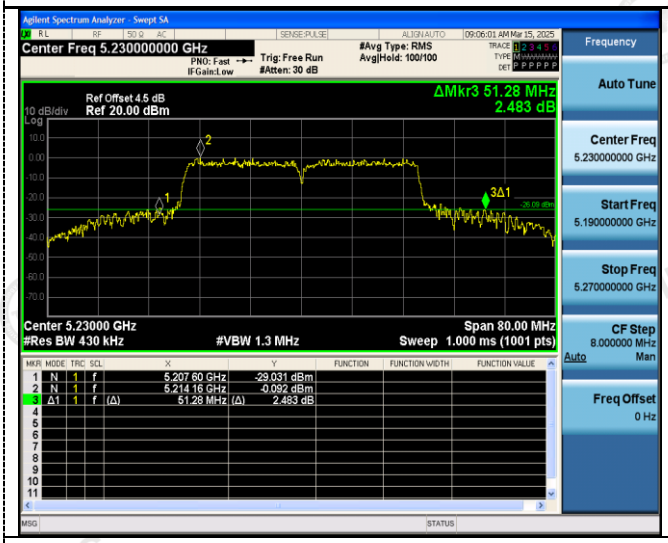
802.11ax(HT40)	
	/
CH38	
	/
CH46	

4.6 Minimum Emission Bandwidth (6dB Bandwidth)

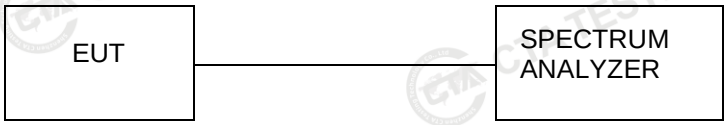
Limit

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Procedure

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth 3 x RBW.
3. Detector = Peak.
4. Trace mode = Max hold.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

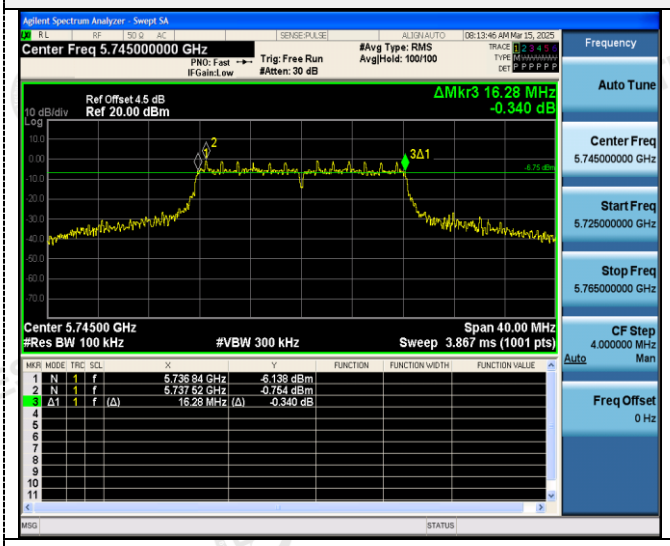
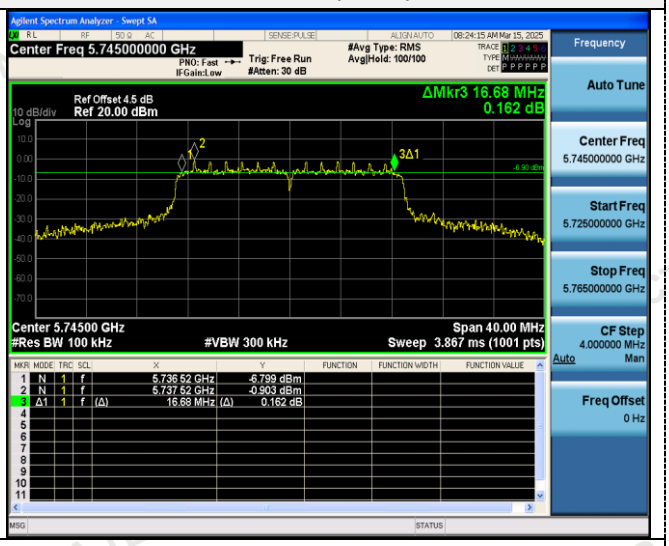
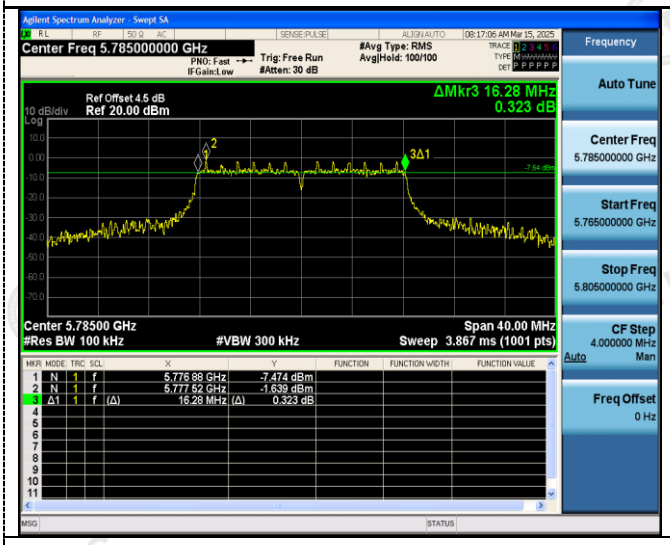
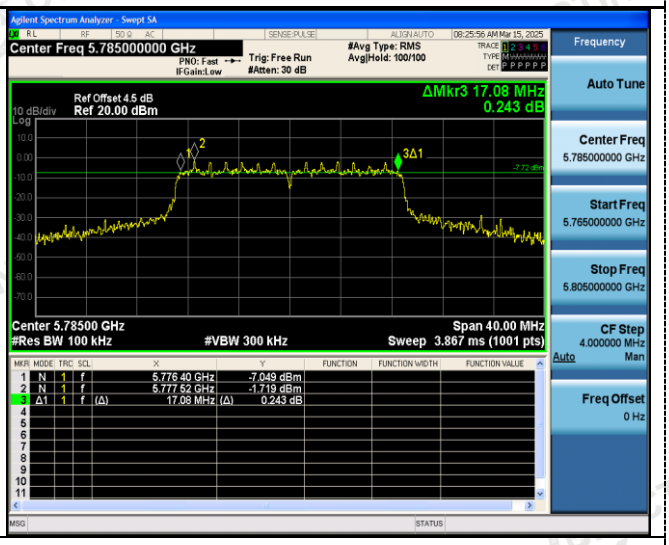
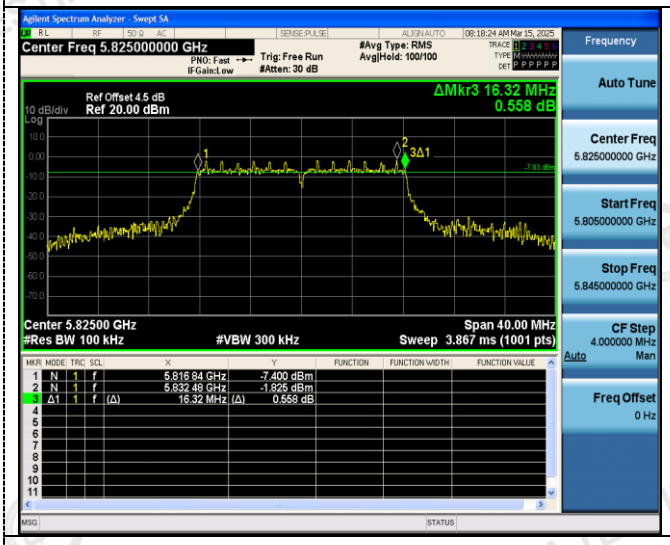
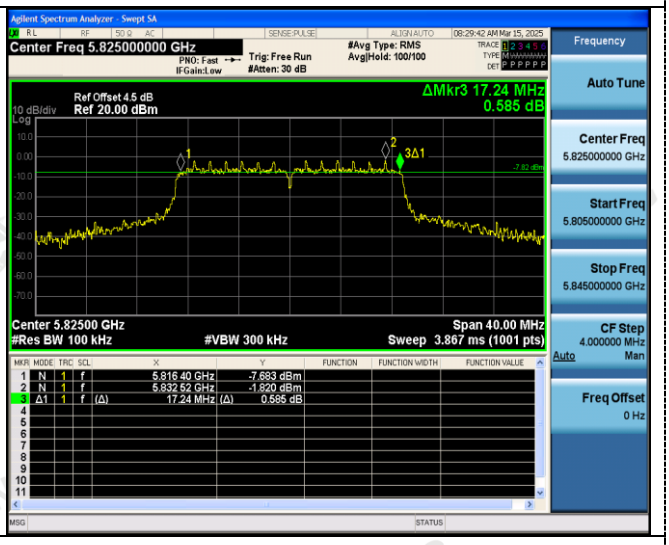
Test Configuration

