TEST REPORT

Report Number	:	HA0122NB020322SFO-R1
Applicant's name	:	Ningbo Zhongdi Industry & Trade Co., Ltd
Applicant's address	:	Jishigang Industry Zone, Haishu District, Ningbo 315171, P. R. China
Name of manufacturer	:	Ningbo Zhongdi Industry & Trade Co., Ltd
Address of manufacturer	:	Jishigang Industry Zone, Haishu District, Ningbo 315171, P. R. China
Name of factory (ies)	:	Ningbo Zhongdi Industry & Trade Co., Ltd
Address of factory (ies)	:	Jishigang Industry Zone, Haishu District, Ningbo 315171, P. R. China
Product Name	:	Magnifying Lamp
Trade Mark(s)	:	ZD
Model No.	:	ZD-129A LED, ZD-129 LED, ZD-129B LED, ZD-140 LED, ZD-140A LED, ZD-142B, ZD-142A;
Total number of pages	:	21 pages
Standard	:	COMMISSION REGULATION (EU) 2019/2020 laying down ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012
Date of Receipt	:	February 10, 2022
Date of Test	:	February 15, 2022 to July 15, 2022
Place of test	:	Ningbo HATEK Co., Ltd.
Date of issue	:	March 07, 2023
Test Report Form No.	:	HATEK_(EU) 2019/2020A
Test Result	:	Pass*

Prepared By:

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Prepared by:

Locker Jiang

Locker Jiang / Project Engineer

Reviewed by:

Miranda Mo

Miranda Mo / Technical Manager

Declare value description	
Rated voltage and frequency ..... :	DC 48V
Rated wattage..... :	12W
Nominal luminous flux Φ ..... :	1500lm
Declared ηTM (lm/W) ..... :	125 lm/W
Declare Energy efficiency class ..... :	E
Declared Colour rendering (CRI) ..... :	≥80
Declared Displacement factor for LED and OLED MLS(DF) ..... :	≥0.5
Declared Lumen maintenance factor for LED and OLED ..... :	96,0%
Declared Survival factor for LED and OLED ..... :	≥90%
Declared colour consistency for LED and OLED..... :	≤6
Type of product..... :	☒Light ☒Separate Control Gear ☐Containing Product
Declared beam angle for DLS..... :	N/A (Non directional light)
Lighting technology used .... :	LED
Non-directional or directional..... ..... :	NDLS
Light source cap-type..... :	Lead wire
Mains or non-mains ..... :	NMLS
Connected light source (CLS)..... :	No
Colour-tuneable light source ..... :	No
Envelope..... :	No
High luminance light source ..... :	No
Anti-glare shield..... :	No
Dimmable ..... :	No
Declared lamp life ..... :	30000H
Declared color temperature..... :	6500K
Declared Flicker for LED and OLED MLS :	≤1,0
Declared Stroboscopic effect for LED and OLED MLS :	≤0,4

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)

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General product information:

The products were LED Luminaire, IP20, Class II, LED module was used as light source.

All models are the same, the difference is model name and bracket.

Remark：Revise 1 report (HA0122NB020322SFO)

Add a new driver,as same as the input and output of old driver, except components and parts on PCB board.

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ANNEX II: Ecodesign requirements			
Test item	Requirement + Test	Result - Remark	Verdict
1.Energy efficiency requirements:			
(a): Light source	From 1 September 2021, the declared power consumption of a light source Pon shall not exceed the maximum allowed power Ponmax (in W), defined as a function of the declared useful luminous flux Φuse (in lm) and the declared colour rendering index CRI (-) as follows: Ponmax= Cx(L+ Φuse/(Fxη))xR		☒ P ☐ F ☐ N/A ☐ Under testing
	The standby power Psb of a light source shall not exceed 0,5 W.		☐ P ☐ F ☒ N/A ☐ Under testing
	The networked standby power Pnet of a connected light source shall not exceed 0,5 W. The allowable values for Psb and Pnet shall not be added together.		☐ P ☐ F ☒ N/A ☐ Under testing
(b): Control gear	From 1 September 2021, the values set in Table 3 for the minimum energy efficiency requirements of a separate control gear operating at full-load shall apply: Details see Table 3: Minimum energy efficiency for separate control gear at full-load		☐ P ☐ F ☒ N/A ☐ Under testing
	The no-load power Pno of a separate control gear shall not exceed 0,5 W. This applies only to separate control gear for which the manufacturer or importer has declared in the technical documentation that it has been designed for no-load mode.		☒ P ☐ F ☐ N/A ☐ Under testing
	The standby power Psb of a separate control gear shall not exceed 0,5 W.		☒ P ☐ F ☐ N/A ☐ Under testing
2.Functional requirements:			
	From 1 September 2021, the functional requirements specified in Table 4 shall apply for light sources: Table 4: Functional requirements for light sources		☒ P ☐ F ☐ N/A ☐ Under testing

