Testing Tomorrow's Technology

Permissive Change Report
to
CFR 47 FCC Part 2, Subpart J, and FCC Part 90, Subpart I Certification for Private Land Mobile Radio Services, Part 90.219 Use of signal boosters
And
ANSI/TIA-603-E (2016), Equipment Measurement and Performance Standards
And
Innovation, Science and Economic Development Canada, RSS-131, Spectrum Management and Telecommunications Radio Standards Specification, Zone Enhancers, Clause 6 Equipment Standard specifications for zone enhancers working with equipment certified under RSS-119

For the

Safe-Com Wireless
Model: SAFE-0002

FCC ID: 2AKSM-SAFE4
IC: 22303-SAFE4

UST Project No: 24-0123
Issue Date: September 30, 2024

3505 Francis Circle Alpharetta, GA 30004
PH: 770-740-0717 Fax: 770-740-1508
www.ustech-lab.com

Testing Tomorrow's Technology

I certify that I am authorized to sign for the Test Agency and that the statements in this report and in the Exhibits attached hereto are true and correct to the best of my knowledge and belief:

US Tech (Agent Responsible for Test):

By: 

Name: Alan Ghasiani

Title: Consulting Engineer/President

Date: September 30, 2024

NVLAP TESTING

NVLAP LAB CODE 200162-0

3505 Francis Circle Alpharetta, GA 30004
PH: 770-740-0717 Fax: 770-740-1508
www.ustech-lab.com

Testing Tomorrow's Technology

MEASUREMENT/TECHNICAL REPORT

This report concerns (check one): Original grant ___
Class II Change__X___

Equipment type: Part 90.219 Amplifier/Signal Booster (Class B)

Applicant /Manufacturer Name and Address:

Safe-Com Wireless
21 Longview Drive
Holmdel, NJ 07733
USA

Report prepared by:

US Tech
3505 Francis Circle
Alpharetta, GA 30004

Phone Number: (770) 740-0717
Fax Number: (770) 740-1508

TABLE OF CONTENTS

List of Figures

List of Tables

1 General Information

1.1 Product Description

The Equipment under Test (EUT) is the Safe-Com Wireless model SAFE-0002. The EUT is a power amplifier used in a signal booster and extends the radio coverage in areas where the propagation losses prevent reliable communication. The amplifier is designed to be used with already approved DSA systems. The Safe-com internal part number designations are: A, B, Ca, Cb, Cc or D. This defines the tuning for that the amp has been configurated to operate in.

"A" is tuned for 138-175 MHz, "B" tuning for 380-512 MHz, "Ca" is tuned for 769-814 MHz, and "Cb" is tuned for 799-862 MHz and "Cc" or "D" is tuned for 896-941 MHz.

This test report covers the model SAFE-0002 tuned for operation in the band 896 to 941 MHz for the US and Canada marketplace.

For FCC Part 90.219

896 - 901
930 - 941

For ISED RSS-131

896 - 901
930 - 941

1.2 Related Submittal(s)/Grant(s)

This amplifier has been previous certified under FCC ID: 2AKSM-SAFE4 and IC: 22303-SAFE4. Contact the client for copies of the test report and submittal exhibits.

1.3 Summary of Tests

The following tests were performed:

Part	Test Description	Verdict
90.219(e)(1), 90.205(j)	RF Output Power	Pass
90.219(e)(3)	Conducted Spurious	Pass
90.219(e)(3)	Radiated Spurious	Pass
90.219(e)(4)	Input Output	Pass
KDB 935210 D05 v01r04 4.2	AGC Threshold	Recorded
KDB 935210 D05 v01r04 4.3	Out of band rejection	Recorded
90.219(e)(2)	Noise Figure	N/A
90.219(e)	Intermodulation	Pass

2 Test and Measurements

2.1 Configuration of Tested System

A Block Diagram of the tested system is shown in Figure 1. All measurements are peak unless stated otherwise. The video filter associated with the spectrum analyzer was off or set to 3x the resolution bandwidth throughout the evaluation process. Interconnecting cables were manipulated as necessary to maximize emissions.

2.2 Characterization of Tested System

The samples used for testing were received by US Tech on August 15, 2024 in good condition.

2.3 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA. All radiated measurements were performed at US Tech's 3-meter EMC chamber measurement facility. Additional tests such as bench testing were also performed at US Tech’s facility in Alpharetta, GA. This site has been fully described and registered by the FCC under Registration Number US5301. Additionally, this site has been fully described and submitted to Industry Canada (IC) and has been approved under file number 9900A-1. NVLAP code: 200162-0

2.4 Test Equipment

The test equipment used for this evaluation is listed in Table 2 below.

2.5 Modifications to Equipment under Test (EUT)

No modifications were made by US Tech to bring the EUT into compliance with the FCC limits for the transmitter portion of the EUT.

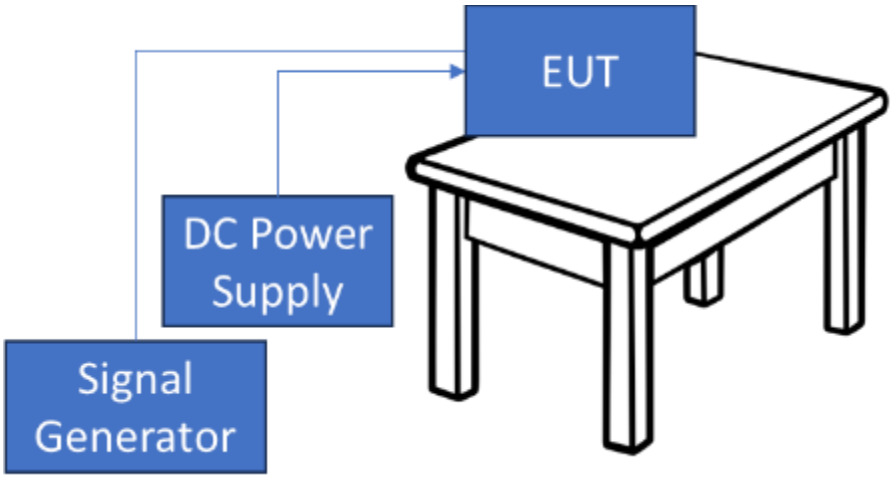

Figure 1. Block Diagram of Test Configuration

Table 1. EUT and Peripherals

EUT MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID/ IC ID	CABLES P/D
Amplifier (896-941 Module)	SAFE-0002	Engineering Sample	FCC ID: 2AKSM-SAFE4 IC: 22303-SAFE4	PU
Peripherals MANUFACTURER	**MODEL NUMBER**	**SERIAL NUMBER**	**FCC ID/ IC ID**	**CABLES P/D**
DC Bench Supply Tekpower	TP3005T	218311	None	P
Signal Generator Rohde & Schwarz	SMJ100A	*101567	None	P

U= Unshielded, S= Shielded, P= Power cable, D= Data cable

Table 2. Test Instruments

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DUE DATE
Spectrum Analyzer	Agilent	E4407B	US41442935	9/21/2024
Spectrum Analyzer	Agilent	E4440A	MY45304803	7/21/2025
Spectrum Analyzer	Hewlett-Packard	8593E	3205A00124	3/4/2026 2yr cal
Rf Preamp 100 kHz to 1.3 GHz	Hewlett-Packard	8447D	1937A01611	6/19/2025
Rf Preamp > 1 GHz	Hewlett Packard	8449B	3008A00914	3/4/2025
Log Periodic	EMCO	3146	9305-3600	3/13/2026 2yr
Biconnical	EMCO	3110B	9307-1431	1/13/2025 2yr
Horn Antenna	EMCO	3115	9107-3723	3/13/2025 2yr
Signal Generator	Rohde & Schwarz	SMJ100A	101567	3/29/2026
20 dB Attenuator	Meca	604-20-1	None	3/4/2025
20 dB Attenuator	USTech	AT145	AT145	3/4/2025
Terminator	Alan	50LH25	101771	Verified With Network Analyzer
Network Analyzer	Agilent	N5230A	MY45000829	12/14/2024

Note: The calibration interval of the above test instruments is 12 months, and all calibrations are traceable to NIST/USA.

2.6 Noise (FCC Section 90.219(e)(2) and RSS-131, 10.4)

The noise figure of a signal booster must not exceed 9 dB in either direction.

The EUT is a bi-directional amplifier designed for use with approved DAS systems; this test was deemed not applicable.

2.7 Retransmitted Signals (FCC Section 90.219(e)(4) and RSS-131, 10.6)

A signal booster must be designed such that all signals when retransmitted meet the following requirements:

1. The signals are re-transmitted on the same channels as received. Minor departures from the exact provider or reference frequencies of the input signals are allowed provided that the re-transmitted signals meet the requirements of 90.213.

In this case, the EUT is exempt from meeting these requirements.

2. There is no change in the occupied bandwidth of the retransmitted signals.

The EUT meets this requirement; see the plots in the following section which show the input signal compared to the retransmitted signal.

3. The retransmitted signals continue to meet the unwanted emissions limits of Part 90.210 applicable to the corresponding received signal.

The EUT meets this requirement; see the emissions mask test data presented in the next section.

2.8 Emission Mask Definitions (FCC Section 2.1049, 90.219(e)(4iii), 90.210, RSS-131, 10.5, RSS-119, 5.8)

The EUT is equipped with a low pass filter. Therefore, the emissions masks for equipment utilizing a low pass filter were applied.

2.8.1 2.8.1 Emission Mask B (FCC Part 90.210, 2.1051, RSS-119, 5.8)

*Emission Mask B. For transmitters that are equipped with an audio low-*pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.

(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

2.8.2 Emission Mask I (FCC Part 90.210, 2.1051, RSS-119, 5.8)

Emission Mask I. For transmitters that are equipped with an audio low pass filter, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 6.8 kHz, but no more than 9.0 kHz: At least 25 dB;

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 9.0 kHz, but no more than 15 kHz: At least 35 dB;

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 15 kHz: At least 43 + 10 log (P) dB, or 70 dB, whichever is the lesser attenuation.

2.9 RF Power Output (FCC Section 2.1046, 90.219(e)(1), RSS-131, 10.2)

The output power capability of a signal booster must be designed for deployments providing a radiated power not exceeding 5 Watts ERP for each retransmitted channel.

The EUT was connected to a spectrum analyzer through a 20 dB power attenuator. All cables and attenuator losses were input into the spectrum analyzer as either a reference level offset or an external preamp gain correction to ensure that accurate readings were obtained.

A CW signal was utilized and transmitted through the EUT. The RF input signal was set at least 0.2 dB below the AGC threshold. The spectrum analyzer was set to the following settings: RBW= 100 kHz, Video= 3x RBW, Span of 1 MHz.

The output power levels are recorded below:

Table 3. Output Power

Band	Tuned Frequency	Measured Output power (dBm)	FCC max Output Power limit (5 Watt)	Margin (dB) From the output limit
UHF	896	33.35	37 dBm	3.65
	901	32.89	37 dBm	4.11
	930	34.33	37 dBm	2.67
	935	33.97	37 dBm	3.03
	938	33.83	37 dBm	3.17
	941	33.66	37 dBm	3.34

2.10 Output Power Plots

The following are the Uplink Output Power Plots.

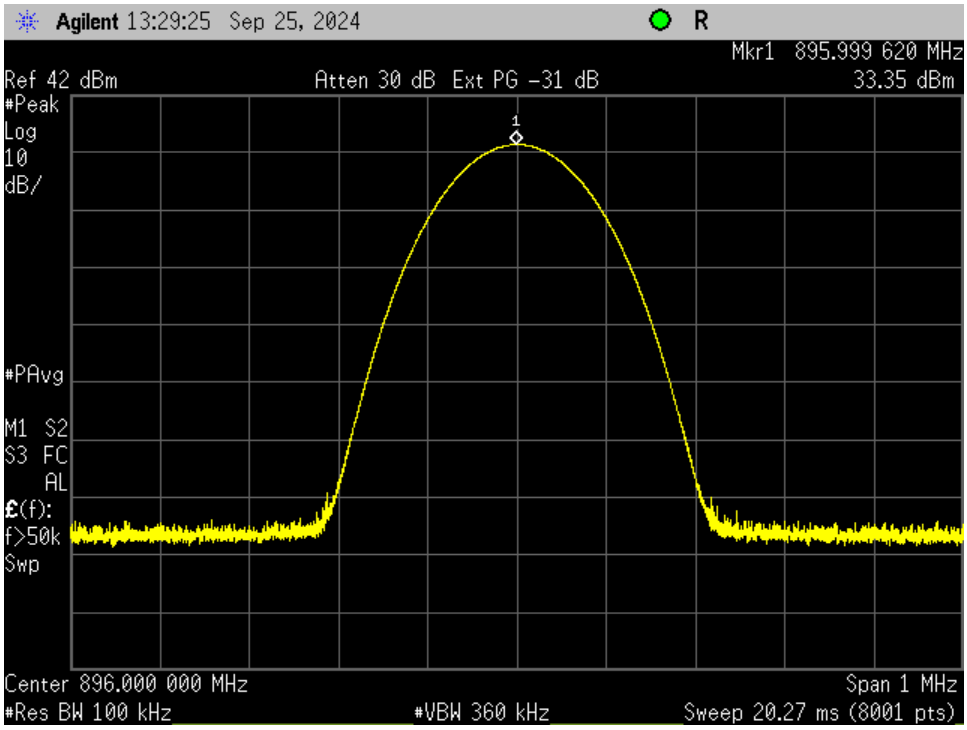

Figure 2. 896 MHz Output Power Plot

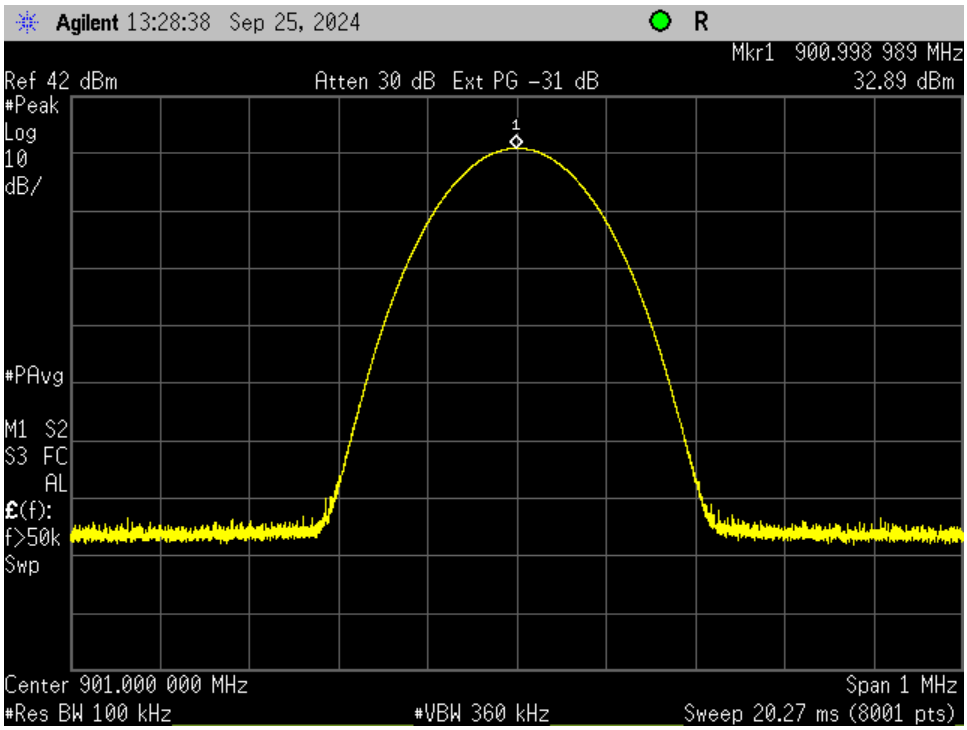

Figure 3. 901 MHz Output Power Plot

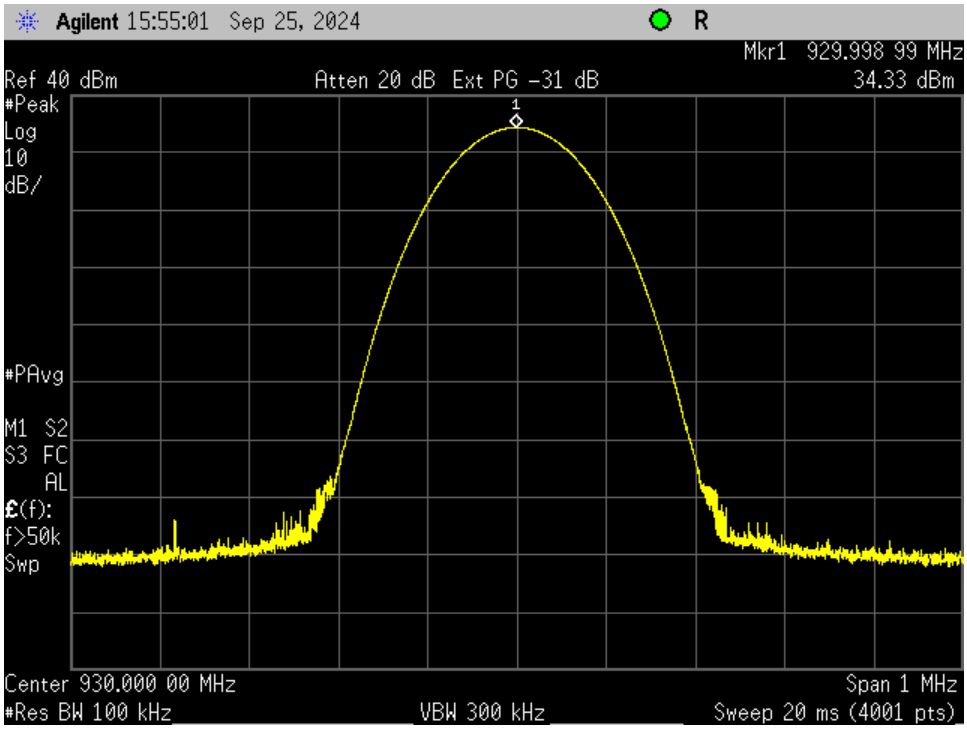

Figure 4. 930 MHz Output Power Plot

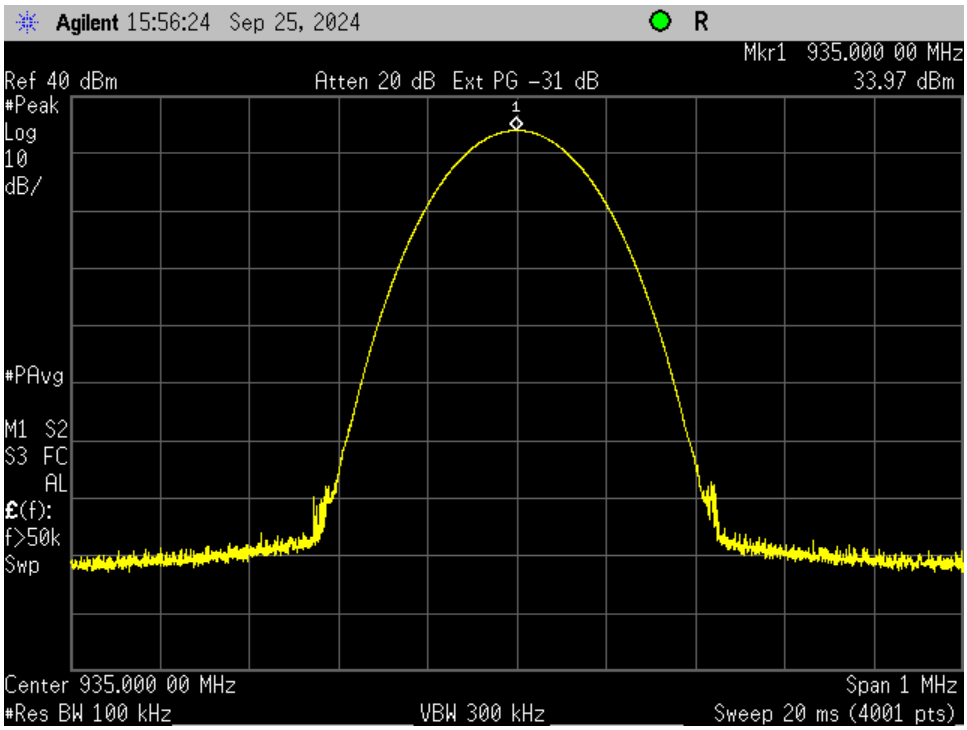

Figure 5. 935 MHz Output Power Plot

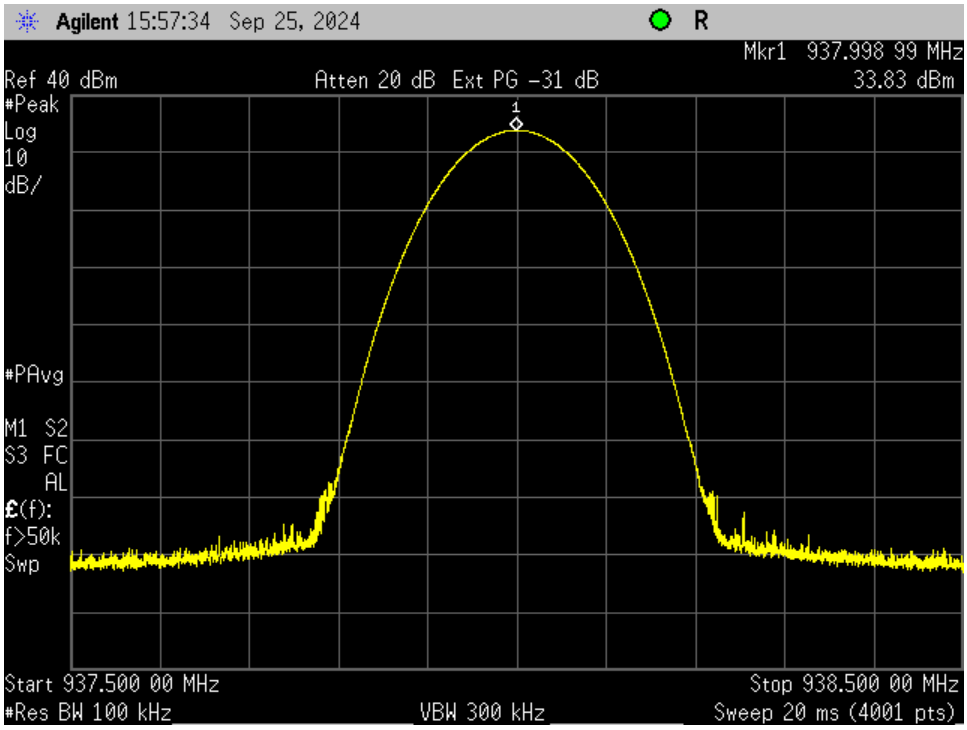

Figure 6. 938 MHz Output Power Plot

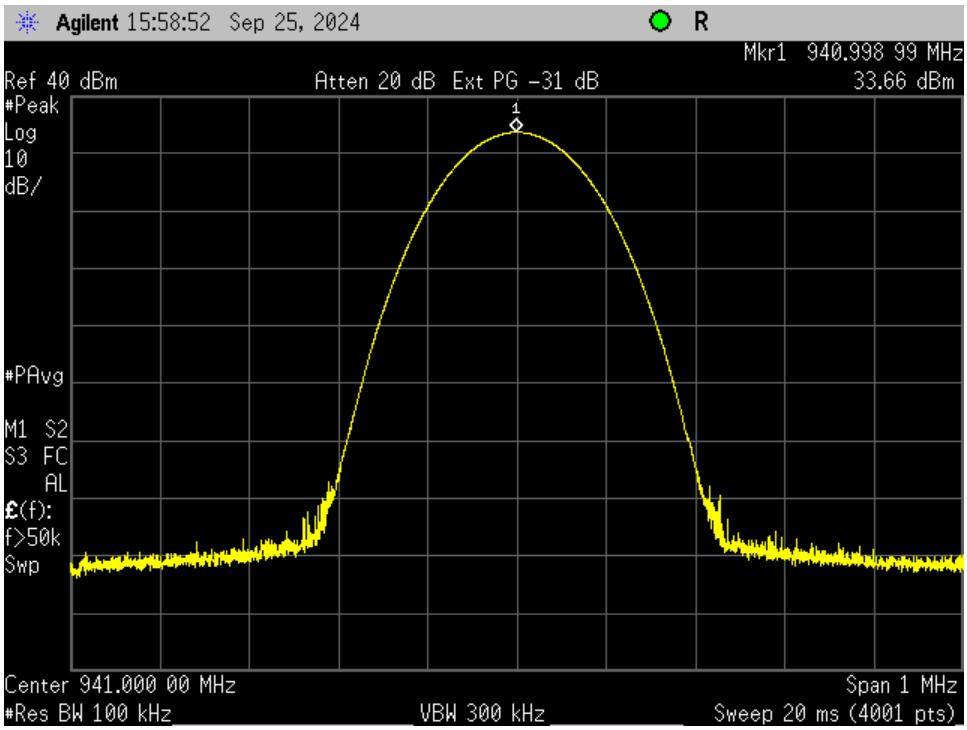

Figure 7. 941 MHz Output Power Plot

2.11 Emission Mask and Retransmitted Signal Measurements

The EUT was connected to a spectrum analyzer through a 20 dB attenuator. All cable and attenuator losses were input into the spectrum analyzer as a combination of reference level offset and/or external correction factor offset to ensure accurate readings were obtained. Measurements were collected to verify that the EUT meets the required emissions mask parameters as cited in section 2.10 of this test report. A reference level plot is provided to show that the retransmitted signal meets the parameters as cited in section 2.10 of this test report.

The Emissions Mask were measured with the RF input set to at least 0.3 dB below the AGC level and then at +3.0 dB above the AGC level per KDB 935210 DO5 V01.

Table 4. Test Signals for PLMRS Devices

Emissions Desinator	Modulation	Occupied Bandwidth	Channel Bandwidth	Audio Frequency
16K0F3E	FM	16 kHz	25 kHz	1 kHz
11K3F3E	FM	11.3 kHz	12.5 kHz	1 kHz
N/A	CW	N/A	N/A	N/A

