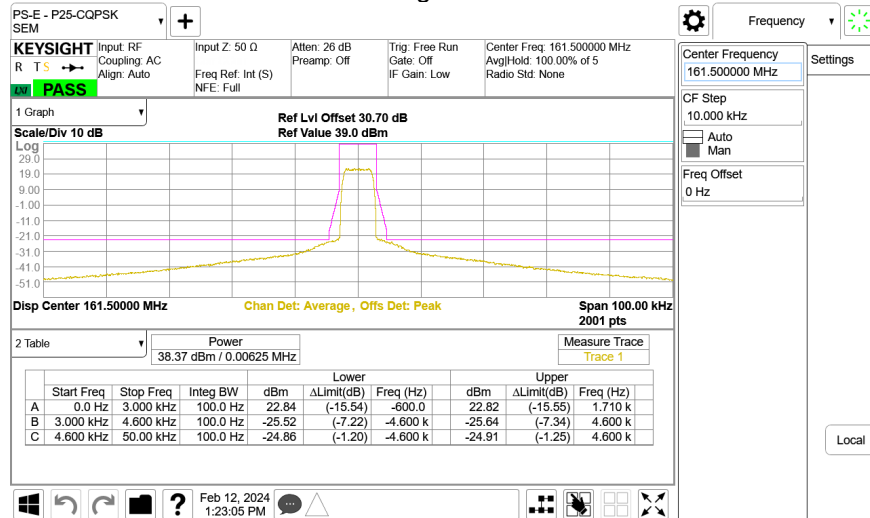
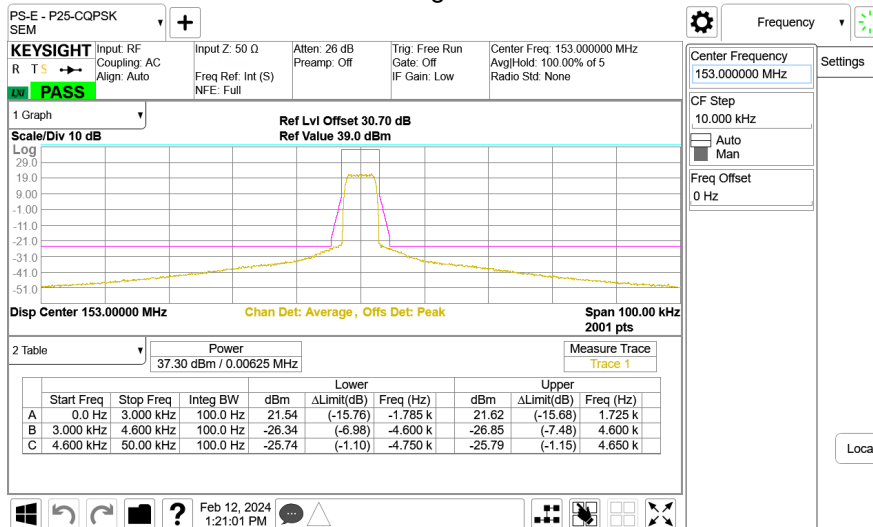