ANNEX II: Ecodesign requirements			
Test item	Requirement + Test	Result - Remark	Verdict
Colour rendering	CRI ⩾ 80 (except for HID with Φuse > 4 klm and for light sources intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a CRI< 80, when a clear indication to this effect is shown on the light source packaging and in all relevant printed and electronic documentation)		☒ P ☐ F ☐ N/A ☐ Under testing
Displacement factor (DF, cos φ1) at power input Pon for LED and OLED MLS	No limit at P on ⩽ 5 W, DF ⩾ 0,5 at 5 W < P on ⩽ 10 W, DF ⩾ 0,7 at 10 W < P on ⩽ 25 W DF ⩾ 0,9 at 25 W < P on		☒ P ☐ F ☐ N/A ☐ Under testing
Lumen maintenance factor (for LED and OLED)	The lumen maintenance factor X_{LMF} % after endurance testing according to Annex V shall be at least $X_{LMF,MIN}$ % calculated as follows: $X_{LMF,MIN}\% = 100 \times e^{\frac{(3000 \times \ln(0.7))}{L_{70}}}$ where L70 is the declared $L_{70}B_{50}$ lifetime (in hours) If the calculated value for $X_{LMF,MIN}$ exceeds 96,0 %, an $X_{LMF,MIN}$ value of 96,0 % shall be used		☒ P ☐ F ☐ N/A ☐ Under testing
Survival factor (for LED and OLED)	Light sources should be operational as specified in row 'Survival factor (for LED and OLED)' of Annex IV, Table 6, following the endurance testing given in Annex V.		☒ P ☐ F ☐ N/A ☐ Under testing
Colour consistency for LED and OLED light sources	Variation of chromaticity coordinates within a six-step MacAdam ellipse or less.		☒ P ☐ F ☐ N/A ☐ Under testing
Flicker for LED and OLED MLS	Pst LM ≤ 1,0 at full-load		☐ P ☐ F ☒ N/A ☐ Under testing

ANNEX II: Ecodesign requirements			
Test item	Requirement + Test	Result - Remark	Verdict
Stroboscopic effect for LED and OLED MLS	SVM ≤ 0,9 at full-load (except for light sources intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a CRI < 80) From 1 September 2024: SVM ≤ 0,4 at full-load (except for light sources intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a CRI < 80)'		☐ P ☐ F ☒ N/A ☐ Under testing
3.Information requirements:			
	From 1 September 2021 the following information requirements shall apply: (a) Information to be displayed on the light source itself (b) Information to be visibly displayed on the packaging (c) Information to be visibly displayed on a free-access website of the manufacturer, importer or authorized representative (d) Technical documentation (e) Information for products specified in point 3 of Annex III		☐ P ☐ F ☐ N/A ☒ Not checked