2.11.1 896-941 MHz Channels

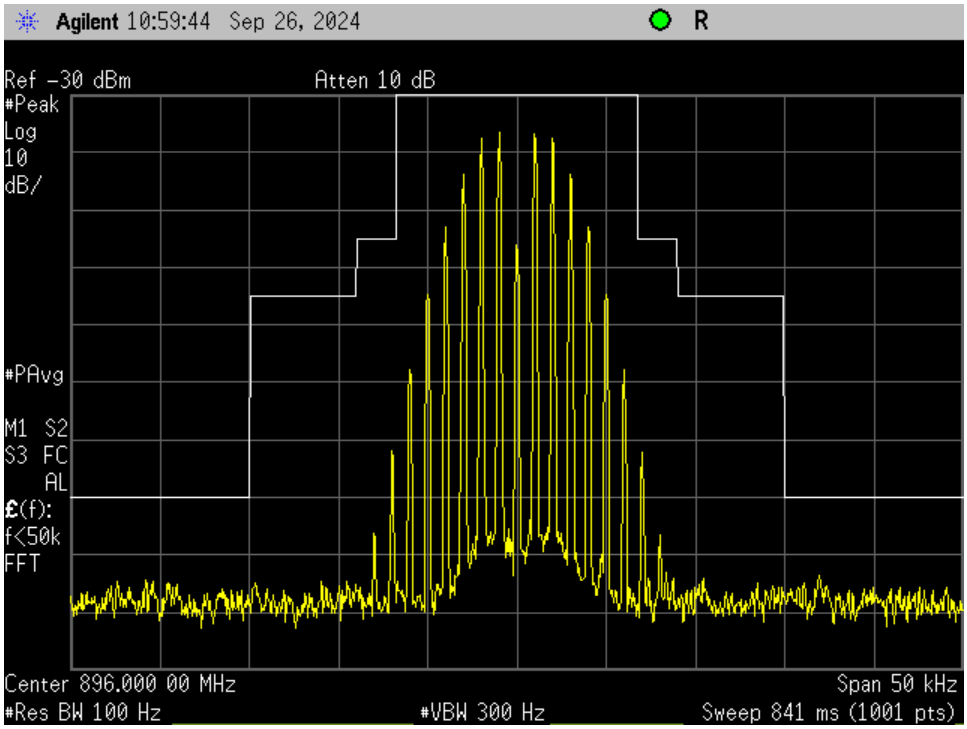

Figure 8. Input 896 MHz @ 12.5 kHz

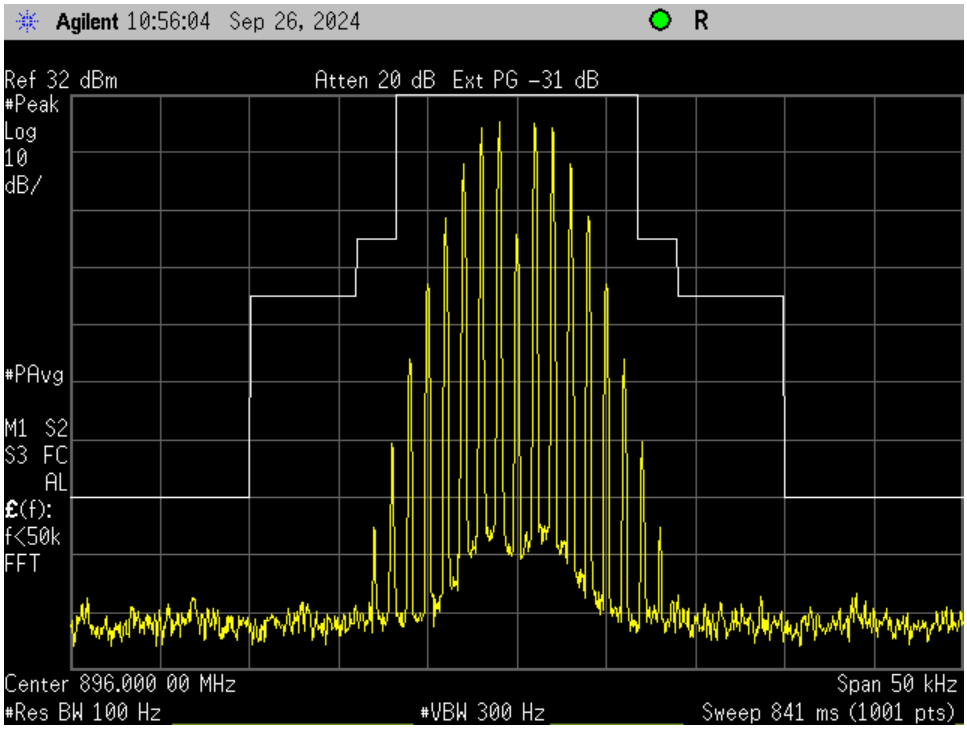

Figure 9. 896 MHz @ 12.5 kHz, Mask I

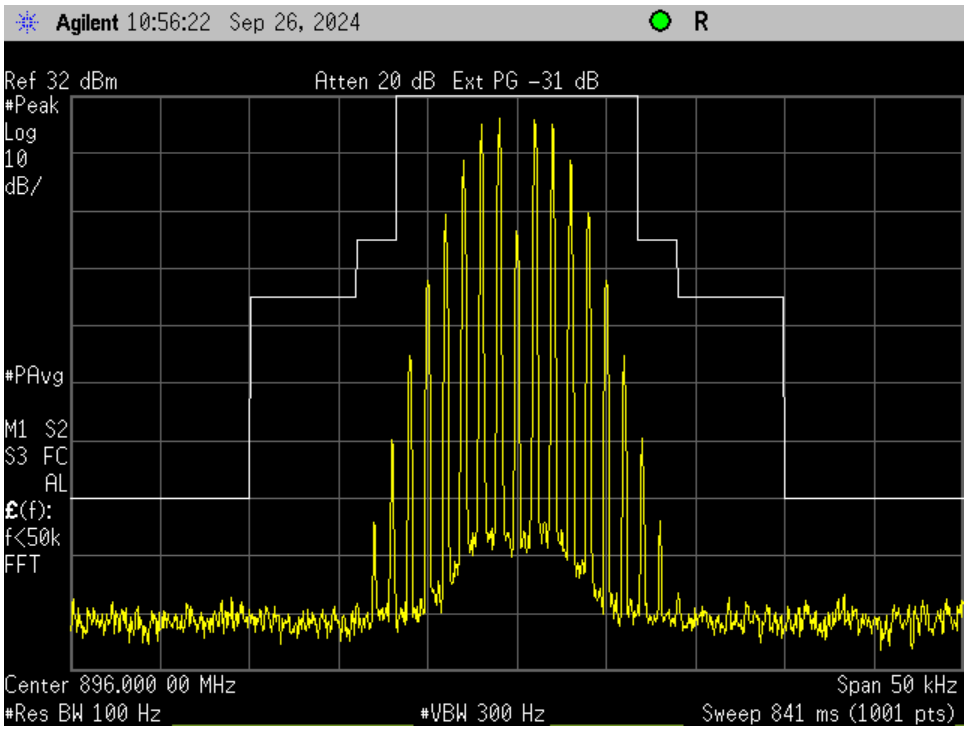

Figure 10. 896 MHz@ 12.5 kHz + 3.0 dB, Mask I

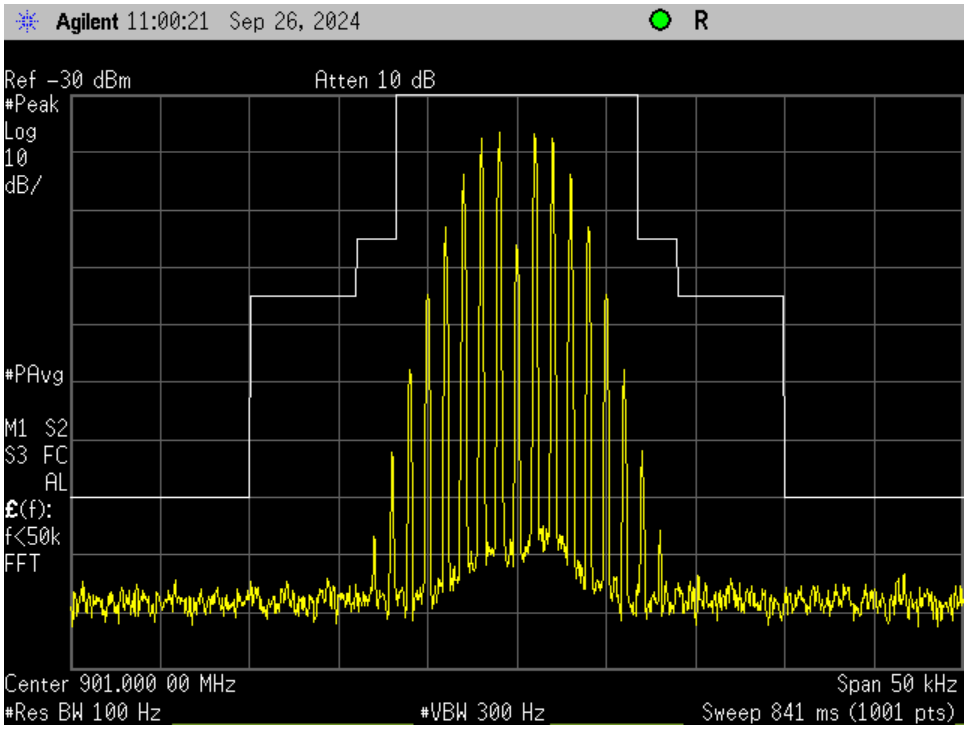

Figure 11. Input 901 MHz @ 12.5 kHz

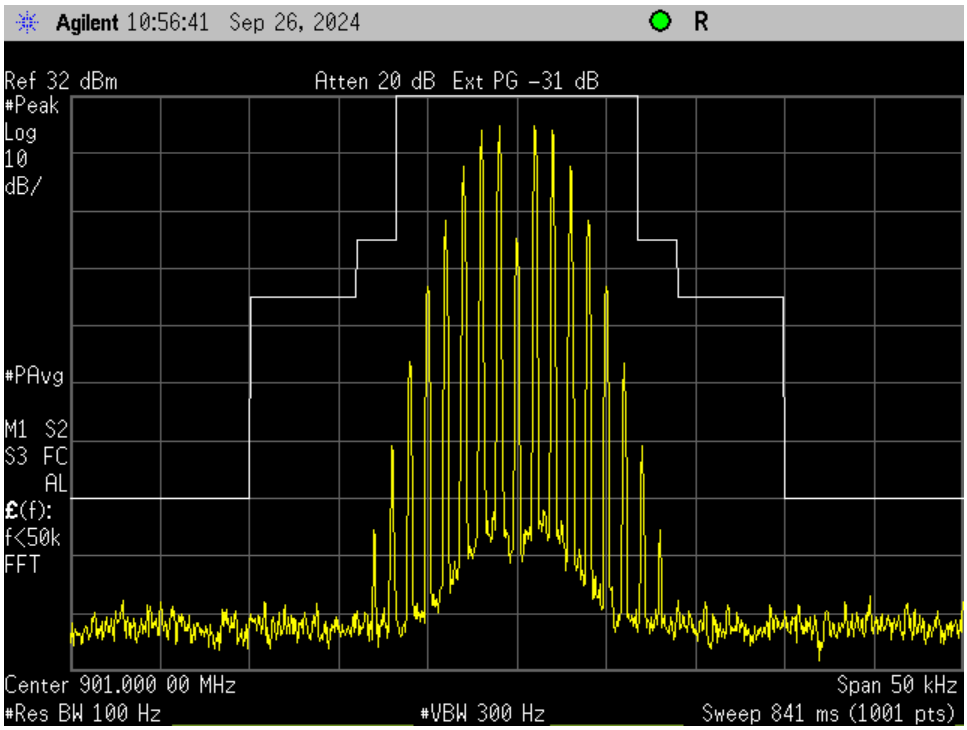

Figure 12. 901 MHz @ 12.5 kHz, Mask I

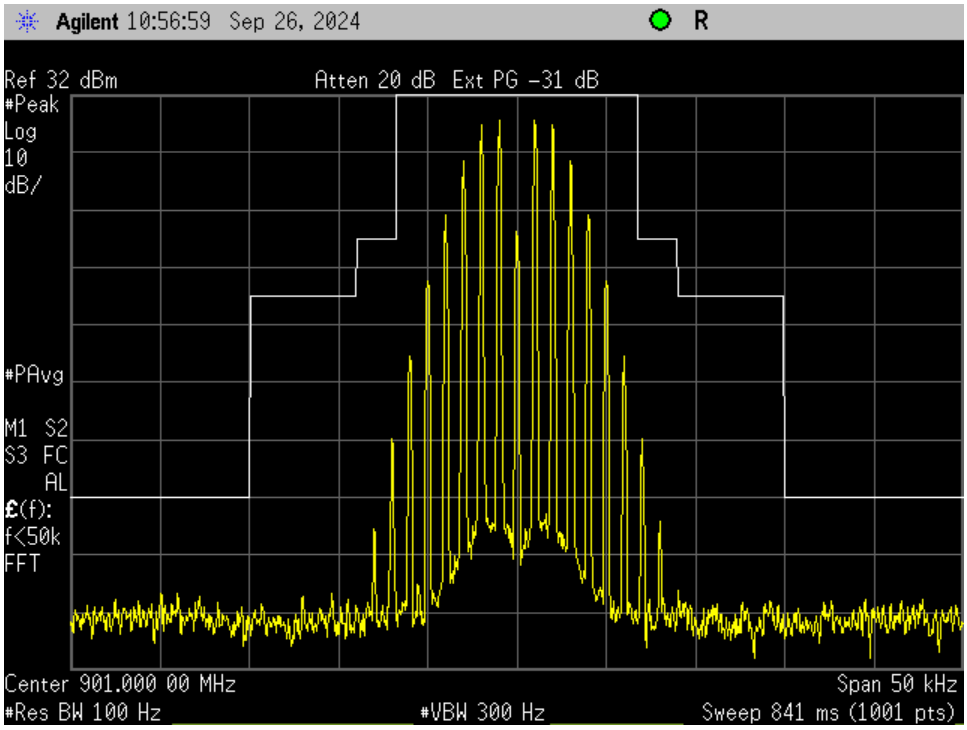

Figure 13. 901 MHz @ 12.5 kHz + 3.0 dB, Mask I

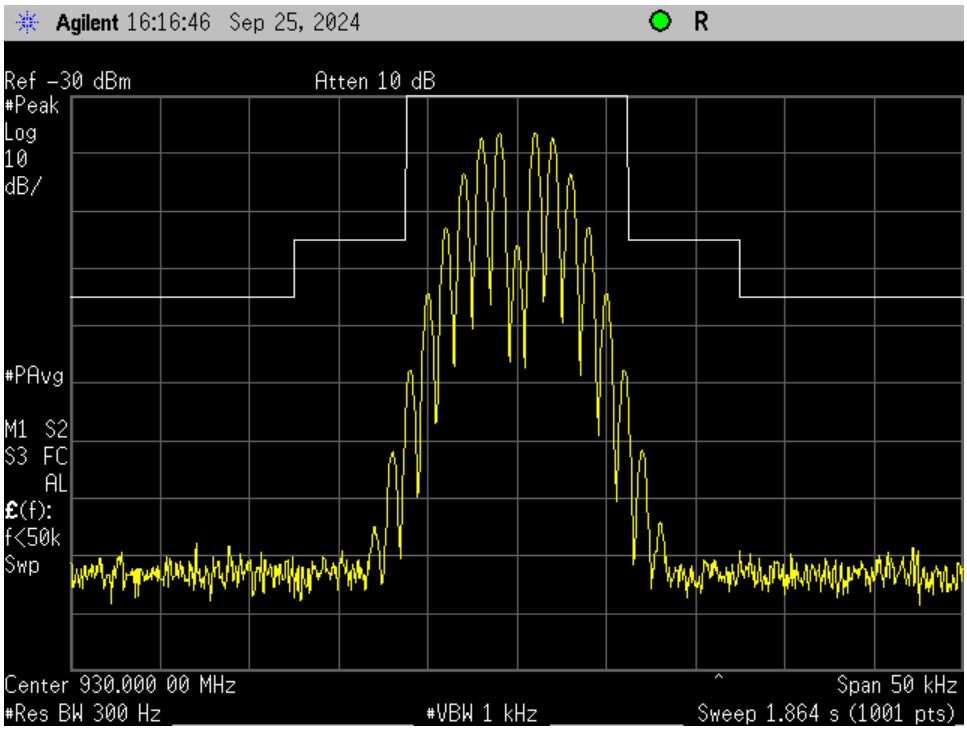

Figure 14. Input 930 MHz @ 12.5 kHz

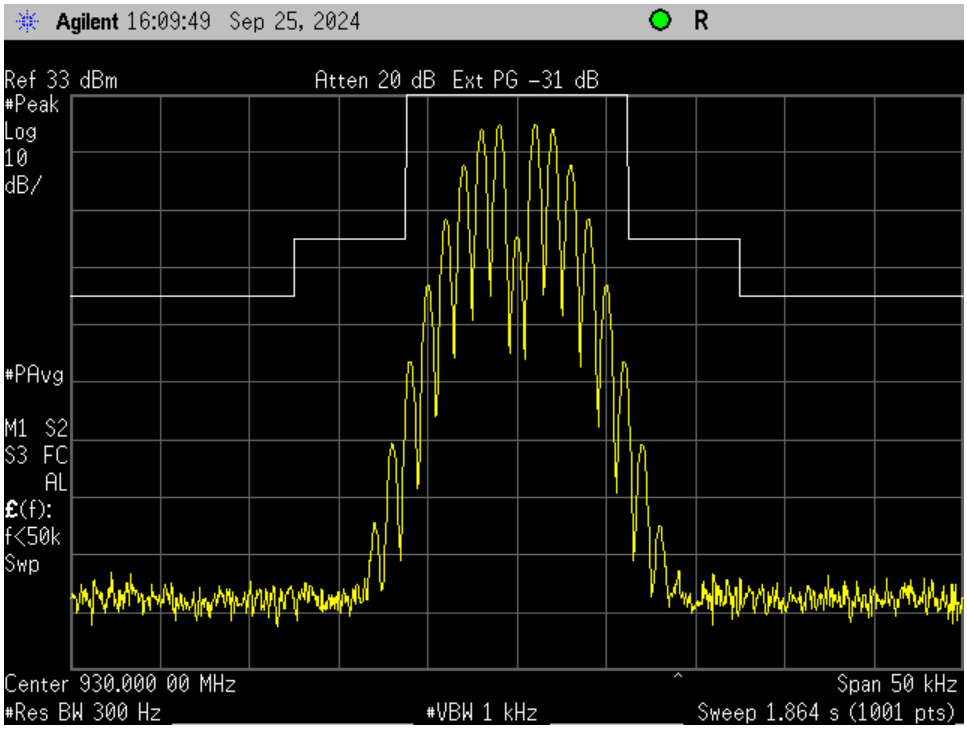

Figure 15. 930 MHz @ 12.5 kHz, Mask B

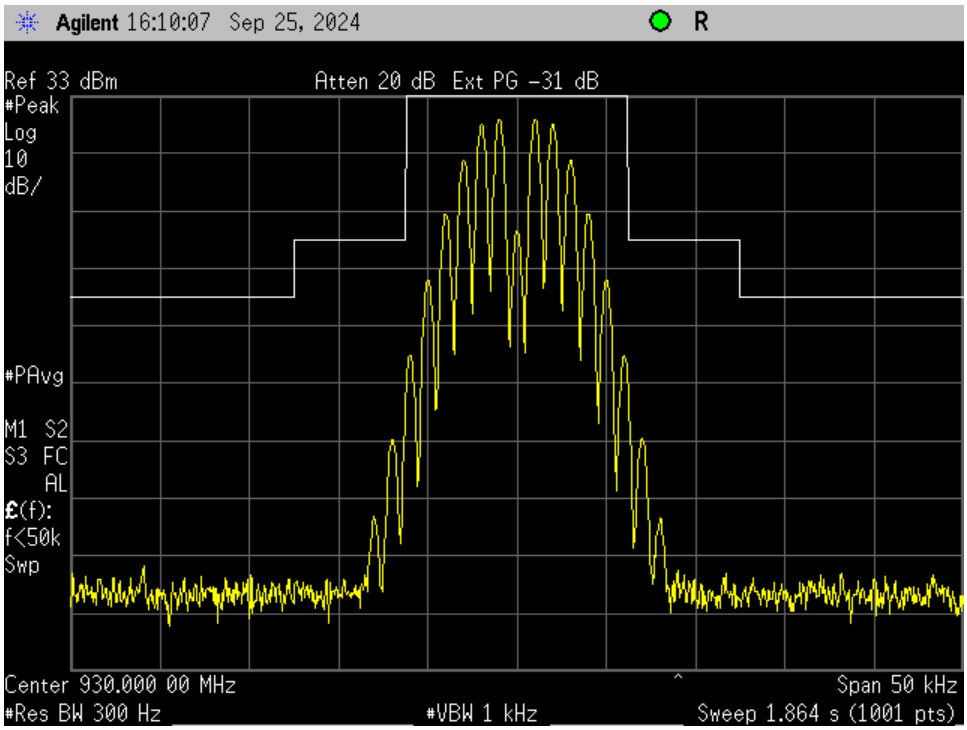

Figure 16. 930 MHz @ 12.5 kHz + 3.0 dB, Mask B

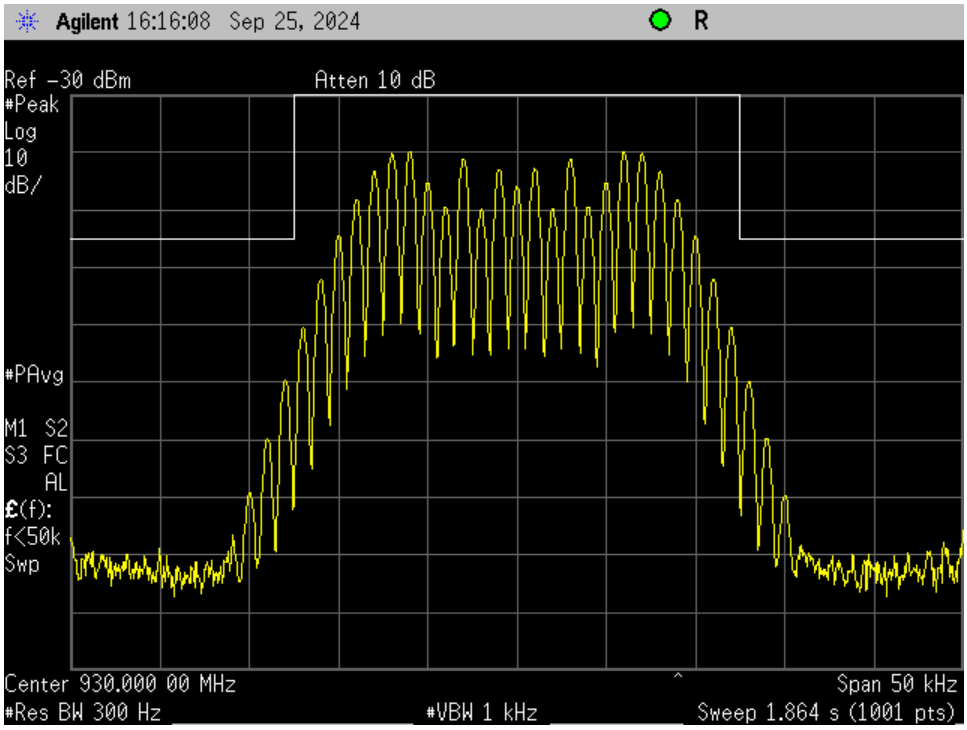

Figure 17. Input 930 MHz @ 25 kHz

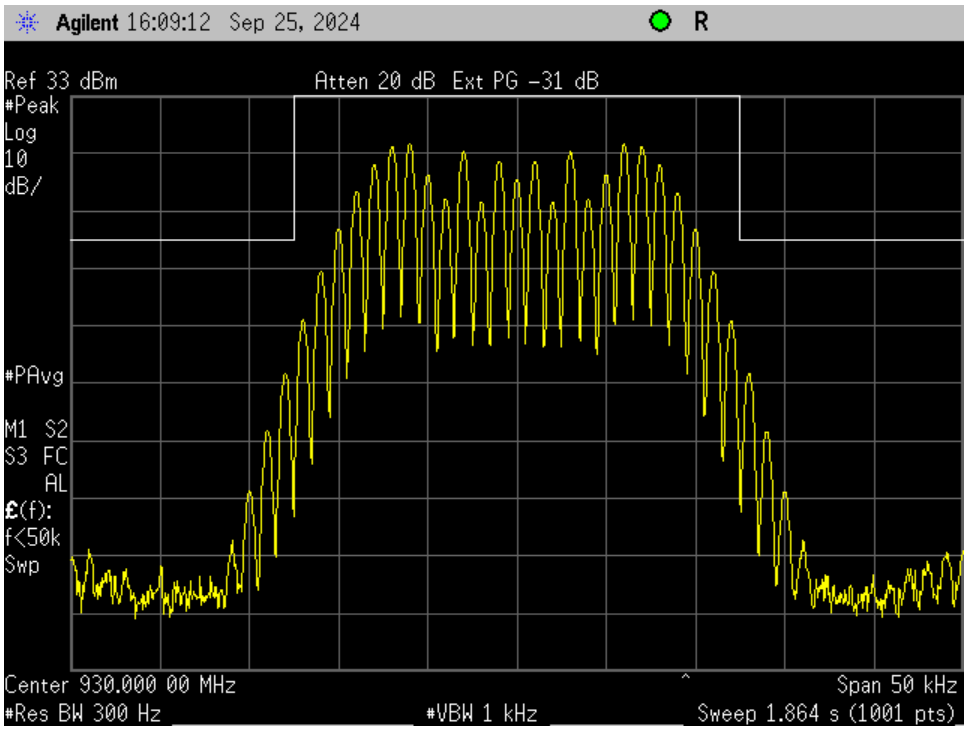

Figure 18. 930 MHz @ 25 kHz, Mask B

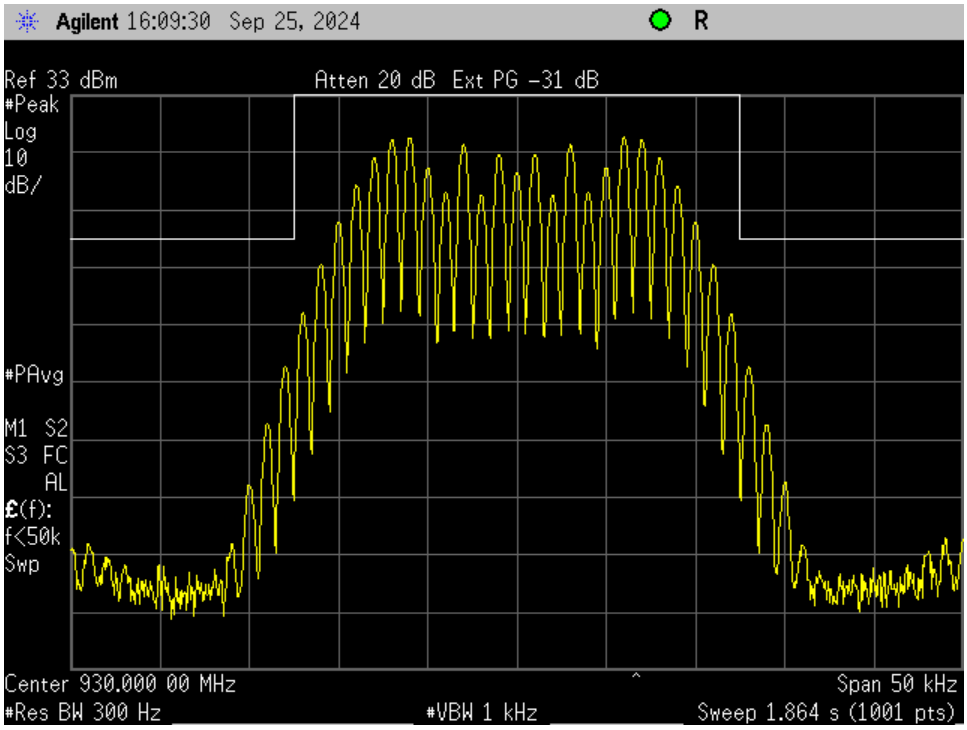

Figure 19. 930 MHz @ 25 kHz + 3.0 dB, Mask E

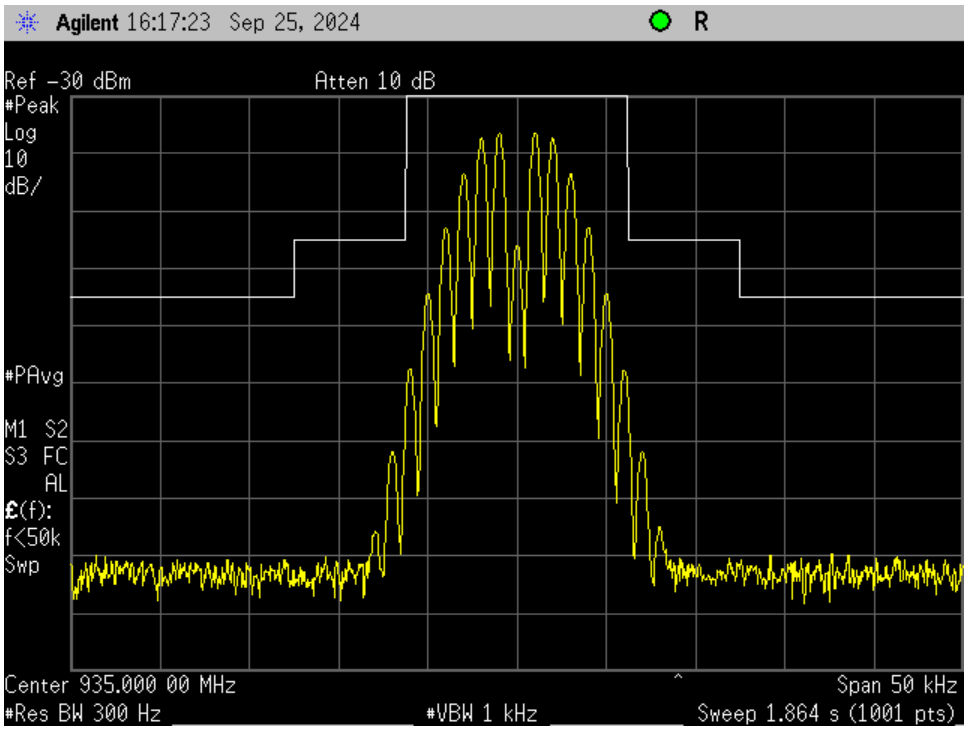

Figure 20. Input 935 MHz @ 12.5 kHz

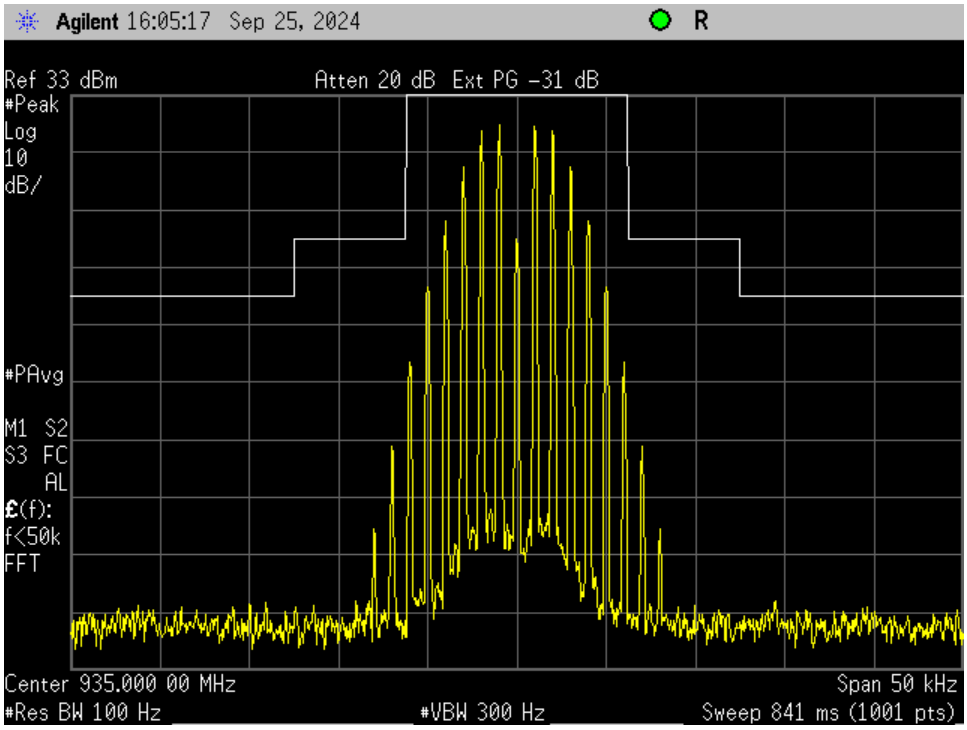

Figure 21. 935 MHz @ 12.5 kHz, Mask B

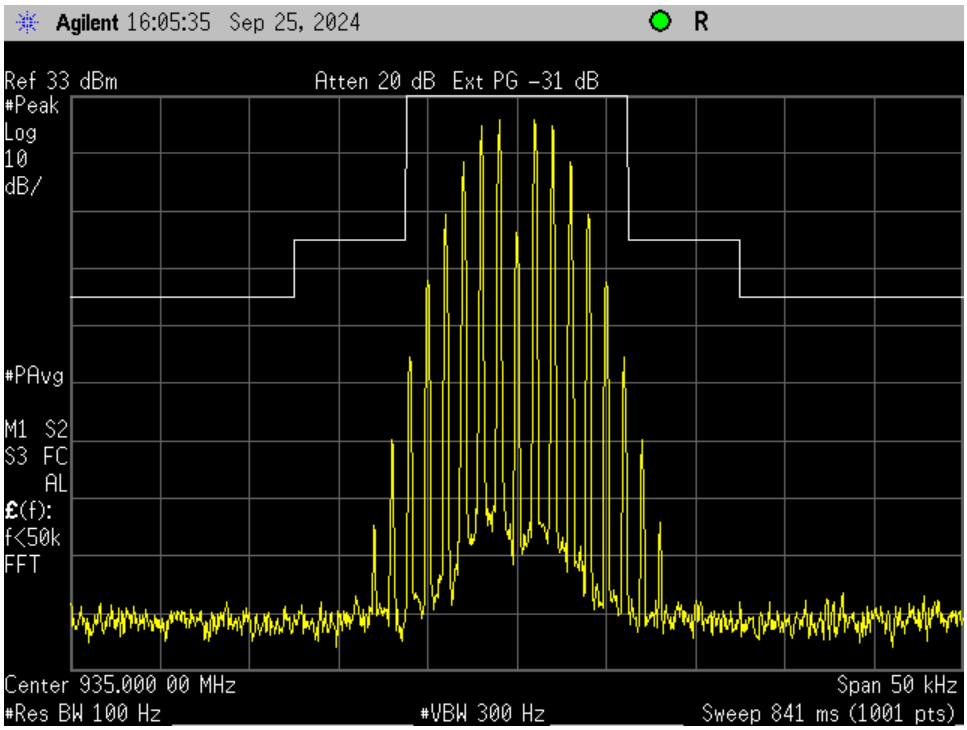

Figure 22. 935 MHz @ 12.5 kHz + 3.0 dB, Mask B

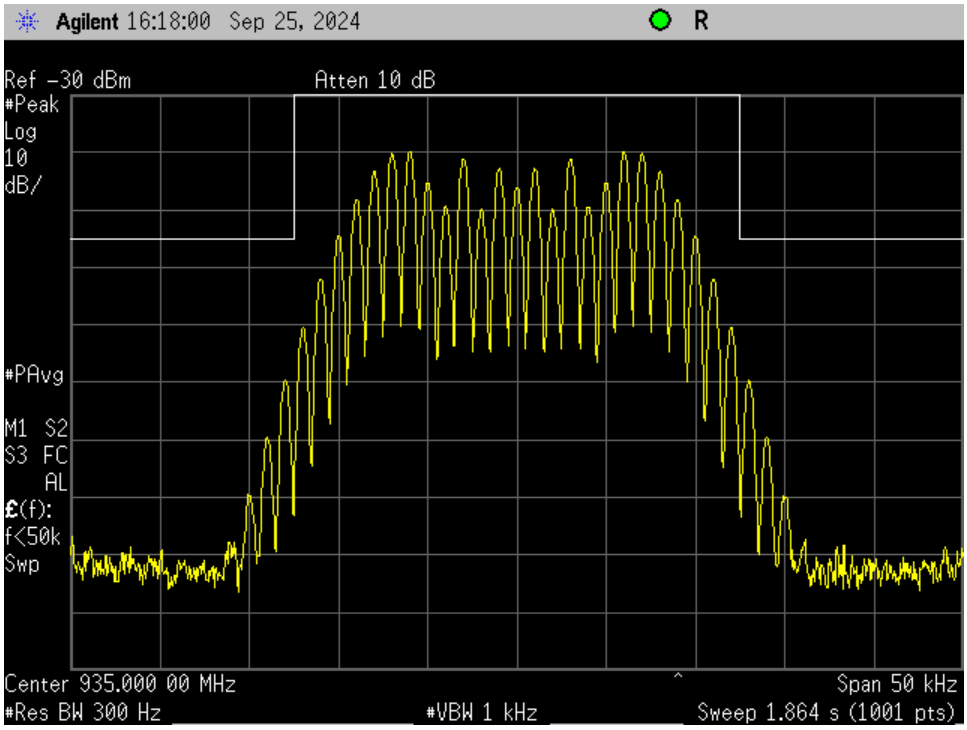

Figure 23. Input 935 MHz @ 25 kHz

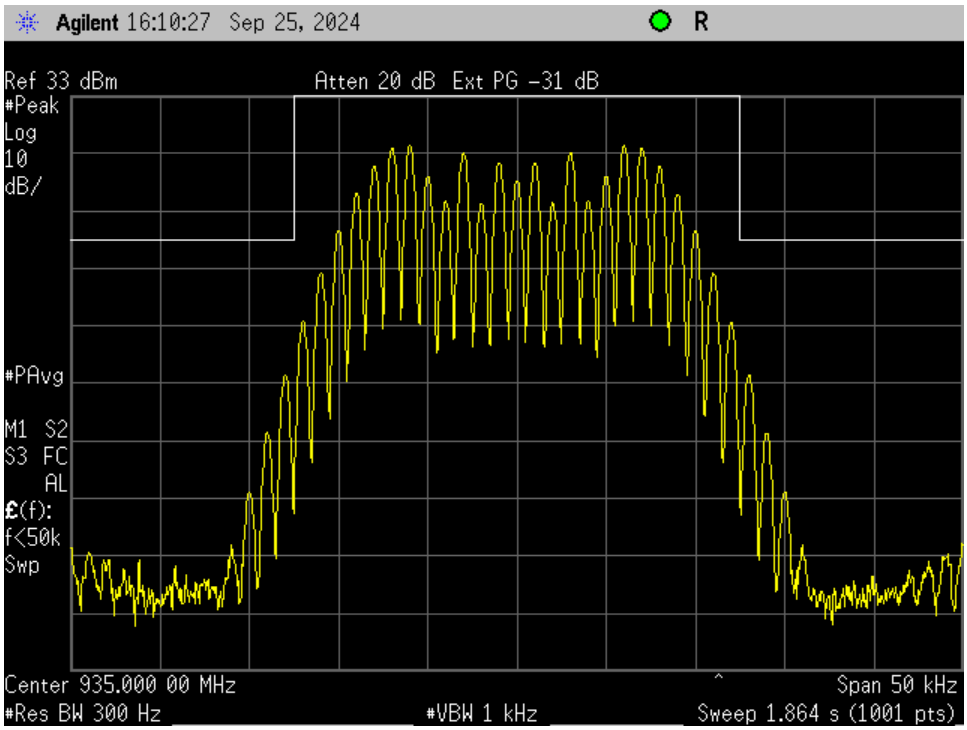

