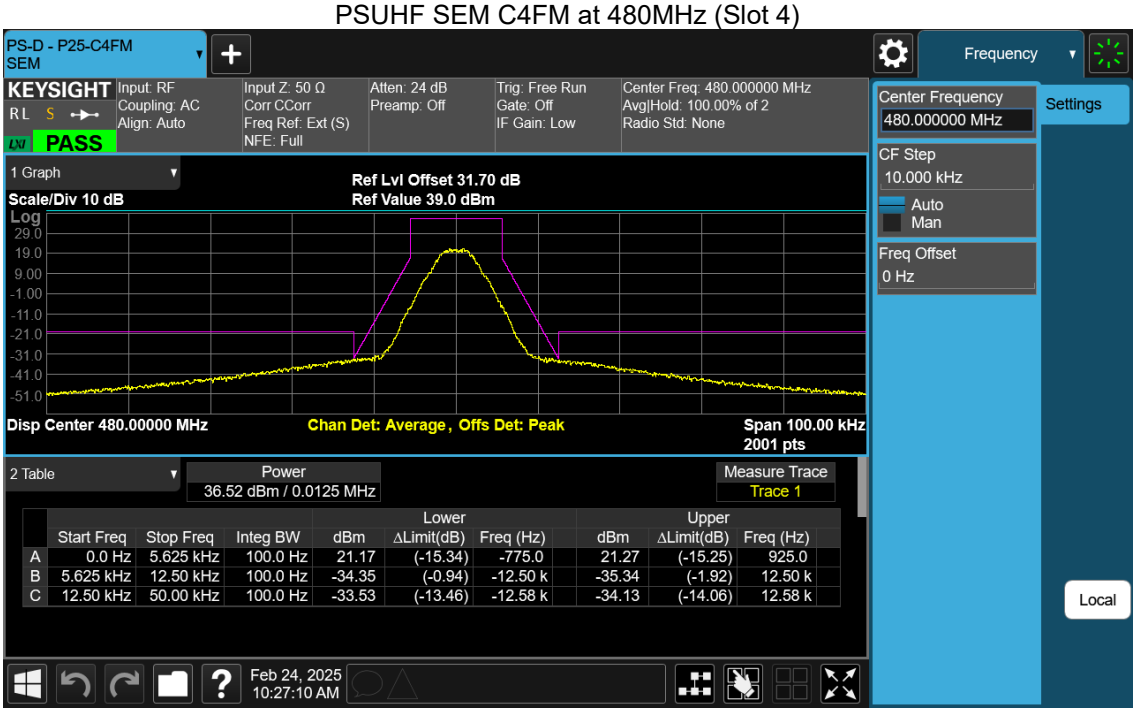
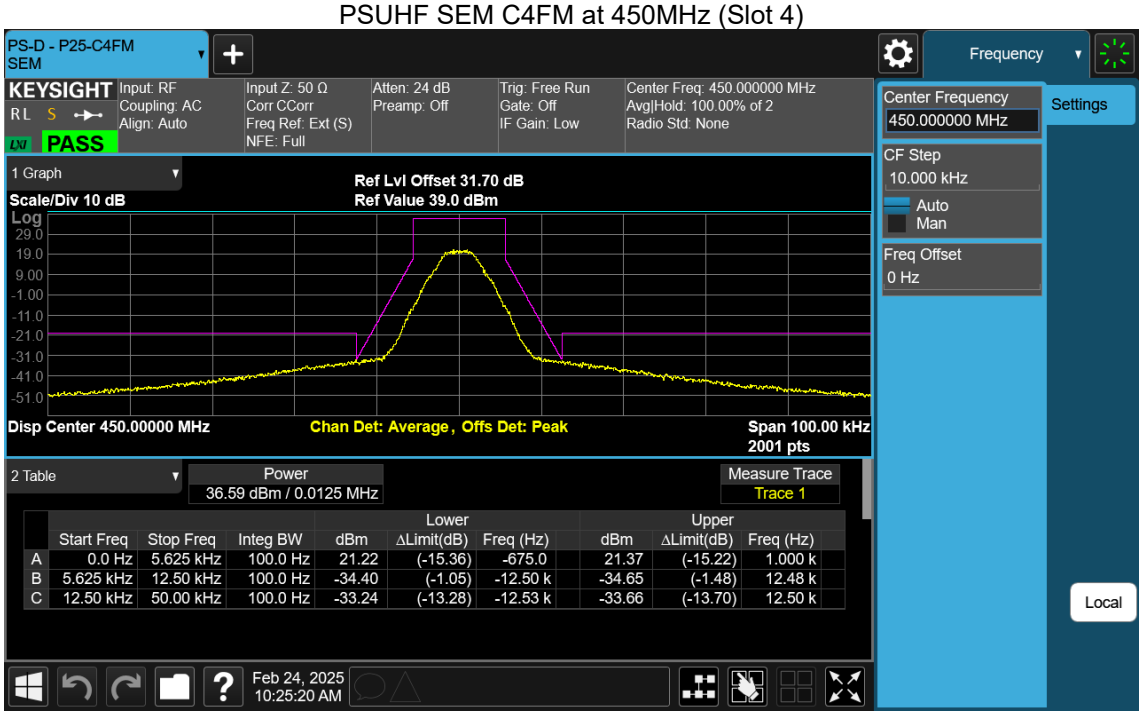
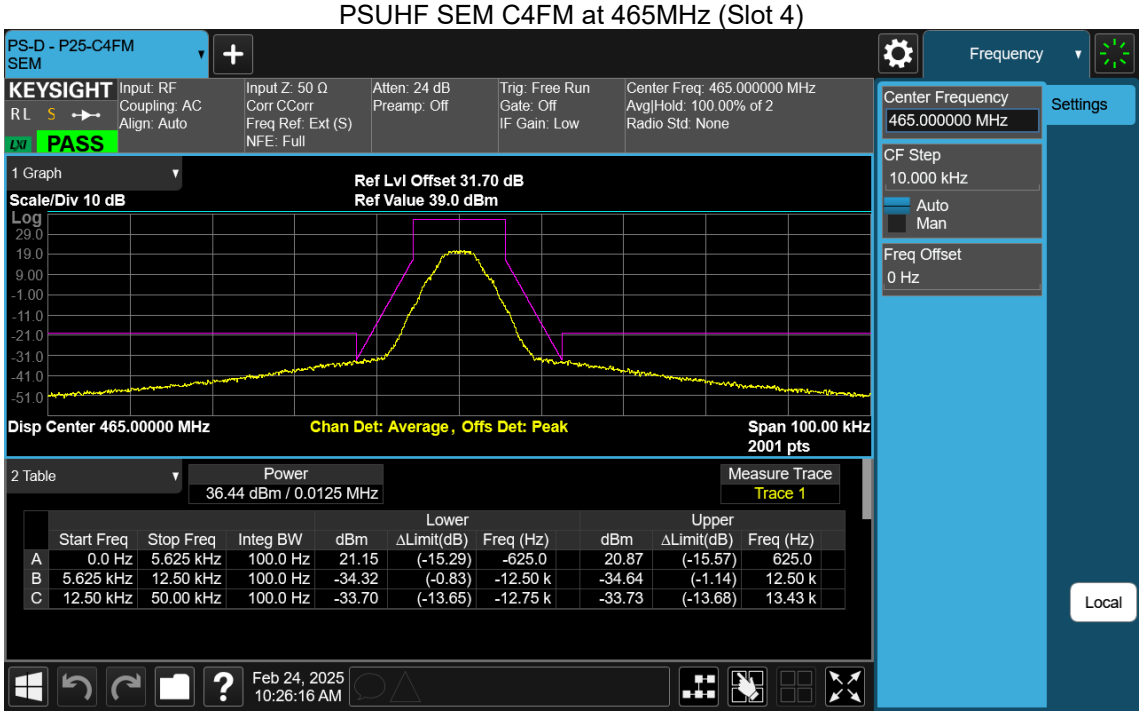
PSUHF SEM C4FM at 480MHz (Slot 4)



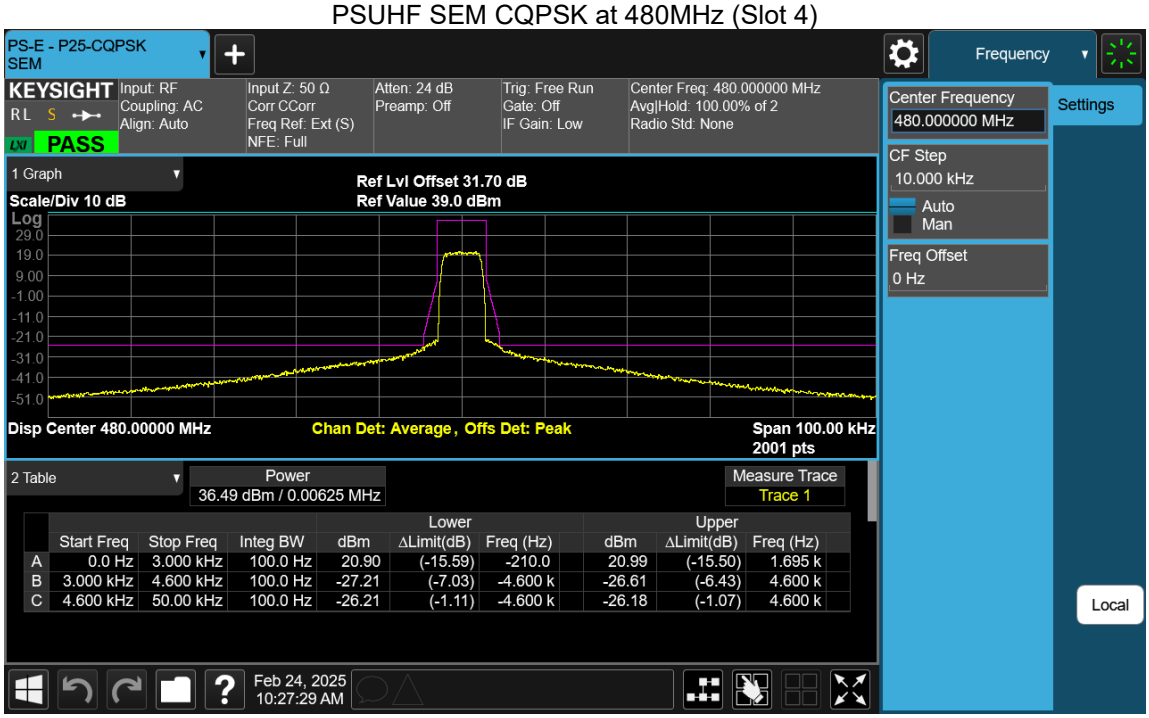
PSUHF SEM C4FM at 450MHz (Slot 4)



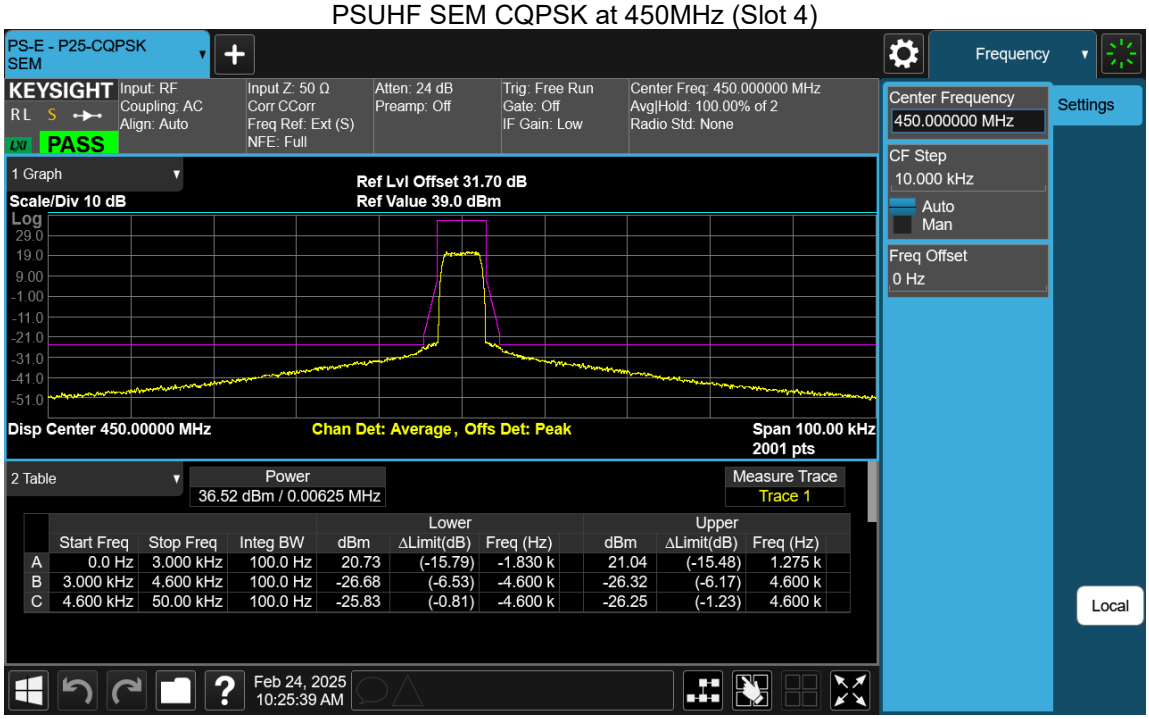
PSUHF SEM C4FM at 465MHz (Slot 4)



PSUHF SEM CQPSK at 480MHz (Slot 4)

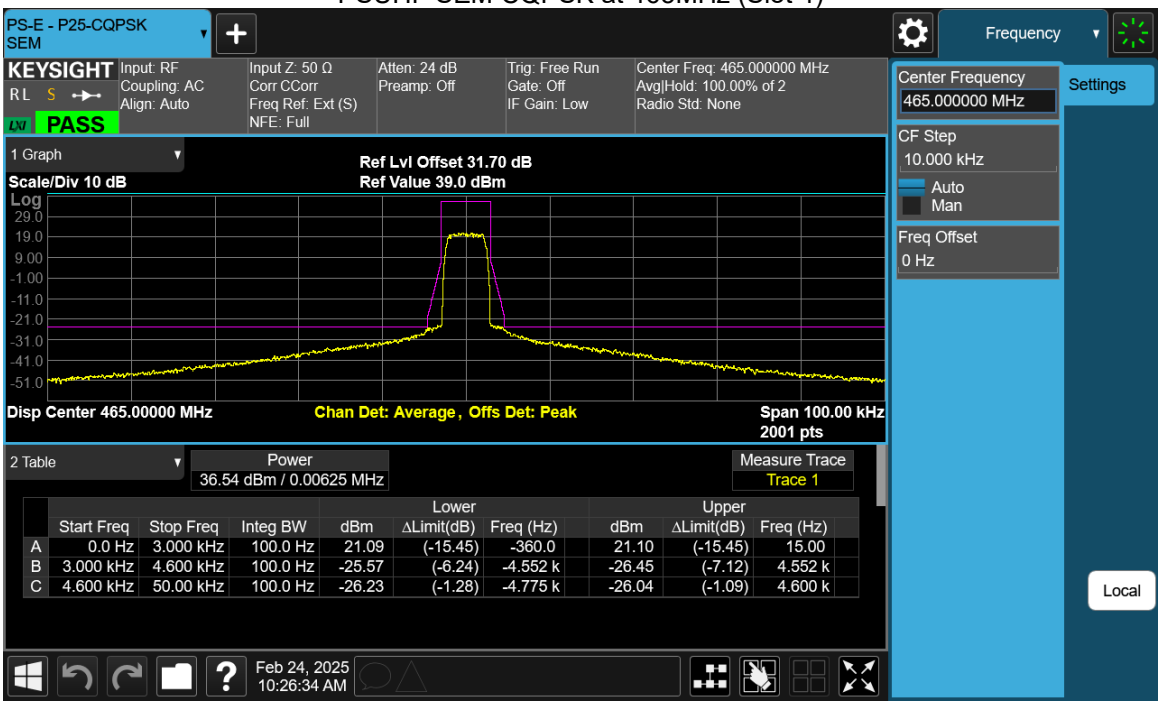


PSUHF SEM CQPSK at 450MHz (Slot 4)



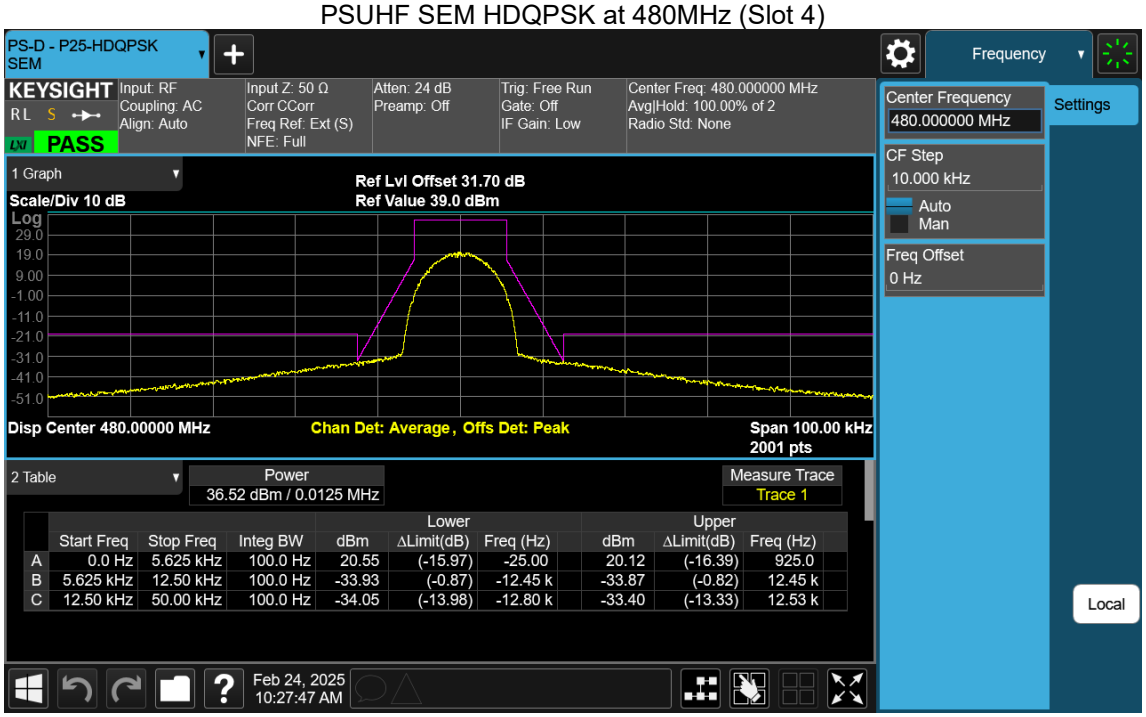
	Start Freq	Stop Freq	Integ BW	Lower dBm	Lower ΔLimit(dB)	Lower Freq (Hz)	Upper dBm	Upper ΔLimit(dB)	Upper Freq (Hz)
A	0.0 Hz	3.000 kHz	100.0 Hz	20.73	(-15.79)	-1.830 k	21.04	(-15.48)	1.275 k
B	3.000 kHz	4.600 kHz	100.0 Hz	-26.68	(-6.53)	-4.600 k	-26.32	(-6.17)	4.600 k
C	4.600 kHz	50.00 kHz	100.0 Hz	-25.83	(-0.81)	-4.600 k	-26.25	(-1.23)	4.600 k