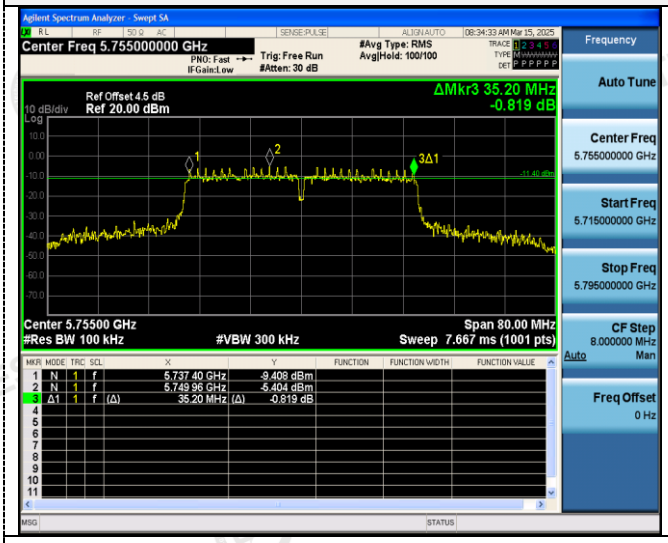
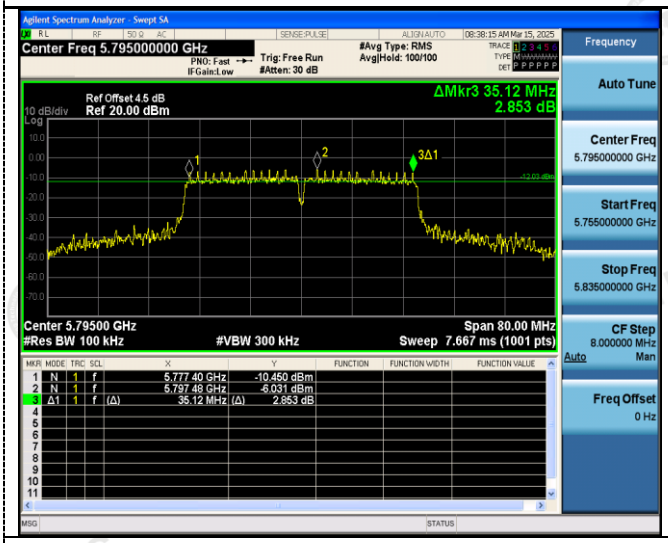
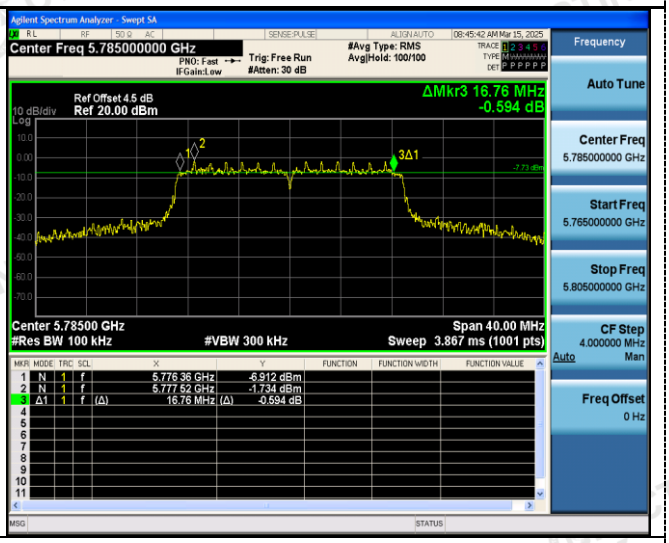
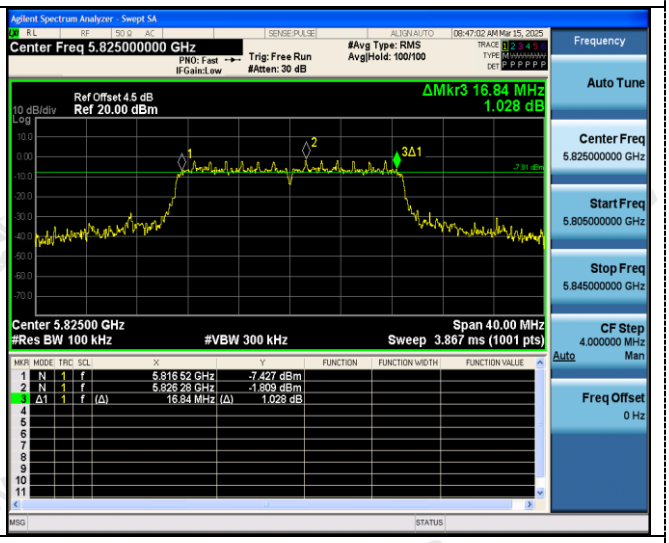


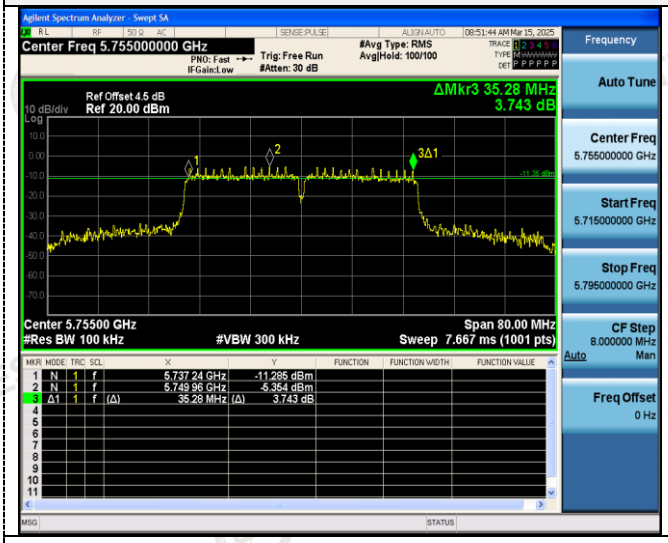
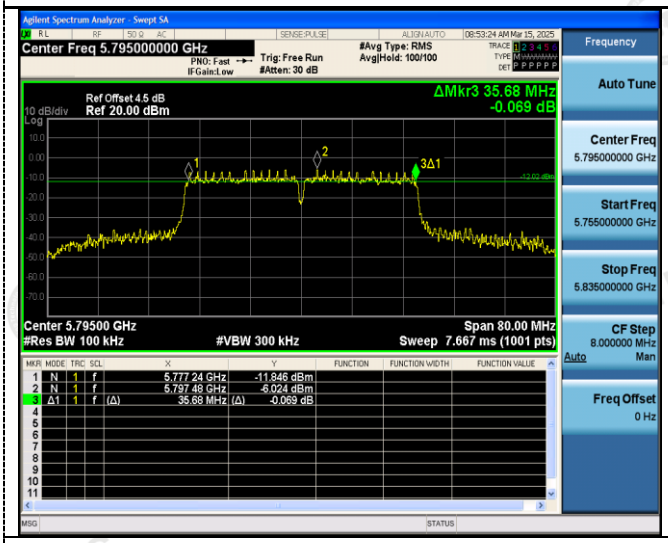
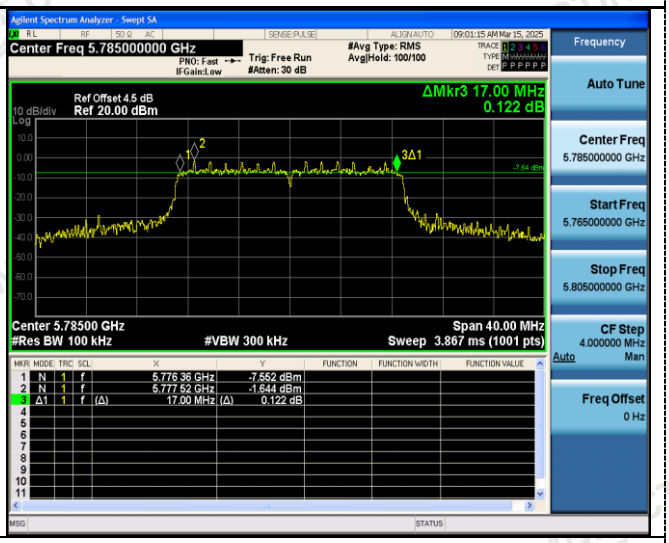
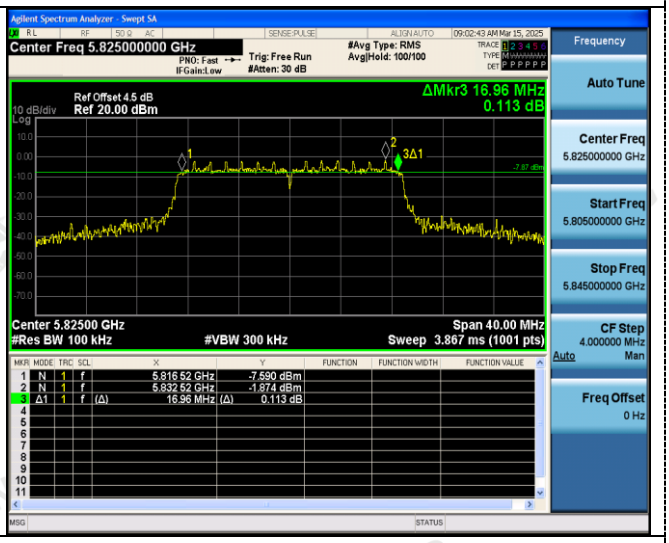
Test Results

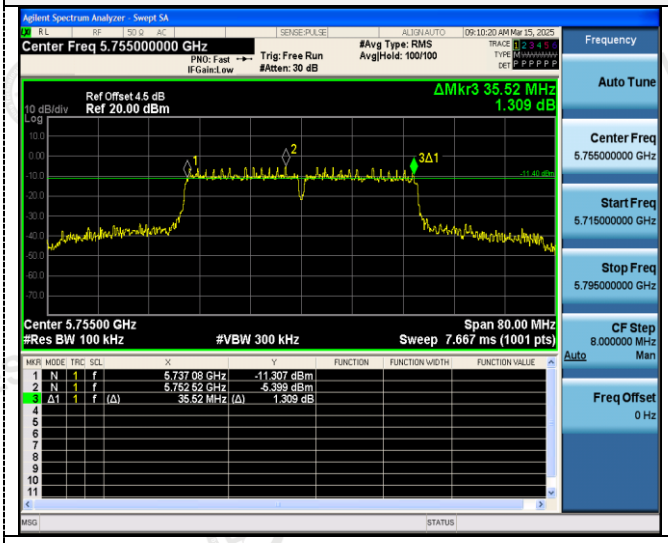
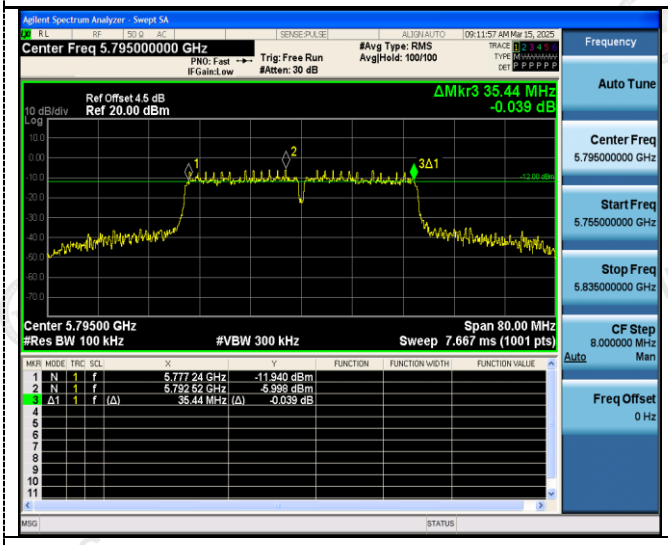
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.280	≥500KHz	Pass
		157	16.280		
		165	16.320		
802.11n(HT20)	U-NII 3	149	16.680		
		157	17.080		
		165	17.240		
802.11n(HT40)	U-NII 3	151	35.200		
		159	35.120		
802.11ac(HT20)	U-NII 3	149	16.640		
		157	16.760		
		165	16.840		
802.11ac(HT40)	U-NII 3	151	35.280		
		159	35.680		
802.11ax(HT20)	U-NII 3	149	16.880		
		157	17.000		
		165	16.960		
802.11ax(HT40)	U-NII 3	151	35.520		
		159	35.440		

