Timco Test Report # TR_2967-20_FCC_MPE_1
Revision: 1
Issue Date: November 3, 2020
Final Test Date: November 2, 2020

ACCREDITED
CERT #0955.01

TIMCO ENGINEERING, Inc.
*An IIA Company*

# Test Report - FCC PART 1.1310 / MPE
# Prepared For: VOS Systems LLC

Approved for Release By:

Signature: Bruno Clavier

Name & Title: Bruno Clavier, General Manager
Date of Signature (YYYY-MM-DD): 2020-11-03

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## 1. Customer Information

Applicant: VOS Systems LLC
Address: 304 W. University Avenue
Gainesville, FL 32601

Contact: Richard Allen
Telephone: 352-317-2954
Email address: rallen@alerttrace.com

## 2. Location of Testing

### 2.1 Test Laboratory

Timco Engineering Inc. is a subsidiary of Industrial Inspection & Analysis, Inc. ("IIA"). Testing was performed at Timco's permanent laboratory located at 849 NW State Road 45, Newberry, Florida 32669

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

2.2 Testing was performed, reviewed by

Dates of Testing: June 12 – September 18, 2020

Signature: _____

Name & Title: Franklin Rose, EMC Specialist
Date of Signature
(YYYY-MM-DD): 2020-11-3

Signature: _____ Sr. EMC Engineer EMC-003838-NE

Name & Title: Tim Royer, EMC Engineer
Date of Signature
(YYYY-MM-DD): 2020-11-3

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

The test sample was received: October 27, 2020

### 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: | 2AXBEALERTTRACE |
| Brief Description | AlertTrace Wearable Device Circuit |
| Type of Modular | N/A |
| Model(s) # | AlertTrace |
| Trade name | N/A |
| Firmware version | N/A |
| Software version | N/A |
| Serial Number | I6SY-EQ7Q-BFML |

| Technical Characteristics | |
|---|---|
| Technology | Low Power Device |
| Frequency Range | 2400-2483.5 |
| RF O/P Power (Max.) | 7.4 dBm |
| Modulation | GFSK |
| Bandwidth & Emission Class | 2.29MHz |
| Number of Channels | 3 |
| Duty Cycle | N/A |
| Antenna Type | 1 dBi |
| Antenna Gain (for each ant.) | Integrated Trace antenna |
| Antenna Connector | Lithium Battery |
| Voltage Rating (AC or Batt.) | Low Power Device |

| Antenna Characteristics | | |
|---|---|---|
| Frequency Range | Mode / BW | Antenna Gain |
| 915 | n/a | 0 dBi |

# 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 mW/cm^2 to units of W/m^2 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-based time-average EIRP = ( DC / 100 ) * EIRP

*Where:*

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

## 5. General Uncontrolled Exposure RF Exposure Results

Transmitter Type: AlertTrace Wearable Device Circuit

Separation Distance: 20 cm

| Freq. band | Separation Distance (cm) | O/P (dBm) | Antenna Gain (dBi) | Duty Cycle (%) | EIRP (mW) | PD (mW/cm^2) | LIMIT mW/cm^2) |
|---|---|---|---|---|---|---|---|
| 2402 | 20 | 7.4 | 1 | 100 | 5.5 | 0.00109 | 1 |
| | | | | | | | |

RESULT: Pass at DISTANCE 20cm

## 6. History of Test Report Changes

| Test Report # | Revision # | Description | Date of Issue |
|---|---|---|---|
| TR_2967-20_FCC_MPE_1 | 1 | Initial release | November 2, 2020 |
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END OF TEST REPORT