

Test report

Number T211-0015/25

Project file: C20250029

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Pages: 12

Product: LED luminaire for road and street lighting

Type reference: DKS850

Ratings: 220-240 VAC, 50-60 Hz

Trademark: 

Applicant: Takton OÜ
Savi street 7, 80041 Parnü, Estonia

Manufacturer: Takton OÜ
Savi street 7, 80041 Parnü, Estonia

Place of manufacture: Takton OÜ
Savi street 7, 80041 Parnü, Estonia

Summary of testing

Testing method: EN 60068-2-6:2008

Testing location: SIQ Ljubljana
Mašera-Spasičeva ulica 10, SI-1000 Ljubljana, Slovenia

Remarks: Date of receipt of test items: 2025-01-06
Number of items tested: 1
Date of performance of tests: 2025-01-08 to 2025-01-09
The test results presented in this report relate only to the items tested.
The test items were tested in the condition as received.

Tested by: Mirko Čoko

Approved by: Miha Otrin

The report shall not be reproduced except in full.

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1 TEST SPECIMEN DESCRIPTION

Tested specimen: LED luminaire for road and street lighting DKS850.

Test specimen photo identification:



Figure 1



Figure 2



Figure 3: Marking label

2 TEST SEQUENCE

Table 1:

Test sequence	Test description	Specimen identification
1	EN 60068-2-6:2008 Test Fc: Vibration sinusoidal and ANSI C 136-31:2010 (non-accredited)	S2024088247

3 ACCEPTANCE CRITERIA

The following acceptance criteria were observed for specific measurements:

- visual inspection: There should be no cracks or deformations.
- functional tests: The EUT must be fully functional during and after the test.

4 MEASUREMENT UNCERTAINTY AND DECISION RULE

The uncertainties of measuring system are calculated by the laboratory based on IEC Guide 115 Application of measurement uncertainty to conformity assessment activities in the electrotechnical sector. The uncertainties represent an expanded uncertainty expressed at 95% confidence level using a coverage factor $k=2$. Results of estimations of relative expanded uncertainty budgets are provided in section 4 Measurement uncertainty error budgets (informative) of TN023 Decision rule and measurement uncertainty procedure.

The decision rule applied to »Pass/Fail« is based on "simple acceptance" (see ISO/IEC Guide 98-4:2012, 8.3.1.2). The result »Pass« indicates that the values were measured within the defined acceptable limits, without applying measurement uncertainty, based on.

5 TEST PROCEDURE

5.1 EN 60068-2-6:2008, Test Fc: Vibration sinusoidal

Vibration parameters according to ANSI C 136-31:2010 (non-accredited) using the levels for bridge mounting.

The test procedures were conducted in following sequence:

- Resonant point detection test, see Section 5.1.1.
- Vibration endurance test, see Section 5.1.2.
- Final resonant point detection test, see Section 5.1.3.

5.1.1 Resonant point detection test

The resonance point detecting test was measured in gravity centre of the luminaire. The resonance is detected if gain of the acceleration is larger than 2.

$$\text{Gain} = \frac{A_{res}}{A_{ref}} \frac{[g]}{[g]}$$

where:

A_{res} = response acceleration amplitude

A_{ref} = reference acceleration amplitude

Procedure:

- Non-operating mode.
- $T_{room} = +23\text{ }^{\circ}\text{C}$.
- Frequency range: $5 \div 30\text{ Hz}$.
- Acceleration $0,5\text{ g}$.
- Sweep rate: 1 oct/min .
- Orientation: X, Y, Z direction.

The sweep sine vibration profile is presented in Figure 4.

