

RF Test Report

For

Applicant name: Johnson Controls International
Address: 1101 E Whitaker Mill Rd suite 220, Raleigh, NC 27604, USA
EUT name: Meeting Room Display Tablet
Brand name: /
Model number: WA1099T
Series model number: /
FCC ID: 2BVHN-WA1099T

Issued By

Company name: BTF Testing Lab (Shenzhen) Co., Ltd.
Address: Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China

Report number: BTF260413R00407
Test standards: 47 CFR Part 2 Subpart J Section 2.1091
Test conclusion: Pass

Date of sample receipt: 2026-4-3
Test date: 2026-4-3 to 2026-4-20
Date of issue: 2026-4-20

Prepared by:

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Revision History		
Version	Issue date	Revisions content
R_V0	2026-4-20	Original

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1 Introduction

1.1 Laboratory Location

Test location:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China
Description:	All measurement facilities used to collect the measurement data are located at Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China
Phone number:	+86-0755-23146130
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1.2 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1409**
BTF Testing Lab (Shenzhen) Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The test firm Registration No. is 695374.
- **CNAS - Registration No.: CNAS L17568**
BTF Testing Lab (Shenzhen) Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L17568.
- **A2LA - Registration No.: 6660.01**
BTF Testing Lab (Shenzhen) Co., Ltd. is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories.

1.3 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.
- (7) All entrusted information in this report is provided by the client and has been confirmed through consultation with the client; The testing items for this report have been discussed and confirmed with the client, and our company is only responsible for the content reflected in the report.

2 Product Information

2.1 Application Information

Company name:	Johnson Controls International
Address:	1101 E Whitaker Mill Rd suite 220, Raleigh, NC 27604, USA

2.2 Manufacturer Information

Company name:	Johnson Controls International
Address:	1101 E Whitaker Mill Rd suite 220, Raleigh, NC 27604, USA

2.3 Factory Information

Company name:	SHENZHEN ELECTRON TECHNOLOGY CO.,LTD.
Address:	Bld.2, Yingfeng Industrial Zone, Tantou Community, Songgang Street, Bao'an, Shenzhen, China.

2.4 General Description of Equipment under Test (EUT)

EUT name	Meeting Room Display Tablet
Under test model name	WA1099T
Series model name	N/A
Description of model name differentiation	N/A
Hardware Version	N/A
Software Version	N/A
Rating:	Adapter Model: FJ-SW1202000N Input: 100-240V, 50/60Hz Output: DC 12.0V 24W or DC 48V, 0.5A by POE power supply

2.5 Technical Information

Modulation Mode:	BT	GFSK, Pi/4 DQPSK, 8DPSK
	BLE	GFSK
	WLAN 2.4GHz	DSSS, OFDM
	UNII	OFDM(A)
	NFC	ASK
	RFID	ASK
Frequency Bands:	BT/BLE	2402MHz-2480MHz
	WLAN 2.4GHz	2412MHz-2462MHz
	UNII	5180MHz~5240MHz & 5745MHz~5825MHz
	NFC	13.56MHz
	RFID	125kHz

Antenna type:	FPC Antenna
Antenna Gain:	1.48 dBi @ 2.4G, 2.98 dBi@UNII (declare by Applicant)
Antenna transmit mode:	SISO (1TX, 1RX)

3 RF Output Power

Mode	Frequency (MHz)	Maximum Conducted Output Power (dBm)
GFSK	2402	8.26
	2441	9.27
	2480	9.70
Maximum Tune-up (dBm)		10
Pi/4 DQPSK	2402	6.58
	2441	7.85
	2480	8.32
Maximum Tune-up (dBm)		9
8DPSK	2402	7.72
	2441	8.83
	2480	9.29
Maximum Tune-up (dBm)		10

Mode	Frequency (MHz)	Maximum Conducted Output Power (dBm)
GFSK	2402	4.52
	2440	5.83
	2480	6.39
Maximum Tune-up (dBm)		7

Mode	Frequency (MHz)	Maximum Conducted Output Power (dBm)
802.11b	2412	11.46
	2437	11.86
	2462	12.59
Maximum Tune-up (dBm)		13
802.11g	2412	17.82
	2437	18.50
	2462	18.93
Maximum Tune-up (dBm)		19
802.11n (HT20)	2412	17.80
	2437	18.36
	2462	18.84
Maximum Tune-up (dBm)		19
802.11n (HT40)	2422	17.48
	2437	18.07
	2452	17.84
Maximum Tune-up (dBm)		19

802.11ax (HEW20)	2412	18.27
	2437	18.73
	2462	19.25
Maximum Tune-up (dBm)		20
802.11ax (HEW40)	2422	17.85
	2437	18.33
	2452	18.16
Maximum Tune-up (dBm)		19