Figure 24. 935 MHz @ 25 kHz, Mask B

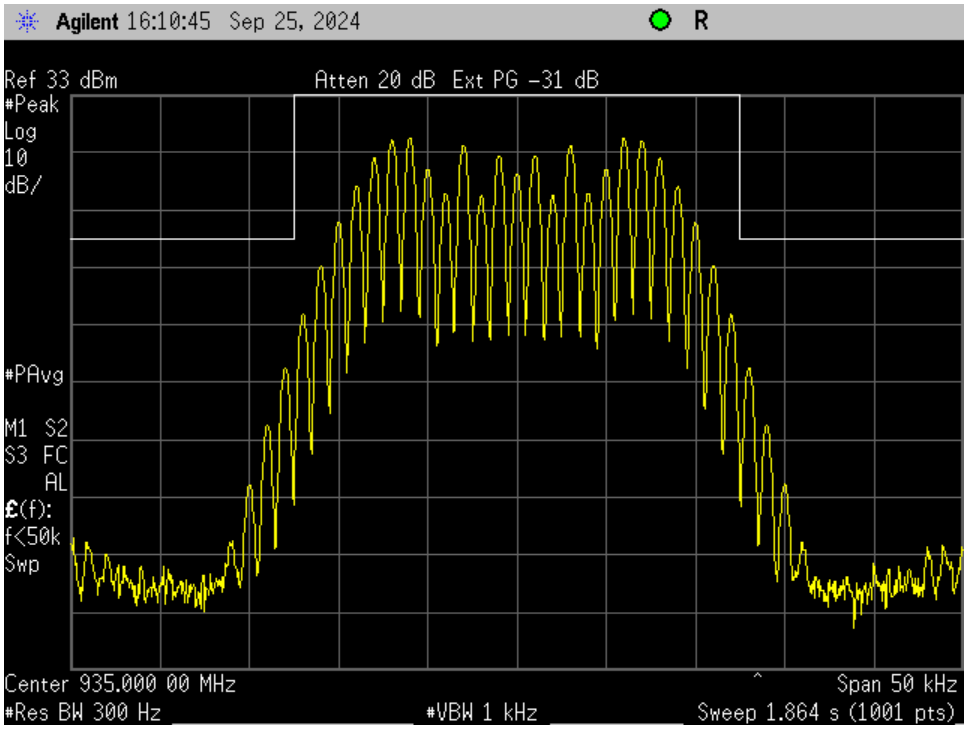

Figure 25. 935 MHz @ 25 kHz + 3.0 dB, Mask B

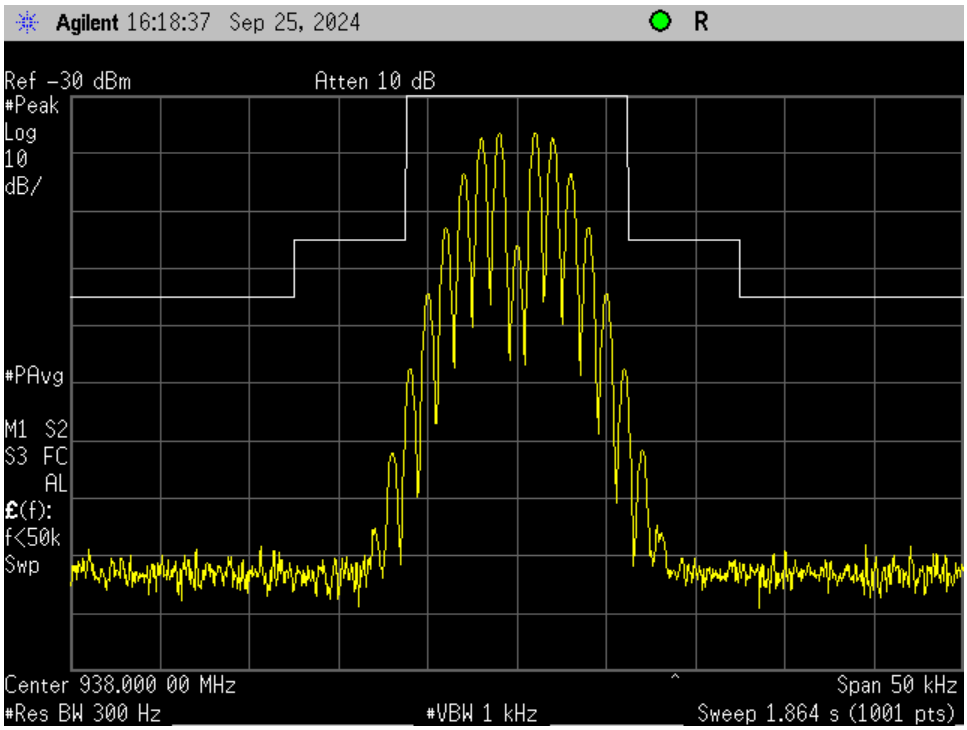

Figure 26. Input 938 MHz @ 12.5 kHz

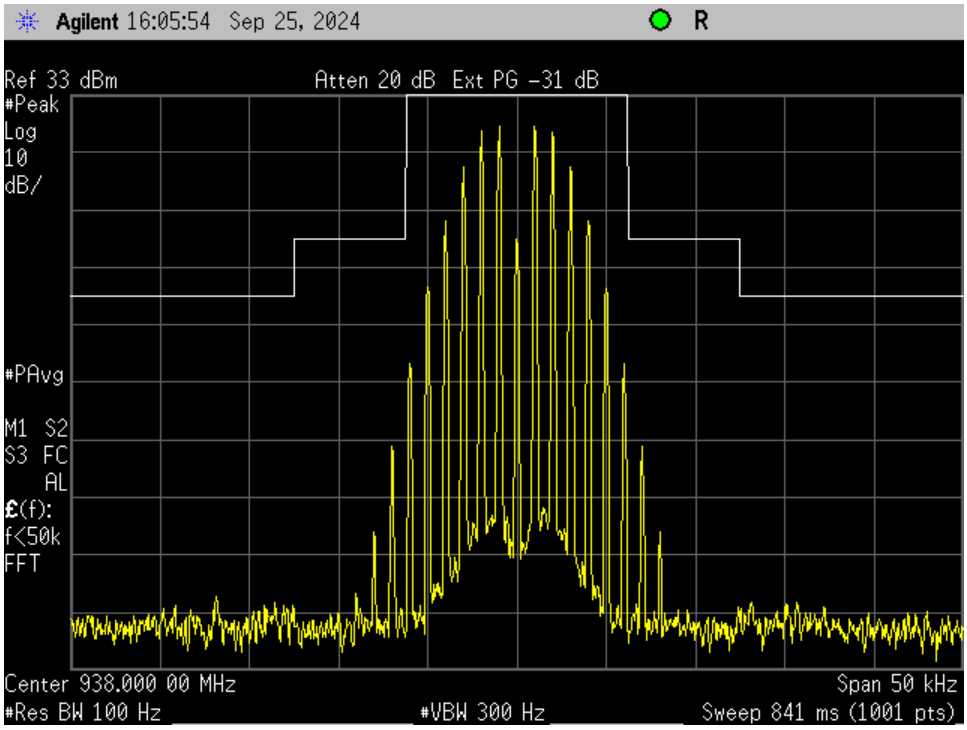

Figure 27. 938 MHz @ 12.5 kHz, Mask B

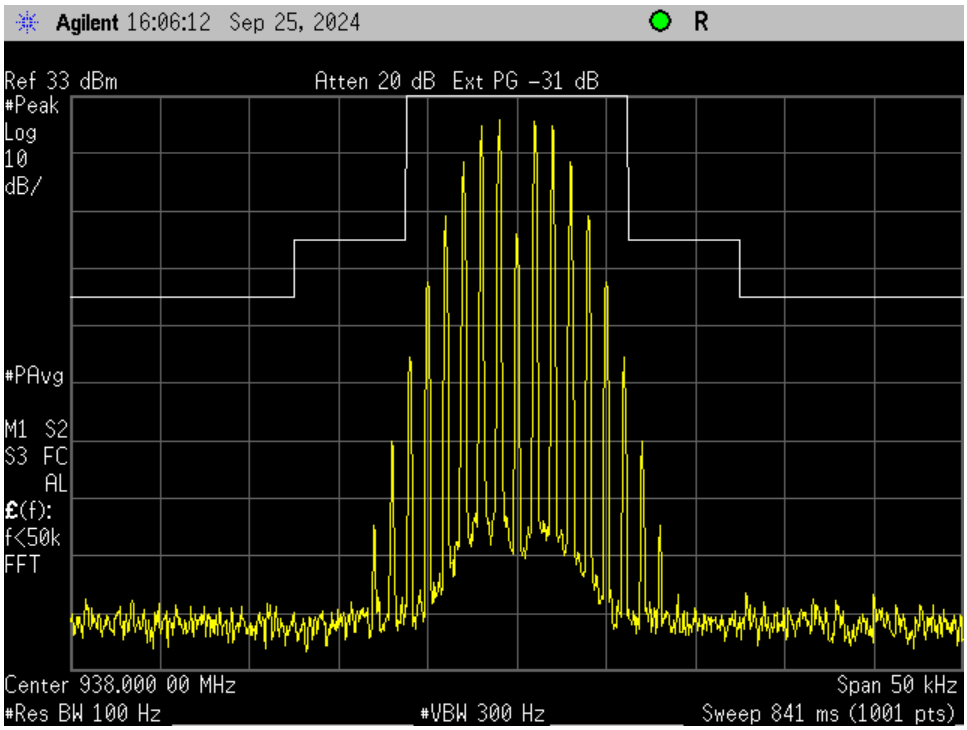

Figure 28. 938 MHz @ 12.5 kHz + 3.0 dB, Mask B

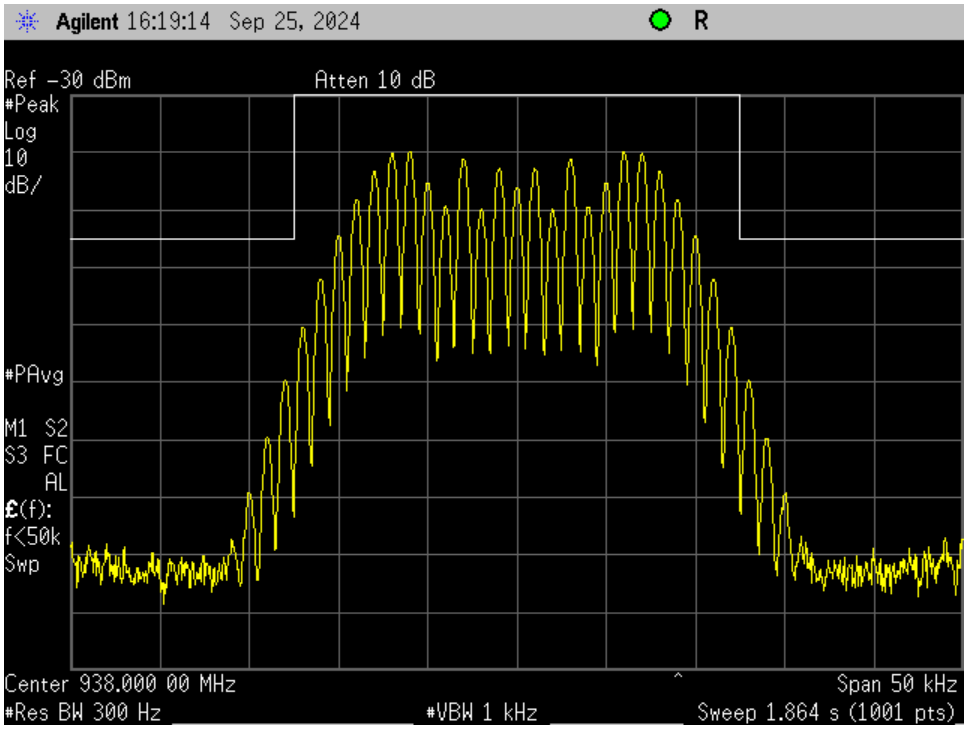

Figure 29. Input 938 MHz @ 25

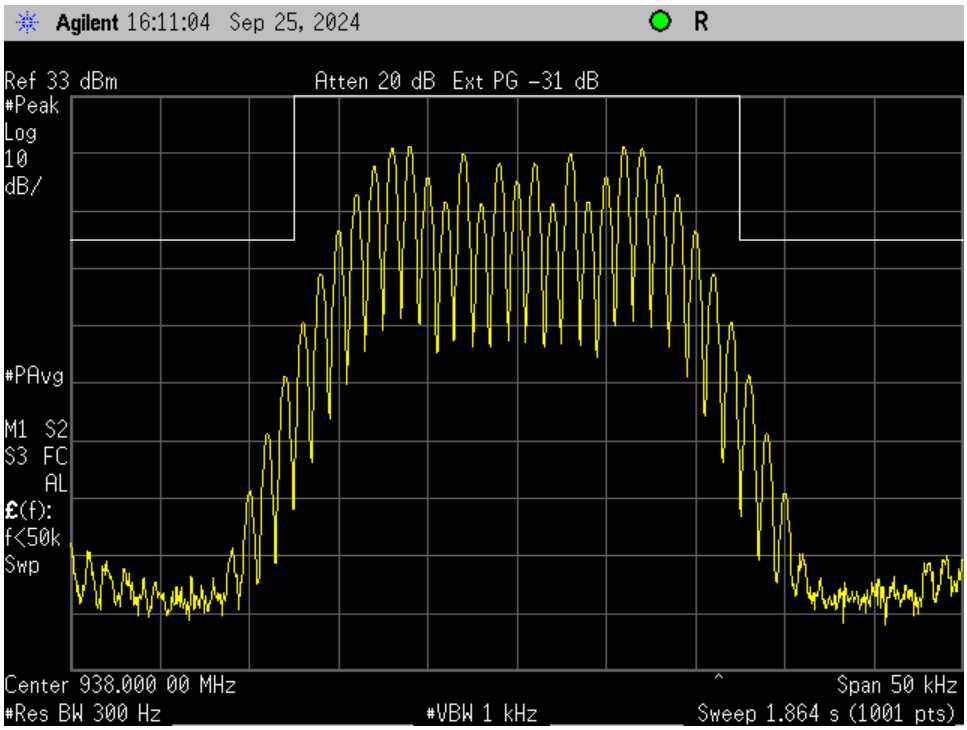

Figure 30. 938 MHz @ 25 kHz, Mask B

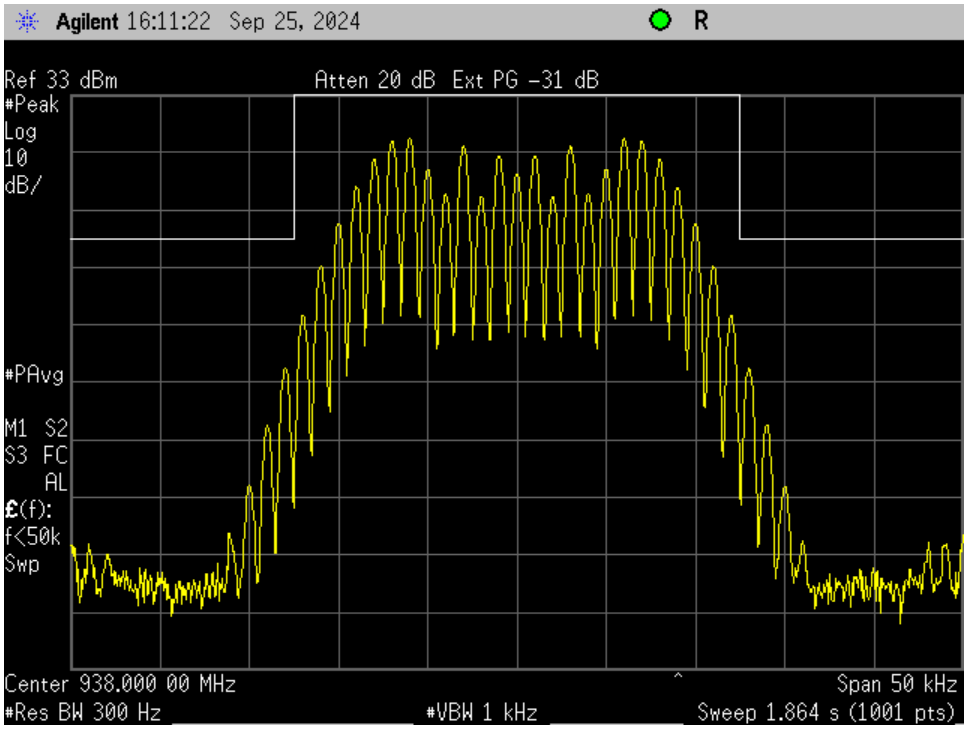

Figure 31. 938 MHz @ 25 kHz + 3.0 dB, Mask B

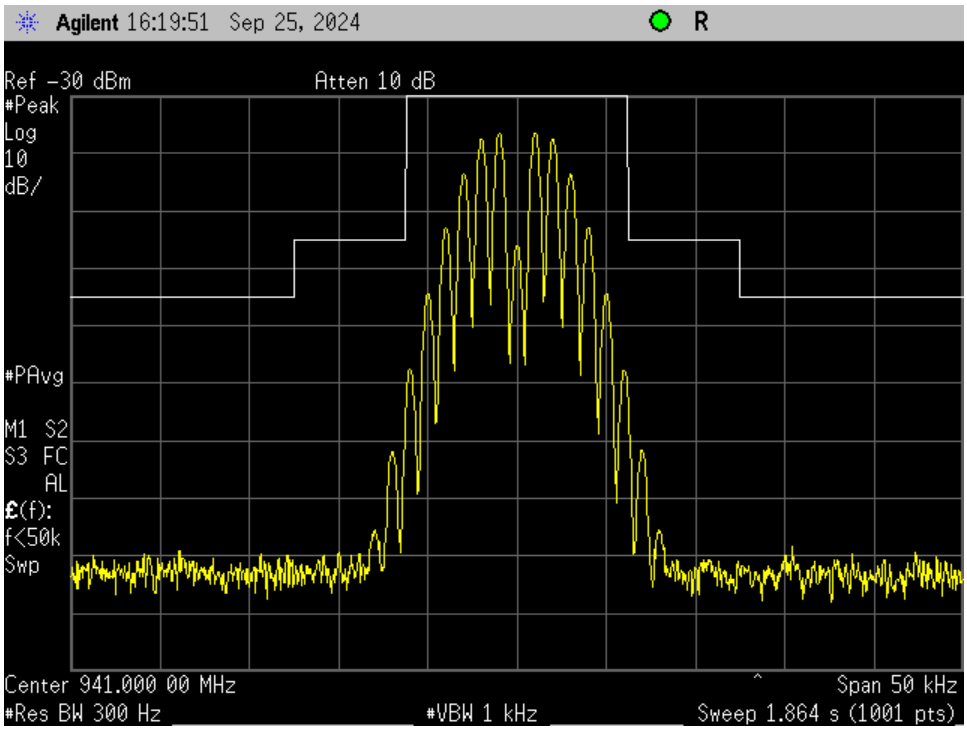

Figure 32. Input 941 MHz @ 12.5 kHz

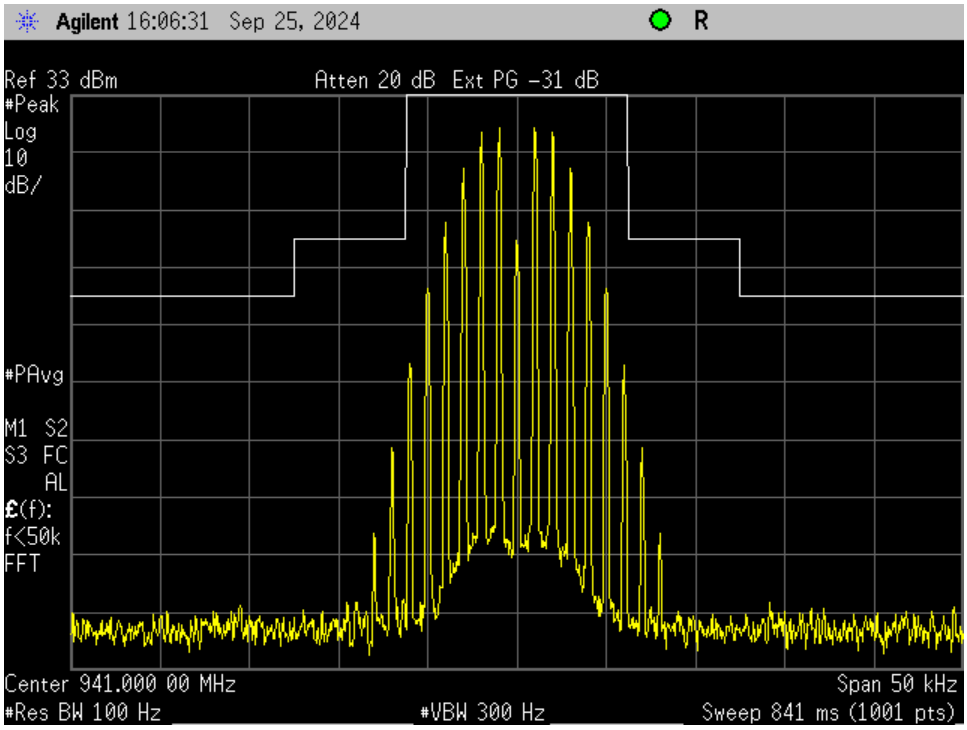

Figure 33. 941 MHz @ 12.5 kHz, Mask B

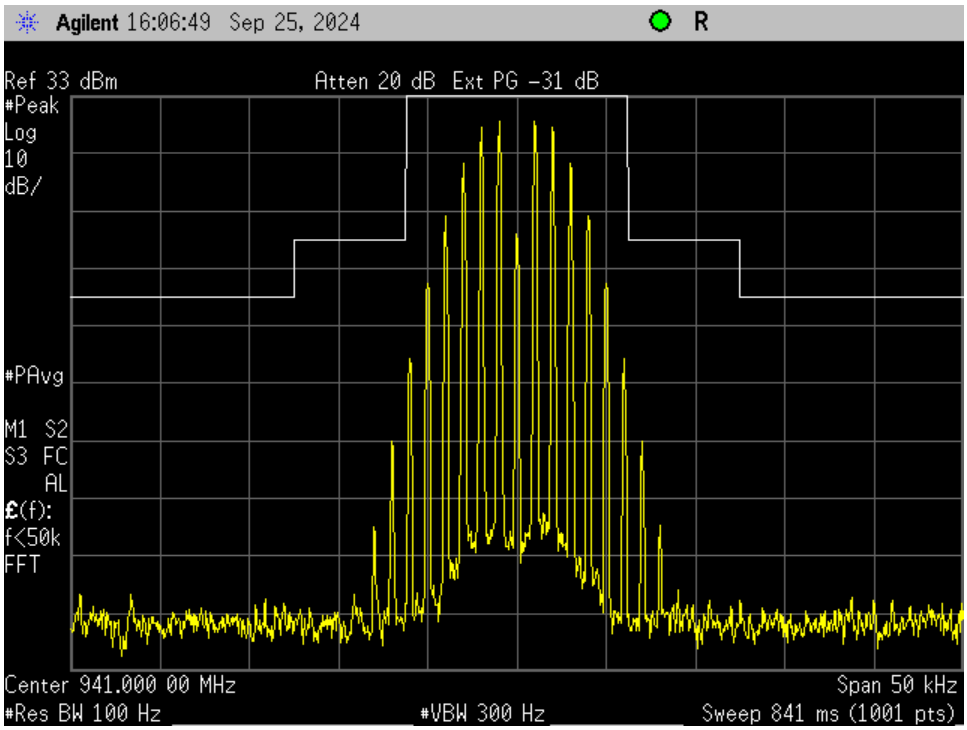

Figure 34. 941 MHz @ 12.5 kHz + 3.0 dB, Mask B

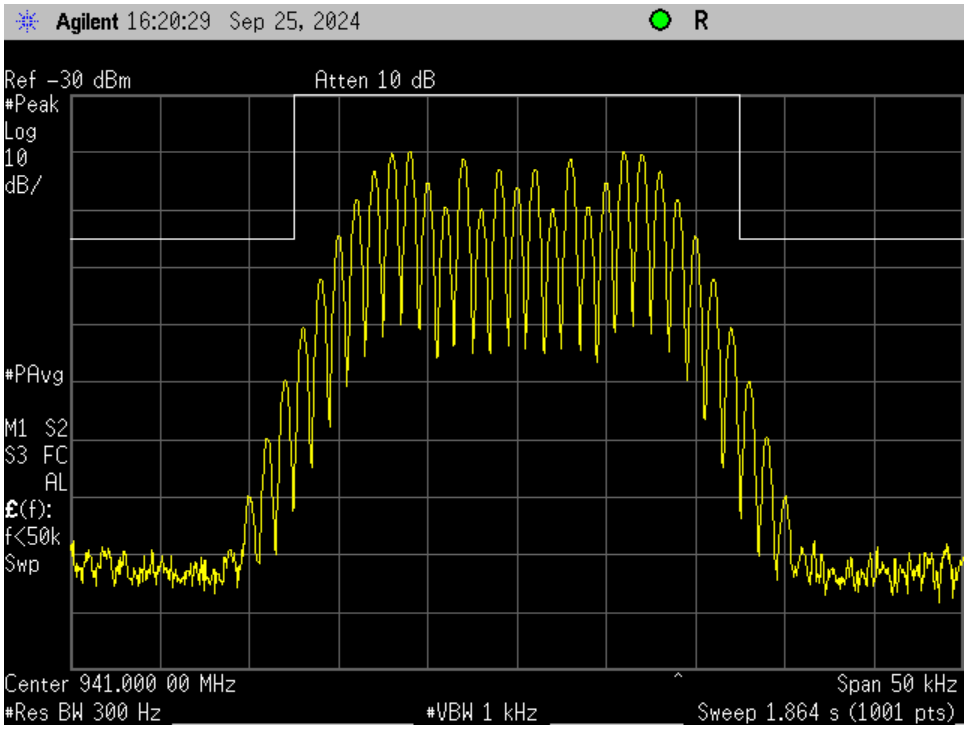

Figure 35. Input 941 MHz @ 25 kHz

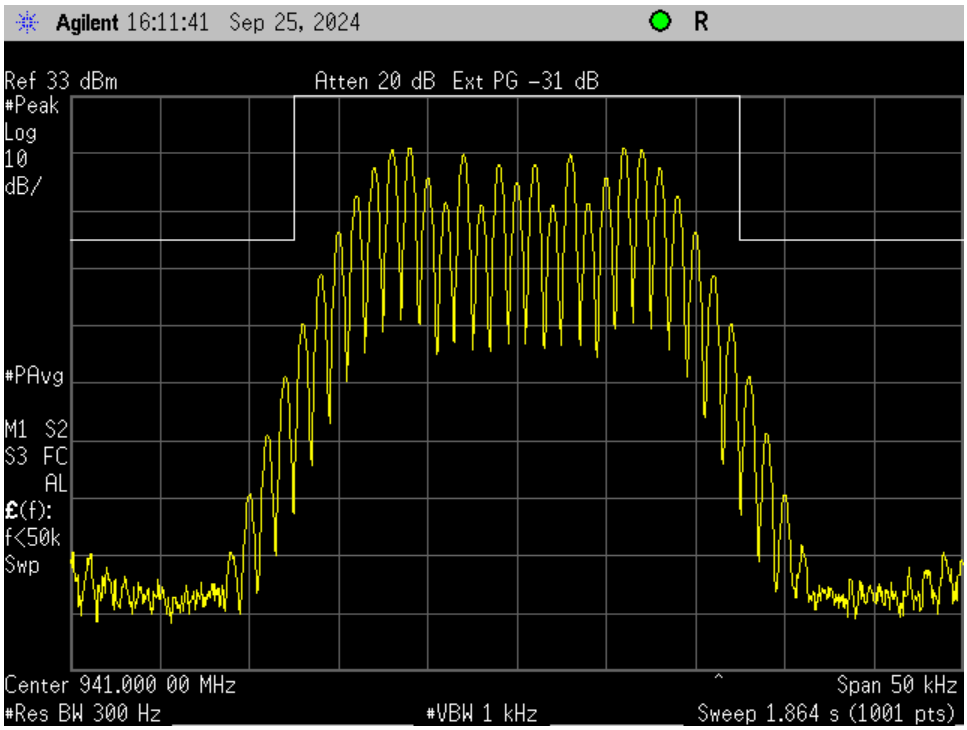

Figure 36. 941 MHz @ 25 kHz, Mask B

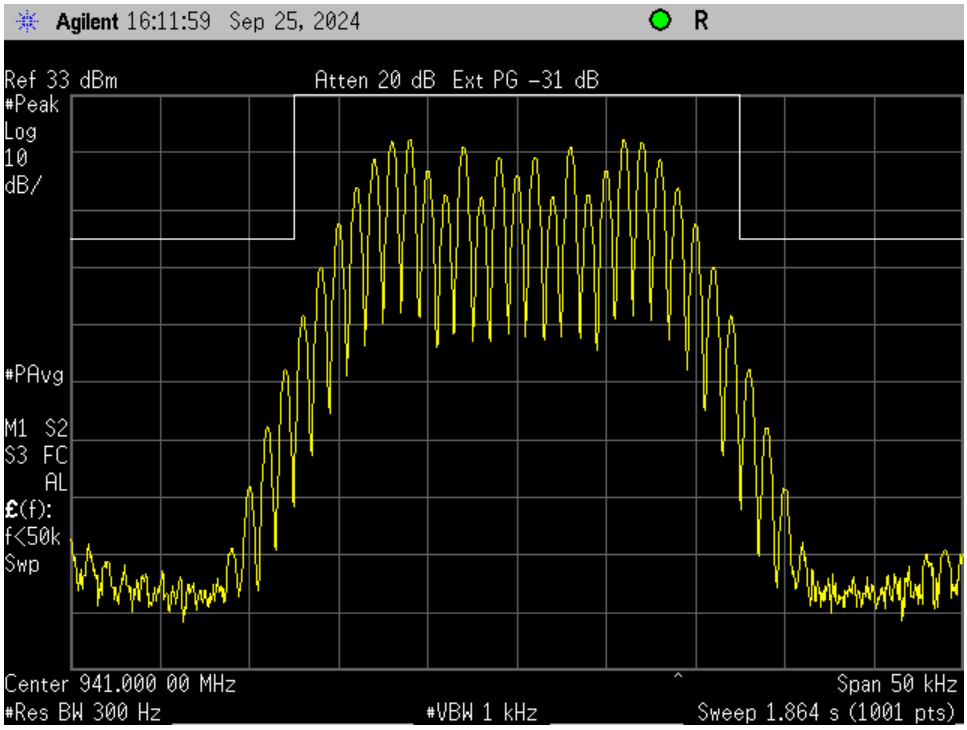

Figure 37. 941 MHz @ 25 kHz + 3.0 dB, Mask B

2.12 Intermodulation (FCC Section 90.219(d)(e)(3) and RSS-131, 10.5)

The EUT was tested in a per KDP 935210 DO5 V01r04. The EUT was configured as depicted in Figure 1. Spectrum analyzer was used to measure the emissions and verify that the levels met the requirements for Conducted Emissions.

