

99% & 26dB Bandwidth

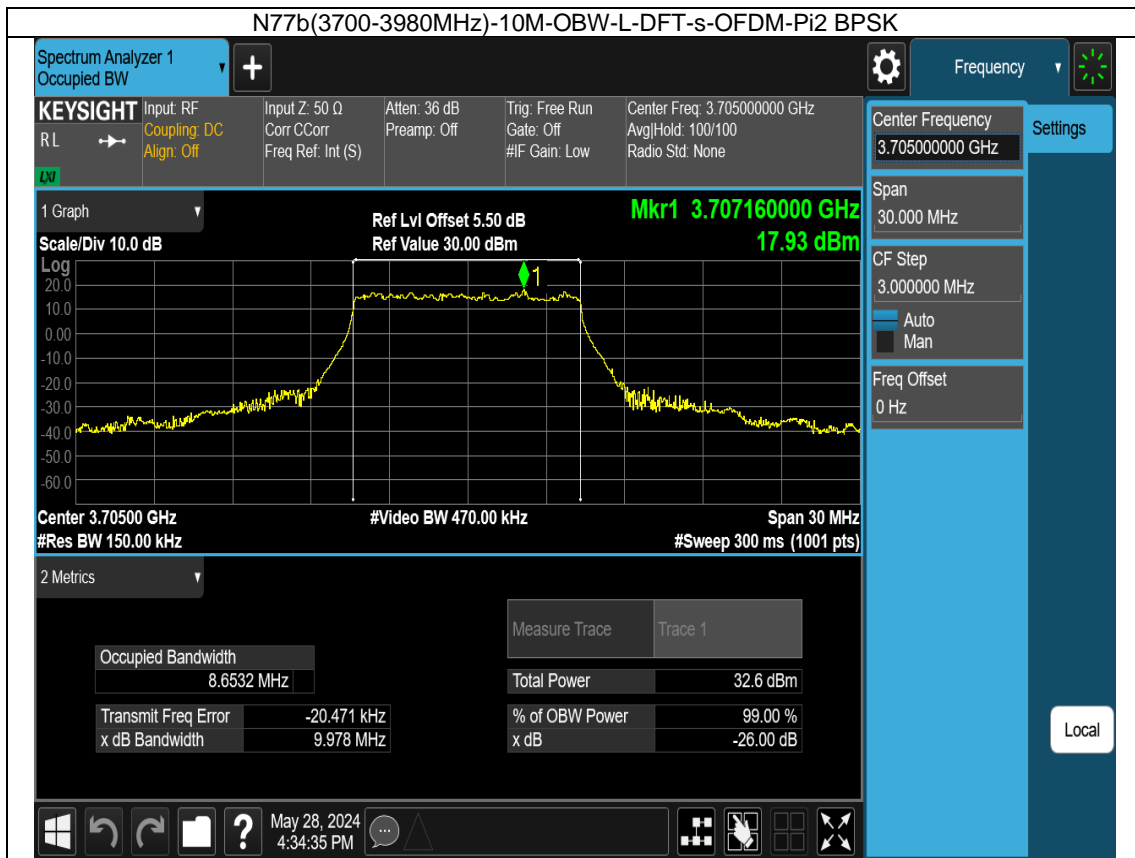
Test Result

N77b(3700-3980MHz)-10M-Bandedge-L-DFT-s-OFDM-Pi2 BPSK-Outer_Full						
Modulation	CH	RB Allocation	99% Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
DFT-s-OFDM PI/2 BPSK	Low CH	Outer_Full	8.653	9.978	/	Pass
CP-OFDM QPSK		Outer_Full	8.662	10.11	/	Pass
DFT-s-OFDM PI/2 BPSK	Middle CH	Outer_Full	8.622	9.893	/	Pass
CP-OFDM QPSK		Outer_Full	8.672	10.29	/	Pass
DFT-s-OFDM PI/2 BPSK	High CH	Outer_Full	8.637	9.940	/	Pass
CP-OFDM QPSK		Outer_Full	8.651	10.13	/	Pass

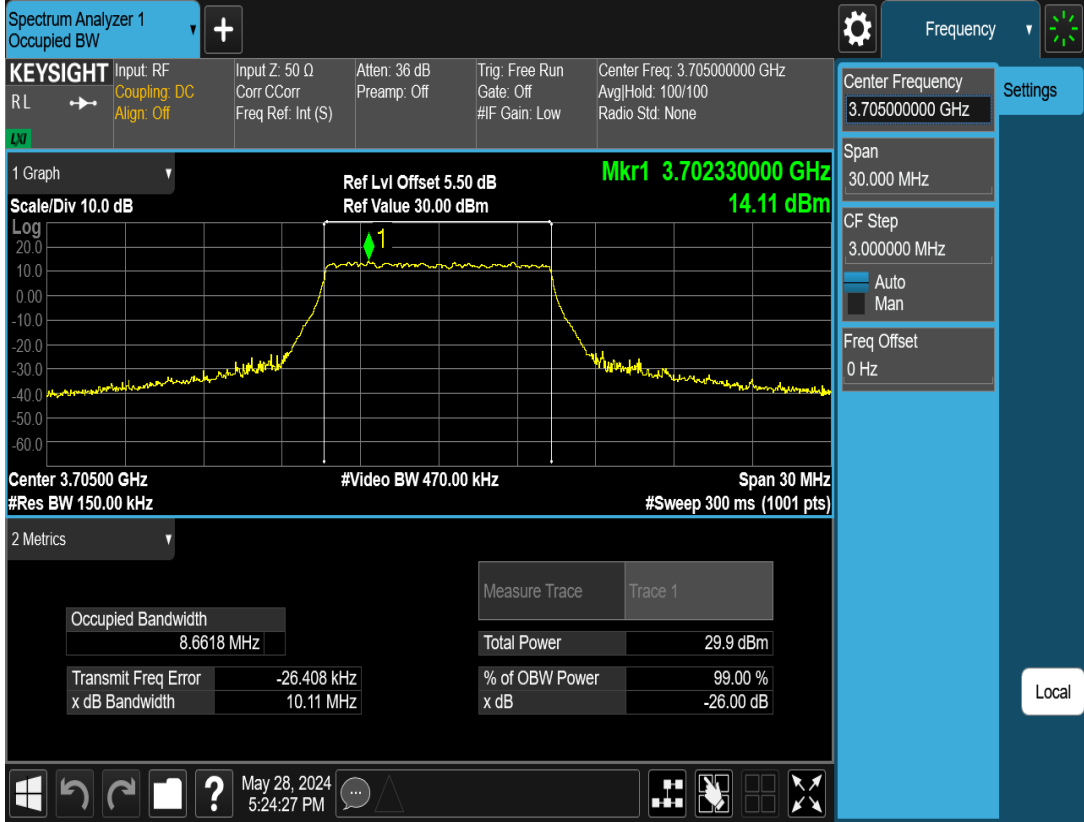
5G NR n77b(3700-3980MHz) SCSSCS=30kHz 15MHz						
Modulation	CH	RB Allocation	99% Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
DFT-s-OFDM PI/2 BPSK	Low CH	Outer_Full	13.007	14.58	/	Pass
CP-OFDM QPSK		Outer_Full	13.659	15.27	/	Pass
DFT-s-OFDM PI/2 BPSK	Middle CH	Outer_Full	13.017	14.74	/	Pass
CP-OFDM QPSK		Outer_Full	13.653	15.47	/	Pass
DFT-s-OFDM PI/2 BPSK	High CH	Outer_Full	12.993	14.57	/	Pass
CP-OFDM QPSK		Outer_Full	13.650	15.42	/	Pass

5G NR n77b(3700-3980MHz) SCSSCS=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	18.012	19.44	/	Pass
CP-OFDM QPSK		Outer_Full	18.263	20.11	/	Pass
DFT-s-OFDM PI/2 BPSK	Middle CH	Outer_Full	18.008	19.57	/	Pass
CP-OFDM QPSK		Outer_Full	18.276	19.99	/	Pass
DFT-s-OFDM PI/2 BPSK	High CH	Outer_Full	17.954	19.69	/	Pass
CP-OFDM QPSK		Outer_Full	18.256	19.99	/	Pass

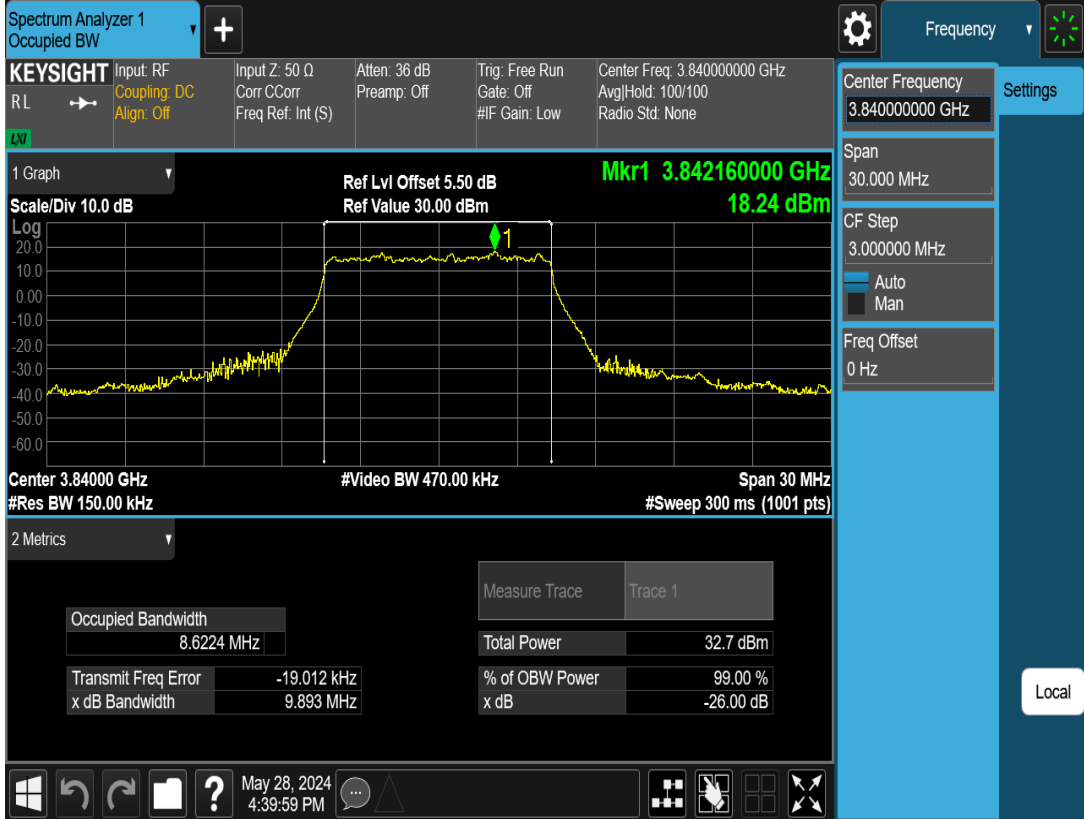
Test graph



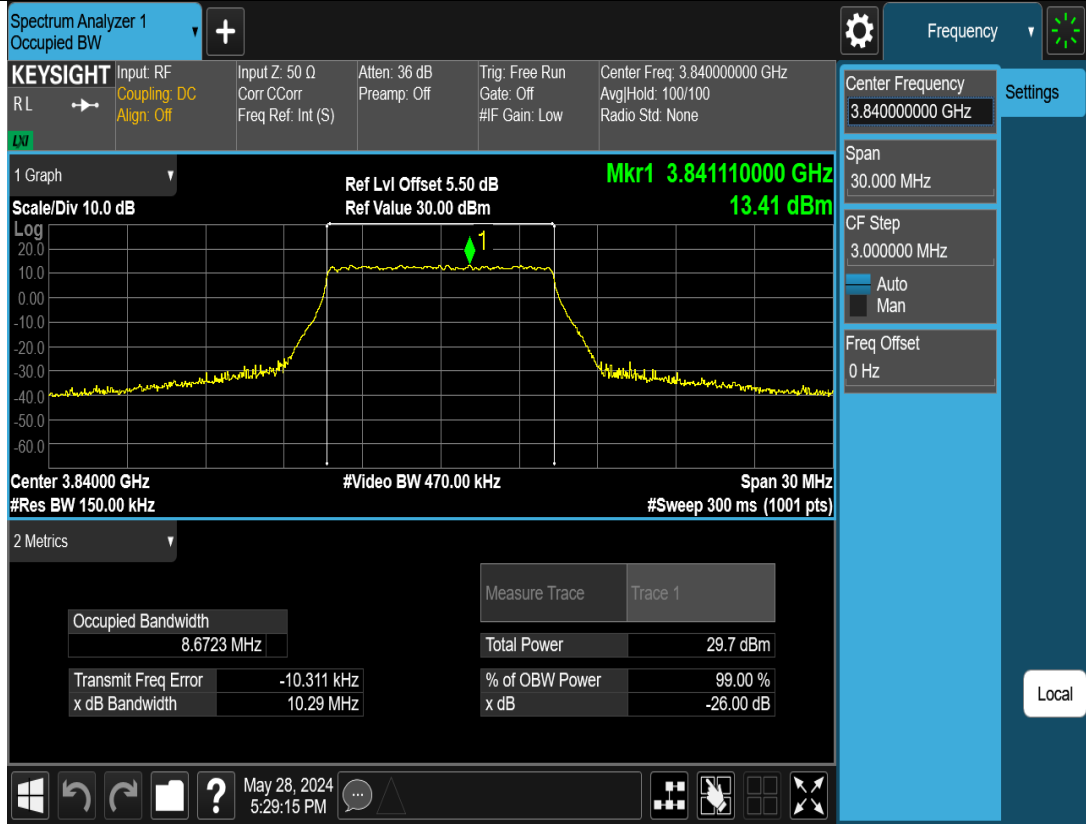
N77b(3700-3980MHz)-10M-OBW-L-CP-OFDM-QPSK



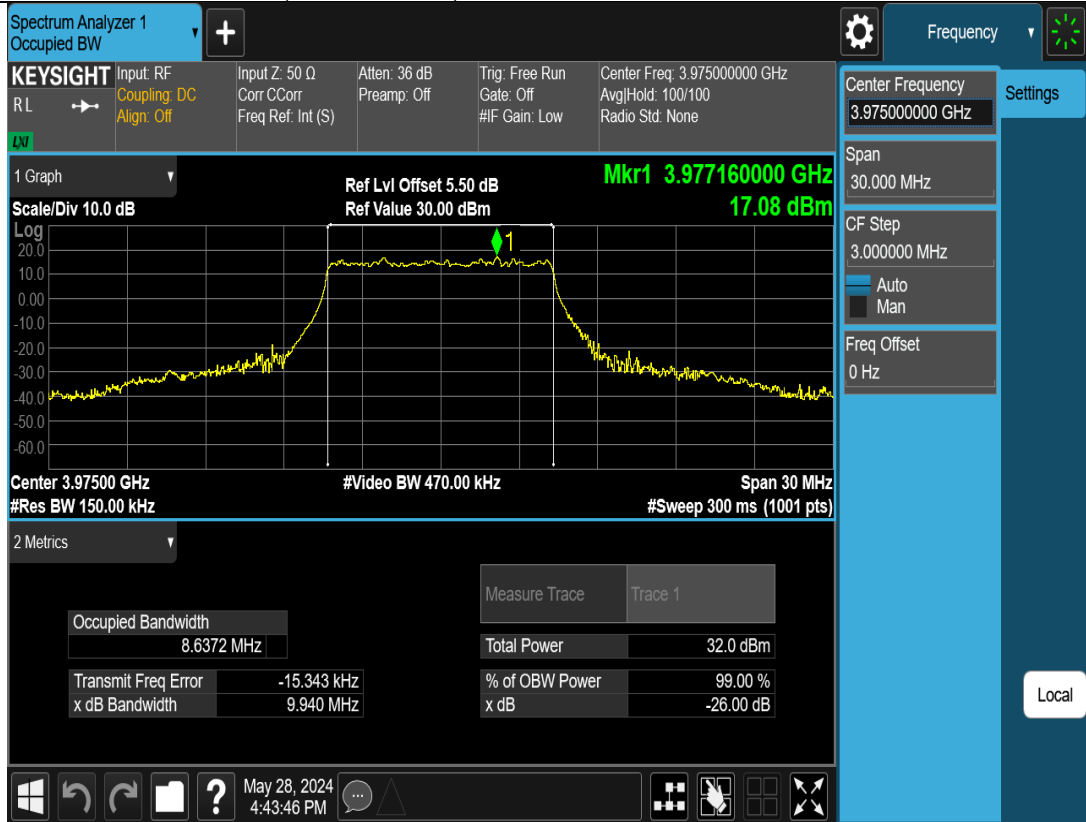
N77b(3700-3980MHz)-10M-OBW-M-DFT-s-OFDM-Pi2 BPSK