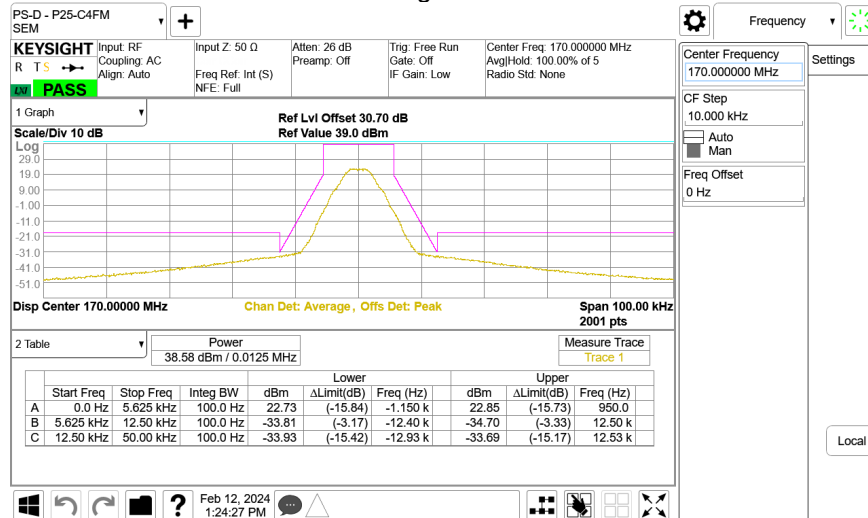
### 150PS CQPSK Signal at 161.5MHz ALC



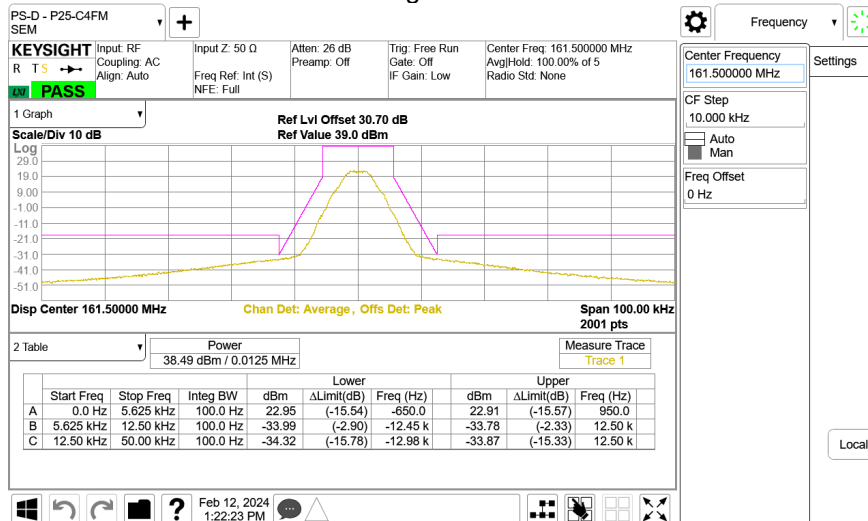
### 150PS CQPSK Signal at 153MHz ALC



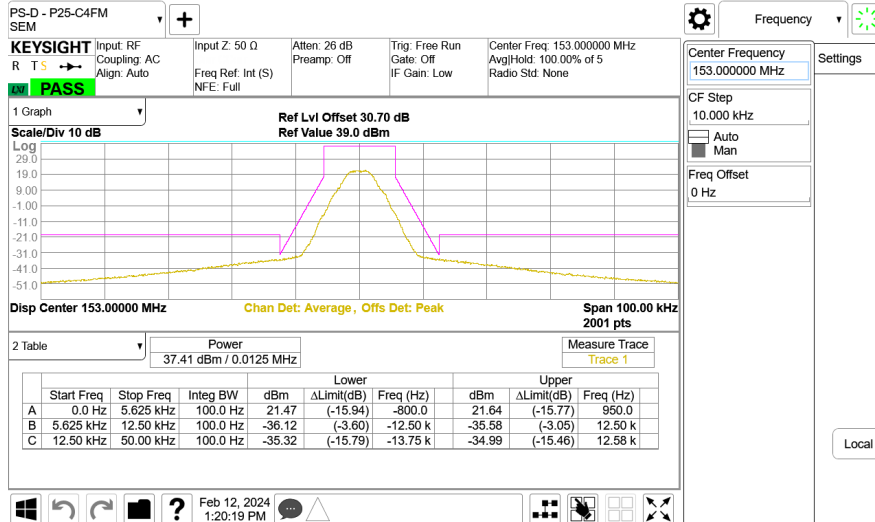
### 150PS C4FM Signal at 170MHz ALC



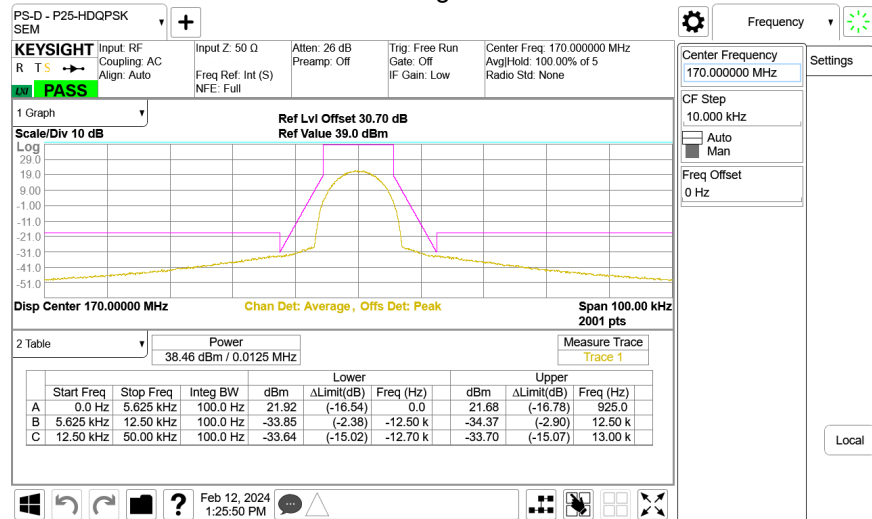
### 150PS C4FM Signal at 161.5MHz ALC



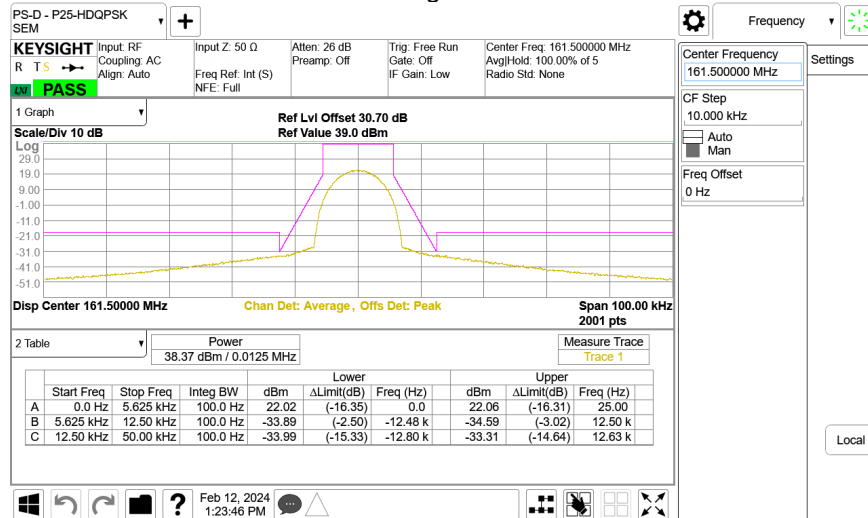
### 150PS C4FM Signal at 153MHz ALC



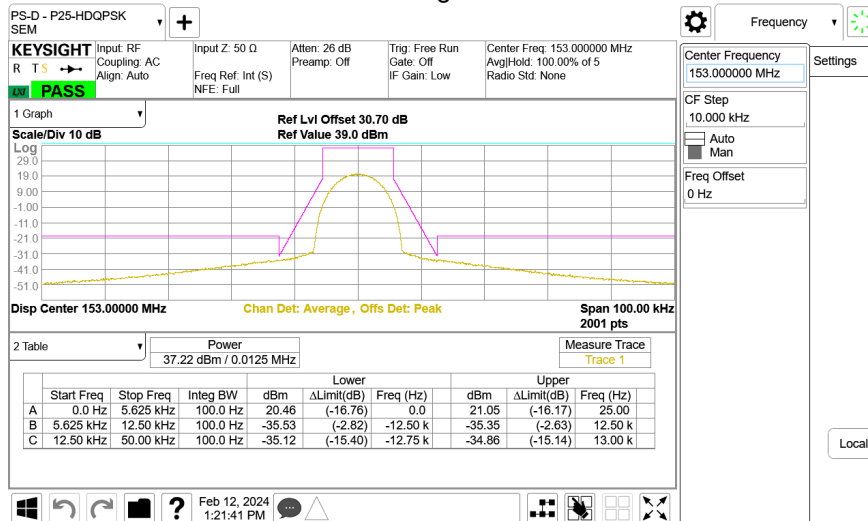
### 150PS HDQPSK Signal at 170MHz ALC



### 150PS HDQPSK Signal at 161.5MHz ALC



### 150PS HDQPSK Signal at 153MHz ALC



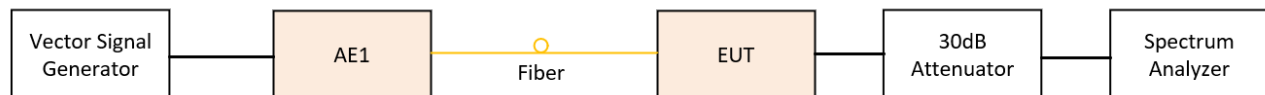
### 3.5 Input/Output Power and Amplifier/Booster Gain

Governing Doc	FCC Part 90.219	Room Temperature (°C)	20.5		
Test Procedure	ANSI/TIA-603- E; FCC KDB 935210 D05, v01r03	Relative Humidity (%)	38.6		
Test Location	Richmond	Barometric Pressure (kPa)	101.8		
Test Engineer	Zara Vali	Date	February 12, 2024		
EUT Voltage	<input checked="" type="checkbox"/> +48VDC <input type="checkbox"/> 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:	<input checked="" type="checkbox"/> Max Gain Frequency $\pm$ 1500kHz				
Detector:	<input checked="" type="checkbox"/> Peak				
RBW/VBW:	<input checked="" type="checkbox"/> 100k Hz/ 300 kHz				
Type of Facility:	<input checked="" type="checkbox"/> Tabletop				
Distance:	<input checked="" type="checkbox"/> Direct				
Maximum booster gain is 49.24 dB.					
Compliant <input checked="" type="checkbox"/> Non-Compliant <input type="checkbox"/> Not Applicable <input type="checkbox"/>					

### 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.**



## Results

Test Band	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Gain (dB)
UHF PS	415.5	-10.8	37.03	5.04
VHF PS	161.5	-11.4	37.03	5.04

### 3.6 Out-Of-Band / Out-Of-Block Intermodulation and Spurious Emissions

Governing Doc	FCC Part 90.219	Room Temperature (°C)	20.5
Test Procedure	ANSI/TIA-603- E; FCC KDB 935210 D05, v01r03	Relative Humidity (%)	38.6
Test Location	Richmond	Barometric Pressure (kPa)	101.8
Test Engineer	Zara Vali	Date	February 12, 2024
EUT Voltage	<input checked="" type="checkbox"/> +48VDC <input type="checkbox"/> 120VAC @ 60Hz		
Test Equipment Used	Manufacturer	Model	Serial Number
Signal Generator	Keysight	N5172B	MY53050270
Spectrum Analyzer	Keysight	N9020B	MY62153079
Calibration date	Dec 12, 2023		
Calibration due	Dec 12, 2026		
Frequency Range:	<input checked="" type="checkbox"/> Max Gain Frequency $\pm$ 50kHz		
Detector:	<input checked="" type="checkbox"/> Average		
RBW/VBW:	<input checked="" type="checkbox"/> 100/910Hz		
Type of Facility:	<input checked="" type="checkbox"/> Tabletop		
Distance:	<input checked="" type="checkbox"/> Direct		
<p>On 700 band, 800 band and UHF band: The intermodulation product of 2 tone is below the -13dBm emission limit with input power</p> <ul style="list-style-type: none"> <li>- 0.5 dB below AGC threshold</li> <li>- 2 dB below AGC threshold</li> <li>- 3 dB above AGC threshold</li> </ul>			
Compliant <input checked="" type="checkbox"/> Non-Compliant <input type="checkbox"/> Not Applicable <input type="checkbox"/>			

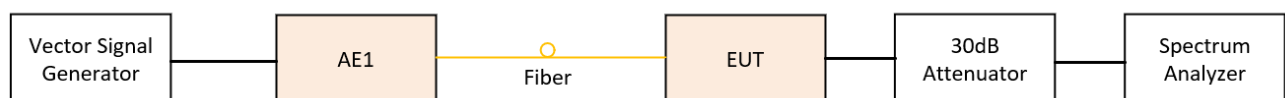
### Test setup

The procedure used was ANSI/TIA-603-E-2016. 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 frequency in the passing band, and separated with the available spacing, which is 12.5kHz.

