

## MPE Report

**Test Report Number** EEI-22061661-LG-FCC-IRXPO-MPE

**FCC ID** 2ANAC-IRXPO

**Applicant** Essex Electronics, Inc.

**Applicant Address** 1130 Mark Ave. Carpinteria, CA 93013

**Product Name** iRox RFID Turnstile Reader

**Model (s)** IRXPO-2S

**Date of Receipt** 12/07/2022

**Date of Test** 12/07/2022 – 03/02/2023

**Report Issue Date** 03/02/2023

**Test Standards** 47 CFR §1.1307(b), 47 CFR §1.1310

**Test Result** PASS



Issued by:

**Vista Compliance Laboratories**

1261 Puerta Del Sol, San Clemente, CA 92673 USA

[www.vista-compliance.com](http://www.vista-compliance.com)

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### REVISION HISTORY

Report Number	Version	Description	Issued Date
EEL-22061661-LG-FCC-IRXPO-MPE	01	Initial report	03/02/2023

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## 1 General Information

### 1.1 Applicant

<b>Applicant</b>	Essex Electronics, Inc.
<b>Applicant address</b>	1130 Mark Ave. Carpinteria, CA 93013
<b>Manufacturer</b>	Essex Electronics, Inc.
<b>Manufacturer Address</b>	1130 Mark Ave. Carpinteria, CA 93013

### 1.2 Product information

<b>Product Name</b>	iRox RFID Turnstile Reader
<b>Model Number</b>	IRXPO-2S
<b>Family Models</b>	N/A
<b>Serial Number</b>	N/A
<b>Frequency Band</b>	RFID: 125KHz, 13.56MHz Bluetooth BLE: 2402-2480MHz
<b>Type of modulation</b>	RFID: ASK Bluetooth BLE: GFSK
<b>Equipment Class</b>	DCD, DXX, DTS
<b>Antenna Information</b>	125KHz: Internal coil antenna 13.56MHz: Internal PCB trace coil antenna BLE: Chip antenna, 0.5 dBi peak gain
<b>Type of modulation</b>	RFID: ASK Bluetooth BLE: GFSK
<b>Clock Frequencies</b>	N/A
<b>Port/Connectors</b>	Wire connection port
<b>Input Power</b>	5V DC +/-10% or 12 VDC +/-10%, 250mA, Max (3W)
<b>Power Adapter Manu/Model</b>	N/A
<b>Power Adapter SN</b>	N/A
<b>Hardware version</b>	N/A
<b>Software version</b>	N/A
<b>Simultaneous Transmission</b>	RFID and BLE can transmit simultaneously. The simultaneous transmission has been evaluated in the testing. The RFID remains active during the operation with BLE.
<b>Additional Info</b>	Input voltage is 12VDC during testing

### 1.3 Test standard and method

<b>Test standard</b>	47 CFR §1.1307(b), 47 CFR §1.1310 47 CFR §2.1093
<b>Test method</b>	47 CFR §1.1307(b), 47 CFR §1.1310 47 CFR §2.1093

## 2 Test Site Information

<b>Lab performing tests</b>	Vista Laboratories, Inc.
<b>Lab Address</b>	1261 Puerta Del Sol, San Clemente, CA 92673 USA
<b>Phone Number</b>	+1 (949) 393-1123
<b>Website</b>	www.vista-compliance.com

Test Condition	Temperature	Humidity	Atmospheric Pressure
RF Testing	23.2°C	57.5%	996 mbar
Radiated Emission Testing	23.2°C	57.5%	996 mbar

### 3 RF Exposure

#### 3.1 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)
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 <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 power density

#### 3.2 MPE Calculation Formula

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

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

#### 3.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as Mobile Device.

#### 3.4 Antenna Gain

The antenna type is Chip antenna with 0.5 dBi peak gain.

## 4 Test Results

Mode	Max Power (dBm)	Max Power (mW)	Max Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
BLE	-1.09	0.778	0.5	20	0.00017	1

### Conclusion:

The worst-case ratio = 0.00017 < 1

The above results show that the device complies with the MPE requirement.

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