – 5250	PASS
5200	20	108	5199.912711	5150 – 5250	PASS
5200	50	120	5200.049504	5150 – 5250	PASS
5200	40	120	5199.903296	5150 – 5250	PASS
5200	30	120	5199.986909	5150 – 5250	PASS
5200	20	120	5199.960096	5150 – 5250	PASS
5200	10	120	5200.096314	5150 – 5250	PASS
5200	0	120	5200.008487	5150 – 5250	PASS
5200	-10	120	5199.972380	5150 – 5250	PASS
5200	-20	120	5199.958873	5150 – 5250	PASS
5200	-30	120	5199.903841	5150 – 5250	PASS

Ant1

Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5240	20	132	5240.040246	5150 – 5250	PASS
5240	20	108	5240.009947	5150 – 5250	PASS
5240	50	120	5240.036292	5150 – 5250	PASS
5240	40	120	5240.089284	5150 – 5250	PASS
5240	30	120	5239.924253	5150 – 5250	PASS
5240	20	120	5239.950969	5150 – 5250	PASS
5240	10	120	5239.988150	5150 – 5250	PASS
5240	0	120	5240.023874	5150 – 5250	PASS
5240	-10	120	5239.908453	5150 – 5250	PASS
5240	-20	120	5239.900702	5150 – 5250	PASS
5240	-30	120	5240.062819	5150 – 5250	PASS

Ant2

Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5240	20	132	5240.068857	5150 – 5250	PASS
5240	20	108	5240.020329	5150 – 5250	PASS
5240	50	120	5240.013197	5150 – 5250	PASS
5240	40	120	5239.981807	5150 – 5250	PASS
5240	30	120	5239.944193	5150 – 5250	PASS
5240	20	120	5239.920619	5150 – 5250	PASS
5240	10	120	5240.052772	5150 – 5250	PASS
5240	0	120	5240.050507	5150 – 5250	PASS
5240	-10	120	5239.997239	5150 – 5250	PASS
5240	-20	120	5240.042016	5150 – 5250	PASS
5240	-30	120	5240.096346	5150 – 5250	PASS

Ant1

Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5190	20	132	5190.084145	5150 – 5250	PASS
5190	20	108	5189.978264	5150 – 5250	PASS
5190	50	120	5190.083673	5150 – 5250	PASS
5190	40	120	5190.014450	5150 – 5250	PASS
5190	30	120	5190.001990	5150 – 5250	PASS
5190	20	120	5190.064472	5150 – 5250	PASS
5190	10	120	5189.922740	5150 – 5250	PASS
5190	0	120	5190.003903	5150 – 5250	PASS
5190	-10	120	5190.003032	5150 – 5250	PASS
5190	-20	120	5190.052706	5150 – 5250	PASS
5190	-30	120	5189.965615	5150 – 5250	PASS

Ant2

Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5190	20	132	5190.099420	5150 – 5250	PASS
5190	20	108	5190.027941	5150 – 5250	PASS
5190	50	120	5190.047514	5150 – 5250	PASS
5190	40	120	5189.997382	5150 – 5250	PASS
5190	30	120	5189.998269	5150 – 5250	PASS
5190	20	120	5190.019184	5150 – 5250	PASS
5190	10	120	5190.076831	5150 – 5250	PASS
5190	0	120	5189.943906	5150 – 5250	PASS
5190	-10	120	5190.061729	5150 – 5250	PASS
5190	-20	120	5189.921530	5150 – 5250	PASS
5190	-30	120	5189.934393	5150 – 5250	PASS

Ant1

Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5230	20	132	5229.950424	5150 – 5250	PASS
5230	20	108	5229.970630	5150 – 5250	PASS
5230	50	120	5230.045255	5150 – 5250	PASS
5230	40	120	5229.925860	5150 – 5250	PASS
5230	30	120	5230.060359	5150 – 5250	PASS
5230	20	120	5229.980237	5150 – 5250	PASS
5230	10	120	5230.081725	5150 – 5250	PASS
5230	0	120	5229.926397	5150 – 5250	PASS
5230	-10	120	5229.909112	5150 – 5250	PASS
5230	-20	120	5230.093639	5150 – 5250	PASS
5230	-30	120	5229.991243	5150 – 5250	PASS

Ant2

Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5230	20	132	5229.911186	5150 – 5250	PASS
5230	20	108	5230.079813	5150 – 5250	PASS
5230	50	120	5230.040747	5150 – 5250	PASS
5230	40	120	5230.042378	5150 – 5250	PASS
5230	30	120	5229.927872	5150 – 5250	PASS
5230	20	120	5229.900417	5150 – 5250	PASS
5230	10	120	5230.077752	5150 – 5250	PASS
5230	0	120	5230.011066	5150 – 5250	PASS
5230	-10	120	5229.965546	5150 – 5250	PASS
5230	-20	120	5230.088891	5150 – 5250	PASS
5230	-30	120	5229.940552	5150 – 5250	PASS

Ant1

Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5210	20	132	5210.005867	5150 – 5250	PASS
5210	20	108	5209.925222	5150 – 5250	PASS
5210	50	120	5209.962391	5150 – 5250	PASS
5210	40	120	5209.925708	5150 – 5250	PASS
5210	30	120	5209.973606	5150 – 5250	PASS
5210	20	120	5210.035024	5150 – 5250	PASS
5210	10	120	5210.088782	5150 – 5250	PASS
5210	0	120	5210.055149	5150 – 5250	PASS
5210	-10	120	5209.963448	5150 – 5250	PASS
5210	-20	120	5210.086796	5150 – 5250	PASS
5210	-30	120	5209.971425	5150 – 5250	PASS

Ant2

Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5210	20	132	5209.911730	5150 – 5250	PASS
5210	20	108	5209.947456	5150 – 5250	PASS
5210	50	120	5210.097136	5150 – 5250	PASS
5210	40	120	5209.906862	5150 – 5250	PASS
5210	30	120	5210.011054	5150 – 5250	PASS
5210	20	120	5209.913511	5150 – 5250	PASS
5210	10	120	5209.968016	5150 – 5250	PASS
5210	0	120	5209.915074	5150 – 5250	PASS
5210	-10	120	5209.979797	5150 – 5250	PASS
5210	-20	120	5209.980631	5150 – 5250	PASS
5210	-30	120	5210.019015	5150 – 5250	PASS

