

# 99% & 26dB Bandwidth

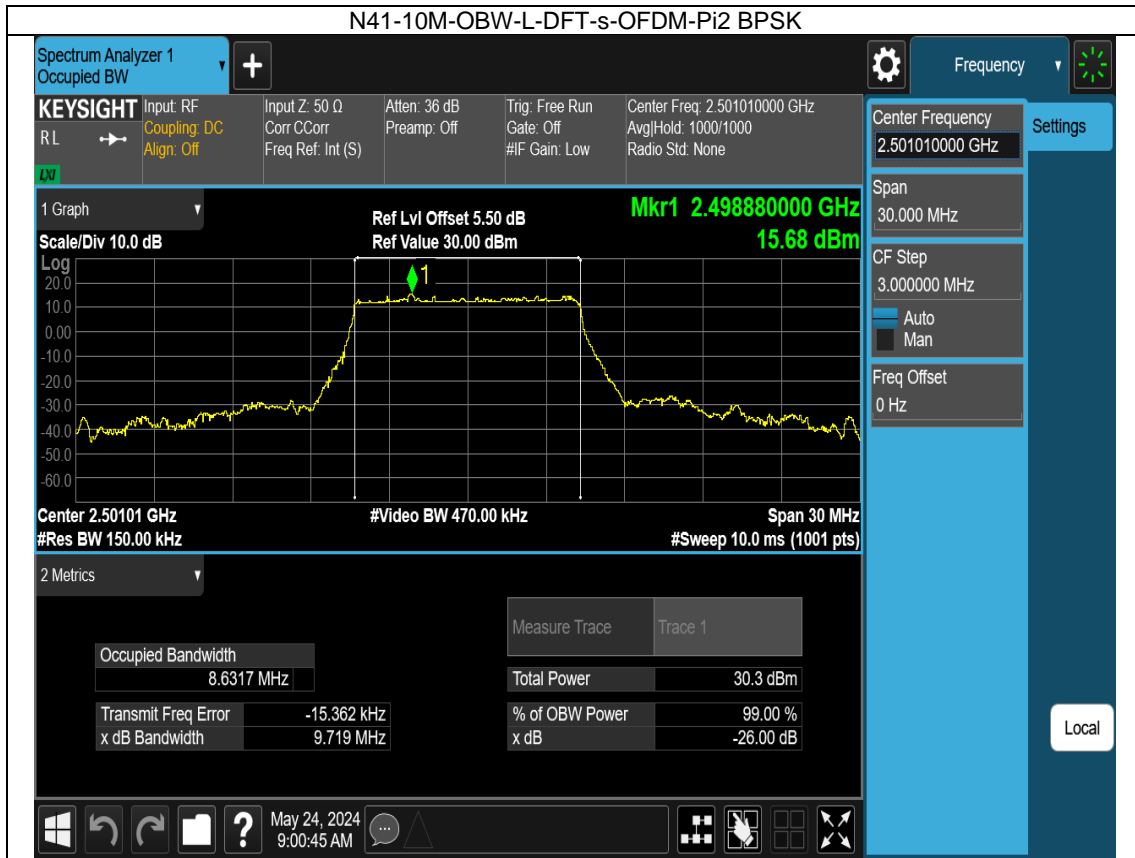
## Test Result

5G NR n41 SCS=30kHz 10MHz						
Modulation	CH	RB Allocation	99% Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
DFT-s-OFDM PI/2 BPSK	Low CH	Outer_Full	8.632	6.719	/	Pass
DFT-s-OFDM QPSK		Outer_Full	8.592	9.772	/	Pass
DFT-s-OFDM 16QAM		Outer_Full	8.648	9.934	/	Pass
DFT-s-OFDM 64QAM		Outer_Full	8.629	10.00	/	Pass
DFT-s-OFDM 256QAM		Outer_Full	8.629	9.849	/	Pass
CP-OFDM QPSK		Outer_Full	8.602	9.727	/	Pass
CP-OFDM 16QAM		Outer_Full	8.653	10.02	/	Pass
CP-OFDM 64QAM		Outer_Full	8.617	9.859	/	Pass
CP-OFDM 256QAM		Outer_Full	8.639	9.995	/	Pass
DFT-s-OFDM PI/2 BPSK		Middle CH	Outer_Full	8.652	9.981	/
DFT-s-OFDM QPSK	Outer_Full		8.592	9.646	/	Pass
DFT-s-OFDM 16QAM	Outer_Full		8.626	9.769	/	Pass
DFT-s-OFDM 64QAM	Outer_Full		8.648	9.998	/	Pass
DFT-s-OFDM 256QAM	Outer_Full		8.636	10.01	/	Pass
CP-OFDM QPSK	Outer_Full		8.646	9.798	/	Pass
CP-OFDM 16QAM	Outer_Full		8.618	9.985	/	Pass
CP-OFDM 64QAM	Outer_Full		8.633	9.823	/	Pass
CP-OFDM 256QAM	Outer_Full		8.608	9.910	/	Pass
DFT-s-OFDM PI/2 BPSK	High CH		Outer_Full	8.623	9.811	/
DFT-s-OFDM QPSK		Outer_Full	8.630	9.968	/	Pass
DFT-s-OFDM 16QAM		Outer_Full	8.648	9.862	/	Pass
DFT-s-OFDM 64QAM		Outer_Full	8.623	9.837	/	Pass
DFT-s-OFDM 256QAM		Outer_Full	8.640	9.986	/	Pass
CP-OFDM QPSK		Outer_Full	8.594	9.721	/	Pass
CP-OFDM 16QAM		Outer_Full	8.605	9.773	/	Pass
CP-OFDM 64QAM		Outer_Full	8.638	10.26	/	Pass
CP-OFDM 256QAM		Outer_Full	8.661	9.955	/	Pass

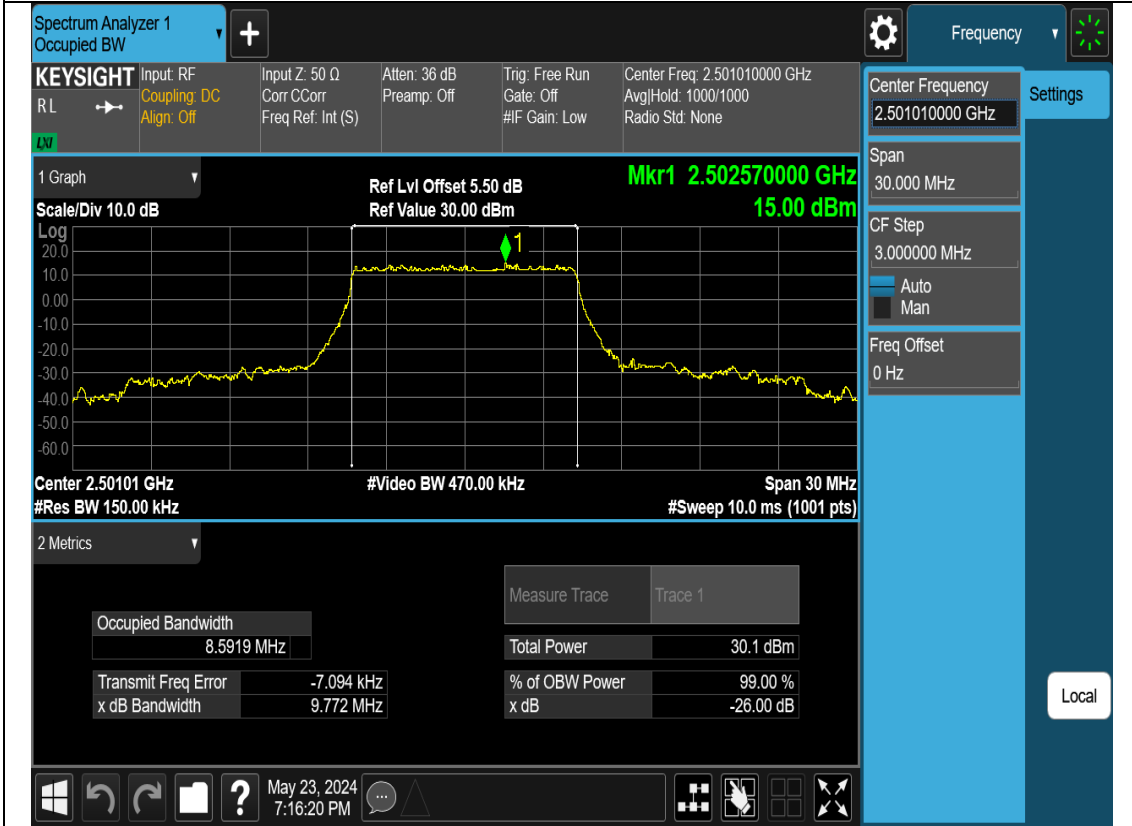
5G NR n41 SCS=30kHz 15MHz						
Modulation	CH	RB Allocation	99% Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
DFT-s-OFDM PI/2 BPSK	Low CH	Outer_Full	12.998	14.58	/	Pass
DFT-s-OFDM QPSK		Outer_Full	12.928	14.49	/	Pass
DFT-s-OFDM 16QAM		Outer_Full	12.970	14.68	/	Pass
DFT-s-OFDM 64QAM		Outer_Full	12.945	14.55	/	Pass
DFT-s-OFDM 256QAM		Outer_Full	13.034	14.43	/	Pass
CP-OFDM QPSK		Outer_Full	13.662	15.29	/	Pass
CP-OFDM 16QAM		Outer_Full	13.637	15.08	/	Pass
CP-OFDM 64QAM		Outer_Full	13.663	15.18	/	Pass
CP-OFDM 256QAM		Outer_Full	13.622	15.22	/	Pass
DFT-s-OFDM PI/2 BPSK	Middle CH	Outer_Full	12.957	14.43	/	Pass
DFT-s-OFDM QPSK		Outer_Full	12.935	14.45	/	Pass
DFT-s-OFDM 16QAM		Outer_Full	12.940	14.55	/	Pass
DFT-s-OFDM 64QAM		Outer_Full	12.948	14.40	/	Pass
DFT-s-OFDM 256QAM		Outer_Full	13.016	14.44	/	Pass
CP-OFDM QPSK		Outer_Full	13.665	15.28	/	Pass
CP-OFDM 16QAM		Outer_Full	13.632	15.16	/	Pass
CP-OFDM 64QAM		Outer_Full	13.639	15.21	/	Pass
CP-OFDM 256QAM		Outer_Full	13.649	15.37	/	Pass
DFT-s-OFDM PI/2 BPSK	High CH	Outer_Full	12.944	14.28	/	Pass
DFT-s-OFDM QPSK		Outer_Full	12.973	14.47	/	Pass
DFT-s-OFDM 16QAM		Outer_Full	12.987	14.47	/	Pass
DFT-s-OFDM 64QAM		Outer_Full	12.954	14.50	/	Pass
DFT-s-OFDM 256QAM		Outer_Full	12.991	14.70	/	Pass
CP-OFDM QPSK		Outer_Full	13.621	15.13	/	Pass
CP-OFDM 16QAM		Outer_Full	13.644	15.17	/	Pass
CP-OFDM 64QAM		Outer_Full	13.665	15.26	/	Pass
CP-OFDM 256QAM		Outer_Full	13.672	15.49	/	Pass

5G NR n41 SCS=30kHz 20MHz						
Modulation	CH	RB Allocation	99% Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
DFT-s-OFDM PI/2 BPSK	Low CH	Outer_Full	17.867	19.24	/	Pass
DFT-s-OFDM QPSK		Outer_Full	17.916	19.54	/	Pass
DFT-s-OFDM 16QAM		Outer_Full	17.887	19.35	/	Pass
DFT-s-OFDM 64QAM		Outer_Full	17.951	19.75	/	Pass
DFT-s-OFDM 256QAM		Outer_Full	17.870	19.44	/	Pass
CP-OFDM QPSK		Outer_Full	18.228	19.91	/	Pass
CP-OFDM 16QAM		Outer_Full	18.241	19.96	/	Pass
CP-OFDM 64QAM		Outer_Full	18.263	19.92	/	Pass
CP-OFDM 256QAM		Outer_Full	18.253	19.74	/	Pass
DFT-s-OFDM PI/2 BPSK	Middle CH	Outer_Full	17.876	19.32	/	Pass
DFT-s-OFDM QPSK		Outer_Full	17.917	19.51	/	Pass
DFT-s-OFDM 16QAM		Outer_Full	17.919	19.44	/	Pass
DFT-s-OFDM 64QAM		Outer_Full	17.992	19.80	/	Pass
DFT-s-OFDM 256QAM		Outer_Full	17.870	19.44	/	Pass
CP-OFDM QPSK		Outer_Full	18.271	20.00	/	Pass
CP-OFDM 16QAM		Outer_Full	18.244	19.92	/	Pass
CP-OFDM 64QAM		Outer_Full	18.291	19.85	/	Pass
CP-OFDM 256QAM		Outer_Full	18.259	19.88	/	Pass
DFT-s-OFDM PI/2 BPSK	High CH	Outer_Full	17.865	19.31	/	Pass
DFT-s-OFDM QPSK		Outer_Full	17.922	19.54	/	Pass
DFT-s-OFDM 16QAM		Outer_Full	17.899	19.56	/	Pass
DFT-s-OFDM 64QAM		Outer_Full	17.962	19.86	/	Pass
DFT-s-OFDM 256QAM		Outer_Full	17.880	19.44	/	Pass
CP-OFDM QPSK		Outer_Full	18.191	19.81	/	Pass
CP-OFDM 16QAM		Outer_Full	18.204	19.85	/	Pass
CP-OFDM 64QAM		Outer_Full	18.271	19.73	/	Pass
CP-OFDM 256QAM		Outer_Full	18.266	19.70	/	Pass