Table 1: Initial test results

Model: ZD-129A LED		Test Result					P
Sample No.	Measured voltage(V)	Measured current (mA)	Measured Pon(W)	Initial Ponmax	Initial Φuse (lm)	CCT	Beam angle (°)
1#	48.00	250.0	12.000	14.533	1510.10	6708	--
2#	48.00	237.0	11.376	13.857	1431.50	6652	--
3#	48.00	242.0	11.616	14.313	1484.50	6659	--
4#	48.00	249.0	11.952	14.582	1516.80	6627	--
5#	48.00	250.0	12.000	14.719	1529.70	6744	--
6#	48.00	246.0	11.808	14.492	1501.20	6392	--
7#	48.00	259.0	12.432	14.394	1491.90	6679	--
8#	48.00	254.0	12.192	14.521	1506.60	6744	--
9#	48.00	253.0	12.144	14.062	1450.40	6726	--
10#	48.00	252.0	12.096	14.365	1488.50	6674	--
Average	48.00	249.2	11.962	14.384	1491.12	6661	--
Sample No.	Colour rendering (CRI)	Displacement factor (DF)	Colour consistency	Flicker(Pst LM)	Stroboscopic effect(SVM)		--
1#	85.1	1.00	4.2	--	--		--
2#	85.1	1.00	3.7	--	--		--
3#	85.1	1.00	4.0	--	--		--
4#	85.0	1.00	3.5	--	--		--
5#	85.3	1.00	5.0	--	--		--
6#	85.5	1.00	3.7	--	--		--
7#	85.3	1.00	4.2	--	--		--
8#	85.3	1.00	4.9	--	--		--
9#	85.6	1.00	5.2	--	--		--
10#	85.3	1.00	4.2	--	--		--
Average	85.3	1.00	4.3	--	--		--
Required	**CRI≥80**	**≥ 0,5**	**SDCM≤6**	**Pst LM≤1,0**	**SVM≤0,4**		--

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Table 2: Test results of survival factor, Lumen maintenance and Energy efficiency classes

Model: IN001101	Test Result					P
Sample No.	Initial ηTM (lm/W)	Test Energy efficiency class	Declare Energy efficiency class	3600H Φuse (lm)	XLMF,MIN% at 3600H(%)	Survival factor at 3600H
1#	116.53	E	E	1496.00	99.07%	100%
2#	116.52	E	E	1414.20	98.79%	100%
3#	118.34	E	E	1425.10	96.00%	100%
4#	117.52	E	E	1463.10	96.46%	100%
5#	118.04	E	E	1484.50	97.05%	100%
6#	117.73	E	E	1451.10	96.66%	100%
7#	111.12	E	E	1460.20	97.88%	100%
8#	114.43	E	E	1476.30	97.99%	100%
9#	110.60	E	E	1402.30	96.68%	100%
10#	113.95	E	E	1432.90	96.26%	100%
Average	115.48	E	E	1450.57	97.28%	100%
Required	--	**--**	**--**	--	≥96.00	**≥90%**

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Table 3: Test results of No-load power (Pno), Standby power (Psb), Networked standby power (Pnet) and energy efficiency for control gear

--		Test Result						P
Sample No.	Measured voltage(V)	Measured current (mA)	Input wattage (W)	Output wattage (W)	Energy efficiency	Pno (W)	Psb (W)	Pnet (W)
1#	230	85	15.29	12.000	78.48%	0.48	--	--
2#	230	83	14.54	11.376	78.24%	0.47	--	--
3#	230	84	15.18	11.616	76.52%	0.46	--	--
Average	**230**	**84**	**15.00**	**11.664**	**77.75%**	**0.47**	--	--
Required	--	--	--	--	**72.96%**	--	--	--

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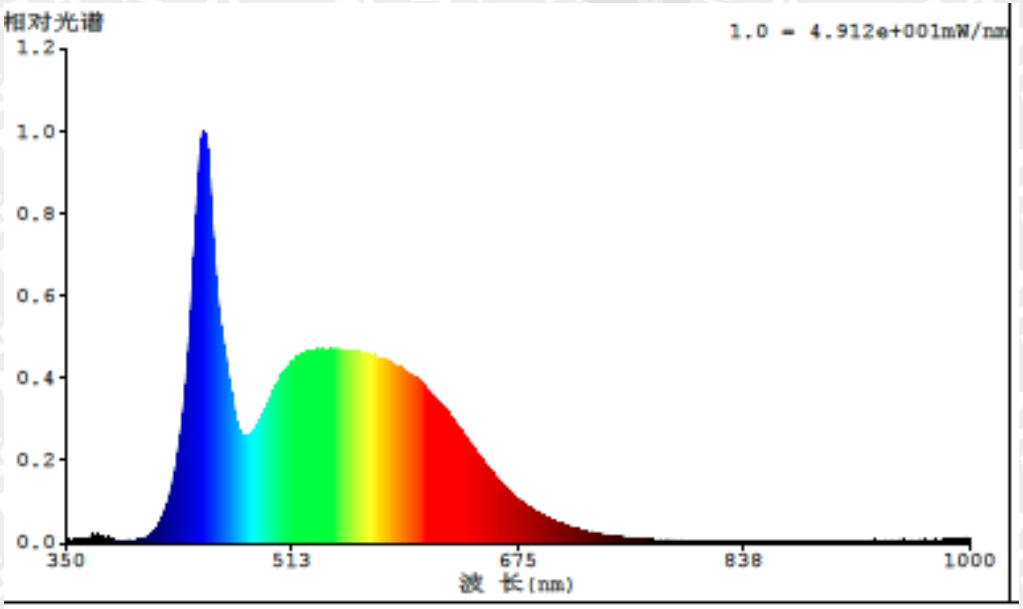
Table 4: Spectrum

