



**BEC INCORPORATED**

**CERTIFICATION APPLICATION TEST REPORT**

**TEST STANDARDS:  
FCC Part 15 Subpart C, ISED RSS-Gen, ISED RSS-247  
DTS Intentional Radiator**

**Woodstream Corporation Model V430B  
VLINK Rodent Snap Trap with LoRa Radio**

**FCC ID: SNA-V430B  
ISED ID: 9458A-V430B**

**REPORT BEC-2287-01**

**TEST DATES: 12/22/2023 – 01/10/2024**

**CUSTOMER:  
Woodstream Corporation  
69 North Locust Street  
Lititz, PA 17543**

**PREPARED BY:** \_\_\_\_\_

JR Fanella, Test Engineer

**REVIEWED and APPROVED BY:** \_\_\_\_\_

Steve Fanella, Quality Manager

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## Notice to Customer

This report and any recommendations it contain represent the result of BEC’s testing and assessment on behalf of your company. Testing has been conducted according to accepted engineering standards and practices. This report reflects testing and assessment of product samples provided by your company and may not reflect the characteristics of other samples, especially those produced at different times. This report and its findings and recommendations, if implemented, should not be construed as an assurance or implied warranty for the continuing electromagnetic compatibility (EMC) of the product. **BEC shall not be liable for incidental or consequential damages, even if advised of the possibility thereof.**

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The BEC Decision Rule: Measurement Uncertainty is not applied to any testing measurements or test results provided to the customer by BEC Incorporated at this time.

## Revision History

Revision #	Description of Changes	Date of Changes	Date Released
0	Test Report Initial Release	N/A	01/23/2024
1	Removed DRAFT watermark on Pages 42 to 57. Changed Titles in Radiated emissions tables to clarify that the measurements are corrected (using Correction Factors)	04/04/2024	04/04/2024



## 1.0 Administrative Information

### 1.1 Project Details

<b>Project Number</b>	BEC-2287	
<b>Manufacturer</b>	Woodstream Corporation	
<b>Model Number</b>	V430B	
<b>EUT Description</b>	VLINK Rodent Snap Trap with LoRa Radio	
<b>Serial Numbers</b>	SR231218WS00067	3
<b>Sample Types</b>	Radiated Emissions Test Sample	Antenna Conducted Test Sample with SMA Adapter
<b>Sample Numbers</b>	2287-02	2287-01
<b>FCC ID</b>	SNA-V430B	
<b>ISED ID</b>	9458A-V430B	
<b>Radio Chip Manufacturer</b>	Semtech Corporation	
<b>Radio Chip Model Number</b>	SX1261	
<b>Frequency of Operation</b>	902 – 915 MHz	
<b>Frequencies Tested</b>	Low (902.3 MHz), Middle (908.7 MHz), High (914.9 MHz)	
<b>Antenna Gain</b>	+ 2.11 dBi	
<b>Antenna Type</b>	Inverted F PCB Trace	
<b>Modulation</b>	LoRa	
<b>Signal Classification</b>	Digital Transmission System (DTS)	
<b>EUT Firmware Version</b>	2.3.4	
<b>Date Samples Received</b>	12/20/2023	
<b>Sample Types and Condition Received</b>	Production Units Suitable for Test	
<b>Applicable FCC Rules</b>	FCC Rules Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz Part 15 Spread Spectrum Transmitter	
<b>Applicable ISED Rules</b>	RSS-Gen: General Requirements for Compliance of Radio Apparatus & RSS-247: Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and License-Exempt Local Area Network (LE-LAN) Devices	



## 1.2 Preface

This report documents product testing conducted to verify compliance of the specified EUT with applicable standards and requirements as identified herein. EUT, test instrument configurations, test procedures, and recorded data are generally described in this report. The reader is referred to the applicable test standards for detailed procedures. The following table summarizes the test results obtained during this evaluation.

## 1.3 Laboratory and Customer Information

<b>Test Laboratory Location</b>	BEC Incorporated 970 East High Street Pottstown, PA 19464
<b>BEC Test Personnel</b>	JR Fanella / Steve Fanella
<b>BEC Laboratory Number FCC Registration</b>	US1118
<b>BEC Laboratory Number ISED Registration</b>	7342A-1
<b>Test Performed For</b>	Woodstream Corporation 69 North Locust Street Lititz, PA 17543
<b>Customer Technical Contacts</b>	Dave George/Matt Kauffman
<b>Customer Reference Number</b>	PO # 204485



## 1.4 Measurement Uncertainty

Measurement	Measurement Distance	Frequency Range	Measurement Limit	Expanded Uncertainty
Radiated Disturbance	3 Meter	30 MHz – 1 GHz	Class B	4.65
Conducted Disturbance AC Mains	N/A	150 kHz – 30 MHz	Class A or B	2.69

No adjustments to measured data presented in this report are required because all values of uncertainty are less than the CISPR 16-4-2:2018 recommendations. These uncertainties have a coverage factor of  $k = 2$ , which yields approximately a 95% level of confidence for the near-normal distribution typical of most measurement results.

FCC Registered Test Site Number: US1118  
 ISED Registered Test Site Number: 7342A-1

Test Measurement	ETSI EN 300 220-1 Limit	BEC Value
Radio Frequency	$\pm 0.5$ ppm	$\pm 0.027$ ppm
RF Power, Conducted	$\pm 1.5$ dB	$\pm 1.45$ dB
Conducted Spurious Emission of Transmitter, Valid up to 6 GHz	$\pm 3$ dB	$\pm 0.9$ dB
Radiated Emission of Transmitter, Valid up to 6 GHz	$\pm 6$ dB	$\pm 4.87$ dB
Radiated Emission of Receiver, Valid up to 6 GHz	$\pm 6$ dB	$\pm 4.87$ dB
Occupied Bandwidth	$\pm 5$ %	$\pm 2$ %
Temperature	$\pm 2.5$ °C	$\pm 0.5$ °C
Humidity	$\pm 10$ %	$\pm 2.5$ %

These uncertainties have a coverage factor of  $k = 1.96$  or  $k = 2$ , (which provide confidence levels of respectively 95 % and 95.45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)). Principles for the calculation of measurement uncertainty are contained in ETSI TR 100 028 [i.3], in particular in annex D of ETSI TR 100 028-2 [i.3].



## 1.5 Test Result Summary Table

The Woodstream Model V430B Rodent Snap Trap with LoRa Radio was tested and found to be compliant to the sections of the FCC Part 15 Subpart C and ISED standards listed below:

Report Section	FCC Part 15, Subpart C	RSS-Gen	RSS-247	Test Description	Result
N/A	15.207	7.2		Conducted Limits (AC Power)	N/A
<a href="#">4.1</a>	15.203	Annex A 10(g)		Antenna Requirement	PASS
<a href="#">4.2</a>	15.204	8.3		External RF power amplifiers and antenna modifications	PASS
<a href="#">4.3</a>	ANSI C63.10, Section 11.6			Duty Cycle	Measured
<a href="#">4.4</a>	15.247(d)		5.5	DTS Emissions in non-restricted frequency Bands 30 MHz to 10 GHz	PASS
<a href="#">4.5</a>	15.205, 15.209 15.35(b)	8.1, 8.9, 8.10	3.3	DTS Emissions in restricted frequency Bands 30 MHz to 10GHz	PASS
<a href="#">4.6</a>	15.247(a)(2)		5.2 (a)	6 dB Occupied Bandwidth	PASS
<a href="#">4.7</a>	2.1049(h)	6.7		99% Occupied Bandwidth	PASS
<a href="#">4.8</a>	15.247(b)(3)		5.4 (d)	Maximum Conducted Output Power and EIRP	PASS
<a href="#">4.9</a>	15.247(e)		5.2 (b)	Antenna Port, Power Spectral Density	PASS
<a href="#">4.10</a>	15.247(d)		5.5	Band Edge Measurement	PASS





## **1.6 Condition of Received Sample**

An evaluation of the EUT was conducted in order to verify test subject identity and condition and to ensure suitability for testing. No evidence of physical damage was noted. The test item condition was deemed acceptable for the performance of the requested test services.

## **1.7 Climatic Environment**

The following were the general environmental conditions inside the laboratory during testing:

Temperature:  $22^{\circ}\text{C} \pm 5^{\circ}\text{C}$

Humidity:  $50\% \pm 20\%$

Barometric Pressure:  $1010 - 1050\text{ mb} \pm 20\%$

## **1.8 Test Equipment**

All test equipment is checked to manufacturer's specifications and, when applicable, have current N.I.S.T. traceable, ISO 9002 conforming certificates of calibration. Test equipment used for the tests described herein is listed in Appendix A.



## **2.0 Equipment Under Test**

Unless otherwise noted in the individual test results sections, testing was performed on the EUT as follows.

### **2.1 EUT Description**

The Woodstream Model V430B VLINK is a Rodent Trap which incorporates a LoRa Radio to communicate trap status to a smart phone or network application. The device is powered by an internal 3.0 VDC coin cell lithium battery.

### **2.2 Product Category**

FCC Part 15, Subpart C (Section 15.247), ISED RSS-Gen, ISED RSS-247

### **2.3 Product Classification**

Intentional Radiator Testing Requirements, DTS Operation within the band of 902 - 928 MHz.

### **2.4 Test Configuration**

The Woodstream Model V430B Rodent Snap Trap with LoRa Radio Sample # 2287-01 was tested without the enclosure for all antenna conducted measurements. The Woodstream Model V430B Rodent Snap Trap with LoRa Radio Sample # 2287-02 was tested within the trap enclosure during all radiated emissions tests.

### **2.5 Test Configuration Rationale**

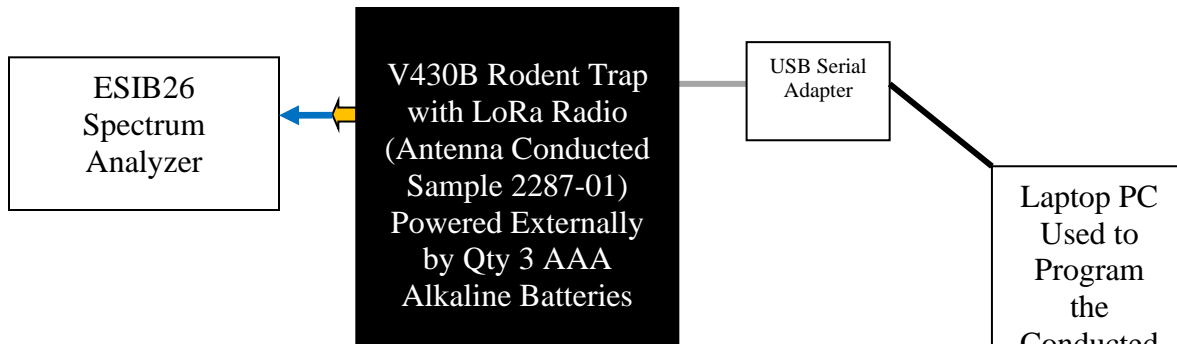
The modified radio of the Woodstream Model V430B Rodent Snap Trap with LoRa Radio allows direct access to the output of the radio, without a transmission antenna. The unmodified unit is factory produced with modified software for EMI test purposes.



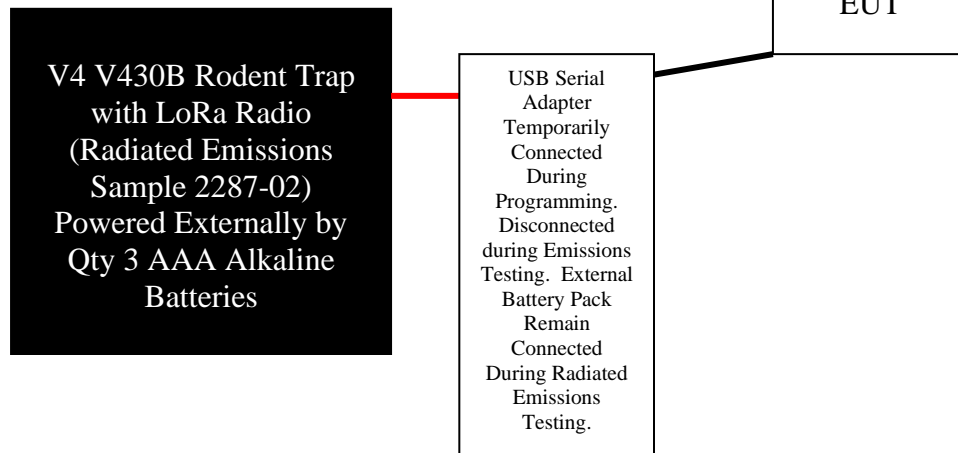
## 2.6 Test Configuration Diagrams

Block diagrams of the EUT configuration showing interconnection cables are illustrated below. The drawing shows the physical hardware layout used for the tests along with I/O cables and AC power distribution.

Antenna Conducted Test Configuration (modified with SMA connector in place of antenna)



Radiated Emission Test Configuration (un-modified EUT)





## 2.7 EUT Information, Interconnection Cabling and Support Equipment

### EUT Hardware

Description	Manufacturer	Model	Serial Number	Sample Number
Lora Radio VLINK Rodent Trap (Unmodified Emissions Samples)	Woodstream Corporation	V430B	SR231218WS00067	2287-02
Lora Radio VLINK Rodent Trap (Modified with SMA Antenna Conducted Sample)			3	2287-01

### Interconnection Cable List (Conducted Test Setup)

Manufacturer	Model	Type	Shielding	Length	Description
Suhner	S 04272B	Antenna Conducted RF Measurement Cable	Braided with Foil	0.7 Meter	Measurement Cable from the Antenna SMA Connector of the EUT to the input of the Rohde and Schwarz ESIB26 Receiver. BEC Asset # BEC-962

### Support Equipment

Description	Manufacturer	Model	Serial Number
Powered Serial Adapter	Woodstream	2457159A_Y40	none
Lap Top Computer	Dell	Inspiron 15-3567	E4B4B16C-F475-4A3F-9795-A06C5CB4AB43



## 2.8 Test Signals and Test Modulation

By design this product does not have an external Modulation input connector, therefore, normal operating modulation was used for all testing reported herein. The only test where modulation was not active was during testing of the Maximum Peak Power Output FCC Section 15.247(b) (3) (Section 4.6 of this report) to ensure that the un-modulated carrier was not higher than the modulated carrier.

