

July 25, 2025

Bloodhound Tracking Device
Marco Maldonado
309 Henrietta St
Webster, TX 77598

Dear Marco Maldonado,

Enclosed is the Electromagnetic Compatibility for the Bloodhound Tracking Device, Communication Unit, tested to the requirements of:

- FCC Part 15 Subpart B (per ANSI C63.4: 2014)
- Innovation, Science, and Economic Development (ISED) Canada ICES-003 Issue 7

Thank you for using the services of Eurofins E&E Testing NA, LLC. Please contact me if you have any questions regarding these results or if Eurofins E&E can be of further service to you.

Sincerely,



Documentation Department
Eurofins E&E Testing NA, LLC.

Reference: EMCS135492-FCC ICES Rev. 1



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Report Status Sheet

Revision	Report Date	Reason for Revision
Ø	July 16, 2025	Initial Issue.
1	July 25, 2025	Configuration Form.

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1.0 Testing Summary

The Bloodhound Tracking Device, Communication Unit was found to be compliant to the following specification(s).

- FCC Part 15 Subpart B (per ANSI C63.4: 2014)
- Innovation, Science, and Economic Development (ISED) Canada ICES-003 Issue 7



Chin Ming Lui
Senior Wireless Test Engineer

Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements.



David Trevayne-Smith
Commercial Director-Wireless, California

2.0 Overview

Eurofins E&E Testing NA, LLC. was contracted by Bloodhound Tracking Device to perform testing on the Communication Unit, under purchase order number 0018.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of Bloodhound Tracking Device, Communication Unit.

The results obtained relate only to the item(s) tested.

Model(s) Tested:	Communication Unit
Equipment Emissions Class:	B

Test Standard	Test Description	Compliance
FCC Part 15 Subpart B (per ANSI C63.4: 2014), Innovation, Science, and Economic Development (ISED) Canada ICES-003 Issue 7	CE (Mains), Class B	Not Applicable
	CE (Telecommunication Ports), Class B	Not Applicable
	RE, Class B	Compliant

Note:
Not Applicable – Battery powered unit

2.1 FCC ID and IC

FCC ID: 2BP2A-BTDCUP
IC: 34083-BTDCUP

2.2 Test Site

All testing was performed at Eurofins E&E Testing NA, LLC., 3162 Belick St. Santa Clara, CA 95054. All equipment used in making physical determinations is accurate and bears recent traceability to the National Institute of Standards and Technology. Eurofins E&E Testing NA, LLC. has been accredited by the American Association for Laboratory Accreditation (A2LA) (Certificate #: 0591.02) in accordance with ISO/IEC 17025:2017.

2.3 Measurement Uncertainty

Measurement uncertainty calculated as per NIST Technical Note (TN) 1297 and ANSI / NCSL Z540-2, as equivalent to EN 55016-4-2 / IEC CISPR 16-4-2.

Test Method	Typical Expanded Uncertainty (dB)	K	Confidence Level
Radiated Emissions, (30 MHz – 1 GHz)	±3.24	2	95%
Radiated Emissions, (1 GHz – 6 GHz)	±3.92	2	95%
Conducted Emission Voltage	±2.44	2	95%
Conducted Emission Telecom	±3.53	2	95%

2.4 Equipment Overview and Test Configuration

Name of EUT/Model:	Communication Unit
Additional Models Covered, but not tested:	N/A
Description of EUT and Intended Use:	Container Asset Tracking
Mode(s) of Operation:	Idle
Rationale for the selection of the Operation Mode(s):	BTD idle state is set by issuing the off command. In this operational mode the MCU is running at 160MHz and all radios are not transmitting. Once set to off mode the module will retain this mode through power cycles.
Included radio(s):	LoRa, LTE CAT-M1, Iridium
Monitoring Method(s):	LED indicator
Configuration(s):	Normal
EUT Power Requirement	
Voltage:	3.2 – 4.2 V
AC or DC	DC
Voltage Frequency:	N/A
Number of Phases:	N/A
Amperage:	N/A
Uses an external AC/DC Adapter:	No
Battery Return Configuration (DC-C, DC-I, or either):	DC-C
Physical Description	
EUT Arrangement:	Mounted
System with Multiple Chassis:	N/A
Size (HxWxD) mm:	281 x 72.6 x 36mm
Weight:	787 grams
Emissions Class Declaration:	B
Other Info:	
Highest frequency used in device:	MCU CLK 160MHz
EUT Software (internal to EUT):	Custom firmware by Bloodhound Tracking Device
Support Software (used by support PC to exercise EUT):	Tera Term