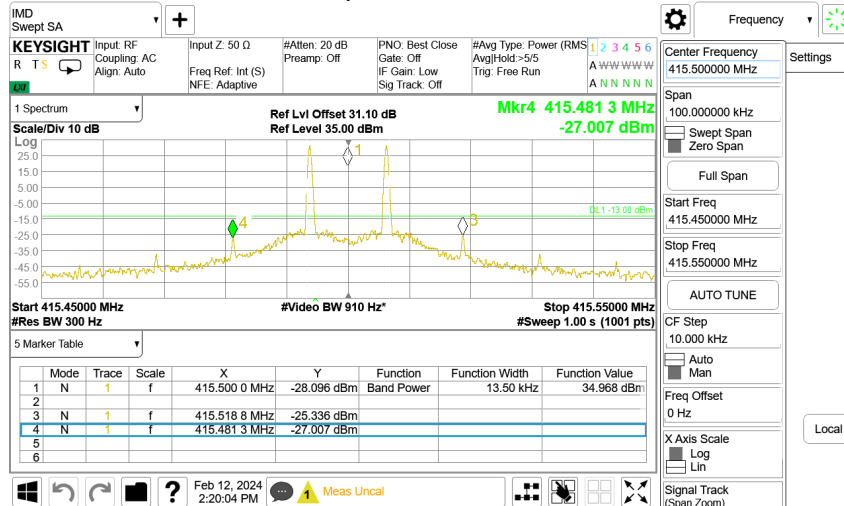
Measurements were performed with modulated -tone at identical input amplitude which produced integrated maximum rated output power.

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

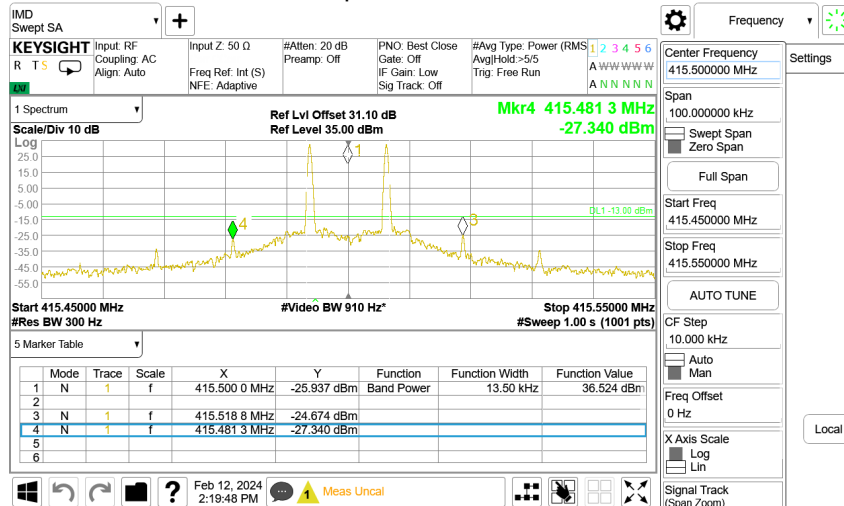


## Results

### 415PS at 415.5 MHz Input Power 2 dB Below ALC Threshold

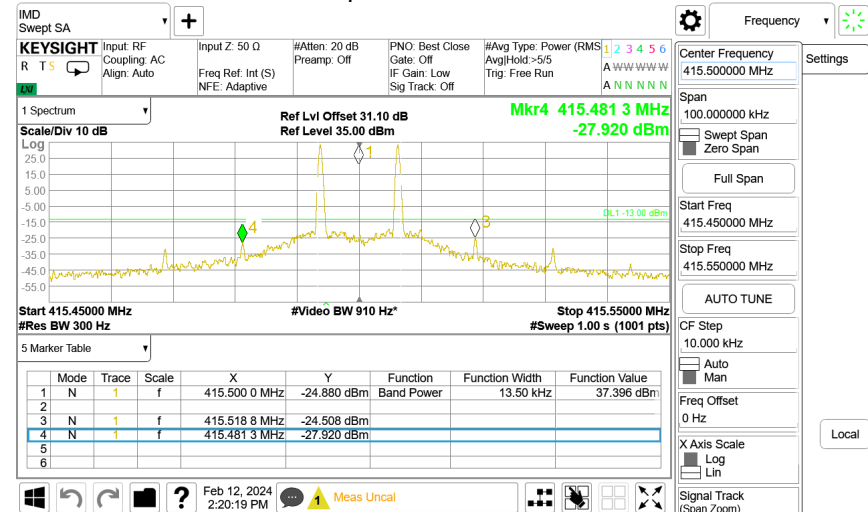


### 415PS at 415.5 MHz Input Power 3 dB Above ALC Threshold

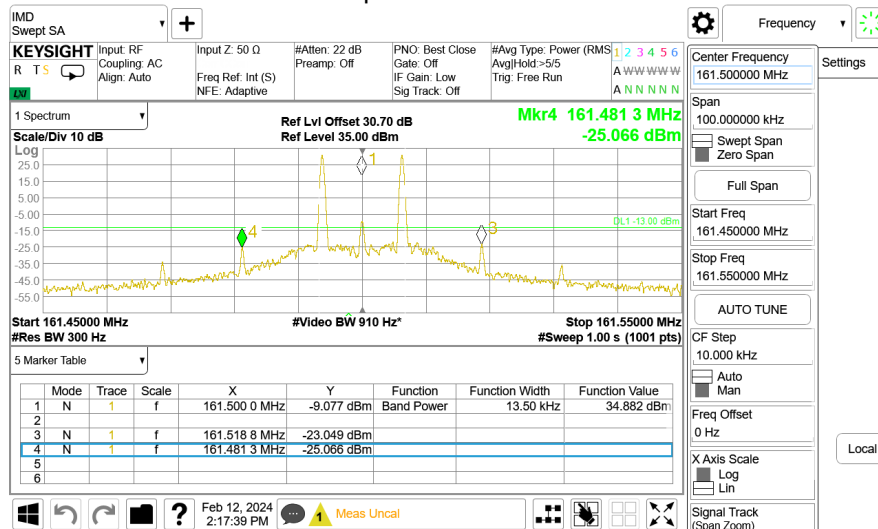




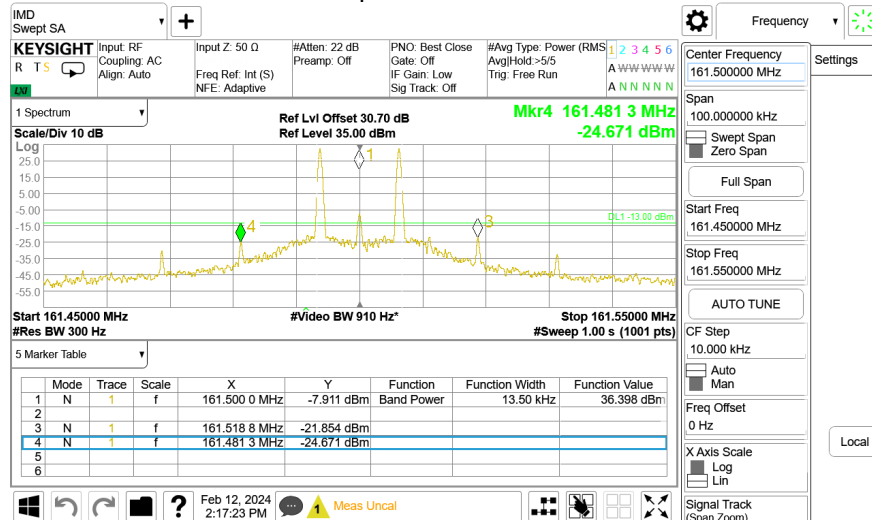
### 415PS at 415.5 MHz Input Power 0.5 dB Below ALC Threshold