The control unit in this product is a digital frequency transmitter. The EUT transmits to a discrete frequency on a specific channel. The Woodstream Model V430B Rodent Snap Trap with LoRa Radio has 8 Channels available. The 8 Channels and frequencies that can be transmitted by the EUT are as follows:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	903.0	4	909.4
1	904.6	5	911.0
2	906.2	6	912.6
3	907.8	7	914.2

For the required testing, the EUT was configured to transmit at low Channel 0 (903.0 MHz), middle Channel 4 (909.4 MHz) and high Channel 7 (914.2 MHz). The EUT operates with a 500 kHz bandwidth and a Spread Factor of 8. The maximum output power setting of 15 was used for all tests. The Duty Cycle of the LoRa Modulation signal is 100%.

## 2.9 Antenna Gain

The antenna gain was derived using the formulae outlined in Appendix G of ANSI C63.10. The maximum peak output of the transmitter was measured at the SMA connector. The maximum radiated emission from the EUT with the internal antenna attached was measured at a distance of 3 meters from the EUT. The resultant antenna gain was the difference between EIRP at the transmitter terminals and the EIRP calculated from the field strength measured at 3 Meters. Antenna gain value was calculated to be + 2.11 dBi.

## 2.10 Grounding

There was no ground connection used; the EUT is battery powered and self-contained.



## **2.11 EUT Modifications**

The Woodstream Model V430B Rodent Snap Trap with LoRa Radio Radiated Emissions Test Samples 2287-02 was modified to add a Serial Port for programming the EUTs radio. Also, an SMA connector was added directly to the antenna output on the main board of the Woodstream Model V430B Rodent Snap Trap with LoRa Radio Antenna Conducted Test Sample 2287-01.

## **2.12 EUT Pictures Woodstream Model V430B Rodent Snap Trap with LoRa Radio**

See External Photos Exhibit(s) submitted under this grant.



## **3.0 Applicable Requirements, Methods, and Procedures**

### **3.1 Applicable Requirements**

The results of the measurement of the radio disturbance characteristics of the EUT described herein may be applied and where appropriate, provide a presumption of compliance to one or more of the following requirements or to other requirements at the discretion of the customer, regulatory agencies, or other entities.

#### **3.1.1 FCC Requirements**

Code of Federal Regulations: Title 47 – Telecommunication  
Chapter I - Federal Communications Commission  
Sub-chapter A – General  
Part 15 – Radio Frequency Devices  
Subpart C - Intentional Radiators  
15.247 Operation within the bands 902-928 MHz,  
2400-2483.5 MHz, and 5725-5850 MHz.

#### **3.1.2 Innovation, Science and Economic Development Canada (ISED)**

RSS-Gen Issue 5, February 2021 Amendment 2: General Requirements for Compliance of Radio Apparatus

RSS-247 Issue 3, August 2023: Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

#### **3.1.3 Basic Test Methods and Test Procedures**

KDB Document 558074 D01 15.247 Meas Guidance v05r02, Guidance for Performing Compliance Measurements on Digital Transmission Systems, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating under Section 15.247 of the FCC Rules.

ANSI C63.10-2020, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

#### **3.1.4 Deviations or Exclusions from the Requirements**

No deviations or exclusions were made.



## **4.0 Test Results**

### **4.1 Antenna Requirement (47 CFR 15.203)(RSS-GEN ANNEX A (10)(g))**

The antenna used by the Woodstream Model V430B Rodent Snap Trap with LoRa Radio is an Inverted-F PCB Trace Antenna. There are no detachable parts of the antenna. The antenna is not replaceable, nor changeable, and therefore complies with the requirements of this section.

### **4.2 External RF power amps/antenna modifications (47 CFR 15.204)(RSS-GEN 8.3)**

There are no RF power amplifier kits available to be used with the Woodstream Model V430B Rodent Snap Trap with LoRa Radio. There are no detachable parts of the antenna. The antenna is not replaceable, nor changeable, and therefore complies with the requirements of this section.

### **4.3 Duty Cycle of the DTS Fundamental Transmission**

The duty cycle of the DTS transmission shall be greater than or equal to 98%. This ensures that the various emissions measured for this certification test will be made with the transmitter fully active. Duty cycles less than 98% can be used and a duty cycle correction factor can be calculated to reduce the peak level of the emission for radiated emission tests. The procedure of ANSI C63.10, Section 11.6 was used to evaluate the duty cycle of this device.





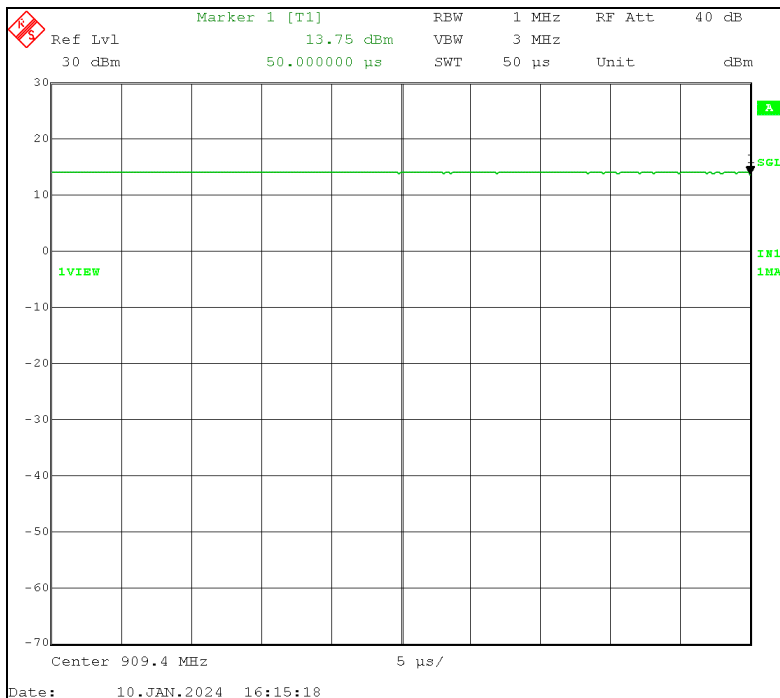
### 4.3.1 Duty Cycle Measurement Results (01/10/2024)

The fundamental transmission signal, tuned to 909.4 MHz, was displayed on the spectrum analyzer with zero frequency span and 1 MHz RBW and 3 MHz VBW to determine the duty cycle. The depiction below shows a continuous transmission. There is no off time while the transmitter is active with LoRa modulation. Therefore, the duty cycle is 100%.

#### Spectrum Analyzer Settings

RBW	1	MHz
VBW	3	MHz
Span	Zero	
Sweep (Auto)	50	us

#### Duty Cycle of DTS Transmission





#### 4.4 DTS Emissions in Non-restricted Frequency Bands (FCC Section 15.247(d), RSS-247 Sec.5)

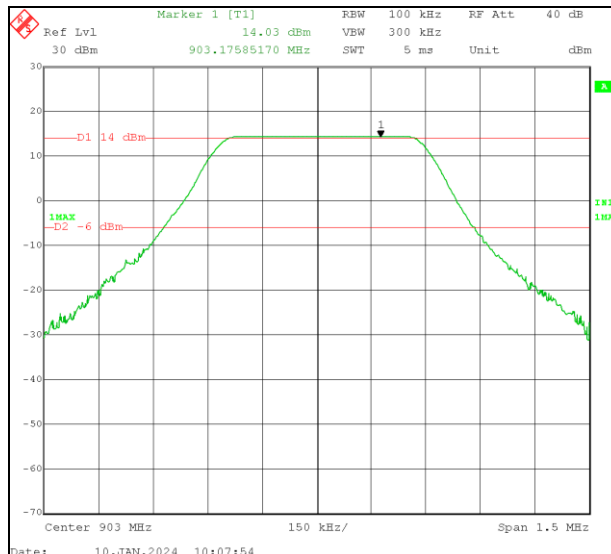
##### 4.4.1 DTS Emissions in Non-restricted Frequency Bands Test Procedure

A measurement of the emissions in non-restricted frequency bands was made at the low Frequency 903.0 MHz (Channel 0), middle Frequency 909.4 MHz (Channel 4) and high Frequency 914.2 MHz (Channel 7). The signal output was maximized with LoRa modulation with 500 kHz bandwidth and Spread Factor of 8. The procedure for the test is ANSI C63.10, Section 11.11. The frequency spectrum from 9 kHz to 10 GHz was divided into six bands: 9 kHz – 30 MHz, 30 MHz - 100 MHz, 100 MHz - 500 MHz, 500 MHz – 1 GHz, 1 GHz – 5 GHz and 5 GHz – 10 GHz. Each of the three fundamental test frequencies was measured for the reference value to determine the -20 dBc value.

##### Spectrum Analyzer Settings

RBW	100	kHz
VBW	300	kHz
Span	Varies	MHz
Sweep (Auto)	Varies	ms

##### 4.4.2 DTS Emissions in Non-restricted Frequency Bands Reference Measurement Channel 0 at 903.0 MHz (01/10/2024)

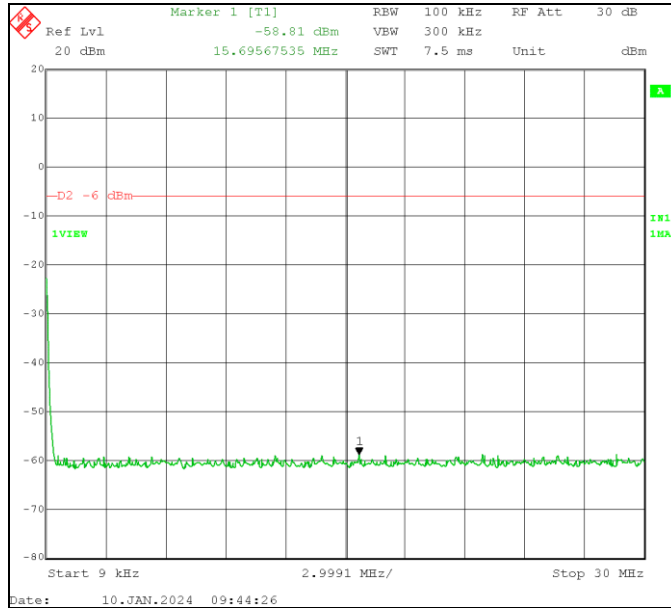


The peak level of 14.0 dBm is the maximum peak output of the Woodstream Model V430B Rodent Snap Trap with LoRa Radio. The conducted spurious emissions from the antenna port must be 20 dB down from this peak. The resultant limit is therefore -6.0 dBm and is displayed on the plots below.