The spectrum analyzer was set up with the following setting. The RBW was 300Hz and a VBW 3 times the RBW.

FCC limit = -13 dBm this is indicated by the green line in the figures.

The test results are presented herein.

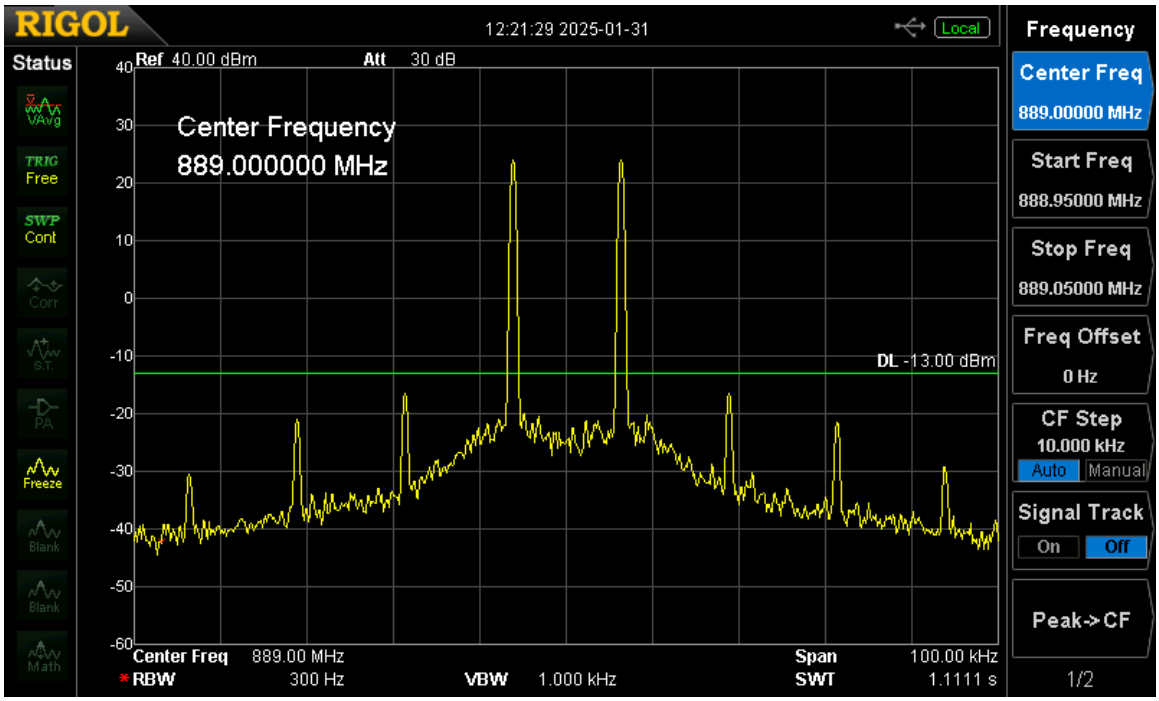

Figure 38. 896-901 MHz Tune Intermodulation 12.5 kHz

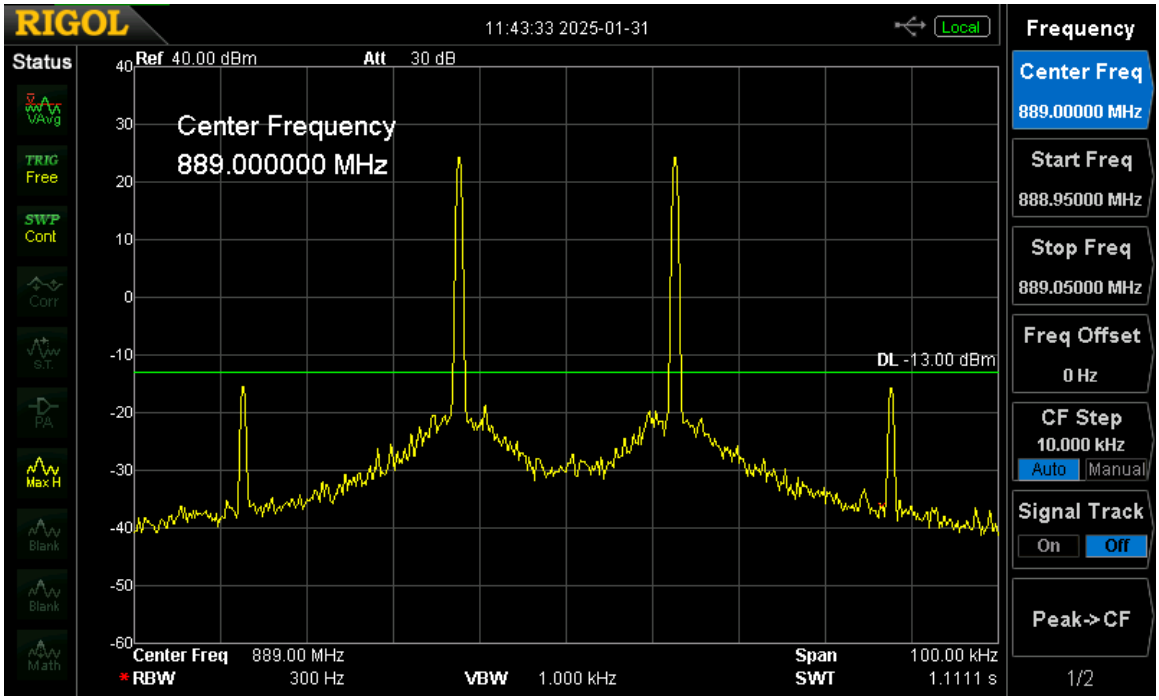

Figure 39. 896-901 MHz Tune Intermodulation 25 kHz

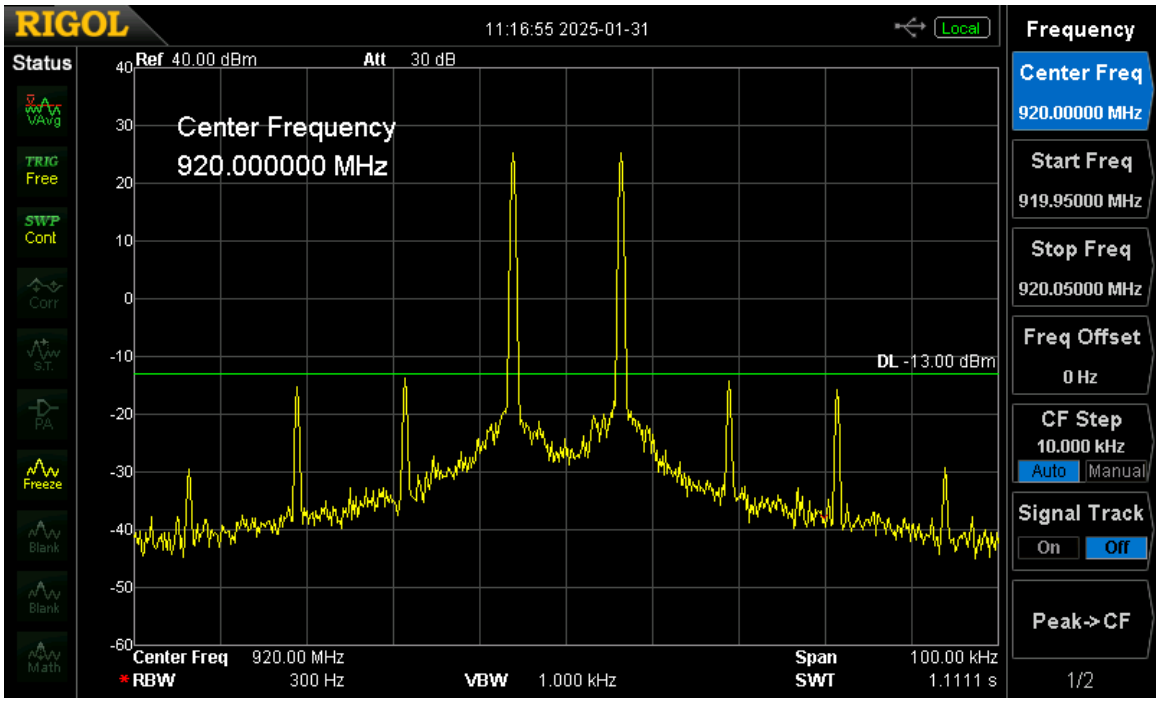

Figure 40. 940 MHz Tune Intermodulation at 12.5 kHz

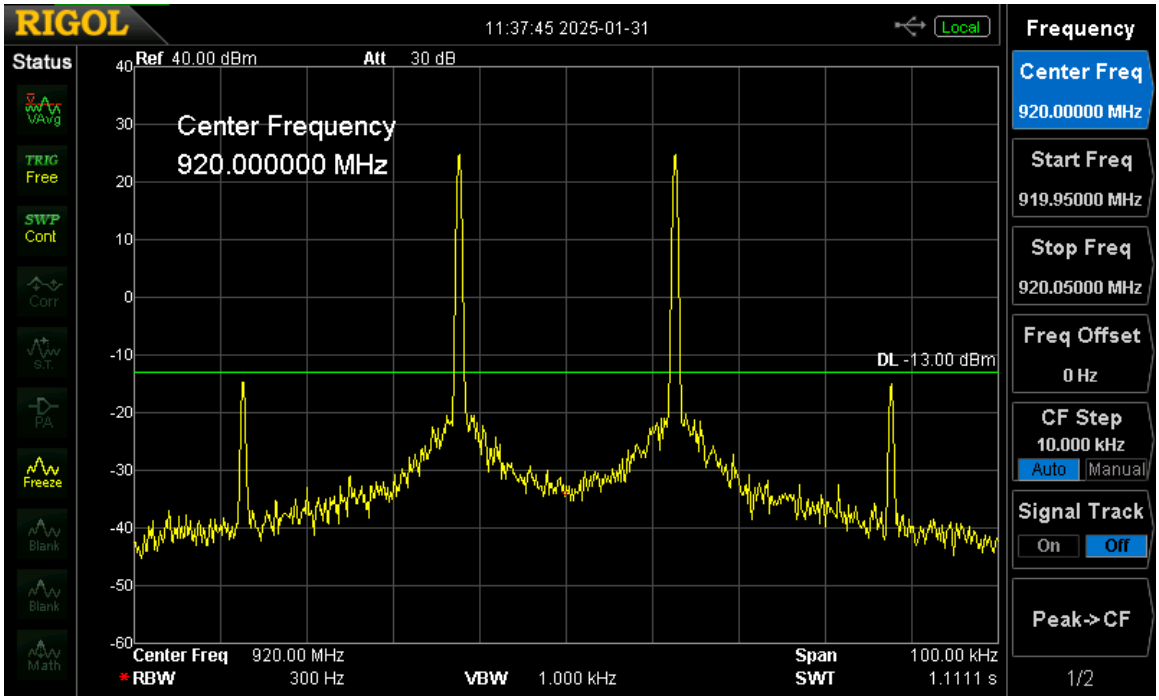

Figure 41. 940 MHz Tune Intermodulation 25 kHz

2.13 Spurious Emissions (FCC Section 90.219(d)(e)(3) and RSS-131, 10.5)

Spurious Emissions from a signal booster must not exceed -13 dBm within any 100 kHz measurement bandwidth.

2.13.1 Radiated Spurious Emissions Measurement

The EUT was tested in a semi-anechoic chamber. The EUT was set on a turntable with the EUT positioned 3 m from the receiving antenna. A spectrum analyzer was used to measure the emissions and verify that the levels met the requirements for Radiated Emissions. The EUT was tested by rotating it 360° with the receiving antenna in both the vertical then horizontal position. The receive antenna was elevated from 1 m to 4 m to ensure that the maximum emission was captured. A signal generator was used to provide a signal to exercise the channel cards within the EUT. The EUT output was terminated with a 50-ohm non-radiating load.

The RBW was set to 100 KHz for measurements below 1 GHz and 1 MHz for measurements above 1 GHz. The VBW was 3 times the RBW.

FCC limit = -13 dBm
Radiated emission limit = -13 dBm - 20 log(3m) + 104.8 = 82.25 dBuV/m

A correction value of 9.5 dBm was applied to correct the display line level to accurately represent the limit at -13 dBm.

The following plots show the worst-case results, which were measured with the antennas in both horizontal and vertical position.