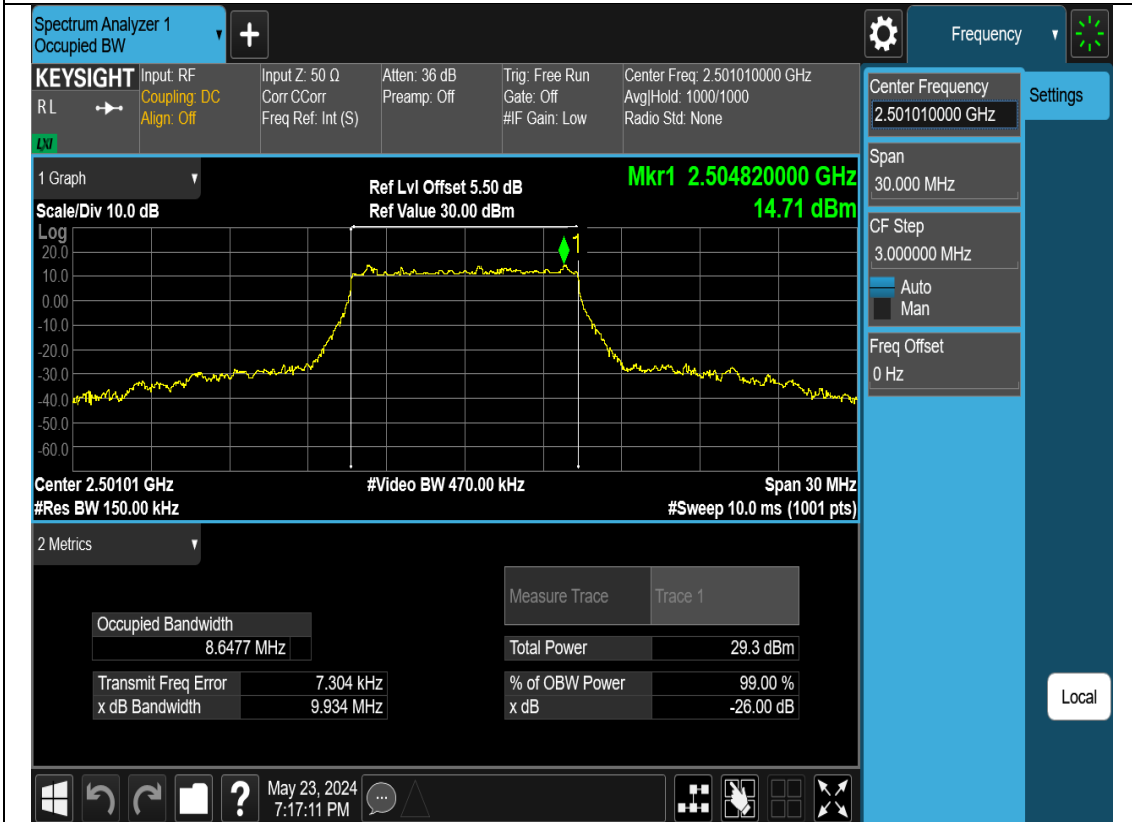
Test graph



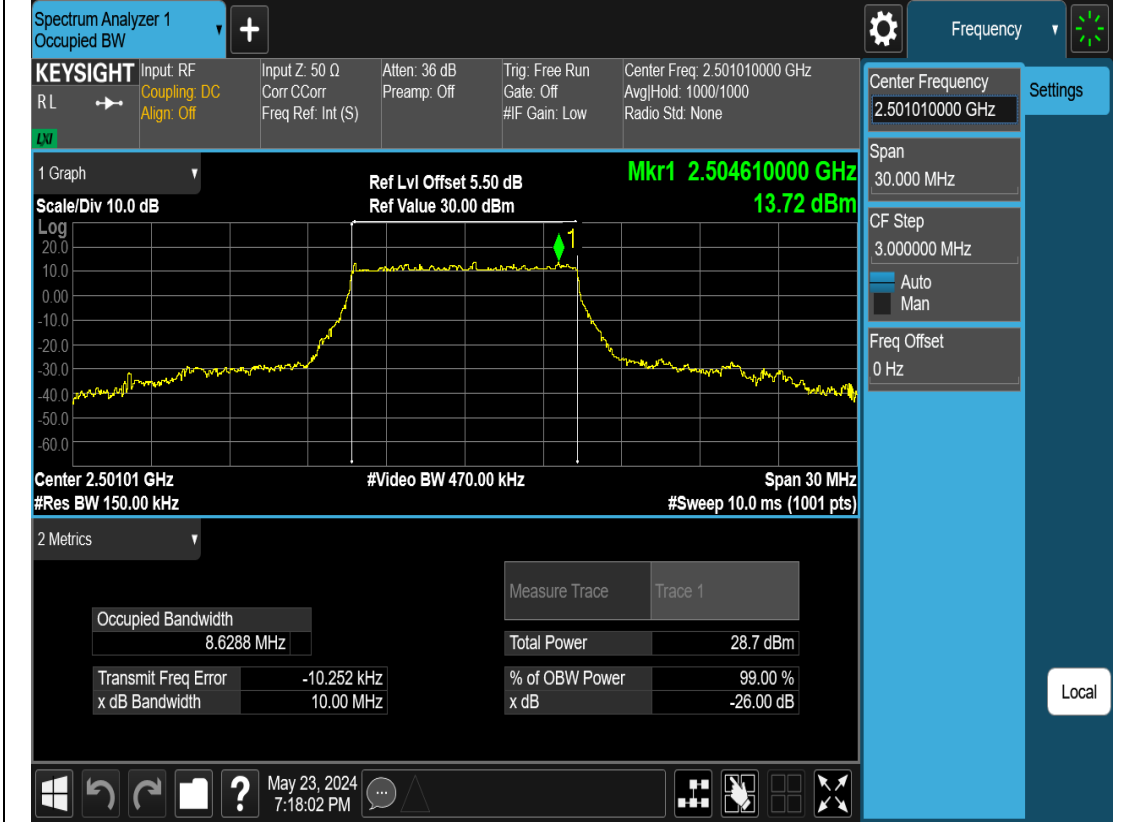
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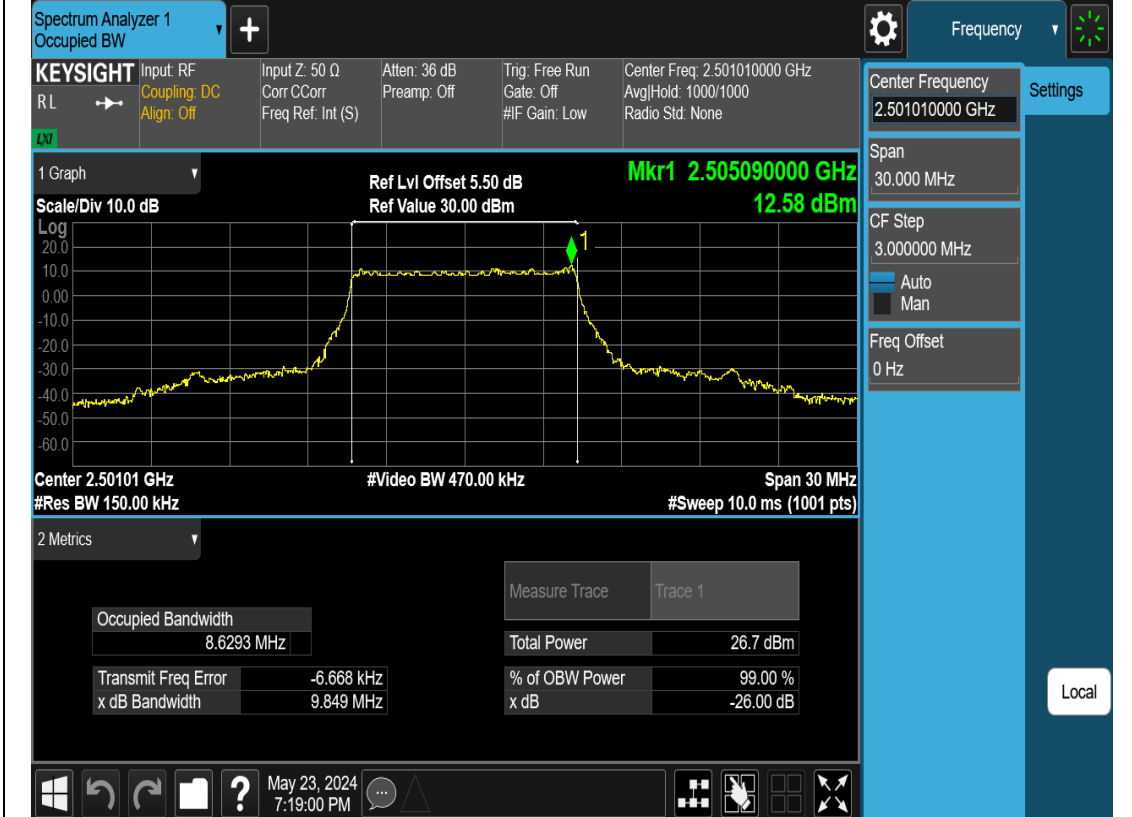
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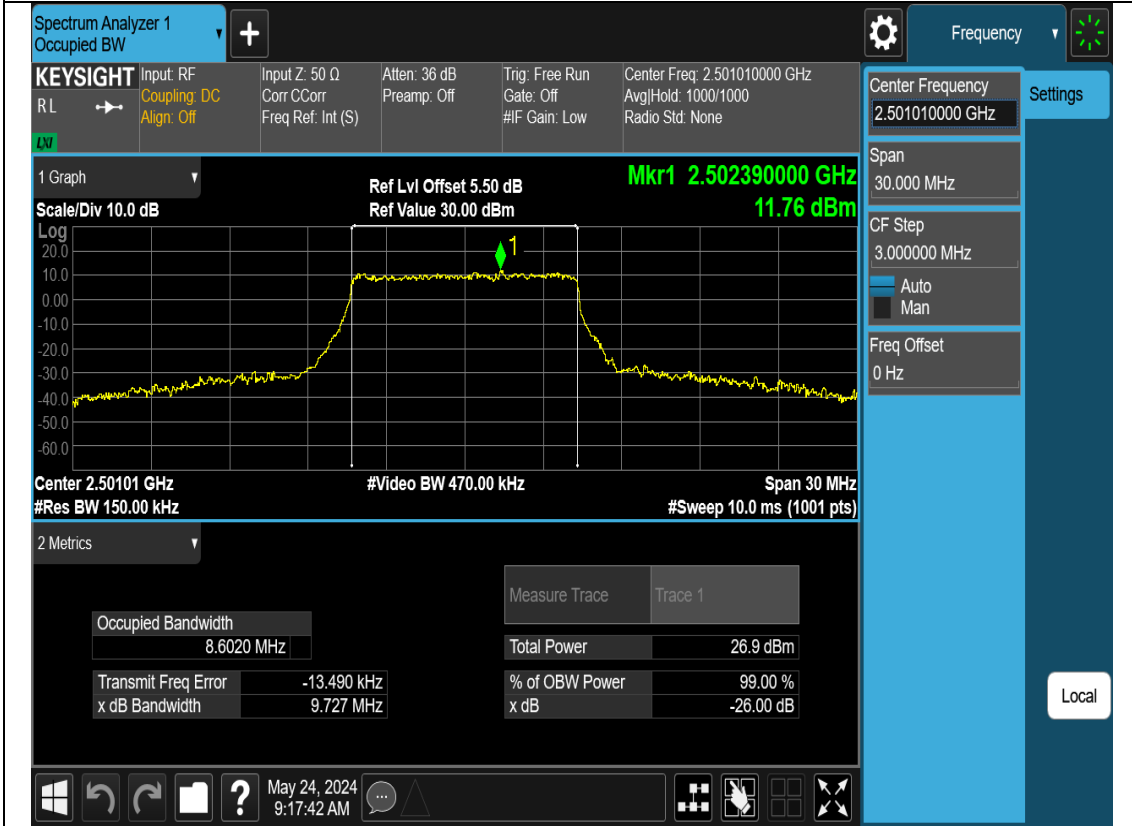
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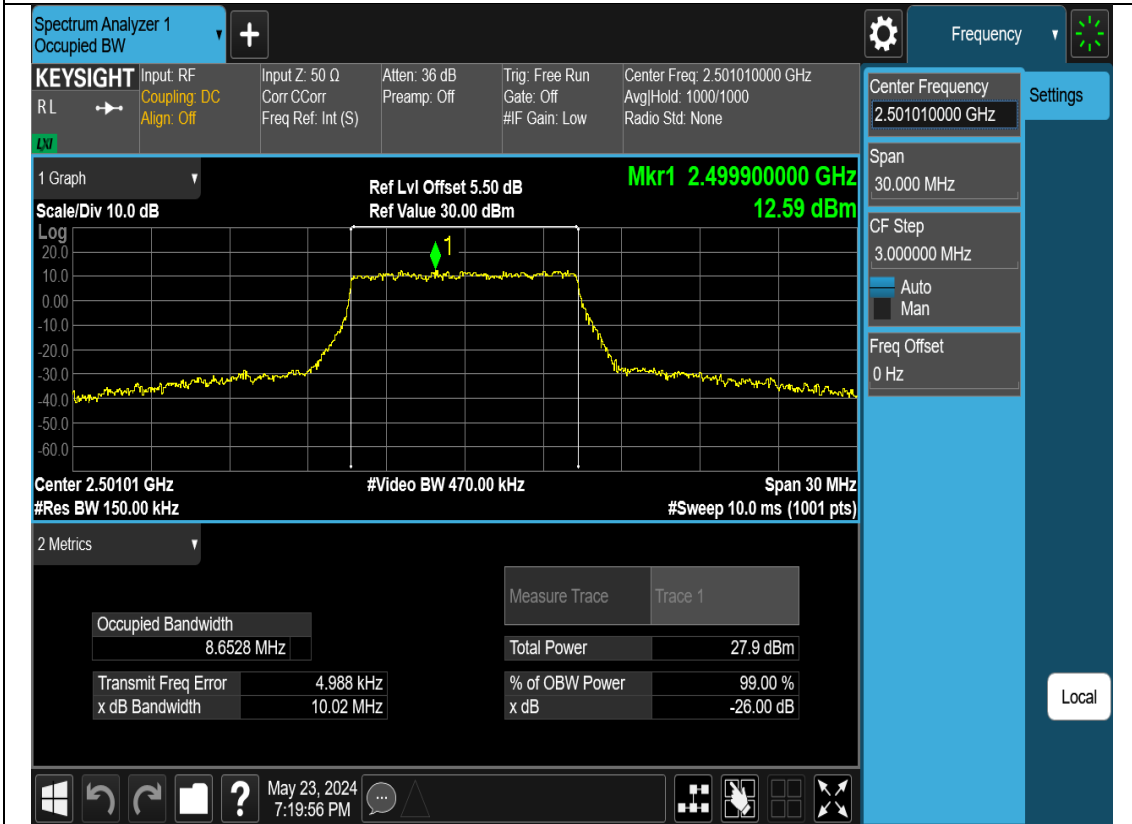
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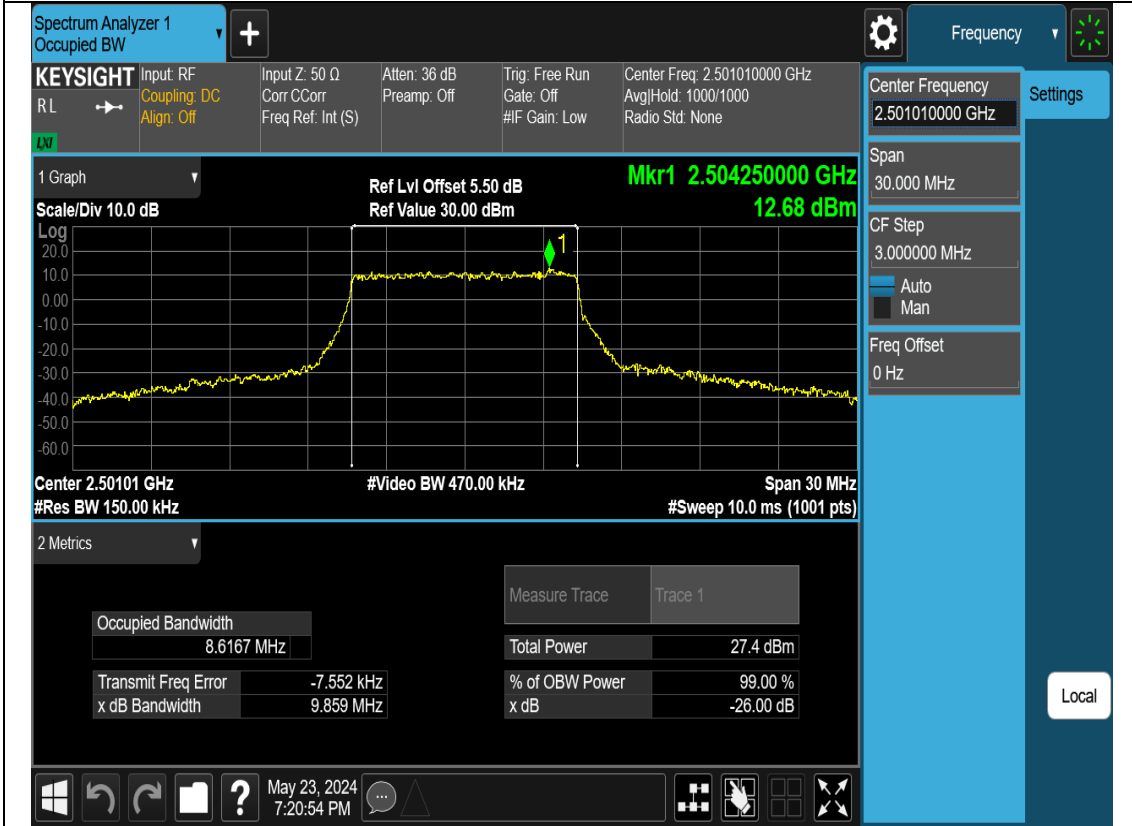
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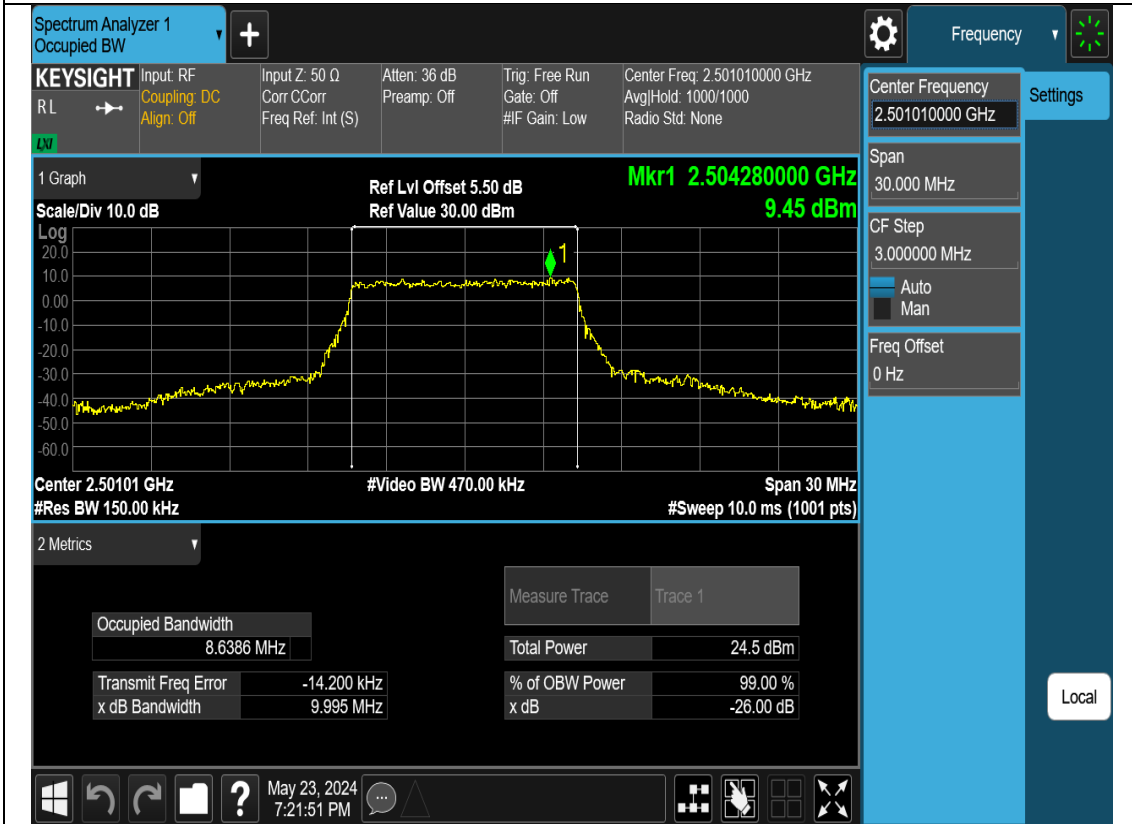
N41-10M-OBW-L-CP-OFDM-16QAM



N41-10M-OBW-L-CP-OFDM-64QAM

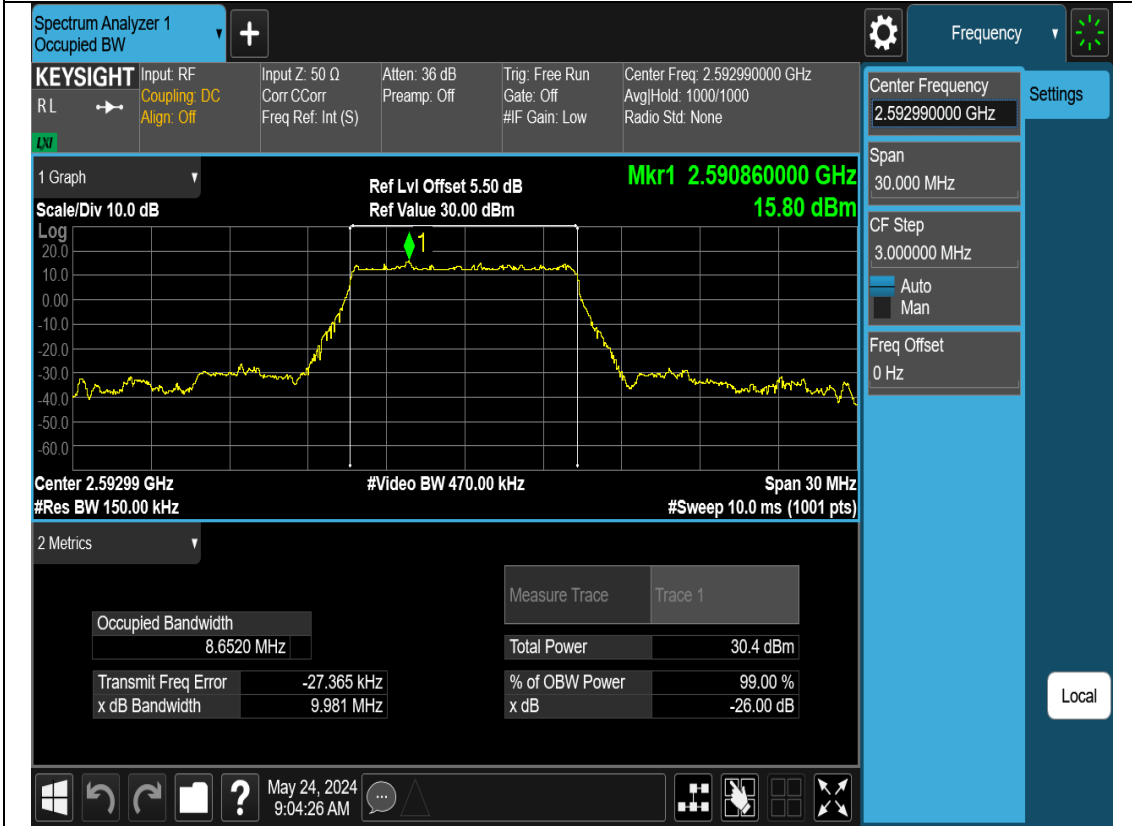


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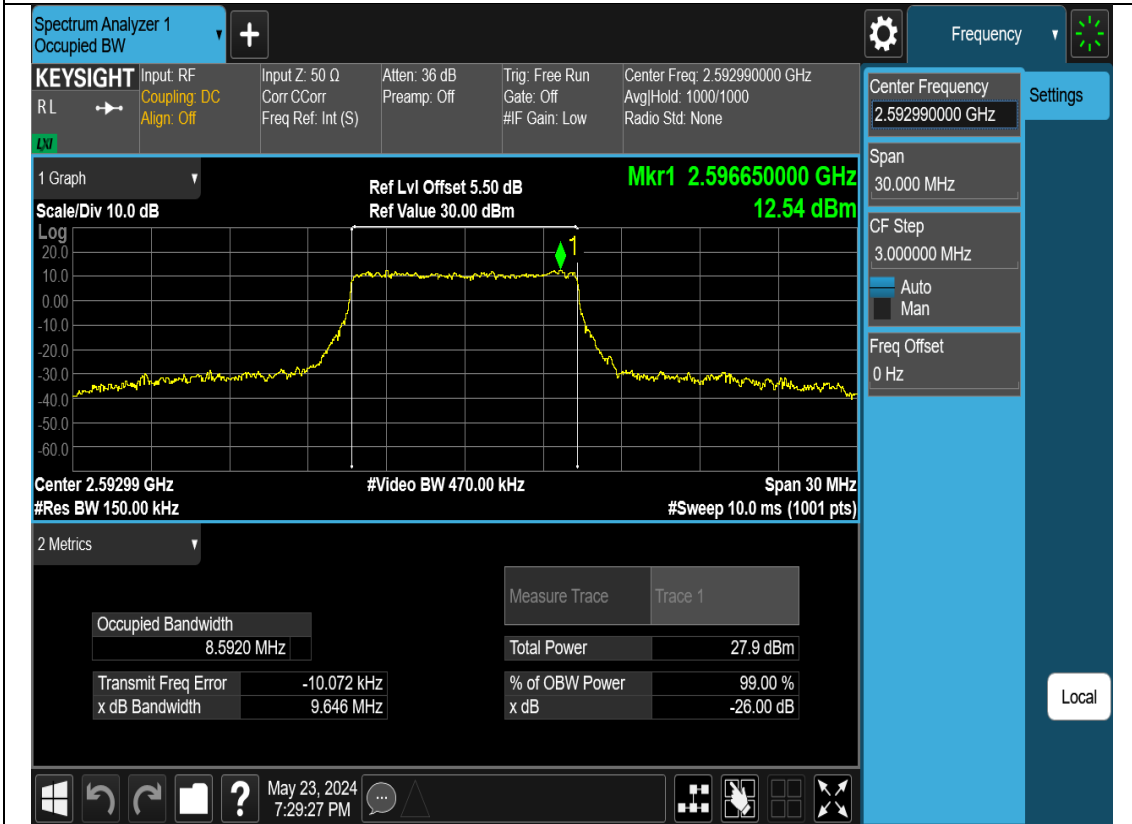