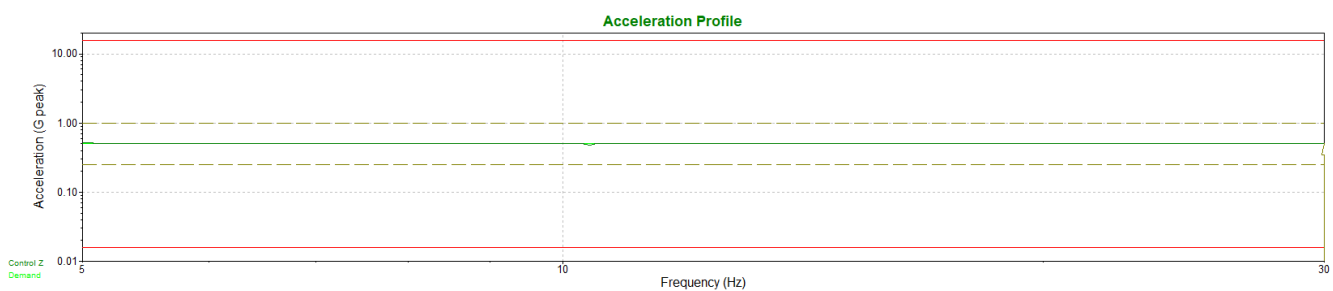


Figure 4

Results of the resonance point detection test before the endurance test:

X-direction

There was resonant frequency detected at 30 Hz, gain 6 (Figure 5),

x axis: frequency [Hz]; y axis: gain = $\frac{A_{res}}{A_{ref}}$

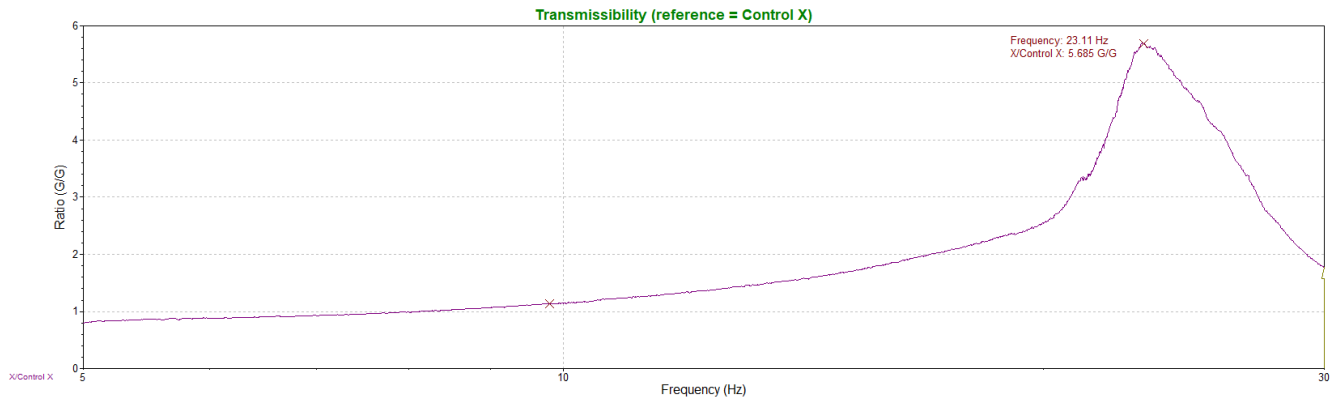


Figure 5

The location of the resonance point detection sensor is presented in Figure 6.



