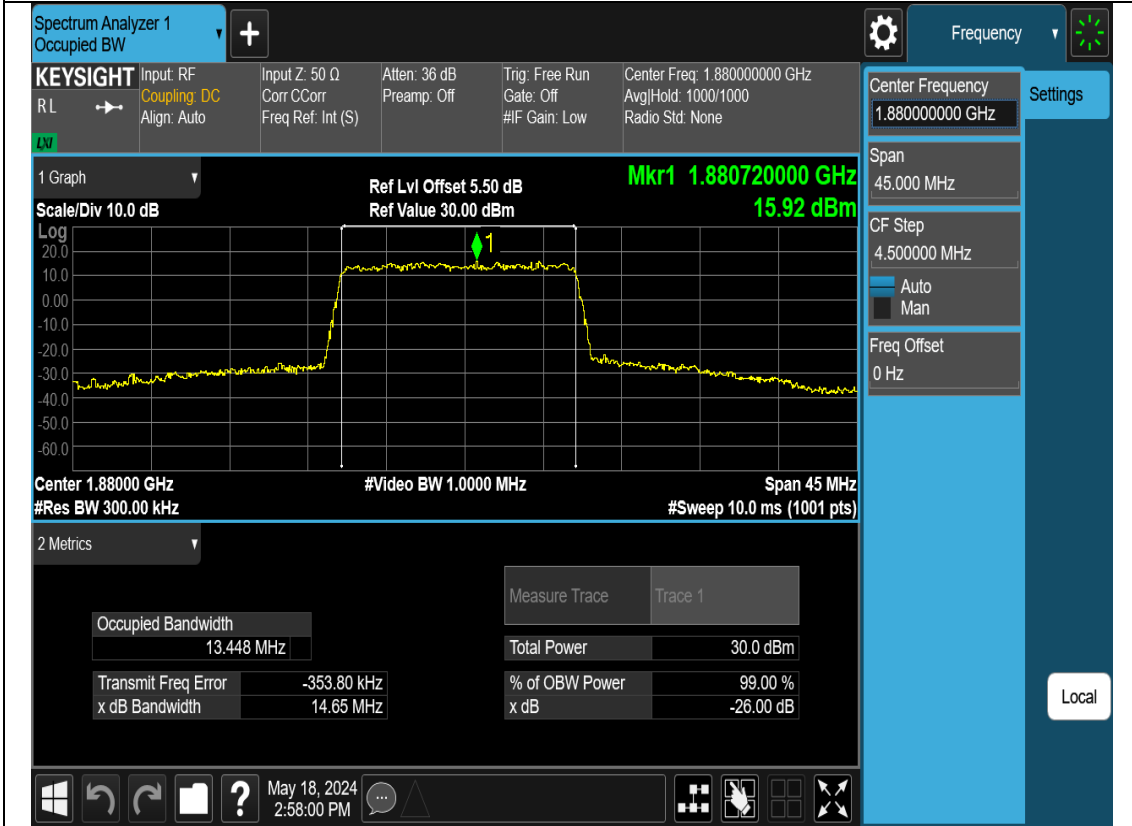
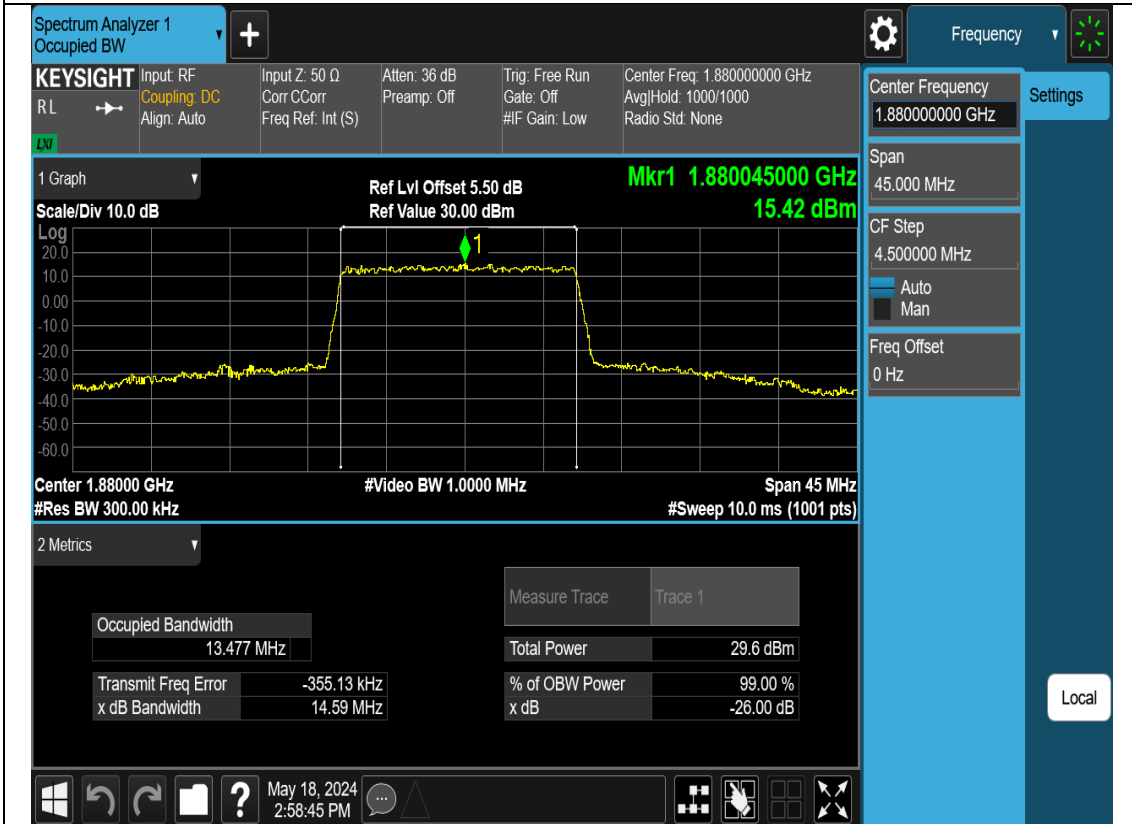


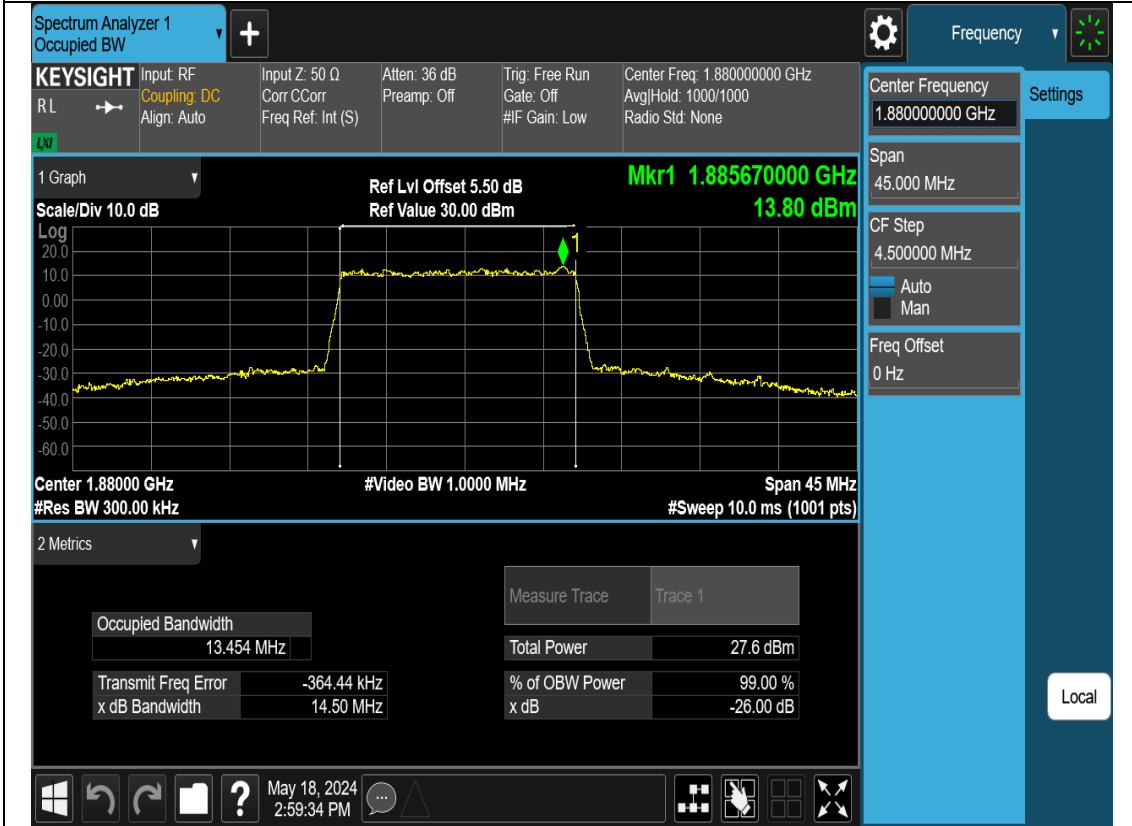
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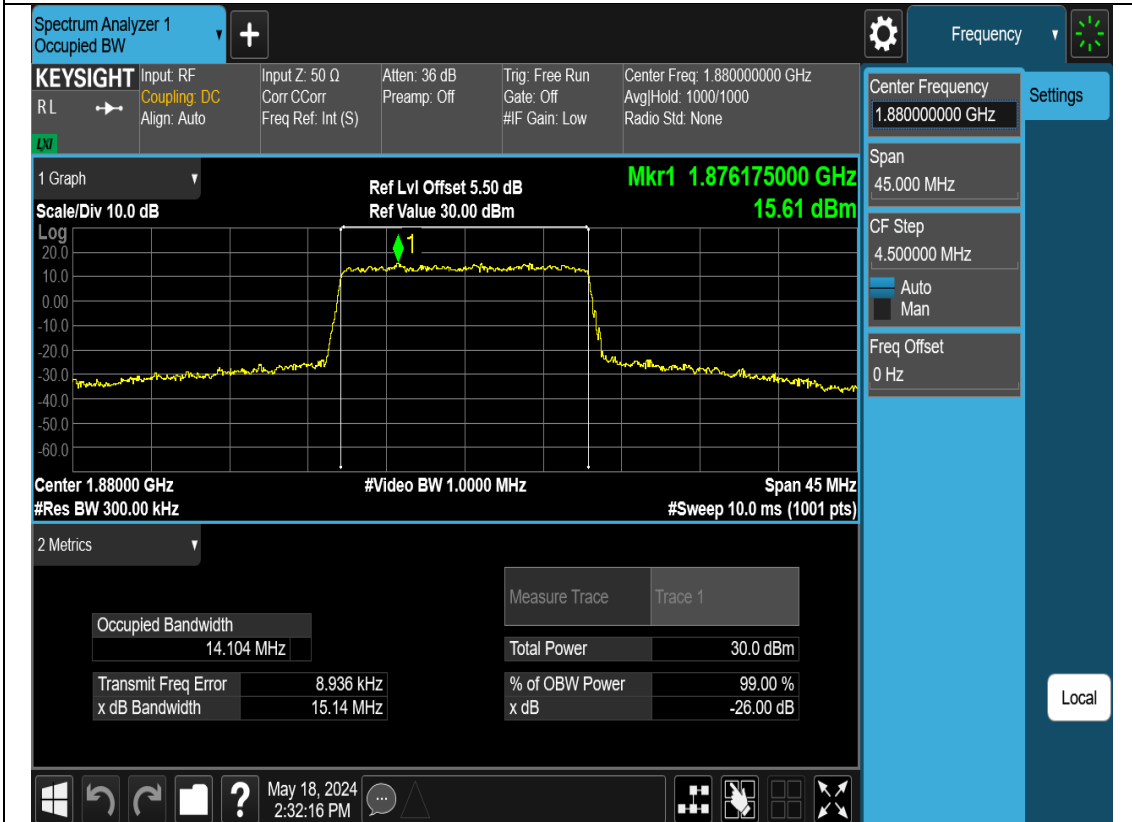
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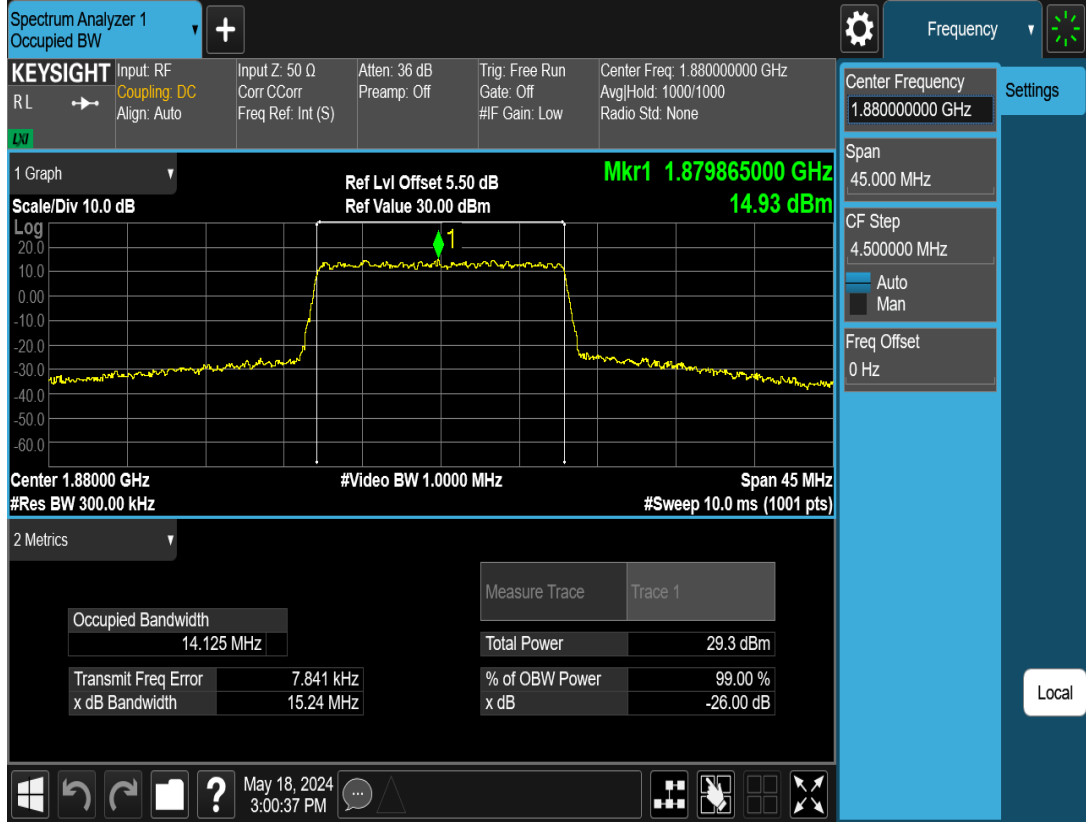
N2-15M-OBW-M-DFT-s-OFDM-256QAM



