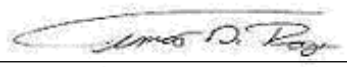
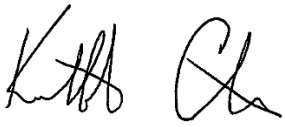
Test Report - FCC Part 15.225 Intentional Radiator
Applicant: Kastle Systems International

Signature:  Sr. EMC Engineer EMC-003838-NE

Name & Title: Tim Royer, Lab Manager

Date of Signature 10/21/2025

Signature: 

Name & Title: Kristoffer Costa, EMC Technician

Date of Signature 10/21/2025

This test report relates only to the items tested as identified and is not valid for any subsequent changes or modifications made to the equipment under test.

Table of Contents

1. Applicant Information

Applicant: Kastle Systems International
Address: 6402 Arlington Blvd.
Falls Church, Virginia, 22042, United States

1.1 Part 15.225 Test Result Summary

The following regulatory standards were used FCC Title 47 CFR Part 15.225. The following test procedure was used ANSI C63.10-2020, C63.4-2014. Full test results are available in this report.

No additions to the test methods were needed. There were no deviations, or exclusions from the test methods. No test results are from external providers or from the customer. The test results relate only to the items tested. IIA Lab Services LLC does not offer opinions and interpretations, only a pass/fail statement.

Applicable Clauses		
FCC Clauses	Description of the requirements	Result: (Pass, Fail, N/A)
15.215(c)	20dB Bandwidth	Pass
15.225(a)(b)(c)	Field Strength of Fundamental Emission	Pass
15.225(d)	Field Strength of Radiated Emissions	Pass
15.225(e), 2.1055	Frequency Stability	Pass
15.207(a)(c)	AC Powerline Conducted Emissions	N/A
15.203	Antenna Requirements	Pass

No additions to the test methods were needed. There were no deviations, or exclusions from the test methods. No test results are from external providers or from the customer. The test results relate only to the items tested. Timco does not offer opinions and interpretations, only a pass/fail statement

2. Location of Testing

2.1 Test Laboratory

IIA Lab Services LLC. is a subsidiary of Industrial Inspection & Analysis, Inc. ("IIA"). Testing was performed at IIA's permanent laboratory located at 13146 NW 86th Drive, Suite 400, Alachua, Florida 32615.

FCC test firm # 578780
FCC Designation # US1070
FCC site registration is under A2LA certificate # 0955.01
ISED Canada test site registration # 2056A
EU Notified Body # 1177
For all designations see A2LA scope # 0955.01

3. Test Sample(s) (EUT/DUT)

The test sample was received: 10/3/2025

Dates of Testing: 10/20/2025

3.1 Description of the EUT

A description as well as unambiguous identification of the EUT(s) tested. Where more than one sample is required for technical reasons (such as the use of connected units for the purpose of conducted output power testing where the product units will have integral antennas), each specific test shall identify which unit was tested.

Identification	
FCC ID:	2ALZSKR210K
Certified Module FCC ID:	QOQ-GM240P
Brief Description	Access Control Reader
Model(s) #	KR210-K

Technical Characteristics	
Number of Channels	N/A
Antenna Connector	Internal
Voltage Rating (AC or Batt.)	12VDC

Results Summary	
Frequency Range	13.56 MHz
Fundamental	54.08 dBµV/m
Occupied Bandwidth	20dB: 25.17 kHz
Modulation	ASK
Emission Classification	N/A
Max Frequency Deviation	0.2 kHz

Antenna Characteristics			
Antenna	Frequency Range	Mode / BW	Antenna Gain
1	n/a	n/a	0 dBi

- Note: Information such as antenna gain, firmware/software numbers are provided by manufacturer and cannot be validated by the test lab.

3.2 Configuration of EUT

Test Modes		
Mode (#)	Mode (Type)	Test Frequencies (MHz)
1	Transmit	13.56 MHz

Operating conditions during Testing:

The device was operated without the provided antenna(s).

No other modifications of the device under test (including firmware, specific software settings, and input/output signal levels to the EUT) were made.

