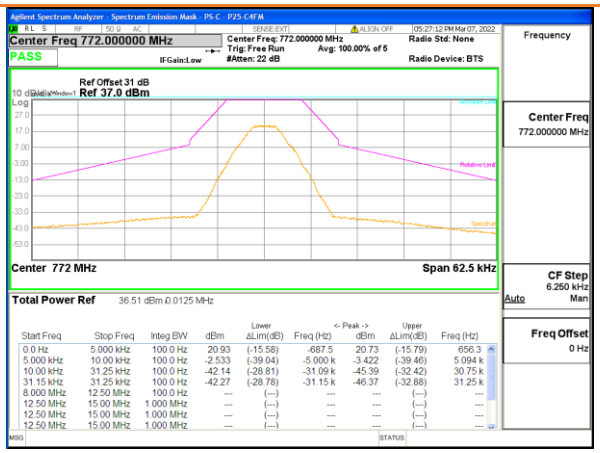
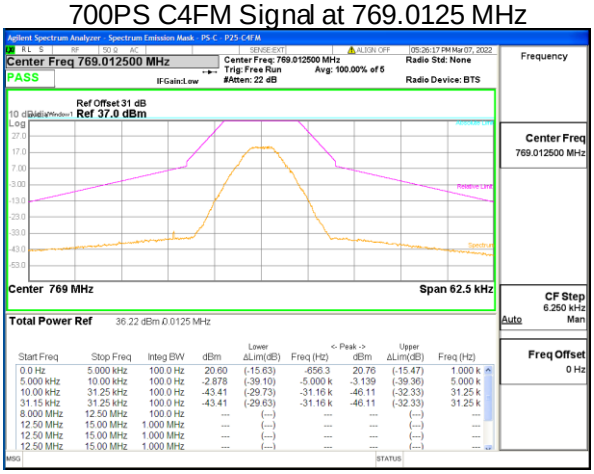
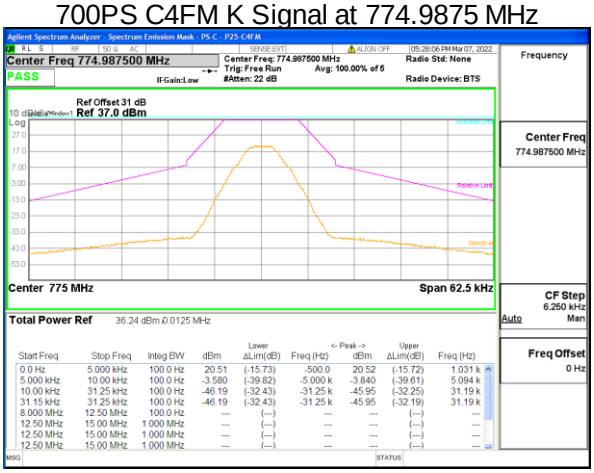