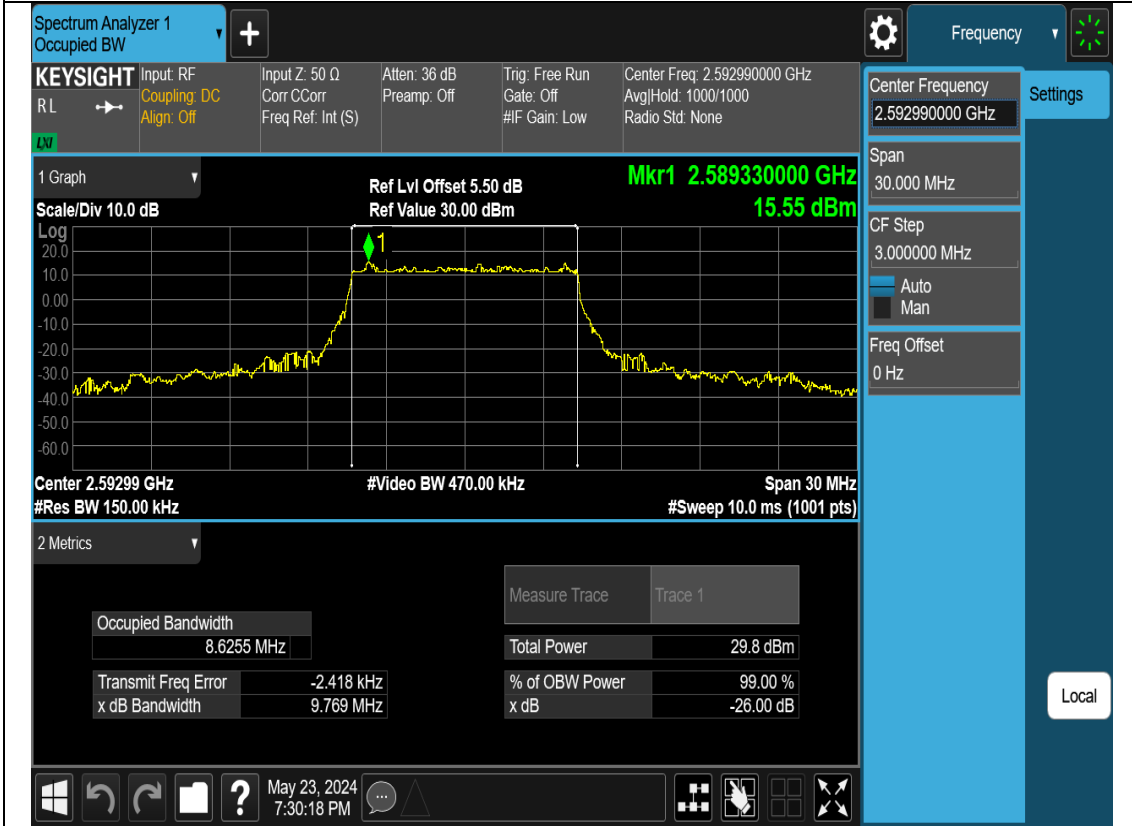
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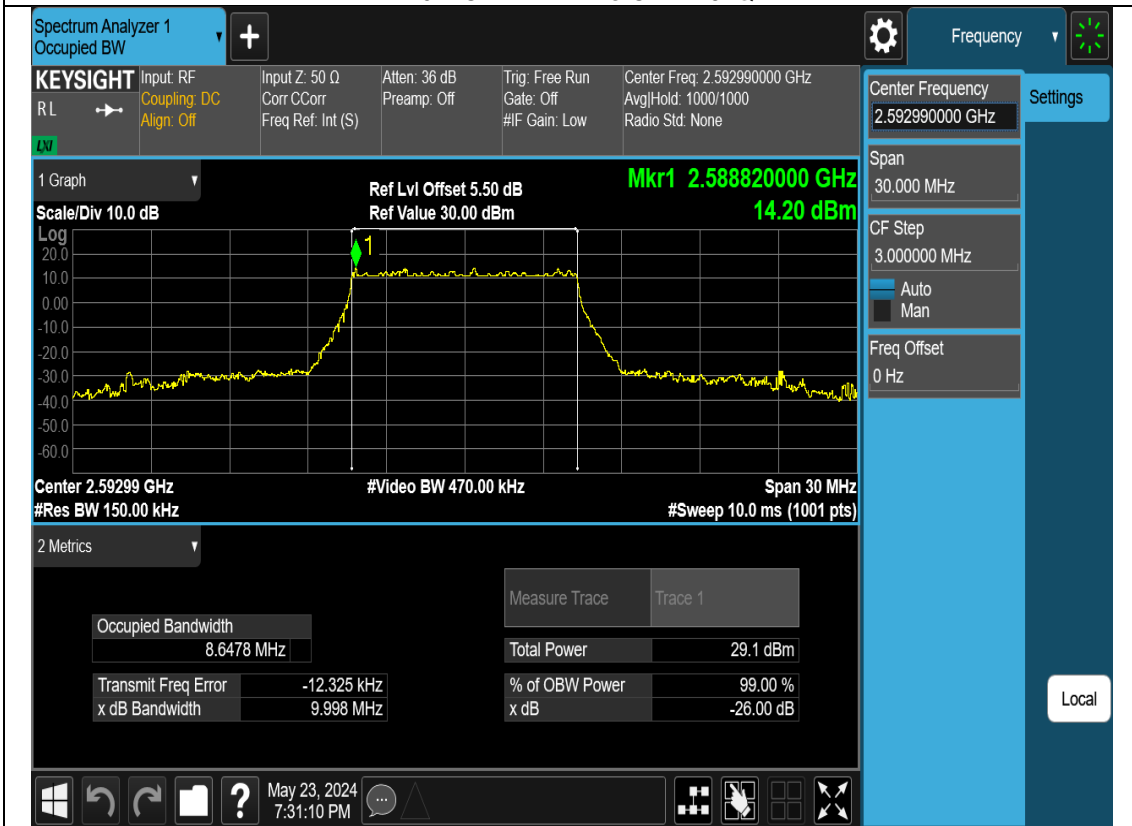
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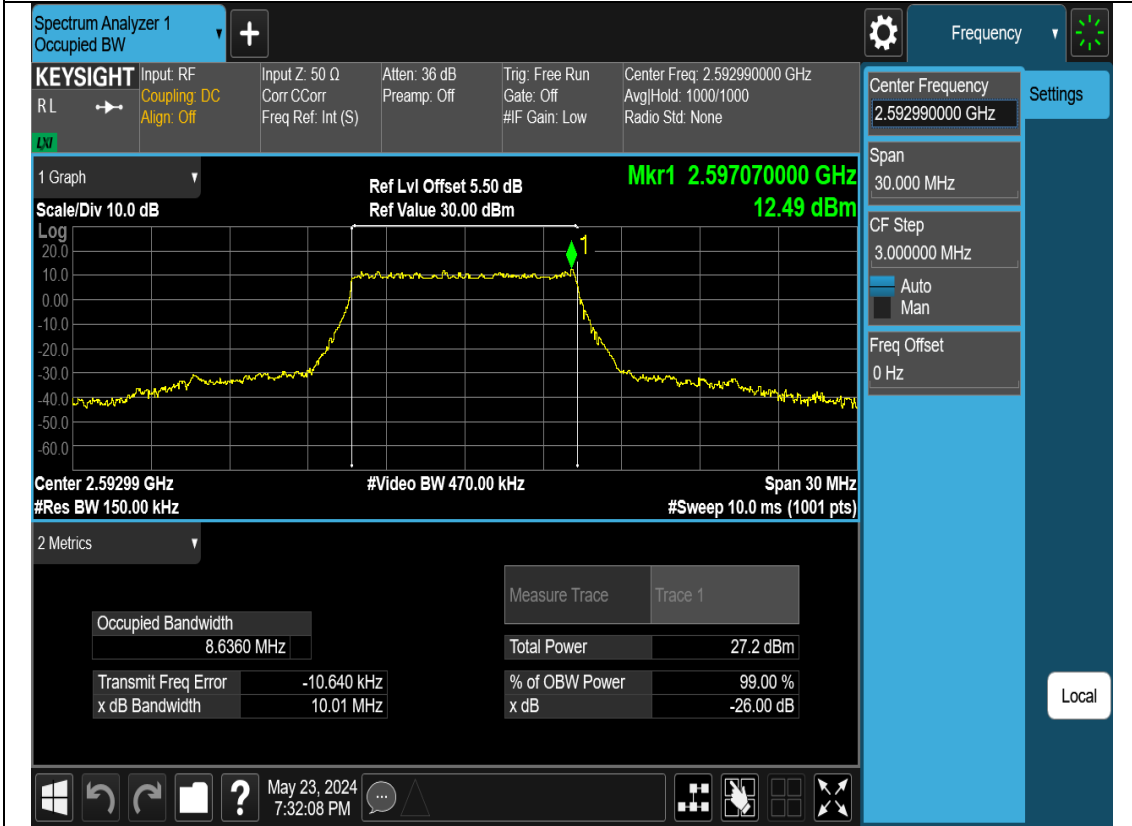
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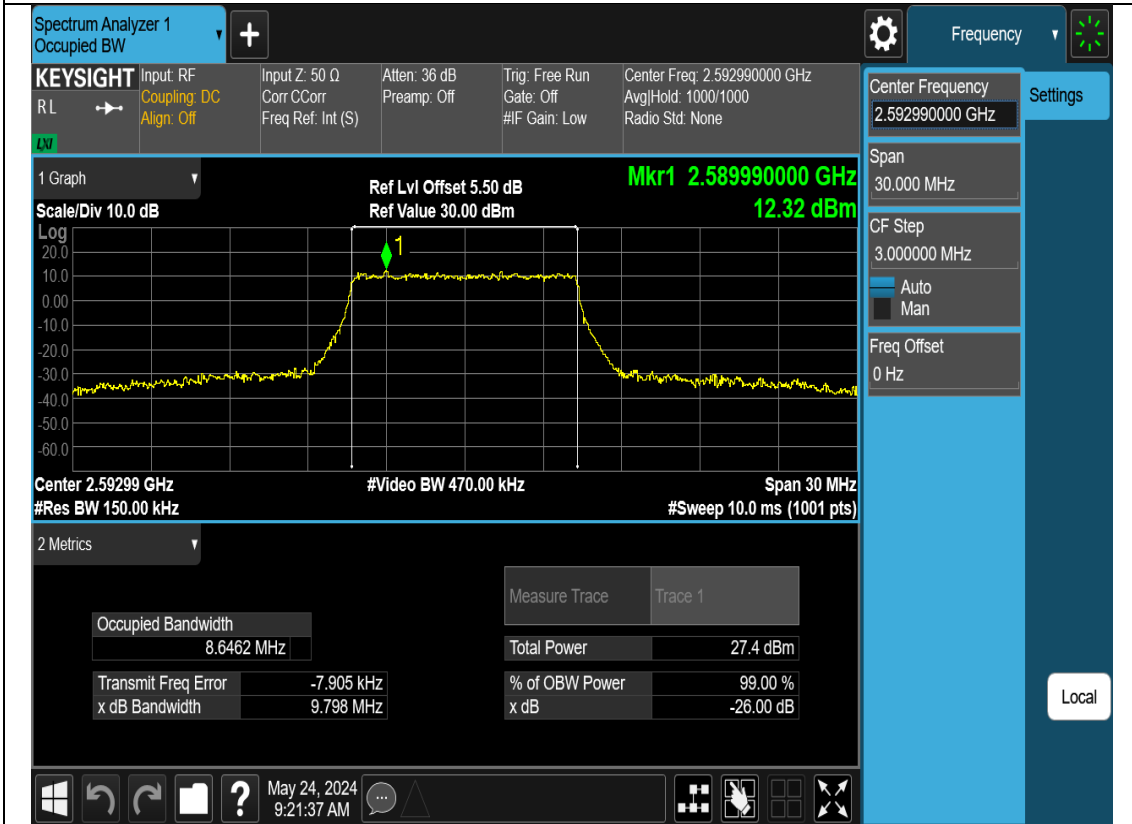
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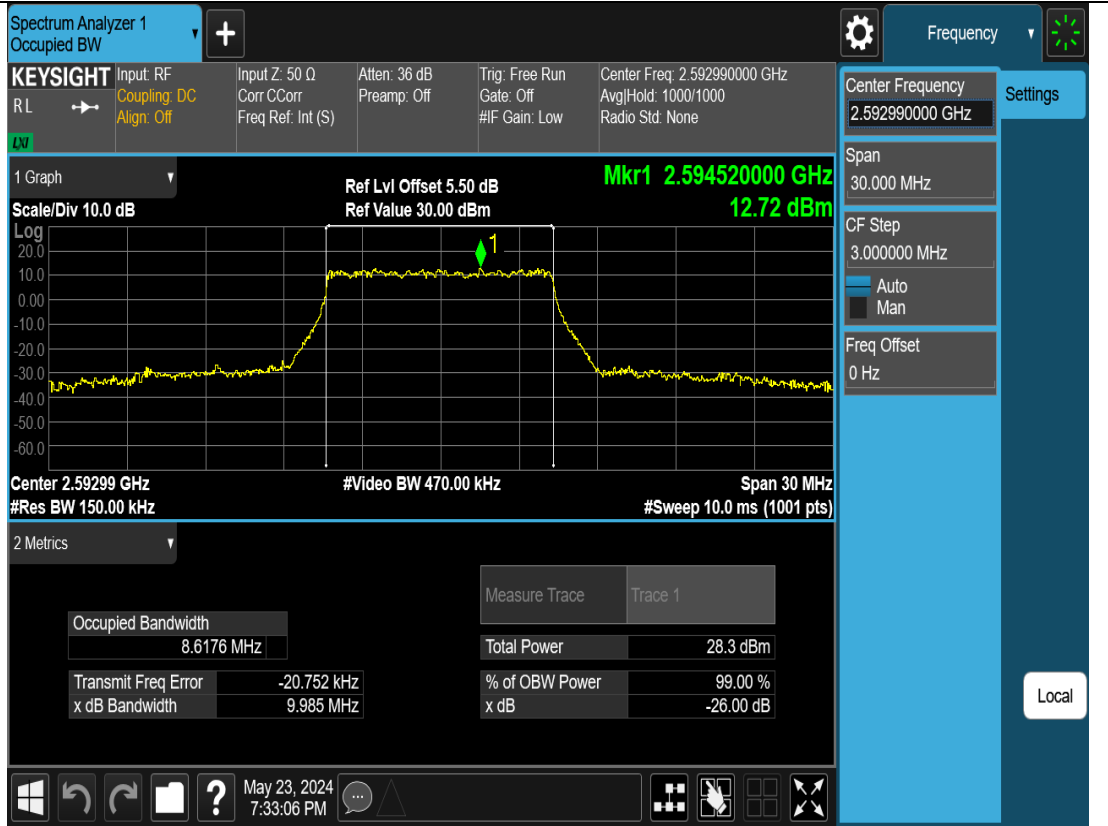
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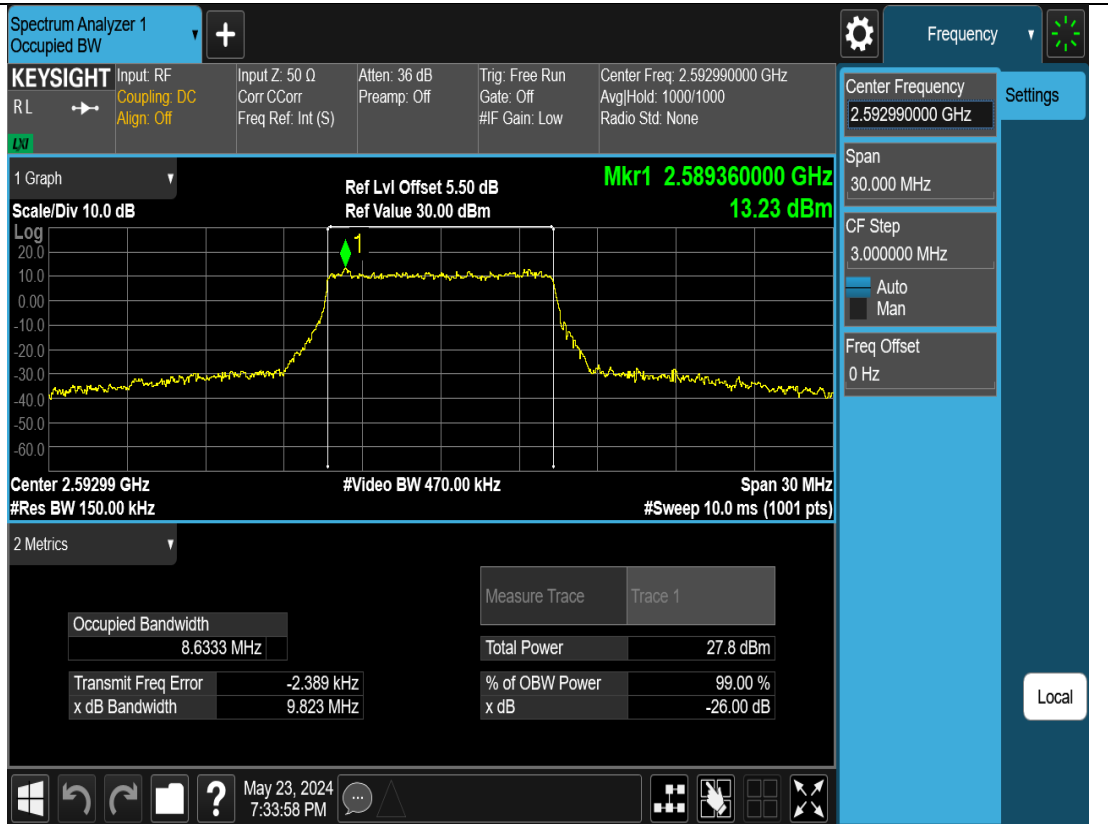
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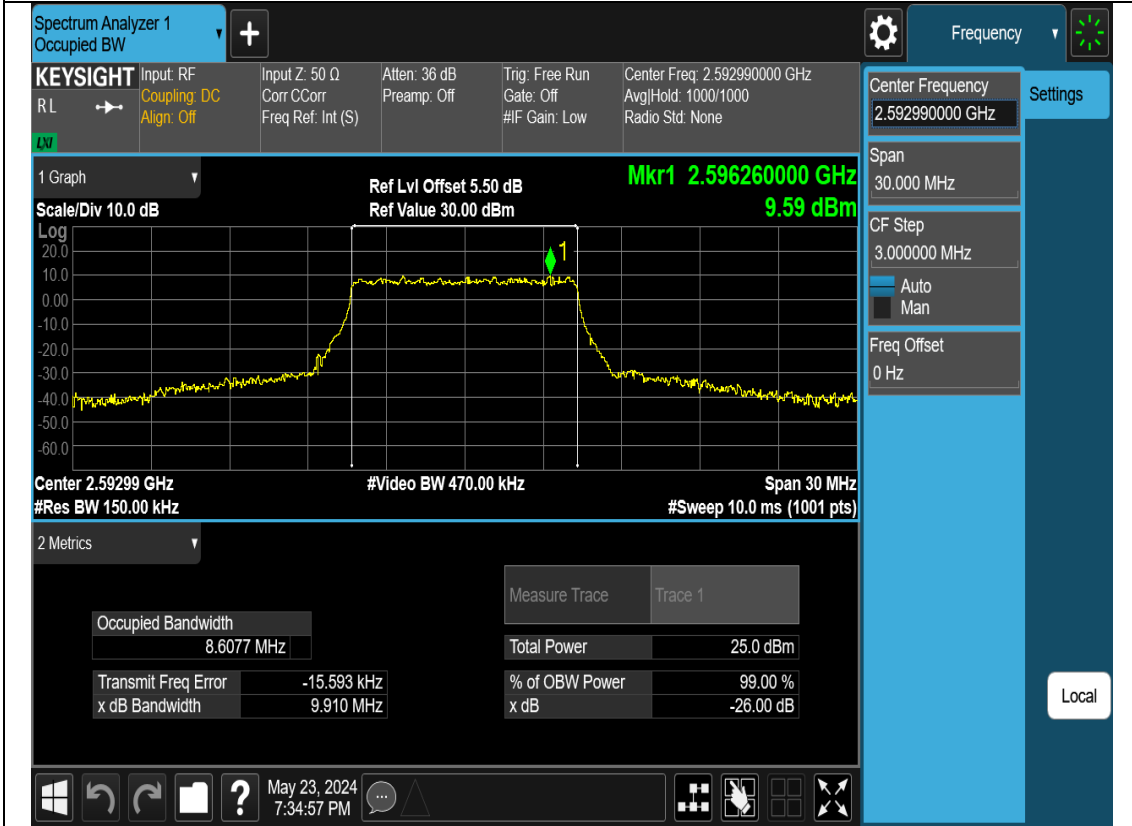
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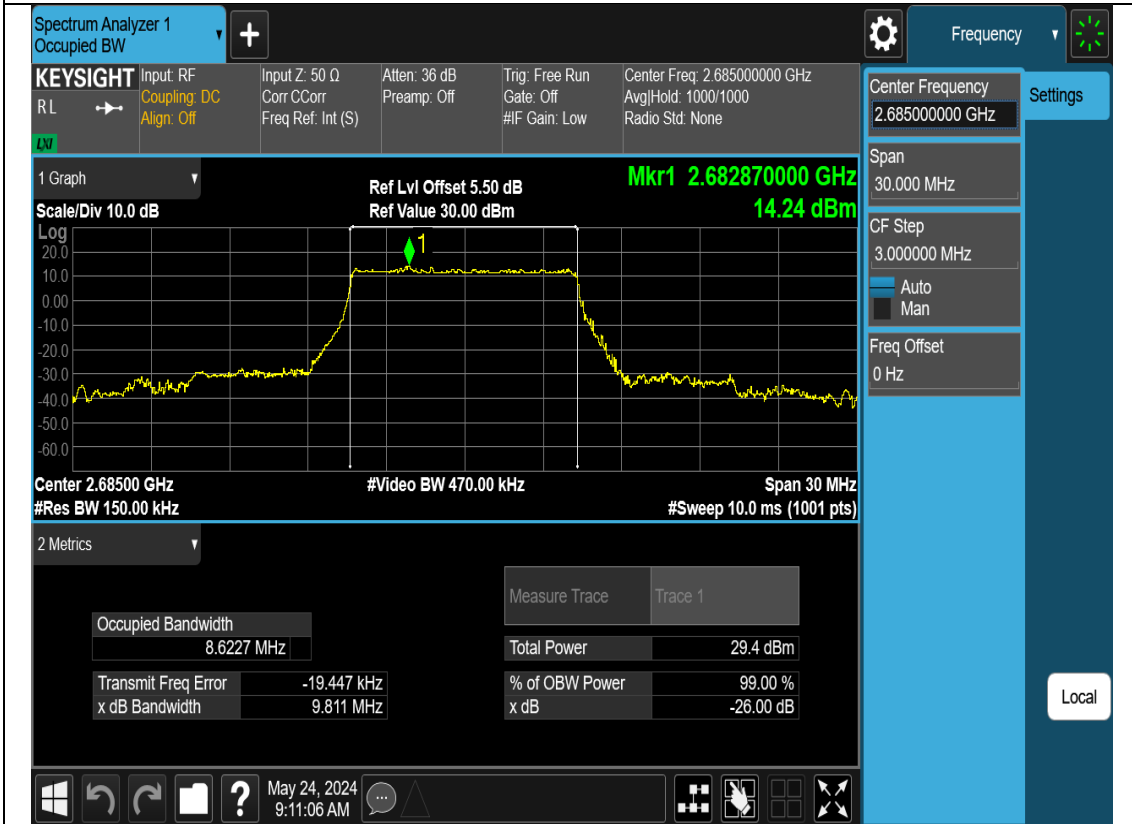
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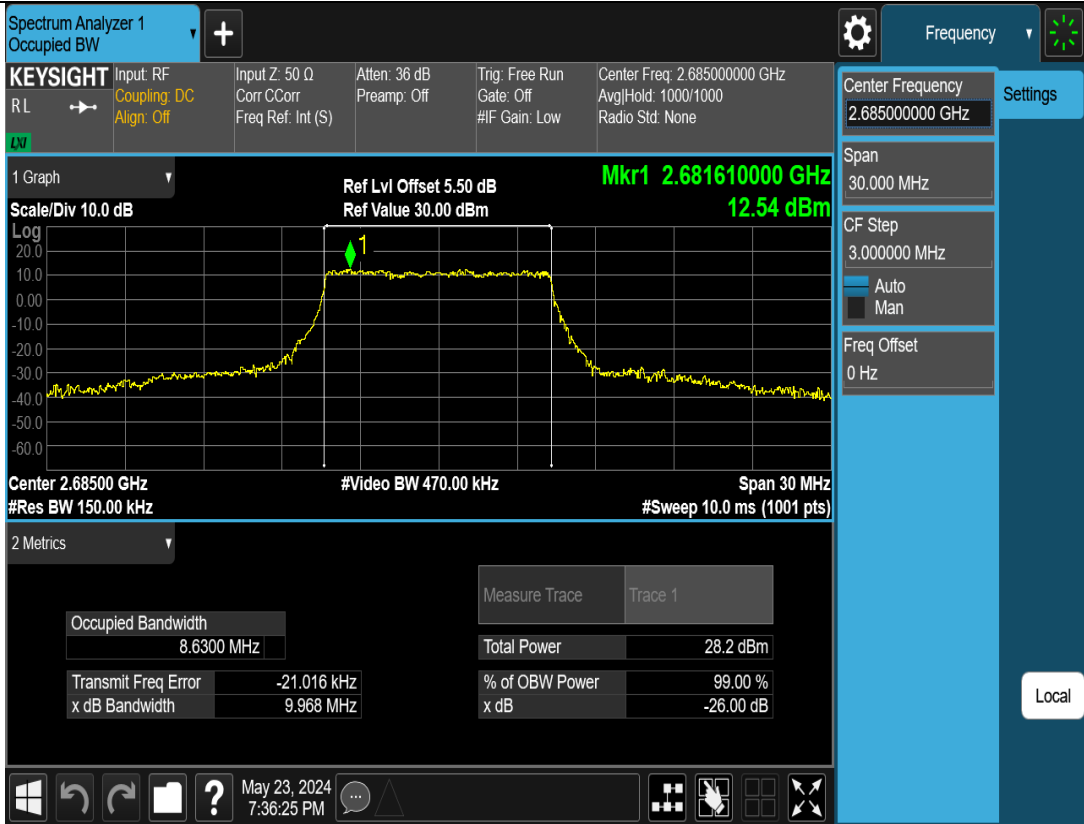
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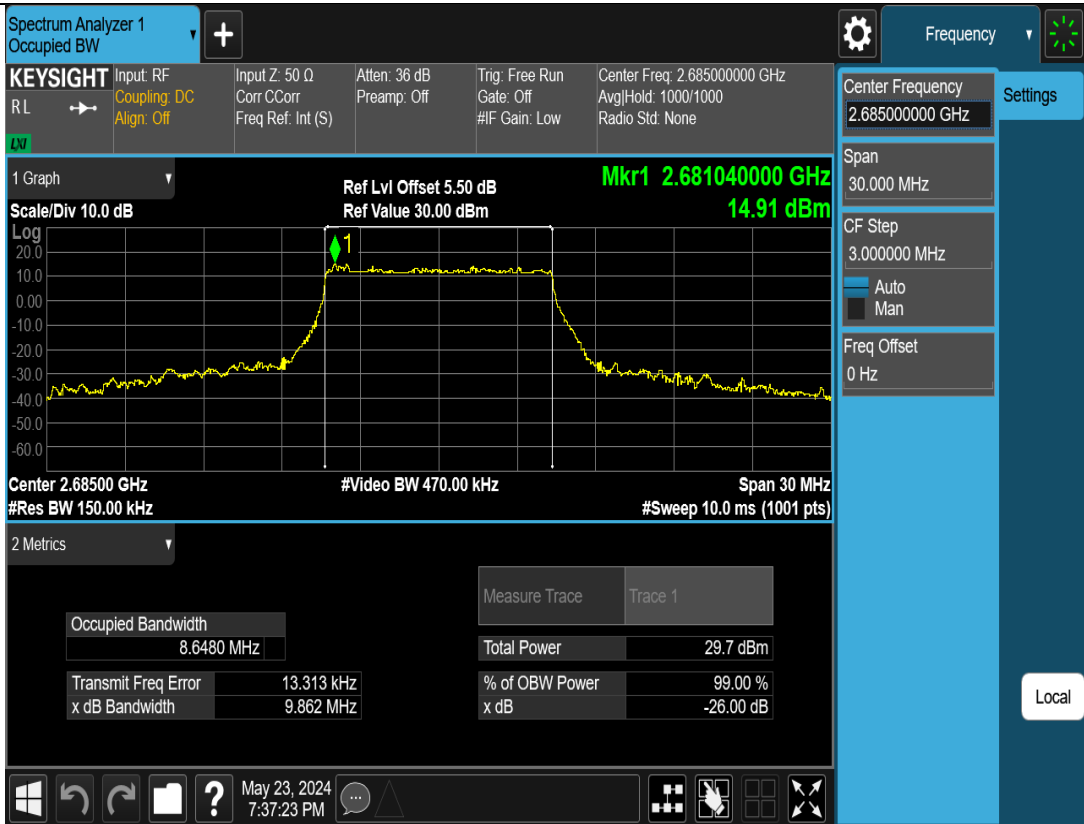
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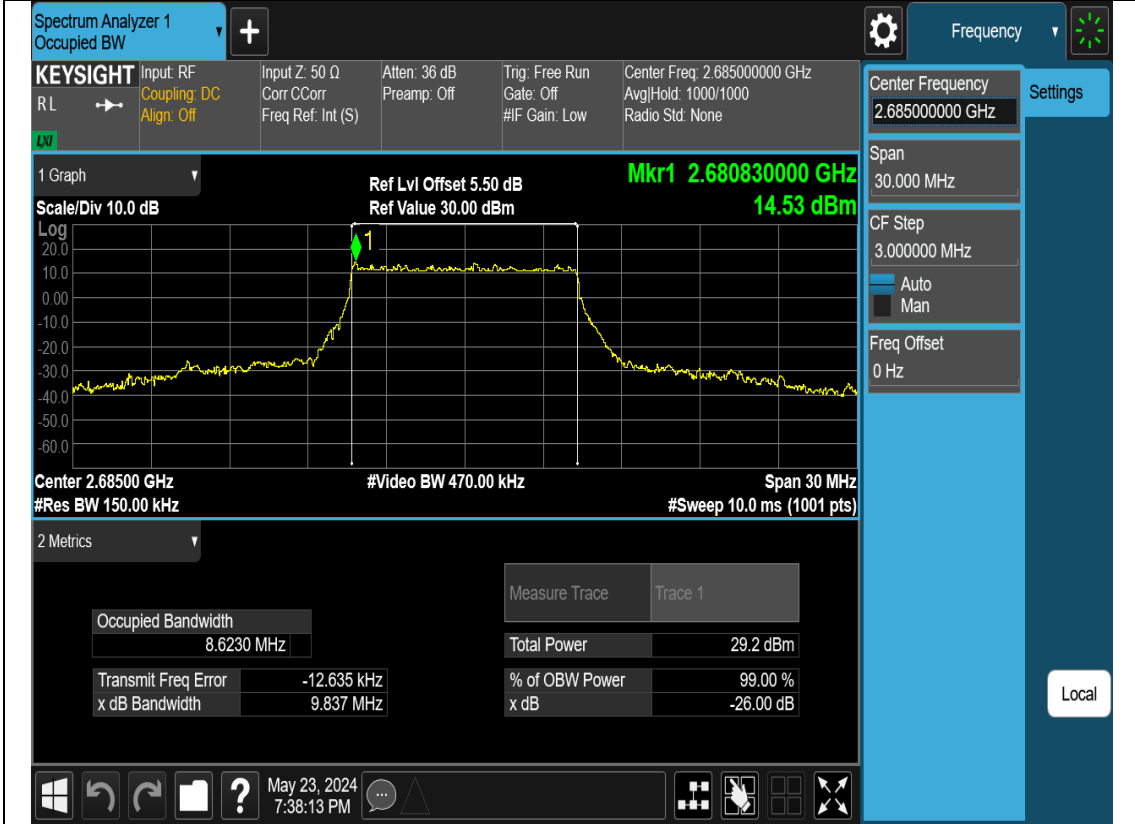
N41-10M-OBW-H-DFT-s-OFDM-QPSK