Peripherals used during Testing:

No peripherals used.

3.3 Test Setup of EUT

Equipment, antenna, and cable arrangement. The setup of the equipment and cable or wire placement on the test site that produces the highest radiated and the highest ac power line conducted emissions shall be shown clearly and described. Information on the orientation of portable equipment during testing shall be included. Drawings or photographs may be used for this purpose.

Test Setups are included in the test report.

4. Test methods & Applicable Regulatory Limits

4.1 Test methods/Standards/Guidance:

Test procedures and guidance for measuring Licensed Part 15.225.

1) ANSI C63.4-2009
2) ANSI C63.10-2020

4.2 Applied Limits and Regulatory Limits:

1) FCC 15.225
2) FCC 15.207
3) FCC 15.209
4) FCC 15.203
5) FCC15.215

5. Measurement Uncertainty

Parameter	Uncertainty (dB)
Conducted Emissions	± 3.14 dB
Radiated Emissions (9kHz – 30 MHz)	± 3.08 dB
Radiated Emissions (30 – 200 MHz)	± 2.16 dB
Radiated Emissions (200 – 1000 MHz)	± 2.15 dB
Radiated Emissions (1 GHz – 18 GHz)	± 2.14 dB
Radiated Emissions (18 GHz – 40 GHz)	± 2.31 dB
Note: The uncertainties provided in this table represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of K=2.	

6. Environmental Conditions

6.1 Temperature & Humidity

Measurements performed at the test site did not exceed the following:

Parameter	Measurement
Temperature	23 C +/- 5%
Humidity	55% +/- 5%
Barometric Pressure	30.05 in Hg
Note: Specific environmental conditions that are applicable to a specific test are available in the test result section.	

7. List of Test Equipment and Test Facility

The test equipment used identified by type, manufacturer, serial number, or other identification and the date on which the next calibration or service check is due.

Description of the firmware or software used to operate EUT for testing purposes.

A complete list of all test equipment used shall be included with the test report. The manufacturer's model and serial numbers, and date of last calibration, and calibration interval shall be included. Measurement cable loss, measuring instrument bandwidth and detector function, video bandwidth, if appropriate, and antenna factors shall also be included where applicable.

7.1 List of Test Equipment

Test Equipment						
Type	Device	Manufacturer	Model	SN#	Current Cal	Cal Due
Antenna	Active Loop	ETS-Lindgren	6502	00062529	2/8/24	2/7/2027
Antenna	Biconical 1096	Eaton	94455-1	1096	7/15/25	7/14/2028
Antenna, NSA	Log-Periodic 1243	Eaton	96005	1243	7/15/25	7/14/2028
CHAMBER	CHAMBER	Panashield	3M	N/A	12/29/23	12/18/2025
Receiver	EMI Test Receiver R&S ESW44	Rohde & Schwarz	ESW44	103049	1/20/25	1/20/2028

Note: Cables were checked at testing, no cal required

Software			
Software	Author	Version	Validation on
ESU Firmware	Rohde & Schwarz	4.43 SP3; BIOS v5.1-24-3	2018
Field Strength	IIA	v4.10.7.0	2016
Field Meter	Wave Control SMP2	2.5.5	2024
EMC32	Rohde & Schwarz	11.60.00	2025

8. Test Results

The results of the test are usually indicated in the form of tables, spectrum analyzer plots, charts, sample calculations, as appropriate for each test procedure.

A description and/or a block diagram of the test setup is usually provided.

The measurement results, along with the appropriate limits for comparison, may be presented in tabular or graphical form. In addition, any variation in the measurement environment may be reported if applicable (e.g., a significant change of temperature that could affect the cable loss and amplifier response).

Unless noted otherwise in the referenced standard, the measurements of **ac power-line conducted emissions and conducted power output** will be reported in units of dBµV. Unless noted otherwise in the referenced standard, the measurements of **radiated emissions** will be reported in units of decibels, referenced to one microvolt per meter (dBµV/m) for electric fields, or to one ampere per meter (dBA/m) for magnetic fields, at the distance specified in the appropriate standards or requirements. The measurements of antenna-conducted power for receivers may be reported in units of dBµV if the impedance of the measuring instrument is also reported. Otherwise, antenna-conducted power will be reported in units of decibels referenced to one milliwatt (dBm). All formulas for data conversions and conversion factors, if used, will be included in this measurement report.