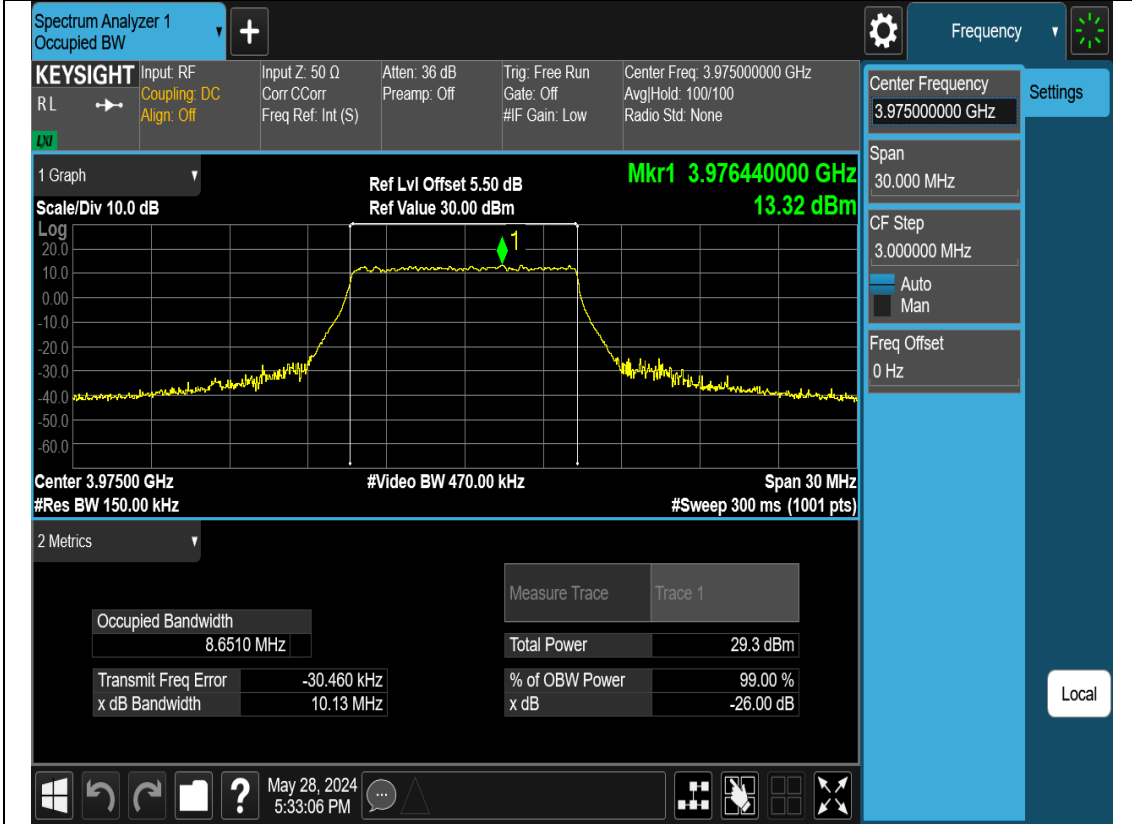
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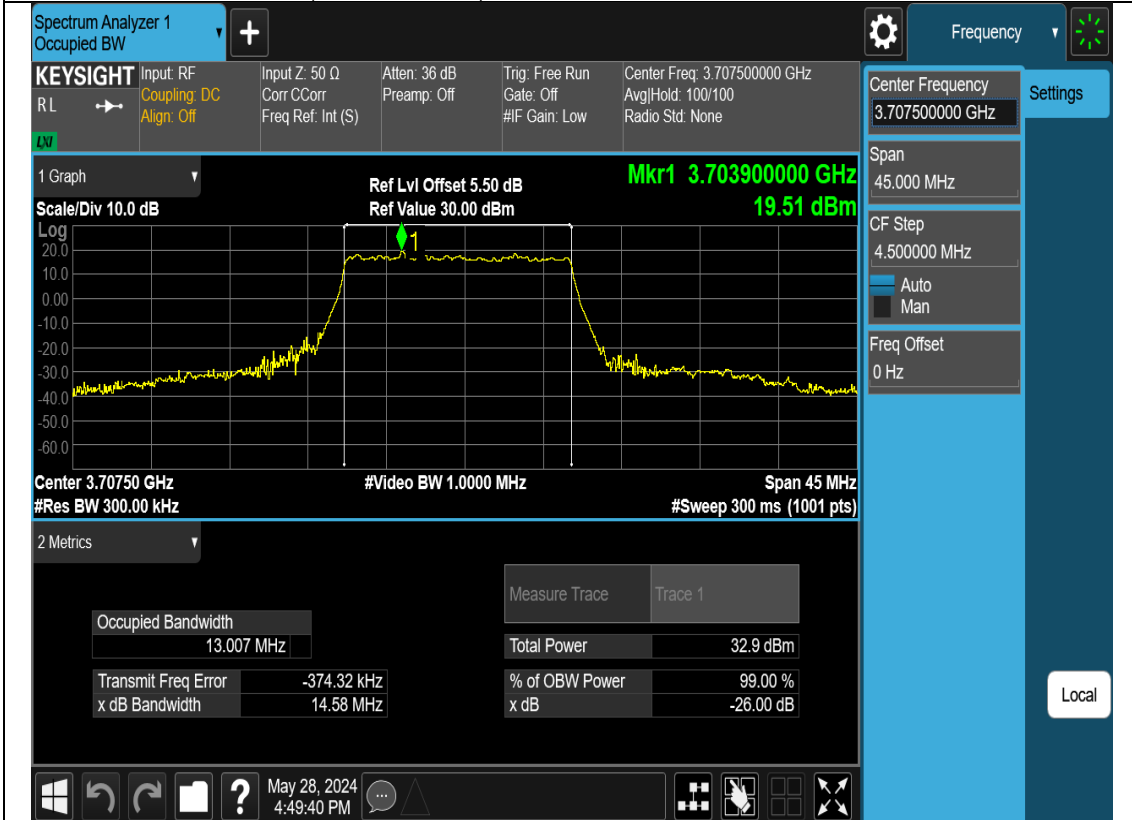
N77b(3700-3980MHz)-10M-OBW-H-DFT-s-OFDM-Pi2 BPSK



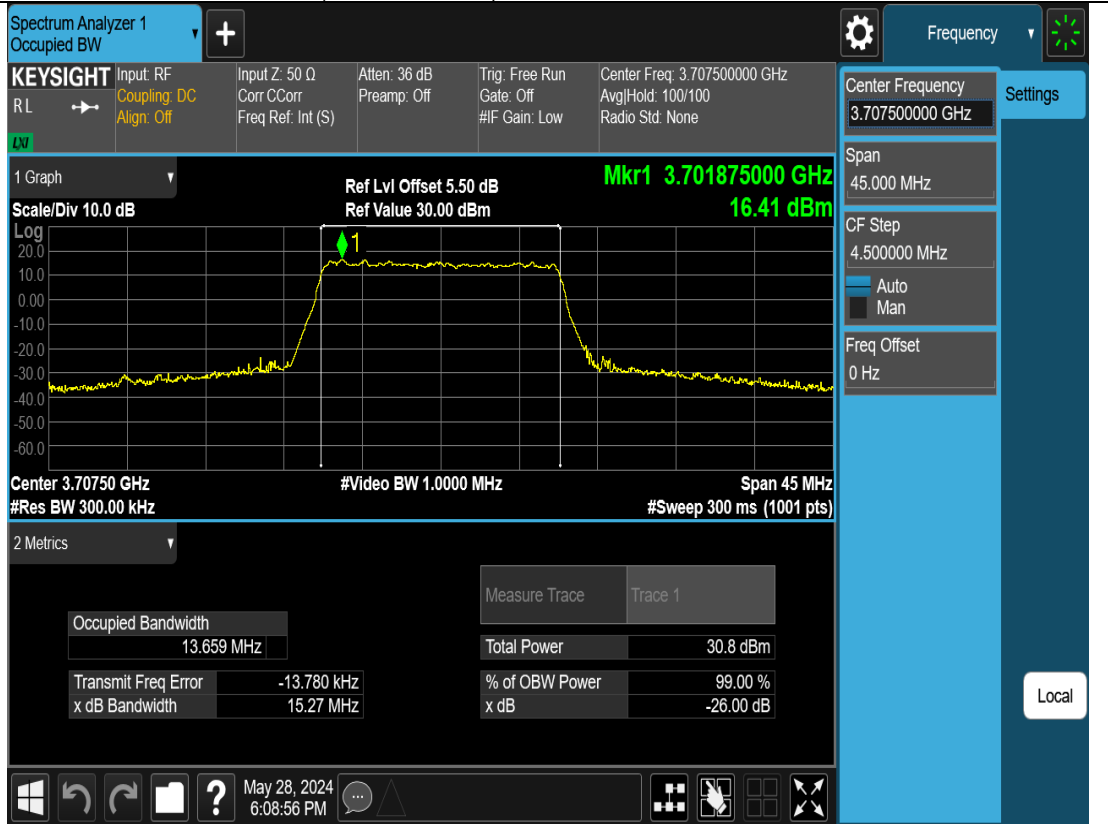
N77b(3700-3980MHz)-10M-OBW-H-CP-OFDM-QPSK



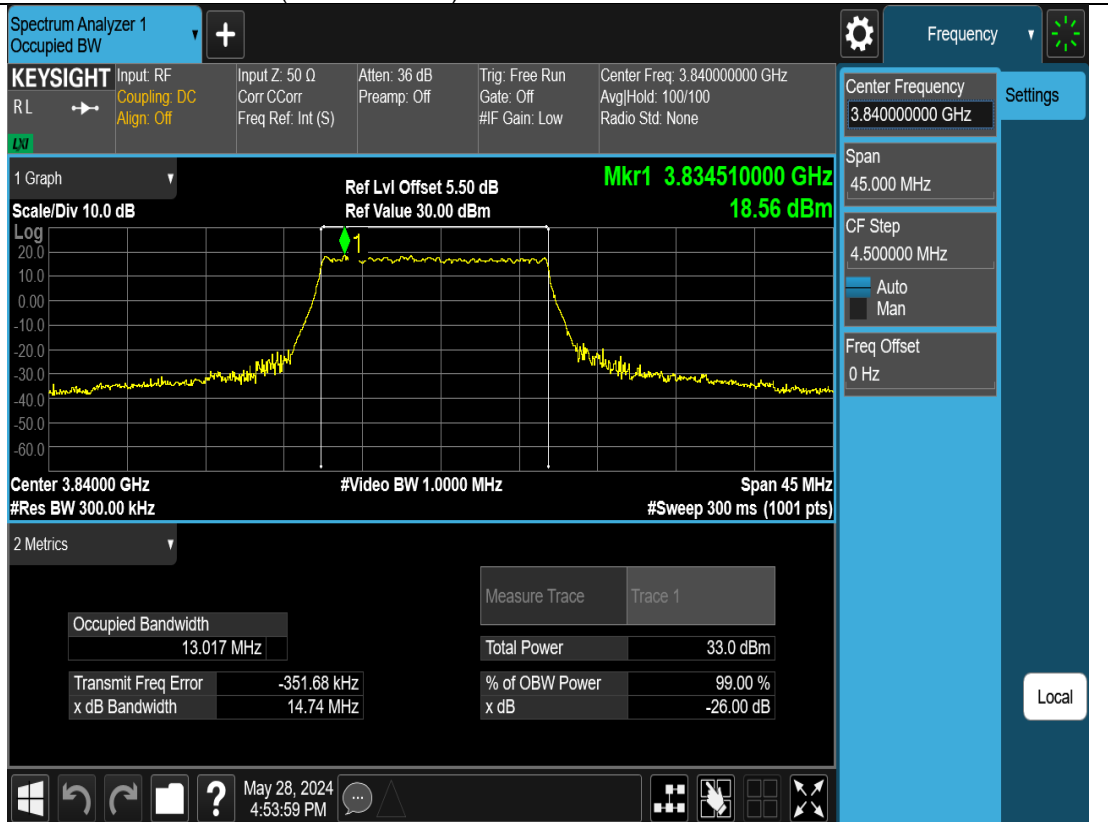
N77b(3700-3980MHz)-15M-OBW-L-DFT-s-OFDM-Pi2 BPSK



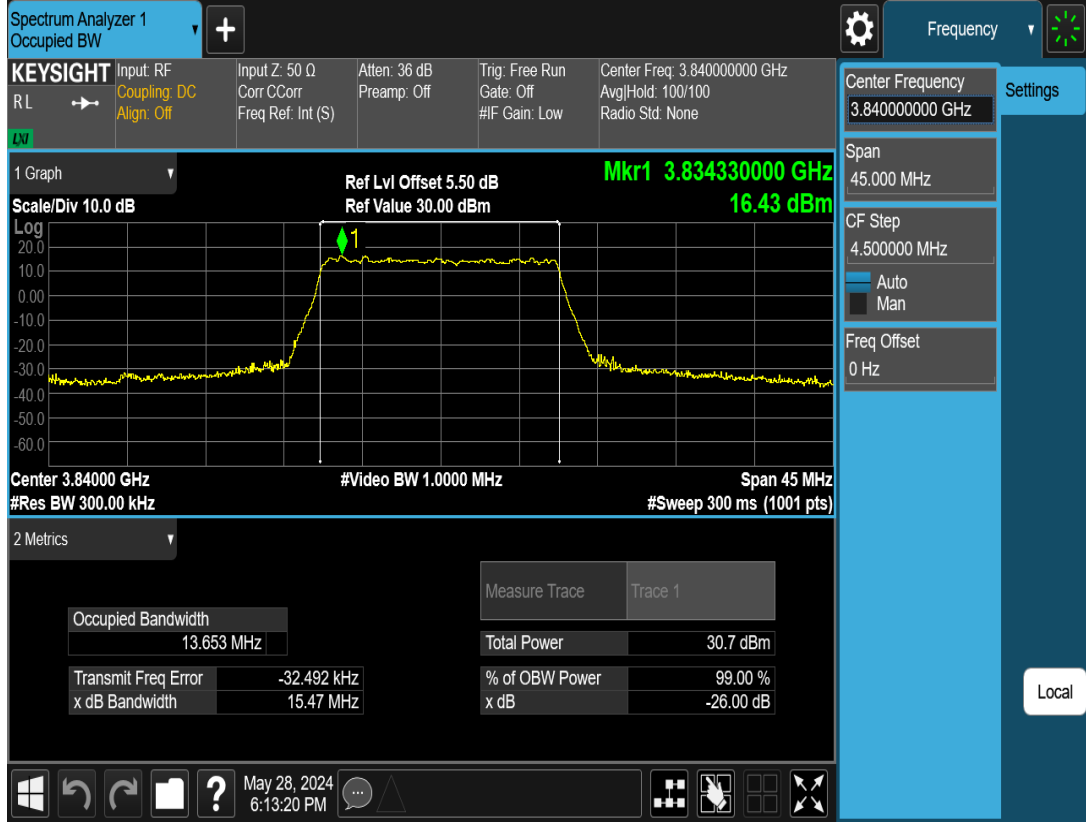
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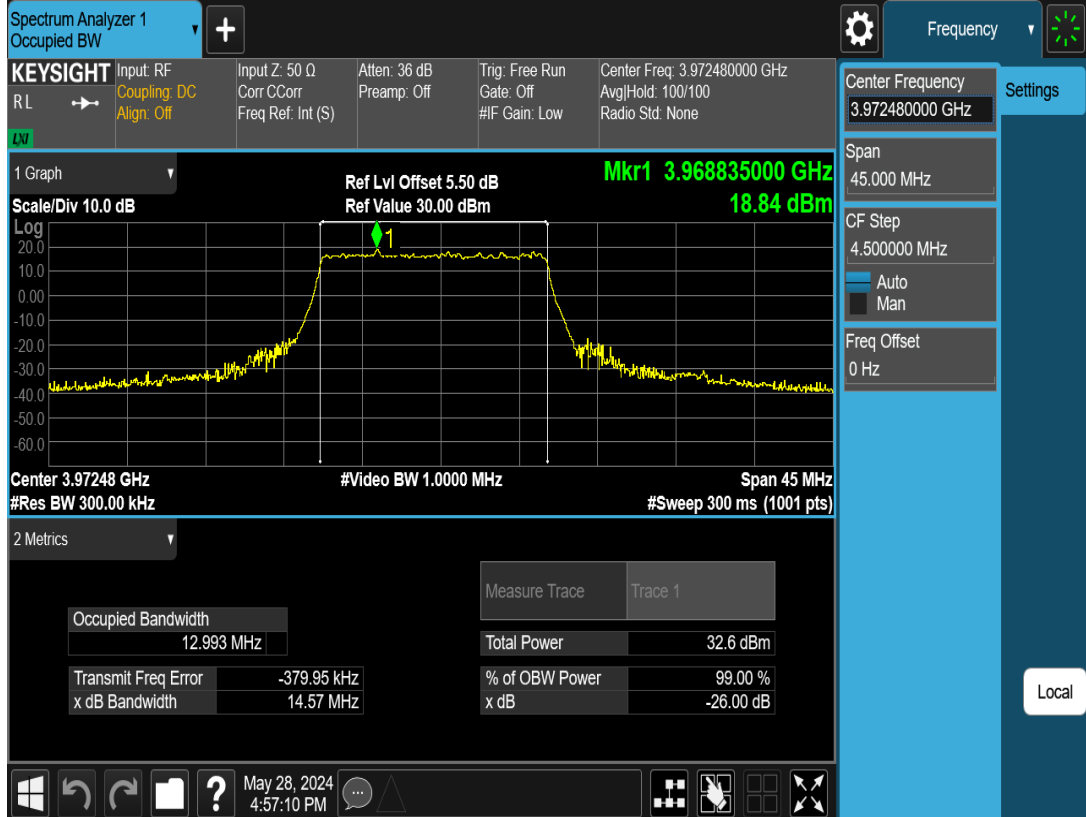
N77b(3700-3980MHz)-15M-OBW-M-DFT-s-OFDM-Pi2 BPSK