2.13.1.1 896-941 MHz Radiated Spurious Emissions Plots

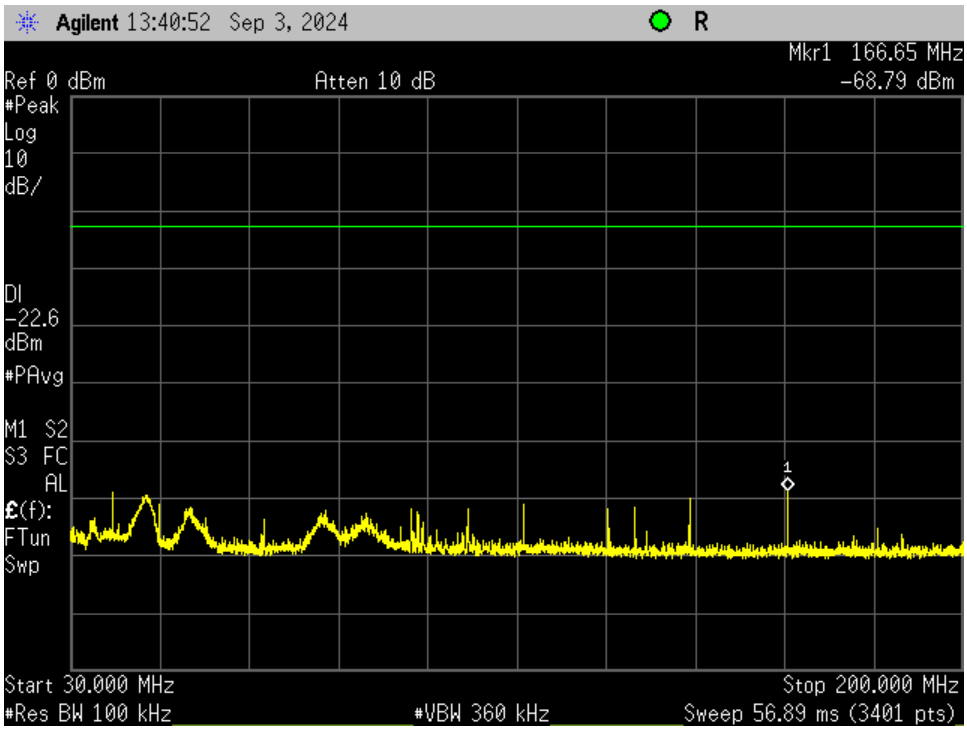

Figure 42. 896-901 MHz Tune Dual Tone Horizontal, 30 – 200 MHz

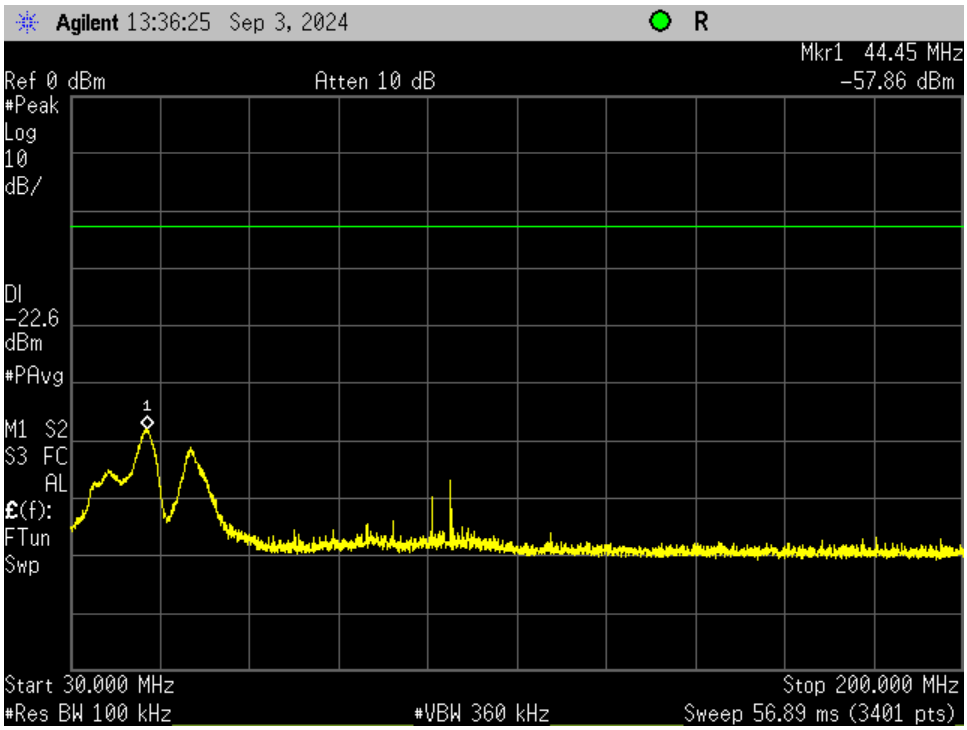

Figure 43. 896-901 MHz Tune Dual Tone Vertical, 30 – 200 MHz

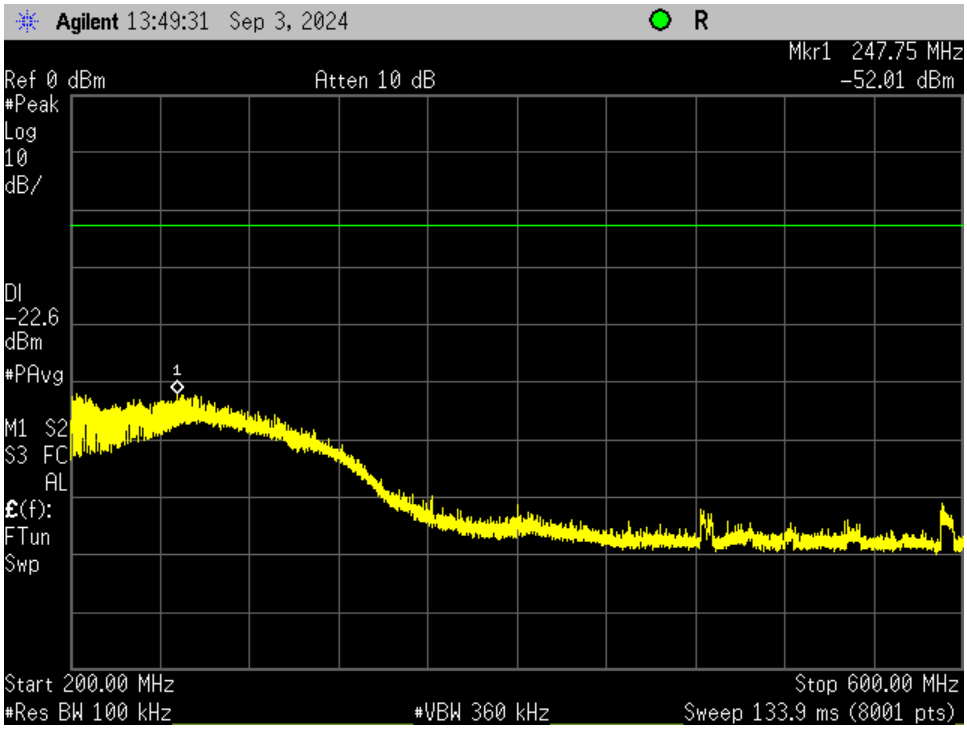

Figure 44. 896-901 MHz Tune Dual Tone Horizontal, 200-600 MHz

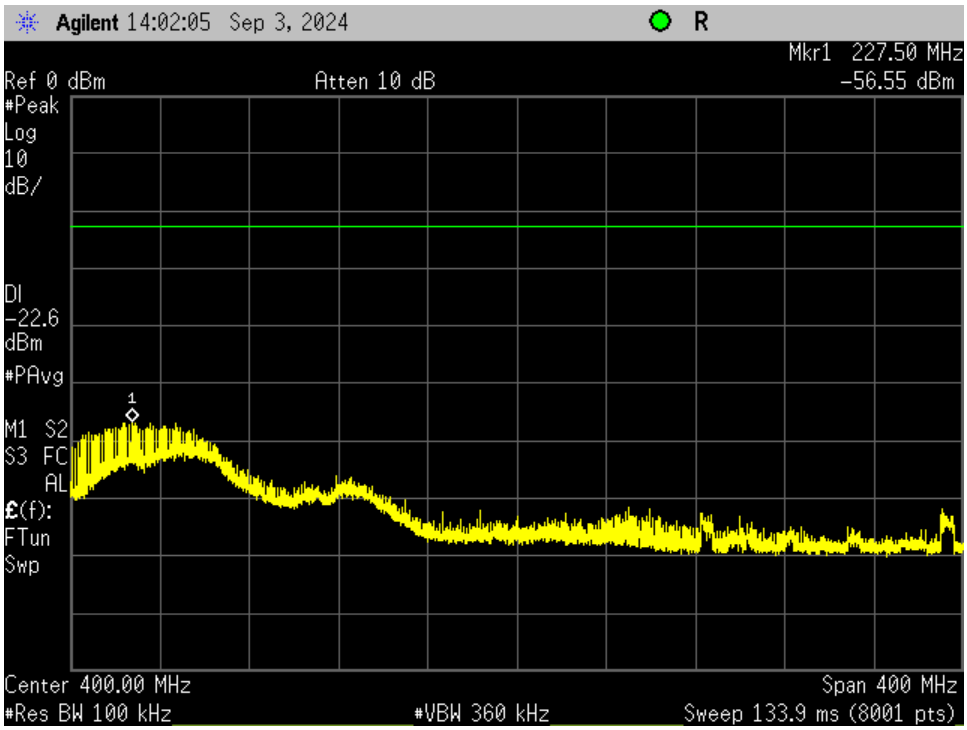

Figure 45. 896-901 MHz Tune Dual Tone Vertical, 200-600 MHz

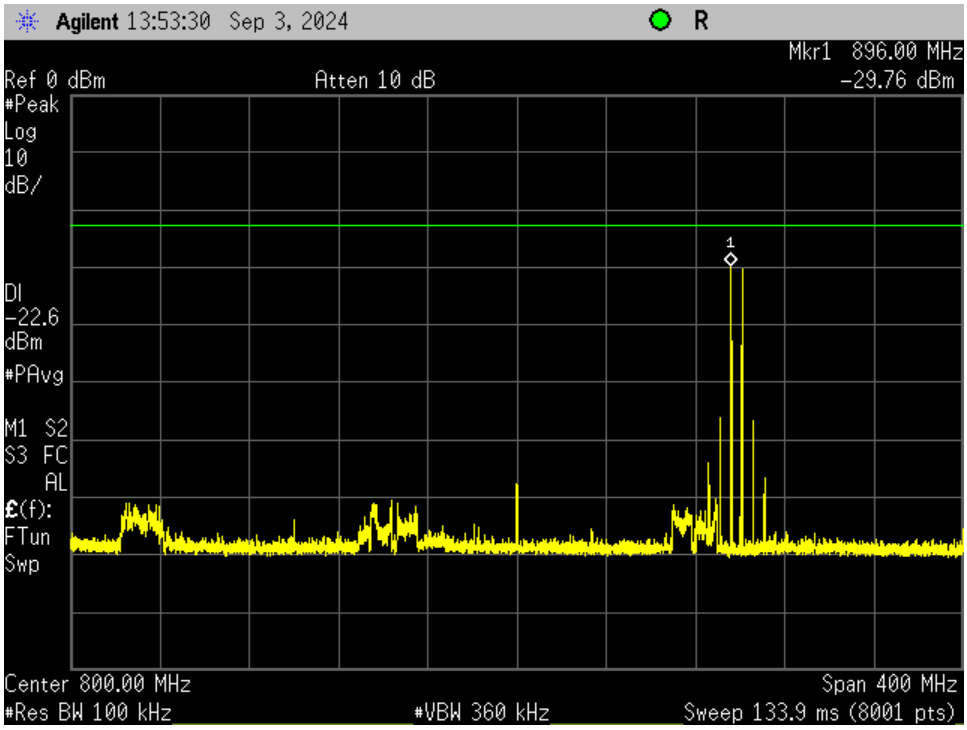

Figure 46. 896-901 MHz Tune Dual Tone Horizontal, 600-1000 MHz

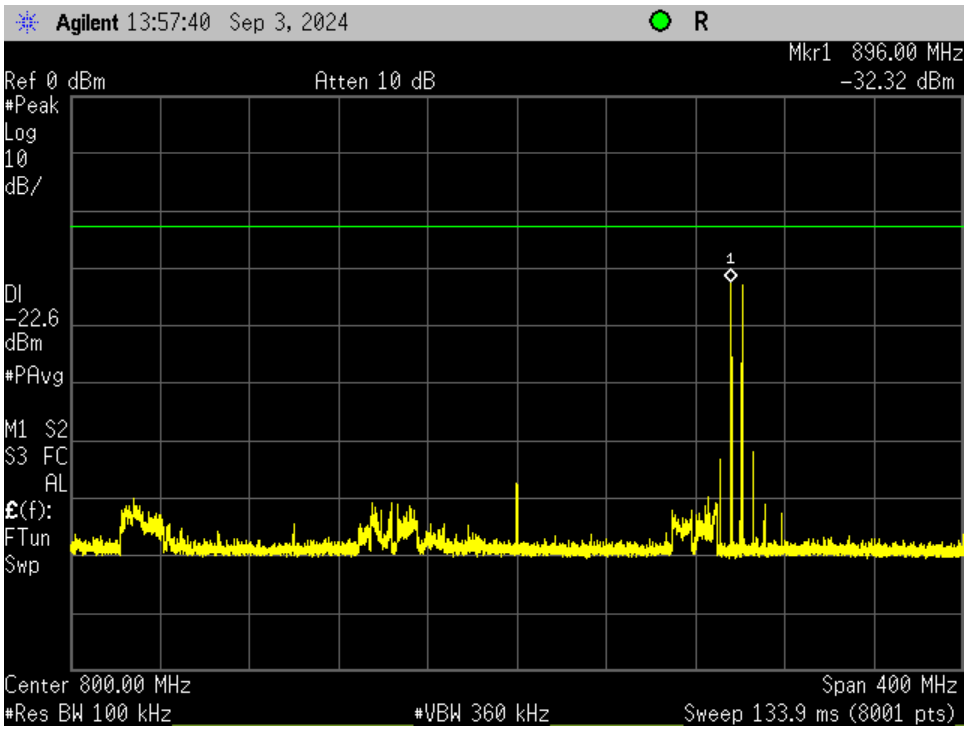

Figure 47. 896-901 MHz Tune Dual Tone Vertical, 600-1000 MHz

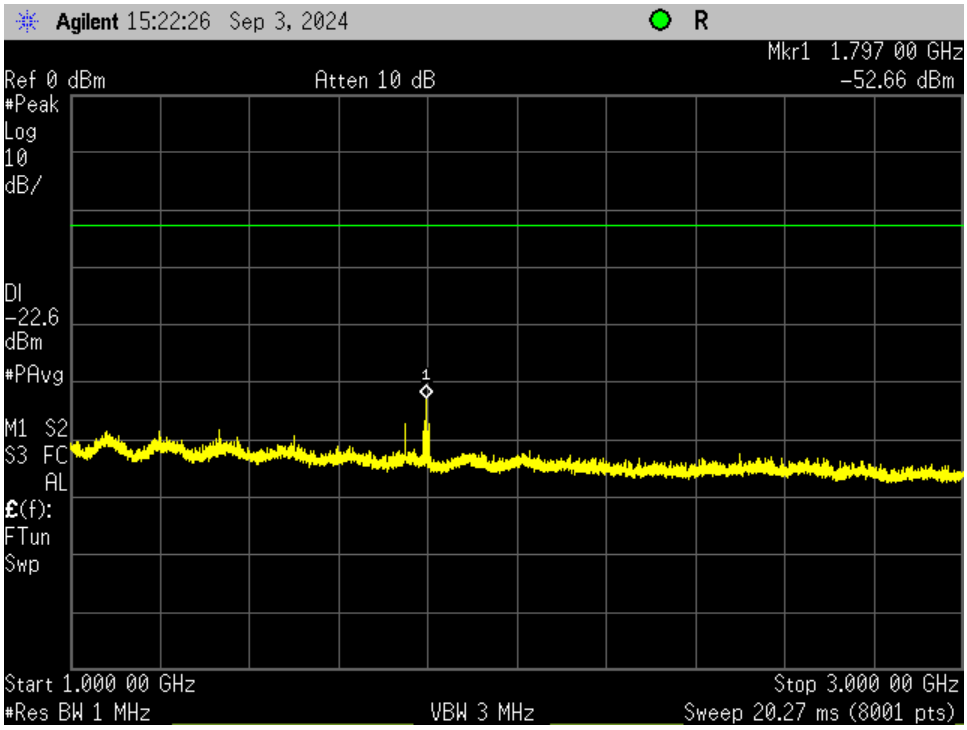

Figure 48. 896-901 MHz Tune Dual Tone Horizontal, 1000 – 3000 MHz

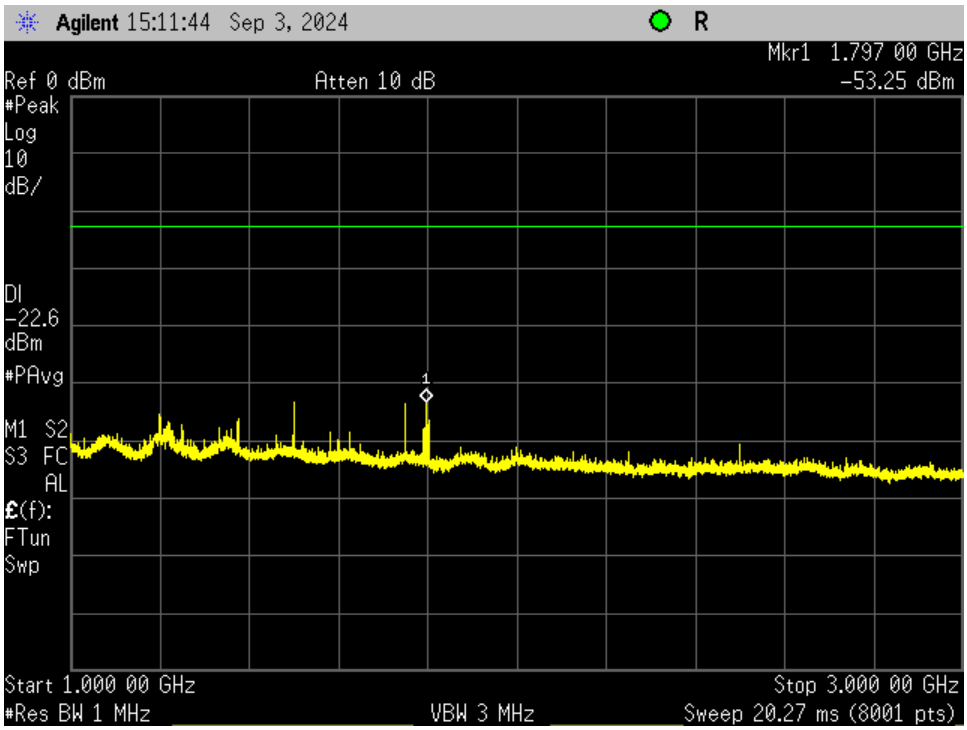

Figure 49. 896-901 MHz Tune Dual Tone Vertical, 1000 - 3000 MHz

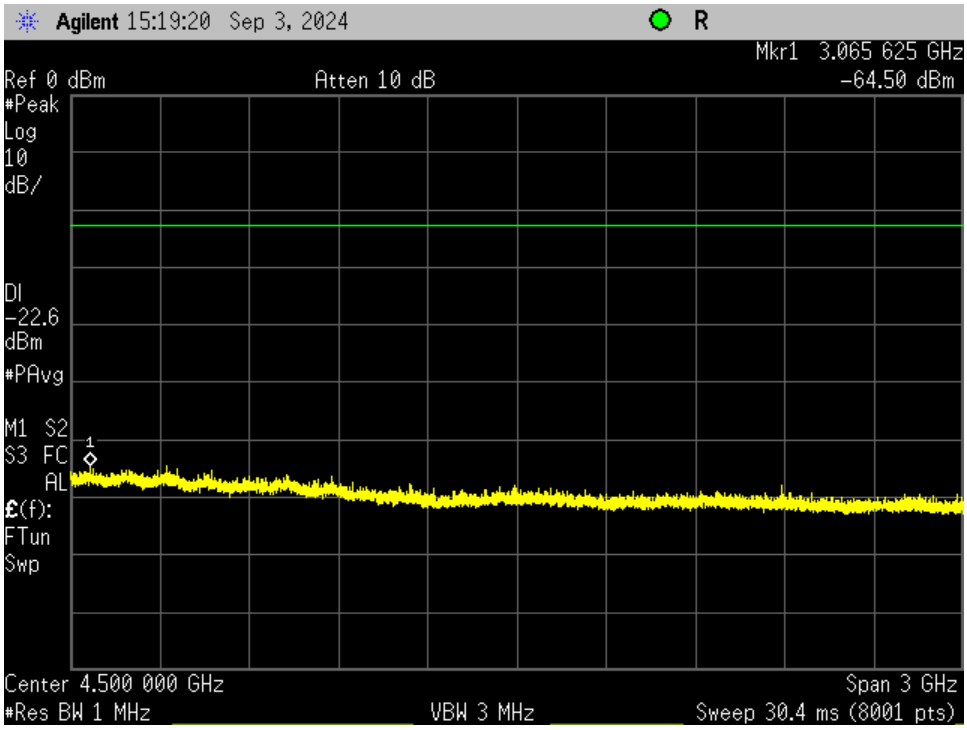

Figure 50. 896-901 MHz Tune Dual Tone Horizontal, 3000 - 6000 MHz

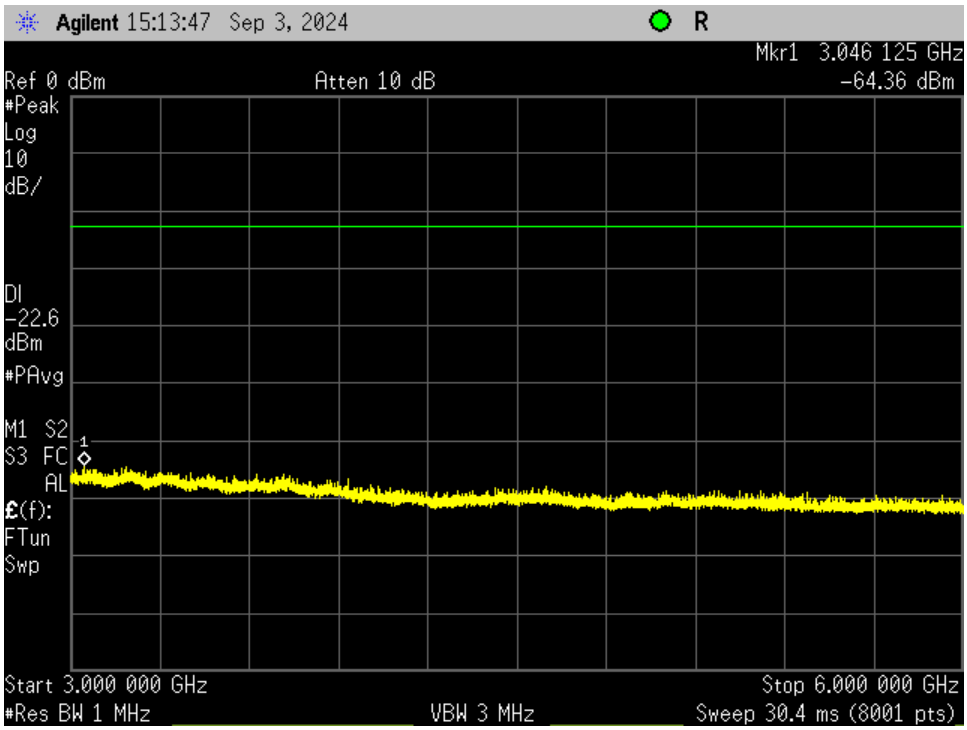

Figure 51. 896-901 MHz Tune Dual Tone Vertical, 3000 - 6000 MHz

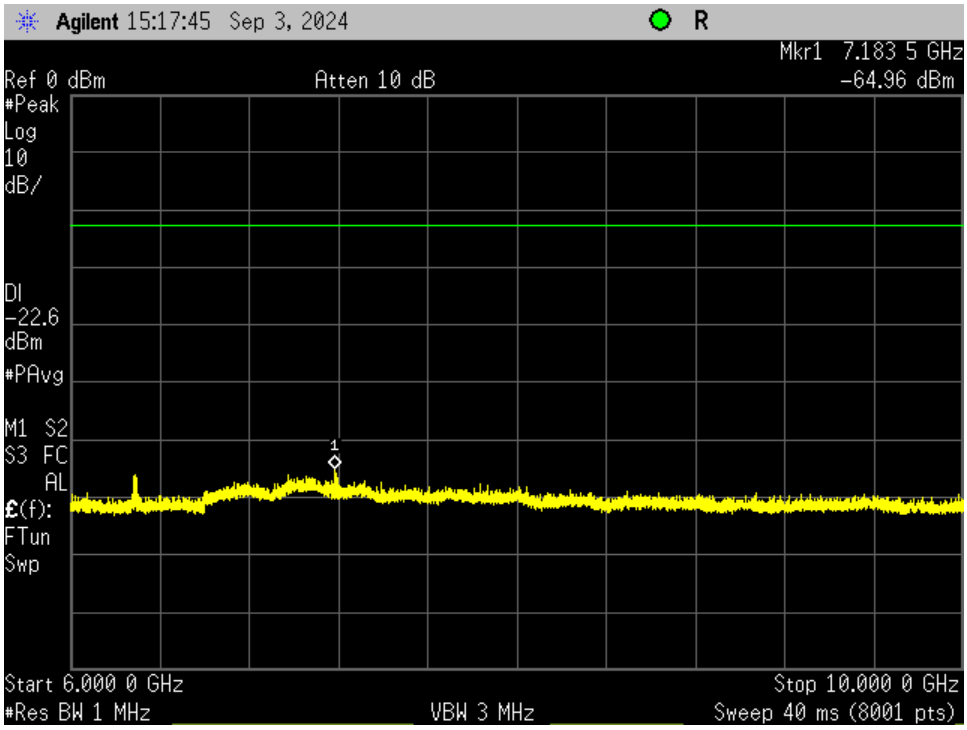

Figure 52. 896-901 MHz Tune Dual Tone Horizontal, 6000 - 10000 MHz

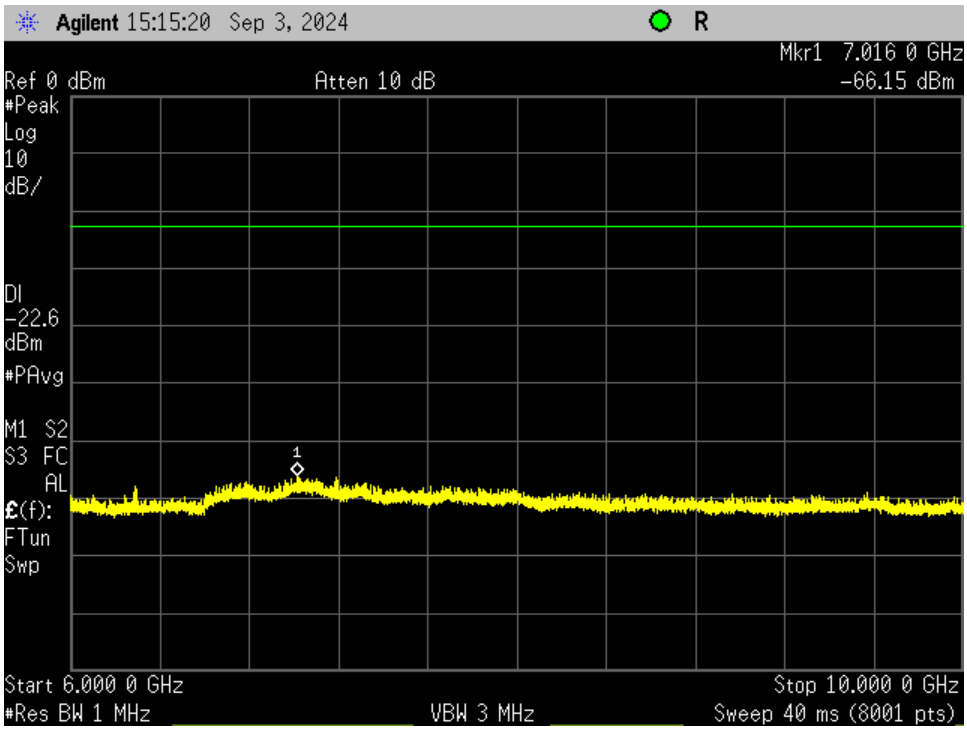

Figure 53. 896-901 MHz Tune Dual Tone Vertical, 6000 - 10000 MHz

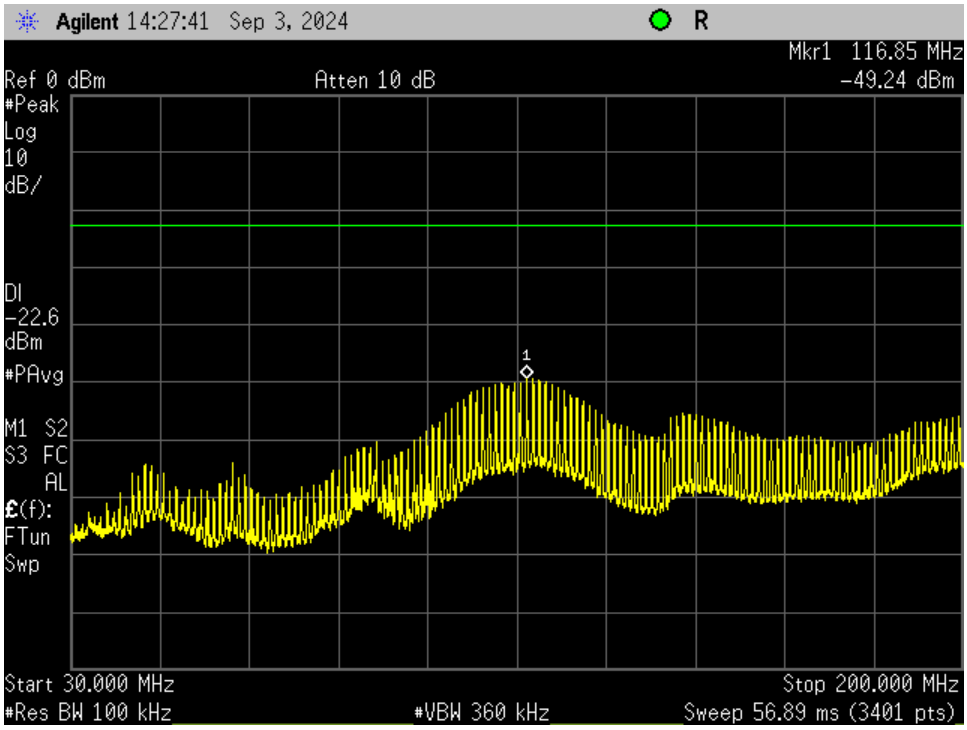

Figure 54. 940 MHz Tune Dual Tone Horizontal, 30 – 200 MHz

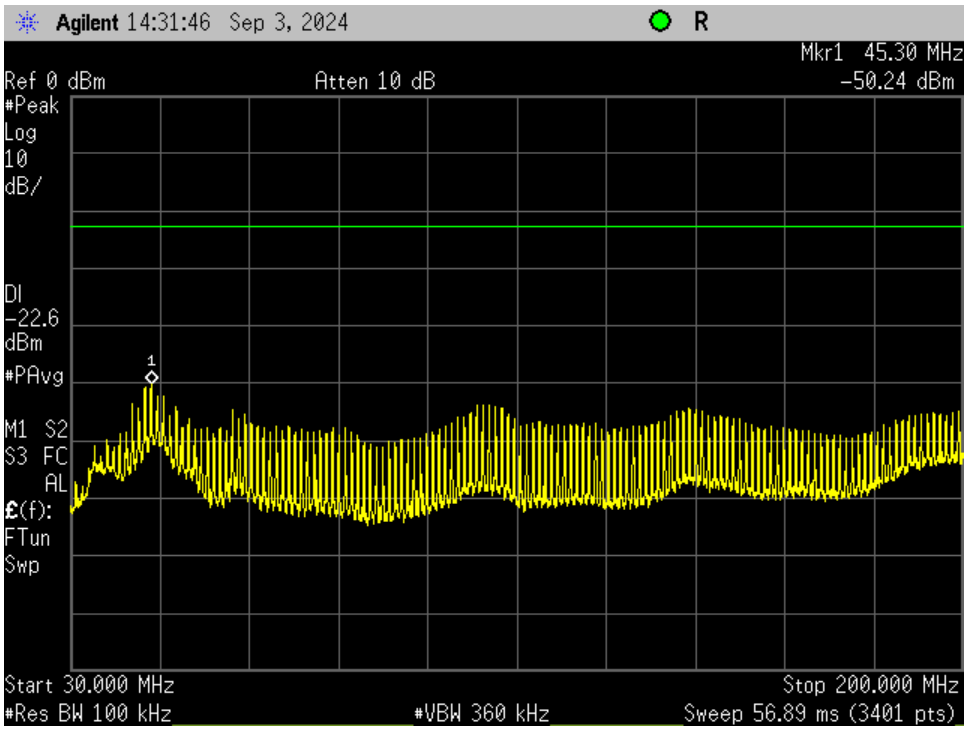

Figure 55. 940 MHz Tune Dual Tone Vertical, 30 – 200 MHz

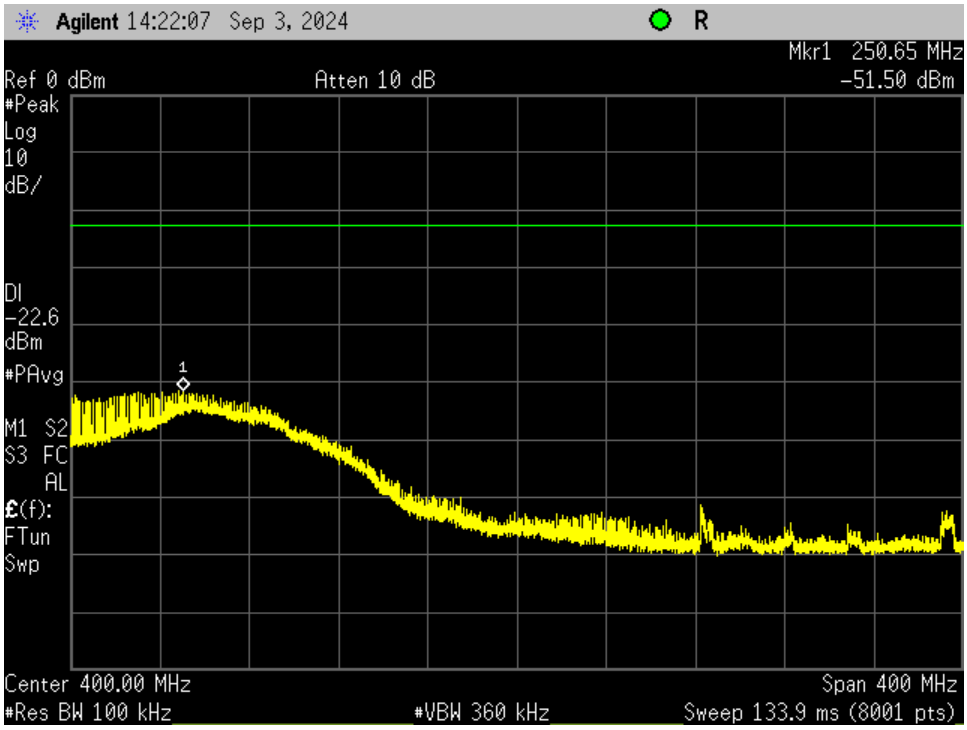

Figure 56. 940 MHz Tune Dual Tone Horizontal, 200 – 600 MHz

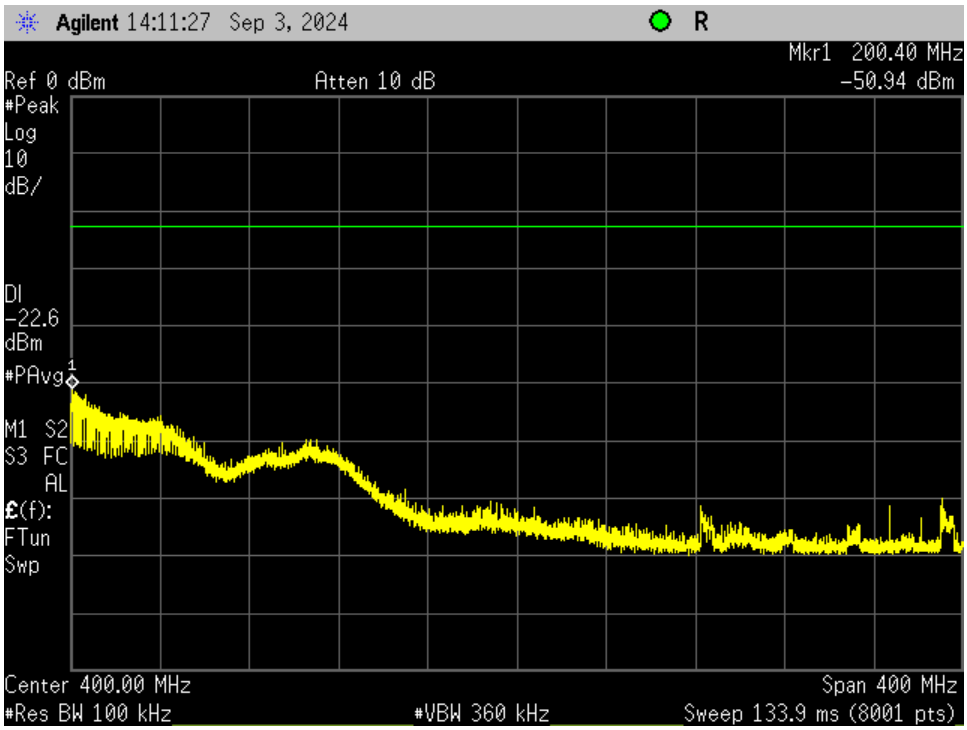

Figure 57. 940 MHz Tune Dual Tone Vertical, 200 - 600 MHz

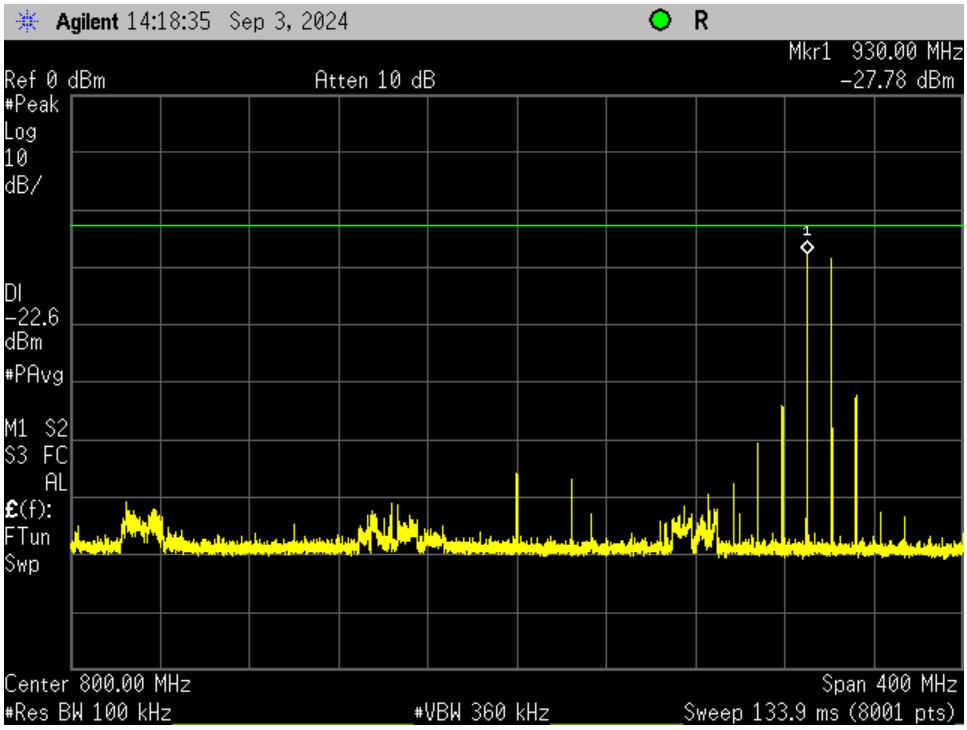

Figure 58. 940 MHz Tune Dual Tone Horizontal, 600 – 1000 MHz

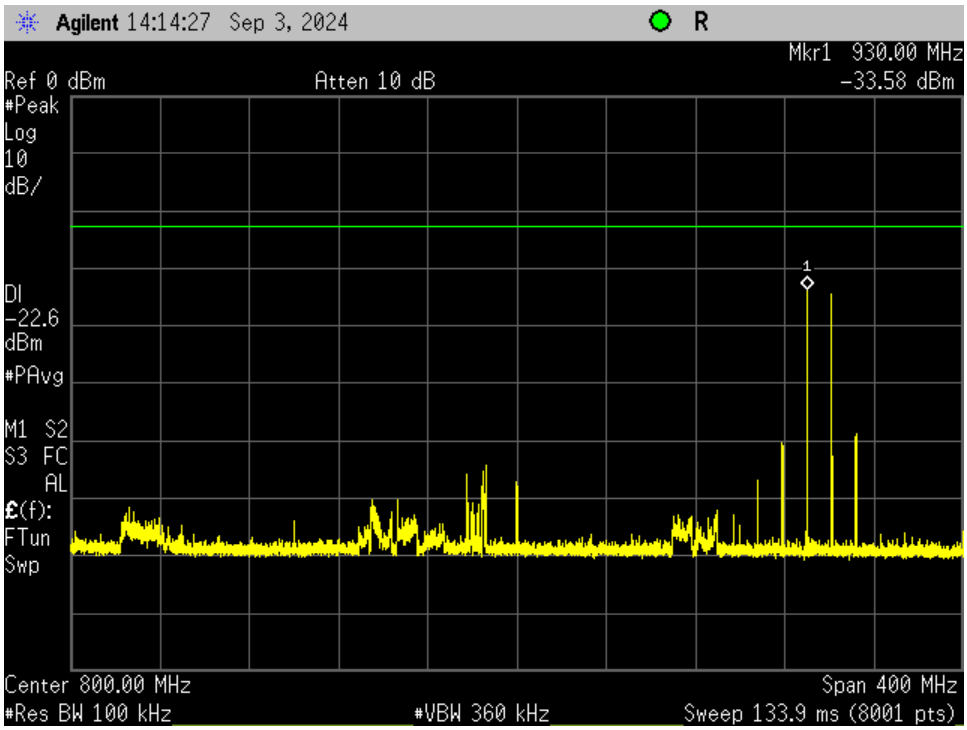

Figure 59. 940 MHz Tune Dual Tone Vertical, 600 – 1000 MHz

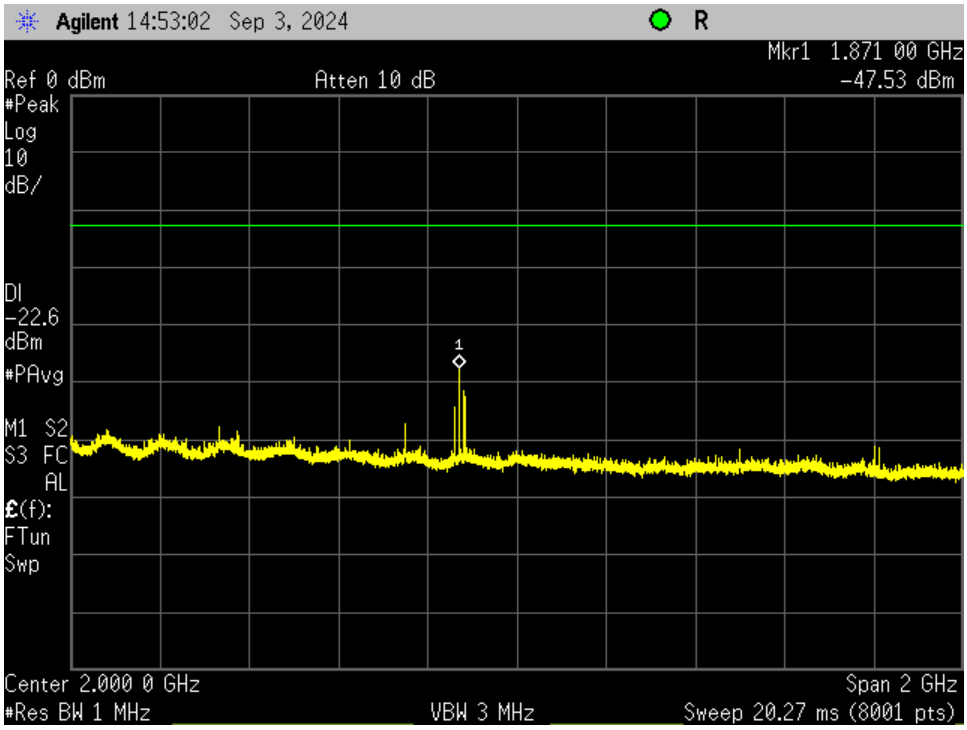

Figure 60. 940 MHz Tune Dual Tone Horizontal, 1000 – 3000 MHz

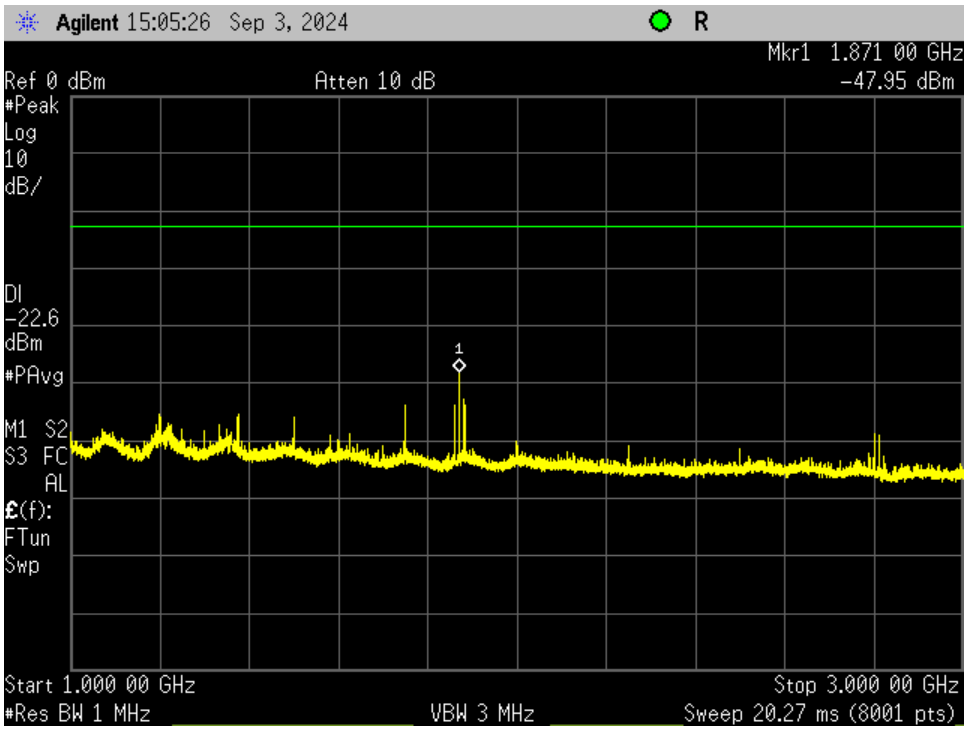

Figure 61. 940 MHz Tune Dual Tone Vertical, 1000 – 3000 MHz

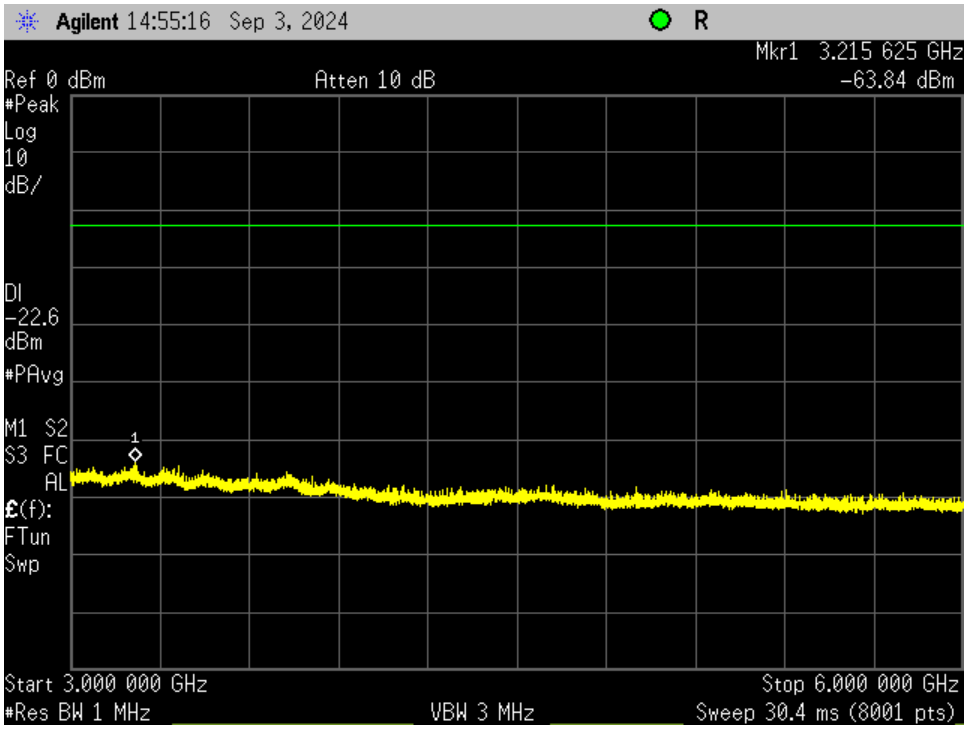

Figure 62. 940 MHz Tune Dual Tone Horizontal, 3000 – 6000 MHz

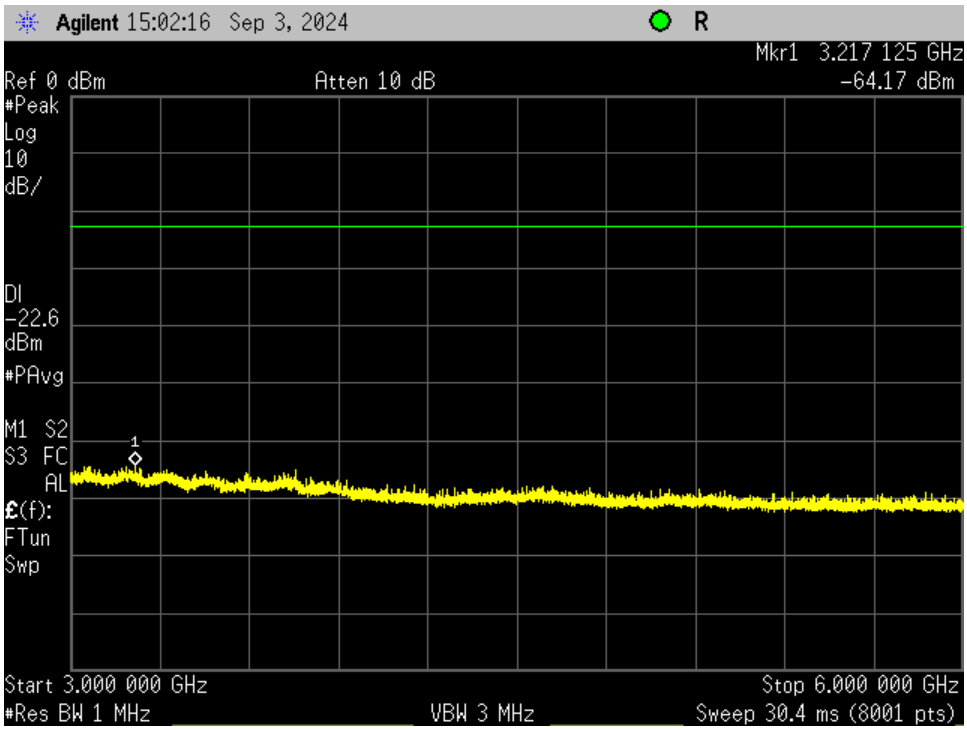

Figure 63. 940 MHz Tune Dual Tone Vertical, 3000 – 6000 MHz