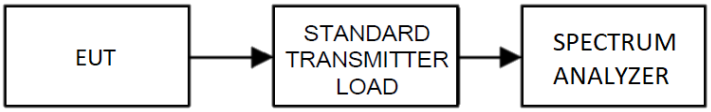
Example:

Freq (MHz)	Meter Reading	+ ACF	+CL	= FS
33	20 dBµV	+ 10.36 dB/m	+0.40 dB	=30.36 dBµV/m @ 3m

EIRP = Pcond (dBm) + dBi

8.1 20dB Bandwidth

Limits from FCC Part 15.215 (c) as applicable, and test procedure from ANSI C63.10-2020 section 7.8 or 11.8 as applicable.

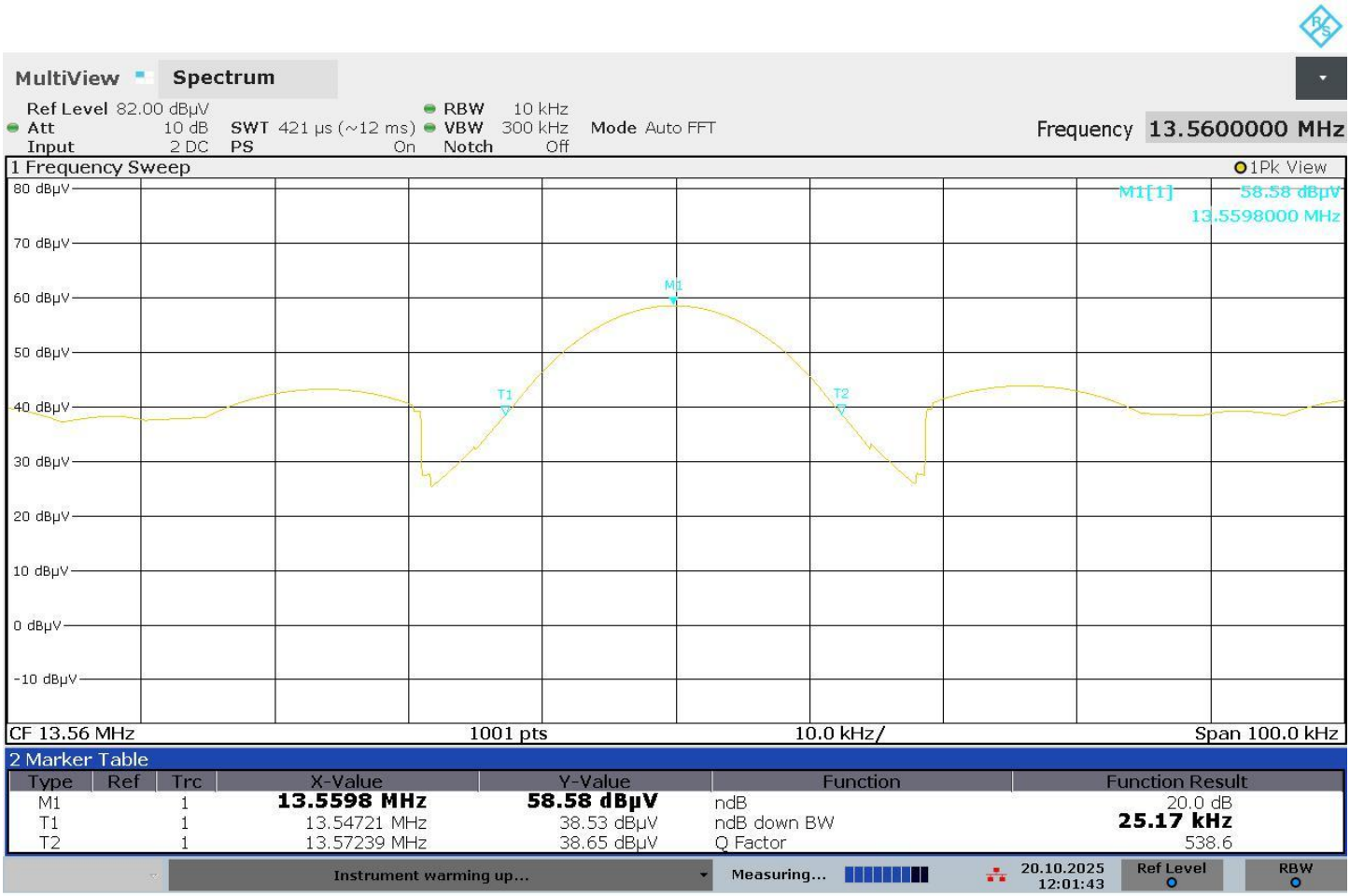
Test Setup


20dB Bandwidth Test Results

Test Results, Mode 1	
Tuned Frequency (MHz)	20dB Bandwidth (kHz)
13.56 MHz	25.17

20dB Bandwidth, Spectrum Plots

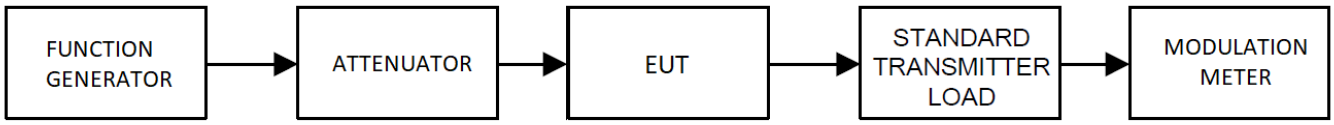