IN001101: 1#



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COMMISSION REGULATION (EU) 2019/2020:

3. Information requirements

From 1 September 2021 the following information requirements shall apply:

(a) Information to be displayed on the light source itself

For all light sources, except CTLS, LFL, CFLni, other FL, and HID, the value and physical unit of the useful luminous flux (lm) and correlated colour temperature (K) shall be displayed in a legible font on the surface if, after the inclusion of safety-related information, there is sufficient space available for it without unduly obstructing the light emission.

For directional light sources, the beam angle (°) shall also be indicated.

If there is room for only two values, the useful luminous flux and the correlated colour temperature shall be displayed. If there is room for only one value, the useful luminous flux shall be displayed.

(b) Information to be visibly displayed on the packaging

(1) Light source placed on the market, not in a containing product

If a light source is placed on the market, not in a containing product, in a packaging containing information to be visibly displayed at a point-of-sale prior to its purchase, the following information shall be clearly and prominently displayed on the packaging:

(a) the useful luminous flux (Φuse) in a font at least twice as large as the display of the on-mode power (Pon), clearly indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°);

(b) the correlated colour temperature, rounded to the nearest 100 K, also expressed graphically or in words, or the range of correlated colour temperatures that can be set;

(c) the beam angle in degrees (for directional light sources), or the range of beam angles that can be set;

(d) electrical interface details, e.g. cap- or connector-type, type of power supply (e.g. 230 V AC 50 Hz, 12 V DC);

(e) the L70B50 lifetime for LED and OLED light sources, expressed in hours;

(f) the on-mode power (Pon), expressed in W;

(g) the standby power (Psb), expressed in W and rounded to the second decimal. If the value is zero, it may be omitted from the packaging;

(h) the networked standby power (Pnet) for CLS, expressed in W and rounded to the second decimal. If the value is zero, it may be omitted from the packaging;

(i) the colour rendering index, rounded to the nearest integer, or the range of CRI-values that can be set;

(j) if CRI< 80, and the light source is intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a CRI< 80, a clear indication to this effect. For HID light sources with useful luminous flux > 4 000 lm, this indication is not mandatory;

(k) if the light source is designed for optimum use in non-standard conditions (such as ambient

temperature Ta ≠ 25 ° C or specific thermal management is necessary): information on those conditions;

(l) a warning if the light source cannot be dimmed or can be dimmed only with specific dimmers or with specific wired or wireless dimming methods. In the latter cases a list of compatible dimmers and/or methods shall be provided on the manufacturer's website;

(m) if the light source contains mercury: a warning of this, including the mercury content in mg rounded to the first decimal place;

(n) if the light source is within the scope of Directive 2012/19/EU, without prejudice to marking obligations pursuant to Article 14(4) of Directive 2012/19/EU, or contains mercury: a warning that it shall not be disposed of as unsorted municipal waste.

Items (a) to (d) shall be displayed on the packaging in the direction meant to face prospective buyer; for other items this is also recommended, if space permits.

For light sources that can be set to emit light with different characteristics, the information shall be reported for the reference control settings. In addition, a range of obtainable values may be indicated.

The information does not need to use the exact wording on the list above. Alternatively, it may be displayed in the form of graphs, drawings or symbols.

