TEST REPORT PPP 11120C:2021 Rev. 01 TÜV SÜD Test Report for ErP verification of Ecodesign requirement for Exemption product Implementation measure (EU) 2019/2020 and (EU) 2019/2015			
Report No.: Date of issue: Project handler:	68.184.23.0820.01 2024-02-05 Vincent Ling		
Testing laboratory: Address: Testing location:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China as above		
Client: Client number: Address: Contact person:	NANOGRID LIMITED 108120 Room 1301, 13/F, Excel Centre, 483A Castle Peak Road, Lai Chi Kok, Kowloon, HONG KONG --		
Standard:	This TÜV SÜD test report form is based on the following requirements: (EU) 2019/2020 with Corrigendum, amended by (EU) 2021/341; (EU) 2019/2015 amended by (EU) 2021/340		
TRF number and revision:	PPP 11120C:2021 Rev.01:2021-06		
TRF originated by:	TÜV SÜD Product Service, Mr. Richard Xu		
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Scheme:	☐ TÜV Mark ☒ without certification ☒ EU-Directive		
Non-standard test method: National deviations:	☒ No ☐ Yes, see details under *Summary of testing* None		
Number of pages *(Report)*: Number of pages *(Attachments)*:	23 (including attachments) 3		
Compiled by: (+ signature)	Vincent Ling	Approved by: (+ signature)	Sky Feng

Test sample: Type of test object: Trademark: Model and/ or type reference:	Smart Multicolor Outdoor String Lights Pre-production Sample nanoleaf® Smarter by Design or nanoleaf® NL73K1E20; NL73K1K20; NL73K1K40; NL73K1K60
Rating(s):	220-240VAC, 50/60Hz, 27W
Manufacturer: Manufacturer number: Address:	Same as client Same as client Same as client
Name and address of factory(ies) Name: Dongguan ZOYO Electronics Technology Co., Ltd. Address: No.11, Nange West Road, Nanya Village, Daojiao Town, 523187 Dongguan City, Guangdong Province, PEOPLE'S REPUBLIC OF CHINA	
Sub-contractors / tests (clause): Name:	N/A N/A
Order description:	☒ Complete test according to TRF
	☐ Partial test according to manufacturer's specifications
	☐ Preliminary test
	☐ Spot check
	☐ Others:
Date of order: Date of receipt of test item: Date(s) of performance of test:	2023-12-13 2023-12-13 2023-12-13 to 2024-02-05

Test item particulars:

Light source type:

- LED (Light Emitting Diode) ☒
- OLED (Organic Light Emitting Diode) ☐
- Incandescent Lamp ☐
- CFL (Compact Fluorescent Lamp) ☐
- CFLni (Compact Fluorescent Lamp without integrated ballast) ☐
- HL (Halogen Lamp) ☐
- FL (Fluorescent Lamp, including circular, U-shape, etc.) ☐
- LFL (Linear Fluorescent Lamp) ☐

- Magnetic induction light source	☐
- HID (High-intensity Discharge lamp, including metal halide, high-pressure sodium and mercury vapour type)	☐
Control gear:	
- Integrated	☐
- External	☒
Use of lamp:	
- Indoor	☒
- Outdoor	☒
- Industry	☐
Envelope transparency:	
- Clear lamp	☒
- Non-clear lamp	☐
Dimmable lamp:	☐
Programmable lamp:	☐
Lamp / Module type :	☒ non - directional ☐ directional
Lamps with anti-glare shield:	☐
Lamp cap installed:	--
Containing product:	
- Containing product with non-separable light source(s) or/and control gear(s)	☐
- Containing product with separable light source(s) or/and control gear(s)	☒

Purpose of the product (description of intended use):

Smart Multicolor Outdoor String Lights for indoor/outdoor use.