Test plot as follows:

802.11a	802.11n(HT20)
	
CH149	CH149
	
CH157	CH157
	
CH165	CH165

802.11n(HT40)	802.11ac(HT20)
	
CH151	CH149
	
CH159	CH157
	
	CH165

802.11ac(HT40)	802.11ax(HT20)
	
CH151	CH149
	
CH159	CH157
	
	CH165

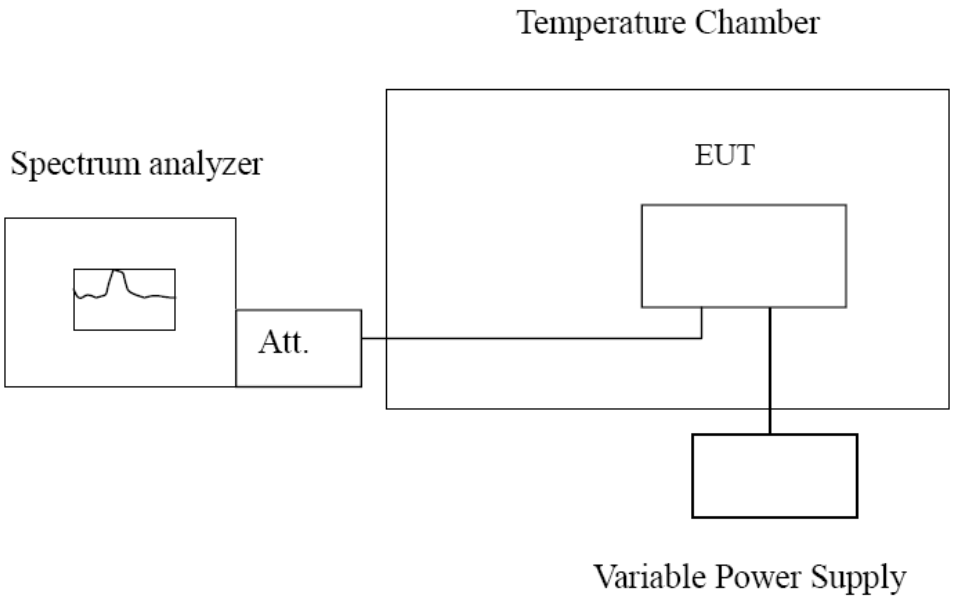
802.11ax(HT40)	
	/
CH151	
	/
CH159	

4.7 Frequency Stability

LIMIT

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

TEST CONFIGURATION



TEST PROCEDURE

Frequency Stability under Temperature Variations:
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20℃ operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached.

Frequency Stability under Voltage Variations:
Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

TEST RESULTS

Record worst case as below:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 12.0	-30	110.69	0.021369	Within the band of operation	Pass
	-20	174.55	0.033697		
	-10	145.25	0.028041		
	0	146.60	0.028301		
	10	146.06	0.028197		
	20	99.69	0.019245		
	30	167.20	0.032278		
	40	129.35	0.024971		
	50	128.56	0.024819		
DC 13.2	25	195.54	0.037749		
DC 10.8	25	118.67	0.022909		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 12.0	-30	135.88	0.023652	Within the band of operation	Pass
	-20	129.33	0.022512		
	-10	167.22	0.029107		
	0	169.77	0.029551		
	10	136.72	0.023798		
	20	144.96	0.025232		
	30	116.39	0.020259		
	40	168.30	0.029295		
	50	160.78	0.027986		
DC 13.2	25	151.00	0.026284		
DC 10.8	25	129.44	0.022531		

4.8 On Time and Duty Cycle

Standard Applicable

None; for reporting purpose only.

TEST CONFIGURATION

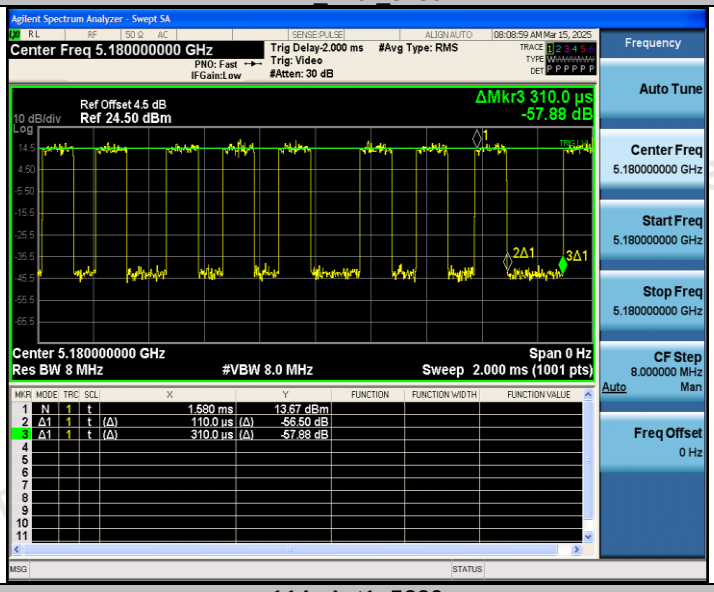
Test Procedures

1). Set the Centre frequency of the spectrum analyzer to the transmitting frequency;
2). Set the span=0MHz, RBW=1MHz, VBW=1MHz, Sweep time=5ms;
3). Detector = peak;
4). Trace mode = Single hold.

TEST RESULTS

TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Duty factor(dB)	Limit	Verdict
11A	Ant1	5180	0.11	0.31	35.48	4.50	---	---
		5220	0.11	0.33	33.33	4.77	---	---
		5240	0.11	0.28	39.29	4.06	---	---
		5745	0.11	0.23	47.83	3.20	---	---
		5785	0.11	0.29	37.93	4.21	---	---
		5825	0.11	0.27	40.74	3.90	---	---
11N20SISO	Ant1	5180	0.11	0.24	45.83	3.39	---	---
		5220	0.11	0.23	47.83	3.20	---	---
		5240	0.11	0.32	34.38	4.64	---	---
		5745	0.11	0.28	39.29	4.06	---	---
		5785	0.11	0.32	34.38	4.64	---	---
		5825	0.11	0.28	39.29	4.06	---	---
11N40SISO	Ant1	5190	0.08	0.26	30.77	5.12	---	---
		5230	0.07	0.25	28.00	5.53	---	---
		5755	0.07	0.28	25.00	6.02	---	---
		5795	0.07	0.25	28.00	5.53	---	---
11AC20SISO	Ant1	5180	0.12	0.29	41.38	3.83	---	---
		5220	0.12	0.32	37.50	4.26	---	---
		5240	0.12	0.23	52.17	2.83	---	---
		5745	0.12	0.23	52.17	2.83	---	---
		5785	0.11	0.29	37.93	4.21	---	---
		5825	0.12	0.32	37.50	4.26	---	---
11AC40SISO	Ant1	5190	0.08	0.25	32.00	4.95	---	---
		5230	0.08	0.25	32.00	4.95	---	---
		5755	0.08	0.25	32.00	4.95	---	---
		5795	0.08	0.25	32.00	4.95	---	---
11AX20SISO	Ant1	5180	0.11	0.29	37.93	4.21	---	---
		5220	0.12	0.29	41.38	3.83	---	---
		5240	0.12	0.29	41.38	3.83	---	---
		5745	0.12	0.32	37.50	4.26	---	---
		5785	0.12	0.29	41.38	3.83	---	---
		5825	0.12	0.25	48.00	3.19	---	---
11AX40SISO	Ant1	5190	0.08	0.30	26.67	5.74	---	---
		5230	0.08	0.25	32.00	4.95	---	---
		5755	0.08	0.22	36.36	4.39	---	---
		5795	0.07	0.25	28.00	5.53	---	---

11A_Ant1_5180



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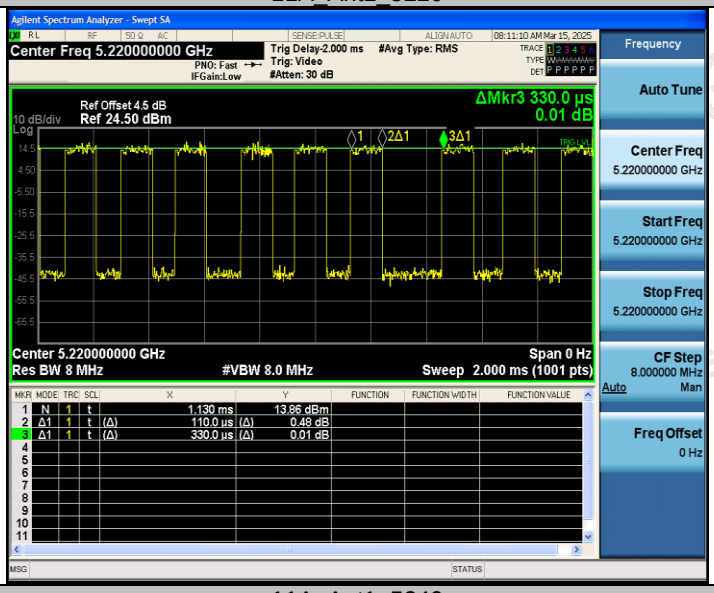

