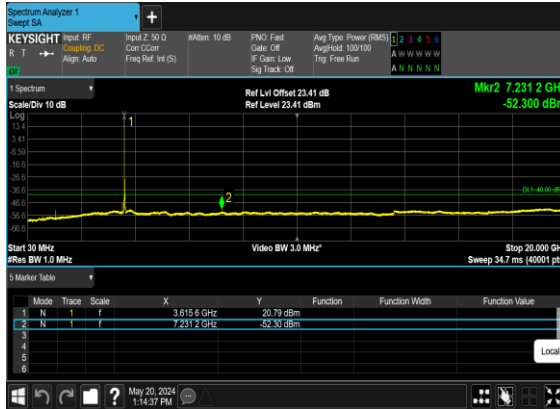


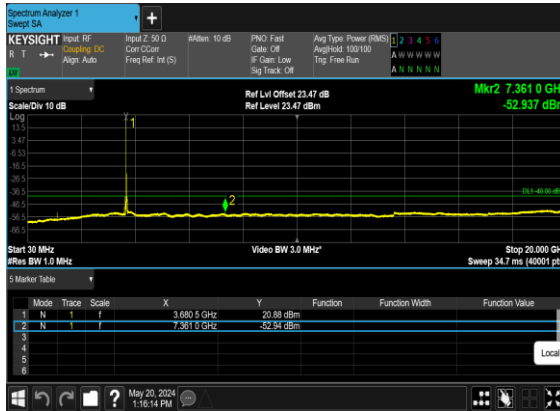
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N48(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



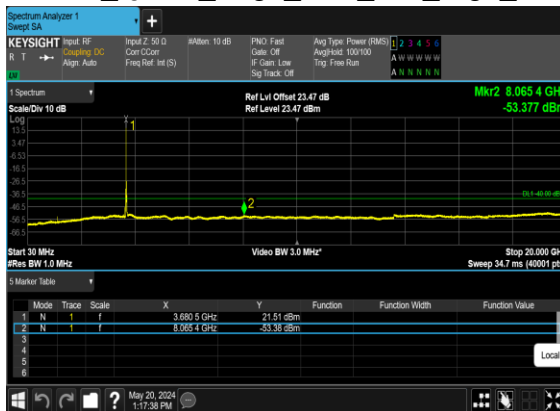
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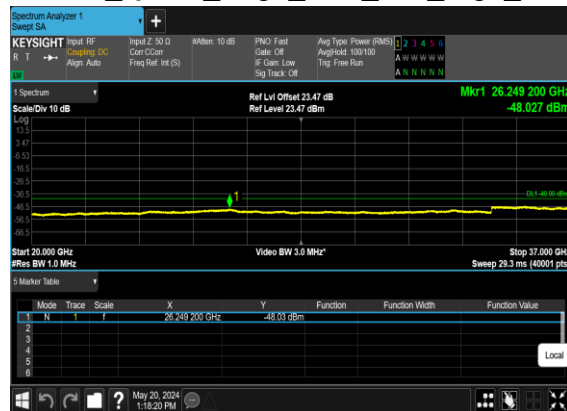
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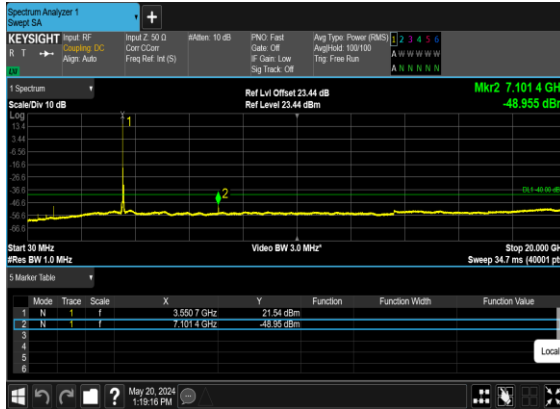
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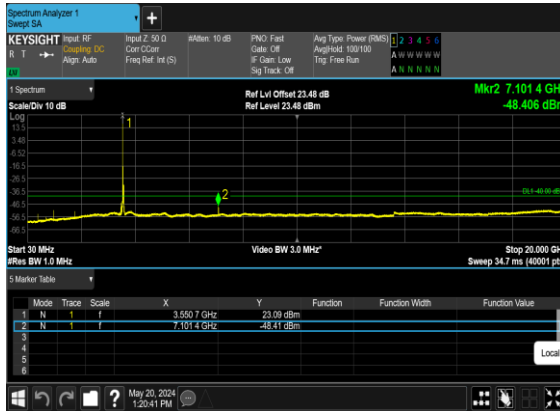
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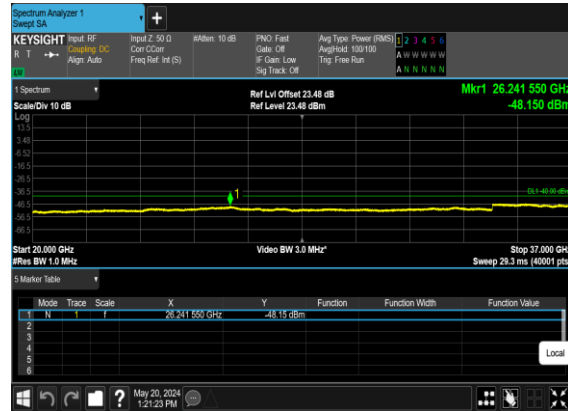
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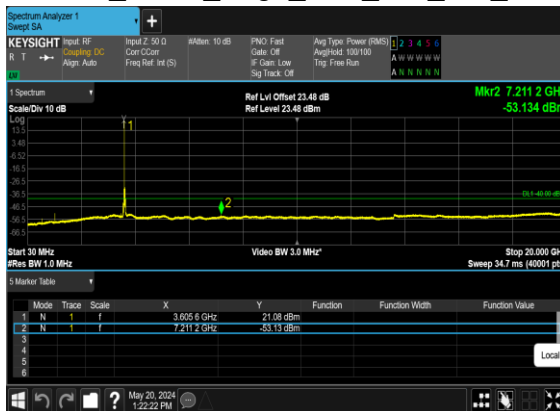
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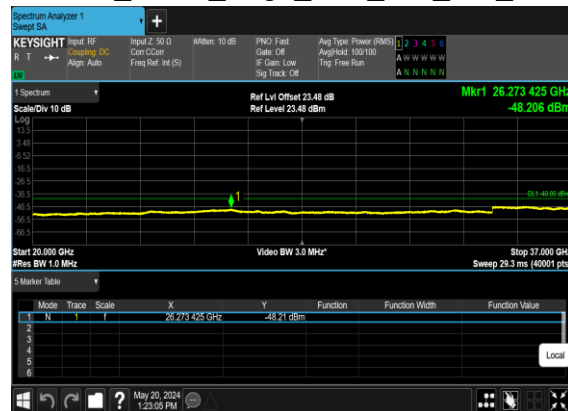
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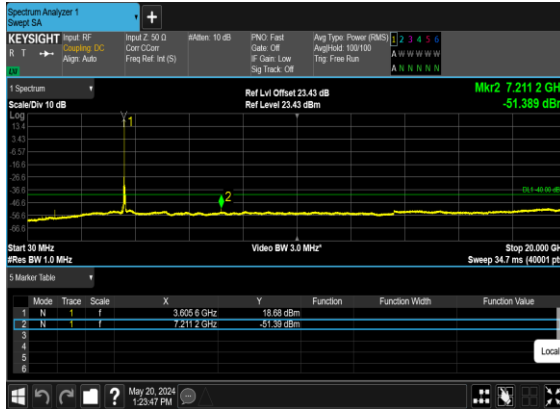
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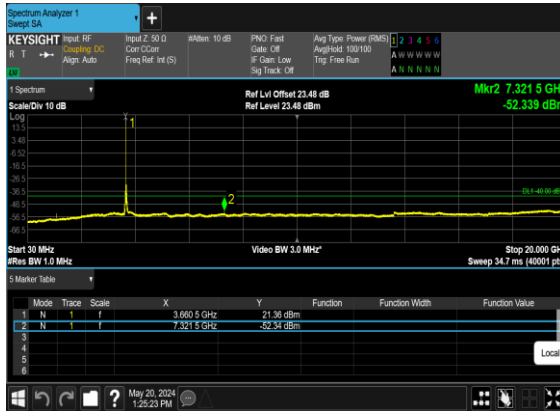
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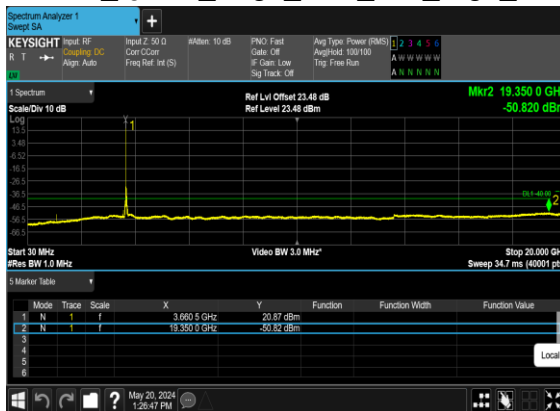
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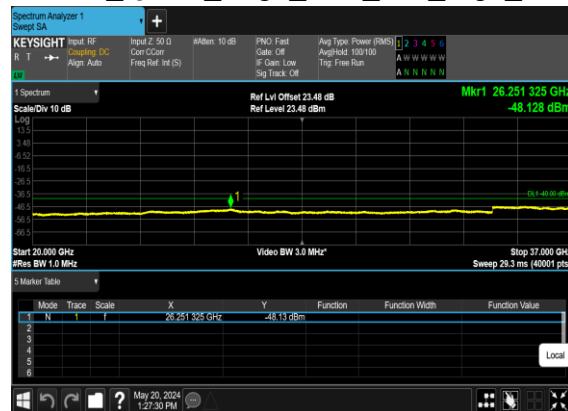
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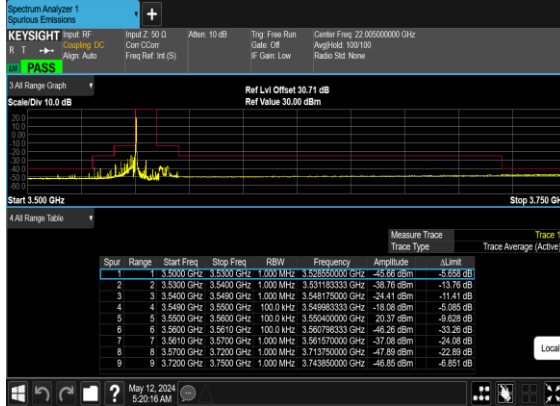