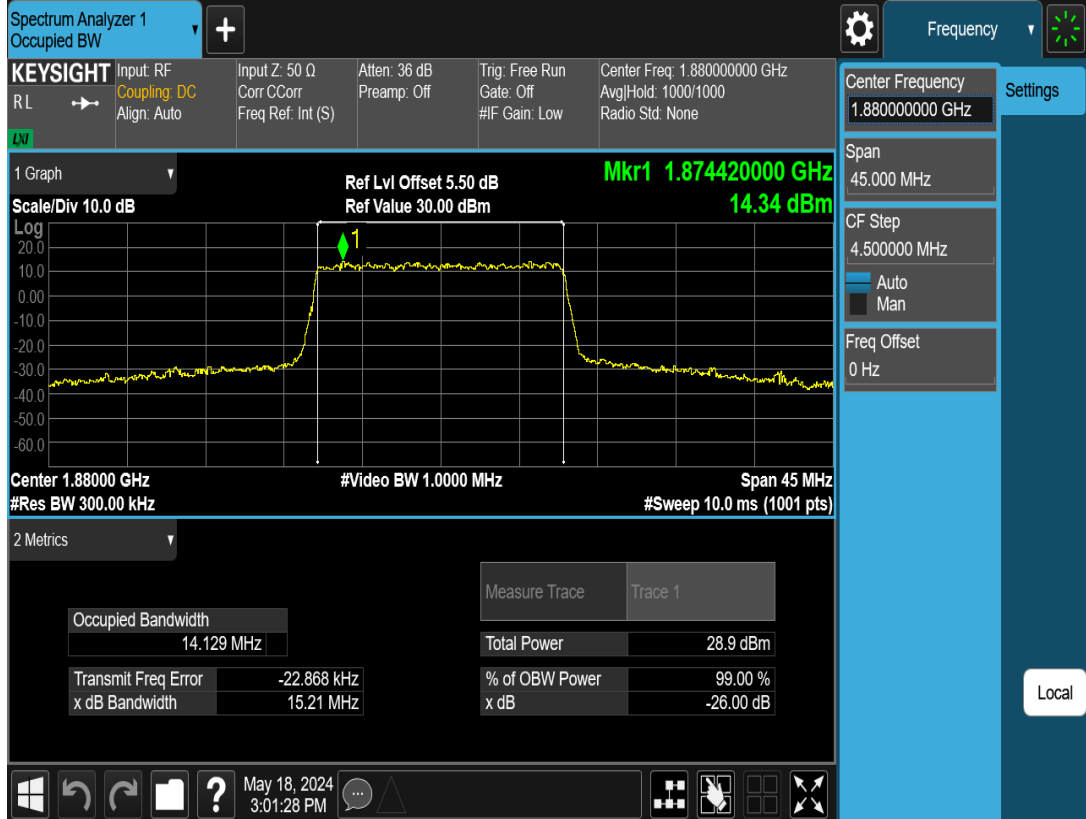
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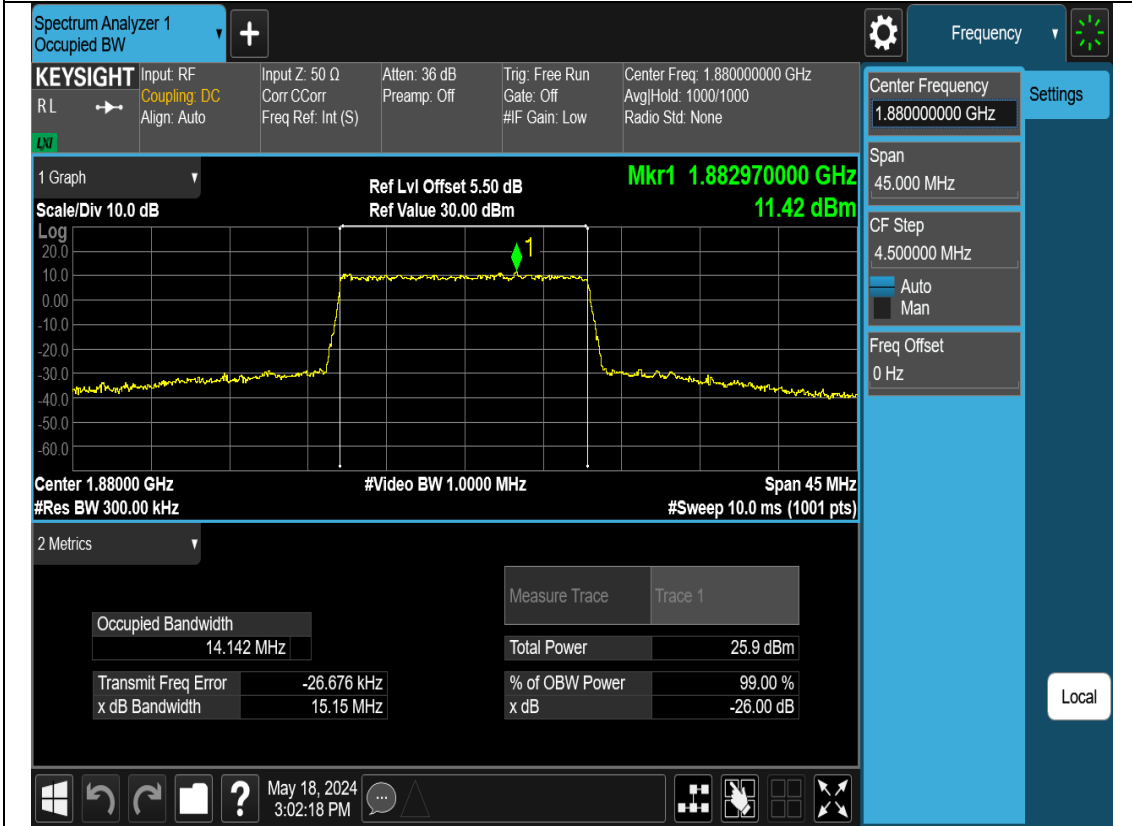
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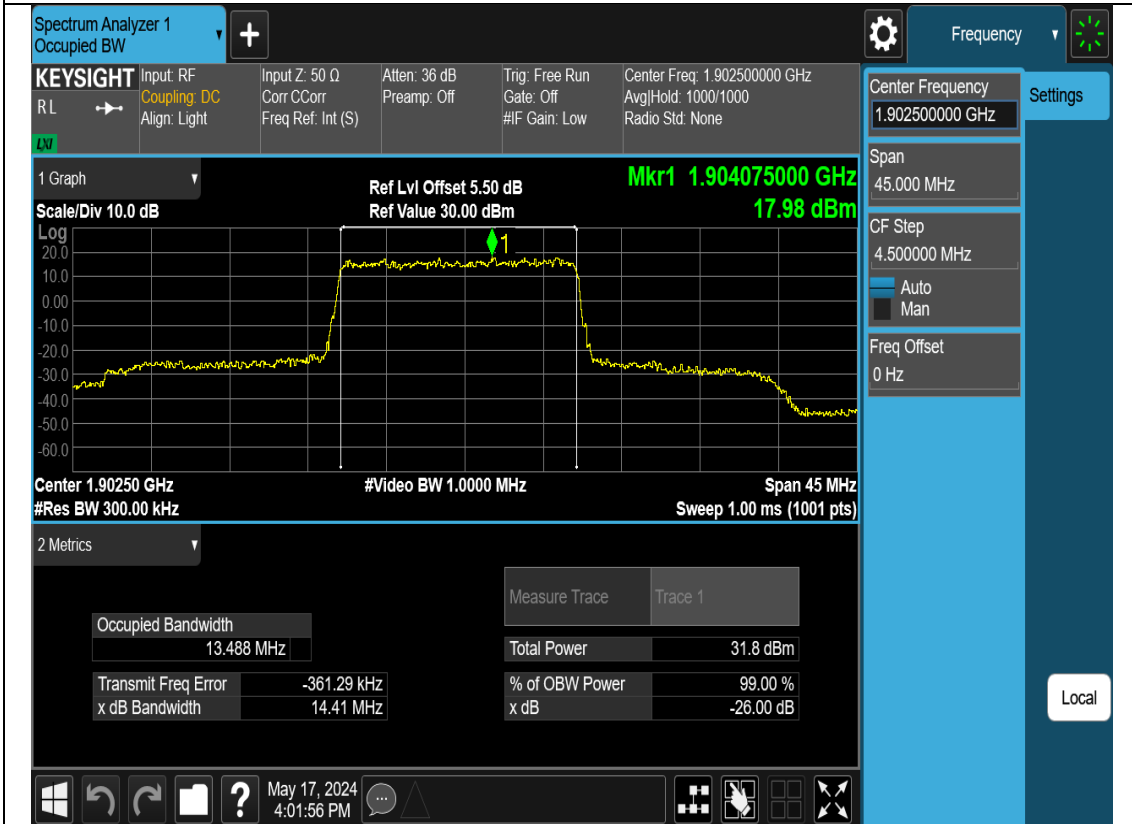
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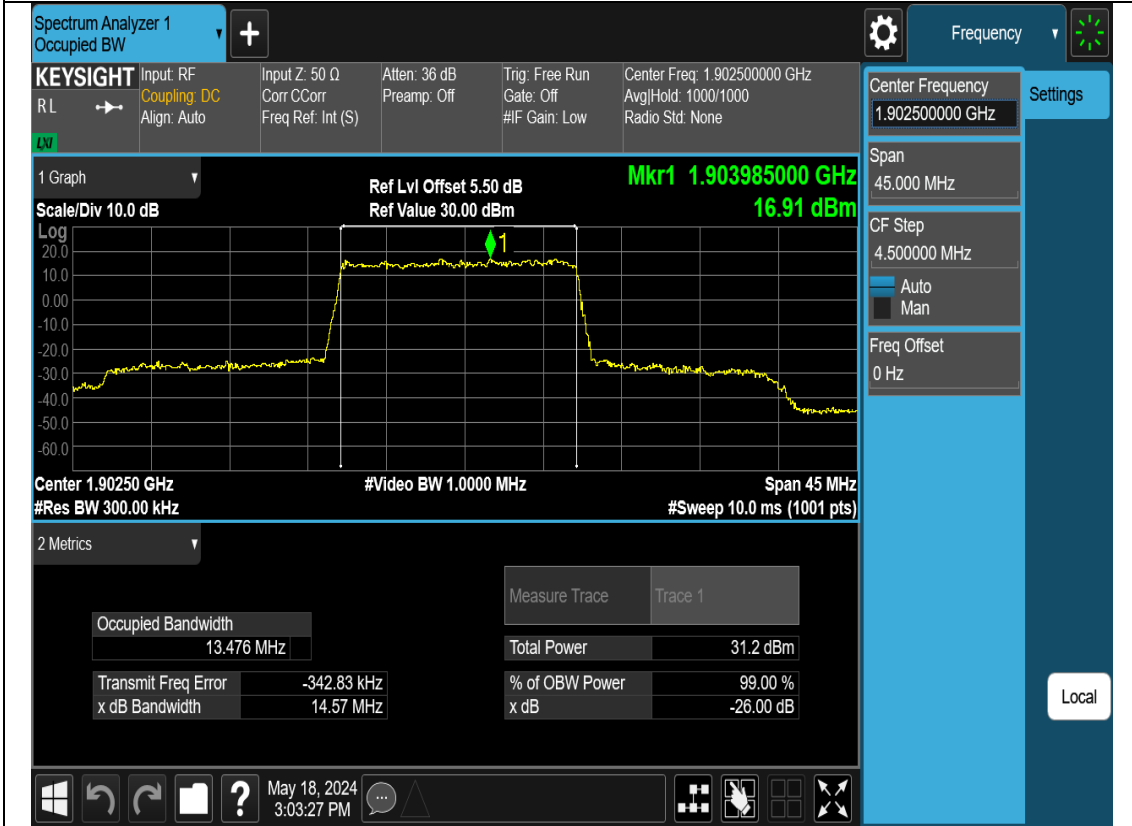
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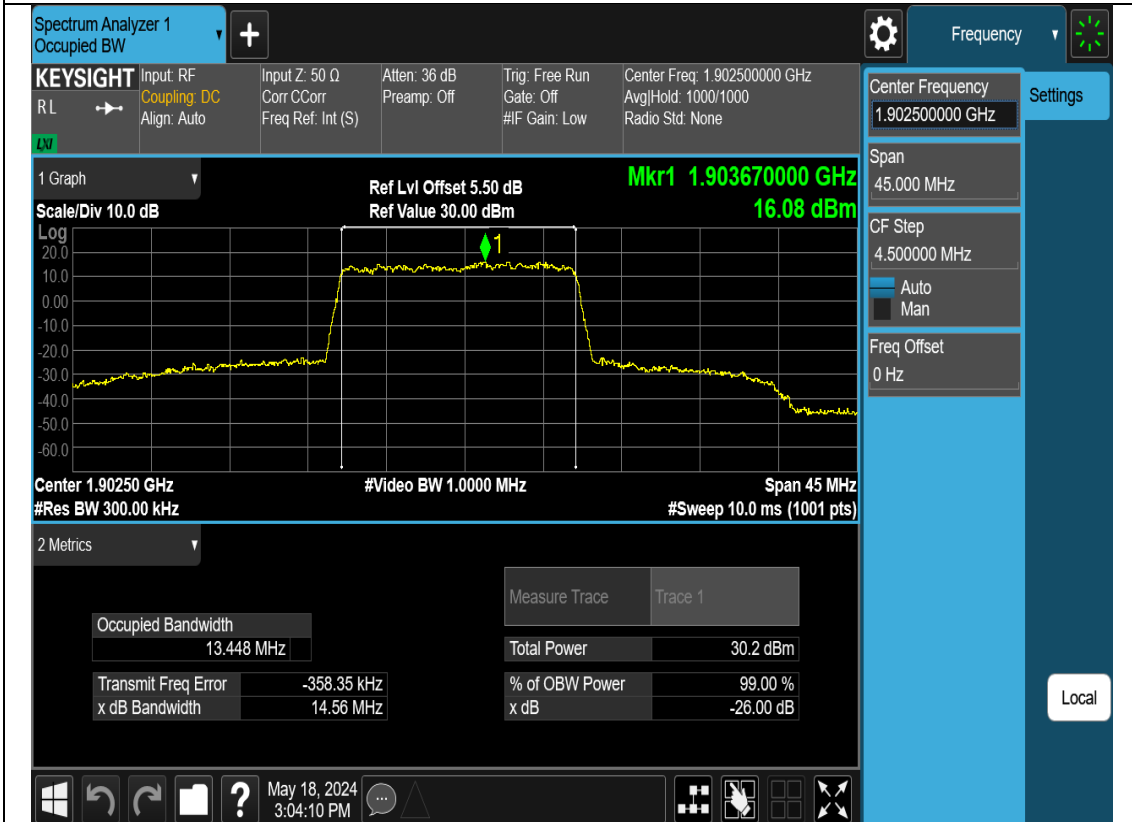
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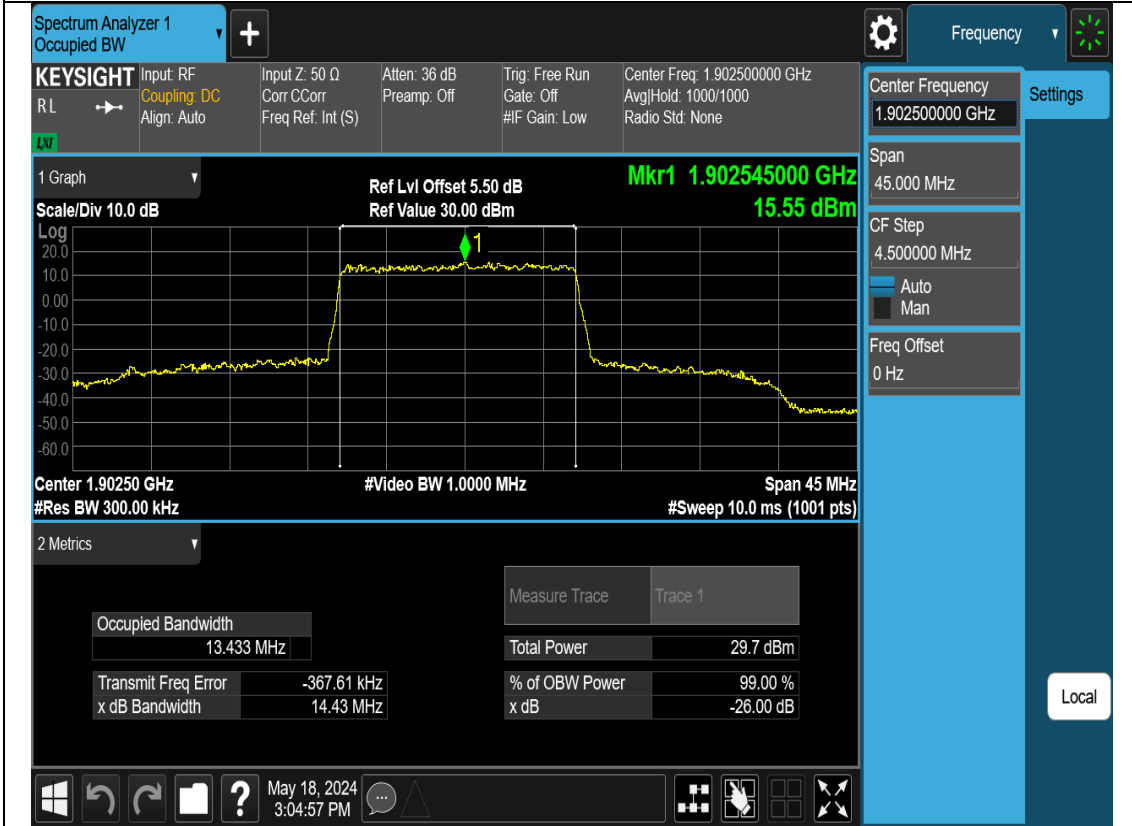
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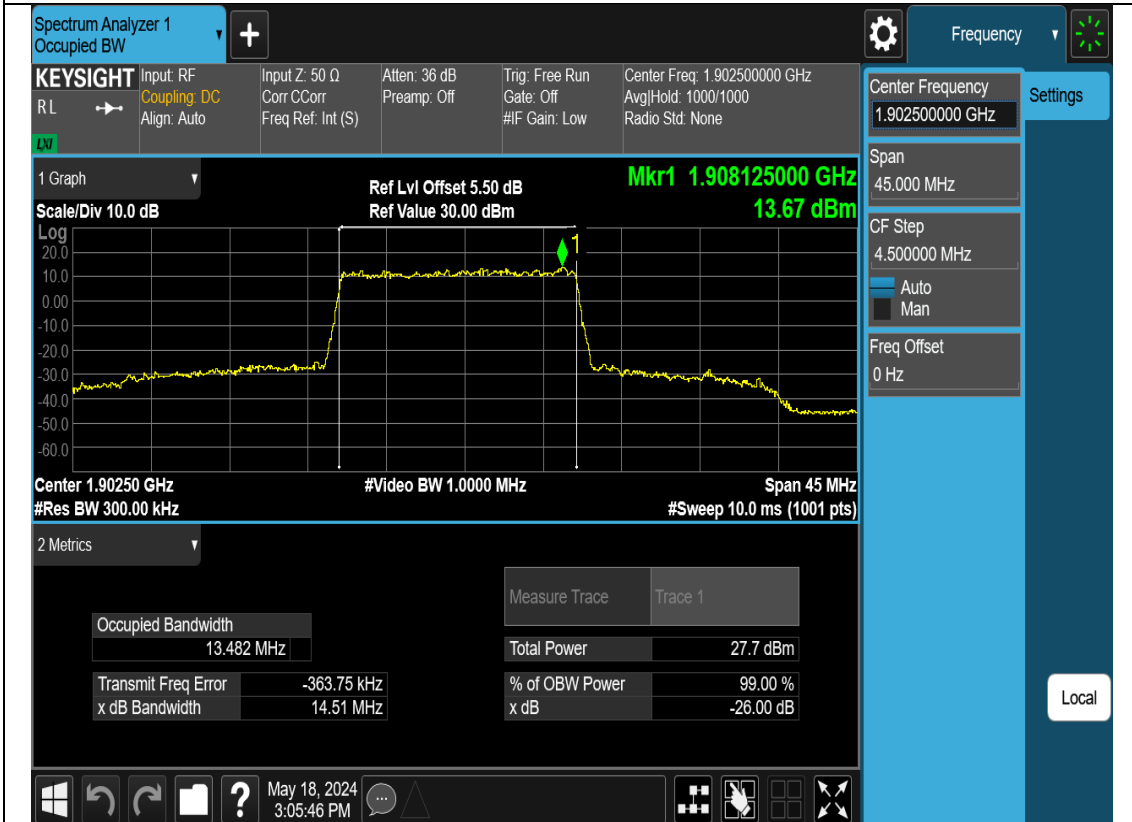
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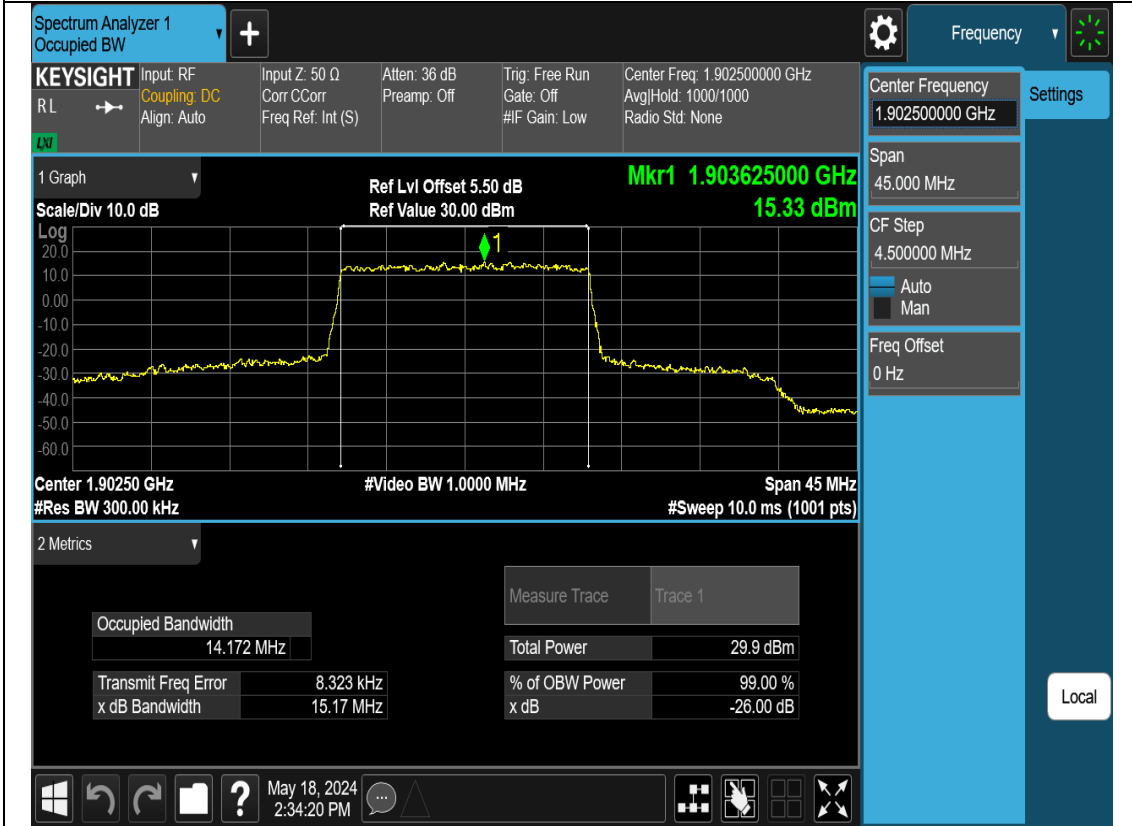
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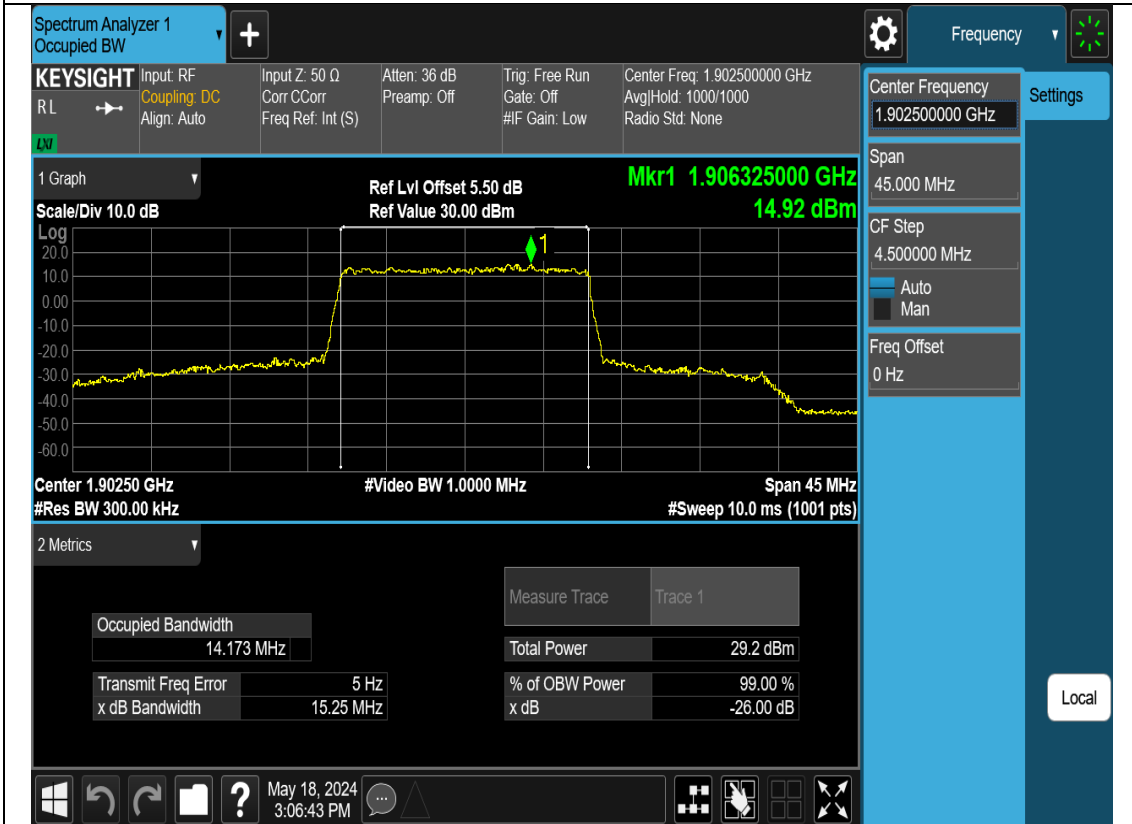
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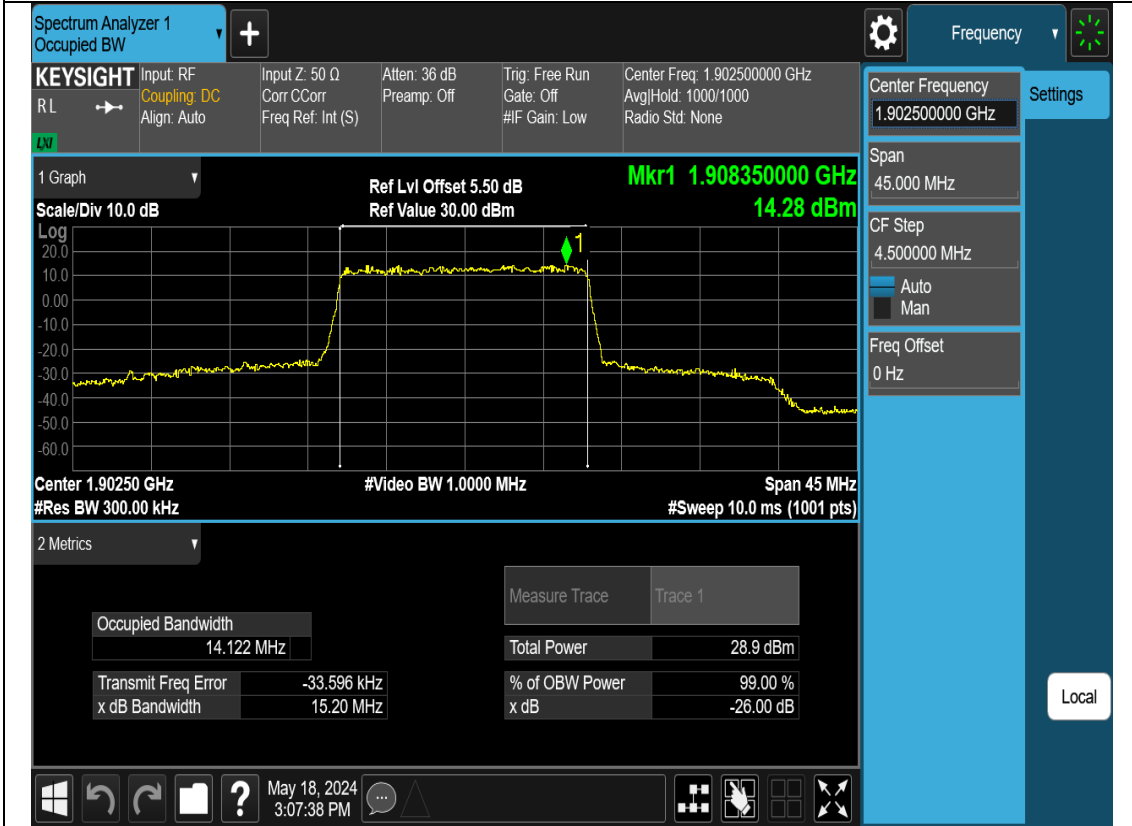
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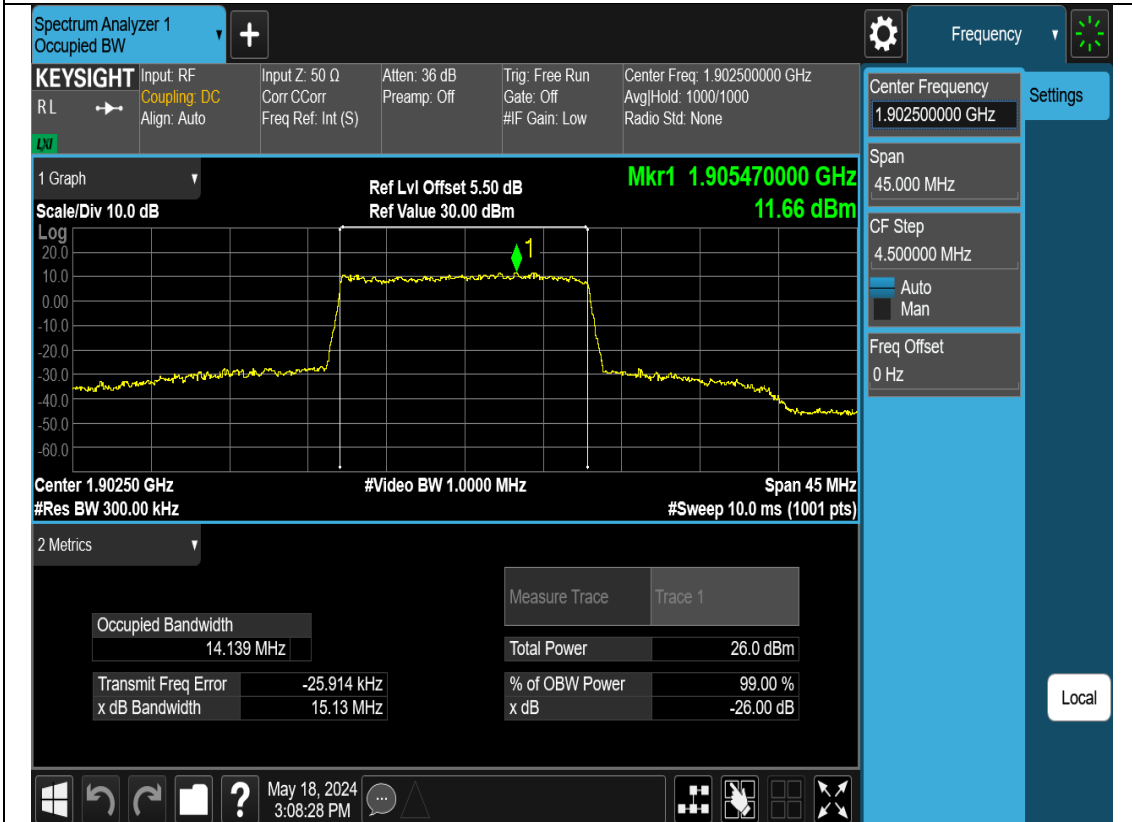
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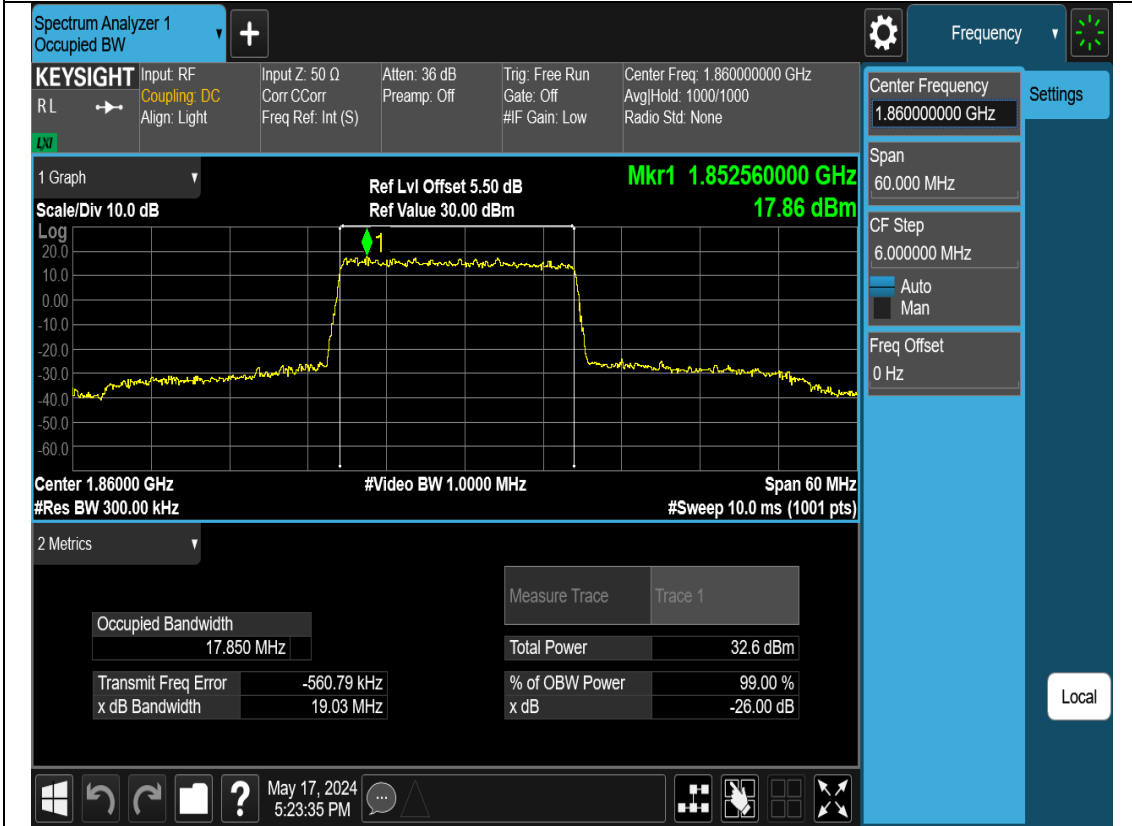
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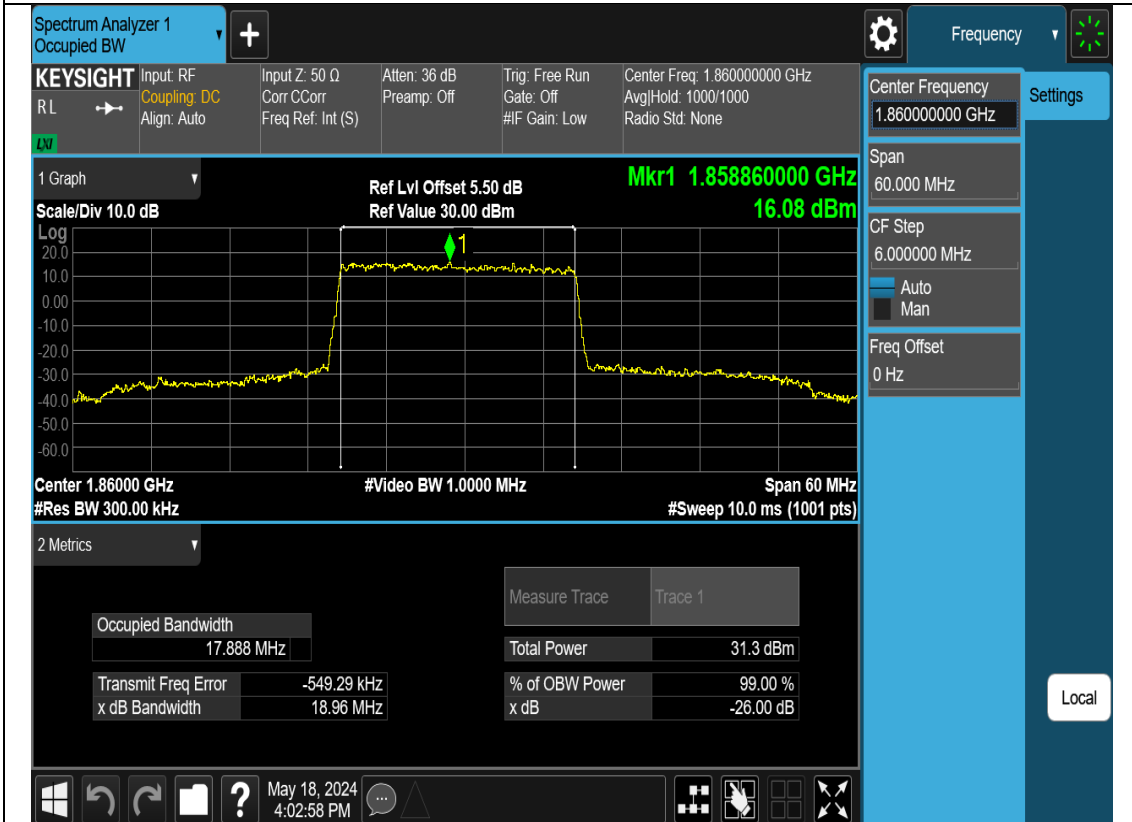
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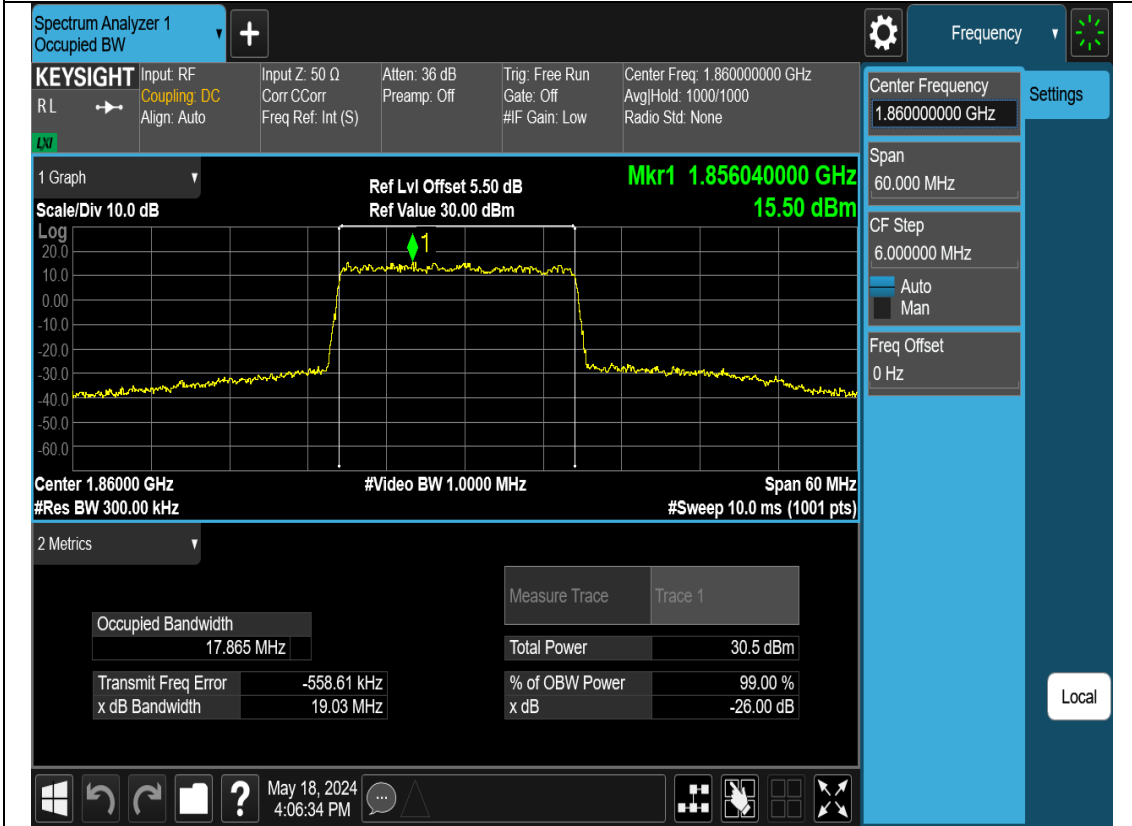
N2-20M-OBW-L-DFT-s-OFDM-Pi2 BPSK



