

MPE Report

Test Report Number EEI-22061661-LG-FCC-IRXPTO-MPE

FCC ID 2ANAC-IRXPO

Applicant Essex Electronics, Inc.

Applicant Address 1130 Mark Ave. Carpinteria, CA 93013

Product Name iRox RFID Wall Reader

Model (s) IRXPTO-B

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



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REVISION HISTORY

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

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1 General Information

1.1 Applicant

Applicant	Essex Electronics, Inc.
Applicant address	1130 Mark Ave. Carpinteria, CA 93013
Manufacturer	Essex Electronics, Inc.
Manufacturer Address	1130 Mark Ave. Carpinteria, CA 93013

1.2 Product information

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

1.3 Test standard and method

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

2 Test Site Information

Lab performing tests	Vista Laboratories, Inc.
Lab Address	1261 Puerta Del Sol, San Clemente, CA 92673 USA
Phone Number	+1 (949) 393-1123
Website	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 ²)	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 ²)*	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

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

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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 ²)	Limit (mW/cm ²)
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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