700PS C4FM Signal at 769.0125 MHz

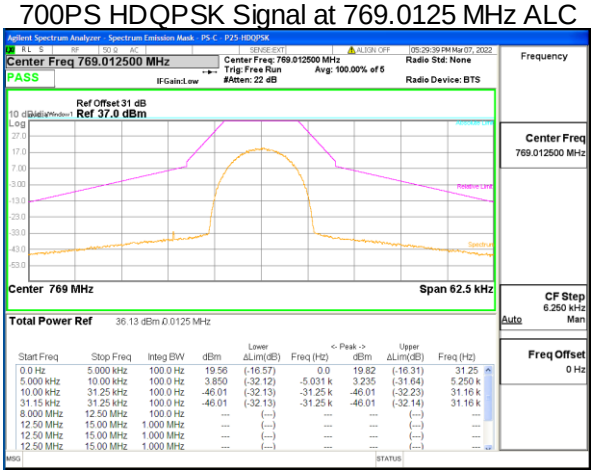


700PS C4FM K Signal at 774.9875 MHz

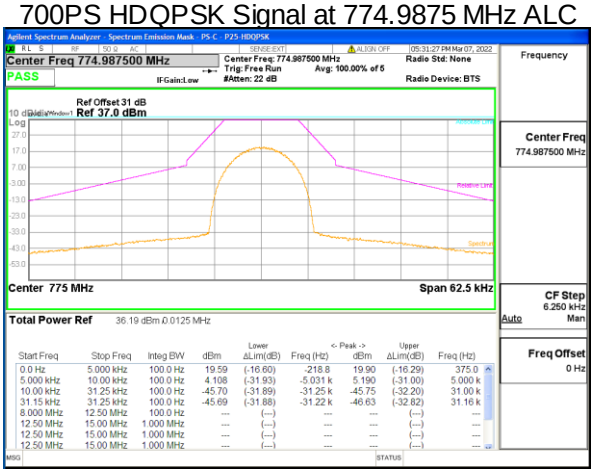


700PS HDQPSK Signal at 772 MHz ALC

700PS HDQPSK Signal at 769.0125 MHz ALC

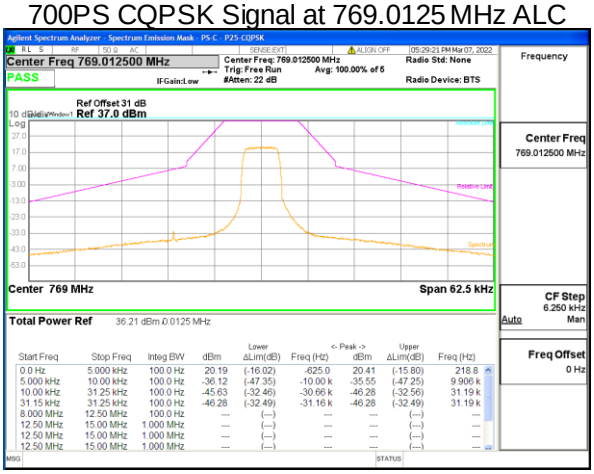


700PS HDQPSK Signal at 774.9875 MHz ALC

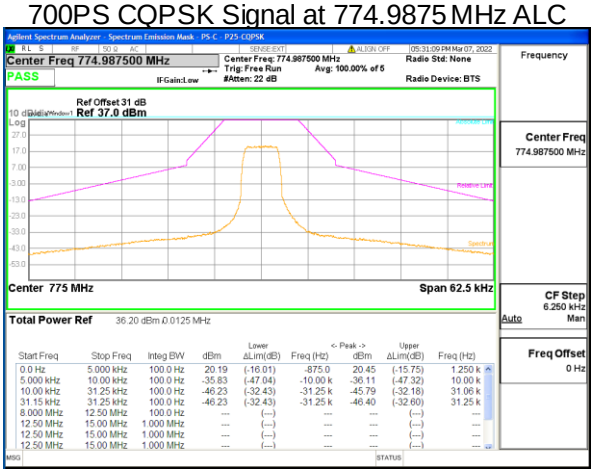


700PS CQPSK Signal at 772 MHz ALC

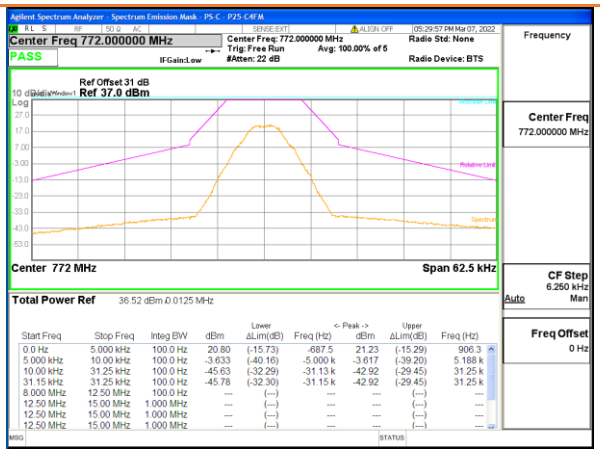
700PS CQPSK Signal at 769.0125 MHz ALC



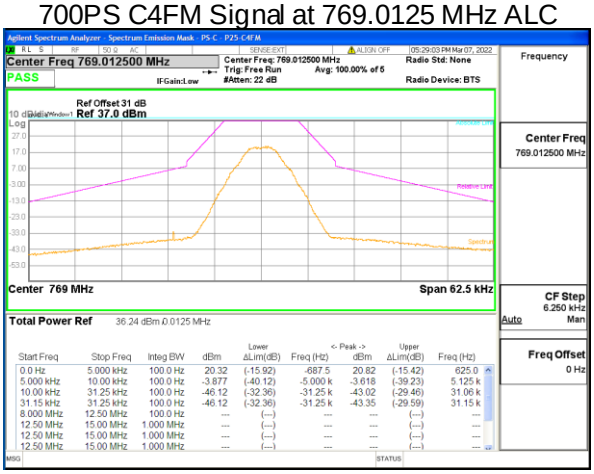
700PS CQPSK Signal at 774.9875 MHz ALC



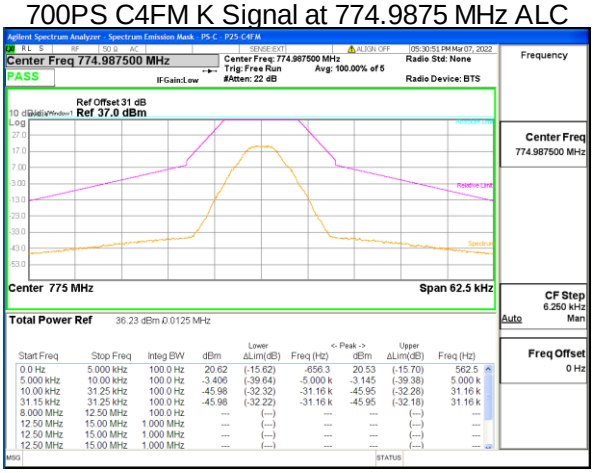
700PS C4FM Signal at 772 MHz ALC



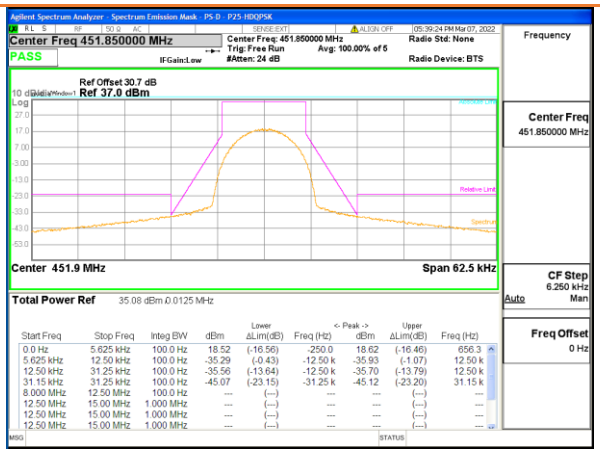
700PS C4FM Signal at 769.0125 MHz ALC



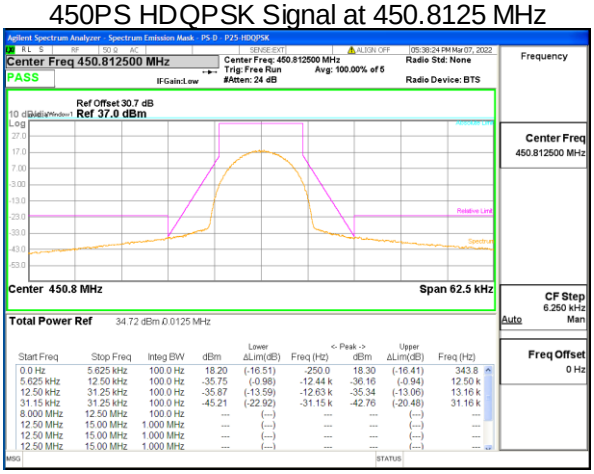
700PS C4FM K Signal at 774.9875 MHz ALC



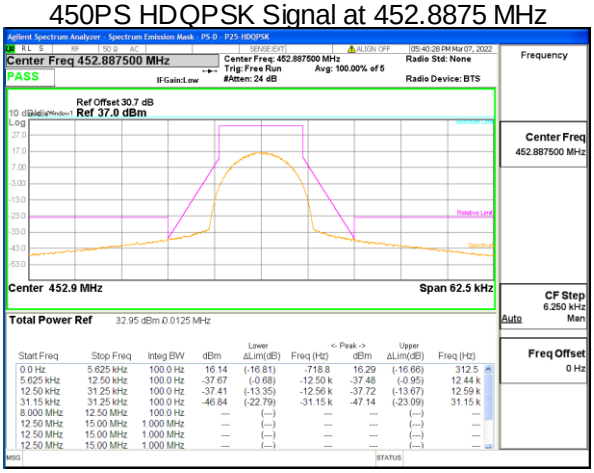
450PS HDQPSK Signal at 451.85 MHz



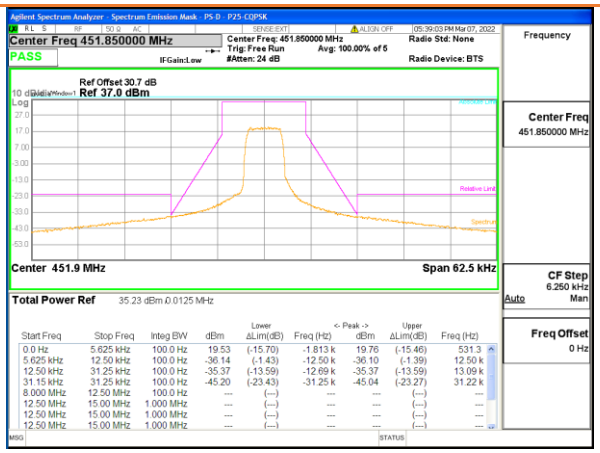
450PS HDQPSK Signal at 450.8125 MHz



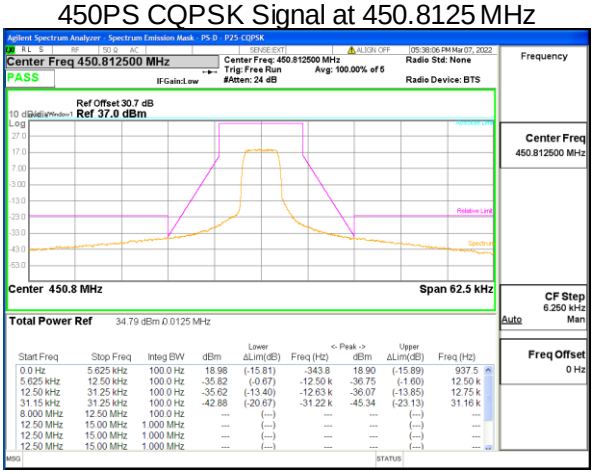
450PS HDQPSK Signal at 452.8875 MHz



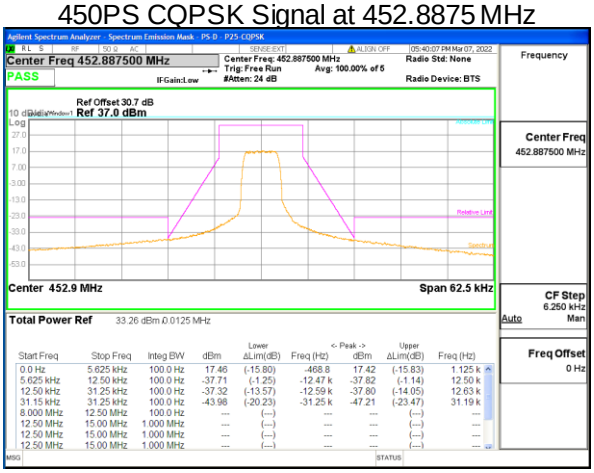
450PS CQPSK Signal at 451.85 MHz



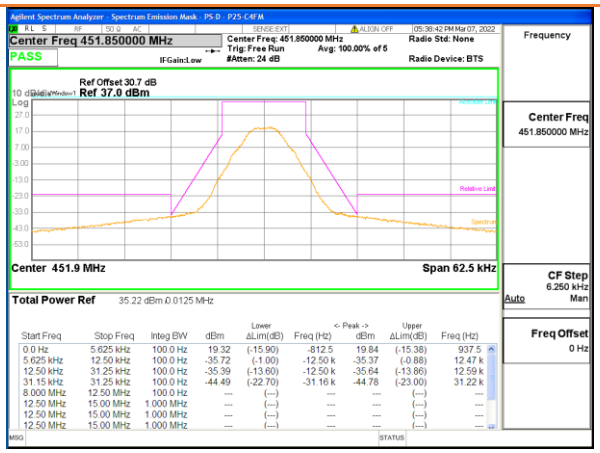
450PS CQPSK Signal at 450.8125 MHz



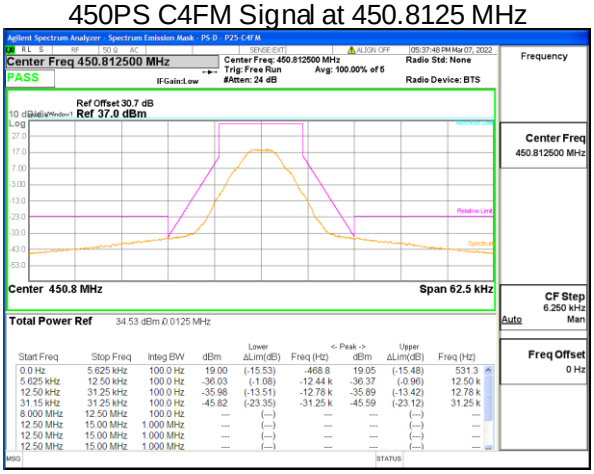
450PS CQPSK Signal at 452.8875 MHz



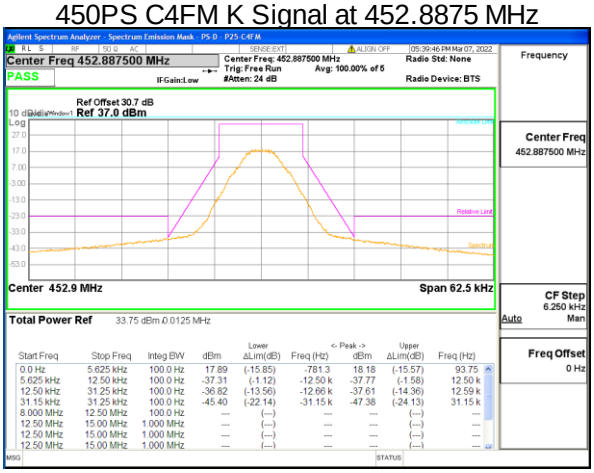
450PS C4FM Signal at 451.85 MHz



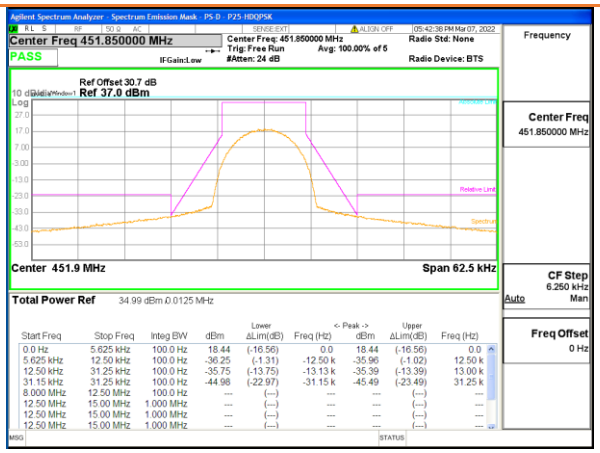
