

ORDER LLI/510

Test report

Electrical and photometric measurements of two solid-state lighting (SSL) devices.

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By order of
BuzziSpace nv, Groeningenlei 141, 2550 Kontich

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	LEDline_85cm.LDT		





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SUMMARY

This document reports on the electrical and photometric measurements of 2 solid state lighting devices Marked BuzziSpace, type: LED line 125cm and LED line 85cm.

All measurements have been performed in a near-field goniophotometer, according to the IES LM-79-19 standard 'Optical and electrical measurements of solid-state lighting products' and CIE S 025/E:2015 standard 'Test Method for LED Lamps, LED Luminaires and LED Modules'.



1 APPLICATION FOR TESTING

On 17/01/2022, BuzziSpace nv, submitted the following LED devices to the Light & Lighting Laboratory:

- Device Under Test (DUT) 1 : LED line 125cm, white
- DUT 2 : LED line 85cm, white

The applicant desired a determination of the total luminous flux, the luminous intensity distribution, the luminous efficacy and the power factor, at an AC supply voltage of 230V (50Hz), in accordance to the IES LM-79-19 and CIE S 025/E:2015 standards.

Pictures of the DUTs are presented in Annex 1 of this report.

2 EXAMINATION METHOD

The requested test measurements were performed on 24/01/2022.

The ambient temperature during measurements was checked using a calibrated (TESTO - 174H) digital thermometer.

The measured ambient temperature was:

- for DUT 1: at the start: $(24.3 \pm 0.2) ^\circ\text{C}$
at the end: $(24.6 \pm 0.2) ^\circ\text{C}$
- for DUT 2: at the start: $(24.7 \pm 0.2) ^\circ\text{C}$
at the end: $(24.9 \pm 0.2) ^\circ\text{C}$

An AC supply voltage of 230 V, at a frequency of 50 Hz was applied to the DUTs, by means of a calibrated power source (Elgar - CW801).

To set-up the measurement parameters a preburning period of 6 minutes and 5 minutes was used, for DUT 1 and DUT 2, respectively.

The stabilisation time for both the DUTs was 20 minutes. Stability was judged to be reached when the relative difference of maximum and minimum readings of light output and electrical power over the last 10 minutes, taken 1 minute apart, is less than 0.5% of the minimum reading, with a minimum stabilisation time of 20 minutes.

The total operating time of the DUTs was 56 minutes and 55 minutes, for DUT 1 and DUT 2, respectively. The DUTs were not operated prior to measurement.

The electrical quantities were measured by means of a calibrated (Yokogawa WT3000) power meter.

To determine the photometric characteristics, the DUTs were mounted in a calibrated near-field goniophotometer, type RiGO 801-41, in a bottom mount position. Afterwards the LID was rotated 180° around the Y-axis. The measurements were performed for the following angular range (cf. Figure 1) for all DUTs:

- $-110^\circ \leq \vartheta \leq -110^\circ$, with $\Delta\vartheta = 1.5^\circ$
- $1^\circ \leq \varphi \leq 180^\circ$, with $\Delta\varphi = 1.5^\circ$

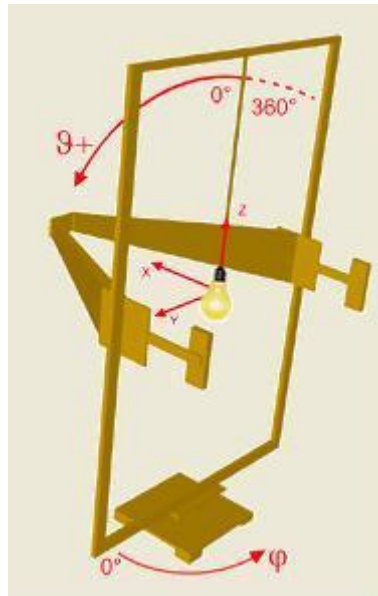


Figure 1. Cartesian co-ordinate system of the RiGO 801 near-field goniophotometer.

The luminous flux was calculated by means of an integration over the measured light intensity distribution.

3 TEST RESULTS

3.1 DUT 1

3.1.1 Electrical parameters

The measured electrical characteristics are reported in Table 1.

Parameter	Value	Unit
Applied Frequency	50.00	Hz
Applied Voltage	230.18	V
Applied Current	0.103	A
Consumed Power	21.99	W
Phi (abs. value)	22.37	°
Total Harmonic Distortion	20.00	%
Power Factor	0.925	-

Table 1. Electrical parameter values of DUT 1.

3.1.2 Photometric parameters

3.1.2.1 Luminous intensity distribution (LID)

A two dimensional representation of the measured LID is presented in Figure 2. A more detailed report of the LID is included in the supplementary .ldt file 'LEDline_125cm.LDT'.