Conducted Band Edge

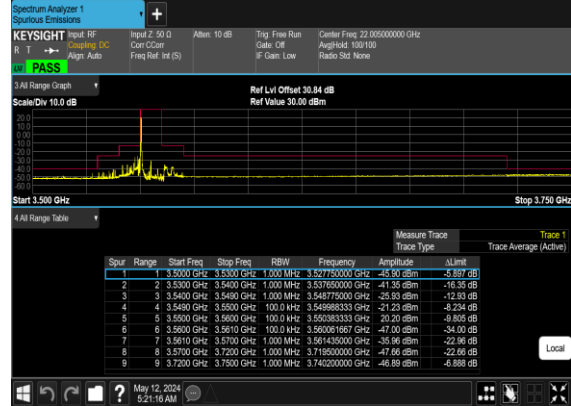
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
48	15	10	637000	3555.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	15	10	637000	3555.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	15	10	637000	3555.0	DFT-s-OFDM BPSK	1@51	see graph	PASS
48	15	10	637000	3555.0	DFT-s-OFDM QPSK	1@51	see graph	PASS
48	15	10	637000	3555.0	DFT-s-OFDM BPSK	50@0	see graph	PASS
48	15	10	637000	3555.0	DFT-s-OFDM QPSK	50@0	see graph	PASS
48	15	10	641666	3624.99	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	15	10	641666	3624.99	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	15	10	641666	3624.99	DFT-s-OFDM BPSK	1@51	see graph	PASS
48	15	10	641666	3624.99	DFT-s-OFDM QPSK	1@51	see graph	PASS
48	15	10	641666	3624.99	DFT-s-OFDM BPSK	50@0	see graph	PASS
48	15	10	641666	3624.99	DFT-s-OFDM QPSK	50@0	see graph	PASS
48	15	10	646332	3694.98	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	15	10	646332	3694.98	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	15	10	646332	3694.98	DFT-s-OFDM BPSK	1@51	see graph	PASS
48	15	10	646332	3694.98	DFT-s-OFDM QPSK	1@51	see graph	PASS
48	15	10	646332	3694.98	DFT-s-OFDM BPSK	50@0	see graph	PASS
48	15	10	646332	3694.98	DFT-s-OFDM QPSK	50@0	see graph	PASS
48	15	20	637334	3560.01	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	15	20	637334	3560.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	15	20	637334	3560.01	DFT-s-OFDM BPSK	1@105	see graph	PASS
48	15	20	637334	3560.01	DFT-s-OFDM QPSK	1@105	see graph	PASS
48	15	20	637334	3560.01	DFT-s-OFDM BPSK	100@0	see graph	PASS
48	15	20	637334	3560.01	DFT-s-OFDM QPSK	100@0	see graph	PASS
48	15	20	641666	3624.99	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	15	20	641666	3624.99	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	15	20	641666	3624.99	DFT-s-OFDM BPSK	1@105	see graph	PASS
48	15	20	641666	3624.99	DFT-s-OFDM QPSK	1@105	see graph	PASS
48	15	20	641666	3624.99	DFT-s-OFDM BPSK	100@0	see graph	PASS
48	15	20	641666	3624.99	DFT-s-OFDM QPSK	100@0	see graph	PASS

48	15	20	646000	3690.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	15	20	646000	3690.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	15	20	646000	3690.0	DFT-s-OFDM BPSK	1@105	see graph	PASS
48	15	20	646000	3690.0	DFT-s-OFDM QPSK	1@105	see graph	PASS
48	15	20	646000	3690.0	DFT-s-OFDM BPSK	100@0	see graph	PASS
48	15	20	646000	3690.0	DFT-s-OFDM QPSK	100@0	see graph	PASS
48	15	40	638000	3570.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	15	40	638000	3570.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	15	40	638000	3570.0	DFT-s-OFDM BPSK	1@215	see graph	PASS
48	15	40	638000	3570.0	DFT-s-OFDM QPSK	1@215	see graph	PASS
48	15	40	638000	3570.0	DFT-s-OFDM BPSK	216@0	see graph	PASS
48	15	40	638000	3570.0	DFT-s-OFDM QPSK	216@0	see graph	PASS
48	15	40	641666	3624.99	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	15	40	641666	3624.99	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	15	40	641666	3624.99	DFT-s-OFDM BPSK	1@215	see graph	PASS
48	15	40	641666	3624.99	DFT-s-OFDM QPSK	1@215	see graph	PASS
48	15	40	641666	3624.99	DFT-s-OFDM BPSK	216@0	see graph	PASS
48	15	40	641666	3624.99	DFT-s-OFDM QPSK	216@0	see graph	PASS
48	15	40	645332	3679.98	DFT-s-OFDM BPSK	1@0	see graph	PASS
48	15	40	645332	3679.98	DFT-s-OFDM QPSK	1@0	see graph	PASS
48	15	40	645332	3679.98	DFT-s-OFDM BPSK	1@215	see graph	PASS
48	15	40	645332	3679.98	DFT-s-OFDM QPSK	1@215	see graph	PASS
48	15	40	645332	3679.98	DFT-s-OFDM BPSK	216@0	see graph	PASS
48	15	40	645332	3679.98	DFT-s-OFDM QPSK	216@0	see graph	PASS