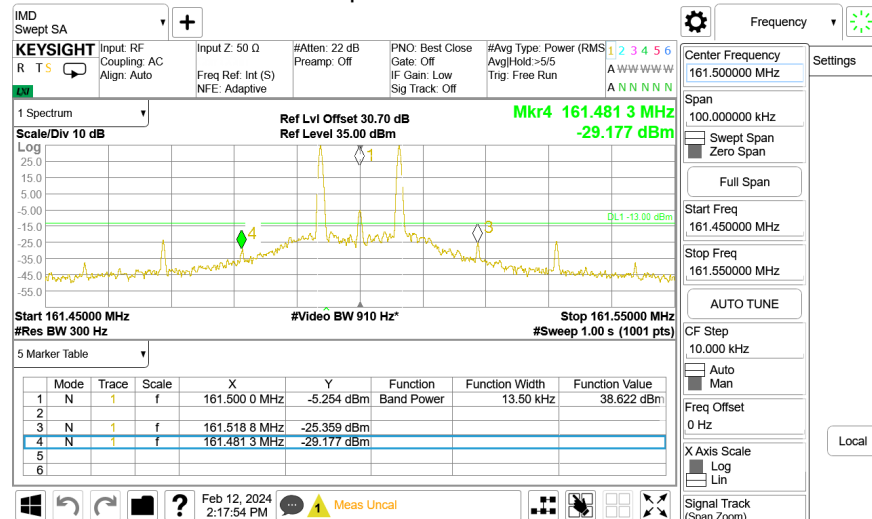
### 150PS at 161.5 MHz Input Power 2 dB Below ALC Threshold



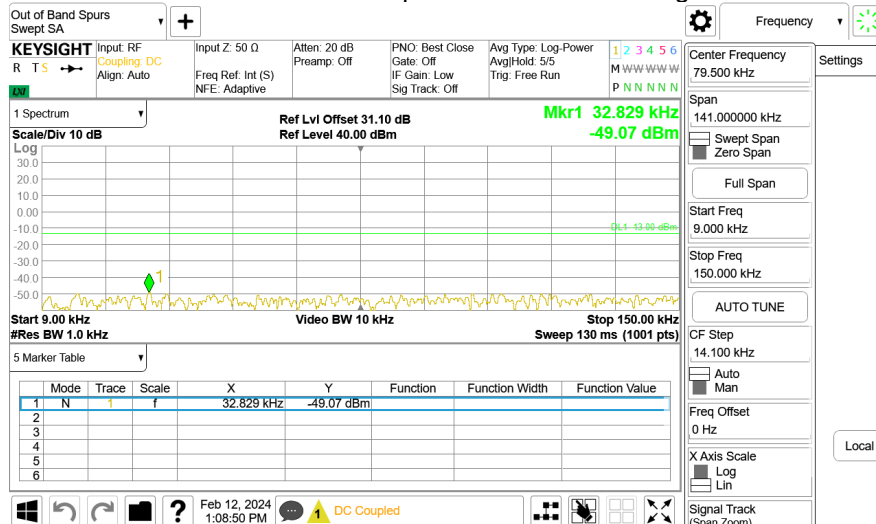
### 150PS at 161.5 MHz Input Power 3 dB Above ALC Threshold



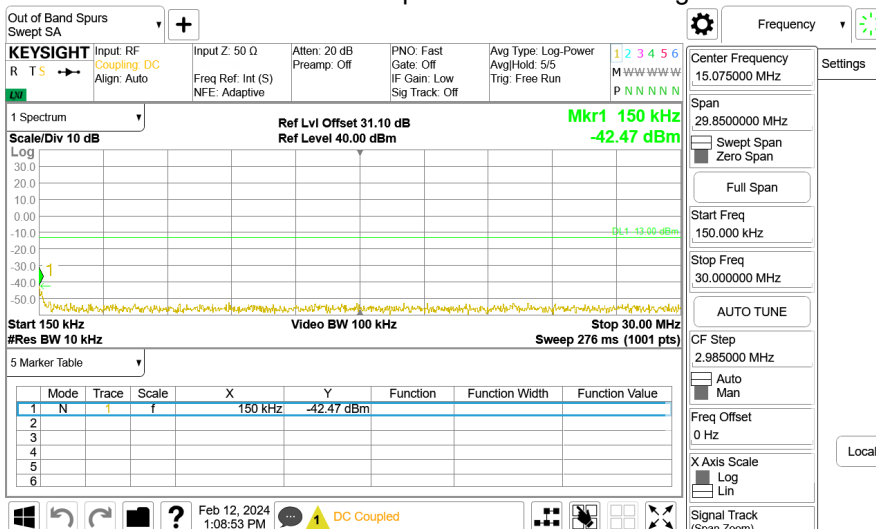
### 150PS at 161.5 MHz Input Power 0.5 dB Below ALC Threshold



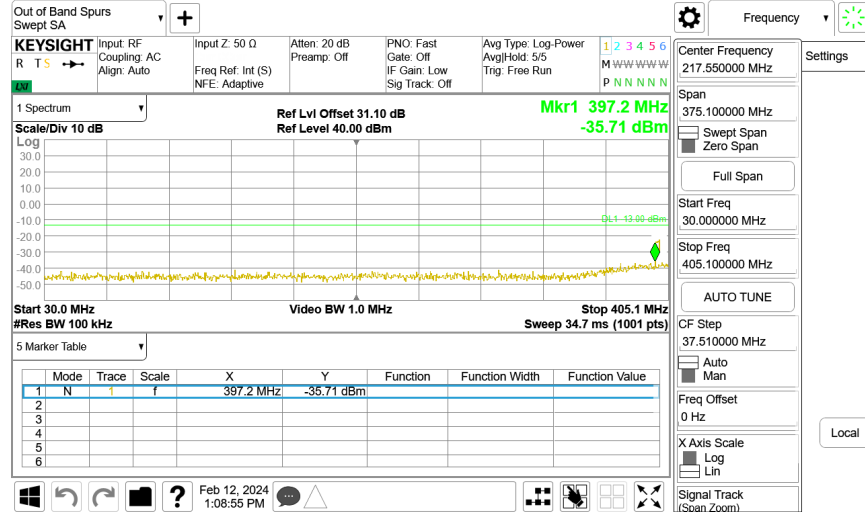
### 415PS 424.9MHz Spurious Emissions Range 1



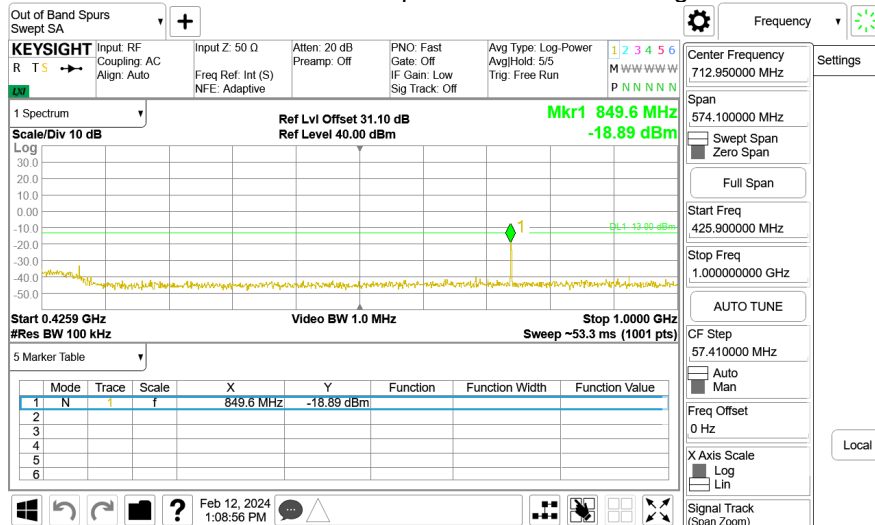
### 415PS 424.9MHz Spurious Emissions Range 2



