

**RF Exposure Report  
(mobile devices)  
47 CFR 2.1091  
RSS-102 Issue 6**

**Report No.:** WIRS142775 – FCC & ISSED RF Exposure\_Rev.1

**Test Model:** RMG-2600

**Received Date:** 07/31/2026

**Test Date(s):** 07/31/2026, 08/21/2026 – 08/25/2026

**Issued Date:** 09/10/2026

**Applicant:** RSAE Labs, Inc.

**Address:** PO Box 15922, Panama City, FL 32406

**Issued By:** Eurofins Electrical and Electronic Testing NA, Inc.

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## 1. Certificate of Conformity

**Product:** RSAE Labs

**Brand:** RSAE Labs

**Test Model:** RMG-2600

**Sample Status:** Production

**Applicant:** RSAE Labs, Inc.

**Test Date(s):** 07/31/2026, 08/21/2026 – 08/25/2026

**Standard:** 47 CFR FCC Part 2.1091 and FCC Part 1.1310  
RSS-102 Issue 6



Chin Ming Lui  
Senior Wireless Test Engineer

**Engineering Statement:** The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. 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 of Part 22 Subpart H and Part 24 Subpart E and Part 27 Subpart L of the FCC Rules under normal use and maintenance.

Kevin Nguyen  
Senior Wireless Test Engineer

## Report Status Sheet

| Revision | Report Date        | Reason for Revision                         |
|----------|--------------------|---------------------------------------------|
| Ø        | September 10, 2026 | Initial Issue.                              |
| 1        | September 23, 2026 | Updated frequency range of mist® mesh radio |

## 1. EUT General info

The RMG-2600 is a battery powered cellular gateway with a GPS receiver and mist® mesh radio operating in the 2.4GHz ISM band.

The RMG-2600 communicates with wireless sensors using the RSAE Labs proprietary mist® mesh radio protocol using the IEEE 802.15.4 physical layer.

### mist® radio Specifications:

|                     |                                            |
|---------------------|--------------------------------------------|
| Chipset             | Nordic nRF52840<br>802.15.4 Physical Layer |
| Firmware Version    | 3.13                                       |
| Protocol            | RSAE Labs mist® mesh                       |
| Transmitter         | 2405 MHz – 2475 MHz                        |
| Receiver            | 2405 MHz – 2475 MHz                        |
| Output Power        | 4.0 dBm                                    |
| Modulation          | DSSS                                       |
| DSSS Chip Rate      | 2 MChips/Sec                               |
| Effective Data Rate | 250 kbps                                   |
| Channels            | 15 – Channel Hopping                       |
| Channel Bandwidth   | 3 MHz                                      |
| Antenna Type        | PCB trace with 1.55 dBi Peak Gain          |

The mist® radio maintains periodic communications with other mist® sensor. The mist® radio is in operation about 2% of the time.

Sensor and location messages are forwarded to the RSAE Labs back office service using a cellular radio.

**Cellular Radio Specifications:**

|                   |                       |
|-------------------|-----------------------|
| Chipset           | Nordic nRF9160        |
| Protocol          | LTE-M                 |
| Supported Bands   | Bands 2, 4, and 12    |
| Carrier           | AT&T                  |
| Certifications    | PTCRB and AT&T TRENDI |
| SIM               | 4FF Nano SIM          |
| Antenna Type      | Conformal monopole    |
| Peak Antenna Gain | 3.12 dBi              |

The cellular and mist® radios may be transmitting simultaneously for a short period of time if a mist® radio transmission occurs during a cellular radio communication cycle.

**Note:** The information in this section is leveraged from the Operational Description – RMG-2600 provided by RSAE Labs, Inc. Eurofins did not test or verify the antenna gains.

## 2. RF Exposure Limits

In this document, we evaluate the RF Exposure to human body due the intentional transmission from the transmitter (EUT). The limits for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 and RSS-102 issue 6 were followed.