Figure 6

Y-direction

There was resonant frequency detected at 27,67 Hz, gain 1,75 (Figure 7),

x axis: frequency [Hz]; y axis: gain = $\frac{A_{res}}{A_{ref}}$

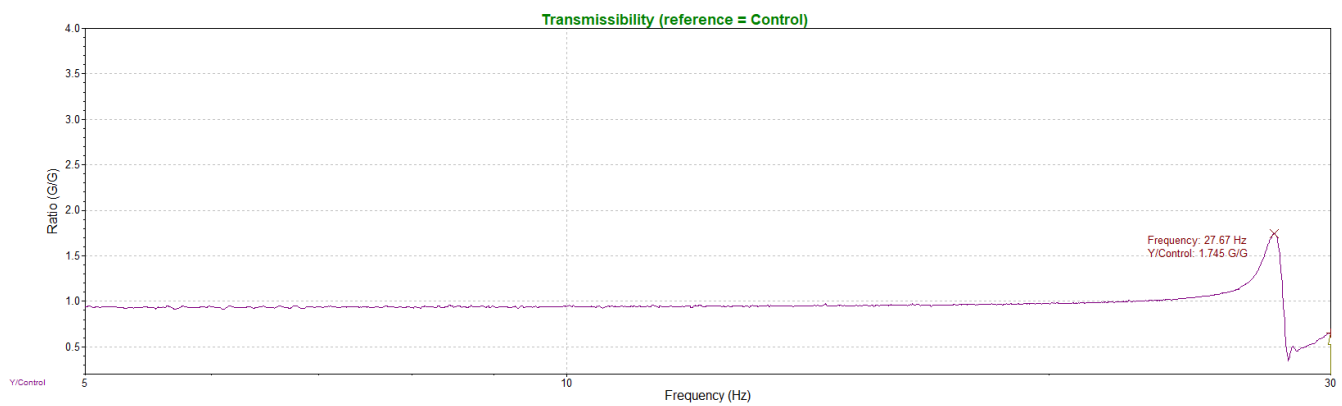


Figure 7

The location of the resonance point detection sensor is presented in Figure 8.



Figure 8

Z-direction

There was resonant frequency detected at 27,85 Hz, gain 4,7 (Figure 9),

x axis: frequency [Hz]; y axis: gain = $\frac{A_{res}}{A_{ref}}$

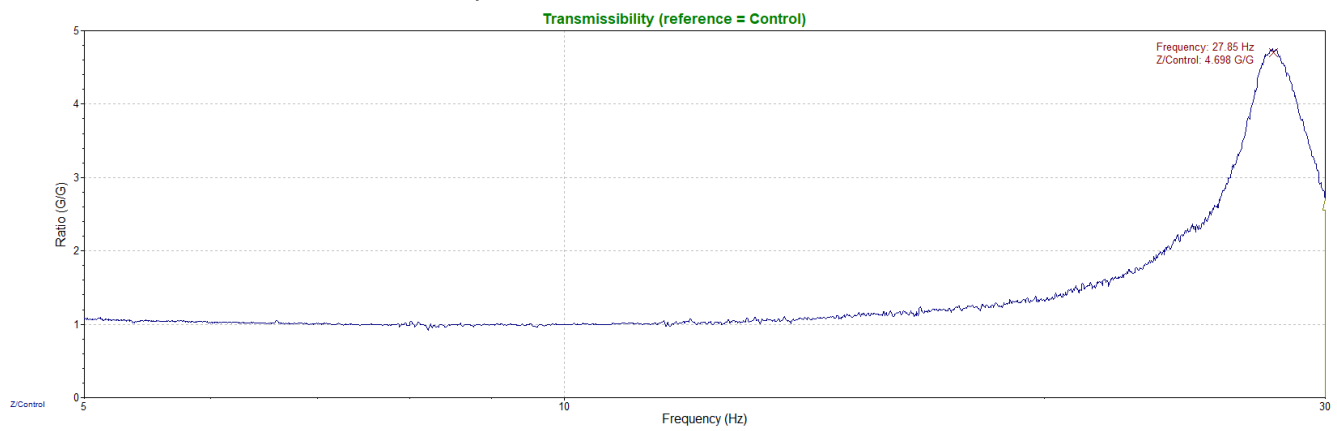


Figure 9

The location of the resonance point detection sensor is presented in Figure 10.



Figure 10

5.1.2 Vibration endurance test

The sample was exposed to vibration test at resonant frequency for each axis and acceleration of 3 g at the centre of gravity of the luminaire. The fixation of the EUT on the electro-dynamic shaker for X, Y and Z axis is presented in Figures 11 to 13.

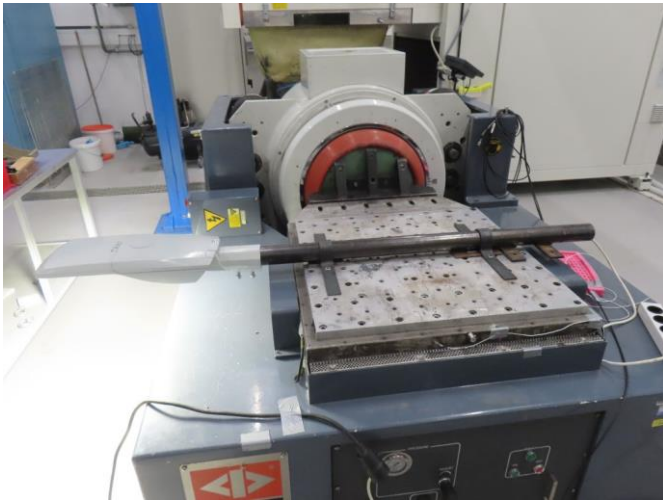


Figure 11: X axis



Figure 12: Y axis



Figure 13: Z axis

Procedure X axis:

- Operating mode, $T_{\text{room}} = +23\text{ }^{\circ}\text{C}$.
- Frequency: 30 Hz.
- Acceleration 0,5 g (Corresponds 3 g at the centre of gravity).
- Duration: 58 minutes (100000 cycles).

Procedure Y axis:

- Operating mode, $T_{\text{room}} = +23\text{ }^{\circ}\text{C}$.
- Frequency: 27,67 Hz.
- Acceleration 1,75 g (Corresponds 3 g at the centre of gravity).
- Duration: 1 hour (100000 cycles).

Procedure Z axis:

- Operating mode, $T_{\text{room}} = +23\text{ }^{\circ}\text{C}$.
- Frequency: 27,85 Hz.
- Acceleration 0,64 g (Corresponds 3 g at the centre of gravity).
- Duration: 1 hour (100000 cycles).

During and after the test the luminaire was operating without disturbance. There were no cracks visible.

5.1.3 Final resonant point detection test

X-direction

There was resonant frequency detected at 30 Hz, gain 4,88 (Figure 14),

x axis: frequency [Hz]; y axis: gain = $\frac{A_{res}}{A_{ref}}$

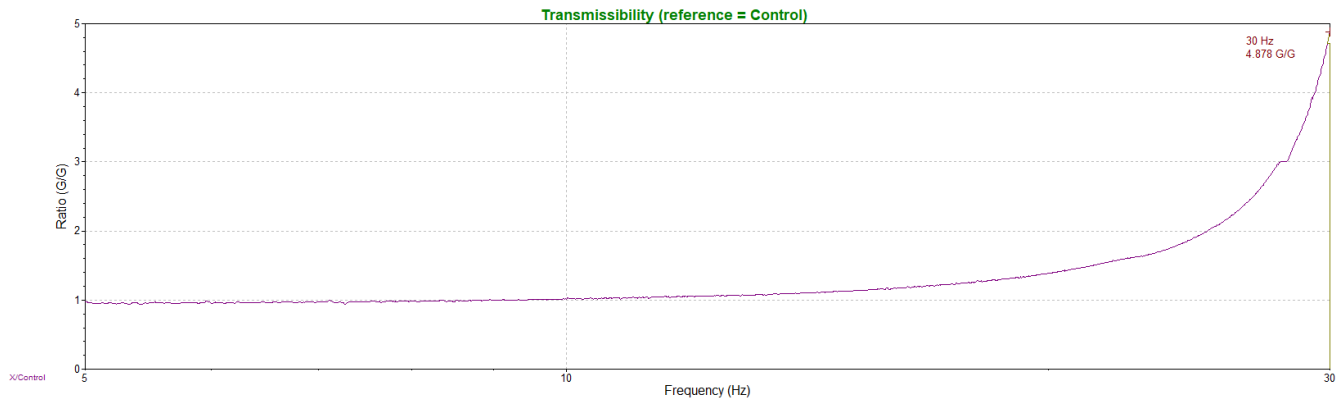


Figure 14

Y-direction

There was resonant frequency detected at 27,35 Hz, gain 1,56 (Figure 15),