450PS C4FM Signal at 450.8125 MHz



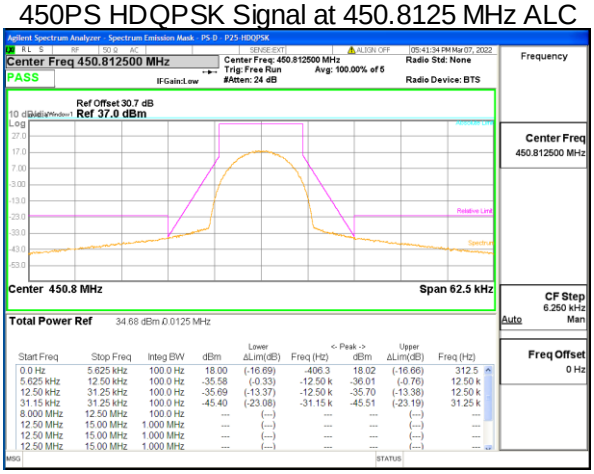
450PS C4FM K Signal at 452.8875 MHz



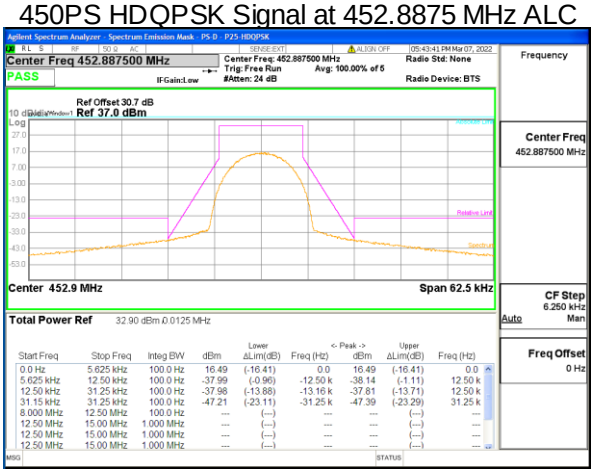
450PS HDQPSK Signal at 451.85 MHz ALC



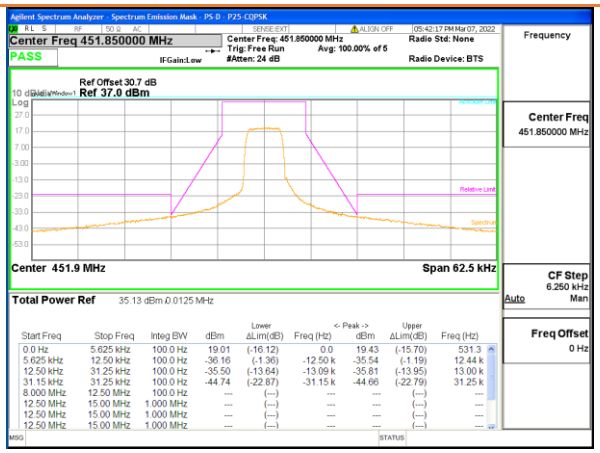
450PS HDQPSK Signal at 450.8125 MHz ALC



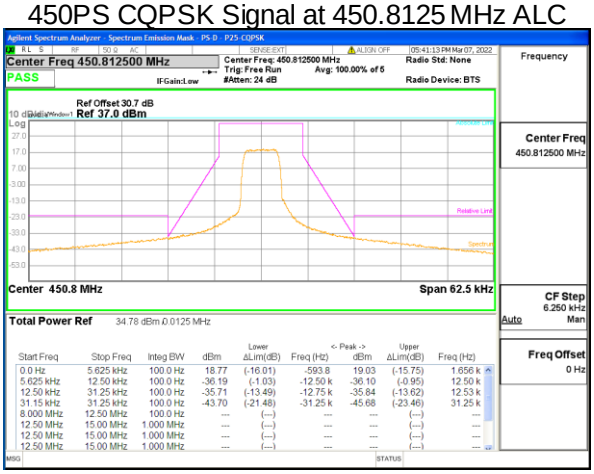
450PS HDQPSK Signal at 452.8875 MHz ALC



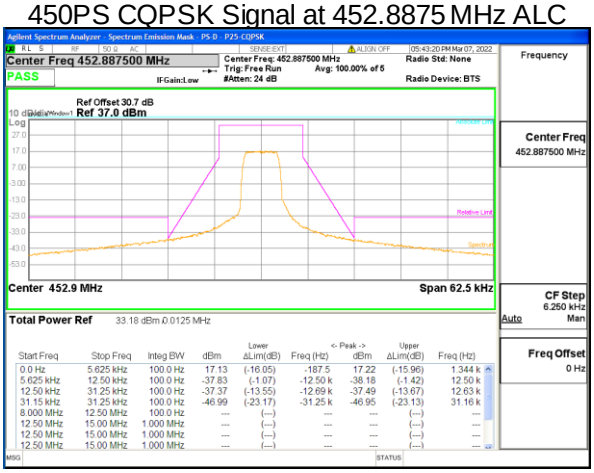
450PS CQPSK Signal at 451.85 MHz ALC



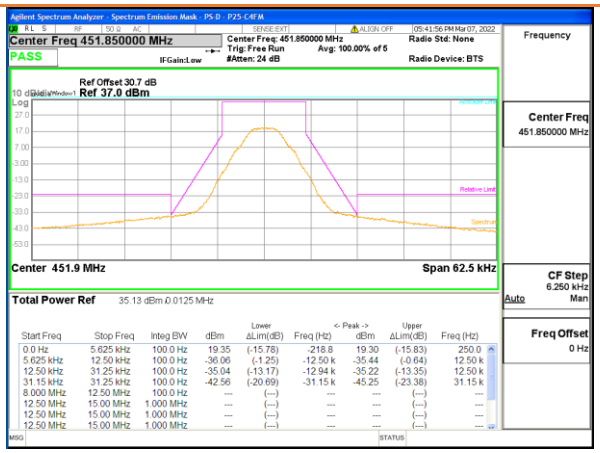
450PS CQPSK Signal at 450.8125 MHz ALC



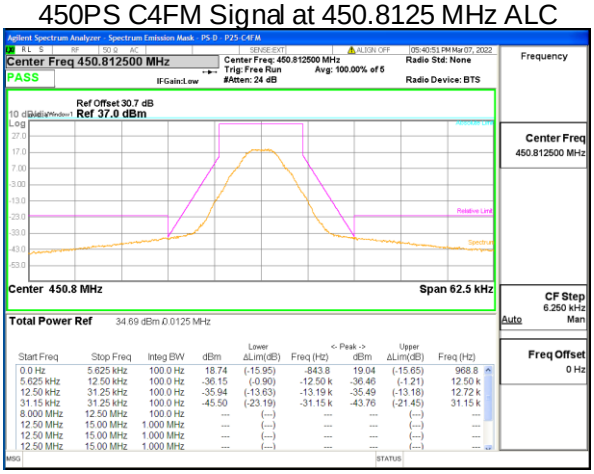
450PS CQPSK Signal at 452.8875 MHz ALC



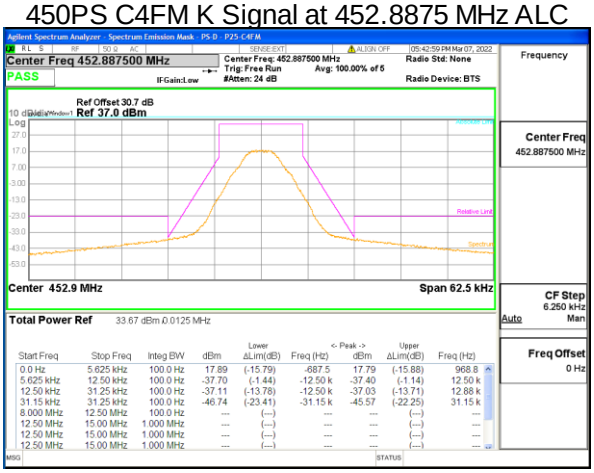
450PS C4FM Signal at 451.85 MHz ALC



450PS C4FM Signal at 450.8125 MHz ALC



450PS C4FM K Signal at 452.8875 MHz ALC



Input/output Power and Amplifier/Booster Gain

Governing Doc	FCC Part 90.219	Room Temperature (°C)	
Test Procedure	ANSI/TIA-603- E; FCC KDB 935210 D05, v01r03	Relative Humidity (%)	
Test Location	Richmond	Barometric Pressure	
Test Engineer	Jeremy Lee	Date	March 7, 2022
EUT Voltage	☒ DC	☐ 120VAC @ 60Hz	

Test Equipment Used	Manufacturer	Model	Identifier	Calibration date	Calibration due
Signal Generator	Keysight	N5172B	MY5305027	Oct 9, 2021	Oct 9, 2023
Spectrum Analyzer	Keysight	N9010A	MY5052028	Oct 11, 2021	Oct 11, 2023

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

Maximum booster gain is 46.9 dB.