### 2.1 FCC ID and IC

#### Host Device

- **FCC ID:** 2ASIM-RMG260X
- **IC:** 33142-RMG260X

#### LTE CAT-M1 Pre-Certified Module (Nordic nRF9160)

- **FCC ID:** 2ANPO00NRF9160
- **IC:** 24529-NRF9160

## 2.2 FCC Limits

According to FCC 1.1310 Table 1: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to Radio-Frequency (RF) radiation as specified in 1.1307(b)

Table 1 to § 1.1310(e)(1) – LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| Frequency Range (MHz)                                            | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm <sup>2</sup> ) | Average Time (minutes) |
|------------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| <b>(A) Limits For Occupational / Control Exposures</b>           |                               |                               |                                     |                        |
| 0.3 – 3.0                                                        | 614                           | 1.63                          | *100                                | 6                      |
| 3.0 – 30                                                         | 1842/f                        | 4.89/f                        | *900/f <sup>2</sup>                 | 6                      |
| 30-300                                                           | 61.4                          | 0.163                         | 1.0                                 | 6                      |
| 300 - 1500                                                       | ...                           | ...                           | F/300                               | 6                      |
| 1500 - 100,000                                                   | ...                           | ...                           | 5                                   | 6                      |
| <b>(B) Limits For General Population / Uncontrolled Exposure</b> |                               |                               |                                     |                        |
| 0.3 – 1.34                                                       | 614                           | 1.63                          | *100                                | 30                     |
| 1.34 – 30                                                        | 824/f                         | 2.19/f                        | *180/f <sup>2</sup>                 | 30                     |
| 30 – 300                                                         | 27.5                          | 0.073                         | 0.2                                 | 30                     |
| 300 - 1500                                                       | ...                           | ...                           | F/1500                              | 30                     |
| 1500 - 100,000                                                   | ...                           | ...                           | 1.0                                 | 30                     |

F = Frequency in MHz

\* = plane wave equivalent density

## 2.3 Industry Canada Limits

According to RSS-102, Industry Canada has adopted the SAR and RF field strength limits established in Health Canada's RF exposure guideline, Safety Code 6.

| Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)                 |                    |                               |                         |                  |
|---------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------|-------------------------|------------------|
| Frequency Range                                                                                                     | Electric Field     | Magnetic Field                | Power Density           | Reference Period |
| (MHz)                                                                                                               | (V/m rms)          | (A/m rms)                     | (W/m <sup>2</sup> )     | (minutes)        |
| 0.003-10                                                                                                            | 83                 | 90                            | -                       | Instantaneous*   |
| 0.1-10                                                                                                              | -                  | $0.73/f$                      | -                       | 6**              |
| 1.1-10                                                                                                              | $87/f^{0.5}$       | -                             | -                       | 6**              |
| 10-20                                                                                                               | 27.46              | 0.0728                        | -2                      | 6                |
| 20-48                                                                                                               | $58.07/f^{0.25}$   | $0.1540/f^{0.25}$             | $8.944/f^{0.5}$         | 6                |
| 48-300                                                                                                              | 22.06              | 0.05852                       | 1.291                   | 6                |
| 300-6000                                                                                                            | $3.142 f^{0.3417}$ | $0.008335 f^{0.3417}$         | $0.02619 f^{0.6834}$    | 6                |
| 6000-15000                                                                                                          | 61.4               | 0.163                         | 10                      | 6                |
| 15000-150000                                                                                                        | 61.4               | 0.163                         | 10                      | $616000/f^{1.2}$ |
| 150000-300000                                                                                                       | $0.158 f^{0.5}$    | $4.21 \times 10^{-4} f^{0.5}$ | $6.67 \times 10^{-5} f$ | $616000/f^{1.2}$ |
| Note: $f$ is frequency in MHz.<br>* Based on nerve stimulation (NS).<br>** Based on specific absorption rate (SAR). |                    |                               |                         |                  |

### 3 Test Results (Mobile Configuration)

#### 3.1 Classification

Radio is installed inside a mobile host device. The antenna of the product, under normal use condition, is at least 20 cm away from the body of the user and accessible to the end user. Warning statement to the user for keeping at least 20 cm or more separation distance with the antenna should be included in user's manual.