(2) Separate control gears:

If a separate control gear is placed on the market as a stand-alone product and not as a part of a containing product, in a packaging containing information to be visibly displayed to potential buyers, prior to their purchase, the following information shall be clearly and prominently displayed on the packaging:

(a) the maximum output power of the control gear (for HL, LED and OLED) or the power of the light source for which the control gear is intended (for FL and HID);

(b) the type of light source(s) for which it is intended;

(c) the efficiency in full-load, expressed in percentage;

(d) the no-load power (Pno), expressed in W and rounded to the second decimal, or the indication that the gear is not intended to operate in no-load mode. If the value is zero, it may be omitted from the packaging but shall nonetheless be declared in the technical documentation and on websites;

(e) the standby power (Psb), expressed in W and rounded to the second decimal. If the value is zero, it may be omitted from the packaging but shall nonetheless be declared in the technical documentation and on websites;

(f) where applicable, the networked standby power (Pnet), expressed in W and rounded to the second decimal. If the value is zero, it may be omitted from the packaging but shall nonetheless be declared in the technical documentation and on websites;

(g) a warning if the control gear is not suitable for dimming of light sources or can be used only with specific types of dimmable light sources or using specific wired or wireless dimming methods. In the latter cases, detailed information on the conditions in which the control gear can be used for

dimming shall be provided on the manufacturer's or importer's website;

(h) a QR-code redirecting to a free-access website of the manufacturer, importer or authorised representative, or the internet address for such a website, where full information on the control gear can be found.

The information does not need to use the exact wording on the list above. Alternatively, it may be displayed in the form of graphs, drawings or symbols.

(c) Information to be visibly displayed on a free-access website of the manufacturer, importer or authorised representative

(1) Separate control gears:

For any separate control gear that is placed on the EU market, the following information shall be displayed on at least one free-access website:

(a) the information specified in point 3(b)(2), except 3(b)(2)(h);

(b) the outer dimensions in mm;

(c) the mass in grams of the control gear, without packaging, and without lighting control parts and non-lighting parts, if any and if they can be physically separated from the control gear;

(d) instructions on how to remove lighting control parts and non-lighting parts, if any, or how to switch them off or minimise their power consumption during control-gear testing for market surveillance purposes;

(e) if the control gear can be used with dimmable light sources, a list of minimum characteristics that the light sources should have to be fully compatible with the control gear during dimming, and possibly a list of compatible dimmable light sources;

(f) recommendations on how to dispose of it at the end of its life in line with Directive 2012/19/EU.

The information does not need to use the exact wording in the list above. Alternatively, it may be displayed in the form of graphs, drawings or symbols.

(d) Technical documentation

(1) Separate control gears:

The information specified in point 3(c)(1) of this Annex shall also be contained in the technical documentation file drawn up for the purposes of conformity assessment pursuant to Article 8 of Directive 2009/125/EC.';

(e) Information for products specified in point 3 of Annex III

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.

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.

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.'

Article 4 Removal of light sources and separate control gears

1. Manufacturers, importers or authorised representatives of containing products shall ensure that light sources and separate control gears can be replaced with the use of common available tools and without permanent damage to the containing product, unless a technical justification related to the functionality of the containing product is provided in the technical documentation explaining why the replacement of light sources and separate control gear is not appropriate.

   The technical documentation shall also provide instructions on how light sources and separate control gears can be removed without being permanently damaged for verification purposes by market surveillance authorities.

2. Manufacturers, importers or authorised representatives of containing products shall provide information about the replaceability or non-replaceability of light sources and control gears by end-users or qualified persons without permanent damage to the containing product. Such information shall be available on a free-access website. For products sold directly to end-users, this information shall be on the packaging, at least in the form of a pictogram, and in the user instructions.

3. Manufacturers, importers or authorised representatives of containing products shall ensure that light sources and separate control gears can be dismantled from containing products at end of life. Dismantling instructions shall be available on a free access website.

COMMISSION DELEGATED REGULATION (EU) 2019/2015:

ANNEX V: Product information

1. Product information sheet

1.1. Pursuant to point 1(b) of Article 3, the supplier shall enter into the product database the information as set out in Table 3, including when the light source is a part in a containing product. Details see table 3: Product information sheet.

For light sources that can be tuned to emit light at full-load with different characteristics, the values of parameters that vary with these characteristics shall be reported at the reference control settings.

If the light source is no longer placed on the EU market, the supplier shall put in the product database the date (month, year) when the placing on the EU market stopped.

2. Information to be displayed in the documentation for a containing product

If a light source is placed on the market as a part in a containing product, the technical documentation for the containing product shall clearly identify the contained light source(s), including the energy efficiency class.