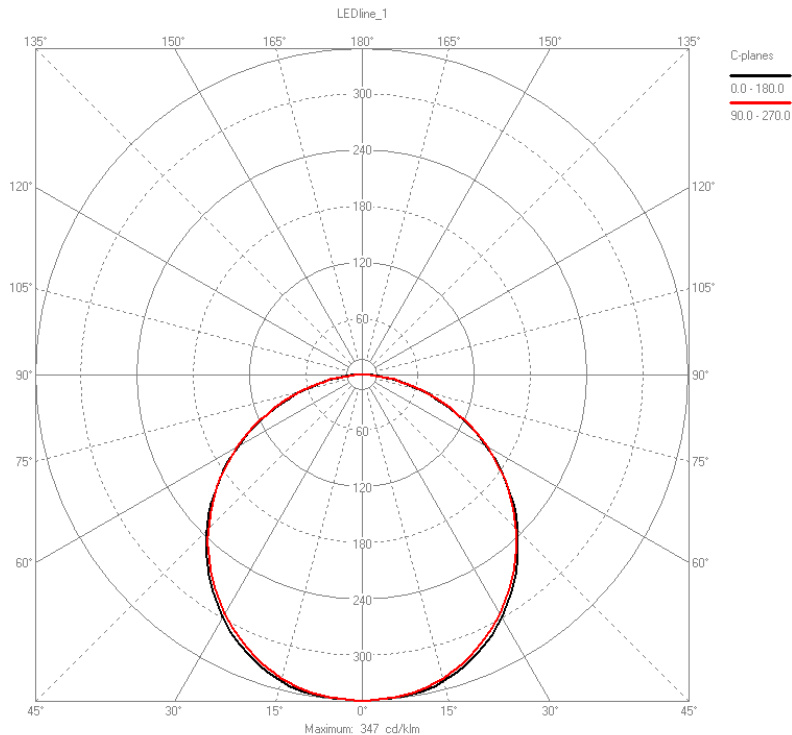


Figure 2. Two dimensional representation of the measured LID of DUT 1.

3.1.2.2 Total luminous flux and luminous efficacy

The calculated total luminous flux and luminous efficacy are reported in Table 2.

Parameter	Value	Unit
Total luminous flux	1409	lm
Luminous efficacy	64.05	lm/W

Table 2. Photometric parameter values of DUT 1.

3.2 DUT 2

3.2.1 Electrical parameters

The measured electrical characteristics are reported in Table 3.

Parameter	Value	Unit
Applied Frequency	50.00	Hz
Applied Voltage	230.15	V
Applied Current	0.133	A
Consumed Power	14.56	W
Phi (abs. value)	61.67	°
Total Harmonic Distortion	86.12	%
Power Factor	0.474	-

Table 3. Electrical parameter values of DUT 2.

3.2.2 Photometric parameters

3.2.2.1 Luminous intensity distribution (LID)

A two dimensional representation of the measured LID is presented in Figure 3. A more detailed report of the LID is included in the supplementary .ldt file 'LEDline_85cm.LDT'.

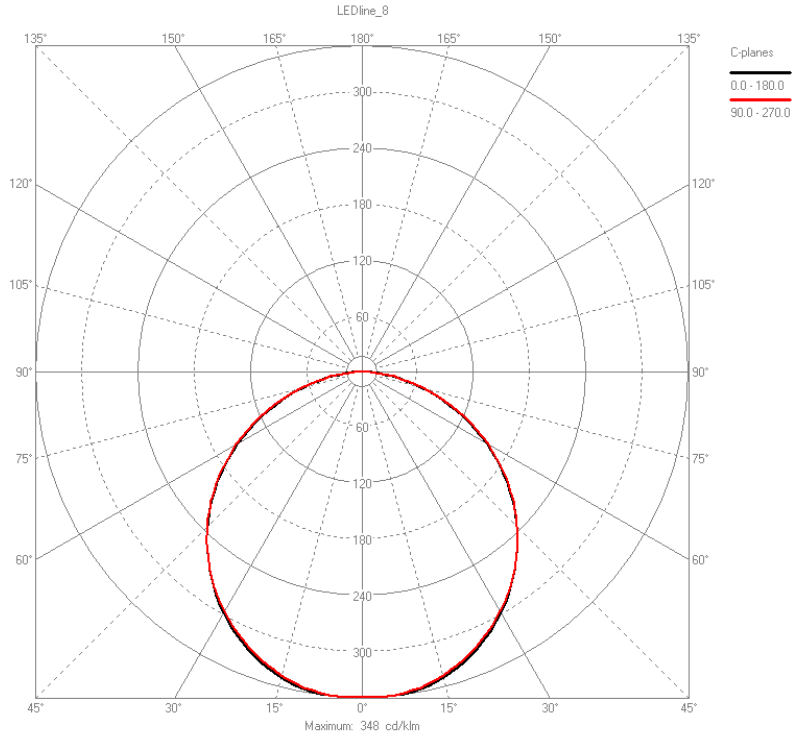


Figure 3. Two dimensional representation of the measured LID of DUT 2.

3.2.2.2 Total luminous flux and luminous efficacy

The calculated total luminous flux and luminous efficacy are reported in Table 4.

Parameter	Value	Unit
Total luminous flux	959	lm
Luminous efficacy	65.84	lm/W

Table 4. Photometric parameter values of DUT 2.

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Pictures of tested DUTs



Figure 4. Pictures of the tested DUT 1.



Figure 5. Pictures of the tested DUT 2.

END OF THE REPORT