



FCC RF EXPOSURE REPORT

Applicant : Johnson Controls Inc
Address : 507 East Michigan Street, Milwaukee, WI 53202
Equipment : Building Automation Systems
Model No. : FW-08
Trade Name : EASYIO
FCC ID. : OEJFW08L

I HEREBY CERTIFY THAT :

The sample was received on Nov. 24, 2022 and the testing was completed on Dec. 16, 2022 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:


Leevin Li /Supervisor



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History of this test report

Original.

Additional attachment as following record:

Attachment No.	Issue Date	Description
DEFJ2211145	Dec. 30, 2022	Initial Issue



1. Test Configuration of Equipment under Test

1.1 Feature of Equipment

Equipment	Building Automation Systems
Model Name	FW-08
Model Discrepancy	N/A
Frequency Range	2400MHz-2483.5MHz
Modulation Type	802.11b: CCK, DQPSK, DBPSK 802.11g/n: 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: MCS0 – MCS15, HT20/40
Antenna Type	Dipole Antenna
Working Temperature	0°C to +65°C
Operating Voltage	24V AC/DC, 0.7A, 16.8W, 60Hz
Antenna number	2
Antenna Gain	2dBi

Note: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2) EUT supports CDD mode, so 802.11b, 802.11g, 802.11n support MIMO Mode.

1.2 General Information of Test

Test Site	CerpPASS Technology Corporation(CerpPASS 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



2. Radio Frequency Exposure

Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation)
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna diversity	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input checked="" type="checkbox"/> Tx/Rx diversity
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A

TEST RESULTS

No non-compliance noted.

Calculation

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

Where 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:

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

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

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

Where d = Distance in cm
 P = Power in mW
 G = Numeric antenna gain
 S = Power density in mW / cm²



Maximum Permissible Exposure

Modulation Type	Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)
802.11 g	2412-2462	23.77	25.77	2	20	0.119

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 -----