PSUHF SEM CQPSK at 465MHz (Slot 4)



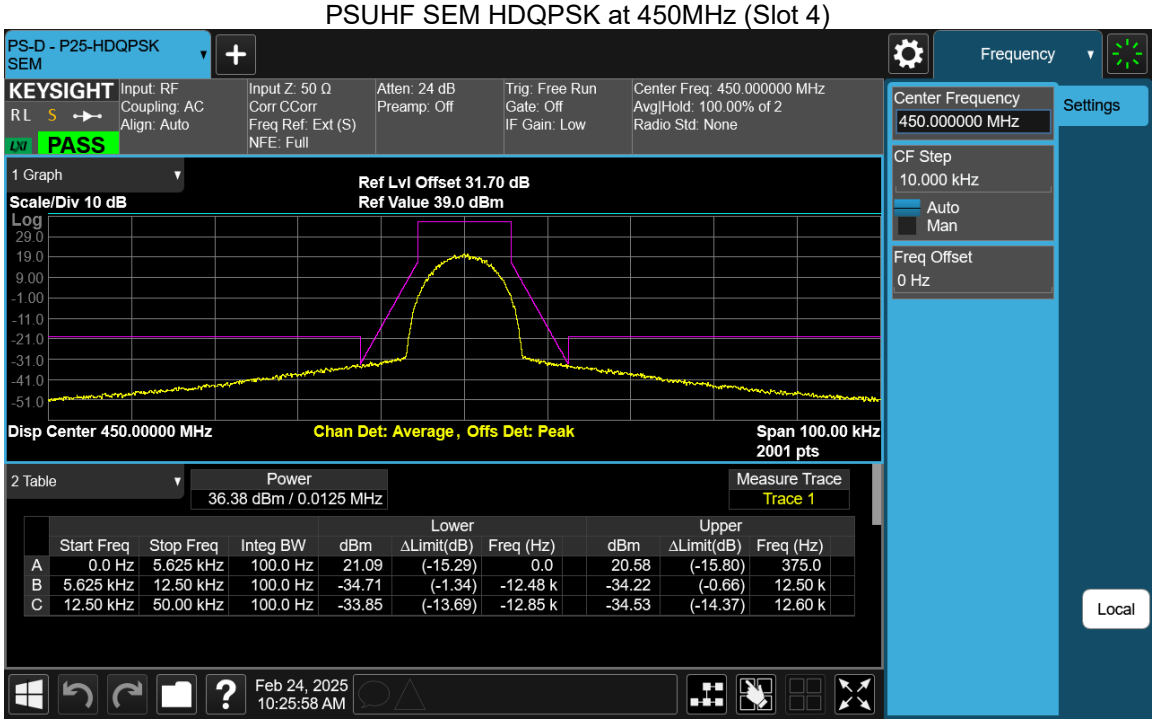
	Start Freq	Stop Freq	Integ BW	Lower dBm	Lower ΔLimit(dB)	Lower Freq (Hz)	Upper dBm	Upper ΔLimit(dB)	Upper Freq (Hz)
A	0.0 Hz	3.000 kHz	100.0 Hz	21.09	(-15.45)	-360.0	21.10	(-15.45)	15.00
B	3.000 kHz	4.600 kHz	100.0 Hz	-25.57	(-6.24)	-4.552 k	-26.45	(-7.12)	4.552 k
C	4.600 kHz	50.00 kHz	100.0 Hz	-26.23	(-1.28)	-4.775 k	-26.04	(-1.09)	4.600 k

PSUHF SEM HDQPSK at 480MHz (Slot 4)



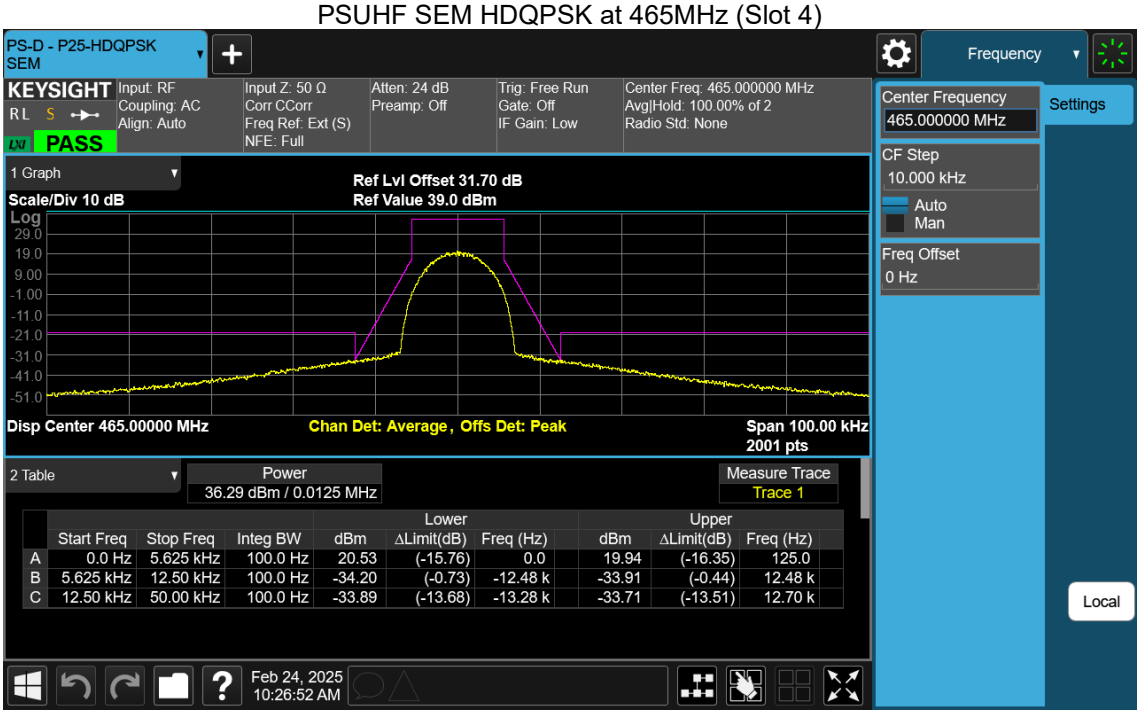
	Start Freq	Stop Freq	Integ BW	Lower dBm	Lower ΔLimit(dB)	Lower Freq (Hz)	Upper dBm	Upper ΔLimit(dB)	Upper Freq (Hz)
A	0.0 Hz	5.625 kHz	100.0 Hz	20.55	(-15.97)	-25.00	20.12	(-16.39)	925.0
B	5.625 kHz	12.50 kHz	100.0 Hz	-33.93	(-0.87)	-12.45 k	-33.87	(-0.82)	12.45 k
C	12.50 kHz	50.00 kHz	100.0 Hz	-34.05	(-13.98)	-12.80 k	-33.40	(-13.33)	12.53 k

PSUHF SEM HDQPSK at 450MHz (Slot 4)

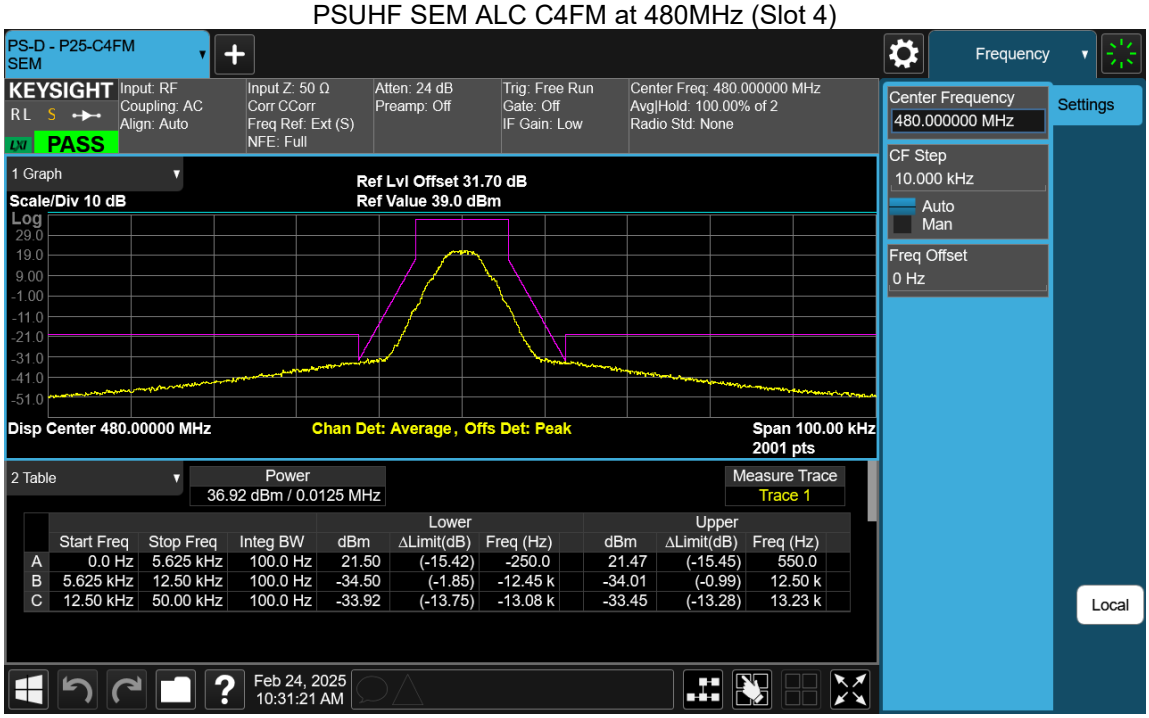


	Start Freq	Stop Freq	Integ BW	Lower dBm	Lower ΔLimit(dB)	Lower Freq (Hz)	Upper dBm	Upper ΔLimit(dB)	Upper Freq (Hz)
A	0.0 Hz	5.625 kHz	100.0 Hz	21.09	(-15.29)	0.0	20.58	(-15.80)	375.0
B	5.625 kHz	12.50 kHz	100.0 Hz	-34.71	(-1.34)	-12.48 k	-34.22	(-0.66)	12.50 k
C	12.50 kHz	50.00 kHz	100.0 Hz	-33.85	(-13.69)	-12.85 k	-34.53	(-14.37)	12.60 k

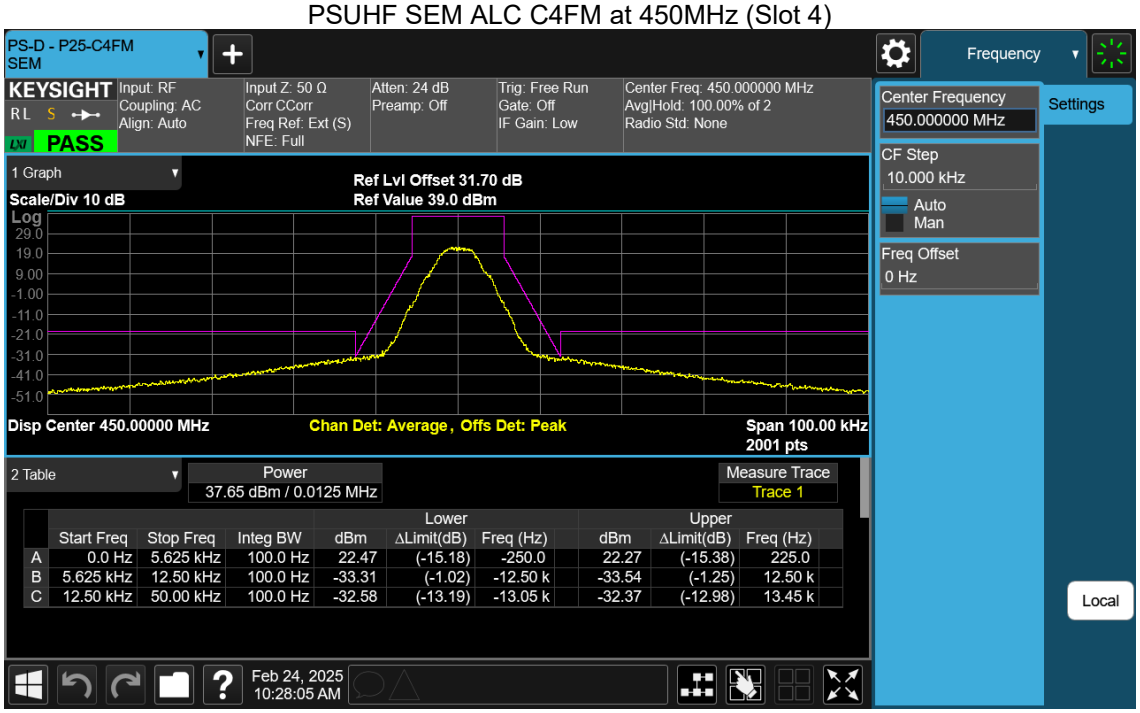
PSUHF SEM HDQPSK at 465MHz (Slot 4)



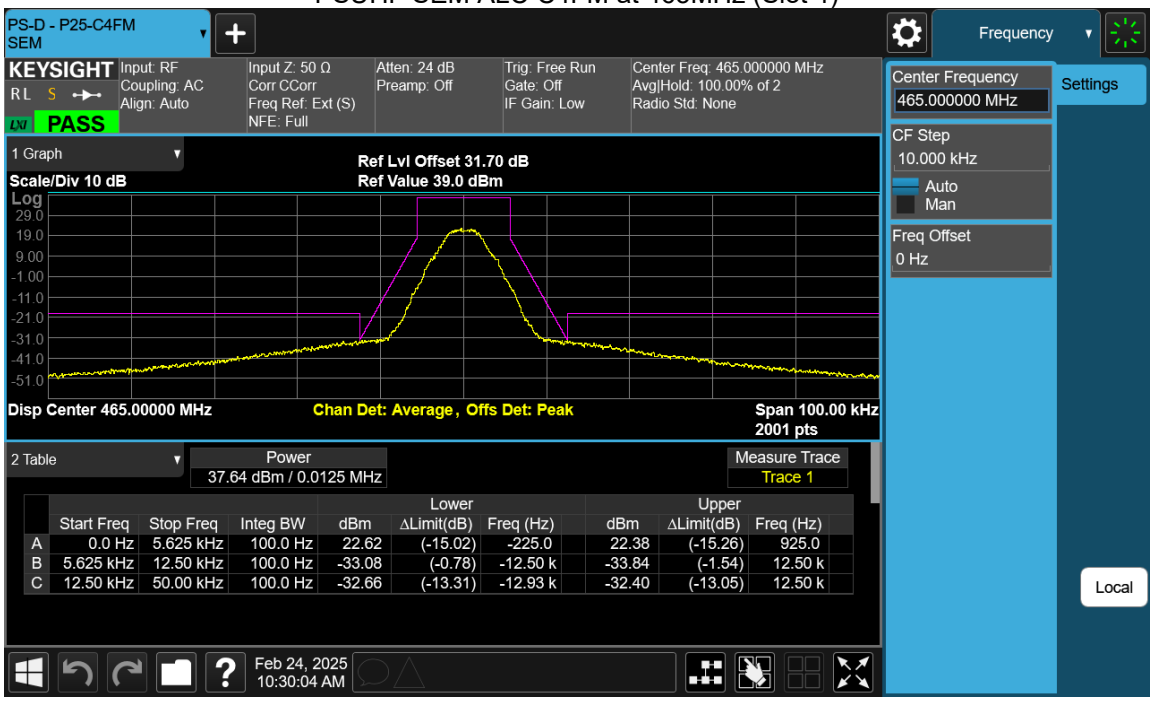
PSUHF SEM ALC C4FM at 480MHz (Slot 4)



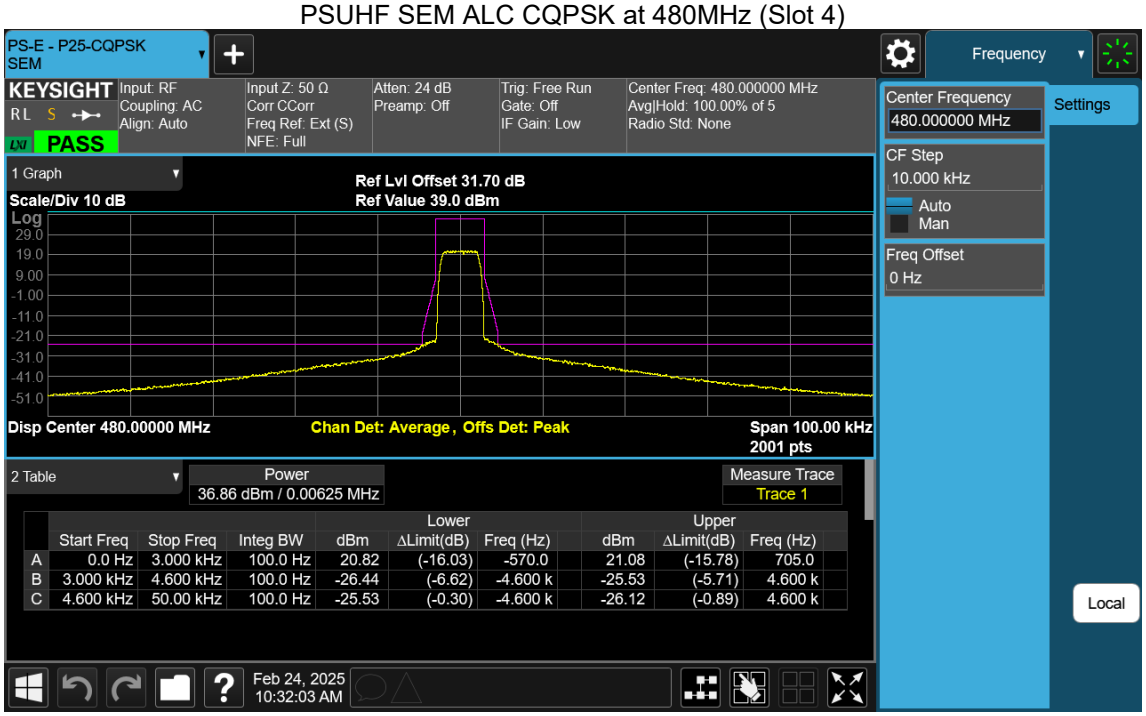
PSUHF SEM ALC C4FM at 450MHz (Slot 4)