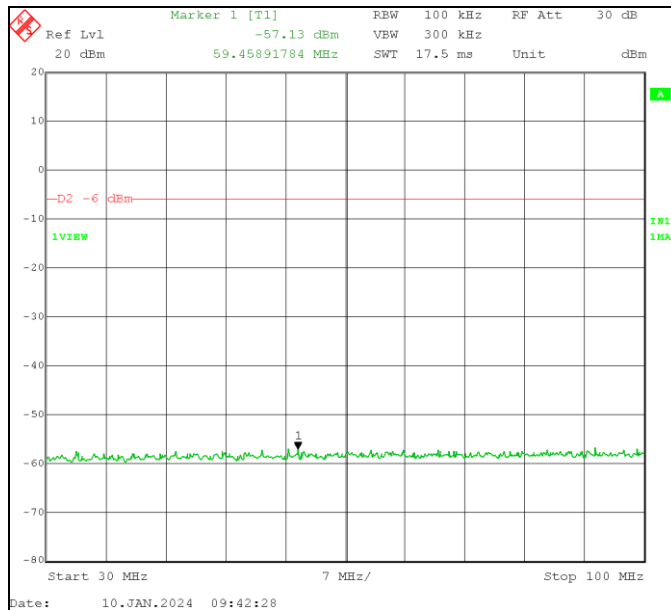


### 4.4.3 DTS Emissions in Non-restricted Frequency Bands Channel 0 Test Results (01/10/2024)

9 kHz – 30 MHz

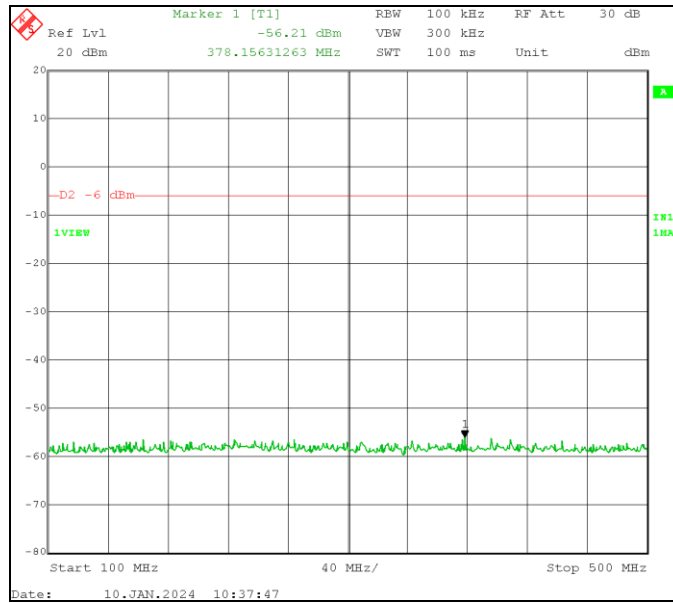


30 MHz – 100 MHz

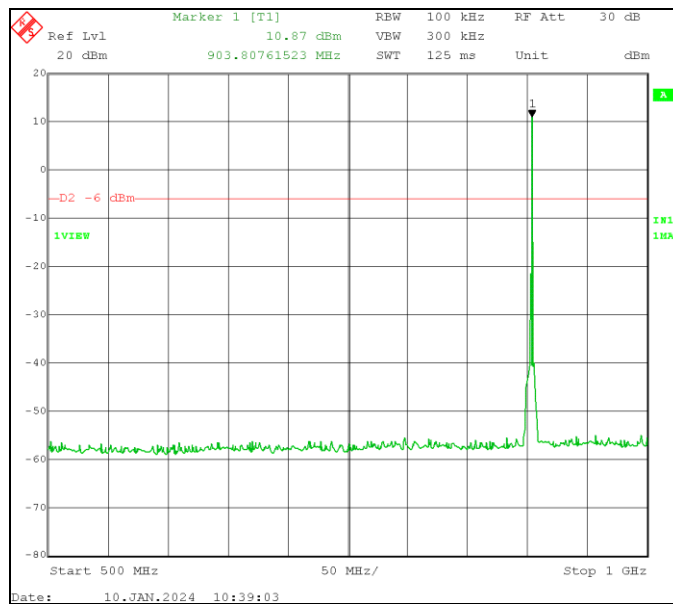




### 100 MHz – 500 MHz

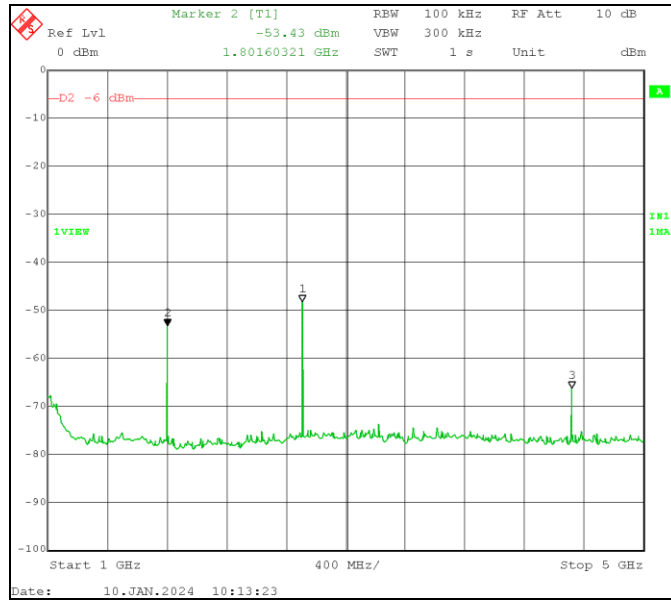


### 500 MHz – 1000 MHz

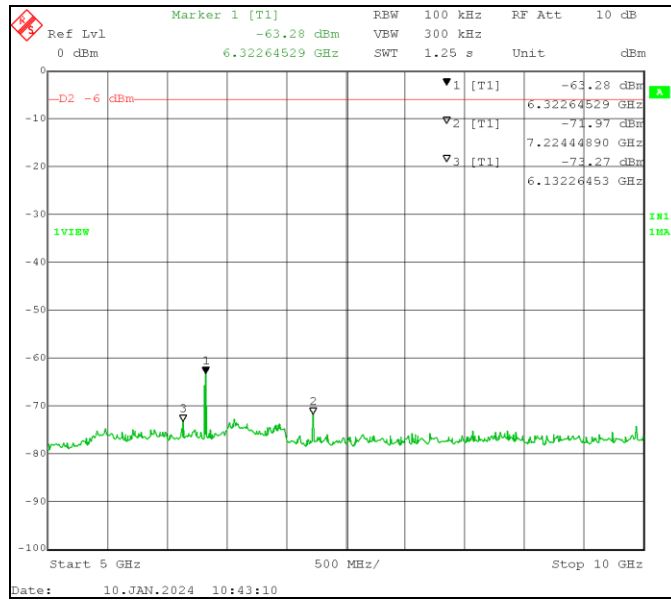




### 1 GHz – 5 GHz



### 5 GHz – 10 GHz



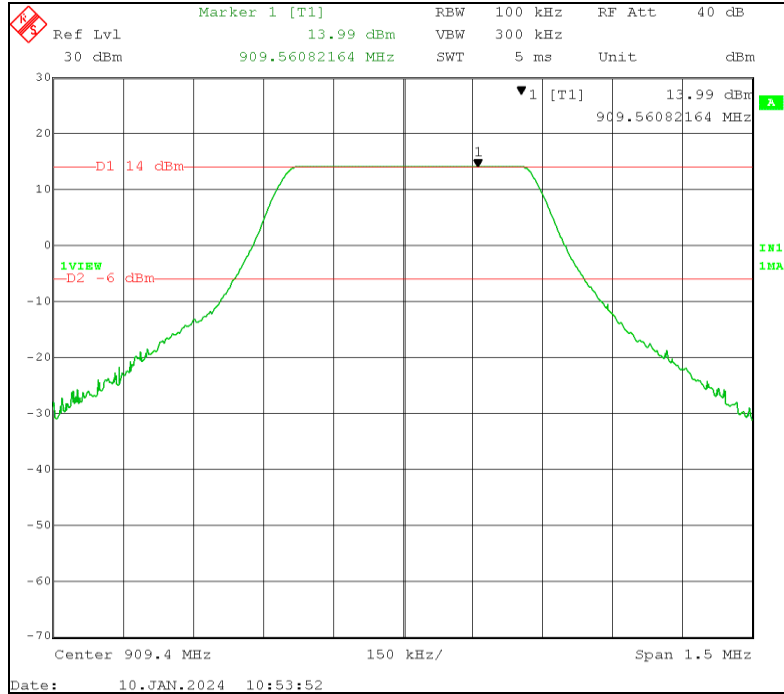


**Test Results of Highest Emissions: Channel 0 (Frequency 903.0 MHz)**

Channel	Tx Channel Frequency	Level	Limit	Margin	Result
#	GHz	dBc	dBc	dB	
0	1.8016	-53.43	-20.00	-33.43	Pass
0	2.7089	-48.85	-20.00	-28.85	Pass
0	6.3226	-63.28	-20.00	-43.28	Pass



#### 4.4.4 DTS Emissions in Non-restricted Frequency Bands Reference Measurement Channel 4 at 909.4 MHz (01/10/2024)

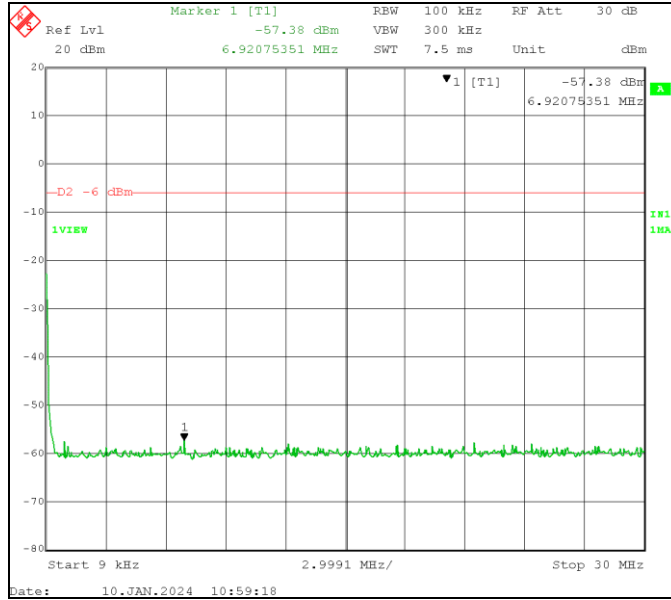


The peak level of 14.0 dBm is the maximum peak output of the Woodstream Model V430B Rodent Snap Trap with LoRa Radio. The conducted spurious emissions from the antenna port must be 20 dB down from this peak. The resultant limit is therefore -6.0 dBm and is displayed on the plots below.