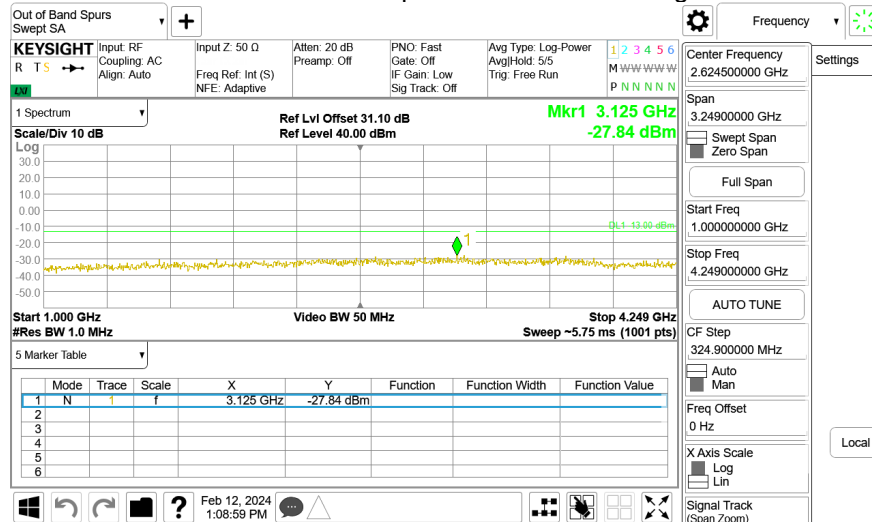
### 415PS 424.9MHz Spurious Emissions Range 3



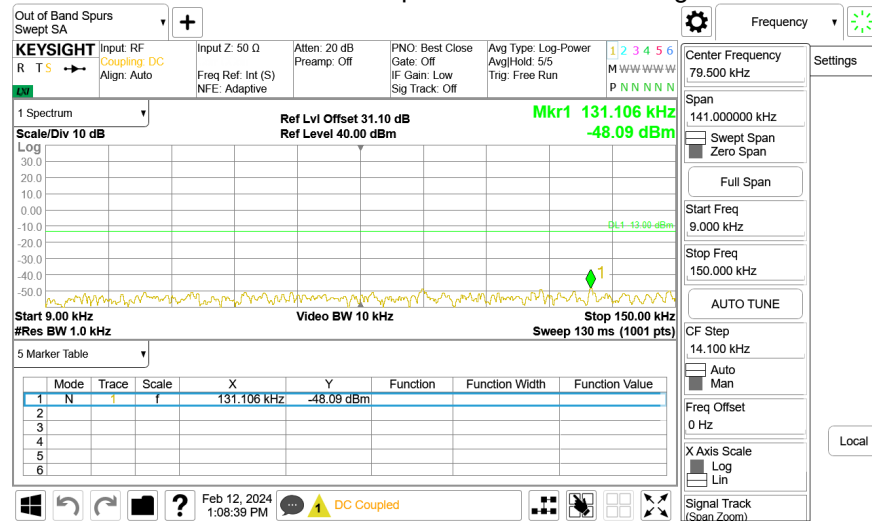
### 415PS 424.9MHz Spurious Emissions Range 4



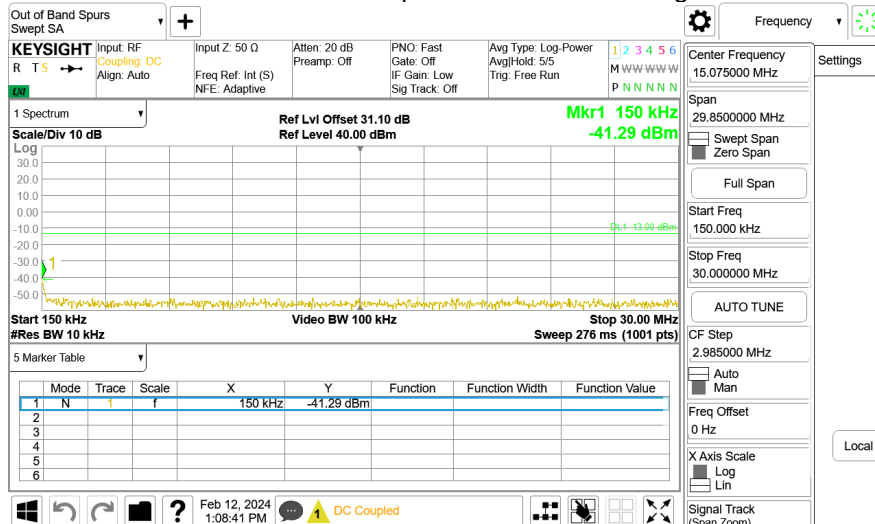
### 415PS 424.9MHz Spurious Emissions Range 5



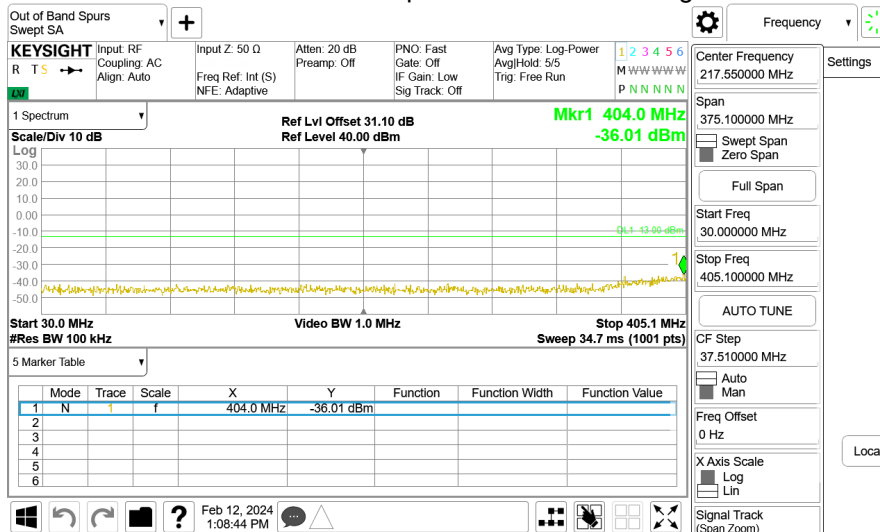
### 415PS 415.5MHz Spurious Emissions Range 1



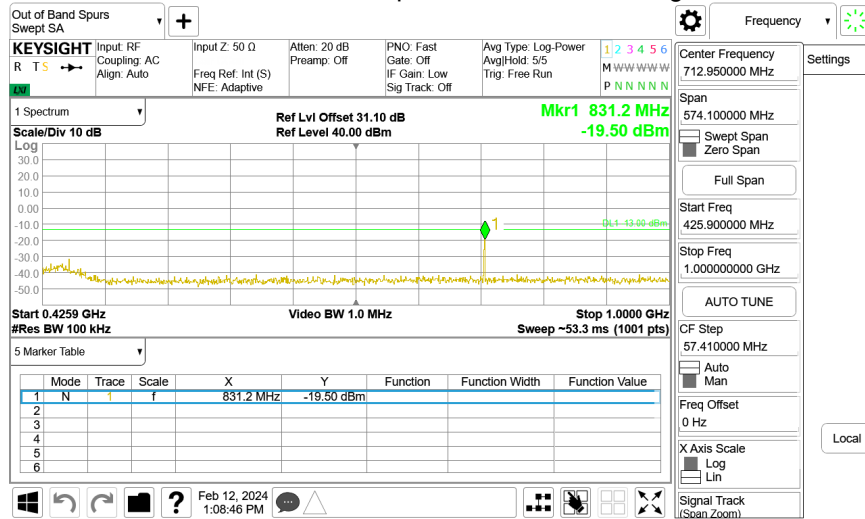
### 415PS 415.5MHz Spurious Emissions Range 2



