

Testing Tomorrow's Technology

Annex A

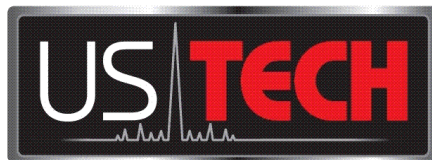
For the

**Safe-Com Wireless
Model: SAFE-0002**

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

**UST Project No: 24-0123
February 4, 2025**

**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

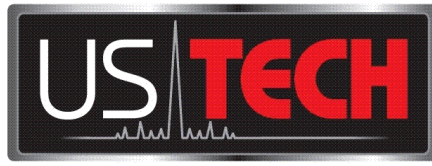
Title: Consulting Engineer/President

Date: February 4, 2025



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MEASUREMENT/TECHNICAL REPORT

This report concerns (check one): Original grant ☒
Class II change _____

Reevaluation _____

Equipment type: Part 90.219 Amplifier equipment class AMP

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

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1 General Information

1.1 Product Description

The Equipment under Test (EUT) is the Safe-Com Wireless model SAFE-0002. The EUT is a amplifier for use in signal boosters 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 model number will be followed by a defining character: A, B, Ca or Cb. This defines the tuning for that the amp has been configured 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.

For FCC Part 90.219

150.8-156.2475 MHz
157.1875-161.575 MHz
161.775-161.96 MHz
162.04-173.40 MHz
406.1-454.0 MHz
456.0-462.5375 MHz
467.74-512.0 MHz
758.0-775.0 MHz
788.0-805.0 MHz
806.0-849.0 MHz
851.0-869.0 MHz

For ISED RSS-131

150.05-174.0 MHz
406.1-430.0MHz
450.0-470.0 MHz
768.0-776.0 MHz
798.0-806.0 MHz
806.0-821.0 MHz
851.0-866.0 MHz
866.0-869.0 MHz

1.2 Related Submittal(s)/Grant(s)

This report is to be added to the existing FCC and IC certification Test report with US Tech project number 24-0123 dated August 1, 2024.

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1.3 Summary of Tests

The following tests were performed:

Part	Test Description	Verdict
90.219(e)(3)	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.

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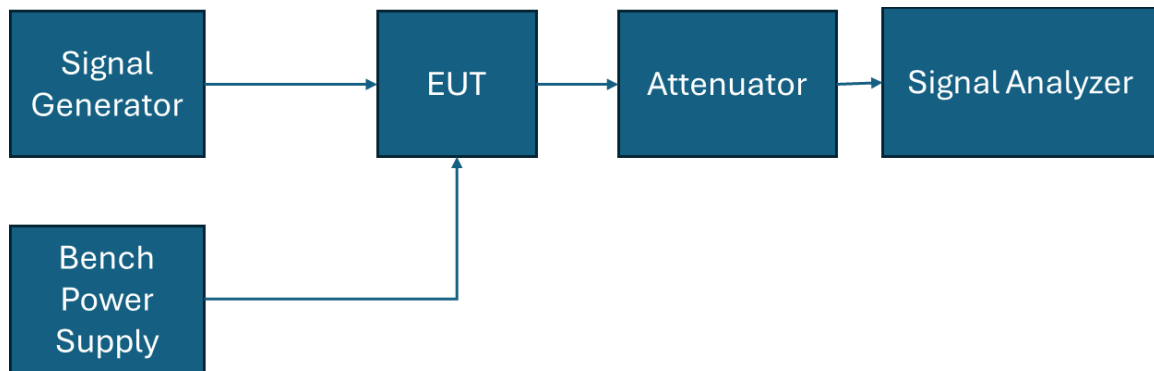


Figure 1. Block Diagram of Test Configuration

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Table 1. EUT and Peripherals

EUT MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID/ IC ID	CABLES P/D
Tuning A	SAFE-0002-A	Engineering Sample	FCC ID: 2AKSM-SAFE4 (Pending) IC: 22303-SAFE4 (Pending)	PU
Tuning B	SAFE-0002-B	Engineering Sample	FCC ID: 2AKSM-SAFE4 (Pending) IC: 22303-SAFE4 (Pending)	PU
Tuning Ca	SAFE-0002-Ca	Engineering Sample	FCC ID: 2AKSM-SAFE4 (Pending) IC: 22303-SAFE4 (Pending)	PU
Tuning Cb	SAFE-0002-Cb	Engineering Sample	FCC ID: 2AKSM-SAFE4 (Pending) IC: 22303-SAFE4 (Pending)	PU

