

# Johnson Health Tech. Co., Ltd.

## **MPE ASSESSMENT REPORT**

#### **Report Type:**

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

Model:

MAX-ONYX-C, XL-ONYX-C

**REPORT NUMBER:** 

231000572SHA-004

**ISSUE DATE:** 

October 11, 2024

**DOCUMENT CONTROL NUMBER:** 

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Report no.: 231000572SHA-004

**Applicant**: Johnson Health Tech. Co., Ltd.

No. 999, Sec. 2, Dongda Rd., Daya Dist., Taichung City 428, China.

Manufacturer : Same as applicant

Factory 1 : Same as applicant

Factory 2 Johnson Industries (Shanghai) CO., LTD.

2217 hechen highway, JIADING DISTRICT, Shanghai, China

FCC ID : TN7ONYX01

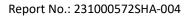
#### **SUMMARY:**

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

KDB447498 D01 General RF Exposure Guidance v06 FCC PART 1 SECTION 1.1310, FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

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Project Engineer	Reviewer		
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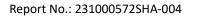
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## **Revision History**

Report No.	Version	Description	Issued Date
231000572SHA-004	Rev. 01	Initial issue of report	October 11, 2024





### **1 GENERAL INFORMATION**

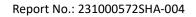
## 1.1 Description of Equipment Under Test (EUT)

Product name:	Fitness Equipment TV Console		
Type/Model:	MAX-ONYX-C, XL-ONYX-C		
Description of EUT:	The EUT is Fitness Equipment TV Console, there are two models, they are the same except model name, display size. We tested MAX-ONYX-C as representative and listed the worst results in this report.		
Rating:	12Vdc, 3A		
EUT type:	☐ Table top ☐ Floor standing		
Software Version:	/		
Hardware Version:	/		
Sample received date:	July 17, 2024		
Date of test:	July 18, 2024 to July 29, 2024		

## 1.2 Technical Specification

Frequency Band:	2400MHz ~ 2483.5MHz		
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20), IEEE 802.11n(HT40)		
Operating Frequency:	2412MHz to 2462MHz for IEEE 802.11b/g/n(HT20)		
	2422MHz to 2452MHz for 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)		
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:	Refer to modular test report		

Frequency Band:	2400MHz ~ 2483.5MHz		
Support Standards:	Bluetooth BR+EDR		
Operating Frequency:	2402MHz to 2480MHz		
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)		
Type of Modulation:	GFSK, π/4-DQPSK, 8DPSK		
Channel Number:	79 (0 - 78)		
Channel Separation:	1 MHz		
Antenna:	Refer to modular test report		





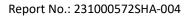
#### **TEST REPORT**

Frequency Band:	2400MHz to 2483.5MHz	
Support Standards:	Bluetooth Low Energy	
Operating Frequency:	2402MHz to 2480MHz	
Type of Modulation:	GFSK	
Channel Number:	40	
Channel Separation:	2MHz	
Antenna Information:	Refer to modular test report	

Frequency Range:	5150 ~ 5850MHz		
Support Standards:	802.11a, 802.11n(HT20), 802.11n(HT40), 802.11ac(VHT20),		
	802.11ac(VHT40), 802.11ac(VHT80)		
Type of Modulation:	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)		
Channel Number:	Refer to test report		
Antenna Information:	Refer to modular test report		

Frequency Range:	13.56 MHz ~ 13.56 MHz	
Type of Modulation:	ASK	
Antenna Information:	PCB Antenna	

Frequency Range:	111kHz – 205kHz	
Modulation:	FSK	
Antenna:	Coil antenna	





## 1.3 Description of Test Facility

Name:	Intertek Testing Services (Shanghai FTZ) Co., Ltd		
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,	CNAS Accreditation Lab Registration No. CNAS L21189
certified, or accredited by these	FCC Accredited Lab Designation Number: CN0175
organizations:	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02



Report No.: 231000572SHA-004

#### 2 MPE Assessment

Test result: Pass

#### 2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

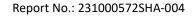
Frequency range	E-field strength	H-field strength	B-field	Equivalent plane wave
	(V/m)	(A/m)	(uT)	power density
				S <sub>eq</sub> (W/m <sup>2</sup> )
0-1 Hz	-	$3.2 \times 10^4$	$4 \times 10^{4}$	-
1-8 Hz	10 000	$3.2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	4 000/f	5 000/f	-
0,025-0,8 kHz	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 <sup>1/2</sup>	0,73/f	0,92/f	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	1,375 f <sup>1/2</sup>	0,0037 f <sup>1/2</sup>	0,0046 f <sup>1/2</sup>	f/200
2-300 GHz	61	0,16	0,20	10

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm2)	Averaging time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

Note: Limit for 13.56MHz is 60.77 V/m

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





#### 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)

The product contains three certifed module, the certified module's FCC ID number and relevant MPE report number are as following:

Certified Module FCC ID:	Model number	Relevant report		
AP6398SV	TN7-AP6398SV	230801126SHA-001,		
		230801126SHA-002,		
		230801126SHA-003,		
		230801126SHA-004		
2AOO6-WLT8761M	WLT8761M	RSHF190924001-00A,		
		RSHF190924001-00B		
N7P-HRM8700	HRM8700	STS1811066W04		

As we can see from the test report 231000572SHA-001:

75.90dBuV/m@3m, @20cm=@3m+40log(3/0.2)=122.94dBuV/m=1.40V/m<60.77V/m.

As we can see from the test report 231000572SHA-003:

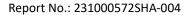
Max Magnetic Field Strength 0.0073A/m < 1.63\*0.5A/m

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.

#### Single transmission:

Mode	Frequency band	Max Power	Antenna Gain	R	S	Limits
	(MHz)	dBm	dBi	(cm)	(mW/cm2)	(mW/cm2)
BLE(WLT8761M)	2400 -2483.5	5.00	2.50	20	0.0011	1
BR+EDR (WLT8761M)	2400 -2483.5	7.00	2.50	20	0.0018	1
BR+EDR (TN7-AP6398SV)	2400 -2483.5	0.93	1.51	20	0.0003	1
BLE(TN7-AP6398SV)	2400 -2483.5	9.35	1.51	20	0.0024	1
BLE(HRM8700)	2400 -2483.5	-4.72	0	20	0.0001	1
WiFi (TN7-AP6398SV)	2400 -2483.5	18.77	1.52	20	0.0213	1
	5150-5850	16.34	4.68	20	0.0252	1

Note: 1 mW/cm2 from 1.310 Table 1



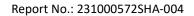


#### **TEST REPORT**

RFID, WPT, WIFI and Bluetooth can transmit simultaneously The sum of the MPE ratios for all simultaneously transmitting is

 $0.0213/1 + 0.0252/1 + 0.0024/1 + 0.0018/1 + 0.0001/1 + 1.40/60.77 + 0.0073/1.63*0.5 = 0.0761 \le 1.0$ 

For the device can support simultaneous transmission, according to 447498 D01 General RF Exposure Guidance v06,





## **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.
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