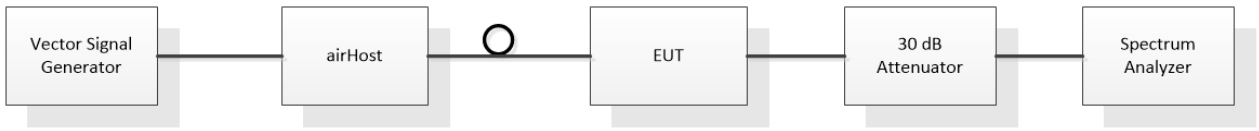
Compliant ☒ Non-Compliant ☐ Not Applicable ☐

Test setup

Description of test set-up:

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)
800PS	856	-51.4	37.2	88.6
700PS	772	-51.9	36.7	88.6
UHF PS	451.85	-52	35.3	87.3

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

Governing Doc	FCC Part 90.219	Room Temperature (°C)	
Test Procedure	ANSI/TIA-603- E; FCC KDB 935210 D05, v01r03	Relative Humidity (%)	
Test Location	Richmond	Barometric Pressure (kPa)	
Test Engineer	Jeremy Lee	Date	March 7, 2022
EUT Voltage	☒ DC	☐ 120VAC @ 60Hz	

Test Equipment Used	Manufacturer	Model	Serial Number	Calibration	Calibration due
Signal Generator	Keysight	N5172B	MY53050270	Oct 9, 2021	Oct 9, 2023
Spectrum Analyzer	Keysight	N9010A	MY50520285	Oct 11, 2021	Oct 11, 2023

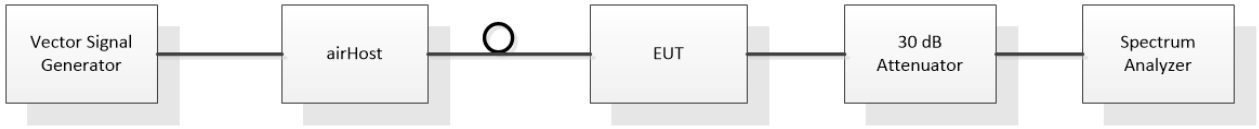
Frequency Range:	☒ Max Gain Frequency ± 50kHz
Detector:	☒ Average
RBW/VBW:	☒ 100/910Hz
Type of Facility:	☒ Tabletop
Distance:	☒ Direct

On 700 Band, 800 band and UHF band: The intermodulation product of 2 tone is below the -13dBm emission limit with input power

- 0.5dBm below AGC threshold
- 2 dB AGC threshold
- 3 dB above AGC threshold

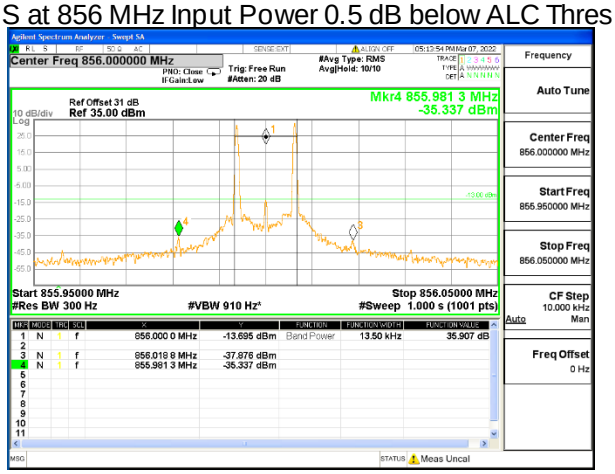
Compliant ☒ Non-Compliant ☐ Not Applicable ☐

Test setup

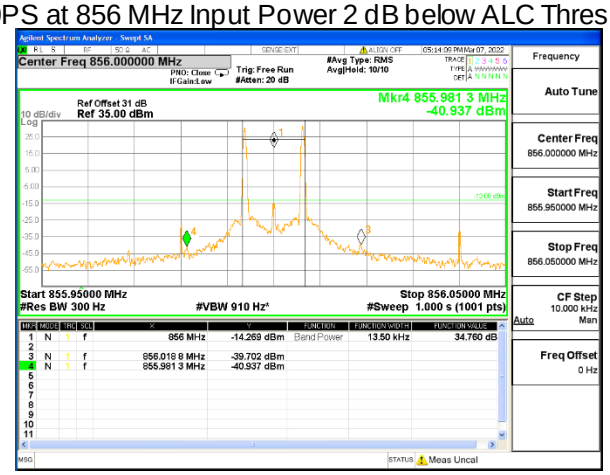
Description of test set-up:
The procedure used was ANSI/TIA-603-E-2016. Two tones (CW) method was used. The input power to the amplifier was set at maximum drive level by combining the two tones. The two tones were chosen in such a way (1) the third order intermodulation product frequencies are located within the pass band of the DUT and (2) they produce the worst-case emissions out of band. All signals were modulated. 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.**


Results

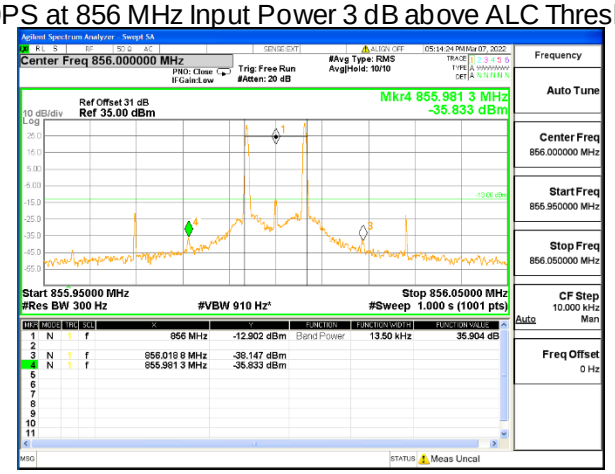
800PS at 856 MHz Input Power 0.5 dB below ALC Threshold



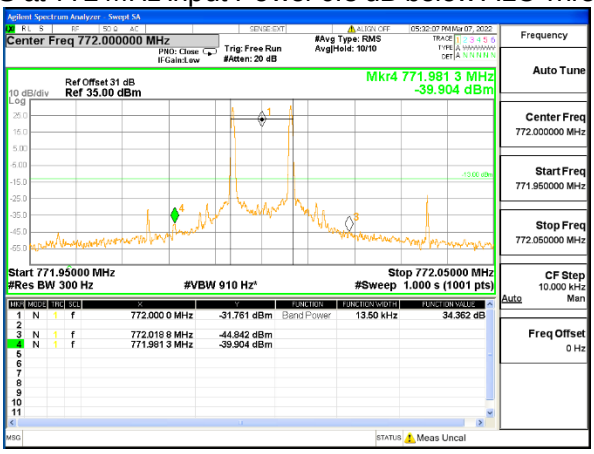
800PS at 856 MHz Input Power 2 dB below ALC Threshold



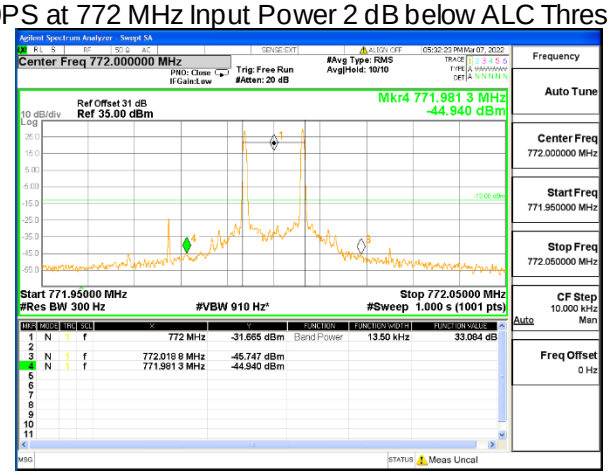
800PS at 856 MHz Input Power 3 dB above ALC Threshold



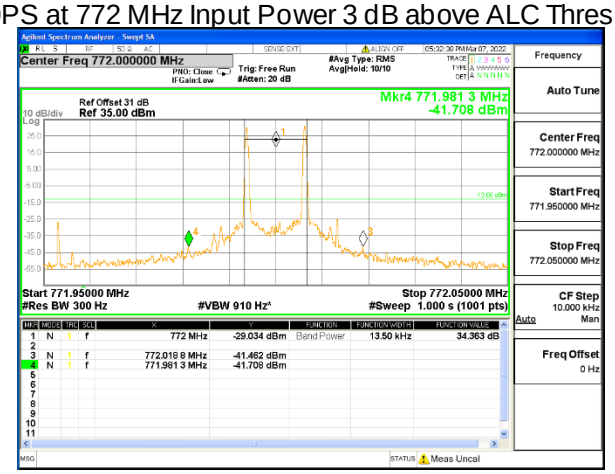
700PS at 772 MHz Input Power 0.5 dB below ALC Threshold



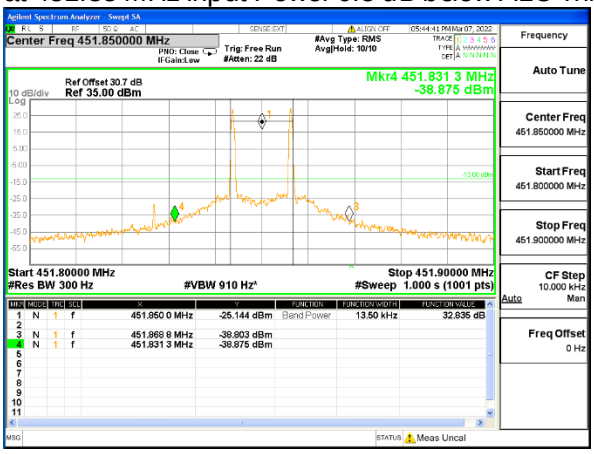
700PS at 772 MHz Input Power 2 dB below ALC Threshold



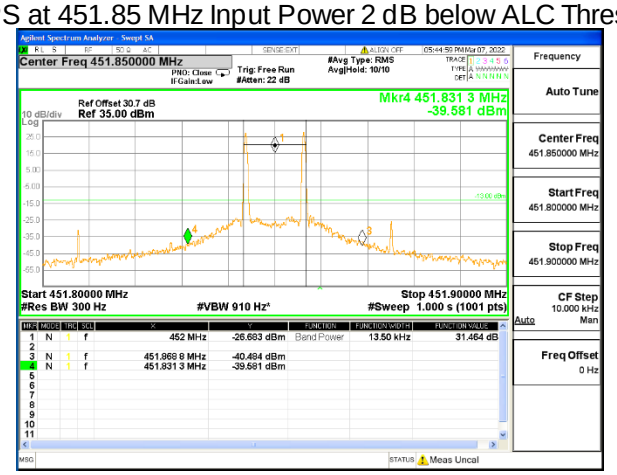
700PS at 772 MHz Input Power 3 dB above ALC Threshold