Note: EUT information was provided by Bloodhound Tracking Device

Antenna Information

Radio	Antenna Type	Manufacturer	Part No	Frequency Range	Peak Gain
LoRa	Embedded - PCB Mount	PT. HESHENG INDUSTRY ELECTRONIC	BTEE000300	902 – 928 MHz	-1.7 dBi
LTE	Embedded - PCB Mount	PT. HESHENG INDUSTRY ELECTRONIC	BTEE000200	0.617 - 0.96GHz 1.71 - 2.2GHz	0.81dBi 5.48dB
Iridium	Patch antenna	Unictron Technologies Corporation	H2P93APAZ10100	1616 - 1627 MHz	3.4dBi

Note: Antenna information was provided by Bloodhound Tracking Device. Eurofins E&E Testing NA, LLC did not test or verify the accuracy of the antenna information.

2.5 Modifications to the EUT

No modifications were made to the EUT.

2.6 Modifications to the Standard

No modifications were made to the Test Standard.

2.7 Disposition of EUT

The test sample including all support equipment (if any), submitted to the Electromagnetic Compatibility Lab for testing was returned to Bloodhound Tracking Device upon completion of testing.

3.0 Electromagnetic Compatibility Emission Criteria

3.1 Radiated Emissions: Electromagnetic Radiation Disturbance

Test Method: ANSI C63.4: 2014

Test Requirement(s): The following standards specified below are covered in the scope of this section of the test report:

- FCC Part 15 Subpart B (per ANSI C63.4: 2014)
- Innovation, Science, and Economic Development (ISED) Canada ICES-003 Issue 7

§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Field Strength (dB μ V/m)
30 - 88	40
88 - 216	43.5
216 - 960	46
Above 960	54

ICES-003: Refer to Section 3.2.2 Radiated emission limits Table 2: radiated emission limits (30 MHz to 1 GHz) and Table 4: Radiated emission limits at 3 m distance (at and above 1 GHz)

Sample Calculation for Distance Correction factor (DCF) measurement:

$$F_d = 20 \cdot \log_{10} (D_m/D_s)$$

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

Sample formula for calculating the Corrected Data for the Radiated Emissions Measurements:

Frequency (MHz)	Antenna Polarity	EUT Azimuth (Degrees)	Antenna Height (cm)	Uncorrected Amplitude (dB μ V)	ACF (dB/m) (+)	Pre Amp Gain (dB)(-)	CBL (dB) (+)	DCF (dB) (+)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
249.99	V	359.9	240.7	55.46	11.4	28.335	0	0	38.505	47	-8.495

$$\begin{aligned} \text{Corrected Amplitude (dB}\mu\text{V/m)} &= \text{Uncorrected Amplitude (dB}\mu\text{V)} + \text{ACF (dB/m)} - \text{Preamp Gain (dB)} + \text{CBL (dB)} + \text{DCF (dB)} \\ &= 55.46 + 11.4 - 28.335 + 0 + 0 = 38.505 \end{aligned}$$

Test Procedure:

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. The method of testing, test conditions, and test procedures of ANSI C63.4: 2014 were used. Any measured frequency that exhibits a margin of compliance that is less than 3 dB below the specification limit is marked. Eurofins E&E recommends that every emission measured, has at least a 3 dB margin to allow for deviations in the emission characteristics that may occur during the production process.

For emissions between 30 MHz and 1000 MHz, a biconilog antenna was located 3m from the EUT on an adjustable mast. A pre-scan was first performed to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT was rotated, and the antenna height was varied between 1 m and 4 m to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. Unless otherwise specified, measurements were made using a quasi-peak detector with a 120 kHz resolution bandwidth.

For emission between 1 GHz and 18 GHz, a double ridged guide horn was located 3 m from the EUT on an adjustable mast. A pre-scan was performed and used to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT was rotated, and the antenna height was varied depending on the geometry of the EUT. To ensure maximized emissions, the horn antenna was positioned both vertically and laterally. Measurements in both horizontal and vertical polarities were made and the data was recorded. Unless otherwise specified, measurements were made using a peak and average detector with a 1 MHz resolution bandwidth.