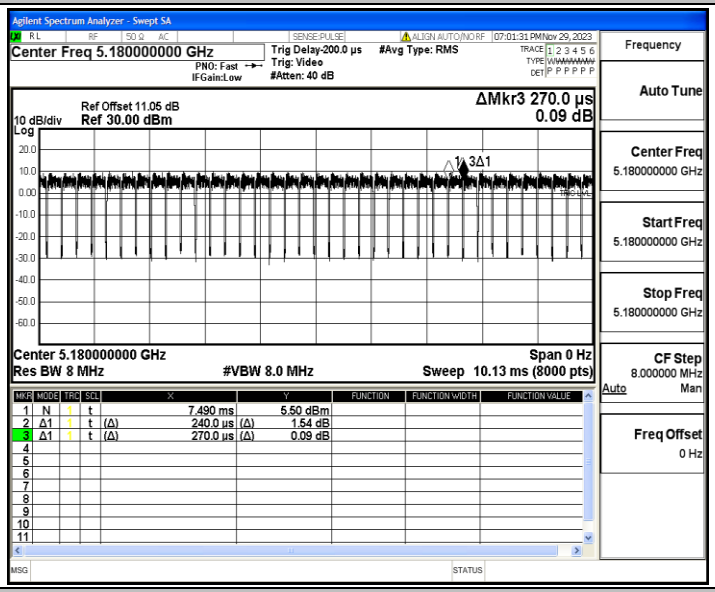
Appendix F: Duty Cycle

Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T [kHz]
11A	Ant1	5180	0.24	0.27	88.89	4.17
	Ant2	5180	0.24	0.27	88.89	4.17
	Ant1	5200	0.24	0.27	88.89	4.17
	Ant2	5200	0.25	0.28	89.29	4.00
	Ant1	5240	0.25	0.27	92.59	4.00
	Ant2	5240	0.24	0.27	88.89	4.17
11N20MIMO	Ant1	5180	0.23	0.25	92.00	4.35
	Ant2	5180	0.23	0.25	92.00	4.35
	Ant1	5200	0.22	0.25	88.00	4.55
	Ant2	5200	0.22	0.25	88.00	4.55
	Ant1	5240	0.23	0.26	88.46	4.35
	Ant2	5240	0.23	0.25	92.00	4.35
11N40MIMO	Ant1	5190	0.13	0.15	86.67	7.69
	Ant2	5190	0.13	0.15	86.67	7.69
	Ant1	5230	0.13	0.16	81.25	7.69
	Ant2	5230	0.12	0.15	80.00	8.33
11AC20MIMO	Ant1	5180	0.13	0.16	81.25	7.69
	Ant2	5180	0.13	0.16	81.25	7.69
	Ant1	5200	0.13	0.16	81.25	7.69
	Ant2	5200	0.14	0.17	82.35	7.14
	Ant1	5240	0.14	0.17	82.35	7.14
	Ant2	5240	0.13	0.16	81.25	7.69
11AC40MIMO	Ant1	5190	0.94	0.96	97.92	1.06
	Ant2	5190	0.93	0.96	96.88	1.08
	Ant1	5230	0.93	0.96	96.88	1.08
	Ant2	5230	0.93	0.96	96.88	1.08
11AC80MIMO	Ant1	5210	0.45	0.48	93.75	2.22
	Ant2	5210	0.46	0.48	95.83	2.17

Test Graphs

11A_Ant1_5180



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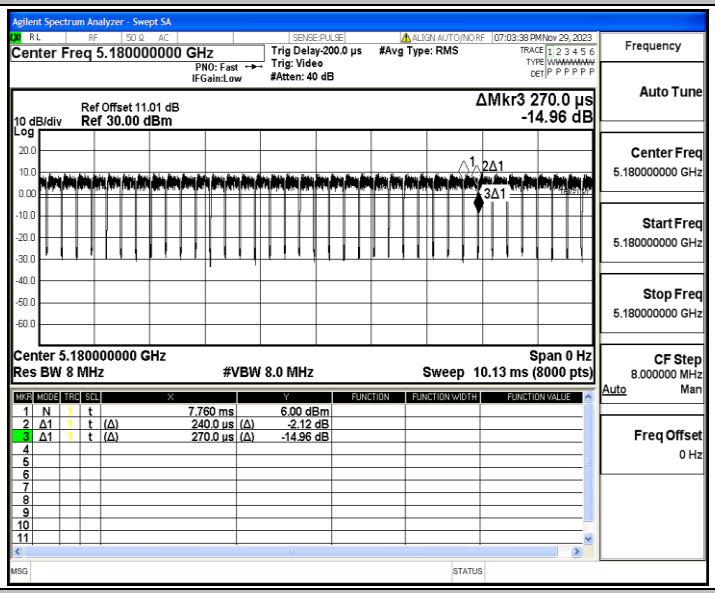

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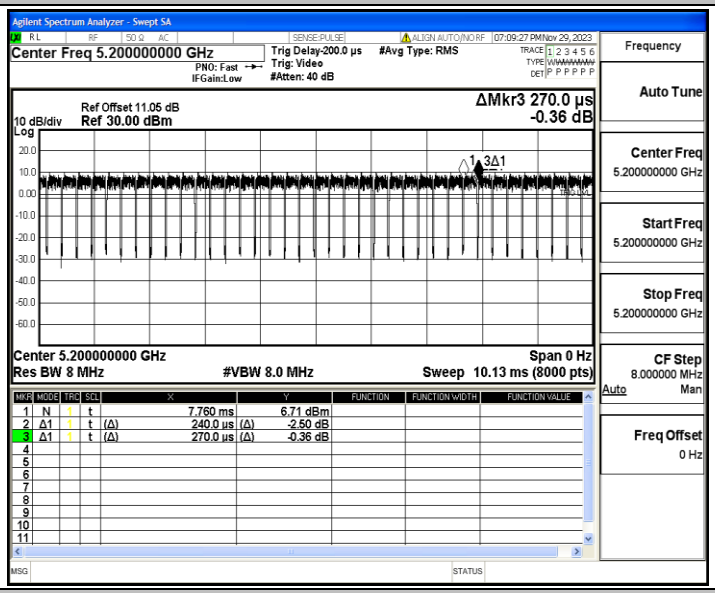

