

RF Exposure Evaluation Report

APPLICANT : Elo Touch Solutions, Inc.

EQUIPMENT : POS

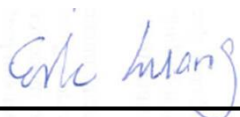
BRAND NAME : ELO or 

MODEL NAME : PayPoint

FCC ID : RBWPAYPOINT

STANDARD : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091 and pass the limit. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: Eric Huang / Manager



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.)



Table of Contents

1. ADMINISTRATION DATA	4
1.1. Testing Laboratory	4
2. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)	4
3. MAXIMUM RF AVERAGE OUTPUT POWER AMONG PRODUCTION UNITS	5
4. RF EXPOSURE LIMIT INTRODUCTION	6
5. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION	7
5.1. Standalone Power Density Calculation	7



Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA733048	Rev. 01	Initial issue of report	Jun. 27, 2017



1. Administration Data

1.1. Testing Laboratory

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	Elo Touch Solutions, Inc.
Address	670 N. McCarthy Blvd., Suite 100, Milpitas, CA95035

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	POS
Brand Name	ELO or 
Model Name	PayPoint
FCC ID	RBWPAYPOINT
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
EUT Stage	Production Unit
Remark: 1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description 2. WLAN and Bluetooth cannot transmit simultaneously.	

**3. Maximum RF average output power among production units**

Band / Mode	Average Power (dBm)			
	BR / EDR			LE
	1M	2M	3M	GFSK
Bluetooth	7	5	5	2

Band / Mode	IEEE 802.11 Average Power (dBm)		
	11b	11g	HT20
2.4GHz WLAN	14.5	12	12

Band / Mode	IEEE 802.11 Average Power (dBm)					
	11a	HT20	HT40	VHT20	VHT40	VHT80
5.2GHz WLAN	15.5	12.5	13	10.5	10	10.5
5.8GHz WLAN	15	12.5	13	10.5	10	10



4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

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 Exposures				
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
300-1500			f/300	6
1500-100,000			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
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)
Bluetooth	2402.0	2.68	7.00	9.680	0.009	9.290	0.002	1.000
2.4GHz WLAN	2412.0	2.68	14.50	17.180	0.052	52.240	0.010	1.000
5GHz WLAN	5180.0	2.54	15.50	18.040	0.064	63.680	0.013	1.000

Note: For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.