Test Software Used: Nexio BAT-EMC was used to perform this test.

Test Results:

Test Standard:	FCC Part 15 Subpart B (per ANSI C63.4: 2014), Innovation, Science, and Economic Development (ISED) Canada ICES-003 Issue 7
Test Name	Class B
Test Dates:	Radiated Emissions 04/25/2025
Laboratory	Eurofins E&E Testing NA, LLC.
Test Engineer:	Chin Ming Lui
Test Results:	Compliant
Ambient Temperature (°C):	23.1
Relative Humidity (%):	42
Atmospheric Pressure (kPa):	101.3

Test Data

Frequency (MHz)	Source	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (m)	Azimuth (°)	Pol.	RBW (Hz)	Meas. Time (s)	Correction (dB)
63.0554	QuasiPeak (PASS)	24.063	40	-15.937	3.529	290	Vertical	120000	0.1	-15.431
691.458	QuasiPeak (PASS)	17.757	46	-28.243	2.844	207	Horizontal	120000	0.1	-2.14

Table 1. Radiated Emissions, Idle Mode (30 MHz – 1 GHz) Test Results

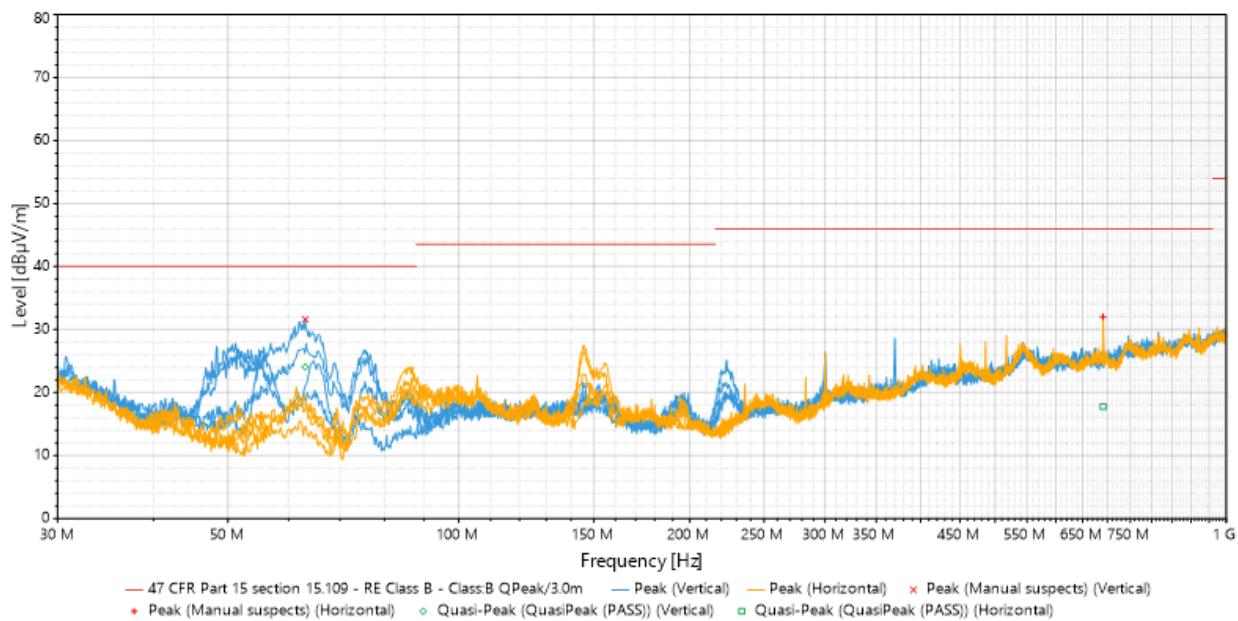
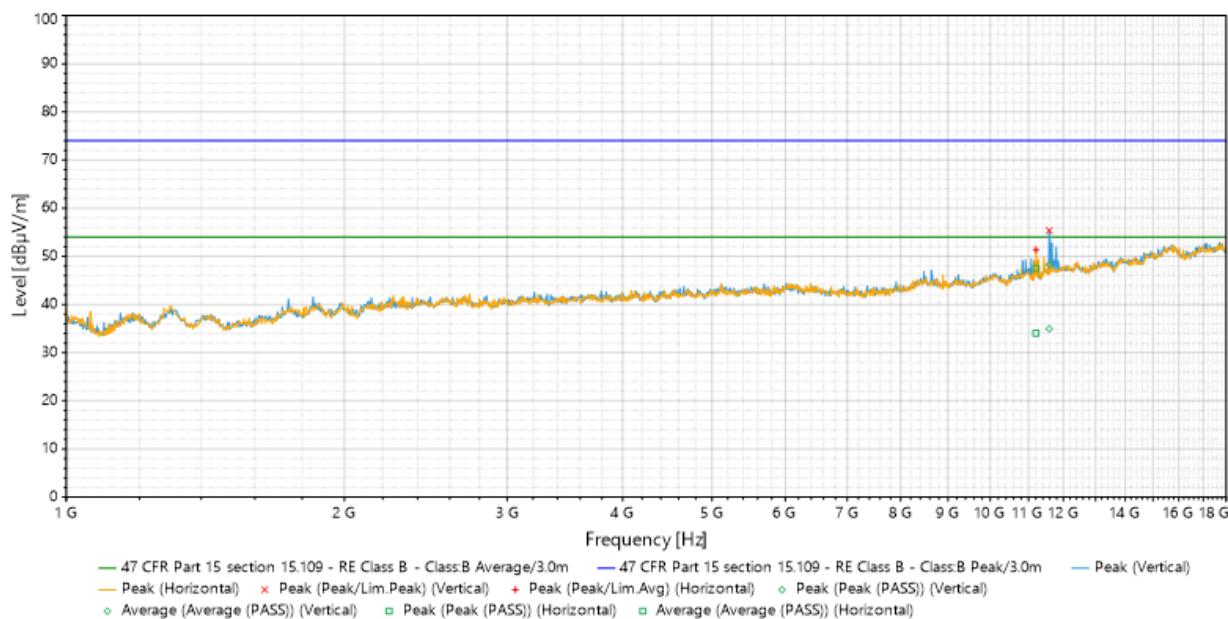