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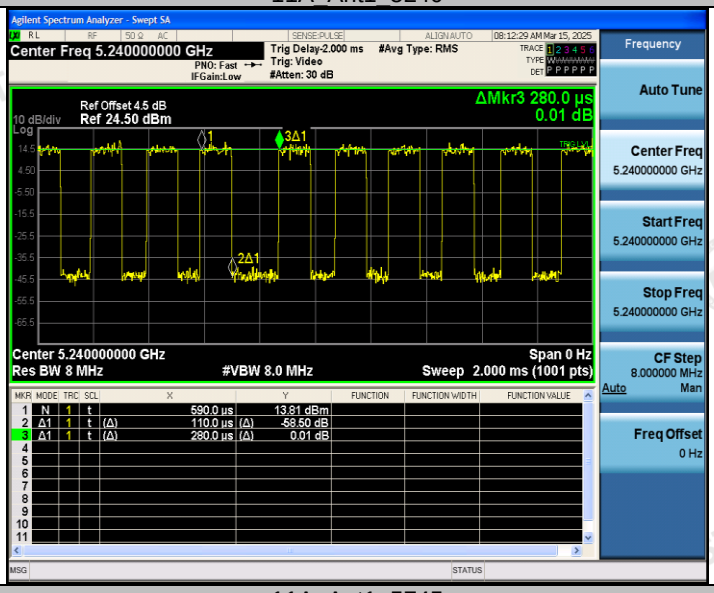

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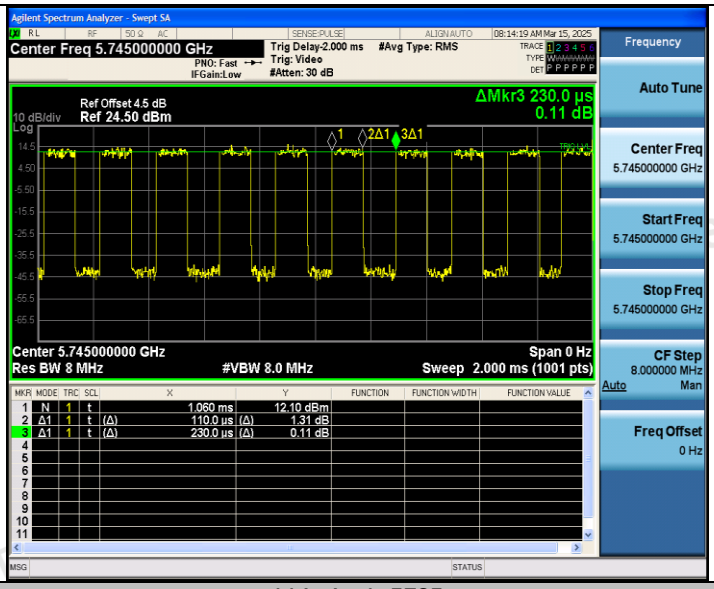

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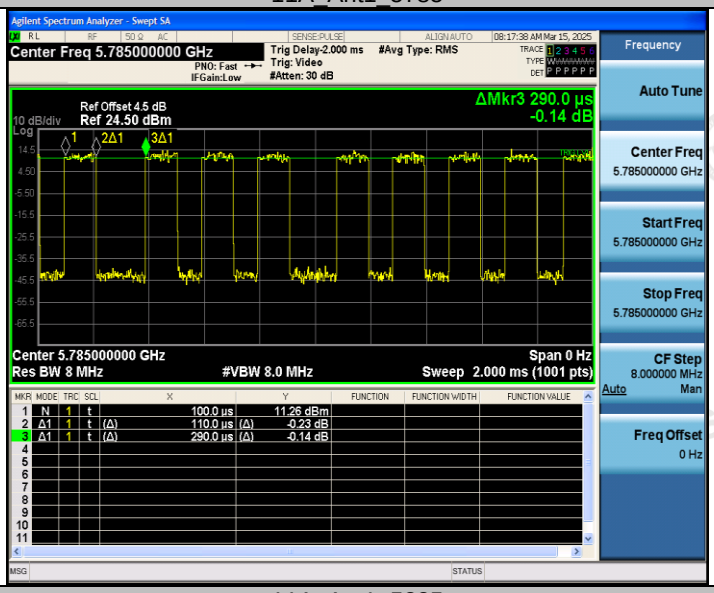

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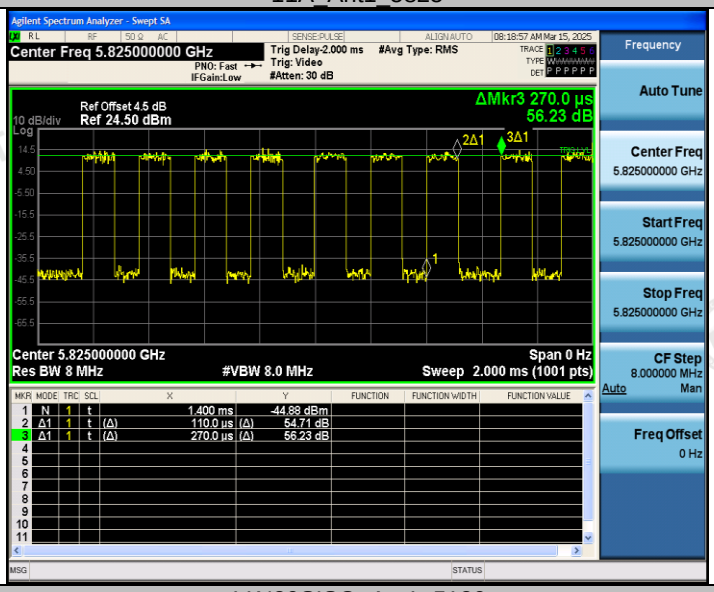

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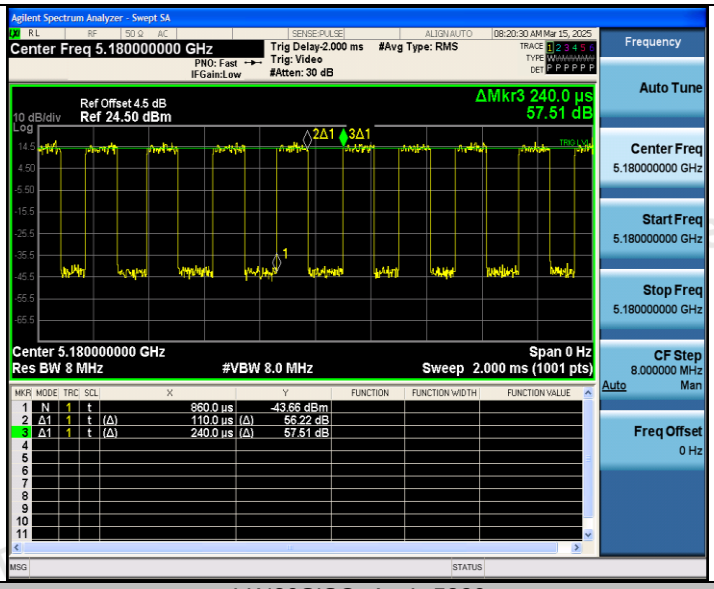

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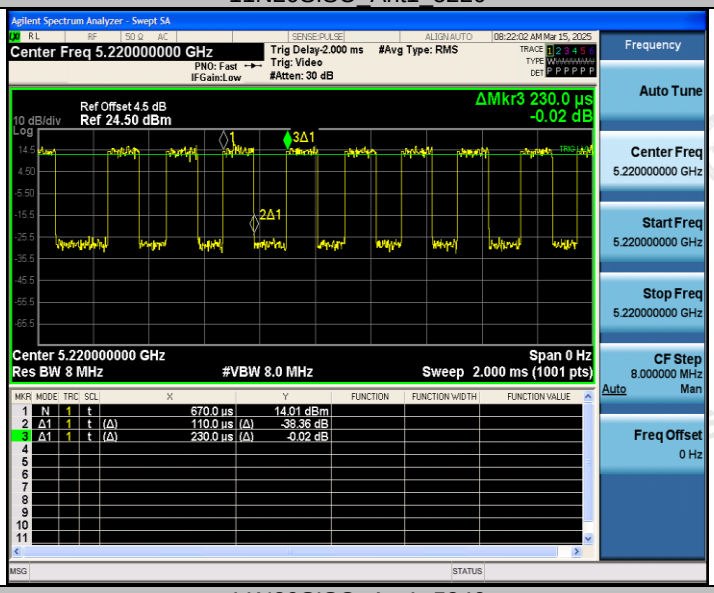

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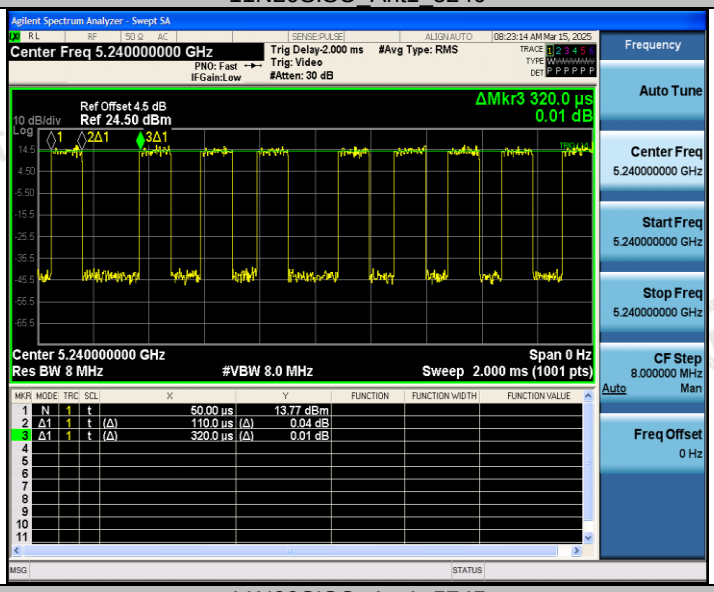