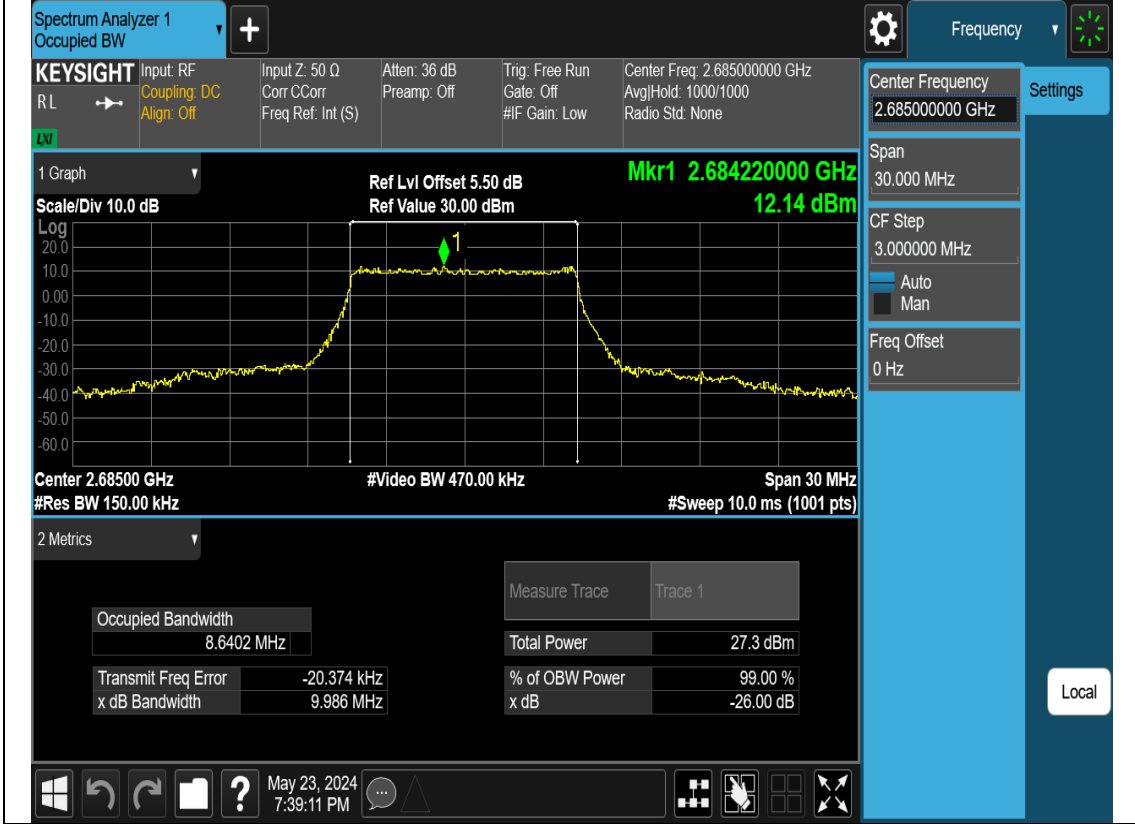
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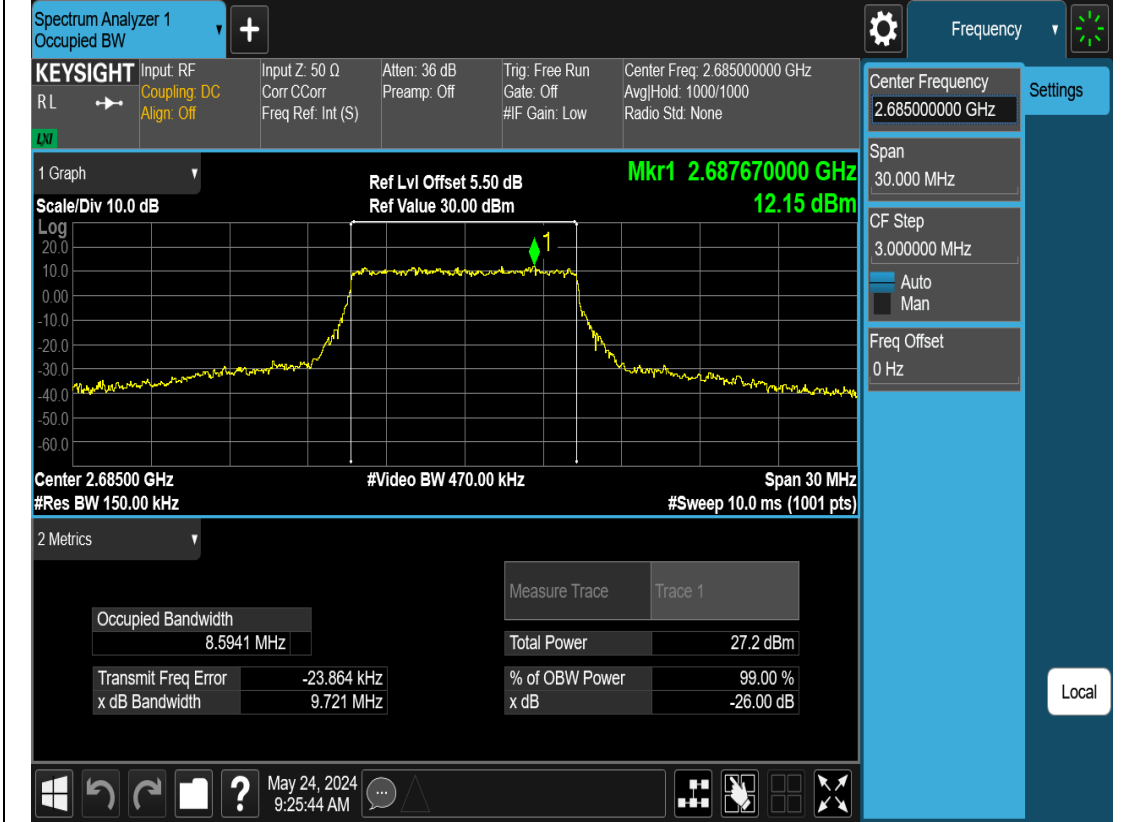
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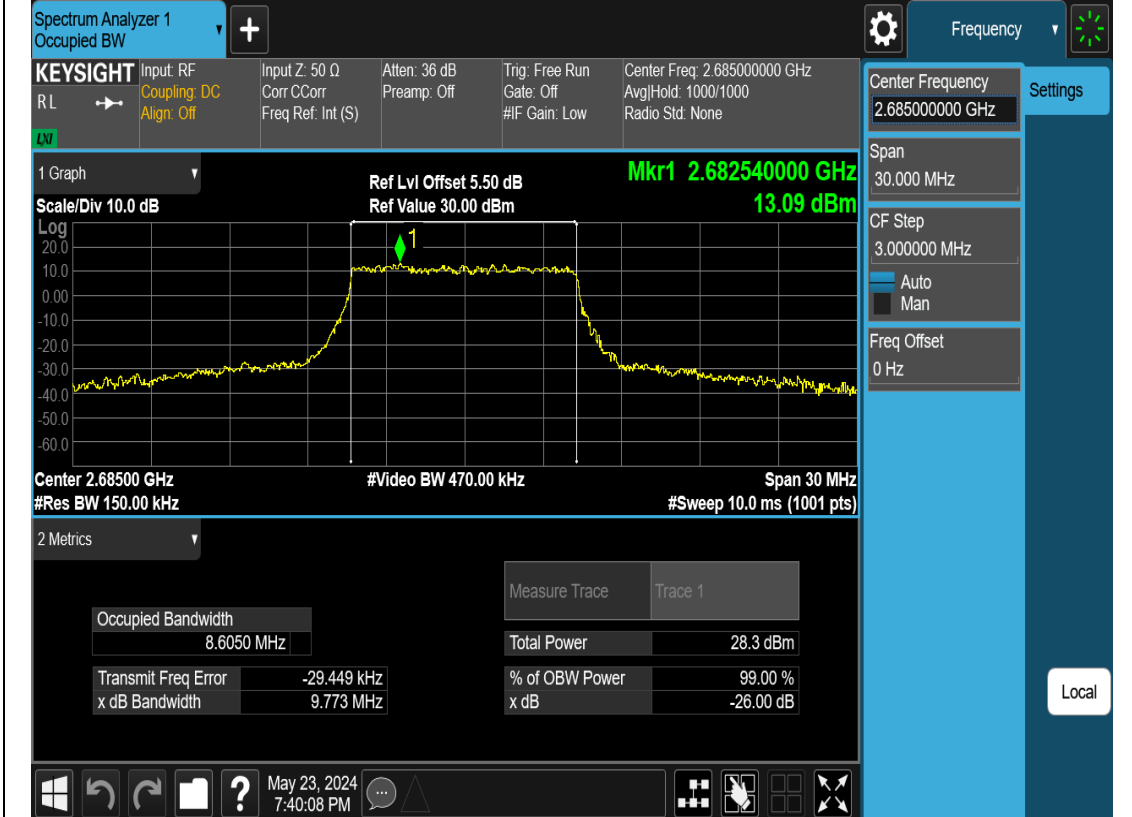
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N41-10M-OBW-H-CP-OFDM-QPSK

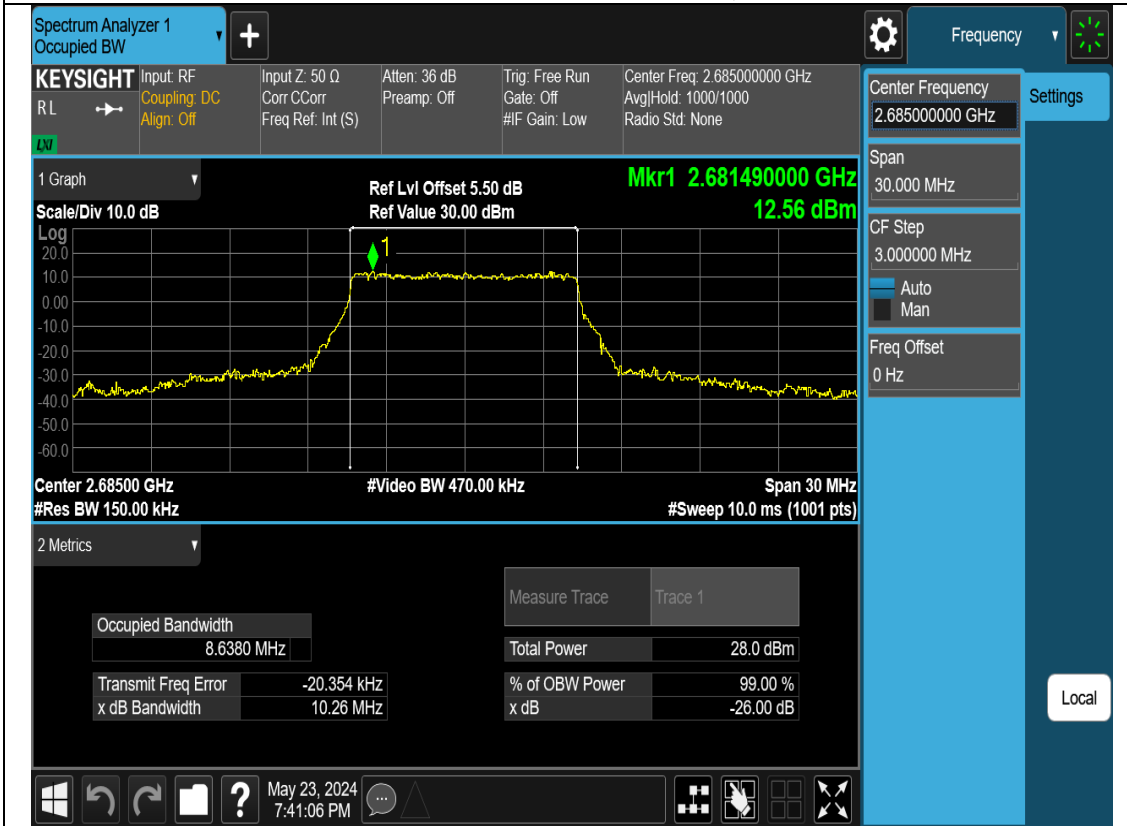


N41-10M-OBW-H-CP-OFDM-16QAM

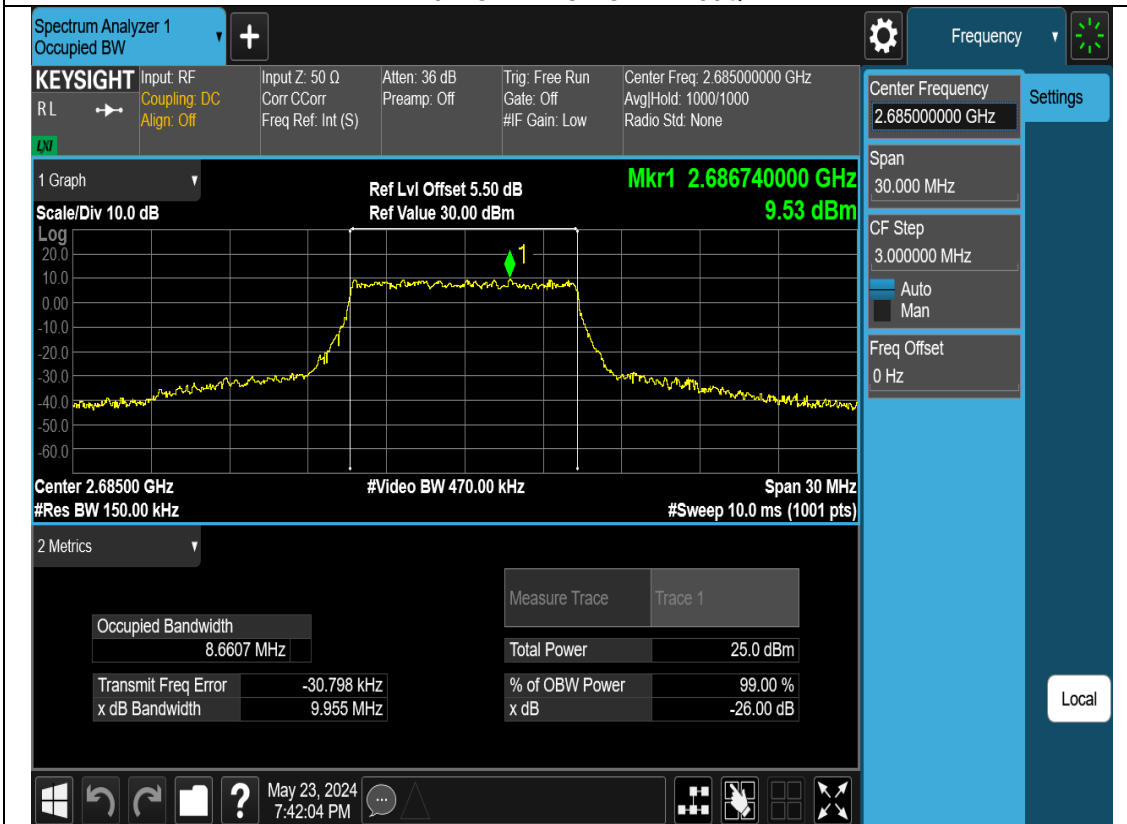




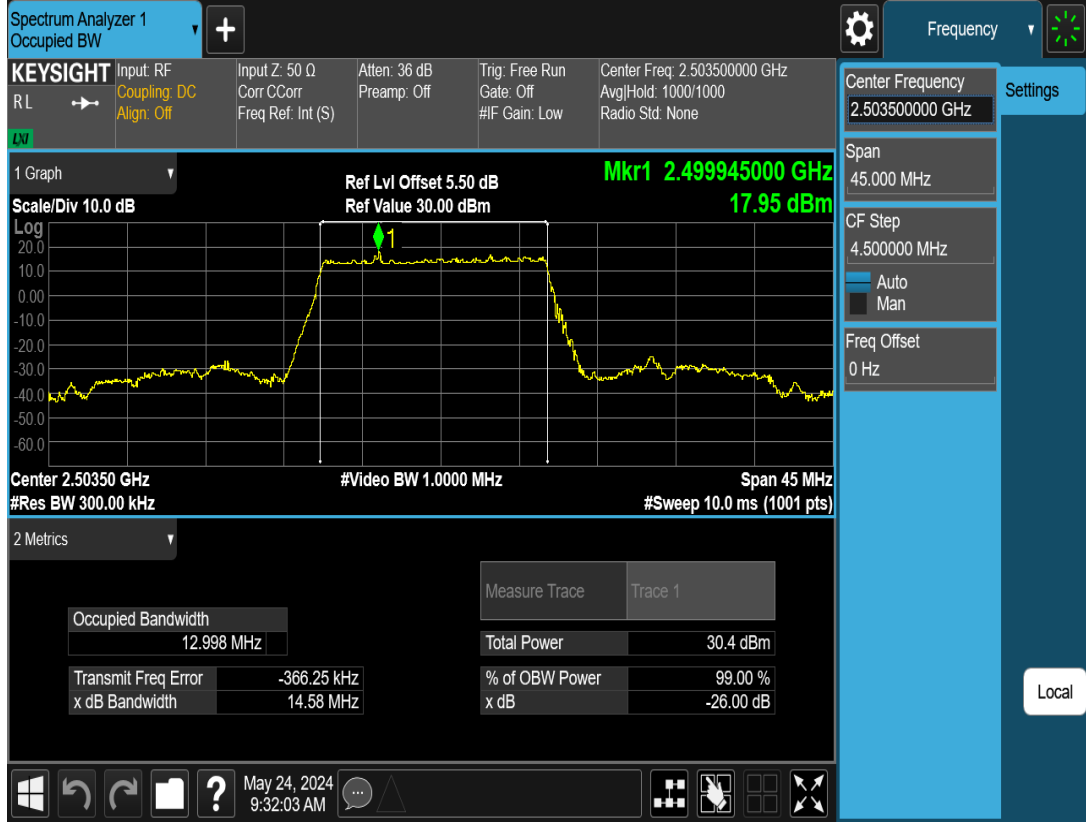
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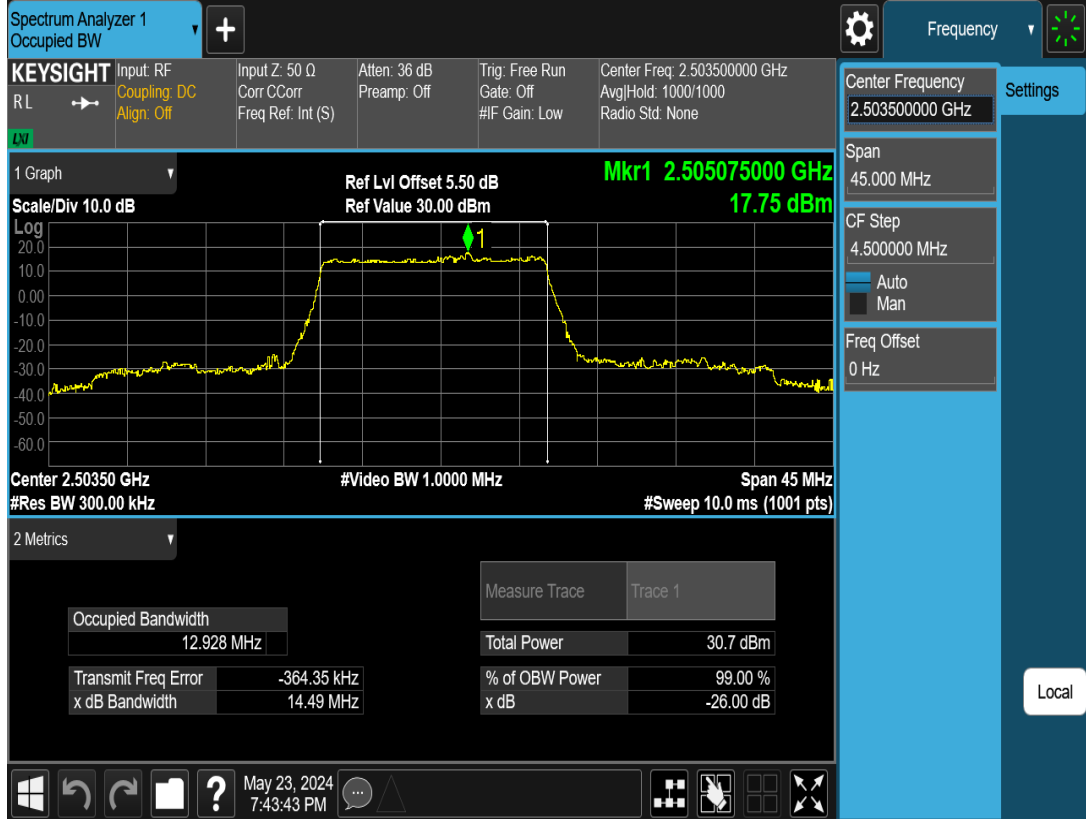
N41-10M-OBW-H-CP-OFDM-256QAM