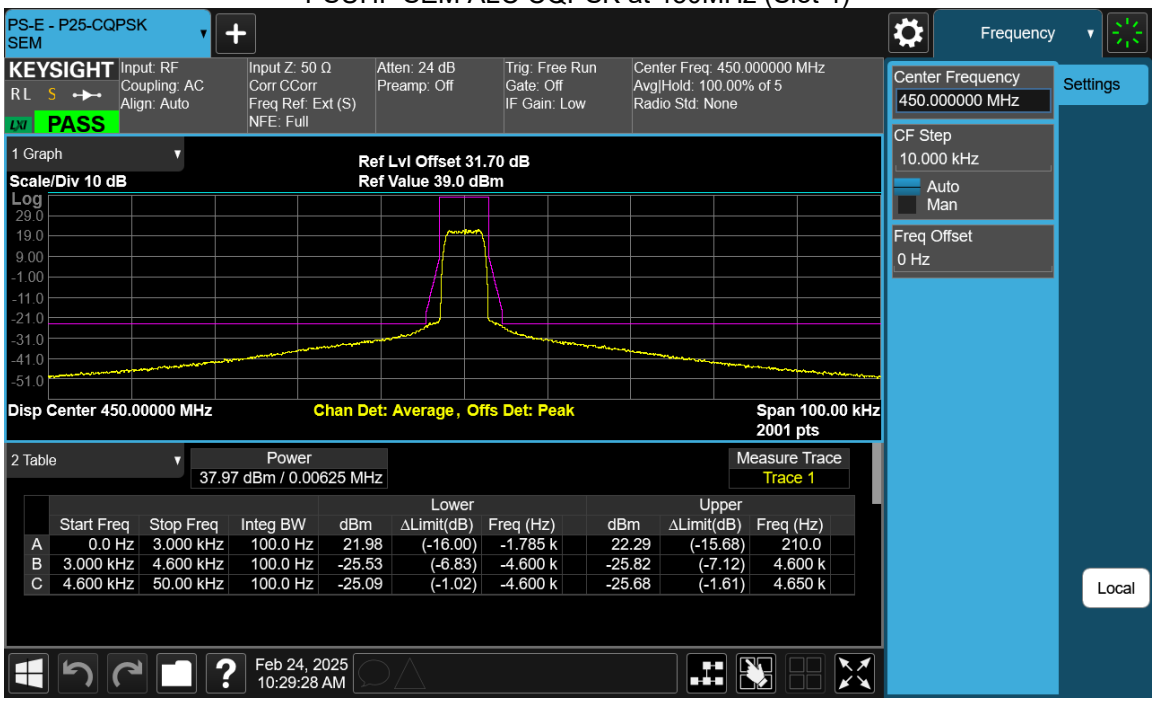
PSUHF SEM ALC C4FM at 465MHz (Slot 4)



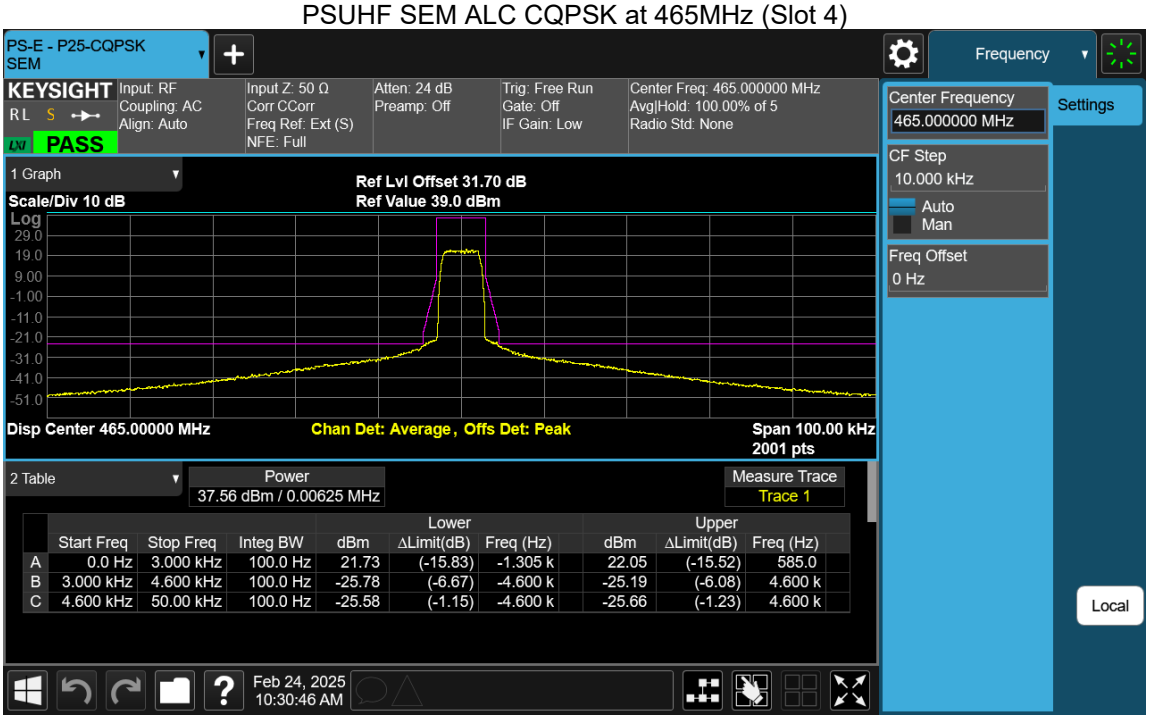
PSUHF SEM ALC CQPSK at 480MHz (Slot 4)



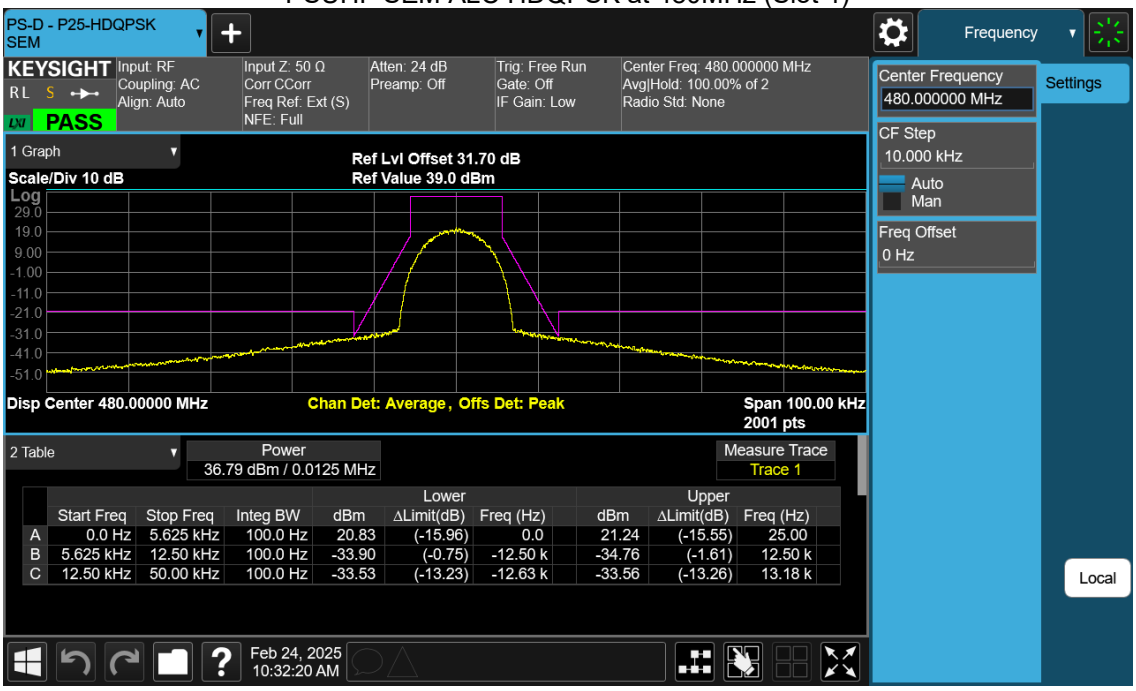
PSUHF SEM ALC CQPSK at 450MHz (Slot 4)



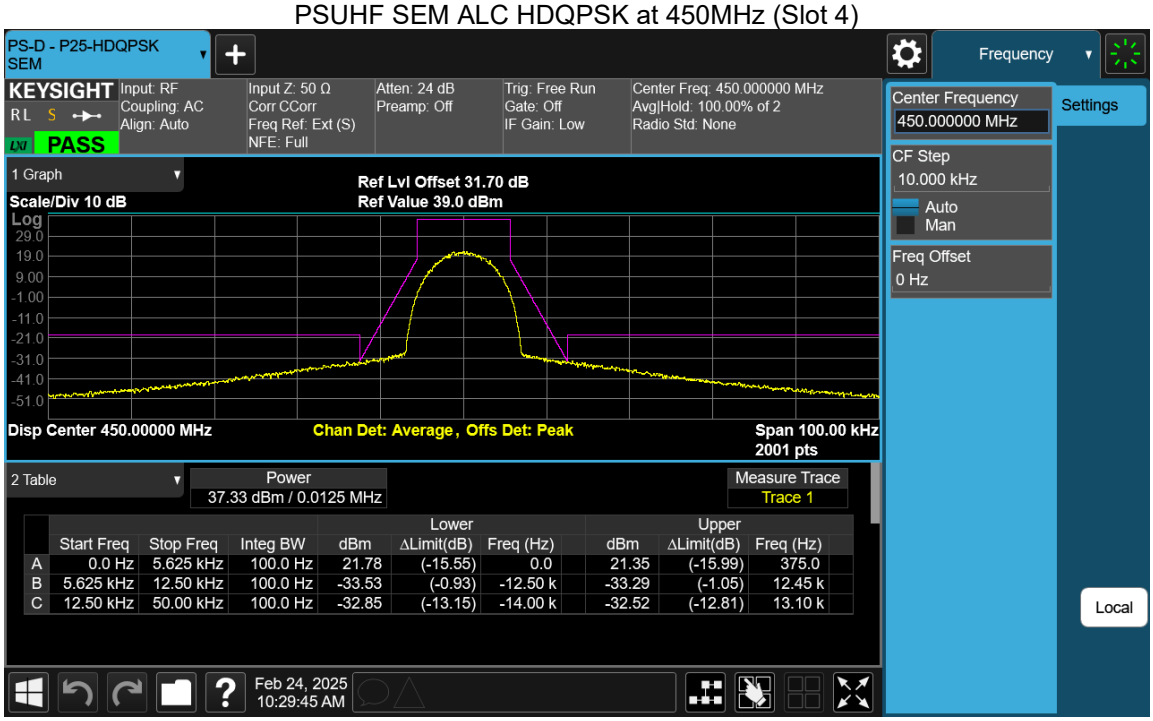
PSUHF SEM ALC CQPSK at 465MHz (Slot 4)



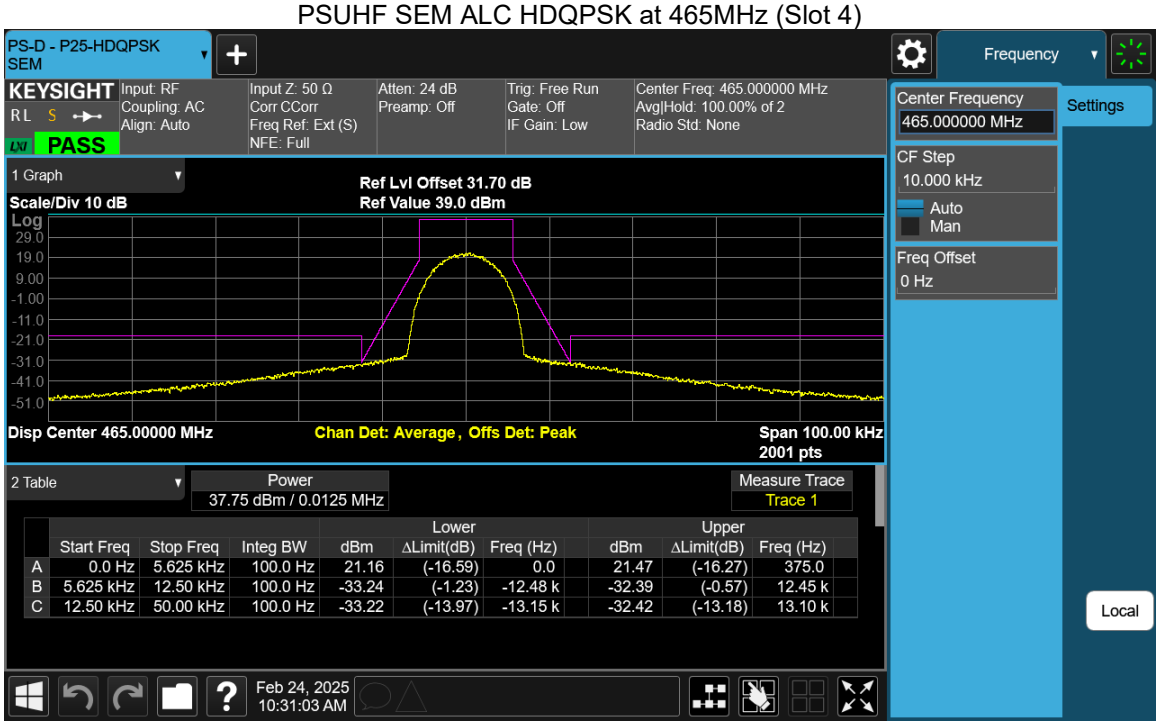
PSUHF SEM ALC HDQPSK at 480MHz (Slot 4)



PSUHF SEM ALC HDQPSK at 450MHz (Slot 4)



PSUHF SEM ALC HDQPSK at 465MHz (Slot 4)



5. Input/Output Power and Amplifier/Booster Gain

Governing Doc	RSS-119, Issue 12 2015, Amendment (April 1, 2022) RSS-Gen, Issue 5 2018 FCC Part 90	Room Temperature (°C)	20.5
Test Procedure	ANSI C63.26-2015, Section 7.2.3.3 KDB 935210 D05, v01r04, Clause 3.4, 4.4	Relative Humidity (%)	38.6
Test Location	Richmond	Barometric Pressure (kPa)	101.8
Test Engineer	Jack Qin	Date	February 24, 2025
EUT Voltage	☒ +48VDC ☐ 120VAC @ 60Hz		

Test Equipment Used	Manufacturer	Model	Serial Number	Calibration date	Calibration due
Signal Generator	Keysight	N5172B	MY53050270	Dec 12, 2023	Dec 12, 2026
Spectrum Analyzer	Keysight	N9020B	MY62153079	Oct 25, 2023	Aug 1, 2025

Span:	☒ Max Gain Frequency ± 1500kHz
Detector:	☒ Peak
RBW/VBW:	☒100k Hz/ 300 kHz
Type of Facility:	☒ Tabletop
Distance:	☒ Direct

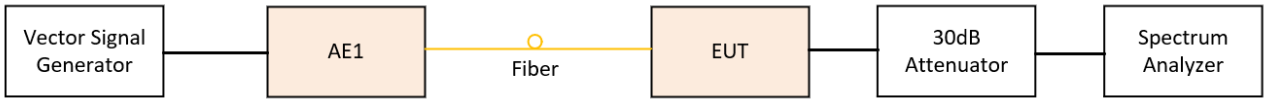
Maximum booster gain is 49.24 dB.

Compliant ☒ Non-Compliant ☐ Not Applicable ☐

Test setup

The procedure used was ANSI/TIA-603-E-2016 and FCC KDB 935210 D05 Indus Booster Basic Meas v01r02:. A CW tone was input at the frequency where the system gain is the maximum in the pass band, with the nominal input power level. The spectrum analyzer was connected to the output RF port via a 50 Ohm 30 dB attenuator. The maximum hold trace and peak detector was used to capture the output power. The output power minus the input power equals to the booster gain in dB.