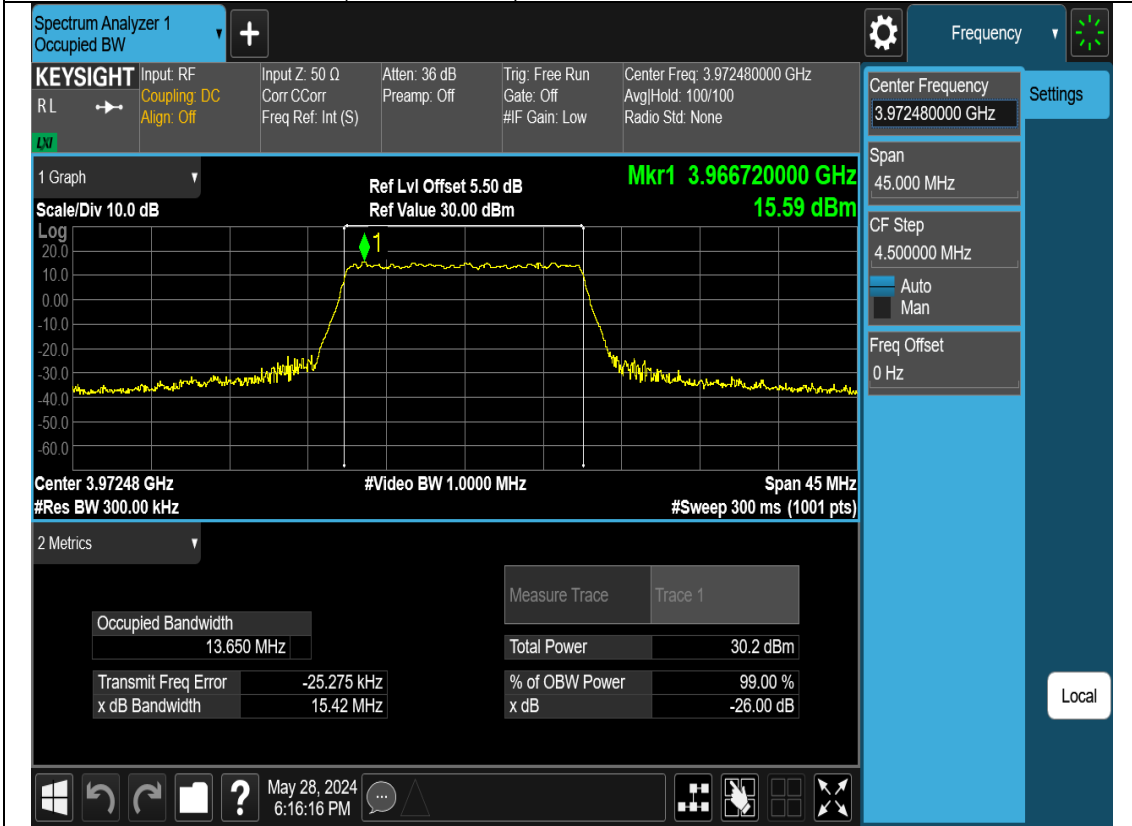
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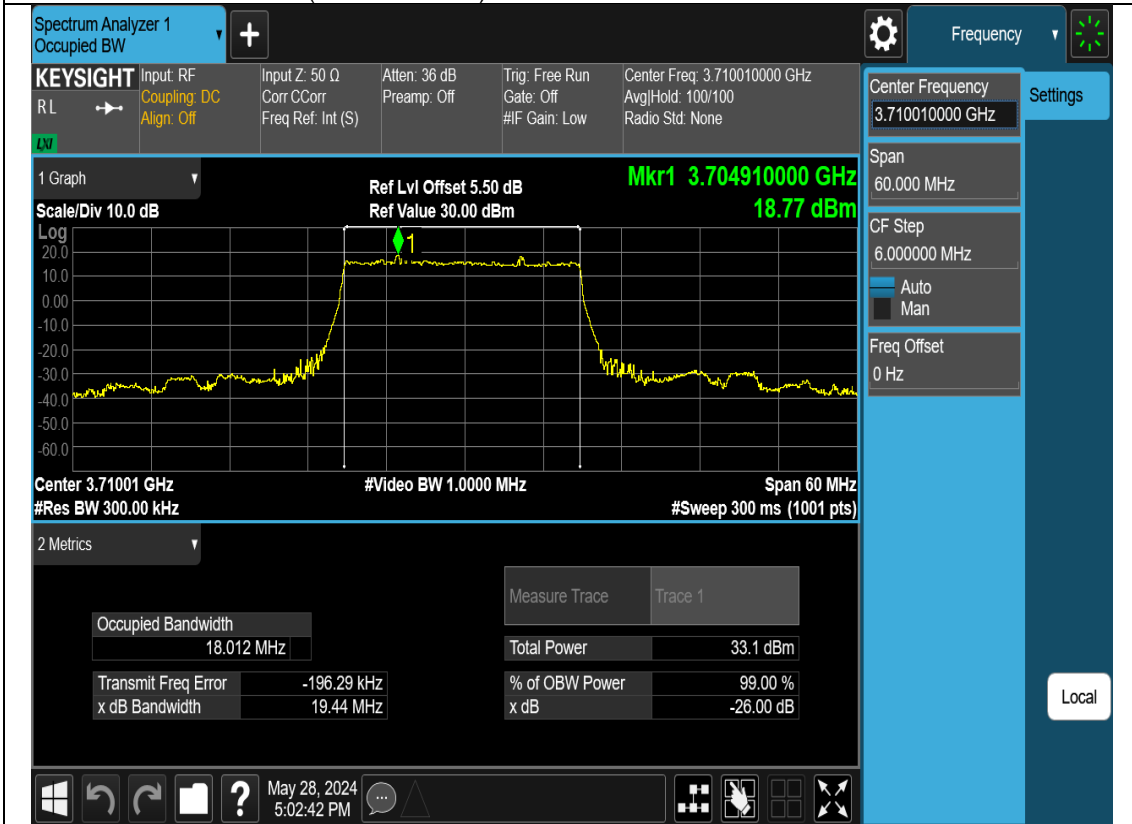
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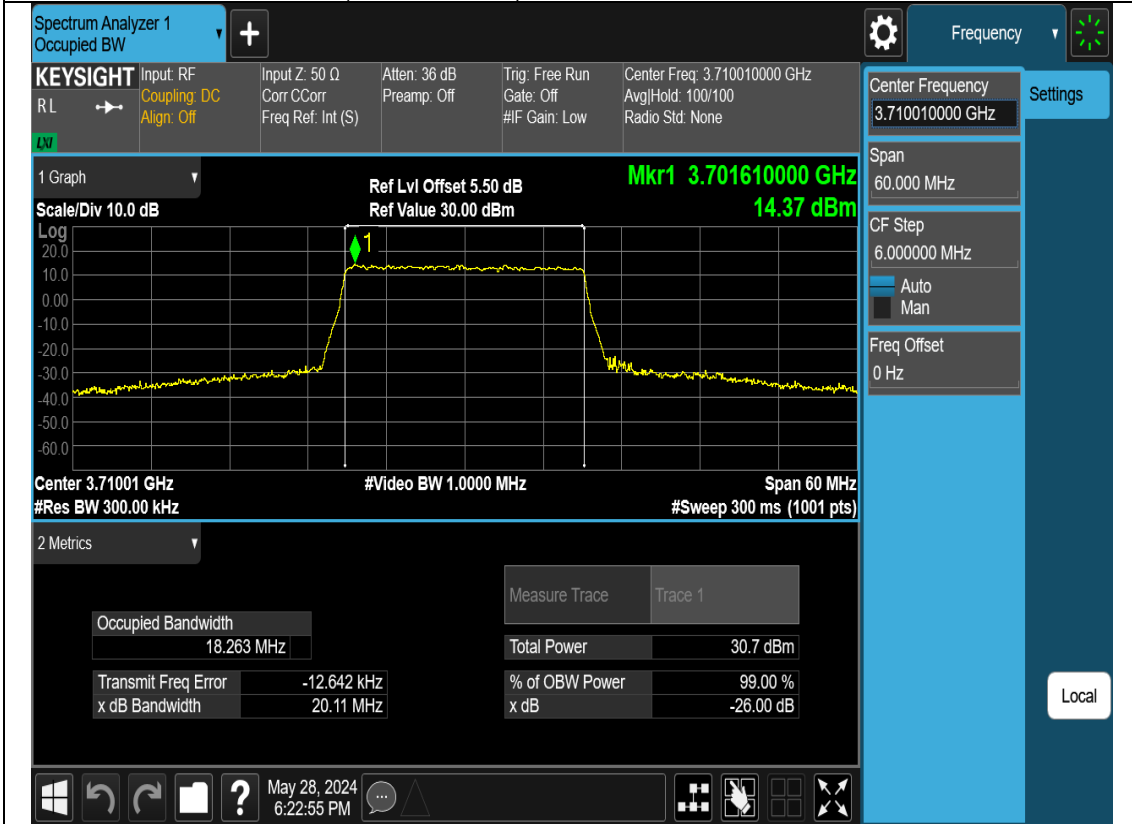
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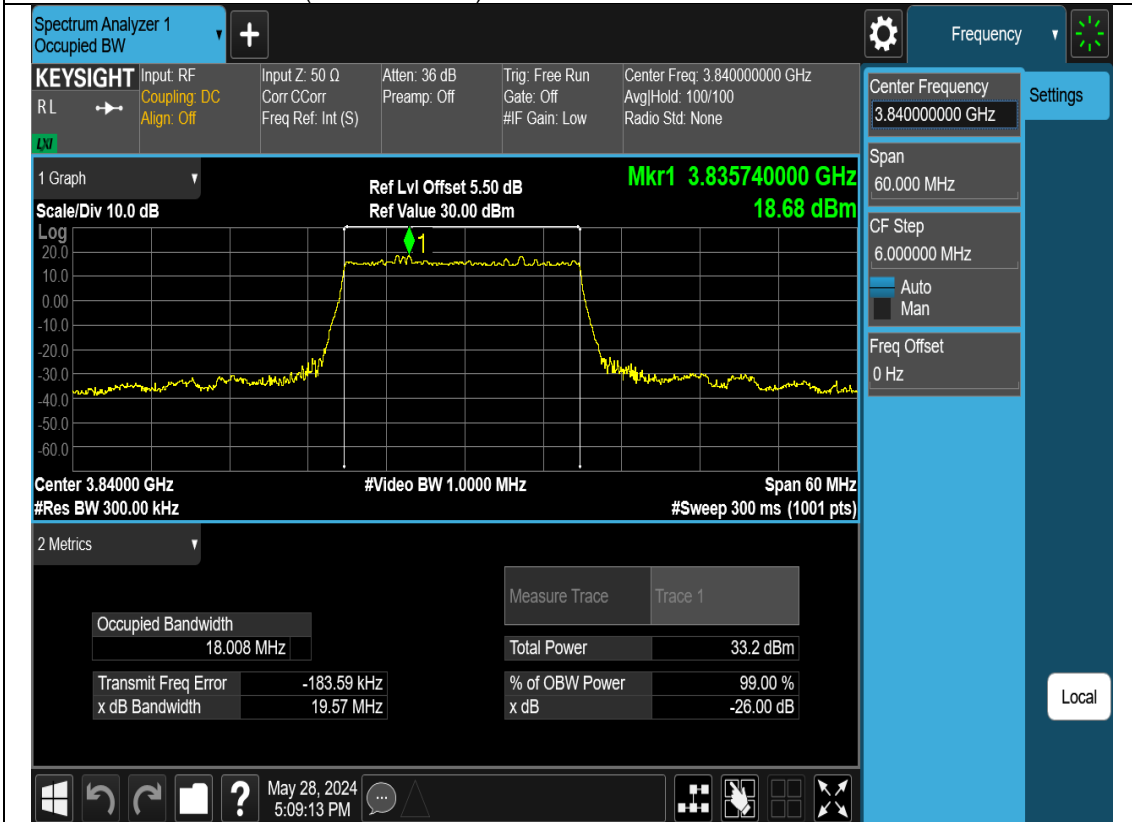
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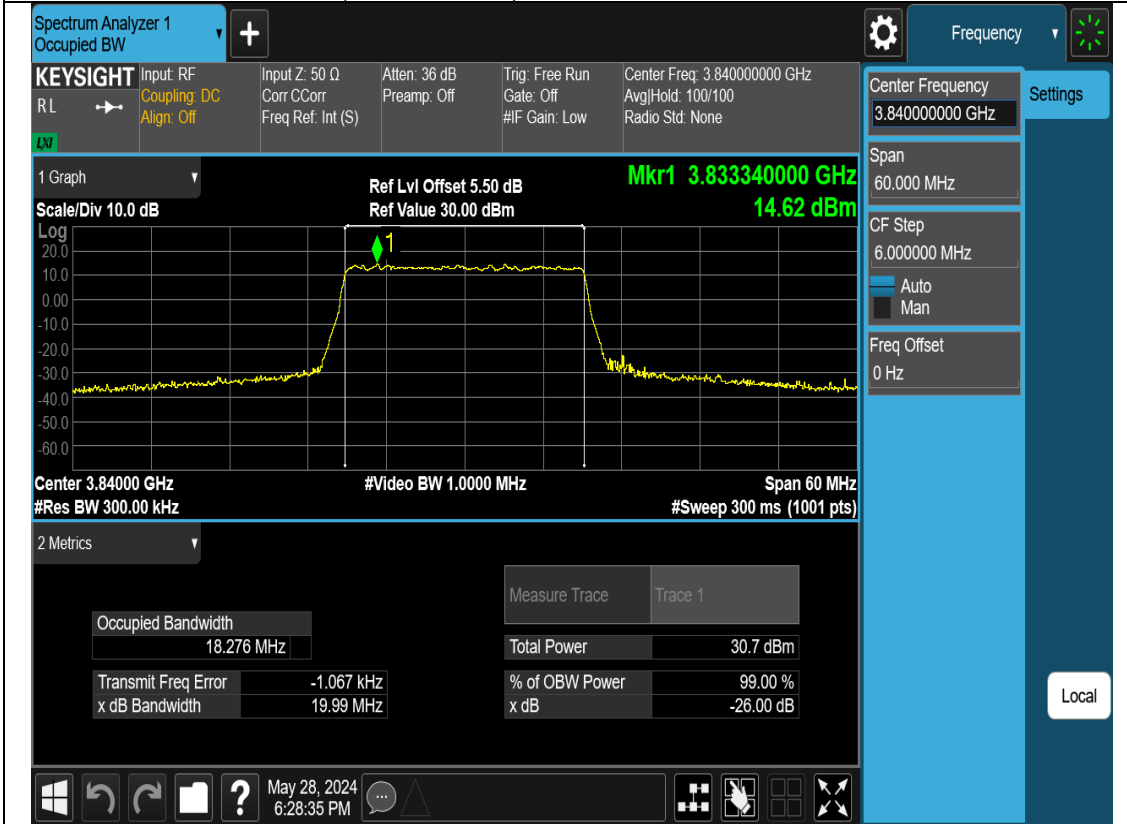
N77b(3700-3980MHz)-20M-OBW-L-CP-OFDM-QPSK