#### 3.2 Maximum RF Power

##### mist@ mesh 802.15.4 Radio:

| Modulation | Frequency Range (MHz) | Max. RF output power <sup>1</sup> (dBm) | Max. RF output Power with Tune Up <sup>2</sup> (dBm) | Max. Antenna Gain <sup>3</sup> (dBi) | Max. EIRP <sup>4</sup> (dBm) | Max. EIRP (mWatts) |
|------------|-----------------------|-----------------------------------------|------------------------------------------------------|--------------------------------------|------------------------------|--------------------|
| DSSS       | 2405 – 2475           | 2.08                                    | 4.08                                                 | 1.55                                 | 5.63                         | 3.6559             |

<sup>1</sup>**Note:** Measured max conducted output power obtained from test report WIRS142775-FCC 15.247\_RSS-247

<sup>2</sup>**Note:** Tune-up tolerance of +2 dB.

<sup>3</sup>**Note:** Peak antenna gain obtained from “Operational Description for RMG-2600” by RSAE Labs, Inc.

Antenna Information:

- Part No.: Integral to PCBA (characterized as installed in the enclosure)
- Antenna Type: PCB Trace
- Frequency Range: 2405 – 2475 MHz
- Peak Gain: +1.55 dBi

<sup>4</sup>**Note:** Max. EIRP (dBm) = Max RF Output Power with Tune Up (dBm) + Max Antenna Gain (dBi)

## Cellular Radio:

### CAT-M1:

| Band           | Frequency Range (MHz) | Max. RF output power (dBm) <sup>1</sup> | Max. RF output Power with Tune Up <sup>2</sup> (dBm) | Max. Antenna Gain <sup>3</sup> (dBi) | Max EIRP <sup>4</sup> (dBm) | Max EIRP (mWatts) |
|----------------|-----------------------|-----------------------------------------|------------------------------------------------------|--------------------------------------|-----------------------------|-------------------|
| CAT-M1 Band 2  | 1850 – 1910           | 23                                      | 25                                                   | 3.12                                 | 28.12                       | 648.63            |
| CAT-M1 Band 4  | 1710 – 1755           | 23                                      | 25                                                   | 3.12                                 | 28.12                       | 648.63            |
| CAT-M1 Band 12 | 699 – 716             | 23                                      | 25                                                   | 3.12                                 | 28.12                       | 648.63            |

<sup>1</sup>**Note:** Nominal +23 dBm conducted output power (Power Class 3)

<sup>2</sup>**Note:** Tune-up tolerance of +2 dB.

<sup>3</sup>**Note:** Peak gain obtained from “PIM-H Verification Test Rev 1” by Austin Circuit Design (ACD)  
Antenna Information:

- Manufacturer: Austin Circuit Design (ACD)
- Antenna Type: Conformal monopole
- Frequency Range: 617 – 960 MHz, 1710 – 2170 MHz
- Peak Gain: 3.12 dBi

<sup>4</sup>**Note:** Max. EIRP (dBm) = Max RF Output Power with Tune Up (dBm) + Max Antenna Gain (dBi)

### 3.3 RF Exposure Calculation

#### FCC limits

Calculations for this report are based on maximum conducted output power

#### mist® mesh 802.15.4 Radio:

Evaluation of 20cm distance:

| Modulation | Frequency Range (MHz) | Max. EIRP <sup>1</sup> (dBm) | Max. EIRP (mW) | Power Density (mW/cm <sup>2</sup> ) @20 cm | FCC Limit (mW/cm <sup>2</sup> ) | Results  |
|------------|-----------------------|------------------------------|----------------|--------------------------------------------|---------------------------------|----------|
| DSSS       | 2405 – 2475           | 5.63                         | 3.6559         | 0.000727                                   | 1.0                             | Complies |

<sup>1</sup>Note: Max. EIRP (dBm) = Max RF Output Power with Tune Up (dBm) + Max Antenna Gain (dBi)

#### Cellular Radio:

##### CAT-M1

Evaluation of 20cm distance:

| Band           | Frequency Range (MHz) | Max. EIRP <sup>1</sup> (dBm) | Max. EIRP (mW) | Power Density (mW/cm <sup>2</sup> ) @20 cm | FCC Limit (mW/cm <sup>2</sup> ) | Results  |
|----------------|-----------------------|------------------------------|----------------|--------------------------------------------|---------------------------------|----------|
| CAT-M1 Band 2  | 1850 – 1910           | 28.12                        | 648.63         | 0.129                                      | 1.0                             | Complies |
| CAT-M1 Band 4  | 1710 – 1755           | 28.12                        | 648.63         | 0.129                                      | 1.0                             | Complies |
| CAT-M1 Band 12 | 699 – 716             | 28.12                        | 648.63         | 0.129                                      | 0.466                           | Complies |