Figure 1. Radiated Emissions, Idle Mode (30 MHz – 1 GHz) Plot

Frequency (MHz)	Source	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (m)	Azimuth (°)	Pol.	RBW (Hz)	Meas. Time (s)	Correction (dB)
11203.7	Peak (PASS)	47.512	74	-26.488	2.674	24	Horizontal	1000000	0.1	3.936
11203.7	Average (PASS)	34.06	54	-19.94	2.674	24	Horizontal	1000000	0.1	3.936
11580.2	Peak (PASS)	48.321	74	-25.679	3.529	51	Vertical	1000000	0.1	4.491
11580.2	Average (PASS)	34.953	54	-19.047	3.529	51	Vertical	1000000	0.1	4.491

Table 2. Radiated Emissions, Idle Mode (1 – 18 GHz) Test Results

Figure 2. Radiated Emissions, Idle Mode (1 – 18 GHz) Plot

Calibrated test equipment utilized during testing was maintained in a current state of calibration per the requirements of ISO/IEC 17025:2017.

Test Name: FCC 15B & ICES-003			Test Date(s): 04/25/2025		
Asset #	Equipment	Manufacturer	Model	Last Cal Date	Cal Due Date
1S2399	Turntable Controller	Sunol Sciences	SC99V	See Note 1	
1S4856	Antenna Positioning Tower	ETS-Lindgren	2171B	See Note 1	
1S2482	5 Meter Chamber	Panashield - ETS	5 Meter Semi-Anechoic Chamber	See Note 2	
1S4804	EMI Test Receiver	Rohde & Schwarz	ESW44	08/07/2024	08/07/2025
1S2485	Bilog Antenna	Teseq	CBL6112D	11/27/2024	11/27/2026
1S2435	Horn Antenna	ETS-Lindgren	3117	03/17/2025	03/17/2027
1S2668	Pre-Amplifier	Sonoma Instruments	310 N	03/18/2025	03/18/2027
1S4802	Pre-Amplifier	EMC Instruments Corporation	EMC118A45SE	See Note 1	

Note 1: Functionally tested equipment is verified using calibrated instrumentation at the time of testing.
Note 2: Latest NSA and VSWR data available upon request.

Table 3. Radiated Emissions, Test Equipment

END OF REPORT