Johnson Health Tech. Co., Ltd.

MPE ASSESSMENT REPORT

Report Type:
FCC Part §2.1091 and §1.1307(b) assessment report

Model:
TOUCH-02-C,
TOUCH XL-02-C,
Virtual training-02-C

REPORT NUMBER:
230801095SHA-003

ISSUE DATE:
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TEST REPORT

Report no.: 230801095SHA-003

Applicant:	Johnson Health Tech. Co., Ltd. No. 999, Sec. 2, Dongda Rd., Daya Dist., Taichung City 428
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:	TN7TOUCHRF-02

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

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

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Revision History

Report No.	Version	Description	Issued Date
230801095SHA-003	Rev. 01	Initial issue of report	November 4, 2024

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Fitness Equipment TV Console
Type/Model:	TOUCH-02-C, TOUCH XL-02-C, Virtual training-02-C
Description of EUT:	The EUT is Fitness Equipment TV Console, there are three models, they are the same except model name, display size and rating current. They support Bluetooth, WIFI, RFID and WPT. The Bluetooth, WIFI, RFID used approved modular, AP6398SV (FCC ID: TN7-AP6398SV), HRM8700(FCC ID: N7P-HRM8700), WLT7150(FCC ID: 2AOO6-WLT7150). We tested TOUCH XL-02-C as representative and listed the worst results in this report.
Rating:	12Vdc, 2A for TOUCH-02-C 12Vdc, 3A for TOUCH XL-02-C, Virtual training-02-C.
EUT type:	☒ Table top ☐ Floor standing
Software Version:	/
Hardware Version:	/
Sample received date:	August 12, 2024
Date of test:	August 12, 2024 to August 26, 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

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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 modular 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

Support Standards:	ANT+
Frequency Range:	2457MHz
Modulation:	GFSK
Antenna:	Ceramic Antenna, gain is 0dBi

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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 L0139
	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**

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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^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
TN7-AP6398SV	AP6398SV	230801126SHA-001, 230801126SHA-002, 230801126SHA-003, 230801126SHA-004
N7P-HRM8700	HRM8700	STS1811066W04
2AOO6-WLT7150	WLT7150	BTL-FCCP-1-2404H025

As we can see from the test report BTL-FCCP-1-2404H025:
63.82dBuV/m@3m, @20cm=@3m+40log(3/0.2)=110.86dBuV/m=0.35V/m<60.77V/m.

As we can see from the test report 230801095SHA-001:
77.8 dBuV/m@3m, @20cm=@3m+40log(3/0.2)=124.84dBuV/m=1.7458V/m <87V/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)
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
BLE(HRM8700)	2457	-5.02	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

RFID, WPT,ANT+, 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+0.0001/1+0.0003/1+0.0001/1+0.35/60.77+1.7458/87 =0.0287≤ 1.0

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

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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 **********