8.1.1 20 dB Bandwidth, 13.56 MHz



8.2 Field Strength of Fundamental Emission

Limits from FCC Parts 15.225 (a)(b)(c); FCC Part 15.209, and test procedure from ANSI C63.4-2009

Conducted Test Setup

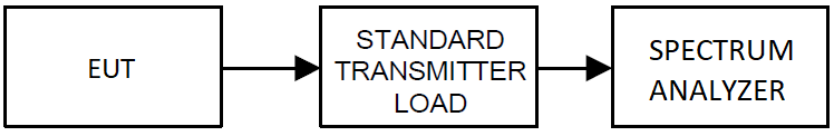


8.2.1 Fundamental Data Plot

Tuned Frequency (MHz)	Detector	Meter Reading (dBµV)	Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
13.56	PK	39.78	V	0.70	10.60	3.00	54.08	104.00	49.92

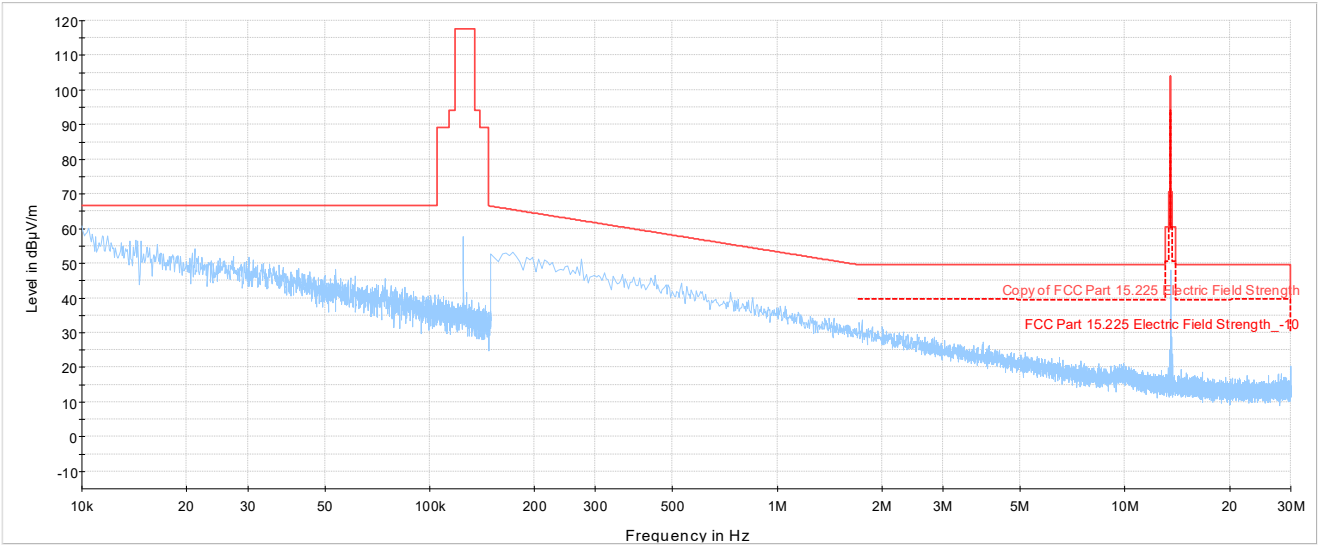
8.3 Field Strength of Radiated Emissions