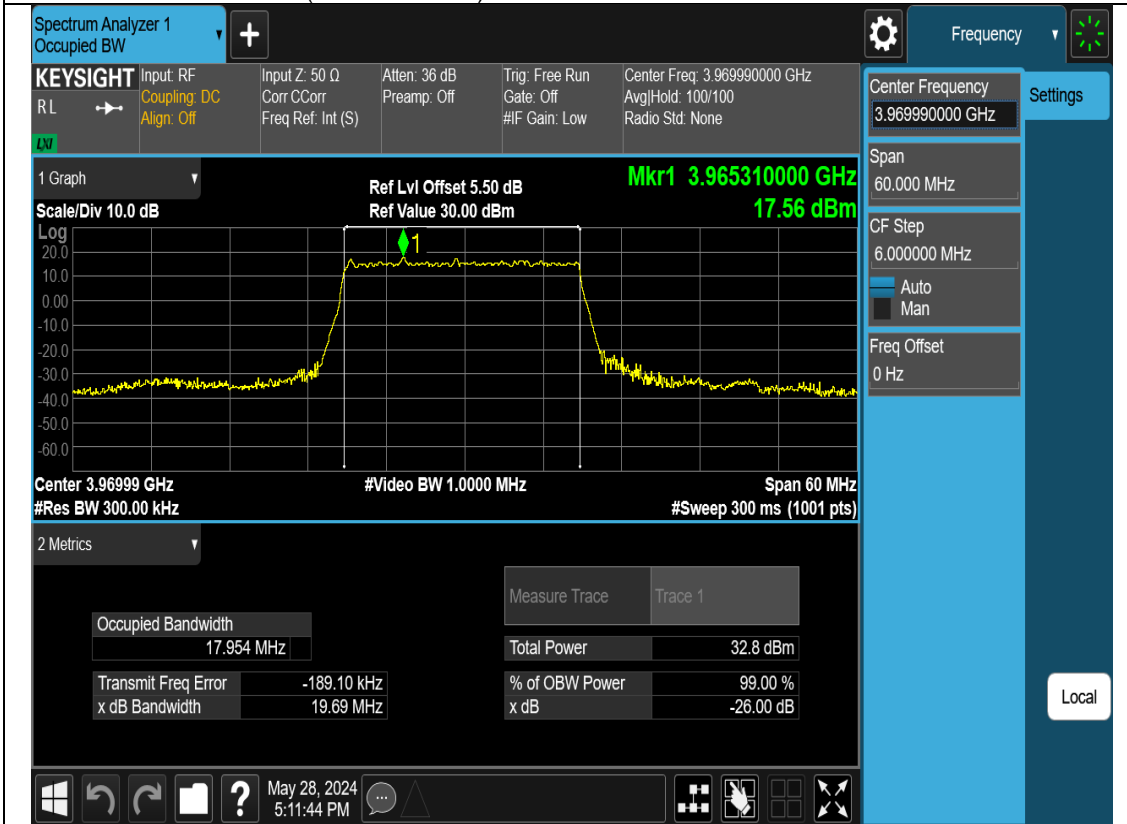
N77b(3700-3980MHz)-20M-OBW-M-DFT-s-OFDM-Pi2 BPSK



N77b(3700-3980MHz)-20M-OBW-M-CP-OFDM-QPSK



N77b(3700-3980MHz)-20M-OBW-H-DFT-s-OFDM-Pi2 BPSK



N77b(3700-3980MHz)-20M-OBW-H-CP-OFDM-QPSK

Spectrum Analyzer 1
Occupied BW

KEYSIGHT
RL

Input RF
Coupling: DC
Align: Off

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

Atten: 36 dB
Preamp: Off

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

Center Freq: 3.969990000 GHz
Avg/Hold: 100/100
Radio Std: None

Frequency

Center Frequency
3.969990000 GHz

Settings

Span
60.000 MHz

CF Step
6.000000 MHz
Auto
Man

Freq Offset
0 Hz

1 Graph

Scale/Div 10.0 dB

Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0



Center 3.96999 GHz #Res BW 300.00 kHz #Video BW 1.0000 MHz Span 60 MHz #Sweep 300 ms (1001 pts)

2 Metrics

Occupied Bandwidth	18.256 MHz
Transmit Freq Error	-15.599 kHz
x dB Bandwidth	19.99 MHz

Measure Trace	Trace 1
Total Power	30.2 dBm
% of OBW Power	99.00 %
x dB	-26.00 dB

Local

Peak-Average Ratio

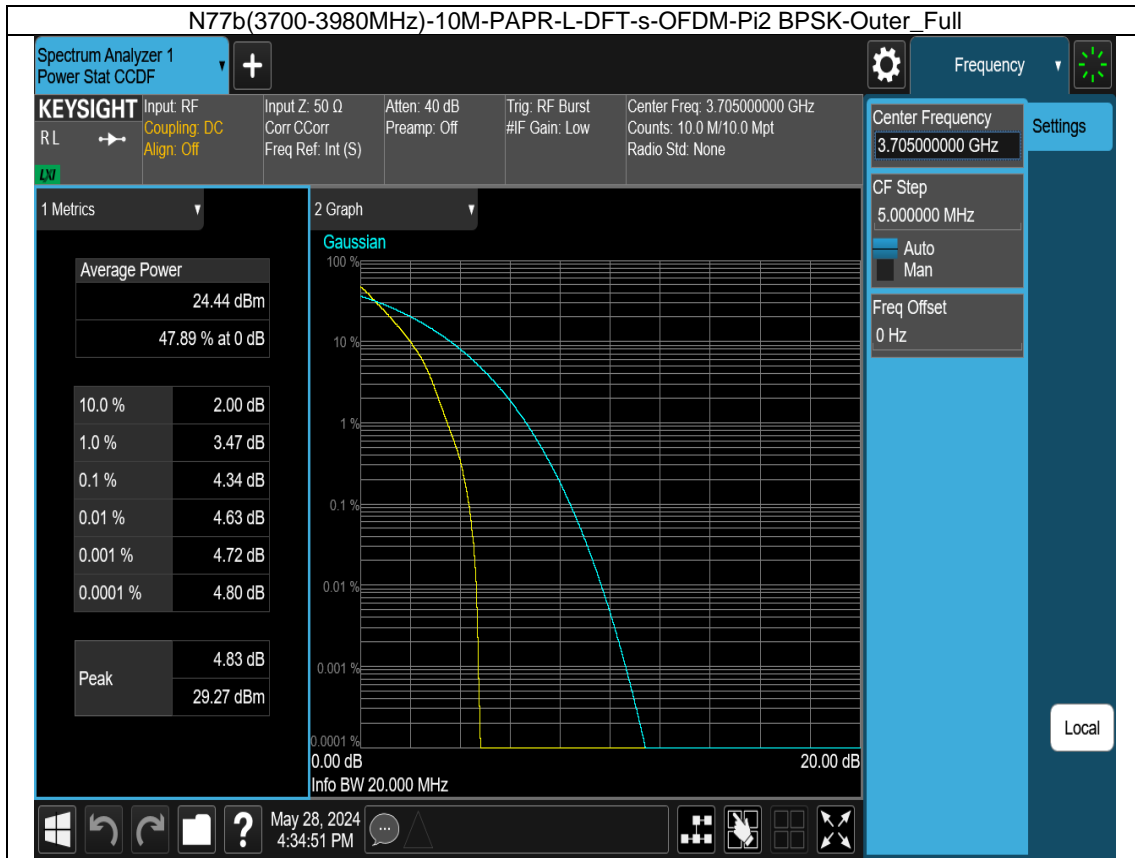
Test Result

5G NR n77b(3700-3980MHz) SCSSCS=30kHz 10MHz					
Modulation	CH	RB Allocation	Peak-Average Ratio (dB)	Limit	Verdict
DFT-s-OFDM PI/2 BPSK	Low CH	Outer_Full	4.34	<=13	Pass
CP-OFDM QPSK		Outer_Full	7.62	<=13	Pass
DFT-s-OFDM PI/2 BPSK	Middle CH	Outer_Full	4.22	<=13	Pass
CP-OFDM QPSK		Outer_Full	7.37	<=13	Pass
DFT-s-OFDM PI/2 BPSK	High CH	Outer_Full	4.20	<=13	Pass
CP-OFDM QPSK		Outer_Full	7.60	<=13	Pass

5G NR n77b(3700-3980MHz) SCSSCS=30kHz 15MHz					
Modulation	CH	RB Allocation	Peak-Average Ratio (dB)	Limit	Verdict
DFT-s-OFDM PI/2 BPSK	Low CH	Outer_Full	4.28	<=13	Pass
CP-OFDM QPSK		Outer_Full	7.57	<=13	Pass
DFT-s-OFDM PI/2 BPSK	Middle CH	Outer_Full	4.31	<=13	Pass
CP-OFDM QPSK		Outer_Full	7.28	<=13	Pass
DFT-s-OFDM PI/2 BPSK	High CH	Outer_Full	4.20	<=13	Pass
CP-OFDM QPSK		Outer_Full	7.54	<=13	Pass

5G NR n77b(3700-3980MHz) SCSSCS=30kHz 20MHz					
Modulation	CH	RB Allocation	Peak-Average Ratio (dB)	Limit	Verdict
DFT-s-OFDM PI/2 BPSK	Low CH	Outer_Full	4.09	<=13	Pass
CP-OFDM QPSK		Outer_Full	7.41	<=13	Pass
DFT-s-OFDM PI/2 BPSK	Middle CH	Outer_Full	4.18	<=13	Pass
CP-OFDM QPSK		Outer_Full	7.16	<=13	Pass
DFT-s-OFDM PI/2 BPSK	High CH	Outer_Full	4.04	<=13	Pass
CP-OFDM QPSK		Outer_Full	7.40	<=13	Pass

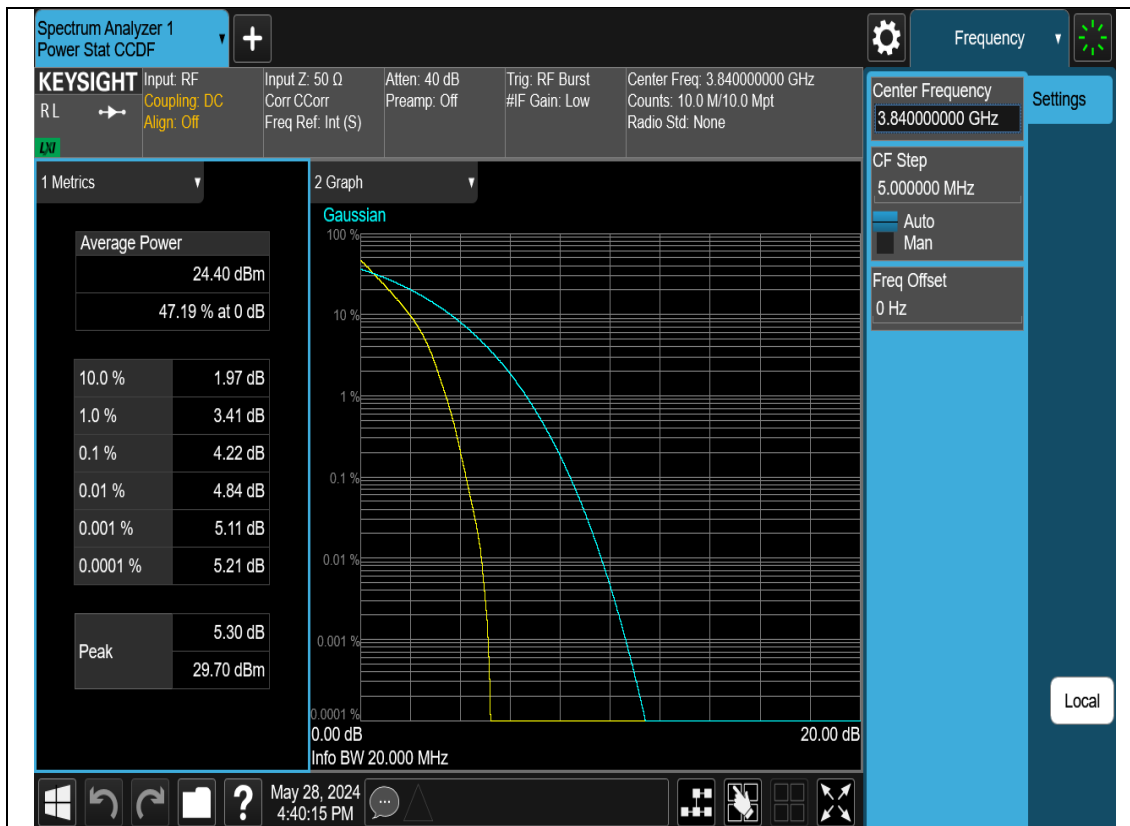
Test Graph



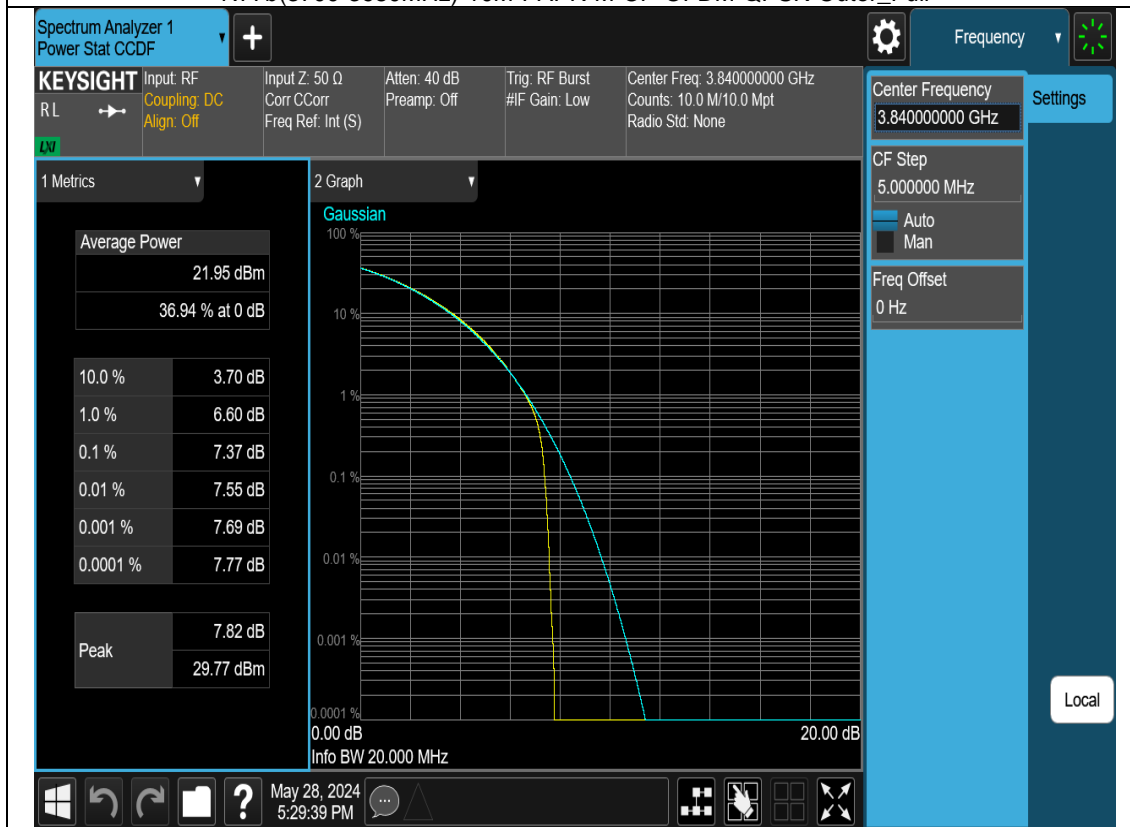
N77b(3700-3980MHz)-10M-PAPR-L-CP-OFDM-QPSK-Outer_Full



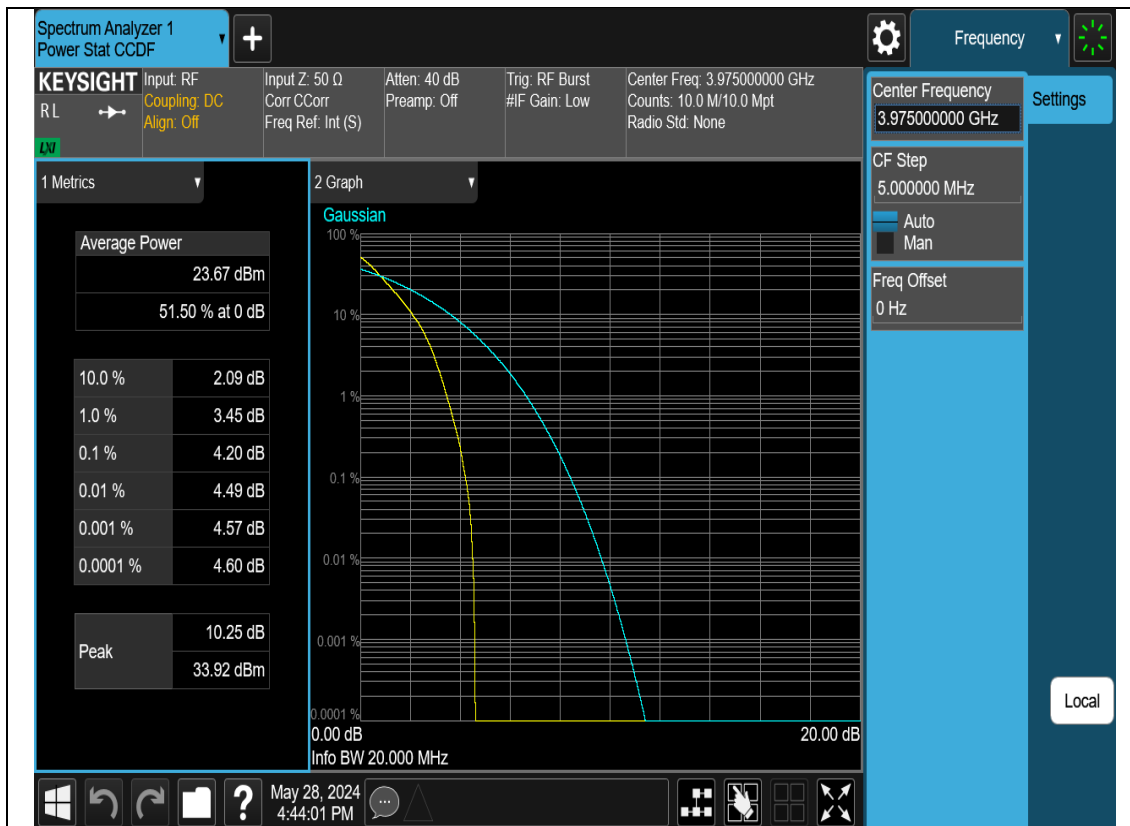
N77b(3700-3980MHz)-10M-PAPR-M-DFT-s-OFDM-Pi2 BPSK-Outer_Full



