



TEST REPORT
EN 62262
Degree of protection provided
by enclosures for electrical equipment
against external mechanical impacts (IK code)

Report Number.: Z7-3/234/B/II/21

Date of issue: 17.03.2022

Total number of pages..... 16

Name of Testing Laboratory Łukasiewicz - IMiF PREDOM Division
preparing the Report.....: 02-255 Warszawa, ul. Krakowiaków 53, Poland

Applicant's name.....: LUG Light Factory Sp. z.o.o.
Address: 65-127 Zielona Góra, ul. Gorzowska 11, Poland

Test specification:

Standard.....: EN 62262:2002 (in conjunction with IEC/TR 62696:2011)

Test procedure: ENEC CCA NTR Other: _____

Non-standard test method.....: N/A

Test Report Form No.....: EN_EN62262A

Test Report Form(s) Originator: Łukasiewicz - IMiF PREDOM Division

Master TRF.....: Dated 2021-11-22

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Test item description	Luminaires for road and street lighting	
Trade Mark	LUG	
Manufacturer	LUG Light Factory Sp. z.o.o. ul. Gorzowska 11, 65-127 Zielona Góra, Poland	
Model/Type reference	URBINO LED cl. II – series – see also “General product information”	
Ratings	220-240 V 50/60 Hz, IP66, IK09, cl. II (see details – pages 3-7)	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	ECS Testing Laboratory:	Łukasiewicz - IMiF PREDOM Division
Testing location/ address :		02-255 Warszawa, ul. Krakowiaków 53, Poland
Tested by (name, function, signature) :		M. Kujawski 
Approved by (name, function, signature) :		T. Małyska 
Supervised by (name, function, signature) :		F. Walczak 
<input type="checkbox"/>	Testing procedure: TMP/CTF Stage 1:	
Testing location/ address :		
Tested by (name, function, signature) :		
Approved by (name, function, signature) :		
<input type="checkbox"/>	Testing procedure: WMT/CTF Stage 2:	
Testing location/ address :		
Tested by (name + signature) :		
Witnessed by (name, function, signature) :		
Approved by (name, function, signature) :		

List of Attachments (including a total number of pages in each attachment): N/A

Summary of testing: Positive

According to ISO / IEC Guide 98-4 for the assessment of compliance of the measurement result with the requirements, criterion B was chosen. 50% risk of incorrect assessment decision belongs to the customer and 50% risk of incorrect assessment belongs to the laboratory.

Tests performed (name of test and test clause):

EN 62262:2002 (in conjunction with IEC/TR 62696:2011) - all clauses.

Testing location:

Łukasiewicz- IMiF PREDOM Division
02-255 Warszawa, ul. Krakowiaków 53, Poland

Summary of compliance with National Differences (List of countries addressed): N/A

The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis, leave it blank or delete the whole sentence, if not applicable)

Copy of marking plate:



Test item particulars	Luminaire for road and street lighting
Classification of installation and use	Normal
Supply Connection	Connector
.....	:
Possible test case verdicts:	
- test case does not apply to the test object	: N/A
- test object does meet the requirement	: P (Pass)
- test object does not meet the requirement	: F (Fail)
Testing	:
Date of receipt of test item	: 01.03.2021
Date (s) of performance of tests	: 15.03.2022-17.03.2022
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report.	
"(See appended table)" refers to a table appended to the report.	
Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.	
Name and address of factory (ies)	LUG Light Factory Sp. z.o.o. ul. Gorzowska 11; 65-127 Zielona Góra, Poland

General product information and other remarks:

Name and address of the license holder:	LUG Light Factory Sp. z o.o. . ul. Gorzowska 11 65-127 Zielona Góra Poland
Name and address of manufacturer:	LUG Light Factory Sp. z o.o. . ul. Gorzowska 11 65-127 Zielona Góra Poland
Name and address of manufacturing place:	LUG Light Factory Sp. z o.o. . ul. Gorzowska 11 65-127 Zielona Góra Poland
Name of product:	URBINO
Trade mark :	LUG
Technical data:	
Rated voltage	220-240 V
Rated frequency:	50/60 Hz
Max Power	102 W
Protection against electric shock:	Class II
Degree of protection:	IP66; IK09
ta	50°C

Choice sheet of the luminaires URBINO LED CL I & CL II - series:

Example of symbol:

130222.3LR7B40S3600.138.N.P

Designations used on the marking of luminaires (some designation may not appear in the name) :