If a light source is placed on the market as a part in a containing product, the following text shall be displayed, clearly legible, in the user manual or booklet of instructions:

"This product contains a light source of energy efficiency class <X>",
where <X> shall be replaced by the energy efficiency class of the contained light source.

If the product contains more than one light source, the sentence can be in the plural, or repeated per light source, as suitable.

3. Information to be displayed on the supplier's free access website:

(a) The reference control settings, and instructions on how they can be implemented, where applicable;

(b) Instructions on how to remove lighting control parts and/or non-lighting parts, if any, or how to switch them off or minimize their power consumption;

(c) If the light source is dimmable: a list of dimmers it is compatible with, and the light source — dimmer compatibility standard(s) it is compliant with, if any;

(d) If the light source contains mercury: instructions on how to clean up the debris in case of accidental breakage;

(e) Recommendations on how to dispose of the light source at the end of its life in line with Directive 2012/19/EU of the European Parliament and of the Council (1).

4. Information for products specified in point 3 of Annex IV

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.

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.

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Table 5: Equipment list		
No.	Series No.	Name
1	HP8000LED	Integrating Sphere
2	2006321	Standard Light Source
3	2006322	High accuracy array spectroradiometer
4	1909199	Temp. & Humidity recorder
5	2006324	Stroboscope
6	2006325	LED drive power comprehensive energy meter
7	2006326	AC power supply
8	2006327	Digital Power Meter
9	HC8033870	Temp. & Humidity recorder
Remark: all test equipments calibration was valid during testing.		