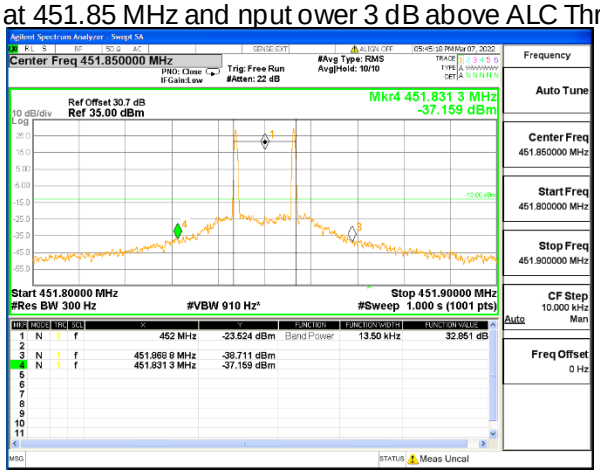
450PS at 451.85 MHz Input Power 0.5 dB below ALC Threshold



450PS at 451.85 MHz Input Power 2 dB below ALC Threshold

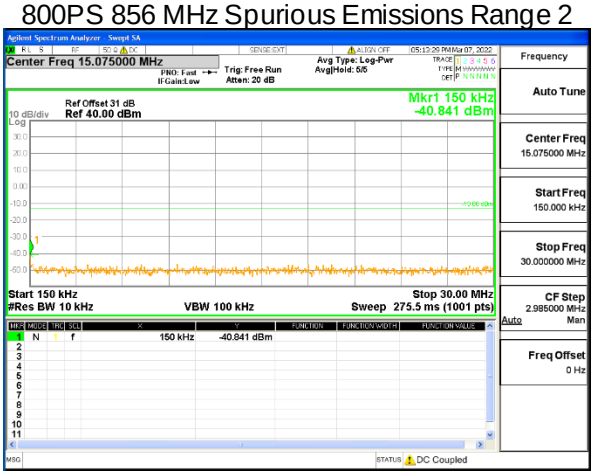


450PS at 451.85 MHz and nput ower 3 dB above ALC Threshold

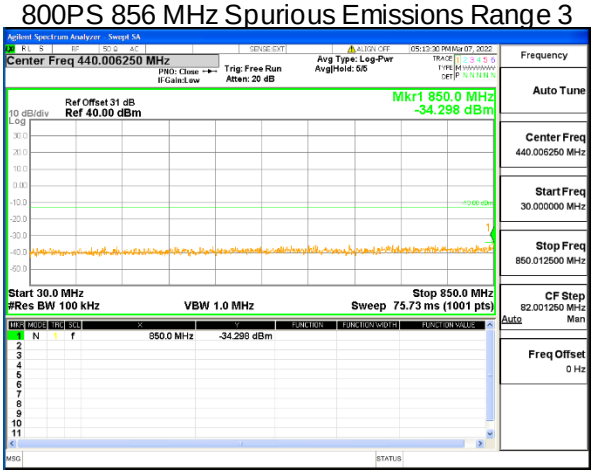


800PS 856 MHz Spurious Emissions Range 1

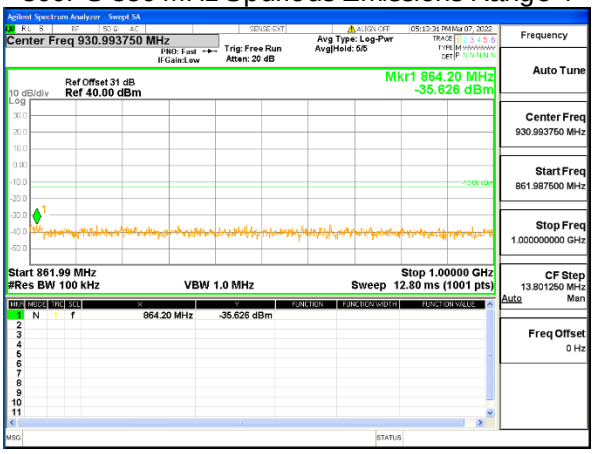
800PS 856 MHz Spurious Emissions Range 2



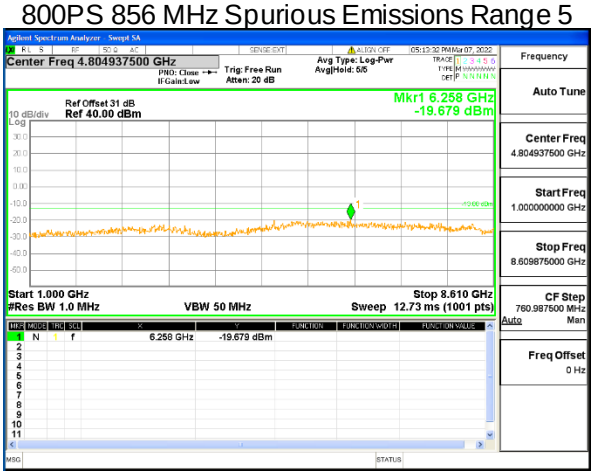
800PS 856 MHz Spurious Emissions Range 3



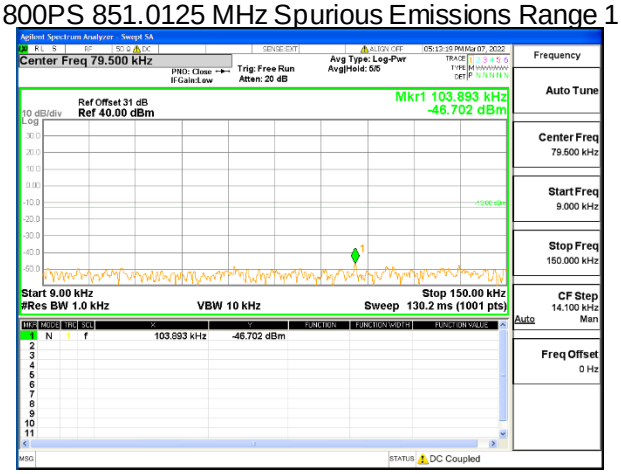
800PS 856 MHz Spurious Emissions Range 4



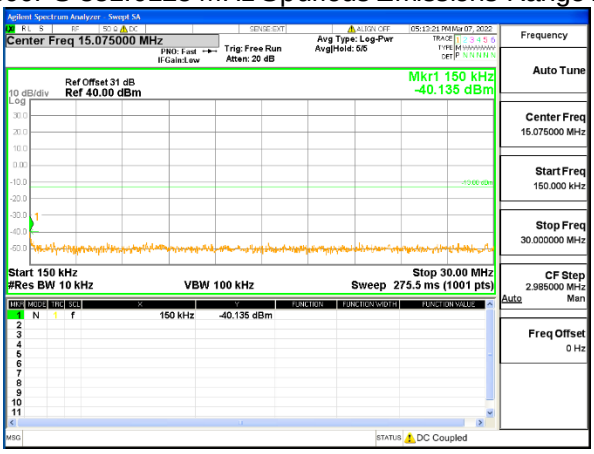
800PS 856 MHz Spurious Emissions Range 5



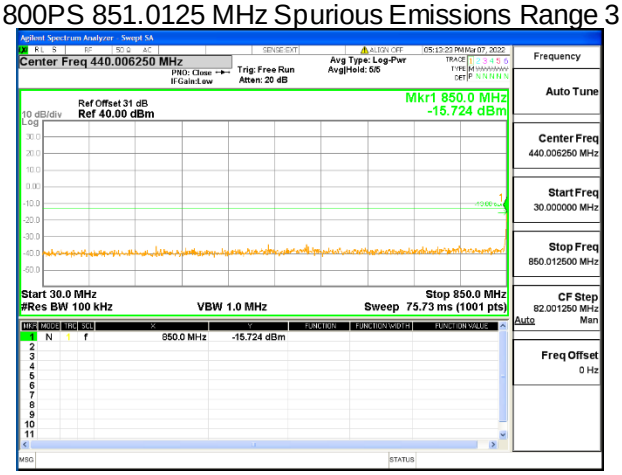
800PS 851.0125 MHz Spurious Emissions Range 1



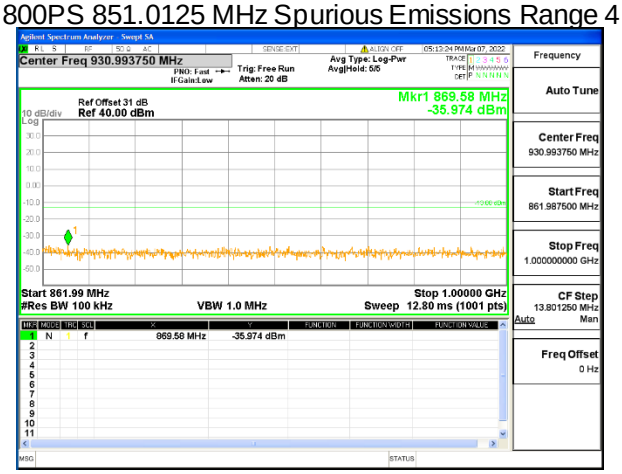
800PS 851.0125 MHz Spurious Emissions Range 2



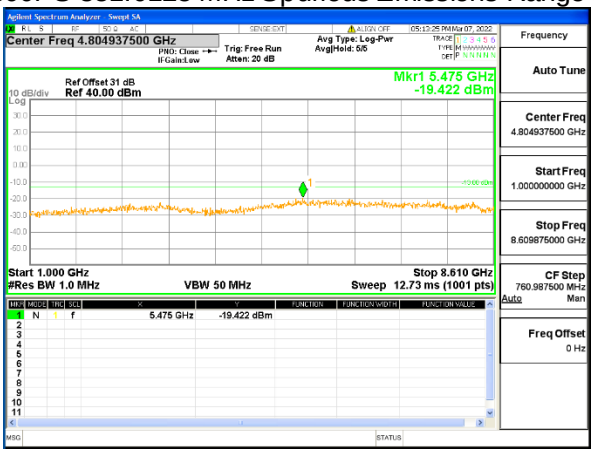
800PS 851.0125 MHz Spurious Emissions Range 3