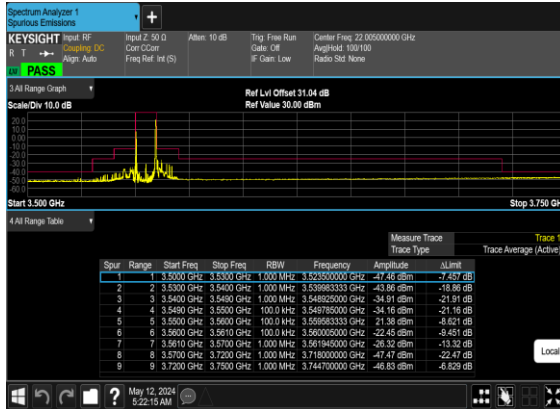
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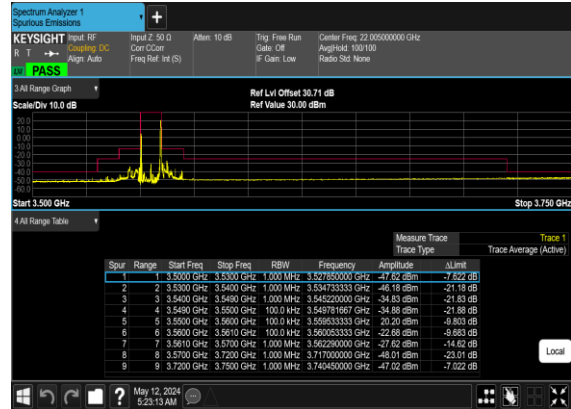
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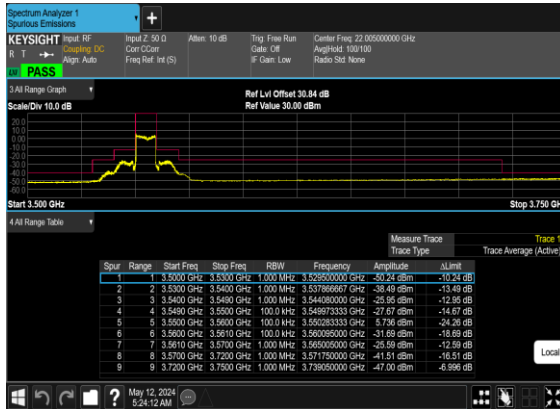
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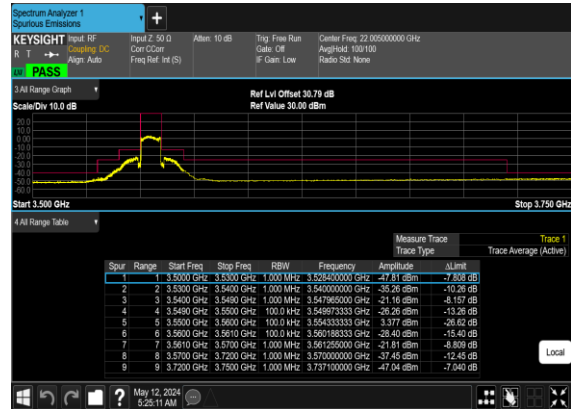
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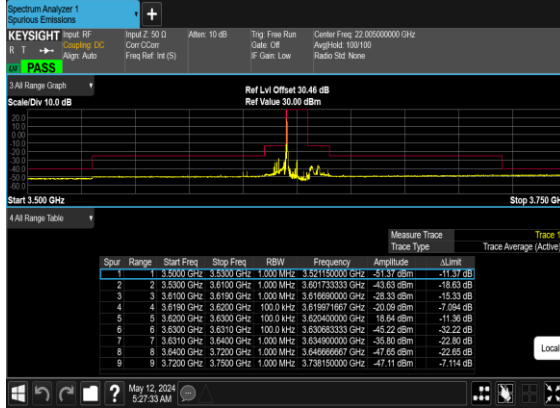
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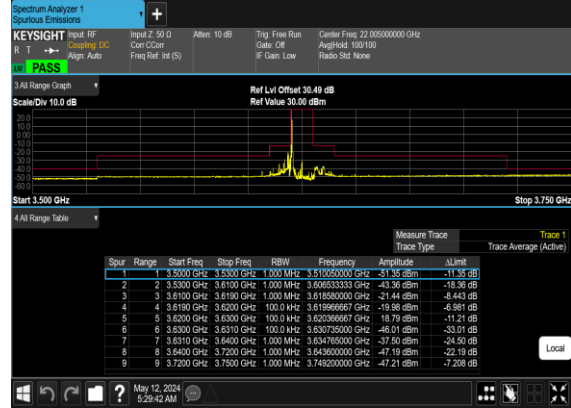
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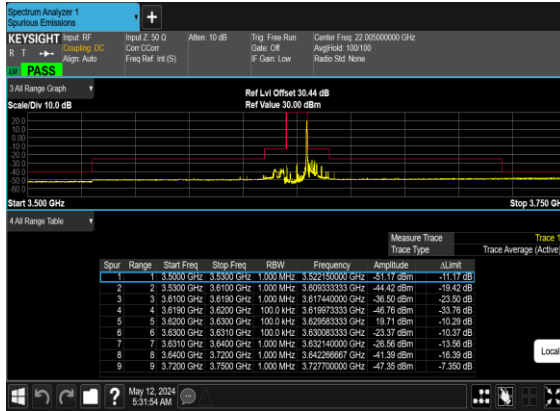
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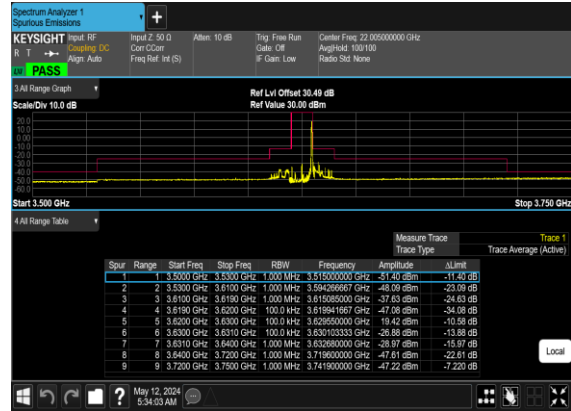
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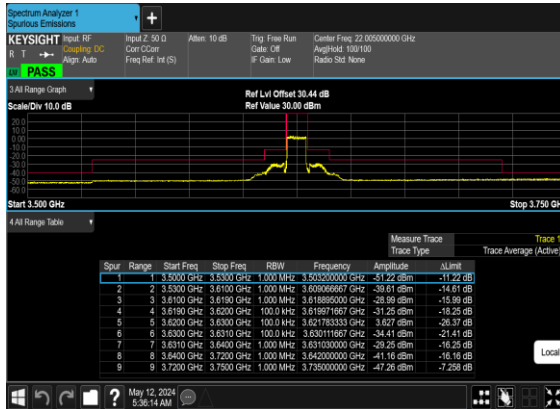
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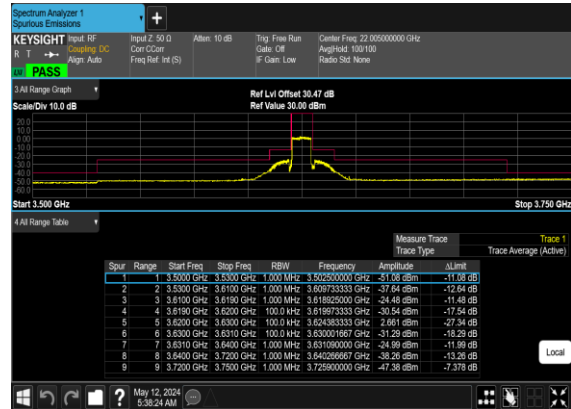
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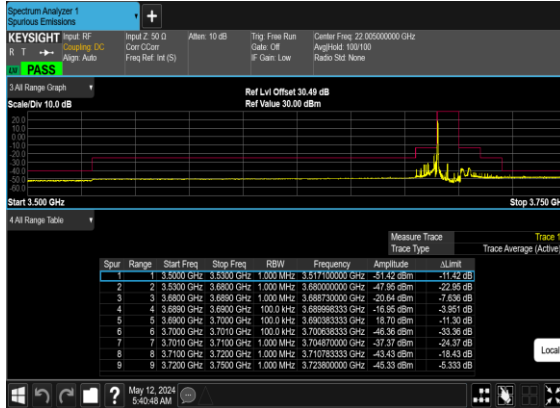
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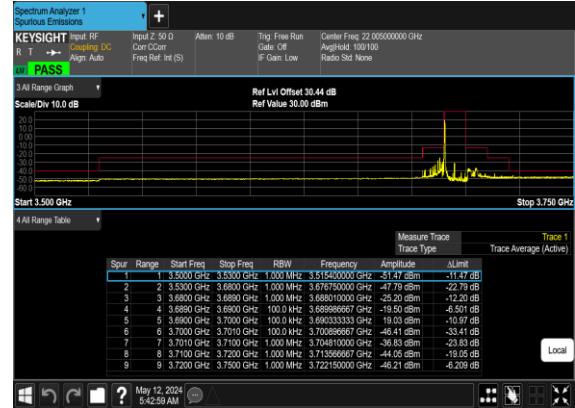
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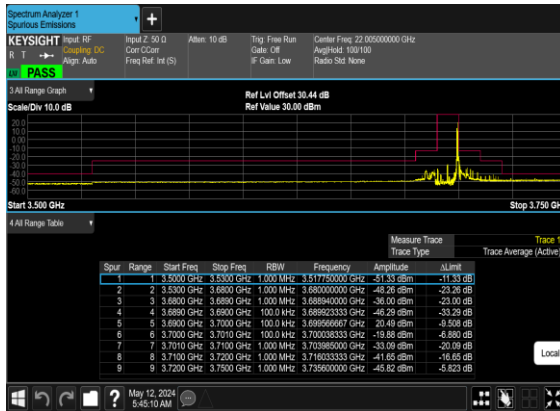
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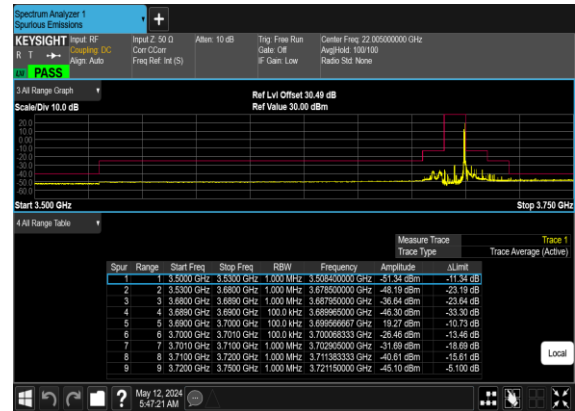
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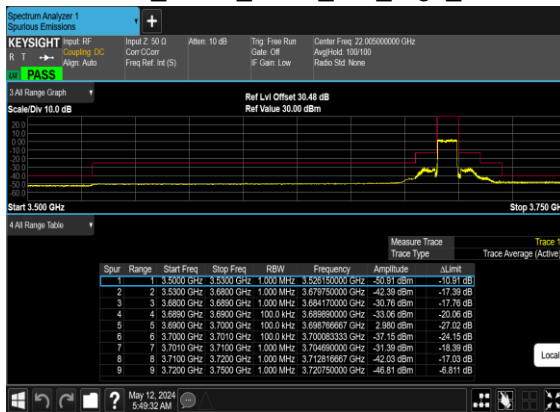
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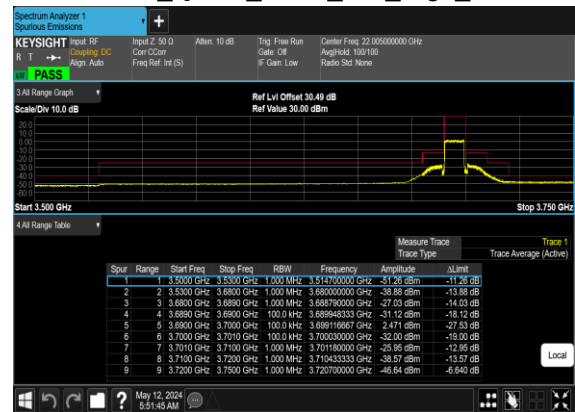
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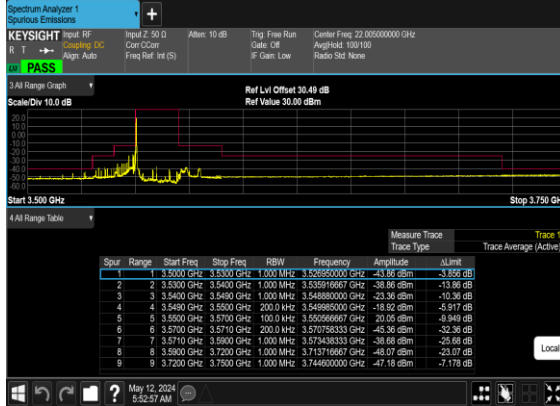
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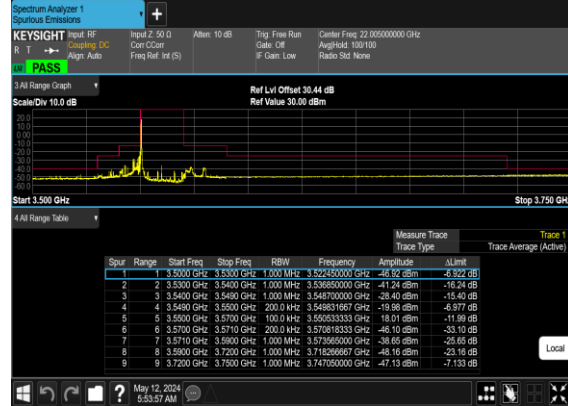
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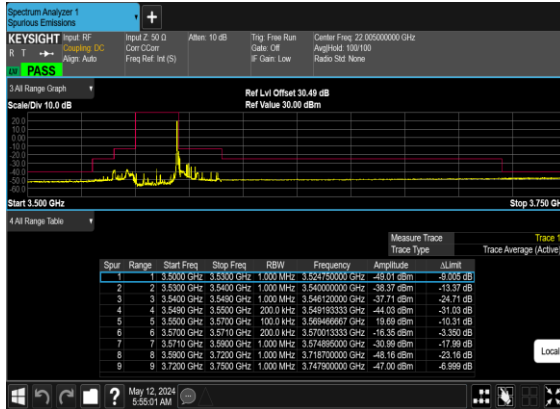
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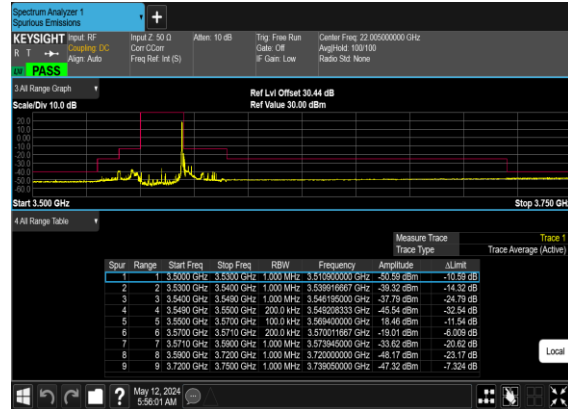