The EUT was set to **Operation Mode #1 with configuration Mode #1.**



Test results

Test Band	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Gain (dB)
UHF PS	465	-12.2	36.99	49.19
UHF PS	465	-9.8	37.07	46.87
800 PS	860	-8	36.53	44.53

6. Out-Of-Band / Out-Of-Block Intermodulation and Spurious Emissions

Governing Doc	RSS-119, Issue 12 2015, Amendment (April 1, 2022) RSS-Gen, Issue 5 2018 FCC Part 90	Room Temperature (°C)	20.5
Test Procedure	ANSI C63.26-2015, Section 7.2.3.6 Section 7.2.3.7 KDB 935210 D05, v01r04,	Relative Humidity (%)	38.6
Test Location	Richmond	Barometric Pressure	101.8
Test Engineer	Jack Qin	Date	February 24, 2025
EUT Voltage	☒ +48VDC ☐ 120VAC @ 60Hz		

Test Equipment	Manufacturer	Model	Serial Number	Calibration date	Calibration due
Signal Generator	Keysight	N5172B	MY53050270	Dec 12, 2023	Dec 12, 2026
Spectrum	Keysight	N9020B	MY62153079	Oct 25, 2023	Aug 1, 2025

Frequency	☒ Max Gain Frequency ± 50kHz
Detector:	☒ Average
RBW/VBW:	☒100/910Hz
Type of Facility:	☒ Tabletop
Distance:	☒ Direct

On 800 band and UHF band: The intermodulation product of 2 tone is below the -13dBm emission limit with input power
- 0.5 dB below AGC threshold
- 2 dB below AGC threshold
- 3 dB above AGC threshold

Compliant ☒ Non-Compliant ☐ Not Applicable ☐

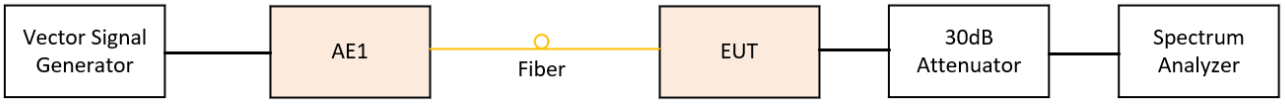
Test setup

The procedure used was ANSI C63.26-2015. Two tones (CW) method was used. The input power to the amplifier was set at maximum drive level by combining the two tones. The two tones were chosen in such a way (1) the third order intermodulation product frequencies are located within the pass band of the DUT and (2) they produce the worst-case emissions out of band.

Based on FCC KDB 935210 D05 Indus Booster Basic Meas v01r03: 2019, the two tone was located on either side of the maximum gain frequence in the passing band, and separated with the available spacing, which is 12.5kHz.

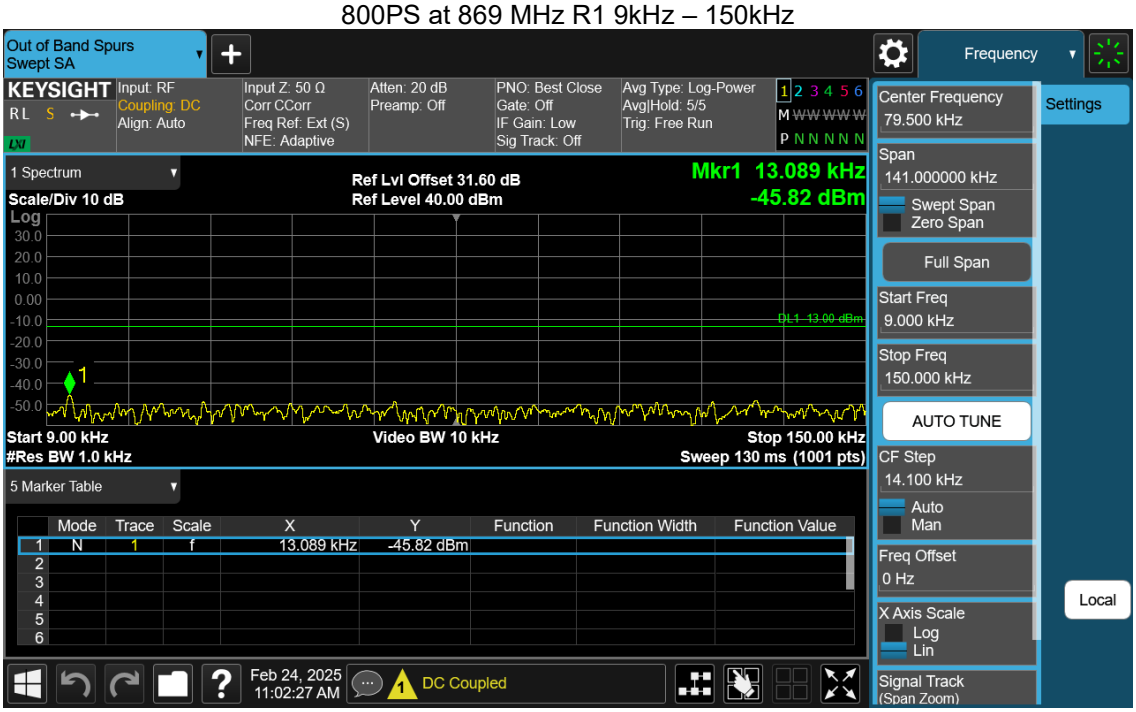
Measurements were performed with modulated tone at identical input amplitude which produced integrated maximum rated output power.

