

TEST REPORT

REQUIREMENTS FOR DIRECTIONAL LAMPS, LIGHT EMITTING DIODE LAMPS AND RELATED EQUIPMENT ACCORDING TO THE EC REGULATION 1194/2012

Implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for directional lamps, light emitting diode lamps and related equipment.

APPLICANT, IDENTIFICATION OF THE TEST SAMPLE

| | |
|---------------------|--|
| Report Number | 19020528HKG-001 |
| Applicant | ADVANCE DIMMING TECHNOLOGY LTD |
| Applicant Address | Unit 15, 6/F Kenning Industrial Building, 19 Wang Hoi Road, Kowloon Bay, Hong Kong |
| Type of appliance | LED Duo Dimmer Module |
| Intended use | Control Device |
| Brand name | ADT |
| Type | ATE-VRT100EU |
| No. of Sample | 1 |
| Serial number | N/A |
| Electrical data | 220-240V~, 50Hz, 3-100W LED, 10-100W INC/HAL |
| Date Received | 28 Feb 2019 |
| Date Test Conducted | 04 Mar 2019 to 08 Mar 2019 |
| Issue Date | 15 Mar 2019 |

Summary of test results

These results are in compliance with the stage 1 to 3 in Annex III ecodesign requirements of the EC regulation 1194/2012.

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STANDARD AND ENVIRONMENTAL CONDITION

| | | |
|---|---|---------------------------|
| Test laboratory | Intertek Testing Services Hong Kong Ltd. | |
| Address | 2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. | |
| Standard applied | <input checked="" type="checkbox"/> EN62442-3 | |
| | <input checked="" type="checkbox"/> Annex III of EC 1194/2012 | |
| | <input type="checkbox"/> Annex VI of EC 874/2012 | |
| Tested at | 230 VAC / 50.0 Hz | |
| Ambient temp. | 25.0°C ±1°C | |
| THD | <3.0% | |
| Measuring device | CCD Array Spectrometer | Inventory number: EW-3115 |
| | 65 inches Integrating Sphere unit | Inventory number: EW-1335 |
| | AC Power Supply | Inventory number: EW-3283 |
| | Digital Power Meter | Inventory number: EW-3107 |
| | Digital Power Meter | Inventory number: EW-2595 |
| | Calibrated lamp standard | Inventory number: EW-3266 |
| Set-up and circuits used for electrical testing | Refer to separate page (drawing, photo or the like) | |

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MEASUREMENT CONDITIONS

1.1 No-Load Power Measurement

The power was measured at the dimmer was operated without load at 230V, 50Hz.

1.2 Standby Power Measurement

The power was measured at the dimmer was operated with connecting the maximum load which is in "OFF" status at 230V, 50Hz.

1.3 Light Output Ratio

When a dimming control device is switched on at its lowest control setting for which the operated lamps consume power, the operated lamps shall emit at least 1 % of their luminous flux at full load.

1.4 Efficiency of The Halogen Lamp Control Gear

$$\text{Efficiency} = \frac{\text{Power consumed by the load with connecting the control gear}}{\text{Power consumed by the load without connecting the control gear}}$$

Where power consumed by the maximum load connected with the control gear mean the output power of dimmer. And power consumed by the maximum load connected without the control gear mean the output power of the lamp without dimmer.

1.4 Test Condition parameters

TEST VOLTAGE

TEST FREQUENCY

TOTAL HARMONIC CONTENT OF THE TEST VOLTAGE

±0.2 % During measurement

±0.5 %.

≤3%(up to and including the 13th harmonic)

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TEST AND VERIFICATION RESULTS

| Annex III (Clause) | Lamp Efficacy of Ecodesign Requirements in EC Regulation 1194/2012, Stage 2 | Result - Remark | Verdict |
|--------------------|---|-----------------|---------|
| 1.2a) | No-Load Power: Limit $\leq 1.0W$ | | N/A |
| | Efficiency of halogen Lamp Control Gear: Limit 0,91 at 100% Load | | N/A |

| Annex III (Clause) | Lamp Efficacy of Ecodesign Requirements in EC Regulation 1194/2012, Stage 3 | Result - Remark | Verdict |
|--------------------|---|-----------------|---------|
| 1.2b) | No-Load Power: Limit $\leq 0.5W$ (Stage 3) | | N/A |
| | Standby Power; Limit: $\leq 0.5W$ (Stage 3) | | N/A |

| Annex III (Clause) | Functionality Requirement for Equipment, Designed for Installation between the Mains and the Lamps, Stage 2 | Result - Remark | Verdict |
|--------------------|--|-----------------|---------|
| 2.3) | When a dimming control device is switched on at its lowest control setting for which the operated lamps consume power, the operated lamps shall emit at least 1 % of their luminous flux at full load. | 1.999% | P |

| Annex III (Clause) | Product Information for Equipment other than Luminaires, Designed for Installation between the Mains and the Lamps, Stage 2 | Result - Remark | Verdict |
|--------------------|---|------------------------------|---------|
| 3.3) | A Warning for equipment no compatibility with any of the energy-saving lamps according to part 2.3 of this Annex. | Showed in instruction manual | P |

| Annex III (Clause) | Product Information for Lamp Control Gear, Stage 2 | Result - Remark | Verdict |
|--------------------|--|-----------------|---------|
| 3.4a) | Indication that the product is intended to be used as a lamp control gear | | N/A |
| 3.4b) | The information that the product may be operated in no-load mode (If applicable) | | N/A |