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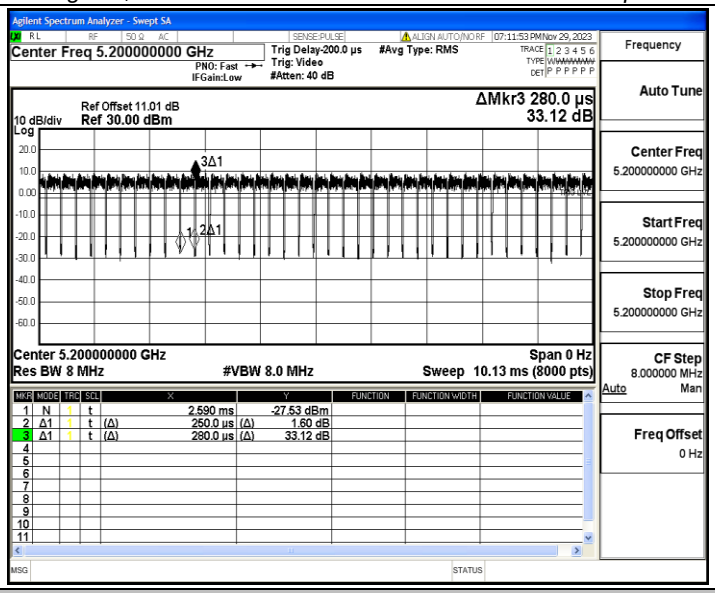

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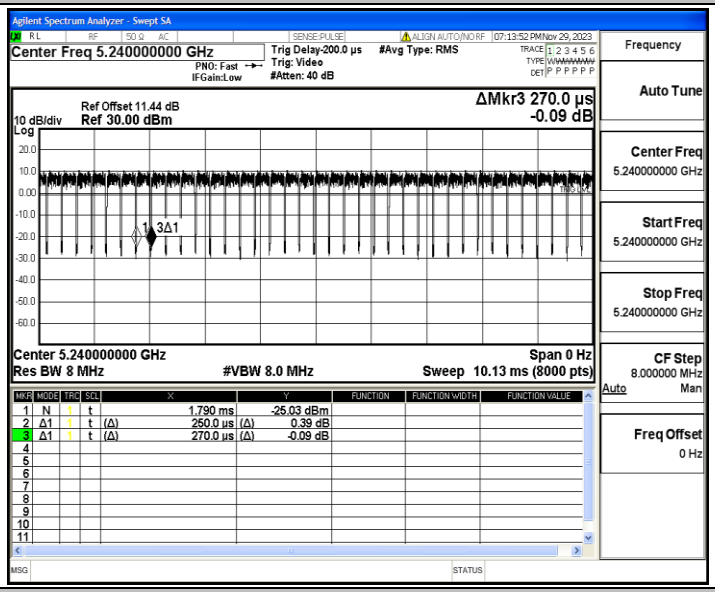

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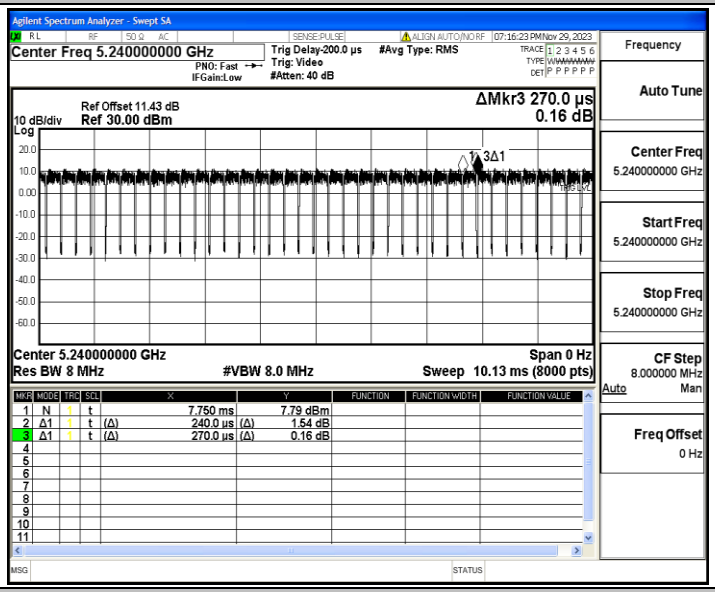

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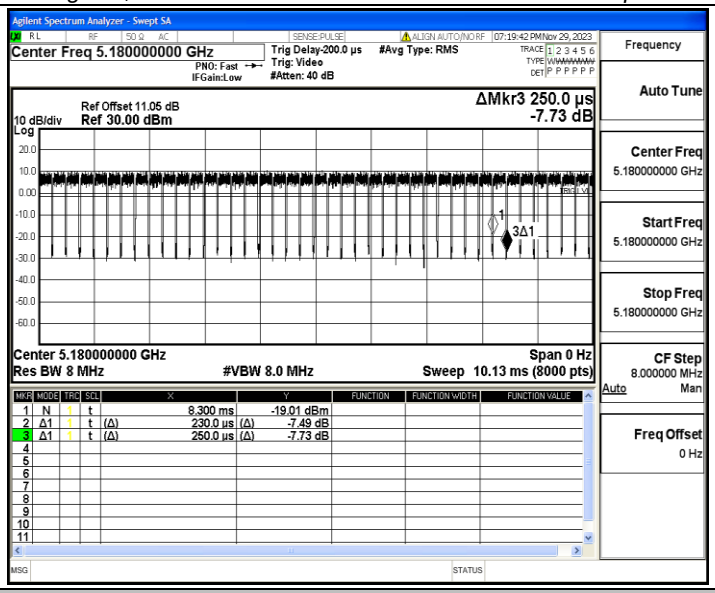