- | | |
|-----------------|---|
| 1. 13022 | - Code of the series (URBINO) – XPG3& LUXEON LED |
| 2. 2 | - Color:
2: grey
5: graphite
0: another |
| 3. 3L | - Type of power supply:
2L - DIMM 1-10V
3L – DALI
5L – on-off
6L – on-off / DALI
7L – Zhaga D4i
PL – programmable |
| 4. R7 | - CRI:
R7 = 70-79
R8 = 80-89 |

5. B40	<ul style="list-style-type: none"> - Color temperature: <li style="padding-left: 20px;">B22 = 2200 <li style="padding-left: 20px;">B27 = 2700 <li style="padding-left: 20px;">B30 = 3000 <li style="padding-left: 20px;">B40 = 4000
6. S3600	<ul style="list-style-type: none"> - Max. luminous flux (e.g. S3600 = 36000lm)
7. 1	<ul style="list-style-type: none"> - 1 - Safety Class I <li style="padding-left: 20px;">2 – Safety Class II
8. 38	<ul style="list-style-type: none"> - Optic: <li style="padding-left: 20px;">01 O2 - for expressways <li style="padding-left: 20px;">02 O3 - for municipal roads <li style="padding-left: 20px;">03 O4 - for city roads <li style="padding-left: 20px;">04 O5 - for residential roads <li style="padding-left: 20px;">05 O6P - for pedestrian crossings, right-hand traffic <li style="padding-left: 20px;">09 O6L - for pedestrian crossings, left-hand traffic <li style="padding-left: 20px;">06 O7 - for area lighting <li style="padding-left: 20px;">08 O8 - for city and commune roads <li style="padding-left: 20px;">10 O26 - for wet surfaces <li style="padding-left: 20px;">12 O33 - for expressways <li style="padding-left: 20px;">13 O34 - to municipal roads <li style="padding-left: 20px;">14 O35 - for city roads <li style="padding-left: 20px;">15 O36 - for residential roads <li style="padding-left: 20px;">16 O37P - for pedestrian crossings, right-hand traffic <li style="padding-left: 20px;">17 O37L - for pedestrian crossings, left-hand traffic <li style="padding-left: 20px;">18 O38 - for area lighting <li style="padding-left: 20px;">19 O39 - for city and commune roads <li style="padding-left: 20px;">20 O40 - for wet surfaces <li style="padding-left: 20px;">30 O13 - for expressways <li style="padding-left: 20px;">31 O14 - to municipal roads <li style="padding-left: 20px;">32 O15 - for city roads <li style="padding-left: 20px;">33 O16 - to residential roads <li style="padding-left: 20px;">35 O59 - for municipal roads <li style="padding-left: 20px;">36 O60 - for city roads <li style="padding-left: 20px;">37 O61 - for residential roads <li style="padding-left: 20px;">38 O62 - for expressways <li style="padding-left: 20px;">39 O63 - for local roads <li style="padding-left: 20px;">40 O64 - for city roads <li style="padding-left: 20px;">41 O65 - for residential roads <li style="padding-left: 20px;">42 O66 - for pedestrian crossings, left-hand traffic <li style="padding-left: 20px;">43 O67 - for pedestrian crossings, right-hand traffic <li style="padding-left: 20px;">44 O68 - for area lighting <li style="padding-left: 20px;">45 O69 - for city and commune roads <li style="padding-left: 20px;">46 O70 - for wet surfaces <li style="padding-left: 20px;">47 O71 - for road lighting <li style="padding-left: 20px;">48 O72 - for road lighting <li style="padding-left: 20px;">49 O73 - for road lighting <li style="padding-left: 20px;">50 O74 - for road lighting <li style="padding-left: 20px;">51 O75 - for road lighting <li style="padding-left: 20px;">52 O76 - for road lighting <li style="padding-left: 20px;">53 O77 - for road lighting <li style="padding-left: 20px;">54 O78 - for road lighting

<p>9. N.P</p>	<p>55 O79 - for road lighting 56 O80 - for road lighting 57 O81 - for road lighting 58 O82 - for road lighting 59 O83 - for road lighting 60 O84 - for road lighting 61 O85 - for road lighting 62 O86 - for road lighting 63 O87 - for road lighting 64 O89- for road lighting 65 O90 - for road lighting 66 O91 - for road lighting 67 O92 - for road lighting 68 O93 - for road lighting 69 O94 - for road lighting 70 O95 - for road lighting 71 O96 - for road lighting 72 O97 - for road lighting 73 O98 - for road lighting 74 O99 - for road lighting XX OXX – for investment optics</p> <p>- Additional equipment A - additional corrosion protection B - Tool-free access to the LED Driver U - \varnothing76mm pole N - NEMA Socket Z - ZHAGA Socket T - NTC Sensor W - Twilight Sensor V - Surge Device Protector 10kV P- Anti pressure vent I- iBloc ("URBAN" smart city system) K- Knife switch connector</p>
<p>After review of technical documentation, model series, characteristic of particular models, technical parameters, and components, etc., the luminaire 130222.5L102.021.003 has been tested as the representative of all models of luminaires.</p>	

