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:
TTRFFCCMPE-01_V1

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TEST REPORT

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)

PREPARED BY:	**REVIEWED BY:**
Project Engineer Eric Li	Reviewer Wakeyou Wang

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Revision History

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

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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

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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, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L21189
	FCC Accredited Lab Designation Number: CN0175
	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

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^2)
0-1 Hz	-	$3,2 \times 10^4$	4×10^4	-
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

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 ≤ 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^2
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≤ 1.0

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

TEST REPORT

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 **********