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

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Table 2. Test Instruments

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DUE DATE
Spectrum Analyzer	Rigol	DSA815	DSA8A180300138	2/22/2026
Signal Generator	Rohde & Schwarz	CMW500	1201.0002K50	Verified With Rigol
20 dB Attenuator	Meca	604-20-1	None	3/4/2025
20 dB Attenuator	USTech	AT145	AT145	3/4/2025

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

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2.6 Intermodulation Emissions Measurement (Two Tone Testing)

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.

2.6.1.1 VHF Module Intermodulation Plots

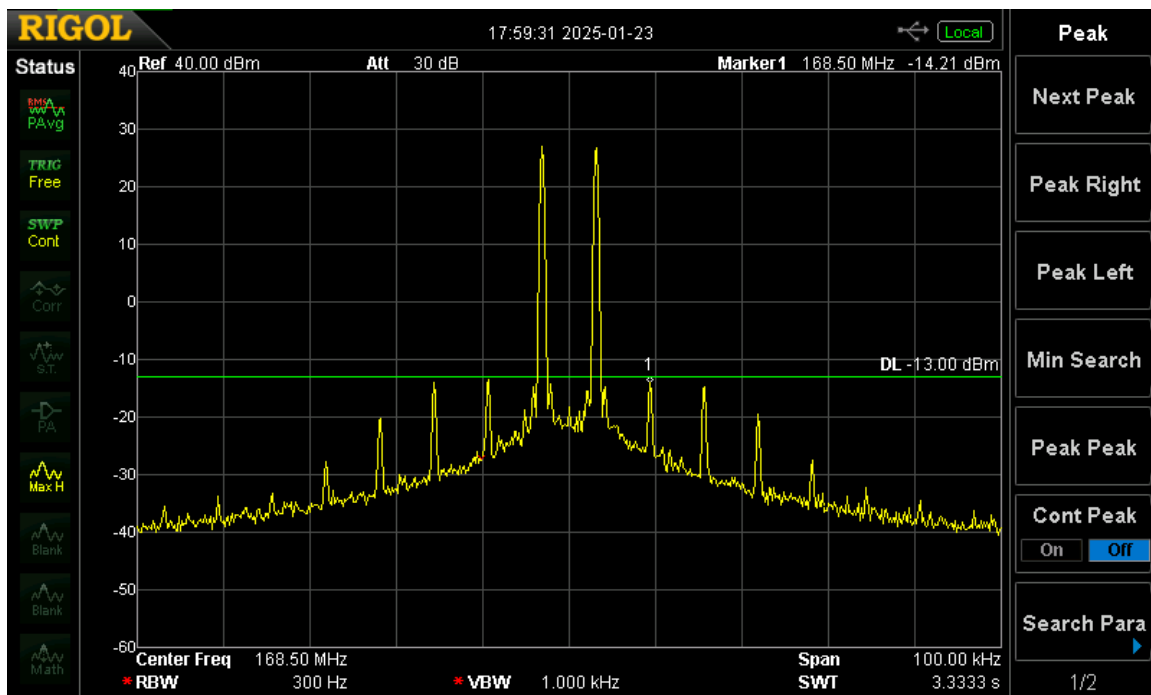


Figure 2. VHF Module Intermodulation for 6.25 kHz

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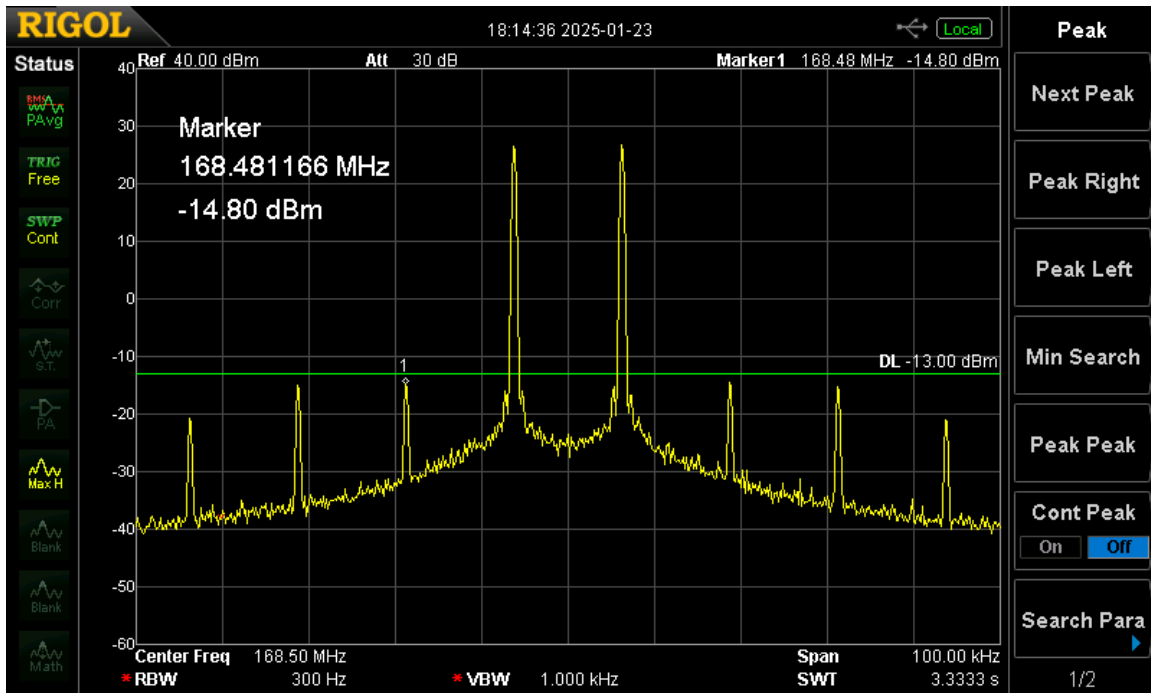


Figure 3. VHF Module Intermodulation for 12.5 kHz

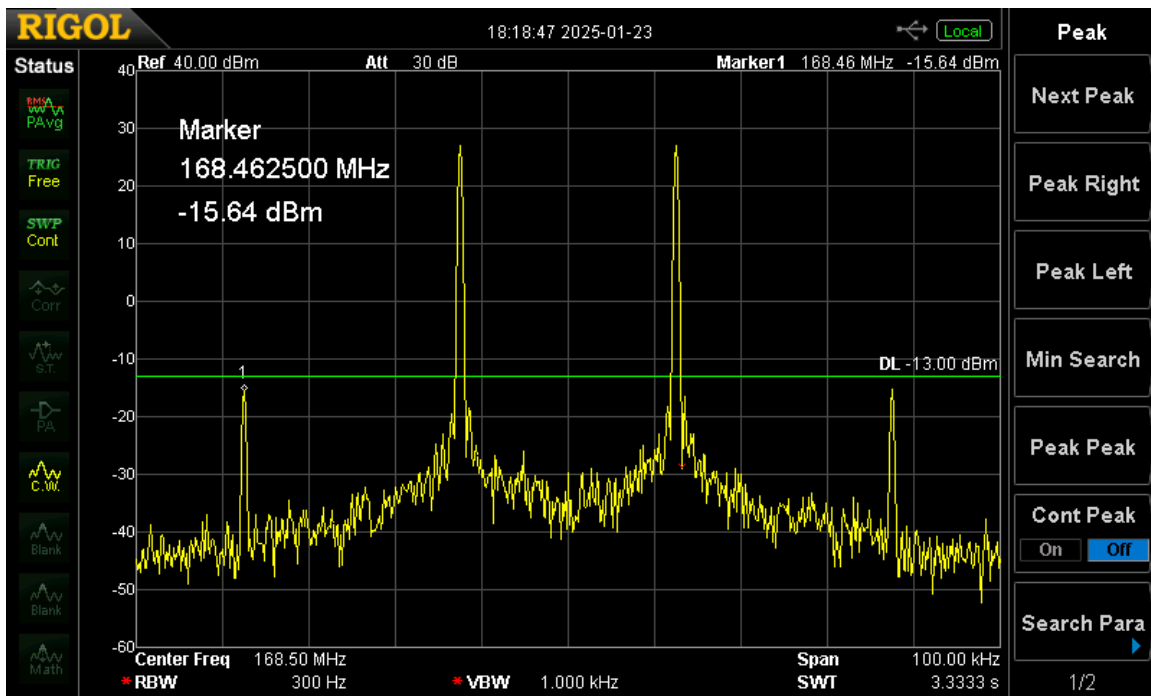


Figure 4. VHF Module Intermodulation for 25 kHz

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2.6.1.2 UHF Module Intermodulation Plots