The EUT was set to **Operation Mode #1 with configuration Mode #1.**

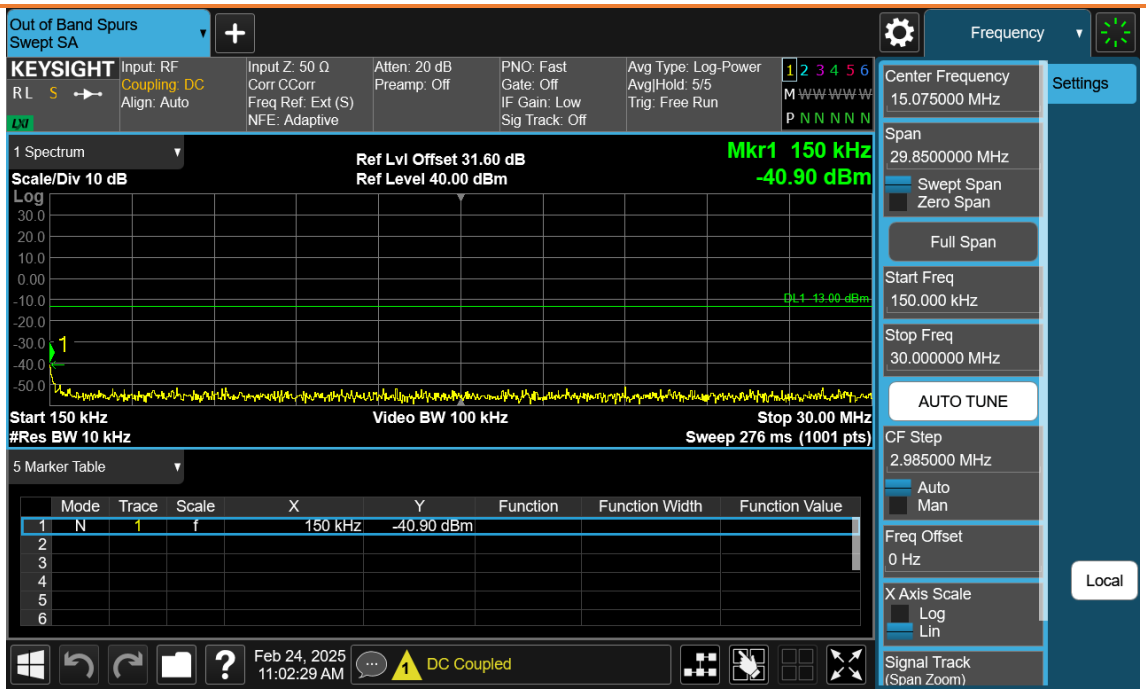


Test results

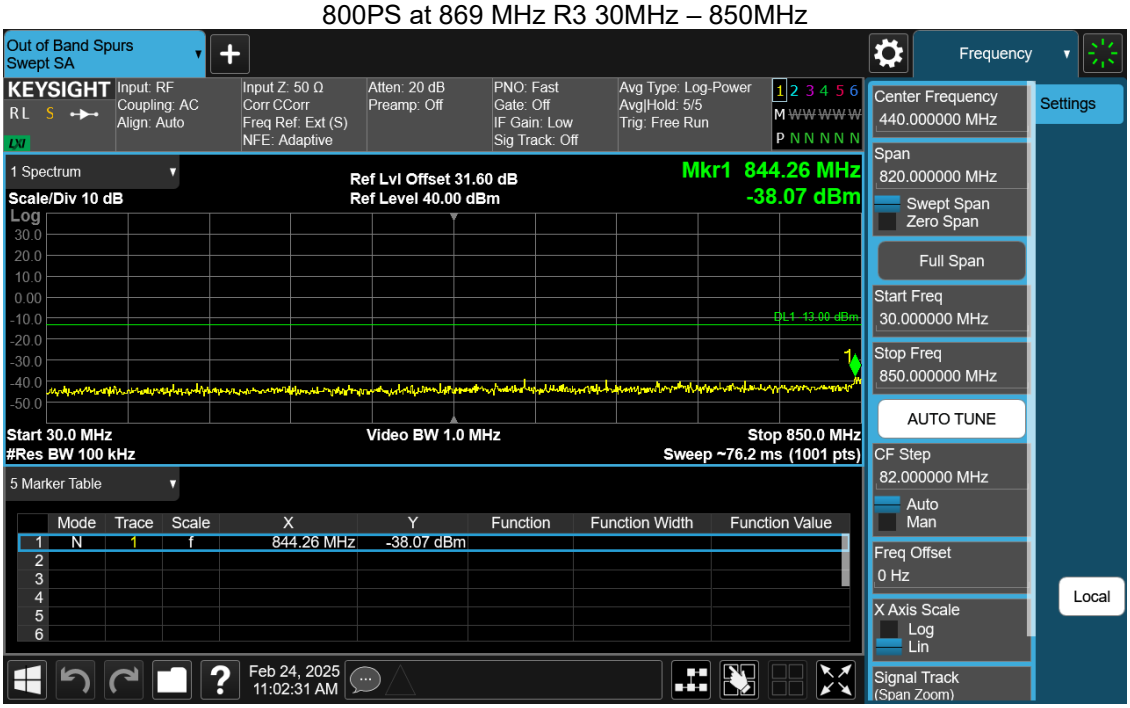
800PS at 869 MHz R1 9kHz – 150kHz



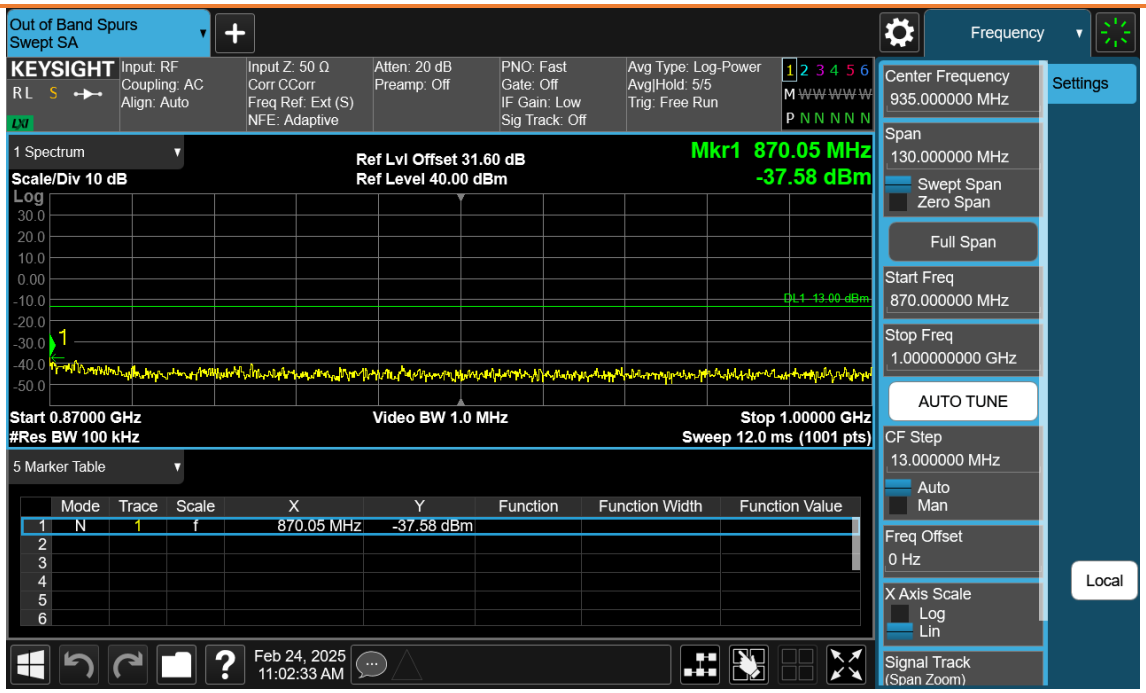
800PS at 869 MHz R2 150kHz – 30MHz



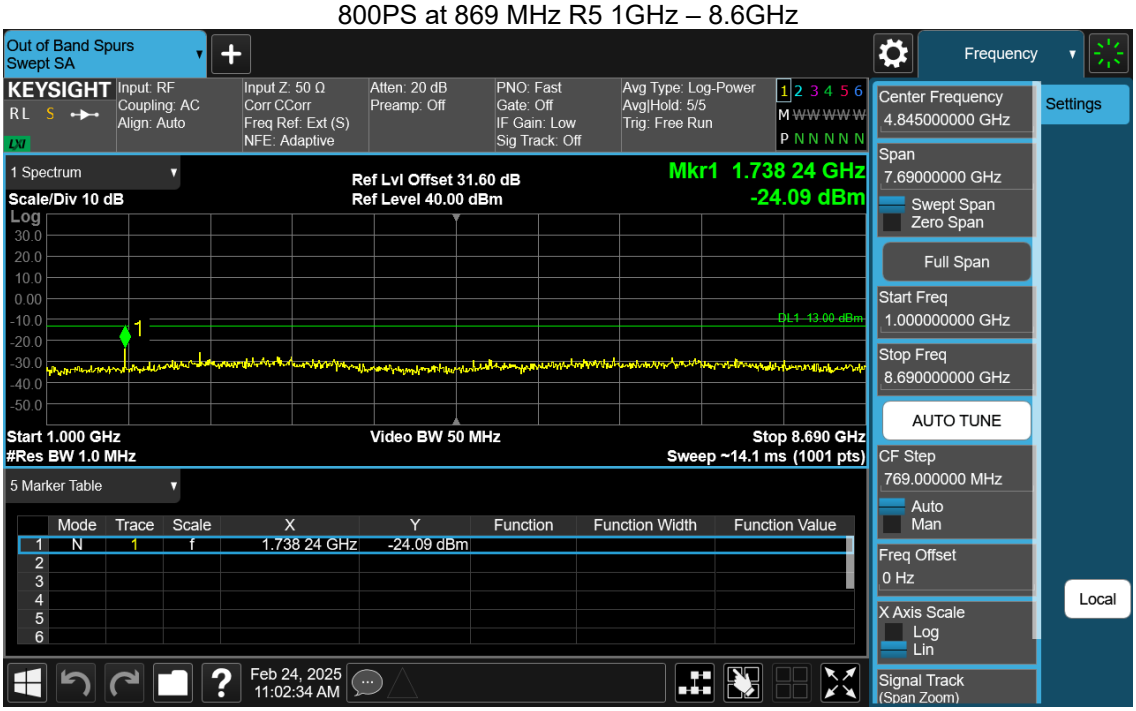
800PS at 869 MHz R3 30MHz – 850MHz



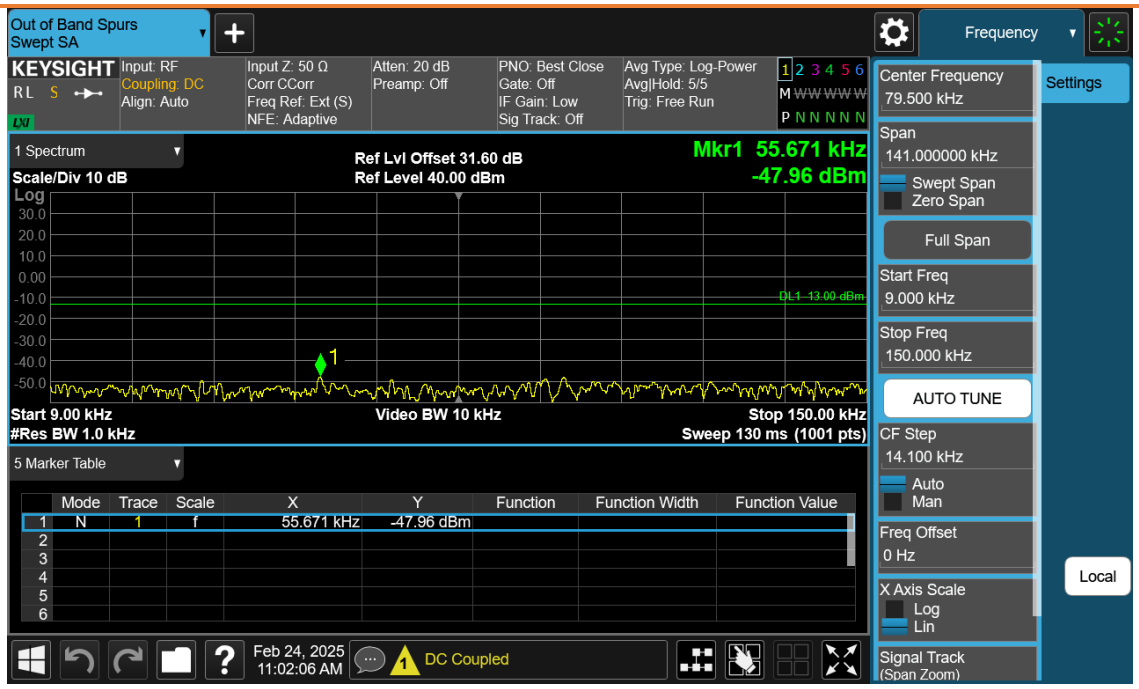
800PS at 869 MHz R4 870MHz – 1GHz



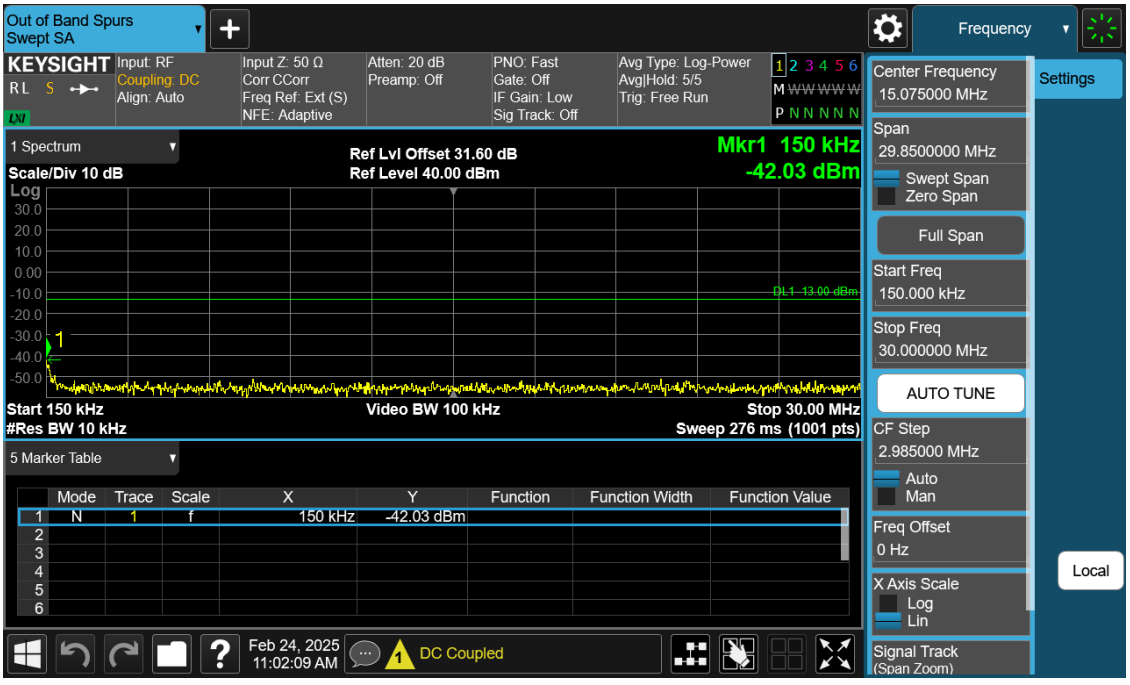
800PS at 869 MHz R5 1GHz – 8.6GHz



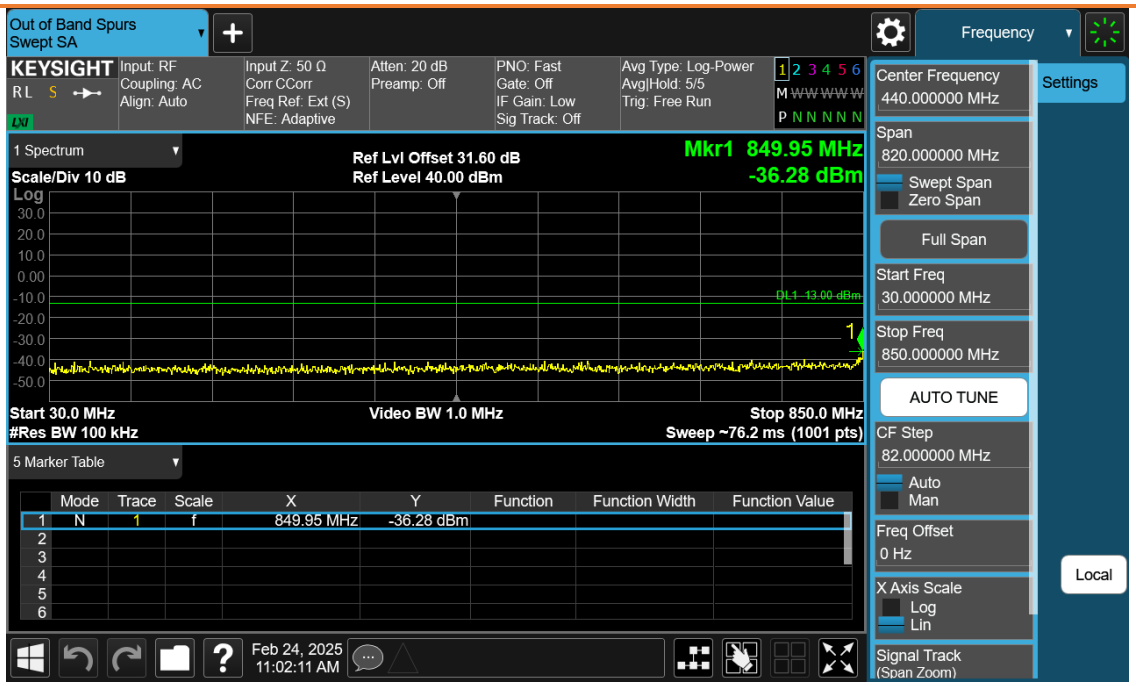
800PS at 851 MHz R1 9kHz – 150kHz



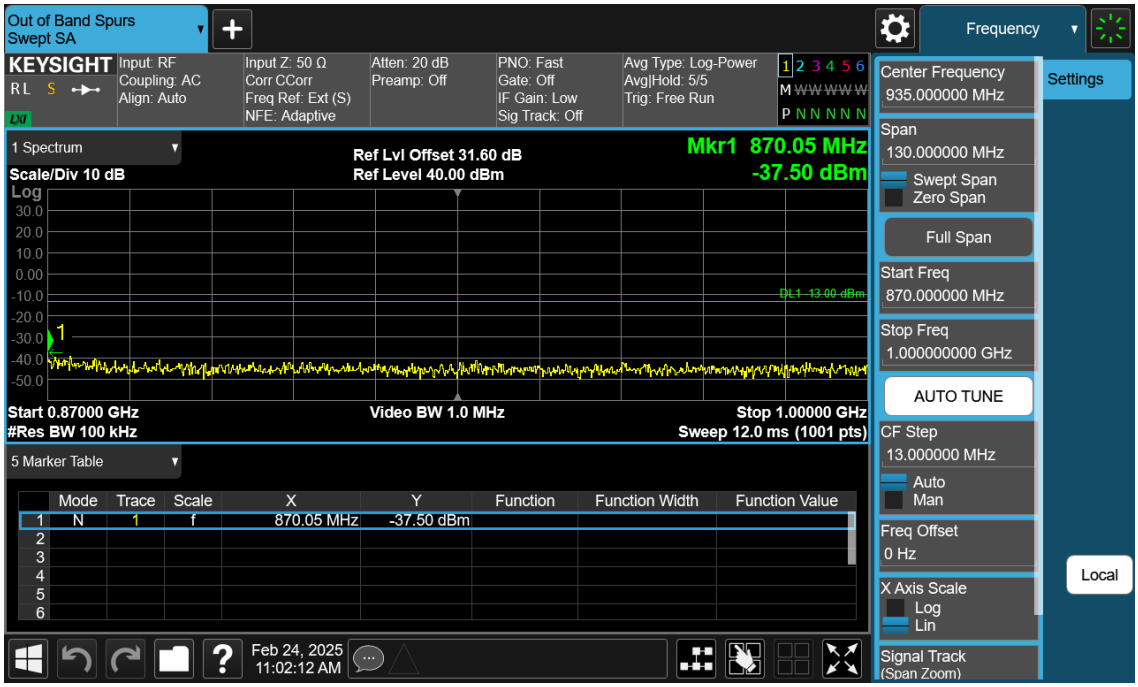
800PS at 851 MHz R2 150kHz – 30MHz



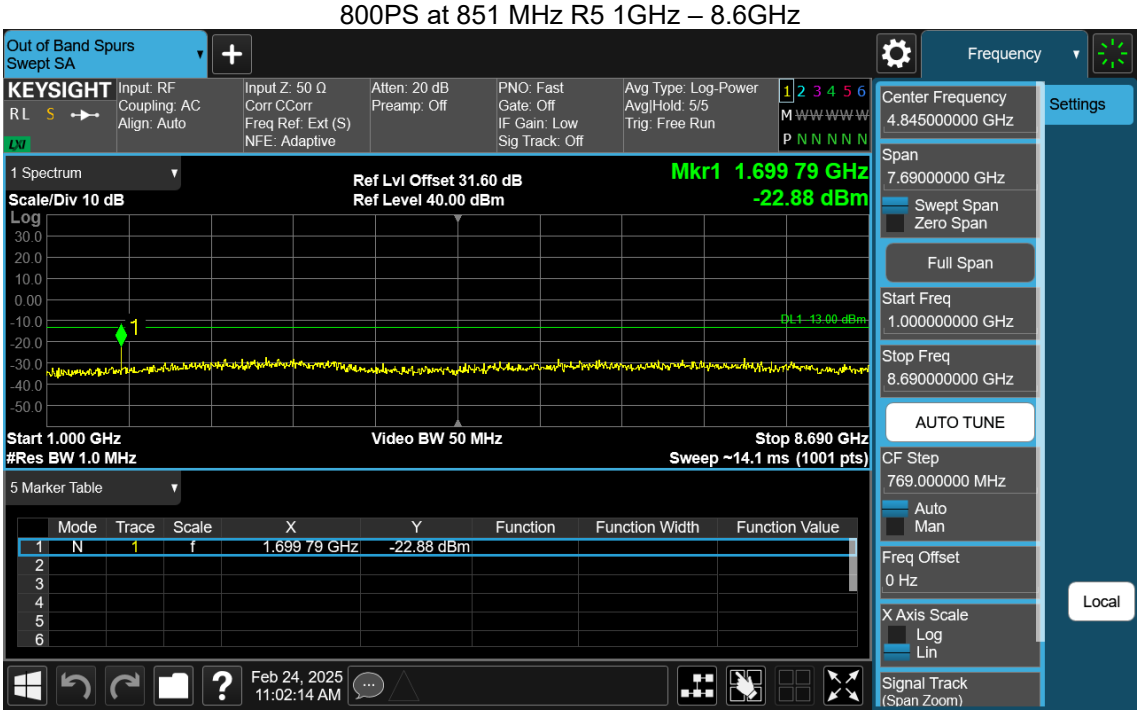
800PS at 851 MHz R3 30MHz – 850MHz



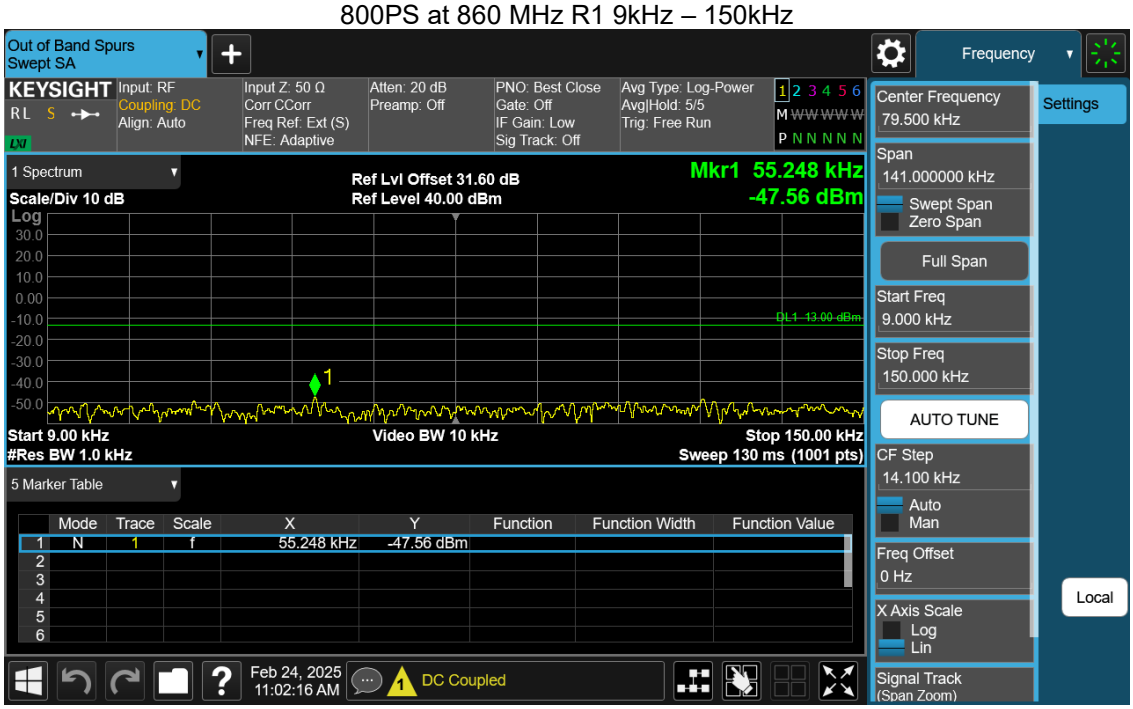
800PS at 851 MHz R4 870MHz – 1GHz