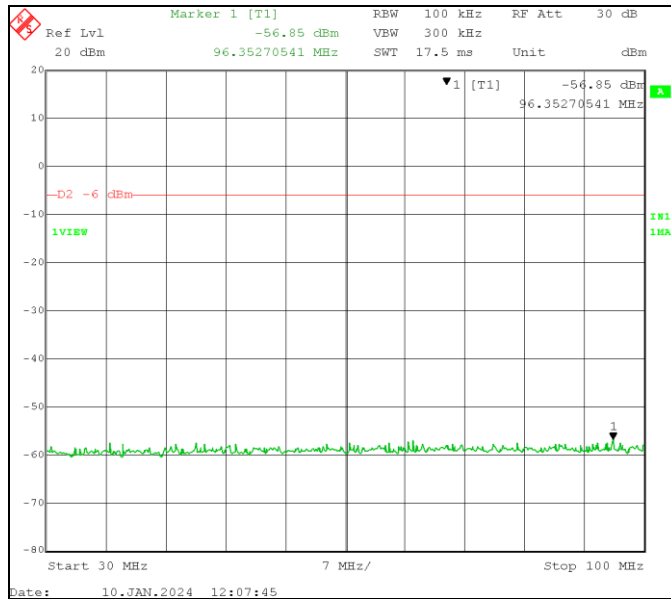


### 4.4.5 DTS Emissions in Non-restricted Frequency Bands Channel 4 Test Results (01/10/2024)

9 kHz – 30 MHz



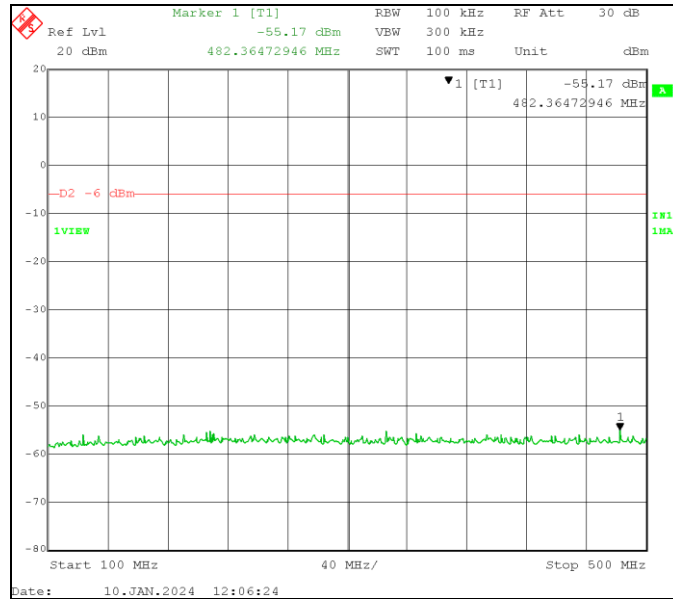
30 MHz – 100 MHz



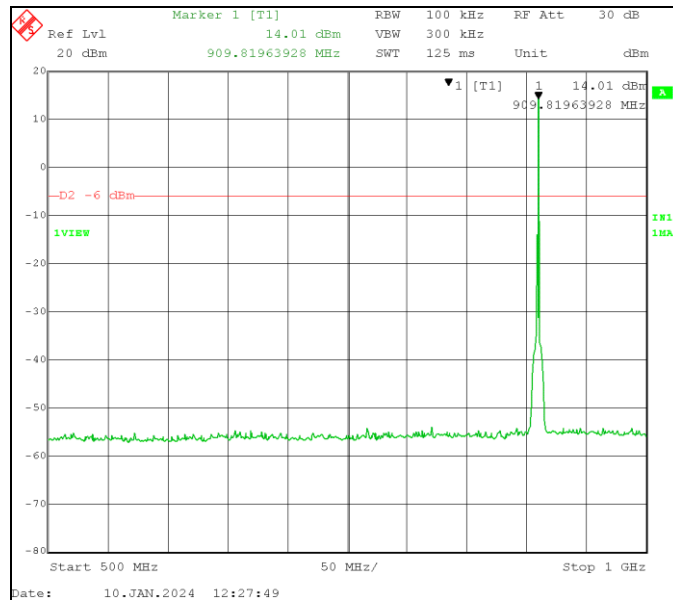




### 100 MHz – 500 MHz

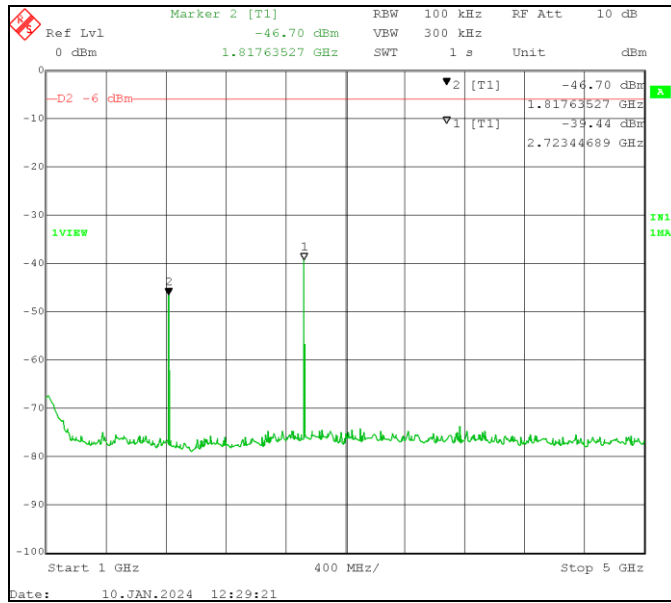


### 500 MHz – 1000 MHz

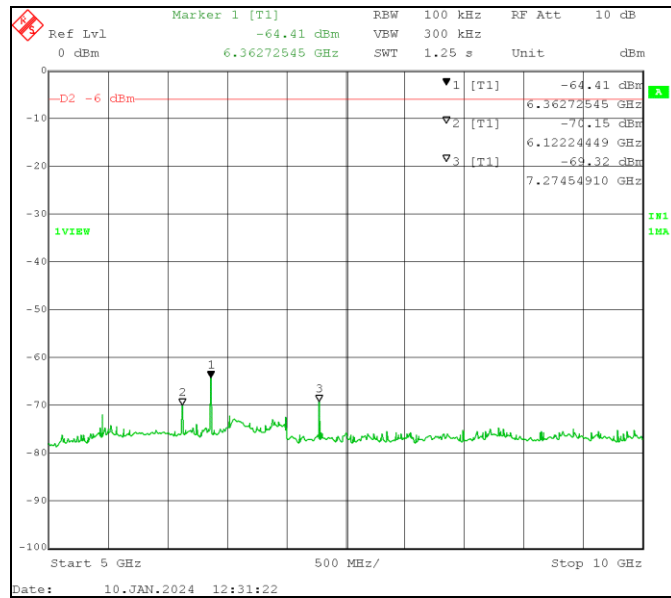




### 1 GHz – 5 GHz



### 5 GHz – 10 GHz



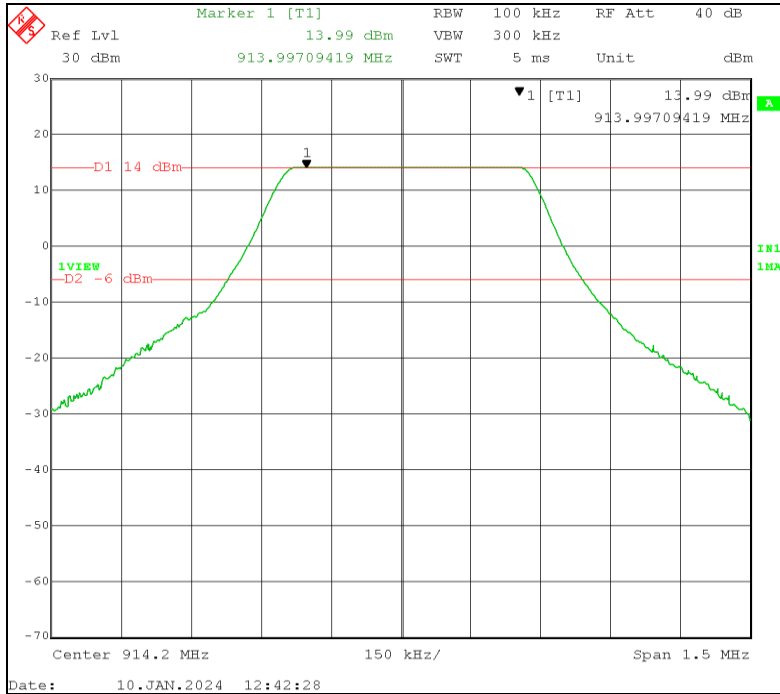


**Test Results Table Highest Emissions: Channel 4 (909.4 MHz)**

Channel	Tx Channel Frequency	Level	Limit	Margin	Result
#	GHz	dBc	dBc	dB	
4	1.8176	-46.70	-20.00	-26.70	Pass
4	2.7234	-39.44	-20.00	-19.44	Pass
4	6.3627	-64.41	-20.00	-44.41	Pass



#### 4.4.6 DTS Emissions in Non-restricted Frequency Bands Reference Measurement Channel 7 at 914.2 MHz (01/10/2024)

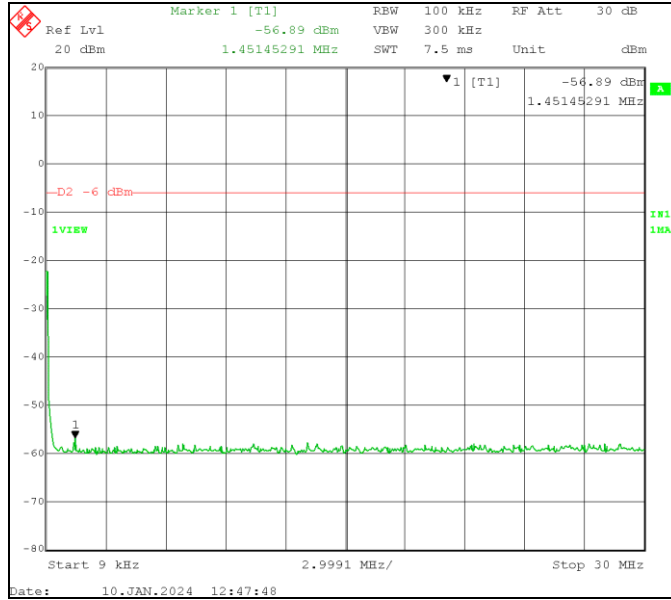


The peak level of 14.0 dBm is the maximum peak output of the Woodstream Model V430B Rodent Snap Trap with LoRa Radio. The conducted spurious emissions from the antenna port must be 20 dB down from this peak. The resultant limit is therefore -6.0 dBm and is displayed on the plots below.

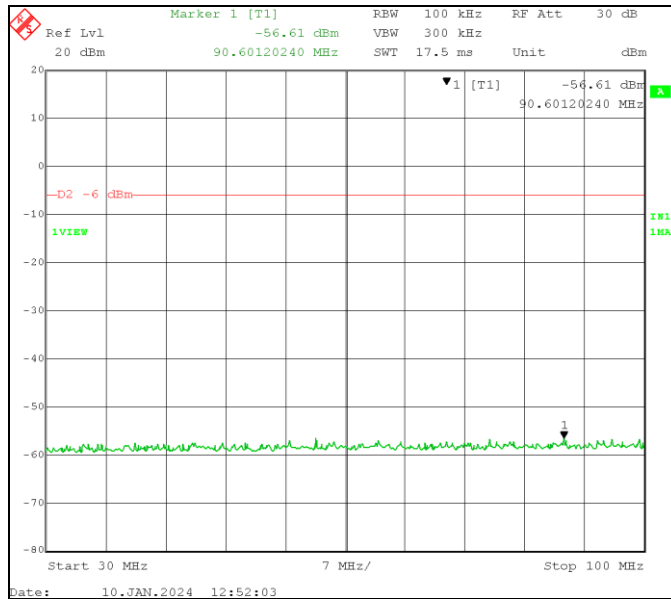


### 4.4.7 DTS Emissions in Non-restricted Frequency Bands Channel 7 Test Results (10/17/2022)

#### 9 kHz – 30 MHz

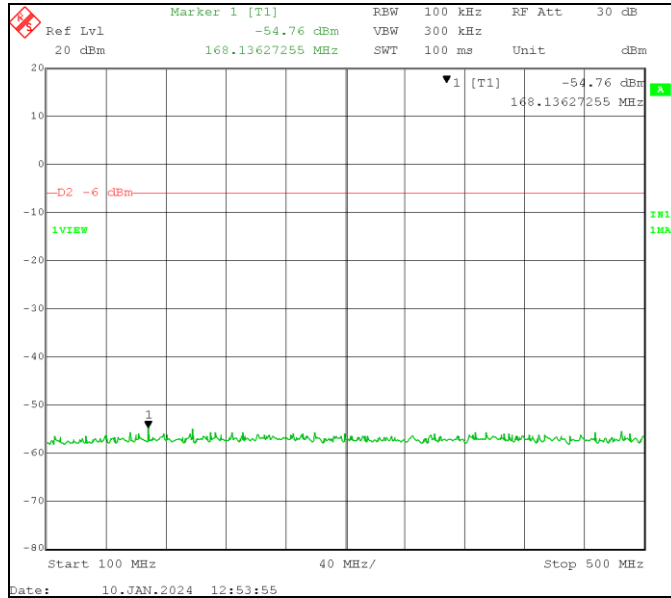


#### 30 MHz – 100 MHz

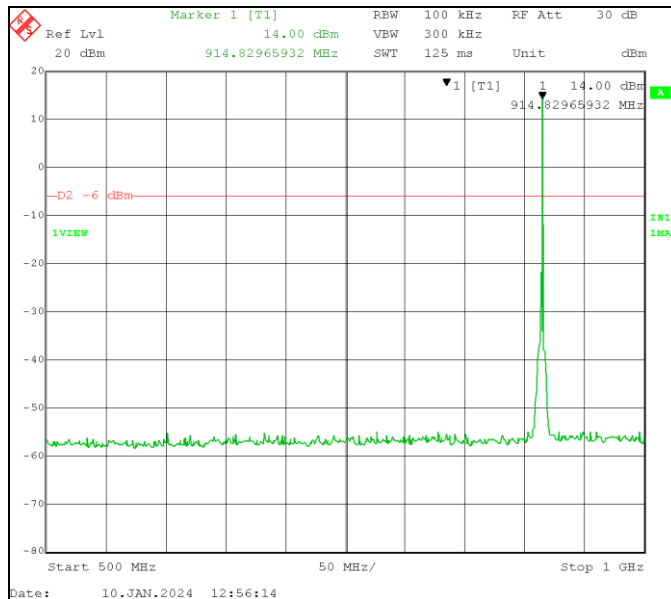




### 100 MHz – 500 MHz

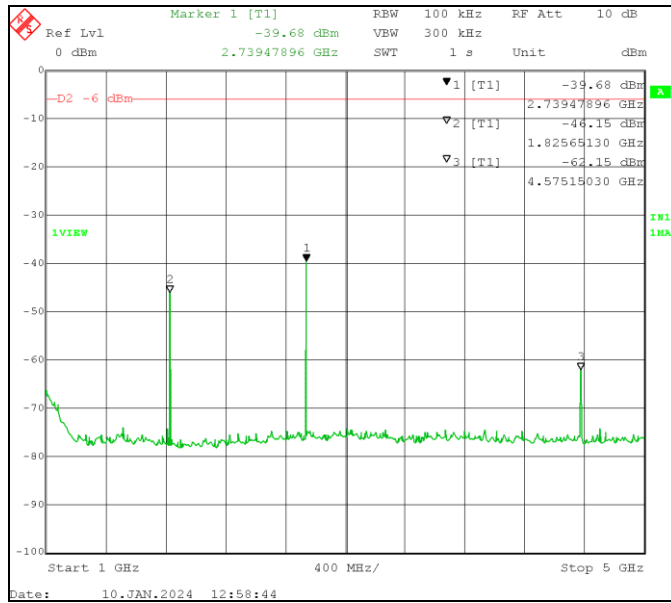


### 500 MHz – 1000 MHz

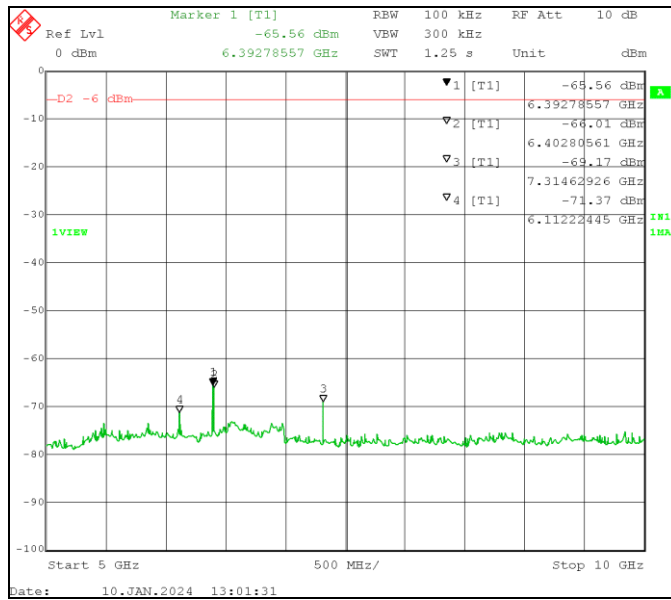




### 1 GHz – 5 GHz



### 5 GHz – 10 GHz





### Test Results of Highest Emissions: Channel 7 (Frequency 914.2 MHz)

Channel	Tx Channel Frequency	Level	Limit	Margin	Result
#	GHz	dBc	dBc	dB	
7	1.8256	-46.15	-20.00	-26.15	Pass
7	2.7395	-39.68	-20.00	-19.68	Pass
7	4.5752	-62.15	-20.00	-42.15	Pass

**Test Results:** The Antenna Conducted Spurious Emissions of the Woodstream Model V430B Rodent Snap Trap with LoRa Radio, at Low, Middle and High Frequencies, are below the carrier 20 dBc limit and therefore compliant with the limits specified in FCC Section 15.247(d).





#### **4.5 DTS Radiated Emissions in Non-restricted and Restricted Frequency Bands, 30 MHz – 10 GHz (47 CFR 15.205 & 15.209)(RSS-GEN 8.9 & 8.10)**

The emissions from the Woodstream Model V430B Rodent Snap Trap with LoRa Radio, which fall in the restricted bands of operation and unrestricted bands of operation, detailed in this section, comply with the limits of 15.209. The Woodstream Model V430B Rodent Snap Trap with LoRa Radio was tested at three frequencies: low (Channel 0, 903.0 MHz), middle (Channel 4, 909.4 MHz) and high (Channel 7, 914.2 MHz). The transmitter was operated at maximum output power (20), 500 kHz bandwidth and Spread Factor of 8.

Measurement of the signals was performed with the EUT on a turntable and a variable height antenna mast at 3 meters distance. The signals residing in restricted bands of operation are indicated in the tables below.

##### **4.5.1 Non-Restricted and Restricted Bands Test Facility**

###### **OATS**

The Open Area Test Site (OATS) is an all-weather facility with a wooden enclosure that contains a ground level 4-foot diameter turntable capable of rotating equipment 360 degrees. The enclosure is free of reflective metallic objects and extraneous electromagnetic signals. This non-metallic enclosure and the 3 and 10 meter test range existing outside the enclosure rest upon a protective insulating material, which in turn covers a flat, metal, continuous ground plane.

Instrumentation for remote control of the antenna mast, turntable, and other equipment are controlled by personnel indoors. The EUT and support peripherals required for EUT operation were placed on a table 80 cm high for tabletop equipment or directly on the turntable surface for floor standing equipment. The test site complies with the requirements of ANSI C63.4 and ANSI C63.10.

###### **SR#1**

The Semi-Anechoic Shielded Room (SR#1) is a ferrite and absorber lined chamber which houses a 5-foot diameter turntable capable of rotating equipment 360 degrees and antenna mast for Horizontal and Vertical polarity measurements. The enclosure is free of reflective metallic objects and extraneous electromagnetic signals. This 3 meter shielded enclosure has a raised computer floor with metal tile bottoms providing a continuous ground plane.