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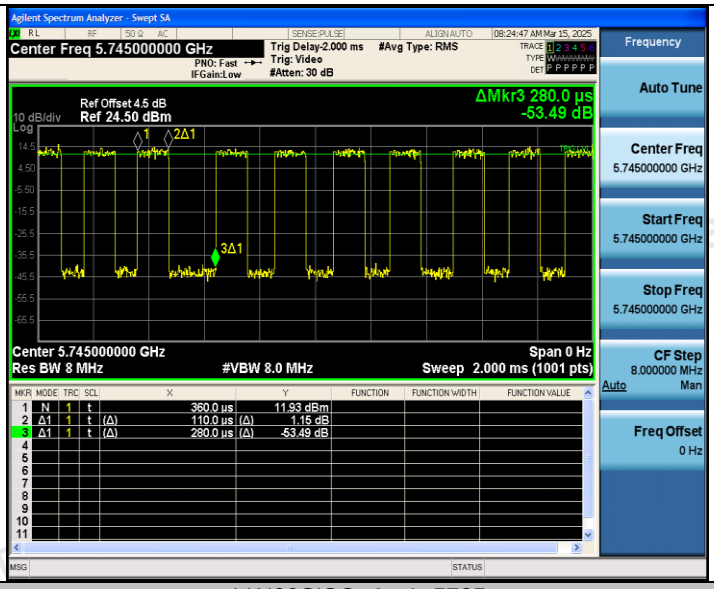

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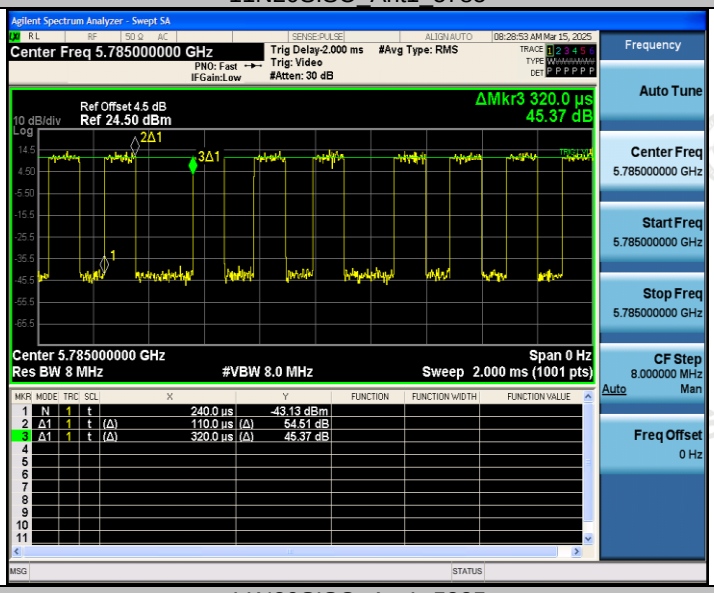

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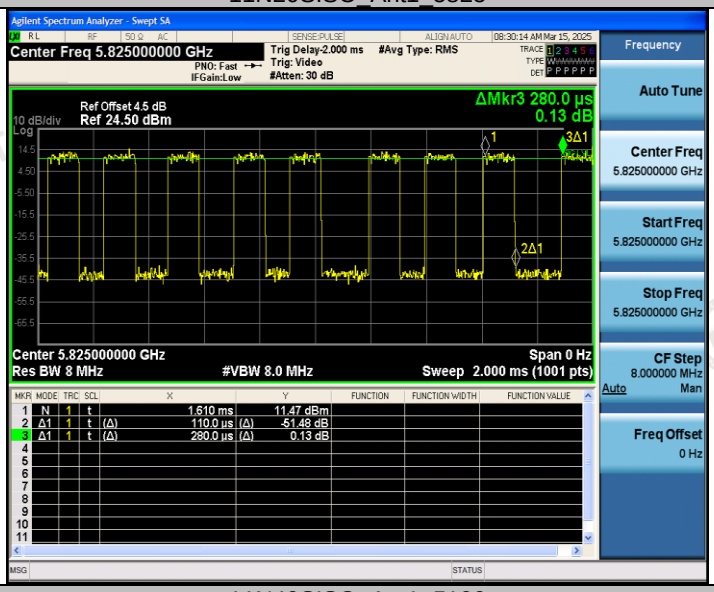

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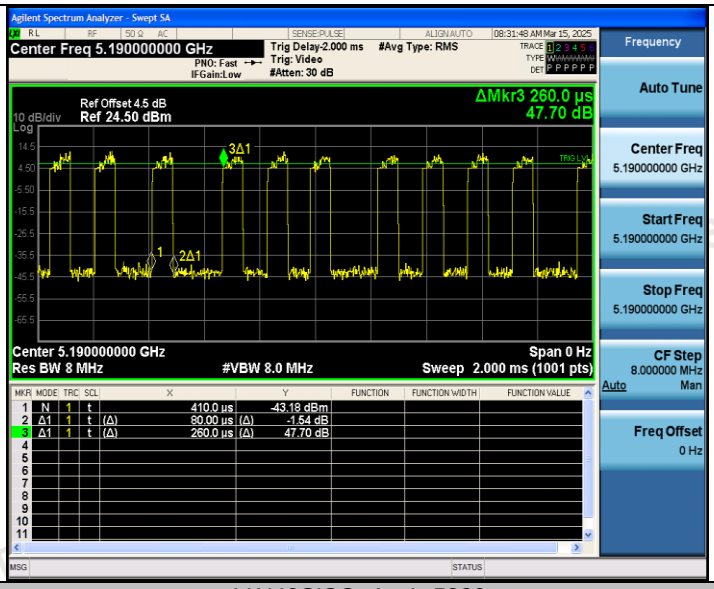

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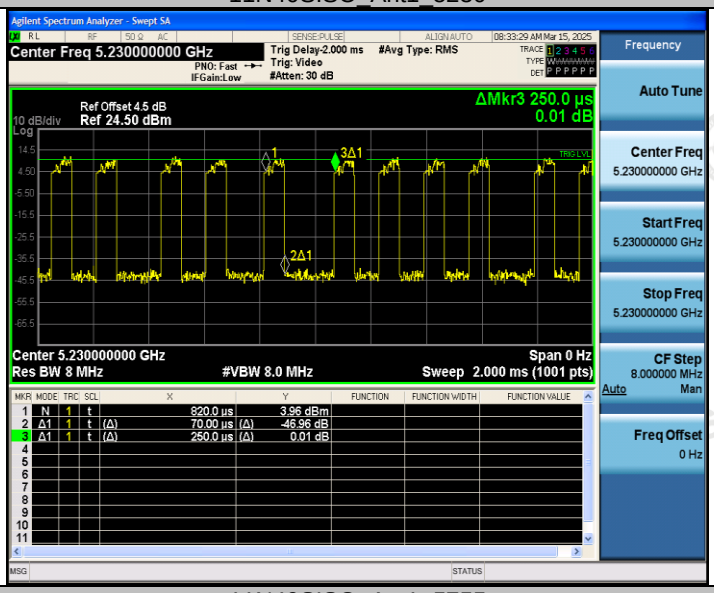

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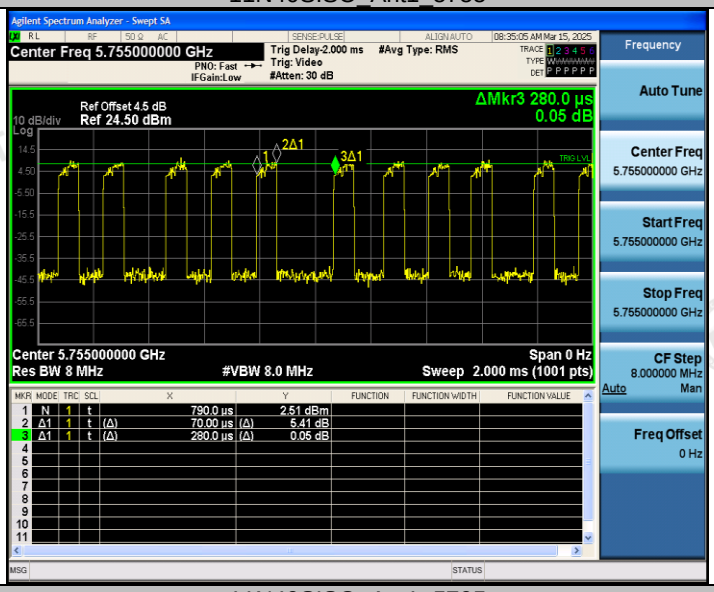

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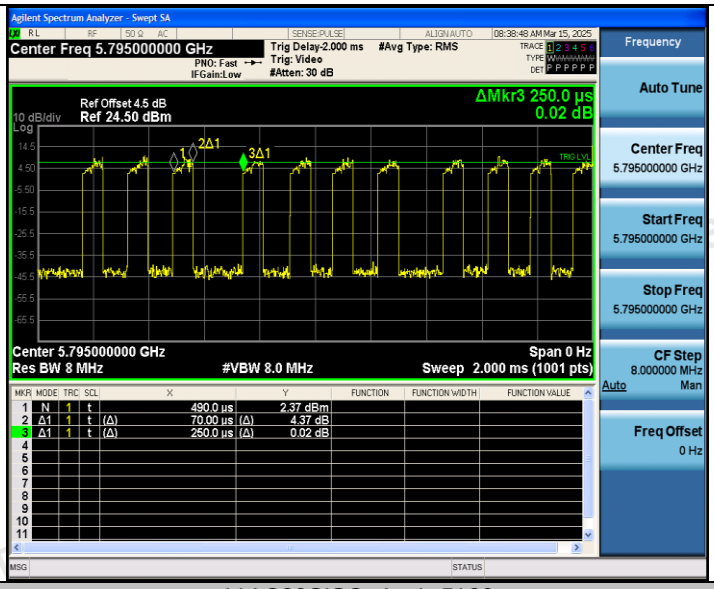