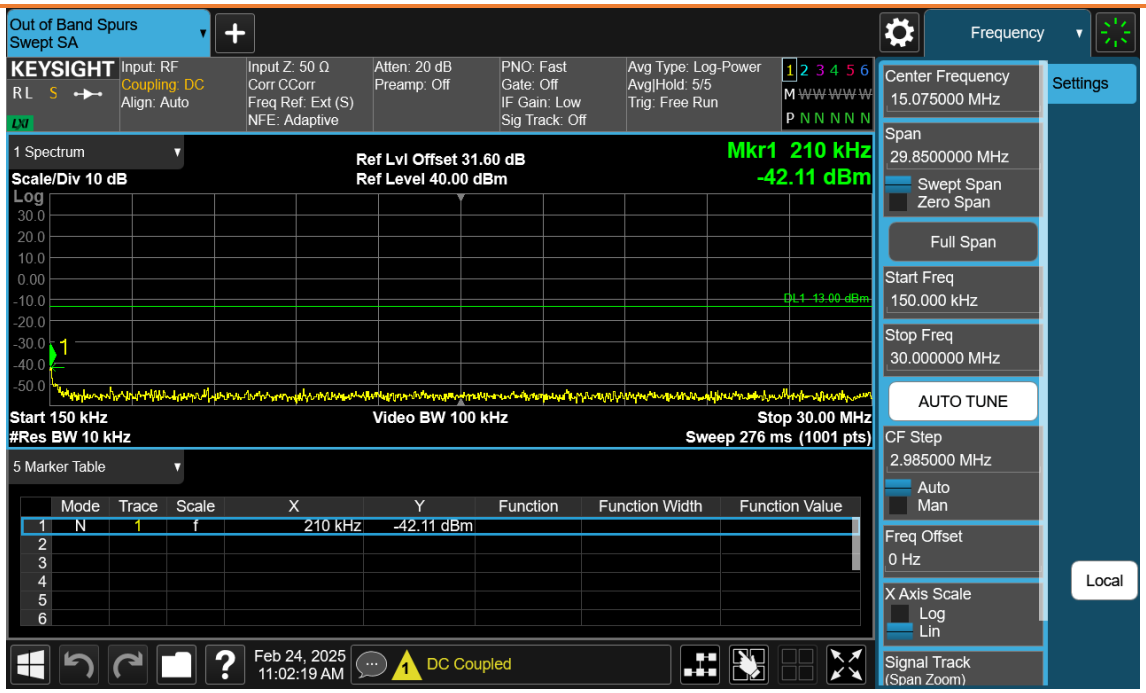
800PS at 851 MHz R5 1GHz – 8.6GHz



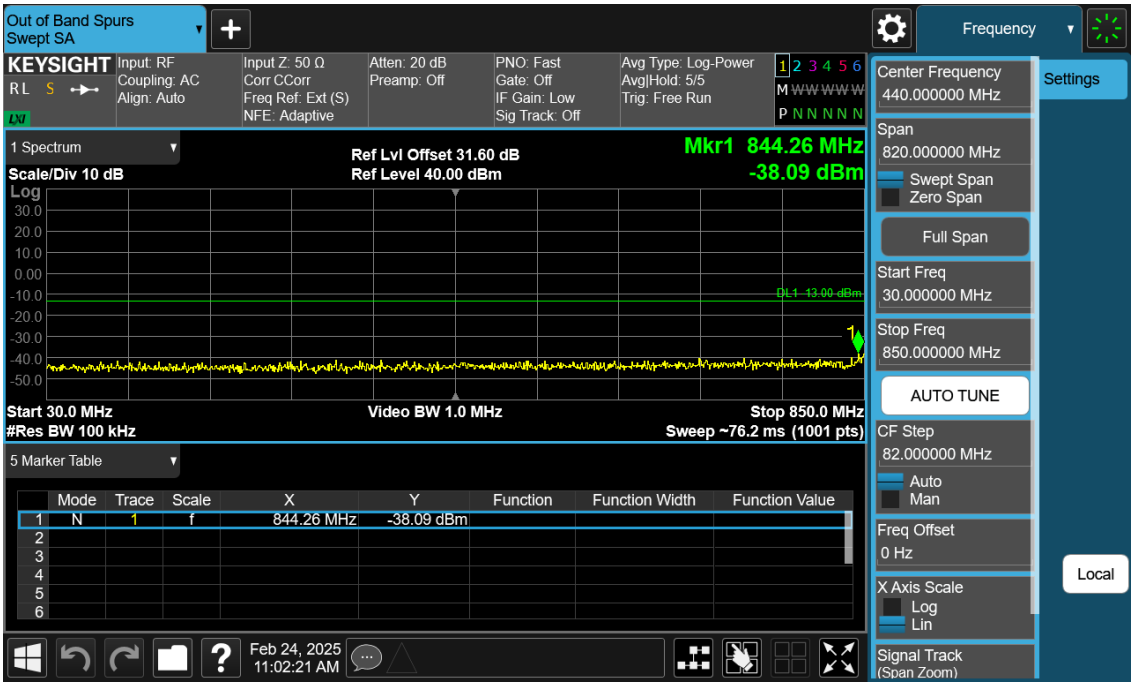
800PS at 860 MHz R1 9kHz – 150kHz



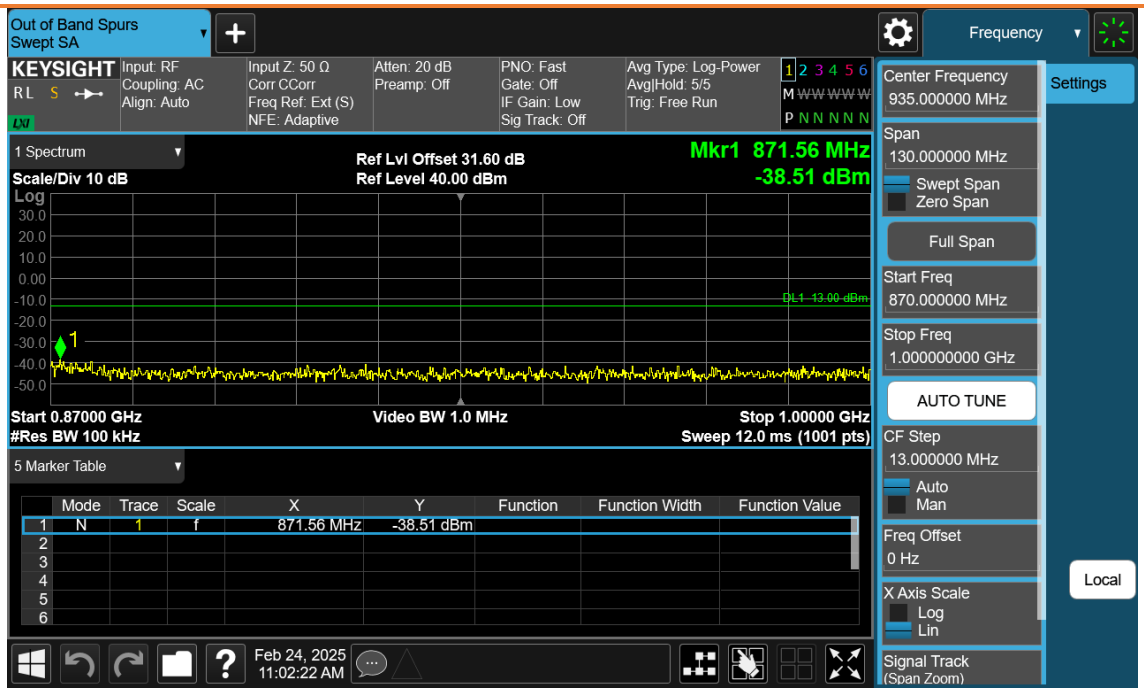
800PS at 860 MHz R2 150kHz – 30MHz



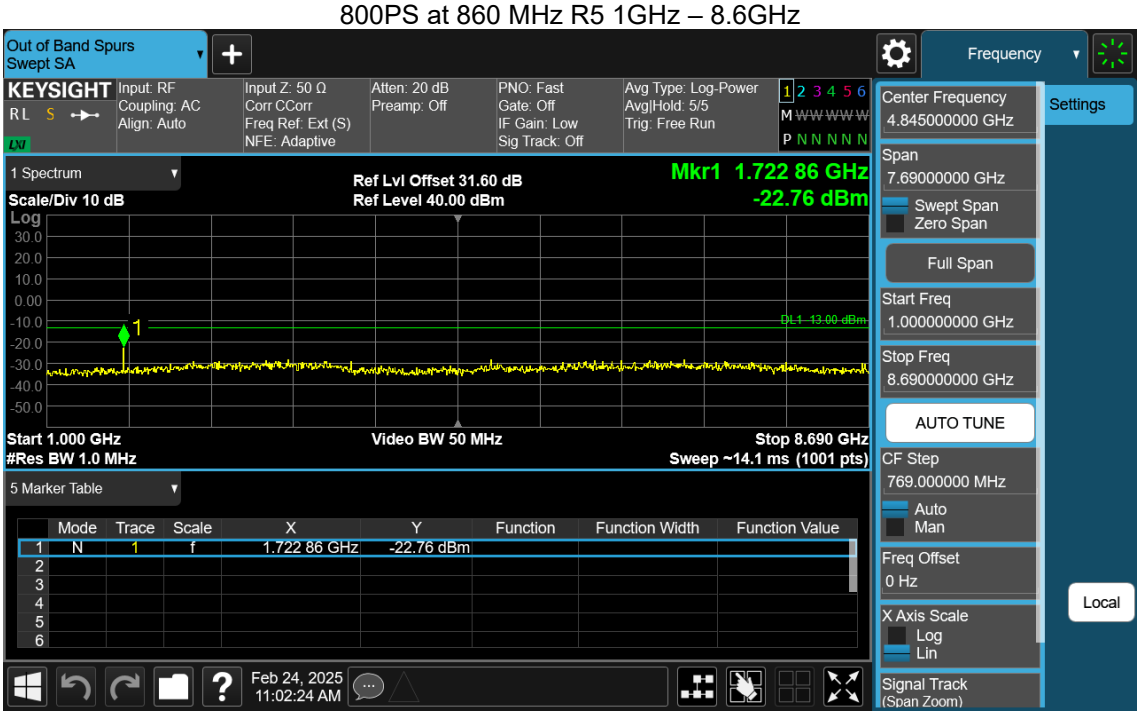
800PS at 860 MHz R3 30MHz – 850MHz



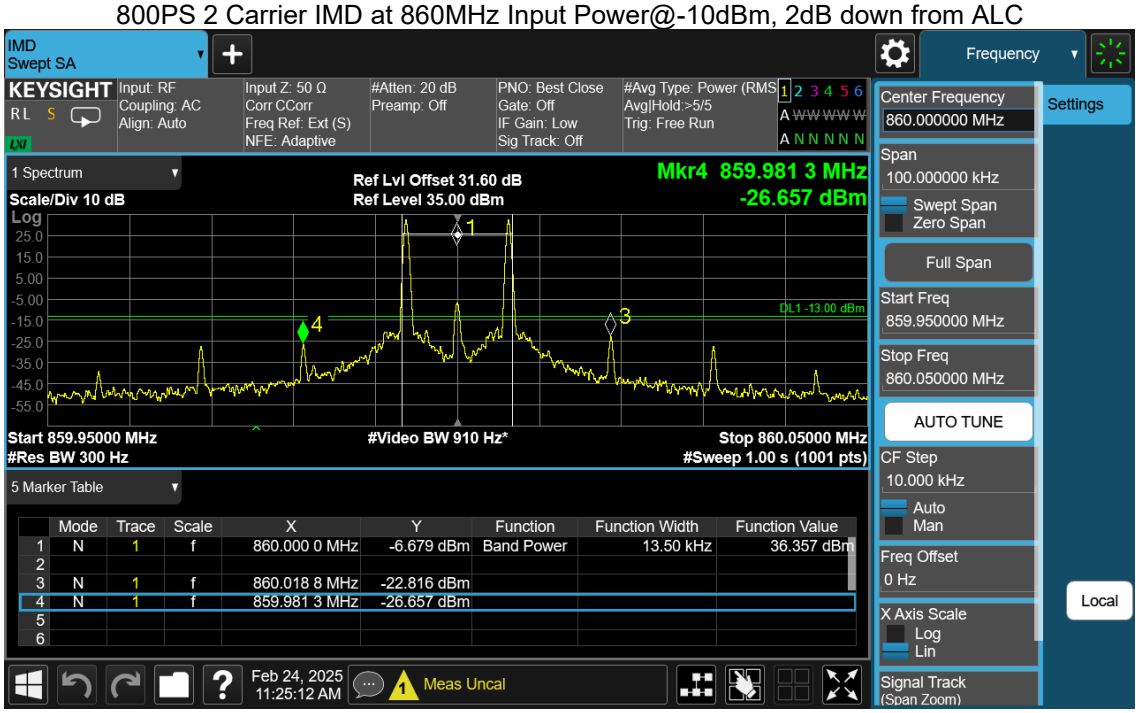
800PS at 860 MHz R4 870MHz – 1GHz



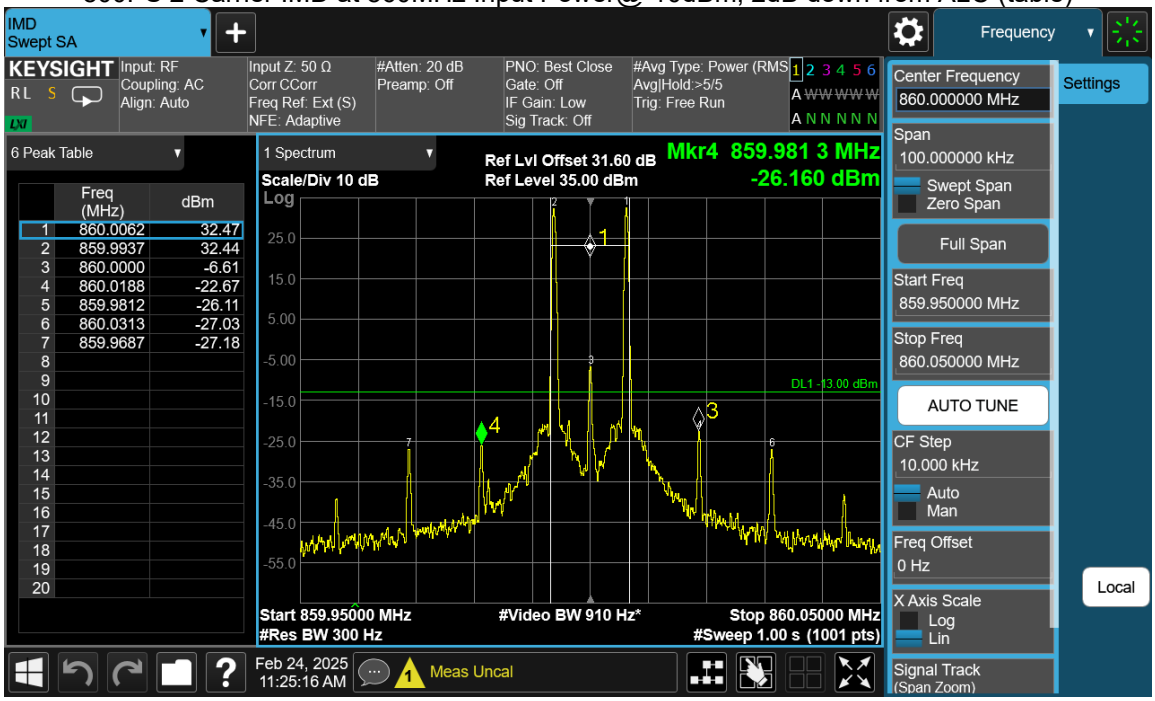
800PS at 860 MHz R5 1GHz – 8.6GHz



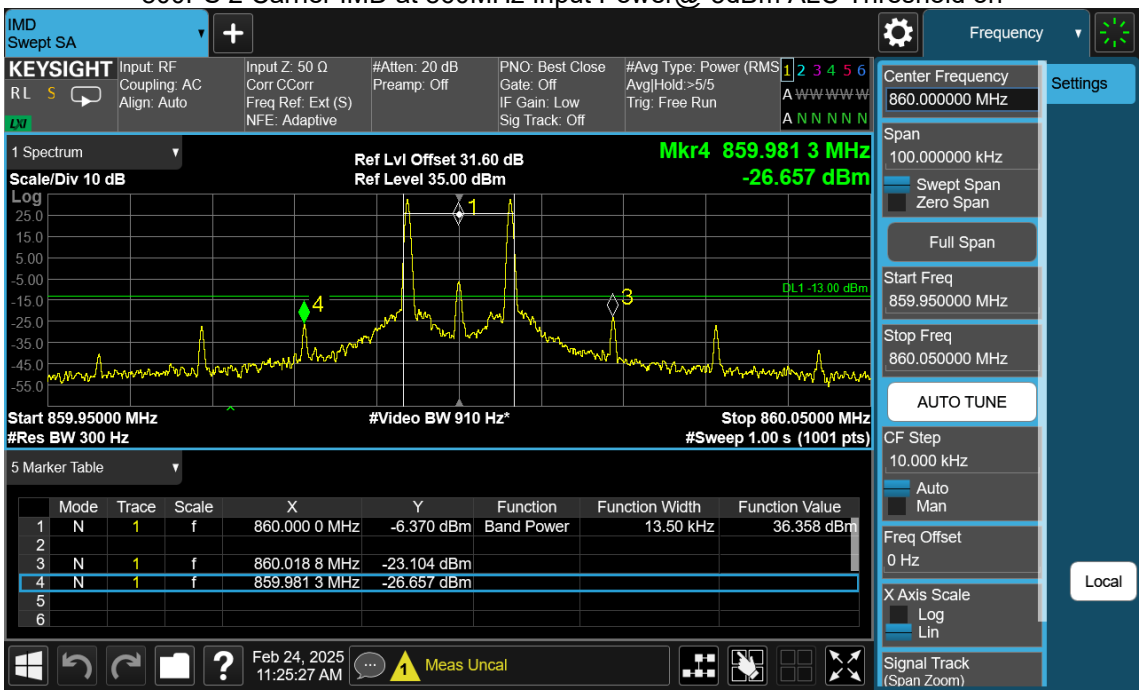
800PS 2 Carrier IMD at 860MHz Input Power@-10dBm, 2dB down from ALC



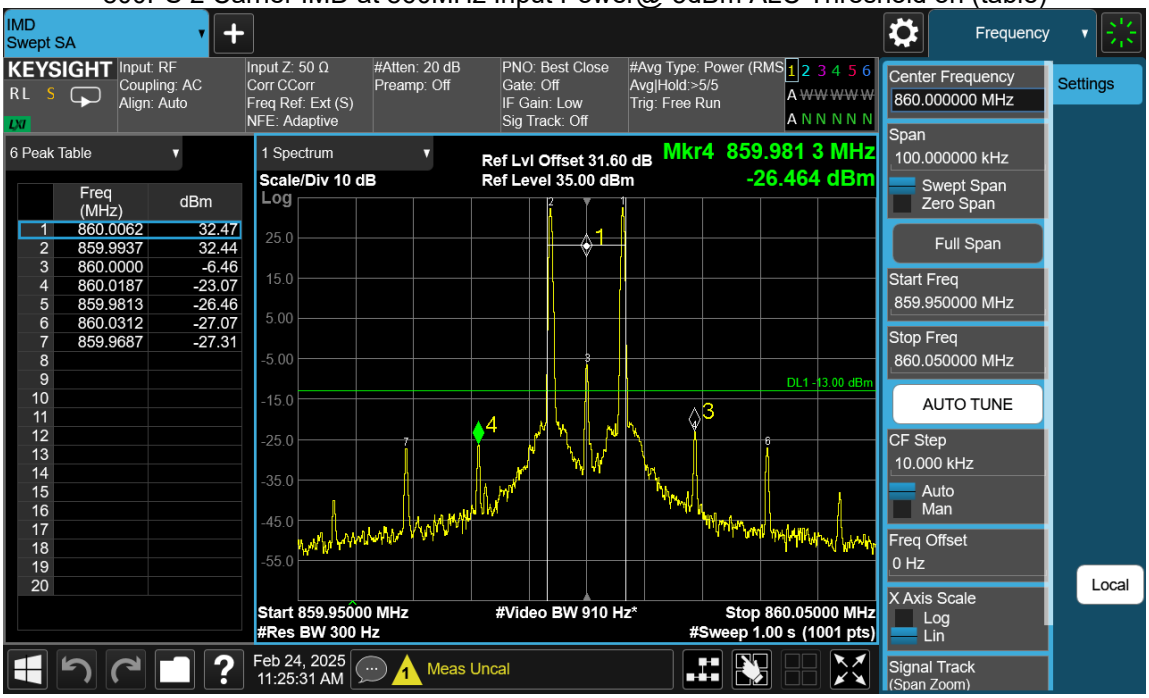
800PS 2 Carrier IMD at 860MHz Input Power@-10dBm, 2dB down from ALC (table)



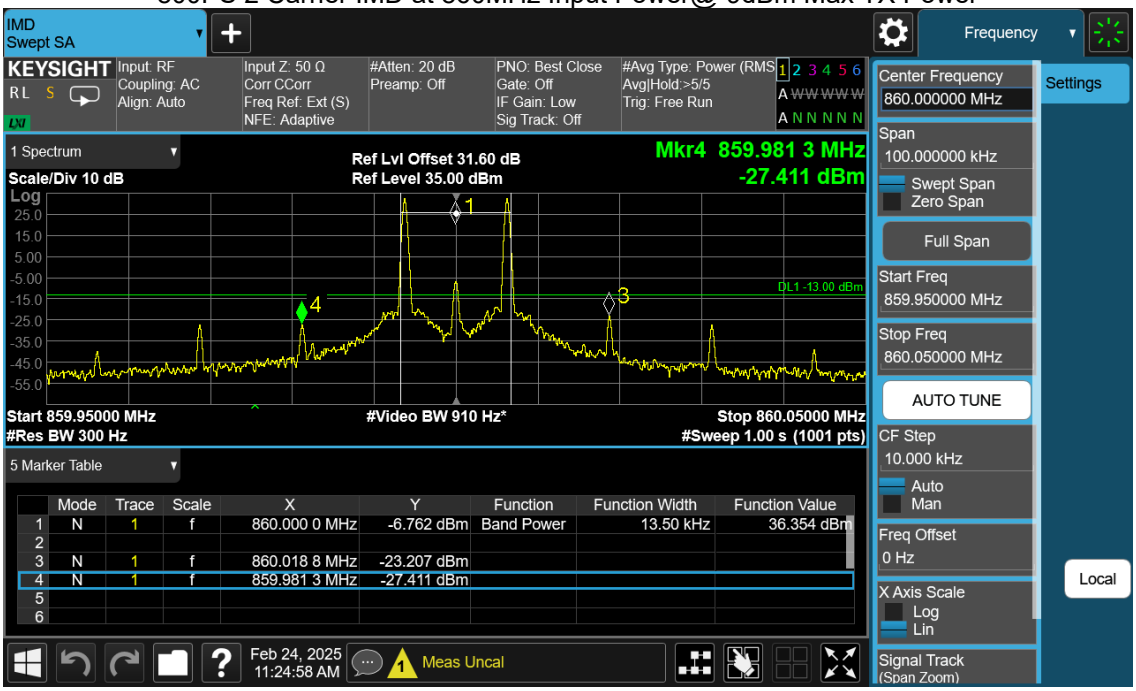
800PS 2 Carrier IMD at 860MHz Input Power@-5dBm ALC Threshold on