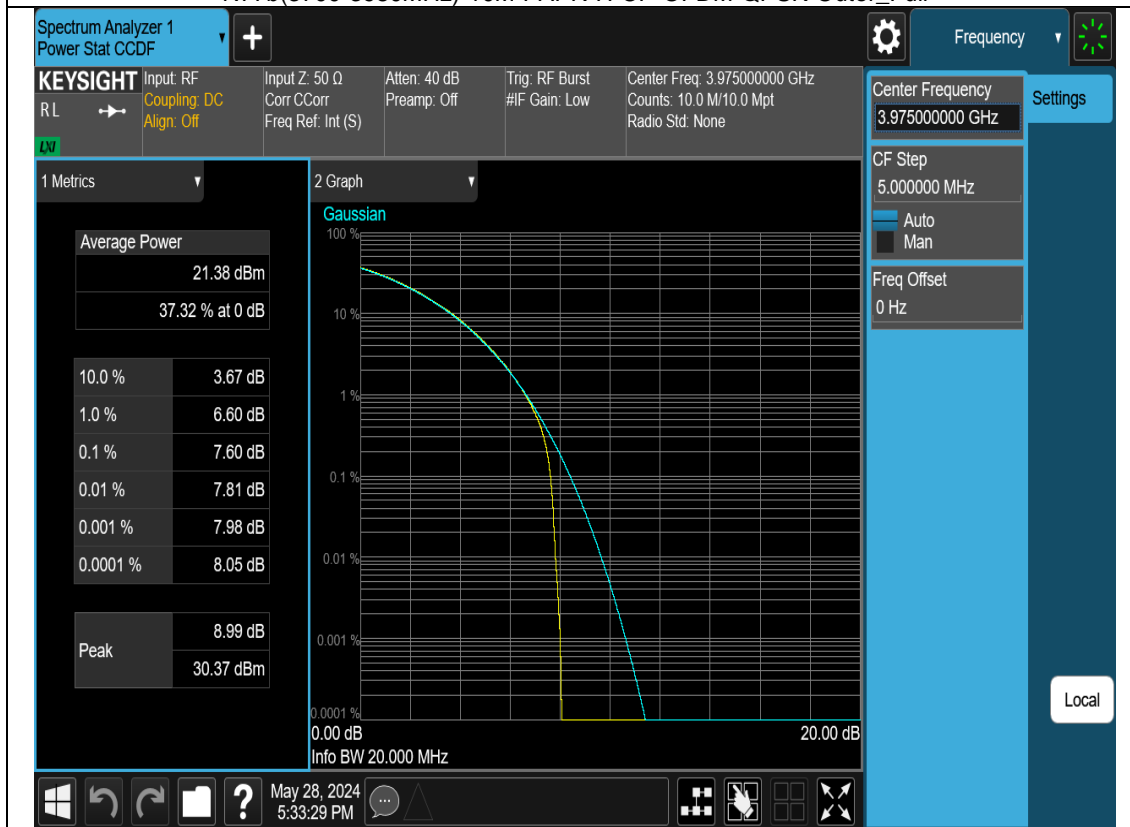
N77b(3700-3980MHz)-10M-PAPR-M-CP-OFDM-QPSK-Outer_Full



N77b(3700-3980MHz)-10M-PAPR-H-DFT-s-OFDM-Pi2 BPSK-Outer_Full



N77b(3700-3980MHz)-10M-PAPR-H-CP-OFDM-QPSK-Outer_Full



N77b(3700-3980MHz)-15M-PAPR-L-DFT-s-OFDM-Pi2 BPSK-Outer_Full



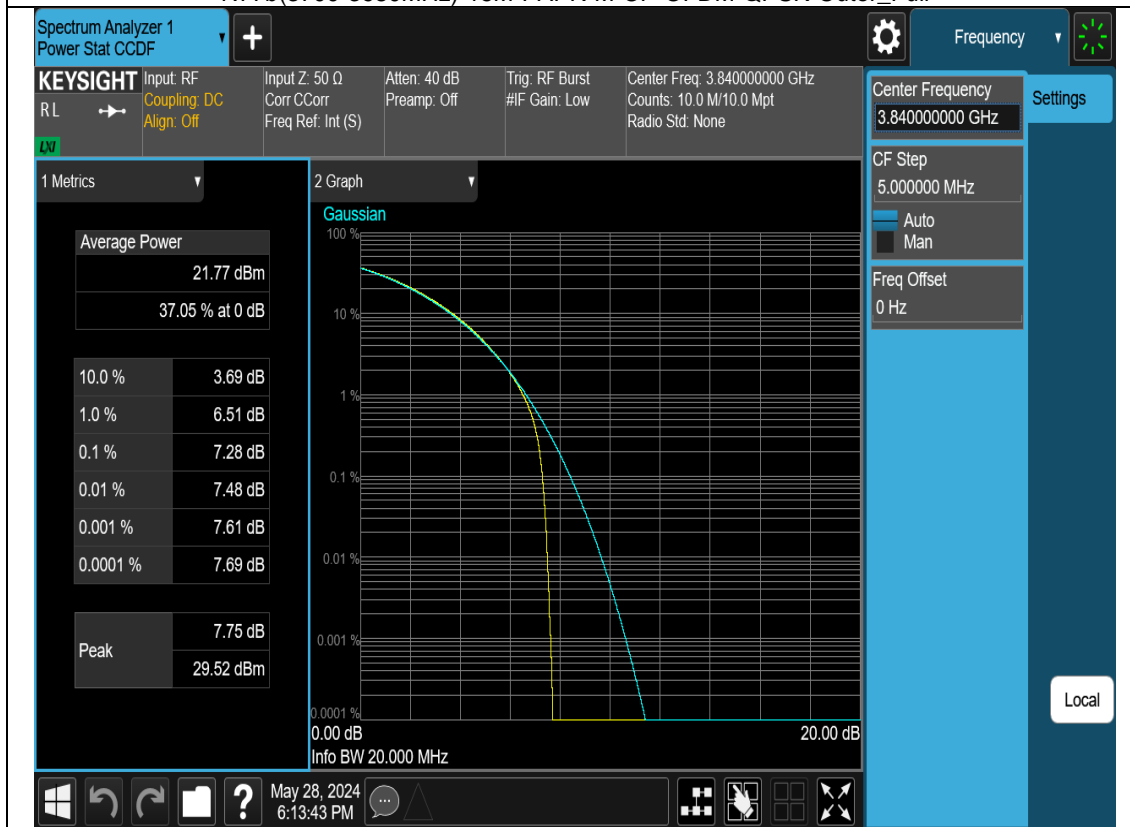
N77b(3700-3980MHz)-15M-PAPR-L-CP-OFDM-QPSK-Outer_Full



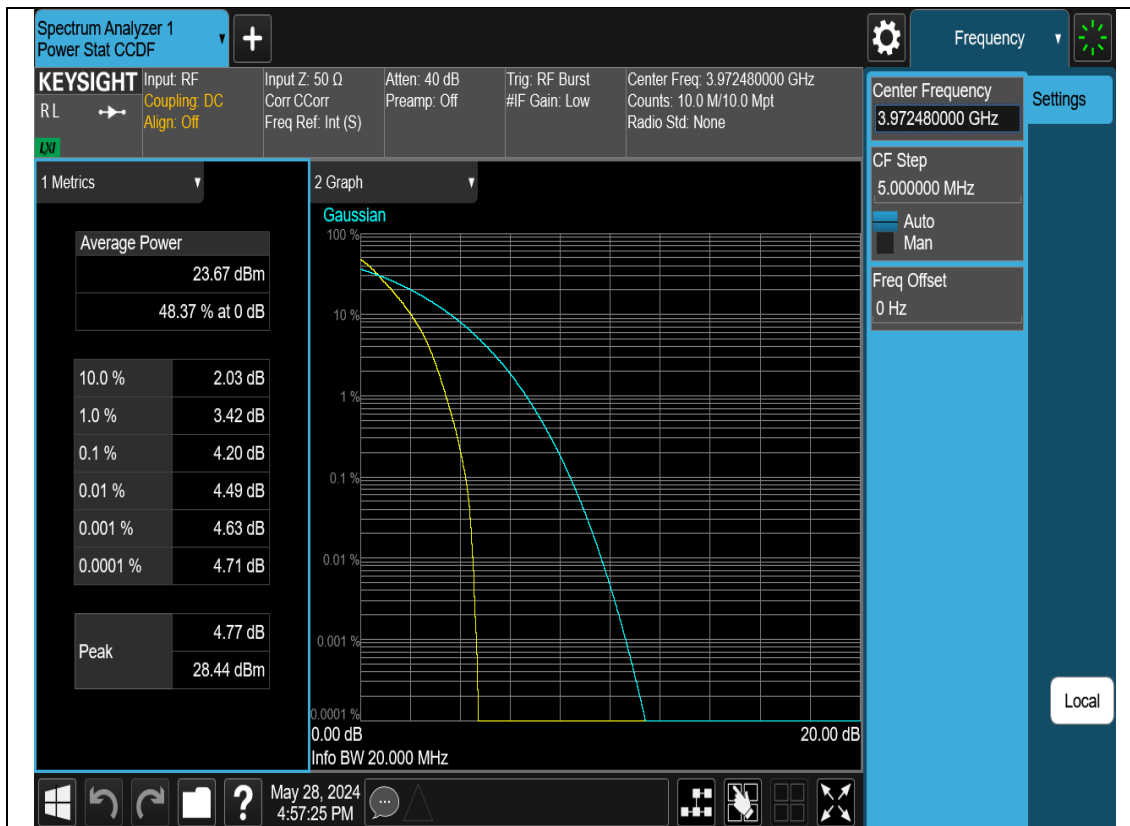
N77b(3700-3980MHz)-15M-PAPR-M-DFT-s-OFDM-Pi2 BPSK-Outer_Full



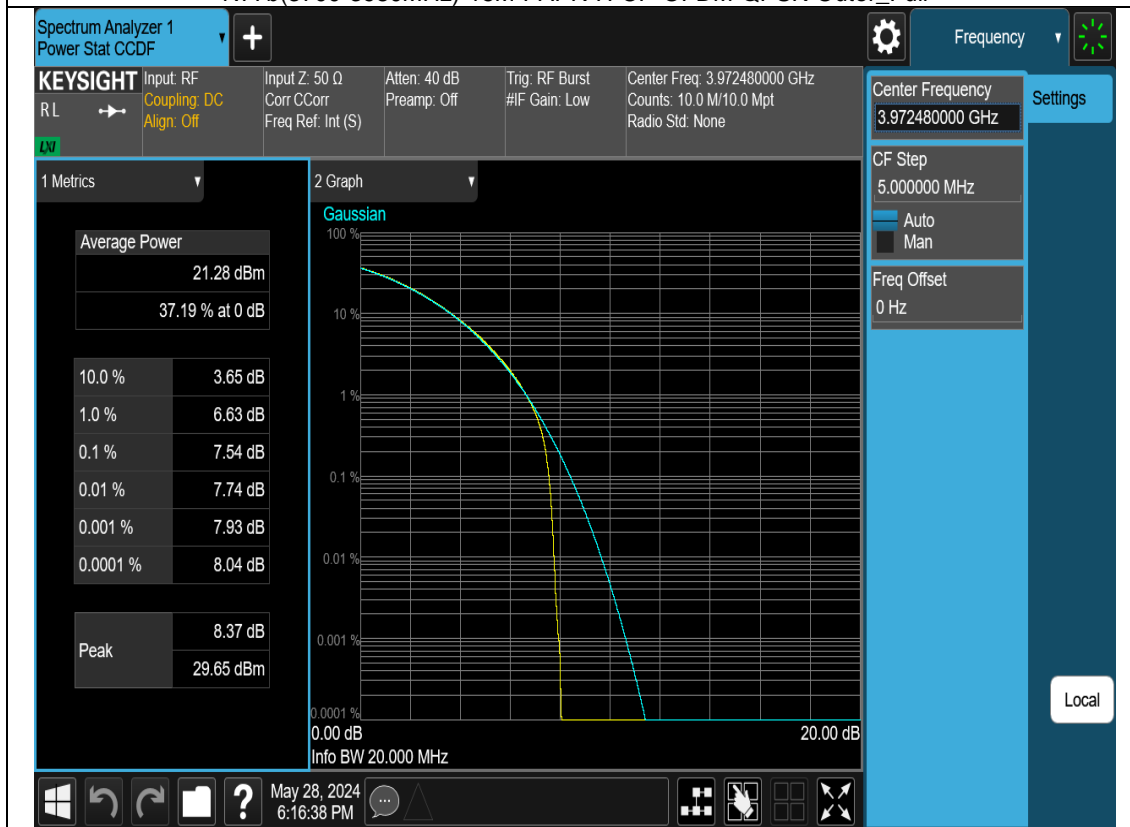
N77b(3700-3980MHz)-15M-PAPR-M-CP-OFDM-QPSK-Outer_Full



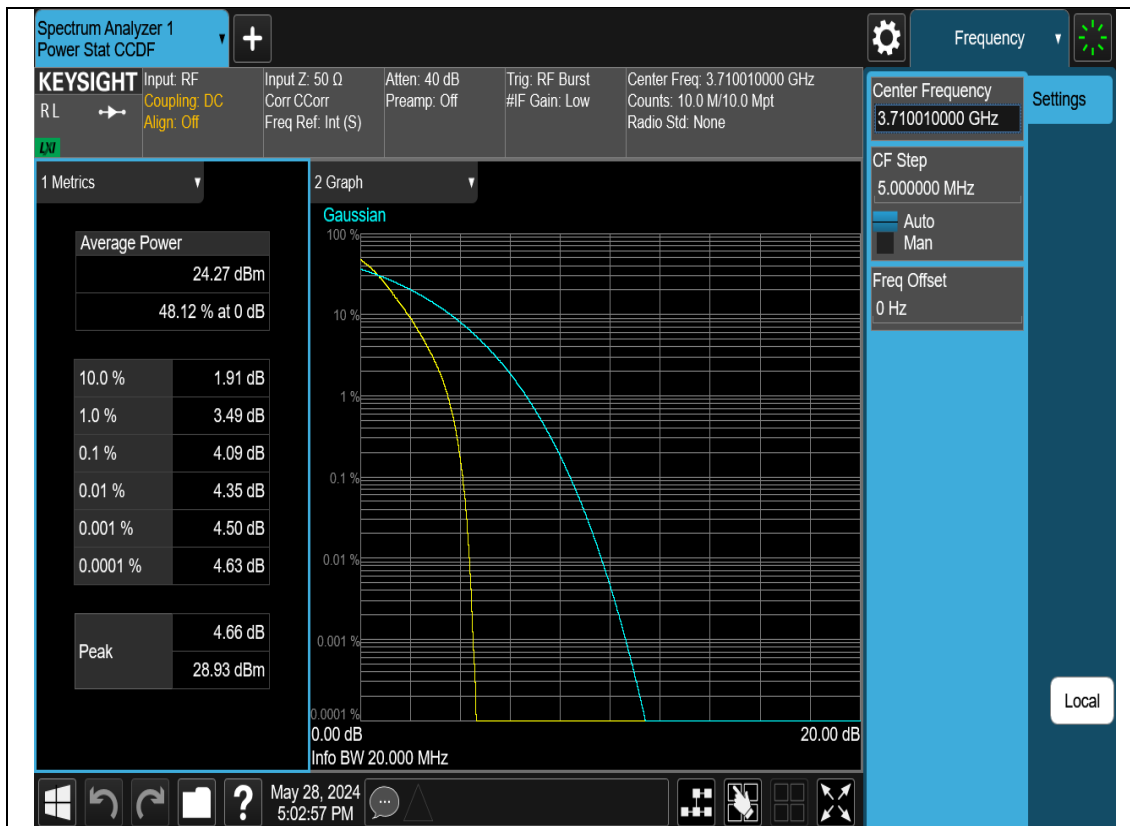
N77b(3700-3980MHz)-15M-PAPR-H-DFT-s-OFDM-Pi2 BPSK-Outer_Full



