FCC RF EXPOSURE REPORT

Applicant	:	Johnson Controls Inc
Address	:	507 E Michigan St, Milwaukee, WI 53202 United States
Equipment	:	Building Automation Systems
Model No.	:	FW-08 V3, FW-08V V3
Trade Name	:	EASYIO
FCC ID.	:	OEJFW08

I HEREBY CERTIFY THAT :

The sample was received on Apr. 15, 2021 and the testing was completed on May 11, 2021 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Leevin Li

Leevin Li / Supervisor

Contents

History of this test report

■ Original

☐ Additional attachment as following record:

Attachment No.	Issue Date	Description
DEFJ2103138	May 24, 2021	Original

1. Test Configuration of Equipment under Test

1.1 Feature of Equipment

Product	Building Automation Systems
Test Model	FW-08 V3, FW-08V V3
Model Discrepancy	FW-08V V3 is a DDC with differential pressure sensor and WIFI feature, FW-08 V3 is FW-08V V3 without differential pressure sensor. Test Model: FW-08V V3
Frequency Range	802.11b/g/n(20MHz): 2412-2462MHz 802.11n(40MHz): 2422-2452MHz
Modulation	802.11b: CCK, DQPSK, DBPSK 802.11g: 64 QAM, 16 QAM, QPSK, BPSK 802.11n: BPSK, QPSK,16QAM, 64QAM
Data Rate	802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: up to 300Mbps
EUT Power Rating:	24V AC/DC, 0.7A, 16.8W, 60Hz

Note: For more details, please refer to the User's manual of the EUT.

1.2 General Information of Test

Test Site	**Cerpass Technology Corporation(Cerpass Laboratory)** Address: Room 102, No. 5, Xing'an Road, Chang'an Town, Dongguan City, Guangdong Province Tel: +86-769-8547-1212 Fax: +86-769-8547-1912
FCC Designation No.:	CN1288
Frequency Range Investigated:	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 40,000MHz
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.

2. Radio Frequency Exposure

Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm²) ☒ General Population/Uncontrolled exposure (S=1mW/cm²)

Antenna diversity	☐ Single antenna
	☒ Multiple antennas
	   ☐ Tx diversity
	   ☐ Rx diversity
	   ☒ Tx/Rx diversity

Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

TEST RESULTS

No non-compliance noted.

Calculation

Given $\quad E = \dfrac{\sqrt{30 \times P \times G}}{d} \quad \& \quad S = \dfrac{E^2}{3770}$

> *Where $\quad E$ = Field strength in Volts / meter*
> *P = Power in Watts*
> *G = Numeric antenna gain*
> *d = Distance in meters*
> *S = Power density in milliwatts / square centimeter*

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

> *P (mW) = P (W) / 1000 and*
> *d (cm) = d(m) /100*

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \qquad \textbf{\textit{Equation 1}}$$

> *Where $\quad d$ = Distance in cm*
> *P = Power in mW*
> *G = Numeric antenna gain*
> *S = Power density in mW / cm²*

Maximum Permissible Exposure

ANT A

Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)
2412-2462	21.66	22.66	2	20	0.058

ANT B

Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)
2412-2462	22.65	23.65	2	20	0.073

The sum of the ratios of the spatially averaged results to the applicable frequency dependent MPE limits :

Simultaneous transmission mode	The sum of the ratios	Result
ANT A+ANT B	0.058/1+0.073/1	0.131 < 1

Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

---------------------- **End of the report** ----------------------