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PHOTO DOCUMENTATION

Photo 1

Model: ZD-129A LED
Description: Overall view

Photo 2

Model: ZD-129A LED
Description: LED module view

PHOTO DOCUMENTATION

Photo 3

Model: ZD-129A LED
Description:The one of LED driver view

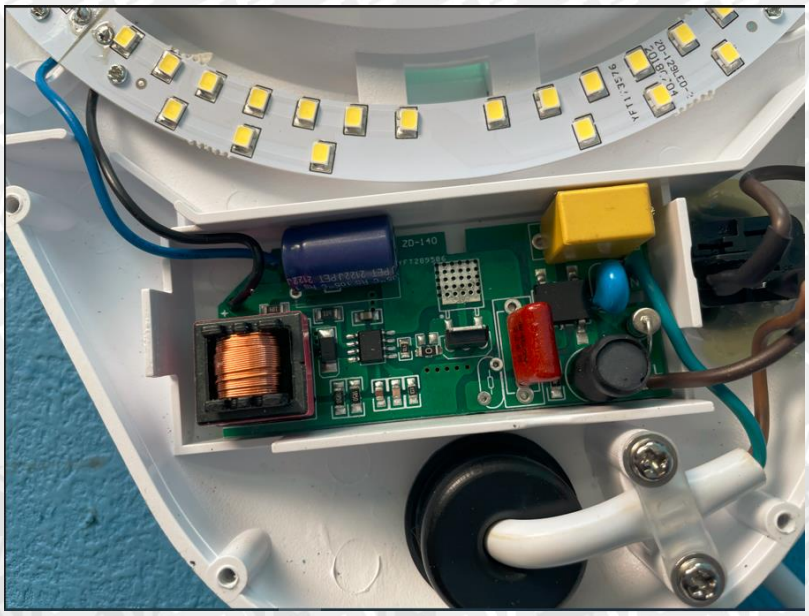

Photo 4

Model: ZD-129A LED
Description: The one of LED driver view

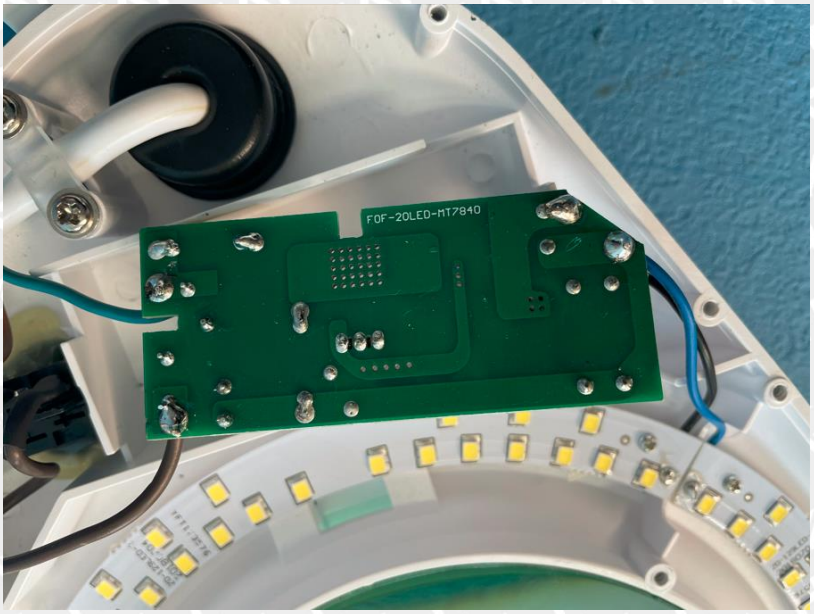

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PHOTO DOCUMENTATION

Photo 5

Model: ZD-129A LED
Description:The anther one of LED driver view

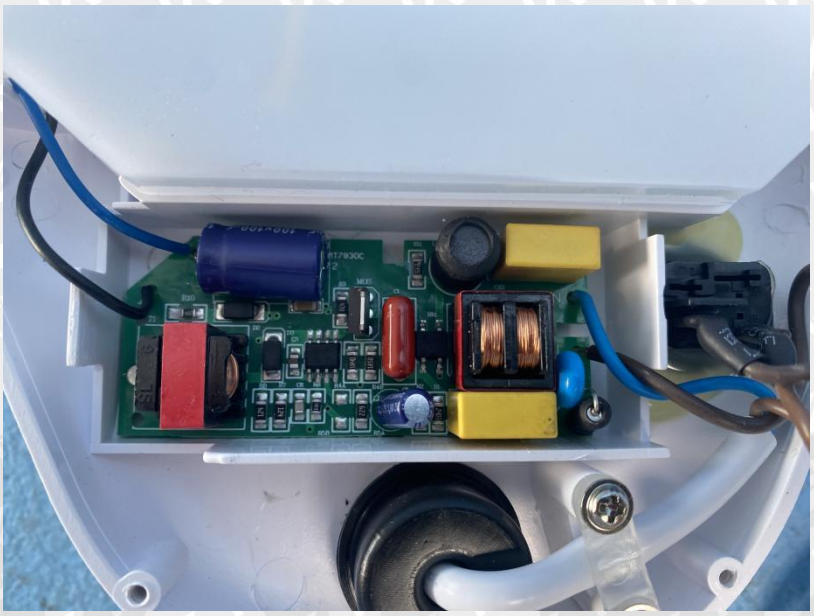
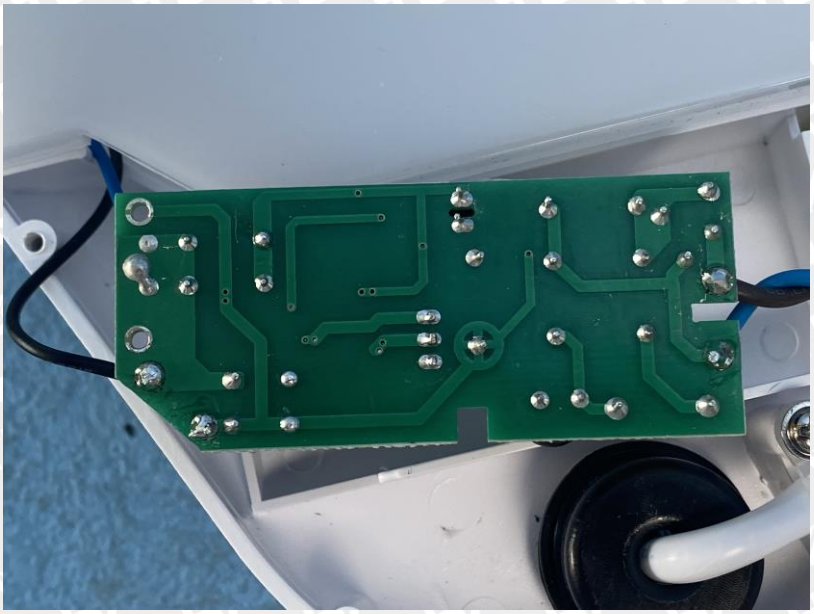


Photo 6

Model: ZD-129A LED
Description: The anther one of LED driver view



===== End of report =====

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