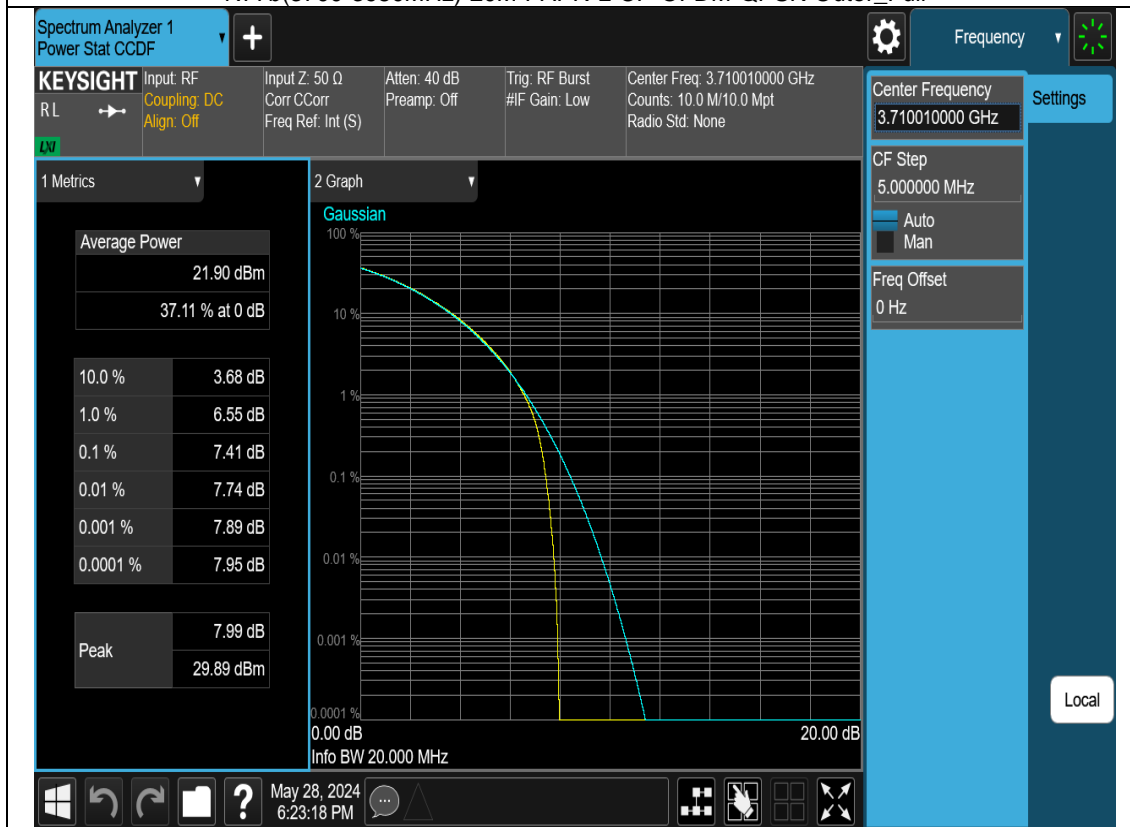
N77b(3700-3980MHz)-15M-PAPR-H-CP-OFDM-QPSK-Outer_Full



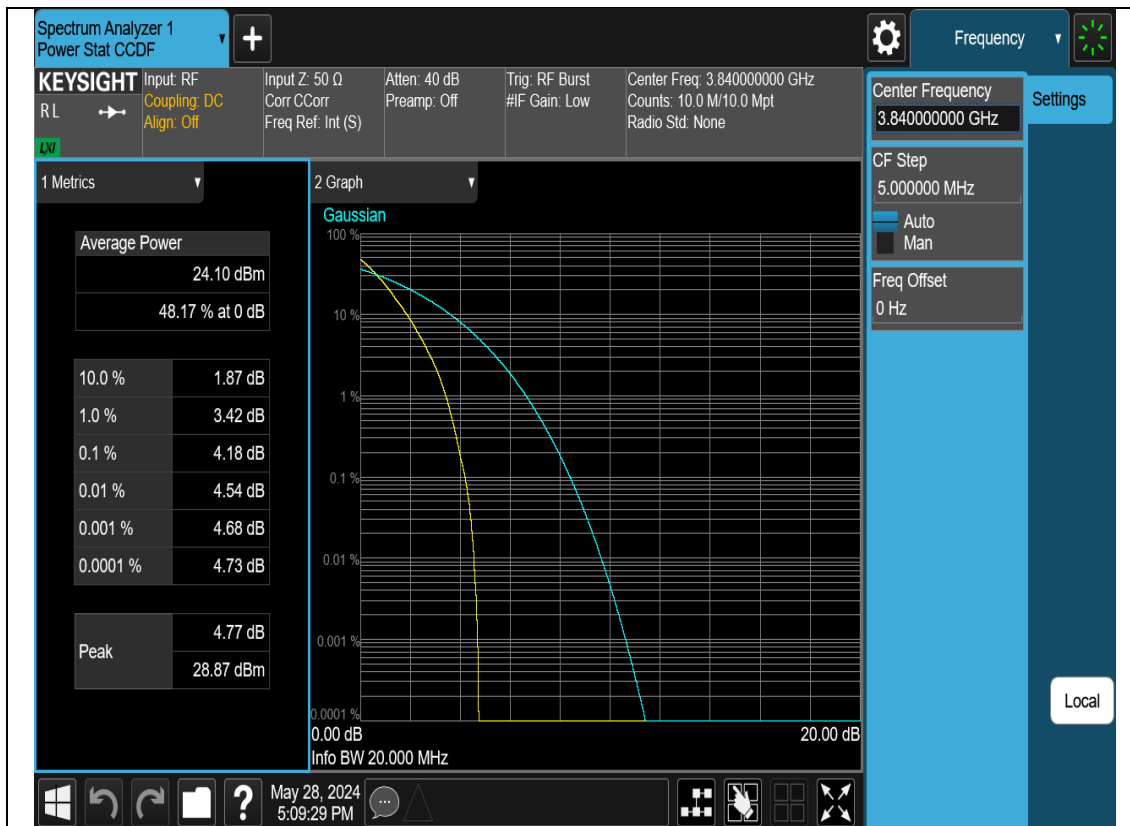
N77b(3700-3980MHz)-20M-PAPR-L-DFT-s-OFDM-Pi2 BPSK-Outer_Full



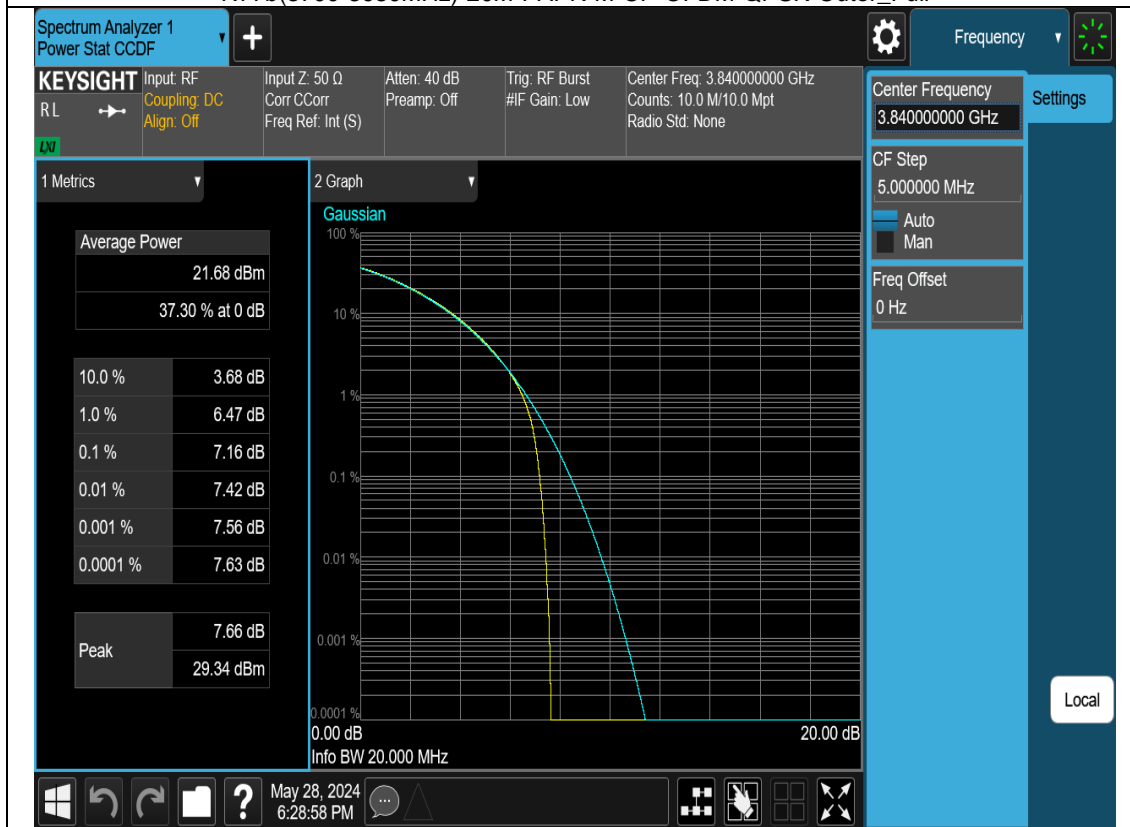
N77b(3700-3980MHz)-20M-PAPR-L-CP-OFDM-QPSK-Outer_Full



N77b(3700-3980MHz)-20M-PAPR-M-DFT-s-OFDM-Pi2 BPSK-Outer_Full



N77b(3700-3980MHz)-20M-PAPR-M-CP-OFDM-QPSK-Outer_Full



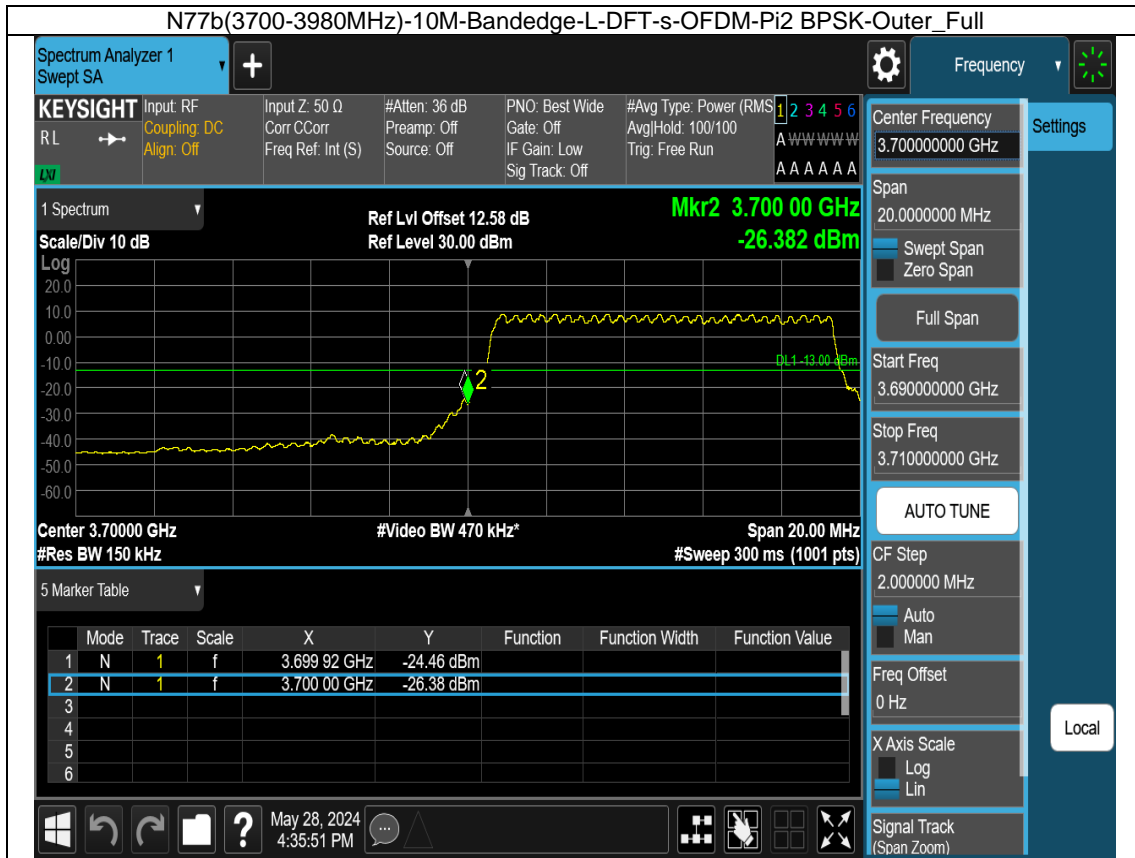
N77b(3700-3980MHz)-20M-PAPR-H-DFT-s-OFDM-Pi2 BPSK-Outer_Full



N77b(3700-3980MHz)-20M-PAPR-H-CP-OFDM-QPSK-Outer_Full



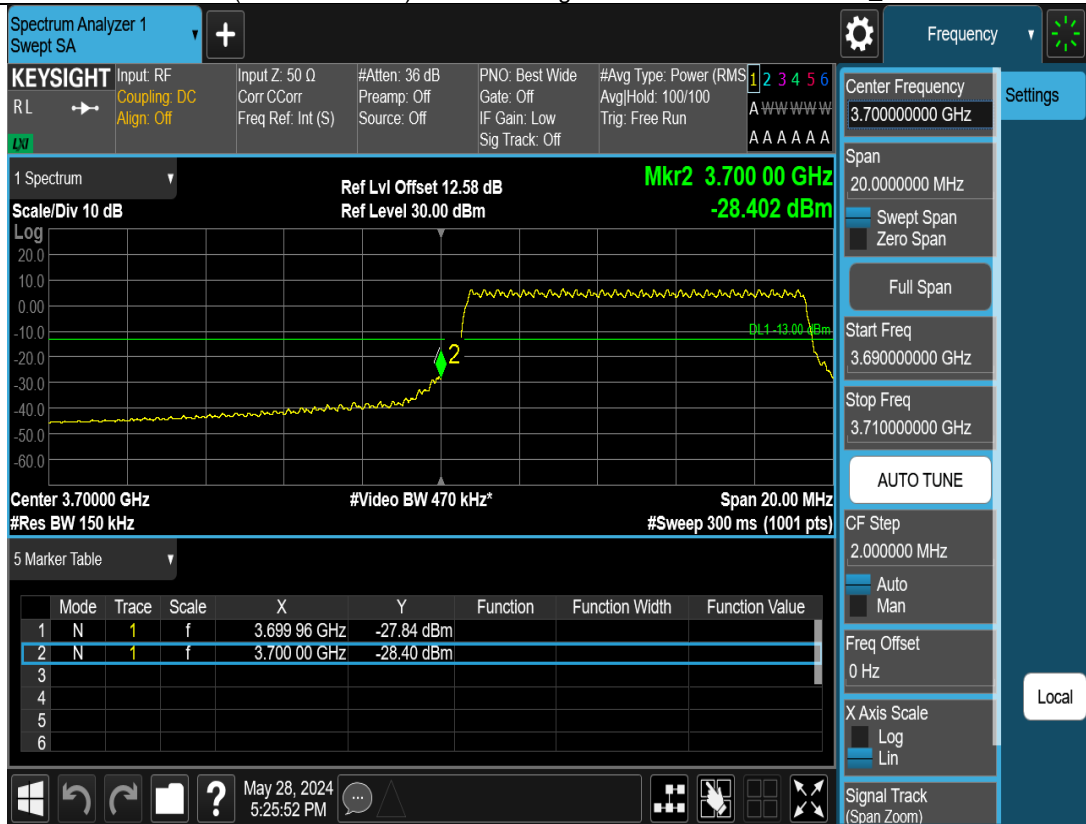
Bandedge test graph



N77b(3700-3980MHz)-10M-Bandedge-L-DFT-s-OFDM-Pi2 BPSK-1RB0



N77b(3700-3980MHz)-10M-Bandedge-L-CP-OFDM-QPSK-Outer_Full



N77b(3700-3980MHz)-10M-Bandedge-L-CP-OFDM-QPSK-1RB0

Spectrum Analyzer 1 Swept SA

KEYSIGHT Input RF Coupling: DC Align: Off

Input Z: 50 Ω Corr: C Corr Freq Ref: Int (S) #Atten: 36 dB Preamp: Off Source: Off PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off #Avg Type: Power (RMS) Avg/Hold: 100/100 Trig: Free Run

Center Frequency 3.70000000 GHz

Span 10.000000 MHz

Start Freq 3.695000000 GHz

Stop Freq 3.705000000 GHz

Scale/Div 10 dB

Ref Lvl Offset 12.58 dB

Ref Level 30.00 dBm

Mkr2 3.700 00 GHz -25.369 dBm

DL1 -13.00 dBm

Center 3.700000 GHz #Video BW 100 kHz* Span 10.00 MHz #Res BW 30 kHz #Sweep 300 ms (1001 pts)

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	3.699 98 GHz	-26.95 dBm		
2	N	1	f	3.700 00 GHz	-25.37 dBm		
3							
4							
5							
6							

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N77b(3700-3980MHz)-10M-Bandedge-H-DFT-s-OFDM-Pi2 BPSK-Outer_Full