Characteristic data (not shown on the marking plate):

Declared technical data:	--
- Chromaticity coordinates (x,y):	--
- Φ_{use} (lm):	--
- Ambient temperatures (°C):	--
- Spectral distribution :	--

- Dimensions:	--
- Weight:	--

Attachments:

1. Test equipment list
2. photo document

If additional information is necessary, please provide

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Copy of marking plate:

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Pictures of the product:

See attachment 2 for details

Summary of testing:	
The evaluated product meets a product definition in point 3 of Annex III in regulation (EU) 2019/2020 and complies with the product information requirement required in the point 3(e) of Annex II in regulation (EU) 2019/2020. Remark: ☐ deviation(s) found ☒ no deviations found	
Additional information on non-standard test method(s)	
Sub clause:	N/A
Page:	N/A
Rational:	N/A
Possible test case verdicts:	
test case does not apply to the test object:	N/A (not applicable / not included in the order)
test object does meet the requirement:	P (Pass)
test object does not meet the requirement:	F (Fail)

General remarks:

"(see remark #)" refers to a remark appended to the report.
"(see appended table)" refers to a table appended to the report.
*Throughout this report **a comma/ point** is used as the decimal separator.*
The test results presented in this report relate only to the object tested.
This report shall not be reproduced except in full without the written approval of the testing laboratory.

Model list:

Model no.	Rated Power (W)	Strip light length (m)	LED bulb quantity (pcs)
NL73K1E20	27	1*15	20
NL73K1K20			
NL73K1K40	27	2*15	2*20
NL73K1K60	27	3*15	3*20

NL73K1E20 and NL73K1K20 are same, except model no. is different.
Three models have same rated power due to the output limit of controller.
According to client's requirement, 1pc model **NL73K1E20** was chosen as representative model to perform all tests.

The used LED specification as below:

Model no.	**Manufacturer**	**CCT (K)**	**VF(V)**	**IF(mA)**
ET2835GTL9M WR-0	E-Bright	2700	8.4-9.0	100
Model no.	**Manufacturer**	**Wave length(nm)**	**VF(V)**	**IF(mA)**
MS-TF2835V3WR100-L-2B-9V	Master Optronics	620-630 (R)	8.5-9.5	100
MS-TF2835V3WG100-L-2B-9V		520-525 (G)	8.5-9.5	
MS-TF2835V5B100-L-9V		453-460 (B)	8.6-9.6	

Clause	Requirement + Test	Result - Remark	Verdict
0	Measurement methods		P
	Recognised state of art measurement methods incl. the one published in the Official Journal taking into account the measurement methods of (EU) 2019/2020 and (EU) 2019/2015		P
1	**Regulation (EU) 2019/2020 – Exempted products**		N/A
1.1	Product does not meet a definition of point (1) or (2) of Article 2 of (EU) 2019/2020		N/A
1.1.1	Is a product with one of following optical characteristics (not fulfill the definition of light source) (point (1) of Article 2 of (EU) 2019/2020)		N/A
(a)	chromaticity coordinates x and y are **not** in the range: 0,270 < x < 0,530 and -2,3172 x^2 + 2,3653 x - 0,2199 < y < - 2,3172 x^2 + 2,3653 x - 0,1595		N/A
(b)	a luminous flux ≥ 500 lumen per mm^2 of projected light-emitting surface area as defined in Annex I		N/A
(c)	a luminous flux < 60 or > 82 000 lumen		N/A
(d)	a colour rendering index (CRI) = 0		N/A
1.1.2	Product does have one of following characteristics (not fulfill the definition of light source)(point (1) of Article 2 of (EU) 2019/2020)		N/A
(a)	LED dies or LED chips		N/A
(b)	LED packages		N/A
(c)	products containing light source(s) from which these light source(s) can be removed for verification		N/A
(d)	light-emitting parts contained in a light source from which these parts can be removed for verification as a light source		N/A
1.1.3	Product with one of following optical characteristics (not fulfill the definition of control gear) (point (2) of Article 2 of (EU) 2019/2020)		N/A
(a)	Is a power supply within the scope of Commission Regulation (EC) No 278/2009		N/A
(b)	Is a lighting control parts or non-lighting parts (as defined in Annex I), although such parts may be physically integrated with a control gear or marketed together as a single product		N/A

