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**Endurance Test and Temperature Test  
on MINI MARTIN Series Luminaires**

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On request of:

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## 1 INTRODUCTION

On request of SIA VIZULO, Riga, Latvia, an Endurance Test and Temperature Test was conducted on a representative model of the MINI MARTIN series street luminaires. The requirements as well as the method of testing and test equipment of the Endurance Test and Temperature Test are described in EN 60598-1:2008, 8<sup>th</sup> edition, Clause 12, and as detailed on the following pages.

## 2 TESTED PRODUCT AND TEST DESCRIPTION

### Product overview



Figs. 1 and 2 – front side of MINI MARTIN luminaire  
(back side (not shown) consists of an aluminium housing).

**Preparation and Tests (Endurance Test):**

Before the endurance test was conducted, all screws that require operation during installation/servicing of the luminaire were tightened with 2/3 of the prescribed torque based by the screw size thread. This is necessary for products used for examination of ingress of water and/or dust (for IP classification higher than IP20).

The IP classification of this luminaire is IP66. For the information about the IP test, refer to examination report no. 2178990.55.

**Preparation and Tests (Temperature Test):**

All critical materials and components that require temperature measurement were provided with thermocouples.

**Endurance Test:**

The luminaire was mounted as in normal use and placed in a room at 10°C higher as marked on the luminaire (50 °C + 10 °C = 60 °C). The luminaire was connected to a supply of 1,1 x maximum rated input voltage (1,1 x 240 V = 264 V), and operated according the following cycle:

21 hrs on and 3 hrs off.

Total duration of the test: 240 hrs.

### **Temperature test:**

The product was placed a test room (draught proof enclosure) having a stable temperature between 20 to 25 °C. During measurements the room temperature shall not vary more than  $\pm 1$  °C.

The following tests were conducted:

- Measurement 1 - 1,0 times the maximum input voltage (= 240 Vac)
- Measurement 2 – 1,06 times the maximum input voltage (= 1,06 x 240V = 254,4 Vac)

NOTE: for street luminaires/flood lights for outdoor use, 10°C shall be deducted from the temperatures measured for the effects of natural air movement which occur in the working environment of the luminaire.

### **Pass criteria (Endurance Test):**

During the endurance test, a thermal sensing device shall not operate.

After the endurance test, the product was visually checked for damage and deformation and if the label was still readable/attached to the product.

### **Pass criteria (Temperature Test):**

No measured part/component shall overshoot its maximum allowed temperature by more than 5°C.

### 3 RESULTS/CONCLUSION

#### Endurance Test:

After the endurance test, there was no damage or deformation visible and the label was still readable/attached to the product.

#### Temperature Test:

The outcome of the temperature test showed that after recalculation of the measured temperatures, no part of the product and no component overshoots its maximum allowed temperature. See below table with measurements results.

Measure point	@ 1,0 x Un (= 240 V)	@ 1,06 x Un (= 254,4 V)	Max. Allowed (°C)	Pass (Yes/No)
	°C	°C		
Connector mains supply	65 (53)	65 (53)	125	Yes
SPD housing	64 (52)	64 (52)	125	Yes
Tc point LED driver	82 (70)	82 (70)	90	Yes
Terminal LED module	73 (61)	74 (62)	90	Yes
PCB near LED	83 (71)	84 (72)	130	Yes
Lens on LED	88 (76)	89 (77)	130	Yes
Internal wiring near driver	73 (61)	74 (62)	90	Yes
Supply cord	65 (53)	65 (53)	90	Yes
Enclosure	69 (57)	70 (58)	90	Indication
Ambient temperature	52	52	50	-

Values between brackets “( )” are the corrected temperatures for an ambient temperature of 40°C.



Test conducted by:



Albert van der Veen

Reviewed by:



L.N.H. Huynh

**END OF EXAMINATION REPORT**