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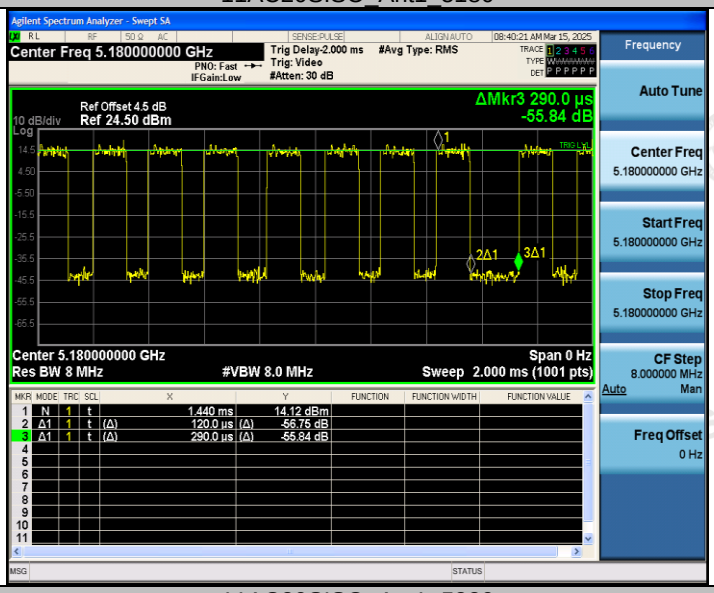

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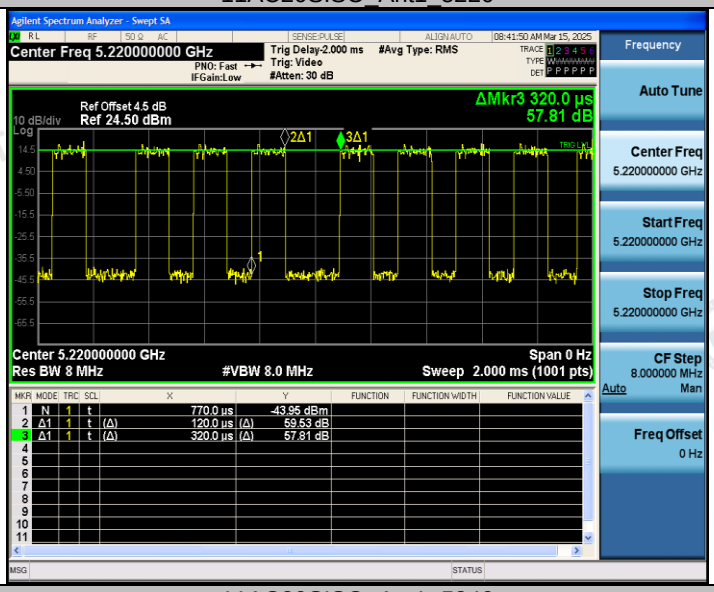

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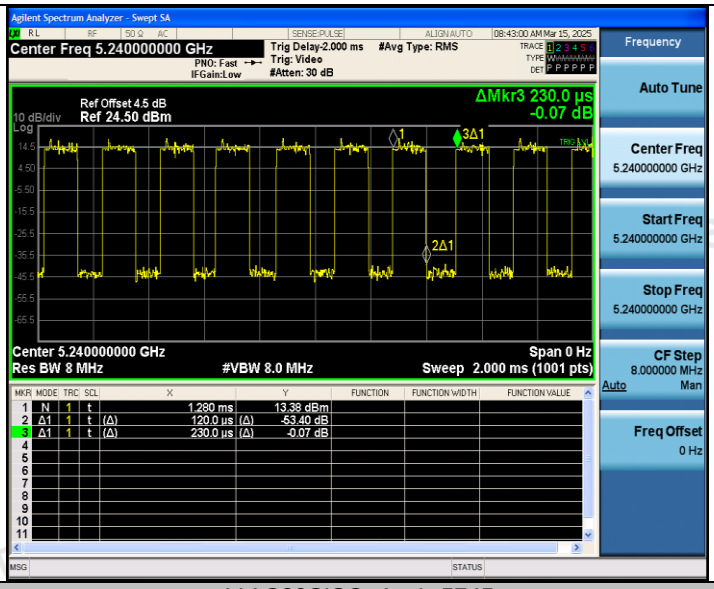

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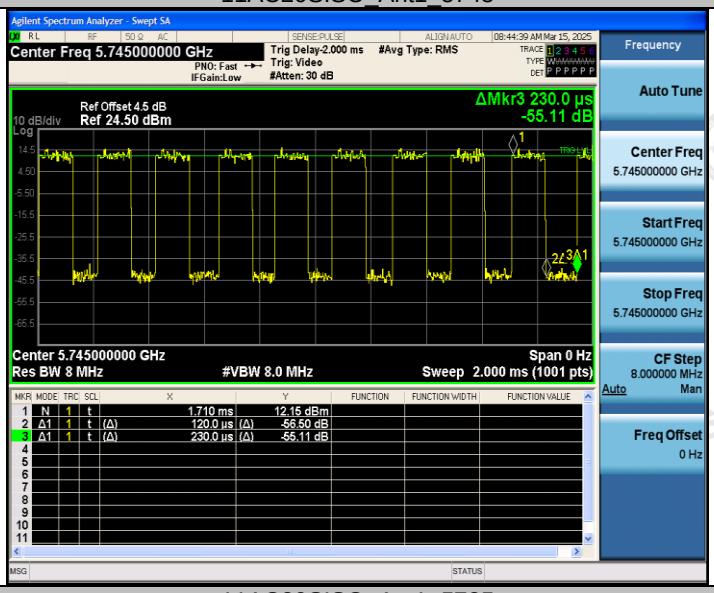

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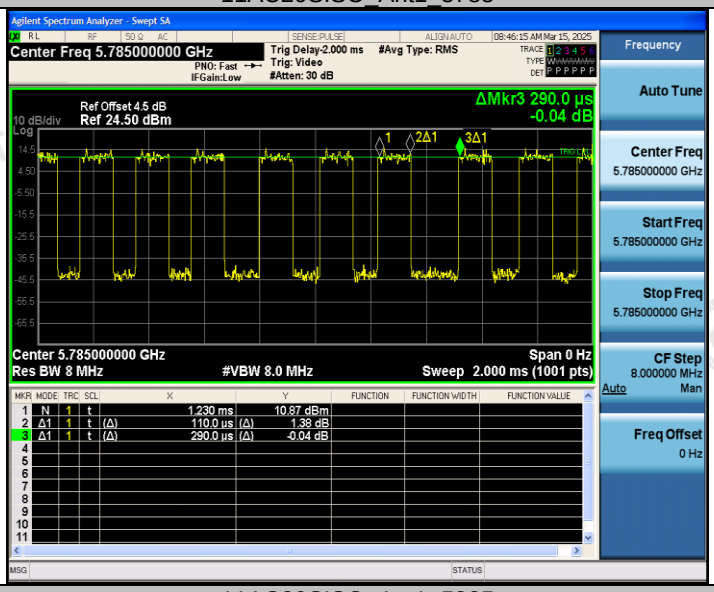

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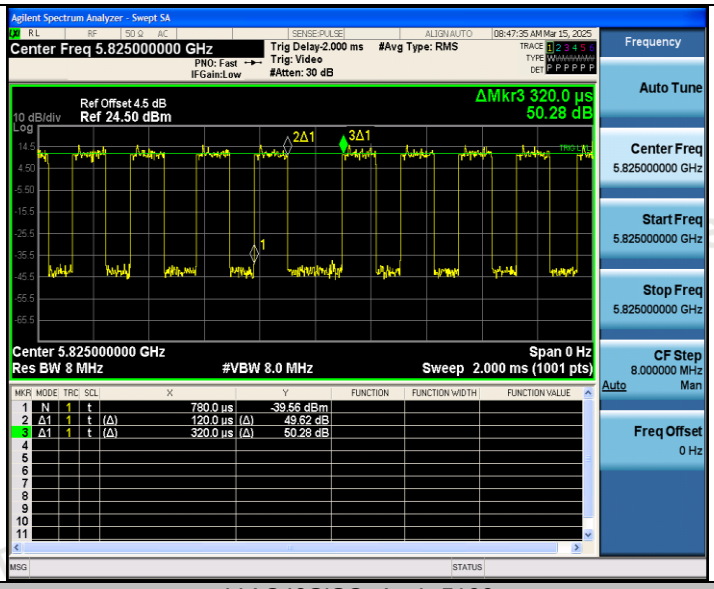

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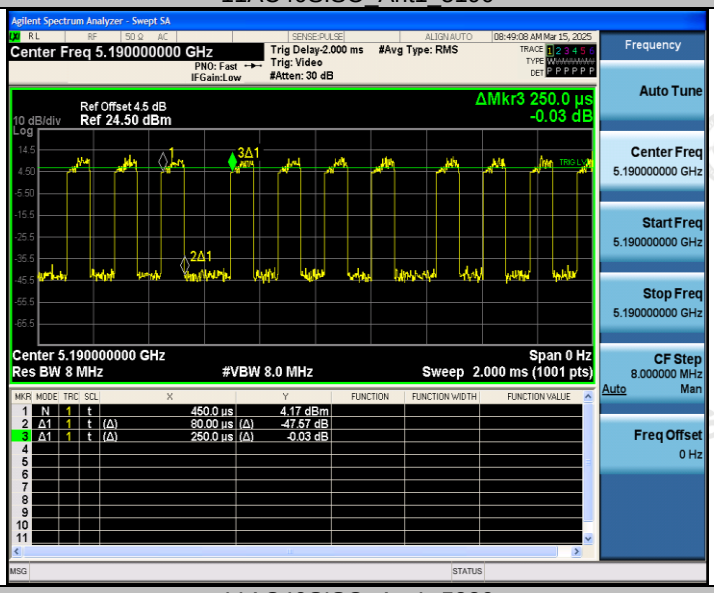