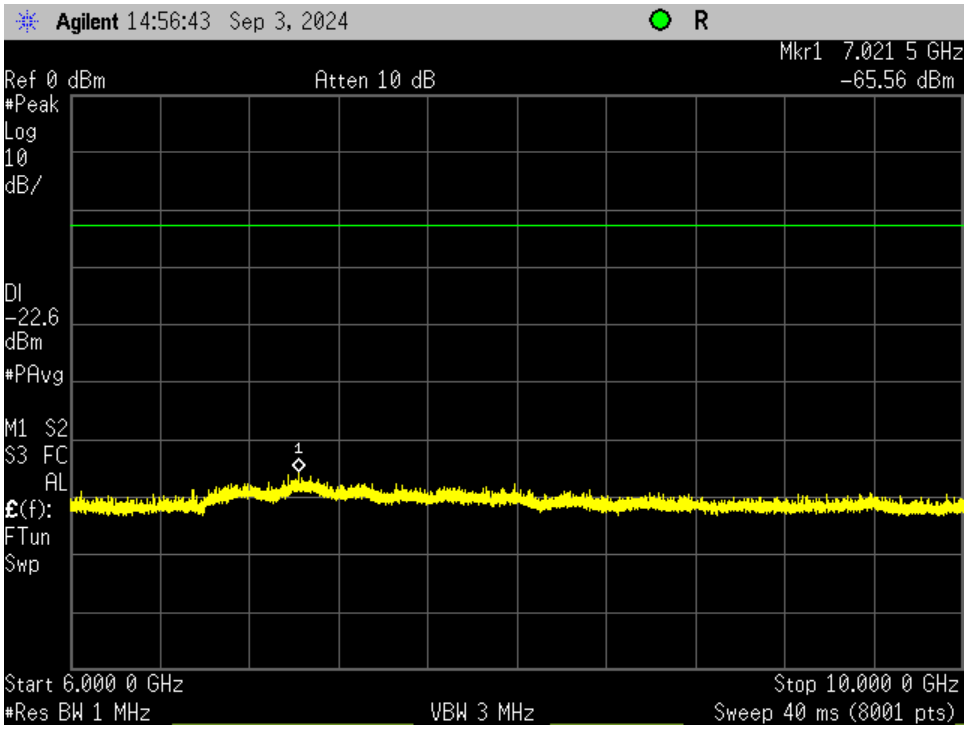

Figure 64. 940 MHz Tune Dual Tone Horizontal, 6000 – 10000 MHz

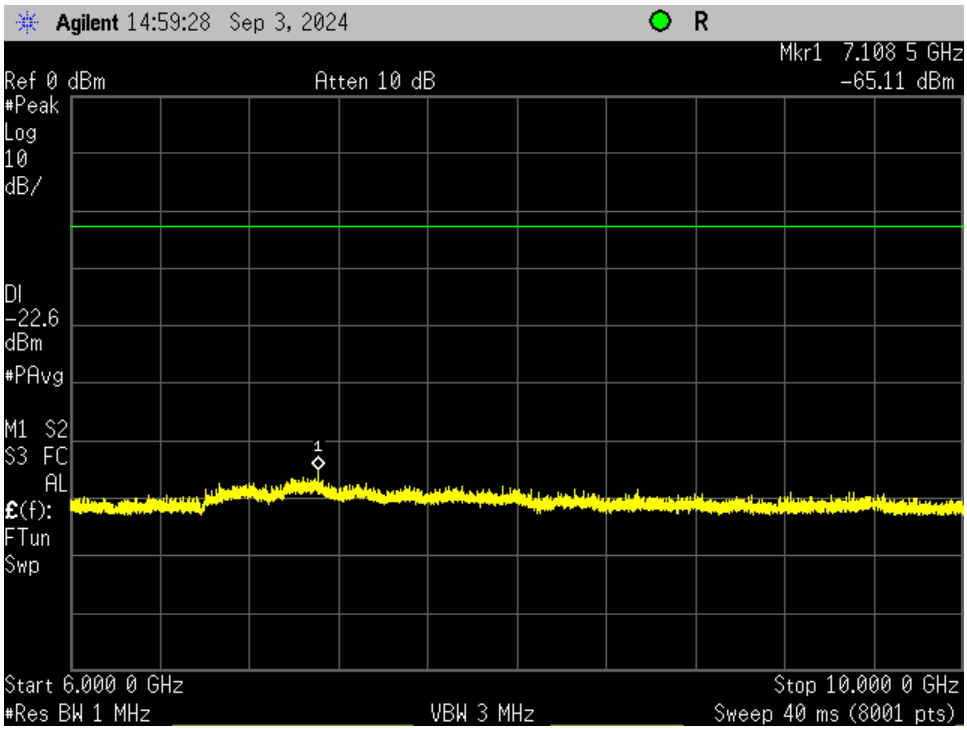

Figure 65. 940 MHz Tune Dual Tone Vertical, 6000 - 10000 MHz

2.13.2 Conducted Spurious Emissions Measurement (90.219(e)(4), RSS-131, 10.5)

The EUT was connected to a spectrum analyzer through a 20 dB attenuator. All cable and attenuator losses were input into the spectrum analyzer as a combination of reference level offset and/or correction factors as needed to ensure the accuracy of the readings obtained.

A CW signal was used to set the center frequency of the transmitter. The RF input signal level was set to at least 0.2 dB below the ACG threshold. The RBW was set to 100 KHz for measurements below 1 GHz and 1 MHz for measurements above 1 GHz. The VBW was 3 times the RBW.

Limit = -13 dBm (Display line set to represent the limit)

Emissions were investigated from 30 MHz to the 10th harmonic of the applicable frequency band of concern. The following plots show the worst-case measurements.

2.13.2.1 UHF Conducted Spurious Emissions

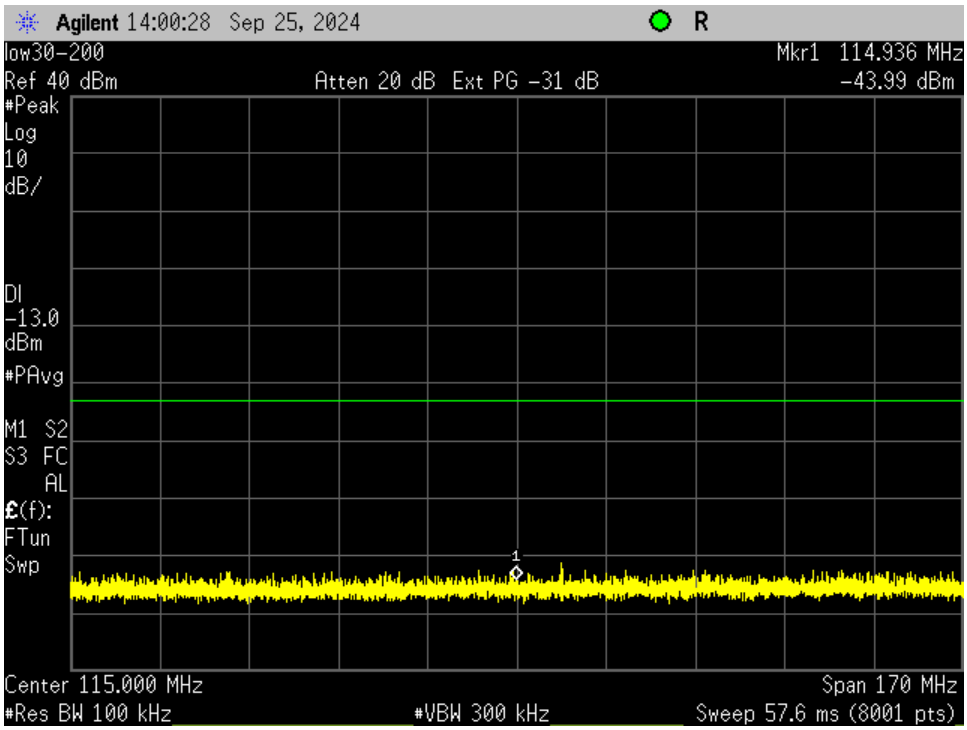

Figure 66. 896 MHz 30 - 200 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

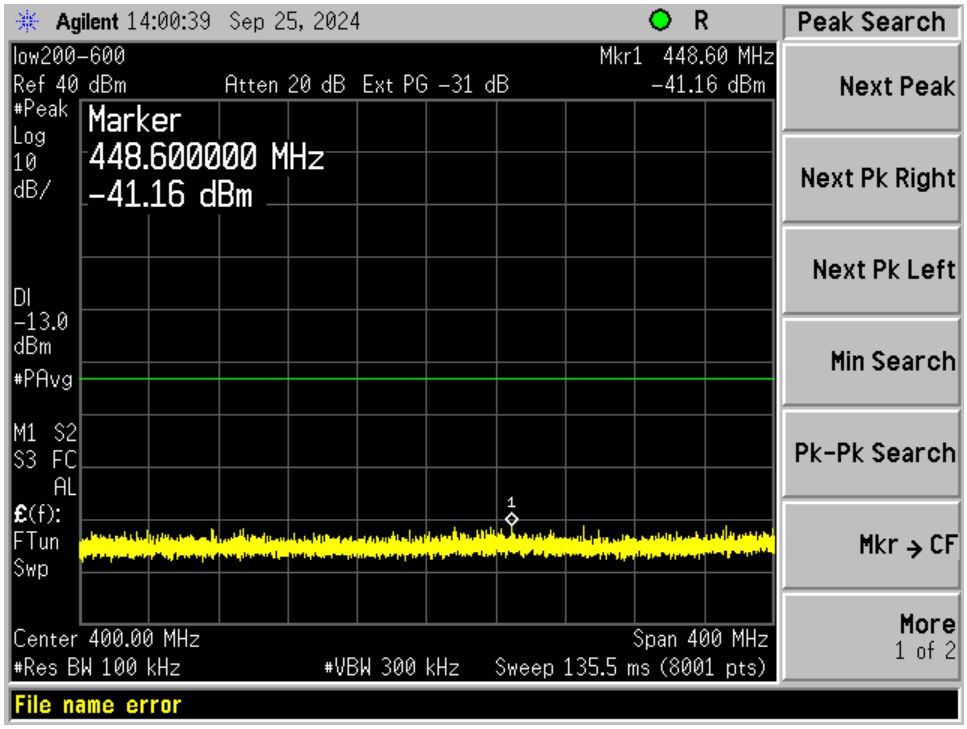

Figure 67. 896 MHz, 200 – 600 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

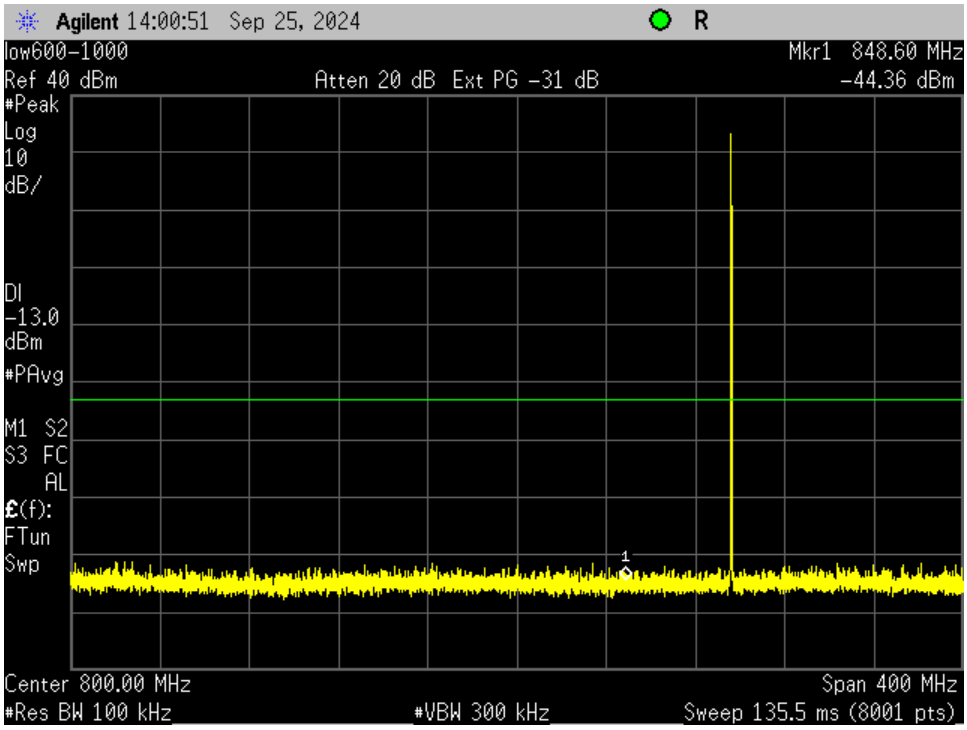

Figure 68. 896 MHz 600 - 1000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

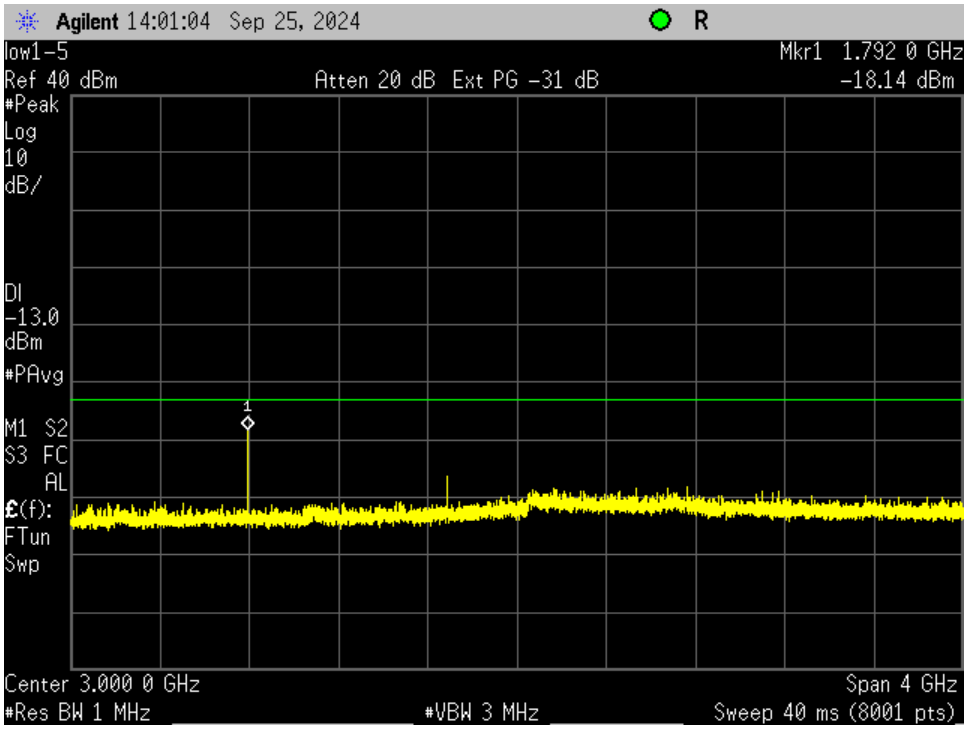

Figure 69. 896 MHz, 1000 – 5000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

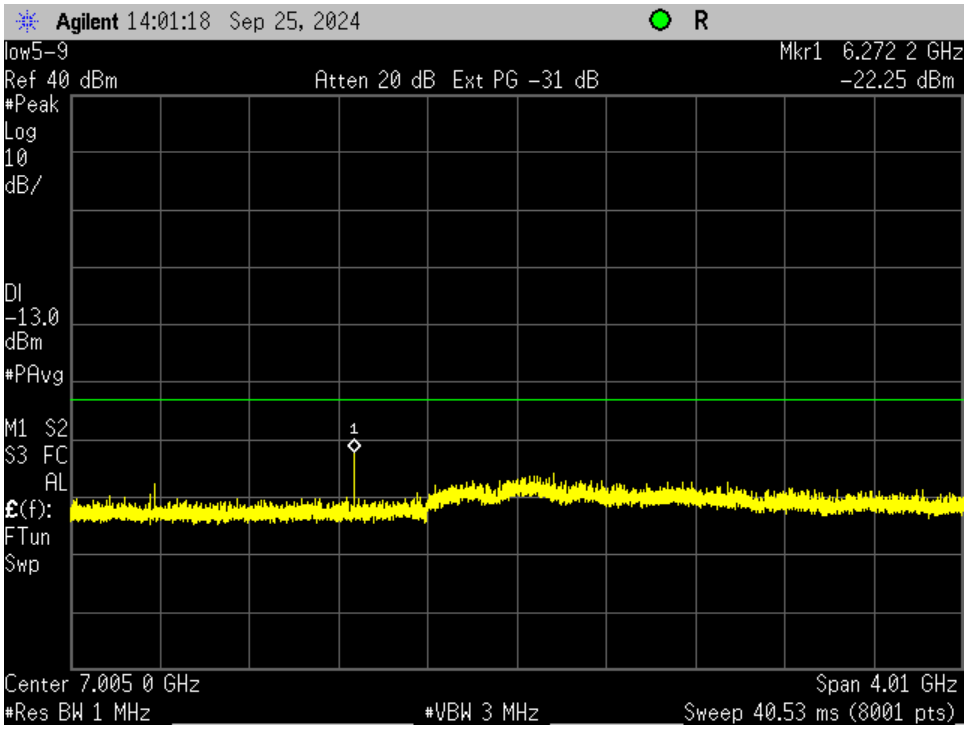

Figure 70. 896 MHz 5000 – 9000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

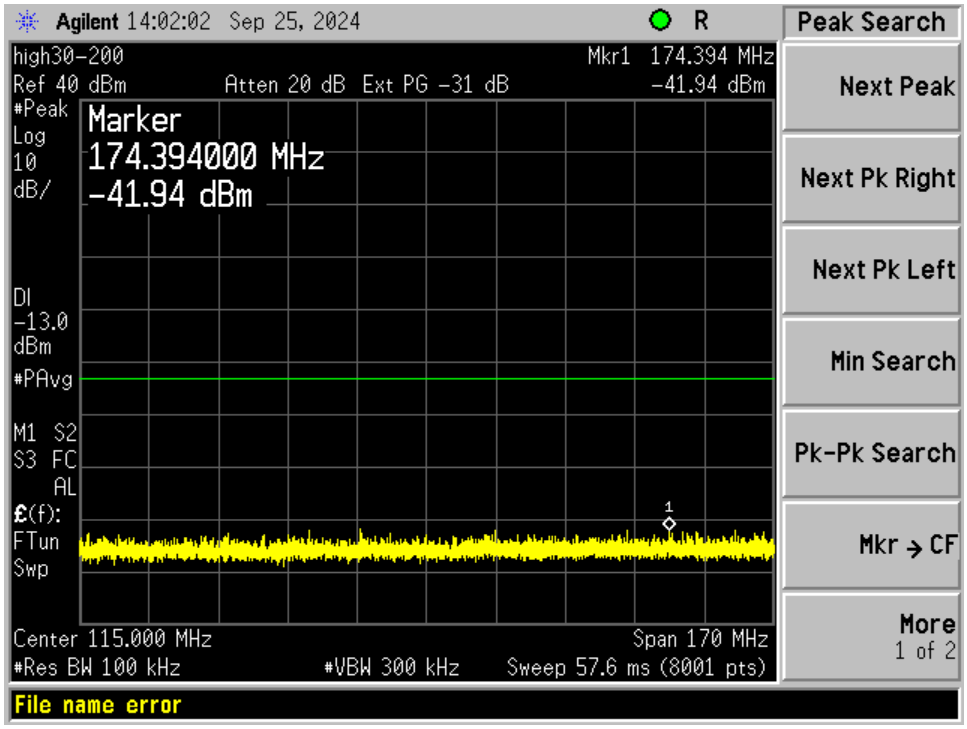

Figure 71. 901 MHz 30 - 200 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

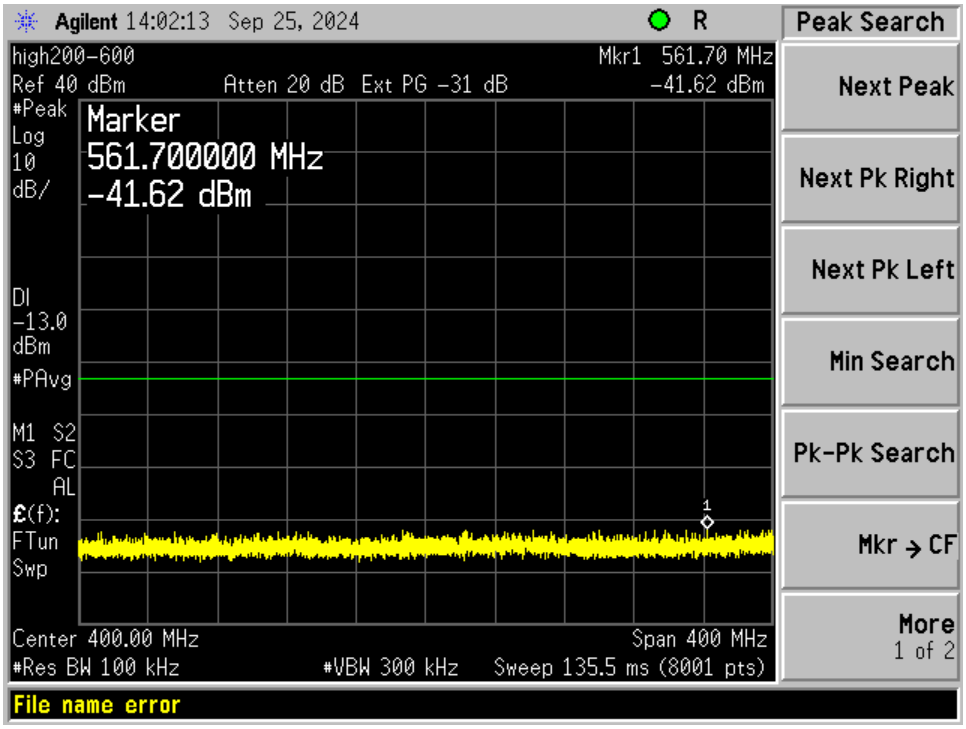

Figure 72. 901 MHz, 200 – 600 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

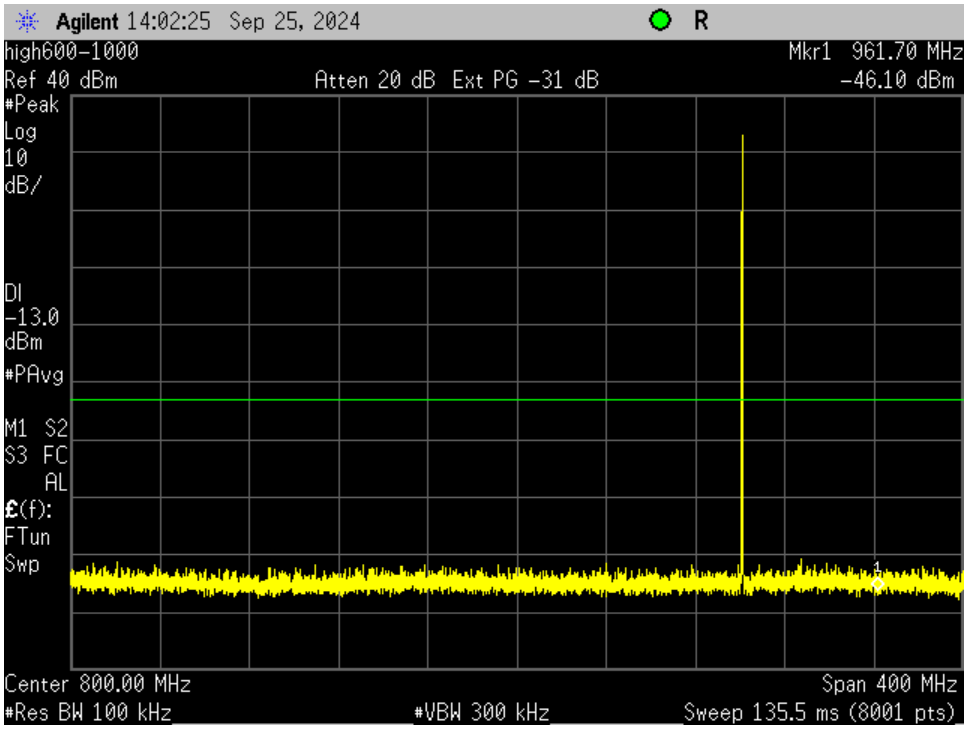

Figure 73. 901 MHz 600 - 1000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

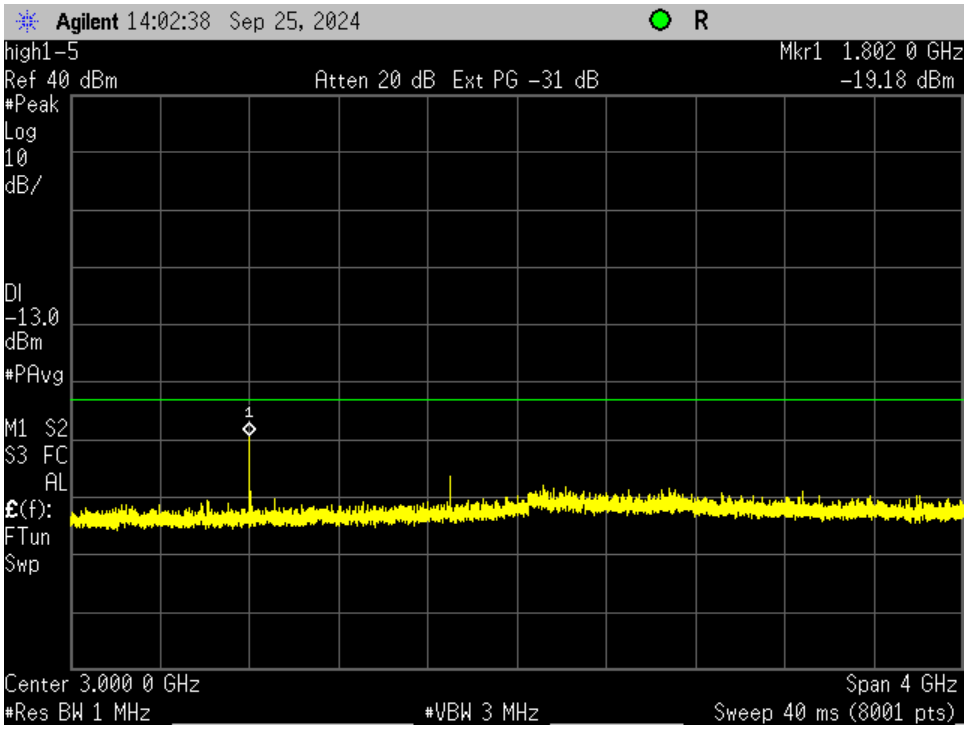

Figure 74. 901 MHz, 1000 – 5000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

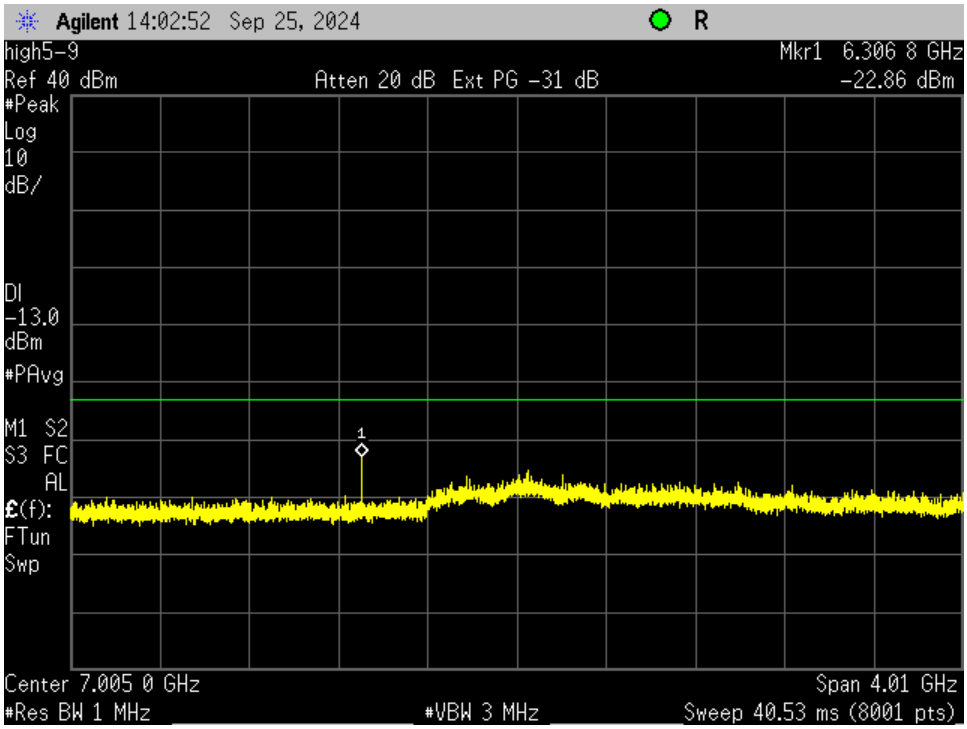

Figure 75. 901 MHz 5000 - 9000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