N41-15M-OBW-L-DFT-s-OFDM-Pi2 BPSK



N41-15M-OBW-L-DFT-s-OFDM-QPSK



N41-15M-OBW-L-DFT-s-OFDM-16QAM

Spectrum Analyzer 1 Occupied BW

KEYSIGHT Input RF Input Z: 50 Ω Atten: 36 dB Trig: Free Run Center Freq: 2.503500000 GHz  
 RL Coupling: DC Corr: CCorr Preamp: Off Gate: Off Avg/Hold: 1000/1000  
 Align: Off Freq Ref: Int (S) #F Gain: Low Radio Std: None

1 Graph Scale/Div 10.0 dB Ref Lvl Offset 5.50 dB Mkr1 2.506875000 GHz  
 Ref Value 30.00 dBm 15.52 dBm

Center 2.50350 GHz #Res BW 300.00 kHz #Video BW 1.0000 MHz Span 45 MHz #Sweep 10.0 ms (1001 pts)

2 Metrics

Measure Trace		Trace 1	
Occupied Bandwidth	12.970 MHz	Total Power	29.7 dBm
Transmit Freq Error	-368.81 kHz	% of OBW Power	99.00 %
x dB Bandwidth	14.68 MHz	x dB	-26.00 dB

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N41-15M-OBW-L-DFT-s-OFDM-64QAM

Spectrum Analyzer 1 Occupied BW

KEYSIGHT Input RF Input Z: 50 Ω Atten: 36 dB Trig: Free Run Center Freq: 2.503500000 GHz  
 RL Coupling: DC Corr: CCorr Preamp: Off Gate: Off Avg/Hold: 1000/1000  
 Align: Off Freq Ref: Int (S) #F Gain: Low Radio Std: None

1 Graph Scale/Div 10.0 dB Ref Lvl Offset 5.50 dB Mkr1 2.508225000 GHz  
 Ref Value 30.00 dBm 15.63 dBm

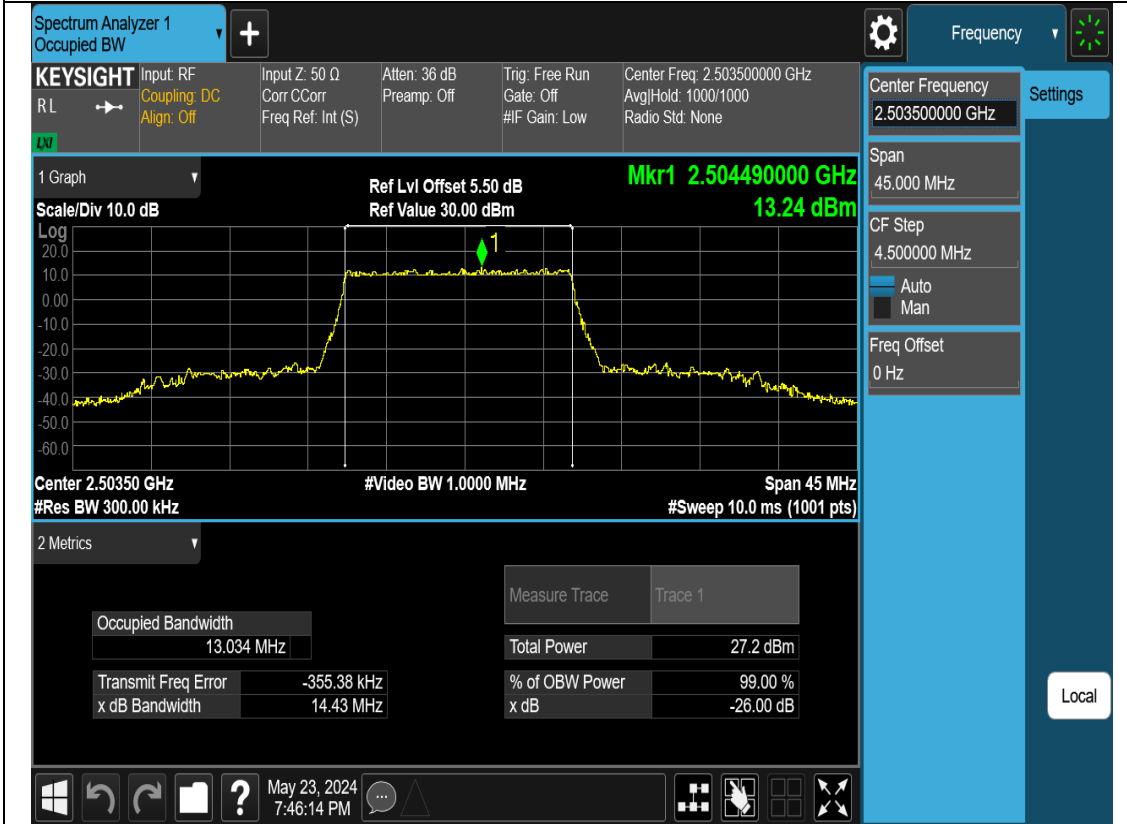
Center 2.50350 GHz #Res BW 300.00 kHz #Video BW 1.0000 MHz Span 45 MHz #Sweep 10.0 ms (1001 pts)

2 Metrics

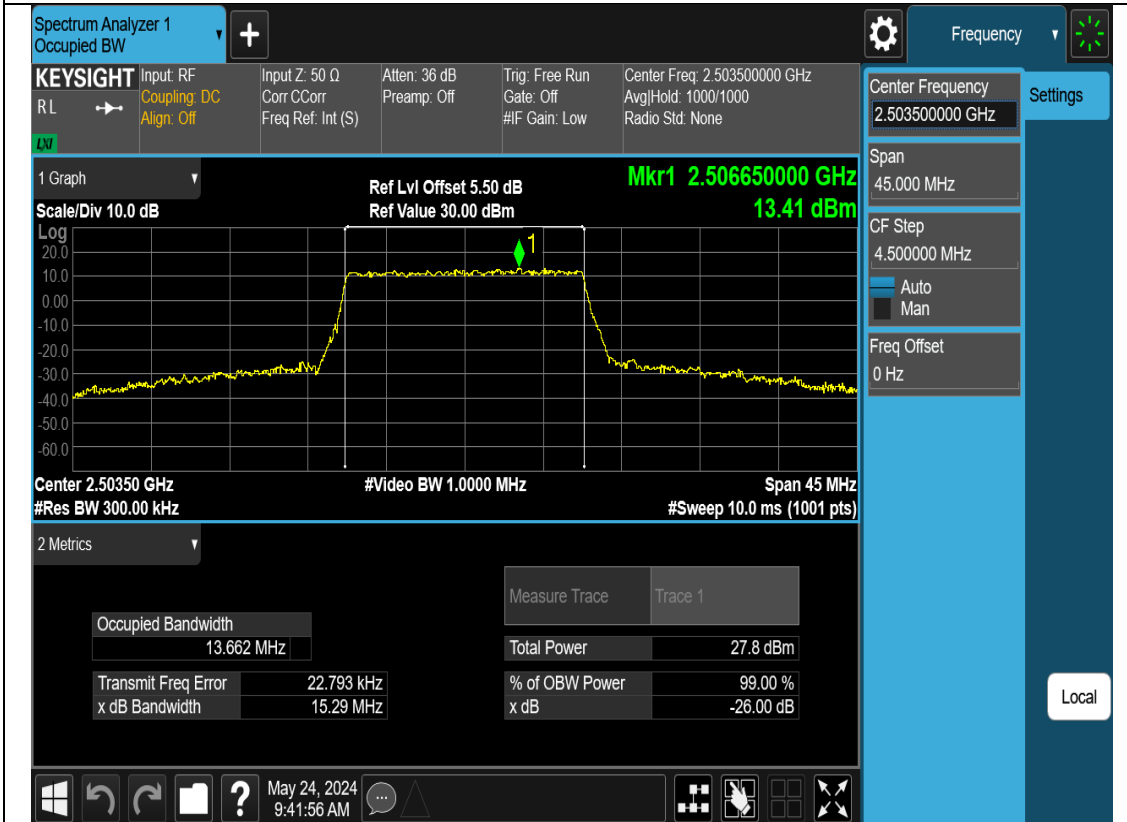
Measure Trace		Trace 1	
Occupied Bandwidth	12.945 MHz	Total Power	29.3 dBm
Transmit Freq Error	-338.08 kHz	% of OBW Power	99.00 %
x dB Bandwidth	14.55 MHz	x dB	-26.00 dB

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N41-15M-OBW-L-DFT-s-OFDM-256QAM



N41-15M-OBW-L-CP-OFDM-QPSK



N41-15M-OBW-L-CP-OFDM-16QAM

Spectrum Analyzer 1 Occupied BW

KEYSIGHT Input RF Input Z: 50 Ω Atten: 36 dB Trig: Free Run Center Freq: 2.503500000 GHz  
 RL Coupling: DC Corr: CCorr Preamp: Off Gate: Off Avg/Hold: 1000/1000  
 Align: Off Freq Ref: Int (S) #F Gain: Low Radio Std: None

1 Graph Scale/Div 10.0 dB Ref Lvl Offset 5.50 dB Mkr1 2.508045000 GHz  
 Ref Value 30.00 dBm 14.43 dBm

Center 2.50350 GHz #Res BW 300.00 kHz #Video BW 1.0000 MHz Span 45 MHz #Sweep 10.0 ms (1001 pts)

2 Metrics

Measure Trace		Trace 1	
Occupied Bandwidth	13.637 MHz	Total Power	28.8 dBm
Transmit Freq Error	13.737 kHz	% of OBW Power	99.00 %
x dB Bandwidth	15.08 MHz	x dB	-26.00 dB

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N41-15M-OBW-L-CP-OFDM-64QAM

Spectrum Analyzer 1 Occupied BW

KEYSIGHT Input RF Input Z: 50 Ω Atten: 36 dB Trig: Free Run Center Freq: 2.503500000 GHz  
 RL Coupling: DC Corr: CCorr Preamp: Off Gate: Off Avg/Hold: 1000/1000  
 Align: Off Freq Ref: Int (S) #F Gain: Low Radio Std: None

1 Graph Scale/Div 10.0 dB Ref Lvl Offset 5.50 dB Mkr1 2.507460000 GHz  
 Ref Value 30.00 dBm 14.74 dBm

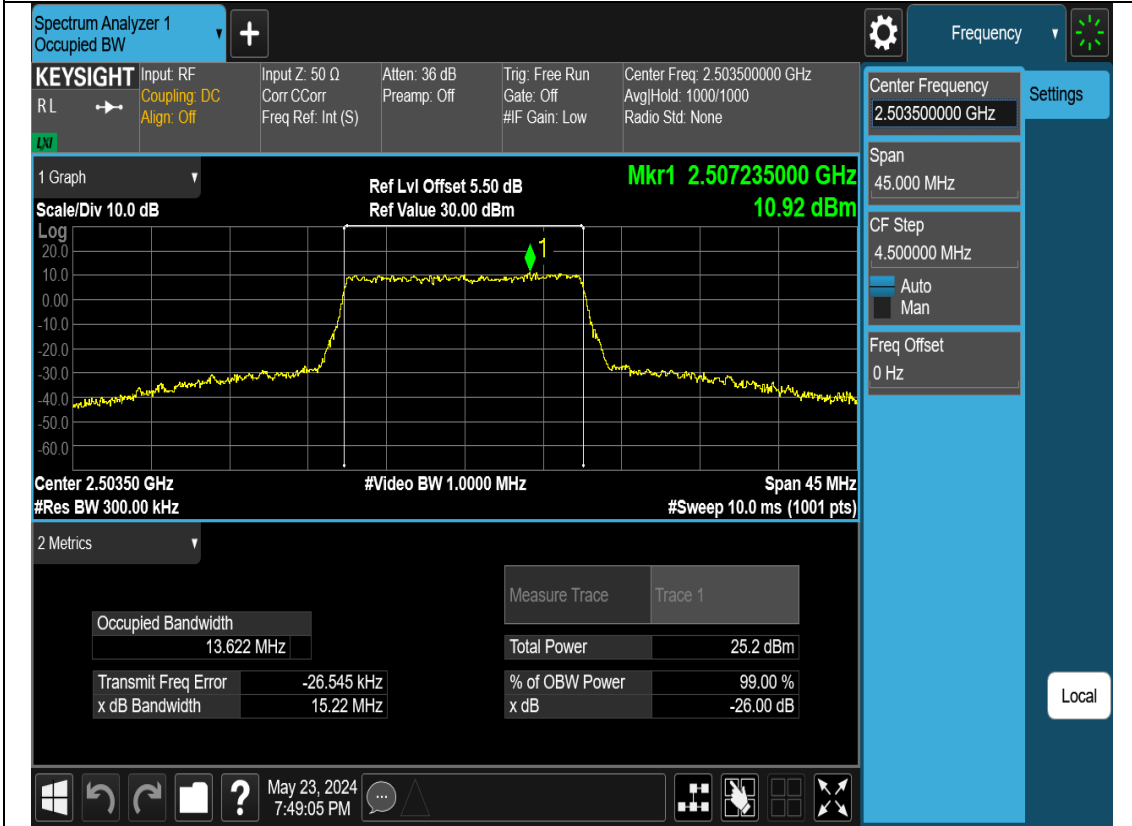
Center 2.50350 GHz #Res BW 300.00 kHz #Video BW 1.0000 MHz Span 45 MHz #Sweep 10.0 ms (1001 pts)

2 Metrics

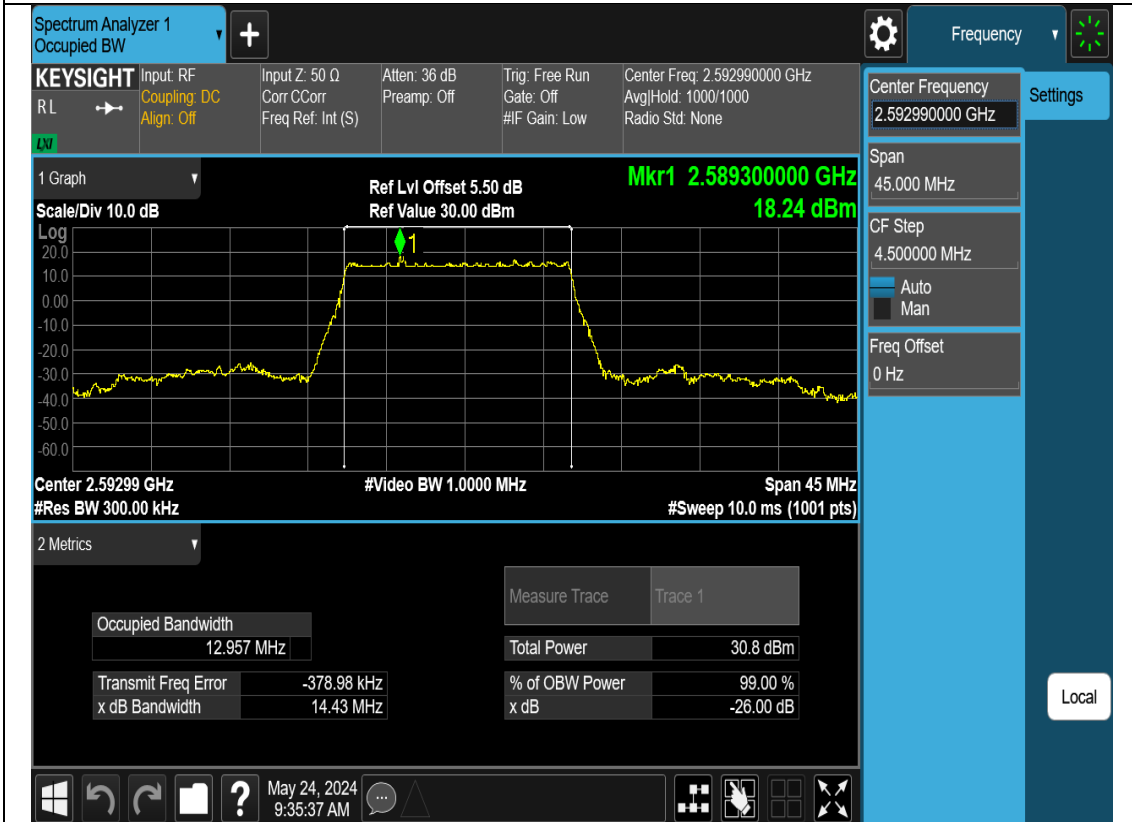
Measure Trace		Trace 1	
Occupied Bandwidth	13.663 MHz	Total Power	28.2 dBm
Transmit Freq Error	-13.881 kHz	% of OBW Power	99.00 %
x dB Bandwidth	15.18 MHz	x dB	-26.00 dB

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N41-15M-OBW-L-CP-OFDM-256QAM



N41-15M-OBW-M-DFT-s-OFDM-Pi2 BPSK



N41-15M-OBW-M-DFT-s-OFDM-QPSK

Spectrum Analyzer 1  
Occupied BW

KEYSIGHT Input RF  
RL Coupling: DC  
Align: Off

Input Z: 50 Ω  
Corr: CCorr  
Freq Ref: Int (S)

Atten: 36 dB  
Preamp: Off

Trig: Free Run  
Gate: Off  
#F Gain: Low

Center Freq: 2.592990000 GHz  
Avg/Hold: 1000/1000  
Radio Std: None

Center Frequency: 2.592990000 GHz  
Span: 45.000 MHz  
CF Step: 4.500000 MHz  
Auto Man  
Freq Offset: 0 Hz

1 Graph  
Scale/Div 10.0 dB  
Log  
Ref Lvl Offset 5.50 dB  
Ref Value 30.00 dBm  
Mkr1 2.594520000 GHz  
18.01 dBm

Center 2.59299 GHz  
#Res BW 300.00 kHz  
#Video BW 1.0000 MHz  
Span 45 MHz  
#Sweep 10.0 ms (1001 pts)

2 Metrics

Measure Trace		Trace 1	
Occupied Bandwidth	12.935 MHz	Total Power	31.1 dBm
Transmit Freq Error	-374.79 kHz	% of OBW Power	99.00 %
x dB Bandwidth	14.45 MHz	x dB	-26.00 dB

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7:50:12 PM

Local

N41-15M-OBW-M-DFT-s-OFDM-16QAM

Spectrum Analyzer 1  
Occupied BW

KEYSIGHT Input RF  
RL Coupling: DC  
Align: Off

Input Z: 50 Ω  
Corr: CCorr  
Freq Ref: Int (S)

Atten: 36 dB  
Preamp: Off

Trig: Free Run  
Gate: Off  
#F Gain: Low

Center Freq: 2.592990000 GHz  
Avg/Hold: 1000/1000  
Radio Std: None

Center Frequency: 2.592990000 GHz  
Span: 45.000 MHz  
CF Step: 4.500000 MHz  
Auto Man  
Freq Offset: 0 Hz

1 Graph  
Scale/Div 10.0 dB  
Log  
Ref Lvl Offset 5.50 dB  
Ref Value 30.00 dBm  
Mkr1 2.589390000 GHz  
15.75 dBm

Center 2.59299 GHz  
#Res BW 300.00 kHz  
#Video BW 1.0000 MHz  
Span 45 MHz  
#Sweep 10.0 ms (1001 pts)