Instrumentation for remote control of the antenna mast, turntable, and other equipment are controlled by personnel outside the chamber. The EUT and support peripherals required for EUT operation were placed on a table 80 cm high for tabletop equipment or directly on the turntable surface for floor standing equipment.

The chamber complies with the requirements of ANSI C63.4 and ANSI C63.10.



## 4.5.2 Non-restricted and Restricted Bands Radiated Emissions Test Procedure

### Radiated Emissions 30 MHz – 40 GHz

The EMI receiver was set to quasi-peak mode for frequencies from 30MHz to 1GHz and the appropriate CISPR bandwidths were employed. The receiver was set to average mode for frequencies above 1GHz with the appropriate CISPR bandwidths were employed.

Three orthogonal positions of the EUT were evaluated for maximum emissions. The position of the EUT, with the base of the trap placed on the horizontal surface of the 80-cm table, was determined to be the axis that produced the highest emissions.

Significant emissions found during the preliminary scans were maximized by rotating the turntable and varying the antenna height. Both horizontal and vertical antenna polarities were also investigated for suspect emissions. The signals are maximized and measured using the in house generated RADE or off the shelf TILE software. The support equipment and test item(s) were powered off in turn to determine the source of the emissions where appropriate.

Field strengths were calculated as follows:

Field Strength (dB $\mu$ V/m) = Meter Reading (dB $\mu$ V) + Antenna Factor (dB/m) + Cable Loss (dB) – Amplifier Gain (dB)

Measurements were made with the Woodstream Model V430B Rodent Snap Trap with LoRa Radio transmitting at low (Channel 0), middle (Channel 4) and high (Channel 7). LoRa modulation with 500 kHz bandwidth was applied with the spread factor = 8. The following tables are the highest emissions recorded and summarized. Restricted band signals are marked with an asterisk. Other spurious emissions are shown to demonstrate compliance of the EUT to 15.209 limits.



### 4.5.3 DTS Emissions in Non-restricted and Restricted Bands of Operation, 30 MHz – 1000 MHz Test Results (12/28/2023)

#### Low Channel 0 (903.0 MHz)

Frequency	Peak Corrected	Quasi-Peak Corrected	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factor	Peak Limit	Peak Margin	QP Limit	QP Margin	Result
MHz	dBuV/m	dBuV/m	H or V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
79.980	8.65	7.64	V	219	125	-12.97	60.00	-51.35	40.00	-32.36	Pass
128.185*	11.60	10.65	V	354	208	-6.54	63.52	-51.92	43.52	-32.87	Pass
132.886*	13.39	11.10	H	331	136	-6.68	63.52	-50.13	43.52	-32.42	Pass
199.886	9.54	10.12	V	360	217	-6.90	63.52	-53.98	43.52	-33.40	Pass
358.922	15.43	13.56	H	099	213	-4.33	66.02	-50.59	46.02	-32.46	Pass
397.475	15.98	14.76	H	032	244	-3.73	66.02	-50.04	46.02	-31.26	Pass
451.574	23.08	24.15	H	183	217	-2.50	66.02	-42.94	46.02	-21.87	Pass
535.896	18.28	17.35	V	312	160	-1.42	66.02	-47.74	46.02	-28.67	Pass
740.933	25.07	21.10	V	279	219	1.72	66.02	-40.95	46.02	-24.92	Pass
815.013	30.13	28.20	H	353	099	3.11	66.02	-35.89	46.02	-17.82	Pass
819.876	25.53	23.24	V	300	109	3.10	66.02	-40.49	46.02	-22.78	Pass
871.064	31.40	31.27	H	009	104	3.52	66.02	-34.62	46.02	-14.75	Pass
* Restricted Band Signal											

#### Middle Channel 4 (909.4 MHz)

Frequency	Peak Corrected	Quasi-Peak Corrected	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factor	Peak Limit	Peak Margin	QP Limit	QP Margin	Result
MHz	dBuV/m	dBuV/m	H or V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
117.588*	13.52	10.31	H	107	199	-6.74	63.52	-50.00	43.52	-33.21	Pass
124.990*	14.97	10.60	V	275	104	-6.47	63.52	-48.55	43.52	-32.92	Pass
222.801	9.81	8.42	V	254	135	-8.27	66.02	-56.21	46.02	-37.60	Pass
251.840*	10.96	9.42	H	238	249	-7.33	66.02	-55.06	46.02	-36.60	Pass
454.657	23.68	26.51	H	201	187	-2.53	66.02	-42.34	46.02	-19.51	Pass
523.751	19.98	16.84	V	010	177	-1.44	66.02	-46.04	46.02	-29.18	Pass
653.180	23.41	20.89	H	050	135	0.53	66.02	-42.61	46.02	-25.13	Pass
687.774	21.14	18.70	V	132	135	0.88	66.02	-44.88	46.02	-27.32	Pass
735.986	23.81	20.47	V	006	244	1.61	66.02	-42.21	46.02	-25.55	Pass
803.041	29.96	27.82	H	016	108	3.02	66.02	-36.06	46.02	-18.20	Pass
847.036	26.64	23.06	V	305	177	3.44	66.02	-39.38	46.02	-22.96	Pass
877.266	31.90	29.42	H	001	103	3.68	66.02	-34.12	46.02	-16.60	Pass
* Restricted Band Signal											



## High Channel 7 (914.2 MHz)

Frequency	Peak Corrected	Quasi-Peak Corrected	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factor	Peak Limit	Peak Margin	QP Limit	QP Margin	Result
MHz	dBuV/m	dBuV/m	H or V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
111.516*	13.48	9.62	V	088	252	-7.33	63.52	-50.04	43.52	-33.90	Pass
125.880*	10.33	10.43	H	054	140	-6.46	63.52	-53.19	43.52	-33.09	Pass
166.402*	11.70	9.44	H	289	145	-7.47	63.52	-51.82	43.52	-34.08	Pass
269.174*	13.41	10.99	V	179	175	-5.55	66.02	-52.61	46.02	-35.03	Pass
439.422	18.01	14.52	V	030	192	-2.71	66.02	-48.01	46.02	-31.50	Pass
455.974	23.78	22.23	H	212	192	-2.44	66.02	-42.24	46.02	-23.79	Pass
579.731	18.20	17.27	V	058	217	-0.67	66.02	-47.82	46.02	-28.75	Pass
594.878	22.24	21.91	H	034	130	-0.38	66.02	-43.78	46.02	-24.11	Pass
741.096	24.97	21.35	V	152	255	1.73	66.02	-41.05	46.02	-24.67	Pass
800.028	31.08	30.26	H	014	104	2.94	66.02	-34.94	46.02	-15.76	Pass
813.262	24.24	22.43	V	254	197	3.16	66.02	-41.78	46.02	-23.59	Pass
882.128	28.70	27.13	H	352	104	3.75	66.02	-37.32	46.02	-18.89	Pass
* Restricted Band Signal											

## Receive Mode

Frequency	Peak Corrected	Quasi-Peak Corrected	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factor	Peak Limit	Peak Margin	QP Limit	QP Margin	Result
MHz	dBuV/m	dBuV/m	H or V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
128.186*	10.64	10.39	H	230	220	-6.54	63.52	-52.88	43.52	-33.13	Pass
132.282*	14.47	10.27	V	324	151	-6.63	63.52	-49.05	43.52	-33.25	Pass
282.515*	11.80	11.22	V	173	155	-5.33	66.02	-54.22	46.02	-34.80	Pass
283.441*	12.39	11.25	H	176	244	-5.28	66.02	-53.63	46.02	-34.77	Pass
370.268	14.97	13.06	V	313	245	-4.26	66.02	-51.05	46.02	-32.96	Pass
487.206	19.84	16.13	H	214	140	-1.88	66.02	-46.18	46.02	-29.89	Pass
529.194	18.80	16.75	V	171	099	-1.41	66.02	-47.22	46.02	-29.27	Pass
628.703	19.46	17.97	H	284	233	-0.02	66.02	-46.56	46.02	-28.05	Pass
673.959	18.59	18.09	V	049	209	0.69	66.02	-47.43	46.02	-27.93	Pass
741.911	21.26	20.35	H	325	134	1.73	66.02	-44.76	46.02	-25.67	Pass
800.536	24.07	20.86	V	209	145	2.94	66.02	-41.95	46.02	-25.16	Pass
876.447	23.80	21.53	H	252	202	3.64	66.02	-42.22	46.02	-24.49	Pass
* Restricted Band Signal											

**Test Results:** The Woodstream Model V430B Rodent Snap Trap with LoRa Radio, operating in DTS mode and receive mode, comply with the requirements of 47 CFR Part 15.205 and RSS-Gen Section 8.10 for restricted bands of operation with a margin of 15.76 dB.



#### 4.5.4 DTS Emissions in Non-Restricted and Restricted Bands of Operation, 1 – 10 GHz Test Results (01/01/2024)

##### Low Channel 0 (903.0 MHz)

Frequency	Peak Corrected	Average Corrected	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factors	15.35(b) Peak Limit	Peak Margin	15.209 Average Limit	Average Margin	Result
GHz	dBuV/m	dBuV/m	H or V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
1.806	36.44	29.67	H	106	103	-7.90	73.98	-37.54	53.98	-24.31	Pass
1.806	34.85	23.33	V	320	147	-7.89	73.98	-39.13	53.98	-30.65	Pass
1.864	31.65	23.04	H	178	262	-7.52	73.98	-42.33	53.98	-30.94	Pass
1.865	30.11	21.62	V	240	188	-7.51	73.98	-43.87	53.98	-32.36	Pass
2.709*	37.85	30.25	V	160	101	-4.44	73.98	-36.13	53.98	-23.73	Pass
3.853*	35.90	24.97	H	287	163	0.32	73.98	-38.08	53.98	-29.01	Pass
3.919*	34.45	24.38	H	263	210	0.49	73.98	-39.53	53.98	-29.60	Pass
4.515*	35.29	26.82	V	214	159	0.76	73.98	-38.69	53.98	-27.16	Pass
5.393*	36.09	26.88	H	026	232	3.30	73.98	-37.89	53.98	-27.10	Pass
5.418*	50.42	40.66	V	216	150	3.31	73.98	-23.56	53.98	-13.32	Pass
* Restricted Band Signal											

##### Middle Channel 4 (909.4 MHz)

Frequency	Peak Corrected	Average Corrected	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factors	15.35(b) Peak Limit	Peak Margin	15.209 Average Limit	Average Margin	Result
GHz	dBuV/m	dBuV/m	H or V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
1.819	36.37	29.29	H	104	101	-7.73	73.98	-37.61	53.98	-24.69	Pass
1.819	37.69	27.93	V	311	108	-7.72	73.98	-36.29	53.98	-26.05	Pass
1.862	31.36	21.66	V	130	235	-7.53	73.98	-42.62	53.98	-32.32	Pass
2.537	31.56	22.90	V	022	101	-5.24	73.98	-42.42	53.98	-31.08	Pass
2.709*	32.50	22.84	H	340	207	-4.44	73.98	-41.48	53.98	-31.14	Pass
2.728*	36.80	30.30	V	181	147	-4.45	73.98	-37.18	53.98	-23.68	Pass
3.656*	30.96	22.54	H	216	101	-0.87	73.98	-43.02	53.98	-31.44	Pass
5.457*	48.66	40.24	V	219	126	3.27	73.98	-25.32	53.98	-13.74	Pass
5.457*	37.55	30.40	H	035	243	3.27	73.98	-36.43	53.98	-23.58	Pass
8.173*	45.20	35.52	H	000	118	5.39	73.98	-28.78	53.98	-18.46	Pass
* Restricted Band Signal											



### High Channel 7 (914.2 MHz)

Frequency	Peak Corrected	Average Corrected	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factors	15.35(b) Peak Limit	Peak Margin	15.209 Average Limit	Average Margin	Result
GHz	dBuV/m	dBuV/m	H or V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
1.829	38.40	33.28	H	99	101	-7.70	73.98	-35.58	53.98	-20.70	Pass
1.829	34.10	28.71	V	291	101	-7.70	73.98	-39.88	53.98	-25.27	Pass
1.875	30.94	20.96	H	264	101	-7.42	73.98	-43.04	53.98	-33.02	Pass
2.690*	31.95	22.82	H	359	184	-4.55	73.98	-42.03	53.98	-31.16	Pass
2.743*	33.63	23.22	V	289	103	-4.44	73.98	-40.35	53.98	-30.76	Pass
4.564*	32.96	24.86	V	332	135	0.88	73.98	-41.02	53.98	-29.12	Pass
5.484	44.67	33.69	H	10	207	3.25	73.98	-29.31	53.98	-20.29	Pass
5.493	35.30	26.29	V	71	171	3.24	73.98	-38.68	53.98	-27.69	Pass
7.050	40.96	31.35	H	31	107	3.62	73.98	-33.02	53.98	-22.63	Pass
7.336*	42.05	32.27	V	347	201	4.78	73.98	-31.93	53.98	-21.71	Pass
* Restricted Band Signal											

### Receive Mode

Frequency	Peak Corrected	Average Corrected	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factors	15.35(b) Peak Limit	Peak Margin	15.209 Average Limit	Average Margin	Result
GHz	dBuV/m	dBuV/m	H or V	degrees	cm	dB	dBuV/m	dB	dBuV/m	dB	
1.846	30.68	20.85	H	072	102	-7.63	73.98	-43.30	53.98	-33.13	Pass
1.863	29.98	20.84	V	050	169	-7.52	73.98	-44.00	53.98	-33.14	Pass
2.411	31.51	21.95	H	068	187	-5.35	73.98	-42.47	53.98	-32.03	Pass
2.528	32.31	22.13	H	114	176	-5.25	73.98	-41.67	53.98	-31.85	Pass
2.692*	30.78	22.50	V	327	141	-4.54	73.98	-43.20	53.98	-31.48	Pass
3.627*	32.33	22.84	V	090	255	-1.05	73.98	-41.65	53.98	-31.14	Pass
5.348	35.15	26.40	H	161	203	3.10	73.98	-38.83	53.98	-27.58	Pass
6.744	39.39	31.64	H	000	102	3.62	73.98	-34.59	53.98	-22.34	Pass
6.827	41.90	31.66	V	346	102	3.60	73.98	-32.08	53.98	-22.32	Pass
8.204*	45.42	34.94	V	234	201	5.46	73.98	-28.56	53.98	-19.04	Pass
* Restricted Band Signal											

**Test Results:** The Woodstream Model V430B Rodent Snap Trap with LoRa Radio, operating in DTS and receive modes, comply with the requirements of 47 CFR Part 15.205 and RSS-Gen Section 8.10 with a margin of 13.32 dB.