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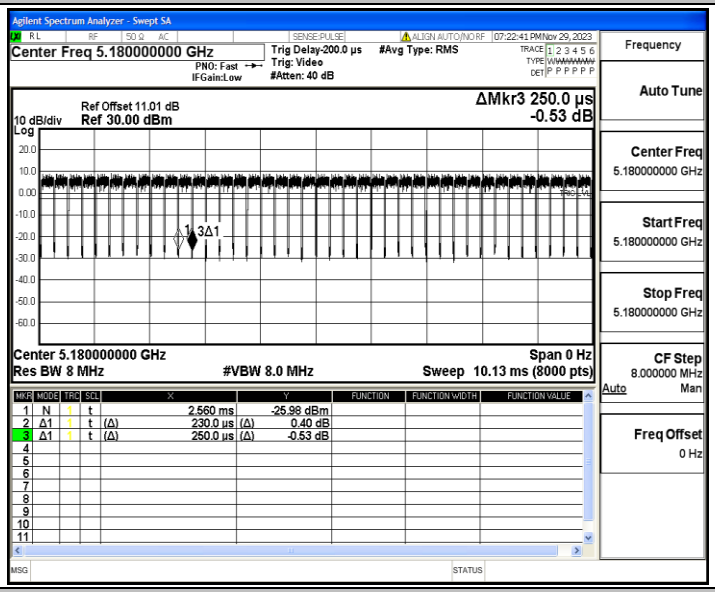

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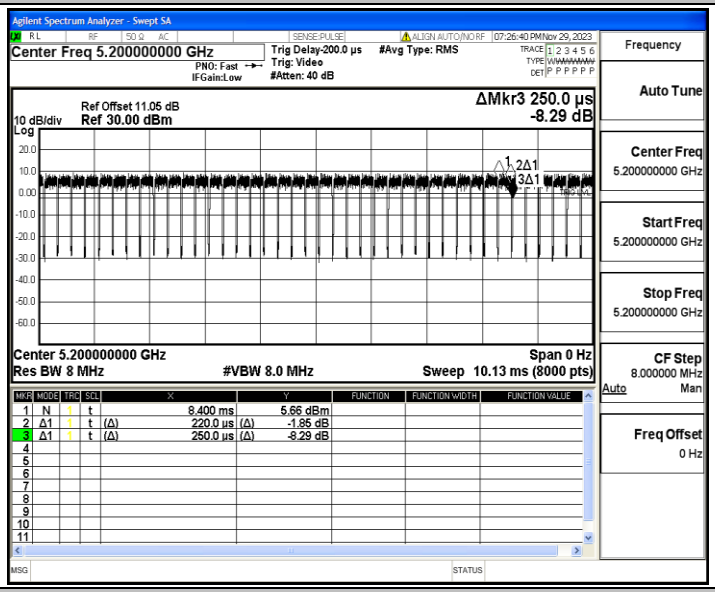

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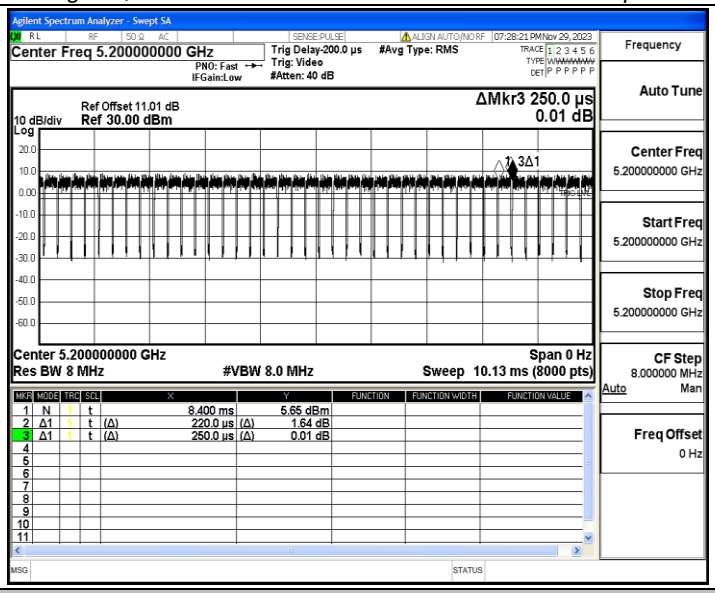

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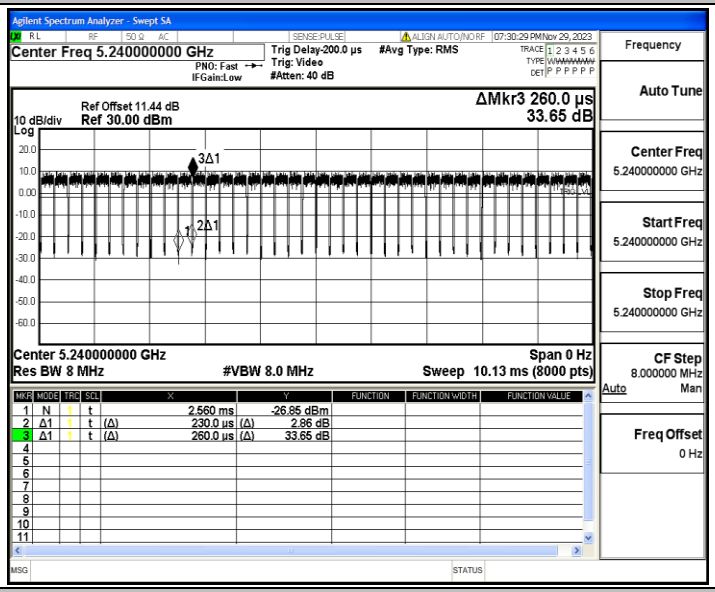

