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RF Exposure Report

FCC Part 2.1091

EUT Name: Powerview Gen3 Motor Control Board
Model No.: 1016000012

Prepared for:

Hunter Douglas Window Fashions, Inc
1 Duette Way
Broomfield, CO 80020 U.S.A.

Prepared by:

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Statement of Compliance

Manufacturer: Hunter Douglas Window Fashions, Inc
1 Duette Way
Broomfield, CO 80020 U.S.A.
Name of Equipment: Powerview Gen3 Motor Control Board
Model No. 1016000012
Application of Regulations: FCC Part 2.1091

Guidance Documents:

FCC Part 2.1091

Test Methods:

FCC Part 1.1310, KDB 447498 D01

The electromagnetic compatibility test and documented data described in this report has been performed and recorded by TUV Rheinland, in accordance with the standards and procedures listed herein. As the responsible authorized agent of the EMC laboratory, I hereby declare that the equipment described above has been shown to be compliant with the EMC requirements of the stated regulations and standards based on these results. If any special accessories and/or modifications were required for compliance, they are listed in this report.

This report must not be used to claim product endorsement by A2LA or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written authorization of TUV Rheinland of North America.

Alexander Sowinski January 30, 2024

Test Engineer Date

Isaac Aguilar January 30, 2024

Laboratory Signatory Date



Test Cert. # 3331.08

Revisions

Revision No.	Date	Reason for Change	Author
1.0	01/24/2024	Original Report	AJS
2.0	01/30/2024	Updated Laboratory Signatory	AJS

Note: Latest revision report will replace all previous reports.

1 Product Specifications

1.1 Product Description

1.2 Product Specifications

EUT Specifications	
Exposure Type	<input checked="" type="checkbox"/> General Population / Uncontrolled <input type="checkbox"/> Occupational / Controlled
Multiple Antenna Feeds:	<input type="checkbox"/> Yes and how many 1 <input checked="" type="checkbox"/> No
Hardware Version	1016000012
Software Version	n/a
Antenna	2.4 GHz Yageo Dipole Removable PCB Flag Antenna: ANTX100P011B24003
Antenna Gain	2.2 dBi
Power Settings	+8dBm
*All EUT specifications are provided by the manufacturer or the TUV direct customer. Note: Information supplied by the customer and can affect the validity of results.	

1.3 Air Interfaces

Air Interface	Supported Capabilities	Modulation	Maximum Duty Cycle %	Band (MHz)	Frequency Range (MHz)	Maximum Output Power Including Tolerance (dBm)
BLE	• BLE 1Mbps, 2Mbps	• GFSK	100	2400 – 2483.5 MHz	2400 – 2480 MHz	8.23

2 RF Exposure Evaluation

2.1 Purpose

This report will demonstrate the compliance of RF exposure to the human body of the 1016000012 according to FCC rule part 2.1091. All transmitters, regardless if it is categorically excluded, are assessed to ensure the product can operate in manners that meet or exceed the minimum test separation distance as required by KDB 447498.

2.2 Exemption Threshold

Table 2. Single RF Sources Subject to Routine Environmental Evaluation under MPE-Based Exemptions, $R \geq \lambda/2\pi$

Transmitter Frequency	Threshold ERP
0.3 – 1.34	$1,920 R^2$
1.34 – 30	$3,450 R^2/f^2$
30 – 300	$3.83 R^2$
300 – 1,500	$0.0128 R^2 f$
1,500 – 100,000	$19.2 R^2$
Note: Transmitter Frequency is in MHz, Threshold ERP is in watts, R is in meters, f is in MHz.	

2.3 Maximum Permissible Exposure Limit

The Maximum Permissible Exposure (MPE) limits according to FCC rule part 1.1310 for general population/uncontrolled exposure is as follows:

Frequency Range (MHz)	E-field strength (V/m)	H-field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
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
300-1,500	-	-	f/1500	30
1,500-100,000	-	-	1.0	30

* = Plane-wave equivalent power density

2.4 Assessment Methods

The power density is calculated according to the following equation

$$S = \frac{EIRP}{4\pi R^2}$$

Where

S = Power Density (mW/cm²)

EIRP = Effective Isotropic Radiated Power (mW)

R = Minimum distance between the human body and antenna (cm)

When the calculated power density exceeds the MPE limits, the power density is measured.

2.5 Assessment Calculation

The maximum output power and antenna gain is declared by the manufacturer and used in this assessment.
The minimum RF exposure distance during normal operation is 20 cm.

Stand Alone Analysis

Frequency (MHz)	Operating Mode	Max. Conducted Power (mW)	Numeric Antenna Gain	Power Density (mW/cm ²)	Eref Power Density Limit (mW/cm ²)	Percentage of Limit %
2400	BLE 1Mbps	6.65	1.66	0.0036	1.0	0.36
2400	BLE 2Mbps	6.62	1.66	0.0036	1.0	0.36

Exemption Analysis

Frequency (MHz)	Operating Mode	Max. Conducted Power (mW)	Numeric Antenna Gain	ERP (W)	Exemption Limit ERP (W)	Percentage of Limit %
2400	BLE 1Mbps	6.65	1.66	0.011	0.768	1.432
2400	BLE 2Mbps	6.62	1.66	0.011	0.768	1.432

Note: Calculations for this report are based on highest power measurement and its antenna gain.

2.6 Conclusion

The EUT was found to be exempt from RF Exposure evaluation.

The EUT was found to be compliant to the requirements of FCC part 1.1310 and part 2.1091 with a minimum distance of 20 cm.