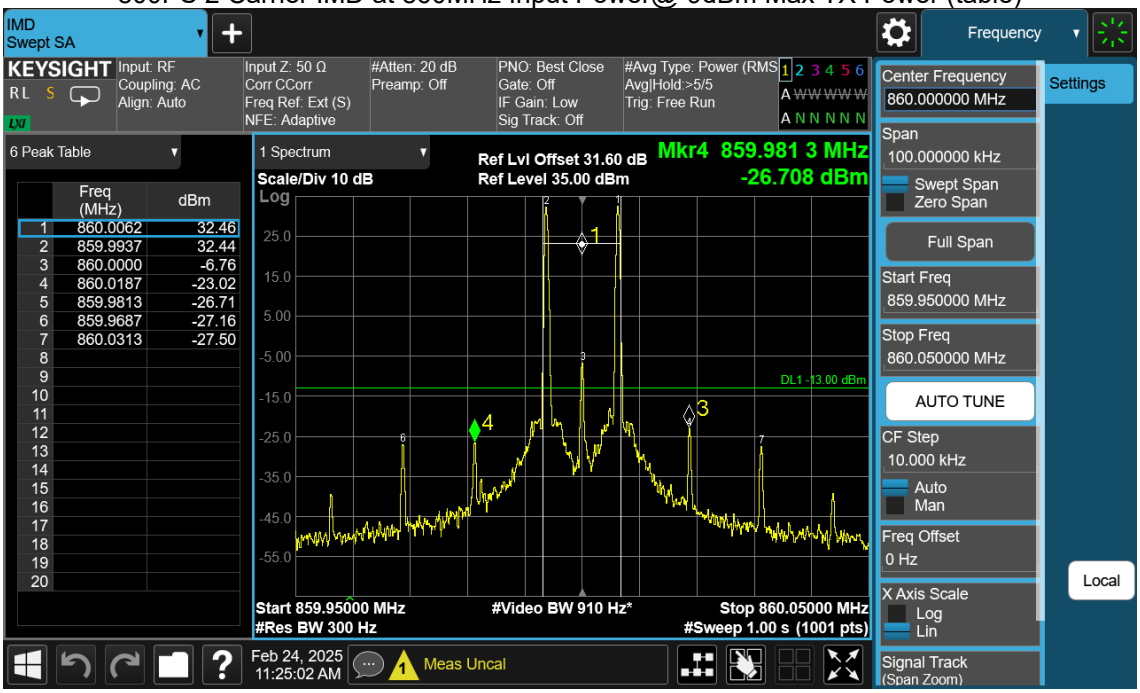
800PS 2 Carrier IMD at 860MHz Input Power@-5dBm ALC Threshold on (table)



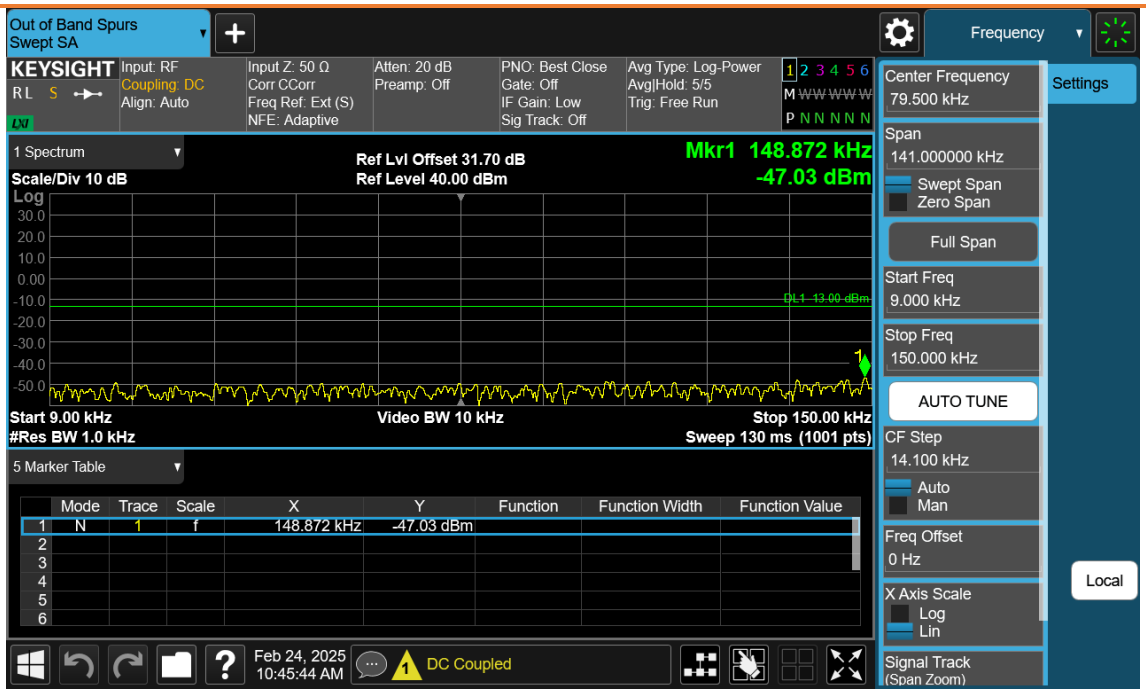
800PS 2 Carrier IMD at 860MHz Input Power@-9dBm Max TX Power



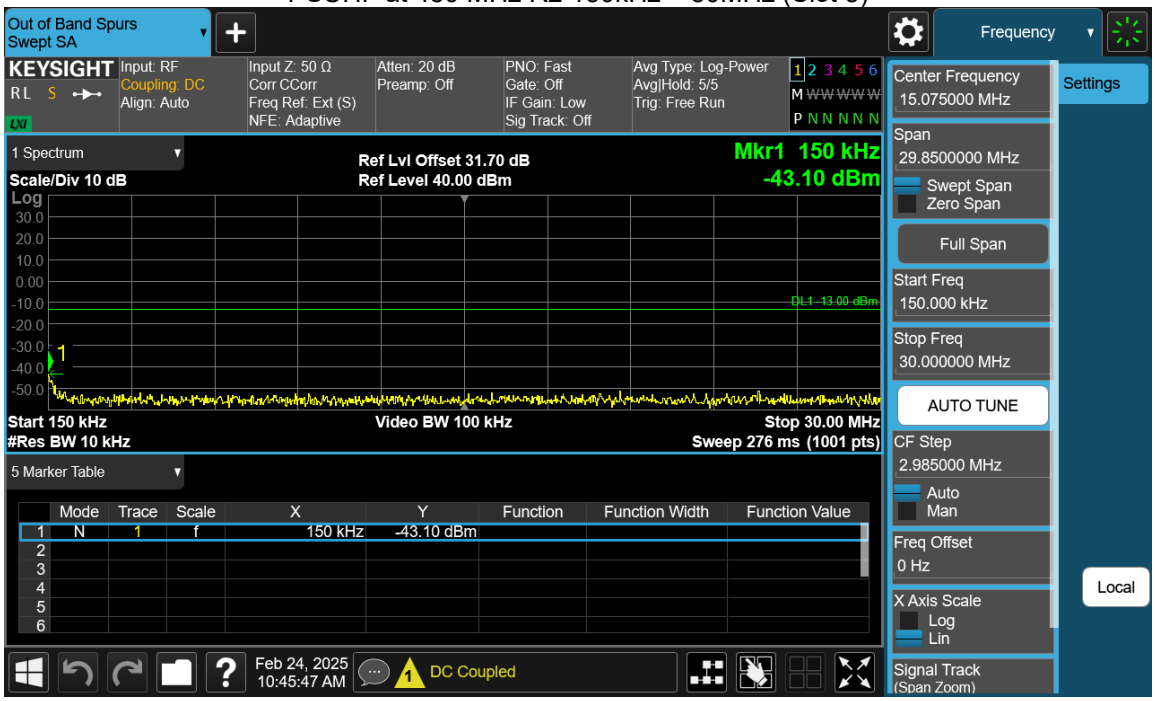
800PS 2 Carrier IMD at 860MHz Input Power@-9dBm Max TX Power (table)



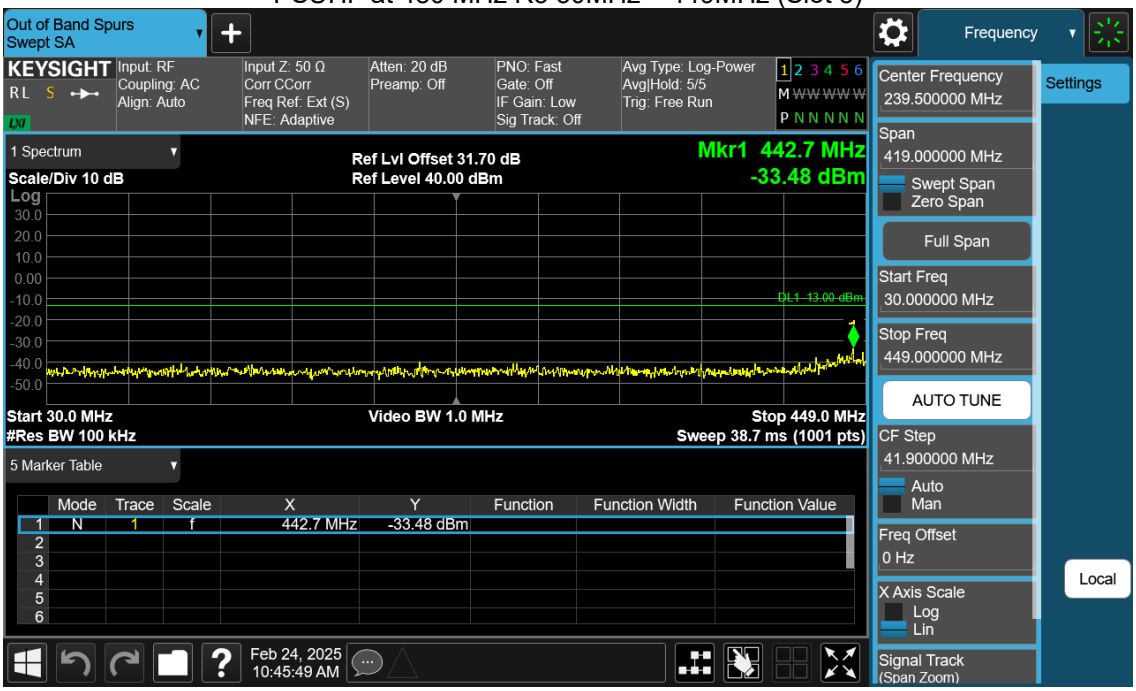
PSUHF at 480 MHz R1 9kHz – 150kHz (Slot 3)



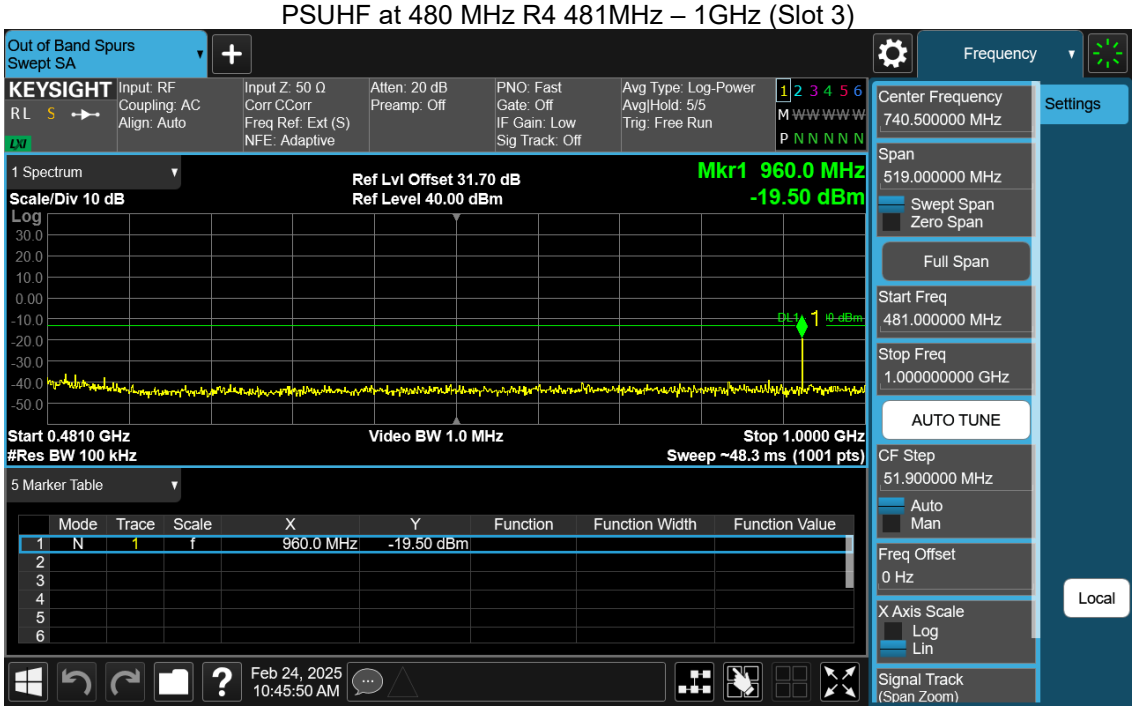
PSUHF at 480 MHz R2 150kHz – 30MHz (Slot 3)



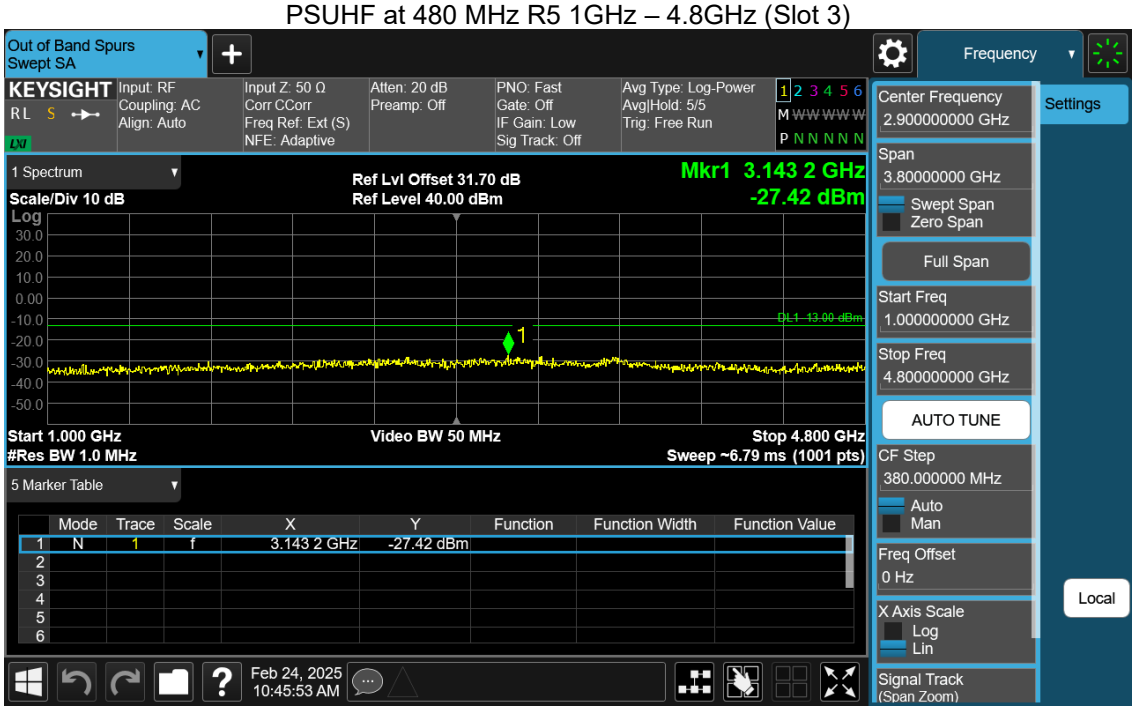
PSUHF at 480 MHz R3 30MHz – 449MHz (Slot 3)



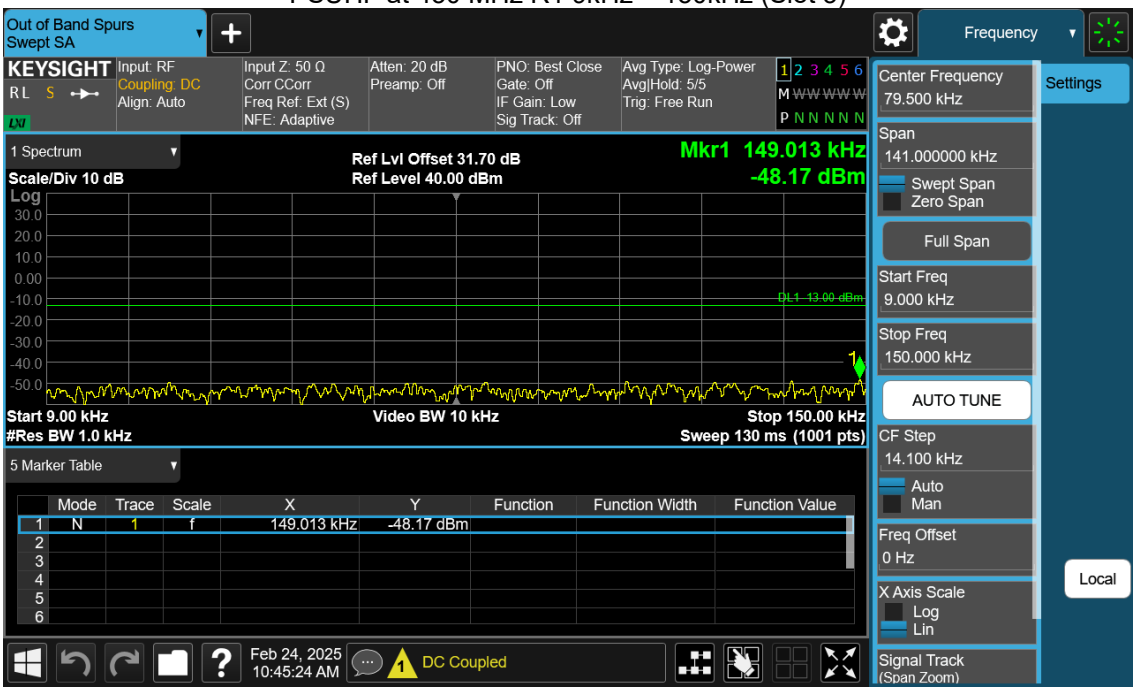
PSUHF at 480 MHz R4 481MHz – 1GHz (Slot 3)