EN 62262			
Clause	Requirement + Test	Result - Remark	Verdict
4.	DESTIGNATION		P
4.1	Arrangement of the IK code		P
	Codes letters (international mechanical protection) ——— IK ——— 05 Characteristic group numeral (0 to 10) ———	IK09	P
4.2	Characteristic group numerals of the IK code and their meanings	Each characteristic group numeral, represents an impact energy value as shown in Table1. See table 1 of EN 62262, IK09 Impact energy: 10 J	P
4.3	Application of the IK code		N/A
	In general the degree of protection applies to the complete enclosure. If parts of the enclosure have differing degrees of protection, the latter shall be separately indicated		N/A
4.4	Marking		P
	In case where the relevant product committee decides that marking of the IK-code shall be required, the marking requirements shall be detailed in the relevant product standard		P
	Where appropriate, such a standard should also specify the method of marking which is to be used when:		
	— one part of an enclosure has different degree of protection to that of another part of the same enclosure;		N/A
	— the mounting position has an influence on the degree of protection		N/A
5.	GENERAL REQUIREMENTS FOR TESTS		P
5.1	Atmospheric conditions for tests		P
	Unless otherwise specified in the relevant product standard, the test shall be carried out under the standard atmospheric conditions for tests described in IEC60068-1 as:		
	Temperature range 15°C to 35°C	24°C	P
	Air pressure 86 kPa to 106 kPa (860mbar to 1060 mbar)	98 kPa	P
	When the altitude at which the test is performed is higher than 2000 m the height of fall shall be adjusted where necessary to result in the specified impact energy.		N/A
5.2	Enclosures under test		P
	each enclosure under test shall be in a clean and new condition, complete with all their parts in place unless otherwise specified in the relevant product standard		P
5.3	Specifications to be given in the relevant product standard		P
	The relevant product standard shall specify:		

EN 62262			
Clause	Requirement + Test	Result - Remark	Verdict
	— the definition of “enclosure” as it applies to the particular type of equipment;		P
	— the test equipment (e.g. pendulum hammer, spring hammer or vertical hammer, see Clause7);		P
	— the number of samples to be tested;		P
	— the conditions for mounting, assembling and positioning the samples, e.g. by the use of an artificial surface(ceiling, floor or wall), in order to stimulate intended service conditions as far as possible;		P
	— the pre-conditioning, if any, which is to be used;		P
	— whether to be tested energized; No energized		P
	— whether to be tested with any moving parts in motion; No moving parts	No moving parts	P
	— the number of impacts and their points of application (see 6.3).		P
	In the absence of such specifications in the relevant product standard, conditions of this standard shall apply.		P
XXX	IEC TR 62696 Requirements		P
XXX 3	Conditions of testing (IEC TR 62696)		P
XXX 3.1	In general, testing is conducted in accordance with IEG 62262, having regard to the general test conditions specified by IEG 60598-1, Subclause 4.13, and the following conditions which are specific for the 1K testing and rating of luminaires, (IEC TR 62696)		P
XXX3.2	Impacts should not be applied through openings in the luminaire enclosure with an area less than 64 cm ² . NOTE For example, no impact should be applied through the individual openings in optical controls (louvers) if their size is less than 64 cm ² . (IEC TR 62696)		P
XXX3.3	Luminaires should be tested fully assembled and installed for use. (IEC TR 62696)		P
	Luminaires for ceiling or wall mounting should be mounted on a rigid wooden board. (IEC TR 62696)		N/A
	Suspended luminaires should be tested as in normal use, with the minimum suspension length detailed by the manufacturer’s instructions. (IEC TR 62696)		N/A