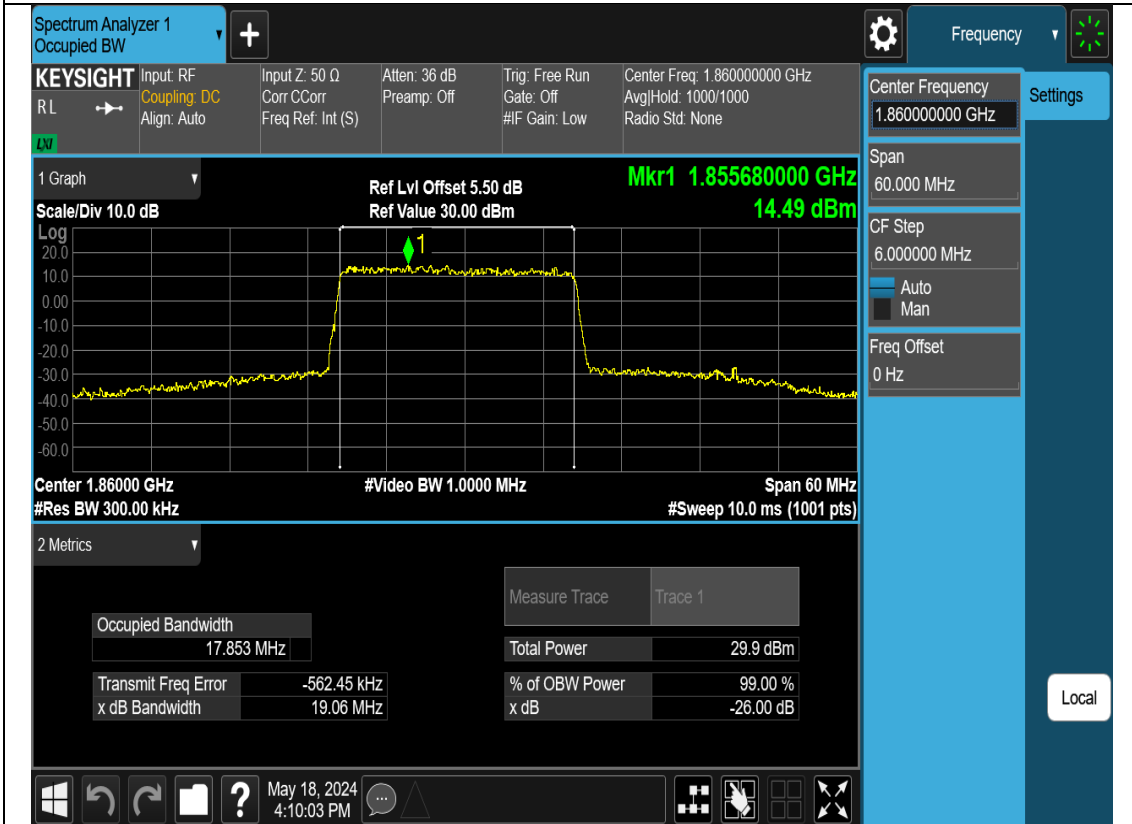
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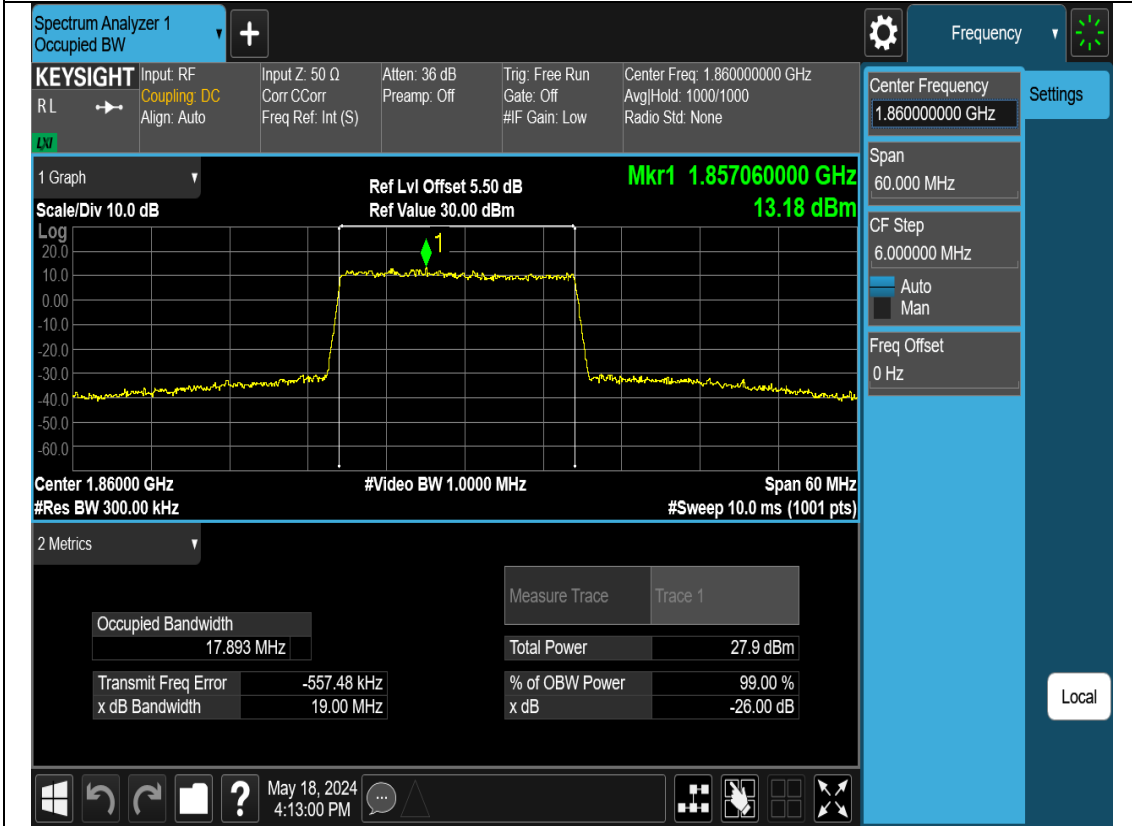
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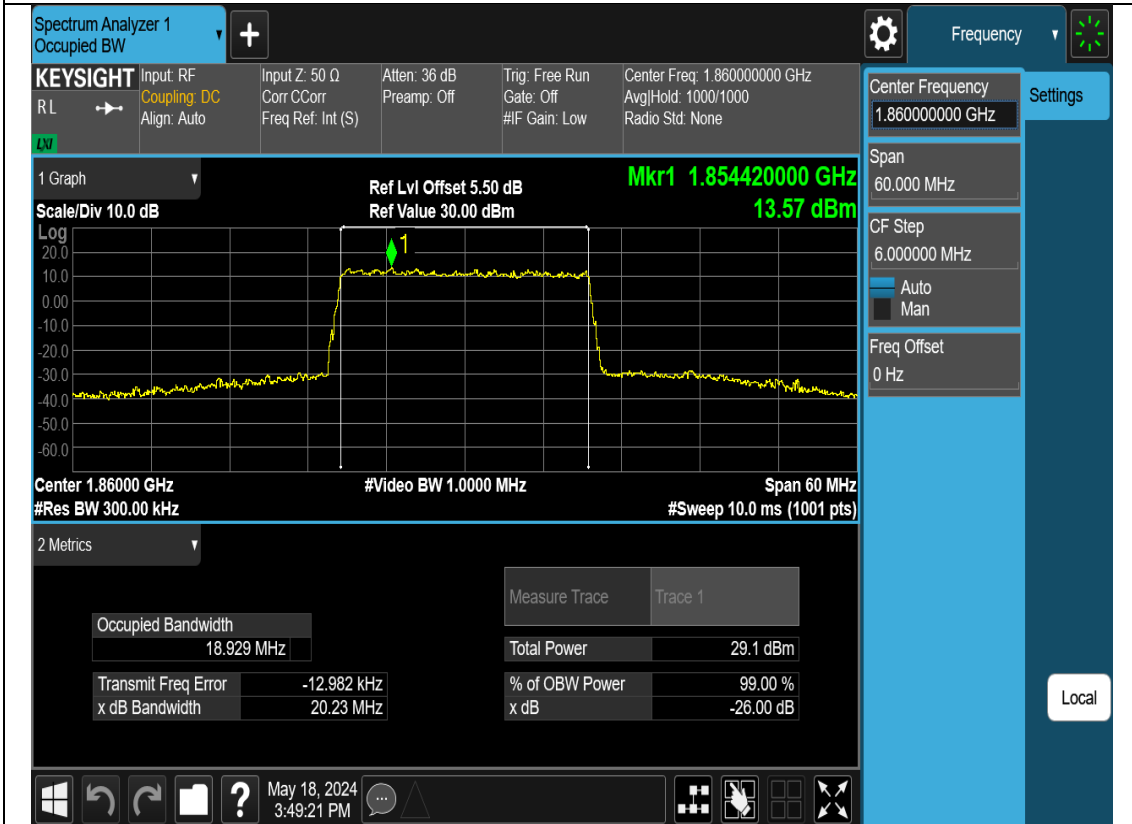
N2-20M-OBW-L-DFT-s-OFDM-64QAM