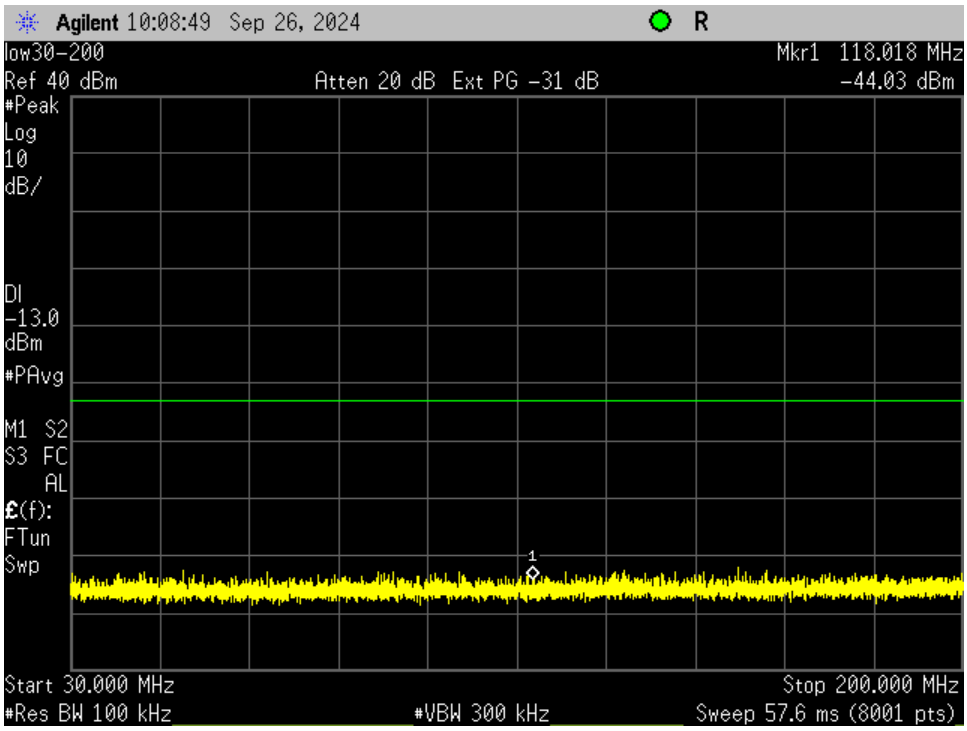

Figure 76. 930 MHz 30 - 200 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

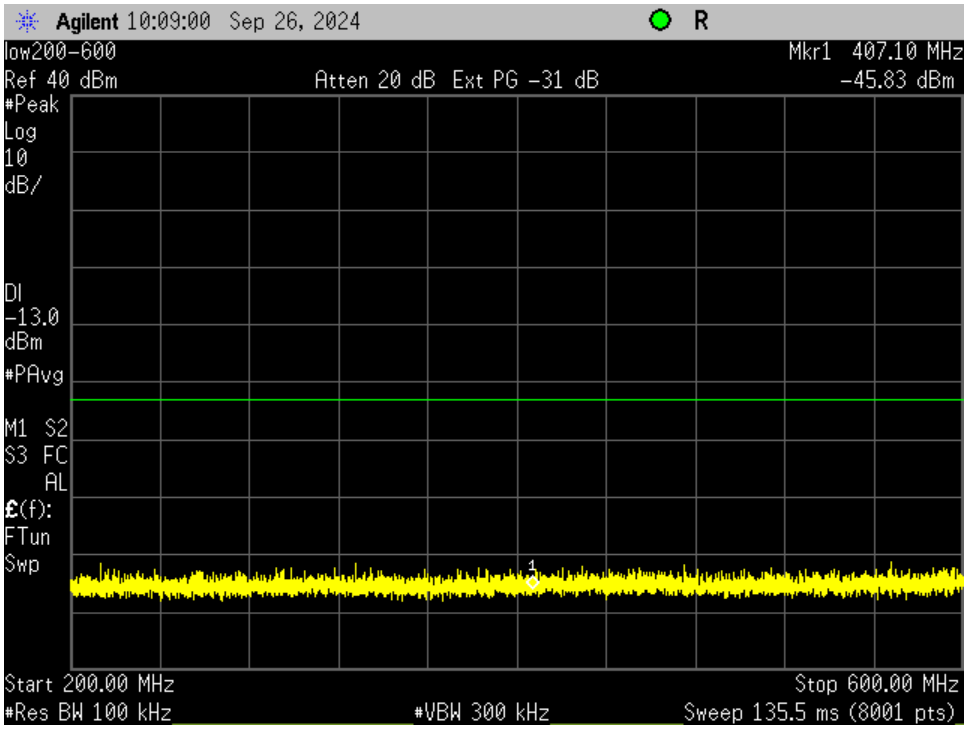

Figure 77. 930 MHz, 200 – 600 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

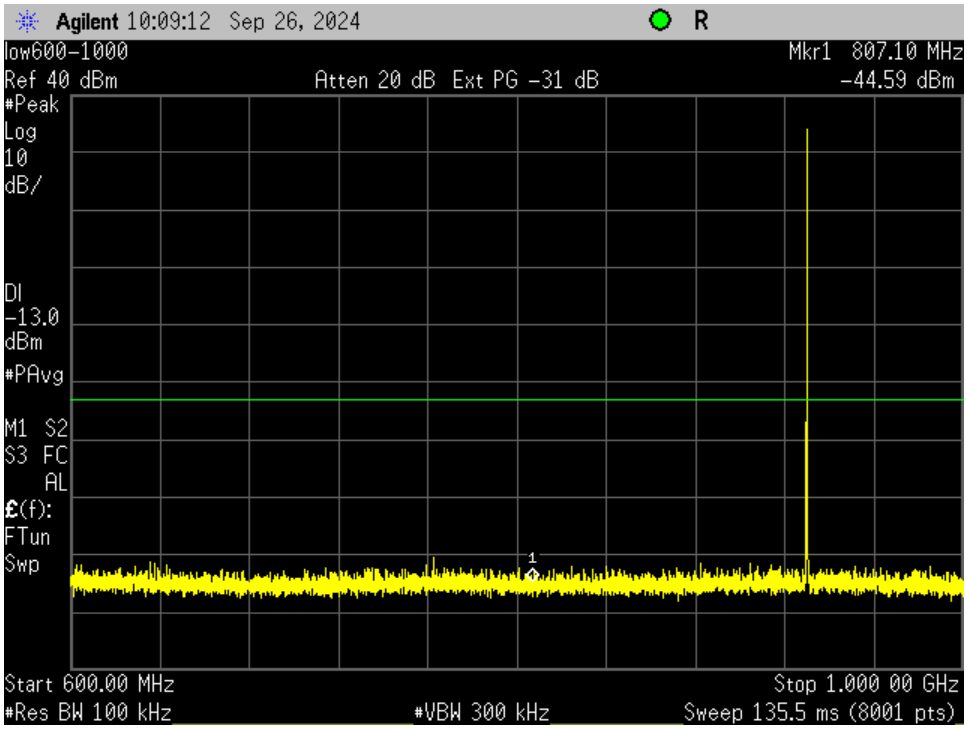

Figure 78. 930 MHz 600 - 1000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

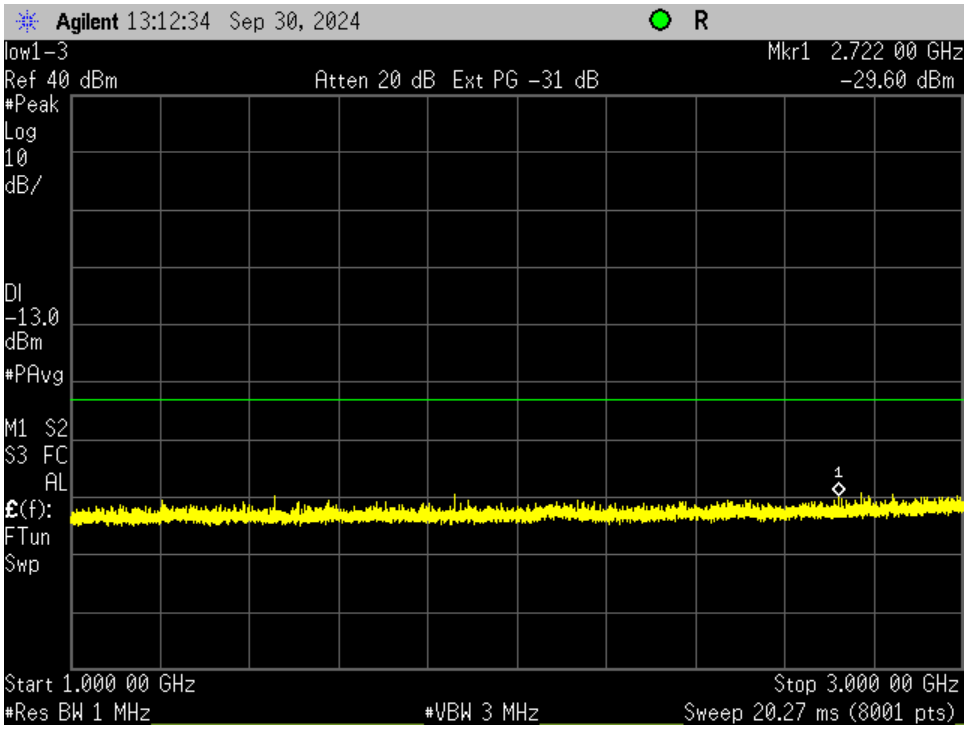

Figure 79. 930 MHz, 1000 – 3000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

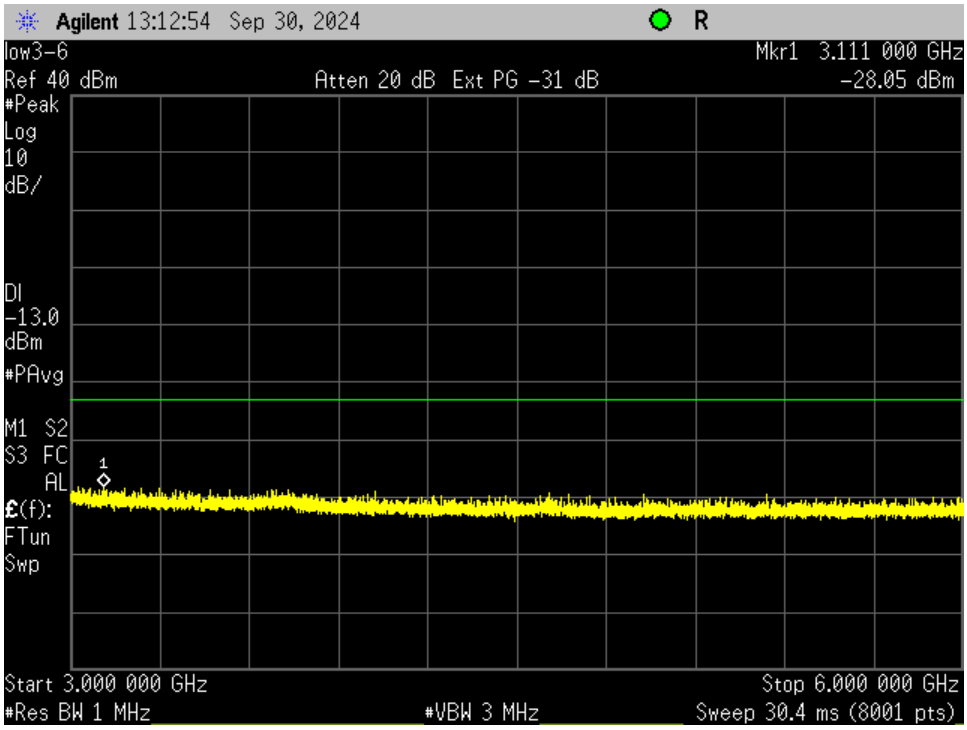

Figure 80. 930 MHz, 3000 - 6000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

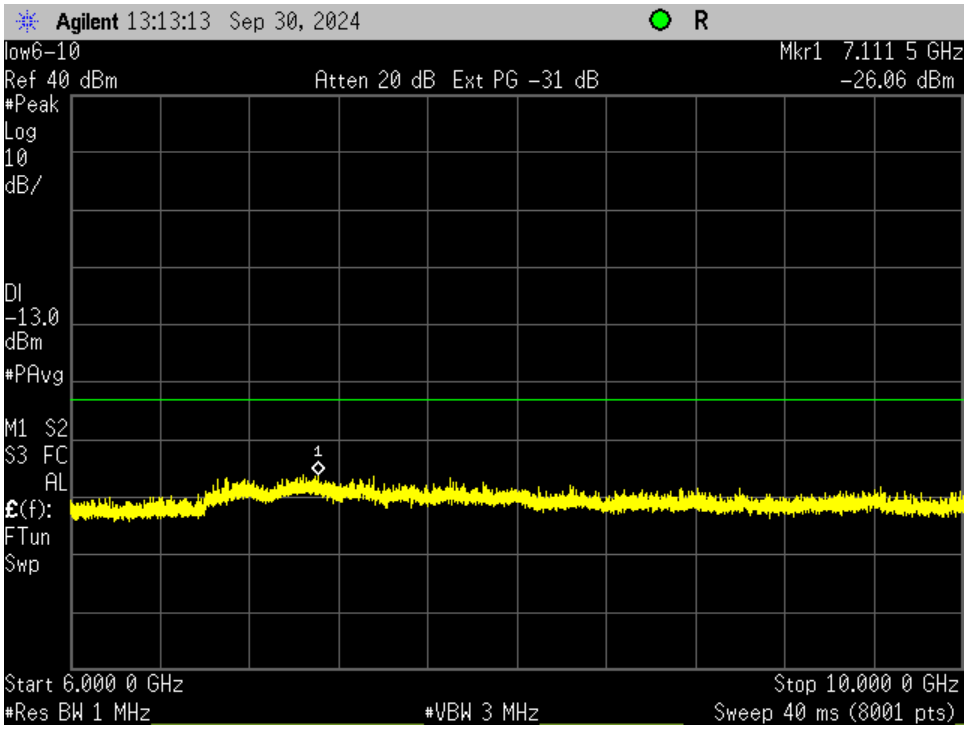

Figure 81. 930 MHz, 6000 - 10000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

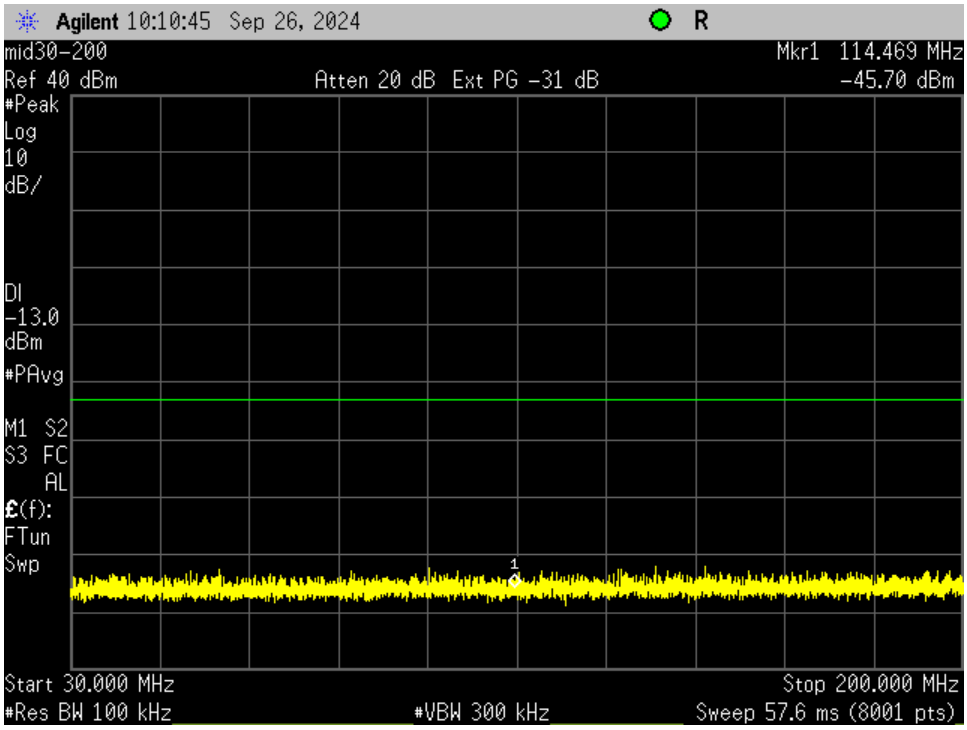

Figure 82. 935 MHz 30 - 200 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

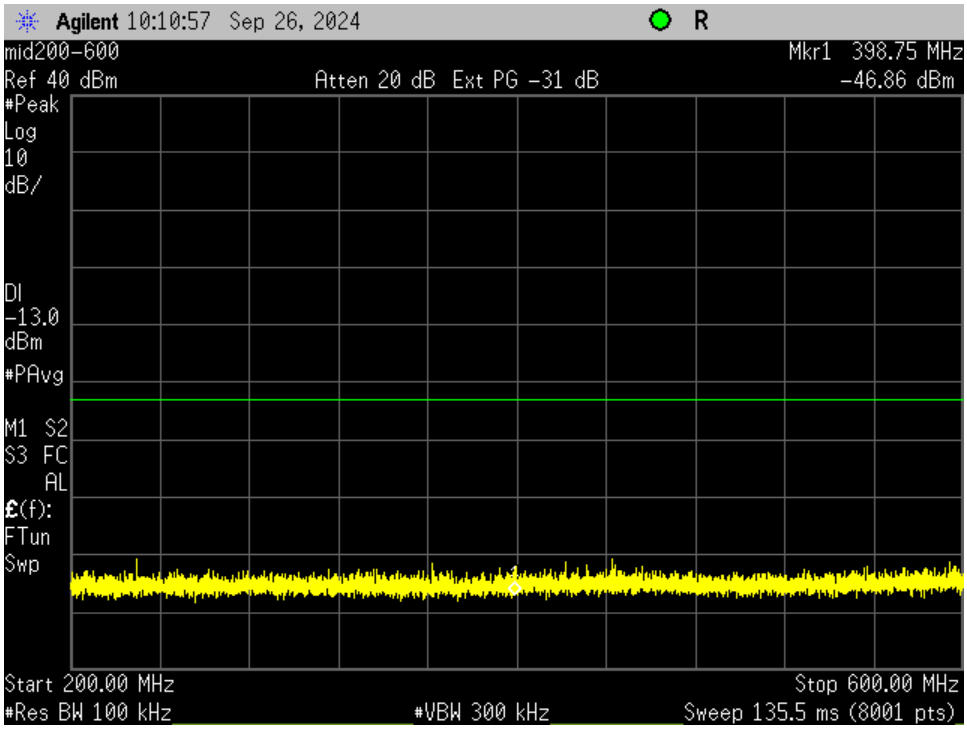

Figure 83. 935 MHz, 200 – 600 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

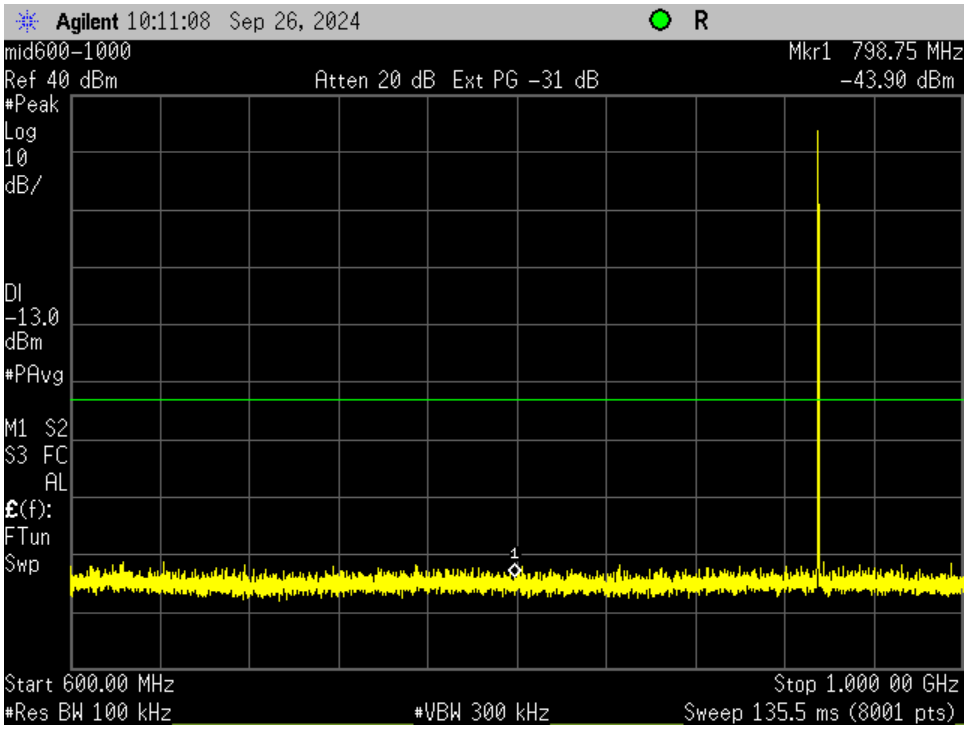

Figure 84. 935 MHz 600 - 1000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

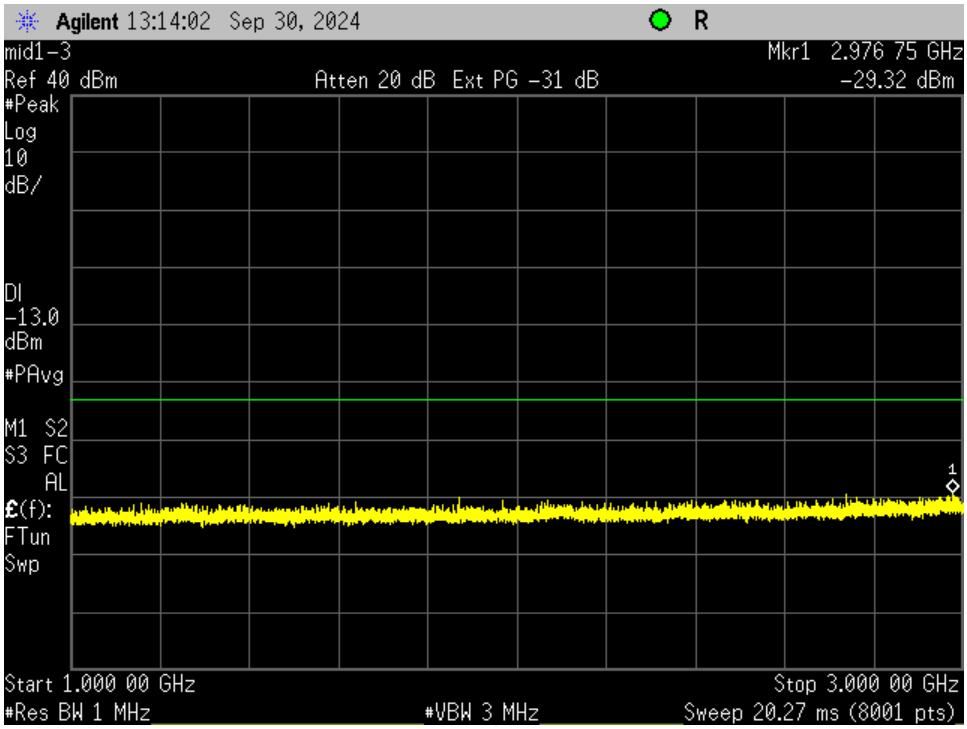

Figure 85. 935 MHz, 1000 - 3000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

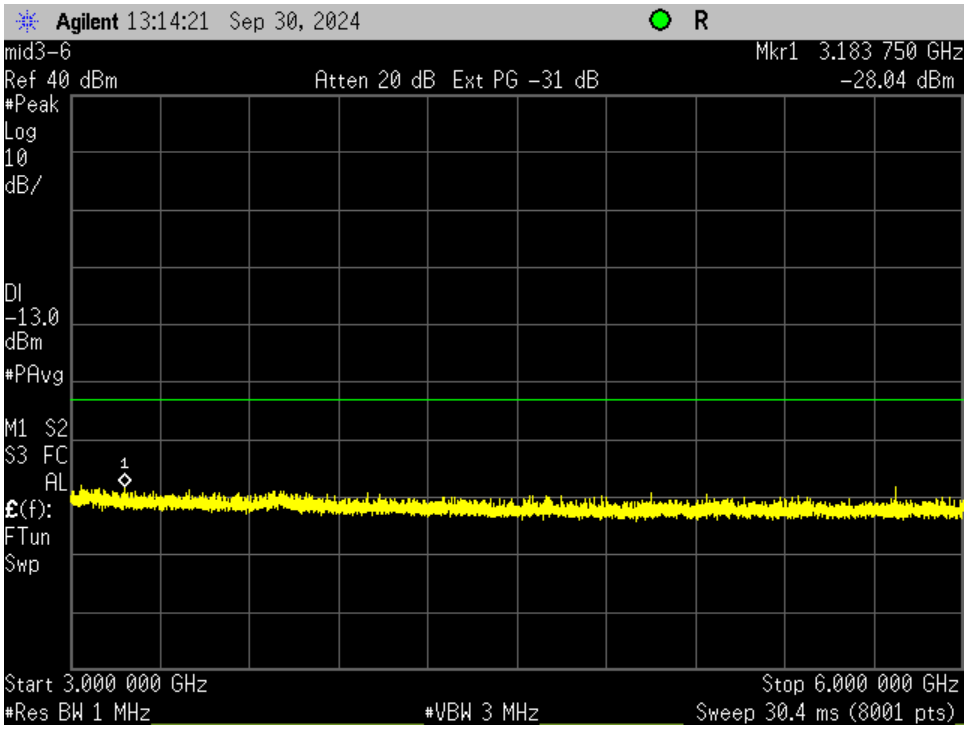

Figure 86. 935 MHz, 3000 - 6000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

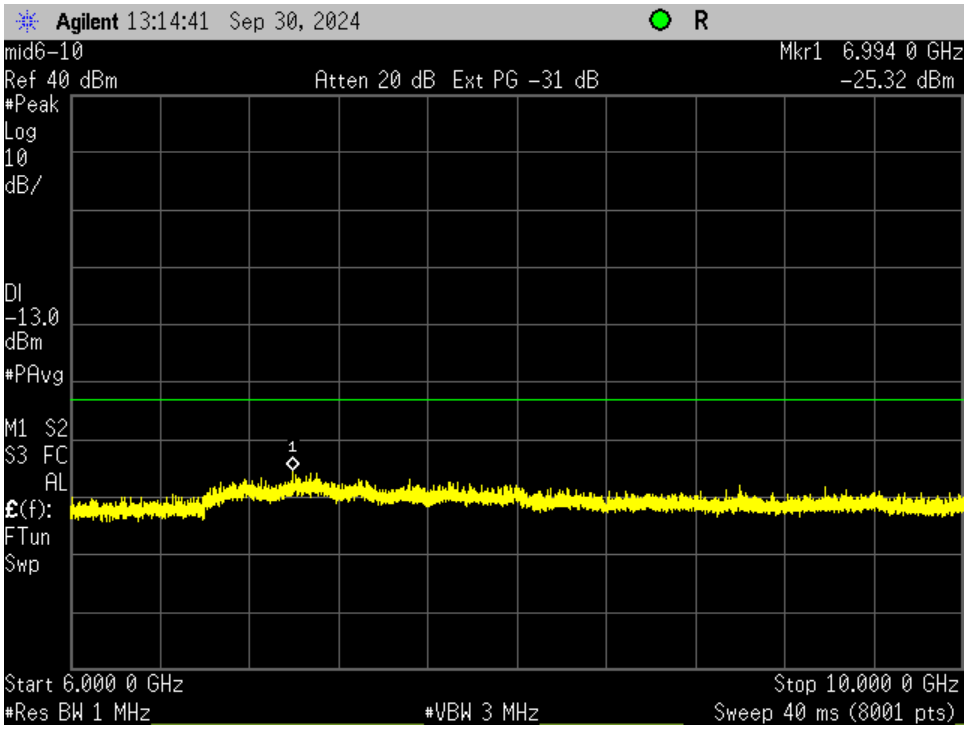

Figure 87. 935 MHz 6000 - 10000MHz

Note: All emissions other than fundamental and harmonics are below the limit.

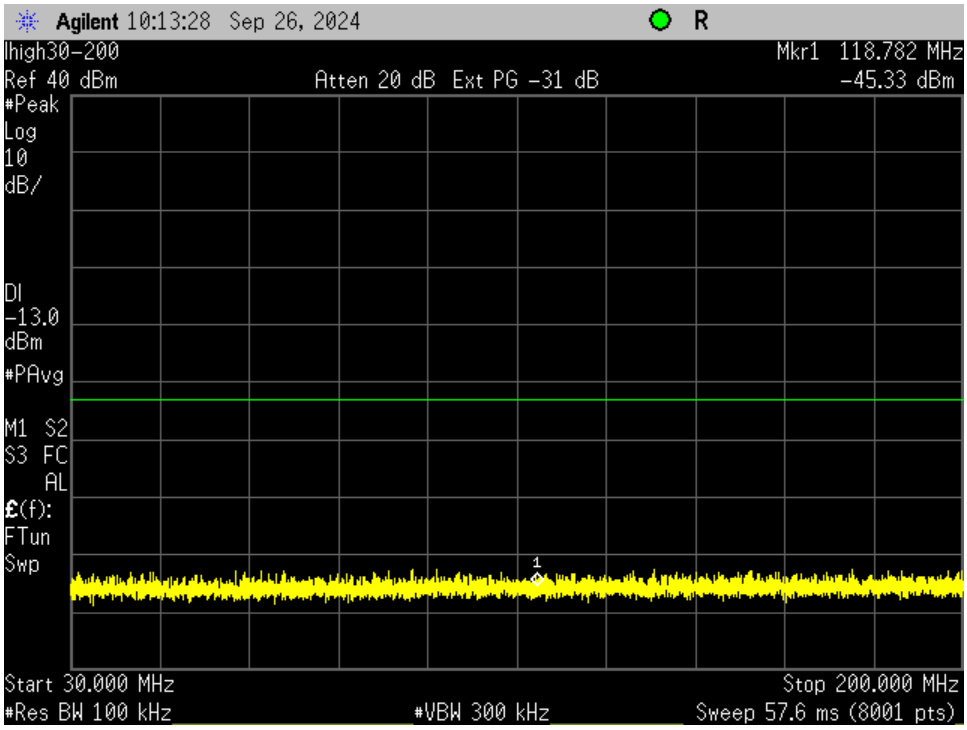

Figure 88. 938 MHz 30 - 200 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

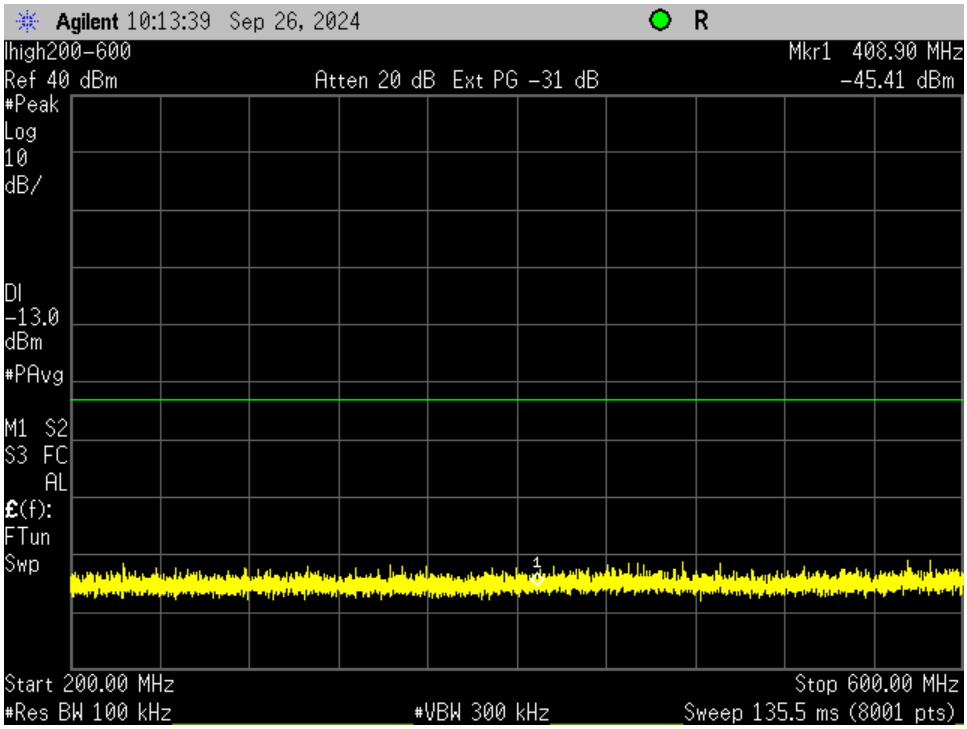

Figure 89. 938 MHz, 200 – 600 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