Mode	Frequency (MHz)	Maximum Conducted Output Power (dBm)
802.11a	5180	6.66
	5200	6.50
	5240	7.65
Maximum Tune-up (dBm)		8
802.11n(HT20)	5180	6.62
	5200	8.04
	5240	8.53
Maximum Tune-up (dBm)		9
802.11n(HT40)	5190	8.80
	5230	7.25
Maximum Tune-up (dBm)		9
802.11ac (VHT20)	5180	7.80
	5200	8.30
	5240	8.35
Maximum Tune-up (dBm)		9
802.11ac (VHT40)	5190	8.18
	5230	6.77
Maximum Tune-up (dBm)		9
802.11ac (VHT80)	5210	7.34
Maximum Tune-up (dBm)		8
802.11ax (HEW20)	5180	6.77
	5200	6.36
	5240	7.15
Maximum Tune-up (dBm)		8
802.11ax (HEW40)	5190	7.33
	5230	7.70
Maximum Tune-up (dBm)		8
802.11ax (HEW80)	5210	7.95
Maximum Tune-up (dBm)		8

Mode	Frequency (MHz)	Maximum Conducted Output Power (dBm)
802.11a	5745	7.76
	5785	9.34
	5825	9.56
Maximum Tune-up (dBm)		10
802.11n(HT20)	5745	8.83
	5785	9.77
	5825	9.81
Maximum Tune-up (dBm)		10
802.11n(HT40)	5755	8.09
	5795	9.25
Maximum Tune-up (dBm)		10
802.11ac (VHT20)	5745	8.65
	5785	8.61
	5825	8.74
Maximum Tune-up (dBm)		9
802.11ac (VHT40)	5755	9.13
	5795	7.83
Maximum Tune-up (dBm)		10
802.11ac (VHT80)	5775	7.09
Maximum Tune-up (dBm)		8
802.11ax (HEW20)	5745	7.90
	5785	7.75
	5825	8.84
Maximum Tune-up (dBm)		9
802.11ax (HEW40)	5755	6.85
	5795	8.09
Maximum Tune-up (dBm)		9
802.11ax (HEW80)	5775	7.83
Maximum Tune-up (dBm)		8

Mode	Frequency (MHz)	Maximum Conducted Output Power (dBm)
NFC	13.56	-42.35
Maximum Tune-up (dBm)		-41

Mode	Frequency (MHz)	Maximum Conducted Output Power (dBm)
RFID	0.125	-25.64

Maximum Tune-up (dBm)	-24
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Note 1: According to KDB 447498, MPE assessment is based on source-based time-averaged maximum conducted output power of the RF channel requiring assessment, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

Note 2: $\text{Level(dBm)} = \text{Level(dBuV/m)} - 95.2$

4 Applied Reference Documents

Identity	Document Title
47 CFR Part 2(2.1091)	Radio Frequency Radiation Exposure Assessment: mobile devices
KDB 447498 D01v06	General RF Exposure Guidance

5 Device Category and RF Exposure Limit

Per user manual, Based on 47 CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.	
Mobile Devices:	47 CFR 2.1091(b) For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.
General Population/Uncontrolled Exposure:	The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.
Test Standards:	The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached. Although the Friis Transmission formula is far field assumption, the calculated result of that is an over-prediction for near field power density. It is taken as worst case to specify the safety range.

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of the human exposure to radio-frequency (RF) radiation as specified in 1.1307 (b) Limits for Maximum Permissible Exposure (MPE)

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

f = frequency in MHz * = Plane-wave equivalent power density

6 RF Exposure Assessment

➤ Standalone Transmission Assessment:

Bands	Frequency (MHz)	Tune-up Power(dBm)	Antenna Gain(dBi)	E.I.R.P. (mW)	Power Density (mW/cm ²)	Limit for MPE (mW/cm ²)
WLAN 2.4GHz	2462	20	1.48	140.60	0.028	1.0
UNII_1	5240	9	2.98	15.78	0.003	1.0
UNII_3	5825	10	2.98	19.86	0.004	1.0
BT	2480	10	1.48	14.06	0.003	1.0
BLE	2480	7	1.48	7.05	0.001	1.0

According to 447498 D04 Interim General RF Exposure Guidance v01 section 2.1.2, the available maximum time-average power not exceeding 1 mW is exempt from the test.

NFC(13.56MHz): Max Tune-up Power:-41dBm(0.00008mW<1mW)

RFID(125kHz): Max Tune-up Power:-24dBm(0.004mW<1mW)

NFC and RFID cannot synchronously transmitting, BT and WIFI cannot synchronously transmitting
RFID and WIFI synchronously:0.032<1

Note:

1. According to KDB 447498, MPE assessment is based on source-based time-averaged maximum conducted output power of the RF channel requiring assessment, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.
2. MPE calculate method
3. The device is not intended use in portable condition

$$S = PG/4\pi R^2$$

Where:

S = Power density (in appropriate units, e.g. mW/cm²)

P = Time-average maximum tune-up power (in appropriate units, e.g. dBm)

G = numeric gain of the antenna (in appropriate units, e.g. dBi)

R = Separation distance to the centre of radiation of the antenna (20cm)

➤ Conclusion:

According to 47 CFR §2.1091, this device complies with human exposure basic restrictions.



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