# INDUSTRIAL®
## INSPECTION & ANALYSIS

# Test Report - FCC Part 1.1310/ MPE
# Applicant: goTenna Inc.

Signature: _____

Sr. EMC Engineer
EMC-003838-NE

Name & Title: Tim Royer, EMC Engineer

Date of Signature 02/05/2025

Signature: *Fouzia Syed*

Name & Title: Fouzia Syed, Senior Test Engineer

Date of Signature 02/05/2025

13146 NW 86th Drive, Suite 400, Alachua, Florida 32615
(352) 472-5500 / testing@industrial-ia.com

## Table of Contents

## 1. Applicant Information

Applicant:          goTenna Inc.
Address:            101 Hudson Street
                    Suite 1701
                    New Jersey, 07302, United States

## 2. Location of Testing

### 2.1 Test Laboratory

Timco Engineering Inc. 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: 9/20/2024

Dates of Testing: 9/24/2024 – 9/27/2024

## 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: | 2ABVK373373 |
| Brief Description | Mesh networking module |
| Model(s) # | SKU 900-00222 |
| Firmware version | N/A |
| Software version | N/A |
| Serial Number | N/A |

| Technical Characteristics | |
|---|---|
| Frequency Range | 2400 MHz- 2483.5 MHz |
| RF O/P Power (Max.) | 5W |
| Modulation | FM |
| Bandwidth & Emission Class | F1D |
| Number of Channels | N/A |
| Duty Cycle | N/A |
| Antenna Connector | SMA |
| Voltage Rating (AC or Batt.) | 12VDC |

| 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.

## 4. Test methods & Applicable Regulatory Limits

### 4.1 Test methods/Standards/Guidance:

The following guidance FCC KDB 447498 D01 General RF Exposure Guidance v06 was used for RF exposure evaluation as per FCC Part 1.1310 and FCC Part 2.1091 and part 2.1093. Full test results are available in this report.

### 4.1.1 FCC Limits for Maximum Permissible Exposure (MPE)

| Frequency Range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm$^2$) | Averaging Time (minutes) |
|---|---|---|---|---|
| A Limits for Occupational/Controlled Exposure | | | | |
| 0.3-3.0 | 614 | 1.63 | *(100) | ≤6 |
| 3.0-30 | 1842/f | 4.89/f | *(900/f$^2$) | <6 |
| 30-300 | 61.4 | 0.163 | 1.0 | <6 |
| 300-1,500 | | | f/300 | <6 |
| 1,500-100,000 | | | 5 | <6 |
| B Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | <30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f$^2$) | <30 |
| 30-300 | 27.5 | 0.073 | 0.2 | <30 |
| 300-1,500 | | | f/1500 | <30 |
| 1,500-100,000 | | | 1.0 | <30 |

## 4.2 Equations

POWER DENSITY

$$E(V/m) = SQRT ( 30 * P * G ) / d$$

$$Pd(W/m^2) = E^2 / 377$$

$$S = EIRP / ( 4 * Pi * D^2v )$$

*Where:*

S = Power density, in mW/cm^2
EIRP = Equivalent Isotropic Radiated Power, in mW
D = Separation distance in cm

Power density is converted from units of <u>mW/cm^2</u> to units of <u>W/m^2</u> by multiplying by 10.

DISTANCE

$$D = SQRT ( EIRP / ( 4 * Pi * S ))$$

*Where:*

D = Separation distance in cm
EIRP = Equivalent Isotropic Radiated Power, in mW
S = Power density in mW/cm^2

SOURCE-BASED DUTY CYCLE (When applicable (for example, multi-slot mobile phone applications) A duty cycle factor may be applied.)

$$Source\text{-}based\ time\text{-}average\ EIRP = ( DC / 100 ) * EIRP$$

*Where:*

DC = Duty Cycle in % as applicable.
EIRP = Equivalent Isotropic radiated Power, in mW

## 5. RF Exposure Results

### MPE

| Frequency Band | Evaluation Distance (cm) | Max Power + Tolerance (dBm) | Antenna Gain (dBi) | Duty Cycle (%) | EIRP (W) | Power Density | Limit for Uncontrolled Exposure | Limit for Controlled Exposure | Distance Required to meet Uncontrolled Exposure Limt (cm) |
|---|---|---|---|---|---|---|---|---|---|
| 2400-2483.5 MHz | 20 | -21.96 | 0.00 | 100% | 0.0000 | 0 mW/cm2 | 1 mW/cm2 | 5 mW/cm2 | 20.00 |

RESULT: Pass at DISTANCE 20 cm

## 6. History of Test Report Changes

| Test Report # | Revision # | Description | Date of Issue |
|---|---|---|---|
| TR_16261-24_FCC 1.1310/ MPE_ | 1 | Initial release | 02/05/2025 |
| | | | |
| | | | |

END OF TEST REPORT