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APPENDIX-TEST DATA SHEET

1. No-load Power

| Model No. | Sample No. | Voltage (V) | Current (mA) | Power (W) |
|-----------|------------|-------------|--------------|-----------|
| N/A | N/A | N/A | N/A | N/A |

2. Standby Power

| Model No. | Sample No. | Voltage (V) | Current (mA) | Power (W) |
|-----------|------------|-------------|--------------|-----------|
| N/A | N/A | N/A | N/A | N/A |

3. Light Output Ratio

Maximum Light Output

| Model No. | Sample No. | Dimmer and Load | | | | Load | | | | Luminous Flux (lm) |
|-------------------|------------|-----------------|--------------|-----------|--------------|-------------|--------------|-----------|--------------|--------------------|
| | | Voltage (V) | Current (mA) | Power (W) | Power Factor | Voltage (V) | Current (mA) | Power (W) | Power Factor | |
| ATE-VRT100EU (L1) | 1/1 | 230.0 | 412.53 | 87.97 | 0.927 | 210.5 | 412.53 | 86.83 | 1.000 | 901.80 |
| ATE-VRT100EU (L2) | 1/1 | 230.0 | 413.85 | 88.80 | 0.933 | 211.9 | 413.86 | 87.68 | 1.000 | 920.80 |
| Average | --- | 230.0 | 413.19 | 88.39 | 0.930 | 211.2 | 413.20 | 87.26 | 1.000 | 911.30 |

Minimum Light Output

| Model No. | Sample No. | Dimmer And Load | | | | Load | | | | Luminous Flux (lm) |
|-------------------|------------|-----------------|--------------|-----------|--------------|-------------|--------------|-----------|--------------|--------------------|
| | | Voltage (V) | Current (mA) | Power (W) | Power Factor | Voltage (V) | Current (mA) | Power (W) | Power Factor | |
| ATE-VRT100EU (L1) | 1/1 | 230.0 | 255.54 | 23.12 | 0.393 | 86.2 | 255.53 | 22.03 | 1.000 | 17.3 |
| ATE-VRT100EU (L2) | 1/1 | 230.0 | 256.26 | 23.26 | 0.394 | 86.6 | 256.27 | 22.18 | 1.000 | 19.0 |
| Average | --- | 230.0 | 255.90 | 23.19 | 0.394 | 86.4 | 255.90 | 22.11 | 1.000 | 18.2 |

Light Output Ratio

| Model No. | Sample No. | Maximum Light Output (lm) | Minimum Light Output (Lm) | Light Output Ratio % |
|-------------------|------------|---------------------------|---------------------------|----------------------|
| ATE-VRT100EU (L1) | 1/1 | 901.80 | 17.3 | 1.92 |
| ATE-VRT100EU (L2) | 1/1 | 920.80 | 19.0 | 2.06 |
| Average | --- | 911.30 | 18.2 | 1.99 |

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APPENDIX-TEST DATA SHEET

4. Efficiency of the Halogen Lamp Control Gear

Power measurement of the load connected with dimmer

| Model No. | Sample No. | Voltage (V) | Current (mA) | Power (W) | Power Factor |
|-----------|------------|-------------|--------------|-----------|--------------|
| N/A | N/A | N/A | N/A | N/A | N/A |

Power measurement of the load connected without dimmer

| Model No. | Sample No. | Voltage (V) | Current (mA) | Power (W) | Power Factor |
|-----------|------------|-------------|--------------|-----------|--------------|
| N/A | N/A | N/A | N/A | N/A | N/A |

| Model No. | Sample No. | Efficiency |
|-----------|------------|------------|
| N/A | N/A | N/A |

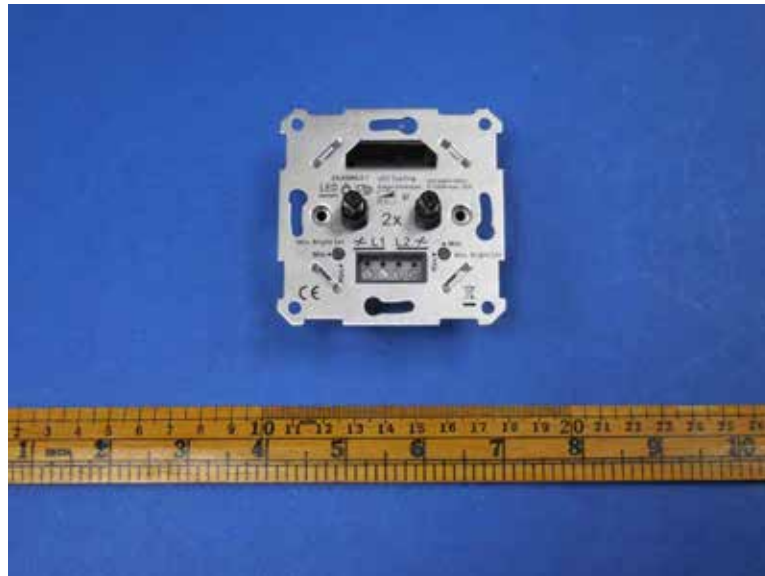
Remarks:

- Measurements were conducted at voltage 230V, frequency 50Hz and a stable ambient temperature $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$.
- The load was a 100W filament lamp.

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PHOTO OF THE APPLIANCE:



THE RESULTS ONLY RELATE TO THE ITEM TESTED

Tested by:

Approved by:

Chan Ho Chun, Reeve
Engineer

Lam Chi Keung
Manager

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