



RF Exposure Evaluation Report

APPLICANT : PAX Technology Limited
EQUIPMENT : PX Communication Module
BRAND NAME : PAX
MODEL NAME : CM5-NE-1E0
FCC ID : V5PMBW
STANDARD : 47 CFR Part 2.1091

The product was installed into Multi-Lane Payment Terminal (Brand Name: PAX; Model Name: PX5; Marketing Name: PX5) during test.

We, SPORTON INTERNATIONAL (SHENZHEN) 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 (SHENZHEN) INC., the test report shall not be reproduced except in full.

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA642922	Rev. 01	Initial issue of report	Jul. 25, 2016



1. Administration Data

1.1. Testing Laboratory

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.
Test Site Location	1F & 2F, Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595

Applicant	
Company Name	PAX Technology Limited
Address	Room 2416, 24/F., Sun Hung Kai Centre, 30 Harbour Road, Wanchai, Hong Kong

Manufacturer	
Company Name	PAX Computer Technology (Shenzhen) Co., Ltd.
Address	4/F, No.3 Building, Software Park, Second Central Science-Tech Road, High-Tech industrial Park, Shenzhen, Guangdong, P.R.C.

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	PX Communication Module
Brand Name	PAX
Model Name	CM5-NE-1E0
FCC ID	V5PMBW
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	· 802.11b/g/n HT20 · Bluetooth v3.0+EDR, Bluetooth v4.0 LE
Antenna Type	WLAN: Monopole Antenna Bluetooth: Monopole Antenna
HW Version	PX5-xxx-xxx-xxxx
EUT Stage	Production Unit
Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.	

Host Feature & Specification	
Host	Multi-Lane Payment Terminal
Brand Name	PAX
Model Name	PX5
Marketing Name	PX5
HW Version	PX5-xxx-xxx-xxxx
EUT Stage	Production Unit
Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.	

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

Mode		Maximum Average Power (dBm)
2.4GHz	802.11b	14.0
	802.11g	13.0
	802.11n-HT20	12.0
	Bluetooth v3.0+EDR	8.5
	Bluetooth v4.0 LE	7.0

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)
WLAN2.4GHz 802.11b	2412.0	1.2	14.0	15.200	0.033	33.113	0.007	1.000
WLAN2.4GHz 802.11g	2412.0	1.2	13.0	14.200	0.026	26.303	0.005	1.000
WLAN2.4GHz 802.11n-HT20	2412.0	1.2	12.0	13.200	0.021	20.893	0.004	1.000
Bluetooth	2402.0	1.2	8.5	9.700	0.009	9.333	0.002	1.000

Note:

1. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band .
2. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.

Conclusion:

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