Clause	Requirement + Test	Result - Remark	Verdict
(c)	'Power-over-Ethernet switch or' or 'PoE switch', which means equipment for power-supply and data-handling that is installed between the mains and office equipment and/or light sources for the purpose of data transfer and power supply		N/A
1.2	Exemptions product (point 1 and 2 of Annex III of (EU) 2019/2020)		N/A
1.2.1	This Regulation shall not apply to light sources and separate control gears specifically tested and approved to operate:		N/A
(a)	in potentially explosive atmospheres, as defined in Directive 2014/34/EU of the European Parliament and of the Council		N/A
(b)	for emergency use, as set out in Directive 2014/35/EU of the European Parliament and of the Council		N/A
(c)	in radiological and nuclear medicine installations that are subject to radiation safety standards as set out in Council Directive 2013/59/EURATOM		N/A
(d)	in or on military or civil defence establishments, equipment, ground vehicles, marine equipment or aircraft, as set out in Member States' regulations or in documents issued by the European Defence Agency		N/A
(e)	in or on motor vehicles, their trailers and systems, interchangeable towed equipment, components and separate technical units as set out in Regulation (EC) No 661/2009, (EU) No 167/2013 and (EU) No 168/2013 of the European Parliament and of the Council		N/A
(f)	in or on non-road mobile machinery as set out in Regulation (EU) 2016/1628 of the European Parliament and of the Council and in or on their trailers		N/A
(g)	in or on interchangeable equipment as set out in Directive 2006/42/EC of the European Parliament and of the Council intended to be towed or to be mounted and fully raised from the ground or that cannot articulate around a vertical axis when the vehicle to which it is attached is in use on a road by vehicles as set out in Regulation (EU) No 167/2013		N/A
(h)	in or on civil aviation aircraft, as set out in Commission Regulation (EU) No 748/2012		N/A
(i)	in railway vehicle lighting, as set out in Directive 2008/57/EC of the European Parliament and of the Council		N/A

Clause	Requirement + Test	Result - Remark	Verdict
(j)	in marine equipment, as set out in Directive 2014/90/EU of the European Parliament and of the Council		N/A
(k)	in medical devices, as set out in Council Directive 93/42/EEC or Regulation (EU) 2017/745 of the European Parliament and of the Council and in vitro medical devices as set out in Directive 98/79/EC of the European Parliament and of the Council		N/A
1.2.2	In addition, this Regulation shall not apply to		N/A
(a)	double-capped fluorescent T5 light sources with power P ≤ 13 W		N/A
(b)	electronic displays (e.g. televisions, computer monitors, notebooks, tablets, mobile phones, e-readers, game consoles), including displays within the scope of Commission Regulation (EU) 2019/2021 (15), and Commission Regulation (EU) No 617/2013		N/A
(c)	light sources and separate control gears in battery-operated products, including but not limited to e.g. torches, mobile phones with an integrated torch light, toys including light sources, desk lamps operating only on batteries, armband lamps for cyclists, solar-powered garden lamps		N/A
(d)	light sources for spectroscopy and photometric applications, such as for example UV-VIS spectroscopy, molecular spectroscopy, atomic absorption spectroscopy, nondispersive infrared (NDIR), fourier-transform infrared (FTIR), medical analysis, ellipsometry, layer thickness measurement, process monitoring or environ-mental monitoring		N/A
(e)	light sources and separate control gears on bicycles and other non-motorised vehicles		N/A
2	**Regulation (EU) 2019/2020 – special purpose products**		P
2.1	Any light source or separate control gear within the scope of this Regulation shall be exempt from the requirements of this Regulation, with the exception of the information requirements set out in point 3(e) of Annex II, if they are specifically designed and marketed for their intended use in at least one of the following applications (point 3 of Annex III of (EU) 2019/2020)		P
(a)	signalling (including, but not limited to, road-, railway-, marine- or air traffic-signalling, traffic control or airfield lamps)		N/A

Clause	Requirement + Test	Result - Remark	Verdict
(b)	image capture and image projection (including, but not limited to, photocopying, printing (directly or in preprocessing), lithography, film and video projection, holography)		N/A
(c)	light sources with specific effective ultraviolet power > 2 mW/klm and intended for use in applications requiring high UV-content		N/A
(d)	light sources with a peak radiation around 253,7 nm and intended for germicidal use (destruction of DNA)		N/A
(e)	light sources emitting 5 % or more of total radiation power of the range 250-800 nm in the range of 250-315 nm and/or 20 % or more of total radiation power of the range 250-800 nm in the range of 315-400 nm, and intended for disinfection or fly trapping		N/A
(f)	light sources with the primary purpose of emitting radiation around 185,1 nm and intended to be used for the generation of ozone		N/A
(g)	light sources emitting 40 % or more of total radiation power of the range 250-800 nm in the range of 400-480 nm, and intended for coral zooxanthellae symbioses		N/A
(h)	FL light sources emitting 80 % or more of total radiation power of the range 250-800 nm in the range of 250-400 nm, and intended for sun-tanning		N/A
(i)	HID light sources emitting 40 % or more of total radiation power of the range 250-800 nm in the range of 250-400 nm, and intended for sun-tanning		N/A
(j)	light sources with a photosynthetic efficacy > 1,2 µ mol/J, and/or emitting 25 % or more of total radiation power of the range 250-800 nm in the range of 700-800 nm, and intended for use in horticulture		N/A
(k)	HID light sources with correlated colour temperature CCT > 7 000 K and intended for use in applications requiring such a high CCT		N/A
(l)	light sources with a beam angle of less than 10 ° and intended for spot-lighting applications requiring a very narrow light beam		N/A