<sup>1</sup>Note: Max. EIRP (dBm) = Max RF Output Power with Tune Up (dBm) + Max Antenna Gain (dBi)

#### Simultaneous Transmission

Worst-case scenario: mist® mesh and LTE CAT-M1 B2 transmitting simultaneously.

Power Density of Simultaneous Transmitting Radios =  $0.000727 \text{ mW/m}^2 + 0.129 \text{ mW/m}^2 = 0.129727 \text{ mW/m}^2$ , which complies with the worst-case FCC limit of  $0.466 \text{ mW/m}^2$ .

## ISED Limits

Calculations for this report are based on maximum conducted output power

### mist® mesh 802.15.4 Radio:

Evaluation of 20cm distance:

| Modulation | Frequency Range (MHz) | Max. EIRP <sup>1</sup> (dBm) | Max. EIRP (mW) | Power Density (W/m <sup>2</sup> ) @20 cm | RSS Limit (W/m <sup>2</sup> ) | Results  |
|------------|-----------------------|------------------------------|----------------|------------------------------------------|-------------------------------|----------|
| DSSS       | 2405 – 2475           | 5.63                         | 3.6559         | 0.00727                                  | 5.355                         | Complies |

<sup>1</sup>Note: Max. EIRP (dBm) = Max RF Output Power with Tune Up (dBm) + Max Antenna Gain (dBi)

### Cellular Radio:

#### CAT-M1

Evaluation of 20cm distance:

| Band           | Frequency Range (MHz) | Max. EIRP <sup>1</sup> (dBm) | Max. EIRP (mW) | Power Density (W/m <sup>2</sup> ) @20 cm | RSS Limit (W/m <sup>2</sup> ) | Results  |
|----------------|-----------------------|------------------------------|----------------|------------------------------------------|-------------------------------|----------|
| CAT-M1 Band 2  | 1850 – 1910           | 28.12                        | 648.63         | 1.29                                     | 4.476                         | Complies |
| CAT-M1 Band 4  | 1710 – 1755           | 28.12                        | 648.63         | 1.29                                     | 4.242                         | Complies |
| CAT-M1 Band 12 | 699 – 716             | 28.12                        | 648.63         | 1.29                                     | 2.302                         | Complies |

<sup>1</sup>Note: Max. EIRP (dBm) = Max RF Output Power with Tune Up (dBm) + Max Antenna Gain (dBi)

### Simultaneous Transmission

Worst-case scenario: mist® mesh and LTE CAT-M1 B2 transmitting simultaneously.

Power Density of Simultaneous Transmitting Radios =  $0.00727 \text{ W/m}^2 + 1.29 \text{ W/m}^2 = 1.29727 \text{ W/m}^2$ , which complies with the worst-case RSS limit of  $2.302 \text{ W/m}^2$ .

## **Power Density Calculation**

$$P_d = (P_{out} * G) / (4 * \pi * R^2)$$

Where:

$P_d$  = Power density in W/m<sup>2</sup>

$P_{out}$  = Output power from the antenna in watts (W)

G = Gain of the antenna in linear scale

R = Distance between observation point and center of the radiator in meters (m)

## 4 Conclusion

This device is compliant with RF Exposure requirements of the limits for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 and RSS-102 Issue 6 for General Public (Uncontrolled Environment).

The mist® mesh 802.15.4 and cellular (CAT-M1) radios comply with the FCC and ISED limits at 20cm away from the body of the user.

The mist® mesh 802.15.4 and cellular (CAT-M1) radios may transmit simultaneously for a short period of time if a mist® radio transmission occurs during a cellular radio communication cycle.

In conclusion, the EUT, under normal use condition, must be at least 20 cm away from the body of the user and accessible to the end user. Warning statement to the user for keeping at least 20 cm or more separation distance with the antenna should be included in user's manual.