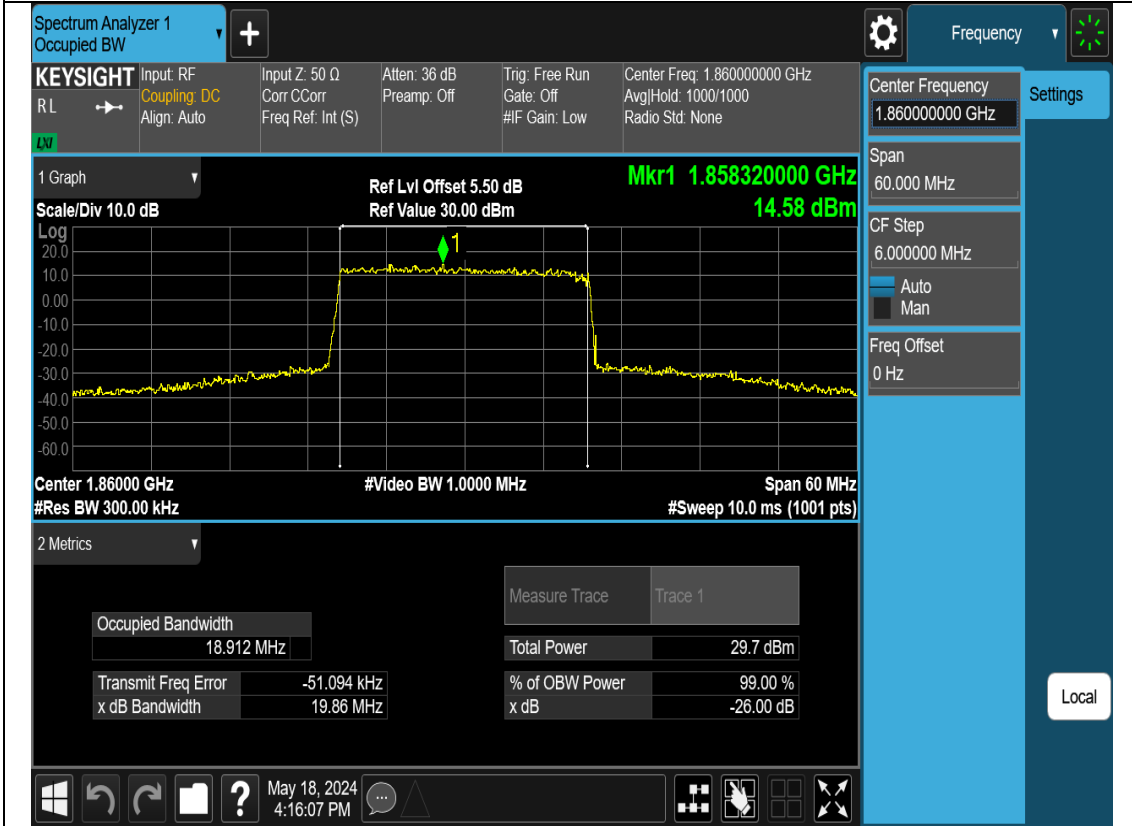
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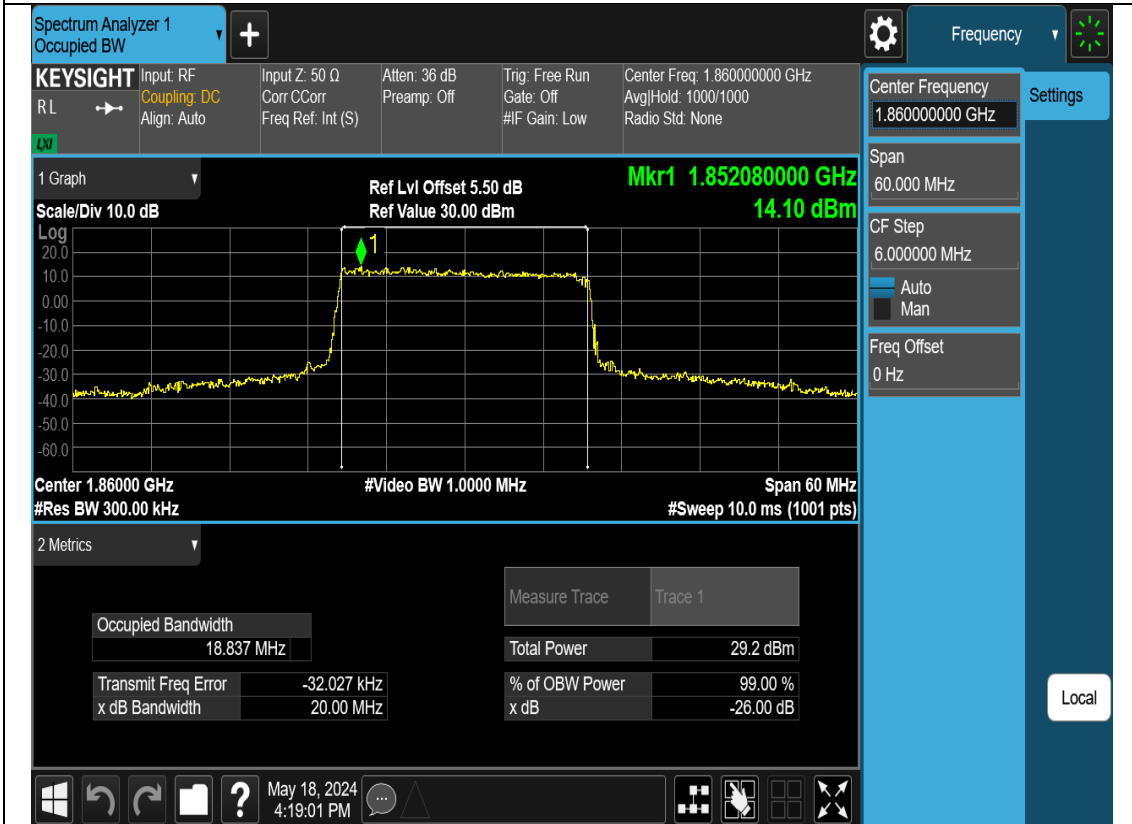
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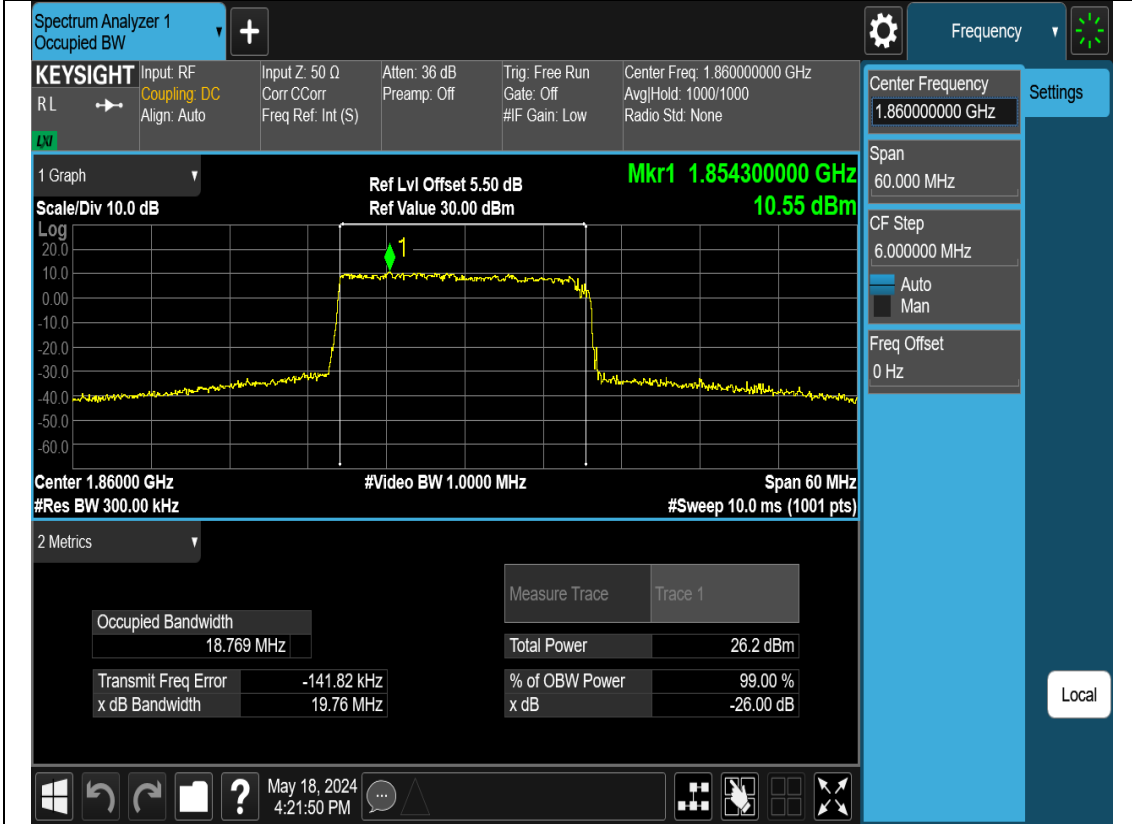
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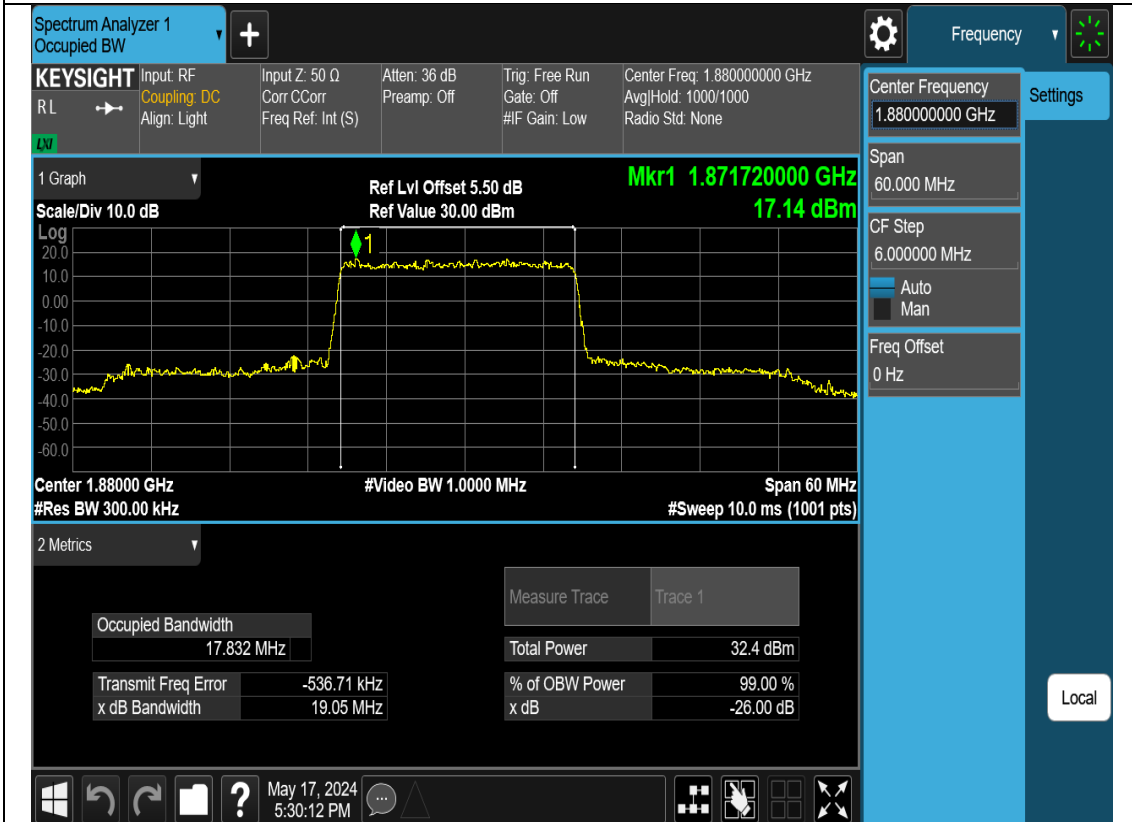
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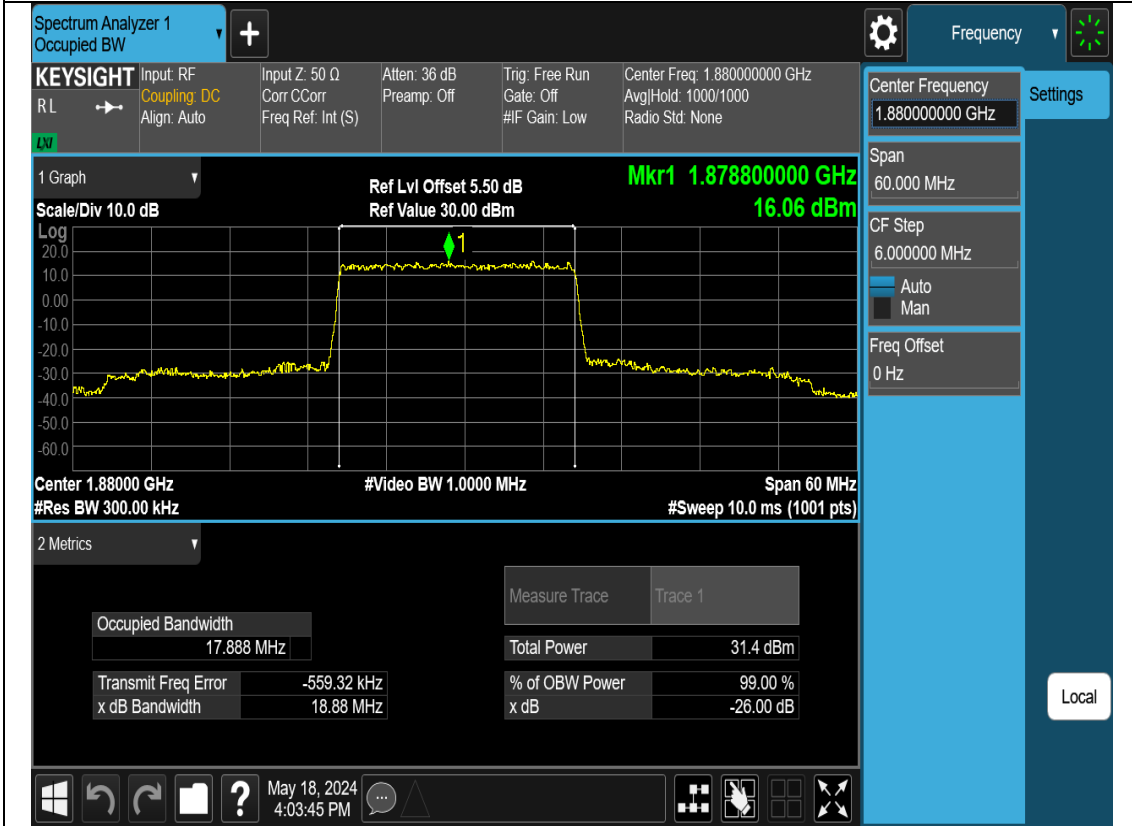
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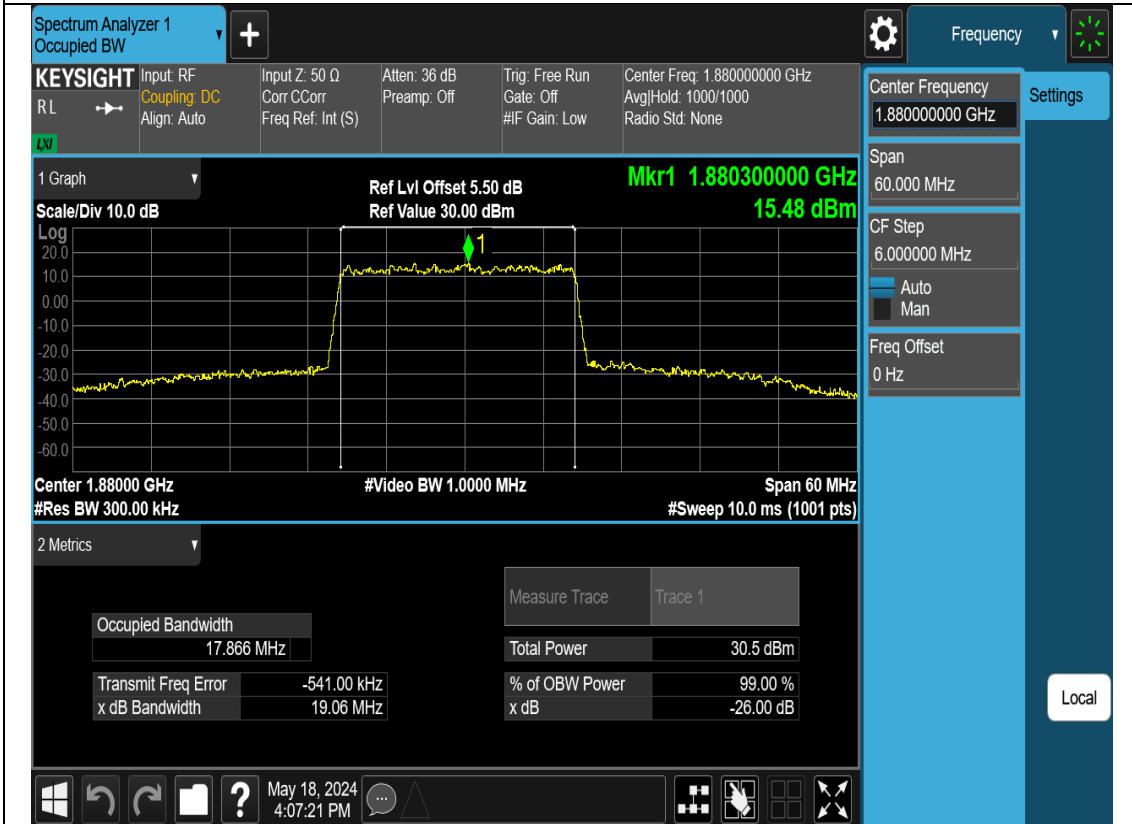
N2-20M-OBW-M-DFT-s-OFDM-Pi2 BPSK