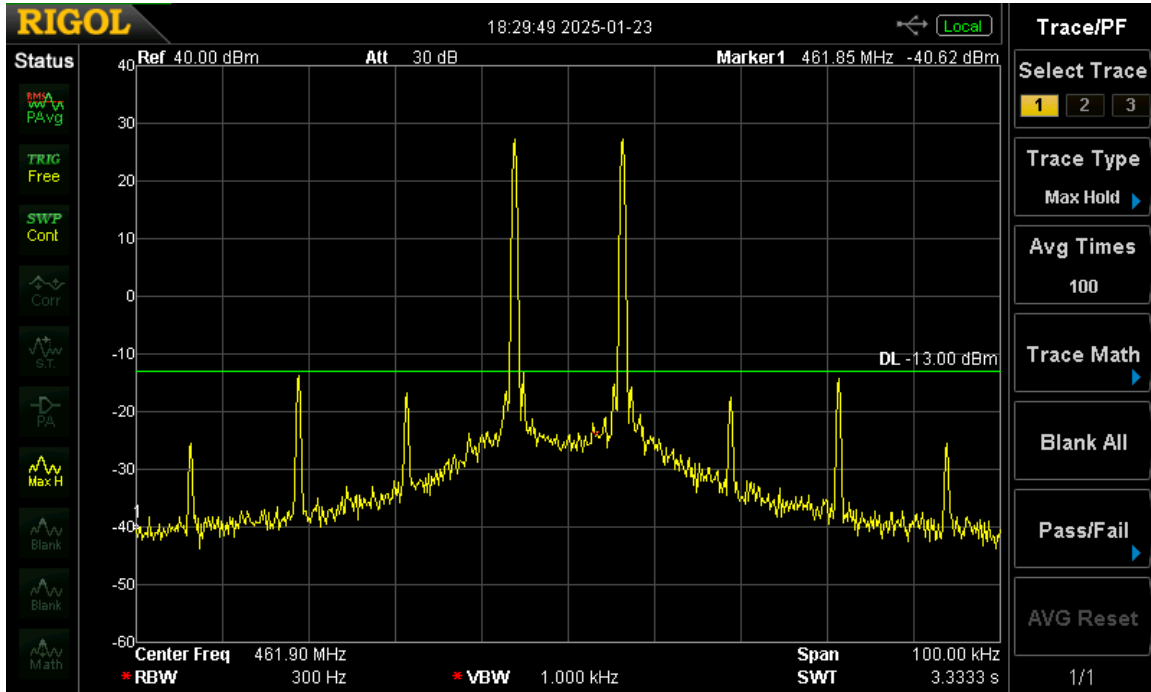


Figure 5. UHF Module Intermodulation for 12.5 kHz

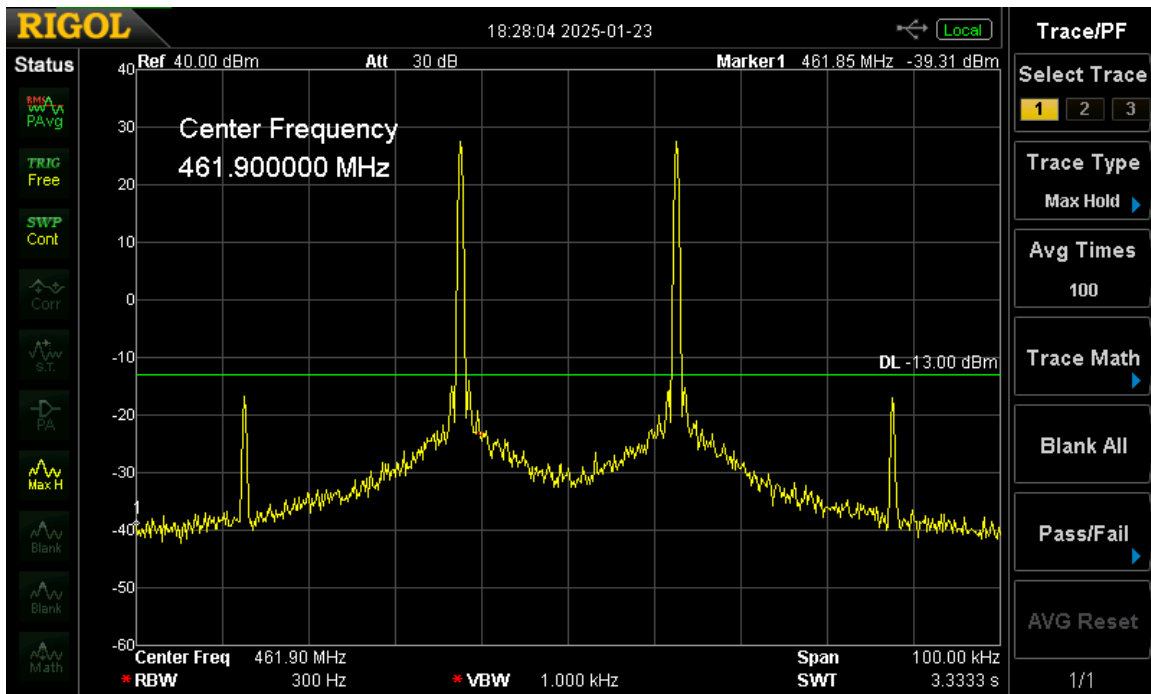


Figure 6. UHF Module Intermodulation for 25 kHz

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2.6.1.3 700 Module Intermodulation Plots