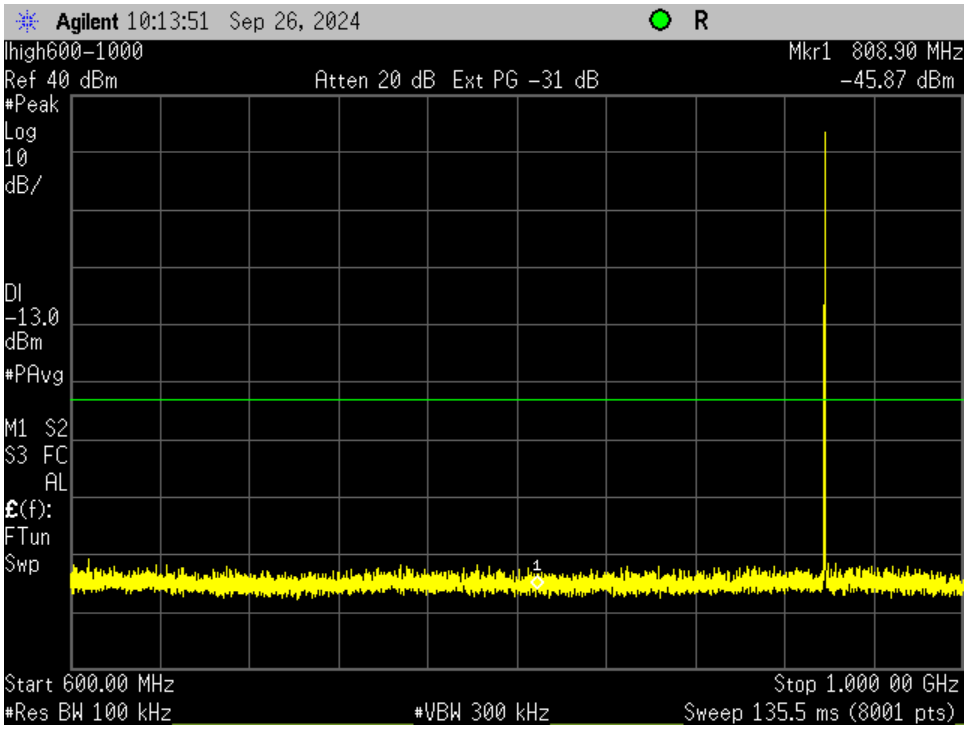

Figure 90. 938 MHz 600 - 1000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

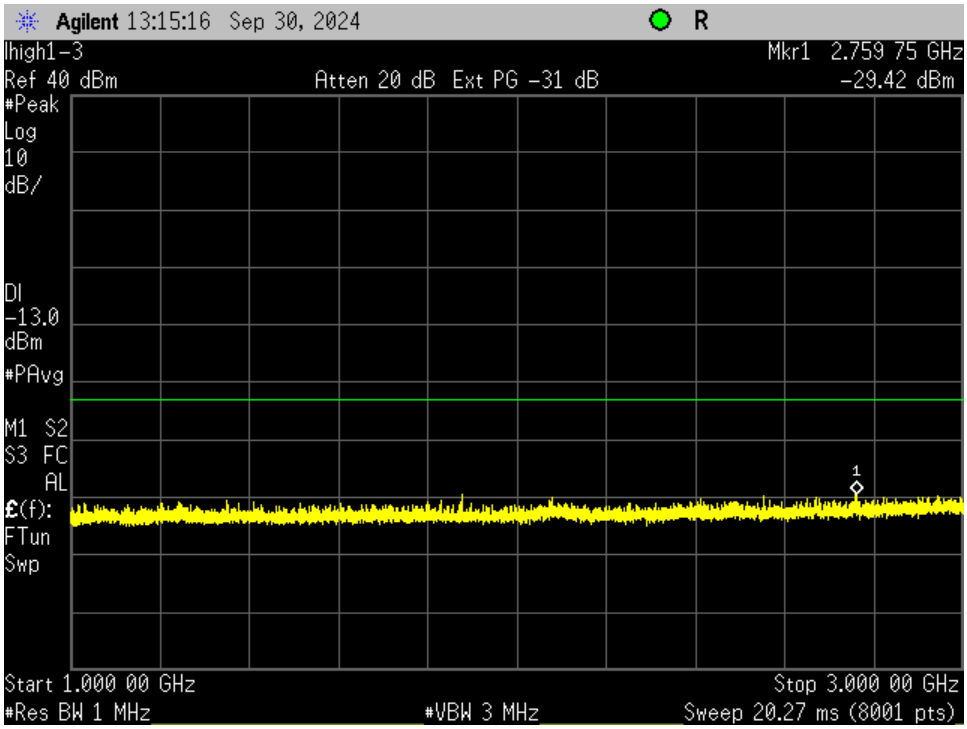

Figure 91. 938 MHz, 1000 - 3000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

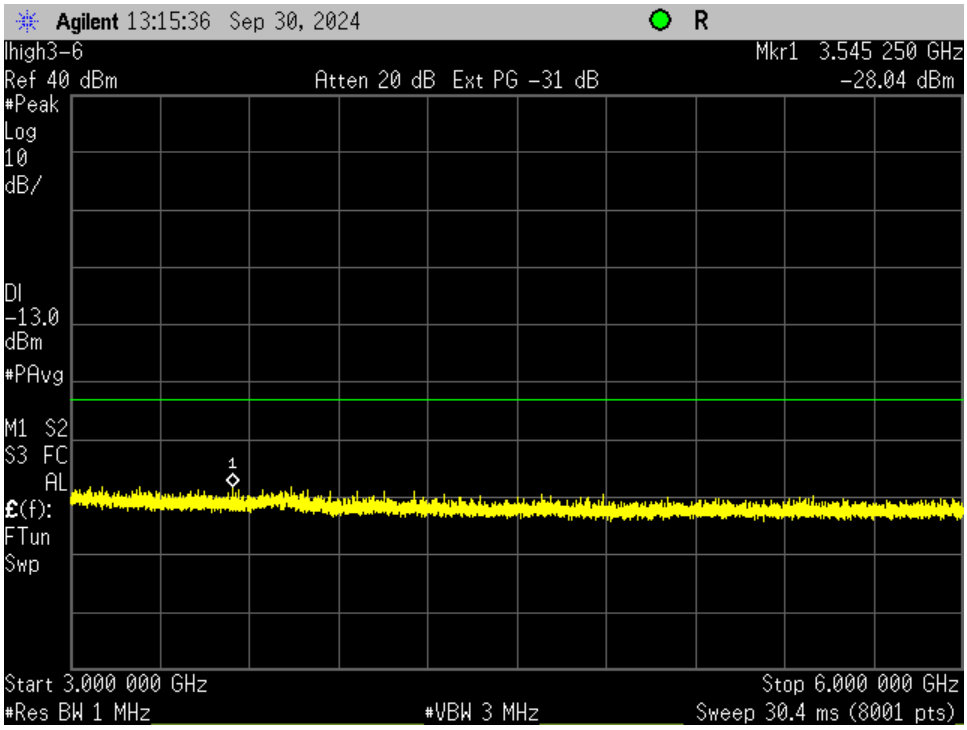

Figure 92. 938 MHz, 3000 - 6000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

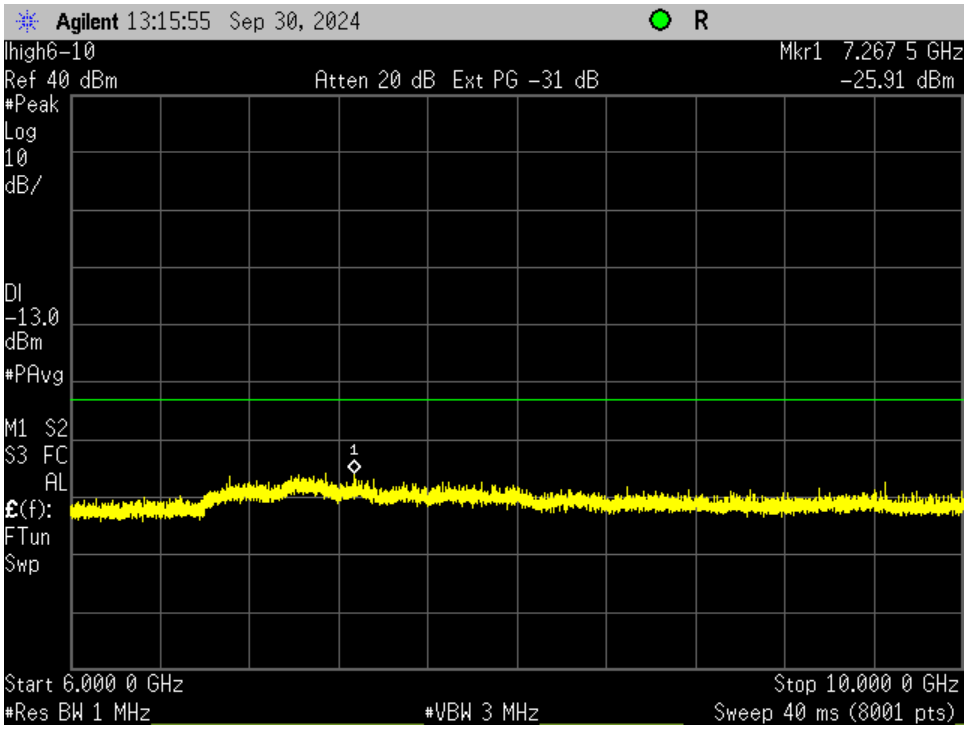

Figure 93. 938 MHz, 6000 – 10000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

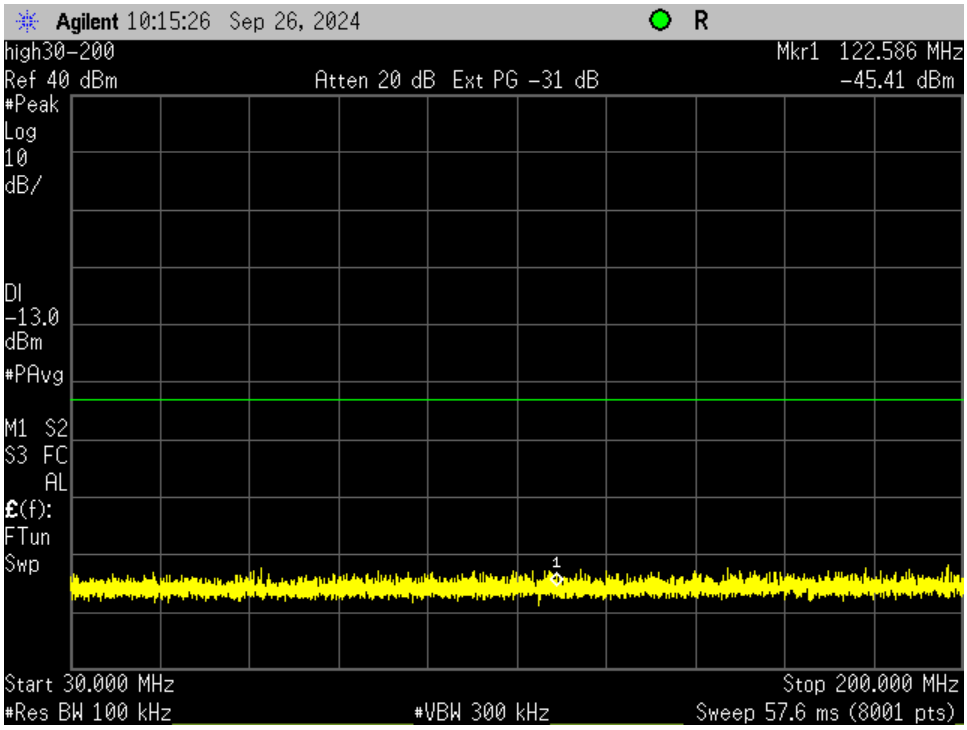

Figure 94. 941 MHz 30 - 200 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

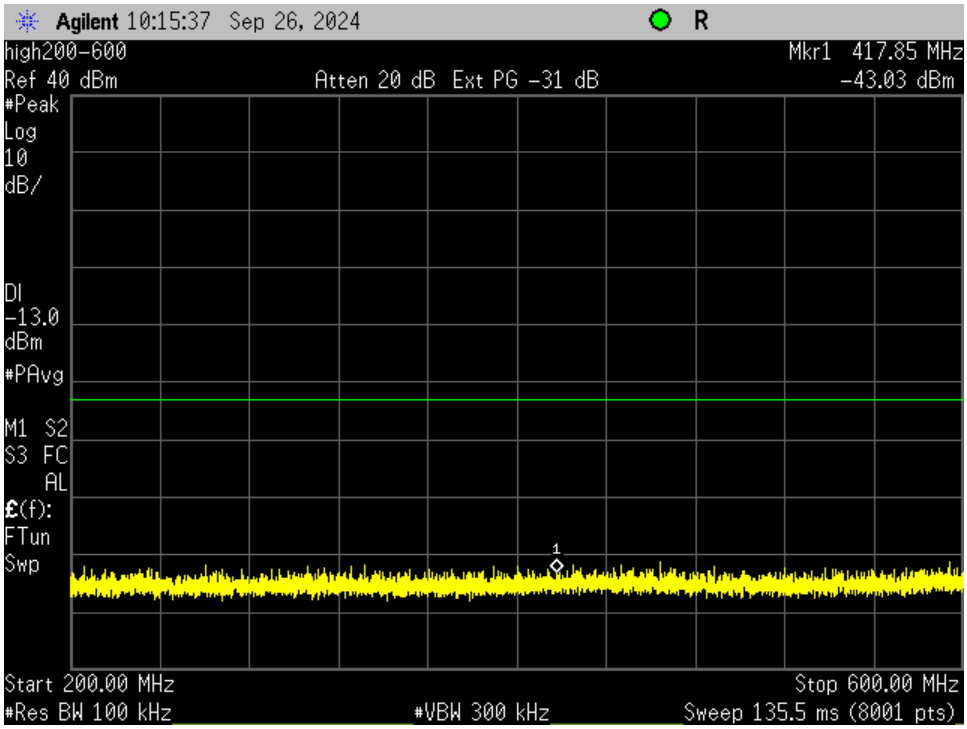

Figure 95. 941 MHz, 200 – 600 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

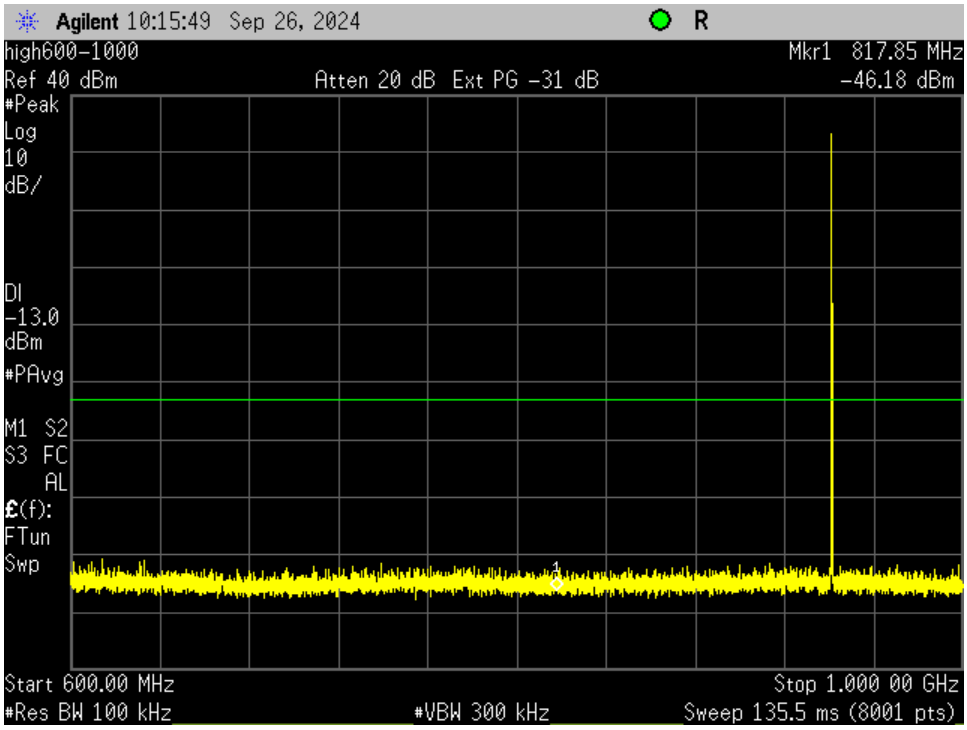

Figure 96. 941 MHz 600 - 1000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

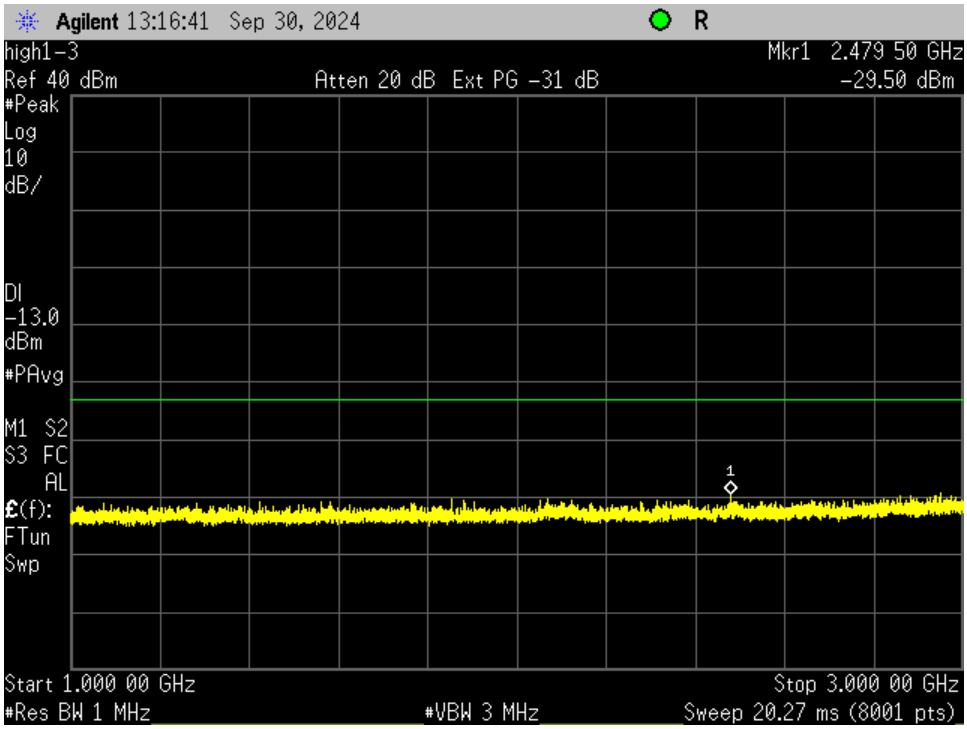

Figure 97. 941 MHz, 1000 - 3000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

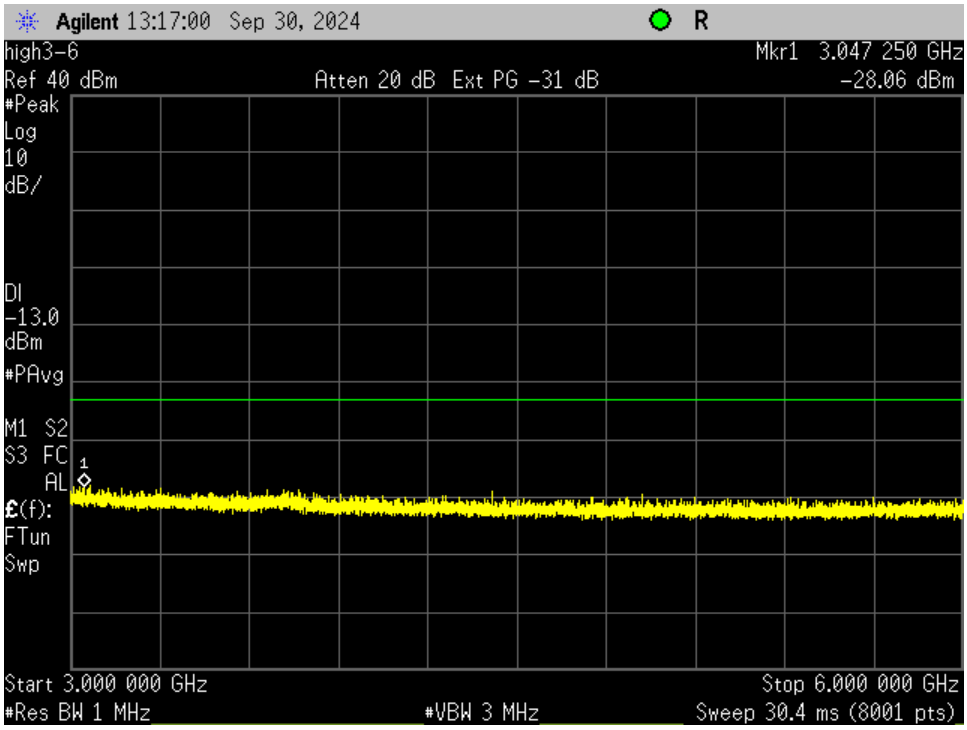

Figure 98. 941 MHz, 3000 - 6000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

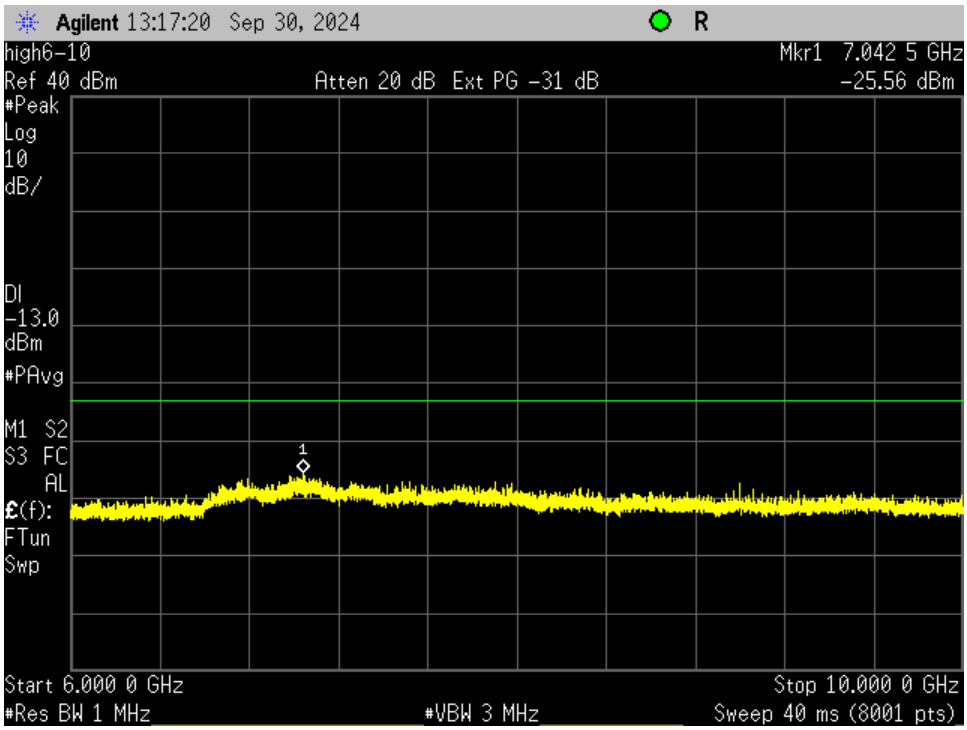

Figure 99. 941 MHz, 6000 – 10000 MHz

Note: All emissions other than fundamental and harmonics are below the limit.

2.14 AGC Threshold (KDB 935210 D05 v01r04 4.2)

The AGC Threshold data below is provide for recording purpose per KDB 935210.

2.14.1 Measuring AGC Threshold

The AGC threshold shall be determined by applying the procedure of 3.2 of KDB 953210 D05 v01r04 but with the signal generator configured to produce a test signal defined in Table 1 of the KDB document, a CW input signal or digitally modulated signal. In this case, a CW input signal with no modulation was used.

FREQ (MHz)	AGC Input (dBm)	Measured Output (dBm)	Gain (dB)	BAND
896.00	12.0	33.35	21.35	896-941 MHz
901.00	12.0	32.89	20.89	
930.00	12.0	34.33	22.33	
935.00	12.0	33.97	21.97	
938.00	12.0	33.83	21.83	
941.00	12.0	33.66	21.66	

2.15 Out-of-Band Rejection (KDB 935210 D05 v01r04 4.3)

The Out-of-Band Rejection data below is provided for recording purposes per KDB 935210.

2.15.1 Out-of-Band Rejection Measurement

The procedure detailed in 4.3 of the KDB was used to perform these measurements. Plots of the test results are provided below.

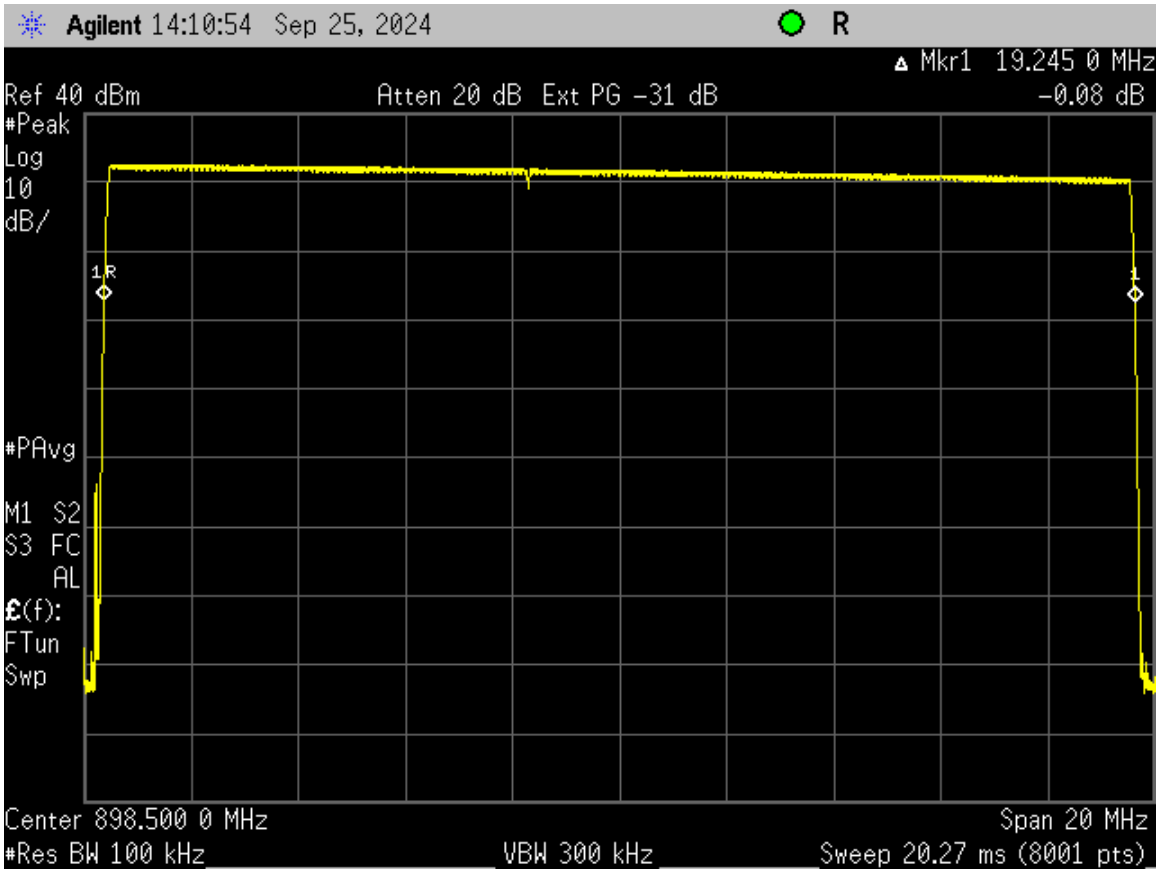

Figure 100. 896-901 MHz Tune Out-of-Band Rejection

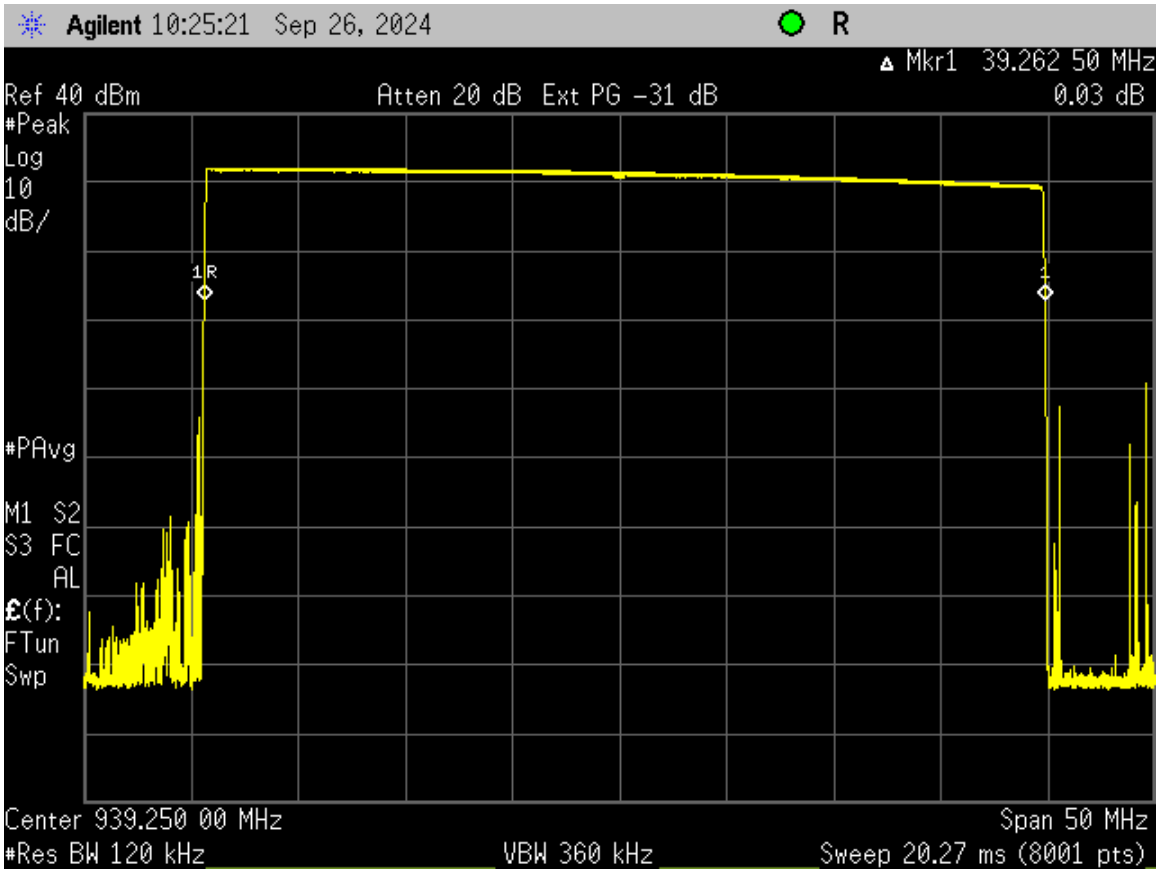

Figure 101. 940 MHz Tune Out-of-Band Rejection

2.16 Measurement Uncertainty

2.16.1 Radiated Spurious Emissions Measurement Uncertainty

For a measurement distance of 3 m, the measurement uncertainty (with a 95% confidence level) for this test using a Biconical Antenna (30 MHz to 200 MHz) is ± 5.39 dB. This value includes all elements of measurement.

The measurement uncertainty (with a 95% confidence level) for this test using a Log Periodic Antenna (200 MHz to 1000 MHz) is ± 5.18 dB

The measurement uncertainty (with a 95% confidence level) for this test using a Horn Antenna is ± 5.21 dB (3 m distance).

2.16.2 Conducted Radio Emissions Measurement Uncertainty

Measurement uncertainty (within a 95% confidence level) for this test is ± 1.5 dB.

3 Conclusions

3.1 Test Outcome

Based on the test results shown above, the EUT is deemed to comply with all relevant requirements for Part 90.219 and RSS-131 Clause 10.