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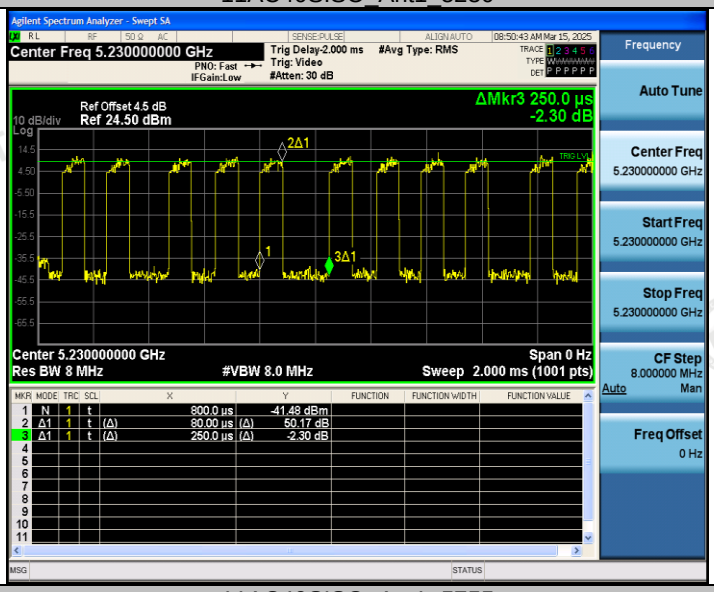

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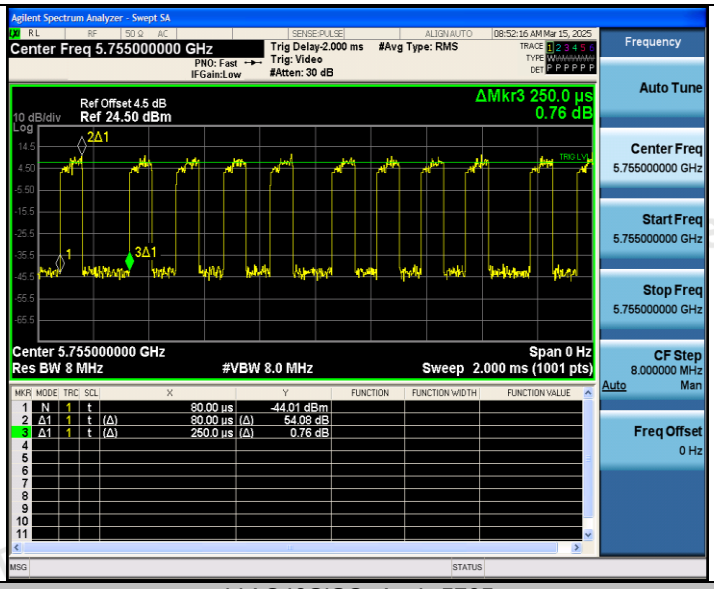

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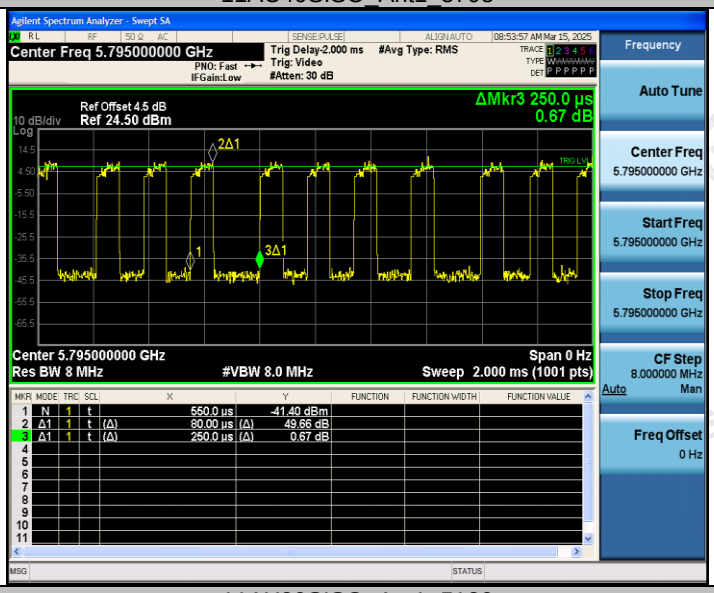

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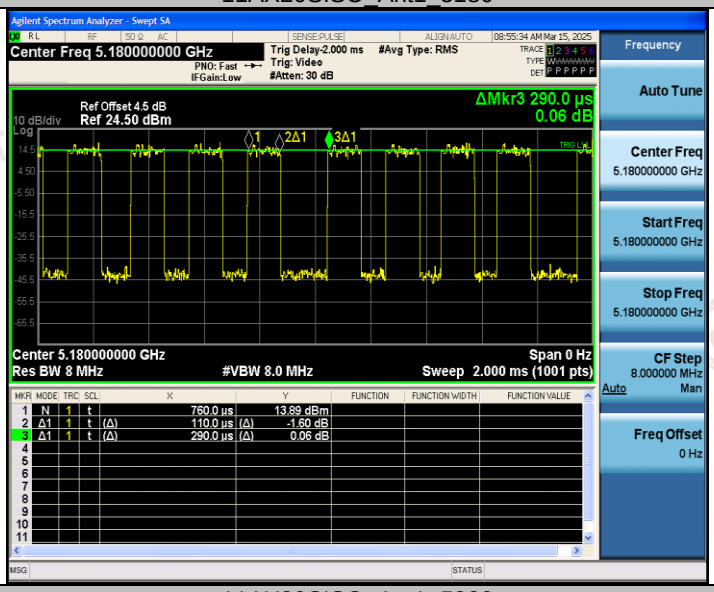

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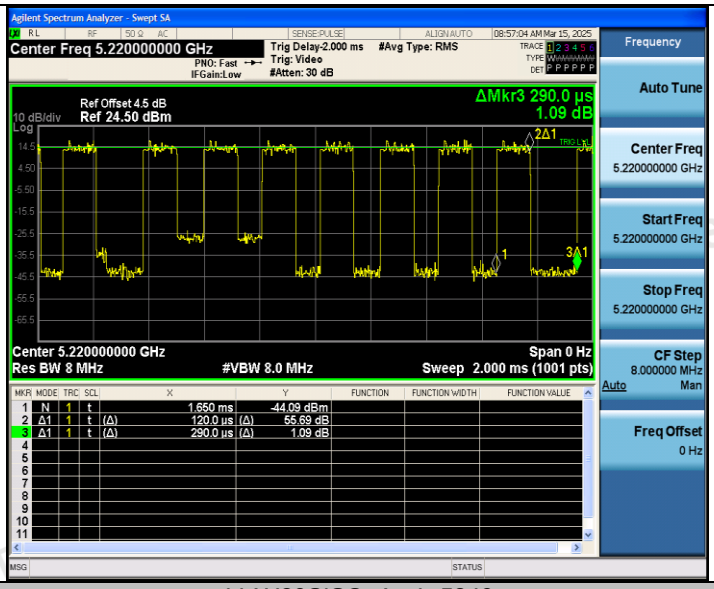

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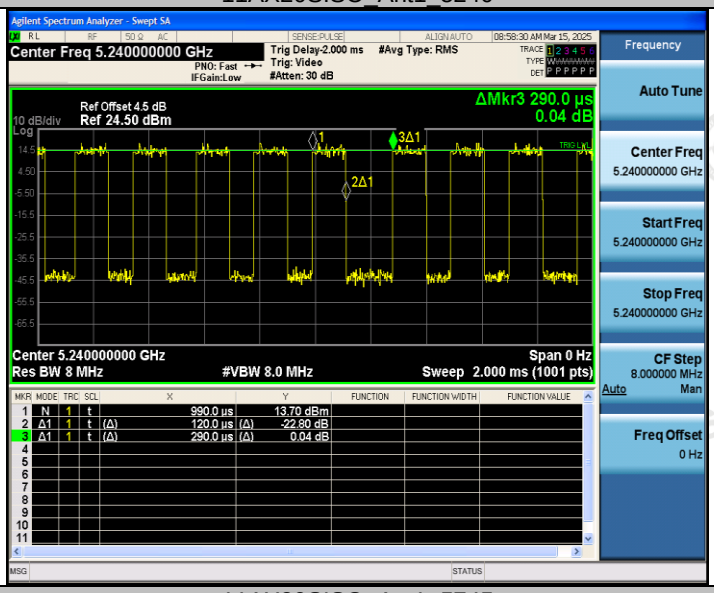

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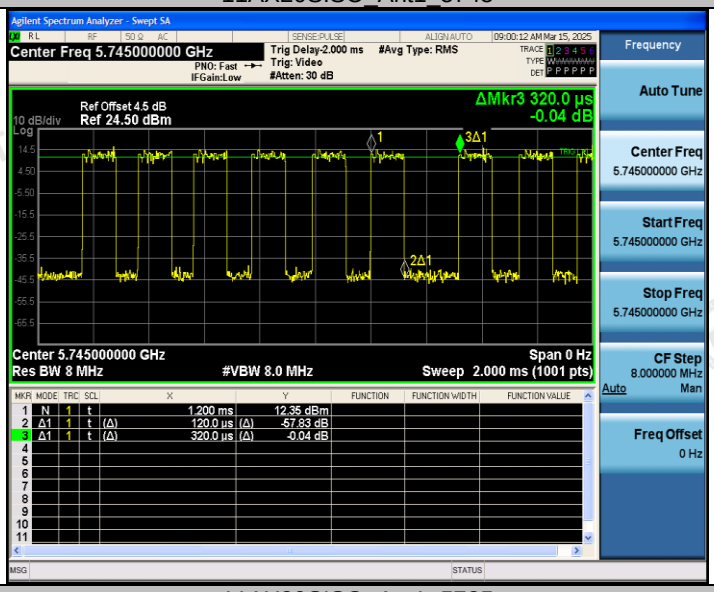