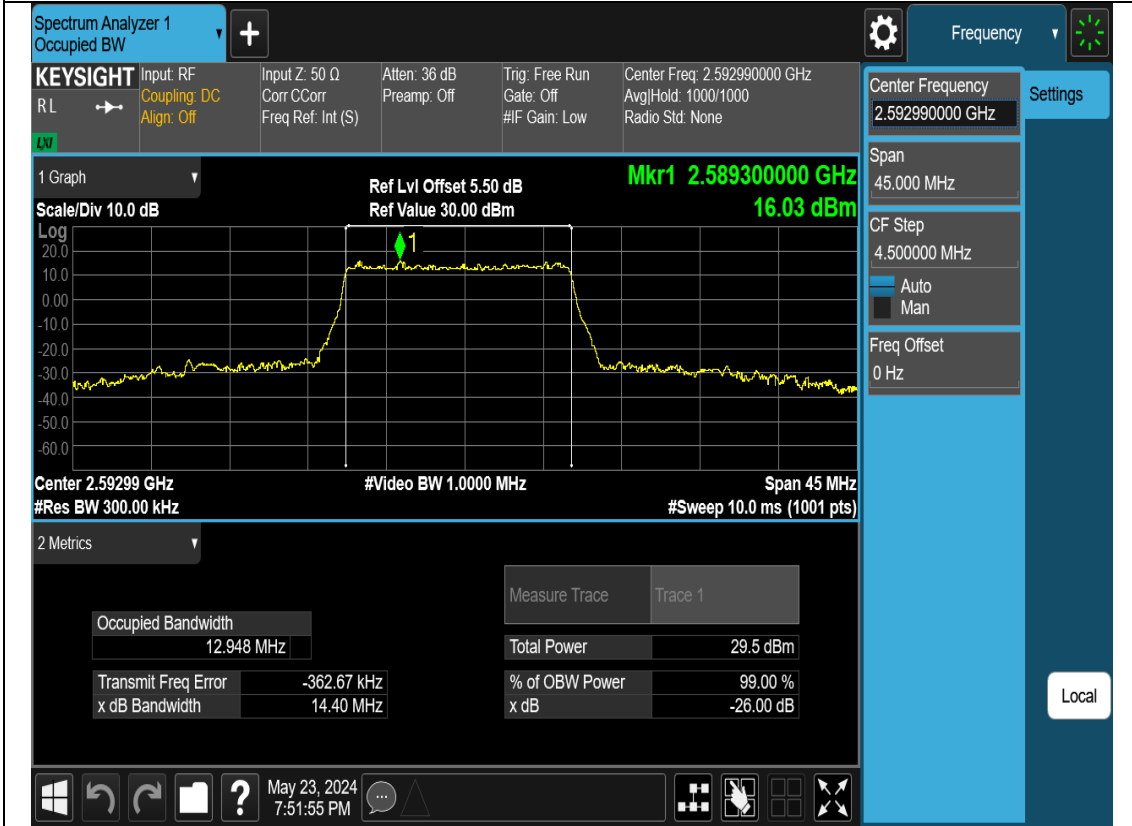
2 Metrics

Measure Trace		Trace 1	
Occupied Bandwidth	12.940 MHz	Total Power	30.1 dBm
Transmit Freq Error	-377.53 kHz	% of OBW Power	99.00 %
x dB Bandwidth	14.55 MHz	x dB	-26.00 dB

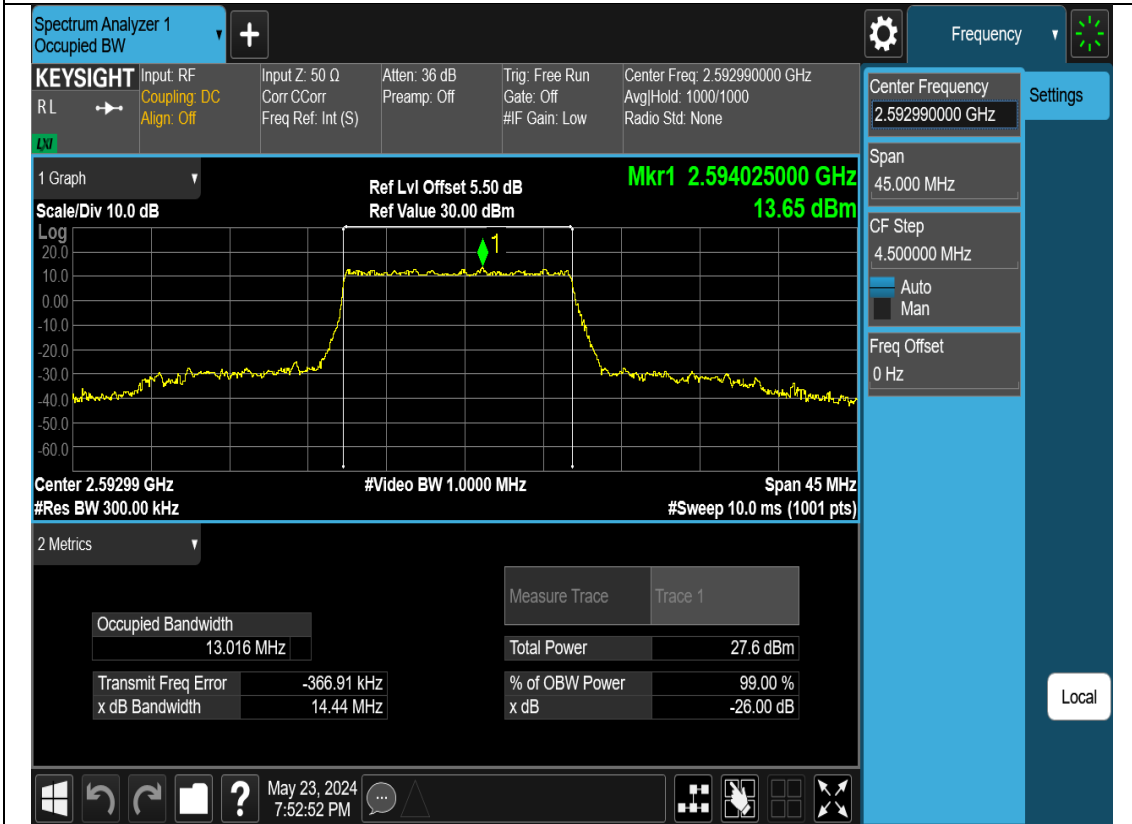
May 23, 2024  
7:51:02 PM

Local

N41-15M-OBW-M-DFT-s-OFDM-64QAM

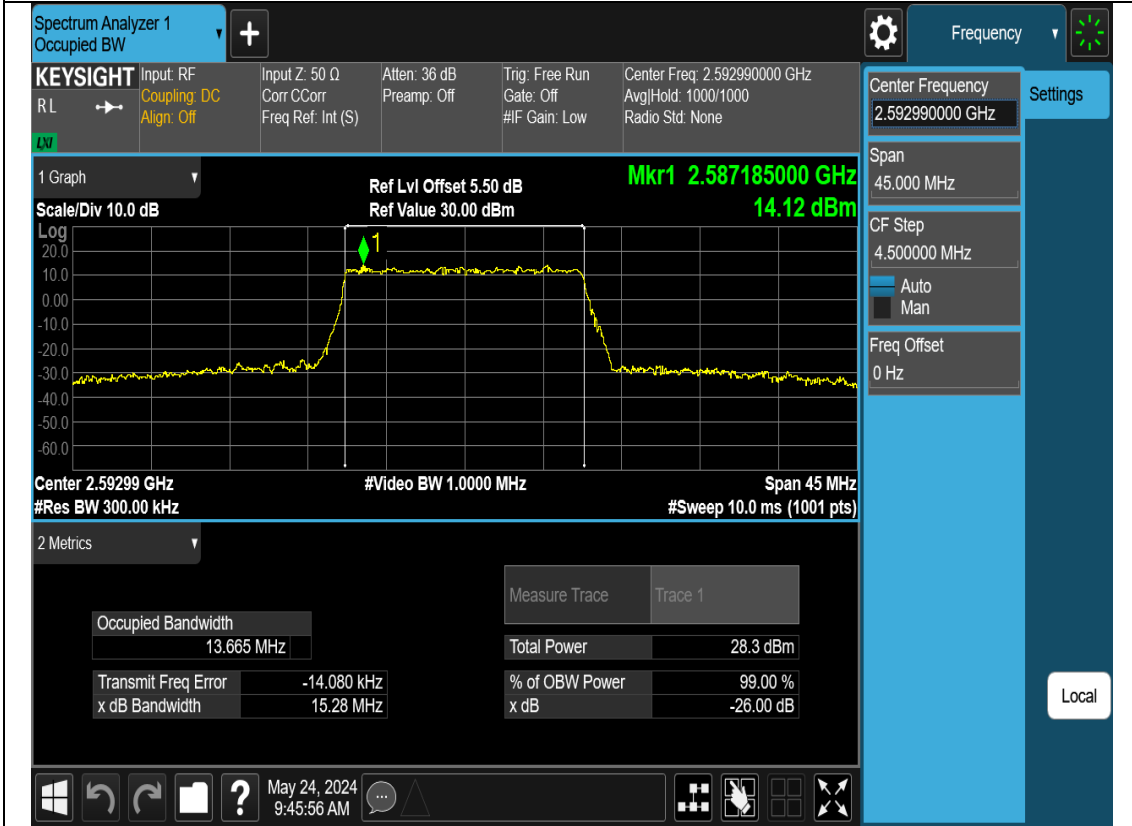


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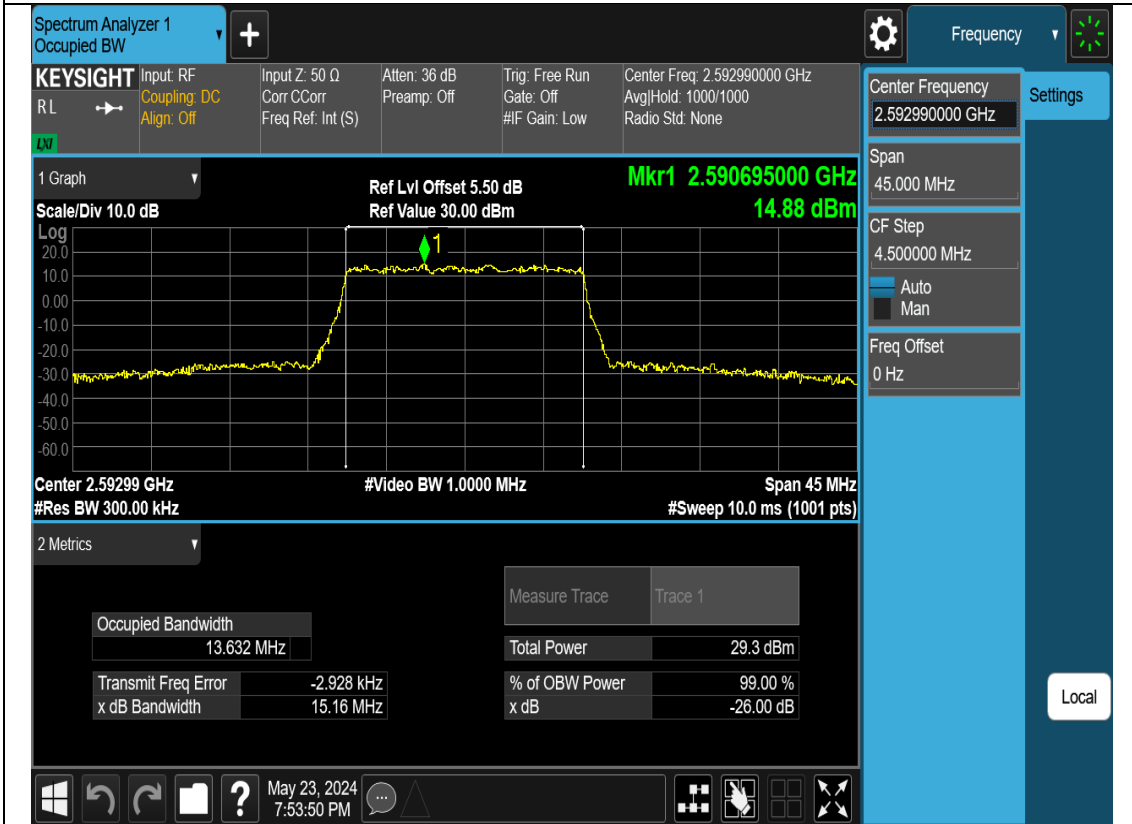