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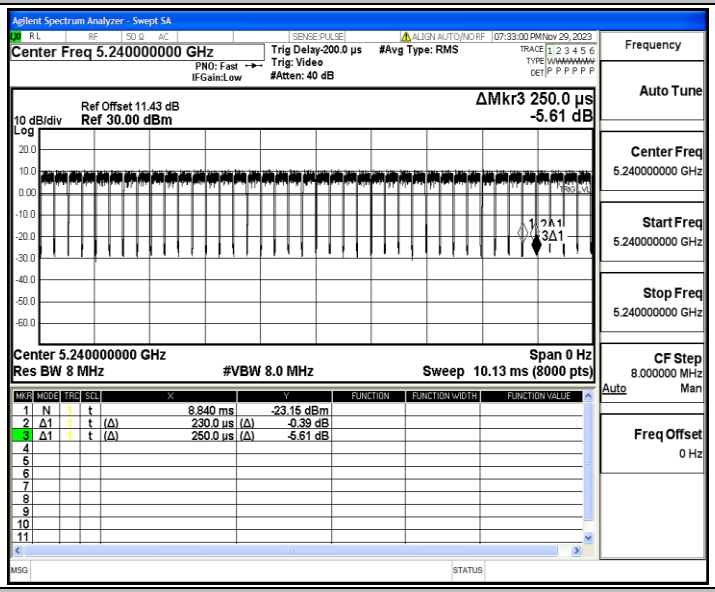

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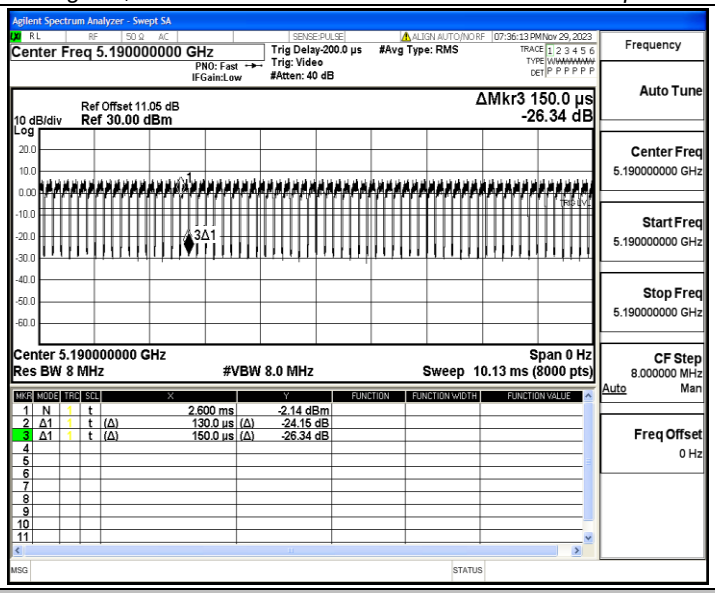

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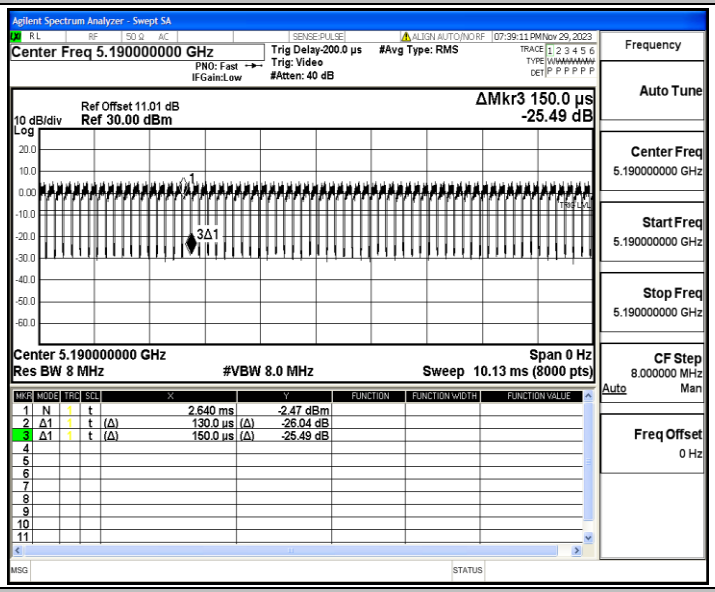

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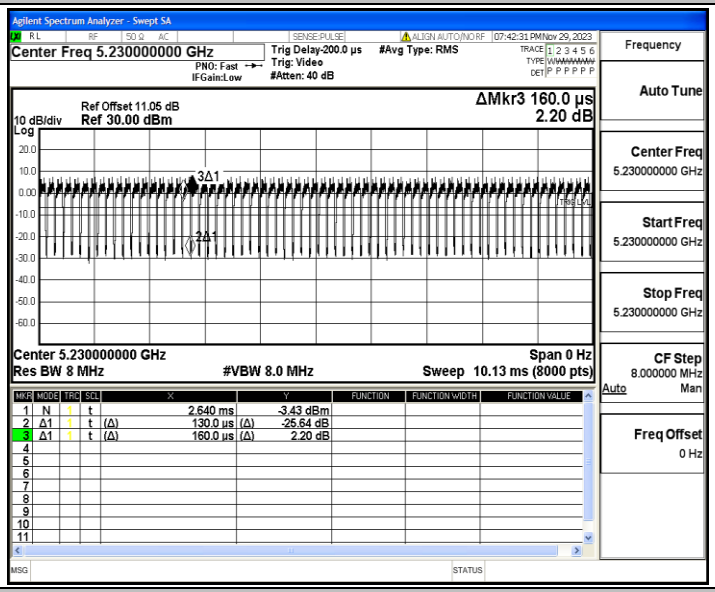

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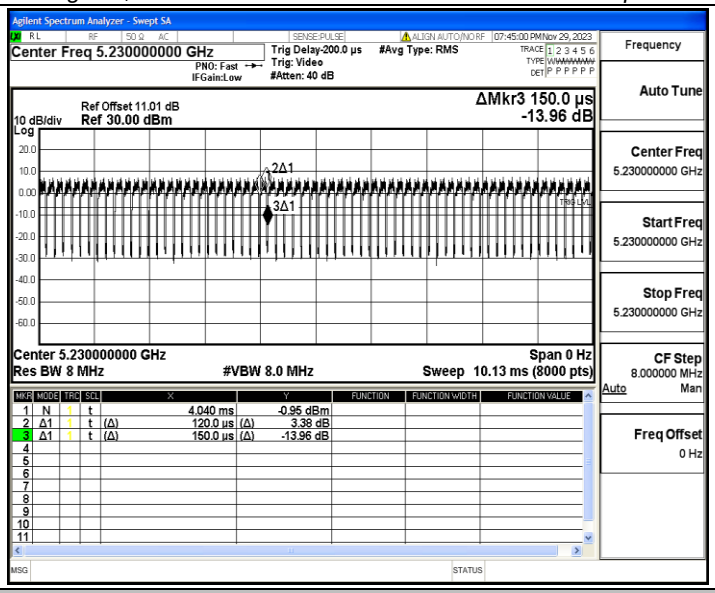

