



TÜVRheinland[®]
Precisely Right.

RF Exposure Report FCC Part 2.1091

EUT Name: Remote Control

Model Name: 1012000324

Prepared for:

Hunter Douglas Window Fashions Division
1 Duette Way
Broomfield, CO, 80020
USA

Prepared by:

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Statement of Compliance

Manufacturer: Hunter Douglas Window Fashions Division
1 Duette Way,
Broomfield, CO, 80020, USA

Name of Equipment: Remote Control
Model Name 1012000324
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.

<u>Mann-Tzy Duh</u>	<u>May 2, 2022</u>	<u>Richard Decker</u>	<u>May 2, 2022</u>
Compiling by	Date	Laboratory Signatory	Date



Test Cert. # 3331.02

1 Product Specifications

1.1 Product Description

The 1012000324 is assembled into various remote assemblies and fabricated into Hunter Douglas window coverings via an easy to use and intuitive push-button handheld remote. This device utilized BLE in the 2400-2483.5MHz band.

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 <input checked="" type="checkbox"/> No
Test Sample Number	1012000324
Hardware Version	1012000324
Software Version	N/A
Transmitter Frequency Band	2400 MHz to 2483.5 MHz
Power Setting @ Operating Channel	+8dBm
Antenna Type	Integral, Trace
Antenna Gain	0 dBi
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	Frequency Range (MHz)	Maximum Output Power (dBm)
Proprietary Radio	N/A	GFSK	100%	N/A	2400 – 2483.5	6.93

2 RF Exposure Evaluation

2.1 Purpose

In this document, we evaluate the RF Exposure to human body due the intentional transmission from the transmitter (EUT). The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. 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 a far field assumption, the calculated result of that is an over-prediction for near field power density. We will take that as the worst case to specify the safety range.

2.2 RF Exposure Limit

According to FCC 1.1310 table 1: The criteria listed in the following table shall be used to evaluate the environmental impact of 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)	Average Time (minutes)
(A)Limits For Occupational / Control Exposures				
0.3-1.34	614	1.63	*(100)	6
1.34-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
30-1500	...	...	F/300	6
1500-100000	...	...	1.0	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
30-1500	...	...	F(MHz)/1500MHz	30
1500-100000	...	...	1.0	30

F = Frequency in MHz

*=Plane wave equivalent density

2.3 Assessment Methods

The Friss transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where;

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

$\pi \approx 3.1416$

R = distance between observation point and center of the radiator in cm

Ref.: David K. Cheng, Field and Wave Electromagnetics, Second Edition, Page 640, Eq. (11-133).

2.4 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 20cm.

Stand Alone Analysis

Frequency Band (MHz)	Operating Freq (MHz)	Max. Conducted Power (dBm)	Numeric Antenna Gain (dBi)	EIRP (dBm)	Power Density (mW/cm ²)	Power Density Limit (mW/cm ²)	Result (Pass/Fail)
2400-2483.5	2402MHz	6.93	0	6.93	0.0009811	1	Pass

2.5 Conclusion

The above result had shown that the device complied with MPE requirement at a prediction distance of 20cm.