Clause	Requirement + Test	Result - Remark	Verdict
(m)	halogen light sources with cap-type G9.5, GX9.5, GY9.5, GZ9.5, GZX9.5, GZY9.5, GZZ9.5, K39d, G9.5HPL, G16d, GES/E40 (low voltage (24V) silver crown only), GX16, GX16d, GY16, G22, G38, GX38, GX38Q, P28s, P40s, PGJX28, PGJX 36, PGJX50, R7s with a luminous flux > 12 000 lm, QXL, designed and marketed specifically for scene-lighting use in film studios, TV studios, and photographic studios, or for stage-lighting use in theatres, discos and during concerts or other entertainment events		N/A
(n)	colour-tuneable light sources that can be set to at least the colours listed in this point and which have for each of these colours, measured at the dominant wavelength, a minimum excitation purity of: Blue: 440nm-490nm: 90% Green: 520nm-570nm: 65% Red: 610nm-670nm: 95% and are intended for use in applications requiring high-quality coloured light		P
(o)	light sources accompanied by an individual calibration certificate detailing the exact radiometric flux and/or spectrum under specified conditions, and intended for use in photometric calibration (of e.g. wavelength, flux, colour temperature, colour rendering index), or for laboratory use or quality control applications for the evaluation of coloured surfaces and materials under standard viewing conditions (e.g. standard illuminants)		N/A
(p)	light sources provided specifically for use by photosensitive patients, to be sold in pharmacies and other authorized selling points (e.g. suppliers of disability products), upon presentation of a medical prescription		N/A
(q)	incandescent light sources (not including halogen light sources) fulfilling all of the following conditions: power ⩽ 40 W, length ⩽ 60 mm, diameter ⩽ 30 mm, declared suitable for operation at ambient temperature ⩾ 300 ° C, and intended for use in high temperature applications such as ovens		N/A

Clause	Requirement + Test	Result - Remark	Verdict
(r)	halogen light sources fulfilling all of the following conditions: cap-type G4, GY6.35 or G9, power ⩽ 60 W, declared suitable for operation at ambient temperature ⩾ 300 ° C, and intended for use in high temperature applications such as ovens		N/A
(s)	incandescent light sources with blade contact-, metal lug-, cable-, litz wire-, metric thread-, pin base- or non-standard customised electrical interface, encasing made from quartz-glass tubes, specifically designed and exclusively marketed for industrial or professional electro-heating equipment (such as stretch blow-moulding process in PET-Industry, 3D-printing, photovoltaic and electronic manufacturing processes, drying or hardening of adhesives, inks, paints or coatings)		N/A
(t)	halogen light sources fulfilling all of the following conditions: R7s cap, CCT ⩽ 2 500 K, length not in the ranges 75-80 mm and 110-120 mm, specifically designed and marketed for industrial or professional electroheating equipment (e.g. stretch blow-moulding process in PET-Industry, 3D-printing, gluing, inks, paint and coating hardening)		N/A
(u)	single capped fluorescent lamps (CFLni) having a diameter of 16 mm (T5), 2G11 4 pin base, with CCT = 3 200 K and chromaticity coordinates x = 0,415 y = 0,377, or with CCT = 5 500 K and chromaticity coordinates x = 0,330 y = 0,335, specifically designed and marketed for studio and video applications for traditional filmmaking		N/A
(v)	LED or OLED light sources, complying with the definition of ‘ original works of art ’ as defined in Directive 2001/84/EC of the European Parliament and of the Council , made by the artist him/herself in a **limited number below 10 pieces**		N/A
(w)	white light sources that:		N/A
(1)	are specifically designed and exclusively marketed for scene-lighting use in film-studios, TV-studios and locations, and photographic-studios and locations, or for stage-lighting use in theatres, during concerts or other entertainment events		N/A