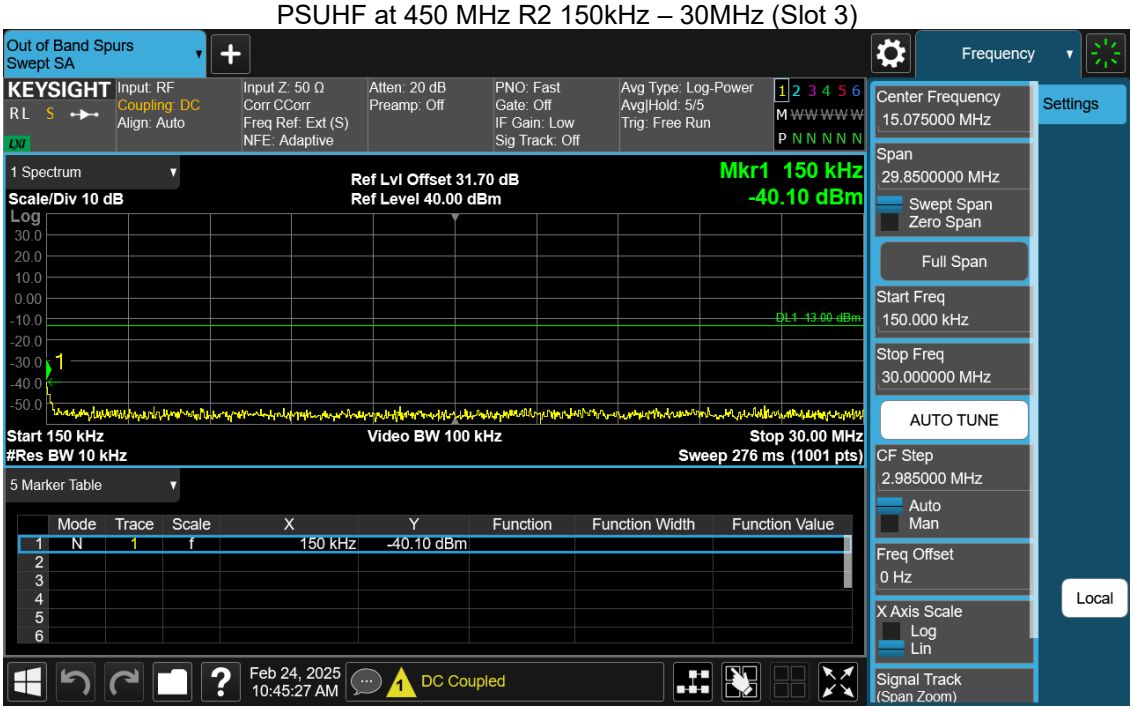
PSUHF at 480 MHz R5 1GHz – 4.8GHz (Slot 3)



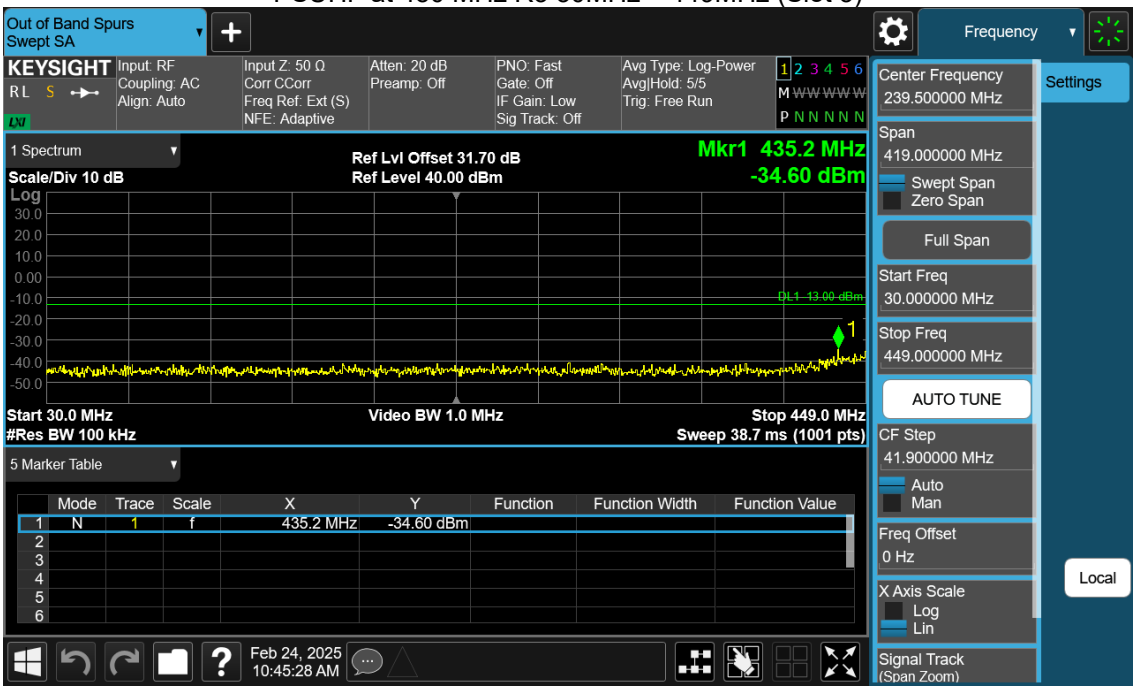
PSUHF at 450 MHz R1 9kHz – 150kHz (Slot 3)



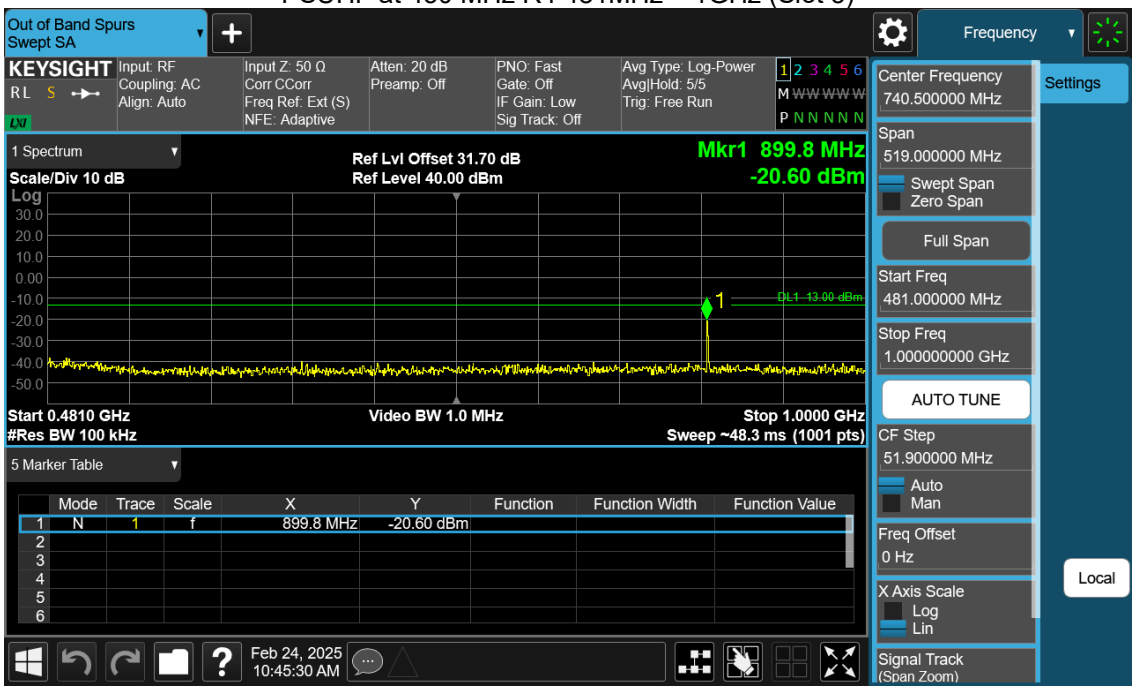
PSUHF at 450 MHz R2 150kHz – 30MHz (Slot 3)



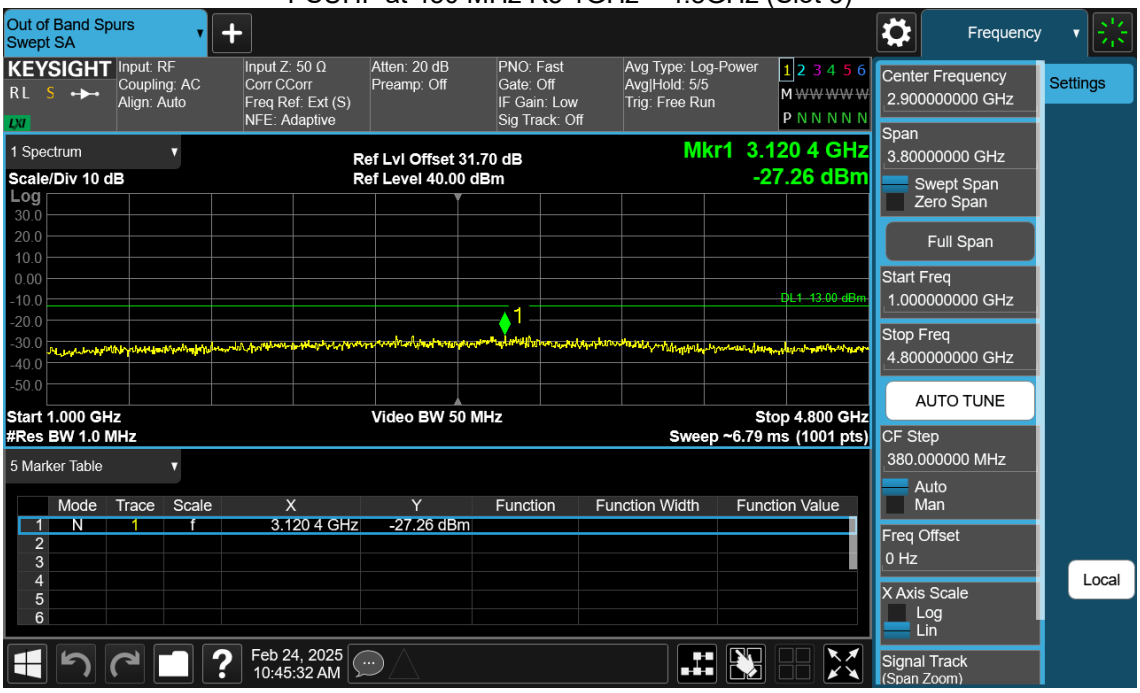
PSUHF at 450 MHz R3 30MHz – 449MHz (Slot 3)



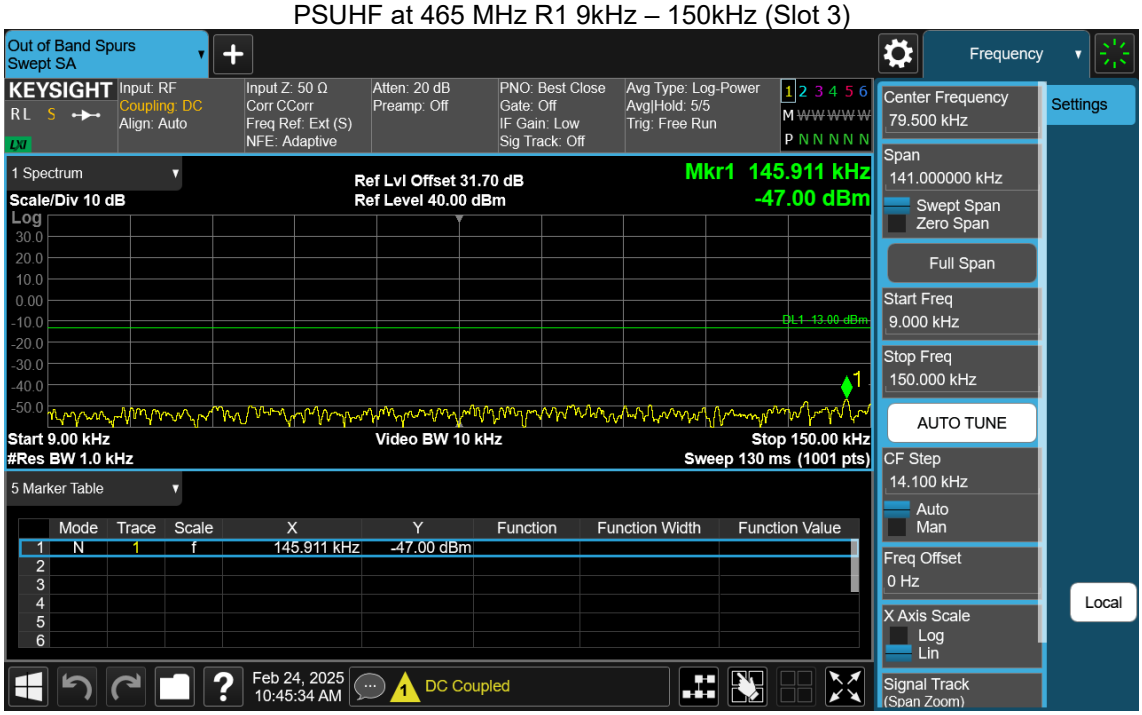
PSUHF at 450 MHz R4 481MHz – 1GHz (Slot 3)



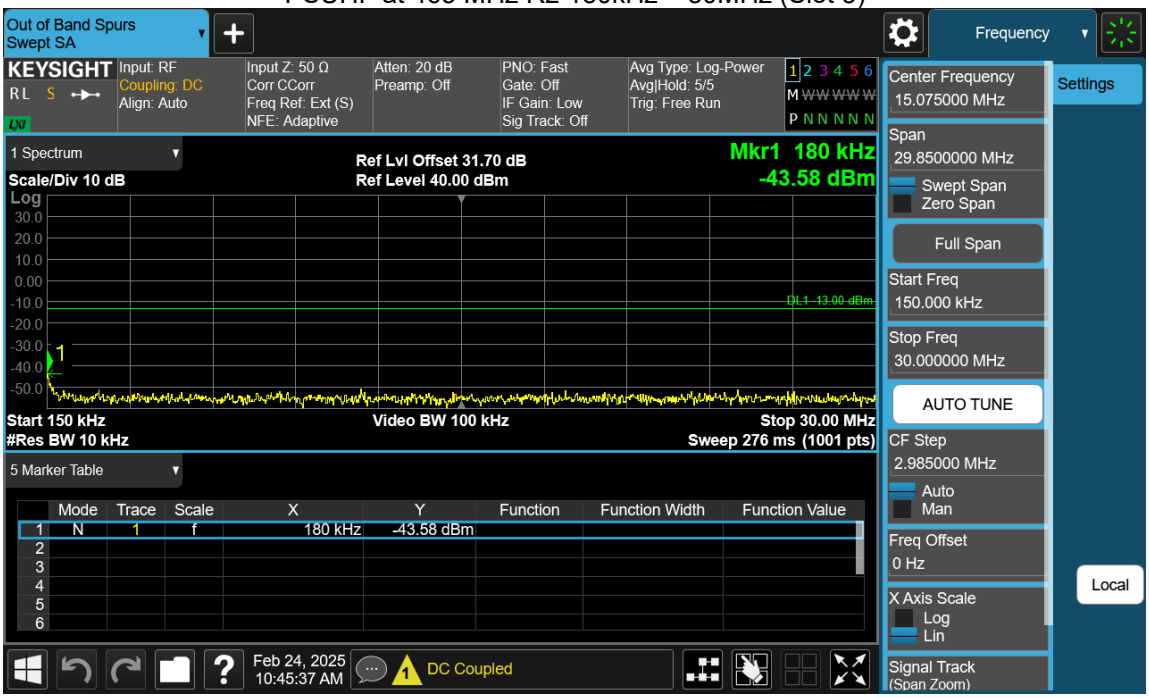
PSUHF at 450 MHz R5 1GHz – 4.8GHz (Slot 3)



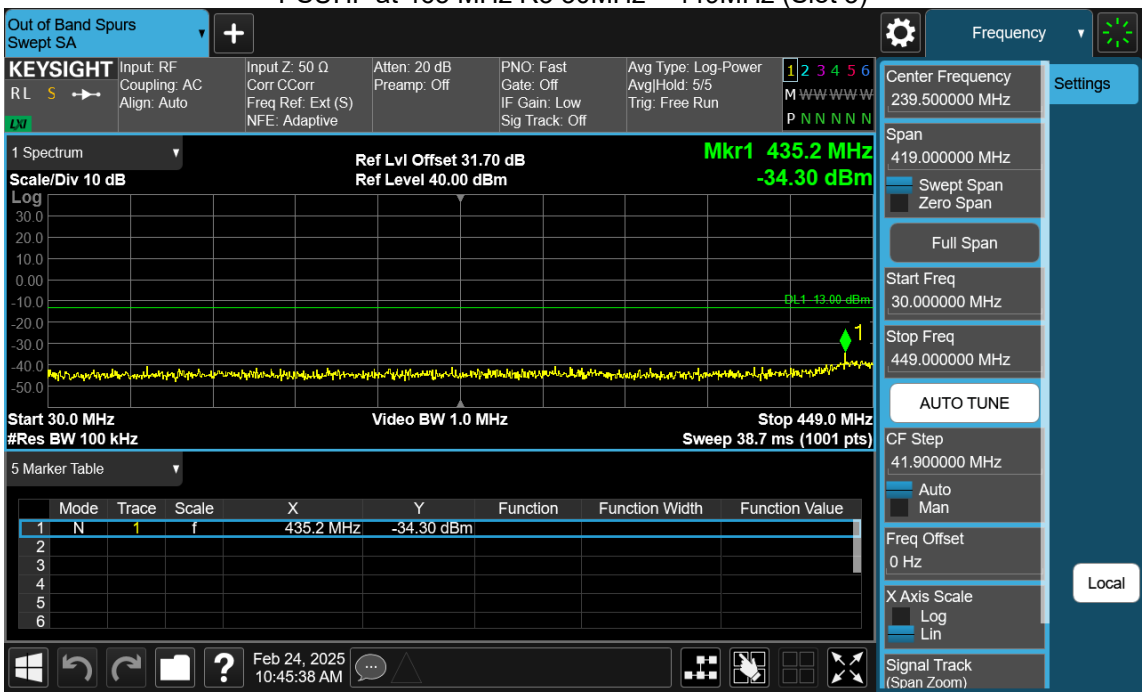
PSUHF at 465 MHz R1 9kHz – 150kHz (Slot 3)



PSUHF at 465 MHz R2 150kHz – 30MHz (Slot 3)



PSUHF at 465 MHz R3 30MHz – 449MHz (Slot 3)



PSUHF at 465 MHz R4 481MHz – 1GHz (Slot 3)