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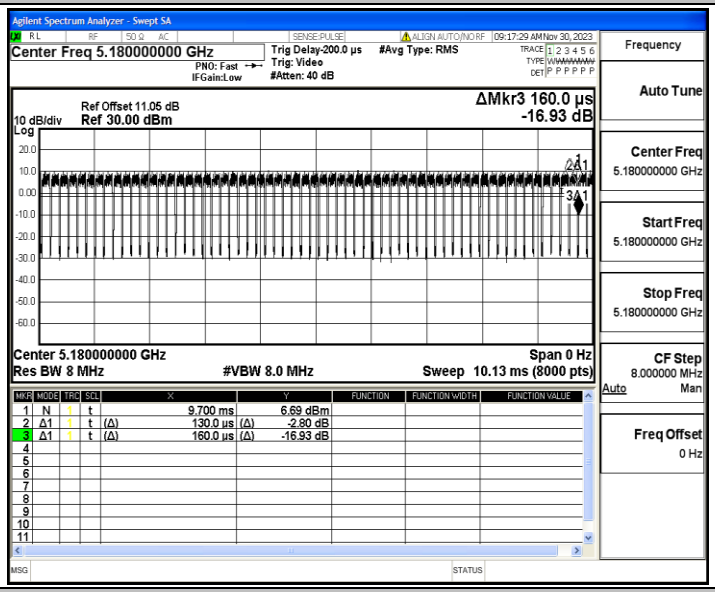

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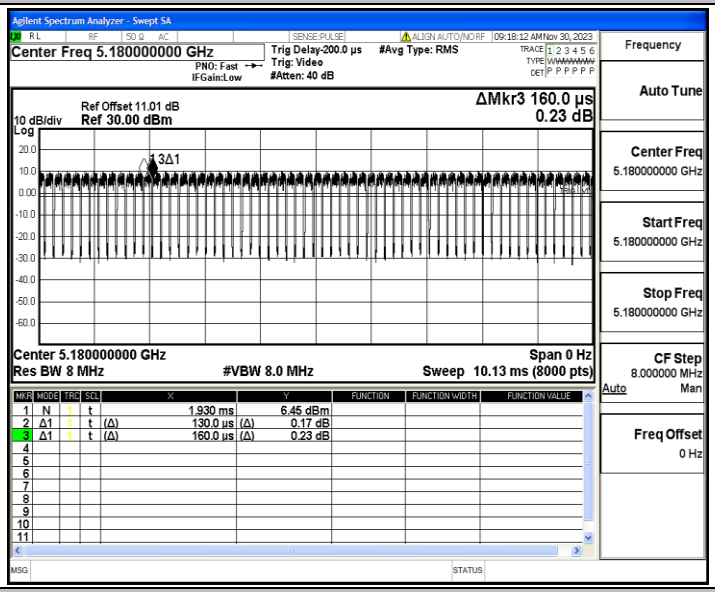

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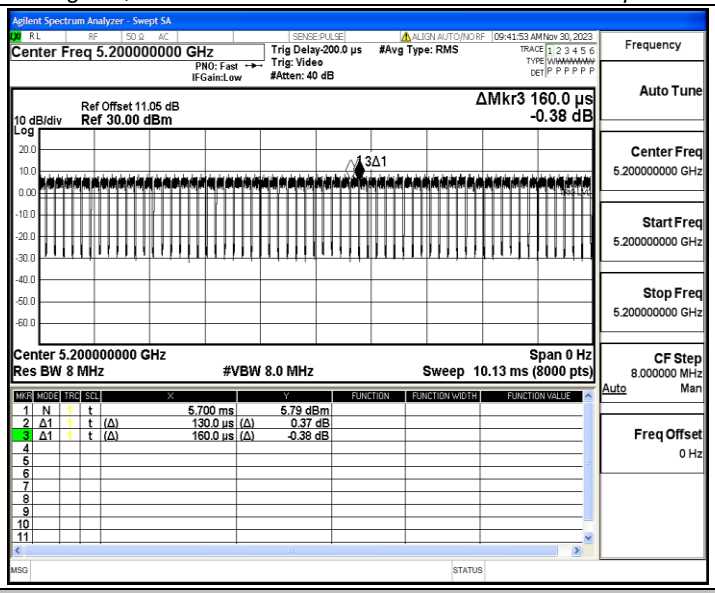

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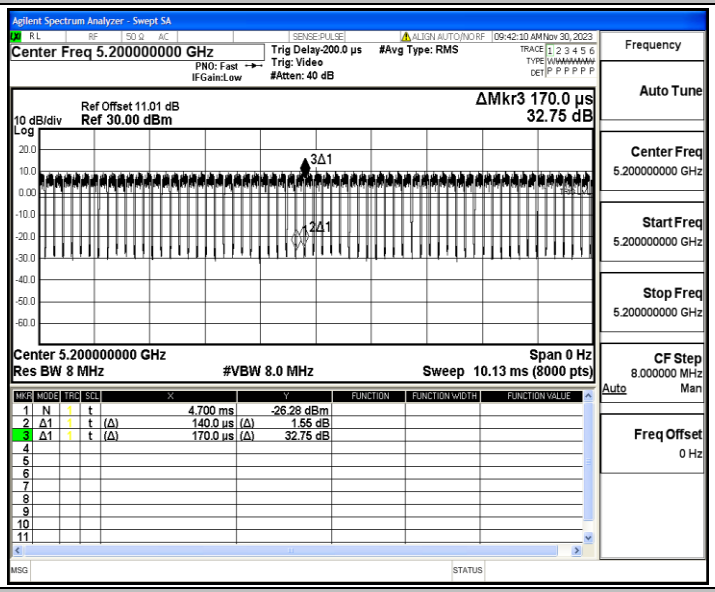