## 4.6 DTS 6 dB Occupied Bandwidth (FCC Section 15.247(a)(2) RSS-247 5.2(a))

### 4.6.1 6 dB Occupied Bandwidth – Test Procedure

The minimum DTS (6 dB) bandwidth, specified in FCC Section 15.247(a) (2) was measured using a Spectrum Analyzer with 100 kHz resolution bandwidth and 300 kHz video bandwidth. Transmission frequencies at low (Channel 0, Frequency 903.0 MHz), middle (Channel 4, Frequency 909.4 MHz) and high (Channel 7, Frequency 914.4 MHz) were measured with LoRa modulation with a bandwidth of 500 kHz and spread factor of 8. The test procedure of ANSI C63.10, Section 11.8, Option 1, was used.

#### Spectrum Analyzer Settings:

RBW	100	kHz
VBW	300	kHz
Span	2	MHz
Sweep Time	5	ms

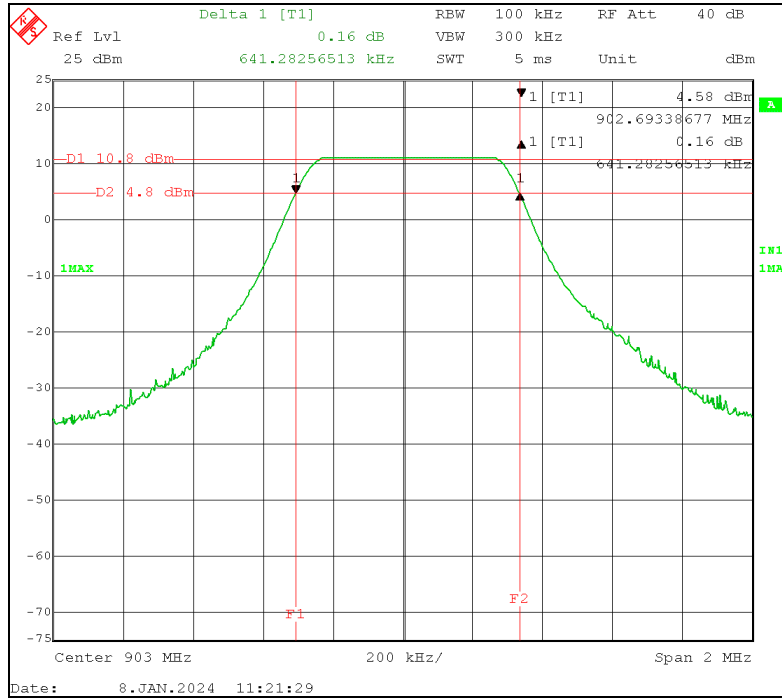
### 4.6.2 DTS (6 dB) Occupied Bandwidth Test Results (01/08/2024)

Channel	Frequency	LoRa Modulation Settings	6 dB BW Measurements	15.247 (a)(2) BW (Minimum)	Margin	Result
#	MHz	#	kHz	kHz	kHz	
0	903.0	Power= +15,	641.28	500.00	141.28	Pass
4	909.4	BW= 500	641.28		141.28	Pass
7	914.2	kHz, SF=8	641.28		141.28	Pass

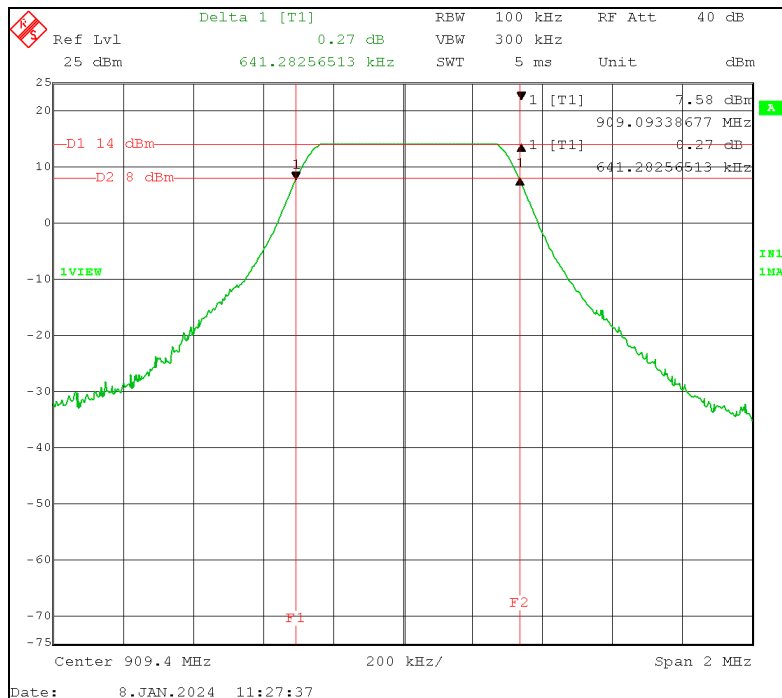


### 4.6.3 DTS (6 dB) Occupied Bandwidth Analyzer Screen Captures

#### Channel 0: 903.00 MHz



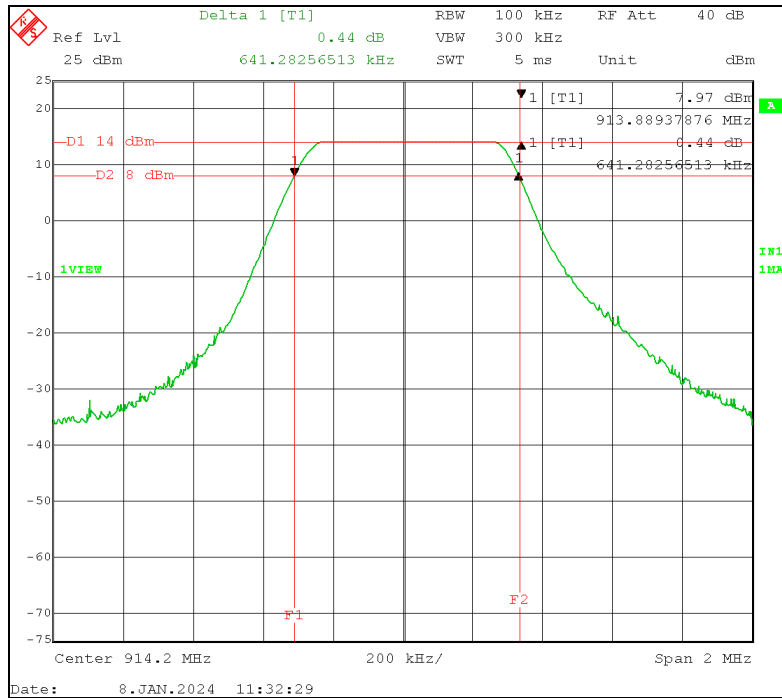
#### Channel 4: 909.40 MHz







### Channel 7: 914.20 MHz



**Test Results:** The DTS, 6 dB Occupied Bandwidth measurements for the Woodstream Model V430B Rodent Snap Trap with LoRa Radio were measured and are compliant to FCC and ISED requirements.



## 4.7 DTS 99% Occupied Bandwidth RSS-Gen 6.7

### 4.7.1 DTS 99% Occupied Bandwidth – Test Procedure

The 99% Occupied Bandwidth measurement per RSS-Gen Section 6.7 was measured using a Spectrum Analyzer with 30 kHz resolution bandwidth and 100 kHz video bandwidth. Transmission frequencies at low (Channel 0, Frequency 903.0 MHz), middle (Channel 4, Frequency 909.4 MHz) and high (Channel 7, Frequency 914.2 MHz) were measured with LoRa modulation, 500 kHz bandwidth and spread factor of 8. The test procedure of ANSI C63.10, Section 6.9.3 was used.

#### Spectrum Analyzer Settings:

RBW	30	kHz
VBW	100	kHz
Span	2	MHz
Sweep Time	7	ms

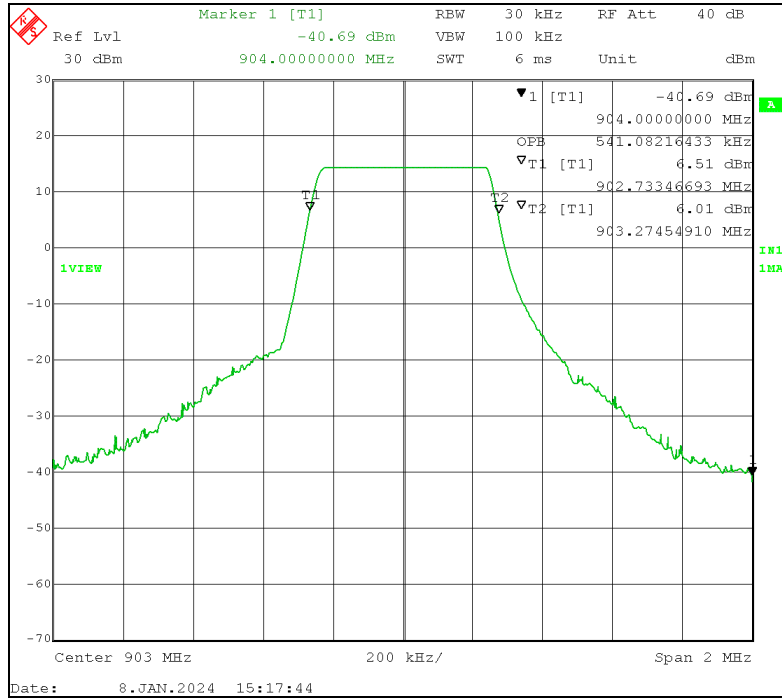
### 4.7.2 DTS 99% Occupied Bandwidth Test Results (01/08/2024)

Channel	Frequency (MHz)	LoRa Modulation Settings	99% BW (kHz)
0	903.0	Power of 15, LoRa 500 kHz BW SF=8	541.08
4	909.4		541.08
7	914.9		541.08

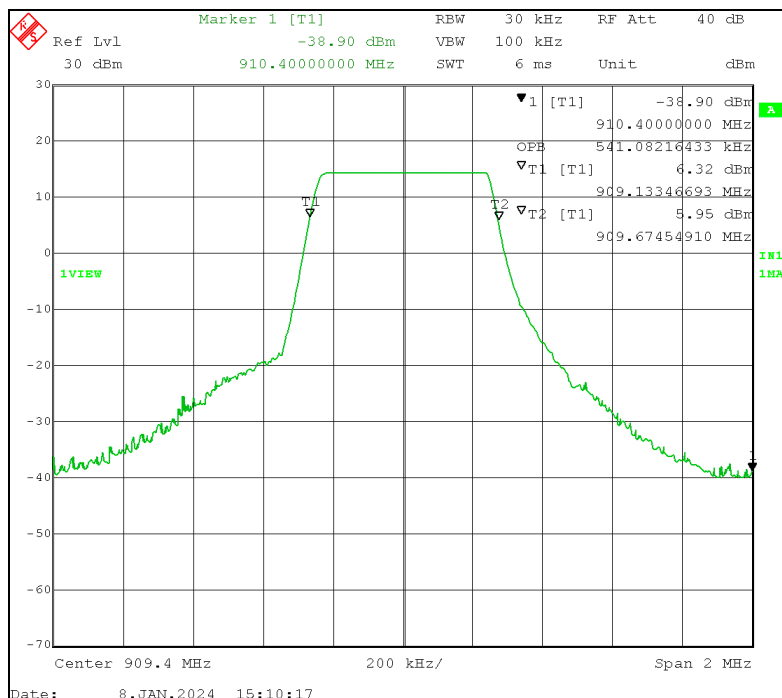


### 4.7.3 DTS 99% Occupied Bandwidth Analyzer Screen Captures

#### Channel 0: 903.00 MHz

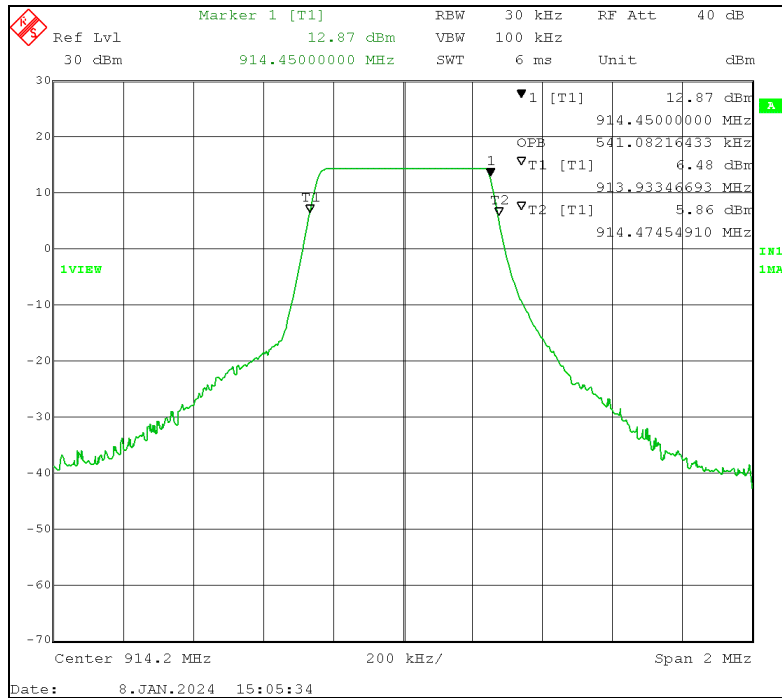


#### Channel 4: 909.40 MHz





### Channel 7: 914.20 MHz



**Test Results:** The DTS 99% Occupied Bandwidth measurements for the Woodstream Model V430B Rodent Snap Trap with LoRa Radio were measured for RSS-Gen Section 6.7 requirement.