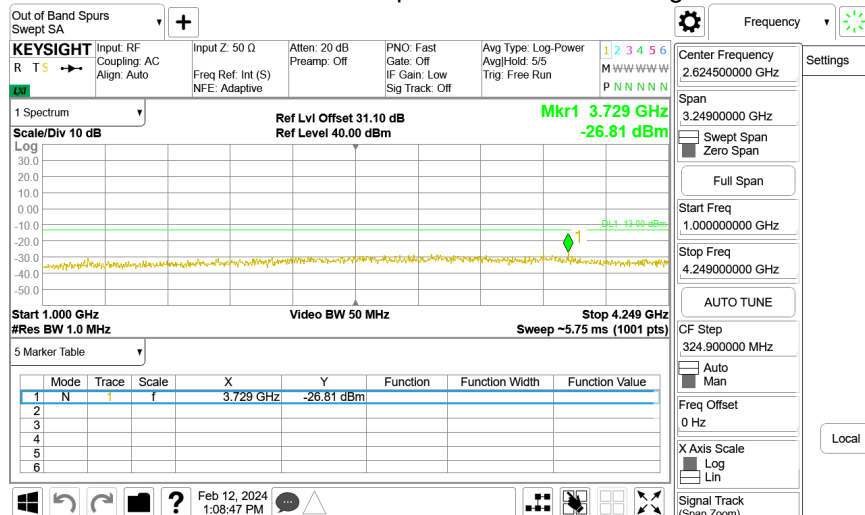
### 415PS 415.5MHz Spurious Emissions Range 3



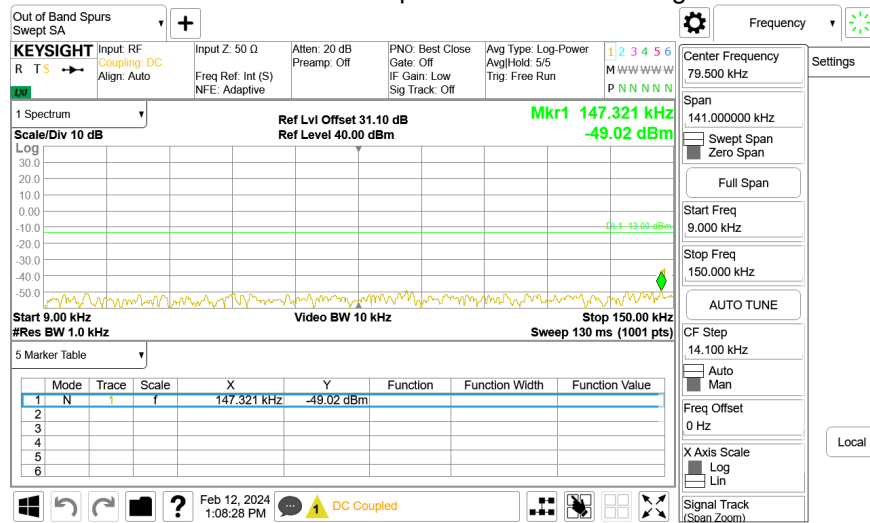
### 415PS 415.5MHz Spurious Emissions Range 4



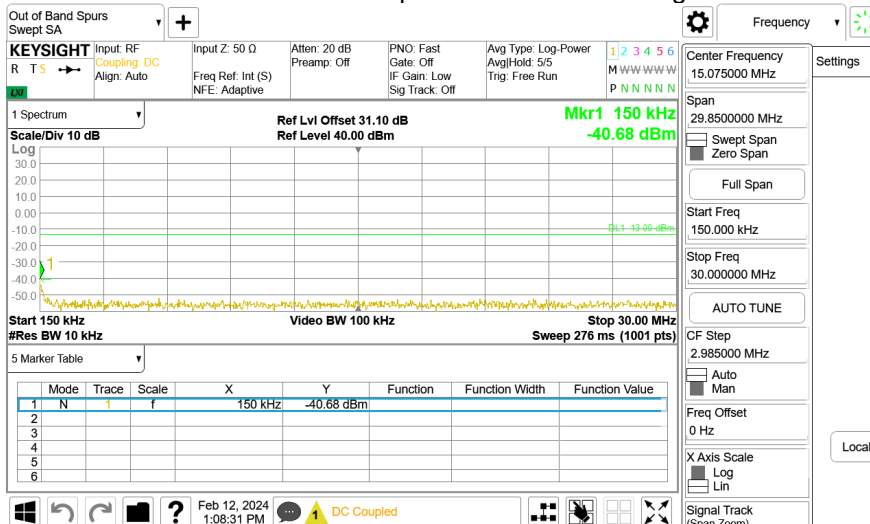
### 415PS 415.5MHz Spurious Emissions Range 5



### 415PS 406.1MHz Spurious Emissions Range 1

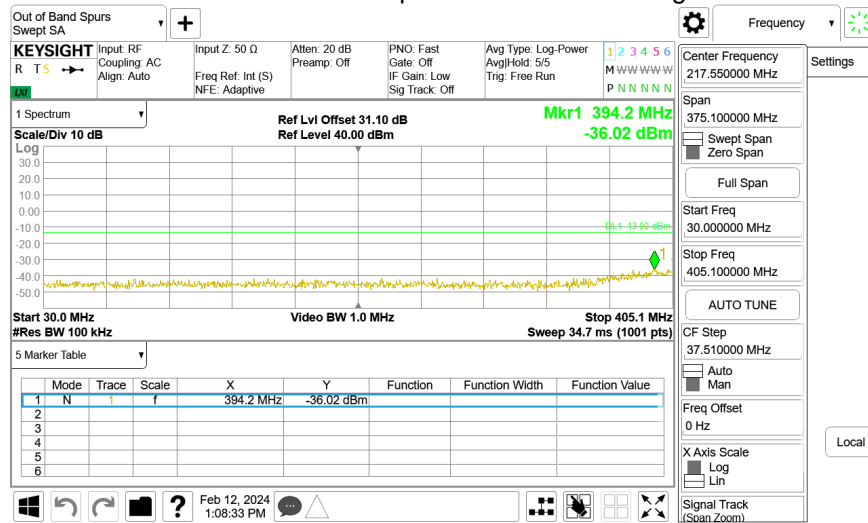


### 415PS 406.1MHz Spurious Emissions Range 2

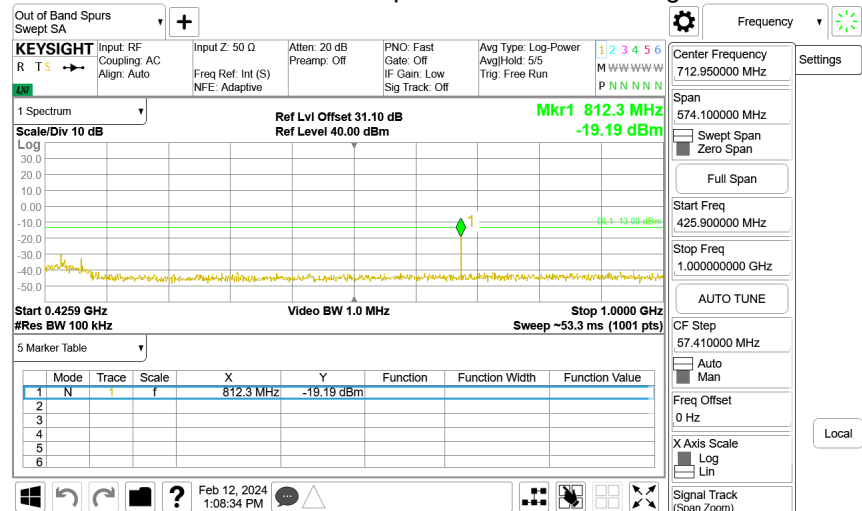




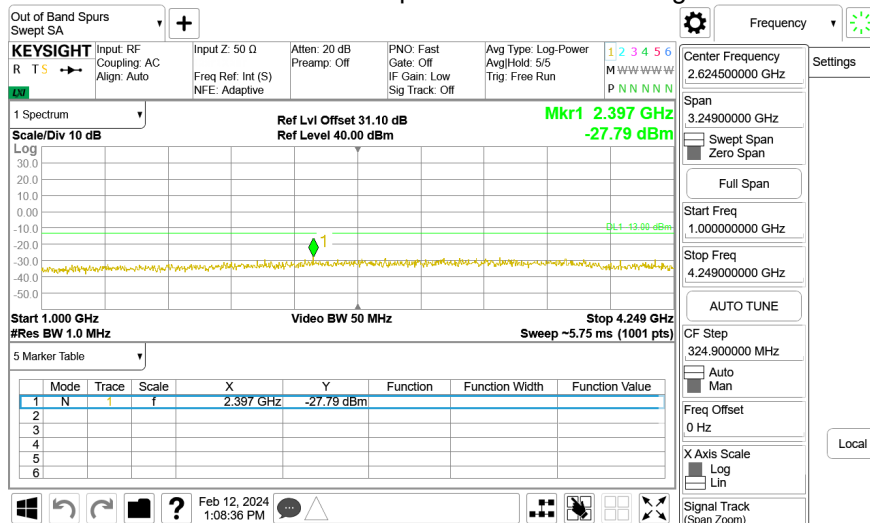
### 415PS 406.1MHz Spurious Emissions Range 3