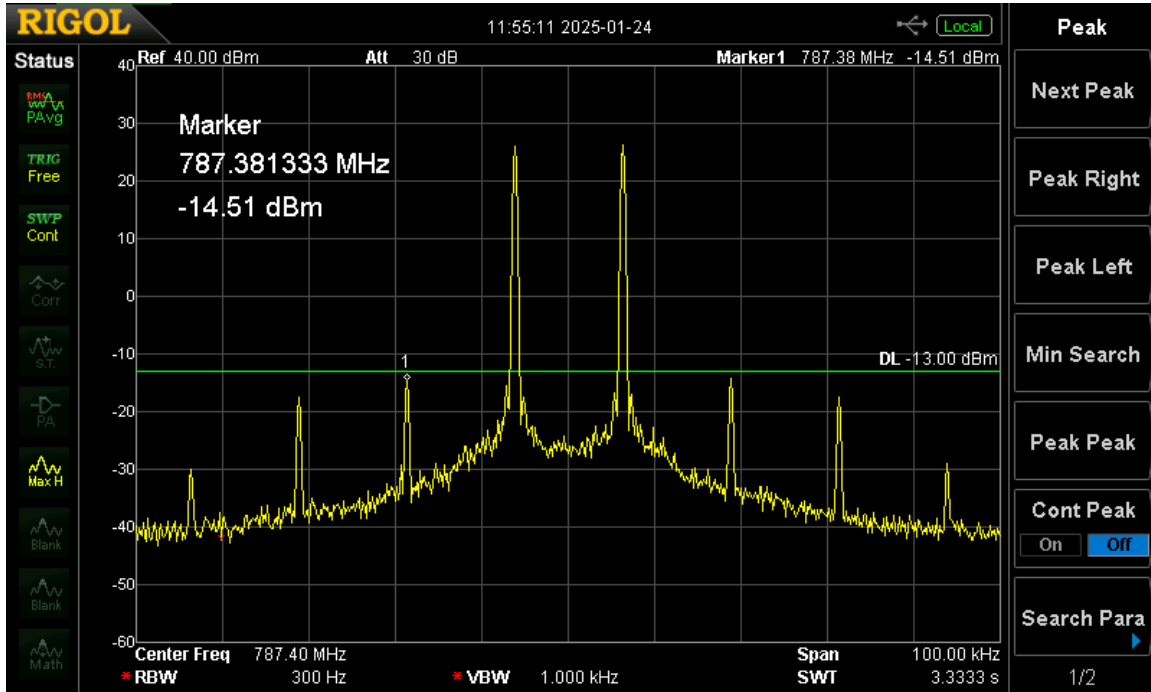


Figure 7. 700 Module Intermodulation for 12.5 kHz

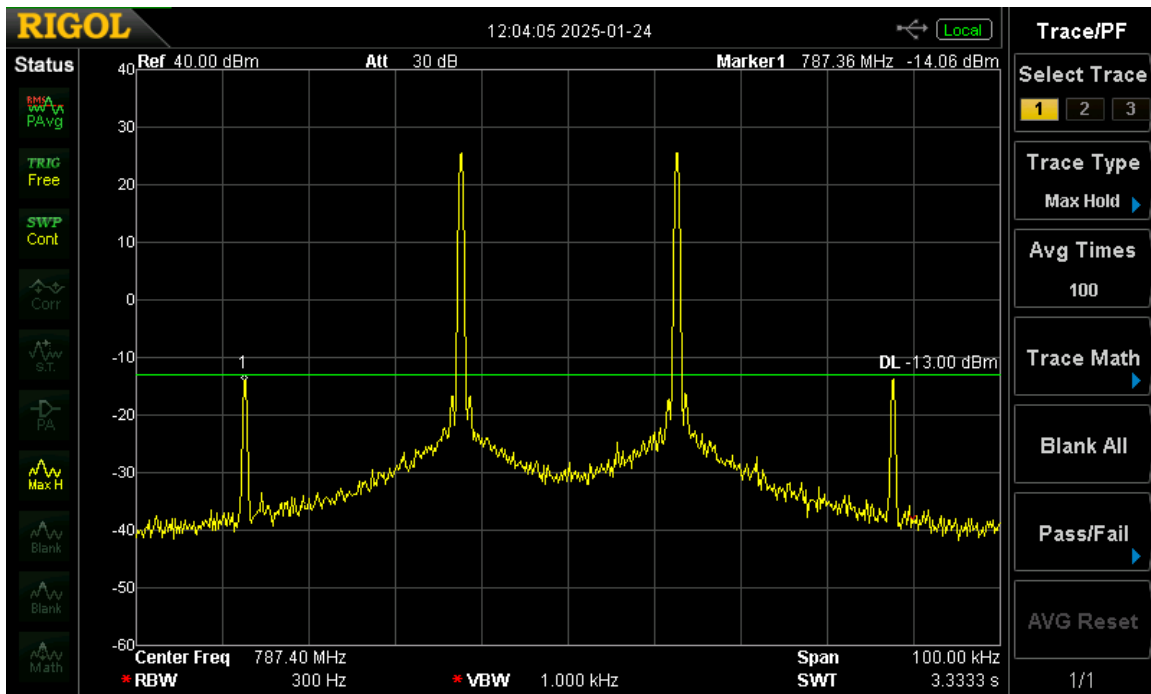


Figure 8. 700 Module Intermodulation for 25 kHz

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2.6.1.4 800 Module Intermodulation Plots