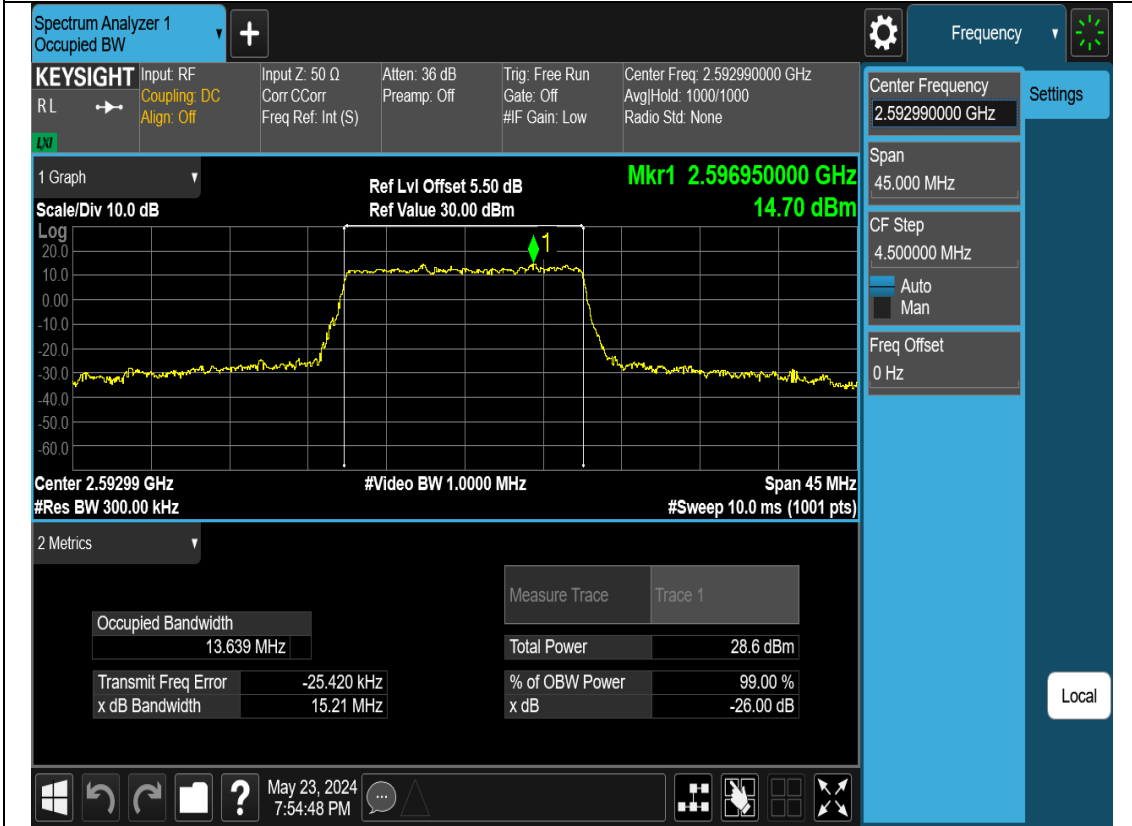
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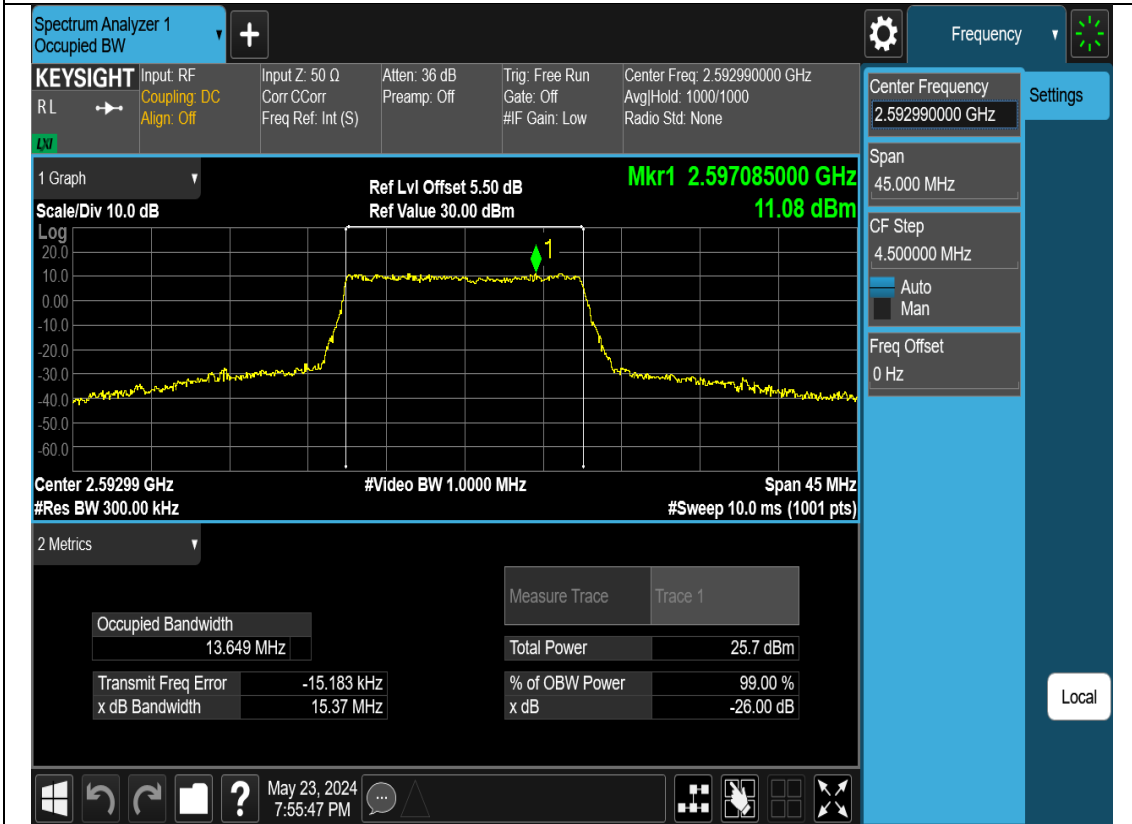
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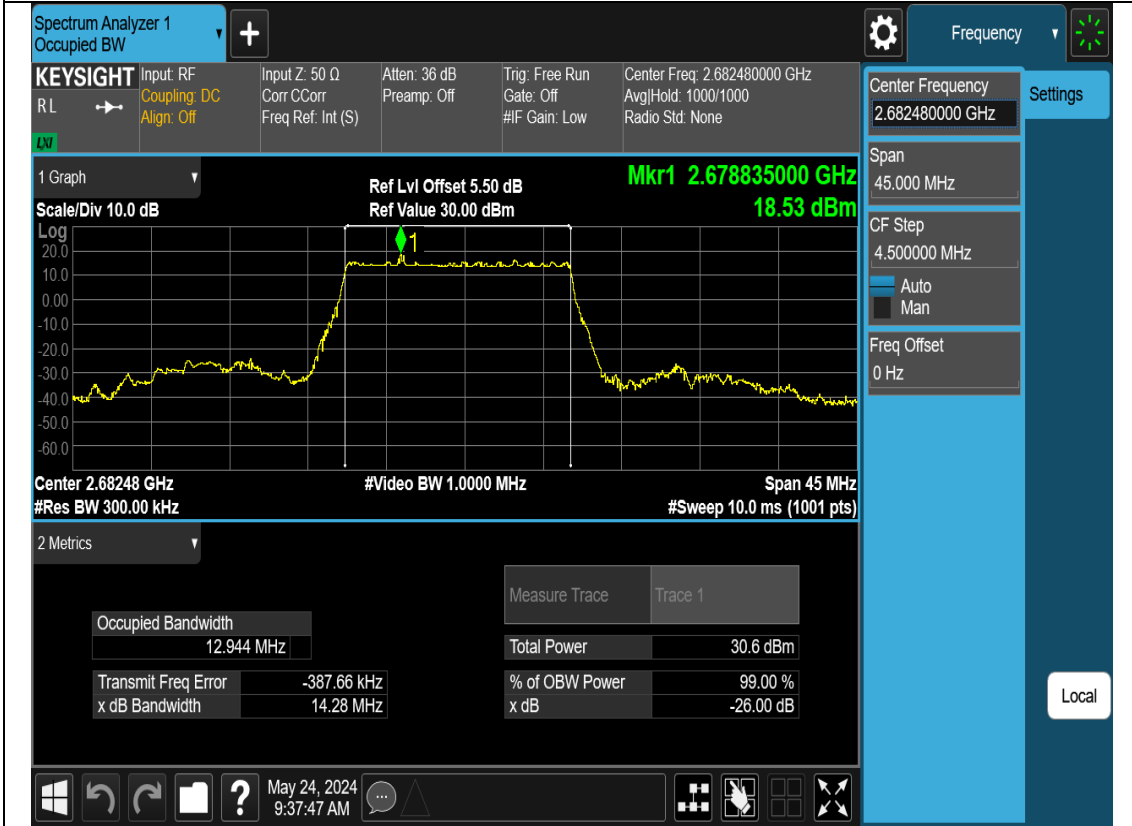
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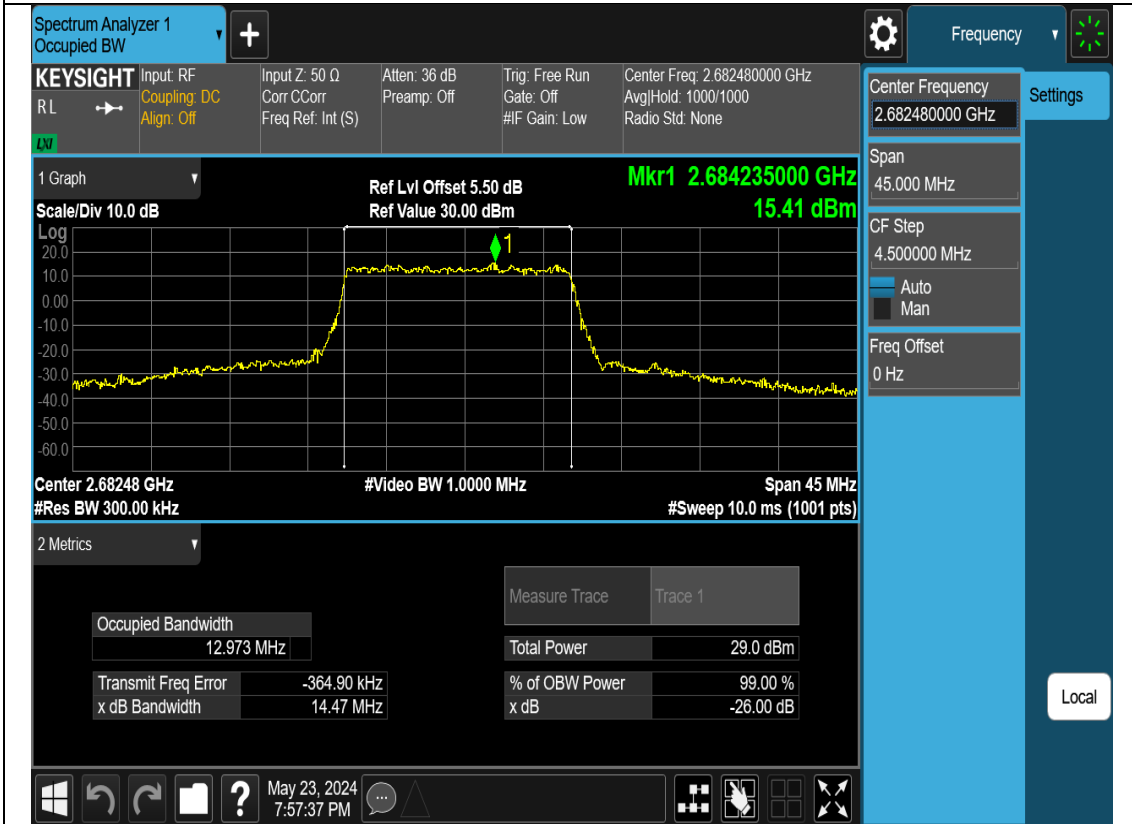
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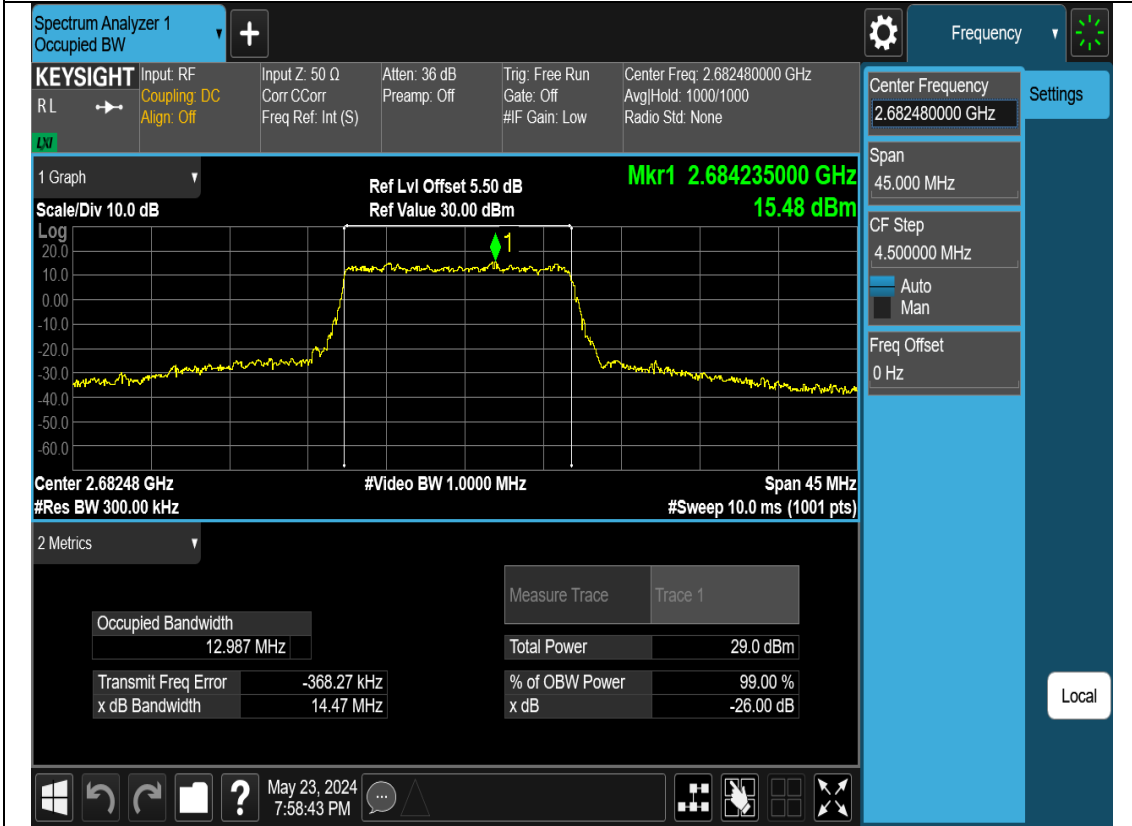
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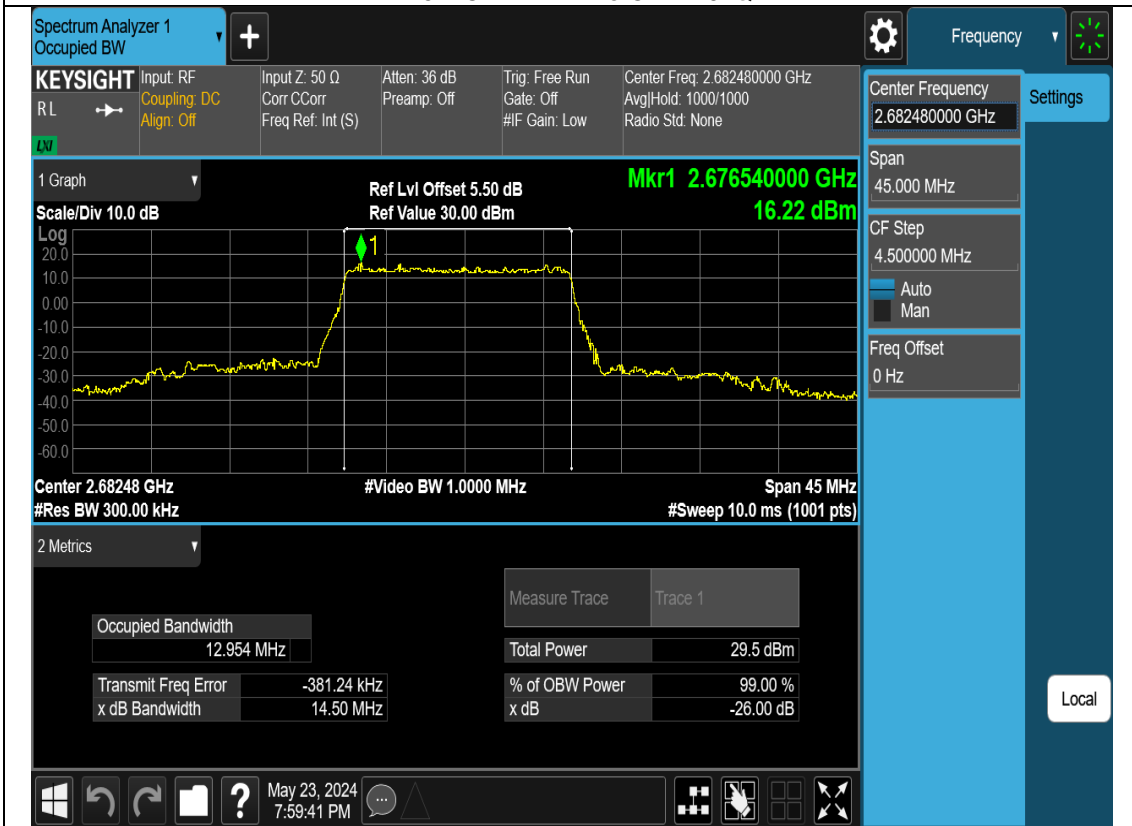
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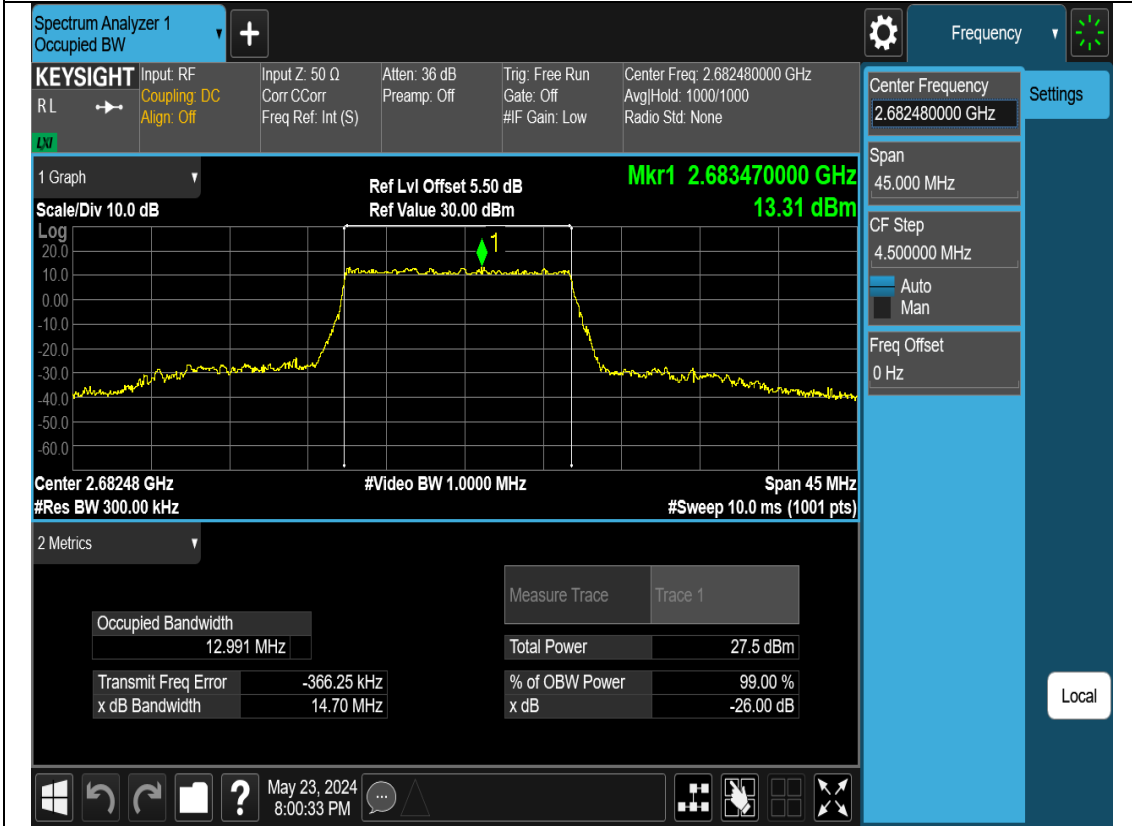
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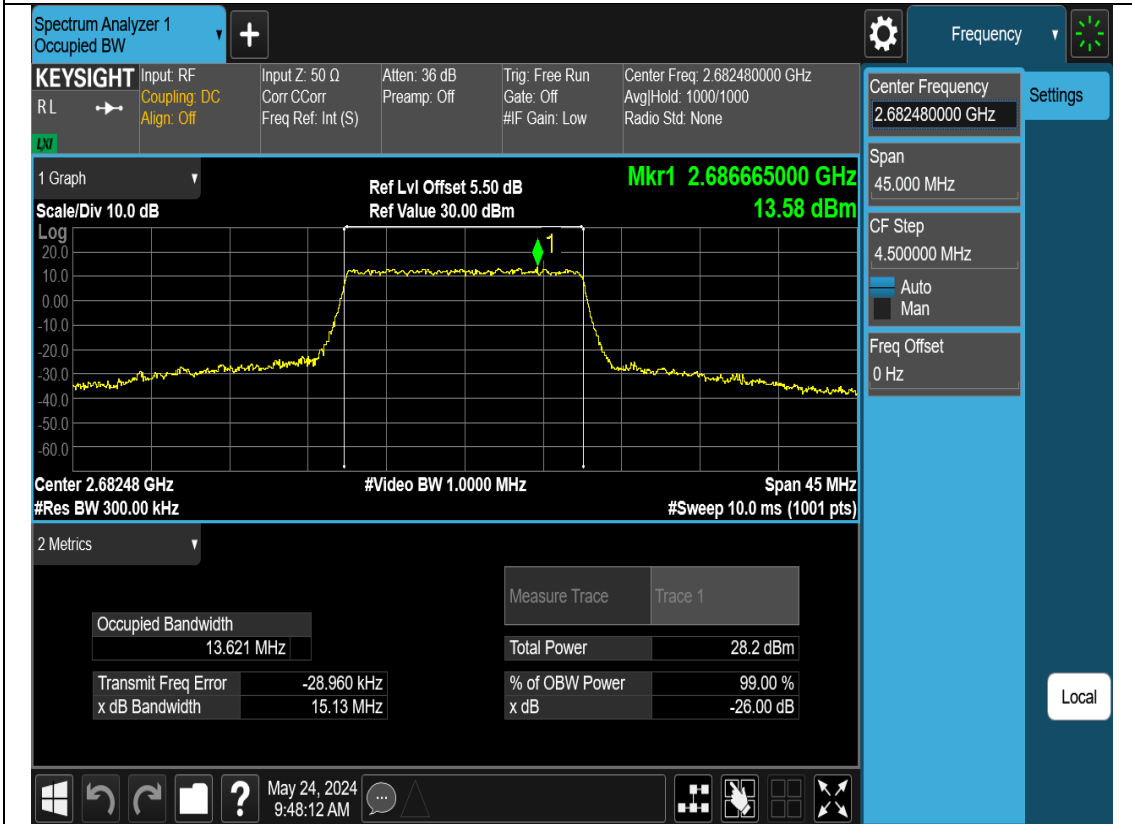
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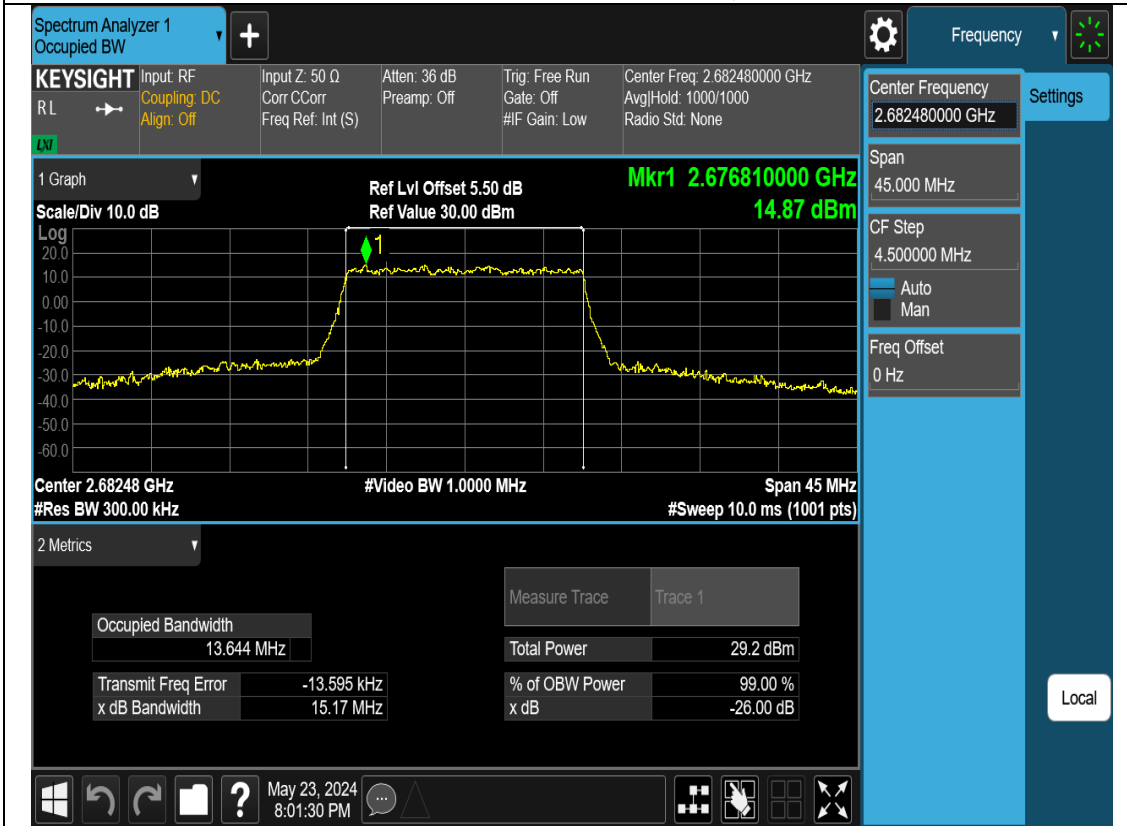
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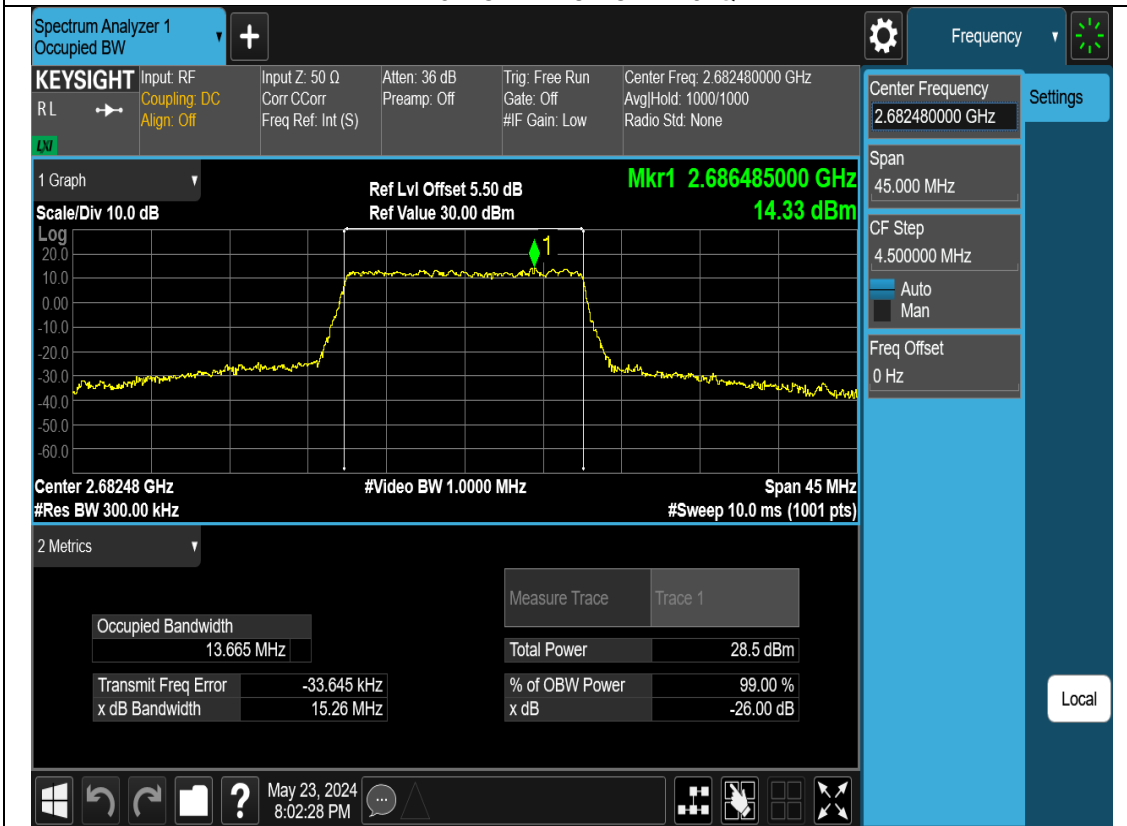
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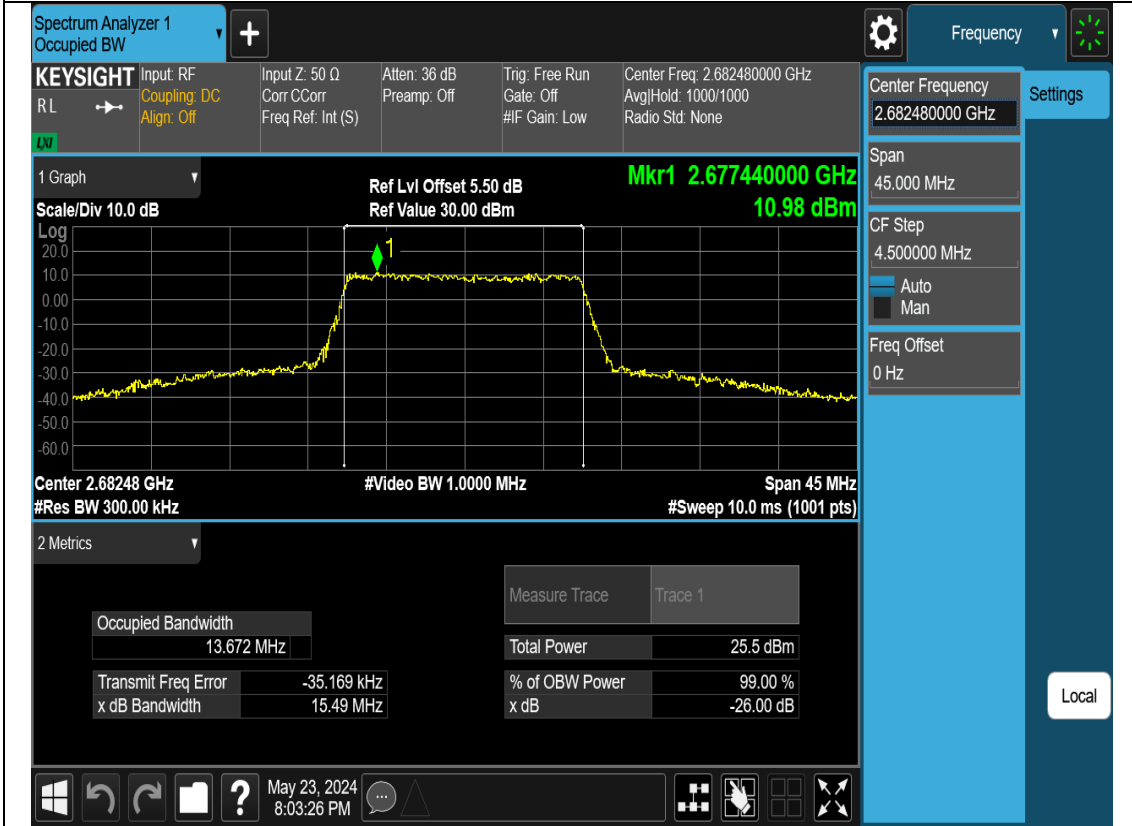
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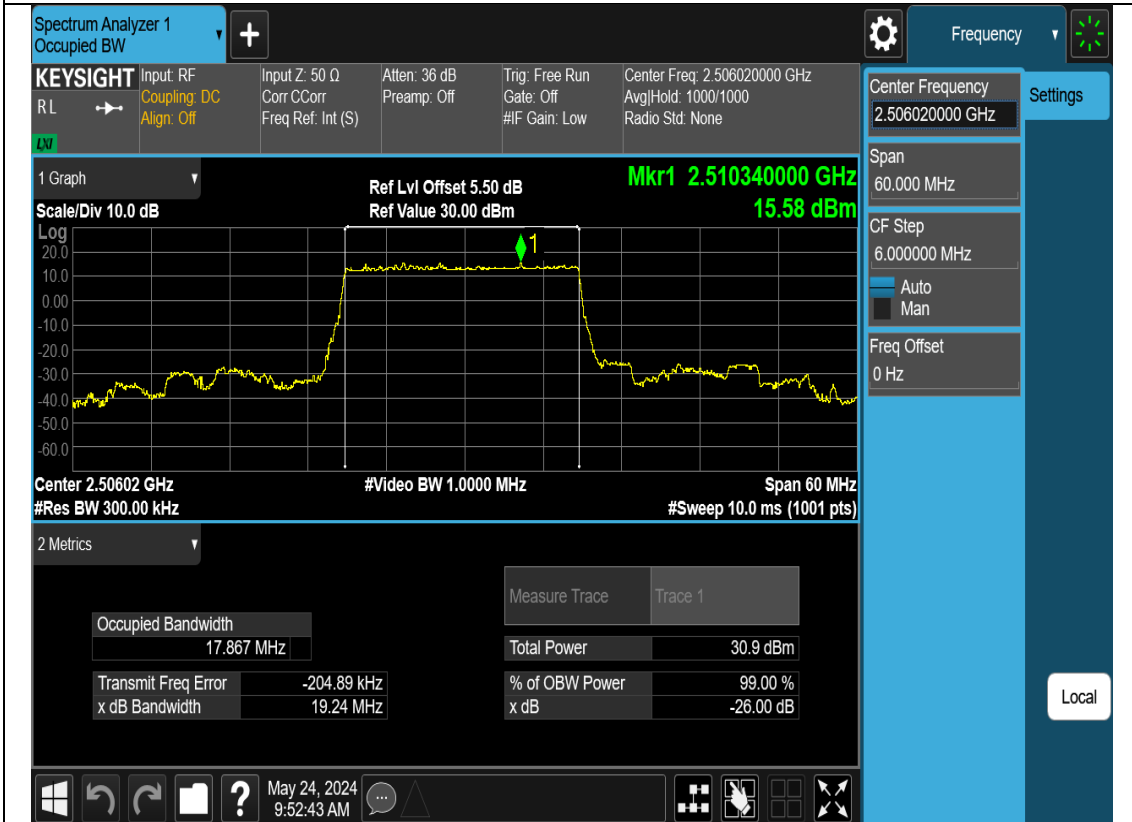
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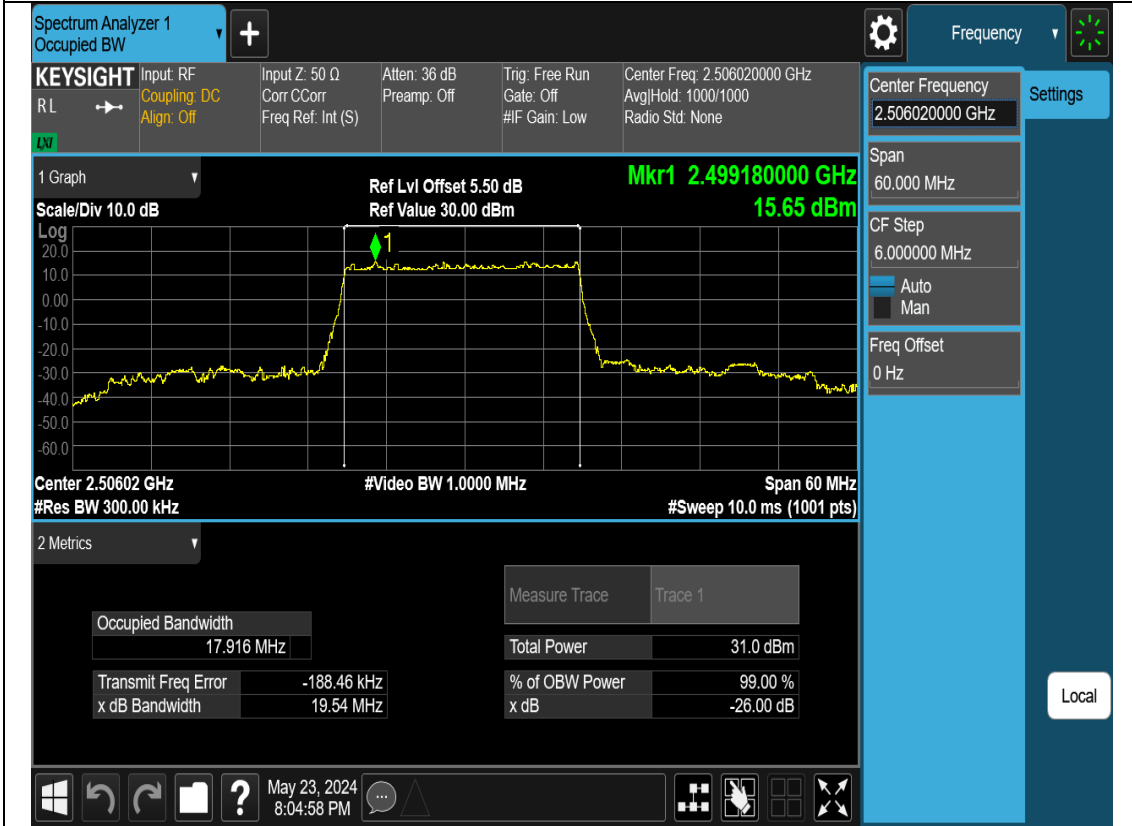
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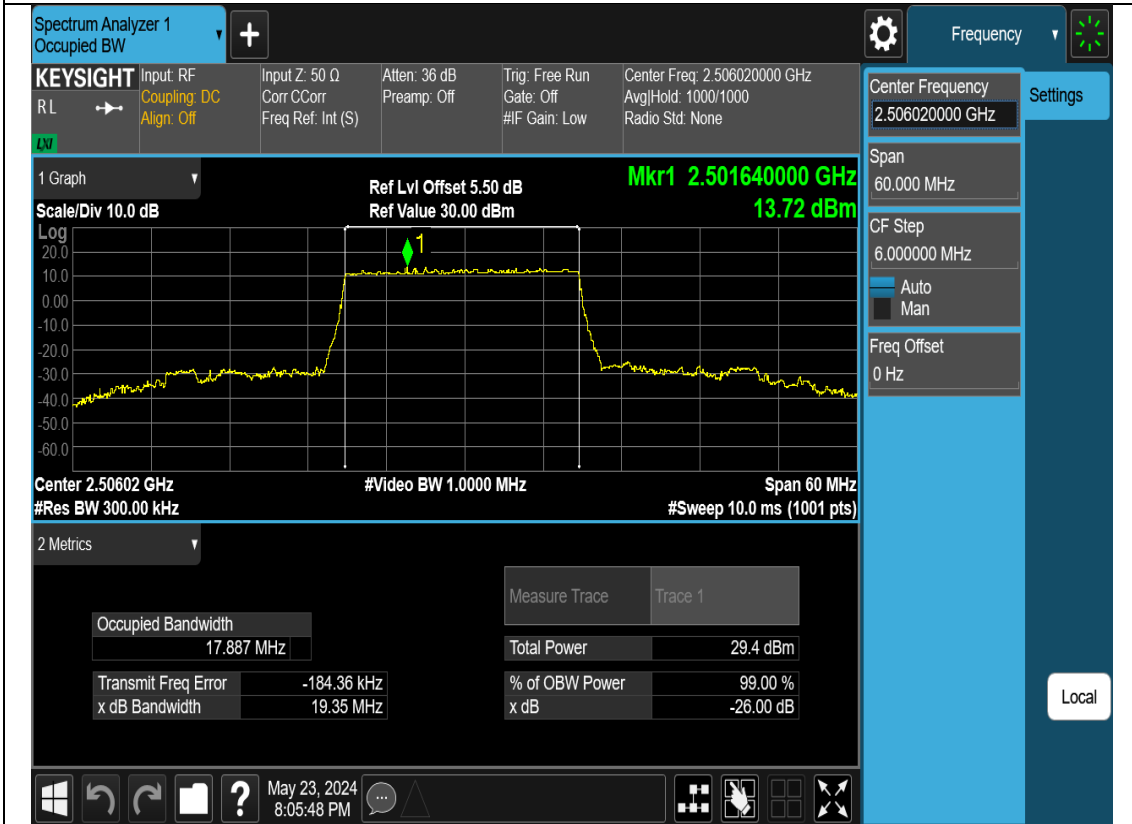
N41-20M-OBW-L-DFT-s-OFDM-Pi2 BPSK