x axis: frequency [Hz]; y axis: gain = $\frac{A_{res}}{A_{ref}}$

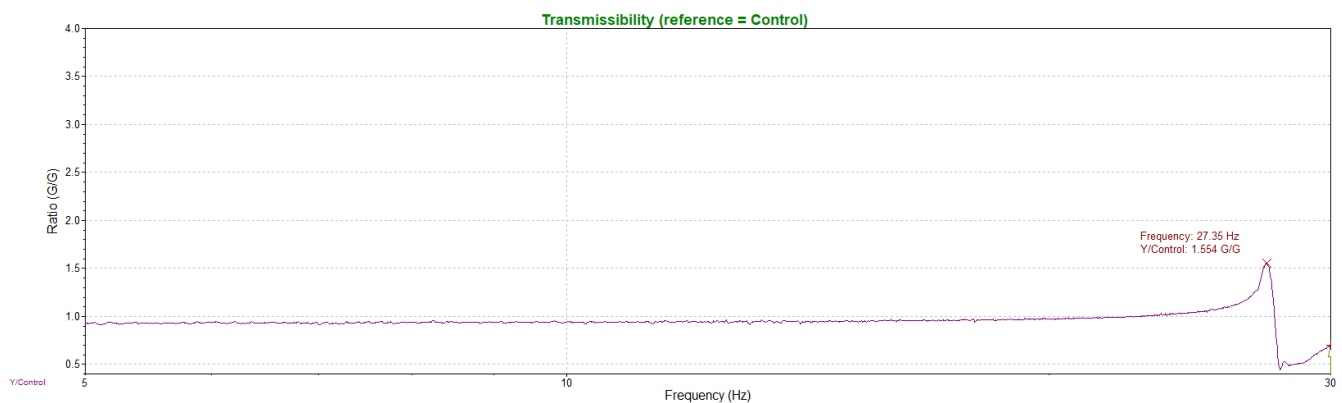


Figure 15

Z-direction

There was resonant frequency detected at 28,33 Hz, gain 5,4 (Figure 16),

x axis: frequency [Hz]; y axis: gain = $\frac{A_{res}}{A_{ref}}$

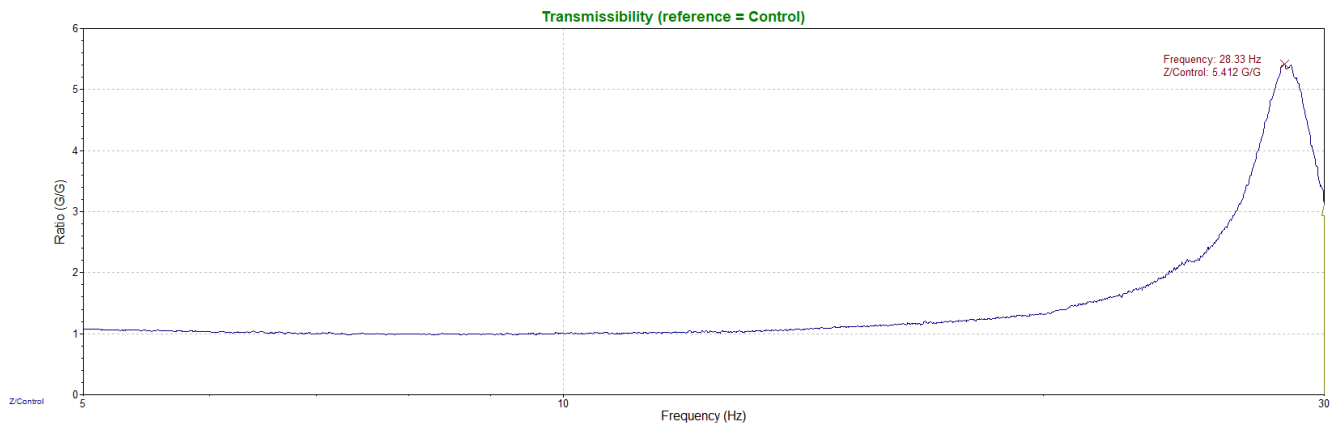


Figure 16

Conclusion: There was no significant change of resonant peak between first and final resonant point detection test. There were no cracks visible.

Test equipment:

Vibration system Derritron VP700, SIQ ID 395, 2026-01-30, 12 month.
 Vibration system Dongling ES-60LS4-445, SIQ ID 753 (2025-10-23), 12 month.
 Accelerometer: SIQ ID 0946, Dytran, type 3214A, 2025-12-04, 12 month.
 Accelerometer: SIQ ID 0949, Dytran, type 3214A, 2025-09-03, 12 month.

Summary of test

The test specimen after performance of test complies with the acceptance criteria. EUT passed the test according to standard ANSI C 136-31:2010 (non-accredited) using the levels for bridge mounting.