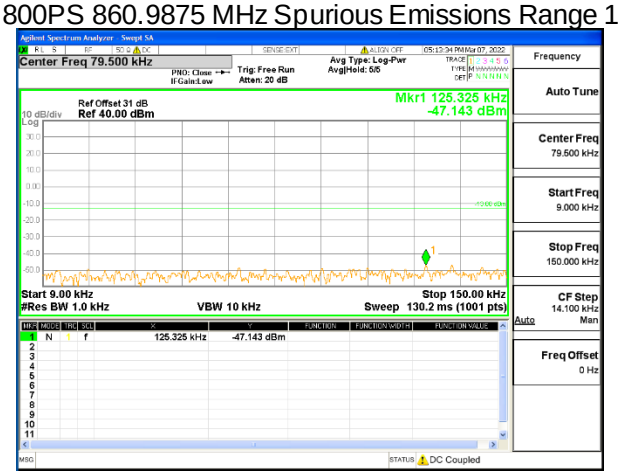
800PS 851.0125 MHz Spurious Emissions Range 4



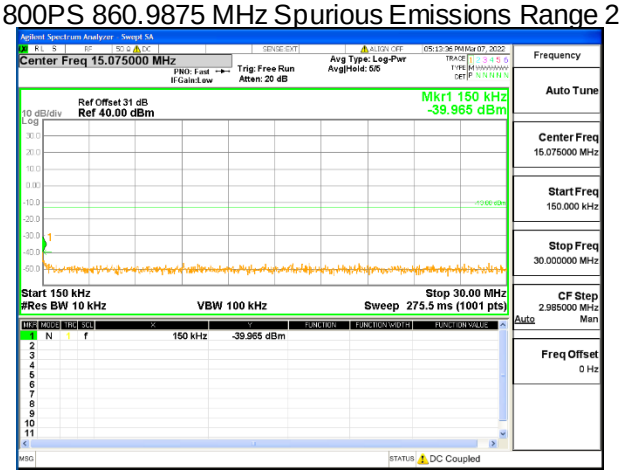
800PS 851.0125 MHz Spurious Emissions Range 5



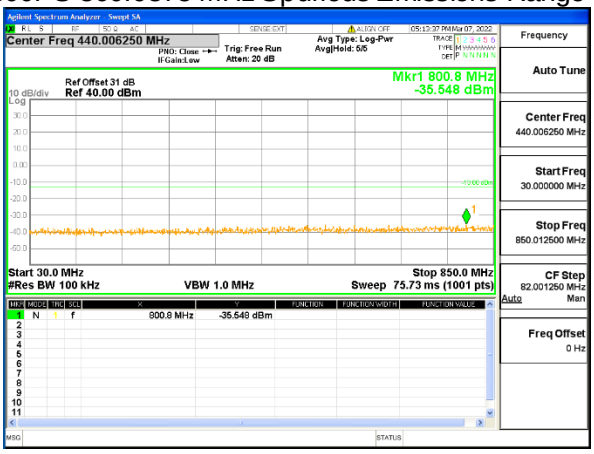
800PS 860.9875 MHz Spurious Emissions Range 1



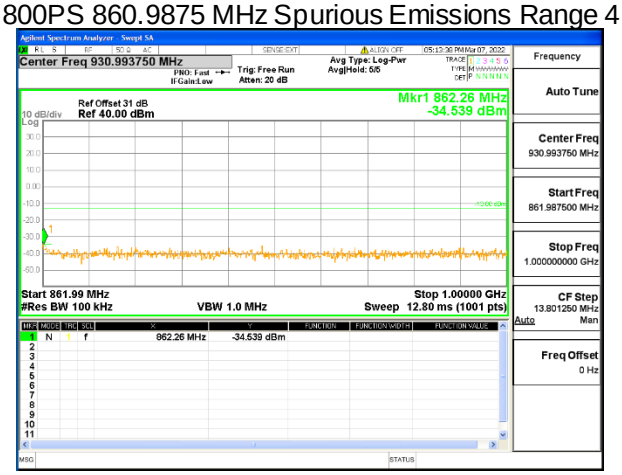
800PS 860.9875 MHz Spurious Emissions Range 2



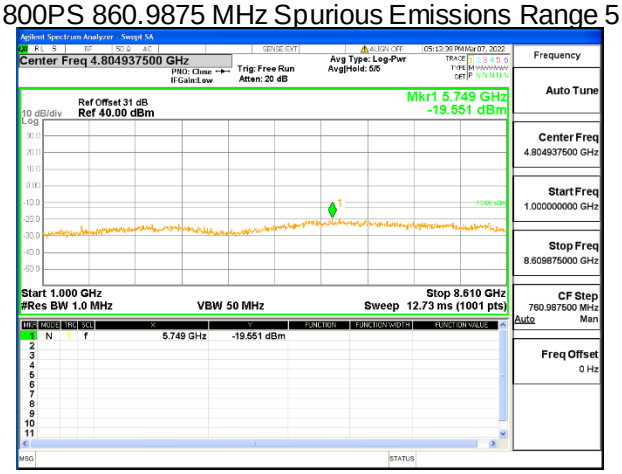
800PS 860.9875 MHz Spurious Emissions Range 3



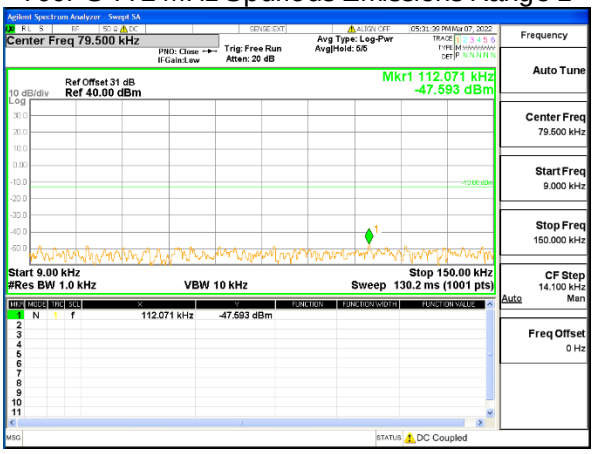
800PS 860.9875 MHz Spurious Emissions Range 4



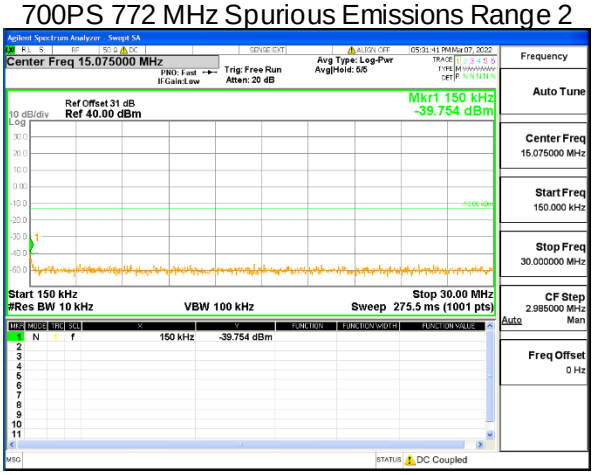
800PS 860.9875 MHz Spurious Emissions Range 5



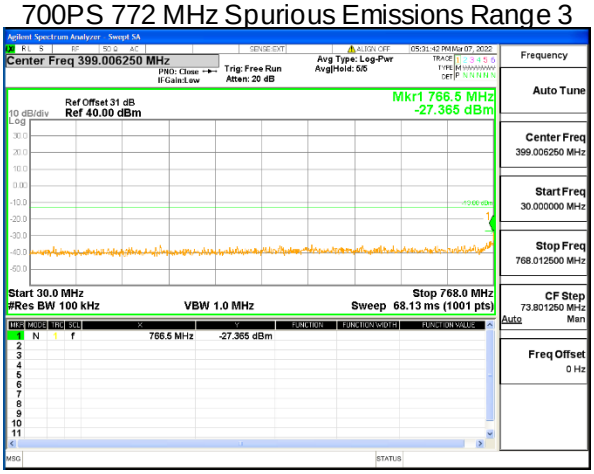
700PS 772 MHz Spurious Emissions Range 1