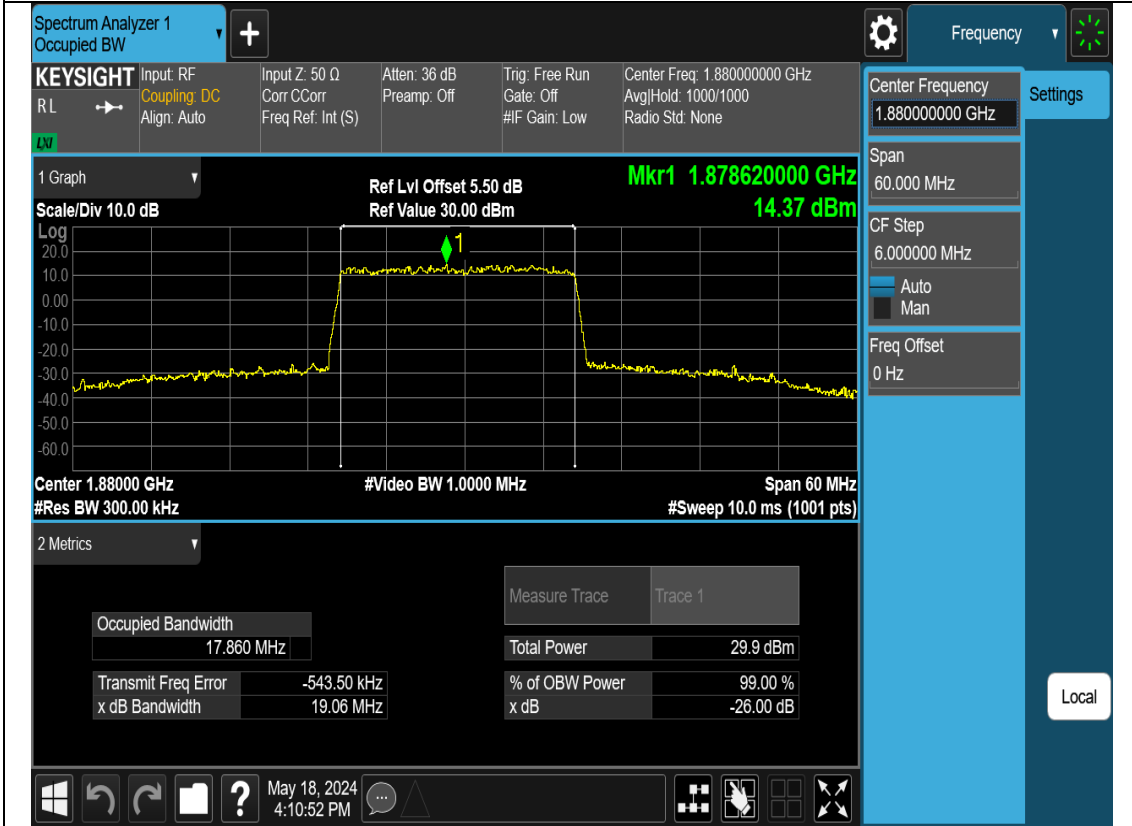
N2-20M-OBW-M-DFT-s-OFDM-QPSK



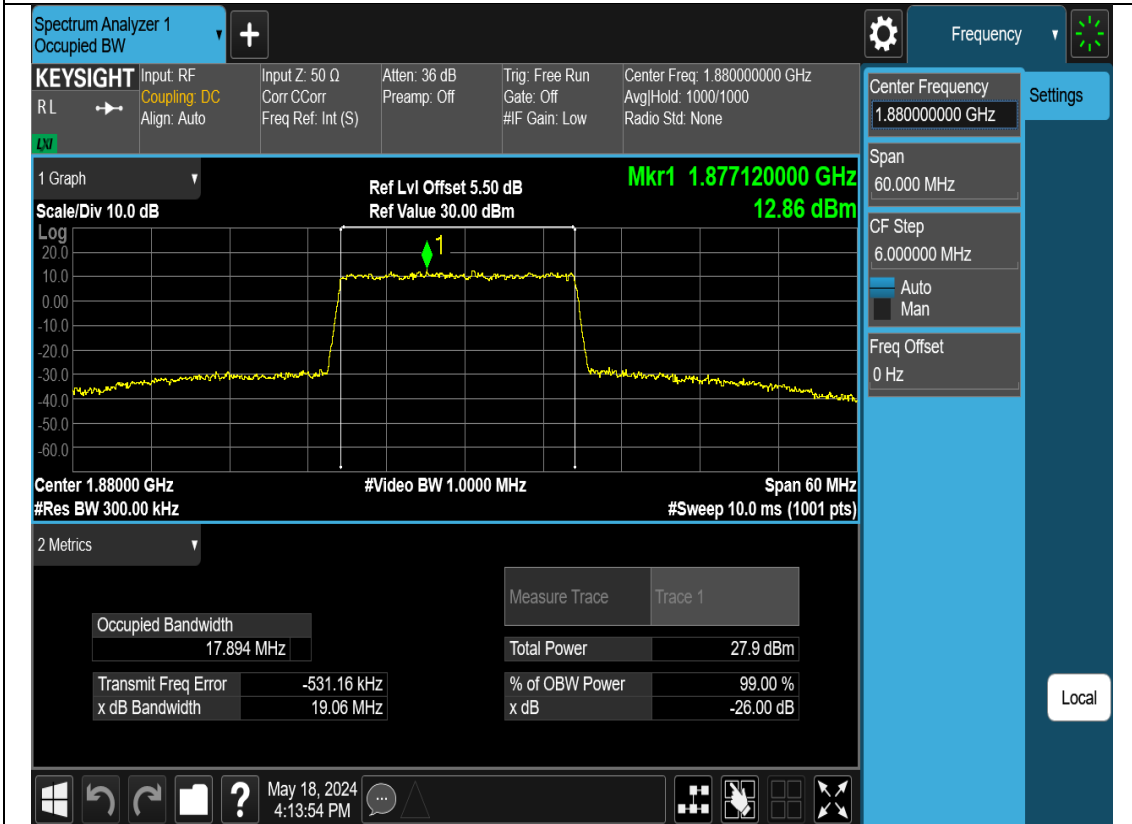
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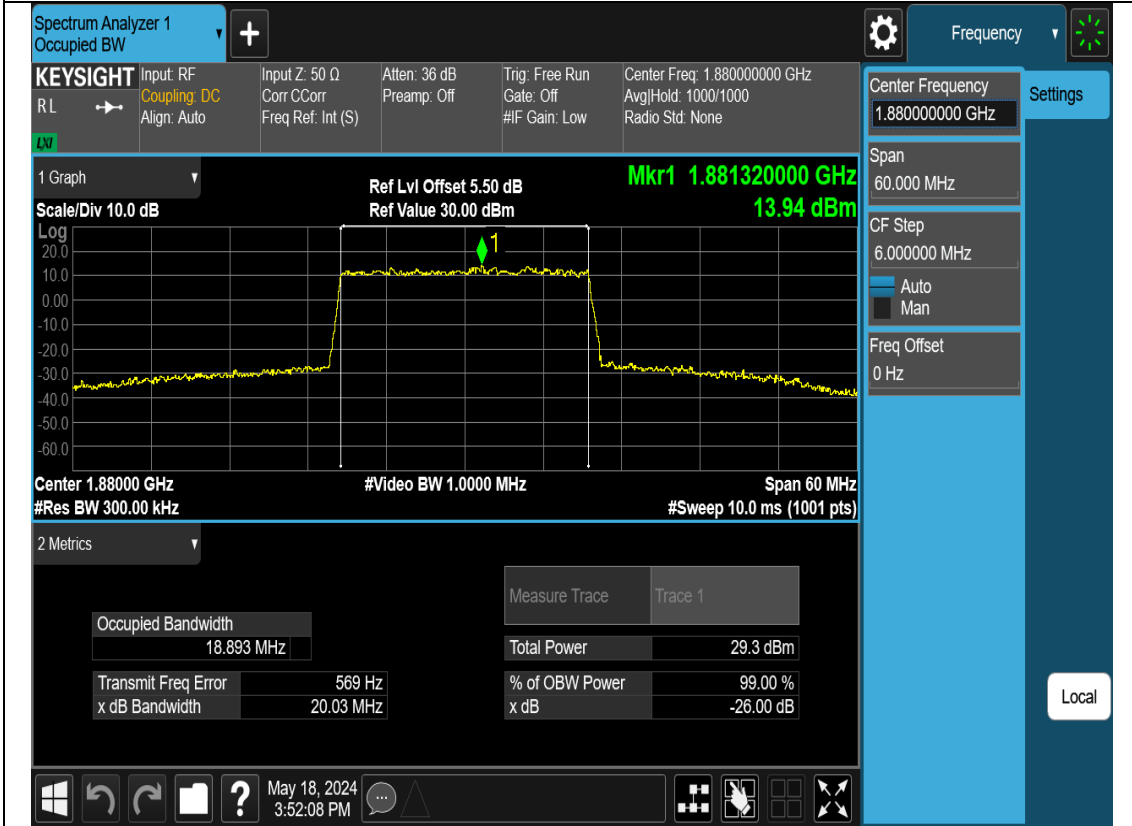
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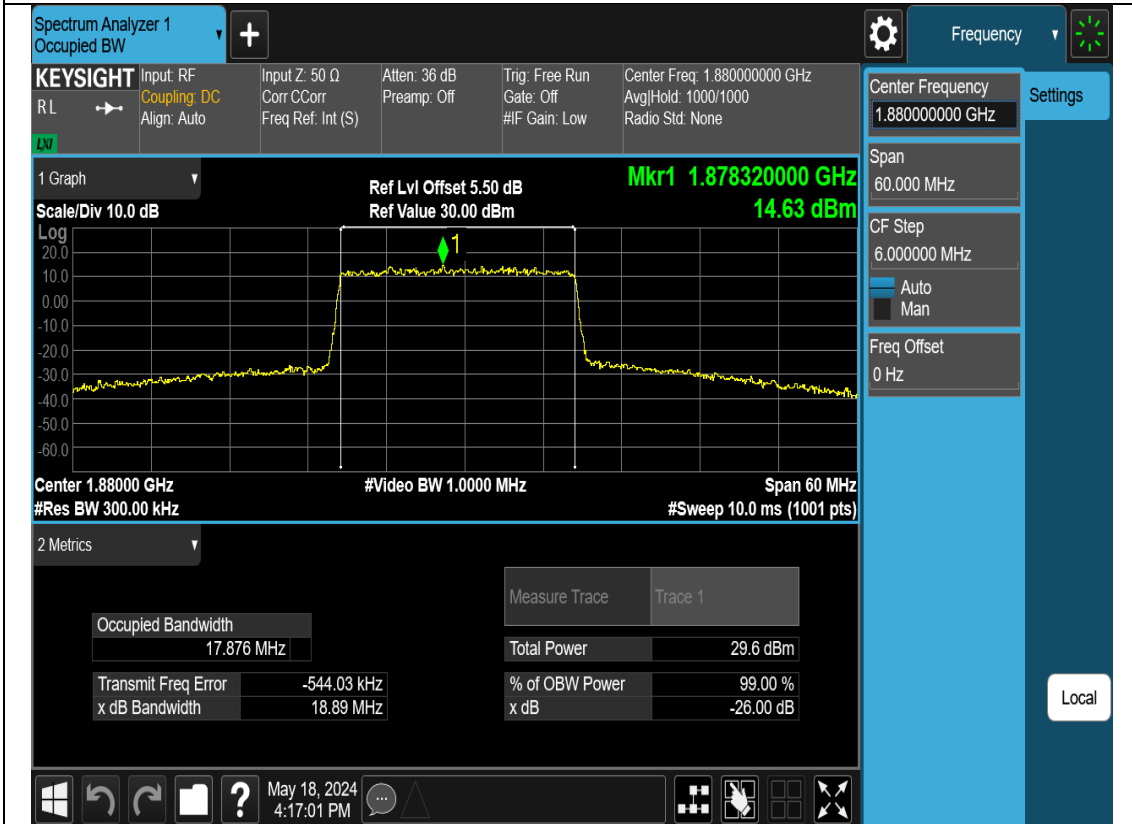
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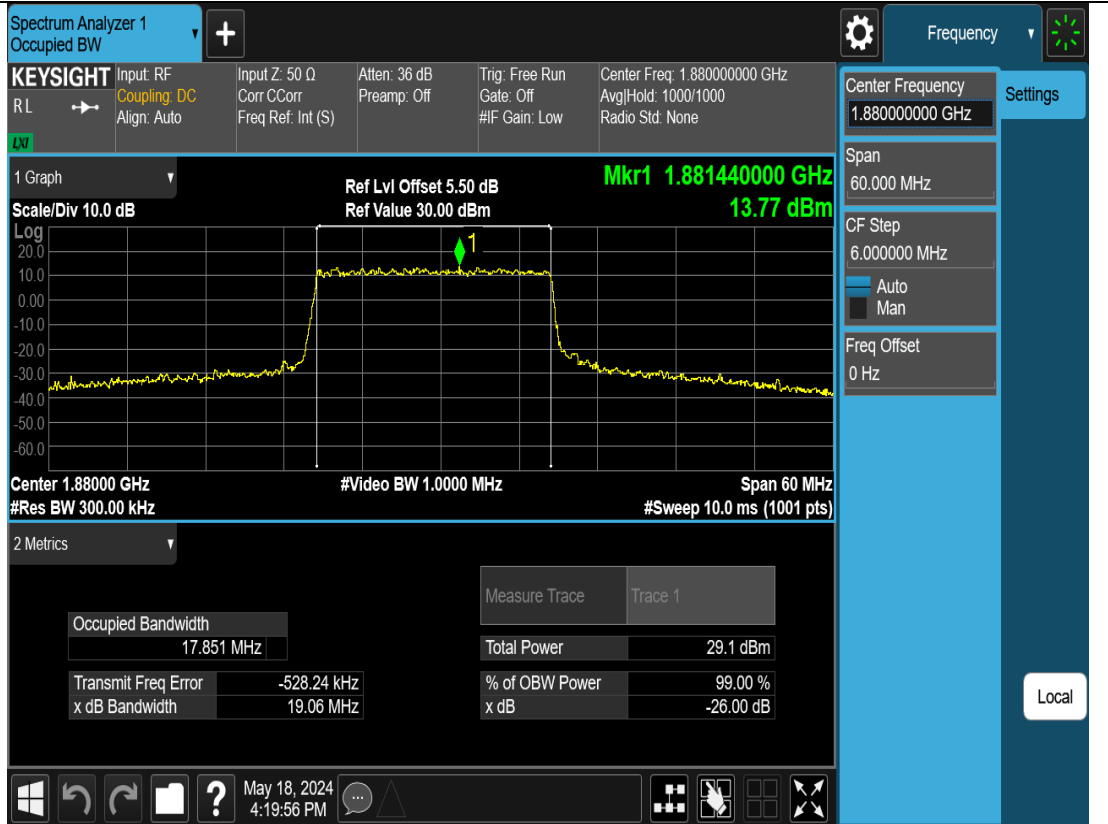
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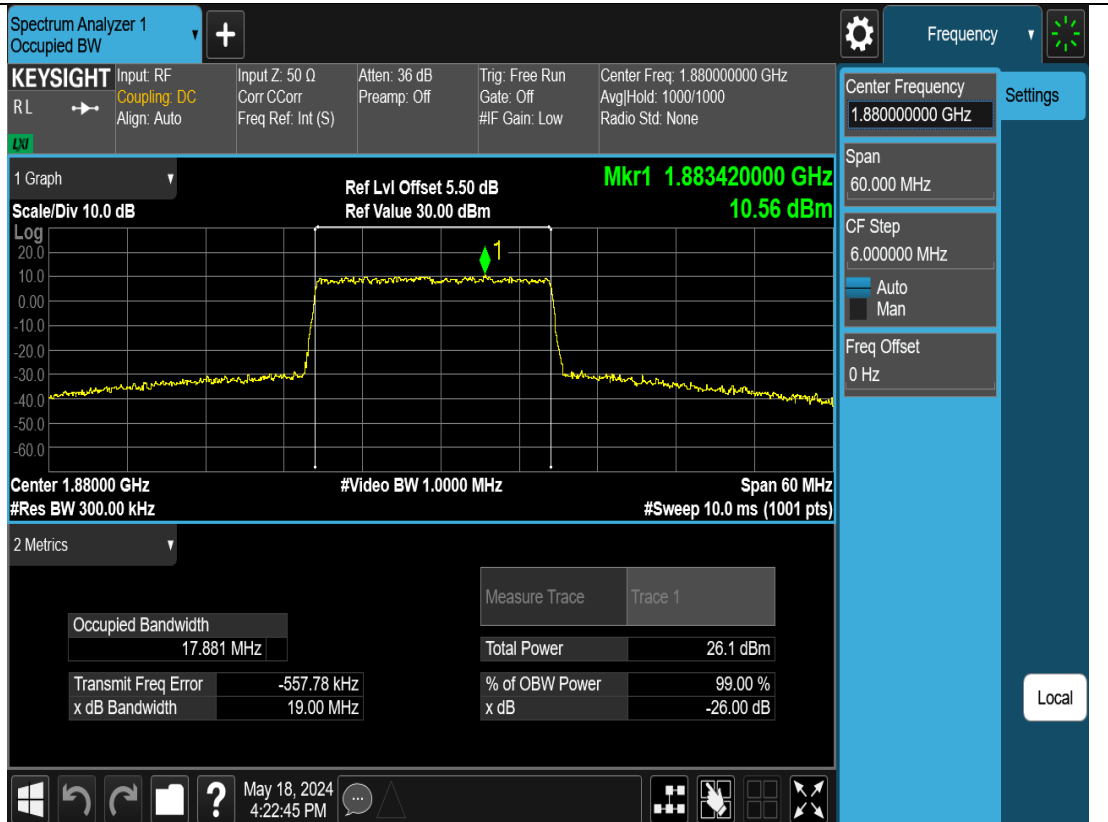
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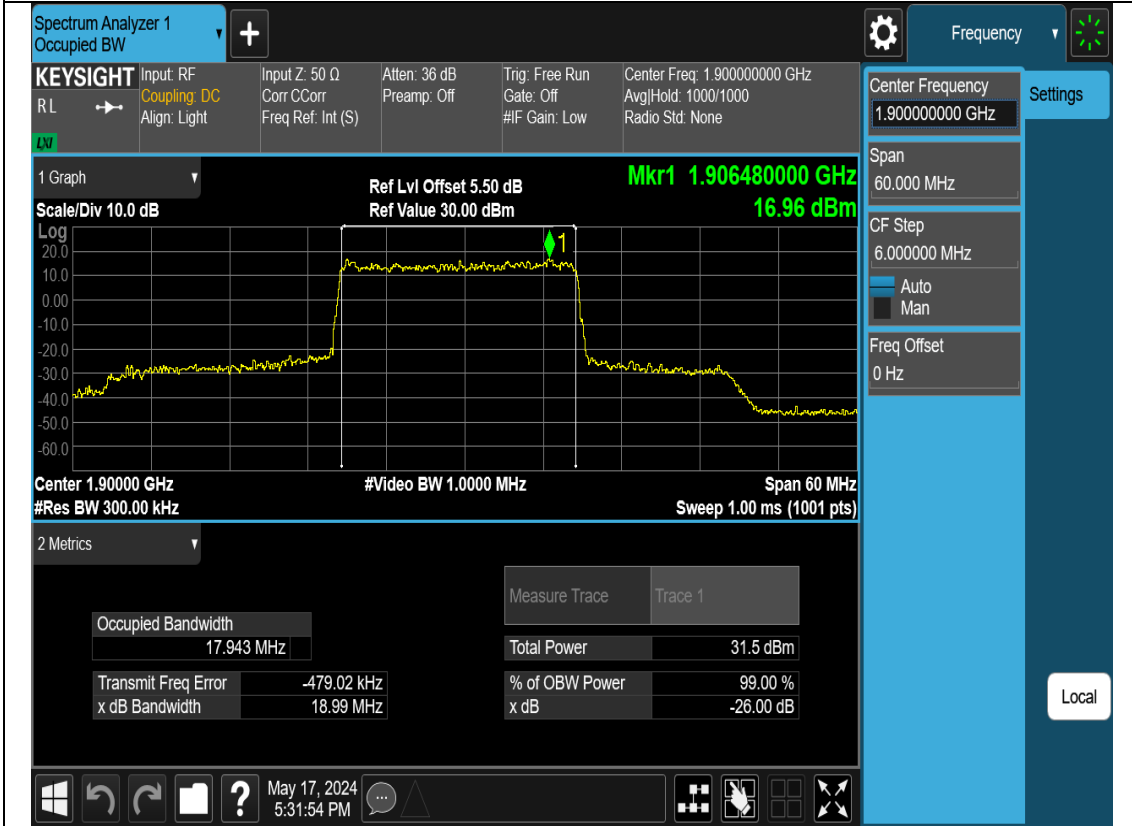
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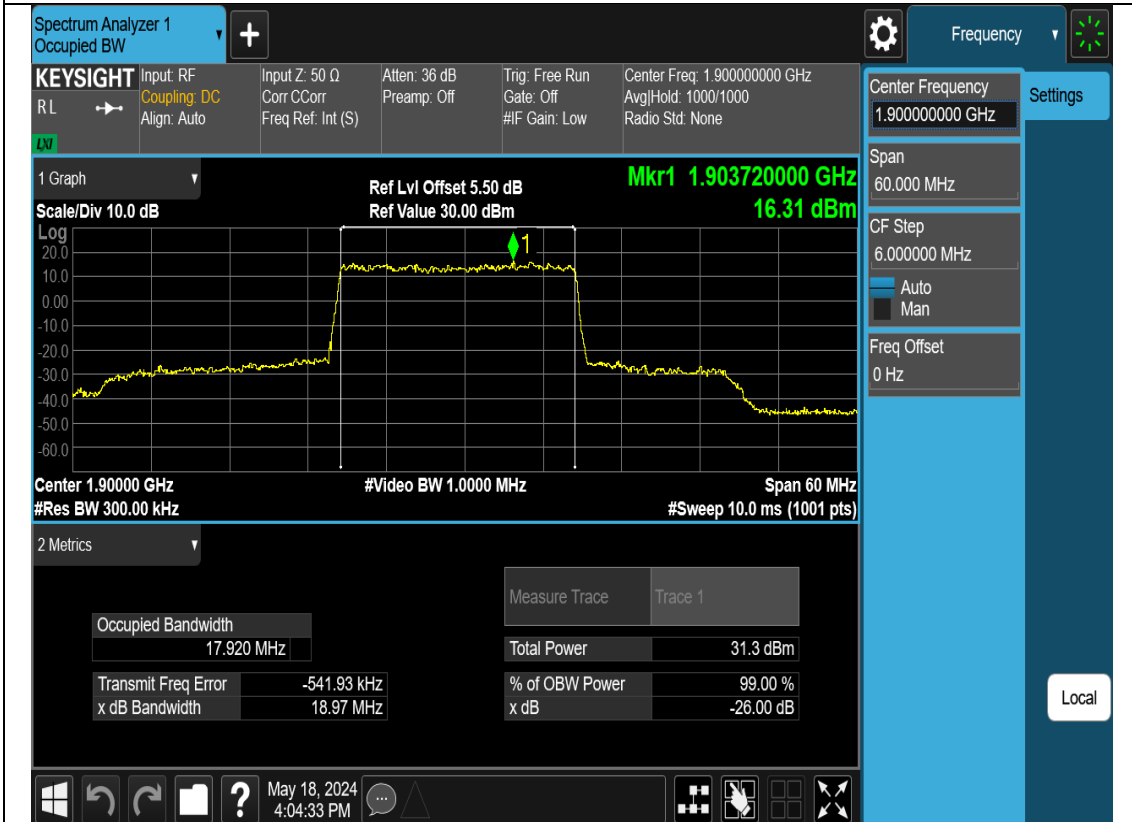
N2-20M-OBW-M-CP-OFDM-256QAM



N2-20M-OBW-H-DFT-s-OFDM-Pi2 BPSK



N2-20M-OBW-H-DFT-s-OFDM-QPSK



N2-20M-OBW-H-DFT-s-OFDM-16QAM

Spectrum Analyzer 1
Occupied BW

KEYSIGHT Input RF Input Z: 50 Ω Atten: 36 dB Trig: Free Run Center Freq: 1.900000000 GHz
 RL Coupling: DC Corr: C Corr Gate: Off Avg/Hold: 1000/1000
 Align: Auto Freq Ref: Int (S) Preamp: Off #F Gain: Low Radio Std: None

1 Graph
 Scale/Div 10.0 dB
 Log
 Ref Lvl Offset 5.50 dB Mkr1 1.907320000 GHz
 Ref Value 30.00 dBm 15.23 dBm

Center 1.90000 GHz #Video BW 1.0000 MHz Span 60 MHz
 #Res BW 300.00 kHz #Sweep 10.0 ms (1001 pts)

2 Metrics

| Measure Trace | | Trace 1 | |
|---------------------|-------------|----------------|-----------|
| Occupied Bandwidth | 17.891 MHz | Total Power | 30.4 dBm |
| Transmit Freq Error | -550.78 kHz | % of OBW Power | 99.00 % |
| x dB Bandwidth | 19.07 MHz | x dB | -26.00 dB |

May 18, 2024 4:08:09 PM

N2-20M-OBW-H-DFT-s-OFDM-64QAM

Spectrum Analyzer 1
Occupied BW

KEYSIGHT Input RF Input Z: 50 Ω Atten: 36 dB Trig: Free Run Center Freq: 1.900000000 GHz
 RL Coupling: DC Corr: C Corr Gate: Off Avg/Hold: 1000/1000
 Align: Auto Freq Ref: Int (S) Preamp: Off #F Gain: Low Radio Std: None

1 Graph
 Scale/Div 10.0 dB
 Log
 Ref Lvl Offset 5.50 dB Mkr1 1.906900000 GHz
 Ref Value 30.00 dBm 14.96 dBm

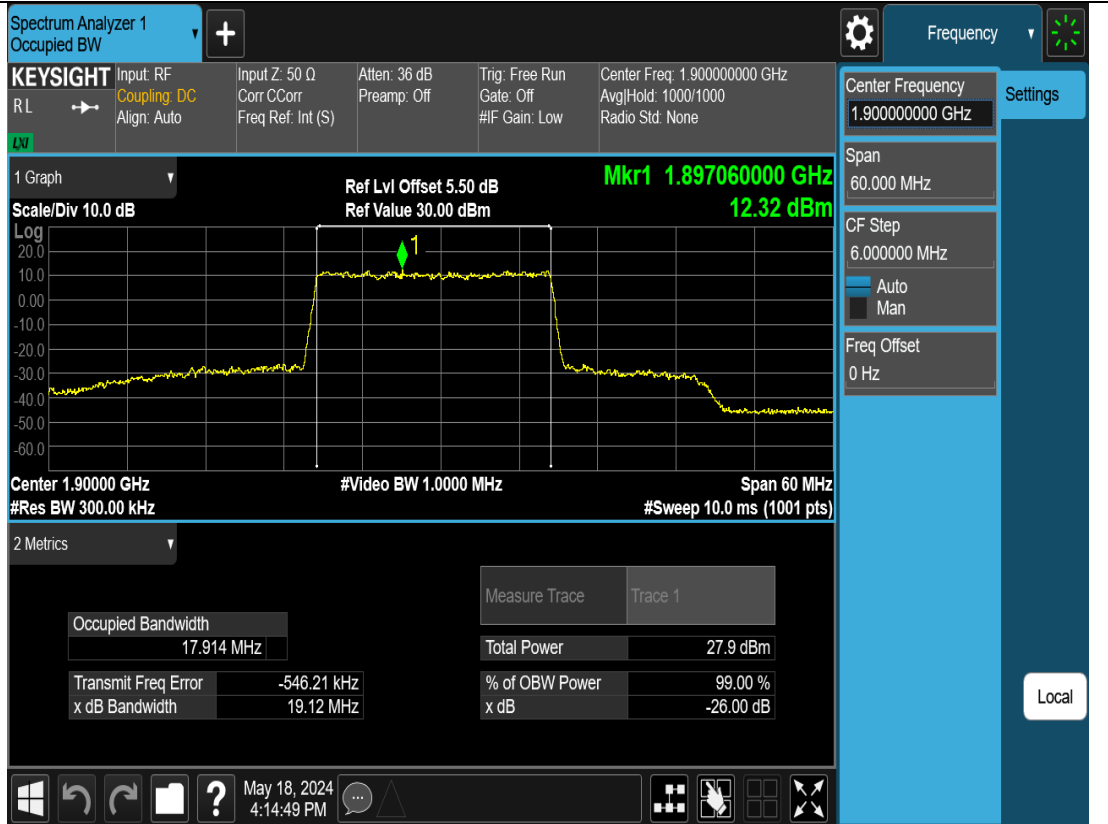
Center 1.90000 GHz #Video BW 1.0000 MHz Span 60 MHz
 #Res BW 300.00 kHz #Sweep 10.0 ms (1001 pts)