Clause	Requirement + Test	Result - Remark	Verdict
	And that:		-
(2)	meet at least one of the following specifications:		N/A
(I)	LED with power ⩾ 100 W and CRI > 90		N/A
(II)	GES/E40, K39d socket with changeable Colour Temperature down to 1 800 K (undimmed), used with low voltage power supply		N/A
(III)	LED with power ⩾ 180 W and arranged to direct output to an area smaller than the light emitting surface		N/A
(IV)	Incandescent light source that is DWE type and has 650 W power, 120 V voltage and pressure screw terminal		N/A
(V)	LED with power ⩾ 100 W that allows the user to set different correlated colour temperatures for the emitted light		N/A
(VI)	LFL T5 with G5 cap with CRI ⩾ 85 and CCT 2 900, 3 000, 3 200, 5 600 or 6 500 K		N/A
(x)	incandescent DLS fulfilling all of the following conditions: E27 cap, clear envelope, power ⩾ 100 W and ⩽ 400 W, CCT ⩽ 2 500 K, specifically designed and exclusively marketed for infrared heating		N/A
2.2	CLS and CSCG designed and marketed specifically for scene-lighting use in film-studios, TV-studios and locations, and photographic studios and locations, or for stage-lighting use in theatres, discos and during concerts or other entertainment events, for connection to high speed control networks (utilising signalling rates of 250 000 bits per second and higher) in always-listening mode, shall be exempt from the requirements on standby (P_{sb}) and on networked standby (P_{net}) of points 1(a) and 1(b) of Annex II. (point 4 of Annex III of (EU) 2019/2020)		N/A

Clause	Requirement + Test	Result - Remark	Verdict
2.3	Light sources specifically designed and exclusively marketed for use in products in the scope of Commission Regulations 2019/2023, 2019/2022, 932/2012 and 2019/2019, shall be exempt from the requirements regarding lumen maintenance factor and survival factor set out in point 2 Table 4 of Annex II, and from the lifetime information requirement set out in point 3(b)(1)(e) of Annex II. (point 5 of Annex III of (EU) 2019/2020)		N/A
3	Information requirments according to point 3 (2)(e) of Annex II for products specified in point 3 of Annex III of (EU) 2019/2020		P
	For the light sources and separate control gears specified in point 3 of Annex III the intended purpose shall be stated in the technical documentation for compliance assessment as per Article 5 of this Regulation and on all forms of packaging, product information and advertisement, together with an explicit indication that the light source or separate control gear is not intended for use in other applications		N/A
	The technical documentation file drawn up for the purposes of conformity assessment, in accordance with Article 5 of this Regulation shall list the technical parameters that make the product design specific to qualify for the exemption		P
	In particular for light sources indicated in point 3(p) of Annex III it shall be stated: ‘ This light source is only for use by photo sensitive patients. Use of this light source will lead to increased energy cost compared to an equivalent more energy efficient product. ’		N/A
4	Circumvention (Article 7 of EU 2019/2020)		P

Clause	Requirement + Test	Result - Remark	Verdict
	The manufacturer, importer or authorised representative shall not place on the market products designed to be able to detect they are being tested (e.g. by recognising the test conditions or test cycle), and to react specifically by automatically altering their performance during the test with the aim of reaching a more favourable level for any of the parameters declared by the manufacturer, importer or authorised representative in the technical documentation or included in any of the documentation provided.		P
	The energy consumption of the product and any of the other declared parameters shall not deteriorate after a software or firmware update when measured with the same test standard originally used for the declaration of conformity, except with explicit consent of the end-user prior to the update.		N/A
	A software update shall never have the effect of changing the product's performance in a way that makes it non- compliant with the ecodesign requirements applicable for the declaration of conformity.		N/A
5	**Regulation (EU) 2019/2015 – Exempted products**		N/A
5.1	Product does not meet a definition of point (1) of Article 2 of (EU) 2019/2015		N/A
5.1.1	Is a product with one of following optical characteristics (not fulfill the definition of light source) (point (1) of Article 2 of (EU) 2019/2015)		N/A
(a)	chromaticity coordinates x and y are **<u>not</u>** in the range: 0,270 < x < 0,530 and $-2{,}3172\,x^2 + 2{,}3653\,x - 0{,}2199 < y < -2{,}3172\,x^2 + 2{,}3653\,x - 0{,}1595$		N/A
(b)	a luminous flux ≥ 500 lumen per mm^2 of projected light-emitting surface area as defined in Annex I		N/A
(c)	a luminous flux < 60 or > 82 000 lumen		N/A
(d)	a colour rendering index (CRI) = 0		N/A
5.1.2	Product does have one of following characteristics (not fulfill the definition of light source)(point (1) of Article 2 of (EU) 2019/2015)		N/A
(a)	LED dies or LED chips		N/A
(b)	LED packages		N/A