## 4.8 Maximum Output Power Antenna Conducted and EIRP (FCC Part 15.247(b)(3), RSS-247 Section 5.4(d))

### 4.8.1 Maximum Output Power Antenna Conducted Test Procedure

A conducted power measurement of the output frequency was measured according to ANSI C63.10, Section 11.9.1.1. Spectrum Analyzer Resolution Bandwidth and Frequency Span were based upon the Operating Bandwidth (OBW) measured in the previous section. Transmission frequencies at low (Channel 0, Frequency 903.0 MHz), middle (Channel 4, Frequency 909.4 MHz) and high (Channel 7, Frequency 914.2 MHz) were measured with LoRa modulation. A Peak Detector was used during measurements.

#### Spectrum Analyzer Settings:

RBW	1	MHz
VBW	3	MHz
Span	5	MHz
Sweep	5	ms

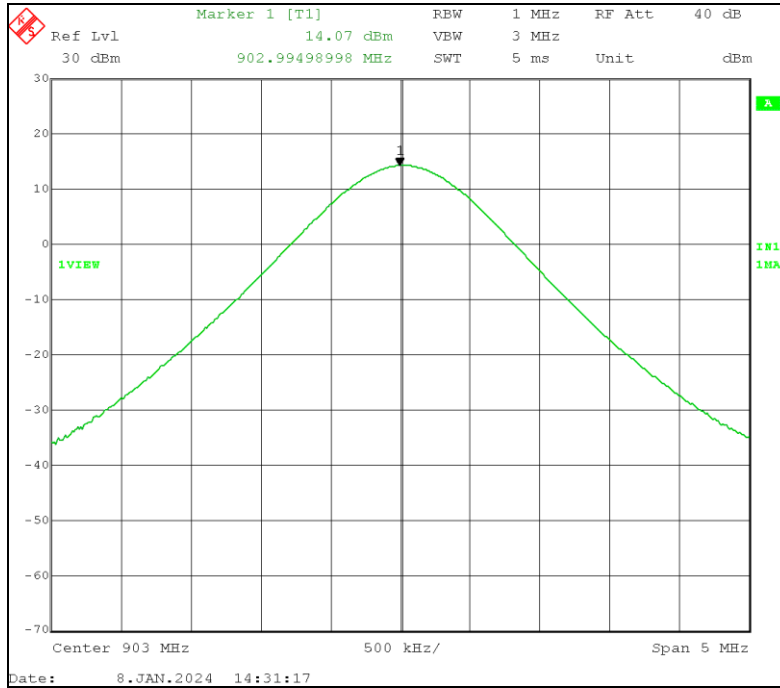
### 4.8.2 Maximum Output Power Antenna Conducted Test Results (01/08/2024)

Channel	Modulation	Frequency (MHz)	Measured Level	Cable # 962 Loss	Total		Limit		Margin	
					dBm	Watts	dBm	Watts	dBm	Watts
0	None	903.0	14.07	0.26	14.33	0.027	30.00	1.000	-15.67	-0.973
4		909.4	14.00	0.26	14.26	0.027	30.00	1.000	-15.74	-0.973
7		914.2	14.00	0.26	14.26	0.027	30.00	1.000	-15.74	-0.973
0	LoRa Power=15, BW=500 kHz, SF = 8	903.0	14.07	0.26	14.33	0.027	30.00	1.000	-15.67	-0.973
4		909.4	14.00	0.26	14.26	0.027	30.00	1.000	-15.74	-0.973
7		914.2	14.00	0.26	14.26	0.027	30.00	1.000	-15.74	-0.973

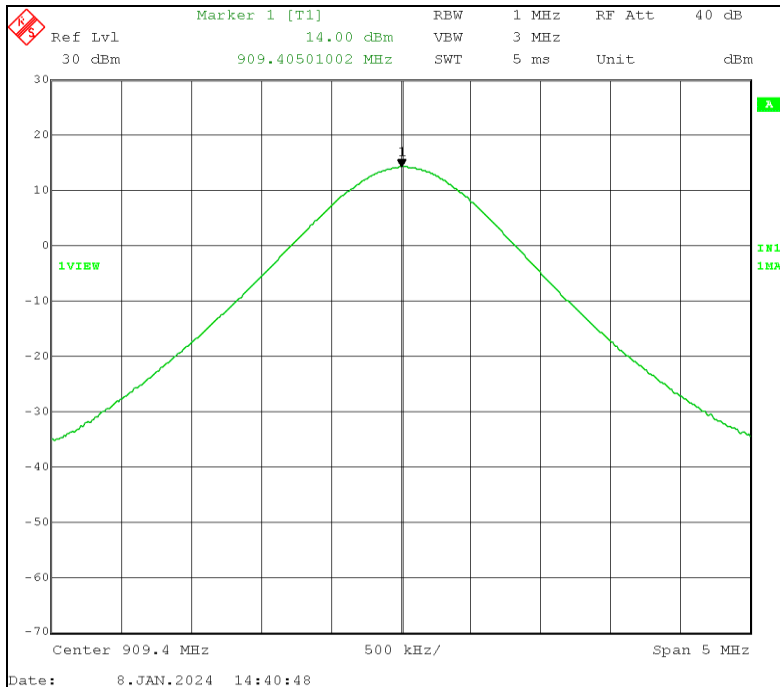


### 4.8.3 Maximum Output Power Antenna Conducted Analyzer Screen Captures

#### Channel 0: 903.0 MHz No Modulation

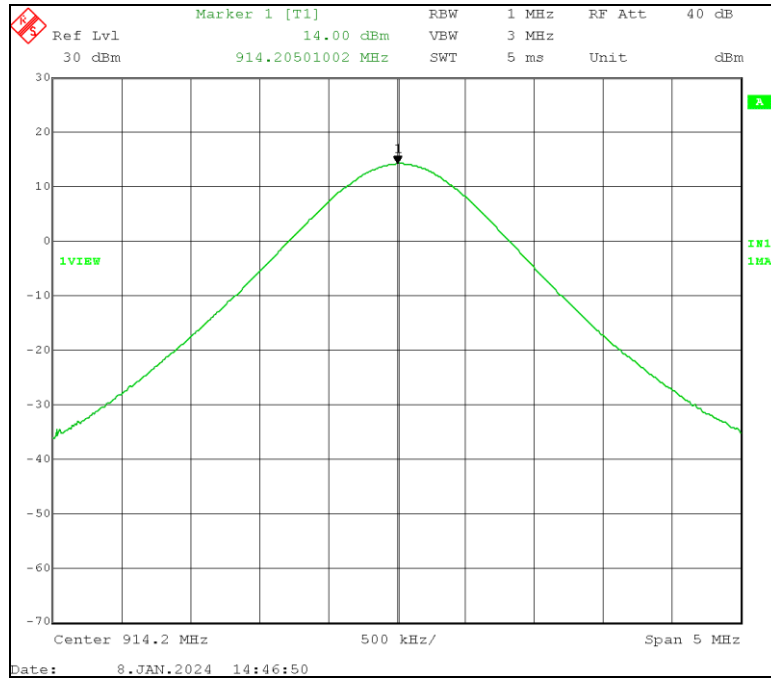


#### Channel 4: 909.4 MHz No Modulation

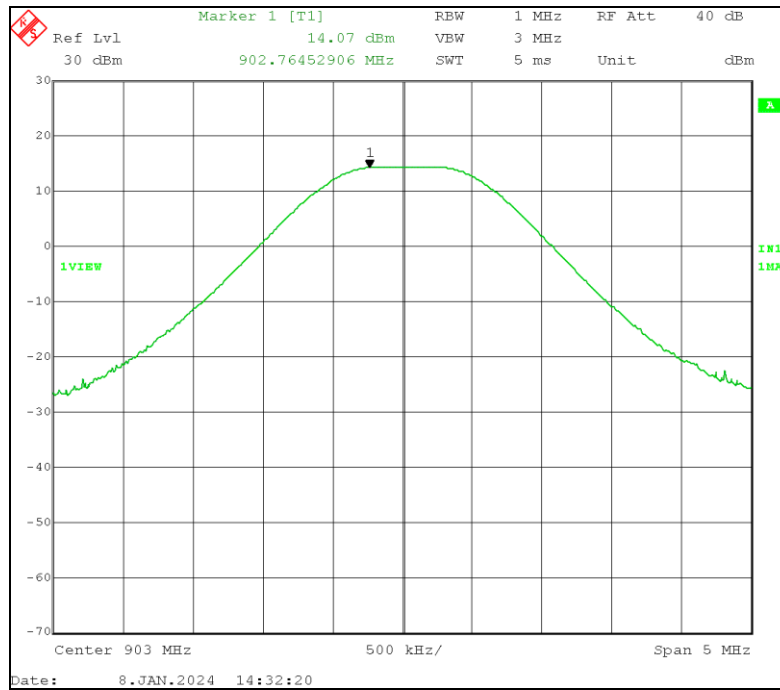




### Channel 7: 914.2 MHz No Modulation

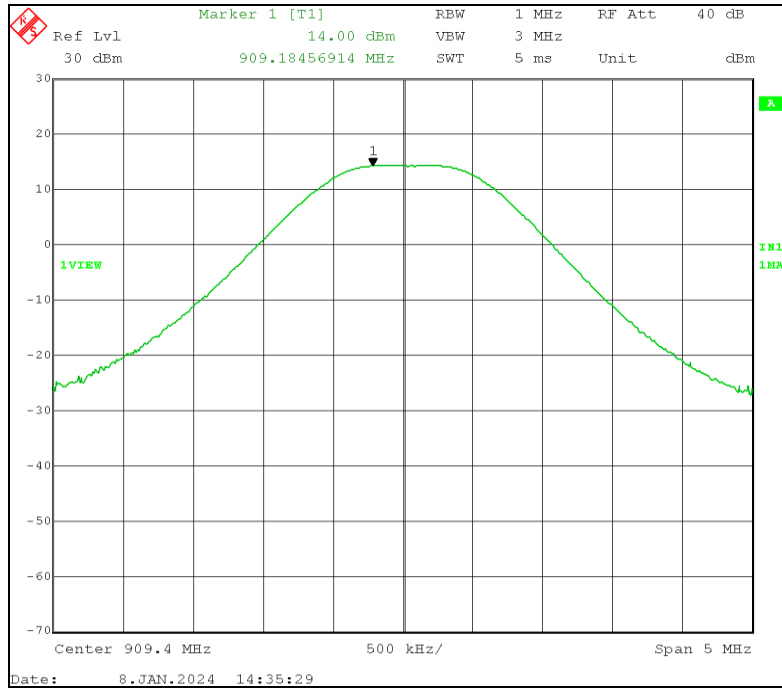


### Channel 0: 903.0 MHz with LoRa Modulation

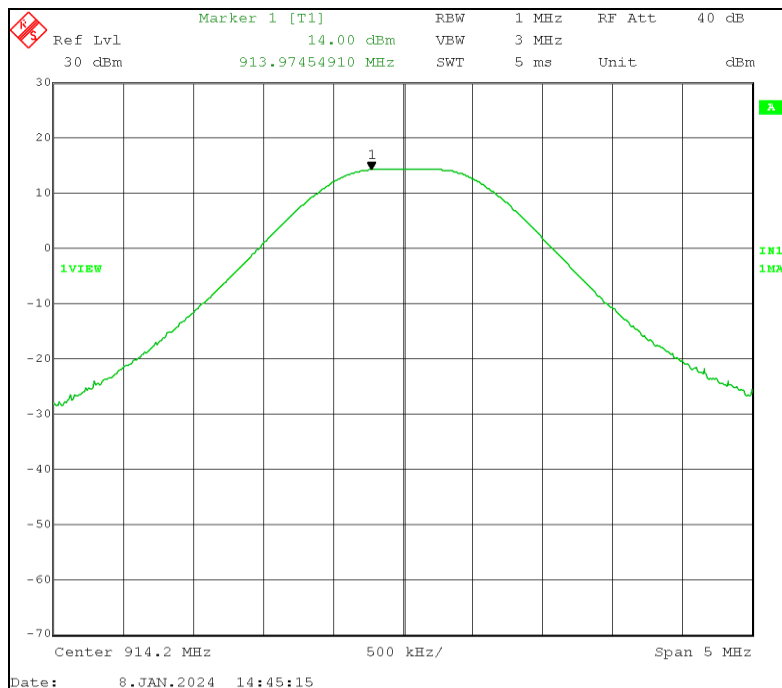




### Channel 4: 909.4 MHz with LoRa Modulation



### Channel 7: 914.2 MHz with LoRa Modulation



**Test Results:** The Maximum Conducted Output Power peak measurements for the Woodstream Model V430B Rodent Snap Trap with LoRa Radio, with and without modulation, are compliant with the limits specified in FCC Section 15.247(b)(3).





#### 4.8.4 EIRP Calculation RSS-247 (01/08/2024)

The gain of the antenna used in the Woodstream Model V430B Rodent Snap Trap with LoRa Radio is + 2.11 dBi. Applying the antenna gain to the maximum peak transmitter output produces the following values of EIRP.