2 Metrics

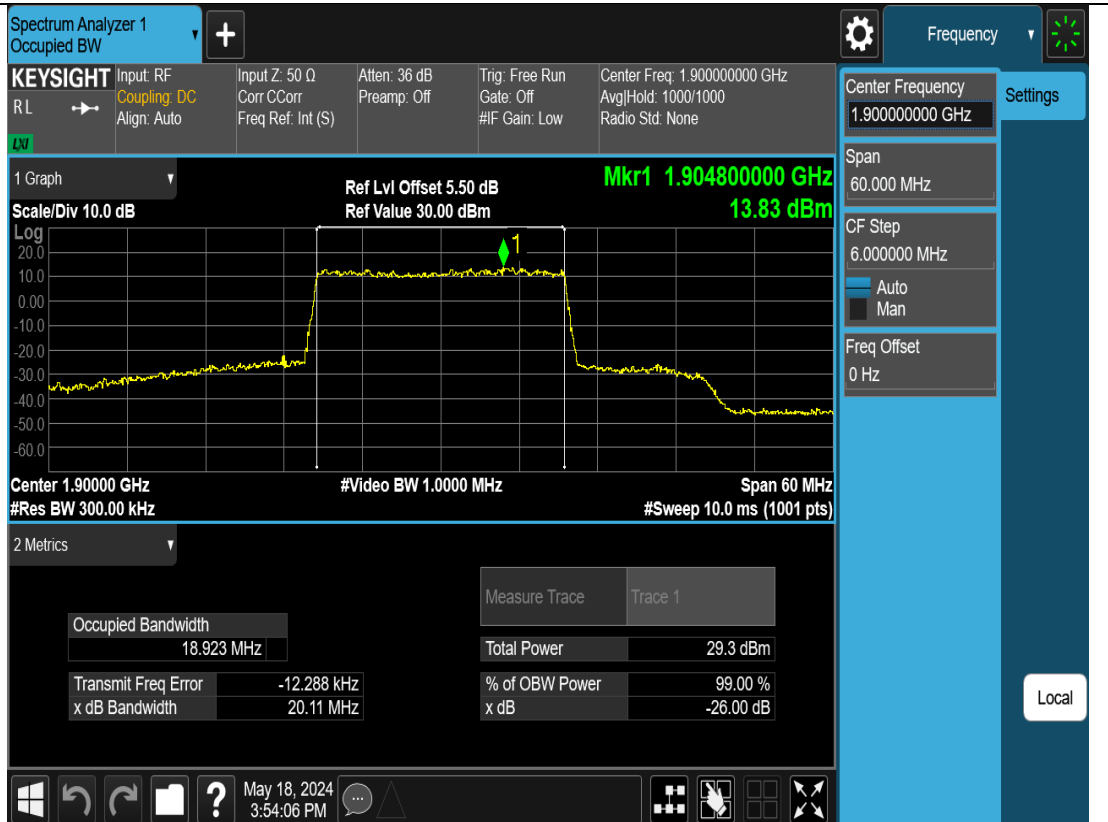
| Measure Trace | | Trace 1 | |
|---------------------|-------------|----------------|-----------|
| Occupied Bandwidth | 17.887 MHz | Total Power | 29.9 dBm |
| Transmit Freq Error | -560.85 kHz | % of OBW Power | 99.00 % |
| x dB Bandwidth | 19.10 MHz | x dB | -26.00 dB |

May 18, 2024 4:11:40 PM

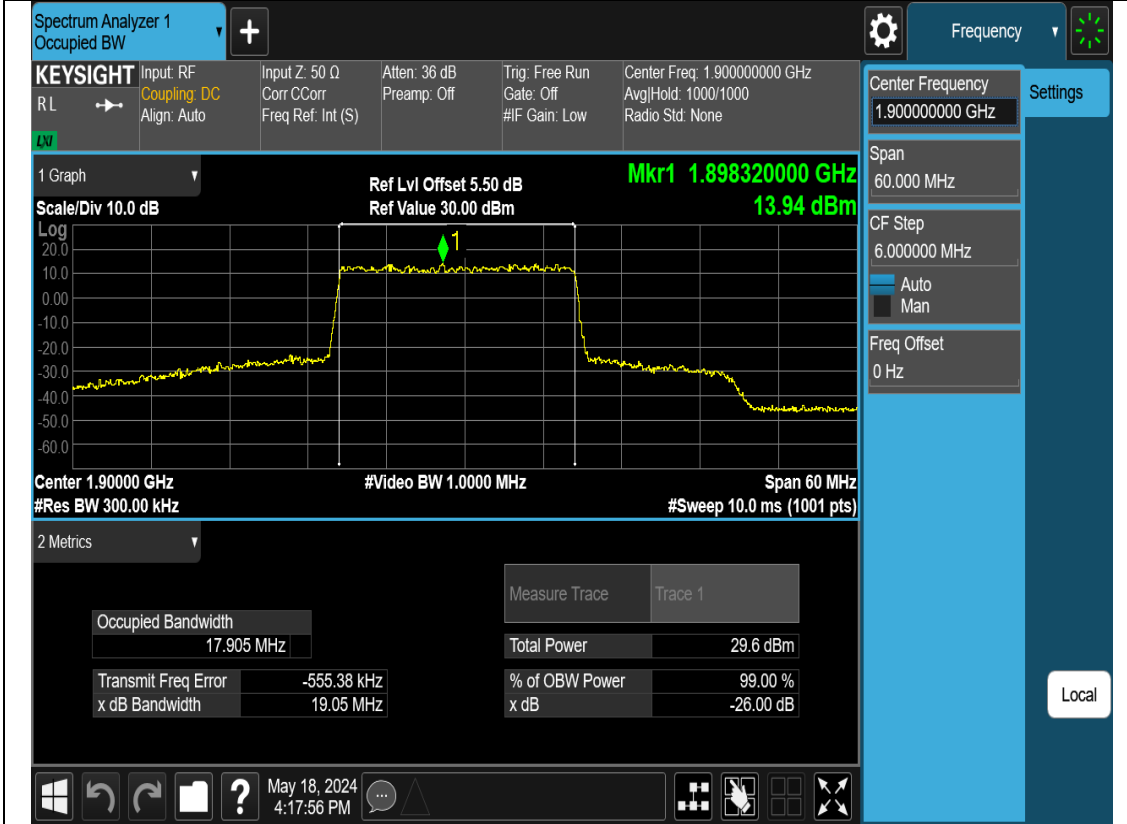
N2-20M-OBW-H-DFT-s-OFDM-256QAM



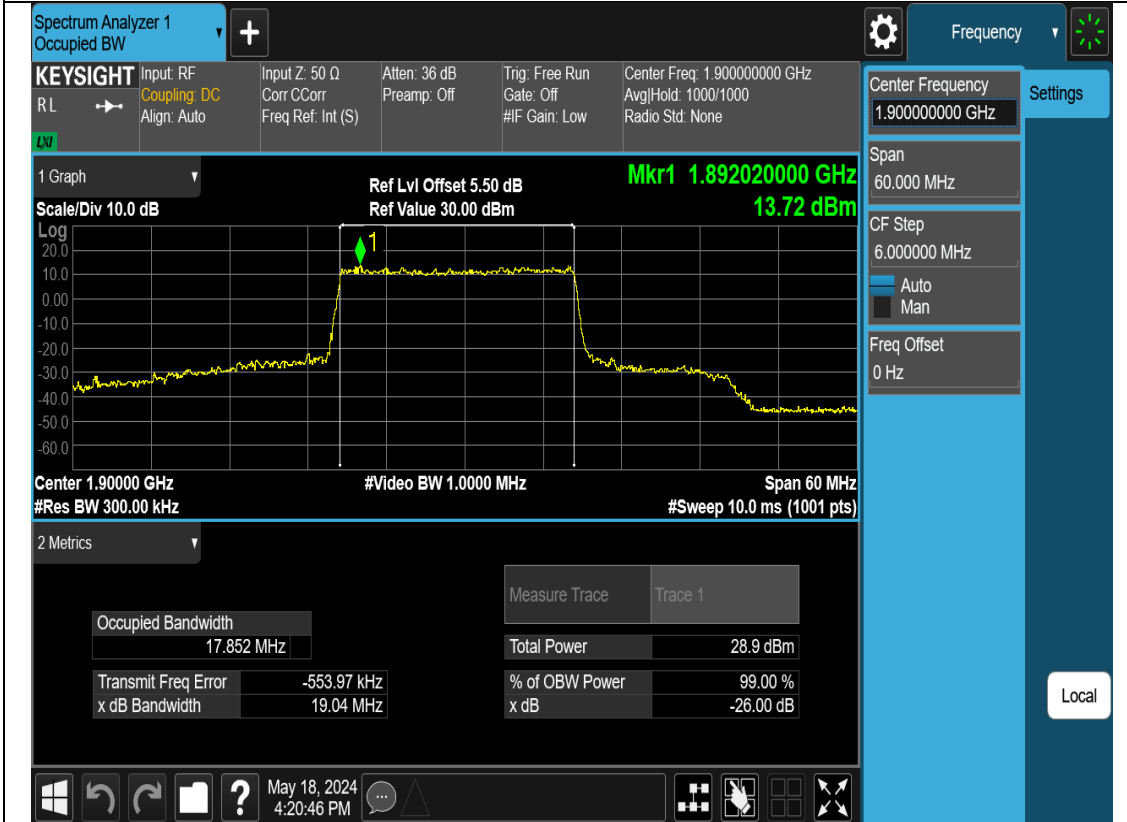
N2-20M-OBW-H-CP-OFDM-QPSK



N2-20M-OBW-H-CP-OFDM-16QAM



N2-20M-OBW-H-CP-OFDM-64QAM



N2-20M-OBW-H-CP-OFDM-256QAM

Spectrum Analyzer 1
Occupied BW

KEYSIGHT
RL

Input RF
Coupling: DC
Align: Auto

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: 1.900000000 GHz
Avg/Hold: 1000/1000
Radio Std: None



Frequency



Settings

Center Frequency
1.900000000 GHz

Span
60.000 MHz

CF Step
6.000000 MHz

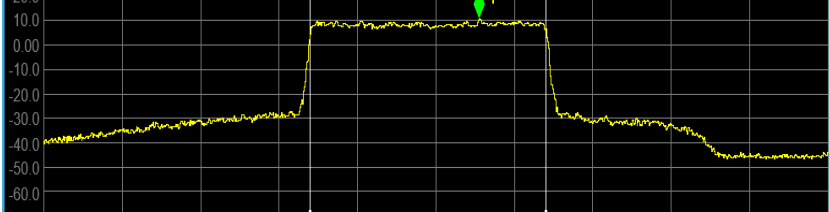
Auto
Man

Freq Offset
0 Hz

1 Graph

Scale/Div 10.0 dB

Log



Ref Lvl Offset 5.50 dB
Ref Value 30.00 dBm

Mkr1 1.903360000 GHz
10.59 dBm

Center 1.90000 GHz #Video BW 1.0000 MHz Span 60 MHz
#Res BW 300.00 kHz #Sweep 10.0 ms (1001 pts)

2 Metrics

Occupied Bandwidth
17.934 MHz

Transmit Freq Error -557.68 kHz
x dB Bandwidth 18.84 MHz

| Measure Trace | Trace 1 |
|----------------|-----------|
| Total Power | 26.0 dBm |
| % of OBW Power | 99.00 % |
| x dB | -26.00 dB |

Local

Peak-Average Ratio

Test Result

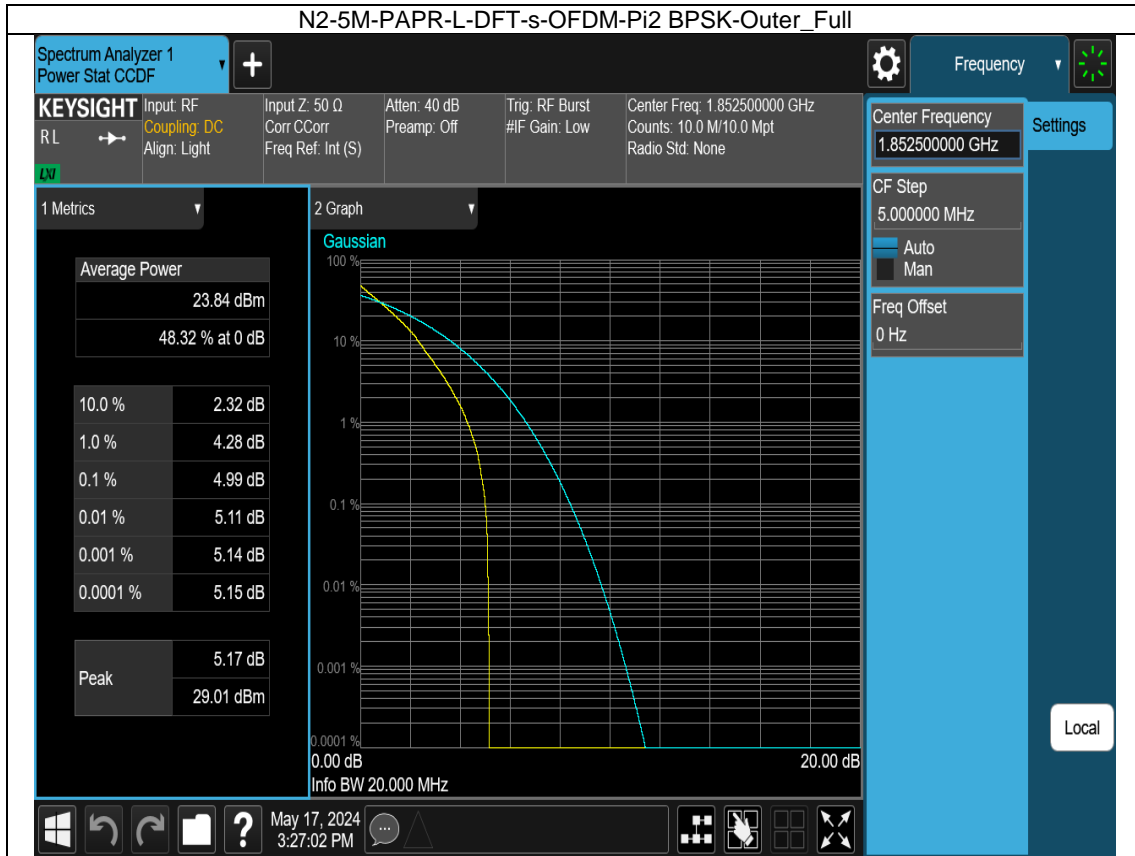
| 5G NR n2 SCS=15kHz 5MHz | | | | | |
|-------------------------|-----------|---------------|-------------------------|-------|---------|
| Modulation | CH | RB Allocation | Peak-Average Ratio (dB) | Limit | Verdict |
| DFT-s-OFDM PI/2 BPSK | Low CH | Outer_Full | 4.99 | <=13 | Pass |
| DFT-s-OFDM QPSK | | Outer_Full | 5.08 | <=13 | Pass |
| DFT-s-OFDM 16QAM | | Outer_Full | 6.11 | <=13 | Pass |
| DFT-s-OFDM 64QAM | | Outer_Full | 6.93 | <=13 | Pass |
| DFT-s-OFDM 256QAM | | Outer_Full | 6.53 | <=13 | Pass |
| CP-OFDM QPSK | | Outer_Full | 7.16 | <=13 | Pass |
| CP-OFDM 16QAM | | Outer_Full | 7.36 | <=13 | Pass |
| CP-OFDM 64QAM | | Outer_Full | 6.64 | <=13 | Pass |
| CP-OFDM 256QAM | | Outer_Full | 7.92 | <=13 | Pass |
| DFT-s-OFDM PI/2 BPSK | Middle CH | Outer_Full | 5.19 | <=13 | Pass |
| DFT-s-OFDM QPSK | | Outer_Full | 5.28 | <=13 | Pass |
| DFT-s-OFDM 16QAM | | Outer_Full | 6.15 | <=13 | Pass |
| DFT-s-OFDM 64QAM | | Outer_Full | 6.59 | <=13 | Pass |
| DFT-s-OFDM 256QAM | | Outer_Full | 6.53 | <=13 | Pass |
| CP-OFDM QPSK | | Outer_Full | 7.36 | <=13 | Pass |
| CP-OFDM 16QAM | | Outer_Full | 7.58 | <=13 | Pass |
| CP-OFDM 64QAM | | Outer_Full | 7.11 | <=13 | Pass |
| CP-OFDM 256QAM | | Outer_Full | 8.38 | <=13 | Pass |
| DFT-s-OFDM PI/2 BPSK | High CH | Outer_Full | 5.30 | <=13 | Pass |
| DFT-s-OFDM QPSK | | Outer_Full | 5.20 | <=13 | Pass |
| DFT-s-OFDM 16QAM | | Outer_Full | 6.14 | <=13 | Pass |
| DFT-s-OFDM 64QAM | | Outer_Full | 6.59 | <=13 | Pass |
| DFT-s-OFDM 256QAM | | Outer_Full | 6.49 | <=13 | Pass |
| CP-OFDM QPSK | | Outer_Full | 7.40 | <=13 | Pass |
| CP-OFDM 16QAM | | Outer_Full | 7.56 | <=13 | Pass |
| CP-OFDM 64QAM | | Outer_Full | 7.17 | <=13 | Pass |
| CP-OFDM 256QAM | | Outer_Full | 8.09 | <=13 | Pass |

| 5G NR n2 SCS=15kHz 10MHz | | | | | |
|--------------------------|-----------|---------------|-------------------------|-------|---------|
| Modulation | CH | RB Allocation | Peak-Average Ratio (dB) | Limit | Verdict |
| DFT-s-OFDM PI/2 BPSK | Low CH | Outer_Full | 5.53 | <=13 | Pass |
| DFT-s-OFDM QPSK | | Outer_Full | 5.29 | <=13 | Pass |
| DFT-s-OFDM 16QAM | | Outer_Full | 6.10 | <=13 | Pass |
| DFT-s-OFDM 64QAM | | Outer_Full | 6.33 | <=13 | Pass |
| DFT-s-OFDM 256QAM | | Outer_Full | 6.52 | <=13 | Pass |
| CP-OFDM QPSK | | Outer_Full | 7.13 | <=13 | Pass |
| CP-OFDM 16QAM | | Outer_Full | 7.39 | <=13 | Pass |
| CP-OFDM 64QAM | | Outer_Full | 6.81 | <=13 | Pass |
| CP-OFDM 256QAM | | Outer_Full | 8.30 | <=13 | Pass |
| DFT-s-OFDM PI/2 BPSK | Middle CH | Outer_Full | 5.36 | <=13 | Pass |
| DFT-s-OFDM QPSK | | Outer_Full | 5.52 | <=13 | Pass |
| DFT-s-OFDM 16QAM | | Outer_Full | 6.27 | <=13 | Pass |
| DFT-s-OFDM 64QAM | | Outer_Full | 6.45 | <=13 | Pass |
| DFT-s-OFDM 256QAM | | Outer_Full | 6.52 | <=13 | Pass |
| CP-OFDM QPSK | | Outer_Full | 7.46 | <=13 | Pass |
| CP-OFDM 16QAM | | Outer_Full | 7.56 | <=13 | Pass |
| CP-OFDM 64QAM | | Outer_Full | 7.26 | <=13 | Pass |
| CP-OFDM 256QAM | | Outer_Full | 8.32 | <=13 | Pass |
| DFT-s-OFDM PI/2 BPSK | High CH | Outer_Full | 5.32 | <=13 | Pass |
| DFT-s-OFDM QPSK | | Outer_Full | 5.41 | <=13 | Pass |
| DFT-s-OFDM 16QAM | | Outer_Full | 6.21 | <=13 | Pass |
| DFT-s-OFDM 64QAM | | Outer_Full | 6.31 | <=13 | Pass |
| DFT-s-OFDM 256QAM | | Outer_Full | 6.43 | <=13 | Pass |
| CP-OFDM QPSK | | Outer_Full | 7.50 | <=13 | Pass |
| CP-OFDM 16QAM | | Outer_Full | 7.50 | <=13 | Pass |
| CP-OFDM 64QAM | | Outer_Full | 7.31 | <=13 | Pass |
| CP-OFDM 256QAM | | Outer_Full | 8.39 | <=13 | Pass |