Spectrum Analyzer 1 Swept SA

KEYSIGHT Input RF Coupling: DC Align: Off

Input Z: 50 Ω Corr: C Corr Freq Ref: Int (S) #Atten: 36 dB Preamp: Off Source: Off PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off #Avg Type: Power (RMS) Avg/Hold: 100/100 Trig: Free Run

Center Frequency 3.98000000 GHz

Span 20.000000 MHz

Start Freq 3.970000000 GHz

Stop Freq 3.990000000 GHz

Scale/Div 10 dB

Ref Lvl Offset 12.58 dB

Ref Level 30.00 dBm

Mkr2 3.980 00 GHz -23.715 dBm

DL1 -13.00 dBm

Center 3.980000 GHz #Video BW 470 kHz* Span 20.00 MHz #Res BW 150 kHz #Sweep 300 ms (1001 pts)

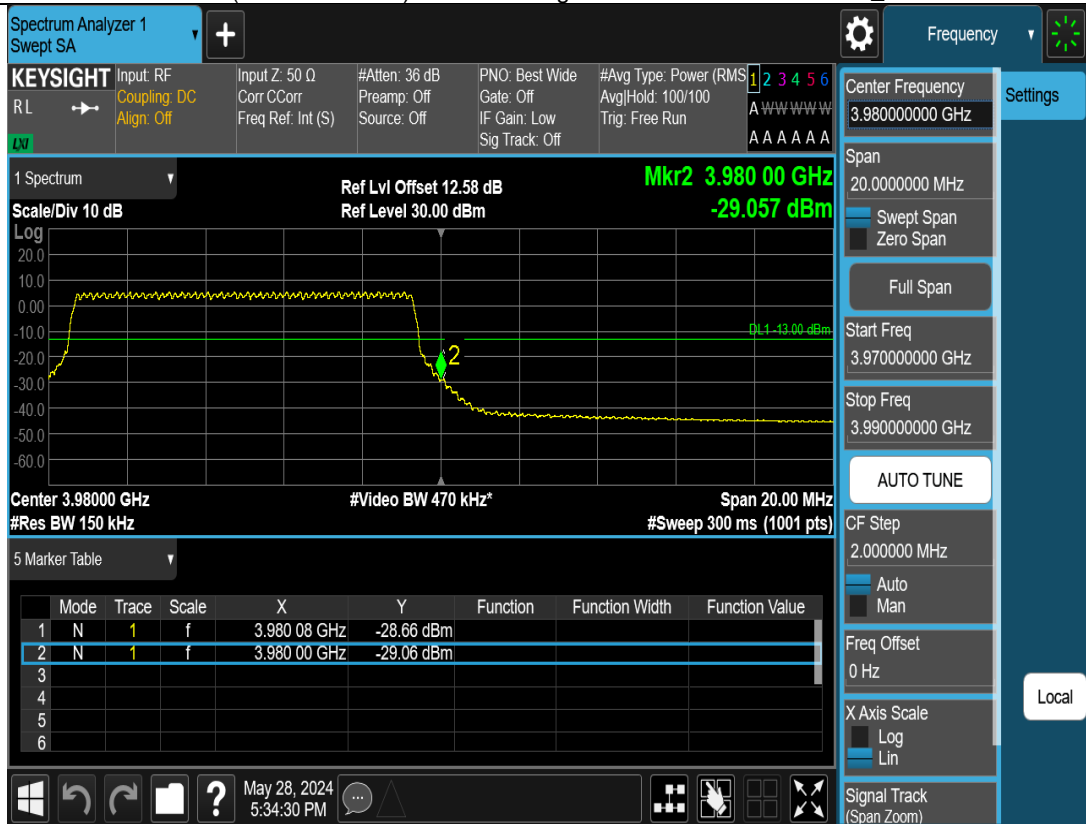
Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	3.980 02 GHz	-22.96 dBm		
2	N	1	f	3.980 00 GHz	-23.72 dBm		
3							
4							
5							
6							

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N77b(3700-3980MHz)-10M-Bandedge-H-DFT-s-OFDM-Pi2 BPSK-1RB_MAX



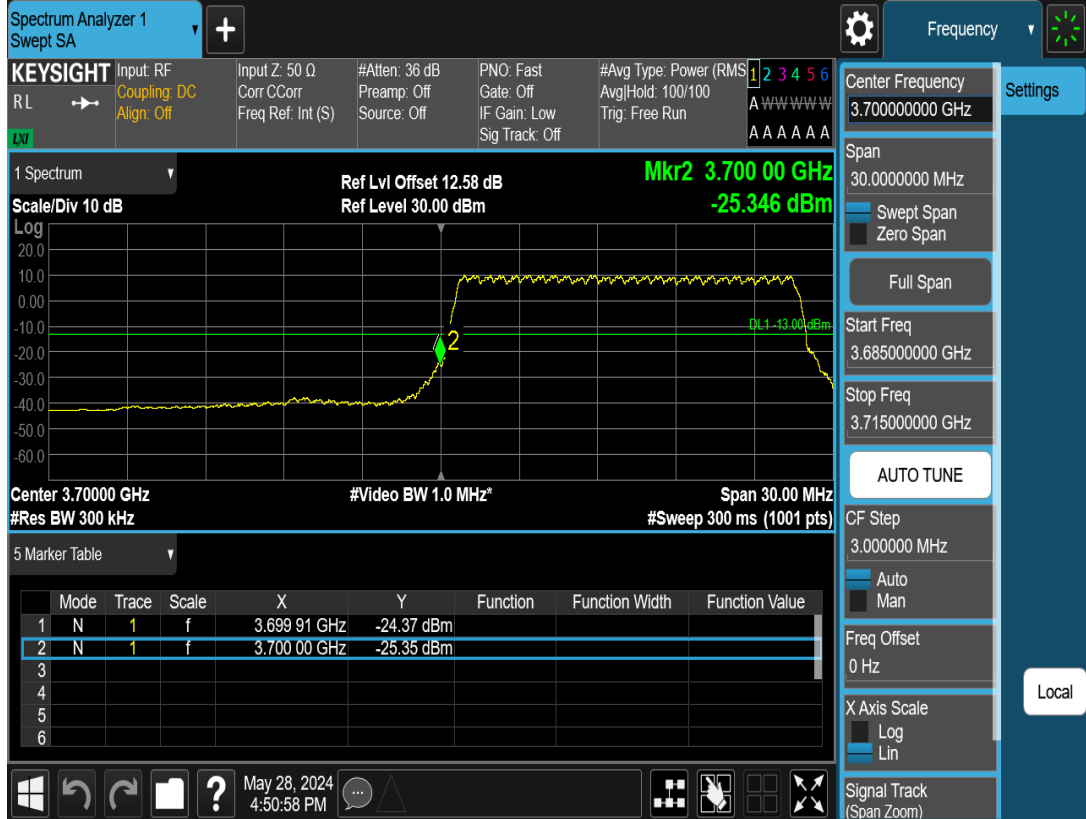
N77b(3700-3980MHz)-10M-Bandedge-H-CP-OFDM-QPSK-Outer_Full



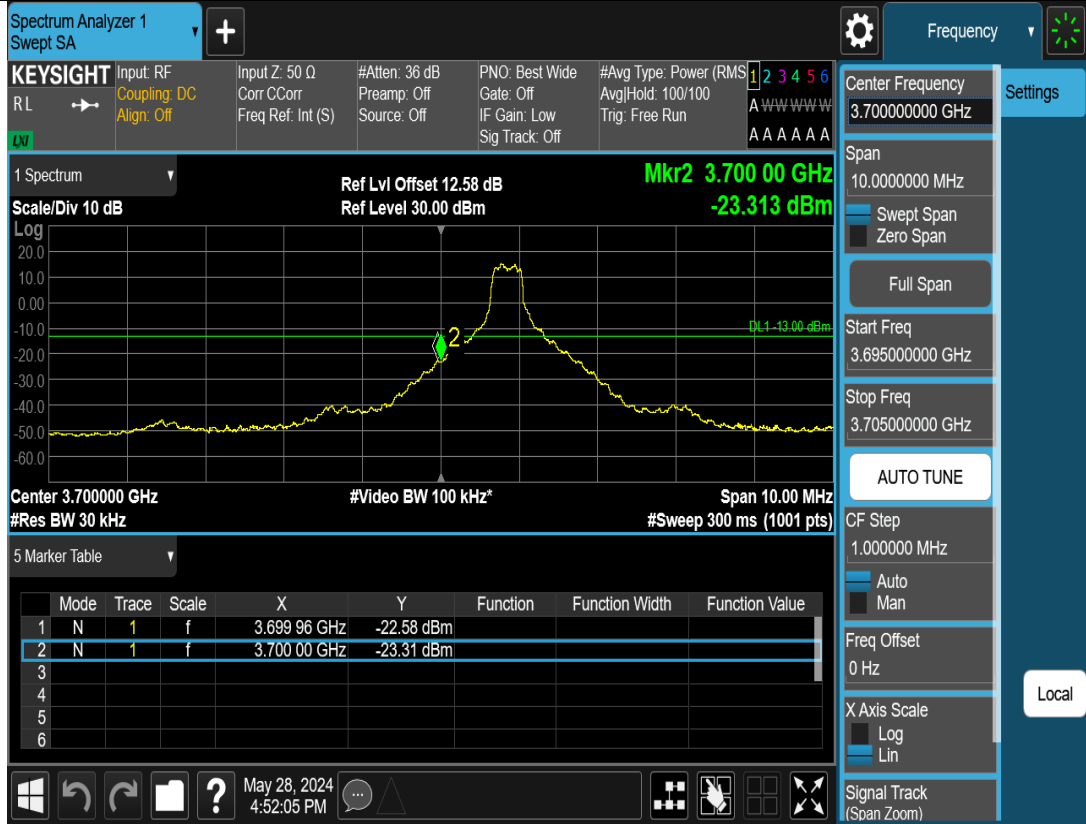
N77b(3700-3980MHz)-10M-Bandedge-H-CP-OFDM-QPSK-1RB_MAX



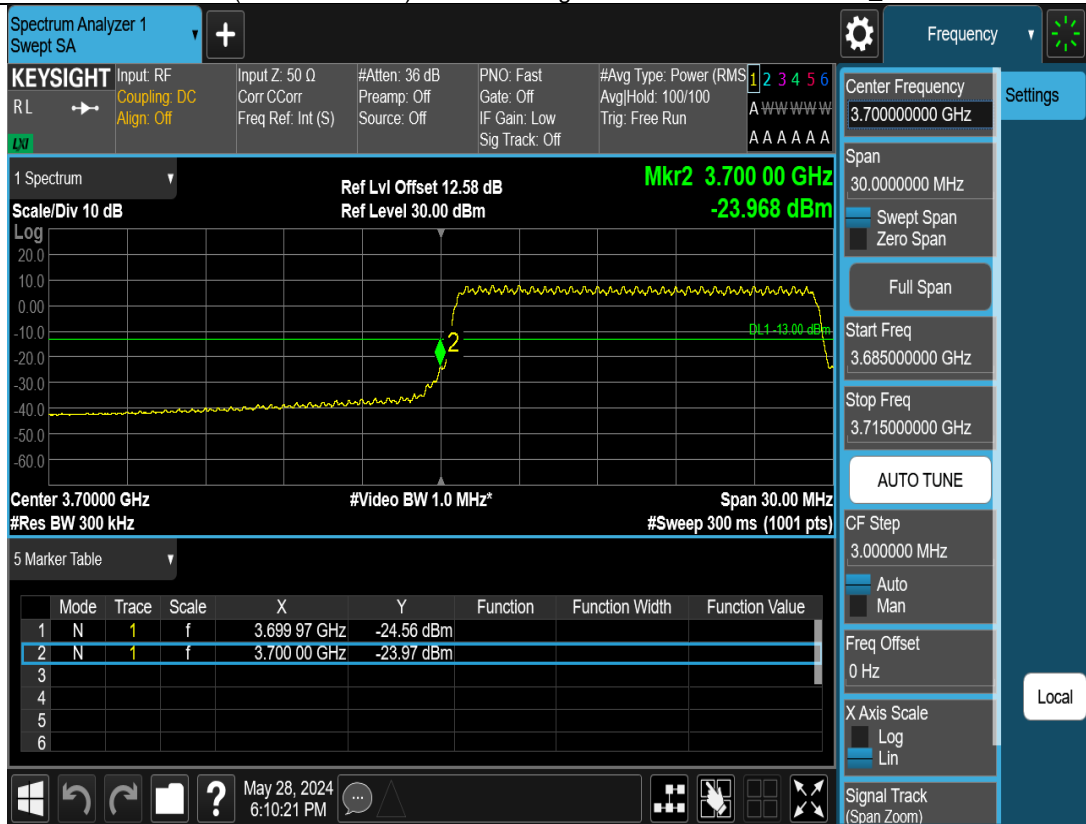
N77b(3700-3980MHz)-15M-Bandedge-L-DFT-s-OFDM-Pi2 BPSK-Outer_Full



N77b(3700-3980MHz)-15M-Bandedge-L-DFT-s-OFDM-Pi2 BPSK-1RB0



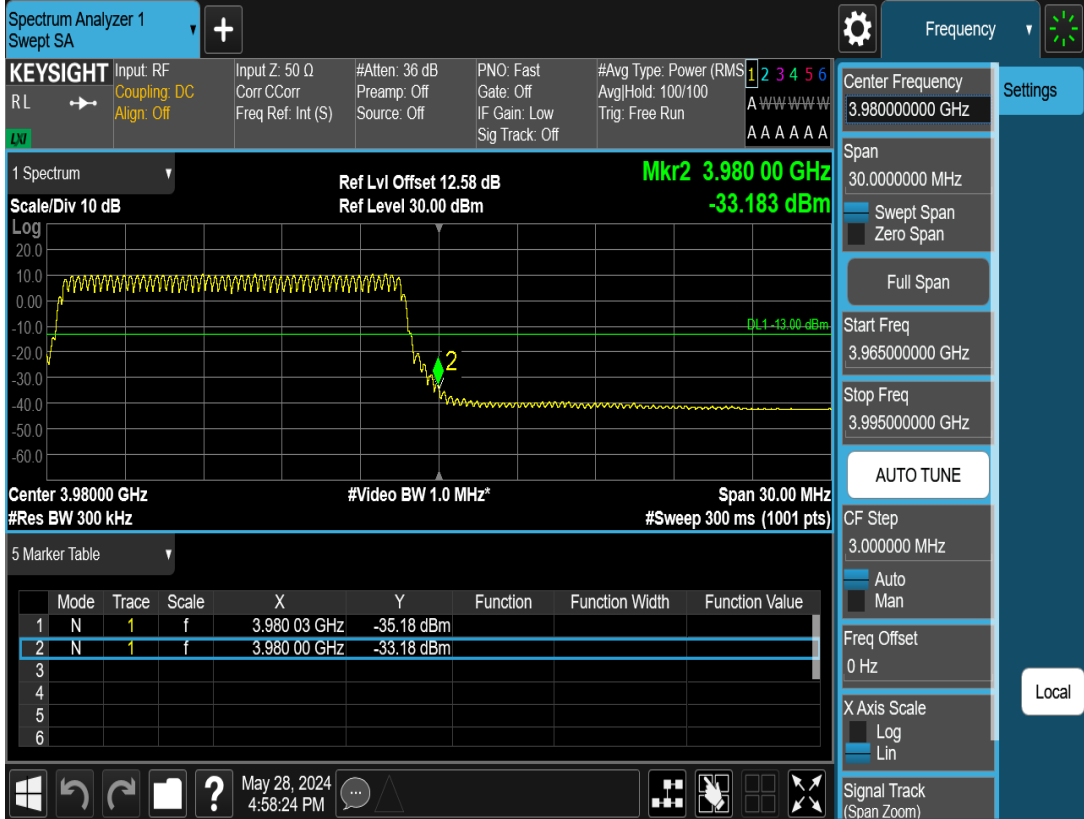
N77b(3700-3980MHz)-15M-Bandedge-L-CP-OFDM-QPSK-Outer_Full



N77b(3700-3980MHz)-15M-Bandedge-L-CP-OFDM-QPSK-1RB0



N77b(3700-3980MHz)-15M-Bandedge-H-DFT-s-OFDM-Pi2 BPSK-Outer_Full



N77b(3700-3980MHz)-15M-Bandedge-H-DFT-s-OFDM-Pi2 BPSK-1RB_MAX

Spectrum Analyzer 1 Swept SA

KEYSIGHT Input RF Input Z: 50 Ω #Atten: 36 dB PNO: Best Wide #Avg Type: Power (RMS) 1 2 3 4 5 6
 RL Coupling: DC Corr: C Corr Freq Ref: Int (S) Preamp: Off Gate: Off Avg/Hold: 100/100 A www www www
 Align: Off Source: Off IF Gain: Low Trig: Free Run A A A A A A

Center Frequency 3.98000000 GHz
 Span 10.000000 MHz
 Start Freq 3.975000000 GHz
 Stop Freq 3.985000000 GHz