Limits from FCC Part 15.225 (d)

Conducted Test Setup


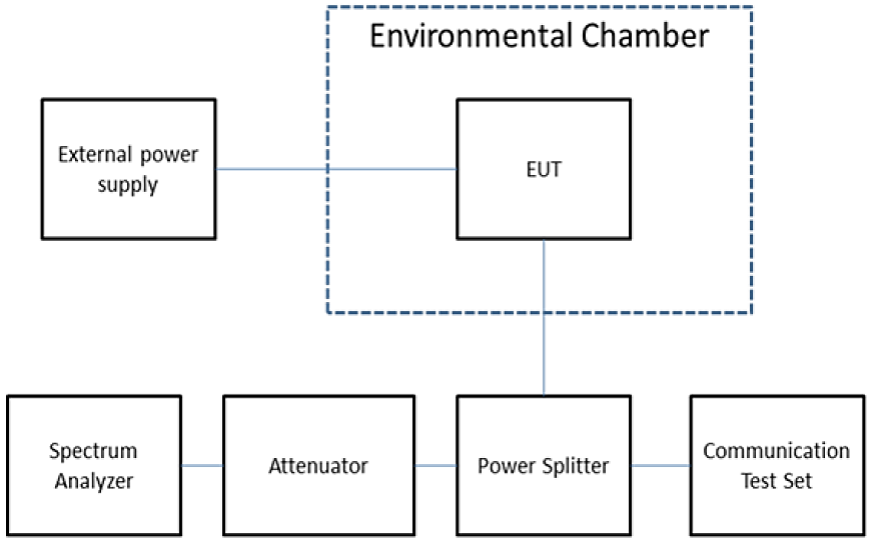
Radiated Emissions Tabular Data

8.3.1 Radiated Emissions, 13.56 MHz



8.4 Frequency Stability

Limits from FCC Part 15.225 (e); and test procedure from ANSI C63.10-2020

Test Setup


Test Results, Mode 1		
Tuned Frequency (MHz)	Max Deviation (kHz)	Limit (ppm)
13.56	0.2	100