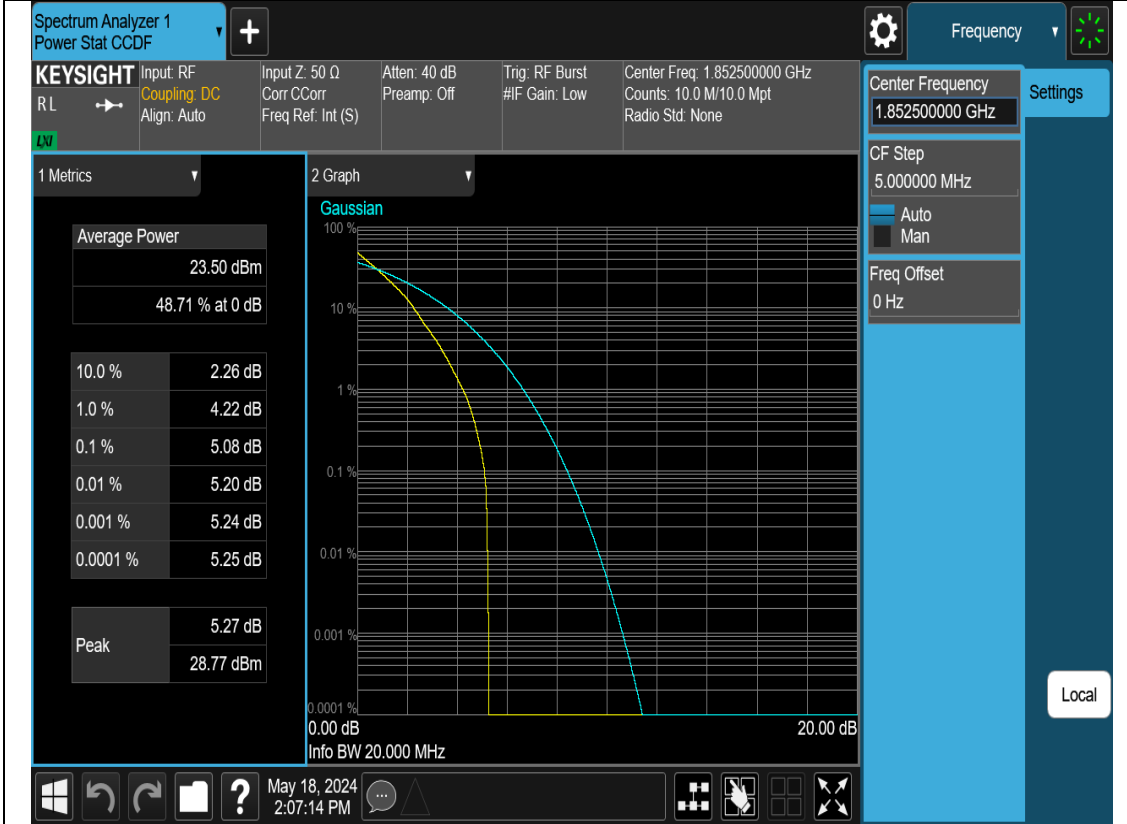
| 5G NR n2 SCS=15kHz 15MHz | | | | | |
|--------------------------|-----------|---------------|-------------------------|-------|---------|
| Modulation | CH | RB Allocation | Peak-Average Ratio (dB) | Limit | Verdict |
| DFT-s-OFDM PI/2 BPSK | Low CH | Outer_Full | 5.61 | <=13 | Pass |
| DFT-s-OFDM QPSK | | Outer_Full | 5.59 | <=13 | Pass |
| DFT-s-OFDM 16QAM | | Outer_Full | 6.36 | <=13 | Pass |
| DFT-s-OFDM 64QAM | | Outer_Full | 6.49 | <=13 | Pass |
| DFT-s-OFDM 256QAM | | Outer_Full | 6.39 | <=13 | Pass |
| CP-OFDM QPSK | | Outer_Full | 7.18 | <=13 | Pass |
| CP-OFDM 16QAM | | Outer_Full | 7.29 | <=13 | Pass |
| CP-OFDM 64QAM | | Outer_Full | 7.70 | <=13 | Pass |
| CP-OFDM 256QAM | | Outer_Full | 8.44 | <=13 | Pass |
| DFT-s-OFDM PI/2 BPSK | Middle CH | Outer_Full | 5.31 | <=13 | Pass |
| DFT-s-OFDM QPSK | | Outer_Full | 5.44 | <=13 | Pass |
| DFT-s-OFDM 16QAM | | Outer_Full | 6.22 | <=13 | Pass |
| DFT-s-OFDM 64QAM | | Outer_Full | 6.41 | <=13 | Pass |
| DFT-s-OFDM 256QAM | | Outer_Full | 6.65 | <=13 | Pass |
| CP-OFDM QPSK | | Outer_Full | 7.51 | <=13 | Pass |
| CP-OFDM 16QAM | | Outer_Full | 7.60 | <=13 | Pass |
| CP-OFDM 64QAM | | Outer_Full | 7.18 | <=13 | Pass |
| CP-OFDM 256QAM | | Outer_Full | 8.48 | <=13 | Pass |
| DFT-s-OFDM PI/2 BPSK | High CH | Outer_Full | 5.68 | <=13 | Pass |
| DFT-s-OFDM QPSK | | Outer_Full | 5.40 | <=13 | Pass |
| DFT-s-OFDM 16QAM | | Outer_Full | 6.21 | <=13 | Pass |
| DFT-s-OFDM 64QAM | | Outer_Full | 6.38 | <=13 | Pass |
| DFT-s-OFDM 256QAM | | Outer_Full | 6.63 | <=13 | Pass |
| CP-OFDM QPSK | | Outer_Full | 7.50 | <=13 | Pass |
| CP-OFDM 16QAM | | Outer_Full | 7.62 | <=13 | Pass |
| CP-OFDM 64QAM | | Outer_Full | 7.31 | <=13 | Pass |
| CP-OFDM 256QAM | | Outer_Full | 8.51 | <=13 | Pass |

| 5G NR n2 SCS=15kHz 20MHz | | | | | |
|--------------------------|-----------|---------------|-------------------------|-------|---------|
| Modulation | CH | RB Allocation | Peak-Average Ratio (dB) | Limit | Verdict |
| DFT-s-OFDM PI/2 BPSK | Low CH | Outer_Full | 5.51 | <=13 | Pass |
| DFT-s-OFDM QPSK | | Outer_Full | 5.63 | <=13 | Pass |
| DFT-s-OFDM 16QAM | | Outer_Full | 6.23 | <=13 | Pass |
| DFT-s-OFDM 64QAM | | Outer_Full | 6.59 | <=13 | Pass |
| DFT-s-OFDM 256QAM | | Outer_Full | 6.30 | <=13 | Pass |
| CP-OFDM QPSK | | Outer_Full | 7.82 | <=13 | Pass |
| CP-OFDM 16QAM | | Outer_Full | 8.35 | <=13 | Pass |
| CP-OFDM 64QAM | | Outer_Full | 6.96 | <=13 | Pass |
| CP-OFDM 256QAM | | Outer_Full | 7.61 | <=13 | Pass |
| DFT-s-OFDM PI/2 BPSK | Middle CH | Outer_Full | 5.34 | <=13 | Pass |
| DFT-s-OFDM QPSK | | Outer_Full | 5.34 | <=13 | Pass |
| DFT-s-OFDM 16QAM | | Outer_Full | 6.12 | <=13 | Pass |
| DFT-s-OFDM 64QAM | | Outer_Full | 6.44 | <=13 | Pass |
| DFT-s-OFDM 256QAM | | Outer_Full | 6.30 | <=13 | Pass |
| CP-OFDM QPSK | | Outer_Full | 7.25 | <=13 | Pass |
| CP-OFDM 16QAM | | Outer_Full | 7.41 | <=13 | Pass |
| CP-OFDM 64QAM | | Outer_Full | 7.21 | <=13 | Pass |
| CP-OFDM 256QAM | | Outer_Full | 8.50 | <=13 | Pass |
| DFT-s-OFDM PI/2 BPSK | High CH | Outer_Full | 5.67 | <=13 | Pass |
| DFT-s-OFDM QPSK | | Outer_Full | 5.78 | <=13 | Pass |
| DFT-s-OFDM 16QAM | | Outer_Full | 6.32 | <=13 | Pass |
| DFT-s-OFDM 64QAM | | Outer_Full | 6.54 | <=13 | Pass |
| DFT-s-OFDM 256QAM | | Outer_Full | 6.38 | <=13 | Pass |
| CP-OFDM QPSK | | Outer_Full | 7.37 | <=13 | Pass |
| CP-OFDM 16QAM | | Outer_Full | 7.48 | <=13 | Pass |
| CP-OFDM 64QAM | | Outer_Full | 7.80 | <=13 | Pass |
| CP-OFDM 256QAM | | Outer_Full | 8.50 | <=13 | Pass |

Test Graph



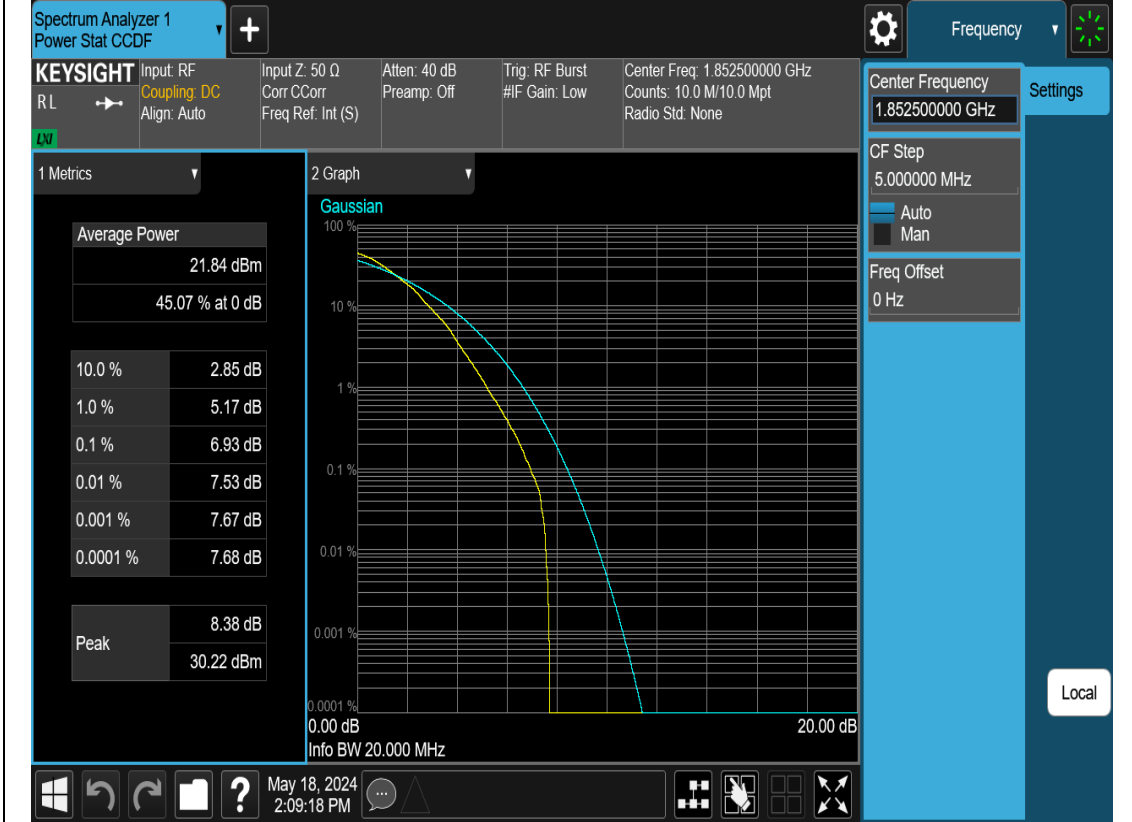
N2-5M-PAPR-L-DFT-s-OFDM-QPSK-Outer_Full



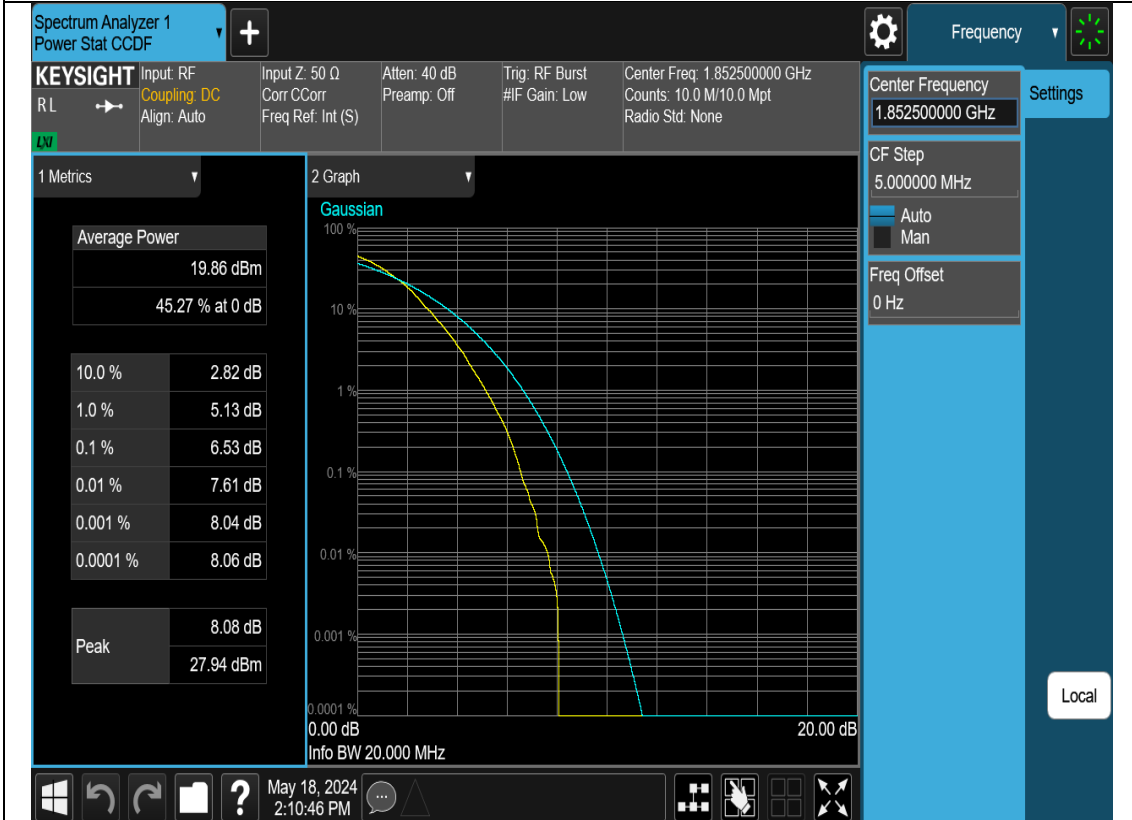
N2-5M-PAPR-L-DFT-s-OFDM-16QAM-Outer_Full



N2-5M-PAPR-L-DFT-s-OFDM-64QAM-Outer_Full



N2-5M-PAPR-L-DFT-s-OFDM-256QAM-Outer_Full



N2-5M-PAPR-L-CP-OFDM-QPSK-Outer_Full

Spectrum Analyzer 1
Power Stat CCDF

KEYSIGHT Input RF
RL Coupling: DC
Align: Auto

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

Atten: 40 dB
Preamp: Off

Trig: RF Burst
#IF Gain: Low

Center Freq: 1.852500000 GHz
Counts: 10.0 M/10.0 Mpt
Radio Std: None

Center Frequency: 1.852500000 GHz

CF Step: 5.000000 MHz

Freq Offset: 0 Hz

1 Metrics

Average Power

21.37 dBm

37.51 % at 0 dB

| | |
|----------|---------|
| 10.0 % | 3.66 dB |
| 1.0 % | 6.41 dB |
| 0.1 % | 7.16 dB |
| 0.01 % | 7.25 dB |
| 0.001 % | 7.31 dB |
| 0.0001 % | 7.33 dB |

Peak

7.35 dB

28.72 dBm

2 Graph

Gaussian

0.00 dB 20.00 dB

Info BW 20.000 MHz

May 18, 2024 2:04:35 PM

Local

N2-5M-PAPR-L-CP-QPSK-16QAM-Outer_Full

Spectrum Analyzer 1
Power Stat CCDF

KEYSIGHT Input RF
RL Coupling: DC
Align: Auto

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

Atten: 40 dB
Preamp: Off

Trig: RF Burst
#IF Gain: Low

Center Freq: 1.852500000 GHz
Counts: 10.0 M/10.0 Mpt
Radio Std: None

Center Frequency: 1.852500000 GHz

CF Step: 5.000000 MHz

Freq Offset: 0 Hz

1 Metrics

Average Power

21.36 dBm

36.86 % at 0 dB

| | |
|----------|---------|
| 10.0 % | 3.64 dB |
| 1.0 % | 6.43 dB |
| 0.1 % | 7.36 dB |
| 0.01 % | 7.46 dB |
| 0.001 % | 7.49 dB |
| 0.0001 % | 7.51 dB |

Peak

7.54 dB

28.90 dBm

2 Graph

Gaussian

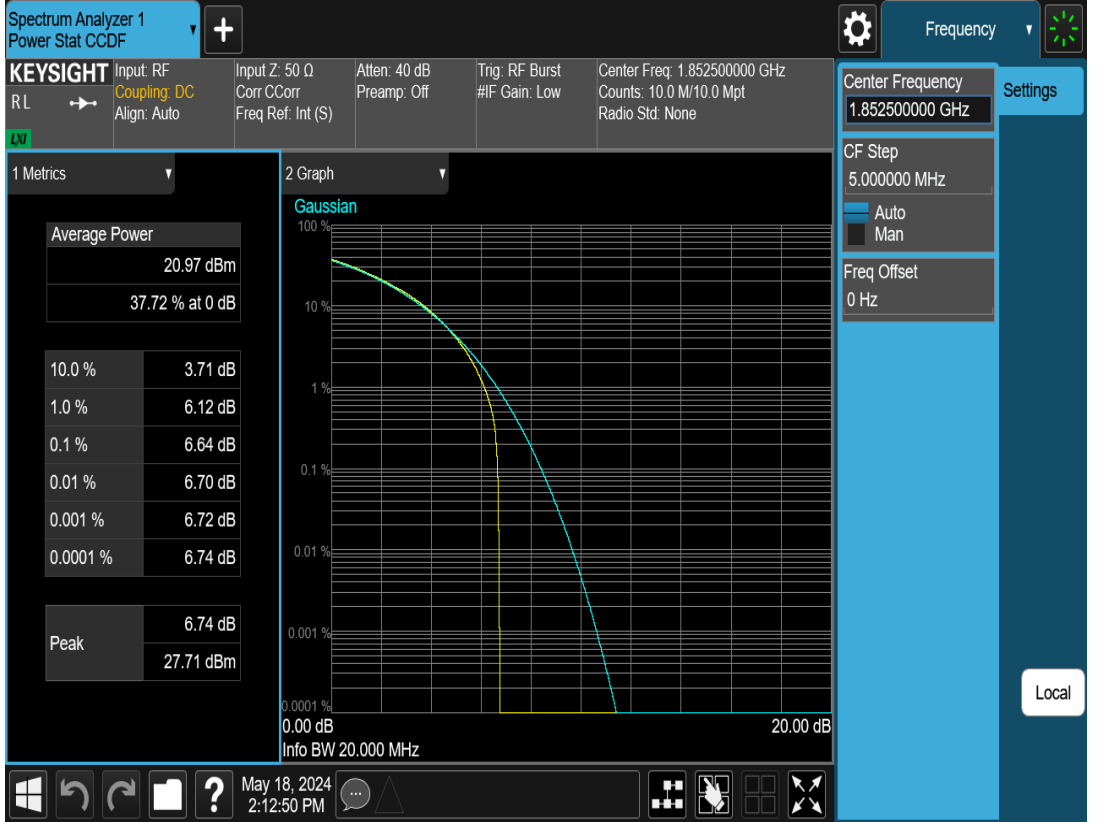
0.00 dB 20.00 dB

Info BW 20.000 MHz

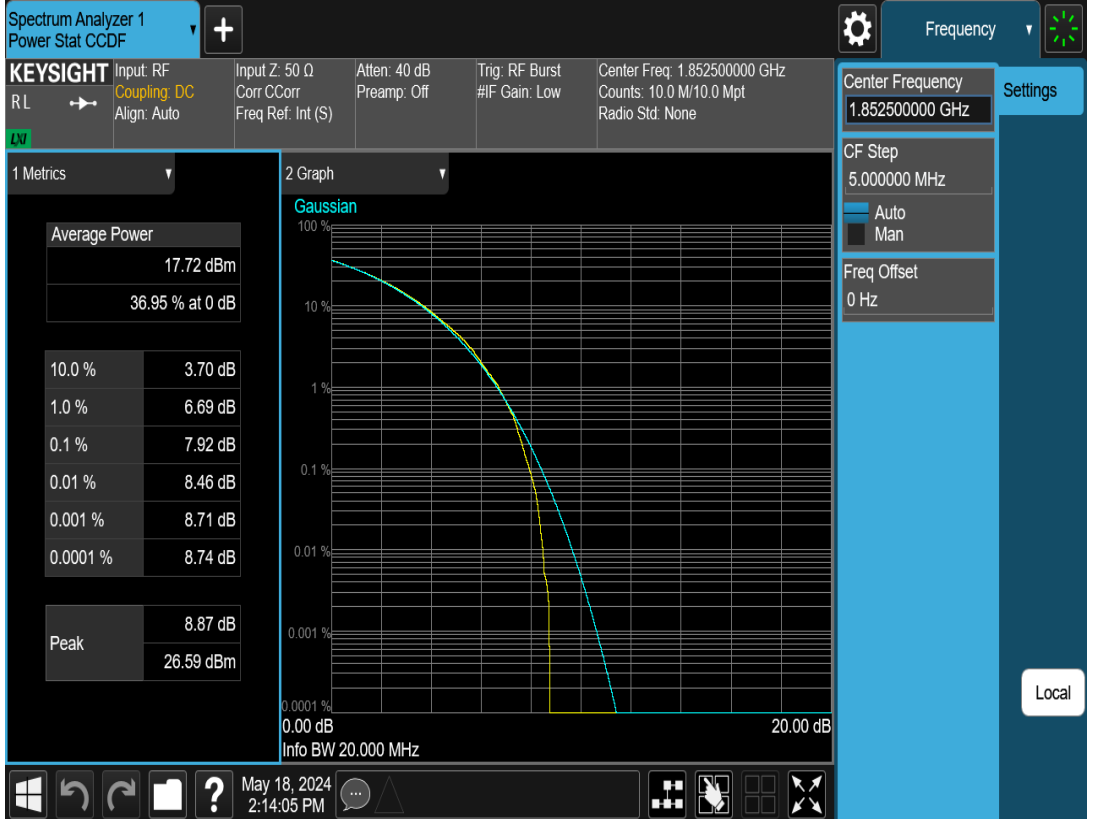
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Local