700PS 772 MHz Spurious Emissions Range 2

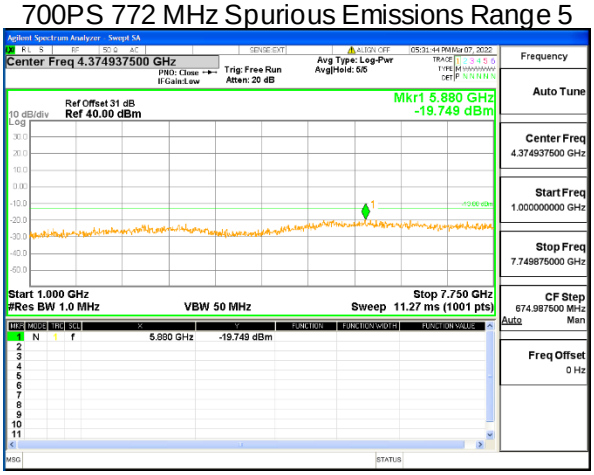


700PS 772 MHz Spurious Emissions Range 3

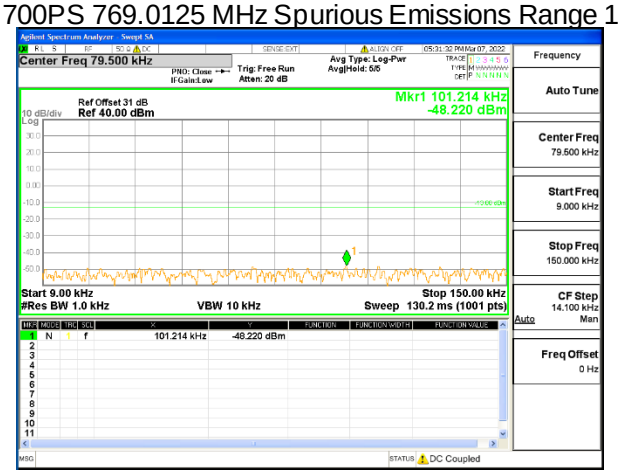


700PS 772 MHz Spurious Emissions Range 4

700PS 772 MHz Spurious Emissions Range 5

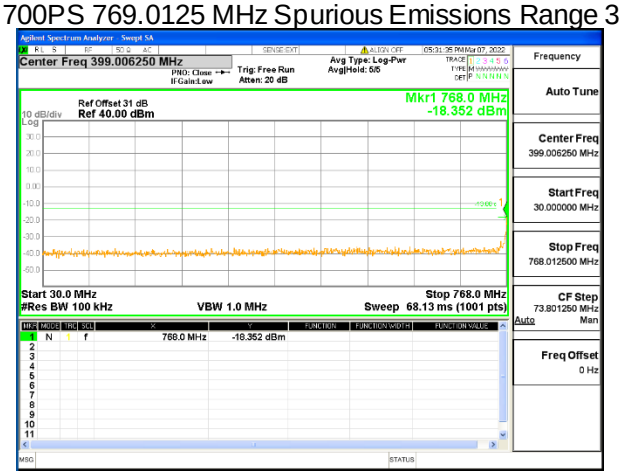


700PS 769.0125 MHz Spurious Emissions Range 1

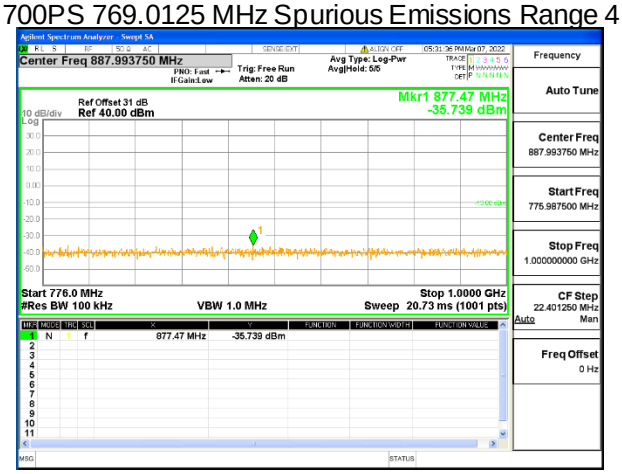


700PS 769.0125 MHz Spurious Emissions Range 2

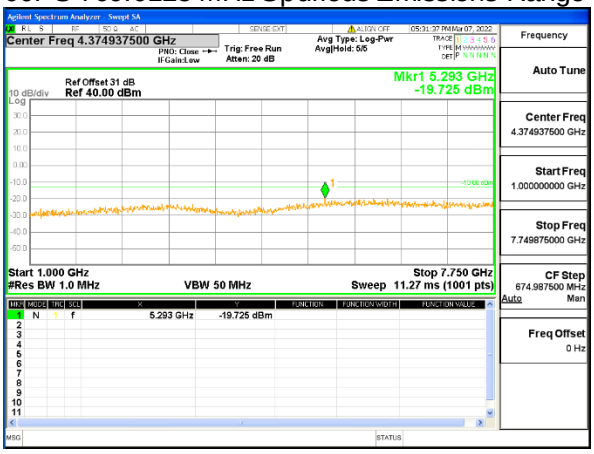
700PS 769.0125 MHz Spurious Emissions Range 3



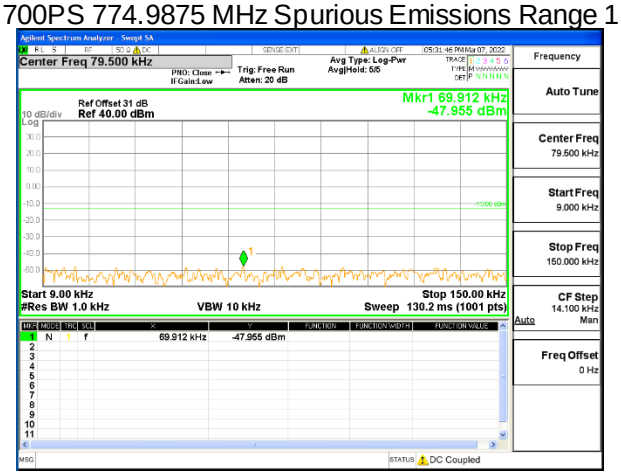
700PS 769.0125 MHz Spurious Emissions Range 4



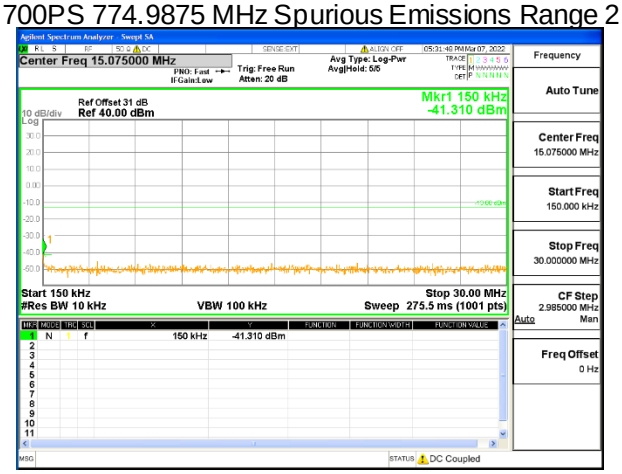
700PS 769.0125 MHz Spurious Emissions Range 5



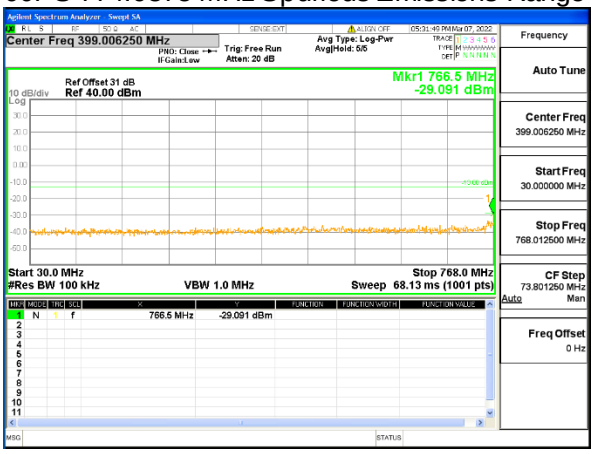
700PS 774.9875 MHz Spurious Emissions Range 1



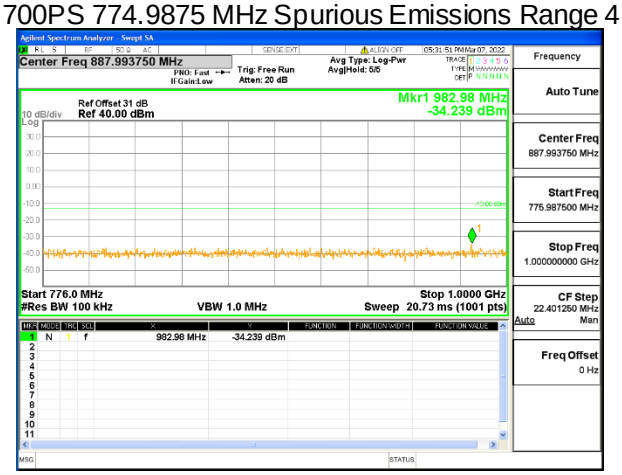
700PS 774.9875 MHz Spurious Emissions Range 2



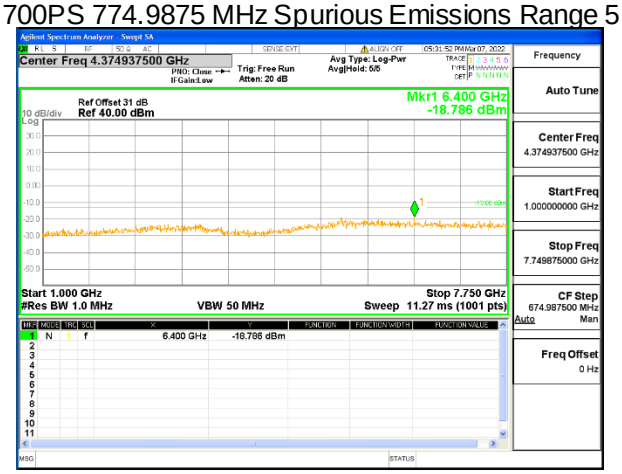
700PS 774.9875 MHz Spurious Emissions Range 3



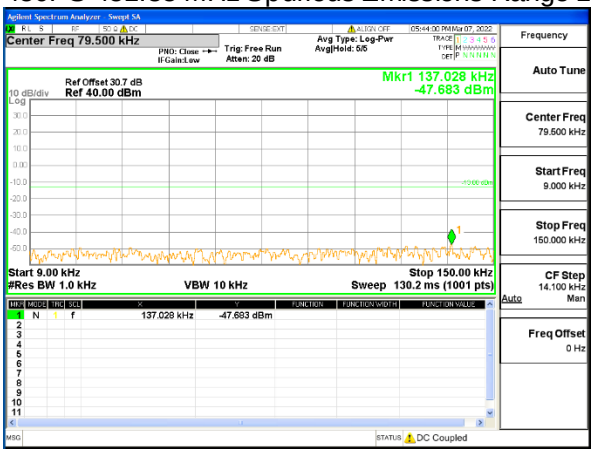
700PS 774.9875 MHz Spurious Emissions Range 4



