



RF Exposure Evaluation Report

APPLICANT : Zhejiang Lingzhu Technology Co., Ltd.

EQUIPMENT : Smart Control Panel Mini

MODEL NAME : TPP06

FCC ID : 2BEWX-TPP06

STANDARD : 47 CFR Part 2.1091

The product evaluation date was started from Jun. 24, 2024 and completed on Jun. 24, 2024. We, Sporton International Inc. (Kunshan), would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091 and FCC KDB 447498 D01 v06, and pass the limit. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.



Approved by: Si Zhang

Sportun International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China



Table of Contents

1. ADMINISTRATION DATA	4
1.1. Testing Laboratory	4
2. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)	5
3. MAXIMUM RF AVERAGE OUTPUT TUNE UP POWER AMONG PRODUCTION UNITS	6
4. RF EXPOSURE LIMIT INTRODUCTION	7
5. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION	8
5.1. Standalone Power Density Calculation	8



Revision History



1. Administration Data

1.1. Testing Laboratory

Sportun International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Testing Laboratory			
Test Firm	Sportun International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	Sportun Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR01-KS	CN1257	314309

Applicant	
Company Name	Zhejiang Lingzhu Technology Co., Ltd.
Address	Room 302, No 1 Building Huace Center, Xihu District, Hangzhou City, Zhejiang Province, China

Manufacturer	
Company Name	Zhejiang Lingzhu Technology Co., Ltd.
Address	Room 302, No 1 Building Huace Center, Xihu District, Hangzhou City, Zhejiang Province, China



2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Smart Control Panel Mini
Model Name	TPP06
FCC ID	2BEWX-TPP06
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	WLAN 2.4GHz 802.11b/g WLAN 2.4GHz 802.11n HT20/HT40 Bluetooth LE
Antenna Gain	Bluetooth: 3.24 dBi WLAN2.4GHz: 3.24 dBi
Antenna Type	IPEX antenna

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Comments and Explanations:

1. The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.
2. The maximum RF output tune up power, antenna gain also the safe distance used for evaluate RF exposure were declared by manufacturer.



3. Maximum RF average output tune up power among production units

<Bluetooth>

Mode	Maximum Average Power (dBm)
Bluetooth LE	8.00

<2.4GHz WLAN >

Mode	Maximum Average Power (dBm)
2.4GHz	802.11b
	802.11g
	802.11n-HT20
	802.11n-HT40



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)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)
2.4GHz WLAN	2412.0	3.24	19.00	22.240	167.494	0.033	1.000
Bluetooth	2402.0	3.24	8.00	11.240	13.305	0.003	1.000

Note:

1. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.
2. Chose the maximum power to do MPE analysis.
3. According to the EUT characteristic, WLAN and Bluetooth cannot transmit simultaneously.

Conclusion:

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

-----THE END-----