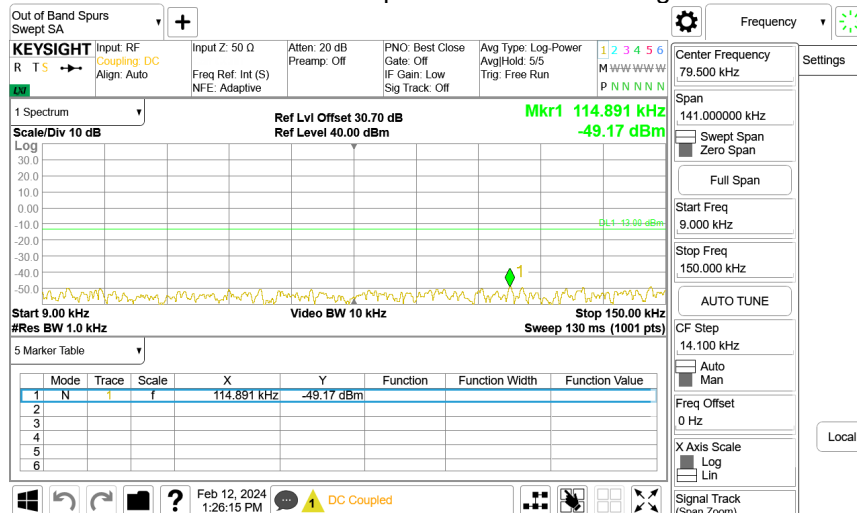
### 415PS 406.1MHz Spurious Emissions Range 4



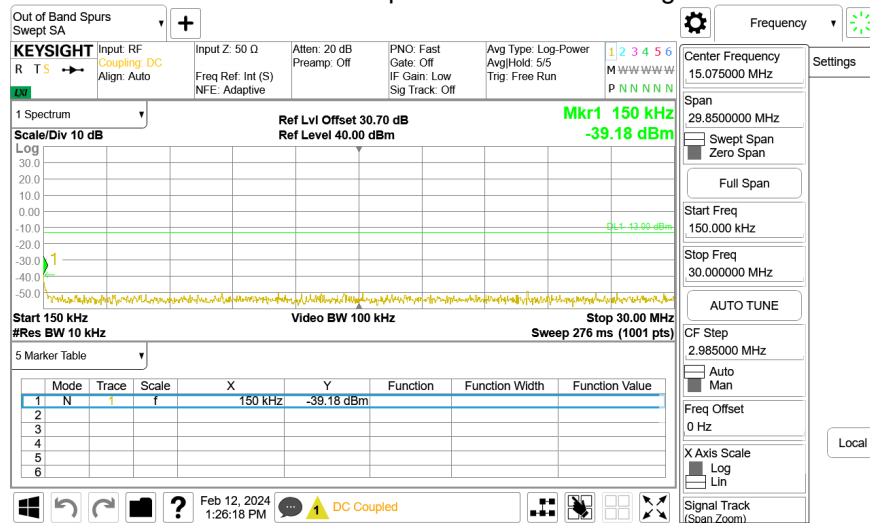
### 415PS 406.1MHz Spurious Emissions Range 5



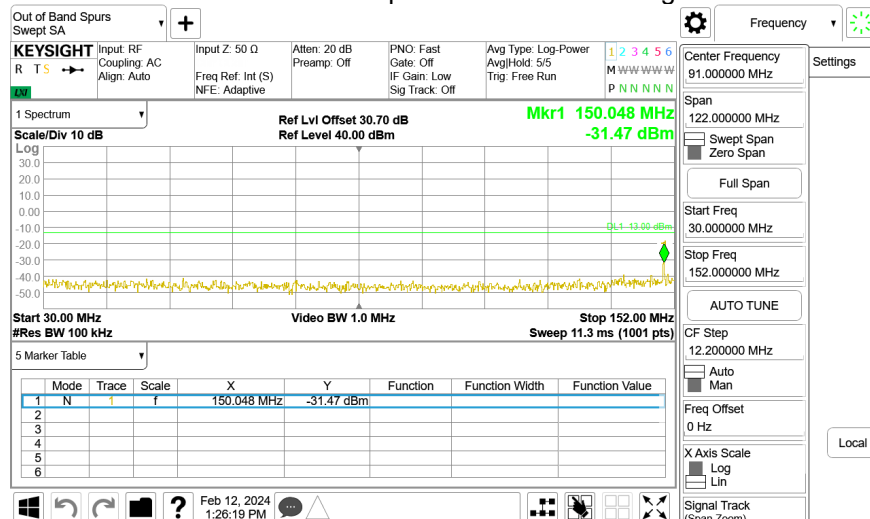
### 150PS 170MHz Spurious Emissions Range 1



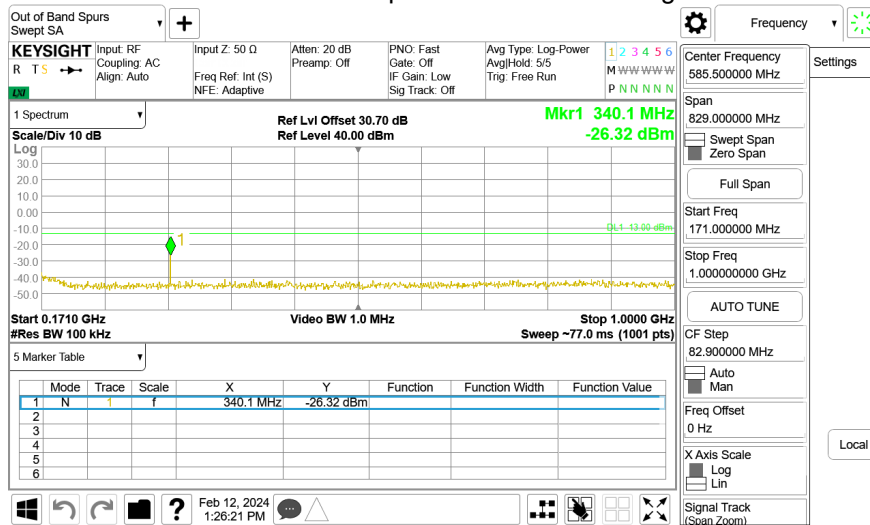
### 150PS 170MHz Spurious Emissions Range 2



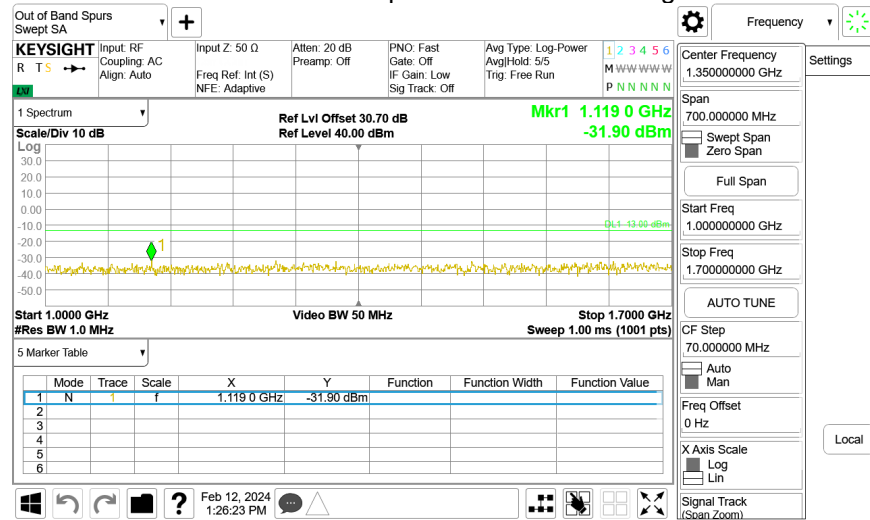
### 150PS 170MHz Spurious Emissions Range 3