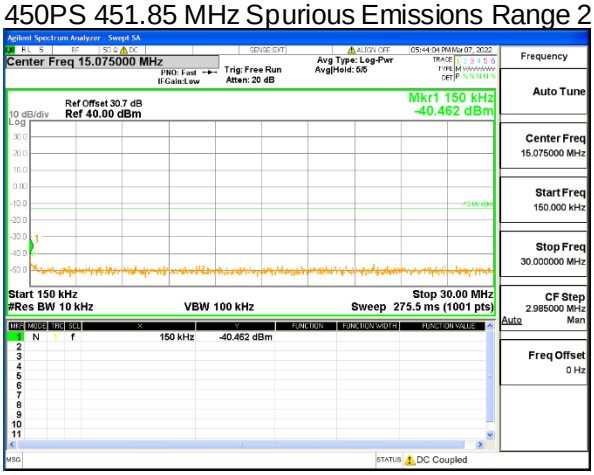
700PS 774.9875 MHz Spurious Emissions Range 5



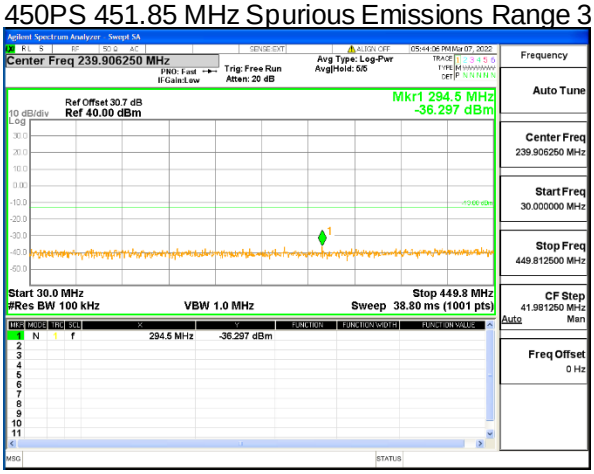
450PS 451.85 MHz Spurious Emissions Range 1



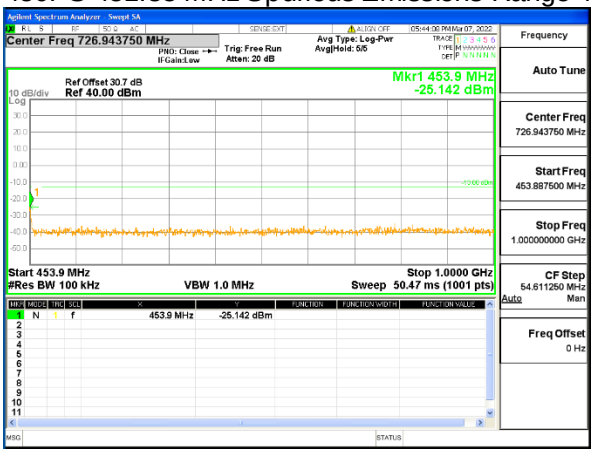
450PS 451.85 MHz Spurious Emissions Range 2



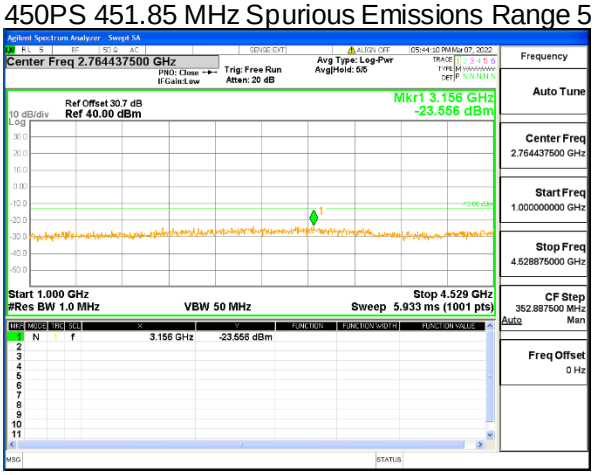
450PS 451.85 MHz Spurious Emissions Range 3



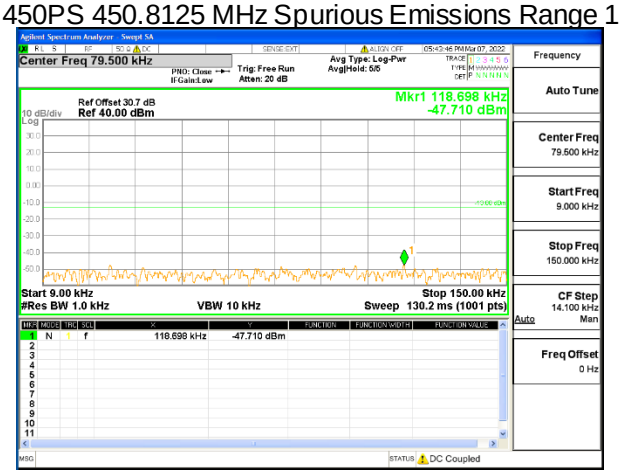
450PS 451.85 MHz Spurious Emissions Range 4



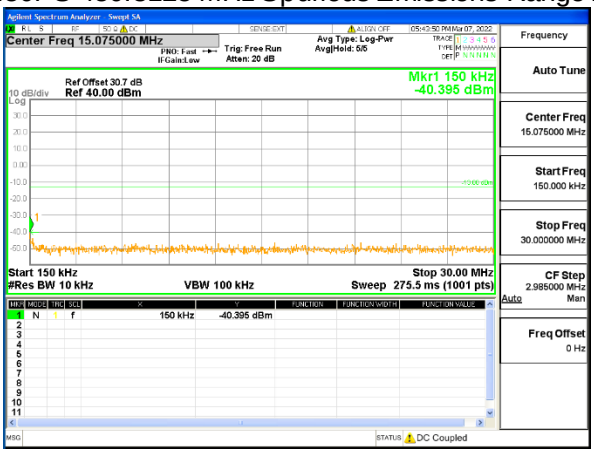
450PS 451.85 MHz Spurious Emissions Range 5



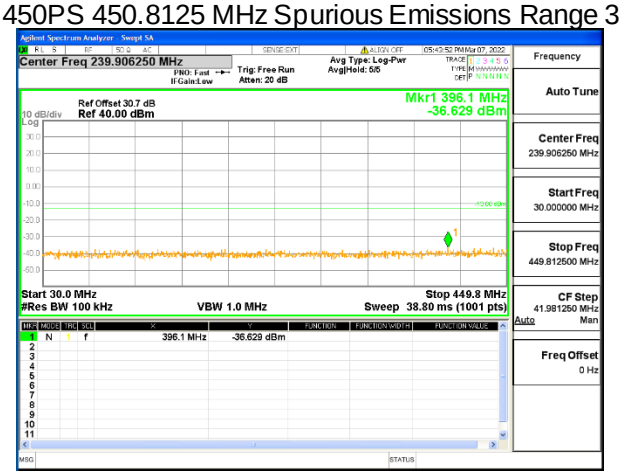
450PS 450.8125 MHz Spurious Emissions Range 1



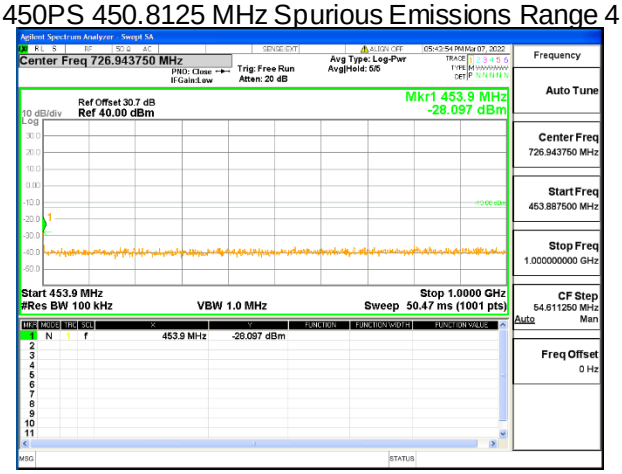
450PS 450.8125 MHz Spurious Emissions Range 2



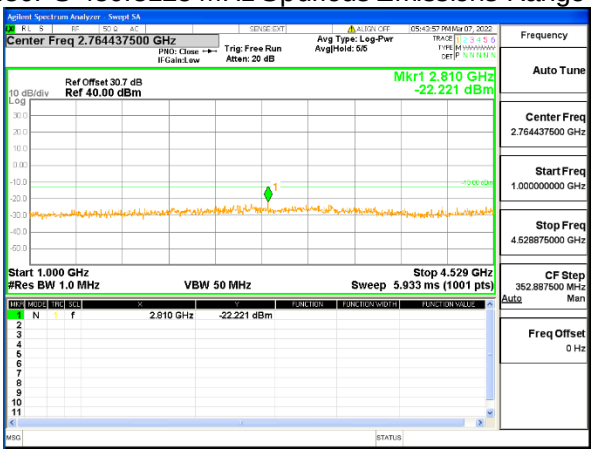
450PS 450.8125 MHz Spurious Emissions Range 3



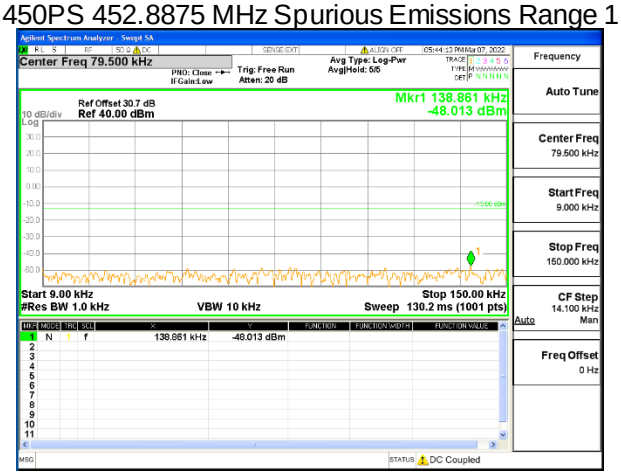
450PS 450.8125 MHz Spurious Emissions Range 4



450PS 450.8125 MHz Spurious Emissions Range 5



450PS 452.8875 MHz Spurious Emissions Range 1



450PS 452.8875 MHz Spurious Emissions Range 2