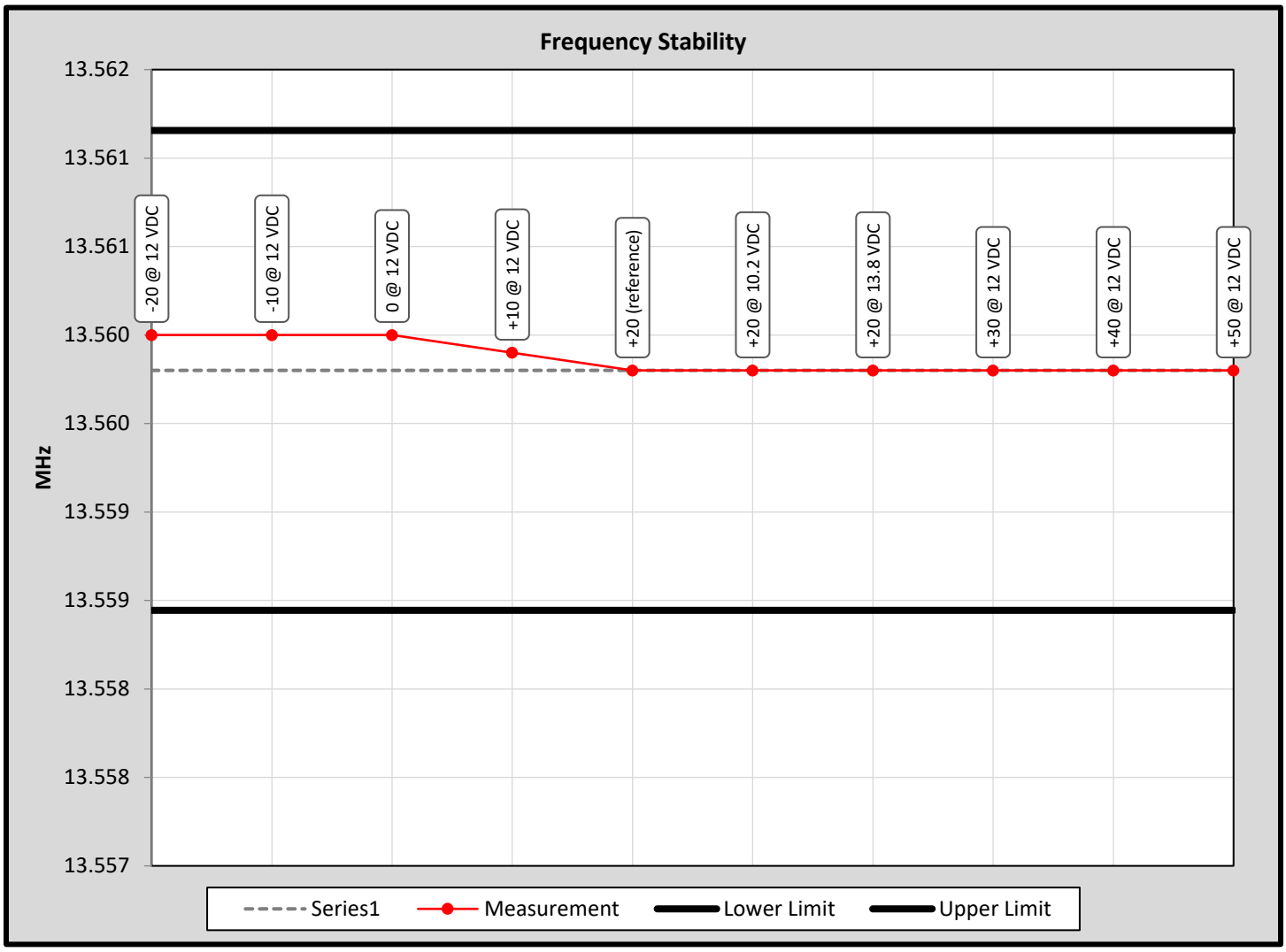
8.4.1 Frequency Stability Data

Limit	100.0	ppm
Limit	1355.980	Hz
Lower Limit	13.558444	MHz
Upper Limit	13.561156	MHz
Rated Supply Voltage	12.0	○ AC ◉ DC

Temperature / Voltage Variation

Temperature (°C)	Supplied Voltage (V)	Frequency (MHz)	Deviation (kHz)
-20	12.0	13.56	-0.200
-10	12.0	13.56	-0.200
0	12.0	13.56	-0.200
+10	12.0	13.55990	-0.100
+20 (reference)	12.0	13.55980	0.000
+20	10.2	13.55980	0.000
+20	13.8	13.55980	0.000
+30	12.0	13.55980	0.000
+40	12.0	13.55980	0.000
+50	12.0	13.55980	0.000

8.4.2 Frequency Stability Plot



9. ANNEX-B – Test Setup Photographs

Test setup photographs are located in a separate supplementary ANNEX-B document.

10. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_23840-25_FCC 15.225_	1	Initial release	10/21/2025
	2	Updated pages 1, 5, 8, 20	12/2/2025

END OF TEST REPORT