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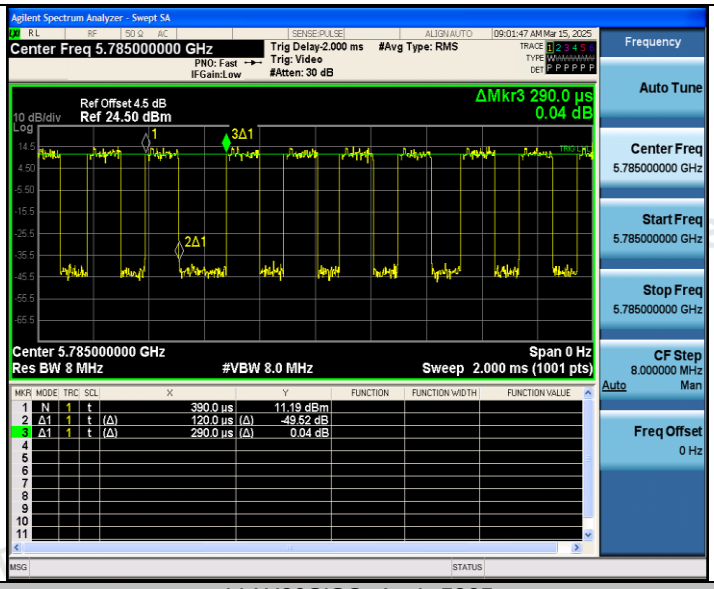

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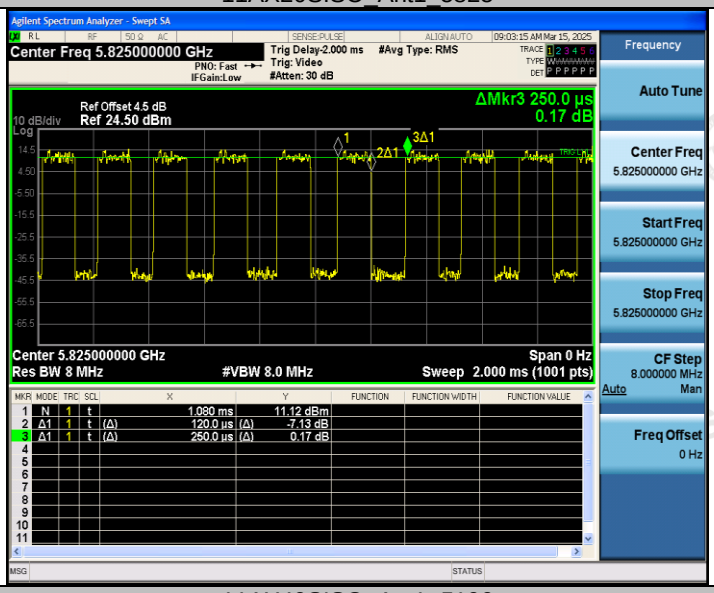

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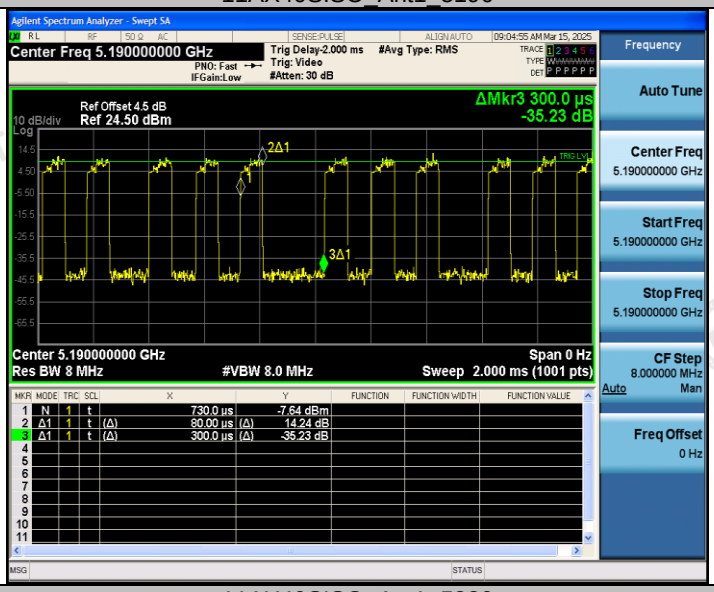

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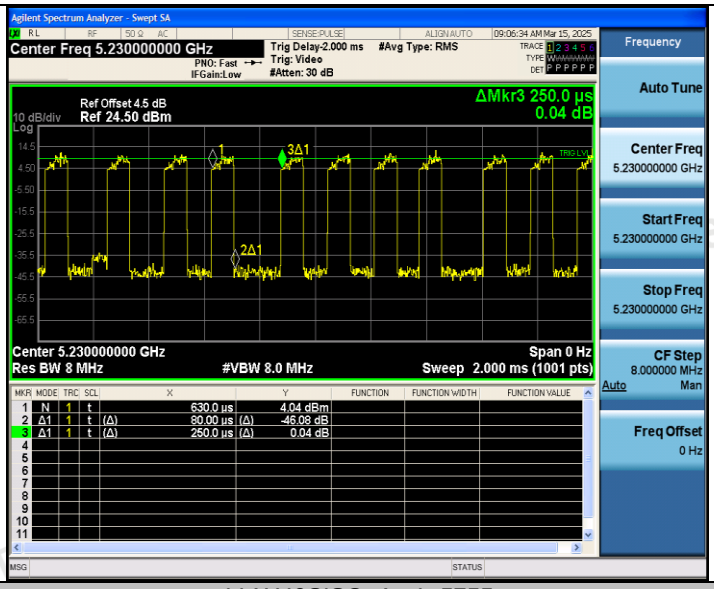

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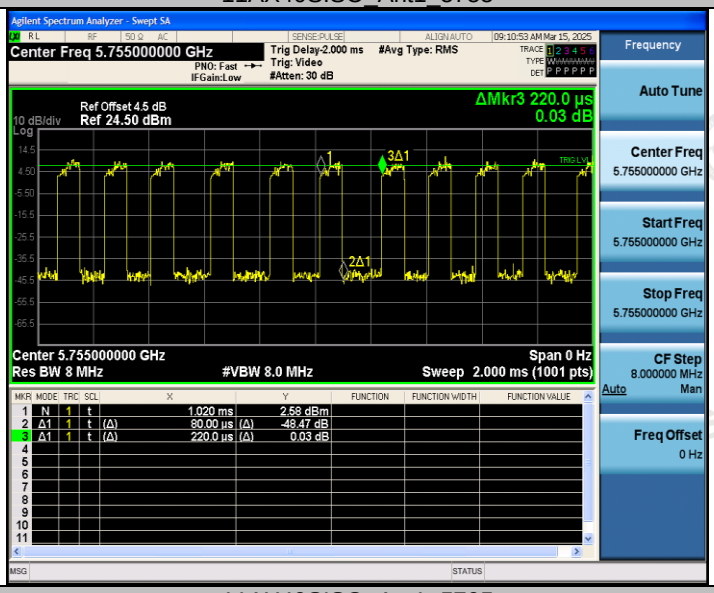

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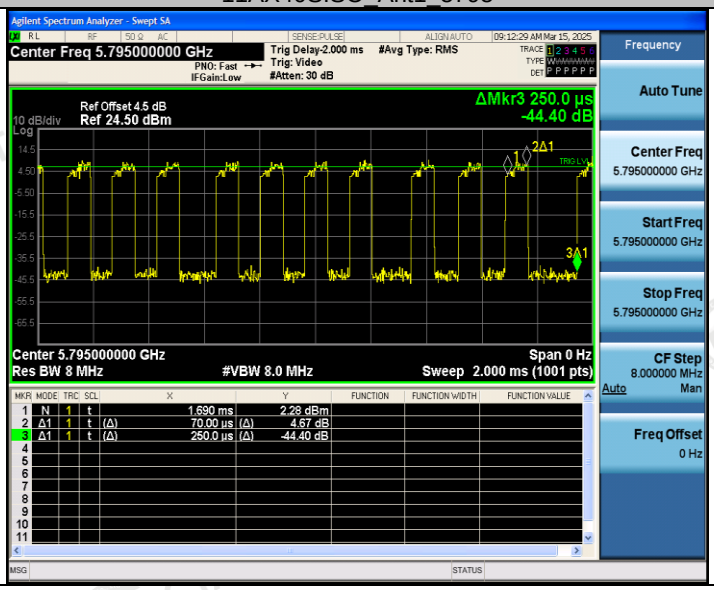
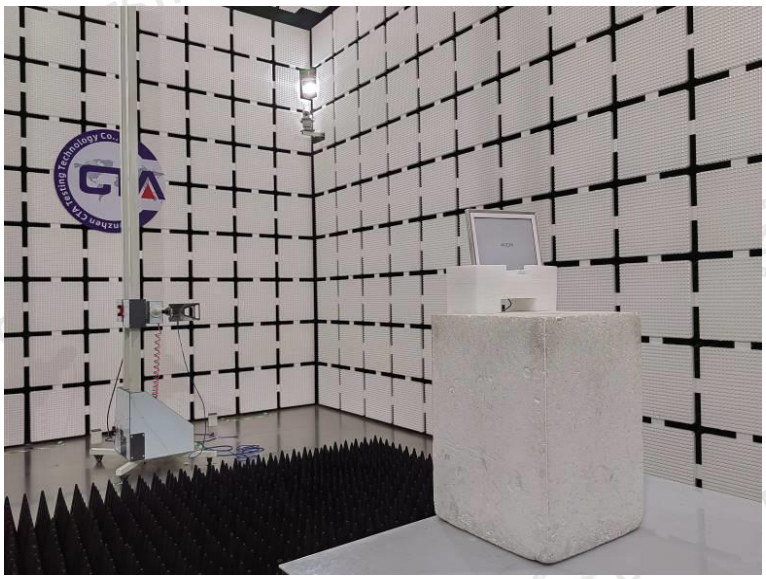


5 Test Setup Photos of the EUT



6 Photos of the EUT

Reference to the test report No. **CTA25031200601.**

********** End of Report **********