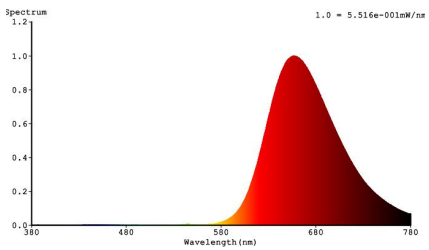
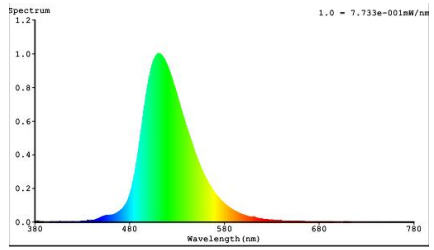
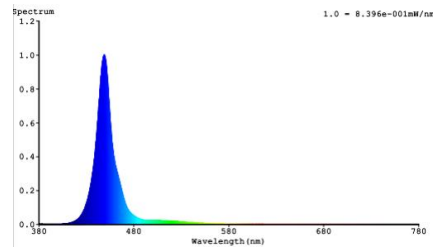
Clause	Requirement + Test	Result - Remark	Verdict
(c)	products containing light source(s) from which these light source(s) can be removed for verification		N/A
(d)	light-emitting parts contained in a light source from which these parts can be removed for verification as a light source		N/A
5.2	Exemptions product (point 1 and 2 of Annex IV of (EU) 2019/2015)		N/A
5.2.1	This Regulation shall not apply to light sources specifically tested and approved to operate:		N/A
(a)	in radiological and nuclear medicine installations that are subject to radiation safety standards as set out in Council Directive 2013/59/Euratom		N/A
(b)	for emergency use		N/A
(c)	in or on military or civil defence establishments, equipment, ground vehicles, marine equipment or aircraft as set out in Member States' regulations or in documents issued by the European Defence Agency		N/A
(d)	in or on motor vehicles, their trailers and systems, interchangeable towed equipment, components and separate technical units, as set out in Regulation (EC) No 661/2009 of the European Parliament and of the Council, Regulation (EU) No 167/2013 of the European Parliament and of the Council and Regulation (EU) No 168/2013 of the European Parliament and of the Council		N/A
(e)	in or on non-road mobile machinery as set out in Regulation (EU) 2016/1628 of the European Parliament and of the Council and in or on their trailers		N/A
(f)	in or on interchangeable equipment as set out in Directive 2006/42/EC of the European Parliament and of the Council intended to be towed or to be mounted and fully raised from the ground or that cannot articulate around a vertical axis when the vehicle to which it is attached is in use on a road by vehicles as set out in Regulation (EU) No 167/2013		N/A
(g)	in or on civil aviation aircraft as set out in Commission Regulation (EU) No 748/2012		N/A
(h)	in railway vehicle lighting as set out in Directive 2008/57/EC of the European Parliament and of the Council		N/A

Clause	Requirement + Test	Result - Remark	Verdict
(i)	in marine equipment as set out in Directive 2014/90/EU of the European Parliament and of the Council		N/A
(j)	in medical devices as set out in Council Directive 93/42/EEC or Regulation (EU) 2017/745 of the European Parliament and of the Council and in vitro medical devices as set out in Directive 98/79/EC of the European Parliament and of the Council		N/A
5.2.2	In addition, this Regulation shall not apply to		N/A
(a)	electronic displays (e.g. televisions, computer monitors, notebooks, tablets, mobile phones, e-readers, game consoles), including but not limited to displays within the scope of Commission Regulation (EU) 2019/2021 and of Commission Regulation (EU) No 617/2013		N/A
(b)	light sources in range hoods within the scope of Commission Delegated Regulation (EU) No 65/2014		N/A
(c)	light sources in battery-operated products, including but not limited to e.g. torches, mobile phones with an integrated torch light, toys including light sources, desk lamps operating only on batteries, armband lamps for cyclists, solar-powered garden lamps		N/A
(d)	light sources on bicycles and other non-motorised vehicles		N/A
(e)	light sources for spectroscopy and photometric applications, such as for example UV-VIS spectroscopy, molecular spectroscopy, atomic absorption spectroscopy, nondispersive infrared (NDIR), fourier-transform infrared (FTIR), medical analysis, ellipsometry, layer thickness measurement, process monitoring or environmental monitoring		N/A
6	**Regulation (EU) 2019/2015 – special purpose products**		N/A
6.1	Any light source within the scope of this Delegated Regulation shall be exempt from the requirements of this Regulation, with the exception of the requirements set out in point 4 of Annex V, if it is specifically designed and marketed for its intended use in at least one of the following applications (point 3 of Annex IV of (EU) 2019/2015)		N/A
(a)	signalling (including, but not limited to, road-, railway-, marine- or air traffic-signalling, traffic control or airfield lamps)		N/A