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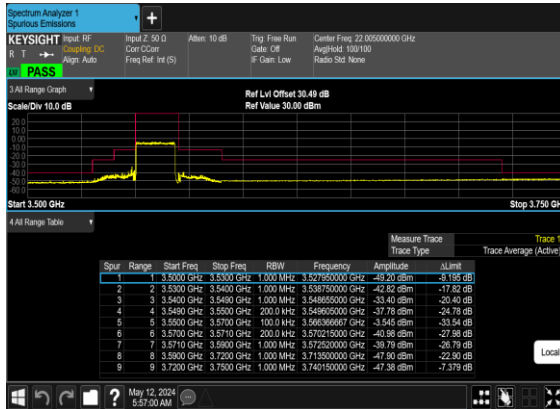
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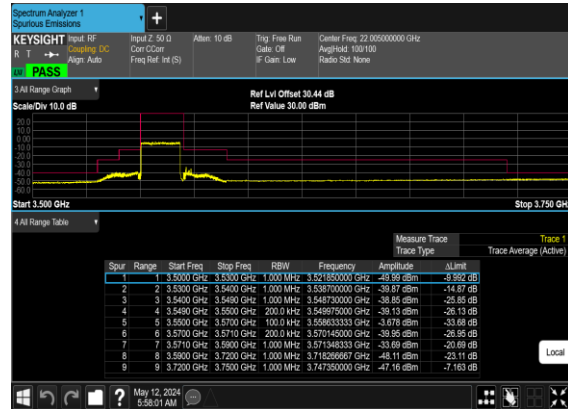
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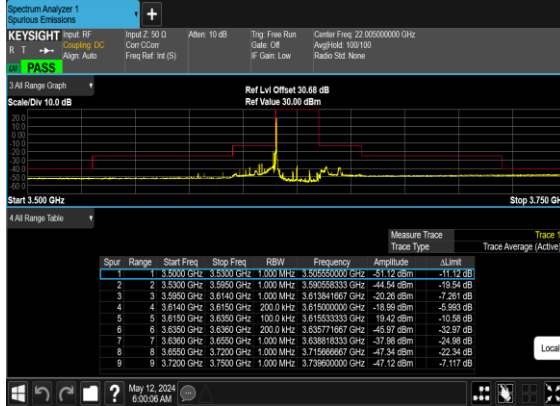
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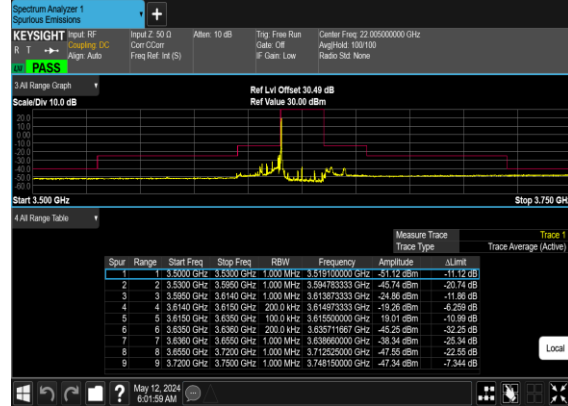
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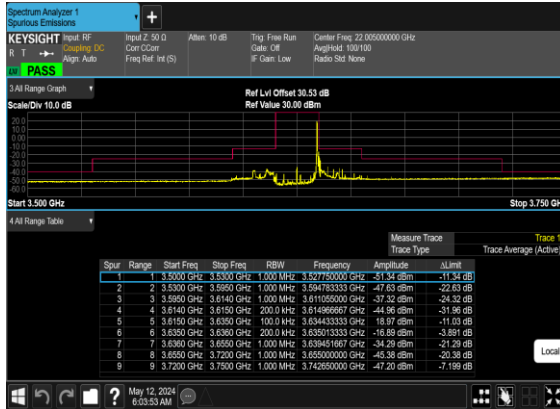
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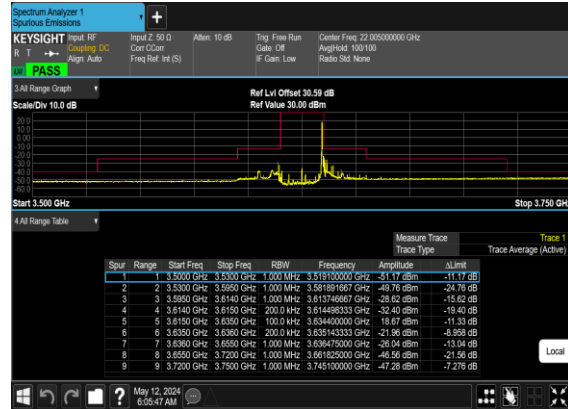
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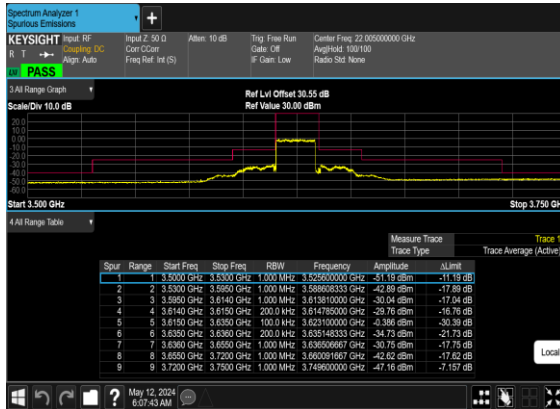
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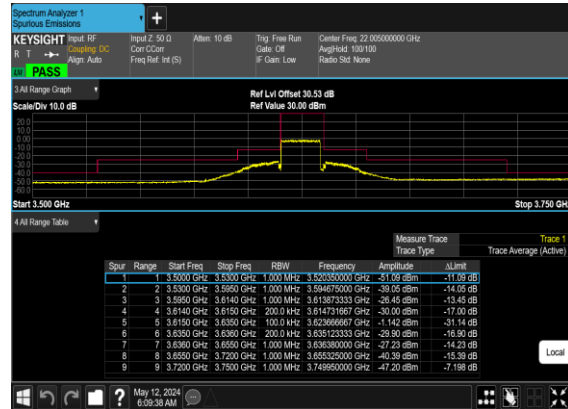
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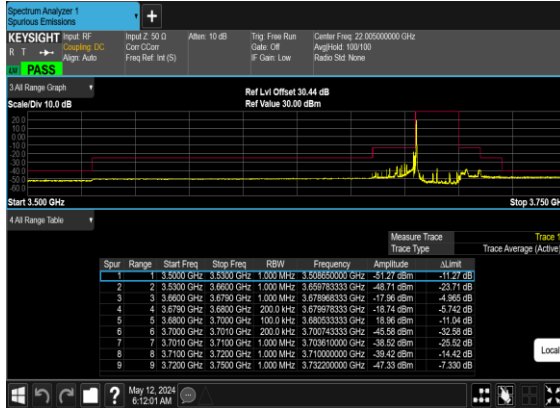
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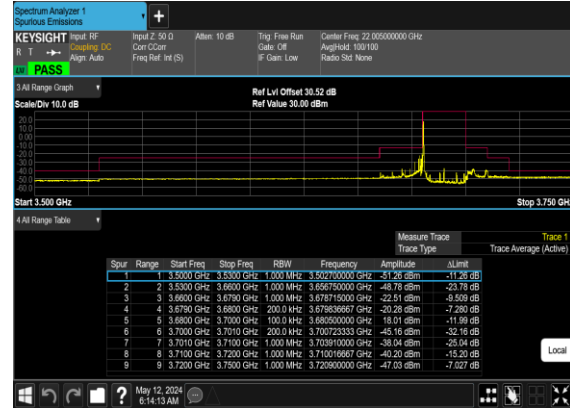
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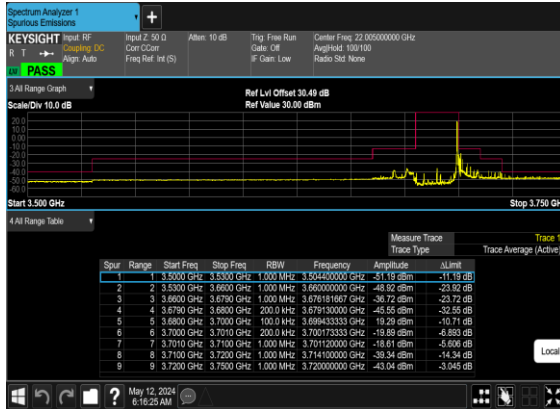
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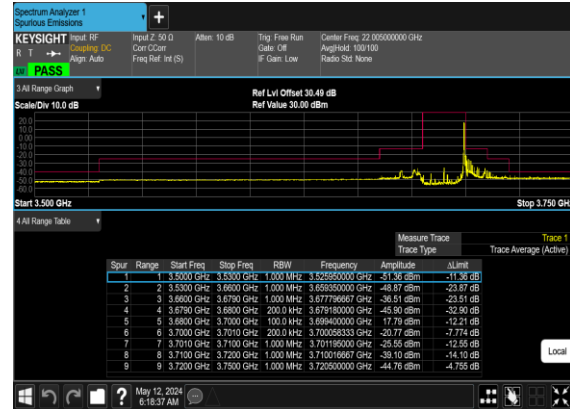
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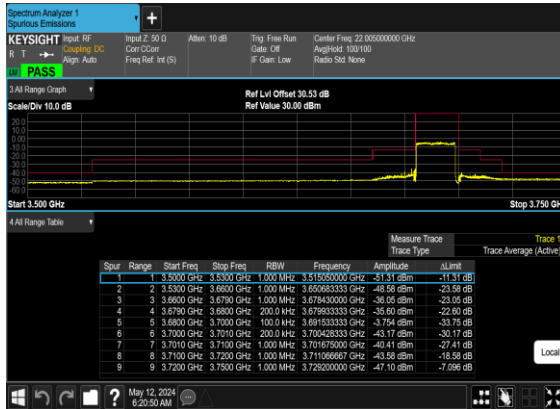
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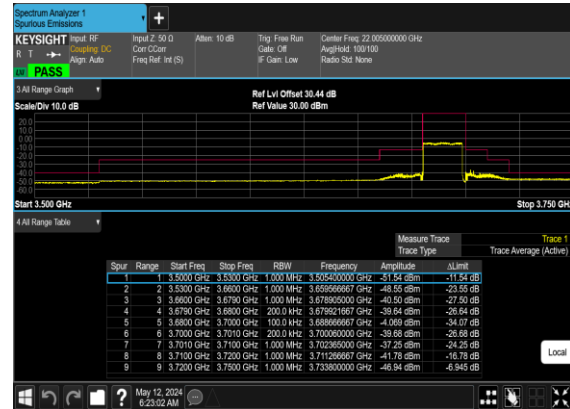
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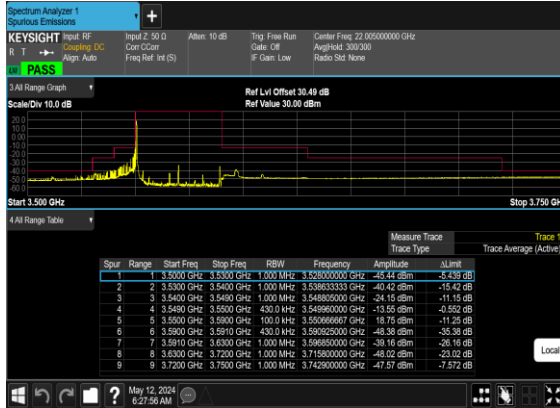
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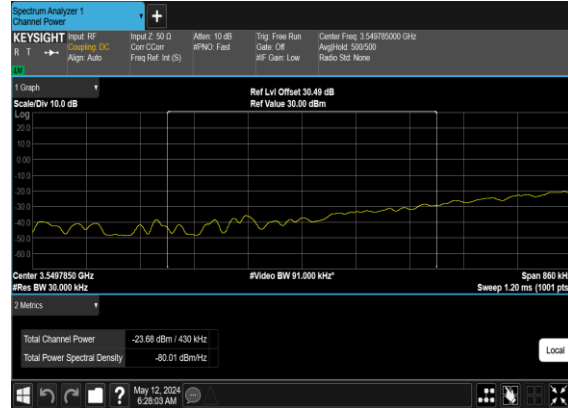
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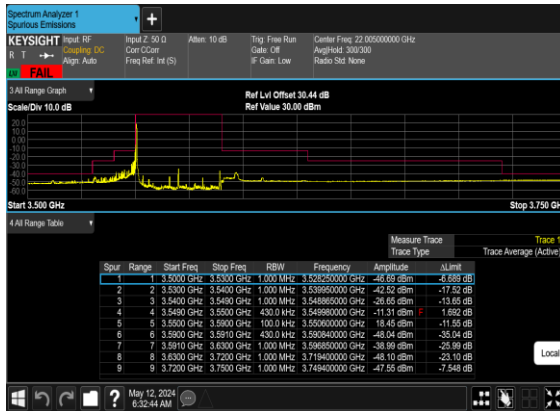
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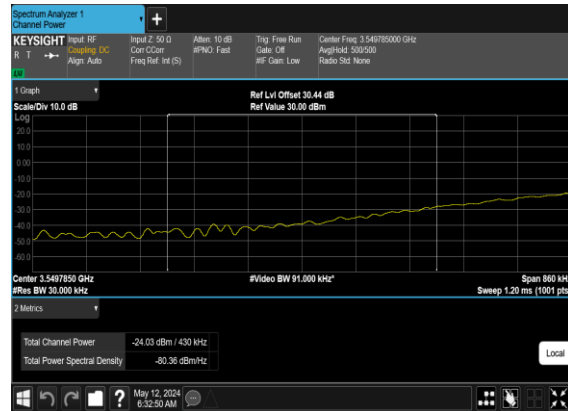
N48(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH_CHP_PASS