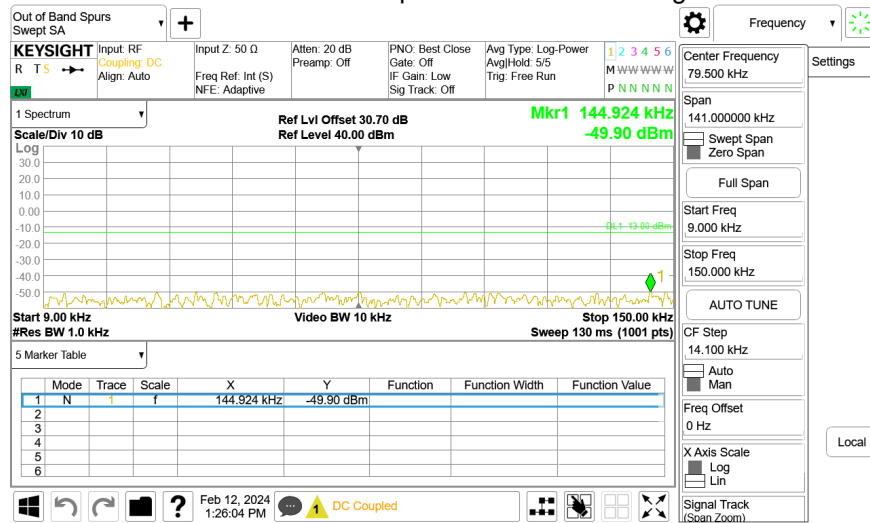
### 150PS 170MHz Spurious Emissions Range 4



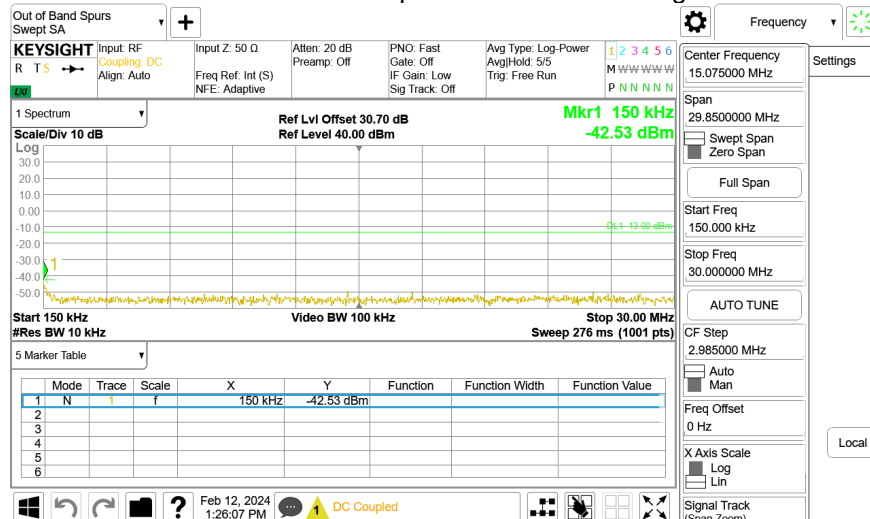
### 150PS 170MHz Spurious Emissions Range 5



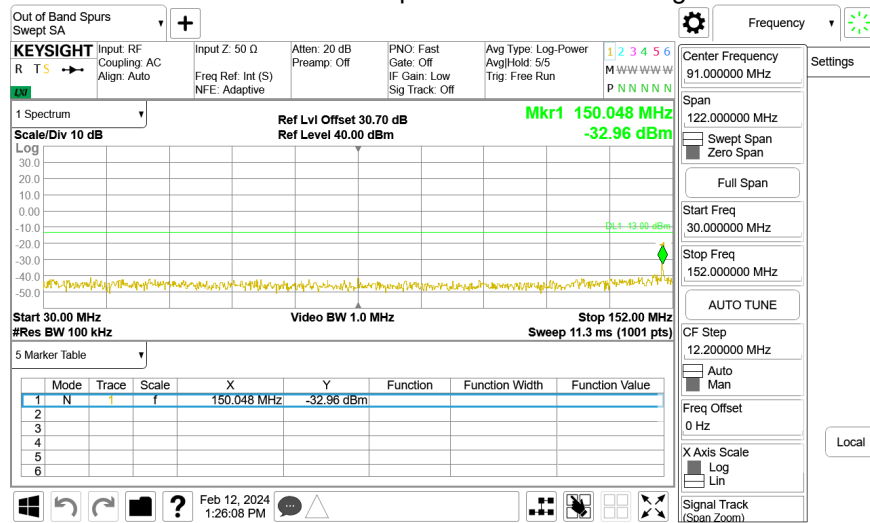
### 150PS 161.5MHz Spurious Emissions Range 1



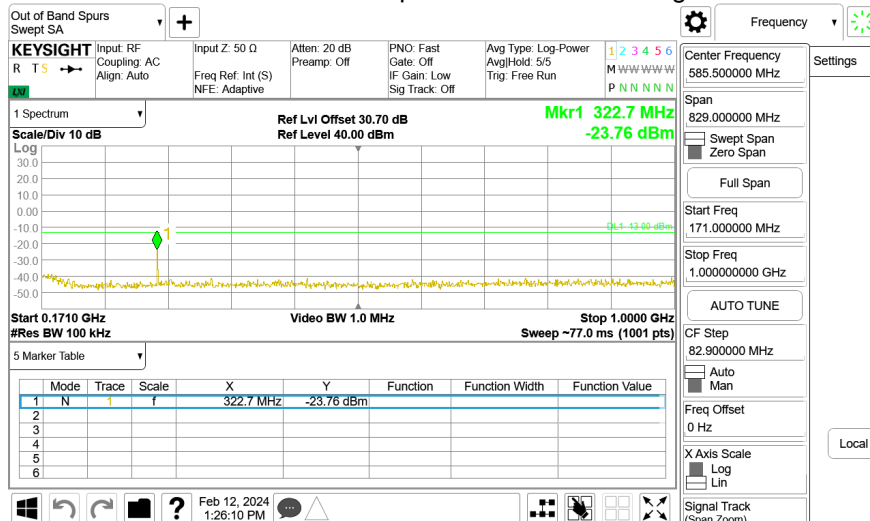
### 150PS 161.5MHz Spurious Emissions Range 2



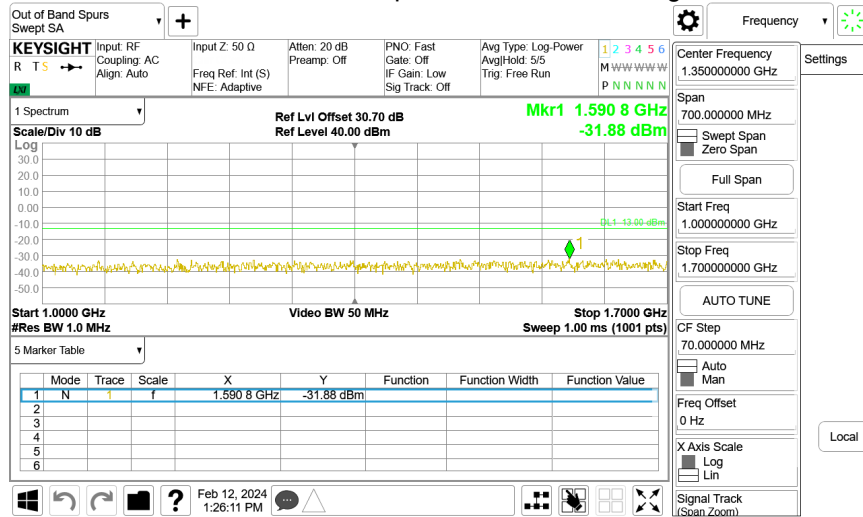
### 150PS 161.5MHz Spurious Emissions Range 3



### 150PS 161.5MHz Spurious Emissions Range 4



### 150PS 161.5MHz Spurious Emissions Range 5



### 150PS 153MHz Spurious Emissions Range 1