Clause	Requirement + Test	Result - Remark	Verdict
(b)	image capture and image projection (including, but not limited to, photocopying, printing (directly or in preprocessing), lithography, film and video projection, holography)		N/A
(c)	light sources with specific effective ultraviolet power > 2 mW/klm and intended for use in applications requiring high UV-content		N/A
(d)	light sources with a peak radiation around 253,7 nm and intended for germicidal use (destruction of DNA)		N/A
(e)	light sources emitting 5 % or more of total radiation power of the range 250-800 nm in the range of 250-315 nm and/or 20 % or more of total radiation power of the range 250-800 nm in the range of 315-400 nm, and intended for disinfection or fly trapping		N/A
(f)	light sources with the primary purpose of emitting radiation around 185,1 nm and intended to be used for the generation of ozone		N/A
(g)	light sources emitting 40 % or more of total radiation power of the range 250-800 nm in the range of 400-480 nm, and intended for coral zooxanthellae symbioses		N/A
(h)	FL light sources emitting 80 % or more of total radiation power of the range 250-800 nm in the range of 250-400 nm, and intended for sun-tanning		N/A
(i)	HID light sources emitting 40 % or more of total radiation power of the range 250-800 nm in the range of 250-400 nm, and intended for sun-tanning		N/A
(j)	light sources with a photosynthetic efficacy > 1,2 µ mol/J, and/or emitting 25 % or more of total radiation power of the range 250-800 nm in the range of 700-800 nm, and intended for use in horticulture		N/A
(k)	LED or OLED light sources, complying with the definition of ‘ original works of art ’ as defined in Directive 2001/84/EC of the European Parliament and of the Council, made by the artist him/herself in a limited number below 10 pieces		N/A

Clause	Requirement + Test	Result - Remark	Verdict
(l)	Incandescent light sources with blade contact-, metal lug-, cable-, litz wire-, metric thread-, pin base- or non-standard customised electrical interface, encasing made from quartz-glass tubes, specifically designed and exclusively marketed for industrial or professional electro-heating equipment (e.g. stretch blow-moulding process in PET-Industry, 3D-printing, photovoltaic and electronic manufacturing processes, drying or hardening of adhesives, inks, paints or coatings)		N/A
6.2	Light sources specifically designed and exclusively marketed for products in the scope of Commission Regulations (EU) 2019/2023, (EU) 2019/2022, (EU) No 932/2012 and (EU) 2019/2019, shall be exempt from the requirements of points 1(e)(7b), 1(e)(7c) and 1(e)(7d) of Annex VI to this Regulation (point 4 of Annex IV of (EU) 2019/2015)		N/A
7	Information requirments according to point 4 of Annex V for products specified in point 3 of Annex IV of (EU) 2019/2015		N/A
	For the light sources specified in point 3 of Annex IV, their intended use shall be stated on all forms of packaging, product information and advertisement, together with a clear indication that the light source is not intended for use in other applications		N/A
	The technical documentation file drawn up for the purposes of conformity assessment, in accordance with paragraph 3 of Article 3 of Regulation (EU) 2017/1369 shall list the technical parameters that make the product design specific to qualify for the exemption		N/A

Table 1	**Test data**		
Model:	NL73K1E20		
Voltage (VAC):	230	Frequency (Hz):	50
Φ_{use} measured at:	--	Ambient (T/rh) (°C / %):	25.1 / 55

Test item	R	G	B	Limit
x	0.6916	0.1933	0.1556	--
y	0.3037	0.6263	0.0394	--
dominant wavelength	622.6nm	522.6nm	457.5nm	*1
excitation purity	98.6%	65.3%	95.6%	*1
Spectral distribution				--