N41-20M-OBW-L-DFT-s-OFDM-QPSK

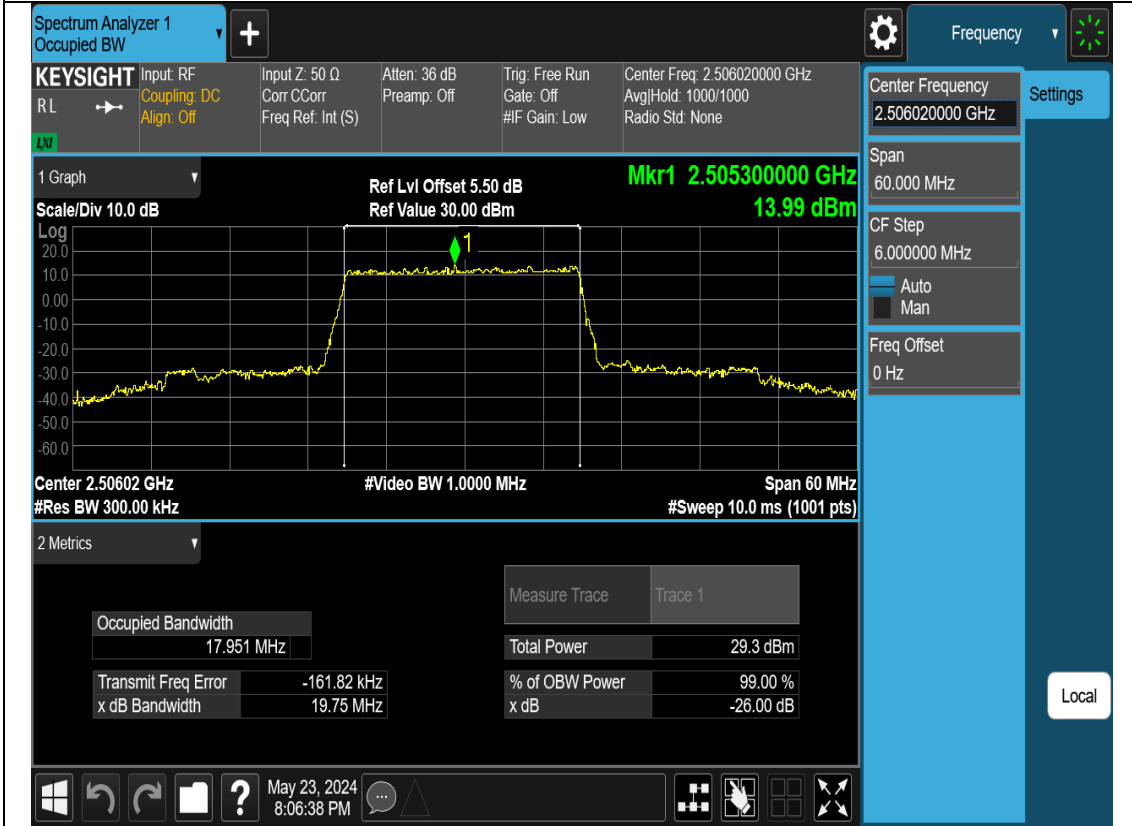


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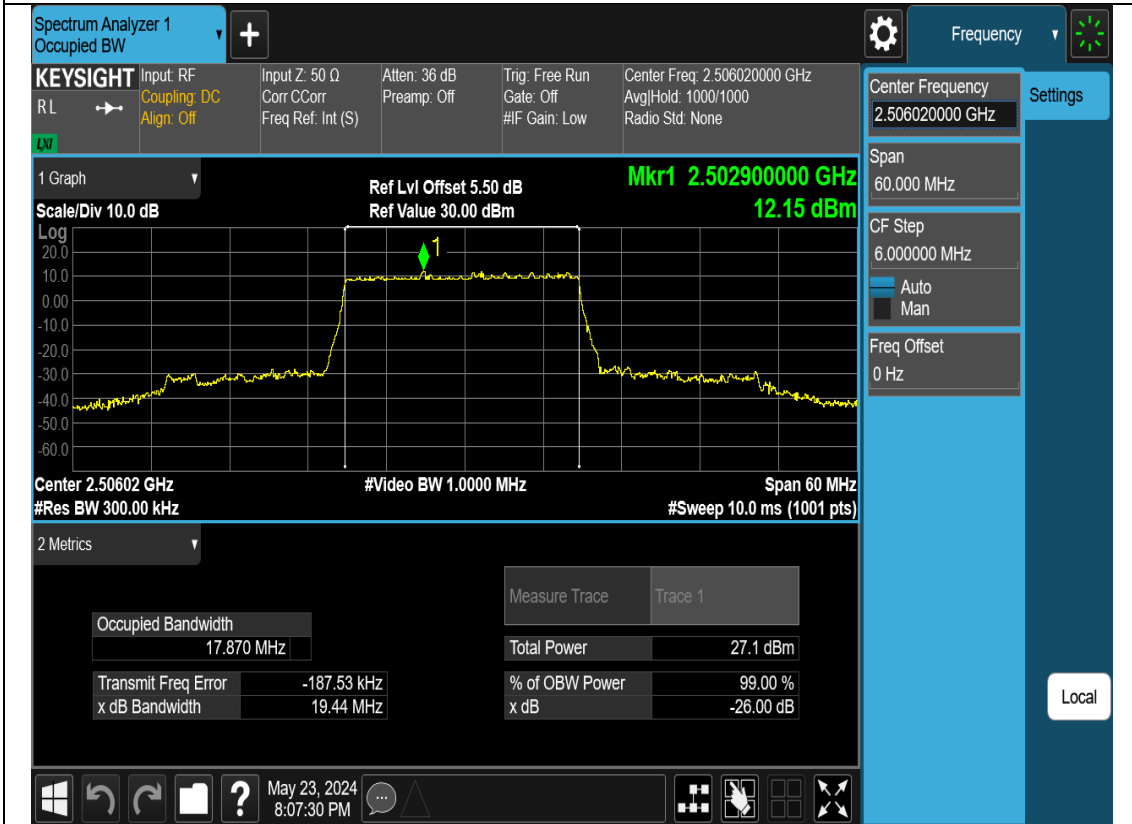




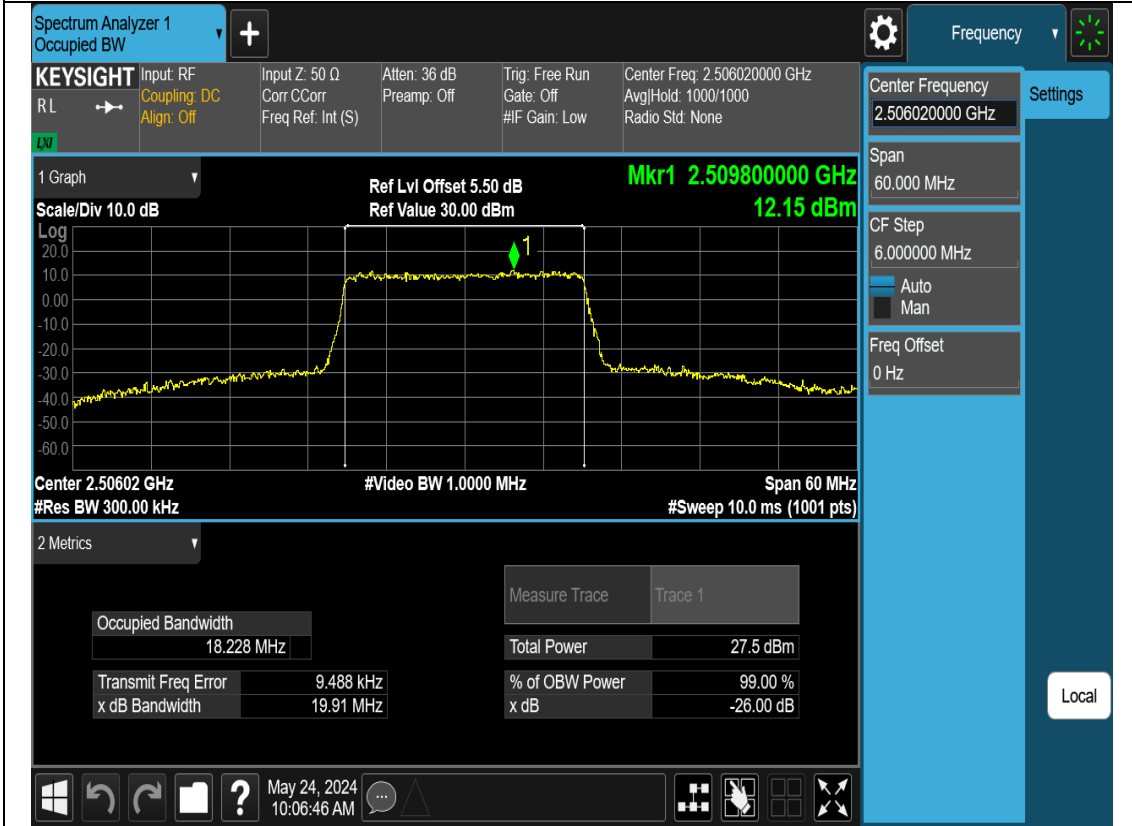
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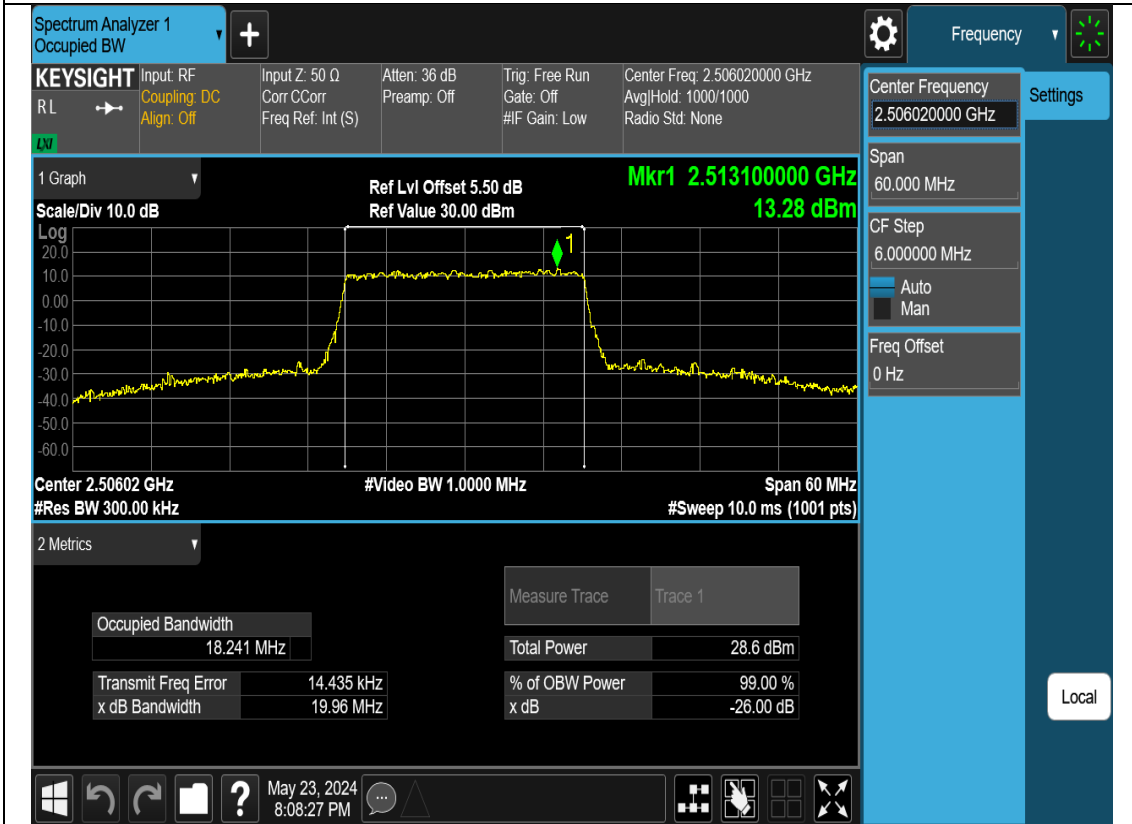
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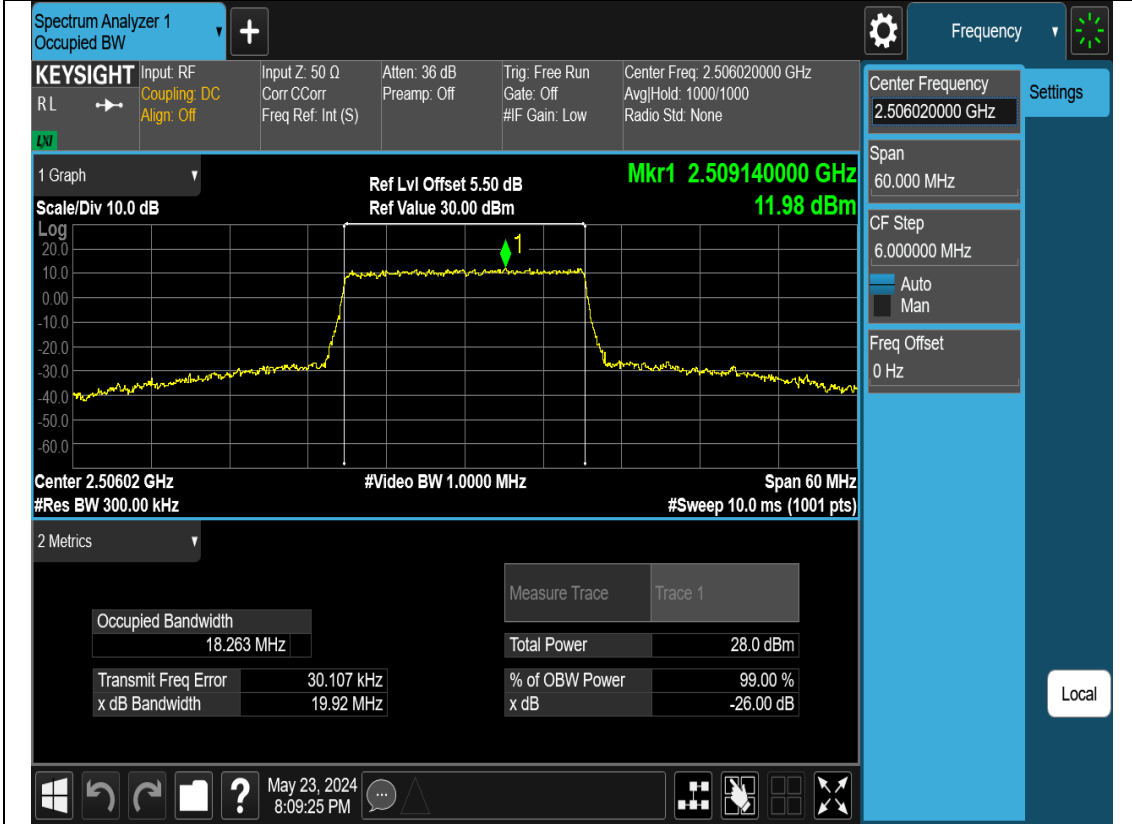
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N41-20M-OBW-L-CP-OFDM-16QAM



N41-20M-OBW-L-CP-OFDM-64QAM



N41-20M-OBW-L-CP-OFDM-256QAM