Channel	Modulation	Frequency (MHz)	Corrected Measured Level		Antenna Gain		EIRP				Result
			dBm	Watts	Isotropic	Numeric	Total		Limit	Margin	
							dBm	Watts			
0	None	903.0	14.33	0.027	2.11	1.626	16.44	0.044	4.00	-3.956	Pass
4		909.4	14.26	0.027			16.37	0.043	4.00	-3.957	Pass
7		914.2	14.26	0.027			16.37	0.043	4.00	-3.957	Pass
0	LoRa Power=15, BW=500 kHz, SF = 8	903.0	14.33	0.027			16.44	0.044	4.00	-3.956	Pass
4		909.4	14.26	0.027			16.37	0.043	4.00	-3.957	Pass
7		914.2	14.26	0.027			16.37	0.043	4.00	-3.957	Pass

**Test Results:** The results in the above table show compliance to the ISED requirements for EIRP limits of RSS-247.



## 4.9 Power Spectral Density (FCC Section 15.247(e), RSS-247 Section 5.2(b))

### 4.9.1 Power Spectral Density Test Procedure

A conducted power measurement of the output frequency was measured using a peak detector for the Woodstream V440 for each of the low (Channel 0, Frequency 903.0 MHz), middle (Channel 4, Frequency 909.4 MHz) and high (Channel 7, Frequency 914.2 MHz) channel frequencies. The signal output was maximized with LoRa modulation with 500 kHz bandwidth using a Spread Factor of 8. The test procedure of ANSI C63.10, Section 11.10.2 (PKPSD) was used.

#### Spectrum Analyzer Settings:

RBW	3	kHz
VBW	10	kHz
Span	1.5	MHz
Sweep (Auto)	420	ms

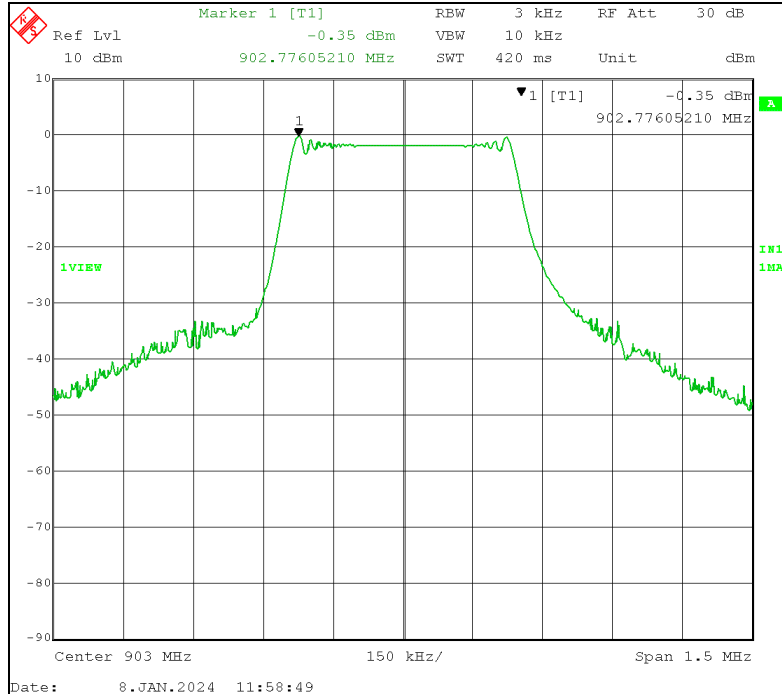
### 4.9.2 Power Spectral Density Test Results (01/08/2024)

Channel	LoRa Modulation Settings:	Frequency (MHz)	Measured Level	Cable # 962 Loss	Total	Limit	Margin
			dBm	dB	dBm	dBm	dBm
0	Power= +15,	903.0	-0.35	0.26	-0.09	8.00	-8.09
4	BW= 500 kHz,	909.4	-0.39	0.26	-0.13	8.00	-8.13
7	SF=8	914.2	-0.63	0.26	-0.37	8.00	-8.37

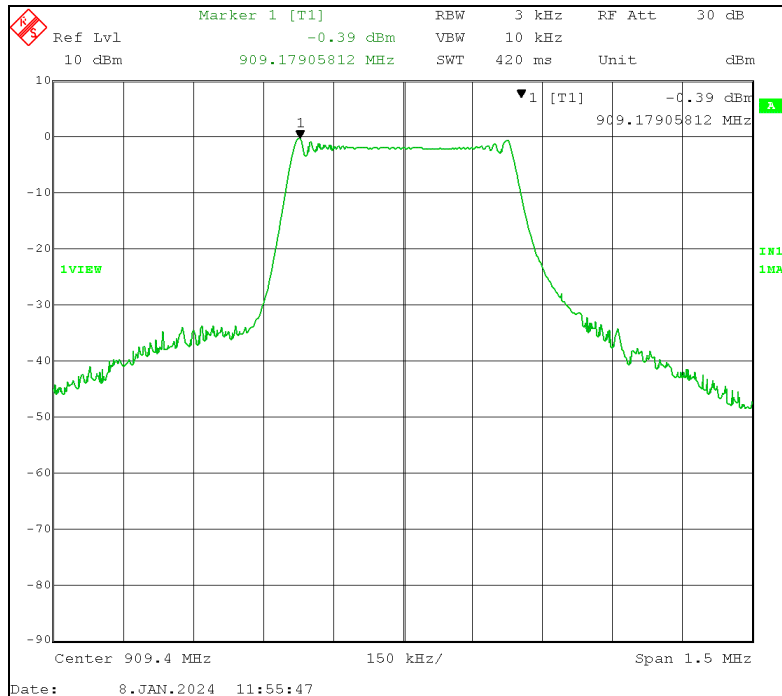


### 4.9.3 Power Spectral Density Analyzer Screen Captures

#### Channel 0, 903.0 MHz, LoRa Modulation

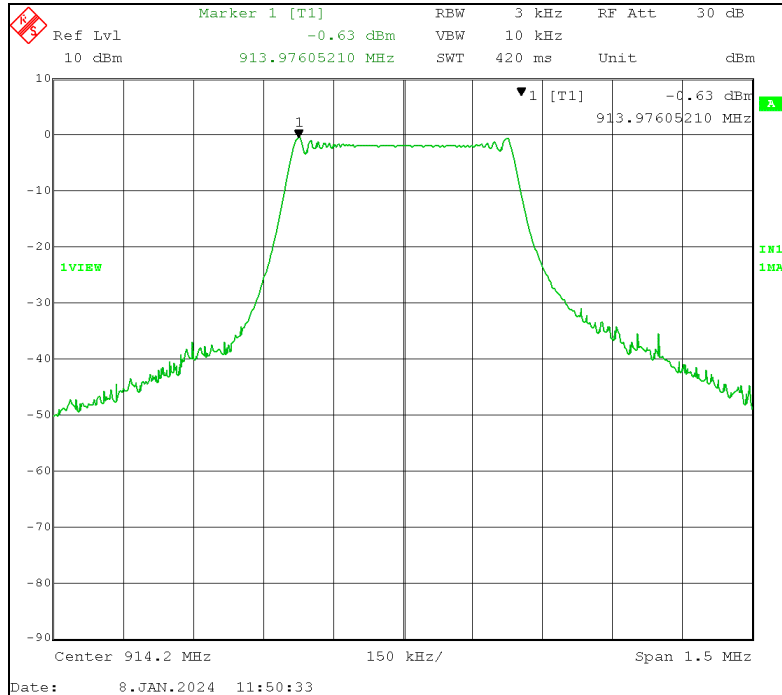


#### Channel 4, 909.4 MHz, LoRa Modulation





### Channel 7, 914.2 MHz, LoRa Modulation



**Test Results:** The Power Spectral Density measurements of the Woodstream Model V430B Rodent Snap Trap with LoRa Radio are compliant with the limits specified in FCC Section 15.247(e) and RSS-247.



## 4.10 Band Edge Measurement (FCC Part 15.247(d), RSS-247 5.5)

### 4.10.1 Band Edge Measurement Test Procedure

Band edge measurements were recorded on the EUT while operating with a modulated carrier at 903.0 MHz (Channel 0) and 914.2 MHz (Channel 7). The Authorized Band Edge measurements were made using the Relative Method of Section 6.10.4 of ANSI C63.10. The Spectrum Analyzer Screens below show emissions between the modulated carrier, at low and high frequencies and the lower and upper band edges.

#### Spectrum Analyzer Settings:

Measurement Analyzer Settings	
RBW	100 kHz
VBW	300 kHz
Span	Varies
Sweep	5 ms

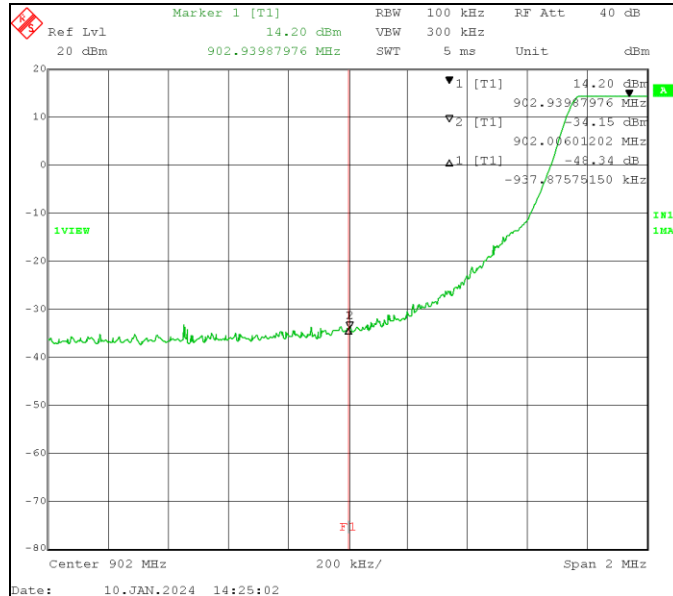
### 4.10.2 Band Edge Measurement Test Results (01/10/2024)

Channel	Tx Carrier Frequency (MHz)	Peak Amplitude Tx Carrier (dBm)	Band Edge Measurement			
			Peak Amplitude at Lower Band Edge (dBm)	Difference in Tx Amplitude to Band Edge Amplitude (dBm)	Band Edge Limit (dB)	Margin (dB)
0	903.0	14.20	-34.14	48.34	20.00	-28.34
7	914.2	14.03	-47.36	61.39	20.00	-41.39

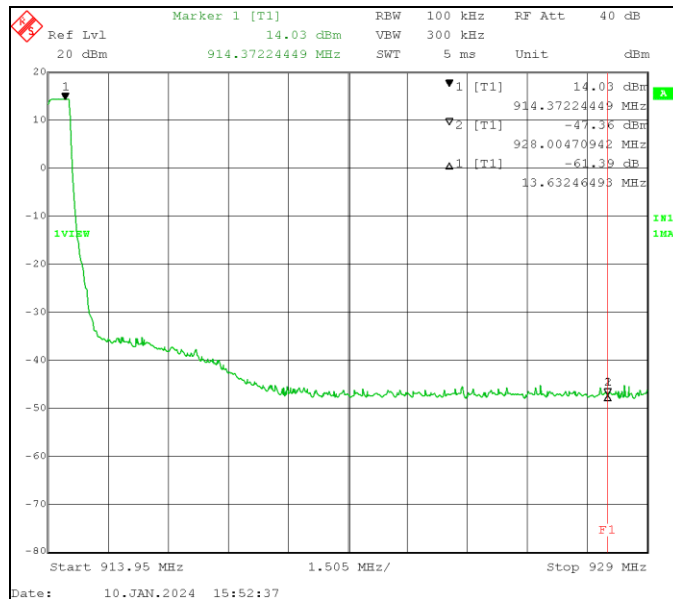


### 4.10.3 Band Edge Measurement Analyzer Screen Captures

#### Low Channel 0, 903 MHz, 500 kHz BW



#### High Channel 7, 914.2 MHz, 500 kHz BW



**Test Results:** The Band Edge measurements of the Woodstream Model V430B Rodent Snap Trap with LoRa Radio show that emissions at the band edges of the Operating Frequency Bandwidth are below the Carrier Peak Level – 20 dBc required by 47 CFR Part 15.247(d) and ISSED RSS-247, Section 5.5.



## 5.0 Test Setup Photos

See Test Setup Photos Exhibit(s) submitted under this grant for the V430B Snap Trap with LoRa Radio.



## Appendix A – Test Equipment

Equipment	Manufacturer	Model #	Serial #	BEC #	Calibration Date	Calibration Cycle	Calibration Due Date
EMI Receiver (20 Hz – 26.5 GHz)	Rohde & Schwarz	ESIB 26	836119/006	1010	12/09/22	3 Years	12/09/25
Antenna (30 MHz - 6 GHz)	Sunol Sciences	JB6	A022108	712	06/21/21	3 Years	06/21/24
9kHz-3GHz EMC Analyzer	Agilent	E7402A	US39440162	883	06/21/21	5 Years	06/21/26
Antenna (30 MHz - 6 GHz)	Sunol Sciences	JB6	A020714	882	05/24/21	3 Years	05/24/24
Amplifier (.09 – 1300 MHz)	Hewlett Packard	8447F	3313A06658	807	01/13/21	5 Years	01/13/26
EMC Analyzer (9 kHz - 26.5 GHz)	Hewlett Packard	8593EM	3710A00214	1026	03/23/20	5 Years	03/23/25
Amplifier System (0.5 – 50 GHz)	Hewlett Packard	83015A 83017A	3123A00360 & 3332A00219	1027	06/16/21	3 Years	06/16/24
Double Ridged Horn Antenna (1 - 18 GHz)	EMCO	3115	9705-5225	1028	11/24/21	3 Years	11/21/24
OATS Site (30 MHz – 1 GHz)	BEC	N/A	N/A	705	10/07/23	1 Year	10/07/24
Temp/Humidity Meter	Control Company	4096	151872672	780	07/21/22	3 Years	07/21/25
Notch Filter	Anatech	AE915N S2095	10	923	No Cal. Required	No Cal. Required	No Cal. Required
High-Pass Filter	Trilithic Inc.	6HC1500 /18000- 3-KK	20044046	741	02/27/23	3 Years	02/27/26





Software (Tile Instrument Control System)	Quantum Change/EMC Systems	Version 3	N/A	N/A	No Cal. Required	No Cal. Required	No Cal. Required
Radiated Emissions Test Software	BEC	RADE	2.2	N/A	No Cal. Required	No Cal. Required	No Cal. Required