Limit: *1

colour-tuneable light sources that can be set to at least the colours listed in this point and which have for each of these colours, measured at the dominant wavelength, a minimum excitation purity of:

Blue	440nm — 490nm	90 %
Green	520nm — 570nm	65 %
Red	610nm — 670nm	95 %

Attachment 1: Equipment List

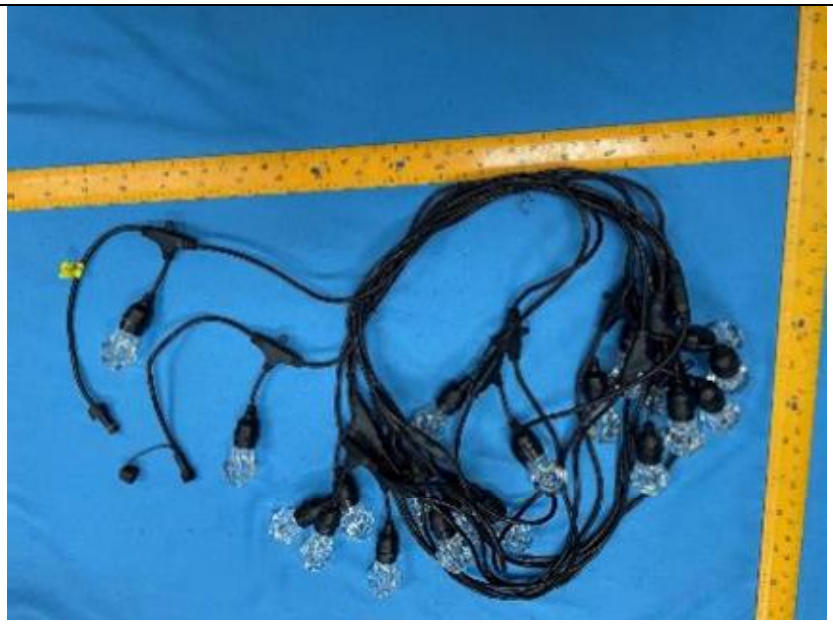
Equipment	ID No.	Model	Brand/Manufacturer	Calibration due date
Temperature and Humidity meter	68-1-53-19-034	L92-1	LUGE	2024-07-29
Wind Speed Meter	68-1-11-15-004	Testo 417	Testo	2024-10-24
Integrating sphere test system	68-1-44-11-011	CSLMS-7621	Labsphere	2025-01-31
DIGITAL POWER METER	68-1-32-06-009	WT210	YOKOGAWA	2024-11-15

Attachment 2: photo document

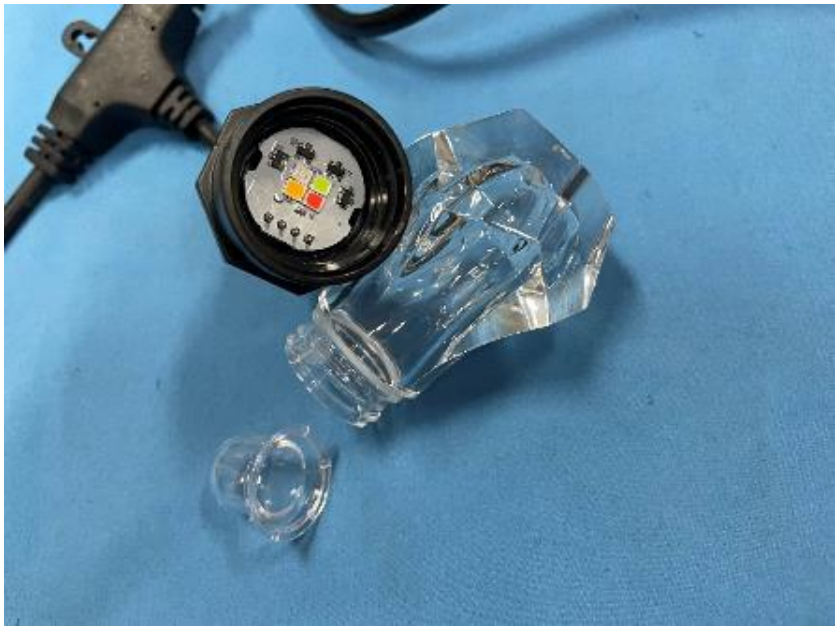
Details of: Outlook for all models

Representative model NL73K1L20

Details of: Strip light view for all models



Details of: LED lamp internal view



- - End of report - -