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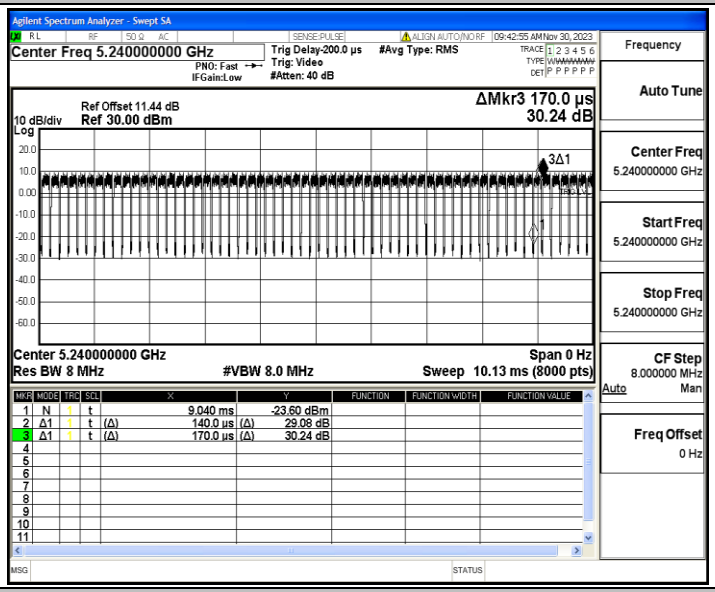

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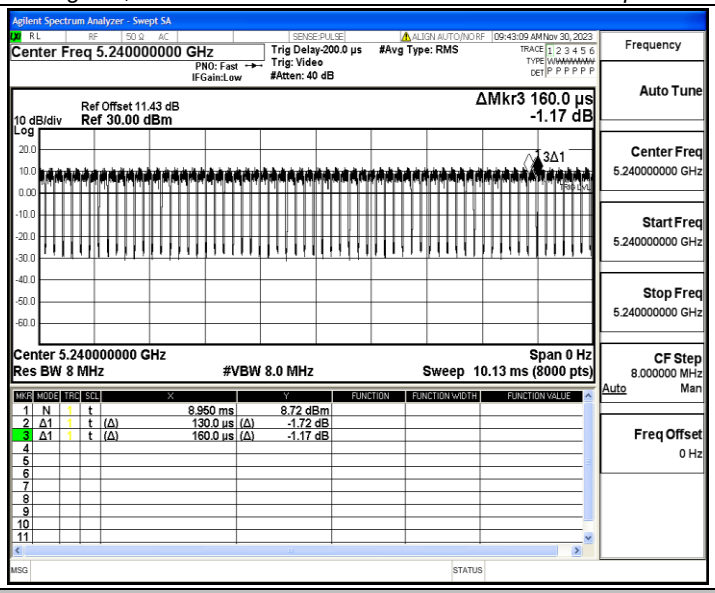

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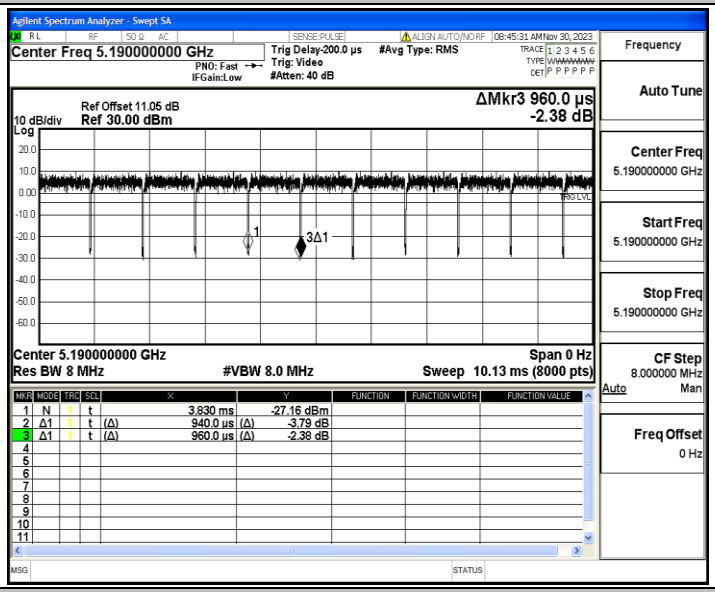

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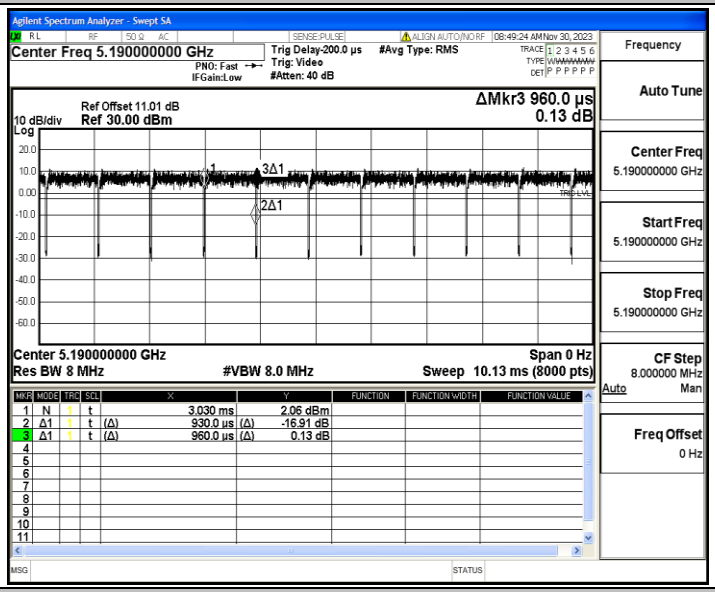

