

# Daktronics Inc.

## MPE ASSESSMENT REPORT

**Report Type:**

FCC Part §2.1091, §2.1093 and §1.1307(b) assessment report

**Model:**

DAKT-0203-23

**REPORT NUMBER:**

211101645SHA-003

**ISSUE DATE:**

October 10, 2022

**DOCUMENT CONTROL NUMBER:**

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## TEST REPORT

**Applicant:** Daktronics Inc.  
201 Daktronics Drive, Brookings, SD 57006 USA

**Manufacturer:** Daktronics Inc.  
201 Daktronics Drive, Brookings, SD 57006 USA

**Product Name:** Indoor Control Box

**Type/Model:** DAKT-0203-23

**FCC ID:** 2A4GK-DAKT020323

## SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06  
FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

## PREPARED BY:



Project Engineer  
Dylan Tang

## REVIEWED BY:



Reviewer  
Wakeyou Wang

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## Revision History

Report No.	Version	Description	Issued Date
211101645SHA-003	Rev. 01	Initial issue of report	October 10, 2022

## 1 GENERAL INFORMATION

### 1.1 Description of Equipment Under Test (EUT)

Product name:	Indoor Control Box
Type/Model:	DAKT-0203-23
Description of EUT:	The EUT is a Indoor control box which supports WIFI and Bluetooth function.
Rating:	100-240Vac, 50/60Hz, MAX AMPS: 0.3A, MAX WATTS: 30W
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	Android 5.0
Hardware Version:	MX400_B0
Serial numbers:	0221010-12-001(for radiation sample), 0221010-12-002(for conduction sample)
Sample received date:	November 20, 2021
Date of test:	June 5, 2022 ~ August 20, 2022

### 1.2 Technical Specification

Frequency Range:	2402-2480MHz
Support Standards:	IEEE 802.15.1
Type of Modulation:	GFSK
Channel Number:	40
Data Rate:	1Mbps
Channel Separation:	2MHz
Antenna Information:	PCB Antenna: 4.78dBi

Frequency Band:	2400MHz ~ 2483.5MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20), IEEE 802.11n(HT40)
Type of Modulation:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n(HT20): OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n(HT40): OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Operating Frequency:	2412MHz to 2462MHz for IEEE 802.11b/g/n(HT20) 2422MHz to 2452MHz for IEEE 802.11n(HT40)
Channel Number:	11 Channels for 802.11b, 802.11g and 802.11n(HT20) 7 Channels for 802.11n(HT40)
Channel Separation:	5 MHz
Antenna Information:	PCB Antenna: 4.78dBi

### 1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0051
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

## 2 MPE Assessment

Test result: Pass

### 2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (Ut)	Equivalent plane wave power density $S_{eq}$ (W/m <sup>2</sup> )
0-1 Hz	-	$3,2 \times 10^4$	$4 \times 10^4$	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	$4\,000/f$	$5\,000/f$	-
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	-
0,8-3 kHz	$250/f$	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	$0,73/f$	$0,92/f$	-
1-10 MHz	$87/f^{1/2}$	$0,73/f$	$0,92/f$	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is  $\leq 1.0$**

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### 2.2 Assessment Results

Power density (S) is calculated according to the formula:

$$S = PG / (4\pi r^2)$$

Where S = power density in mW/cm<sup>2</sup>

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 211101645SHA-001&211101645SHA-002:

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

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Working Mode	Frequency band	Power		Antenna Gain	R	S	Limits
	(MHz)	dBm	mW	dBi	(cm)	(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )
BLE	2402-2480	3.76	2.38	4.78	20	0.0023	1
2.4G WIFI	2412 - 2462	12.95	19.72	4.78	20	0.0188	1

Note: 1 mW/cm<sup>2</sup> from 1.310 Table 1.

BLE and 2.4G WIFI can simultaneous transmitting, so the maximum rate of MPE is,  
 $0.0023/1+0.0188/1=0.0211 \leq 1.0$ .

## Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

\*\*\*\*\*END\*\*\*\*\*