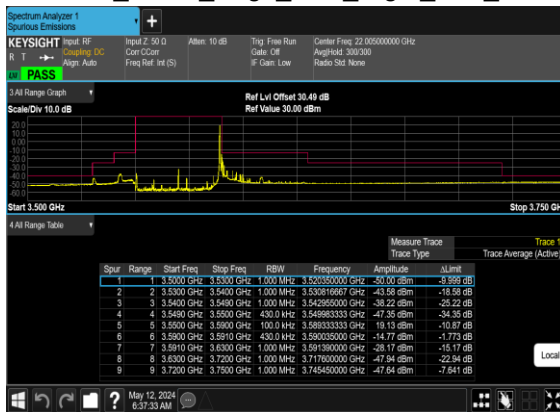
N48(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



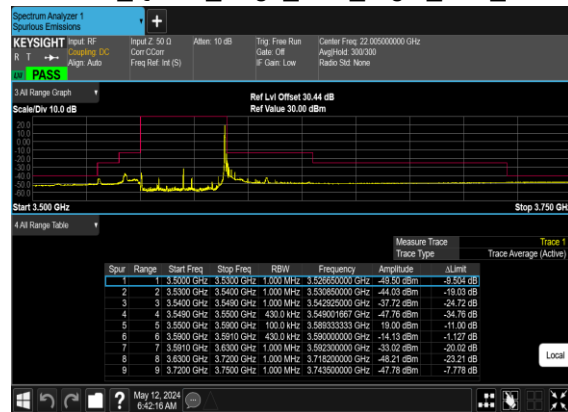
N48(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH_CHP_PASS