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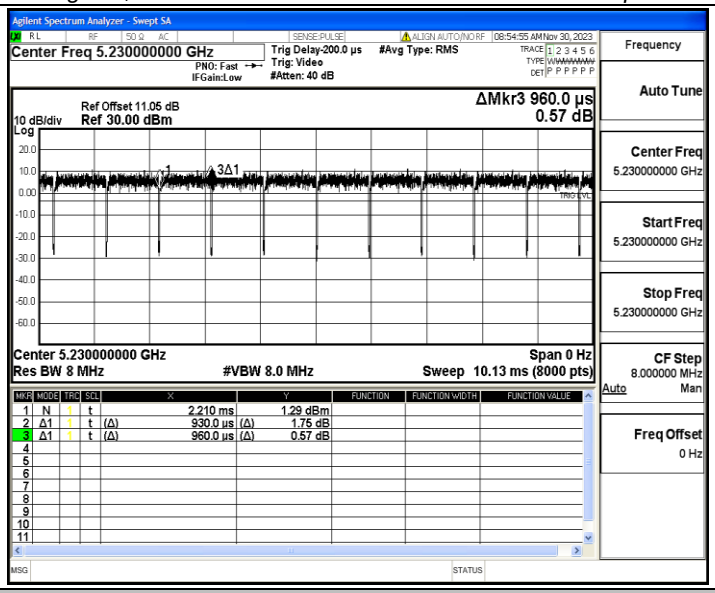

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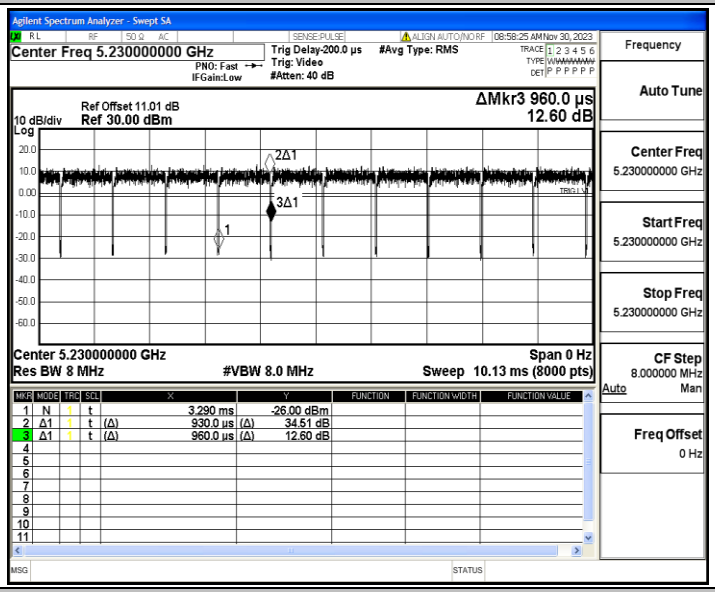

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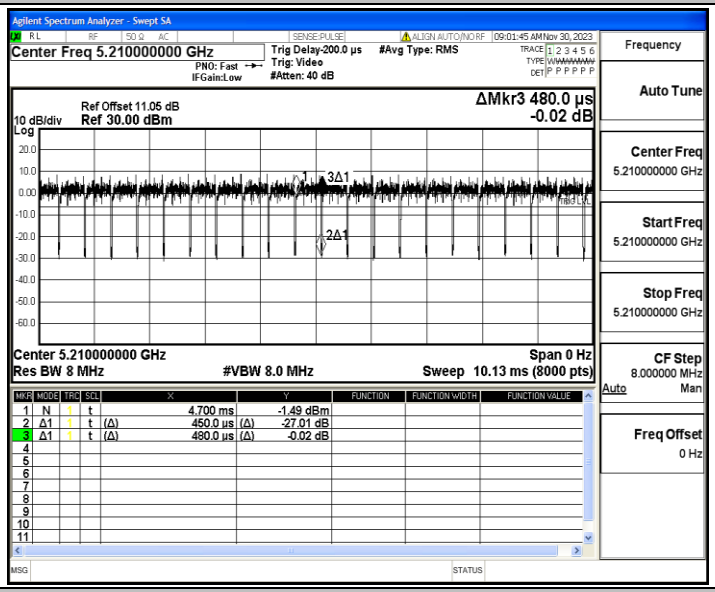

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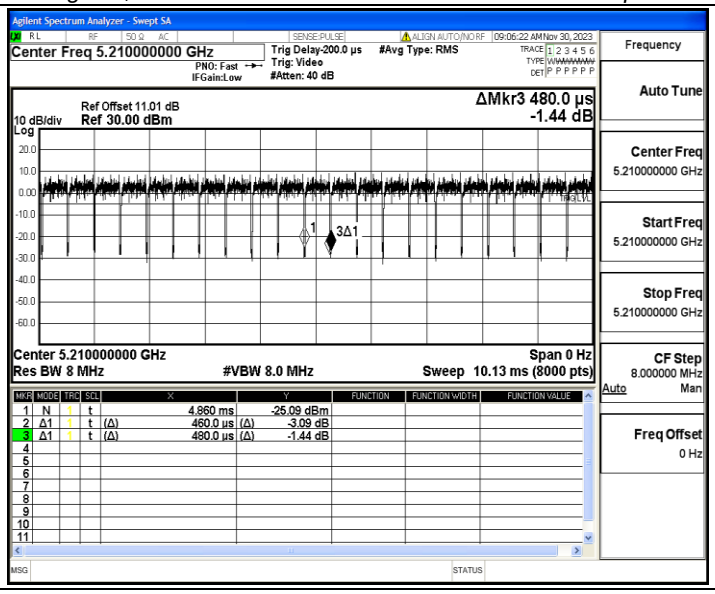
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Trig Delay-200.0 µs
Trig: Video
#Atten: 40 dB
#Avg Type: RMS
09:06:22 AM Nov 30, 2023
PNO: Fast
IFGain:Low
Ref Offset 11.01 dB
10 dB/div Ref 30.00 dBm
ΔMkr3 480.0 µs
-1.44 dB
Center 5.210000000 GHz
Span 0 Hz
Res BW 8 MHz
#VBW 8.0 MHz
Sweep 10.13 ms (8000 pts)
1 N 1 t 4.860 ms -25.09 dBm
2 Δ1 1 t (Δ) 460.0 µs (Δ) -3.09 dB
3 Δ1 1 t (Δ) 480.0 µs (Δ) -1.44 dB
Frequency
Auto Tune
Center Freq 5.210000000 GHz
Start Freq 5.210000000 GHz
Stop Freq 5.210000000 GHz
CF Step 8.000000 MHz
Auto Man
Freq Offset 0 Hz