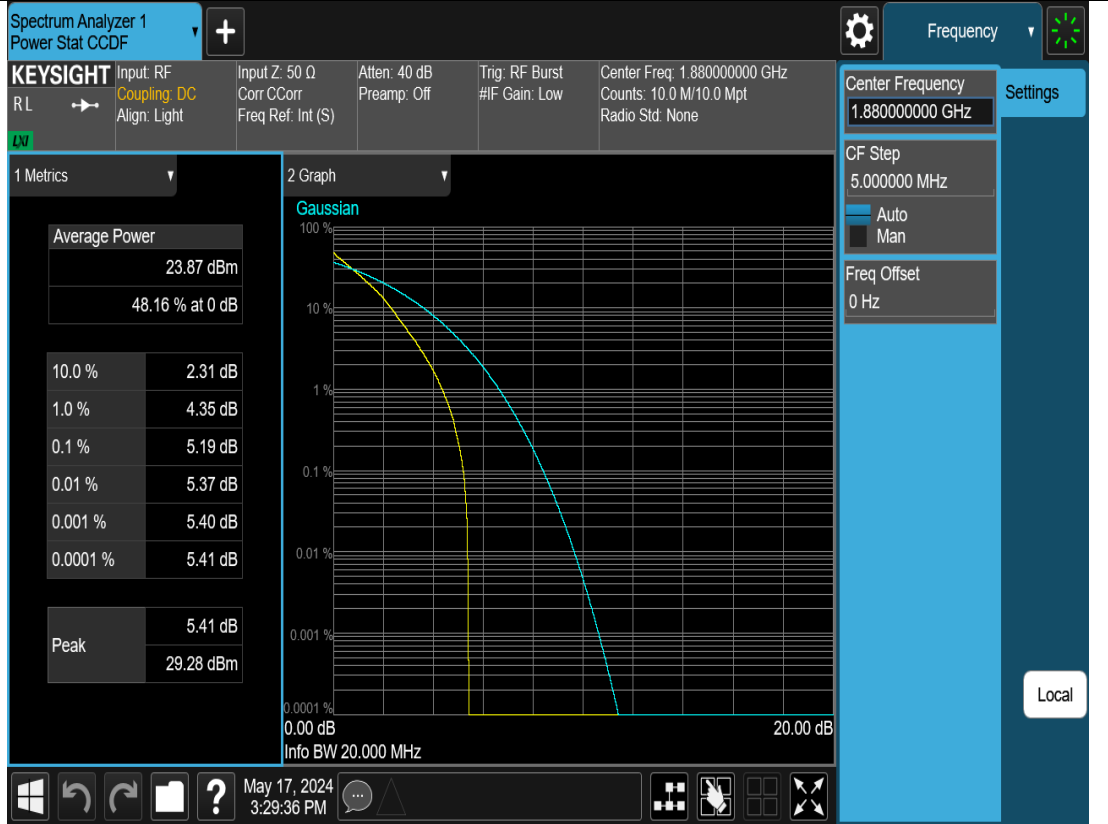
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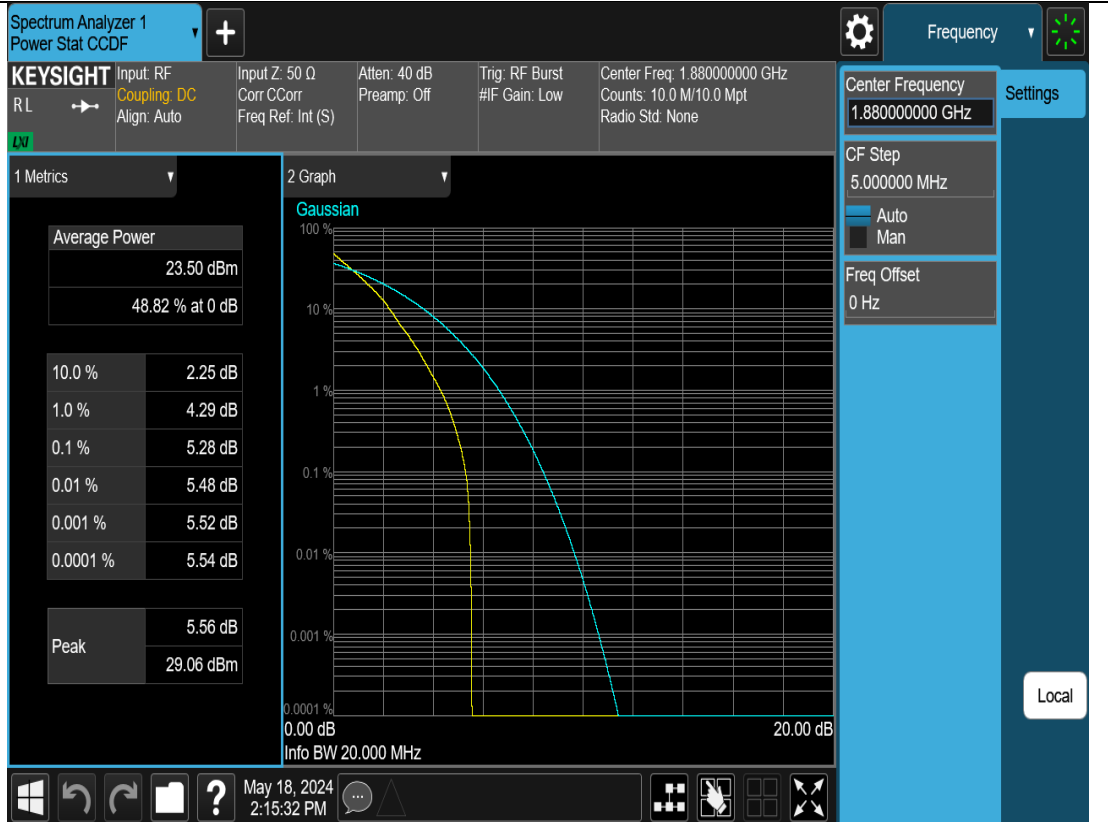
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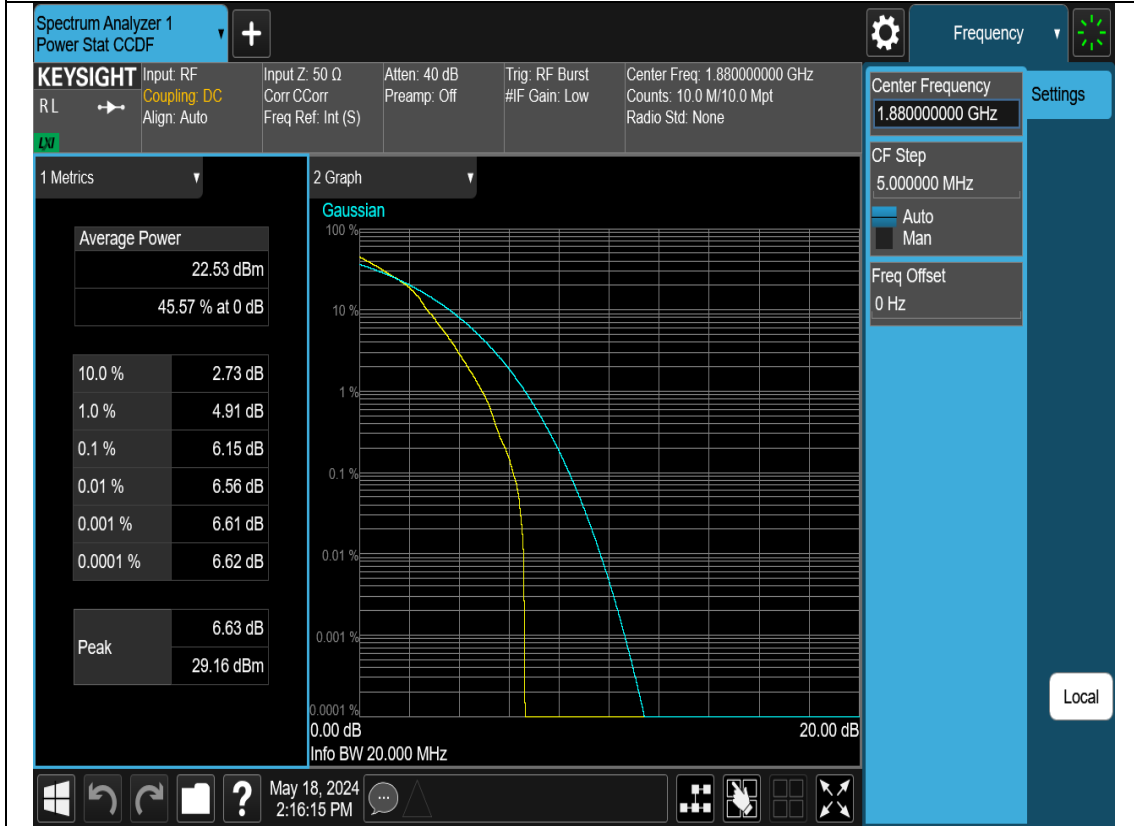
N2-5M-PAPR-M-DFT-s-OFDM-Pi2 BPSK-Outer_Full



N2-5M-PAPR-M-DFT-s-OFDM-QPSK-Outer_Full



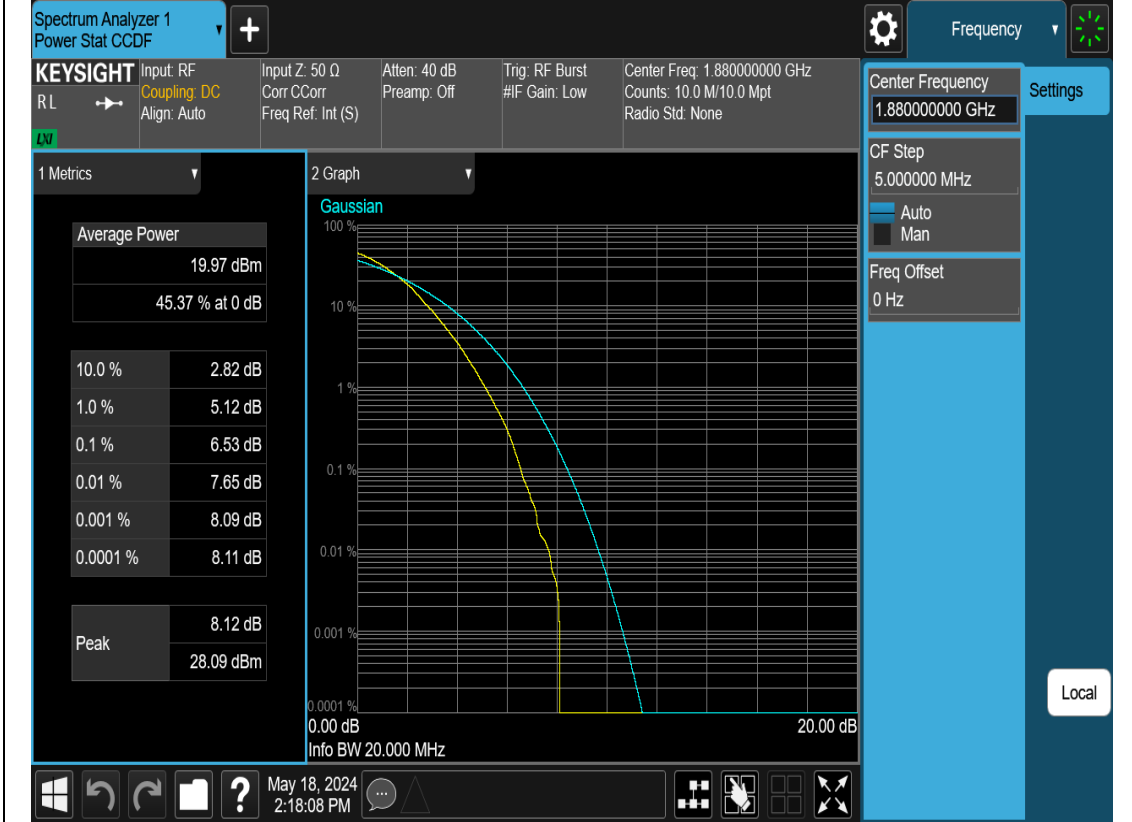
N2-5M-PAPR-M-DFT-s-OFDM-16QAM-Outer_Full



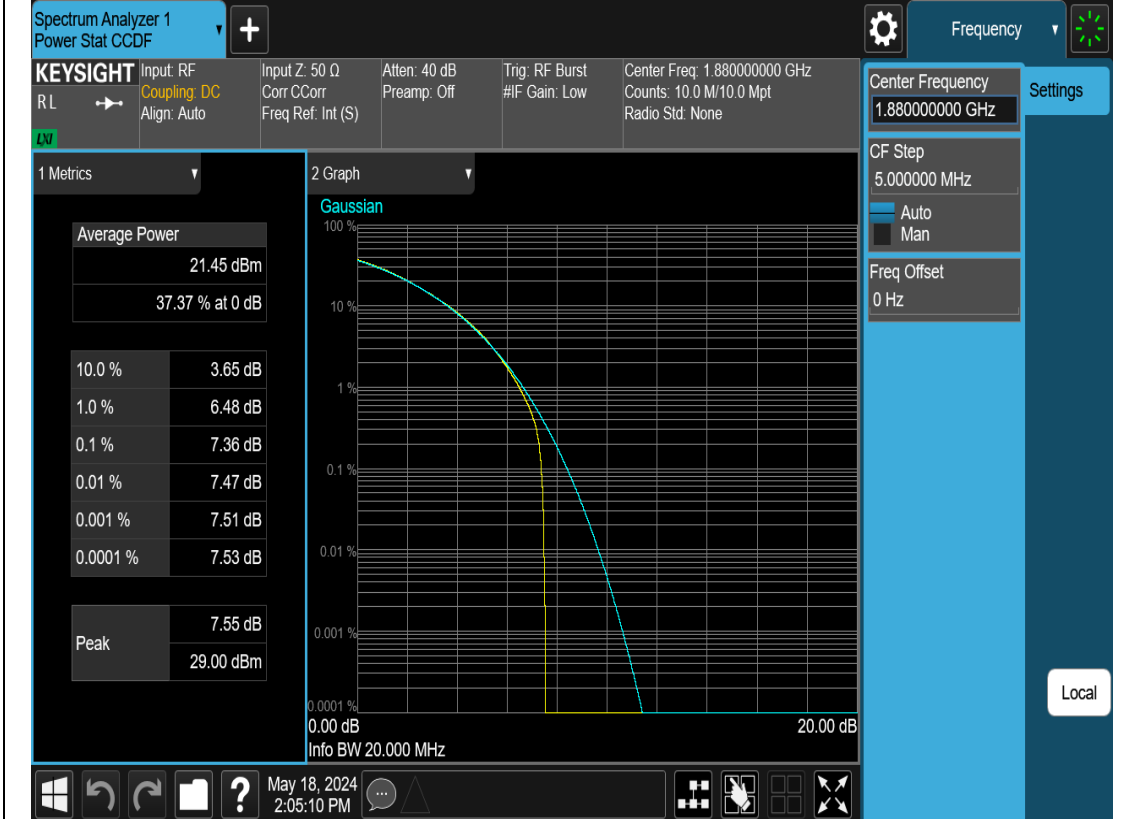
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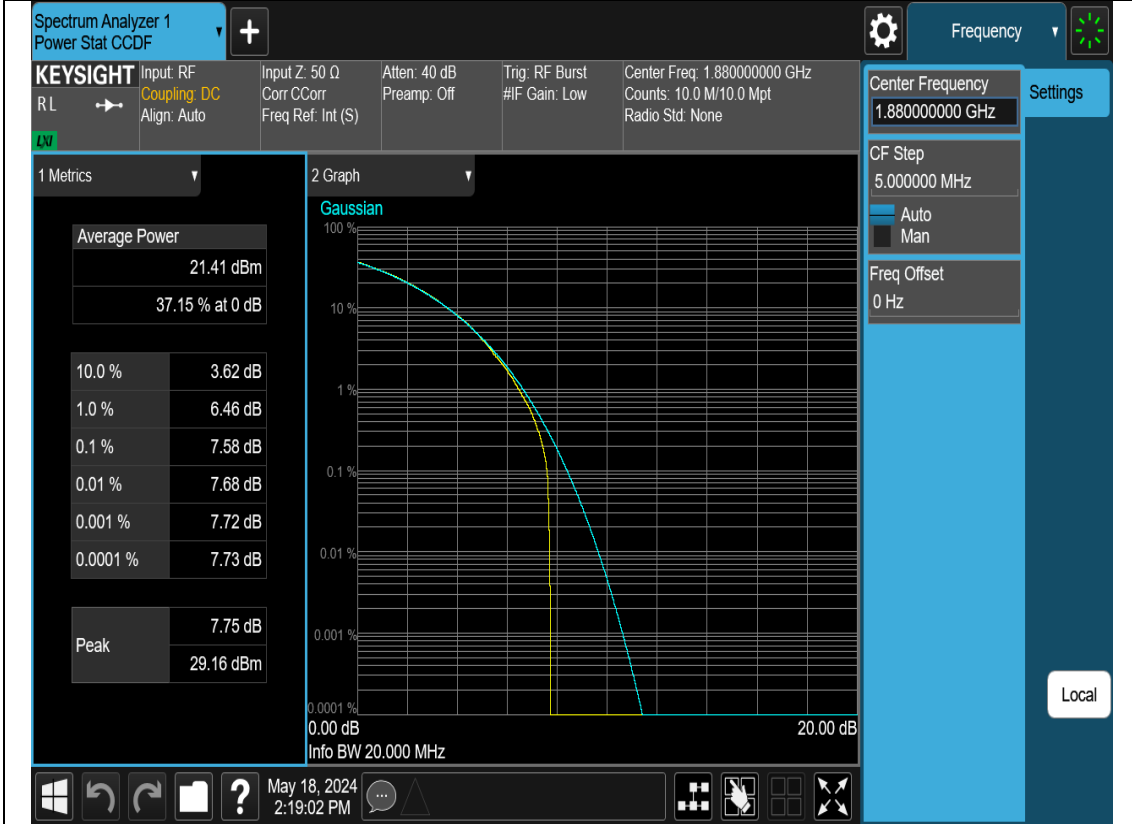
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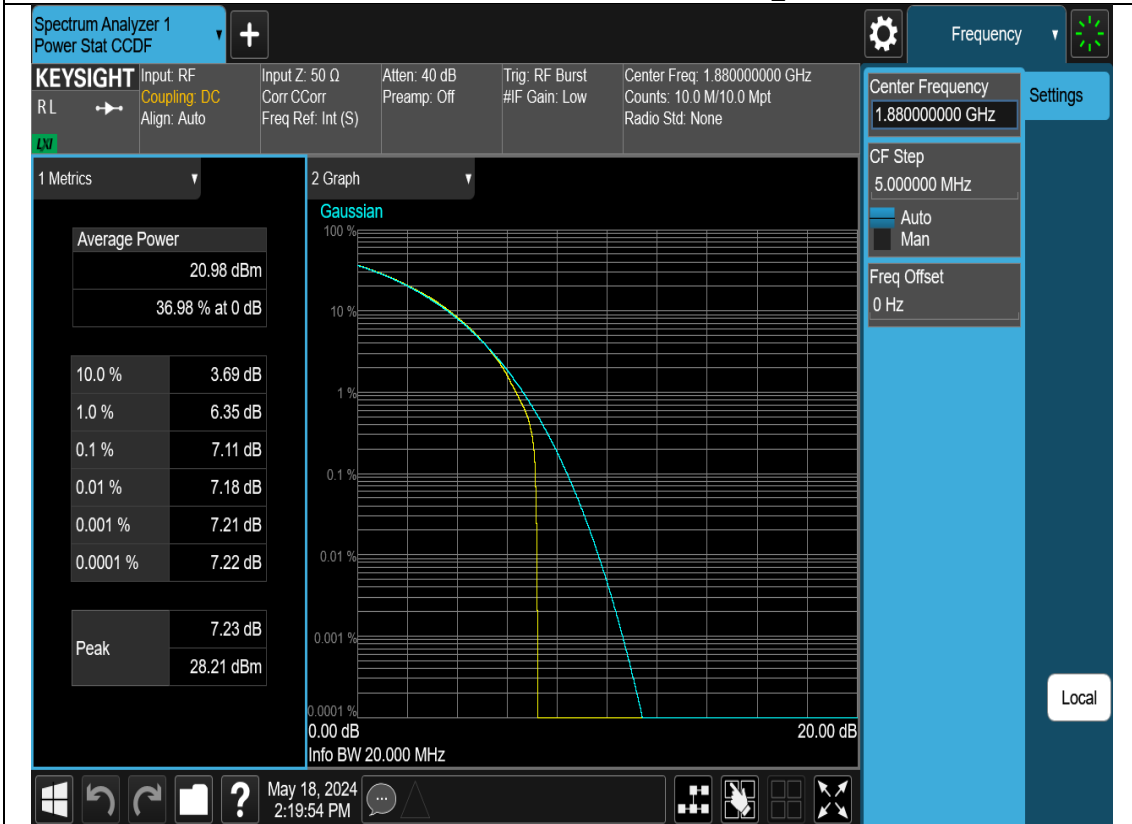
N2-5M-PAPR-M-CP-OFDM-QPSK-Outer_Full



N2-5M-PAPR-M-CP-OFDM-16QAM-Outer_Full



N2-5M-PAPR-M-CP-OFDM-64QAM-Outer_Full



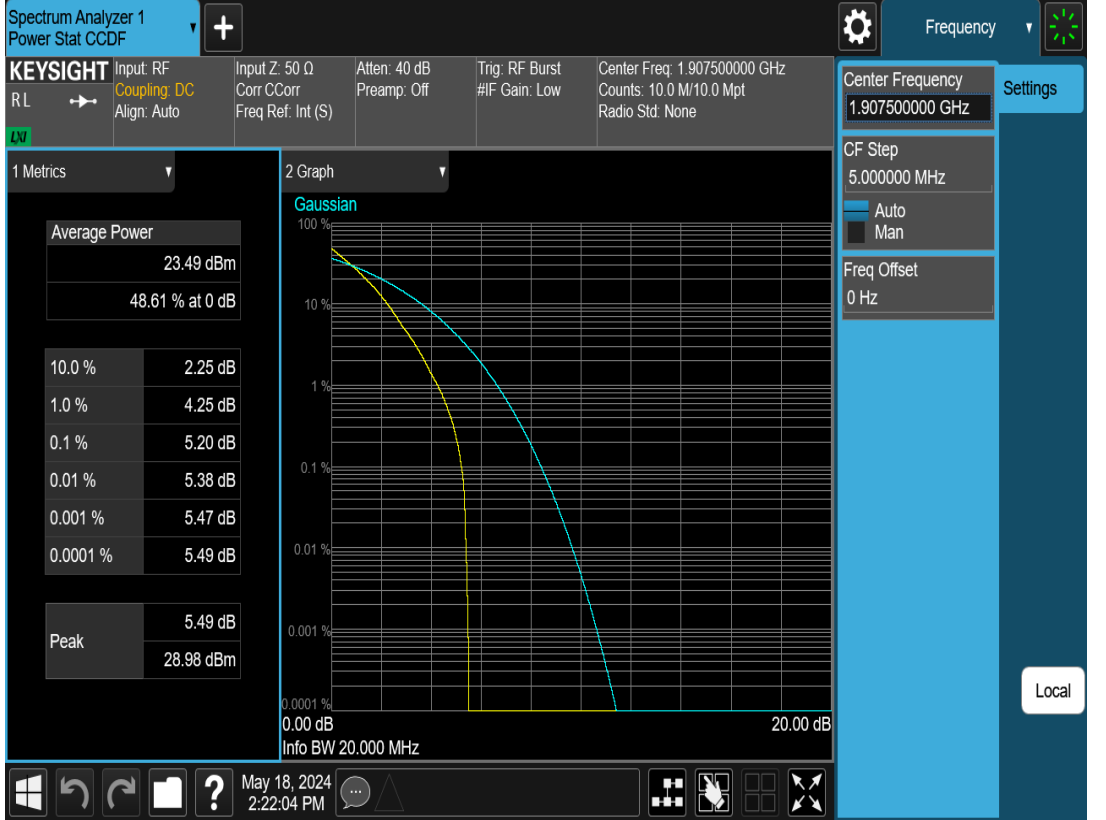
N2-5M-PAPR-M-CP-OFDM-256QAM-Outer_Full



N2-5M-PAPR-H-DFT-s-OFDM-Pi2 BPSK-Outer_Full



N2-5M-PAPR-H-DFT-s-OFDM-QPSK-Outer_Full



N2-5M-PAPR-H-DFT-s-OFDM-16QAM-Outer_Full