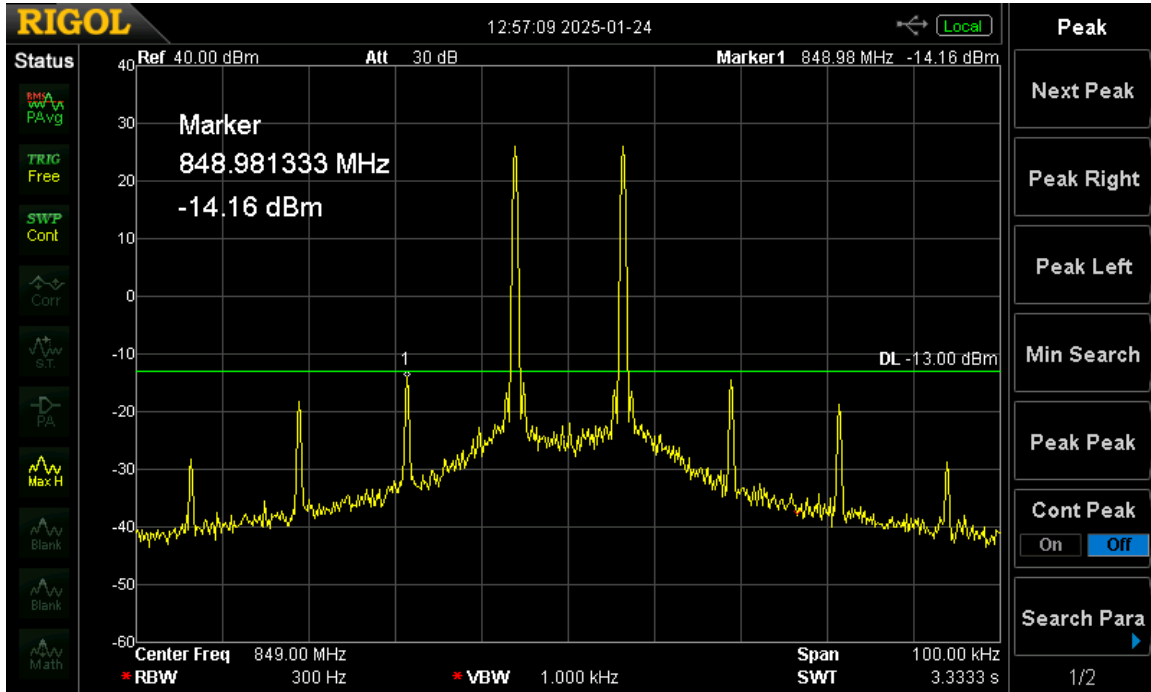


Figure 9. 800 Module Intermodulation for 12.5 kHz

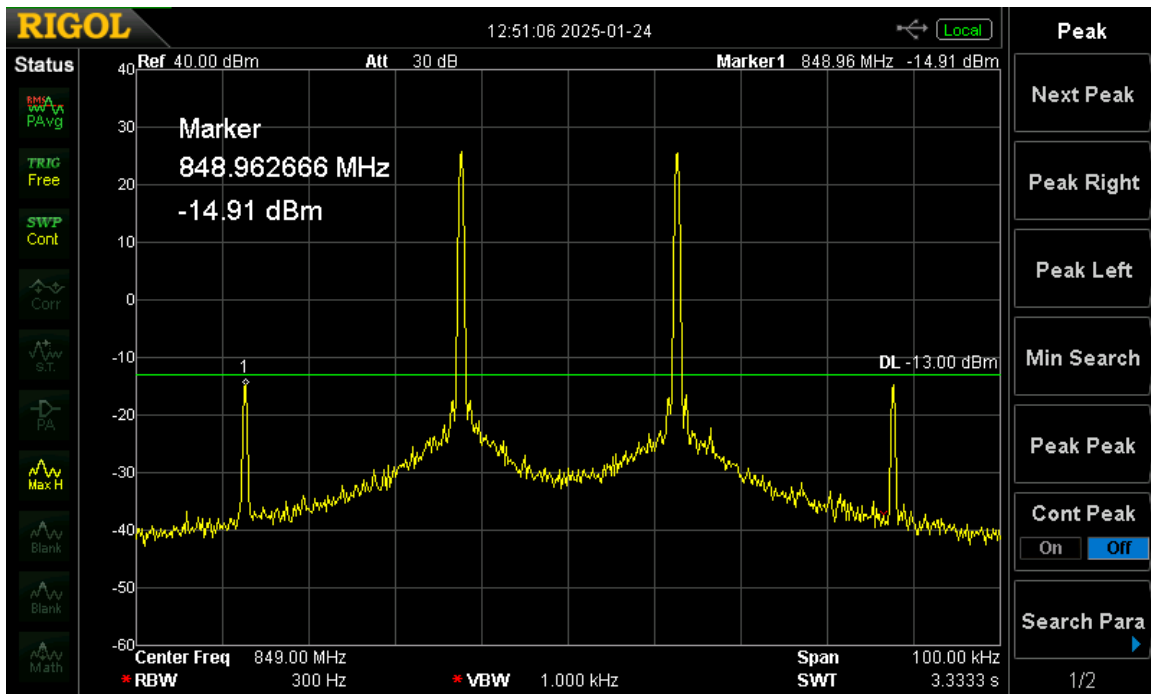


Figure 10. 800 Module Intermodulation for 12.5 kHz

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2.7 Measurement Uncertainty

2.7.1 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, EUT is deemed to comply with all relevant requirements for Part 90.219 and RSS-131 Clause 10.