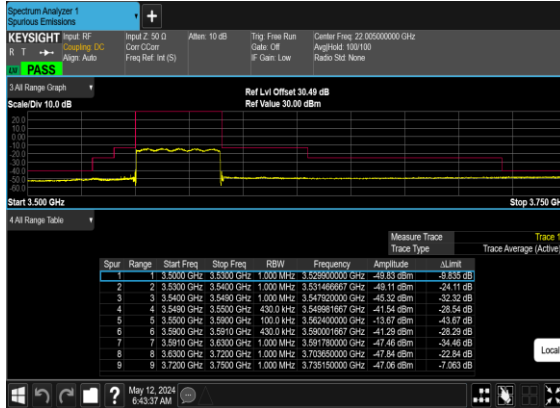
N48(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_Low_CH



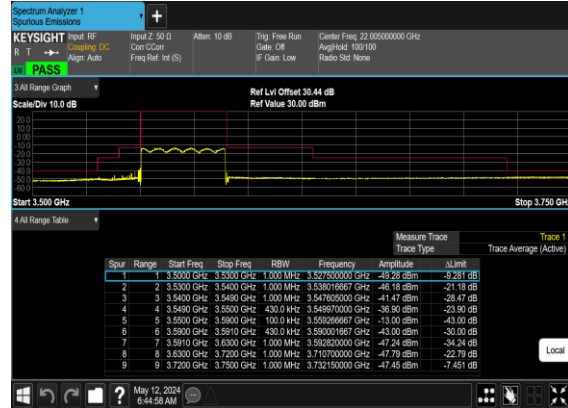
N48(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_Low_CH



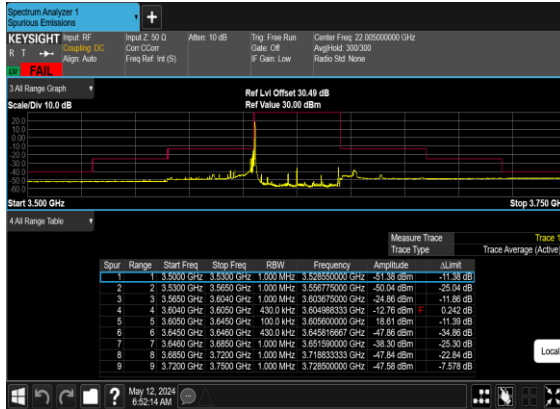
N48(40M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH



N48(40M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



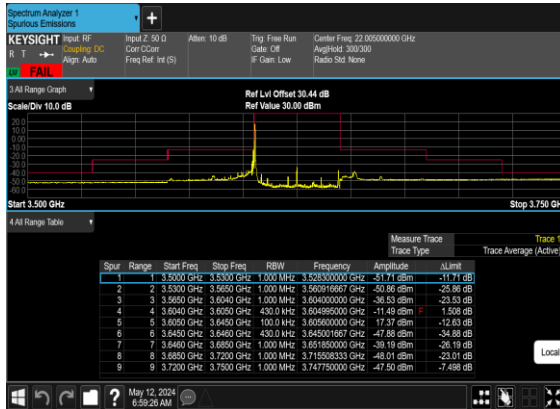
N48(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



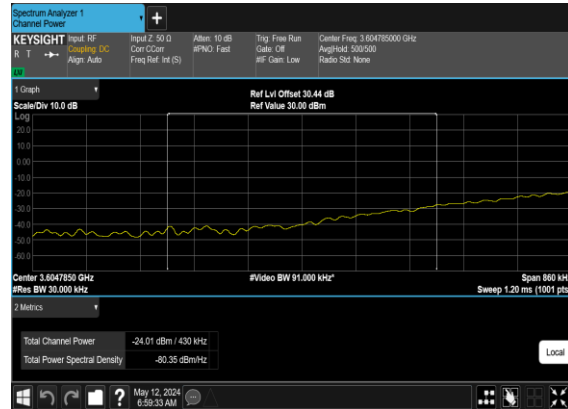
N48(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH_CHP_PASS