Scale/Div 10 dB Ref Lvl Offset 12.58 dB Mkr2 3.980 00 GHz
 Ref Level 30.00 dBm -24.683 dBm

Center 3.980000 GHz #Video BW 100 kHz* Span 10.00 MHz
 #Res BW 30 kHz #Sweep 300 ms (1001 pts)

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	3.980 02 GHz			-24.36 dBm
2	N	1	f	3.980 00 GHz			-24.68 dBm
3							
4							
5							
6							

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N77b(3700-3980MHz)-15M-Bandedge-H-CP-OFDM-QPSK-Outer_Full

Spectrum Analyzer 1 Swept SA

KEYSIGHT Input RF Input Z: 50 Ω #Atten: 36 dB PNO: Fast #Avg Type: Power (RMS) 1 2 3 4 5 6
 RL Coupling: DC Corr: C Corr Freq Ref: Int (S) Preamp: Off Gate: Off Avg/Hold: 100/100 A www www www
 Align: Off Source: Off IF Gain: Low Trig: Free Run A A A A A A

Center Frequency 3.98000000 GHz
 Span 30.000000 MHz
 Start Freq 3.965000000 GHz
 Stop Freq 3.995000000 GHz

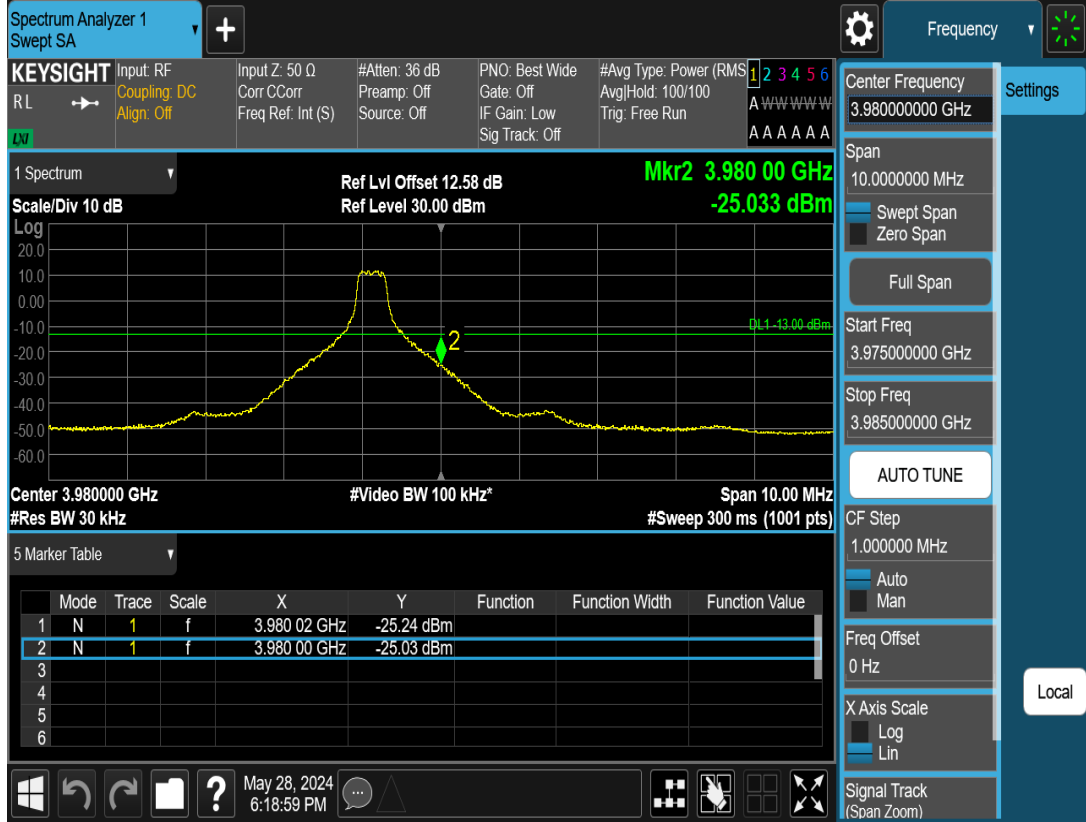
Scale/Div 10 dB Ref Lvl Offset 12.58 dB Mkr2 3.980 00 GHz
 Ref Level 30.00 dBm -27.257 dBm

Center 3.98000 GHz #Video BW 1.0 MHz* Span 30.00 MHz
 #Res BW 300 kHz #Sweep 300 ms (1001 pts)

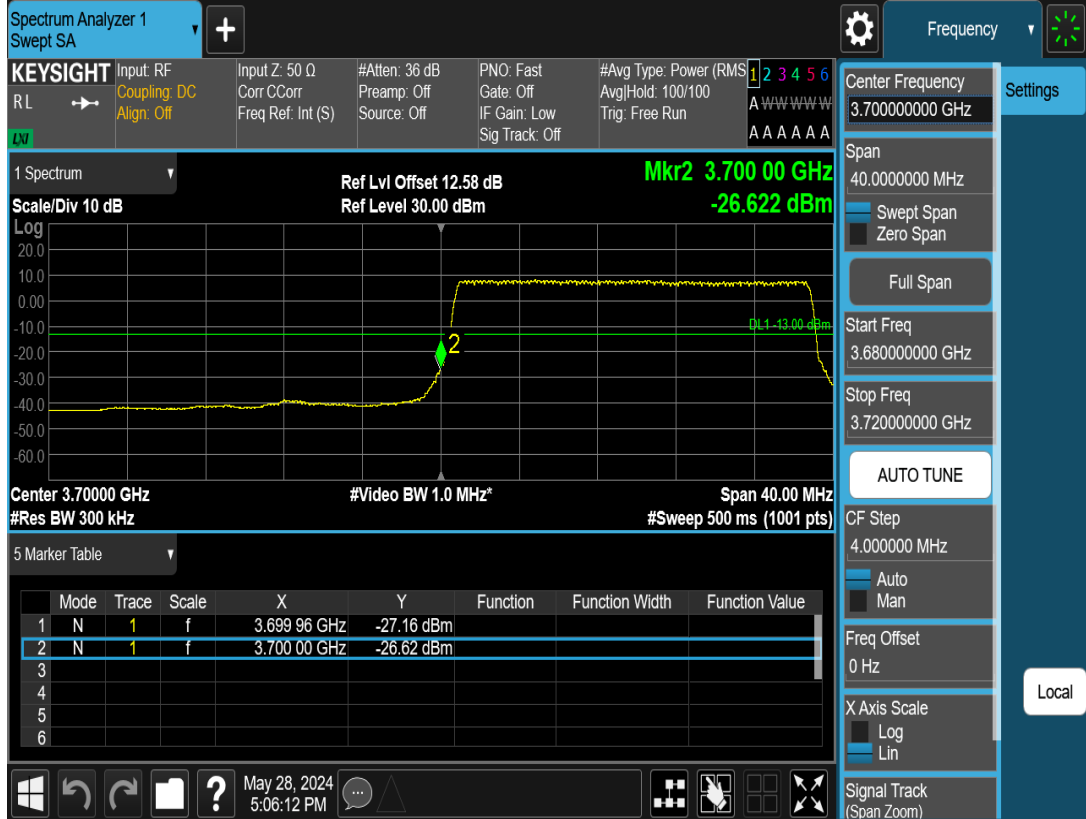
Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	3.980 03 GHz			-27.43 dBm
2	N	1	f	3.980 00 GHz			-27.26 dBm
3							
4							
5							
6							

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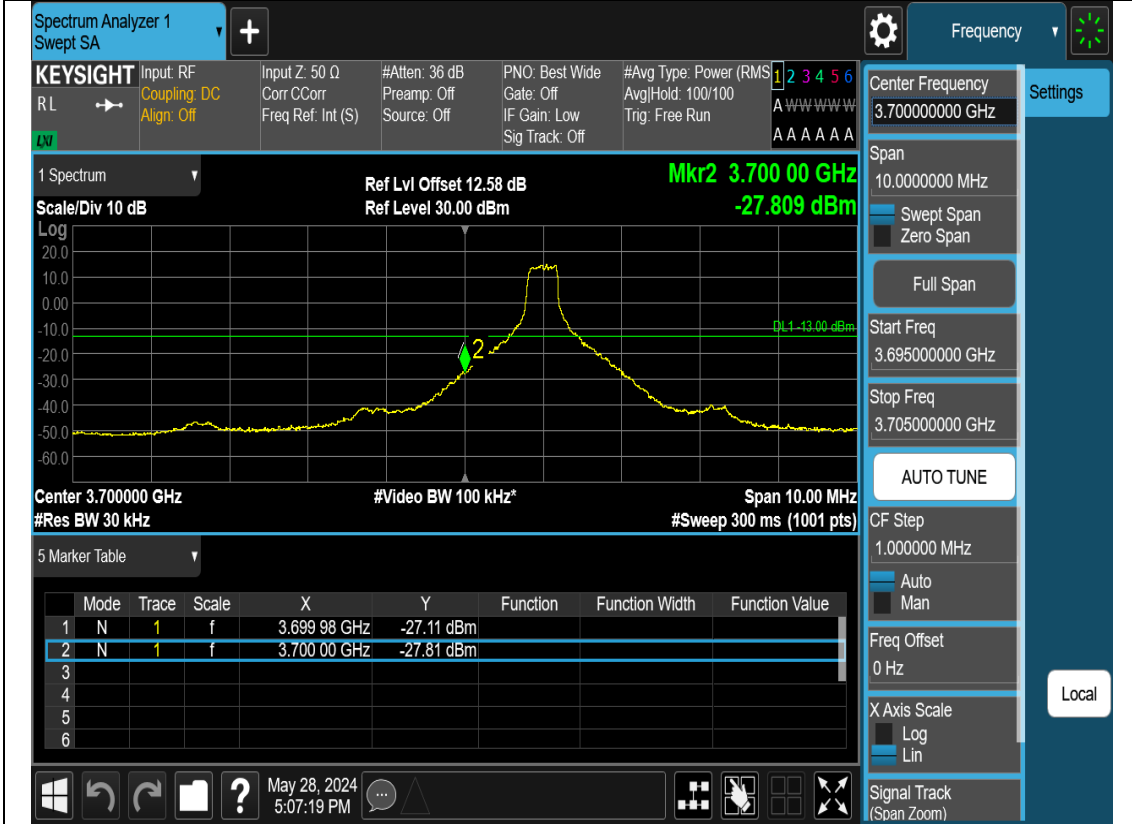
N77b(3700-3980MHz)-15M-Bandedge-H-CP-OFDM-QPSK-1RB_MAX



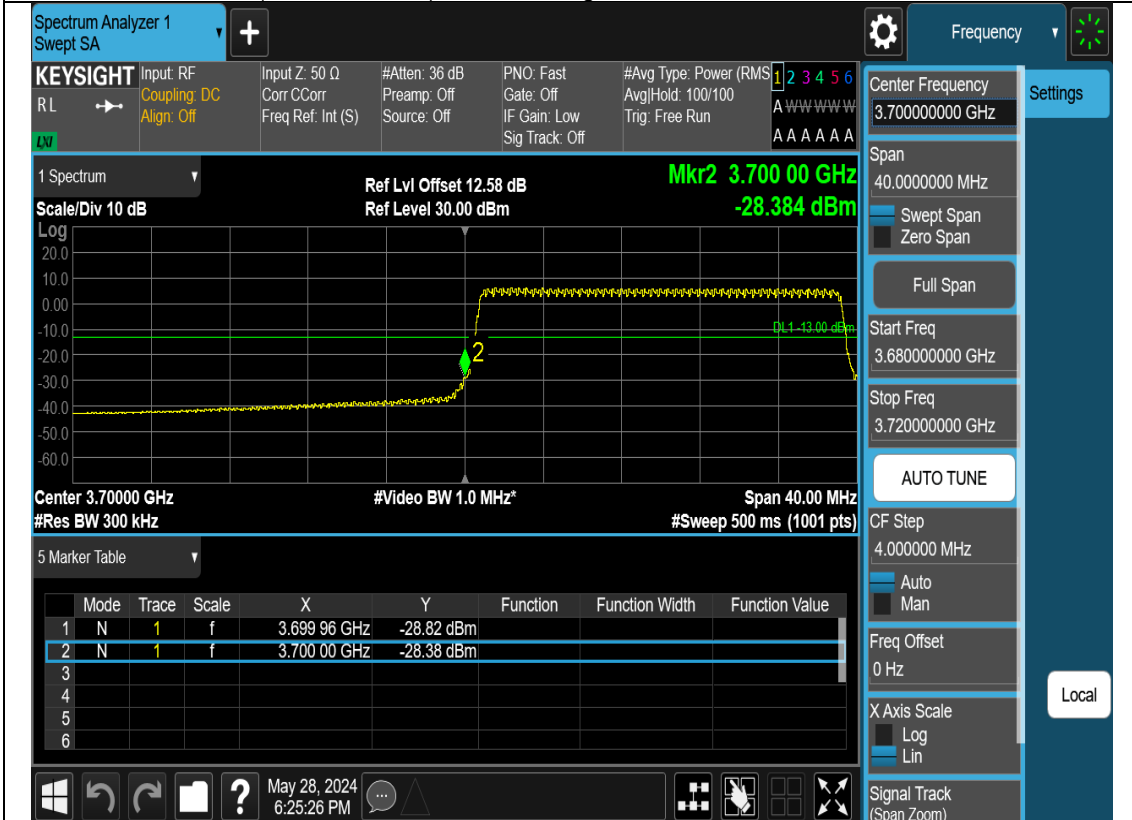
N77b(3700-3980MHz)-20M-Bandedge-L-DFT-s-OFDM-Pi2 BPSK-Outer_Full



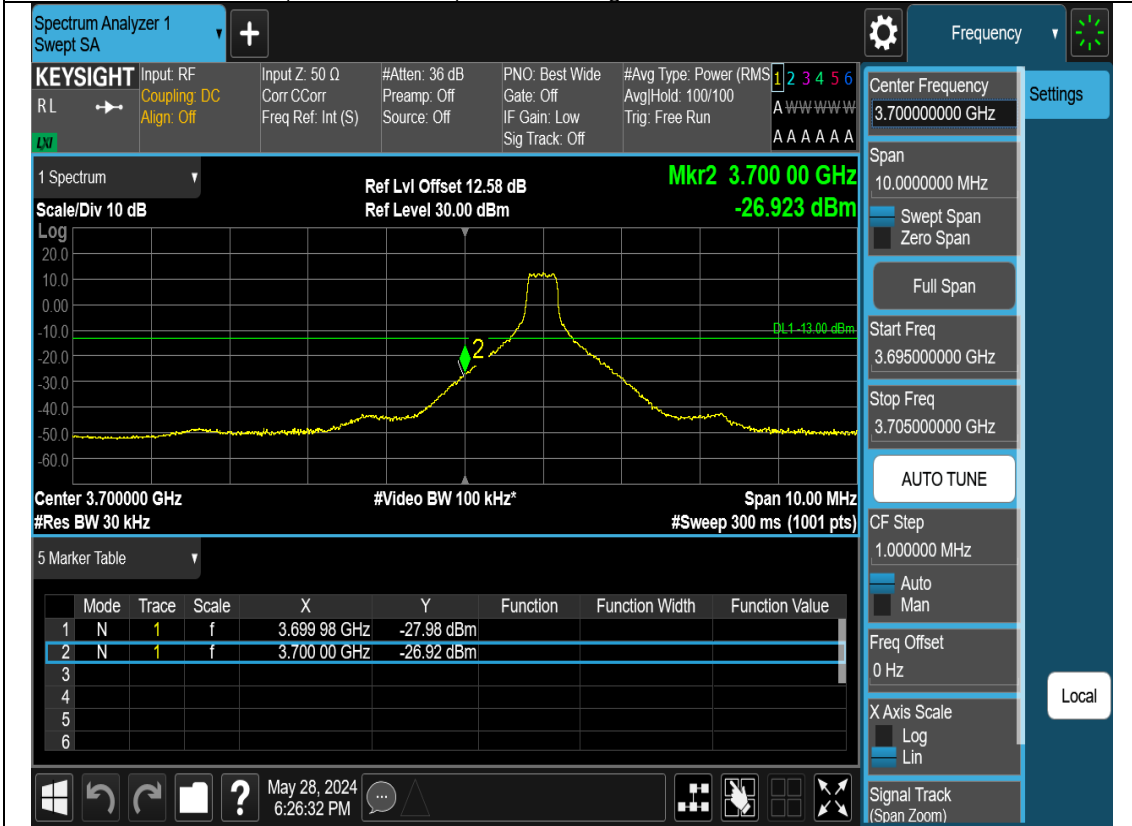
N77b(3700-3980MHz)-20M-Bandedge-L-DFT-s-OFDM-Pi2 BPSK-1RB0



N77b(3700-3980MHz)-20M-Bandedge-L-CP-OFDM-QPSK-Outer_Full



N77b(3700-3980MHz)-20M-Bandedge-L-CP-OFDM-QPSK-1RB0



N77b(3700-3980MHz)-20M-Bandedge-H-DFT-s-OFDM-Pi2 BPSK-Outer_Full