EN 62262			
Clause	Requirement + Test	Result - Remark	Verdict
	Luminaires to be installed on a pole, with or without a mast arm, should be installed on a rigid portion of the pole. (IEC TR 62696)		P
	Floor mounted luminaires should be tested in a suitable rigid structure to simulate normal use. (IEC TR 62696)		N/A
XXX3.4	Luminaires should not be energised during test and no preconditioning of the luminaire sample is required. (IEC TR 62696)		P
XXX3.5	Testing should be conducted on a single luminaire sample unless the results of impact testing of other areas of the luminaire could influence assessment of the result. Three impact blows should be applied to the point(s) of the luminaire considered to be the weakest. (IEC TR 62696)		P
XXX3.6	Impact testing should be conducted using striking elements with head radius and material type as specified by IEC 60068-2-75. Spring hammer apparatus should be used for ratings up to and including 1K06. For ratings IK07 and above, the use of pendulum or vertical hammer apparatus is acceptable, as most appropriate for the luminaire design and its intended installation (IEC TR 62696)		P
XXX3.7	Impact testing should be conducted with the luminaire in its intended mounting orientation whenever this is possible, and when this could affect the outcome of the test (e.g. for assessment of mounting surface fixing security). (IEC TR 62696)		P
	When impact testing of a ceiling-mounted luminaire is required from below the luminaire, and this is impractical, the luminaire may be rotated 90° (to a wall mounted position) for the purposes of this testing. (IEC TR 62696)		N/A
XXX3.8	In cases where it may be impossible to carry out the impact test due to the luminaire construction, it is acceptable to use a specially-prepared luminaire to perform the test- For this situation, the modification should not impair the mechanical strength characteristics of the luminaire. (IEC TR 62696)		N/A
6	TEST TO VERIFY THE PROTECTION AGAINST MECHANICAL IMPACTS		P
6.1	The tests specified in this standard are type tests		P

EN 62262			
Clause	Requirement + Test	Result - Remark	Verdict
	6.2 In order to verify the protection against mechanical impacts blows shall be applied to the enclosure to be tested. The device to be used for this test are described in Clause7		P
6.3	During the test the enclosure shall be mounted, according to the manufacturer instructions for use, on a rigid support. A support is considered to be sufficiently rigid if its displacement is less than or equal to 0,1mm under the effect of an impact directly applied and whose energy corresponds to the degree of protection. Alternative mounting and support, suitable for the product, may be specified in the relevant product standard	Displacement is less than or equal to 0,1 mm	P
6.4	The number of impacts shall be five on each exposed face unless otherwise specified in the relevant product standard. The impacts shall be evenly distributed on the faces of the enclosure (s) under test. In no case shall more than three impacts be applied in the surroundings of the same 5 points	3 times per point	P
6.5	Test evaluation		P
	The relevant product standard shall specify the criteria upon which the acceptance or rejection of the enclosure is to be based on particularly:		P
	—admissible damages;		P
	—verification criteria relative to the continuity of the safety and reliability of the equipment		P
XXX4	Conditions of acceptance (IEC TR 62696)		P
XXX4.1	Safety of the luminaire is to be maintained as per the criteria given in IEG 60598-1, Subclause 4.13. Furthermore, the fixings of the luminaire to the mounting surface should remain secure. Non safety critical damage to the luminaire enclosure and optics is accepted, but no parts of the luminaire should become detached. Acceptance is checked by visual inspection, and test/measurement where required. (IEC TR 62696)		P
XXX4.2	Protection of the light source should be provided and basic functioning of the luminaire should be maintained. Acceptance is checked by visual inspection and by operation of the luminaire following the test. (IEC TR 62696)		P
7.	TEST APPARATUS		P
	The test shall be done by using one of the test apparatus as described in EN 60068-2-75		P

EN 62262			
Clause	Requirement + Test	Result - Remark	Verdict
	The striking surface shall be visually examined before each impact in order to ensure that there is no damage that might affect the result of the test		P
7.1	Test Ehc: Vertical hammer		P
7.2	The hammer consists basically of a striking element which falls freely from rest through a vertical height, selected from table2, on to the specimen surface held in a horizontal plane. The characteristics of the striking element shall comply with table 1. The fall of the striking element shall be along a guide way, for example a tube, with negligible braking. This guide way shall not rest on the specimen and the striking element shall be free of the guide way on striking the specimen. In order to reduce the friction, the length l of the striking element shall not be smaller than its diameter D, and a small gap (for example 1 mm) shall be provided between the striking element and the guide way.		P
7.3	Height of fall		P
	The height of fall shall be as given in table2, the equivalent mass stated therein being equal to the actual mass of the striking element		P

Note (XXX – requirements of IEC/TR 62696:2011)

TABLE: Critical components information					N/A
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
Supplementary information: N/A					

List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Manufacturer Testing Laboratory according to TMP/CTF stage 1 or TMP/CTF stage 2 procedure has been used.

Note: This page may be removed when CTF stage 1 CTF stage 2 are not used.

Clause	Measurement / testing	Testing / measuring equipment / material used, (Equipment ID)	Range used	Last Calibration date	Calibration due date

Photos of the EUT