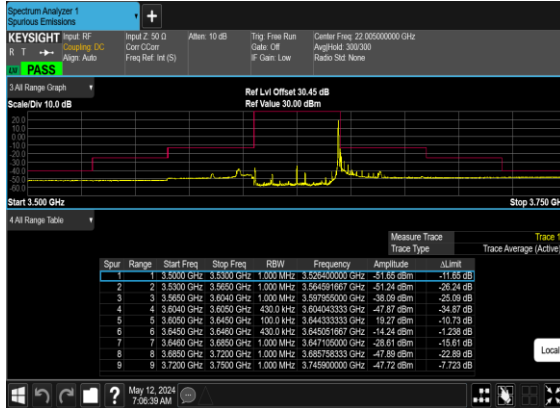
N48(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



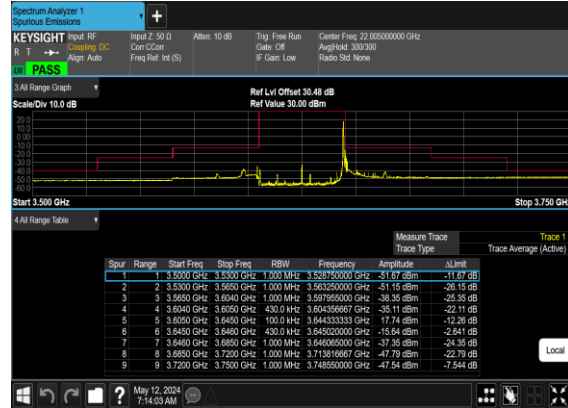
N48(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH_CHP_PASS



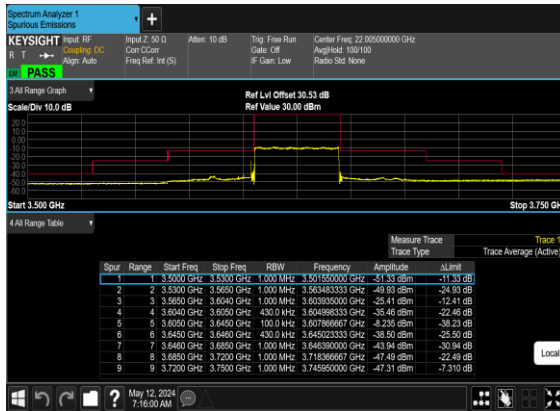
N48(40M)_DFT-s- OFDM_BPSK_Edge_1RB_Right_Mid_CH



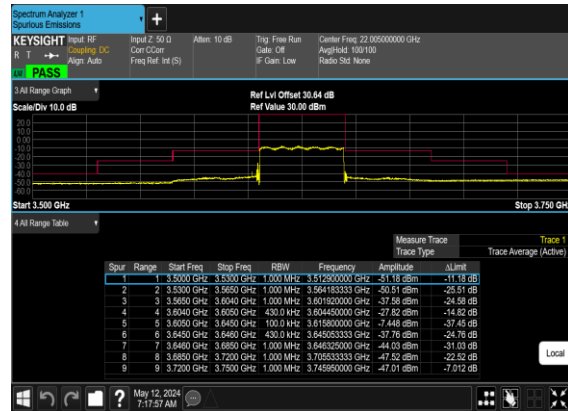
N48(40M)_DFT-s- OFDM_QPSK_Edge_1RB_Right_Mid_CH



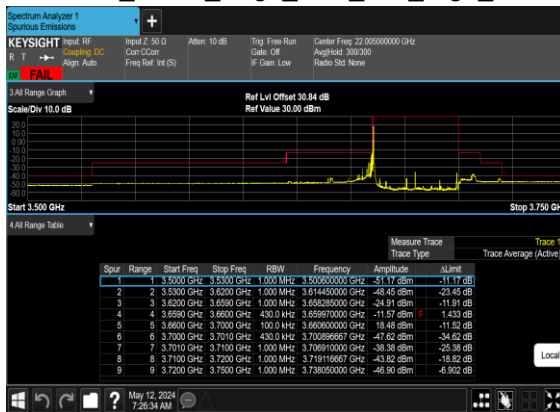
N48(40M)_DFT-s- OFDM_BPSK_Outer_Full_Mid_CH



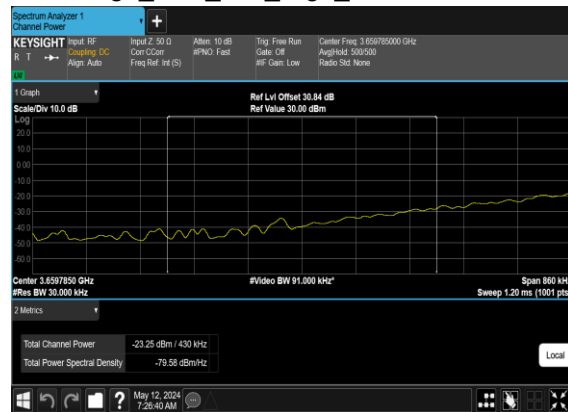
N48(40M)_DFT-s- OFDM_QPSK_Outer_Full_Mid_CH



N48(40M)_DFT-s- OFDM_BPSK_Edge_1RB_Left_High_CH



N48(40M)_DFT-s-OFDM_BPSK_ Edge_1RB_Left_High_CH_CHP_PASS



Spectrum Analyzer

Input: RF Input
Filtering: DC
Align: Auto

Attenuation: 10 dB
Center Freq: 22 000000000 GHz
Span: 300.000 MHz
IF Gain: Low
Radio: Std Noise

Ref Lvl Offset: 30.66 dB
Ref Value: 30.00 dBm

500 GHz **3.750 GHz**

Measure Trace **Trace Type** **Trace Average (Active)**

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.52000 GHz	3.53000 GHz	1.000 MHz	3.525000000 GHz	-51.90 dBm	-21.99 dB
2	2	3.53000 GHz	3.62000 GHz	1.000 MHz	3.574400000 GHz	-49.01 dBm	-24.00 dB
3	3	3.62000 GHz	3.65000 GHz	1.000 MHz	3.636800000 GHz	-37.44 dBm	-24.44 dB
4	4	3.65000 GHz	3.66000 GHz	400.0 kHz	3.659970000 GHz	-11.41 dBm	1.594 dB
5	5	3.66000 GHz	3.70000 GHz	100.0 kHz	3.666960000 GHz	-18.46 dBm	-13.54 dB
6	6	3.70000 GHz	3.70100 GHz	430.0 kHz	3.700633333 GHz	-47.53 dBm	-34.53 dB
7	7	3.70100 GHz	3.71000 GHz	1.000 MHz	3.709620000 GHz	-39.04 dBm	-26.06 dB
8	8	3.71000 GHz	3.72000 GHz	1.000 MHz	3.719366667 GHz	-44.54 dBm	-19.54 dB
9	9	3.72000 GHz	3.75000 GHz	1.000 MHz	3.737800000 GHz	-46.66 dBm	-6.66 dB

Spectrum Analyzer 1
Channel Power

KEYSIGHT Input RF Resolving DC
R T → Align Auto

Video 10 dB Input F 50.0 Core CCo #PNO Fast Alio: 10 dB Trg Free Run Gate Off #F Cam Low Center Freq. 3.658716000 GHz AvcWidth 500500 Radio Std None

10 dB
Scale Div 10.0 dB
Log
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
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-100
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-170
-180
-190
-200
-210
-220
-230
-240
-250
-260
-270
-280
-290
-300
-310
-320
-330
-340
-350
-360
-370
-380
-390
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Keysight Spectrum Analyzer 1
Spurious Emissions

KEYSIGHT Input RF: **Channel OC**
R T **→** **Align Auto**
dB PASS

Input 2: 50.0
Corr Coef: **dB**
Ref Freq: 1st (S)

Attain: 10 dB

Trig Freq Run: **Off**
Gate: **Off**
F. Scan Low:

Center Freq: 22 00000000 GHz
Amp/Hz: 300.00
Tune Step: None

3 All Range Graph

Scale/Div 10.0 dB

Ref Lvl Offset: 30.79 dB
Ref Value 30.00 dBm

Start 3.500 GHz Stop 3.750 GHz

4 All Range Table

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔAmplitude
1	1	3.5000 GHz	3.5300 GHz	1.000 MHz	3.525000000 GHz	-51.36 dBm	-11.36 dB
2	2	3.5300 GHz	3.6200 GHz	1.000 MHz	3.618500000 GHz	-48.89 dBm	-23.88 dB
3	3	3.6200 GHz	3.6500 GHz	1.000 MHz	3.653400000 GHz	-57.43 dBm	-24.43 dB
4	4	3.6500 GHz	3.6600 GHz	430.0 kHz	3.659948333 GHz	-26.96 dBm	-12.96 dB
5	5	3.6600 GHz	3.7000 GHz	100.0 kHz	3.699333333 GHz	19.16 dBm	-10.84 dB
6	6	3.7000 GHz	3.7010 GHz	430.0 kHz	3.700316667 GHz	-44.00 dBm	-8.996 dB
7	7	3.7010 GHz	3.7100 GHz	1.000 MHz	3.701900000 GHz	-22.08 dBm	-8.277 dB
8	8	3.7100 GHz	3.7200 GHz	1.000 MHz	3.718266667 GHz	-40.77 dBm	-15.77 dB
9	9	3.7200 GHz	3.7500 GHz	1.000 MHz	3.722000000 GHz	-44.64 dBm	-6.638 dB

Measure Trace Trace Type Trace Average (Active)

Channel Analyzer 1
Channel Power

KEYSIGHT Input: RF **Channel 1**
R T → Align: Auto

Input F: 50.0 GHz
Corr: CCZ
Freq Ref: Int (S)

Attm: 10 dB
#PNO: Fast

Trg: Free Run
Gate: Off
#F: Can: Low

Center Freq: 3.700215000 GHz
AgtHzd: 500500
Ratio Std: None

1 Graph

Scale/Div: 10.0 dB

Log

20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00
-50.00

Ref Lvl Offset: 30.70 dB
Ref Value: 30.00 dBm

Center: 3.7002150 GHz
#Res BW: 30.000 kHz

#Video BW: 91.000 MHz

Span: 860 MHz
Sweep: 1.20 ms (1001 pts)

2 Metrics

Total Channel Power	-25.81 dBm / 430 kHz
Total Power Spectral Density	-82.14 dBm/MHz

May 12, 2024
7:43:31 AM

The screenshot displays a Keysight Spectrum Analyzer interface. At the top, the 'KEYSIGHT' logo is visible. The main display area shows a frequency spectrum plot with a red trace. The plot is centered at 3.500 GHz, with a scale of 10.0 dB. The frequency range is from 3.400 GHz to 3.600 GHz. The plot shows a series of peaks, with the most prominent one at 3.500 GHz. Below the plot, a table lists the measured signals, including their range, start and stop frequencies, RBW, center frequency, amplitude, and voltage level.

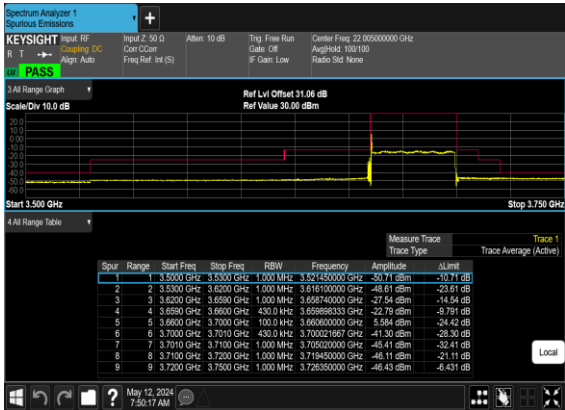
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	uVrms
1	3.5000 GHz	3.5000 GHz	1.000 MHz	3.500200000 GHz	-50.63 dBm	-10.93 dB	
2	3.5200 GHz	3.5200 GHz	1.000 MHz	3.520300000 GHz	-48.64 dBm	-23.64 dB	
3	3.6200 GHz	3.6200 GHz	1.000 MHz	3.620410000 GHz	-37.77 dBm	-24.77 dB	
4	3.6600 GHz	3.6600 GHz	430.0 MHz	3.659948333 GHz	-21.06 dBm	-8.06 dB	
5	3.6600 GHz	3.7000 GHz	430.0 MHz	3.699383333 GHz	18.02 dBm	-11.98 dB	
6	3.7000 GHz	3.7010 GHz	430.0 MHz	3.700283333 GHz	-14.54 dBm	-1.54 dB	
7	3.7010 GHz	3.7100 GHz	1.000 MHz	3.703350000 GHz	-20.76 dBm	-16.76 dB	
8	3.7100 GHz	3.7200 GHz	1.000 MHz	3.718683333 GHz	-40.63 dBm	-15.46 dB	
9	3.7200 GHz	3.7500 GHz	1.000 MHz	3.721450000 GHz	-23.23 dBm	-3.23 dB	

The screenshot displays the Spectrum Analyzer 1 interface. At the top, the title bar reads "Spectrum Analyzer 1" and "Spectrum Emissions". The main window is divided into several sections:

- KEYIGHT** section: Includes "Input RF" (3.500 GHz), "Input BW" (100 kHz), "Align" (Auto), "RST" (R), and a "PASS" status indicator.
- Input Parameters**: "Input Freq" (3.500 GHz), "Cent Freq" (3.500 GHz), "Attain" (10.0 dB), "Trig Freq Run" (Gate Off), "Center Freq" (22 00000000 GHz), "Appld BW" (100 kHz), "Ref Lvl" (0.00000000 GHz), and "Appld Lvl" (None).
- Scale and Offset**: "3.0 dB Range Graph", "Scale/Div" (10.0 dB), "Ref Lvl Offset" (30.49 dB), and "Ref Value" (30.00 dBm).
- Frequency Range**: "Start 3.500 GHz" and "Stop 3.750 GHz".
- Trace Table**: A table with 8 rows and 7 columns: "Spur", "Range", "Start Freq", "Stop Freq", "RBW", "Frequency", "Amplitude", and "ΔLmt". The table lists various frequency components and their amplitudes.
- Measure Trace**: A button labeled "Trace Type" and "Trace 1 Trace Average (Active)".
- Local**: A button labeled "Local".
- System Bar**: At the bottom, showing the date "May 12, 2024", time "7:50:41 AM", and various system icons.

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLmt
1	1	3.5000 GHz	3.5000 GHz	1.000 MHz	3.523500000 GHz	-51.44 dBm	-11.44 dB
2	2	3.5300 GHz	3.6200 GHz	1.000 MHz	3.589200000 GHz	-40.05 dBm	-24.05 dB
3	3	3.6200 GHz	3.6500 GHz	1.000 MHz	3.659000000 GHz	-40.11 dBm	-33.11 dB
4	4	3.6500 GHz	3.6600 GHz	430.0 kHz	3.659961967 GHz	-40.88 dBm	-27.88 dB
5	5	3.6600 GHz	3.7000 GHz	100.0 kHz	3.662669667 GHz	-53.05 dBm	-43.05 dB
6	6	3.7000 GHz	3.7010 GHz	430.0 kHz	3.700013333 GHz	-41.49 dBm	-28.49 dB
7	7	3.7010 GHz	3.7100 GHz	1.000 MHz	3.701570000 GHz	-45.49 dBm	-32.49 dB
8	8	3.7100 GHz	3.7200 GHz	1.000 MHz	3.719983333 GHz	-46.69 dBm	-31.69 dB
		3.7200 GHz	3.7500 GHz	1.000 MHz	3.720000000 GHz	-46.89 dBm	-6.89 dB

N48(40M)_DFT-s-
OFDM_QPSK_Outer_Full_High_CH





Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

Test Engineer :	Shunping You	Temperature :	22~25°C
		Relative Humidity :	48~52%

Note: Pre-scanned harmonic for the different antennas, we choose the worst antenna mode to perform final test and record in the report.

5G NR n48 / 40MHz / QPSK / Ant.6									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7212.80	-55.29	-40	-15.29	-51.91	-58.59	8.30	11.60	H
	10819.20	-53.87	-40	-13.87	-56.83	-55.39	10.48	12.00	H
	14425.60	-47.69	-40	-7.69	-54.95	-49.39	11.80	13.50	H
	7212.80	-56.28	-40	-16.28	-52.94	-59.58	8.30	11.60	V
	10819.20	-54.03	-40	-14.03	-56.76	-55.55	10.48	12.00	V
	14425.60	-46.90	-40	-6.90	-53.94	-48.60	11.80	13.50	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.